

FCC PART 15.247

TEST REPORT

For

ZTE Corporation

ZTE Plaza, Hi-Tech, Industrial Park, Nanshan District,
Shenzhen, Guangdong, China

FCC ID: Q78-ZXHNH108NV31

Report Type: Original Report	Product Type: Home Gateway
Test Engineer: Jimmy Xiao	<i>Jimmy Xiao</i>
Report Number: RSZ111219005-00-15.247	
Report Date: 2012-01-11	
Reviewed By: Alvin Huang EMC Engineer	<i>Alvin Huang</i>
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	

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

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

TABLE OF CONTENTS

GENERAL INFORMATION.....4

 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)4

 OBJECTIVE4

 RELATED SUBMITTAL(S)/GRANT(S).....4

 TEST METHODOLOGY4

 TEST FACILITY4

SYSTEM TEST CONFIGURATION.....6

 DESCRIPTION OF TEST CONFIGURATION6

 EUT EXERCISE SOFTWARE6

 EQUIPMENT MODIFICATIONS6

 REMOTE SUPPORT EQUIPMENT LIST AND DETAILS6

 EXTERNAL I/O CABLE.....6

 CONFIGURATION OF TEST SETUP7

 BLOCK DIAGRAM OF TEST SETUP7

SUMMARY OF TEST RESULTS8

FCC §15.247 (i) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE).....9

 APPLICABLE STANDARD9

FCC §15.203 - ANTENNA REQUIREMENT.....10

 APPLICABLE STANDARD10

 ANTENNA CONNECTOR CONSTRUCTION10

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS11

 APPLICABLE STANDARD11

 MEASUREMENT UNCERTAINTY11

 EUT SETUP11

 EMI TEST RECEIVER SETUP.....12

 TEST PROCEDURE12

 TEST EQUIPMENT LIST AND DETAILS.....12

 TEST RESULTS SUMMARY12

 TEST DATA12

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS.....15

 APPLICABLE STANDARD15

 MEASUREMENT UNCERTAINTY15

 EUT SETUP15

 EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP16

 TEST PROCEDURE16

 CORRECTED AMPLITUDE & MARGIN CALCULATION16

 TEST EQUIPMENT LIST AND DETAILS.....17

 TEST RESULTS SUMMARY17

 TEST DATA17

FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH.....36

 APPLICABLE STANDARD36

 TEST PROCEDURE36

 TEST EQUIPMENT LIST AND DETAILS.....36

 TEST DATA36

FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER50
 APPLICABLE STANDARD50
 TEST PROCEDURE50
 TEST EQUIPMENT LIST AND DETAILS.....50
 TEST DATA50

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE.....76
 APPLICABLE STANDARD76
 TEST PROCEDURE76
 TEST EQUIPMENT LIST AND DETAILS.....76
 TEST DATA76

FCC §15.247(e) - POWER SPECTRAL DENSITY86
 APPLICABLE STANDARD86
 TEST PROCEDURE86
 TEST EQUIPMENT LIST AND DETAILS.....86
 TEST DATA86

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ZTE Corporation's* product, model number: *ZXHN H108N (FCC ID: Q78-ZXHNH108NV31)* (the "EUT") in this report is a *Home Gateway*, which was measured approximately: 14.5 cm (L) x 5.4 cm (W) x 12.4 cm (H), rated input voltage: DC 12.0V adapter.

Adapter information:

Model: RD1201000-C55-2MG

Input: 100-240V~50/60 Hz, 0.6A MAX

Output: DC 12V 1.0A

** All measurement and test data in this report was gathered from production sample serial number: DRJCBB100114. The EUT was received on 2011-12-19.*

Objective

This report is prepared on behalf of *ZTE Corporation* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submission with FCC ID: Q78-ZXHNH108NV31.

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 802.11g and 802.11n-HT20 mode, 11 channels are provided to testing, for 802.11n-HT40 mode, 7 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 & 802.11n-HT20 mode were tested with Channel 1, 6 and 11. 802.11n-HT40 mode was tested with channel 3, 6 and 9.

When EUT working normally, 802.11b mode just transmit at antenna 0(Chain 0), 802.11g mode can transmit at antenna 0(Chain 0) and antenna 1(Chain 1) individually, 802.11n (HT20&HT40) mode can transmit at antenna 0(Chain 0) and antenna 1(Chain 1) simultaneously.

The test was performed under:

802.11b: Data rate: 1 Mbps.

802.11g: Data rate: 6 Mbps.

802.11n-HT20: Data rate: 6.5Mbps

802.11n-HT40: Data rate: 13.5Mbps

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

EUT Exercise Software

Not Applicable.

Equipment Modifications

No modification was made to the unit tested.

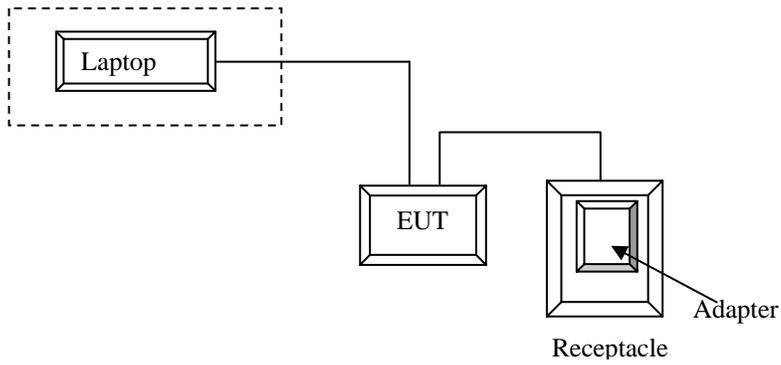
Remote Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	D600	00045-438-852-864

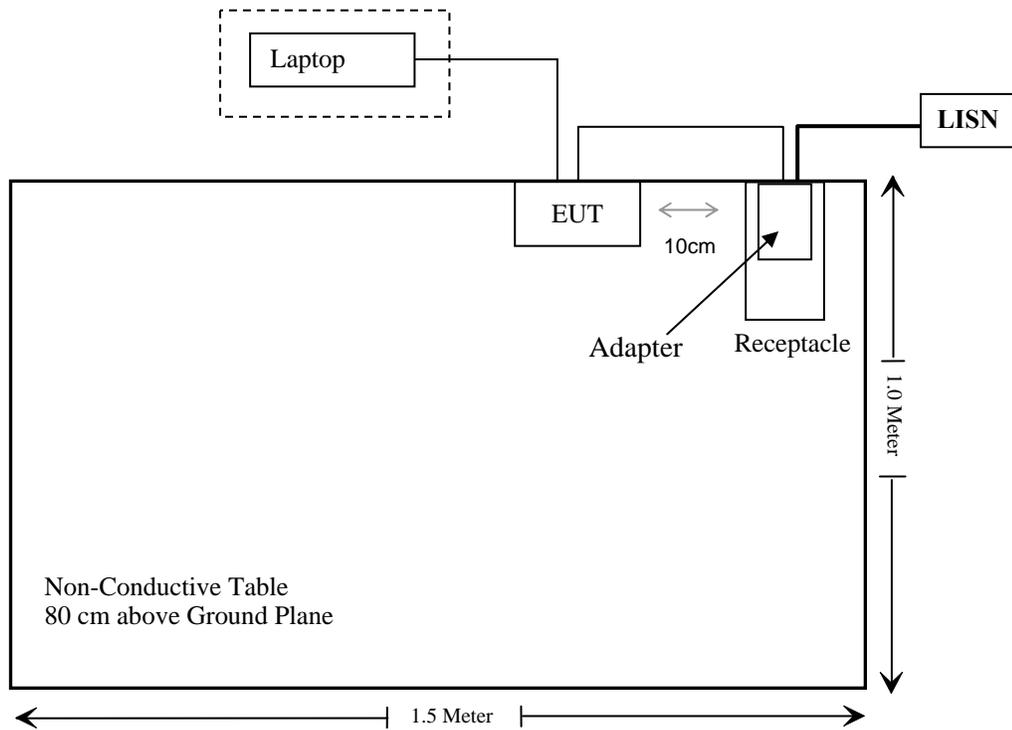
External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Undetectable Power Cable	1.5	EUT	AC Power

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1091	Maximum Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB 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 subpart §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

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

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	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);

Mode	Frequency (MHz)	Antenna Port	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
			(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412	1	3	2.0	17.84	60.81	20	0.024	1.0
802.11g	2412	0	3	2.0	16.55	45.19	20	0.018	1.0
802.11n-HT20	2437	0 & 1	3	2.0	18.63	72.95	20	0.029	1.0
802.11n-HT40	2452	0 & 1	3	2.0	18.38	68.87	20	0.027	1.0

Result: Compliance

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 two DIP fixed antennas, which in accordance to section 15.203, the maximum gain is 3.0 dBi; please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

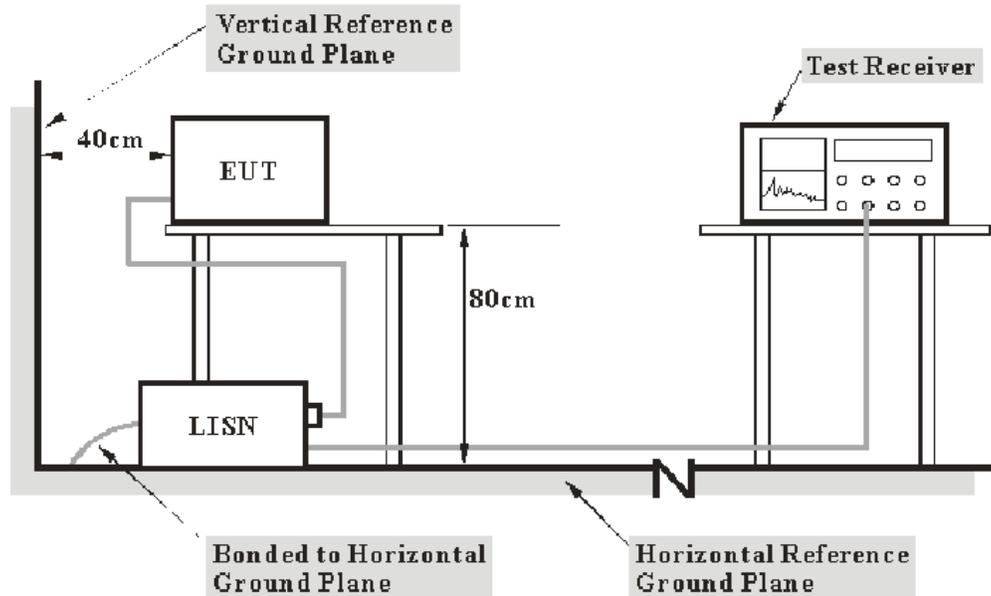
FCC§15.207

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 CISPR 16-4-4, 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 adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

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

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

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

Test Procedure

During the conducted emission test, the adapter was 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
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2011-07-08	2012-07-07

* **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:

13.96 dB at 0.450 MHz in the Neutral conducted mode

Test Data

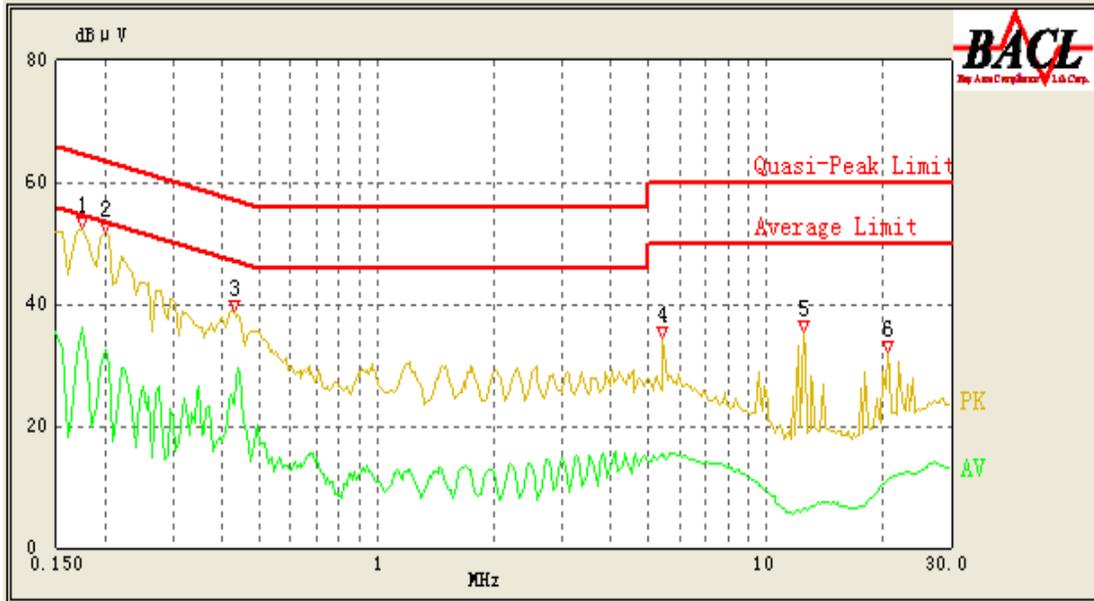
Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2012-01-06.

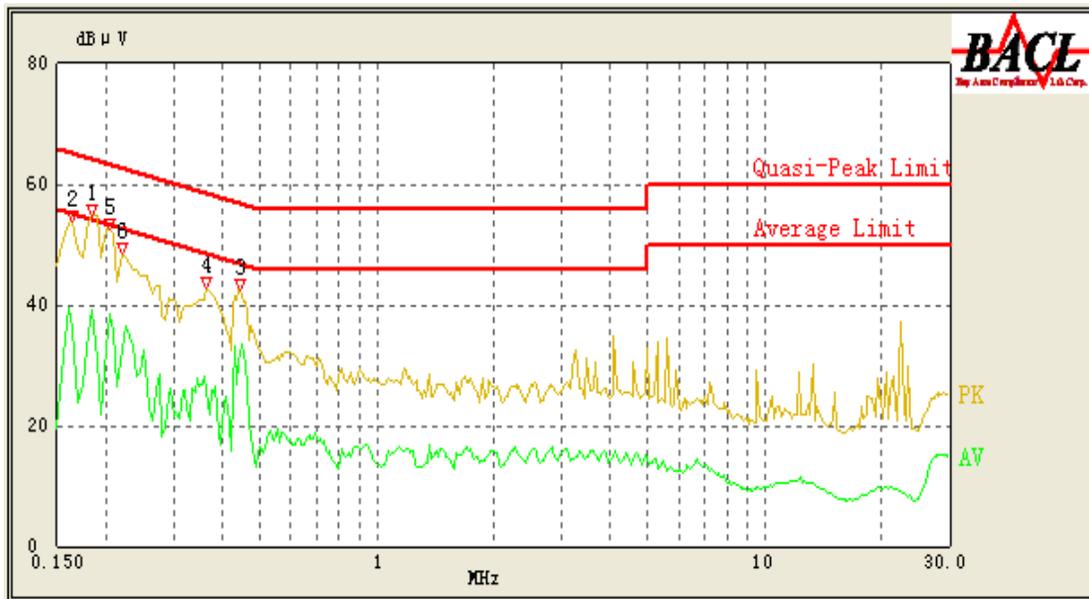
Test Mode: Transmitting

AC 120 V, 60 Hz, Line:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.200	49.16	10.10	64.57	15.41	QP
0.175	48.85	10.10	65.29	16.44	QP
0.175	36.24	10.10	55.29	19.05	Ave
0.200	32.39	10.10	54.57	22.18	Ave
0.430	34.34	10.10	58.00	23.66	QP
0.430	23.44	10.10	48.00	24.56	Ave
5.435	15.58	10.10	50.00	34.42	Ave
20.510	11.14	10.10	50.00	38.86	Ave
5.435	20.89	10.10	60.00	39.11	QP
12.460	6.51	10.10	50.00	43.49	Ave
20.605	14.63	10.10	60.00	45.37	QP
12.460	10.03	10.10	60.00	49.97	QP

AC 120V, 60 Hz, Neutral:



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
0.450	33.47	10.10	47.43	13.96	Ave.
0.185	39.27	10.10	55.00	15.73	Ave.
0.205	38.40	10.10	54.43	16.03	Ave.
0.445	38.92	10.10	57.57	18.65	QP
0.205	45.70	10.10	64.43	18.73	QP
0.165	36.17	10.10	55.57	19.40	Ave.
0.220	43.91	10.10	64.00	20.09	QP
0.220	32.80	10.10	54.00	21.20	Ave.
0.365	36.45	10.10	59.86	23.41	QP
0.365	25.67	10.10	49.86	24.19	Ave.
0.185	40.21	10.10	65.00	24.79	QP
0.165	38.85	10.10	65.57	26.72	QP

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

Applicable Standard

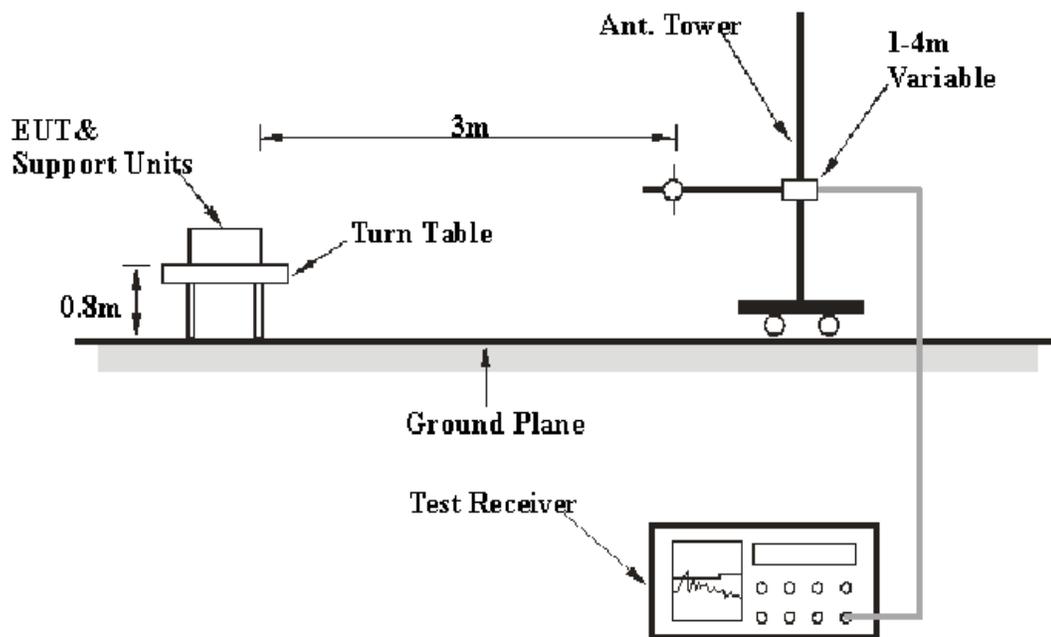
FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

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

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

EUT Setup



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

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

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

Test Procedure

During the radiated emission test, the adapter was connected to the outlet of the floor.

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

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

Corrected Amplitude & Margin Calculation

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

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

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-10
Mini-circuits	Pre-Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Electro-Mechanics	Horn Antenna	3116	9510-2270	2011-10-11	2012-10-10
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07

* **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:

1.59 dB at 2352.9 MHz in the **Horizontal** polarization for 802.11b mode

Test Data

Environmental Conditions

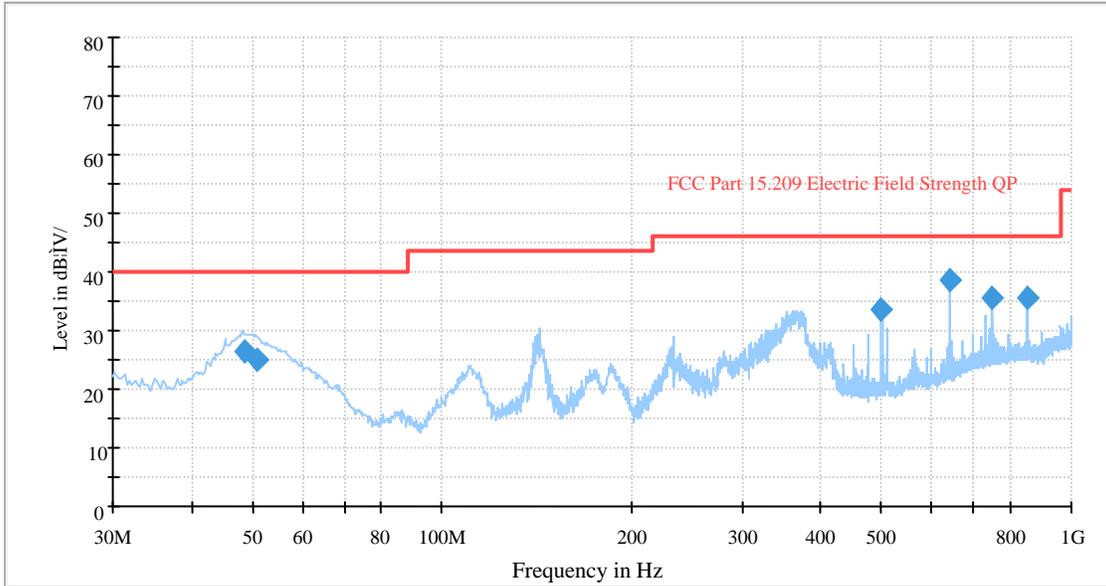
Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2012-01-06.

Test Mode: Transmitting

1) 30 MHz-1 GHz

Auto Test (FCC 15.209)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (Degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
640.012750	38.6	220.0	H	7.0	-5.2	46.0	7.4
500.014000	33.4	189.0	V	142.0	-8.4	46.0	12.6
850.291250	33.4	172.0	H	29.0	-1.1	46.0	12.6
749.999250	33.2	102.0	H	4.0	-2.4	46.0	12.8
48.528000	26.4	102.0	V	280.0	-16.7	40.0	13.6
50.714500	25.1	102.0	V	260.0	-17.4	40.0	14.9

2) 1 GHz-25 GHz

Tested with 2.4GHz fundamental band-reject filter

802.11b Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
2352.9	18.83	Ave.	160	1.5	H	30.6	2.98	0	52.41	54	1.59*	spurious
2352.9	17.46	Ave.	260	1.2	V	30.6	2.98	0	51.04	54	2.96*	spurious
2352.9	30.48	PK	160	1.5	H	30.6	2.98	0	64.06	74	9.94	spurious
2352.9	30.08	PK	260	1.2	V	30.6	2.98	0	63.66	74	10.34	spurious
4824	26.86	Ave.	210	1.6	V	35.4	4.30	26.75	39.81	54	14.19	harmonic
7236	22.14	Ave.	140	1.4	H	39.0	5.22	26.64	39.72	54	14.28	harmonic
7236	23.01	Ave.	310	1.0	V	37.7	5.22	26.64	39.29	54	14.71	harmonic
4824	24.32	Ave.	230	1.2	H	36.6	4.30	26.75	38.47	54	15.53	harmonic
4824	38.67	PK	210	1.6	V	35.4	4.30	26.75	51.62	74	22.38	harmonic
7236	33.82	PK	140	1.4	H	39.0	5.22	26.64	51.40	74	22.60	harmonic
7236	34.79	PK	310	1.0	V	37.7	5.22	26.64	51.07	74	22.93	harmonic
4824	36.70	PK	230	1.2	H	36.6	4.30	26.75	50.85	74	23.15	harmonic
Middle Channel (2437 MHz)												
7311	23.05	Ave.	250	1.8	H	39.0	5.09	26.64	40.50	54	13.50	harmonic
4874	25.16	Ave.	230	1.6	H	36.6	4.36	26.75	39.37	54	14.63	harmonic
7311	23.12	Ave.	320	1.3	V	37.7	5.09	26.64	39.27	54	14.73	harmonic
4874	25.11	Ave.	160	1.2	V	35.4	4.36	26.75	38.12	54	15.88	harmonic
4874	40.23	PK	160	1.2	V	35.4	4.36	26.75	53.24	74	20.76	harmonic
4874	38.43	PK	230	1.6	H	36.6	4.36	26.75	52.64	74	21.36	harmonic
7311	34.19	PK	250	1.8	H	39.0	5.09	26.64	51.64	74	22.36	harmonic
7311	33.49	PK	320	1.3	V	37.7	5.09	26.64	49.64	74	24.36	harmonic
High Channel (2462 MHz)												
2486.5	16.22	Ave.	180	1.6	V	30.6	3.11	0	49.93	54	4.07	spurious
2486.5	16.12	Ave.	160	1.5	H	30.6	3.11	0	49.83	54	4.17	spurious
7386	33.07	Ave.	150	1.1	V	37.7	5.02	26.64	49.15	54	4.85	harmonic
2486.5	29.57	PK	180	1.6	V	30.6	3.11	0	63.28	74	10.72	spurious
2486.5	29.25	PK	160	1.5	H	30.6	3.11	0	62.96	74	11.04	spurious
7386	23.56	Ave.	250	1.1	H	39.0	5.02	26.64	40.94	54	13.06	harmonic
4924	26.76	Ave.	160	1.2	V	35.4	4.40	26.75	39.81	54	14.19	harmonic
4924	23.19	Ave.	120	1.2	H	36.6	4.40	26.75	37.44	54	16.56	harmonic
7386	39.37	PK	150	1.1	V	37.7	5.02	26.64	55.45	74	18.55	harmonic
7386	34.82	PK	250	1.1	H	39.0	5.02	26.64	52.20	74	21.80	harmonic
4924	37.45	PK	120	1.2	H	36.6	4.40	26.75	51.70	74	22.30	harmonic
4924	38.29	PK	160	1.2	V	35.4	4.40	26.75	51.34	74	22.66	harmonic

*Within measurement uncertainty.

802.11g Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
2350.4	16.69	Ave.	150	1.4	H	30.6	2.98	0	50.27	54	3.73*	spurious
2350.4	15.93	Ave.	230	1.9	V	30.6	2.98	0	49.51	54	4.49	spurious
2350.4	30.93	PK	150	1.4	H	30.6	2.98	0	64.51	74	9.49	spurious
2350.4	30.90	PK	230	1.9	V	30.6	2.98	0	64.48	74	9.52	spurious
7236	21.19	Ave.	160	1.2	H	39.0	5.22	26.64	38.77	54	15.23	harmonic
7236	22.35	Ave.	320	2.0	V	37.7	5.22	26.64	38.63	54	15.37	harmonic
4824	22.34	Ave.	230	1.6	H	36.6	4.30	26.75	36.49	54	17.51	harmonic
4824	23.49	Ave.	180	1.1	V	35.4	4.30	26.75	36.44	54	17.56	harmonic
4824	40.68	PK	180	1.1	V	35.4	4.30	26.75	53.63	74	20.37	harmonic
7236	36.18	PK	320	2.0	V	37.7	5.22	26.64	52.46	74	21.54	harmonic
4824	38.14	PK	230	1.6	H	36.6	4.30	26.75	52.29	74	21.71	harmonic
7236	34.43	PK	160	1.2	H	39.0	5.22	26.64	52.01	74	21.99	harmonic
Middle Channel (2437 MHz)												
7311	21.58	Ave.	150	1.6	H	39.0	5.09	26.64	39.03	54	14.97	harmonic
7311	21.48	Ave.	310	1.4	V	37.7	5.09	26.64	37.63	54	16.37	harmonic
4874	22.16	Ave.	130	1.5	H	36.6	4.36	26.75	36.37	54	17.63	harmonic
4874	21.67	Ave.	260	2.0	V	35.4	4.36	26.75	34.68	54	19.32	harmonic
7311	34.82	PK	310	1.4	V	37.7	5.09	26.64	50.97	74	23.03	harmonic
7311	32.57	PK	150	1.6	H	39.0	5.09	26.64	50.02	74	23.98	harmonic
4874	36.92	PK	260	2.0	V	35.4	4.36	26.75	49.93	74	24.07	harmonic
4874	34.56	PK	130	1.5	H	36.6	4.36	26.75	48.77	74	25.23	harmonic
High Channel (2462 MHz)												
2496.5	16.60	Ave.	160	1.4	V	30.6	3.11	0	50.31	54	3.69*	spurious
2496.5	16.39	Ave.	320	1.3	H	30.6	3.11	0	50.10	54	3.90*	spurious
2496.5	30.74	PK	320	1.3	H	30.6	3.11	0	64.45	74	9.55	spurious
2496.5	30.38	PK	160	1.4	V	30.6	3.11	0	64.09	74	9.91	spurious
7386	21.06	Ave.	150	2.0	H	39.0	5.02	26.64	38.44	54	15.56	harmonic
7386	22.13	Ave.	280	1.8	V	37.7	5.02	26.64	38.21	54	15.79	harmonic
4924	22.18	Ave.	260	1.5	H	36.6	4.40	26.75	36.43	54	17.57	harmonic
4924	22.61	Ave.	240	1.5	V	35.4	4.40	26.75	35.66	54	18.34	harmonic
7386	36.42	PK	280	1.8	V	37.7	5.02	26.64	52.50	74	21.50	harmonic
4924	38.19	PK	260	1.5	H	36.6	4.40	26.75	52.44	74	21.56	harmonic
7386	34.28	PK	150	2.0	H	39.0	5.02	26.64	51.66	74	22.34	harmonic
4924	36.75	PK	240	1.5	V	35.4	4.40	26.75	49.80	74	24.20	harmonic

*Within measurement uncertainty.

802.11n-HT20 Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBµV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Comment
Low Channel (2412 MHz)												
2388.7	17.98	Ave.	150	2.1	V	30.6	2.98	0	51.56	54	2.44*	spurious
2388.7	17.92	Ave.	120	2.0	H	30.6	2.98	0	51.50	54	2.50*	spurious
2388.7	34.62	PK	150	2.1	V	30.6	2.98	0	68.20	74	5.80	spurious
2388.7	32.35	PK	120	2.0	H	30.6	2.98	0	65.93	74	8.07	spurious
7236	23.86	Ave.	260	1.3	H	39.0	5.22	26.64	41.44	54	12.56	harmonic
7236	24.11	Ave.	140	1.3	V	37.7	5.22	26.64	40.39	54	13.61	harmonic
7236	39.42	PK	260	1.3	H	39.0	5.22	26.64	57.00	74	17.00	harmonic
7236	40.18	PK	140	1.3	V	37.7	5.22	26.64	56.46	74	17.54	harmonic
4824	22.19	Ave.	230	1.5	H	36.6	4.30	26.75	36.34	54	17.66	harmonic
4824	23.08	Ave.	320	1.8	V	35.4	4.30	26.75	36.03	54	17.97	harmonic
4824	40.53	PK	320	1.8	V	35.4	4.30	26.75	53.48	74	20.52	harmonic
4824	38.46	PK	230	1.5	H	36.6	4.30	26.75	52.61	74	21.39	harmonic
Middle Channel (2437 MHz)												
7311	21.56	Ave.	160	1.2	H	39.0	5.09	26.64	39.01	54	14.99	harmonic
7311	20.53	Ave.	230	2.0	V	37.7	5.09	26.64	36.68	54	17.32	harmonic
7311	38.11	PK	160	1.2	H	39.0	5.09	26.64	55.56	74	18.44	harmonic
4874	21.15	Ave.	250	1.5	H	36.6	4.36	26.75	35.36	54	18.64	harmonic
7311	39.17	PK	230	2.0	V	37.7	5.09	26.64	55.32	74	18.68	harmonic
4874	20.59	Ave.	140	1.8	V	35.4	4.36	26.75	33.60	54	20.40	harmonic
4874	37.49	PK	250	1.5	H	36.6	4.36	26.75	51.70	74	22.30	harmonic
4874	38.34	PK	140	1.8	V	35.4	4.36	26.75	51.35	74	22.65	harmonic
High Channel (2462 MHz)												
2483.5	16.75	Ave.	320	1.8	H	30.6	3.11	0	50.46	54	3.54*	spurious
2483.5	16.1	Ave.	150	1.4	V	30.6	3.11	0	49.81	54	4.19	spurious
2483.5	33.04	PK	320	1.8	H	30.6	3.11	0	66.75	74	7.25	spurious
2483.5	32.96	PK	150	1.4	V	30.6	3.11	0	66.67	74	7.33	spurious
7386	22.09	Ave.	0	2.0	H	39	5.02	26.64	39.47	54	14.53	harmonic
7386	21.94	Ave.	190	1.8	V	37.7	5.02	26.64	38.02	54	15.98	harmonic
4924	23.15	Ave.	260	1.6	H	36.6	4.4	26.75	37.4	54	16.60	harmonic
7386	37.86	PK	0	2.0	H	39	5.02	26.64	55.24	74	18.76	harmonic
4924	21.29	Ave.	360	1.3	V	35.4	4.4	26.75	34.34	54	19.66	harmonic
4924	38.42	PK	260	1.6	H	36.6	4.4	26.75	52.67	74	21.33	harmonic
7386	36.47	PK	190	1.8	V	37.7	5.02	26.64	52.55	74	21.45	harmonic
4924	37.32	PK	360	1.3	V	35.4	4.4	26.75	50.37	74	23.63	harmonic

*Within measurement uncertainty.

802.11n-HT40 Mode:

Indicated		Detector (PK/Ave.)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247/15.209/15.205			
Frequency (MHz)	S.A. Reading (dBμV)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Comment
Low Channel (2422 MHz)												
2389.7	16.83	Ave.	360	1.5	V	30.6	2.98	0	50.41	54	3.59*	spurious
2389.7	16.57	Ave.	160	1.3	H	30.6	2.98	0	50.15	54	3.85*	spurious
2389.7	31.14	PK	360	1.5	V	30.6	2.98	0	64.72	74	9.28	spurious
2389.7	30.41	PK	160	1.3	H	30.6	2.98	0	63.99	74	10.01	spurious
7266	21.26	Ave.	250	2.0	H	39.1	5.25	26.64	38.97	54	15.03	harmonic
7266	22.04	Ave.	140	1.4	V	37.8	5.25	26.64	38.45	54	15.55	harmonic
4844	22.16	Ave.	230	1.6	H	36.6	4.30	26.75	36.31	54	17.69	harmonic
7266	36.58	PK	250	2.0	H	39.1	5.25	26.64	54.29	74	19.71	harmonic
7266	37.19	PK	140	1.4	V	37.8	5.25	26.64	53.60	74	20.40	harmonic
4844	20.54	Ave.	130	1.9	V	35.4	4.30	26.75	33.49	54	20.51	harmonic
4844	37.41	PK	230	1.6	H	36.6	4.30	26.75	51.56	74	22.44	harmonic
4844	36.19	PK	130	1.9	V	35.4	4.30	26.75	49.14	74	24.86	harmonic
Middle Channel (2437 MHz)												
7311	22.5	Ave.	300	1.2	H	39.0	5.09	26.64	39.95	54	14.05	harmonic
7311	21.95	Ave.	150	1.2	V	37.7	5.09	26.64	38.10	54	15.90	harmonic
4874	22.16	Ave.	180	1.2	H	36.6	4.36	26.75	36.37	54	17.63	harmonic
7311	38.12	PK	300	1.2	H	39.0	5.09	26.64	55.57	74	18.43	harmonic
4874	21.56	Ave.	285	1.0	V	35.4	4.36	26.75	34.57	54	19.43	harmonic
7311	38.01	PK	150	1.2	V	37.7	5.09	26.64	54.16	74	19.84	harmonic
4874	37.77	PK	180	1.2	H	36.6	4.36	26.75	51.98	74	22.02	harmonic
4874	36.49	PK	285	1.0	V	35.4	4.36	26.75	49.50	74	24.50	harmonic
High Channel (2452 MHz)												
2485.5	16.64	Ave.	240	2.1	H	30.6	3.11	0	50.35	54	3.65*	spurious
2485.5	16.34	Ave.	250	1.2	V	30.6	3.11	0	50.05	54	3.95	spurious
2485.5	32.11	PK	240	2.1	H	30.6	3.11	0	65.82	74	8.18	spurious
2485.5	32.01	PK	250	1.2	V	30.6	3.11	0	65.72	74	8.28	spurious
7356	20.16	Ave.	30	1.4	H	38.9	5.01	26.64	37.43	54	16.57	harmonic
7356	20.36	Ave.	190	1.3	V	37.5	5.01	26.64	36.23	54	17.77	harmonic
4904	21.56	Ave.	150	1.5	H	36.7	4.40	26.75	35.91	54	18.09	harmonic
7356	37.91	PK	30	1.4	H	38.9	5.01	26.64	55.18	74	18.82	harmonic
4904	20.69	Ave.	160	1.8	V	35.4	4.40	26.75	33.74	54	20.26	harmonic
7356	36.95	PK	190	1.3	V	37.5	5.01	26.64	52.82	74	21.18	harmonic
4904	38.16	PK	150	1.5	H	36.7	4.40	26.75	52.51	74	21.49	harmonic
4904	37.42	PK	160	1.8	V	35.4	4.40	26.75	50.47	74	23.53	harmonic

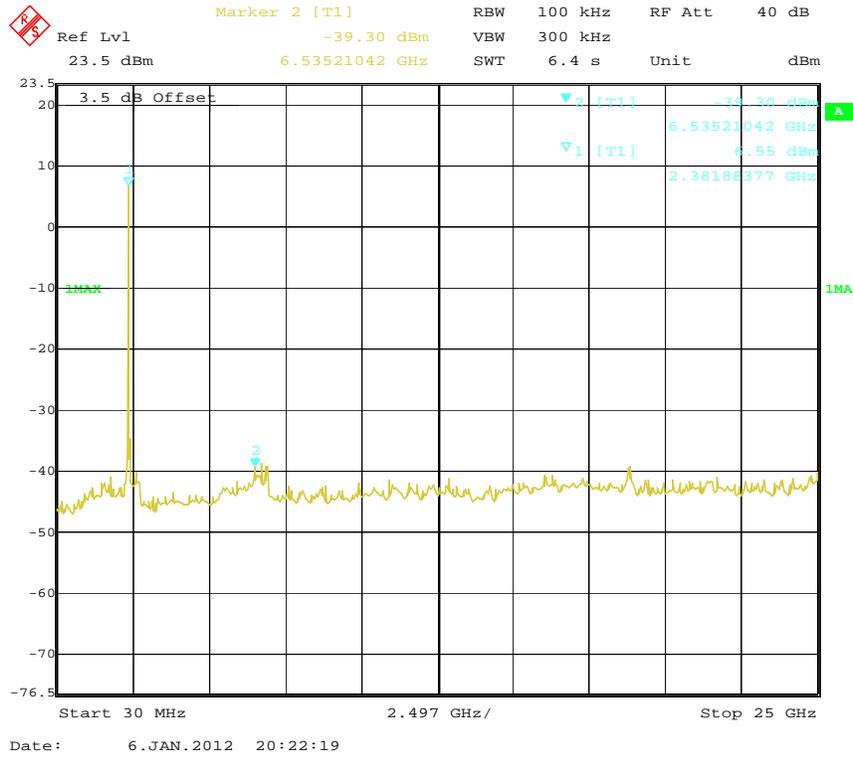
*Within measurement uncertainty.

Spurious Emissions at Antenna Terminal

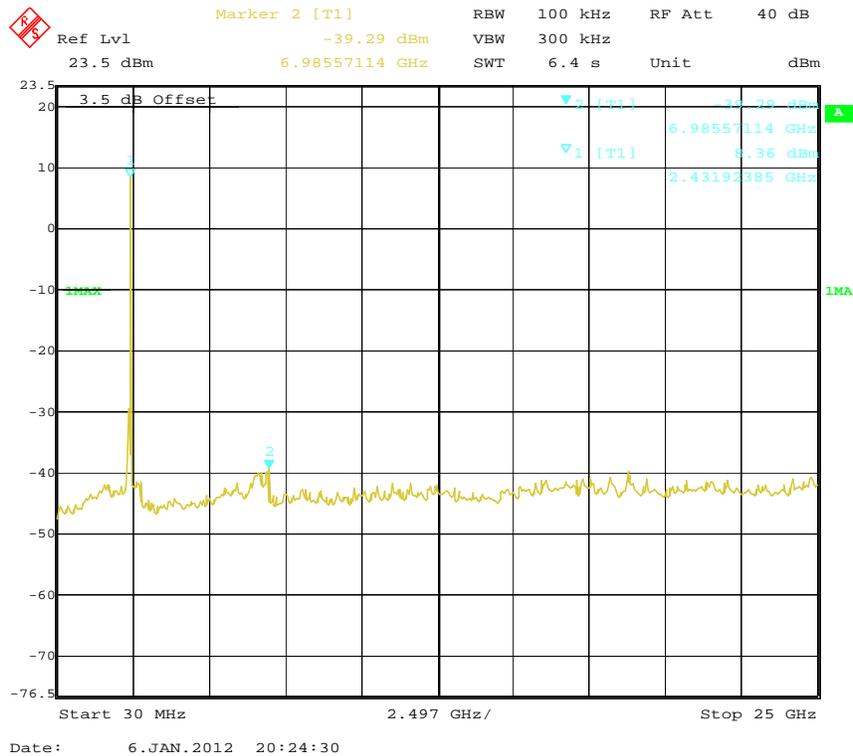
Please refer to the following table and plots:

Channel	Frequency (MHz)	Data Rate (Mbps)	Antenna Port	Delta Value (dBc)	Limit (dBc)	Ref plot	Result
802.11b mode							
Low	6535.21	1	Chain 0	45.85	20	B-L-Chain 0	Pass
Low	6935.53	1	Chain 1	46.11	20	B-L-Chain 1	Pass
Middle	6985.57	1	Chain 0	47.65	20	B-M-Chain 0	Pass
Middle	6985.57	1	Chain 1	46.75	20	B-M-Chain 1	Pass
High	6935.53	1	Chain 0	45.81	20	B-H-Chain 0	Pass
High	6935.53	1	Chain 1	46.10	20	B-H-Chain 1	Pass
802.11g mode							
Low	6935.53	6	Chain 0	40.16	20	G-L-Chain 0	Pass
Low	6685.33	6	Chain 1	40.92	20	G-L-Chain 1	Pass
Middle	6935.53	6	Chain 0	40.79	20	G-M-Chain 0	Pass
Middle	6985.57	6	Chain 1	41.62	20	G-M-Chain 1	Pass
High	6885.49	6	Chain 0	40.66	20	G-H-Chain 0	Pass
High	6985.57	6	Chain 1	37.92	20	G-H-Chain 1	Pass
802.11n-HT20 mode							
Low	6935.53	6.5	Chain 0	40.02	20	N20-L-Chain 0	Pass
Low	6985.57	6.5	Chain 1	39.09	20	N20-L-Chain 1	Pass
Middle	6935.53	6.5	Chain 0	41.88	20	N20-M-Chain 0	Pass
Middle	6885.49	6.5	Chain 1	43.28	20	N20-M-Chain 1	Pass
High	6935.53	6.5	Chain 0	36.66	20	N20-H-Chain 0	Pass
High	6935.53	6.5	Chain 1	37.67	20	N20-H-Chain 1	Pass
802.11n-HT40 mode							
Low	6935.53	13.5	Chain 0	36.72	20	N40-L-Chain 0	Pass
Low	6935.53	13.5	Chain 1	37.89	20	N40-L-Chain 1	Pass
Middle	6935.53	13.5	Chain 0	37.72	20	N40-M-Chain 0	Pass
Middle	6585.25	13.5	Chain 1	39.00	20	N40-M-Chain 1	Pass
High	6935.53	13.5	Chain 0	33.32	20	N40-H-Chain 0	Pass
High	6935.53	13.5	Chain 1	34.21	20	N40-H-Chain 1	Pass

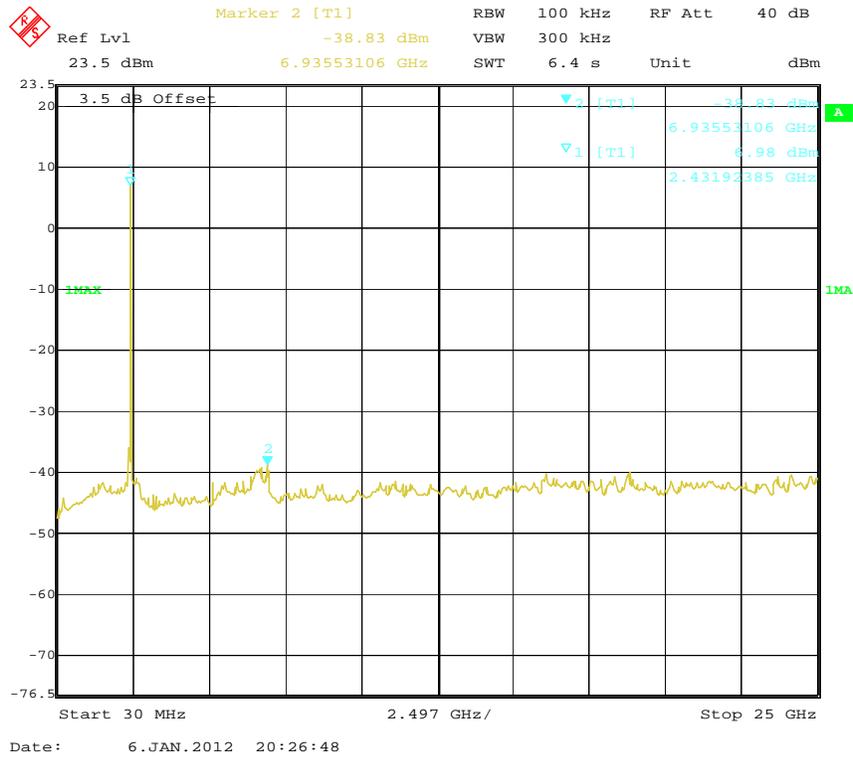
802.11b Low Channel, Chain 0



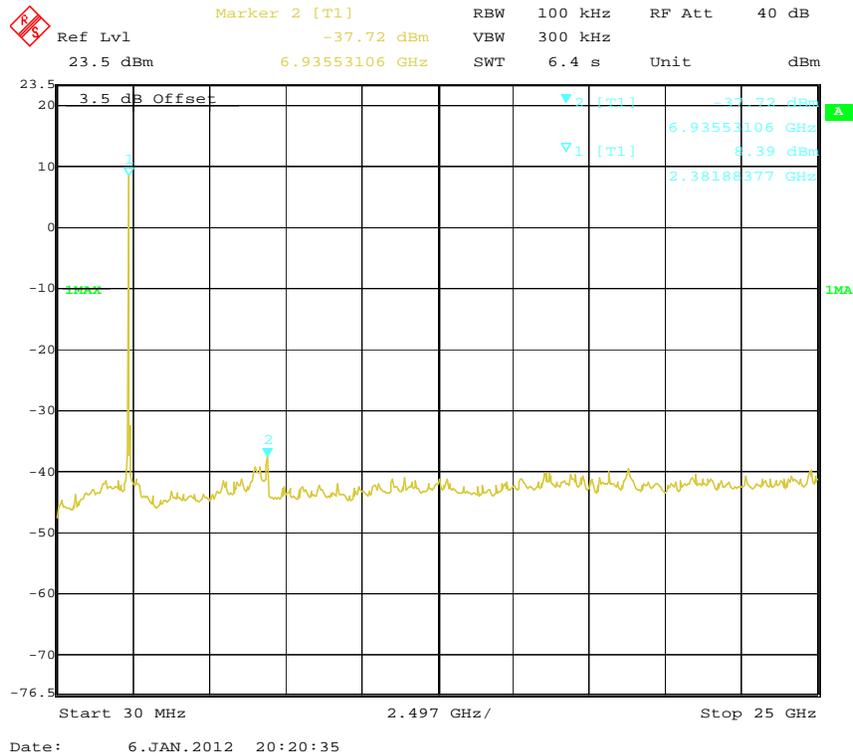
802.11b Middle Channel, Chain 0



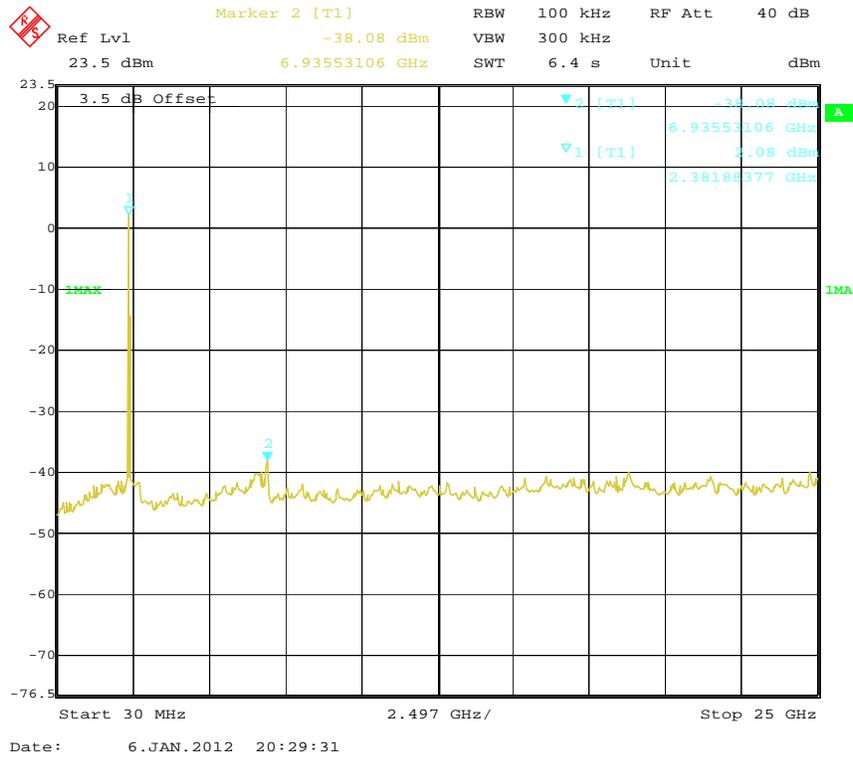
802.11b High Channel, Chain 0



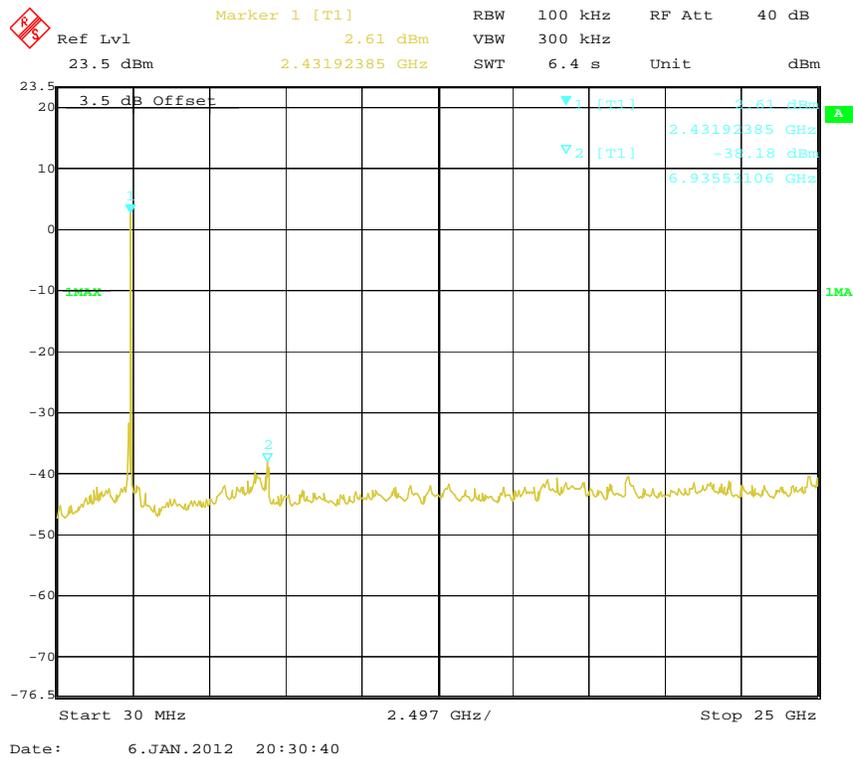
802.11b Low Channel, Chain 1



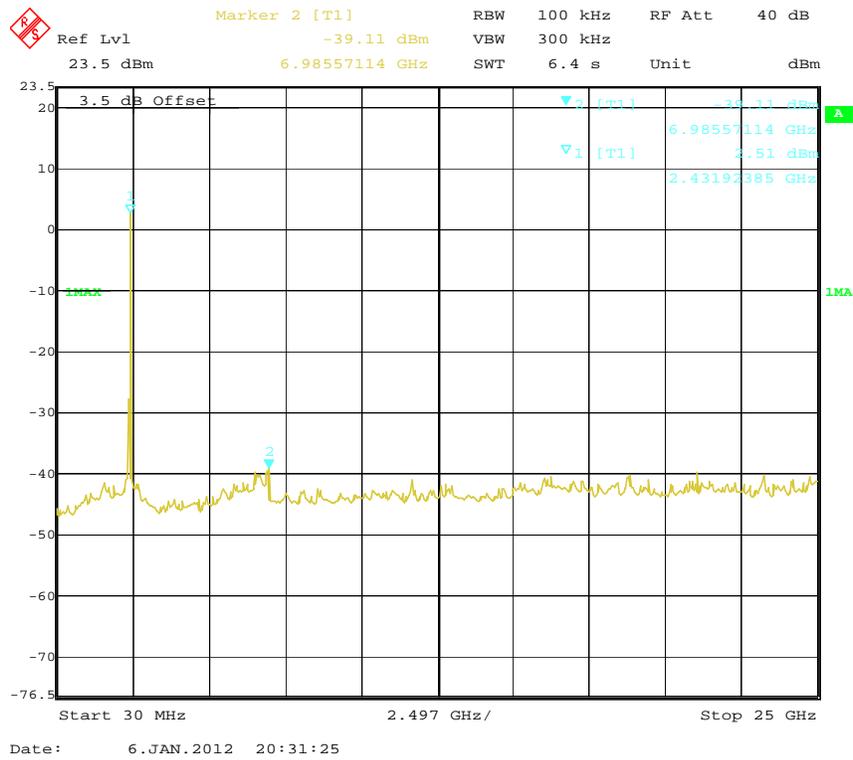
802.11g Low Channel, Chain 0



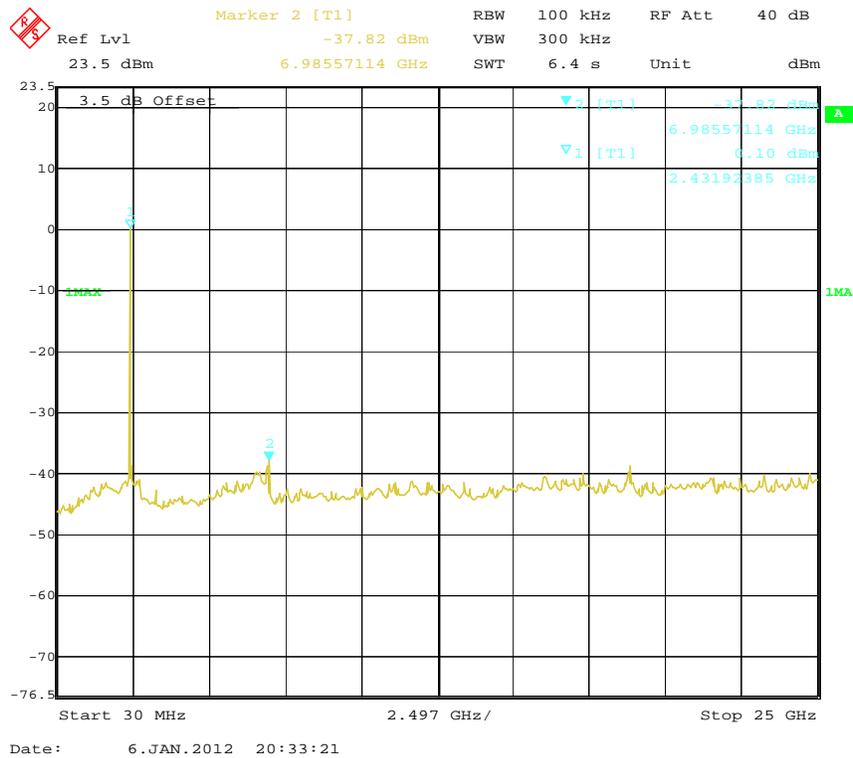
802.11g Middle Channel, Chain 0



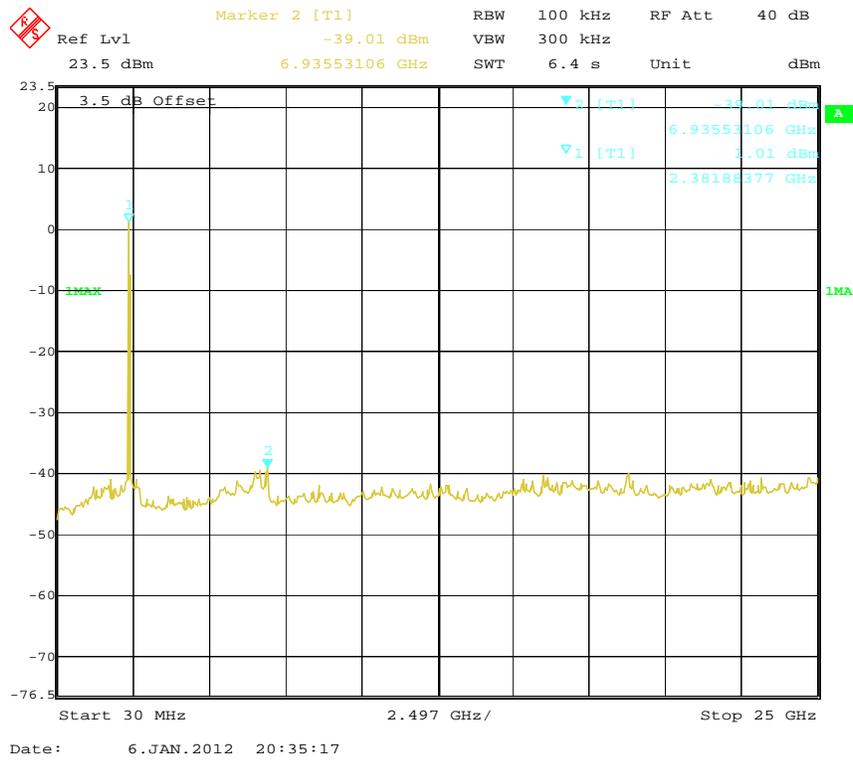
802.11g Middle Channel, Chain 1



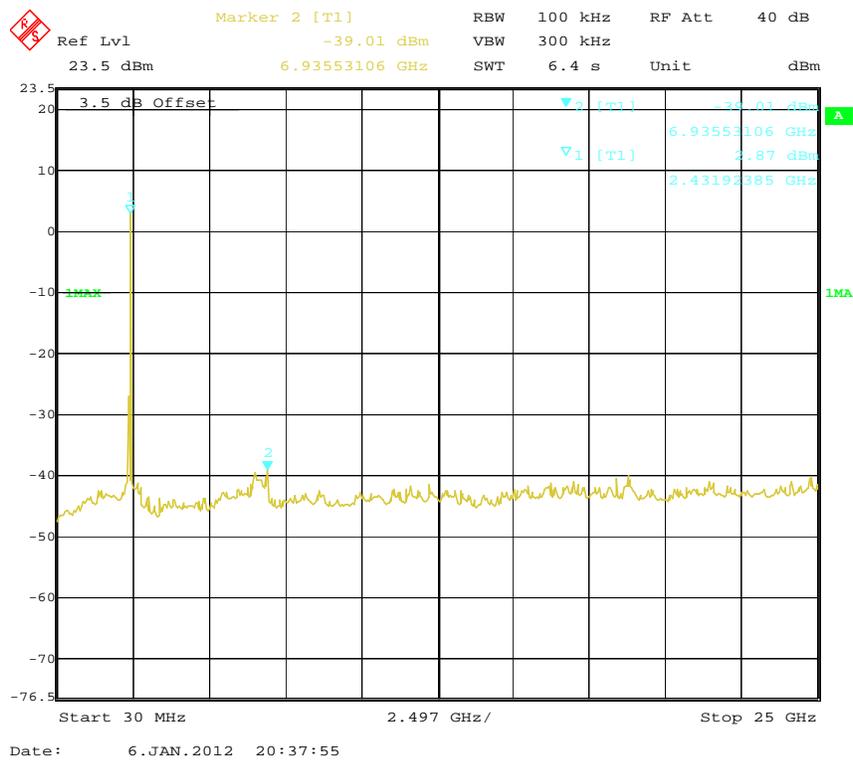
802.11g High Channel, Chain 1



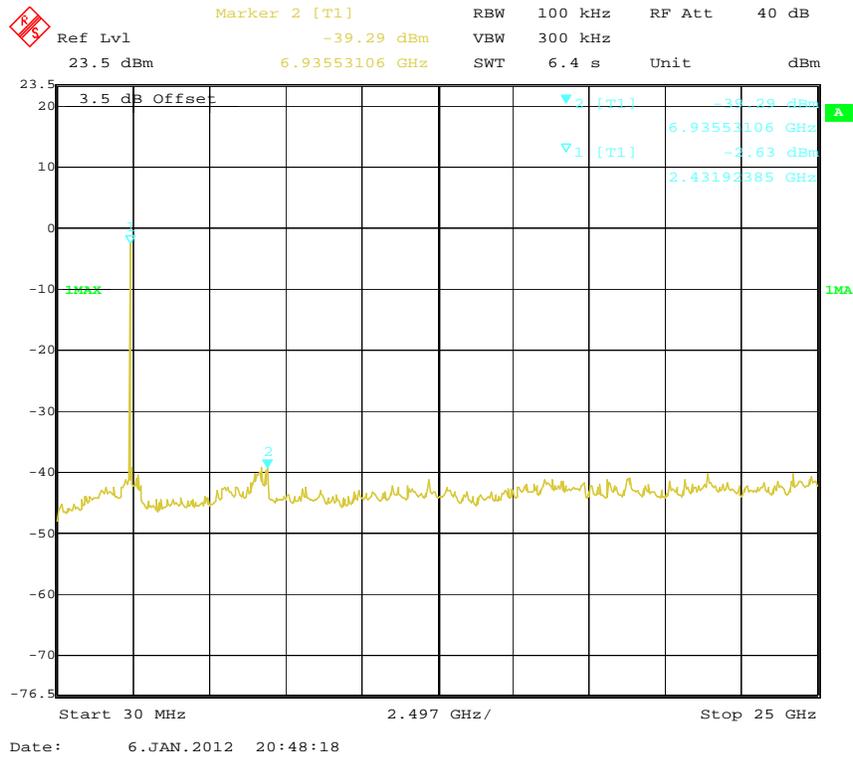
802.11n-HT20 Low Channel, Chain 0



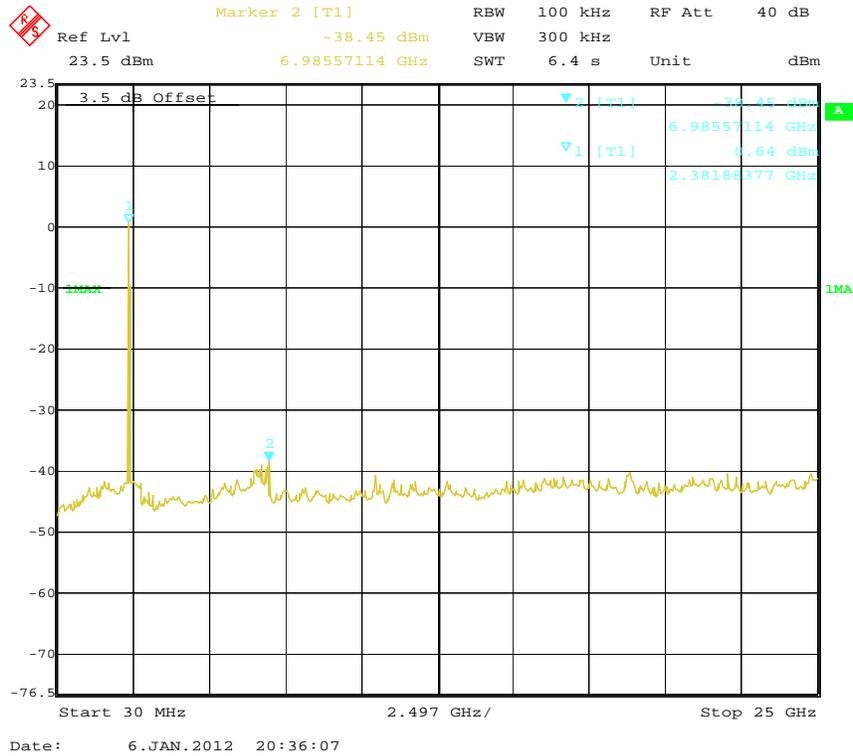
802.11n-HT20 Middle Channel, Chain 0



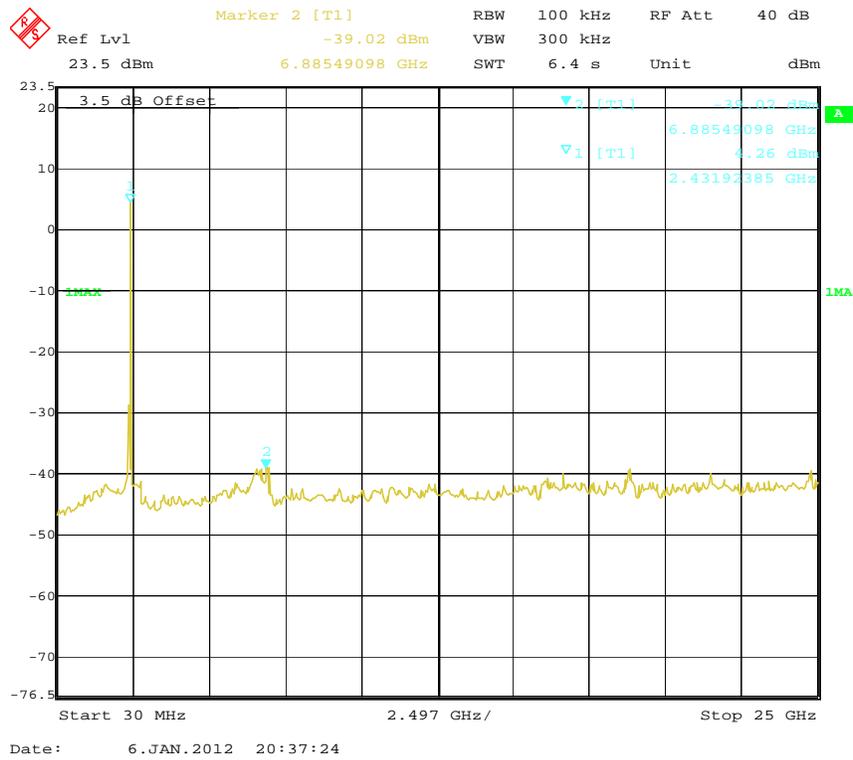
802.11n-HT20 High Channel, Chain 0



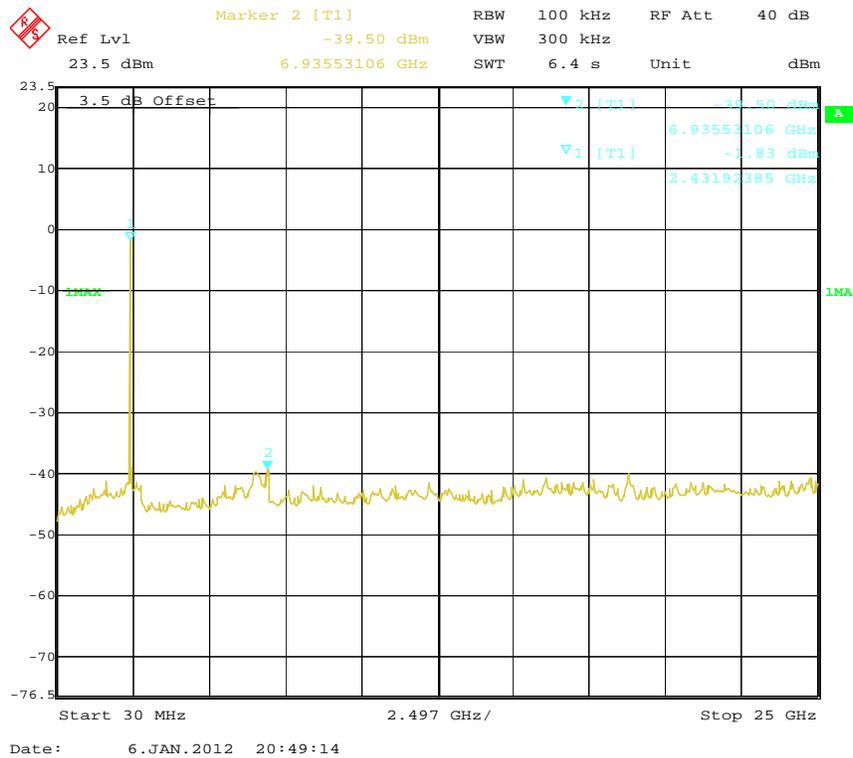
802.11n-HT20 Low Channel, Chain 1



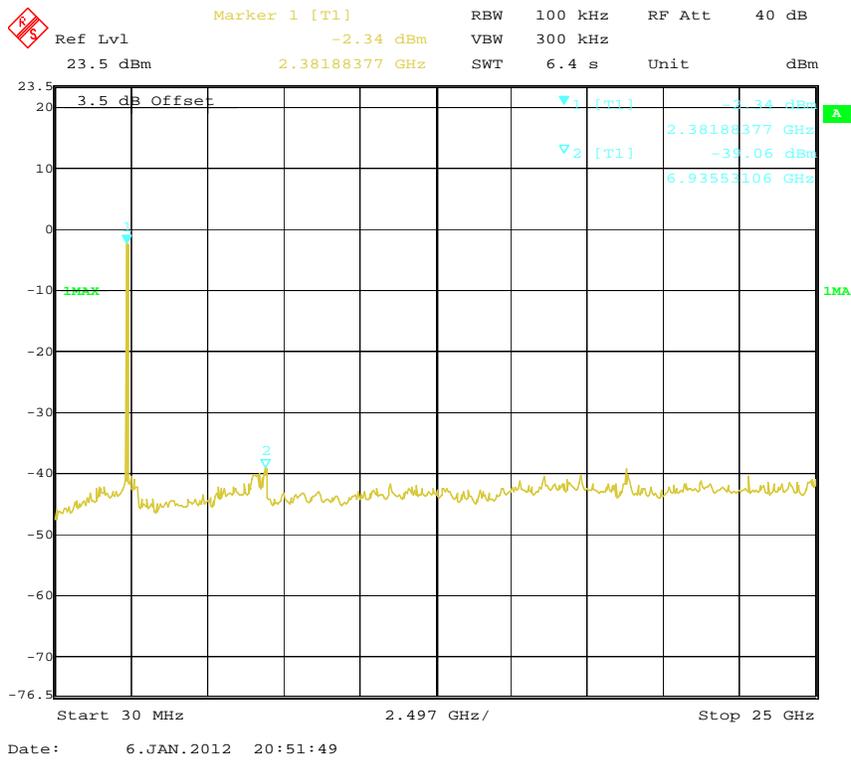
802.11n-HT20 Middle Channel, Chain 1



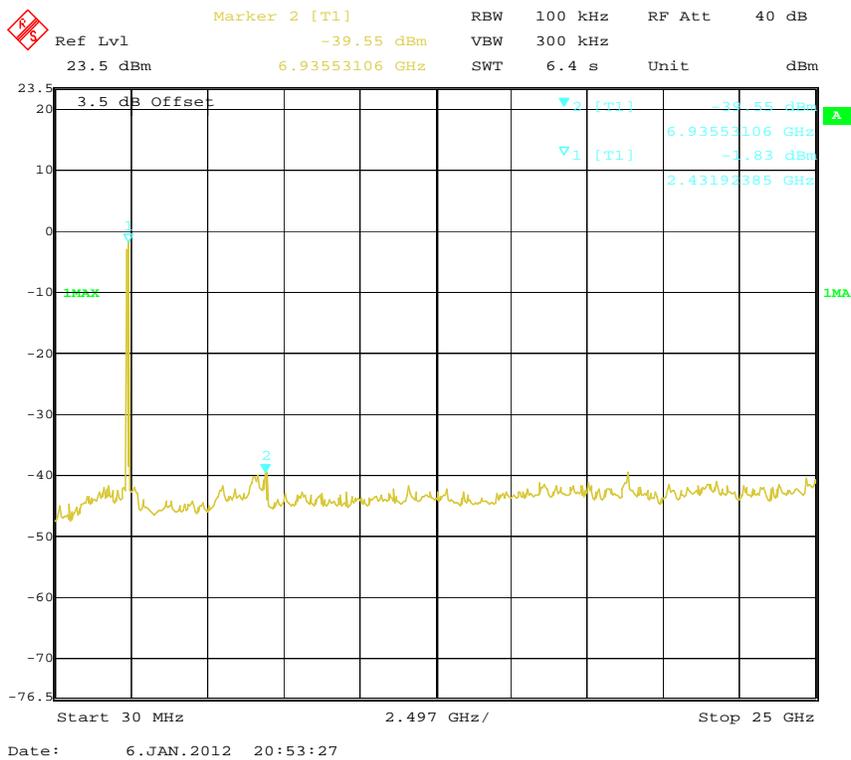
802.11n-HT20 High Channel, Chain 1



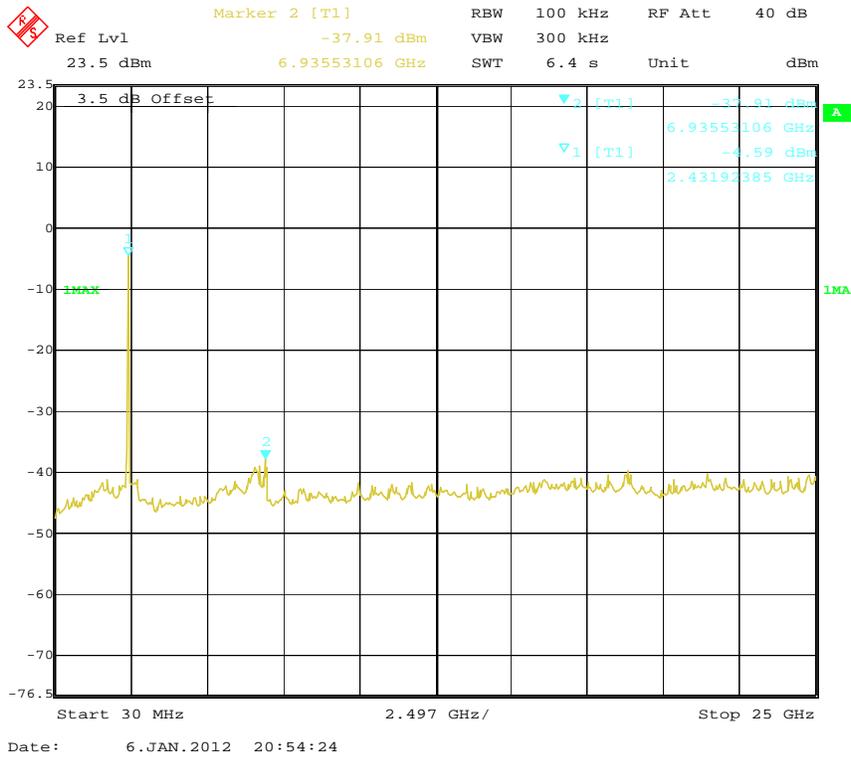
802.11n-HT40 Low Channel, Chain 0



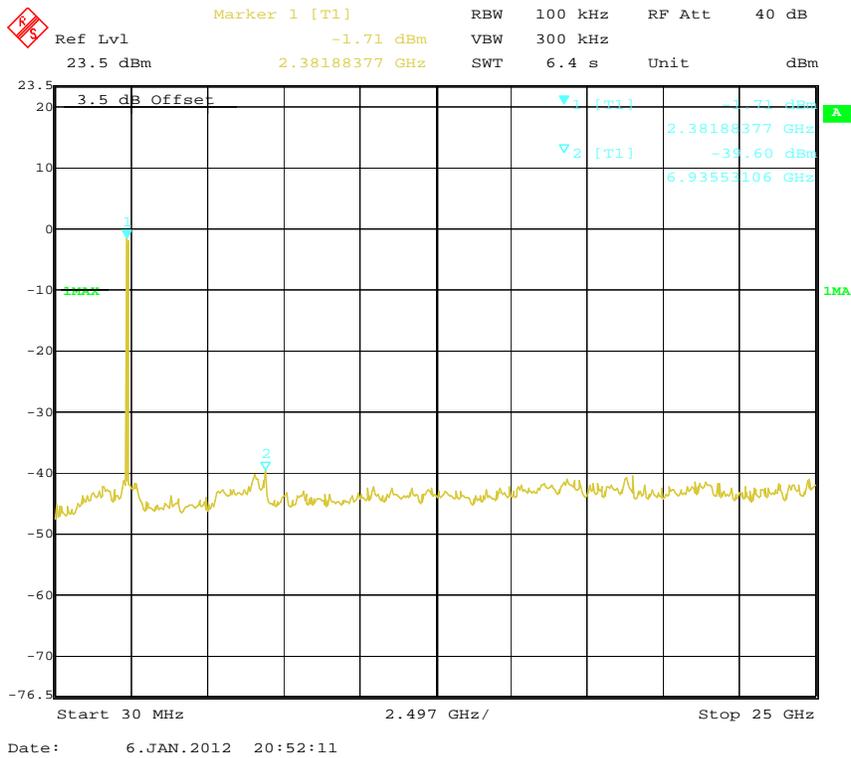
802.11n-HT40 Middle Channel, Chain 0



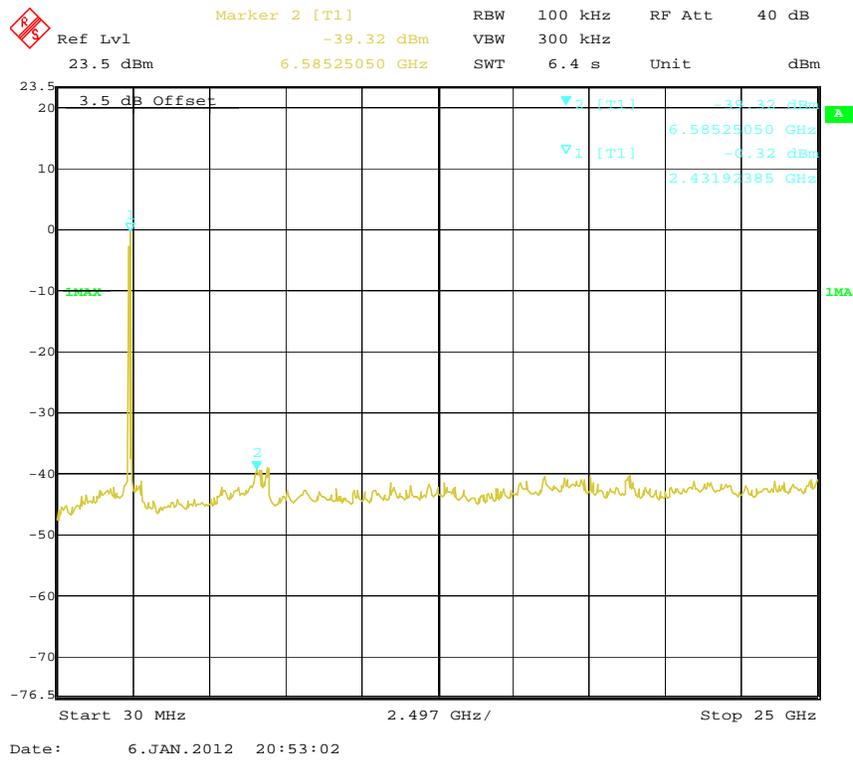
802.11n-HT40 High Channel, Chain 0



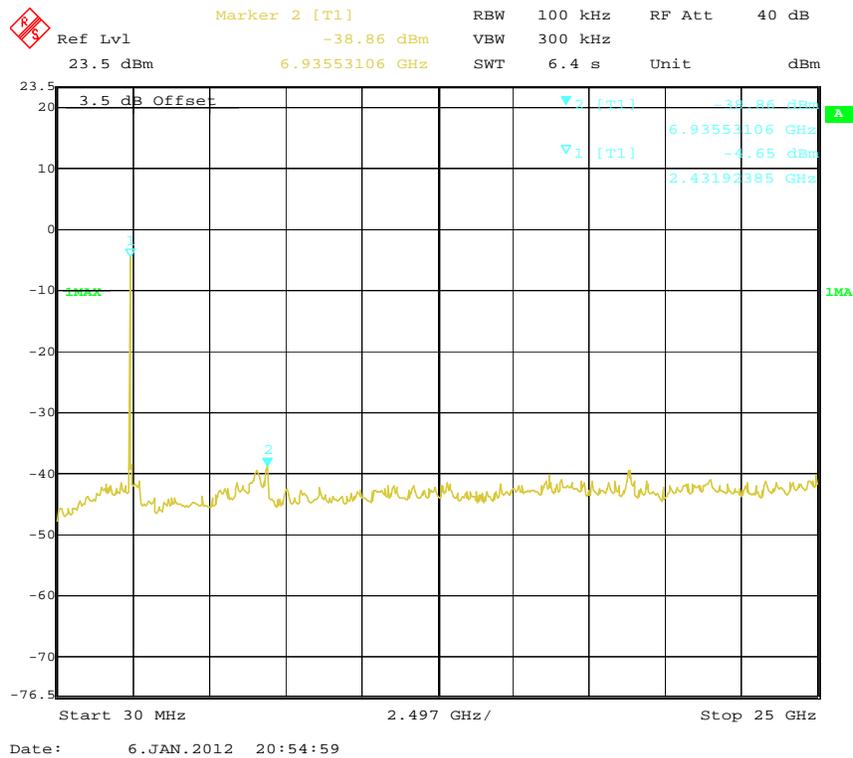
802.11n-HT40 Low Channel, Chain 1



802.11n-HT40 Middle Channel, Chain 1



802.11n-HT40 High Channel, Chain 1



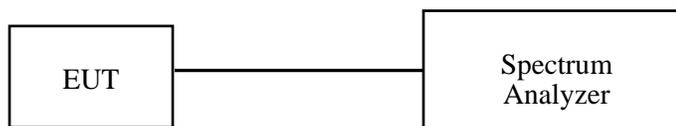
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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	2011-11-11	2012-11-10

* **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

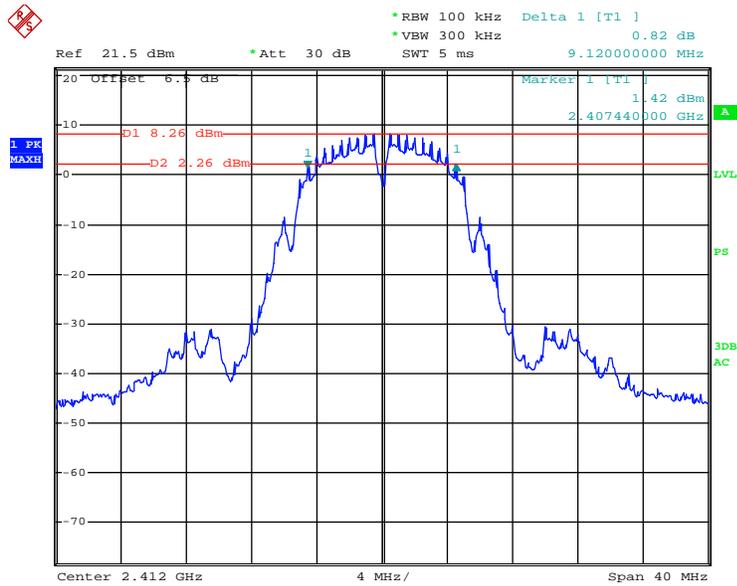
The testing was performed by Jimmy Xiao from 2011-12-20 to 2011-12-24.

Test Result: Pass.

Please refer to the following tables and plots.

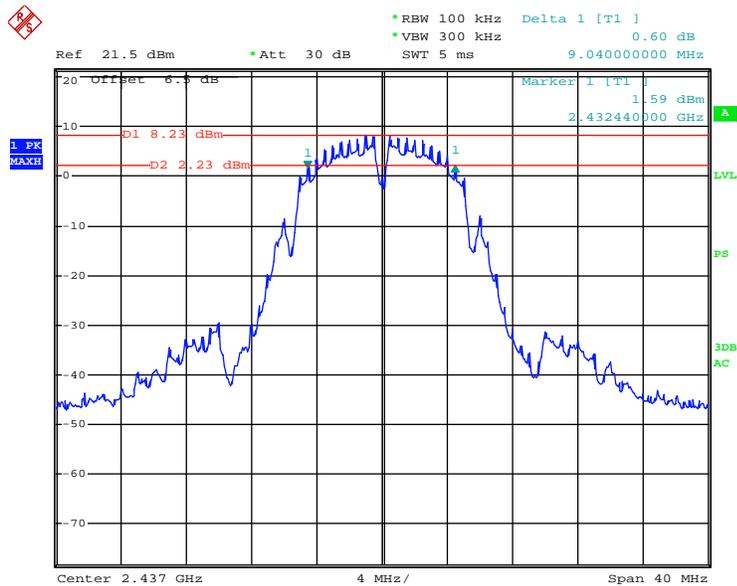
Channel	Frequency (MHz)	Antenna Port	6 dB Bandwidth (MHz)	FCC Limit (kHz)
802.11b mode				
Low	2412	Chain 0	9.12	> 500
		Chain 1	9.04	
Middle	2437	Chain 0	9.04	> 500
		Chain 1	9.04	
High	2462	Chain 0	9.04	> 500
		Chain 1	9.12	
802.11g mode				
Low	2412	Chain 0	16.24	> 500
		Chain 1	15.20	
Middle	2437	Chain 0	16.32	> 500
		Chain 1	15.20	
High	2462	Chain 0	16.40	> 500
		Chain 1	16.32	
802.11n-HT20 mode				
Low	2412	Chain 0	17.60	> 500
		Chain 1	17.44	
Middle	2437	Chain 0	17.60	> 500
		Chain 1	17.60	
High	2462	Chain 0	17.60	> 500
		Chain 1	17.52	
802.11n-HT40 mode				
Low	2422	Chain 0	36.48	> 500
		Chain 1	36.60	
Middle	2437	Chain 0	36.60	> 500
		Chain 1	36.60	
High	2452	Chain 0	36.48	> 500
		Chain 1	36.48	

802.11b Low Channel, Chain 0



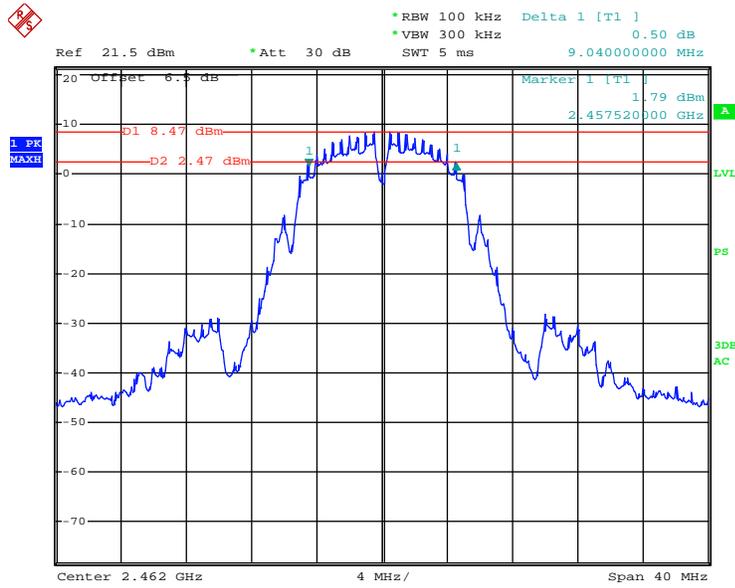
EUT
Date: 23.DEC.2011 23:53:50

802.11b Middle Channel, Chain 0



EUT
Date: 24.DEC.2011 00:16:41

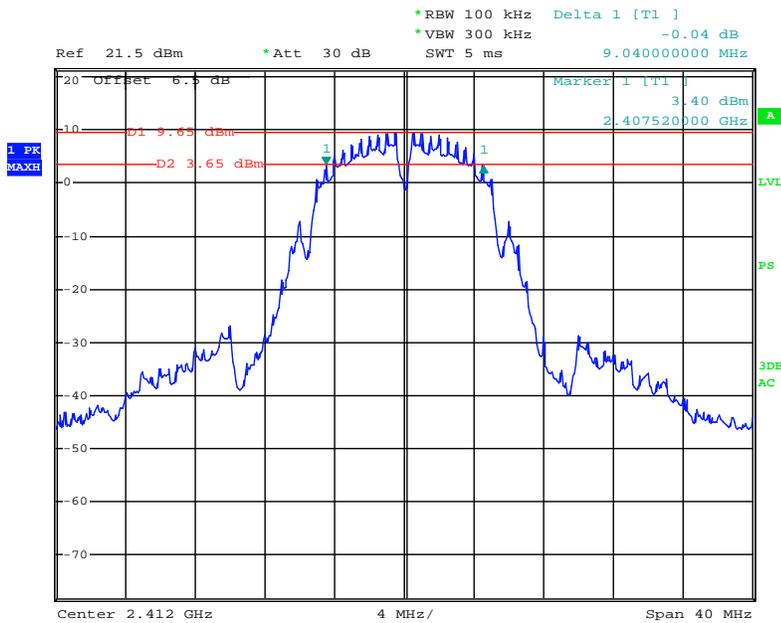
802.11b High Channel, Chain 0



EUT

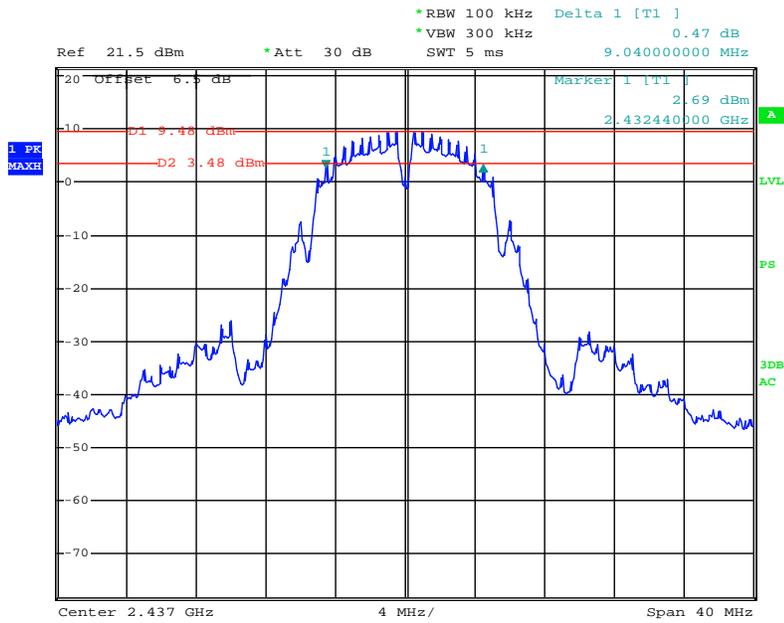
Date: 24.DEC.2011 00:29:50

802.11b Low Channel, Chain 1



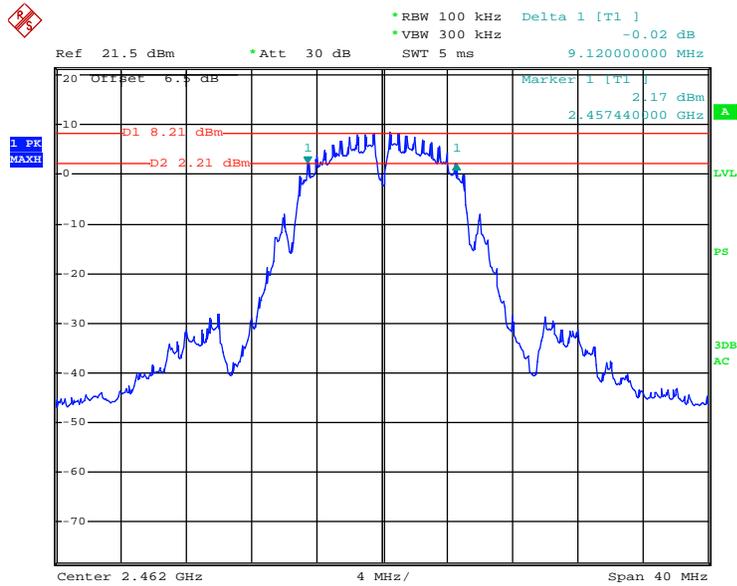
Date: 20.DEC.2011 19:56:33

802.11b Middle Channel, Chain 1



Date: 20.DEC.2011 20:12:45

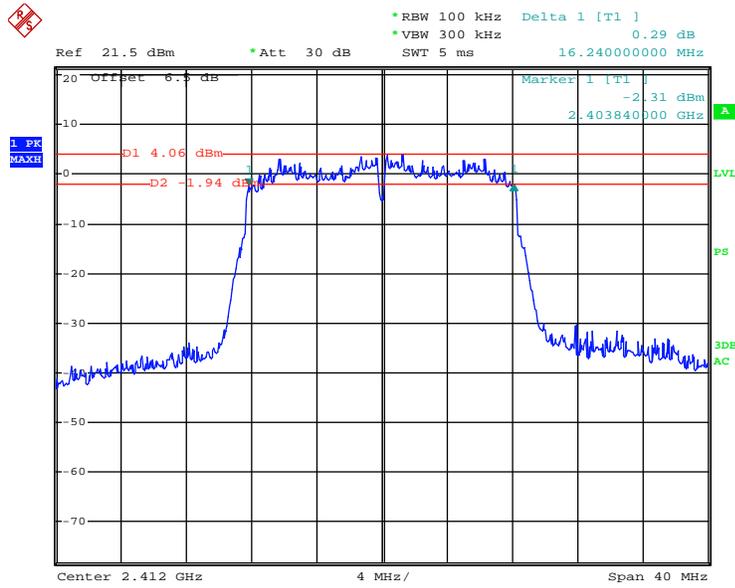
802.11b High Channel, Chain 1



EUT

Date: 24.DEC.2011 00:36:19

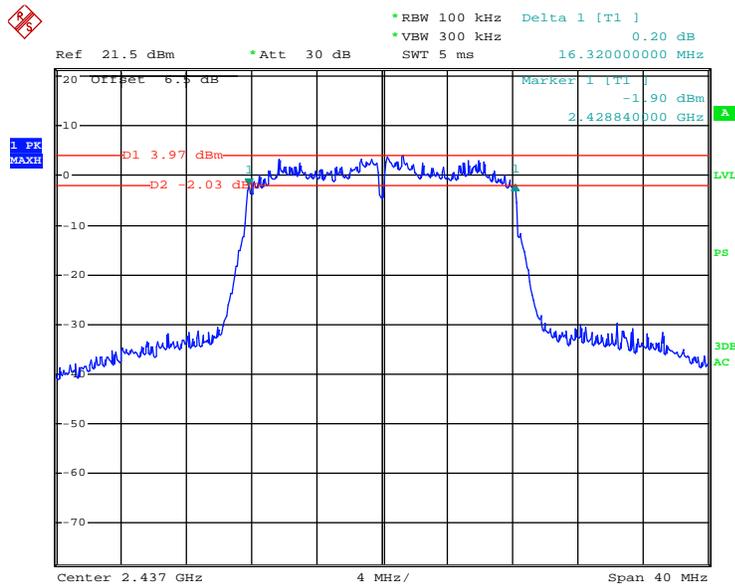
802.11g Low Channel, Chain 0



EUT

Date: 23.DEC.2011 20:48:42

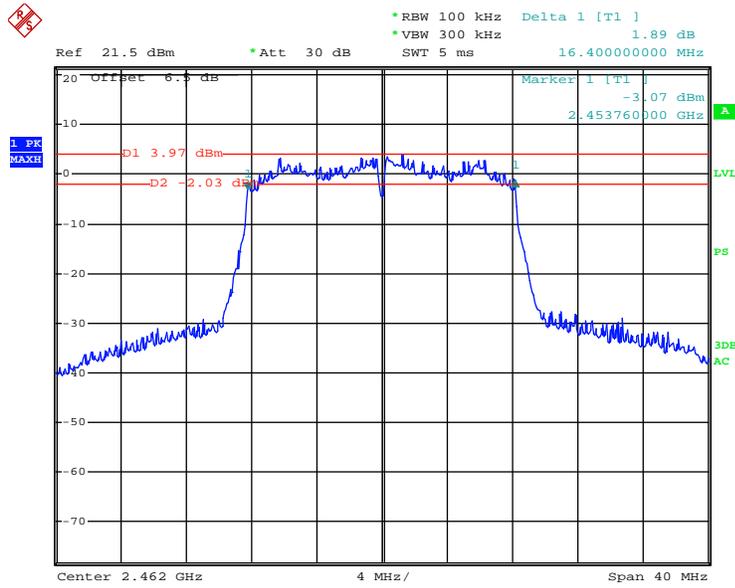
802.11g Middle Channel, Chain 0



EUT

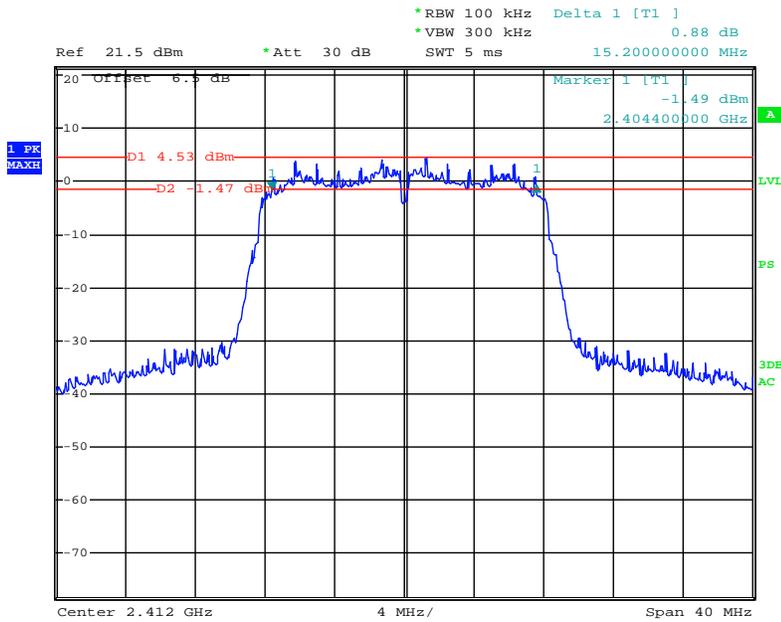
Date: 23.DEC.2011 21:04:51

802.11g High Channel, Chain 0



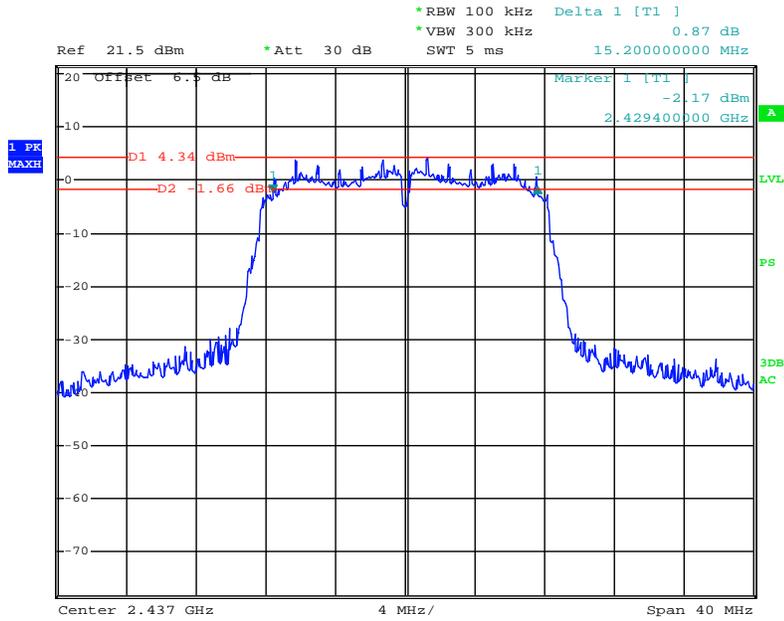
EUT
Date: 23.DEC.2011 21:20:54

802.11g Low Channel, Chain 1



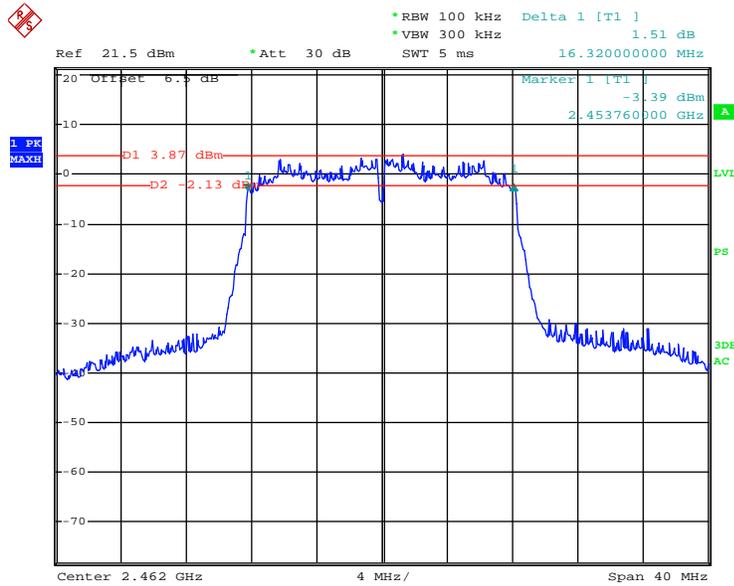
Date: 21.DEC.2011 18:19:27

802.11g Middle Channel, Chain 1



Date: 21.DEC.2011 18:32:10

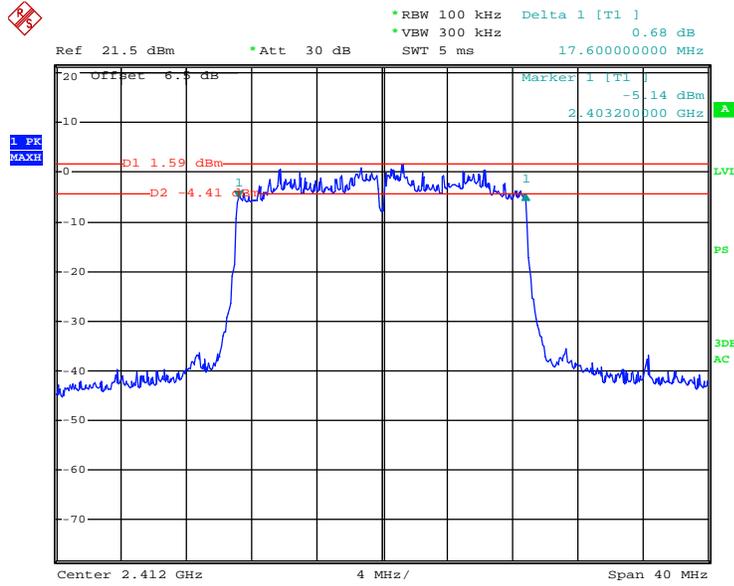
802.11g High Channel, Chain 1



EUT

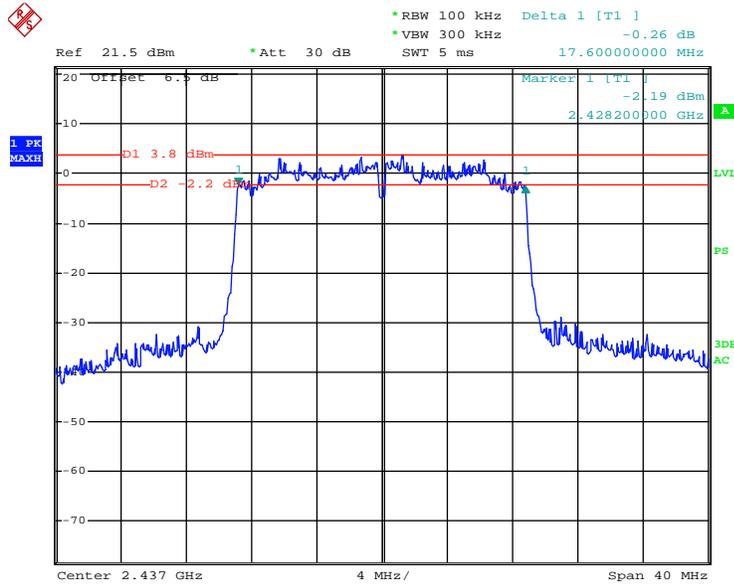
Date: 23.DEC.2011 21:26:38

802.11n-HT20 Low Channel, Chain 0



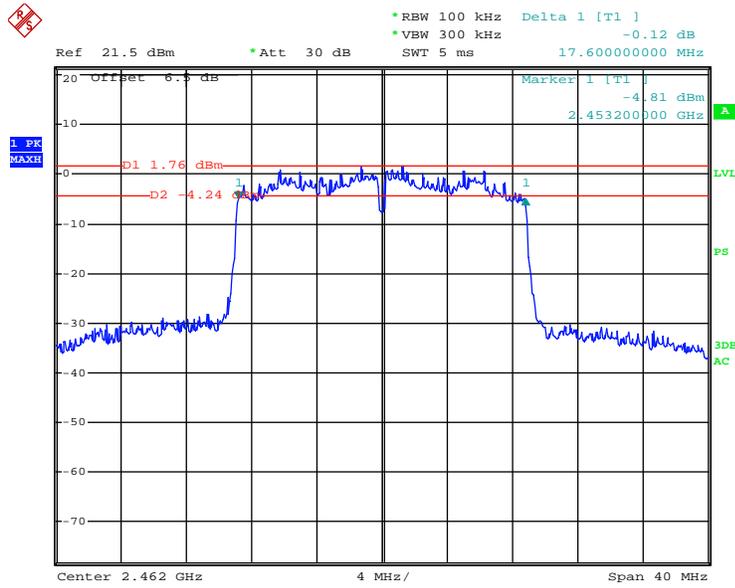
EUT
Date: 23.DEC.2011 21:54:38

802.11n-HT20 Middle Channel, Chain 0



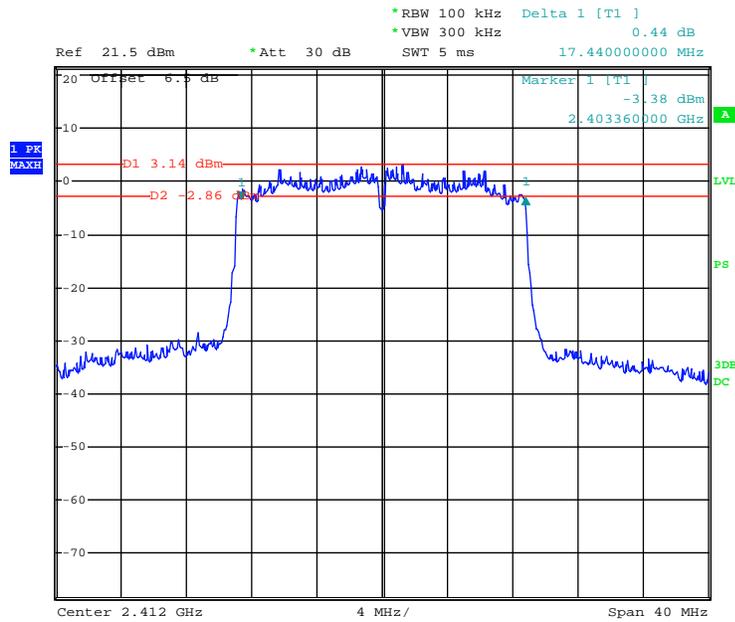
EUT
Date: 23.DEC.2011 22:06:18

802.11n-HT20 High Channel, Chain 0



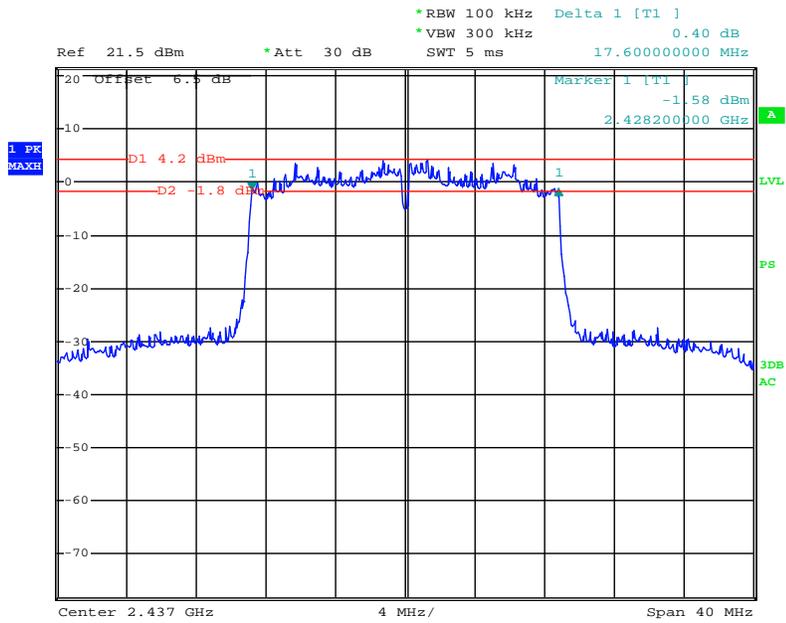
EUT
 Date: 23.DEC.2011 23:23:49

802.11n-HT20 Low Channel, Chain 1



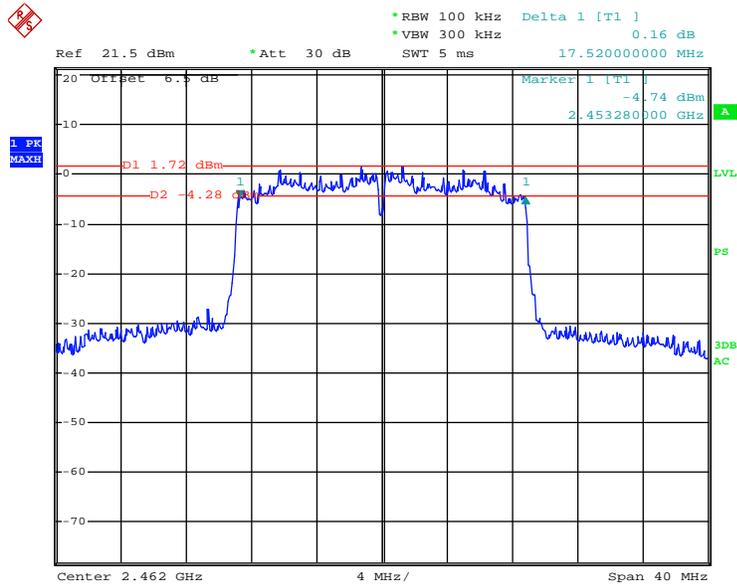
Date: 22.DEC.2011 19:14:56

802.11n-HT20 Middle Channel, Chain 1



Date: 21.DEC.2011 19:30:40

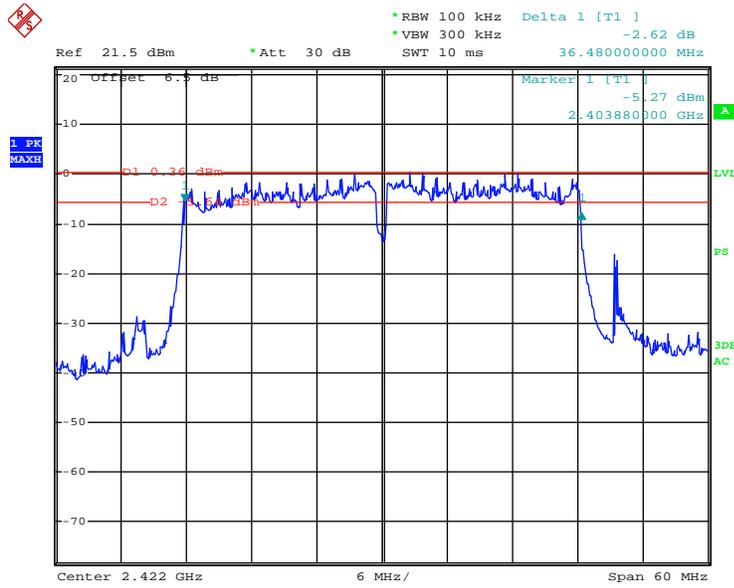
802.11n-HT20 High Channel, Chain 1



EUT

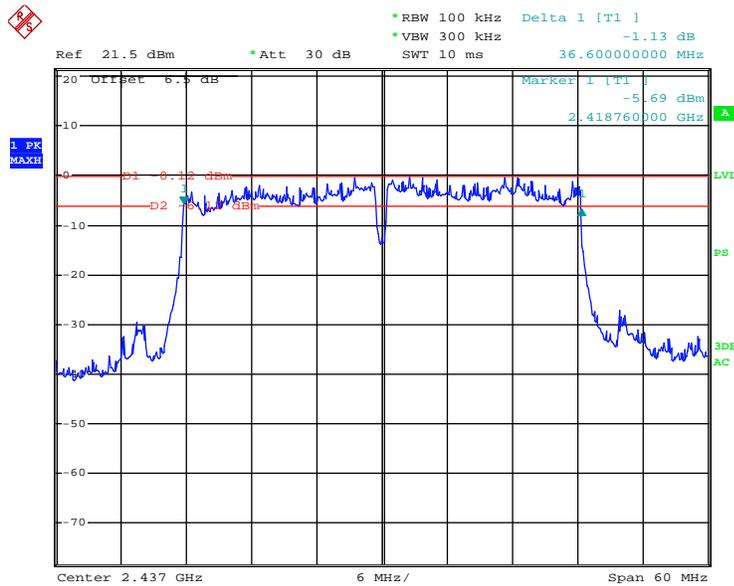
Date: 23.DEC.2011 23:28:27

802.11n-HT40 Low Channel, Chain 0



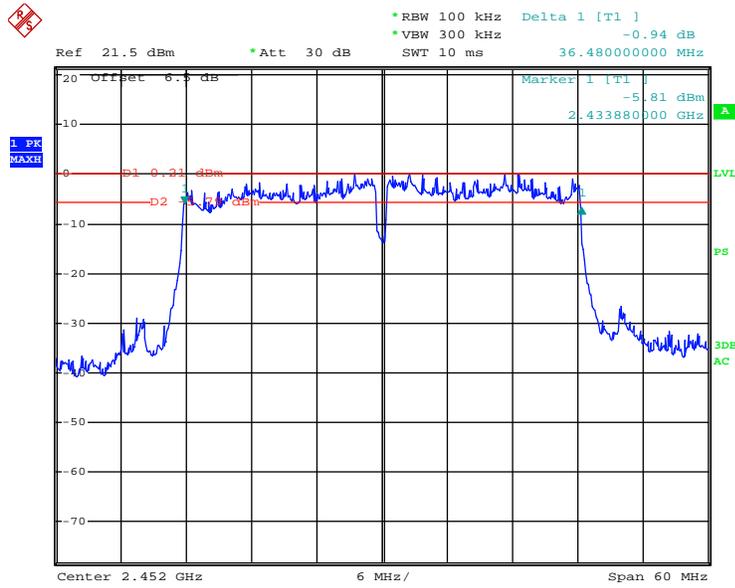
EUT
Date: 23.DEC.2011 22:27:51

802.11n-HT40 Middle Channel, Chain 0



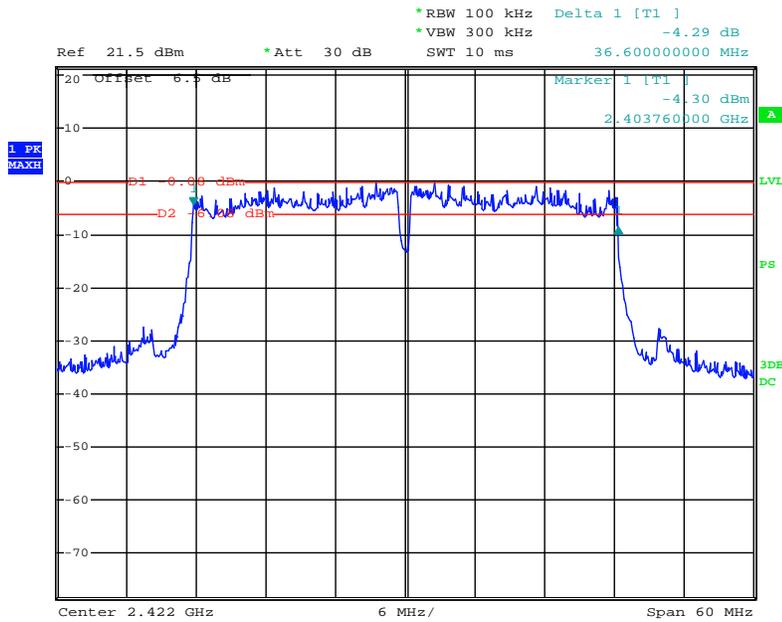
EUT
Date: 23.DEC.2011 22:41:59

802.11n-HT40 High Channel, Chain 0



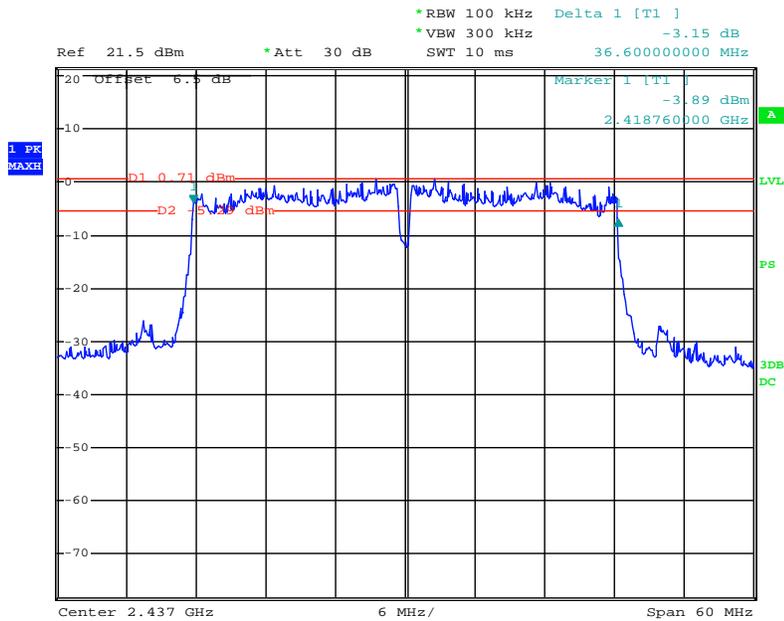
EUT
Date: 23.DEC.2011 22:54:15

802.11n-HT40 Low Channel, Chain 1



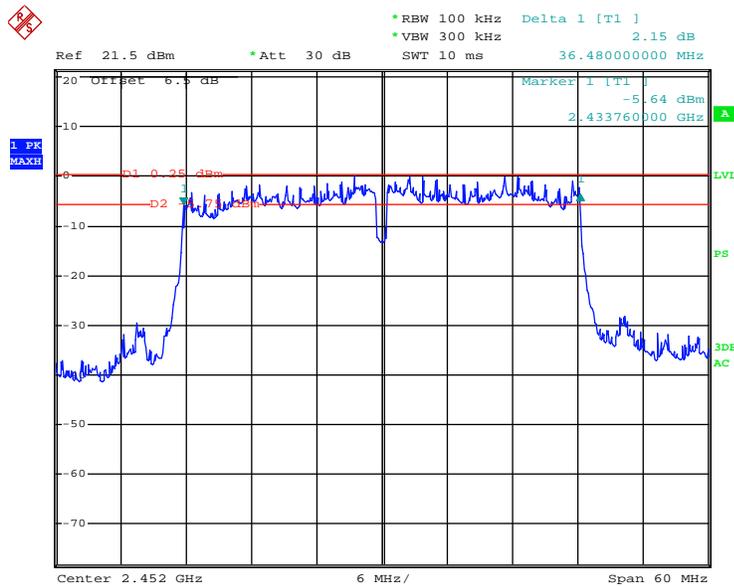
Date: 22.DEC.2011 21:21:19

802.11n-HT40 Middle Channel, Chain 1



Date: 22.DEC.2011 21:27:10

802.11n-HT40 High Channel, Chain 1



EUT

Date: 23.DEC.2011 23:00:20

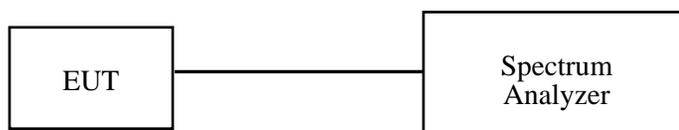
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

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	2011-11-11	2012-11-10

* **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

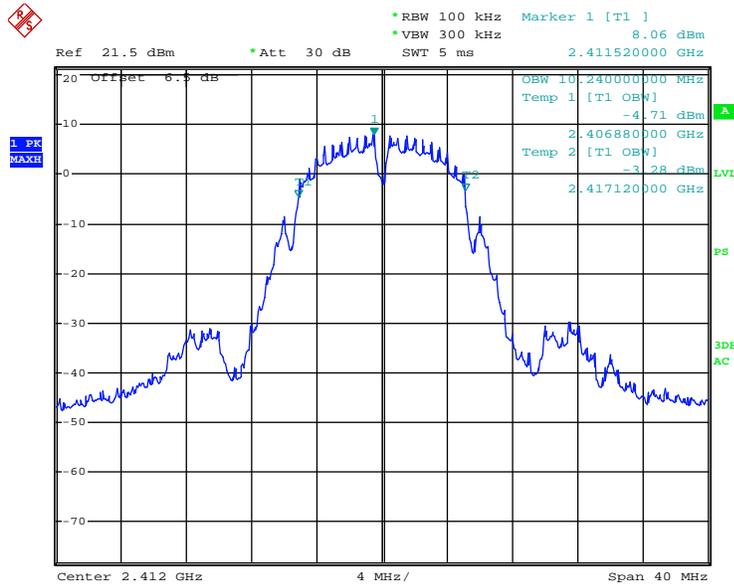
Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao from 2011-12-20 to 2011-12-24.

Test Mode: Transmitting

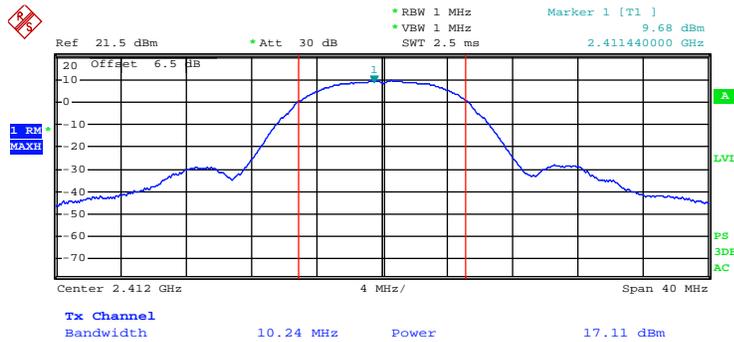
Channel	Frequency (MHz)	Antenna Port	Conducted Output Power (dBm)		Limit (dBm)	Result
802.11b mode						
Low	2412	Chain 0	17.11	17.78	30	Pass
		Chain 1	17.84			
Middle	2437	Chain 0	17.01	18.63	30	Pass
		Chain 1	17.76			
High	2462	Chain 0	16.90	17.36	30	Pass
		Chain 1	16.91			
802.11g mode						
Low	2412	Chain 0	16.55	17.78	30	Pass
		Chain 1	15.87			
Middle	2437	Chain 0	16.47	18.63	30	Pass
		Chain 1	15.81			
High	2462	Chain 0	16.43	17.36	30	Pass
		Chain 1	15.93			
802.11n-HT20 mode						
Low	2412	Chain 0	14.10	17.78	30	Pass
		Chain 1	15.34			
Middle	2437	Chain 0	15.62	18.63	30	Pass
		Chain 1	15.69			
High	2462	Chain 0	14.36	17.36	30	Pass
		Chain 1	14.34			
802.11n-HT40 mode						
Low	2422	Chain 0	15.18	17.97	30	Pass
		Chain 1	14.74			
Middle	2437	Chain 0	15.20	18.25	30	Pass
		Chain 1	15.29			
High	2452	Chain 0	15.49	18.38	30	Pass
		Chain 1	15.26			

802.11b 99% Occupied Bandwidth, Low Channel, Chain 0



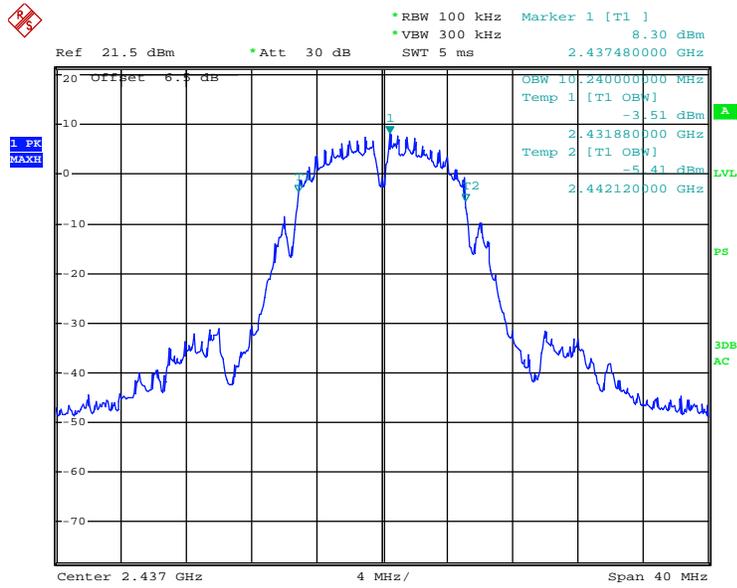
EUT
Date: 24.DEC.2011 00:03:37

802.11b RF Output Power, Low Channel, Chain 0



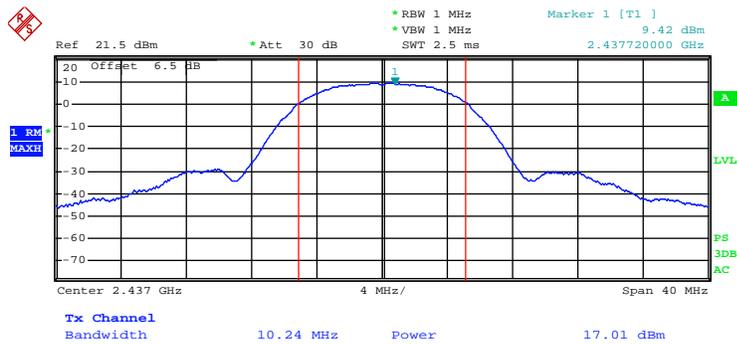
EUT
Date: 24.DEC.2011 00:04:24

802.11b 99% Occupied Bandwidth, Middle Channel, Chain 0



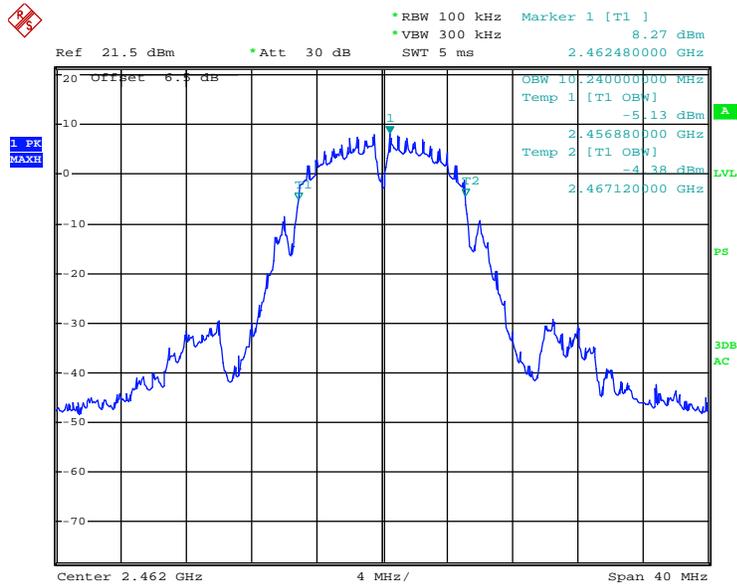
EUT
Date: 24.DEC.2011 00:17:14

802.11b RF Output Power, Middle Channel, Chain 0



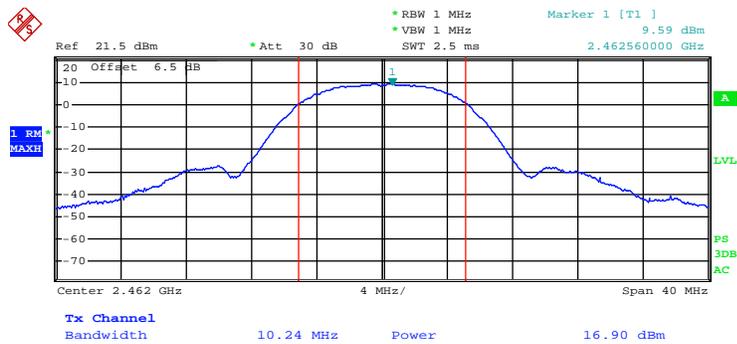
EUT
Date: 24.DEC.2011 00:18:47

802.11b 99% Occupied Bandwidth, High Channel, Chain 0



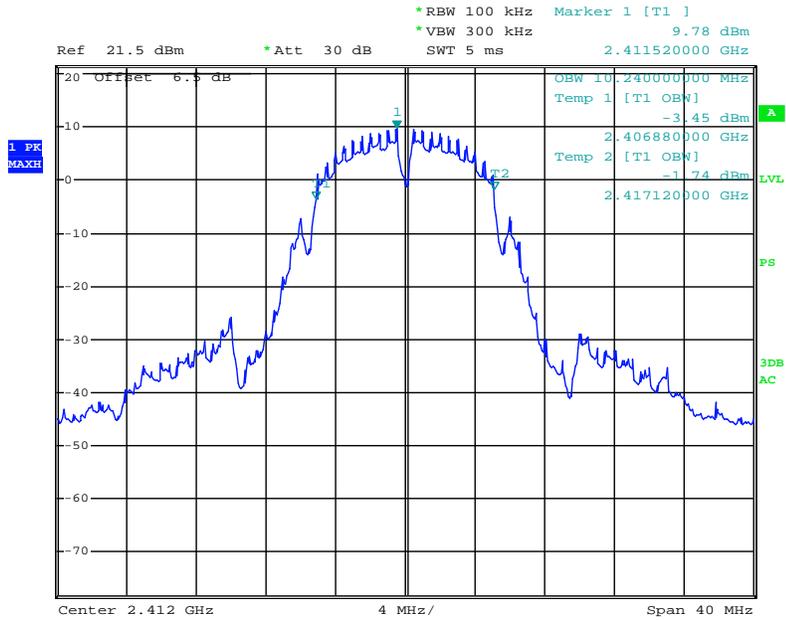
EUT
Date: 24.DEC.2011 00:30:44

802.11b RF Output Power, High Channel, Chain 0



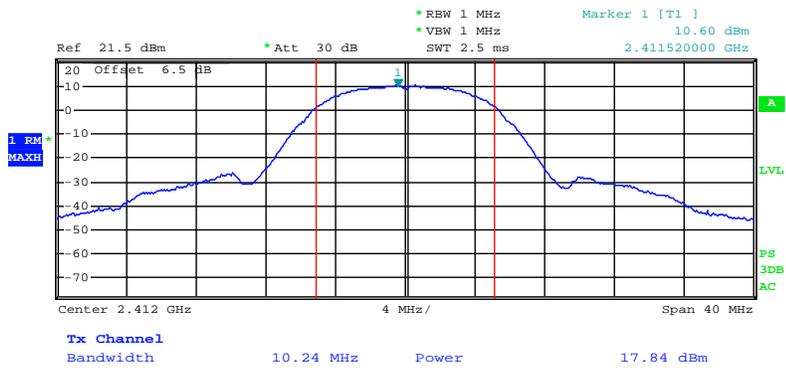
EUT
Date: 24.DEC.2011 00:31:43

802.11b 99% Occupied Bandwidth, Low Channel, Chain 1



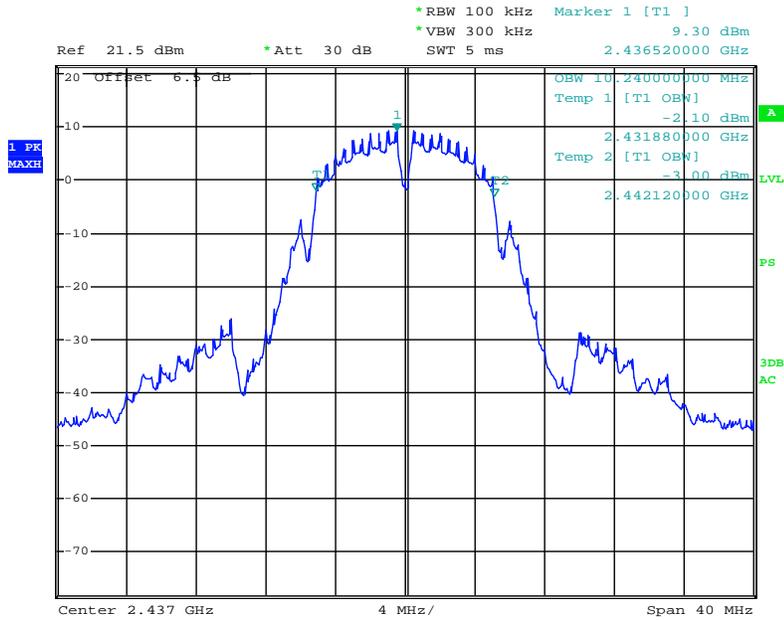
Date: 20.DEC.2011 19:54:27

802.11b RF Output Power, Low Channel, Chain 1



Date: 20.DEC.2011 19:55:11

802.11b 99% Occupied Bandwidth, Middle Channel, Chain 1



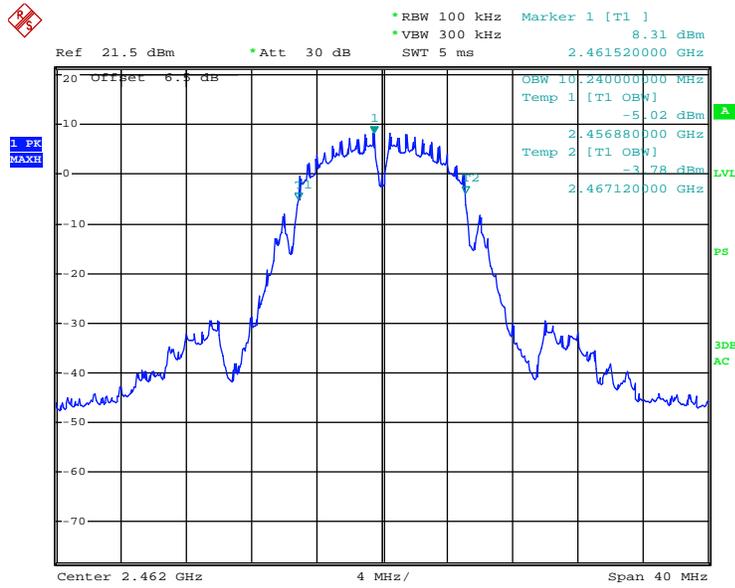
Date: 20.DEC.2011 20:13:37

802.11b RF Output Power, Middle Channel, Chain 1



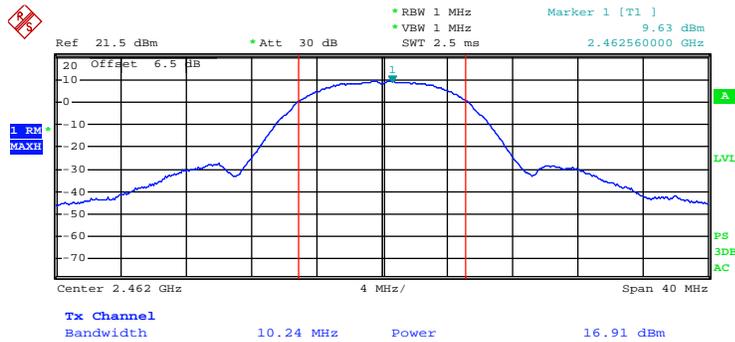
Date: 20.DEC.2011 20:14:18

802.11b 99% Occupied Bandwidth, High Channel, Chain 1



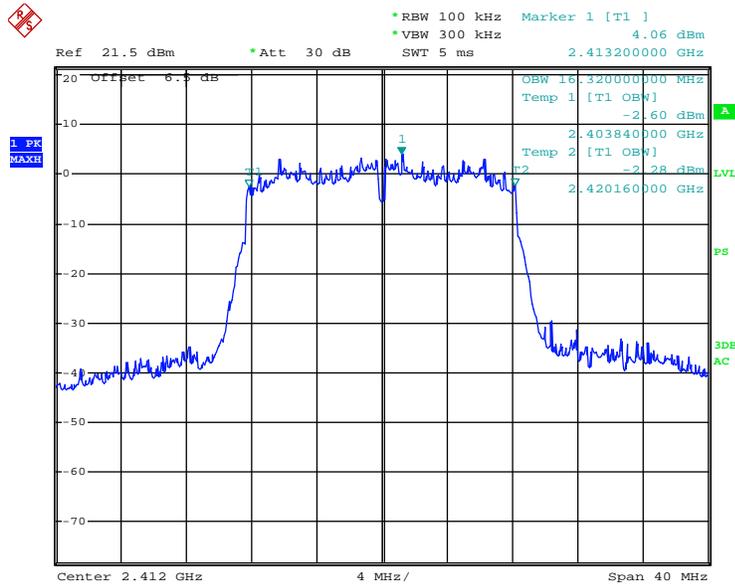
EUT
Date: 24.DEC.2011 00:37:11

802.11b RF Output Power, High Channel, Chain 1



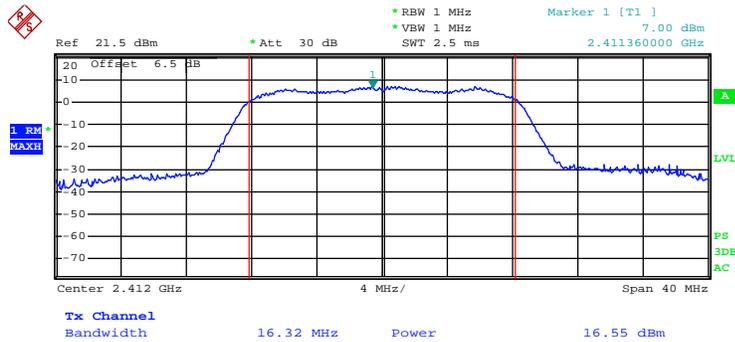
EUT
Date: 24.DEC.2011 00:38:17

802.11g 99% Occupied Bandwidth, Low Channel, Chain 0



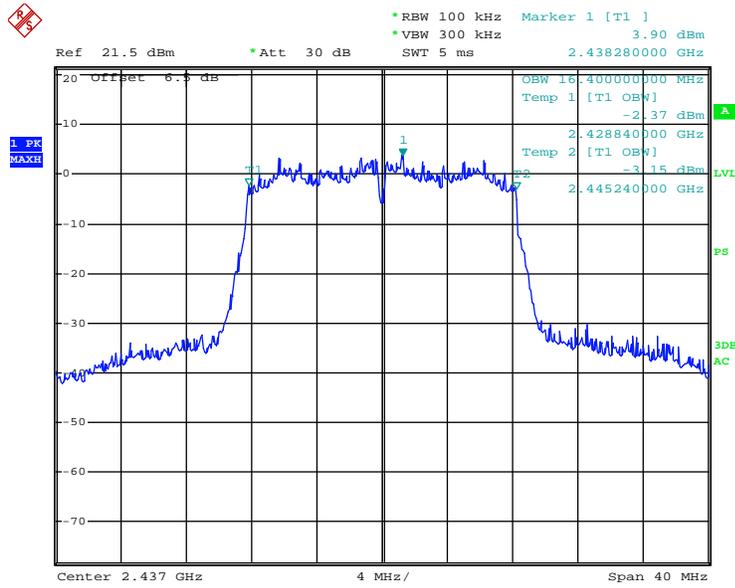
EUT
Date: 23.DEC.2011 20:50:37

802.11g RF Output Power, Low Channel, Chain 0



EUT
Date: 23.DEC.2011 20:51:45

802.11g 99% Occupied Bandwidth, Middle Channel, Chain 0



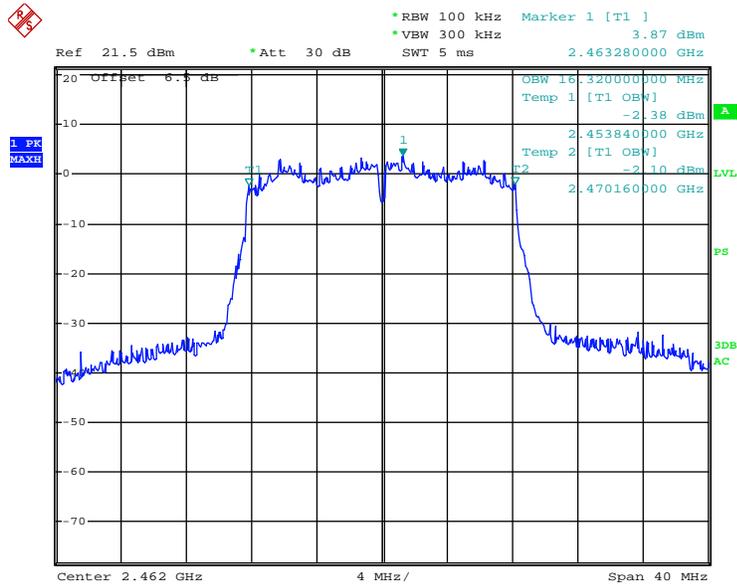
EUT
Date: 23.DEC.2011 21:05:21

802.11g RF Output Power, Middle Channel, Chain 0



EUT
Date: 23.DEC.2011 21:06:04

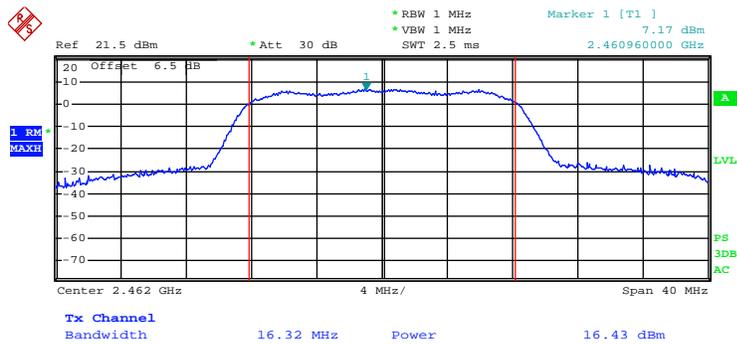
802.11g 99% Occupied Bandwidth, High Channel, Chain 0



EUT

Date: 23.DEC.2011 21:22:02

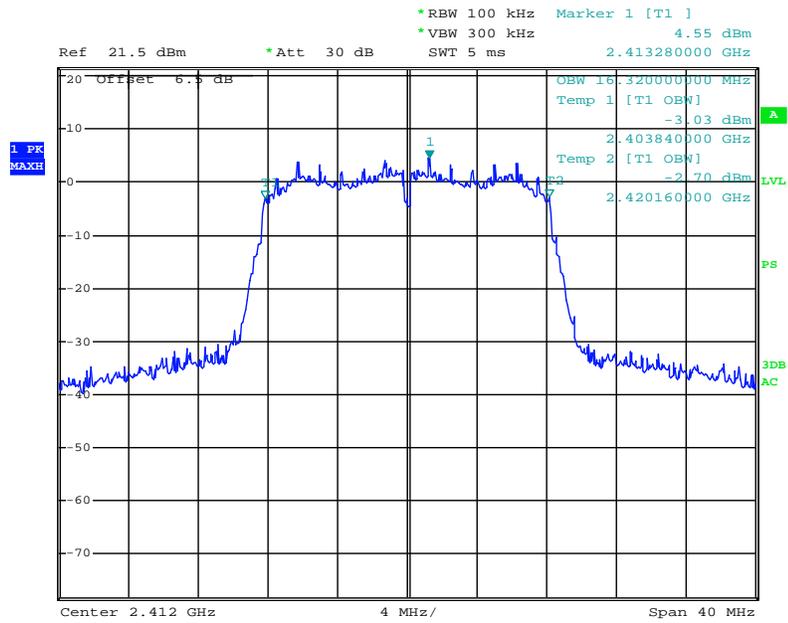
802.11g RF Output Power, High Channel, Chain 0



EUT

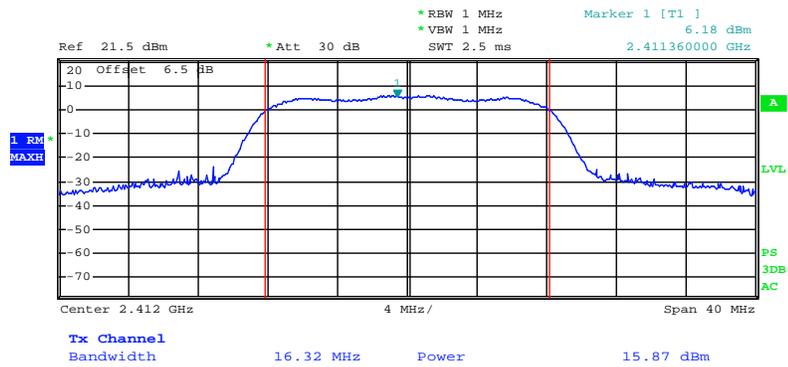
Date: 23.DEC.2011 21:22:42

802.11g 99% Occupied Bandwidth, Low Channel, Chain 1



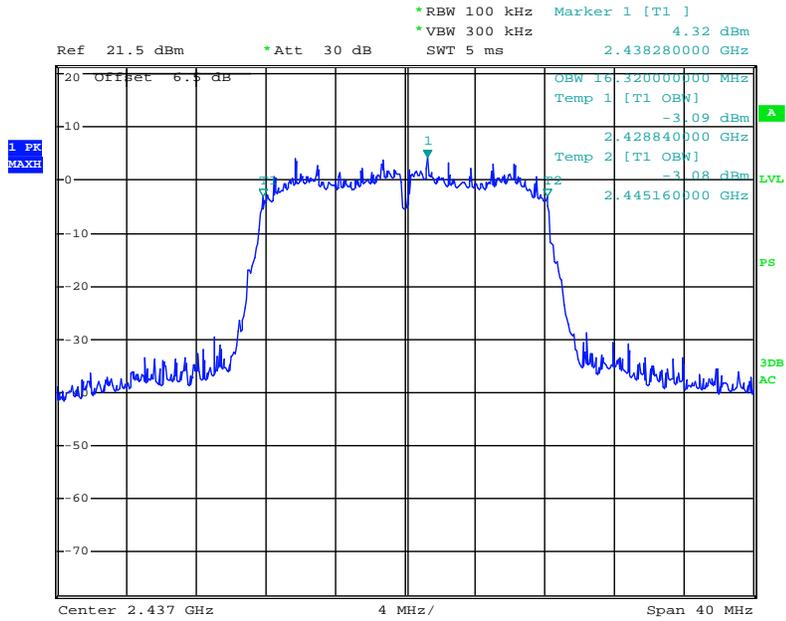
Date: 21.DEC.2011 18:16:05

802.11g RF Output Power, Low Channel, Chain 1



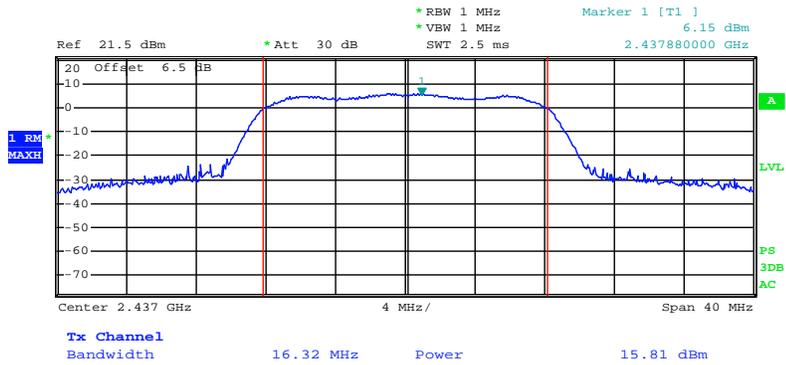
Date: 21.DEC.2011 18:17:26

802.11g 99% Occupied Bandwidth, Middle Channel, Chain 1



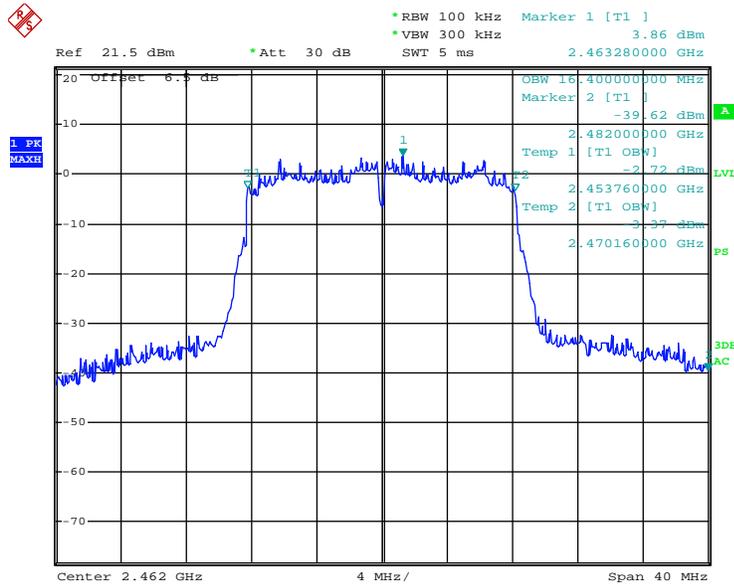
Date: 21.DEC.2011 18:33:03

802.11g RF Output Power, Middle Channel, Chain 1



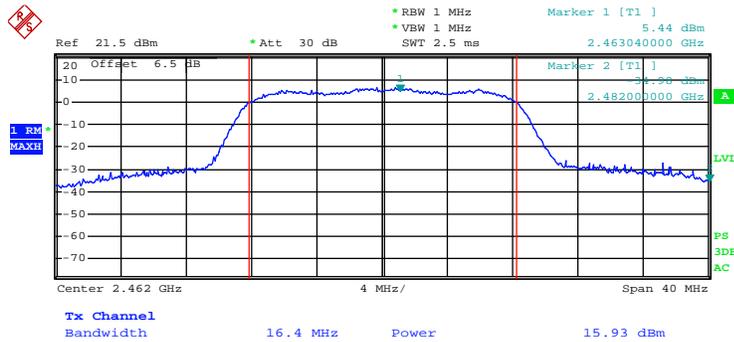
Date: 21.DEC.2011 18:33:48

802.11g 99% Occupied Bandwidth, High Channel, Chain 1



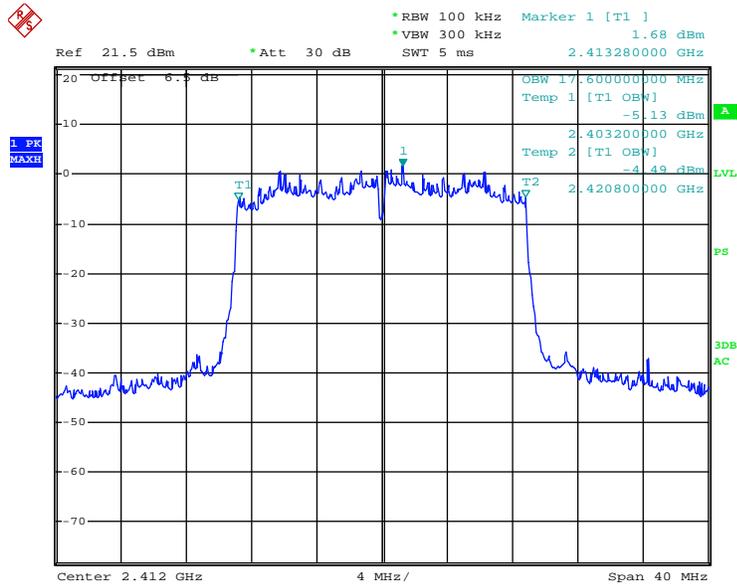
EUT
Date: 23.DEC.2011 21:24:32

802.11g RF Output Power, High Channel, Chain 1



EUT
Date: 23.DEC.2011 21:25:32

802.11n-HT20 99% Occupied Bandwidth, Low Channel, Chain 0



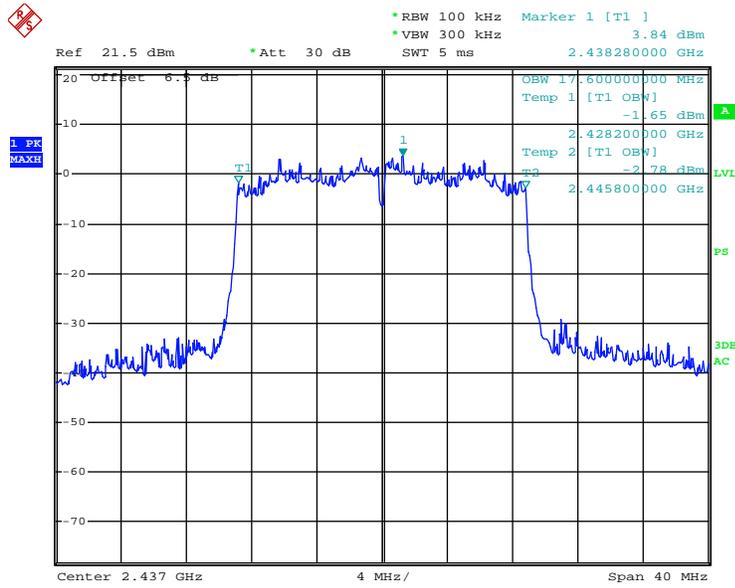
EUT
Date: 23.DEC.2011 21:43:46

802.11n-HT20 RF Output Power, Low Channel, Chain 0



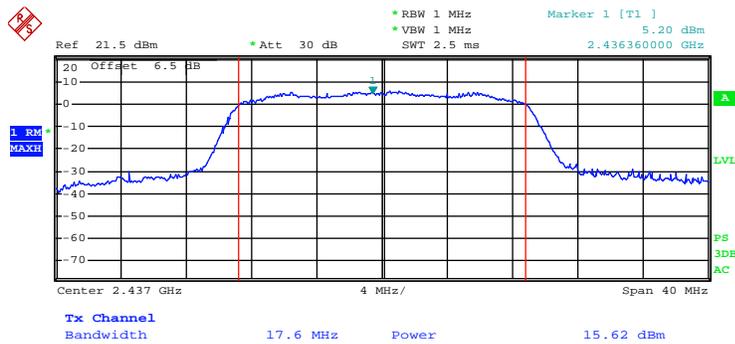
EUT
Date: 23.DEC.2011 21:50:20

802.11n-HT20 99% Occupied Bandwidth, Middle Channel, Chain 0



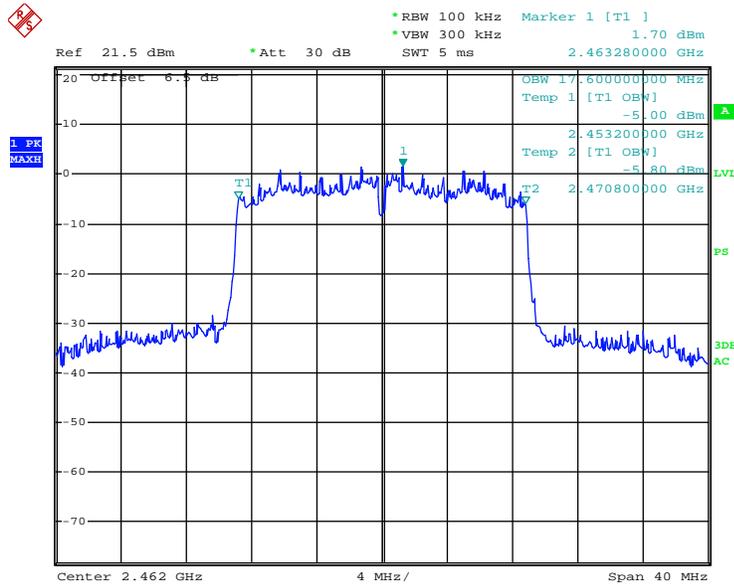
EUT
 Date: 23.DEC.2011 22:06:58

802.11n-HT20 RF Output Power, Middle Channel, Chain 0



EUT
 Date: 23.DEC.2011 22:07:31

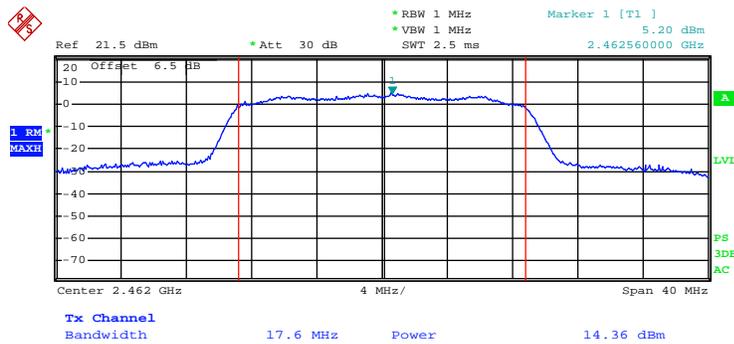
802.11n-HT20 99% Occupied Bandwidth, High Channel, Chain 0



EUT

Date: 23.DEC.2011 23:24:36

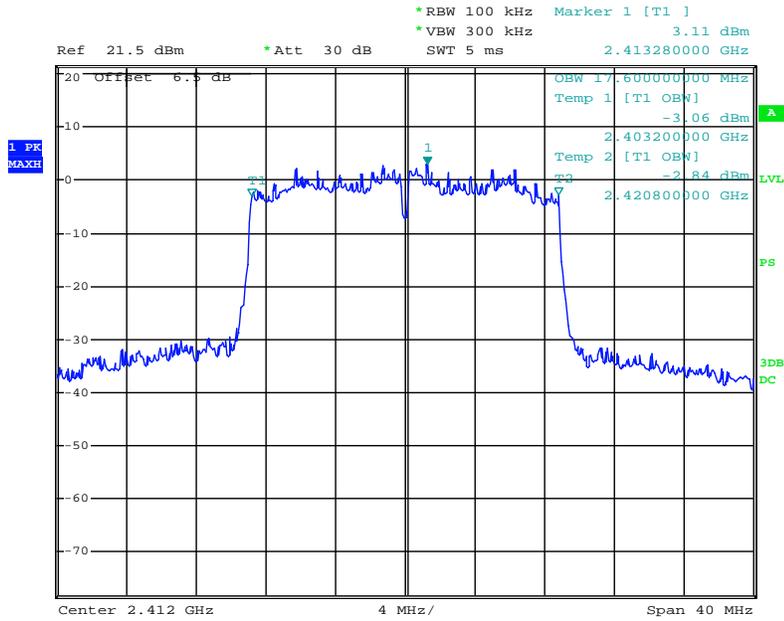
802.11n-HT20 RF Output Power, High Channel, Chain 0



EUT

Date: 23.DEC.2011 23:25:23

802.11n-HT20 99% Occupied Bandwidth, Low Channel, Chain 1



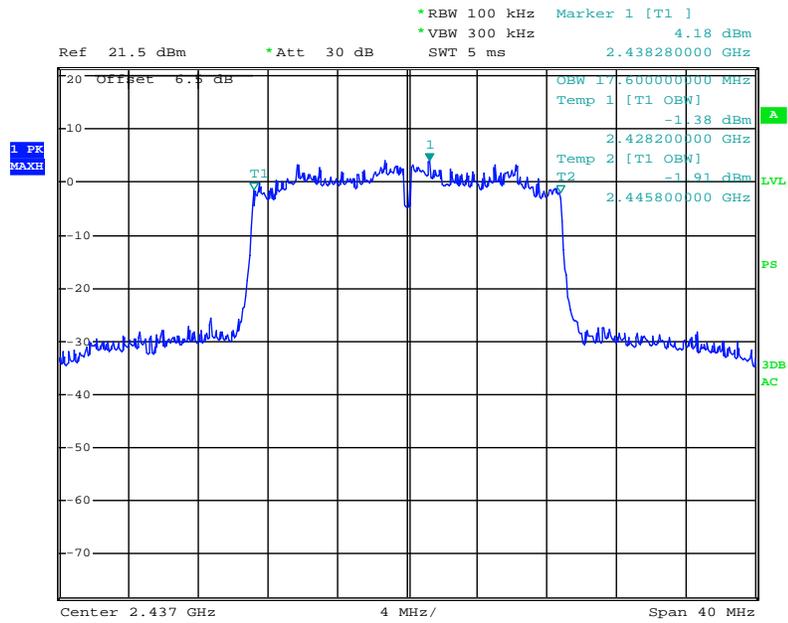
Date: 22.DEC.2011 19:11:37

802.11n-HT20 RF Output Power, Low Channel, Chain 1



Date: 22.DEC.2011 19:13:23

802.11n-HT20 99% Occupied Bandwidth, Middle Channel, Chain 1



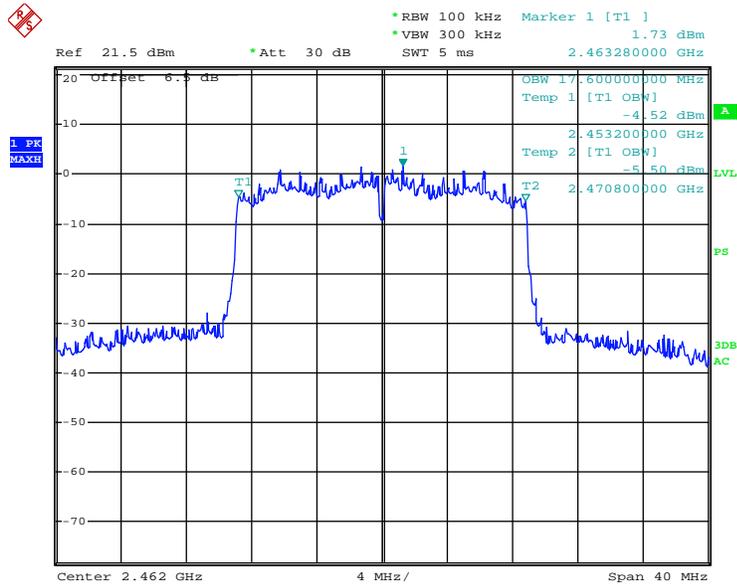
Date: 21.DEC.2011 19:32:20

802.11n-HT20 RF Output Power, Middle Channel, Chain 1



Date: 21.DEC.2011 19:33:12

802.11n-HT20 99% Occupied Bandwidth, High Channel, Chain 1



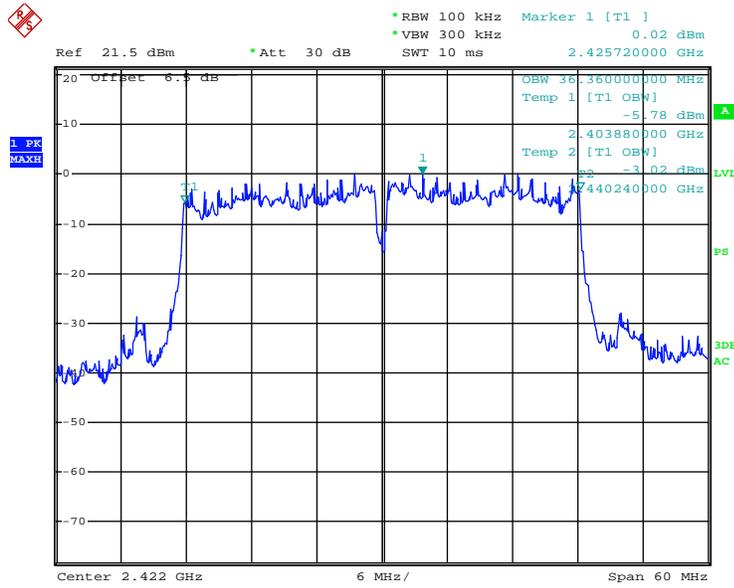
EUT
Date: 23.DEC.2011 23:29:28

802.11n-HT20 RF Output Power, High Channel, Chain 1



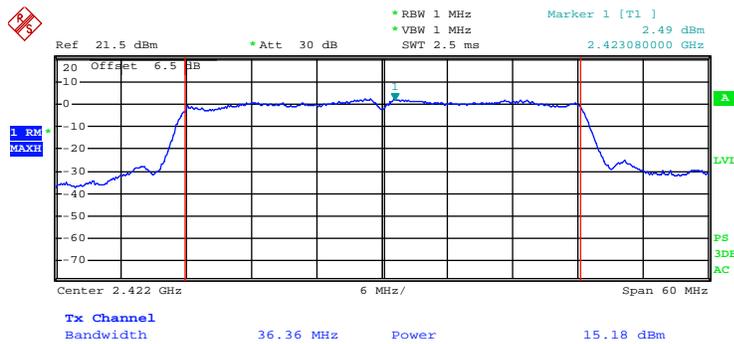
EUT
Date: 23.DEC.2011 23:30:20

802.11n-HT40 99% Occupied Bandwidth, Low Channel, Chain 0



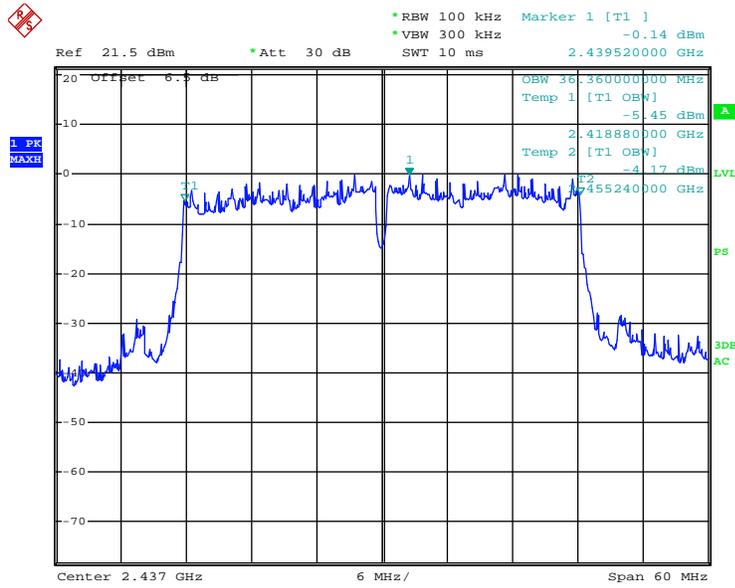
EUT
Date: 23.DEC.2011 22:28:55

802.11n-HT40 RF Output Power, Low Channel, Chain 0



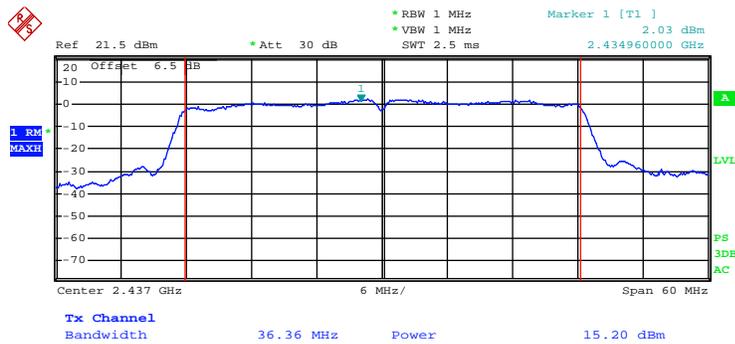
EUT
Date: 23.DEC.2011 22:29:23

802.11n-HT40 99% Occupied Bandwidth, Middle Channel, Chain 0



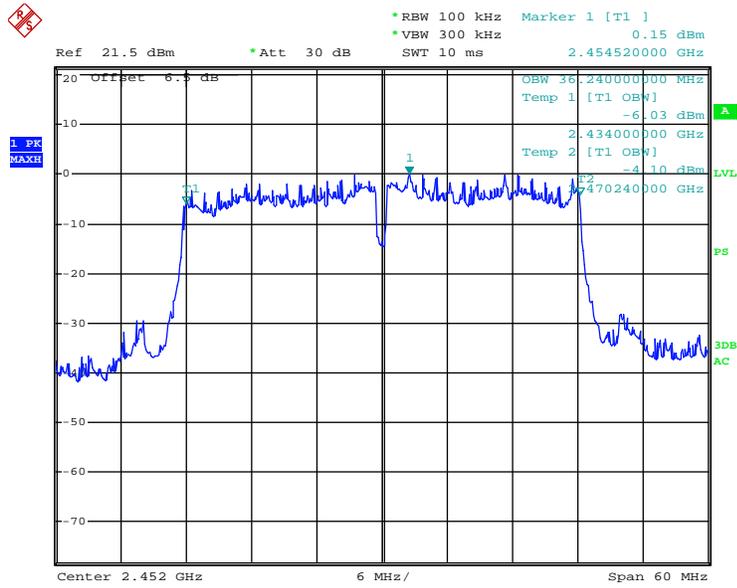
EUT
Date: 23.DEC.2011 22:43:12

802.11n-HT40 RF Output Power, Middle Channel, Chain 0



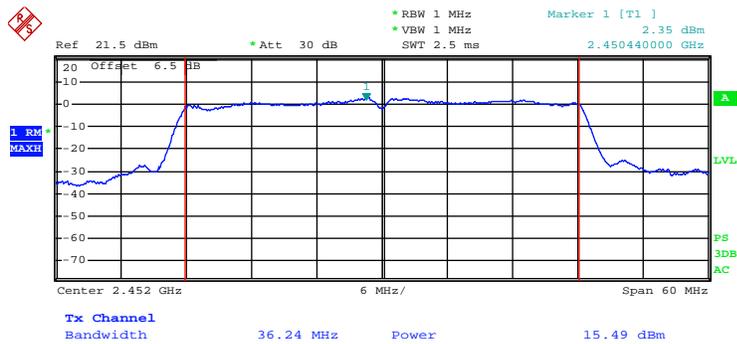
EUT
Date: 23.DEC.2011 22:43:43

802.11n-HT40 99% Occupied Bandwidth, High Channel, Chain 0



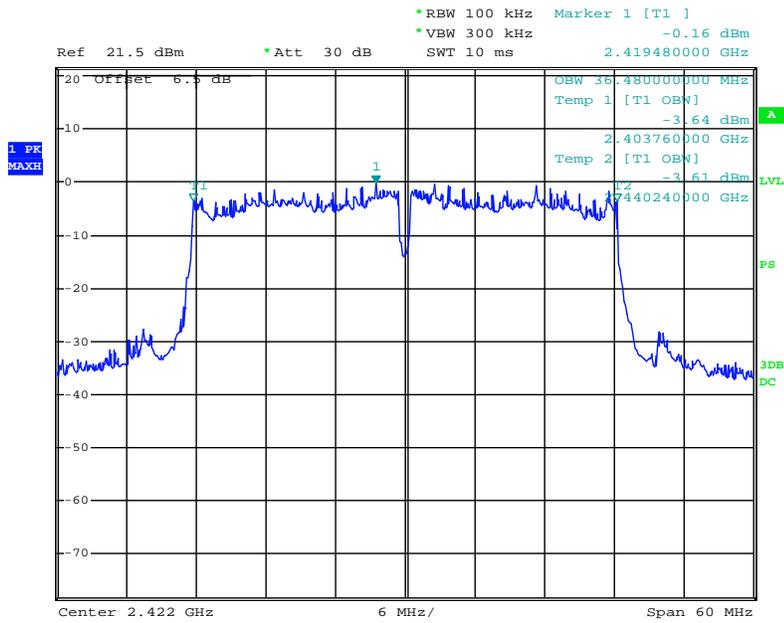
EUT
Date: 23.DEC.2011 22:54:54

802.11n-HT40 RF Output Power, High Channel, Chain 0



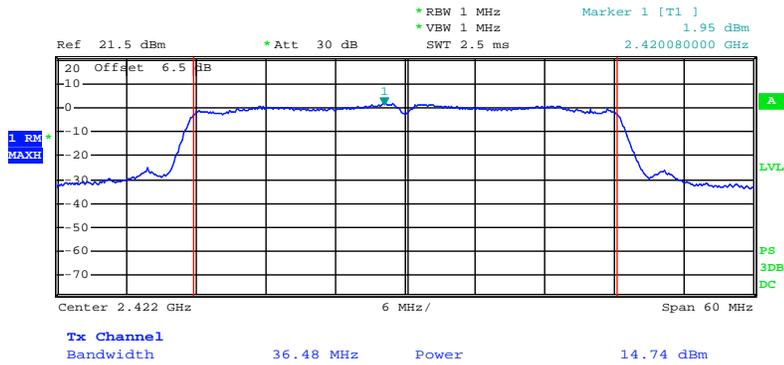
EUT
Date: 23.DEC.2011 22:56:00

802.11n-HT40 99% Occupied Bandwidth, Low Channel, Chain 1



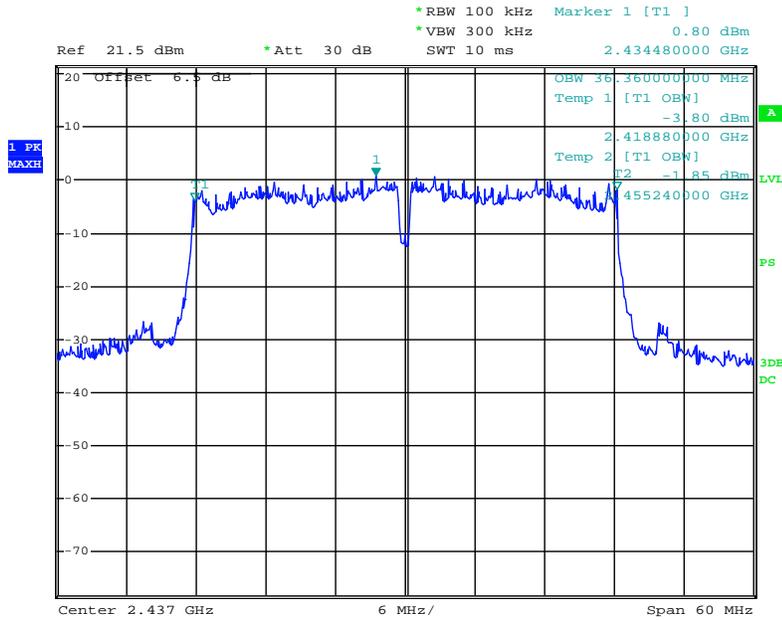
Date: 22.DEC.2011 21:22:41

802.11n-HT40 RF Output Power, Low Channel, Chain 1



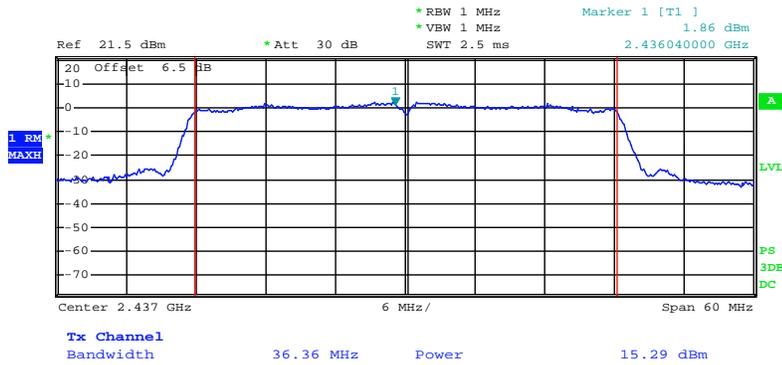
Date: 22.DEC.2011 21:23:23

802.11n-HT40 99% Occupied Bandwidth, Middle Channel, Chain 1



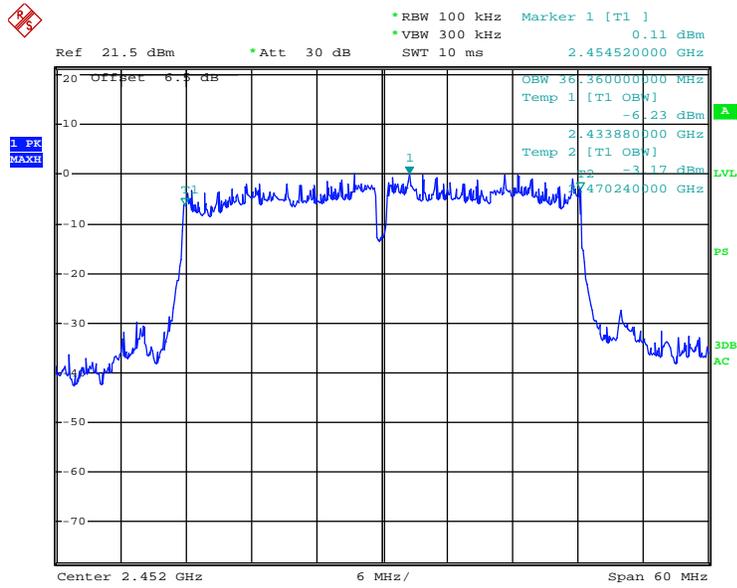
Date: 22.DEC.2011 21:28:21

802.11n-HT40 RF Output Power, Middle Channel, Chain 1



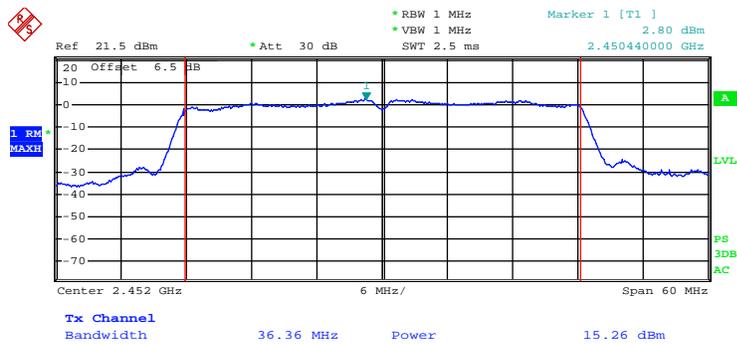
Date: 22.DEC.2011 21:29:33

802.11n-HT40 99% Occupied Bandwidth, High Channel, Chain 1



EUT
Date: 23.DEC.2011 23:01:13

802.11n-HT40 RF Output Power, High Channel, Chain 1



EUT
Date: 23.DEC.2011 23:01:45

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

Applicable Standard

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

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10

* **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

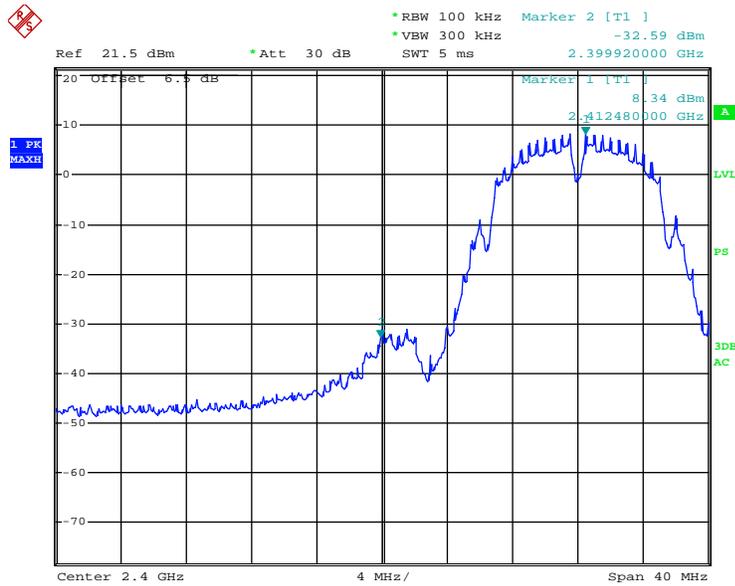
The testing was performed by Jimmy Xiao from 2011-12-20 to 2011-12-24.

Test Result: *Compliance.*

Please refer to following table and plots:

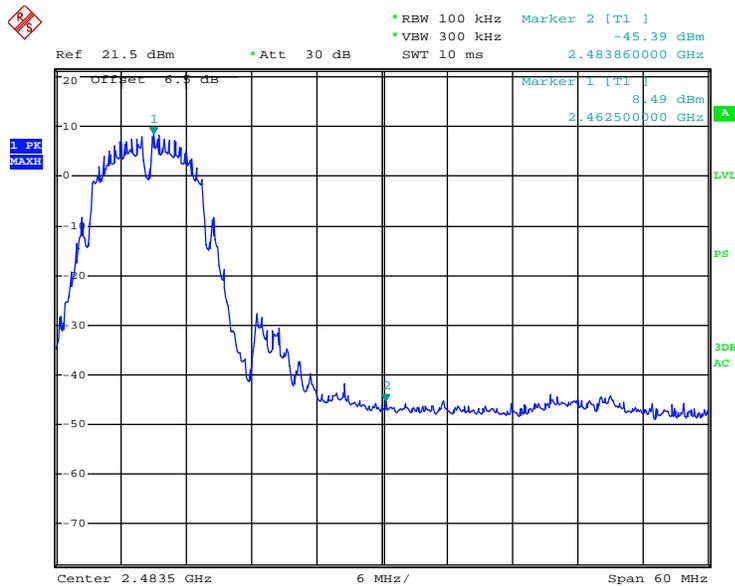
Frequency (MHz)	Antenna Port	Delta Peak to Band Emission (dBc)	Delta Limit (dBc)	Result
802.11b mode				
2399.92	Chain 0	40.93	20	Pass
2399.50	Chain 1	42.18		
2483.86	Chain 0	53.88	20	Pass
2486.26	Chain 1	53.57		
802.11g mode				
2399.50	Chain 0	40.85	20	Pass
2399.20	Chain 1	38.31		
2483.86	Chain 0	42.54	20	Pass
2484.22	Chain 1	44.16		
802.11n-HT20 mode				
2399.52	Chain 0	41.07	20	Pass
2399.90	Chain 1	34.46		
2484.22	Chain 0	40.50	20	Pass
2483.74	Chain 1	38.13		
802.11n-HT40 mode				
2399.92	Chain 0	29.73	20	Pass
2399.52	Chain 1	27.64		
2484.62	Chain 0	31.16	20	Pass
2484.62	Chain 1	31.77		

802.11b: Band Edge, Left Side, Chain 0



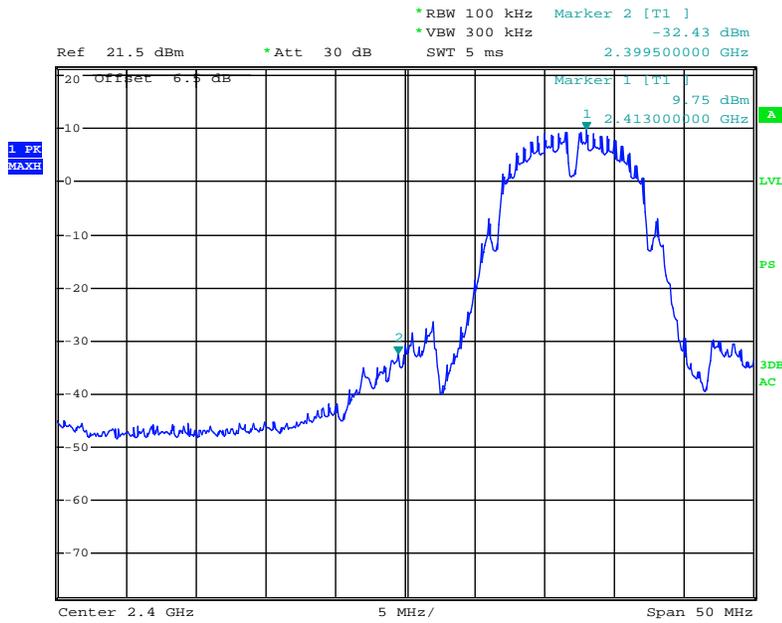
EUT
Date: 24.DEC.2011 00:05:19

802.11b: Band Edge, Right Side, Chain 0



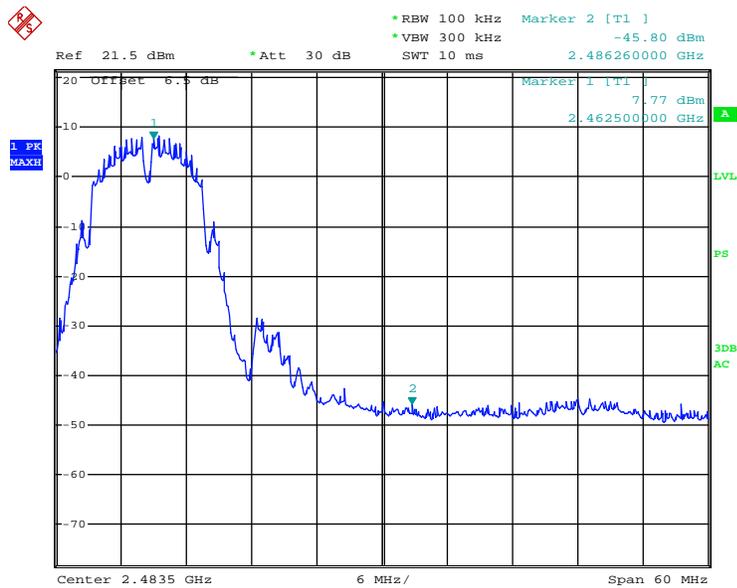
EUT
Date: 24.DEC.2011 00:33:19

802.11b: Band Edge, Left Side, Chain 1



Date: 20.DEC.2011 19:57:42

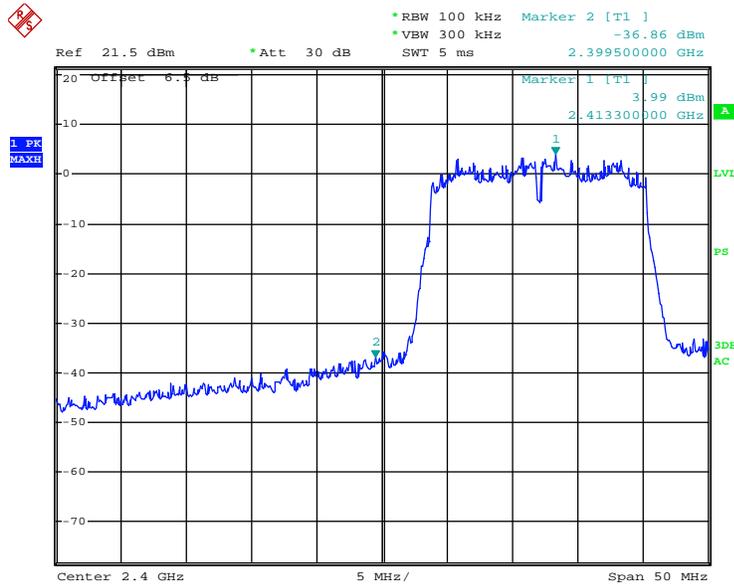
802.11b: Band Edge, Right Side, Chain 1



EUT

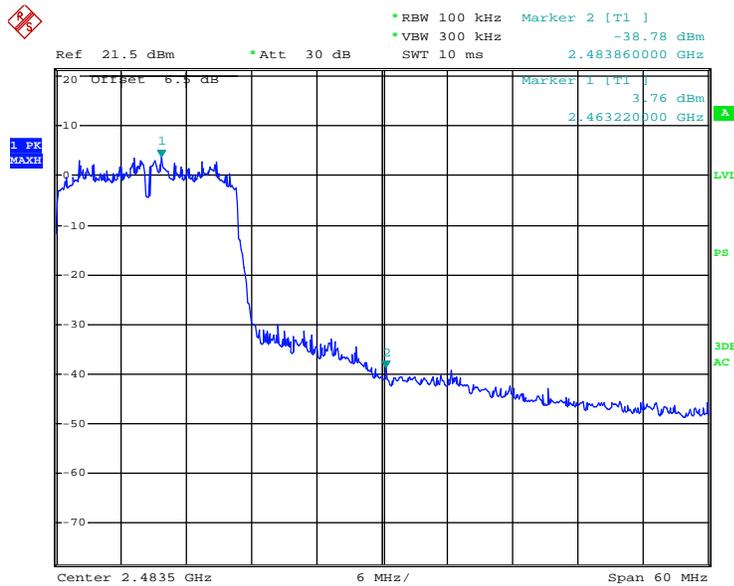
Date: 24.DEC.2011 00:33:56

802.11g: Band Edge, Left Side, Chain 0



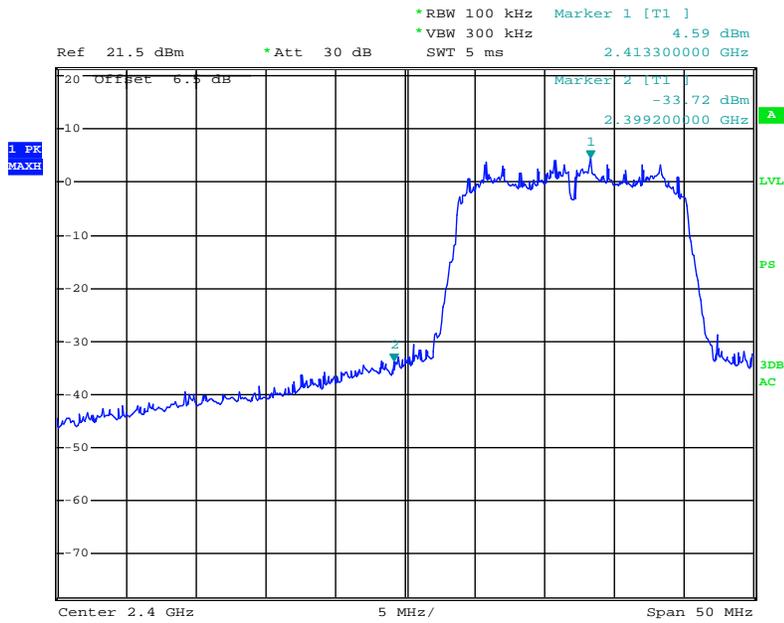
EUT
Date: 23.DEC.2011 20:52:46

802.11g: Band Edge, Right Side, Chain 0



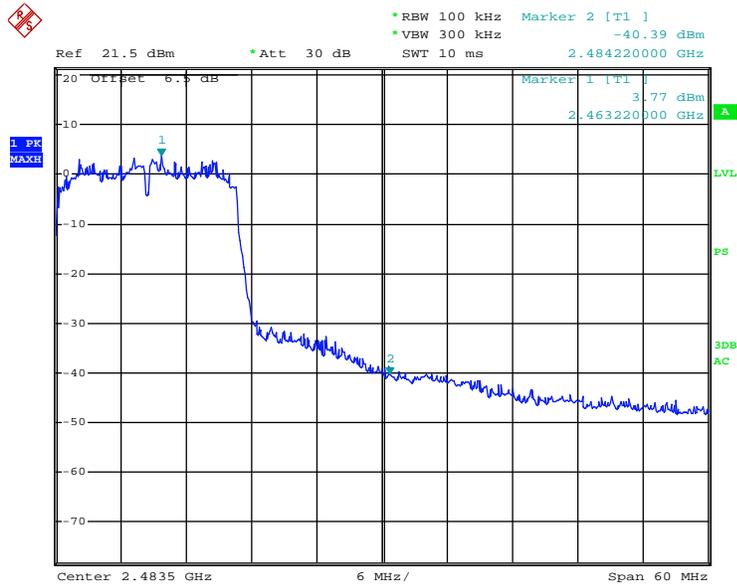
EUT
Date: 23.DEC.2011 21:23:52

802.11g: Band Edge, Left Side, Chain 1



Date: 21.DEC.2011 18:21:24

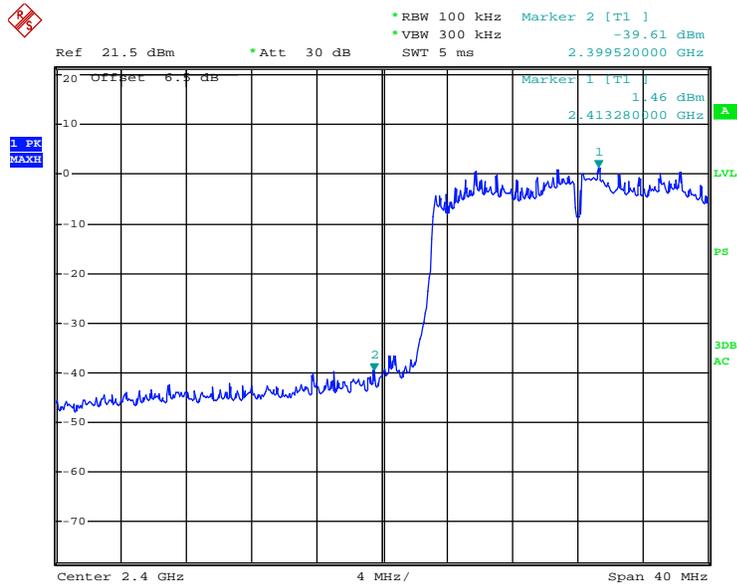
802.11g: Band Edge, Right Side, Chain 1



EUT

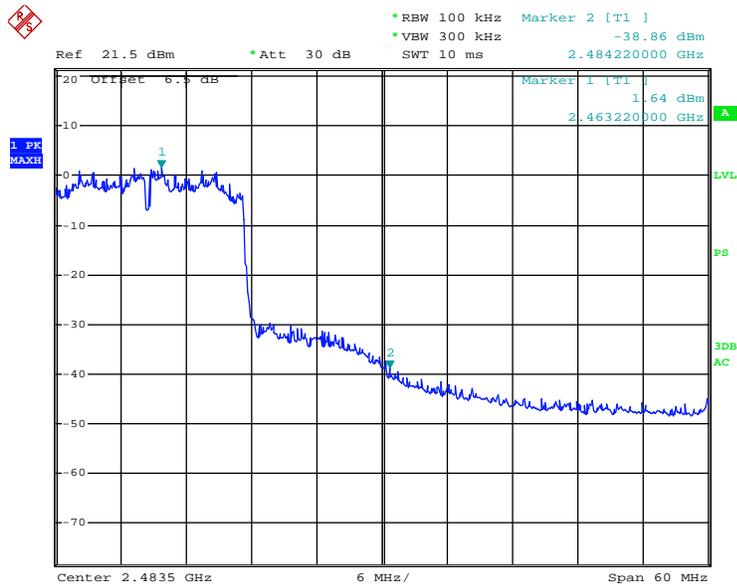
Date: 23.DEC.2011 21:27:31

802.11n-HT20: Band Edge, Left Side, Chain 0



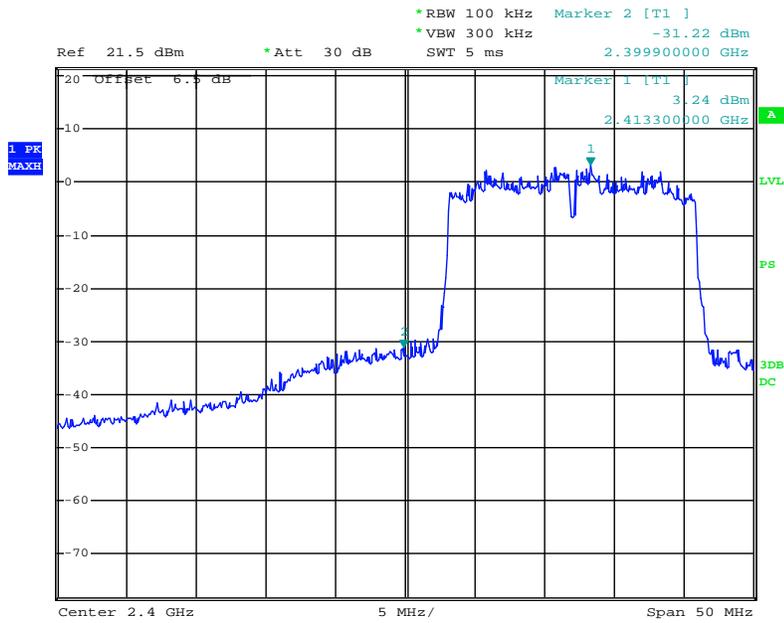
EUT
Date: 23.DEC.2011 21:55:28

802.11n-HT20: Band Edge, Right Side, Chain 0



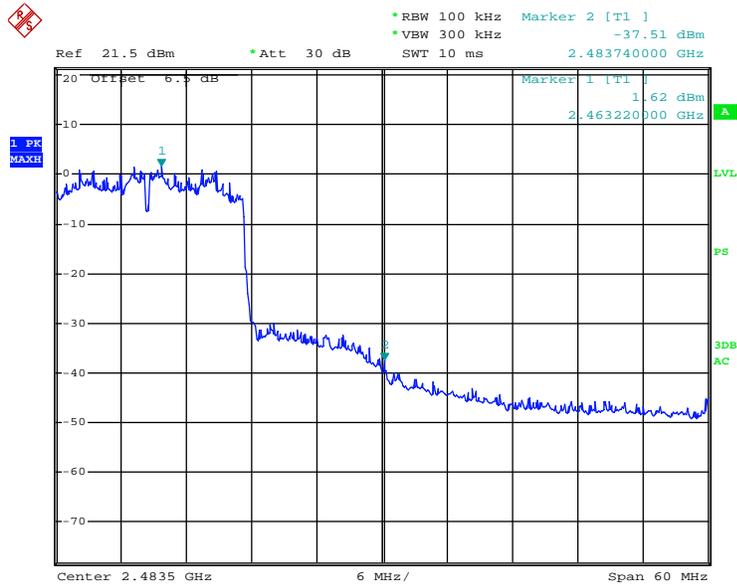
EUT
Date: 23.DEC.2011 23:26:38

802.11n-HT20: Band Edge, Left Side, Chain 1



Date: 22.DEC.2011 19:16:09

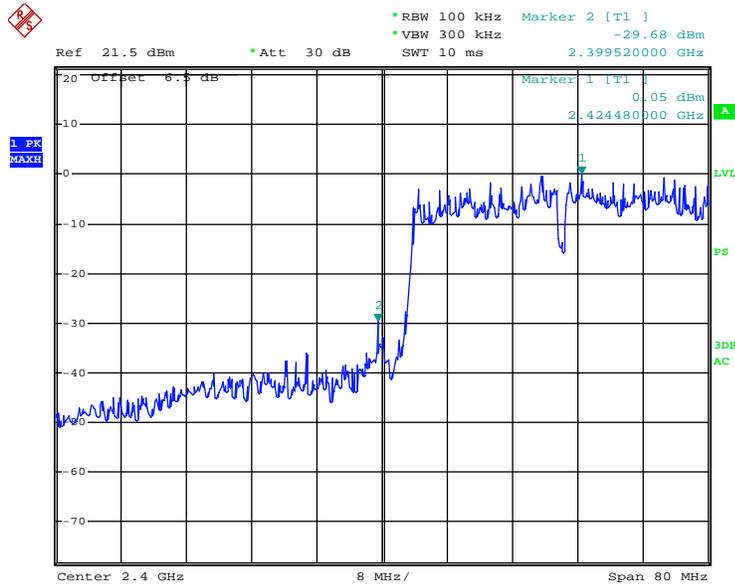
802.11n-HT20: Band Edge, Right Side, Chain 1



EUT

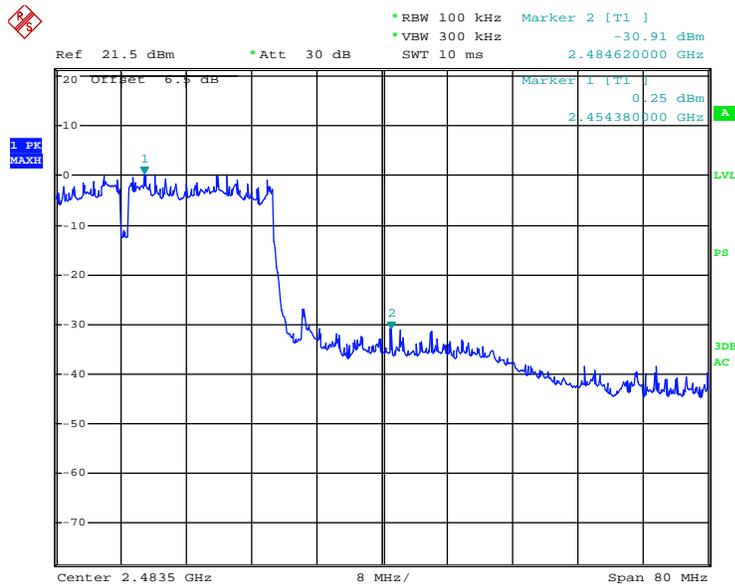
Date: 23.DEC.2011 23:27:09

802.11n-HT40: Band Edge, Left Side, Chain 0



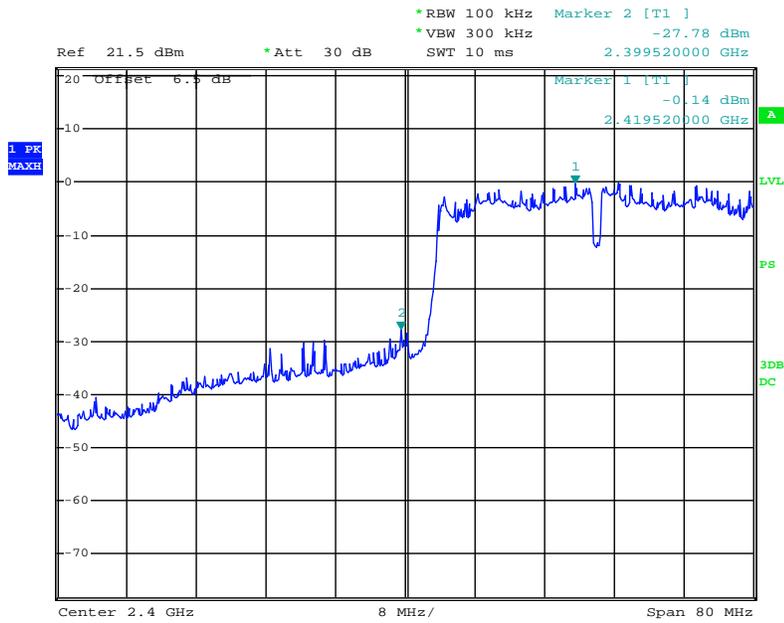
EUT
Date: 23.DEC.2011 22:30:57

802.11n-HT40: Band Edge, Right Side, Chain 0



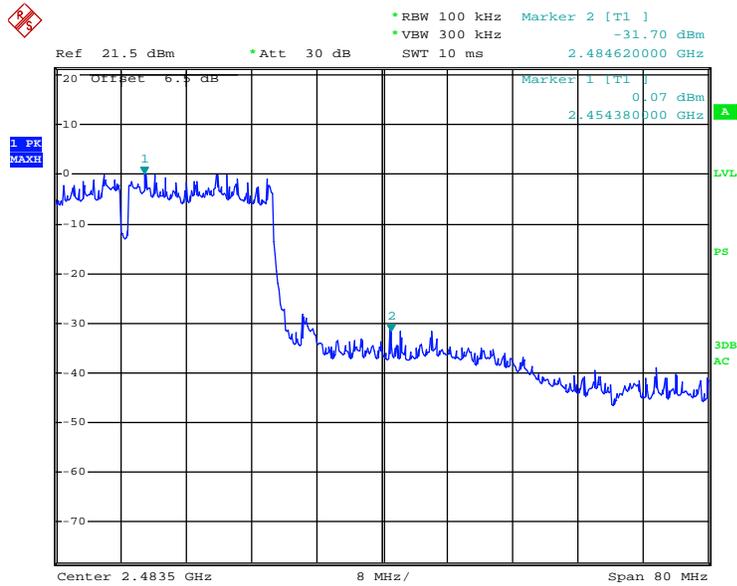
EUT
Date: 23.DEC.2011 22:56:54

802.11n-HT40: Band Edge, Left Side, Chain 1



Date: 22.DEC.2011 21:25:01

802.11n-HT40: Band Edge, Right Side, Chain 1



EUT

Date: 23.DEC.2011 22:57:15

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	2011-11-11	2012-11-10

* **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 from 2011-12-20 to 2011-12-24.

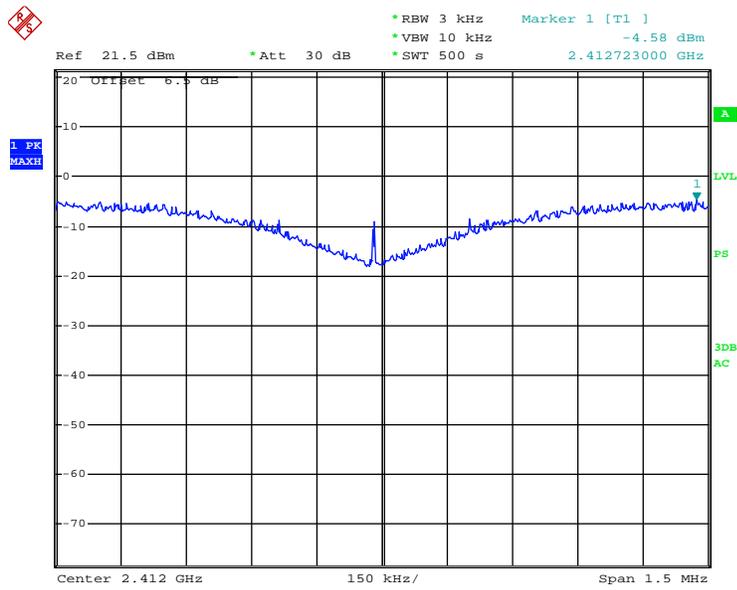
Test Mode: Transmitting

Test Result: Compliance.

Please refer to the following table and plots:

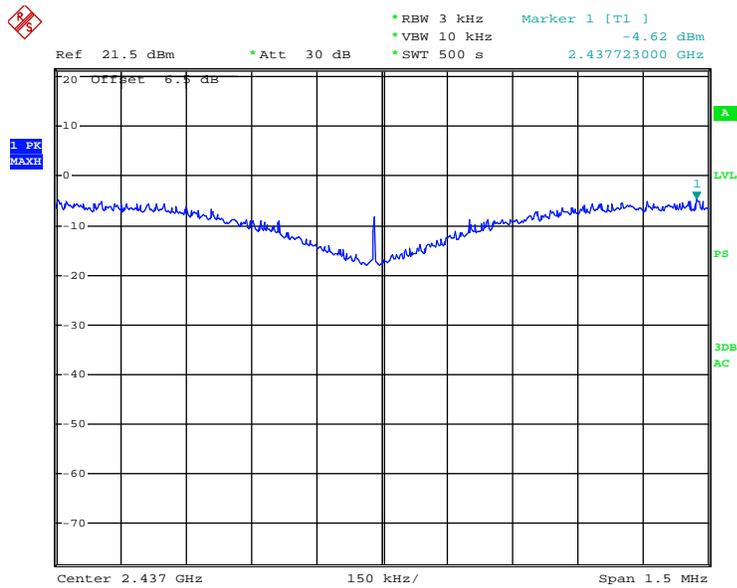
Channel	Frequency (MHz)	Antenna Port	Power Spectral Density (dBm)		Limit (dBm)	Result
802.11b mode						
Low	2412	Chain 0	-4.58		8	Pass
		Chain 1	-3.54			
Middle	2437	Chain 0	-4.62		8	Pass
		Chain 1	-3.75			
High	2462	Chain 0	-4.82		8	Pass
		Chain 1	-4.60			
802.11g mode						
Low	2412	Chain 0	-9.30		8	Pass
		Chain 1	-8.43			
Middle	2437	Chain 0	-9.35		8	Pass
		Chain 1	-8.48			
High	2462	Chain 0	-9.65		8	Pass
		Chain 1	-9.28			
802.11n-HT20 mode						
Low	2412	Chain 0	-13.56	-9.51	8	Pass
		Chain 1	-11.69			
Middle	2437	Chain 0	-11.27	-7.94	8	Pass
		Chain 1	-10.66			
High	2462	Chain 0	-13.40	-10.26	8	Pass
		Chain 1	-13.15			
802.11n-HT40 mode						
Low	2422	Chain 0	-16.93	-14.26	8	Pass
		Chain 1	-17.65			
Middle	2437	Chain 0	-17.35	-14.06	8	Pass
		Chain 1	-16.81			
High	2452	Chain 0	-17.20	-14.12	8	Pass
		Chain 1	-17.07			

Power Spectral Density, 802.11b Low Channel, Chain 0



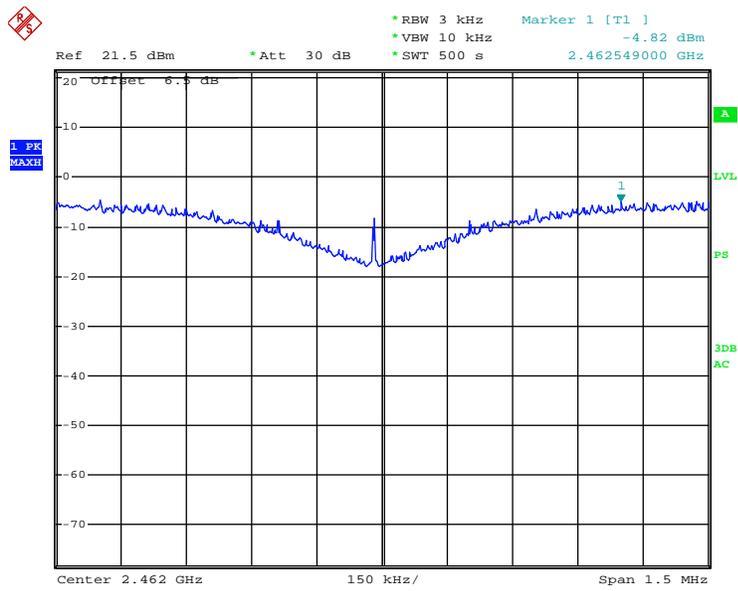
EUT
Date: 24.DEC.2011 00:15:14

Power Spectral Density, 802.11b Middle Channel, Chain 0



EUT
Date: 24.DEC.2011 00:28:22

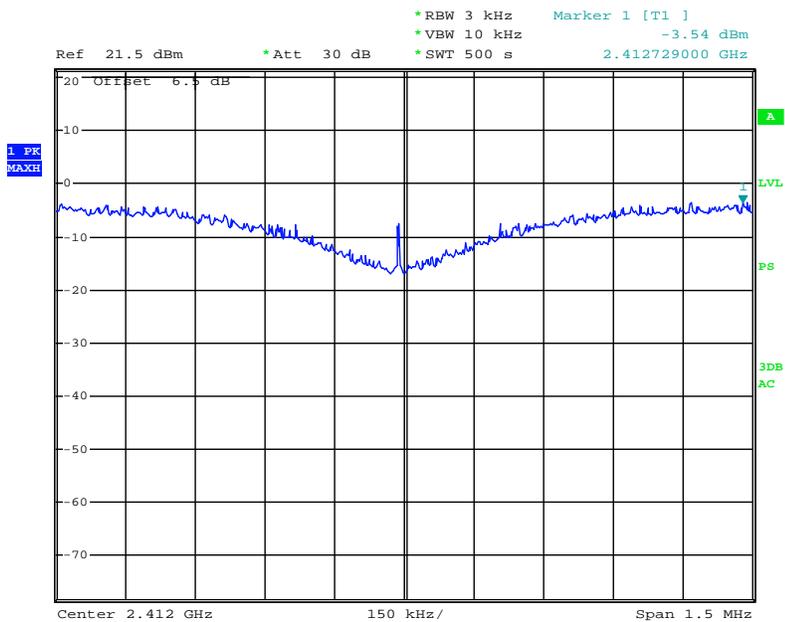
Power Spectral Density, 802.11b High Channel, Chain 0



EUT

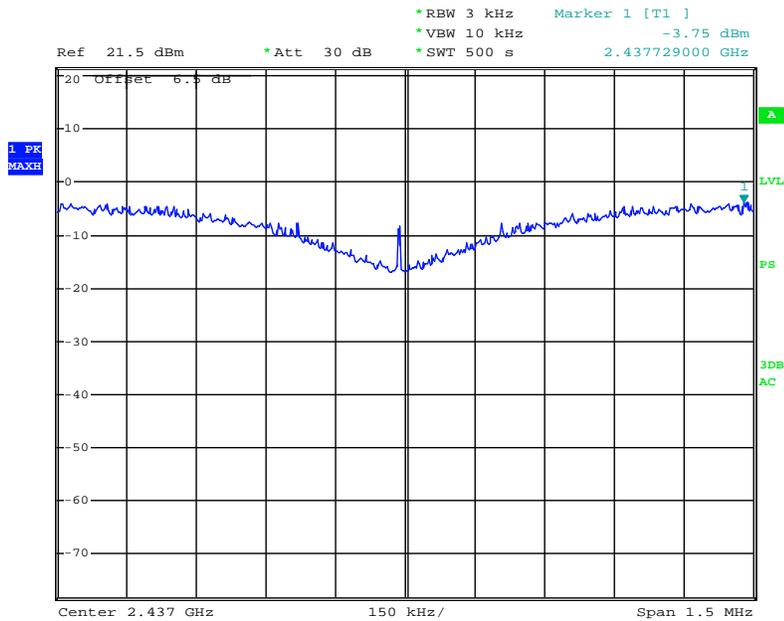
Date: 24.DEC.2011 00:51:50

Power Spectral Density, 802.11b Low Channel, Chain 1



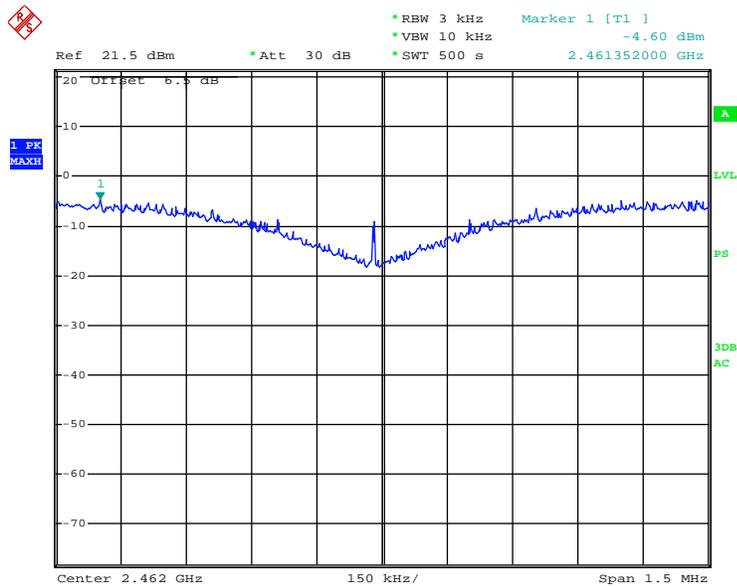
Date: 20.DEC.2011 20:06:40

Power Spectral Density, 802.11b Middle Channel, Chain 1



Date: 20.DEC.2011 20:23:19

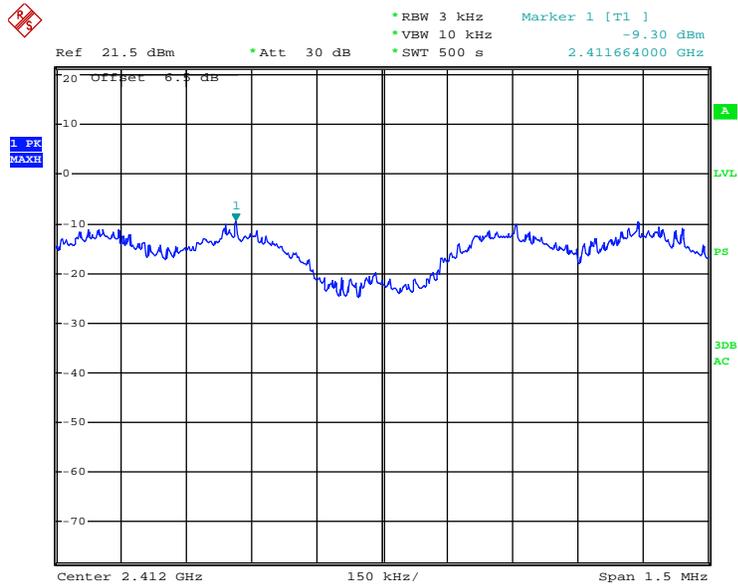
Power Spectral Density, 802.11b High Channel, Chain 1



EUT

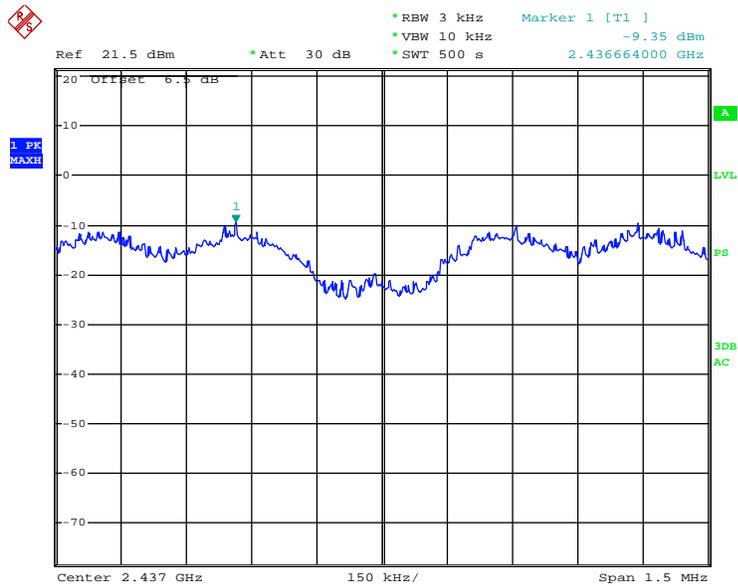
Date: 24.DEC.2011 00:48:34

Power Spectral Density, 802.11g Low Channel, Chain 0



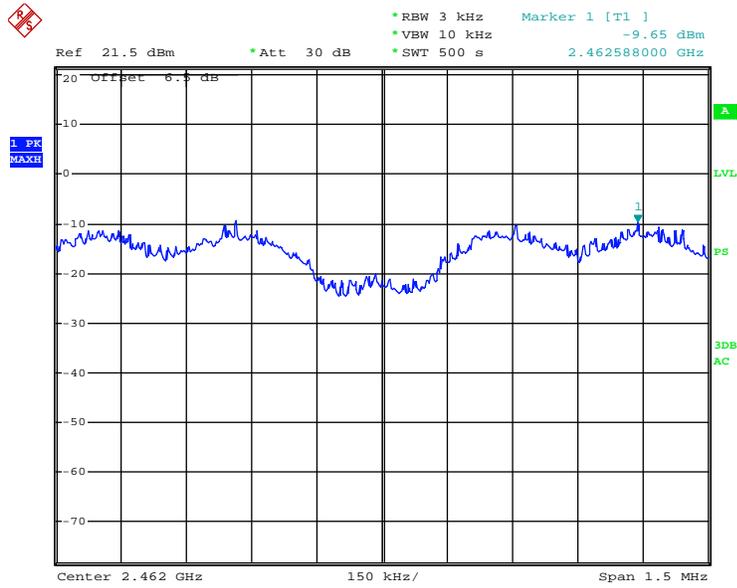
EUT
Date: 23.DEC.2011 21:02:43

Power Spectral Density, 802.11g Middle Channel, Chain 0



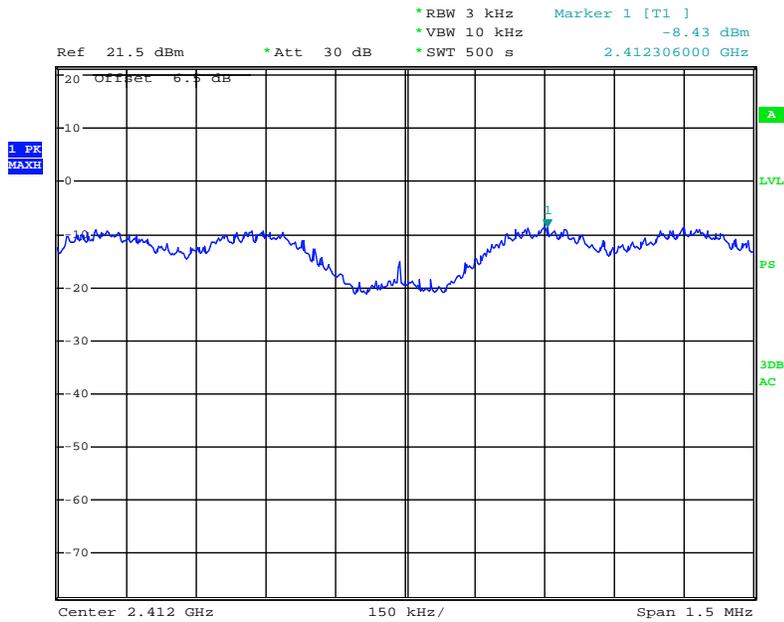
EUT
Date: 23.DEC.2011 21:15:08

Power Spectral Density, 802.11g High Channel, Chain 0



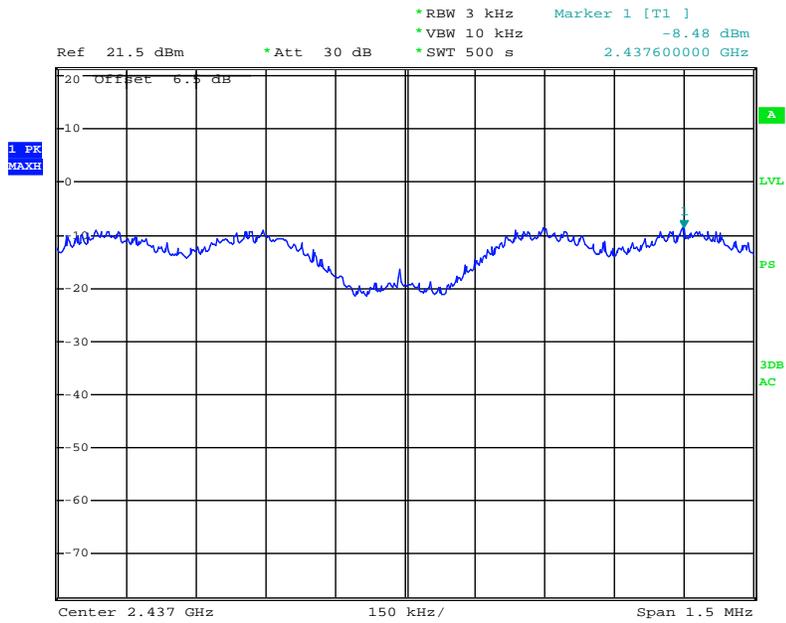
EUT
Date: 23.DEC.2011 21:37:34

Power Spectral Density, 802.11g Low Channel, Chain 1



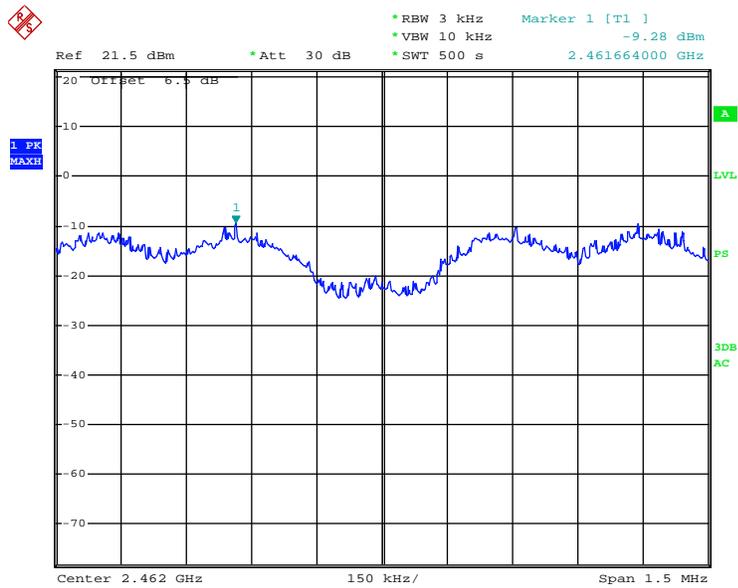
Date: 21.DEC.2011 18:30:30

Power Spectral Density, 802.11g Middle Channel, Chain 1



Date: 21.DEC.2011 18:44:52

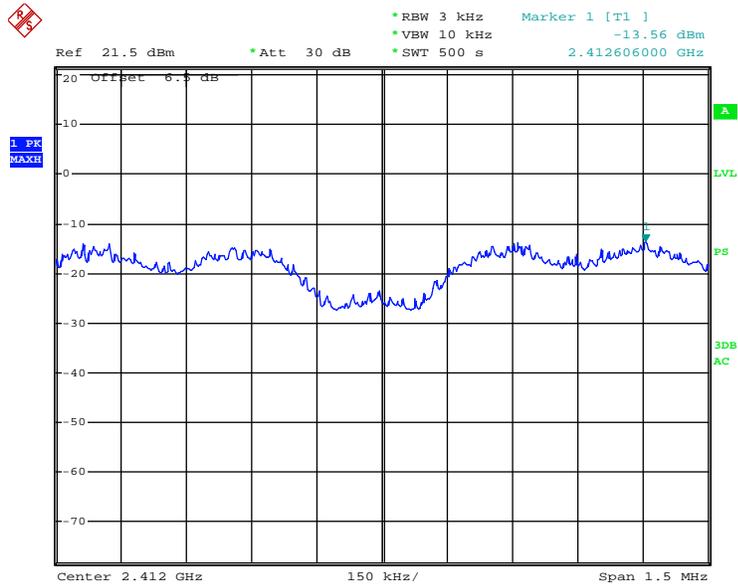
Power Spectral Density, 802.11g High Channel, Chain 1



EUT

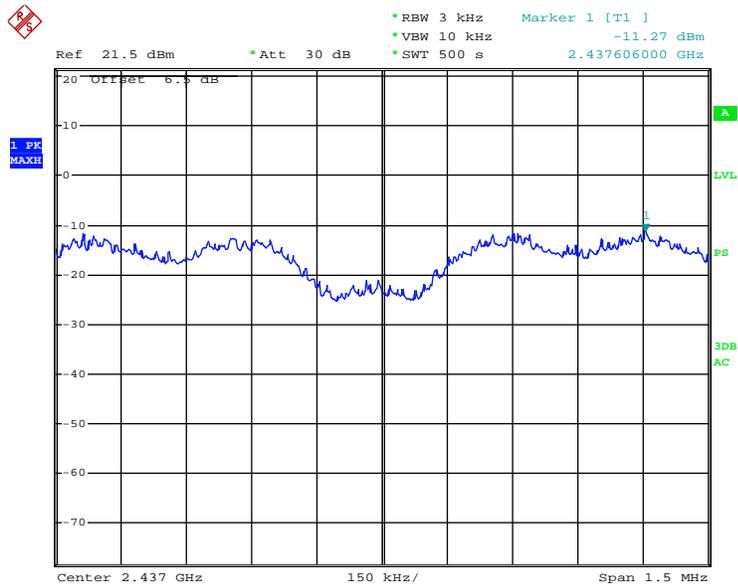
Date: 23.DEC.2011 21:37:12

Power Spectral Density, 802.11n-HT20 Low Channel, Chain 0



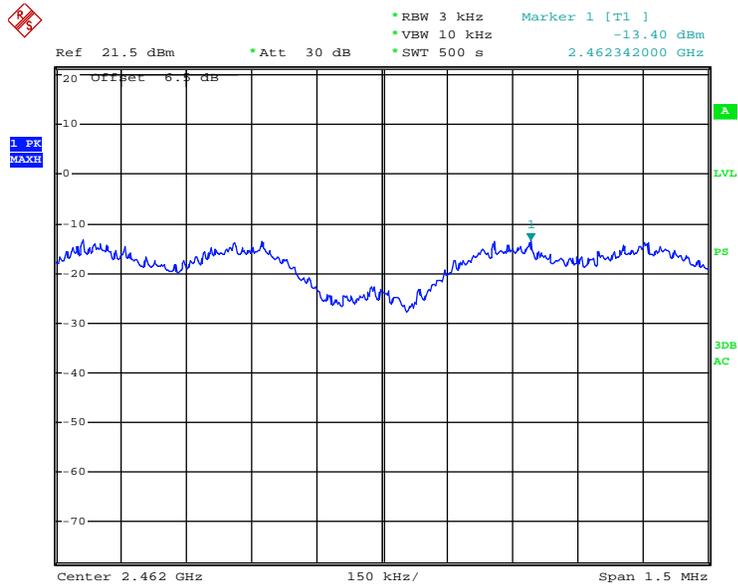
EUT
Date: 23.DEC.2011 22:04:47

Power Spectral Density, 802.11n-HT20 Middle Channel, Chain 0



EUT
Date: 23.DEC.2011 22:16:59

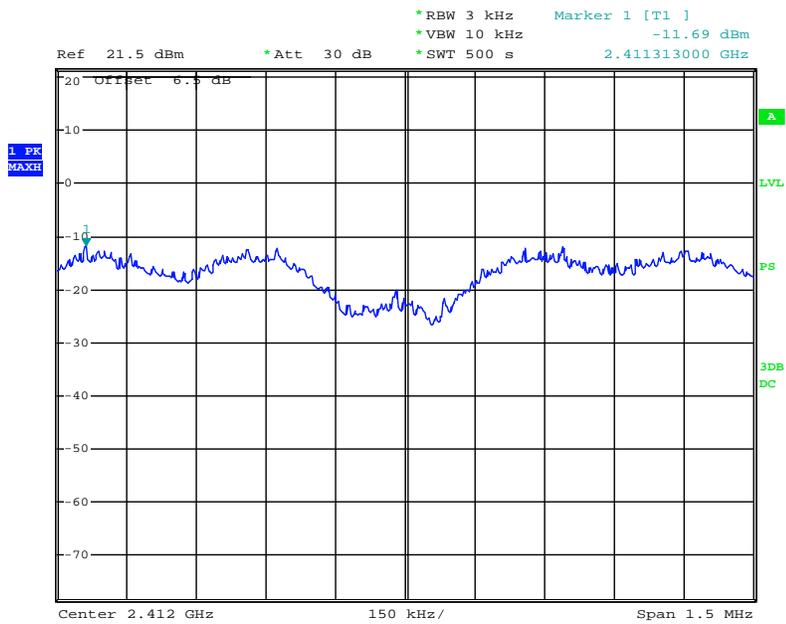
Power Spectral Density, 802.11n-HT20 High Channel, Chain 0



EUT

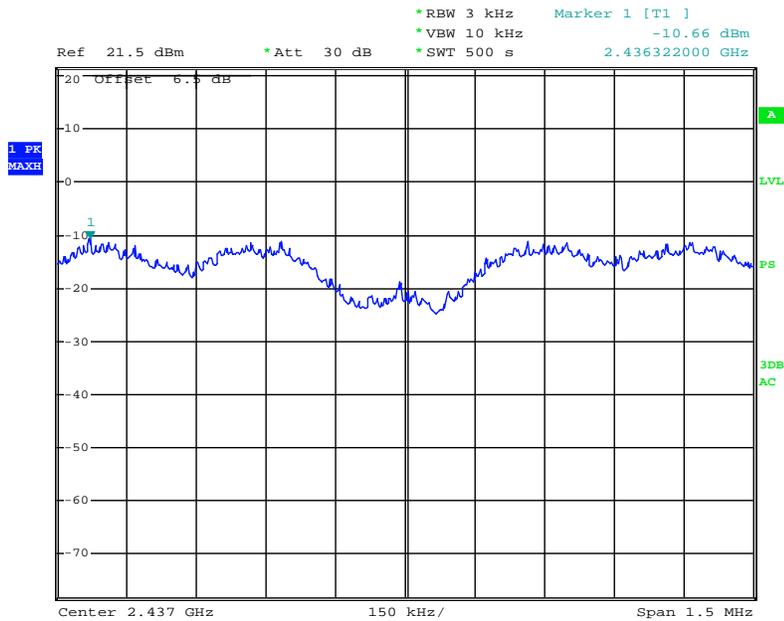
Date: 23.DEC.2011 23:42:24

Power Spectral Density, 802.11n-HT20 Low Channel, Chain 1



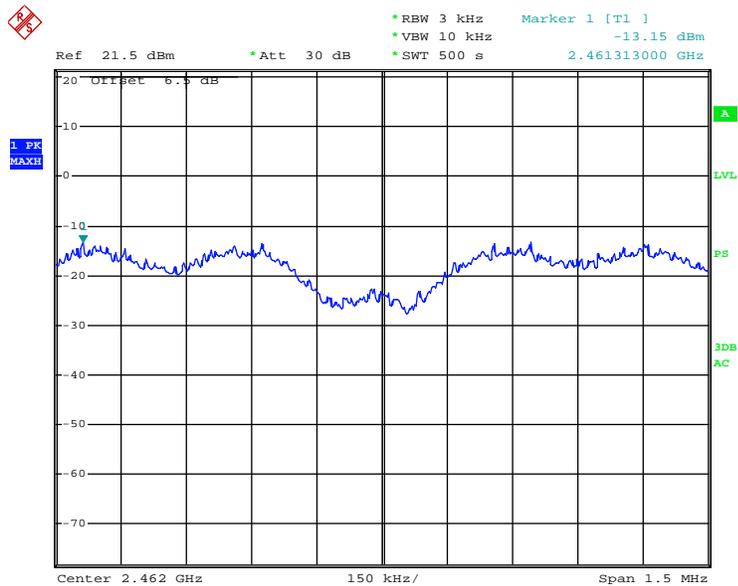
Date: 22.DEC.2011 19:25:31

Power Spectral Density, 802.11n-HT20 Middle Channel, Chain 1



Date: 21.DEC.2011 19:42:31

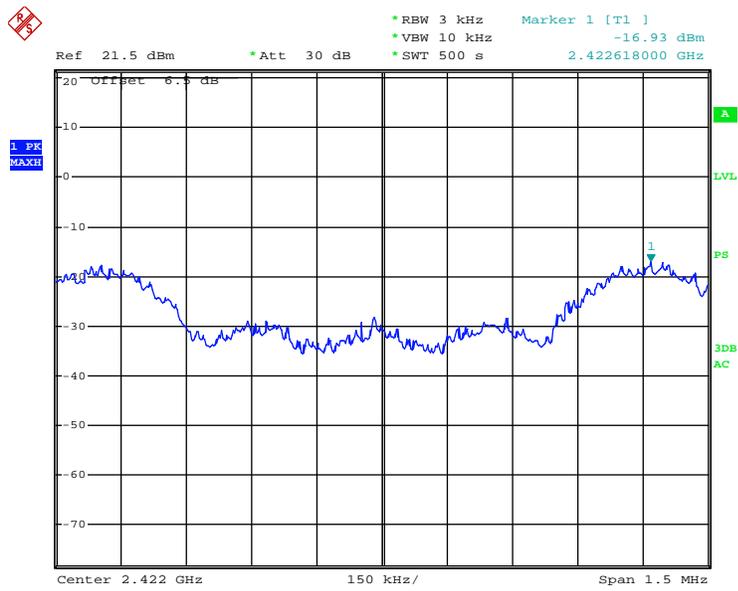
Power Spectral Density, 802.11n-HT20 High Channel, Chain 1



EUT

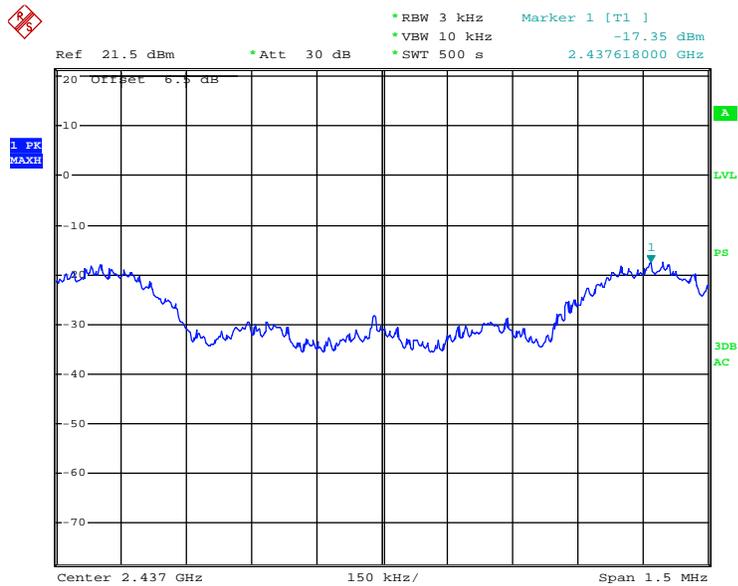
Date: 23.DEC.2011 23:41:23

Power Spectral Density, 802.11n-HT40 Low Channel, Chain 0



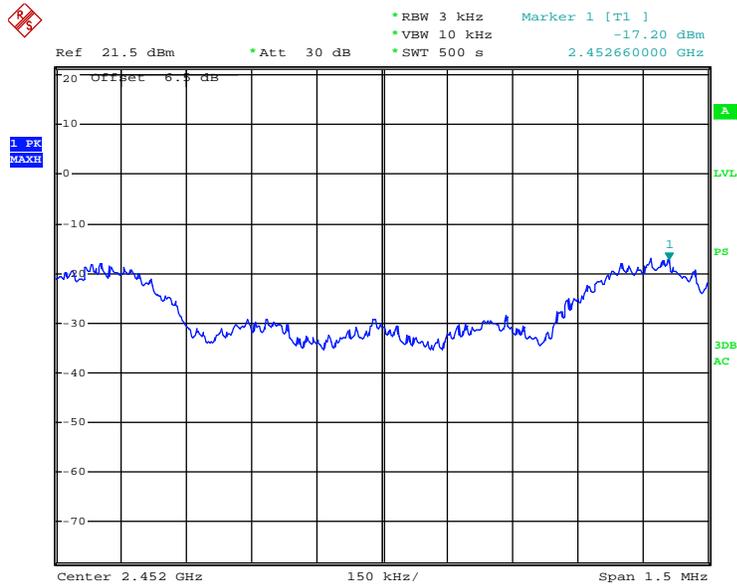
EUT
Date: 23.DEC.2011 22:40:30

Power Spectral Density, 802.11n-HT40 Middle Channel, Chain 0



EUT
Date: 23.DEC.2011 22:52:45

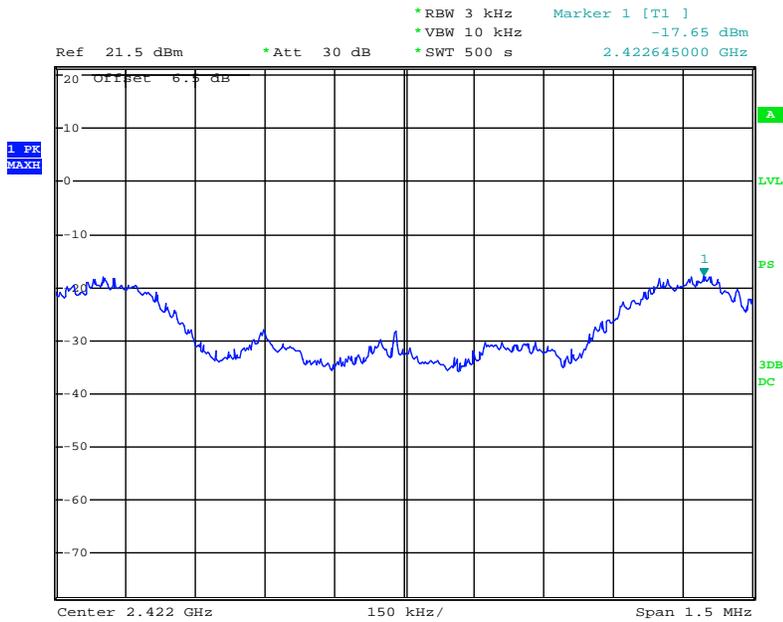
Power Spectral Density, 802.11n-HT40 High Channel, Chain 0



EUT

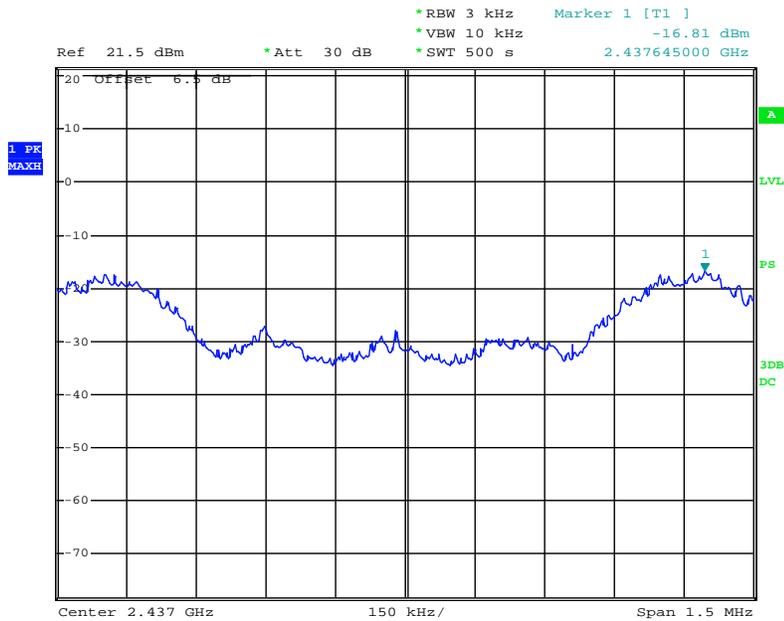
Date: 23.DEC.2011 23:15:03

Power Spectral Density, 802.11n-HT40 Low Channel, Chain 1



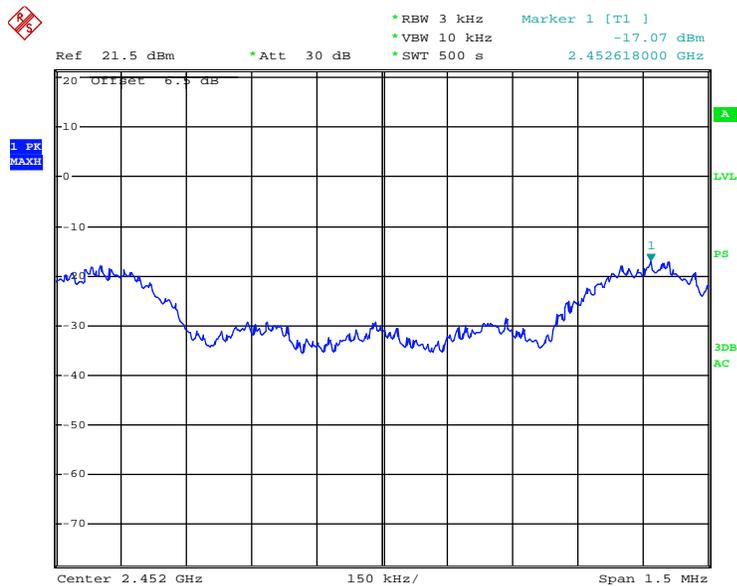
Date: 22.DEC.2011 21:19:29

Power Spectral Density, 802.11n-HT40 Middle Channel, Chain 1



Date: 22.DEC.2011 21:08:44

Power Spectral Density, 802.11n-HT40 High Channel, Chain 1



EUT

Date: 23.DEC.2011 23:11:50

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