Lab Code: 200707-0

FCC PART 15.247

MEASUREMENT AND TEST REPORT

For

Aztech Technologies Pte Ltd.

31 UBI Road 1, Aztech Building, Singapore 408694

FCC ID: I38DSL5008EN

Report Type:	**Product Type:**
Original Report	ADSL2+ 4-Ports 300 Mbps Wireless-N Modem Router

Test Engineer:	Felix Li
Report Number:	RSZ11031402
Report Date:	2011-03-30
Reviewed By:	Merry Zhao EMC Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008

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 contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Aztech Technologies Pte Ltd 's* product, model number: *DSL5008EN(X) (FCC ID: I38DSL5008EN)* or the "EUT" as referred to in this report is a *ADSL2+ 4-Ports 300 Mbps Wireless-N Modem Router,* which measures approximately: 20.0 cm (L) x 12.5 cm (W) x 3.0 cm (H), rated input voltage: DC 12.0V adapter.

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

** All measurement and test data in this report was gathered from production sample serial number: 1102142 (Assigned by BACL, Shenzhen). The EUT was received on 2011-03-14.*

Objective

This Type approval report is prepared on behalf of *Aztech Technologies Pte Ltd in* accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

N/A

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

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

Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 802.11b and 802.11g mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

EUT for 802.11b, 802.11g and 802.11 n20 modes were tested with Channel 1, 6 and 11. 802.11 n40 mode was tested with Channel 3, 6 and 9.

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

EUT Exercise Software

Test software: RT539xQA.exe
The test was performed under:
802.11b: Data rate: 1 Mbps.
802.11g: Data rate: 6 Mbps.
802.11n20: Data rate: 6.5 Mbps.
802.11 n40: Data rate: 6.5 Mbps.

Equipment Modifications

No modification was made to the unit tested.

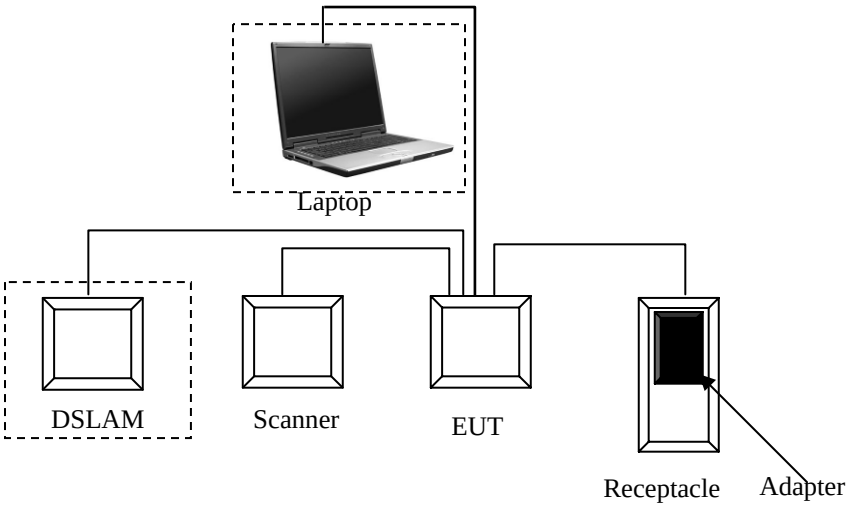
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Laptop	D260	N/A	DOC
Canon	Scanner	CanoScanLiDE25	KBNA07653	DOC
ARESCOM	20-PORT CONCENTRATOR	CDS 6020	N/A	N/A

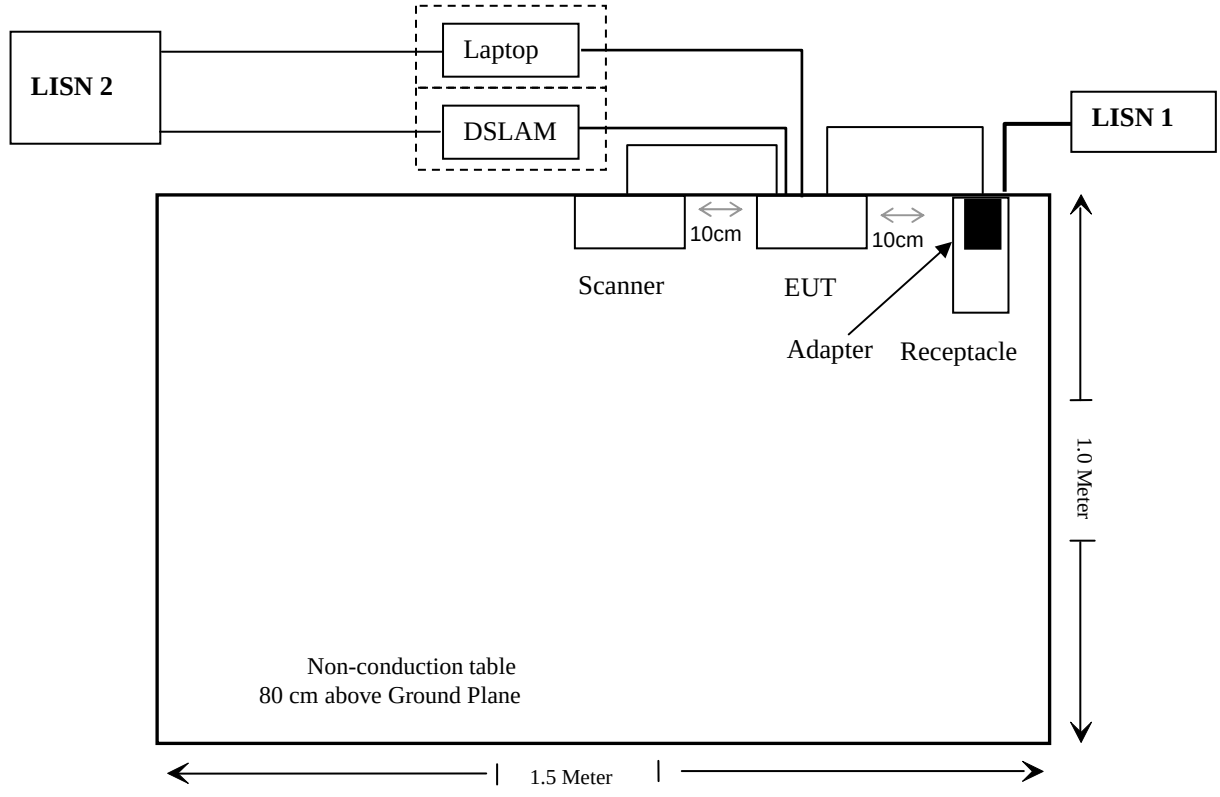
External I/O Cable

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

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

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

Applicable Standard

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

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

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz;
* = Plane-wave equivalent power density;

MPE Calculation

The MPE can be calculated at a given distance

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

Where: S= power density (in appropriate units, e.g. mW/cm2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Mode	**Frequency (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
802.11b	2412	30.	1.995	19.31	85.24	20	0.0338	1.0
802.11g	2412	3.0	1.995	16.42	43.87	20	0.0174	1.0
802.11n20	2412	3.0	1.995	15.75	37.57	20	0.0149	1.0
802.11n40	2422	3.0	1.995	16.06	40.36	20	0.0160	1.0

Result: The device meets FCC MPE limit at 20 cm distance, the RF exposure information has been addressed in the user manual.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

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

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

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

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

Antenna Connector Construction

The EUT has two integrated antennas which are not allowed to access by the end user, the maximum gain of each antenna is 3.0 dBi; please refer to the EUT internal photos.

Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

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

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is ±2.4 dB (k=2, 95% level of confidence).
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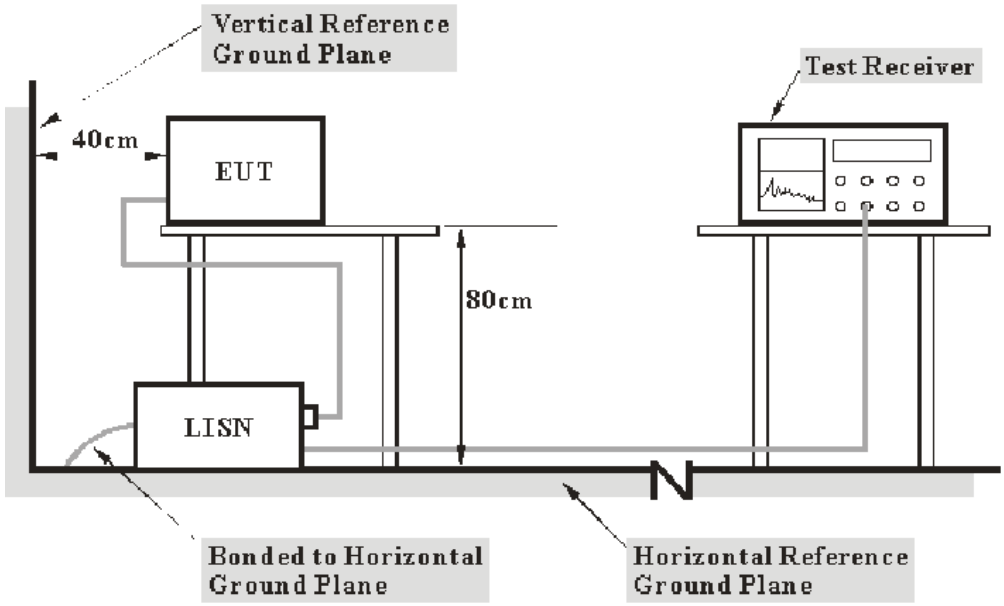
EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	***IF B/W***
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

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

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

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN, and laptop was connected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.
All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

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

3.50 dB at **4.475 MHz** in the **Line** conductor mode

Test Data

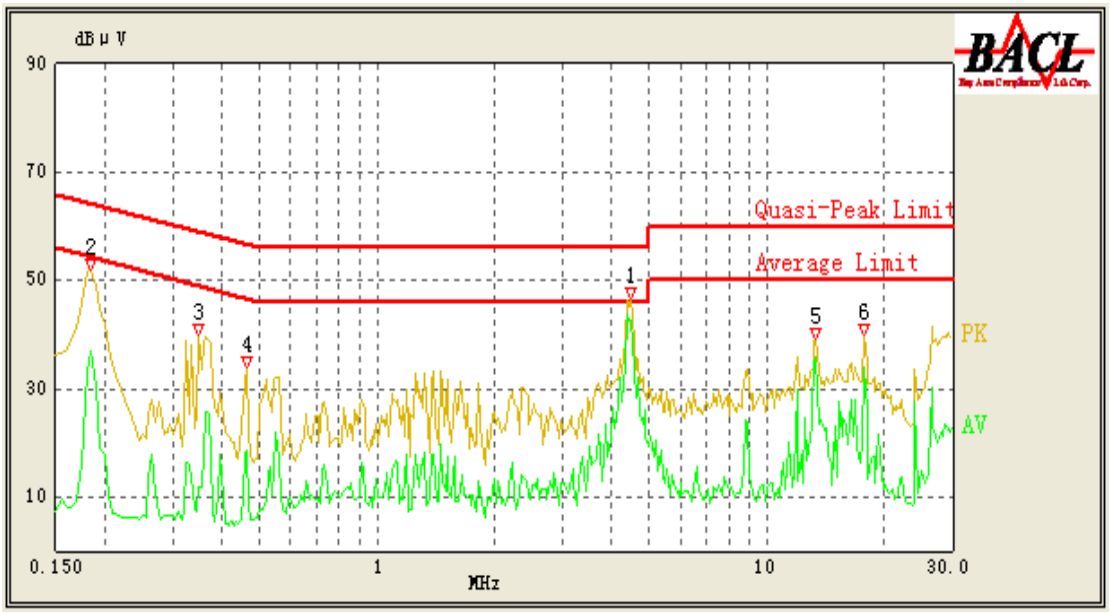
Environmental Conditions

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

The testing was performed by Felix Li on 2011-03-21.

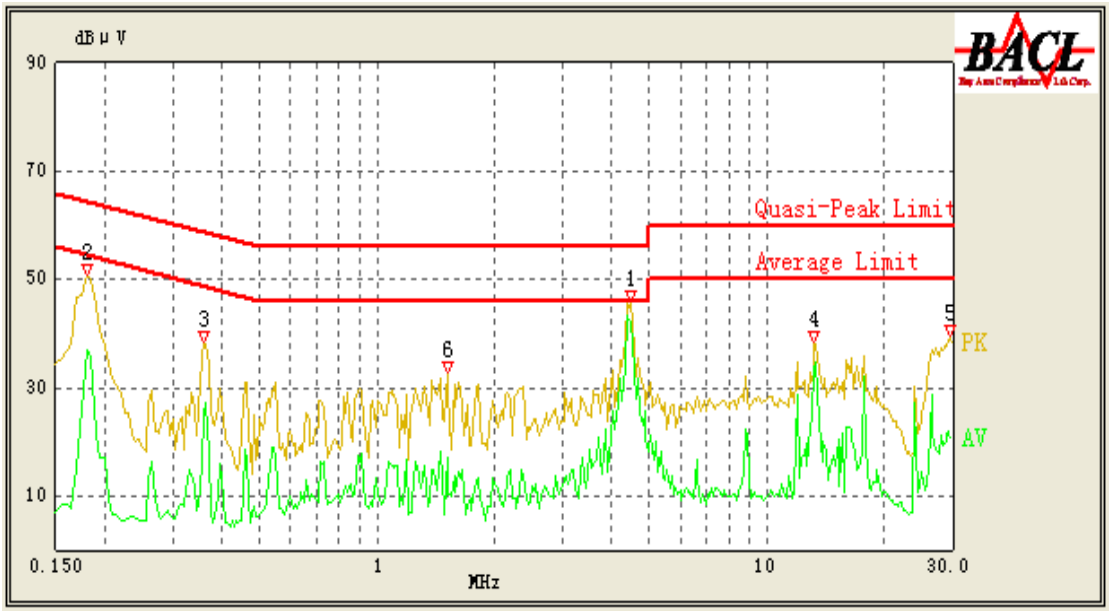
Test Mode: Transmitting (802.11b, worst case)

AC 120V / 60Hz - Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
4.475	42.50	10.10	46.00	3.50	Ave
4.455	44.75	10.10	56.00	11.25	QP
13.380	35.77	10.13	50.00	14.23	Ave
17.735	34.12	10.18	50.00	15.88	Ave
0.185	48.31	10.08	65.00	16.69	QP
0.185	36.91	10.08	55.00	18.09	Ave
13.380	38.13	10.13	60.00	21.87	QP
17.735	35.94	10.18	60.00	24.06	QP
0.465	18.47	10.16	47.00	28.53	Ave
0.465	28.03	10.16	57.00	28.97	QP
0.350	25.80	10.05	60.29	34.49	QP
0.350	11.86	10.05	50.29	38.43	Ave

AC 120V / 60Hz - Neutral:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	**Corrected Result (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK /QP/Ave)**
4.470	42.03	10.10	46.00	3.97	Ave
4.455	44.02	10.10	56.00	11.98	QP
13.220	33.42	10.13	50.00	16.58	Ave
0.180	48.41	10.08	65.14	16.73	QP
0.180	37.01	10.08	55.14	18.13	Ave
0.360	36.30	10.06	60.00	23.70	QP
0.360	25.22	10.06	50.00	24.78	Ave
13.220	34.83	10.13	60.00	25.17	QP
29.365	22.02	10.11	50.00	27.98	Ave
1.520	16.91	10.15	46.00	29.09	Ave
29.605	30.59	10.10	60.00	29.41	QP
1.515	24.68	10.15	56.00	31.32	QP

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

Applicable Standard

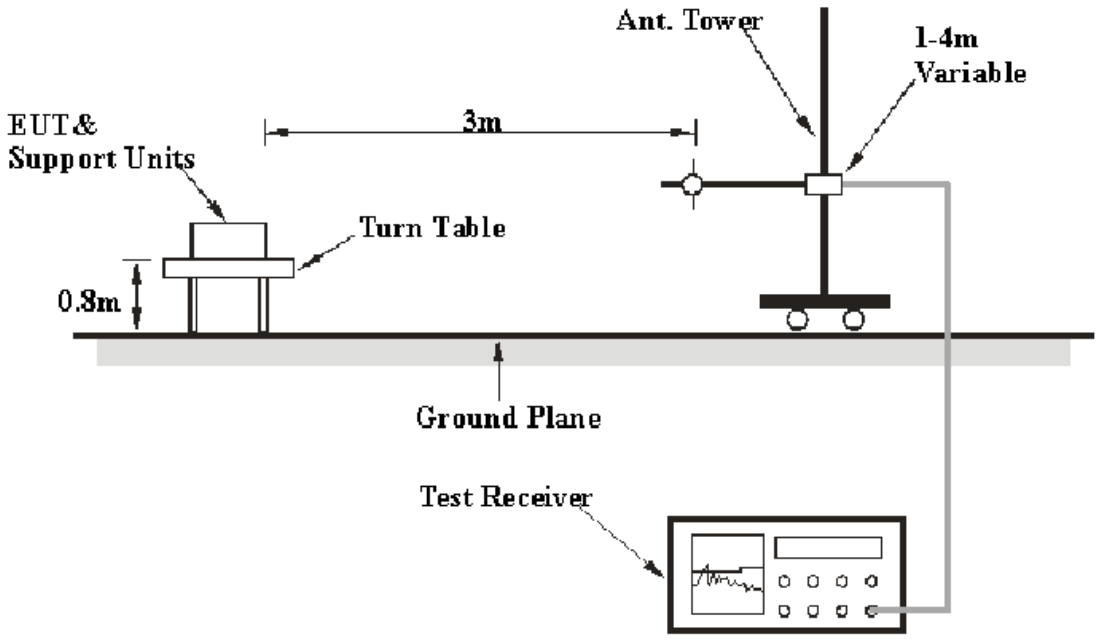
FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

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

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB(k=2, 95% level of confidence) .

EUT Setup



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209, and FCC 15.247 limits.

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

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	At1080	301902	2010-08-25	2011-08-25
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-08
Sunol Sciences	Horn Antenna	DRH-118	A052604	2010-05-04	2011-05-03
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-08

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

Test Procedure

For the radiated emissions test, the adapter was connected to the AC floor outlet.

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

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

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

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

2.4 dB at **500.046750 MHz** in the **Horizontal** polarization for mode 80.11b
1.4 dB at **500.041500 MHz** in the **Horizontal** polarization for mode 802.11g
2.6 dB at **500.036250 MHz** in the **Horizontal** polarization for mode 802.11n20
3.4 dB at **36.150500/500.043000 MHz** in the **Vertical/Horizontal** polarization for mode 802.11n40

Test Data

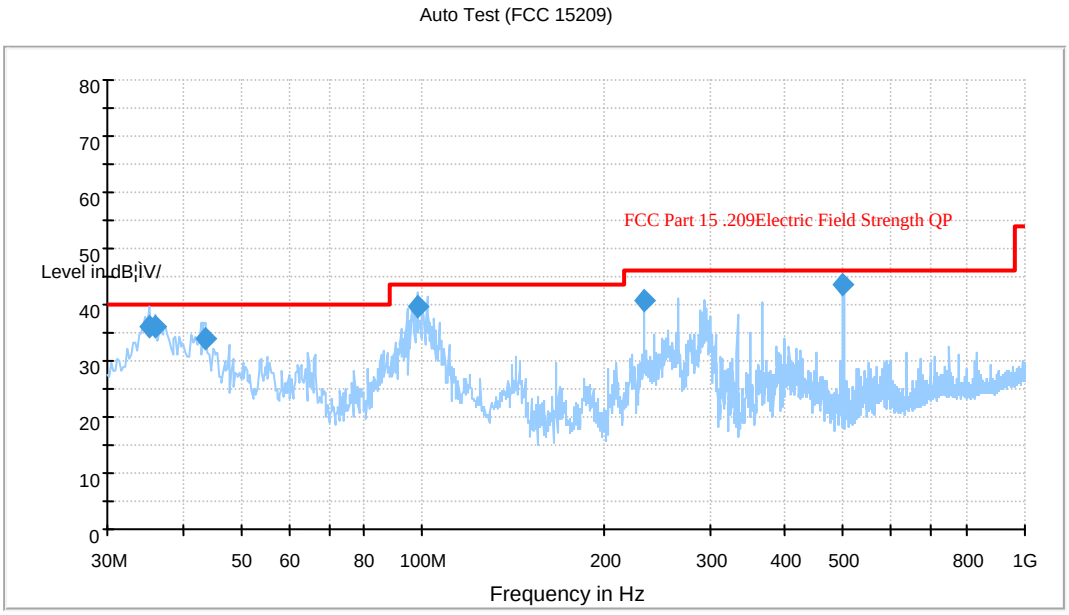
Environmental Conditions

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

The testing was performed by Felix Li on 2011-03-22.

Test Mode: Transmitting (802.11b)

30-1000 MHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
500.046750	43.6	205.0	H	210.0	-8.4	46.0	2.4*
36.153250	36.2	103.0	V	226.0	-9.6	40.0	3.8
98.442500	39.7	102.0	V	281.0	-15.0	43.5	3.8
35.312250	36.1	104.0	V	211.0	-9.0	40.0	3.9
43.793250	34.0	102.0	V	42.0	-14.4	40.0	6.0
233.288250	40.8	123.0	H	144.0	-13.8	46.0	15.2

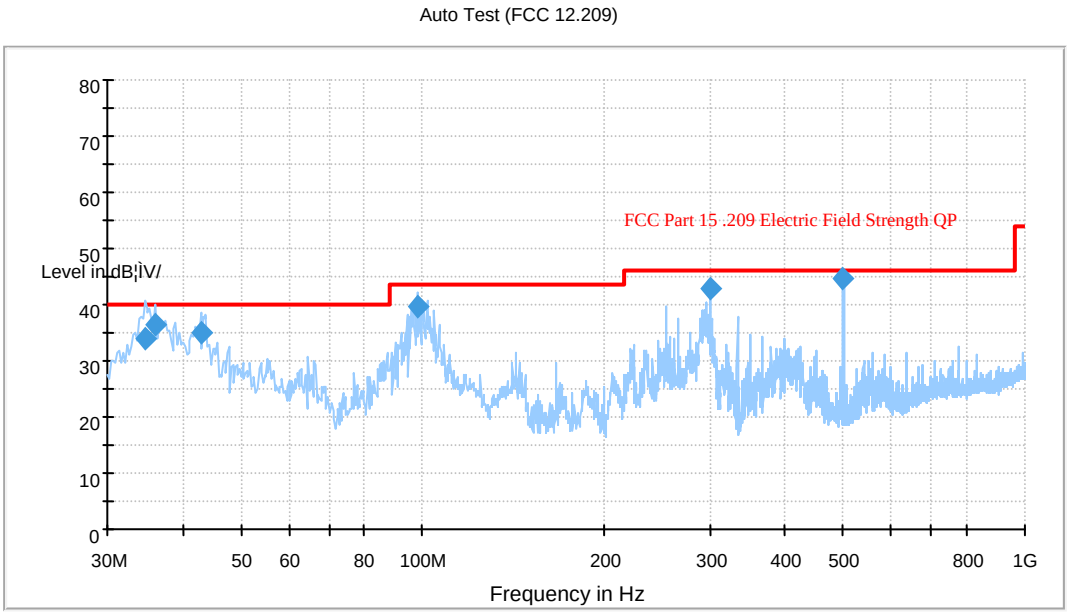
** Within measurement uncertainty.*

Above 1 GHz:

Indicated		Detector (PK/Ave)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.205/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
4824.00	44.33	PK	29	1.2	H	36.30	4.30	26.75	58.18	74	15.82	harmonic
4824.00	45.67	PK	0	1.4	V	33.60	4.30	26.75	56.82	74	17.18	harmonic
4824.00	22.06	Ave	29	1.2	H	36.30	4.30	26.75	35.91	54	18.09	harmonic
2389.66	28.15	Ave	63	1.2	H	30.90	3.03	26.88	35.20	54	18.8	Spurious
2389.66	28.06	Ave	45	1.2	V	30.30	3.03	26.88	34.51	54	19.49	Spurious
4824.00	23.17	Ave	0	1.4	V	33.60	4.30	26.75	34.32	54	19.68	harmonic
2389.66	46.22	PK	63	1.2	H	30.90	3.03	26.88	53.27	74	20.73	Spurious
2389.66	46.25	PK	45	1.2	V	30.30	3.03	26.88	52.70	74	21.30	Spurious
Middle Channel (2437 MHz)												
4874.00	43.98	PK	340	1.1	H	36.30	4.32	26.75	57.85	74	16.15	harmonic
4874.00	22.74	Ave	340	1.1	H	36.30	4.32	26.75	36.61	54	17.39	harmonic
4874.00	44.37	PK	357	1.0	V	33.60	4.32	26.75	55.54	74	18.46	harmonic
4874.00	23.57	Ave	357	1.0	V	33.60	4.32	26.75	34.74	54	19.26	harmonic
High Channel (2462 MHz)												
4924.00	23.00	Ave	253	1.2	H	36.30	4.40	26.75	36.95	54	17.05	harmonic
4924.00	42.18	PK	253	1.2	H	36.30	4.40	26.75	56.13	74	17.87	harmonic
4924.00	23.58	Ave	130	1.0	H	33.60	4.40	26.75	34.83	54	19.17	harmonic
2492.11	27.36	Ave	220	1.1	H	30.90	3.03	26.88	34.41	54	19.59	Spurious
4924.00	42.79	PK	130	1.0	H	33.60	4.40	26.75	54.04	74	19.96	harmonic
2492.11	27.24	Ave	228	1.1	V	30.30	3.03	26.88	33.69	54	20.31	Spurious
2492.11	45.34	PK	220	1.1	H	30.90	3.03	26.88	52.39	74	21.61	Spurious
2492.11	45.47	PK	228	1.1	V	30.30	3.03	26.88	51.92	74	22.08	Spurious

Test Mode: Transmitting (802.11g)

30-1000 MHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
500.041500	44.6	205.0	H	215.0	-8.4	46.0	1.4*
300.089750	42.7	102.0	H	61.0	-13.0	46.0	3.3*
36.121500	36.5	109.0	V	227.0	-9.6	40.0	3.5*
98.446000	39.5	124.0	V	278.0	-15.0	43.5	4.0*
42.952500	35.1	102.0	V	244.0	-14.4	40.0	4.9
34.686500	33.8	103.0	V	350.0	-9.0	40.0	6.2

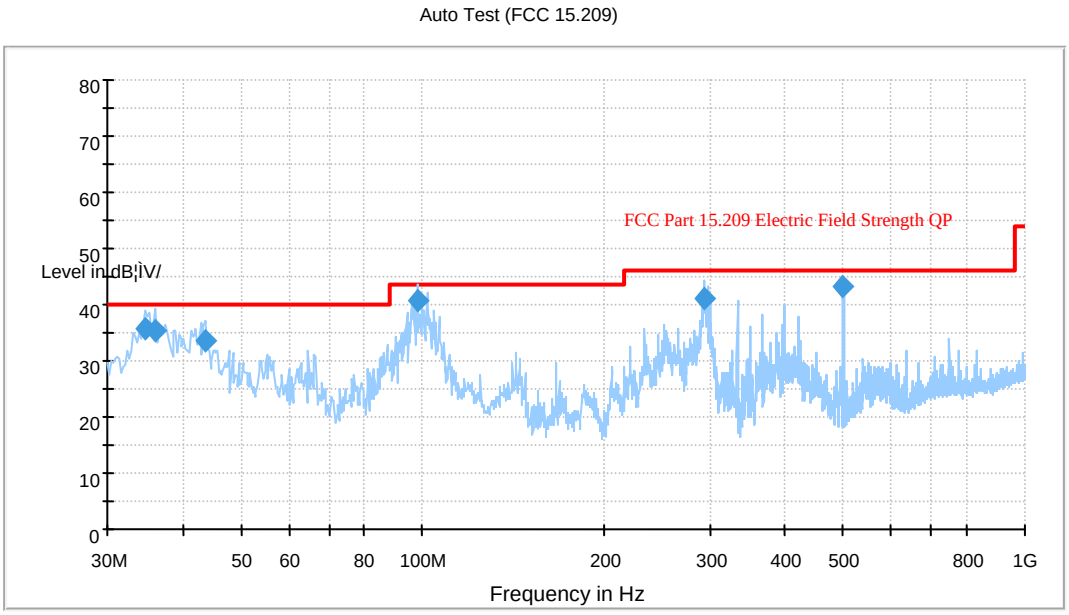
** Within measurement uncertainty.*

Above 1 GHz:

Indicated		Detector (PK/Ave)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.205/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
4824.00	32.80	Ave	160	1.0	V	33.60	4.30	26.75	43.95	54	10.05	harmonic
4824.00	29.04	Ave	240	1.1	H	36.30	4.30	26.75	42.89	54	11.11	harmonic
4824.00	43.85	PK	240	1.1	H	36.30	4.30	26.75	57.70	74	16.30	harmonic
2389.83	31.06	Ave	160	1.0	V	30.30	3.03	26.88	37.51	54	16.49	spurious
4824.00	46.35	PK	160	1.0	V	33.60	4.30	26.75	57.50	74	16.50	harmonic
2359.53	26.84	Ave	32	1.0	H	30.90	3.03	26.88	33.89	54	20.11	spurious
2359.53	45.93	PK	32	1.0	H	30.90	3.03	26.88	52.98	74	21.02	spurious
2389.83	46.37	PK	160	1.0	V	30.30	3.03	26.88	52.82	74	21.18	spurious
Middle Channel (2437 MHz)												
4874.00	29.83	Ave	40	1.1	H	36.30	4.32	26.75	43.70	54	10.30	harmonic
4874.00	44.83	PK	40	1.1	H	36.30	4.32	26.75	58.70	74	15.30	harmonic
4874.00	22.17	Ave	360	1.2	V	33.60	4.32	26.75	33.34	54	20.66	harmonic
4874.00	38.17	PK	360	1.2	V	33.60	4.32	26.75	49.34	74	24.66	harmonic
High Channel (2462 MHz)												
4924.00	24.02	Ave	243	1.4	H	36.30	4.40	26.75	37.97	54	16.03	harmonic
2485.64	29.24	Ave	180	1.1	H	30.90	3.03	26.88	36.29	54	17.71	spurious
4924.00	40.46	PK	243	1.4	H	36.30	4.40	26.75	54.41	74	19.59	harmonic
2485.64	27.85	Ave	225	1.1	V	30.30	3.03	26.88	34.30	54	19.70	spurious
4924.00	42.65	PK	57	1.3	V	33.60	4.40	26.75	53.90	74	20.10	harmonic
4924.00	22.17	Ave	57	1.3	V	33.60	4.40	26.75	33.42	54	20.58	harmonic
2485.64	45.71	PK	180	1.1	H	30.90	3.03	26.88	52.76	74	21.24	spurious
2485.64	44.66	PK	225	1.1	V	30.30	3.03	26.88	51.11	74	22.89	spurious

Test Mode: Transmitting (802.11n20)

30-1000 MHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
500.036250	43.4	211.0	H	204.0	-8.4	46.0	2.6*
98.431500	40.6	102.0	V	266.0	-15.0	43.5	2.9*
34.646750	35.8	103.0	V	238.0	-8.6	40.0	4.2
36.179000	35.2	106.0	V	111.0	-9.6	40.0	4.8
43.782500	33.4	105.0	V	164.0	-14.4	40.0	6.6
293.416750	41.2	104.0	H	196.0	-12.5	46.0	9.8

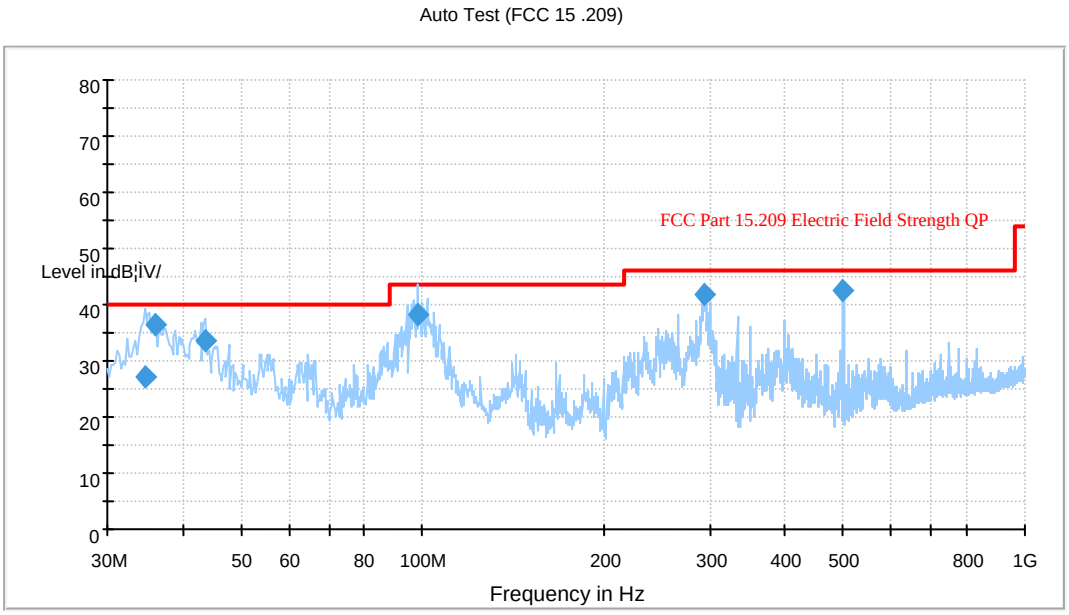
** Within measurement uncertainty.*

Above 1 GHz:

Indicated		Detector (PK/Ave)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.205/15.209			
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
4824.00	43.35	PK	45	1.1	H	36.30	4.30	26.75	57.20	74	16.80	harmonic
4824.00	22.73	Ave	45	1.1	H	36.30	4.30	26.75	36.58	54	17.42	harmonic
4824.00	23.26	Ave	124	1.1	V	33.60	4.30	26.75	34.41	54	19.59	harmonic
4824.00	42.73	PK	124	1.1	V	33.60	4.30	26.75	53.88	74	20.12	harmonic
2388.87	26.82	Ave	68	1.2	V	30.30	3.03	26.88	33.27	54	20.73	spurious
2388.87	46.70	PK	68	1.2	V	30.30	3.03	26.88	53.15	74	20.85	spurious
2388.54	45.35	PK	225	1.1	H	30.90	3.03	26.88	52.40	74	21.60	spurious
2388.54	25.06	Ave	225	1.1	H	30.90	3.03	26.88	32.11	54	21.89	spurious
Middle Channel (2437 MHz)												
4874.00	23.17	Ave	240	1.1	H	36.30	4.32	26.75	37.04	54	16.96	harmonic
4874.00	41.30	PK	240	1.1	H	36.30	4.32	26.75	55.17	74	18.83	harmonic
4874.00	23.00	Ave	0	1.1	V	33.60	4.32	26.75	34.17	54	19.83	harmonic
4874.00	41.17	PK	0	1.1	V	33.60	4.32	26.75	52.34	74	21.66	harmonic
High Channel (2462 MHz)												
4924.00	23.34	Ave	325	1.2	H	36.30	4.40	26.75	37.29	54	16.71	harmonic
4924.00	25.48	Ave	12	1.1	V	33.60	4.40	26.75	36.73	54	17.27	harmonic
4924.00	44.56	PK	12	1.1	V	33.60	4.40	26.75	55.81	74	18.19	harmonic
4924.00	41.26	PK	325	1.2	H	36.30	4.40	26.75	55.21	74	18.79	harmonic
2489.57	27.58	Ave	0	1.0	V	30.30	3.03	26.88	34.03	54	19.97	spurious
2485.54	46.02	PK	356	1.2	H	30.90	3.03	26.88	53.07	74	20.93	spurious
2489.57	46.56	PK	0	1.0	V	30.30	3.03	26.88	53.01	74	20.99	spurious
2485.54	25.15	Ave	356	1.2	H	30.90	3.03	26.88	32.2	54	21.8	spurious

Test Mode: Transmitting (802.11n40)

30-1000 MHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
36.150500	36.6	103.0	V	209.0	-9.6	40.0	3.4*
500.043000	42.6	216.0	H	214.0	-8.4	46.0	3.4*
98.425750	38.1	105.0	V	278.0	-15.0	43.5	5.4
43.785250	33.6	104.0	V	163.0	-14.4	40.0	6.4
293.547250	41.7	104.0	H	0.0	-12.5	46.0	8.3
34.633750	27.1	102.0	V	135.0	-8.6	40.0	12.9

** Within measurement uncertainty.*

Above 1 GHz:

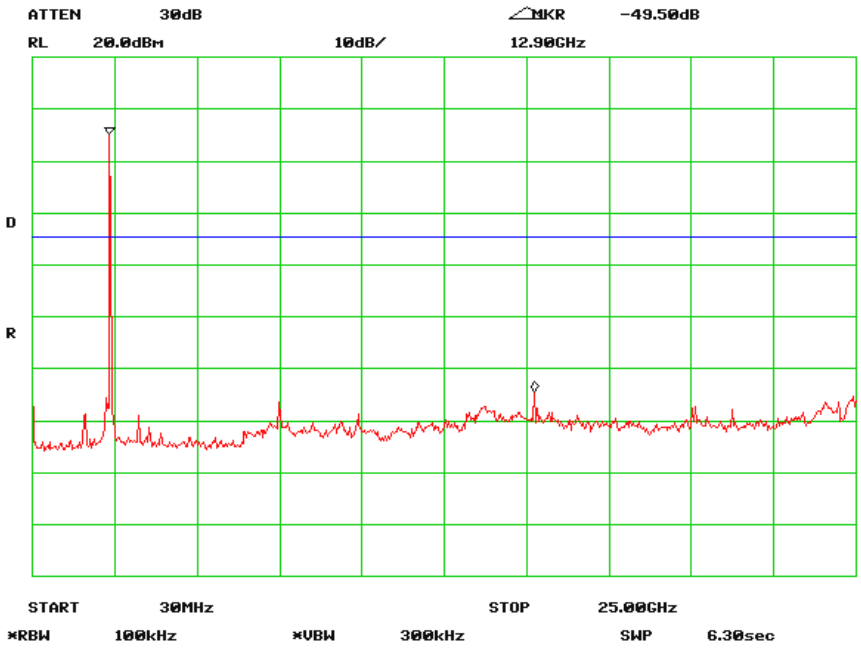
Indicated		Detector (PK/Ave)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.205/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2422 MHz)												
4844.00	25.41	Ave	224	1.1	H	36.30	4.30	26.75	39.26	54	14.74	harmonic
2389.91	30.16	Ave	130	1.1	H	30.90	3.03	26.88	37.21	54	16.79	spurious
2389.45	29.25	Ave	112	1.2	V	30.30	3.03	26.88	35.7	54	18.30	spurious
4844.00	24.53	Ave	327	1.2	V	33.60	4.30	26.75	35.68	54	18.32	harmonic
4844.00	40.91	PK	224	1.1	H	36.30	4.30	26.75	54.76	74	19.24	harmonic
4844.00	42.46	PK	327	1.2	V	33.60	4.30	26.75	53.61	74	20.39	harmonic
2389.91	46.34	PK	130	1.1	H	30.90	3.03	26.88	53.39	74	20.61	spurious
2389.45	45.23	PK	112	1.2	V	30.30	3.03	26.88	51.68	74	22.32	spurious
Middle Channel (2437 MHz)												
4874.00	30.50	Ave	92	1.2	V	33.60	4.32	26.75	41.67	54	12.33	harmonic
4874.00	23.67	Ave	85	1.0	H	36.30	4.32	26.75	37.54	54	16.46	harmonic
4874.00	46.33	PK	92	1.2	V	33.60	4.32	26.75	57.5	74	16.50	harmonic
4874.00	42.83	PK	85	1.0	H	36.30	4.32	26.75	56.7	74	17.30	harmonic
High Channel (2452 MHz)												
4904.00	25.25	Ave	124	1.1	H	36.30	4.40	26.75	39.20	54	14.80	harmonic
2485.84	30.08	Ave	56	1.0	V	30.60	3.10	26.88	36.90	54	17.10	spurious
4904.00	25.46	Ave	360	1.2	V	33.60	4.40	26.75	36.71	54	17.29	harmonic
4904.00	42.74	PK	124	1.1	H	36.30	4.40	26.75	56.69	74	17.31	harmonic
2485.58	30.16	Ave	263	1.1	V	30.30	3.03	26.88	36.61	54	17.39	spurious
4904.00	42.14	PK	360	1.2	V	33.60	4.40	26.75	53.39	74	20.61	harmonic
2485.58	45.56	PK	263	1.1	V	30.30	3.03	26.88	52.01	74	21.99	spurious
2485.84	45.11	PK	56	1.0	V	30.60	3.10	26.88	51.93	74	22.07	spurious

Antenna Port Conducted Spurious Emissions

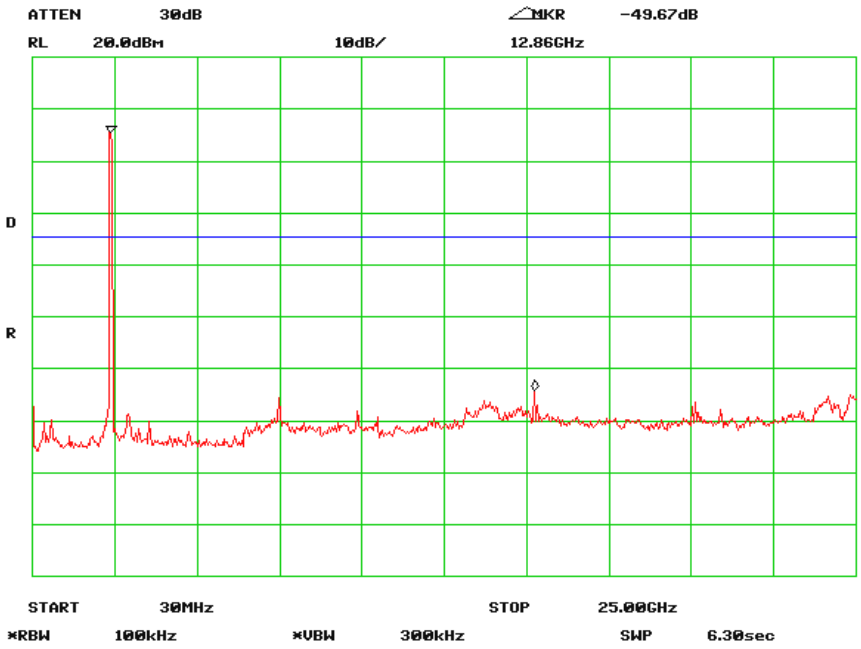
Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Delta Value (dBc)	Limit (dBc)	Ref. Plot	Result
802.11b mode							
Low	12900	1	Chain 0	49.50	20	B-L-Chain 0	Pass
Low	12860	1	Chain 1	49.67	20	B-L-Chain 1	Pass
Low	12860	1	Chain 0 & Chain 1	51.16	20	B-L-Combiner	Pass
Middle	12860	1	Chain 0	47.83	20	B-M-Chain 0	Pass
Middle	12860	1	Chain 1	50.16	20	B-M-Chain 1	Pass
Middle	12860	1	Chain 0 & Chain 1	48.66	20	B-M-Combiner	Pass
High	12820	1	Chain 0	48.83	20	B-H-Chain 0	Pass
High	12820	1	Chain 1	46.83	20	B-H-Chain 1	Pass
High	12820	1	Chain 0 & Chain 1	47.66	20	B-H-Combiner	Pass
802.11g mode							
Low	12900	6	Chain 0	44.17	20	G-L-Chain 0	Pass
Low	12860	6	Chain 1	44.17	20	G-L-Chain 1	Pass
Low	12900	6	Chain 0 & Chain 1	43.67	20	G-L-Combiner	Pass
Middle	12860	6	Chain 0	45.86	20	G-M-Chain 0	Pass
Middle	12860	6	Chain 1	46.50	20	G-M-Chain 1	Pass
Middle	12860	6	Chain 0 & Chain 1	48.83	20	G-M-Combiner	Pass
High	12820	6	Chain 0	44.33	20	G-H-Chain 0	Pass
High	12820	6	Chain 1	41.83	20	G-H-Chain 1	Pass
High	12820	6	Chain 0 & Chain 1	43.16	20	G-H-Combiner	Pass
802.11n20 mode							
Low	22430	6.5	Chain 0	42.00	20	N20-L-Chain 0	Pass
Low	12900	6.5	Chain 1	45.66	20	N20-L-Chain 1	Pass
Low	12900	6.5	Chain 0 & Chain 1	41.67	20	N20-L-Combiner	Pass
Middle	12860	6.5	Chain 0	44.84	20	N20-M-Chain 0	Pass
Middle	12860	6.5	Chain 1	41.00	20	N20-M-Chain 1	Pass
Middle	12860	6.5	Chain 0 & Chain 1	43.83	20	N20-M-Combiner	Pass
High	12820	6.5	Chain 0	45.83	20	N20-H-Chain 0	Pass
High	12820	6.5	Chain 1	40.50	20	N20-H-Chain 1	Pass
High	12820	6.5	Chain 0 & Chain 1	42.66	20	N20-H-Combiner	Pass
802.11n40 mode							
Low	12900	6.5	Chain 0	42.17	20	N40-L-Chain 0	Pass
Low	12860	6.5	Chain 1	43.17	20	N40-L-Chain 1	Pass
Low	12860	6.5	Chain 0 & Chain 1	45.83	20	N40-L-Combiner	Pass
Middle	12860	6.5	Chain 0	43.83	20	N40-M-Chain 0	Pass
Middle	12860	6.5	Chain 1	41.66	20	N40-M-Chain 1	Pass
Middle	12860	6.5	Chain 0 & Chain 1	42.33	20	N40-M-Combiner	Pass
High	12820	6.5	Chain 0	43.16	20	N40-H-Chain 0	Pass
High	12860	6.5	Chain 1	40.67	20	N40-H-Chain 1	Pass
High	12820	6.5	Chain 0 & Chain 1	43.00	20	N40-H-Combiner	Pass

Please refer to the following plots.

802.11b Low Channel, Chain 0 -- (B-L-Chain 0)

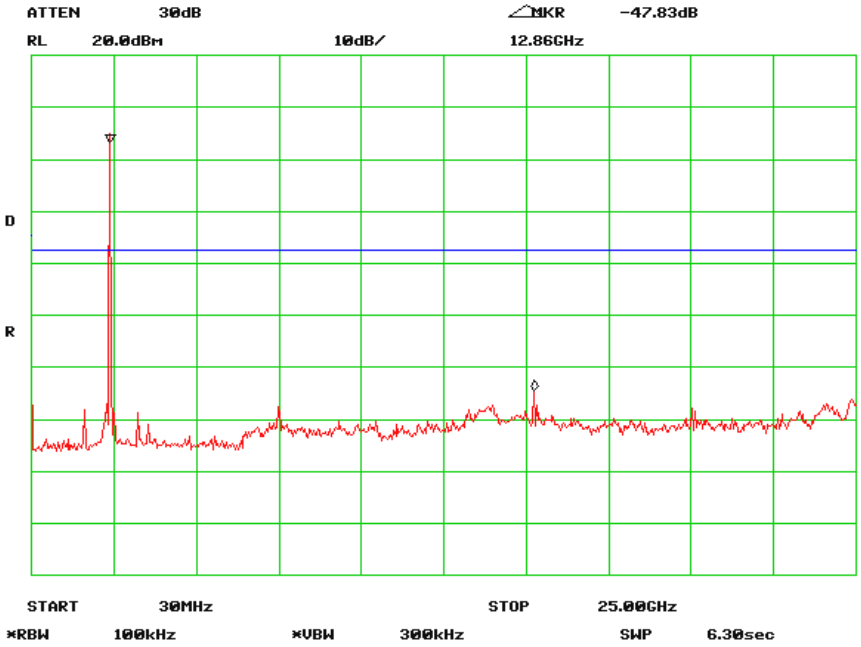


802.11b Low Channel, Chain 1 -- (B-L-Chain 1)

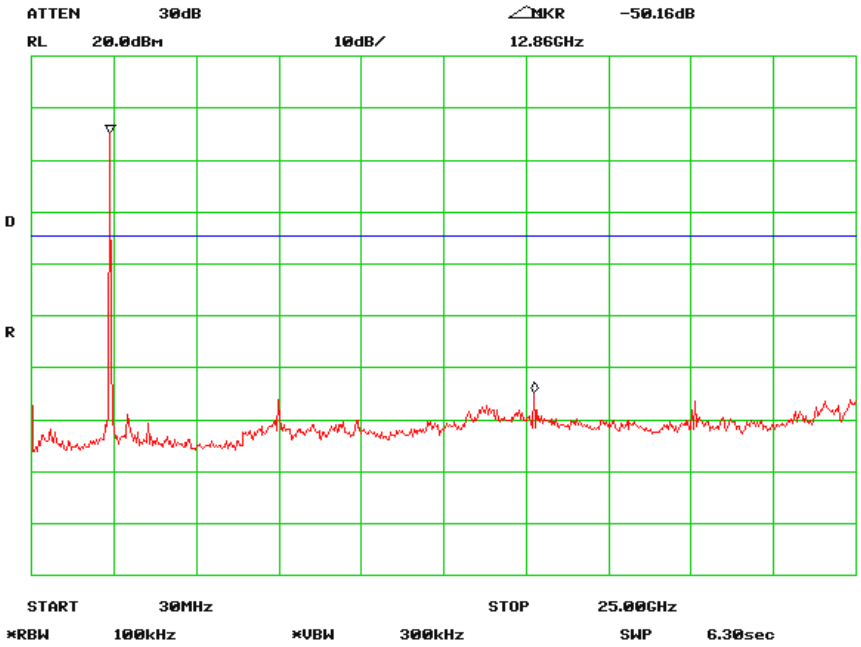


802.11b Low Channel, Combiner -- (B-L-Combiner)

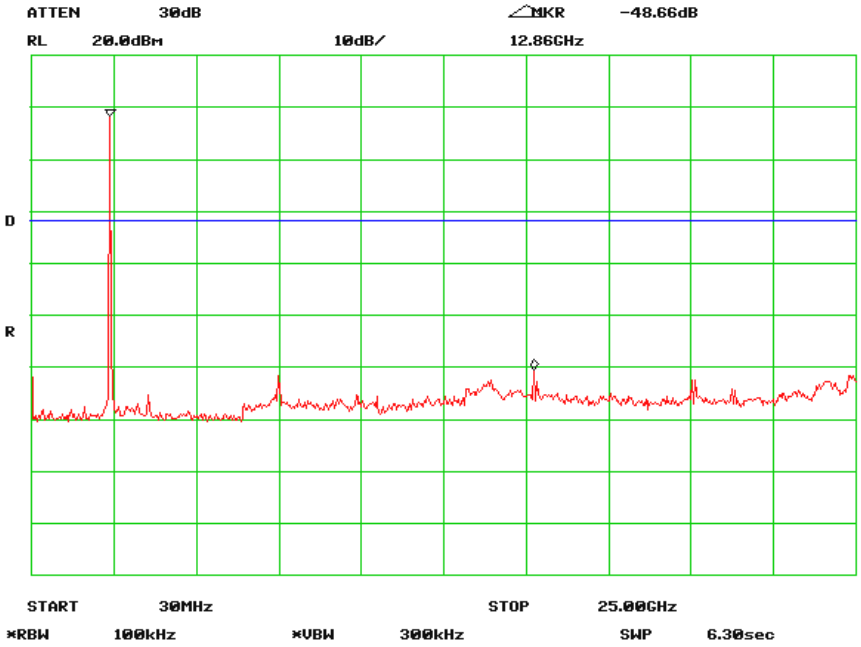
802.11b Middle Channel, Chain 0 -- (B-M-Chain 0)



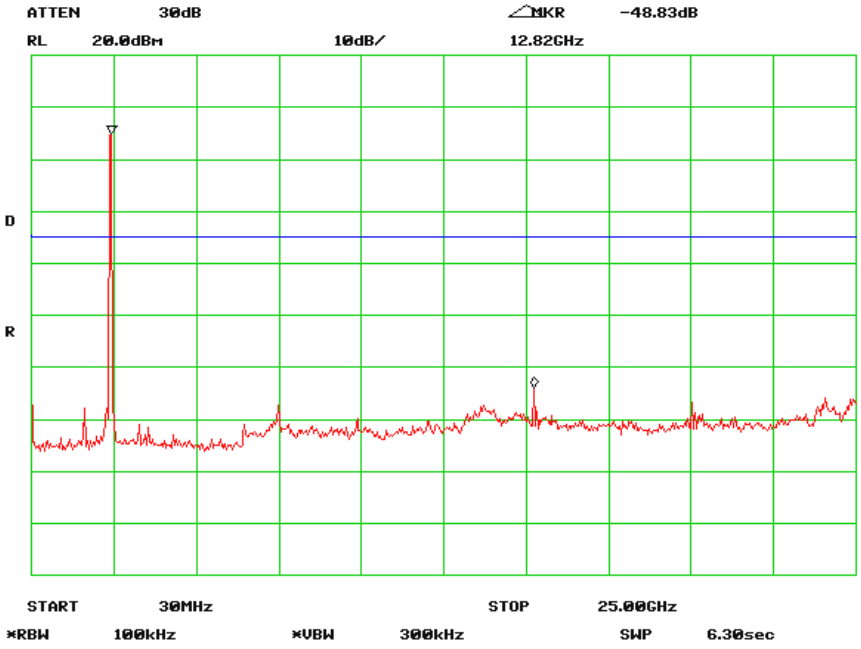
802.11b Middle Channel, Chain 1 -- (B-M-Chain 1)



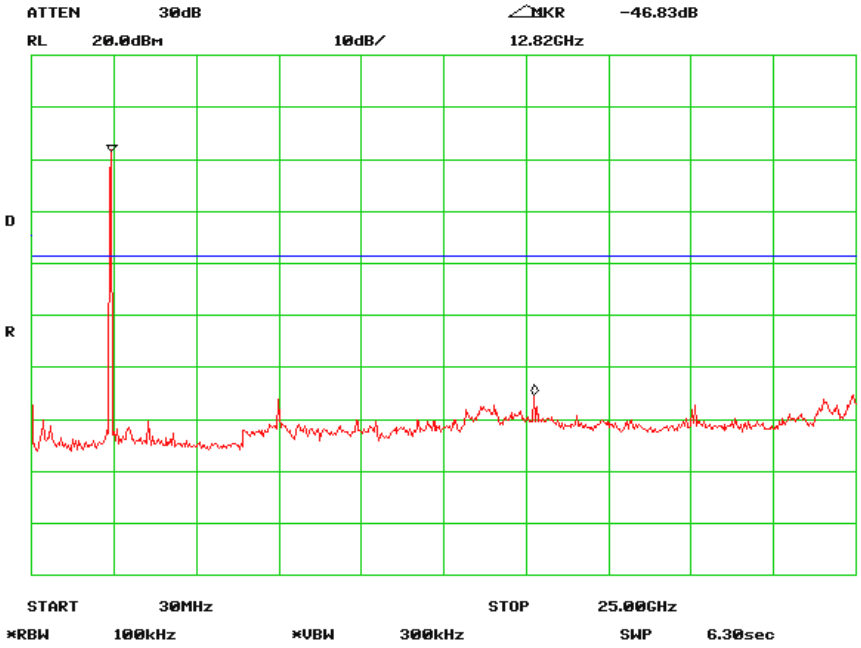
802.11b Middle Channel, Combiner -- (B-M-Combiner)



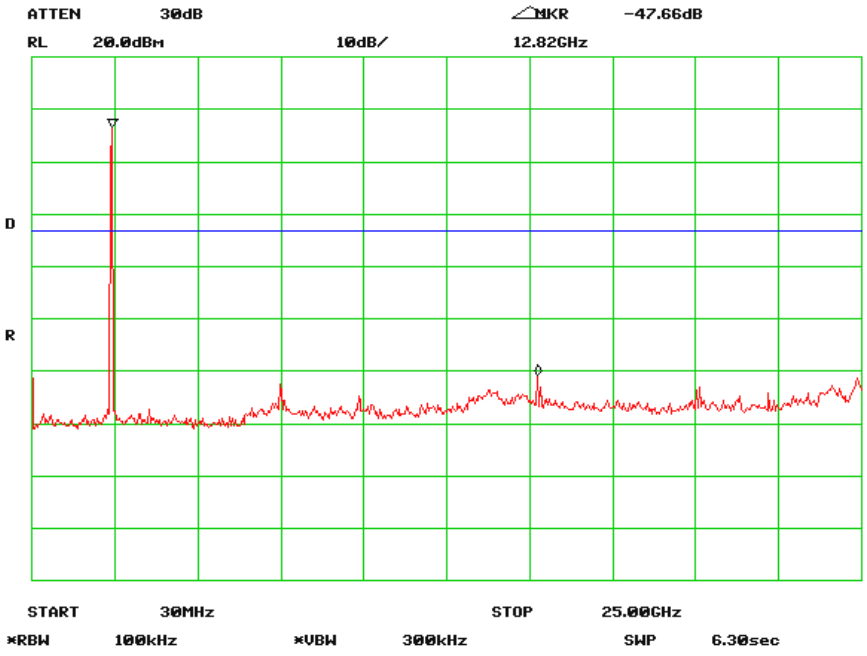
802.11b High Channel, Chain 0 -- (B-H-Chain 0)



802.11b High Channel, Chain 1 -- (B-H-Chain 1)

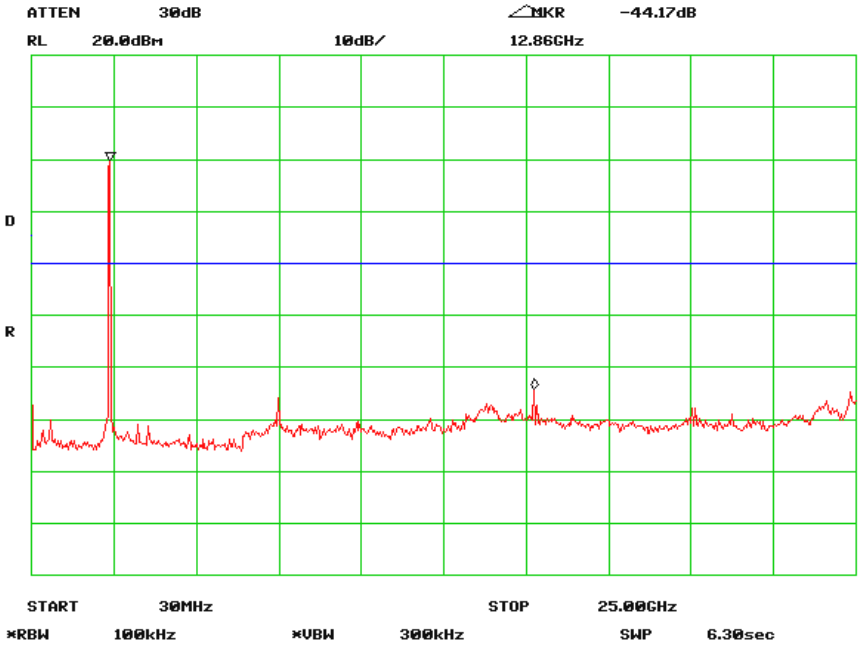


802.11b High Channel, Combiner -- (B-H-Combiner)

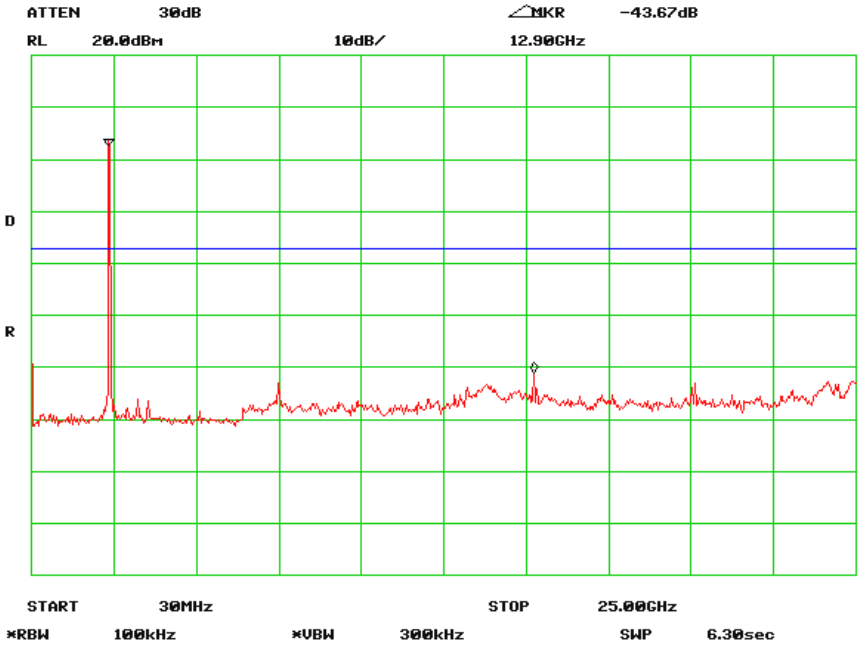


802.11g Low Channel, Chain 0 -- (G-L-Chain 0)

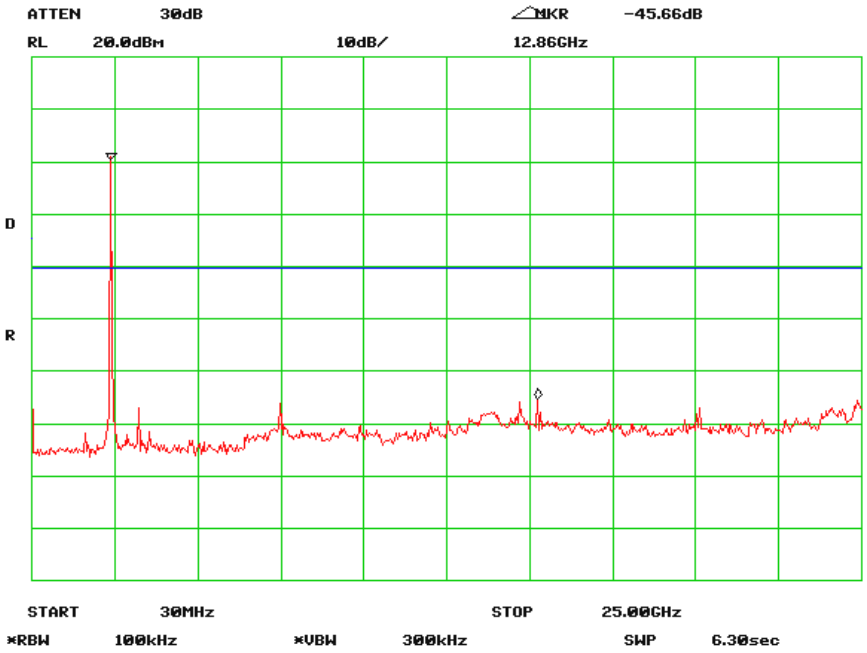
802.11g Low Channel, Chain 1 -- (G-L-Chain 1)



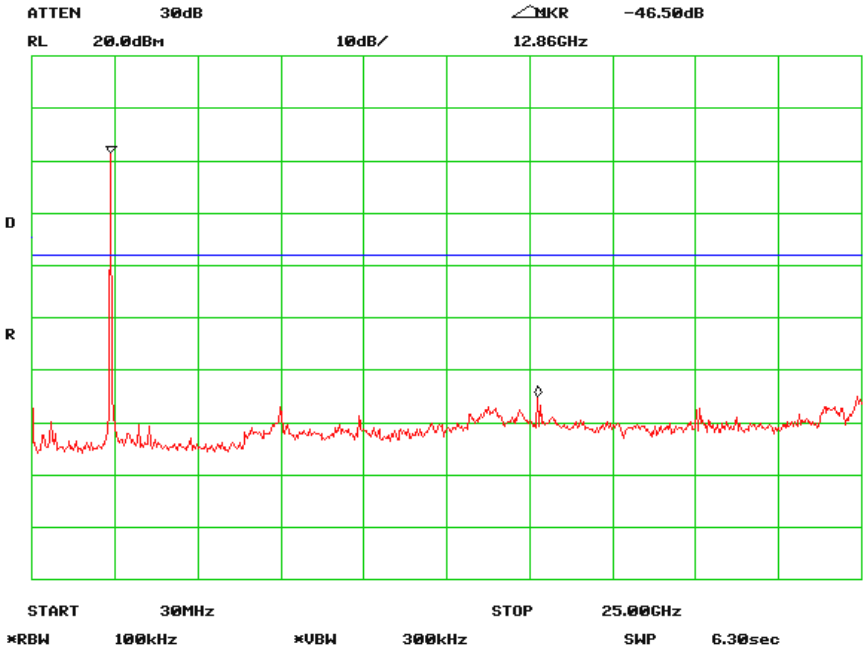
802.11g Low Channel, Combiner -- (G-L-Combiner)



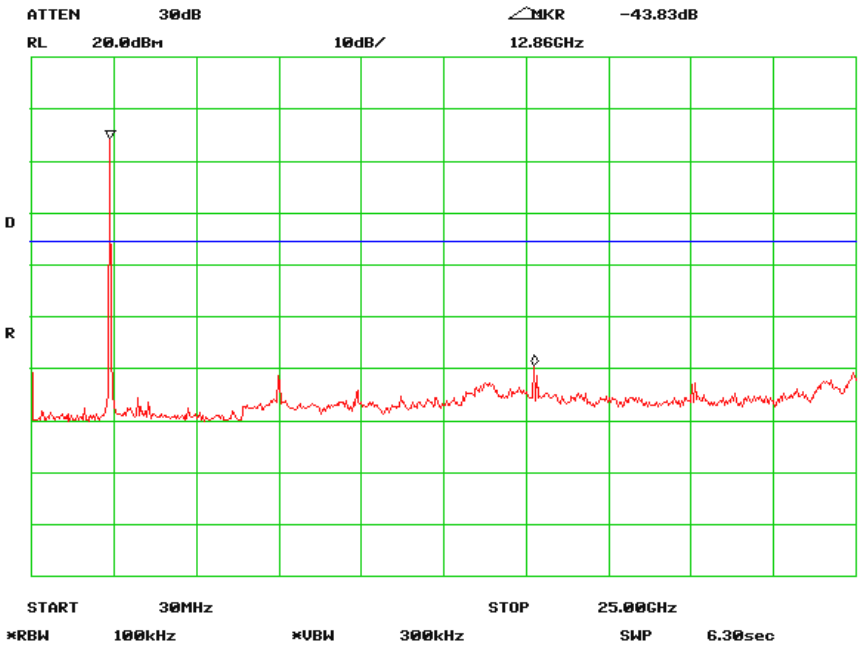
802.11g Middle Channel, Chain 0 -- (G-M-Chain 0)



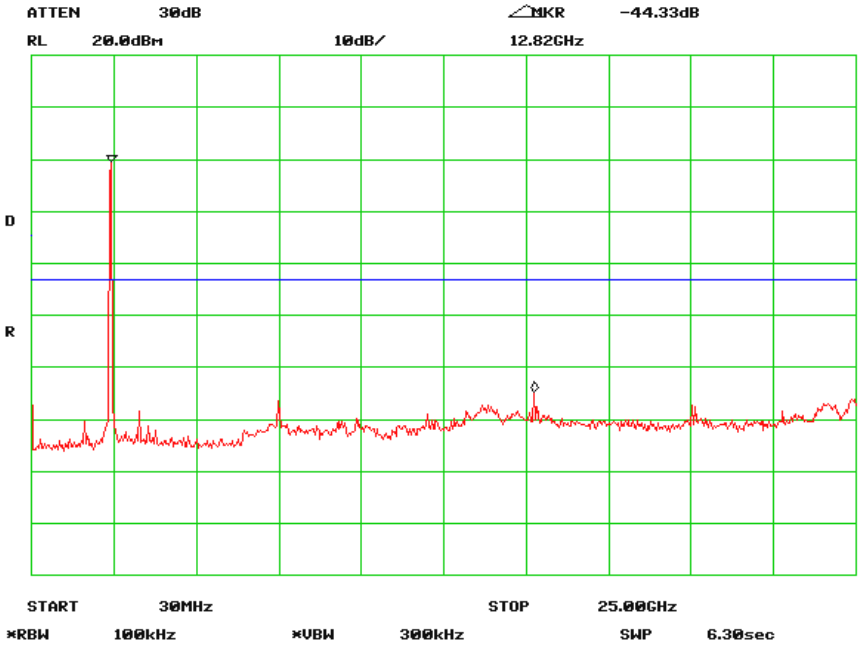
802.11g Middle Channel, Chain 1 -- (G-M-Chain 1)



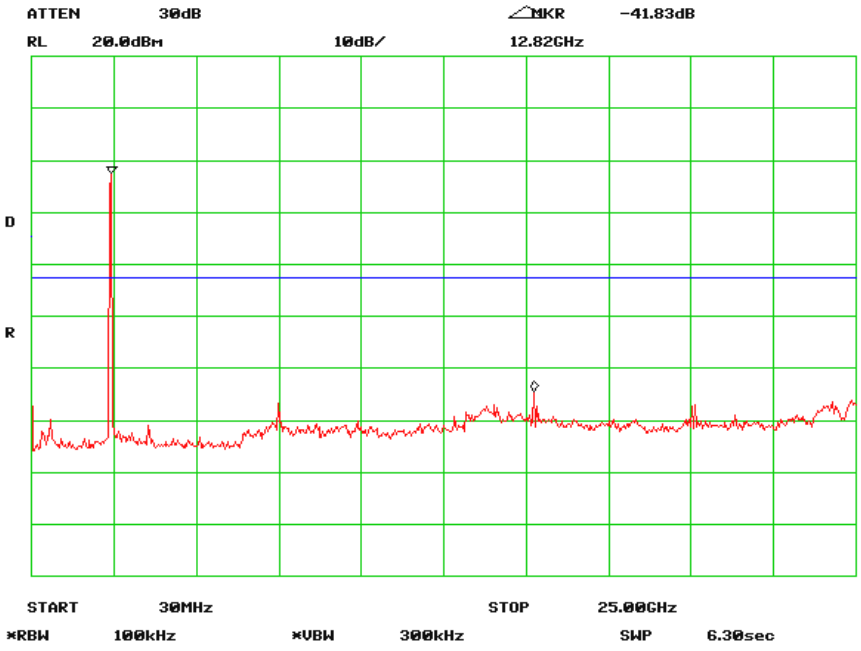
802.11g Middle Channel, Combiner -- (G-M-Combiner)



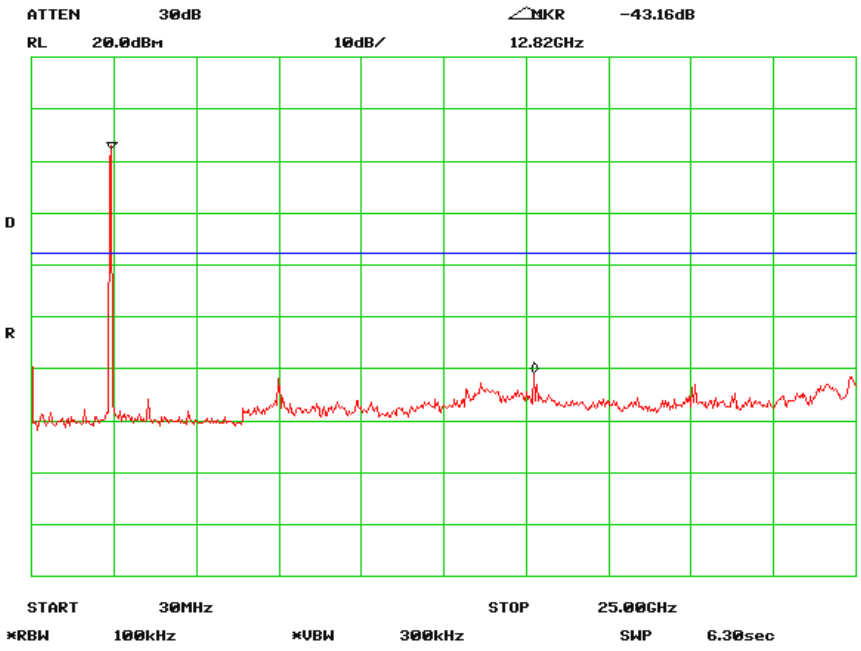
802.11g High Channel, Chain 0 -- (G-H-Chain 0)



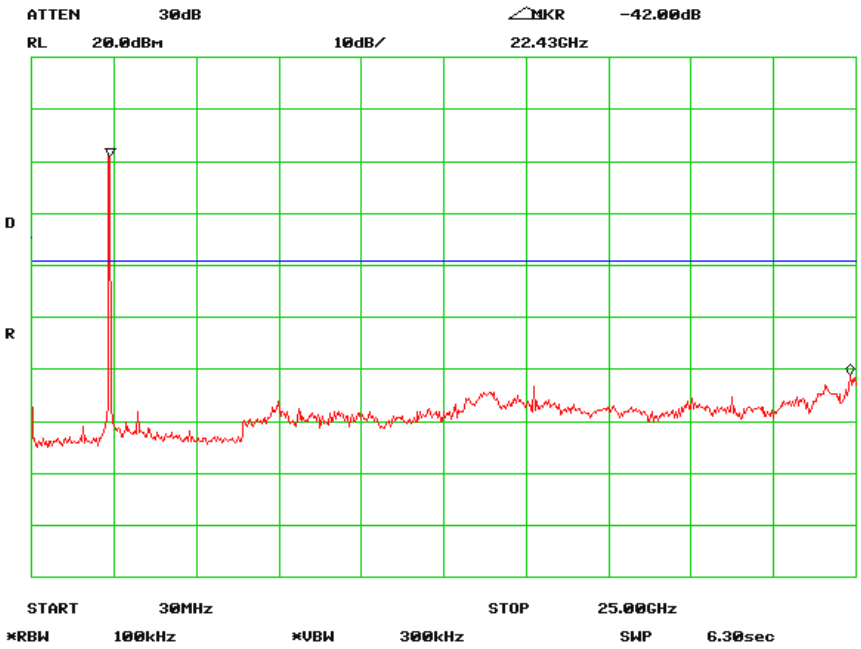
802.11g High Channel, Chain 1 -- (G-H-Chain 1)



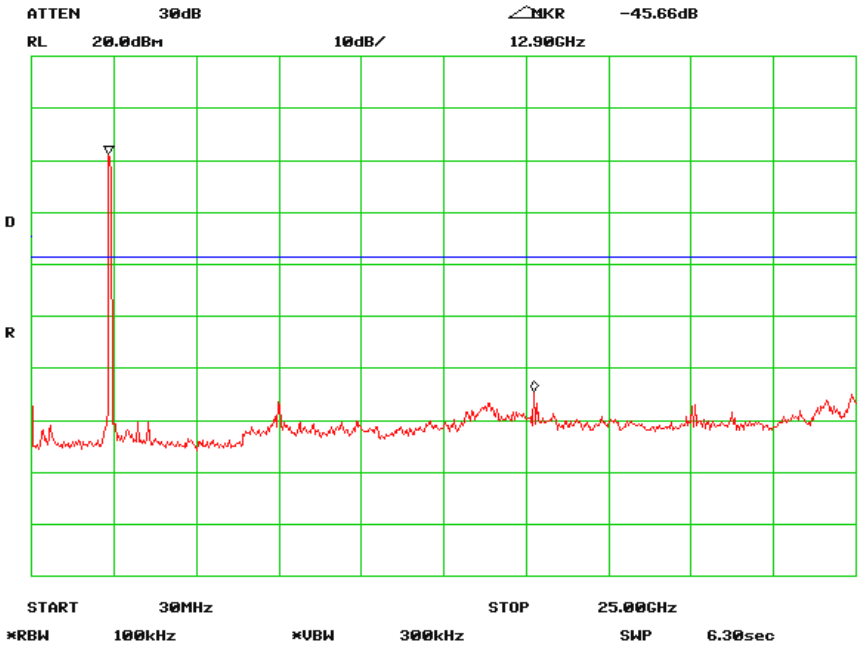
802.11g High Channel, Combiner -- (G-H-Combiner)



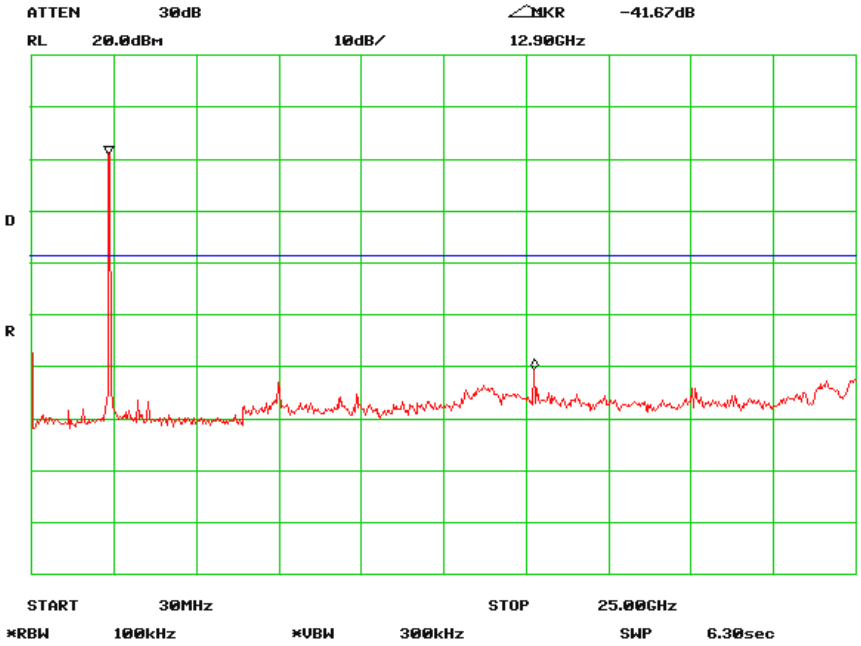
802.11n20 Low Channel, Chain 0 -- (N20-L-Chain 0)



802.11n20 Low Channel, Chain 1 -- (N20-L-Chain 1)

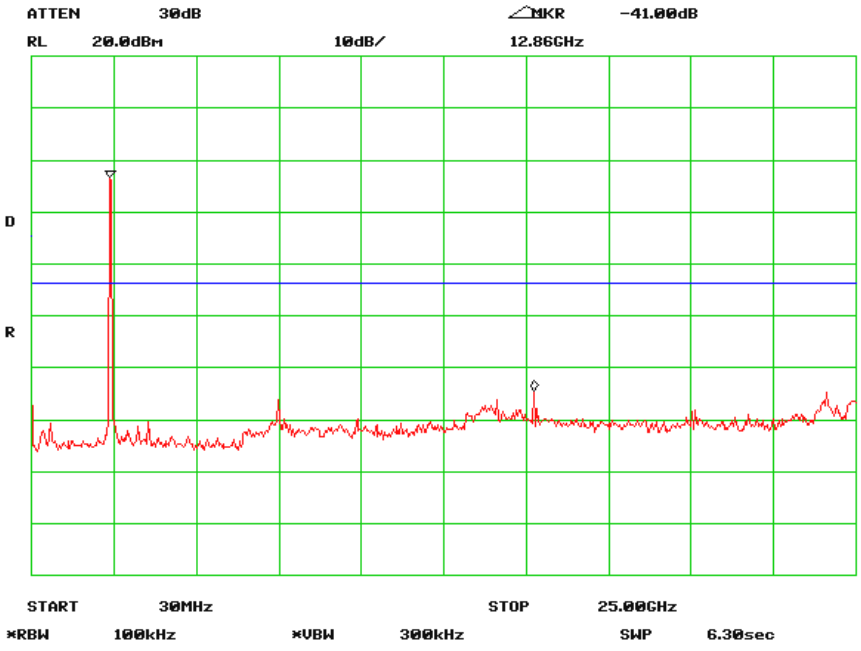


802.11n20 Low Channel, Combiner -- (N20-L-Combiner)

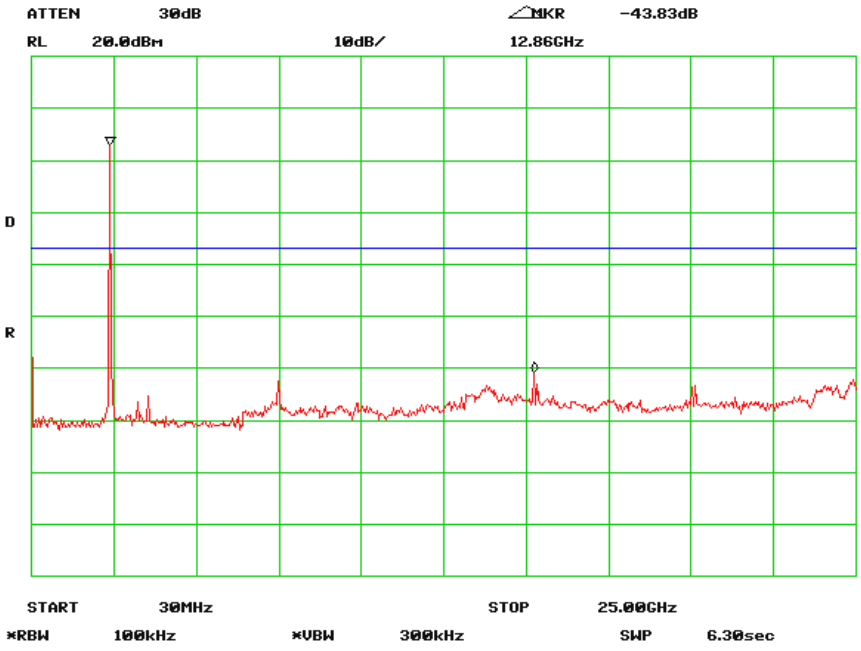


802.11n20 Middle Channel, Chain 0 -- (N20-M-Chain 0)

802.11bn20 Middle Channel, Chain 1 -- (N20-M-Chain 1)

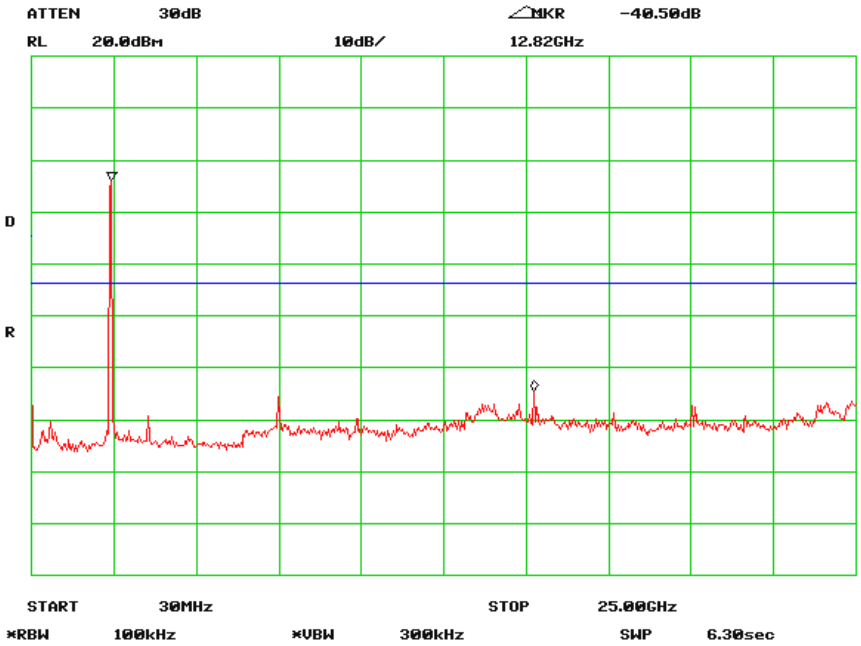


802.11n20 Middle Channel, Combiner -- (N20-M-Combiner)

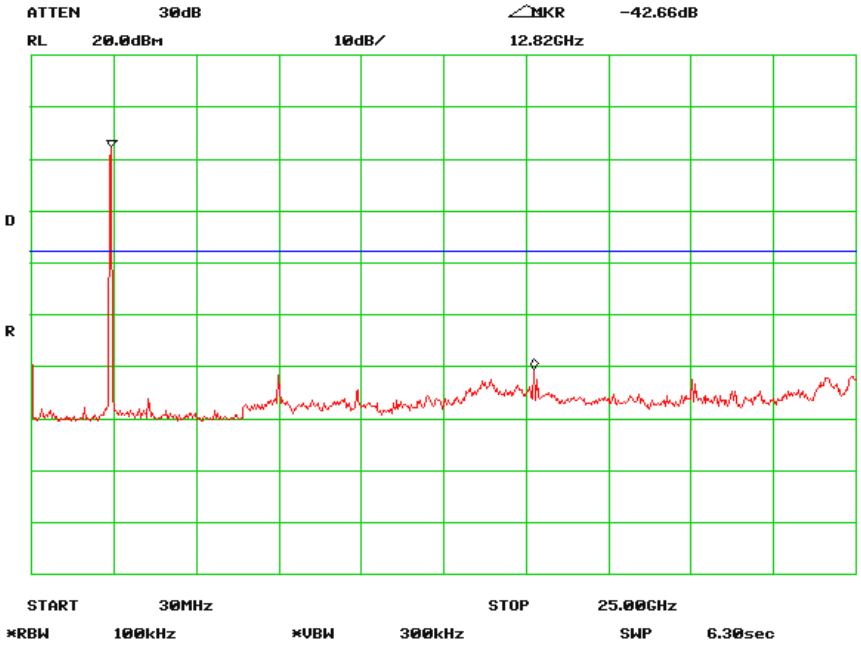


802.11n20 High Channel, Chain 0 -- (N20-H-Chain 0)

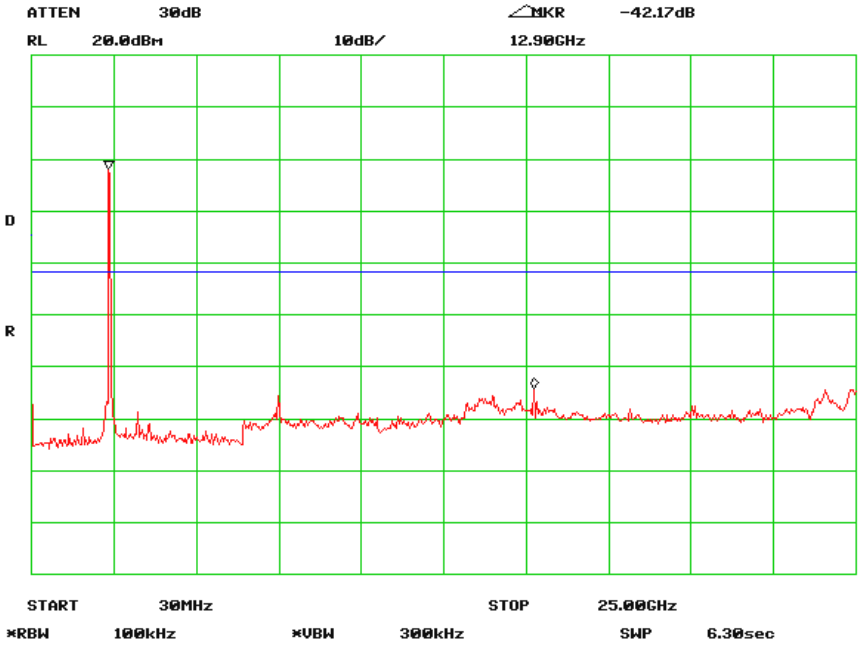
802.11n20 High Channel, Chain 1 -- (N20-H-Chain 1)



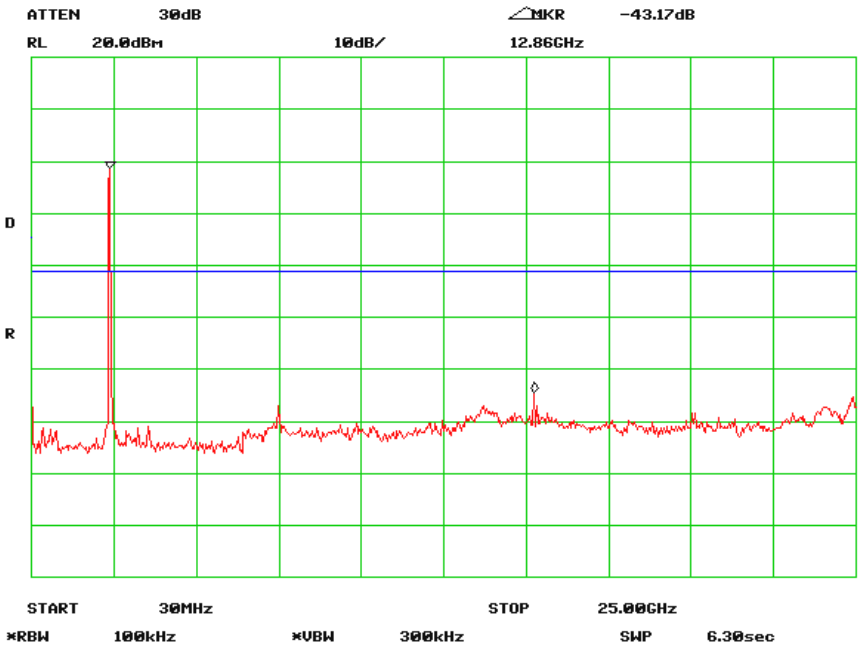
802.11n20 High Channel, Combiner -- (N20-H-Combiner)



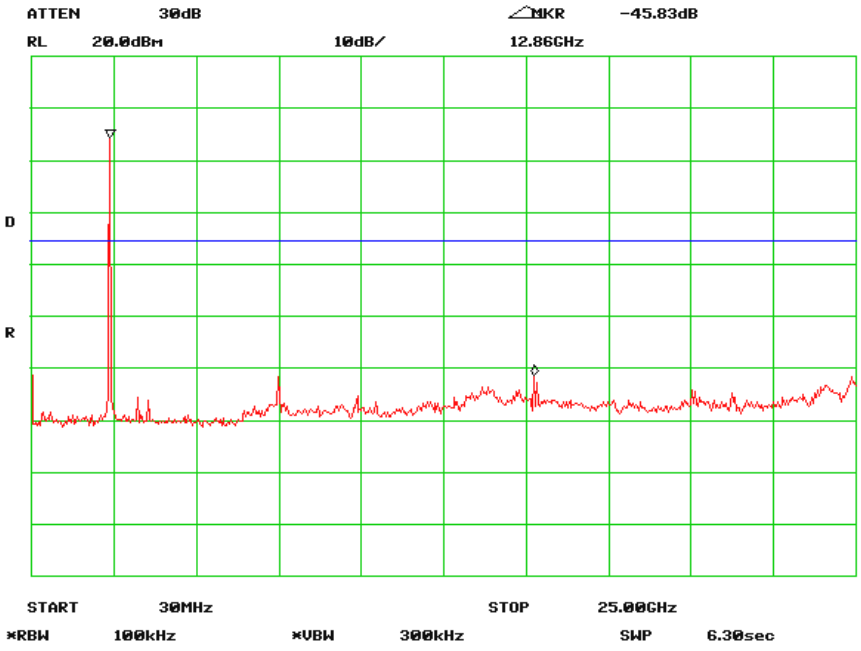
802.11n40 Low Channel, Chain 0 -- (N40-L-Chain 0)



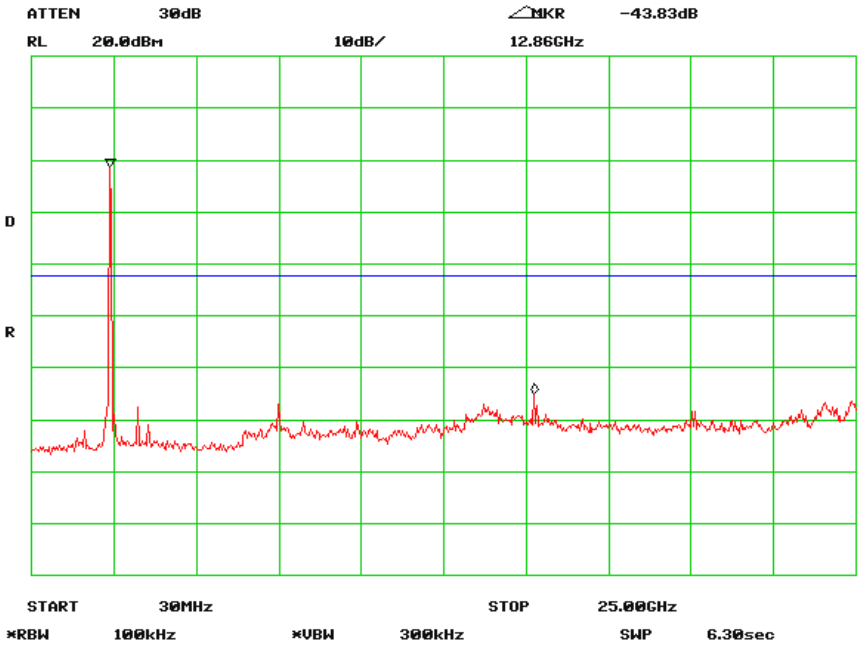
802.11n40 Low Channel, Chain 1 -- (N40-L-Chain 1)



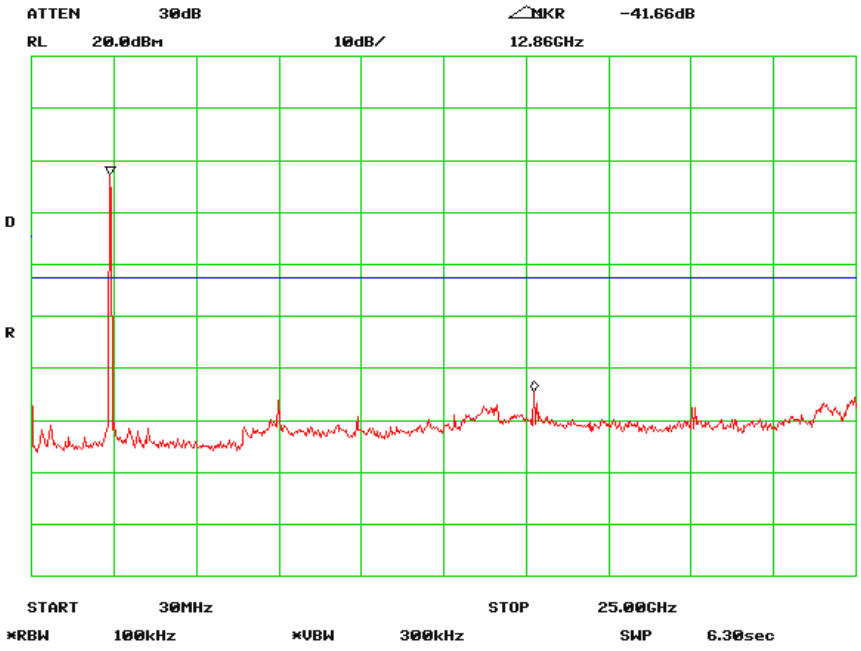
802.11n40 Low Channel, Combiner -- (N40-L-Combiner)



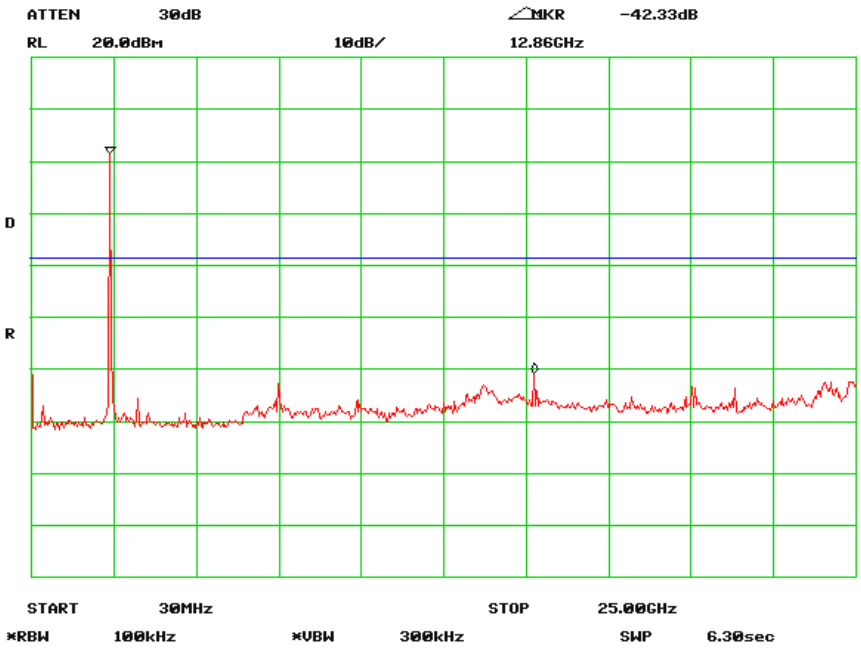
802.11n40 Middle Channel, Chain 0 -- (N40-M-Chain 0)



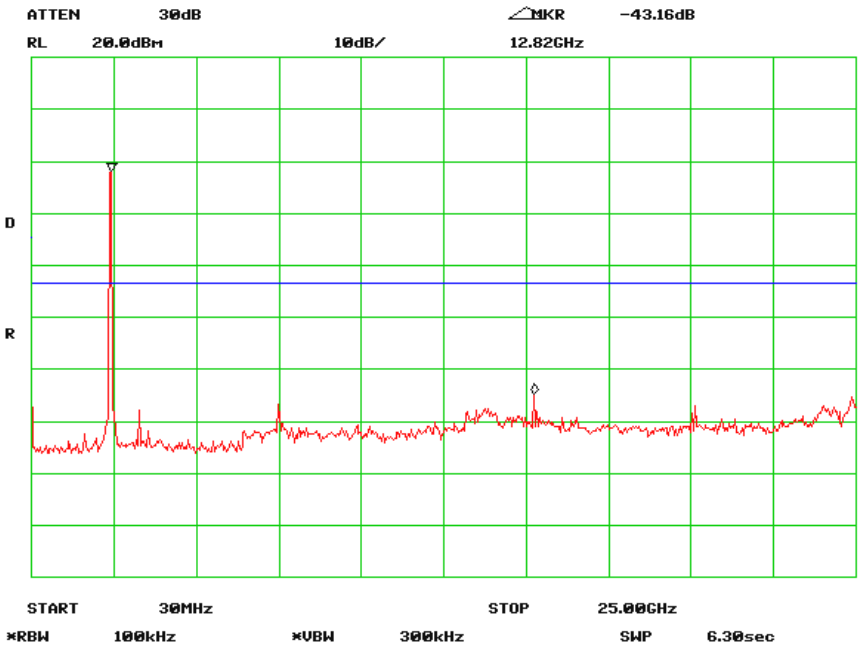
802.11n40 Middle Channel, Chain 1 -- (N40-M-Chain 1)



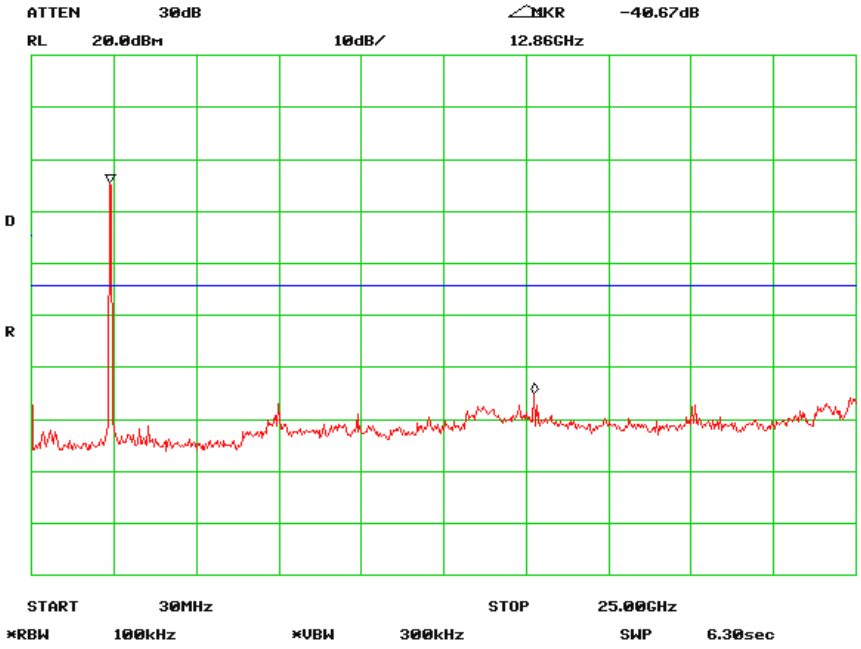
802.11n40 Middle Channel, Combiner -- (N40-M-Combiner)



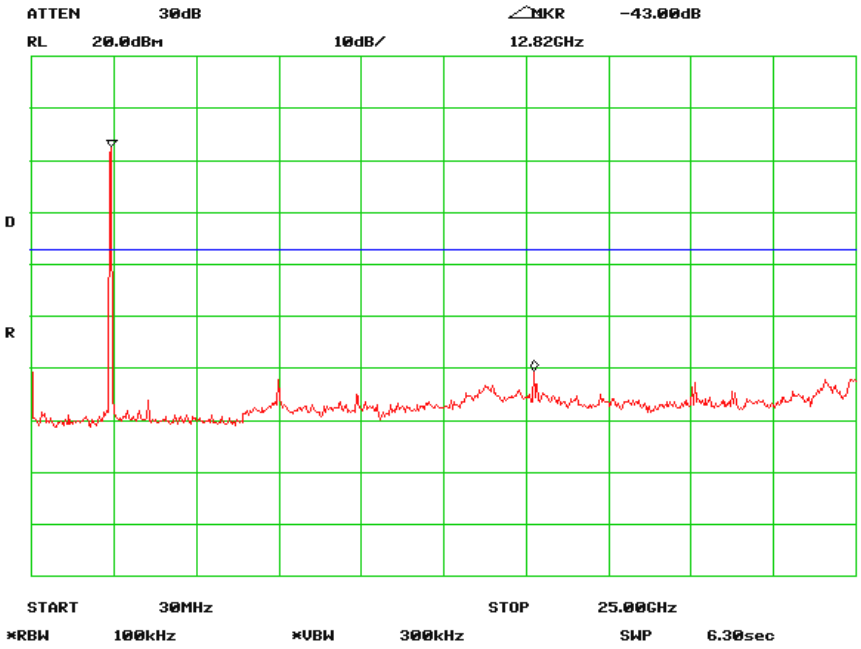
802.11n40 High Channel, Chain 0 -- (N40-H-Chain 0)



802.11n40 High Channel, Chain 1 -- (N40-H-Chain 1)



802.11n40 High Channel, Combiner -- (N40-H-Combiner)



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.

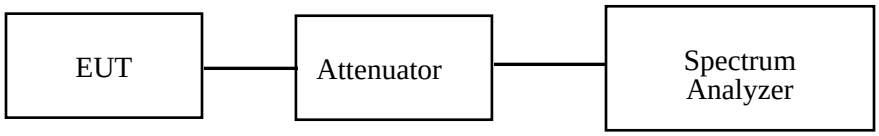
Test Equipment List and Details

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

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

Test Procedure

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



Test Data

Environmental Conditions

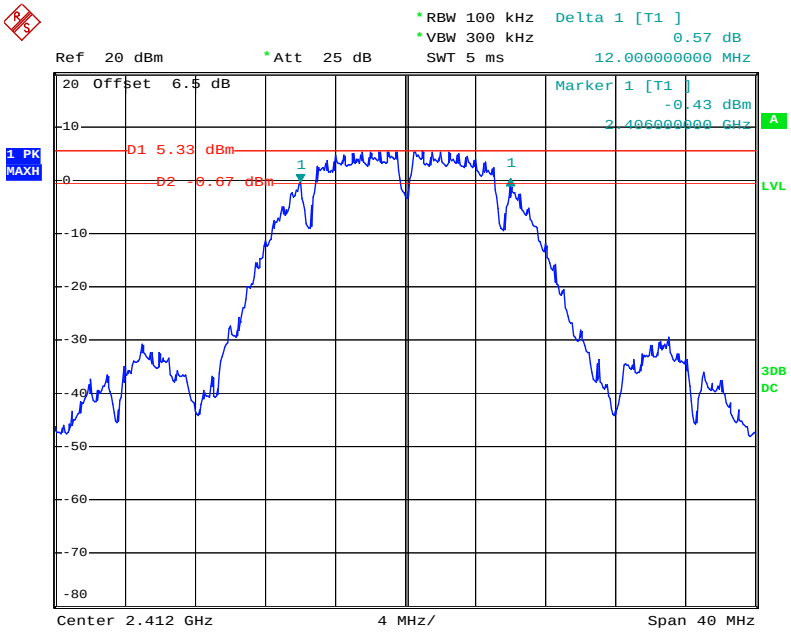
Temperature:	25 °C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

The testing was performed by Felix Li on 2011-03-18 and 2011-03-20

Test Result: Compliance, please refer to the following tables and plots.

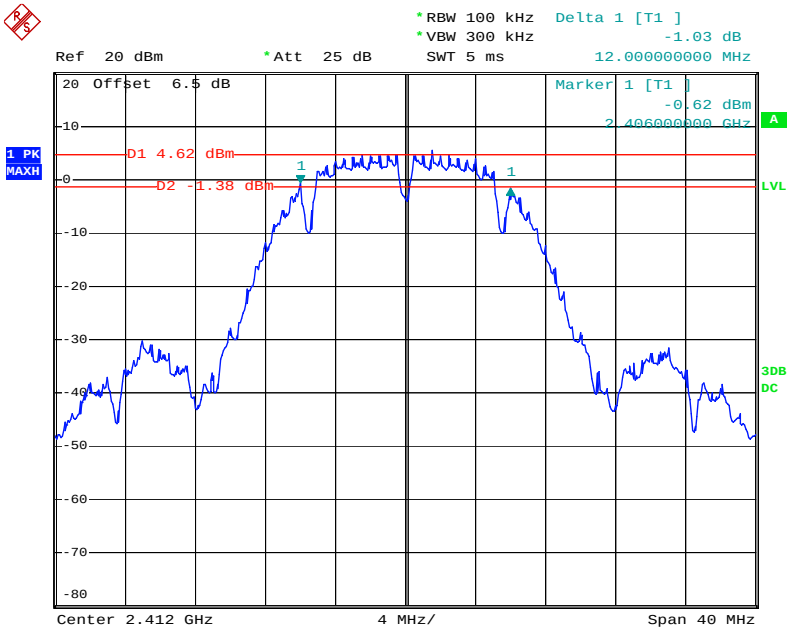
Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
802.11b mode						
Low	2412	1	Chain 0	12.00	500	Pass
Low	2412	1	Chain 1	12.00	500	Pass
Middle	2437	1	Chain 0	12.00	500	Pass
Middle	2437	1	Chain 1	12.00	500	Pass
High	2462	1	Chain 0	12.00	500	Pass
High	2462	1	Chain 1	12.00	500	Pass
802.11g mode						
Low	2412	6	Chain 0	16.24	500	Pass
Low	2412	6	Chain 1	16.08	500	Pass
Middle	2437	6	Chain 0	16.24	500	Pass
Middle	2437	6	Chain 1	16.32	500	Pass
High	2462	6	Chain 0	16.24	500	Pass
High	2462	6	Chain 1	16.16	500	Pass
802.11n20 mode						
Low	2412	6.5	Chain 0	16.96	500	Pass
Low	2412	6.5	Chain 1	16.96	500	Pass
Middle	2437	6.5	Chain 0	16.96	500	Pass
Middle	2437	6.5	Chain 1	16.96	500	Pass
High	2462	6.5	Chain 0	16.96	500	Pass
High	2462	6.5	Chain 1	16.64	500	Pass
802.11n40 mode						
Low	2422	13.5	Chain 0	35.40	500	Pass
Low	2422	13.5	Chain 1	35.40	500	Pass
Middle	2437	13.5	Chain 0	35.40	500	Pass
Middle	2437	13.5	Chain 1	35.52	500	Pass
High	2452	13.5	Chain 0	35.40	500	Pass
High	2452	13.5	Chain 1	35.28	500	Pass

802.11b Low Channel, Chain 0



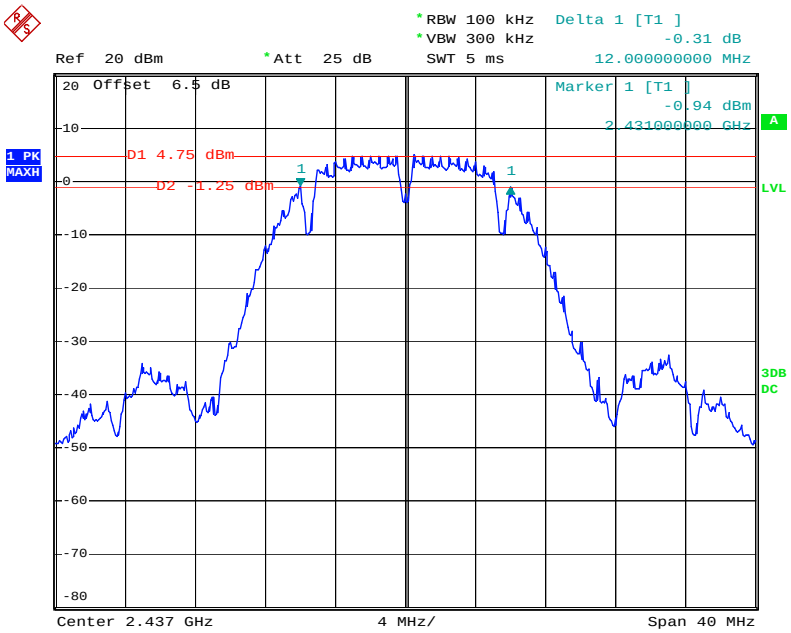
Date: 20.MAR.2011 09:33:25

802.11b Low Channel, Chain 1



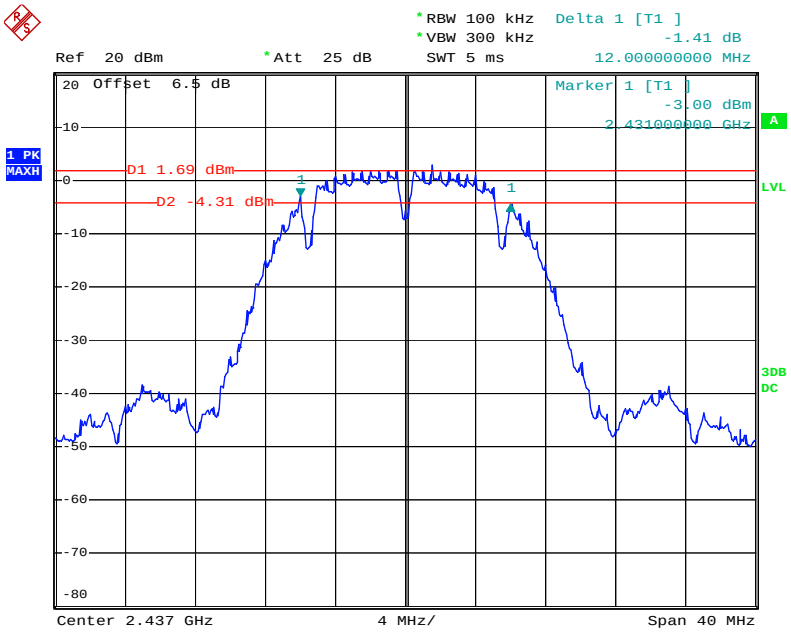
Date: 18.MAR.2011 09:54:38

802.11b Middle Channel, Chain 0



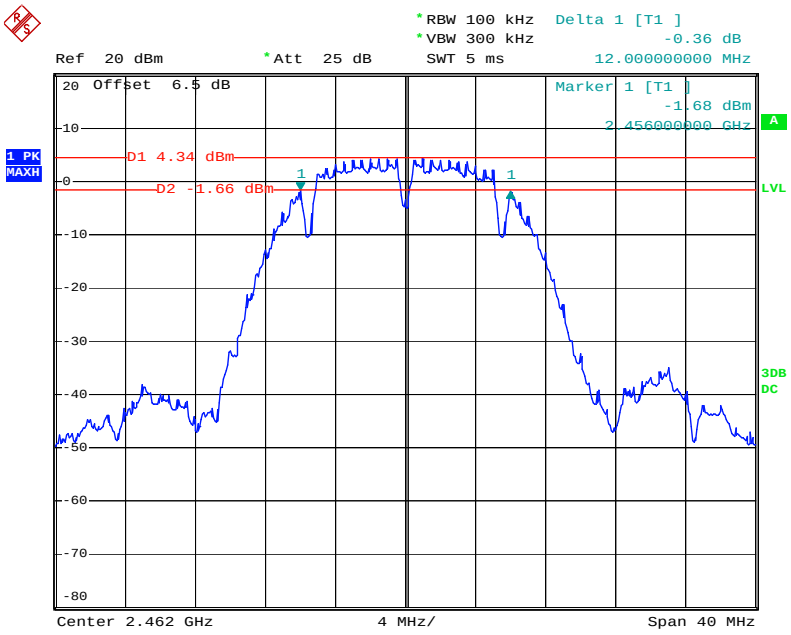
Date: 20.MAR.2011 09:59:54

802.11b Middle Channel, Chain 1



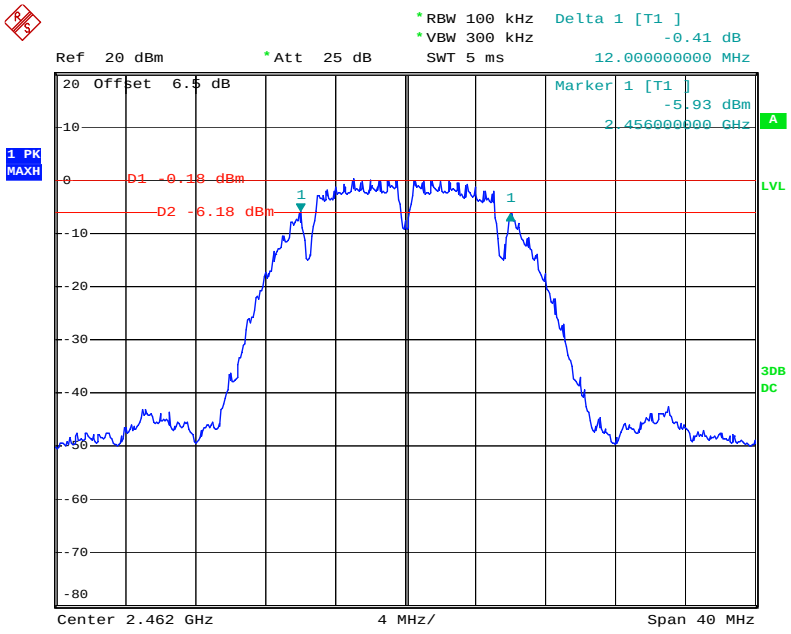
Date: 18.MAR.2011 09:57:53

802.11b High Channel, Chain 0



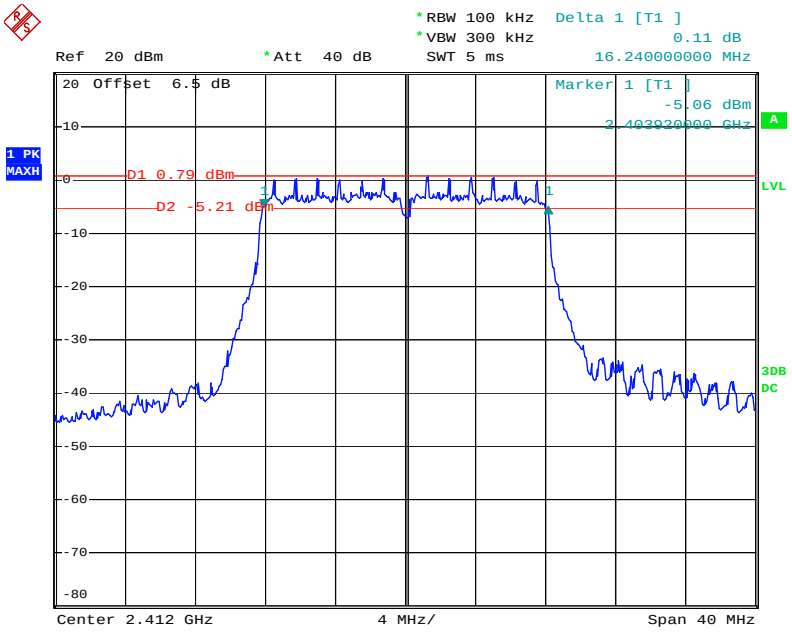
Date: 20.MAR.2011 10:24:53

802.11b High Channel, Chain 1



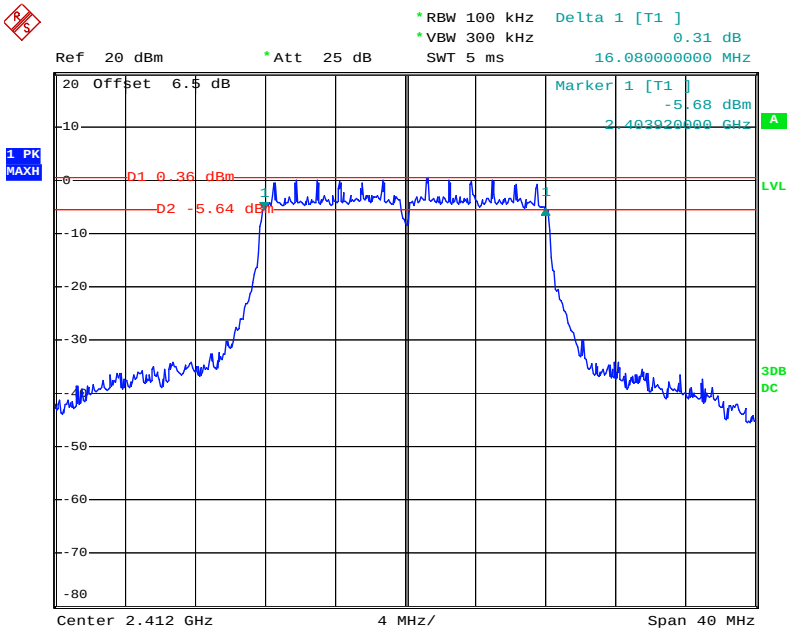
Date: 18.MAR.2011 09:59:59

802.11g Low Channel, Chain 0



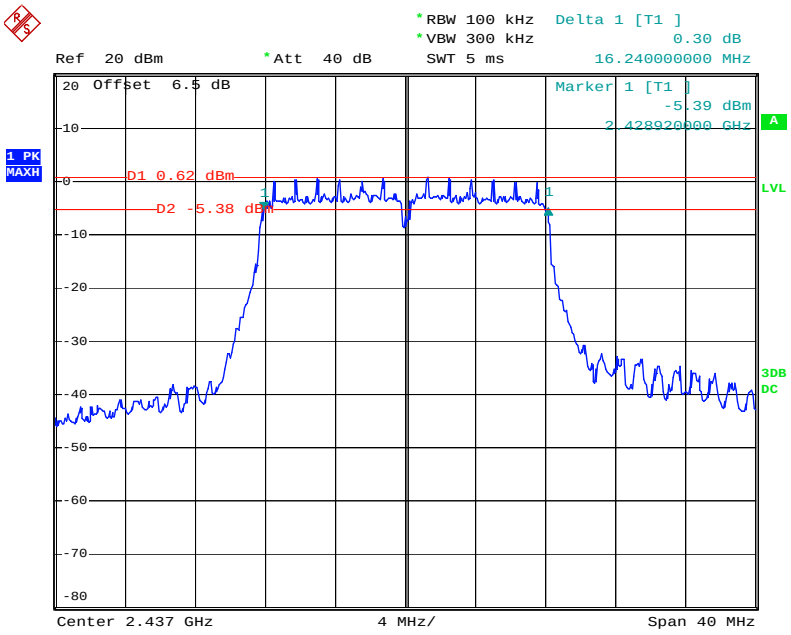
Date: 20.MAR.2011 13:21:21

802.11g Low Channel, Chain 1



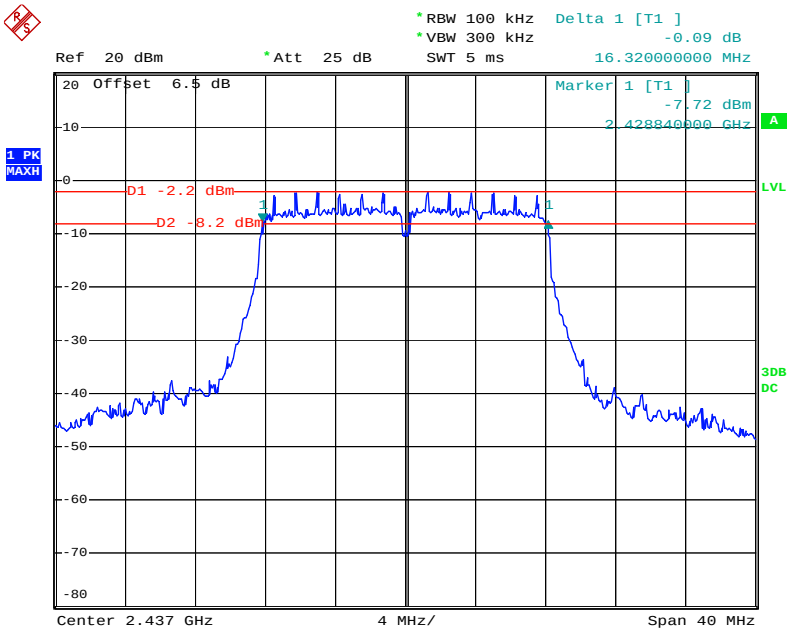
Date: 18.MAR.2011 10:39:02

802.11g Middle Channel, Chain 0



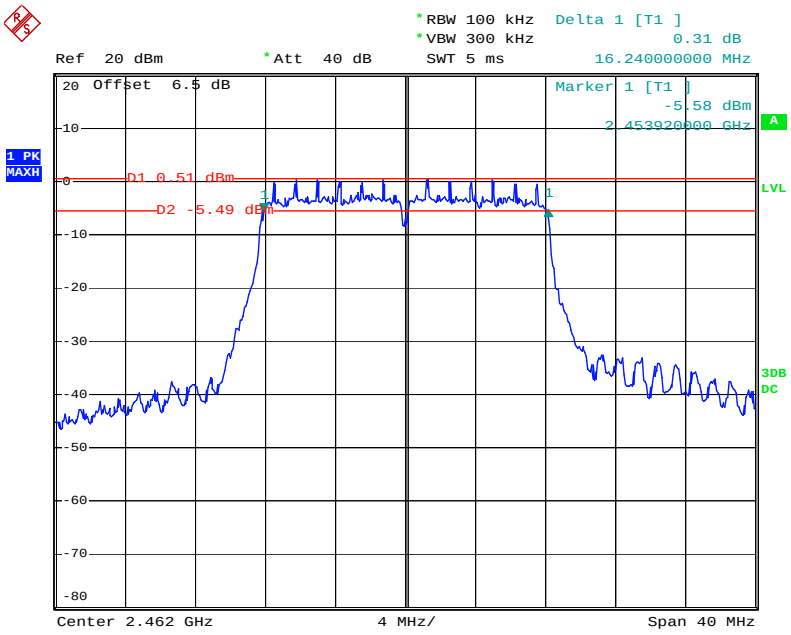
Date: 20.MAR.2011 13:22:34

802.11g Middle Channel, Chain 1



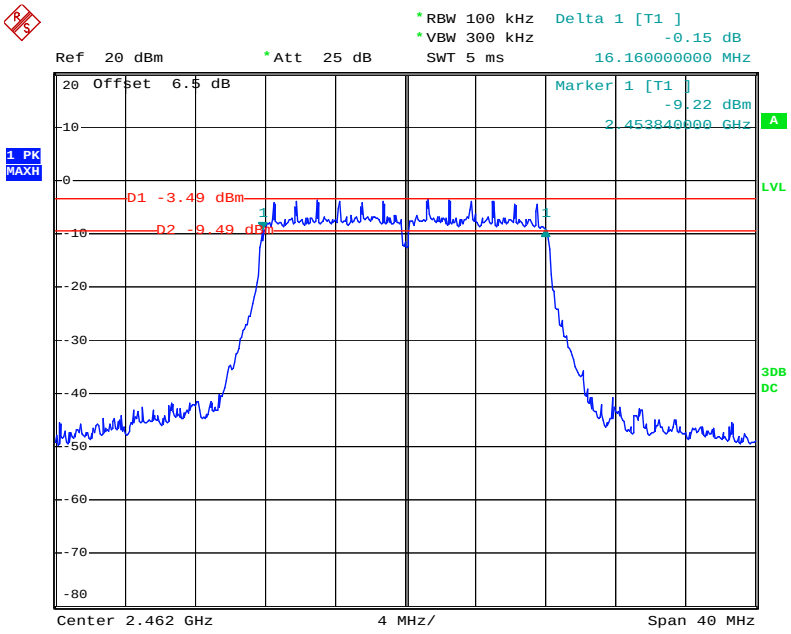
Date: 18.MAR.2011 10:40:26

802.11g High Channel, Chain 0



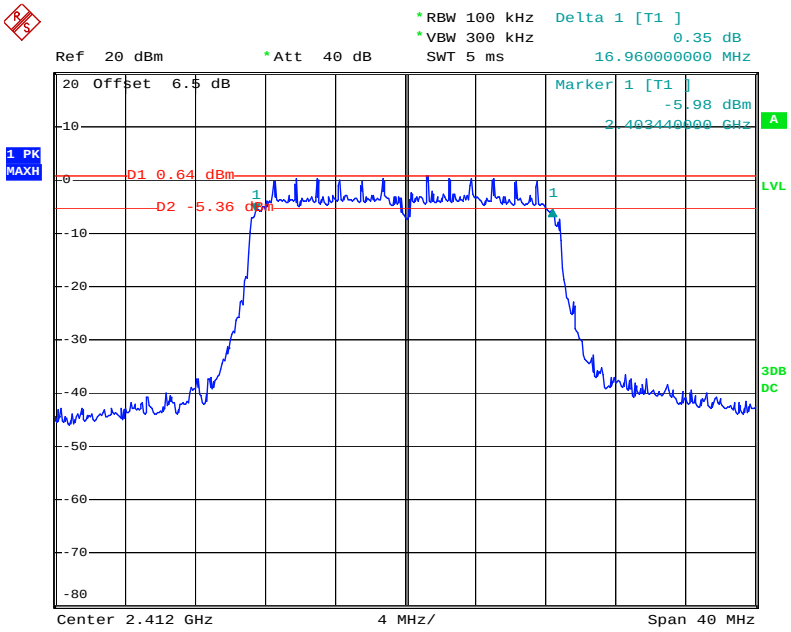
Date: 20.MAR.2011 13:23:45

802.11g High Channel, Chain 1



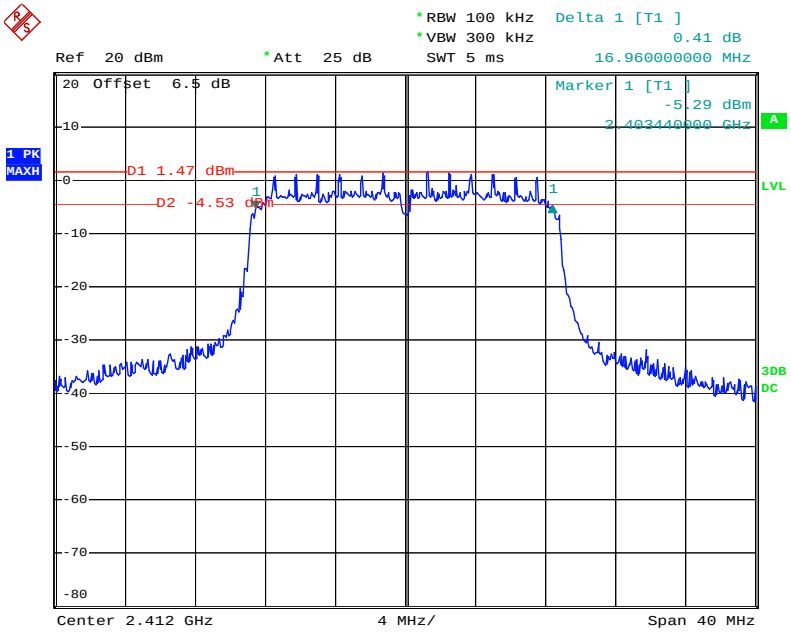
Date: 18.MAR.2011 10:41:30

802.11n20 Low Channel, Chain 0



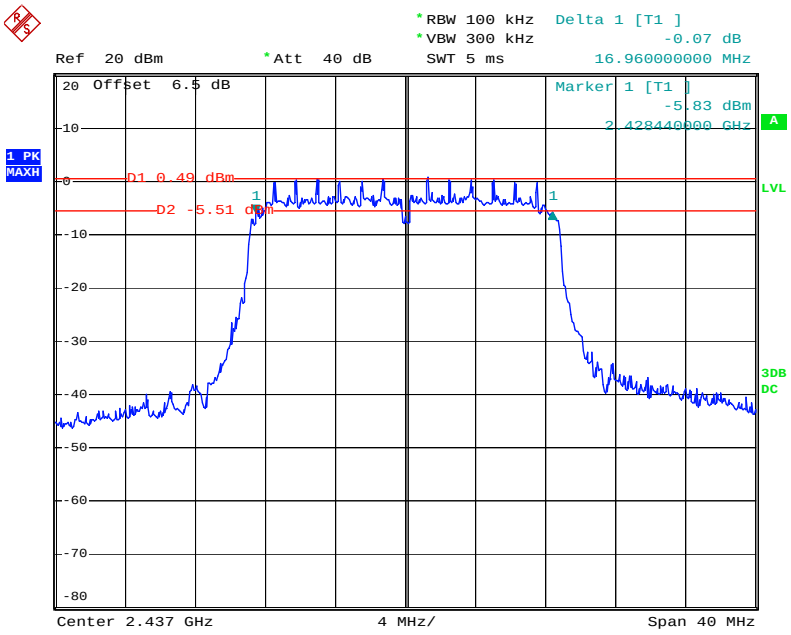
Date: 20.MAR.2011 13:35:14

802.11 n20 Low Channel, Chain 1



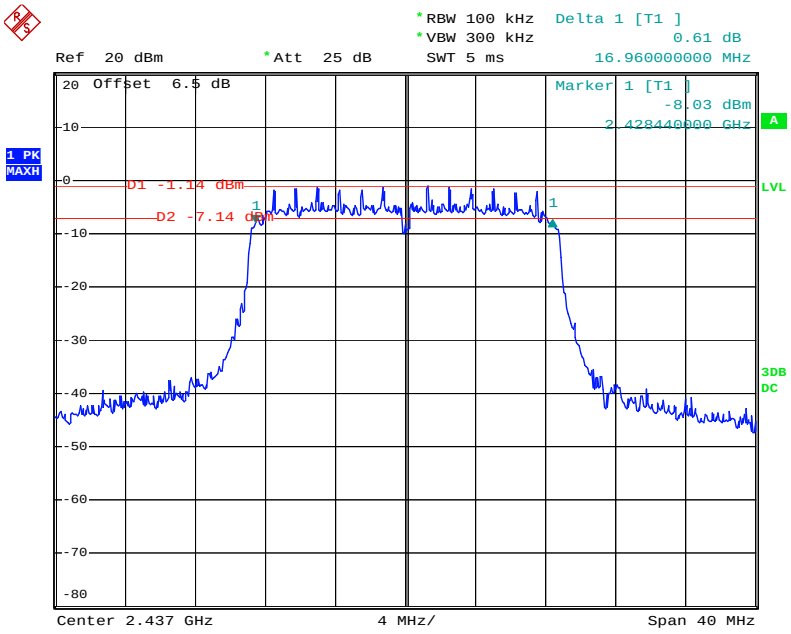
Date: 18.MAR.2011 12:58:54

802.11 n20 Middle Channel, Chain 0



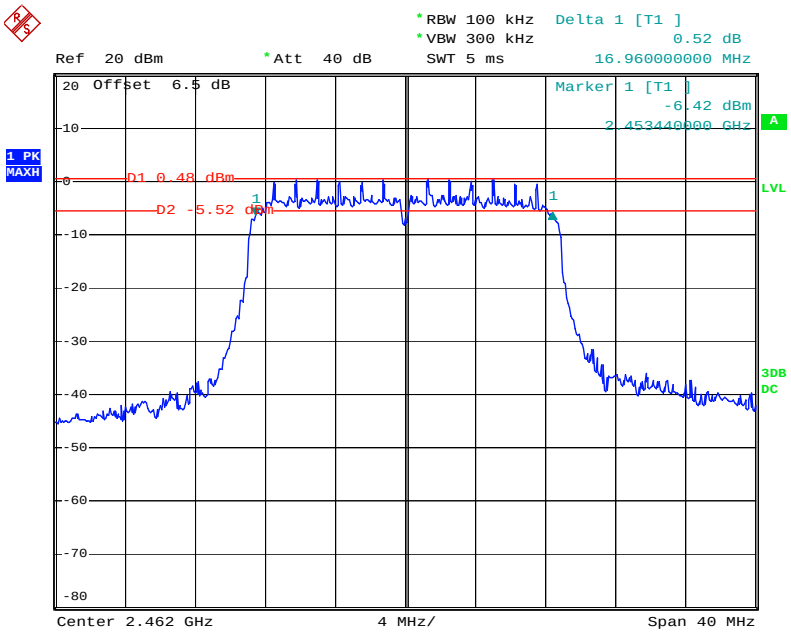
Date: 20.MAR.2011 13:39:01

802.11 n20 Middle Channel, Chain 1



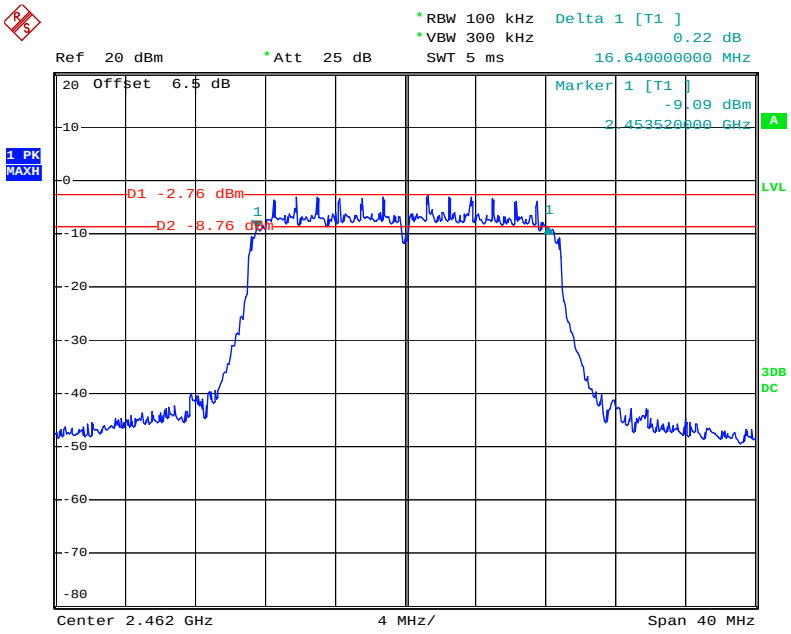
Date: 18.MAR.2011 13:00:14

802.11 n20 High Channel, Chain 0



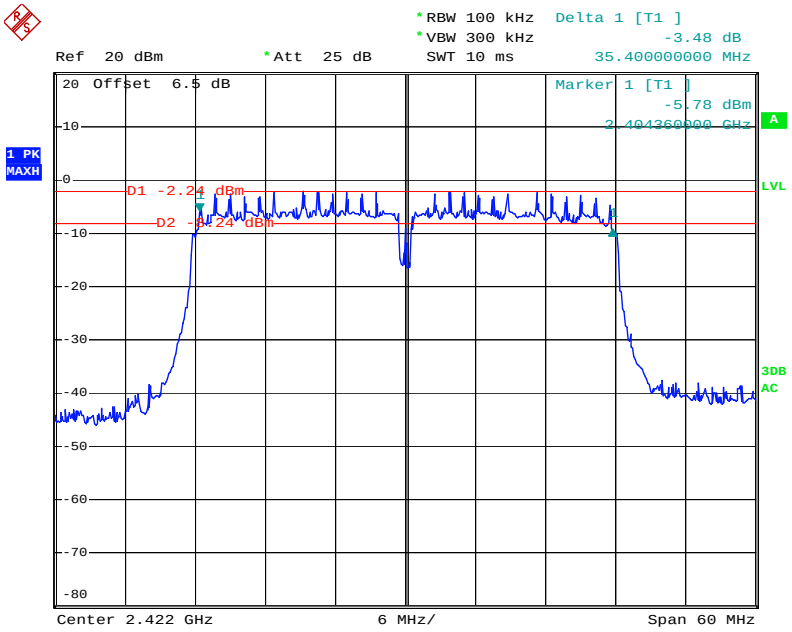
Date: 20.MAR.2011 13:40:16

802.11 n20 High Channel, Chain 1



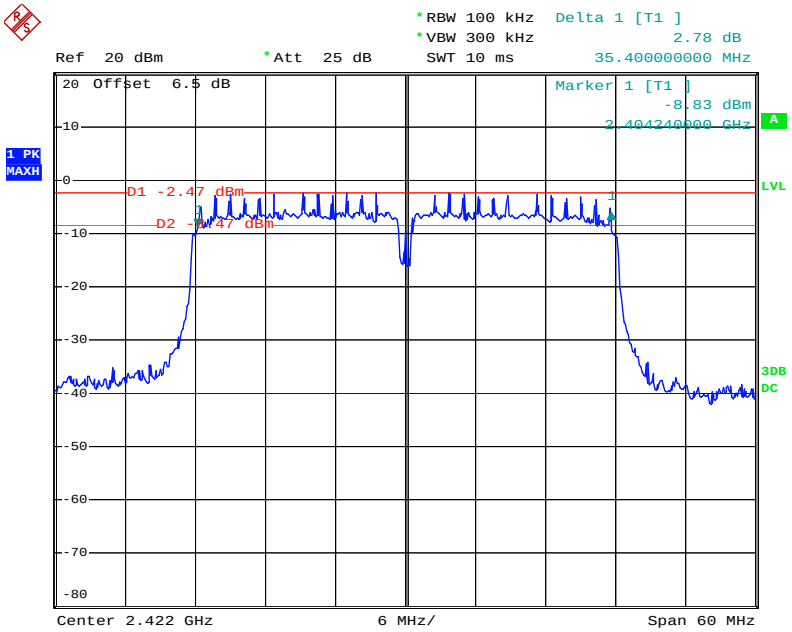
Date: 18.MAR.2011 13:01:20

802.11n40 Low Channel, Chain 0



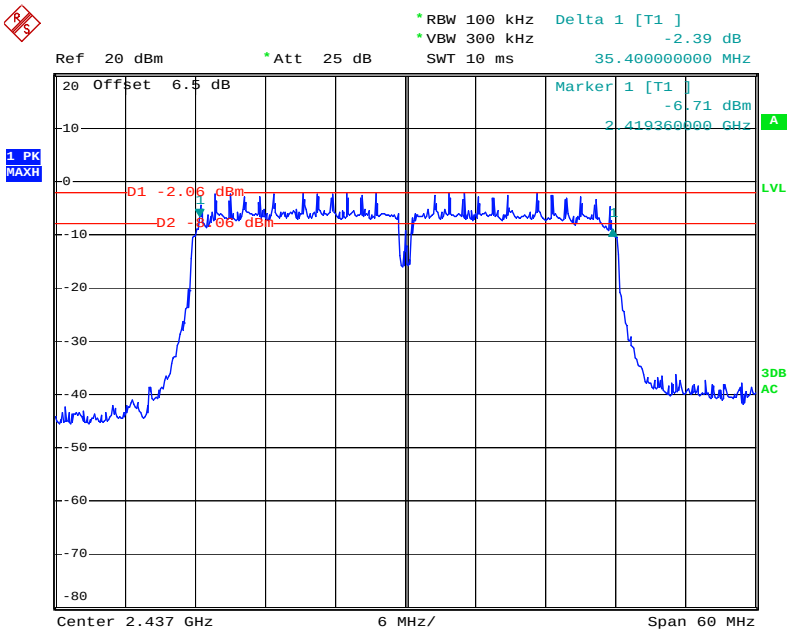
Date: 20.MAR.2011 13:51:08

802.11 n40 Low Channel, Chain 1



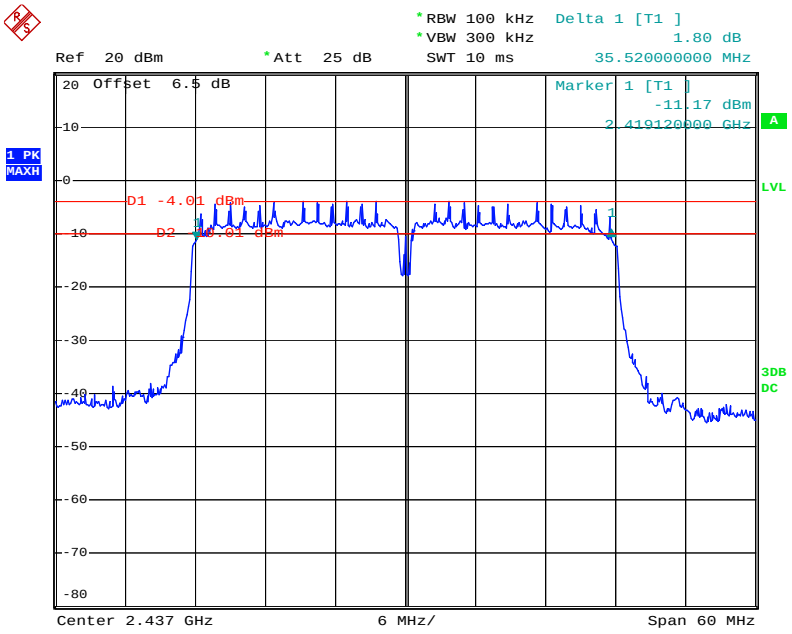
Date: 18.MAR.2011 13:56:29

802.11 n40 Middle Channel, Chain 0



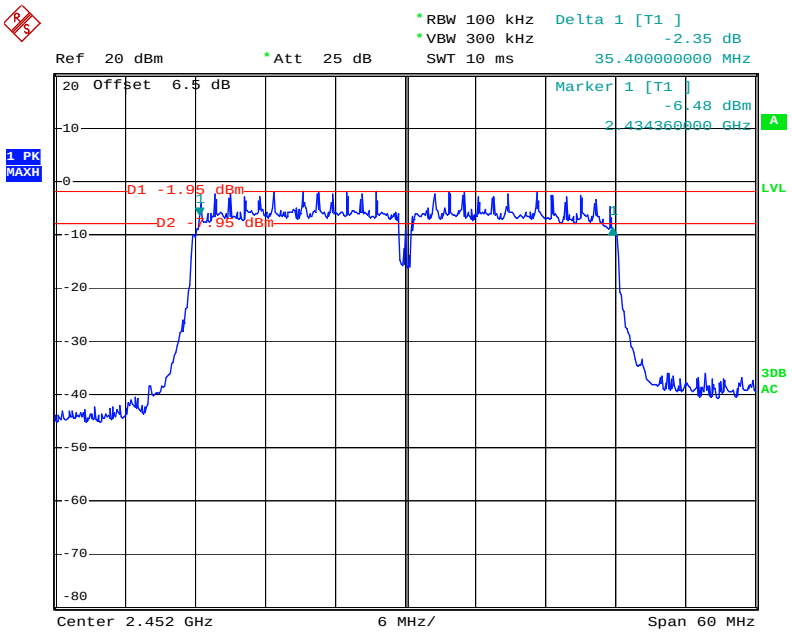
Date: 20.MAR.2011 13:54:40

802.11 n40 Middle Channel, Chain 1



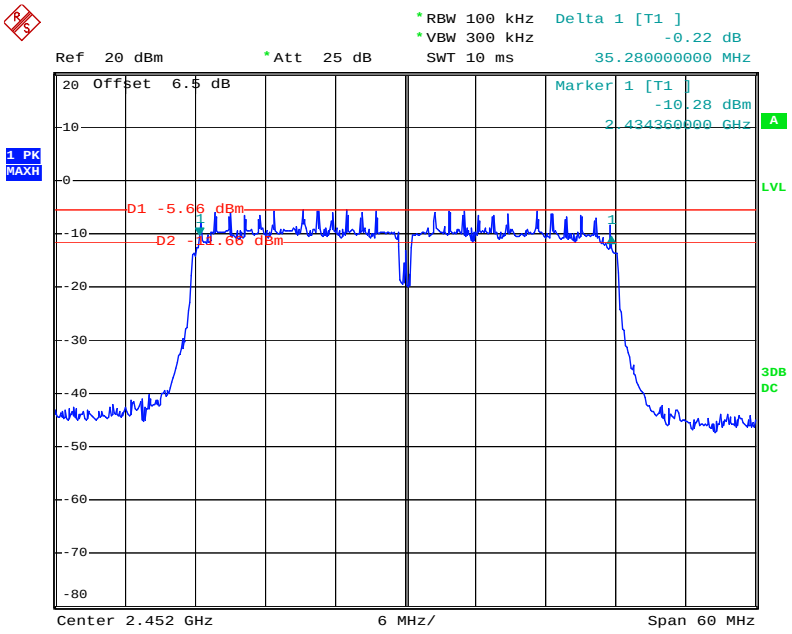
Date: 18.MAR.2011 13:57:46

802.11 n40 High Channel, Chain 0



Date: 20.MAR.2011 13:56:28

802.11 n40 High Channel, Chain 1



Date: 18.MAR.2011 14:02:25

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.

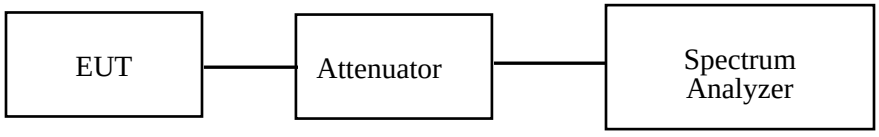
Test Equipment List and Details

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

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

Test Procedure

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



Test Data

Environmental Conditions

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

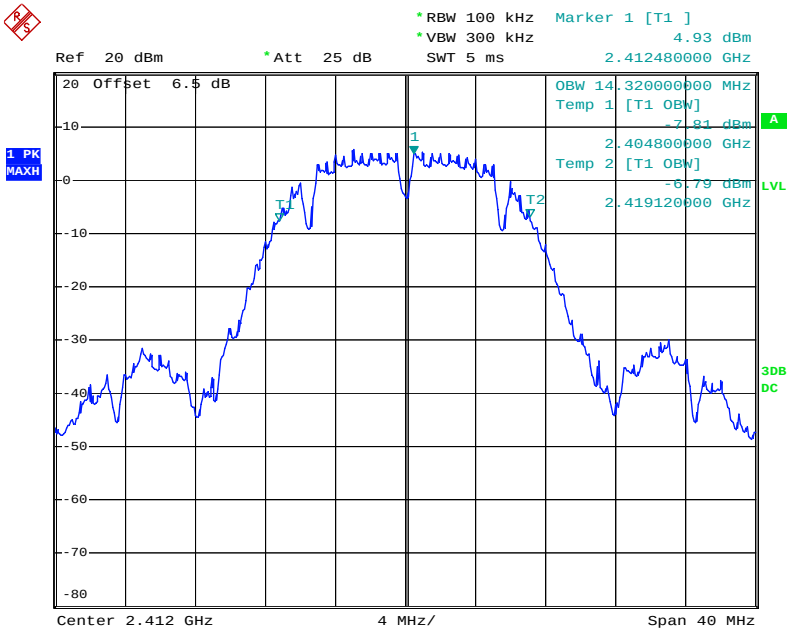
The testing was performed by Felix Li on 2011-03-18 and 2011-03-20

Test Mode: Transmitting

Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Conducted Power (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11b mode							
Low	2412	1	Chain 0	16.39	19.31	30	Pass
Low	2412	1	Chain 1	16.20			
Middle	2437	1	Chain 0	15.85	17.64	30	Pass
Middle	2437	1	Chain 1	12.92			
High	2462	1	Chain 0	15.07	16.51	30	Pass
High	2462	1	Chain 1	11.03			
802.11g mode							
Low	2412	6	Chain 0	13.82	16.42	30	Pass
Low	2412	6	Chain 1	12.96			
Middle	2437	6	Chain 0	13.37	15.44	30	Pass
Middle	2437	6	Chain 1	11.22			
High	2462	6	Chain 0	13.29	14.80	30	Pass
High	2462	6	Chain 1	9.48			
802.11n20 mode							
Low	2412	6.5	Chain 0	12.12	15.75	30	Pass
Low	2412	6.5	Chain 1	13.28			
Middle	2437	6.5	Chain 0	12.23	14.74	30	Pass
Middle	2437	6.5	Chain 1	11.17			
High	2462	6.5	Chain 0	12.08	14.03	30	Pass
High	2462	6.5	Chain 1	9.62			
802.11n40 mode							
Low	2422	13.5	Chain 0	13.39	16.06	30	Pass
Low	2422	13.5	Chain 1	12.68			
Middle	2437	13.5	Chain 0	13.53	15.52	30	Pass
Middle	2437	13.5	Chain 1	11.17			
High	2452	13.5	Chain 0	13.68	15.20	30	Pass
High	2452	13.5	Chain 1	9.92			

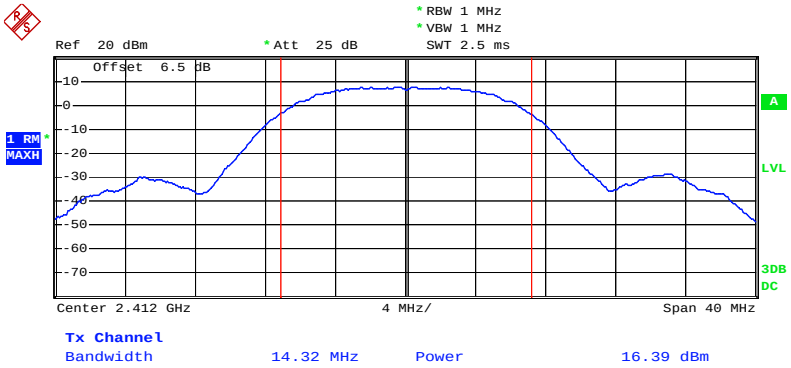
802.11b, Chain 0

99% Occupied Bandwidth, Low Channel



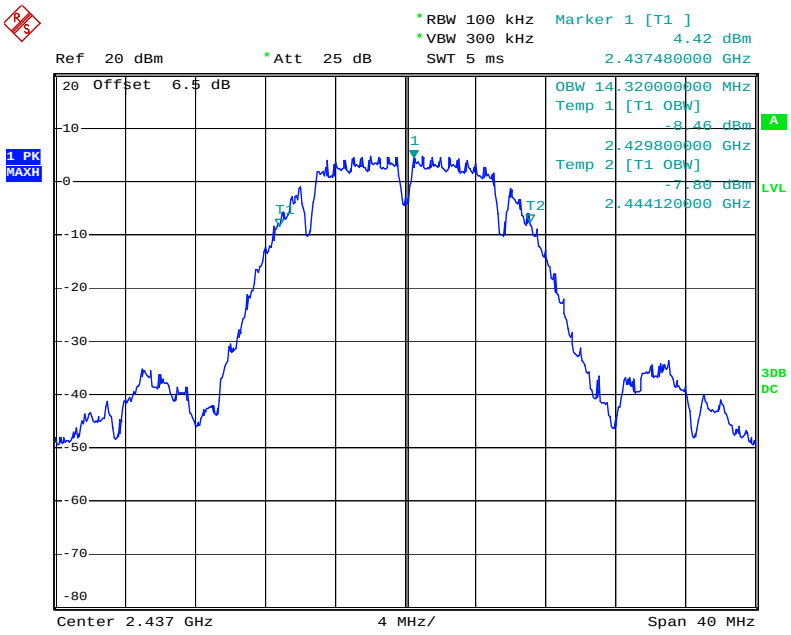
Date: 20.MAR.2011 09:35:41

RF Output Power, Low Channel



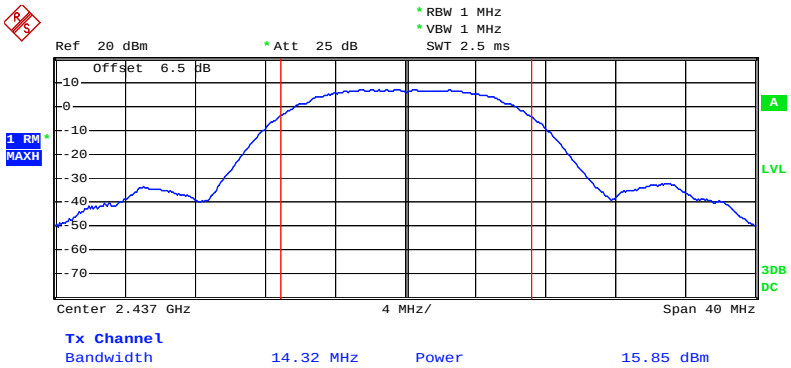
Date: 20.MAR.2011 09:36:47

99% Occupied Bandwidth, Middle Channel



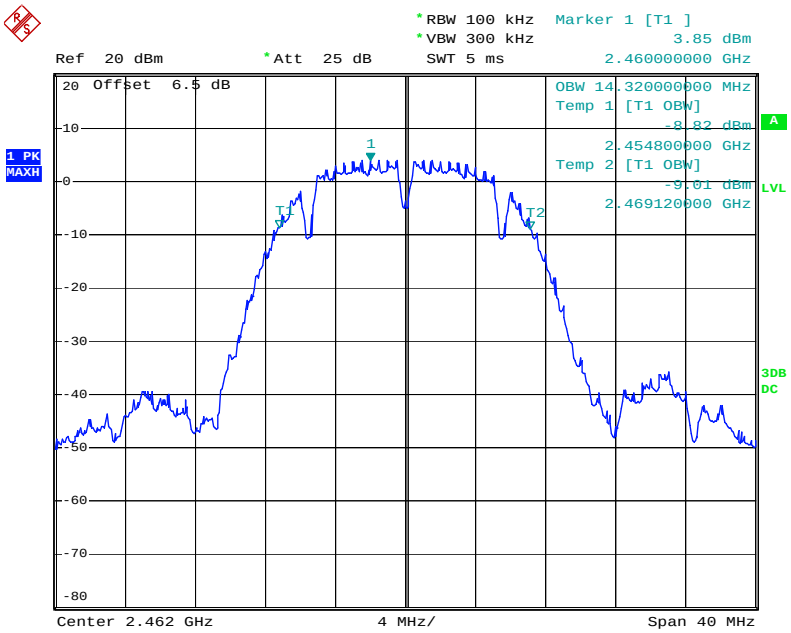
Date: 20.MAR.2011 10:00:54

RF Output Power, Middle Channel



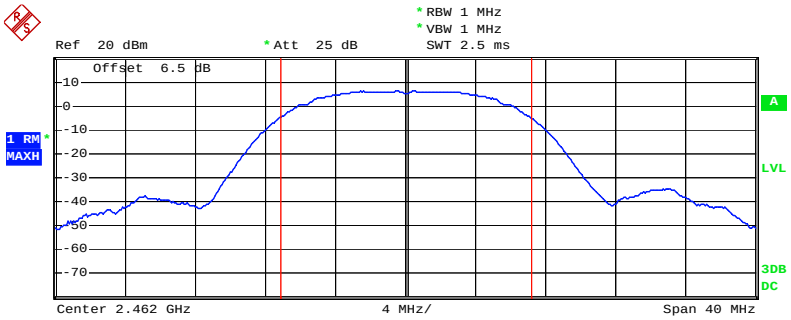
Date: 20.MAR.2011 10:01:55

99% Occupied Bandwidth, High Channel



Date: 20.MAR.2011 10:25:32

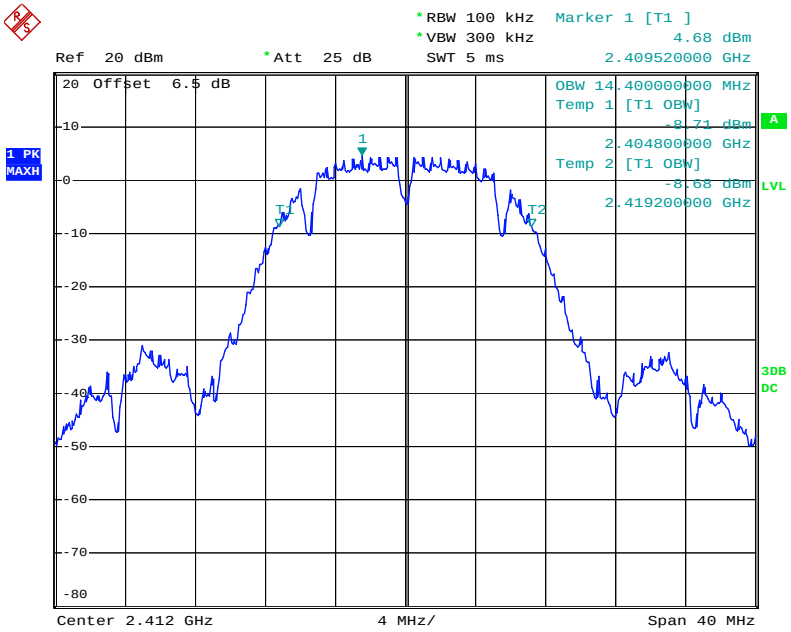
RF Output Power, High Channel



Date: 20.MAR.2011 10:27:37

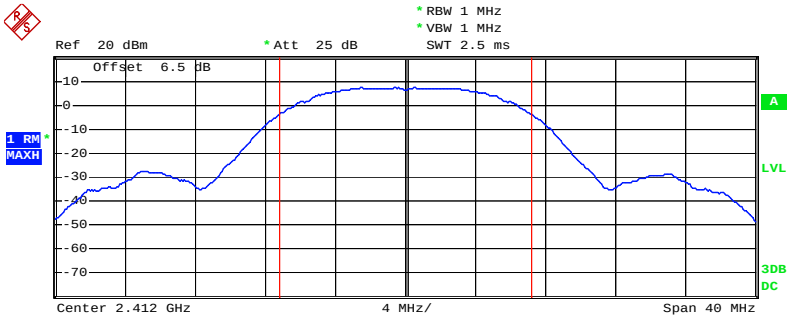
802.11b, Chain 1

99% Occupied Bandwidth, Low Channel



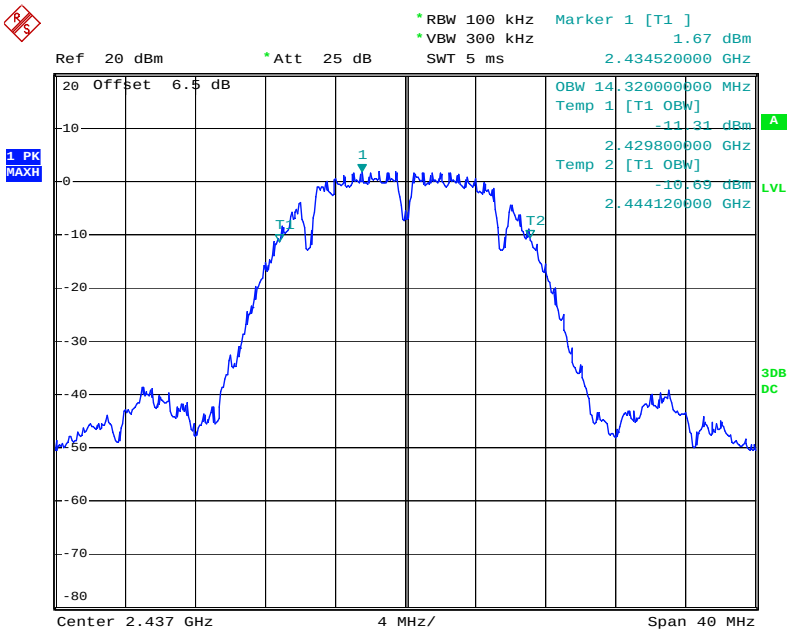
Date: 18.MAR.2011 09:43:13

RF Output Power, Low Channel



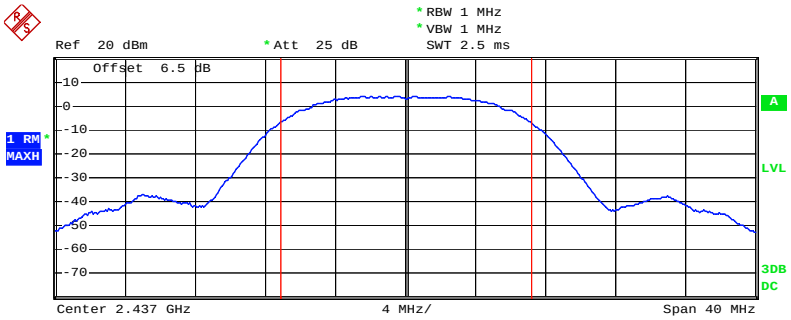
Date: 18.MAR.2011 09:52:48

99% Occupied Bandwidth, Middle Channel



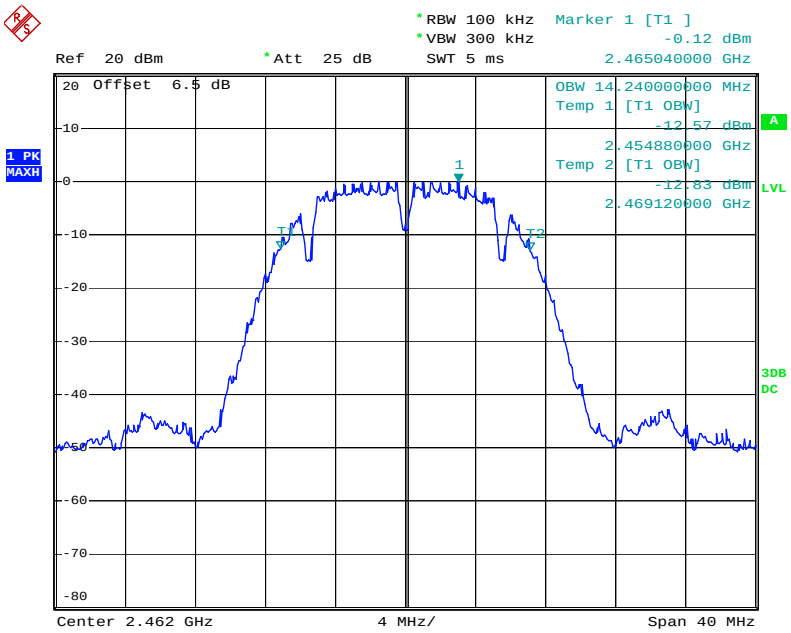
Date: 18.MAR.2011 09:44:05

RF Output Power, Middle Channel



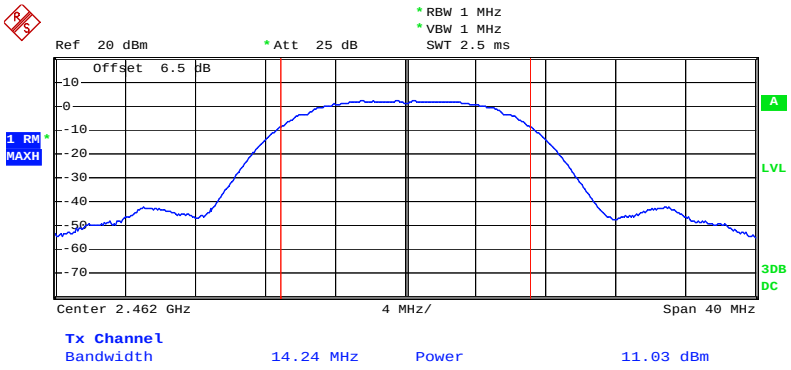
Date: 18.MAR.2011 09:47:38

99% Occupied Bandwidth, High Channel



Date: 18.MAR.2011 09:44:57

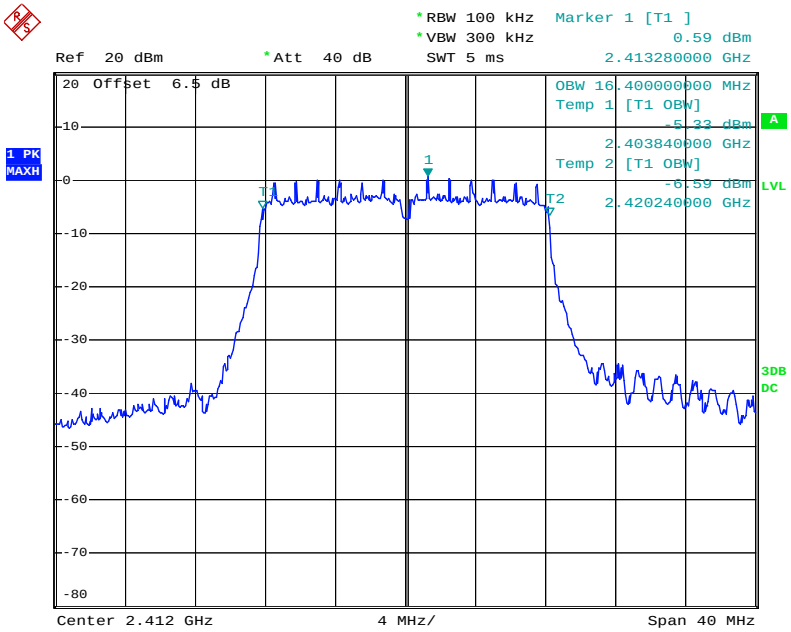
RF Output Power, High Channel



Date: 18.MAR.2011 09:46:33

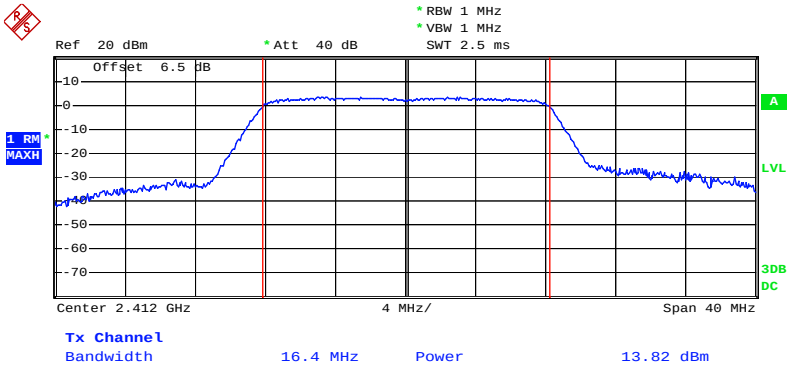
802.11g, Chain 0

99% Occupied Bandwidth, Low Channel



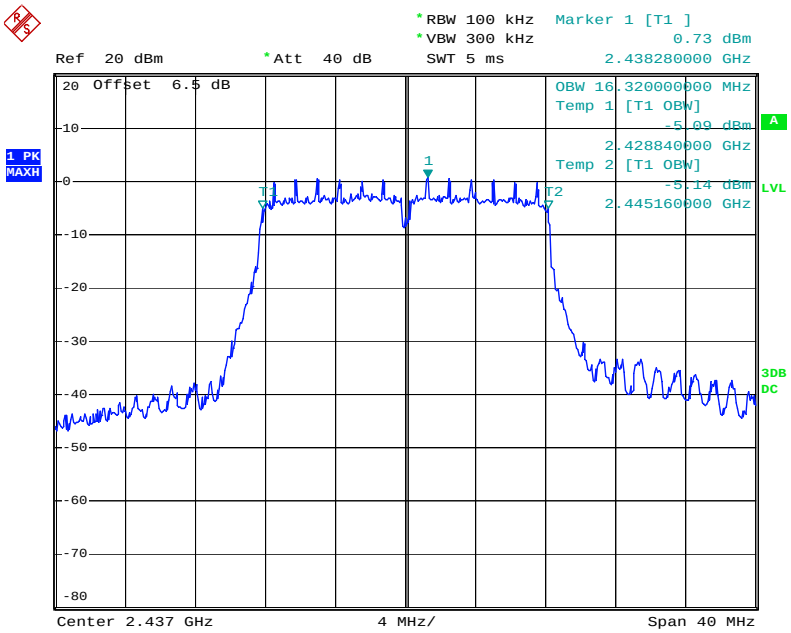
Date: 20.MAR.2011 13:26:56

RF Output Power, Low Channel



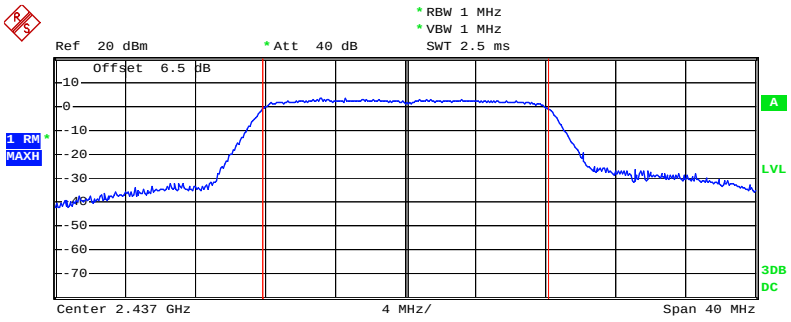
Date: 20.MAR.2011 13:31:56

99% Occupied Bandwidth, Middle Channel



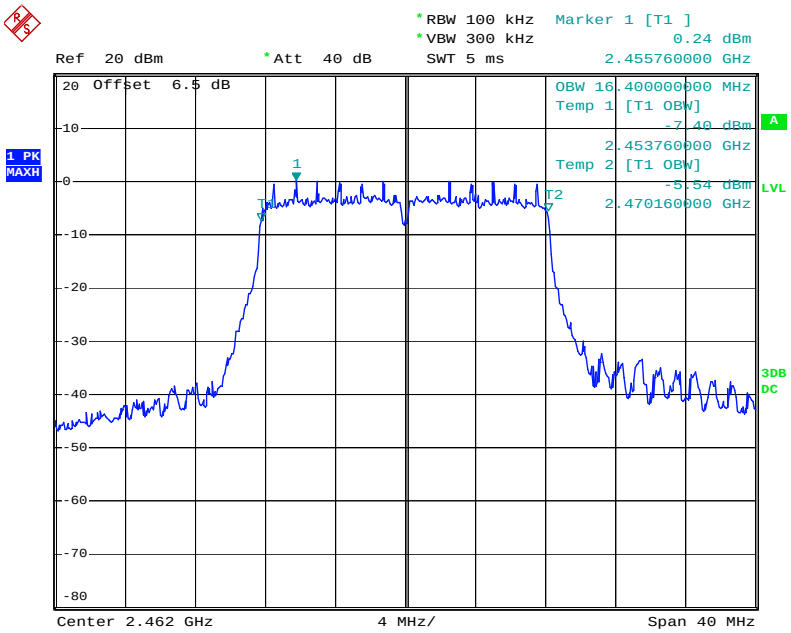
Date: 20.MAR.2011 13:26:04

RF Output Power, Middle Channel



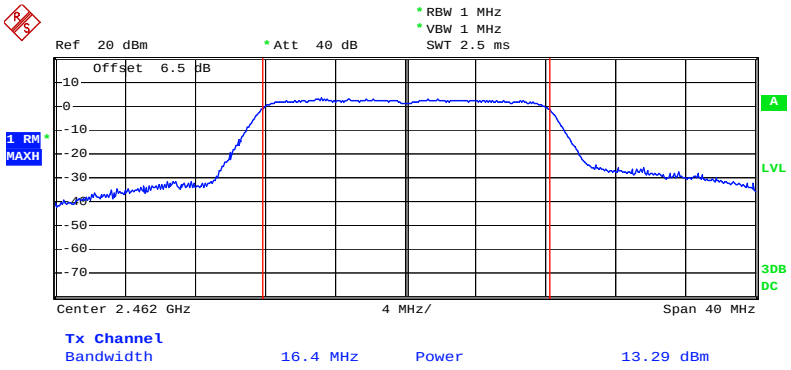
Date: 20.MAR.2011 13:28:21

99% Occupied Bandwidth, High Channel



Date: 20.MAR.2011 13:24:11

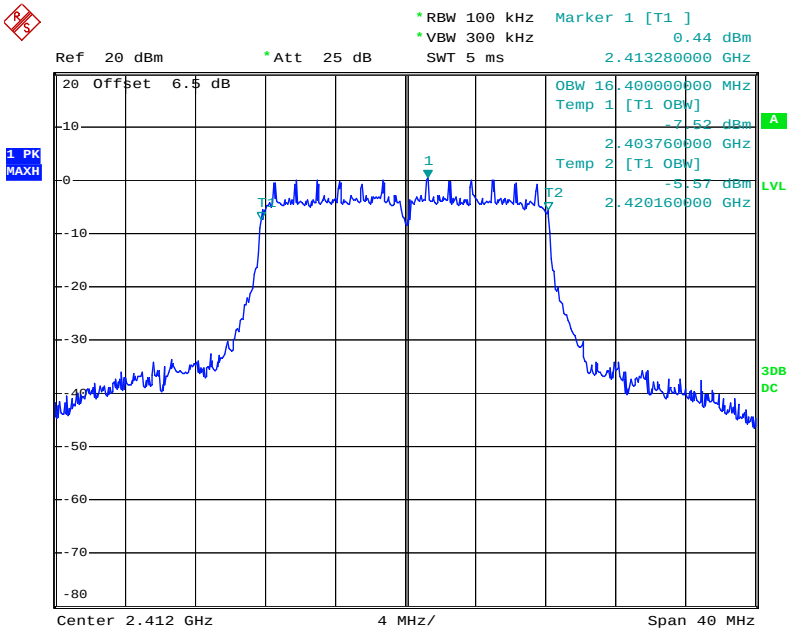
RF Output Power, High Channel



Date: 20.MAR.2011 13:29:13

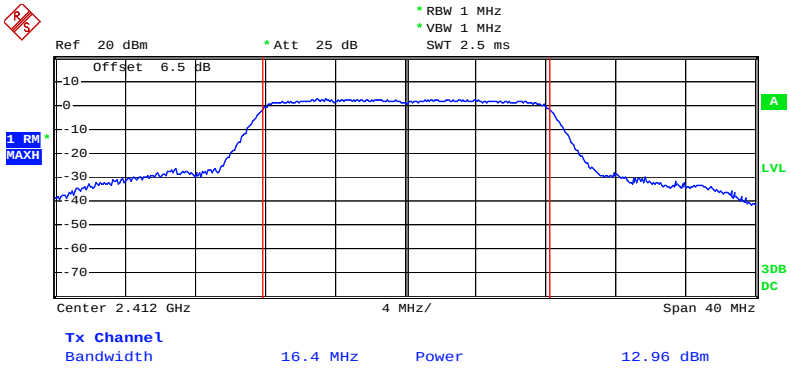
802.11g, Chain 1

99% Occupied Bandwidth, Low Channel



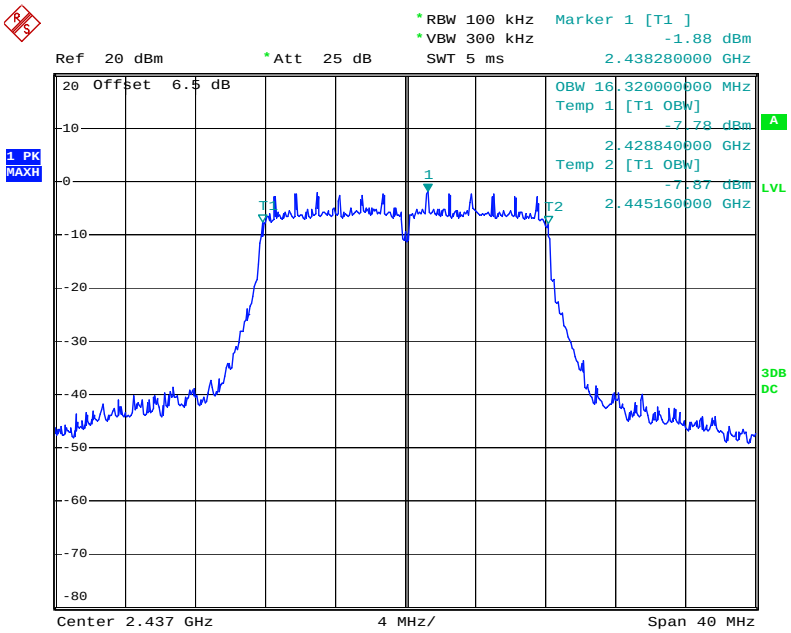
Date: 18.MAR.2011 10:44:12

RF Output Power, Low Channel



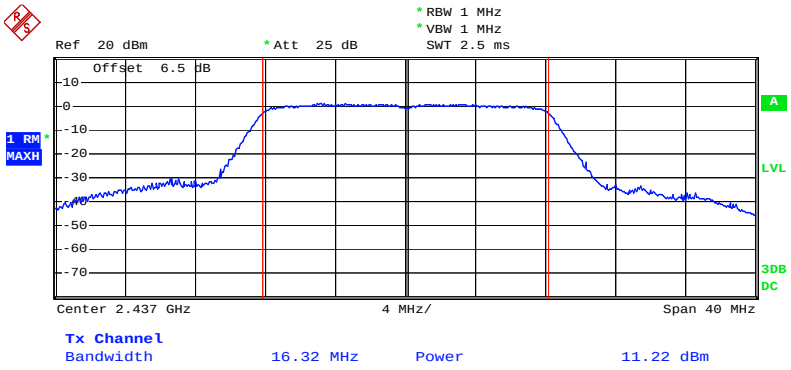
Date: 18.MAR.2011 10:47:19

99% Occupied Bandwidth, Middle Channel



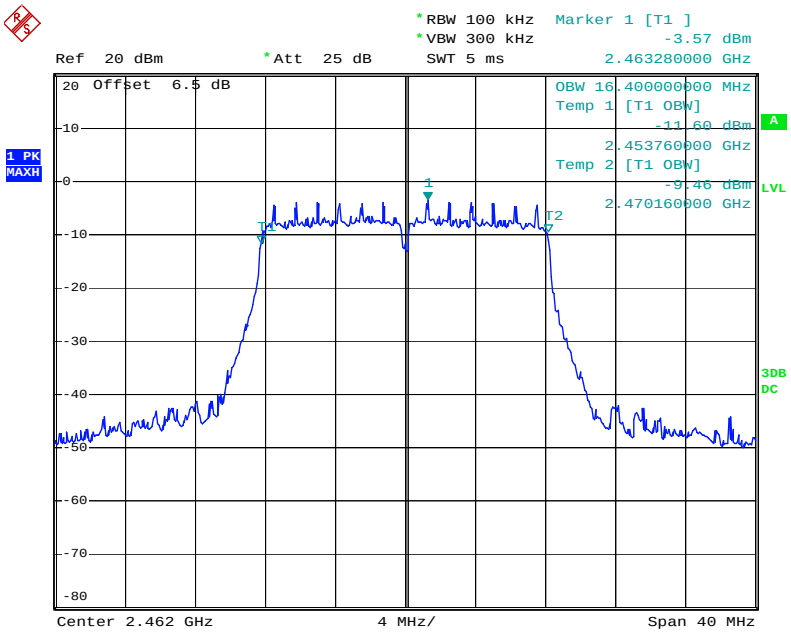
Date: 18.MAR.2011 10:43:20

RF Output Power, Middle Channel



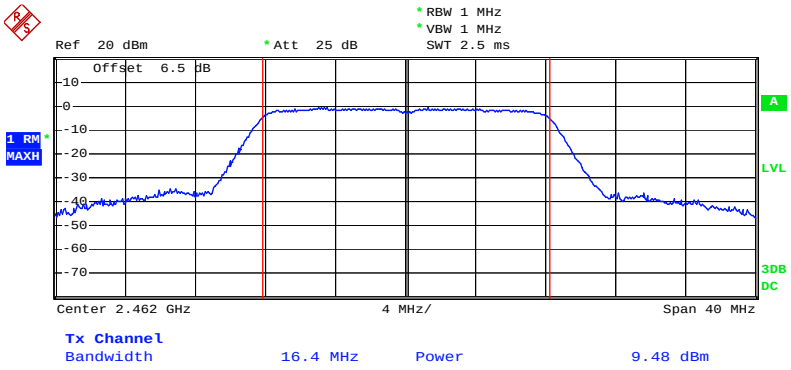
Date: 18.MAR.2011 10:51:56

99% Occupied Bandwidth, High Channel



Date: 18.MAR.2011 10:42:24

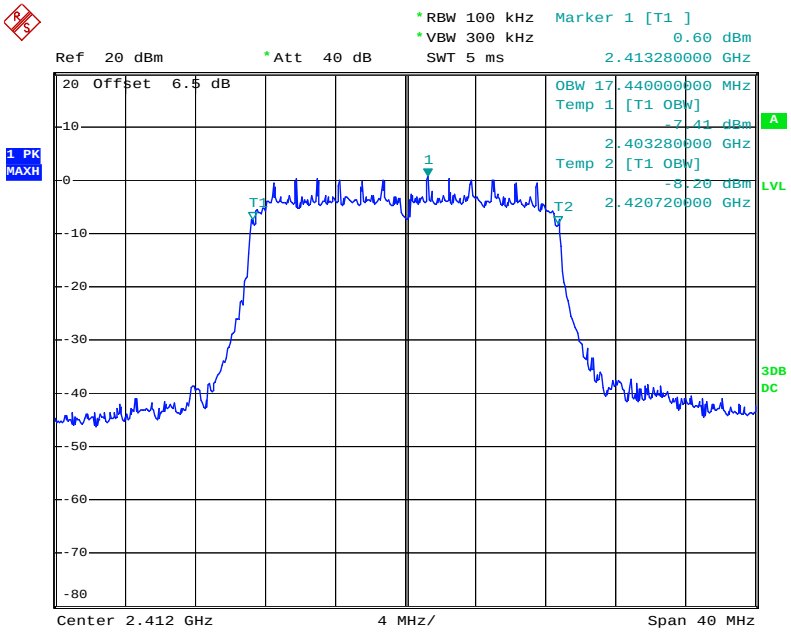
RF Output Power, High Channel



Date: 18.MAR.2011 10:53:46

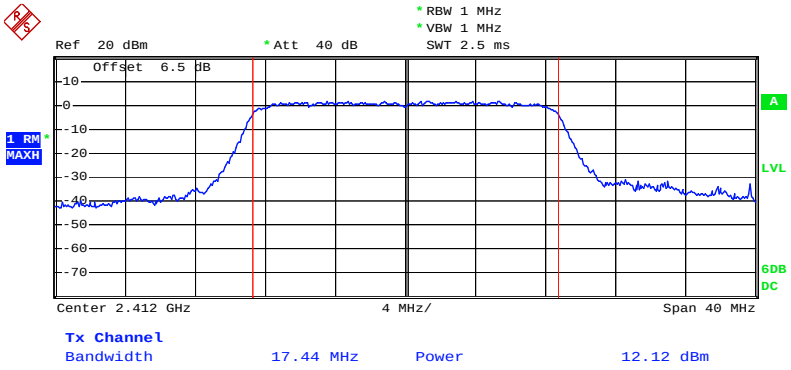
802.11n20, Chain 0

99% Occupied Bandwidth, Low Channel



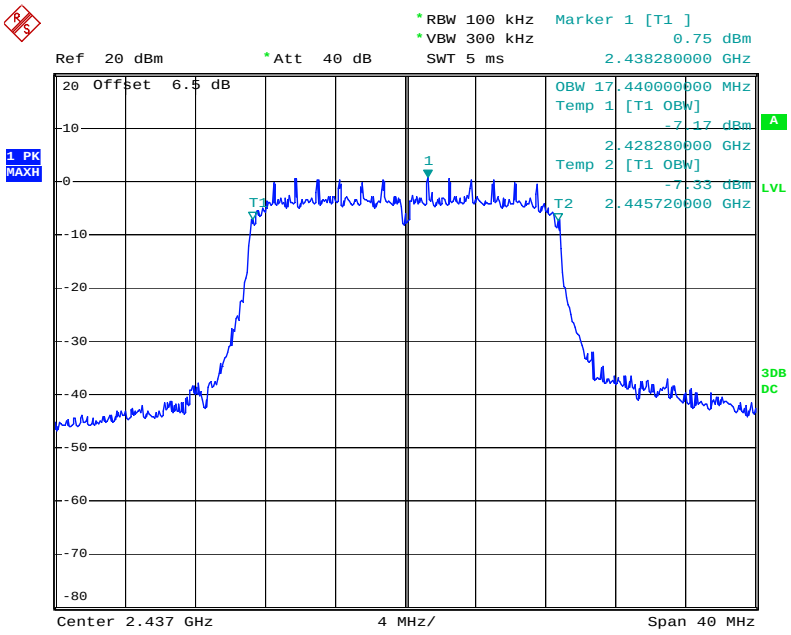
Date: 20.MAR.2011 13:37:28

RF Output Power, Low Channel



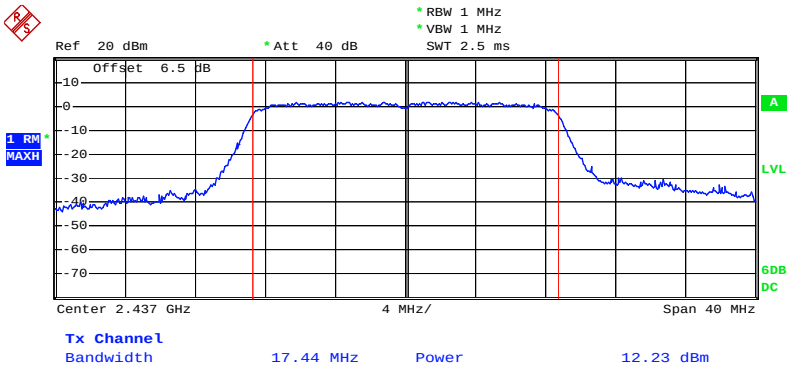
Date: 20.MAR.2011 13:45:53

99% Occupied Bandwidth, Middle Channel



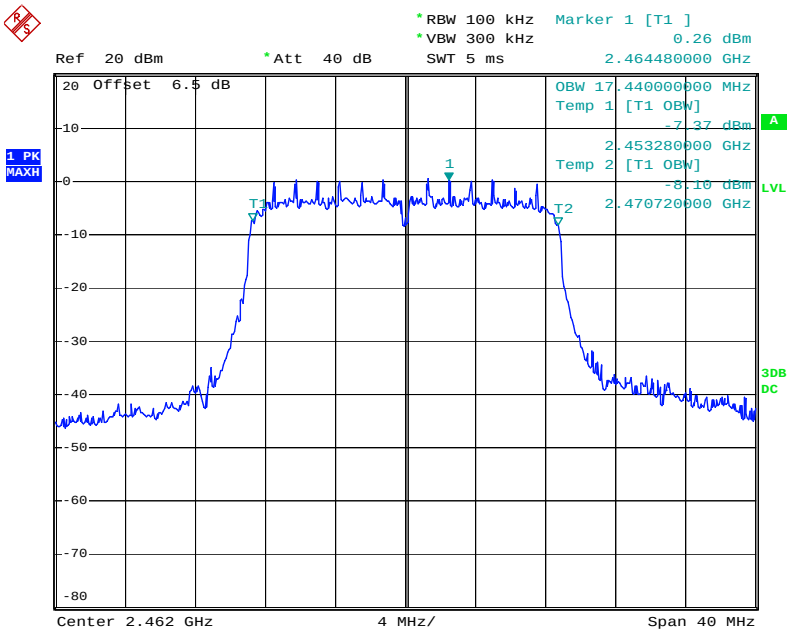
Date: 20.MAR.2011 13:38:05

RF Output Power, Middle Channel



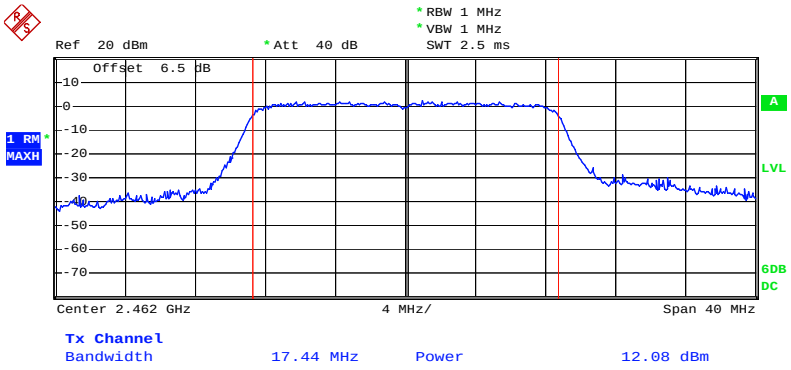
Date: 20.MAR.2011 13:44:20

99% Occupied Bandwidth, High Channel



Date: 20.MAR.2011 13:40:45

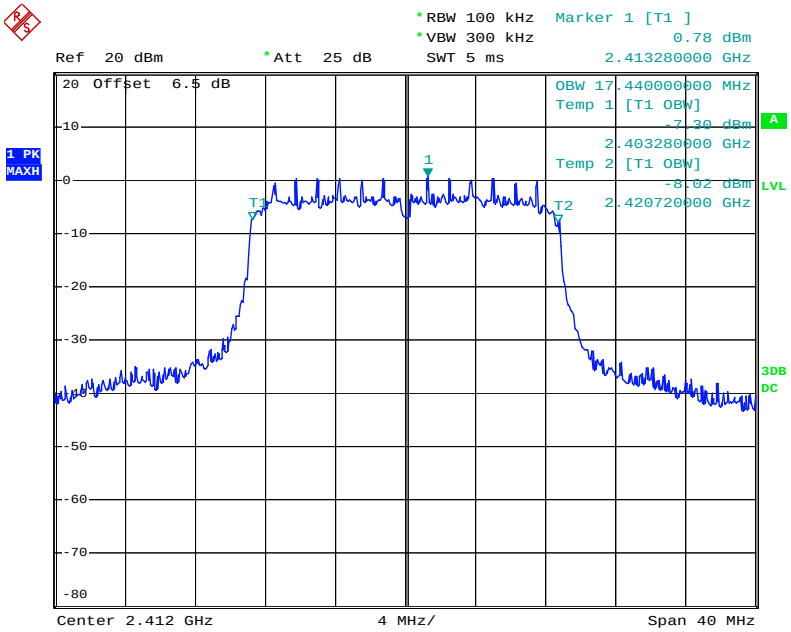
RF Output Power, High Channel



Date: 20.MAR.2011 13:43:33

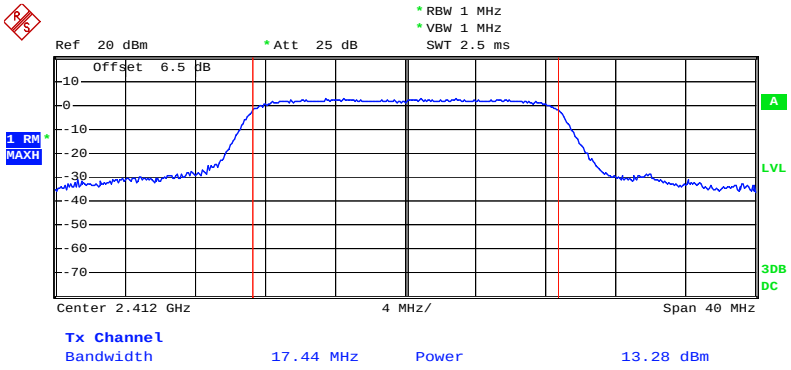
802.11n20, Chain 1

99% Occupied Bandwidth, Low Channel



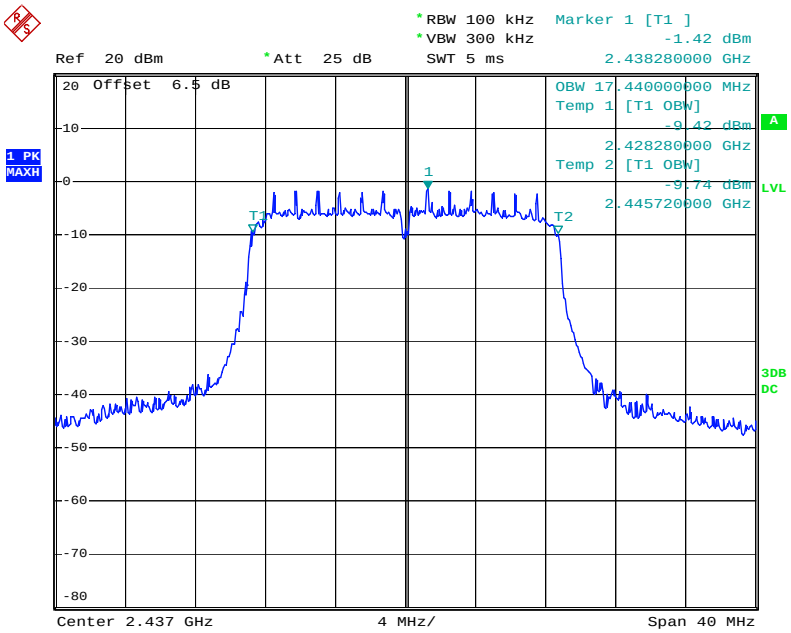
Date: 18.MAR.2011 13:06:10

RF Output Power, Low Channel



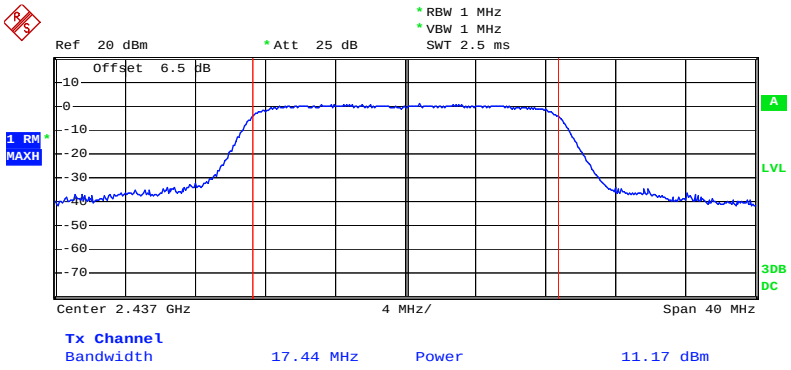
Date: 18.MAR.2011 13:09:43

99% Occupied Bandwidth, Middle Channel



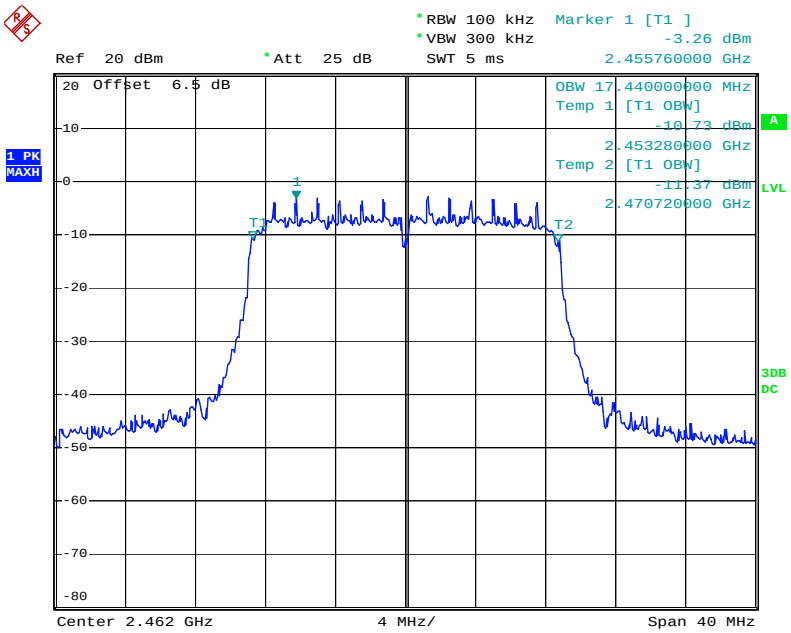
Date: 18.MAR.2011 13:05:27

RF Output Power, Middle Channel



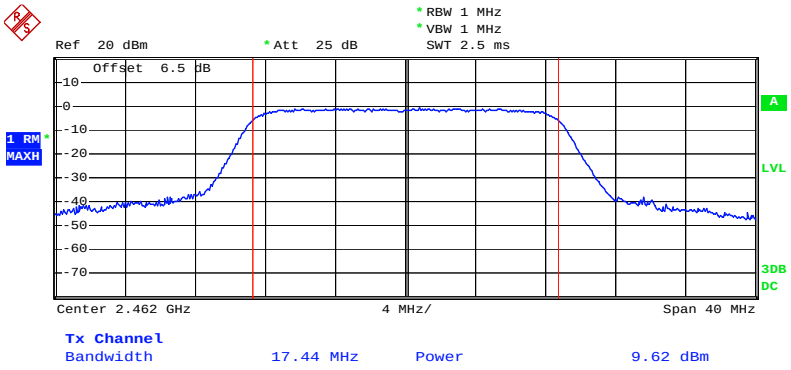
Date: 18.MAR.2011 13:10:48

99% Occupied Bandwidth, High Channel



Date: 18.MAR.2011 13:02:09

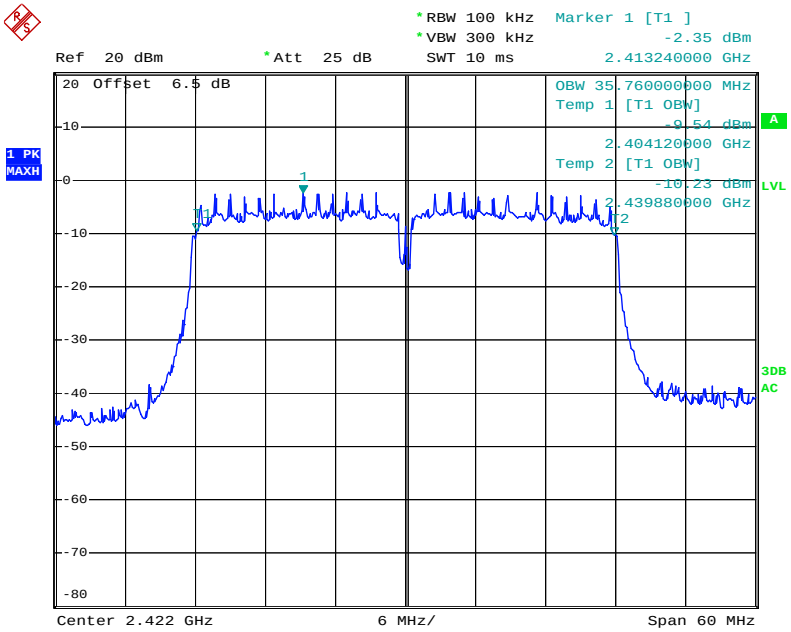
RF Output Power, High Channel



Date: 18.MAR.2011 13:11:55

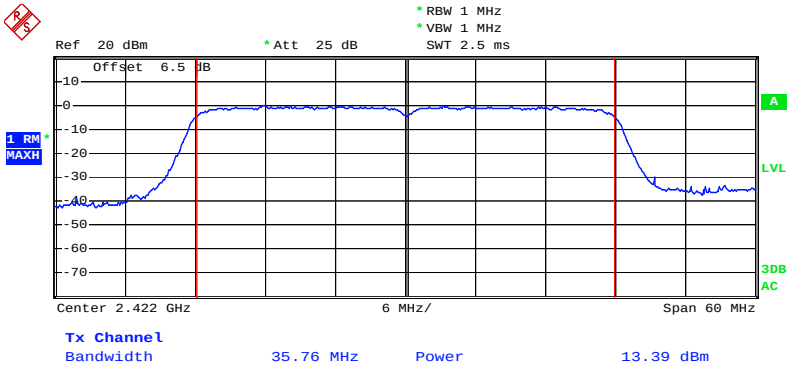
802.11n40, Chain 0

99% Occupied Bandwidth, Low Channel



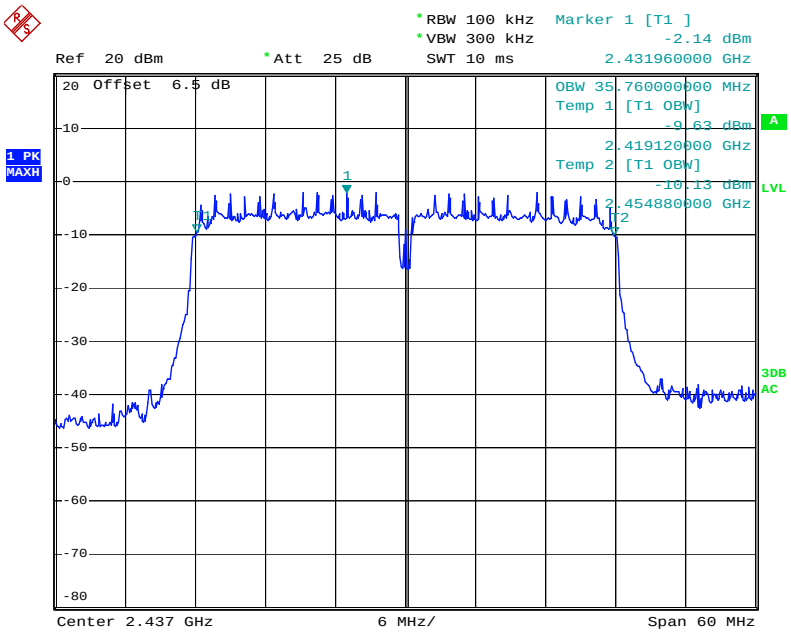
Date: 20.MAR.2011 13:52:08

RF Output Power, Low Channel



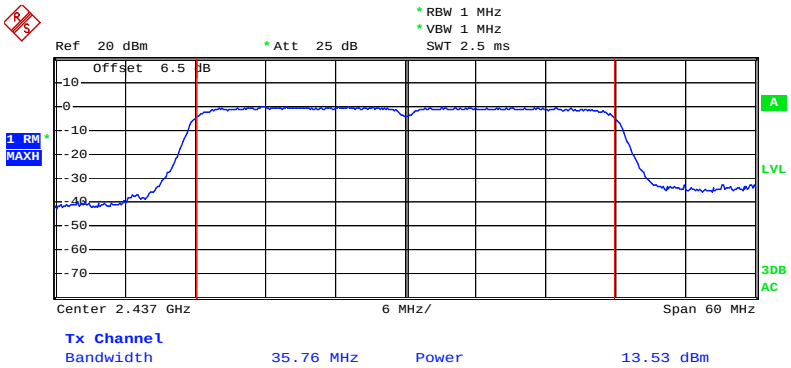
Date: 20.MAR.2011 13:59:40

99% Occupied Bandwidth, Middle Channel



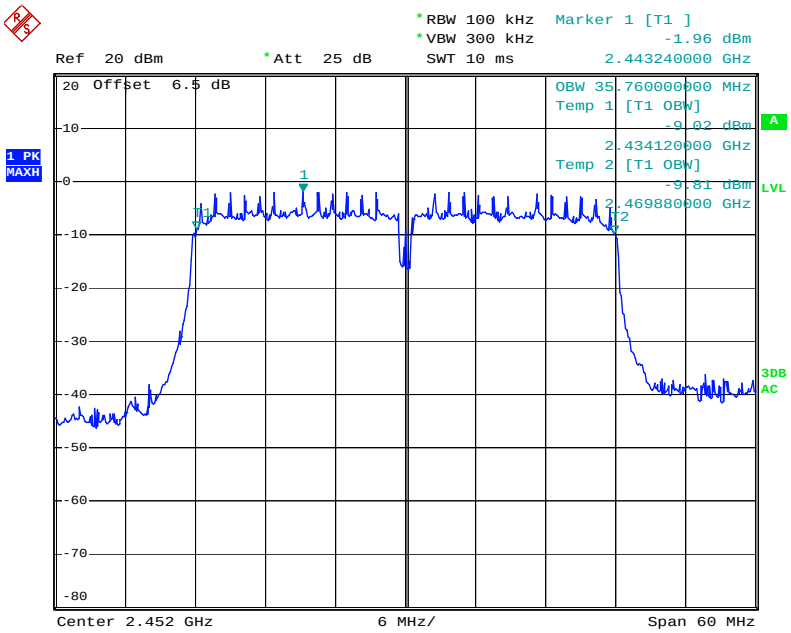
Date: 20.MAR.2011 13:55:05

RF Output Power, Middle Channel



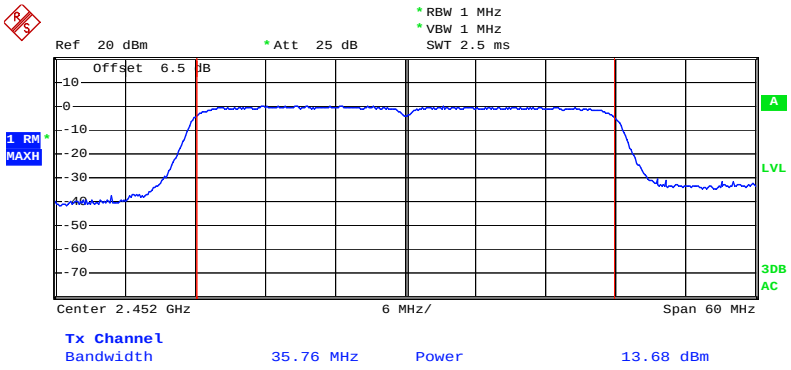
Date: 20.MAR.2011 13:59:04

99% Occupied Bandwidth, High Channel



Date: 20.MAR.2011 13:55:37

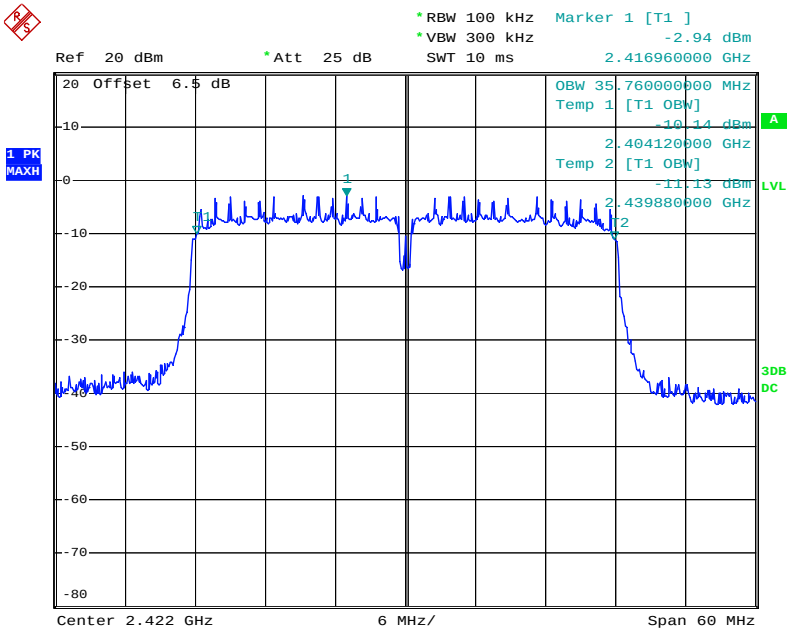
RF Output Power, High Channel



Date: 20.MAR.2011 13:58:39

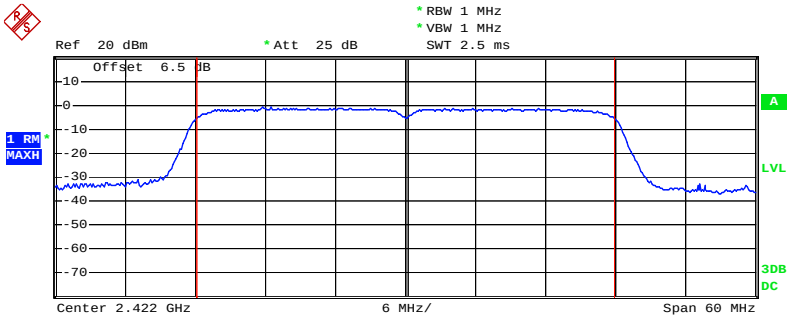
802.11n40, Chain 1

99% Occupied Bandwidth, Low Channel



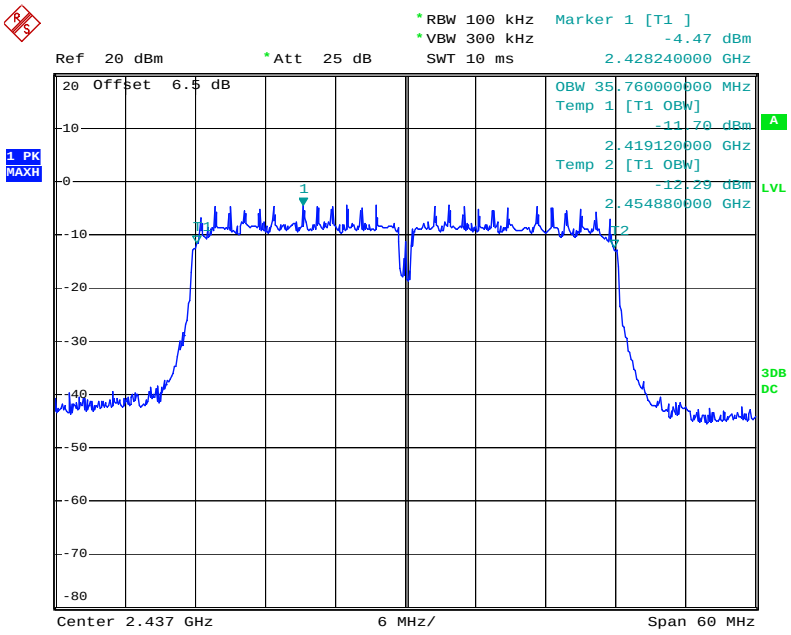
Date: 18.MAR.2011 14:09:27

RF Output Power, Low Channel



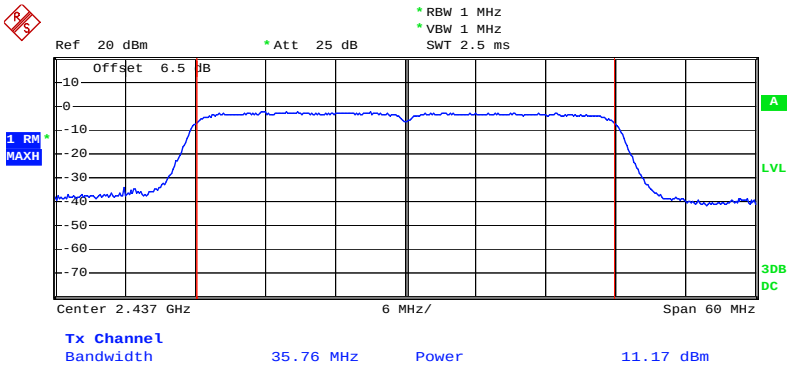
Date: 18.MAR.2011 14:13:14

99% Occupied Bandwidth, Middle Channel



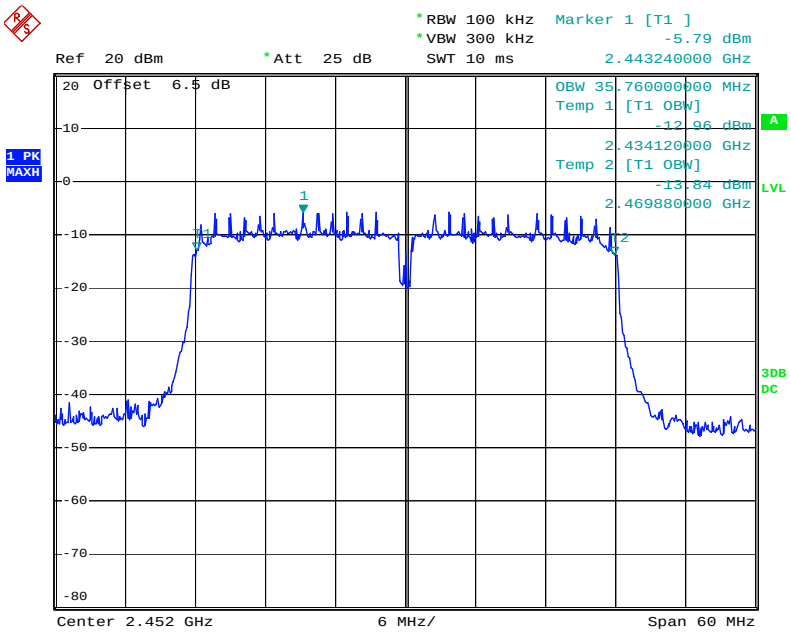
Date: 18.MAR.2011 14:07:57

RF Output Power, Middle Channel



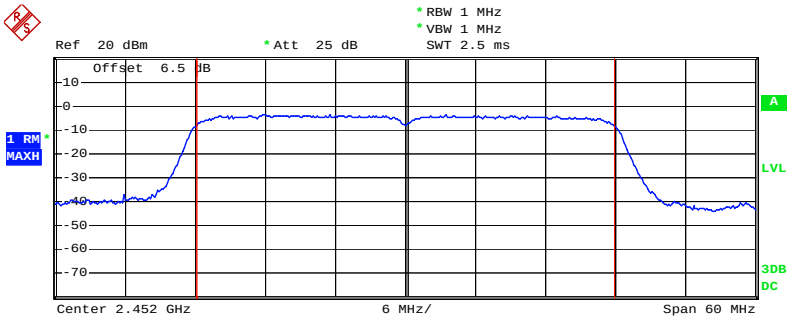
Date: 18.MAR.2011 14:14:00

99% Occupied Bandwidth, High Channel



Date: 18.MAR.2011 14:05:24

RF Output Power, High Channel



Date: 18.MAR.2011 14:15:20

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

Applicable Standard

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

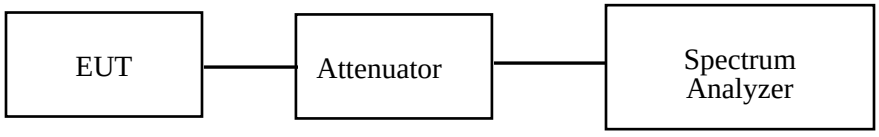
Test Equipment List and Details

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

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

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 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 Data

Environmental Conditions

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

The testing was performed by Felix Li on 2011-03-18 to 2011-03-24.

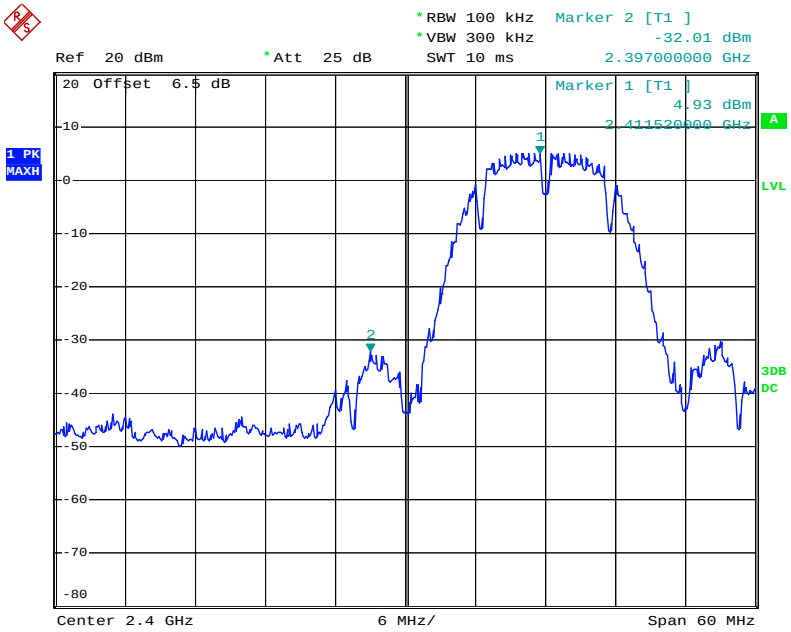
Test Result: *Compliance.*

Channel	Frequency (MHz)	Antenna Port	Delta Peak to Band Edge Emission (dBc)	Limit (dBc)	Result
802.11b mode					
Low	2397.00	Chain 0	36.94	20	Pass
Low	2397.00	Chain 1	35.06	20	Pass
Low	2397.00	Chain 0&Chain 1	38.98	20	Pass
High	2495.86	Chain 0	51.29	20	Pass
High	2486.02	Chain 1	47.87	20	Pass
High	2494.78	Chain 0&Chain 1	48.32	20	Pass
802.11g mode					
Low	2398.56	Chain 0	34.56	20	Pass
Low	2398.68	Chain 1	34.10	20	Pass
Low	2399.88	Chain 0&Chain 1	37.82	20	Pass
High	2483.86	Chain 0	40.77	20	Pass
High	2499.82	Chain 1	43.76	20	Pass
High	2486.02	Chain 0&Chain 1	43.78	20	Pass
802.11n20 mode					
Low	2399.76	Chain 0	38.47	20	Pass
Low	2399.76	Chain 1	33.54	20	Pass
Low	2399.76	Chain 0&Chain 1	36.67	20	Pass
High	2486.26	Chain 0	44.18	20	Pass
High	2493.70	Chain 1	44.20	20	Pass
High	2488.54	Chain 0&Chain 1	44.94	20	Pass
802.11n40 mode					
Low	2398.80	Chain 0	39.50	20	Pass
Low	2397.00	Chain 1	33.42	20	Pass
Low	2399.80	Chain 0&Chain 1	37.35	20	Pass
High	2484.50	Chain 0	36.37	20	Pass
High	2486.30	Chain 1	39.35	20	Pass
High	2484.70	Chain 0&Chain 1	40.51	20	Pass

Please refer to following plots.

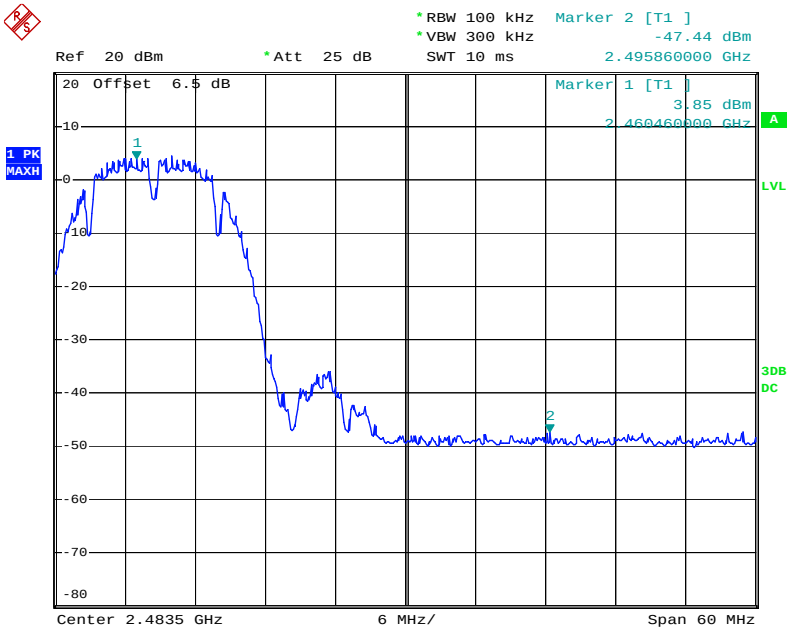
802.11b, Chain 0

Band Edge, Left Side,



Date: 20.MAR.2011 09:38:09

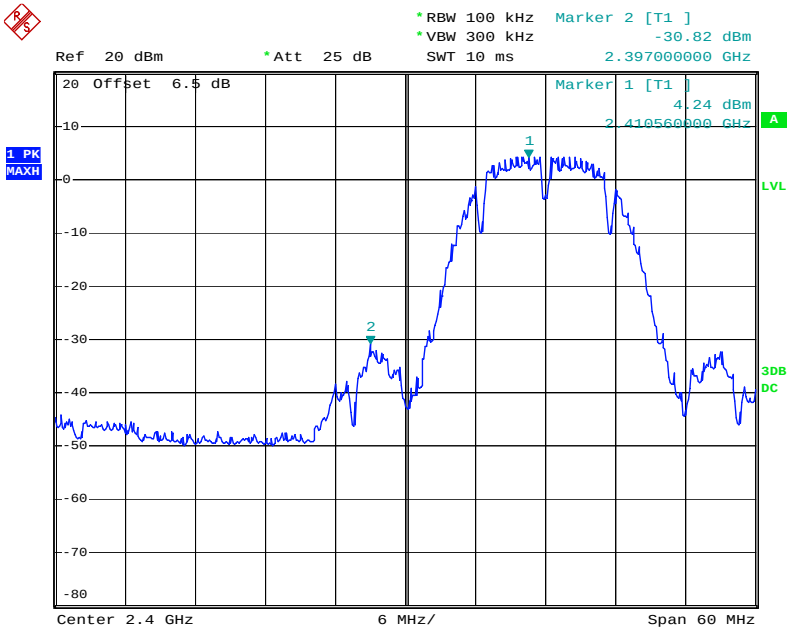
Band Edge, Right Side



Date: 20.MAR.2011 10:26:53

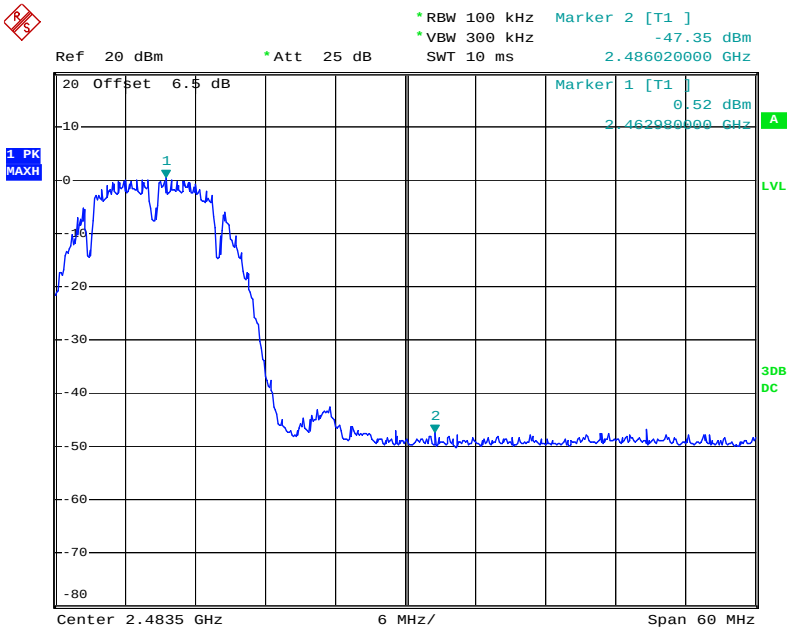
802.11b, Chain 1

Band Edge, Left Side,



Date: 18.MAR.2011 10:34:47

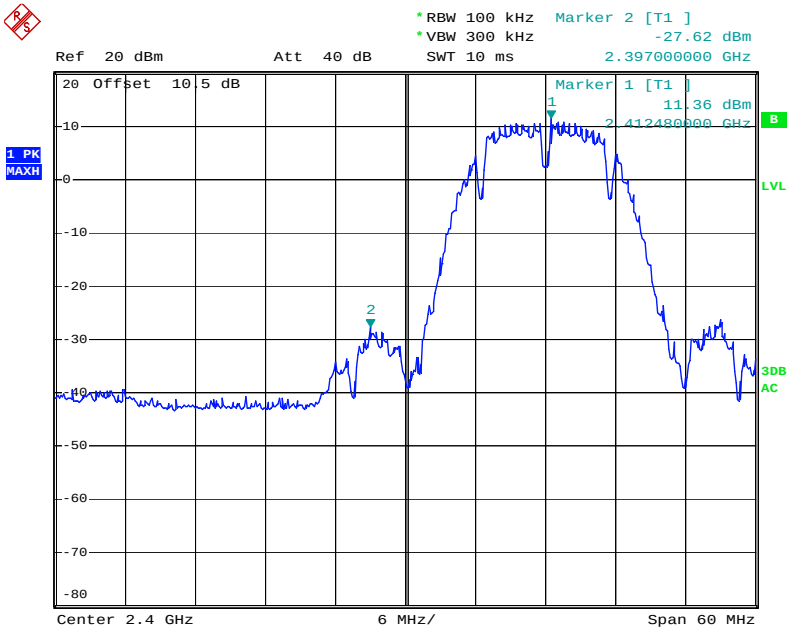
Band Edge, Right Side



Date: 18.MAR.2011 10:36:33

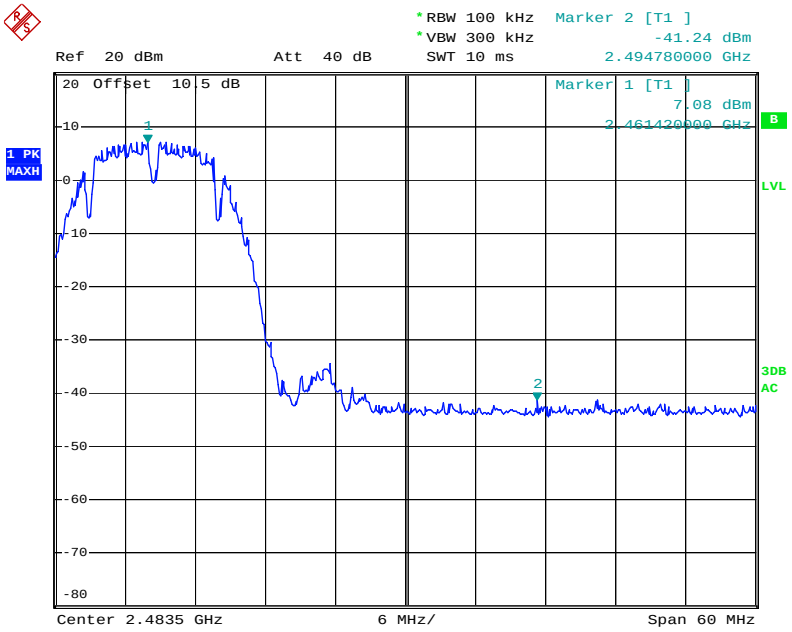
802.11b, Combiner

Band Edge, Left Side,



Date: 24.MAR.2011 11:45:19

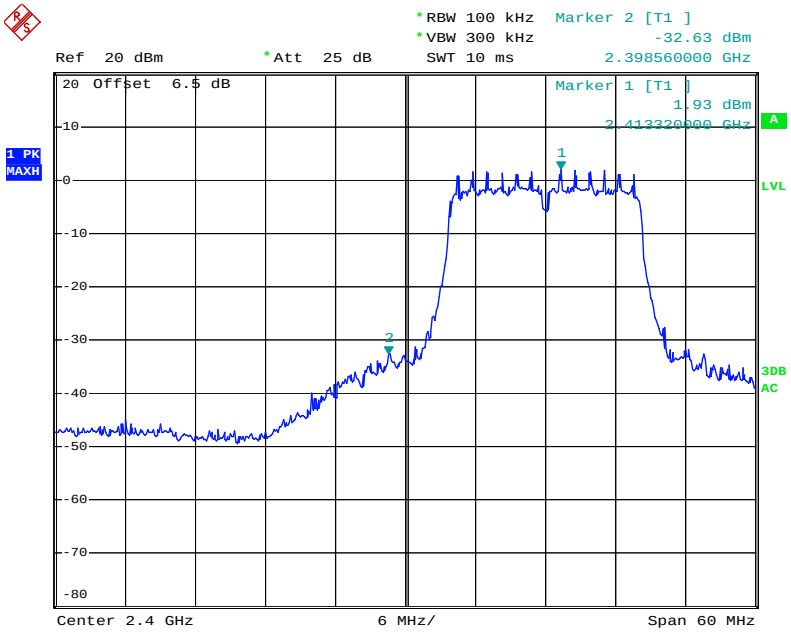
Band Edge, Right Side



Date: 24.MAR.2011 11:53:17

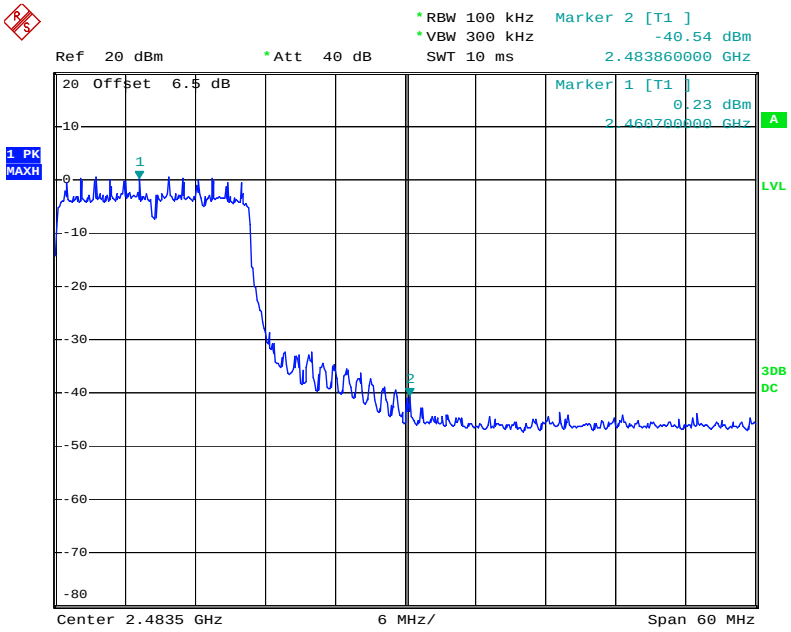
802.11g, Chain 0

Band Edge, Left Side,



Date: 24.MAR.2011 11:28:05

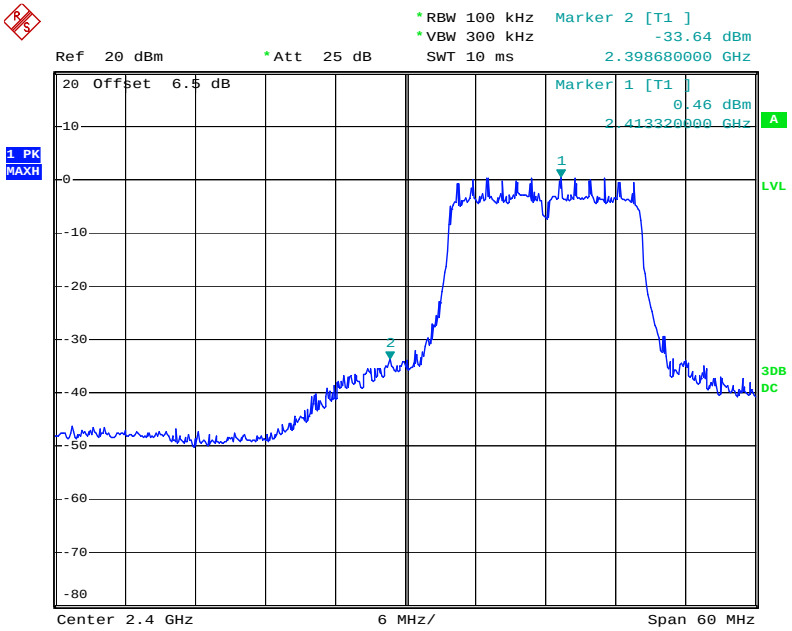
Band Edge, Right Side



Date: 20.MAR.2011 13:25:05

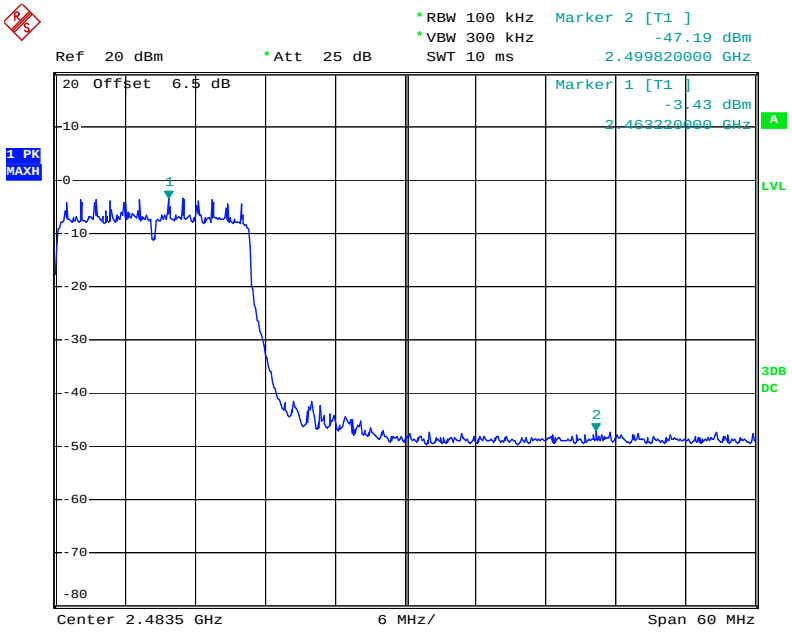
802.11g, Chain 1

Band Edge, Left Side,



Date: 18.MAR.2011 10:58:13

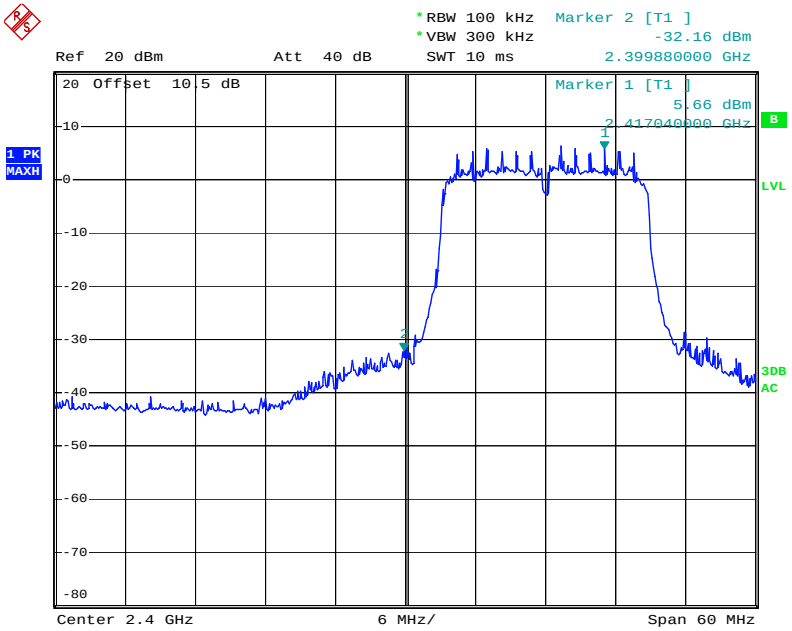
Band Edge, Right Side



Date: 18.MAR.2011 10:57:07

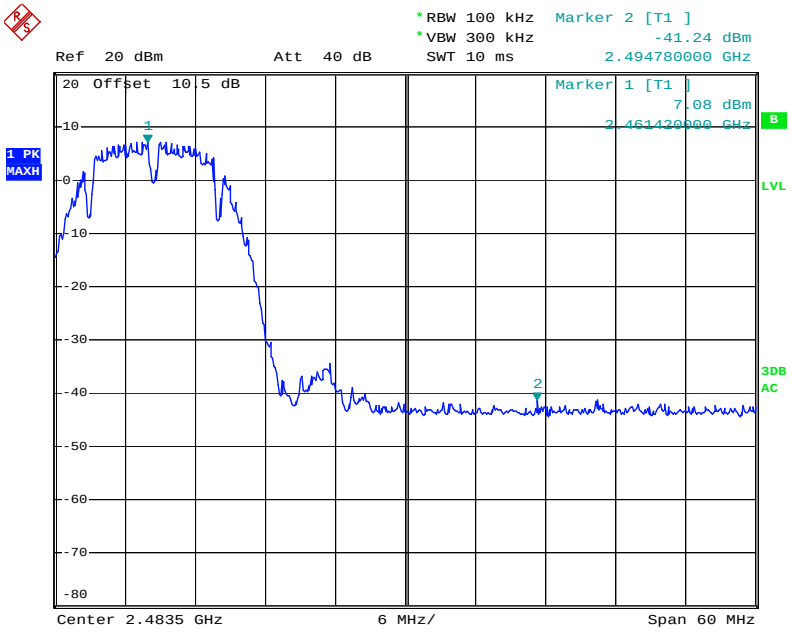
802.11g, Combiner

Band Edge, Left Side,



Date: 24.MAR.2011 11:52:08

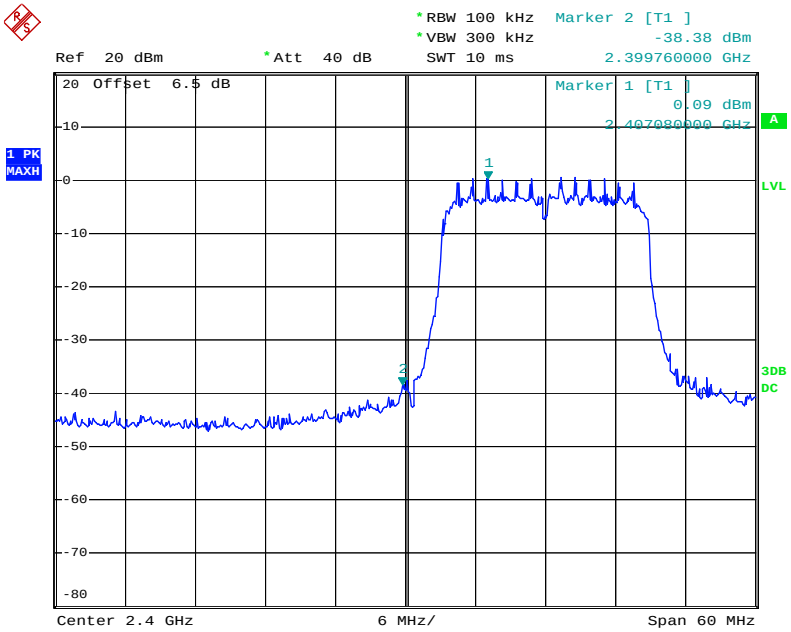
Band Edge, Right Side



Date: 24.MAR.2011 11:53:17

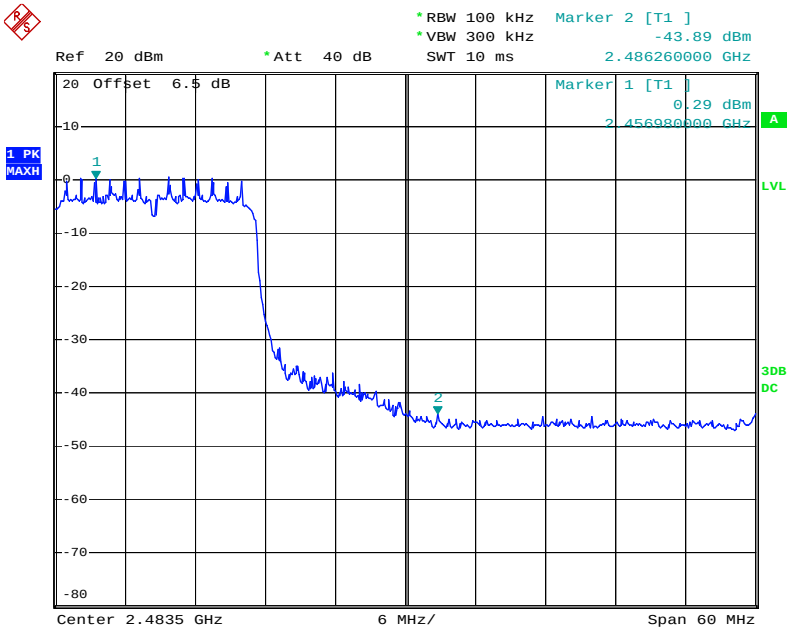
802.11n20, Chain 0

Band Edge, Left Side,



Date: 20.MAR.2011 13:36:37

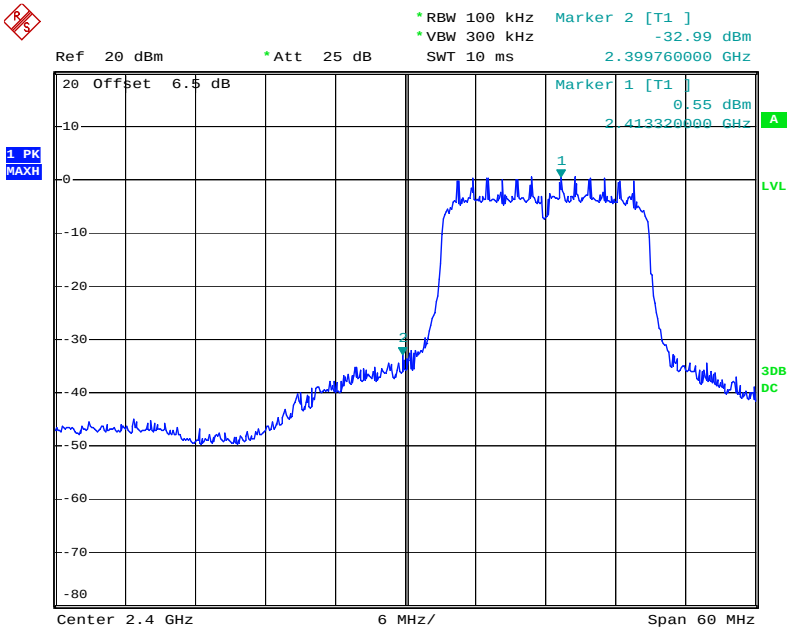
Band Edge, Right Side



Date: 20.MAR.2011 13:41:54

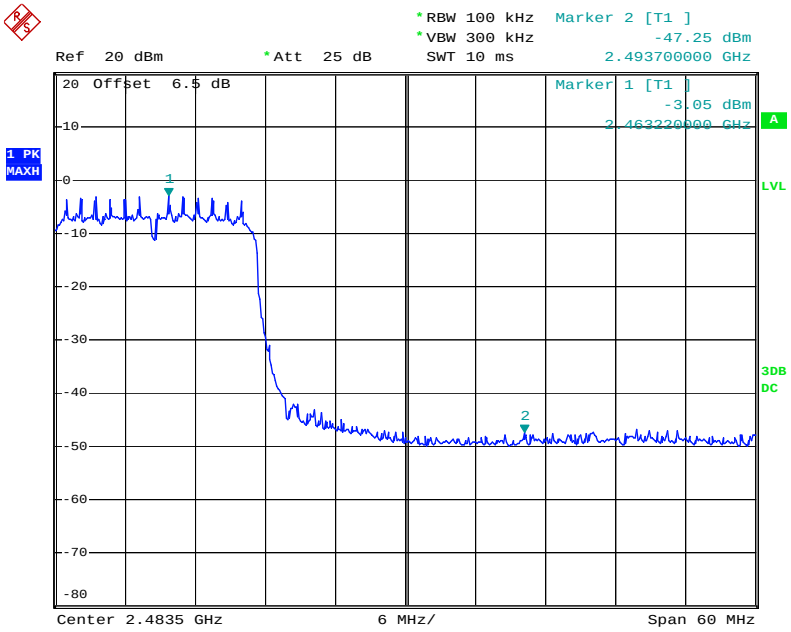
802.11n20, Chain 1

Band Edge, Left Side,



Date: 18.MAR.2011 13:07:42

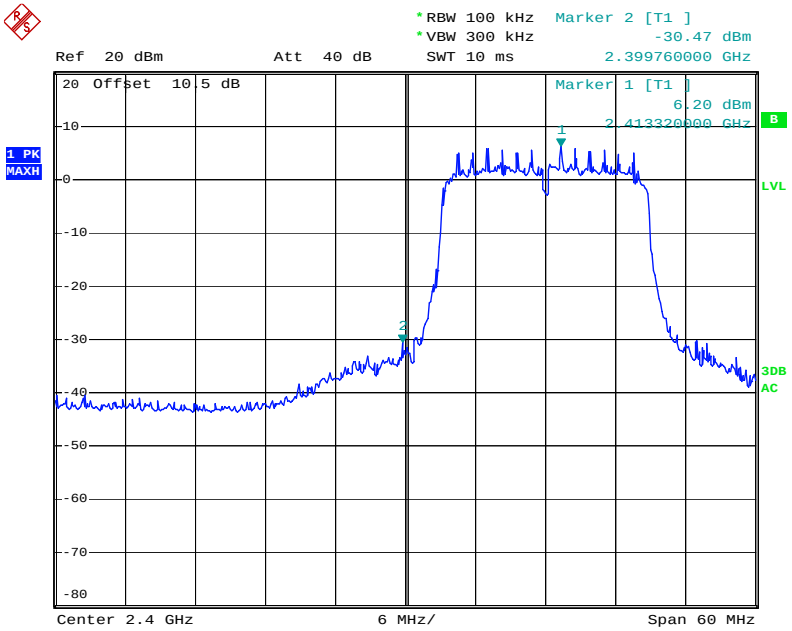
Band Edge, Right Side



Date: 18.MAR.2011 13:04:14

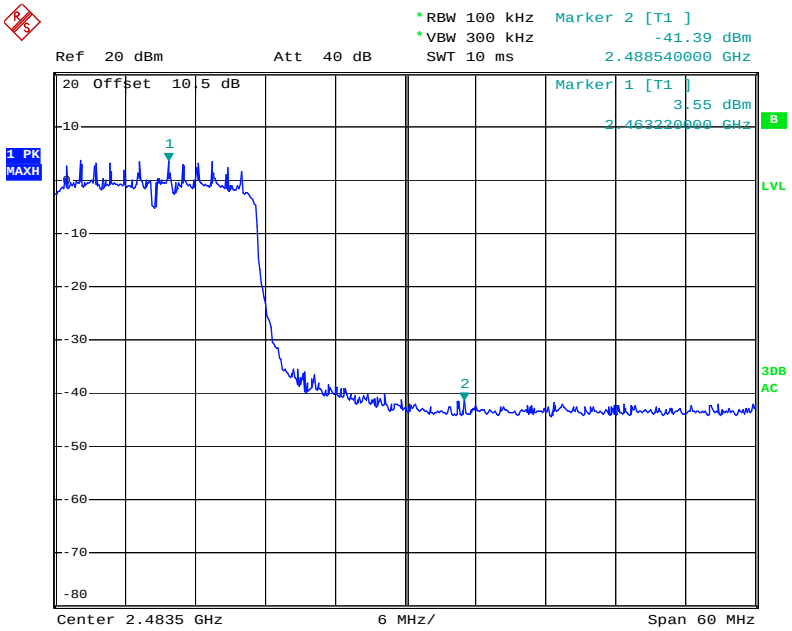
802.11n20, Combiner

Band Edge, Left Side,



Date: 24.MAR.2011 11:50:56

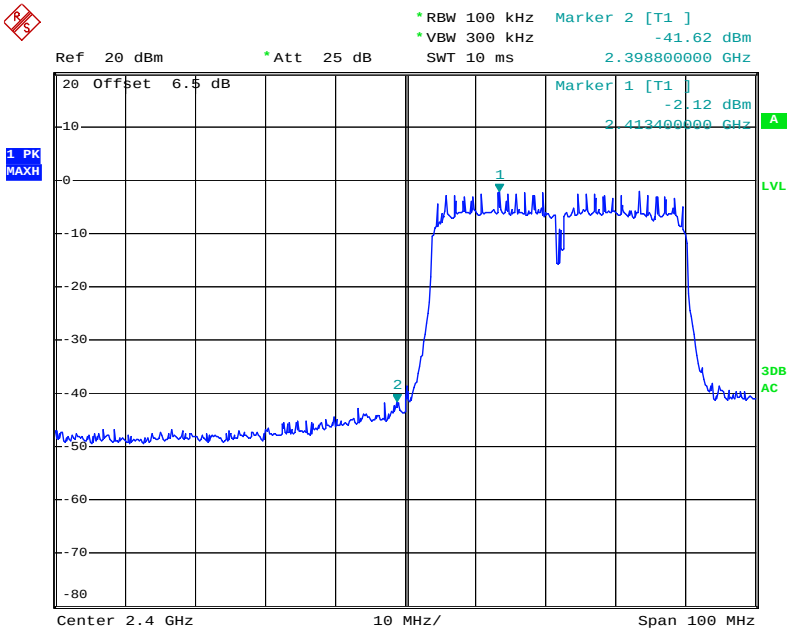
Band Edge, Right Side



Date: 24.MAR.2011 11:55:10

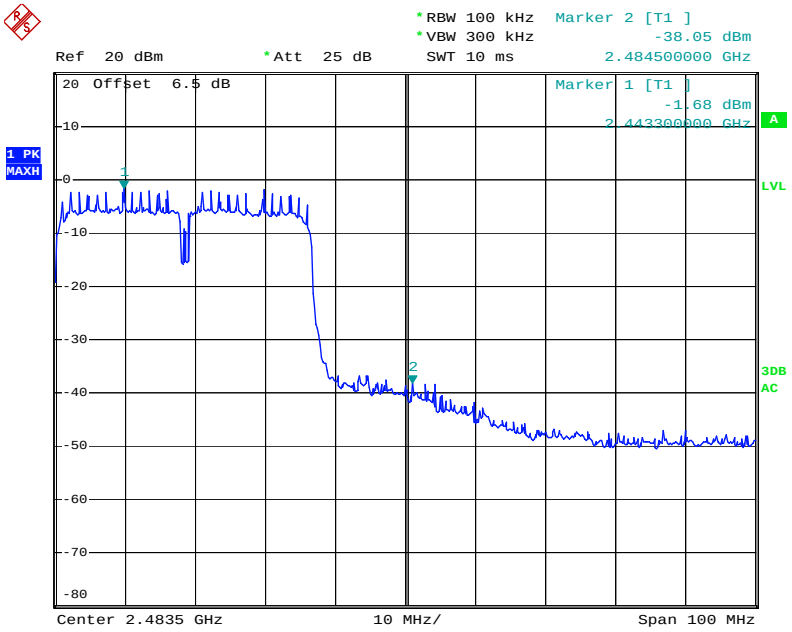
802.11n40, Chain 0

Band Edge, Left Side,



Date: 20.MAR.2011 13:53:22

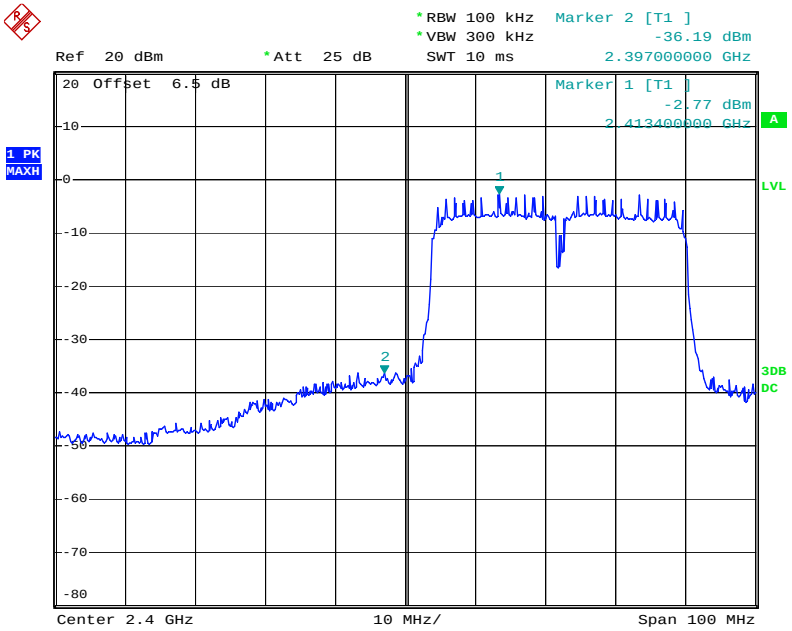
Band Edge, Right Side



Date: 20.MAR.2011 13:57:10

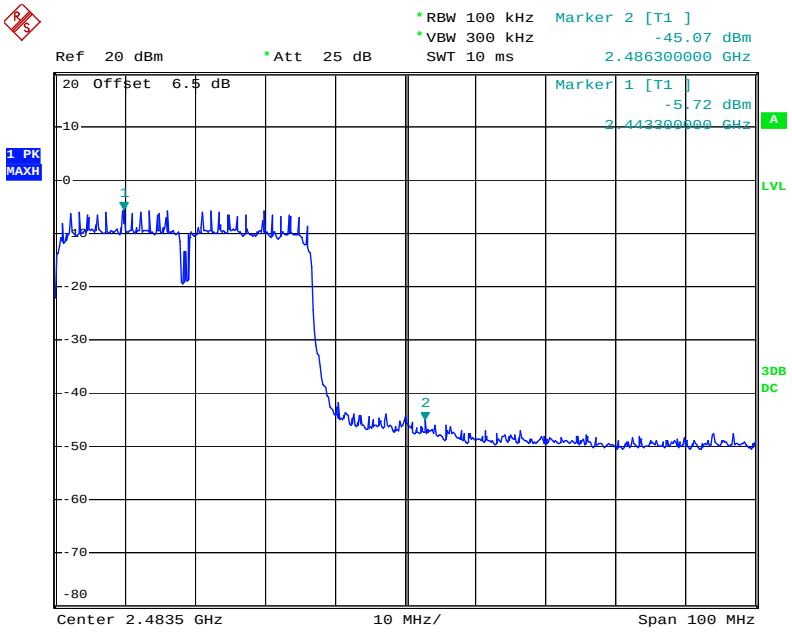
802.11n40, Chain 1

Band Edge, Left Side,



Date: 18.MAR.2011 14:12:04

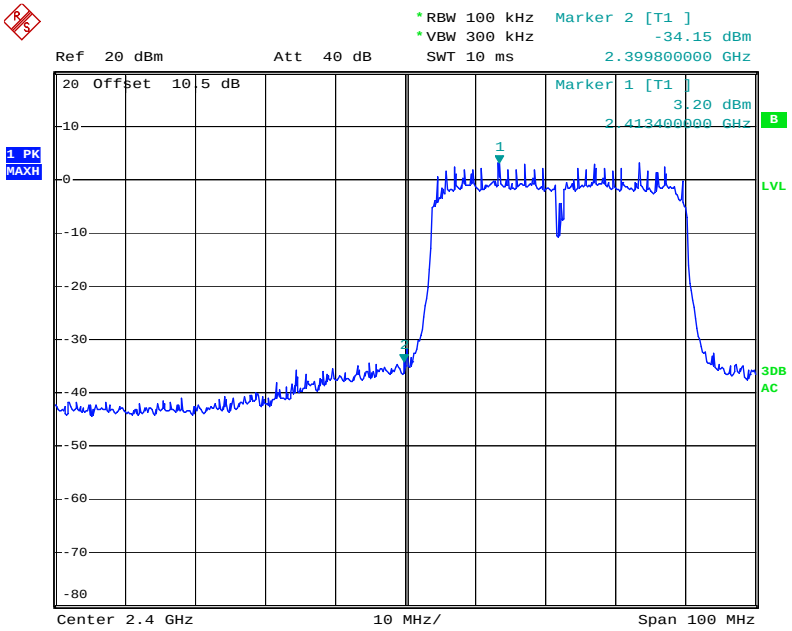
Band Edge, Right Side



Date: 18.MAR.2011 14:06:24

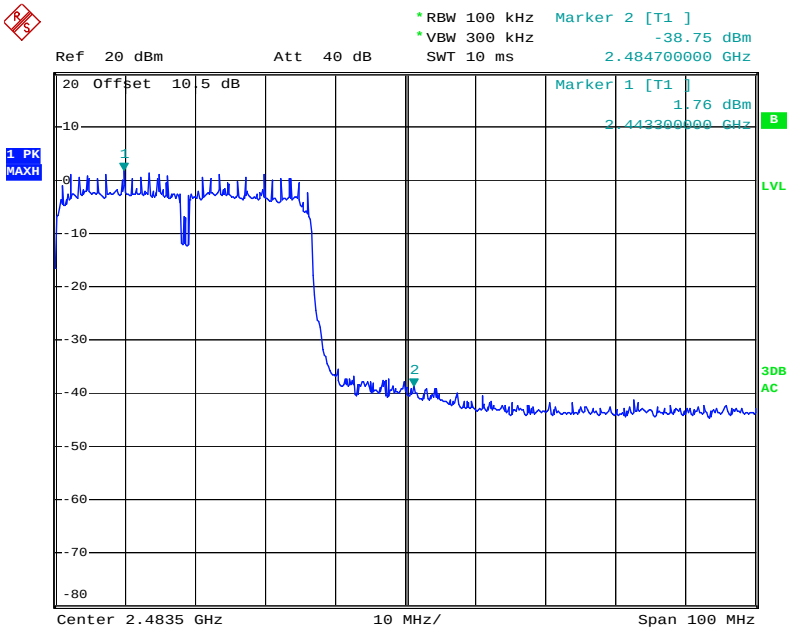
802.11n40, Combiner

Band Edge, Left Side,



Date: 24.MAR.2011 11:49:30

Band Edge, Right Side



Date: 24.MAR.2011 11:57:00

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

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

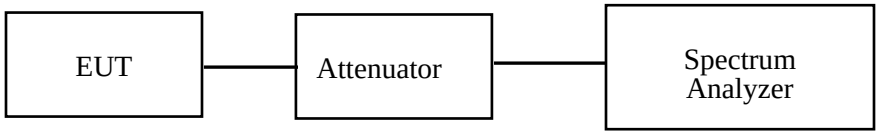
Test Equipment List and Details

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

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

Test Procedure

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



Test Data

Environmental Conditions

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

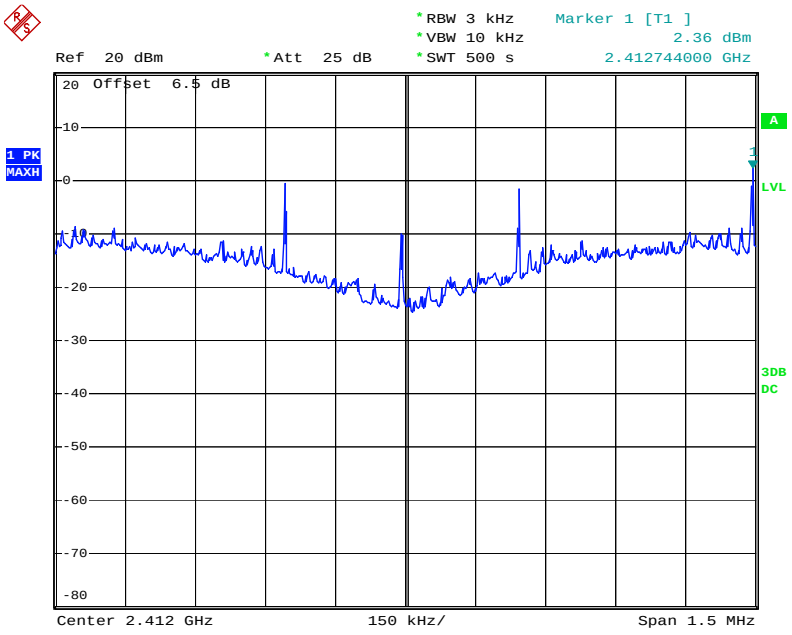
The testing was performed by Felix Li on 2011-03-18 and 2011-03-20.

Test Mode: Transmitting

Test Result: Compliance, please refer to the following table and plots.

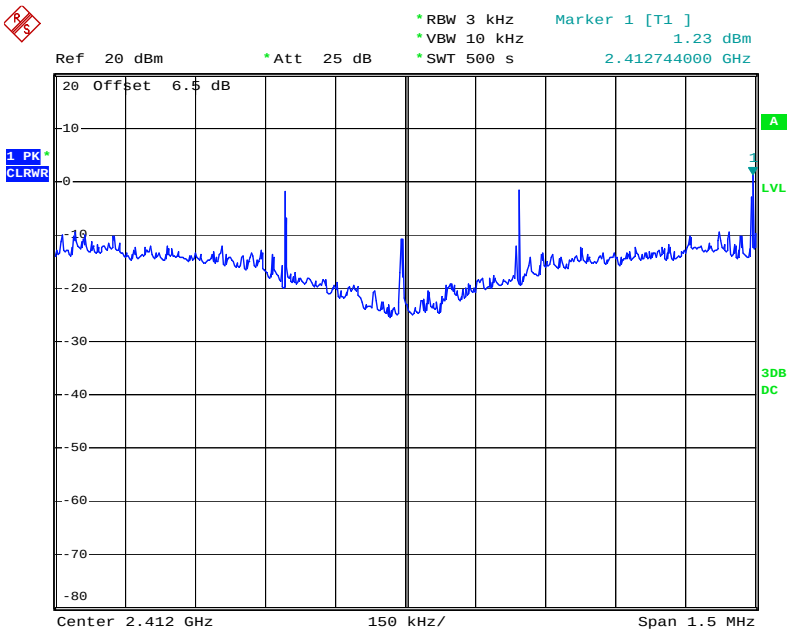
Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Conducted PSD (dBm)	Total PSD (dBm)	Limit (dBm)
802.11b mode						
Low	2412	1	Chain 0	2.36	4.84	8
Low	2412	1	Chain 1	1.23		
Middle	2437	1	Chain 0	-0.48	2.52	8
Middle	2437	1	Chain 1	-0.50		
High	2462	1	Chain 0	-0.61	1.75	8
High	2462	1	Chain 1	-2.02		
802.11g mode						
Low	2412	6	Chain 0	-11.39	-8.54	8
Low	2412	6	Chain 1	-11.74		
Middle	2437	6	Chain 0	-11.74	-9.67	8
Middle	2437	6	Chain 1	-13.89		
High	2462	6	Chain 0	-12.15	-10.81	8
High	2462	6	Chain 1	-16.61		
802.11n20 mode						
Low	2412	6.5	Chain 0	-10.47	-7.90	8
Low	2412	6.5	Chain 1	-11.40		
Middle	2437	6.5	Chain 0	-10.75	-8.93	8
Middle	2437	6.5	Chain 1	-13.59		
High	2462	6.5	Chain 0	-11.17	-10.03	8
High	2462	6.5	Chain 1	-16.37		
802.11n40 mode						
Low	2422	13.5	Chain 0	-10.58	-8.93	8
Low	2422	13.5	Chain 1	-13.94		
Middle	2437	13.5	Chain 0	-10.74	-9.03	8
Middle	2437	13.5	Chain 1	-13.90		
High	2452	13.5	Chain 0	-11.45	-10.18	8
High	2452	13.5	Chain 1	-16.18		

Power Spectral Density, 802.11b Low Channel, Chain 0



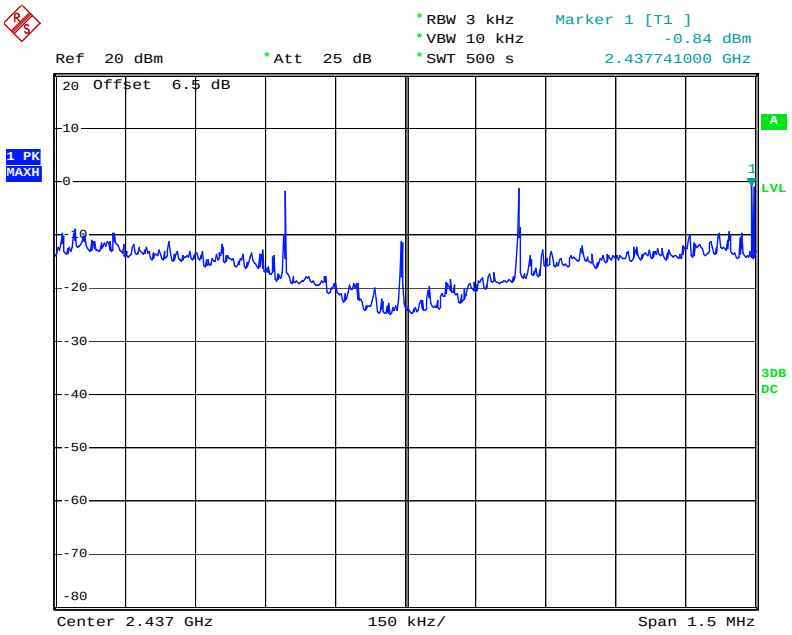
Date: 20.MAR.2011 09:49:33

Power Spectral Density, 802.11b Low Channel, Chain 1



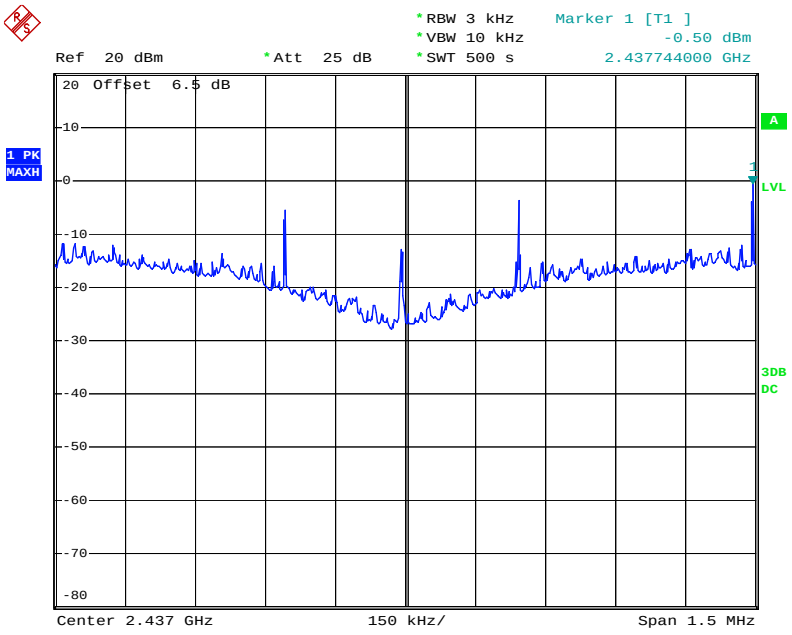
Date: 18.MAR.2011 10:31:24

Power Spectral Density, 802.11b Middle Channel, Chain 0



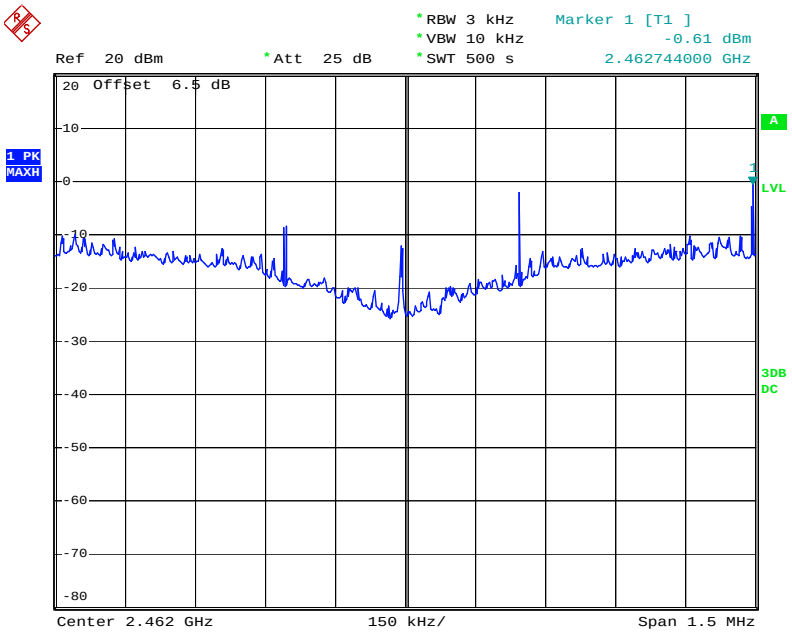
Date: 20.MAR.2011 10:21:57

Power Spectral Density, 802.11b Middle Channel, Chain 1



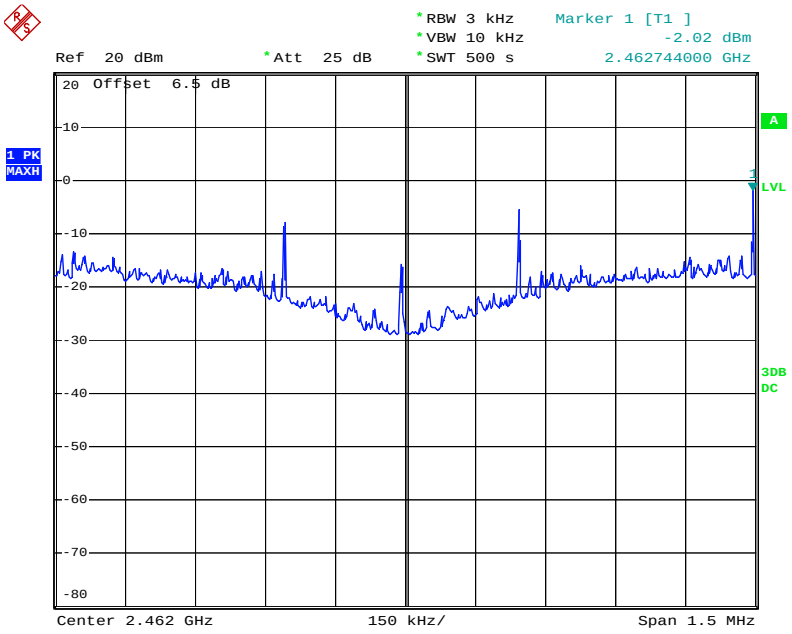
Date: 18.MAR.2011 10:21:43

Power Spectral Density, 802.11b High Channel, Chain 0



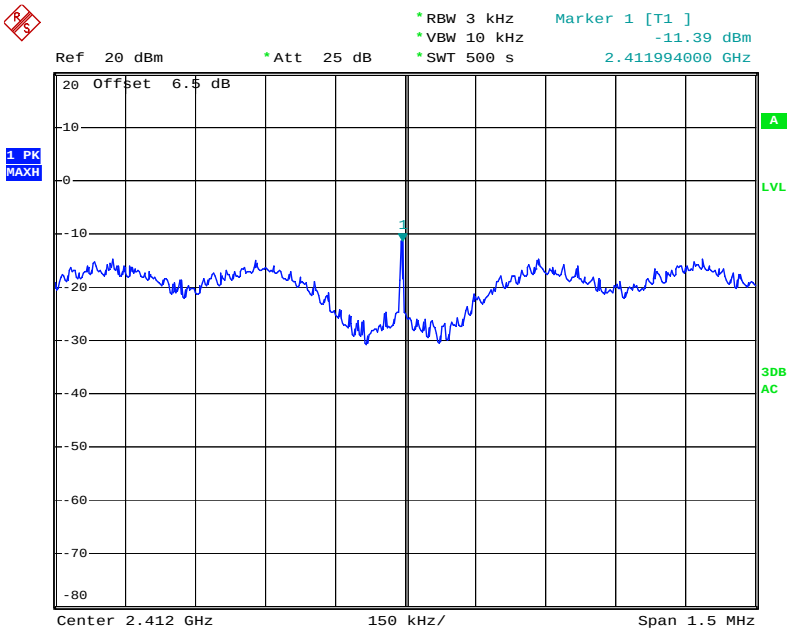
Date: 20.MAR.2011 10:37:17

Power Spectral Density, 802.11b High Channel, Chain 1



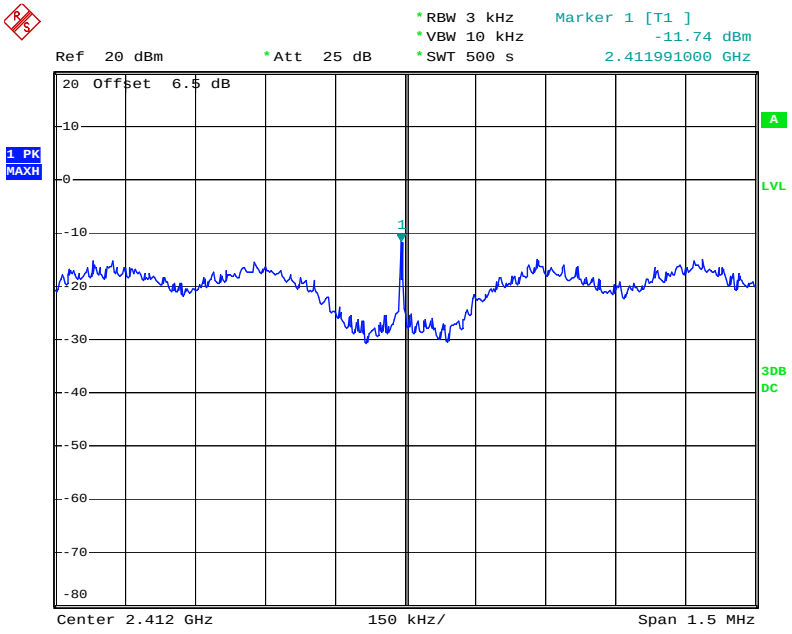
Date: 18.MAR.2011 10:10:00

Power Spectral Density, 802.11g Low Channel, Chain 0



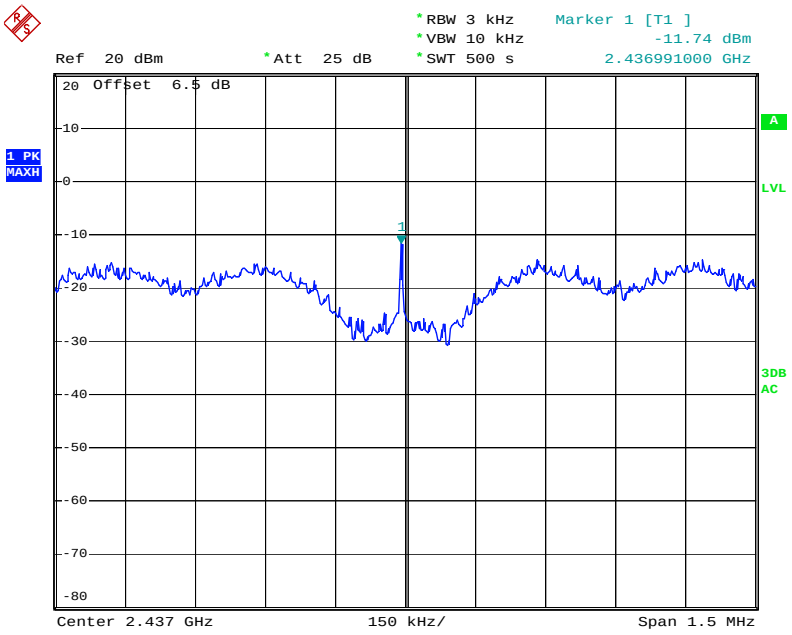
Date: 20.MAR.2011 14:09:58

Power Spectral Density, 802.11g Low Channel, Chain 1



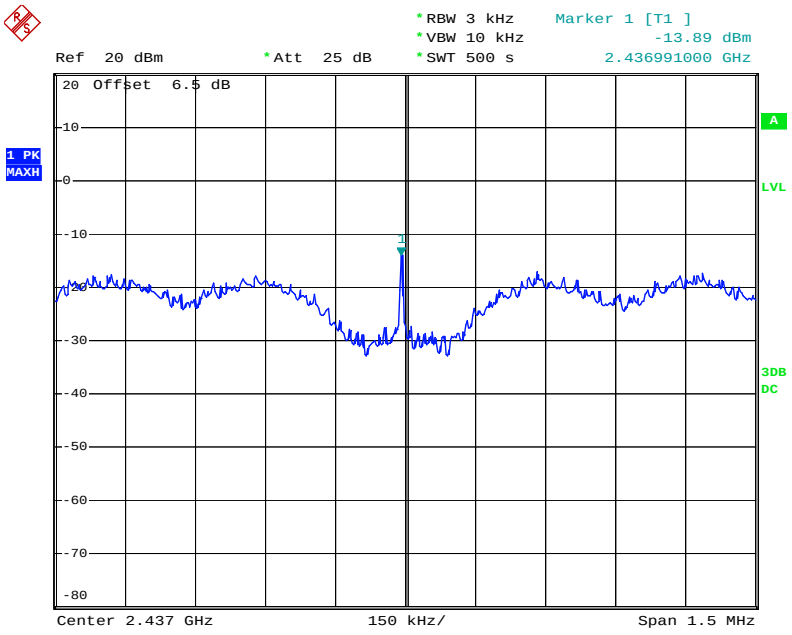
Date: 18.MAR.2011 11:07:49

Power Spectral Density, 802.11g Middle Channel, Chain 0



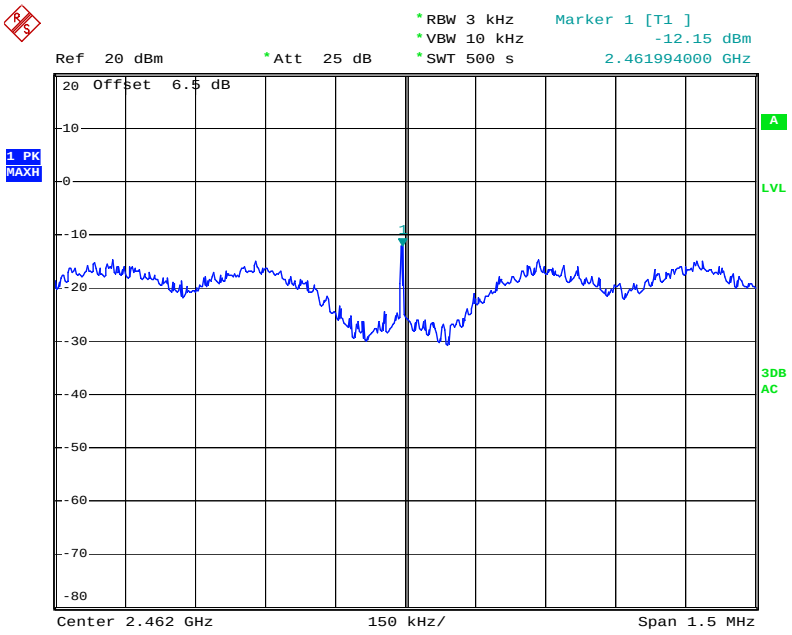
Date: 20.MAR.2011 14:19:13

Power Spectral Density, 802.11g Middle Channel, Chain 1



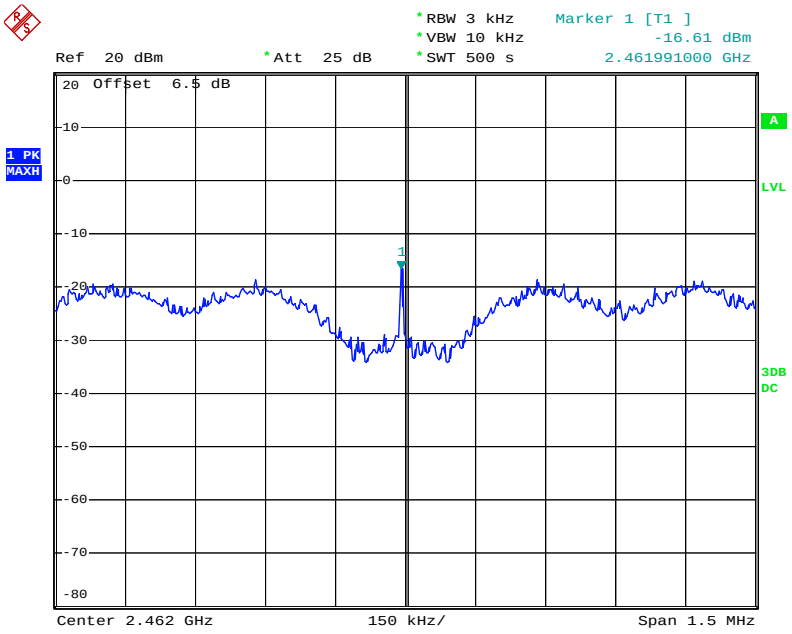
Date: 18.MAR.2011 11:18:05

Power Spectral Density, 802.11g High Channel, Chain 0



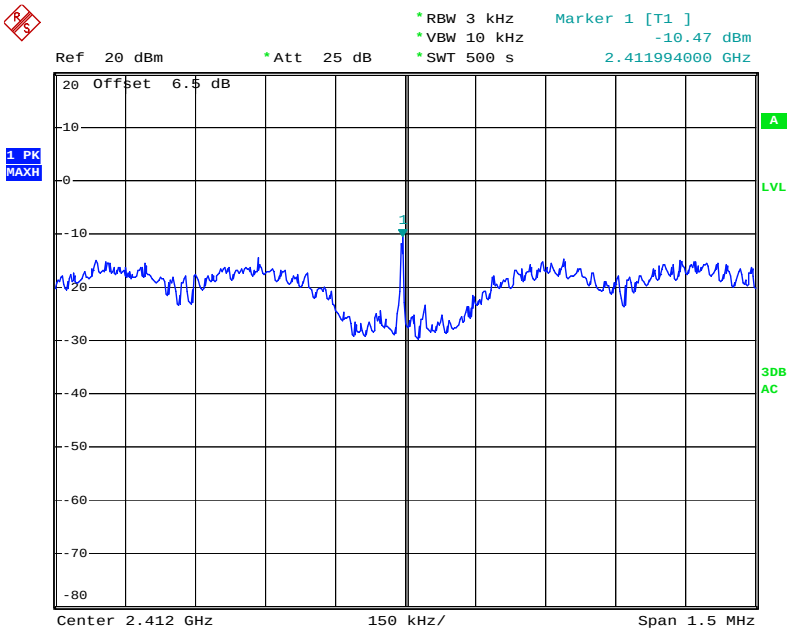
Date: 20.MAR.2011 14:29:56

Power Spectral Density, 802.11g High Channel, Chain 1



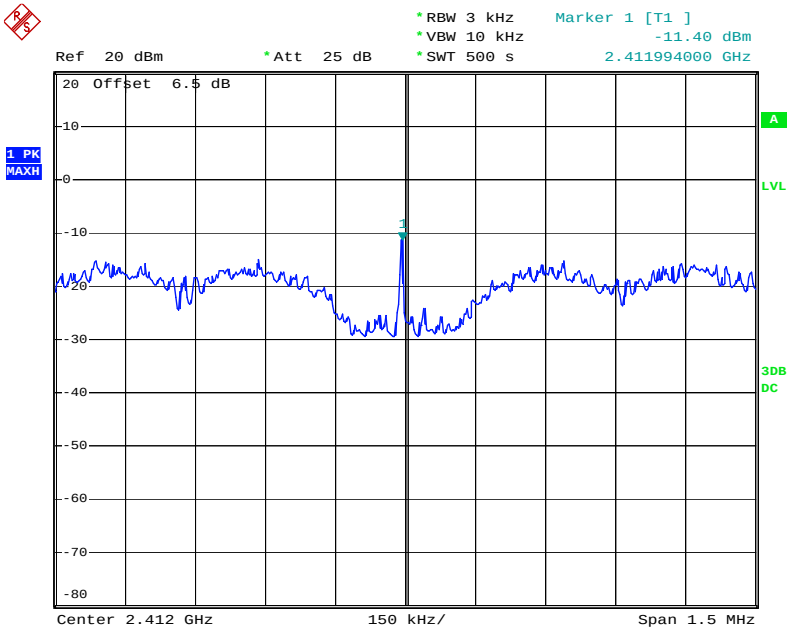
Date: 18.MAR.2011 11:27:24

Power Spectral Density, 802.11n20 Low Channel, Chain 0



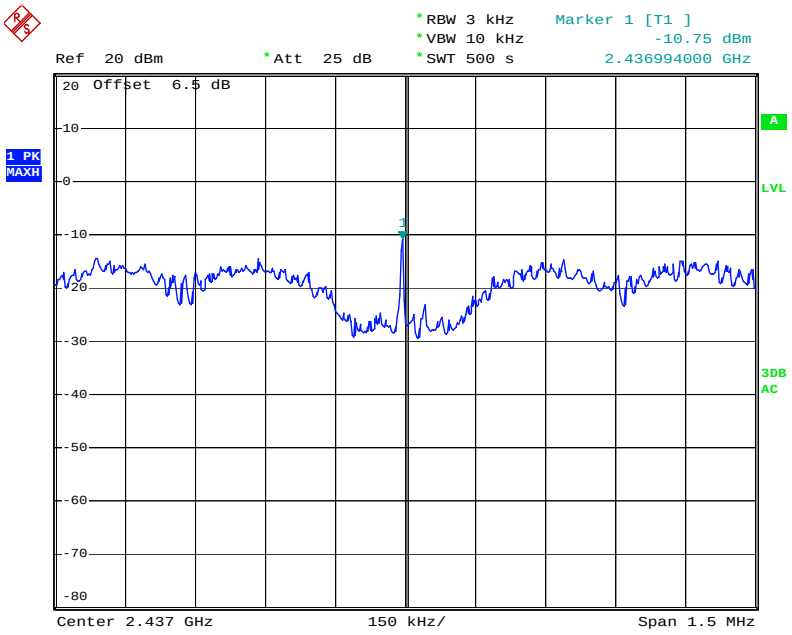
Date: 20.MAR.2011 14:40:12

Power Spectral Density, 802.11n20 Low Channel, Chain 1



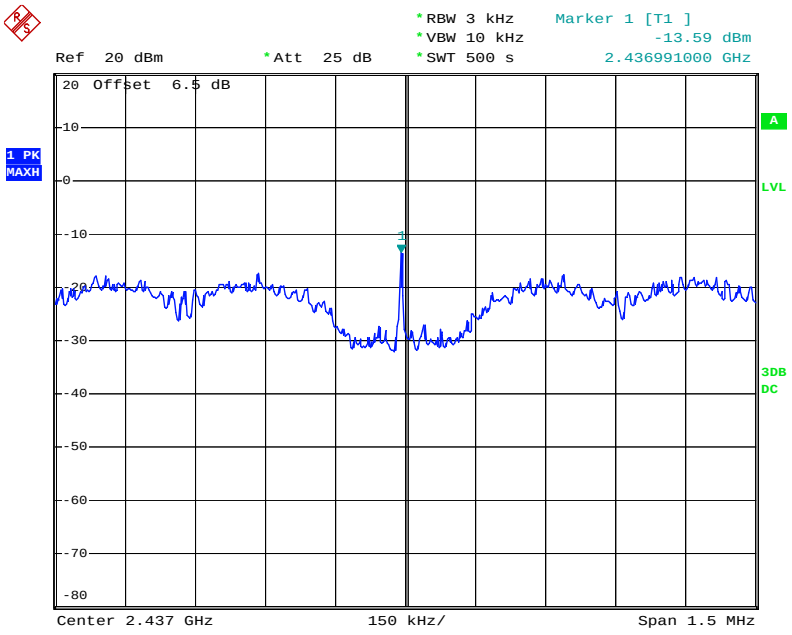
Date: 18.MAR.2011 13:22:52

Power Spectral Density, 802.11n20 Middle Channel, Chain 0



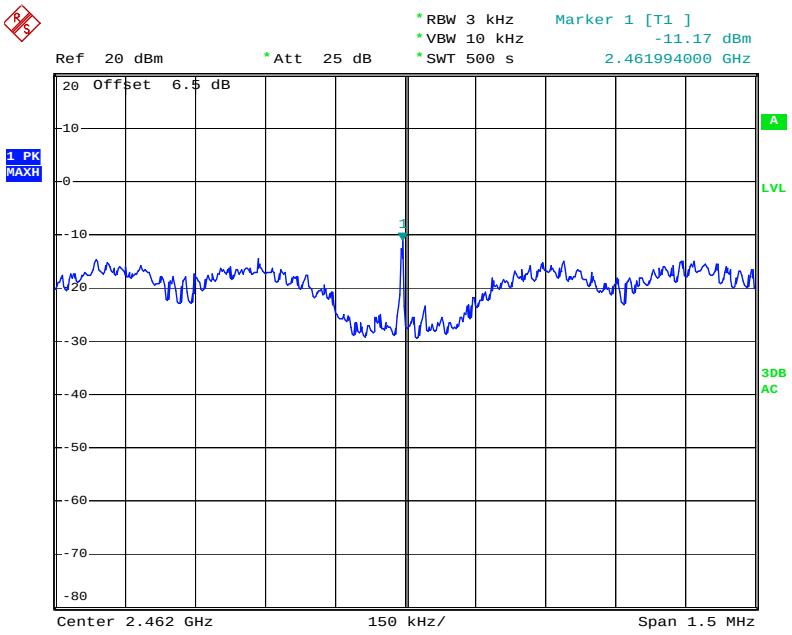
Date: 20.MAR.2011 14:51:54

Power Spectral Density, 802.11n20 Middle Channel, Chain 1



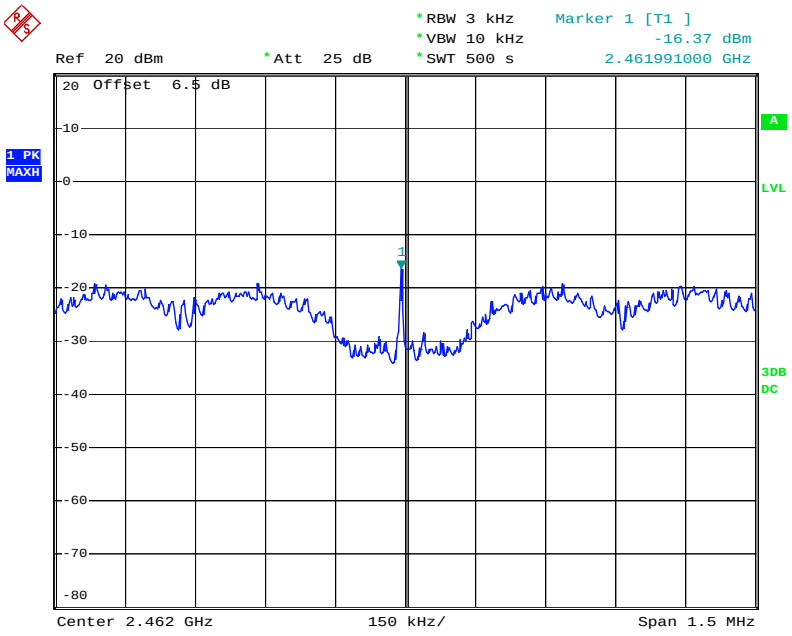
Date: 18.MAR.2011 13:31:58

Power Spectral Density, 802.11n20 High Channel, Chain 0



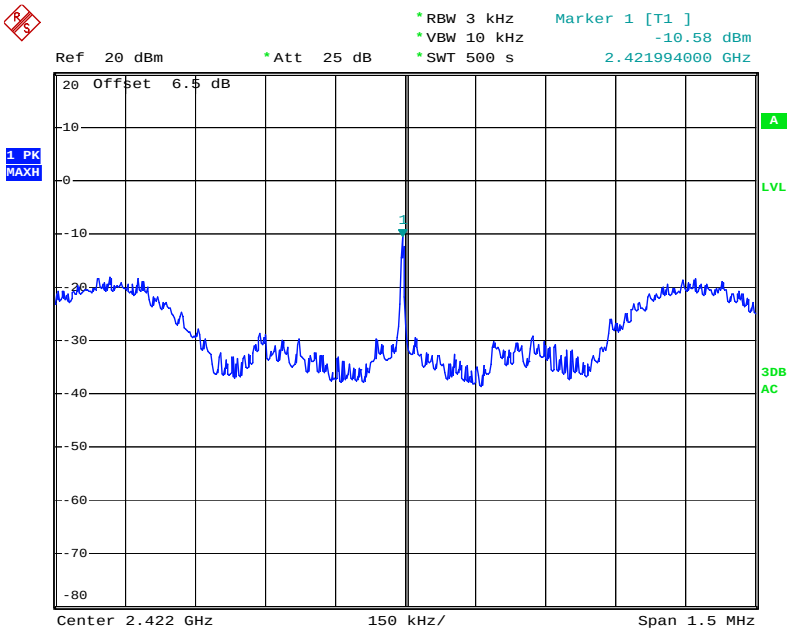
Date: 20.MAR.2011 15:01:24

Power Spectral Density, 802.11n20 High Channel, Chain 1



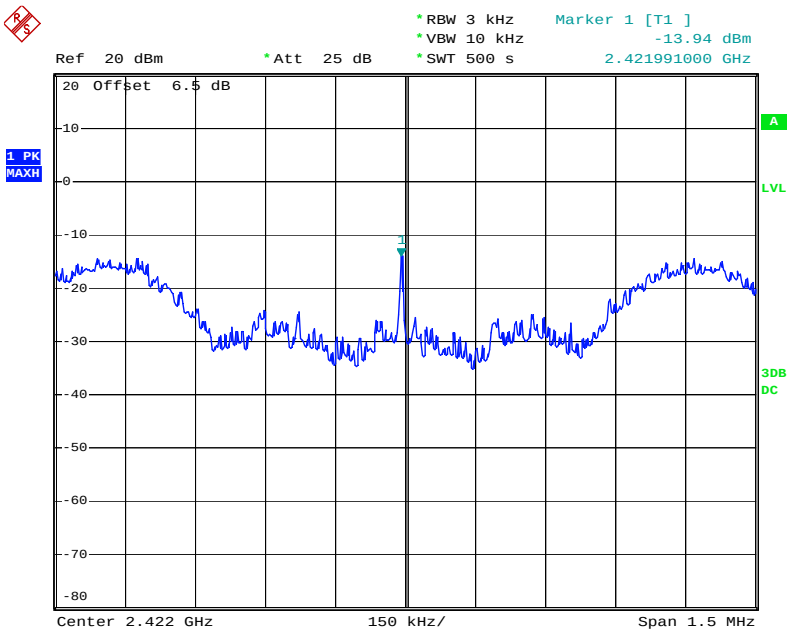
Date: 18.MAR.2011 13:52:21

Power Spectral Density, 802.11n40 Low Channel, Chain 0



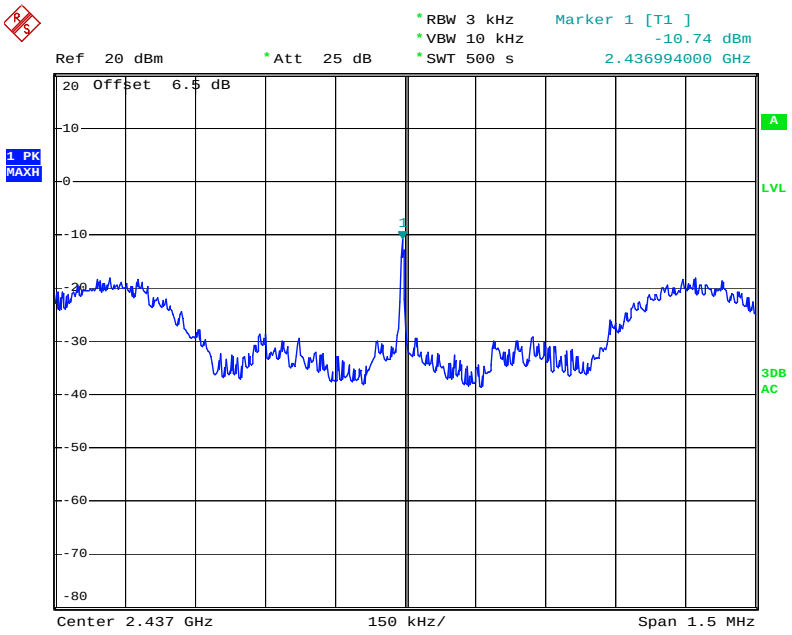
Date: 20.MAR.2011 15:14:36

Power Spectral Density, 802.11n40 Low Channel, Chain 1



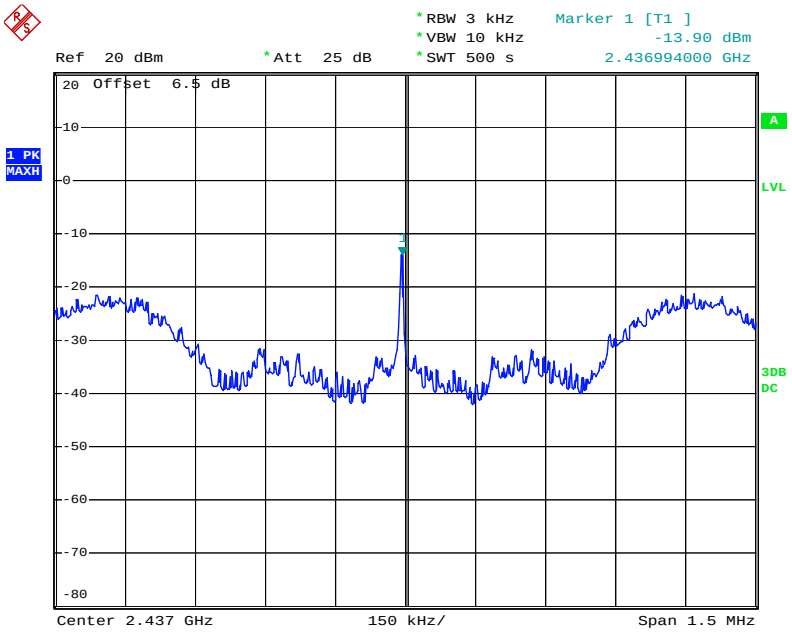
Date: 18.MAR.2011 14:54:40

Power Spectral Density, 802.11n40 Middle Channel, Chain 0



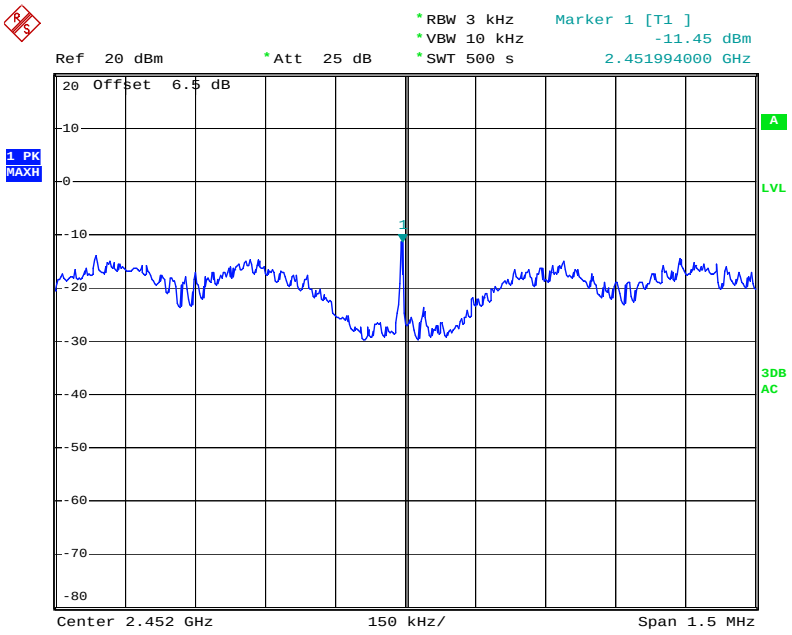
Date: 20.MAR.2011 15:24:54

Power Spectral Density, 802.11n40 Middle Channel, Chain 1



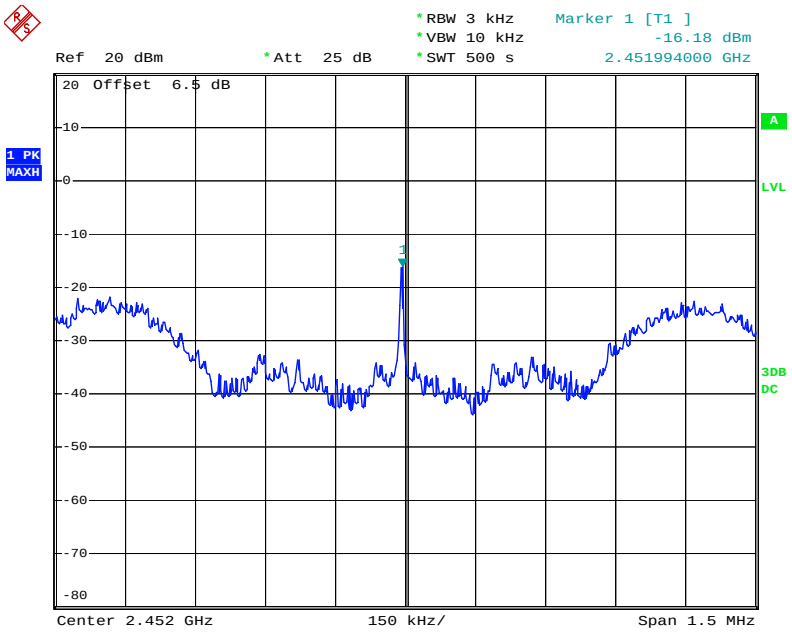
Date: 18.MAR.2011 14:43:12

Power Spectral Density, 802.11n40 High Channel, Chain 0



Date: 20.MAR.2011 15:35:14

Power Spectral Density, 802.11n40 High Channel, Chain 1



Date: 18.MAR.2011 14:33:49

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