

FCC PART 15.247

TEST REPORT

For

**NEXXT SOLUTIONS**

3505 N.W 107TH AVE. MIAMI FLORIDA 33178 U.S.A

**FCC ID: X4Y310U1**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Wireless-N Broadband Router
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<b>Report Number:</b>	R1DG120710005-00A
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\* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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## GENERAL INFORMATION

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

The NEXXT SOLUTIONS's product, model number: ARN02304U3 (*FCC ID: X4Y310U1*) or ("EUT") in this report is a Wireless-N Broadband Router, which was measured approximately: 13.0 cm (L) x11.0cm (W) x18.0cm (H), rated input voltage: DC 9V from adapter.

Adapter information:

Model: TEA09U-09060

Input: 100-240V, 50/60Hz,0.3A

Output: 9V, 0.6A

Frequency Range:

802.11b/g/n20: 2412-2462MHz

802.11n40: 2422-2452MHz

*\* All measurement and test data in this report was gathered from production sample serial number:120710005 (Assigned by BACL,Dongguan). The EUT was received on 2012-07-17.*

### Objective

This report is prepared on behalf of NEXXT SOLUTIONS 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 the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

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

FCC Part 15B JBP submissions with FCC ID: X4Y310U1.

### 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. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

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

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) 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 February 02, 2012. 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.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

For 802.11b and 802.11g, 802.11n20 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, 802.11g and 802.11 n20 modes were tested with Channel 1, 6 and 11.

For 802.11n40 mode, 7 channels are provided to testing:

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

EUT was tested with Channel 1, 4 and 7.

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 data rates bandwidths, and modulations.

### EUT Exercise Software

The test was performed under “*Duck 1.1.9*” which was provided by the manufacturer.

### Equipment Modifications

No modification was made to the EUT tested.

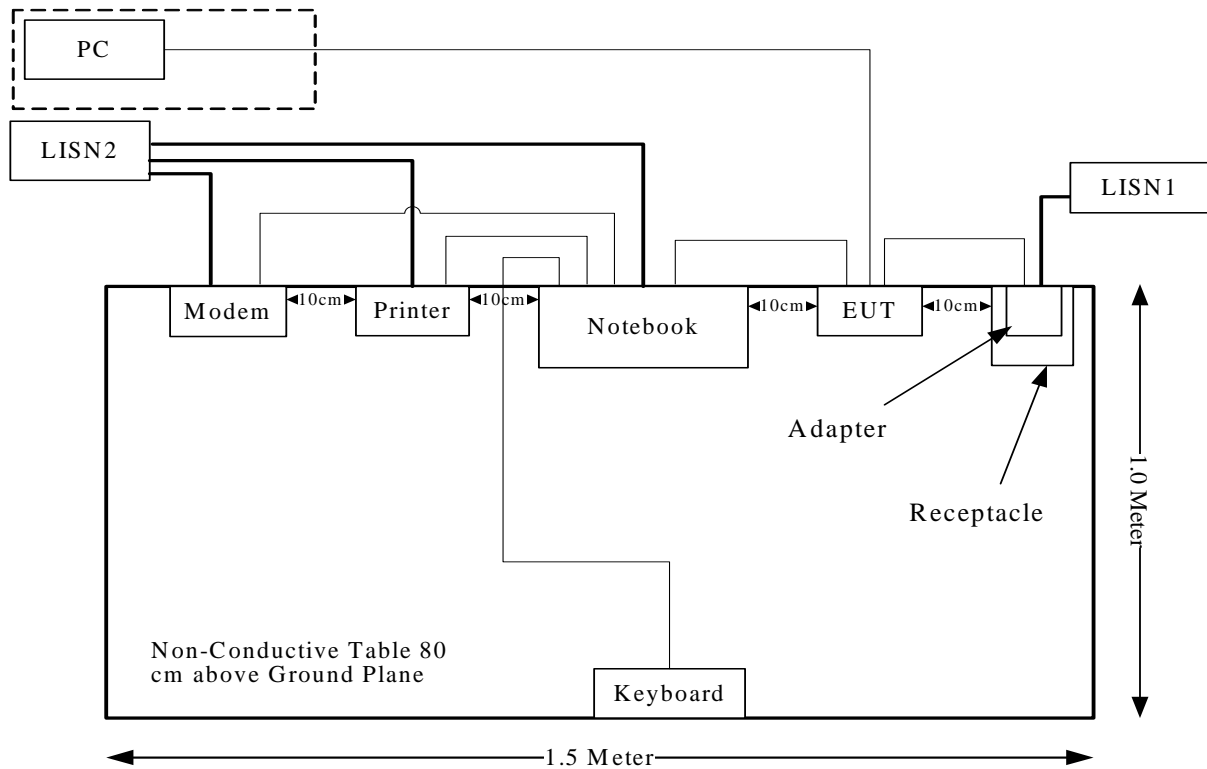
**Support Equipment List and Details**

Manufacturer	Description	Model	Serial Number
Dell	Notebook	PP11L	N/A
DELL	Keyboard	SK-8115	CN-ODJ313-716716-05A-0DS0
HP	Printer	C3941A	JPTVO13237
SAST	Modem	AEM-2100	090200213

**External I/O Cable**

Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Notebook	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Notebook	Modem
RJ45 cable	1.5	RJ45 port of Notebook	EUT
RJ45 cable	1.5	RJ45 port of PC	EUT
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Notebook	Keyboard

## 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 Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

## FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### Applicable Standard

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

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
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;

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

### Calculated Formulary:

Predication of MPE limit at a given distance

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

### Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412	5.13	3.26	16.59	45.60	20	0.0296	1.0
802.11g	2462	5.13	3.26	15.26	33.57	20	0.0218	1.0
802.11n ht20	2412	5.13	3.26	16.52	44.87	20	0.0291	1.0
802.11n ht40	2437	5.13	3.26	16.4	43.65	20	0.0283	1.0

**Result:** The device meet FCC MPE at 20cm distance

**FCC §15.203 - ANTENNA REQUIREMENT**

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**Applicable Standard**

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

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

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

**Antenna Connector Construction**

The EUT has two dipole antennas permanently attached to the EUT, which complied with 15.203, the maximum gain is 5.13dBi, please refer to the internal photos.

**Result:** Compliance.

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

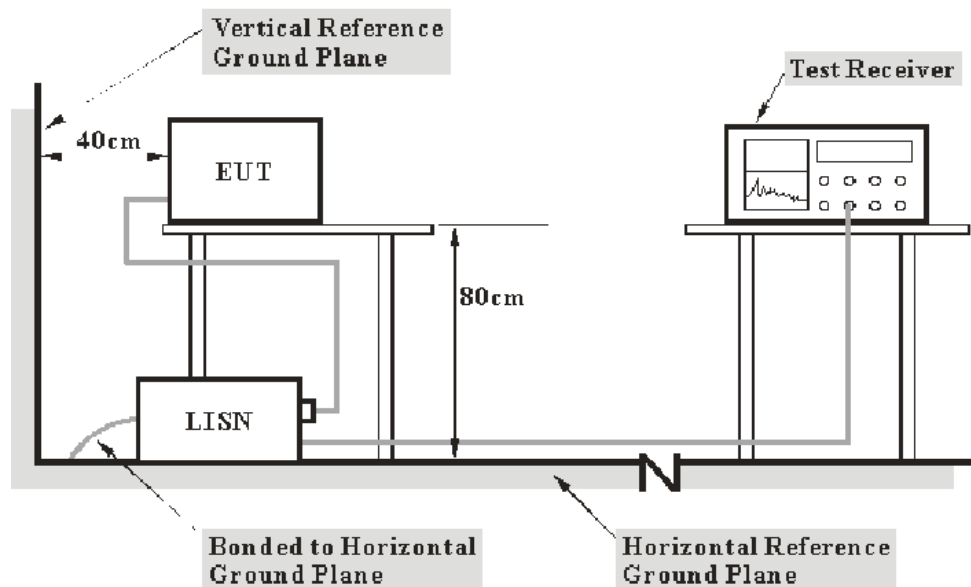
FCC§15.207

### Measurement Uncertainty

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

Based on 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. (Dongguan) is  $\pm 2.4$  dB ( $k=2$ , 95% level of confidence).

### 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:

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

## Test Procedure

During the conducted emission test, the adapter was connected to the first LISN and the other support equipments were connected to the outlet of 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS 30	830245/006	2011-10-08	2012-10-07
Rohde & Schwarz	LISN	ESH3-Z5	843331/015	2011-10-08	2012-10-07
Rohde & Schwarz	LISN	ESH3-Z5	100113	2011-10-08	2012-10-07

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

## Test Results Summary

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

**5.80 dB at 4.780MHz in the Neutral conducted mode**

## Test Data

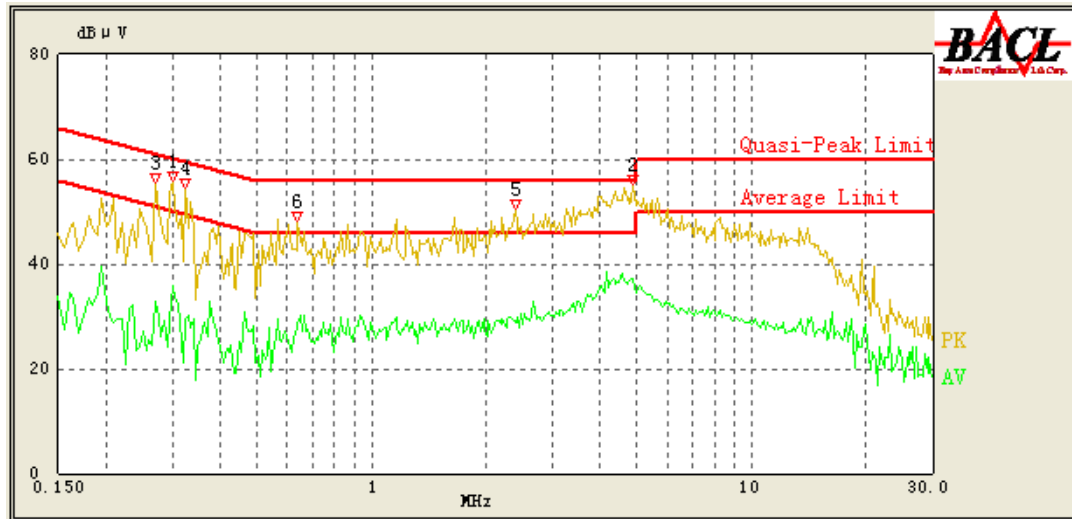
### Environmental Conditions

<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	48 %
<b>ATM Pressure:</b>	100.0 kPa

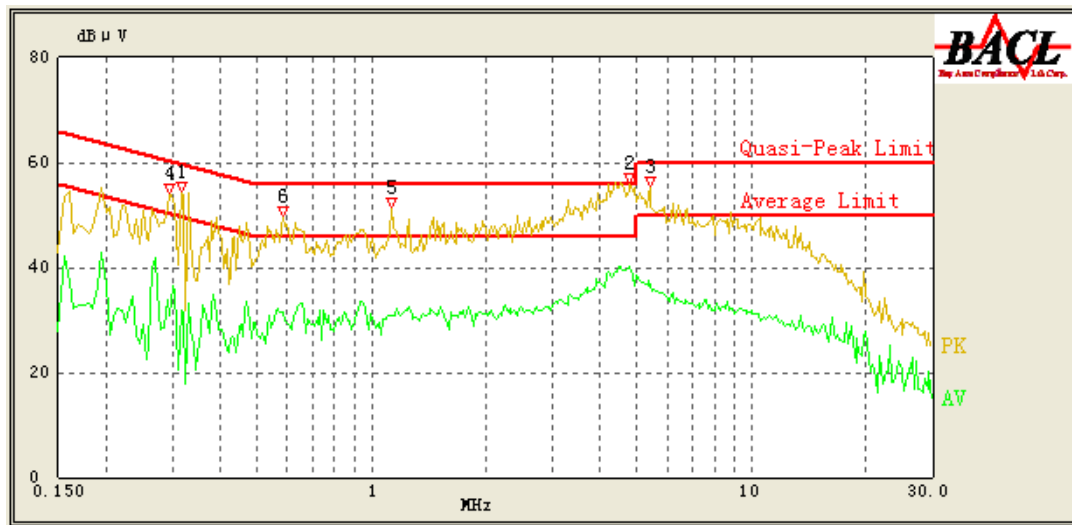
*The testing was performed by Ares Liu on 2012-07-31.*

Test Mode: Transmitting

120 V, 60 Hz, Line:



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
4.925	35.96	0.51	46.00	10.04	Ave.
4.895	43.92	0.51	56.00	12.08	QP
0.325	46.22	0.42	61.00	14.78	QP
0.270	47.46	0.42	62.57	15.11	QP
0.300	46.01	0.42	61.71	15.70	QP
0.300	36.00	0.42	51.71	15.71	Ave.
2.385	28.75	0.48	46.00	17.25	Ave.
0.640	38.62	0.43	56.00	17.38	QP
0.640	28.48	0.43	46.00	17.52	Ave.
2.385	37.80	0.48	56.00	18.20	QP
0.270	32.85	0.42	52.57	19.72	Ave.
0.325	29.61	0.42	51.00	21.39	Ave.

**120V, 60 Hz, Neutral:**

Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
4.780	40.20	0.51	46.00	5.80	Ave.
4.765	47.51	0.51	56.00	8.49	QP
0.315	51.34	0.42	61.29	9.95	QP
5.370	37.40	0.52	50.00	12.60	Ave.
0.585	43.14	0.43	56.00	12.86	QP
0.295	48.03	0.42	61.86	13.83	QP
0.585	31.44	0.43	46.00	14.56	Ave.
1.135	30.77	0.45	46.00	15.23	Ave.
1.135	40.11	0.45	56.00	15.89	QP
5.420	43.59	0.52	60.00	16.41	QP
0.315	31.87	0.42	51.29	19.42	Ave.
0.295	30.74	0.42	51.86	21.12	Ave.

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

### Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

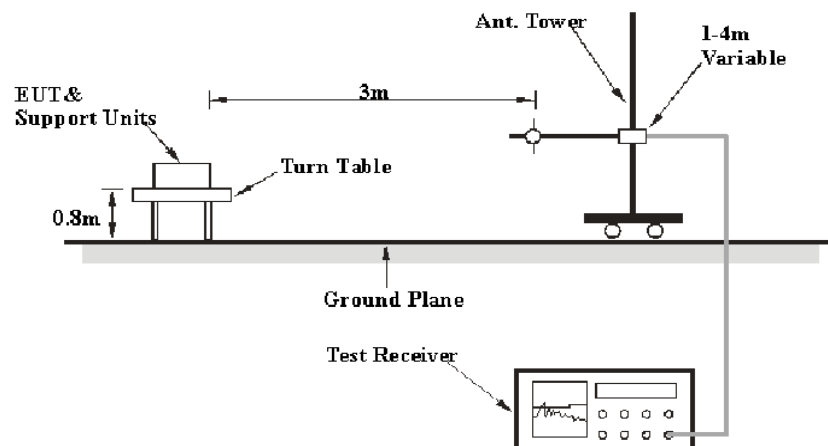
### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

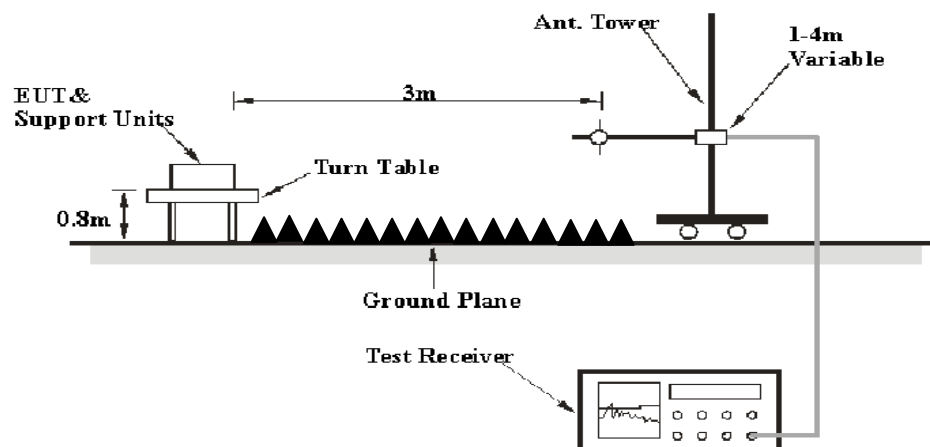
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.0 dB(k=2, 95% level of confidence) .

### EUT Setup

#### Below 1GHz:



#### Above 1GHz:





The radiated emission tests were performed in the 3 meters chamber 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:

<i><b>Frequency Range</b></i>	<i><b>RBW</b></i>	<i><b>Video B/W</b></i>	<i><b>Detector</b></i>
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave.

### Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

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

### Corrected Amplitude & Margin Calculation

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

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

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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	1166.5950.03	2011-10-08	2012-10-07
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2012-09-05
HP	Pre-amplifier	8447E	2434A02181	2011-10-08	2012-10-07
R&S	Spectrum Analyzer	FSEM	1079 8500	2011-10-09	2012-10-08
Dayang	Horn Antenna	OMCDH10180	10279001B	2010-07-30	2015-07-29
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A

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

### Test Results Summary

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

**2.89 dB at 9648 MHz in the Vertical polarization (802.11n20 mode)**

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	48 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Ares Liu on 2012-07-27.*

Mode: Transmitting

1) 30MHz-25GHz

802.11b Mode:

Frequency	Receiver		Rx Antenna		Cable	Amplifier	Corrected	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel: 2412(MHz)									
7236	31.02	AV	V	38.72	6.56	26.58	49.73	54.00	4.27
9648	28.64	AV	V	38.60	8.70	26.43	49.51	54.00	4.49
2390	14.32	AV	V	30.98	3.84	0.00	49.15	54.00	4.85
256.83	45.64	QP	V	12.37	1.92	21.49	38.44	46.00	7.56
7236	44.82	PK	V	38.72	6.56	26.58	63.53	74.00	10.47
2390	28.53	PK	V	30.98	3.84	0.00	63.36	74.00	10.64
9648	41.05	PK	V	38.60	8.70	26.43	61.92	74.00	12.08
4824	30.81	AV	V	33.21	4.73	27.19	41.56	54.00	12.44
4824	44.31	PK	V	33.21	4.73	27.19	55.06	74.00	18.94
2653.64	26.33	AV	V	31.38	4.35	27.54	34.52	54.00	19.48
2653.64	40.31	PK	V	31.38	4.35	27.54	48.50	74.00	25.50
2412	72.44	AV	H	31.11	3.93	0.00	107.47	N/A	N/A
2412	64.51	PK	H	31.11	3.93	0.00	99.54	N/A	N/A
2412	75.32	AV	V	31.11	3.93	0.00	110.35	N/A	N/A
2412	64.67	PK	V	31.11	3.93	0.00	99.70	N/A	N/A
Middle Channel: 2437(MHz)									
9748	30.01	AV	V	38.80	8.60	26.53	50.88	54.00	3.12*
7311	31.04	AV	V	38.86	6.70	26.65	49.95	54.00	4.05
256.74	44.86	QP	V	12.36	1.92	21.49	37.64	46.00	8.36
4874	32.33	AV	V	33.32	4.76	27.03	43.39	54.00	10.61
9748	41.58	PK	V	38.80	8.60	26.53	62.45	74.00	11.55
7311	43.22	PK	V	38.86	6.70	26.65	62.13	74.00	11.87
2653.41	27.31	AV	V	31.39	4.35	27.54	35.50	54.00	18.50
4874	43.52	PK	V	33.32	4.76	27.03	54.58	74.00	19.42
2653.41	41.22	PK	V	31.39	4.35	27.54	49.41	74.00	24.59
2437	72.41	AV	H	31.25	3.98	0.00	107.64	N/A	N/A
2437	64.22	PK	H	31.25	3.98	0.00	99.45	N/A	N/A
2437	75.84	AV	V	31.25	3.98	0.00	111.07	N/A	N/A
2437	64.38	PK	V	31.25	3.98	0.00	99.61	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
High Channel: 2462(MHz)									
7386	31.46	AV	V	38.99	6.84	26.73	50.57	54.00	3.43*
2483.5	14.67	AV	V	31.51	3.80	0.00	49.97	54.00	4.03
9848	29.08	AV	V	39.00	8.49	26.63	49.94	54.00	4.06
256.43	45.29	QP	V	12.32	1.92	21.49	38.04	46.00	7.96
9848	42.71	PK	V	39.00	8.49	26.63	63.57	74.00	10.43
2483.5	27.82	PK	V	31.51	3.80	0.00	63.12	74.00	10.88
4924	31.53	AV	V	33.43	4.70	27.17	42.50	54.00	11.50
7386	43.11	PK	V	38.99	6.84	26.73	62.22	74.00	11.78
2653.82	26.87	AV	V	31.38	4.34	27.54	35.06	54.00	18.94
4924	43.67	PK	V	33.43	4.70	27.17	54.64	74.00	19.36
2653.82	40.65	PK	V	31.38	4.34	27.54	48.84	74.00	25.16
2462	73.01	AV	H	31.39	3.93	0.00	108.33	N/A	N/A
2462	64.88	PK	H	31.39	3.93	0.00	100.20	N/A	N/A
2462	75.31	AV	V	31.39	3.93	0.00	110.63	N/A	N/A
2462	65.18	PK	V	31.39	3.93	0.00	100.50	N/A	N/A

\* Within measurement uncertainty.

802.11g Mode:

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel: 2412(MHz)									
9648	30.06	AV	V	38.60	8.70	26.43	50.93	54.00	3.07*
2390	14.82	AV	V	30.98	3.84	0.00	49.65	54.00	4.35
7236	30.65	AV	V	38.72	6.56	26.58	49.36	54.00	4.64
257.42	45.27	QP	V	12.43	1.93	21.49	38.14	46.00	7.86
9648	42.23	PK	V	38.60	8.70	26.43	63.10	74.00	10.90
2390	27.49	PK	V	30.98	3.84	0.00	62.32	74.00	11.68
4824	31.42	AV	V	33.21	4.73	27.19	42.17	54.00	11.83
7236	42.68	PK	V	38.72	6.56	26.58	61.39	74.00	12.61
2653.44	26.81	AV	V	31.39	4.35	27.54	35.00	54.00	19.00
4824	43.21	PK	V	33.21	4.73	27.19	53.96	74.00	20.04
2653.44	40.52	PK	V	31.39	4.35	27.54	48.71	74.00	25.29
2412	57.43	AV	H	31.11	3.93	0.00	92.46	N/A	N/A
2412	70.86	PK	H	31.11	3.93	0.00	105.89	N/A	N/A
2412	57.21	AV	V	31.11	3.93	0.00	92.24	N/A	N/A
2412	70.14	PK	V	31.11	3.93	0.00	105.17	N/A	N/A
Middle Channel: 2437(MHz)									
9748	29.82	AV	V	38.80	8.60	26.53	50.69	54.00	3.31*
7311	29.63	AV	V	38.86	6.70	26.65	48.54	54.00	5.46
256.84	44.76	QP	V	12.37	1.92	21.49	37.56	46.00	8.44
9748	42.47	PK	V	38.80	8.60	26.53	63.34	74.00	10.66
4874	31.66	AV	V	33.32	4.76	27.03	42.72	54.00	11.28
7311	42.51	PK	V	38.86	6.70	26.65	61.42	74.00	12.58
2653.41	26.44	AV	V	31.39	4.35	27.54	34.63	54.00	19.37
4874	43.42	PK	V	33.32	4.76	27.03	54.48	74.00	19.52
2653.41	40.71	PK	V	31.39	4.35	27.54	48.90	74.00	25.10
2437	56.72	AV	H	31.25	3.98	0.00	91.95	N/A	N/A
2437	69.39	PK	H	31.25	3.98	0.00	104.62	N/A	N/A
2437	57.18	AV	V	31.25	3.98	0.00	92.41	N/A	N/A
2437	69.93	PK	V	31.25	3.98	0.00	105.16	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
High Channel: 2462(MHz)									
9848	30.17	AV	V	39.00	8.49	26.63	51.03	54.00	2.97*
2483.5	14.58	AV	V	31.51	3.80	0.00	49.88	54.00	4.12
7386	30.24	AV	V	38.99	6.84	26.73	49.35	54.00	4.65
256.45	45.71	QP	V	12.32	1.92	21.49	38.46	46.00	7.54
2483.5	28.55	PK	V	31.51	3.80	0.00	63.85	74.00	10.15
9848	42.36	PK	V	39.00	8.49	26.63	63.22	74.00	10.78
7386	42.51	PK	V	38.99	6.84	26.73	61.62	74.00	12.38
4924	30.44	AV	V	33.43	4.70	27.17	41.41	54.00	12.59
2653.26	25.88	AV	V	31.39	4.35	27.54	34.08	54.00	19.92
4924	42.63	PK	V	33.43	4.70	27.17	53.60	74.00	20.40
2653.26	40.39	PK	V	31.39	4.35	27.54	48.59	74.00	25.41
2462	56.48	AV	H	31.39	3.93	0.00	91.80	N/A	N/A
2462	70.31	PK	H	31.39	3.93	0.00	105.63	N/A	N/A
2462	56.77	AV	V	31.39	3.93	0.00	92.09	N/A	N/A
2462	70.82	PK	V	31.39	3.93	0.00	106.14	N/A	N/A

\* Within measurement uncertainty.

802.11n20 Mode:

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel:2412(MHz)									
9648	30.24	AV	V	38.60	8.70	26.43	51.11	54.00	2.89*
2390	14.94	AV	V	30.98	3.84	0.00	49.77	54.00	4.23
7236	30.61	AV	V	38.72	6.56	26.58	49.32	54.00	4.68
9648	42.11	PK	V	38.60	8.70	26.43	62.98	74.00	11.02
2390	27.63	PK	V	30.98	3.84	0.00	62.46	74.00	11.54
4824	31.24	AV	V	33.21	4.73	27.19	41.99	54.00	12.01
7236	42.65	PK	V	38.72	6.56	26.58	61.36	74.00	12.64
256.28	37.52	QP	V	12.30	1.92	21.49	30.25	46.00	15.75
2653.42	25.69	AV	V	31.39	4.35	27.54	33.88	54.00	20.12
4824	43.11	PK	V	33.21	4.73	27.19	53.86	74.00	20.14
2653.42	41.22	PK	V	31.39	4.35	27.54	49.41	74.00	24.59
2412	69.44	PK	H	31.11	3.93	0.00	104.47	N/A	N/A
2412	56.17	AV	H	31.11	3.93	0.00	91.20	N/A	N/A
2412	69.89	PK	V	31.11	3.93	0.00	104.92	N/A	N/A
2412	56.88	AV	V	31.11	3.93	0.00	91.91	N/A	N/A
Middle Channel: 2437(MHz)									
9748	28.74	AV	V	38.80	8.60	26.53	49.61	54.00	4.39
7311	29.66	AV	V	38.86	6.70	26.65	48.57	54.00	5.43
9748	40.57	PK	V	38.80	8.60	26.53	61.44	74.00	12.56
7311	42.12	PK	V	38.86	6.70	26.65	61.03	74.00	12.97
4874	29.51	AV	V	33.32	4.76	27.03	40.57	54.00	13.43
256.84	37.66	QP	V	12.37	1.92	21.49	30.46	46.00	15.54
2653.44	30.01	AV	V	31.39	4.35	27.54	38.20	54.00	15.80
4874	41.33	PK	V	33.32	4.76	27.03	52.39	74.00	21.61
2653.44	41.68	PK	V	31.39	4.35	27.54	49.87	74.00	24.13
2437	69.24	PK	H	31.25	3.98	0.00	104.47	N/A	N/A
2437	55.32	AV	H	31.25	3.98	0.00	90.55	N/A	N/A
2437	69.71	PK	V	31.25	3.98	0.00	104.94	N/A	N/A
2437	55.61	AV	V	31.25	3.98	0.00	90.84	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
High Channel: 2462(MHz)									
2483.5	15.03	AV	V	31.51	3.80	0.00	50.33	54.00	3.67*
9848	29.06	AV	V	39.00	8.49	26.63	49.92	54.00	4.08
7386	29.11	AV	V	38.99	6.84	26.73	48.22	54.00	5.78
9848	42.51	PK	V	39.00	8.49	26.63	63.37	74.00	10.63
2483.5	28.04	PK	V	31.51	3.80	0.00	63.34	74.00	10.66
7386	42.68	PK	V	38.99	6.84	26.73	61.79	74.00	12.21
4924	30.14	AV	V	33.43	4.70	27.17	41.11	54.00	12.89
2653.33	31.16	AV	V	31.39	4.35	27.54	39.35	54.00	14.65
256.45	37.82	QP	V	12.32	1.92	21.49	30.57	46.00	15.43
4924	43.62	PK	V	33.43	4.70	27.17	54.59	74.00	19.41
2653.66	41.71	PK	V	31.38	4.35	27.54	49.90	74.00	24.10
2462	69.11	PK	H	31.39	3.93	0.00	104.43	N/A	N/A
2462	55.62	AV	H	31.39	3.93	0.00	90.94	N/A	N/A
2462	69.97	PK	V	31.39	3.93	0.00	105.29	N/A	N/A
2462	56.22	AV	V	31.39	3.93	0.00	91.54	N/A	N/A

\* Within measurement uncertainty.



802.11n40 Mode:

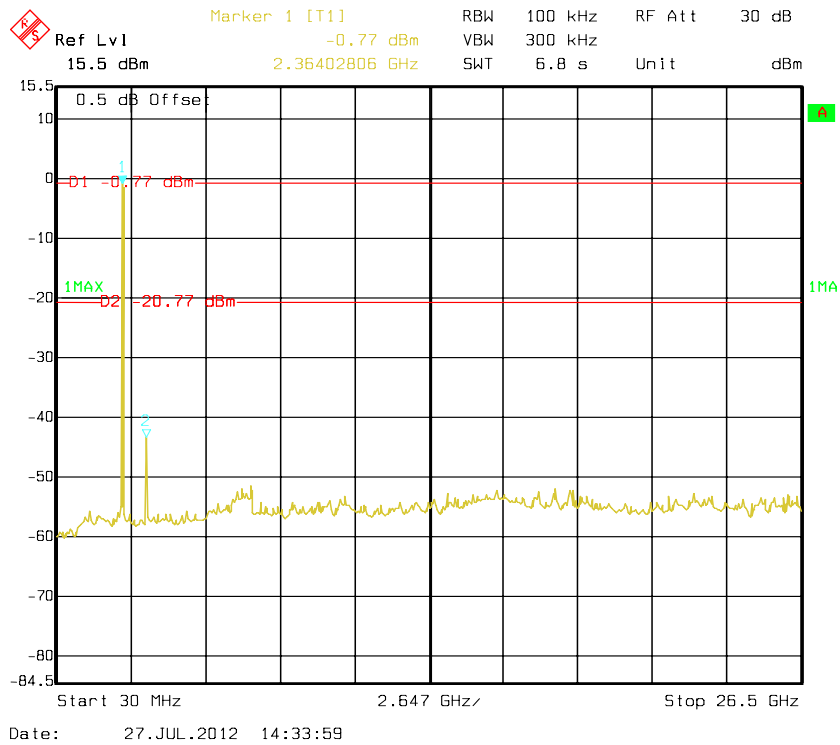
Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel: 2422(MHz)									
9688	29.64	AV	V	38.68	8.66	26.47	50.51	54.00	3.49 *
2390	14.74	AV	V	30.98	3.84	0.00	49.57	54.00	4.43
7266	30.05	AV	V	38.78	6.62	26.61	48.84	54.00	5.16
2390	29.63	PK	V	30.98	3.84	0.00	64.46	74.00	9.54
4844	32.41	AV	V	33.26	4.78	27.04	43.41	54.00	10.59
9688	40.08	PK	V	38.68	8.66	26.47	60.95	74.00	13.05
256.84	38.12	QP	V	12.37	1.92	21.49	30.92	46.00	15.08
7266	40.12	PK	V	38.78	6.62	26.61	58.91	74.00	15.09
2563.47	31.22	AV	V	31.51	3.90	27.88	38.75	54.00	15.25
4844	43.58	PK	V	33.26	4.78	27.04	54.58	74.00	19.42
2563.47	42.51	PK	V	31.51	3.90	27.88	50.04	74.00	23.96
2422	68.33	PK	H	31.16	3.95	0.00	103.44	N/A	N/A
2422	54.61	AV	H	31.16	3.95	0.00	89.72	N/A	N/A
2422	69.14	PK	V	31.16	3.95	0.00	104.25	N/A	N/A
2422	54.77	AV	V	31.16	3.95	0.00	89.88	N/A	N/A
Middle Channel: 2437(MHz)									
9748	30.18	AV	V	38.80	8.60	26.53	51.05	54.00	2.95*
7311	30.26	AV	V	38.86	6.70	26.65	49.17	54.00	4.83
4874	32.03	AV	V	33.32	4.76	27.03	43.09	54.00	10.91
9748	41.44	PK	V	38.80	8.60	26.53	62.31	74.00	11.69
7311	41.51	PK	V	38.86	6.70	26.65	60.42	74.00	13.58
2563.42	32.15	AV	V	31.51	3.90	27.88	39.68	54.00	14.32
256.88	38.72	QP	V	12.37	1.92	21.49	31.52	46.00	14.48
4874	42.29	PK	V	33.32	4.76	27.03	53.35	74.00	20.65
2563.42	42.59	PK	V	31.51	3.90	27.88	50.12	74.00	23.88
2437	69.97	PK	V	31.25	3.98	0.00	105.20	N/A	N/A
2437	54.65	AV	V	31.25	3.98	0.00	89.88	N/A	N/A
2437	68.88	PK	H	31.25	3.98	0.00	104.11	N/A	N/A
2437	54.02	AV	H	31.25	3.98	0.00	89.25	N/A	N/A

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
High Channel: 2452(MHz)									
2483.5	15.02	AV	V	31.51	3.80	0.00	50.32	54.00	3.68
9808	28.64	AV	V	38.92	8.53	26.59	49.50	54.00	4.50
7356	30.06	AV	V	38.94	6.79	26.70	49.09	54.00	4.91
2483.5	32.02	PK	V	31.51	3.80	0.00	67.32	74.00	6.68
4904	31.82	AV	V	33.39	4.72	27.08	42.85	54.00	11.15
9808	41.53	PK	V	38.92	8.53	26.59	62.39	74.00	11.61
7356	42.15	PK	V	38.94	6.79	26.70	61.18	74.00	12.82
256.74	38.62	QP	V	12.36	1.92	21.49	31.40	46.00	14.60
2563.36	31.69	AV	V	31.51	3.90	27.88	39.22	54.00	14.78
4904	43.33	PK	V	33.39	4.72	27.08	54.36	74.00	19.64
2563.36	42.71	PK	V	31.51	3.90	27.88	50.24	74.00	23.76
2452	67.93	AV	H	31.33	4.00	0.00	103.26	N/A	N/A
2452	52.71	PK	H	31.33	4.00	0.00	88.04	N/A	N/A
2452	68.29	AV	V	31.33	4.00	0.00	103.62	N/A	N/A
2452	53.29	PK	V	31.33	4.00	0.00	88.62	N/A	N/A

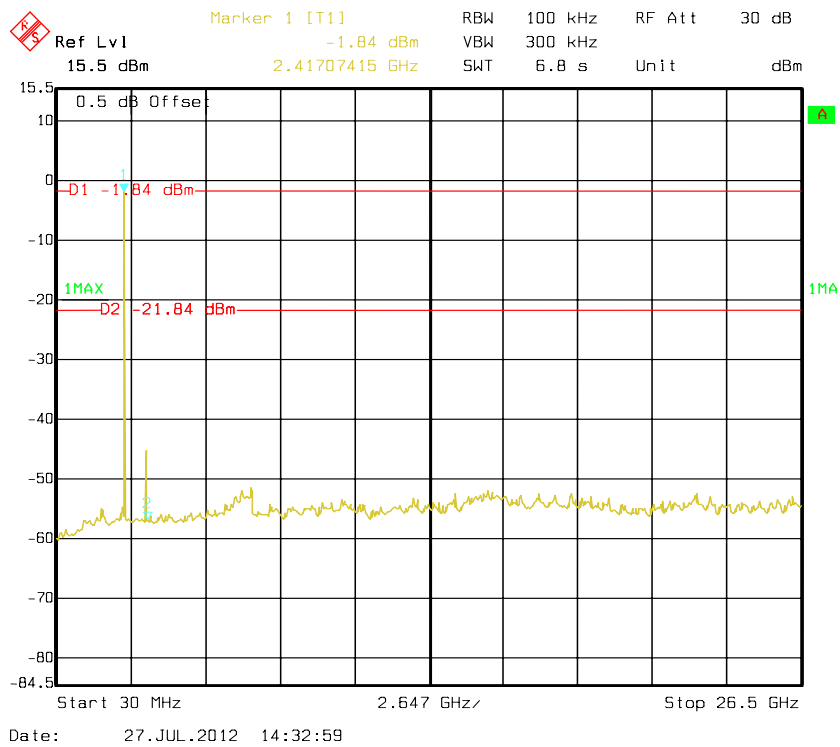
\* Within measurement uncertainty.

# Conducted Spurious Emissions at Antenna Port

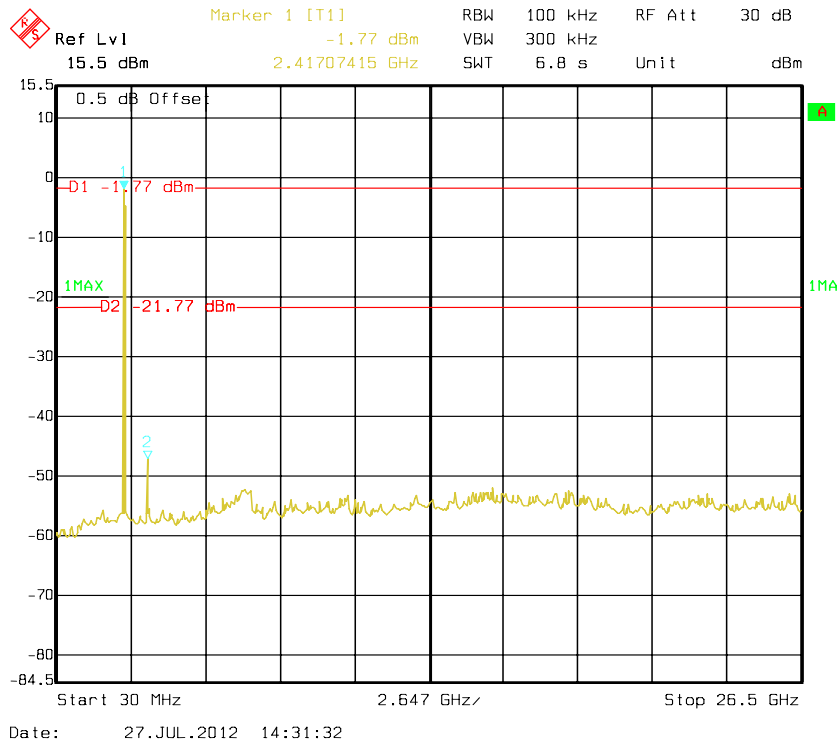
## 802.11b Low Channel



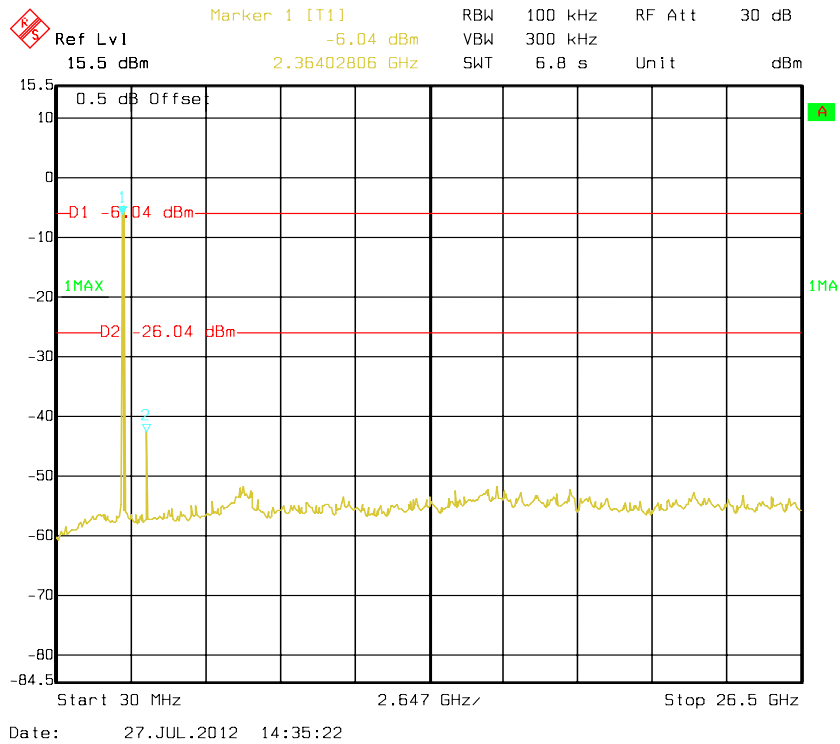
## 802.11b Middle Channel



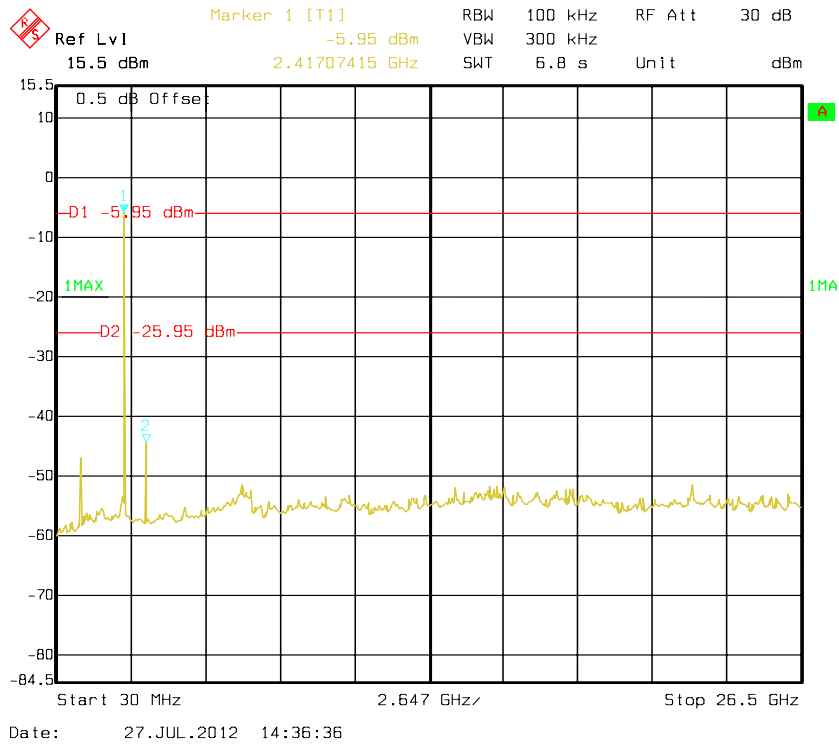
### 802.11b High Channel



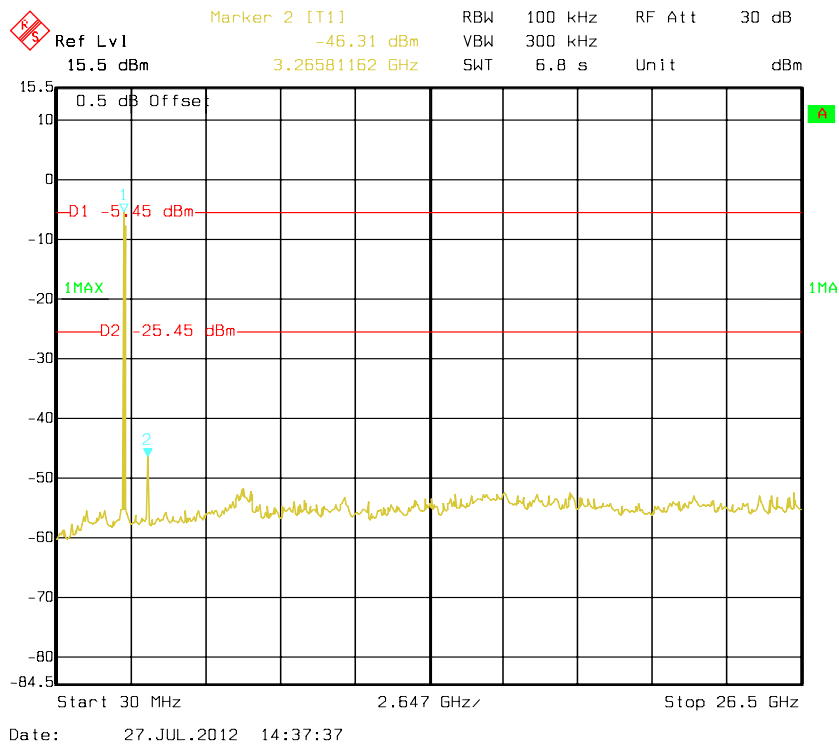
### 802.11g Low Channel



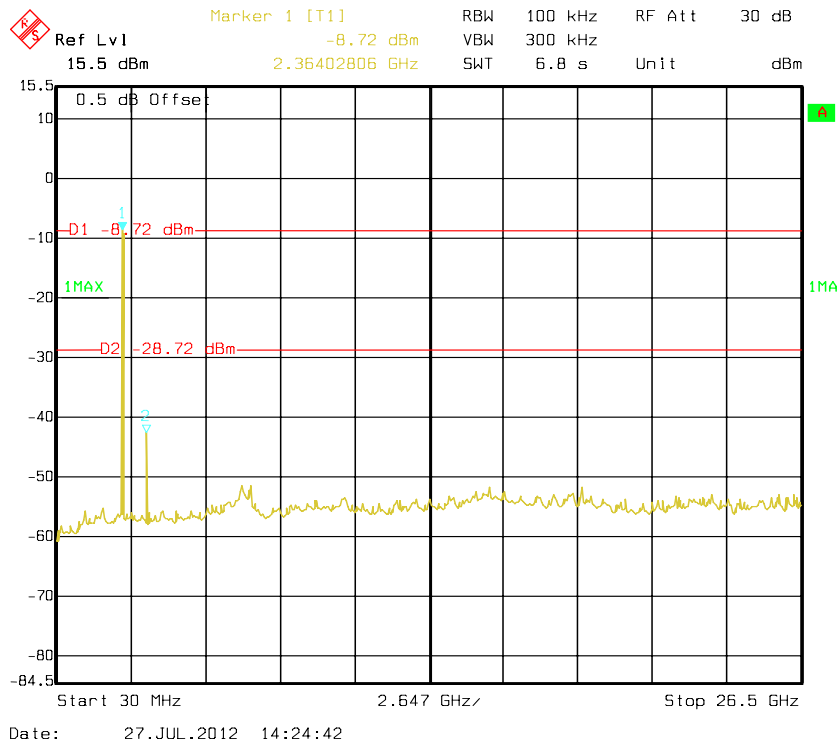
### 802.11g Middle Channel



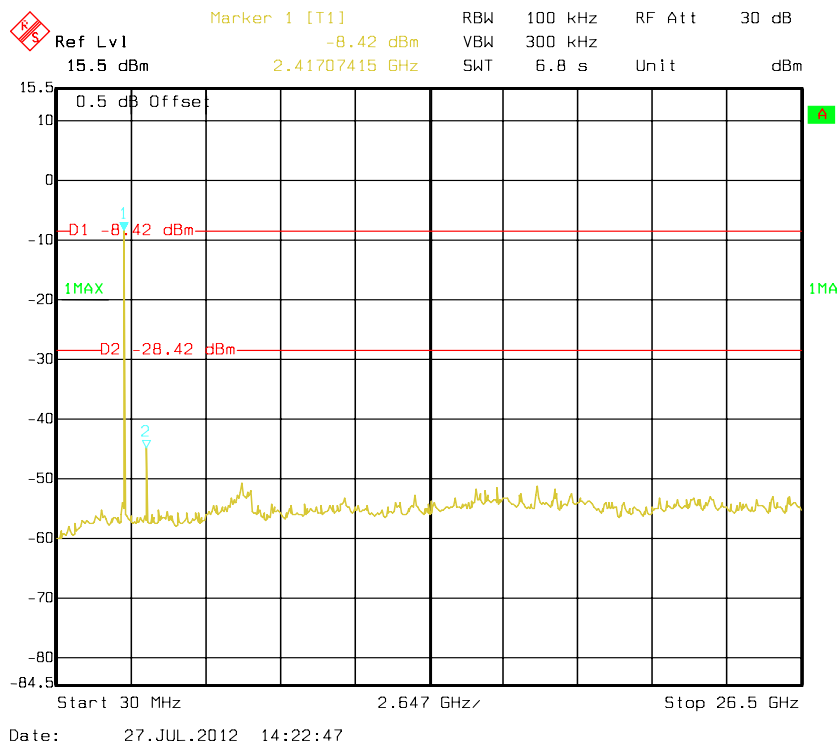
### 802.11g High Channel



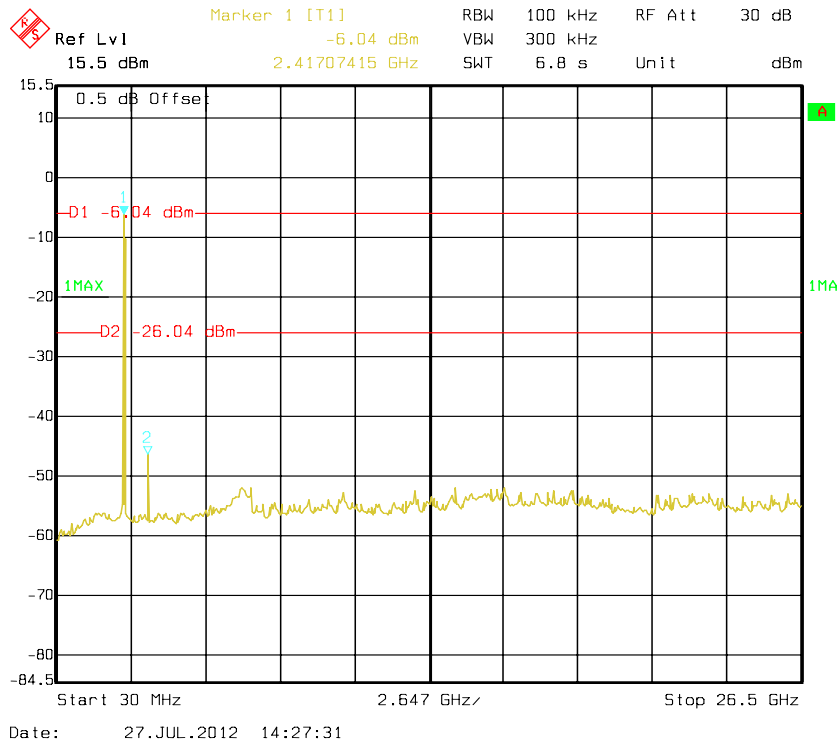
### Chain 0:802.11n20 Low Channel



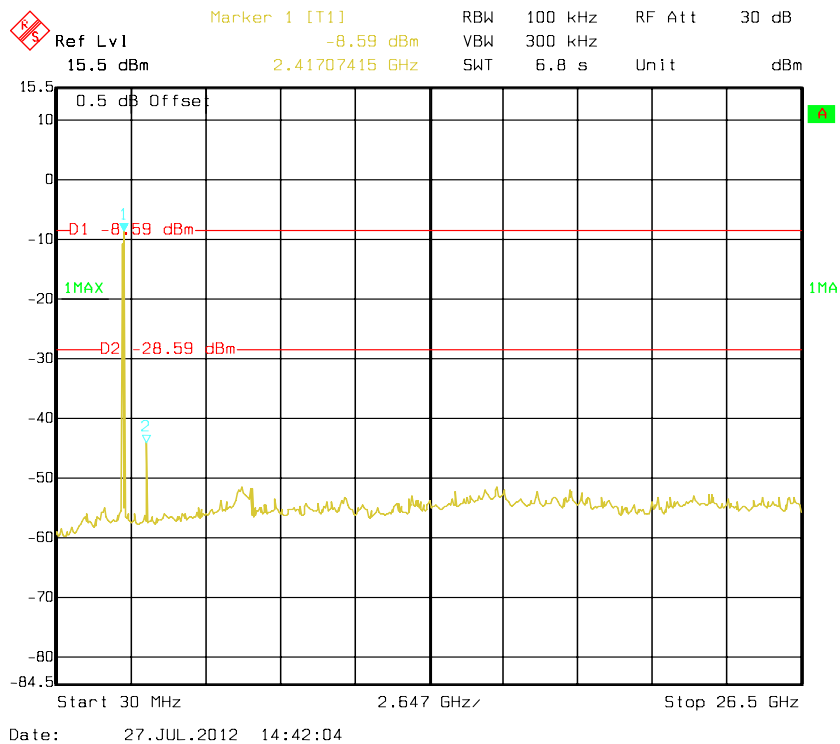
### Chain 0:802.11n20 Middle Channel



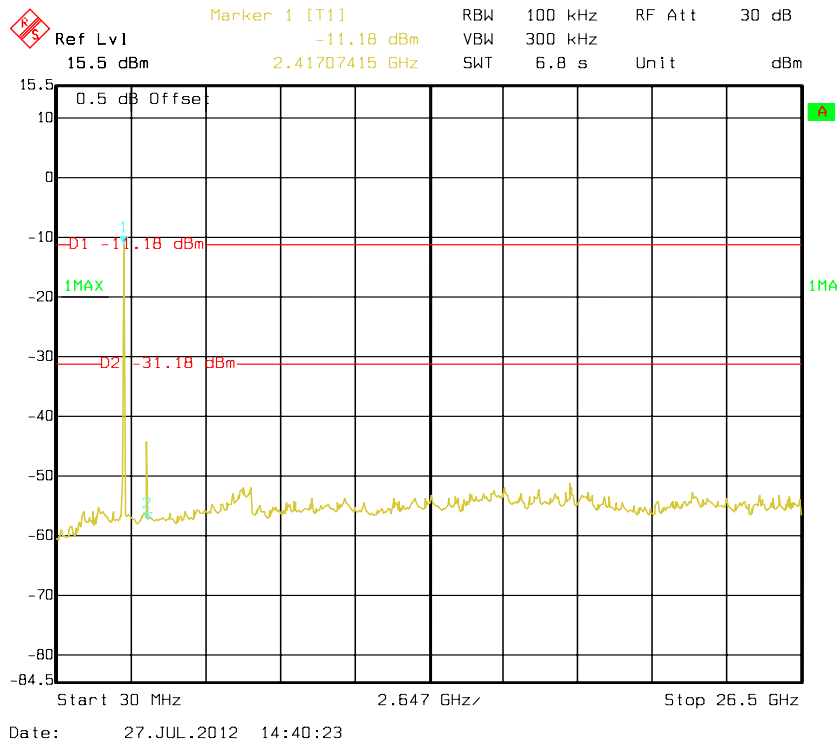
### Chain 0:802.11n20 High Channel



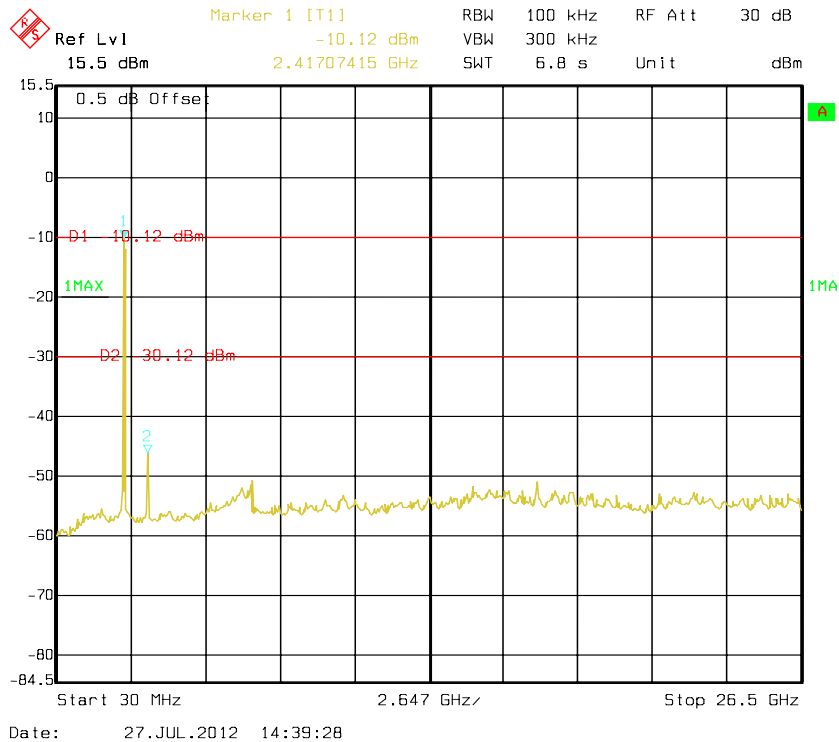
### Chain 0:802.11n40 Low Channel



### Chain 0:802.11n40 Middle Channel

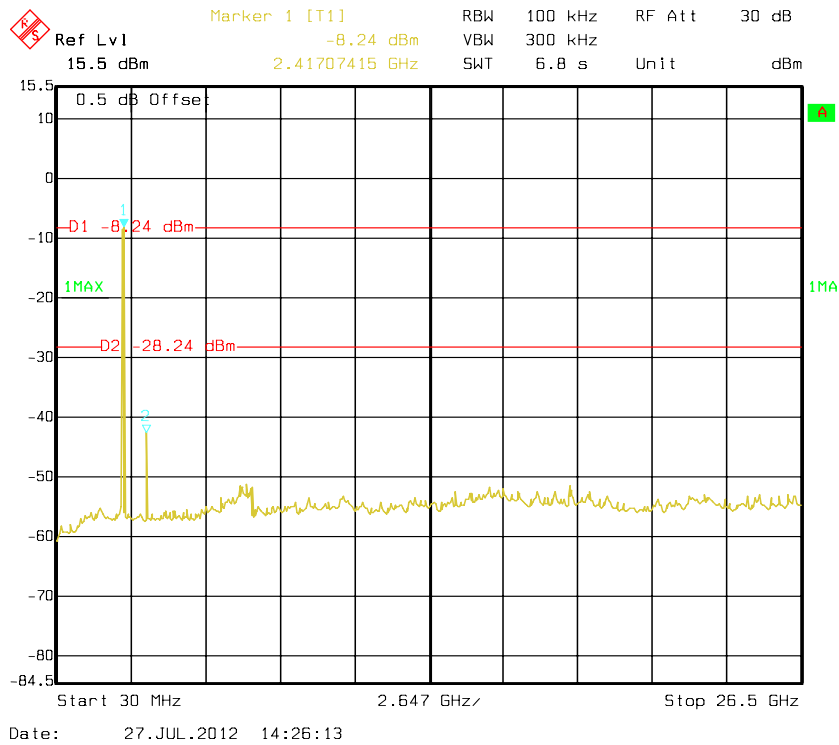


### Chain 0:802.11n40 High Channel

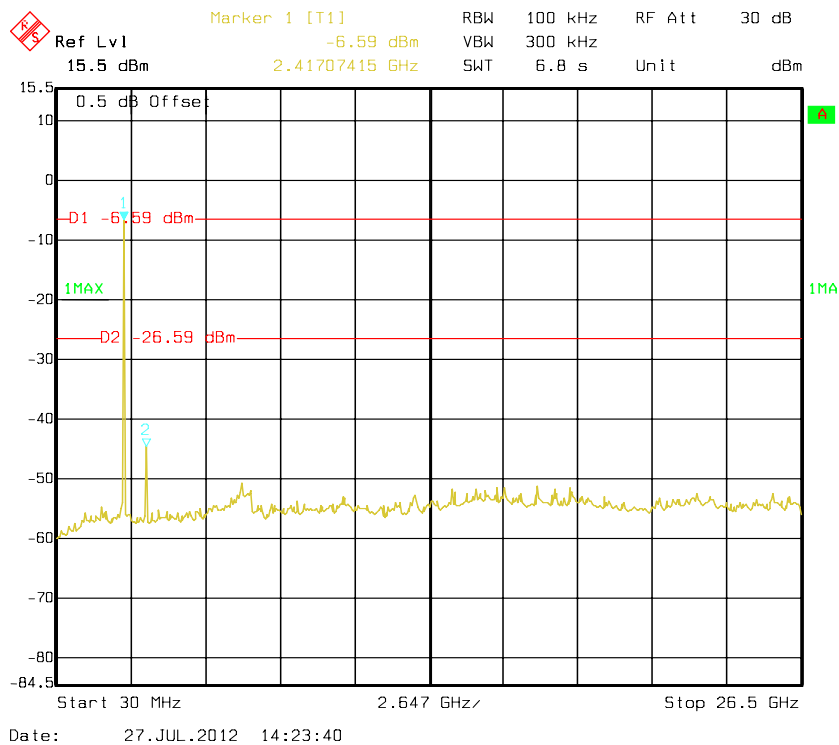




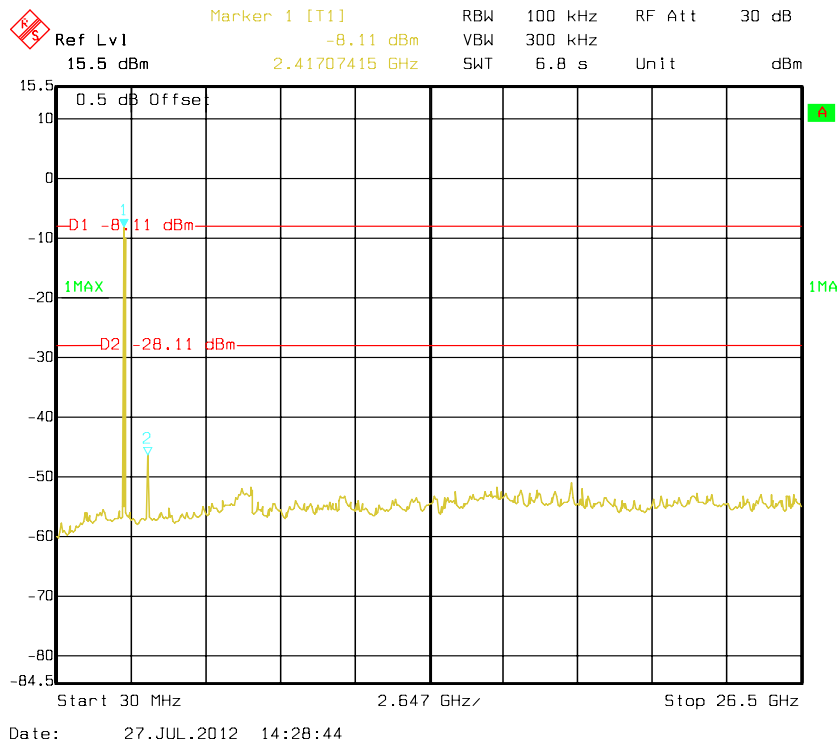
### Chain 1:802.11n20 Low Channel



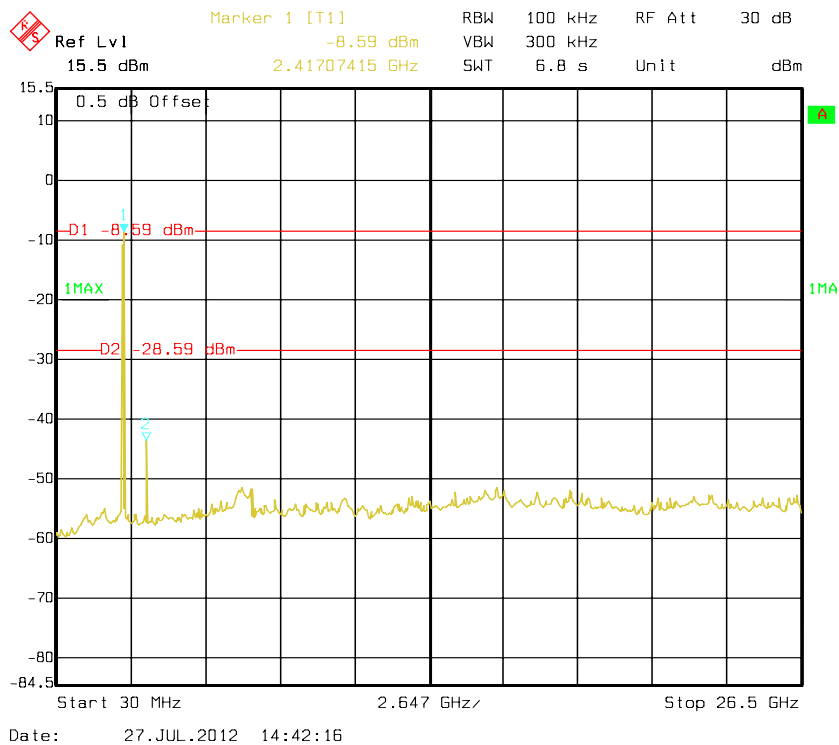
### Chain 1:802.11n20 Middle Channel



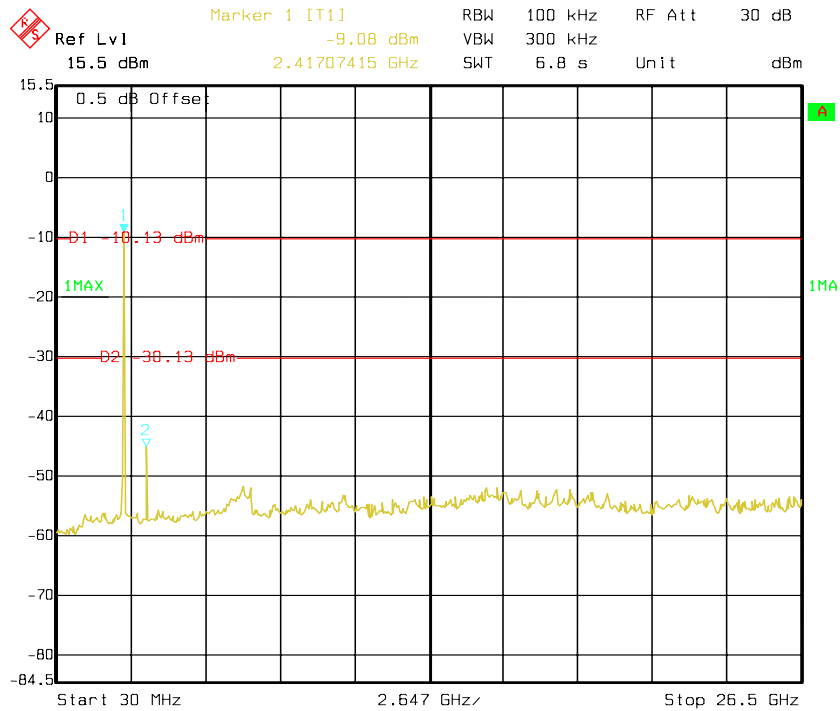
### Chain 1:802.11n20 High Channel



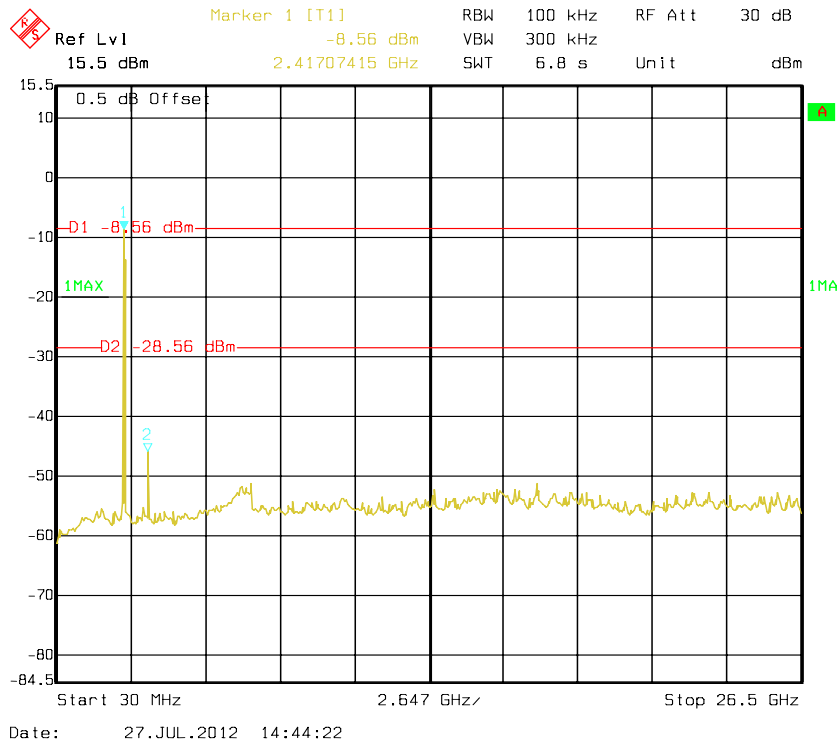
### Chain 1:802.11n40 Low Channel



### Chain 1:802.11n40 Middle Channel



### Chain 1:802.11n40 High Channel

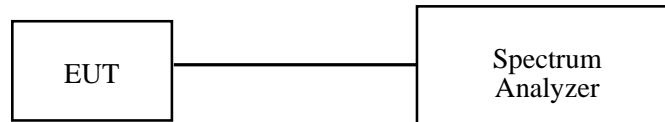


**FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH****Applicable Standard**

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

**Test Procedure**

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

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

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

**Test Data****Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0kPa

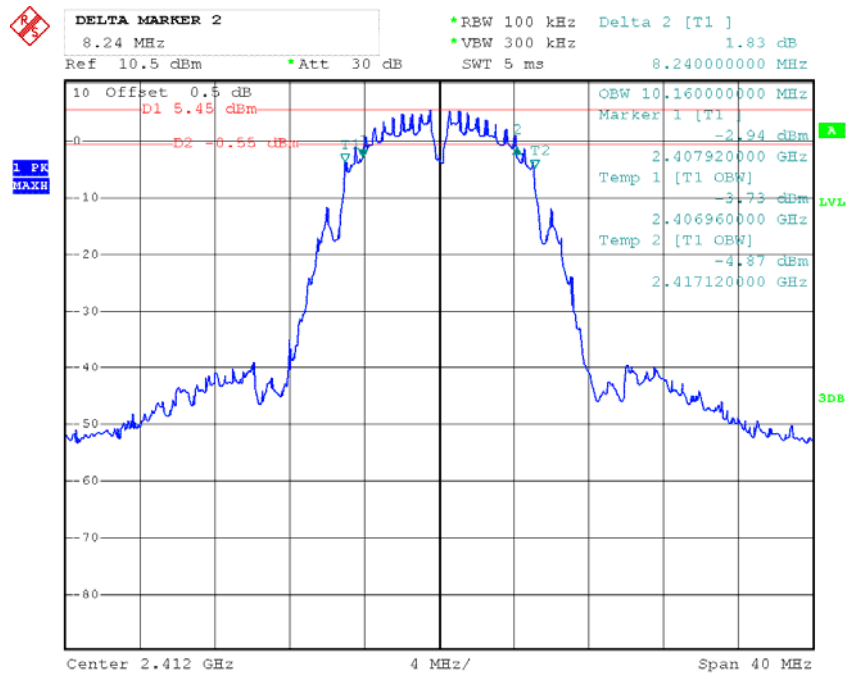
*The testing was performed by Ares Liu on 2012-07-25.*

**Test Result:** Pass.

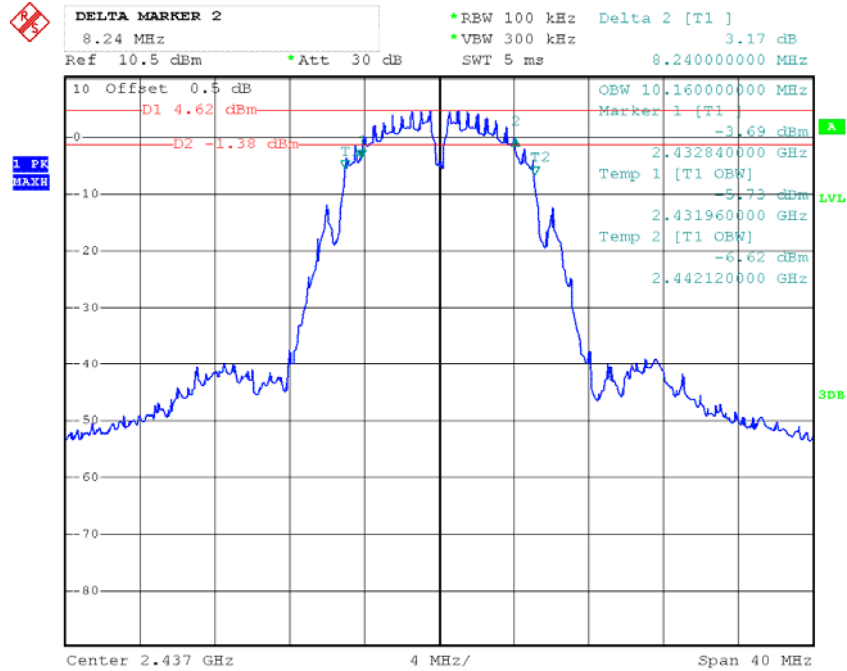
Please refer to the following tables and plots.

Channel	Frequency	6 dB Bandwidth	Limit
	(MHz)	(MHz)	(kHz)
chain 0:802.11b mode			
Low	2412	8.24	>500
Middle	2437	8.24	>500
High	2462	8.24	>500
chain 0:802.11g mode			
Low	2412	15.68	>500
Middle	2437	15.92	>500
High	2462	16.08	>500
chain 0:802.11n20 mode			
Low	2412	17.36	>500
Middle	2437	17.36	>500
High	2462	17.36	>500
chain 0:802.11n40 mode			
Low	2422	36.8	>500
Middle	2437	36.8	>500
High	2452	36.8	>500
chain 1:802.11n20 mode			
Low	2412	17.36	>500
Middle	2437	17.36	>500
High	2462	17.36	>500
chain 1:802.11n40 mode			
Low	2422	36.32	>500
Middle	2437	36.32	>500
High	2452	36.32	>500

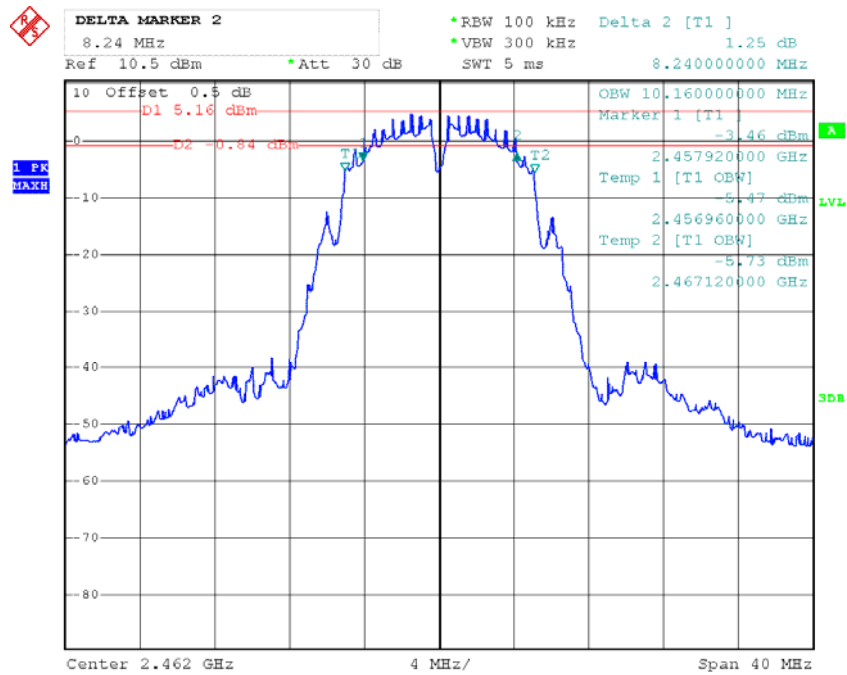
### 802.11b Low Channel



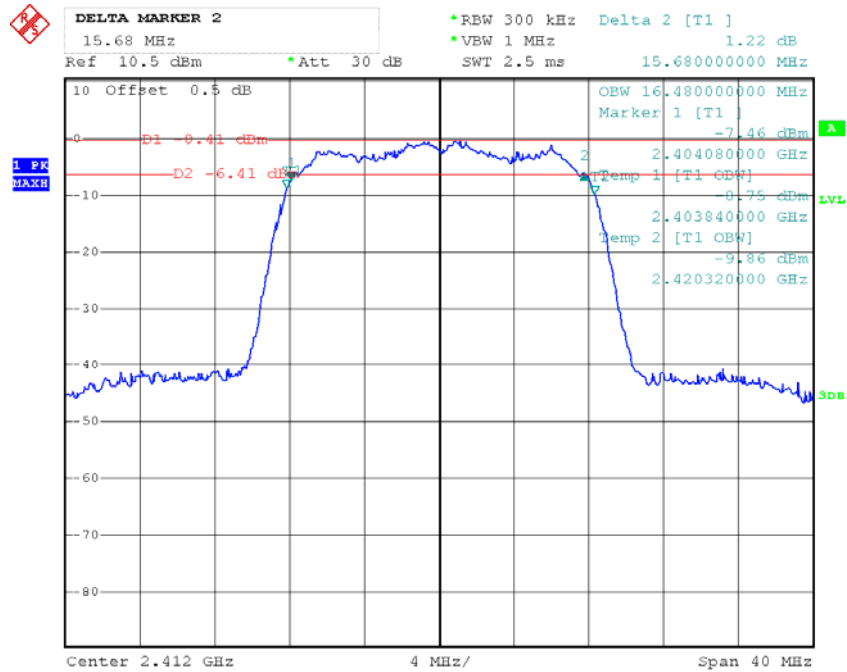
### 802.11b Middle Channel



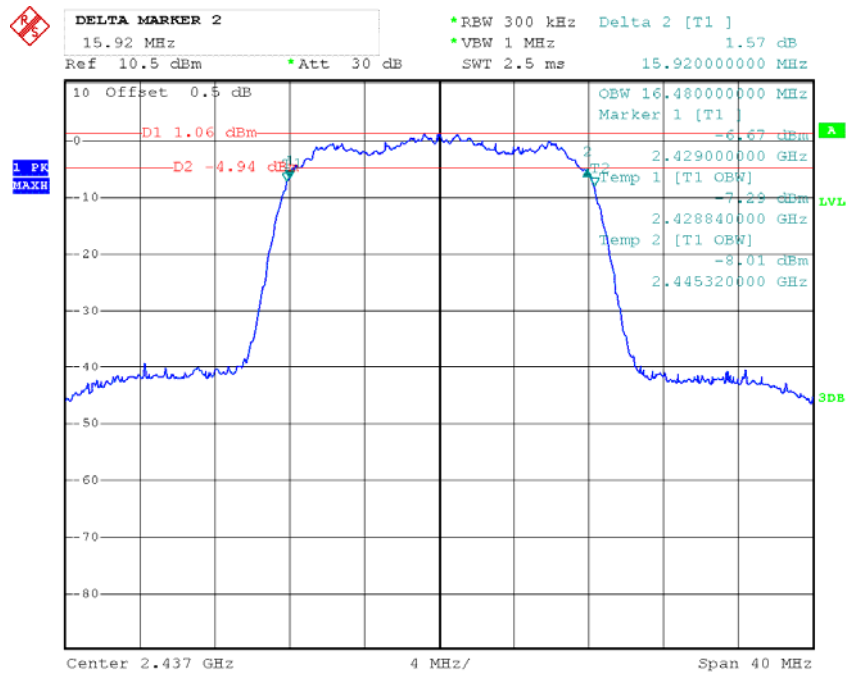
### 802.11b High Channel



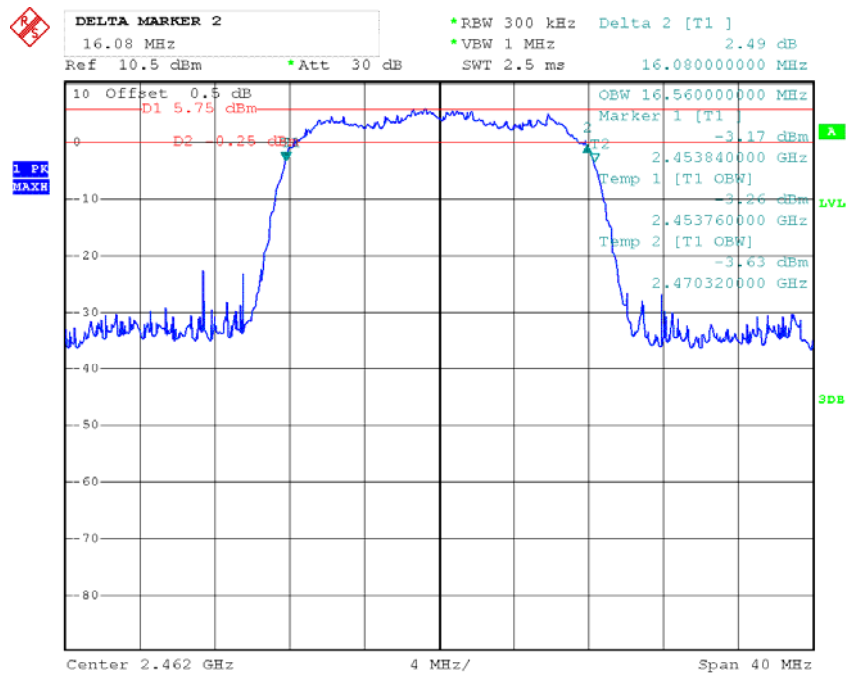
### 802.11g Low Channel



### 802.11g Middle Channel

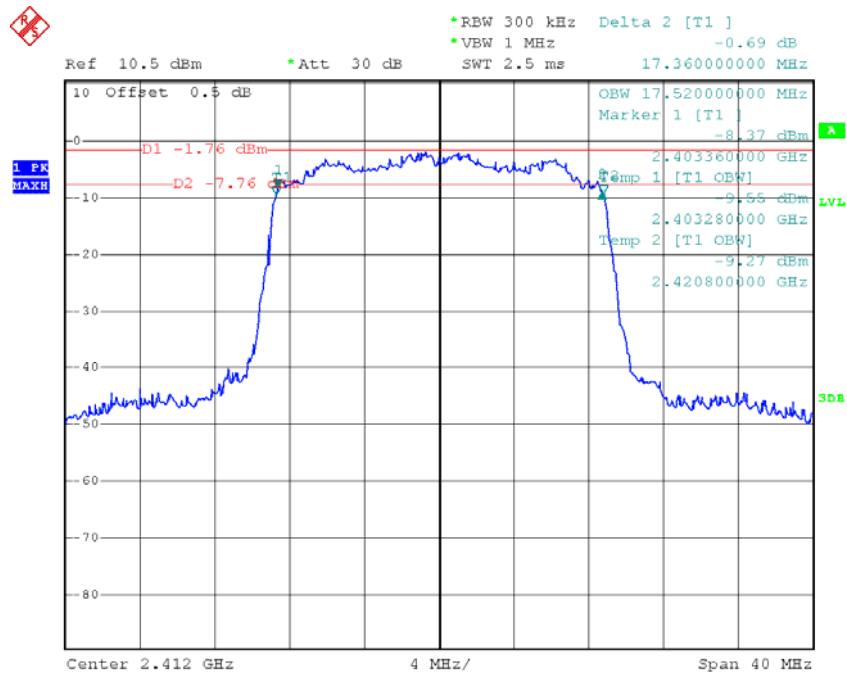


### 802.11g High Channel

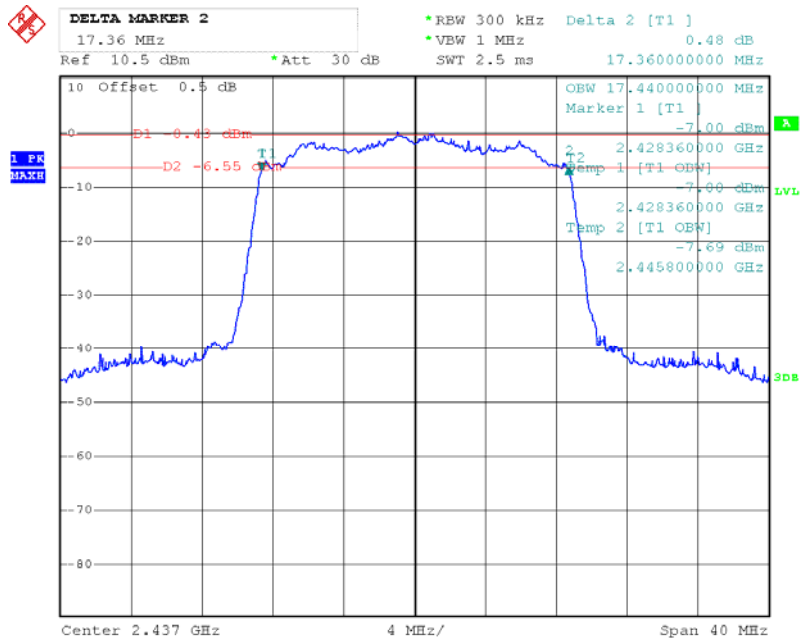




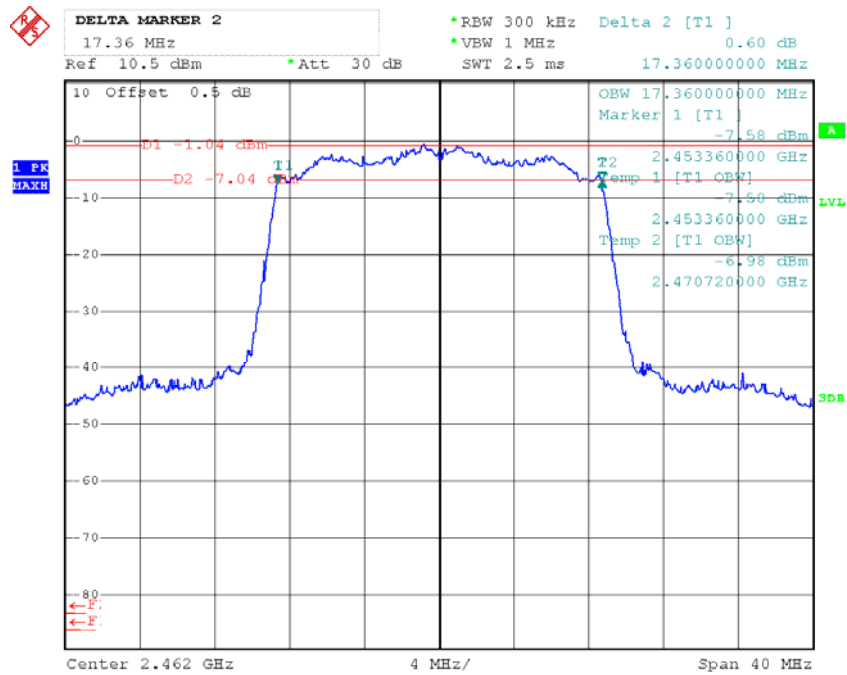
### Chain0:802.11n20 Low Channel



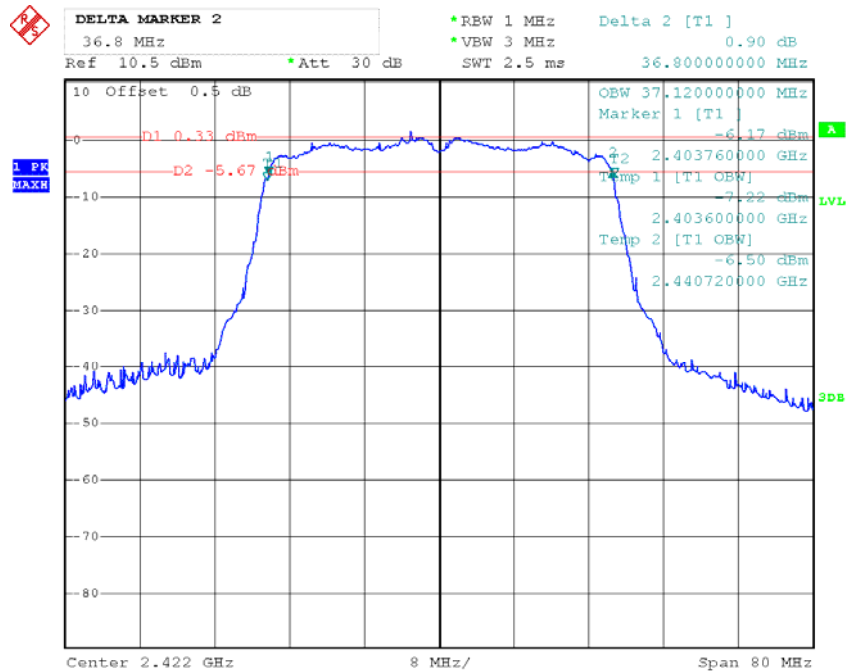
### Chain0:802.11n20 Middle Channel



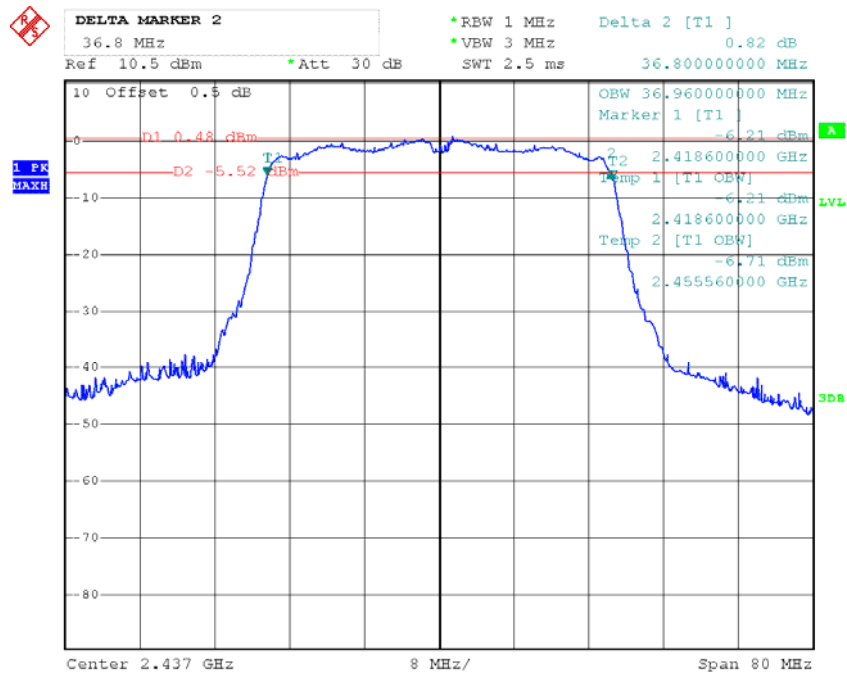
### Chain0:802.11n20 High Channel



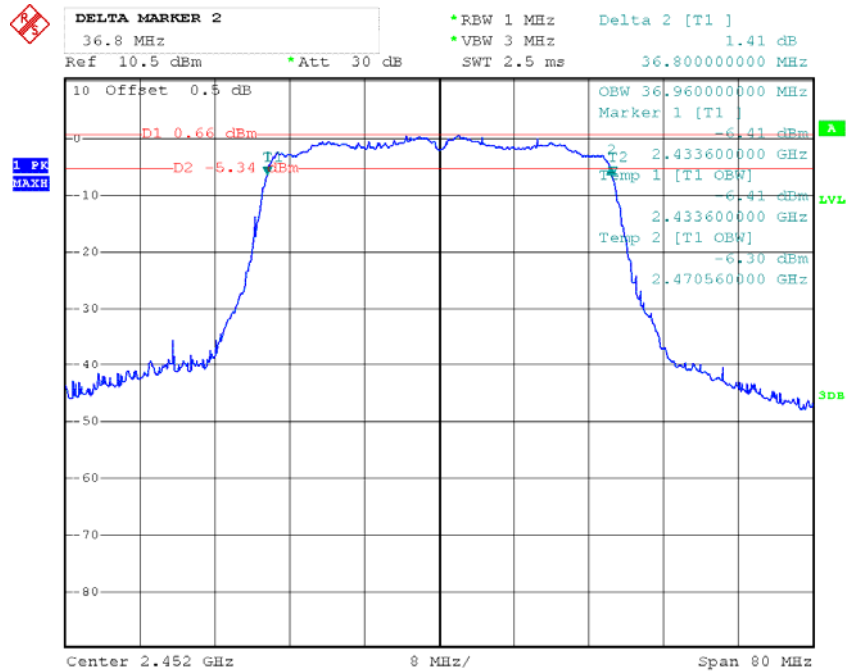
### Chain0:802.11n40 Low Channel



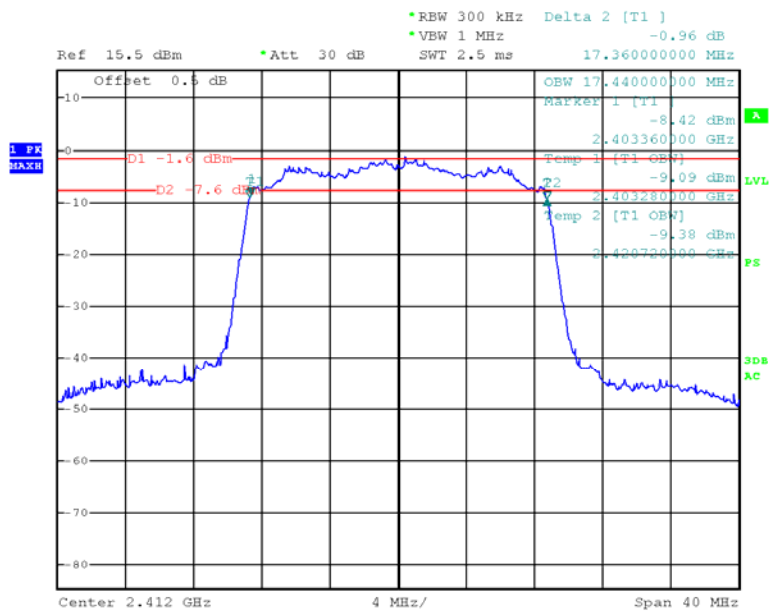
### Chain0:802.11n40 Middle Channel



### Chain0:802.11n40 High Channel

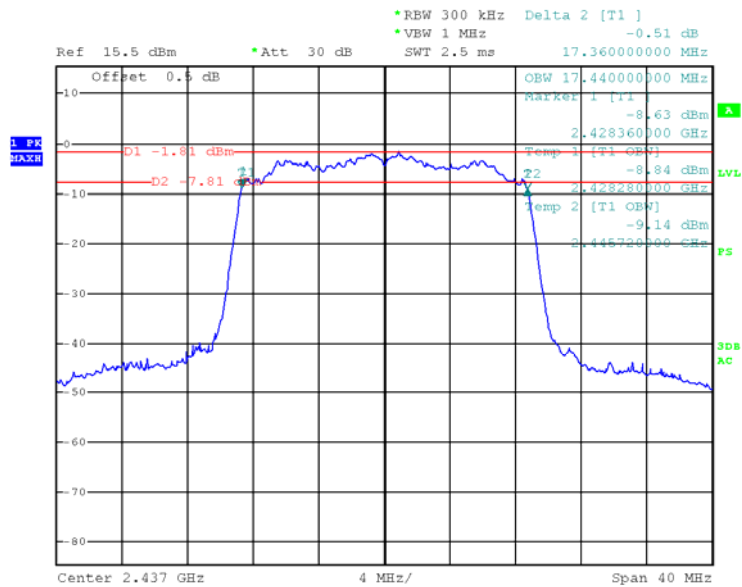


### Chain1:802.11n20 Low Channel



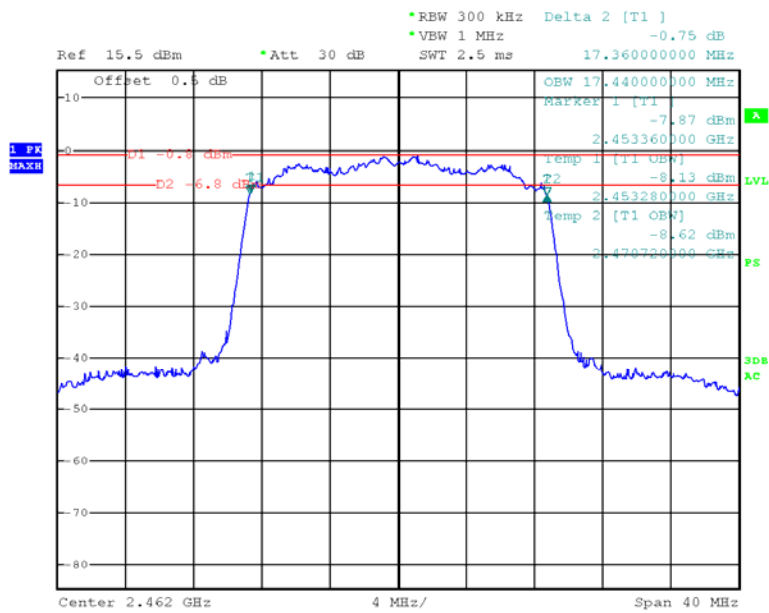
Date: 27.JUL.2012 13:43:14

### Chain1:802.11n20 Middle Channel



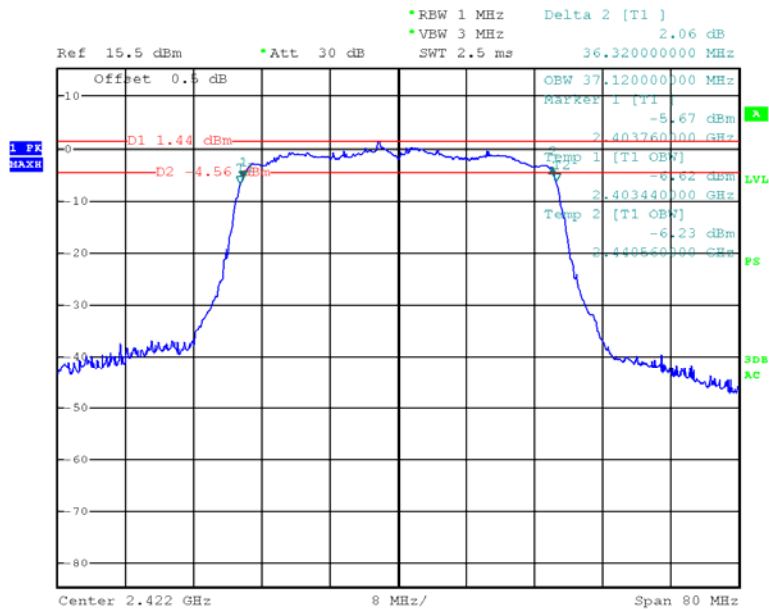
Date: 27.JUL.2012 13:50:16

### Chain1:802.11n20 High Channel



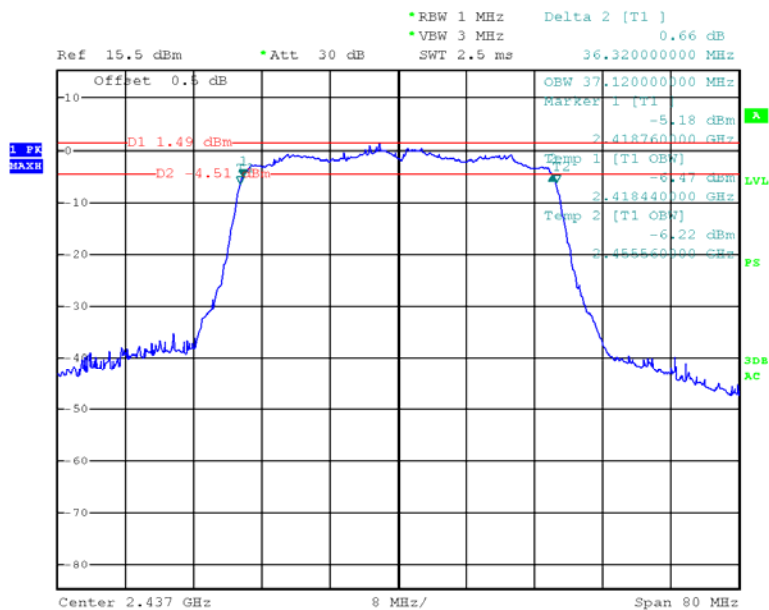
Date: 27.JUL.2012 13:54:15

### Chain1:802.11n40 Low Channel



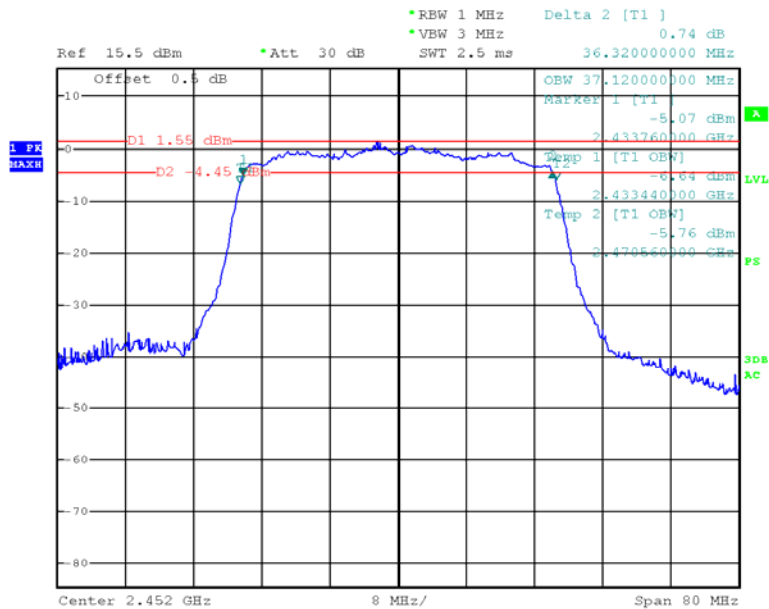
Date: 27.JUL.2012 13:37:45

## Chain1:802.11n40 Middle Channel



Date: 27.JUL.2012 13:33:59

## Chain1:802.11n40 High Channel



Date: 27.JUL.2012 13:28:35

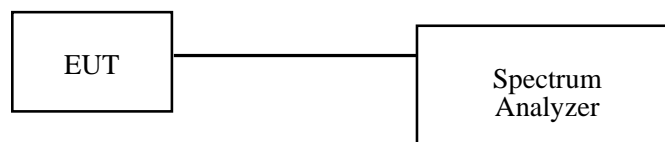
## FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

### Applicable Standard

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

### Test Procedure

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



### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

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

### Test Data

#### Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

*The testing was performed by Ares Liu on 2012-07-25.*

*Test Mode: Transmitting*

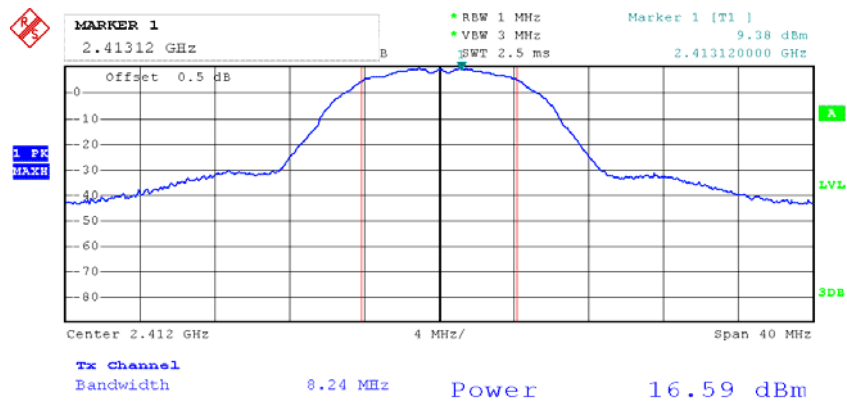
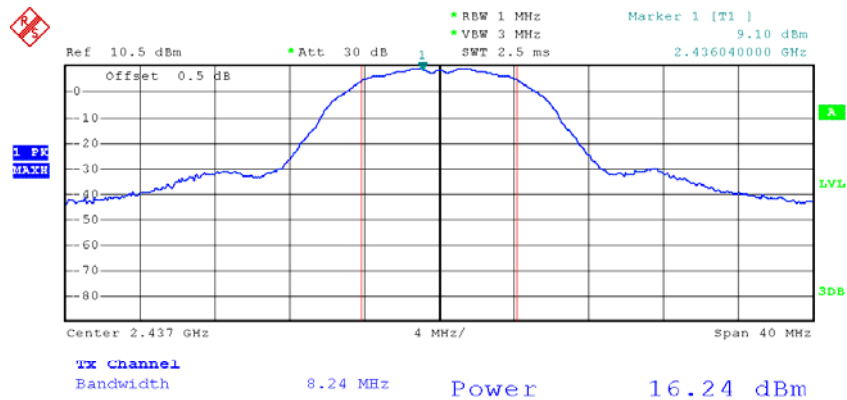
Channel	Frequency	Conducted Output Power	Limit	Result
	(MHz)	(dBm)	(dBm)	
chain 0:802.11b mode				
Low	2412	16.59	30	PASS
Middle	2437	16.24	30	PASS
High	2462	16.15	30	PASS
chain 0:802.11g mode				
Low	2412	15.26	30	PASS
Middle	2437	15.19	30	PASS
High	2462	15.26	30	PASS
chain 0:802.11n20 mode				
Low	2412	13.69	30	PASS
Middle	2437	13.31	30	PASS
High	2462	13.22	30	PASS
chain 1:802.11n20 mode				
Low	2412	13.32	30	PASS
Middle	2437	13.18	30	PASS
High	2462	13.38	30	PASS
chain 0:802.11n40 mode				
Low	2422	13.32	30	PASS
Middle	2437	13.33	30	PASS
High	2452	13.31	30	PASS
chain 1:802.11n40 mode				
Low	2422	13.17	30	PASS
Middle	2437	13.44	30	PASS
High	2452	13.35	30	PASS
Total:802.11n20 mode				
Low	2412	16.52	30	PASS
Middle	2437	16.26	30	PASS
High	2462	16.31	30	PASS
Total:802.11n40 mode				
Low	2422	16.26	30	PASS
Middle	2437	16.40	30	PASS
High	2452	16.34	30	PASS

Note:

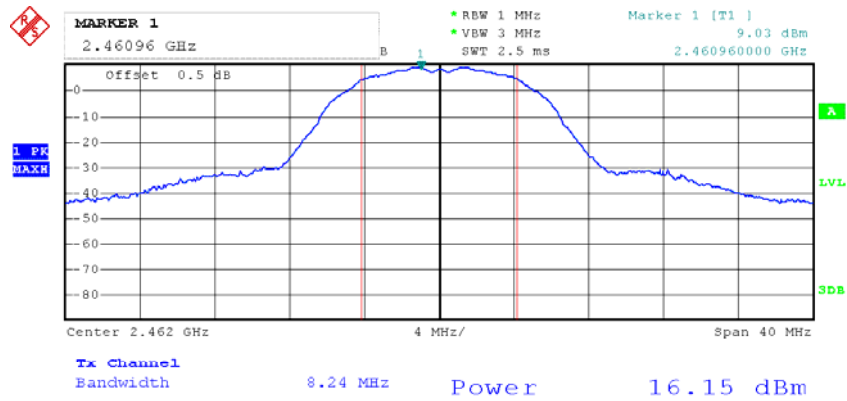
The antenna gain is 5.13 dBi.

Please refer to the following plots

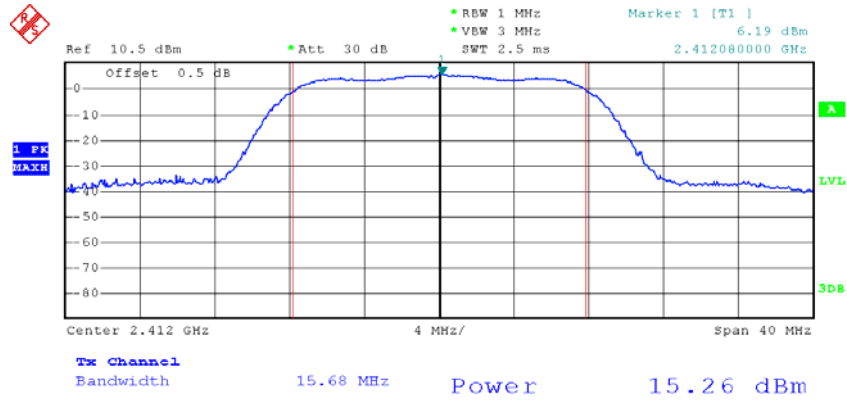


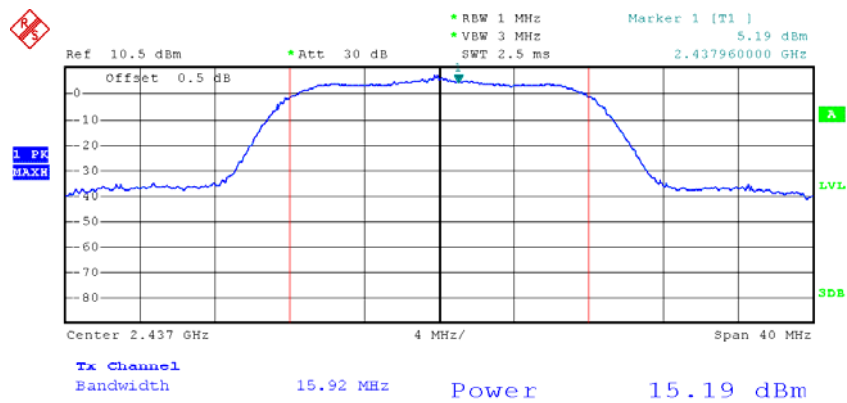
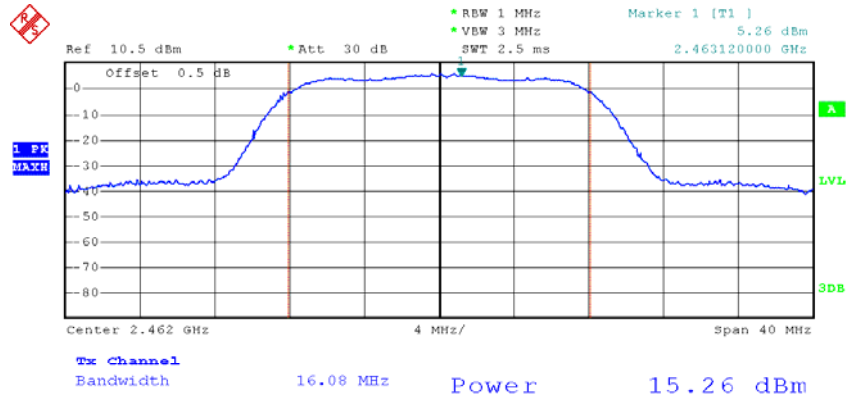
**802.11b RF Output Power, Low Channel****802.11b RF Output Power, Middle Channel**

### 802.11b RF Output Power, High Channel

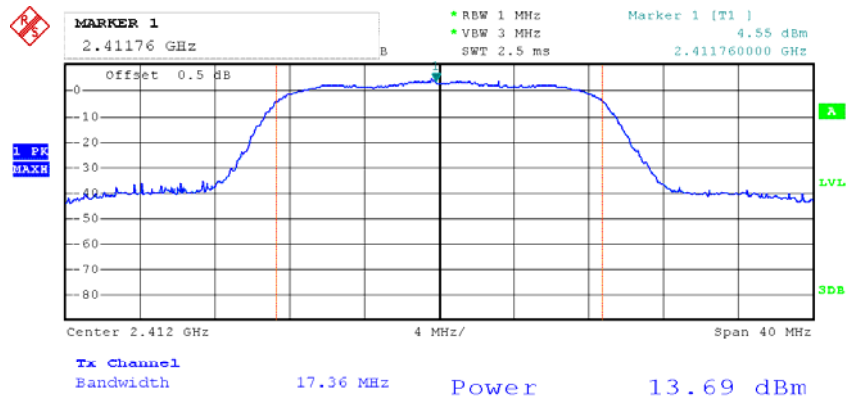


### 802.11g RF Output Power, Low Channel

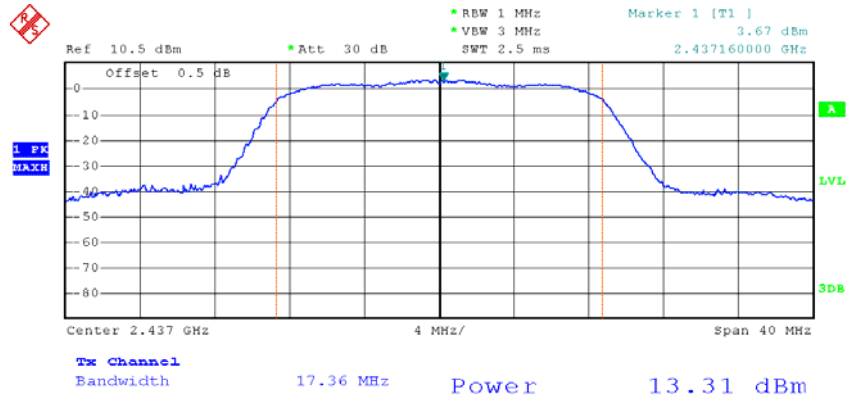


**802.11g RF Output Power, Middle Channel****802.11g RF Output Power, High Channel**

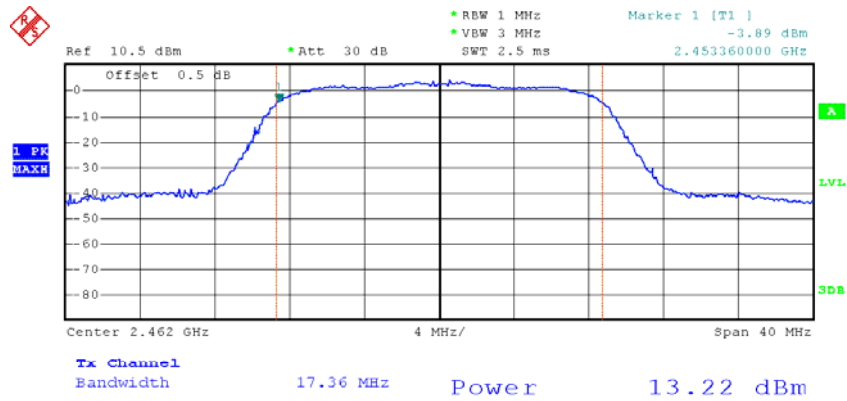
### Chain0:802.11n20 RF Output Power, Low Channel



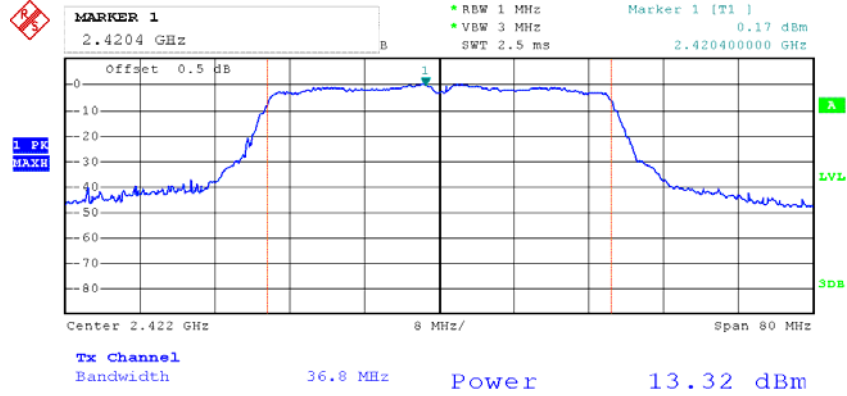
### Chain0:802.11n20 RF Output Power, Middle Channel



### Chain0:802.11n20 RF Output Power, High Channel

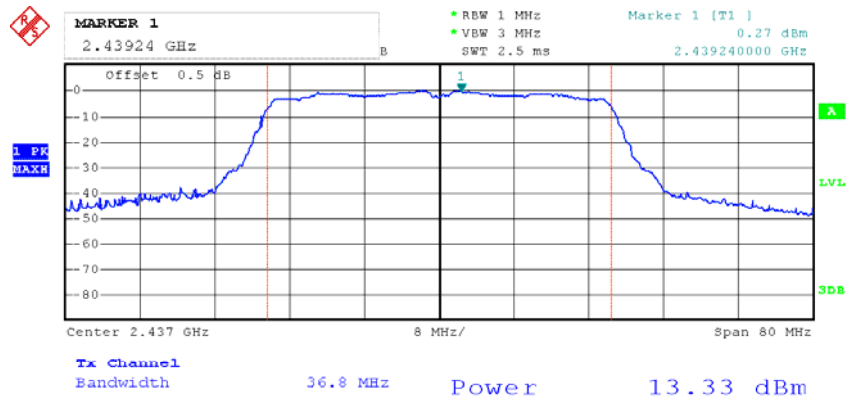


### Chain0:802.11n40 RF Output Power, Low Channel

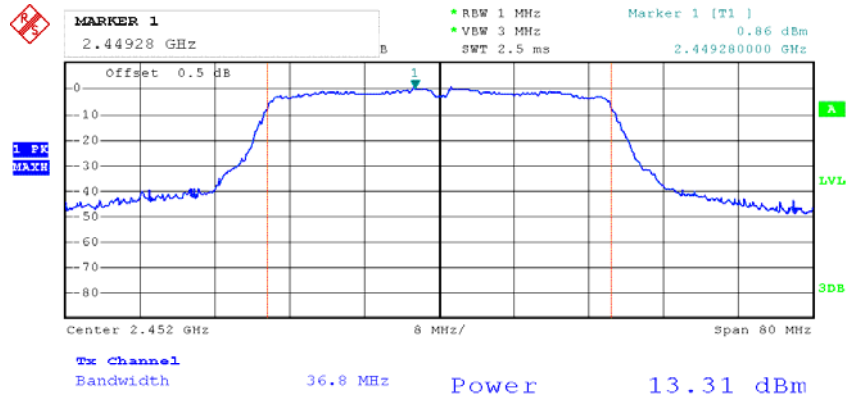


Date: 1.JAN.2000 05:13:00

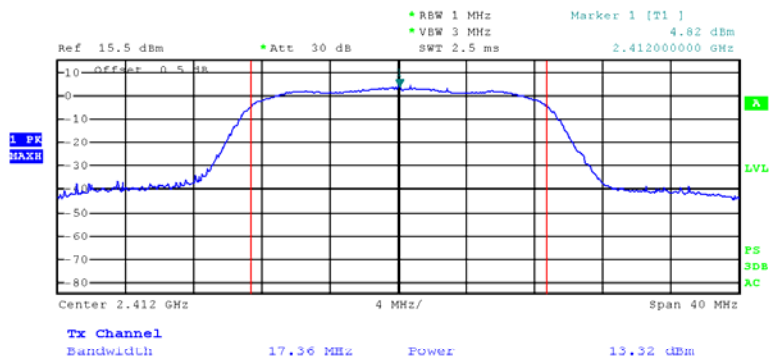
### Chain0:802.11n40 RF Output Power, Middle Channel



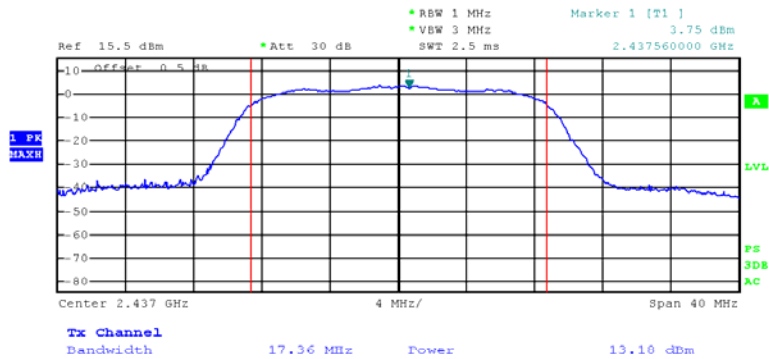
### Chain0:802.11n40 RF Output Power, High Channel



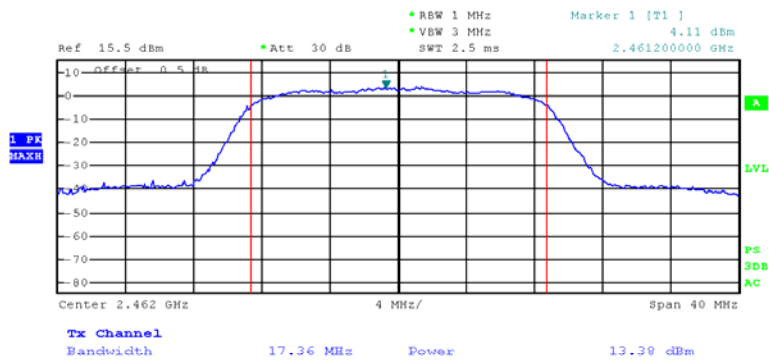
### Chain1:802.11n20 RF Output Power, Low Channel



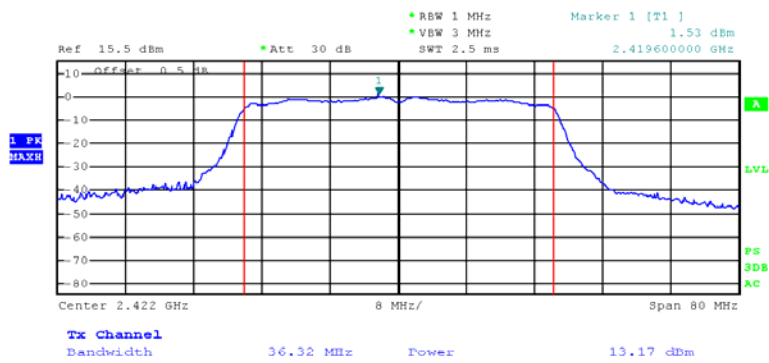
### Chain1:802.11n20 RF Output Power, Middle Channel



### Chain1:802.11n20 RF Output Power, High Channel

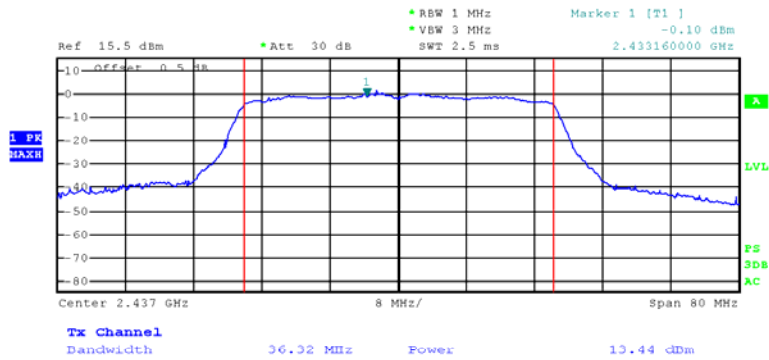


### Chain1:802.11n40 RF Output Power, Low Channel

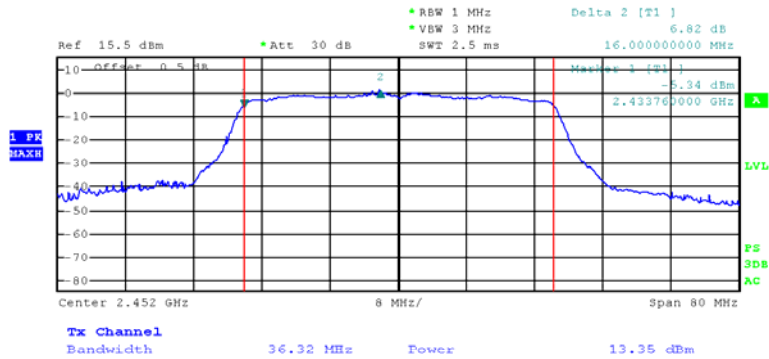




### Chain1:802.11n40 RF Output Power, Middle Channel



### Chain1:802.11n40 RF Output Power, High Channel



**FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE****Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

**Test Procedure**

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

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

**Test Data****Environmental Conditions**

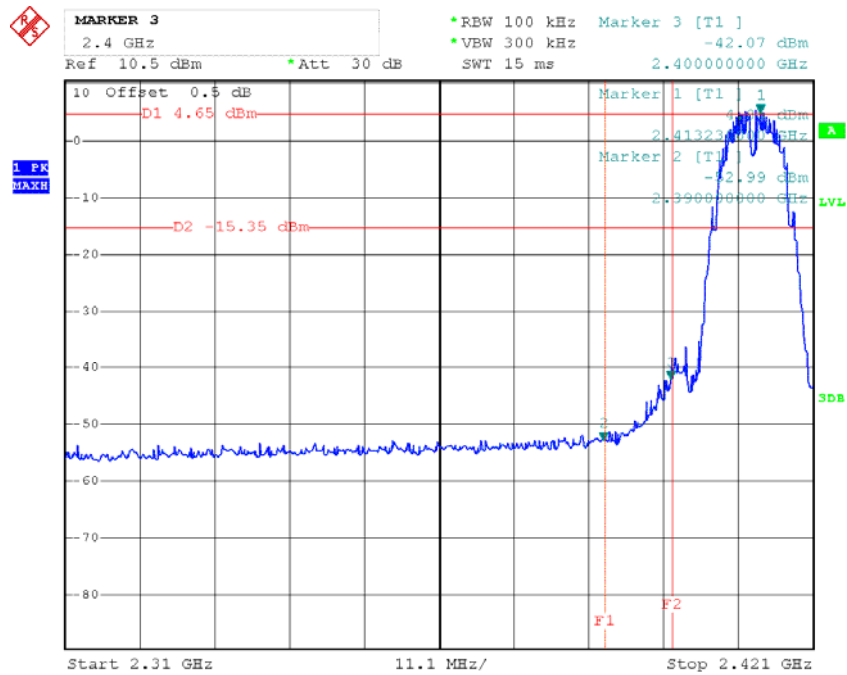
Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

*The testing was performed by Ares Liu on 2012-07-27.*

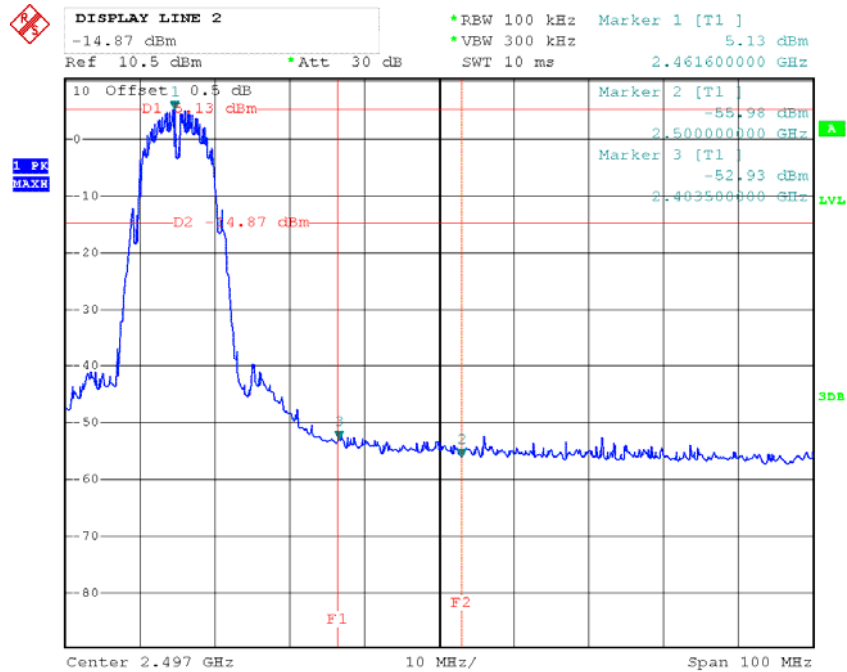
**Test Result: Compliance**

Please refer to following plots.

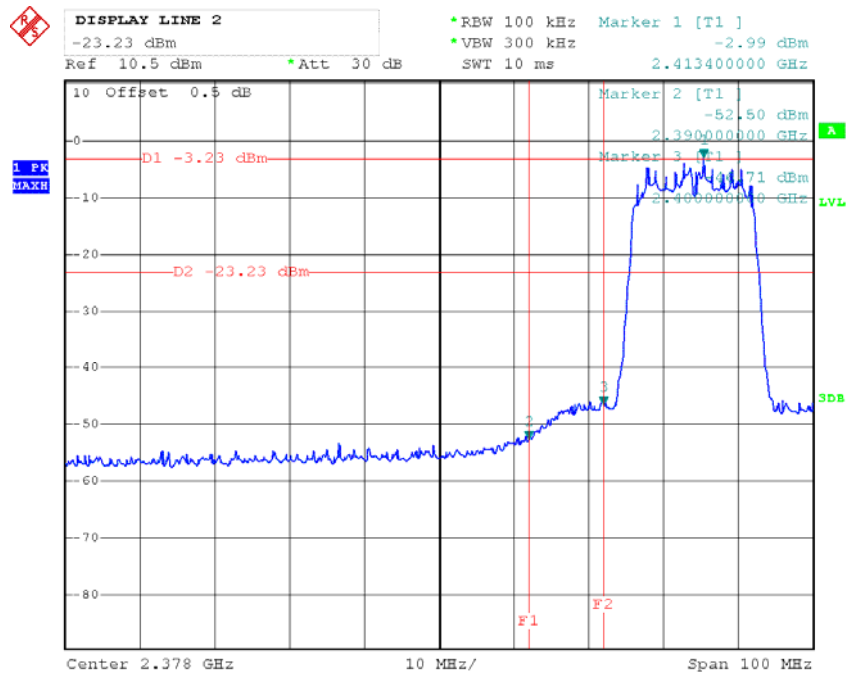
### 802.11b: Band Edge, Left Side



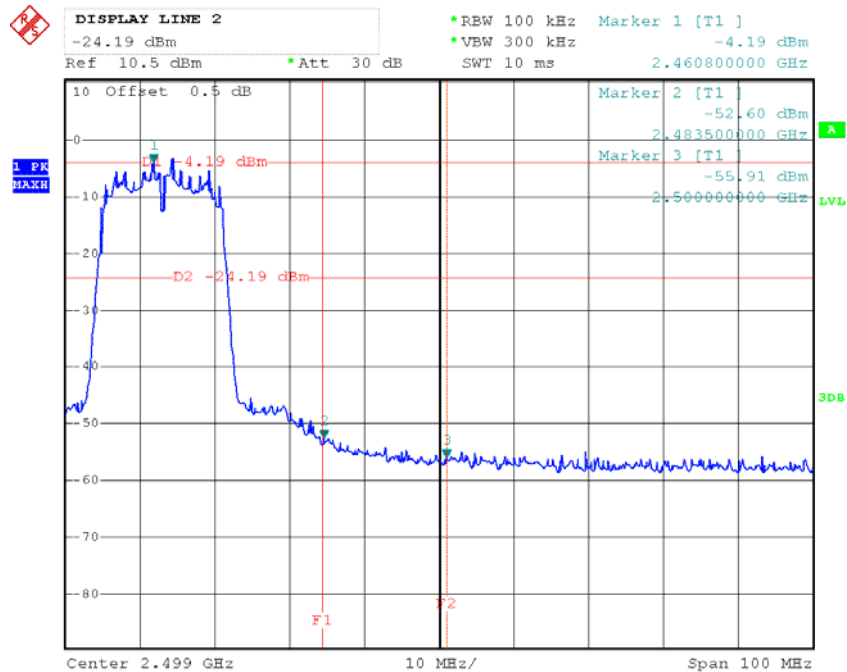
### 802.11b: Band Edge, Right Side



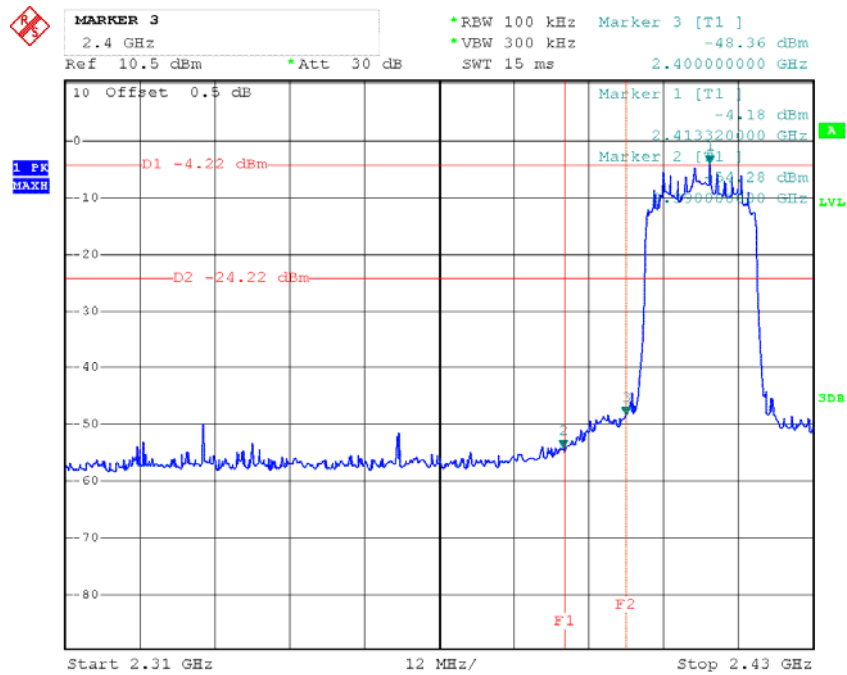
### 802.11g: Band Edge, Left Side



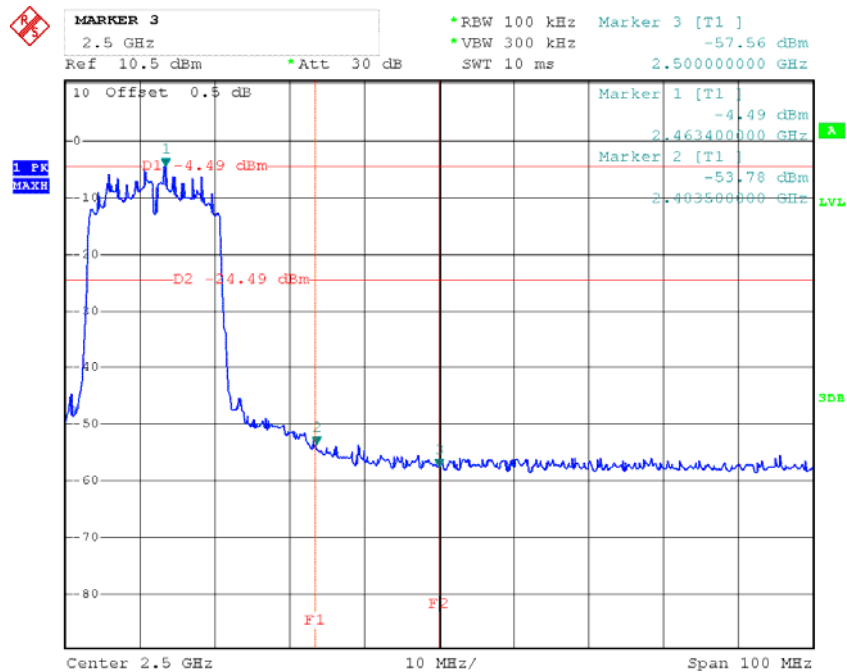
### 802.11g: Band Edge, Right Side



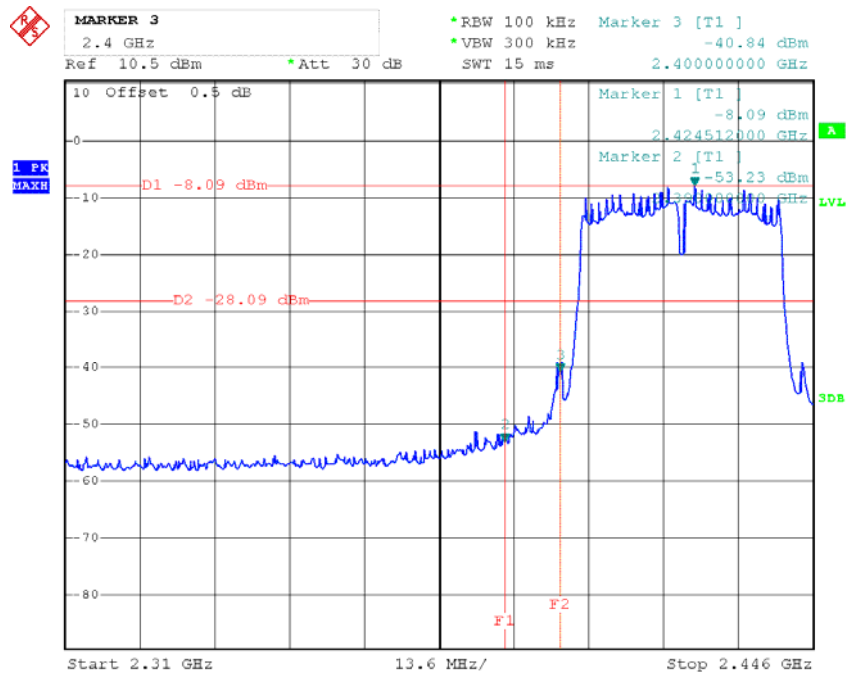
### Chain0:802.11n20: Band Edge, Left Side



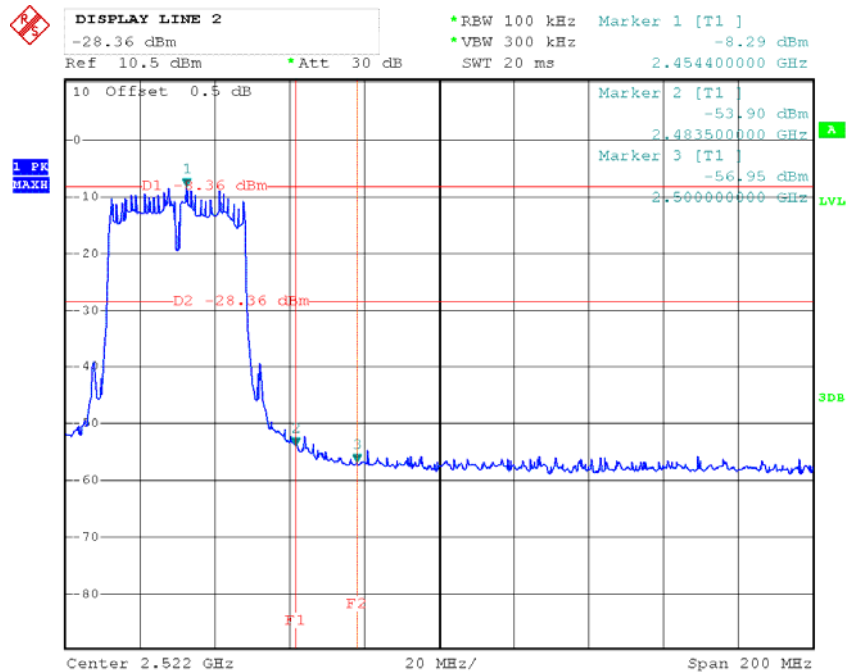
### Chain0:802.11n20: Band Edge, Right Side



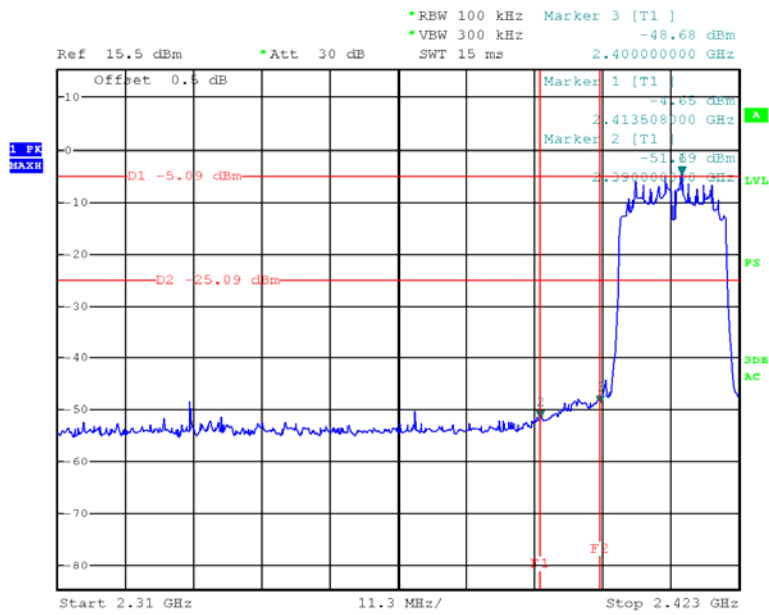
### Chain0:802.11n40: Band Edge, Left Side



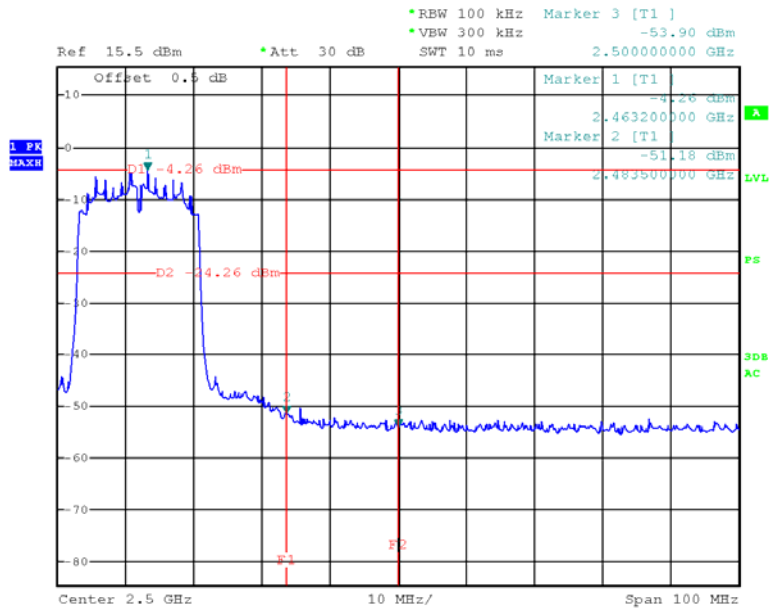
### Chain0:802.11n40: Band Edge, Right Side



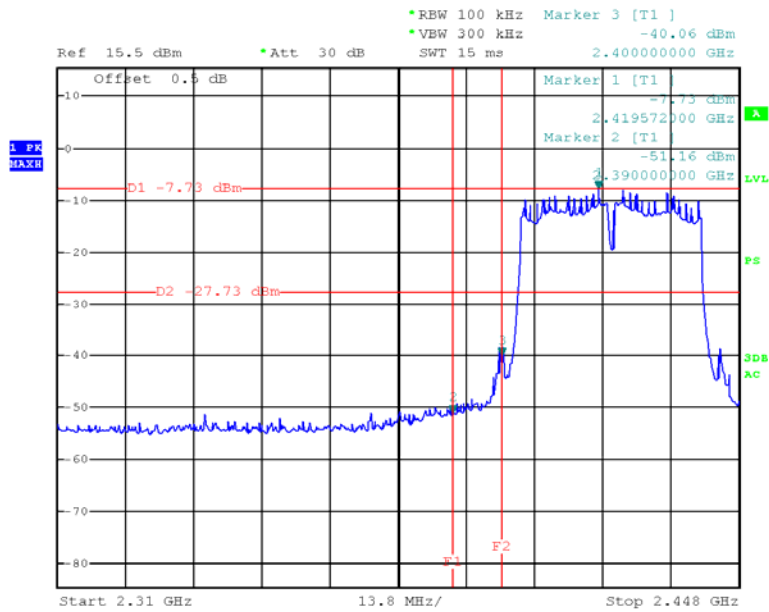
### Chain1:802.11n20: Band Edge, Left Side



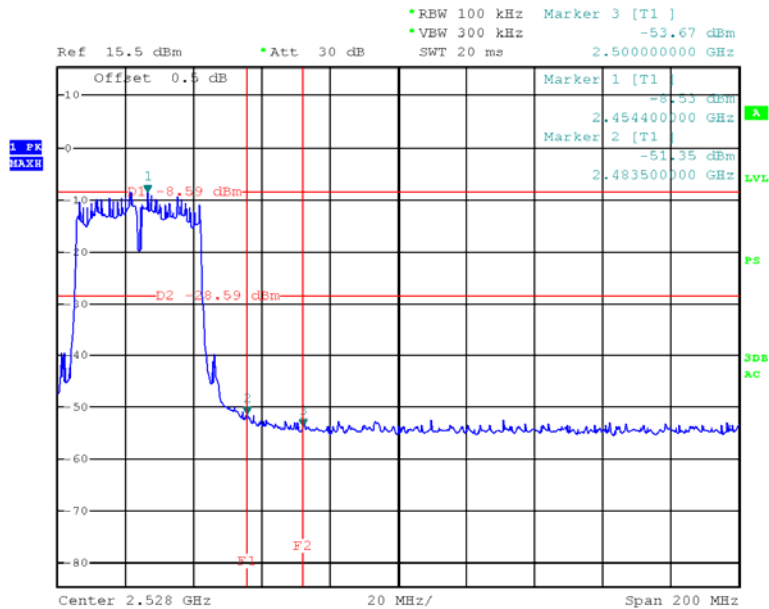
### Chain1:802.11n20: Band Edge, Right Side



### Chain1:802.11n40: Band Edge, Left Side



### Chain1:802.11n40: Band Edge, Right Side





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

### Applicable Standard

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

### Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. According to KDB 558074 D01 DTS Meas Guidance v01, set the RBW = 100 kHz, VBW  $\geq$  300 kHz, set the span to 5-30 % greater than the EBW.
4. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
5. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$ .

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

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

### Test Data

#### Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

*The testing was performed by Ares Liu on 2012-07-27.*

*Test Mode: Transmitting*

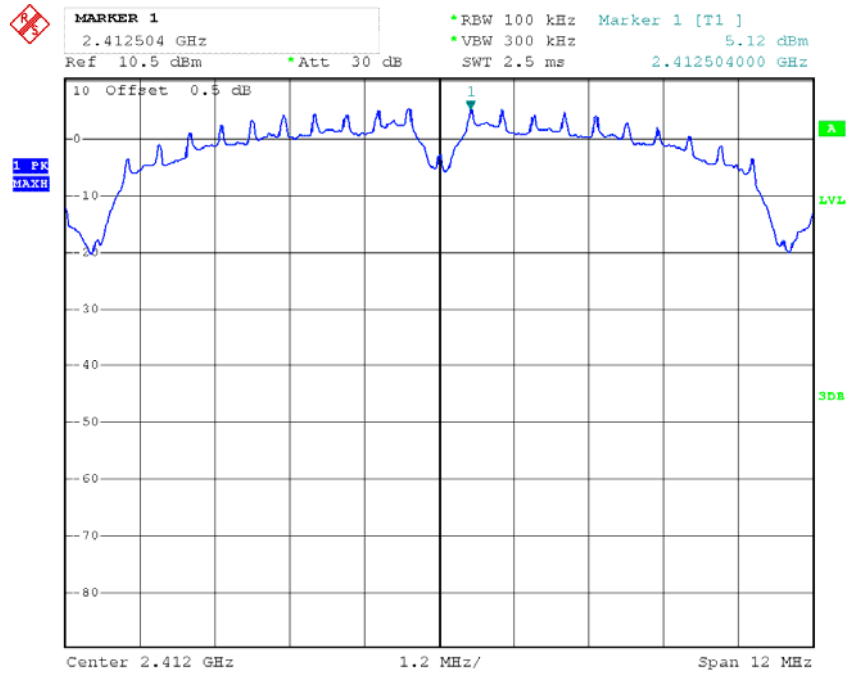
**Test Result:** Pass

Channel	Reading Level	PSD	Limit	Result
	(dBm/100kHz)	(dBm/3kHz)	(dBm/3kHz)	
Chain 0:802.11b mode				
Low	5.12	-10.08	8	PASS
Middle	4.35	-10.85	8	PASS
High	4.73	-10.47	8	PASS
Chain 0:802.11g mode				
Low	-2.91	-18.11	8	PASS
Middle	-3.87	-19.07	8	PASS
High	-3.84	-19.04	8	PASS
Chain 0:802.11n20 mode				
Low	-4.47	-19.67	8	PASS
Middle	-4.5	-19.7	8	PASS
High	-4.82	-20.02	8	PASS
Chain 1:802.11n20 mode				
Low	-4.5	-19.7	8	PASS
Middle	-5.96	-21.16	8	PASS
High	-4.19	-19.39	8	PASS
Chain 0:802.11n40 mode				
Low	-8.24	-23.44	8	PASS
Middle	-8.29	-23.49	8	PASS
High	-8.31	-23.51	8	PASS
Chain 1:802.11n40 mode				
Low	-8.39	-23.59	8	PASS
Middle	-8.4	-23.6	8	PASS
High	-8.46	-23.66	8	PASS

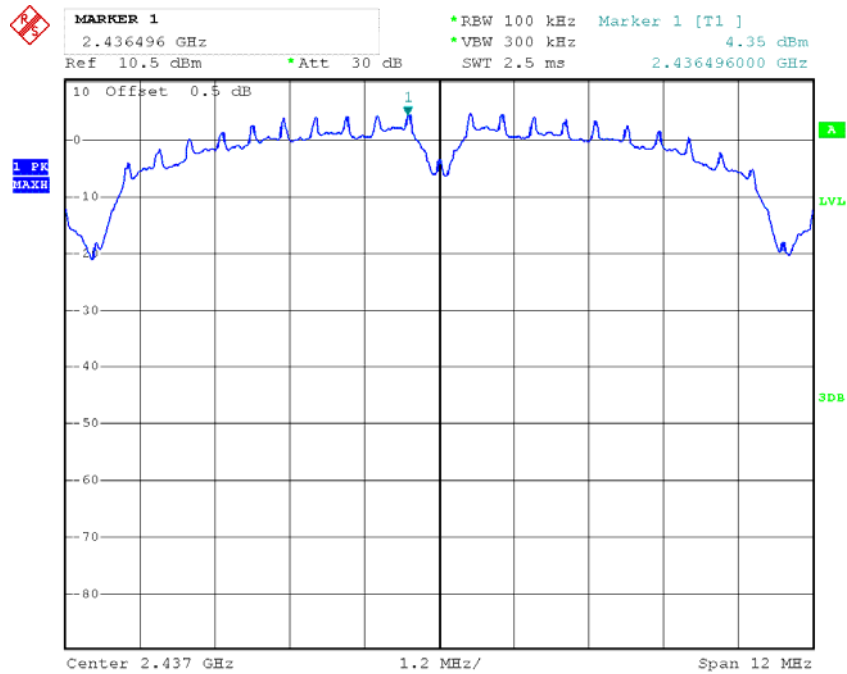
**Note:** the antenna gain is 5.13 dBi.

Please refer to the following plots

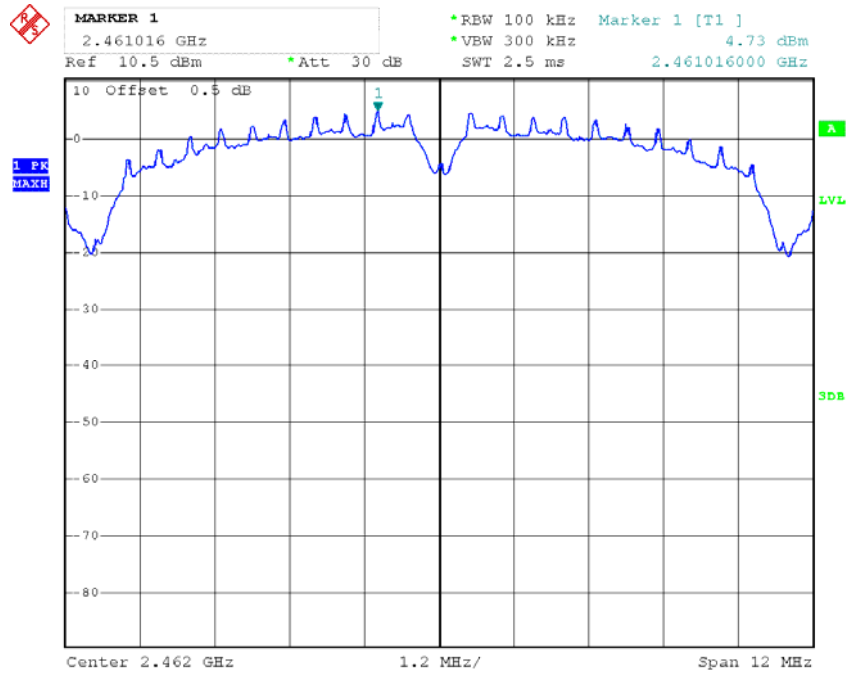
### Power Spectral Density, 802.11b Low Channel



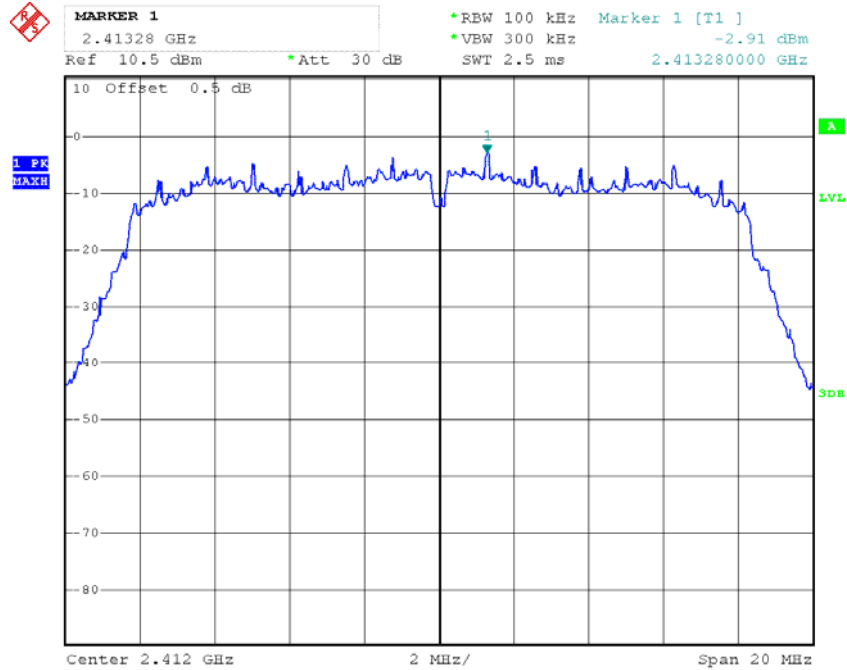
### Power Spectral Density, 802.11b Middle Channel



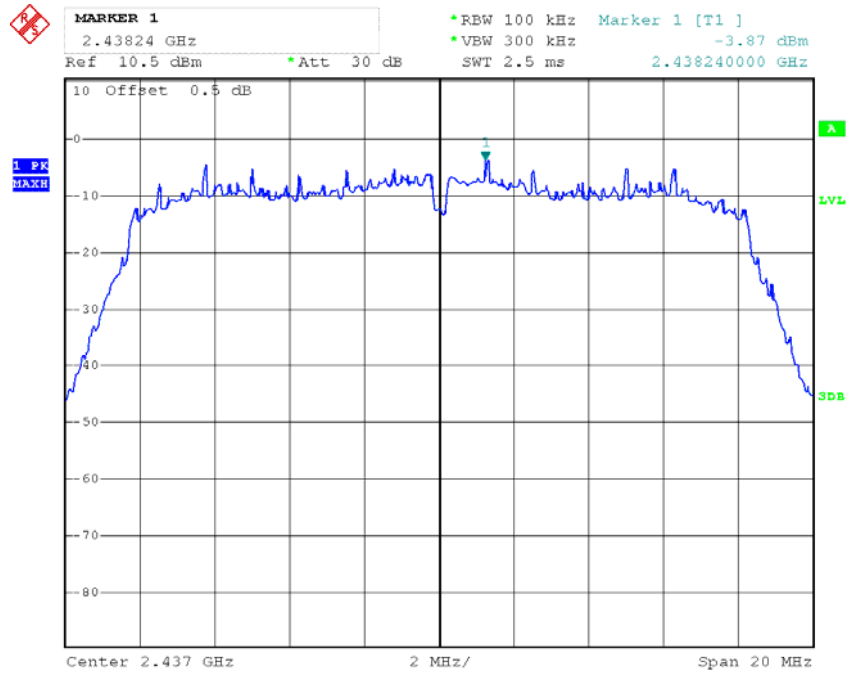
### Power Spectral Density, 802.11b High Channel



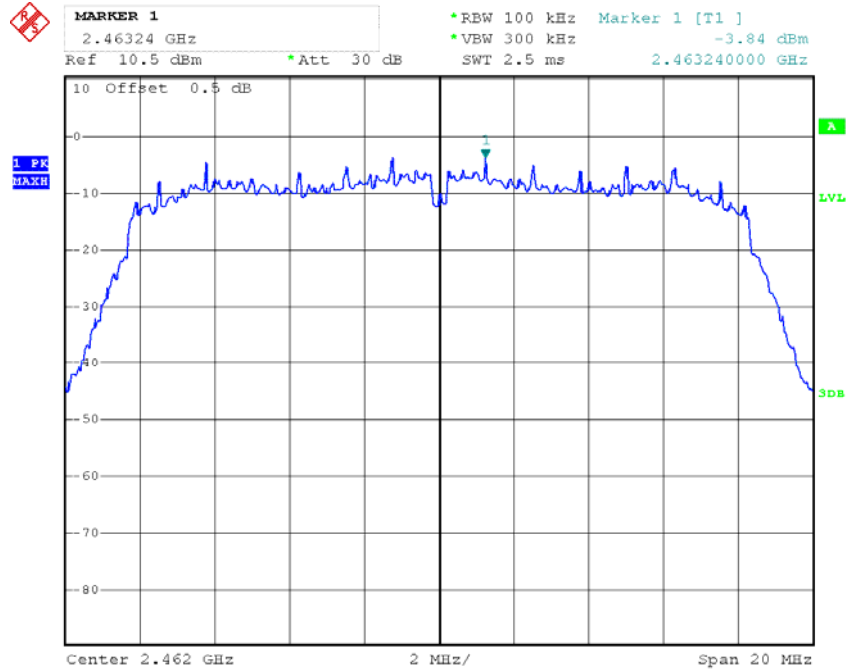
### Power Spectral Density, 802.11g Low Channel



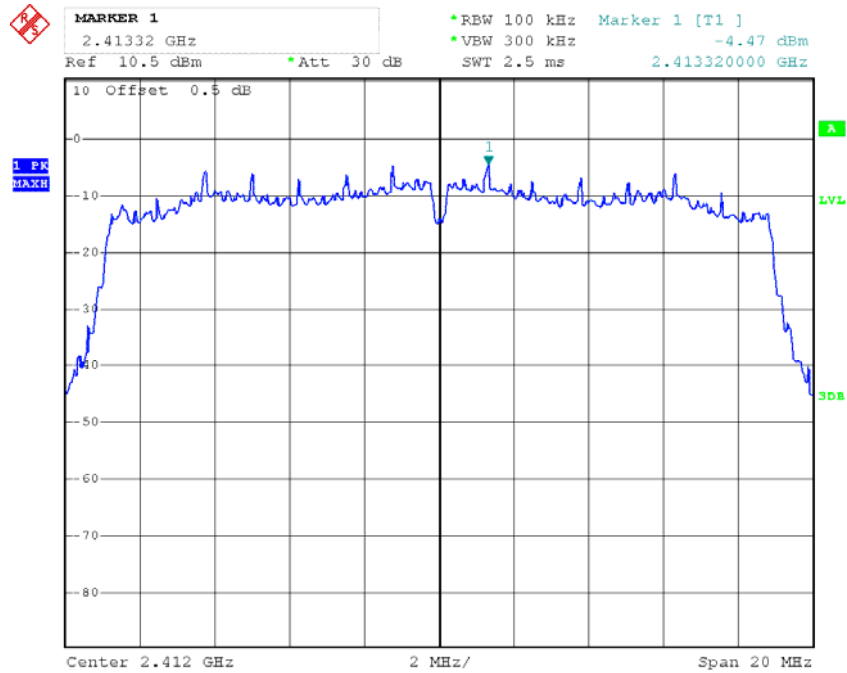
### Power Spectral Density, 802.11g Middle Channel



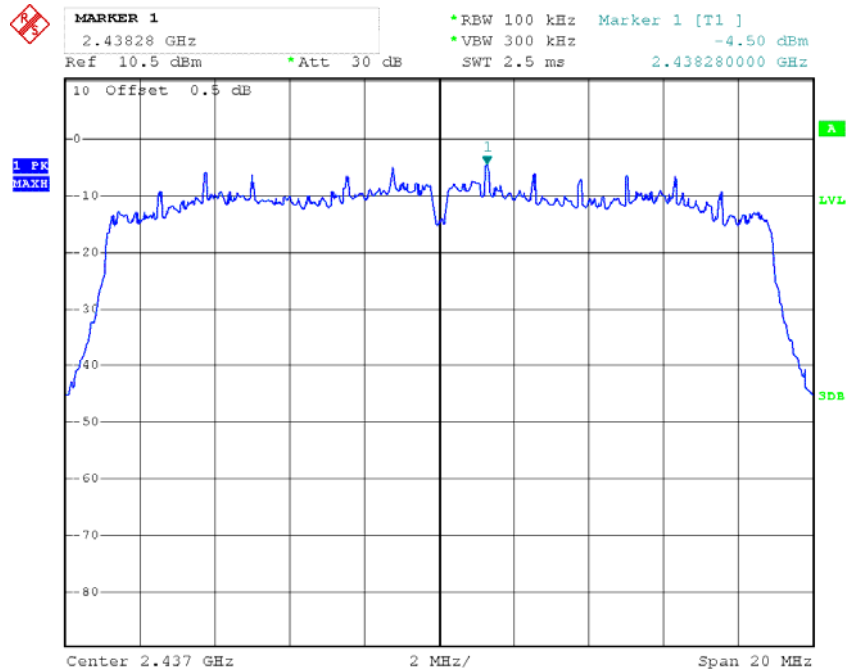
### Power Spectral Density, 802.11g High Channel



### Chain0:Power Spectral Density, 802.11n20 Low Channel



### Chain0:Power Spectral Density, 802.11n20 Middle Channel



MARKER 1  
2.46328 GHz

Ref 10.5 dBm \*Att 30 dB

\*RBW 100 kHz Marker 1 [T1]  
\*VBW 300 kHz -4.82 dBm  
SWT 2.5 ms 2.463280000 GHz

10 Offset 0.5 dB

1 PK MAXH

1

30dB

Center 2.462 GHz 2 MHz/ Span 20 MHz

MARKER 1  
2.41948 GHz

Ref 10.5 dBm \* Att 30 dB

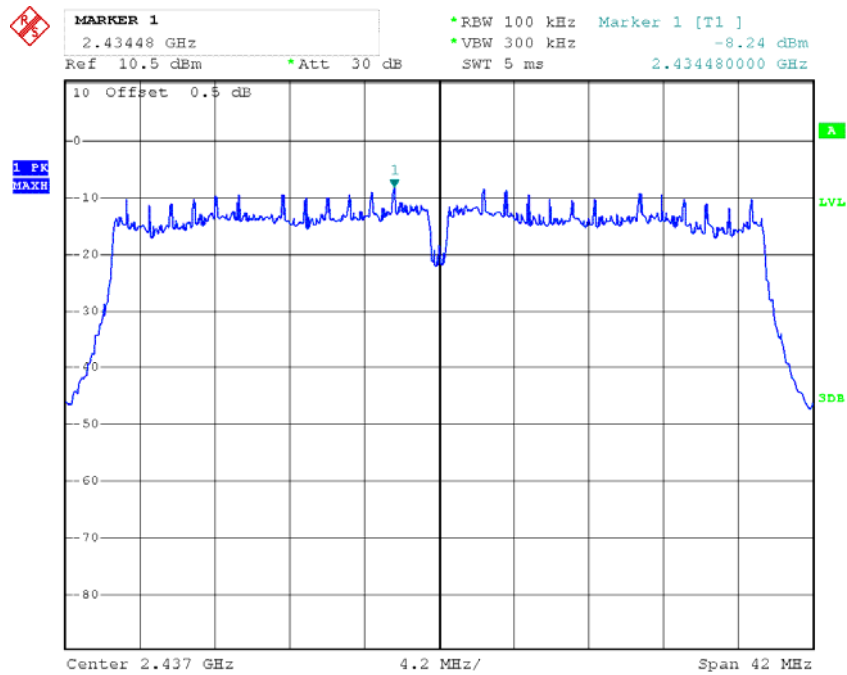
\* RBW 100 kHz Marker 1 [T1]  
\* VBW 300 kHz -8.29 dBm  
SWT 5 ms 2.419480000 GHz

10 Offset 0.5 dB

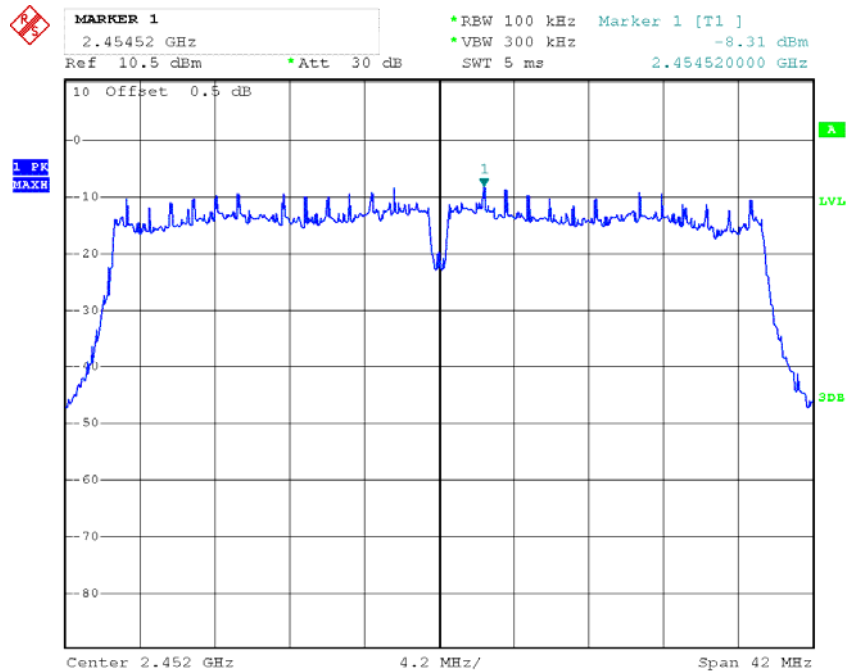
1 PK MAX

Center 2.422 GHz 4.2 MHz/ Span 42 MHz

### Chain0:Power Spectral Density, 802.11n40 Middle Channel

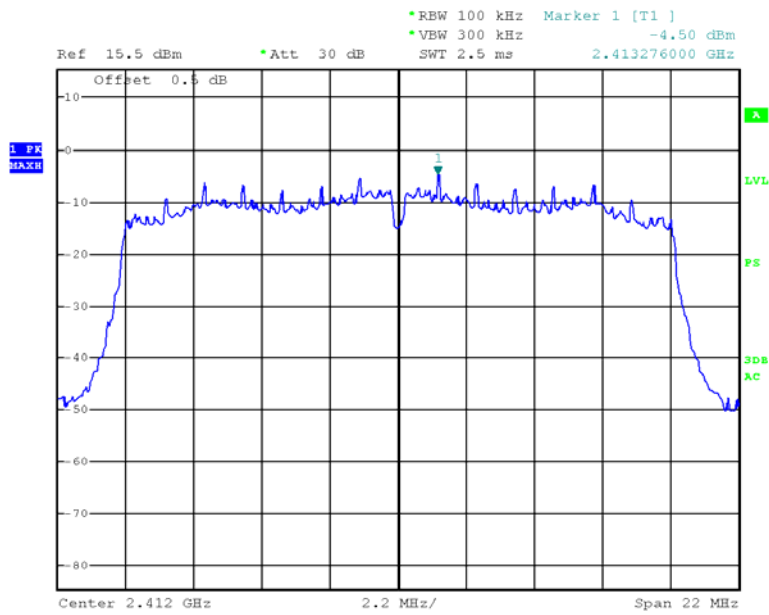


### Chain0:Power Spectral Density, 802.11n40 High Channel

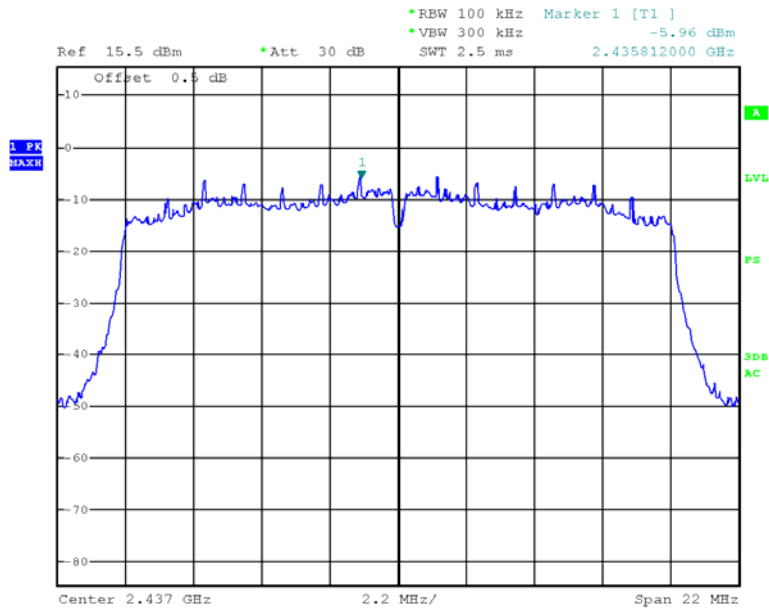




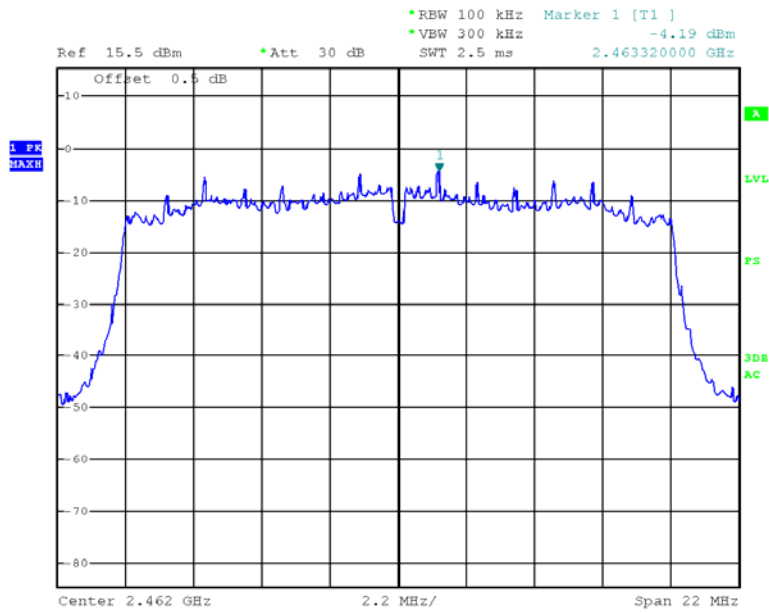
### Chain1:Power Spectral Density, 802.11n20 Low Channel



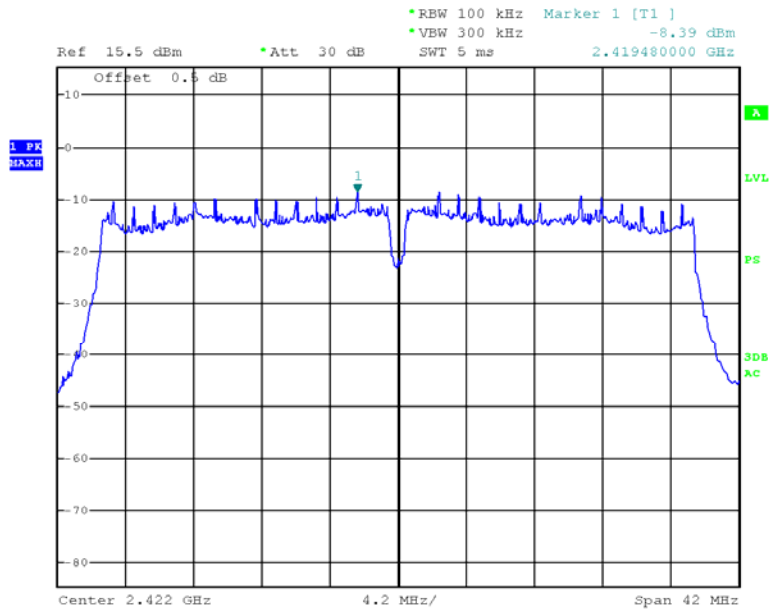
### Chain1:Power Spectral Density, 802.11n20 Middle Channel



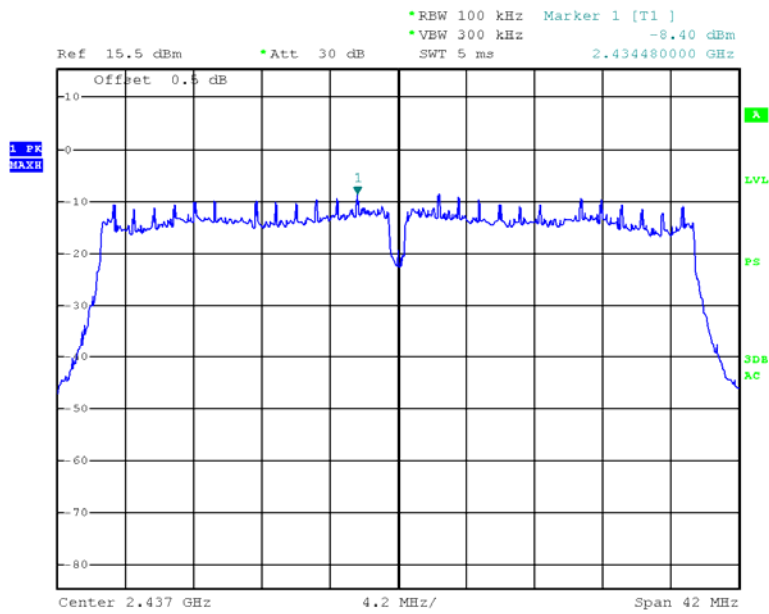
### Chain1:Power Spectral Density, 802.11n20 High Channel



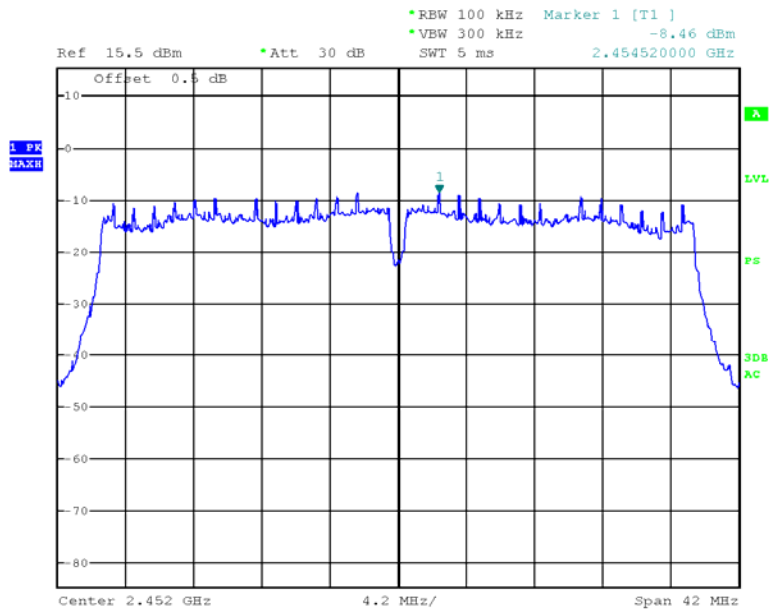
### Chain1:Power Spectral Density, 802.11n40 Low Channel



### Chain1:Power Spectral Density, 802.11n40 Middle Channel



### Chain1:Power Spectral Density, 802.11n40 High Channel



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