Lab Code: 200707-0

TEST REPORT

For

Amer.com Corp.

4500 140th Ave., N. #101, Clearwater, Florida 33762, USA

FCC PART 15C

FCC ID: ZICWAP123N

Report Type:	Product Type:
Original Report	802.11n 300 Mbps PoE Access Point

Test Engineer:	Jimmy Xiao
Report Number:	RDG11041405
Report Date:	2011-07-28
Reviewed By:	Merry Zhao EMC Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Amer.com Corp.*'s product, model number: *WAP123N (FCC ID: ZICWAP123N)* or the "EUT" in this report is a *802.11n 300 Mbps PoE Access Point*, which was measured approximately: 15 cm (L) x 15 cm (W) x 2.7 cm (H), rated input voltage: DC 9V adapter.

Adapter information:
Model: TEL09U-09100
Input: AC 100-240V, 50/60Hz, 0.3A
Output: DC 9V, 1.0A

** All measurement and test data in this report was gathered from production sample serial number: 1104005 (Assigned by applicant). The EUT was received on 2011-04-14.*

Objective

This report is prepared on behalf of *Amer.com Corp.* 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, 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.

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

Test Facility

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

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

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

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

EUT 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: RT2880QA.exe
The test was performed under:
802.11b: Data rate: 11 Mbps.
802.11g: Data rate: 54 Mbps.
802.11n20: Data rate: 65 Mbps.
802.11 n40: Data rate: 65 Mbps.

Equipment Modifications

No modification was made to the EUT tested.

Local Support Equipment List and Details

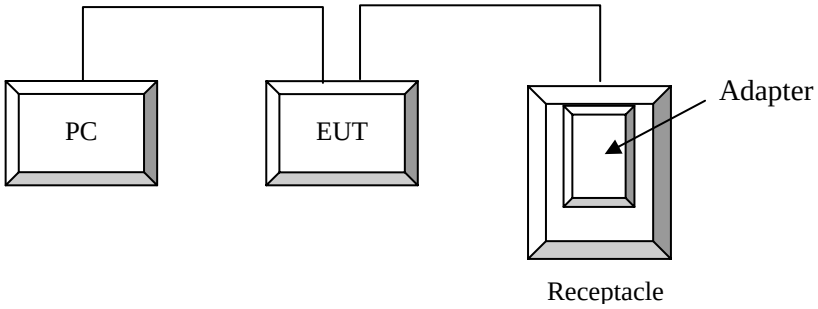
Manufacturer	Description	Model	Serial Number
DELL	System PC	1#	N/A

External I/O Cable

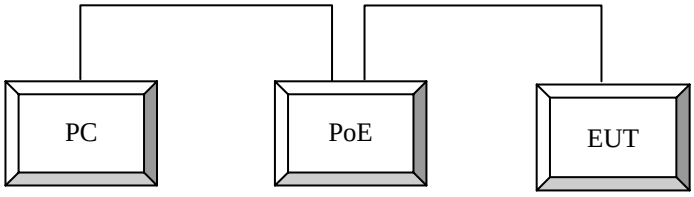
Cable Description	Length (m)	From Port	To
Shielded Detachable RJ45 Cable	1.5	Internet	EUT
Unshielded Undetachable Power Cable	1.8	Adapter	EUT

Configuration of Test Setup

Adapter power supply:

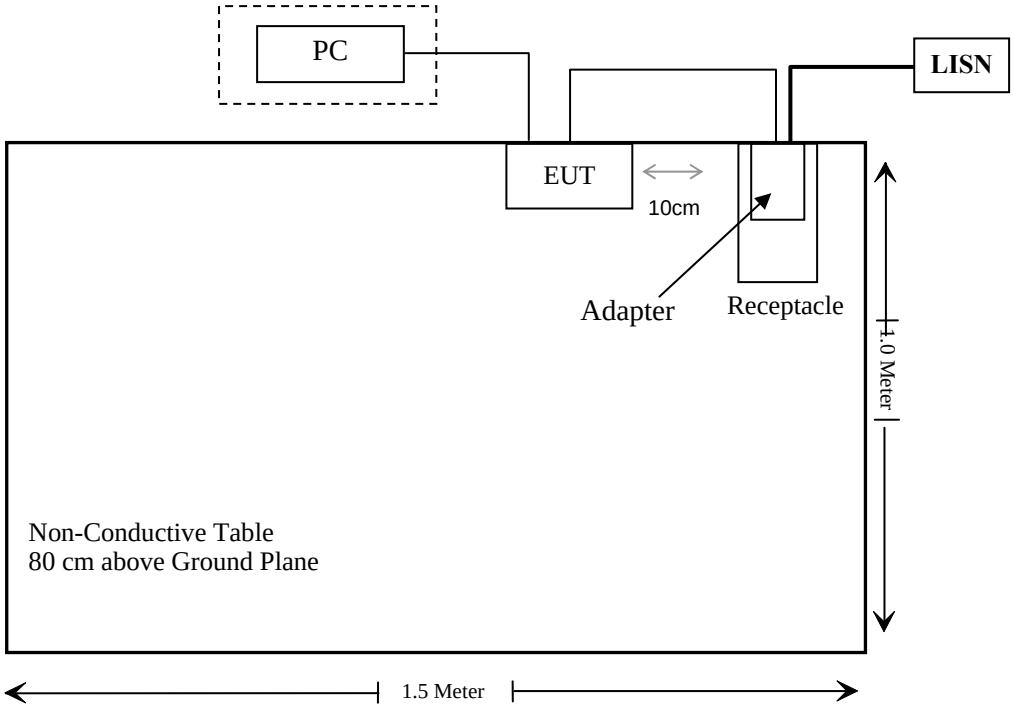


PoE power supply:

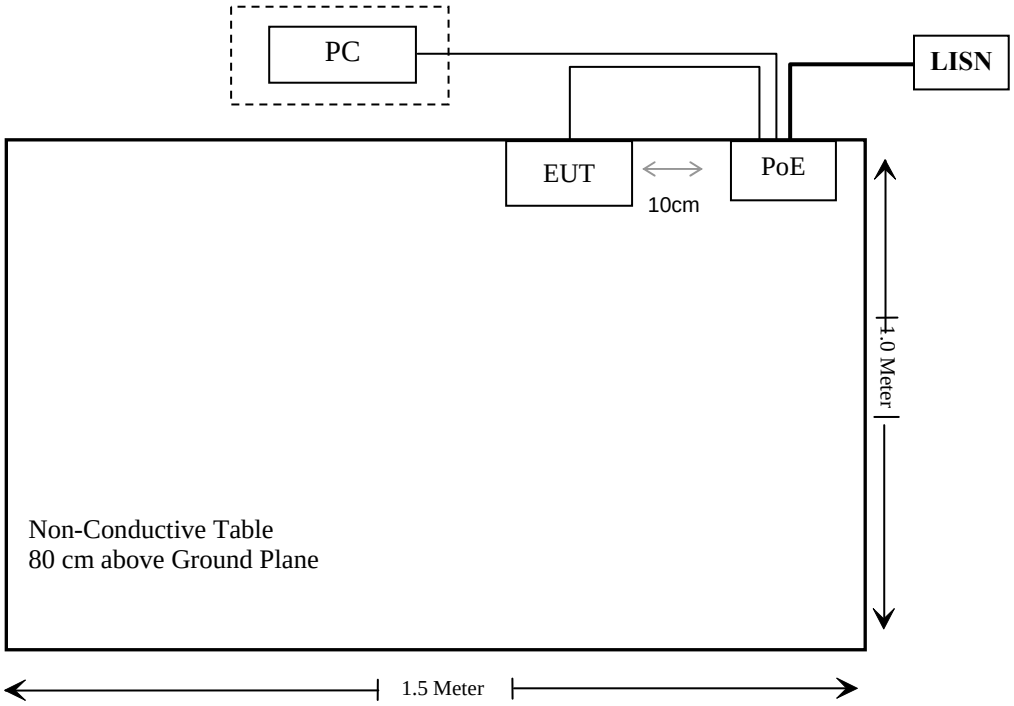


Block Diagram of Test Setup

Adapter power supply:



PoE power supply:



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 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) & §2.1091 – MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

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

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

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

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

MPE Calculation

Predication of MPE limit 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 = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Radio Mode	**Frequency (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
802.11b	2437	1.0	1.26	17.25	53.09	20	0.013	1.0
802.11g	2437	1.0	1.26	15.12	32.51	20	0.008	1.0
802.11n20	2437	1.0	1.26	17.10	51.29	20	0.013	1.0
802.11n40	2437	1.0	1.26	17.20	52.48	20	0.013	1.0

Result: The device meets FCC MPE limit at 20 cm distance.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

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

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

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT used internal fixed antennas, which complied with 15.203, the maximum gain is 1 dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

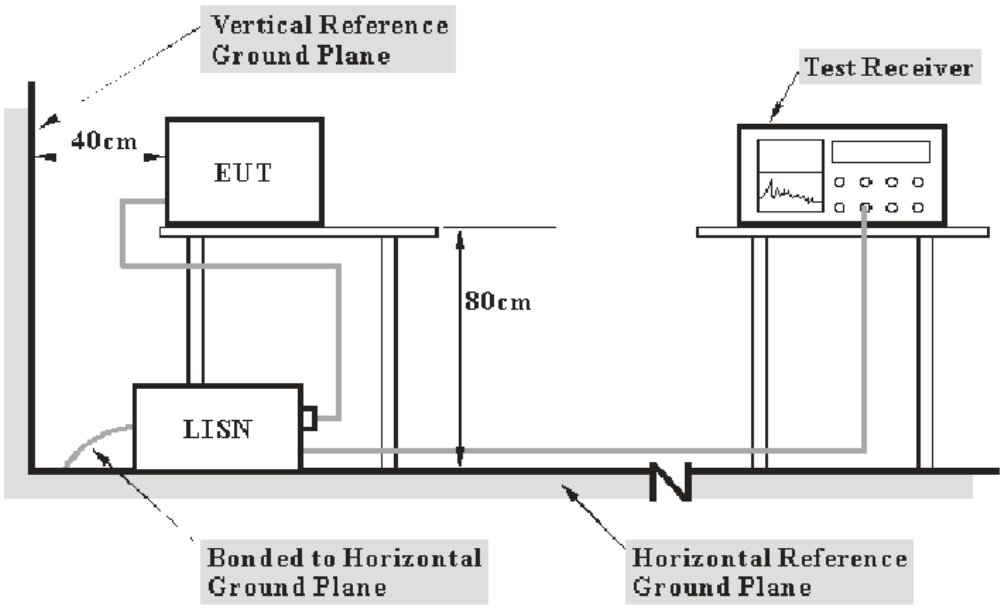
FCC §15.207

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. (Shenzhen) is ±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.

For adapter power supply mode: the adapter was connected to a 120 VAC/60 Hz power source,
For PoE power supply mode: the PoE was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

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

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

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

Test Procedure

During the conducted emission test, the adapter and PoE were connected to the LISN.

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

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

Test 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 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:

1.82 dB at **3.785 MHz** in the **Line** conducted mode (PoE power supply)

Test Data

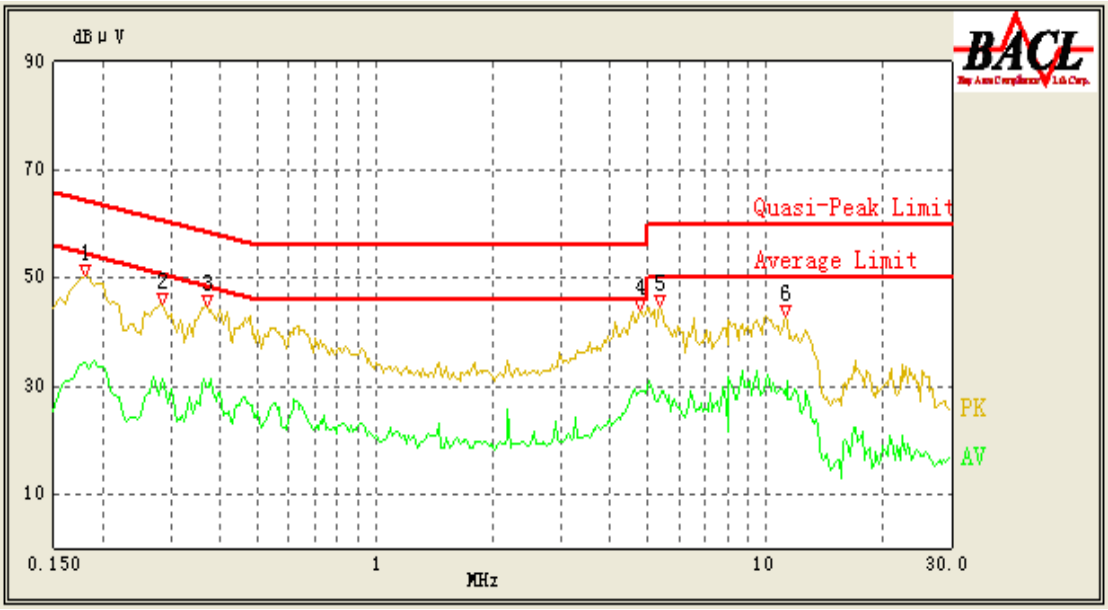
Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-07-06.

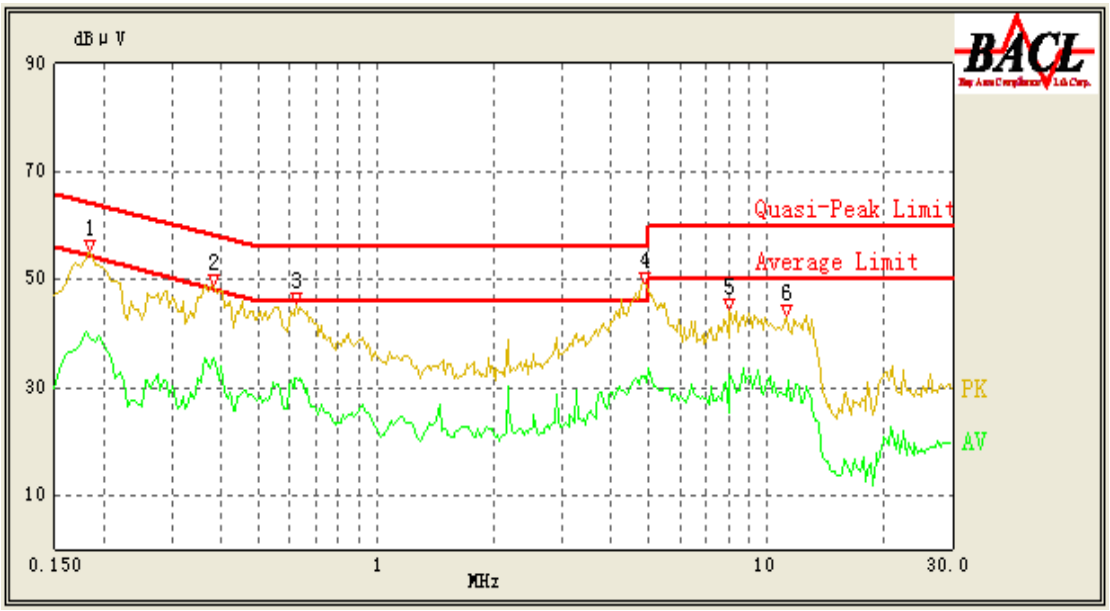
Test Mode: Transmitting

120 V, 60 Hz, Line (Adapter power supply):



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave.)
4.790	39.34	10.10	56.00	16.66	QP
4.795	29.10	10.10	46.00	16.90	Ave.
0.370	41.12	10.07	59.71	18.59	QP
0.370	29.64	10.07	49.71	20.07	Ave.
0.180	44.57	10.08	65.14	20.57	QP
0.285	41.48	10.01	62.14	20.66	QP
5.390	29.14	10.10	50.00	20.86	Ave.
0.180	34.25	10.08	55.14	20.89	Ave.
0.285	31.18	10.01	52.14	20.96	Ave.
11.200	38.48	10.11	60.00	21.52	QP
11.225	28.16	10.11	50.00	21.84	Ave.
5.385	35.99	10.10	60.00	24.01	QP

120V, 60 Hz, Neutral (Adapter power supply):

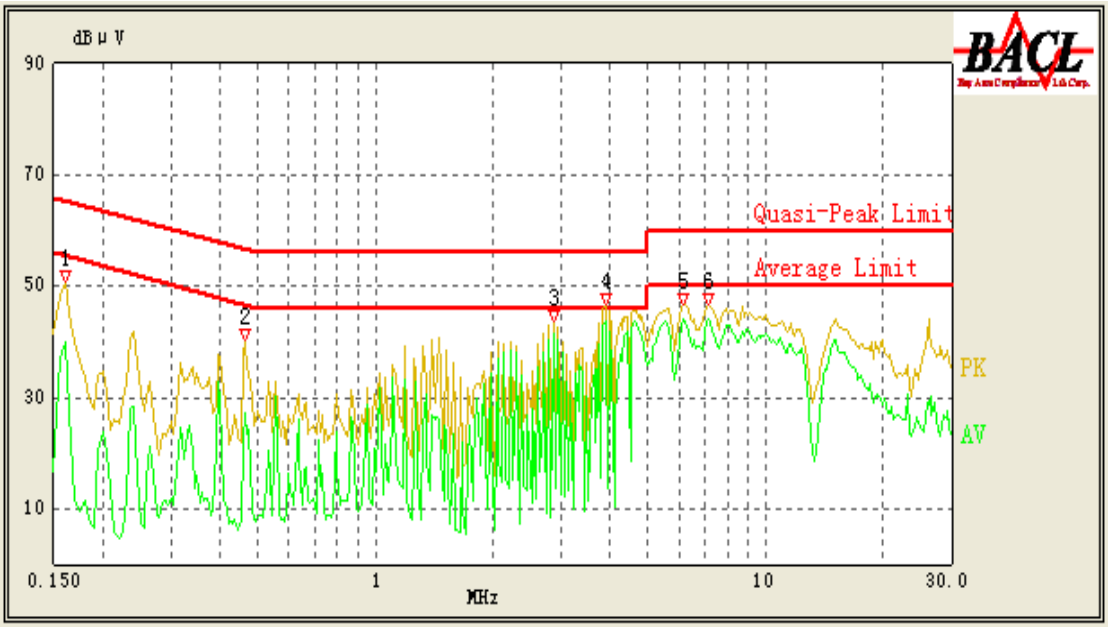


Conducted Emission			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
4.850	42.89	10.10	56.00	13.11	QP
0.385	45.66	10.09	59.29	13.63	QP
4.850	32.08	10.10	46.00	13.92	Ave.
0.385	35.30	10.09	49.29	13.99	Ave.
0.625	41.77	10.18	56.00	14.23	QP
0.620	31.51	10.18	46.00	14.49	Ave.
0.185	49.39	10.08	65.00	15.61	QP
0.185	39.01	10.08	55.00	15.99	Ave.
8.025	32.61	10.10	50.00	17.39	Ave.
8.025	39.12	10.10	60.00	20.88	QP
11.200	28.16	10.11	50.00	21.84	Ave.
11.200	35.68	10.11	60.00	24.32	QP

120 V, 60 Hz, Line (PoE power supply):

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
3.785	44.18	10.11	46.00	1.82*	Ave.
2.760	41.81	10.16	46.00	4.19	Ave.
8.200	42.10	10.10	50.00	7.90	Ave.
2.760	47.73	10.16	56.00	8.27	QP
3.785	46.98	10.11	56.00	9.02	QP
5.600	40.92	10.10	50.00	9.08	Ave.
8.200	46.67	10.10	60.00	13.33	QP
5.600	44.94	10.10	60.00	15.06	QP
1.395	38.37	10.14	56.00	17.63	QP
1.390	27.57	10.14	46.00	18.43	Ave.
0.465	37.64	10.16	57.00	19.36	QP
0.465	27.61	10.16	47.00	19.39	Ave.

120V, 60 Hz, Neutral (PoE power supply):



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Remark (PK/QP/Ave.)
3.885	43.61	10.11	46.00	2.39*	Ave.
2.855	41.47	10.16	46.00	4.53	Ave.
7.135	44.07	10.10	50.00	5.93	Ave.
6.185	44.04	10.10	50.00	5.96	Ave.
3.885	49.58	10.11	56.00	6.42	QP
7.135	52.98	10.10	60.00	7.02	QP
6.185	50.98	10.10	60.00	9.02	QP
2.855	43.45	10.16	56.00	12.55	QP
0.160	39.78	10.09	55.71	15.93	Ave.
0.465	37.96	10.16	57.00	19.04	QP
0.160	46.13	10.09	65.71	19.58	QP
0.465	27.04	10.16	47.00	19.96	Ave.

* Measurement within uncertainly

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

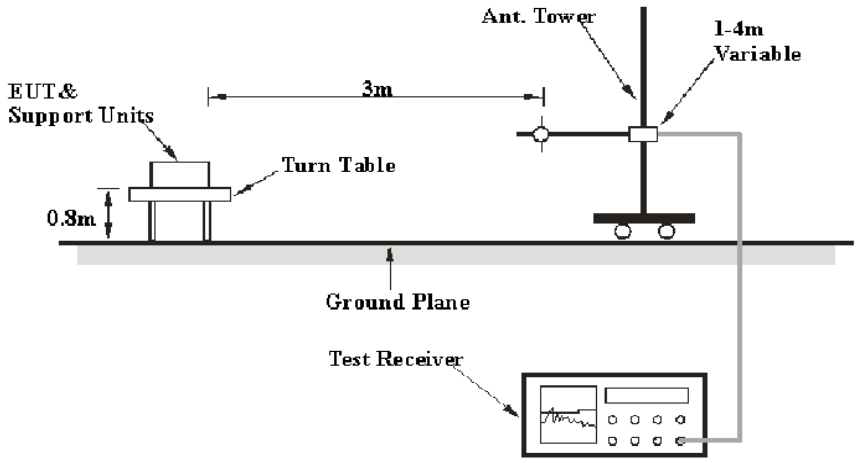
Measurement Uncertainty

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.

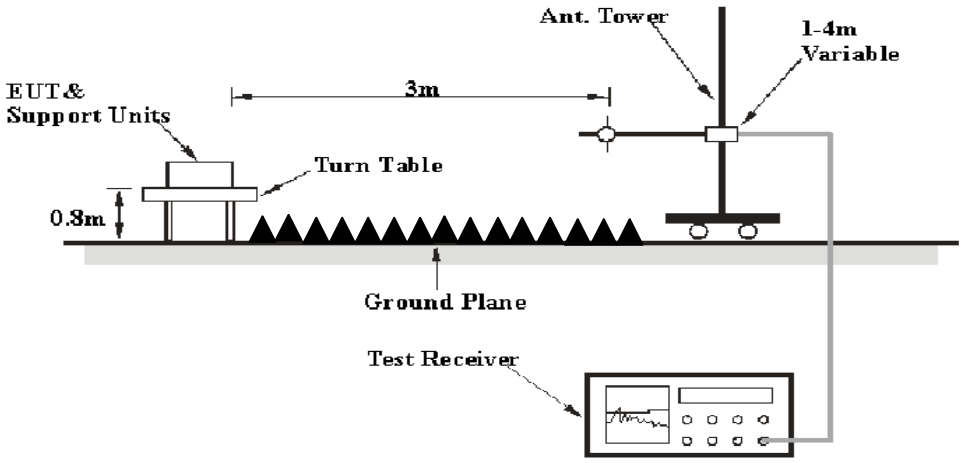
Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB(k=2, 95% level of confidence) .

EUT Setup

Below 1GHz:



Above 1GHz:



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

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

The spacing between the peripherals was 10 cm.

For adapter power supply mode: the adapter was connected to a 120 VAC/60 Hz power source,
For PoE power supply mode: the PoE was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

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

Test Procedure

During the conducted emission test, the adapter and PoE were connected to the outlet of the LISN.

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

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

Corrected Amplitude & Margin Calculation

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

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

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-10
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
HP	Spectrum Analyzer	8593A	51475684	2010-07-08	2011-07-07
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07

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

Test Results Summary

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

Below 1 GHz:

0.4 dB at **35.574000 MHz** in the **Vertical** polarization (PoE power supply)

Above 1 GHz:

1.33 dB at **6565.3 MHz** in the **Vertical** polarization at high channel (802.11b mode)

Test Data

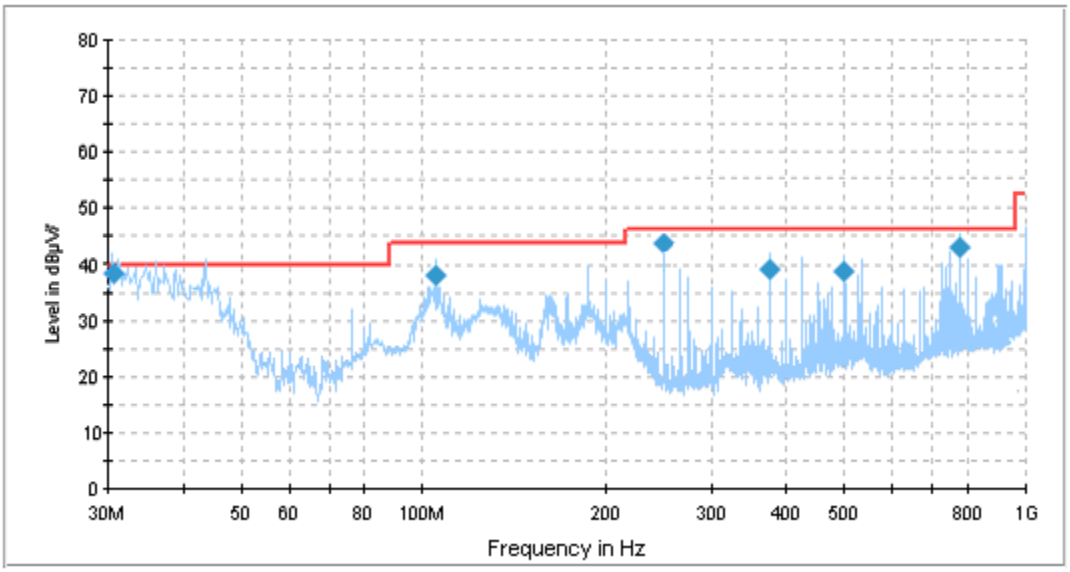
Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-07-06.

1) Below 1 GHz:

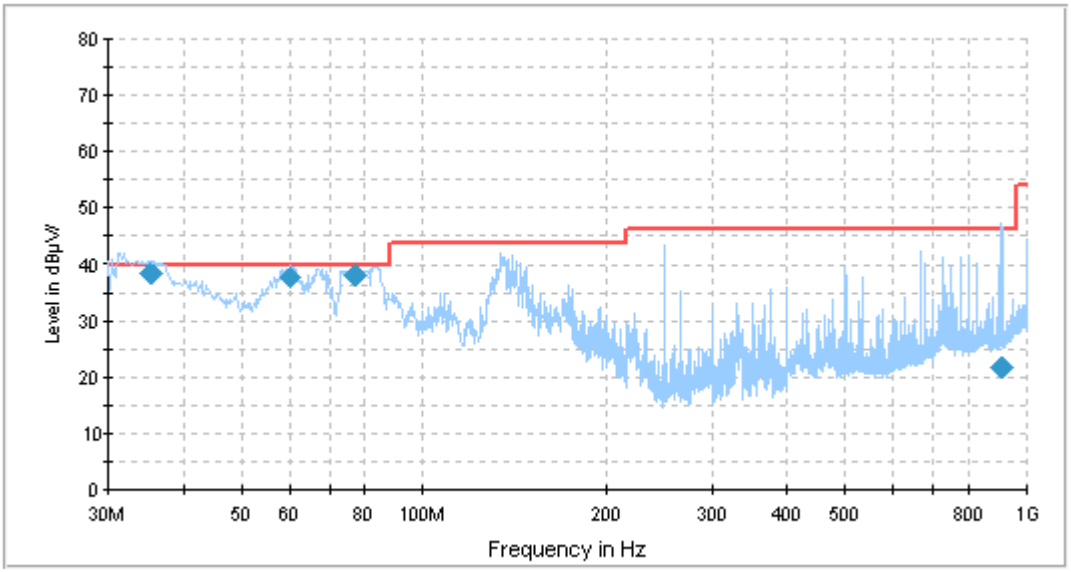
Test Mode: Transmitting (Adapter power supply)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
250.114000	45.1	199.0	H	246.0	-13.5	46.0	0.9*
30.628184	38.7	105.0	V	179.0	-5.8	40.0	1.3*
775.177000	43.5	110.0	H	213.0	-2.1	46.0	2.5*
125.200500	38.2	100.0	H	162.0	-12.3	43.5	5.3
375.013750	39.8	268.0	H	228.0	-10.5	46.0	6.2
500.317750	39.5	119.0	H	246.0	-8.4	46.0	6.5

* Measurement within uncertainly

Test Mode: Transmitting (PoE power supply)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
35.574000	39.6	102.0	V	241.0	-9.2	40.0	0.4*
34.949000	39.1	102.0	V	207.0	-8.8	40.0	0.9*
77.154000	38.7	150.0	V	292.0	-18.2	40.0	1.3*
60.197000	37.9	100.0	V	150.0	-18.7	40.0	2.1*
907.181000	21.6	192.0	V	60.0	-0.6	46.0	24.4
909.003000	21.6	400.0	V	136.0	-0.5	46.0	24.4

* Measurement within uncertainly

2) Above 1 GHz:

802.11b Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
6432	36.08	Ave.	54	1.3	V	38.2	4.97	26.66	52.59	54	1.41*	spurious
6432	36.75	Ave.	210	2.1	H	36.9	4.97	26.66	51.96	54	2.04*	spurious
4824	36.21	Ave.	150	1.9	H	36.3	4.30	26.75	50.06	54	3.94*	harmonic
4824	33.75	Ave.	360	1.3	V	33.6	4.30	26.75	44.90	54	9.10	harmonic
6432	46.58	PK	54	1.3	V	38.2	4.97	26.66	63.09	74	10.91	spurious
6432	47.77	PK	210	2.1	H	36.9	4.97	26.66	62.98	74	11.02	spurious
4824	47.31	PK	150	1.9	H	36.3	4.30	26.75	61.16	74	12.84	harmonic
4824	45.48	PK	360	1.3	V	33.6	4.30	26.75	56.63	74	17.37	harmonic
Middle Channel (2437 MHz)												
6498.7	35.46	Ave.	320	1.1	V	38.3	4.98	26.66	52.08	54	1.92*	spurious
4874	34.24	Ave.	250	1.5	H	36.3	4.32	26.75	48.11	54	5.89	harmonic
6498.7	31.08	Ave.	170	2.3	H	36.9	4.98	26.66	46.30	54	7.70	spurious
4874	31.69	Ave.	330	2.1	V	33.6	4.32	26.75	42.86	54	11.14	harmonic
4874	46.93	PK	250	1.5	H	36.3	4.32	26.75	60.80	74	13.20	harmonic
6498.7	43.18	PK	320	1.1	V	38.3	4.98	26.66	59.80	74	14.20	spurious
6498.7	41.65	PK	170	2.3	H	36.9	4.98	26.66	56.87	74	17.13	spurious
4874	44.13	PK	330	2.1	V	33.6	4.32	26.75	55.30	74	18.70	harmonic
High Channel (2462 MHz)												
6565.3	37.10	Ave.	79	1.8	V	37.3	4.93	26.66	52.67	54	1.33*	spurious
6565.3	32.80	Ave.	180	2.1	H	38.5	4.93	26.66	49.57	54	4.43	spurious
4924	35.14	Ave.	140	1.8	H	36.3	4.40	26.75	49.09	54	4.91	harmonic
4924	32.88	Ave.	79	1.2	V	33.6	4.40	26.75	44.13	54	9.87	harmonic
4924	48.34	PK	140	1.8	H	36.3	4.40	26.75	62.29	74	11.71	harmonic
6565.3	44.61	PK	79	1.8	V	37.3	4.93	26.66	60.18	74	13.82	spurious
6565.3	42.19	PK	180	2.1	H	38.5	4.93	26.66	58.96	74	15.04	spurious
4924	45.14	PK	79	1.2	V	33.6	4.40	26.75	56.39	74	17.61	harmonic

Radiated spurious emission in restricted band

Freq. (MHz)	S.A. Reading (dBμV)	Detector (PK /Ave.)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.247/205/209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
2488.3	22.36	Ave.	190	1.6	H	30.5	3.13	26.87	29.12	54	24.88
2488.3	22.12	Ave.	230	1.2	V	30.5	3.13	26.87	28.88	54	25.12
2314.2	22.32	Ave.	180	1.9	H	30.3	2.97	26.85	28.74	54	25.26
2314.2	21.78	Ave.	260	1.4	V	30.3	2.97	26.85	28.2	54	25.80
2488.3	36.44	PK	190	1.6	H	30.5	3.13	26.87	43.2	74	30.80
2488.3	36.02	PK	230	1.2	V	30.5	3.13	26.87	42.78	74	31.22
2314.2	35.44	PK	180	1.9	H	30.3	2.97	26.85	41.86	74	32.14
2314.2	34.78	PK	260	1.4	V	30.3	2.97	26.85	41.2	74	32.80

802.11g Mode:

Indicated		Detector (PK/Ave)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
6432	35.89	Ave.	154	1.4	V	38.2	4.97	26.66	52.4	54	1.60*	spurious
6432	36.86	Ave.	230	2.1	H	36.9	4.97	26.66	52.07	54	1.93*	spurious
4824	35.24	Ave.	160	1.9	H	36.3	4.30	26.75	49.09	54	4.91	harmonic
4824	32.75	Ave.	350	1.5	V	33.6	4.30	26.75	43.90	54	10.10	harmonic
6432	46.64	PK	154	1.4	V	38.2	4.97	26.66	63.15	74	10.85	spurious
6432	46.89	PK	230	2.1	H	36.9	4.97	26.66	62.10	74	11.90	spurious
4824	47.12	PK	160	1.9	H	36.3	4.30	26.75	60.97	74	13.03	harmonic
4824	44.36	PK	350	1.5	V	33.6	4.30	26.75	55.51	74	18.49	harmonic
Middle Channel (2437 MHz)												
6498.7	33.21	Ave.	310	1.0	V	38.3	4.98	26.66	49.83	54	4.17	spurious
4874	32.16	Ave.	290	1.9	H	36.3	4.32	26.75	46.03	54	7.97	harmonic
6498.7	30.12	Ave.	110	2.1	H	36.9	4.98	26.66	45.34	54	8.66	spurious
4874	30.46	Ave.	360	2.0	V	33.6	4.32	26.75	41.63	54	12.37	harmonic
4874	47.02	PK	290	1.9	H	36.3	4.32	26.75	60.89	74	13.11	harmonic
6498.7	42.45	PK	310	1.0	V	38.3	4.98	26.66	59.07	74	14.93	spurious
6498.7	40.25	PK	110	2.1	H	36.9	4.98	26.66	55.47	74	18.53	spurious
4874	42.45	PK	360	2.0	V	33.6	4.32	26.75	53.62	74	20.38	harmonic
High Channel (2462 MHz)												
6565.3	35.24	Ave.	250	1.7	V	37.3	4.93	26.66	50.81	54	3.19*	spurious
6565.3	31.42	Ave.	180	2.1	H	38.5	4.93	26.66	48.19	54	5.81	spurious
4924	34.23	Ave.	160	1.3	H	36.3	4.40	26.75	48.18	54	5.82	harmonic
4924	30.24	Ave.	120	1.2	V	33.6	4.40	26.75	41.49	54	12.51	harmonic
4924	47.21	PK	160	1.3	H	36.3	4.40	26.75	61.16	74	12.84	harmonic
6565.3	43.64	PK	250	1.7	V	37.3	4.93	26.66	59.21	74	14.79	spurious
6565.3	41.69	PK	180	2.1	H	38.5	4.93	26.66	58.46	74	15.54	spurious
4924	43.65	PK	120	1.2	V	33.6	4.40	26.75	54.9	74	19.1	harmonic

Radiated spurious emission in restricted band

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK /Ave	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/205/209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)
2491.6	22.36	Ave.	200	1.7	H	30.6	3.13	26.87	29.22	54	24.78
2491.6	22.12	Ave.	290	1.2	V	30.6	3.13	26.87	28.98	54	25.02
2321.3	22.32	Ave.	170	2.1	H	30.4	2.98	26.85	28.85	54	25.15
2321.3	21.78	Ave.	250	1.4	V	30.4	2.98	26.85	28.31	54	25.69
2491.6	36.44	PK	200	1.7	H	30.6	3.13	26.87	43.3	74	30.70
2491.6	36.02	PK	290	1.2	V	30.6	3.13	26.87	42.88	74	31.12
2321.3	35.44	PK	170	2.1	H	30.4	2.98	26.85	41.97	74	32.03
2321.3	34.78	PK	250	1.4	V	30.4	2.98	26.85	41.31	74	32.69

802.11n20 Mode:

Indicated		Detector (PK/Ave)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
6432	34.75	Ave.	240	1.9	H	36.9	4.97	26.66	49.96	54	4.04	spurious
6432	32.41	Ave.	360	1.2	V	38.2	4.97	26.66	48.92	54	5.08	spurious
4824	32.46	Ave.	230	1.1	H	36.3	4.30	26.75	46.31	54	7.69	harmonic
4824	30.45	Ave.	180	1.5	V	33.6	4.30	26.75	41.60	54	12.40	harmonic
6432	43.67	PK	360	1.2	V	38.2	4.97	26.66	60.18	74	13.82	spurious
6432	44.69	PK	240	1.9	H	36.9	4.97	26.66	59.90	74	14.10	spurious
4824	45.23	PK	230	1.1	H	36.3	4.30	26.75	59.08	74	14.92	harmonic
4824	41.36	PK	180	1.5	V	33.6	4.30	26.75	52.51	74	21.49	harmonic
Middle Channel (2437 MHz)												
6498.7	31.28	Ave.	110	1.9	V	38.3	4.98	26.66	47.90	54	6.10	spurious
6498.7	29.78	Ave.	170	2.1	H	36.9	4.98	26.66	45.00	54	9.00	spurious
4874	30.14	Ave.	300	1.2	H	36.3	4.32	26.75	44.01	54	9.99	harmonic
4874	29.65	Ave.	230	1.5	V	33.6	4.32	26.75	40.82	54	13.18	harmonic
4874	44.89	PK	300	1.2	H	36.3	4.32	26.75	58.76	74	15.24	harmonic
6498.7	40.23	PK	110	1.9	V	38.3	4.98	26.66	56.85	74	17.15	spurious
6498.7	39.48	PK	170	2.1	H	36.9	4.98	26.66	54.70	74	19.30	spurious
4874	41.26	PK	230	1.5	V	33.6	4.32	26.75	52.43	74	21.57	harmonic
High Channel (2462 MHz)												
6565.3	33.46	Ave.	260	1.7	V	37.3	4.93	26.66	49.03	54	4.97	spurious
6565.3	30.26	Ave.	180	1.9	H	38.5	4.93	26.66	47.03	54	6.97	spurious
4924	32.65	Ave.	190	1.4	H	36.3	4.4	26.75	46.60	54	7.40	harmonic
4924	30.11	Ave.	130	1.2	V	33.6	4.4	26.75	41.36	54	12.64	harmonic
6565.3	43.45	PK	180	1.9	H	38.5	4.93	26.66	60.22	74	13.78	spurious
6565.3	44.26	PK	260	1.7	V	37.3	4.93	26.66	59.83	74	14.17	spurious
4924	45.36	PK	190	1.4	H	36.3	4.4	26.75	59.31	74	14.69	harmonic
4924	42.69	PK	130	1.2	V	33.6	4.4	26.75	53.94	74	20.06	harmonic

Radiated spurious emission in restricted band

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK /Ave	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/205/209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)
2495.8	22.36	Ave.	260	2.1	H	30.5	3.10	26.86	29.10	54	24.90
2495.8	22.12	Ave.	175	1.6	V	30.5	3.10	26.86	28.86	54	25.14
2342.6	22.32	Ave.	180	1.2	H	30.3	2.98	26.85	28.75	54	25.25
2342.6	21.78	Ave.	210	1.8	V	30.3	2.98	26.85	28.21	54	25.79
2495.8	36.44	PK	260	2.1	H	30.5	3.10	26.86	43.18	74	30.82
2495.8	36.02	PK	175	1.6	V	30.5	3.10	26.86	42.76	74	31.24
2342.6	35.44	PK	180	1.2	H	30.3	2.98	26.85	41.87	74	32.13
2342.6	34.78	PK	210	1.8	V	30.3	2.98	26.85	41.21	74	32.79

802.11n40 Mode:

Indicated		Detector (PK/Ave)	Table Angle Degree	Test Antenna		Correction Factor			FCC Part 15.247/15.209			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2422 MHz)												
6458.6	35.95	Ave.	240	2.0	H	38.3	4.98	26.66	52.57	54	1.43*	spurious
6458.6	36.36	Ave.	350	1.2	V	37.2	4.98	26.66	51.88	54	2.12*	spurious
6458.6	46.61	PK	350	1.2	V	37.2	4.98	26.66	62.13	74	11.87	spurious
6458.6	45.17	PK	240	2.0	H	38.3	4.98	26.66	61.79	74	12.21	spurious
4844	25.54	Ave.	270	1.2	H	36.4	4.33	26.72	39.55	54	14.45	harmonic
4844	23.64	Ave.	190	1.5	V	35.3	4.33	26.72	36.55	54	17.45	harmonic
4844	42.29	PK	270	1.2	H	36.4	4.33	26.72	56.30	74	17.70	harmonic
4844	40.82	PK	190	1.5	V	35.3	4.33	26.72	53.73	74	20.27	harmonic
Middle Channel (2437 MHz)												
6498.7	34.24	Ave.	110	1.9	V	38.3	4.98	26.66	50.86	54	3.14*	spurious
6498.7	32.06	Ave.	135	2.0	H	36.9	4.98	26.66	47.28	54	6.72	spurious
6498.7	44.89	PK	1103	1.9	V	38.3	4.98	26.66	61.51	74	12.49	spurious
4874	25.01	Ave.	250	1.4	H	36.3	4.32	26.75	38.88	54	15.12	harmonic
6498.7	41.95	PK	135	2.0	H	36.9	4.98	26.66	57.17	74	16.83	spurious
4874	42.58	PK	250	1.4	H	36.3	4.32	26.75	56.45	74	17.55	harmonic
4874	21.41	Ave.	230	1.5	V	33.6	4.32	26.75	32.58	54	21.42	harmonic
4874	38.82	PK	230	1.5	V	33.6	4.32	26.75	49.99	74	24.01	harmonic
High Channel (2452 MHz)												
6542.2	31.26	Ave.	240	1.9	H	38.4	4.92	26.66	47.92	54	6.08	spurious
6542.2	32.24	Ave.	110	1.1	V	37.3	4.92	26.66	47.80	54	6.20	spurious
6542.2	43.78	PK	110	1.1	V	37.3	4.92	26.66	59.34	74	14.66	spurious
6542.2	42.65	PK	240	1.9	H	38.4	4.92	26.66	59.31	74	14.69	spurious
4904	24.52	Ave.	330	1.4	H	36.2	4.30	26.75	38.27	54	15.73	harmonic
4904	42.35	PK	330	1.4	H	36.2	4.30	26.75	56.10	74	17.90	harmonic
4904	23.23	Ave.	140	1.3	V	33.5	4.30	26.75	34.28	54	19.72	harmonic
4904	39.78	PK	140	1.3	V	33.5	4.30	26.75	50.83	74	23.17	harmonic

Radiated spurious emission in restricted band

Freq. (MHz)	S.A. Reading (dBµV)	Detector PK /Ave	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC Part 15.247/205/209	
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)
2489.6	22.02	Ave.	260	1.9	H	30.4	3.09	26.86	28.65	54	25.35
2489.6	21.89	Ave.	360	1.6	V	30.4	3.09	26.86	28.52	54	25.48
2351.2	22.12	Ave.	210	1.3	H	30.2	2.97	26.85	28.44	54	25.56
2351.2	21.23	Ave.	170	1.8	V	30.2	2.97	26.85	27.55	54	26.45
2489.6	36.11	PK	260	1.9	H	30.4	3.09	26.86	42.74	74	31.26
2489.6	35.64	PK	360	1.6	V	30.4	3.09	26.86	42.27	74	31.73
2351.2	35.25	PK	210	1.3	H	30.2	2.97	26.85	41.57	74	32.43
2351.2	34.15	PK	170	1.8	V	30.2	2.97	26.85	40.47	74	33.53

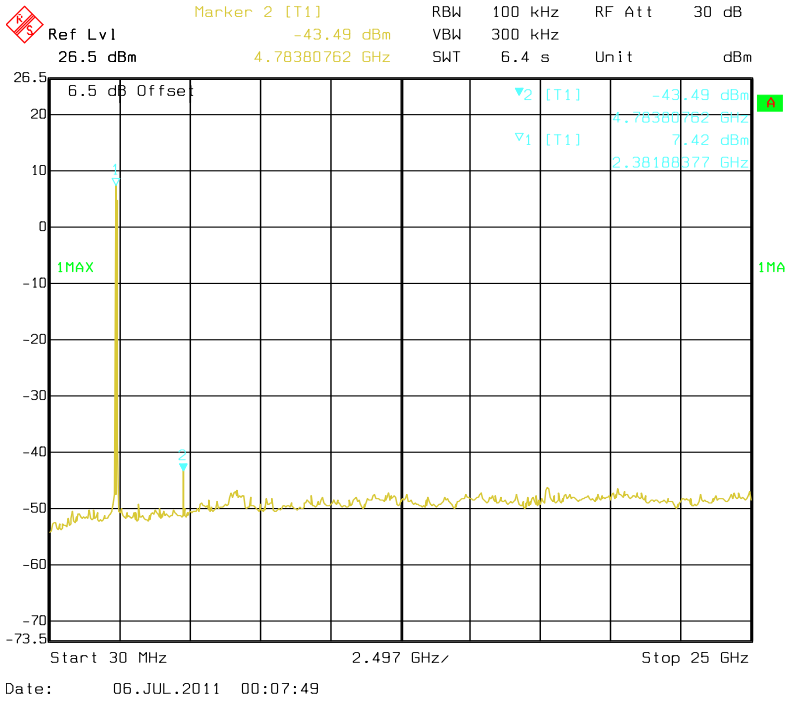
* Measurement within uncertainly

Antenna Port Conducted Spurious Emissions:

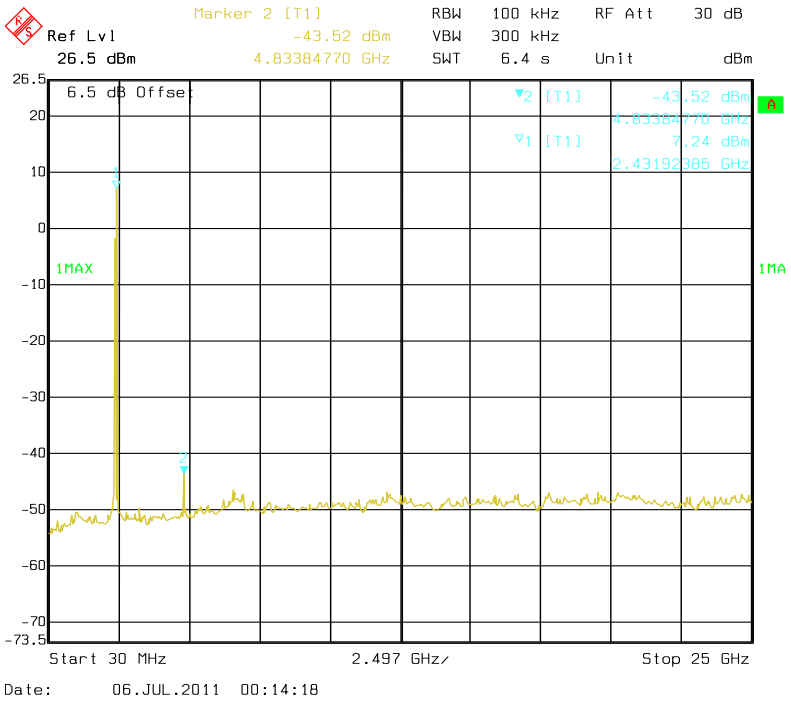
Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Delta Value (dBc)	Limit (dBc)	Ref Plot	Result
802.11b mode							
Low	4783.8	11	Chain 0	50.91	20	B-L-Chain 0	Pass
Low	4783.8	11	Chain 1	49.92	20	B-L-Chain 1	Pass
Low	4783.8	11	Chain 0 & Chain 1	51.58	20	B-L-Combiner	Pass
Middle	4833.8	11	Chain 0	50.76	20	B-M-Chain 0	Pass
Middle	4833.8	11	Chain 1	51.05	20	B-M-Chain 1	Pass
Middle	4833.8	11	Chain 0 & Chain 1	50.33	20	B-M-Combiner	Pass
High	4883.8	11	Chain 0	48.99	20	B-H-Chain 0	Pass
High	4883.9	11	Chain 1	50.34	20	B-H-Chain 1	Pass
High	4883.9	11	Chain 0 & Chain 1	48.80	20	B-H-Combiner	Pass
802.11g mode							
Low	16743.3	54	Chain 0	51.55	20	G-L-Chain 0	Pass
Low	6935.5	54	Chain 1	52.97	20	G-L-Chain 1	Pass
Low	6635.3	54	Chain 0 & Chain 1	53.43	20	G-L-Combiner	Pass
Middle	6585.3	54	Chain 0	51.13	20	G-M-Chain 0	Pass
Middle	20296.2	54	Chain 1	52.19	20	G-M-Chain 1	Pass
Middle	20546.4	54	Chain 0 & Chain 1	53.66	20	G-M-Combiner	Pass
High	6885.5	54	Chain 0	52.43	20	G-H-Chain 0	Pass
High	6935.5	54	Chain 1	52.36	20	G-H-Chain 1	Pass
High	20596.5	54	Chain 0 & Chain 1	52.41	20	G-H-Combiner	Pass
802.11n20 mode							
Low	20496.4	65	Chain 0	51.55	20	N20-L-Chain 0	Pass
Low	6985.6	65	Chain 1	52.93	20	N20-L-Chain 1	Pass
Low	6935.5	65	Chain 0 & Chain 1	53.30	20	N20-L-Combiner	Pass
Middle	16493.2	65	Chain 0	51.85	20	N20-M-Chain 0	Pass
Middle	6635.3	65	Chain 1	52.27	20	N20-M-Chain 1	Pass
Middle	6935.5	65	Chain 0 & Chain 1	53.36	20	N20-M-Combiner	Pass
High	6585.3	65	Chain 0	52.59	20	N20-H-Chain 0	Pass
High	12139.7	65	Chain 1	49.30	20	N20-H-Chain 1	Pass
High	6685.3	65	Chain 0 & Chain 1	48.97	20	N20-H-Combiner	Pass
802.11n40 mode							
Low	17844.3	65	Chain 0	51.33	20	N40-L-Chain 0	Pass
Low	15442.3	65	Chain 1	51.06	20	N40-L-Chain 1	Pass
Low	18544.8	65	Chain 0 & Chain 1	49.75	20	N40-L-Combiner	Pass
Middle	15462.5	65	Chain 0	50.53	20	N40-M-Chain 0	Pass
Middle	6935.5	65	Chain 1	51.31	20	N40-M-Chain 1	Pass
Middle	6885.5	65	Chain 0 & Chain 1	51.13	20	N40-M-Combiner	Pass
High	20046.0	65	Chain 0	50.34	20	N40-H-Chain 0	Pass
High	6985.6	65	Chain 1	50.70	20	N40-H-Chain 1	Pass
High	6585.3	65	Chain 0 & Chain 1	51.74	20	N40-H-Combiner	Pass

Chain 0:

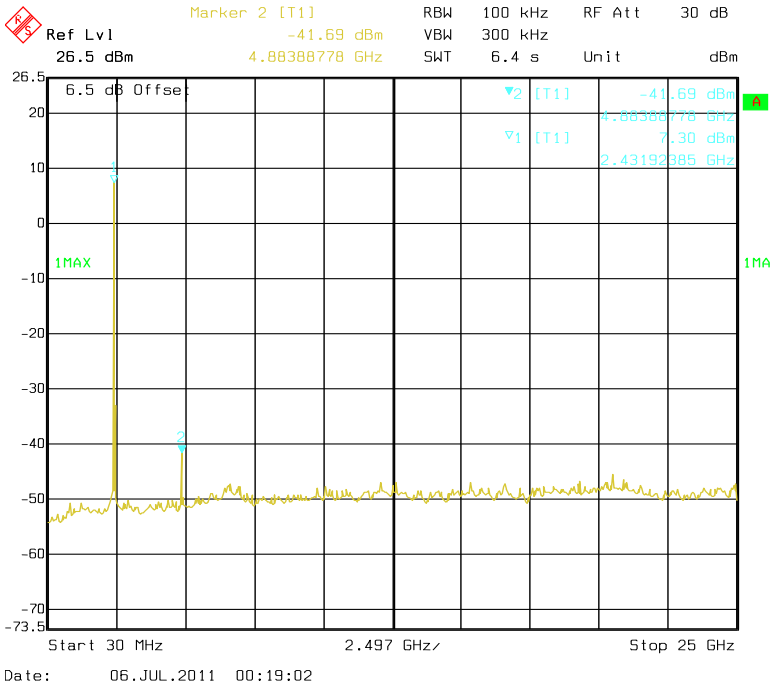
802.11b Low Channel



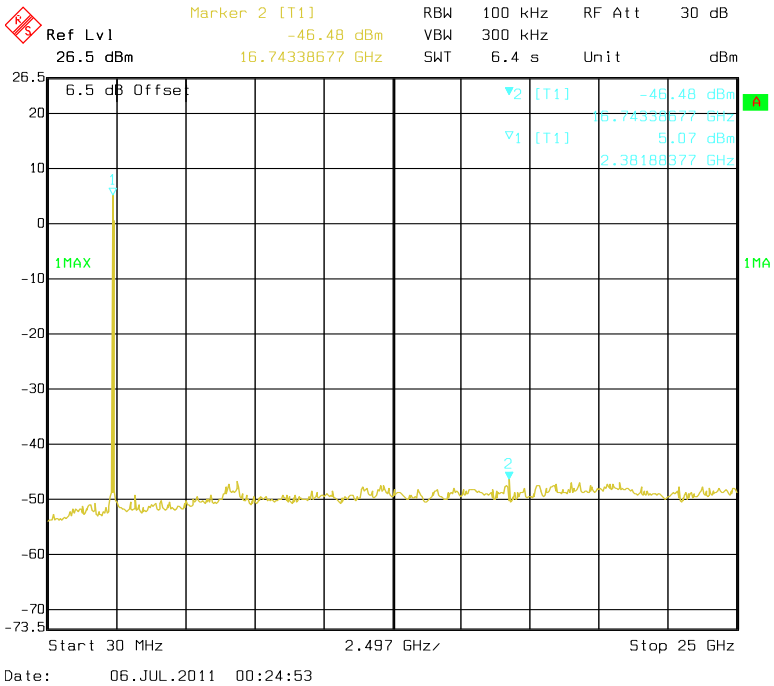
802.11b Middle Channel



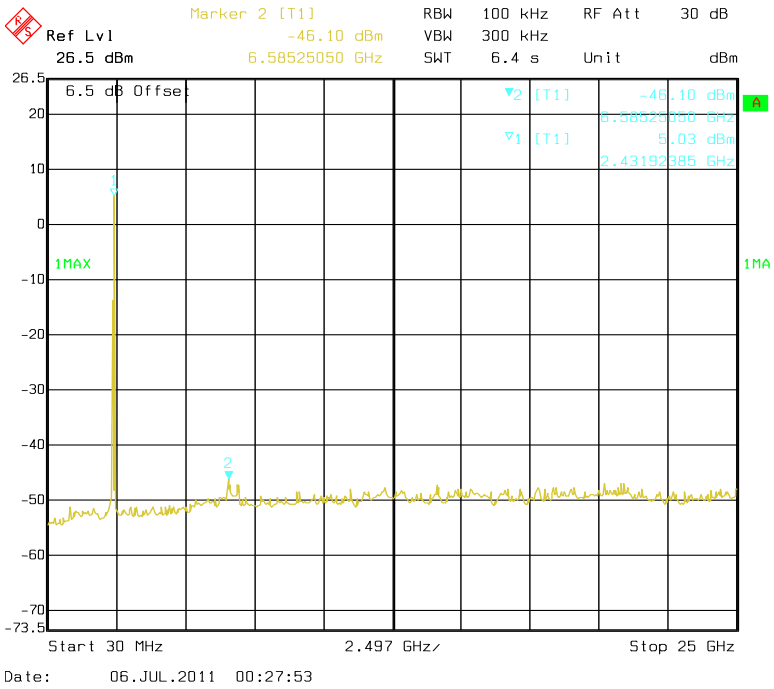
802.11b High Channel



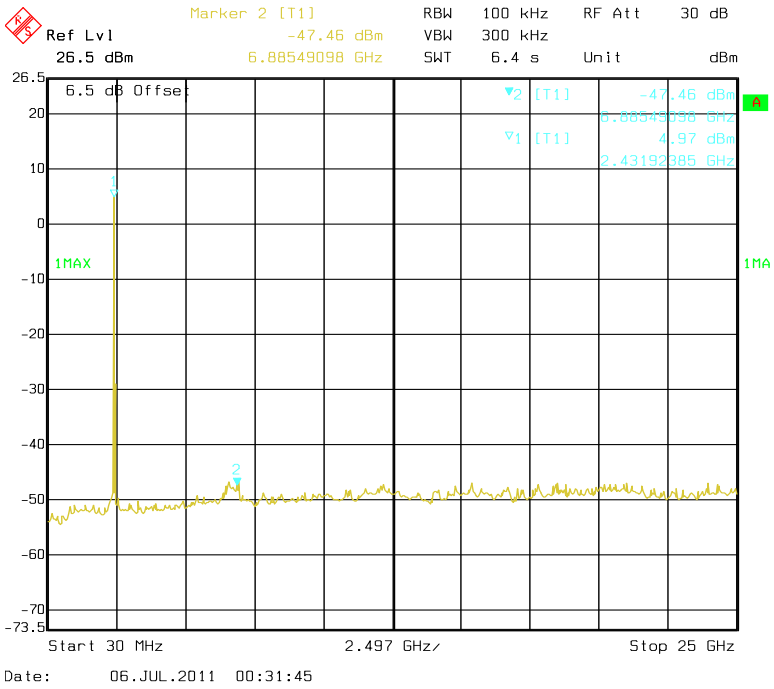
802.11g Low Channel



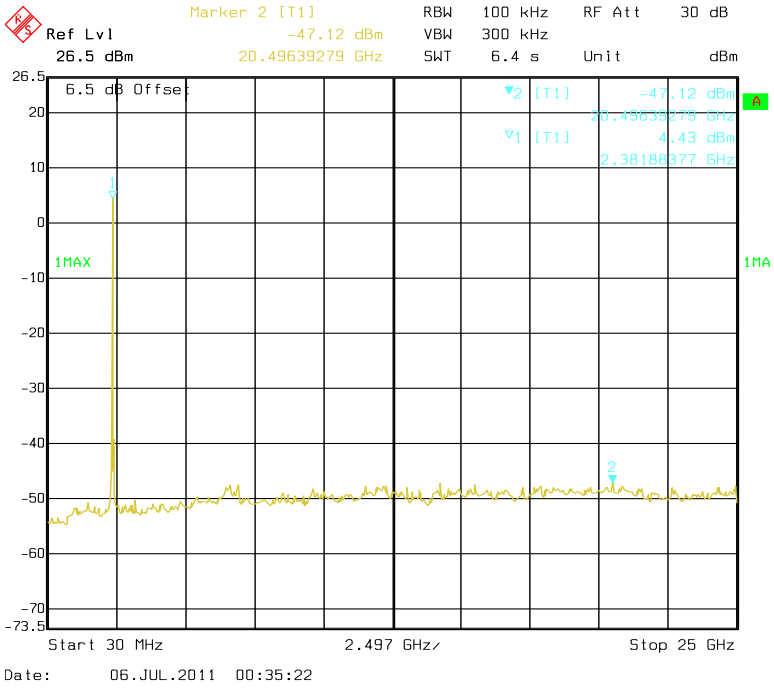
802.11g Middle Channel



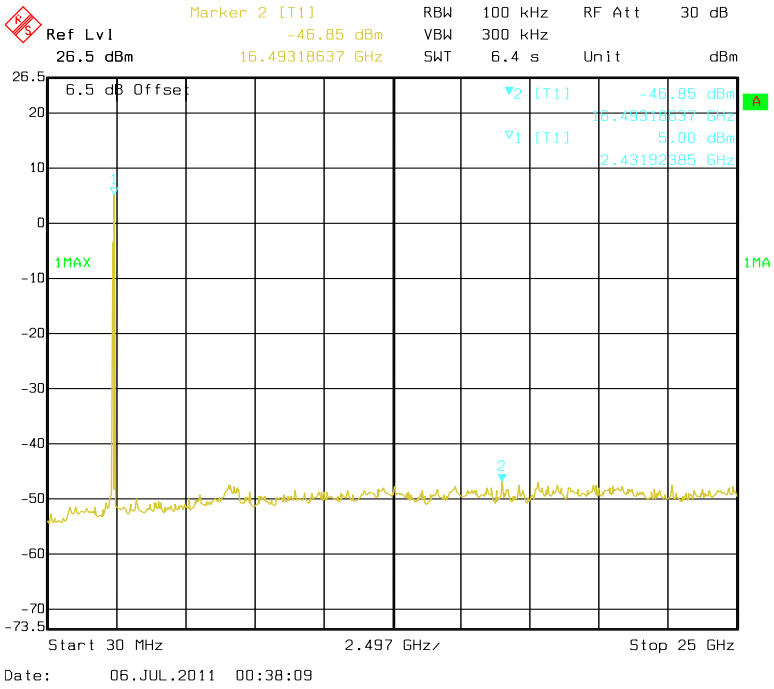
802.11g High Channel



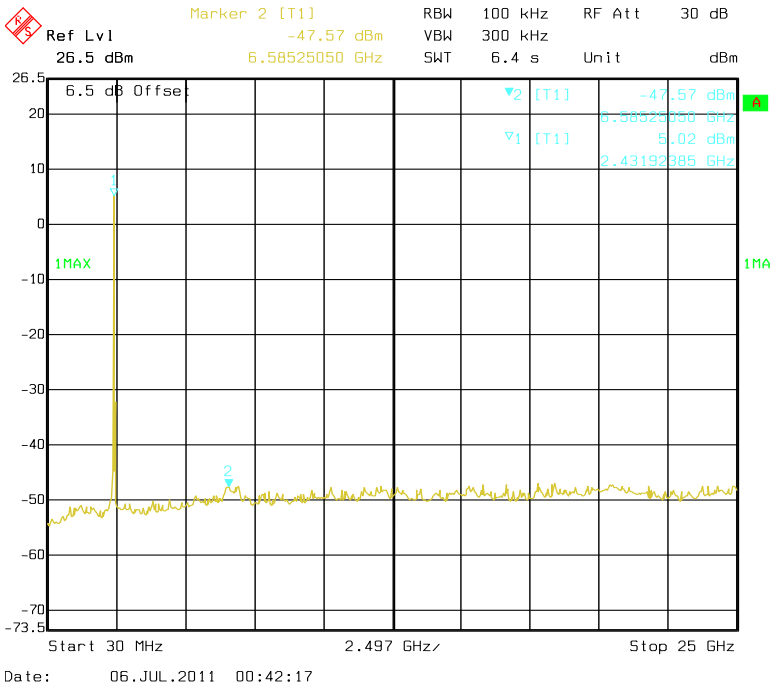
802.11n20 Low Channel



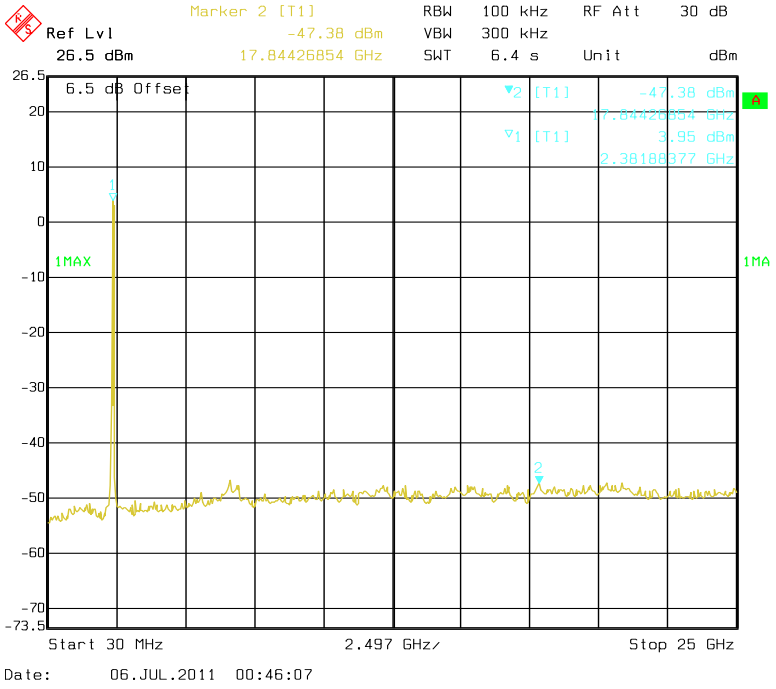
802.11n20 Middle Channel



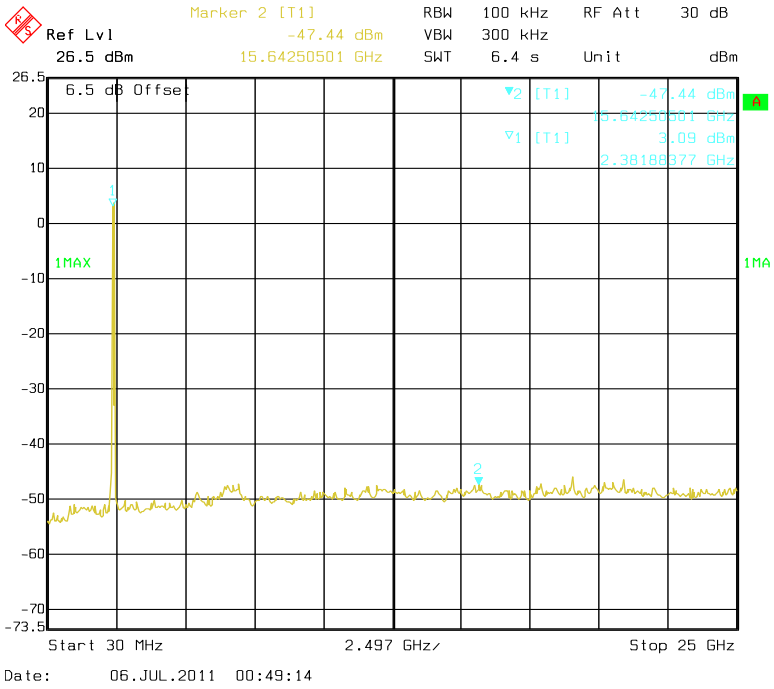
802.11n20 High Channel



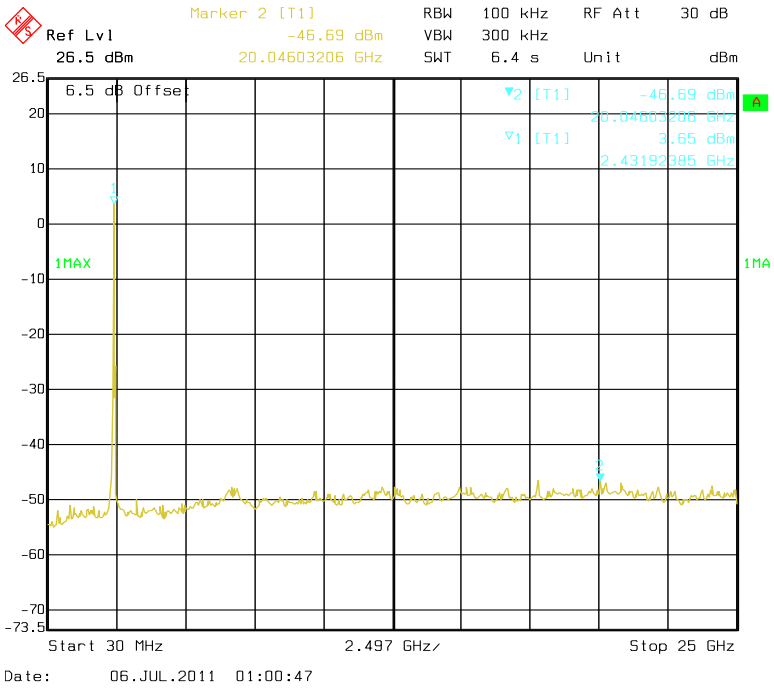
802.11n40 Low Channel



802.11gn40 Middle Channel

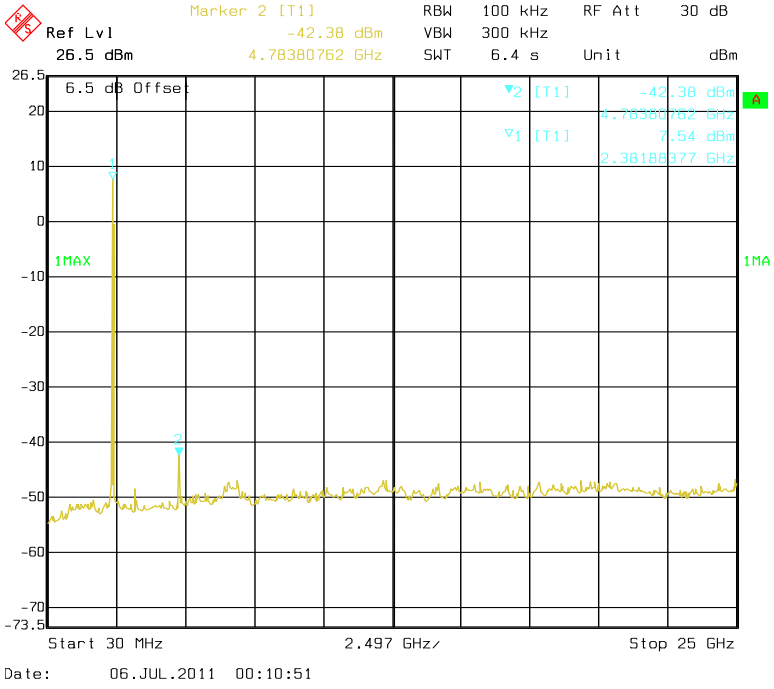


802.11n40 High Channel

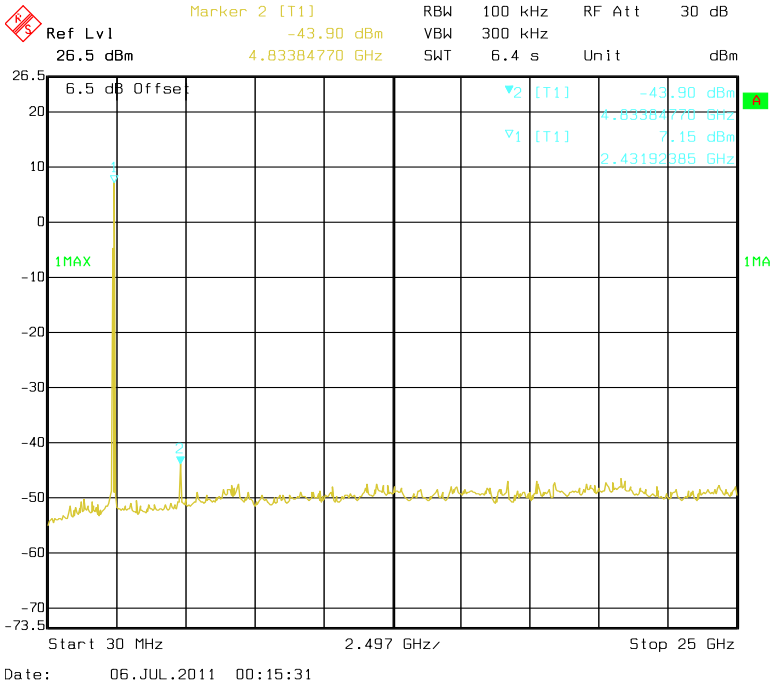


Chain 1:

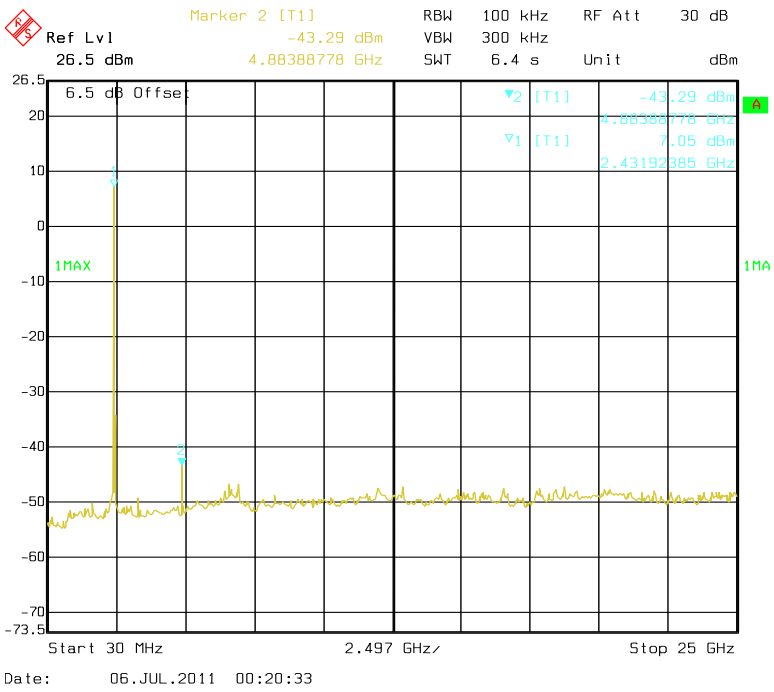
802.11b Low Channel



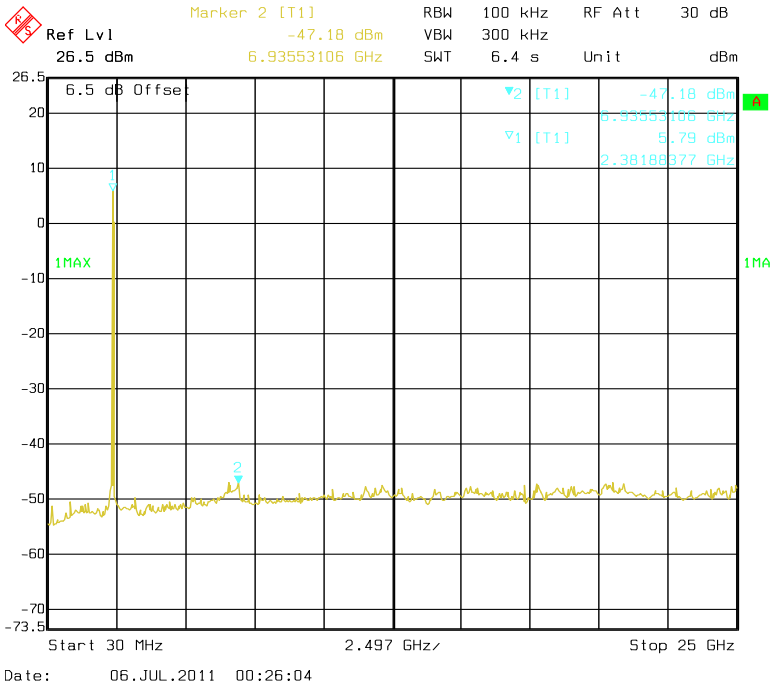
802.11b Middle Channel



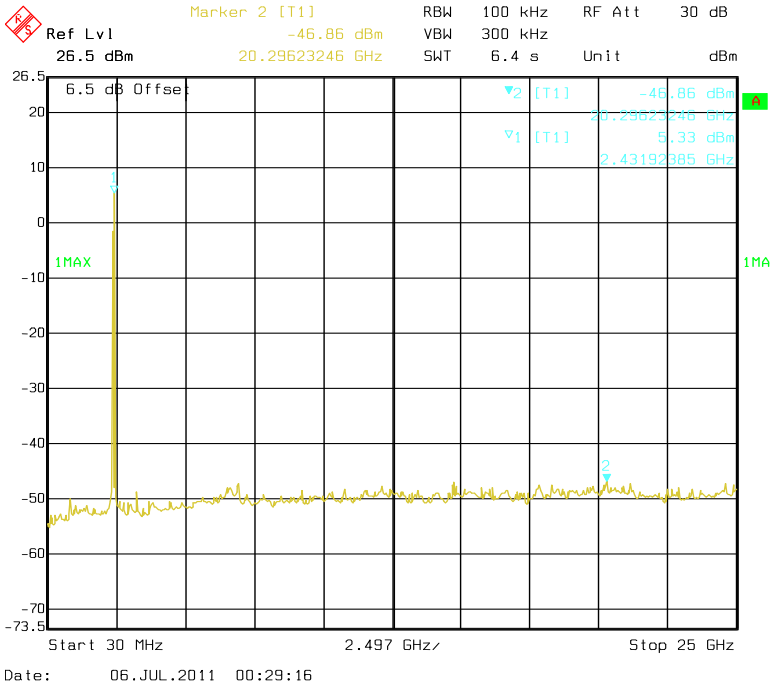
802.11b High Channel



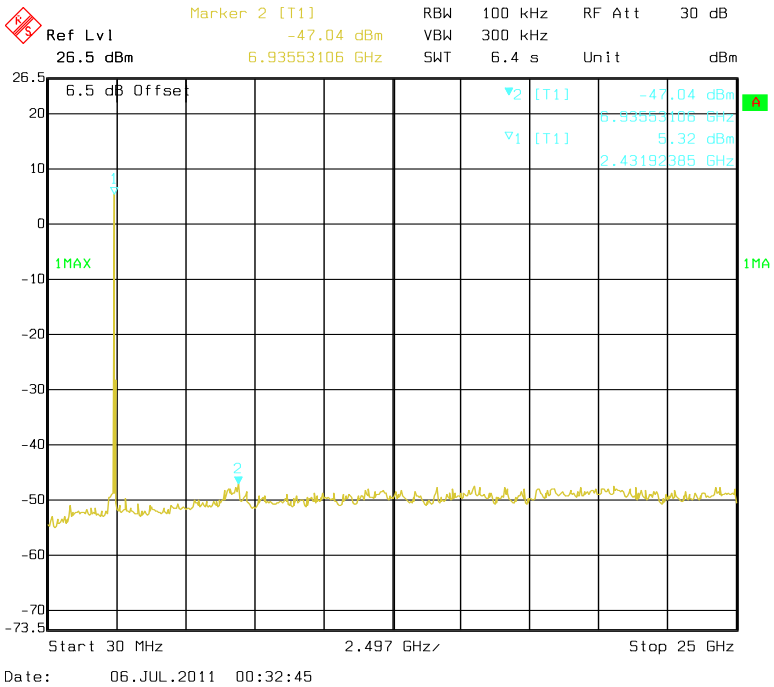
802.11g Low Channel



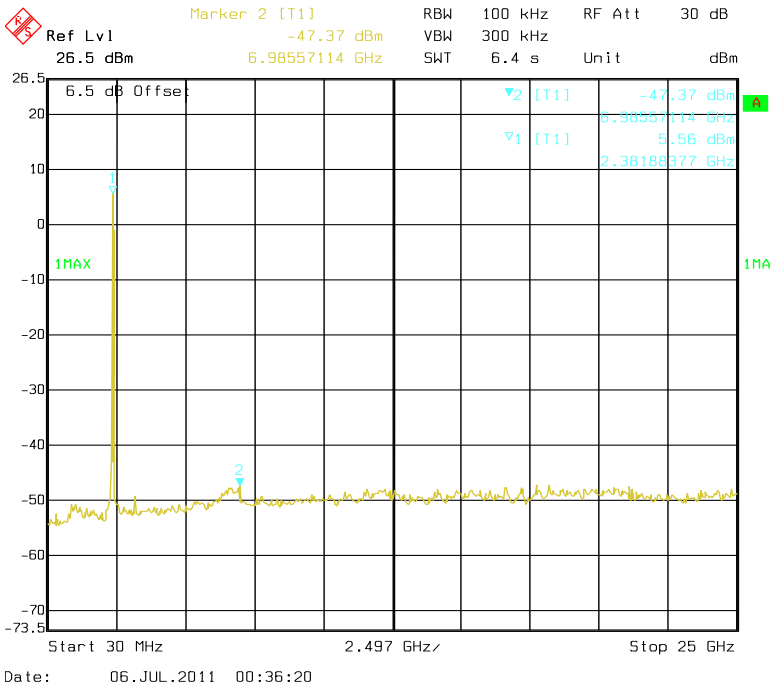
802.11g Middle Channel



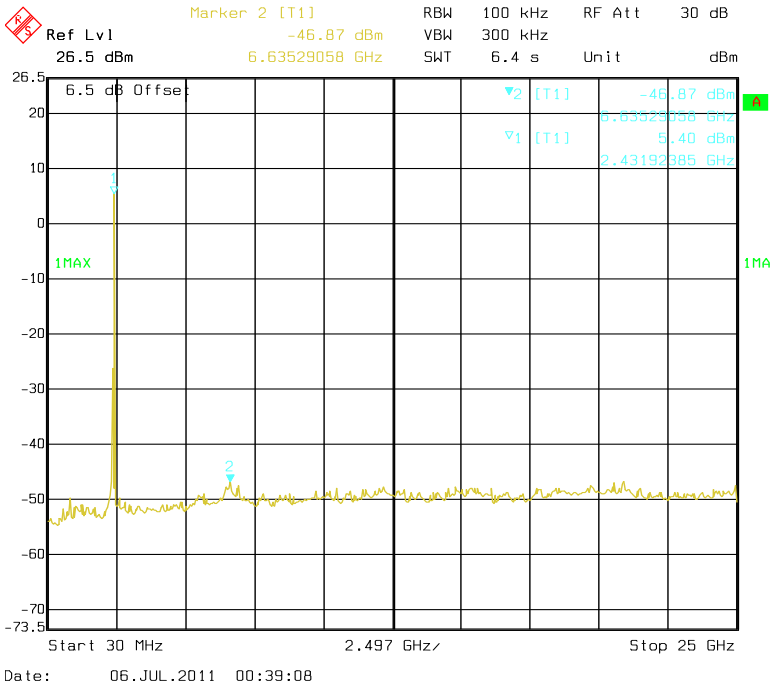
802.11g High Channel



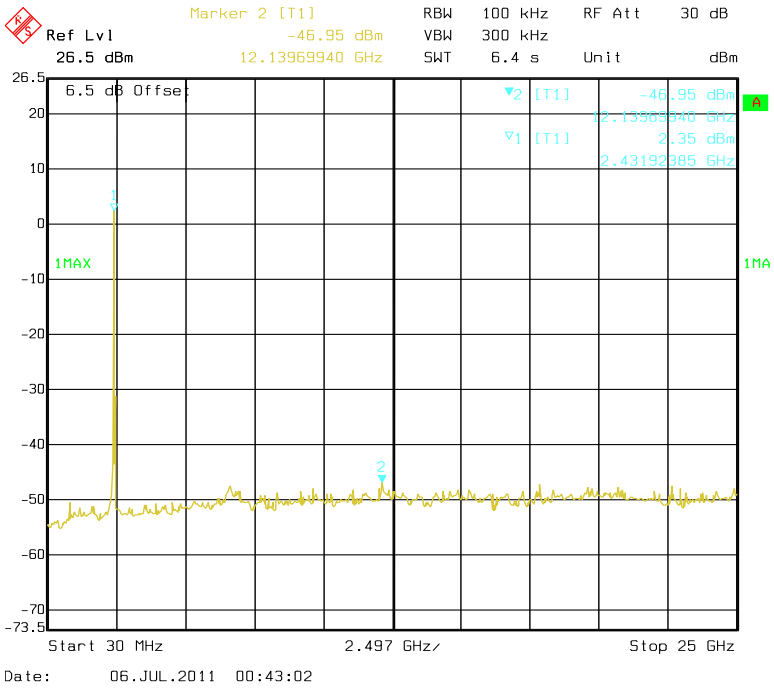
802.11n20 Low Channel



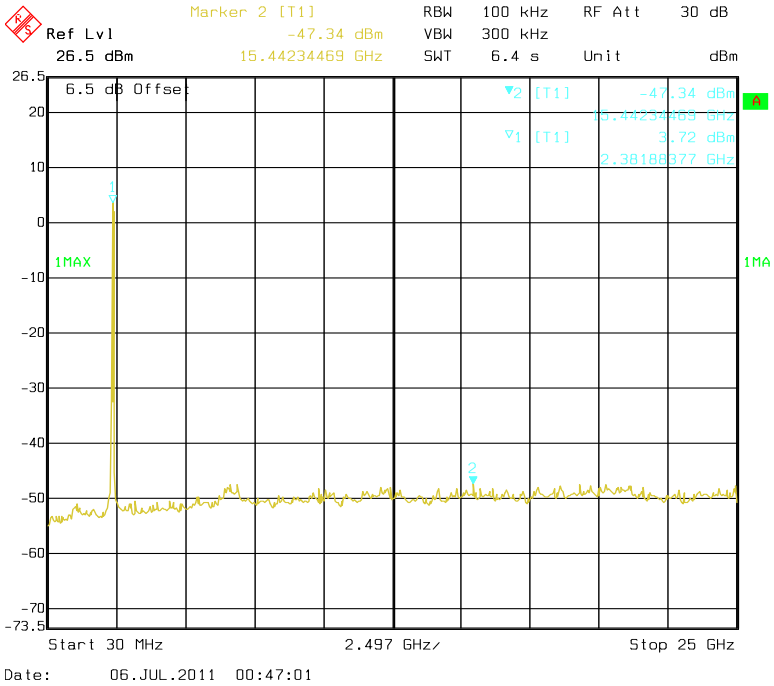
802.11n20 Middle Channel



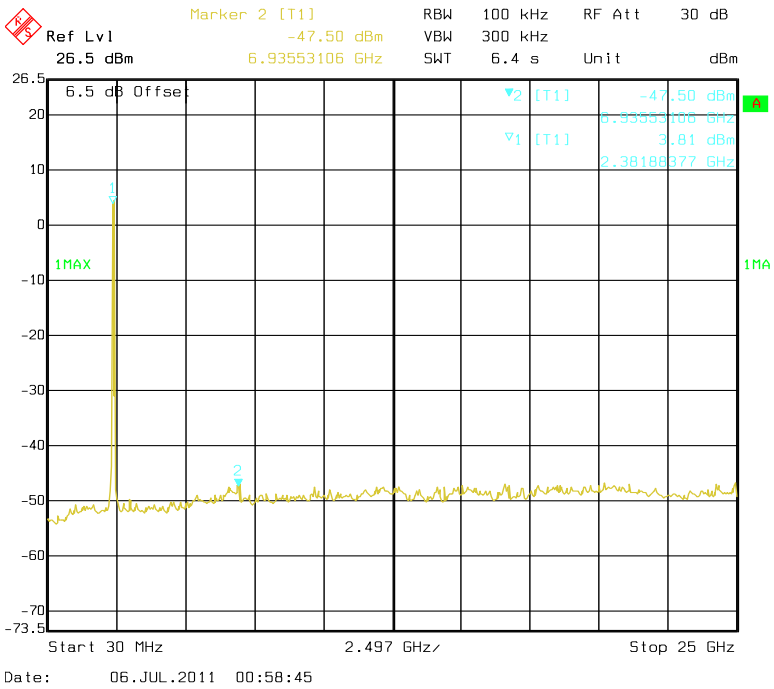
802.11n20 High Channel



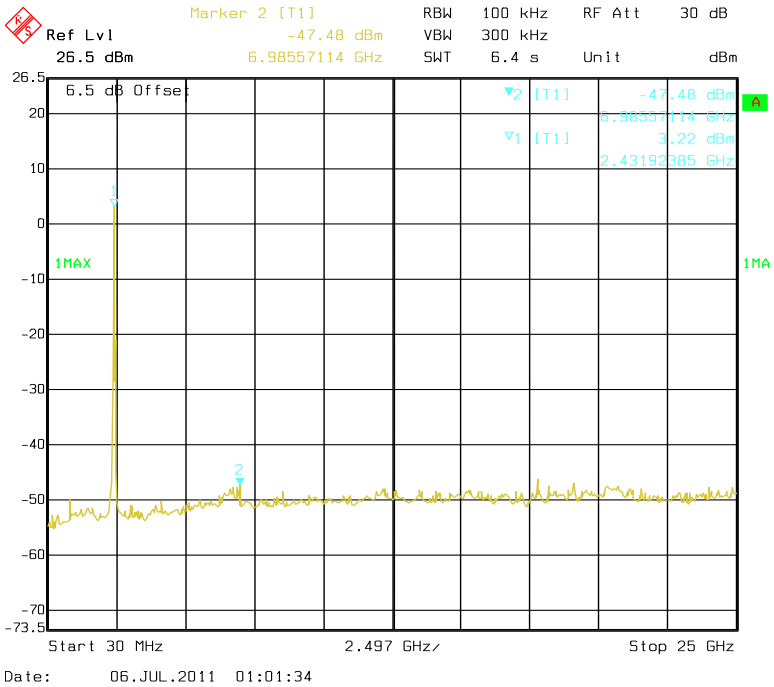
802.11n40 Low Channel



802.11gn40Middle Channel

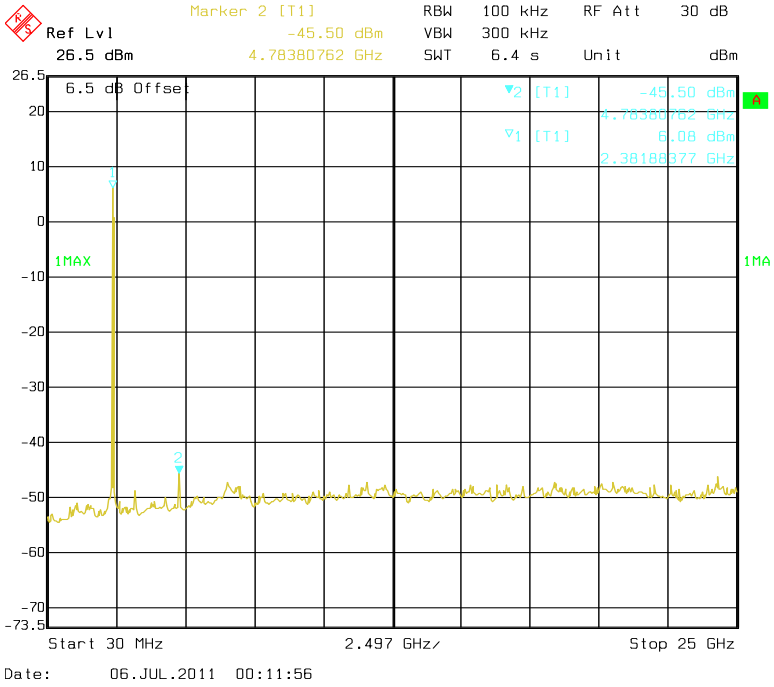


802.11n40 High Channel

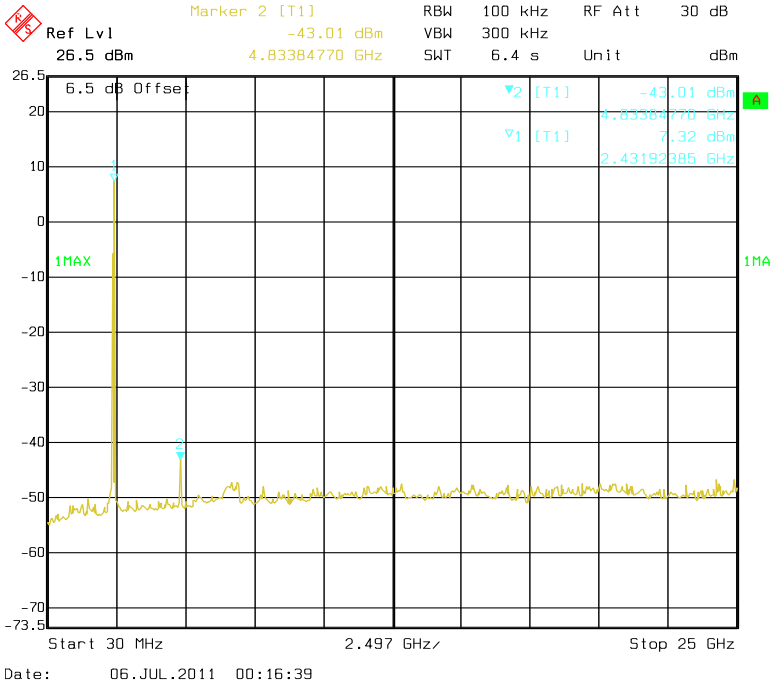


Chain 0 & Chain 1:

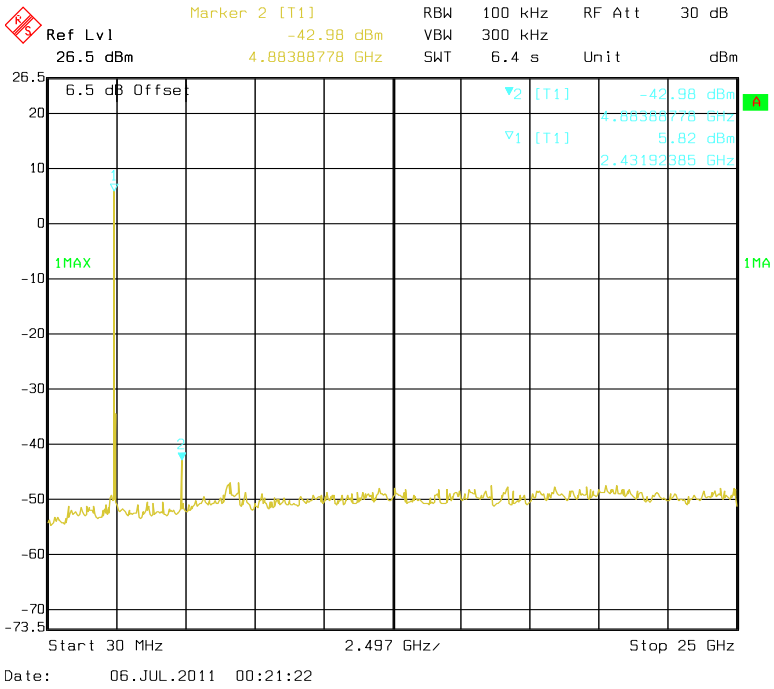
802.11b Low Channel



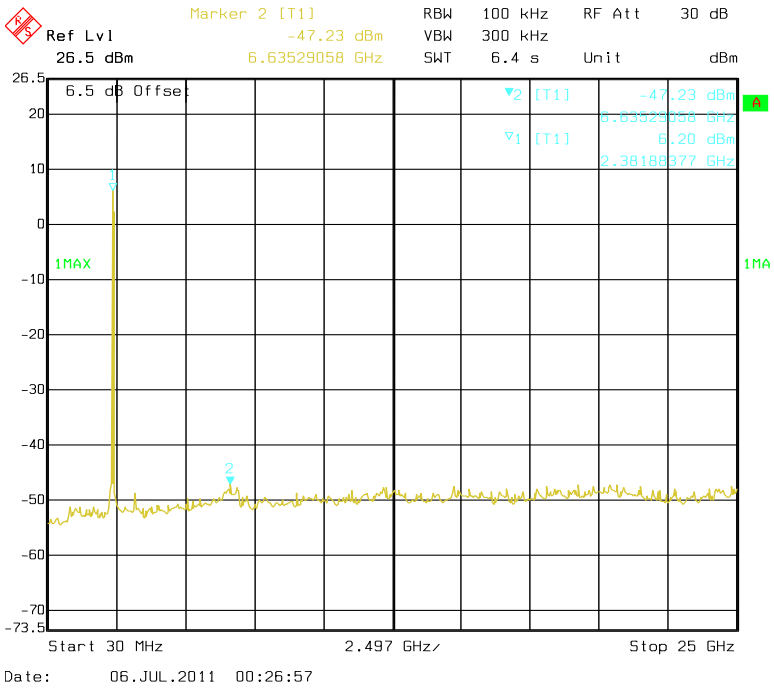
802.11b Middle Channel



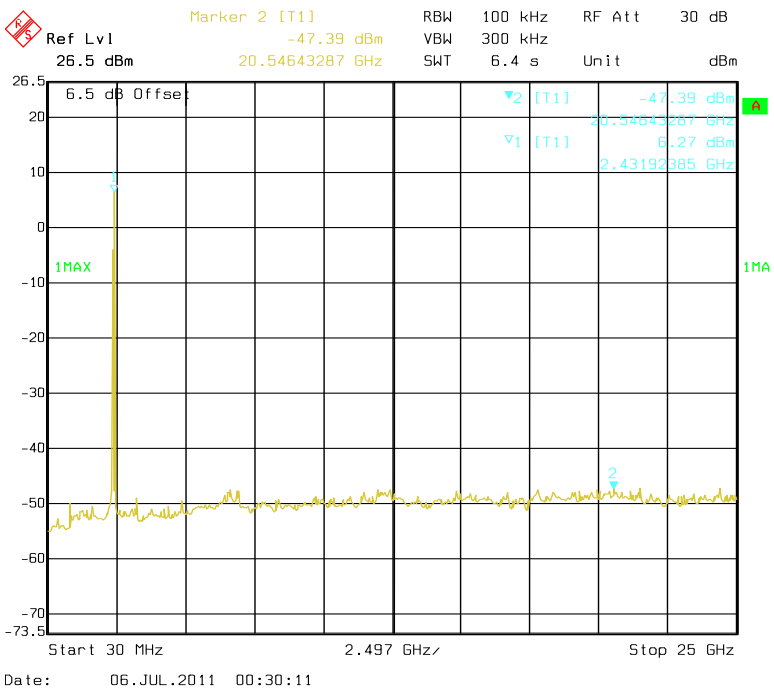
802.11b High Channel



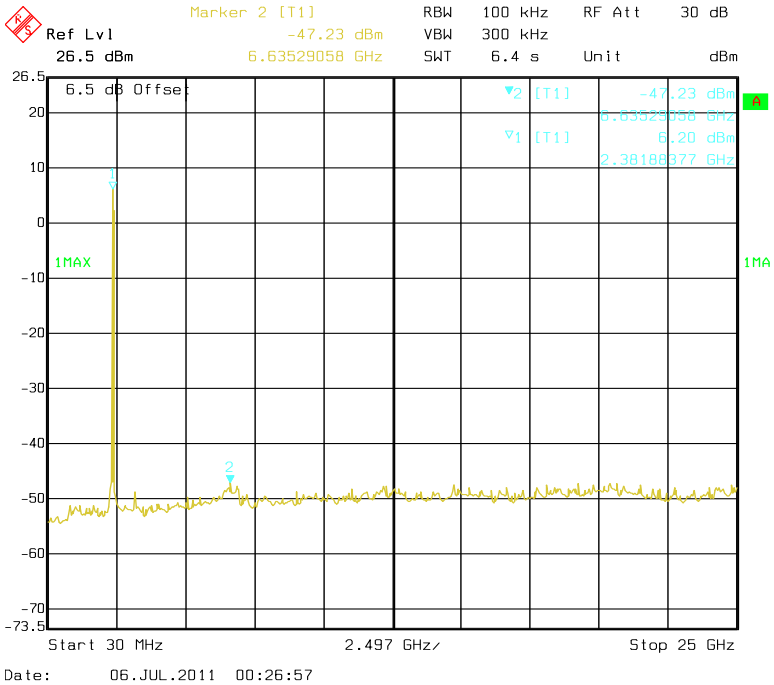
802.11g Low Channel



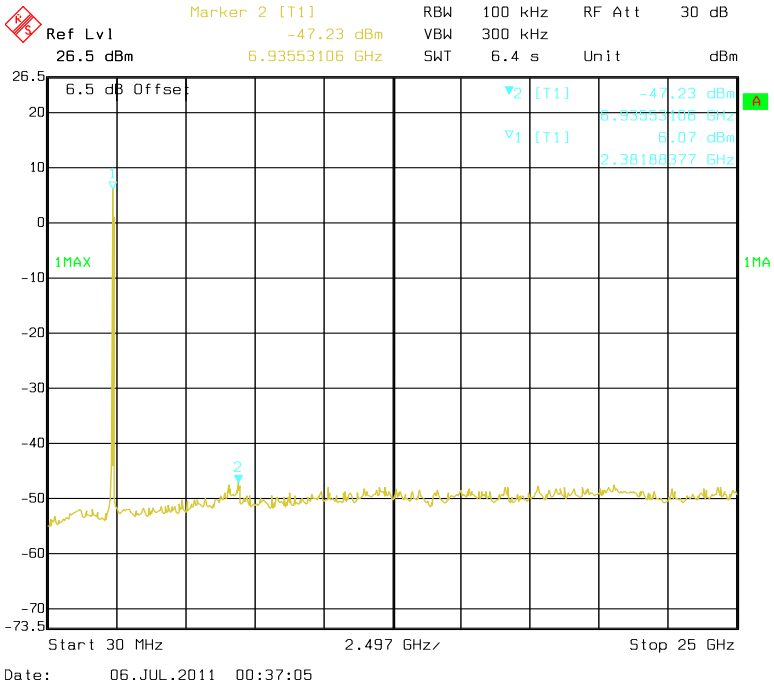
802.11g Middle Channel



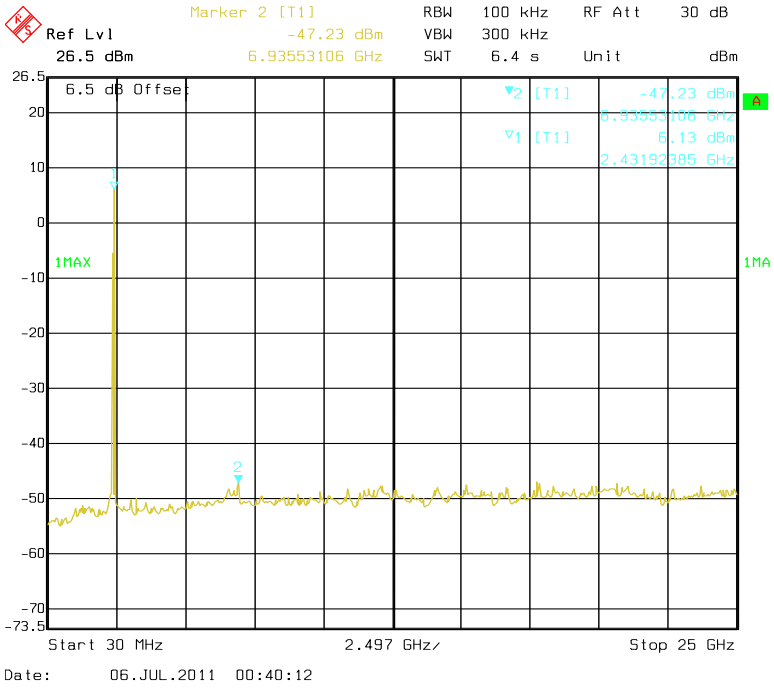
802.11g High Channel



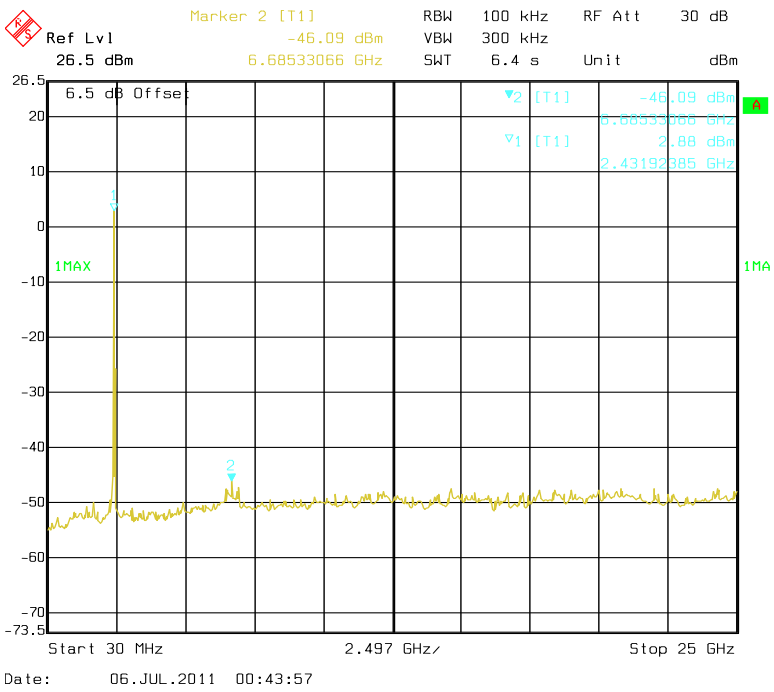
802.11n20 Low Channel



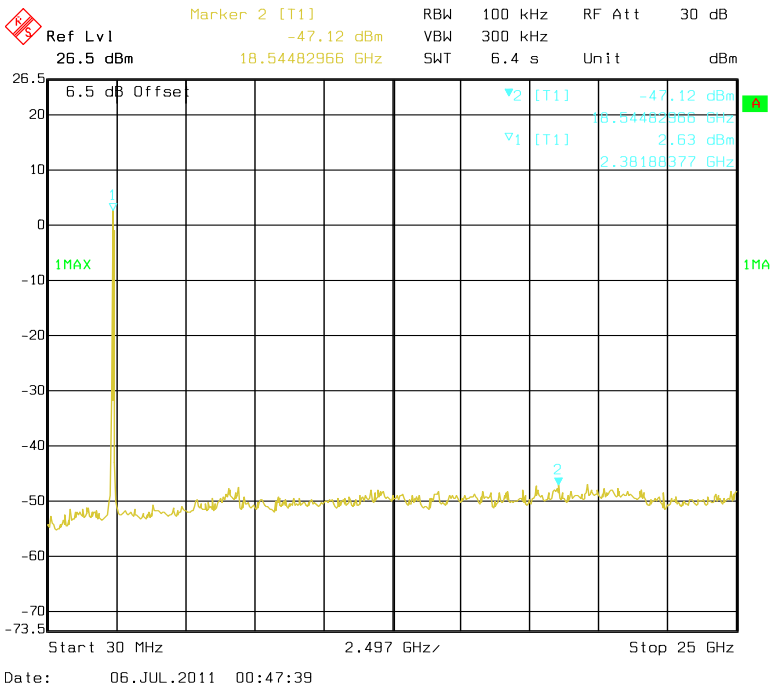
802.11n20 Middle Channel



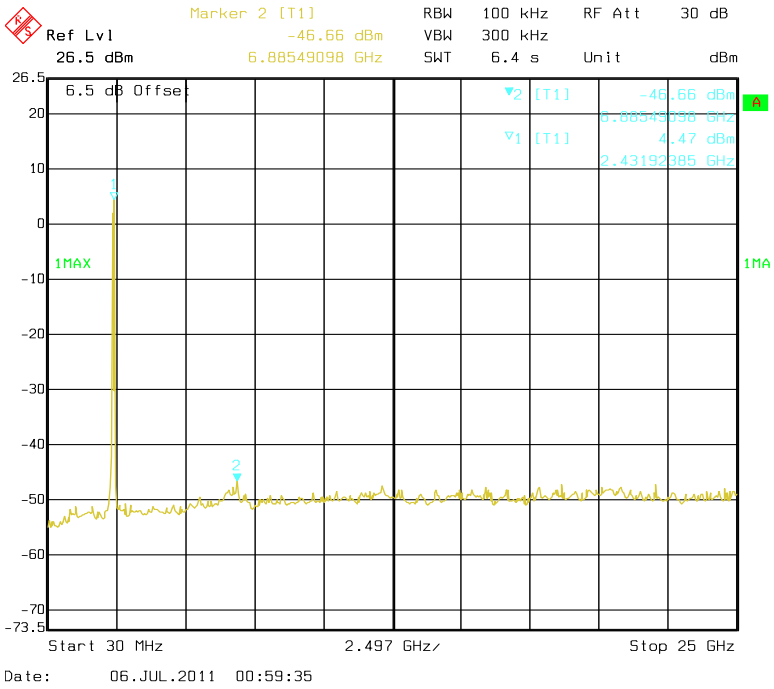
802.11n20 High Channel



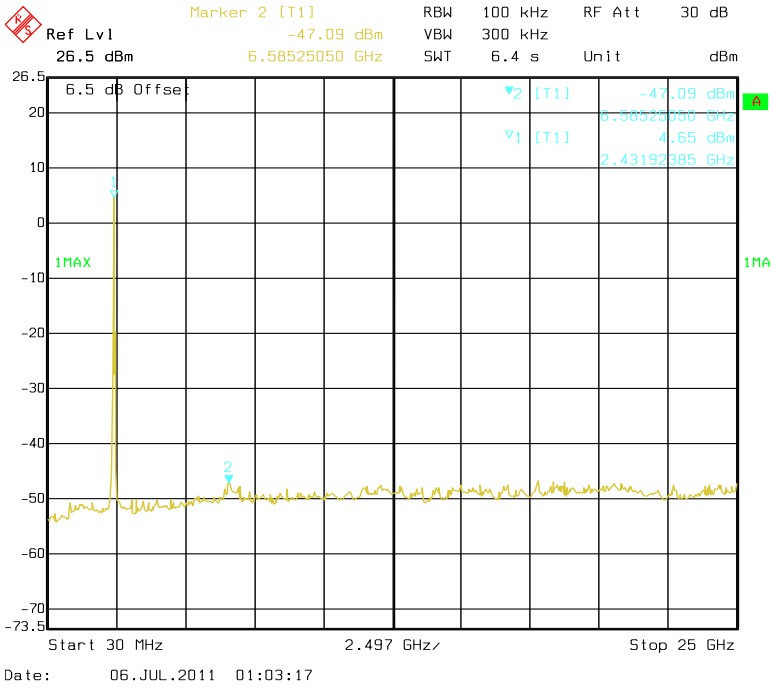
802.11n40 Low Channel



802.11gn40 Middle Channel



802.11n40 High Channel



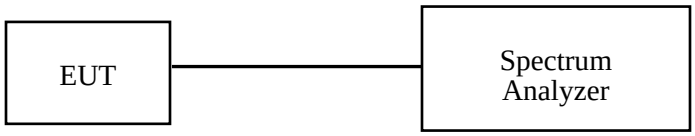
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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	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 Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-05-06.

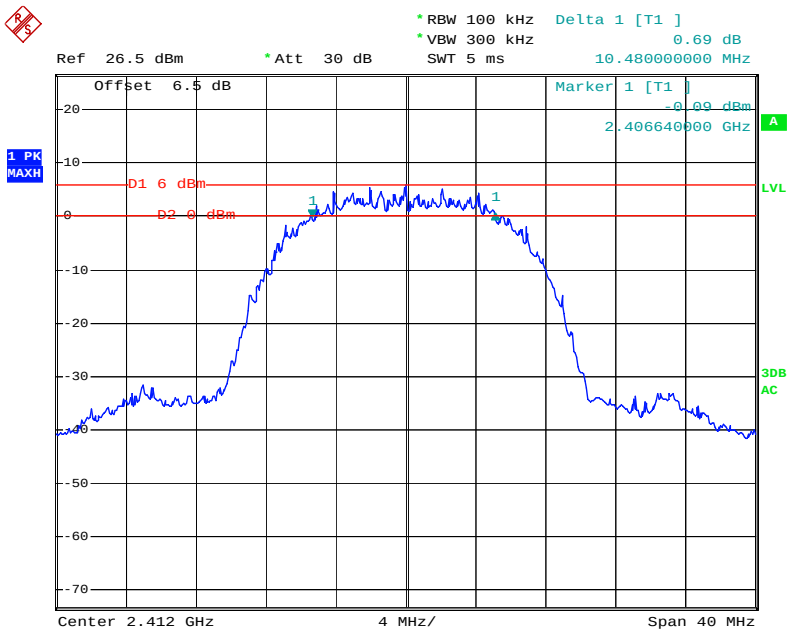
Test Result: Pass.

Please refer to the following tables and plots.

Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	6 dB Bandwidth (MHz)	Limit (kHz)
802.11b mode					
Low	2412	11	Chain 0	10.48	> 500
Low	2412	11	Chain 1	10.48	> 500
Middle	2437	11	Chain 0	10.40	> 500
Middle	2437	11	Chain 1	10.32	> 500
High	2462	11	Chain 0	10.80	> 500
High	2462	11	Chain 1	10.32	> 500
802.11g mode					
Low	2412	54	Chain 0	16.56	> 500
Low	2412	54	Chain 1	16.56	> 500
Middle	2437	54	Chain 0	16.48	> 500
Middle	2437	54	Chain 1	16.48	> 500
High	2462	54	Chain 0	16.56	> 500
High	2462	54	Chain 1	16.56	> 500
802.11n20 mode					
Low	2412	65	Chain 0	17.36	> 500
Low	2412	65	Chain 1	17.60	> 500
Middle	2437	65	Chain 0	17.52	> 500
Middle	2437	65	Chain 1	17.36	> 500
High	2462	65	Chain 0	17.36	> 500
High	2462	65	Chain 1	17.28	> 500
802.11n40 mode					
Low	2422	65	Chain 0	36.00	> 500
Low	2422	65	Chain 1	35.88	> 500
Middle	2437	65	Chain 0	35.76	> 500
Middle	2437	65	Chain 1	36.00	> 500
High	2452	65	Chain 0	35.76	> 500
High	2452	65	Chain 1	35.76	> 500

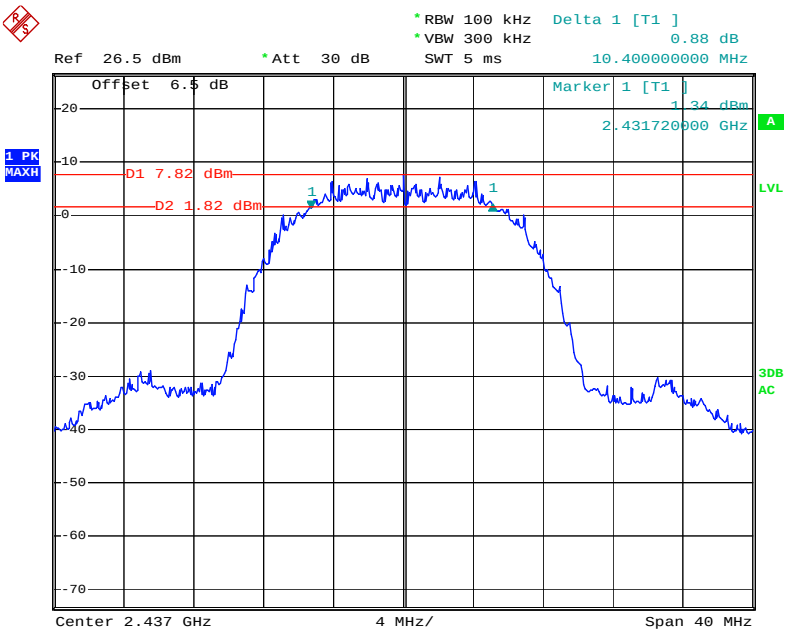
Chain 0:

802.11b Low Channel



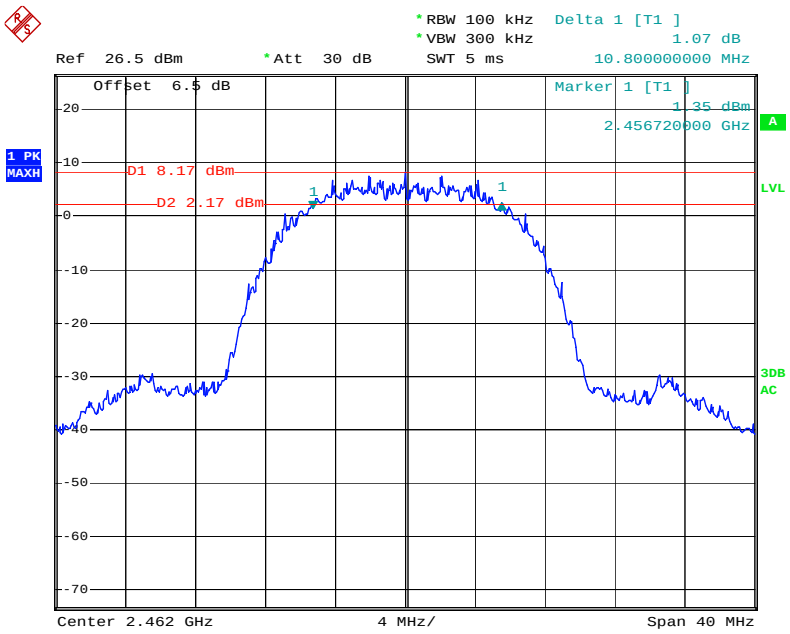
Date: 6.MAY.2011 15:11:18

802.11b Middle Channel



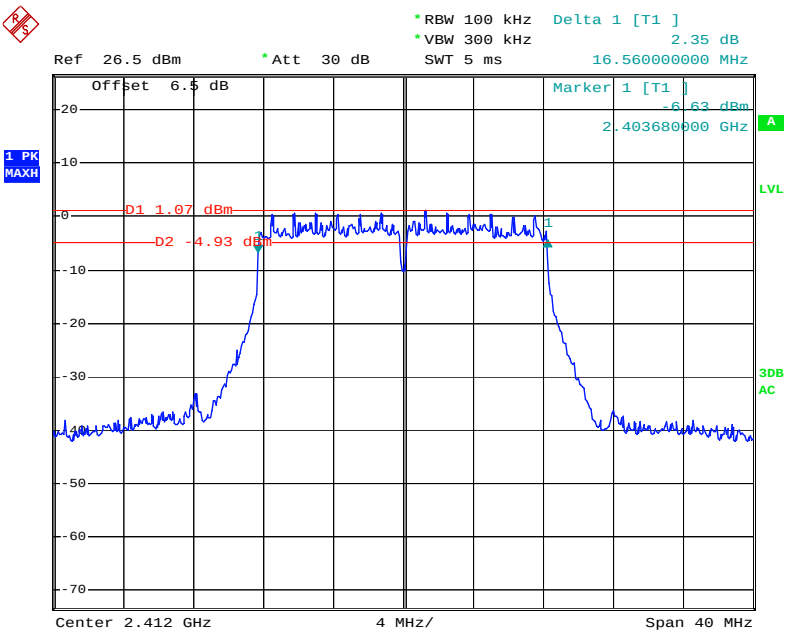
Date: 6.MAY.2011 15:13:33

802.11b High Channel



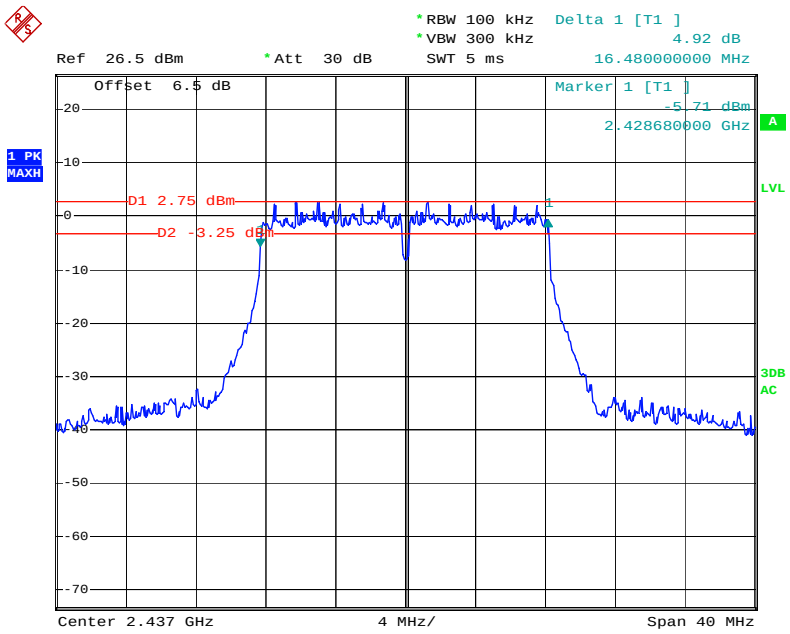
Date: 6.MAY.2011 15:15:05

802.11g Low Channel



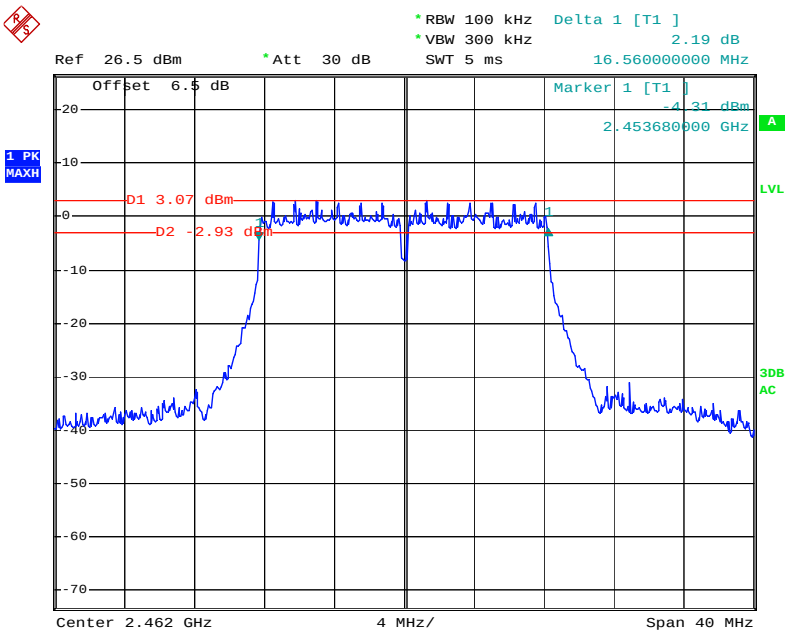
Date: 6.MAY.2011 15:21:40

802.11g Middle Channel



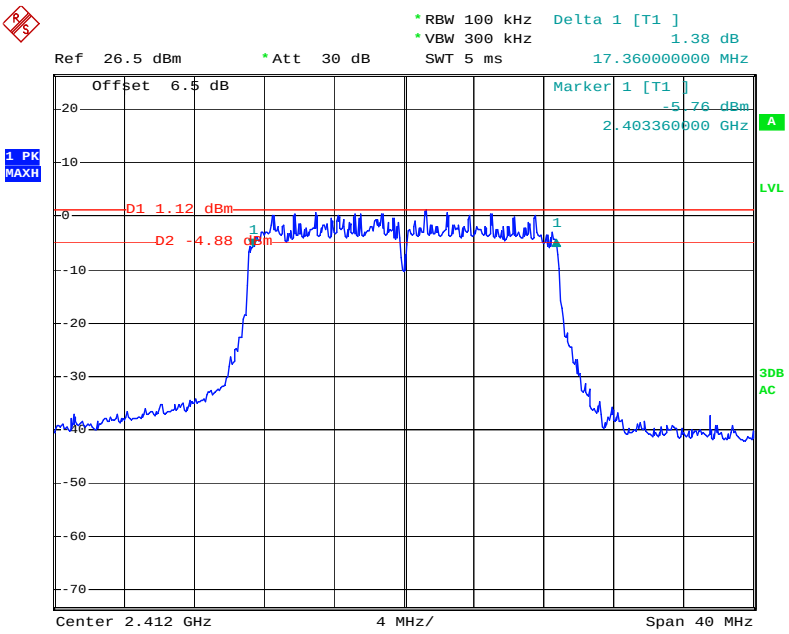
Date: 6.MAY.2011 15:23:38

802.11g High Channel



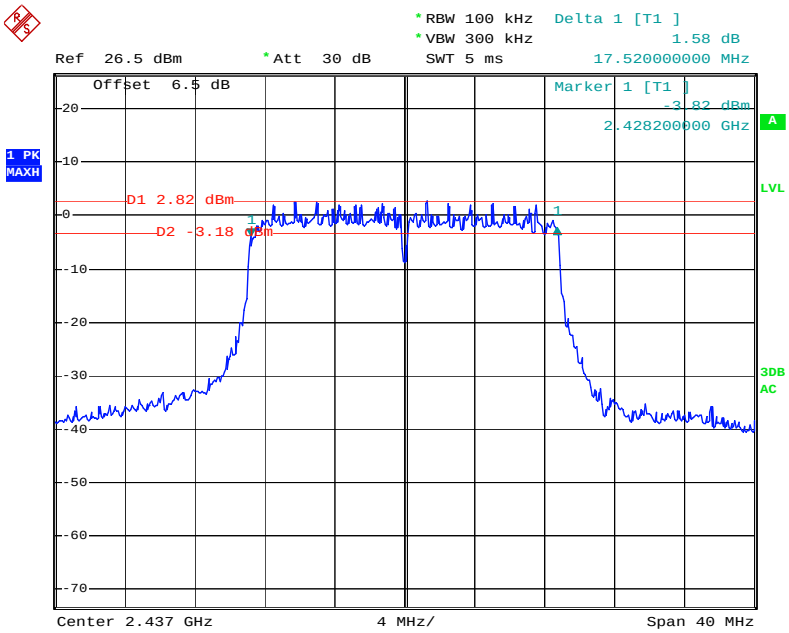
Date: 6.MAY.2011 15:24:43

802.11n20 Low Channel



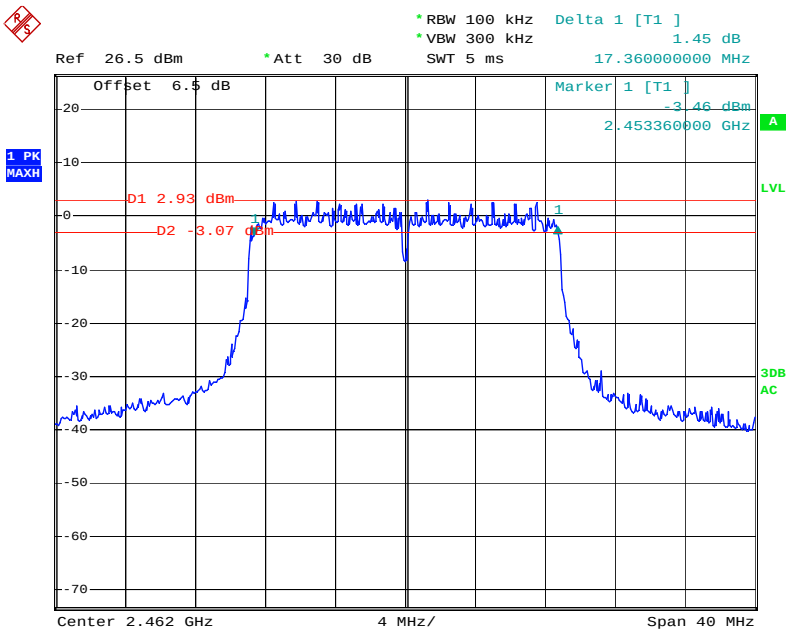
Date: 6.MAY.2011 15:28:35

802.11n20 Middle Channel



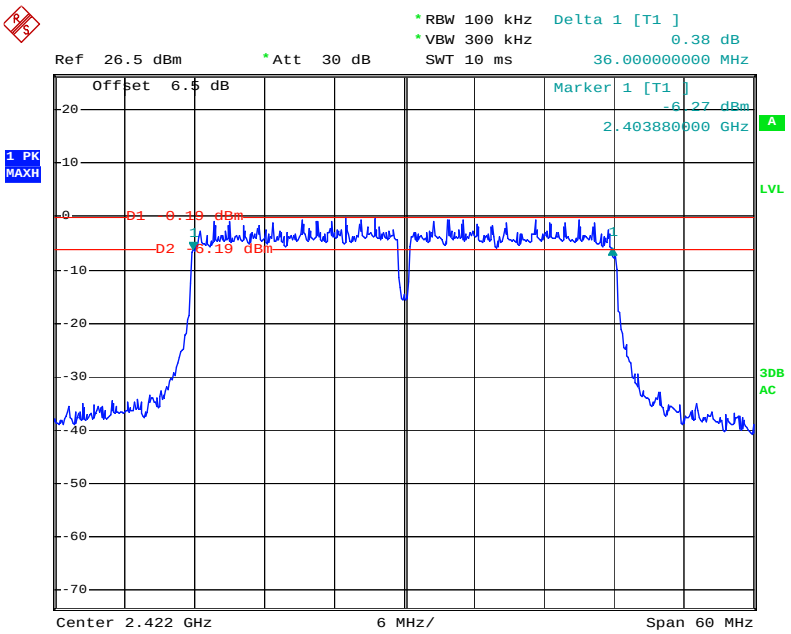
Date: 6.MAY.2011 15:30:19

802.11n20 High Channel



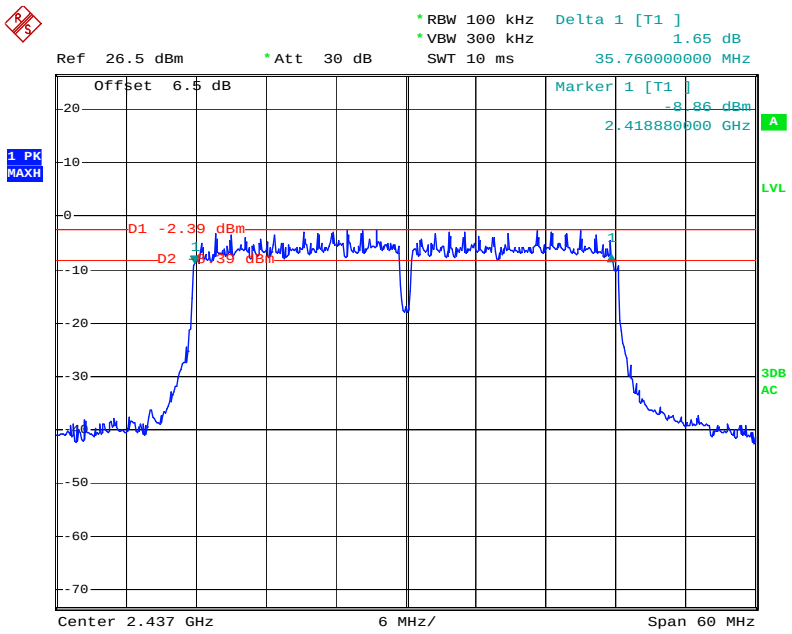
Date: 6.MAY.2011 15:31:50

802.11n40 Low Channel



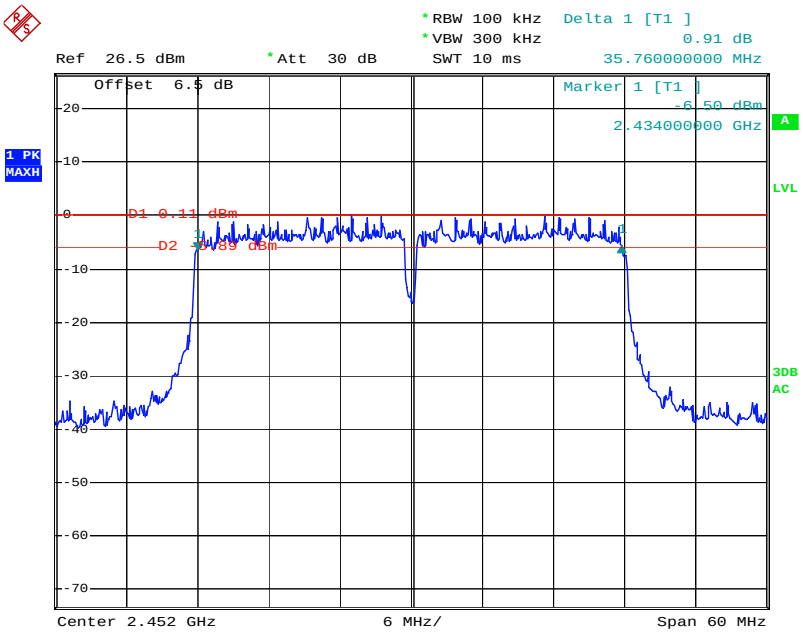
Date: 6.MAY.2011 15:37:20

802.11n40 Middle Channel



Date: 6.MAY.2011 15:39:37

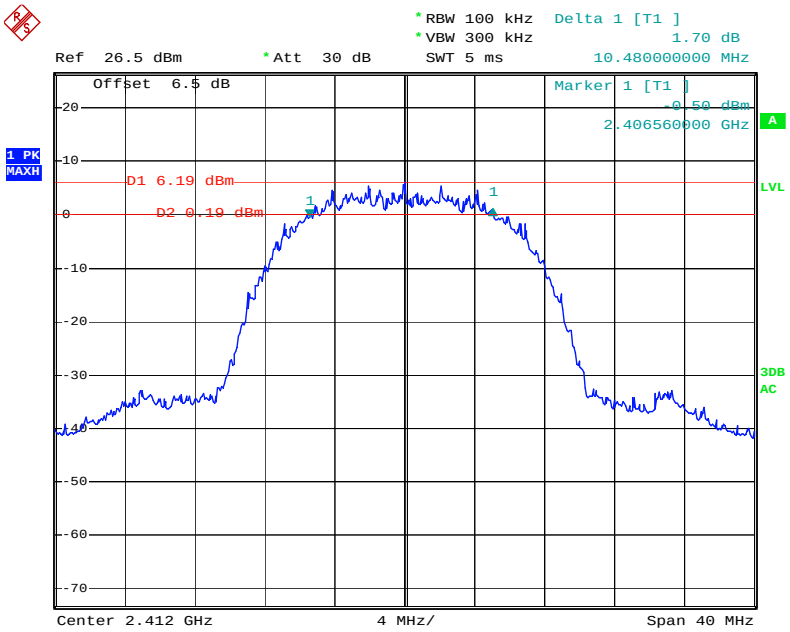
802.11n40 High Channel



Date: 6.MAY.2011 15:41:19

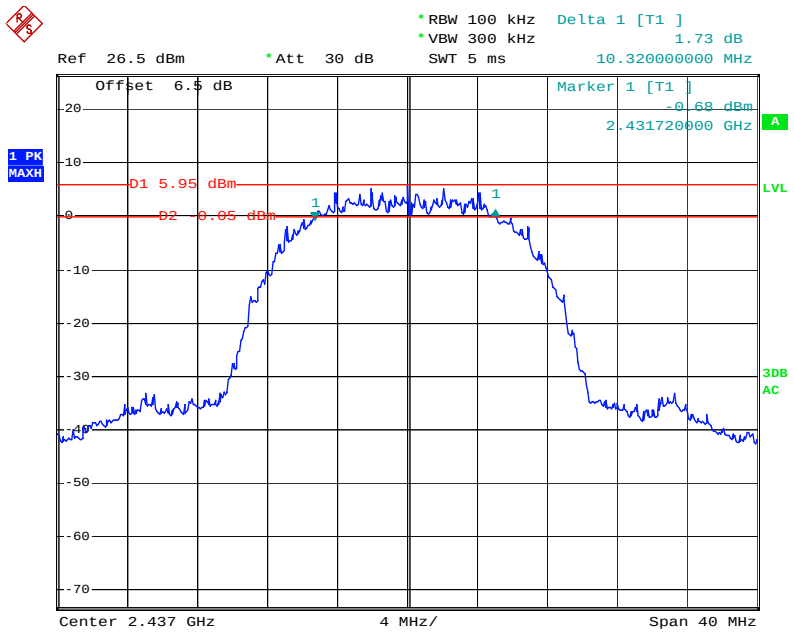
Chain 1:

802.11b Low Channel



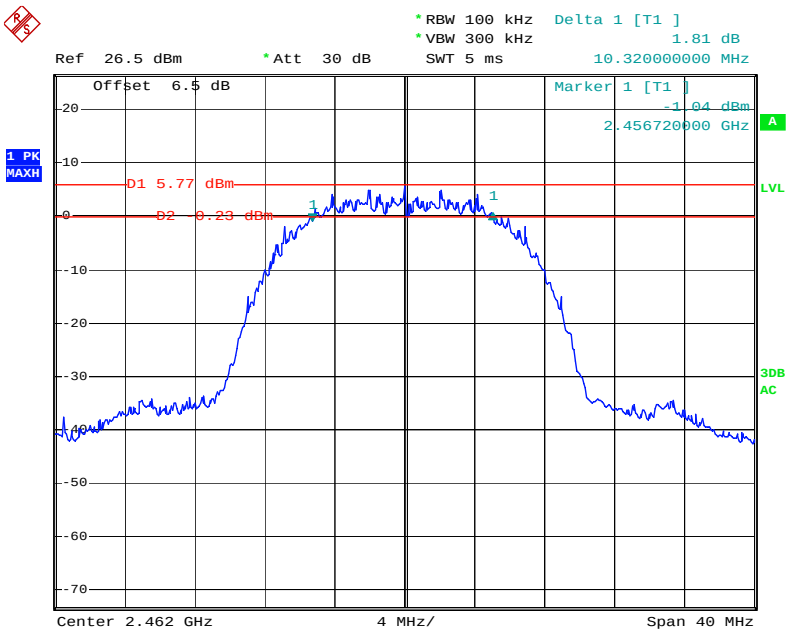
Date: 6.MAY.2011 15:58:41

802.11b Middle Channel



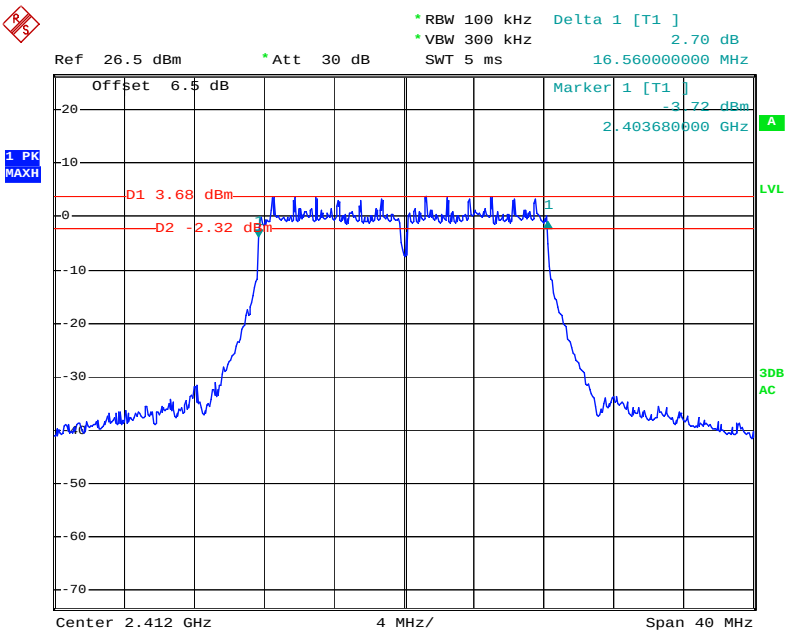
Date: 6.MAY.2011 15:53:20

802.11b High Channel



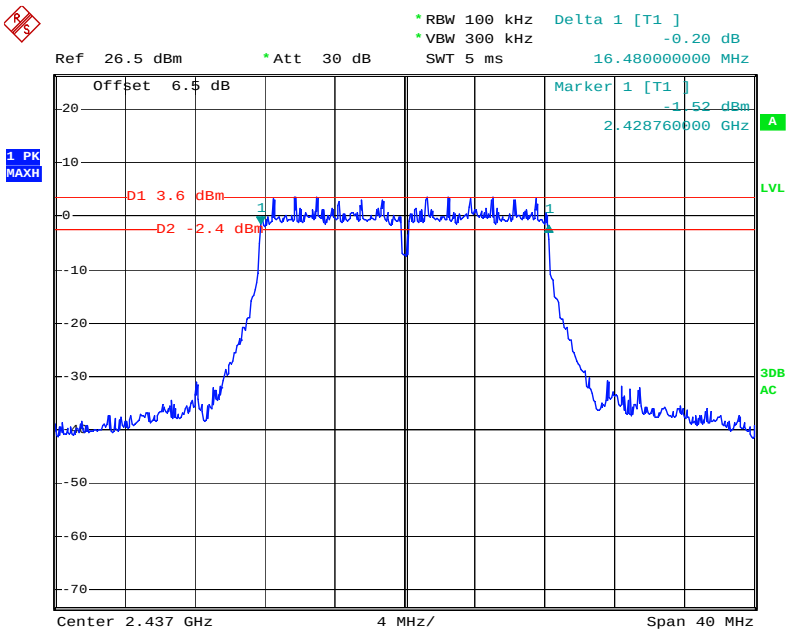
Date: 6.MAY.2011 16:01:03

802.11g Low Channel



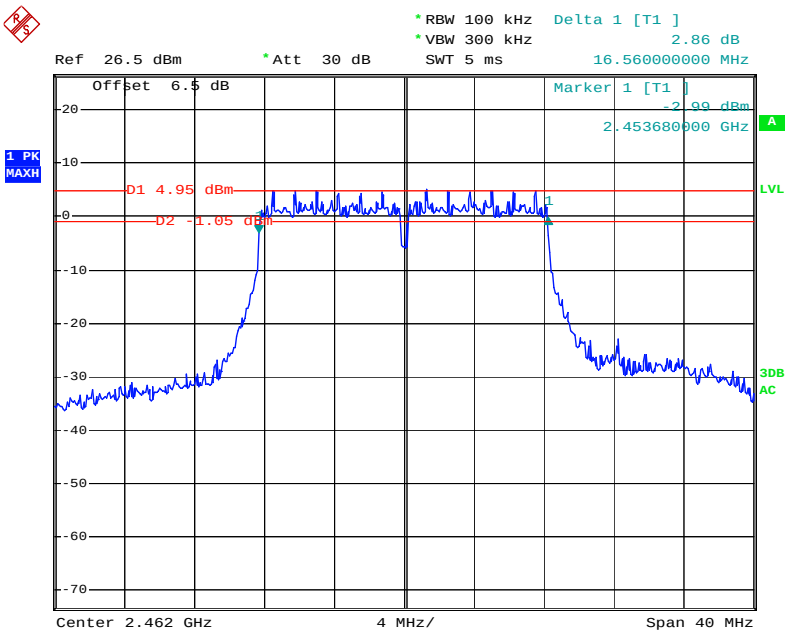
Date: 6.MAY.2011 16:03:18

802.11g Middle Channel



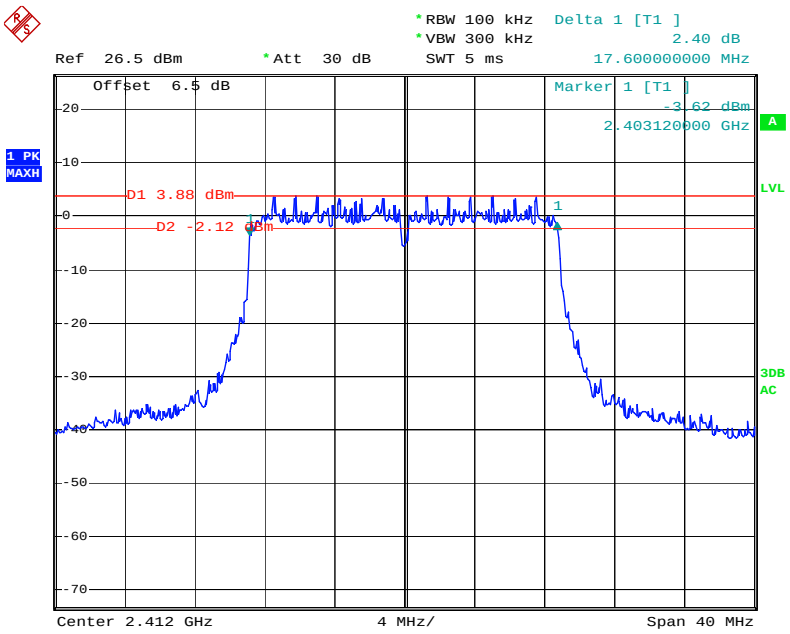
Date: 6.MAY.2011 16:04:35

802.11g High Channel



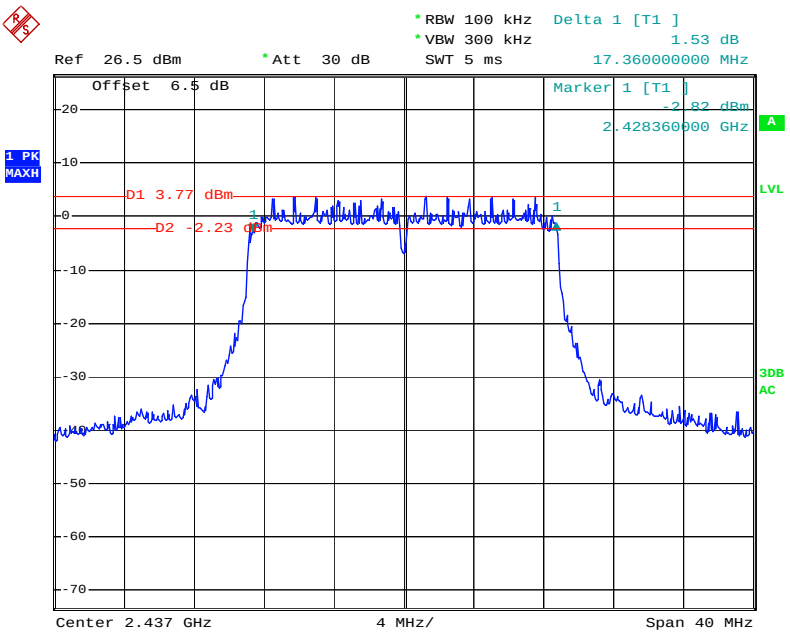
Date: 6.MAY.2011 16:05:50

802.11n20 Low Channel



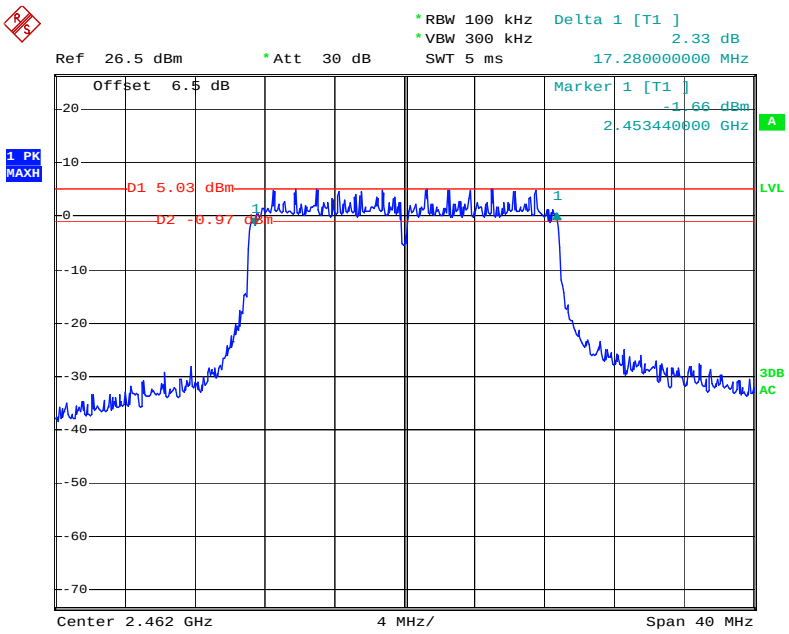
Date: 6.MAY.2011 16:07:26

802.11n20 Middle Channel



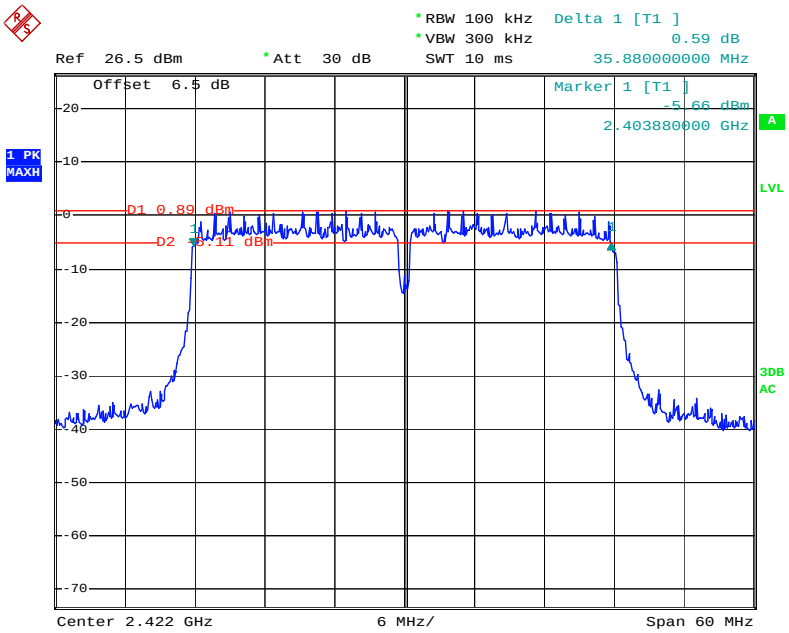
Date: 6.MAY.2011 16:08:57

802.11n20 High Channel



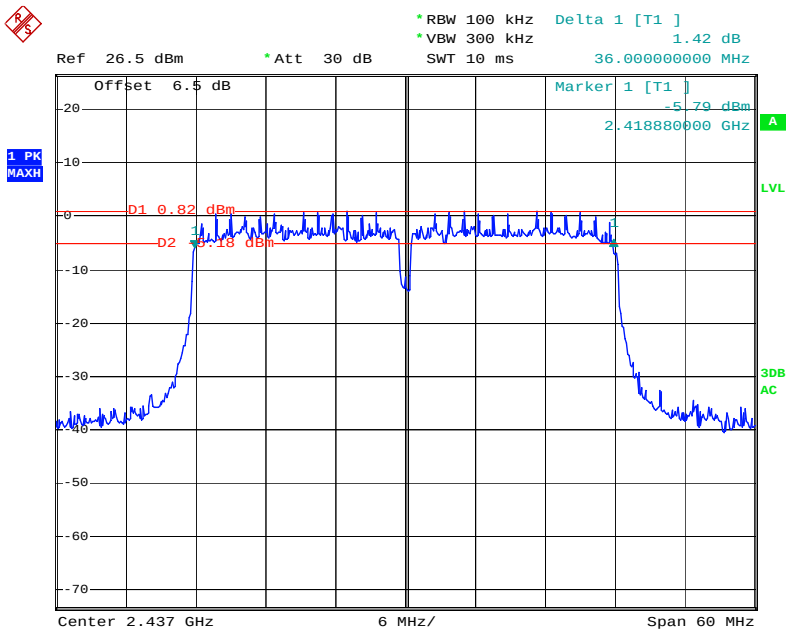
Date: 6.MAY.2011 16:11:05

802.11n40 Low Channel



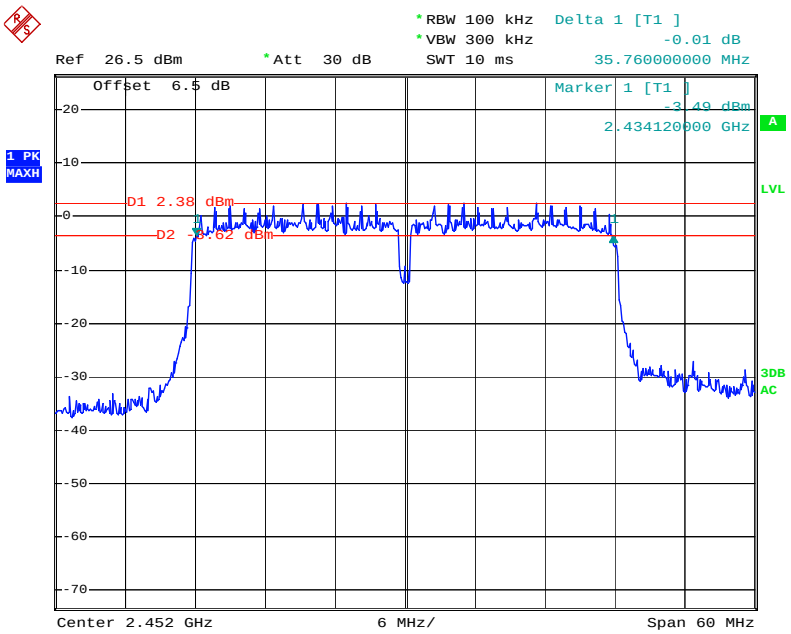
Date: 6.MAY.2011 16:13:10

802.11n40 Middle Channel



Date: 6.MAY.2011 16:14:41

802.11n40 High Channel



Date: 6.MAY.2011 16:16:04

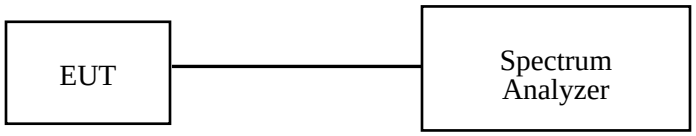
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

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

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	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 Data

Environmental Conditions

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

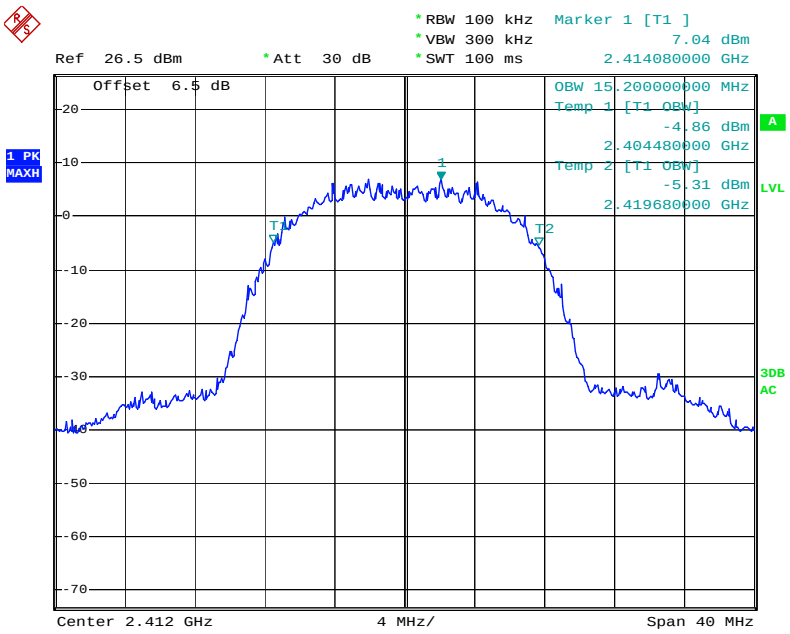
The testing was performed by Jimmy Xiao on 2011-05-20.

Test Mode: Transmitting

Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Reading Power (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11b mode							
Low	2412	11	Chain 0	16.64	/	30	Pass
Low	2412	11	Chain 1	17.09			
Middle	2437	11	Chain 0	16.72	/	30	Pass
Middle	2437	11	Chain 1	17.25			
High	2462	11	Chain 0	16.45	/	30	Pass
High	2462	11	Chain 1	17.05			
802.11g mode							
Low	2412	54	Chain 0	15.04	/	30	Pass
Low	2412	54	Chain 1	14.37			
Middle	2437	54	Chain 0	15.12	/	30	Pass
Middle	2437	54	Chain 1	14.41			
High	2462	54	Chain 0	15.00	/	30	Pass
High	2462	54	Chain 1	14.27			
802.11n20 mode							
Low	2412	65	Chain 0	13.75	16.2	30	Pass
Low	2412	65	Chain 1	14.25			
Middle	2437	65	Chain 0	13.91	17.1	30	Pass
Middle	2437	65	Chain 1	14.36			
High	2462	65	Chain 0	13.70	16.9	30	Pass
High	2462	65	Chain 1	14.09			
802.11n40 mode							
Low	2422	65	Chain 0	14.32	17.1	30	Pass
Low	2422	65	Chain 1	13.88			
Middle	2437	65	Chain 0	14.36	17.2	30	Pass
Middle	2437	65	Chain 1	13.98			
High	2452	65	Chain 0	14.34	17.2	30	Pass
High	2452	65	Chain 1	13.94			

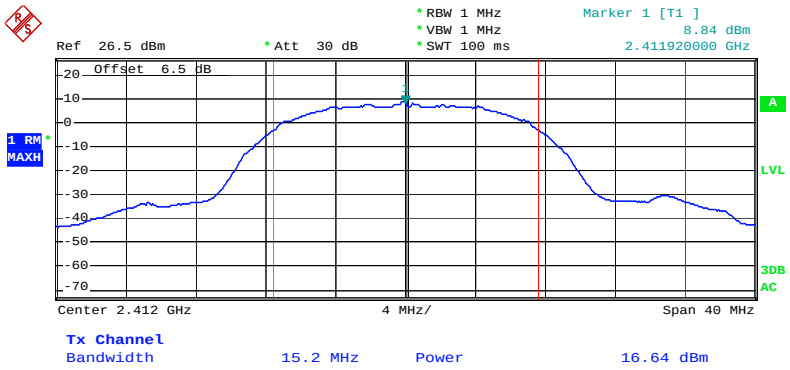
Chain 0:

802.11b 99% Occupied Bandwidth, Low Channel



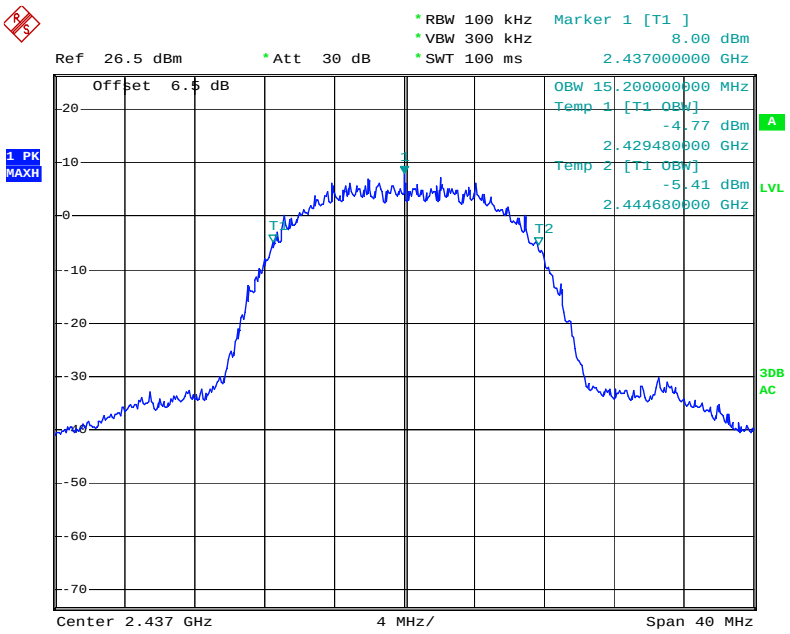
Date: 20.MAY.2011 21:05:34

802.11b RF Output Power, Low Channel



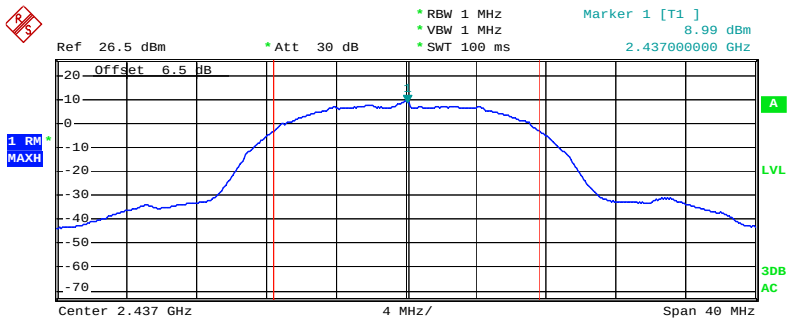
Date: 20.MAY.2011 21:06:24

802.11b 99% Occupied Bandwidth, Middle Channel



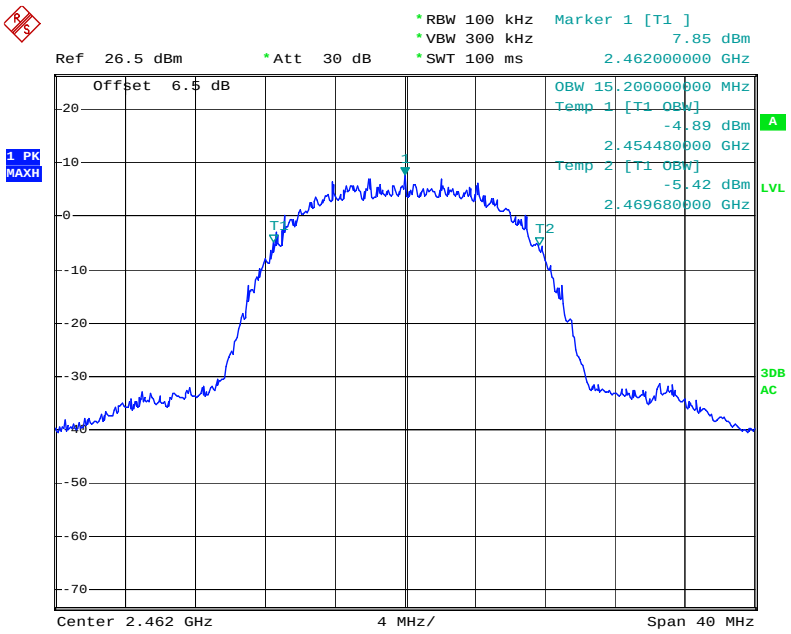
Date: 20.MAY.2011 21:02:57

802.11b RF Output Power, Middle Channel



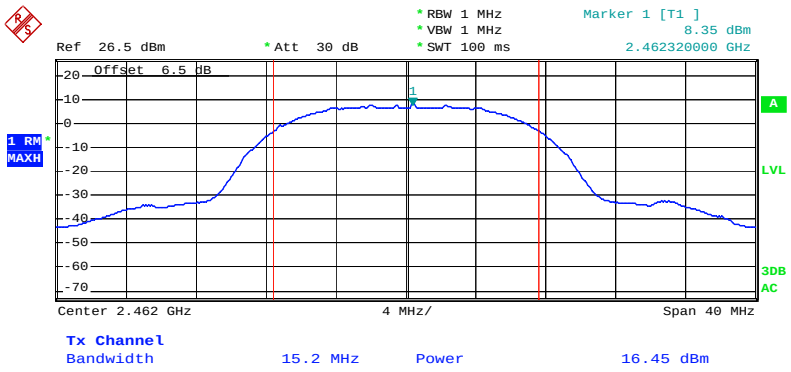
Date: 20.MAY.2011 21:03:40

802.11b 99% Occupied Bandwidth, High Channel



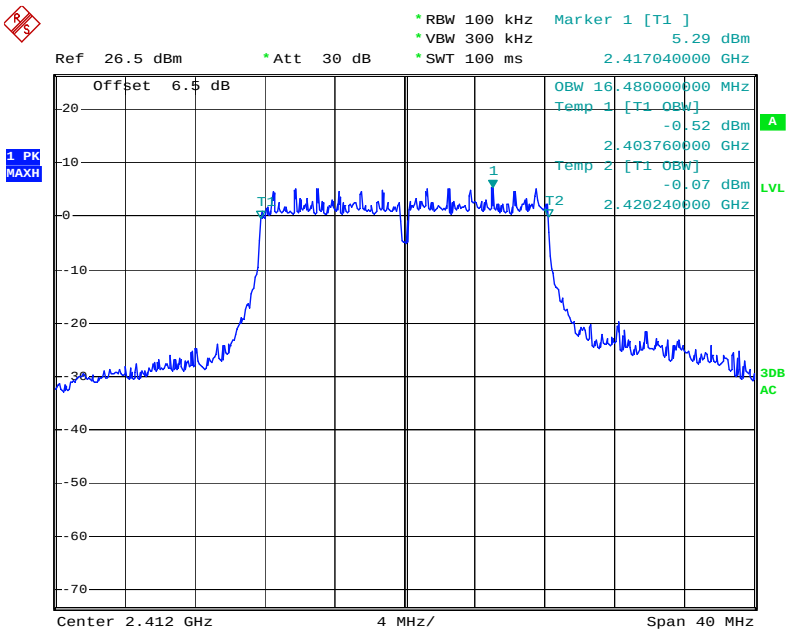
Date: 20.MAY.2011 21:00:38

802.11b RF Output Power, High Channel



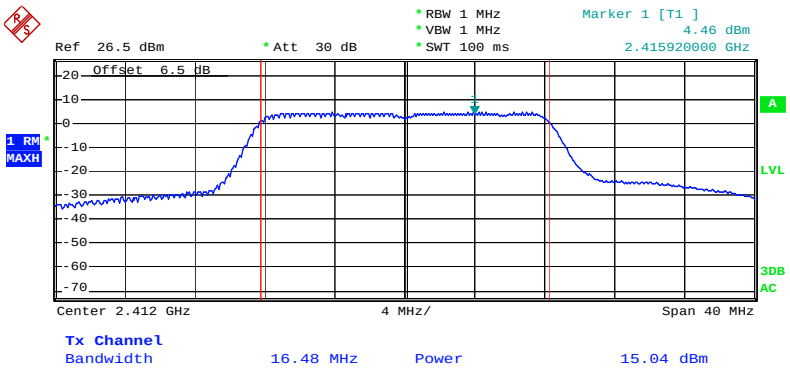
Date: 20.MAY.2011 21:01:39

802.11g 99% Occupied Bandwidth, Low Channel



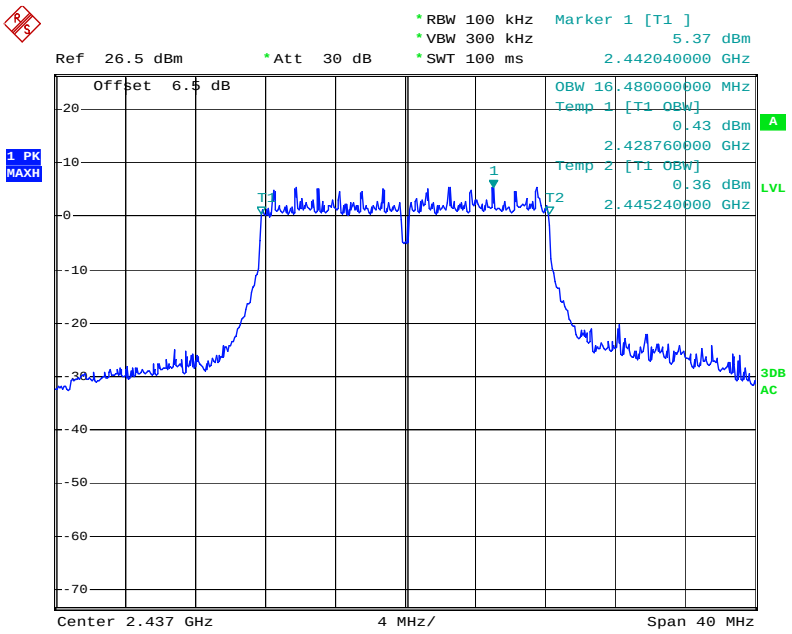
Date: 20.MAY.2011 21:20:59

802.11g RF Output Power, Low Channel



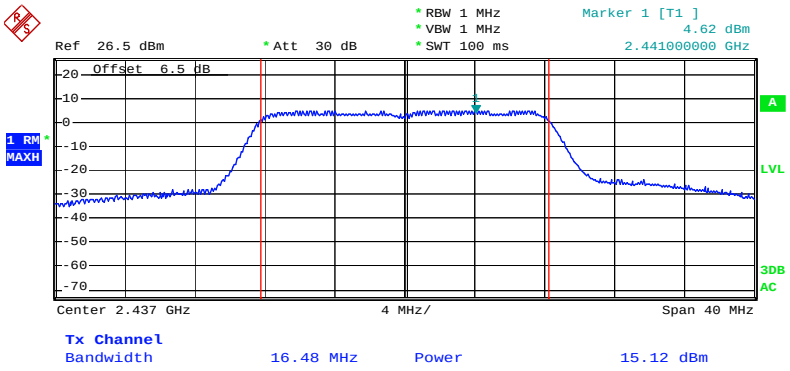
Date: 20.MAY.2011 21:21:35

802.11g 99% Occupied Bandwidth, Middle Channel



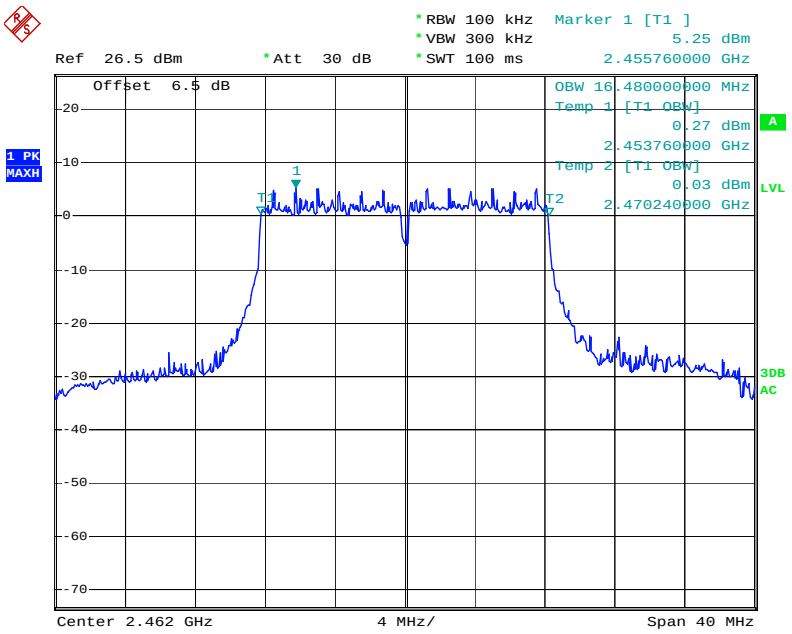
Date: 20.MAY.2011 21:19:18

802.11g RF Output Power, Middle Channel



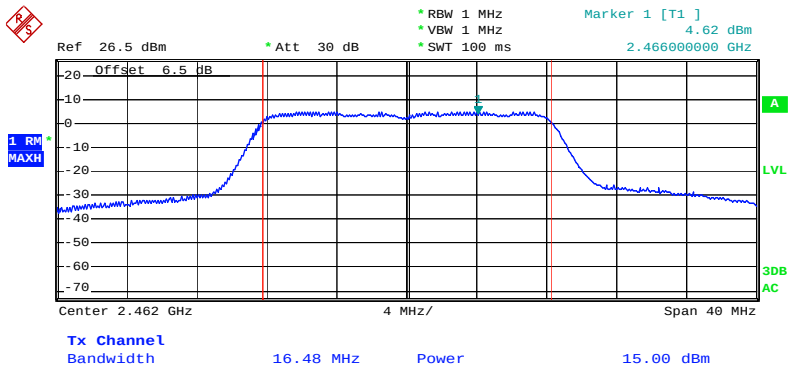
Date: 20.MAY.2011 21:19:50

802.11g 99% Occupied Bandwidth, High Channel



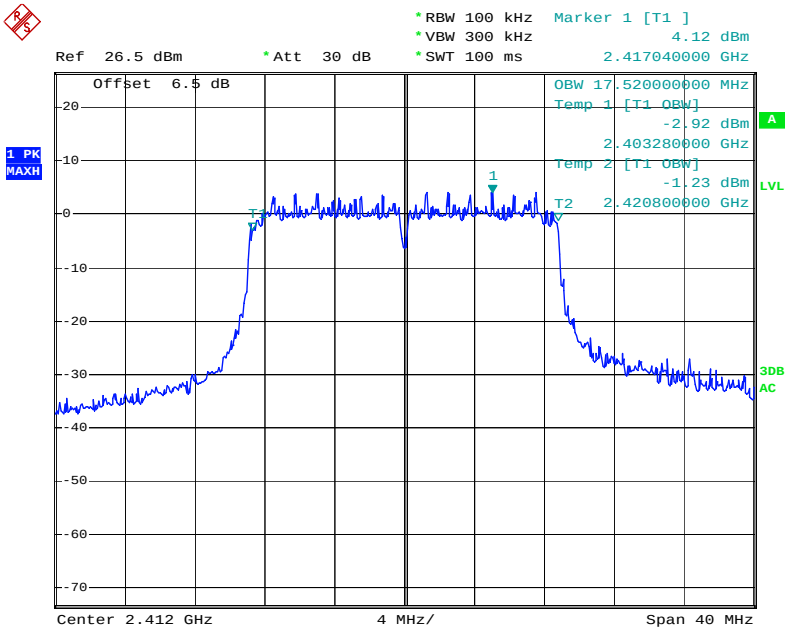
Date: 20.MAY.2011 21:16:45

802.11g RF Output Power, High Channel



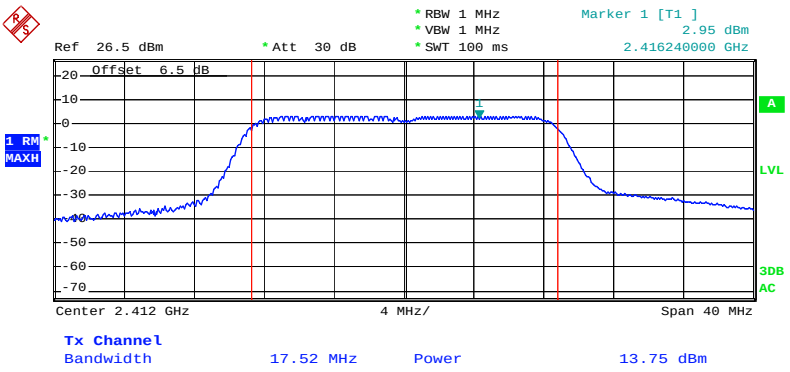
Date: 20.MAY.2011 21:18:19

802.11n20 99% Occupied Bandwidth, Low Channel



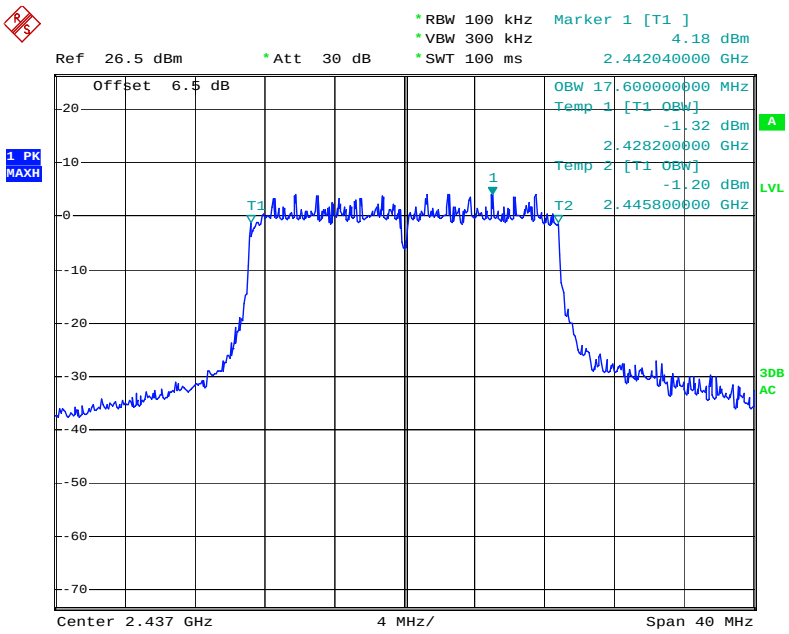
Date: 20.MAY.2011 21:33:29

802.11n20 RF Output Power, Low Channel



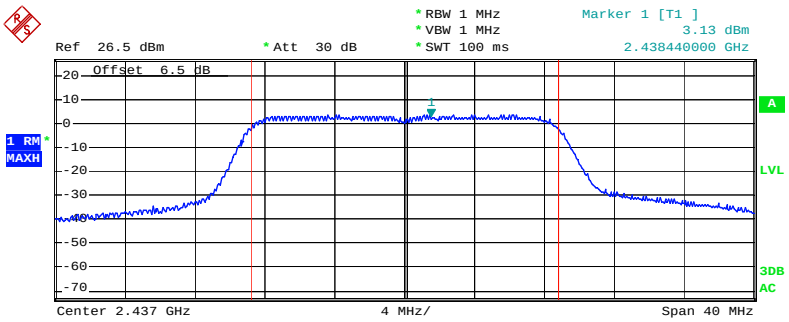
Date: 20.MAY.2011 21:34:02

802.11n20 99% Occupied Bandwidth, Middle Channel



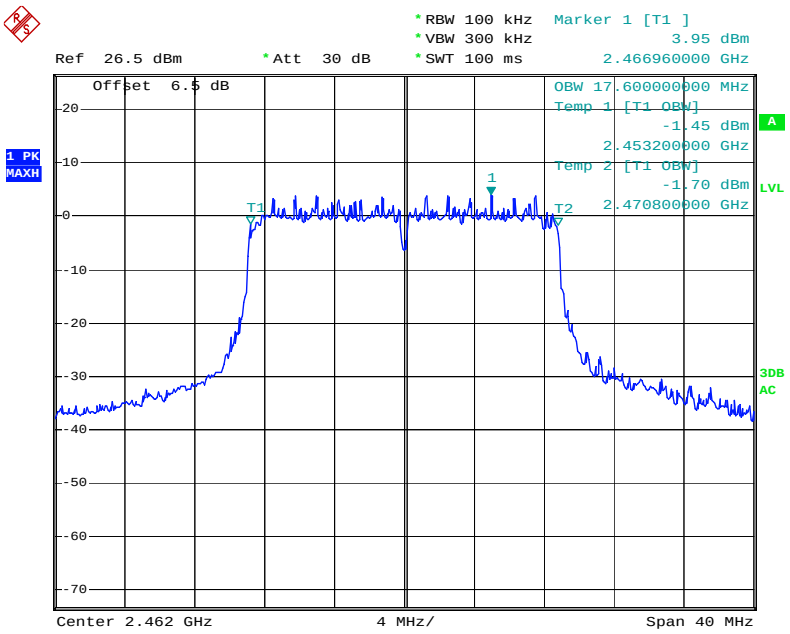
Date: 20.MAY.2011 21:31:47

802.11n20 RF Output Power, Middle Channel



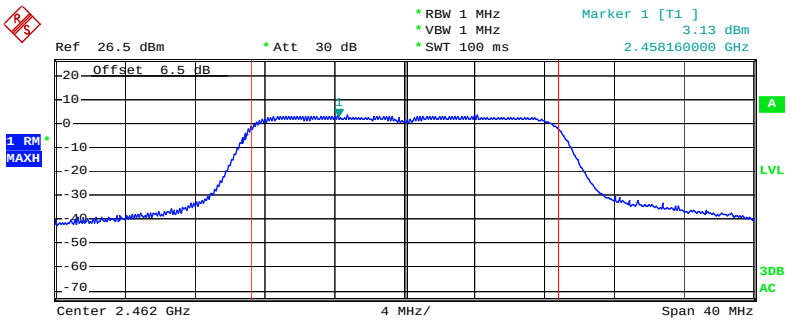
Date: 20.MAY.2011 21:32:22

802.11n20 99% Occupied Bandwidth, High Channel



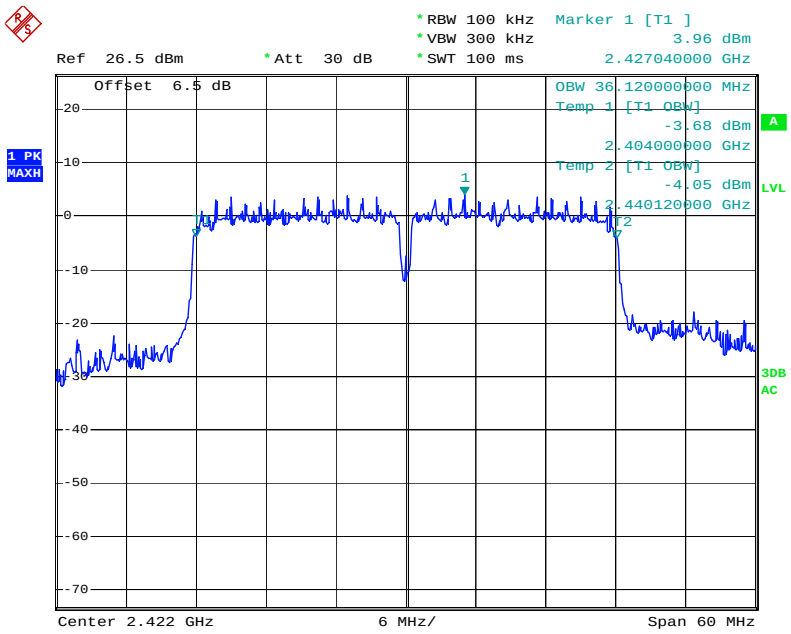
Date: 20.MAY.2011 21:30:05

802.11n20 RF Output Power, High Channel



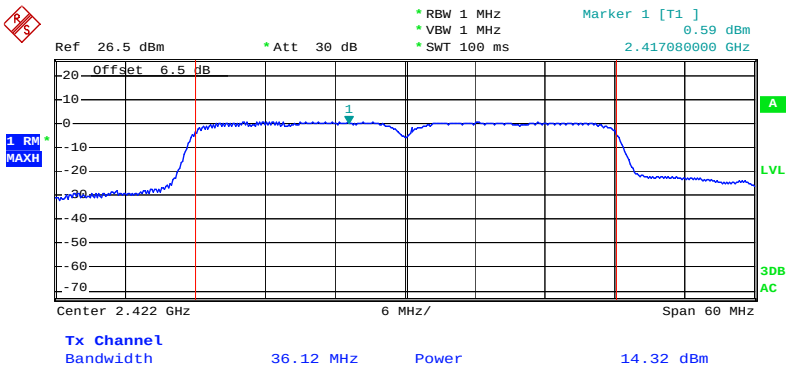
Date: 20.MAY.2011 21:30:54

802.11n40 99% Occupied Bandwidth, Low Channel



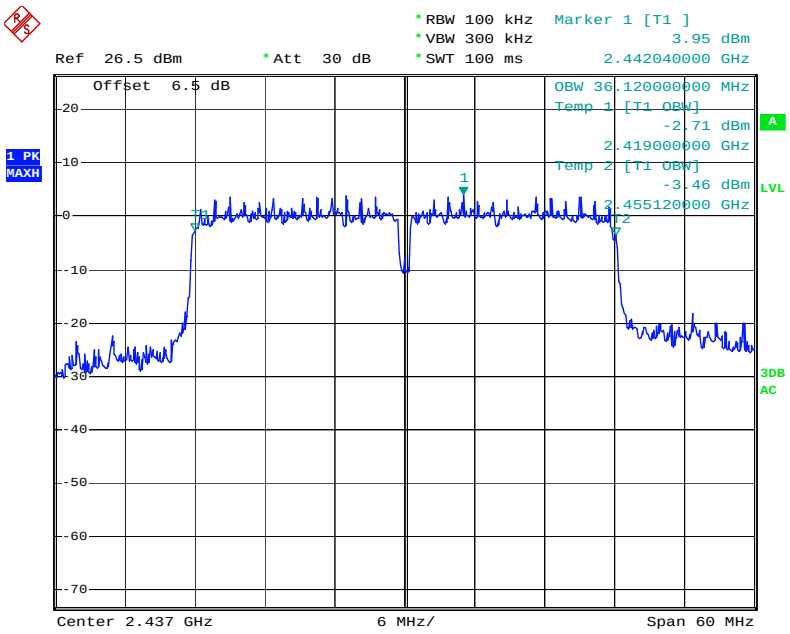
Date: 20.MAY.2011 21:47:30

802.11n40 RF Output Power, Low Channel



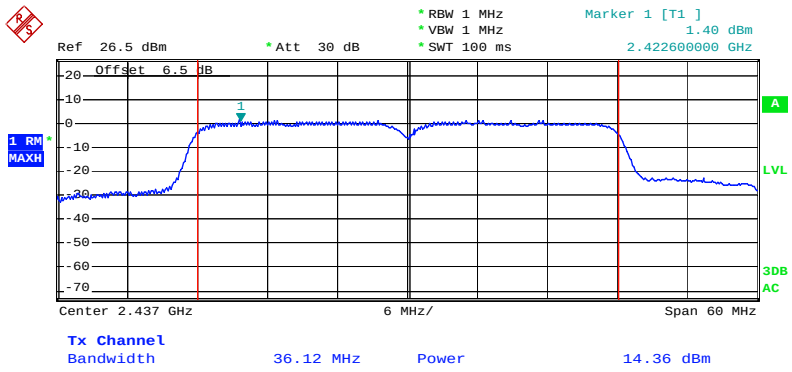
Date: 20.MAY.2011 21:48:54

802.11n40 99% Occupied Bandwidth, Middle Channel



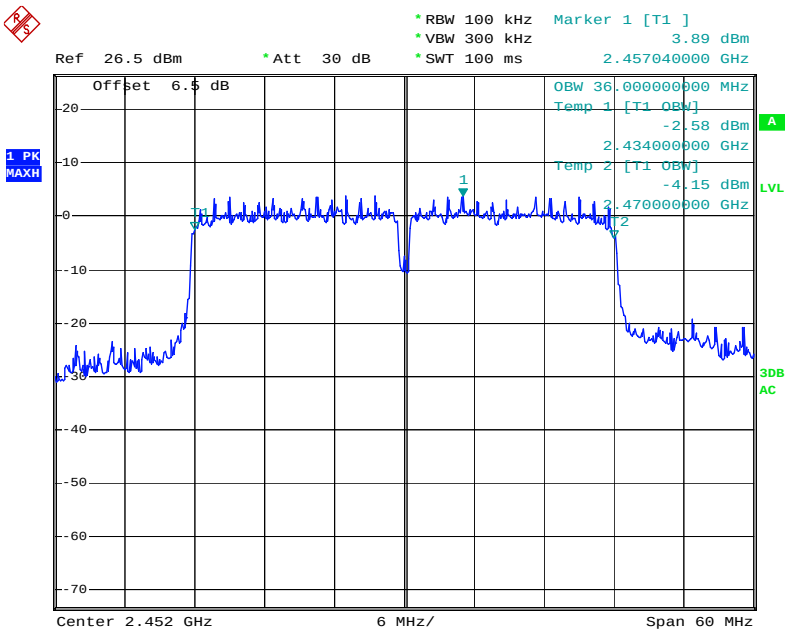
Date: 20.MAY.2011 21:45:59

802.11n40 RF Output Power, Middle Channel



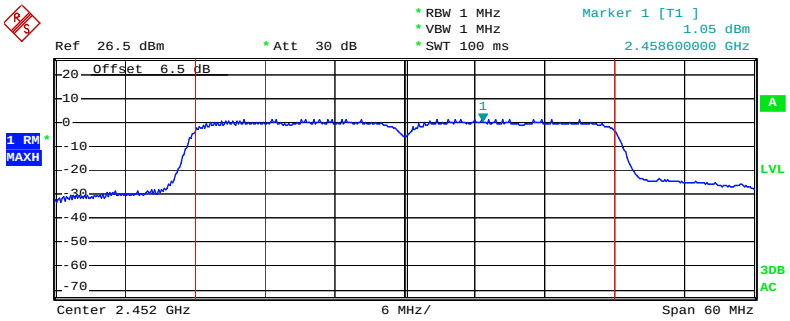
Date: 20.MAY.2011 21:46:30

802.11n40 99% Occupied Bandwidth, High Channel



Date: 20.MAY.2011 21:44:13

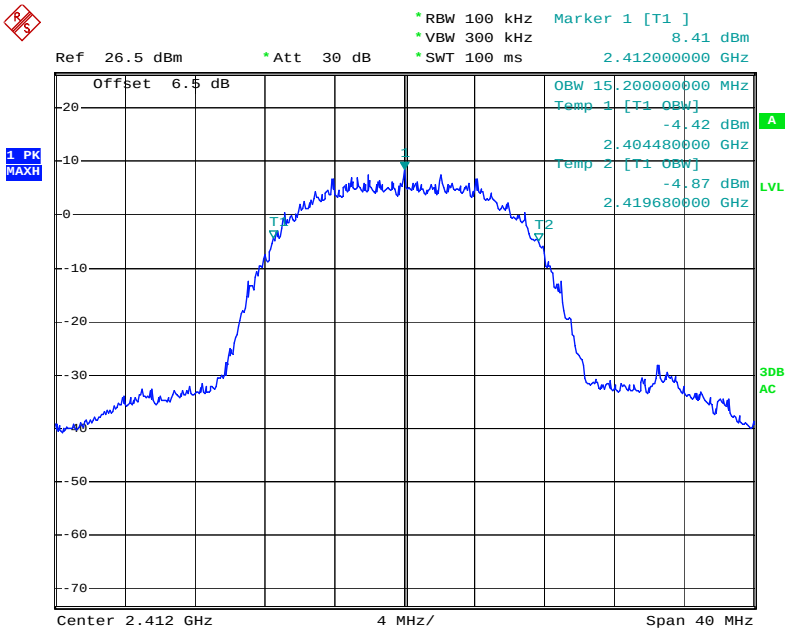
802.11n40 RF Output Power, High Channel



Date: 20.MAY.2011 21:44:43

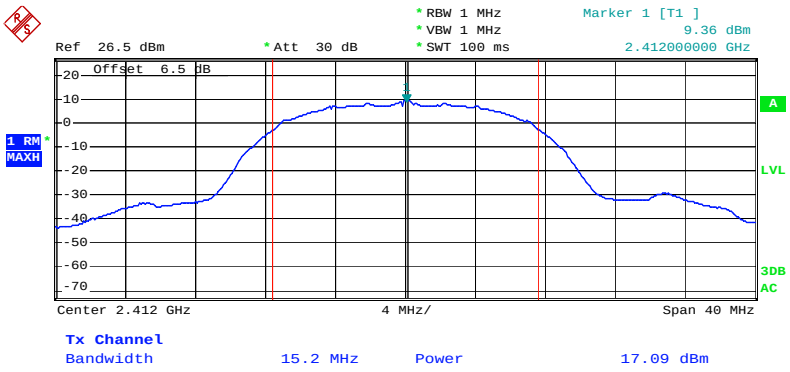
Chain 1:

802.11b 99% Occupied Bandwidth, Low Channel



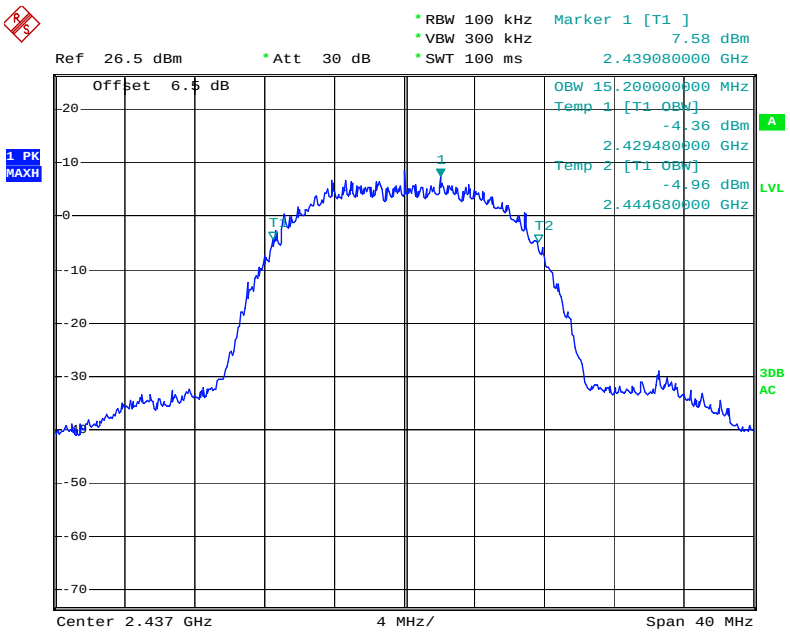
Date: 20.MAY.2011 20:49:01

802.11b RF Output Power, Low Channel



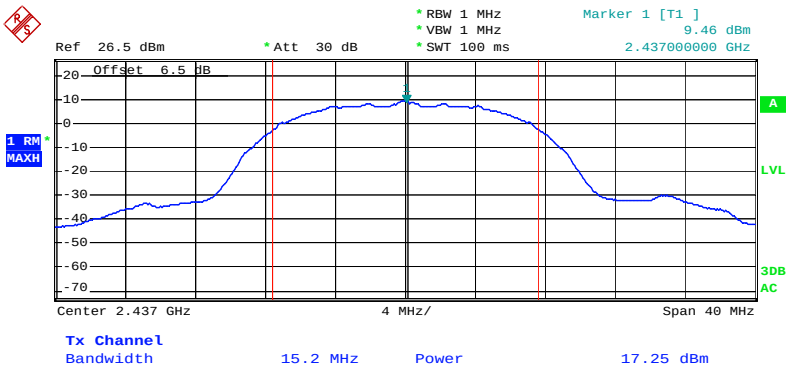
Date: 20.MAY.2011 20:51:10

802.11b 99% Occupied Bandwidth, Middle Channel



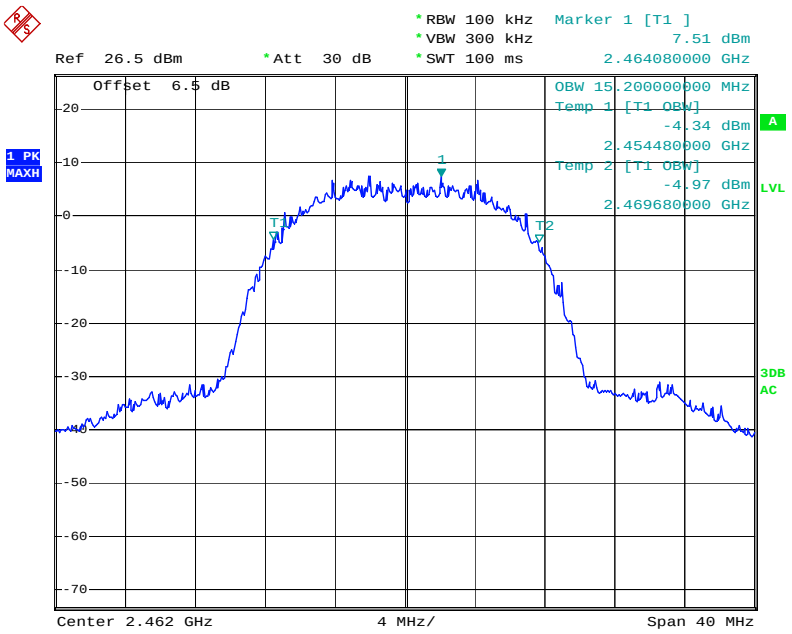
Date: 20.MAY.2011 20:52:25

802.11b RF Output Power, Middle Channel



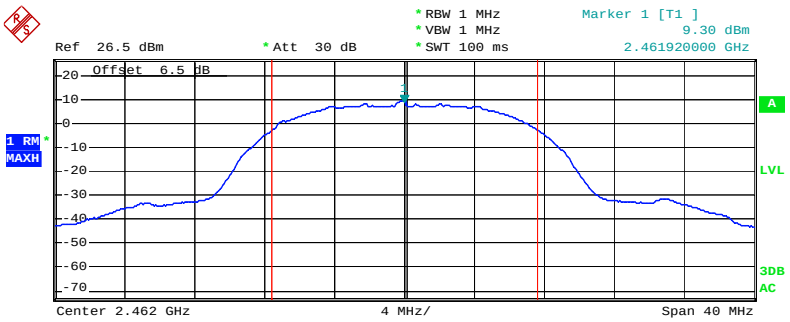
Date: 20.MAY.2011 20:53:21

802.11b 99% Occupied Bandwidth, High Channel



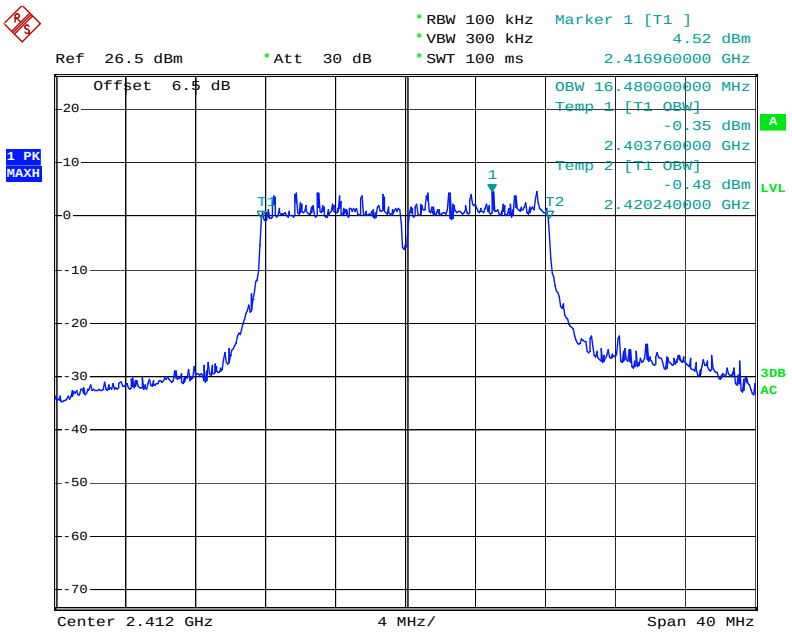
Date: 20.MAY.2011 20:54:34

802.11b RF Output Power, High Channel



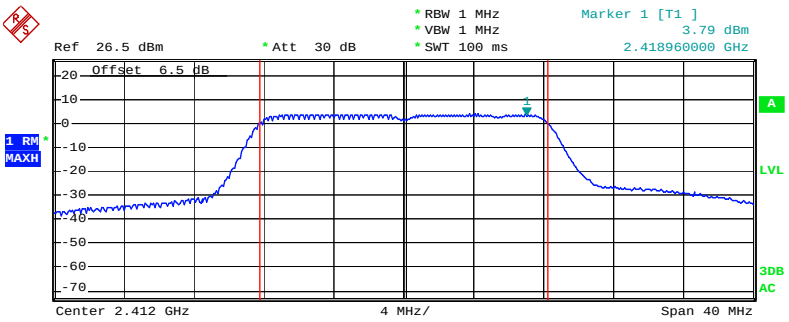
Date: 20.MAY.2011 20:55:26

802.11g 99% Occupied Bandwidth, Low Channel



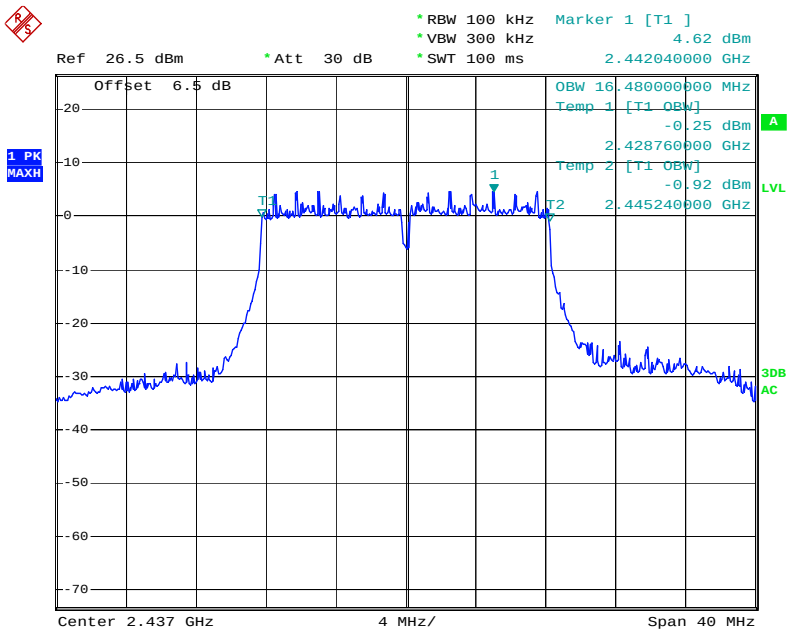
Date: 20.MAY.2011 21:11:08

802.11g RF Output Power, Low Channel



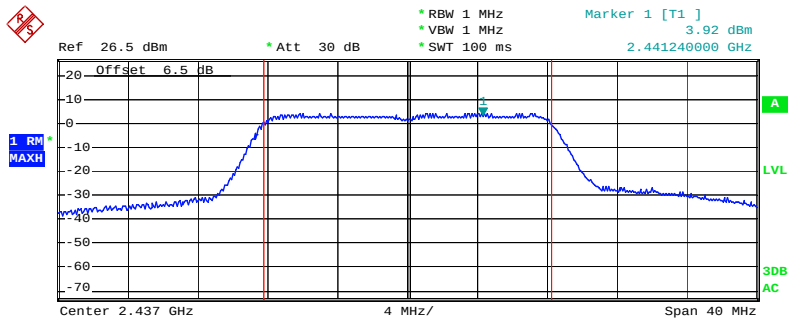
Date: 20.MAY.2011 21:12:00

802.11g 99% Occupied Bandwidth, Middle Channel



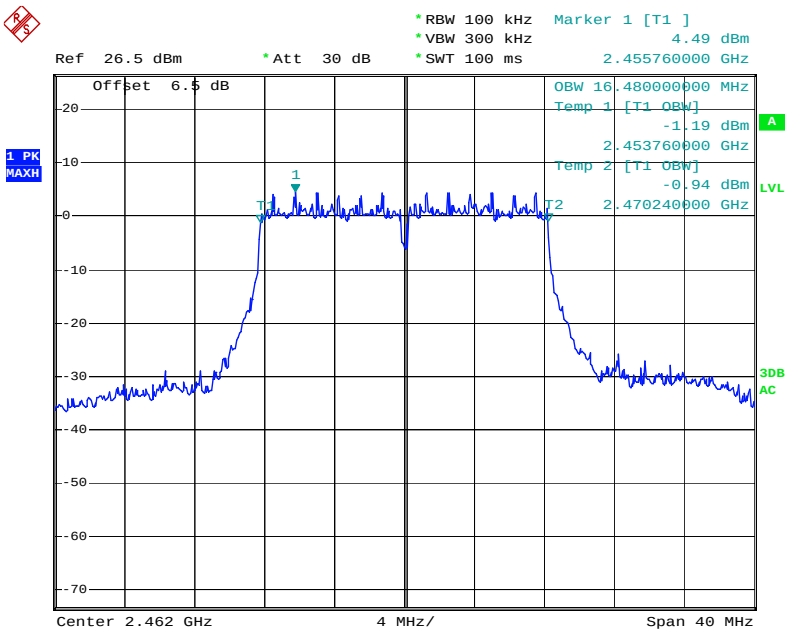
Date: 20.MAY.2011 21:12:57

802.11g RF Output Power, Middle Channel



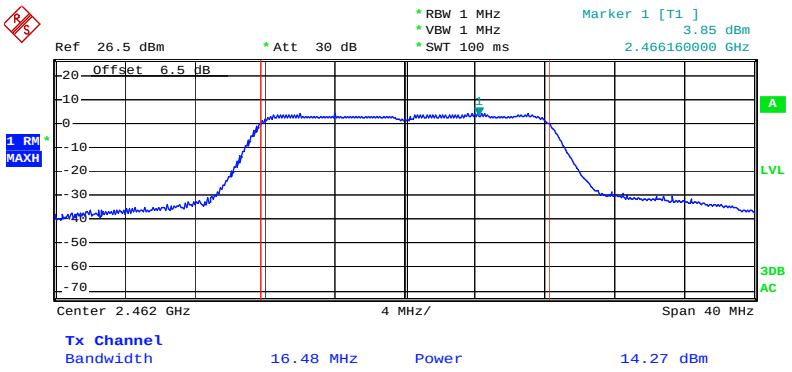
Date: 20.MAY.2011 21:13:34

802.11g 99% Occupied Bandwidth, High Channel



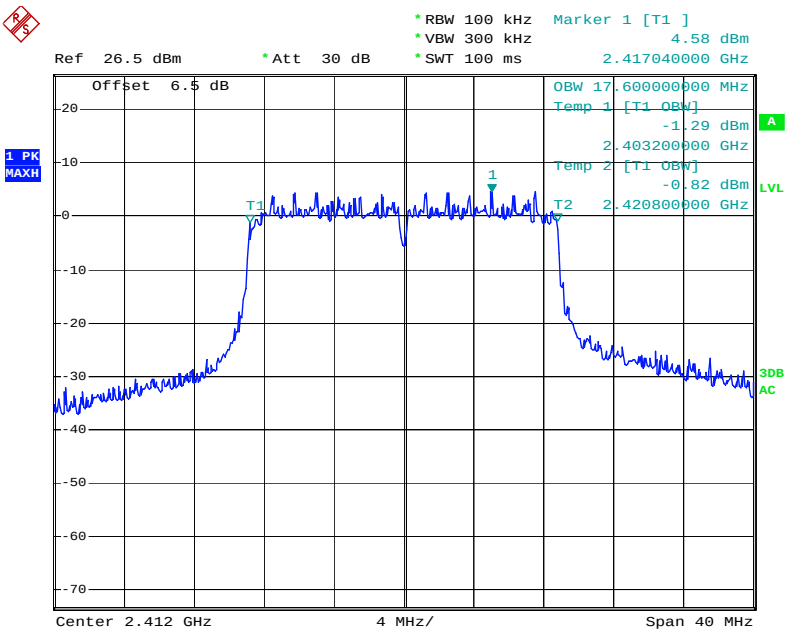
Date: 20.MAY.2011 21:14:30

802.11g RF Output Power, High Channel



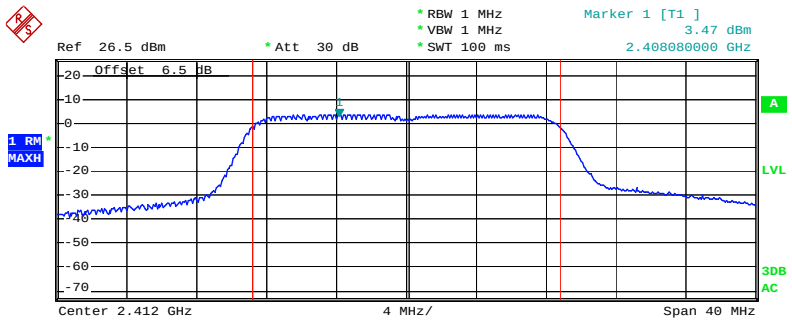
Date: 20.MAY.2011 21:15:15

802.11n20 99% Occupied Bandwidth, Low Channel



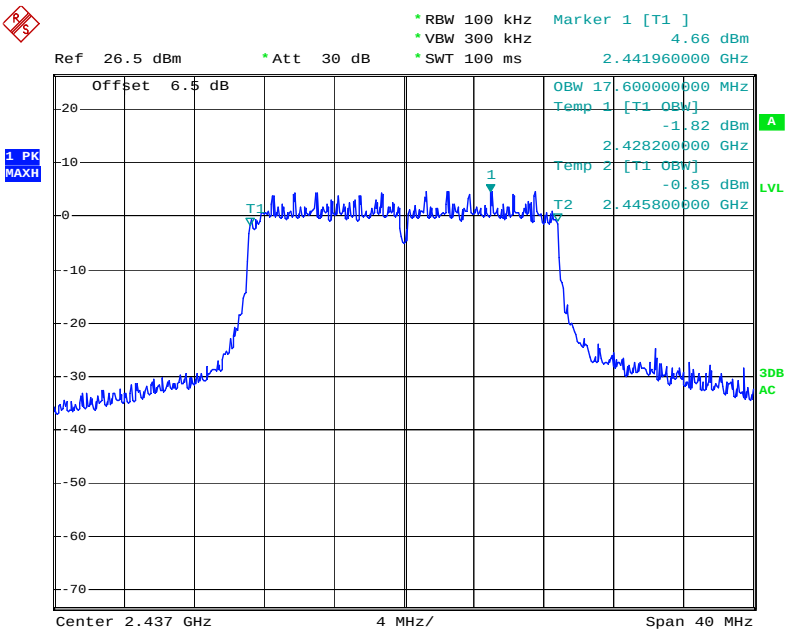
Date: 20.MAY.2011 21:24:30

802.11n20 RF Output Power, Low Channel



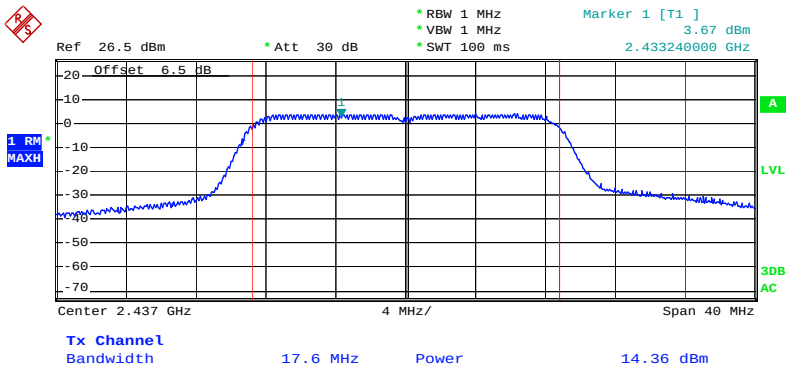
Date: 20.MAY.2011 21:25:10

802.11n20 99% Occupied Bandwidth, Middle Channel



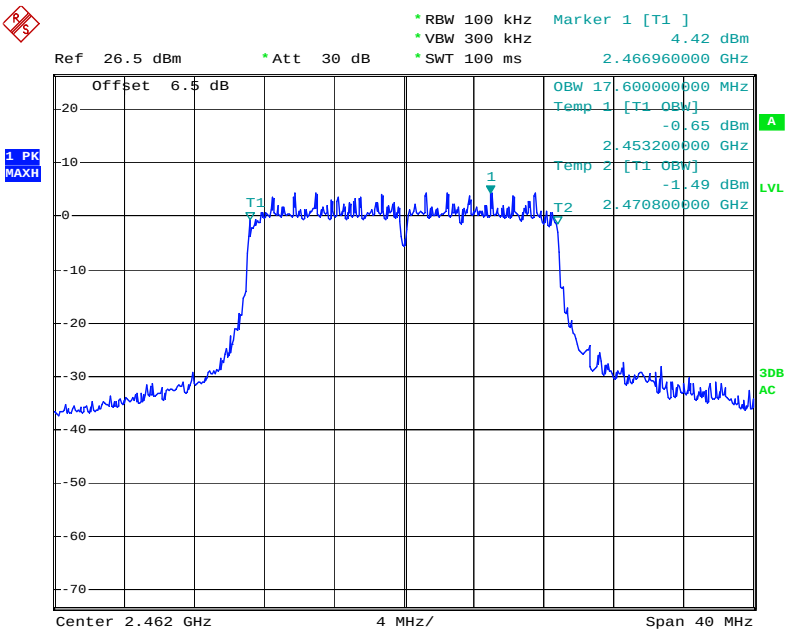
Date: 20.MAY.2011 21:25:55

802.11n20 RF Output Power, Middle Channel



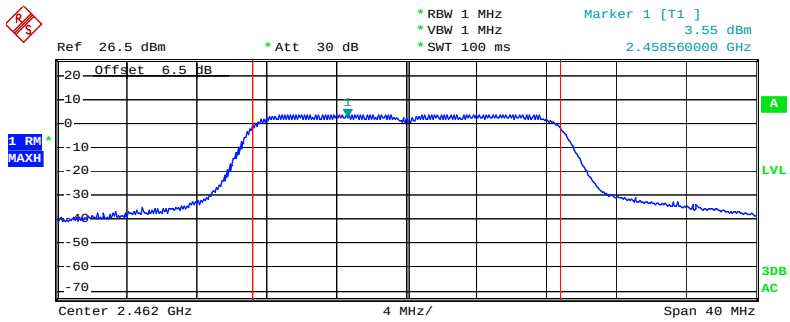
Date: 20.MAY.2011 21:26:27

802.11n20 99% Occupied Bandwidth, High Channel



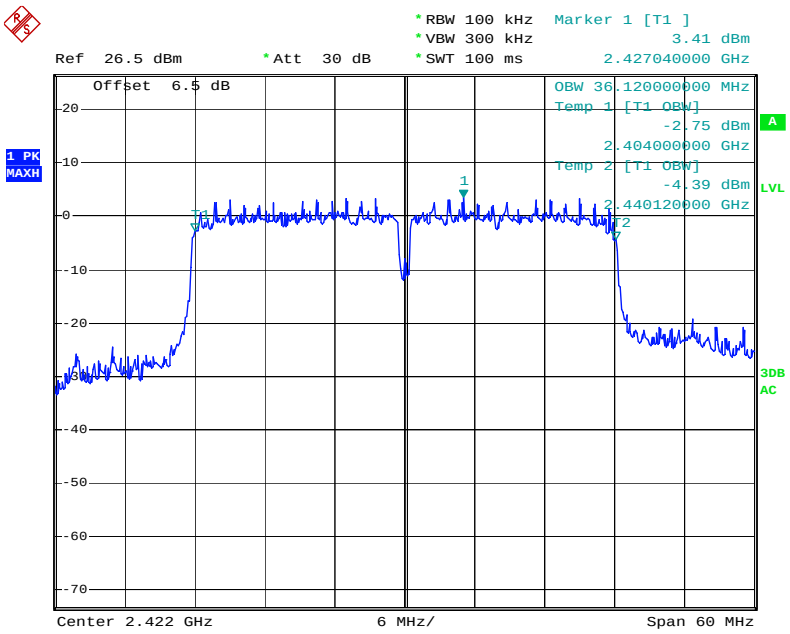
Date: 20.MAY.2011 21:28:24

802.11n20 RF Output Power, High Channel



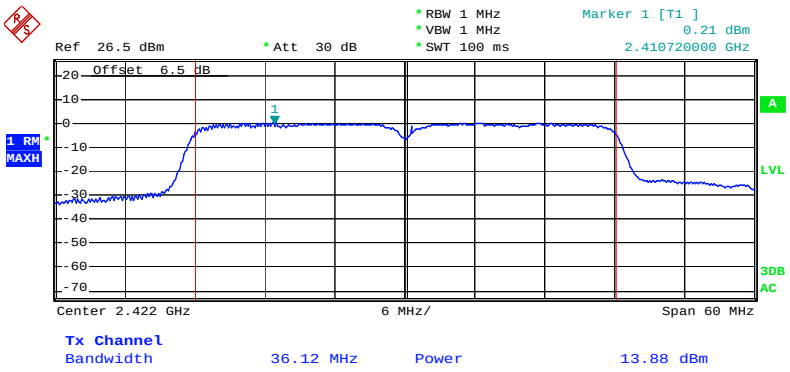
Date: 20.MAY.2011 21:28:55

802.11n40 99% Occupied Bandwidth, Low Channel



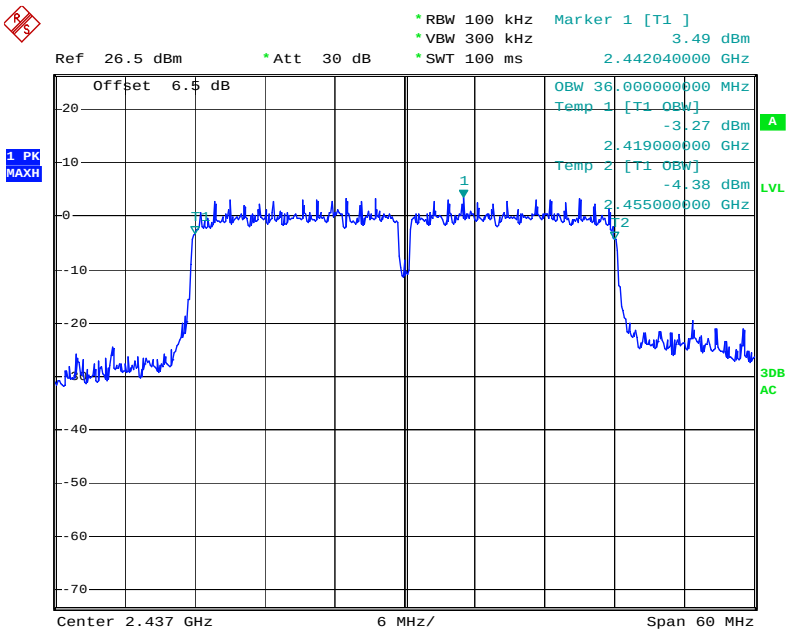
Date: 20.MAY.2011 21:37:51

802.11n40 RF Output Power, Low Channel



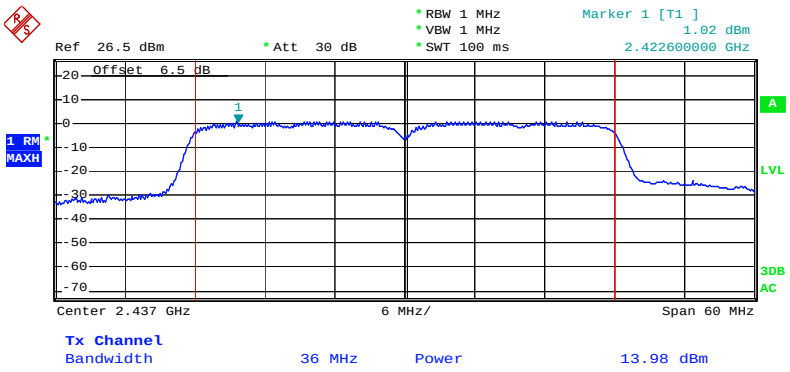
Date: 20.MAY.2011 21:38:44

802.11n40 99% Occupied Bandwidth, Middle Channel



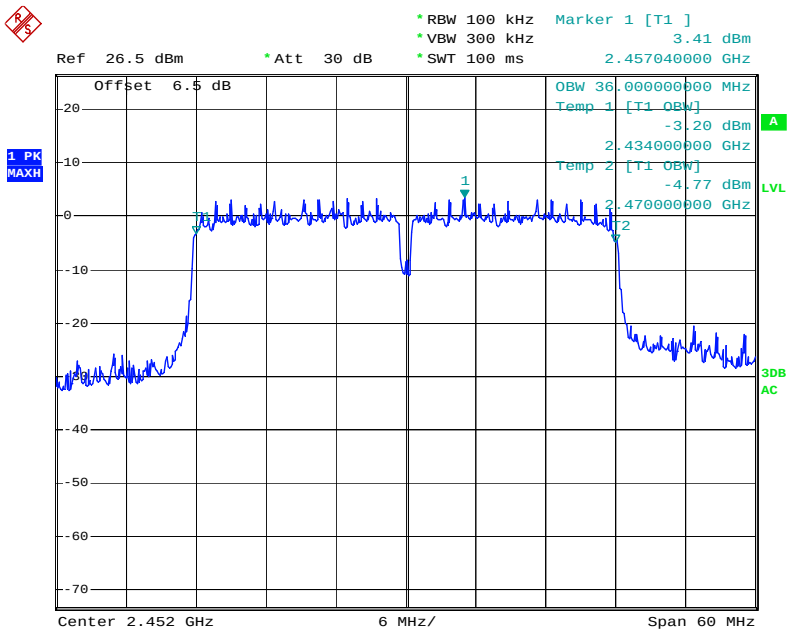
Date: 20.MAY.2011 21:40:25

802.11n40 RF Output Power, Middle Channel



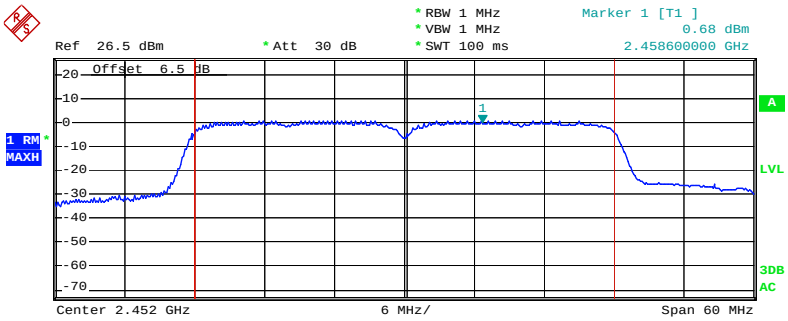
Date: 20.MAY.2011 21:41:24

802.11n40 99% Occupied Bandwidth, High Channel



Date: 20.MAY.2011 21:42:25

802.11n40 RF Output Power, High Channel



Date: 20.MAY.2011 21:42:59

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

Applicable Standard

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

Test Procedure

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

Test 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 Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-05-21 and 2011-07-06.

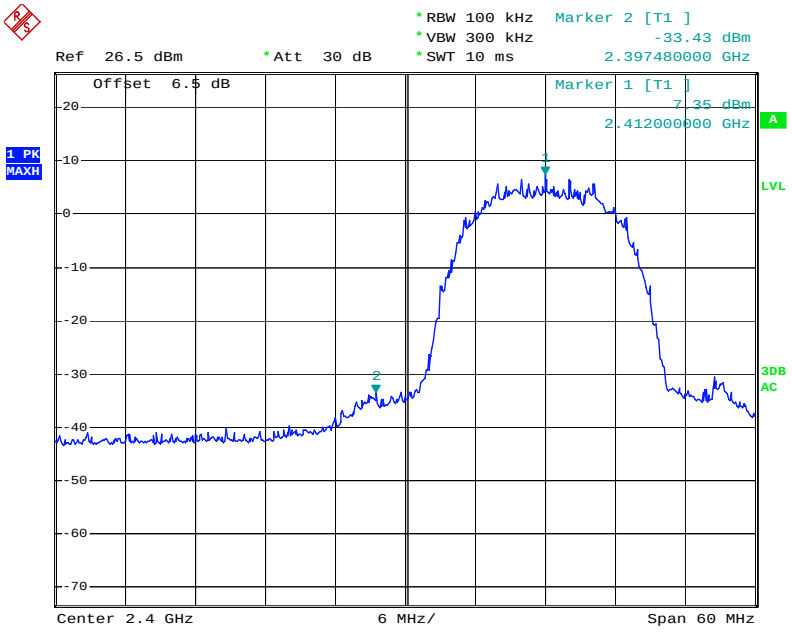
Test Result: *Compliance*

Frequency (MHz)	Antenna Port	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
802.11b mode				
2397.48	Chain 0	40.78	20	Pass
2397.48	Chain 1	40.17	20	Pass
2397.48	Chain 0 & Chain 1	40.91	20	Pass
2502.94	Chain 0	47.11	20	Pass
2483.74	Chain 1	47.95	20	Pass
2488.18	Chain 0 & Chain 1	48.14	20	Pass
802.11g mode				
2399.16	Chain 0	31.87	20	Pass
2399.04	Chain 1	35.32	20	Pass
2399.16	Chain 0 & Chain 1	32.28	20	Pass
2483.86	Chain 0	41.37	20	Pass
2484.82	Chain 1	42.33	20	Pass
2484.58	Chain 0 & Chain 1	38.86	20	Pass
802.11n20 mode				
2399.40	Chain 0	34.37	20	Pass
2399.88	Chain 1	33.84	20	Pass
2399.52	Chain 0 & Chain 1	32.11	20	Pass
2483.86	Chain 0	40.15	20	Pass
2484.58	Chain 1	40.06	20	Pass
2483.86	Chain 0 & Chain 1	40.28	20	Pass
802.11n40 mode				
2397.00	Chain 0	27.96	20	Pass
2397.00	Chain 1	28.51	20	Pass
2397.00	Chain 0 & Chain 1	26.17	20	Pass
2484.50	Chain 0	23.47	20	Pass
2484.50	Chain 1	25.89	20	Pass
2484.50	Chain 0 & Chain 1	24.93	20	Pass

Please refer to following plots.

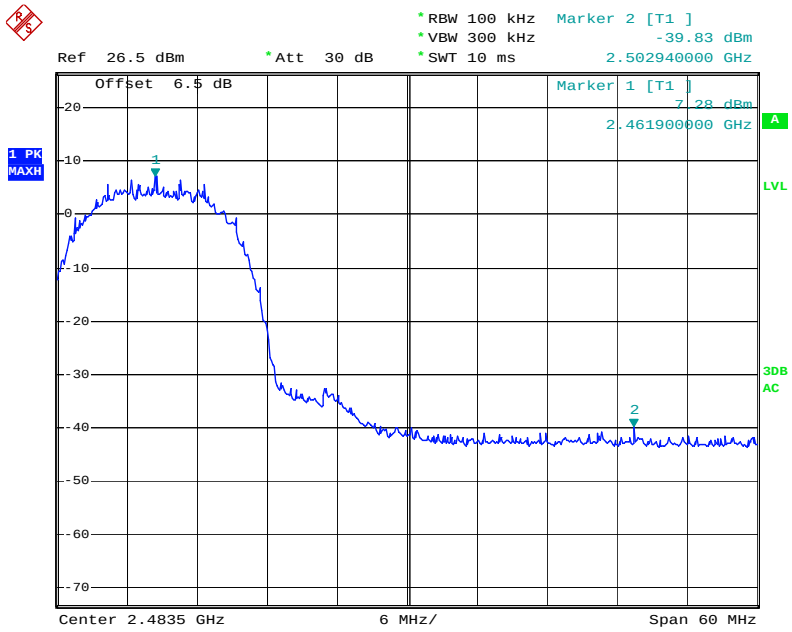
Chain 0:

802.11b: Band Edge, Left Side



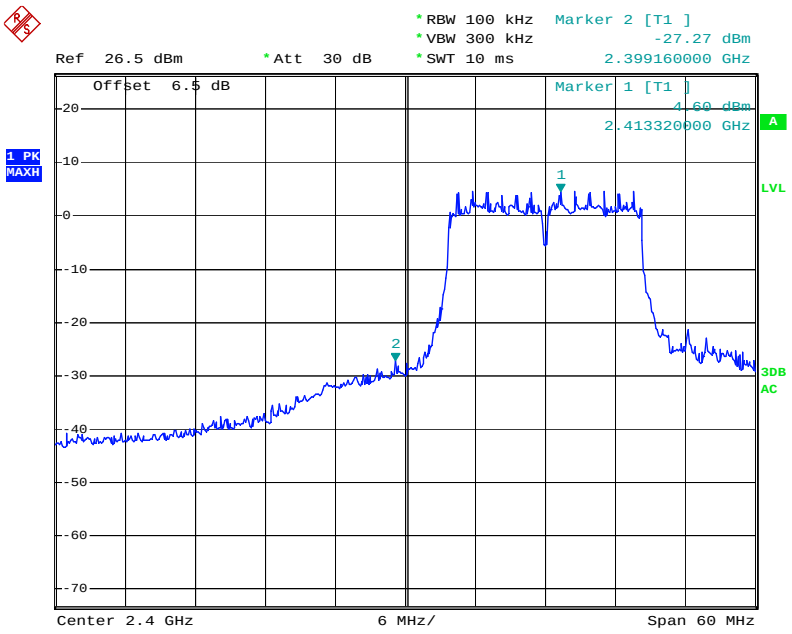
Date: 21.MAY.2011 10:23:51

802.11b: Band Edge, Right Side



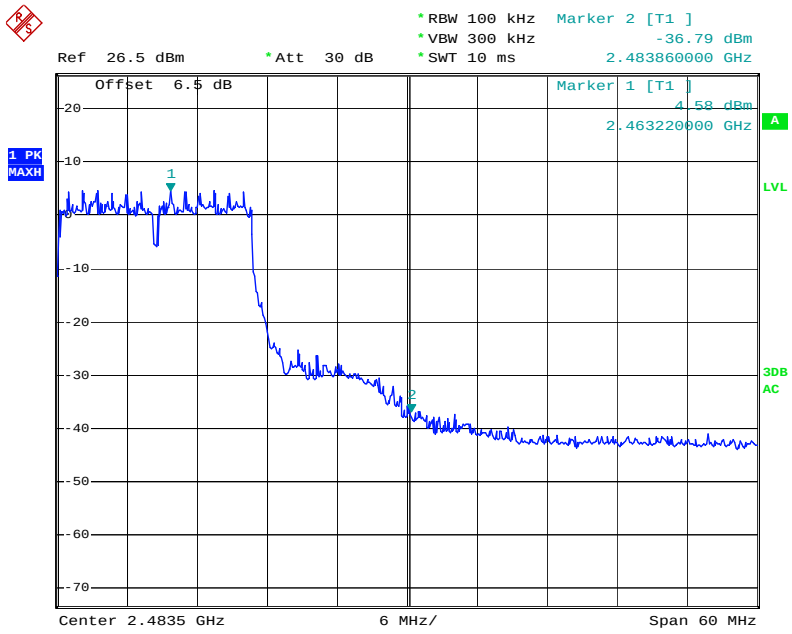
Date: 21.MAY.2011 10:35:30

802.11g: Band Edge, Left Side



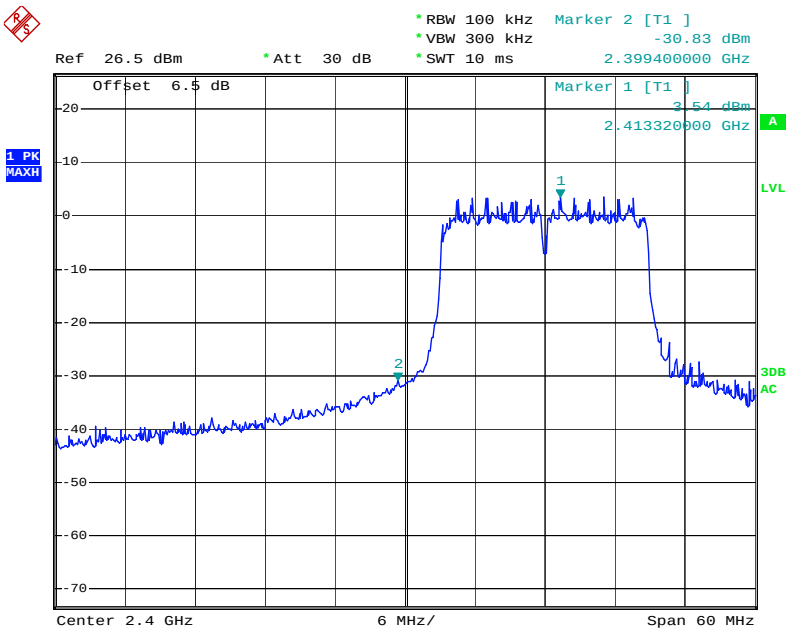
Date: 21.MAY.2011 10:43:04

802.11g: Band Edge, Right Side



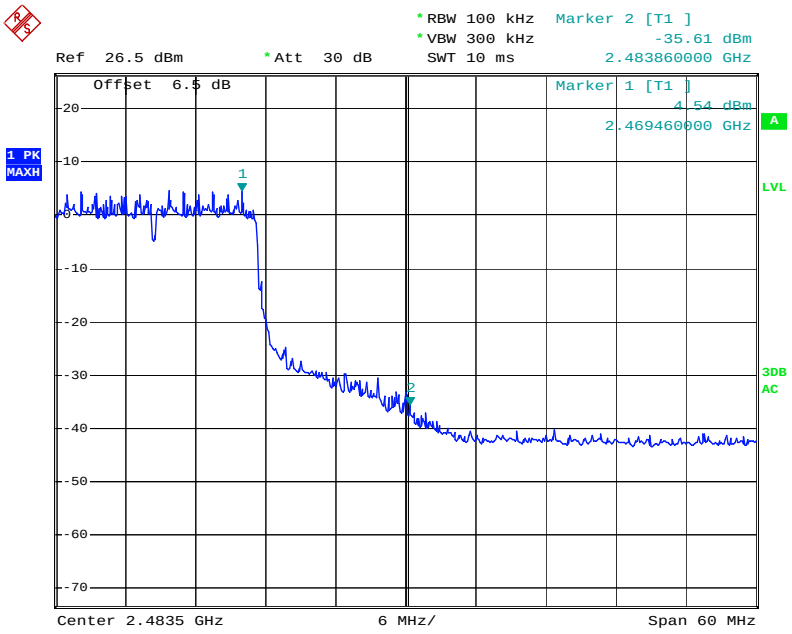
Date: 21.MAY.2011 10:47:21

802.11n20: Band Edge, Left Side



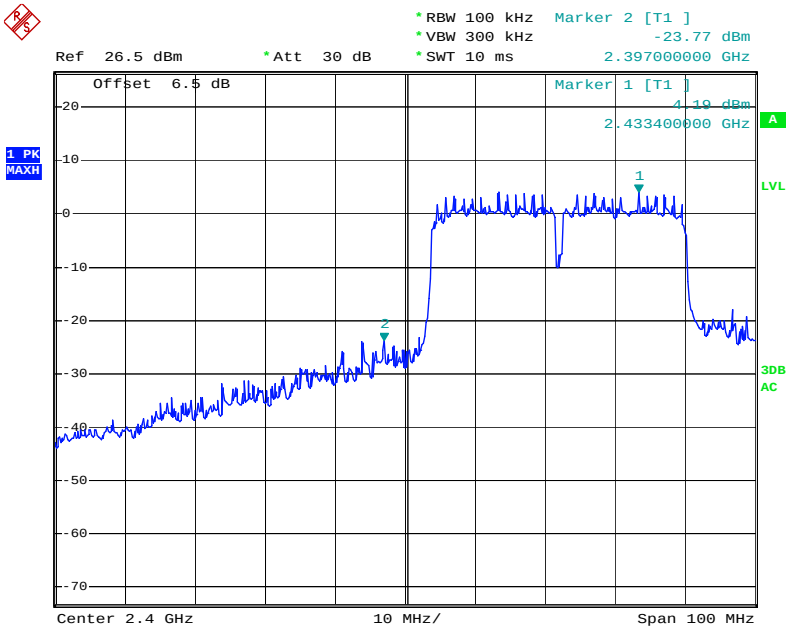
Date: 21.MAY.2011 10:50:26

802.11n20: Band Edge, Right Side



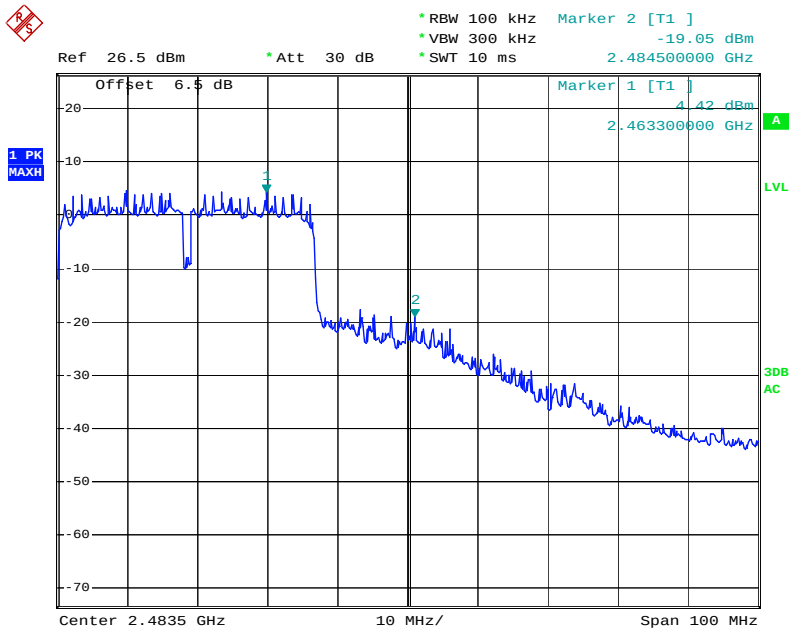
Date: 5.JUL.2011 23:33:40

802.11n40: Band Edge, Left Side



Date: 21.MAY.2011 14:49:14

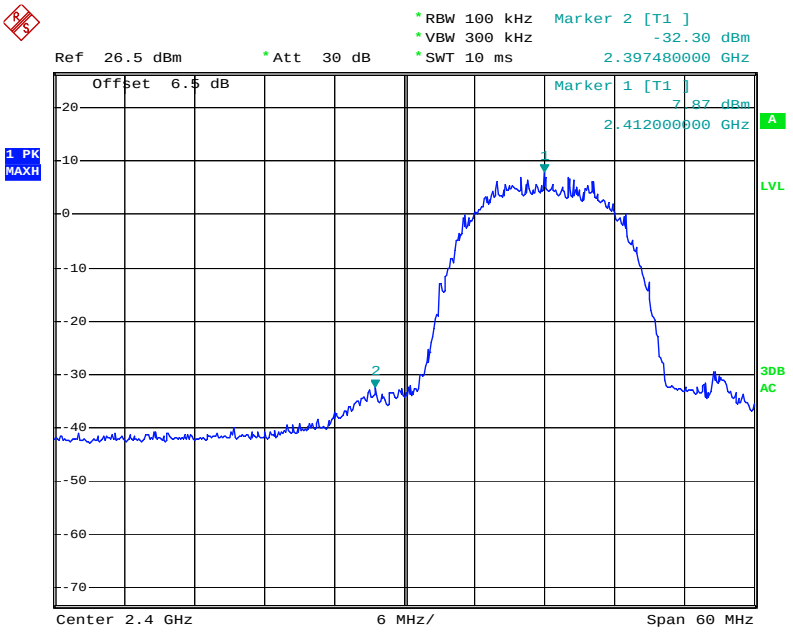
802.11n40: Band Edge, Right Side



Date: 21.MAY.2011 14:52:18

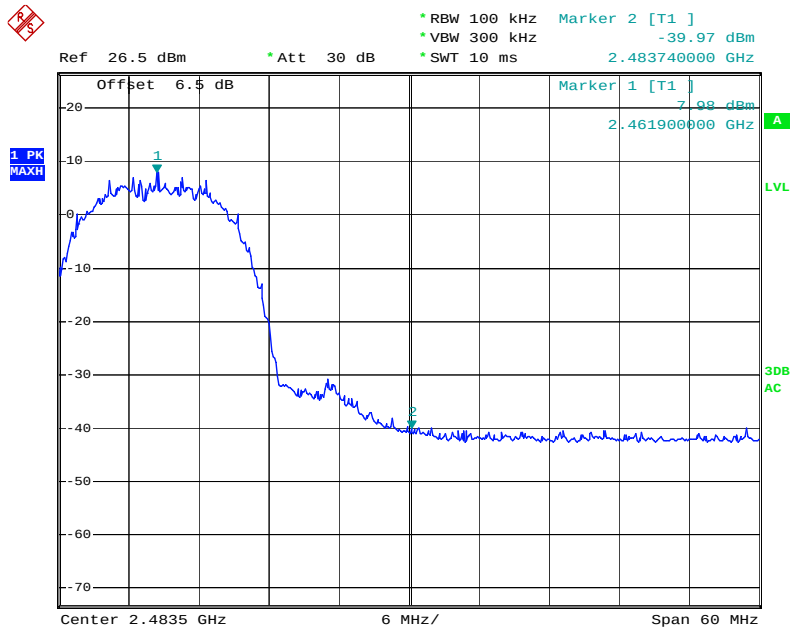
Chain 1:

802.11b: Band Edge, Left Side



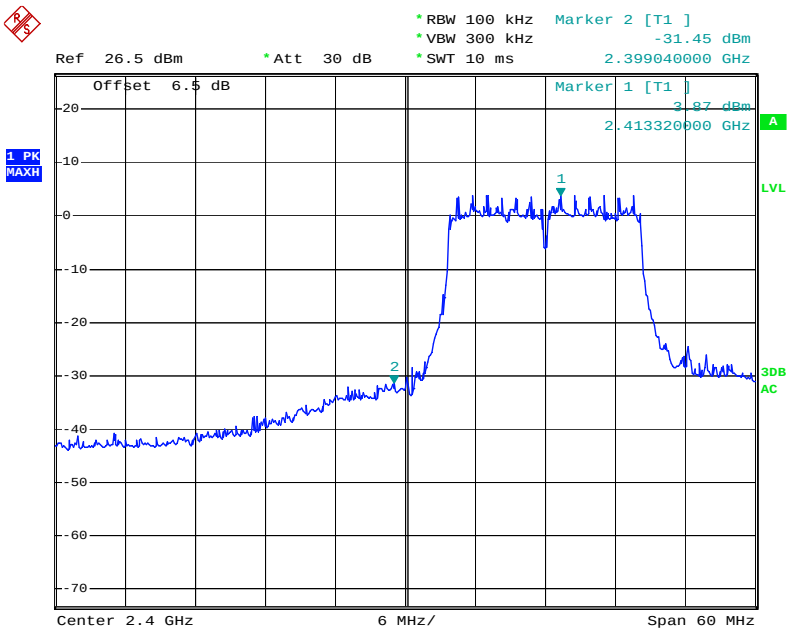
Date: 21.MAY.2011 10:22:01

802.11b: Band Edge, Right Side



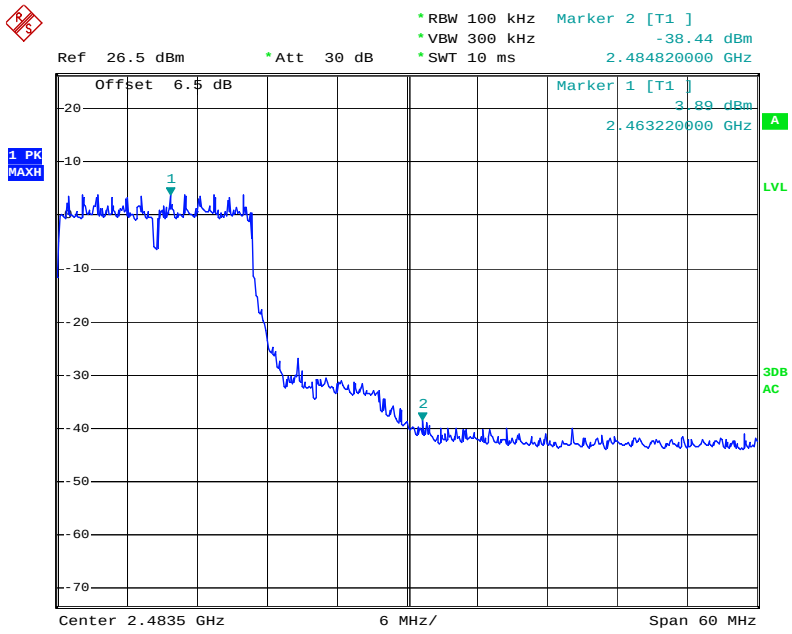
Date: 21.MAY.2011 10:33:25

802.11g: Band Edge, Left Side



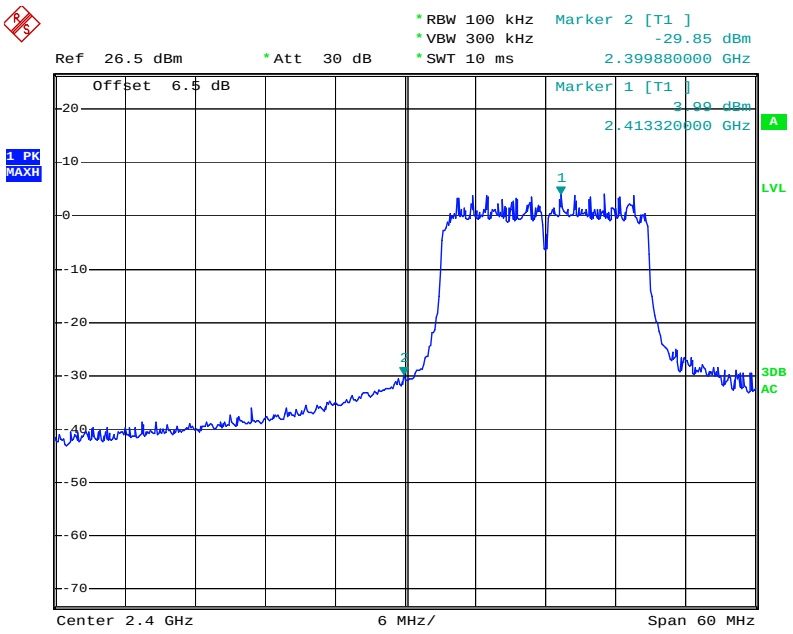
Date: 21.MAY.2011 10:40:53

802.11g: Band Edge, Right Side



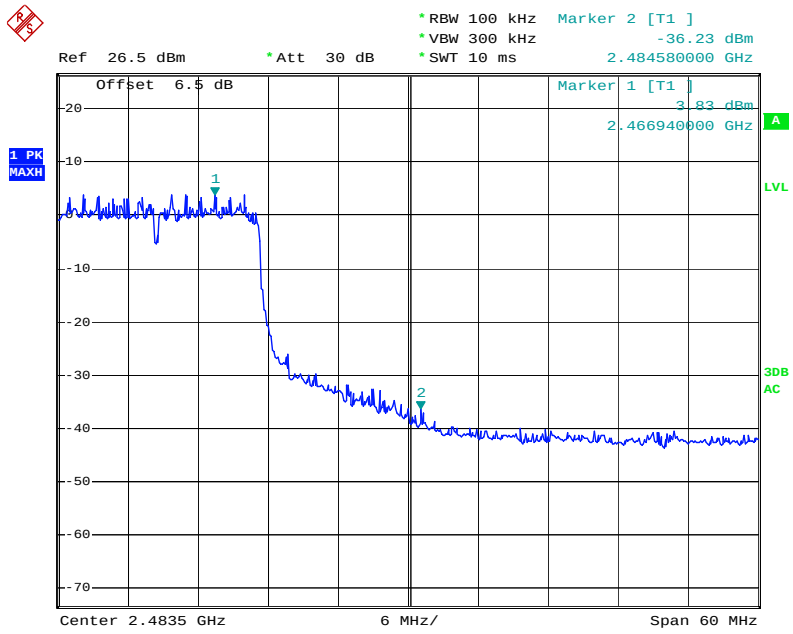
Date: 21.MAY.2011 10:45:50

802.11n20: Band Edge, Left Side



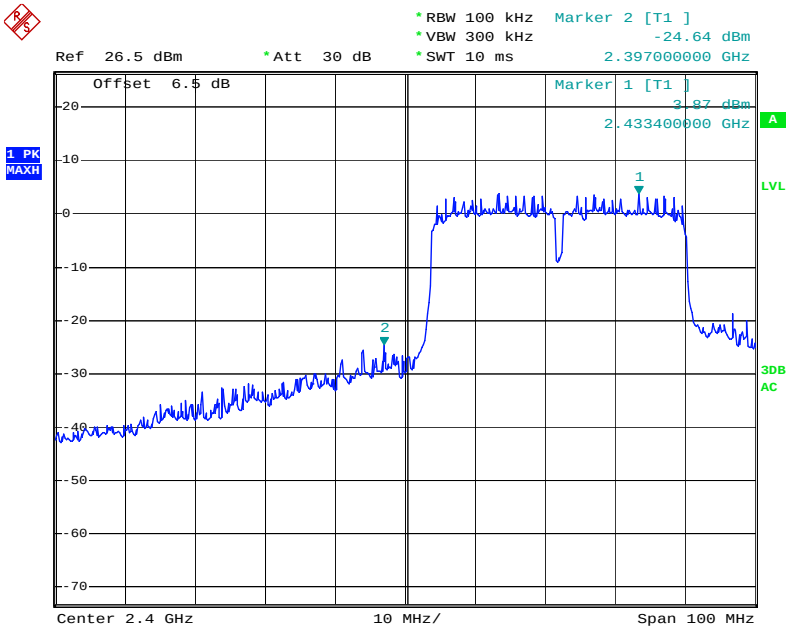
Date: 21.MAY.2011 10:49:52

802.11n20: Band Edge, Right Side



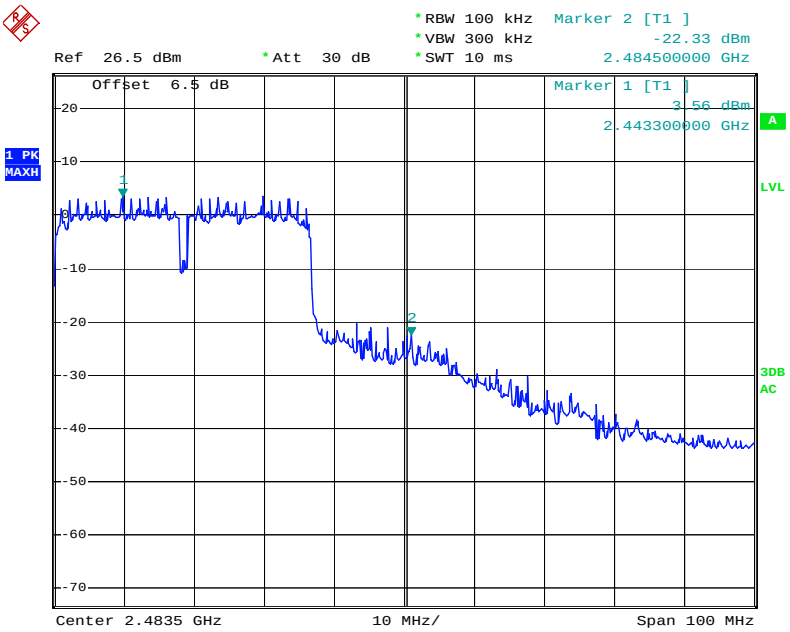
Date: 21.MAY.2011 10:53:35

802.11n40: Band Edge, Left Side



Date: 21.MAY.2011 14:48:29

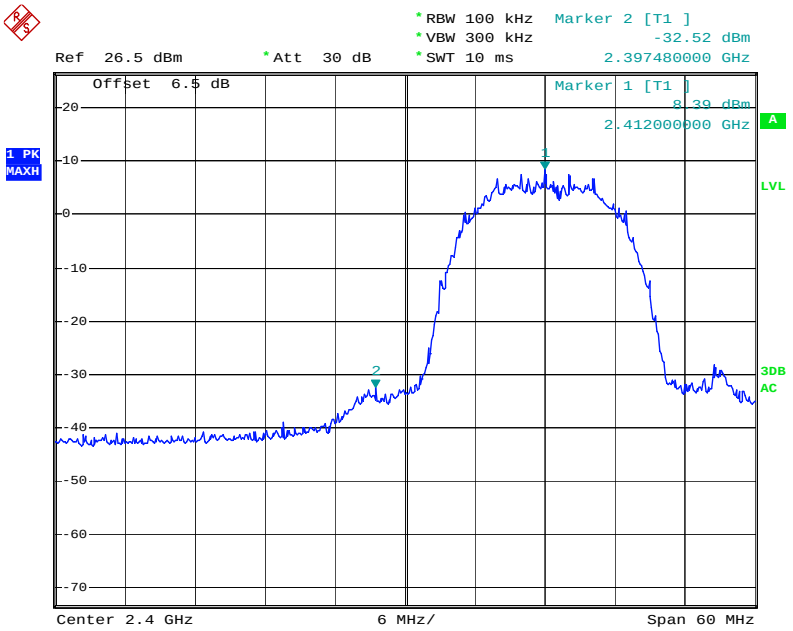
802.11n40: Band Edge, Right Side



Date: 21.MAY.2011 14:50:55

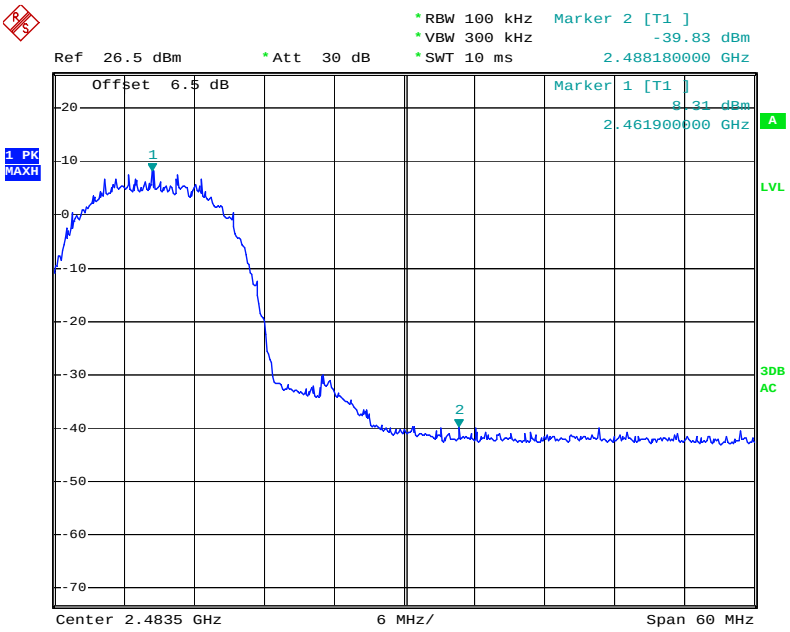
Chain 0 & Chain 1:

802.11b: Band Edge, Left Side



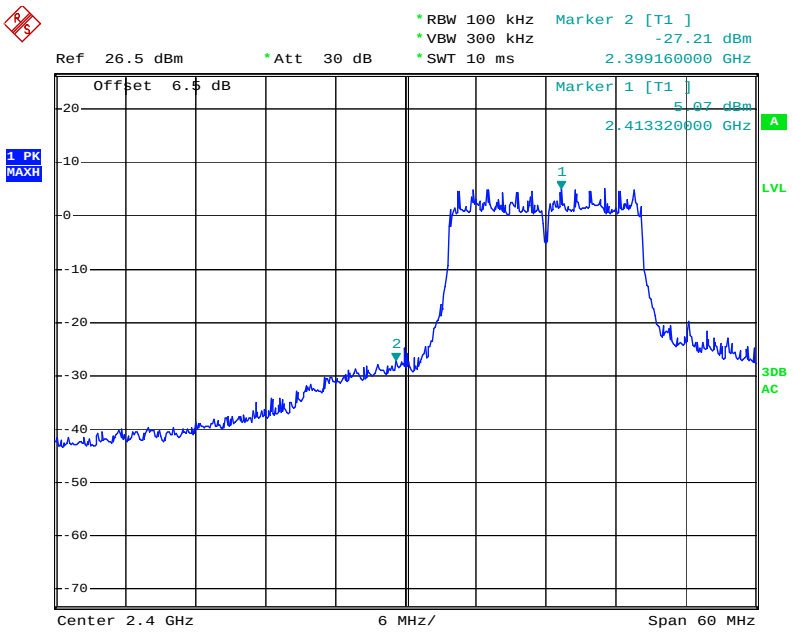
Date: 21.MAY.2011 10:25:47

802.11b: Band Edge, Right Side



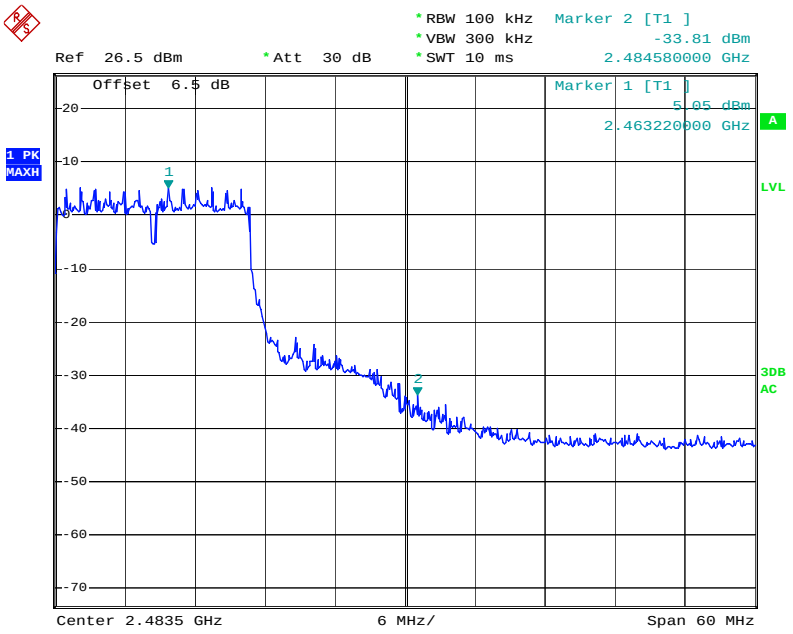
Date: 21.MAY.2011 10:38:57

802.11g: Band Edge, Left Side



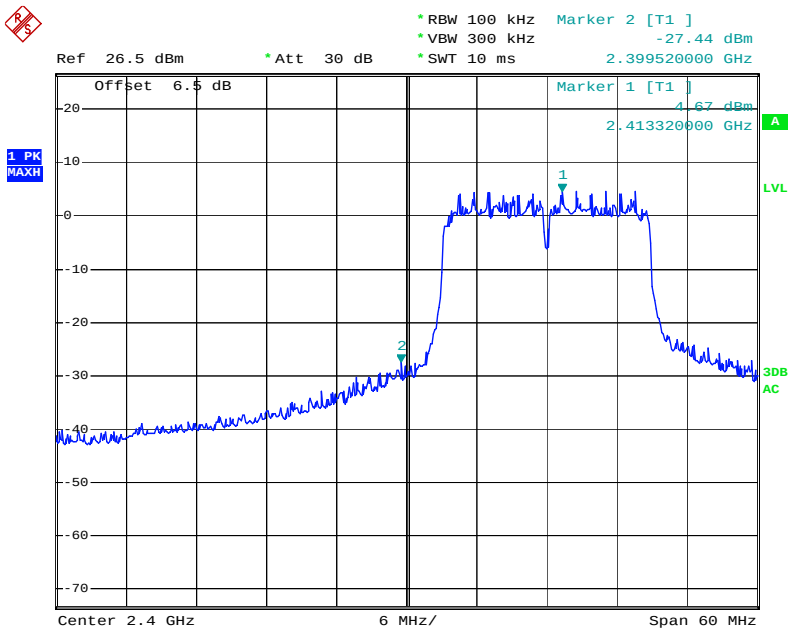
Date: 21.MAY.2011 10:44:29

802.11g: Band Edge, Right Side



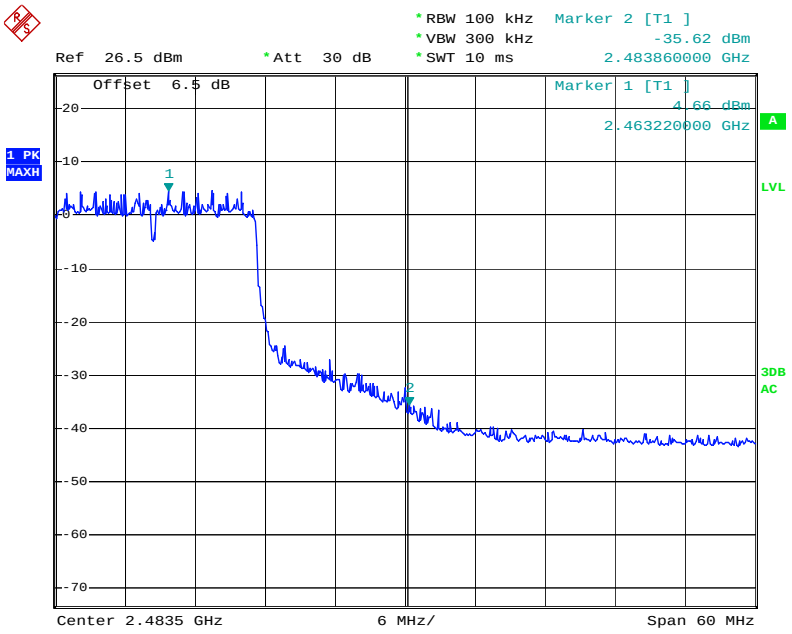
Date: 21.MAY.2011 10:48:21

802.11n20: Band Edge, Left Side



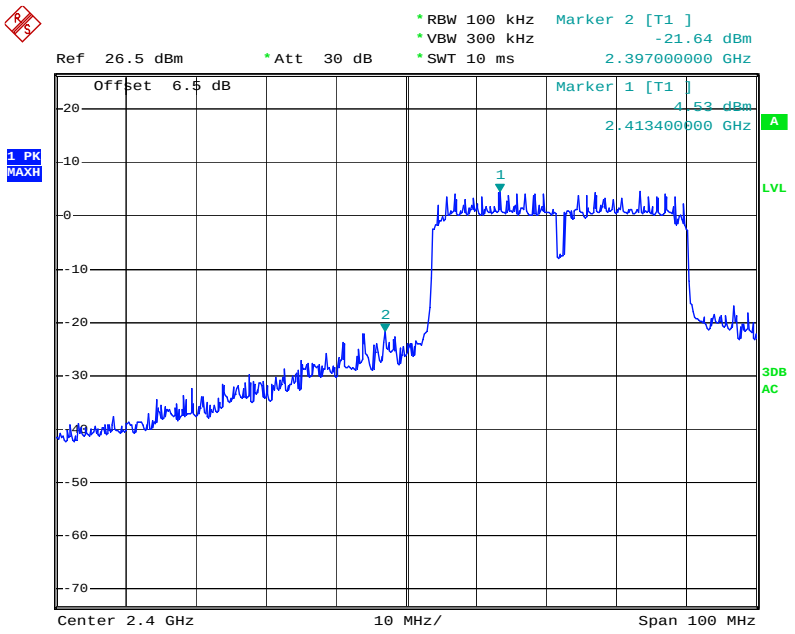
Date: 21.MAY.2011 10:51:03

802.11n20: Band Edge, Right Side



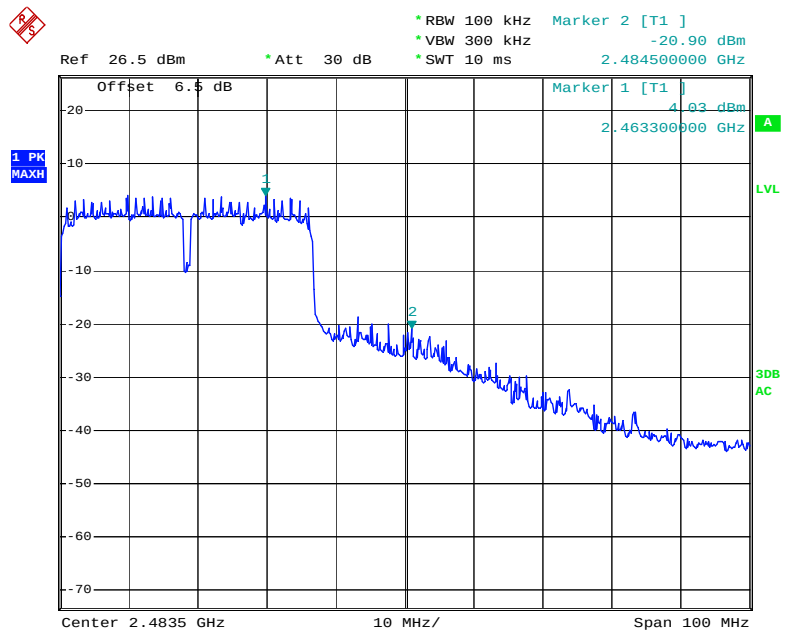
Date: 21.MAY.2011 10:58:02

802.11n40: Band Edge, Left Side



Date: 21.MAY.2011 14:49:56

802.11n40: Band Edge, Right Side



Date: 21.MAY.2011 14:51:40

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

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

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	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 Data

Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-05-16 to 2011-07-27.

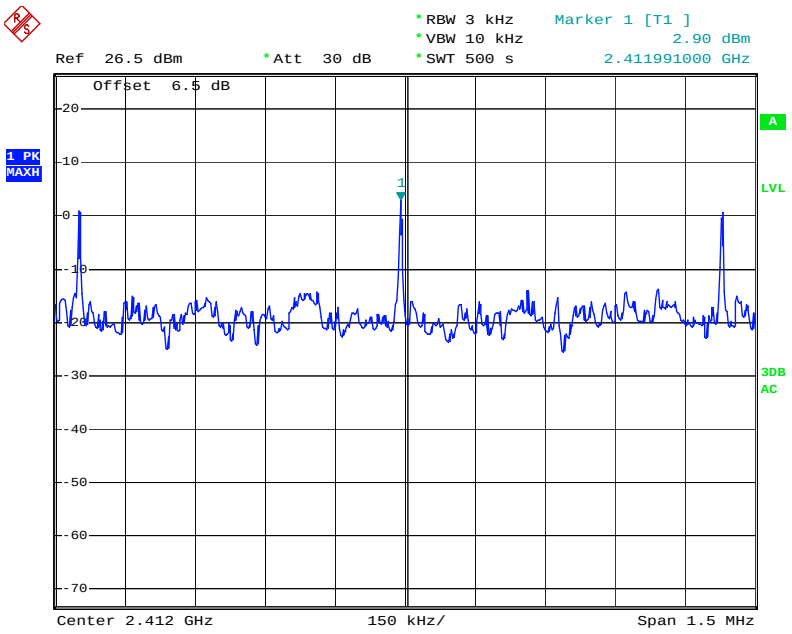
Test Mode: Transmitting

Test Result: Pass

Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Reading Power Spectral Density (dBm)	Calculated Power Spectral Density (dBm)	Limit (dBm)
802.11b mode						
Low	2412	11	Chain 0	2.90	/	8
Low	2412	11	Chain 1	5.37		
Middle	2437	11	Chain 0	2.74	/	8
Middle	2437	11	Chain 1	5.05		
High	2462	11	Chain 0	2.46	/	8
High	2462	11	Chain 1	5.05		
802.11g mode						
Low	2412	54	Chain 0	-12.10	/	8
Low	2412	54	Chain 1	-12.43		
Middle	2437	54	Chain 0	-12.00	/	8
Middle	2437	54	Chain 1	-12.83		
High	2462	54	Chain 0	-12.11	/	8
High	2462	54	Chain 1	-13.06		
802.11n20 mode						
Low	2412	65	Chain 0	-13.15	-9.98	8
Low	2412	65	Chain 1	-12.84		
Middle	2437	65	Chain 0	-13.53	-10.11	8
Middle	2437	65	Chain 1	-12.74		
High	2462	65	Chain 0	-13.79	-10.30	8
High	2462	65	Chain 1	-12.88		
802.11n40 mode						
Low	2422	65	Chain 0	-16.84	-13.90	8
Low	2422	65	Chain 1	-16.99		
Middle	2437	65	Chain 0	-15.89	-13.44	8
Middle	2437	65	Chain 1	-17.09		
High	2452	65	Chain 0	-16.11	-13.58	8
High	2452	65	Chain 1	-17.14		

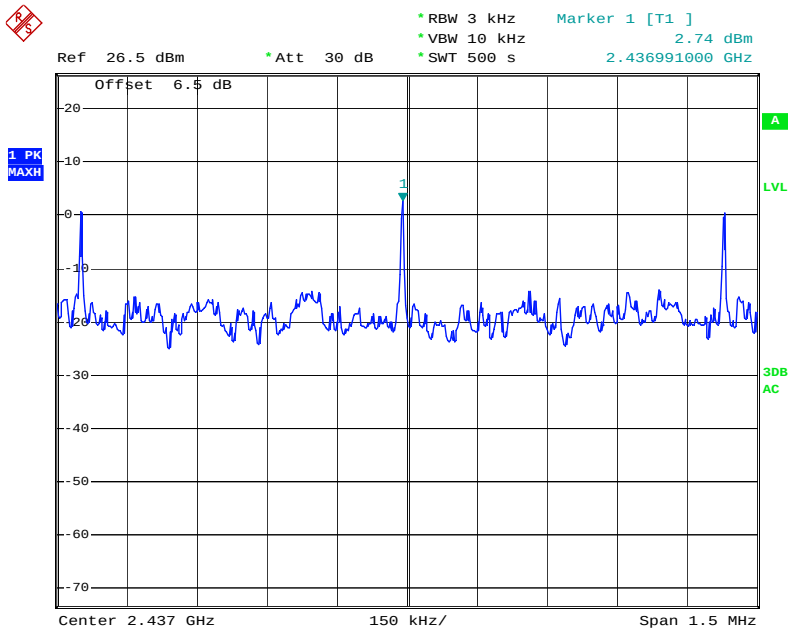
Chain 0:

Power Spectral Density, 802.11b Low Channel



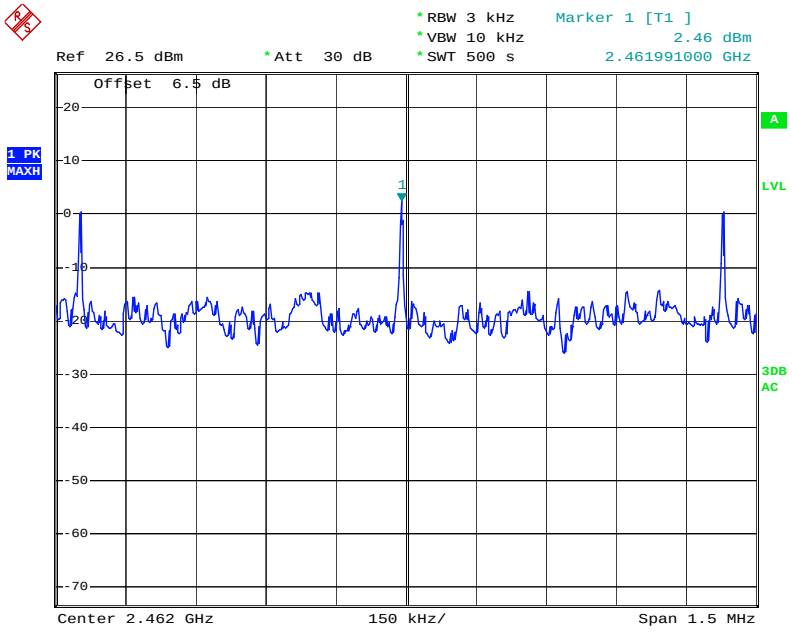
Date: 5.JUL.2011 23:49:44

Power Spectral Density, 802.11b Middle Channel



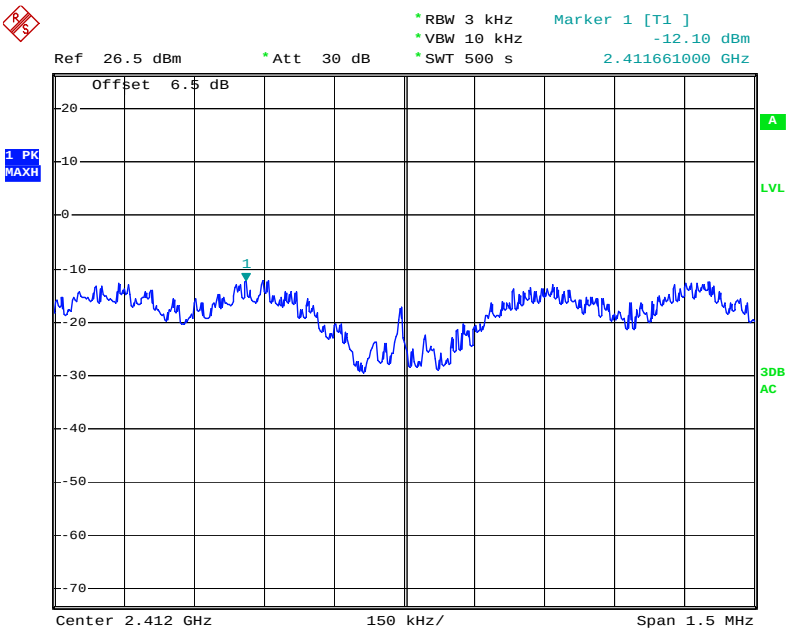
Date: 6.JUL.2011 00:00:11

Power Spectral Density, 802.11b High Channel



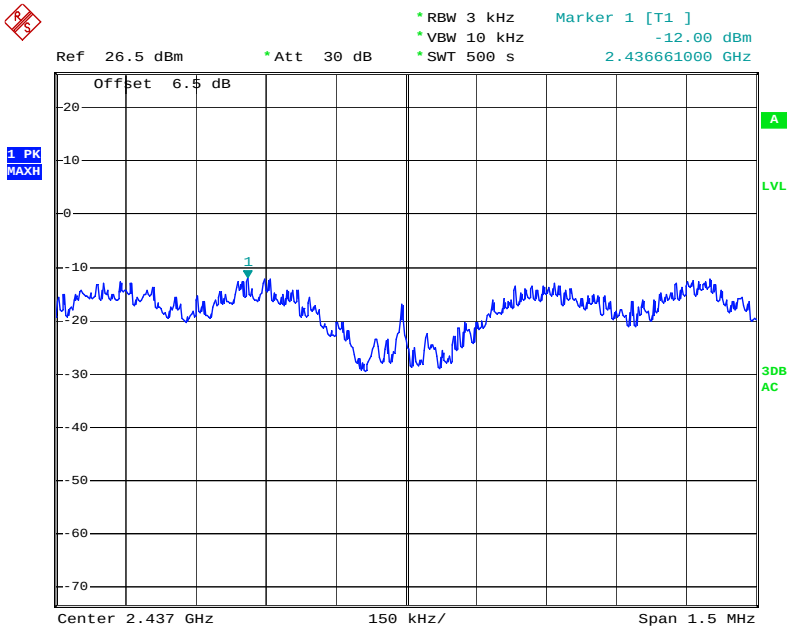
Date: 6.JUL.2011 00:12:21

Power Spectral Density, 802.11g Low Channel



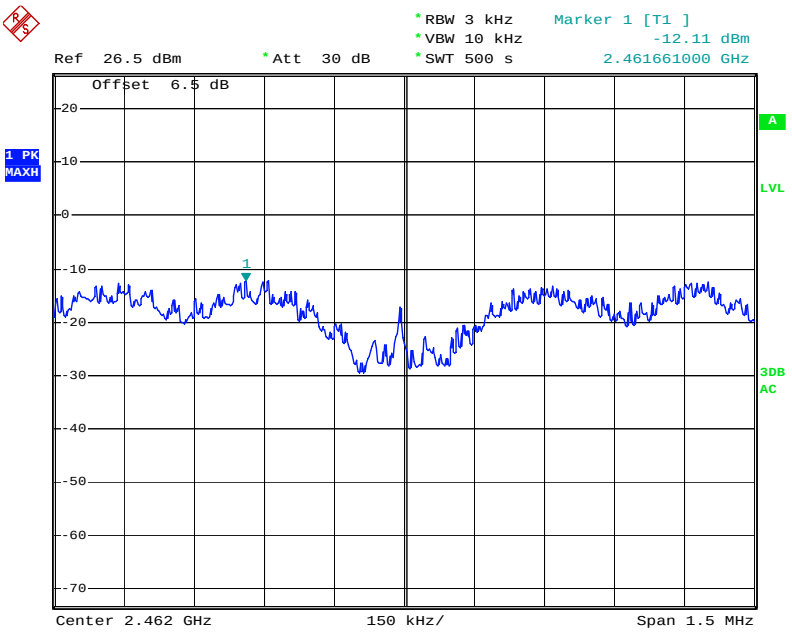
Date: 20.MAY.2011 22:55:09

Power Spectral Density, 802.11g Middle Channel



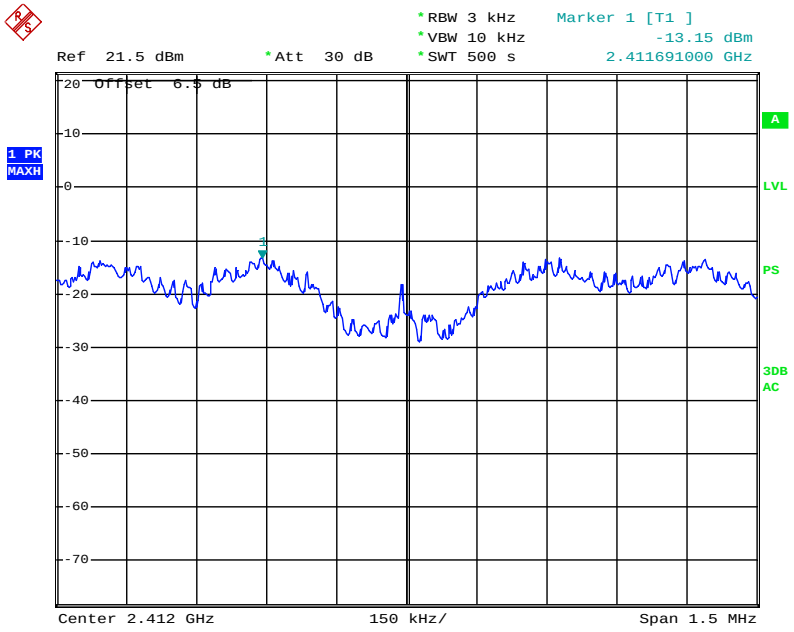
Date: 20.MAY.2011 23:04:41

Power Spectral Density, 802.11g High Channel



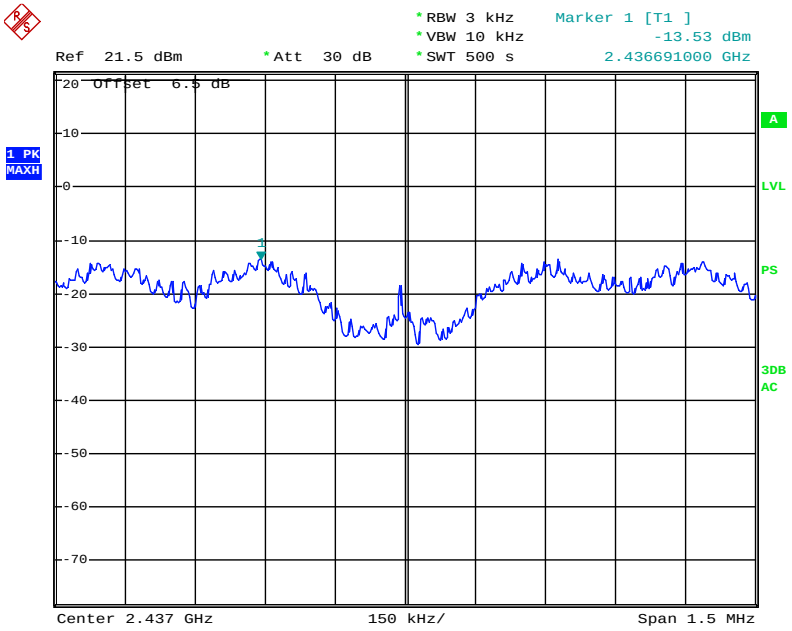
Date: 20.MAY.2011 23:15:11

Power Spectral Density, 802.11n20 Low Channel



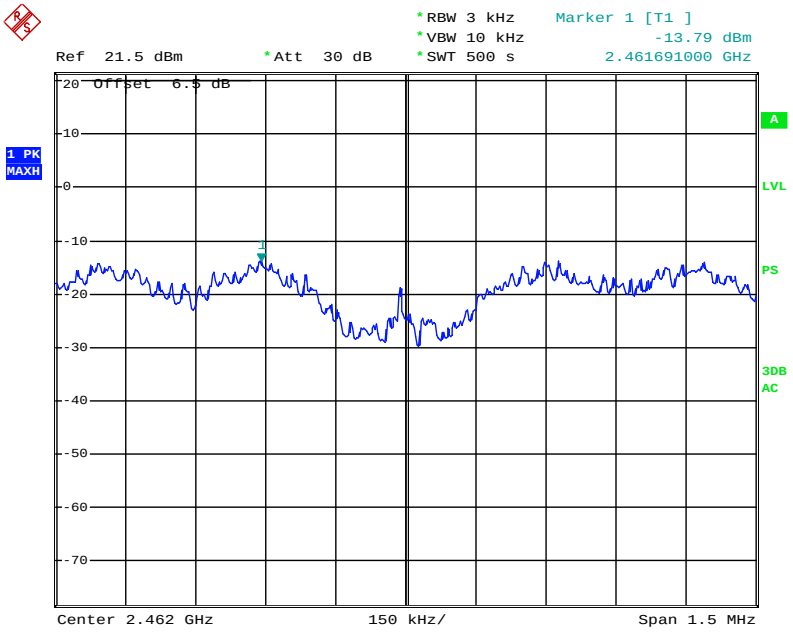
Date: 27.JUL.2011 23:13:29

Power Spectral Density, 802.11n20 Middle Channel



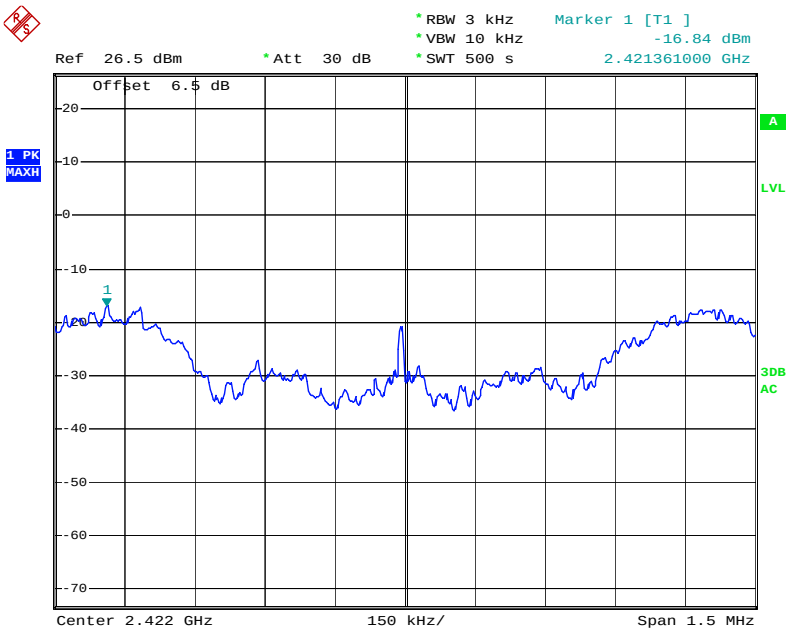
Date: 27.JUL.2011 23:22:45

Power Spectral Density, 802.11n20 High Channel



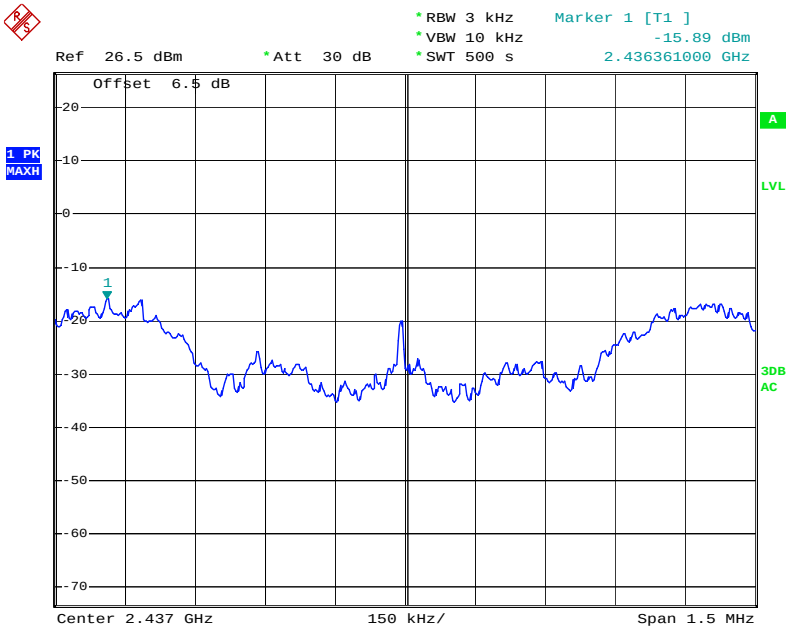
Date: 27.JUL.2011 23:32:20

Power Spectral Density, 802.11n40 Low Channel



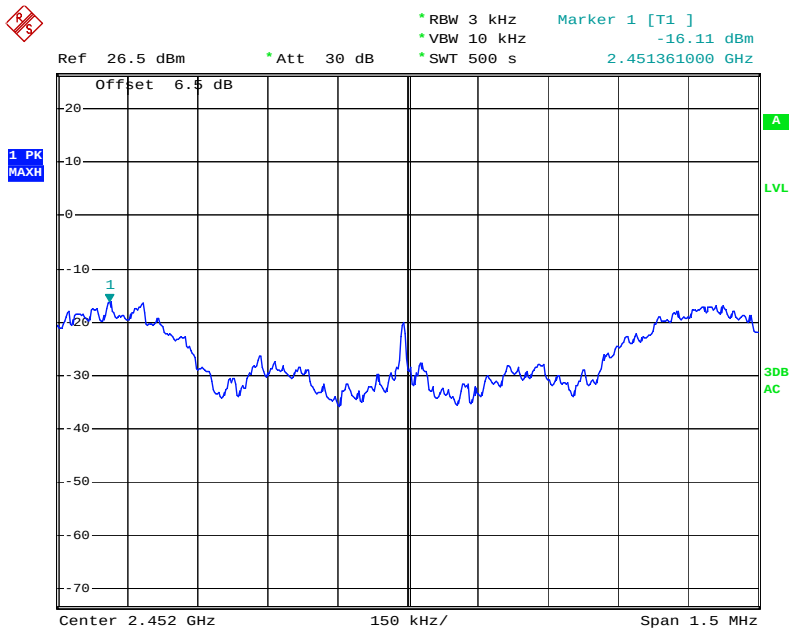
Date: 20.MAY.2011 23:53:24

Power Spectral Density, 802.11n40 Middle Channel



Date: 21.MAY.2011 09:10:34

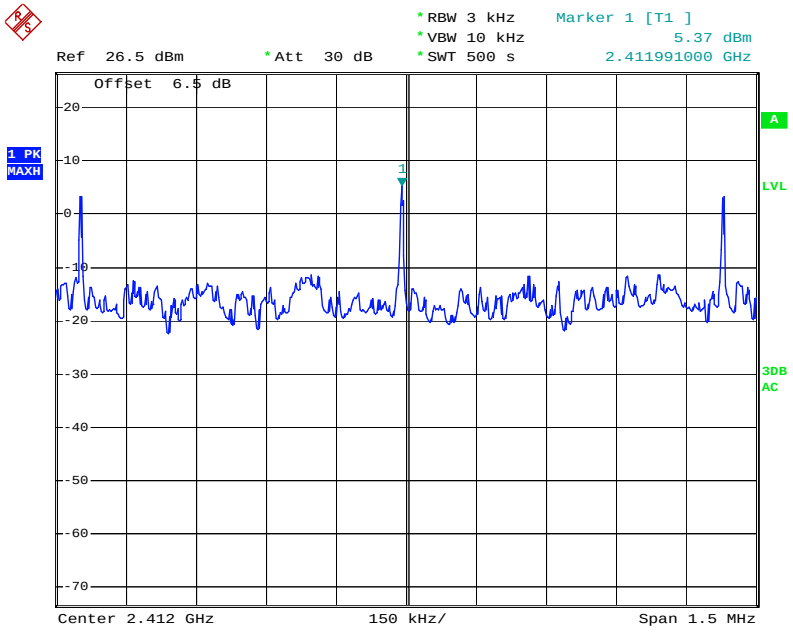
Power Spectral Density, 802.11n40 High Channel



Date: 21.MAY.2011 09:20:11

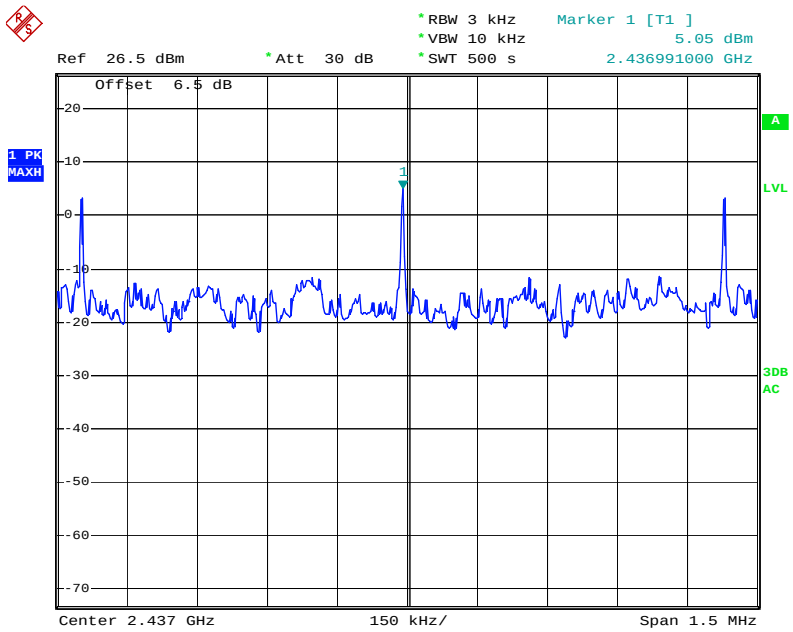
Chain 1:

Power Spectral Density, 802.11b Low Channel



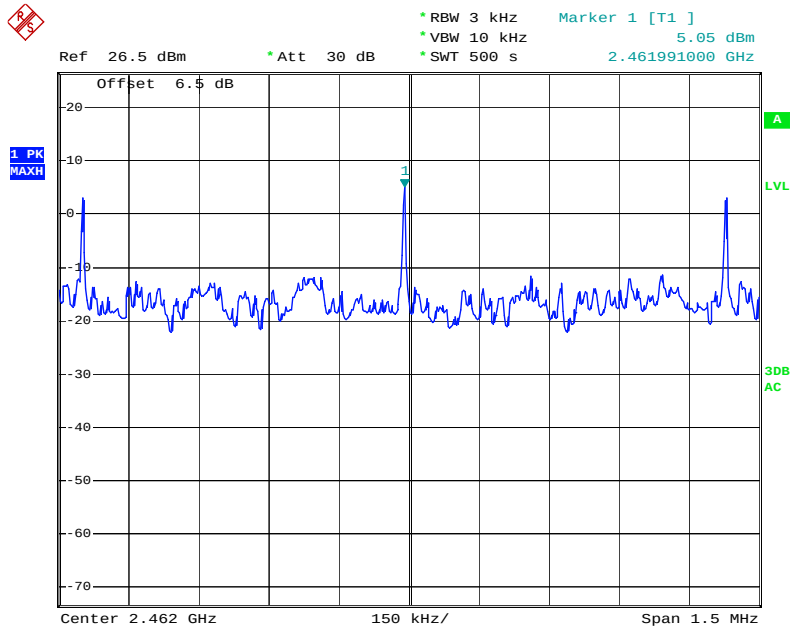
Date: 16.MAY.2011 21:19:06

Power Spectral Density, 802.11b Middle Channel



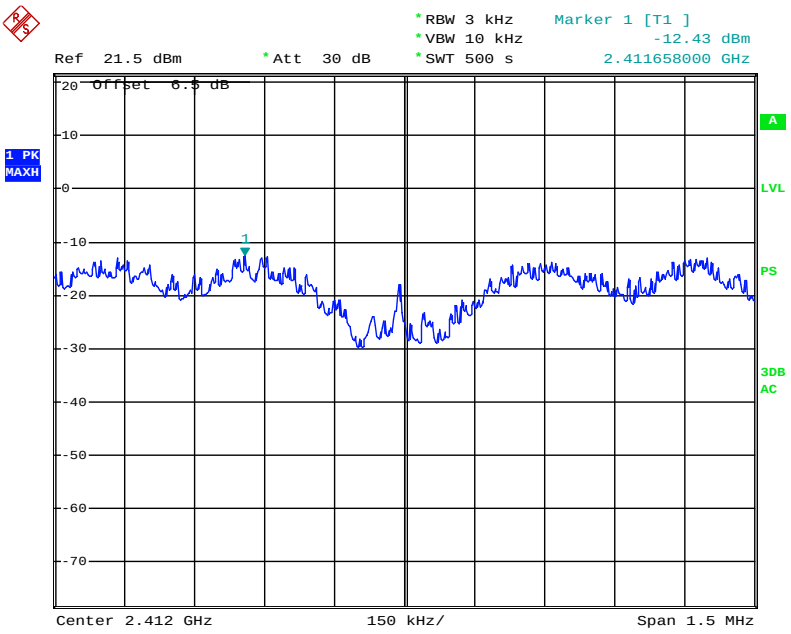
Date: 16.MAY.2011 21:07:01

Power Spectral Density, 802.11b High Channel



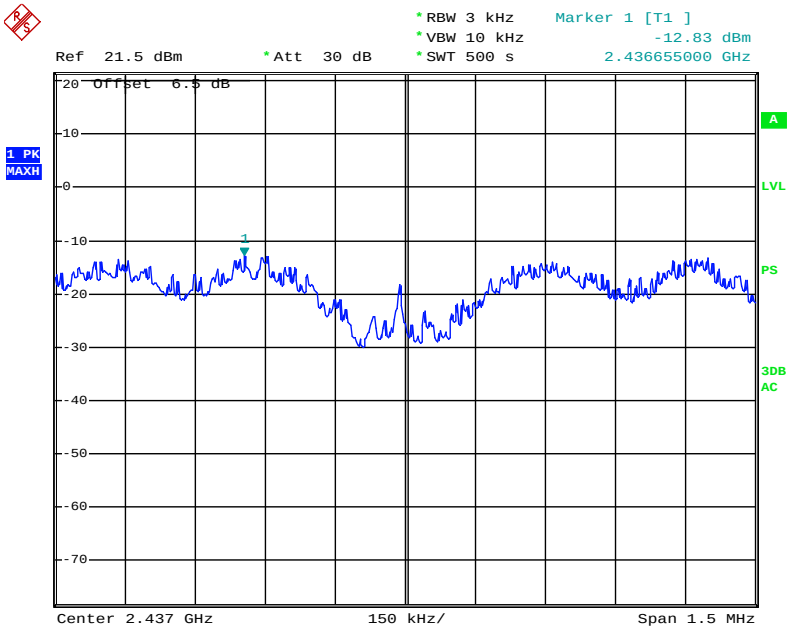
Date: 16.MAY.2011 20:57:46

Power Spectral Density, 802.11g Low Channel



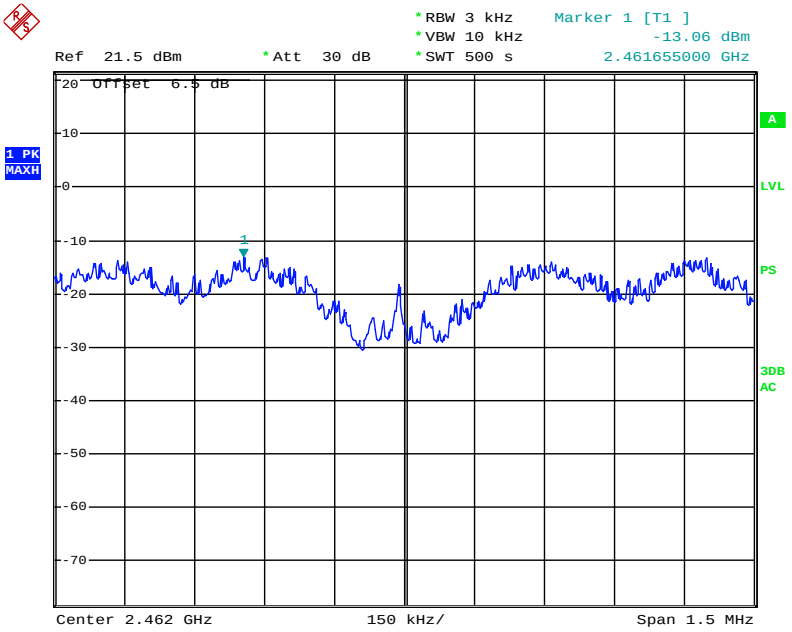
Date: 27.JUL.2011 23:42:08

Power Spectral Density, 802.11g Middle Channel



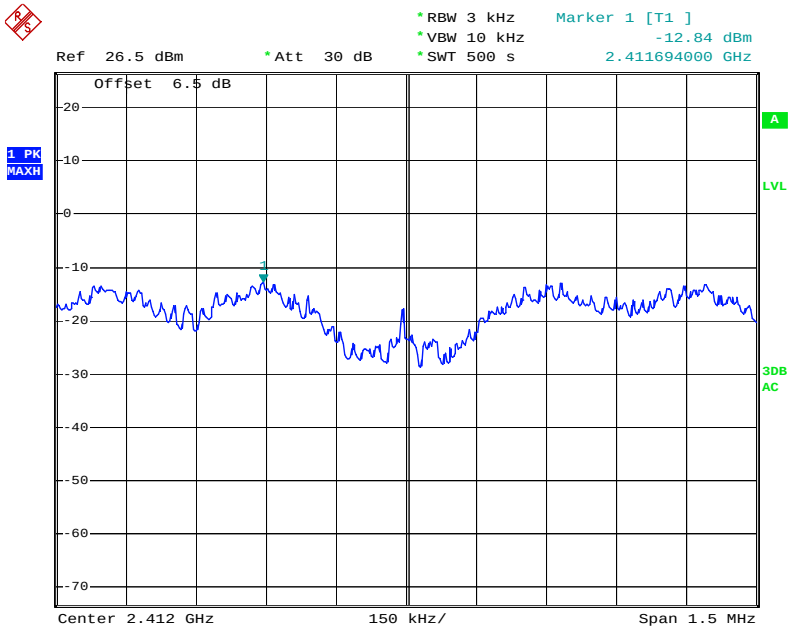
Date: 27.JUL.2011 23:54:59

Power Spectral Density, 802.11g High Channel



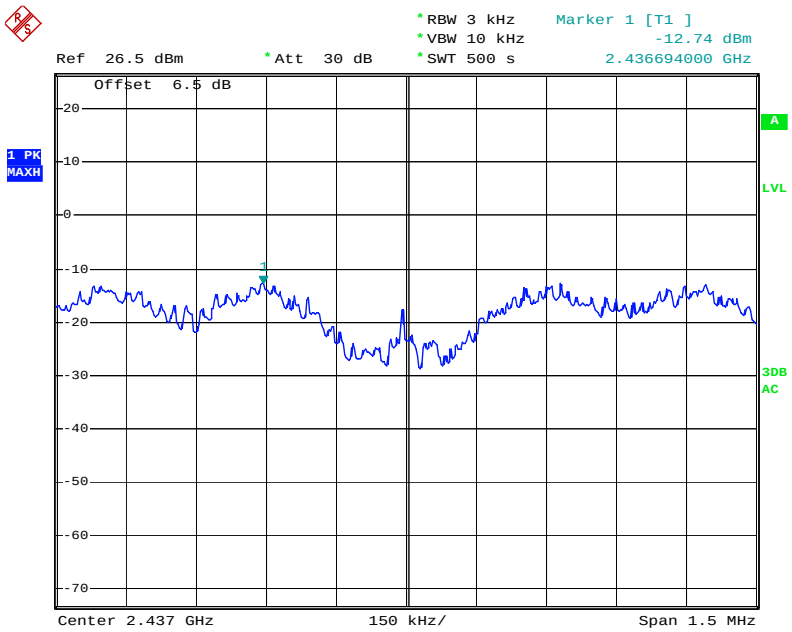
Date: 28.JUL.2011 00:04:37

Power Spectral Density, 802.11n20 Low Channel



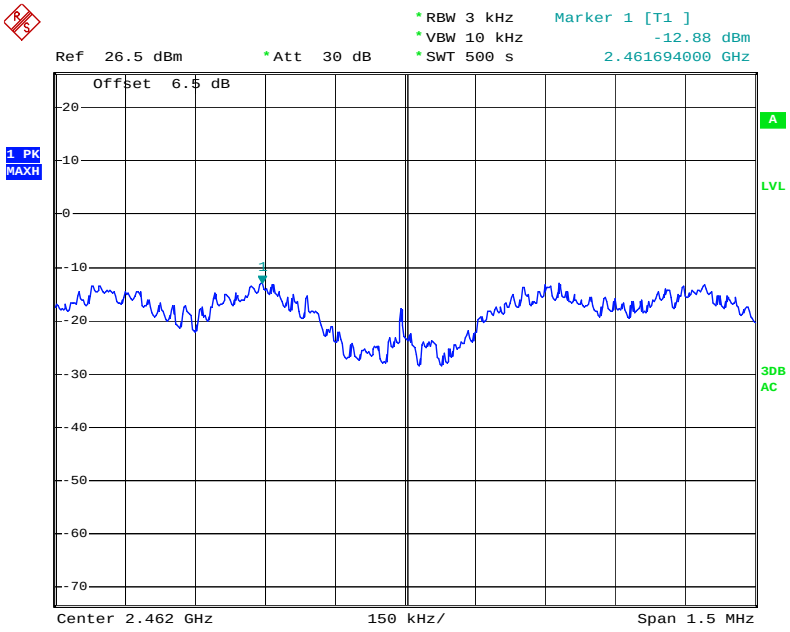
Date: 20.MAY.2011 23:43:30

Power Spectral Density, 802.11n20 Middle Channel



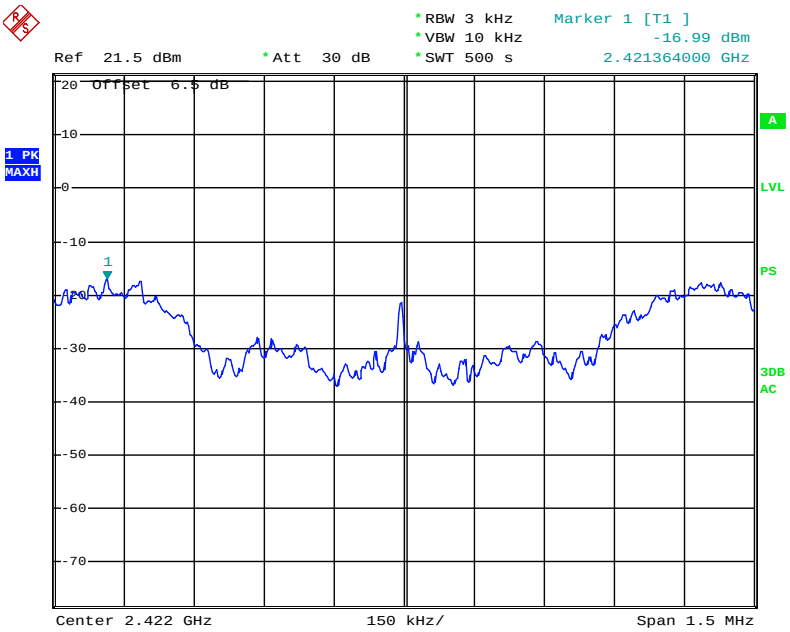
Date: 20.MAY.2011 23:33:54

Power Spectral Density, 802.11n20 High Channel



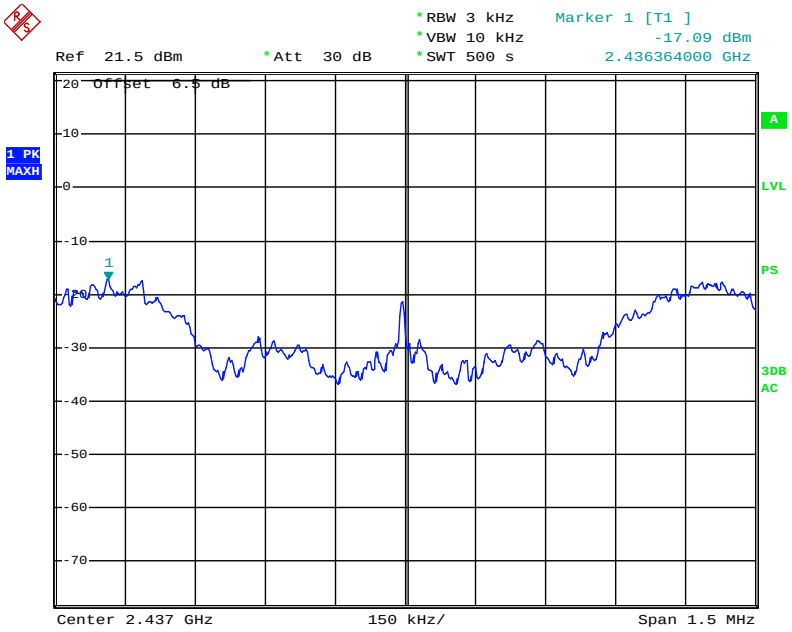
Date: 20.MAY.2011 23:24:18

Power Spectral Density, 802.11n40 Low Channel



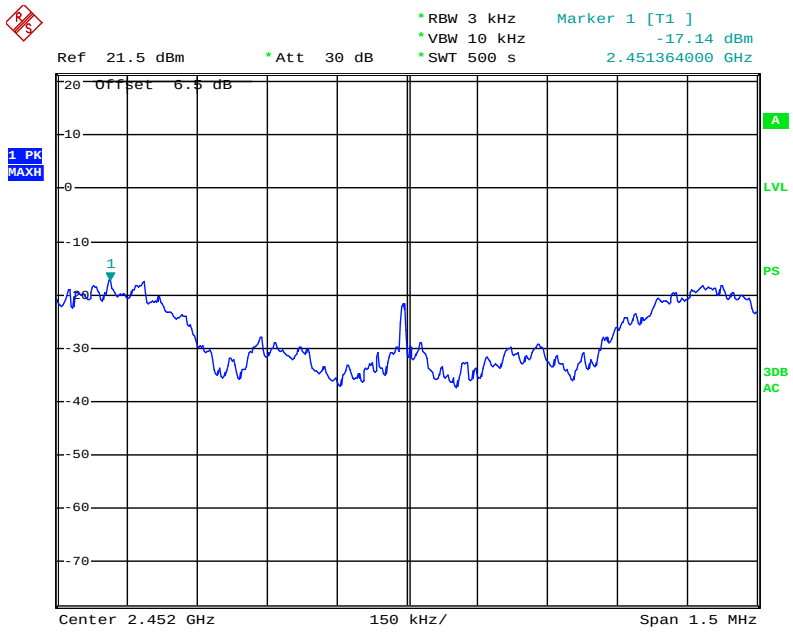
Date: 27.JUL.2011 22:08:30

Power Spectral Density, 802.11n40 Middle Channel



Date: 27.JUL.2011 22:32:06

Power Spectral Density, 802.11n40 High Channel



Date: 27.JUL.2011 23:03:53

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