Lab Code: 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

ITALCOM GROUP

1728 Coral Way, Coral Gables, Miami, Florida, United States

FCC ID: YPVITALCOMTIKX2

Report Type:	**Product Type:**
Original Report	Mobile Phone

Test Engineer:	Jimmy Xiao
Report Number:	RSZ111202006-00AWiFi
Report Date:	2012-02-21
Reviewed By:	Merry Zhao EMC Engineer
Test Laboratory:	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 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ITALCOM GROUP*'s product, model number: *tikx2 (FCC ID: YPVITALCOMTIKX2)* or the "EUT" in this report is a *Mobile Phone,* which was measured approximately: 11.5 cm (L) x 6.1 cm (W) x 1.3 cm (H), rated input voltage: DC 3.7V battery or DC 5V from adapter for charging.

Adapter Information:
MODELO: tlkx2
ENTRADA: 100-240VAC 50/60 Hz 0.15A
SALIDA: 5.0V 500mA

Frequency Range:
Cellular Band: 824-849 MHz (Tx), 869-894 MHz (Rx)
PCS Band: 1850-1910 MHz (Tx), 1930-1990 MHz (Rx)
Bluetooth: 2402-2480 MHz (Tx/ Rx)
WiFi: 2412-2462MHz (Tx/ Rx)

Modulation Mode: GMSK (Cellular/PCS); GFSK, π/4-DQPSK, 8DPSK (Bluetooth); DSSS/OFDM (WiFi)

Transmitter Output Power:
Cellular Band: 32.24 dBm (Conducted output power)
PCS Band: 29.30 dBm (Conducted output power)
Bluetooth: 8.15 dBm (Conducted output power)
WiFi: 802.11b: 16.07dBm; 802.11g: 12.89 dBm (Conducted output power)

** All measurement and test data in this report was gathered from production sample serial number: 1111086 (Assigned by BACL, Shenzhen). The EUT was received on 2011-12-02.*

Objective

This report is prepared on behalf of *ITALCOM GROUP* 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 15B JBP, Part 15.247 DSS (Bluetooth) and FCC Part 22H&24E PCE submission with FCC ID: YPVITALCOMTIKX2.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, 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.

The uncertainty of any RF tests which use conducted method measurement is ±0.96 dB, the uncertainty of any radiation on emissions measurement is 4.0 dB

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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 an ISO/IEC 17025 accredited laboratory, and is accredited by 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.

The worst case data rate is determined with the data rate with highest output power. For 802.11b mode: 1 Mbps data rate was chosen for full testing. For 802.11g mode: 6 Mbps data rate was chosen for full testing.

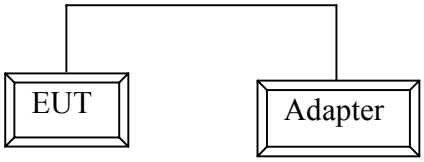
EUT Exercise Software

WiFi test

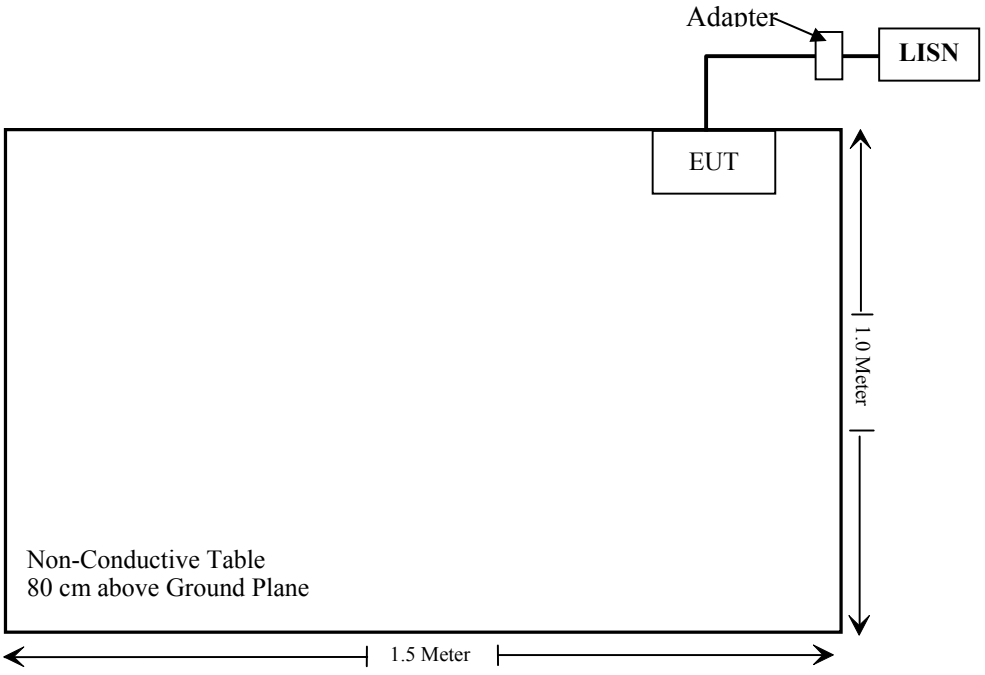
Equipment Modifications

No modification was made to the EUT tested.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1091	Maximum Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Terminal	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions(30MHz-25GHz)	Compliance
§15.247 (a)(2)	6 dB Emission 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

§15.247 (i) and §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

1) GSM can transmit simultaneously with Bluetooth or WiFi antenna.
2) The distance between BT and GSM antenna is 7.1cm > 5cm, BT and WiFi antenna is 9.1cm>5cm.The max output power of Bluetooth antenna is 6.53mW [8.15dBm] < $2P_{Ref}$(24mW).
3) According to KDB648474, stand-alone SAR is not required for BT antenna and simultaneous SAR evaluation is not required for Bluetooth with GSM or WiFi antenna.
4) The distance between WiFi and GSM antenna is 0.2cm<2.5cm. The max output power of WiFi antenna is 40.46mW [16.07dBm] >P_{Ref}(12mW).The max SAR of GSM is 1.270W/Kg, the max SAR of WiFi is 0.216W/Kg. According to KDB648474, stand-alone SAR is required for WiFi antenna and simultaneous SAR evaluation is not required for WiFi with GSM antenna

Result: Compliant

Please refer to the SAR report, report number. RSZ111202006-20

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the 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 four spring contact leg antennas, one is for Bluetooth, the gain is -2.0dBi; one is for GSM/PCS, the gain of PCS is 0.6dBi and that of GSM is 1.0 dBi; one is for WiFi, the gain is -1.0dBi; one is for GPS receiving, the gain is 0dBi. All antennas are permanently attached, which are in accordance to section 15.203, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE 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 CISPR 16-4-4, 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 (k=2, 95% level of confidence).
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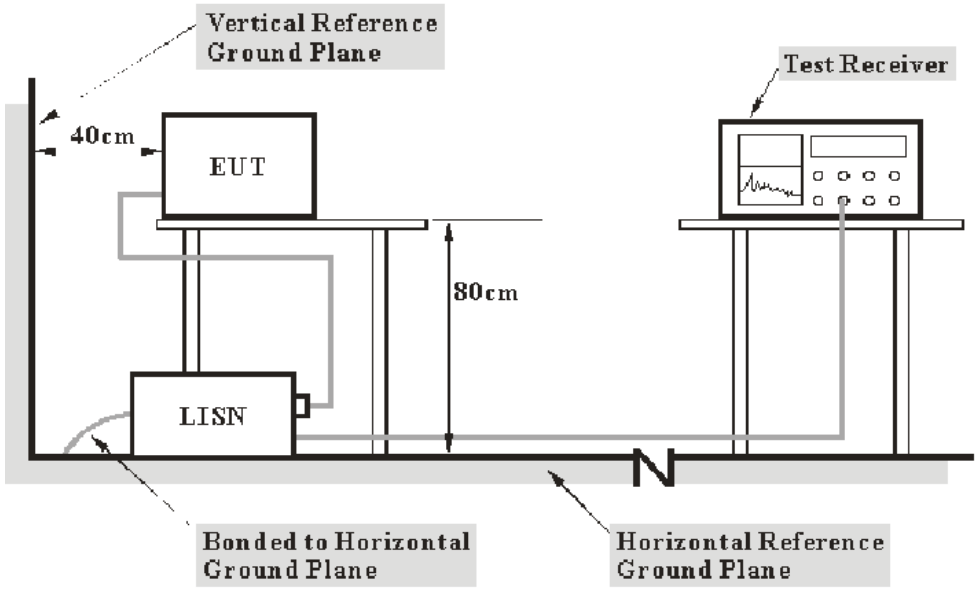
EUT Setup



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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

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 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2011-07-08	2012-07-07

*** 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 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:

21.59 dB at **0.190 MHz** in the **Neutral** conducted mode

Test Data

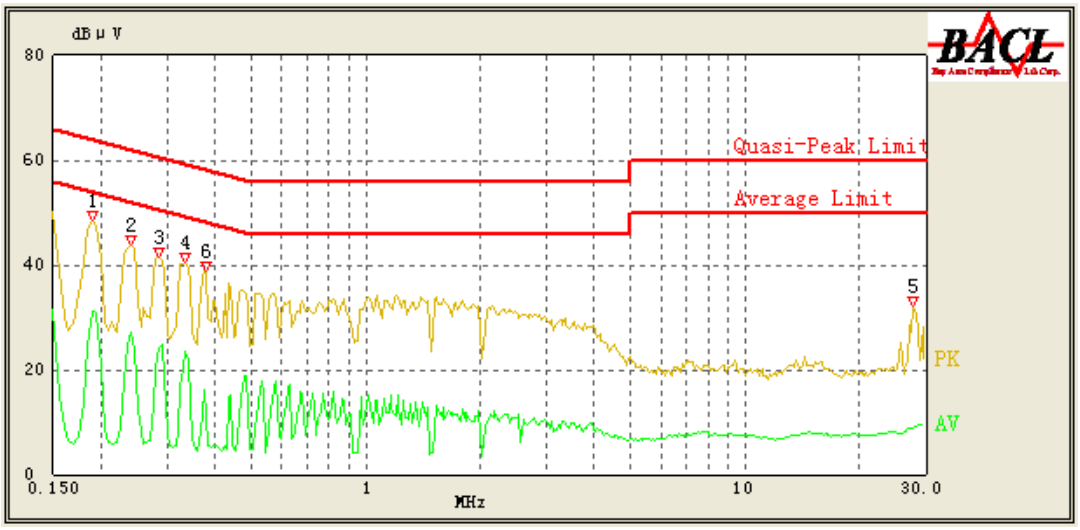
Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-12-12.

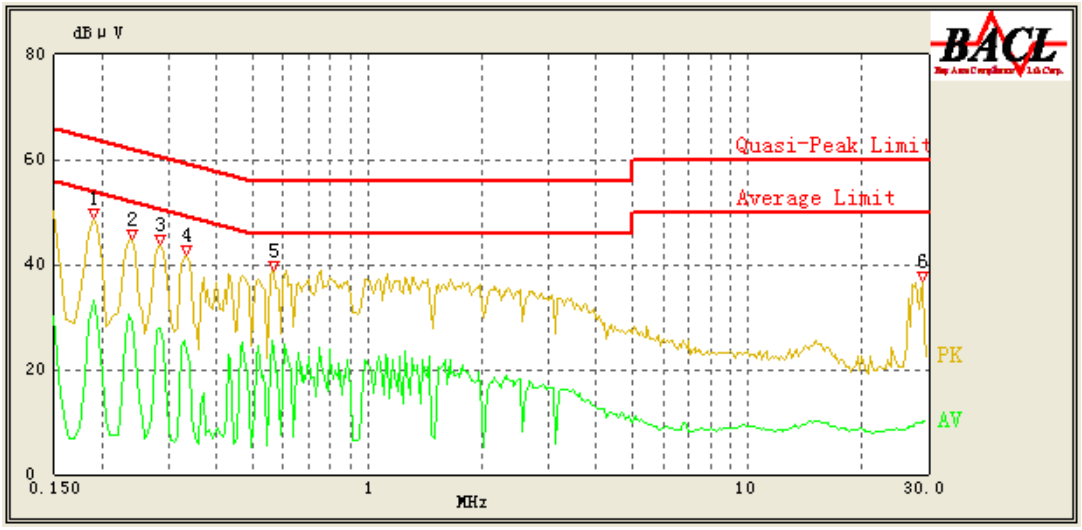
Test Mode: Transmitting

AC 120 V, 60 Hz, Line:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Amplitude (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/ QP/Ave.)**
0.190	42.20	10.23	64.86	22.66	QP
0.190	31.18	10.23	54.86	23.68	Ave.
0.240	38.81	10.23	63.43	24.62	QP
0.380	33.56	10.23	59.43	25.87	QP
0.335	34.83	10.23	60.71	25.88	QP
0.240	27.23	10.23	53.43	26.20	Ave.
0.285	35.82	10.23	62.14	26.32	QP
0.335	23.38	10.23	50.71	27.33	Ave.
0.285	24.19	10.23	52.14	27.95	Ave.
0.380	11.57	10.23	49.43	37.86	Ave.
27.920	9.24	12.82	50.00	40.76	Ave.
27.725	13.24	12.78	60.00	46.76	QP

AC 120V, 60 Hz, Neutral:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Amplitude (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/ QP/Ave.)**
0.190	33.27	10.23	54.86	21.59	Ave.
0.565	24.25	10.23	46.00	21.75	Ave.
0.190	41.54	10.23	64.86	23.32	QP
0.285	27.98	10.23	52.14	24.16	Ave.
0.240	28.84	10.23	53.43	24.59	Ave.
0.285	37.12	10.23	62.14	25.02	QP
0.240	37.66	10.23	63.43	25.77	QP
0.335	34.83	10.23	60.71	25.88	QP
0.335	23.54	10.23	50.71	27.17	Ave.
0.565	27.03	10.23	56.00	28.97	QP
28.790	9.76	13.00	50.00	40.24	Ave.
28.820	13.93	13.00	60.00	46.07	QP

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

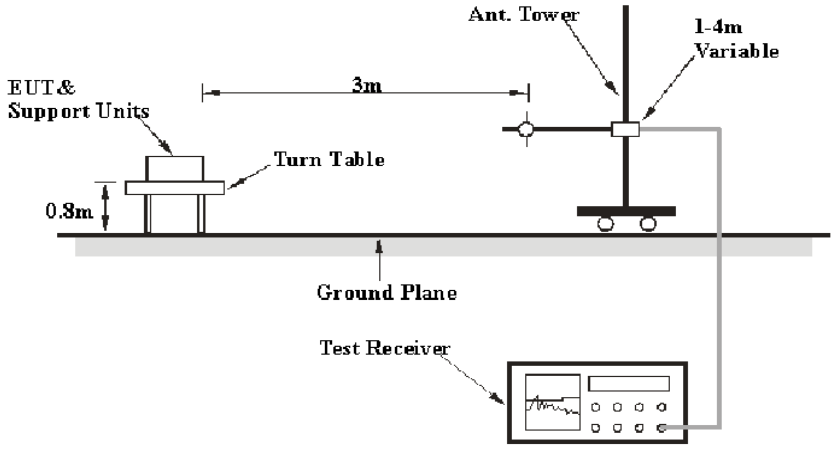
Measurement Uncertainty

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.

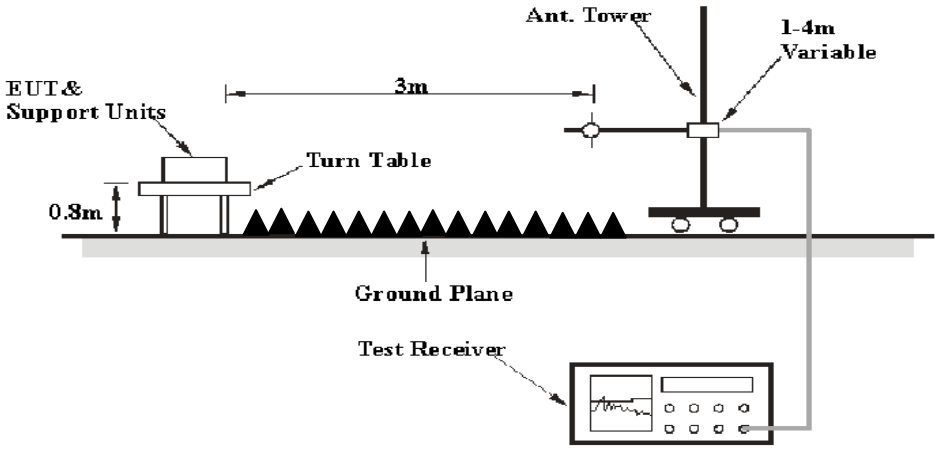
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB(k=2, 95% level of confidence) .

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters 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 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 Procedure

During the radiated emission test, the adapter was connected to the outlet of the floor.

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-10
HP	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Electro-Mechanics	Horn Antenna	3116	9510-2270	2011-10-11	2012-10-10
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07

*** 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 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, 15.209 and 15.247, with the worst margin reading of:

8.93 dB at **7236 MHz** in the **Horizontal** polarization for low channel 801.11b mode

Test Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-12-14.

Test Mode: Transmitting

30 MHz ~ 25GHz:

802.11b Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
2412	100.26	PK	250	1.3	H	30.5	3.03	26.83	106.96	/	/	Fund.
2412	91.61	Ave.	250	1.3	H	30.5	3.03	26.83	98.31	/	/	Fund.
2412	100.07	PK	150	1.8	V	30.2	3.03	26.83	106.47	/	/	Fund.
2412	91.52	Ave.	150	1.8	V	30.2	3.03	26.83	97.92	/	/	Fund.
7236	27.49	Ave.	210	1.0	H	39	5.22	26.64	45.07	54	8.93	harmonic
4824	31.55	Ave.	250	1.4	H	33.9	4.30	26.81	42.94	54	11.06	harmonic
7236	25.97	Ave.	190	1.8	V	37.7	5.22	26.64	42.25	54	11.75	harmonic
4824	30.68	Ave.	130	1.2	V	33.8	4.30	26.81	41.97	54	12.03	harmonic
3234	25.34	Ave.	320	1.4	H	32.2	3.49	26.88	34.15	54	19.85	spurious
7236	35.11	PK	210	1.0	H	39	5.22	26.64	52.69	74	21.31	harmonic
7236	34.52	PK	190	1.8	V	37.7	5.22	26.64	50.80	74	23.20	spurious
4824	38.06	PK	250	1.4	H	33.9	4.30	26.81	49.45	74	24.55	harmonic
4824	37.01	PK	130	1.2	V	33.8	4.30	26.81	48.30	74	25.70	harmonic
2370	20.37	Ave.	240	2.1	H	29.5	2.98	26.83	26.02	54	27.98	spurious
2389	19.77	Ave.	160	1.5	H	29.6	2.98	26.83	25.52	54	28.48	spurious
2361	20.04	Ave.	130	1.3	V	28.7	2.98	26.83	24.89	54	29.11	spurious
3234	31.16	PK	320	1.4	H	32.2	3.49	26.88	39.97	74	34.03	harmonic
2370	30.05	PK	240	2.1	H	29.5	2.98	26.83	35.70	74	38.30	spurious
2389	29.16	PK	160	1.5	H	29.6	2.98	26.83	34.91	74	39.09	spurious
2361	29.31	PK	130	1.3	V	28.7	2.98	26.83	34.16	74	39.84	spurious
Middle Channel (2437 MHz)												
2437	101.28	PK	310	1.4	H	30.6	3.08	26.83	108.13	/	/	Fund.
2437	93.04	Ave.	310	1.4	H	30.6	3.08	26.83	99.89	/	/	Fund.
2437	102.38	PK	150	1.6	V	30.5	3.08	26.83	109.13	/	/	Fund.
2437	93.22	Ave.	150	1.6	V	30.5	3.08	26.83	99.97	/	/	Fund.
7311	25.62	Ave.	310	2.0	H	39.0	5.09	26.64	43.07	54	10.93	harmonic
7311	24.88	Ave.	260	1.9	V	37.7	5.09	26.64	41.03	54	12.97	spurious
4874	28.55	Ave.	150	1.3	V	34.1	4.35	26.78	40.22	54	13.78	harmonic
4874	26.09	Ave.	210	1.1	H	34.3	4.35	26.78	37.96	54	16.04	harmonic
3389	23.45	Ave.	150	1.4	H	32.4	3.50	26.87	32.48	54	21.52	spurious
7311	34.29	PK	310	2.0	H	39.0	5.09	26.64	51.74	74	22.26	harmonic
7311	33.19	PK	260	1.9	V	37.7	5.09	26.64	49.34	74	24.66	harmonic
4874	37.59	PK	150	1.3	V	34.1	4.35	26.78	49.26	74	24.74	harmonic
4874	35.81	PK	210	1.1	H	34.3	4.35	26.78	47.68	74	26.32	harmonic
3389	30.76	PK	150	1.4	H	32.4	3.50	26.87	39.79	74	34.21	harmonic

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
High Channel (2462 MHz)												
2462	100.35	PK	160	1.1	H	30.8	3.11	26.83	107.43	/	/	Fund.
2462	91.71	Ave.	160	1.1	H	30.8	3.11	26.83	98.79	/	/	Fund.
2462	99.84	PK	250	1.3	V	30.6	3.11	26.83	106.72	/	/	Fund.
2462	92.17	Ave.	250	1.3	V	30.6	3.11	26.83	99.05	/	/	Fund.
7386	26.79	Ave.	190	1.6	V	37.7	5.02	26.64	42.87	54	11.13	spurious
4924	28.01	Ave.	240	1.5	H	34.6	4.39	26.75	40.25	54	13.75	harmonic
4924	27.77	Ave.	160	1.8	V	34.3	4.39	26.75	39.71	54	14.29	harmonic
7386	35.42	PK	250	1.0	H	39.0	5.02	26.64	52.80	74	21.20	harmonic
3297	24.19	Ave.	160	1.2	V	31.5	3.49	26.88	32.30	54	21.70	harmonic
7386	34.16	PK	190	1.6	V	37.7	5.02	26.64	50.24	74	23.76	spurious
4924	36.12	PK	240	1.5	H	34.6	4.39	26.75	48.36	74	25.64	harmonic
4924	36.41	PK	160	1.8	V	34.3	4.39	26.75	48.35	74	25.65	harmonic
2484	19.94	Ave.	0	1.6	H	30.5	3.14	26.86	26.72	54	27.28	spurious
2496	20.16	Ave.	230	1.4	V	29.6	2.98	26.83	25.91	54	28.09	spurious
2493	19.37	Ave.	50	2.0	V	29.0	3.14	26.86	24.65	54	29.35	spurious
3297	32.55	PK	160	1.2	V	31.5	3.49	26.88	40.66	74	33.34	spurious
2484	33.82	PK	0	1.6	H	30.5	3.14	26.86	40.60	74	33.40	harmonic
2493	33.49	PK	50	2.0	V	29.0	3.14	26.86	38.77	74	35.23	spurious
2496	29.37	PK	230	1.4	V	29.6	2.98	26.83	35.12	74	38.88	spurious
7386	27.11	Ave.	250	1.0	H	39.0	5.02	26.64	44.49	54	9.51	harmonic

802.11g Mode:

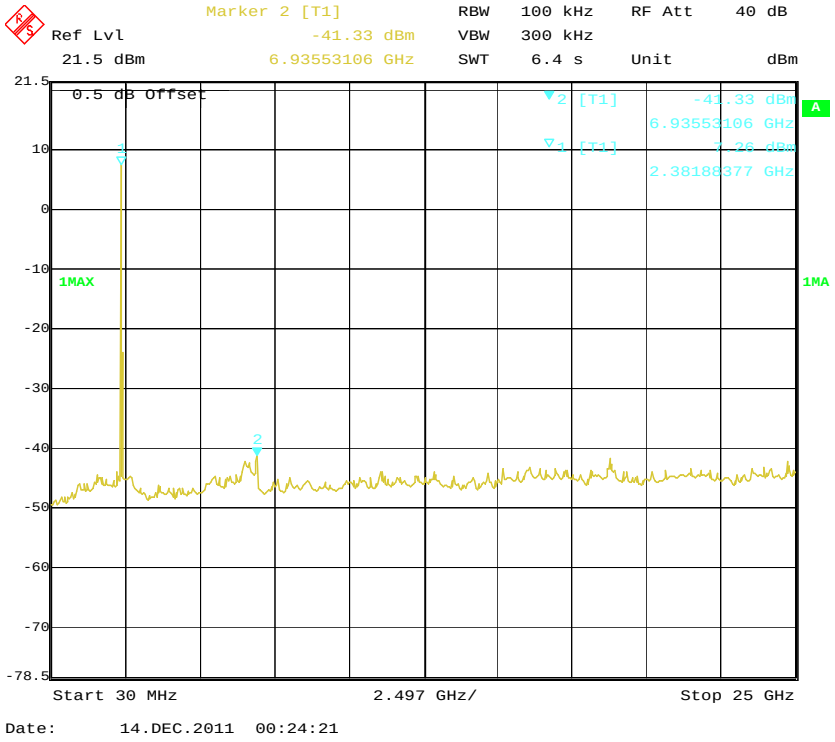
Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
2412	100.26	PK	150	1.3	H	30.5	3.03	26.83	107.49	/	/	Fund.
2412	91.61	Ave.	150	1.3	H	30.5	3.03	26.83	98.91	/	/	Fund.
2412	101.01	PK	180	1.7	V	30.2	3.03	26.83	107.41	/	/	Fund.
2412	90.75	Ave.	180	1.7	V	30.2	3.03	26.83	97.15	/	/	Fund.
7236	20.19	Ave.	300	1.1	H	39	5.22	26.64	37.77	54	16.23	harmonic
7235	19.98	Ave.	150	1.1	V	37.7	5.22	26.64	36.26	54	17.74	harmonic
4824	21.41	Ave.	150	1.9	H	33.9	4.3	26.81	32.8	54	21.20	harmonic
7236	34.22	PK	300	1.1	H	39	5.22	26.64	51.8	74	22.20	harmonic
4824	20.35	Ave.	360	1.3	V	33.8	4.3	26.81	31.64	54	22.36	harmonic
7235	35.11	PK	150	1.1	V	37.7	5.22	26.64	51.39	74	22.61	harmonic
3230	20.06	Ave.	240	1.8	H	32.2	3.49	26.88	28.87	54	25.13	spurious
4824	35.42	PK	150	1.9	H	33.9	4.3	26.81	46.81	74	27.19	harmonic
4824	35.22	PK	360	1.3	V	33.8	4.3	26.81	46.51	74	27.49	harmonic
2388	19.82	Ave.	180	1.9	H	30.1	2.99	26.84	26.07	54	27.93	spurious
2369	18.76	Ave.	360	1.8	H	30.6	2.98	26.83	25.51	54	28.49	spurious
2374	19.04	Ave.	260	1.4	V	28.9	2.99	26.84	24.09	54	29.91	spurious
3230	32.96	PK	240	1.8	H	32.2	3.49	26.88	41.77	74	32.23	spurious
2388	34.34	PK	180	1.9	H	30.1	2.99	26.84	40.59	74	33.41	spurious
2369	33.16	PK	360	1.8	H	30.6	2.98	26.83	39.91	74	34.09	spurious
2374	32.21	PK	260	1.4	V	28.9	2.99	26.84	37.26	74	36.74	spurious
Middle Channel (2437 MHz)												
2437	100.71	PK	310	1.4	H	30.6	3.08	26.83	107.56	/	/	Fund.
2437	91.57	Ave.	310	1.4	H	30.6	3.08	26.83	98.42	/	/	Fund.
2437	100.2	PK	260	1.8	V	30.5	3.08	26.83	106.95	/	/	Fund.
2437	91.56	Ave.	260	1.8	V	30.5	3.08	26.83	98.31	/	/	Fund.
7312	20.06	Ave.	320	1.5	H	39.0	5.09	26.64	37.51	54	16.49	harmonic
7316	19.67	Ave.	150	1.2	V	37.7	5.09	26.64	35.82	54	18.18	harmonic
4874	20.14	Ave.	290	1.9	H	34.3	4.35	26.78	32.01	54	21.99	harmonic
4874	20.08	Ave.	360	2.0	V	34.1	4.35	26.78	31.75	54	22.25	harmonic
7312	32.34	PK	320	1.5	H	39.0	5.09	26.64	49.79	74	24.21	harmonic
7316	33.19	PK	150	1.2	V	37.7	5.09	26.64	49.34	74	24.66	harmonic
4874	33.74	PK	290	1.9	H	34.3	4.35	26.78	45.61	74	28.39	harmonic
3370	16.49	Ave.	120	1.6	V	31.6	3.50	26.87	24.72	54	29.28	spurious
4874	32.39	PK	360	2.0	V	34.1	4.35	26.78	44.06	74	29.94	harmonic
3370	29.31	PK	120	1.6	V	31.6	3.50	26.87	37.54	74	36.46	spurious

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
High Channel (2462 MHz)												
2462	102.04	PK	160	1.1	H	30.8	3.11	26.83	109.12	/	/	Fund.
2462	92.45	Ave.	160	1.1	H	30.8	3.11	26.83	99.53	/	/	Fund.
2462	101.55	PK	250	1.3	V	30.6	3.11	26.83	108.43	/	/	Fund.
2462	92.73	Ave.	250	1.3	V	30.6	3.11	26.83	99.61	/	/	Fund.
7386	18.34	Ave.	300	1.9	H	39.0	5.02	26.64	35.72	54	18.28	harmonic
7390	19.22	Ave.	150	1.1	V	37.7	5.02	26.64	35.30	54	18.70	harmonic
4924	19.94	Ave.	140	1.8	H	34.6	4.39	26.75	32.18	54	21.82	harmonic
4924	19.37	Ave.	79	1.2	V	34.3	4.39	26.75	31.31	54	22.69	harmonic
7386	32.66	PK	300	1.9	H	39.0	5.02	26.64	50.04	74	23.96	harmonic
7390	31.46	PK	150	1.1	V	37.7	5.02	26.64	47.54	74	26.46	harmonic
2484	20.29	Ave.	190	1.6	H	30.5	3.14	26.86	27.07	54	26.93	spurious
2484	39.62	PK	190	1.6	H	30.5	3.14	26.86	46.40	74	27.60	spurious
2495	19.42	Ave.	75	1.0	H	30.6	3.11	26.88	26.25	54	27.75	spurious
4924	33.82	PK	140	1.8	H	34.6	4.39	26.75	46.06	74	27.94	harmonic
4924	33.49	PK	79	1.2	V	34.3	4.39	26.75	45.43	74	28.57	harmonic
2495	38.10	PK	75	1.0	H	30.6	3.11	26.88	44.93	74	29.07	spurious
2496	19.44	Ave.	230	1.2	V	29.0	3.14	26.86	24.72	54	29.28	spurious
3230	16.37	Ave.	160	1.2	V	31.5	3.49	26.88	24.48	54	29.52	spurious
2496	32.48	PK	230	1.2	V	29.0	3.14	26.86	37.76	74	36.24	spurious
3230	29.43	PK	160	1.2	V	31.5	3.49	26.88	37.54	74	36.46	spurious

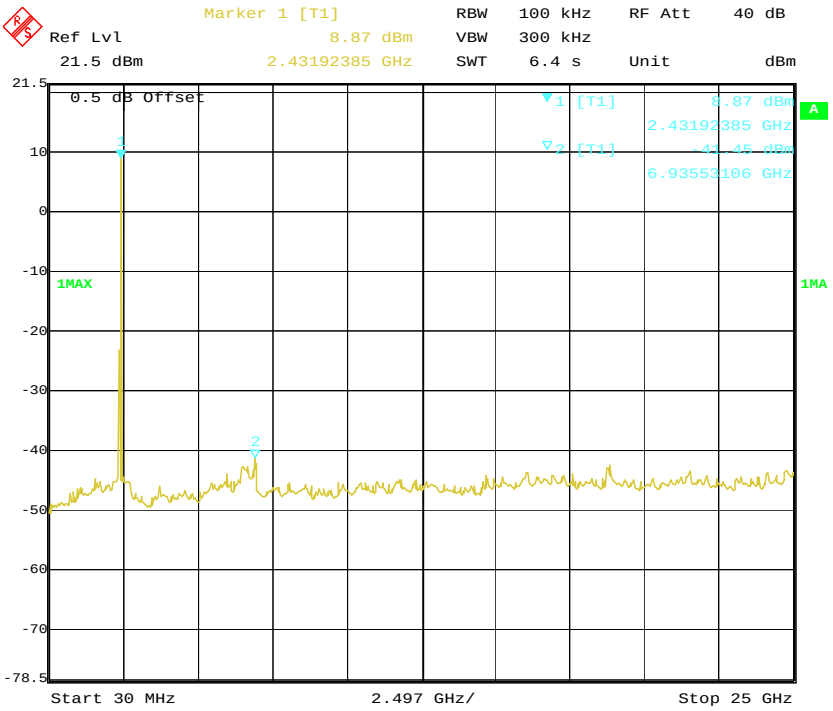
Spurious Emissions at Antenna Terminal

Channel	Frequency (MHz)	Data Rate (Mbps)	Delta Value (dBc)	Delta Limit (dBc)	Result
802.11b mode					
Low	6935.53	1	48.59	20	Pass
Middle	6935.53	1	50.32	20	Pass
High	6935.53	1	49.61	20	Pass
802.11g mode					
Low	6935.53	6	42.66	20	Pass
Middle	6935.53	6	42.13	20	Pass
High	6935.53	6	42.99	20	Pass

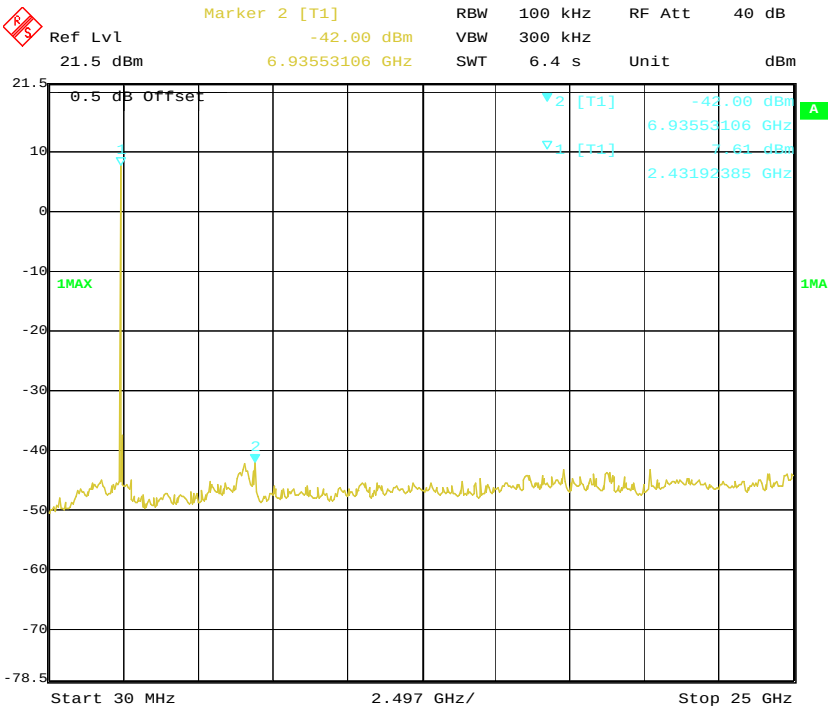
802.11b Low Channel



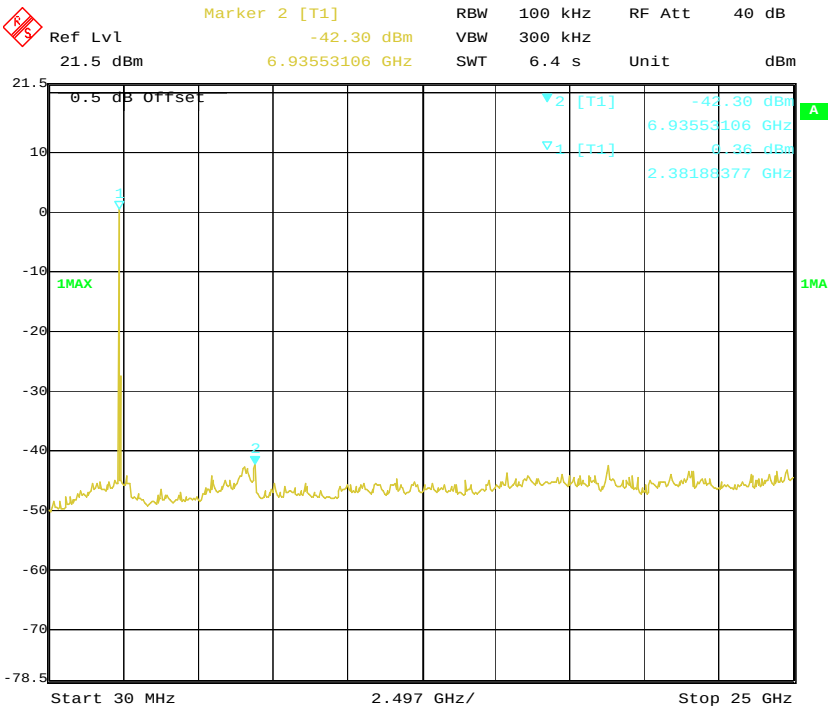
802.11b Middle Channel



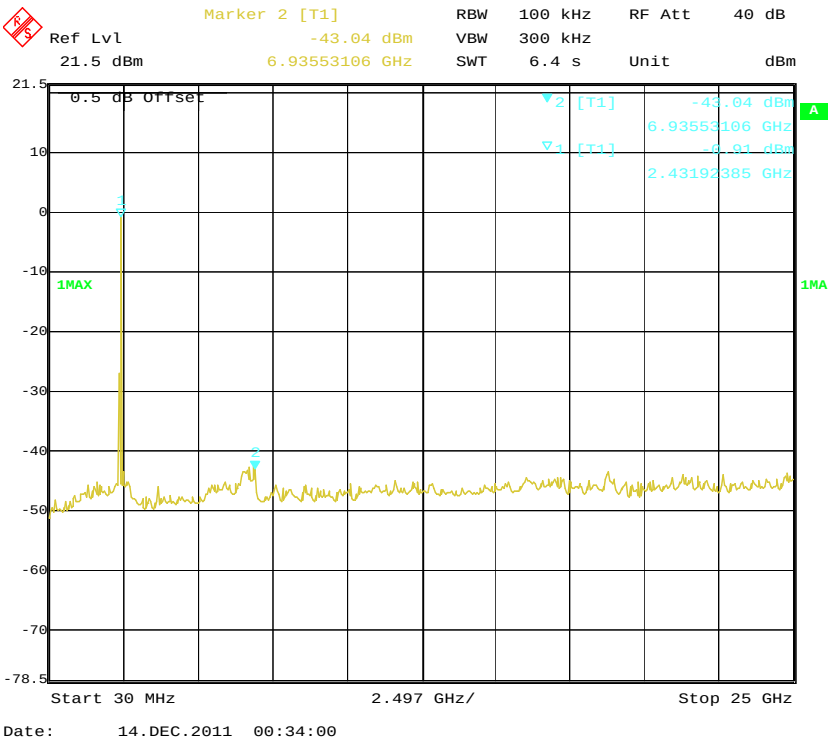
802.11b High Channel



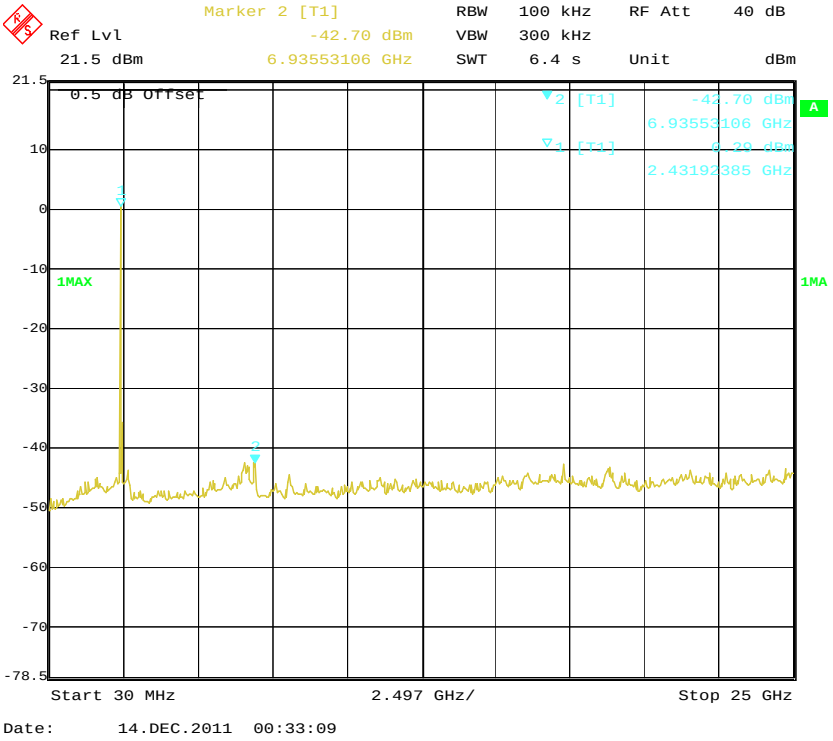
802.11g Low Channel



802.11g Middle Channel



802.11g High Channel



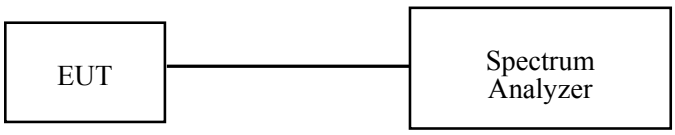
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

*** 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 Data

Environmental Conditions

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

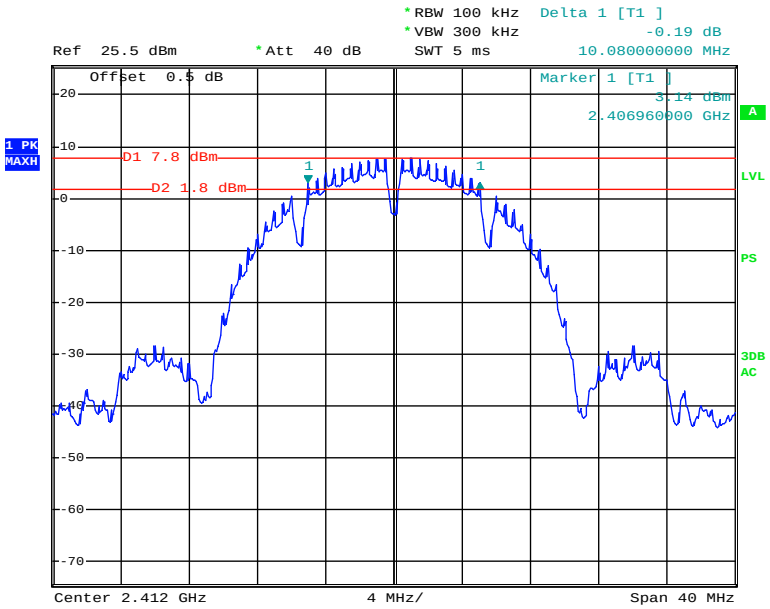
The testing was performed by Jimmy Xiao on 2011-12-13.

Test Result: Compliance.

Please refer to the following table and plots.

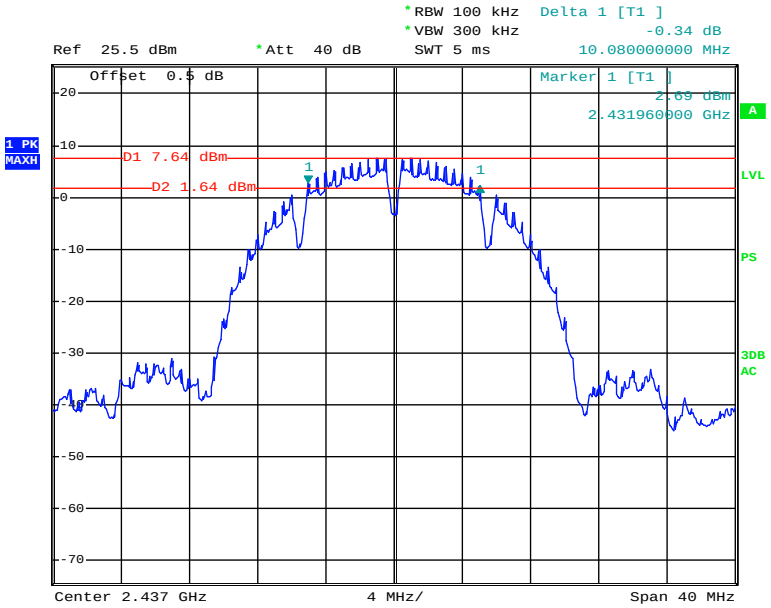
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	FCC Part 15.247 Limit (kHz)
802.11b mode			
Low	2412	10.08	>500
Middle	2437	10.08	>500
High	2462	10.08	>500
802.11g mode			
Low	2412	16.32	>500
Middle	2437	16.32	>500
High	2462	16.32	>500

802.11b Low Channel



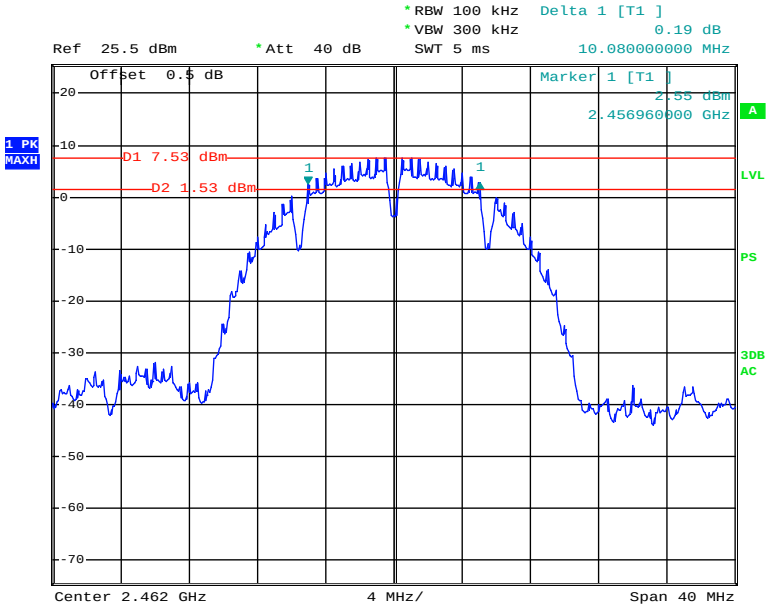
Date: 13.DEC.2011 22:23:48

802.11b Middle Channel



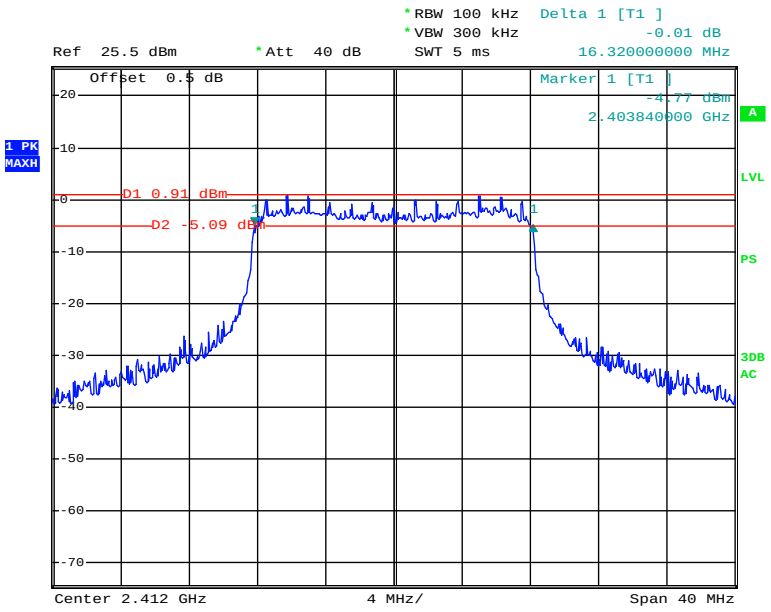
Date: 13.DEC.2011 22:27:29

802.11b High Channel



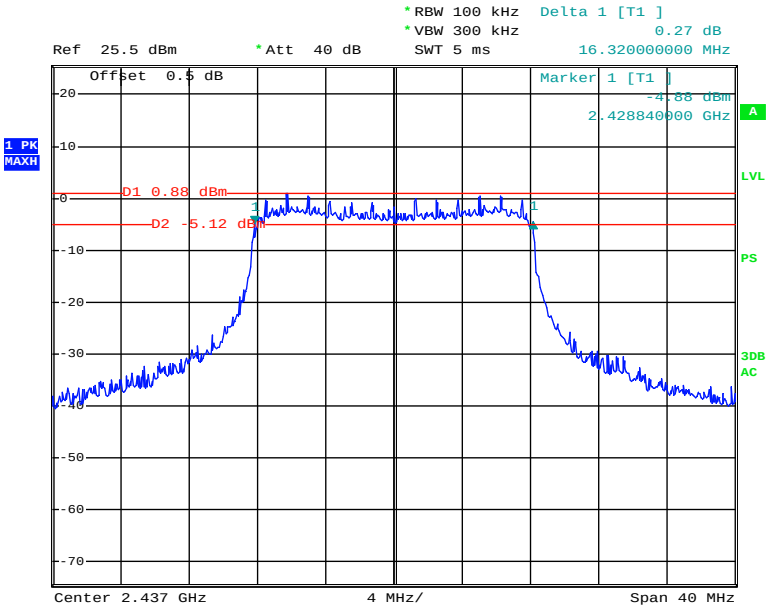
Date: 13.DEC.2011 22:57:39

802.11g Low Channel



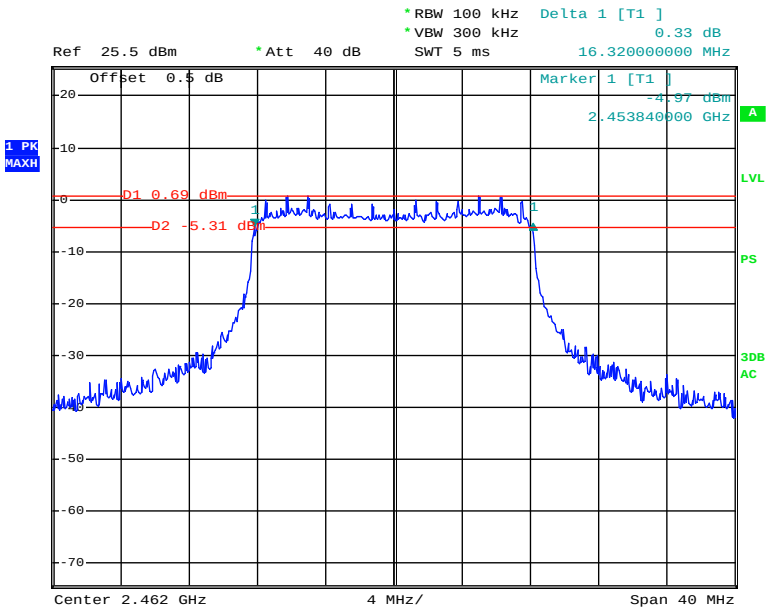
Date: 13.DEC.2011 23:09:23

802.11g Middle Channel



Date: 13.DEC.2011 23:24:44

802.11g High Channel



Date: 13.DEC.2011 23:36:58

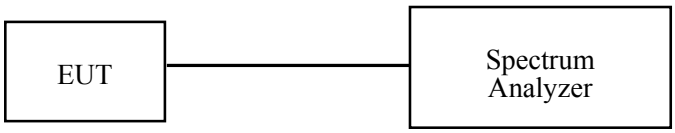
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

According to FCC §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 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

*** 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 Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-12-13.

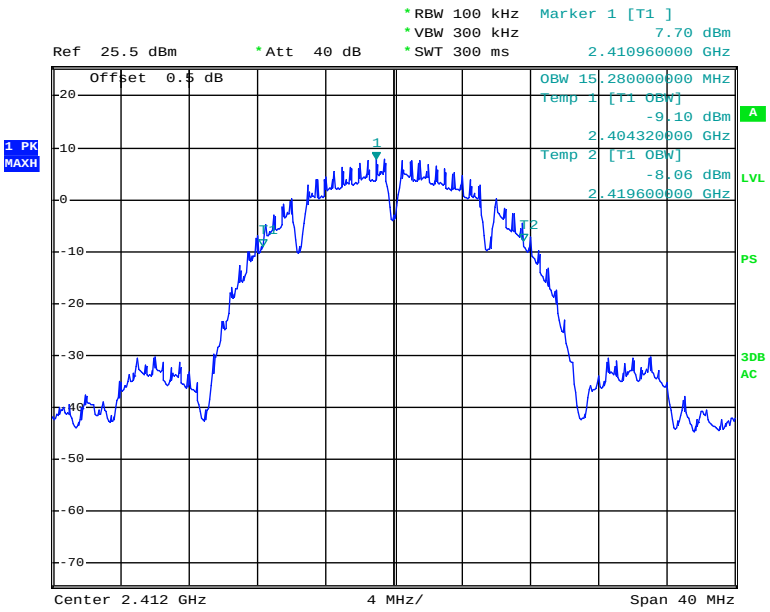
Test Mode: Transmitting

Test Result: Compliance.

Please refer to the following table and plots.

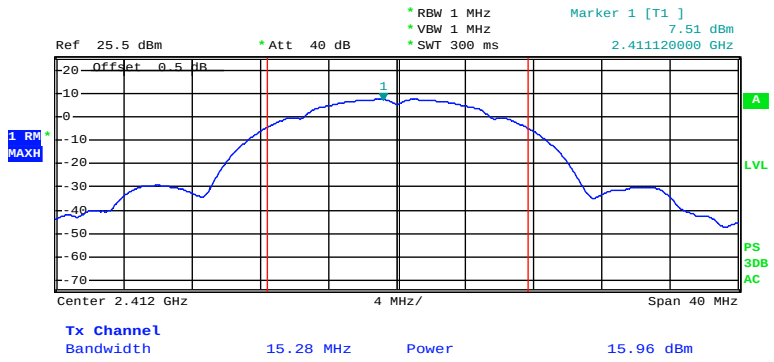
Channel	Frequency (MHz)	Reading Power (dBm)	Limit (dBm)	Result
802.11b mode				
Low	2412	15.96	30	Pass
Middle	2437	16.07	30	Pass
High	2462	16.05	30	Pass
802.11g mode				
Low	2412	12.89	30	Pass
Middle	2437	12.62	30	Pass
High	2462	12.80	30	Pass

802.11b 99% Occupied Bandwidth, Low Channel



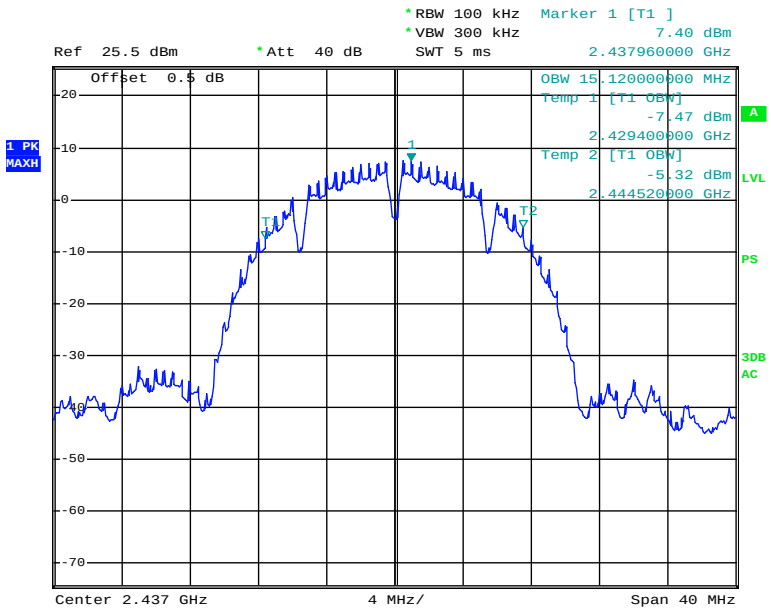
Date: 13.DEC.2011 22:01:56

802.11b RF Output Power, Low Channel



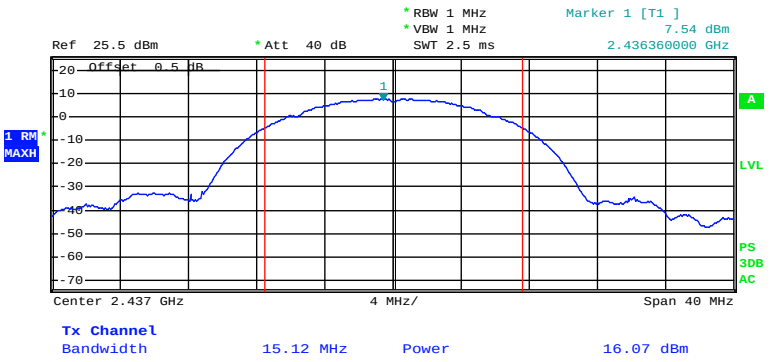
Date: 13.DEC.2011 22:03:00

802.11b 99% Occupied Bandwidth, Middle Channel



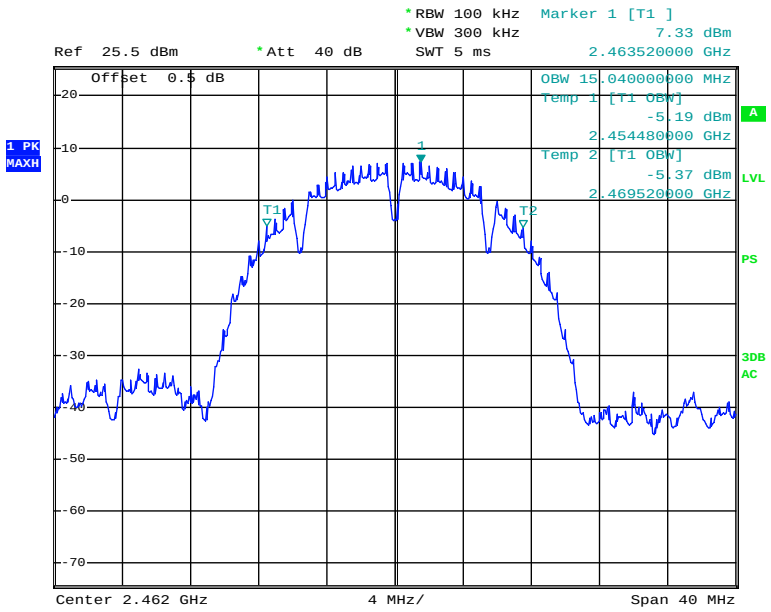
Date: 13.DEC.2011 22:28:14

802.11b RF Output Power, Middle Channel



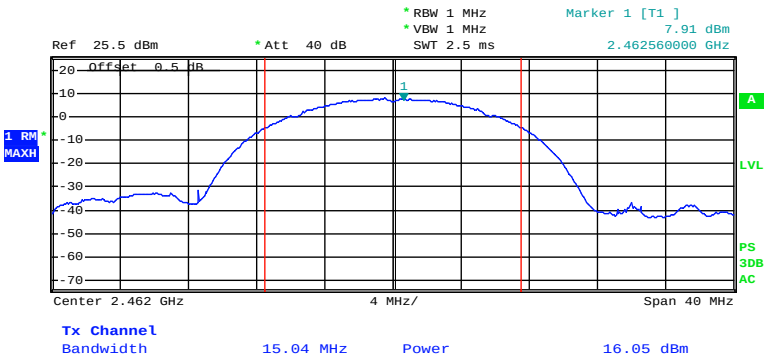
Date: 13.DEC.2011 22:29:20

802.11b 99% Occupied Bandwidth, High Channel



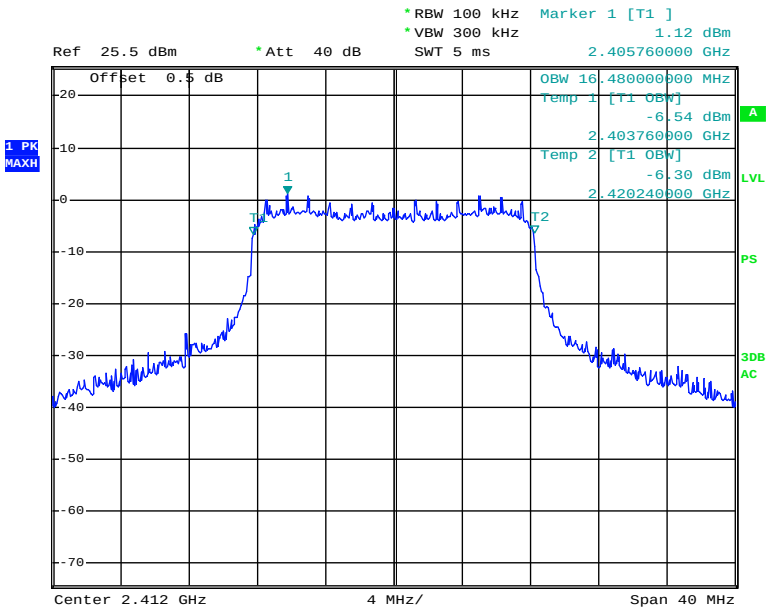
Date: 13.DEC.2011 22:52:46

802.11b RF Output Power, High Channel



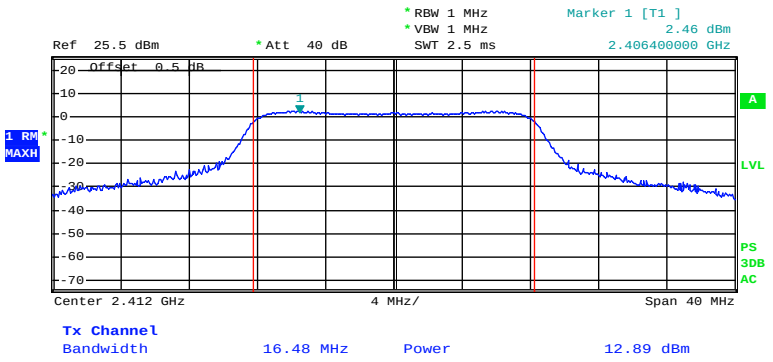
Date: 13.DEC.2011 22:53:19

802.11g 99% Occupied Bandwidth, Low Channel



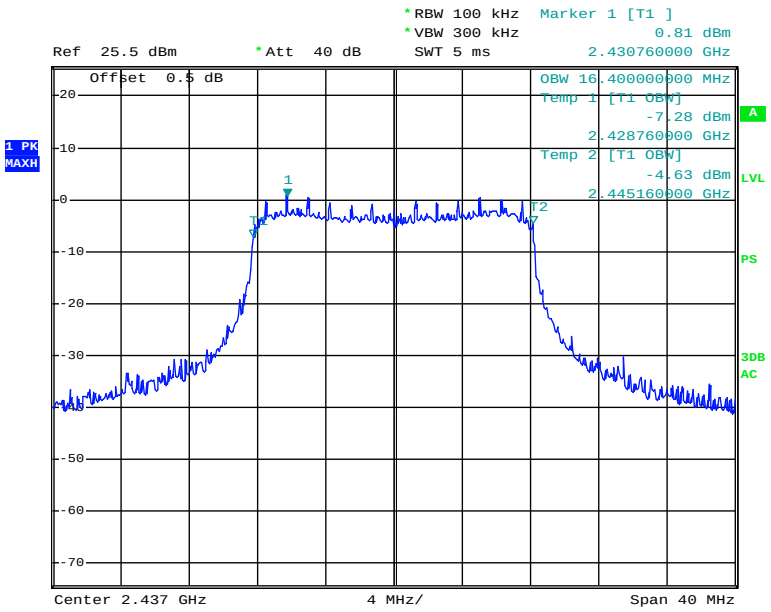
Date: 13.DEC.2011 23:06:07

802.11g RF Output Power, Low Channel



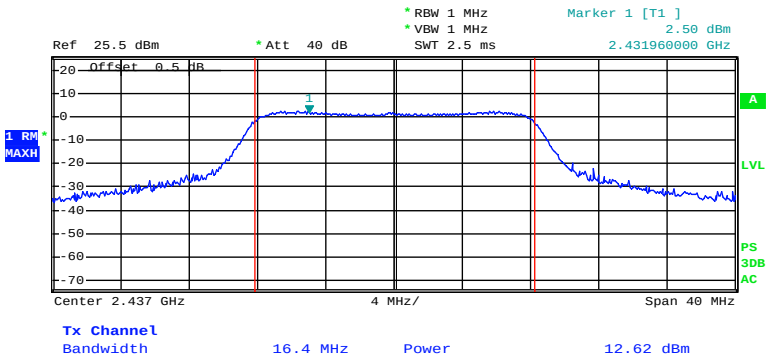
Date: 13.DEC.2011 23:07:55

802.11g 99% Occupied Bandwidth, Middle Channel



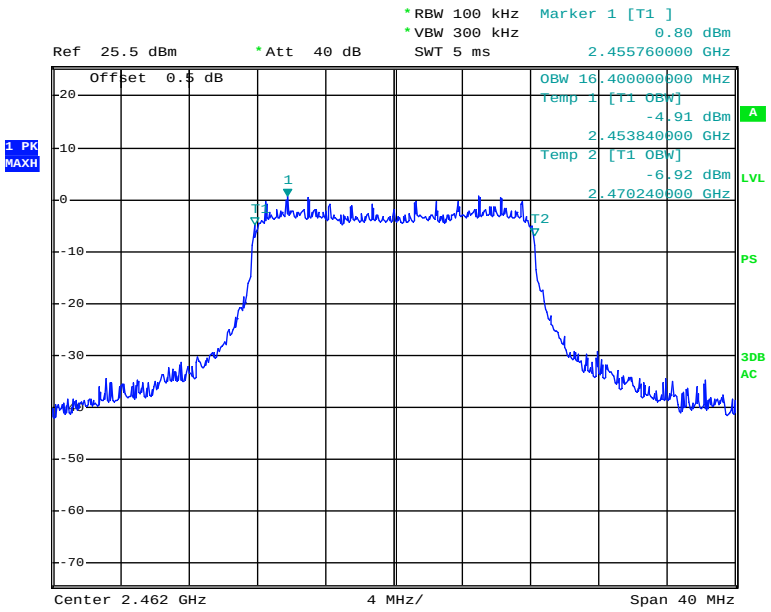
Date: 13.DEC.2011 23:25:25

802.11g RF Output Power, Middle Channel



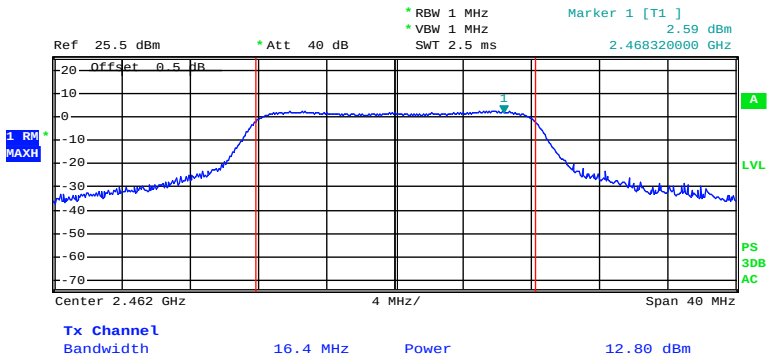
Date: 13.DEC.2011 23:26:20

802.11g 99% Occupied Bandwidth, High Channel



Date: 13.DEC.2011 23:38:49

802.11g RF Output Power, High Channel



Date: 13.DEC.2011 23:40:20

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 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 100 kHz and VBW to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

*** 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 Data

Environmental Conditions

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

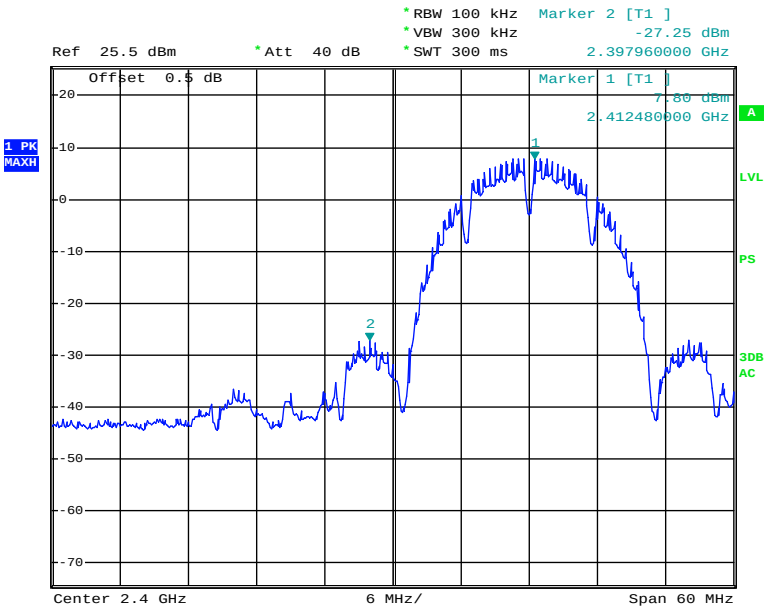
The testing was performed by Jimmy Xiao on 2011-12-13.

Test Result: *Compliance*

Please refer to the following table and plots.

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Delta Limit (dBc)	Result
802.11b mode				
Low	2397.96	35.05	20	Pass
High	2488.06	47.51	20	Pass
802.11g mode				
Low	2399.88	30.76	20	Pass
High	2485.06	40.26	20	Pass

802.11b: Band Edge, Left Side



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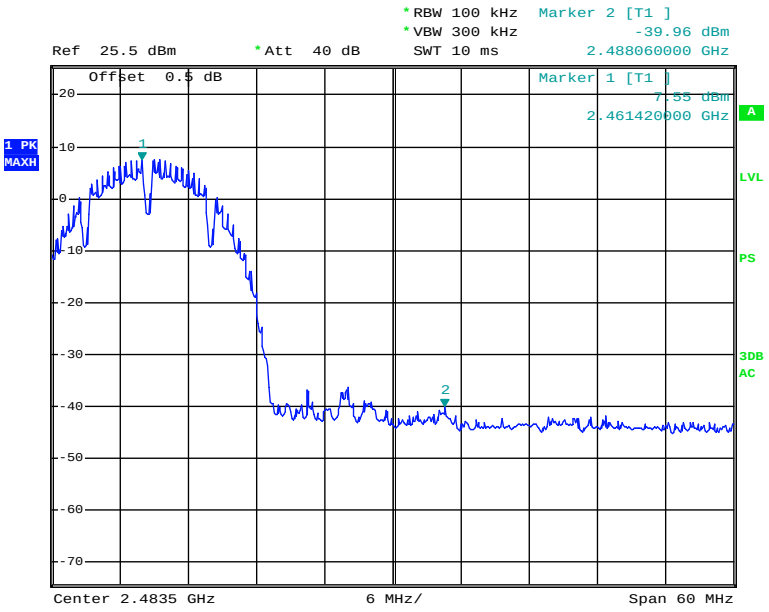
802.11b: Band Edge, Right Side



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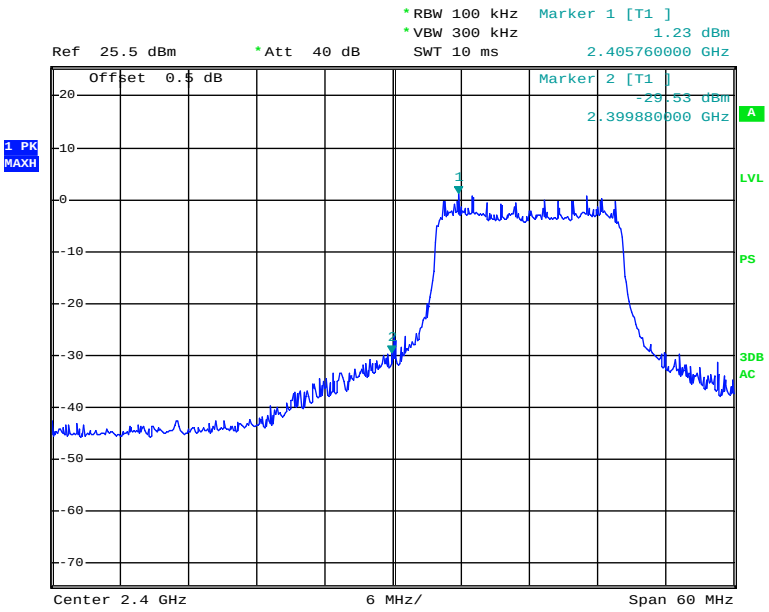
802.11g: Band Edge, Left Side



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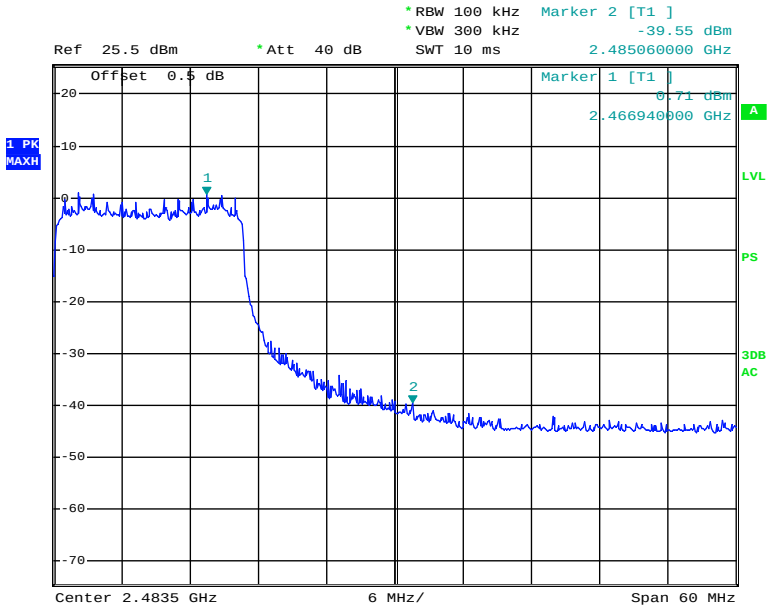
802.11g: Band Edge, Right Side



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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 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

*** 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 Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-12-13.

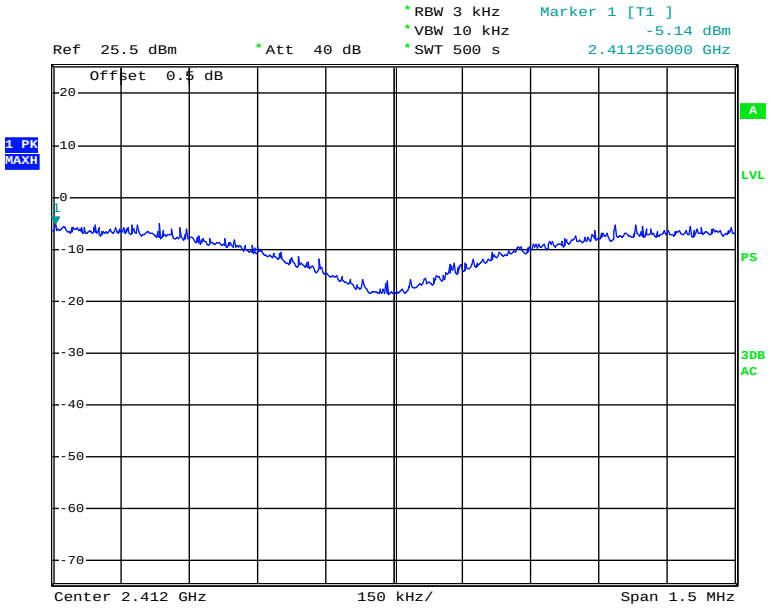
Test Mode: Transmitting

Test Result: Compliance.

Please refer to the following table and plots.

Channel	Frequency (MHz)	Reading Power Spectral Density (dBm)	Limit (dBm)	Result
802.11b mode				
Low	2412	-5.14	8	Pass
Middle	2437	-4.67	8	Pass
High	2462	-4.43	8	Pass
802.11g mode				
Low	2412	-9.88	8	Pass
Middle	2437	-9.85	8	Pass
High	2462	-8.77	8	Pass

Power Spectral Density, 802.11b Low Channel



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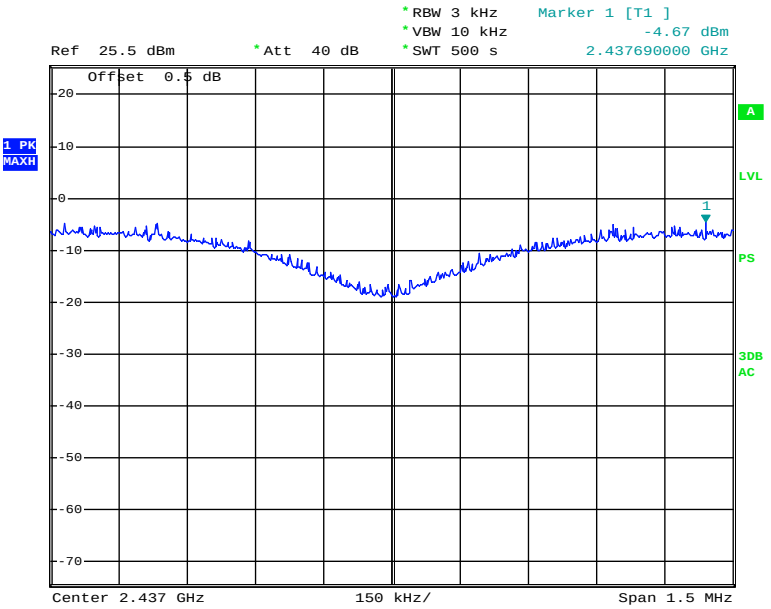
Power Spectral Density, 802.11b Middle Channel



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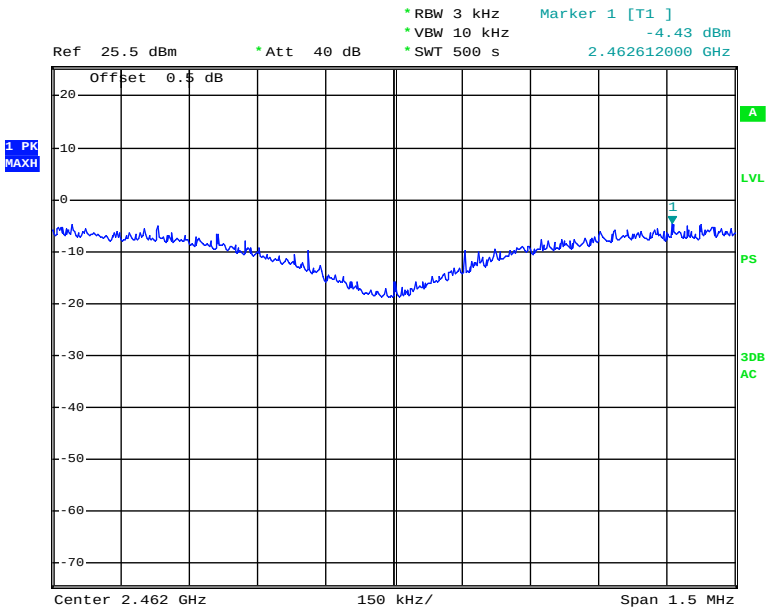
Power Spectral Density, 802.11b High Channel



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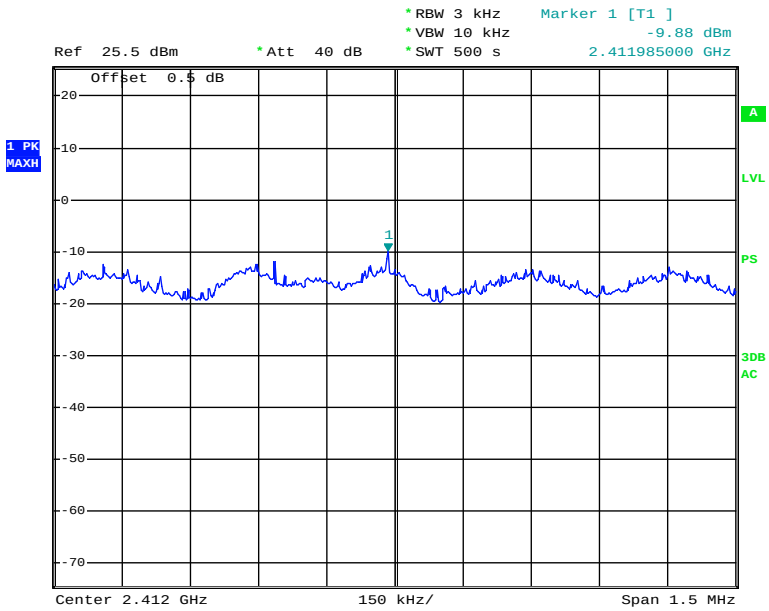
Power Spectral Density, 802.11g Low Channel



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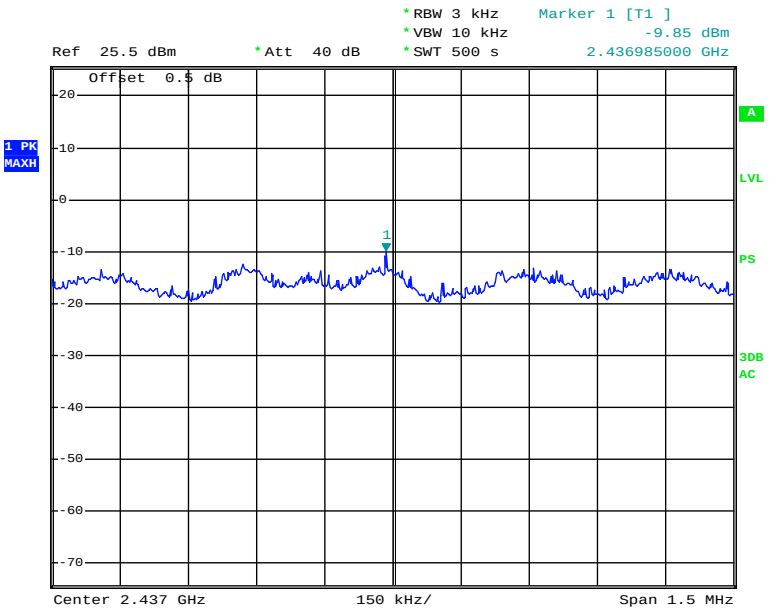
Power Spectral Density, 802.11g Middle Channel



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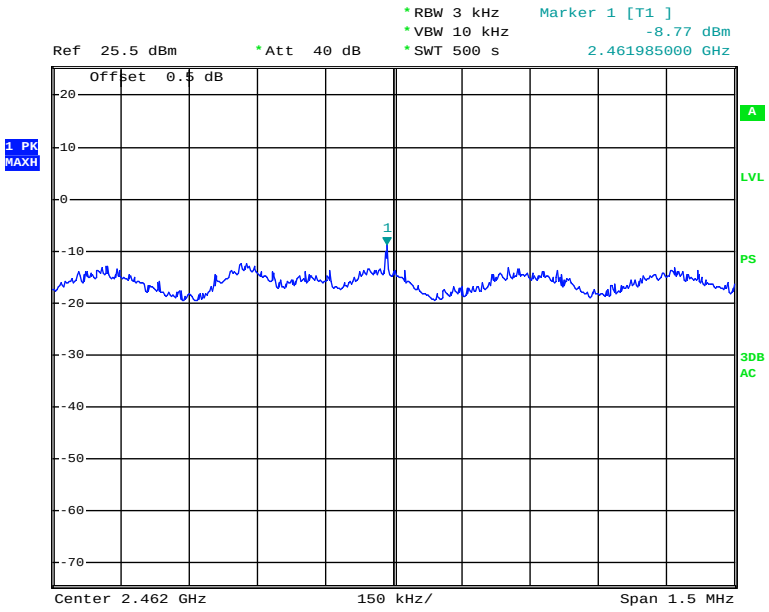
Power Spectral Density, 802.11g High Channel



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