RHEIN TECH LABORATORIES, INC.

Engineering Solutions & Electromagnetic Compatibility Services

Certification Application Report for FCC Part 15.247

Test Lab:	Applicant:
Rhein Tech Laboratories, Inc. 360 Herndon Parkway Suite 1400 Herndon, VA 20170 E-Mail: atcbinfo@rheintech.com Tel: 703-689-0368 Fax: 703-689-2056 www.rheintech.com	Zonoff, Inc. 115 Charlestown Hunt Drive Phoenixville, PA 19460 Contact: Mike Balog www.zonoff.com

FCC ID:	Z82-EMBY001	**Test Report Date:**	May 22, 2012
Platform:	N/A	**RTL Work Order #:**	2011197
Model:	Embassy	**RTL Quote #:**	QRTL11-263B
American National Standard Institute:	ANSI C63.4-2003: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
FCC Classification:	DTS – Part 15 Digital Transmission System		
FCC Rule Part(s)/Guidance:	FCC Rules Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System November 1, 2009, DA 00-705		
Digital Interface Information:	Digital Interface was found to be compliant		

Frequency Range (MHz)	Output Power (W)*	Frequency Tolerance	Emission Designator
2412 - 2462	0.087	N/A	N/A
2422 - 2452	0.032	N/A	N/A

** power is peak conducted*

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15 and ANSI C63.4.

Signature: _____ Date: May 22, 2012

Typed/Printed Name: Desmond A. Fraser Position: President

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1445.

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1 General Information

1.1 Scope

This is an original certification application request.

Applicable Standards:

- FCC Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz.

1.2 Description of EUT

Equipment Under Test	Transceiver
Model	Embassy
Power Supply	115 VAC 60 Hz
Modulation Type	DSSS
Frequency Range	2405 – 2475 MHz
Antenna Type	2.4 GHz Inverted F Antenna

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4-2003).

1.4 Related Submittal(s)/Grant(s)

This is an original application for certification for Zonoff, Inc. Model: Embassy, FCC ID: Z82-EMBY001.

1.5 Required Grant Notes

TBD

1.6 Modifications

No modifications were made to the equipment during testing in order to achieve compliance with these standards.

2 Test Information

2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

Table 2-1: Channels Tested

Channel	Frequency
802.11b/g 20 MHz BW Low	2412
802.11b/g 20 MHz BW Middle	2437
802.11b/g 20 MHz BW High	2462
802.11n 40 MHz BW Low	2422
802.11n 40 MHz BW Middle	2437
802.11n 40 MHz BW High	2452

2.2 Exercising the EUT

The EUT was supplied with test firmware programmed with a high, mid, and low channel for testing. The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. The EUT was provided with software to continuously transmit during testing. The carrier was also checked to verify that information was being transmitted. There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

2.3 Test Result Summary

Table 2-2: Test Result Summary – FCC Part 15 Subpart C (Section 15.247)

Standard	Test	Pass/Fail or N/A
FCC 15.207	AC Power Conducted Emissions	Pass
FCC 15.209	Radiated Emissions	Pass
FCC 15.247(a)(2)	6 dB Bandwidth	Pass
FCC 15.247(b)	Maximum Peak Power Output	Pass
FCC 15.247(d)	Antenna Conducted Spurious Emissions	Pass
FCC 15.247(e)	Power Spectral Density	Pass
FCC 15.247(d)	Band Edge Measurement	Pass

Intermodulation product emissions were verified with three 900 MHz installed radios and emissions were found to be compliant.

2.4 Test System Details

The test samples were received on November 11, 2010. The FCC identifiers for all applicable equipment, plus descriptions of all cables used in the tested system, are identified in the following table.

Table 2-3: Equipment under Test

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
Transceiver	Zonoff, Inc.	Embassy	N/A	Z82-EMBY001	1m shielded I/O	20311
Antenna	N/A	2.4GHz Inverse F Antenna	N/A	N/A	N/A	N/A
AC/DC Power Adapter	Emerson	DA12-050US-M	N/A	N/A	1m unshielded	20312

2.5 Configuration of Tested System

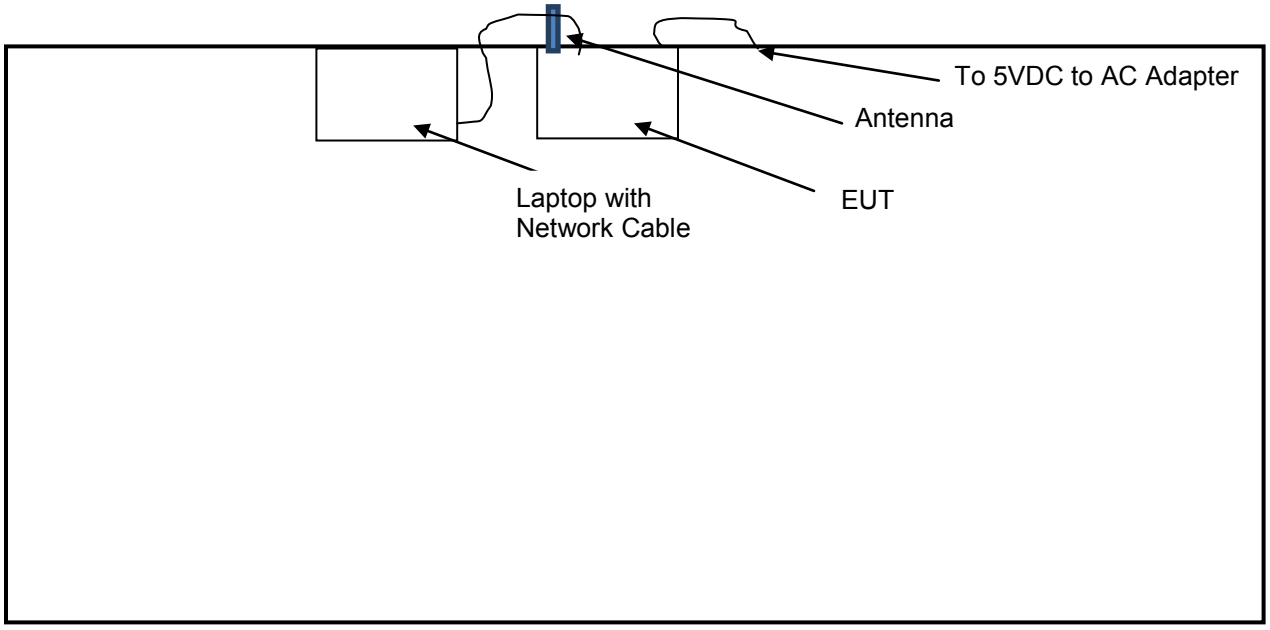


Figure 2-1: Configuration of System under Test

3 Peak Output Power – FCC 15.247(b)(3)

3.1 Power Output Test Procedure

A conducted power measurement of the EUT was taken.

Table 3-1: Power Output Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

3.2 Power Output Test Data

Table 3-2: Power Output Test Data

Channel	Frequency (MHz)	Peak Power Conducted Output (dBm)
802.11b Low (20 MHz BW)	2412	18.4
802.11b Middle (20 MHz BW)	2437	18.9
802.11b High (20 MHz BW)	2462	19.4
802.11g Low (20 MHz BW)	2412	14.4
802.11g Middle (20 MHz BW)	2437	14.9
802.11g High (20 MHz BW)	2462	15.2
802.11n Low (40 MHz BW)	2422	14.2
802.11n Middle (40 MHz BW)	2437	14.6
802.11n High (40 MHz BW)	2452	15.0

Test Personnel:

Rick McLay		January 30, 2012
Test Engineer	Signature	Date Of Test

4 Compliance with the Band Edge – FCC 15.247(d)

4.1 Band Edge Test Procedure

The transmitter output was connected to its appropriate antenna. A conducted antenna port delta measurement was performed from the highest peak in the restricted band to the peak of the fundamental, and subtracted from the radiated field strength; the result was compared to the limit.

Table 4-1: Band Edge Test Equipment (Field Strength)

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	06/14/2012
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 KHz – 6.5 GHz)	3325A00159	08/02/2012
900914	Hewlett Packard	8546OA	RF Filter Section, (100 kHz - 6.5 GHz)	3330A00107	08/02/2012
901399	Times Microwave	SFT-205	RF cable, 30'	NA	07/19/2012
900878	Rhein Tech Laboratories	AM3-1197-0005	4 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901242	Rhein Tech Laboratories	WRT-000-0003	Polystyrene rotating table	N/A	Not Required

Table 4-2: Conducted Delta Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

4.2 Band Edge Test Results

4.2.1 Calculation of Lower Band Edge

FCC 15.247(d) digital modulation in the band 2400-2483.5 MHz

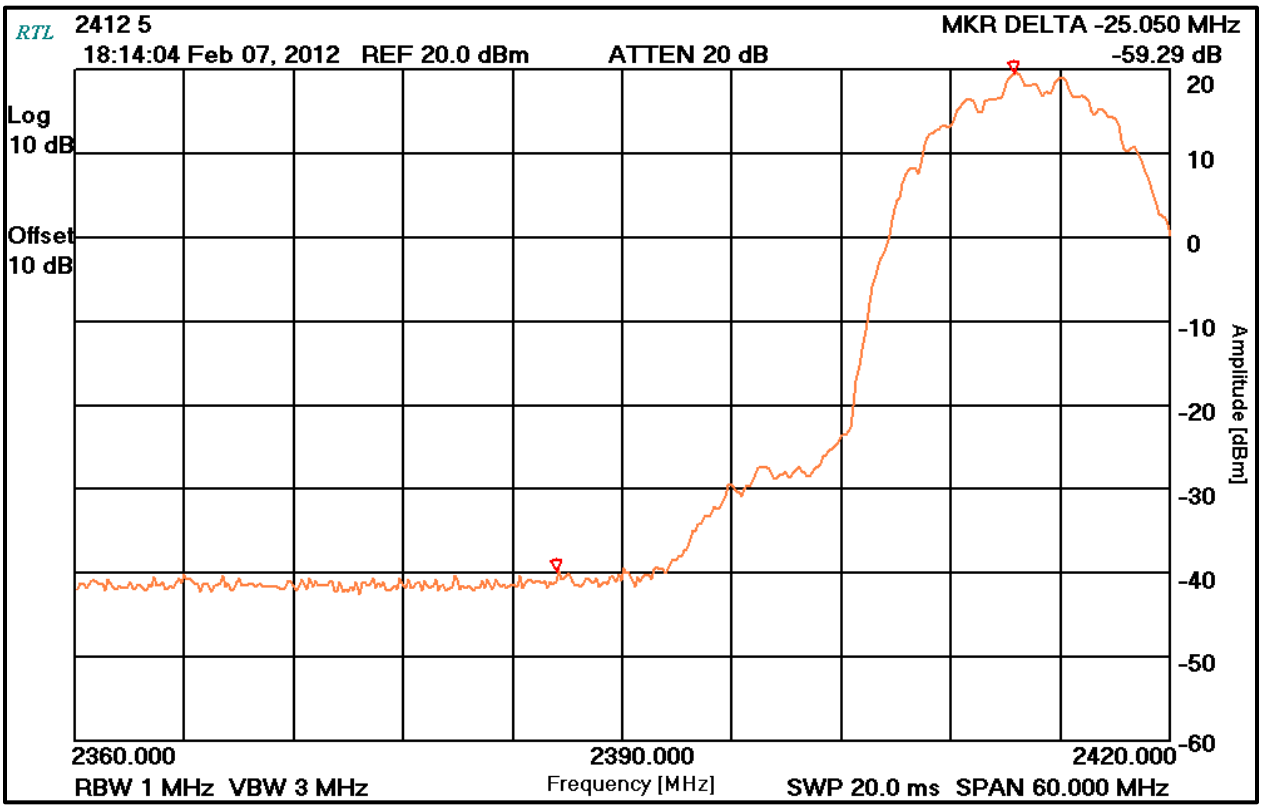
109.8 dBuV/m is the field strength measurement, from which the delta measurement of 59.3 dB is subtracted, resulting in a level of 50.5 dB. This level has a margin of 3.5 dB below the limit of 54 dBuV/m.

Calculation: 109.8 dBuV/m – 59.3 dB – 54 dBuV/m = -3.5 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 111.1 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 109.8 dBuV/m
Delta measurement = 59.3 dB

4.2.2 Lower Band Edge – Conducted Delta Plots

Plot 4-1: 802.11b Lower Band Edge

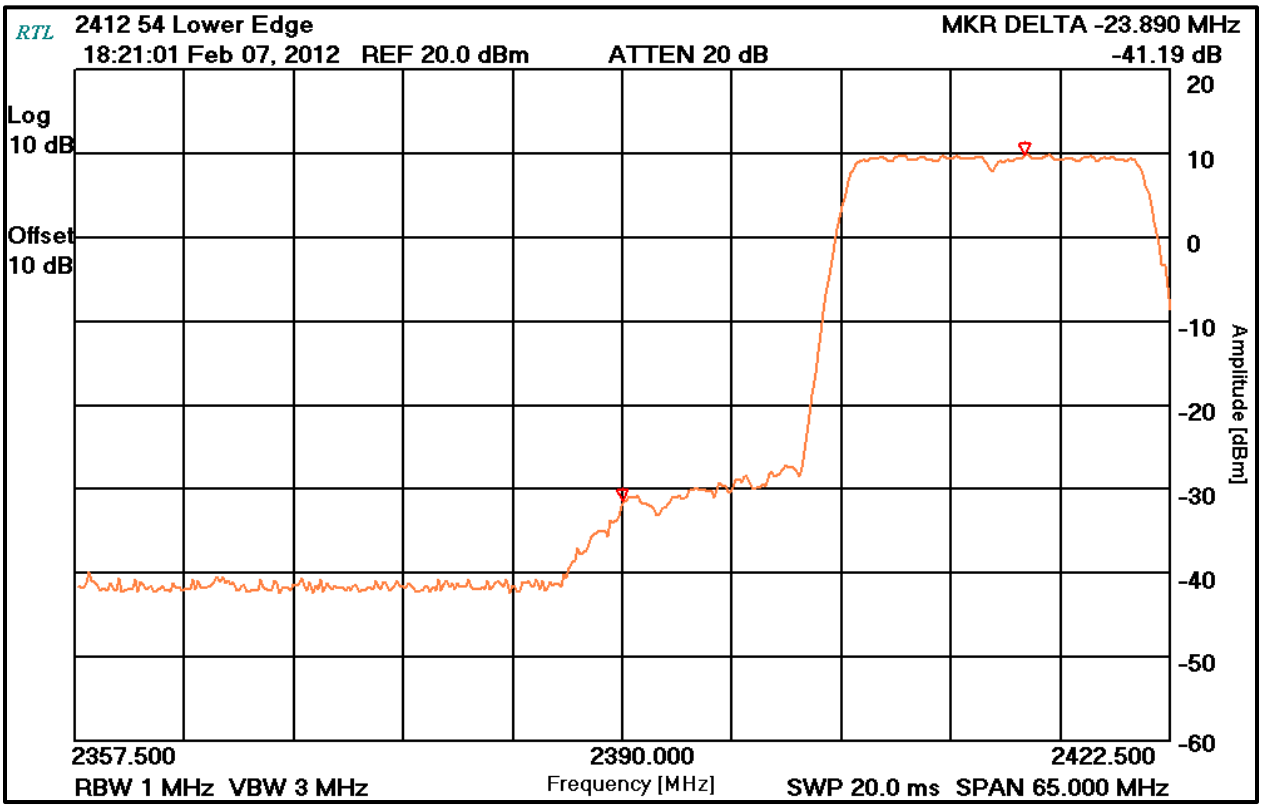


90.9 dBuV/m is the field strength measurement, from which the delta measurement of 41.2 dB is subbtracted, resulting in a level of 49.7 dB. This level has a margin of 4.3 dB below the limit of 54 dBuV/m.

Calculation: 90.9 dBuV/m – 41.2 dB – 54 dBuV/m = -4.3 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 102.1 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 90.9dBuV/m
Delta measurement = 41.2 dB

Plot 4-2: 802.11g Lower Band Edge

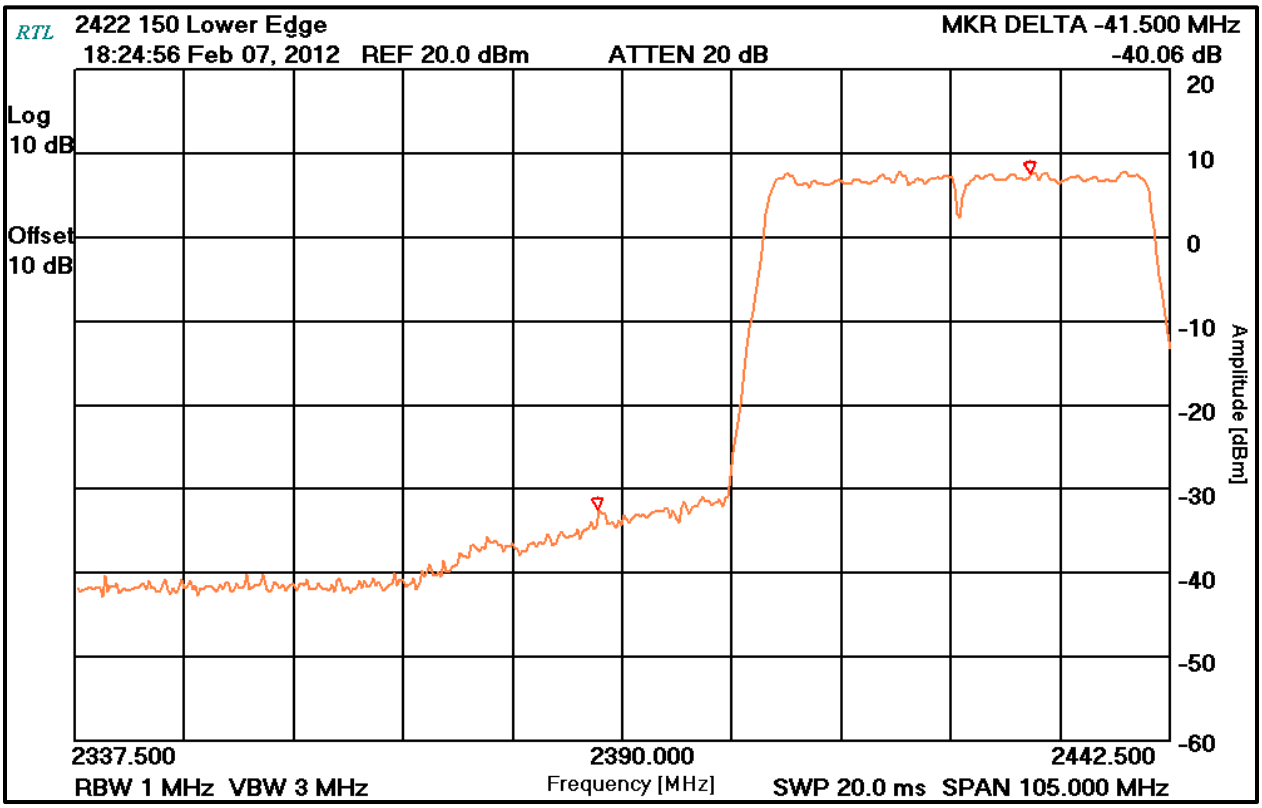


86.4 dBuV/m is the field strength measurement, from which the delta measurement of 40.1 dB is subbtracted, resulting in a level of 46.3 dB. This level has a margin of 7.7 dB below the limit of 54 dBuV/m.

Calculation: 86.4 dBuV/m – 40.1 dB – 54 dBuV/m = -7.7 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 98.3 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 86.4 dBuV/m
Delta measurement = 40.1 dB

Plot 4-3: 802.11n Lower Band Edge



4.2.3 Calculation of Upper Band Edge

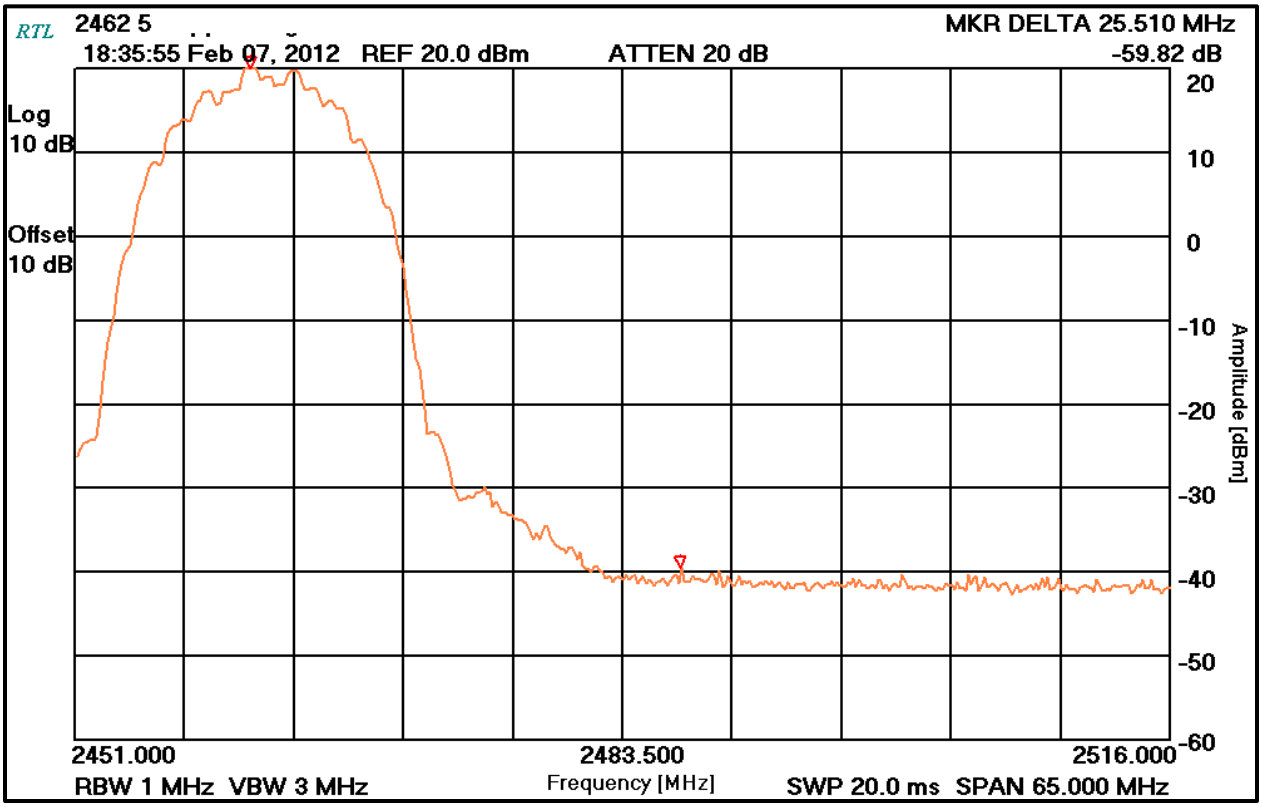
103.3 dBuV/m is the field strength measurement, from which the delta measurement of 59.8 dB is subtracted, resulting in a level of 43.5 dB. This level has a margin of 10.5 dB below the limit of 54 dBuV/m.

Calculation: 103.3 dBuV/m – 59.8 dB – 54 dBuV/m = -10.5 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 112.5 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 103.3 dBuV/m
Delta measurement = 59.8 dB

4.2.4 Upper Band Edge – Conducted Delta Plot

Plot 4-4: 802.11b Upper Band Edge

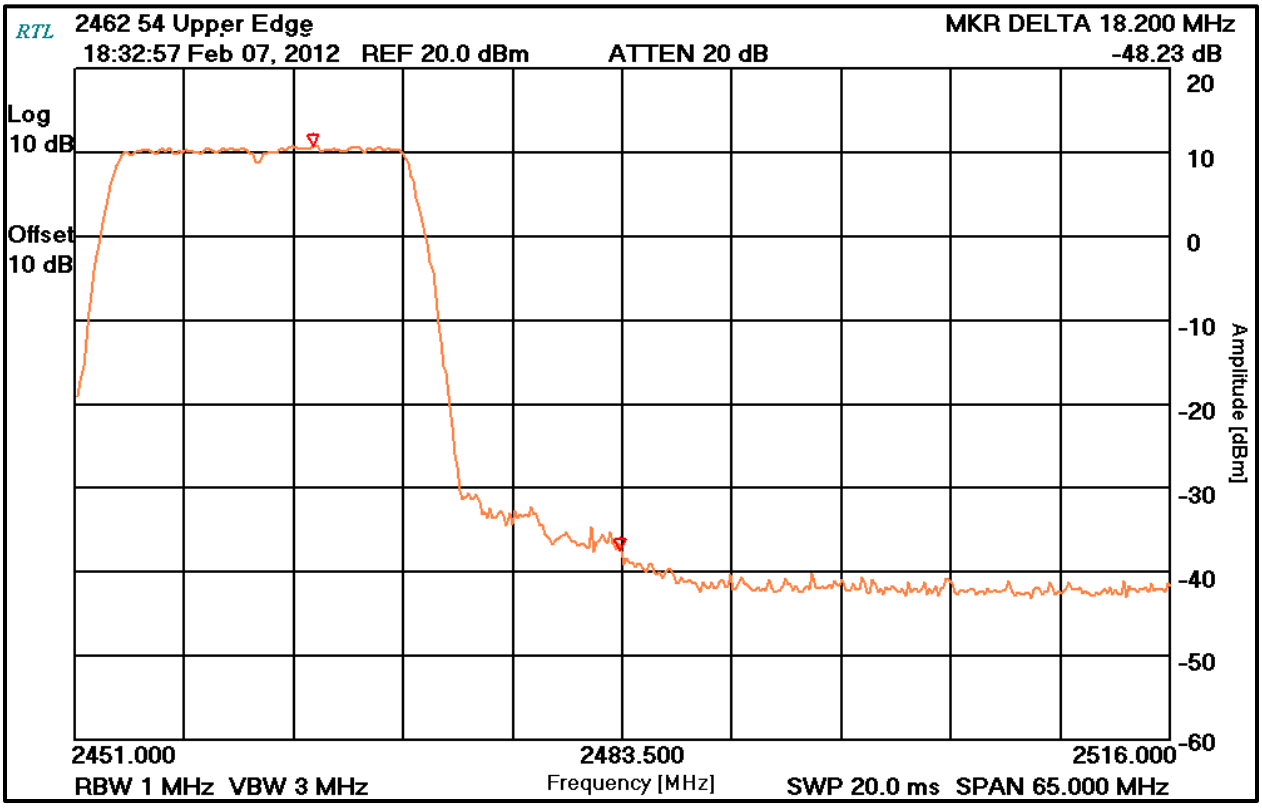


91.5 dBuV/m is the field strength measurement, from which the delta measurement of 48.2 dB is subtracted, resulting in a level of 43.3 dB. This level has a margin of 10.7 dB below the limit of 54 dBuV/m.

Calculation: 91.5 dBuV/m – 48.2 dB – 54 dBuV/m = -10.7 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 102.1 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 91.5 dBuV/m
Delta measurement = 48.2 dB

Plot 4-5: 802.11g Upper Band Edge

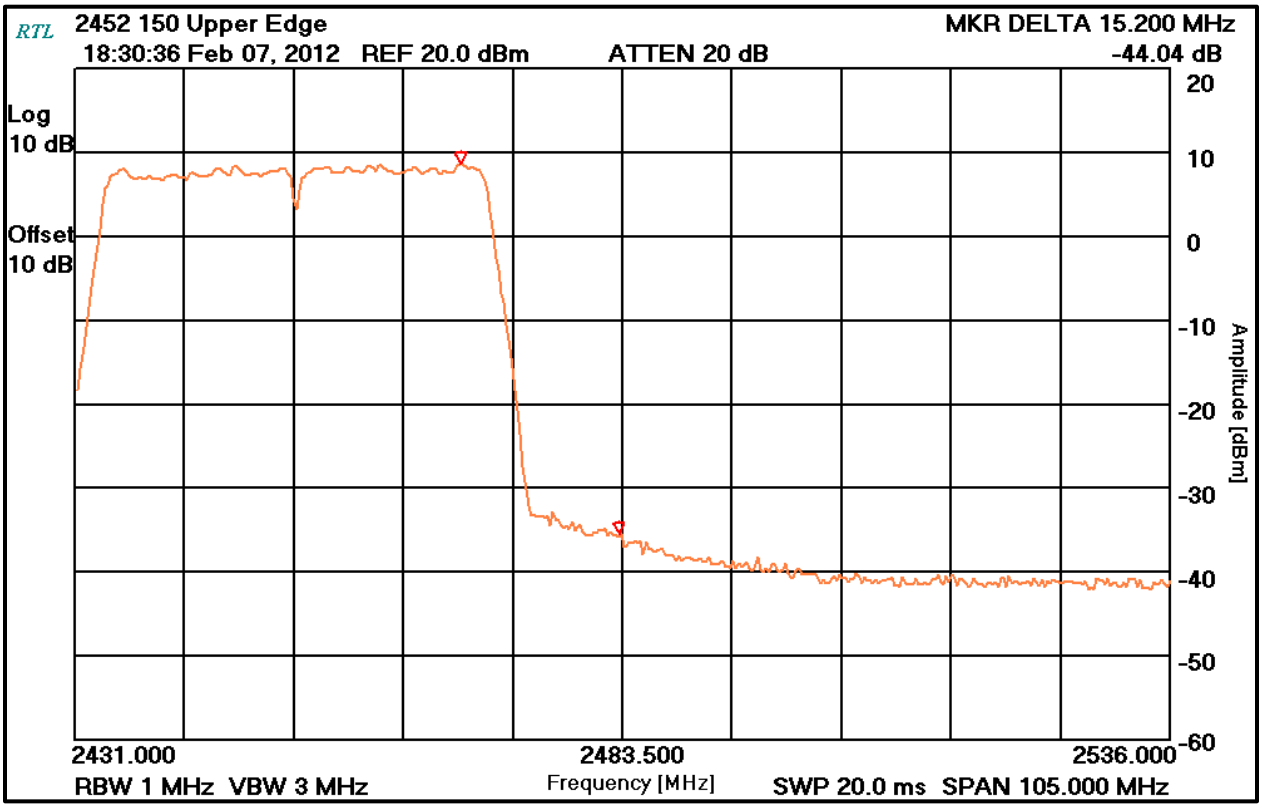


88.5 dBuV/m is the field strength measurement, from which the delta measurement of 44.0 dB is subtracted, resulting in a level of 44.5 dB. This level has a margin of 9.5 dB below the limit of 54 dBuV/m.

Calculation: 88.5 dBuV/m – 44.0 dB – 54 dBuV/m = -9.5 dB

Peak Field Strength of Lower Band Edge (1 MHz RBW/3 MHz VBW) = 98.3 dBuV/m
Average Field Strength of Lower Band Edge (1 MHz RBW/10 Hz VBW) = 53.3 dBuV/m
Delta measurement = 44.0 dB

Plot 4-6: 802.11n Upper Band Edge



Test Personnel:

Rick McLay		February 7, 2012
Test Engineer	Signature	Date Of Test

5 Antenna Conducted Spurious Emissions – FCC 15.247(d)

5.1 Antenna Conducted Spurious Emissions Test Procedures

Antenna spurious emissions per FCC 15.247(c) were measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 1 MHz. The modulated carrier was identified at the following frequencies: 2412 MHz, 2422 MHz, 2437 MHz, 2452 MHz and 2462 MHz.

No harmonics or spurs were found within 20 dB of the limit from the carrier to the 10th harmonic of the carrier frequency (note that we are reporting power as peak). Per FCC 15.31(o), no data is being reported.

Table 5-1: Antenna Conducted Spurious Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

Test Personnel:

Rick McLay		January 30, 2012
Test Engineer	Signature	Date Of Test

6 6 dB Bandwidth – FCC 15.247(a)(2)

6.1 6 dB Bandwidth Test Procedure – Minimum 6 dB Bandwidth

The minimum 6 dB bandwidths per FCC 15.247(a)(2) were measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 1 MHz. The device was modulated. The minimum 6 dB bandwidths are presented below.

Table 6-1: 6 dB Bandwidth Test Equipment

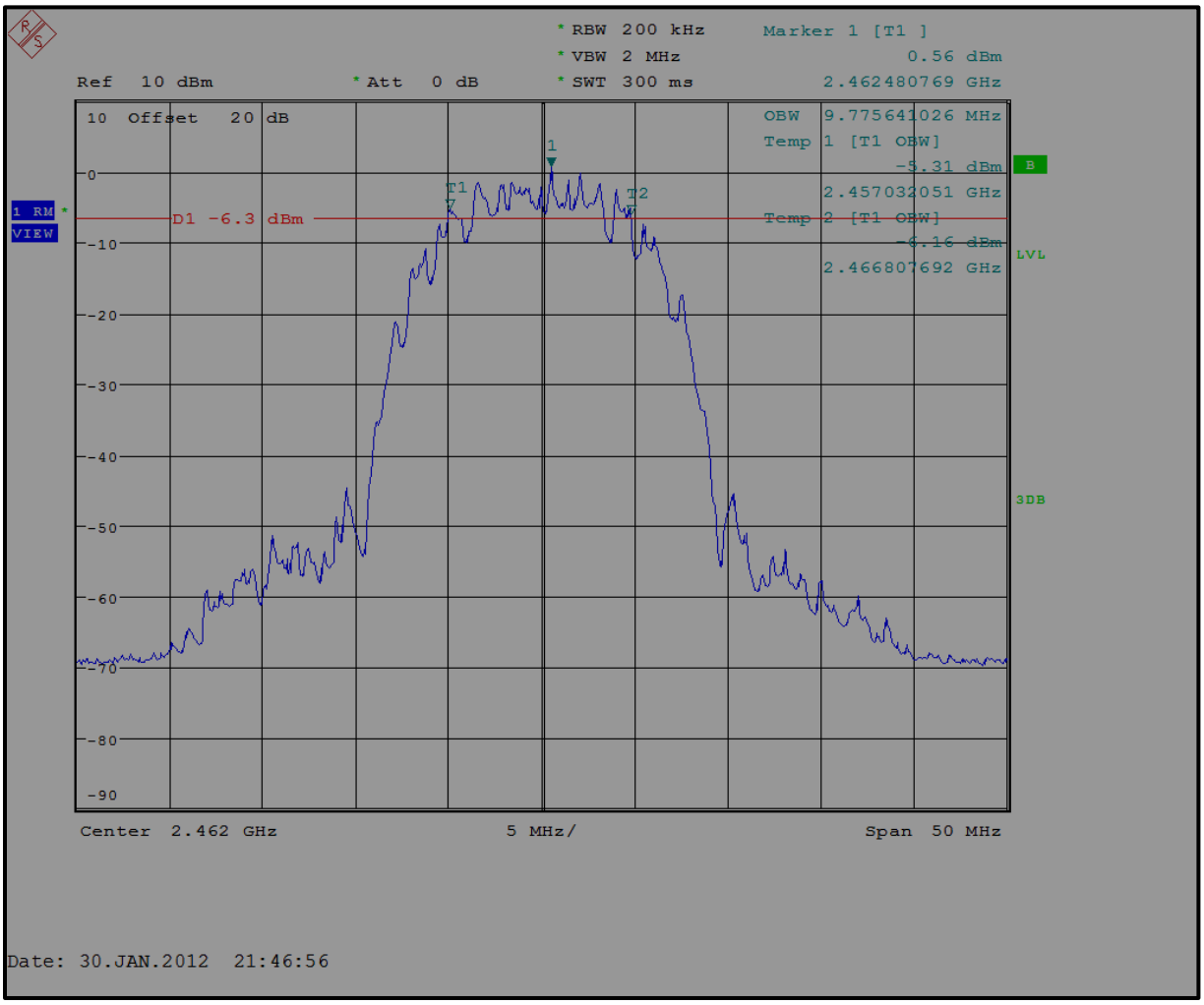
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

6.2 6 dB Bandwidth Test Results

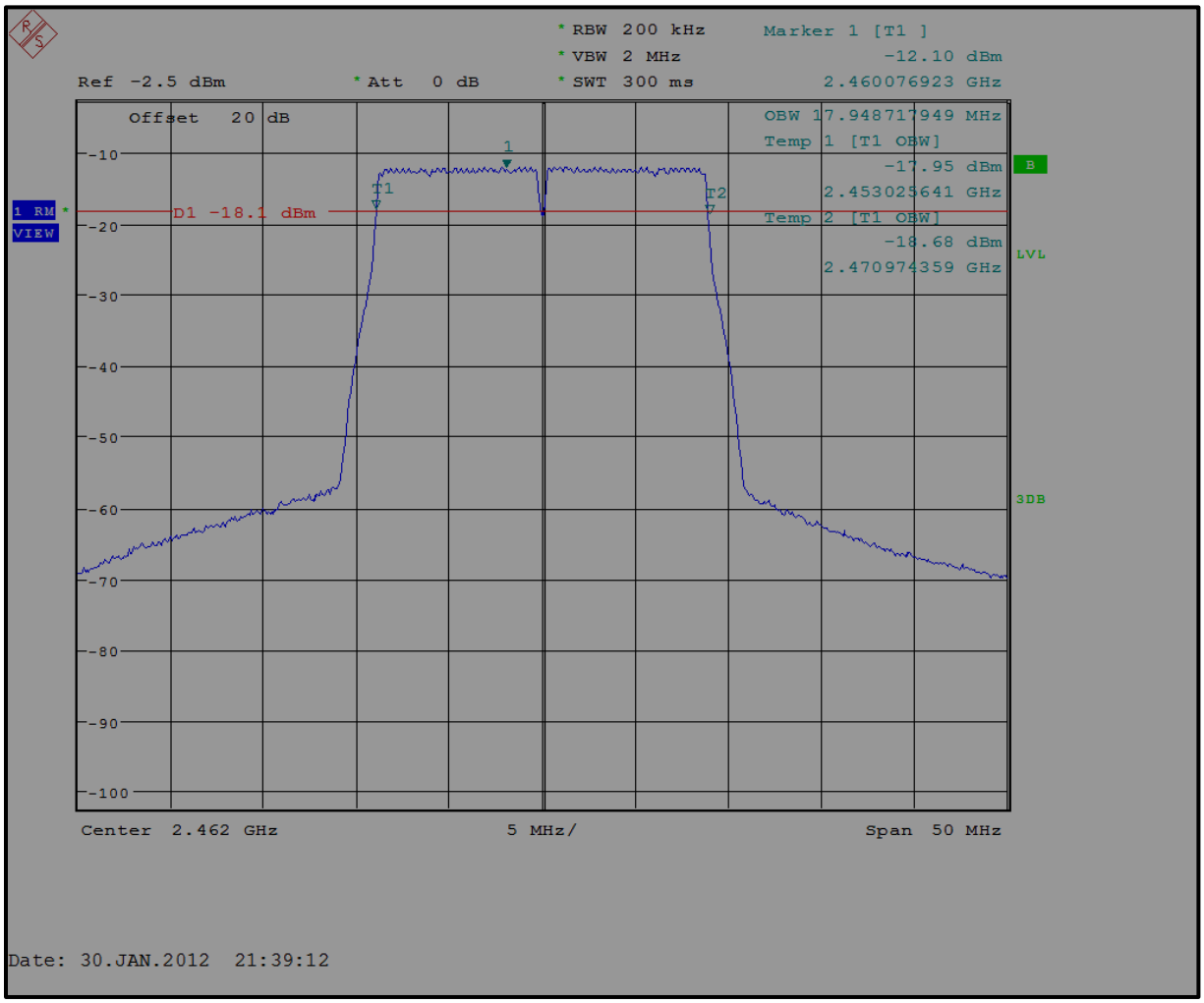
Table 6-2: 6 dB Bandwidth Test Data

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
2462 (802.11 b)	9.8	0.5	Pass
2462 (802.11 g)	17.9	0.5	Pass
2452 (802.11 n)	36.9	0.5	Pass

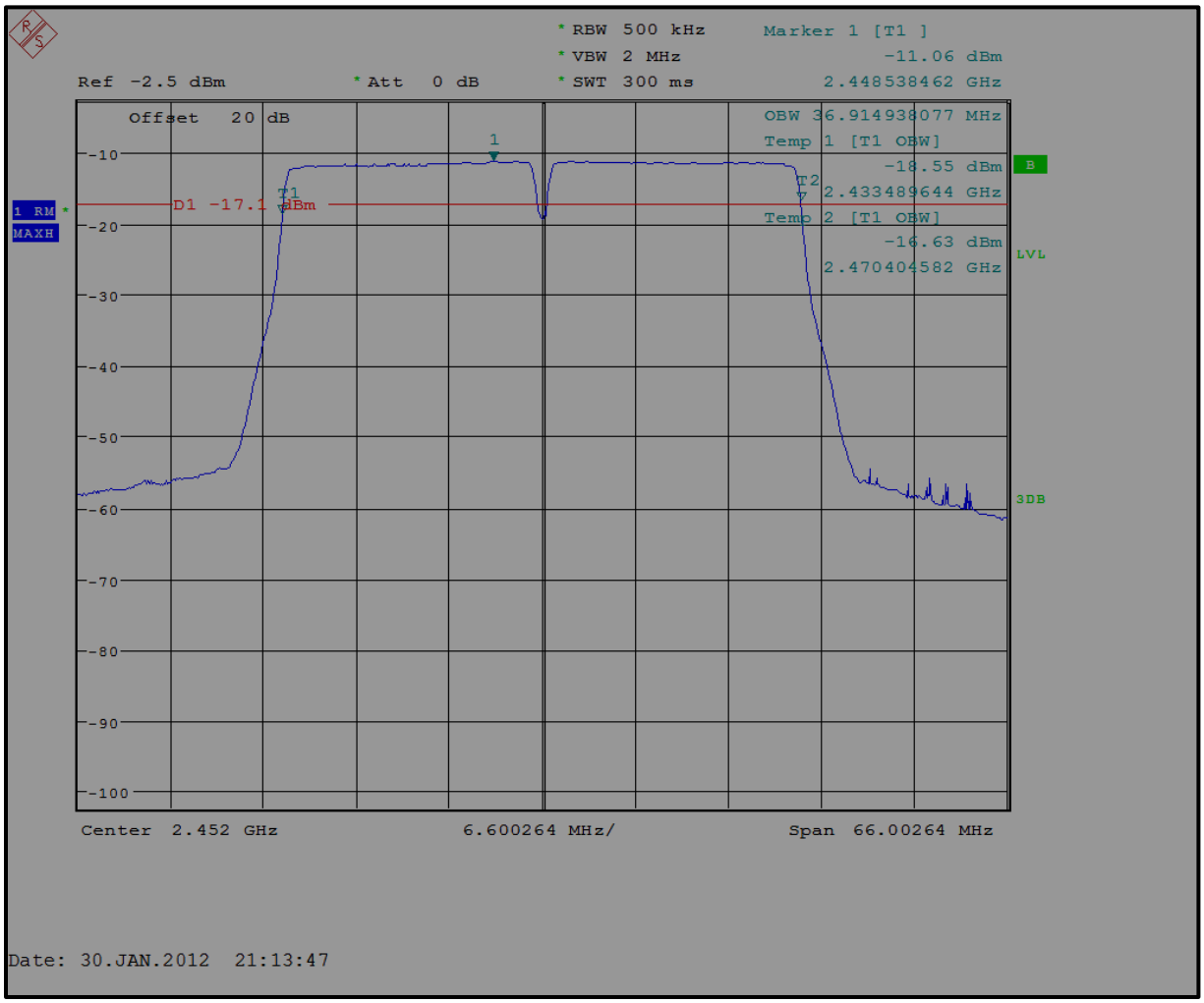
Plot 6-1: 6 dB Bandwidth – 802.11b 2462 MHz



Plot 6-2: 6 dB Bandwidth – 802.11g 2462 MHz



Plot 6-3: 6 dB Bandwidth – 802.11n 2452 MHz



Test Personnel:

Rick McLay		January 30, 2012
Test Engineer	Signature	Date Of Test

7 Power Spectral Density – FCC 15.247(e)

7.1 Power Spectral Density Test Procedure

The power spectral density per FCC 15.247(e) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, the video bandwidth set at 3000 kHz, and the sweep time set at 300 msec. The spectral lines were resolved for the modulated carriers at 2412, 2422, 2437, 2452 and 2462 MHz. These levels are below the +8 dBm limit. See the power spectral density table and plots.

Table 7-1: Power Spectral Density Test Equipment

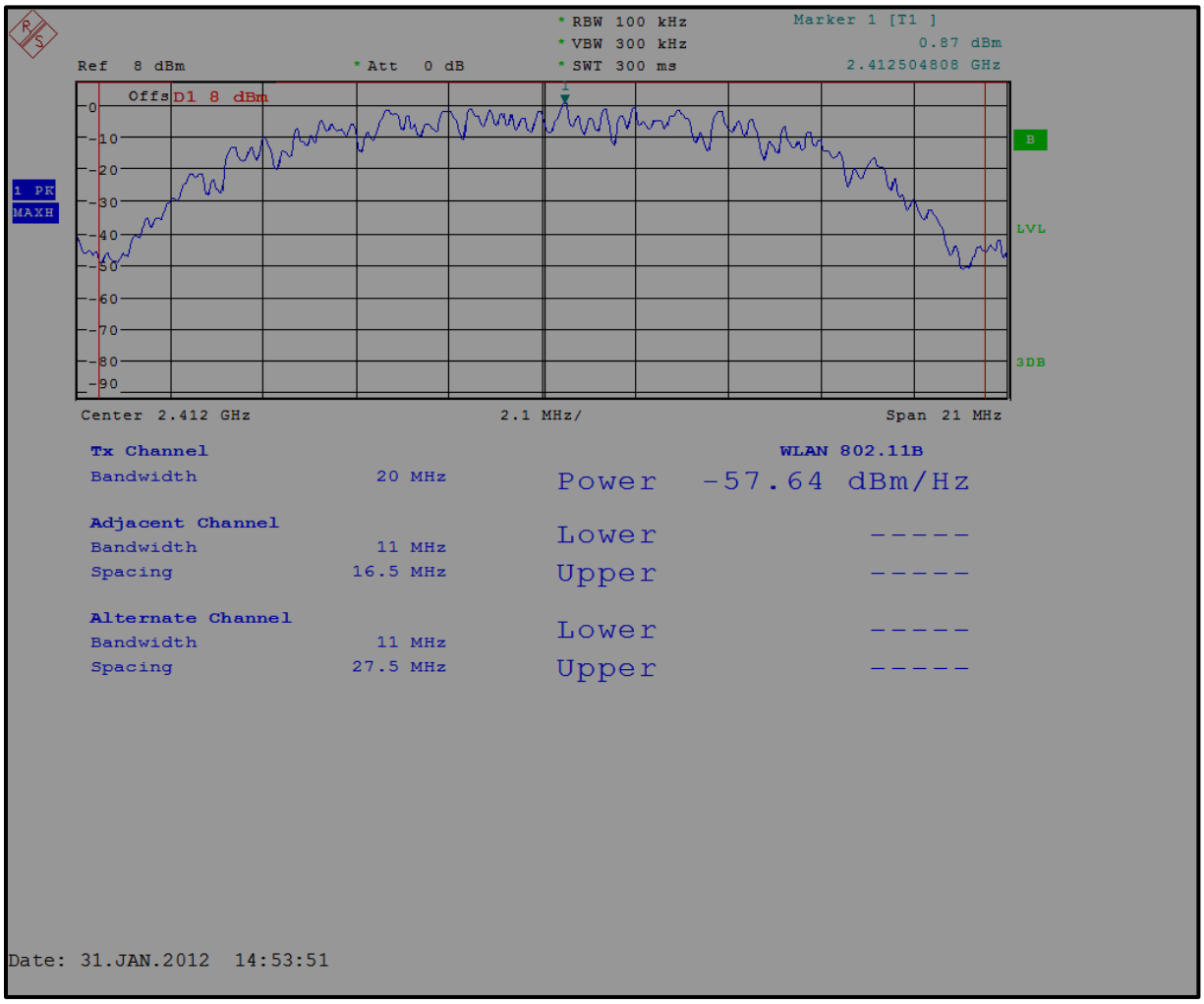
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

7.2 Power Spectral Density Test Data

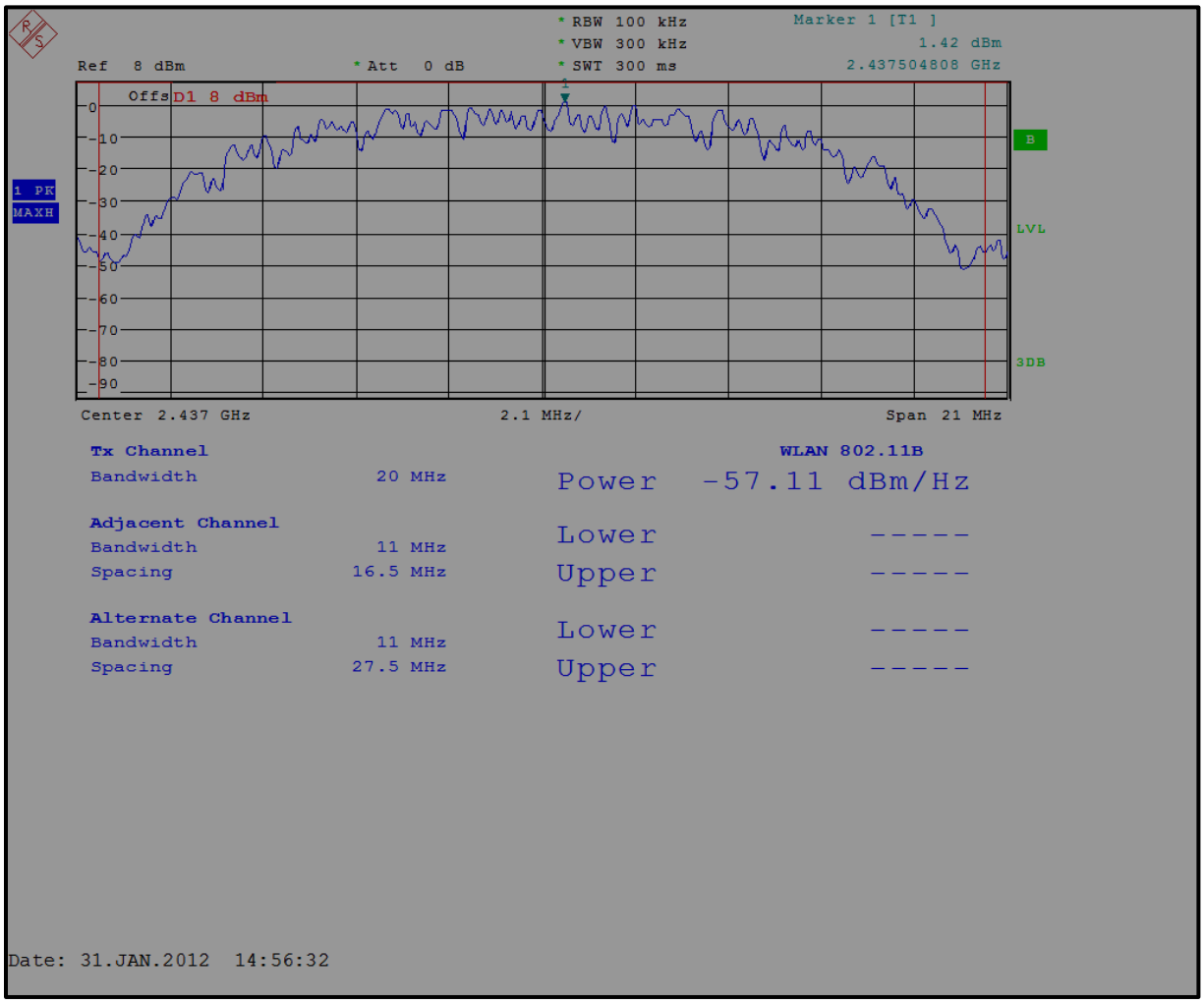
Table 7-2: Power Spectral Density Test Data

Frequency (MHz)	RF Power Level (dBm)	Maximum Limit +8dBm	Pass/Fail
2412 (802.11 b)	0.9	8	Pass
2437 (802.11 b)	1.4	8	Pass
2462 (802.11 b)	1.6	8	Pass
2412 (802.11 g)	-8.2	8	Pass
2437 (802.11 g)	-7.7	8	Pass
2462 (802.11 g)	-7.5	8	Pass
2422 (802.11 n)	-10.4	8	Pass
2437 (802.11 n)	-10.3	8	Pass
2452 (802.11 n)	-10.2	8	Pass

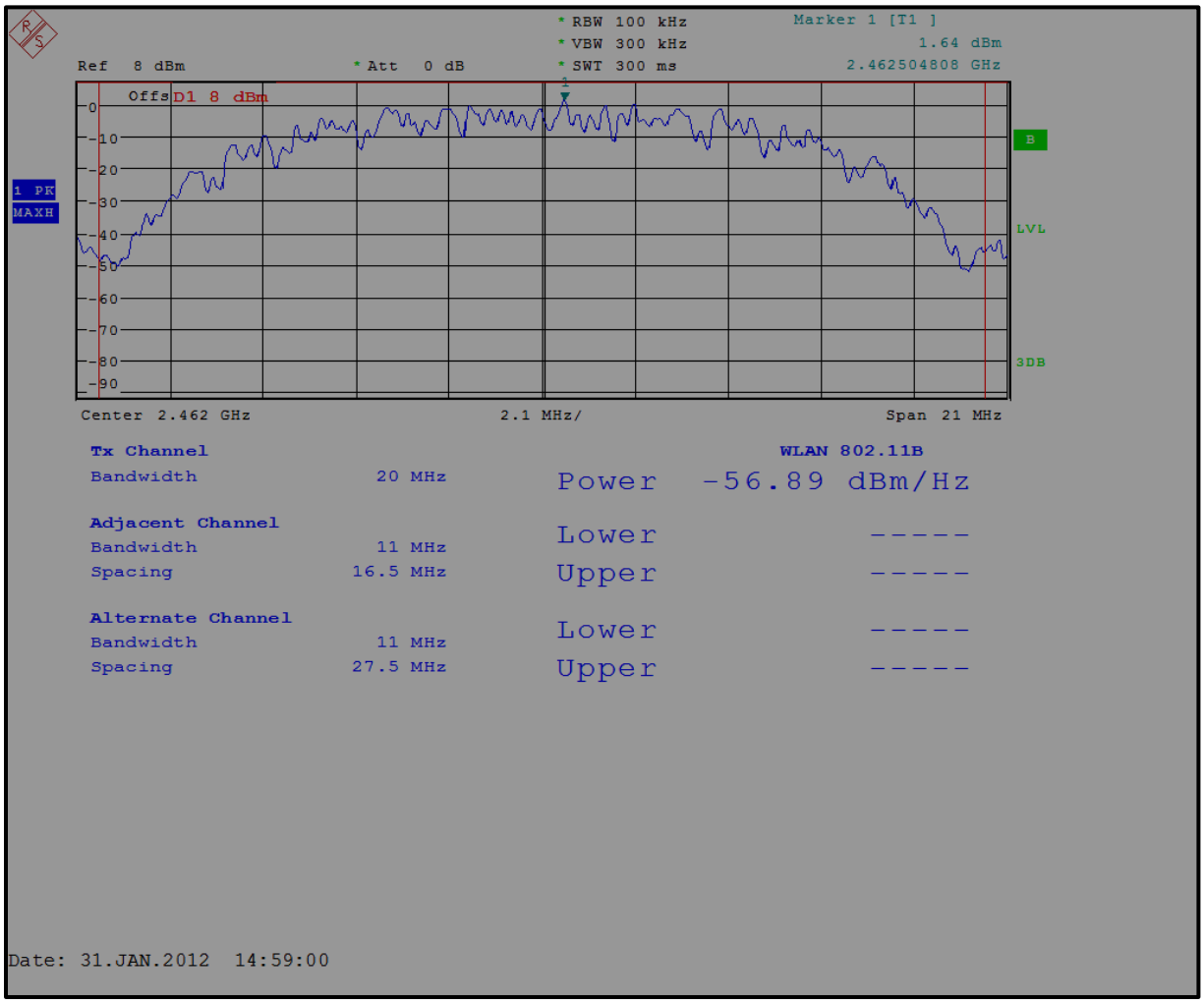
Plot 7-1: Power Spectral Density – 802.11b 2412 MHz



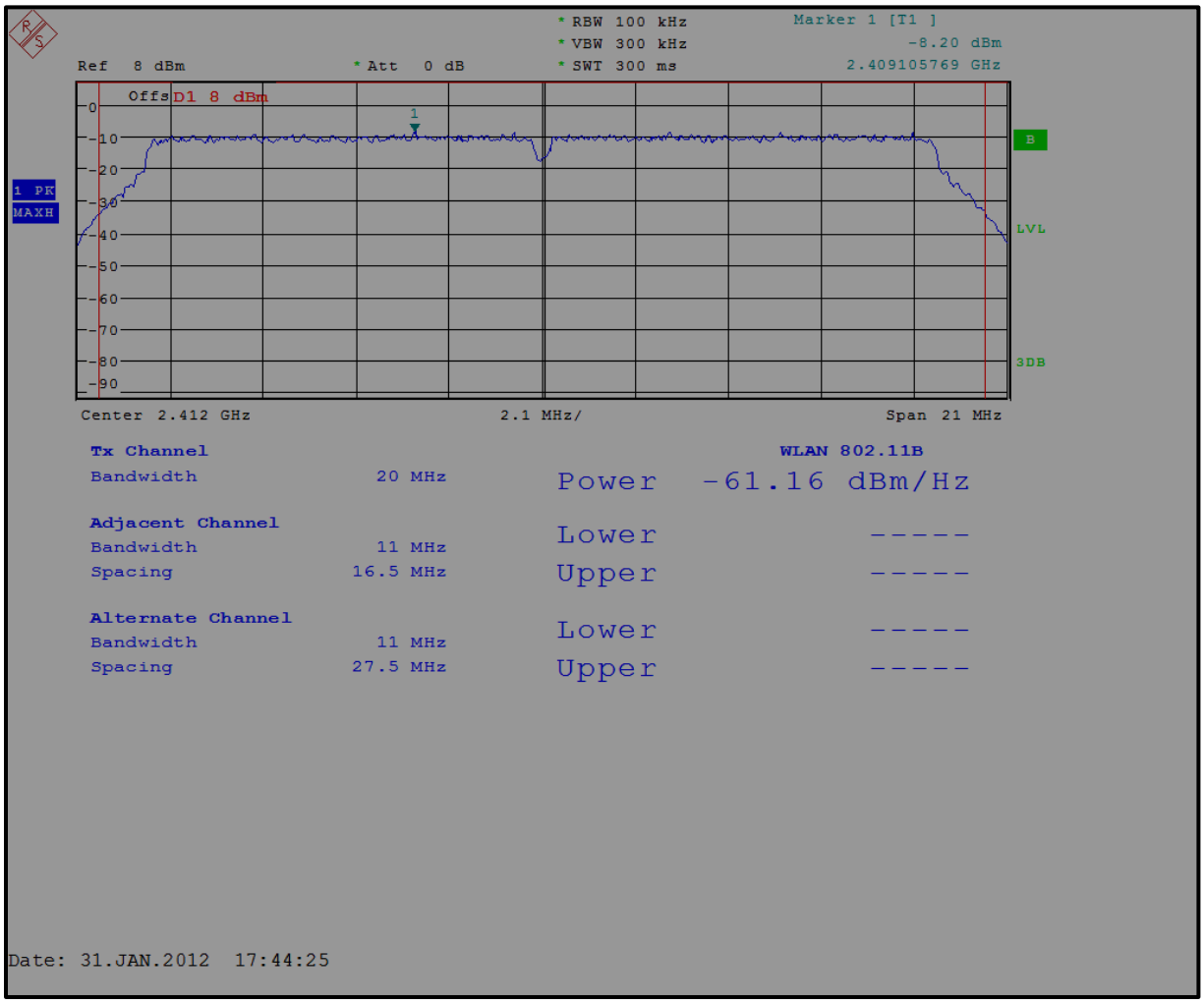
Plot 7-2: Power Spectral Density – 802.11b 2437 MHz



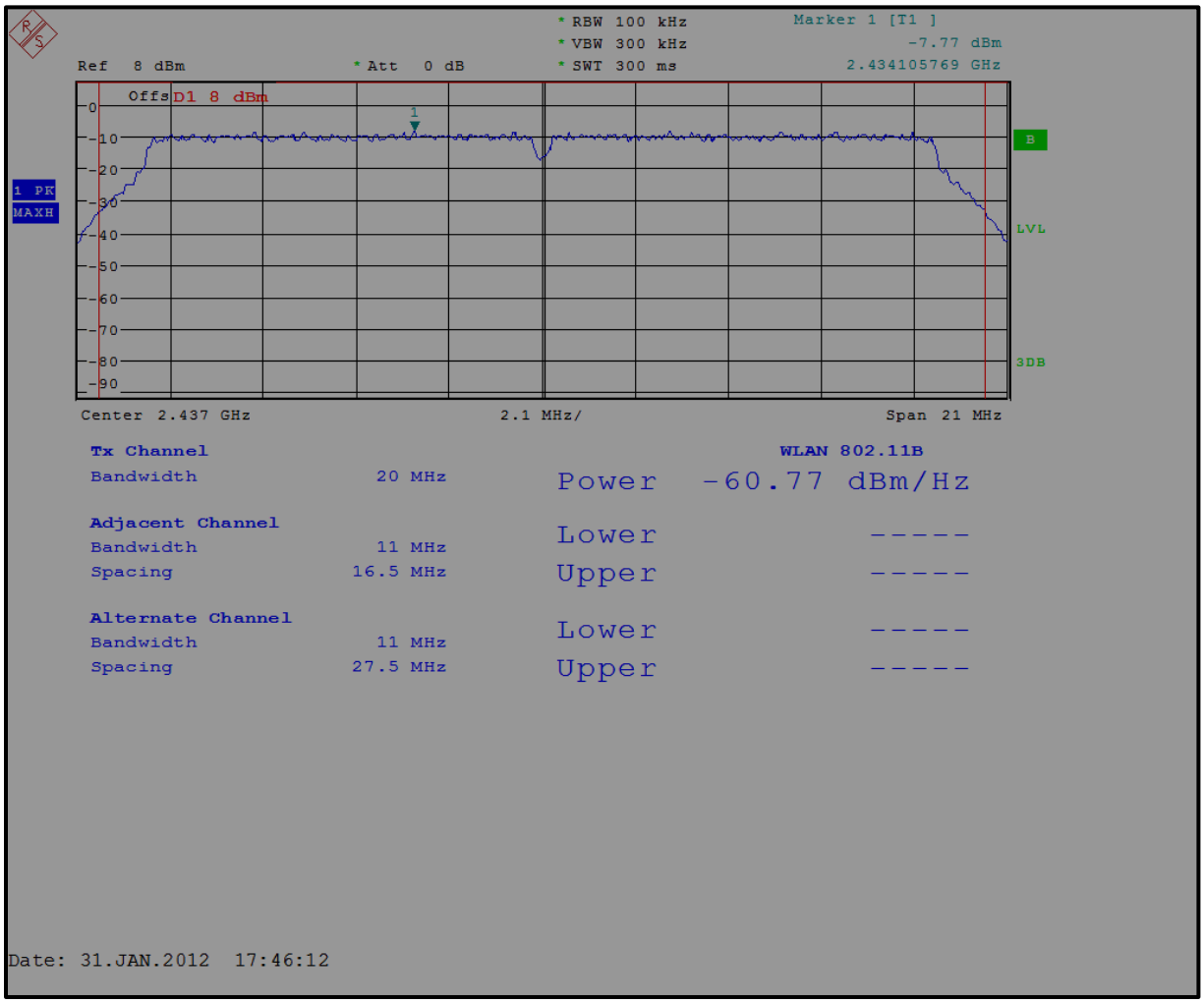
Plot 7-3: Power Spectral Density – 802.11b 2462 MHz



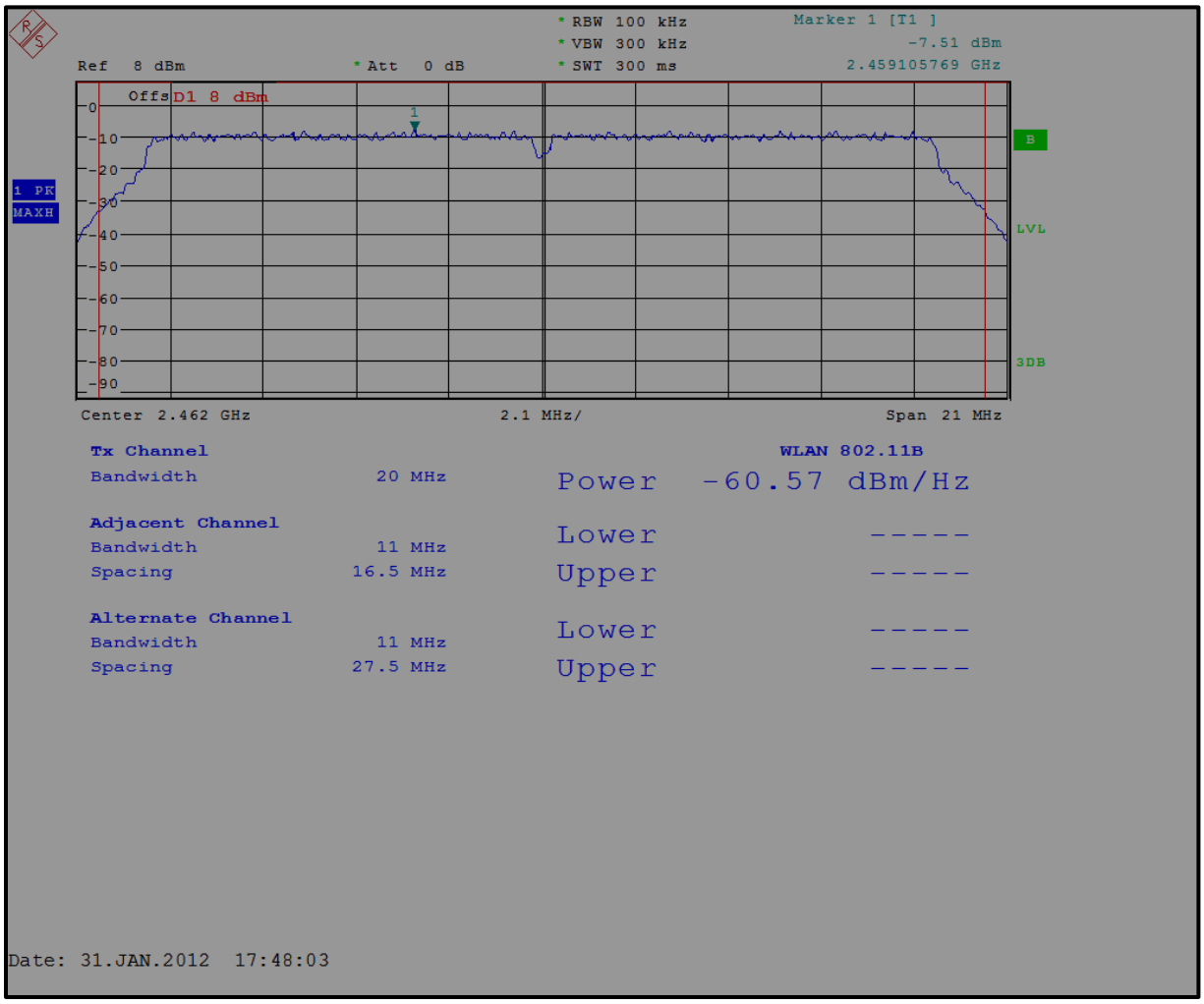
Plot 7-4: Power Spectral Density – 802.11g 2412 MHz



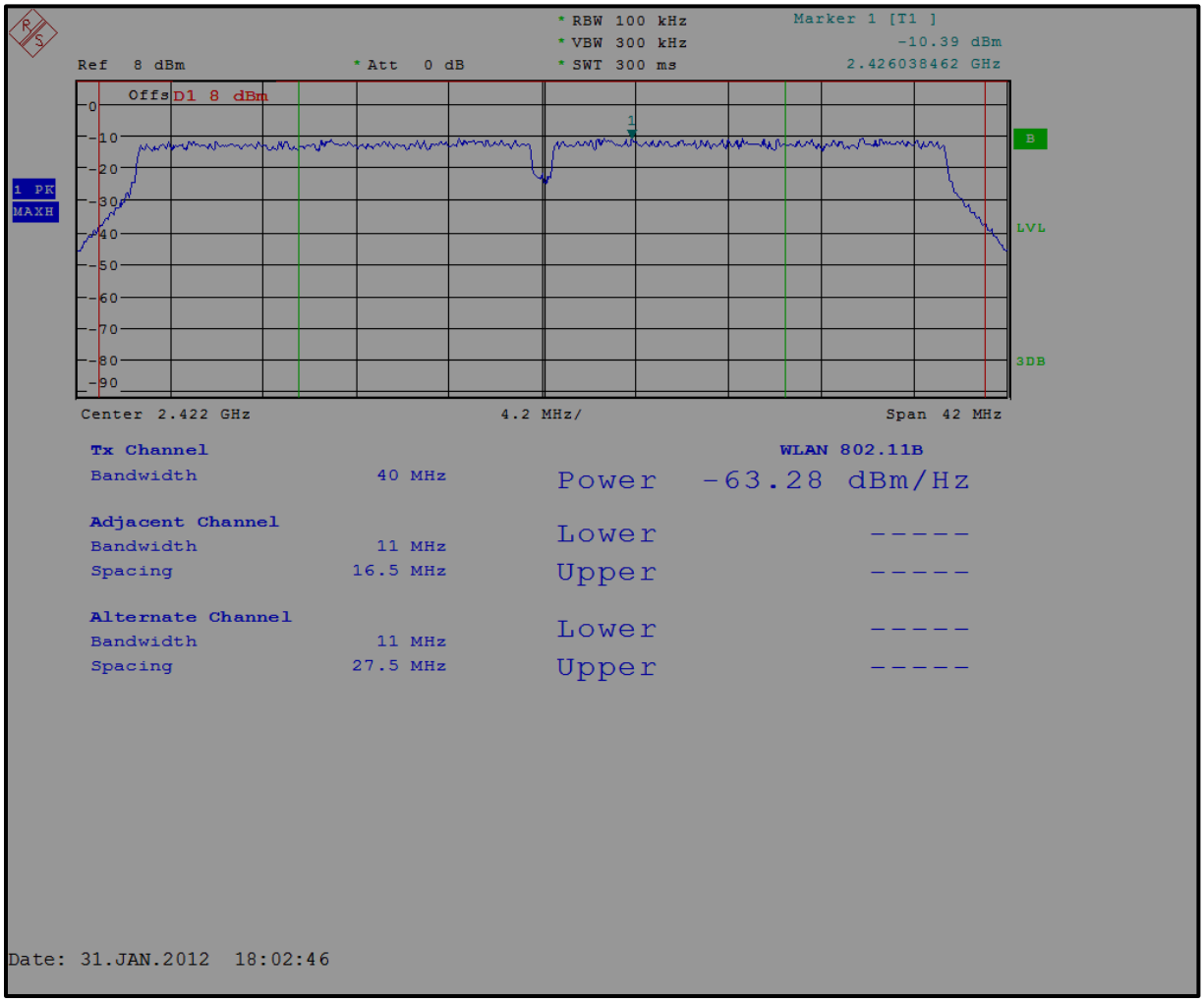
Plot 7-5: Power Spectral Density – 802.11g 2437 MHz



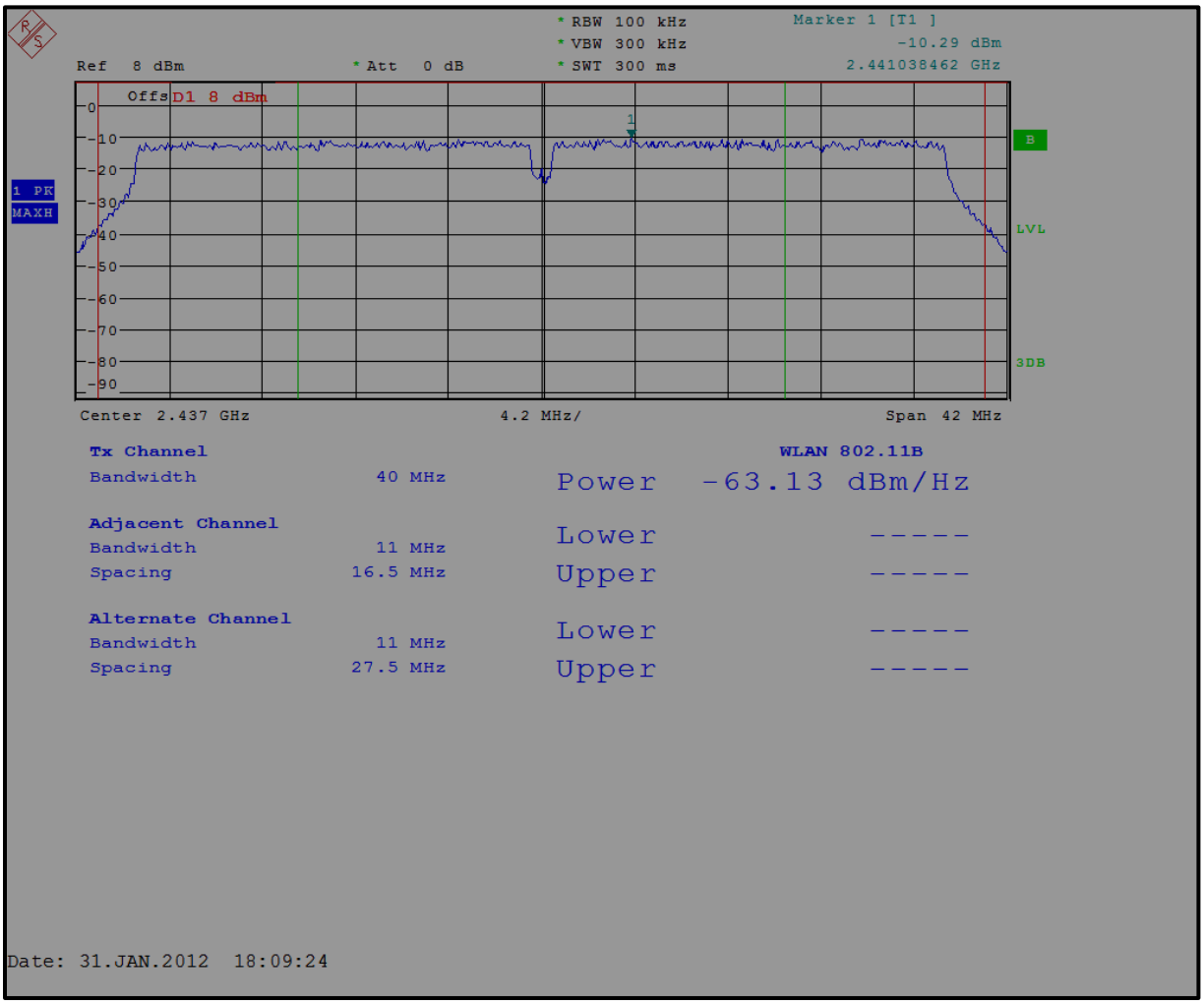
Plot 7-6: Power Spectral Density – 802.11g 2462 MHz



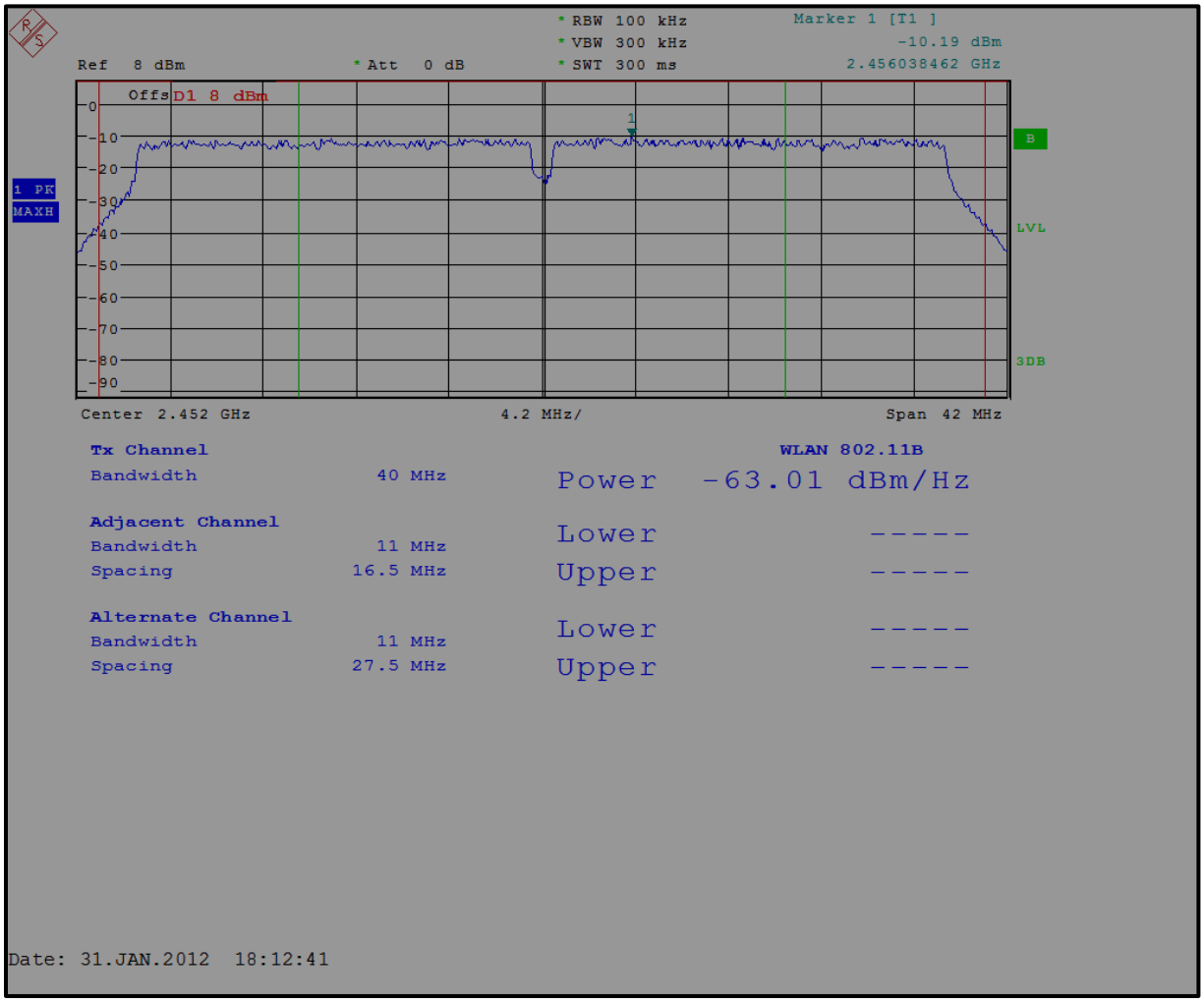
Plot 7-7: Power Spectral Density – 802.11n 2422 MHz



Plot 7-8: Power Spectral Density – 802.11n 2437 MHz



Plot 7-9: Power Spectral Density – 802.11n 2452 MHz



Test Personnel:

Rick McLay		January 31, 2012
Test Engineer	Signature	Date Of Test

8 Conducted Emissions – FCC 15.207

8.1 Limits of Conducted Emissions Measurement

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

8.2 Site and Test Description

The power line conducted emissions measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm/50 microhenry Line Impedance Stabilization Network (LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50 ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 100 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 100 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable).

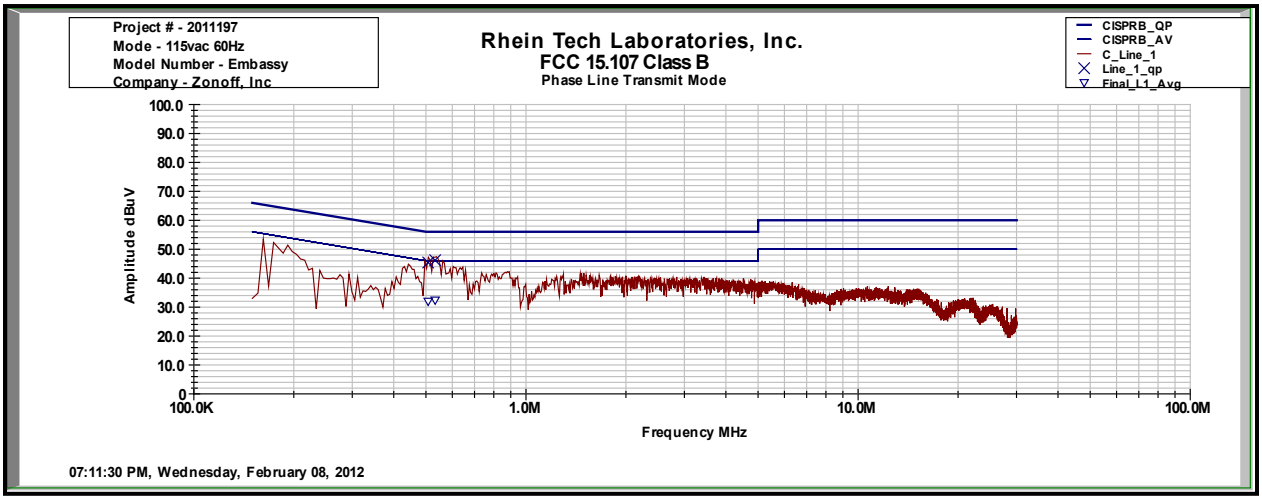
The analyzer's 6 dB bandwidth was set to 9 kHz. Video filter less than 10 times the resolution bandwidth is not used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded.

Table 8-1: Conducted Emissions Test Equipment

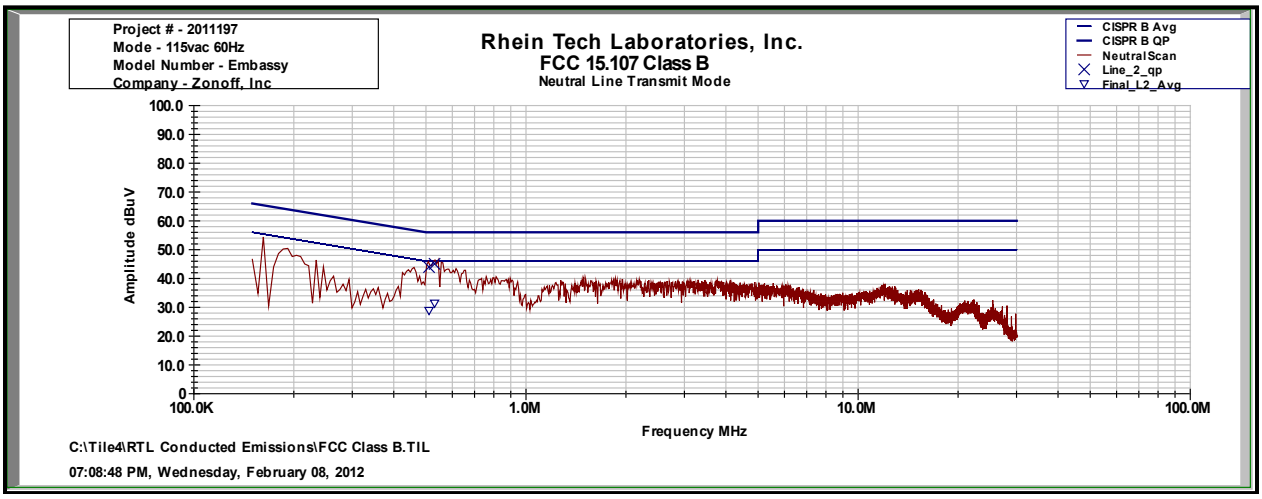
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901215	Hewlett Packard	8566B	Spectrum Analyzer (30 Hz - 18 GHz)	3138A07771	02/06/2013
901082	AFJ International	LS16	16A LISN (110 V)	16010020081	12/01/2012

8.3 Conducted Emissions Test Data

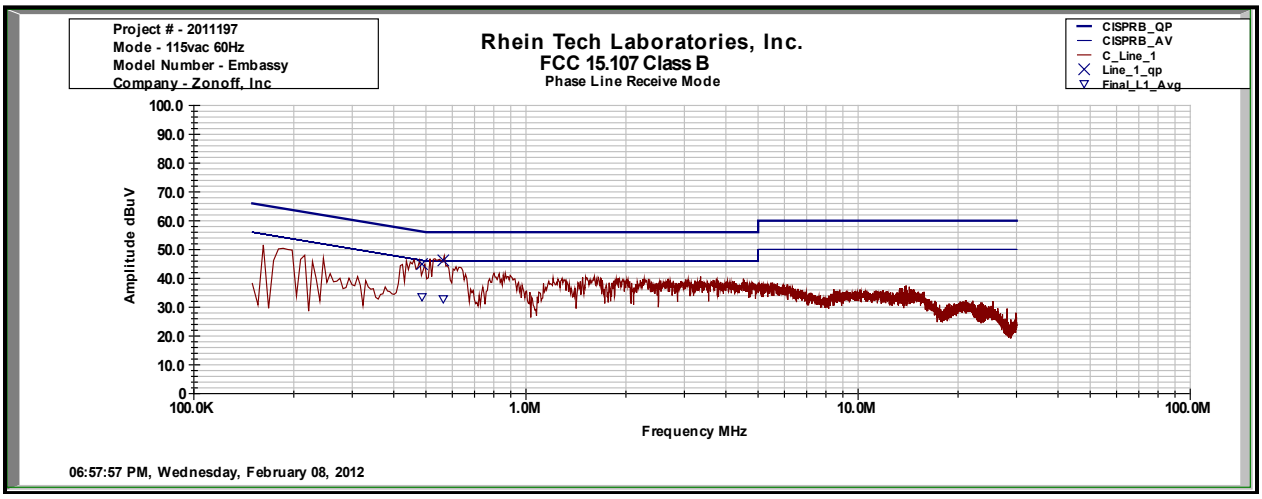
Plot 8-1: Conducted Emissions Test Data – Line - TX Mode



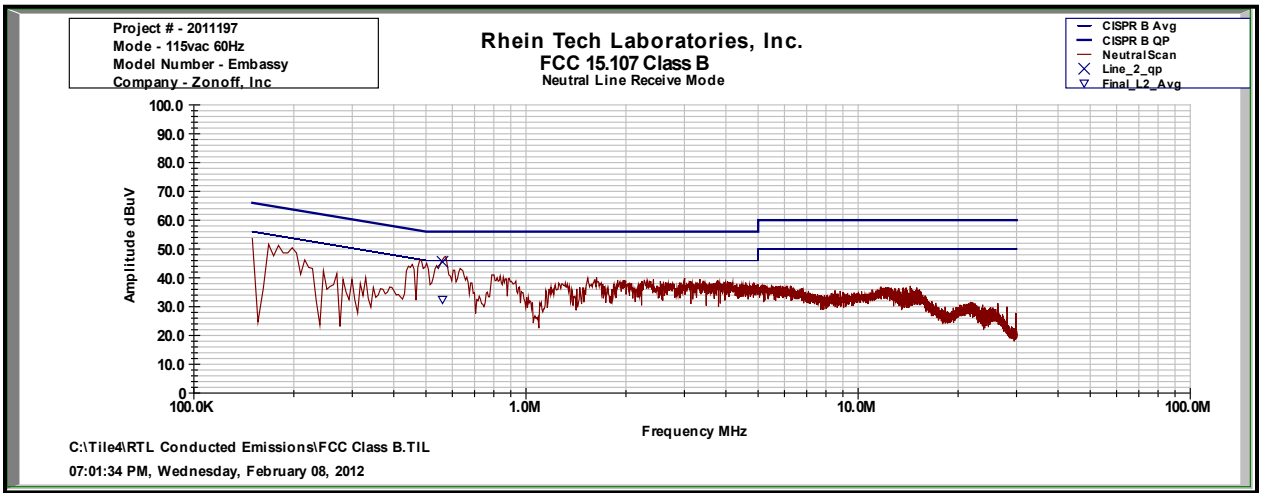
Plot 8-2: Conducted Emissions Test Data – Neutral – TX Mode



Plot 8-3: Conducted Emissions Test Data – Line - RX Mode



Plot 8-4: Conducted Emissions Test Data – Neutral – RX Mode



Test Personnel:

Rick McLay		February 8, 2012
Test Engineer	Signature	Date Of Test

9 Radiated Emissions – FCC 15.209

9.1 Limits of Radiated Emissions Measurement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009-0.490	2400/f (kHz)	300
0.490-1.705	2400/f (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any circumstances of modulation.

9.2 Radiated Emissions Measurement Test Procedure

Before final measurements of radiated emissions were made on the open-field three/ten meter range, the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10^{th} harmonic of the highest fundamental transmitter frequency (24.75 GHz).

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Table 9-1: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900932	Hewlett Packard	8449B	20 dB Preamplifier (1 – 26.5 GHz)	3008A00505	07/14/2012
900905	Rhein Tech Laboratories, Inc.	PR-1040	Preamplifier 40dB (30 MHz – 2 GHz)	1006	07/14/2012
900878	Rhein Tech Laboratories	AM3-1197-0005	4 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901399	Times Microwave	SFT-205	RF cable, 30'	NA	07/19/2012
901397	Times Microwave	SFT-205	RF cable, 1'	NA	07/19/2012
901242	Rhein Tech Laboratories	WRT-000-0003	Polystyrene rotating table	N/A	Not Required
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 kHz – 6.5 GHz)	3325A00159	08/02/2012
900914	Hewlett Packard	8546OA	RF Filter Section, (100 kHz - 6.5 GHz)	3330A00107	08/02/2012
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	06/14/2012
900321	EMCO	3161-03	Horn Antenna (4.0 - 8.2 GHz)	9508-1020	06/14/2012
900323	EMCO	3160-07	Horn Antenna (8.2 – 12.4 GHz)	9605-1054	07/31/2012
900356	EMCO	3160-08	Horn Antenna (12.4 - 18 GHz)	9607-1044	06/13/2012
900325	EMCO	3160-9	Horn Antennas (18 - 26.5 GHz)	9605-1051	06/13/2012
901581	Rohde & Schwarz	1166.1660.50	FSU Spectrum Analyzer (20 Hz – 50 GHz)	200106	01/19/2013

9.3 Radiated Emissions Test Results

9.3.1 Radiated Emissions Digital Test Data

Table 9-2: Digital Radiated Emissions Test Data

Temperature: 49°F Humidity: 74%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/ Fail
150.012	Qp	V	180	1	56.0	-18.5	37.5	43.5	-6.0	Pass
350.018	Qp	H	330	1.2	53.0	-12.3	40.7	46.0	-5.3	Pass
375.032	Qp	H	330	1	51.5	-11.6	39.9	46.0	-6.1	Pass
450.009	Qp	H	45	1	54.5	-9.3	45.2	46.0	-0.8	Pass
550.000	Qp	H	0	1	49.8	-6.1	43.7	46.0	-2.3	Pass
625.016	Qp	H	180	1.5	42.9	-5.8	37.1	46.0	-8.9	Pass
650.007	Qp	H	45	1.5	43.2	-5.6	37.6	46.0	-8.4	Pass
950.000	Qp	V	90	1.2	47.8	-2.0	45.8	46.0	-0.2	Pass
1250.000	Av	H	225	1.5	45.0	2.5	47.5	54.0	-6.5	Pass
2000.000	Av	H	0	1	34.4	13.5	47.9	54.0	-6.1	Pass

9.3.2 Radiated Emissions Harmonics/Spurious Test Data

Table 9-3: Radiated Emissions Harmonics/Spurious – 802.11b 2412 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4824.0	36.1	22.0	13.3	35.3	54.0	-18.7
12060.0	33.6	20.7	17.8	38.5	54.0	-15.5

Table 9-4: Radiated Emissions Harmonics/Spurious – 802.11b 2437 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4874.0	34.6	22.1	13.0	35.1	54.0	-18.9
7311.0	33.7	20.6	12.2	32.8	54.0	-21.2
12185.0	34.0	20.7	19.1	39.8	54.0	-14.2

Table 9-5: Radiated Emissions Harmonics/Spurious – 802.11b 2462 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4924.0	33.8	21.9	13.3	35.2	54.0	-18.8
7386.0	33.4	20.8	13.7	34.5	54.0	-19.5
12310.0	34.2	21.0	20.7	41.7	54.0	-12.3

Table 9-6: Radiated Emissions Harmonics/Spurious – 802.11g 2412 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4824.0	35.2	22.0	13.3	35.3	54.0	-18.7
12060.0	33.0	20.8	17.8	38.6	54.0	-15.4

Table 9-7: Radiated Emissions Harmonics/Spurious – 802.11g 2437 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4874.0	34.6	22.0	13.0	35.0	54.0	-19.0
7311.0	33.2	20.4	12.2	32.6	54.0	-21.4
12185.0	34.0	21.1	19.1	40.2	54.0	-13.8

Table 9-8: Radiated Emissions Harmonics/Spurious – 802.11g 2462 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4924.0	35.4	22.0	13.3	35.3	54.0	-18.7
7386.0	34.5	21.1	13.7	34.8	54.0	-19.2
12310.0	33.7	21.1	20.7	41.8	54.0	-12.2

Table 9-9: Radiated Emissions Harmonics/Spurious – 802.11n 2422 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4844.0	33.8	21.9	13.9	35.8	54.0	-18.2
7266.0	33.4	20.8	12.4	33.2	54.0	-20.8
12110.0	34.2	21.0	18.2	39.2	54.0	-14.8

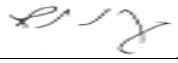
Table 9-10: Radiated Emissions Harmonics/Spurious – 802.11n 2437 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4874.0	34.8	22.2	13.0	35.2	54.0	-18.8
7311.0	33.9	22.2	12.2	34.4	54.0	-19.6
12185.0	34.6	21.3	19.1	40.4	54.0	-13.6

Table 9-11: Radiated Emissions Harmonics/Spurious – 802.11n 2452 MHz

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
4904.0	33.2	22.2	13.7	35.9	54.0	-18.1
7356.0	34.1	21.1	13.2	34.3	54.0	-19.7
12260.0	34.7	21.5	20.0	31.5	54.0	-22.5

Test Personnel:

Rick McLay		January 23, 2012
Test Engineer	Signature	Date Of Test

10 Conclusion

The data in this measurement report shows that the EUT as tested, Zonoff, Inc. Model: Embassy, FCC ID: Z82-EMBY001, complies with all the applicable requirements of Parts 2 and 15 of the FCC Rules and Regulations.