Lab Code: 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

Aztech Technologies Pte Ltd.

31 UBi Road 1, Aztech Building, Singapore 408694

FCC ID: I38DSL5005EN

Report Type: Original Report	**Product Type:** ADSL2+ 4-Ports 150 Mbps Wireless-N Modem Router

Test Engineer:	Back Huang
Report Number:	RSZ11021101
Report Date:	2011-03-16
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 *Aztech Technologies Pte Ltd 's* product, model number: *DSL5005EN(X) (FCC ID: I38DSL5005EN)* or the "EUT" as referred to in this report is a *ADSL2+ 4-Ports 150Mbps Wireless-N Modem Router,* which measures approximately: 20.0 cm (L) x 12.5cm (W) x 3.0 cm (H), rated input voltage: DC 12.0V adapter.

Adapter information:
Model: SWM11-12120
Input: AC 100-240V 0.4A 50-60Hz
Output: DC 12.0V 1.0A

** All measurement and test data in this report was gathered from production sample serial number: 1102008 (Assigned by BACL, Shenzhen). The EUT was received on 2011-02-11.*

Objective

This Type approval report is prepared on behalf of *Aztech Technologies Pte 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)

N/A

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.

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 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 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 for 802.11b and 802.11g mode were tested with Channel 1, 6 and 11.

The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations.

EUT Exercise Software

The test was performed under:
802.11b: Data rate: 1 Mbps.
802.11g: Data rate: 6 Mbps.
802.11n20: Data rate: 6.5 Mbps.
802.11 n40: Data rate: 13.5 Mbps.

Equipment Modifications

No modification was made to the unit tested.

Local Support Equipment List and Details

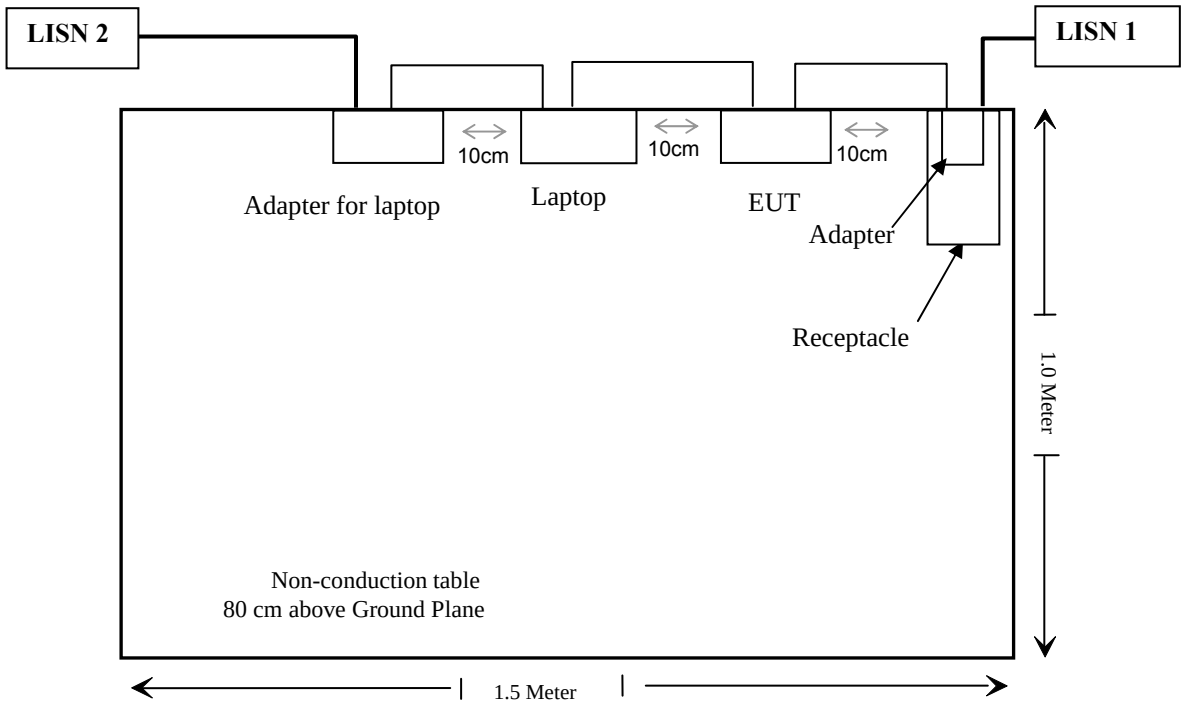
Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Laptop	D260	N/A	DOC

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detachable RJ45 Cable	1.8	EUT	Laptop

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), §2.1091	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 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- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to FCC §15.247(i)and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for 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.

MPE Calculation

MPE is calculated 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;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Radio Mode	**Frequency (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
802.11b	2412	3	2.0	15.26	33.57	20	0.013363854	1.0
802.11g	2412	3	2.0	13.12	20.51	20	0.008164809	1.0
802.11n20	2412	3	2.0	12.97	19.82	20	0.007890127	1.0
802.11n40	2422	3	2.0	13.01	20.00	20	0.007961783	1.0

Result: The device meets the MPE limit at 20 cm distance, the RF exposure information for the end-user have been addressed in the user manual.

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 §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 used two antennas, one is an 3.0 dBi external dipole antenna with reversed SMA connector used for transmitting and the other is a PCB antenna used for receiving only, both of them comply FCC requirements of section 15.203, please refer to the EUT 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 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 (k=2, 95% level of confidence).
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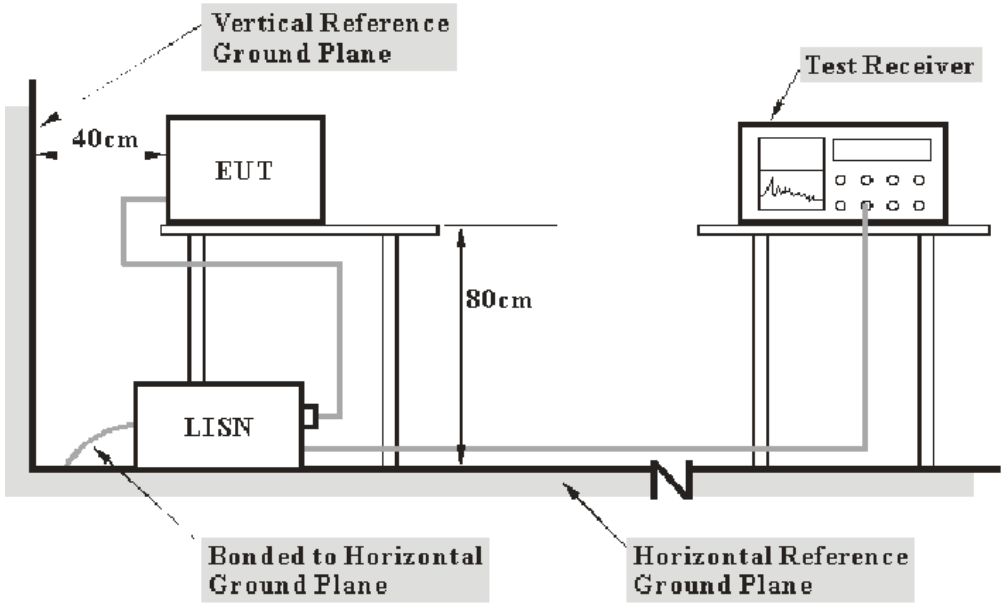
EUT Setup



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 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	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 was connected to the first LISN, and laptop was connected to the second 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:

802.11b (worst case): **5.96 dB** at **16.375 MHz** in the **Neutral** conductor mode
802.11g (worst case): **7.80 dB** at **16.385 MHz** in the **Neutral** conductor mode
802.11n20 (worst case): **8.02 dB** at **16.365 MHz** in the **Neutral** conductor mode
802.11n40 (worst case): **10.74 dB** at **12.865 MHz** in the **Neutral** conductor mode

Test Data

Environmental Conditions

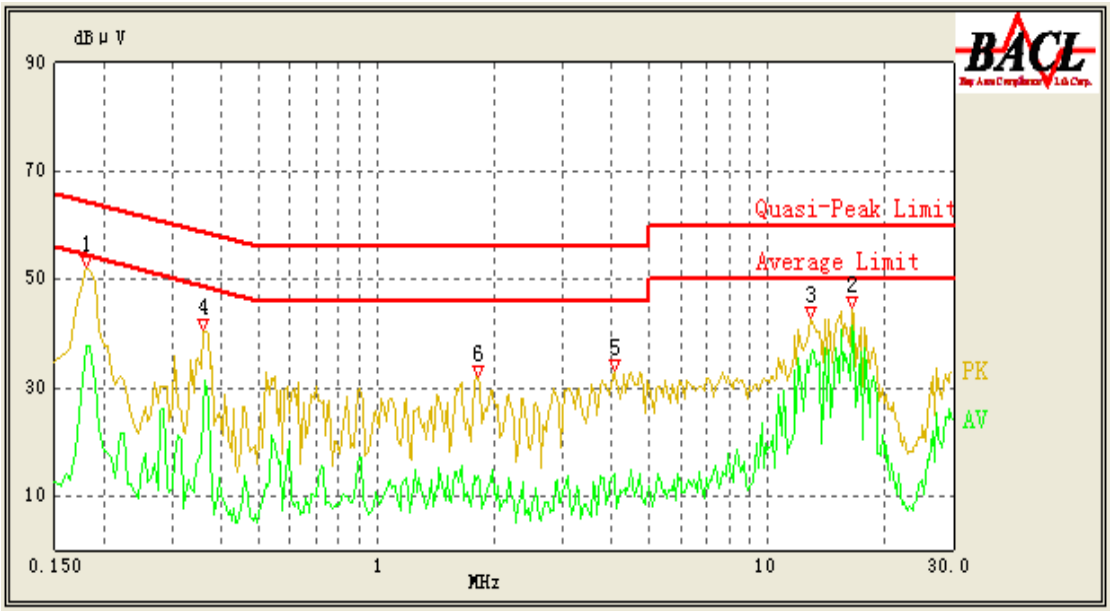
Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Back Huang on 2011-02-28.

Test Mode: Transmitting

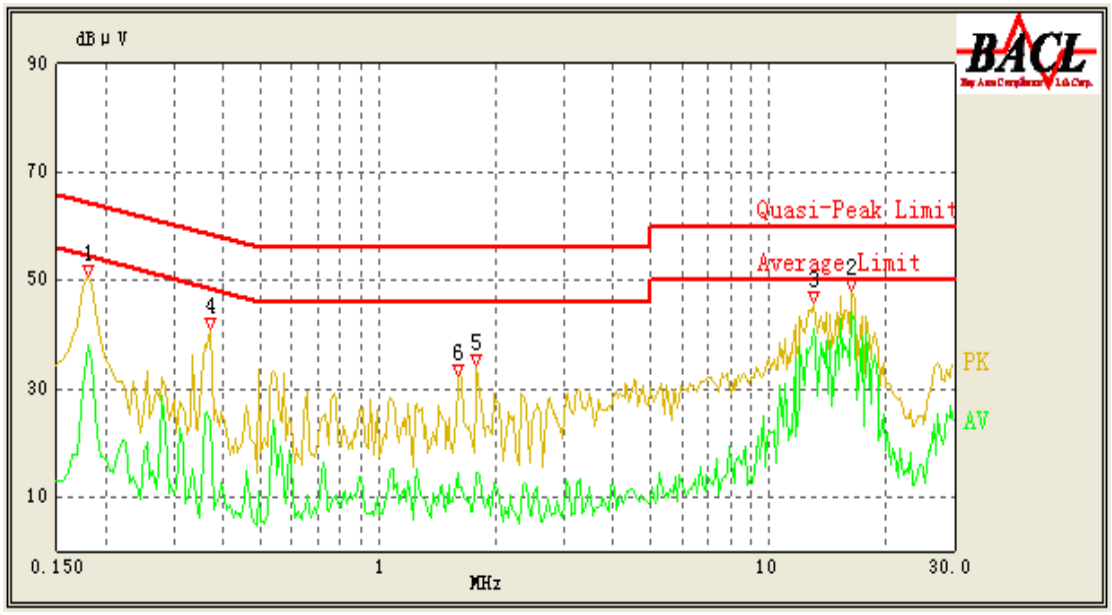
Test Mode: 802.11b

AC 120 V/60 Hz - Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
16.400	41.29	10.16	50.00	8.71	Ave
12.925	35.58	10.13	50.00	14.42	Ave
16.400	44.39	10.16	60.00	15.61	QP
0.180	37.64	10.08	55.14	17.50	Ave
12.925	39.39	10.13	60.00	24.61	QP
0.360	25.21	10.06	50.00	24.79	Ave
0.180	38.07	10.08	65.14	27.07	QP
4.055	14.18	10.10	46.00	31.82	Ave
1.810	13.70	10.18	46.00	32.30	Ave
4.055	22.99	10.10	56.00	33.01	QP
0.360	26.32	10.06	60.00	33.68	QP
1.810	16.66	10.18	56.00	39.34	QP

AC 120 V/60 Hz - Neutral



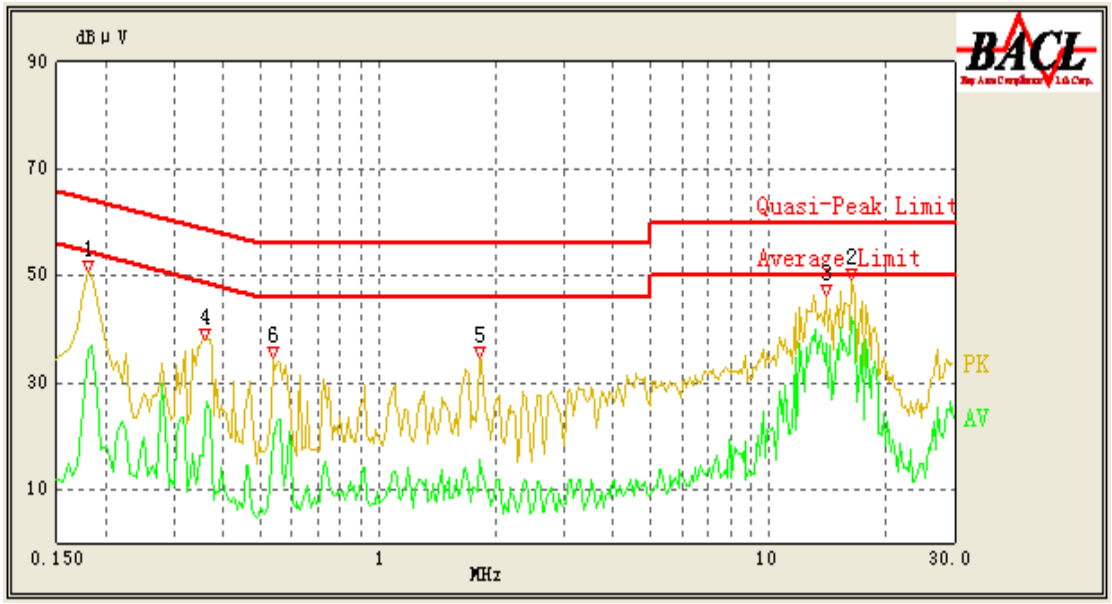
Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Correct Result (dBµV)**	**Corrected Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
16.375	44.04	10.16	50.00	5.96	Ave
13.035	40.90	10.13	50.00	9.10	Ave
16.380	46.19	10.16	60.00	13.81	QP
13.035	43.57	10.13	60.00	16.43	QP
0.180	38.11	10.08	55.14	17.03	Ave
0.180	40.50	10.08	65.14	24.64	QP
0.370	23.77	10.07	49.71	25.94	Ave
0.370	30.34	10.07	59.71	29.37	QP
1.790	14.53	10.18	46.00	31.47	Ave
1.610	11.75	10.16	46.00	34.25	Ave
1.610	17.65	10.16	56.00	38.35	QP
1.790	15.09	10.18	56.00	40.91	QP

Test Mode: 802.11g

AC 120V / 60Hz - Line

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
16.425	39.89	10.16	50.00	10.11	Ave
13.075	35.60	10.13	50.00	14.40	Ave
16.430	44.44	10.16	60.00	15.56	QP
0.180	36.11	10.08	55.14	19.03	Ave
13.080	39.23	10.13	60.00	20.77	QP
0.375	28.27	10.07	49.57	21.30	Ave
0.550	20.73	10.19	46.00	25.27	Ave
0.375	34.20	10.07	59.57	25.37	QP
0.180	38.59	10.08	65.14	26.55	QP
1.650	15.34	10.16	46.00	30.66	Ave
0.555	25.31	10.19	56.00	30.69	QP
1.650	18.57	10.16	56.00	37.43	QP

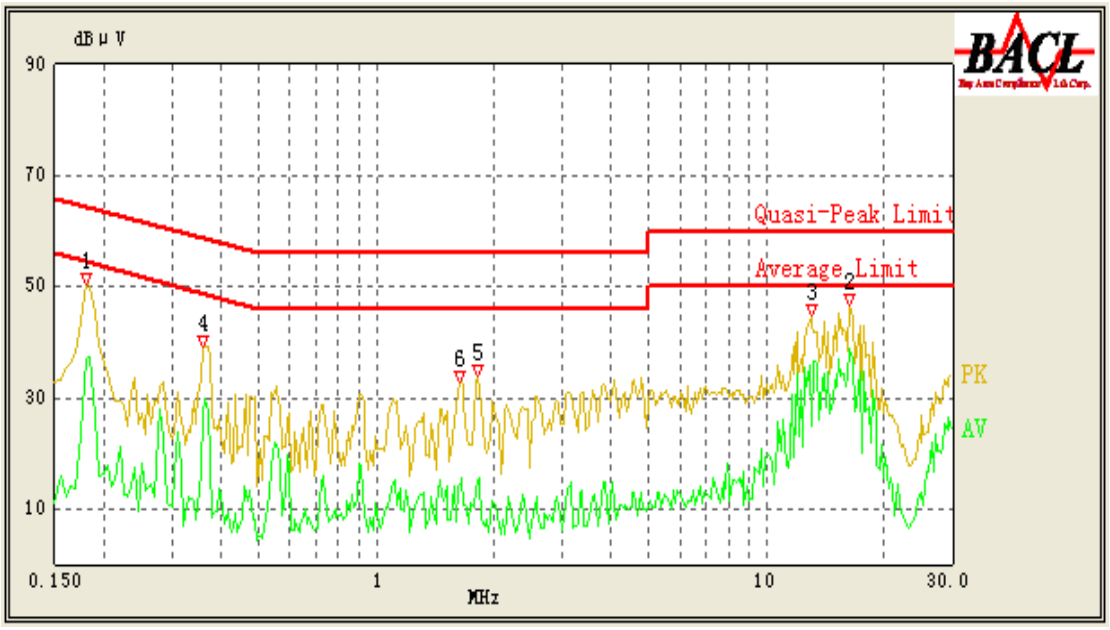
AC 120 V/60 Hz - Neutral



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
16.385	42.20	10.16	50.00	7.80	Ave
14.045	37.31	10.14	50.00	12.69	Ave
16.390	43.84	10.16	60.00	16.16	QP
0.180	36.03	10.08	55.14	19.11	Ave
14.045	40.14	10.14	60.00	19.86	QP
0.540	20.30	10.19	46.00	25.70	Ave
0.360	23.40	10.06	50.00	26.60	Ave
0.180	37.79	10.08	65.14	27.35	QP
1.820	15.39	10.18	46.00	30.61	Ave
0.540	25.02	10.19	56.00	30.98	QP
0.360	25.39	10.06	60.00	34.61	QP
1.820	20.02	10.18	56.00	35.98	QP

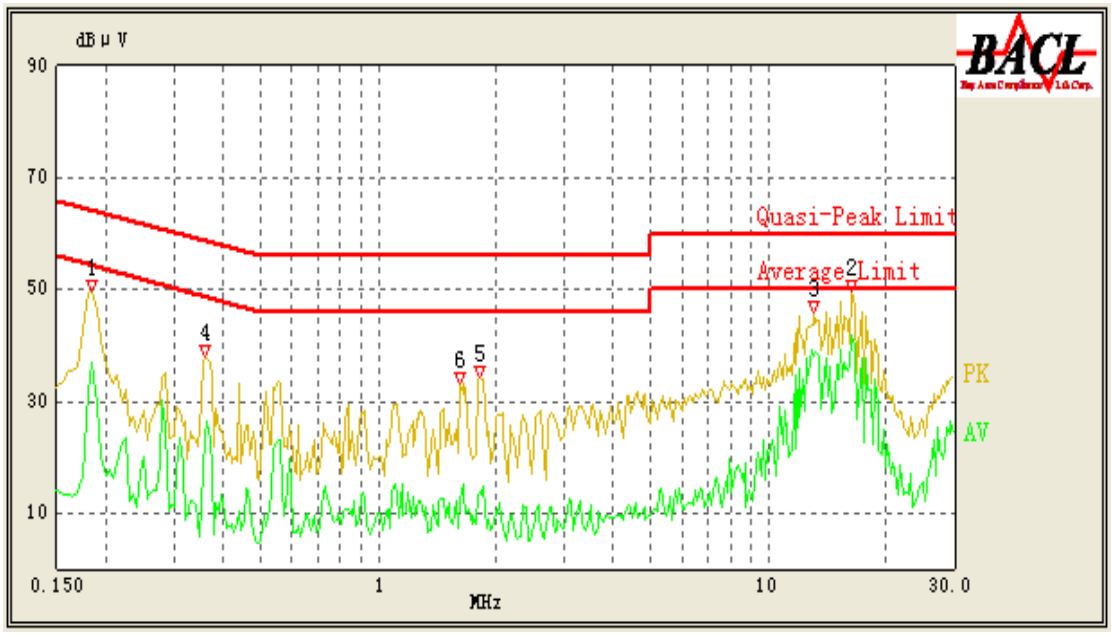
Test Mode: 802.11n-20

AC 120V / 60Hz - Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave)
16.355	38.77	10.16	50.00	11.23	Ave
12.875	35.88	10.13	50.00	14.12	Ave
1.815	37.98	10.18	56.00	18.02	QP
0.180	36.94	10.08	55.14	18.20	Ave
16.360	40.82	10.16	60.00	19.18	QP
13.020	37.98	10.13	60.00	22.02	QP
0.360	37.98	10.06	60.00	22.02	QP
0.360	27.27	10.06	50.00	22.73	Ave
0.180	38.39	10.08	65.14	26.75	QP
1.825	14.68	10.18	46.00	31.32	Ave
1.645	14.58	10.16	46.00	31.42	Ave
1.640	16.99	10.16	56.00	39.01	QP

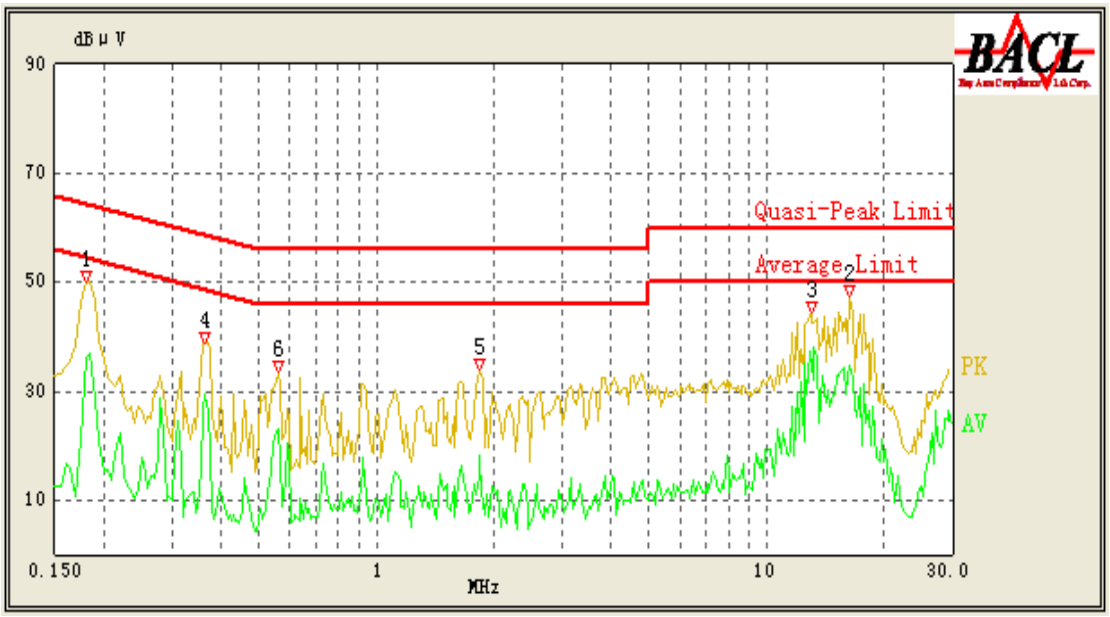
AC 120 V/60 Hz - Neutral



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
16.365	41.98	10.16	50.00	8.02	Ave
13.025	38.07	10.13	50.00	11.93	Ave
16.370	45.54	10.16	60.00	14.46	QP
0.185	36.99	10.08	55.00	18.01	Ave
13.025	41.45	10.13	60.00	18.55	QP
0.360	41.45	10.06	60.00	18.55	QP
0.185	43.89	10.08	65.00	21.11	QP
0.360	23.32	10.06	50.00	26.68	Ave
1.815	13.52	10.18	46.00	32.48	Ave
1.620	12.67	10.16	46.00	33.33	Ave
1.825	18.04	10.18	56.00	37.96	QP
1.615	15.11	10.16	56.00	40.89	QP

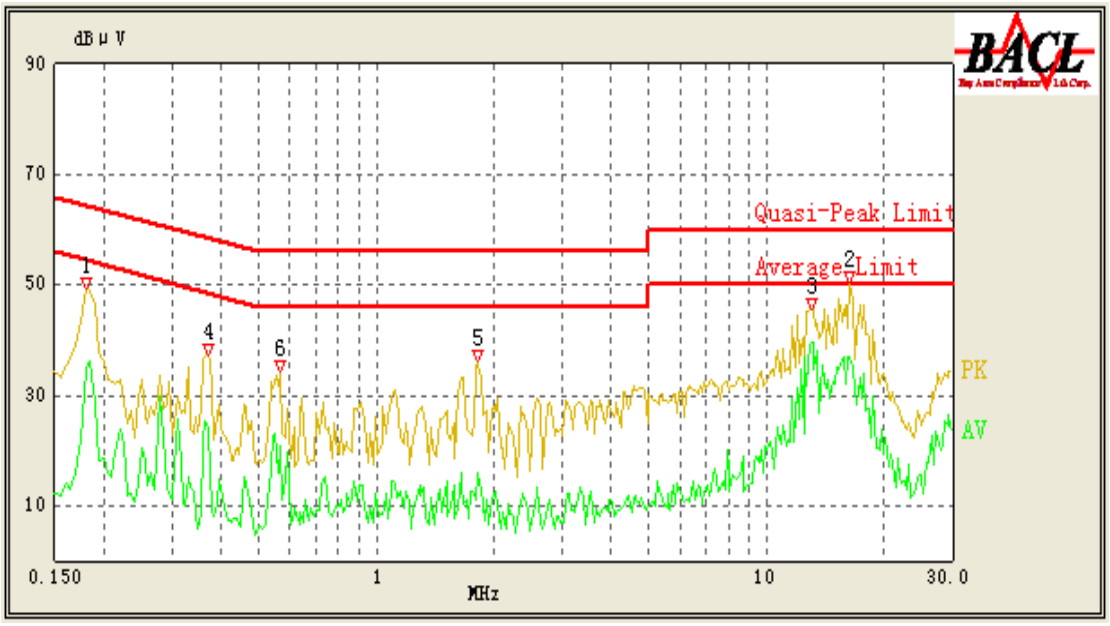
Test Mode: 802.11n-40

AC 120V / 60Hz - Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
12.870	37.35	10.13	50.00	12.65	Ave
16.345	34.80	10.16	50.00	15.20	Ave
0.180	36.25	10.08	55.14	18.89	Ave
0.365	29.29	10.06	49.86	20.57	Ave
13.020	38.90	10.13	60.00	21.10	QP
0.560	22.88	10.19	46.00	23.12	Ave
0.180	40.24	10.08	65.14	24.90	QP
16.360	35.06	10.16	60.00	24.94	QP
0.365	34.63	10.06	59.86	25.23	QP
0.560	28.26	10.19	56.00	27.74	QP
1.845	18.08	10.18	46.00	27.92	Ave
1.845	22.62	10.18	56.00	33.38	QP

AC 120 V/60 Hz - Neutral



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
12.865	39.26	10.13	50.00	10.74	Ave
16.340	37.10	10.16	50.00	12.90	Ave
16.355	41.46	10.16	60.00	18.54	QP
13.020	40.96	10.13	60.00	19.04	QP
0.180	34.86	10.08	55.14	20.28	Ave
0.565	20.67	10.19	46.00	25.33	Ave
0.370	24.35	10.07	49.71	25.36	Ave
0.565	29.62	10.19	56.00	26.38	QP
0.180	35.95	10.08	65.14	29.19	QP
1.815	15.93	10.18	46.00	30.07	Ave
0.370	27.48	10.07	59.71	32.23	QP
1.815	22.20	10.18	56.00	33.80	QP

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

Applicable Standard

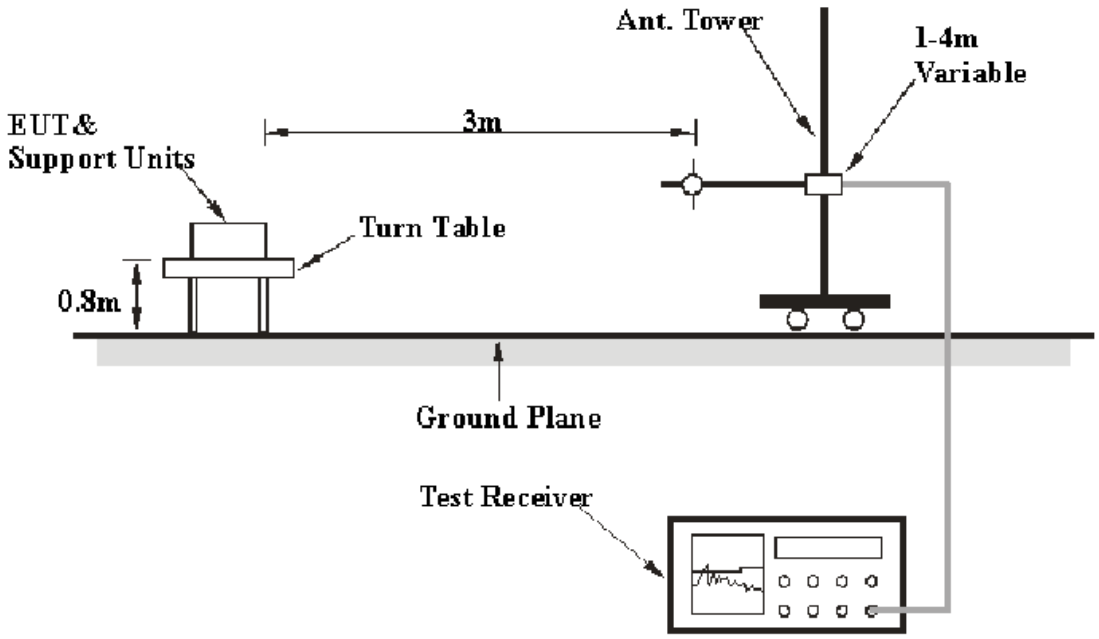
FCC §15.247 (d); §15.209; §15.205;

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(k=2, 95% level of confidence) .

EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4-2009. 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***
30MHz – 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	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	AT1080	301902	2010-08-25	2011-08-25
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2010-05-04	2011-05-03
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-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 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, 15.209 and 15.247, with the worst margin reading of:

30 -1000 MHz:

3.3 dB at **36.110750 MHz** in the **Vertical** polarization for mode 80.11n40

Above 1 GHz:

Low Channel: **1.14 dB** at **4824.00 MHz** in the **Vertical** polarization for mode 802.11b
Middle Channel: **1.75 dB** at **4874.00 MHz** in the **Horizontal** polarization for mode 802.11b
High Channel: **1.71 dB** at **4924.00 MHz** in the **Vertical** polarization for mode 802.11b

Test Data

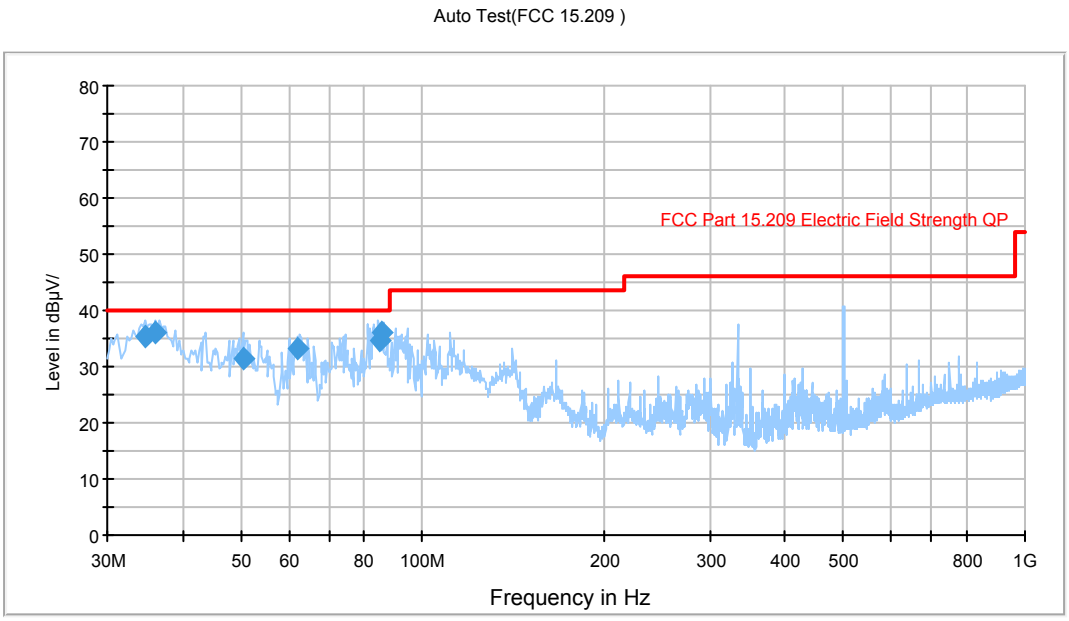
Environmental Conditions

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

The testing was performed by Back Huang on 2011-03-13 to 2011-03-15.

30-1000 MHz:

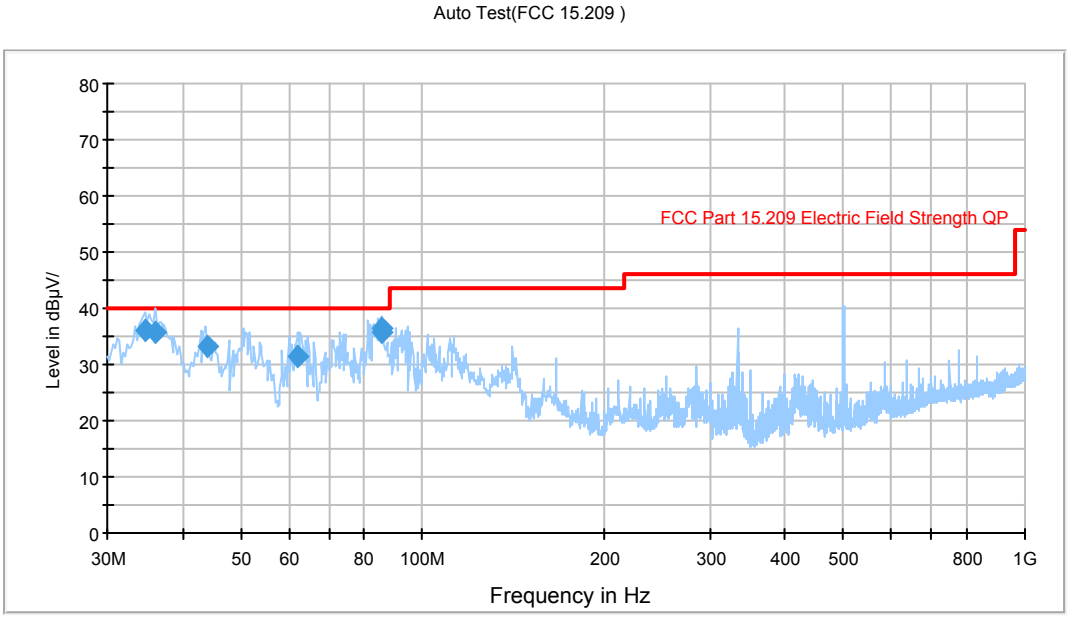
Test Mode: Transmitting (802.11b)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
85.529750	36.2	140.0	V	148.0	-11.8	40.0	3.8*
36.102000	36.0	104.0	V	132.0	-9.6	40.0	4.0
34.662500	35.2	123.0	V	164.0	-8.6	40.0	4.8
84.691750	34.6	105.0	V	133.0	-11.8	40.0	5.4
62.247750	33.4	104.0	V	179.0	-9.6	40.0	6.6
50.492000	31.5	103.0	V	227.0	-10.3	40.0	8.5

** Within measurement uncertainty.*

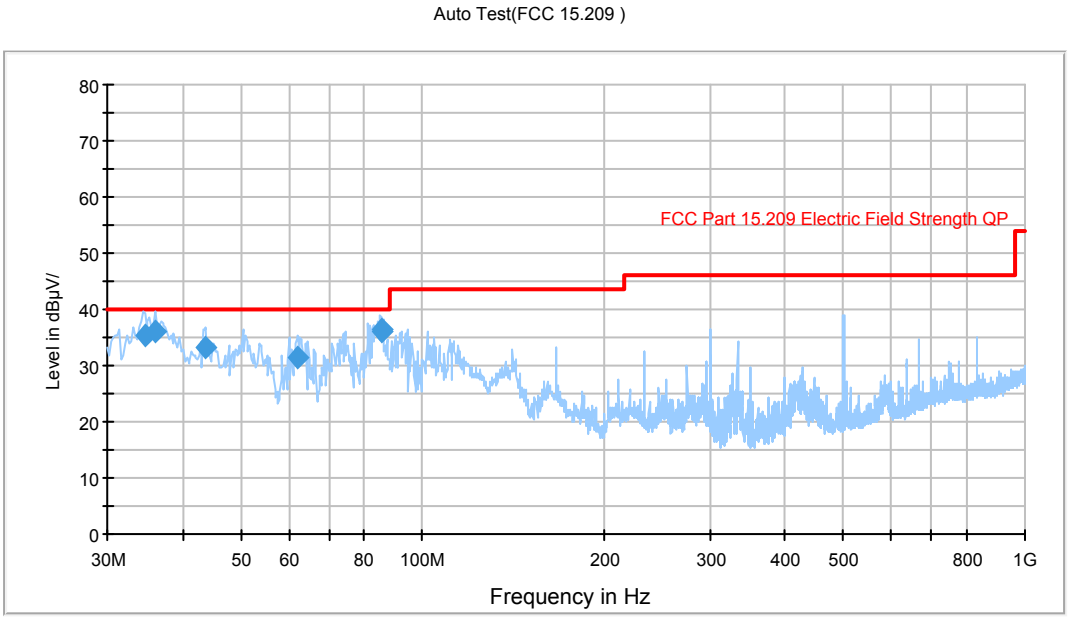
Test Mode: Transmitting (802.11g)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
85.535750	36.5	104.0	V	126.0	-11.8	40.0	3.5*
34.651750	36.0	105.0	V	159.0	-8.6	40.0	4.0*
36.110000	35.9	124.0	V	226.0	-9.6	40.0	4.1
85.483750	35.8	106.0	V	144.0	-11.8	40.0	4.2
43.828000	33.1	104.0	V	210.0	-9.4	40.0	6.9
62.016500	31.5	105.0	V	157.0	-10.6	40.0	8.5

** Within measurement uncertainty.*

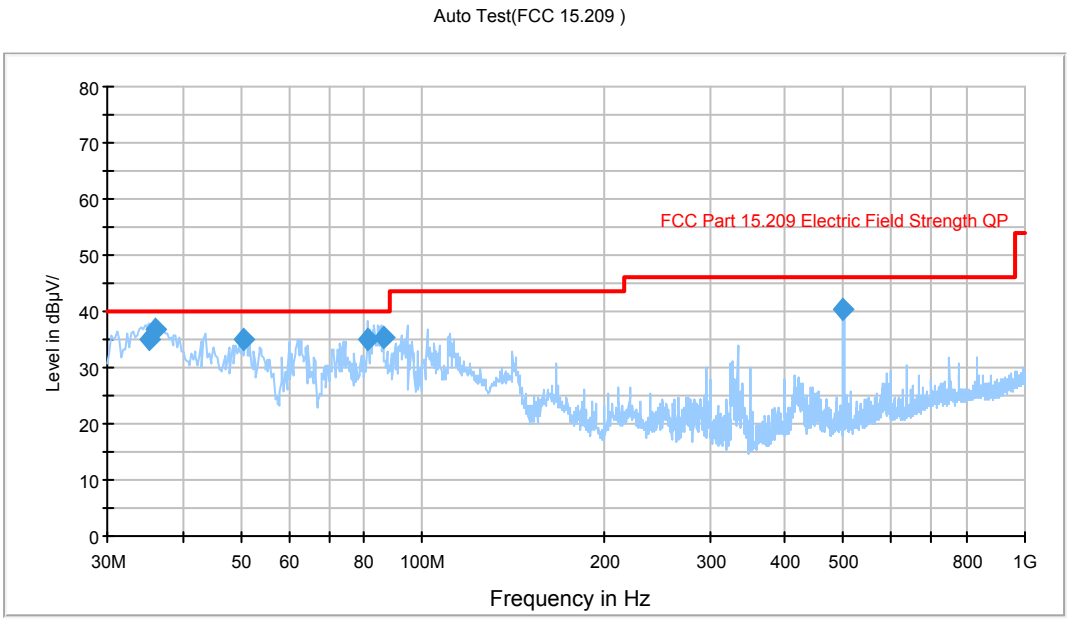
Test Mode: Transmitting (802.11n20)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
85.537250	36.3	102.0	V	128.0	-11.8	40.0	3.7*
85.523750	36.1	125.0	V	146.0	-11.8	40.0	3.9*
36.165000	36.0	105.0	V	201.0	-9.6	40.0	4.0*
34.696000	35.4	104.0	V	127.0	-8.6	40.0	4.6
43.787750	33.2	103.0	V	127.0	-9.4	40.0	6.8
62.034250	31.4	103.0	V	177.0	-10.6	40.0	8.6

** Within measurement uncertainty.*

Test Mode: Transmitting (802.11n40)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
36.110750	36.7	105.0	V	184.0	-9.6	40.0	3.3*
86.057250	35.4	122.0	V	128.0	-11.8	40.0	4.6
50.443250	35.0	102.0	V	243.0	-10.3	40.0	5.0
81.213000	35.0	105.0	V	129.0	-11.1	40.0	5.0
35.265000	34.9	123.0	V	196.0	-9.0	40.0	5.1
500.029750	40.5	201.0	H	173.0	-8.4	40.0	5.5

** Within measurement uncertainty.*

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)	Comment
Low Channel (2412 MHz)												
4824	40.16	Ave	142	1.5	V	35.2	4.30	26.80	52.86	54	1.14*	harmonic
4824	32.27	Ave	147	1.1	H	36.2	4.30	26.80	45.97	54	8.03	harmonic
4824	51.25	PK	142	1.5	V	35.2	4.30	26.80	63.95	74	10.05	harmonic
4824	43.24	PK	147	1.1	H	36.2	4.30	26.80	56.94	74	17.06	harmonic
Middle Channel (2437 MHz)												
4874	39.87	Ave	311	1.6	V	34.8	4.36	26.78	52.25	54	1.75*	harmonic
4874	32.06	Ave	104	1.2	H	35.5	4.36	26.78	45.14	54	8.86	harmonic
4874	50.67	PK	311	1.6	V	34.8	4.36	26.78	63.05	74	10.95	harmonic
4874	42.05	PK	104	1.2	H	35.8	4.36	26.78	55.43	74	18.57	harmonic
High Channel (2462 MHz)												
4924	39.24	Ave	226	1.4	V	35.4	4.40	26.75	52.29	54	1.71*	harmonic
4924	31.21	Ave	197	1.5	H	36.6	4.40	26.75	45.46	54	8.54	harmonic
4924	50.16	PK	226	1.4	V	35.4	4.40	26.75	63.21	74	10.79	harmonic
4924	41.87	PK	197	1.5	H	36.6	4.40	26.75	56.12	74	17.88	harmonic

Radiated spurious emission in restricted band

Indicated		Detector (PK/Ave)	Table Angle Degree	Test 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. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Out of left side band (2310-2390 MHz)												
2396.54	40.36	Ave	247	1.3	V	30.3	3.00	26.84	46.82	54	7.18	Spurious
2396.54	32.41	Ave	142	2.4	H	30.5	3.00	26.84	39.07	54	14.93	Spurious
2396.54	48.34	PK	247	1.3	V	30.3	3.00	26.84	54.80	74	19.20	Spurious
2396.54	40.52	PK	142	2.4	H	30.5	3.00	26.84	47.18	74	26.82	Spurious
Out of right side band (2483.5-2500 MHz)												
2484.75	38.47	Ave	101	1.7	V	30.2	3.00	26.84	44.83	54	9.17	Spurious
2484.75	30.79	Ave	252	1.7	H	30.4	3.00	26.84	37.35	54	16.65	Spurious
2484.75	46.39	PK	101	1.7	V	30.2	3.00	26.84	52.75	74	21.25	Spurious
2484.75	38.87	PK	252	1.7	H	30.4	3.00	26.84	45.43	74	28.57	Spurious

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)	Comment
Low Channel (2412 MHz)												
4824	39.86	Ave	142	1.5	V	35.2	4.30	26.80	52.56	54	1.44*	harmonic
4824	31.19	Ave	144	1.3	H	36.2	4.30	26.80	44.89	54	9.11	harmonic
4824	50.67	PK	142	1.5	V	35.2	4.30	26.80	63.37	74	10.63	harmonic
4824	41.81	PK	144	1.3	H	36.2	4.30	26.80	55.51	74	18.49	harmonic
Middle Channel (2437 MHz)												
4874	39.24	Ave	315	1.4	V	34.8	4.36	26.78	51.62	54	2.38*	harmonic
4874	31.07	Ave	105	1.5	H	35.5	4.36	26.78	44.15	54	9.85	harmonic
4874	49.05	PK	315	1.4	V	34.8	4.36	26.78	61.43	74	12.57	harmonic
4874	40.98	PK	105	1.5	H	35.8	4.36	26.78	54.36	74	19.64	harmonic
High Channel (2462 MHz)												
4924	38.88	Ave	227	1.5	V	35.4	4.40	26.75	51.93	54	2.07*	harmonic
4924	30.82	Ave	185	1.5	H	36.6	4.40	26.75	45.07	54	8.93	harmonic
4924	48.65	PK	227	1.5	V	35.4	4.40	26.75	61.70	74	12.30	harmonic
4924	40.52	PK	185	1.5	H	36.6	4.40	26.75	54.77	74	19.23	harmonic

Radiated spurious emission in restricted band

Indicated		Detector (PK/Ave)	Table Angle Degree	Test 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. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Out of left side band (2310-2390 MHz)												
2391.81	41.09	Ave	251	1.8	V	30.3	3.00	26.84	47.55	54	6.45	Spurious
2391.81	34.42	Ave	139	2	H	30.5	3.00	26.84	41.08	54	12.92	Spurious
2391.81	49.61	PK	251	1.8	V	30.3	3.00	26.84	56.07	74	17.93	Spurious
2391.81	42.51	PK	139	2	H	30.5	3.00	26.84	49.17	74	24.83	Spurious
Out of right side band (2483.5-2500 MHz)												
2484.28	40.23	Ave	93	1.5	V	30.2	3.00	26.84	46.59	54	7.41	Spurious
2484.28	32.82	Ave	247	1.7	H	30.4	3.00	26.84	39.38	54	14.62	Spurious
2484.28	48.51	PK	93	1.5	V	30.2	3.00	26.84	54.87	74	19.13	Spurious
2484.28	40.79	PK	247	1.7	H	30.4	3.00	26.84	47.35	74	26.65	Spurious

802.11n 20:

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)	Comment
Low Channel (2412 MHz)												
4824	39.75	Ave	138	1.5	V	35.2	4.30	26.80	52.45	54	1.55*	harmonic
4824	31.47	Ave	154	1.3	H	36.2	4.30	26.80	45.17	54	8.83	harmonic
4824	50.27	PK	138	1.5	V	35.2	4.30	26.80	62.97	74	11.03	harmonic
4824	41.68	PK	154	1.3	H	36.2	4.30	26.80	55.38	74	18.62	harmonic
Middle Channel (2437 MHz)												
4874	39.18	Ave	312	1.4	V	34.8	4.36	26.78	51.56	54	2.44*	harmonic
4874	30.07	Ave	111	1.5	H	35.5	4.36	26.78	43.15	54	10.85	harmonic
4874	49.31	PK	312	1.4	V	34.8	4.36	26.78	61.69	74	12.31	harmonic
4874	40.21	PK	111	1.5	H	35.8	4.36	26.78	53.59	74	20.41	harmonic
High Channel (2462 MHz)												
4924	38.42	Ave	218	1.5	V	35.4	4.40	26.75	51.47	54	2.53*	harmonic
4924	29.74	Ave	201	1.5	H	36.6	4.40	26.75	43.99	54	10.01	harmonic
4924	48.89	PK	218	1.5	V	35.4	4.40	26.75	61.94	74	12.06	harmonic
4924	39.53	PK	201	1.5	H	36.6	4.40	26.75	53.78	74	20.22	harmonic

Radiated spurious emission in restricted band

Indicated		Detector (PK/Ave)	Table Angle Degree	Test 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. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Out of left side band (2310-2390 MHz)												
2389.23	40.37	Ave	251	1.8	V	30.3	3.00	26.84	46.83	54	7.17	Spurious
2389.23	50.93	PK	251	1.8	V	30.3	3.00	26.84	57.39	74	16.61	Spurious
2389.23	29.76	Ave	145	2	H	30.5	3.00	26.84	36.42	54	17.58	Spurious
2389.23	39.87	PK	145	2	H	30.5	3.00	26.84	46.53	74	27.47	Spurious
Out of right side band (2483.5-2500 MHz)												
2485.87	38.13	Ave	105	1.5	V	30.2	3.00	26.84	44.49	54	9.51	Spurious
2485.87	30.02	Ave	255	1.7	H	30.4	3.00	26.84	36.58	54	17.42	Spurious
2485.87	48.34	PK	105	1.5	V	30.2	3.00	26.84	54.70	74	19.30	Spurious
2485.87	39.85	PK	255	1.7	H	30.4	3.00	26.84	46.41	74	27.59	Spurious

802.11n 40:

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)	Comment
Low Channel (2422 MHz)												
4844	39.03	Ave	135	1.5	V	35.2	4.30	26.80	51.73	54	2.27*	harmonic
4844	30.27	Ave	147	1.3	H	36.2	4.30	26.80	43.97	54	10.03	harmonic
4844	49.18	PK	135	1.5	V	35.2	4.30	26.80	61.88	74	12.12	harmonic
4844	40.52	PK	147	1.3	H	36.2	4.30	26.80	54.22	74	19.78	harmonic
Middle Channel (2437 MHz)												
4874	38.32	Ave	309	1.4	V	34.8	4.36	26.78	50.70	54	3.30*	harmonic
4874	29.18	Ave	108	1.5	H	35.5	4.36	26.78	42.26	54	11.74	harmonic
4874	48.51	PK	309	1.4	V	34.8	4.36	26.78	60.89	74	13.11	harmonic
4874	39.31	PK	108	1.5	H	35.8	4.36	26.78	52.69	74	21.31	harmonic
High Channel (2452MHz)												
4904	38.18	Ave	214	1.5	V	35.4	4.40	26.75	51.23	54	2.77*	harmonic
4904	29.85	Ave	189	1.5	H	36.6	4.40	26.75	44.10	54	9.90	harmonic
4904	48.12	PK	214	1.5	V	35.4	4.40	26.75	61.17	74	12.83	harmonic
4904	39.09	PK	189	1.5	H	36.6	4.40	26.75	53.34	74	20.66	harmonic

Radiated spurious emission in restricted band

Indicated		Detector (PK/Ave)	Table Angle Degree	Test 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. (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Out of left side band (2310-2390 MHz)												
2353.62	39.11	Ave	255	1.8	V	30.3	3.00	26.84	45.57	54	8.43	Spurious
2353.62	30.87	Ave	142	2	H	30.5	3.00	26.84	37.53	54	16.47	Spurious
2353.62	48.25	PK	255	1.8	V	30.3	3.00	26.84	54.71	74	19.29	Spurious
2353.62	40.09	PK	142	2	H	30.5	3.00	26.84	46.75	74	27.25	Spurious
Out of right side band (2483.5-2500 MHz)												
2488.74	38.14	Ave	105	1.5	V	30.2	3.00	26.84	44.50	54	9.50	Spurious
2488.74	29.54	Ave	251	1.7	H	30.4	3.00	26.84	36.10	54	17.9	Spurious
2488.74	47.38	PK	105	1.5	V	30.2	3.00	26.84	53.74	74	20.26	Spurious
2488.74	38.76	PK	251	1.7	H	30.4	3.00	26.84	45.32	74	28.68	Spurious

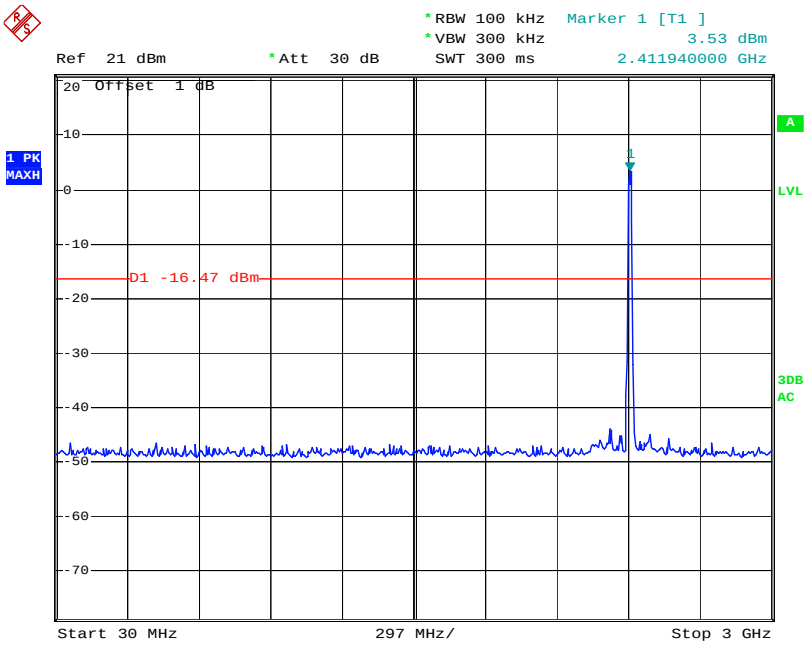
** Within measurement uncertainty.*

Antenna Port Conducted Spurious Emissions

Channel Frequency (MHz)	Data Rate (Mbps)	Limit (dBc)	Ref plot	Result
802.11b mode				
2412	1	20	B-L	Pass
2437	1	20	B-M	Pass
2462	1	20	B-H	Pass
802.11g mode				
2412	6	20	G-L	Pass
2437	6	20	G-M	Pass
2462	6	20	G-H	Pass
802.11n-20 mode				
2412	6.5	20	N20-L	Pass
2437	6.5	20	N20-M	Pass
2462	6.5	20	N20-H	Pass
802.11n-40 mode				
2422	13.5	20	N40-L	Pass
2437	13.5	20	N40-M	Pass
2452	13.5	20	N40-H	Pass

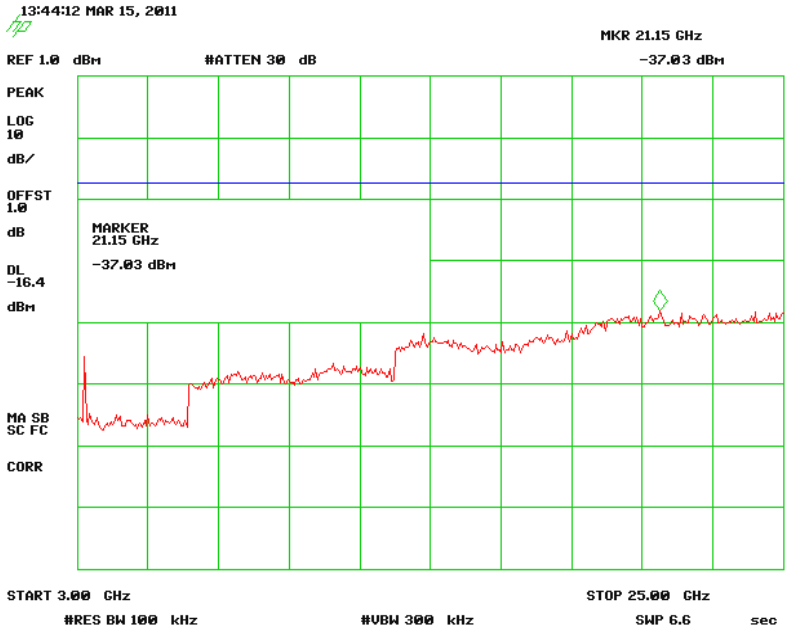
Please refer to the following plots.

802.11b Low Channel (30 MHz-3 GHz)

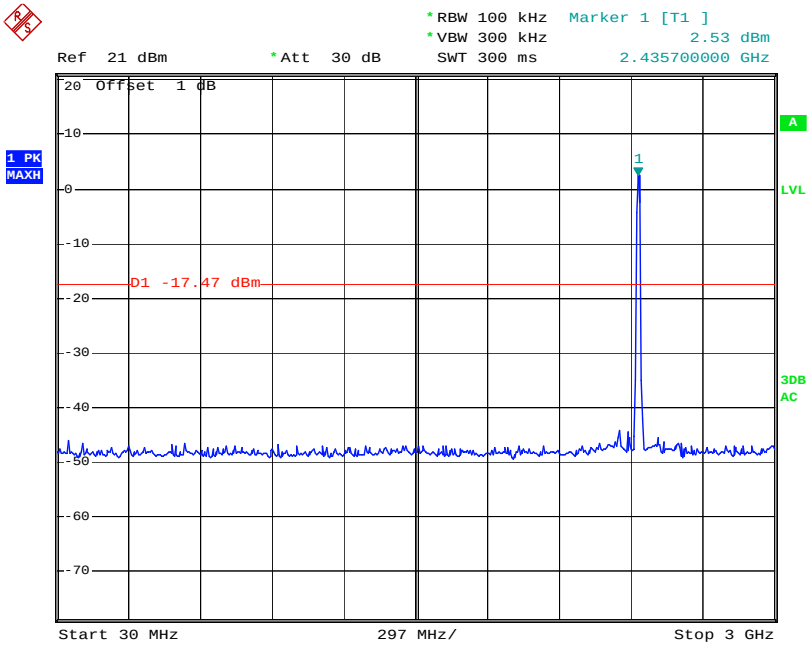


Date: 13.MAR.2011 10:05:40

802.11b Low Channel (3 GHz-25 GHz)



802.11b Middle Channel (30 MHz-3 GHz)



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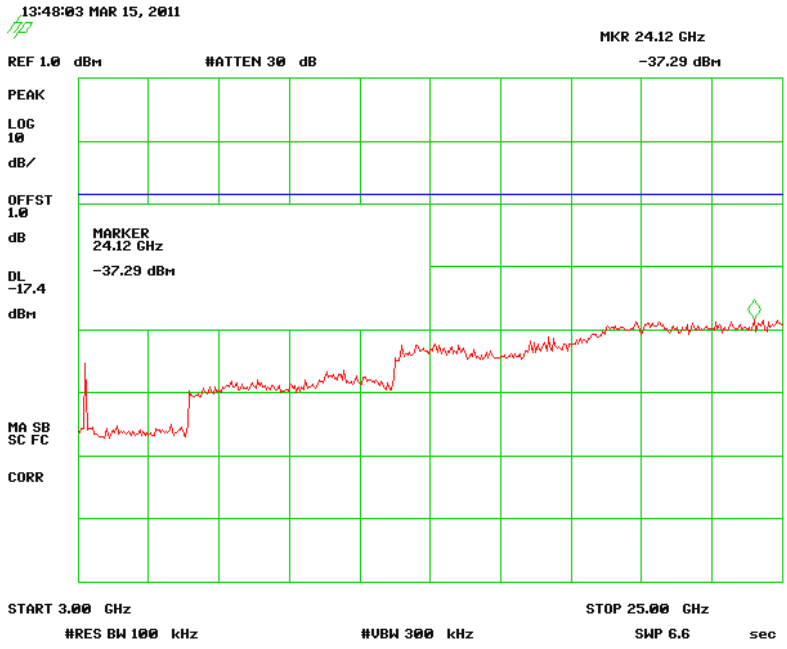
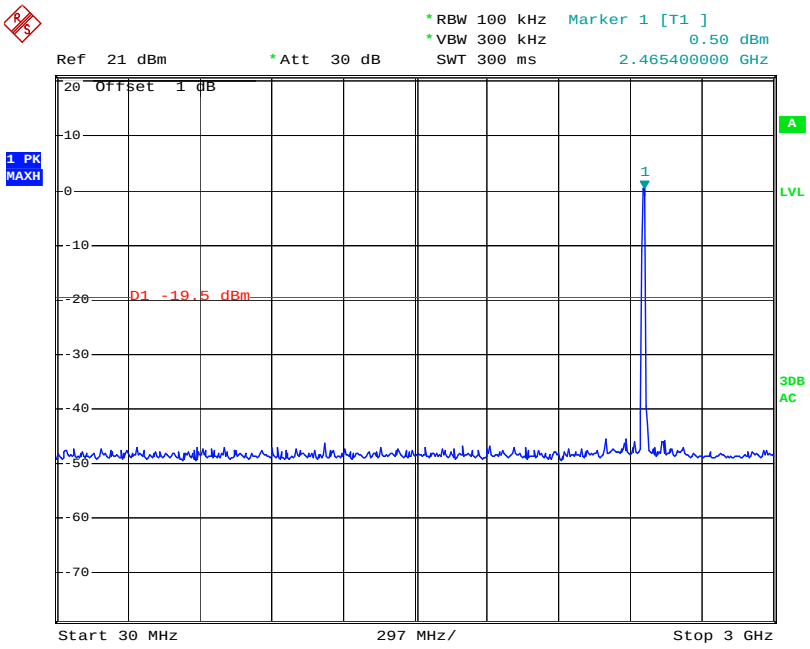
802.11b Middle Channel (3 GHz-25 GHz)

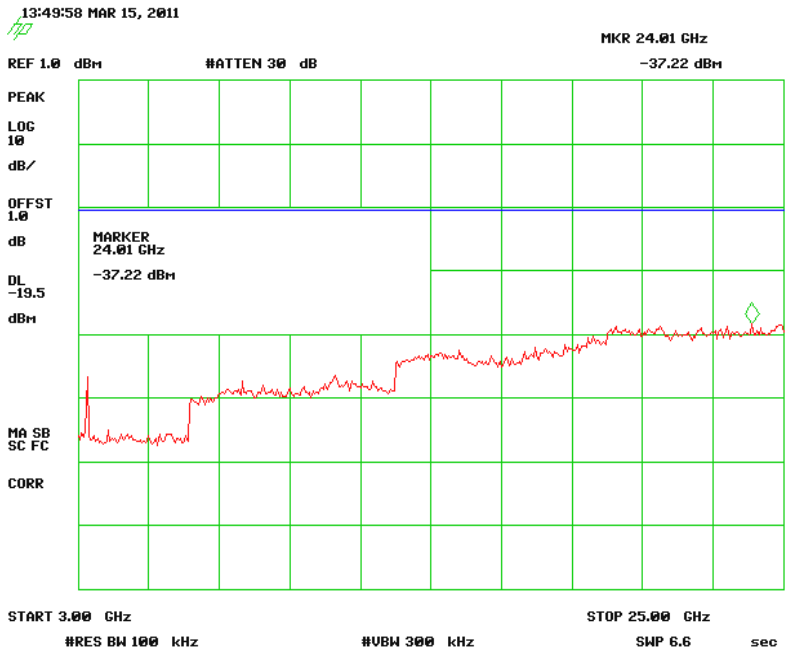


802.11b High Channel (30 MHz-3 GHz)

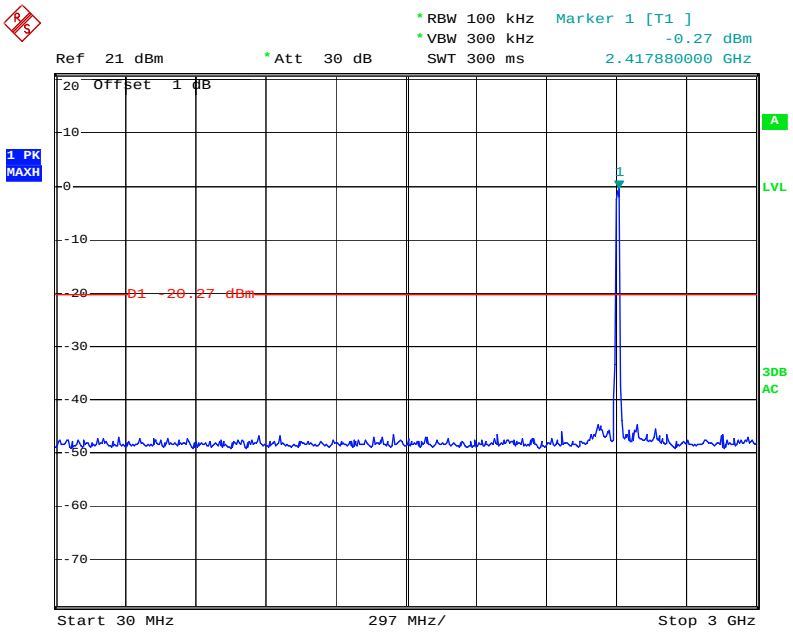


Date: 13.MAR.2011 10:08:55

802.11b High Channel (3 GHz-25 GHz)

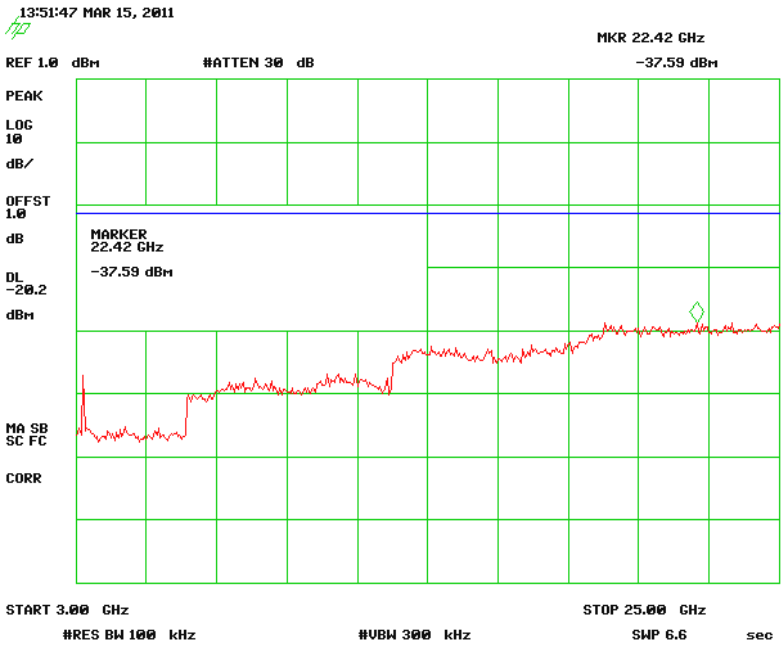


802.11g Low Channel (30 MHz-3 GHz)

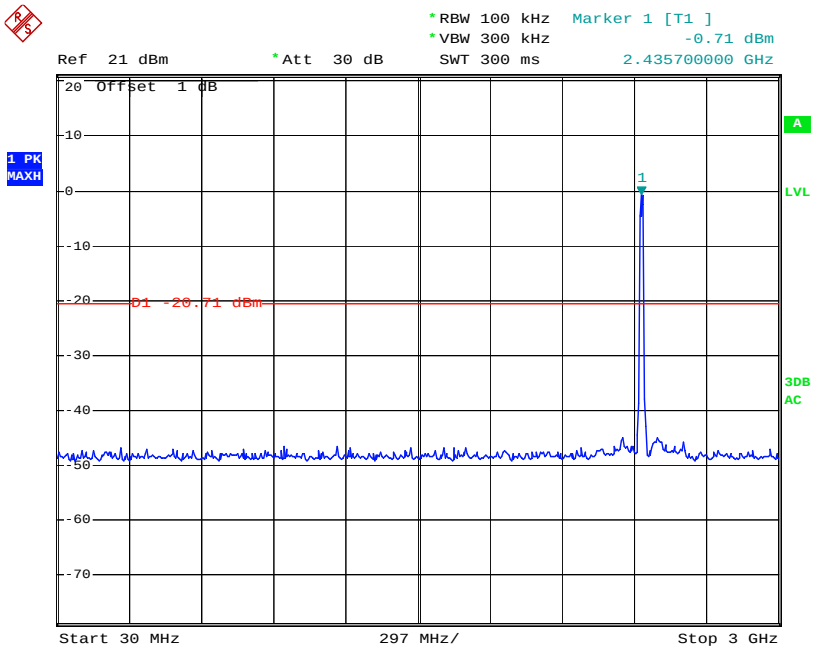


Date: 13.MAR.2011 10:11:02

802.11g Low Channel (3 GHz-25 GHz)

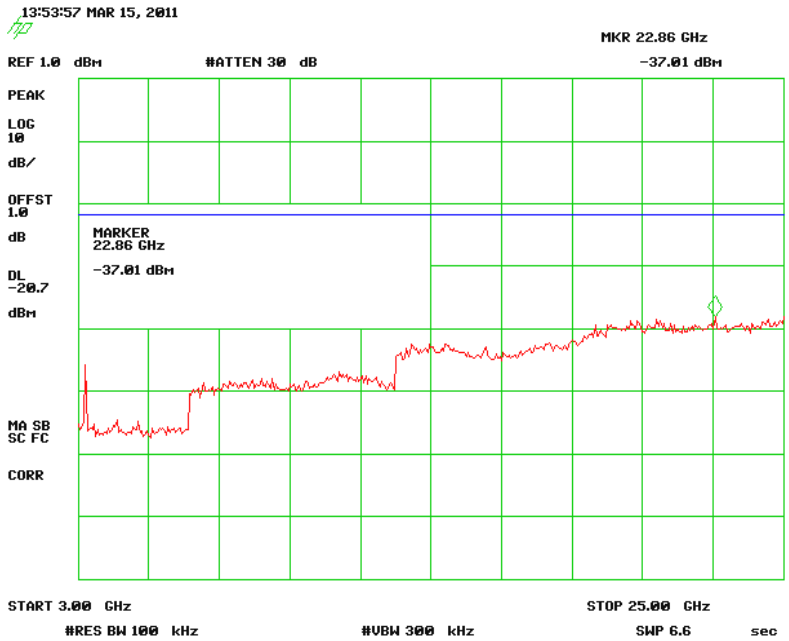


802.11g Middle Channel (30 MHz-3 GHz)

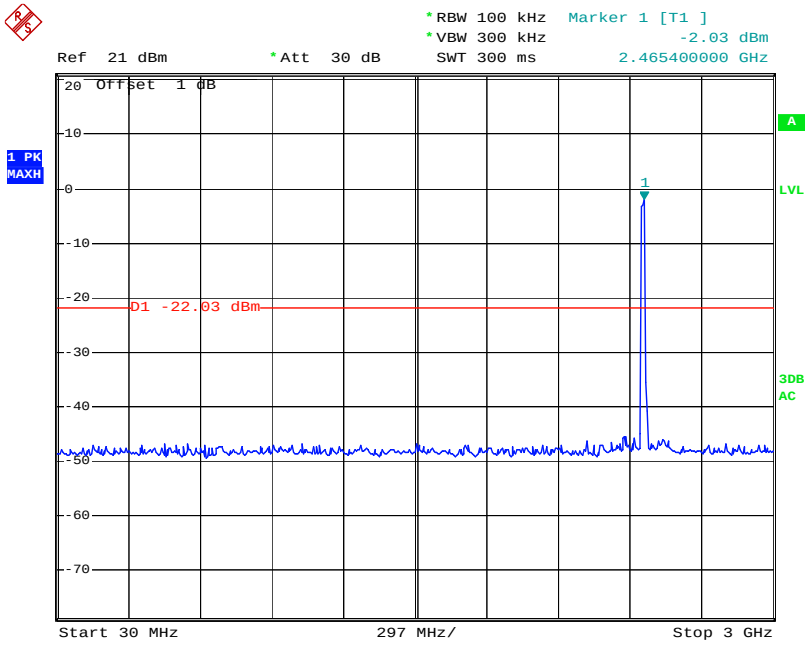


Date: 13.MAR.2011 10:12:23

802.11g Middle Channel (3 GHz-25 GHz)

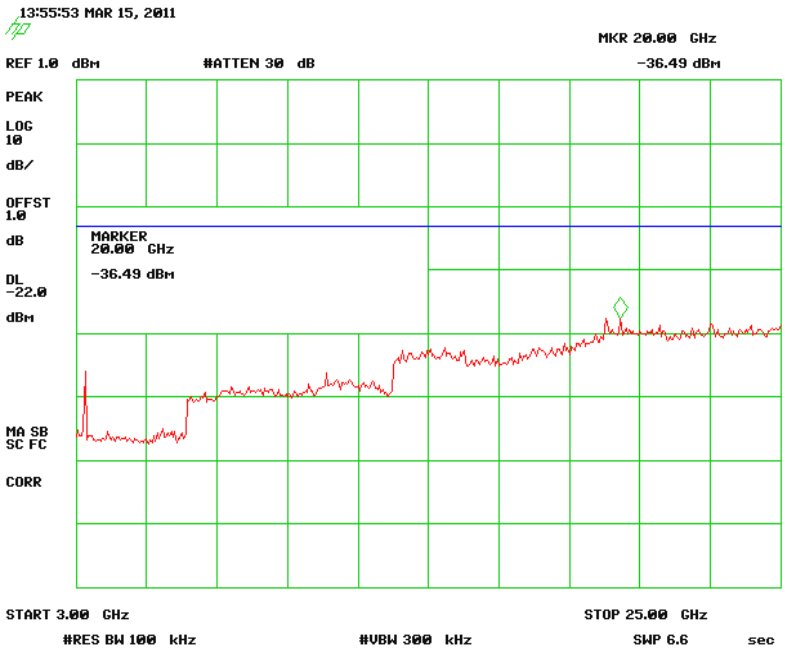


802.11g High Channel (30 MHz-3 GHz)

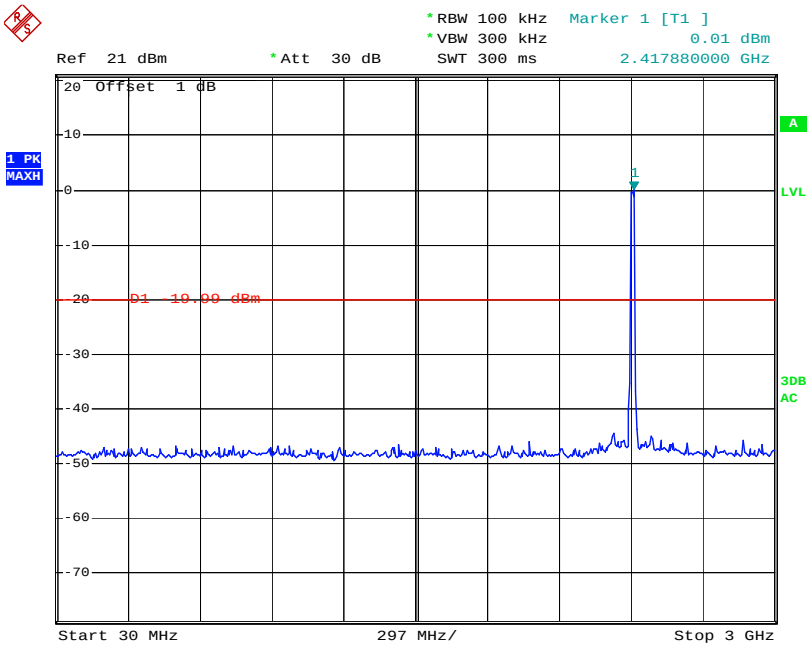


Date: 13.MAR.2011 10:13:56

802.11g High Channel (3 GHz-25 GHz)

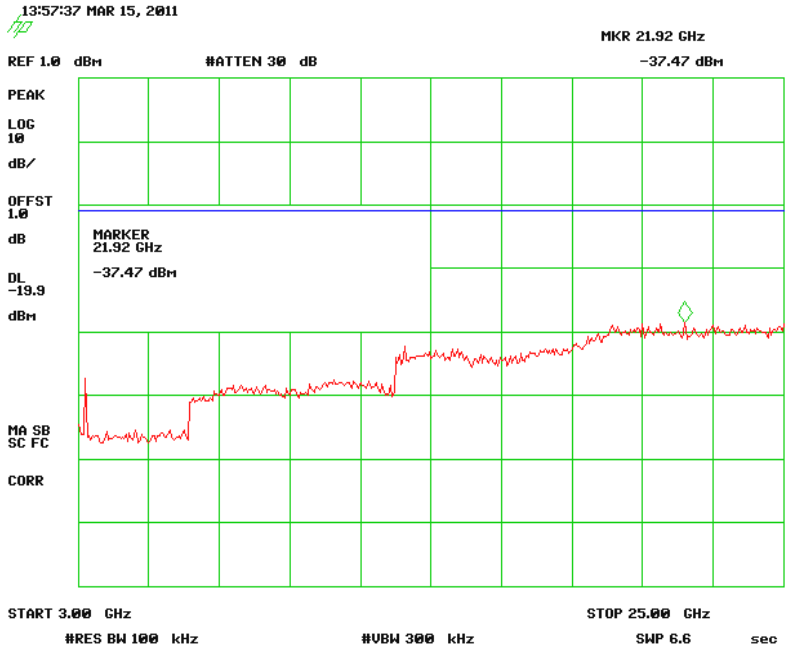


802.11n20 Low Channel (30 MHz-3 GHz)

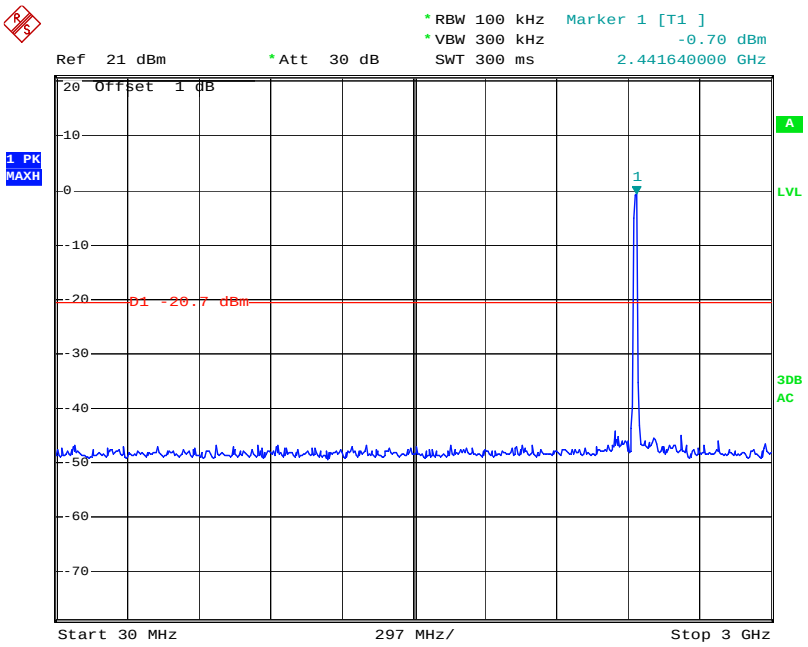


Date: 13.MAR.2011 10:15:58

802.11n20 Low Channel (3 GHz-25 GHz)

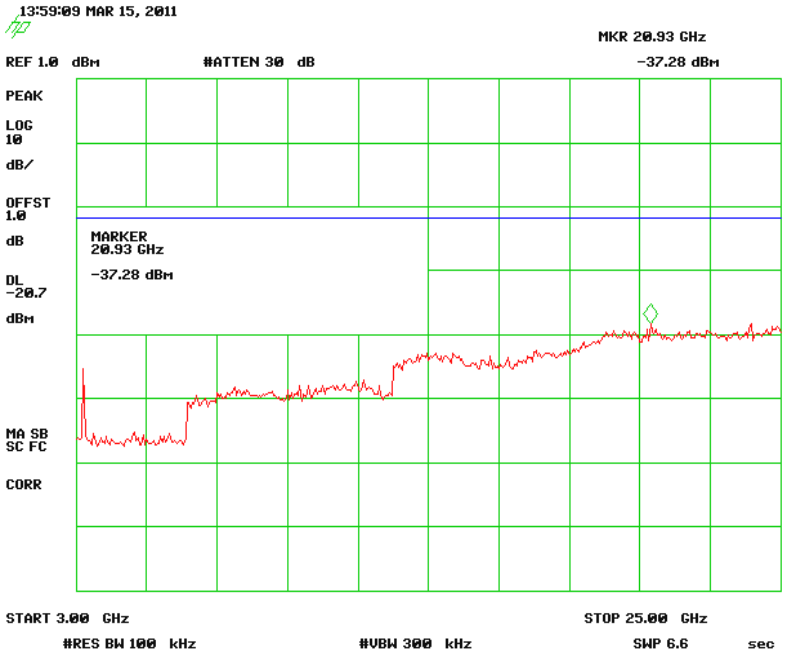


802.11n20 Middle Channel (30 MHz-3 GHz)

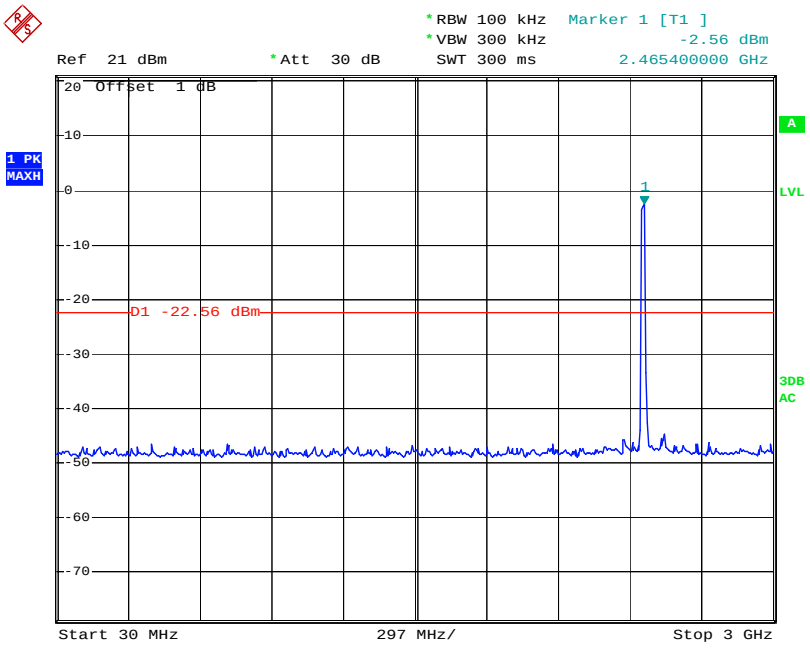


Date: 13.MAR.2011 10:17:33

802.11n20 Middle Channel (3 GHz-25 GHz)

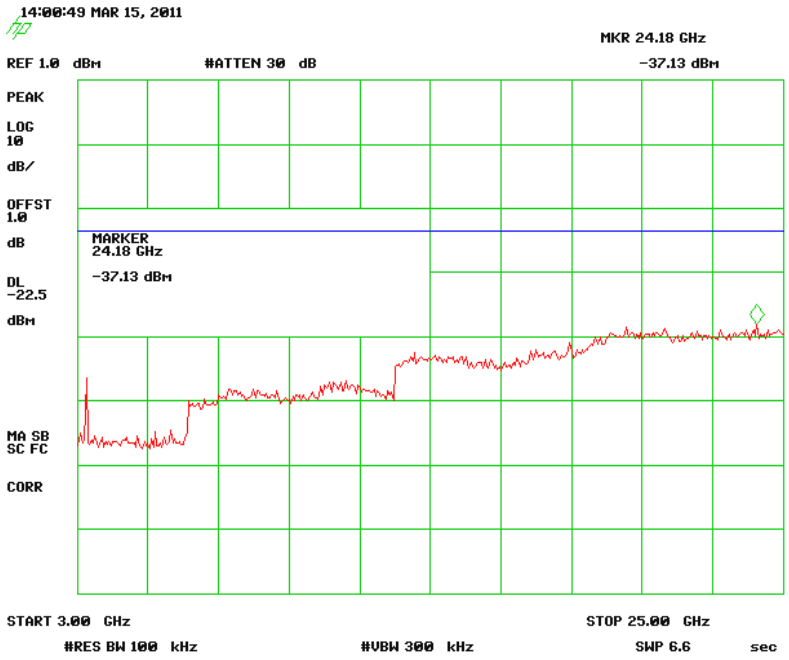


802.11n20 High Channel (30 MHz-3 GHz)

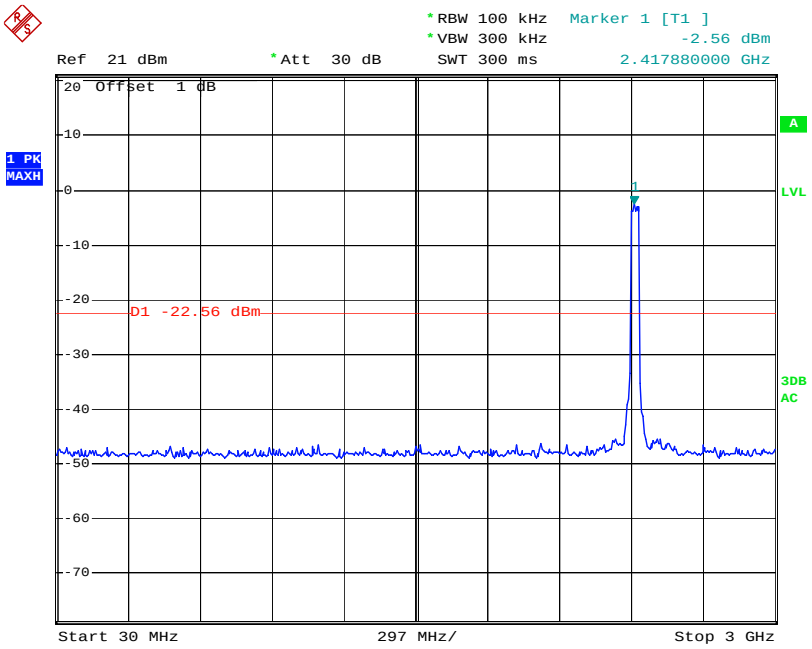


Date: 13.MAR.2011 10:19:59

802.11n20 High Channel (3 GHz-25 GHz)

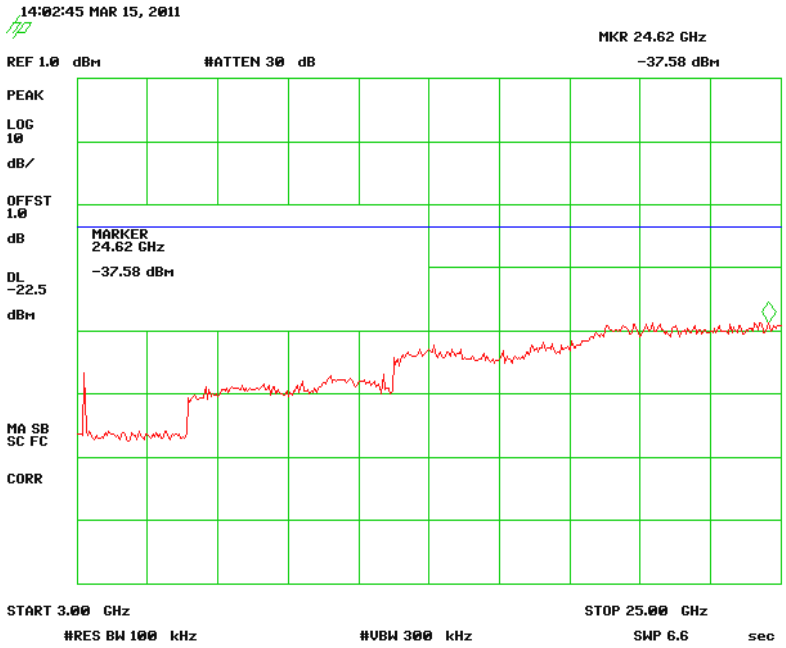


802.11n40 Low Channel (30 MHz-3 GHz)

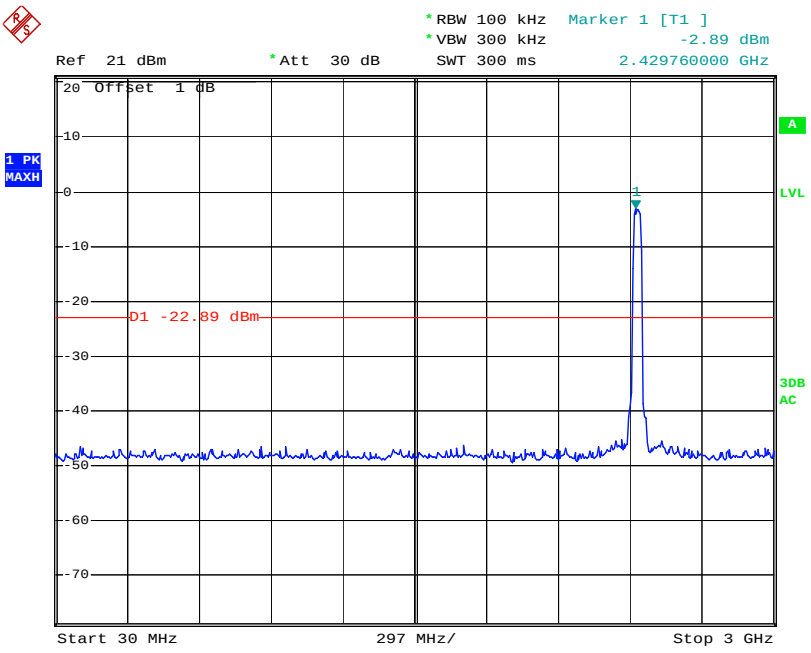


Date: 13.MAR.2011 10:24:20

802.11n40 Low Channel (3 GHz-25 GHz)

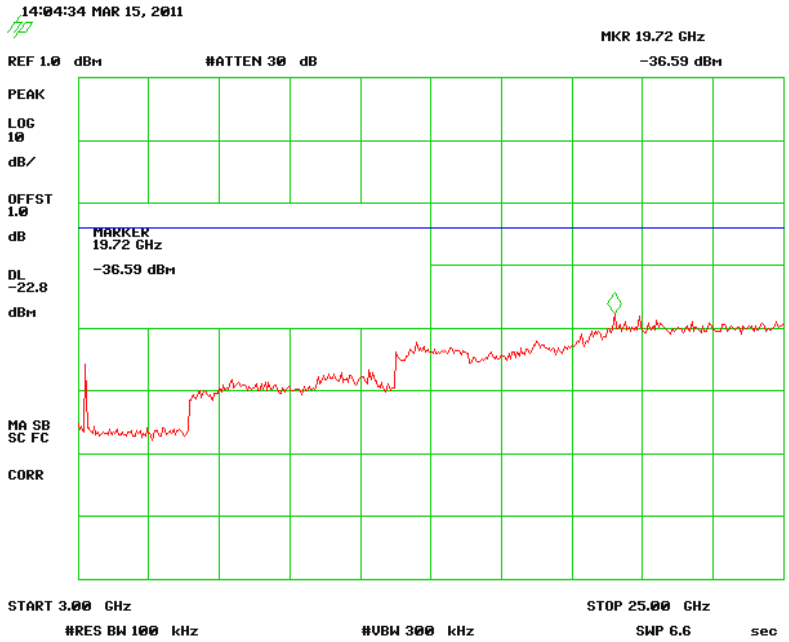


802.11n40 Middle Channel (30 MHz-3 GHz)

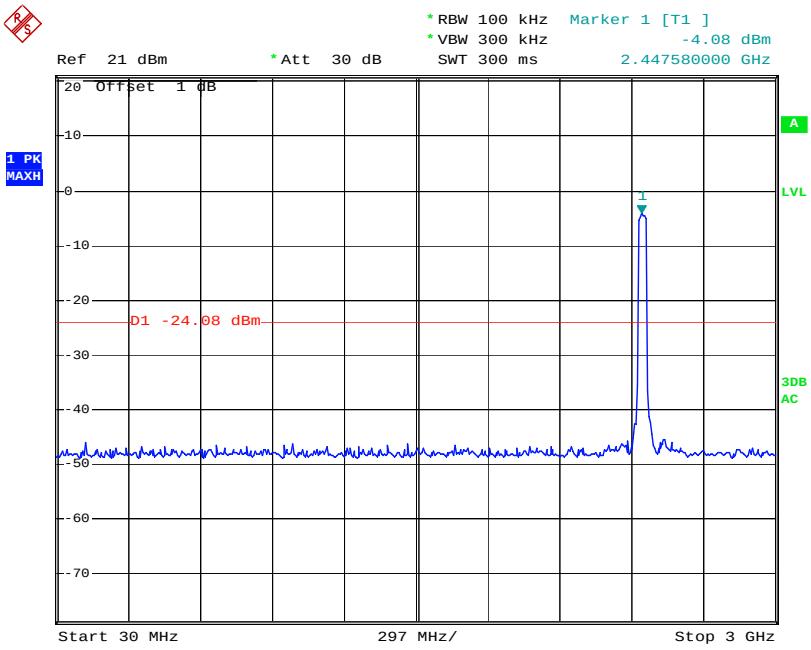


Date: 13.MAR.2011 10:25:56

802.11n40 Middle Channel (3 GHz-25 GHz)

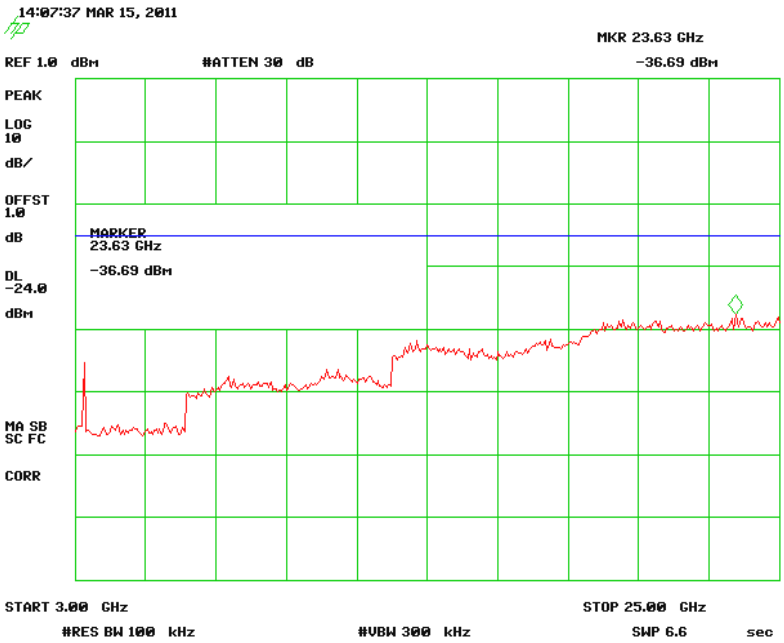


802.11n40 High Channel (30 MHz-3 GHz)



Date: 13.MAR.2011 10:28:26

802.11n40 High Channel (3G Hz-25 GHz)



FCC §15.247(a) (2) – 6 B 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.

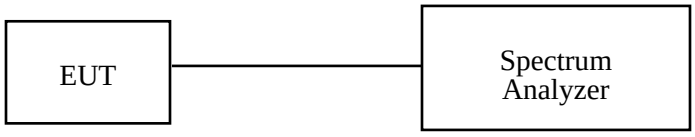
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10

*** 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 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

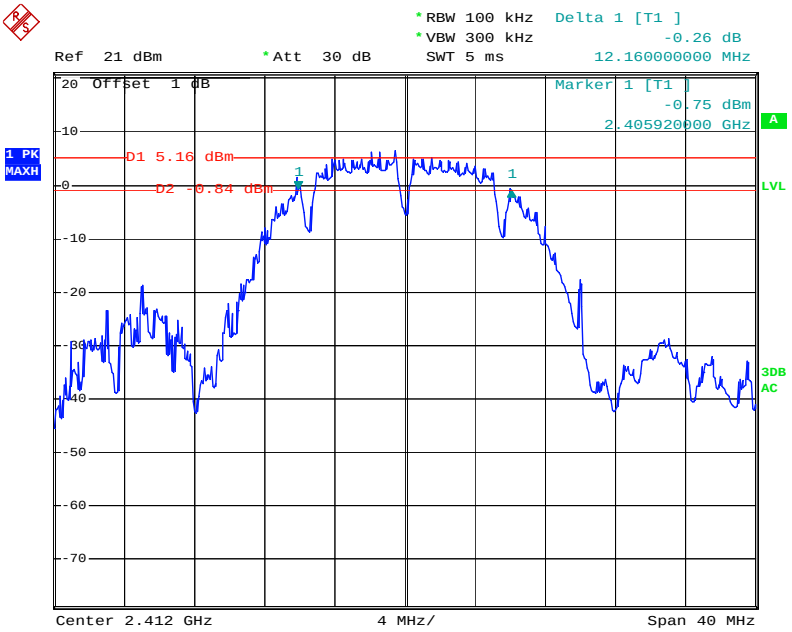
The testing was performed by Back Huang on 2011-02-27.

Test Result: Pass.

Please refer to the following tables and plots.

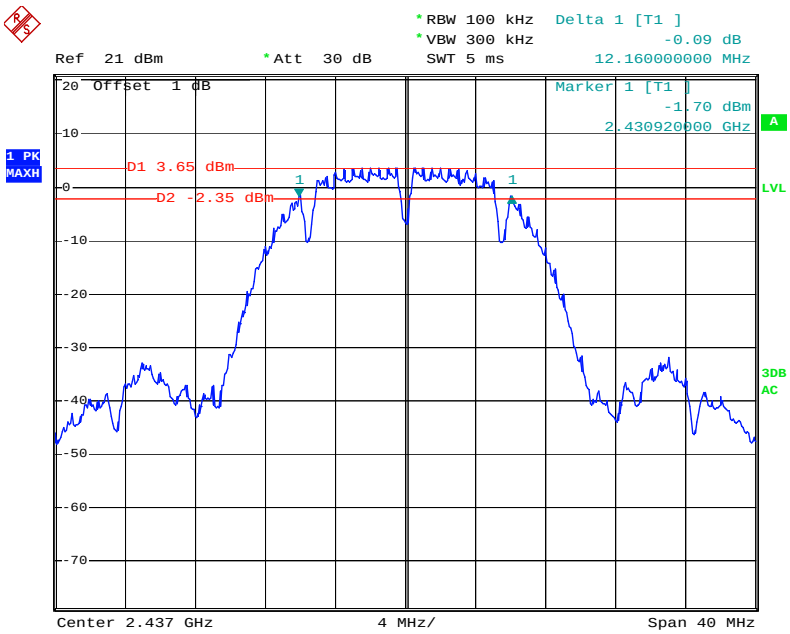
Channel	Frequency (MHz)	Data Rate (Mbps)	6 B Bandwidth (MHz)	FCC Part 15.247 Limit (kHz)
802.11b mode				
Low	2412	1	12.16	> 500
Middle	2437	1	12.16	> 500
High	2462	1	12.16	> 500
802.11g mode				
Low	2412	6	16.48	> 500
Middle	2437	6	16.48	> 500
High	2462	6	16.48	> 500
802.11n-20 mode				
Low	2412	6.5	16.96	> 500
Middle	2437	6.5	16.96	> 500
High	2462	6.5	16.96	> 500
802.11n-40 mode				
Low	2422	13.5	35.52	> 500
Middle	2437	13.5	35.52	> 500
High	2452	13.5	35.52	> 500

802.11b Low Channel



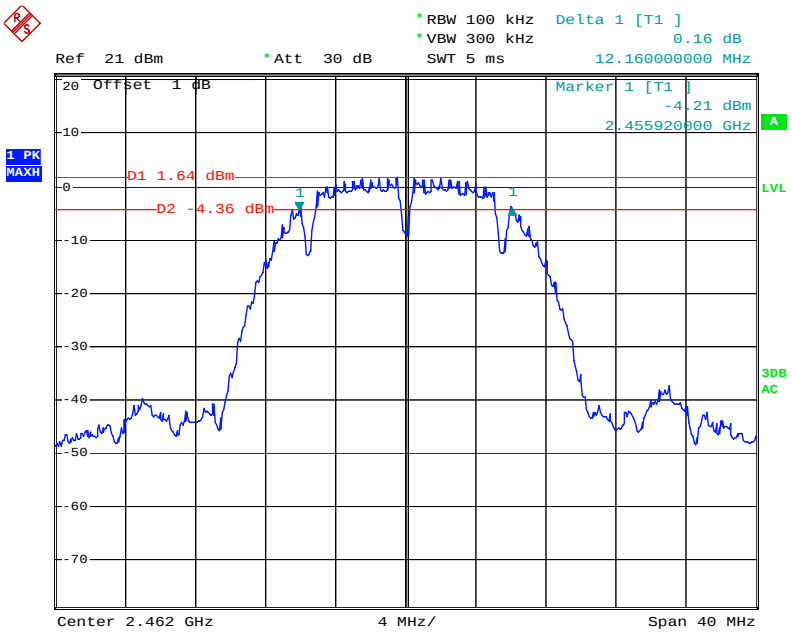
Date: 27.FEB.2011 17:04:26

802.11b Middle Channel



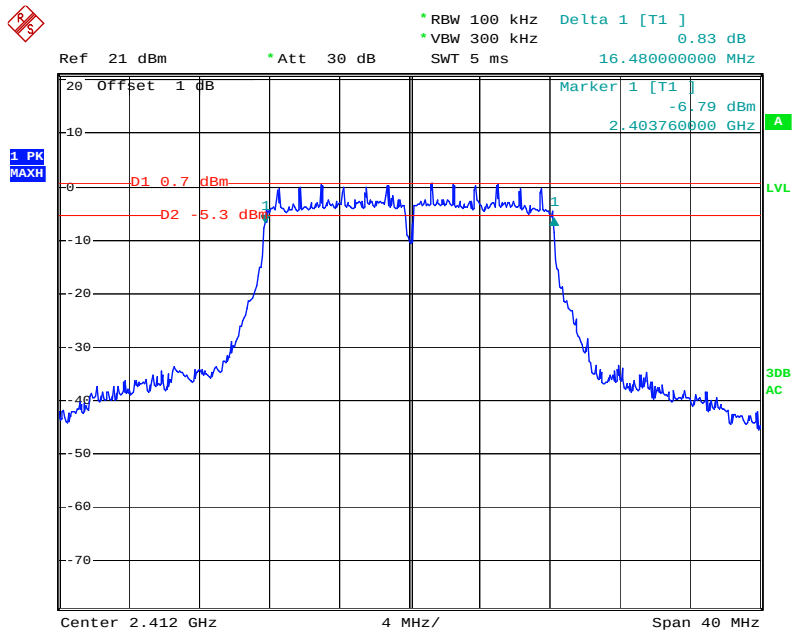
Date: 27.FEB.2011 17:09:10

802.11b High Channel



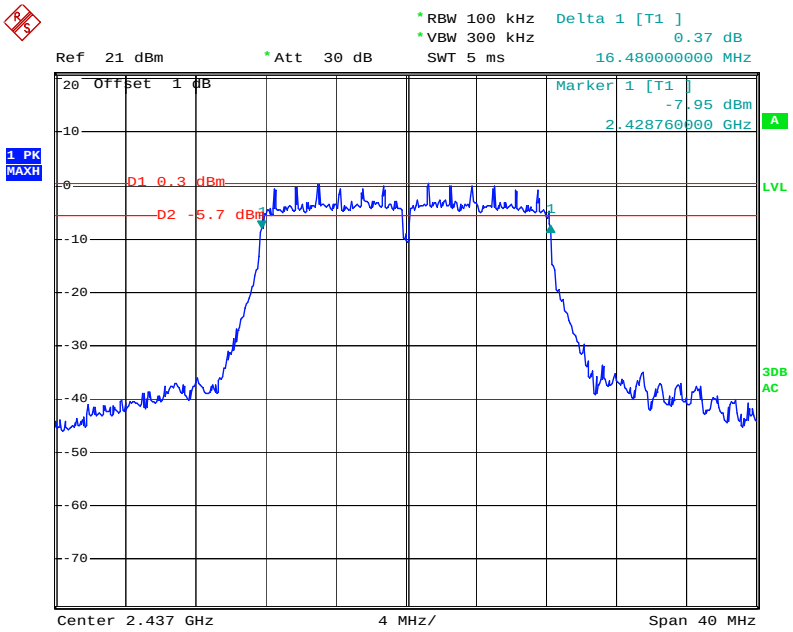
Date: 27.FEB.2011 17:11:02

802.11g Low Channel



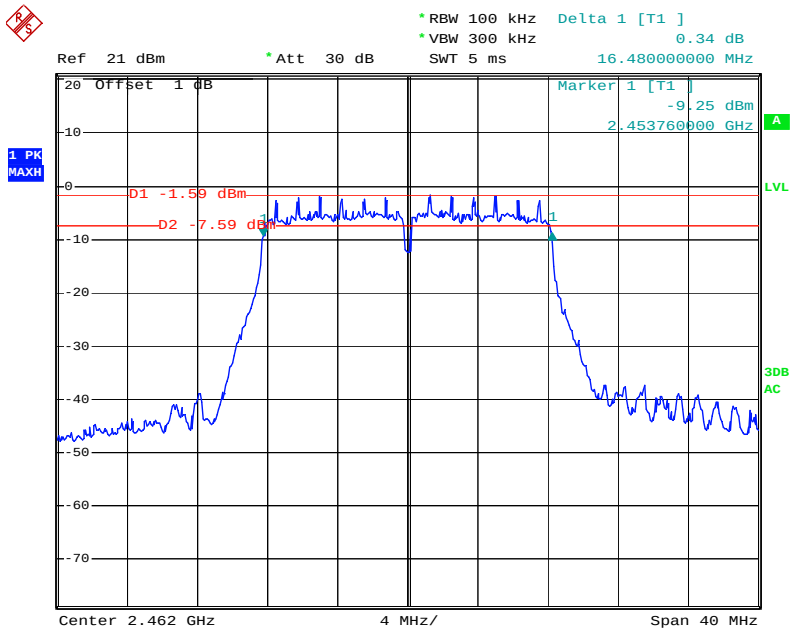
Date: 27.FEB.2011 17:14:30

802.11g Middle Channel



Date: 27.FEB.2011 17:18:56

802.11g High Channel



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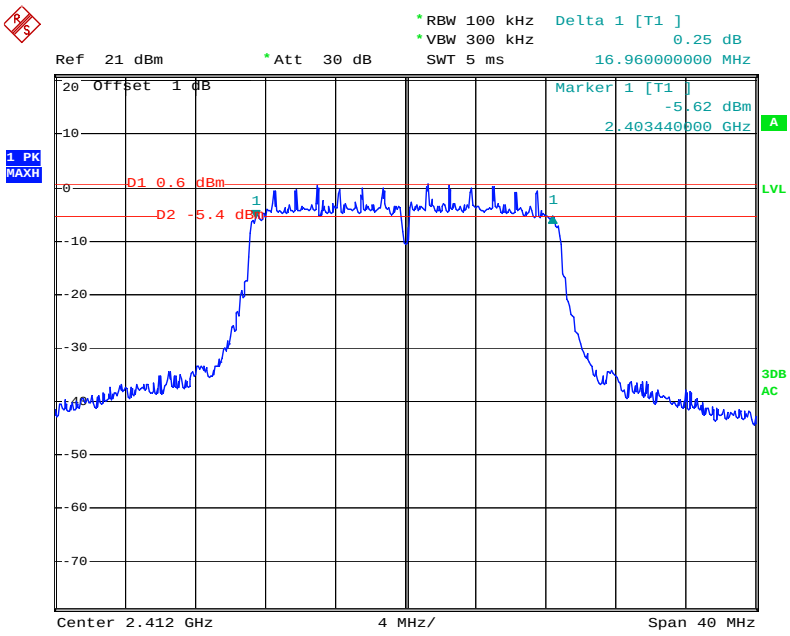
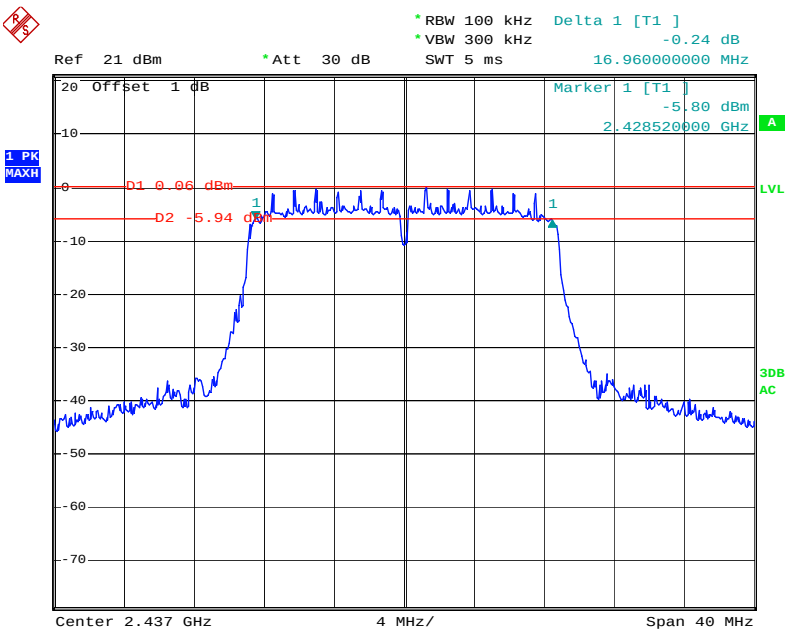
802.11n20 Low Channel



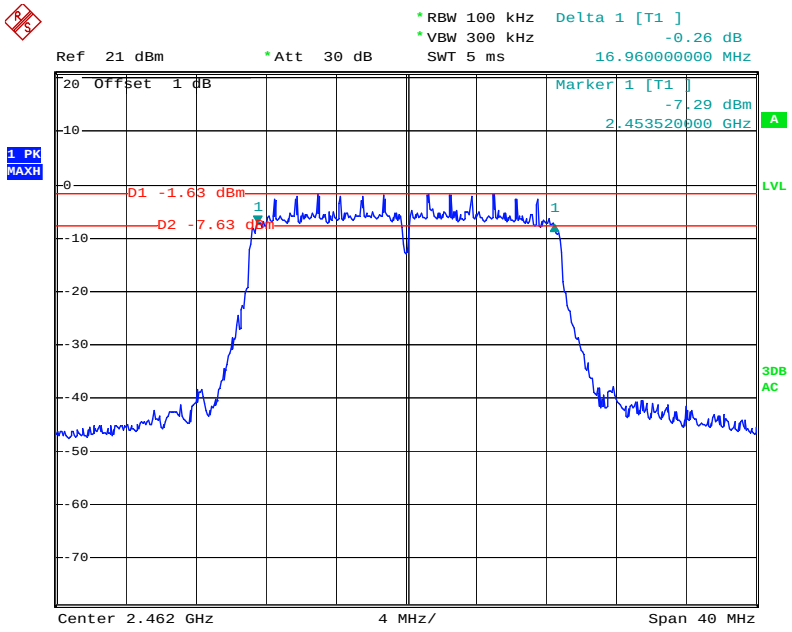
Date: 27.FEB.2011 17:24:49

802.11n20 Middle Channel



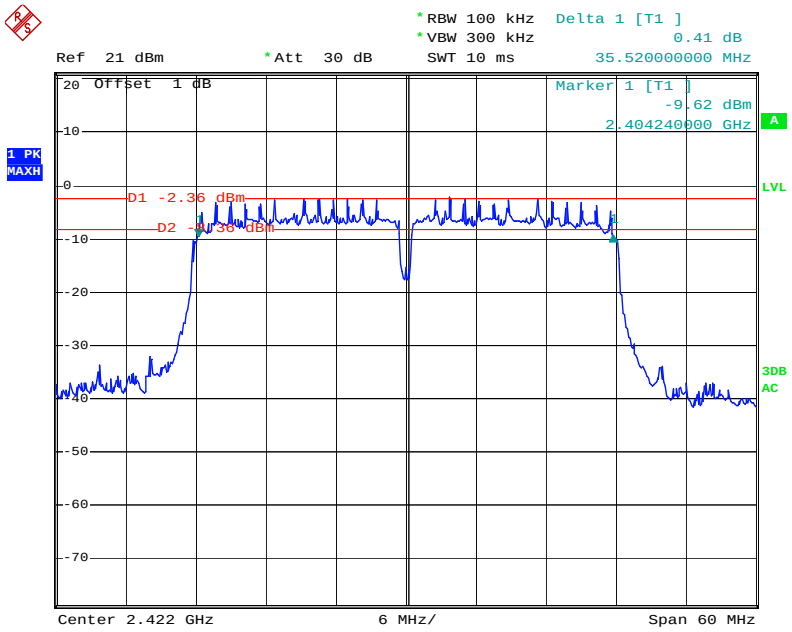
Date: 27.FEB.2011 17:26:58

802.11n20 High Channel



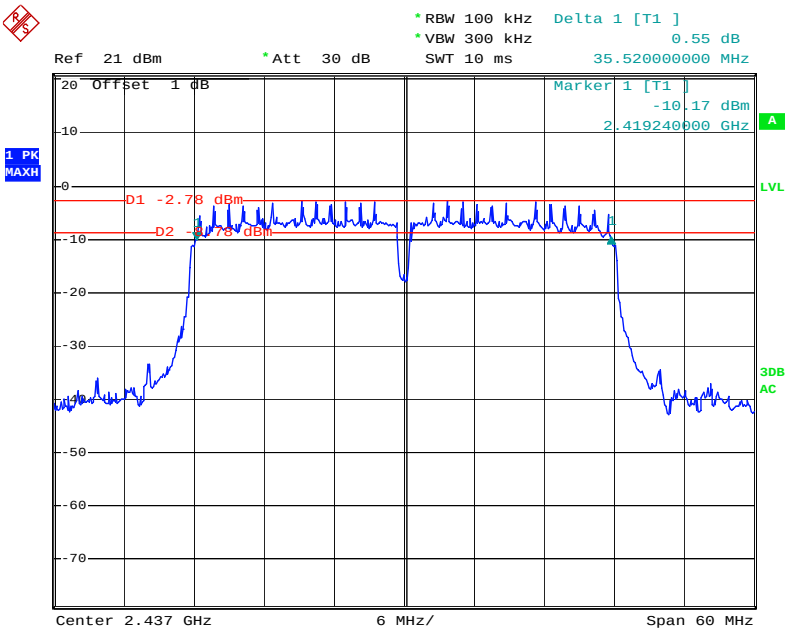
Date: 27.FEB.2011 17:29:51

802.11n40 Low Channel



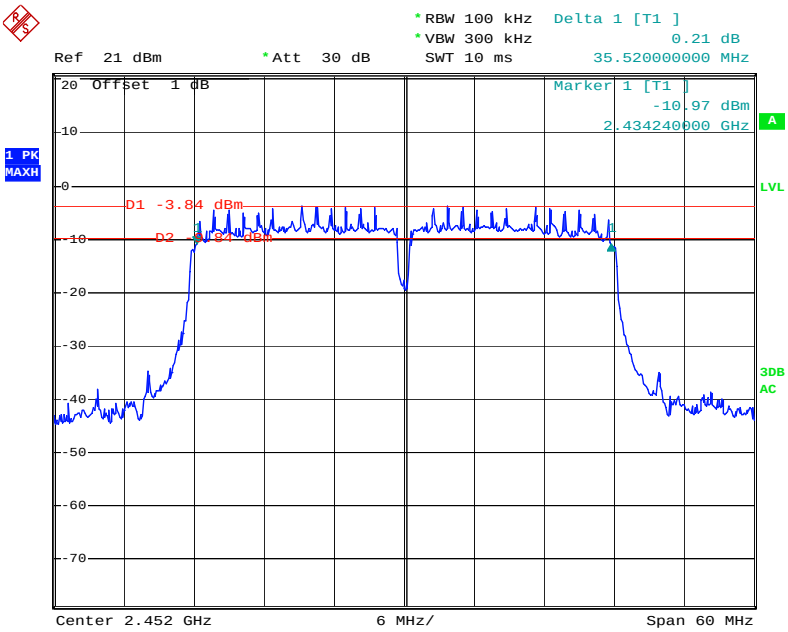
Date: 27.FEB.2011 17:36:23

802.11n40 Middle Channel



Date: 27.FEB.2011 17:37:54

802.11n40 High Channel



Date: 27.FEB.2011 17:40:57

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.

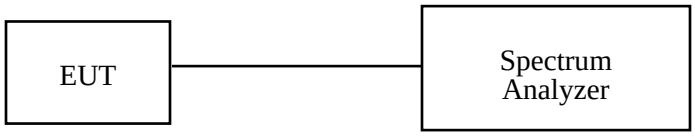
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10

*** 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 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

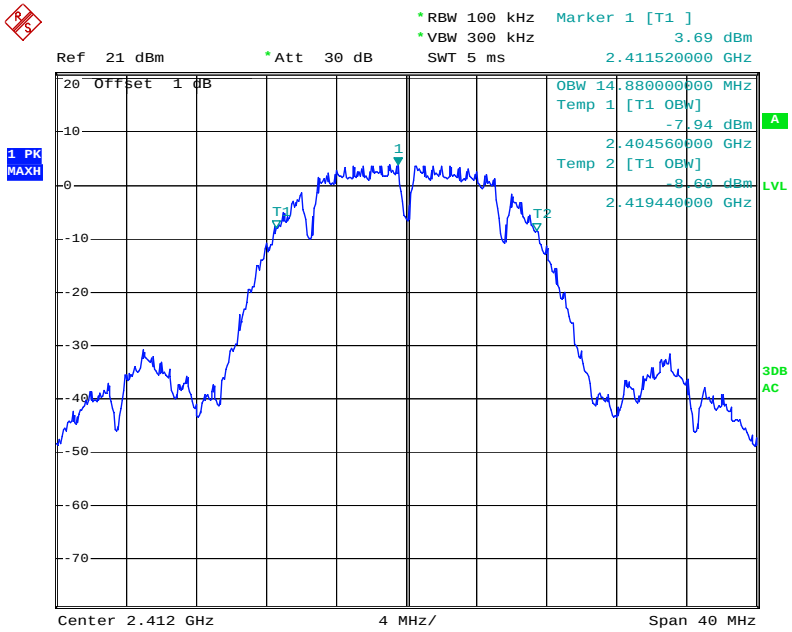
Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Back Huang on 2011-03-06.

Test Mode: Transmitting

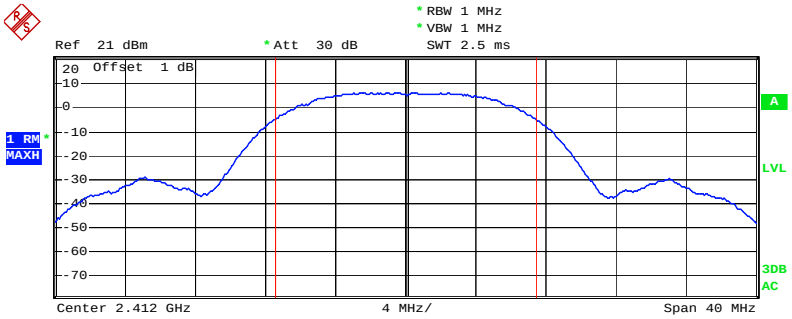
Channel	Frequency (MHz)	Data Rate (Mbps)	Output Power (dBm)	Limit (dBm)
802.11b mode				
Low	2412	1	15.26	30
Middle	2437	1	13.95	30
High	2462	1	12.01	30
802.11g mode				
Low	2412	6	13.12	30
Middle	2437	6	12.44	30
High	2462	6	10.68	30
802.11n20 mode				
Low	2412	6.5	12.97	30
Middle	2437	6.5	12.39	30
High	2462	6.5	10.65	30
802.11n40 mode				
Low	2422	13.5	13.01	30
Middle	2437	13.5	12.56	30
High	2452	13.5-	11.47	30

802.11b 99% Occupied Bandwidth, Low Channel



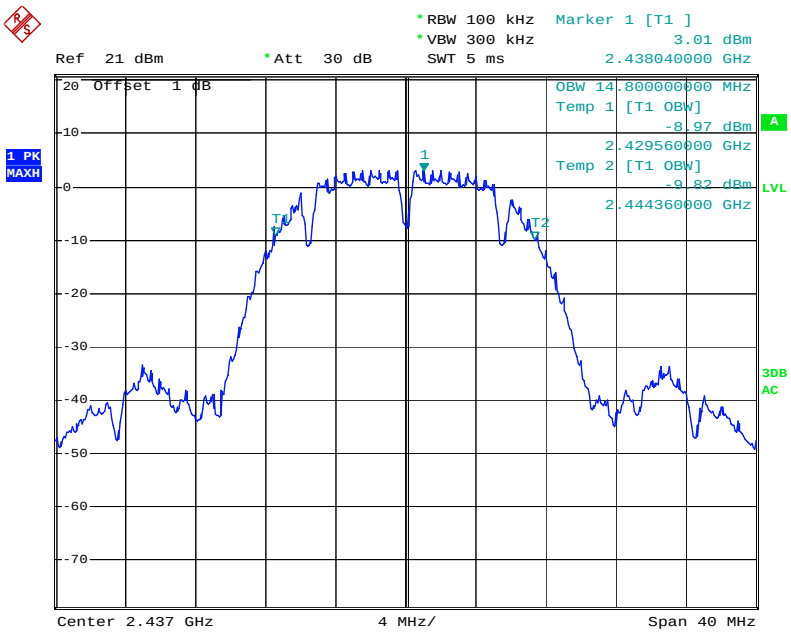
Date: 6.MAR.2011 13:41:49

802.11b RF Output Power, Low Channel



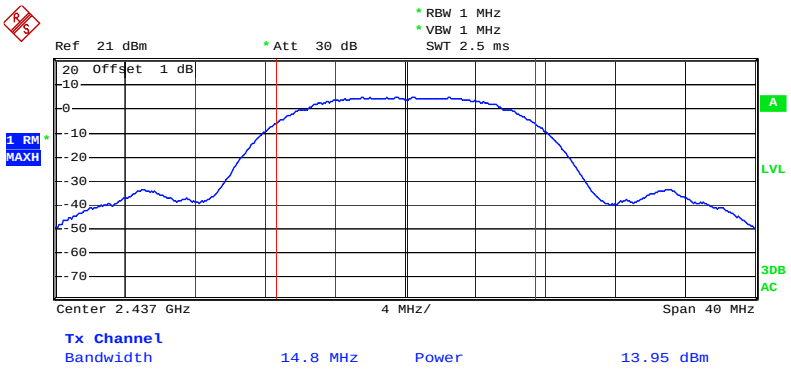
Date: 6.MAR.2011 14:07:45

802.11b 99% Occupied Bandwidth, Middle Channel



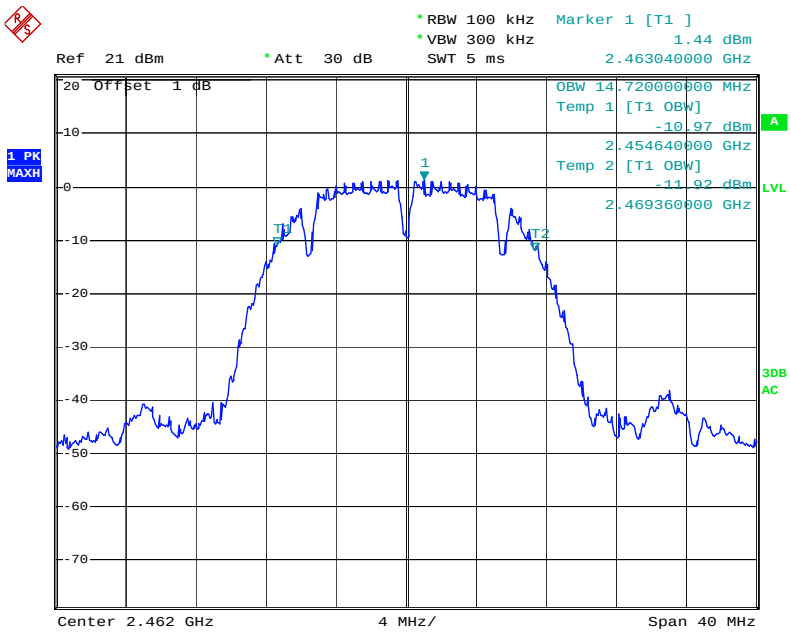
Date: 6.MAR.2011 13:42:35

802.11b RF Output Power, Middle Channel



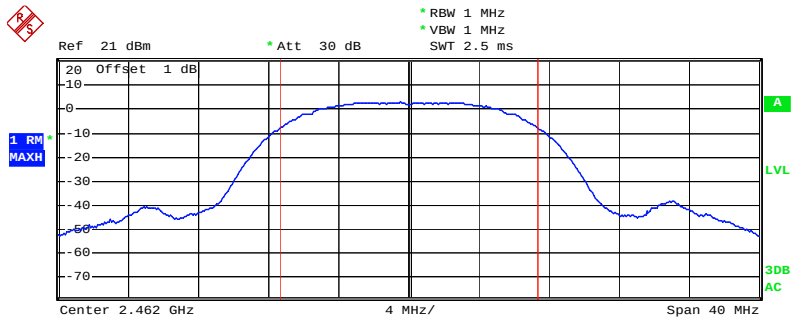
Date: 6.MAR.2011 14:08:53

802.11b 99% Occupied Bandwidth, High Channel



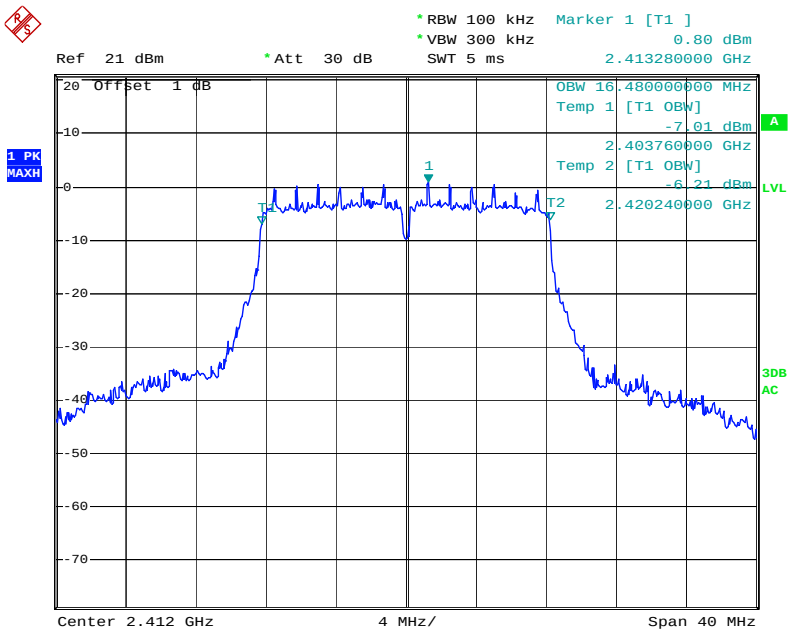
Date: 6.MAR.2011 13:43:32

802.11b RF Output Power, High Channel



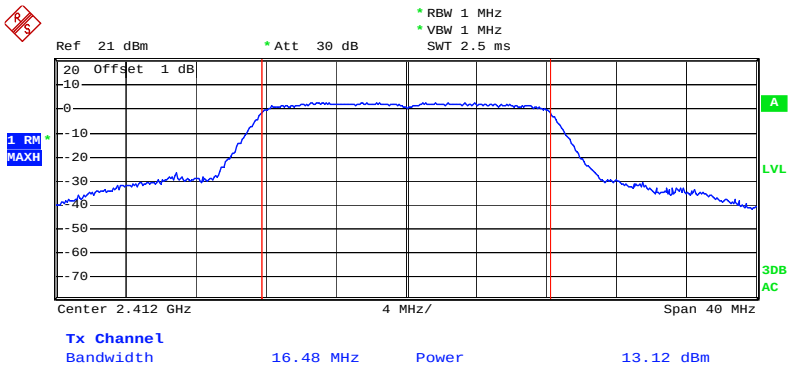
Date: 6.MAR.2011 14:09:58

802.11g 99% Occupied Bandwidth, Low Channel



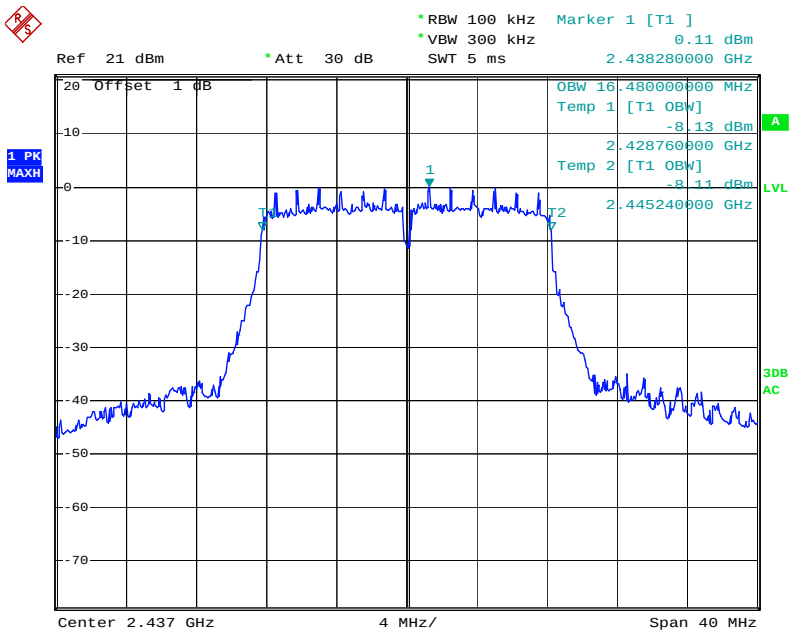
Date: 6.MAR.2011 13:45:29

802.11g RF Output Power, Low Channel



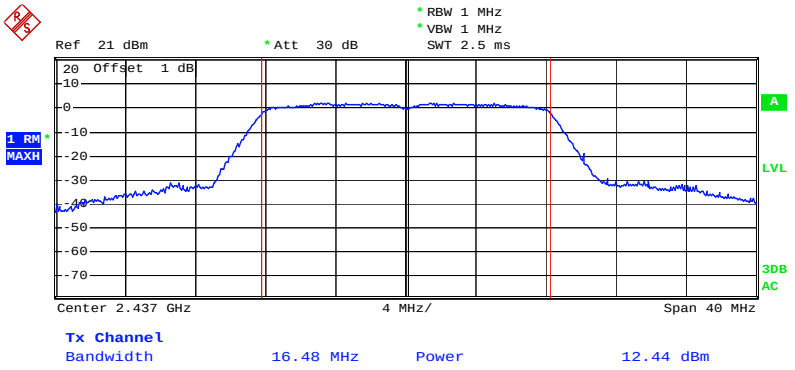
Date: 6.MAR.2011 14:11:46

802.11g 99% Occupied Bandwidth, Middle Channel



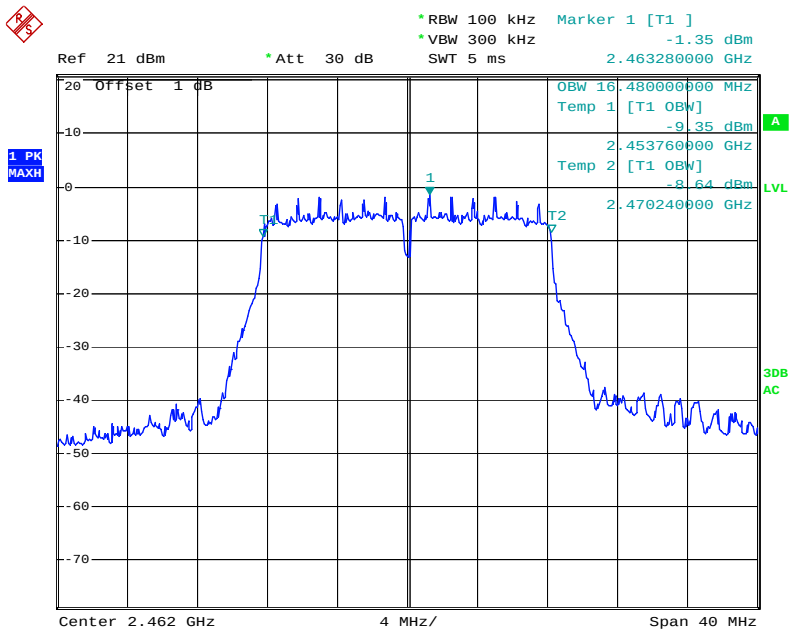
Date: 6.MAR.2011 13:46:21

802.11g RF Output Power, Middle Channel



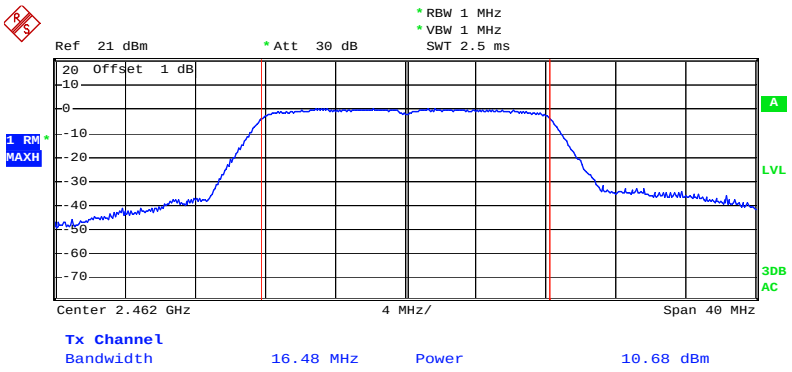
Date: 6.MAR.2011 14:12:37

802.11g 99% Occupied Bandwidth, High Channel



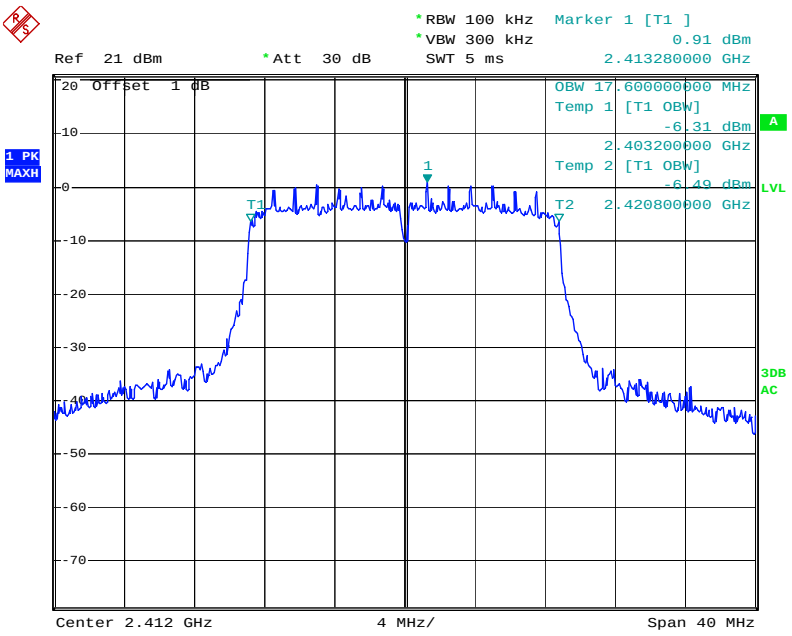
Date: 6.MAR.2011 13:48:43

802.11g RF Output Power, High Channel



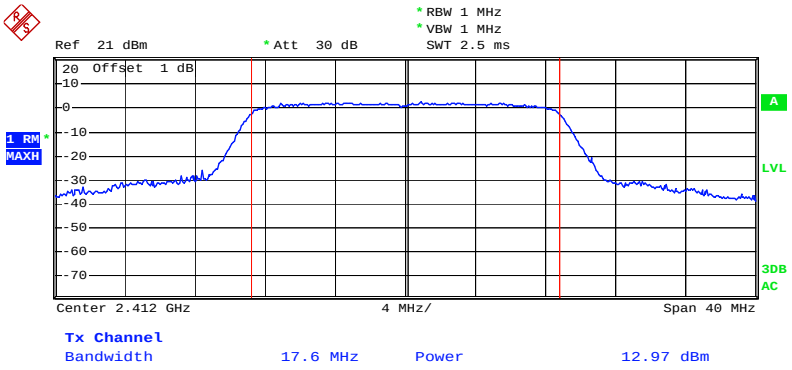
Date: 6.MAR.2011 14:13:45

802.11n20 99% Occupied Bandwidth, Low Channel



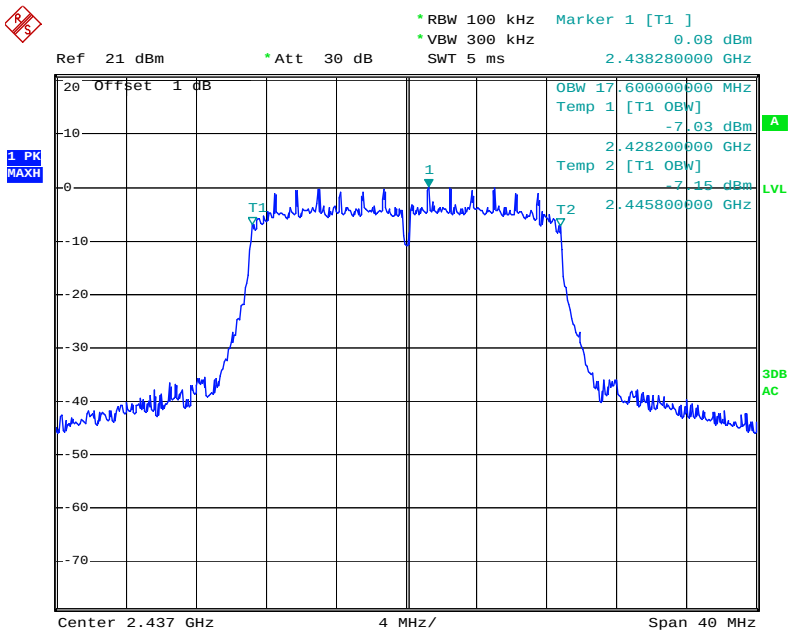
Date: 6.MAR.2011 13:49:37

802.11n20 RF Output Power, Low Channel



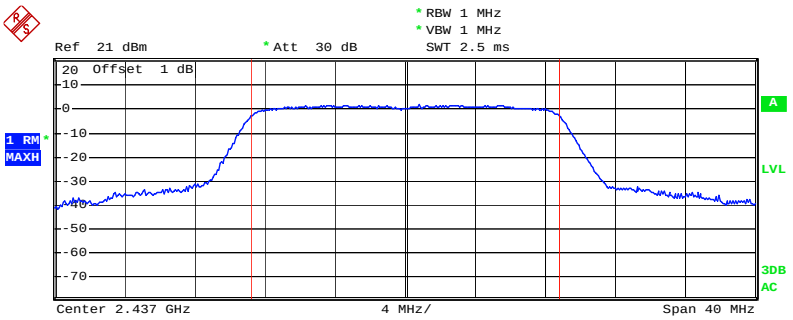
Date: 6.MAR.2011 14:15:56

802.11n20 99% Occupied Bandwidth, Middle Channel



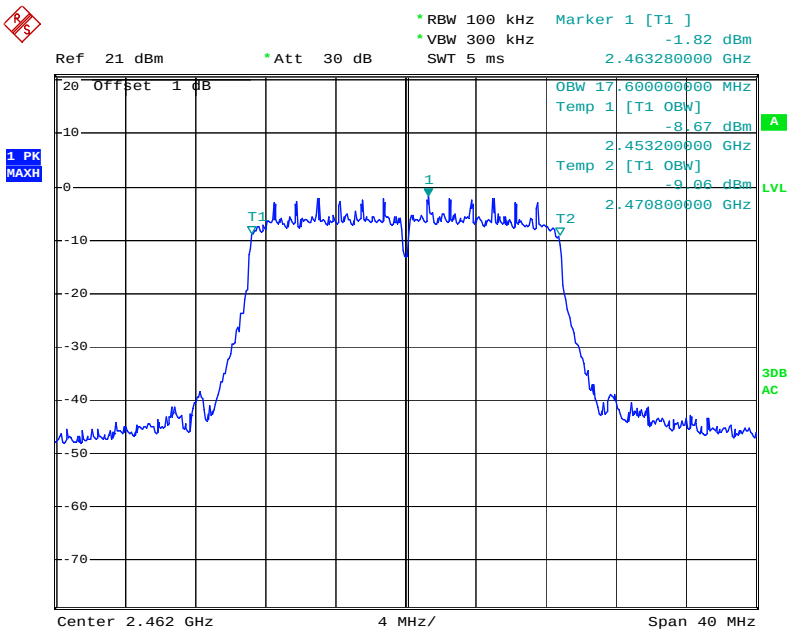
Date: 6.MAR.2011 13:50:44

802.11n20 RF Output Power, Middle Channel



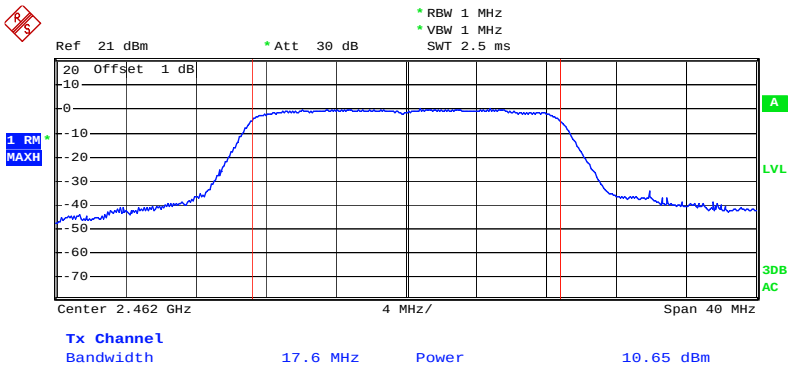
Date: 6.MAR.2011 14:17:02

802.11n20 99% Occupied Bandwidth, High Channel



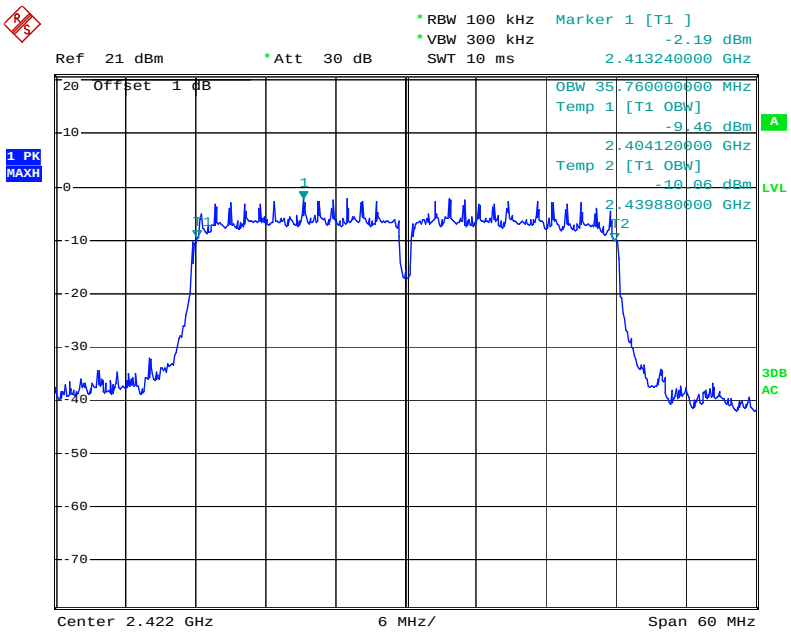
Date: 6.MAR.2011 13:51:59

802.11n20 RF Output Power, High Channel



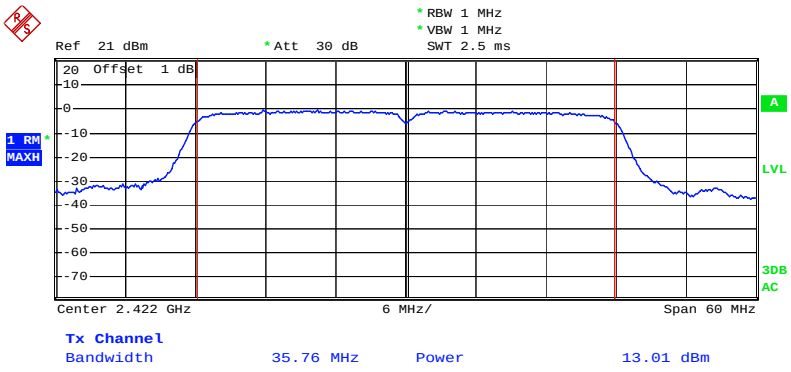
Date: 6.MAR.2011 14:18:13

802.11n40 99% Occupied Bandwidth, Low Channel



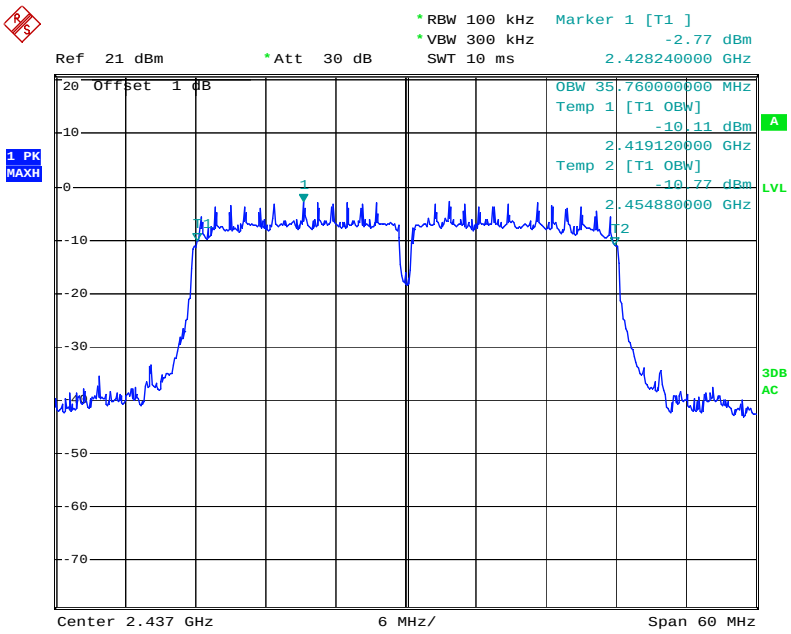
Date: 6.MAR.2011 13:55:36

802.11n40 RF Output Power, Low Channel



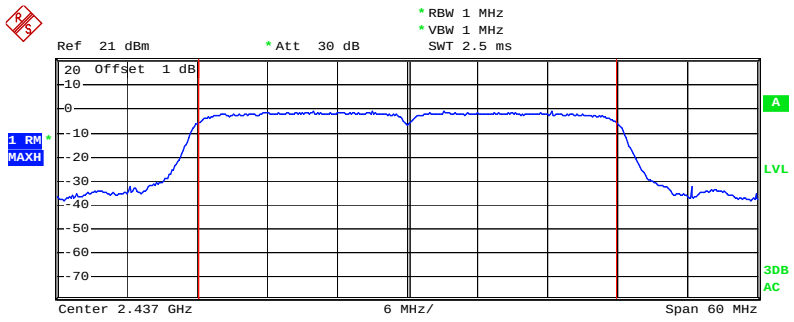
Date: 6.MAR.2011 14:21:23

802.11n40 99% Occupied Bandwidth, Middle Channel



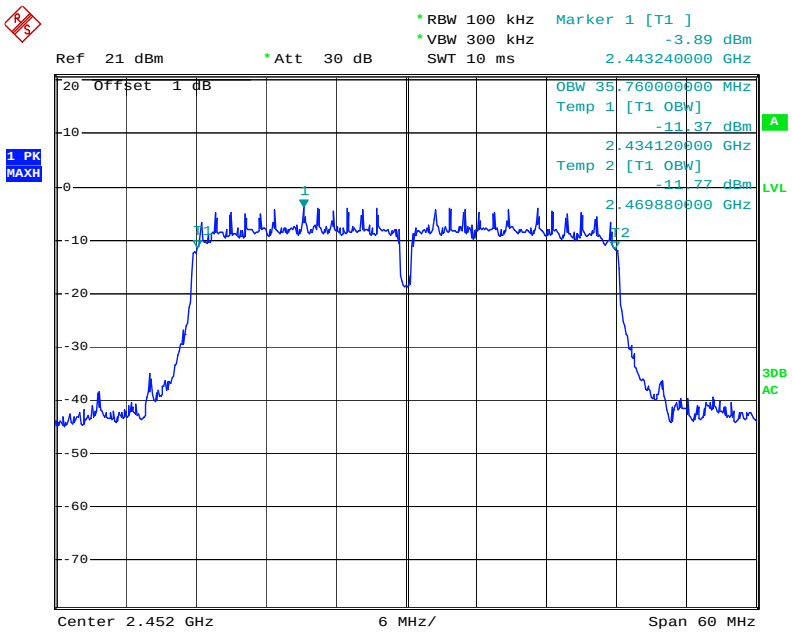
Date: 6.MAR.2011 13:56:37

802.11n40 RF Output Power, Middle Channel



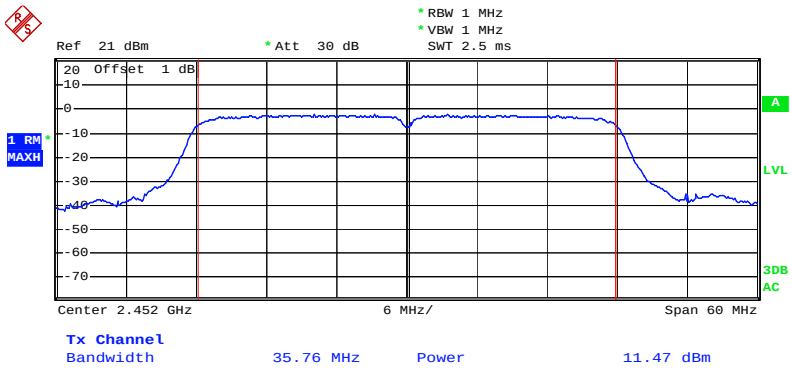
Date: 6.MAR.2011 14:22:58

802.11n40 99% Occupied Bandwidth, High Channel



Date: 6.MAR.2011 13:57:37

802.11n40 RF Output Power, High Channel



Date: 6.MAR.2011 14:24:07

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	2010-11-11	2011-11-10

*** 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 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

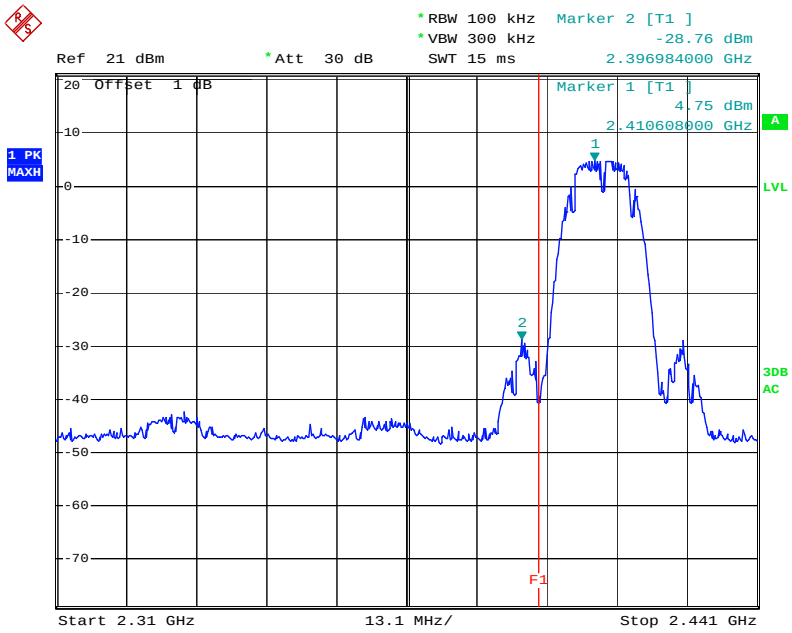
The testing was performed by Back Huang on 2011-03-06.

Test Result: *Compliant.*

Frequency (MHz)	Delta Value (dBc)	Limit (dBc)	Result
802.11b mode			
2396.984	33.51	20	Pass
2484.188	48.60	20	Pass
802.11g mode			
2398.818	34.90	20	Pass
2483.834	42.30	20	Pass
802.11n20 mode			
2399.866	35.16	20	Pass
2484.778	43.40	20	Pass
802.11n40 mode			
2398.954	32.00	20	Pass
2487.742	37.07	20	Pass

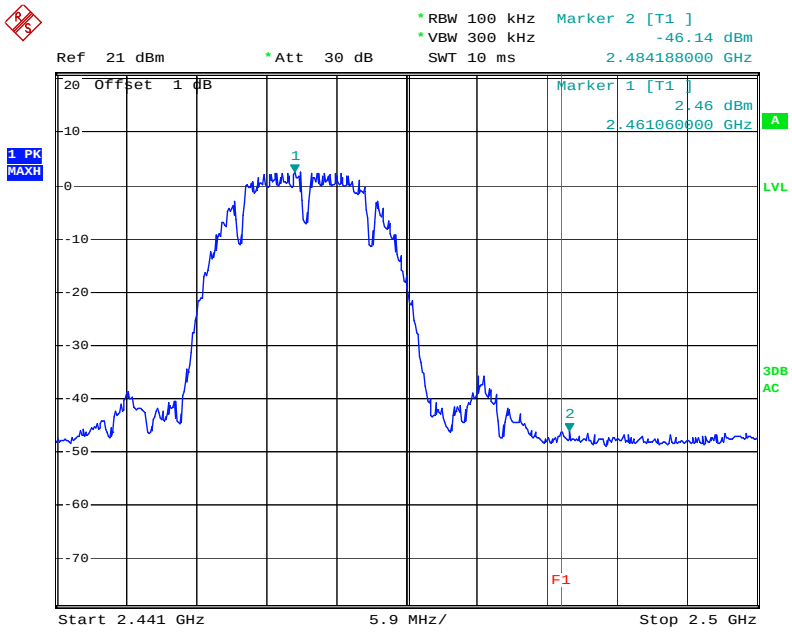
Please refer to following plots.

802.11b: Band Edge, Left Side



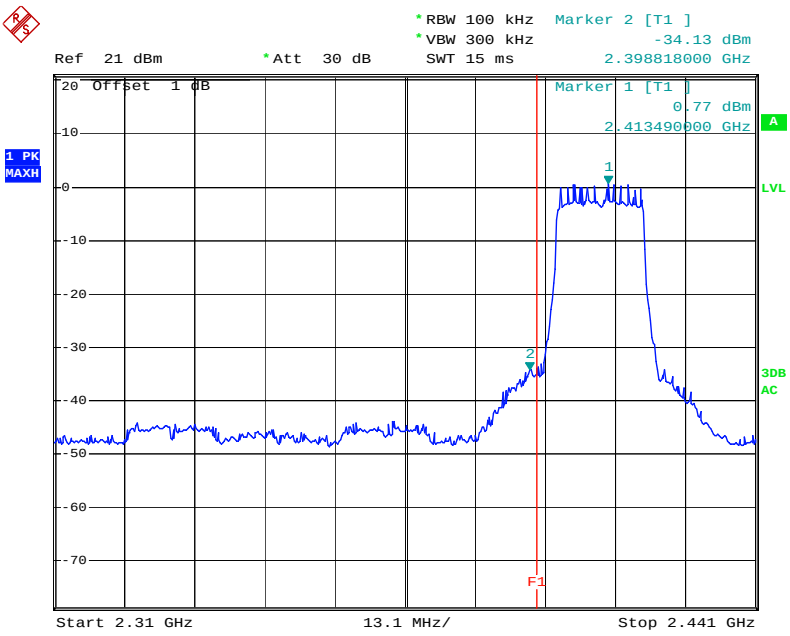
Date: 6.MAR.2011 09:50:25

802.11b: Band Edge, Right Side



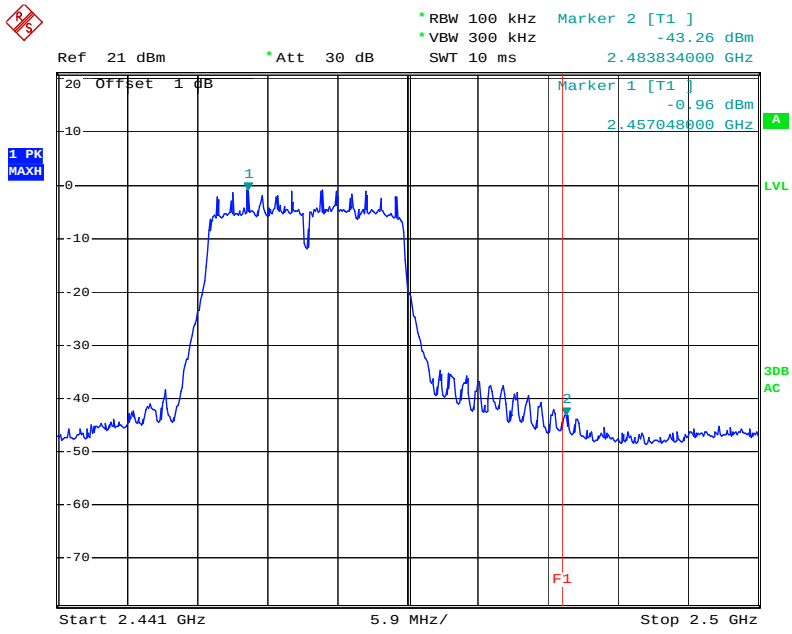
Date: 6.MAR.2011 09:56:08

802.11g: Band Edge, Left Side



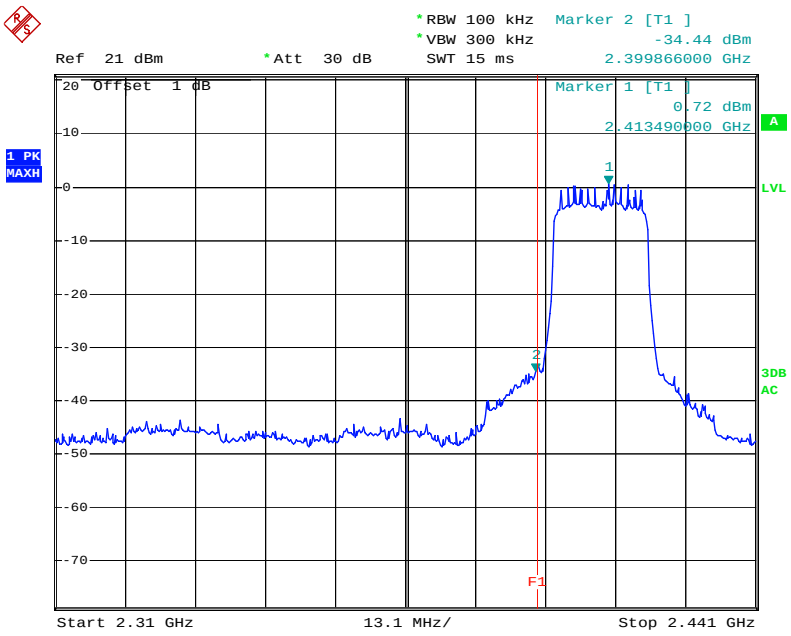
Date: 6.MAR.2011 10:24:36

802.11g: Band Edge, Right Side



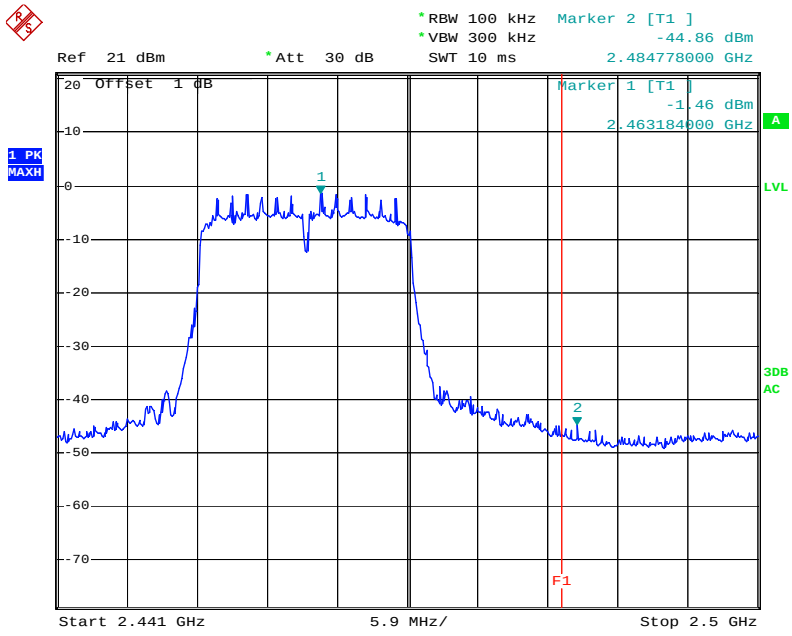
Date: 6.MAR.2011 10:01:53

802.11n20: Band Edge, Left Side



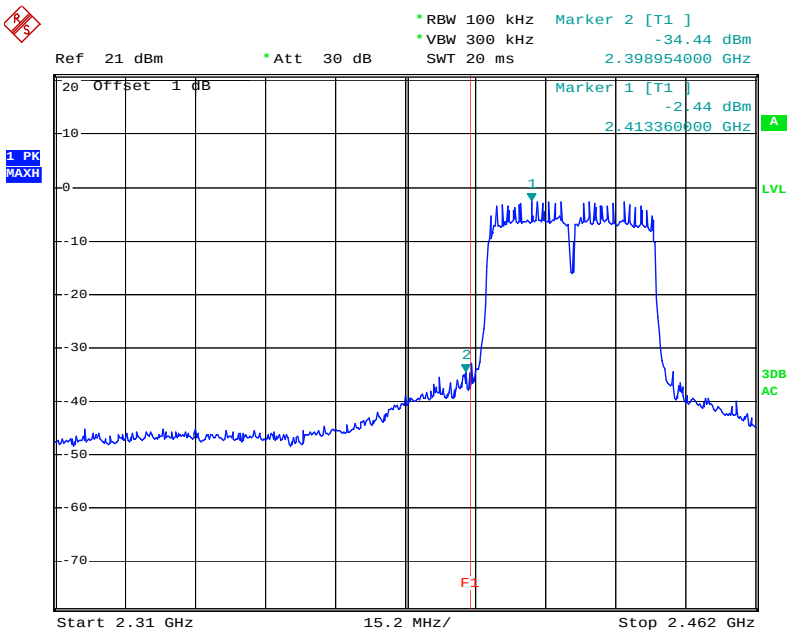
Date: 6.MAR.2011 10:28:46

802.11n20: Band Edge, Right Side



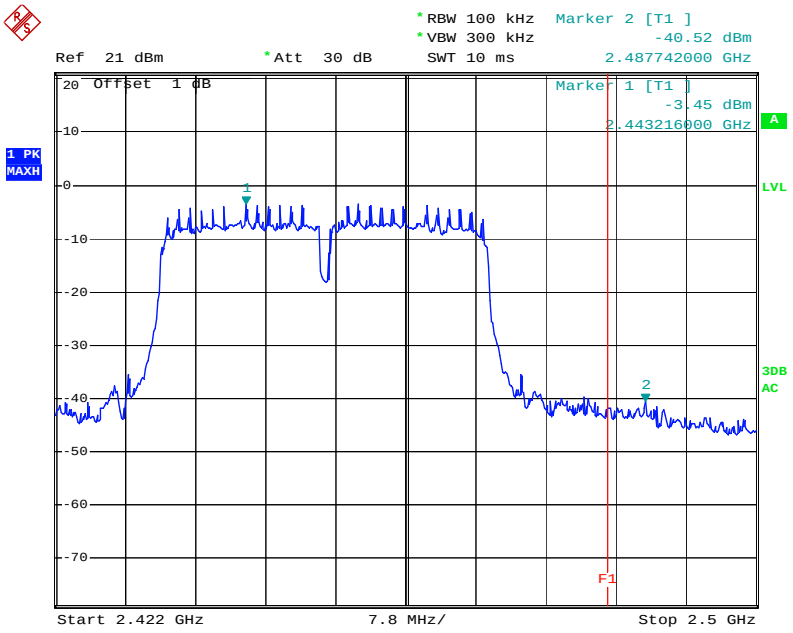
Date: 6.MAR.2011 10:10:24

802.11n40: Band Edge, Left Side



Date: 6.MAR.2011 10:33:07

802.11n40: Band Edge, Right Side



Date: 6.MAR.2011 10:20:11

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	2010-11-11	2011-11-10

*** 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 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

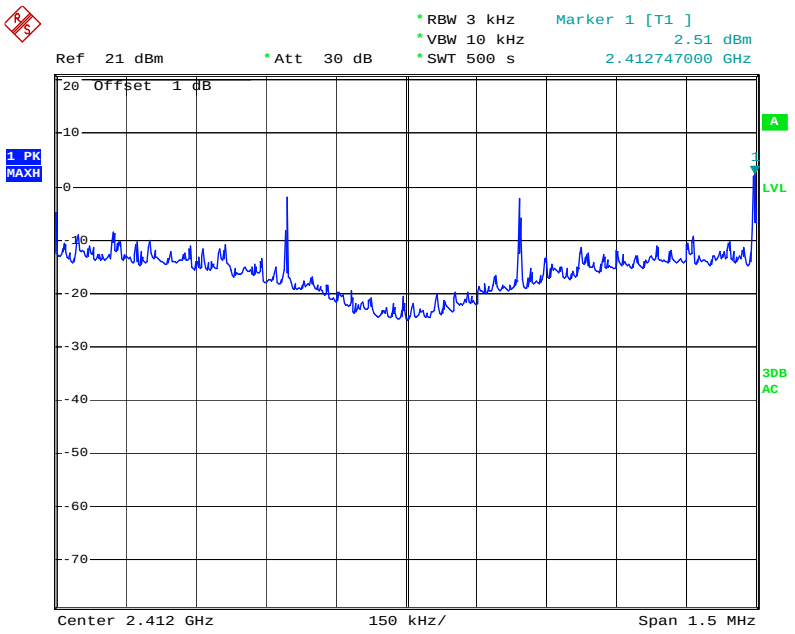
The testing was performed by Back Huang on 2011-03-11 and 2011-03-13.

Test Mode: Transmitting

Test Result: Pass

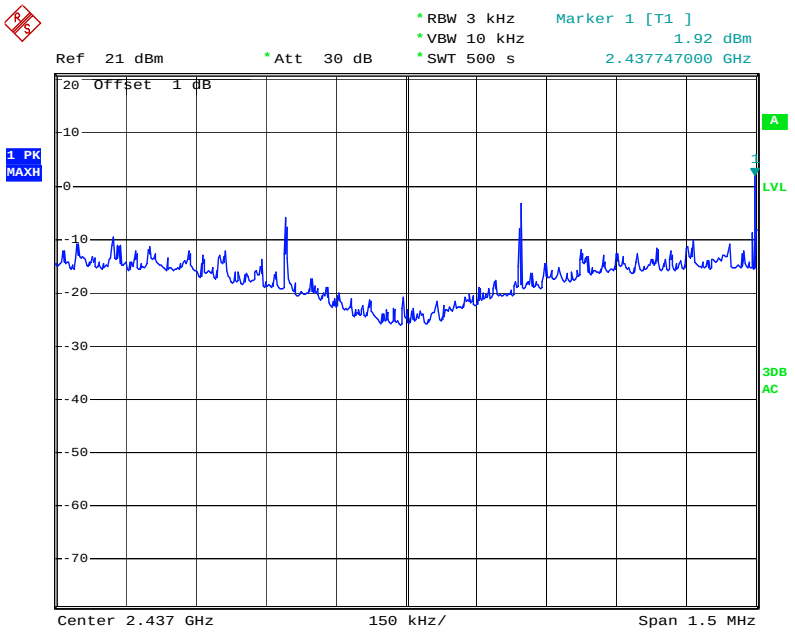
Channel	Frequency (MHz)	Data Rate (Mbps)	Power Spectral Density (dBm)	Part 15.247 Limit (dBm)	Result
802.11b mode					
Low	2412	1	2.51	8	Pass
Middle	2437	1	1.92	8	Pass
High	2462	1	-0.79	8	Pass
802.11g mode					
Low	2412	6	-15.37	8	Pass
Middle	2437	6	-15.39	8	Pass
High	2462	6	-17.34	8	Pass
802.11n20 mode					
Low	2412	6.5	-14.18	8	Pass
Middle	2437	6.5	-15.30	8	Pass
High	2462	6.5	-17.25	8	Pass
802.11n40 mode					
Low	2422	13.5	-19.69	8	Pass
Middle	2437	13.5	-19.92	8	Pass
High	2452	13.5	-21.03	8	Pass

Power Spectral Density, 802.11b Low Channel



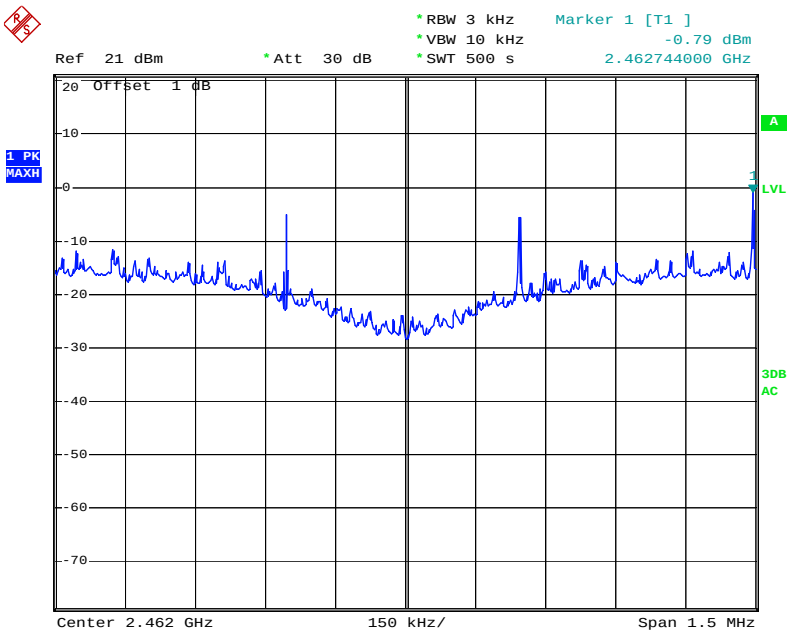
Date: 11.MAR.2011 13:18:37

Power Spectral Density, 802.11b Middle Channel



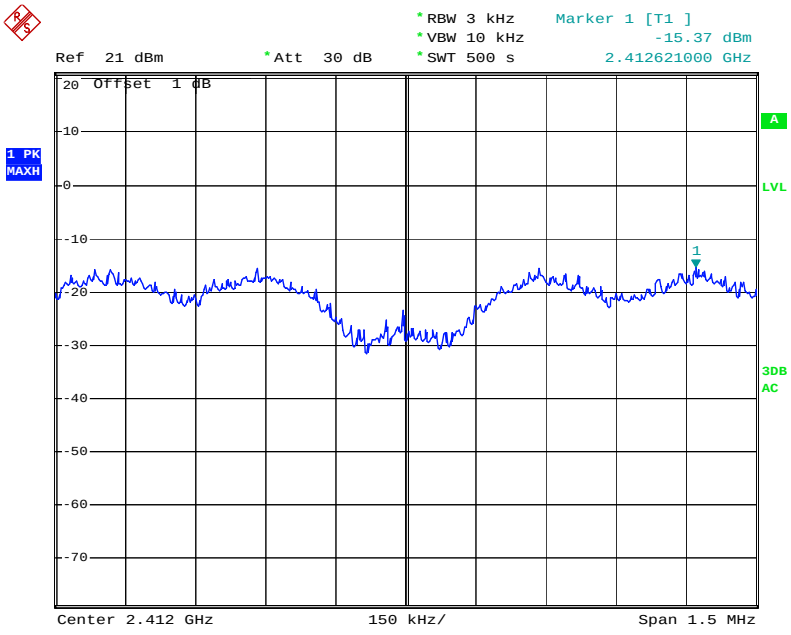
Date: 11.MAR.2011 13:27:56

Power Spectral Density, 802.11b High Channel



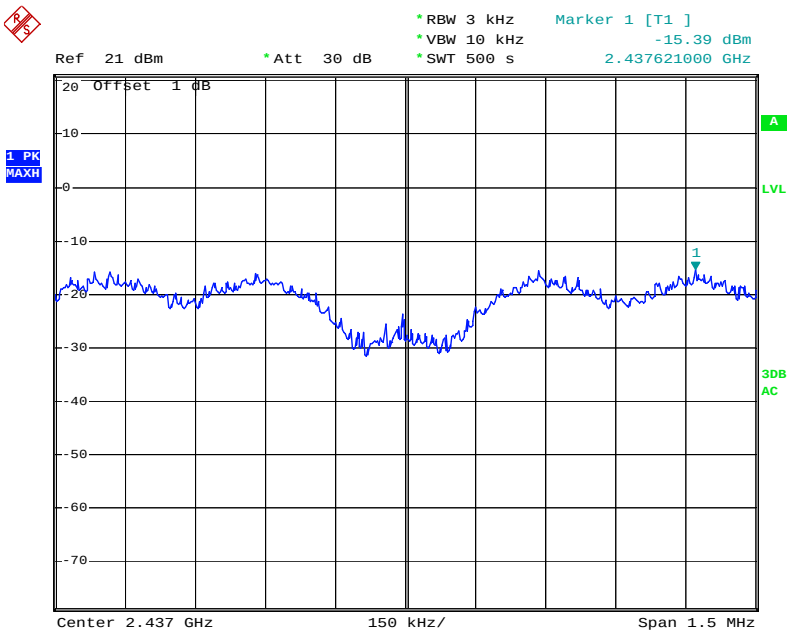
Date: 11.MAR.2011 13:41:06

Power Spectral Density, 802.11g Low Channel



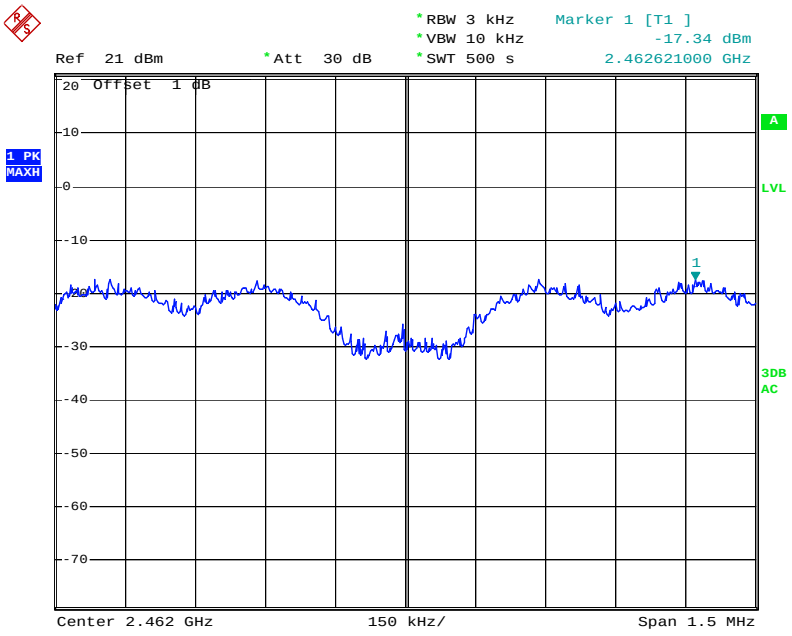
Date: 11.MAR.2011 13:51:36

Power Spectral Density, 802.11g Middle Channel



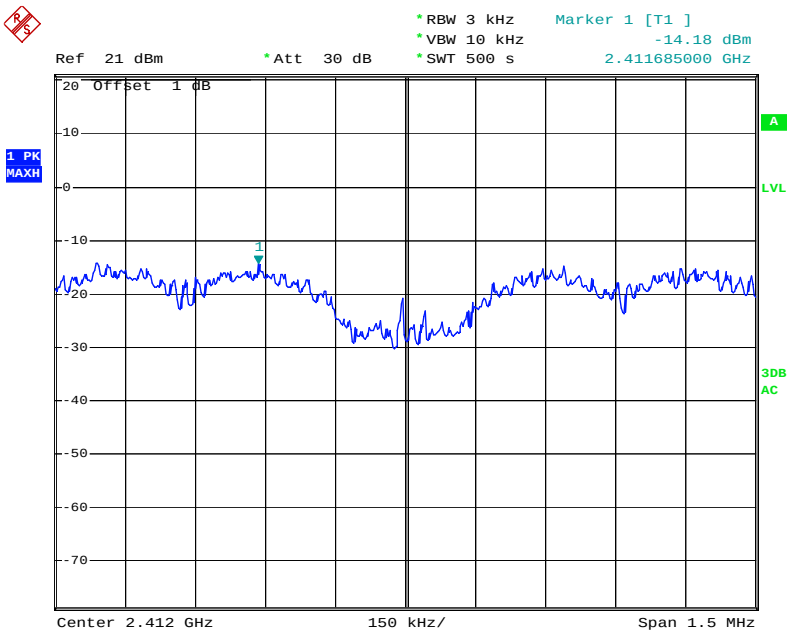
Date: 11.MAR.2011 14:01:44

Power Spectral Density, 802.11g High Channel



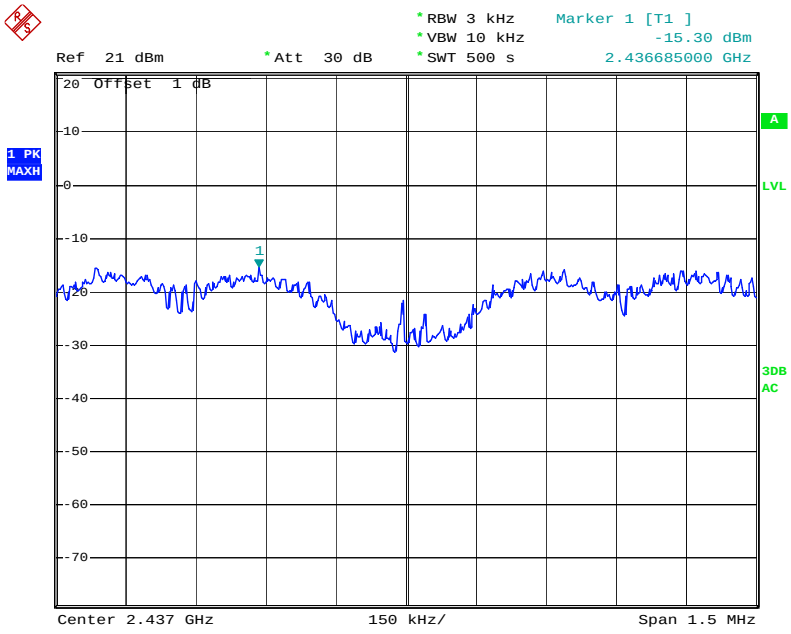
Date: 11.MAR.2011 14:10:49

Power Spectral Density, 802.11n20 Low Channel



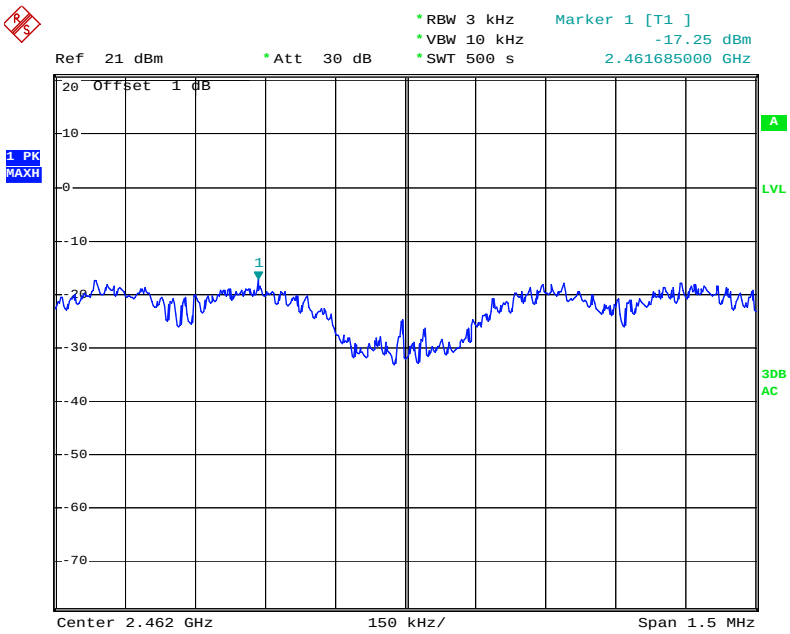
Date: 13.MAR.2011 08:48:47

Power Spectral Density, 802.11n20 Middle Channel



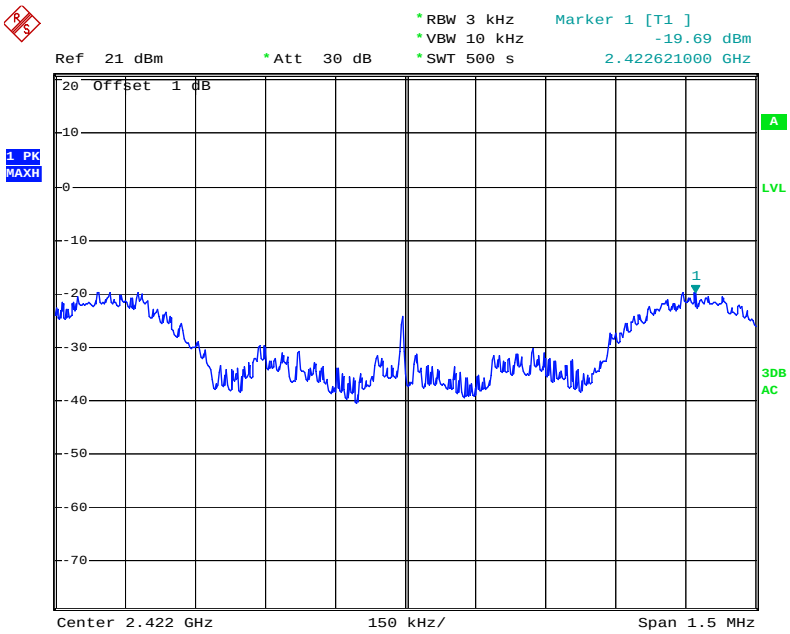
Date: 13.MAR.2011 08:58:33

Power Spectral Density, 802.11n20 High Channel



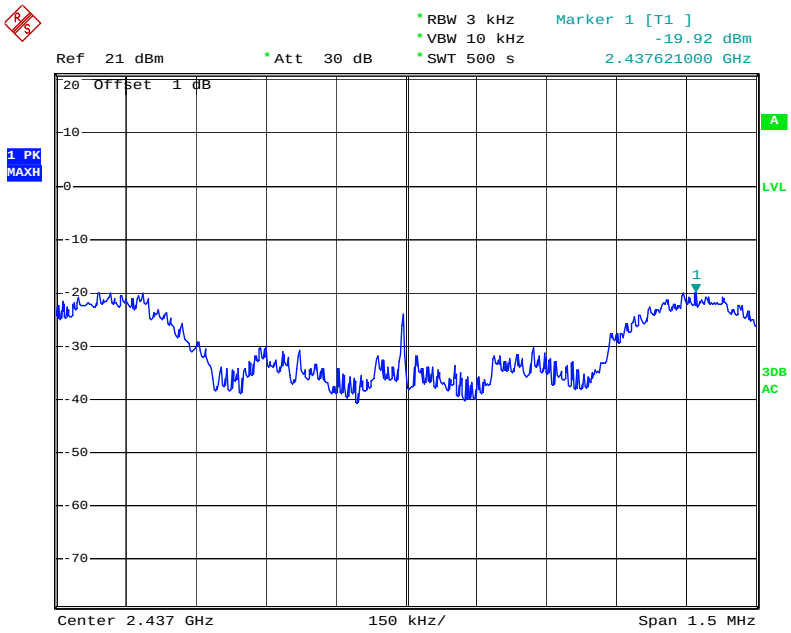
Date: 13.MAR.2011 09:09:08

Power Spectral Density, 802.11n40 Low Channel



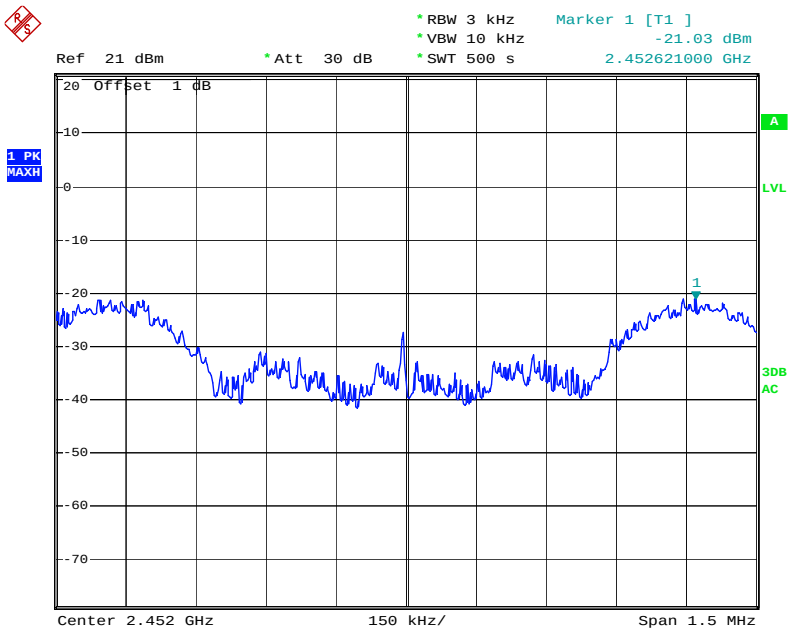
Date: 13.MAR.2011 09:20:05

Power Spectral Density, 802.11n40 Middle Channel



Date: 13.MAR.2011 09:30:23

Power Spectral Density, 802.11n40 High Channel



Date: 13.MAR.2011 09:39:37

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