



NVLAP LAB CODE 200707-0



# FCC PART 15.247

## MEASUREMENT AND TEST REPORT

For

### SHENZHEN TENDA TECHNOLOGY CO., LTD.

3F, Moso Industrial Building, No.1031, Liming Road, Xili Town, Nanshan District,

Shenzhen, Guangdong, P.R. of China

**FCC ID: V7TW322PDET**

<b>Report Type:</b> Original Report	<b>Product Type:</b> 300 Mbps Wireless PCI Adapter
<b>Test Engineer:</b> Cookies Bu	<i>Cookies Bu</i>
<b>Report Number:</b> RSZ10031512	
<b>Report Date:</b> 2010-04-16	
<b>Reviewed By:</b> EMC Engineer	Merry Zhao <i>Merry Zhao</i>
<b>Prepared By:</b>	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

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

\* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "\*" (Rev.2)

## TABLE OF CONTENTS

<b>GENERAL INFORMATION.....</b>	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	4
OBJECTIVE .....	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY .....	4
TEST FACILITY .....	4
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EUT EXERCISE SOFTWARE .....	6
EQUIPMENT MODIFICATIONS .....	6
HOST SYSTEM CONFIGURATION LIST AND DETAILS .....	7
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS .....	7
EXTERNAL I/O CABLE.....	7
CONFIGURATION OF TEST SETUP .....	8
BLOCK DIAGRAM OF TEST SETUP .....	8
<b>SUMMARY OF TEST RESULTS .....</b>	<b>9</b>
<b>FCC §15.247(i) &amp; §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE).....</b>	<b>10</b>
STANDARD APPLICABLE .....	10
TEST DATA .....	10
<b>FCC §15.203 - ANTENNA REQUIREMENT.....</b>	<b>12</b>
STANDARD APPLICABLE .....	12
ANTENNA CONNECTOR CONSTRUCTION .....	12
<b>FCC §15.207(a) - CONDUCTED EMISSIONS .....</b>	<b>13</b>
APPLICABLE STANDARD .....	13
MEASUREMENT UNCERTAINTY.....	13
EUT SETUP.....	13
EMI TEST RECEIVER SETUP.....	14
TEST EQUIPMENT LIST AND DETAILS.....	14
TEST PROCEDURE .....	14
TEST RESULTS SUMMARY .....	14
TEST DATA .....	14
<b>FCC §15.209, §15.205 &amp; §15.247(d) - SPURIOUS EMISSIONS.....</b>	<b>17</b>
APPLICABLE STANDARD .....	17
MEASUREMENT UNCERTAINTY.....	17
EUT SETUP .....	17
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP .....	18
TEST EQUIPMENT LIST AND DETAILS.....	18
TEST PROCEDURE .....	18
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	18
TEST RESULTS SUMMARY .....	19
TEST DATA .....	19
<b>FCC §15.247(a) (2) – 6 dB BANDWIDTH TESTING.....</b>	<b>45</b>
APPLICABLE STANDARD .....	45
TEST EQUIPMENT LIST AND DETAILS.....	45
TEST PROCEDURE .....	45

TEST DATA .....45

**FCC §15.247(b)(3) - MAXIMUM PEAK OUTPUT POWER.....56**

    APPLICABLE STANDARD .....56

    TEST EQUIPMENT LIST AND DETAILS.....56

    TEST PROCEDURE .....56

    TEST DATA .....56

**FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE.....70**

    APPLICABLE STANDARD .....70

    TEST EQUIPMENT LIST AND DETAILS.....70

    TEST PROCEDURE .....70

    TEST DATA .....70

**FCC §15.247(e) - POWER SPECTRAL DENSITY .....80**

    APPLICABLE STANDARD .....80

    TEST EQUIPMENT LIST AND DETAILS.....80

    TEST PROCEDURE .....80

    TEST DATA .....80

## GENERAL INFORMATION

---

### Product Description for Equipment under Test (EUT)

The *SHENZHEN TENDA TECHNOLOGY CO., LTD.* 's product, model number: *W322P+* (FCC ID: *V7TW322PDET*) or the "EUT" as referred to in this report is a *300Mbps Wireless PCI Adapter*, which measures approximately: 13.0 cm L x 12.3 cm W x 1.9 cm H, rated input voltage: DC 5V provided by PC.

*\* All measurement and test data in this report was gathered from production sample serial number: 1003049 (Assigned by BAEL, Shenzhen). The EUT was received on 2010-03-15.*

### Objective

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

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

### Related Submittal(s)/Grant(s)

N/A

### Test Methodology

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

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

### Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 21, 2007. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

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



NVLAP LAB CODE 200707-0

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

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

For 802.11b/g/n20 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	/	/

For 802.11n 40 mode,

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2422	7	2452
2	2427	/	/
3	2432	/	/
4	2437	/	/
5	2442	/	/
6	2447	/	/

EUT was tested with low, mid and high channel.

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

### EUT Exercise Software

The test was performed under RT3X9XQA about power:

802.11b: TX Power level 1A, data rate: 1 Mbps.

802.11g: TX Power level 1A, data rate: 6 Mbps.

802.11n20: TX Power level 1A, data rate: 6.5 Mbps.

802.11 n40: TX Power level 1A, data rate: 13 Mbps.

### Equipment Modifications

No modification was made to the unit tested.

**Host System Configuration List and Details**

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Motherboard	OWC297	CN-OWC297-70821-564-00NI	DoC
DELL	Power	NPS-250KB D	CN-0H2678-17972-56E-80BM	DoC
Seagate	Hard Disk	ST340014A	5JXK3GXE	DoC
DELL	3.5' Floppy	N/A	CN-0N8893-69802-54Q-02P0	DoC
Lite-ON	CD-Rom	LTN-489S	N/A	DoC
ProMOS	Memory	V826632K24SATG-C0	0525-K1933700	N/A
Intel	CPU	Celeron D-2533	N/A	N/A
Intel	Ethernet	PRO 10/100 VE	N/A	DoC

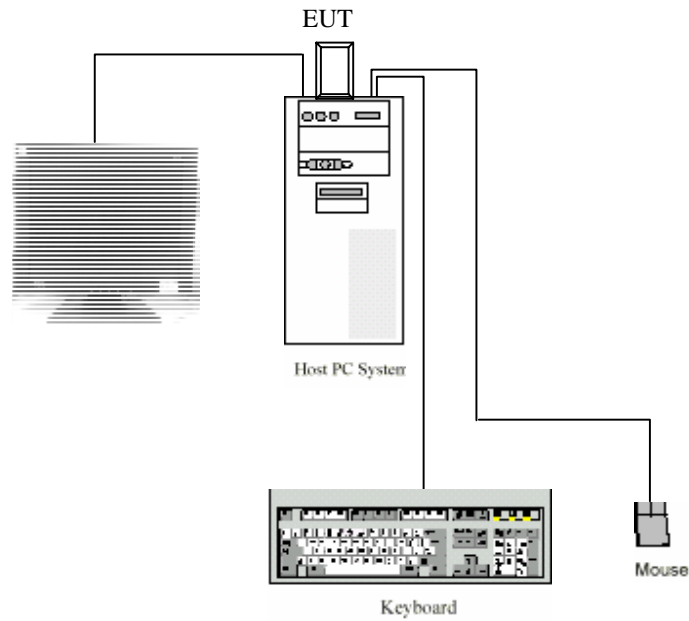
**Local Support Equipment List and Details**

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	PC	2#	N/A	DOC
DELL	Keyboard 2#	L100	CNORH656658907BL05DC	DOC
DELL	Mouse 2#	MOC5UO	G1900NKD	DOC
DELL	LCD 2#	1505FP	G1B0096D	DOC

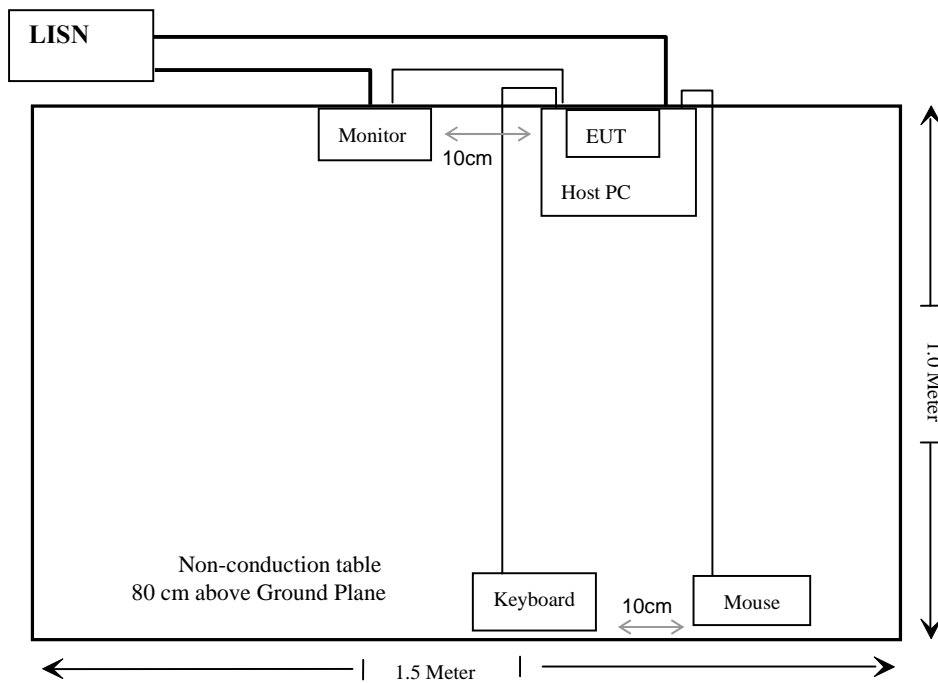
**External I/O Cable**

Cable Description	Length (M)	From/Port	To
Unshielded Detachable Mouse Cable	1.5	Mouse Port / Host	Mouse
Unshielded Detachable K/B Cable	1.5	K/B Port/Host	K/B
Unshielded Detachable Power Line	1.5	Power Port/Host	AC Mains
Unshielded Detachable VGA Cable	1.5	VGA Port / Host	Monitor
Unshielded Detachable Power Line	1.5	Power Port/ Monitor	AC Mains

### Configuration of Test Setup



### Block Diagram of Test Setup





## **SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a),	Conducted Emissions	Compliant
§15.247(d)	Spurious Emissions at Antenna Port	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant*
§15.247 (a)(2)	6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Peak Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency, Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

\*With measurement uncertainty!

## **FCC §15.247(i) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

### **Standard Applicable**

According to FCC §15.247(i) and §1.1307(b)(1), §2.1091, systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

#### Limits for General Population/Uncontrolled Exposure

<b>Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mw/cm<sup>2</sup>)</b>	<b>Averaging Time (Minutes)</b>
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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

### **Test Data**

Predication of MPE limit at a given distance

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

Where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally *numeric* gain.

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

### **802.11b Mode**

Maximum peak output power at antenna input terminal (dBm): 18.21

Maximum peak output power at antenna input terminal (mW): 66.222

Prediction distance (cm): 20

Prediction frequency (MHz): 2412

Antenna Gain, typical (dBi): 2.2

Maximum Antenna Gain (numeric): 1.66

The worst case is power density at predication frequency at 20 cm (mW/cm<sup>2</sup>): 0.0219

MPE limit for general population exposure at prediction frequency (mW/cm<sup>2</sup>): 1.0

**802.11g Mode**

Maximum peak output power at antenna input terminal (dBm): 14.58  
Maximum peak output power at antenna input terminal (mW): 28.708  
Prediction distance (cm): 20  
Prediction frequency (MHz): 2437  
Antenna Gain, typical (dBi): 2.2  
Maximum Antenna Gain (numeric): 1.66

The worst case is power density at predication frequency at 20 cm (mW/cm<sup>2</sup>): 0.0095  
MPE limit for general population exposure at prediction frequency (mW/cm<sup>2</sup>): 1.0

**802.11 n20 Mode**

Maximum peak output power at antenna input terminal (dBm): 17.36  
Maximum peak output power at antenna input terminal (mW): 54.450  
Prediction distance (cm): 20  
Prediction frequency (MHz): 2412  
Antenna Gain, typical (dBi): 2.2  
Maximum Antenna Gain (numeric): 1.66

The worst case is power density at predication frequency at 20 cm (mW/cm<sup>2</sup>): 0.0180  
MPE limit for general population exposure at prediction frequency (mW/cm<sup>2</sup>): 1.0

**802.11 n40 Mode**

Maximum peak output power at antenna input terminal (dBm): 16.89  
Maximum peak output power at antenna input terminal (mW): 48.865  
Prediction distance (cm): 20  
Prediction frequency (MHz): 2412  
Antenna Gain, typical (dBi): 2.2  
Maximum Antenna Gain (numeric): 1.66

The worst case is power density at predication frequency at 20 cm (mW/cm<sup>2</sup>): 0.0161  
MPE limit for general population exposure at prediction frequency (mW/cm<sup>2</sup>): 1.0

**Result:**

The predicted power density level at 20 cm is 0.0219 mw/cm<sup>2</sup> for 802.11b, 0.0095 mw/cm<sup>2</sup> for 802.11g, 0.0180 mw/cm<sup>2</sup> for 802.11n20 and 0.0161 mw/cm<sup>2</sup> for 802.11n40 which is below the uncontrolled exposure limit of 1.0 mw/cm<sup>2</sup>, The EUT is used at least 20 cm away from user's body. It is determined as mobile equipment and complies with the MPE limit.

## **FCC §15.203 - ANTENNA REQUIREMENT**

---

### **Standard Applicable**

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

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

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

### **Antenna Connector Construction**

The EUT used an unique revolving omni-directional antenna, which in accordance to section 15.203, the maximum gain is 2.2 dBi; please refer to the internal photos.

**Result:** Compliant.

## FCC §15.207(a) - CONDUCTED EMISSIONS

### Applicable Standard

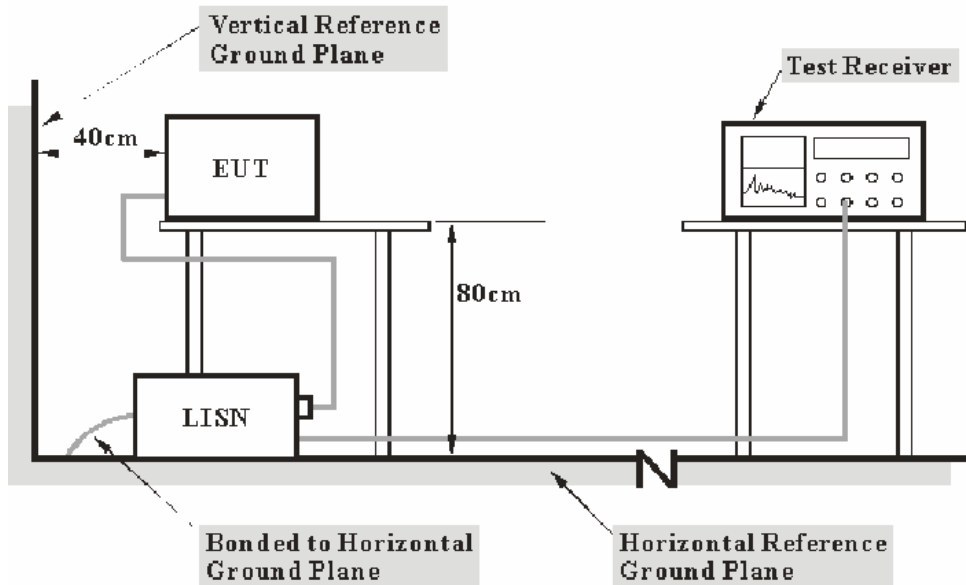
FCC §15.207

### Measurement Uncertainty

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

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

### EUT Setup



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

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

The spacing between the peripherals was 10 cm.

The host PC 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:

<i>Frequency Range</i>	<i>IF B/W</i>
150 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

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

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

## Test Procedure

During the conducted emission test, the EUT was inserted in the host PC and the host PC and monitor were connected to the LISN.

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

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

## Test Results Summary

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

**7.59 dB at 18.310 MHz** in the **Line** conductor mode

**10.47 dB at 17.710 MHz** in the **Neutral** conductor mode

## Test Data

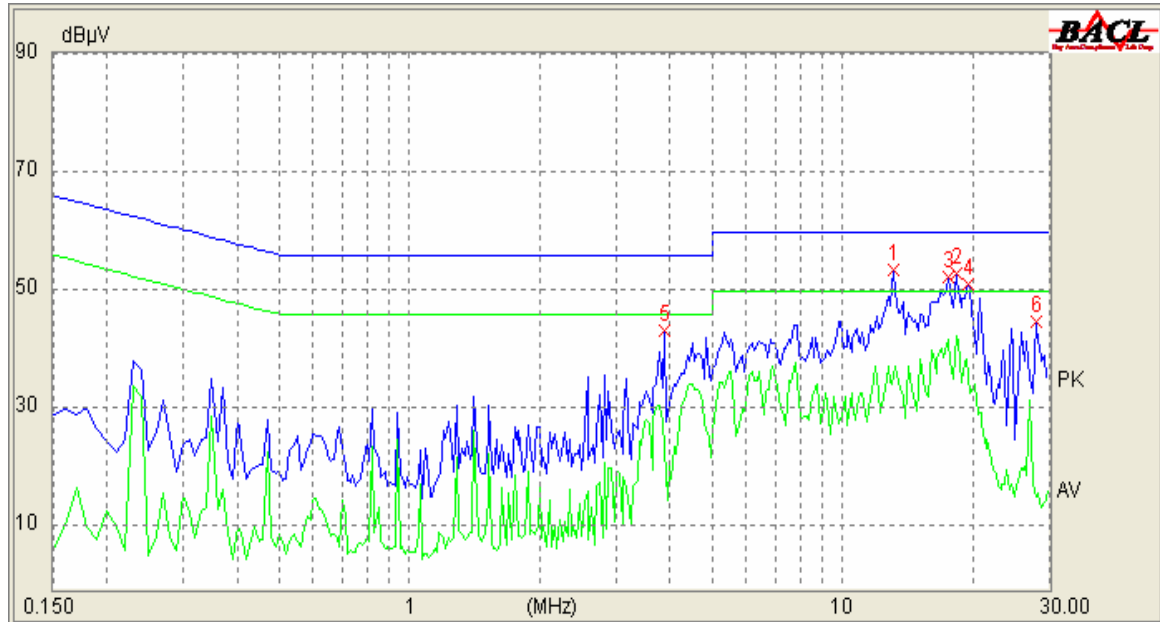
### Environmental Conditions

<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Cookies Bu on 2010-04-06.*

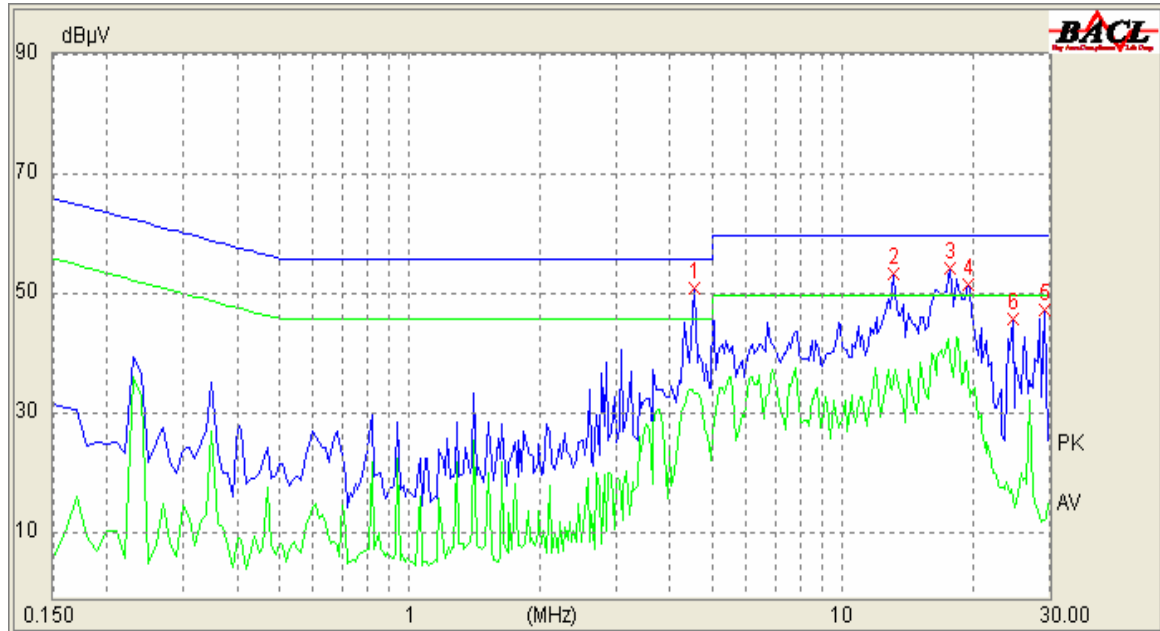
*Test Mode: Operating (802.11b high channel, worse case)*

**120 V/60 Hz, Line:**



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Correction Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
18.310	10.30	42.41	50.00	7.59	AV
17.530	10.30	41.90	50.00	8.10	AV
19.450	10.30	38.57	50.00	11.43	AV
17.530	10.30	47.12	60.00	12.88	QP
13.090	10.30	46.74	60.00	13.26	QP
19.630	10.30	44.82	60.00	15.18	QP
13.030	10.30	34.25	50.00	15.75	AV
18.350	10.30	38.25	60.00	21.75	QP
3.900	10.10	23.56	46.00	22.44	AV
3.870	10.10	24.49	56.00	31.51	QP
28.030	10.30	15.43	50.00	34.57	AV
27.980	10.30	19.42	60.00	40.58	QP

120 V/60 Hz, Neutral:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Correction Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
17.710	10.30	39.53	50.00	10.47	AV
19.450	10.30	39.24	50.00	10.76	AV
4.560	10.10	33.75	46.00	12.25	AV
13.090	10.30	47.37	60.00	12.63	QP
13.030	10.30	34.42	50.00	15.58	AV
19.630	10.30	44.40	60.00	15.60	QP
17.750	10.30	37.25	60.00	22.75	QP
4.550	10.10	24.33	56.00	31.67	QP
24.630	10.30	17.93	50.00	32.07	AV
29.550	10.30	13.13	50.00	36.87	AV
24.800	10.30	16.33	60.00	43.67	QP
29.440	10.30	14.87	60.00	45.13	QP



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

### Applicable Standard

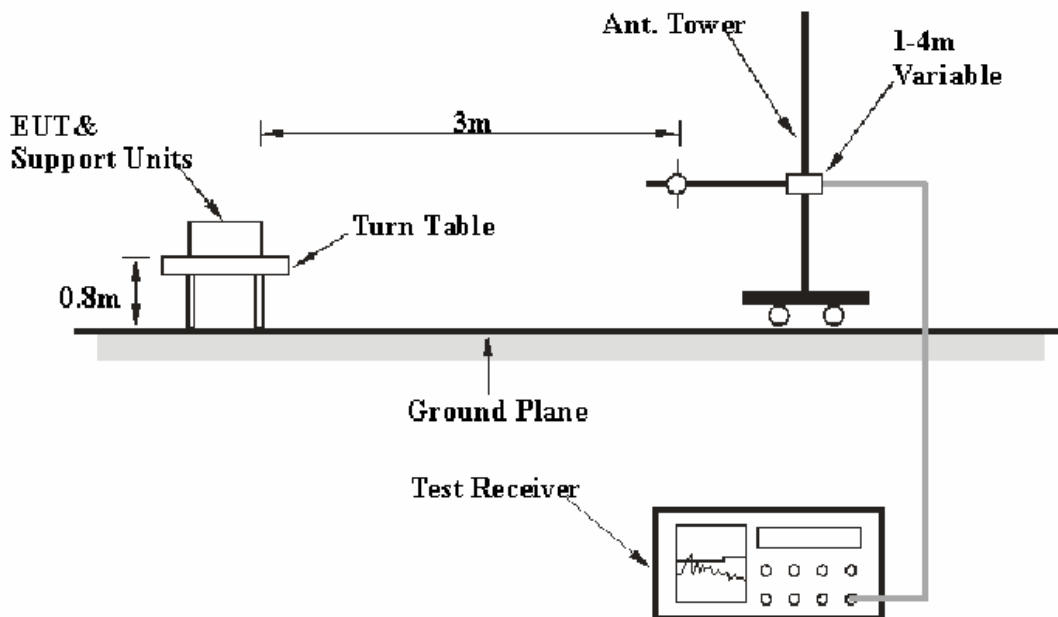
FCC §15.247 (d); §15.209; §15.205;

### 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  $\pm 4.0$  dB.

### EUT Setup



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

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

The spacing between the peripherals was 10 cm.

The host PC 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:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>Detector</i>
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	AV

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2009-08-02	2010-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-03-11	2011-03-11
HP	Amplifier	2VA-213+	T-E27H	2010-03-08	2011-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-07-08	2010-07-08

\* **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, EUT was inserted to the host PC, the host PC and monitor were 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:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## 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:

802.11b (wost case): **8.3 dB** at **866.381750 MHz** in the **Vertical** polarization  
 802.11g (wost case): **7.6 dB** at **816.093750 MHz** in the **Horizontal** polarization  
 802.11n20 (wost case): **7.5 dB** at **816.087750 MHz** in the **Horizontal** polarization  
 802.11n40 (wost case): **7.8 dB** at **816.090500 MHz** in the **Horizontal** polarization

### Above 1 GHz:

802.11b (Low Channel): **2.79 dB** at **2343.79 MHz** in the **Horizontal** polarization  
 802.11b (Middle Channel): **2.95 dB** at **2514.59 MHz** in the **Vertical** polarization  
 802.11b (High Channel): **3.26 dB** at **2498.53 MHz** in the **Vertical** polarization

802.11g (Low Channel): **4.67 dB** at **2349.49 MHz** in the **Vertical** polarization  
 802.11g (Middle Channel): **4.94 dB** at **2377.55 MHz** in the **Horizontal** polarization  
 802.11g (High Channel): **3.00 dB** at **2483.62 MHz** in the **Vertical** polarization

802.11n20 (Low Channel): **2.29 dB** at **2387.19 MHz** in the **Horizontal** polarization  
 802.11n20 (Middle Channel): **4.17 dB** at **2503.67 MHz** in the **Vertical** polarization  
 802.11n20 (High Channel): **3.18 dB** at **2495.65 MHz** in the **Vertical** polarization

802.11n40 (Low Channel): **5.15 dB** at **3231.11 MHz** in the **Horizontal** polarization  
 802.11n40 (Middle Channel): **3.57 dB** at **2367.61 MHz** in **Vertical** the polarization  
 802.11n40 (High Channel): **3.32 dB** at **2483.76 MHz** in the **Vertical** polarization

## Test Data

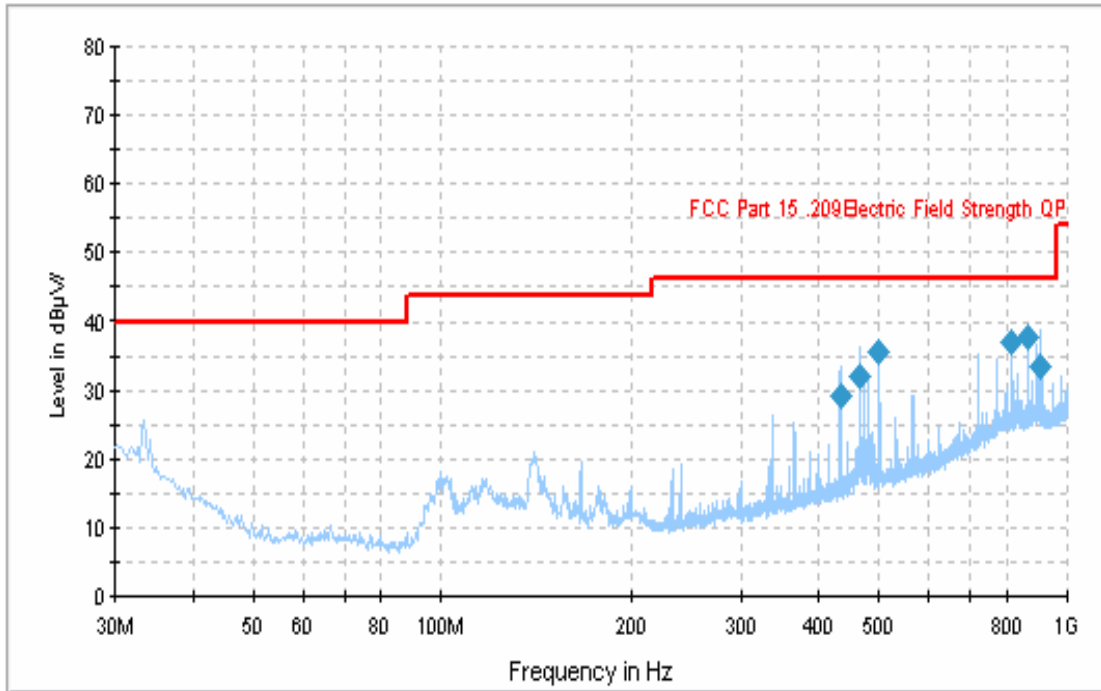
### Environmental Conditions

<b>Temperature:</b>	24 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

*The testing was performed by Cookies Bu on 2010-03-30.*

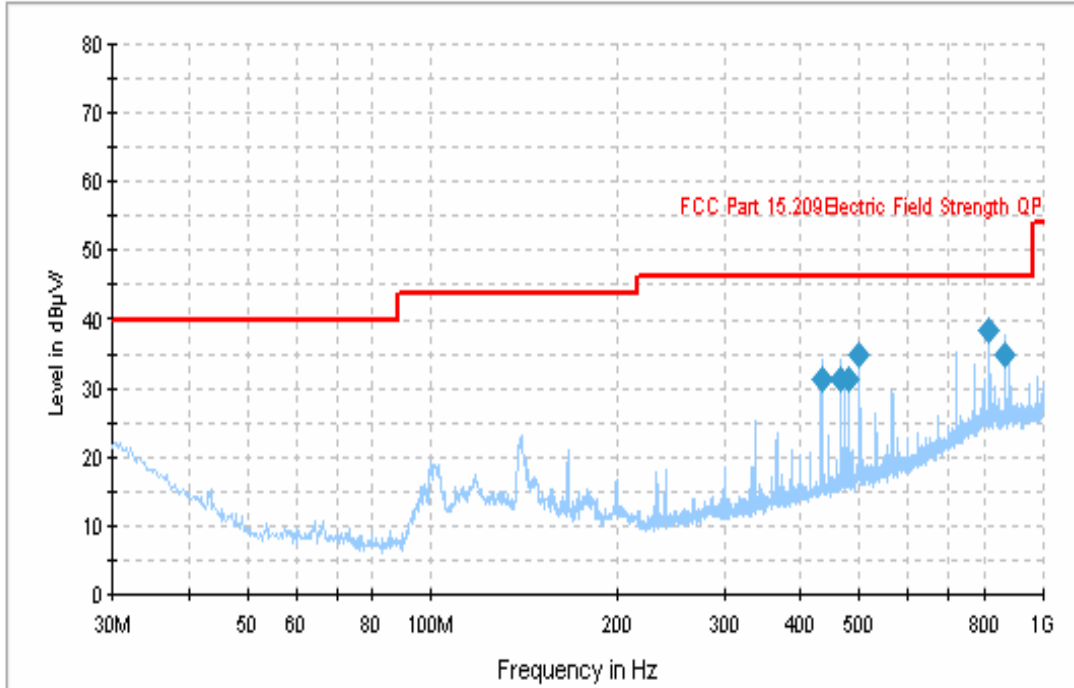
**30-1000 MHz:**

*Test Mode: Transmitting (802.11b worst case)*



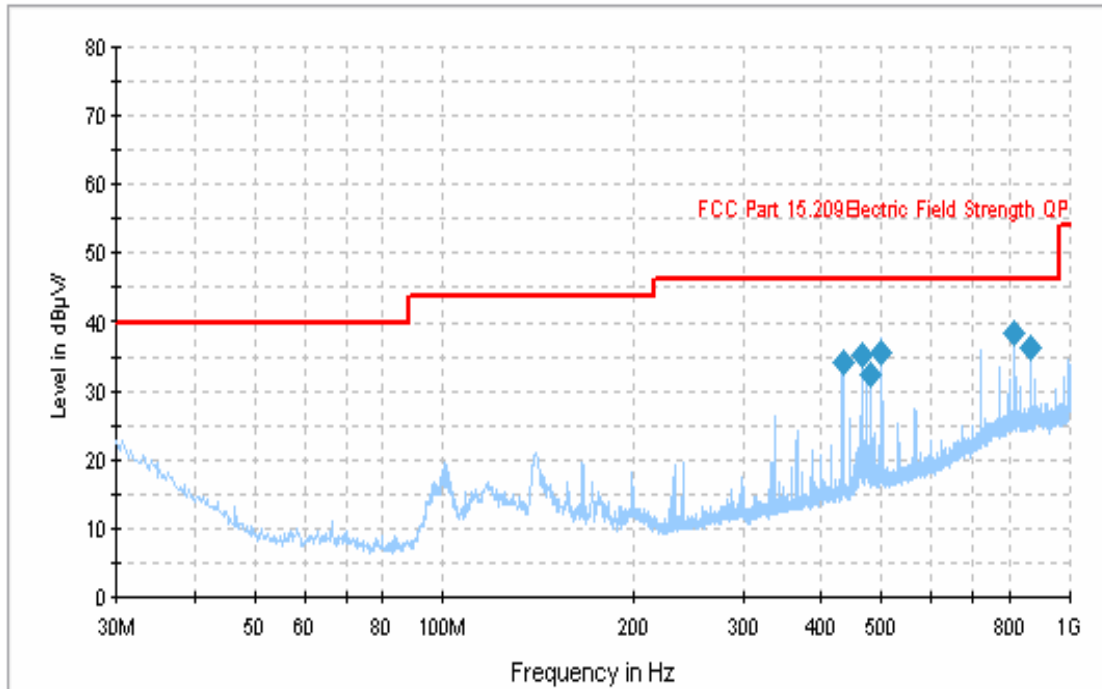
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
866.381750	37.7	101.0	V	171.0	-0.5	46.0	8.3
816.101750	37.2	192.0	H	144.0	-1.4	46.0	8.8
497.761250	35.8	184.0	H	240.0	-10.4	46.0	10.2
464.532250	32.2	206.0	H	232.0	-11.1	46.0	13.8
433.030750	29.1	101.0	H	59.0	-11.7	46.0	16.9
902.177250	33.7	155.0	V	130.0	-0.6	46.0	12.3

Test Mode: Transmitting (802.11g worst case)



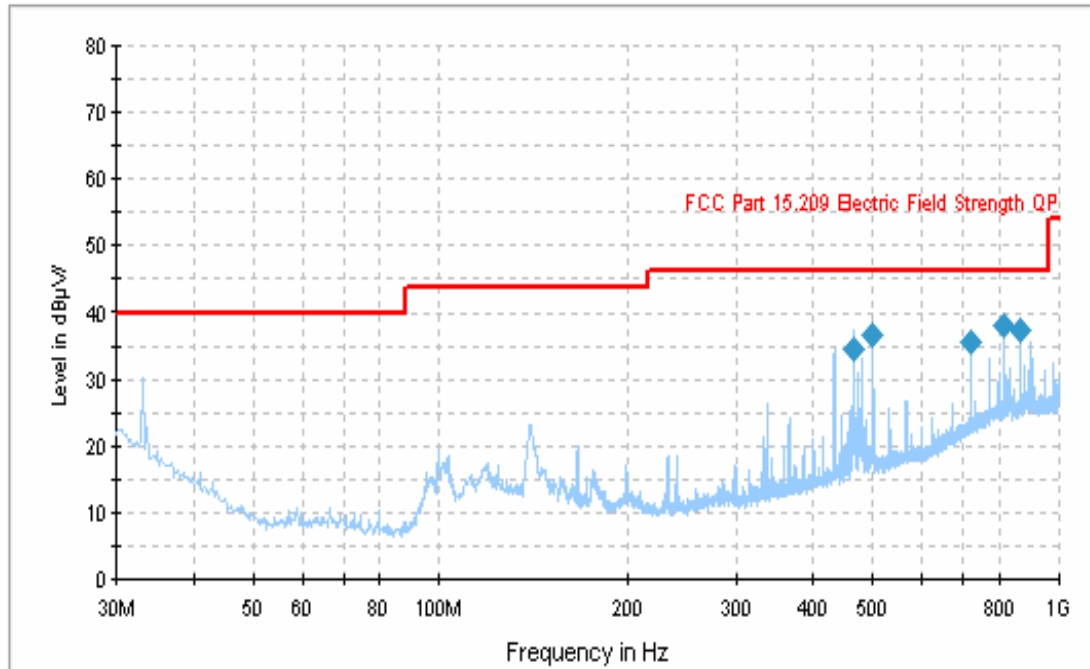
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
816.093750	38.4	122.0	H	124.0	-1.4	46.0	7.6
862.719000	35.1	190.0	H	129.0	-1.1	46.0	10.9
497.765500	35.0	172.0	H	255.0	-10.4	46.0	11.0
433.037500	31.4	205.0	H	236.0	-11.7	46.0	14.6
480.055000	31.4	101.0	H	305.0	-10.7	46.0	14.6
466.377750	31.3	101.0	H	60.0	-11.0	46.0	14.7

Test Mode: Transmitting (802.11n20 worst case)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
816.087750	38.5	121.0	H	124.0	-1.4	46.0	7.5
866.168750	36.3	100.0	H	129.0	-1.0	46.0	9.7
497.748000	35.7	188.0	H	238.0	-10.4	46.0	10.3
466.346000	35.5	190.0	H	220.0	-11.0	46.0	10.5
433.041500	34.1	101.0	H	299.0	-11.7	46.0	11.9
480.073000	32.6	189.0	H	227.0	-10.7	46.0	13.4

Test Mode: Transmitting (802.11n40 worst case)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
816.090500	38.2	124.0	H	126.0	-1.4	46.0	7.8
866.383025	37.7	356.0	H	253.0	-0.5	46.0	8.3
497.741500	36.9	194.0	H	222.0	-10.4	46.0	9.1
720.153250	35.8	347.0	V	0.0	-0.5	46.0	10.2
466.314500	34.8	197.0	H	223.0	-11.0	46.0	11.2

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

**Above 1 GHz:**

802.11b Mode:

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dBμV/m)			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)												
2412.00	96.40	PK	220	1.2	H	30.90	3.03	27.54	102.79	/	/	Fund.
2412.00	89.56	AV	220	1.2	H	30.90	3.03	27.54	95.95	/	/	Fund.
2412.00	102.39	PK	17	1.0	V	30.30	3.03	27.54	108.18	/	/	Fund.
2412.00	95.96	AV	17	1.0	V	30.30	3.03	27.54	101.75	/	/	Fund.
2343.79	44.84	AV	360	1.0	H	30.90	3.01	27.54	51.21	54	2.79*	spurious
3216.17	37.12	AV	152	1.0	H	33.20	3.49	27.71	46.10	54	7.90	spurious
3216.25	38.24	AV	360	1.0	V	31.40	3.49	27.71	45.42	54	8.58	spurious
2343.79	56.97	PK	360	1.0	H	30.90	3.01	27.54	63.34	74	10.66	spurious
2339.85	34.71	AV	12	1.3	V	30.30	3.01	27.54	40.48	54	13.52	spurious
4824.00	26.16	AV	46	1.1	V	35.00	4.30	27.51	37.95	54	16.05	Harmonic
4824.00	24.15	AV	215	1.2	H	36.30	4.30	27.51	37.24	54	16.76	Harmonic
2339.85	47.00	PK	12	1.3	V	30.30	3.01	27.54	52.77	74	21.23	spurious
4824.00	38.32	PK	46	1.1	V	35.00	4.30	27.51	50.11	74	23.89	Harmonic
4824.00	36.45	PK	215	1.2	H	36.30	4.30	27.51	49.54	74	24.46	Harmonic
3216.25	41.40	PK	360	1.0	V	31.40	3.49	27.71	48.58	74	25.42	spurious
3216.17	39.56	PK	152	1.0	H	33.20	3.49	27.71	48.54	74	25.46	spurious
Middle Channel (2437 MHz)												
2437.00	98.87	PK	220	1.1	H	30.90	3.03	27.54	105.26	/	/	Fund.
2437.00	91.69	AV	220	1.1	H	30.90	3.03	27.54	98.08	/	/	Fund.
2437.00	104.81	PK	33	1.1	V	30.30	3.03	27.54	110.6	/	/	Fund.
2437.00	98.45	AV	33	1.1	V	30.30	3.03	27.54	104.24	/	/	Fund.
2514.59	44.89	AV	41	1.0	V	30.60	3.10	27.54	51.05	54	2.95*	spurious
3249.00	36.34	AV	53	1.0	H	33.20	3.49	27.71	45.32	54	8.68	spurious
2371.84	38.85	AV	53	1.3	H	30.90	3.02	27.54	45.23	54	8.77	spurious
2514.59	57.37	PK	41	1.0	V	30.60	3.10	27.54	63.53	74	10.47	spurious
3249.00	35.64	AV	360	1.0	V	31.40	3.49	27.71	42.82	54	11.18	spurious
4874.00	24.68	AV	35	1.3	H	36.30	4.30	27.51	37.77	54	16.23	Harmonic
4874.00	25.96	AV	33	1.1	V	35.00	4.30	27.51	37.75	54	16.25	Harmonic
2371.84	50.28	PK	53	1.3	H	30.90	3.02	27.54	56.66	74	17.34	spurious
4874.00	38.12	PK	33	1.1	V	35.00	4.30	27.51	49.91	74	24.09	Harmonic
4874.00	36.26	PK	35	1.3	H	36.30	4.30	27.51	49.35	74	24.65	Harmonic
3249.00	38.26	PK	53	1.0	H	33.20	3.49	27.71	47.24	74	26.76	spurious
3249.00	37.56	PK	360	1.0	V	31.40	3.49	27.71	44.74	74	29.26	spurious



Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dBμV/m)			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
HighChannel (2462 MHz)												
2462.00	99.12	PK	220	1.1	H	30.90	3.03	27.54	105.51	/	/	Fund.
2462.00	91.73	AV	220	1.1	H	30.90	3.03	27.54	98.12	/	/	Fund.
2462.00	107.39	PK	0	1.0	V	30.30	3.10	27.54	113.25	/	/	Fund.
2462.00	100.97	AV	0	1.0	V	30.30	3.03	27.54	106.76	/	/	Fund.
2498.53	44.58	AV	329	1.1	V	30.60	3.10	27.54	50.74	54	3.26*	spurious
3282.92	38.45	AV	190	1.2	H	32.90	3.49	27.71	47.13	54	6.87	spurious
3278.00	37.45	AV	0	1.1	V	31.40	3.49	27.71	44.63	54	9.37	spurious
2498.53	56.84	PK	329	1.1	V	30.60	3.10	27.54	63.00	74	11.00	spurious
2498.76	35.16	AV	110	1.0	H	31.50	3.10	27.54	42.22	54	11.78	spurious
4924.00	25.61	AV	160	1.4	H	36.60	4.37	26.58	40.00	54	14.00	Harmonic
4924.00	26.68	AV	36	1.2	V	35.40	4.37	26.58	39.87	54	14.13	Harmonic
2498.76	47.02	PK	110	1.0	H	31.50	3.10	27.54	54.08	74	19.92	spurious
4924.00	38.62	PK	36	1.2	V	35.40	4.37	26.58	51.81	74	22.19	Harmonic
4924.00	37.11	PK	160	1.4	H	36.60	4.37	26.58	51.50	74	22.50	Harmonic
3282.92	40.21	PK	190	1.2	H	32.90	3.49	27.71	48.89	74	25.11	spurious
3278.00	39.23	PK	0	1.1	V	31.40	3.49	27.71	46.41	74	27.59	spurious

\* Within measurement uncertainty.

802.11g Mode:

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dBμV/m)			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)												
2412.00	90.57	PK	216	1.0	H	30.90	3.03	27.54	96.96	/	/	Fund.
2412.00	80.34	AV	216	1.0	H	30.90	3.03	27.54	86.73	/	/	Fund.
2412.00	99.32	PK	360	1.2	V	30.30	3.03	27.54	105.11	/	/	Fund.
2412.00	90.26	AV	360	1.2	V	30.30	3.03	27.54	96.05	/	/	Fund.
2349.49	43.56	AV	172	1.1	V	30.30	3.01	27.54	49.33	54	4.67	spurious
3215.91	34.89	AV	152	1.0	H	33.20	3.49	27.71	43.87	54	10.13	spurious
2349.49	55.72	PK	172	1.1	V	30.30	3.01	27.54	61.49	74	12.51	spurious
2329.85	33.75	AV	360	1.0	H	30.90	3.01	27.54	40.12	54	13.88	spurious
4824.00	23.45	AV	215	1.2	H	36.30	4.30	27.51	36.54	54	17.46	Harmonic
4824.00	24.56	AV	215	1.0	V	35.00	4.30	27.51	36.35	54	17.65	Harmonic
2329.85	45.89	PK	360	1.0	H	30.90	3.01	27.54	52.26	74	21.74	spurious
3216.39	24.67	AV	180	1.0	V	31.40	3.49	27.71	31.85	54	22.15	spurious
4824.00	36.78	PK	215	1.0	V	35.00	4.30	27.51	48.57	74	25.43	Harmonic
4824.00	35.26	PK	215	1.2	H	36.30	4.30	27.51	48.35	74	25.65	Harmonic
3215.91	37.80	PK	152	1.0	H	33.20	3.49	27.71	46.78	74	27.22	spurious
3216.39	36.88	PK	180	1.0	V	31.40	3.49	27.71	44.06	74	29.94	spurious
Middle Channel (2437 MHz)												
2437.00	91.06	PK	30	1.3	H	30.90	3.03	27.54	97.45	/	/	Fund.
2437.00	81.89	AV	30	1.3	H	30.90	3.03	27.54	88.28	/	/	Fund.
2437.00	100.92	PK	50	1.2	V	30.30	3.03	27.54	106.71	/	/	Fund.
2437.00	90.56	AV	50	1.2	V	30.30	3.03	27.54	96.35	/	/	Fund.
2377.55	42.68	AV	170	1.2	H	30.90	3.02	27.54	49.06	54	4.94	spurious
2360.72	39.67	AV	26	1.2	V	30.30	3.02	27.54	45.45	54	8.55	spurious
3249.34	36.36	AV	360	1.0	H	33.20	3.49	27.71	45.34	54	8.66	spurious
2377.55	54.93	PK	170	1.2	H	30.90	3.02	27.54	61.31	74	12.69	spurious
3249.00	34.02	AV	33	1.0	V	31.40	3.49	27.71	41.20	54	12.80	spurious
2360.72	51.97	PK	26	1.2	V	30.30	3.02	27.54	57.75	74	16.25	spurious
4874.00	23.78	AV	220	1.1	H	36.30	4.30	27.51	36.87	54	17.13	Harmonic
4874.00	23.78	AV	185	1.0	V	35.00	4.30	27.51	35.57	54	18.43	Harmonic
4874.00	35.65	PK	220	1.1	H	36.30	4.30	27.51	48.74	74	25.26	Harmonic
3249.34	39.41	PK	360	1.0	H	33.20	3.49	27.71	48.39	74	25.61	spurious
4874.00	35.99	PK	185	1.0	V	35.00	4.30	27.51	47.78	74	26.22	Harmonic
3249.00	36.99	PK	33	1.0	V	31.40	3.49	27.71	44.17	74	29.83	spurious

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dB $\mu$ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Comment
HighChannel (2462 MHz)												
2462.00	92.45	PK	220	1.2	H	30.90	3.03	27.54	98.84	/	/	Fund.
2462.00	82.26	AV	220	1.2	H	30.90	3.03	27.54	88.65	/	/	Fund.
2462.00	101.50	PK	1.0	1.1	V	30.30	3.03	27.54	107.29	/	/	Fund.
2462.00	91.36	AV	1.0	1.3	V	30.30	3.03	27.54	97.15	/	/	Fund.
2483.62	44.86	AV	27	1.0	V	30.60	3.08	27.54	51.00	54	3.00*	spurious
2486.53	39.06	AV	1.2	1.5	H	31.50	3.08	27.54	46.10	54	7.90	spurious
3316.20	37.68	AV	25	1.1	V	31.40	3.49	27.71	44.86	54	9.14	spurious
3307.19	36.16	AV	165	1.2	H	32.90	3.49	27.71	44.84	54	9.16	spurious
2483.62	58.16	PK	27	1.0	V	30.60	3.08	27.54	64.30	74	9.70	spurious
4924.00	24.52	AV	215	1.1	H	36.60	4.37	26.58	38.91	54	15.09	Harmonic
4924.00	25.04	AV	318	1.2	V	35.40	4.37	26.58	38.23	54	15.77	Harmonic
2486.53	51.16	PK	1.2	1.0	H	31.50	3.08	27.54	58.20	74	15.80	spurious
4924.00	36.68	PK	215	1.1	H	36.60	4.37	26.58	51.07	74	22.93	Harmonic
4924.00	37.12	PK	318	1.2	V	35.40	4.37	26.58	50.31	74	23.69	Harmonic
3316.20	40.77	PK	25	1.1	V	31.40	3.49	27.71	47.95	74	26.05	spurious
3307.19	39.24	PK	165	1.2	H	32.90	3.49	27.71	47.92	74	26.08	spurious

\* Within measurement uncertainty.

802.11n 20:

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dBμV/m)			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)												
2412.00	98.95	PK	182	1.0	H	30.90	3.03	27.54	105.34	/	/	Fund.
2412.00	88.28	AV	182	1.0	H	30.90	3.03	27.54	94.67	/	/	Fund.
2412.00	100.73	PK	219	1.0	V	30.30	3.03	27.54	106.52	/	/	Fund.
2412.00	90.83	AV	219	1.0	V	30.30	3.03	27.54	96.62	/	/	Fund.
2387.19	45.33	AV	360	1.0	H	30.90	3.02	27.54	51.71	54	2.29*	spurious
3216.63	40.80	AV	140	1.3	H	33.20	3.49	27.71	49.78	54	4.22	spurious
3216.63	41.26	AV	160	1.1	V	31.40	3.49	27.71	48.44	54	5.56	spurious
2387.19	57.53	PK	360	1.0	H	30.90	3.02	27.54	63.91	74	10.09	spurious
2360.72	37.48	AV	218	1.0	V	30.30	3.02	27.54	43.26	54	10.74	spurious
2360.72	52.87	PK	218	1.0	V	30.30	3.02	27.54	58.65	74	15.35	spurious
4824.00	24.36	AV	220	1.0	H	36.30	4.30	27.51	37.45	54	16.55	Harmonic
4824.00	23.69	AV	180	1.3	V	35.00	4.30	27.51	35.48	54	18.52	Harmonic
3216.63	43.90	PK	140	1.3	H	33.20	3.49	27.71	52.88	74	21.12	spurious
3216.63	43.89	PK	160	1.1	V	31.40	3.49	27.71	51.07	74	22.93	spurious
4824.00	36.14	PK	220	1.0	H	36.30	4.30	27.51	49.23	74	24.77	Harmonic
4824.00	35.36	PK	180	1.3	V	35.00	4.30	27.51	47.15	74	26.85	Harmonic
Middle Channel (2437 MHz)												
2437.00	98.36	PK	130	1.0	H	30.90	3.03	27.54	104.75	/	/	Fund.
2437.00	88.12	AV	130	1.0	H	30.90	3.03	27.54	94.51	/	/	Fund.
2437.00	102.64	PK	160	1.3	V	30.30	3.03	27.54	108.43	/	/	Fund.
2437.00	92.32	AV	160	1.3	V	30.30	3.03	27.54	98.11	/	/	Fund.
2503.67	44.21	AV	145	1.0	V	30.06	3.10	27.54	49.83	54	4.17	spurious
3249.00	41.28	AV	140	1.5	V	31.40	3.49	27.71	48.46	54	5.54	spurious
3249.00	38.69	AV	120	1.3	H	33.20	3.49	27.71	47.67	54	6.33	spurious
2503.67	37.56	AV	300	1.0	H	31.50	3.10	27.54	44.62	54	9.38	spurious
2503.67	56.49	PK	145	1.0	V	30.06	3.10	27.54	62.11	74	11.89	spurious
2503.67	50.94	PK	300	1.0	H	31.50	3.10	27.54	58.00	74	16.00	spurious
4874.00	24.86	AV	210	1.0	H	36.30	4.30	27.51	37.95	54	16.05	Harmonic
4874.00	24.01	AV	120	1.4	V	35.00	4.30	27.51	35.80	54	18.20	Harmonic
3249.00	41.71	PK	120	1.3	H	33.20	3.49	27.71	50.69	74	23.31	spurious
3249.00	43.36	PK	140	1.5	V	31.40	3.49	27.71	50.54	74	23.46	spurious
4874.00	37.15	PK	210	1.0	H	36.30	4.30	27.51	50.24	74	23.76	Harmonic
4874.00	36.47	PK	120	1.4	V	35.00	4.30	27.51	48.26	74	25.74	Harmonic

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dB $\mu$ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Comment
HighChannel (2462 MHz)												
2462.00	103.69	PK	210	1.0	V	30.30	3.03	27.54	109.48	/	/	Fund.
2462.00	99.16	PK	215	1.0	H	30.90	3.03	27.54	105.55	/	/	Fund.
2462.00	93.45	AV	210	1.0	V	30.30	3.03	27.54	99.24	/	/	Fund.
2462.00	88.05	AV	215	1.0	H	30.90	3.03	27.54	94.44	/	/	Fund.
2495.65	43.78	AV	11	1.0	V	31.50	3.08	27.54	50.82	54	3.18*	spurious
3282.54	38.45	AV	247	1.5	H	32.90	3.49	27.71	47.13	54	6.87	spurious
3282.54	38.87	AV	175	1.0	V	31.40	3.49	27.71	46.05	54	7.95	spurious
2489.57	37.84	AV	130	1.6	H	31.50	3.08	27.54	44.88	54	9.12	spurious
2495.65	56.00	PK	11	1.0	V	31.50	3.08	27.54	63.04	74	10.96	spurious
4924.00	25.46	AV	215	1.1	H	36.60	4.37	26.58	39.85	54	14.15	Harmonic
2489.57	50.12	PK	130	1.6	H	31.50	3.08	27.54	57.16	74	16.84	Harmonic
4924.00	23.75	AV	180	1.0	V	35.40	4.37	26.58	36.94	54	17.06	Harmonic
4924.00	37.89	PK	215	1.1	H	36.60	4.37	26.58	52.28	74	21.72	Harmonic
3282.54	41.36	PK	247	1.5	H	32.90	3.49	27.71	50.04	74	23.96	spurious
4924.00	36.01	PK	180	1.0	V	35.40	4.37	26.58	49.20	74	24.80	Harmonic
3282.54	41.78	PK	175	1.0	V	31.40	3.49	27.71	48.96	74	25.04	Harmonic

\* Within measurement uncertainty.

802.11n 40:

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dBµV/m)			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 (2422 MHz)												
2422.00	95.26	PK	110	1.1	H	30.90	3.03	27.54	101.65	/	/	Fund.
2422.00	85.12	AV	110	1.1	H	30.90	3.03	27.54	91.51	/	/	Fund.
2422.00	99.33	PK	217	1.0	V	30.30	3.03	27.54	105.12	/	/	Fund.
2422.00	89.25	AV	217	1.0	V	30.30	3.03	27.54	95.04	/	/	Fund.
3231.11	39.87	AV	69	1.0	H	33.20	3.49	27.71	48.85	54	5.15	spurious
3231.11	39.78	AV	120	1.0	V	31.40	3.49	27.71	46.96	54	7.04	spurious
2389.51	39.92	AV	236	1.0	H	30.90	3.02	27.54	46.30	54	7.70	spurious
2389.15	40.15	AV	78	1.3	V	30.30	3.02	27.54	45.93	54	8.07	spurious
2389.51	53.24	PK	236	1.0	H	30.90	3.02	27.54	59.62	74	14.38	spurious
4844.00	25.36	AV	312	1.2	H	36.30	4.30	27.51	38.45	54	15.55	Harmonic
2389.15	52.38	PK	78	1.3	V	30.30	3.02	27.54	58.16	74	15.84	Spurious
4844.00	24.13	AV	246	1.1	V	35.00	4.30	27.51	35.92	54	18.08	Harmonic
3231.11	42.93	PK	69	1.0	H	33.20	3.49	27.71	51.91	74	22.09	Harmonic
4844.00	37.12	PK	312	1.2	H	36.30	4.30	27.51	50.21	74	23.79	spurious
3231.11	42.86	PK	120	1.0	V	31.40	3.49	27.71	50.04	74	23.96	spurious
484.00	36.48	PK	246	1.1	V	35.00	4.30	27.51	48.27	74	25.73	Harmonic
Middle Channel (2437 MHz)												
2437.00	97.13	PK	225	1.2	H	30.90	3.03	27.54	103.52	/	/	Fund.
2437.00	87.06	AV	225	1.2	H	30.90	3.03	27.54	93.45	/	/	Fund.
2437.00	101.36	PK	300	1.1	V	30.30	3.03	27.54	107.15	/	/	Fund.
2437.00	91.46	AV	300	1.1	V	30.30	3.03	27.54	97.25	/	/	Fund.
2367.61	44.35	AV	32	1.0	V	30.60	3.02	27.54	50.43	54	3.57*	spurious
2541.24	42.50	AV	50	1.3	H	31.50	3.10	27.54	49.56	54	4.44	spurious
3250.59	39.42	AV	54	1.0	H	33.20	3.49	27.71	48.40	54	5.60	spurious
3249.34	38.56	AV	325	1.0	V	31.40	3.49	27.71	45.74	54	8.26	spurious
2541.24	54.09	PK	50	1.3	H	31.50	3.10	27.54	61.15	74	12.85	spurious
4874.00	25.76	AV	325	1.3	H	36.30	4.30	27.51	38.85	54	15.15	Harmonic
4874.00	24.92	AV	160	1.1	V	35.00	4.30	27.51	36.71	54	17.29	Harmonic
2367.61	46.76	PK	32	1.0	V	30.60	3.02	27.54	52.84	74	21.16	spurious
3250.59	42.32	PK	54	1.0	H	33.20	3.49	27.71	51.30	74	22.70	spurious
4874.00	38.01	PK	325	1.3	H	36.30	4.30	27.51	51.10	74	22.90	Harmonic
3249.34	41.80	PK	325	1.0	V	31.40	3.49	27.71	48.98	74	25.02	spurious
4874.00	37.16	PK	160	1.1	V	35.00	4.30	27.51	48.95	74	25.05	Harmonic

Indicated		Detector (PK/AV)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	Receiver Reading (dB $\mu$ V/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Comment
HighChannel (2452 MHz)												
2452.00	98.03	PK	230	1.0	H	30.90	3.03	27.54	104.42	/	/	Fund.
2452.00	87.98	AV	230	1.0	H	30.90	3.03	27.54	94.37	/	/	Fund.
2452.00	102.36	PK	0	1.0	V	30.30	3.03	27.54	108.15	/	/	Fund.
2452.00	92.12	AV	0	1.0	V	30.30	3.03	27.54	97.91	/	/	Fund.
2483.76	44.54	AV	130	1.1	V	30.60	3.08	27.54	50.68	54	3.32*	spurious
3271.23	39.75	AV	160	1.2	H	32.90	3.49	27.71	48.43	54	5.57	spurious
3271.23	38.12	AV	120	1.1	V	31.40	3.49	27.71	45.30	54	8.70	spurious
2486.93	37.89	AV	120	1.0	H	31.50	3.08	27.54	44.93	54	9.07	spurious
2483.76	56.71	PK	130	1.1	V	30.60	3.08	27.54	62.85	74	11.15	spurious
4904.00	26.12	AV	35	1.3	H	36.60	4.37	26.58	40.51	54	13.49	Harmonic
4904.00	25.47	AV	216	1.2	V	35.40	4.37	26.58	38.66	54	15.34	Harmonic
2486.93	50.05	PK	120	1.0	H	31.50	3.08	27.54	57.09	74	16.91	spurious
4904.00	38.36	PK	35	1.3	H	36.60	4.37	26.58	52.75	74	21.25	Harmonic
4904.00	37.68	PK	216	1.2	V	35.40	4.37	26.58	50.87	74	23.13	Harmonic
3271.23	41.81	PK	160	1.2	H	32.90	3.49	27.71	50.49	74	23.51	spurious
3271.23	40.66	PK	120	1.3	V	31.40	3.49	27.71	47.84	74	26.16	spurious

\* Within measurement uncertainty.

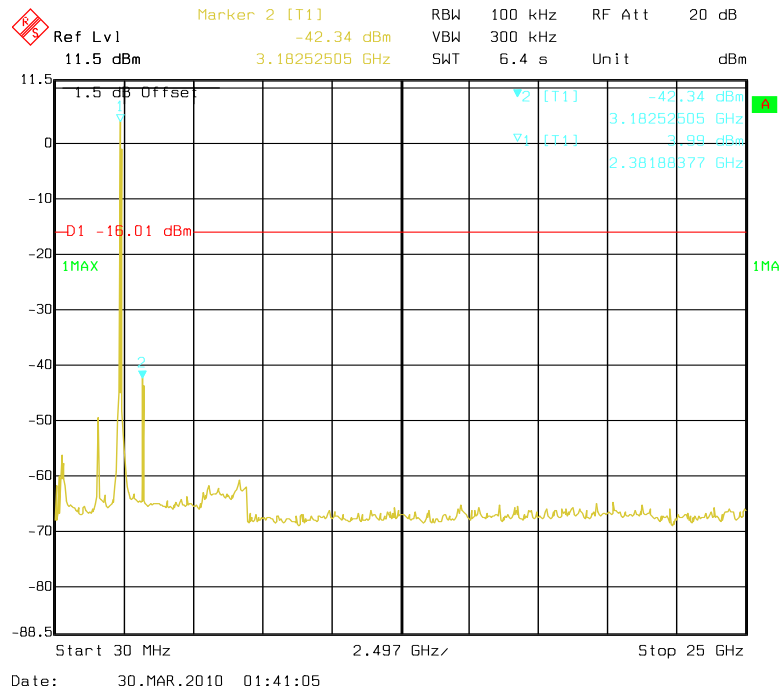
**Antenna Port Conducted Spurious Emissions**

Channel Frequency (MHz)	Delta Value (dBc)	Limit (dBc)	Ref. Plot	Result
802.11b Mode				
2412	*	20	PLOT1	PASS
2437	*	20	PLOT2	PASS
2462	*	20	PLOT3	PASS
802.11g Mode				
2412	*	20	PLOT4	PASS
2437	*	20	PLOT5	PASS
2462	*	20	PLOT6	PASS
802.11n 20 Mode (Chain 0)				
2412	*	20	PLOT7	PASS
2437	*	20	PLOT8	PASS
2462	*	20	PLOT9	PASS
802.11n 20 Mode (Chain 1)				
2412	*	20	PLOT10	PASS
2437	*	20	PLOT11	PASS
2462	*	20	PLOT12	PASS
802.11n 20 Mode (Combiner)				
2412	*	20	PLOT13	PASS
2437	*	20	PLOT14	PASS
2462	*	20	PLOT15	PASS
802.11n 40 Mode (Chain 0)				
2422	*	20	PLOT16	PASS
2437	*	20	PLOT17	PASS
2452	*	20	PLOT18	PASS
802.11n 40 Mode (Chain 1)				
2422	*	20	PLOT19	PASS
2437	*	20	PLOT20	PASS
2452	*	20	PLOT21	PASS
802.11n 40 Mode (Combiner)				
2422	*	20	PLOT22	PASS
2437	*	20	PLOT23	PASS
2452	*	20	PLOT24	PASS

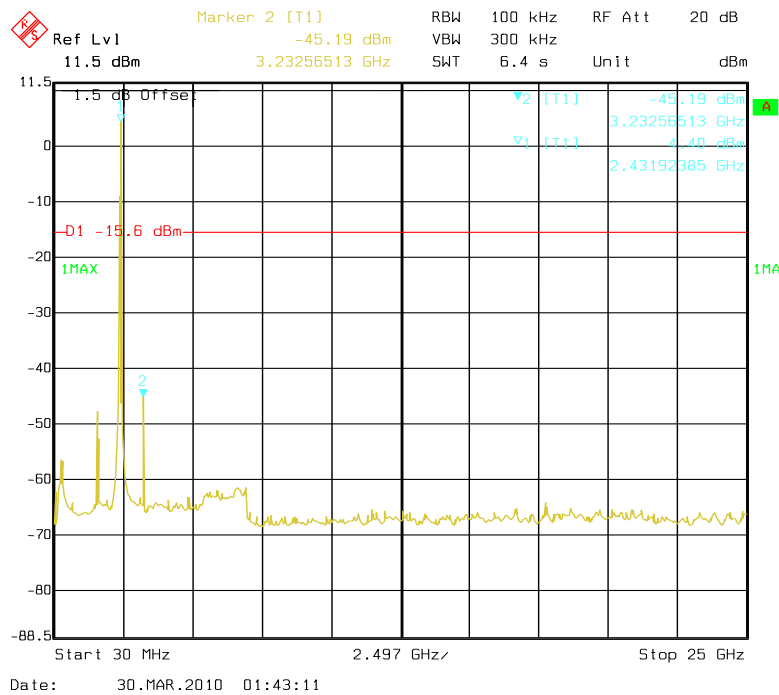
Please refer to the following plots.



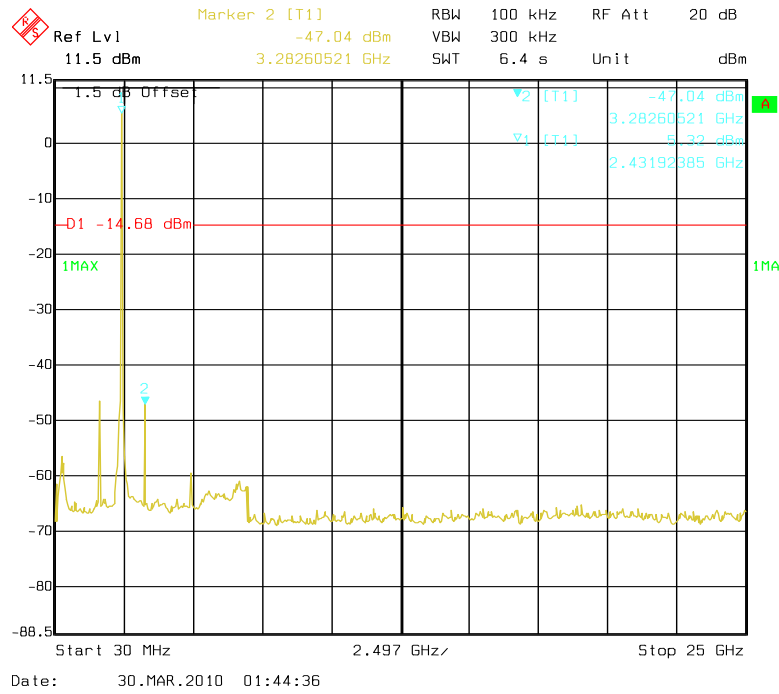
### 802.11b Low Channel



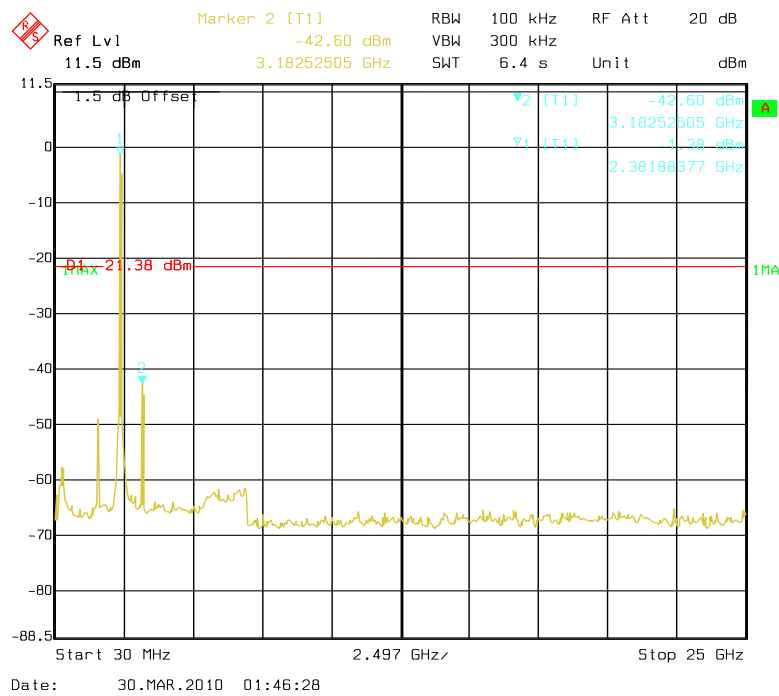
### 802.11b Middle Channel



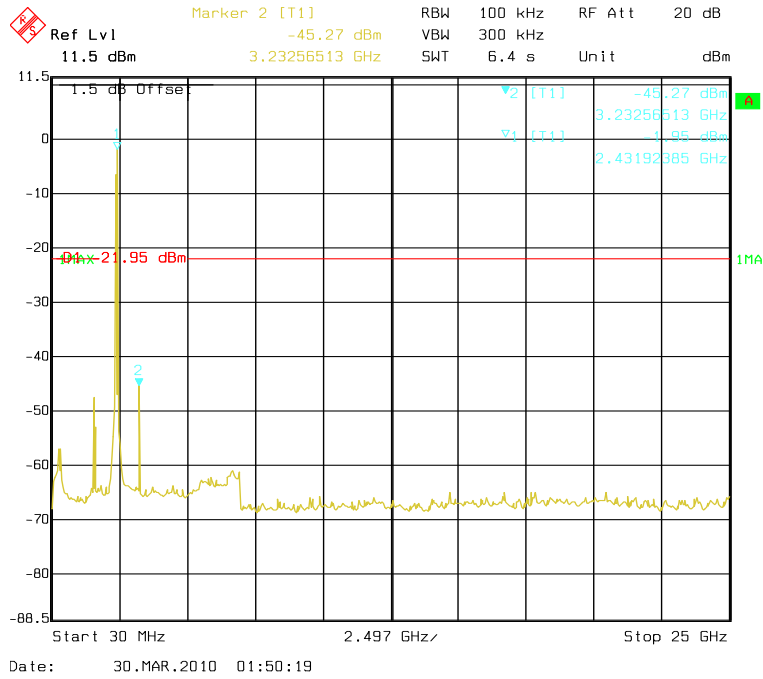
### 802.11b High Channel



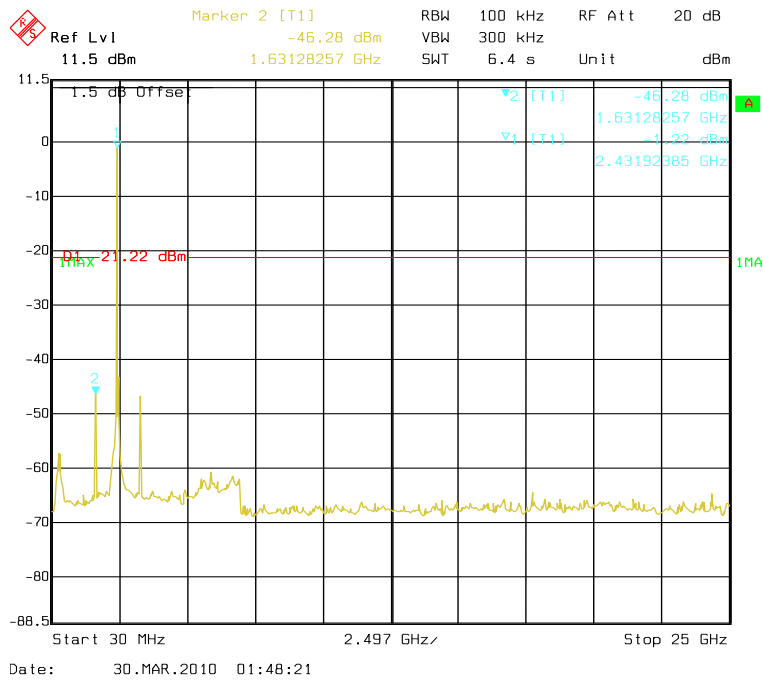
### 802.11g Low Channel



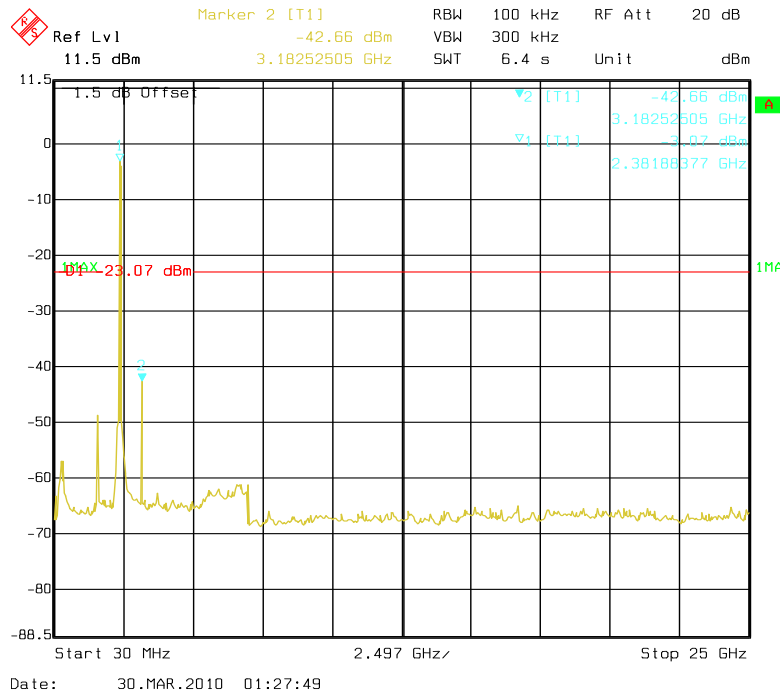
### 802.11g Middle Channel



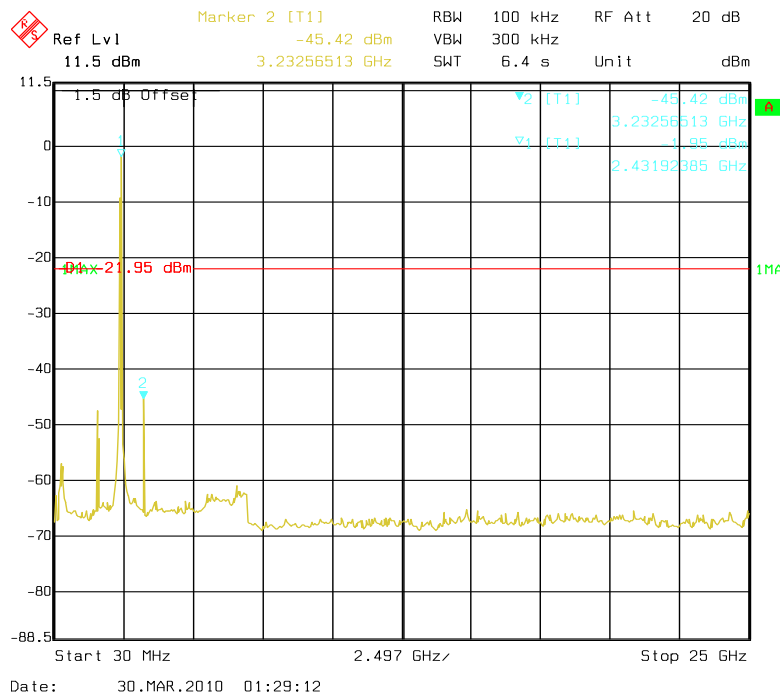
### 802.11g High Channel



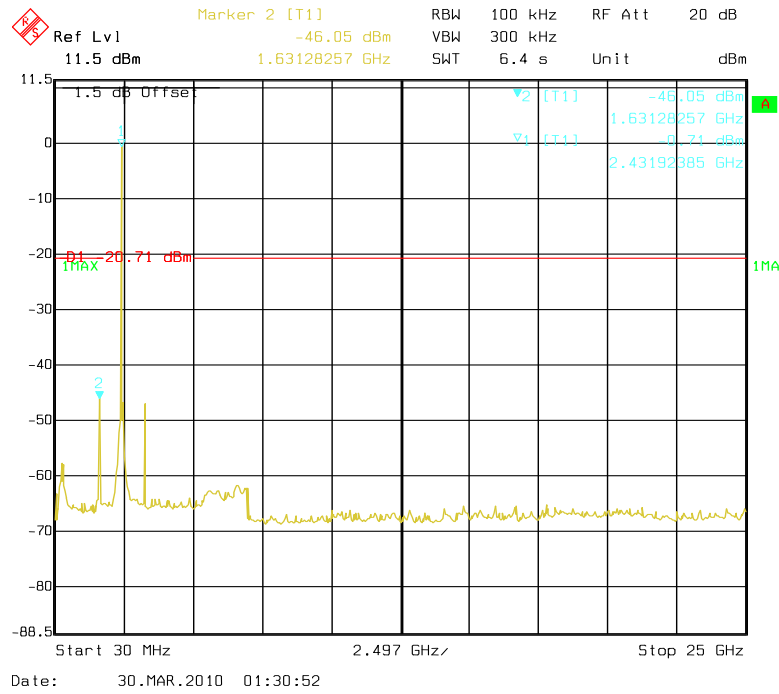
### 802.11n20 Low Channel (Chain 0)



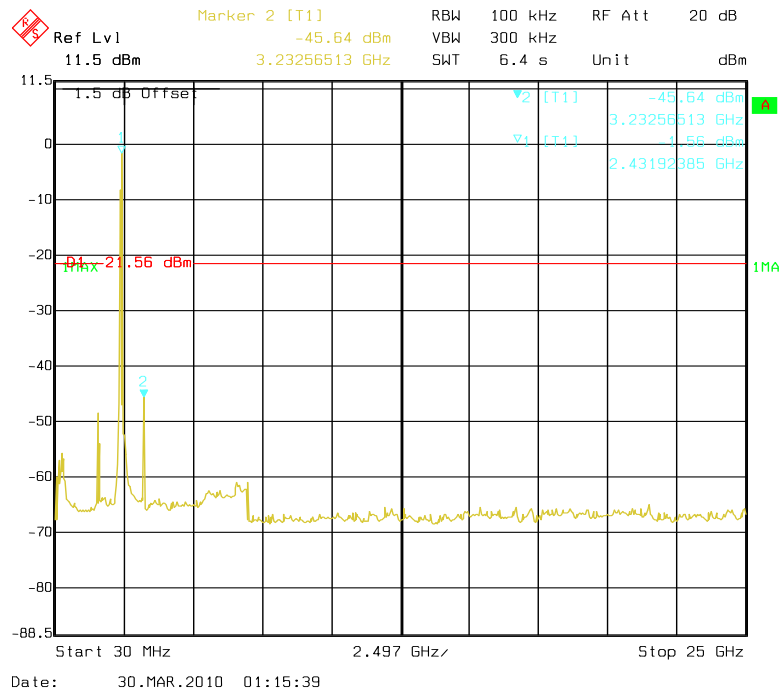
### 802.11n20 Middle Channel (Chain 0)



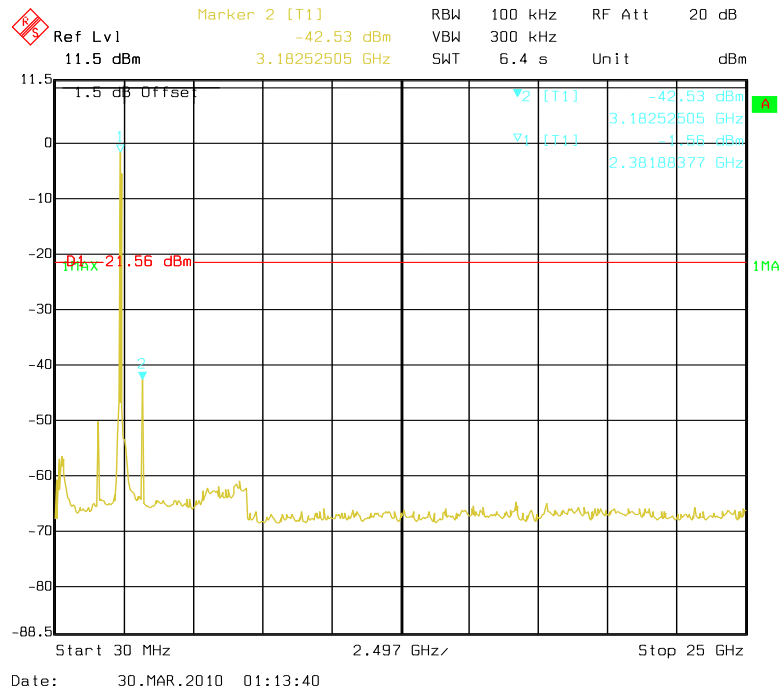
### 802.11n20 High Channel (Chain 0)



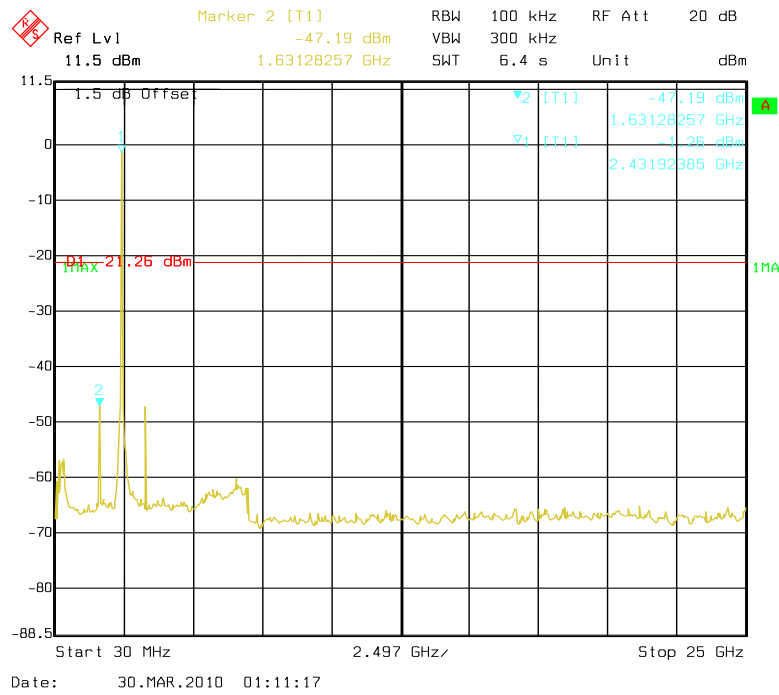
### 802.11n20 Low Channel (Chain 1)



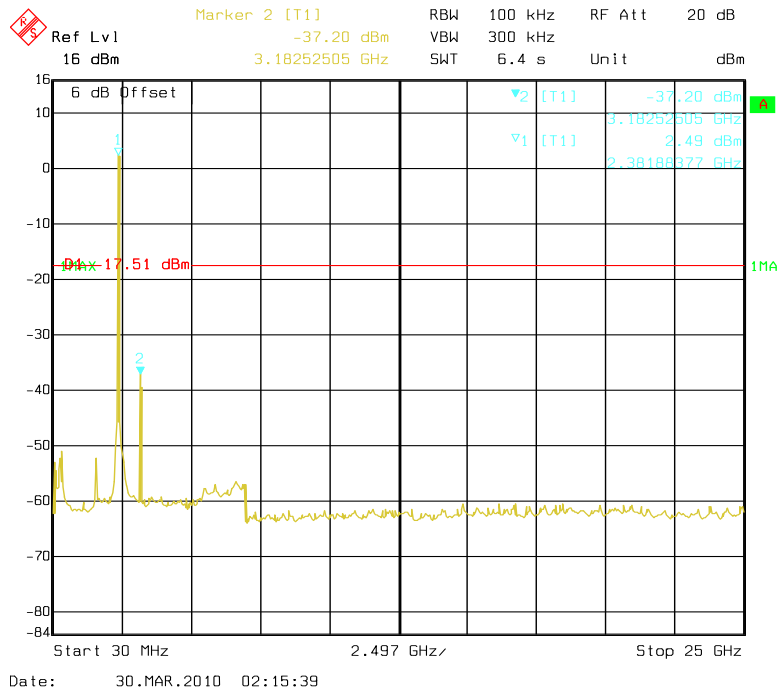
### 802.11n20 Middle Channel (Chain 1)



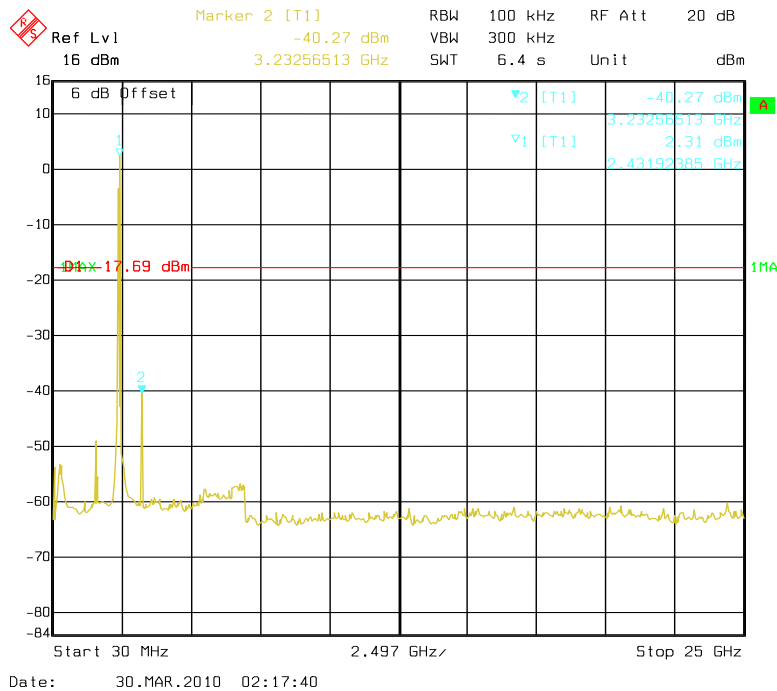
### 802.11n20 High Channel (Chain 1)



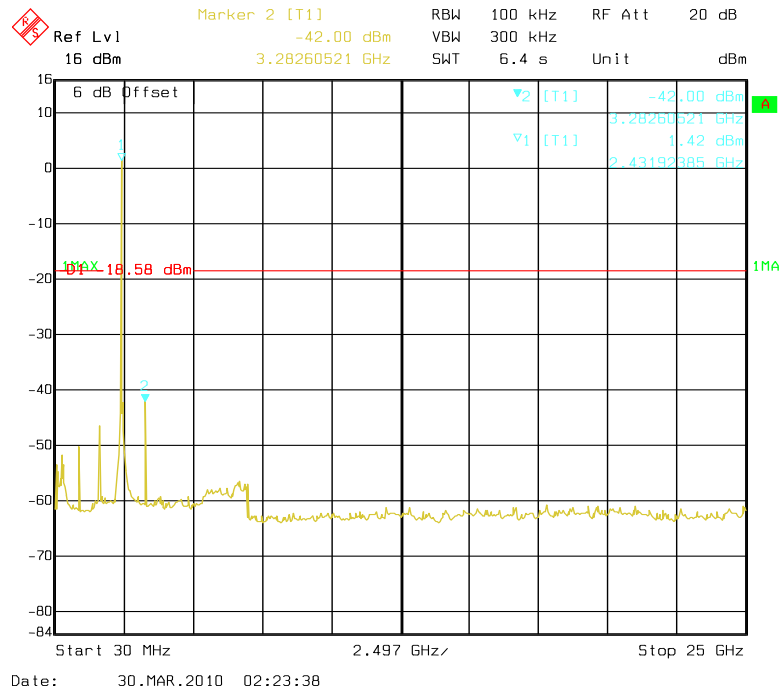
**802.11n20 Low Channel (with Combiner)**



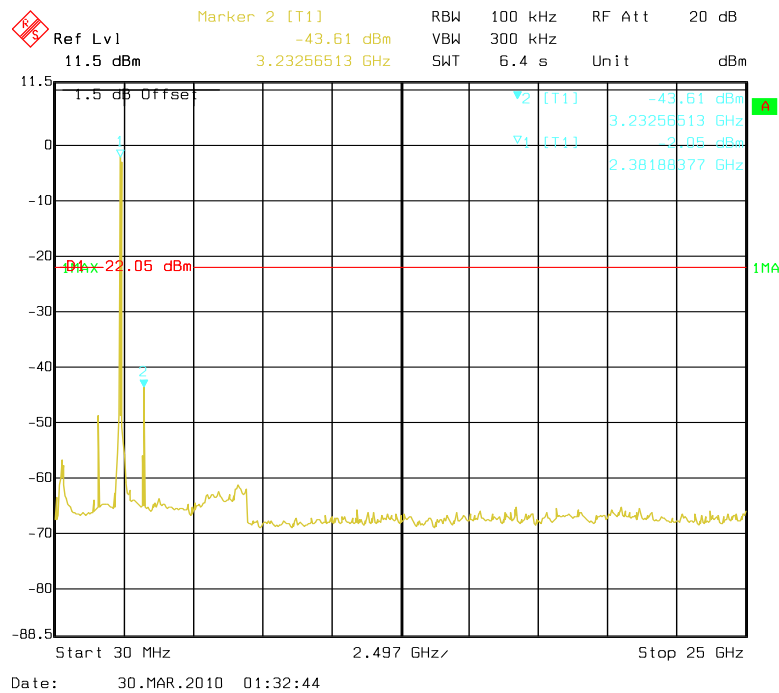
**802.11n20 Middle Channel (with Combiner)**



### 802.11n20 High Channel (with Combiner)

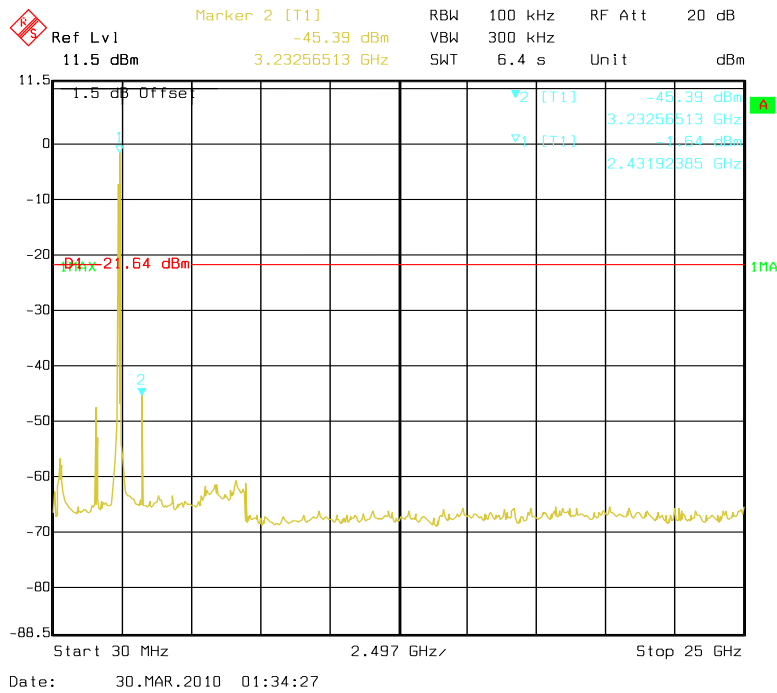


### 802.11n40 Low Channel (Chain 0)

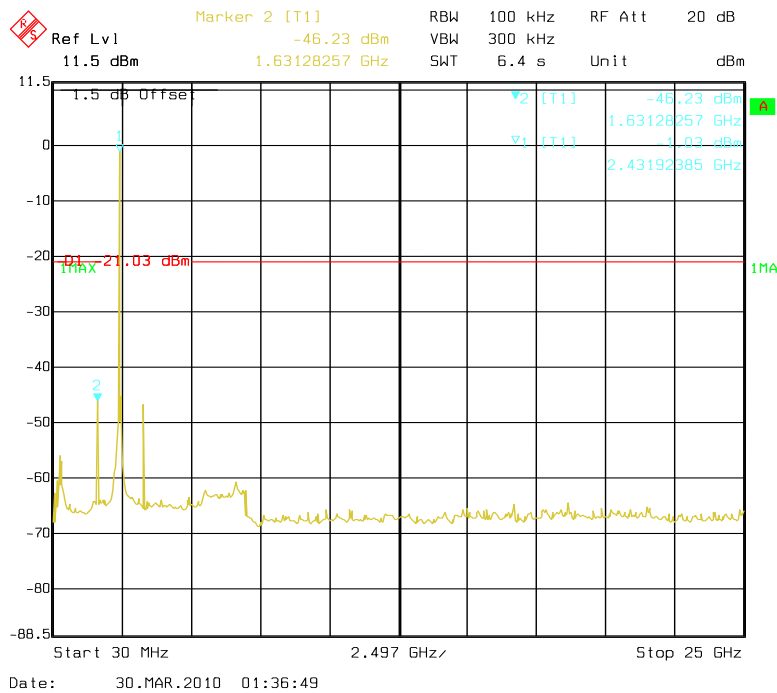




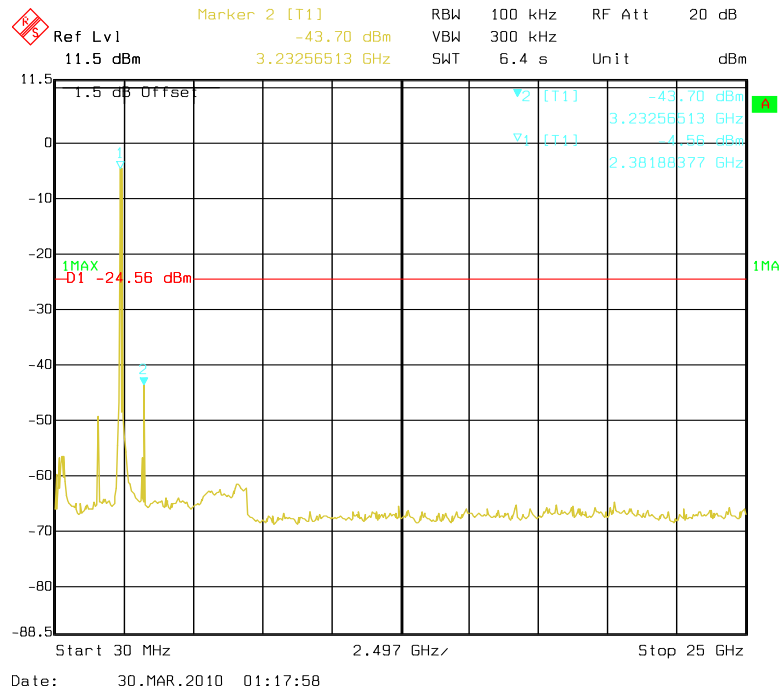
802.11n40 Middle Channel (Chain 0)



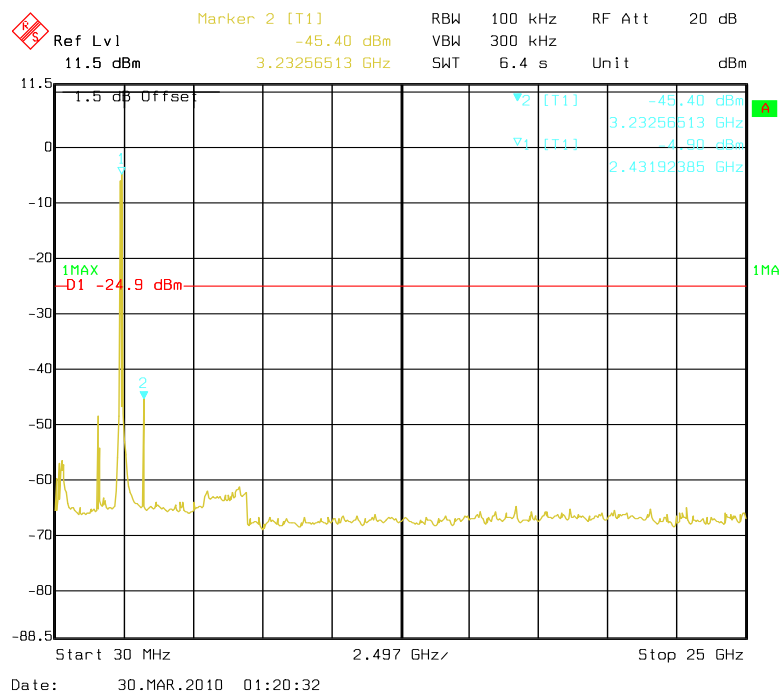
802.11n40 High Channel (Chain 0)



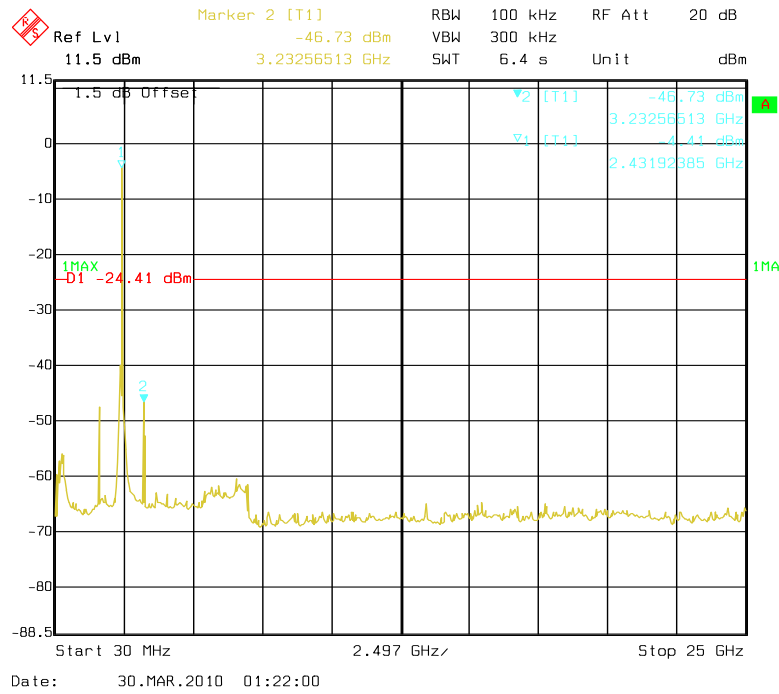
### 802.11n40 Low Channel (Chain 1)



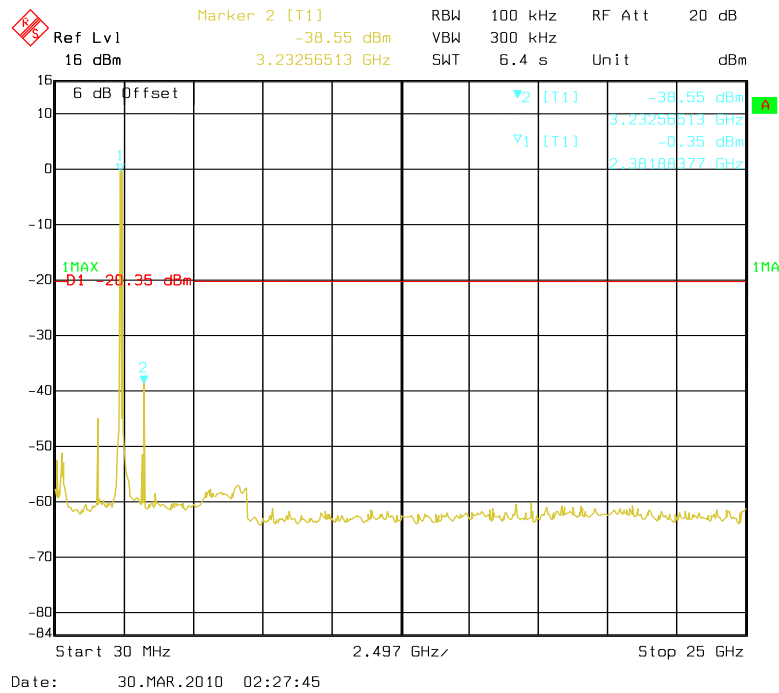
### 802.11n40 Middle Channel (Chain 1)



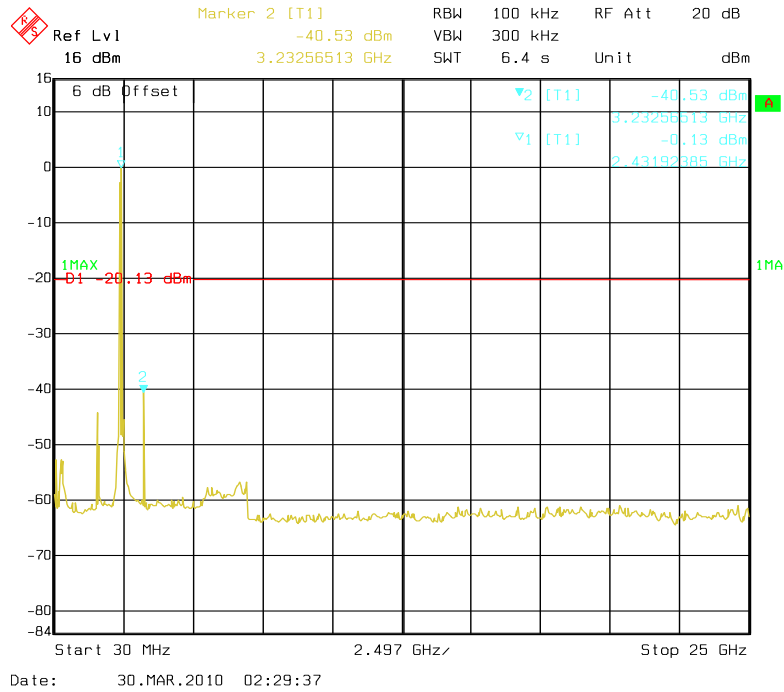
### 802.11n40 High Channel (Chain 1)



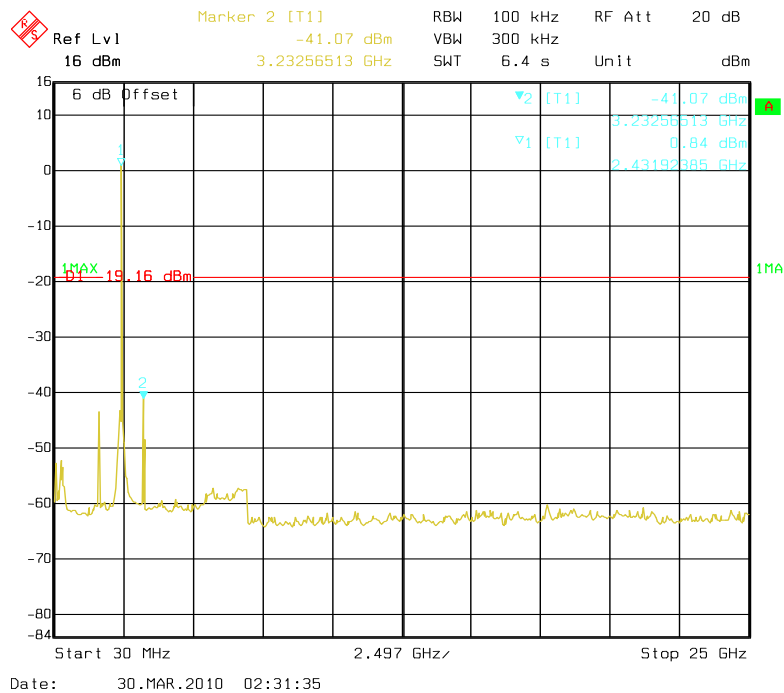
### 802.11n40 Low Channel (with Combiner)



### 802.11n40 Middle Channel (with Combiner)



### 802.11n40 High Channel (with Combiner)



## FCC §15.247(a) (2) – 6 dB BANDWIDTH TESTING

### Applicable Standard

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

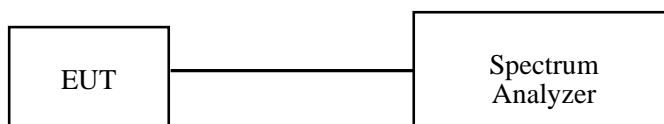
### Test Equipment List and Details

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

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

### Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect 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

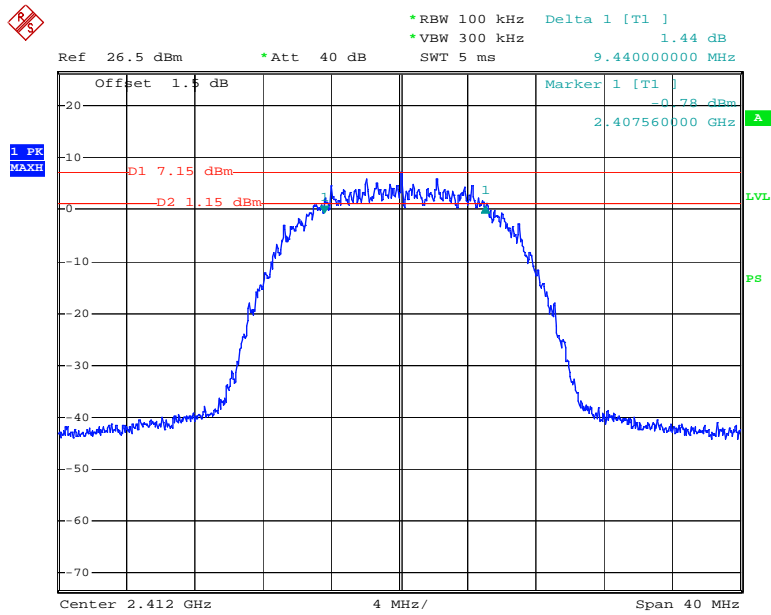
*The testing was performed by Cookies Bu on 2010-03-30 to 2010-04-14.*

**Test Result:** Pass.

Please refer to the following tables and plots.

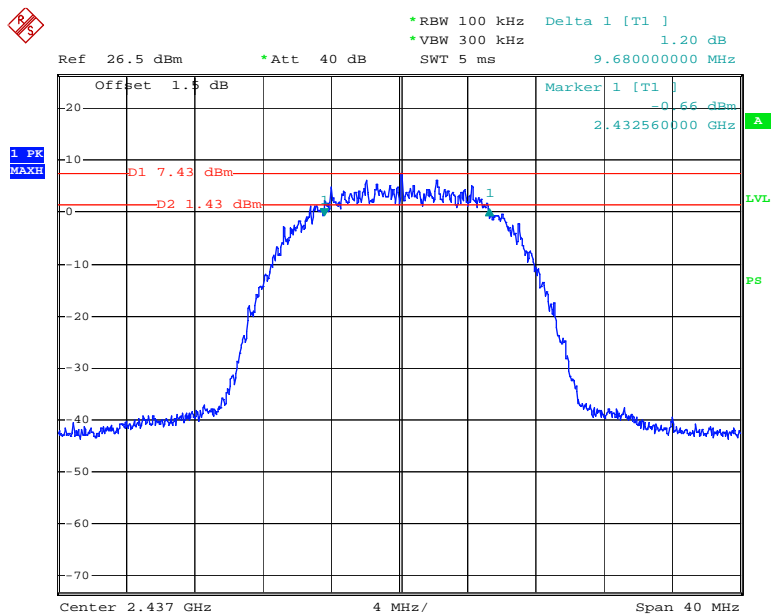
Channel	Channel Frequency (MHz)	Measured 6 dB Bandwidth (MHz)	FCC Part 15.247 Limit (kHz)
802.11b Mode			
Low	2412	9.44	>500
Middle	2437	9.68	>500
High	2462	9.92	>500
802.11g Mode			
Low	2412	16.52	>500
Middle	2437	16.64	>500
High	2462	16.56	>500
802.11n20 Mode (Chain 0)			
Low	2412	17.68	>500
Middle	2437	17.52	>500
High	2462	17.68	>500
802.11n20 Mode (Chain 1)			
Low	2412	17.76	>500
Middle	2437	17.76	>500
High	2462	17.76	>500
802.11n40 Mode (Chain 0)			
Low	2422	36.80	>500
Middle	2437	36.80	>500
High	2452	36.64	>500
802.11n40 Mode (Chain 1)			
Low	2422	36.80	>500
Middle	2437	36.80	>500
High	2452	36.64	>500

### 802.11b Low Channel



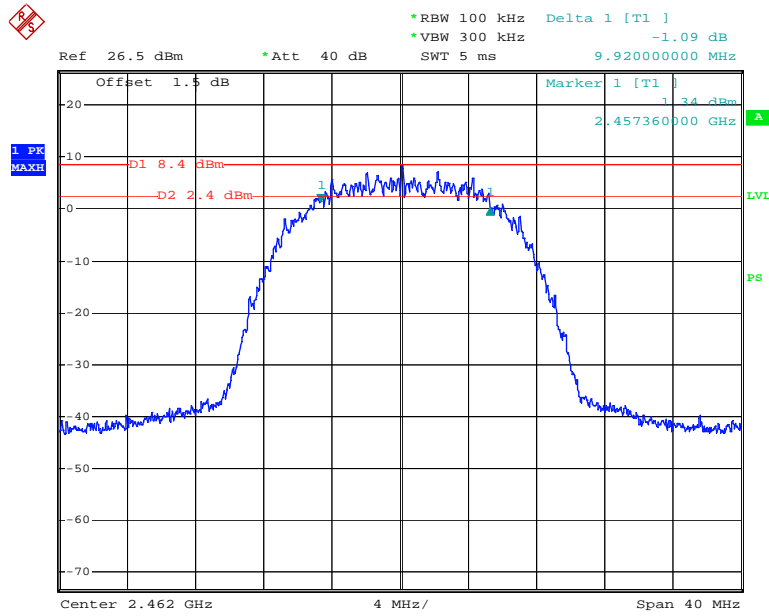
Date: 30.MAR.2010 17:29:32

### 802.11b Middle Channel



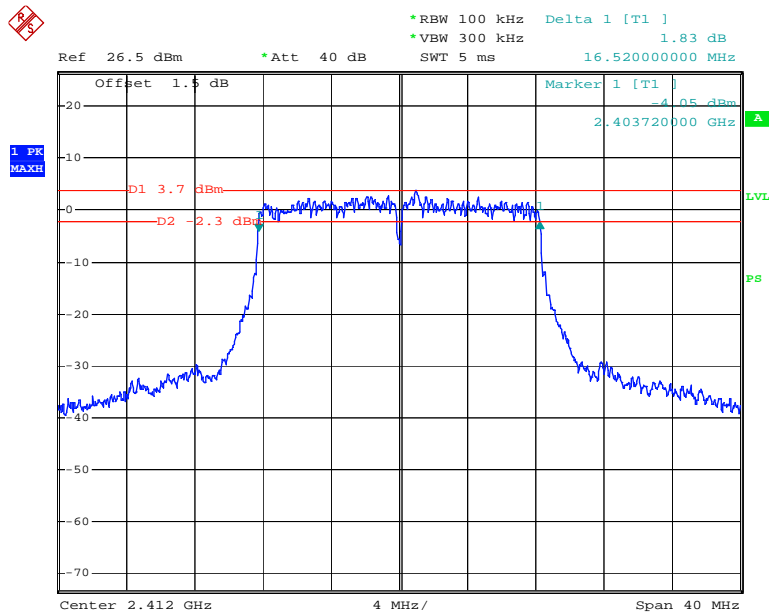
Date: 30.MAR.2010 17:28:04

### 802.11b High Channel



Date: 30.MAR.2010 17:32:15

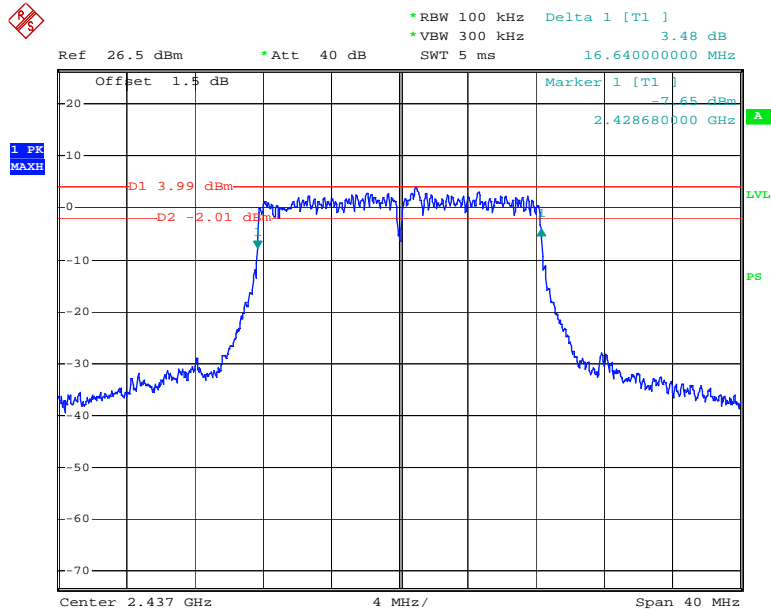
### 802.11g Low Channel



Date: 30.MAR.2010 15:43:04

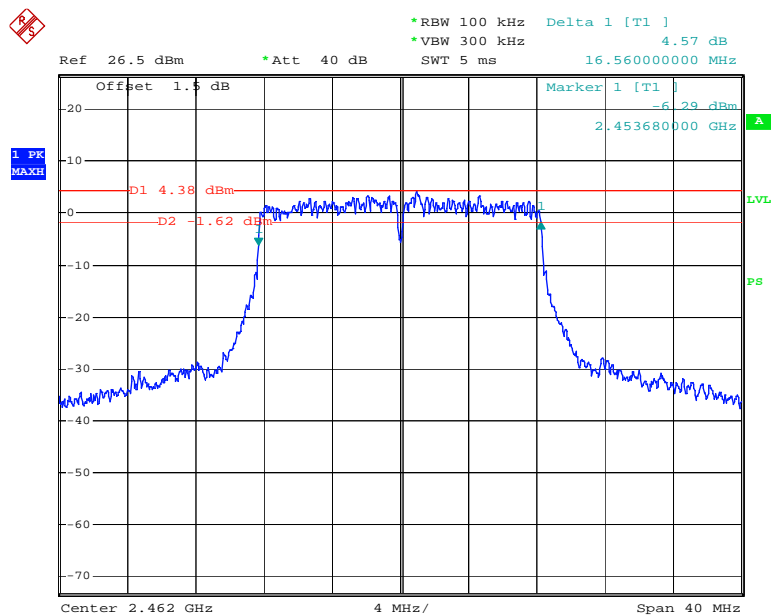


### 802.11g Middle Channel



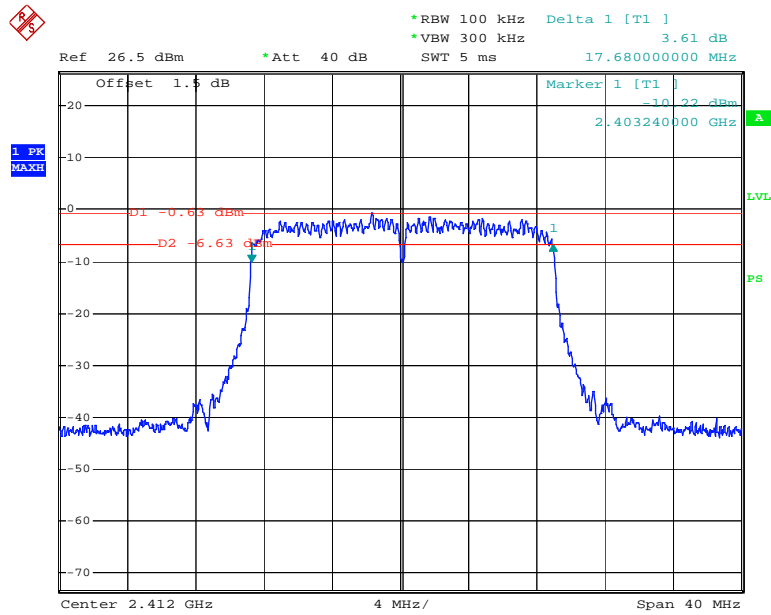
Date: 30.MAR.2010 15:45:50

### 802.11g High Channel



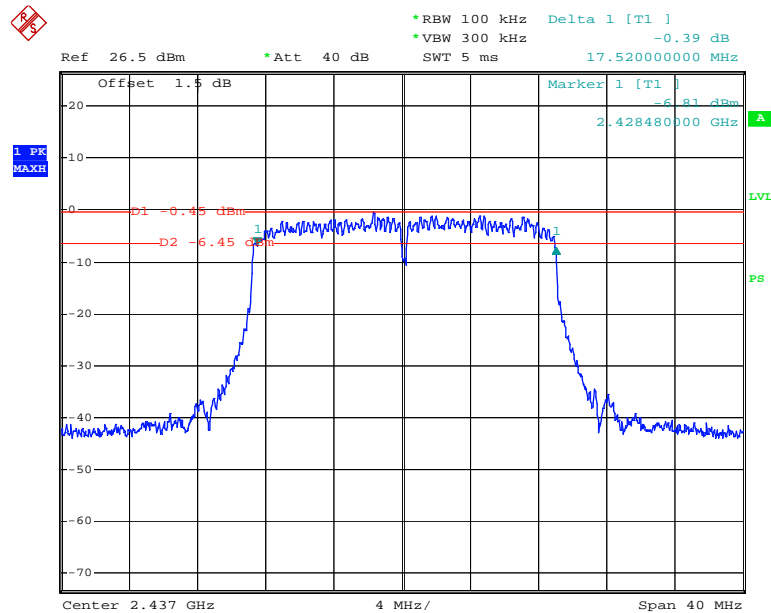
Date: 30.MAR.2010 15:50:56

### 802.11n20 Low Channel (Chain 0)



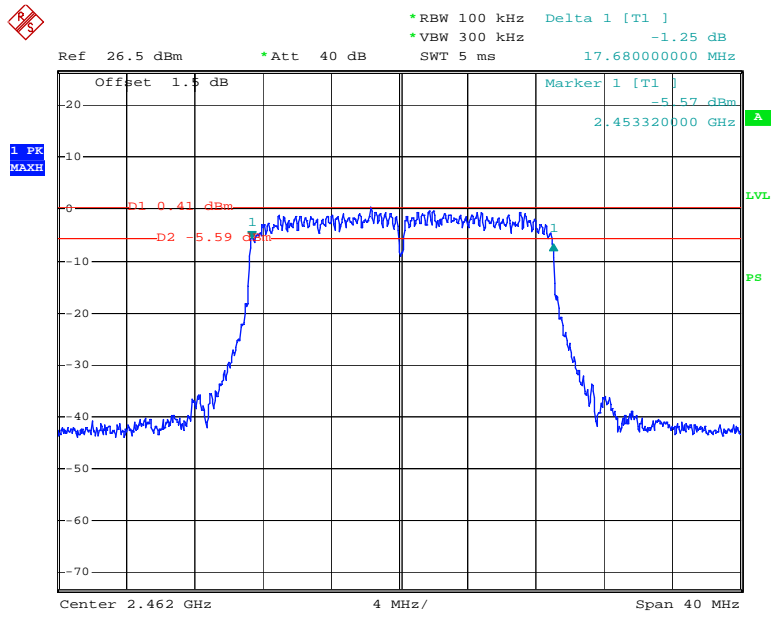
Date: 30.MAR.2010 16:25:02

### 802.11n20 Middle Channel (Chain 0)



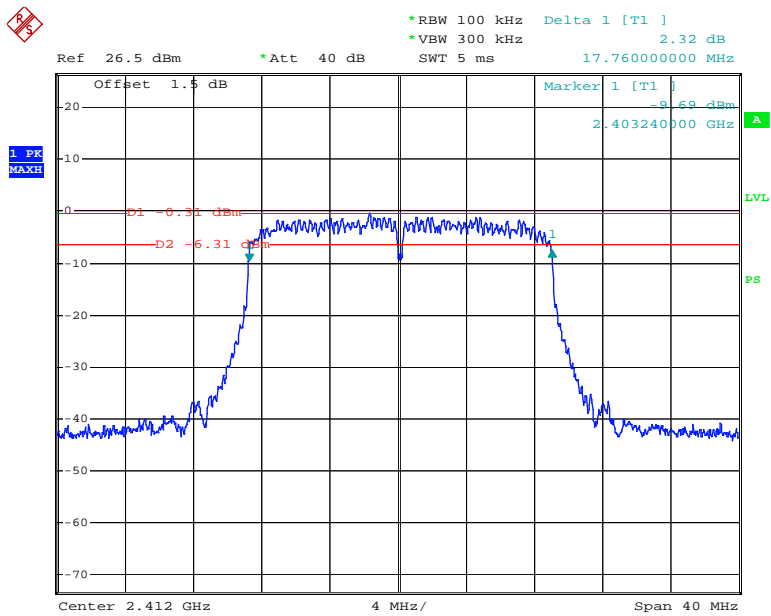
Date: 30.MAR.2010 16:26:28

### 802.11n20 High Channel (Chain 0)



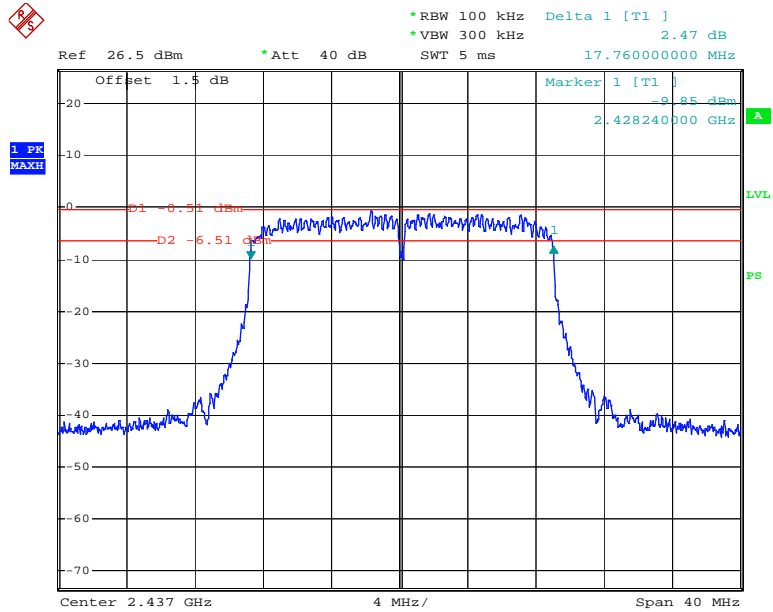
Date: 30.MAR.2010 16:27:56

### 802.11n20 Low Channel (Chain 1)



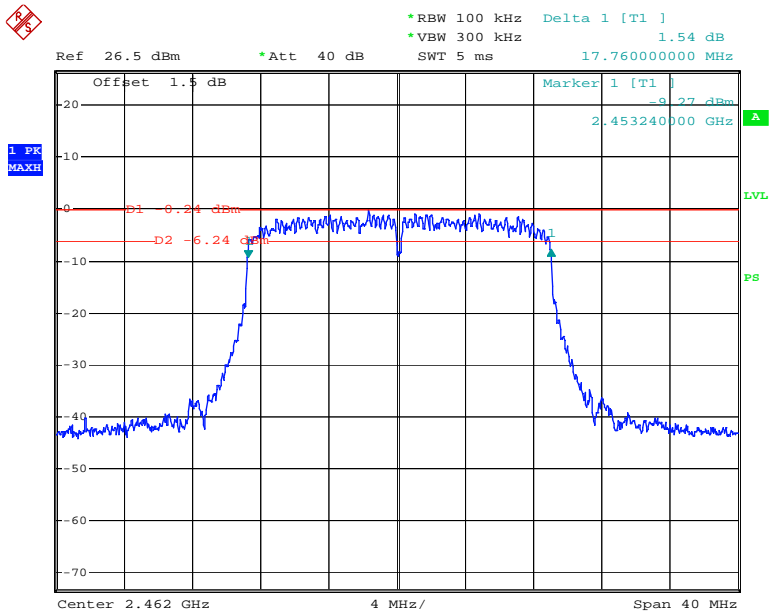
Date: 30.MAR.2010 16:36:48

### 802.11n20 Middle Channel (Chain 1)



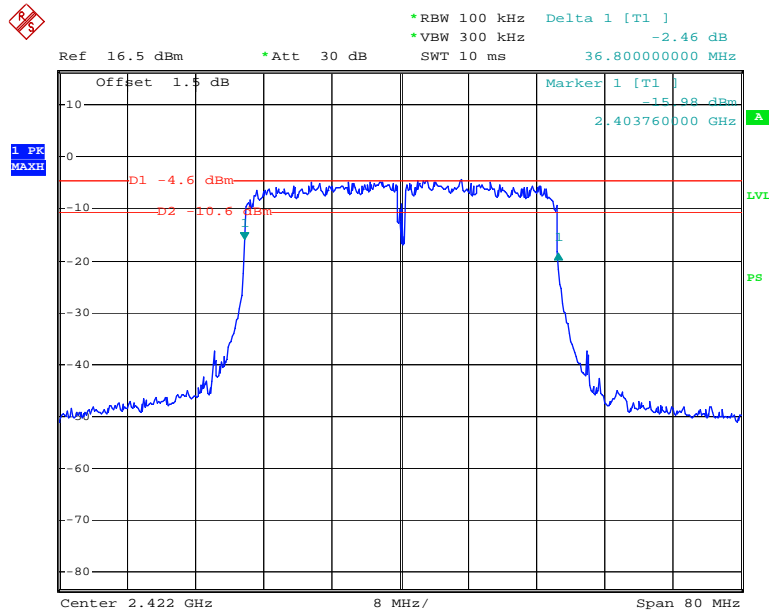
Date: 30.MAR.2010 16:38:30

### 802.11n20 High Channel (Chain 1)



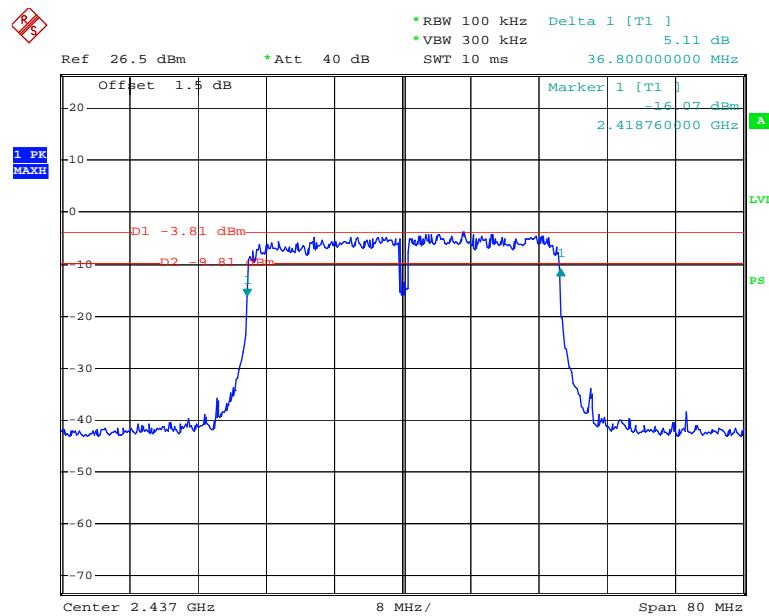
Date: 30.MAR.2010 16:35:07

### 802.11n40 Low Channel (Chain 0)



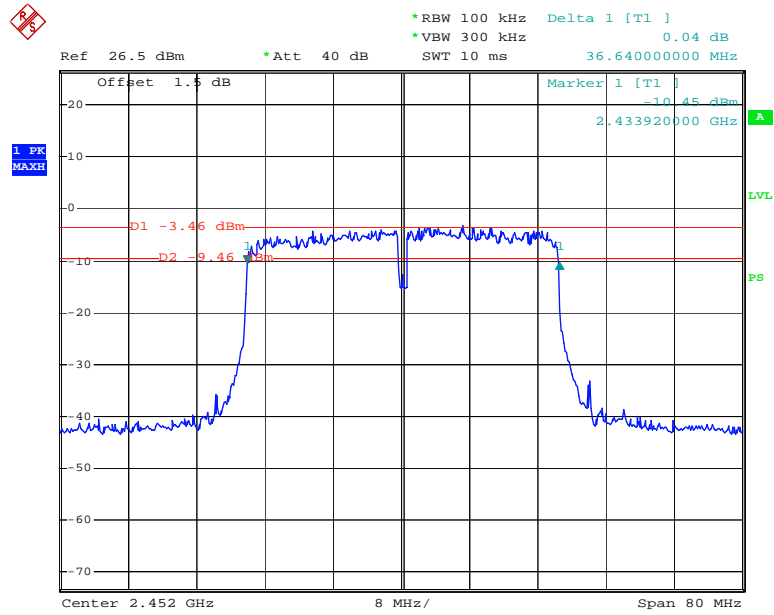
Date: 14.APR.2010 16:46:28

### 802.11n40 Middle Channel (Chain 0)



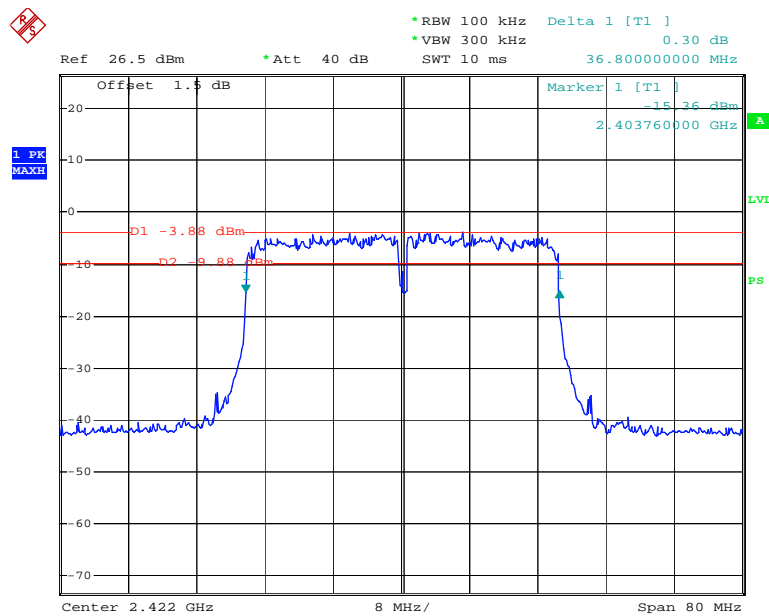
Date: 31.MAR.2010 11:16:01

### 802.11n40 High Channel (Chain 0)



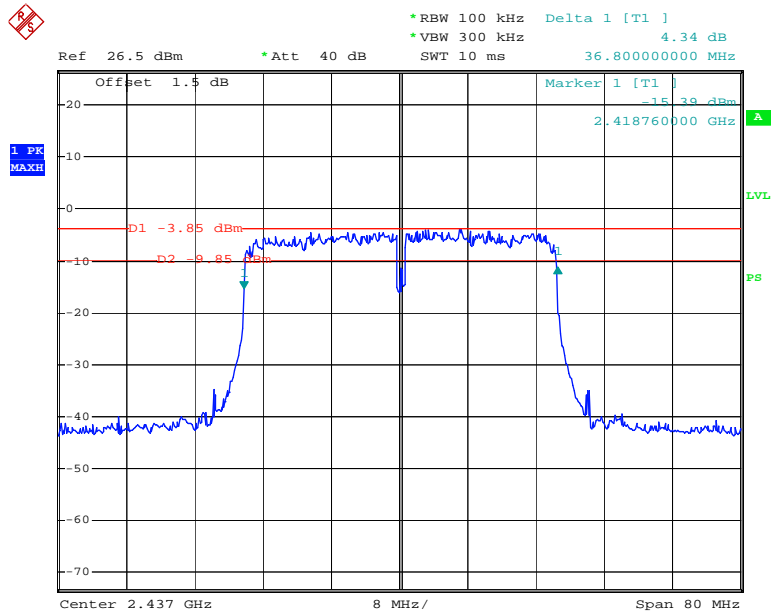
Date: 31.MAR.2010 11:14:33

### 802.11n40 Low Channel (Chain 1)



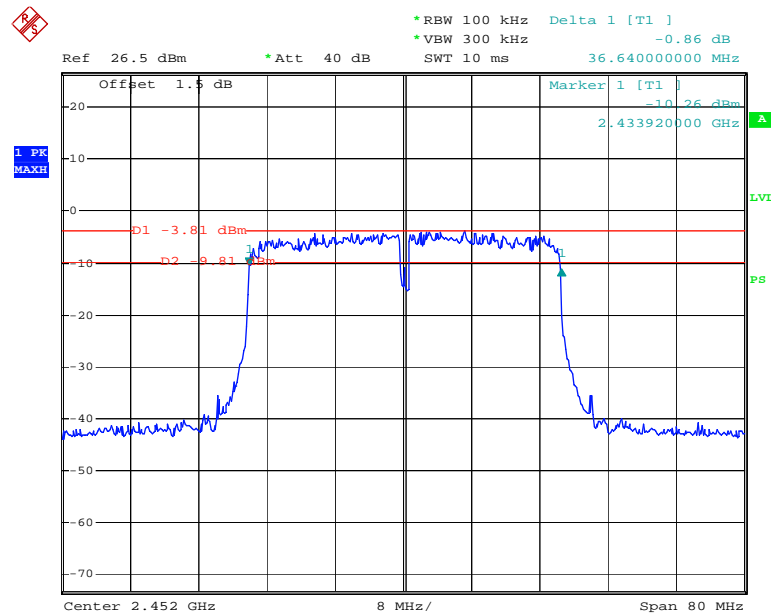
Date: 31.MAR.2010 11:10:26

### 802.11n40 Middle Channel (Chain 1)



Date: 31.MAR.2010 11:11:31

### 802.11n40 High Channel (Chain 1)



Date: 31.MAR.2010 11:12:55

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

### Applicable Standard

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

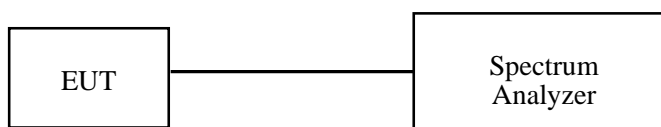
### Test Equipment List and Details

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

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

### Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.



### Test Data

#### Environmental Conditions

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

The testing was performed by Cookies Bu on 2010-03-30 and 2010-03-31.

Test Mode: Transmitting



**802.11b Mode:**

Channel	Channel Frequency (MHz)	Output Power (dBm)	Limit (dBm)
Low	2412	17.13	30
Middle	2437	17.34	30
High	2462	18.21	30

**802.11g Mode:**

Channel	Channel Frequency (MHz)	Output Power (dBm)	Limit (dBm)
Low	2412	14.12	30
Middle	2437	14.38	30
High	2462	14.58	30

**802.11n20 Mode:**

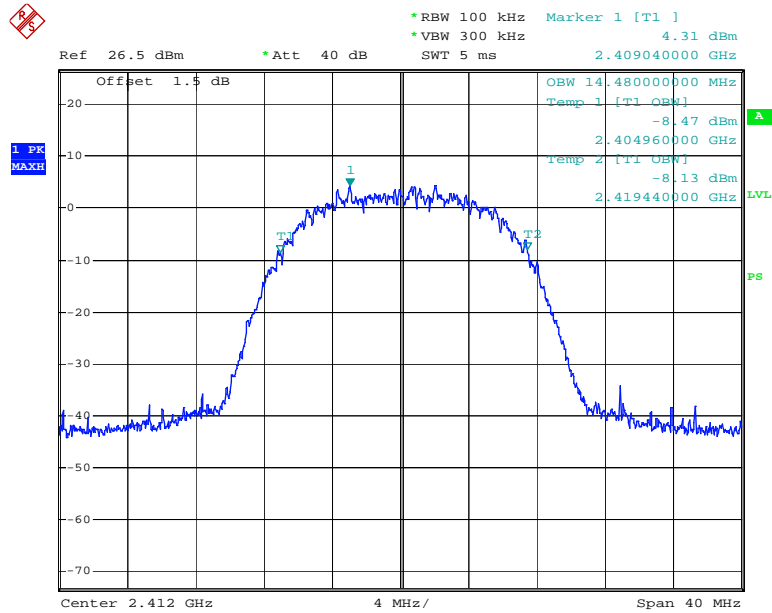
Channel	Channel Frequency (MHz)	Output Power (dBm)	Total Power (dBm)	Limit (dBm)
Low (Chain0)	2412	13.92	17.16	30
Low (Chain1)	2412	14.37		30
Middle (Chain0)	2437	14.15	17.16	30
Middle (Chain1)	2437	14.15		30
High (Chain0)	2462	14.32	17.36	30
High (Chain1)	2462	14.38		30

**802.11n40 Mode:**

Channel	Channel Frequency (MHz)	Output Power (dBm)	Total Power (dBm)	Limit (dBm)
Low (Chain0)	2422	13.37	16.54	30
Low (Chain1)	2422	13.68		30
Middle (Chain0)	2437	13.57	16.63	30
Middle (Chain1)	2437	13.67		30
High (Chain0)	2452	13.97	16.89	30
High (Chain1)	2452	13.79		30

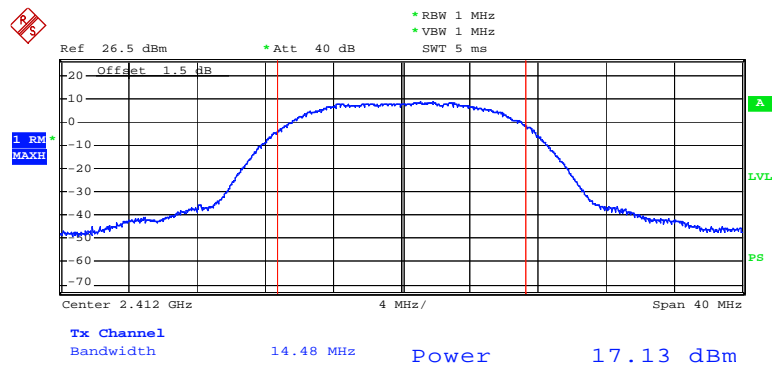
802.11b Mode:

99% Occupied Bandwith



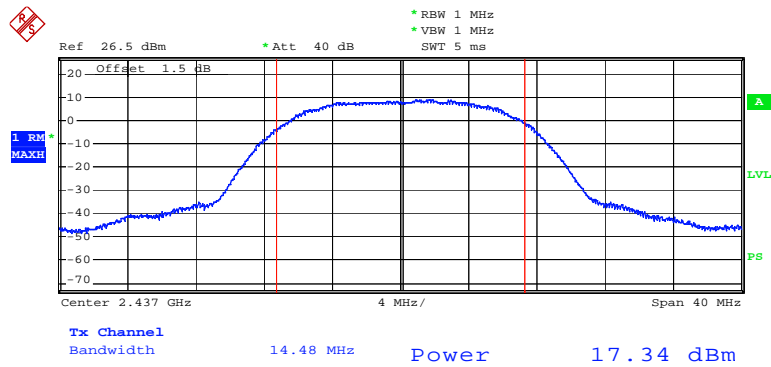
Date: 30.MAR.2010 17:45:45

802.11b RF Output Power, Low Channel



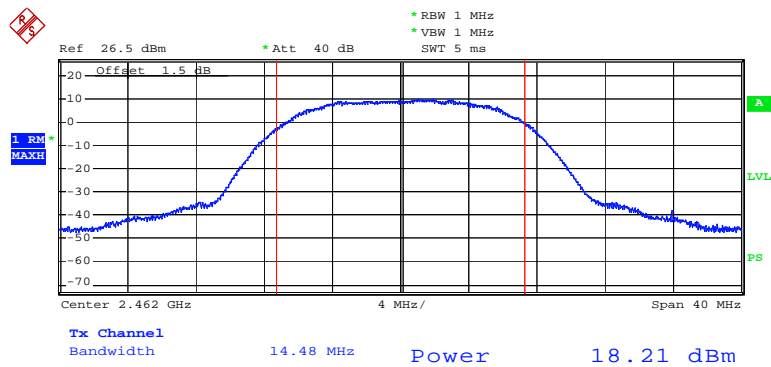
Date: 30.MAR.2010 17:46:44

### 802.11b RF Output Power, Middle Channel



Date: 30.MAR.2010 17:47:23

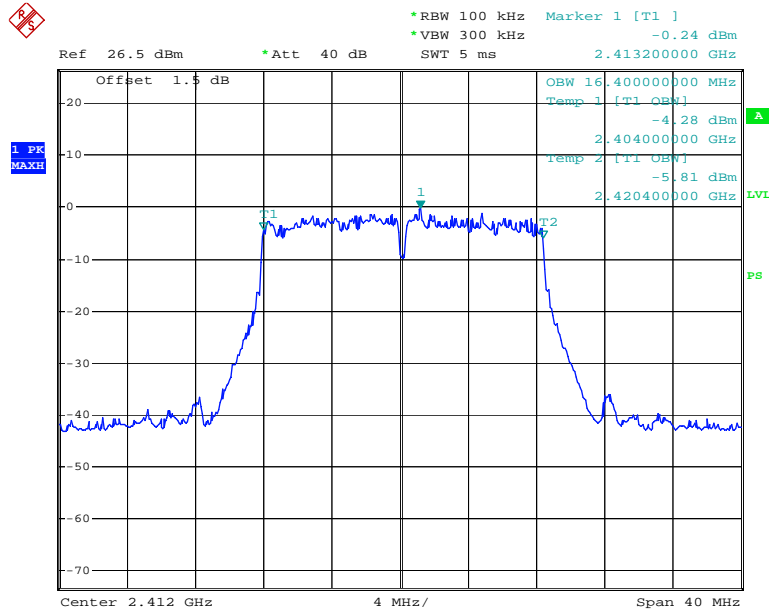
### 802.11b RF Output Power, High Channel



Date: 30.MAR.2010 17:48:11

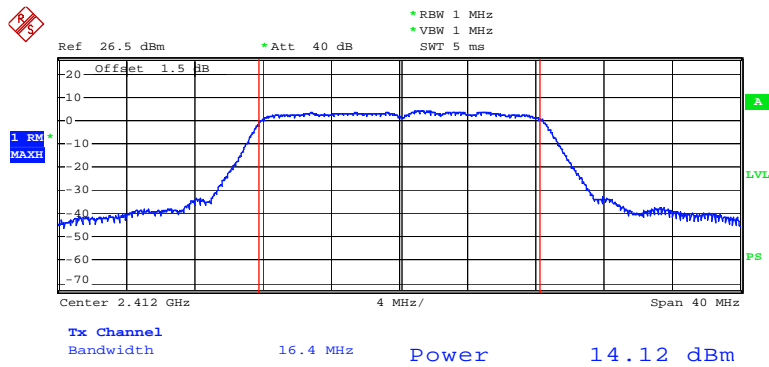
802.11g Mode:

99% Occupied Bandwith



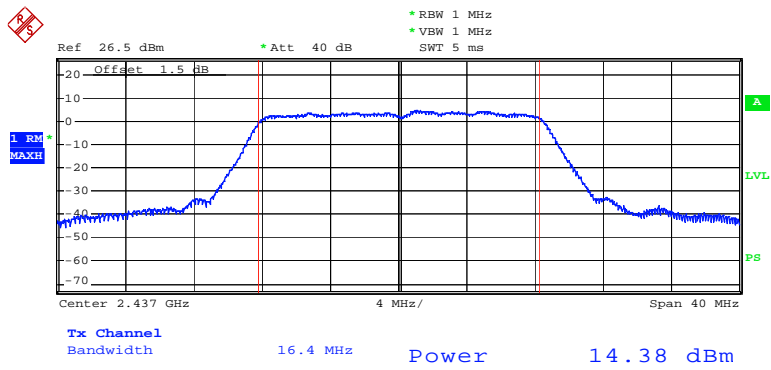
Date: 31.MAR.2010 11:38:37

802.11g RF Output Power, Low Channel



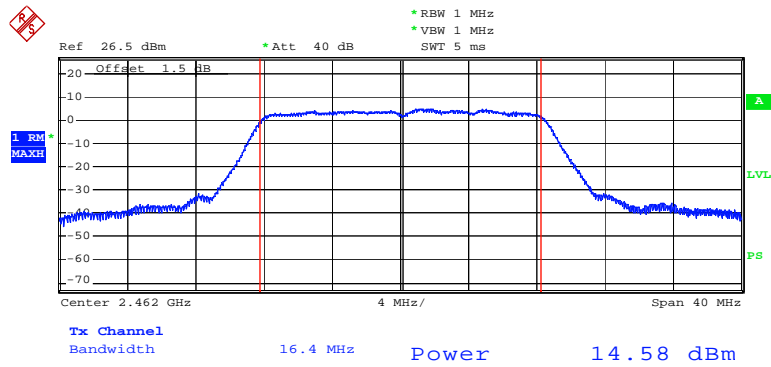
Date: 31.MAR.2010 11:39:53

### 802.11g RF Output Power, Middle Channel



Date: 31.MAR.2010 11:41:36

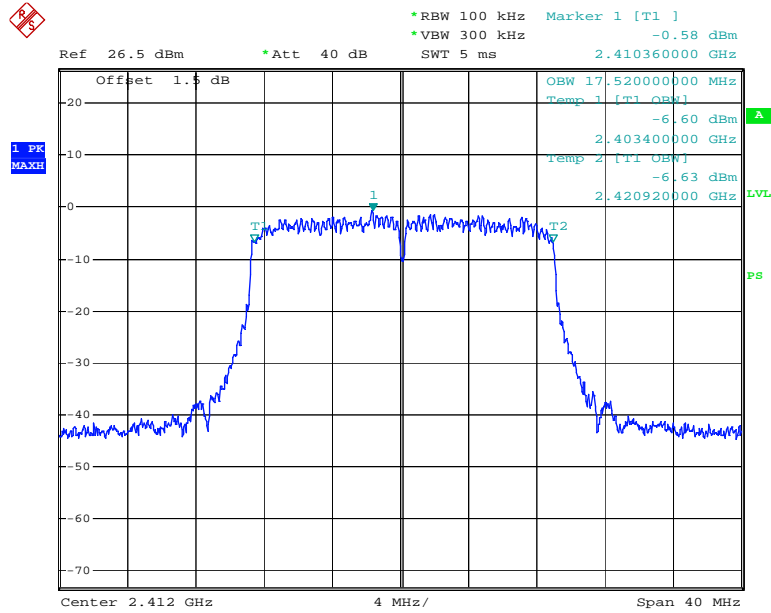
### 802.11g RF Output Power, High Channel



Date: 31.MAR.2010 11:42:21

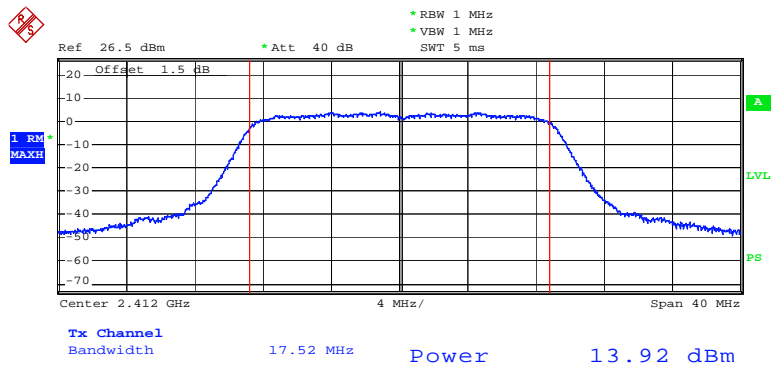
802.11n20 Mode:

99% Occupied Bandwidth (Chain 0)



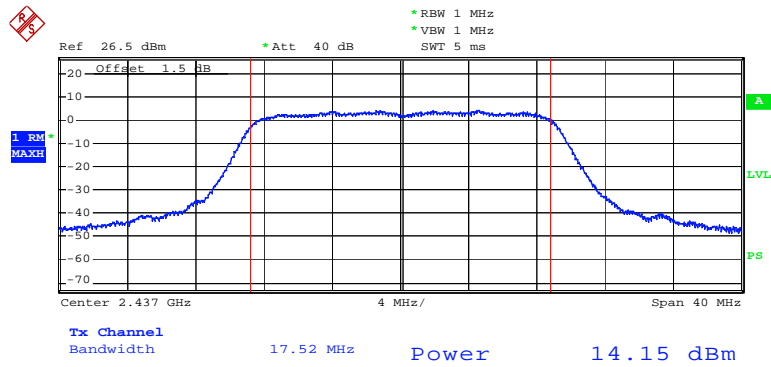
Date: 31.MAR.2010 11:44:08

802.11n20 RF Output Power, Low Channel (Chain 0)



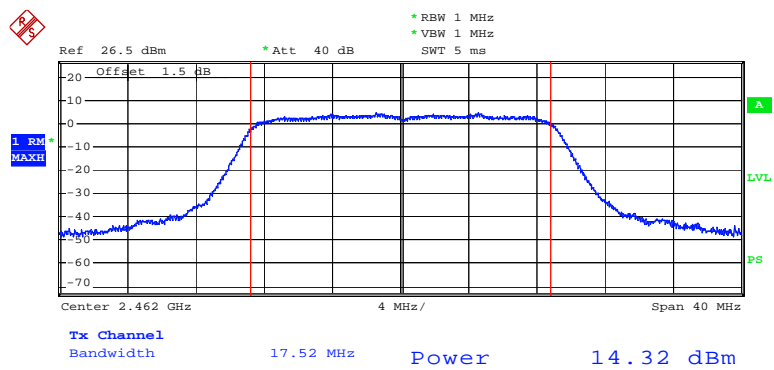
Date: 31.MAR.2010 11:45:34

### 802.11n20 RF Output Power, Middle Channel (Chain 0)



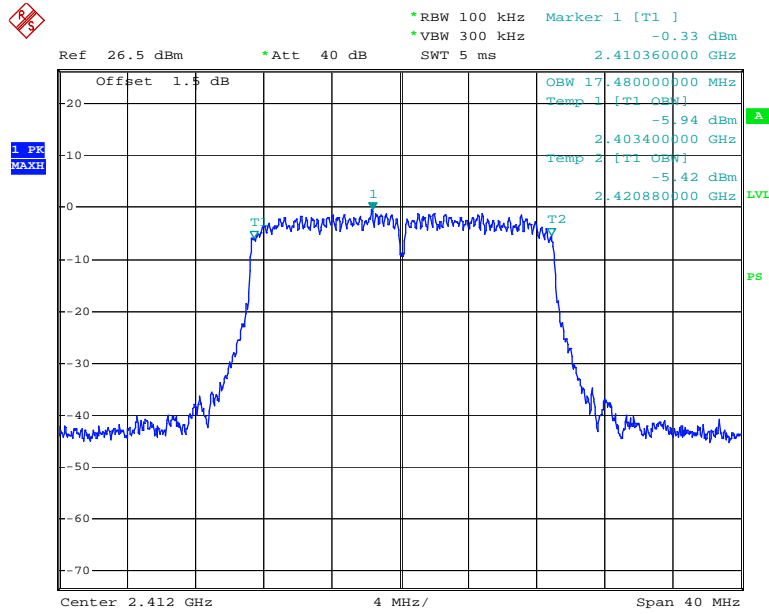
Date: 31.MAR.2010 11:46:39

### 802.11n20 RF Output Power, High Channel (Chain 0)



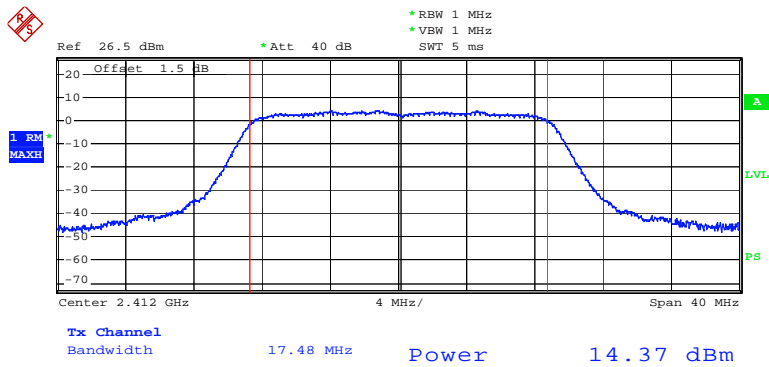
Date: 31.MAR.2010 11:47:23

### 99% Occupied Bandwidth (Chain 1)



Date: 31.MAR.2010 11:55:38

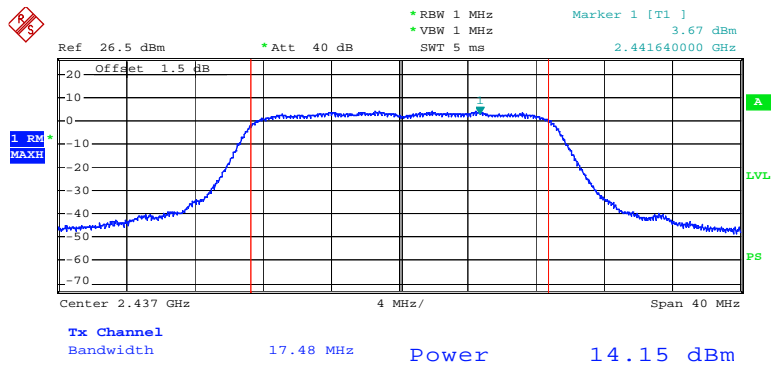
### 802.11n20 RF Output Power, Low Channel (Chain 1)



Date: 31.MAR.2010 11:56:33

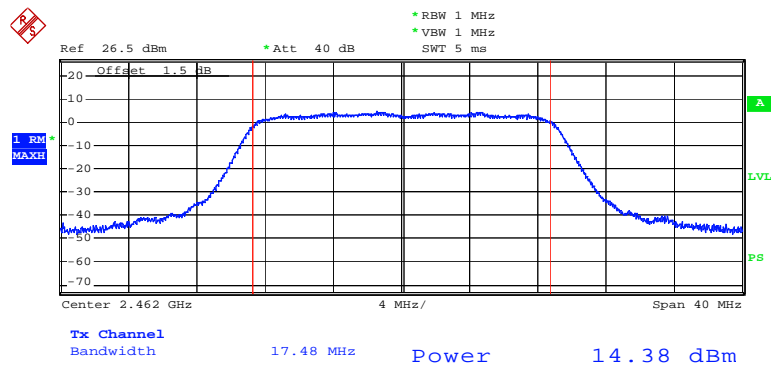


### 802.11n20 RF Output Power, Middle Channel (Chain 1)



Date: 31.MAR.2010 11:57:29

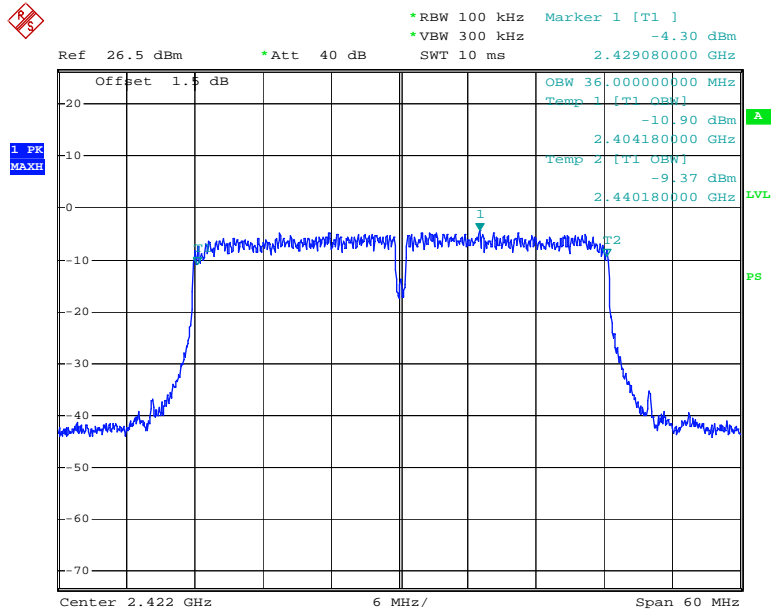
### 802.11n20 RF Output Power, High Channel (Chain 1)



Date: 31.MAR.2010 11:58:28

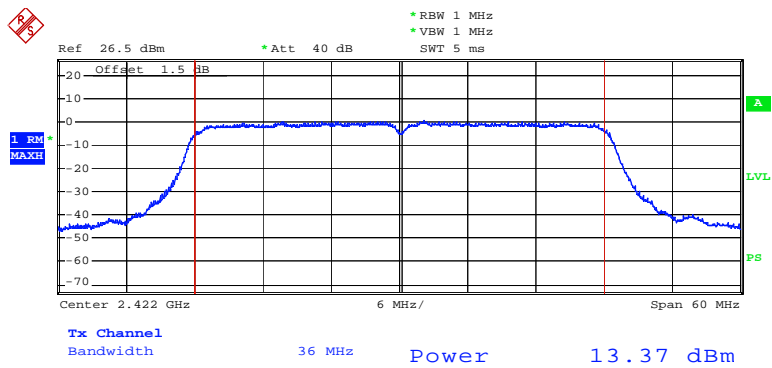
802.11n40 Mode:

99% Occupied Bandwidth (Chain 0)



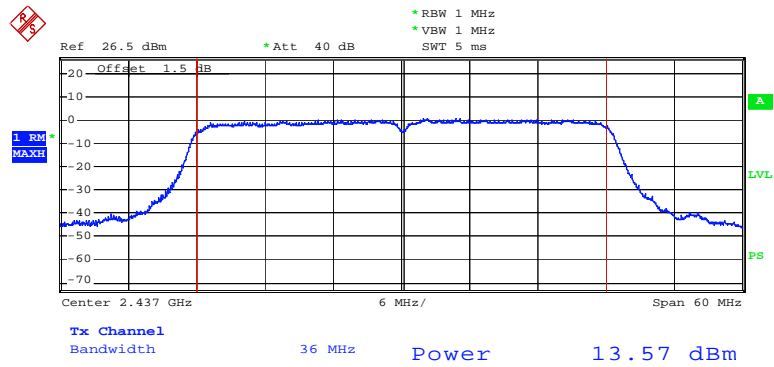
Date: 31.MAR.2010 11:48:56

802.11n40 RF Output Power, Low Channel (Chain 0)



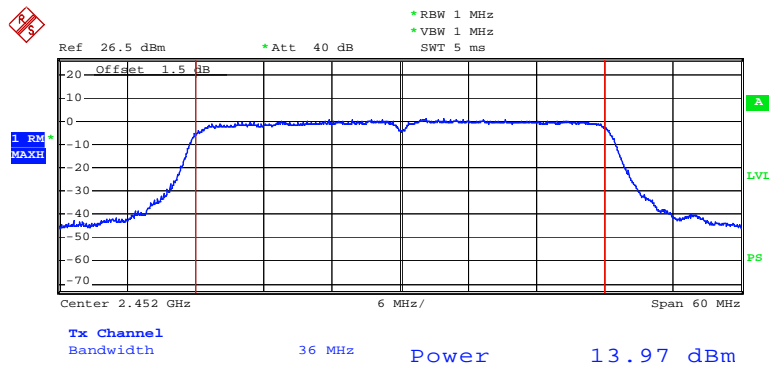
Date: 31.MAR.2010 11:51:51

### 802.11n40 RF Output Power, Middle Channel (Chain 0)



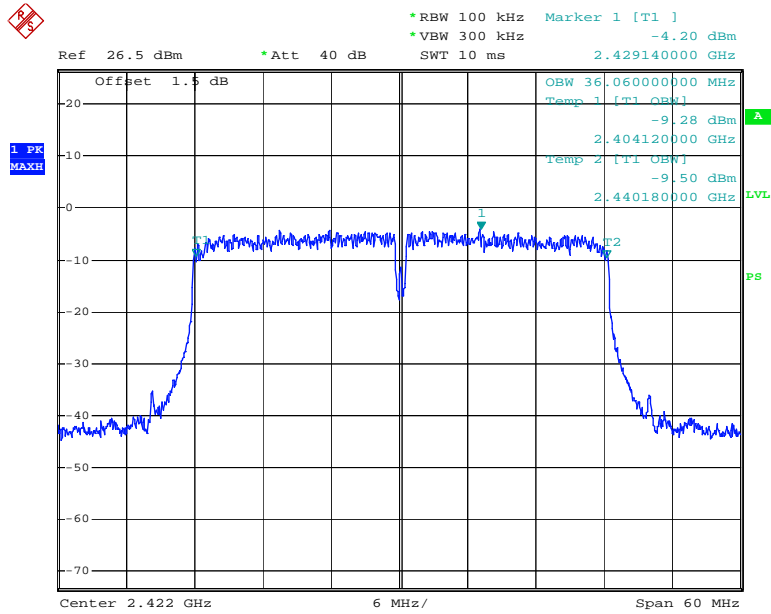
Date: 31.MAR.2010 11:52:45

### 802.11n40 RF Output Power, High Channel (Chain 0)



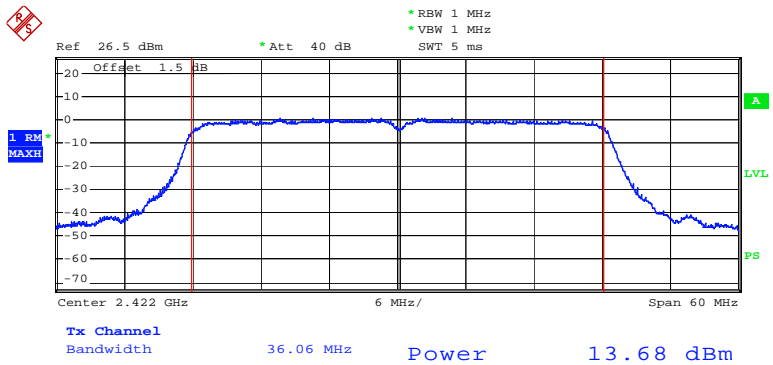
Date: 31.MAR.2010 11:53:14

### 99% Occupied Bandwidth (Chain 1)



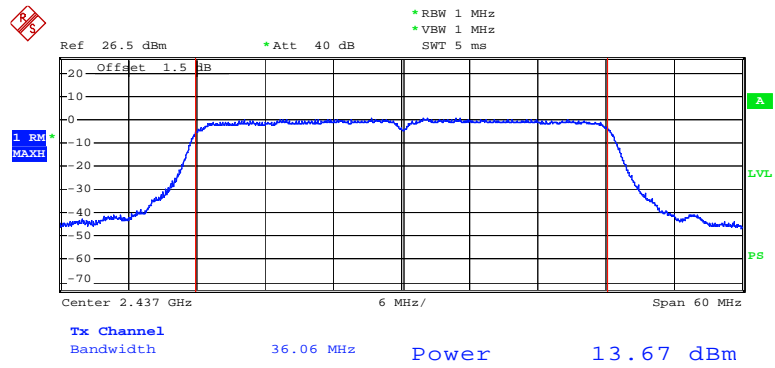
Date: 31.MAR.2010 12:00:30

### 802.11n40 RF Output Power, Low Channel (Chain 1)



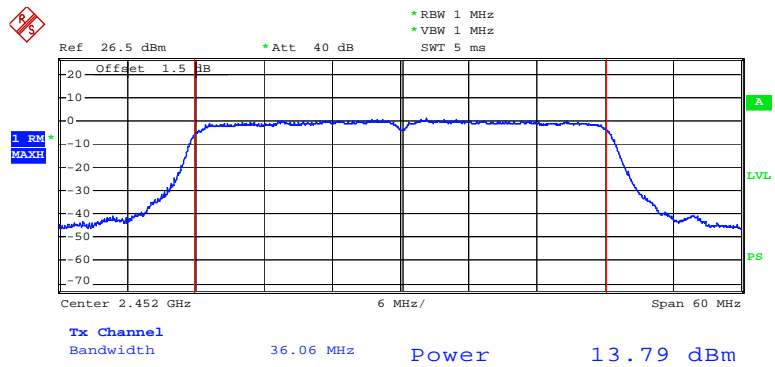
Date: 31.MAR.2010 12:01:40

### 802.11n40 RF Output Power, Middle Channel (Chain 1)



Date: 31.MAR.2010 12:03:01

### 802.11n40 RF Output Power, High Channel (Chain 1)



Date: 31.MAR.2010 12:03:59

## **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**

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

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

### **Test Procedure**

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 1 MHz and VBW of spectrum analyzer to 1 MHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

### **Test Data**

#### **Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

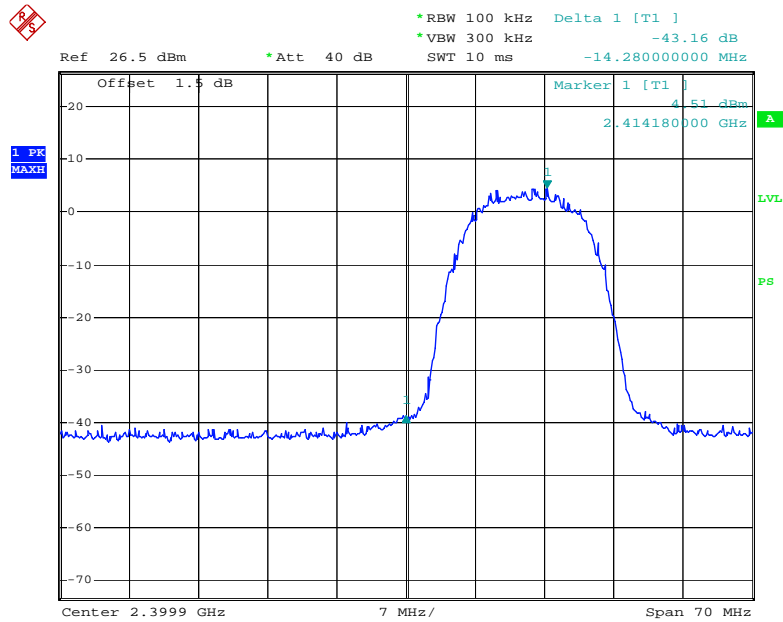
*The testing was performed by Cookies Bu on 2010-03-31 and 2010-04-12.*

**Test Result:** *Compliant.*

Frequency (MHz)	Delta Value (dBc)	Limit (dBc)	Result
802.11b Mode			
2399.9	43.16	20	Pass
2483.6	48.24	20	Pass
802.11g Mode			
2399.9	36.84	20	Pass
2483.6	44.23	20	Pass
802.11n20 Mode (Chain 0)			
2399.9	35.63	20	Pass
2483.6	43.10	20	Pass
802.11n20 Mode (Chain 1)			
2399.9	37.08	20	Pass
2483.6	41.52	20	Pass
802.11n20 Mode (with Combiner)			
2399.9	36.94	20	Pass
2483.6	42.48	20	Pass
802.11n40 Mode (Chain 0)			
2399.9	36.90	20	Pass
2483.6	45.60	20	Pass
802.11n40 Mode (Chain 1)			
2399.9	37.59	20	Pass
2483.6	45.94	20	Pass
802.11n40 Mode (with Combiner)			
2399.9	40.00	20	Pass
2483.6	43.60	20	Pass

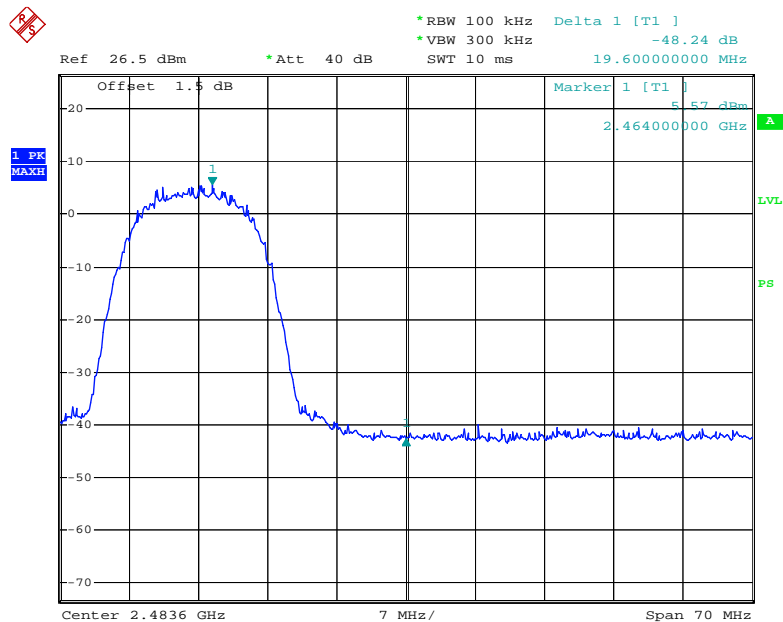
Please refer to following plots.

### 802.11b: Band Edge, Left Side



Date: 31.MAR.2010 10:26:44

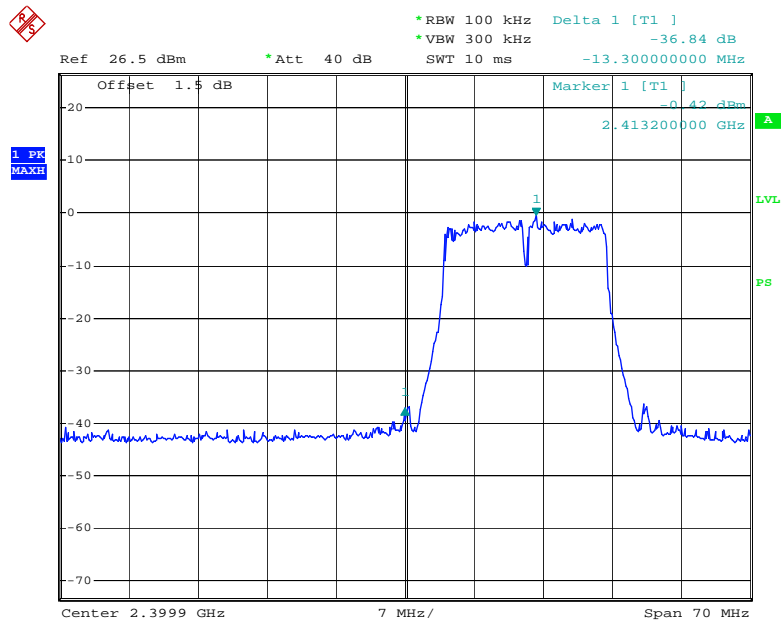
### 802.11b: Band Edge, Right Side



Date: 31.MAR.2010 10:28:45

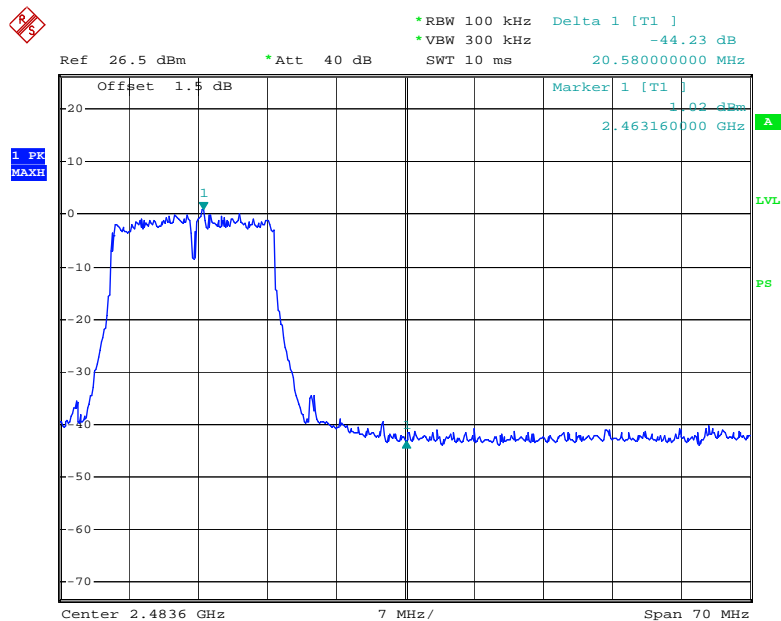


### 802.11g: Band Edge, Left Side



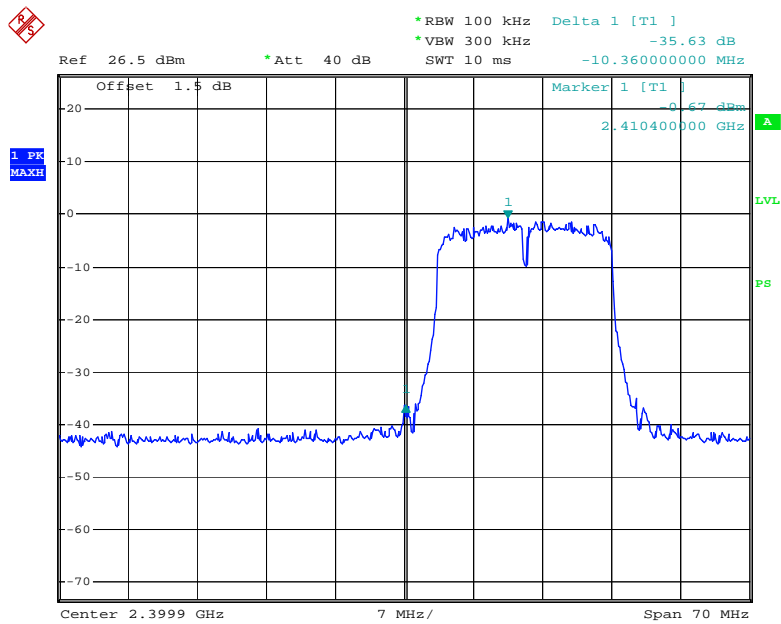
Date: 31.MAR.2010 10:31:12

### 802.11g: Band Edge, Right Side



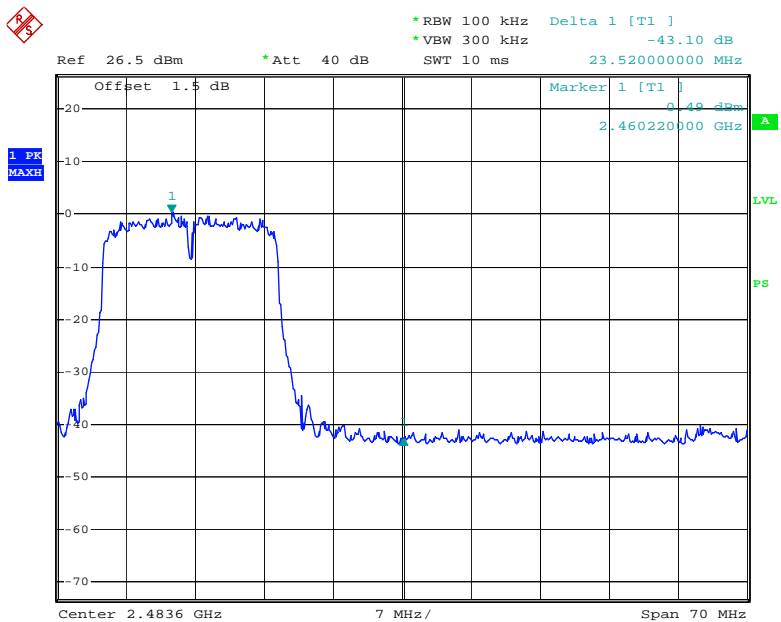
Date: 31.MAR.2010 10:29:52

**802.11n20: Band Edge, Left Side (Chain 0)**



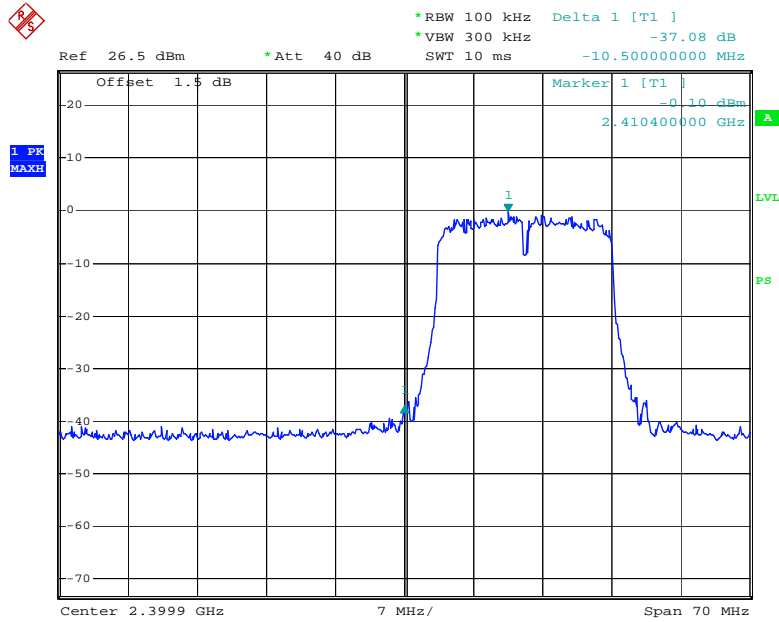
Date: 31.MAR.2010 10:32:39

**802.11n20: Band Edge, Right Side (Chain 0)**



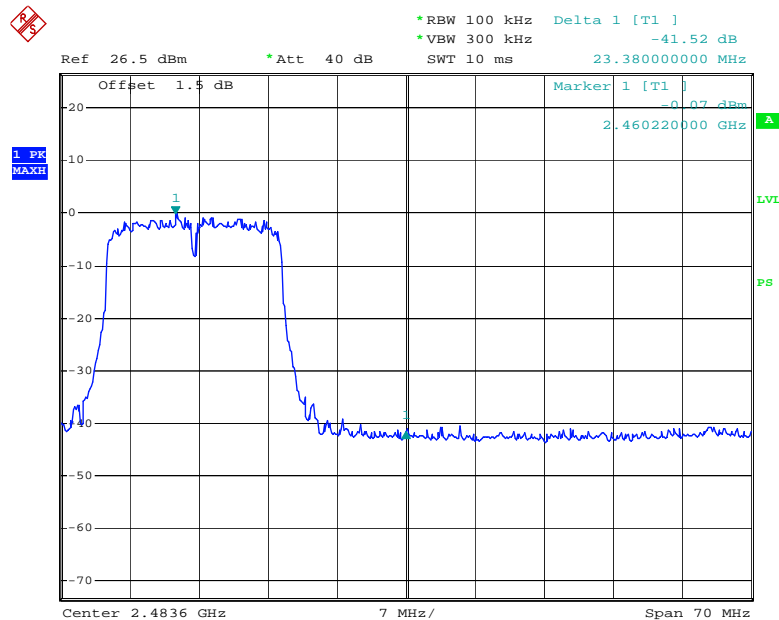
Date: 31.MAR.2010 10:33:24

### 802.11n20: Band Edge, Left Side (Chain 1)



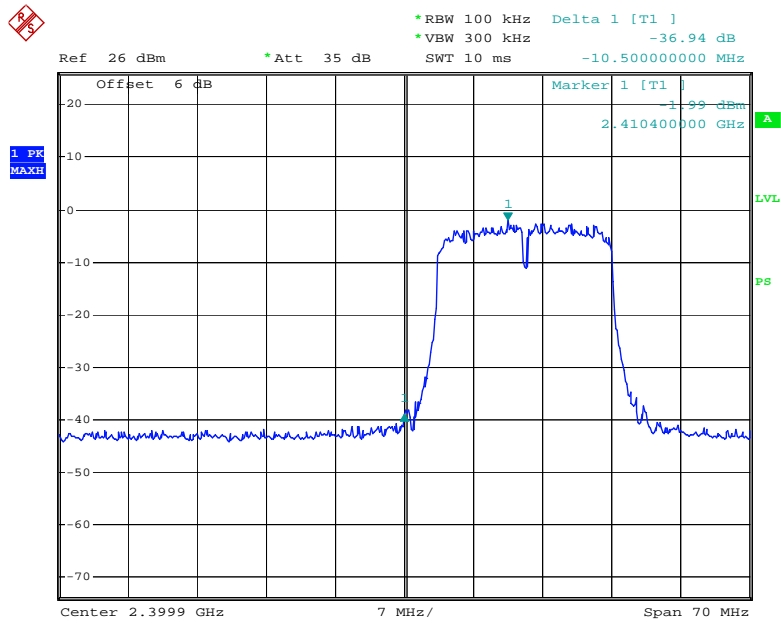
Date: 31.MAR.2010 11:06:12

### 802.11n20: Band Edge, Right Side (Chain 1)



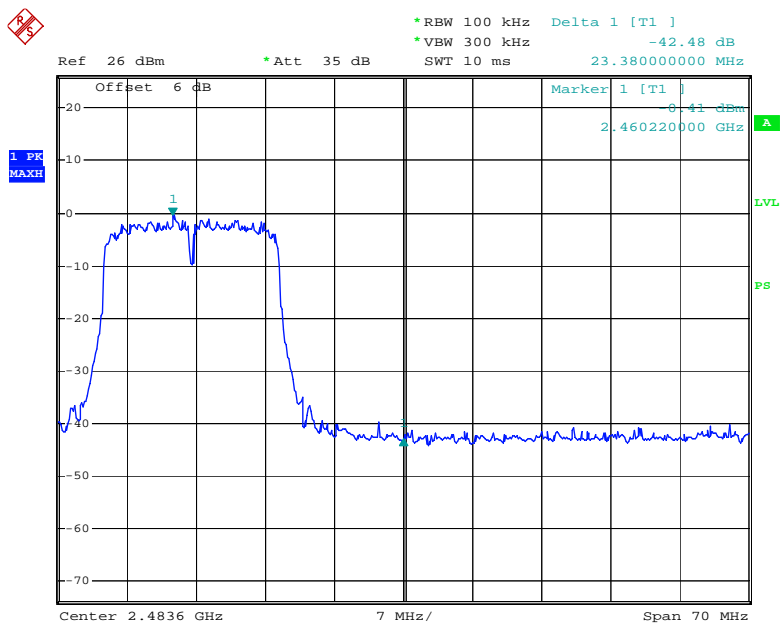
Date: 31.MAR.2010 11:04:52

**802.11n20: Band Edge, Left Side (with Combiner)**



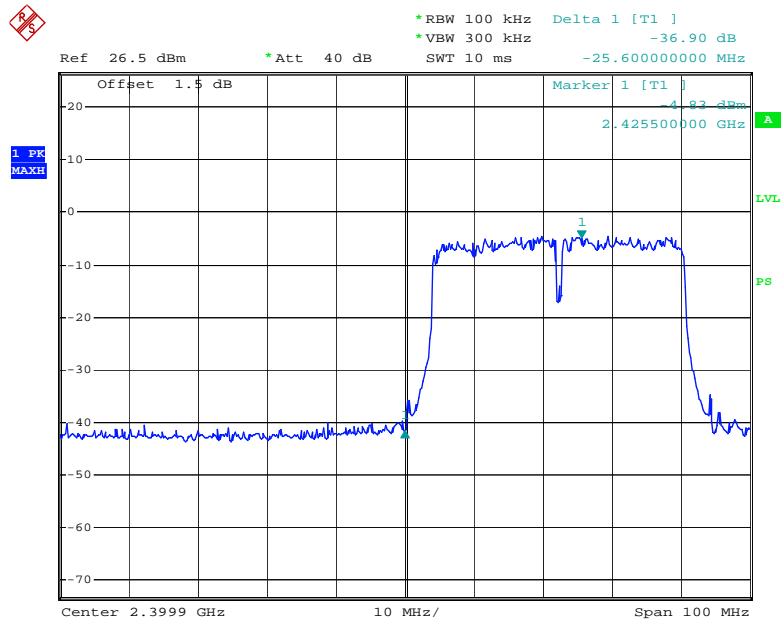
Date: 8.APR.2010 15:04:55

**802.11n20: Band Edge, Right Side (with Combiner)**



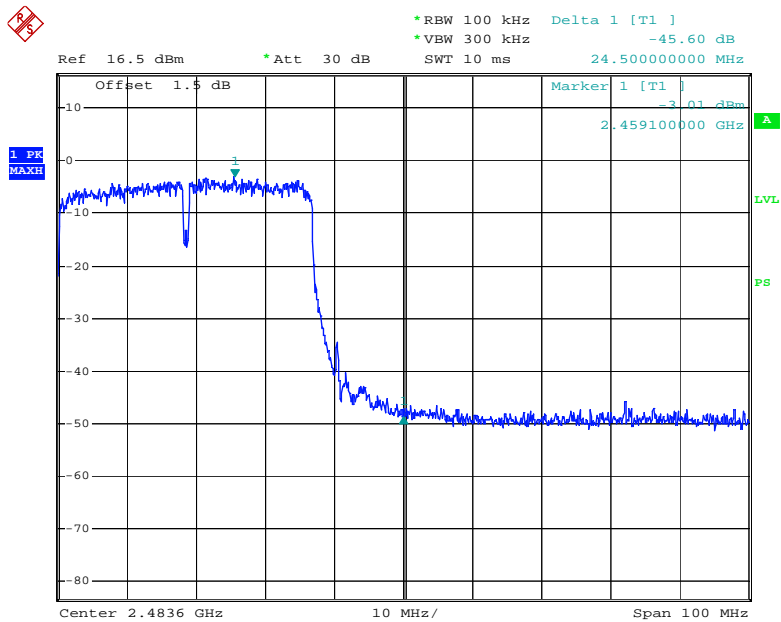
Date: 8.APR.2010 15:09:01

**802.11n40: Band Edge, Left Side (Chain 0)**



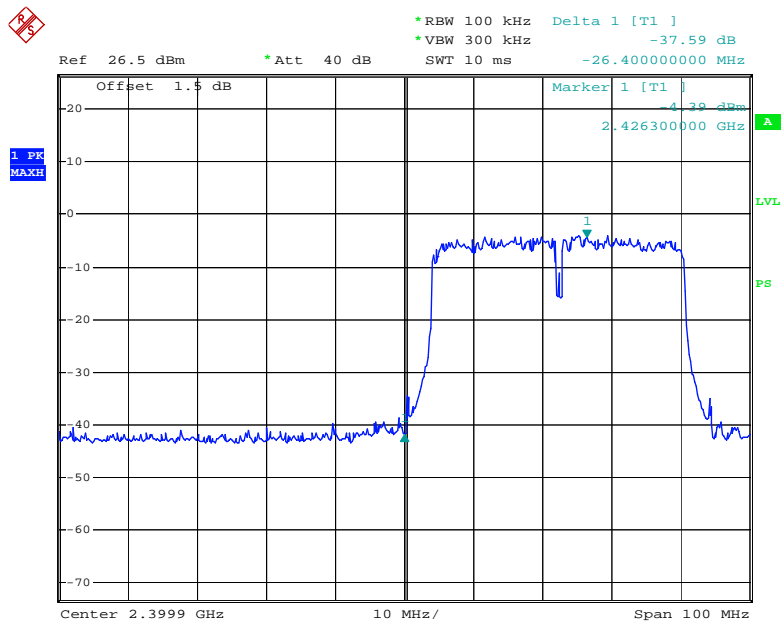
Date: 31.MAR.2010 10:46:05

**802.11n40: Band Edge, Right Side (Chain 0)**



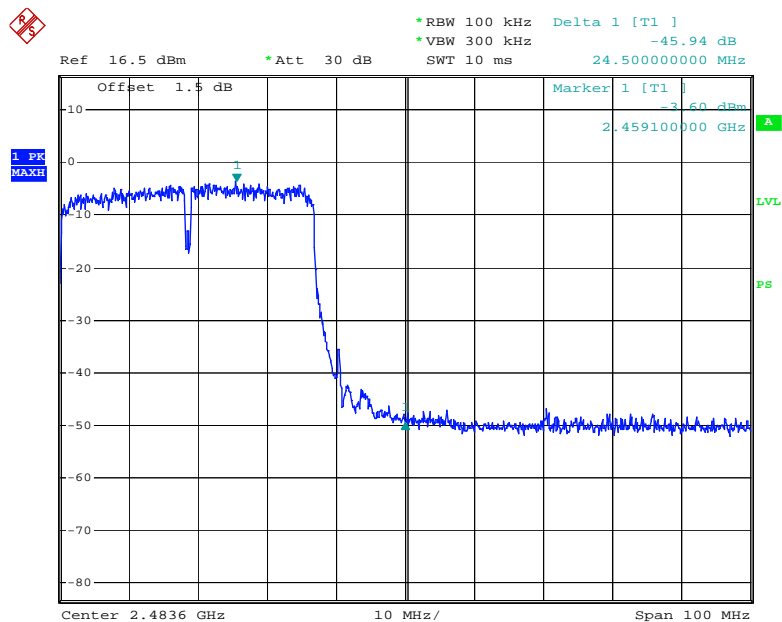
Date: 12.APR.2010 16:32:01

### 802.11n40: Band Edge, Left Side (Chain 1)



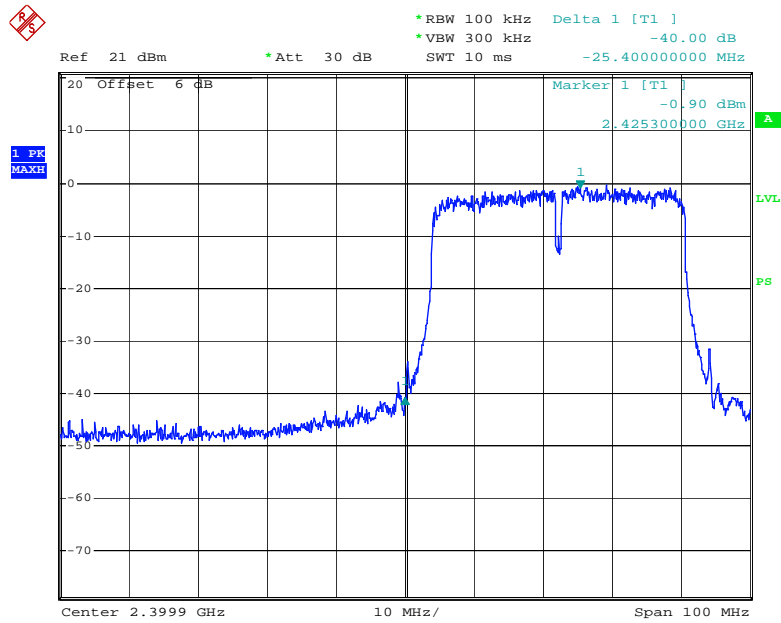
Date: 31.MAR.2010 10:58:29

### 802.11n40: Band Edge, Right Side (Chain 1)



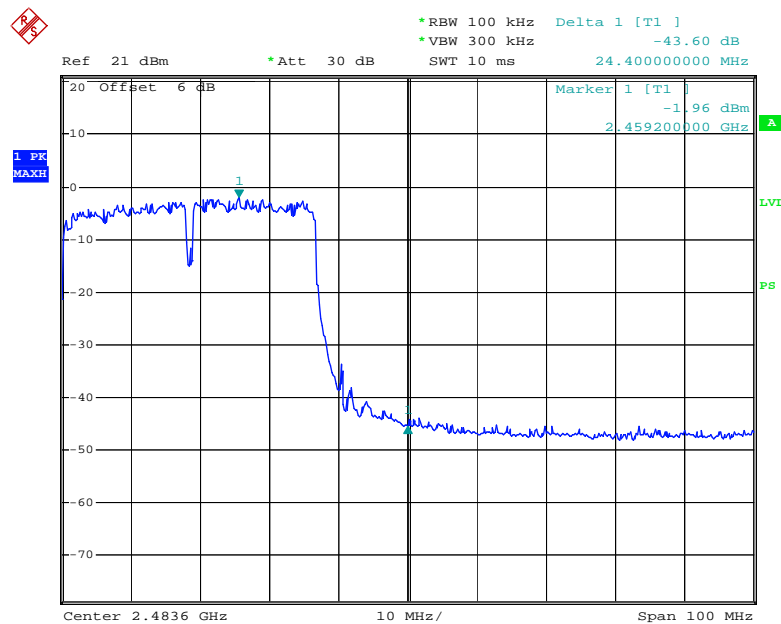
Date: 12.APR.2010 16:33:27

### 802.11n40: Band Edge, Left Side (with Combiner)



Date: 12.APR.2010 16:42:52

### 802.11n40: Band Edge, Right Side (with Combiner)



Date: 12.APR.2010 16:58:16

## FCC §15.247(e) - POWER SPECTRAL DENSITY

### Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### Test Equipment List and Details

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

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

### Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

### Test Data

#### Environmental Conditions

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

*The testing was performed by Cookies Bu on 2010-04-07 to 2010-04-12*

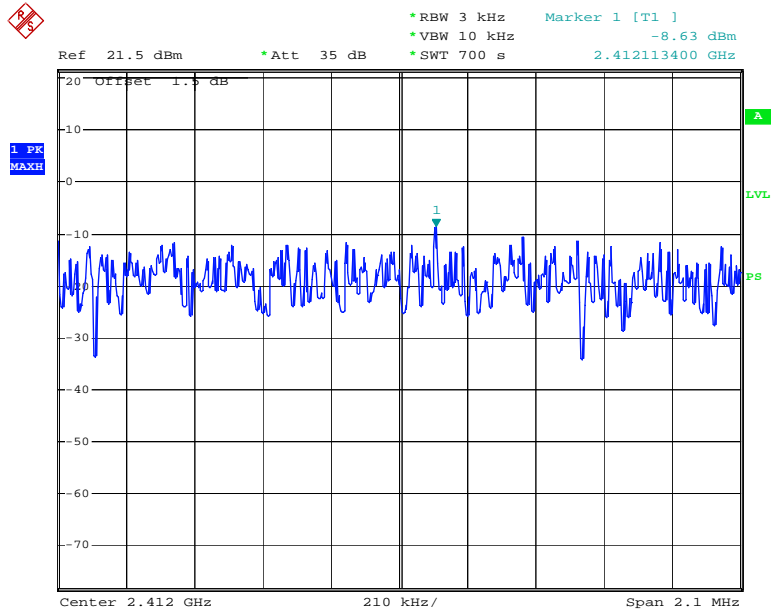
*Test Mode: Transmitting*

**Test Result:** Pass



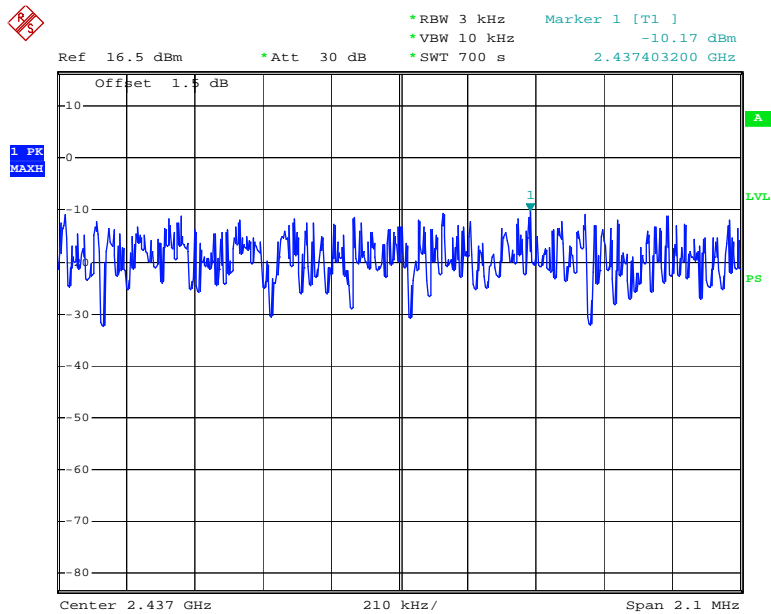
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Part 15.247 Limit (dBm/3kHz)	Result
802.11b Mode				
Low	2412	-8.63	8	Pass
Middle	2437	-10.17	8	Pass
High	2462	-9.16	8	Pass
802.11g Mode				
Low	2412	-12.73	8	Pass
Middle	2437	-13.23	8	Pass
High	2462	-12.96	8	Pass
802.11n20 Mode (Chain 0)				
Low	2412	-12.51	8	Pass
Middle	2437	-12.82	8	Pass
High	2462	-12.57	8	Pass
802.11n20 Mode (Chain 1)				
Low	2412	-15.23	8	Pass
Middle	2437	-15.44	8	Pass
High	2462	-14.13	8	Pass
802.11n20 Mode (with Combiner)				
Low	2412	-8.91	8	Pass
Middle	2437	-9.05	8	Pass
High	2462	-10.60	8	Pass
802.11n40 Mode (Chain 0)				
Low	2422	-18.40	8	Pass
Middle	2437	-18.11	8	Pass
High	2452	-17.25	8	Pass
802.11n40 Mode (Chain 1)				
Low	2422	-17.93	8	Pass
Middle	2437	-18.09	8	Pass
High	2452	-17.80	8	Pass
802.11n40 Mode (with Combiner)				
Low	2422	-14.67	8	Pass
Middle	2437	-14.09	8	Pass
High	2452	-13.44	8	Pass

### Power Spectral Density, 802.11b Low Channel



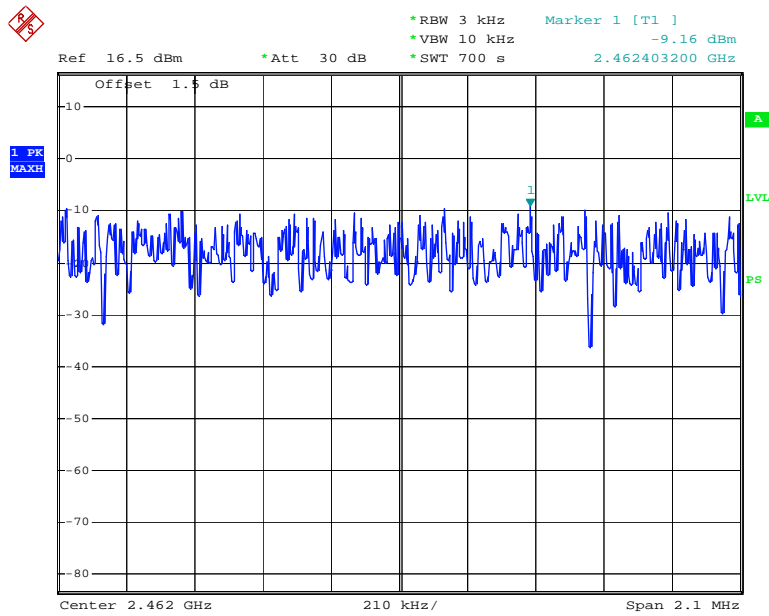
Date: 8.APR.2010 17:54:54

### Power Spectral Density, 802.11b Middle Channel



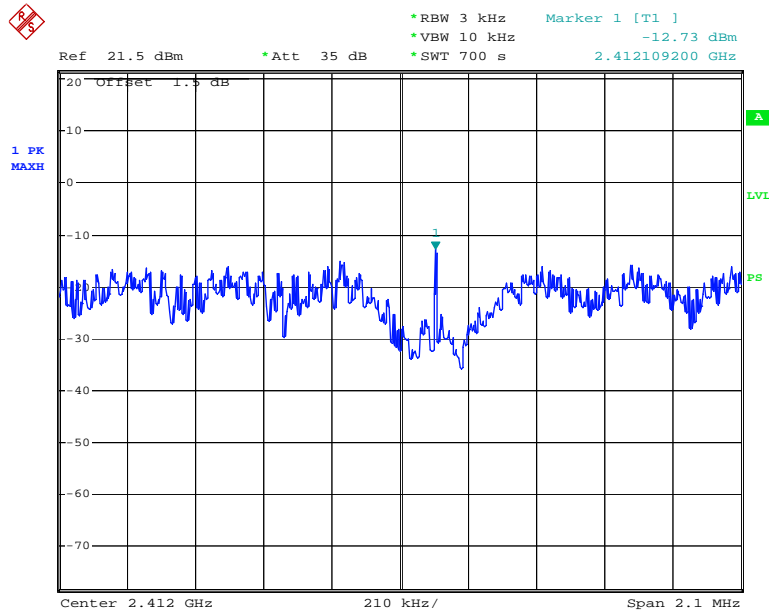
Date: 7.APR.2010 12:22:45

### Power Spectral Density, 802.11b High Channel



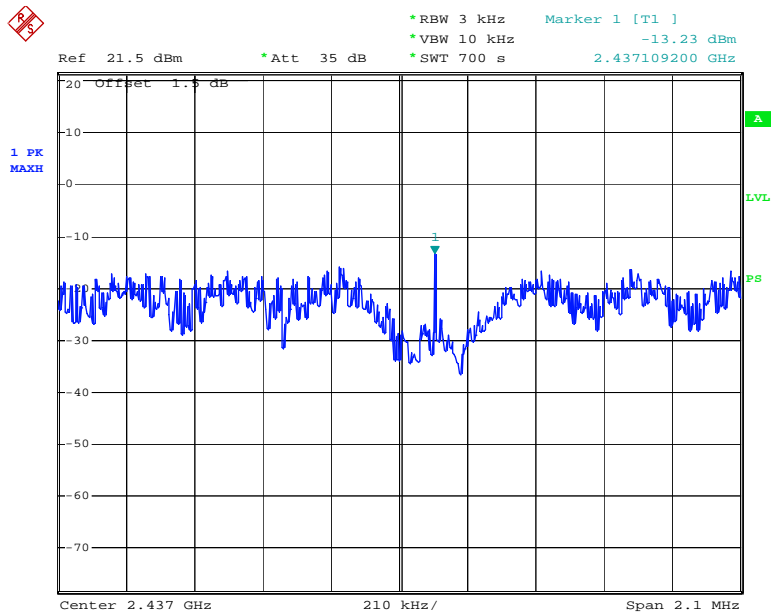
Date: 7.APR.2010 15:02:05

### Power Spectral Density, 802.11g Low Channel



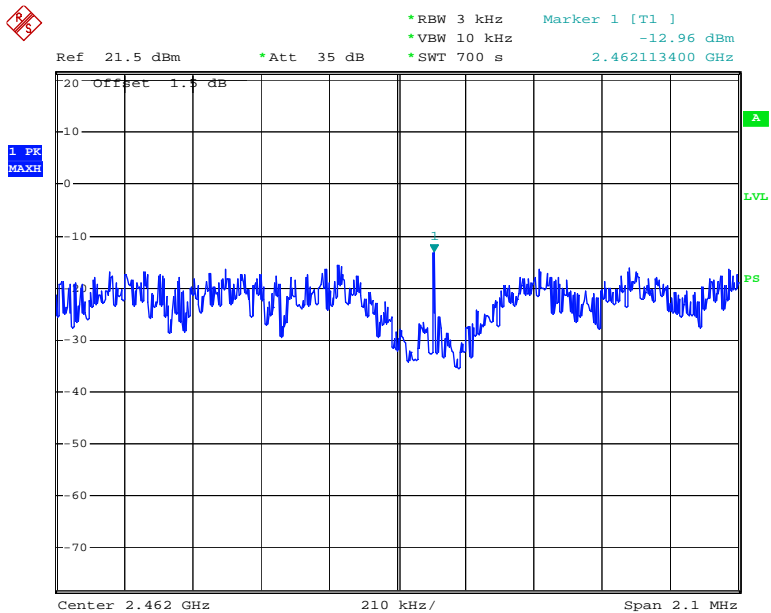
Date: 8.APR.2010 16:33:54

### Power Spectral Density, 802.11g Middle Channel



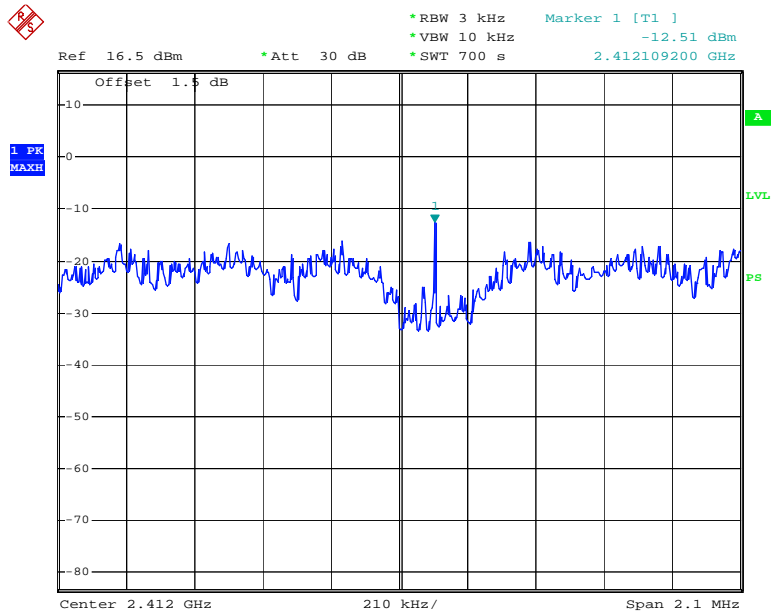
Date: 8.APR.2010 17:02:59

### Power Spectral Density, 802.11g High Channel



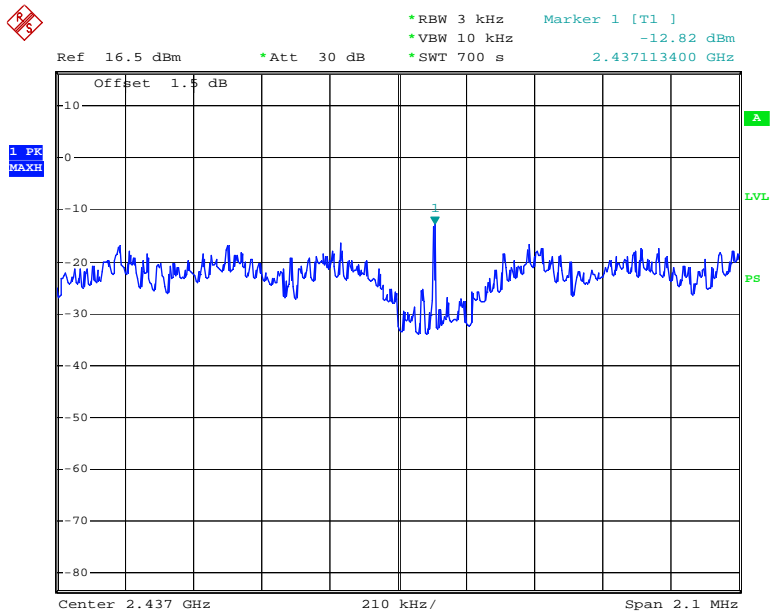
Date: 8.APR.2010 17:27:32

### Power Spectral Density, 802.11n20 Low Channel (Chain 0)



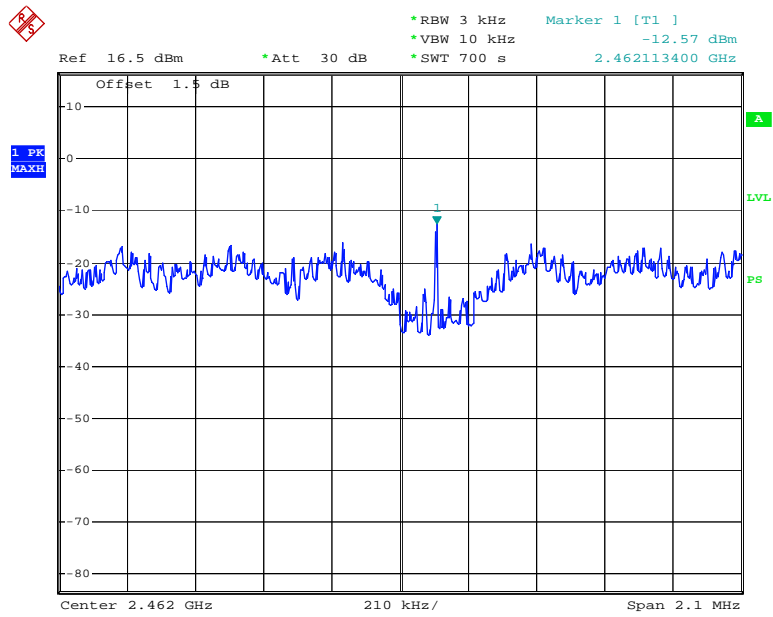
Date: 9.APR.2010 16:50:58

### Power Spectral Density, 802.11n20 Middle Channel (Chain 0)



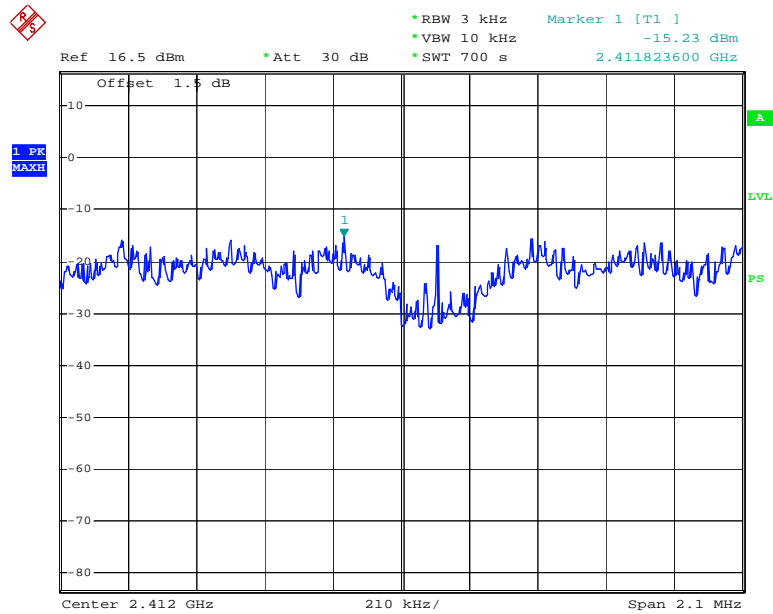
Date: 9.APR.2010 17:15:40

### Power Spectral Density, 802.11n20 High Channel (Chain 0)



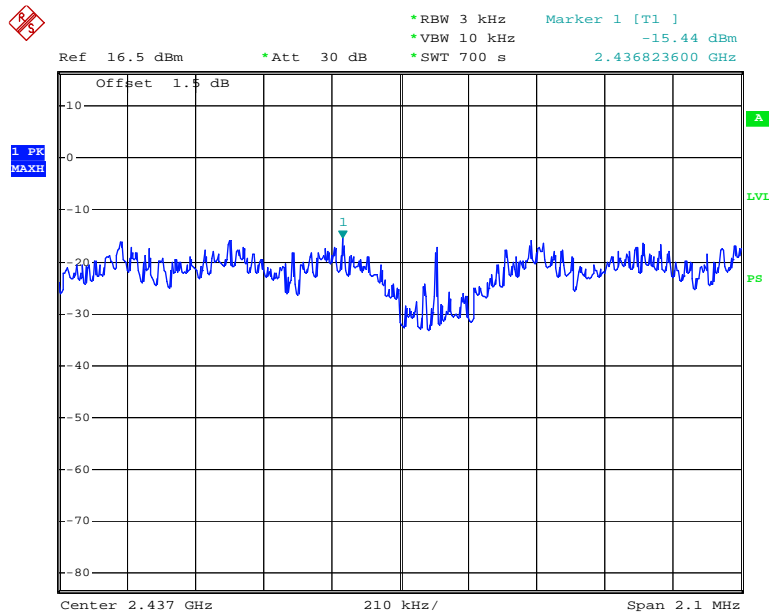
Date: 9.APR.2010 17:40:39

### Power Spectral Density, 802.11n20 Low Channel (Chain 1)



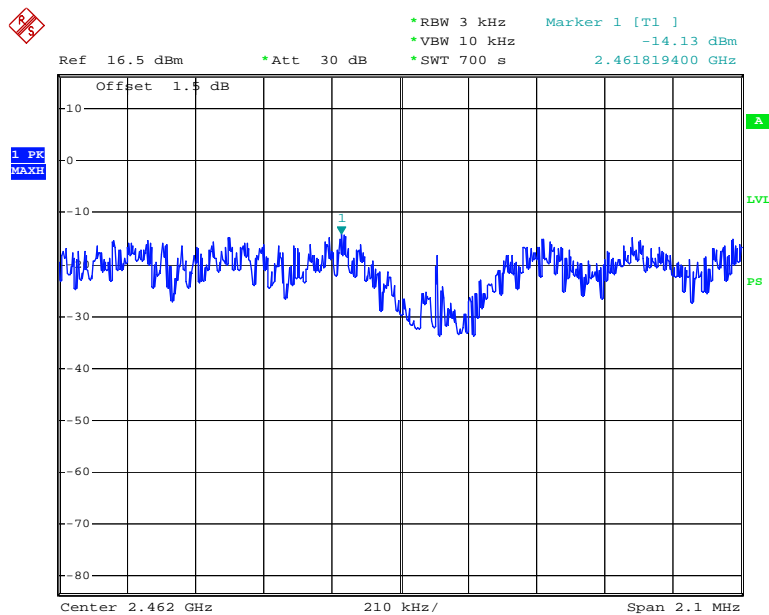
Date: 9.APR.2010 18:51:11

### Power Spectral Density, 802.11n20 Middle Channel (Chain 1)



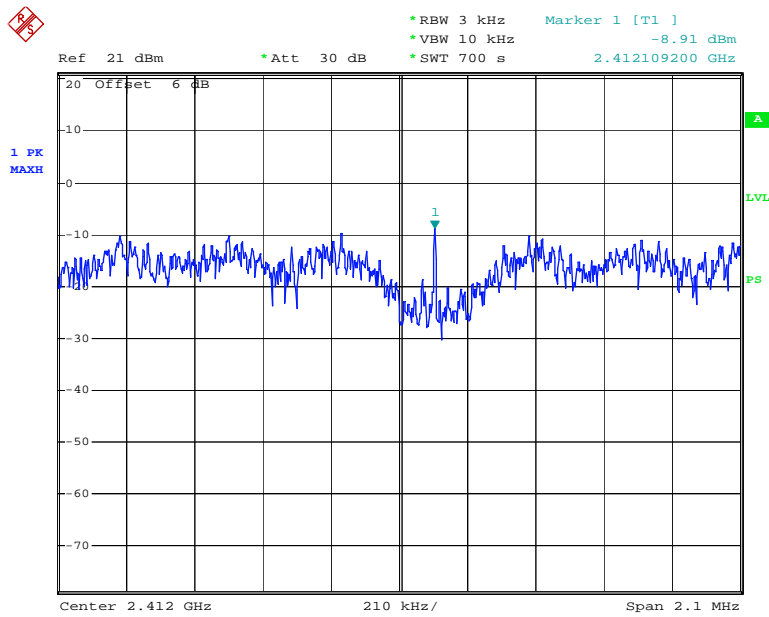
Date: 9.APR.2010 19:41:39

### Power Spectral Density, 802.11n20 High Channel (Chain 1)



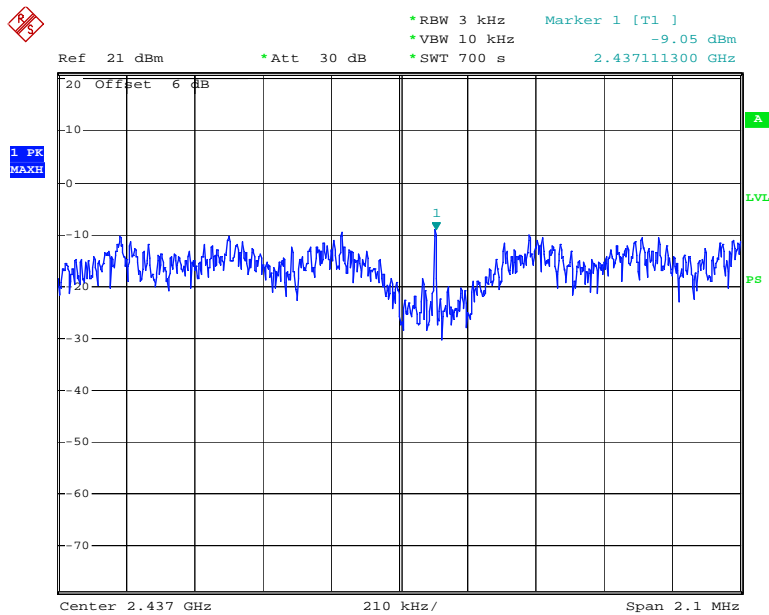
Date: 10.APR.2010 17:02:54

### Power Spectral Density, 802.11n20 Low Channel - Combiner



Date: 9.APR.2010 12:11:32

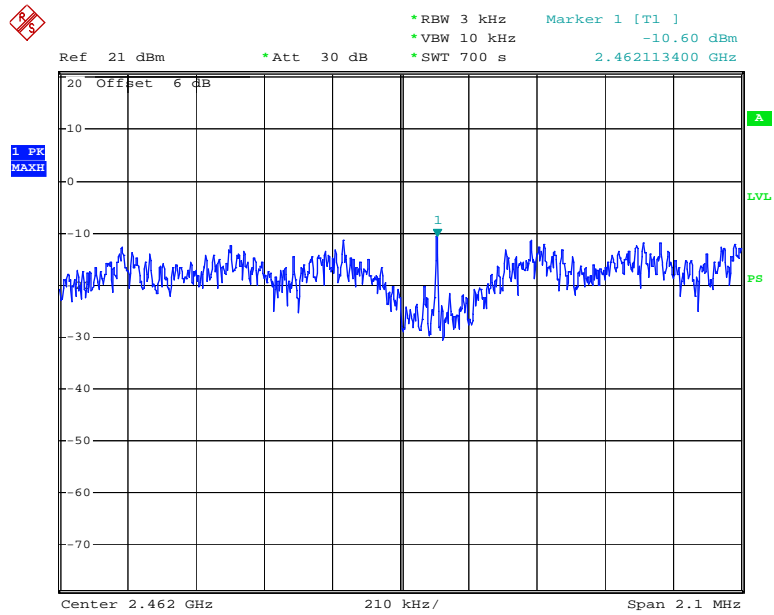
### Power Spectral Density, 802.11n20 Middle Channel - Combiner



Date: 9.APR.2010 12:38:24

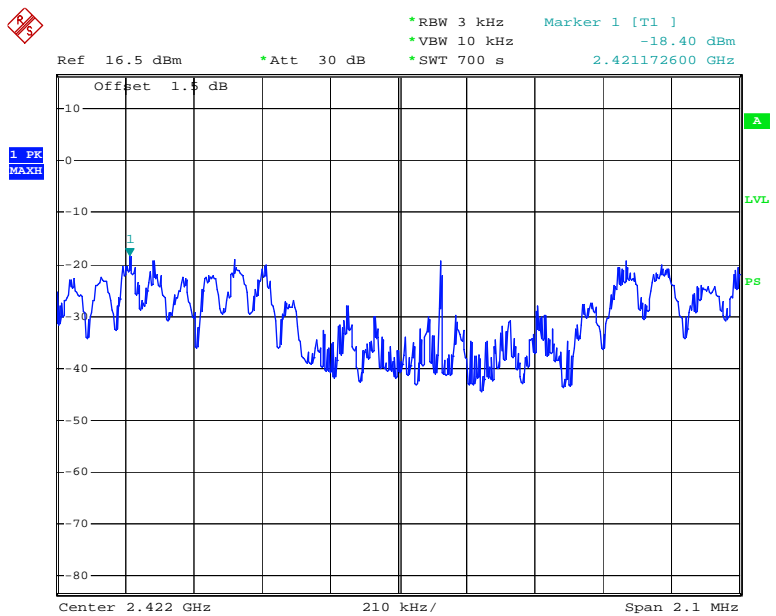


### Power Spectral Density, 802.11n20 High Channel - Combiner



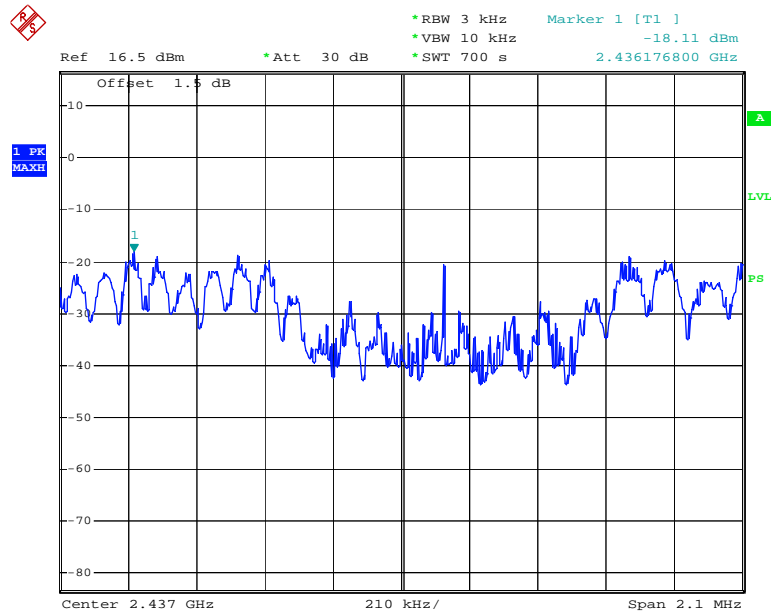
Date: 9.APR.2010 13:41:02

### Power Spectral Density, 802.11n40 Low Channel (Chain 0)



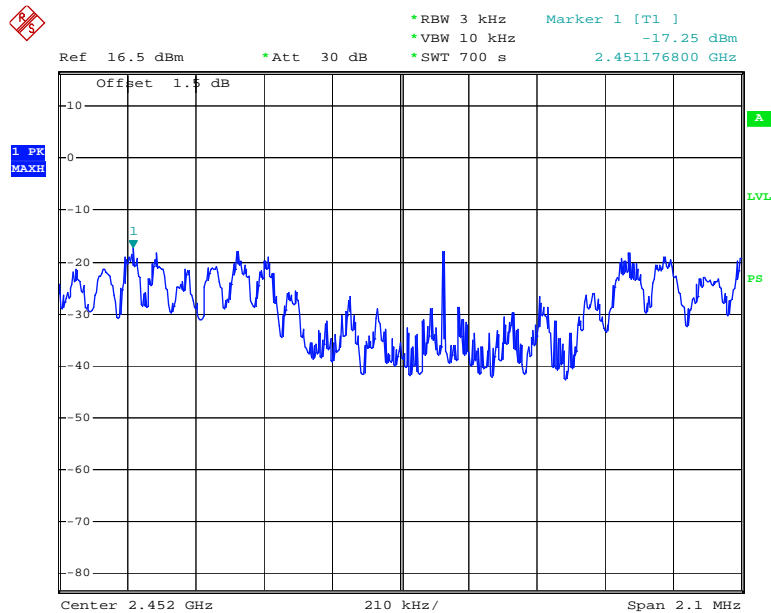
Date: 12.APR.2010 12:34:45

### Power Spectral Density, 802.11n40 Middle Channel (Chain 0)



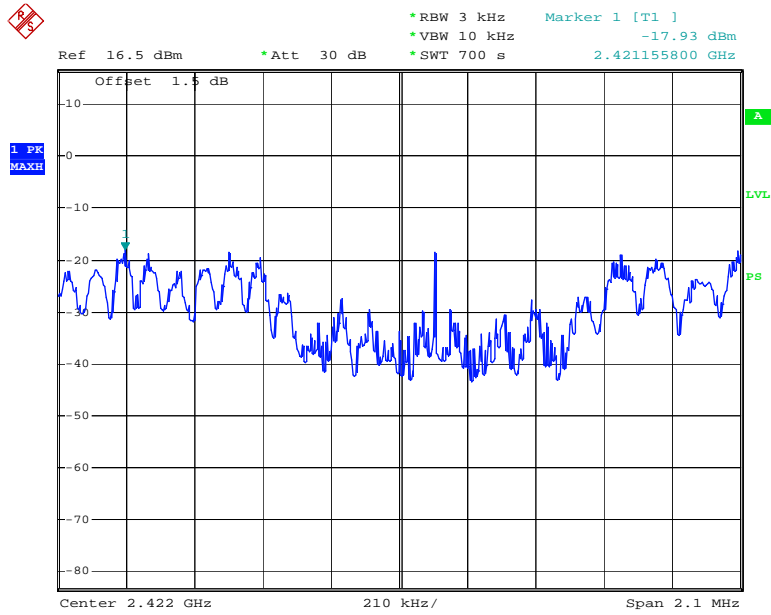
Date: 12.APR.2010 12:03:40

### Power Spectral Density, 802.11n40 High Channel (Chain 0)



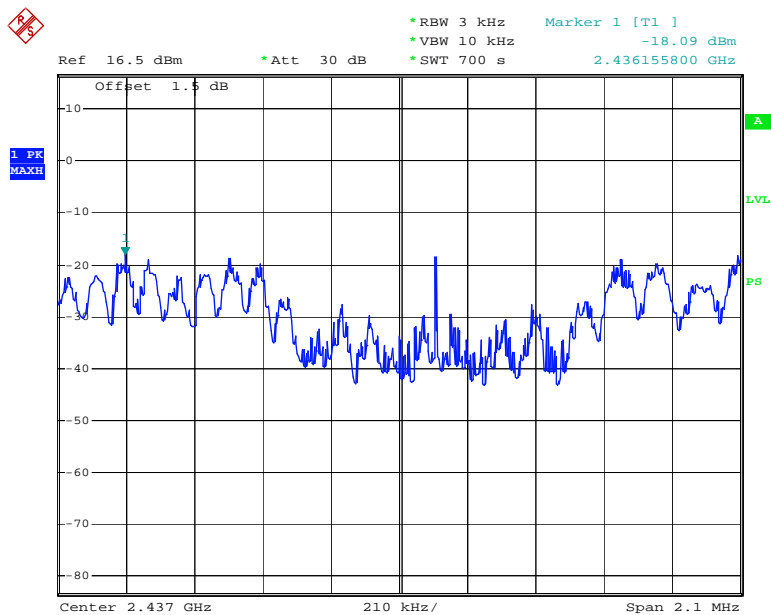
Date: 12.APR.2010 13:00:23

### Power Spectral Density, 802.11n40 Low Channel (Chain 1)



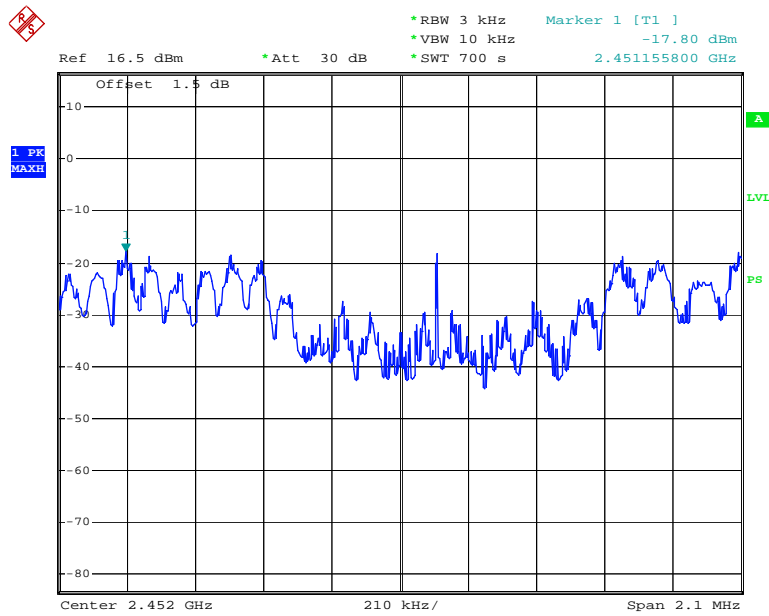
Date: 10.APR.2010 17:30:24

### Power Spectral Density, 802.11n40 Middle Channel (Chain 1)



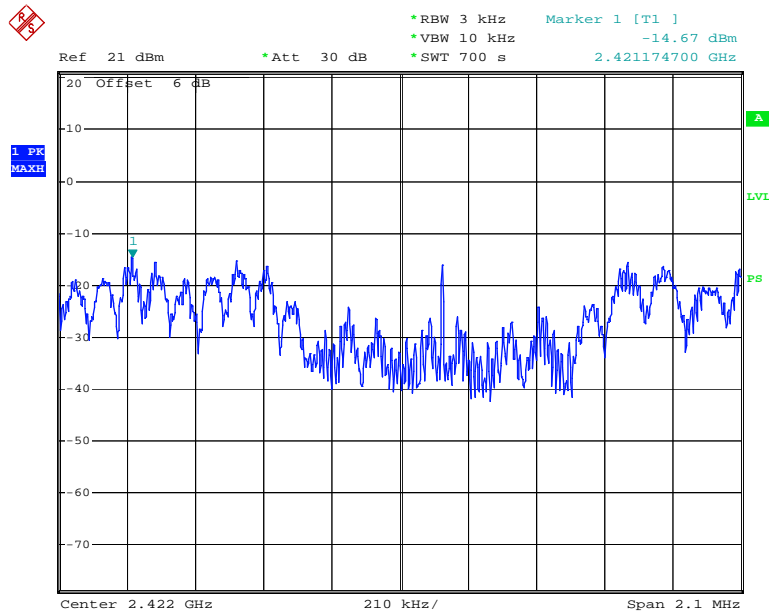
Date: 10.APR.2010 17:55:18

### Power Spectral Density, 802.11n40 High Channel (Chain 1)



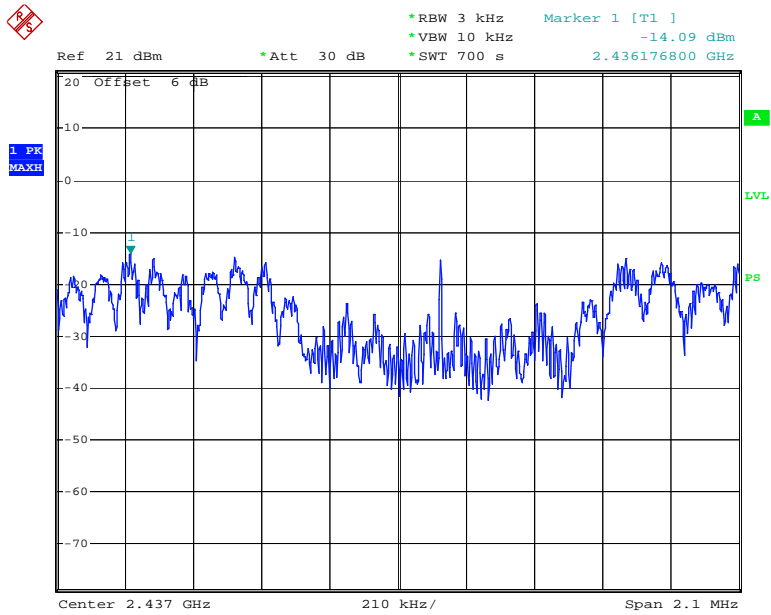
Date: 10.APR.2010 18:20:20

### Power Spectral Densit, 802.11n40 Low Channel - Combiner



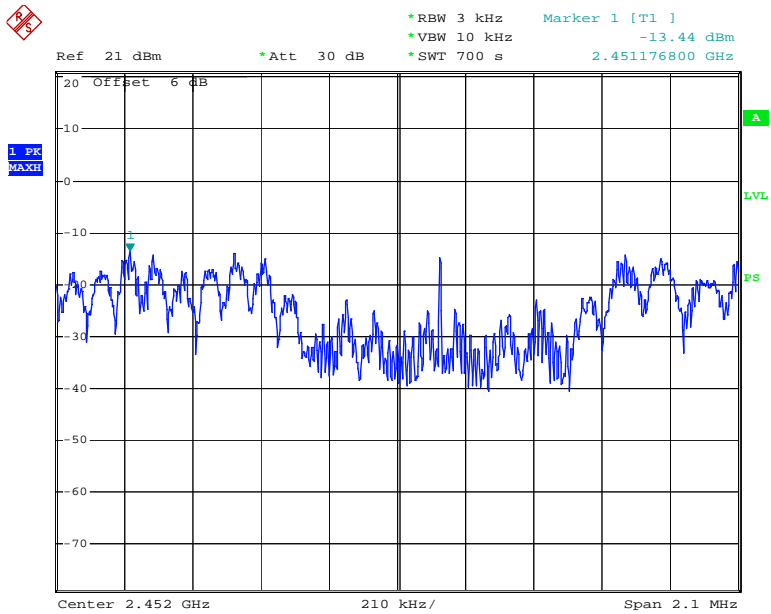
Date: 12.APR.2010 14:50:53

### Power Spectral Density, 802.11n40 Middle Channel - Combiner



Date: 12.APR.2010 15:25:19

### Power Spectral Density, 802.11n40 High Channel - Combiner



Date: 12.APR.2010 15:52:12

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