Spectrum Design Solutions

LifeSense Wireless Gateway

FCC 15.247:2013

FCC 15.207:2013

Report #: SPCD0019

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

Last Date of Test: June 28, 2013
Spectrum Design Solutions
Model: LifeSense Wireless Gateway

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2013	ANSI C63.4:2009	Pass
Output Power	FCC 15.247:2013	ANSI C63.4:2009	Pass
Power Spectral Density	FCC 15.247:2013	ANSI C63.4:2009	Pass
Spurious Conducted Emissions	FCC 14.247:2013	ANSI C63.4:2009	Pass
Occupied Bandwidth	FCC 15.247:2013	ANSI C63.4:2009	Pass
Band Edge Compliance	FCC 15.247:2013	ANSI C63.4:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2013	ANSI C63.4:2009	Pass
Powerline Conducted Emissions	FCC 15.207:2013	ANSI C63.4:2009	Pass

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP Lab Code: 200881-0

Test Facility

The measurement facility used to collect the data is located at:
Northwest EMC, Inc.
9349 W Broadway Ave.,
Brooklyn Park, MN 55445

Phone: (763) 425-2281 Fax: (763) 424-3469

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834E-1).

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

NORTHWEST EMC
REV 2012.08.02

REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

NORTHWEST EMC

REV 2012.05.24

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

KCC / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/

MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

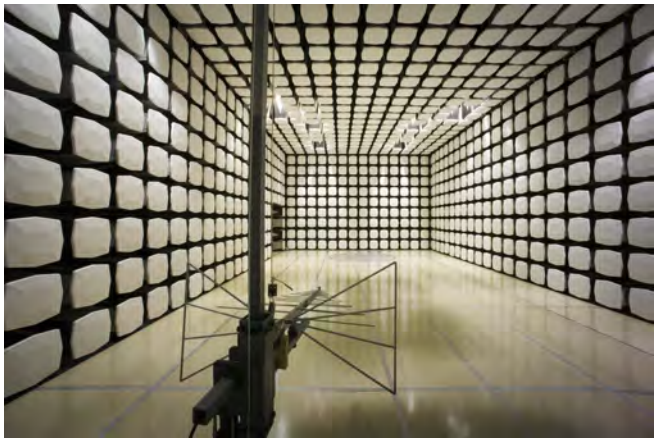
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	4.00	-4.00
AC Powerline Conducted Emissions (dB)	2.70	-2.70

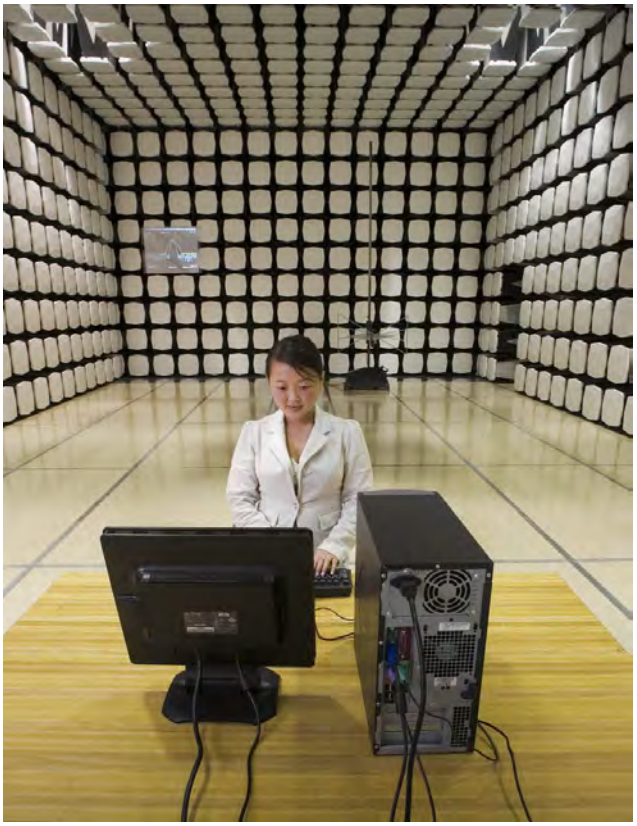
NORTHWEST EMC

REV 2013.06.28

FACILITIES

Oregon	California	New York	Minnesota	Washington
Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs NC01-05,SU02,SU07 19201 120th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0





PRODUCT DESCRIPTION

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	Eaton Corporation
Address:	7945 Wallace Road
City, State, Zip:	Eden Prairie, MN 55344
Test Requested By:	John Capesius
Model:	LifeSense Wireless Gateway
First Date of Test:	May 14, 2013
Last Date of Test:	September 19, 2014
Receipt Date of Samples:	May 14, 2013
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
802.11 bgn wireless gateway operating as a DTS device in the 2.4 GHz band. It also contains a Low Power transceiver operating at 433 MHz. Modulation type is FSK.

Testing Objective:
To demonstrate compliance under FCC 15.247 for operation in the 2.4 GHz band as a DTS device.

CONFIGURATIONS

Configuration SPCD0019- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
LifeSense Wireless Gateway	Eaton Corporation	None	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	MPJA	245	3920
Laptop	Dell	Precision M4300	34619198365
Laptop Supply	Dell	HA65NS1-00	CN-OHN662-47890-85H-A68S
USB Mouse	Dell	M-UAR DEL7	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	>3.0m	No	LifeSense Wireless Gateway	Laptop
AC Power	No	0.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	1.4m	No	LifeSense Wireless Gateway	Power Supply
USB	Yes	1.8m	No	USB Mouse	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration SPCD0019- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
LifeSense Wireless Gateway	Eaton Corporation	None	None
Wi-Fi Antenna	Laird	637113	20252637113B
Periodic Antenna	Taoglas	ISA.01.A301111	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	MPJA	245	3920

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Precision M4300	34619198365
Laptop Supply	Dell	HA65NS1-00	CN-OHN662-47890-85H-A68S
USB Mouse	Dell	M-UAR DEL7	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial	Yes	>3.0m	No	LifeSense Wireless Gateway	Laptop
AC Power	No	0.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	1.4m	No	LifeSense Wireless Gateway	Power Supply
USB	Yes	1.8m	No	USB Mouse	Laptop
Coax	No	4.0m	No	LifeSense Wireless Gateway	Wi-Fi Antenna
Coax	No	3.0m	No	LifeSense Wireless Gateway	Periodic Antenna
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration SPCD0019- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
LifeSense Wireless Gateway	Eaton Corporation	None	None
Wi-Fi Antenna	Laird	637113	20252637113B
Periodic Antenna	Taoglas	ISA.01.A301111	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	MPJA	245	3920

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Precision M4300	34619198365
Laptop Supply	Dell	HA65NS1-00	CN-OHN662-47890-85H-A68S

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	0.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	1.4m	No	LifeSense Wireless Gateway	Power Supply
Ethernet	No	>3.0m	No	LifeSense Wireless Gateway	Laptop
Coax	No	4.0m	No	LifeSense Wireless Gateway	Wi-Fi Antenna
Coax	No	3.0m	No	LifeSense Wireless Gateway	Periodic Antenna
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	5/14/2013	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	5/16/2013	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	5/20/2013	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	5/20/2013	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	5/20/2013	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	5/20/2013	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	5/20/2013	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
8	6/28/2013	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Duty Cycle

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in this report to only measure during the burst duration.

Duty Cycle

EUT:	LifeSense Wireless Gateway	**Work Order:**	SPCD0019
Serial Number:	None	**Date:**	05/20/13
Customer:	Spectrum Design Solutions	**Temperature:**	23.5°C
Attendees:	Nick Burtyk	**Humidity:**	57%
Project:	None	**Barometric Pres.:**	999.4
Tested by:	Johnathan Lee	**Power:** 12VDC	**Job Site:** MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

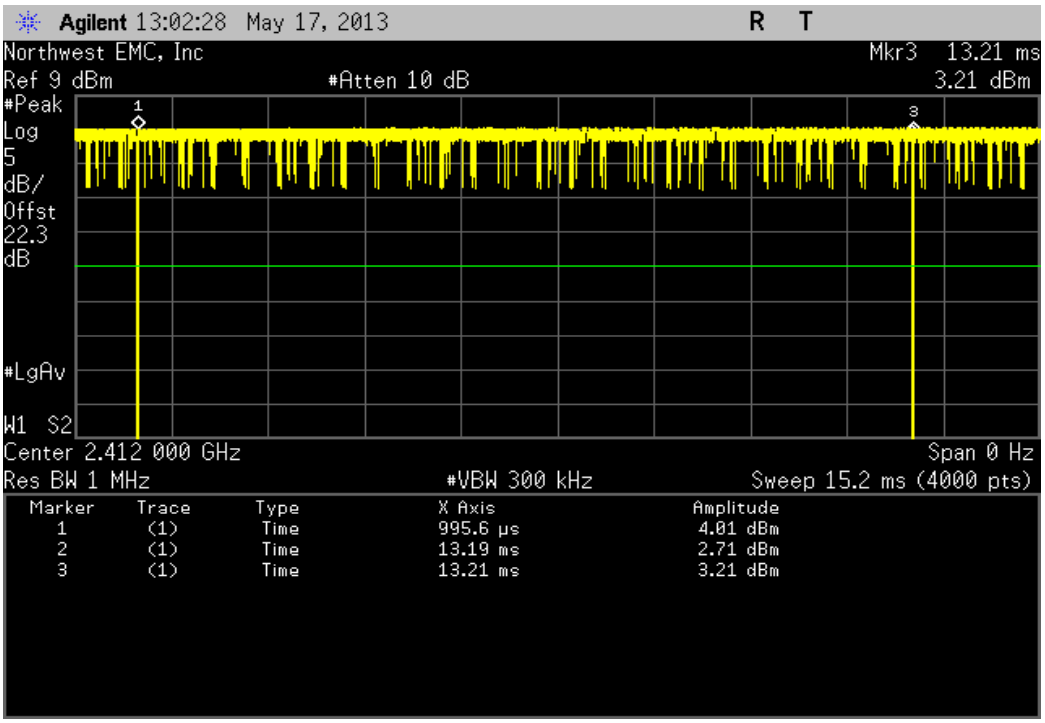
None

Configuration #	1	Signature

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
2400 MHz - 2483.5 MHz Band						
802.11(b) 1 Mbps						
Low Channel 1, 2412 MHz	12.19 mS	12.217 mS	1	99.8	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	12.196 mS	12.22 mS	1	99.8	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	6	N/A	N/A	N/A
High Channel 11, 2462 MHz	12.191 mS	12.218 mS	1	99.8	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(b) 11 Mbps						
Low Channel 1, 2412 MHz	1.184 mS	1.213 mS	1	97.6	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	1.185 mS	1.213 mS	1	97.7	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 11, 2462 MHz	1.185 mS	1.213 mS	1	97.7	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(g) 6 Mbps						
Low Channel 1, 2412 MHz	2.016 mS	2.056 mS	1	98.1	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	2.016 mS	2.056 mS	1	98.1	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 11, 2462 MHz	2.016 mS	2.056 mS	1	98.1	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(g) 36 Mbps						
Low Channel 1, 2412 MHz	349 uS	389 uS	1	89.7	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	348 uS	388 uS	1	89.7	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	7	N/A	N/A	N/A
High Channel 11, 2462 MHz	348 uS	389 uS	1	89.5	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	6	N/A	N/A	N/A
802.11(g) 54 Mbps						
Low Channel 1, 2412 MHz	236 uS	276 uS	1	85.5	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	6	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	236 uS	276 uS	1	85.5	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	7	N/A	N/A	N/A
High Channel 11, 2462 MHz	235 uS	276 uS	1	85.1	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0						
Low Channel 1, 2412 MHz	1.87 mS	1.928 mS	1	97	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	7	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	20 uS	1.92 mS	1	1	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	6	N/A	N/A	N/A
High Channel 11, 2462 MHz	1.88 mS	1.92 mS	1	97.9	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	7	N/A	N/A	N/A
802.11(n) MCS7						
Low Channel 1, 2412 MHz	211 uS	259 uS	1	81.5	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	13	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	212 uS	257 uS	1	82.5	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	11	N/A	N/A	N/A
High Channel 11, 2462 MHz	215 uS	256 uS	1	84	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	15	N/A	N/A	N/A

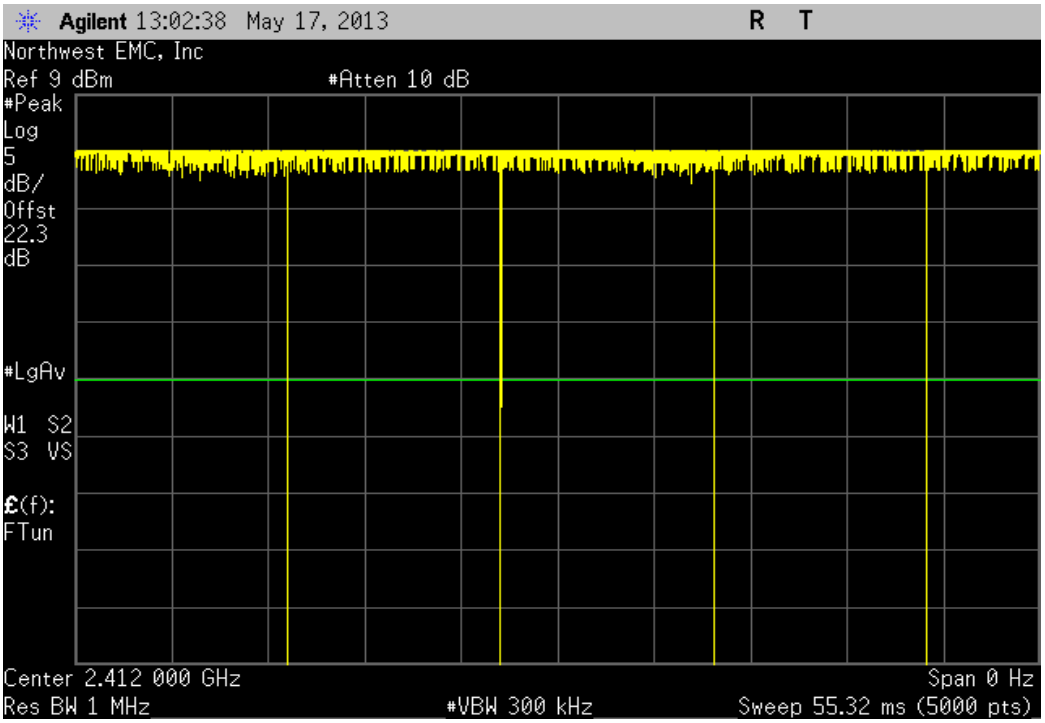
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
12.19 mS	12.217 mS	1	99.8	N/A	N/A



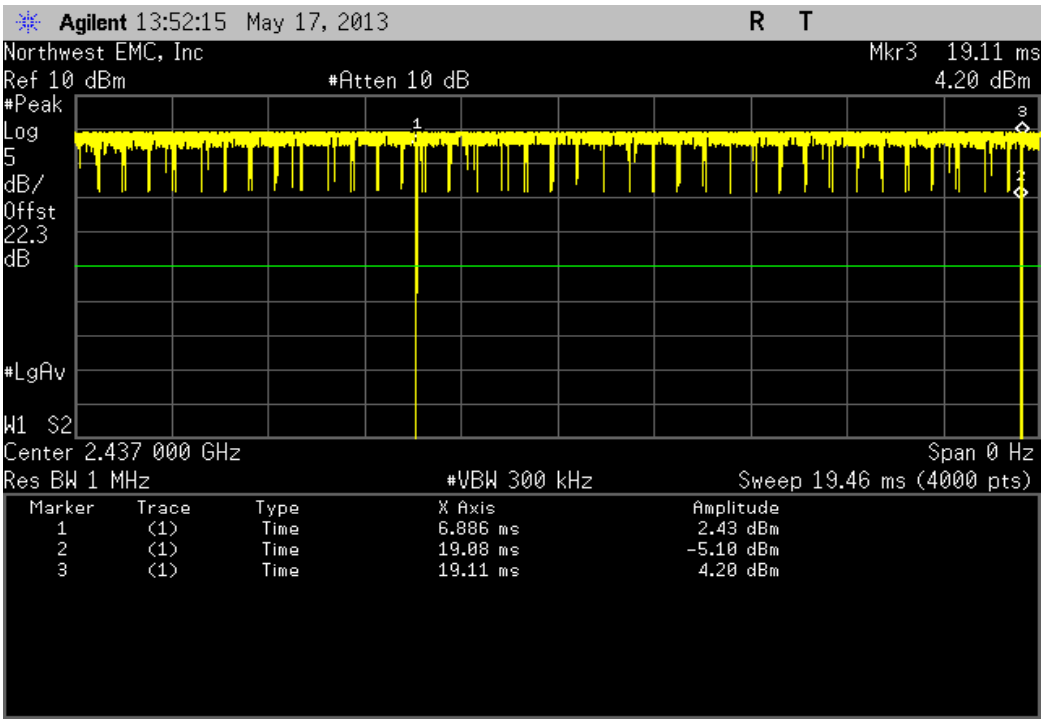
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

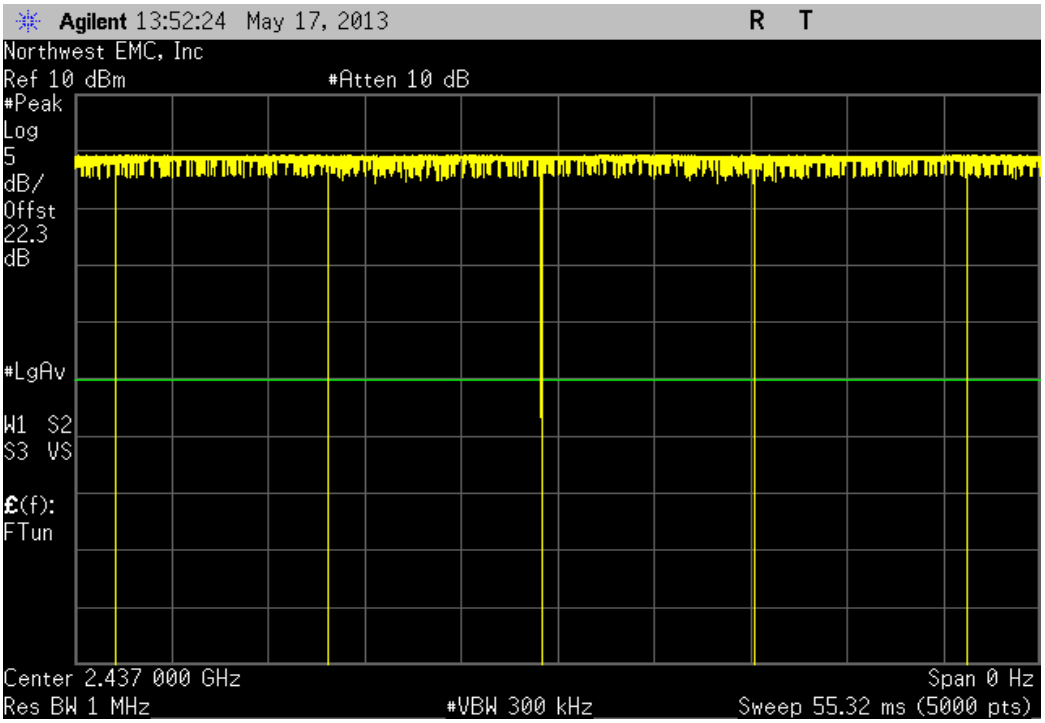


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	12.196 mS	12.22 mS	1	99.8	N/A	N/A

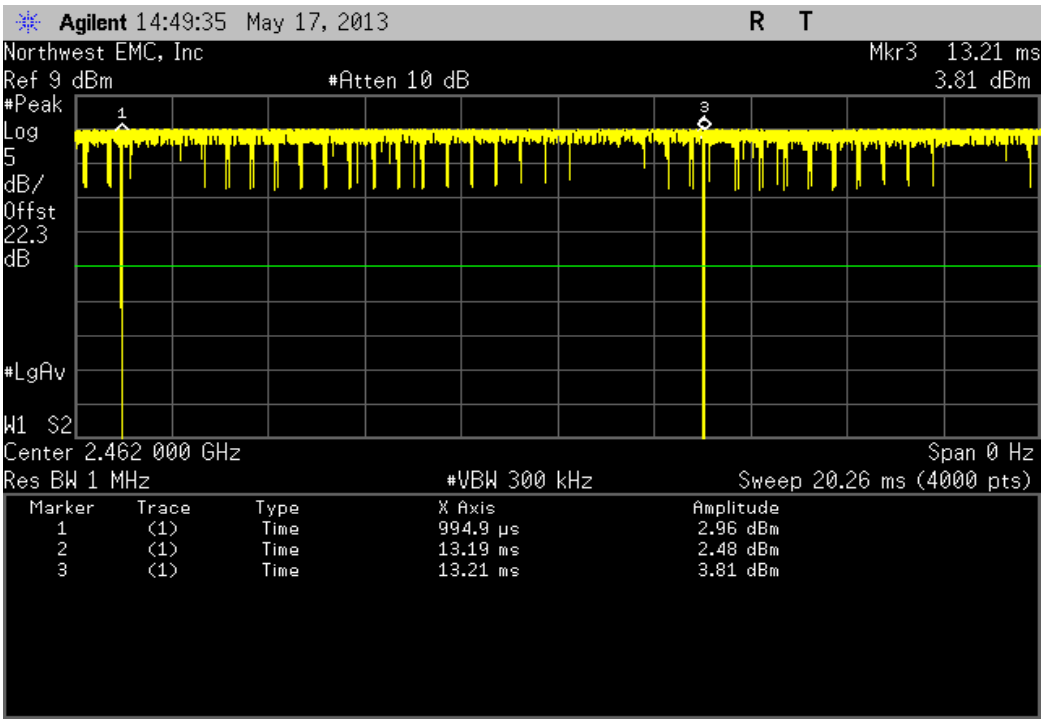


2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	6	N/A	N/A	N/A



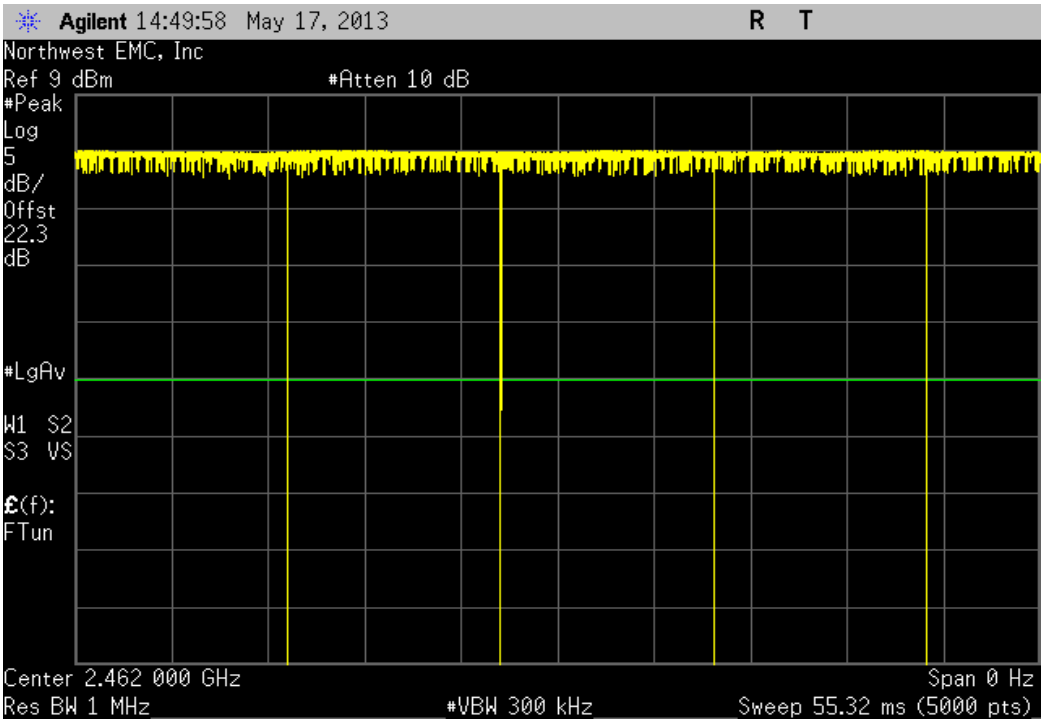
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
12.191 mS	12.218 mS	1	99.8	N/A	N/A



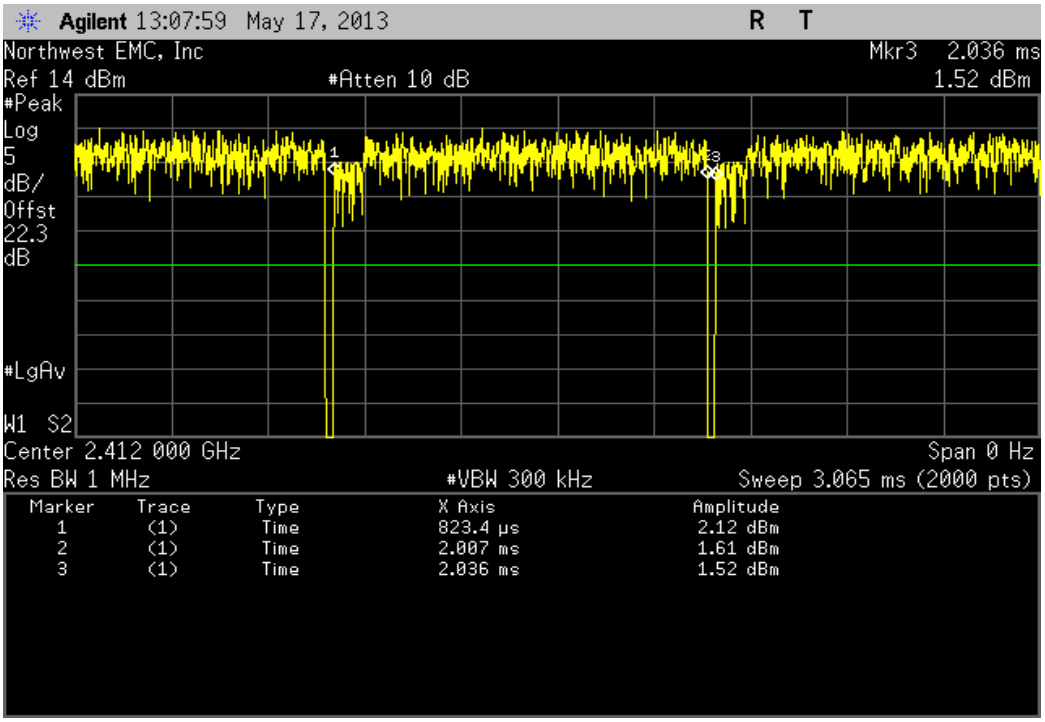
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

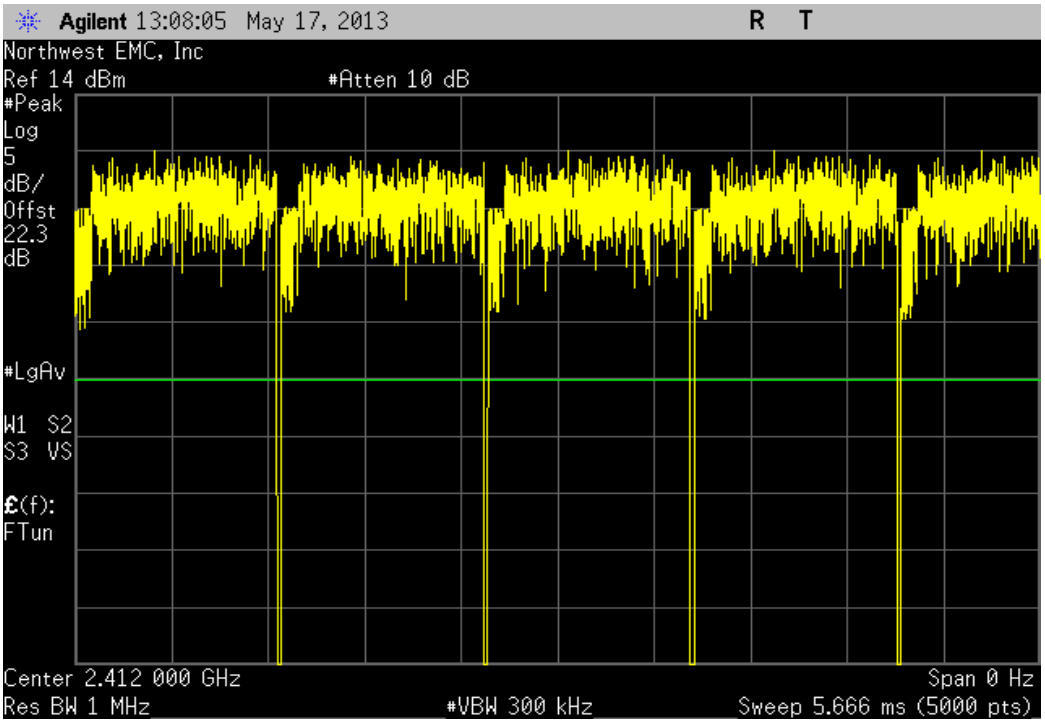


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.184 mS	1.213 mS	1	97.6	N/A	N/A

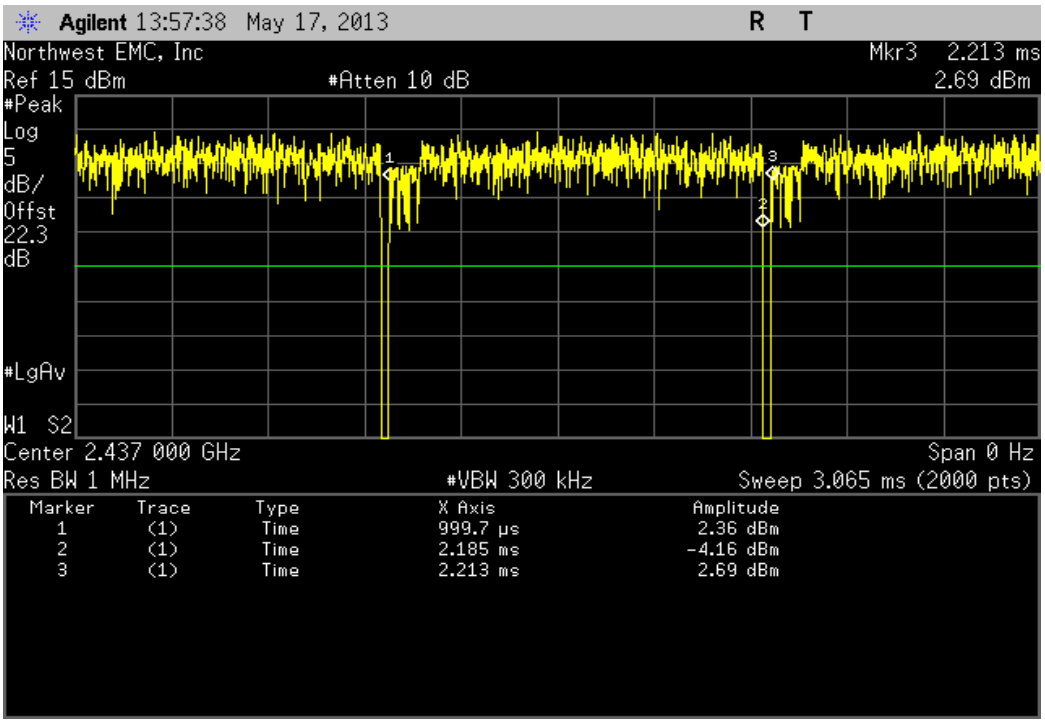


2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

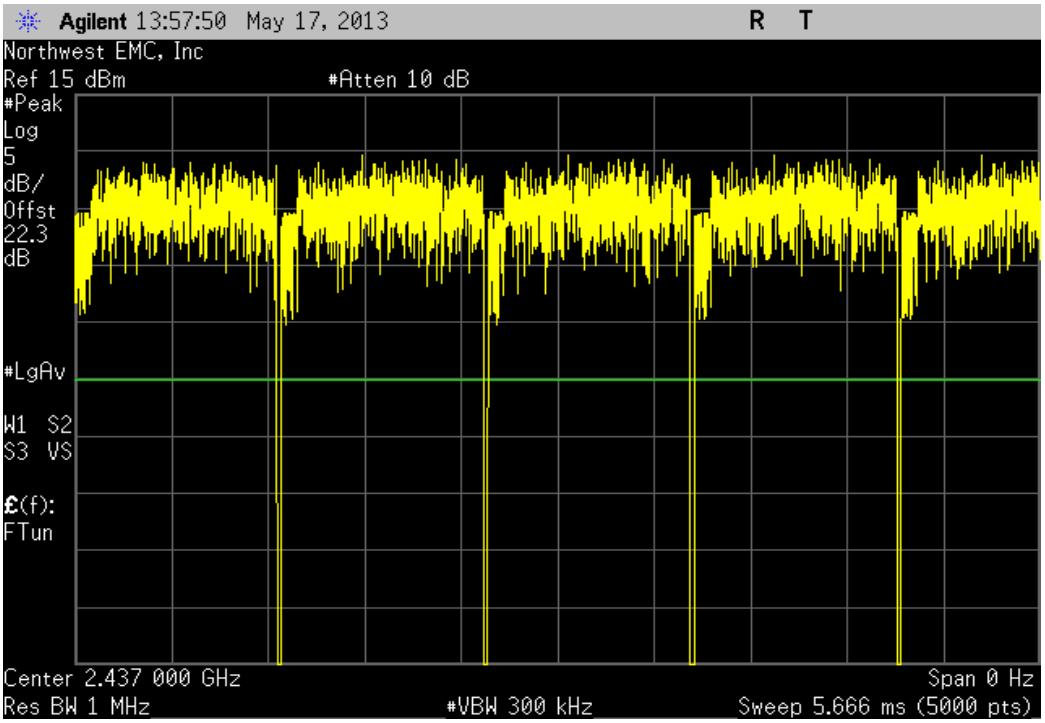


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.185 mS	1.213 mS	1	97.7	N/A	N/A

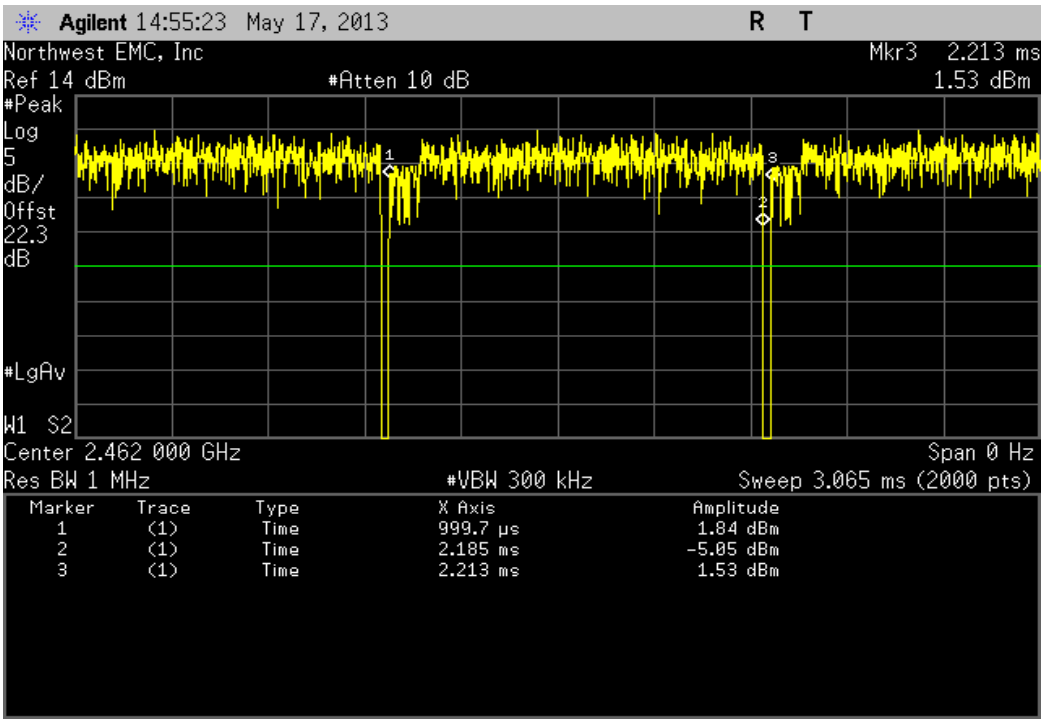


2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

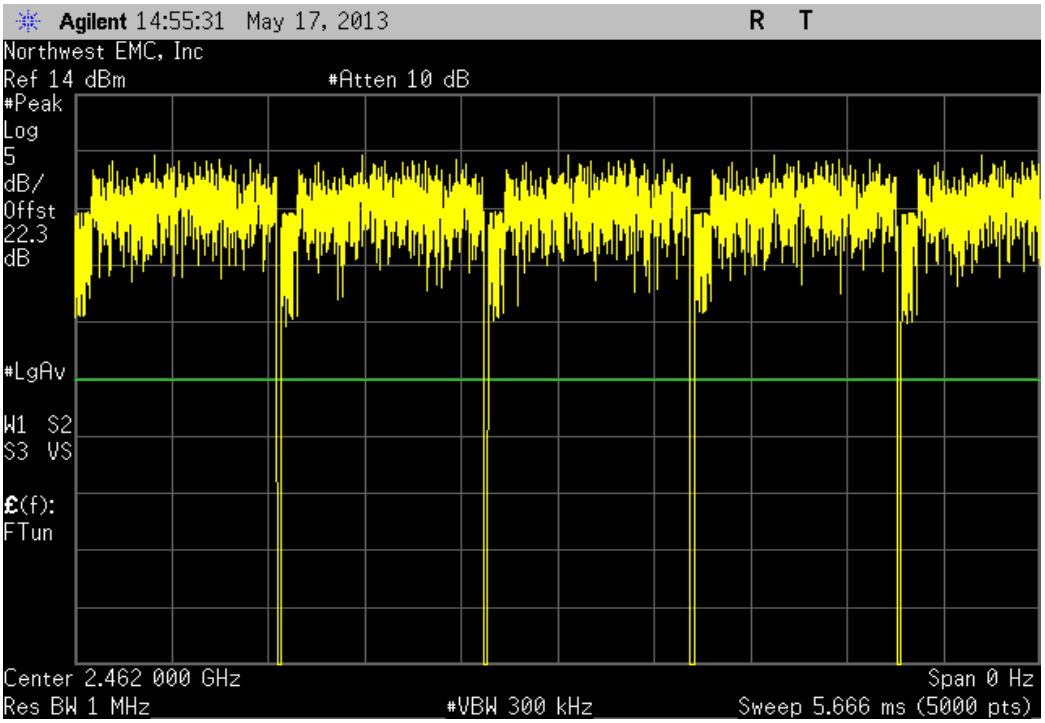


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.185 mS	1.213 mS	1	97.7	N/A	N/A

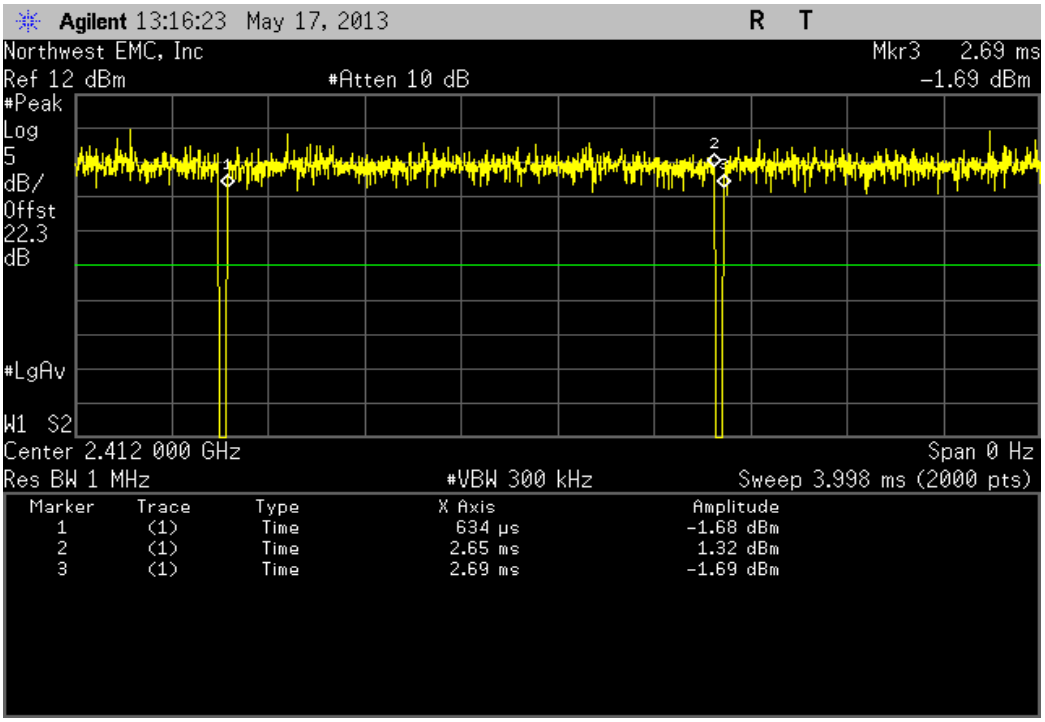


2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

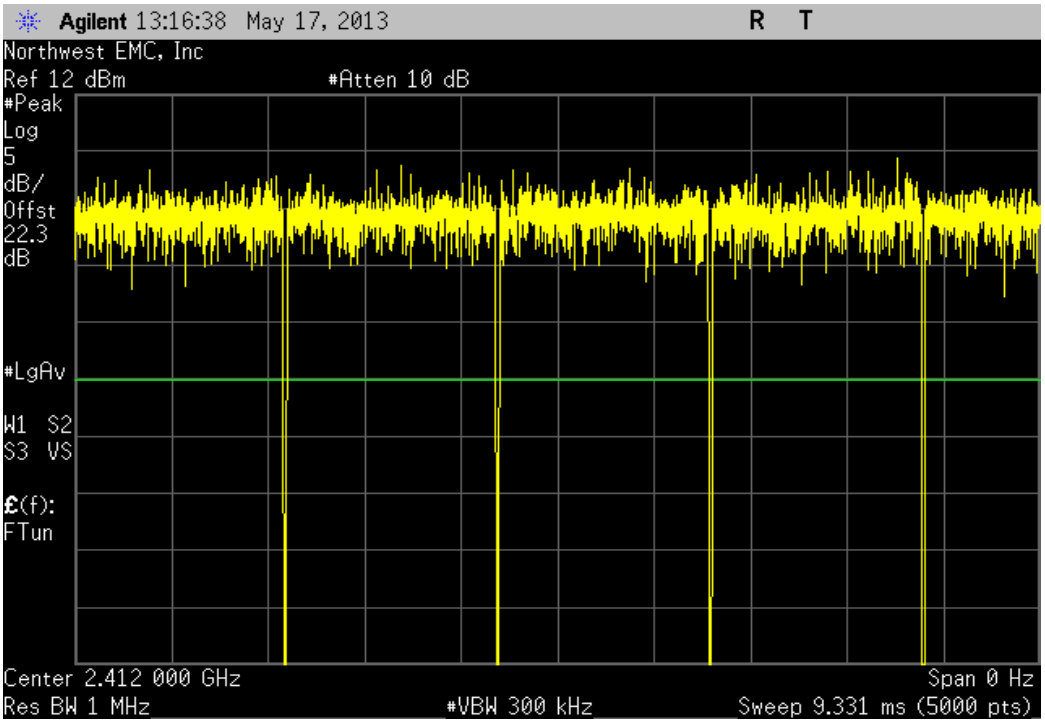


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.016 mS	2.056 mS	1	98.1	N/A	N/A

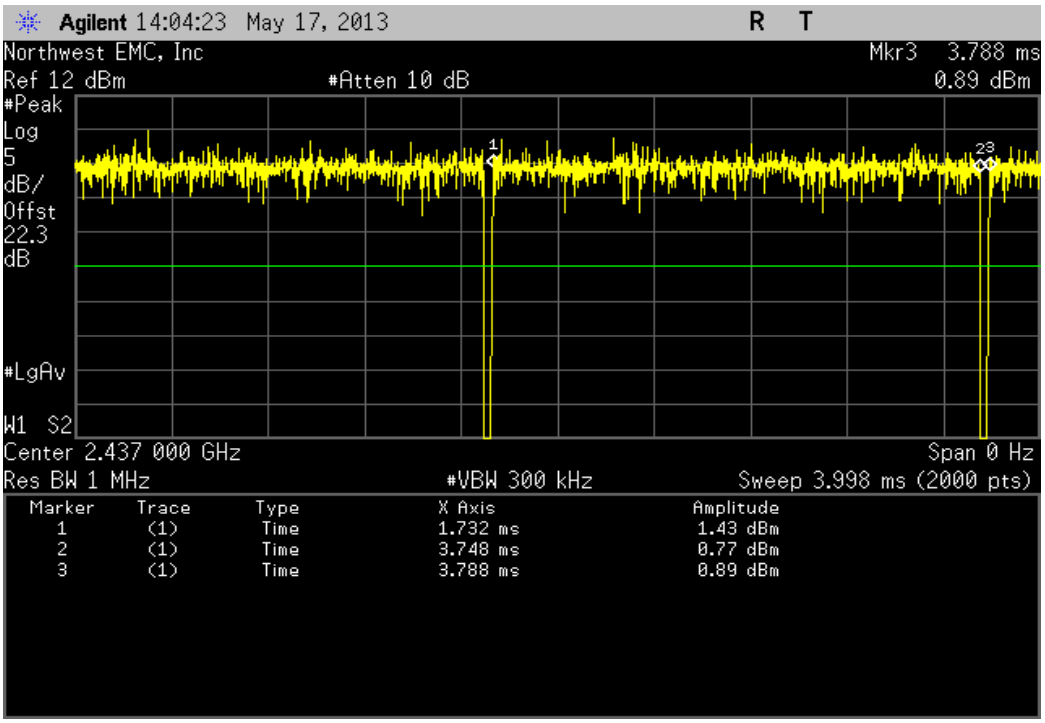


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

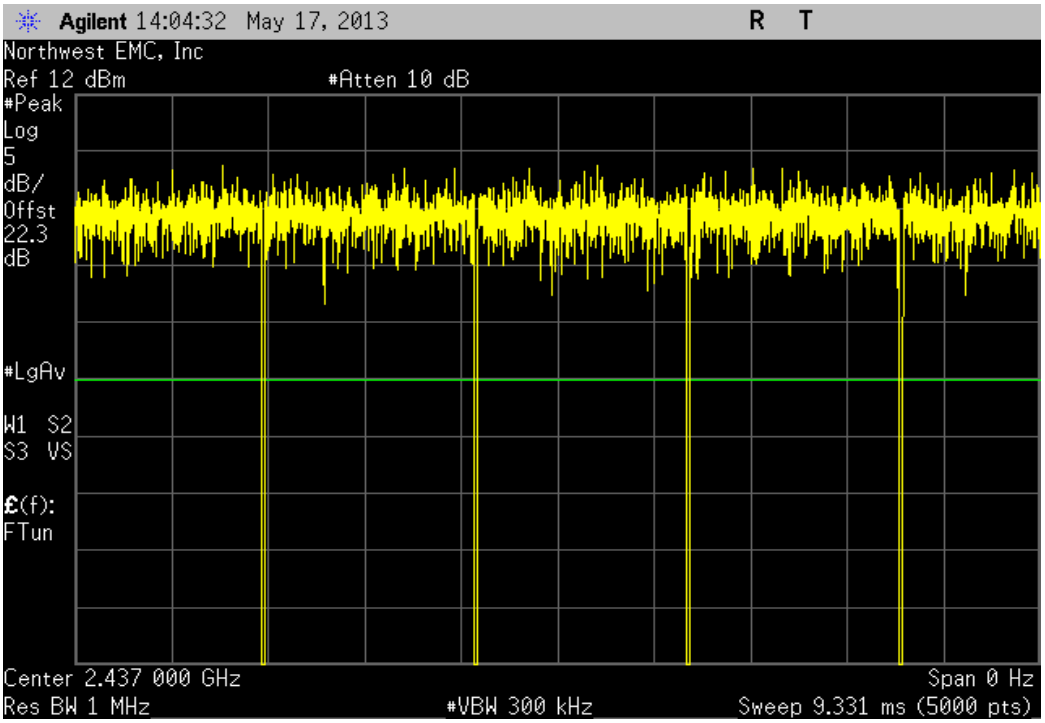


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.016 mS	2.056 mS	1	98.1	N/A	N/A

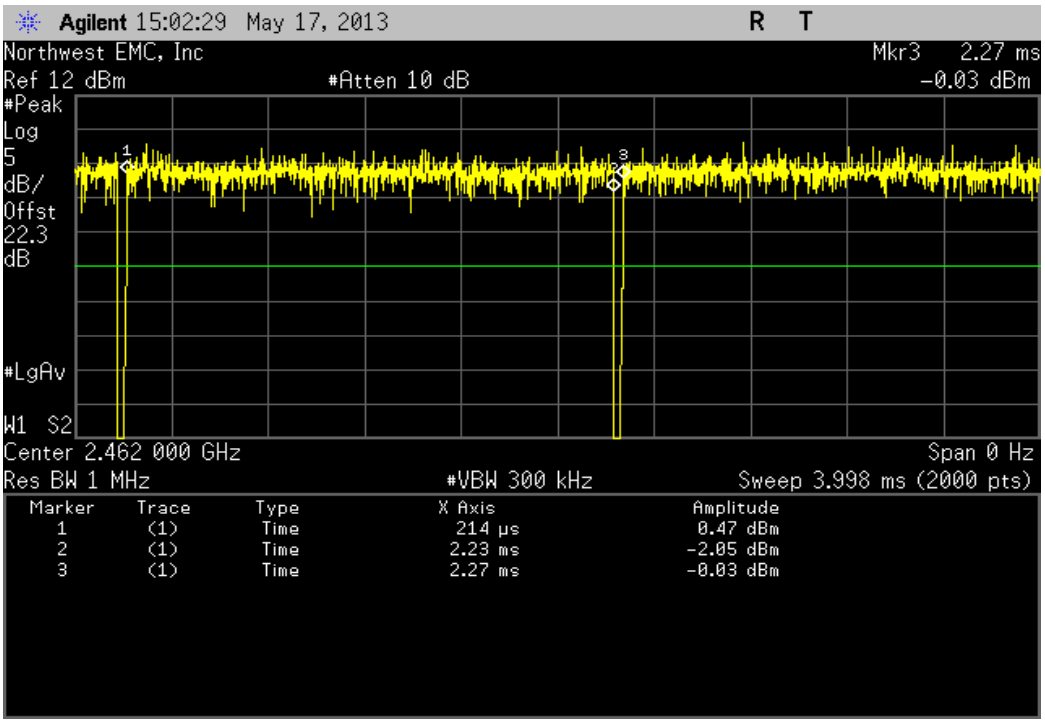


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



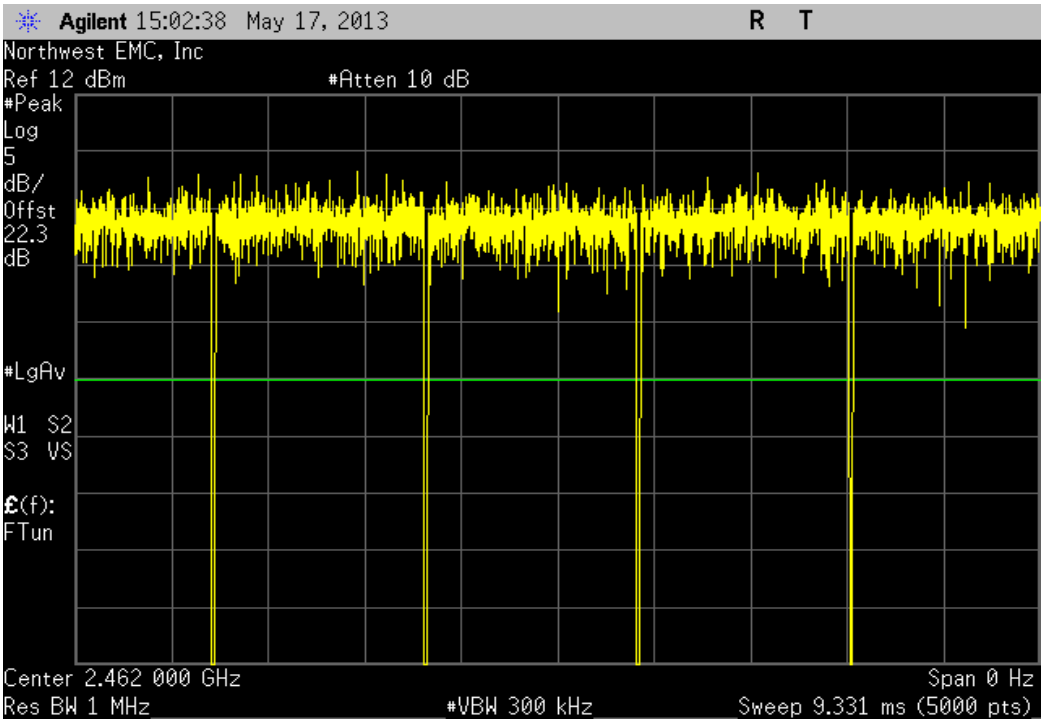
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
2.016 mS	2.056 mS	1	98.1	N/A	N/A



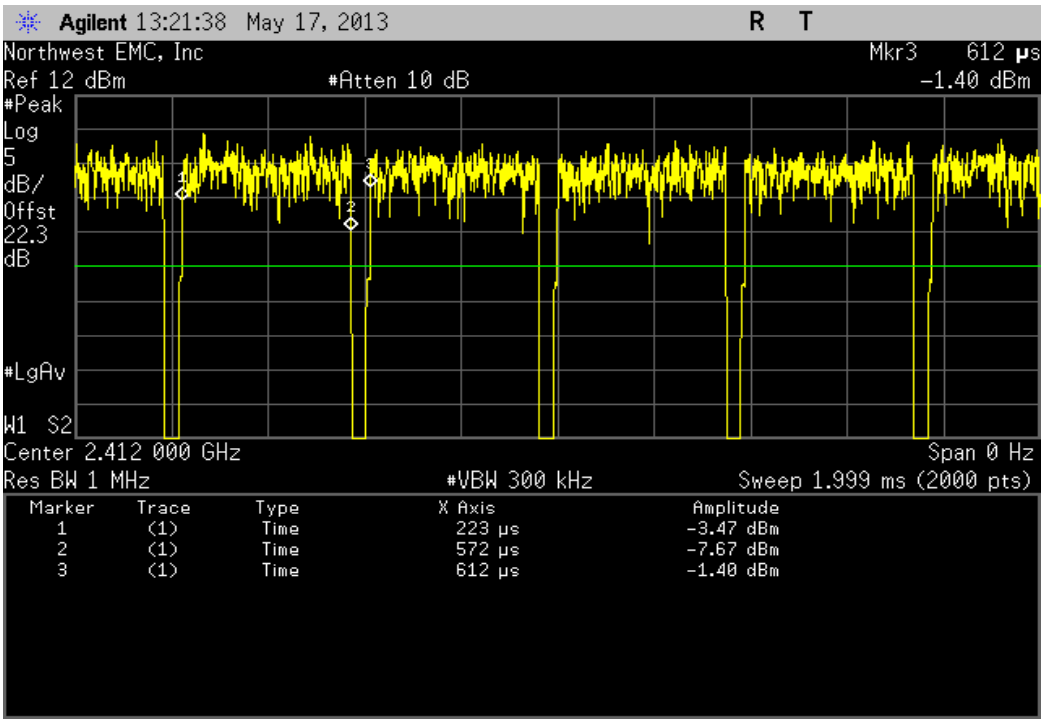
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

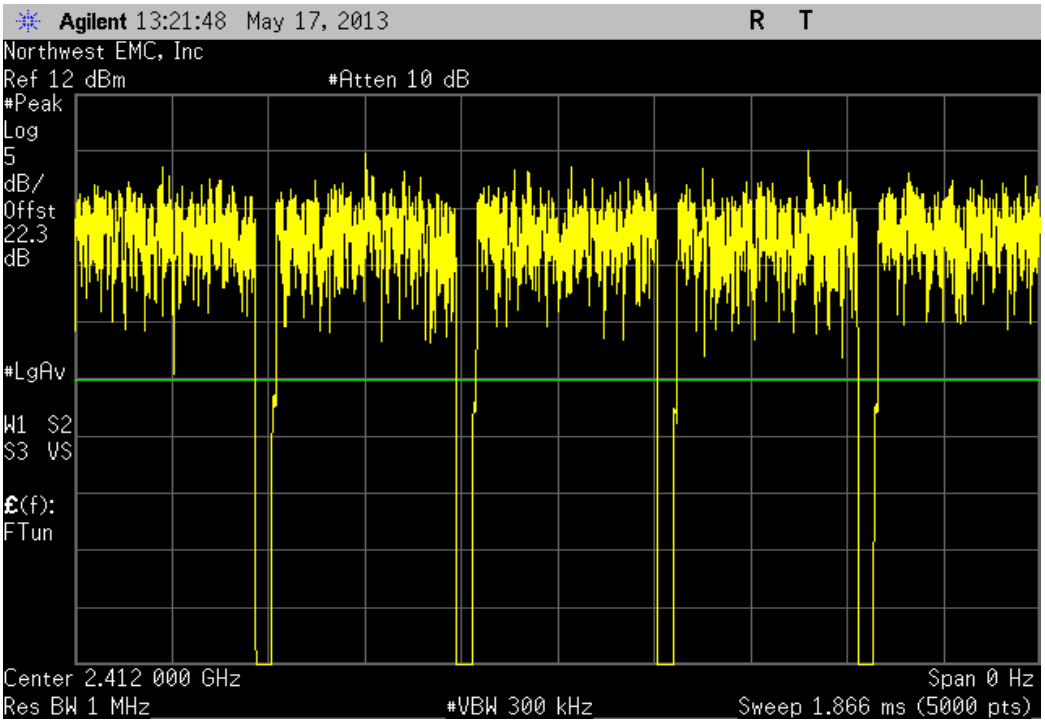


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	349 uS	389 uS	1	89.7	N/A	N/A

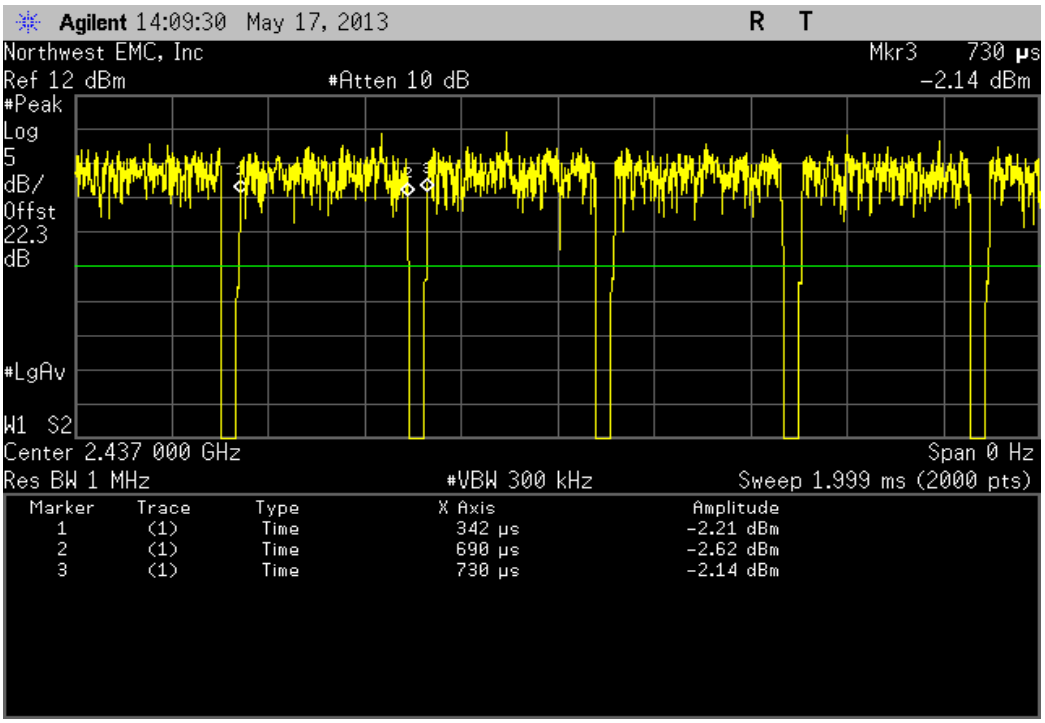


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

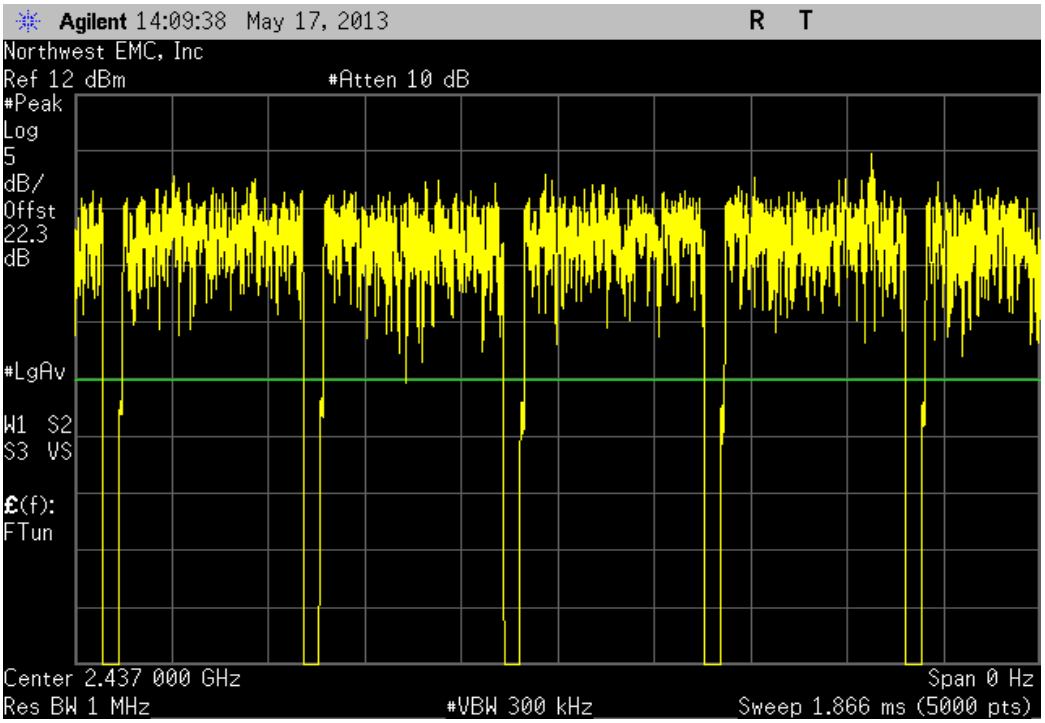


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	348 uS	388 uS	1	89.7	N/A	N/A

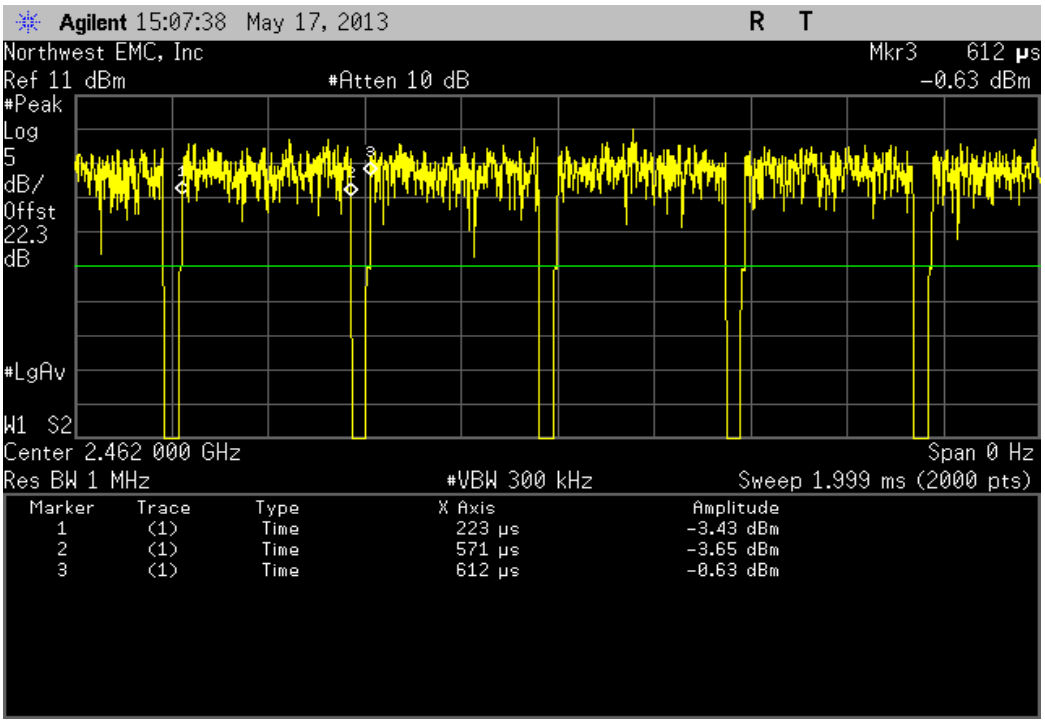


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	7	N/A	N/A	N/A



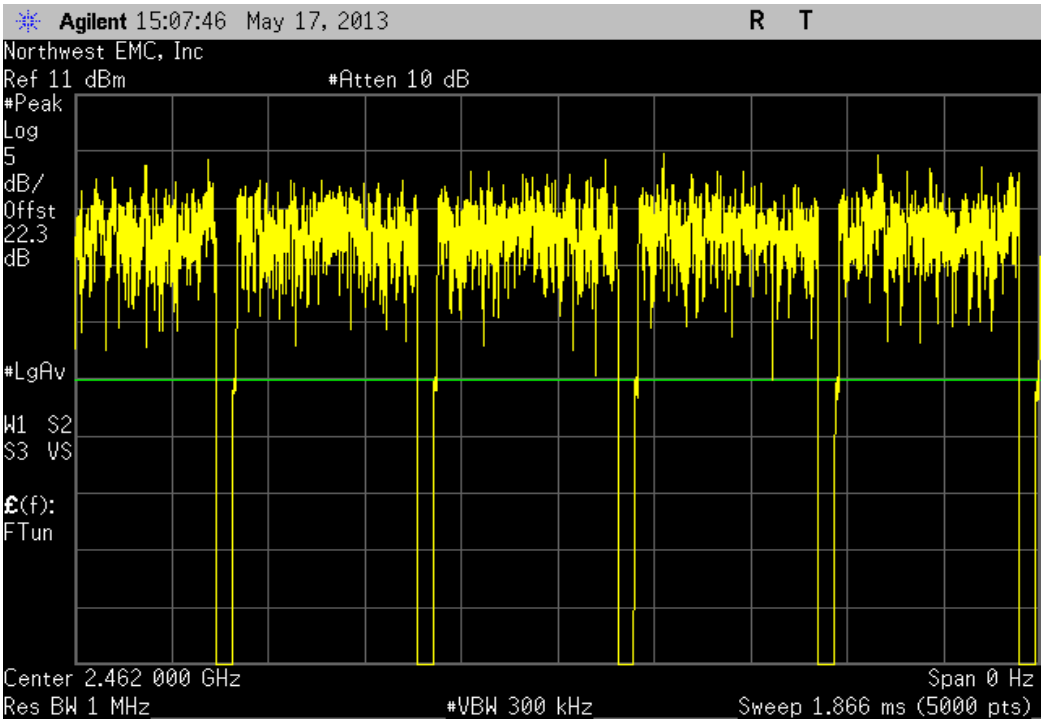
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
348 uS	389 uS	1	89.5	N/A	N/A

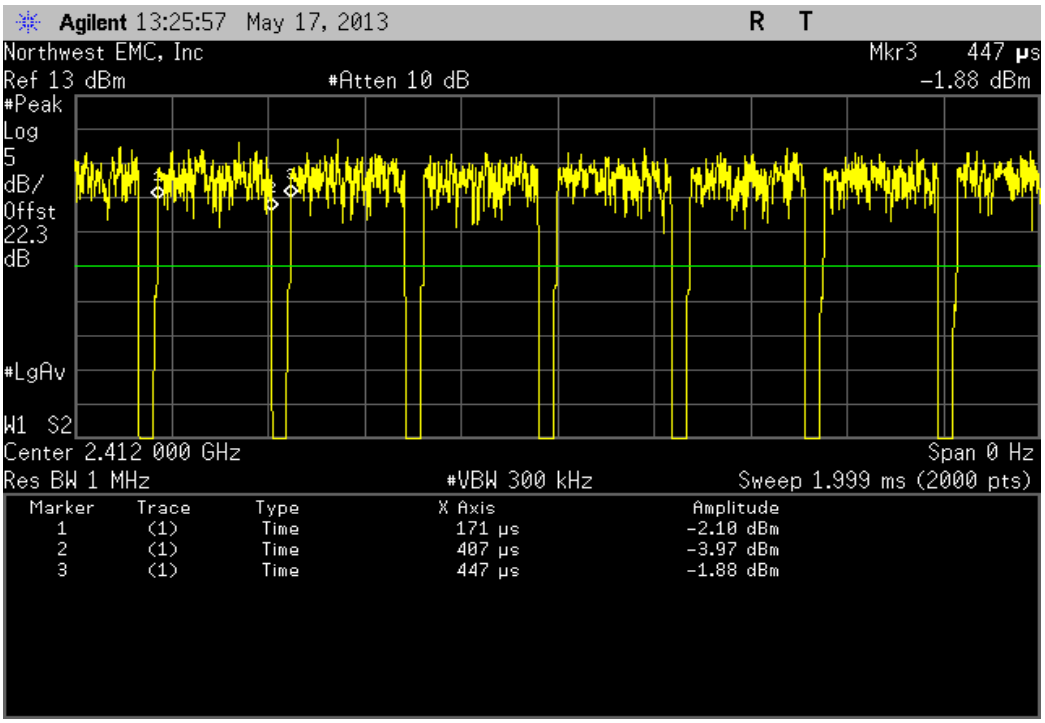


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

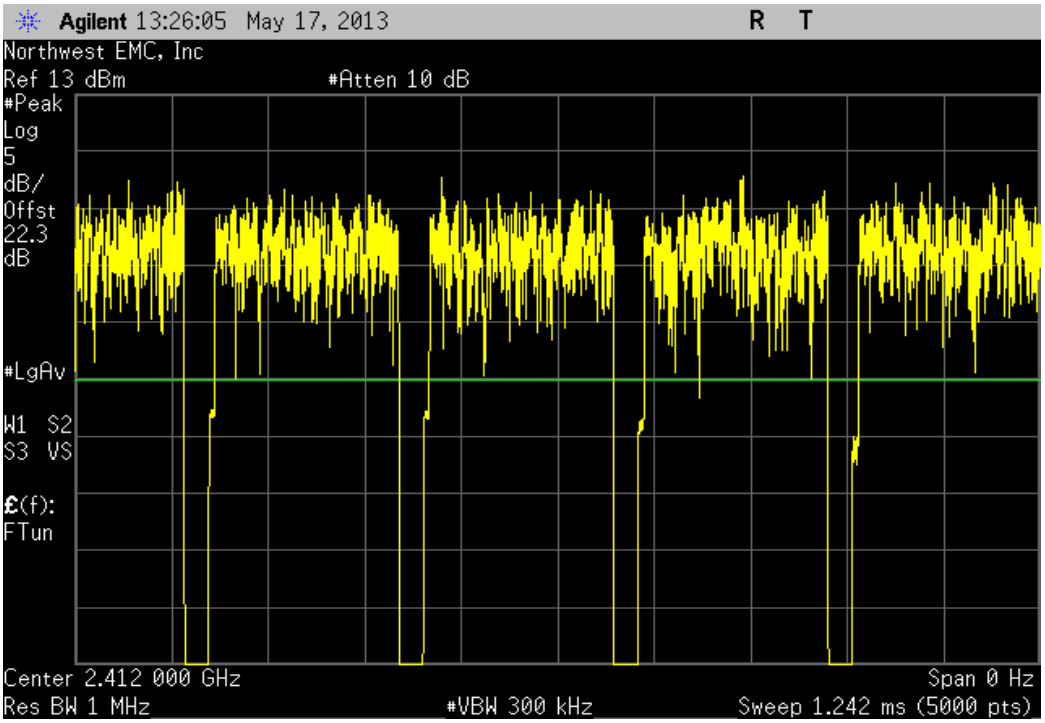
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	6	N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	236 uS	276 uS	1	85.5	N/A	N/A

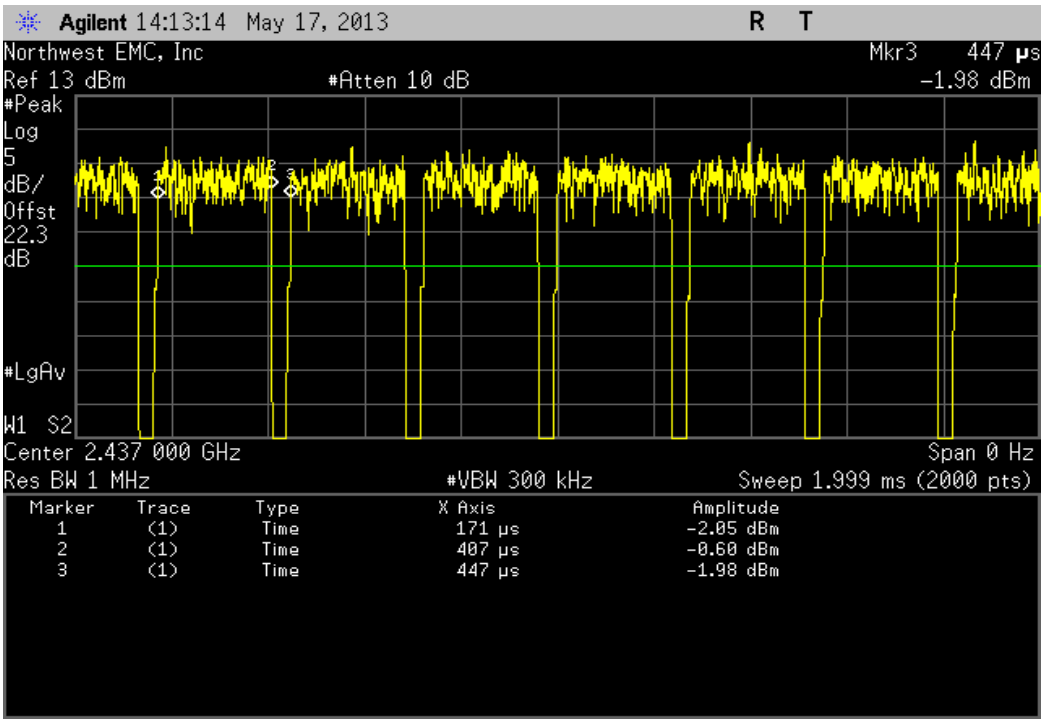


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	6	N/A	N/A	N/A

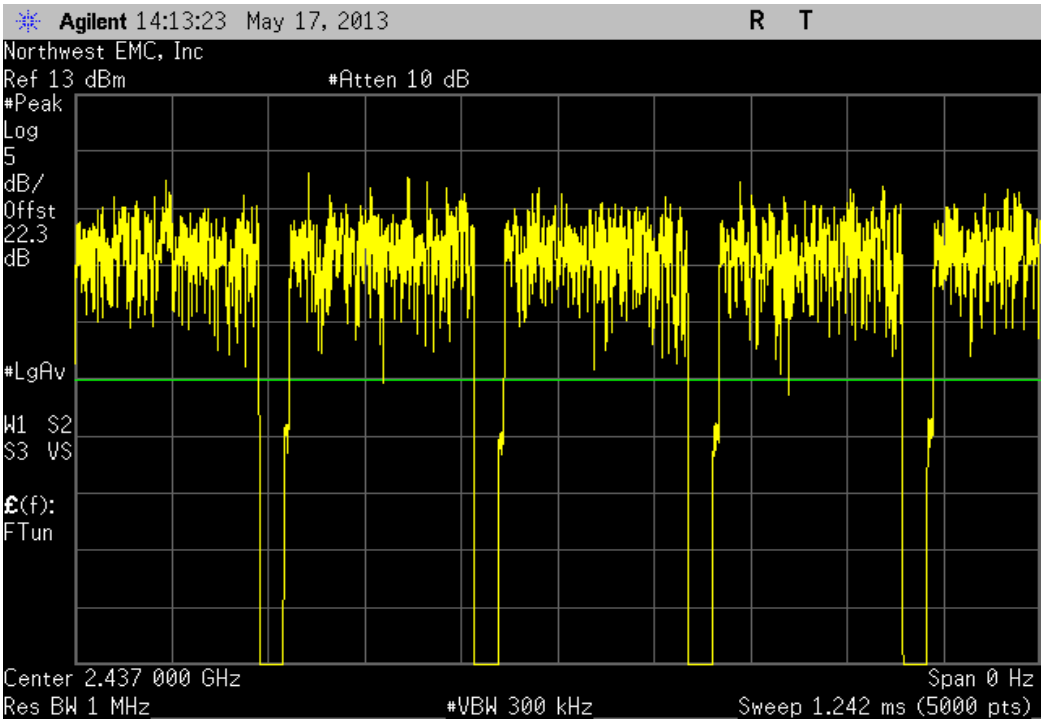


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	236 uS	276 uS	1	85.5	N/A	N/A

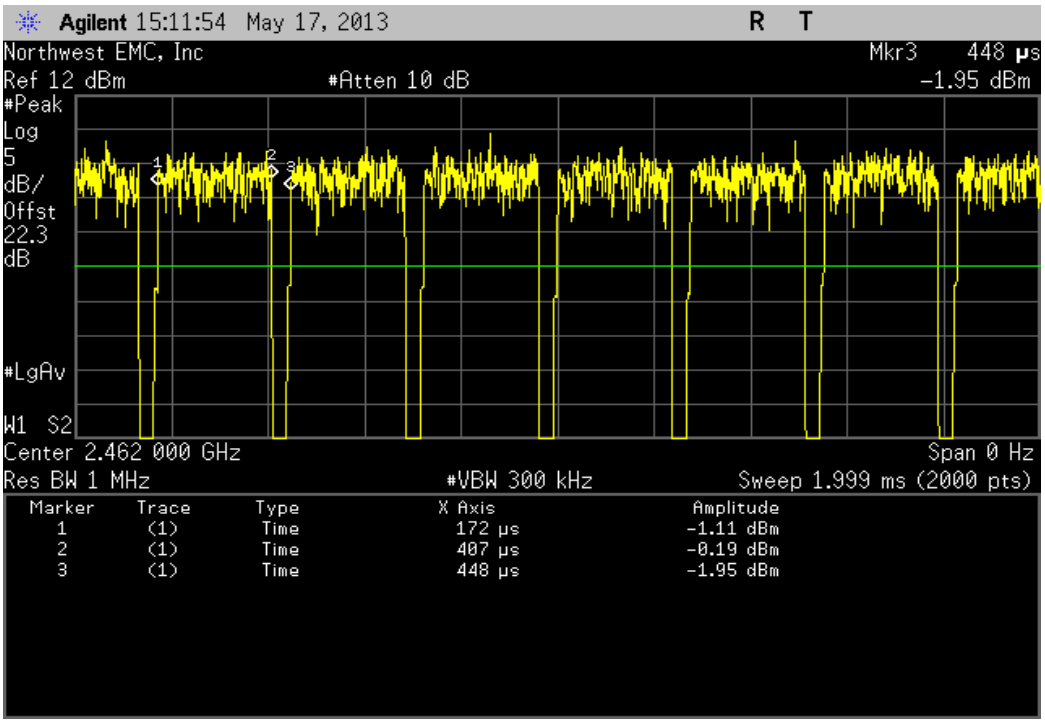


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	7	N/A	N/A	N/A

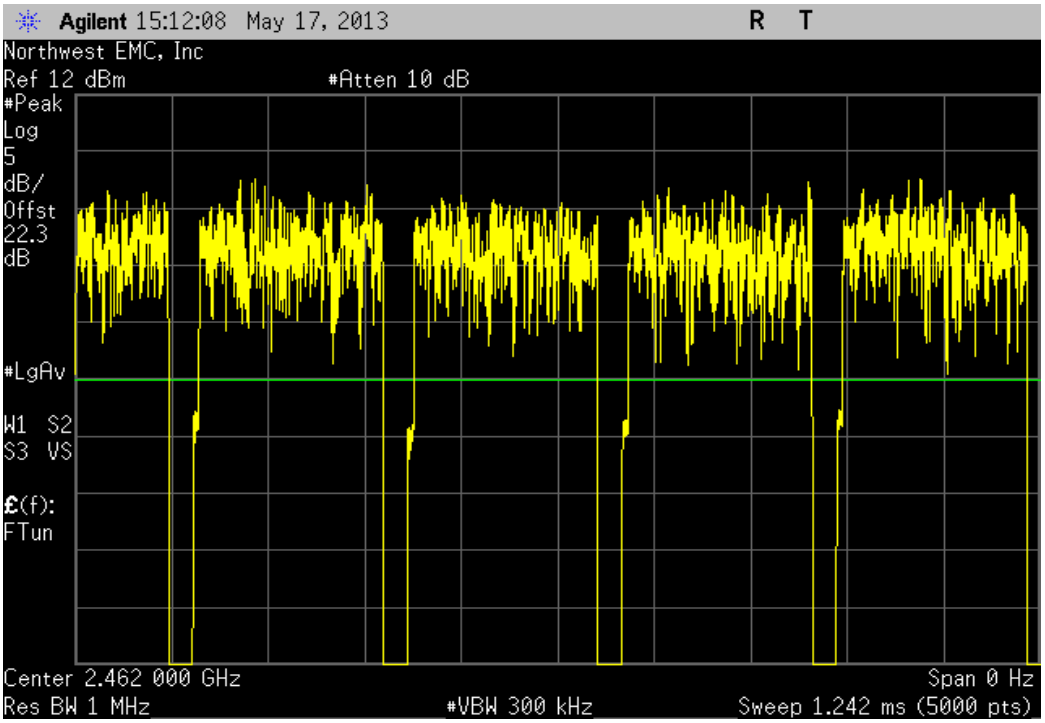


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	235 uS	276 uS	1	85.1	N/A	N/A

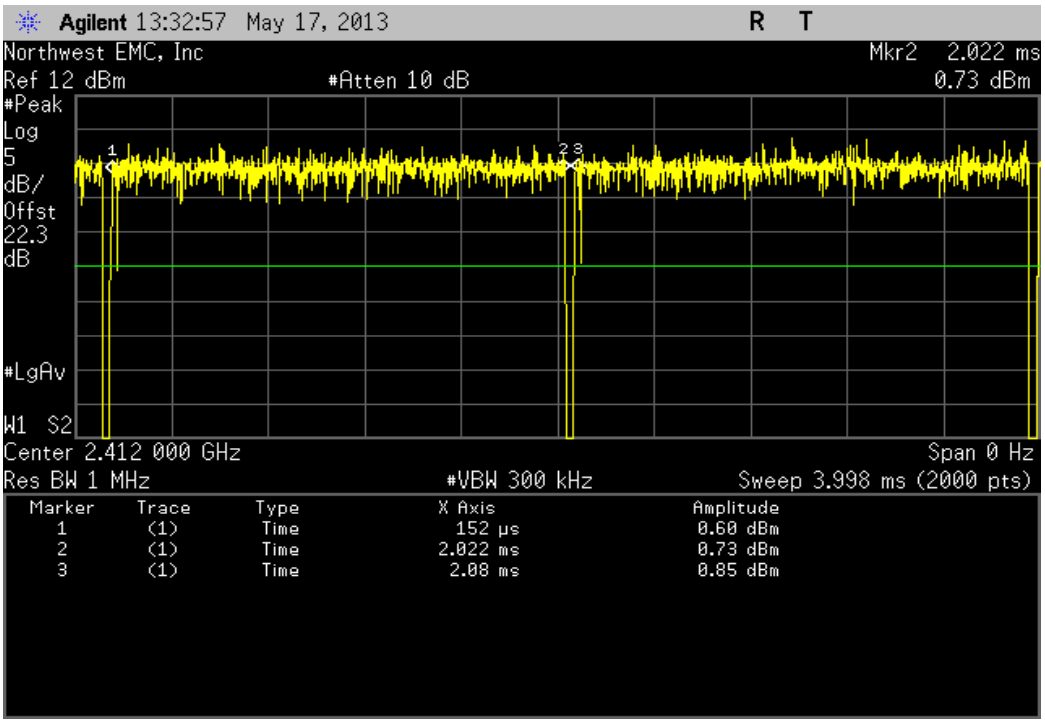


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

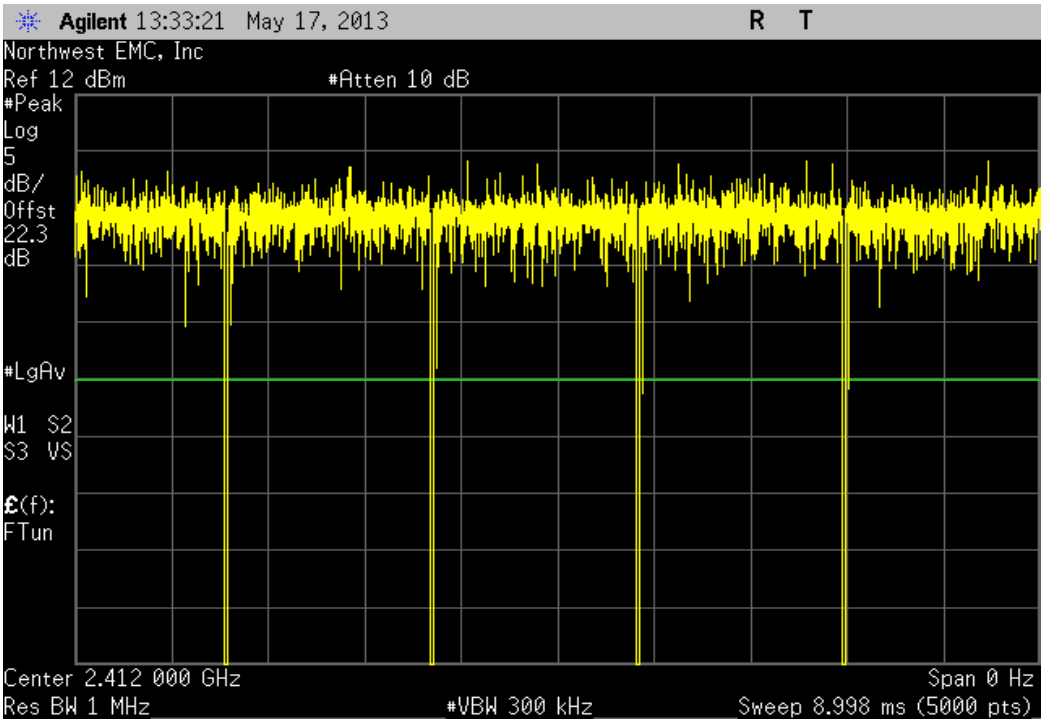


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.87 mS	1.928 mS	1	97	N/A	N/A

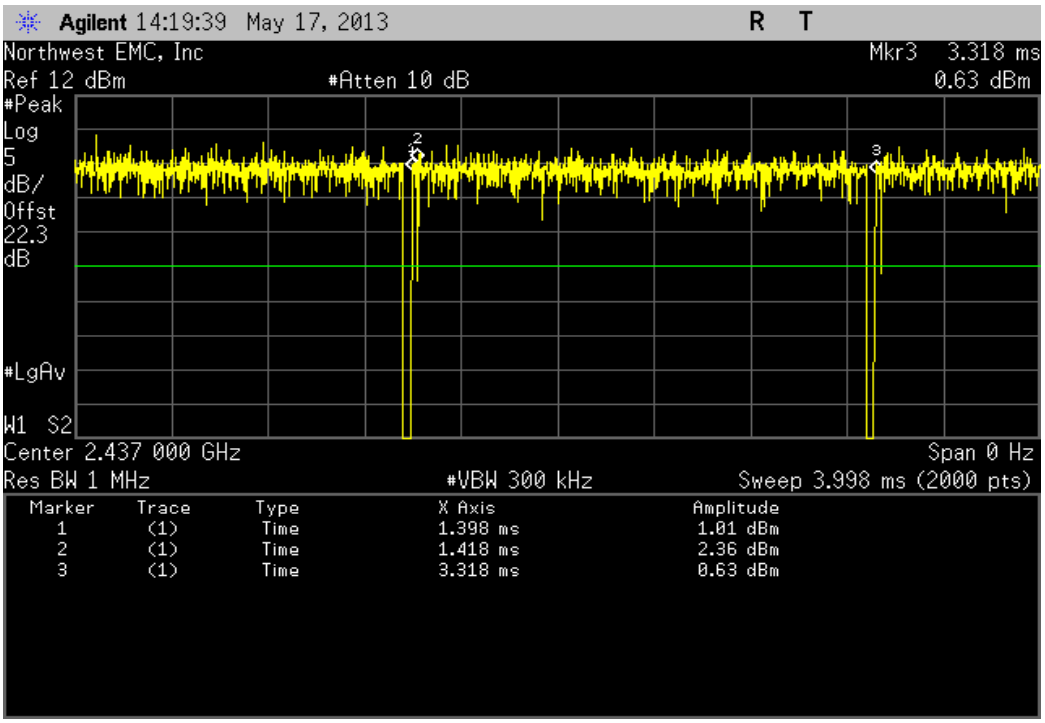


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	7	N/A	N/A	N/A

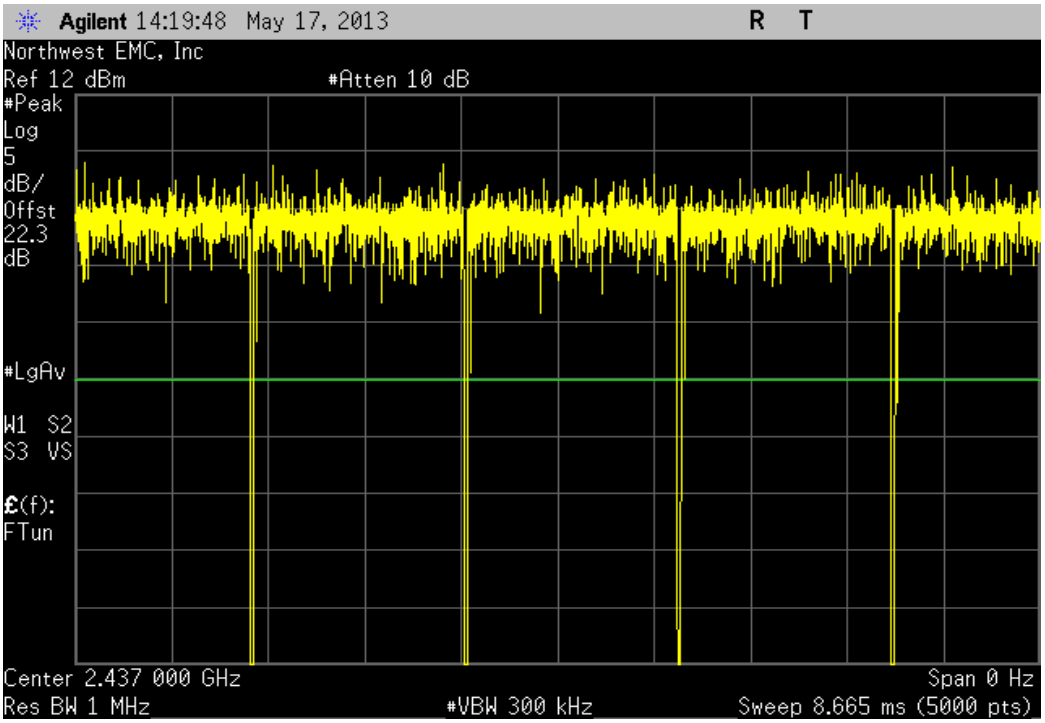


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	20 uS	1.92 mS	1	1	N/A	N/A

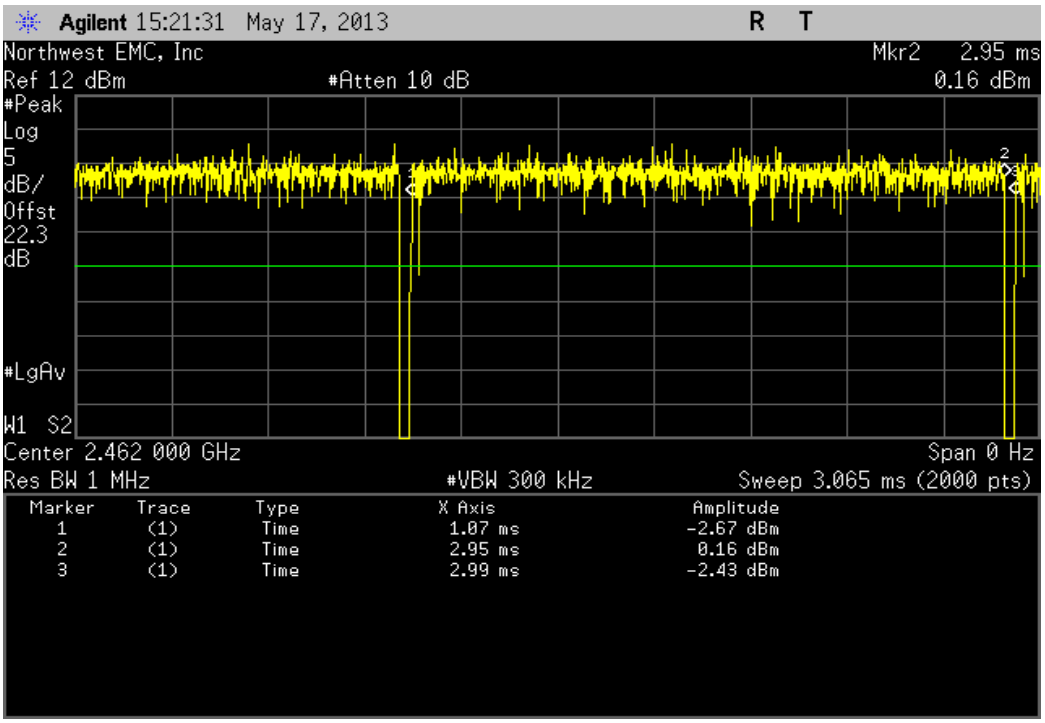


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	6	N/A	N/A	N/A

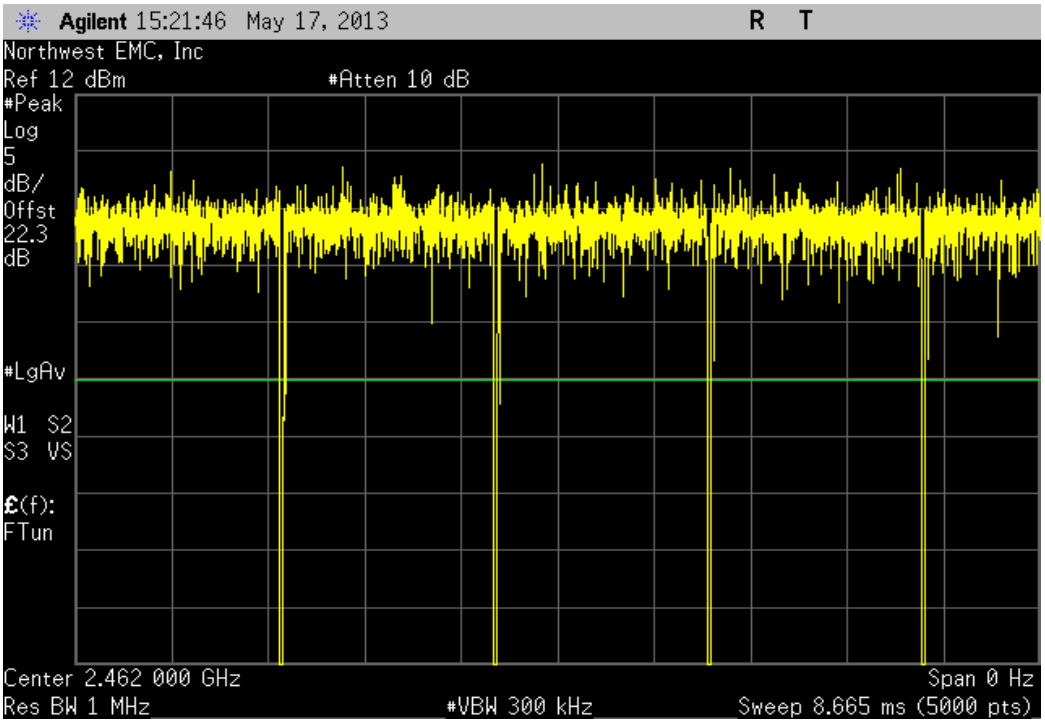


Duty Cycle

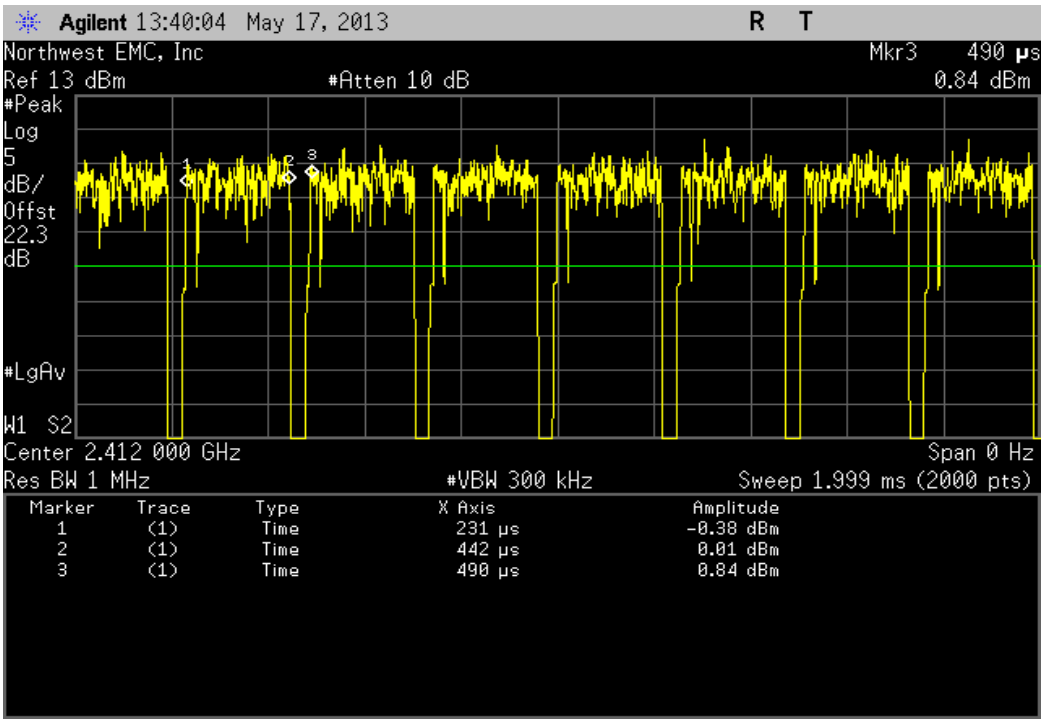
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.88 mS	1.92 mS	1	97.9	N/A	N/A



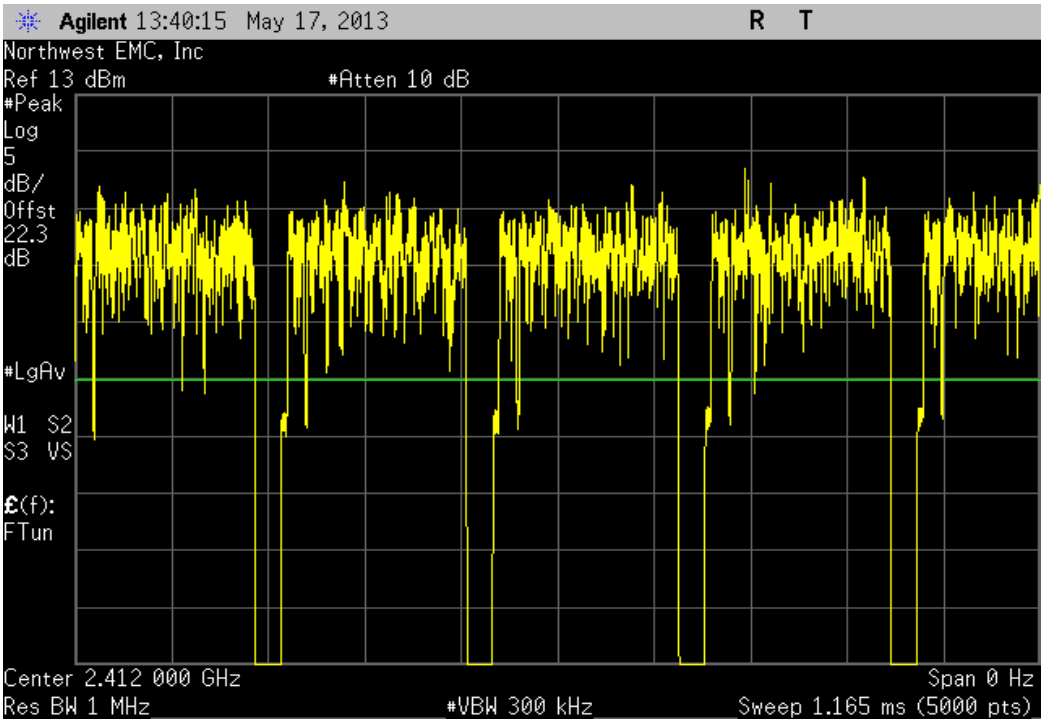
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	7	N/A	N/A	N/A



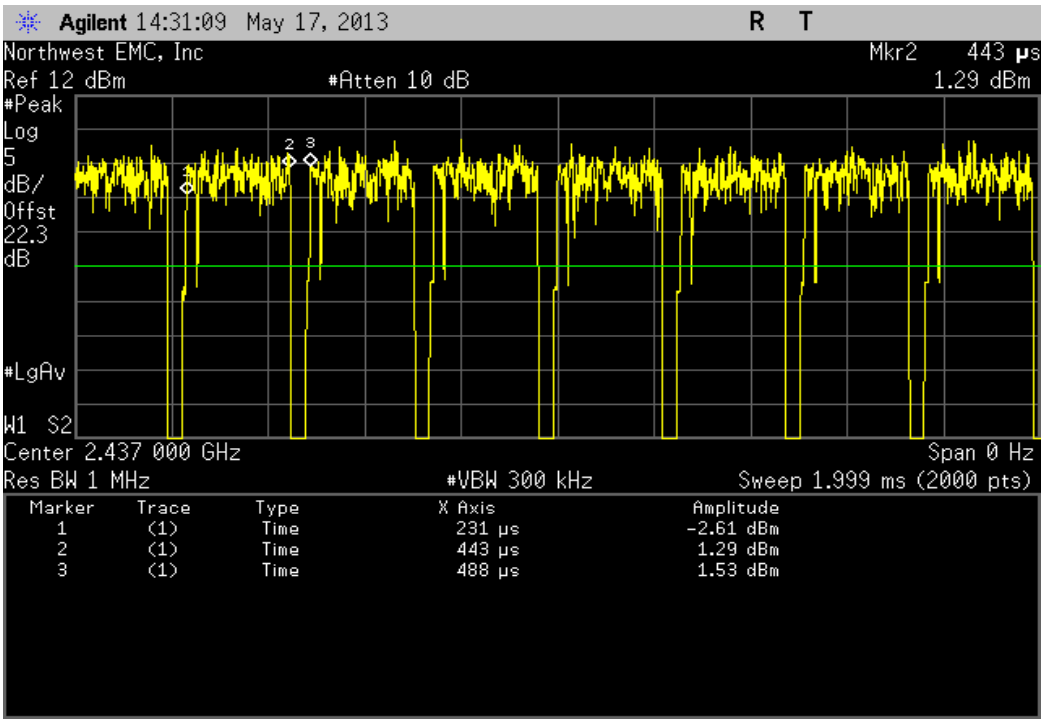
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	211 uS	259 uS	1	81.5	N/A	N/A



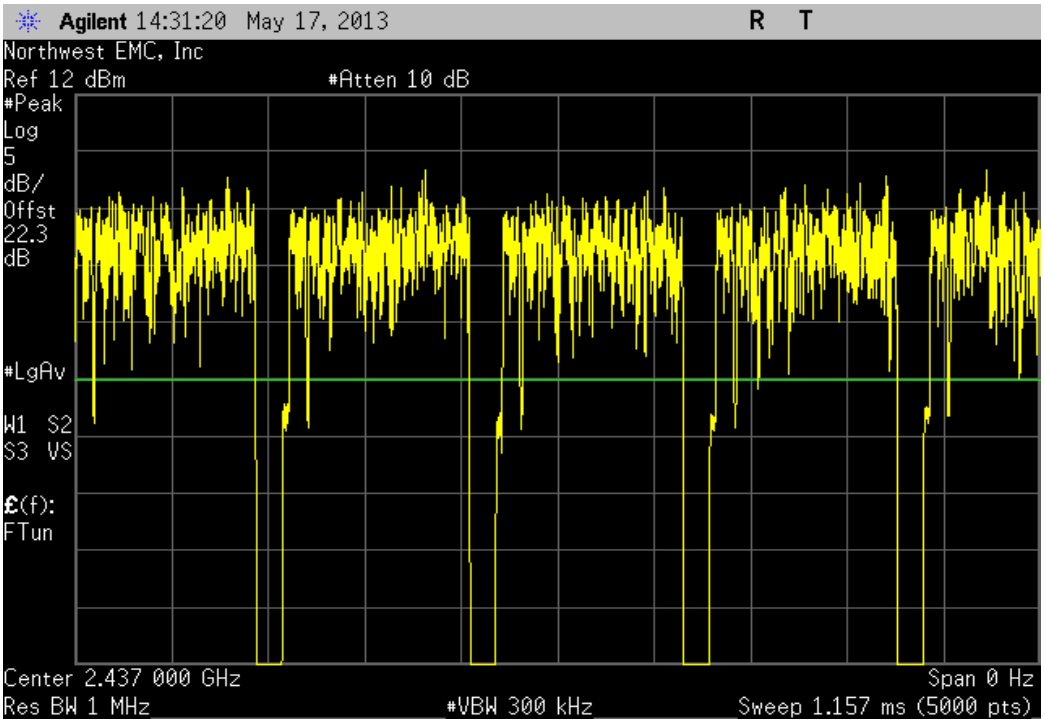
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	13	N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	212 uS	257 uS	1	82.5	N/A	N/A

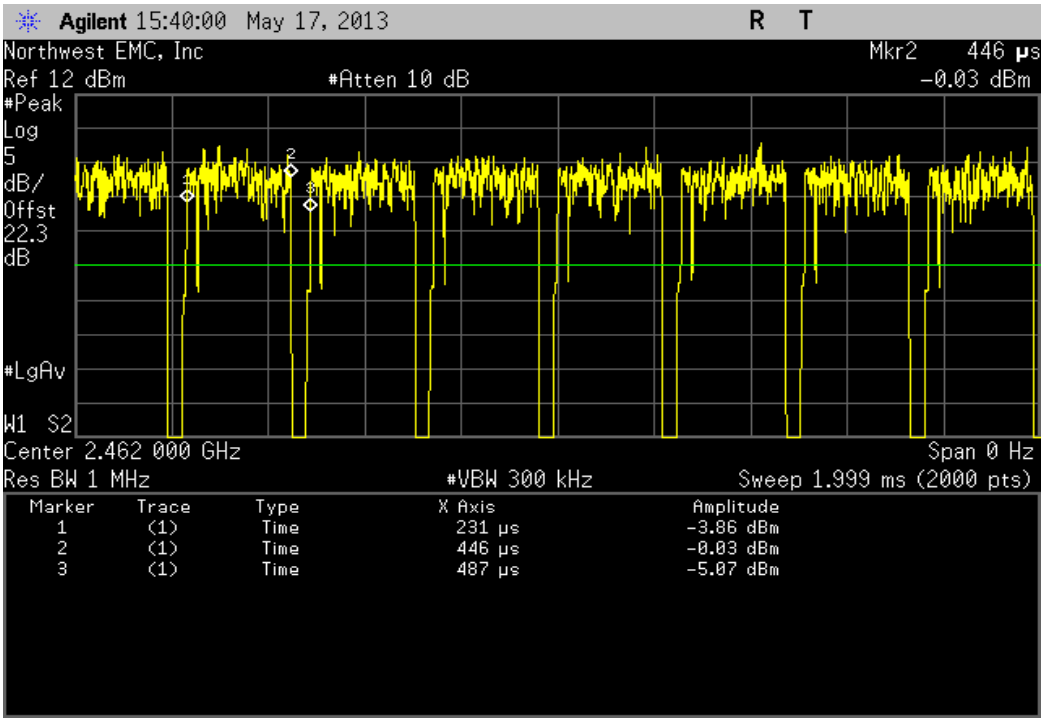


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	11	N/A	N/A	N/A

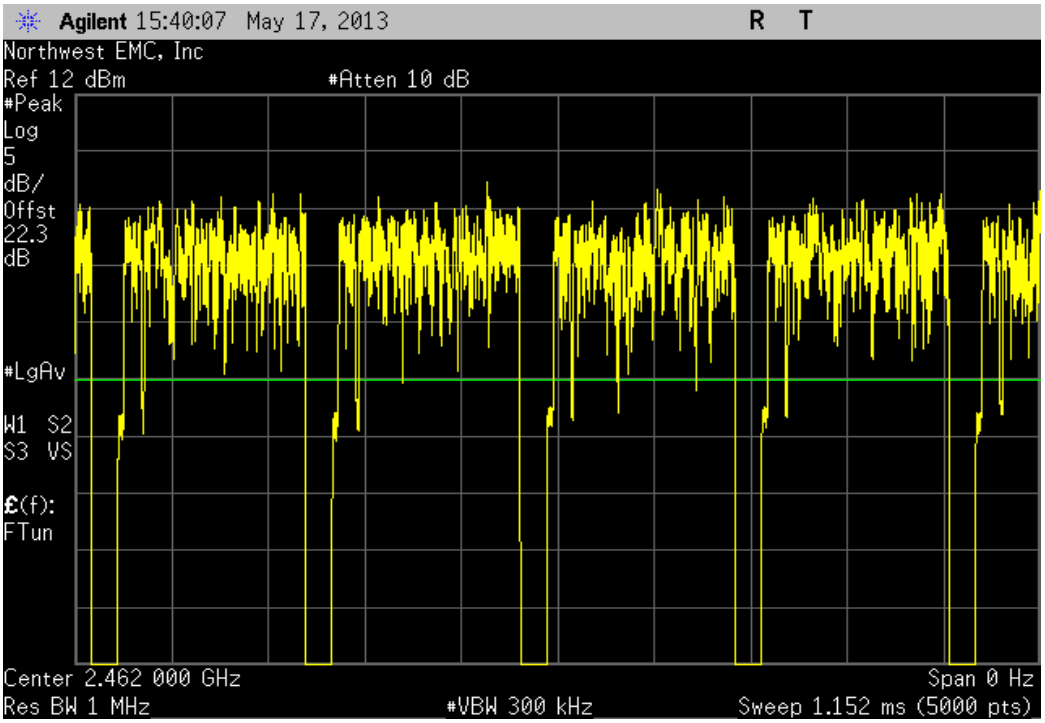


Duty Cycle

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	215 uS	256 uS	1	84	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	15	N/A	N/A	N/A



Occupied Bandwidth

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36

TEST DESCRIPTION

The 6dB occupied bandwidth was measured. The 26 dB (99.9%) emission bandwidth (EBW) was also measured at the same time.

The EUT was set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

Occupied Bandwidth

EUT:	LifeSense Wireless Gateway			**Work Order:**	SPCD0019
Serial Number:	None			**Date:**	05/20/13
Customer:	Spectrum Design Solutions			**Temperature:**	23.5°C
Attendees:	Nick Burtyk			**Humidity:**	57%
Project:	None			**Barometric Pres.:**	999.4
Tested by:	Johnathan Lee	**Power:**	12VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

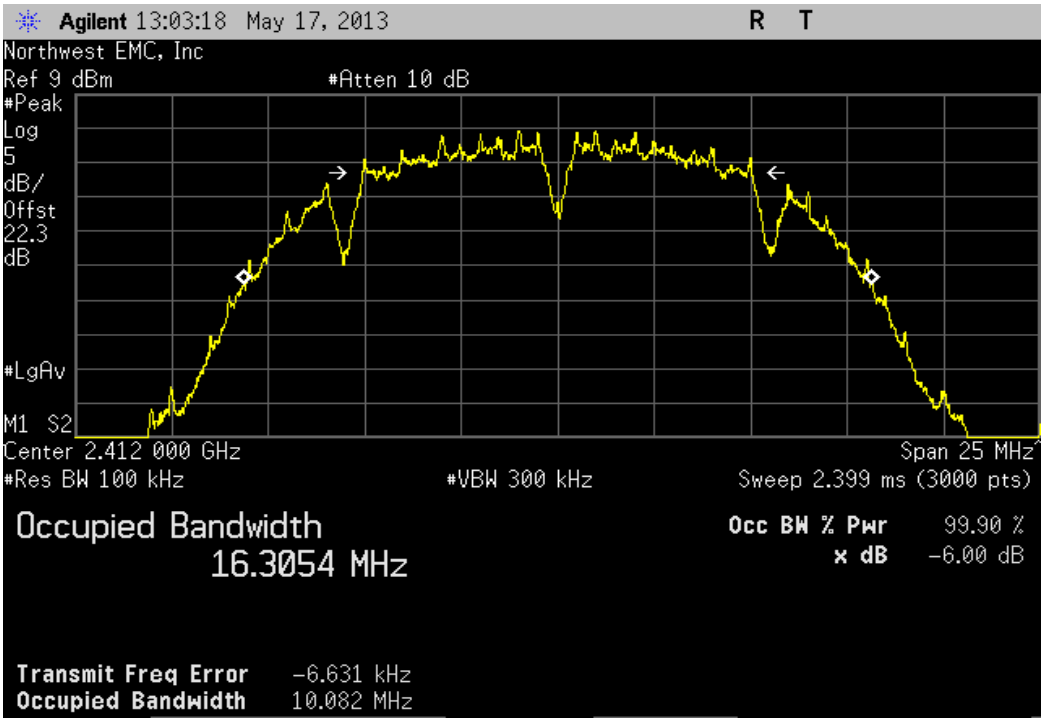
None

Configuration #	1	Signature

	Value	Limit	Result
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	10.082 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	10.013 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	10.048 MHz	> 500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	9.504 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	10.459 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	10.173 MHz	> 500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	16.539 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	16.446 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	16.499 MHz	> 500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	16.449 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	16.484 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	16.488 MHz	> 500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	16.482 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	16.462 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	16.44 MHz	> 500 kHz	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	17.601 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	17.641 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	17.419 MHz	> 500 kHz	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	17.645 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz	17.698 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz	17.75 MHz	> 500 kHz	Pass

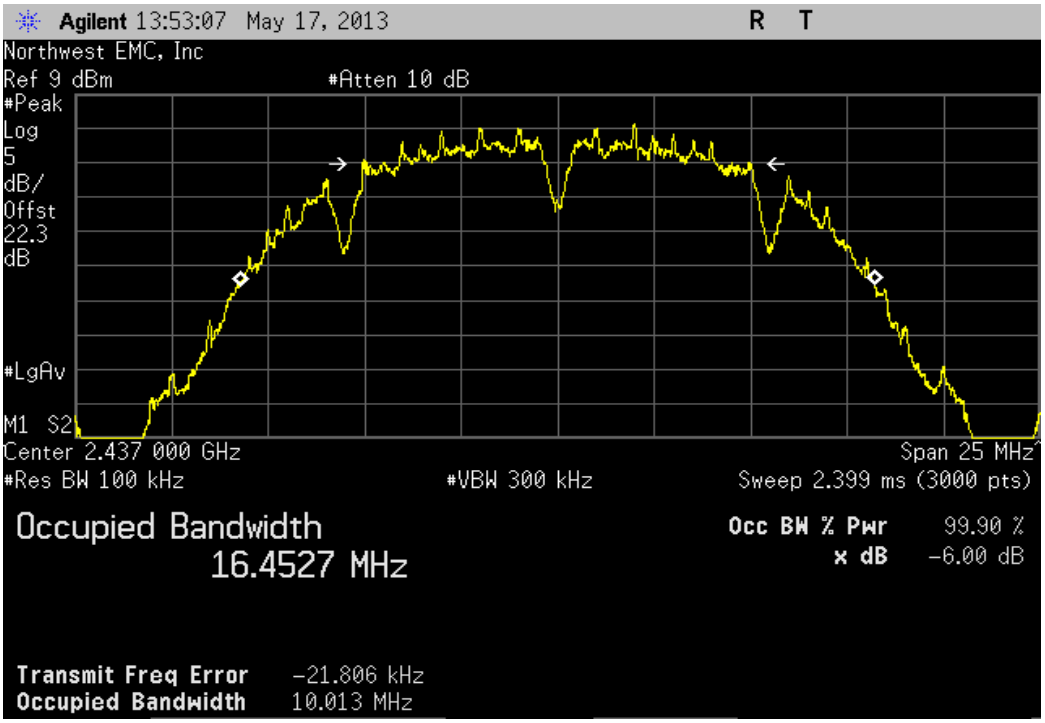
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				10.082 MHz	> 500 kHz	Pass



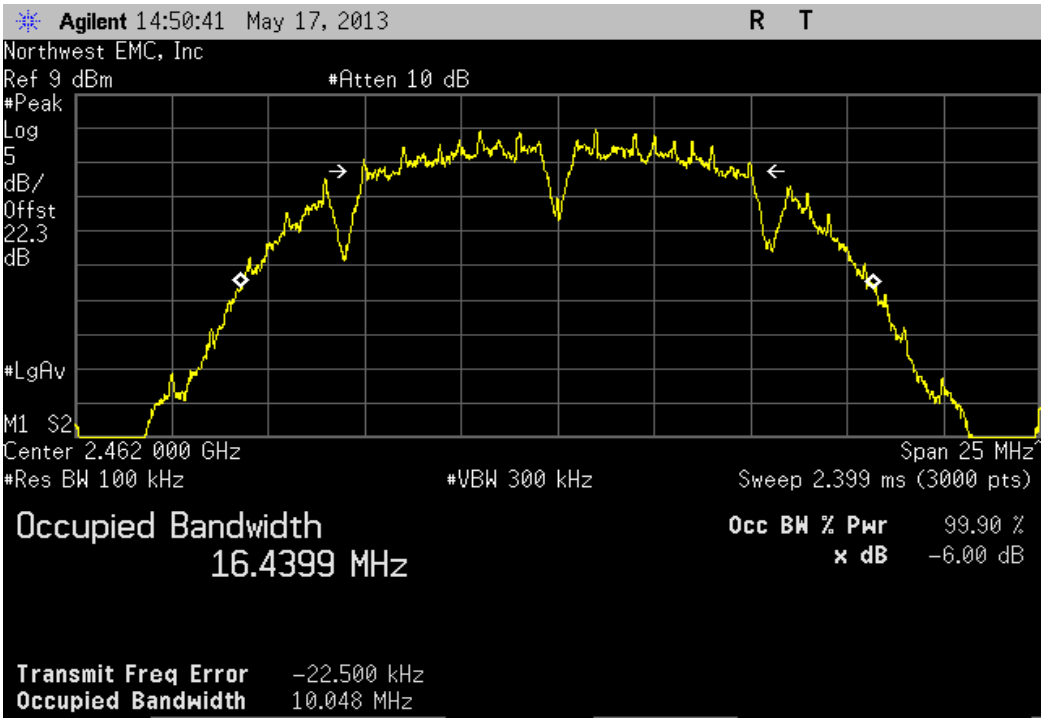
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				10.013 MHz	> 500 kHz	Pass



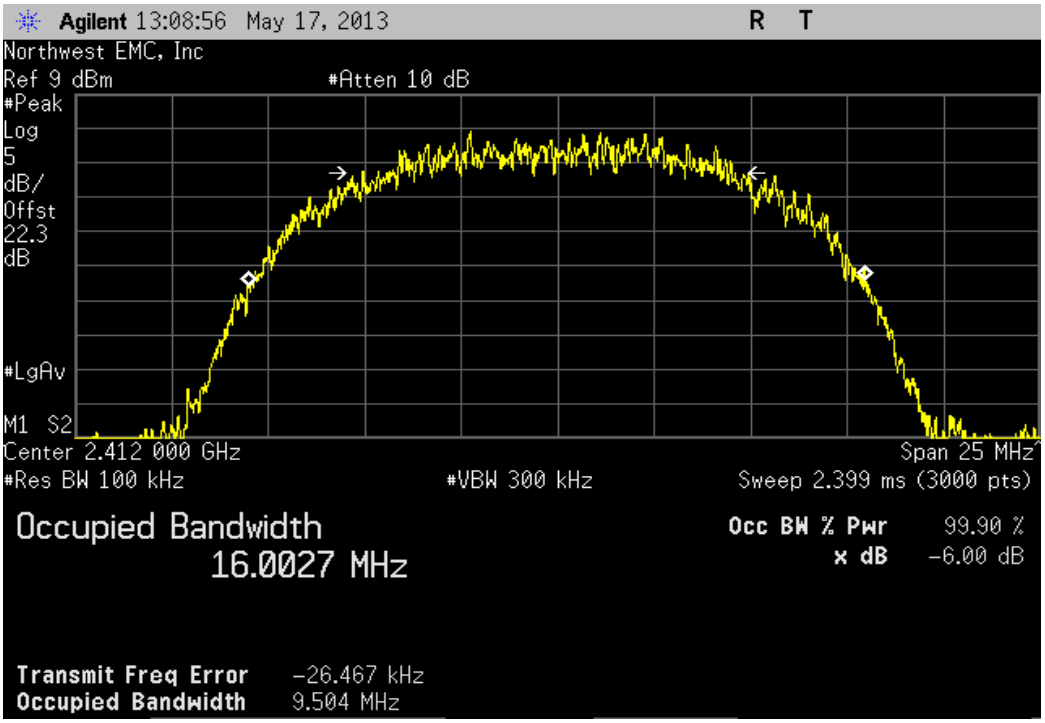
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				10.048 MHz	> 500 kHz	Pass



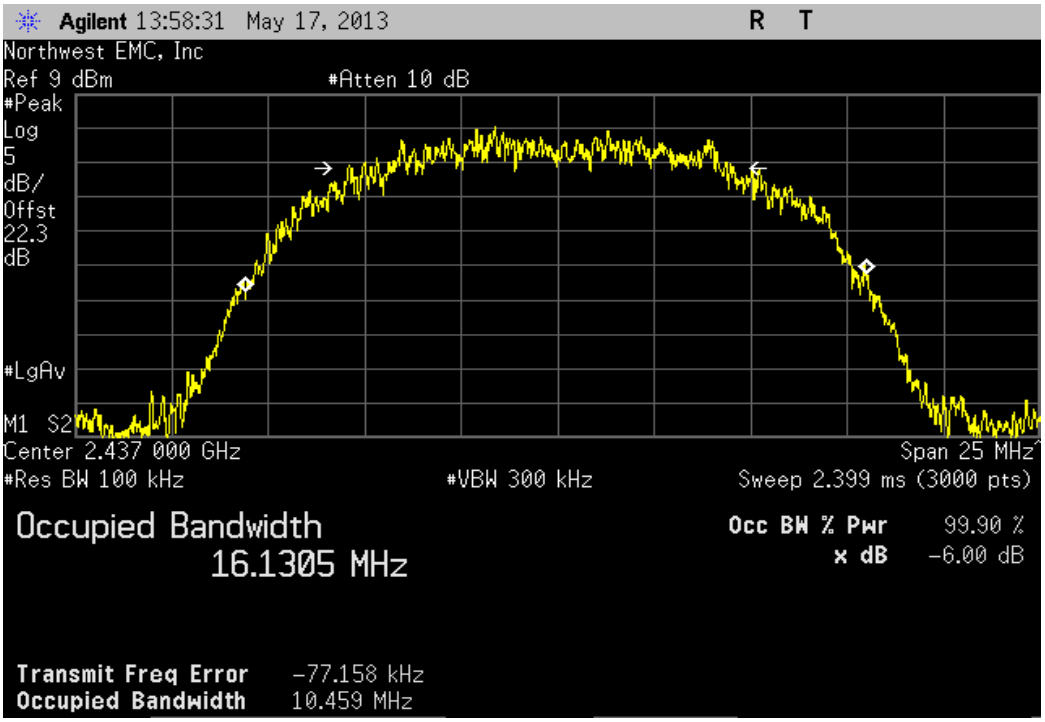
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				9.504 MHz	> 500 kHz	Pass



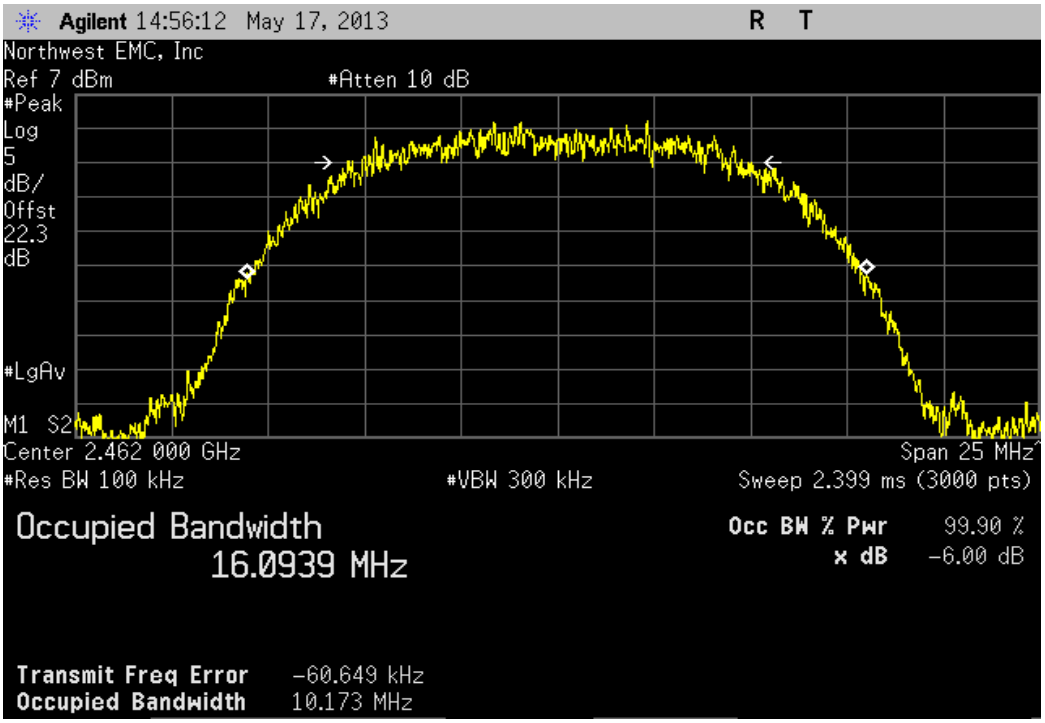
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				10.459 MHz	> 500 kHz	Pass



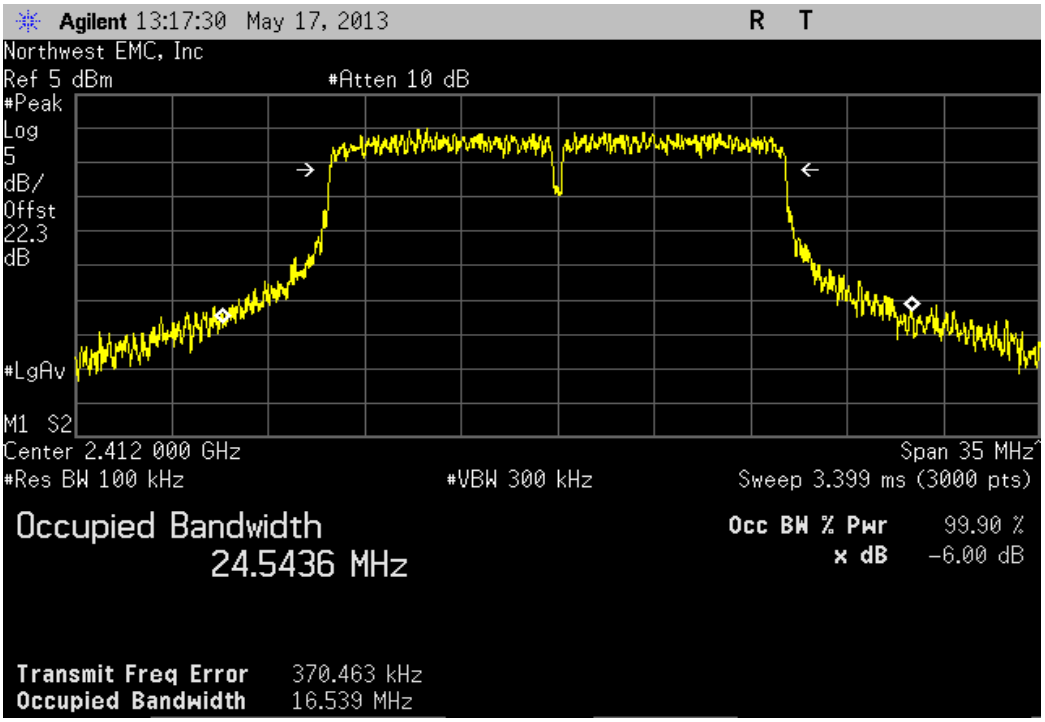
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				10.173 MHz	> 500 kHz	Pass



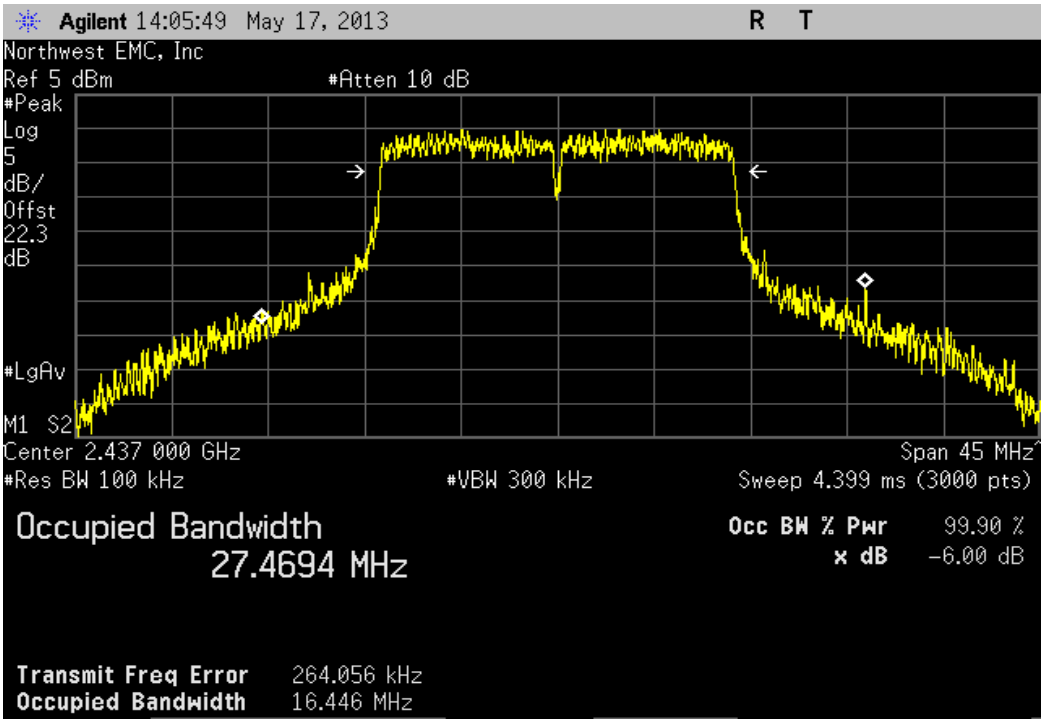
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				16.539 MHz	> 500 kHz	Pass



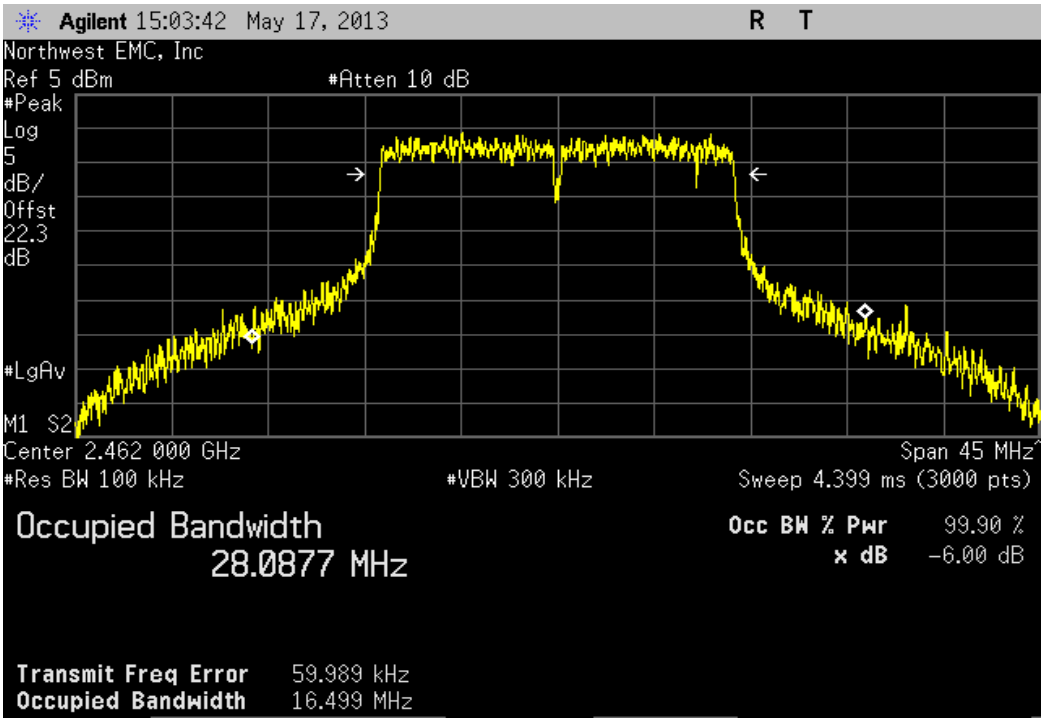
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				16.446 MHz	> 500 kHz	Pass



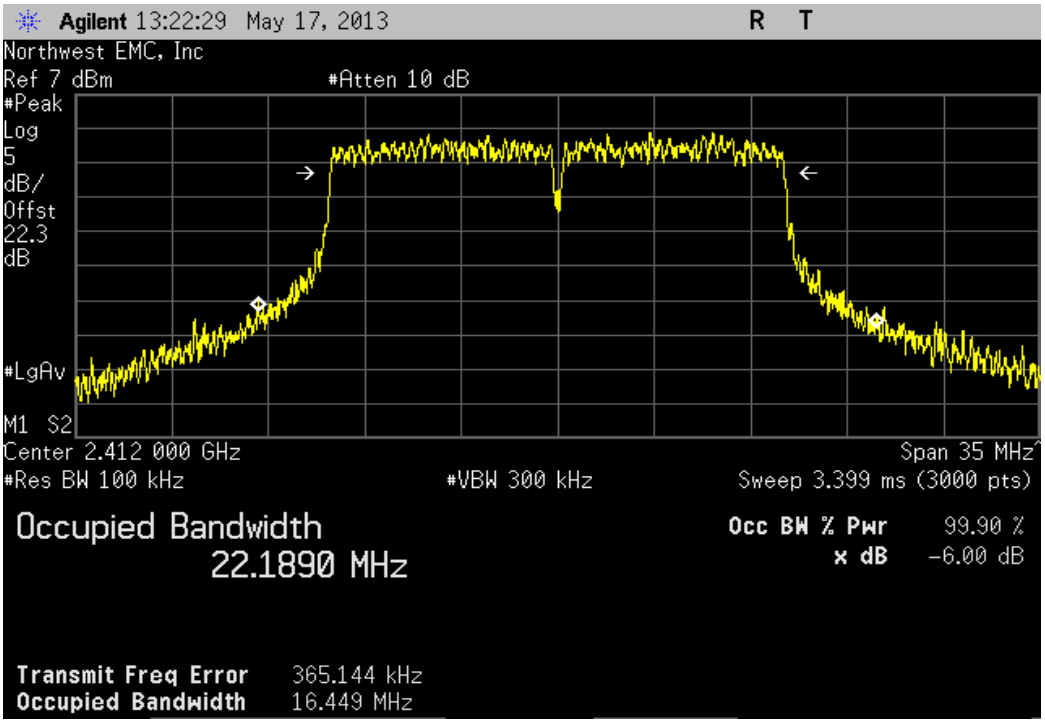
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				16.499 MHz	> 500 kHz	Pass



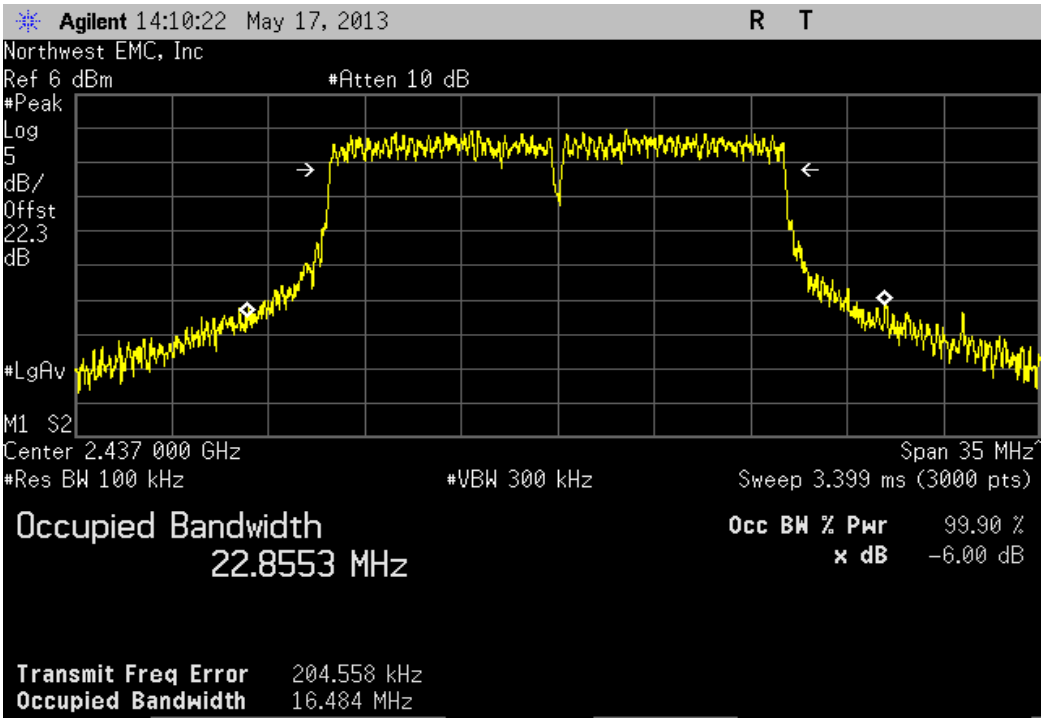
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				16.449 MHz	> 500 kHz	Pass



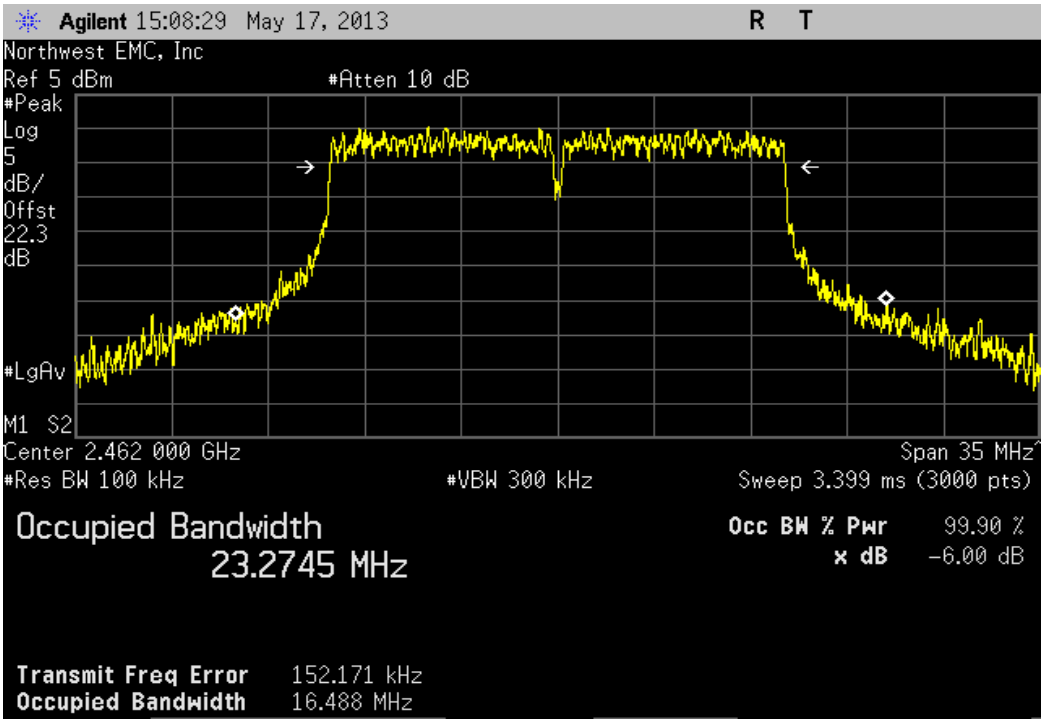
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				16.484 MHz	> 500 kHz	Pass



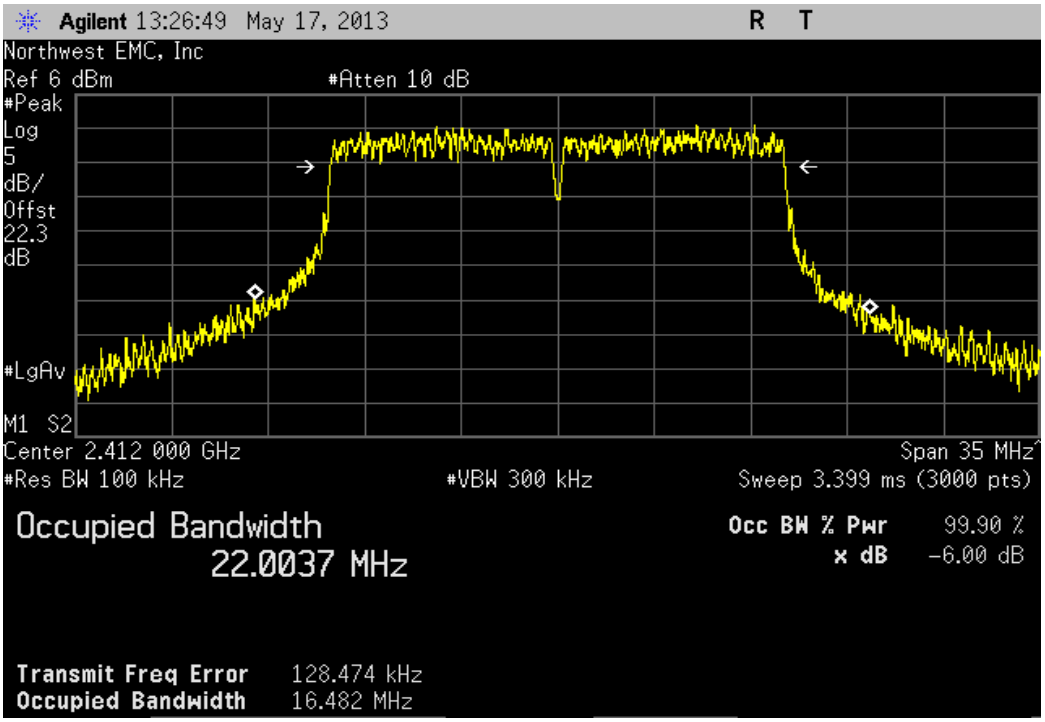
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				16.488 MHz	> 500 kHz	Pass



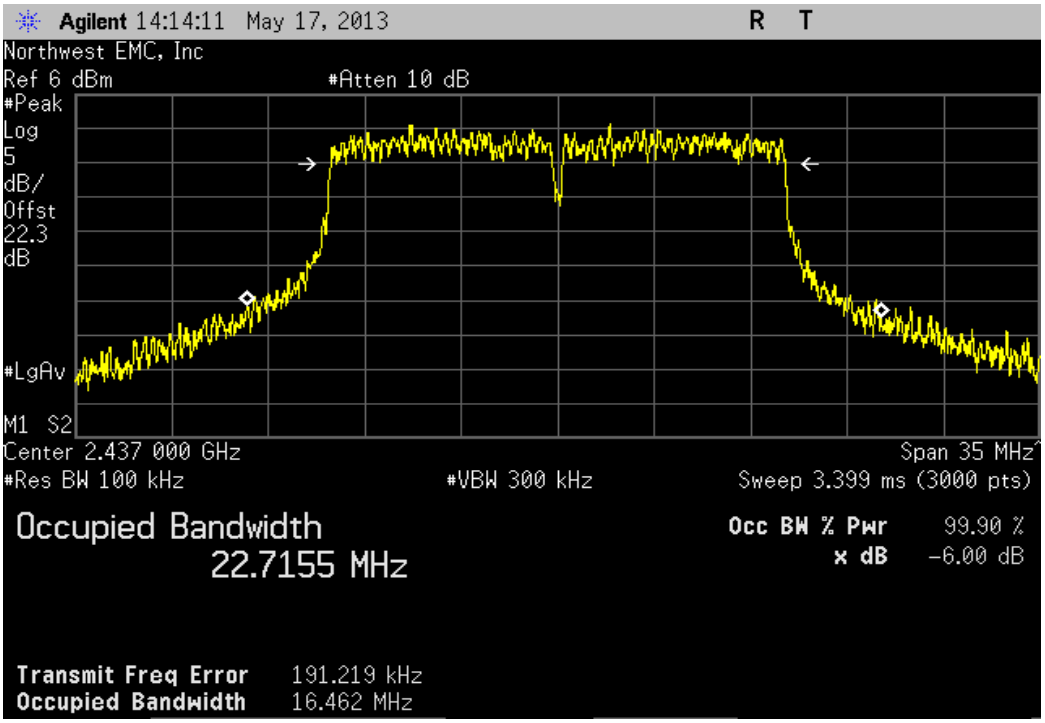
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				16.482 MHz	> 500 kHz	Pass



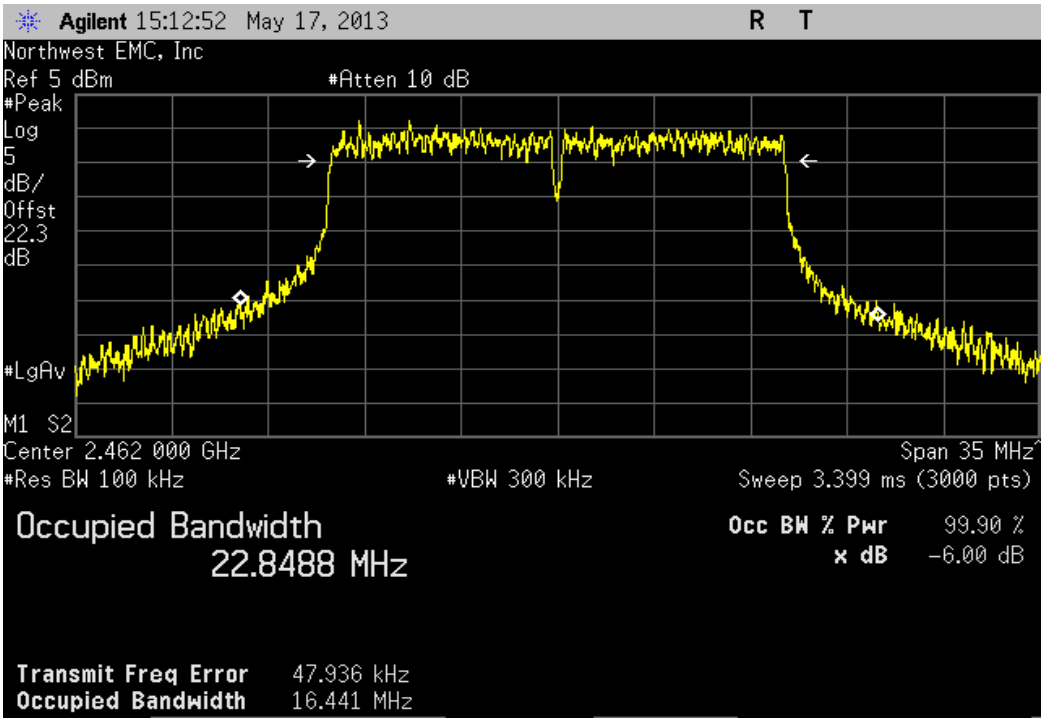
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				16.462 MHz	> 500 kHz	Pass



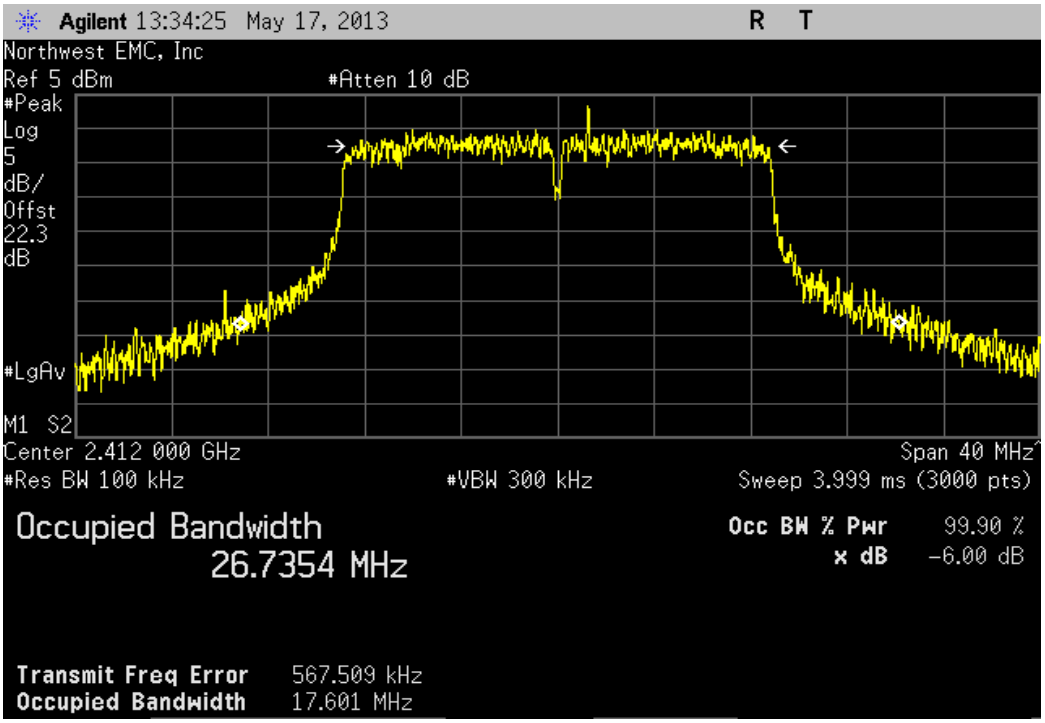
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				16.44 MHz	> 500 kHz	Pass



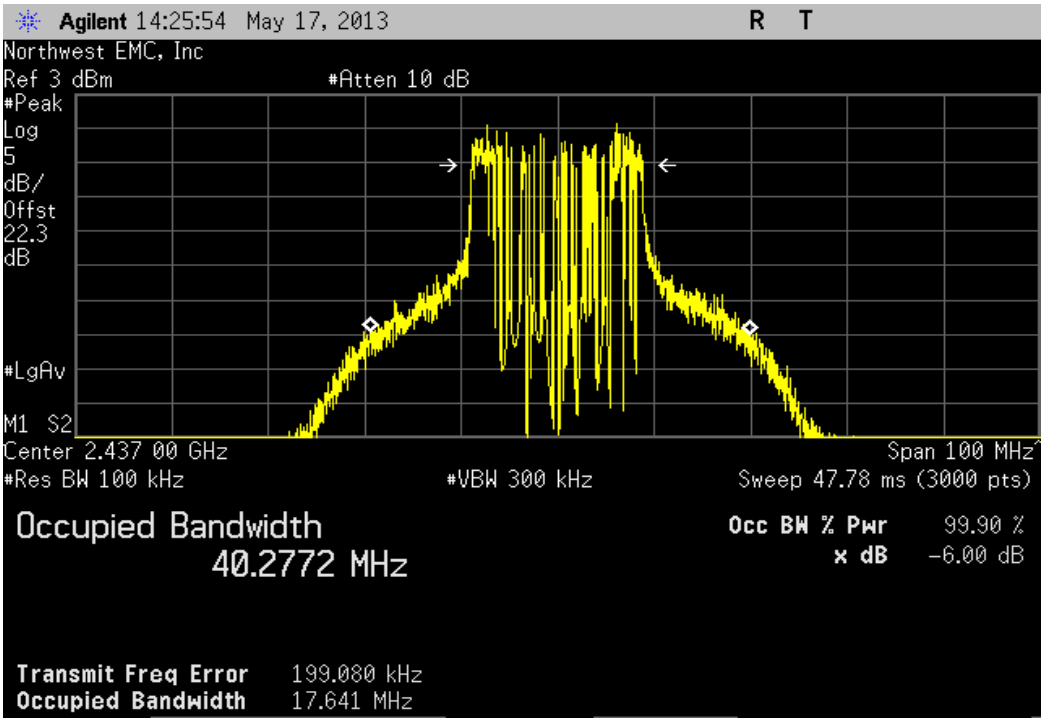
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz

				Value	Limit	Result
				17.601 MHz	> 500 kHz	Pass



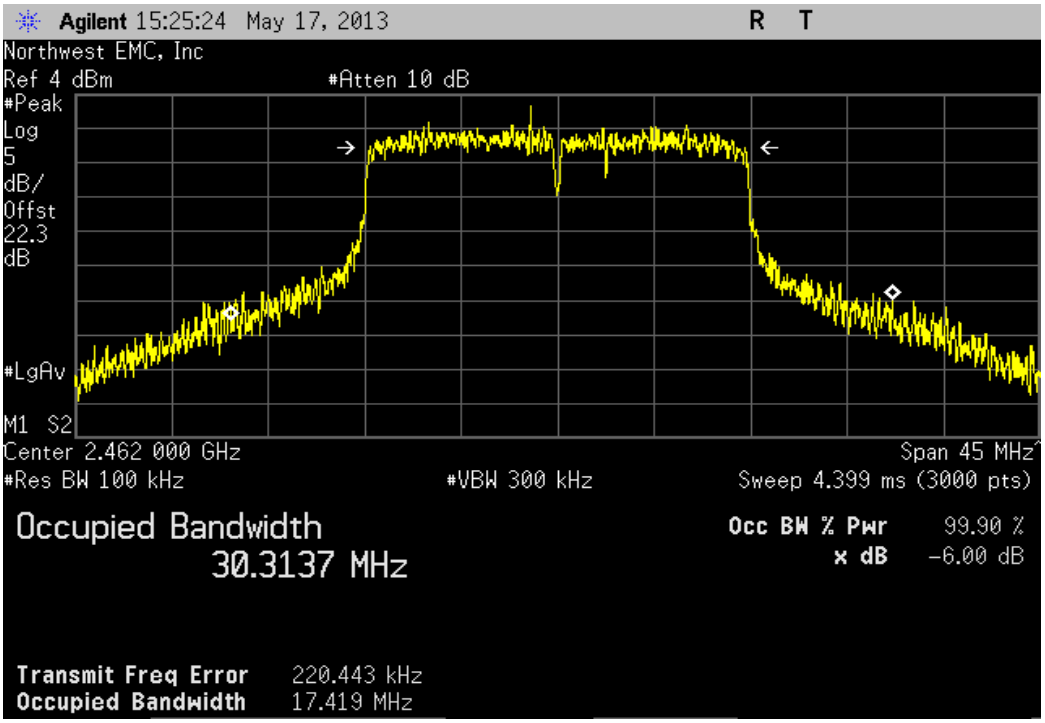
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				17.641 MHz	> 500 kHz	Pass



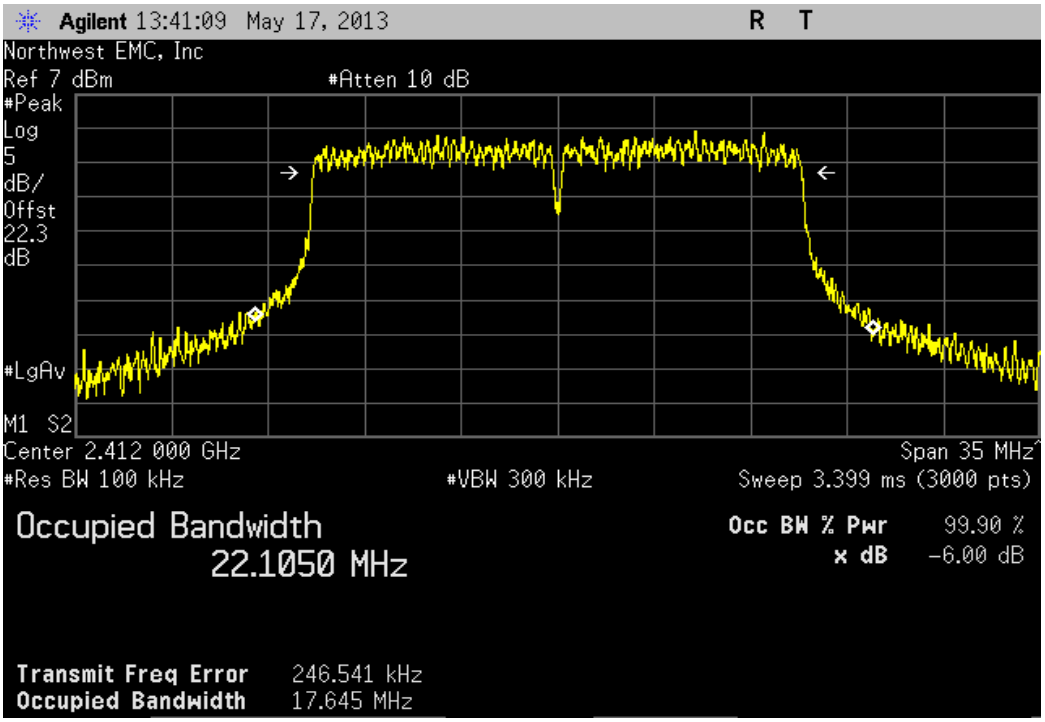
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

				Value	Limit	Result
				17.419 MHz	> 500 kHz	Pass



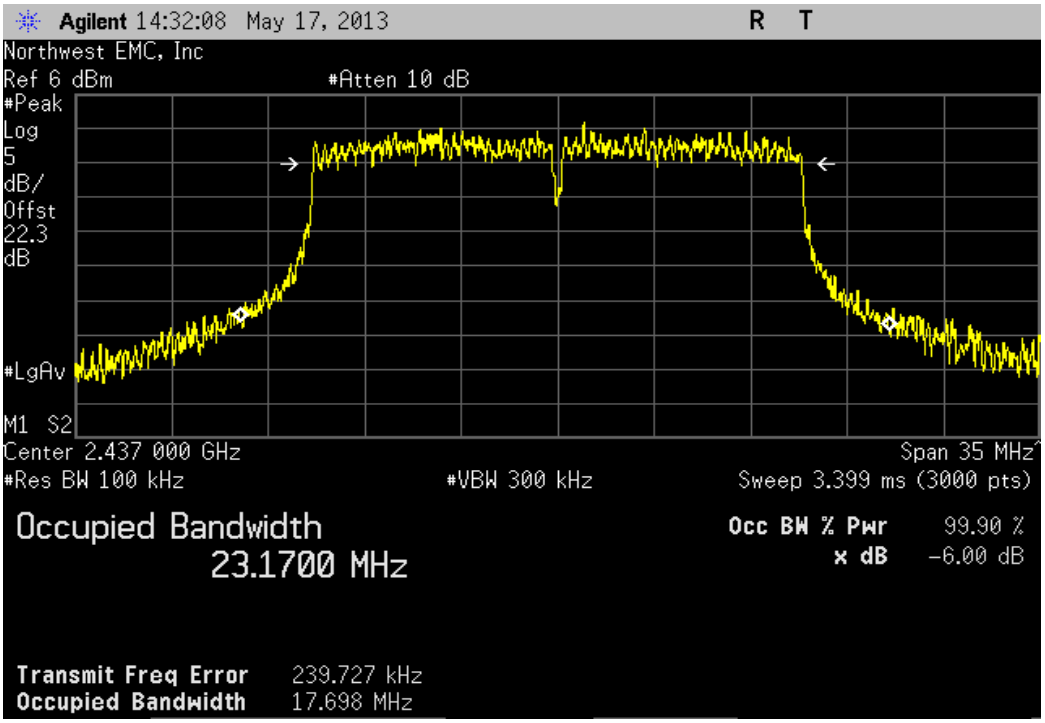
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

				Value	Limit	Result
				17.645 MHz	> 500 kHz	Pass



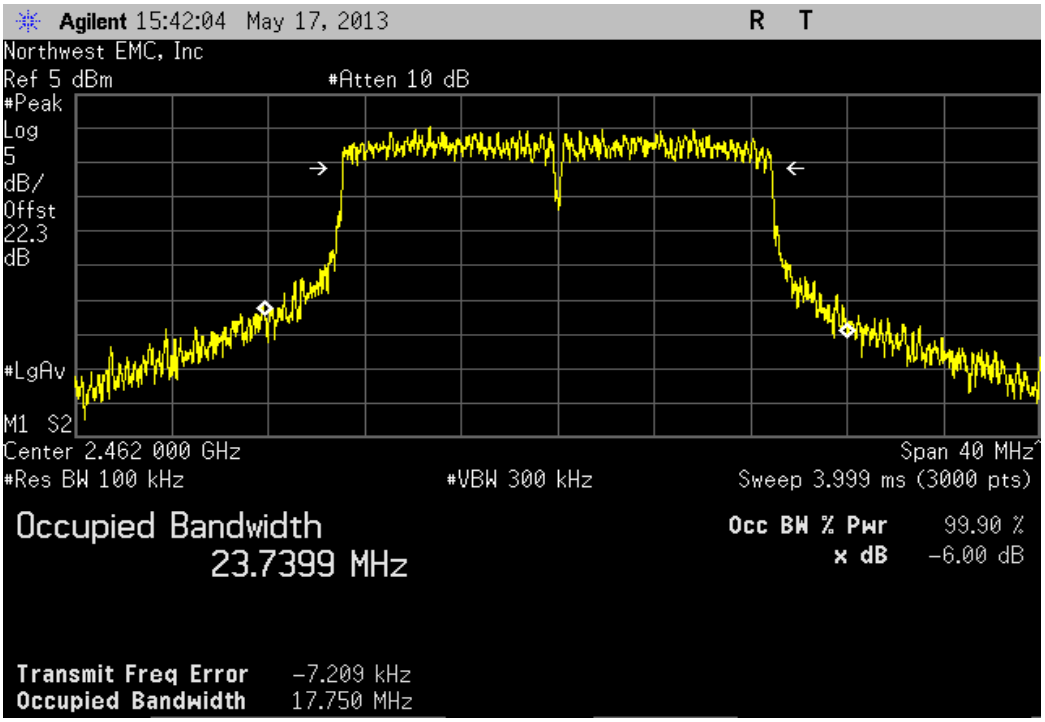
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				17.698 MHz	> 500 kHz	Pass



Occupied Bandwidth

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit	Result
				17.75 MHz	> 500 kHz	Pass



Output Power

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Method Option 1 found in KDB 558074 DTS D01 Measurement Section 8.1.1 was used because the RBW on the analyzer was greater than the Emission Bandwidth of the radio.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36 dBm.

Output Power

EUT:	LifeSense Wireless Gateway			**Work Order:**	SPCD0019
Serial Number:	None			**Date:**	05/20/13
Customer:	Spectrum Design Solutions			**Temperature:**	23.5°C
Attendees:	Nick Burtyk			**Humidity:**	57%
Project:	None			**Barometric Pres.:**	999.4
Tested by:	Johnathan Lee	**Power:**	12VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

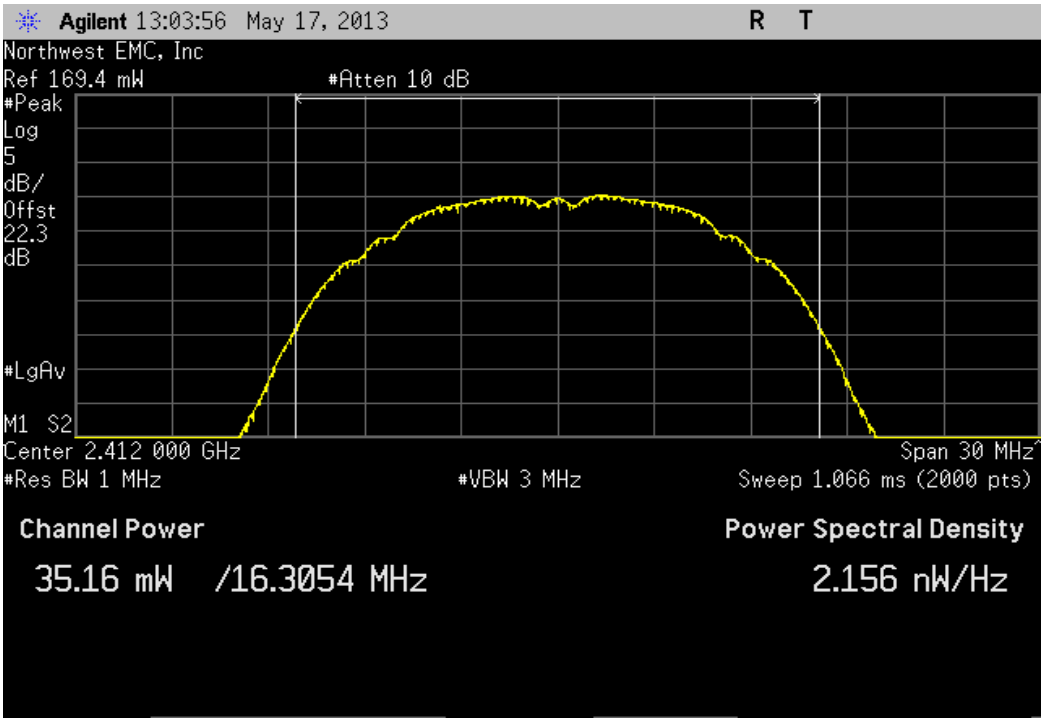
DEVIATIONS FROM TEST STANDARD

None

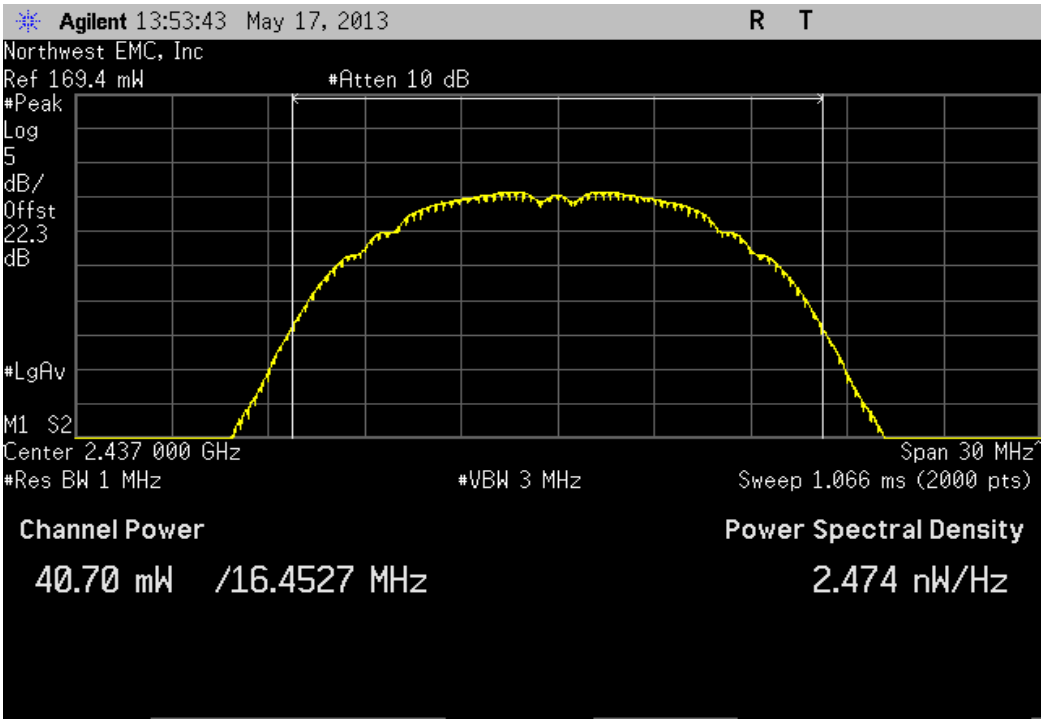
Configuration #	1	Signature

	Value	Limit	Result
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	35.159 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	40.699 mW	< 1 W	Pass
High Channel 11, 2462 MHz	34.492 mW	< 1 W	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	32.941 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	38.904 mW	< 1 W	Pass
High Channel 11, 2462 MHz	30.442 mW	< 1 W	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	36.732 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	36.727 mW	< 1 W	Pass
High Channel 11, 2462 MHz	32.464 mW	< 1 W	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	41.252 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	36.796 mW	< 1 W	Pass
High Channel 11, 2462 MHz	32.029 mW	< 1 W	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	41.689 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	37.893 mW	< 1 W	Pass
High Channel 11, 2462 MHz	31.992 mW	< 1 W	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	38.97 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	37.707 mW	< 1 W	Pass
High Channel 11, 2462 MHz	35.533 mW	< 1 W	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	41.516 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz	36.374 mW	< 1 W	Pass
High Channel 11, 2462 MHz	32.404 mW	< 1 W	Pass

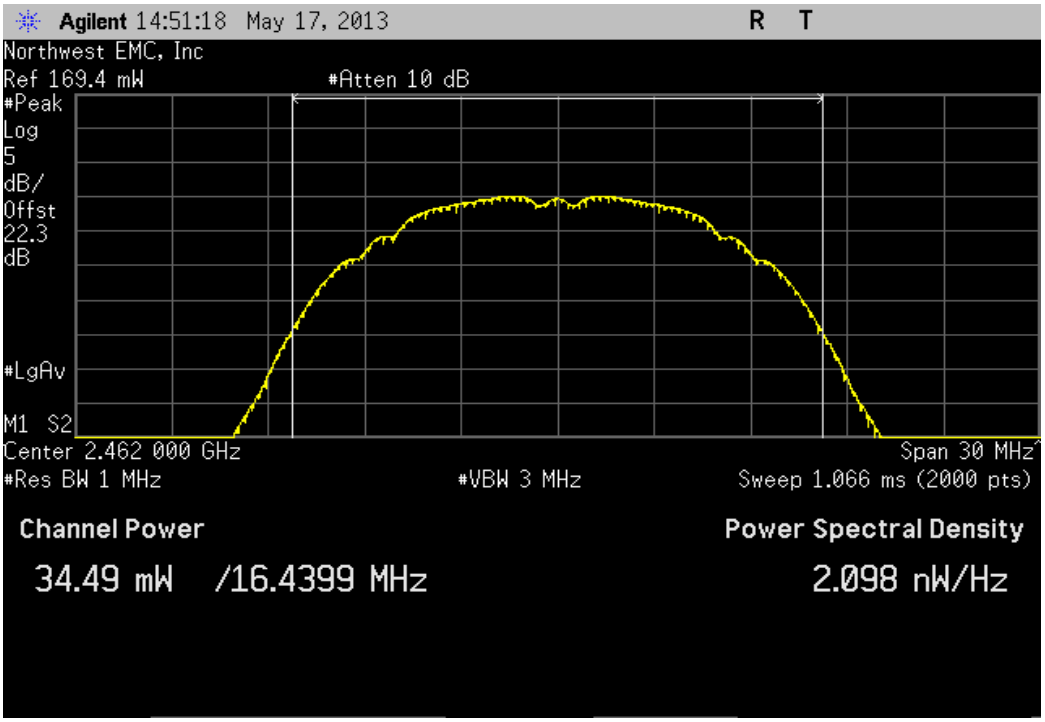
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				35.159 mW	< 1 W	Pass



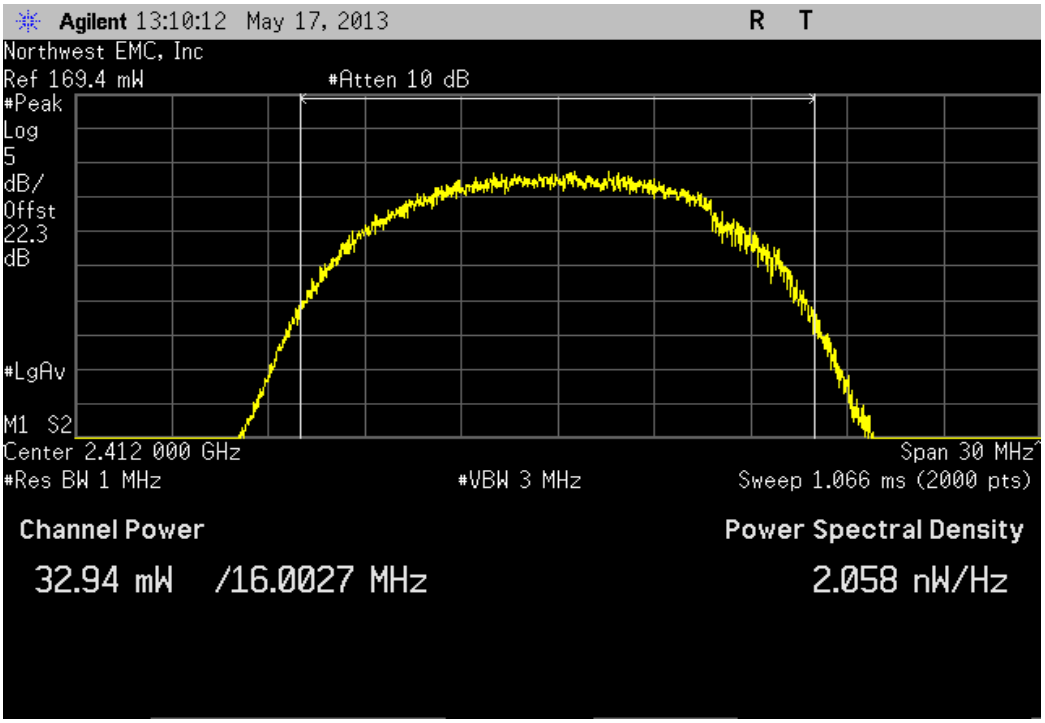
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				40.699 mW	< 1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				34.492 mW	< 1 W	Pass

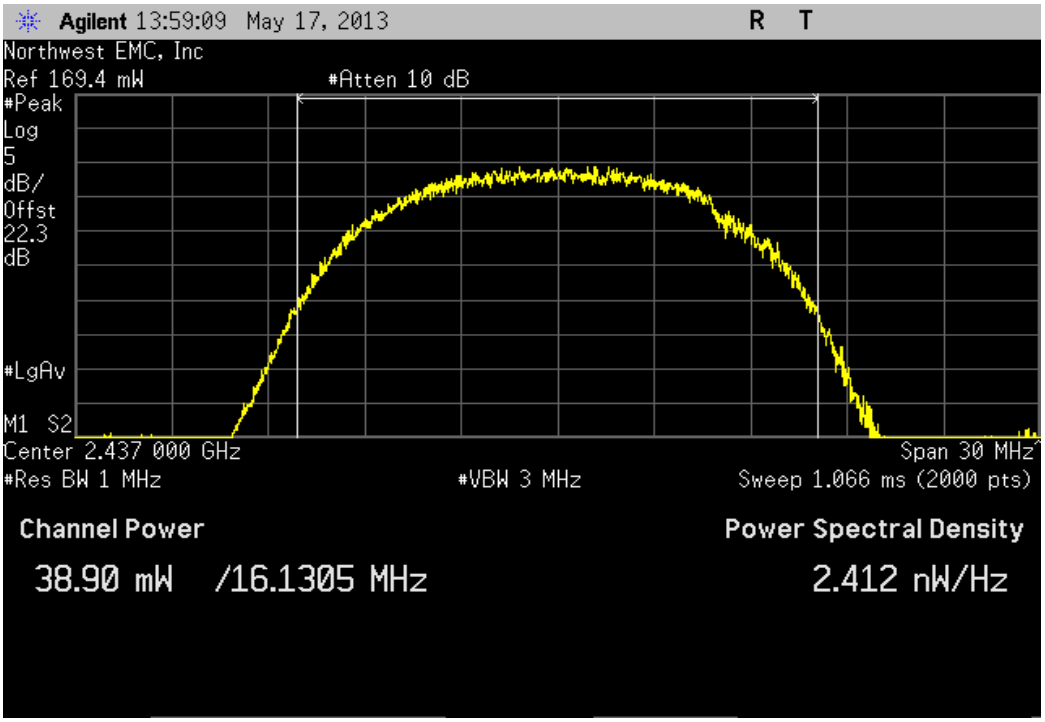


2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				32.941 mW	< 1 W	Pass



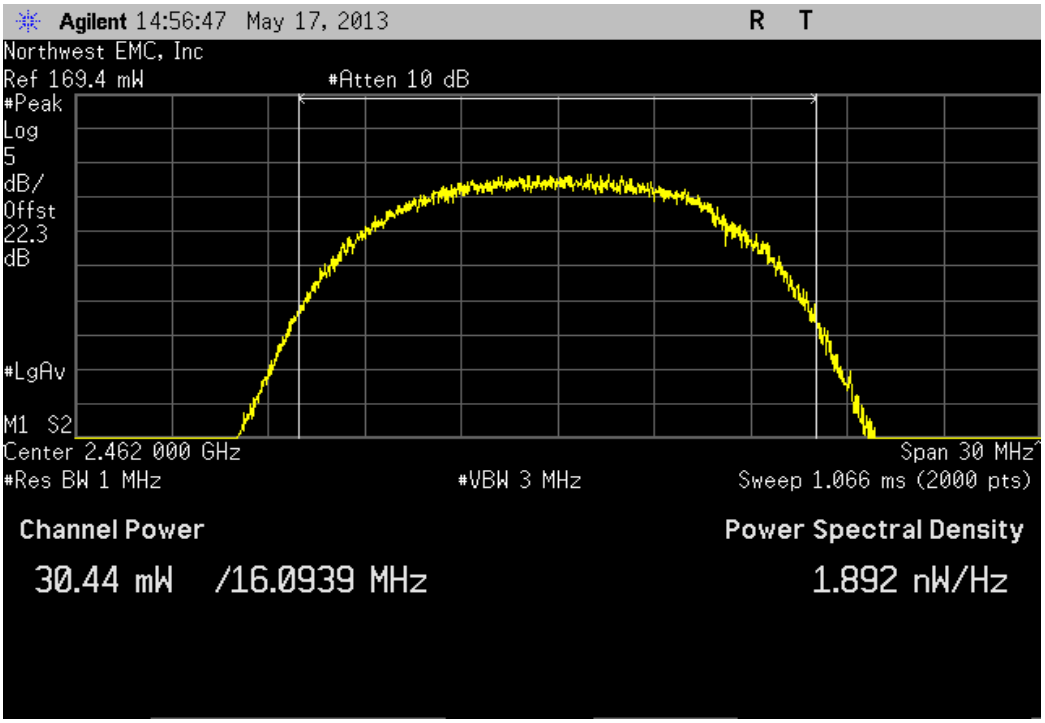
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				38.904 mW	< 1 W	Pass



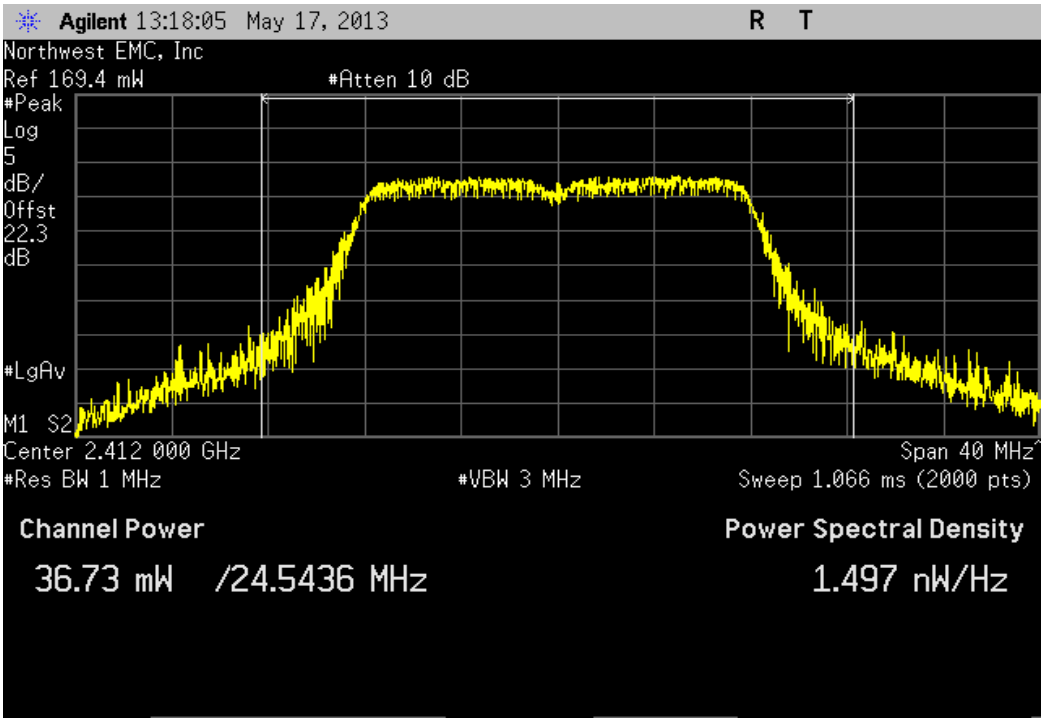
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				30.442 mW	< 1 W	Pass



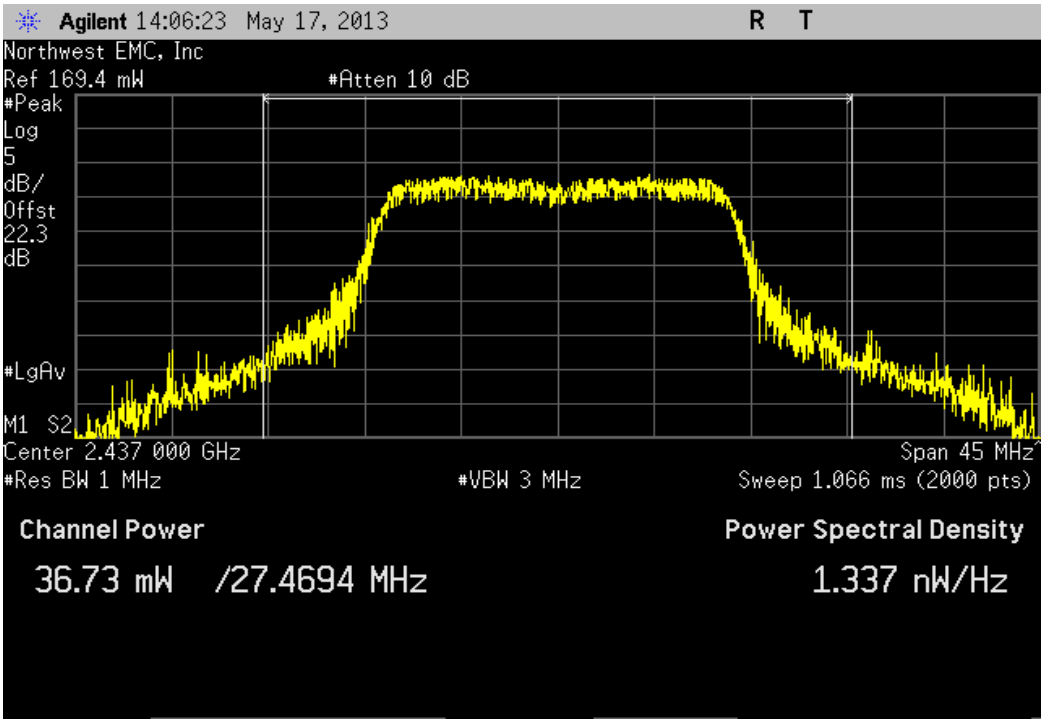
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				36.732 mW	< 1 W	Pass

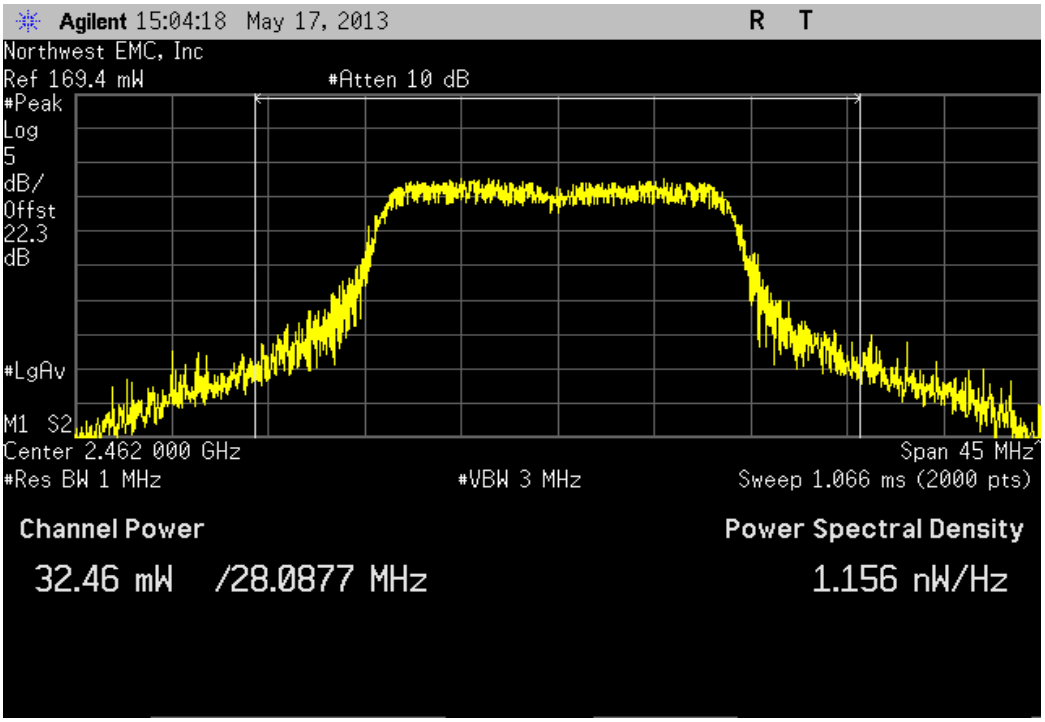


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

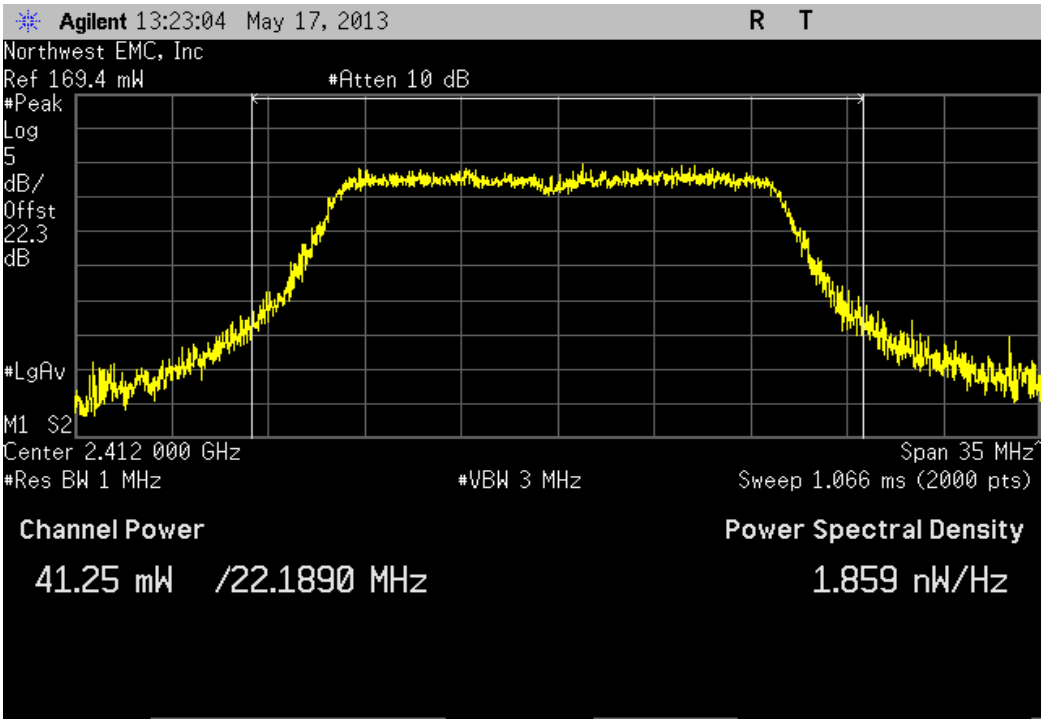
				Value	Limit	Result
				36.727 mW	< 1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				32.464 mW	< 1 W	Pass

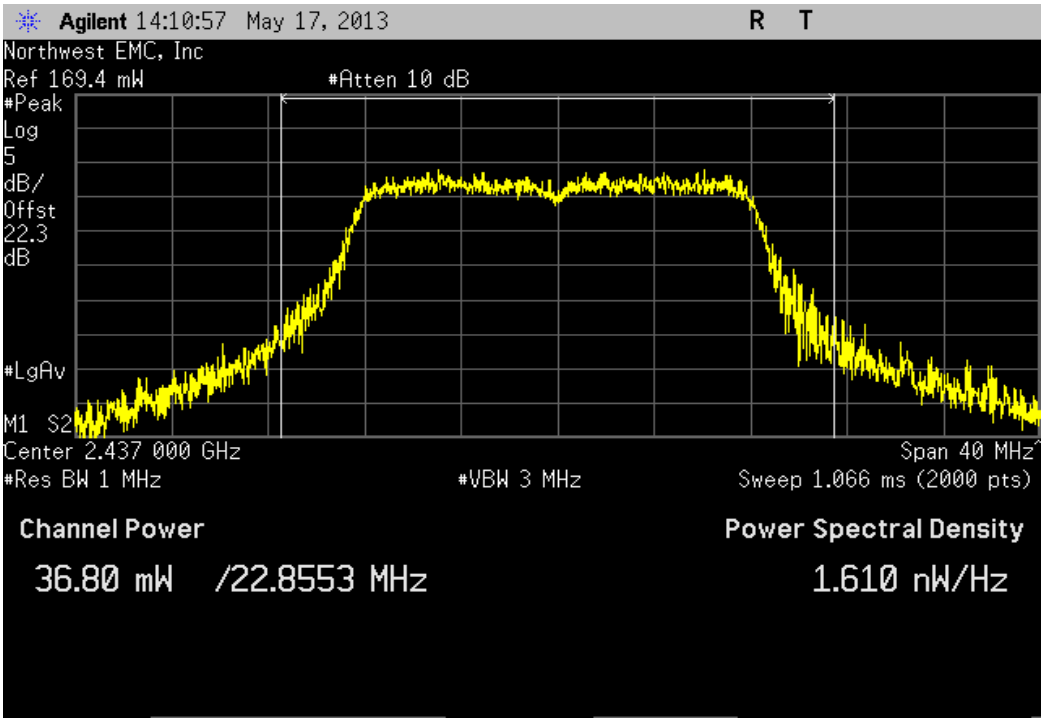


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				41.252 mW	< 1 W	Pass



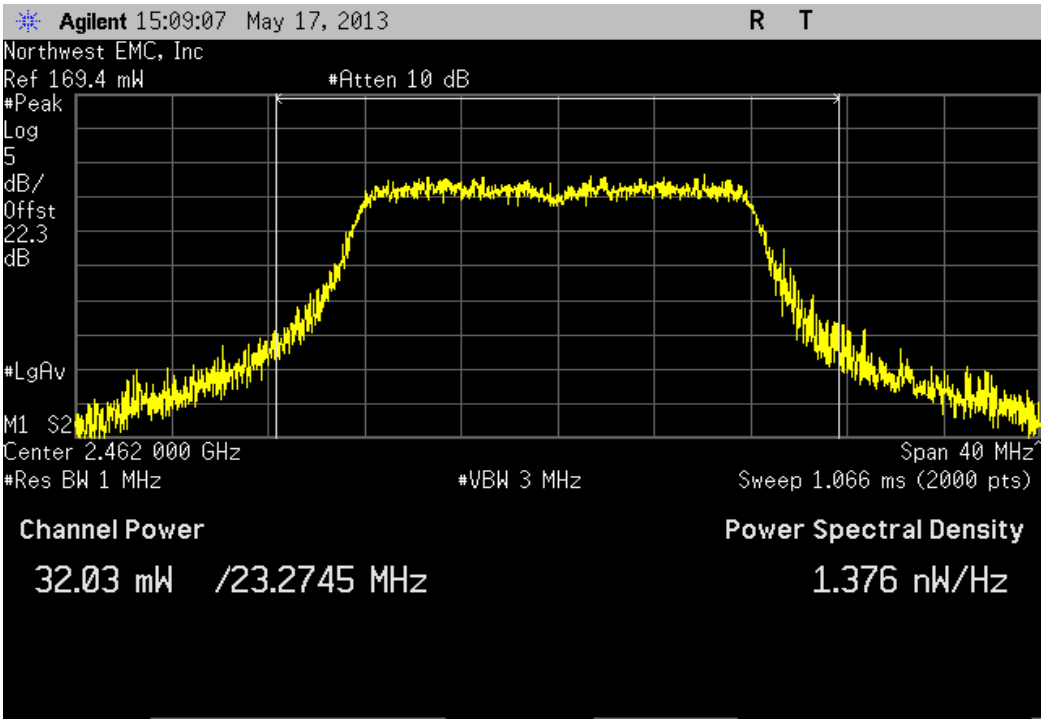
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				36.796 mW	< 1 W	Pass

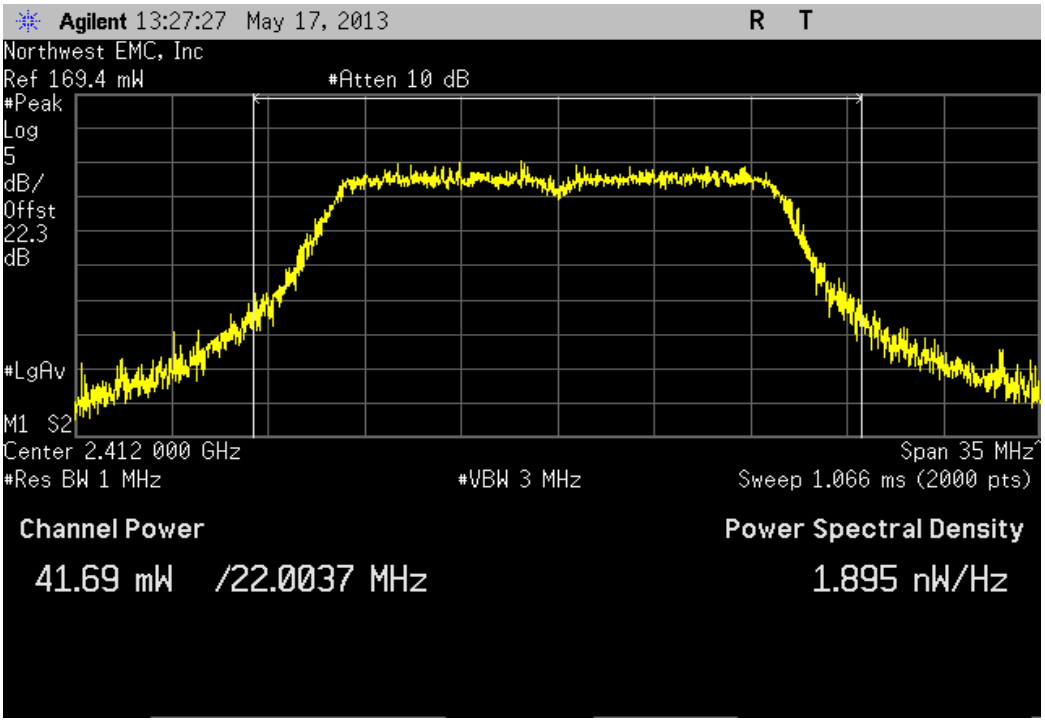


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

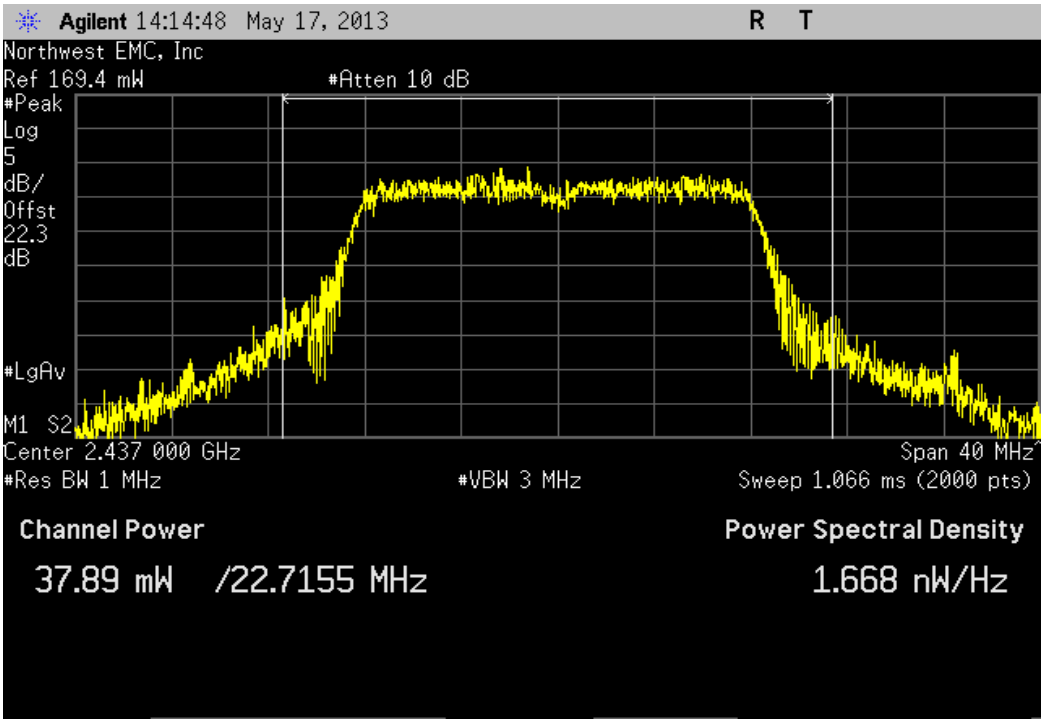
				Value	Limit	Result
				32.029 mW	< 1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				41.689 mW	< 1 W	Pass

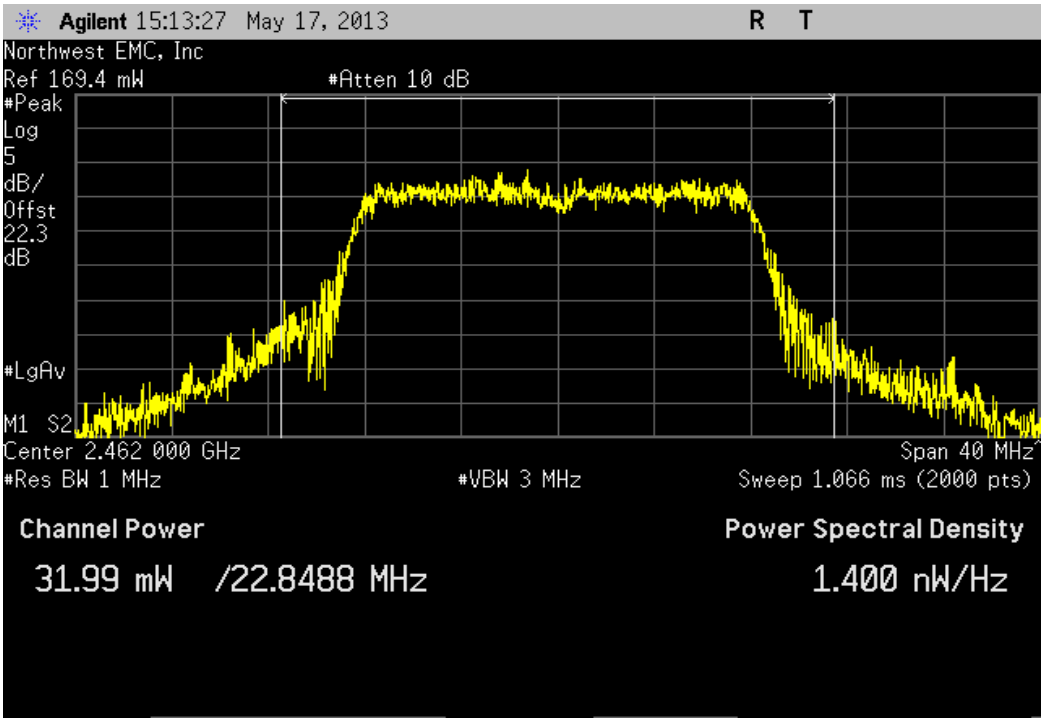


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				37.893 mW	< 1 W	Pass

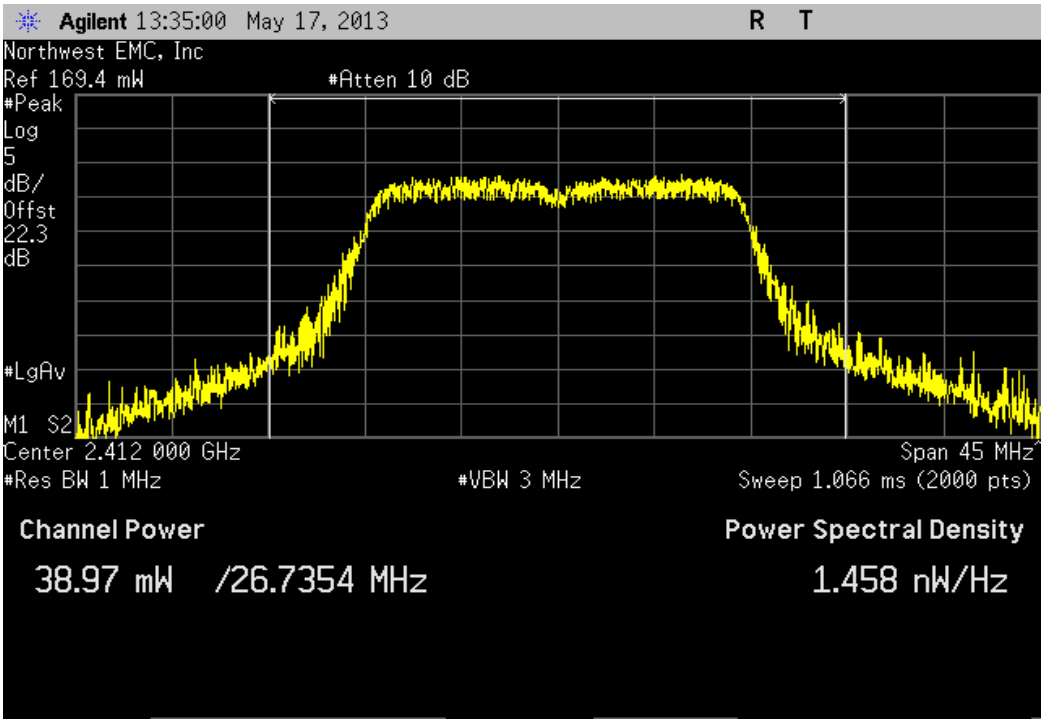


Output Power

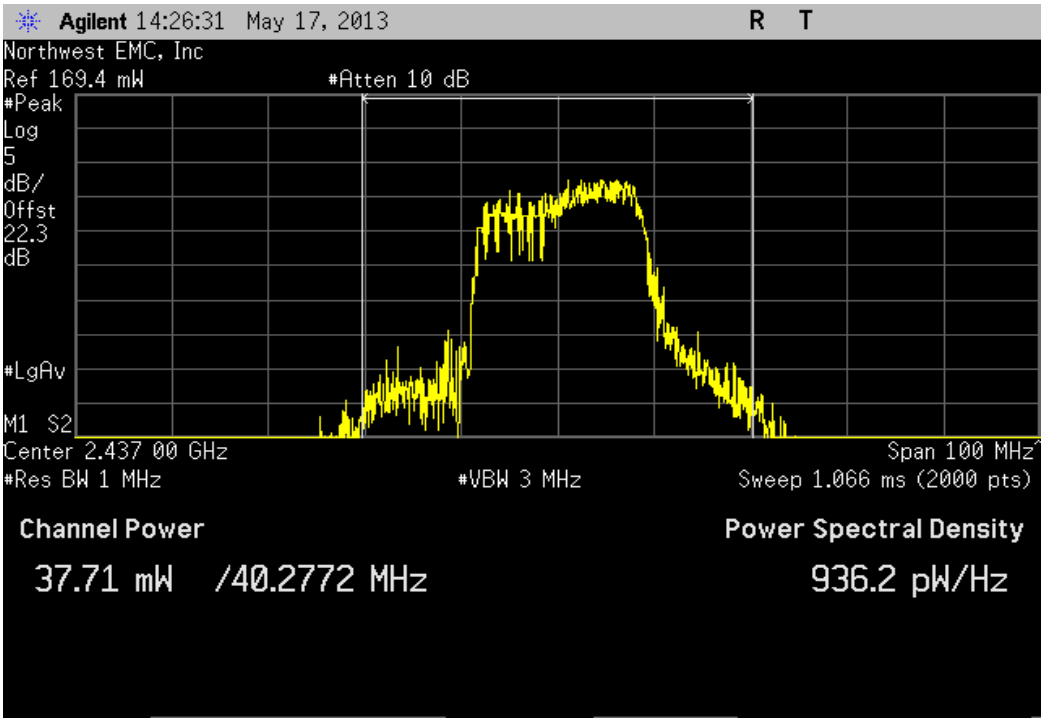
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				31.992 mW	< 1 W	Pass



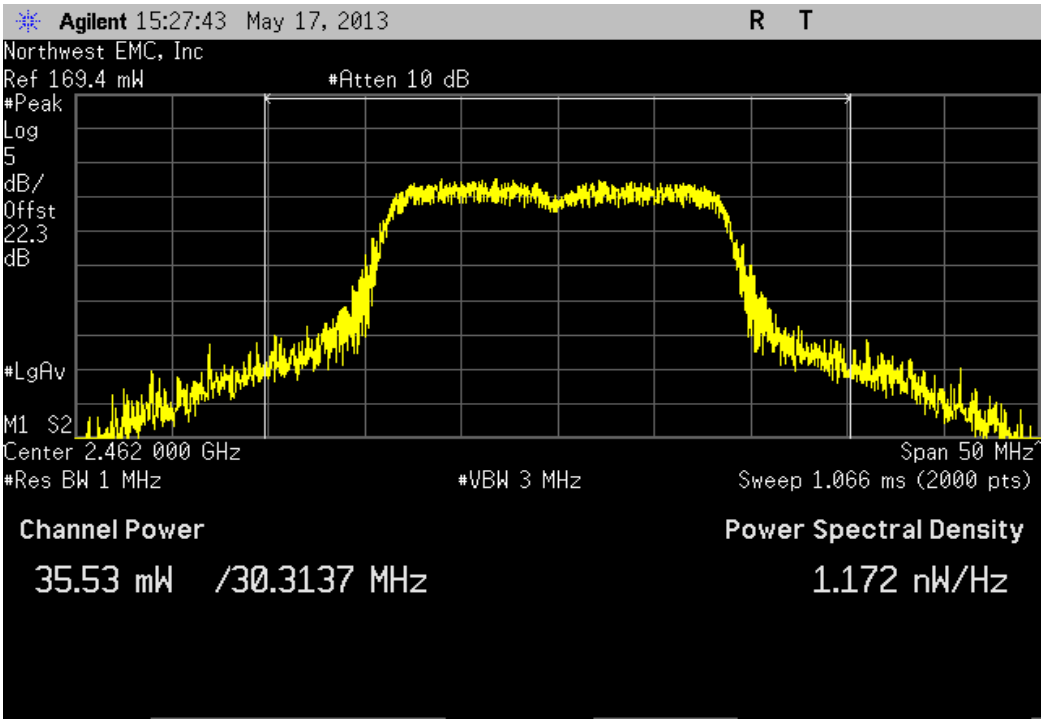
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				38.97 mW	< 1 W	Pass



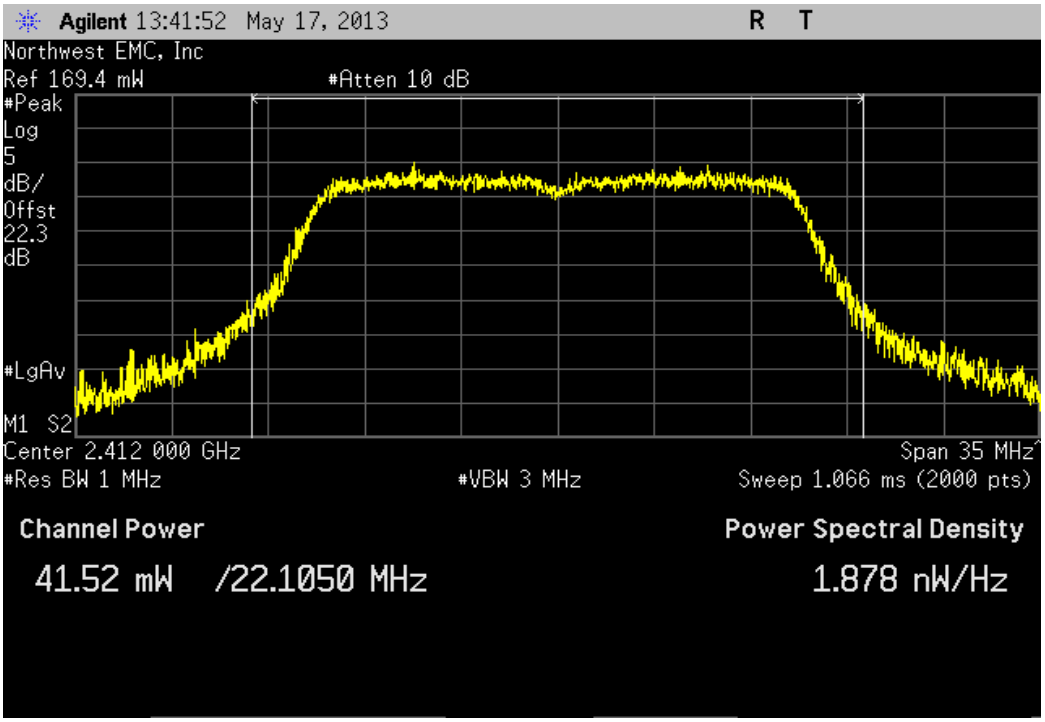
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				37.707 mW	< 1 W	Pass



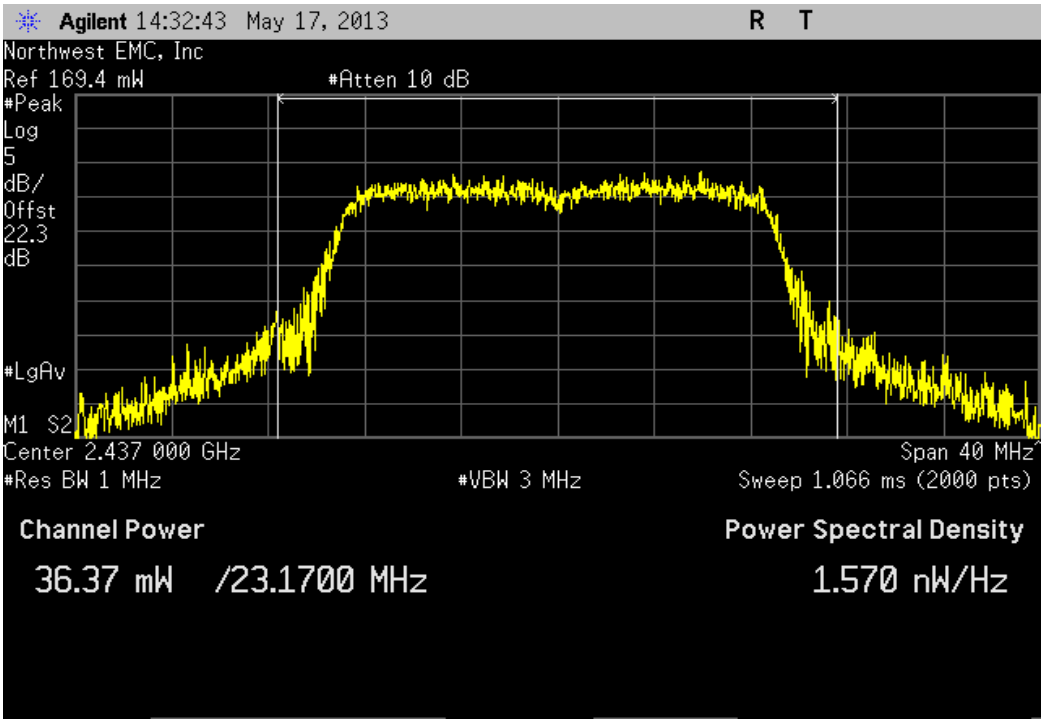
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit	Result
				35.533 mW	< 1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				41.516 mW	< 1 W	Pass

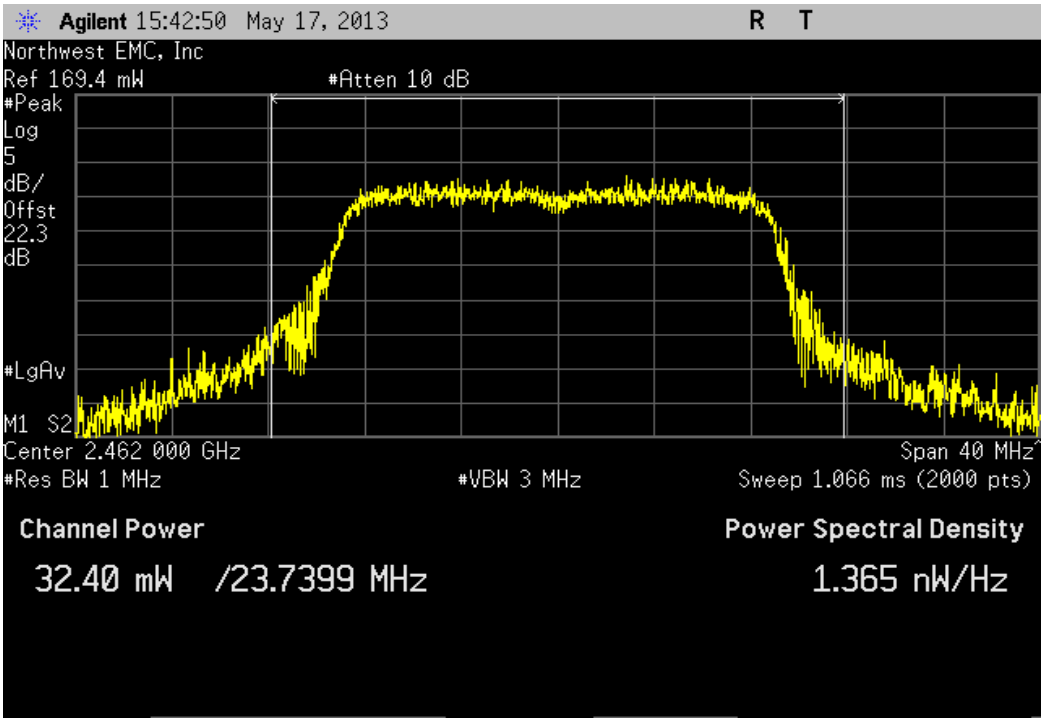


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				36.374 mW	< 1 W	Pass



Output Power

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit	Result
				32.404 mW	< 1 W	Pass



Band Edge Compliance

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

Band Edge Compliance

EUT:	LifeSense Wireless Gateway			**Work Order:**	SPCD0019
Serial Number:	None			**Date:**	05/20/13
Customer:	Spectrum Design Solutions			**Temperature:**	23.5°C
Attendees:	Nick Burtyk			**Humidity:**	57%
Project:	None			**Barometric Pres.:**	999.4
Tested by:	Johnathan Lee	**Power:**	12VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

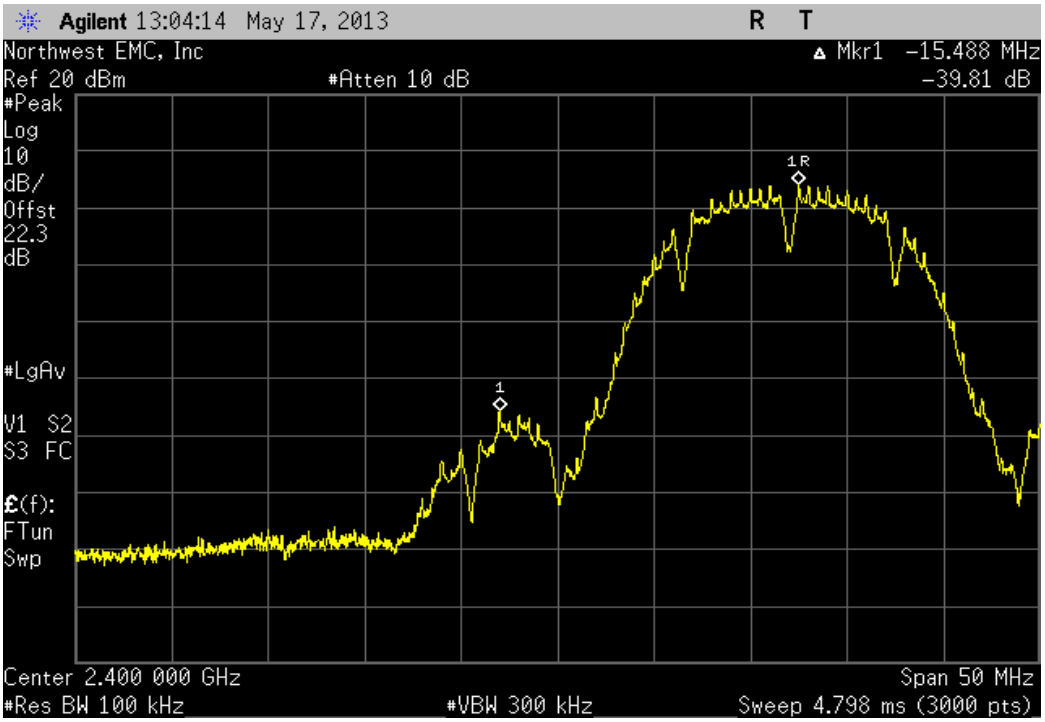
Configuration #	1	Signature

	Value	Limit	Result
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	-39.81 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-54.29 dBc	≤ -20 dBc	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	-41.15 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-55.9 dBc	≤ -20 dBc	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	-27.97 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-38.71 dBc	≤ -20 dBc	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	-28.93 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-41.27 dBc	≤ -20 dBc	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	-28.36 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-39.88 dBc	≤ -20 dBc	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	-27.52 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-35.83 dBc	≤ -20 dBc	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	-29.86 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	-38.65 dBc	≤ -20 dBc	Pass

Band Edge Compliance

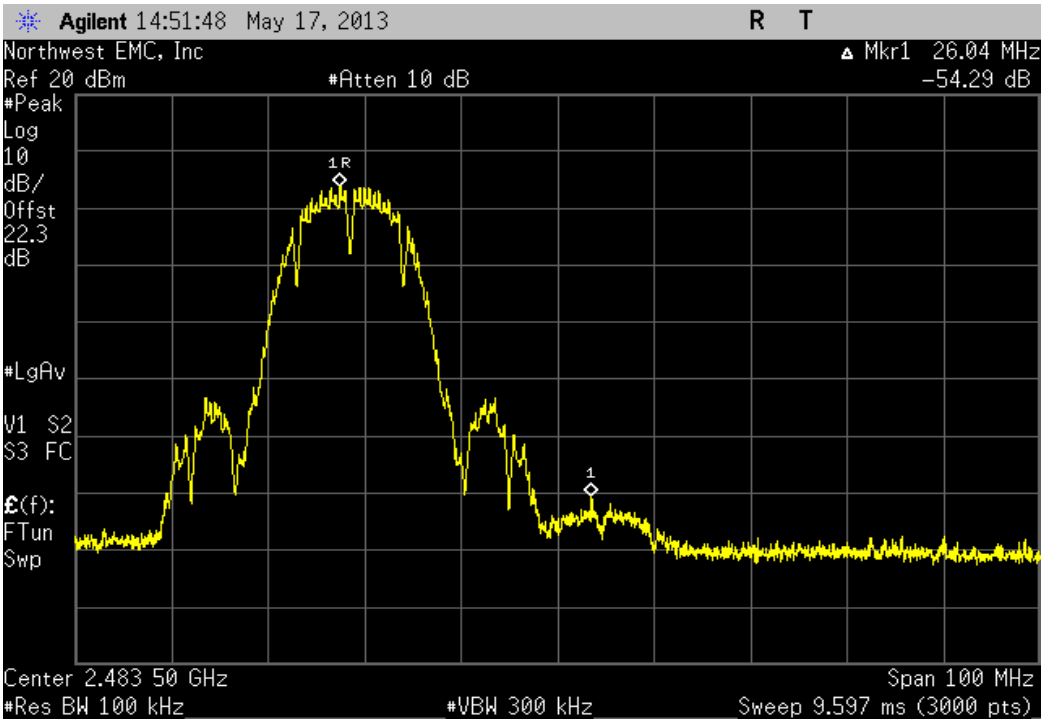
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Value	Limit	Result
-39.81 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

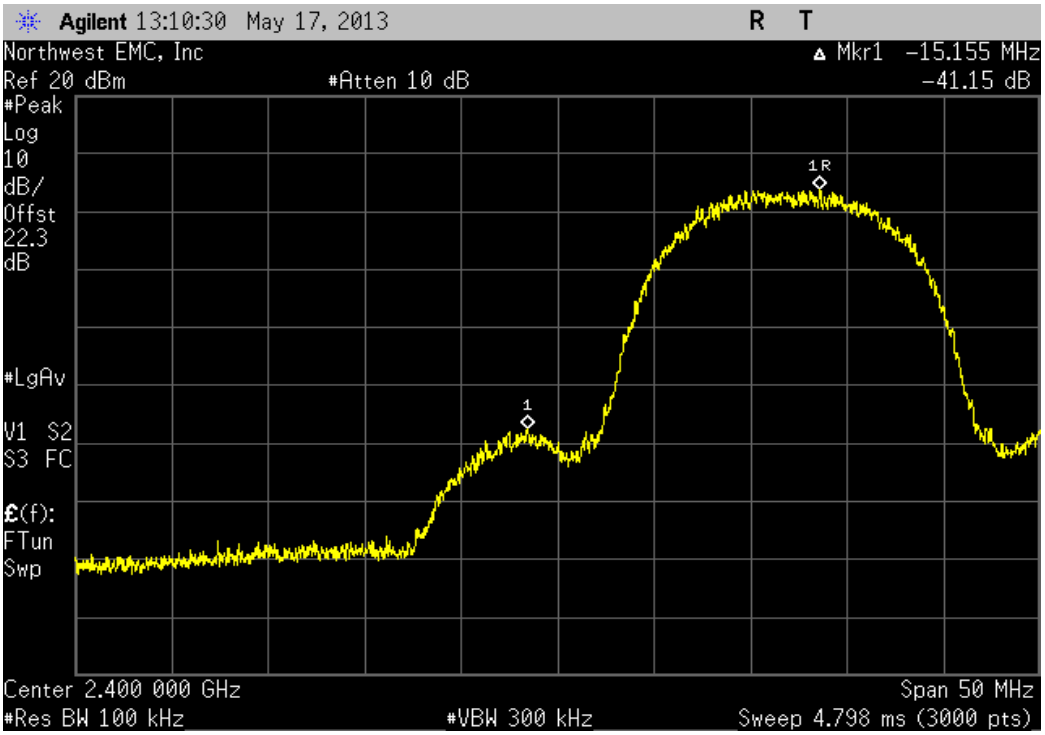
Value	Limit	Result
-54.29 dBc	≤ -20 dBc	Pass



Band Edge Compliance

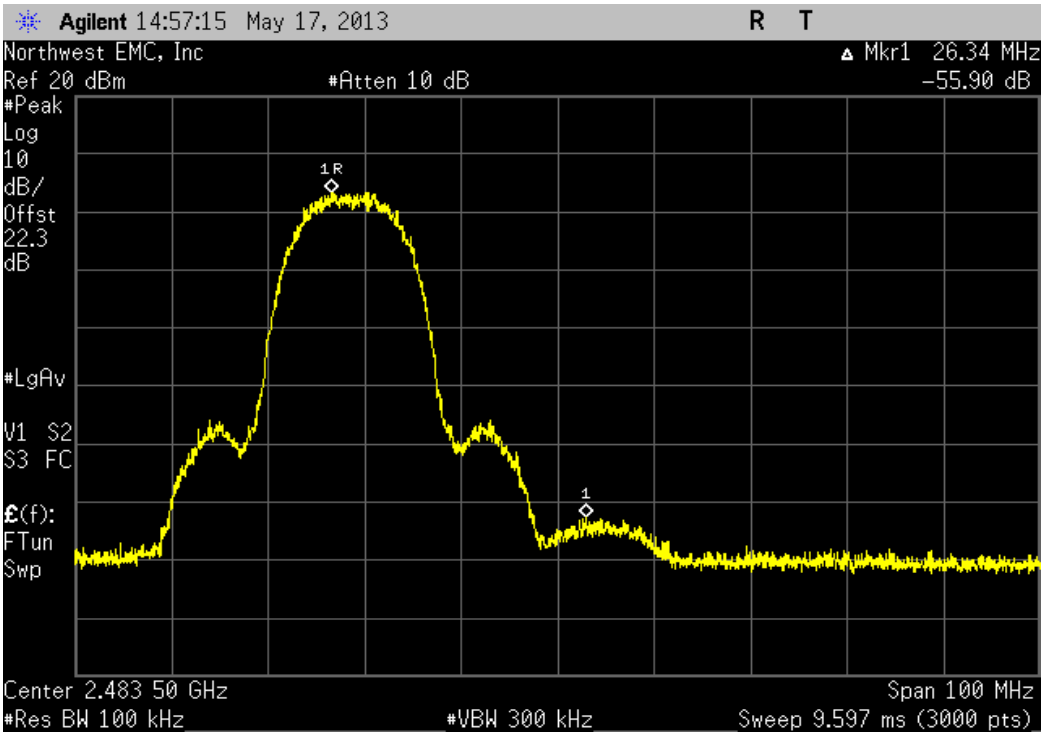
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-41.15 dBc	≤ -20 dBc	Pass



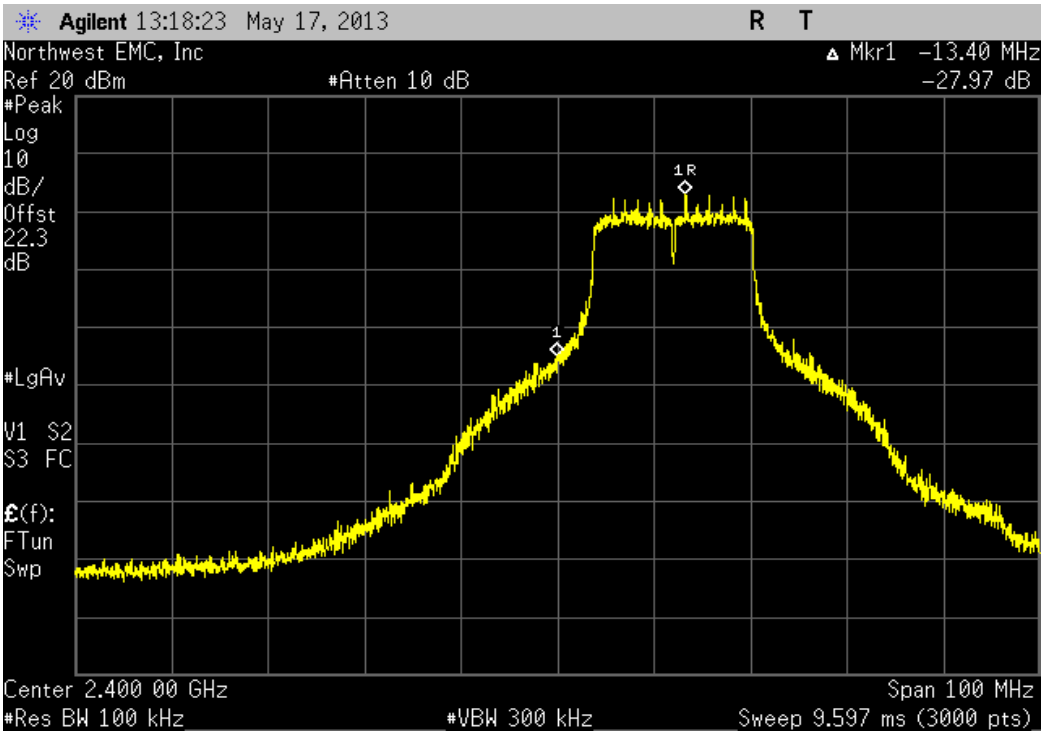
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

				Value	Limit	Result
				-55.9 dBc	≤ -20 dBc	Pass



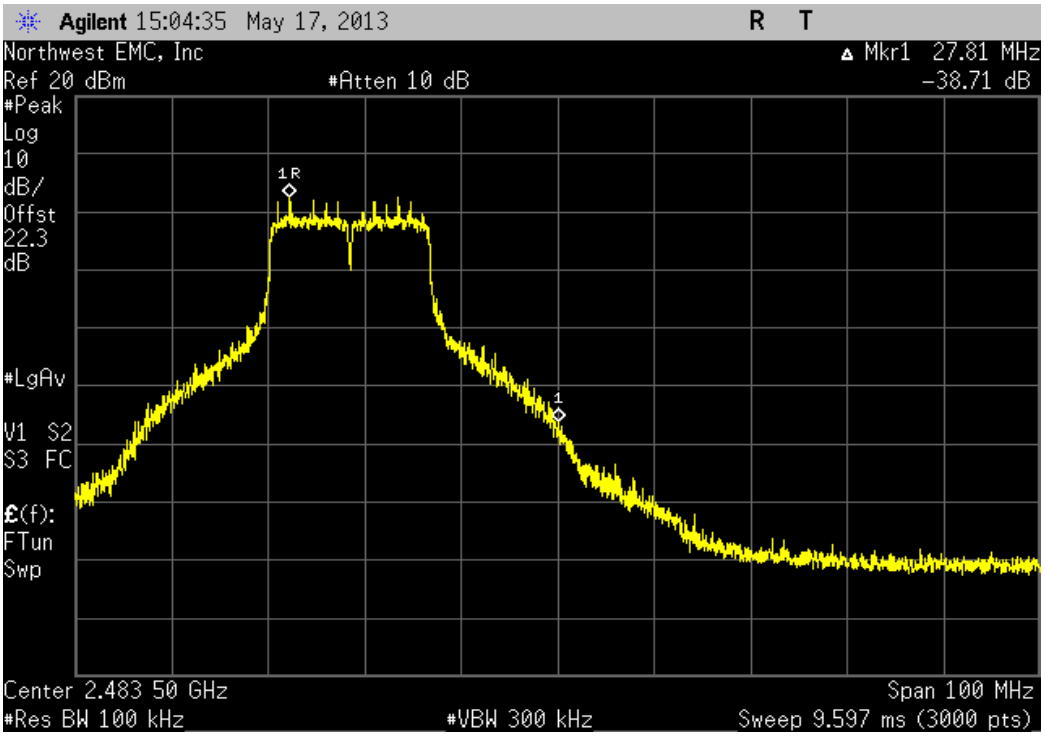
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-27.97 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

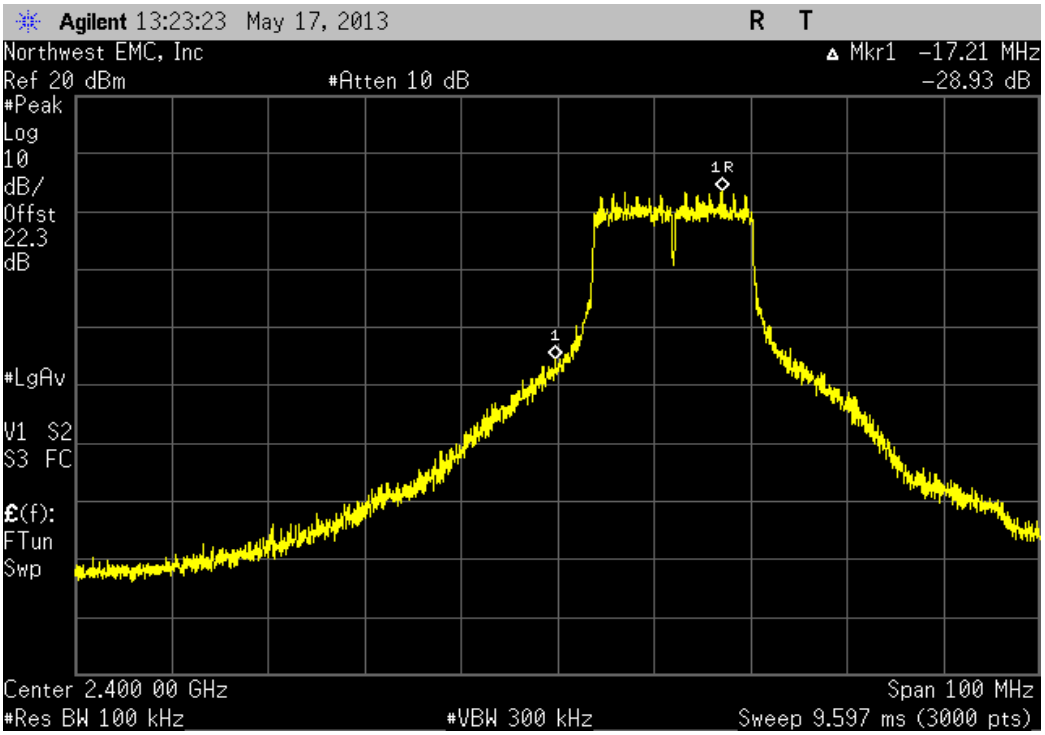
				Value	Limit	Result
				-38.71 dBc	≤ -20 dBc	Pass



Band Edge Compliance

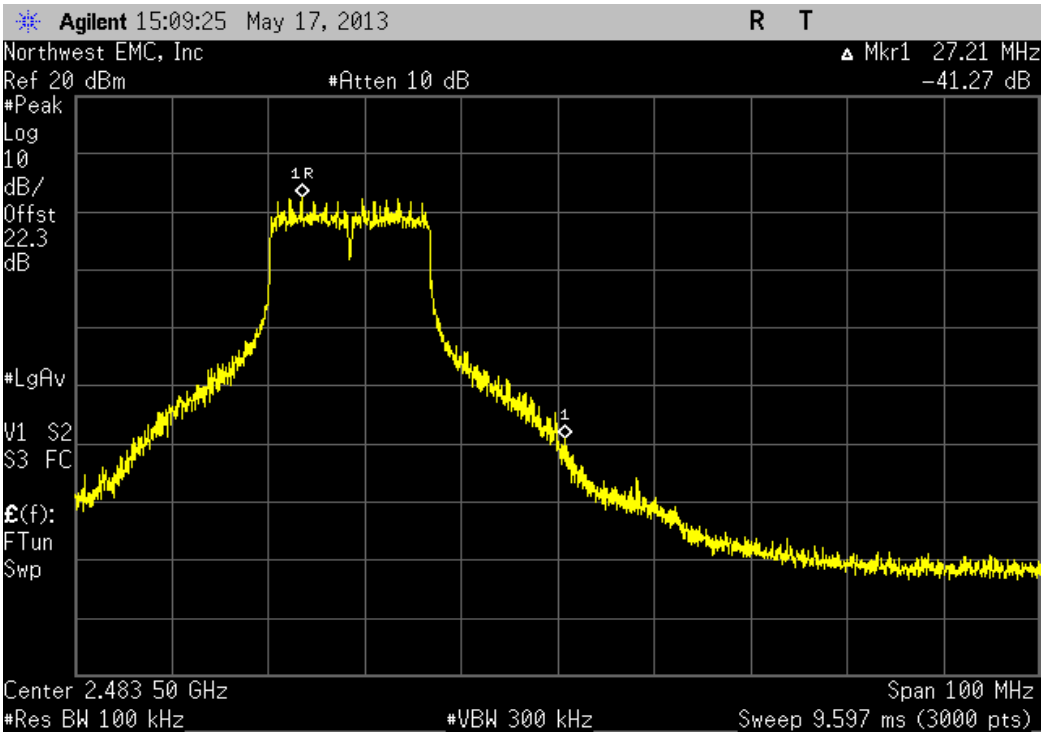
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-28.93 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

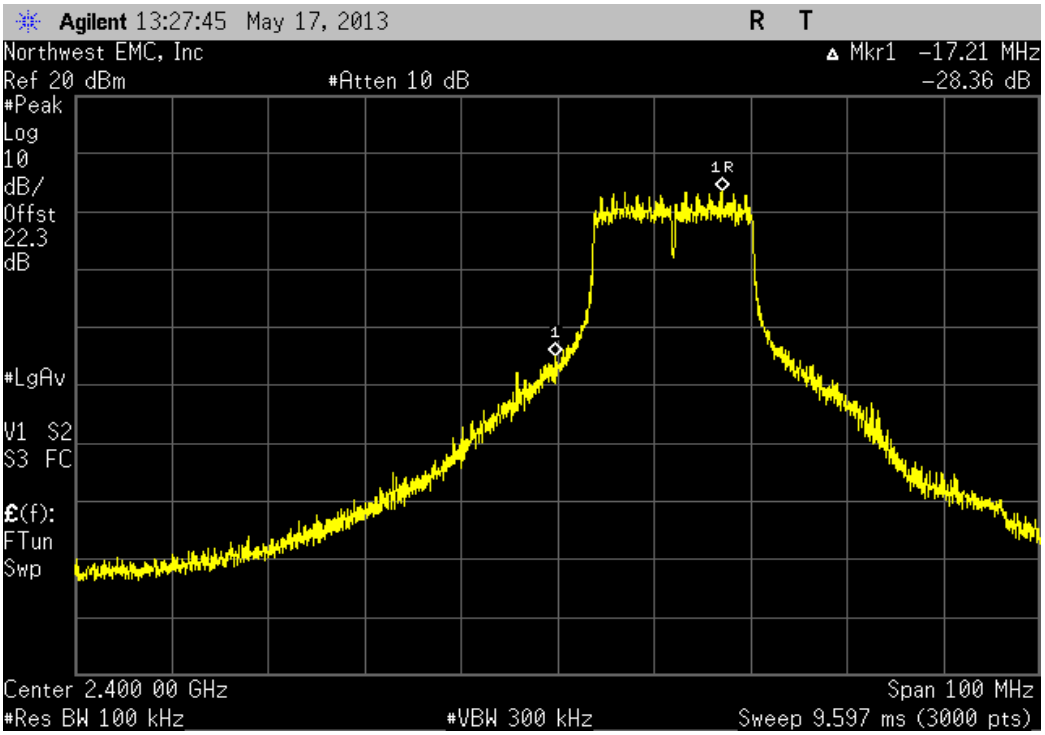
				Value	Limit	Result
				-41.27 dBc	≤ -20 dBc	Pass



Band Edge Compliance

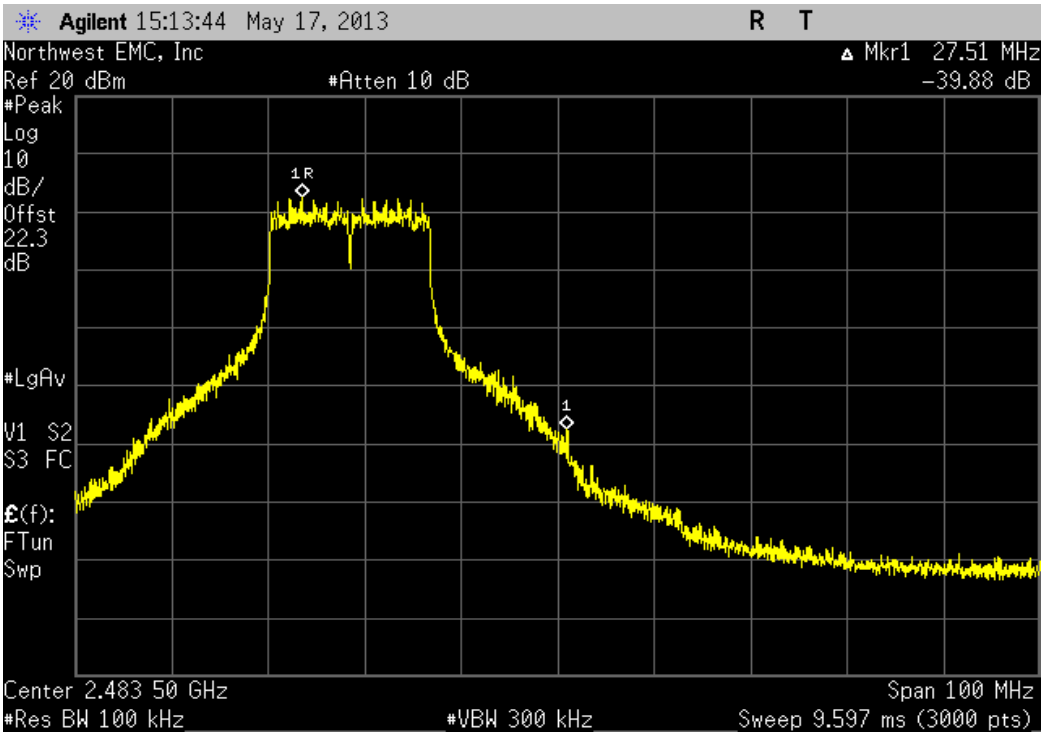
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-28.36 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz

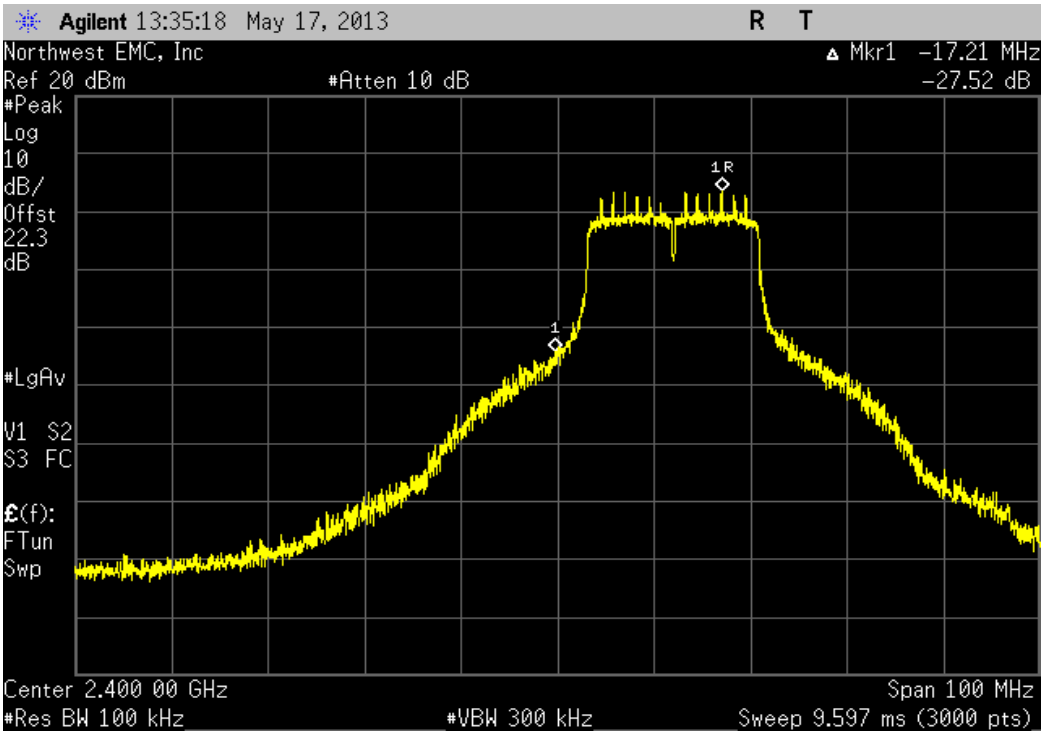
				Value	Limit	Result
				-39.88 dBc	≤ -20 dBc	Pass



Band Edge Compliance

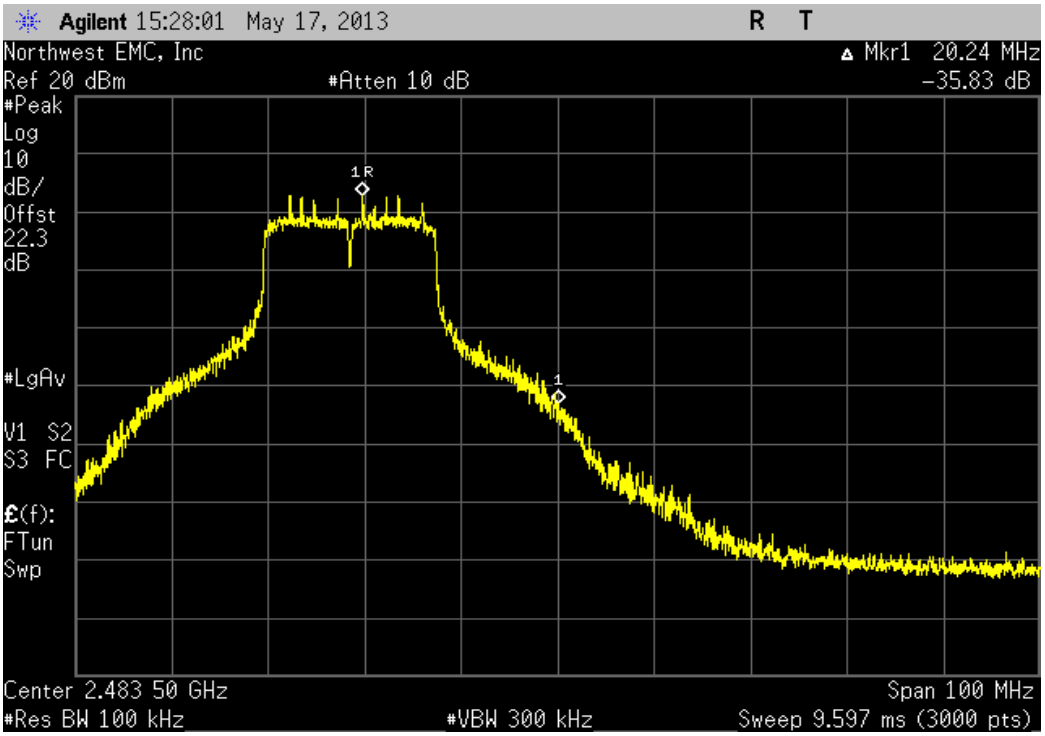
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-27.52 dBc	≤ -20 dBc	Pass



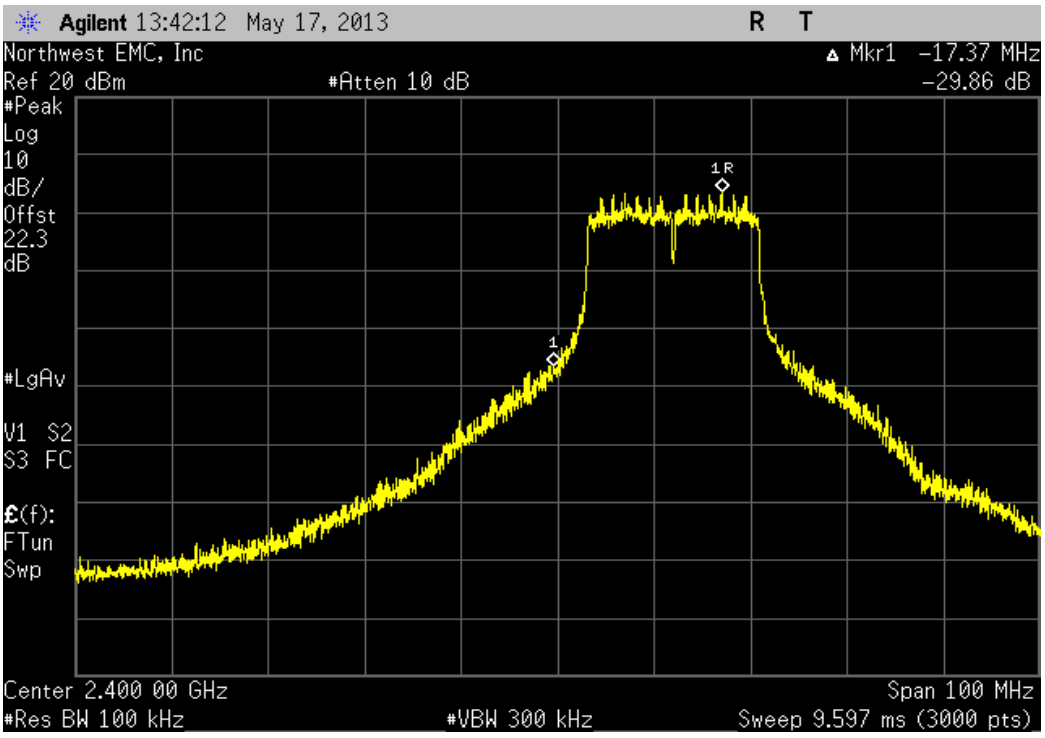
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

				Value	Limit	Result
				-35.83 dBc	≤ -20 dBc	Pass



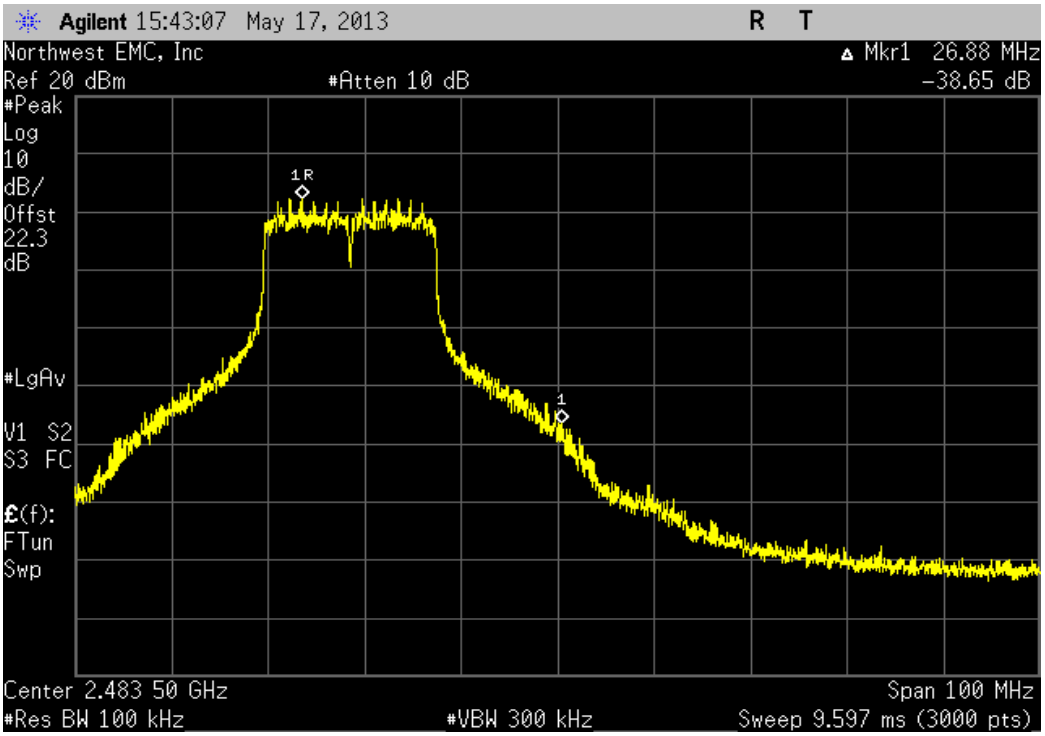
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

				Value	Limit	Result
				-29.86 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz

				Value	Limit	Result
				-38.65 dBc	≤ -20 dBc	Pass



Spurious Conducted Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

Spurious Conducted Emissions

EUT:	LifeSense Wireless Gateway	**Work Order:**	SPCD0019
Serial Number:	None	**Date:**	05/14/13
Customer:	Spectrum Design Solutions	**Temperature:**	24.0°C
Attendees:	Nick Burtyk	**Humidity:**	36%
Project:	None	**Barometric Pres.:**	997.8
Tested by:	Trevor Buls	**Power:** 12VDC	**Job Site:** MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

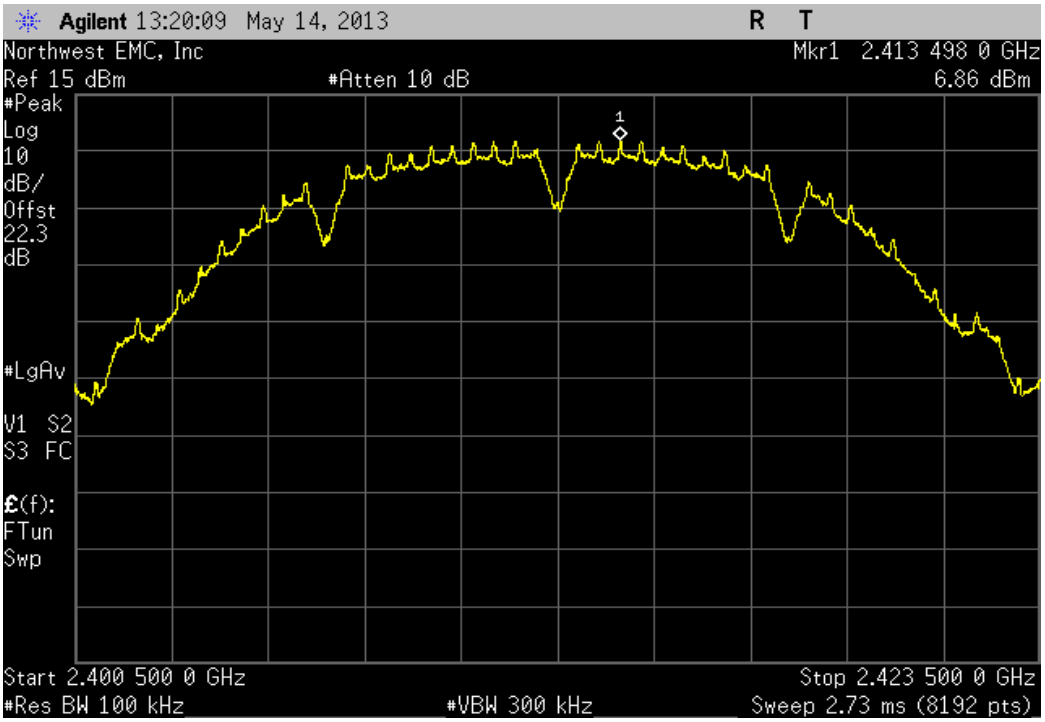
None

Configuration #	1	Signature	Trevor Buls

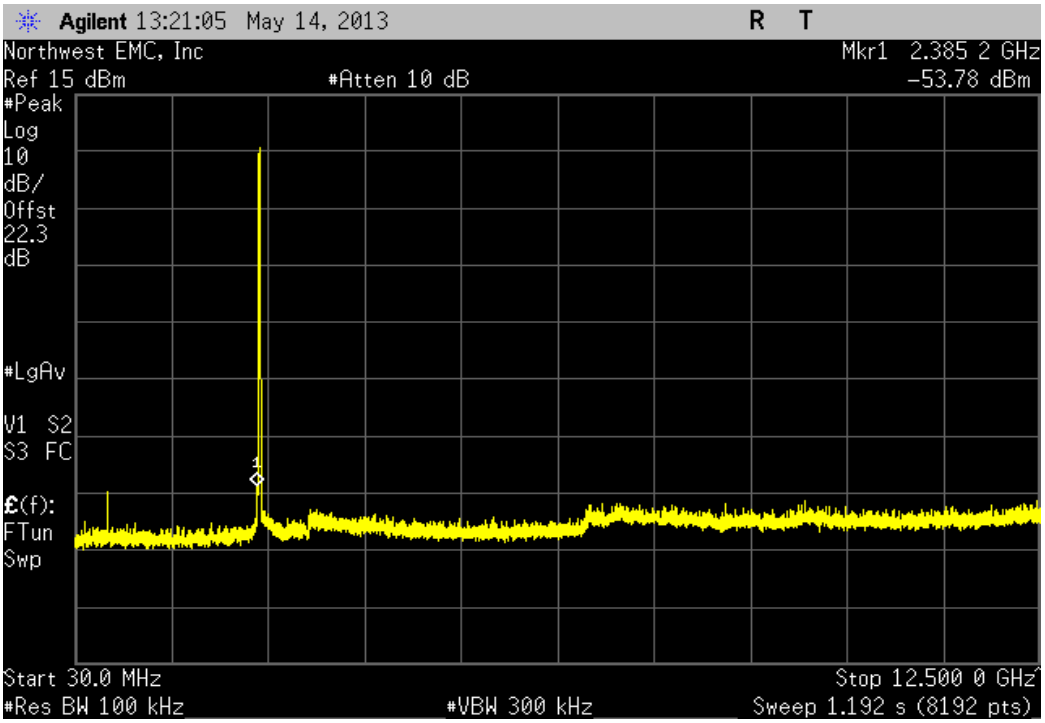
	Frequency Range	Value	Limit	Result
2400 MHz - 2483.5 MHz Band				
802.11(b) 1 Mbps				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-60.64 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-58.66 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-63.36 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-58.94 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-61.93 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-58.25 dBc	≤ -20 dBc	Pass
802.11(b) 11 Mbps				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-62.42 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-59 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-62.87 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-59.24 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-62.51 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-59.14 dBc	≤ -20 dBc	Pass
802.11(g) 6 Mbps				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-44.26 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-58.15 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-62.15 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-58.38 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.33 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-57.12 dBc	≤ -20 dBc	Pass
802.11(g) 36 Mbps				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-46.24 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-58.49 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-62.68 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-57.69 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.99 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-56.13 dBc	≤ -20 dBc	Pass
802.11(g) 54 Mbps				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-48 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-55.99 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-59.82 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-56.04 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.19 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-55.43 dBc	≤ -20 dBc	Pass
802.11(n) MCS0				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-42.3 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-58.97 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-62.01 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-57.51 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-58.35 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-57.81 dBc	≤ -20 dBc	Pass
802.11(n) MCS7				
Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-52.88 dBc	≤ -20 dBc	Pass
Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-48.67 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-53.18 dBc	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-48.95 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-52.22 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-48.64 dBc	≤ -20 dBc	Pass

Spurious Conducted Emissions

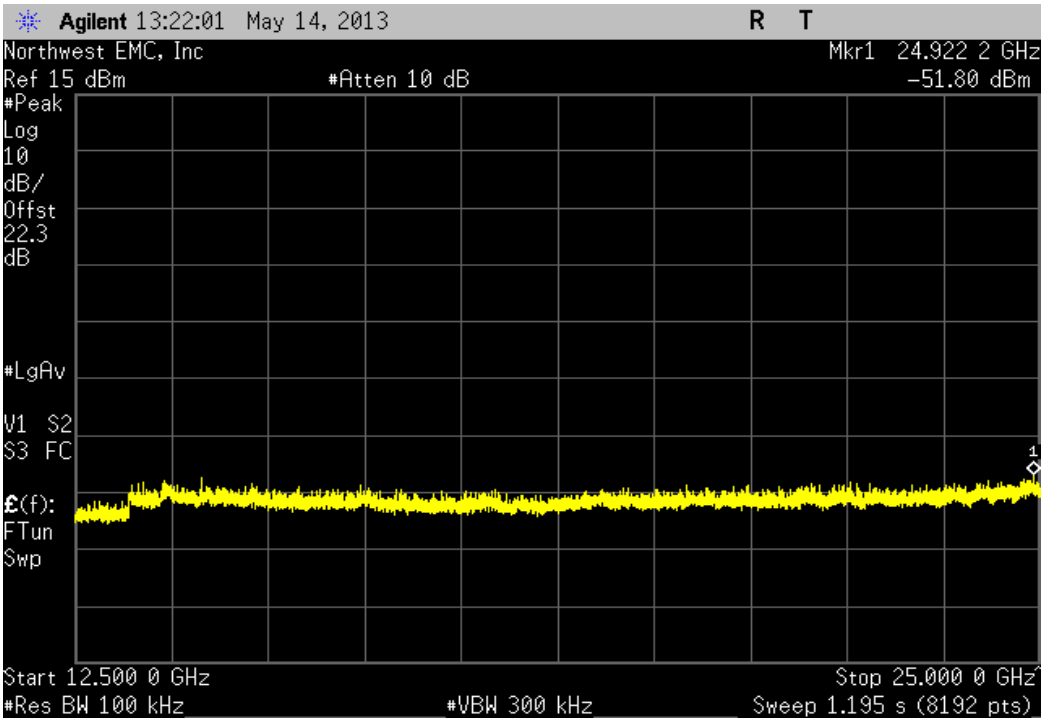
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



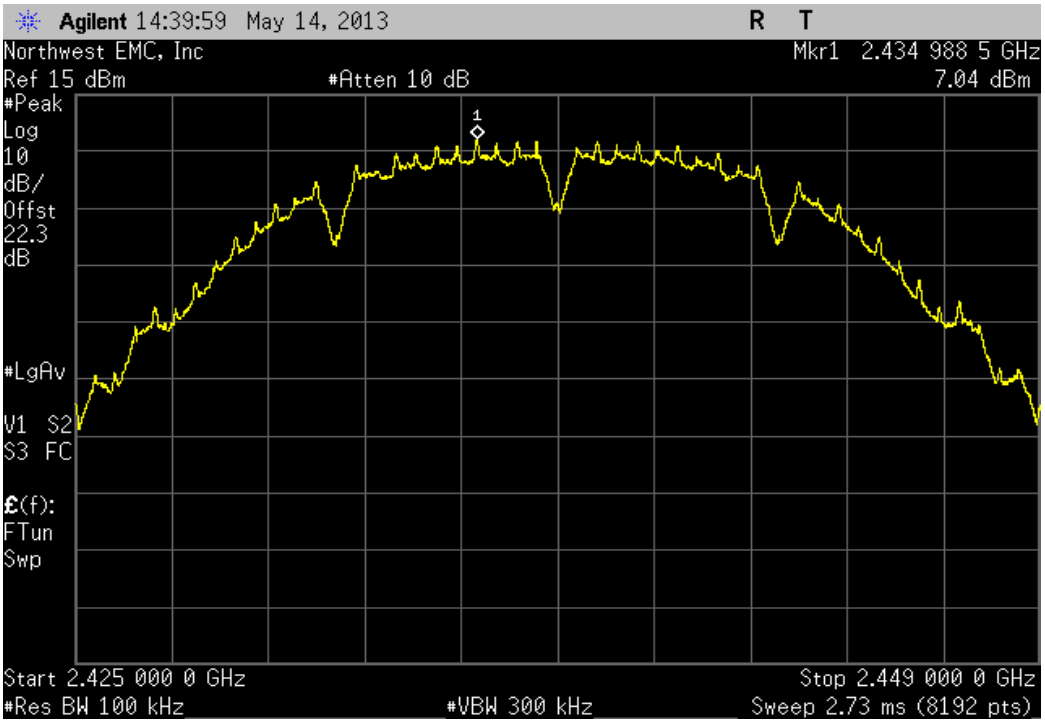
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-60.64 dBc	≤ -20 dBc	Pass



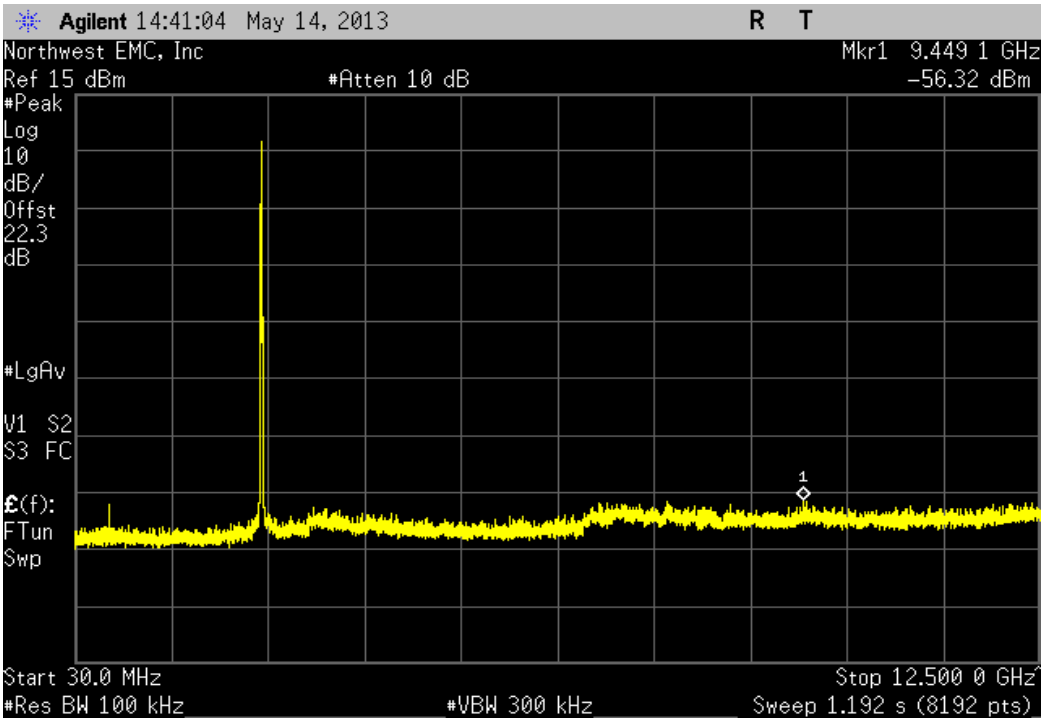
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-58.66 dBc	≤ -20 dBc	Pass



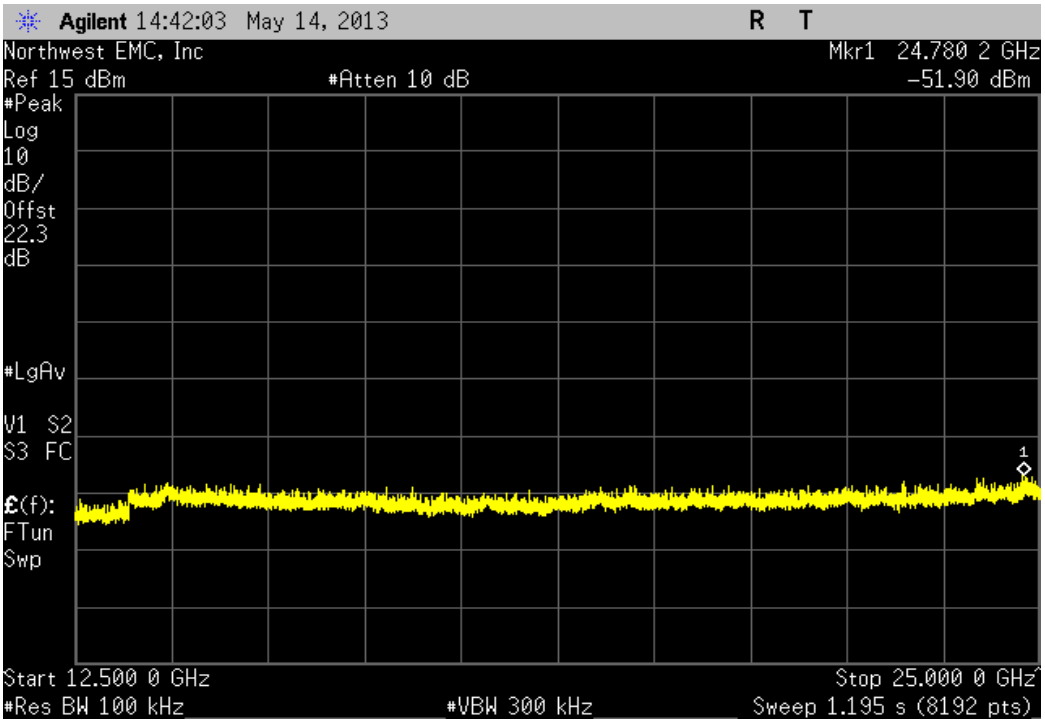
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-63.36 dBc	≤ -20 dBc	Pass

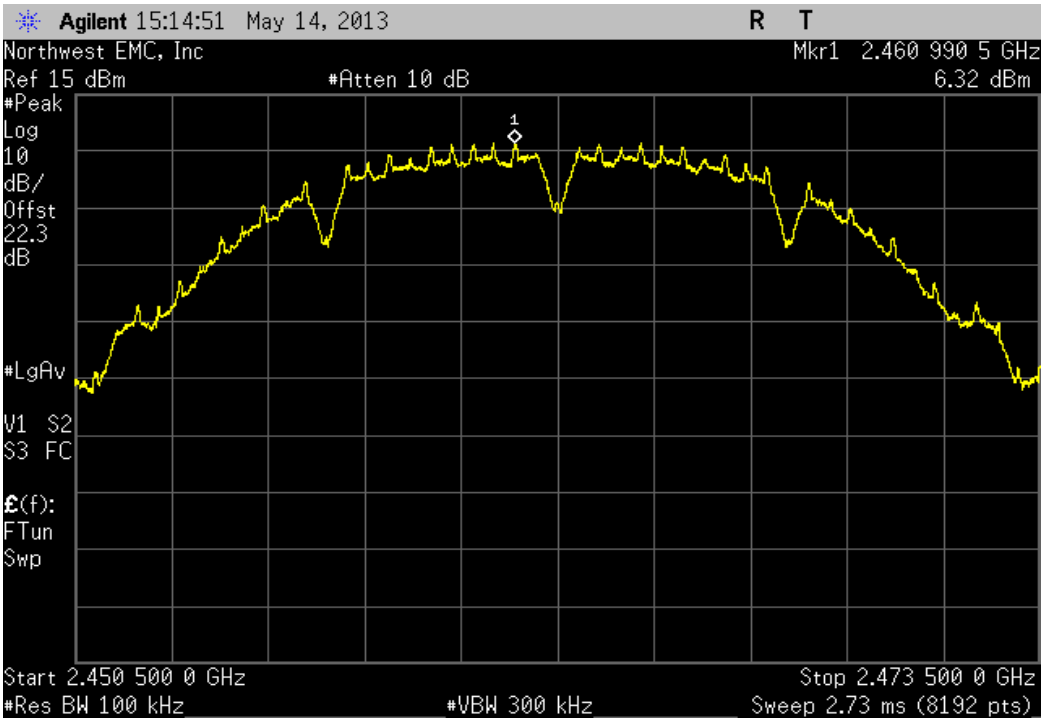


2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.94 dBc	≤ -20 dBc	Pass

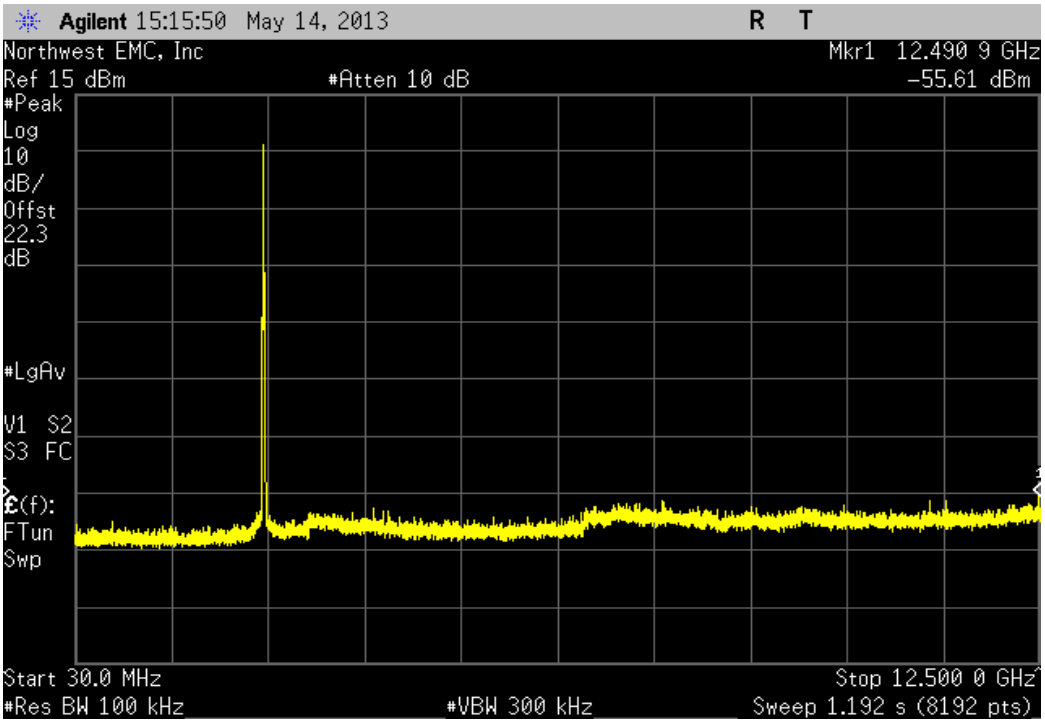


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

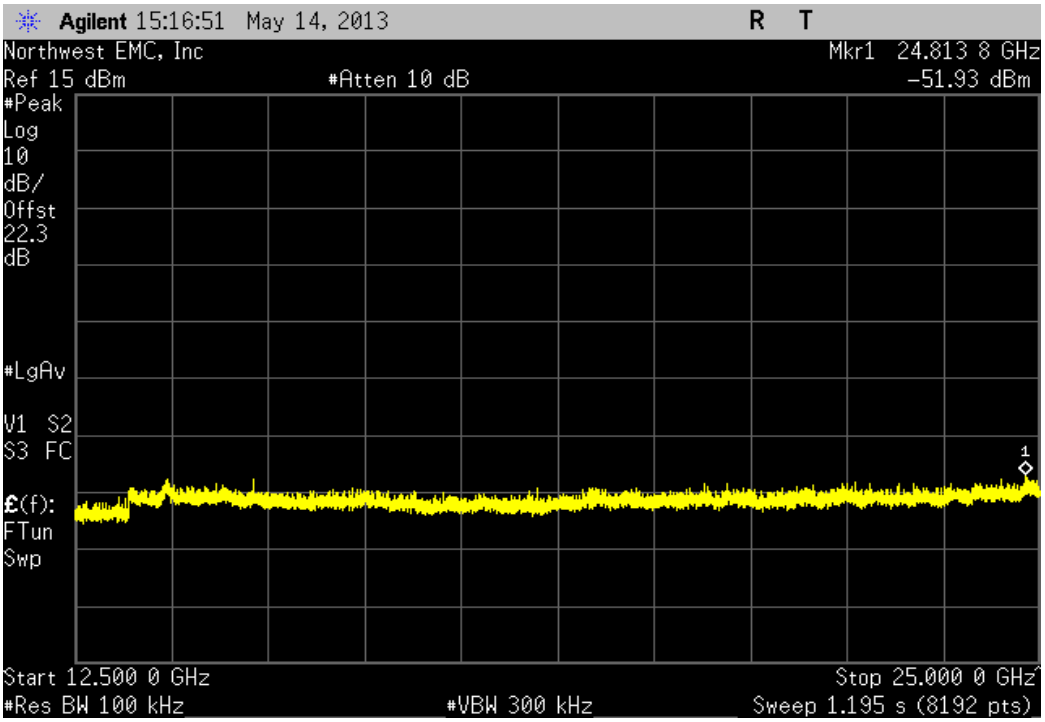


2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-61.93 dBc	≤ -20 dBc	Pass

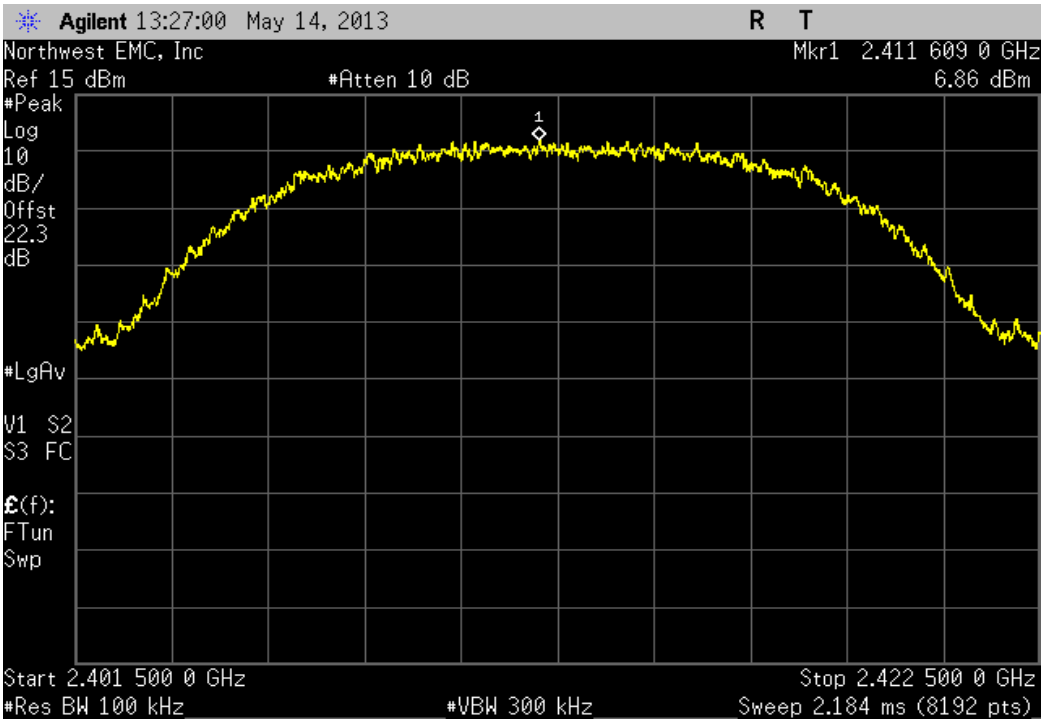


Spurious Conducted Emissions

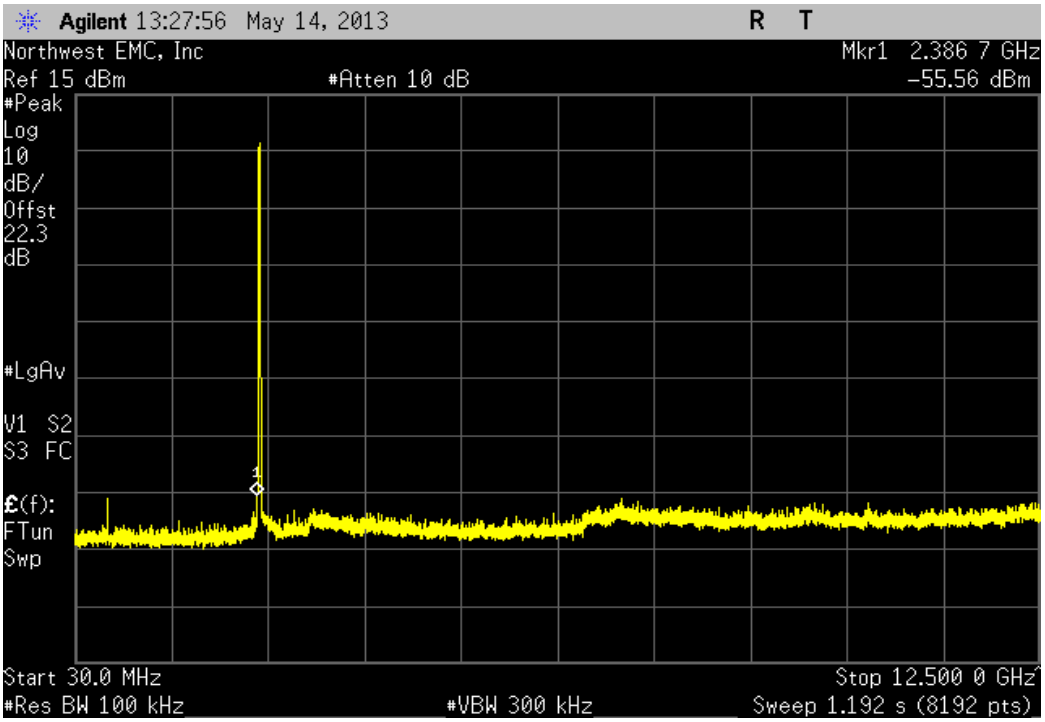
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-58.25 dBc	≤ -20 dBc	Pass



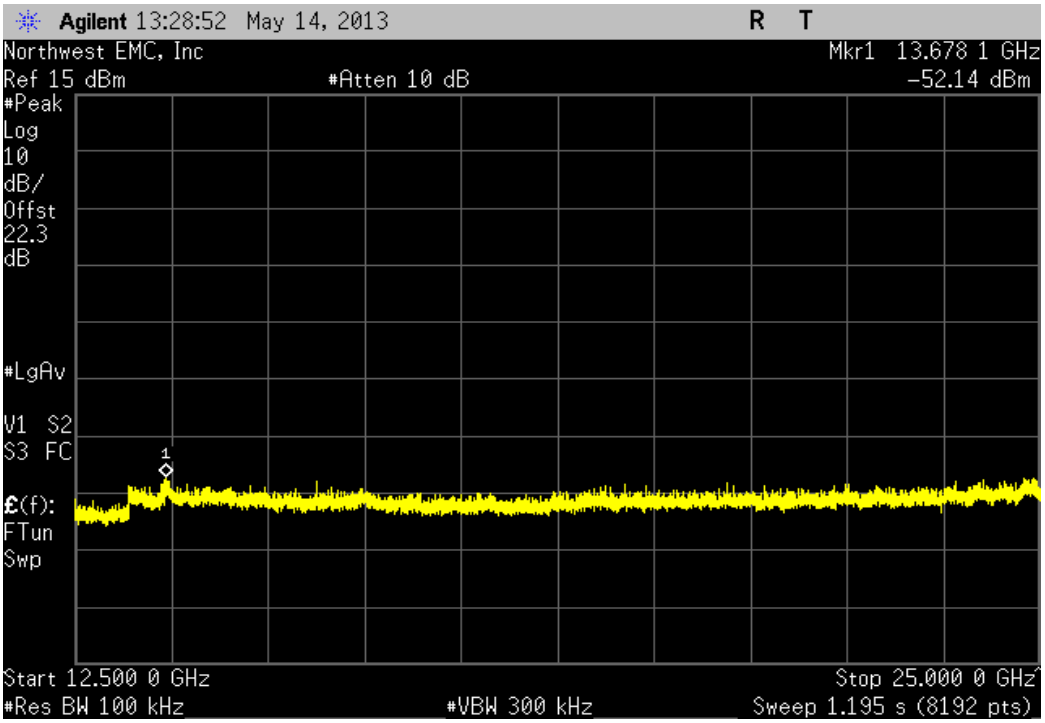
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



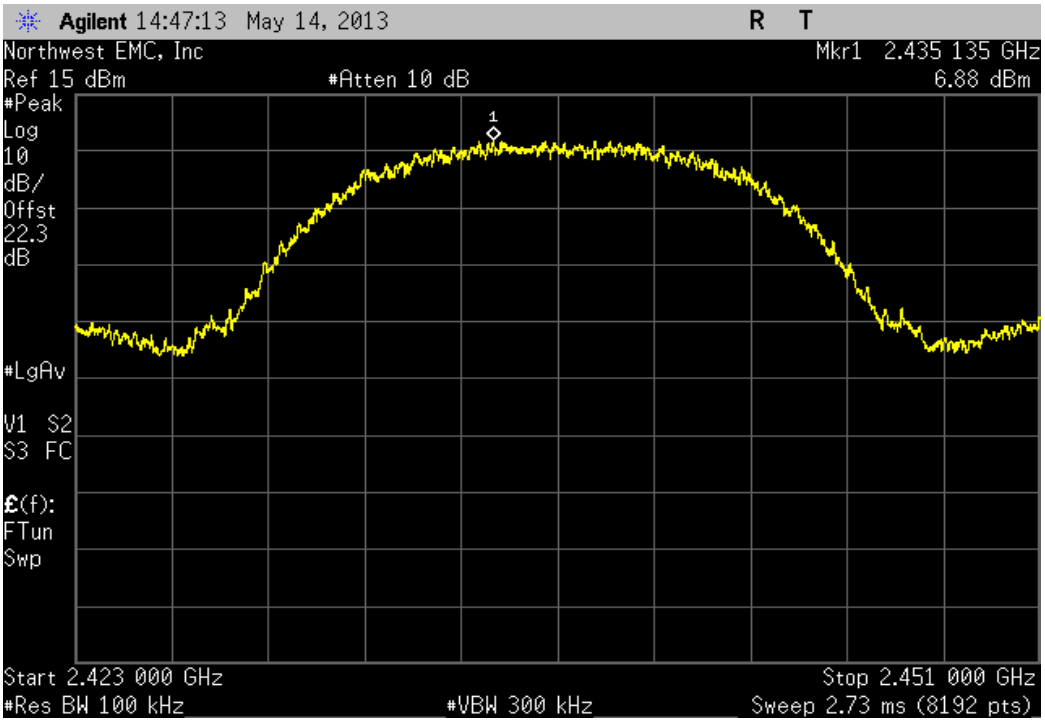
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-62.42 dBc	≤ -20 dBc	Pass



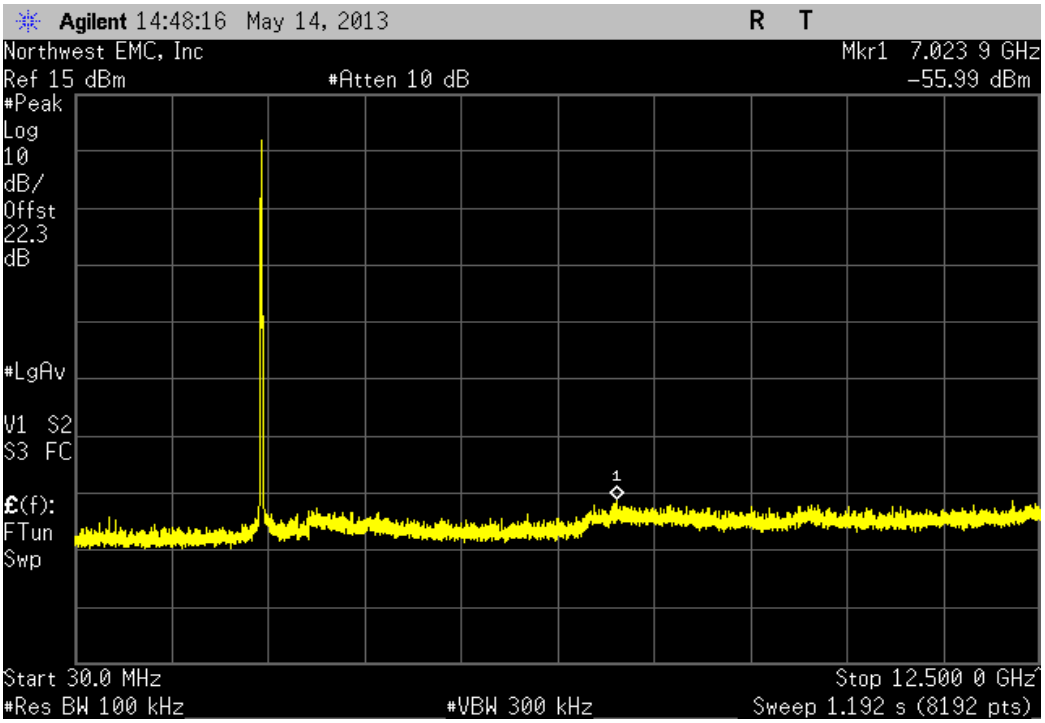
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-59 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A

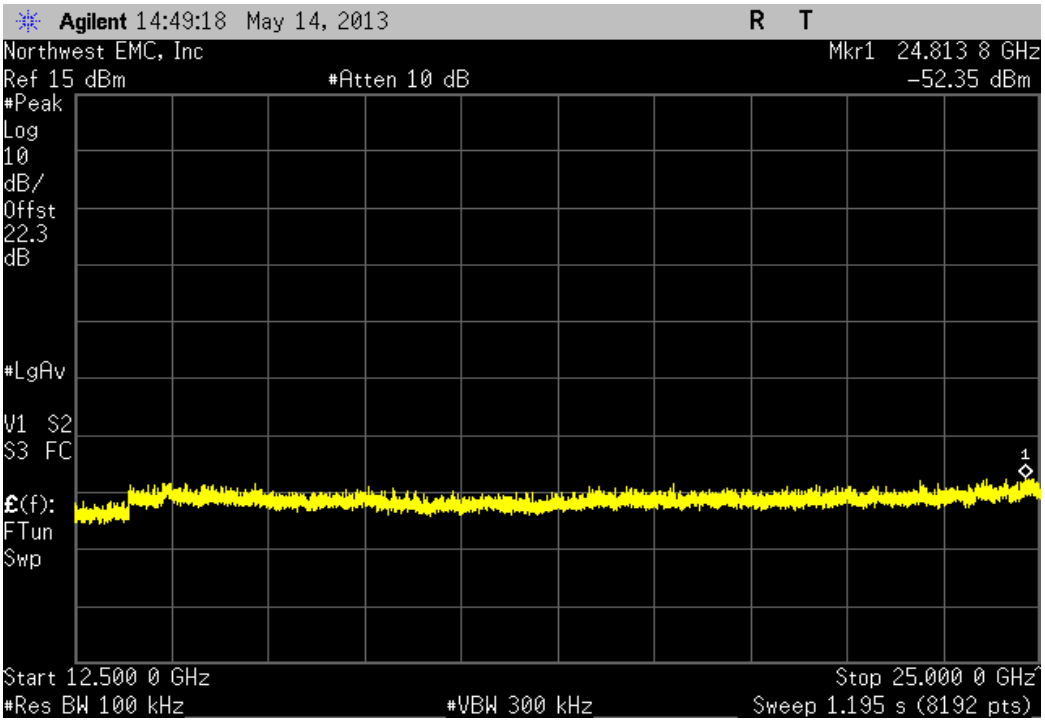


2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-62.87 dBc	≤ -20 dBc	Pass

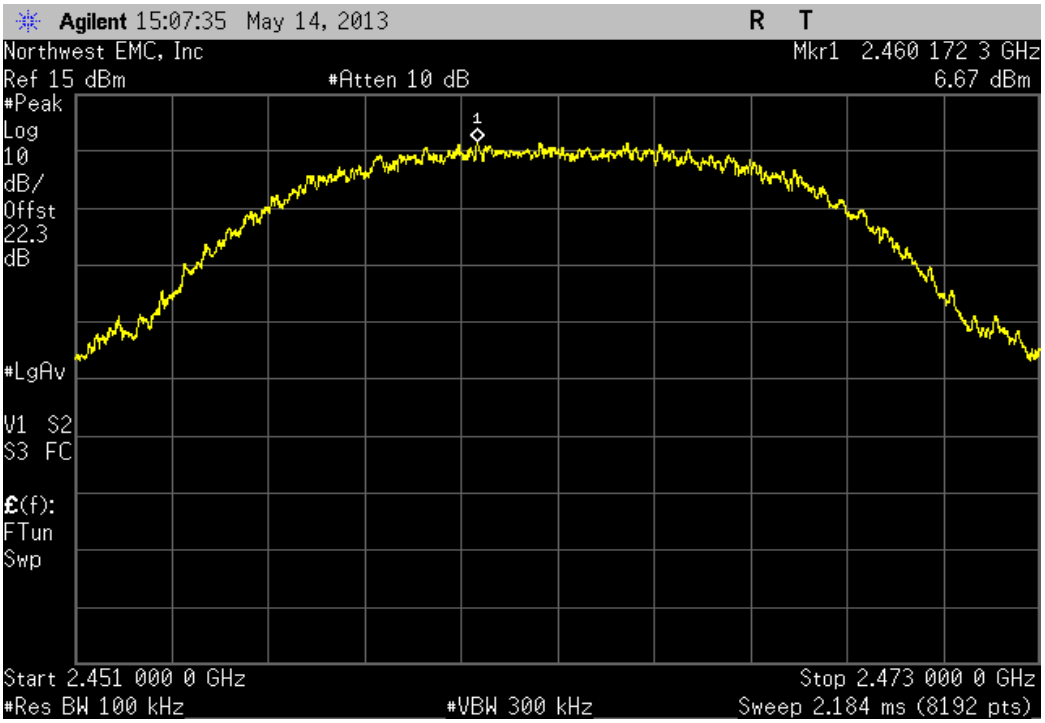


Spurious Conducted Emissions

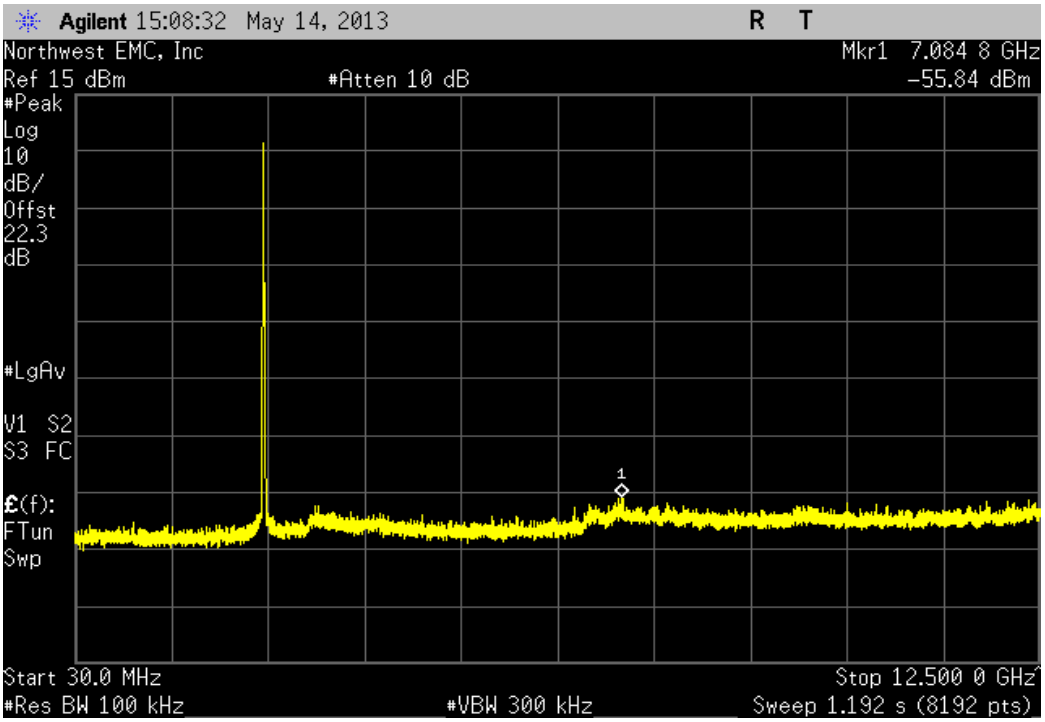
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-59.24 dBc	≤ -20 dBc	Pass



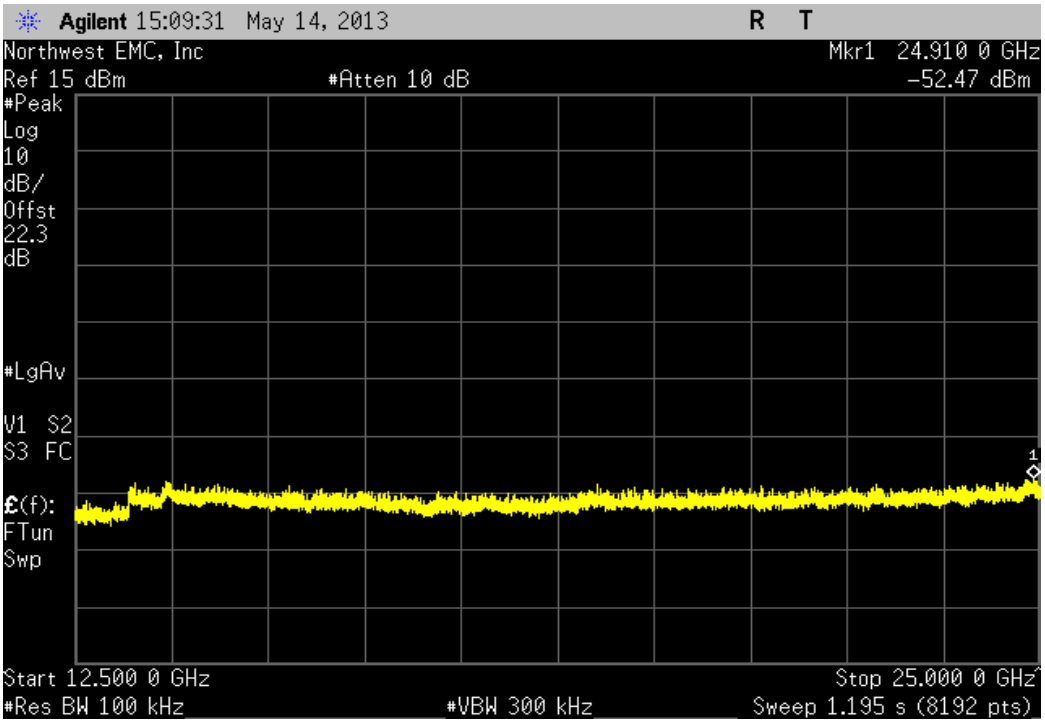
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



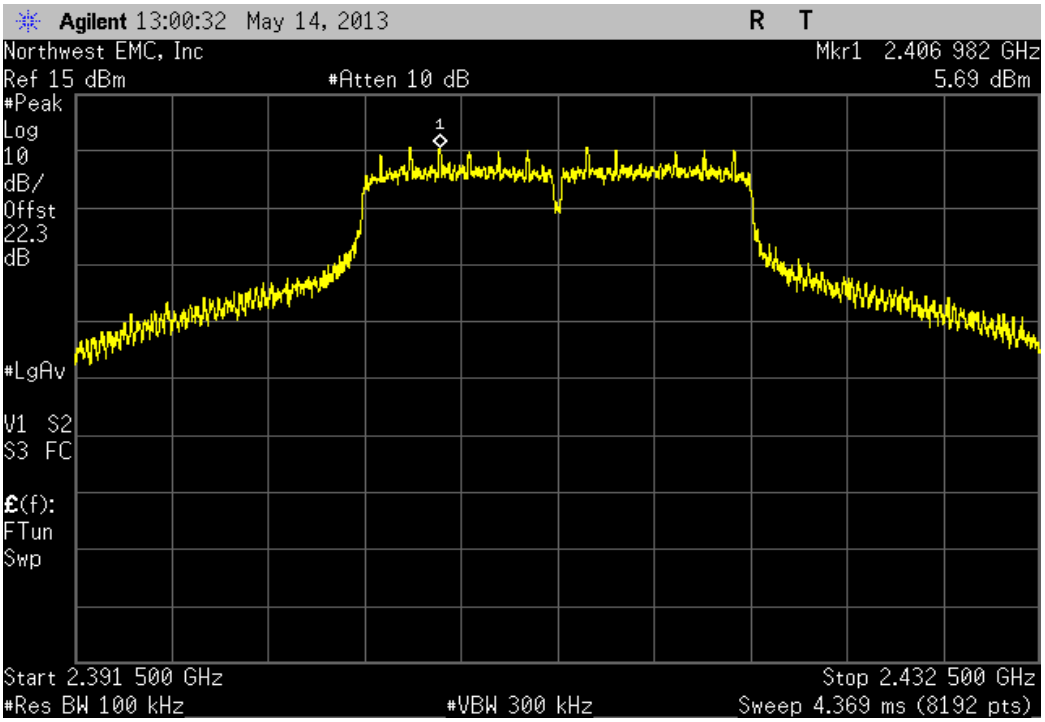
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-62.51 dBc	≤ -20 dBc	Pass



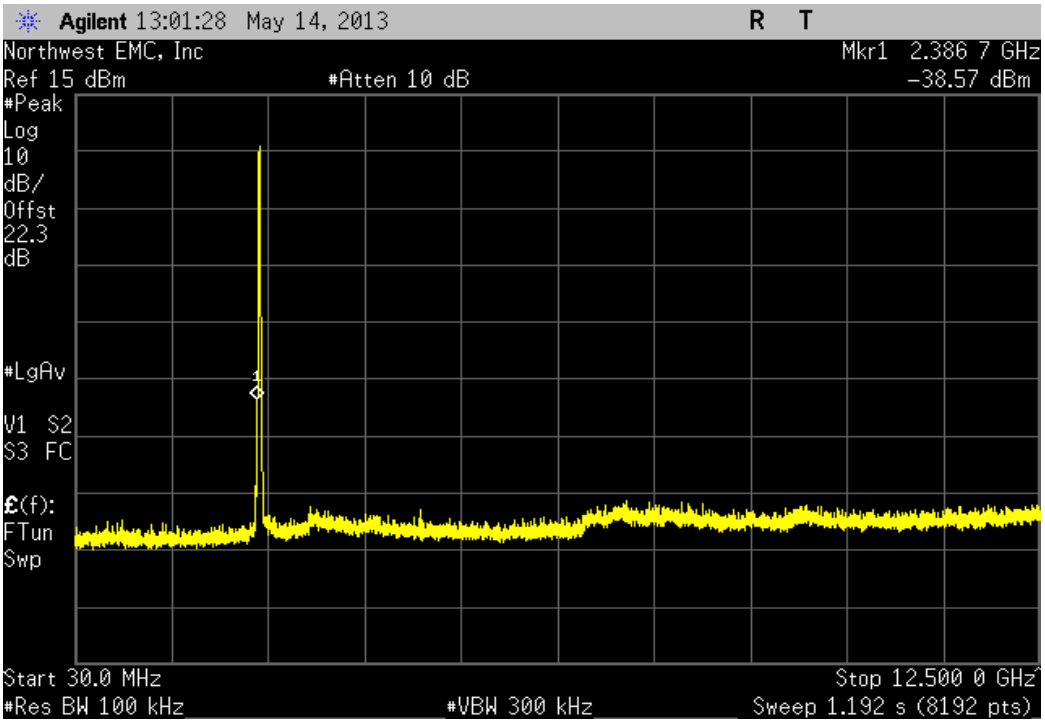
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-59.14 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A

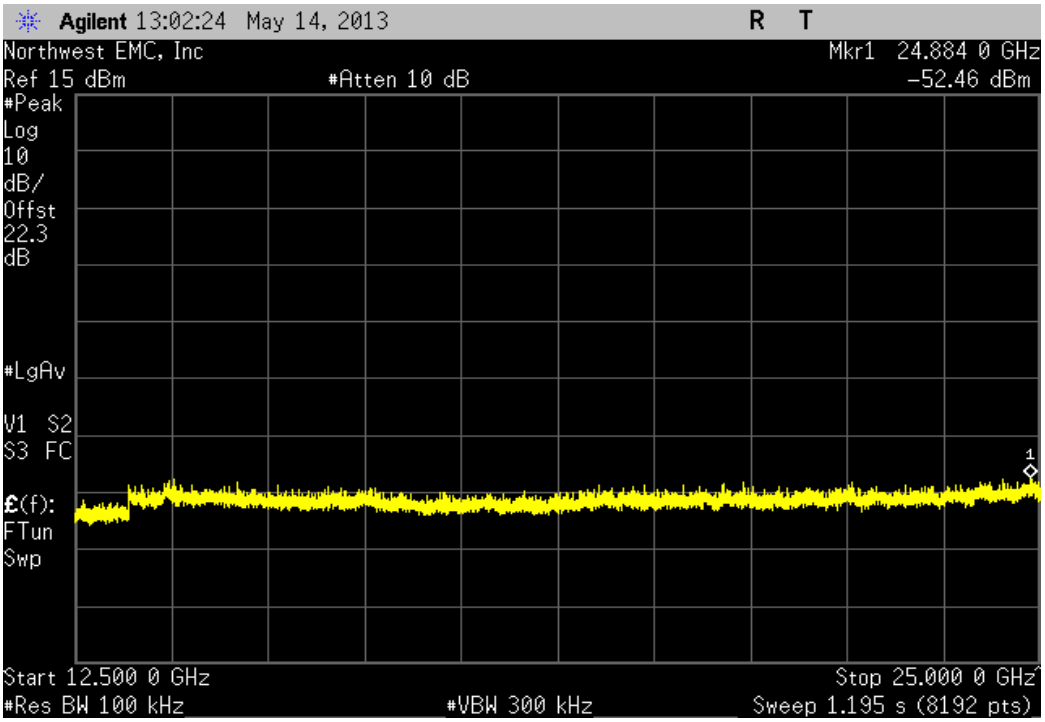


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		Value	Limit	Result	
30 MHz - 12.5 GHz		-44.26 dBc	≤ -20 dBc	Pass	

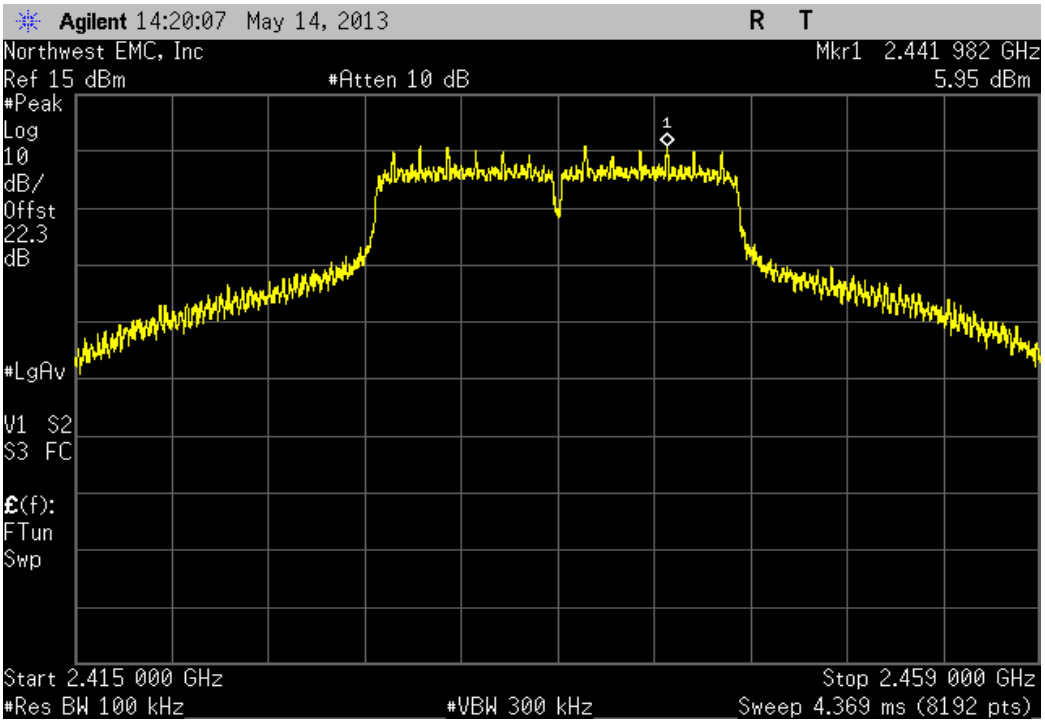


Spurious Conducted Emissions

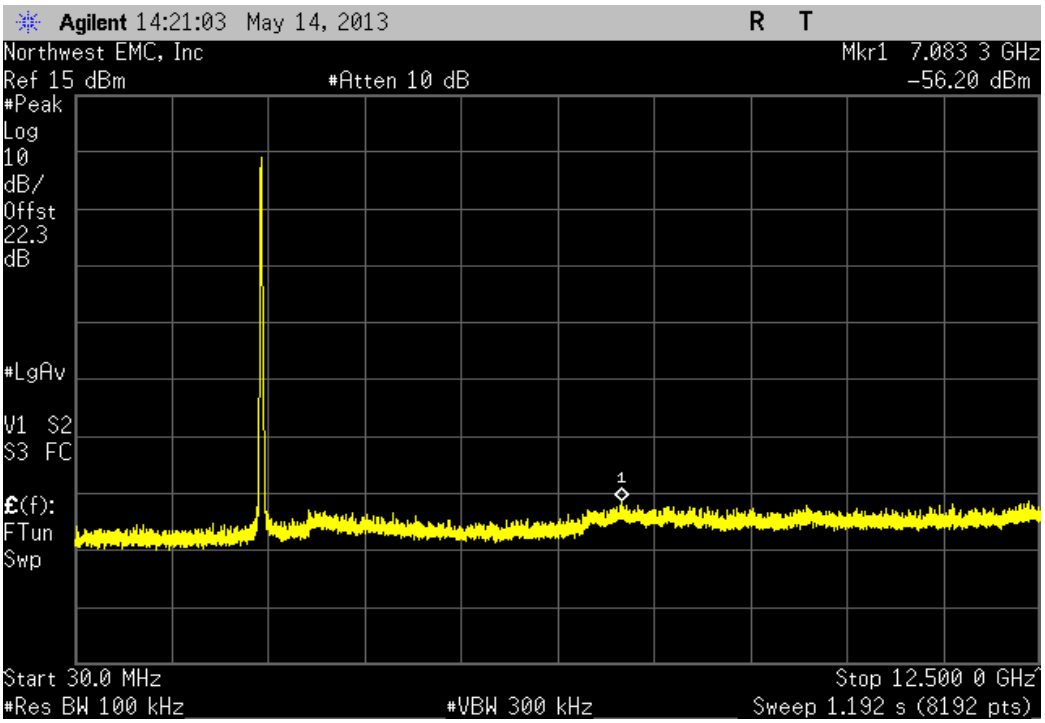
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.15 dBc	≤ -20 dBc	Pass



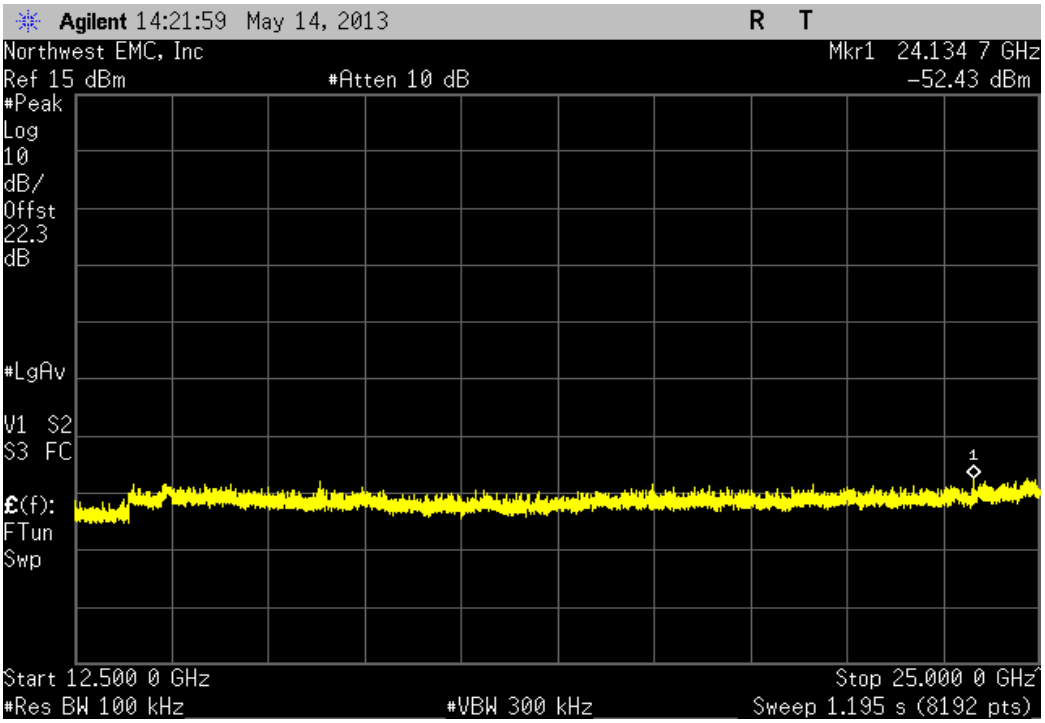
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-62.15 dBc	≤ -20 dBc	Pass

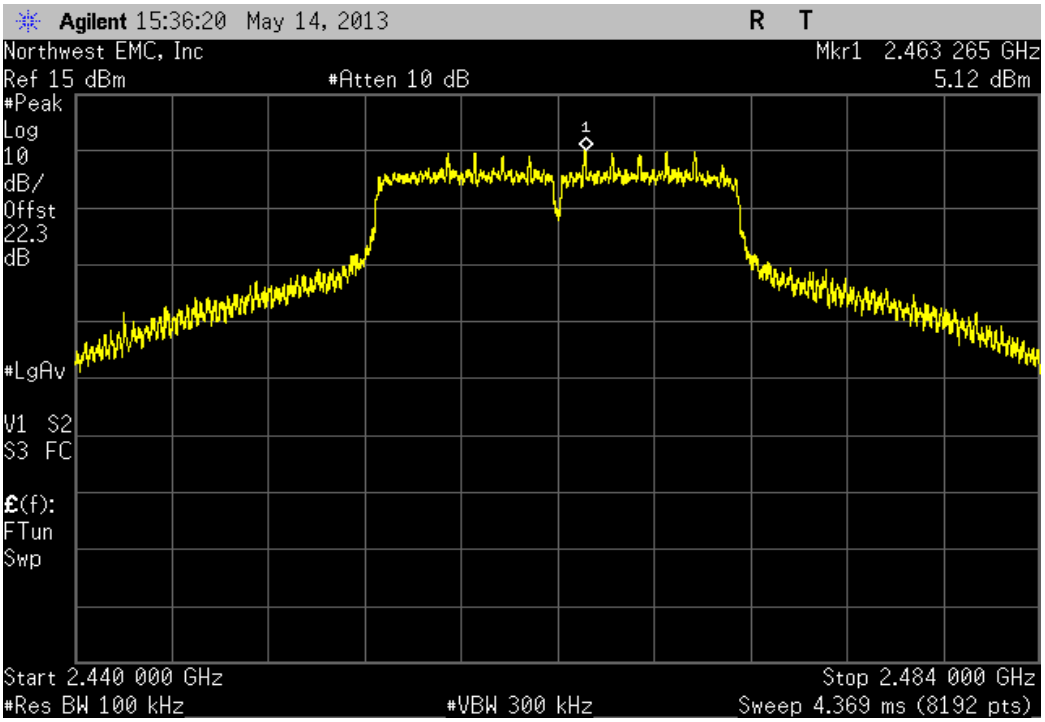


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.38 dBc	≤ -20 dBc	Pass

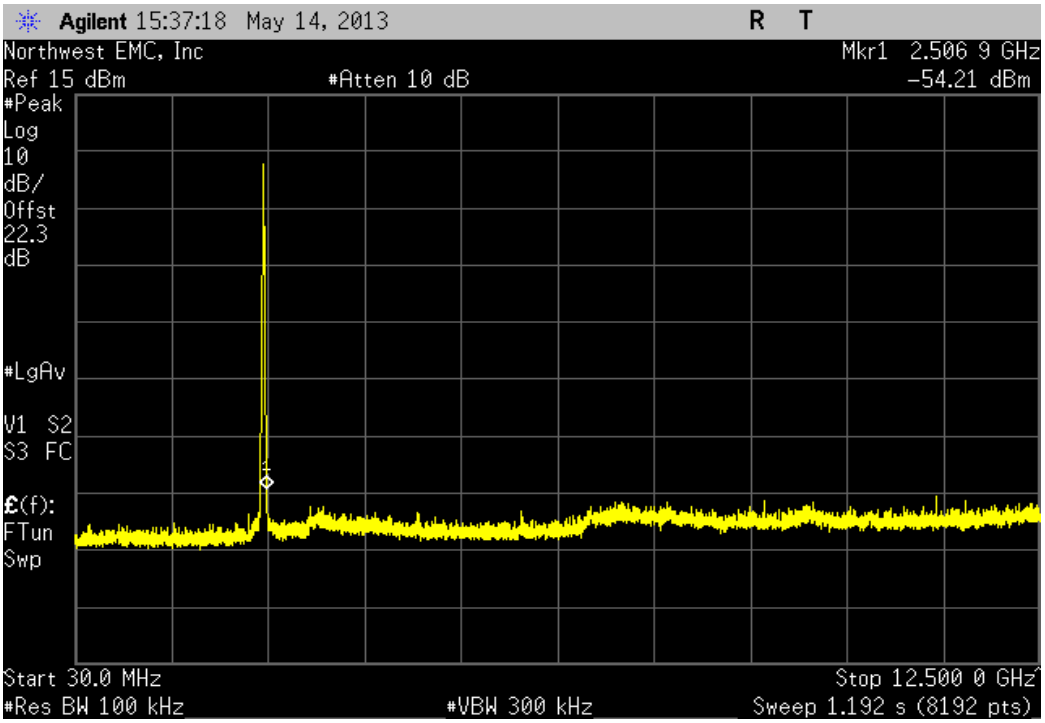


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

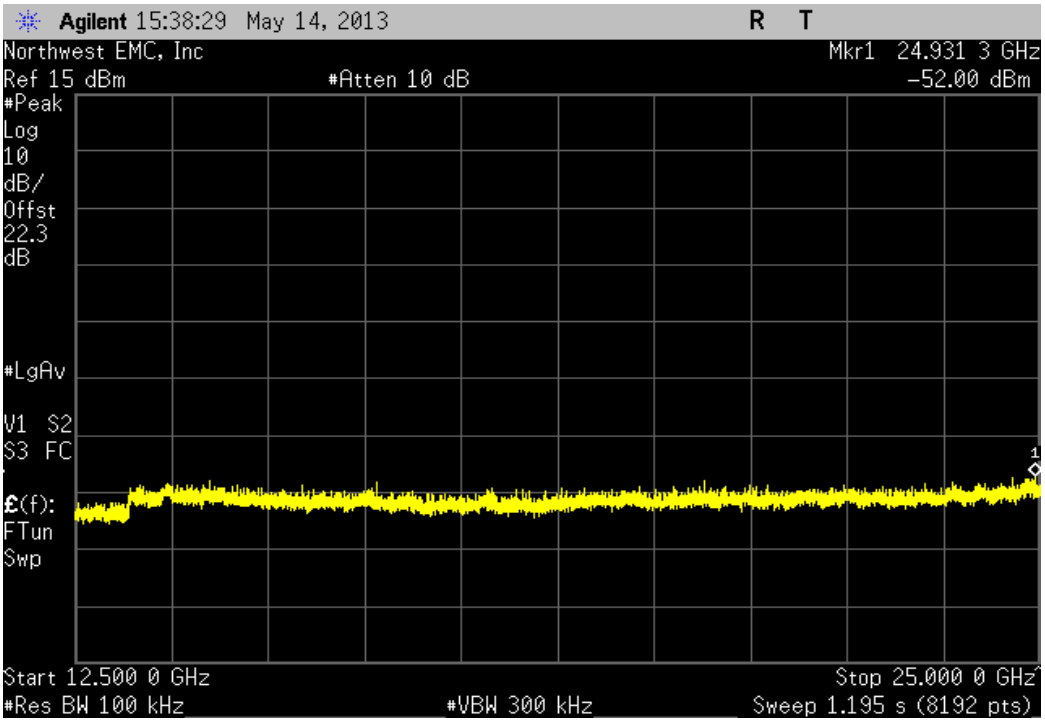


2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-59.33 dBc	≤ -20 dBc	Pass

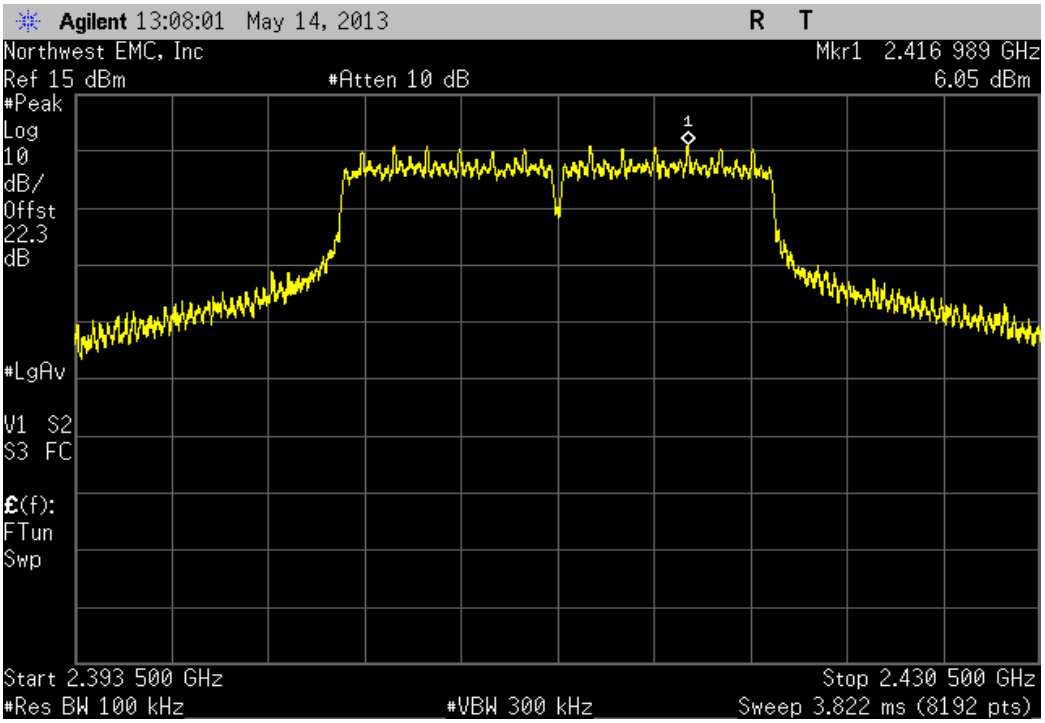


Spurious Conducted Emissions

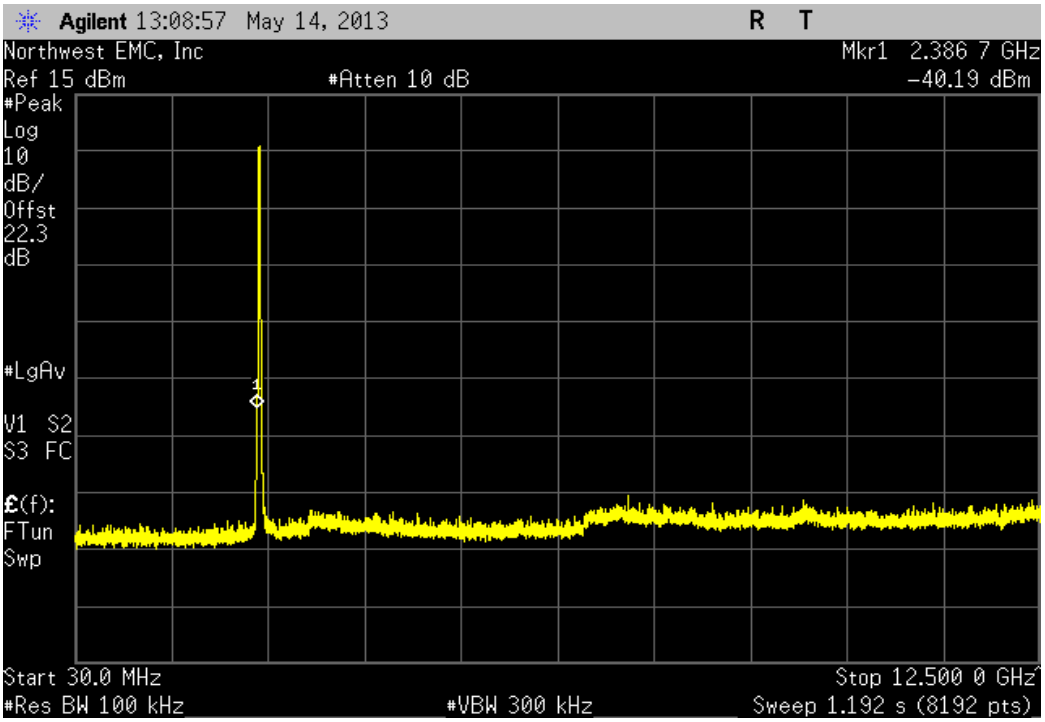
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.12 dBc	≤ -20 dBc	Pass



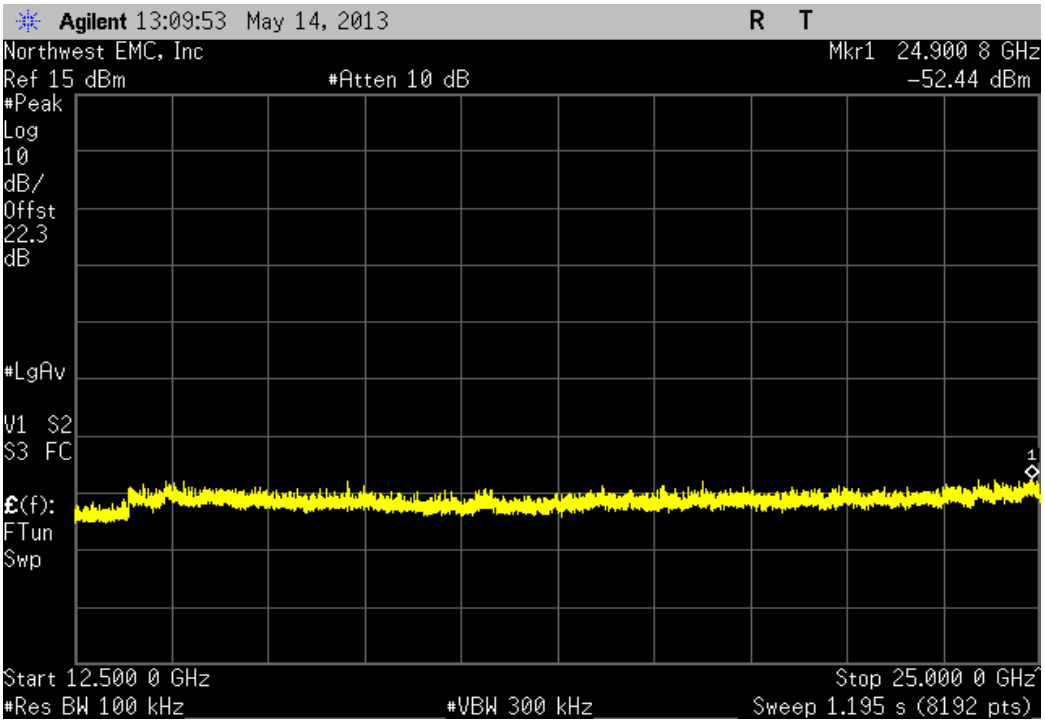
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-46.24 dBc	≤ -20 dBc	Pass

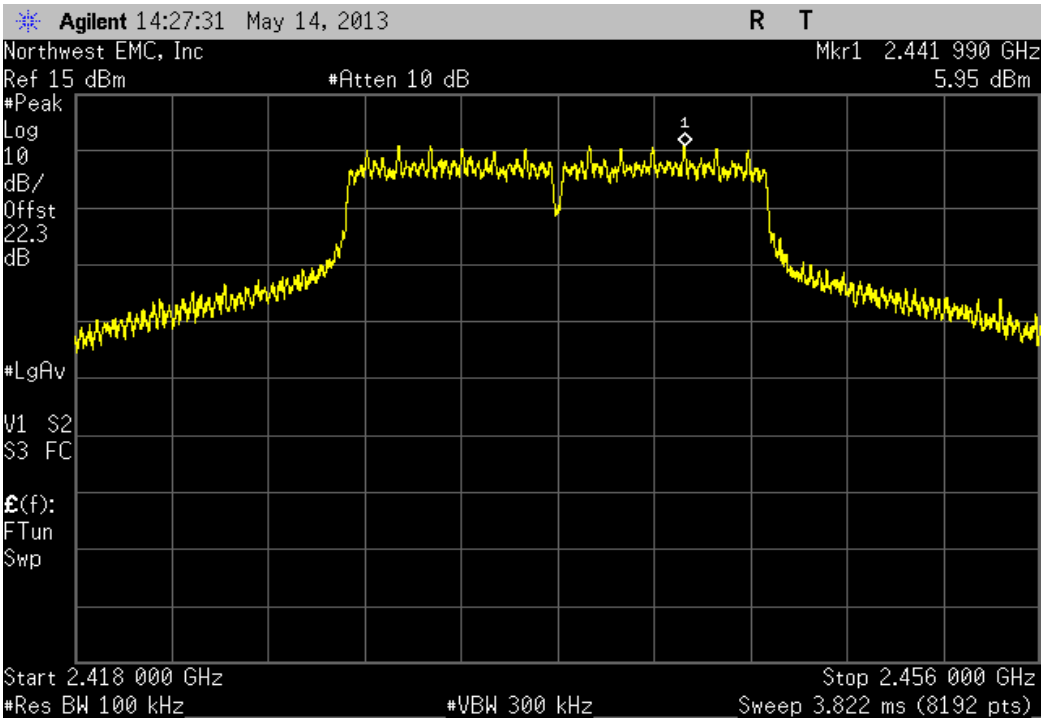


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.49 dBc	≤ -20 dBc	Pass

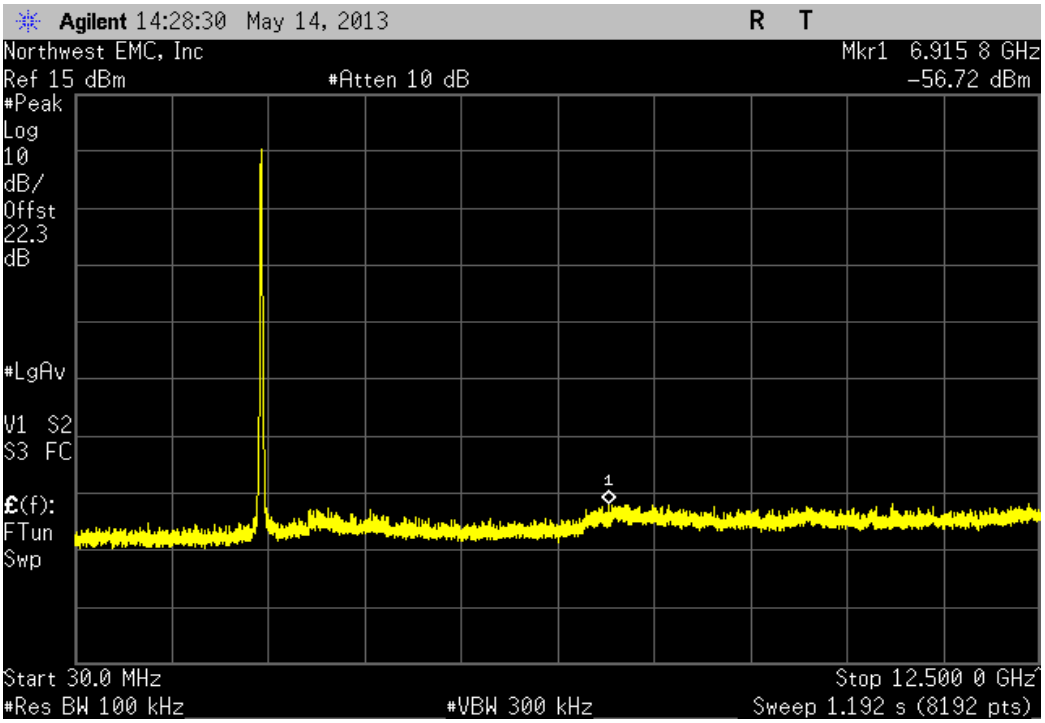


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A

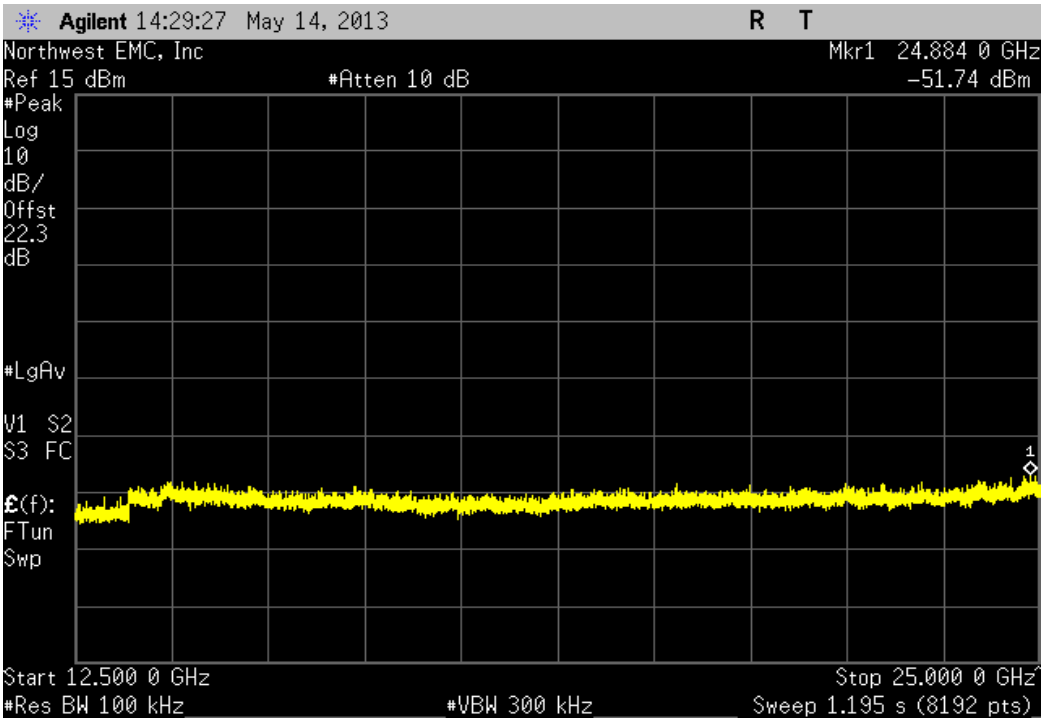


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-62.68 dBc	≤ -20 dBc	Pass

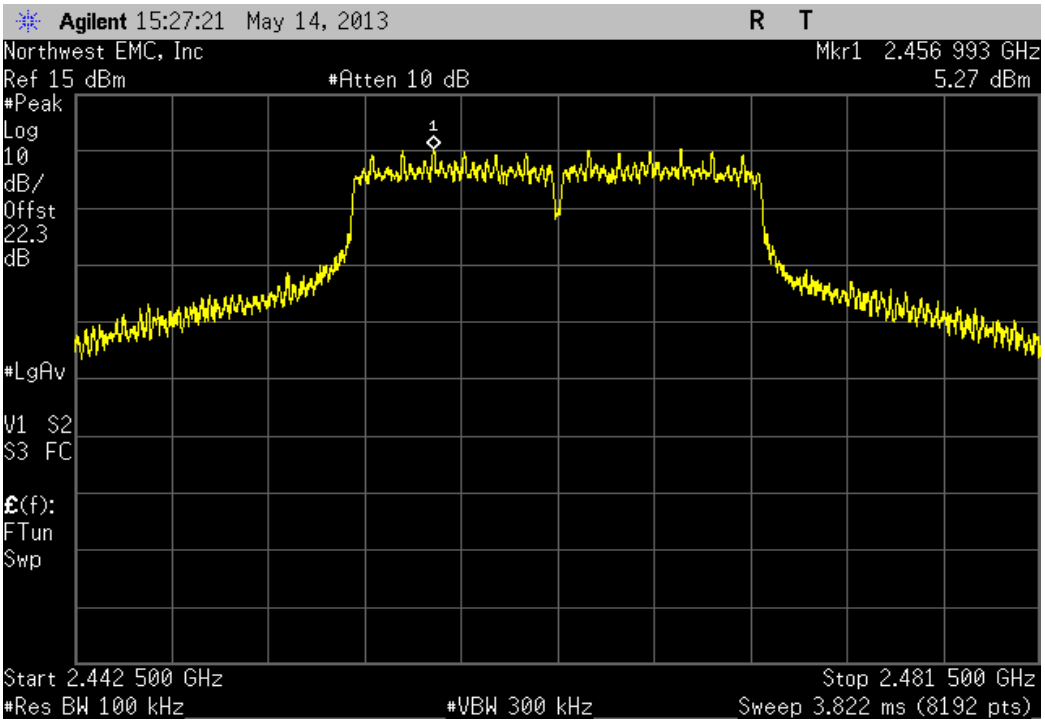


Spurious Conducted Emissions

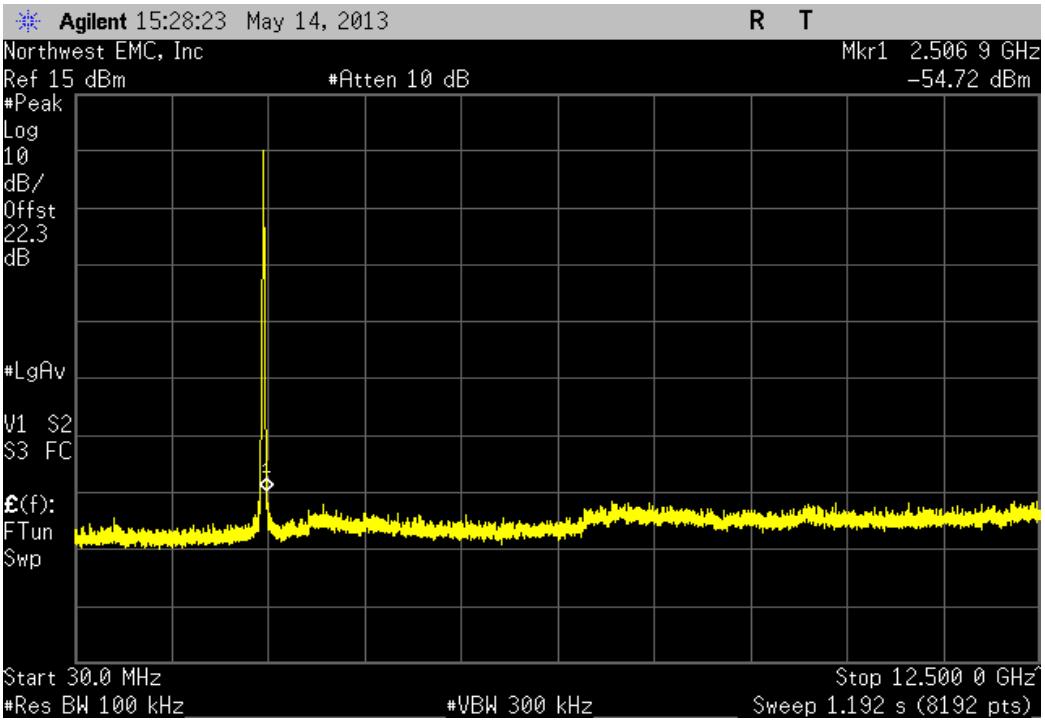
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.69 dBc	≤ -20 dBc	Pass



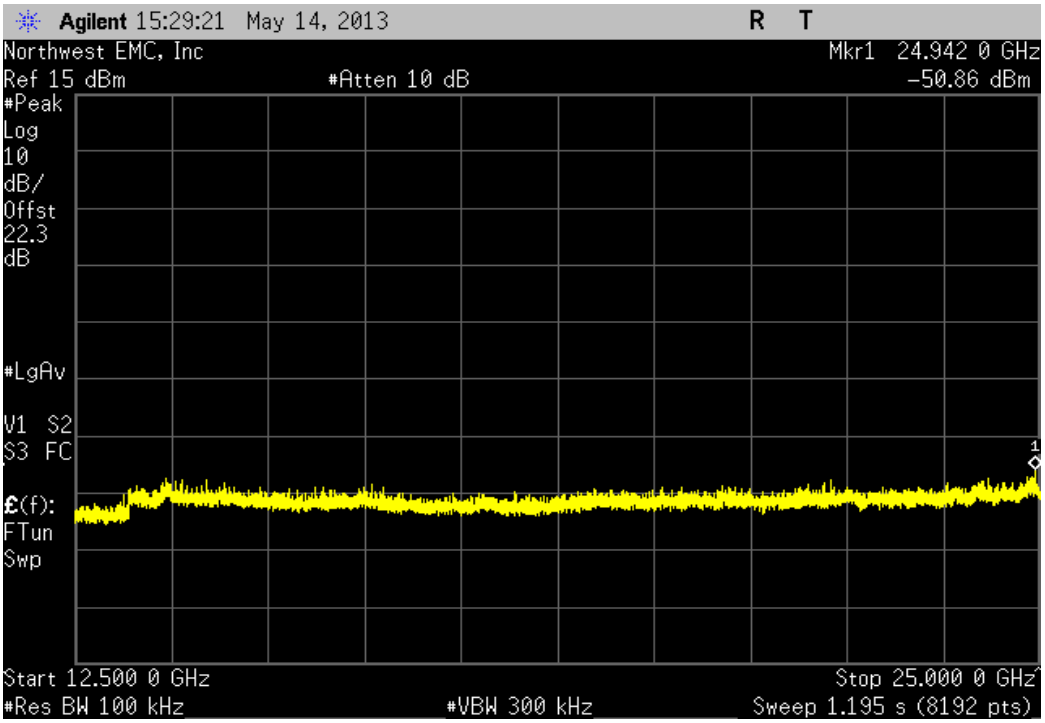
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-59.99 dBc	≤ -20 dBc	Pass

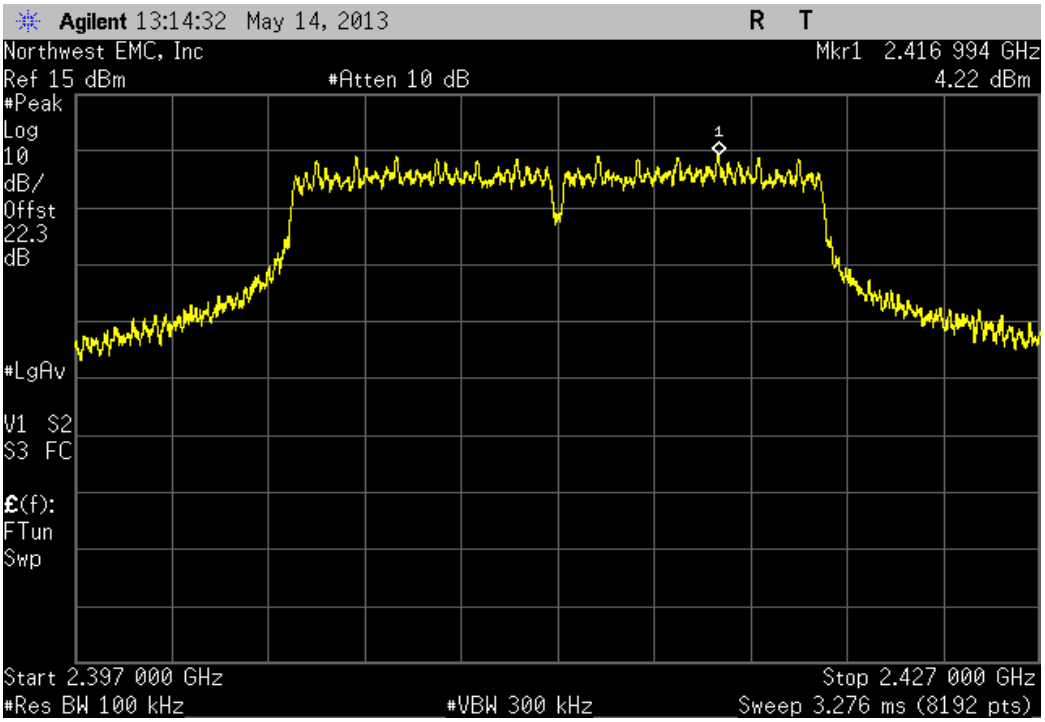


2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-56.13 dBc	≤ -20 dBc	Pass

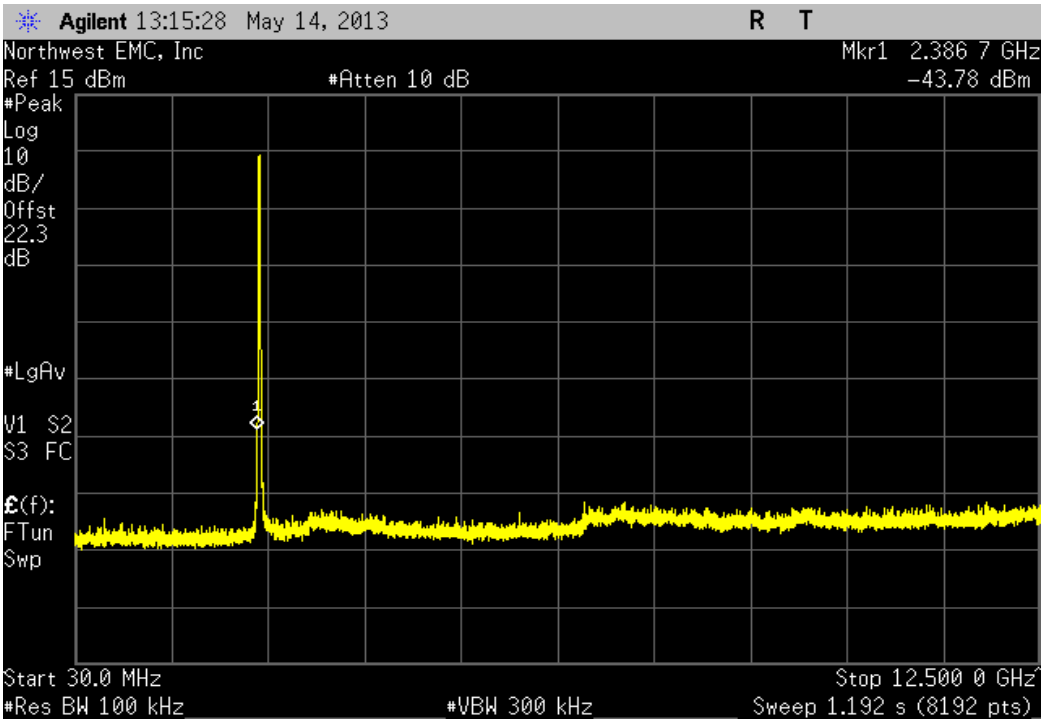


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A

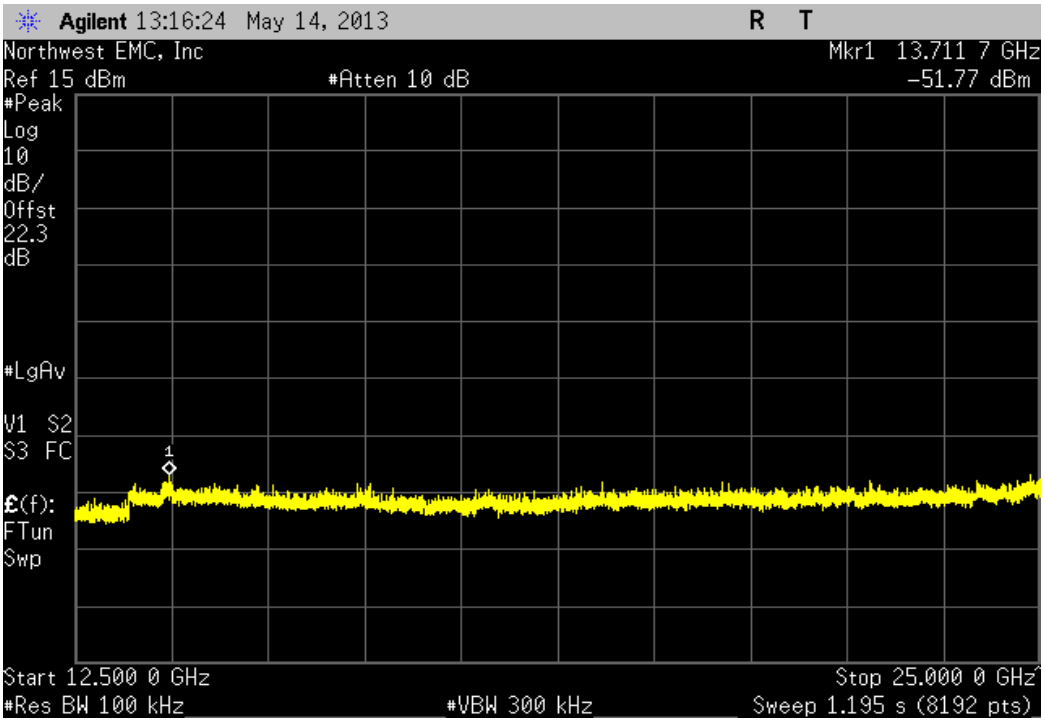


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-48 dBc	≤ -20 dBc	Pass

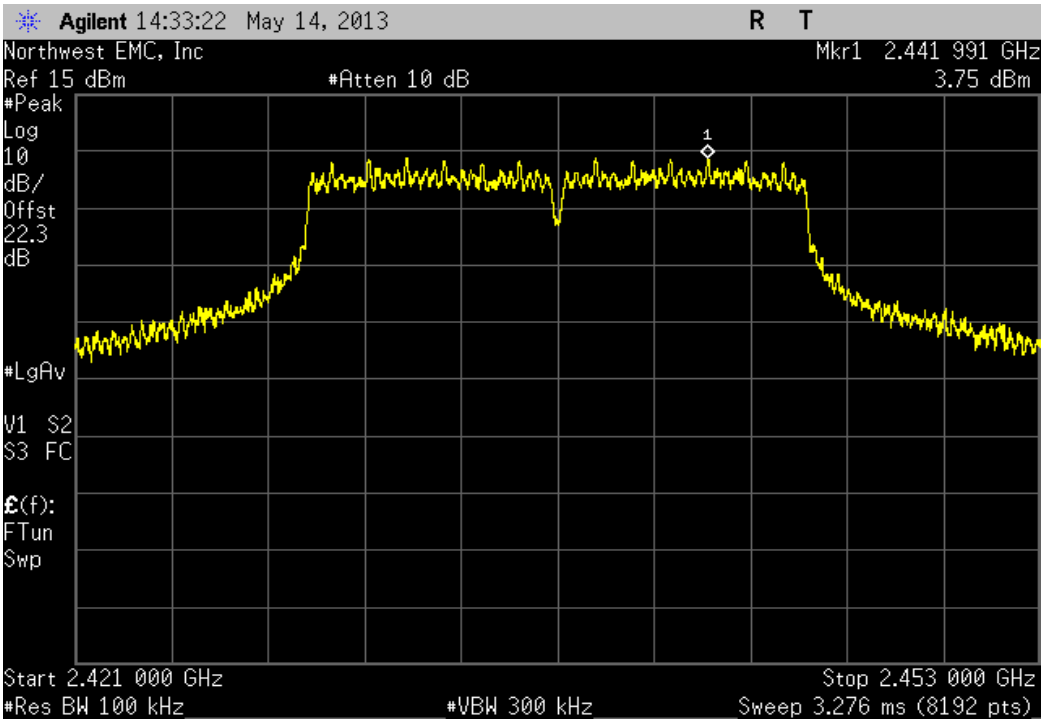


Spurious Conducted Emissions

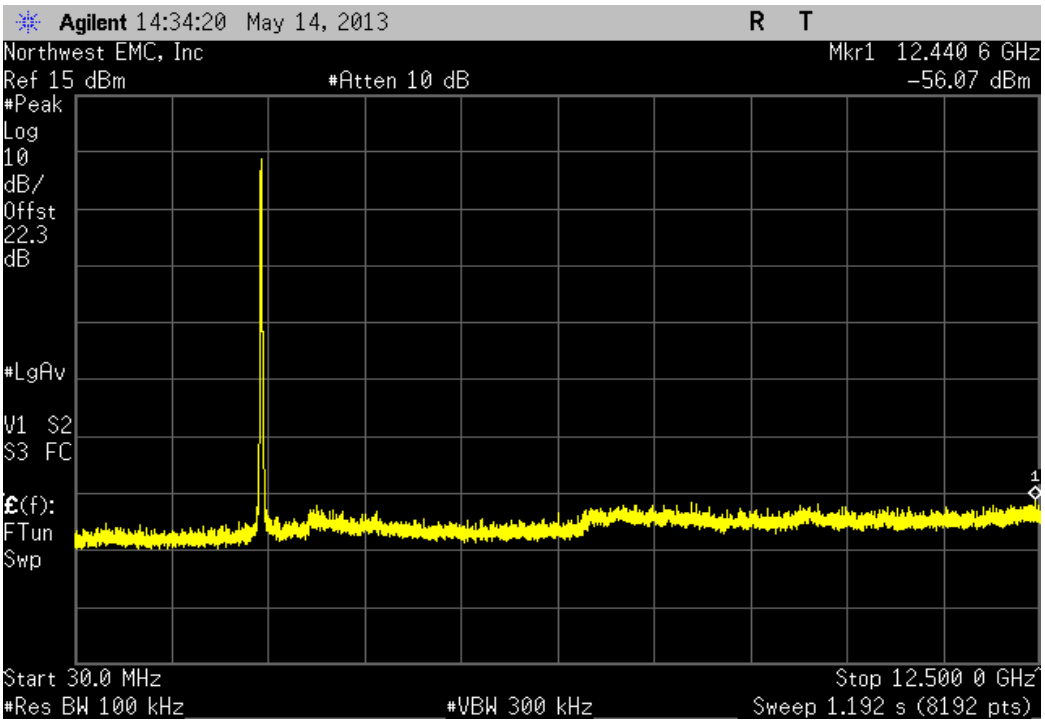
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-55.99 dBc	≤ -20 dBc	Pass



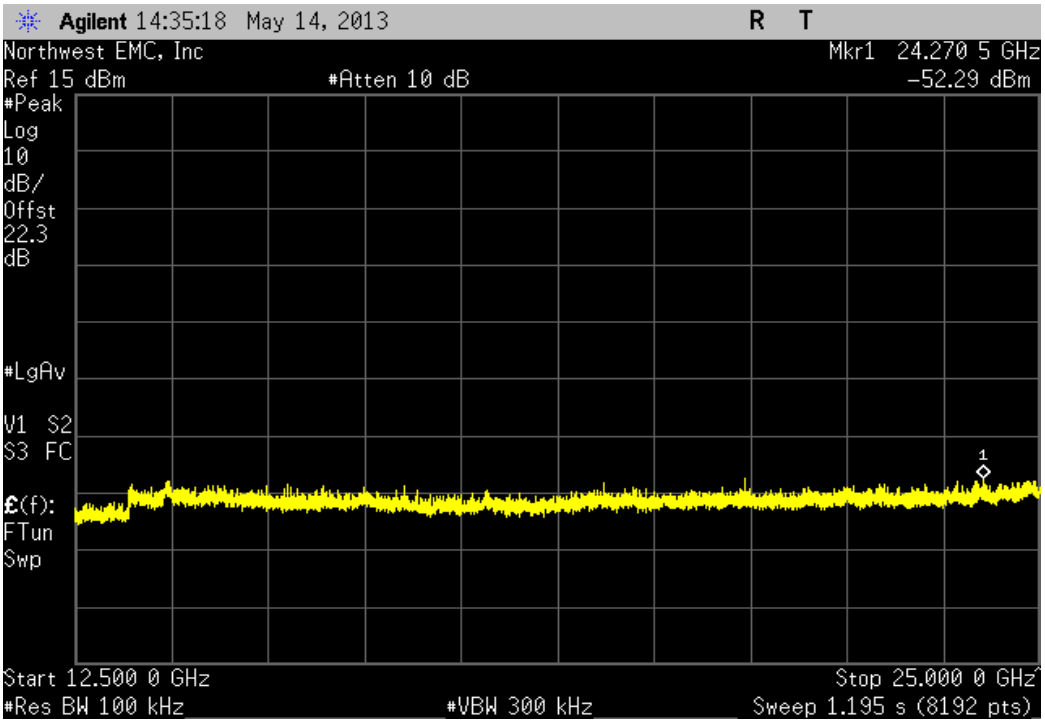
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-59.82 dBc	≤ -20 dBc	Pass

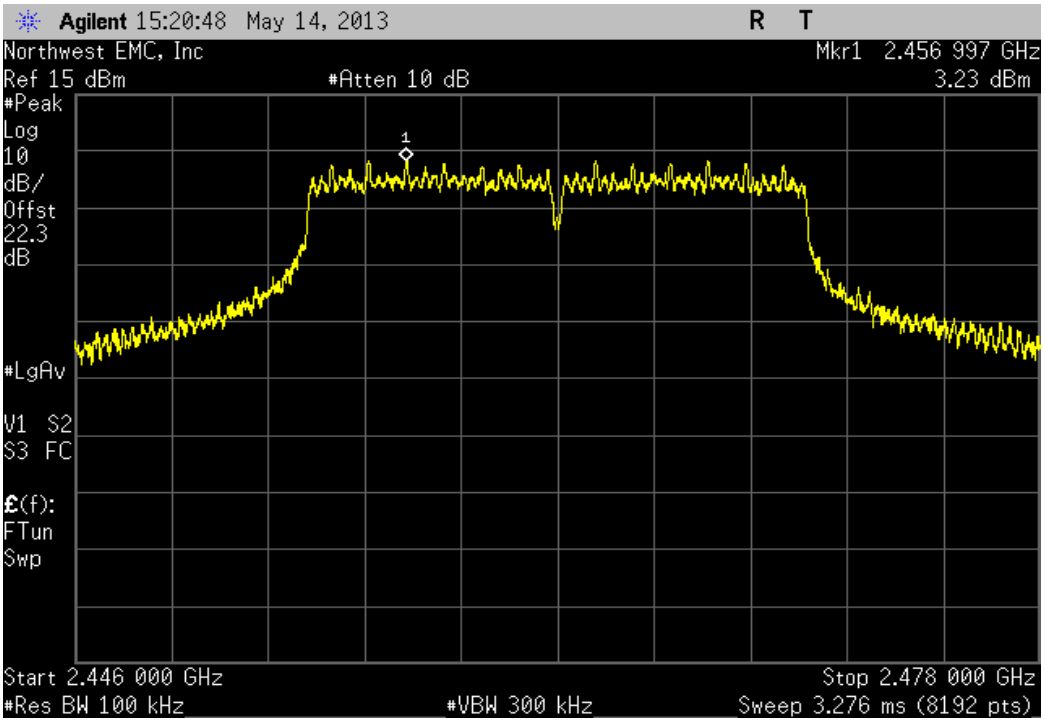


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-56.04 dBc	≤ -20 dBc	Pass

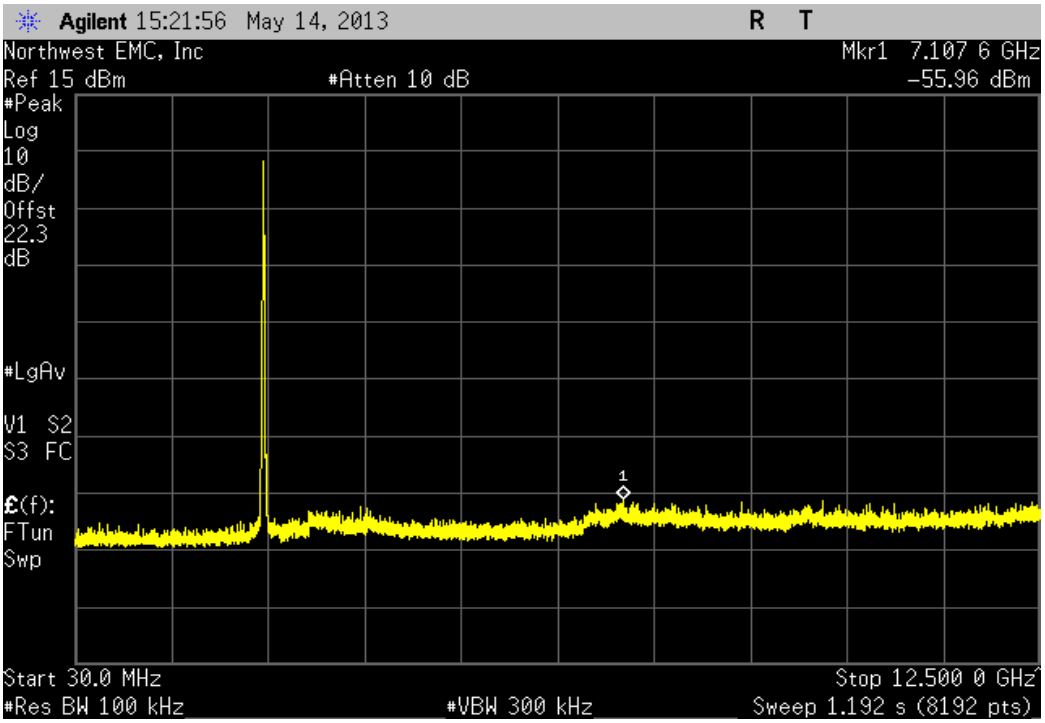


Spurious Conducted Emissions

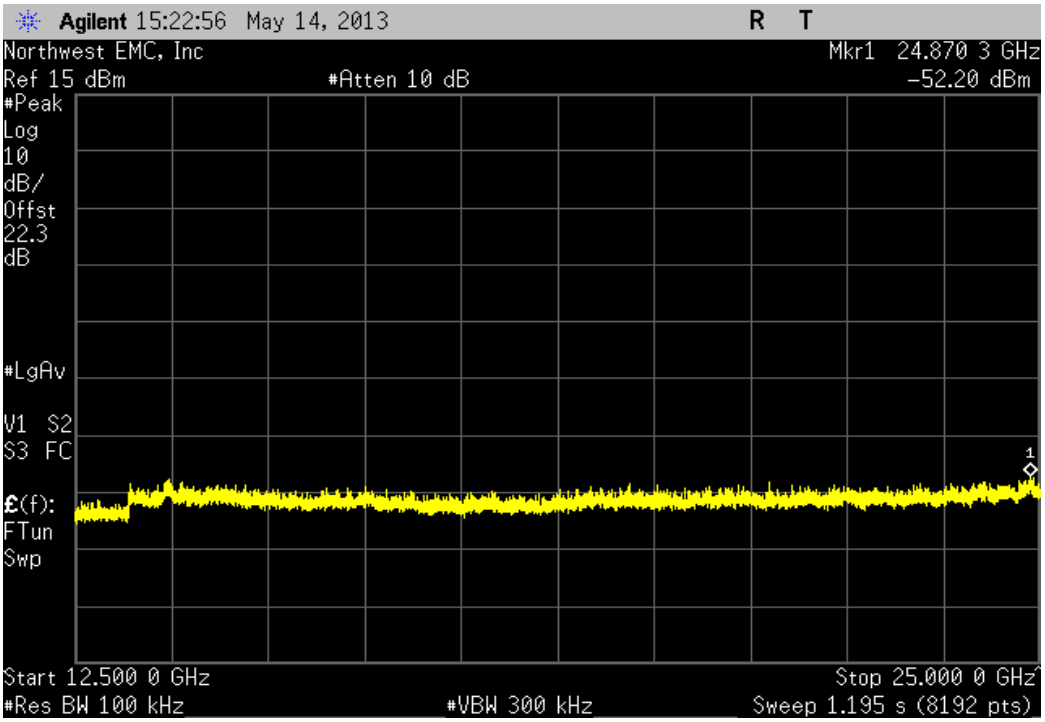
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



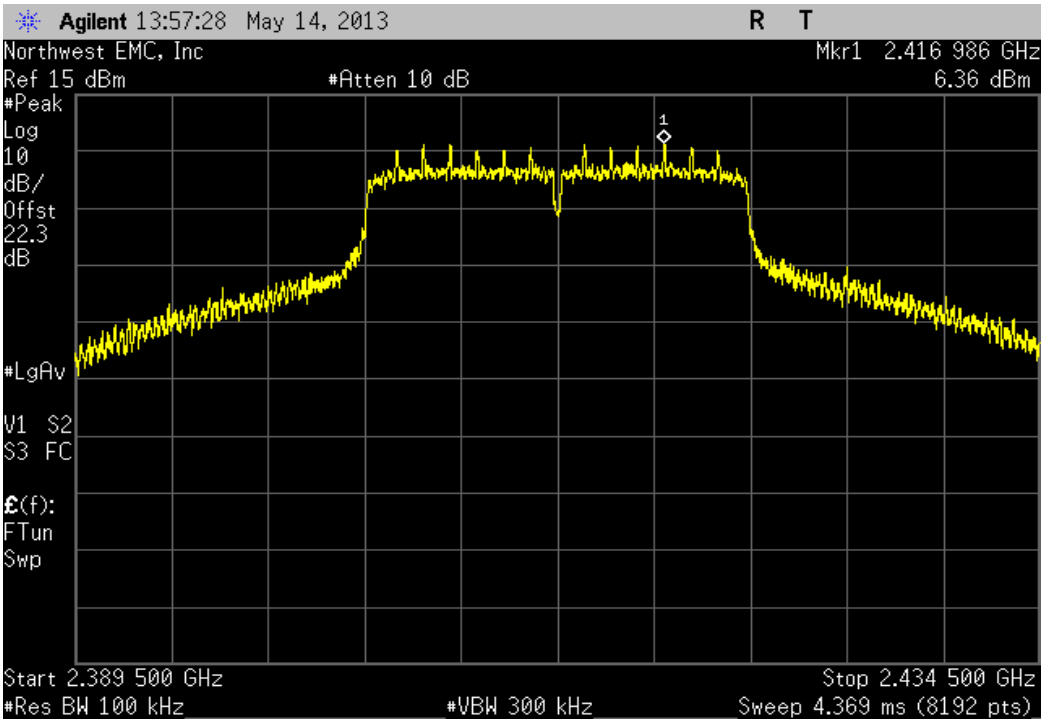
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz					
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-59.19 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-55.43 dBc	≤ -20 dBc	Pass

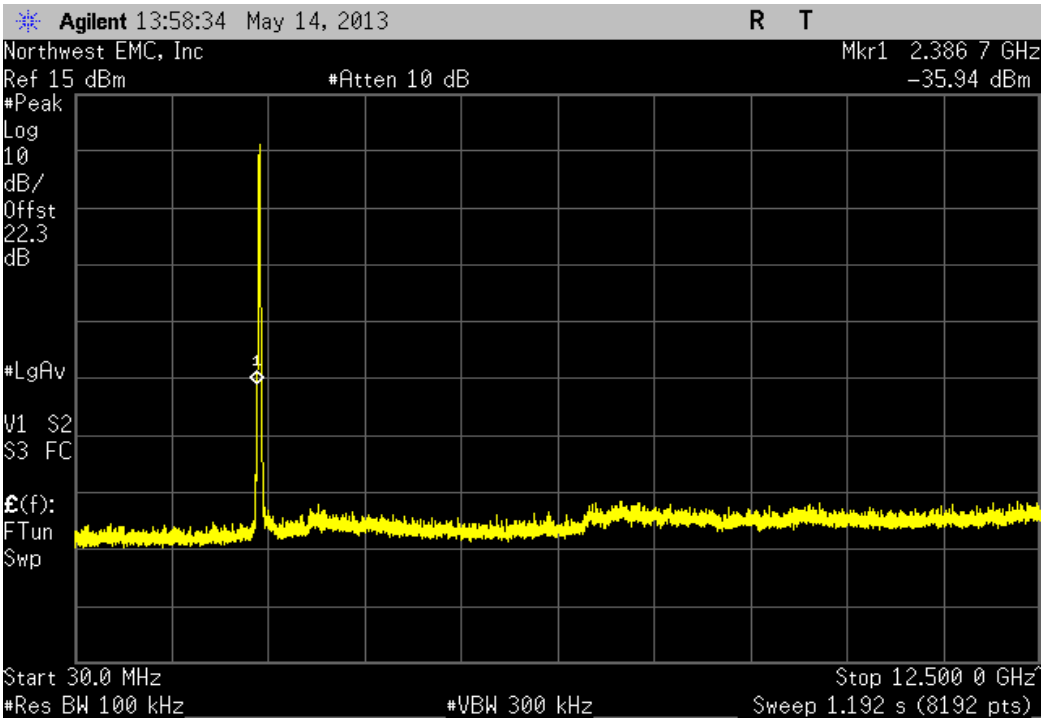


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A

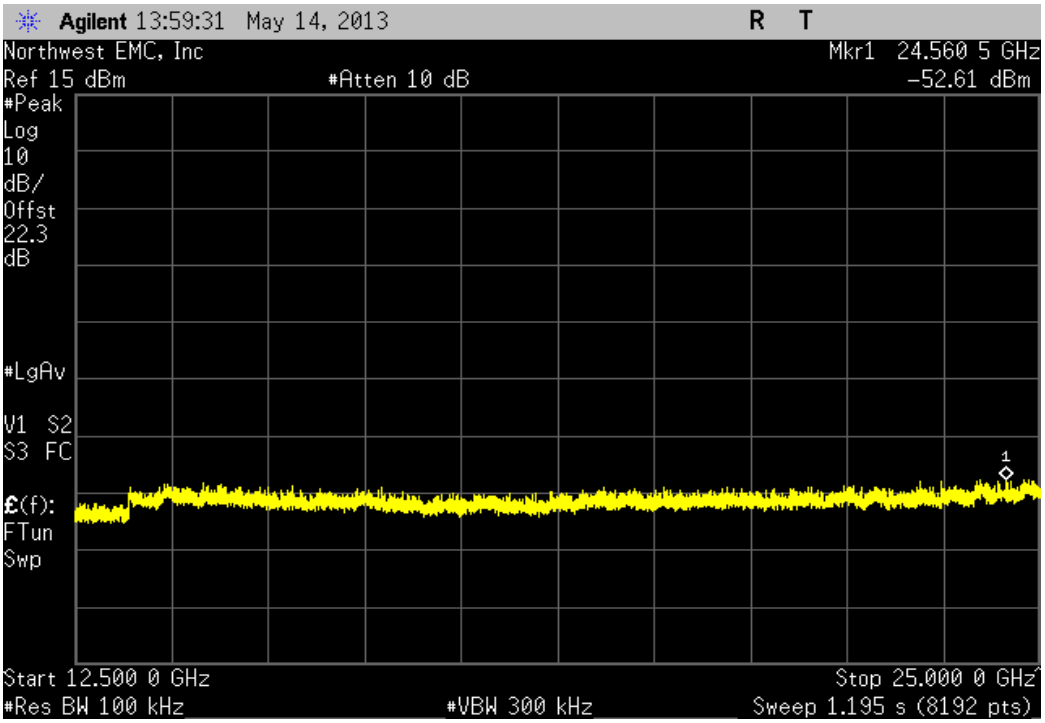


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-42.3 dBc	≤ -20 dBc	Pass

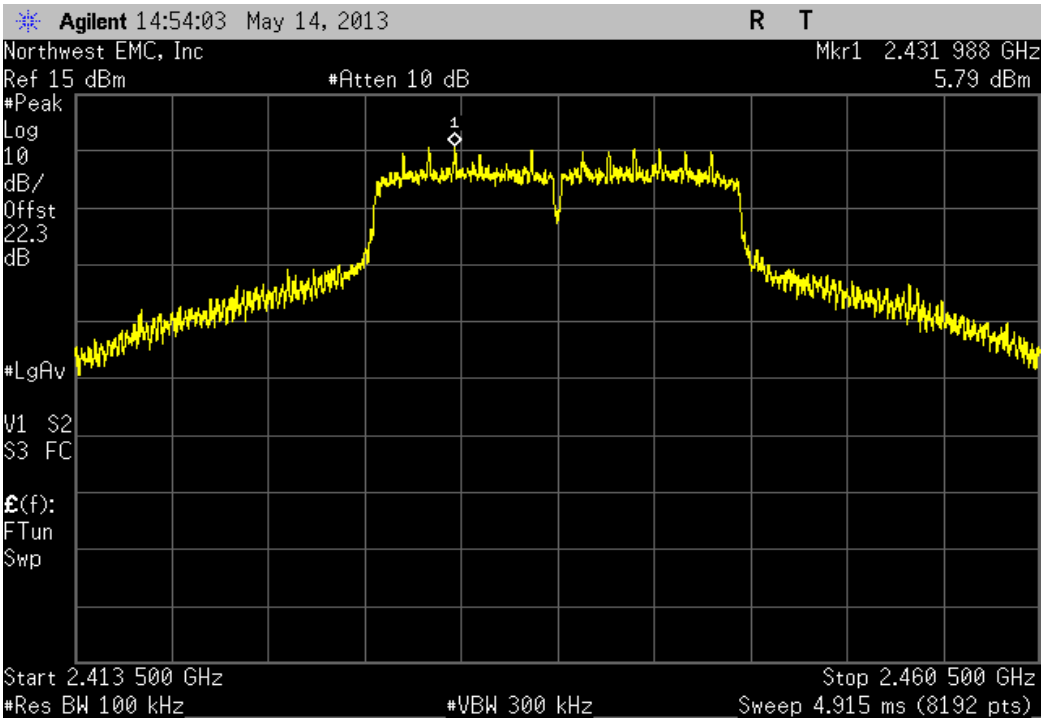


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.97 dBc	≤ -20 dBc	Pass

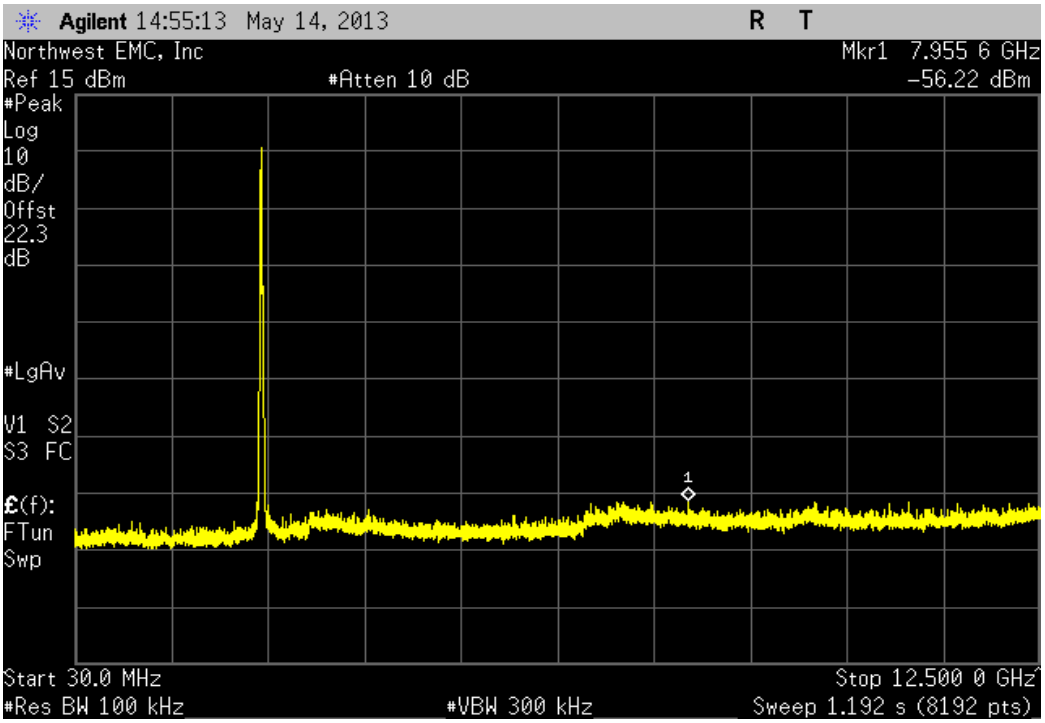


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

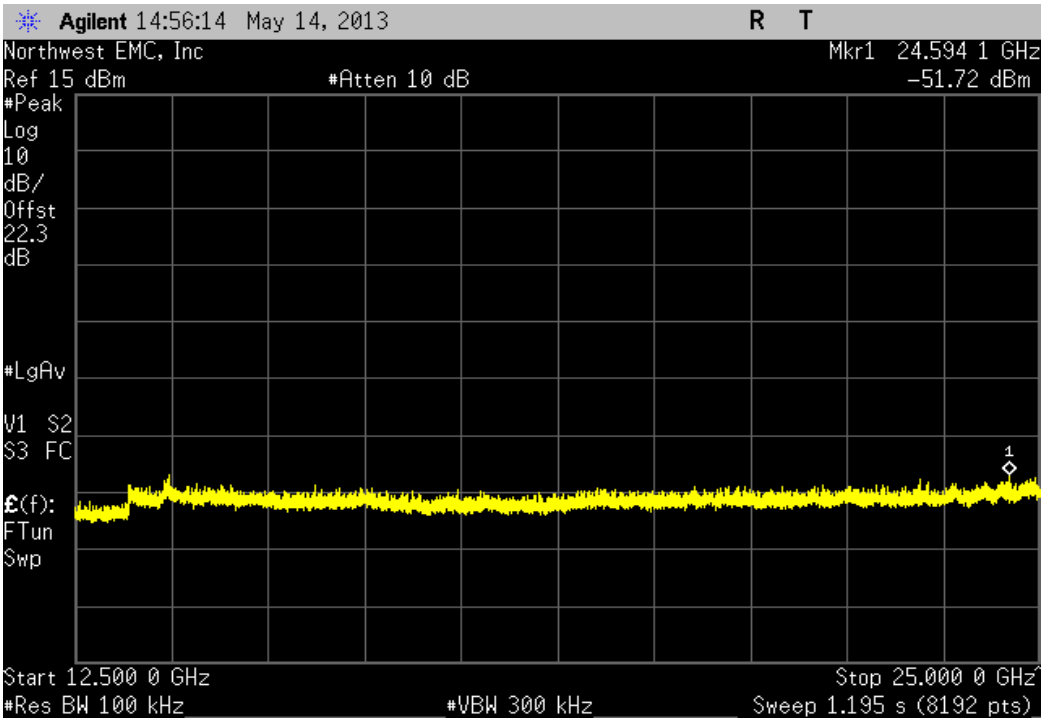


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-62.01 dBc	≤ -20 dBc	Pass

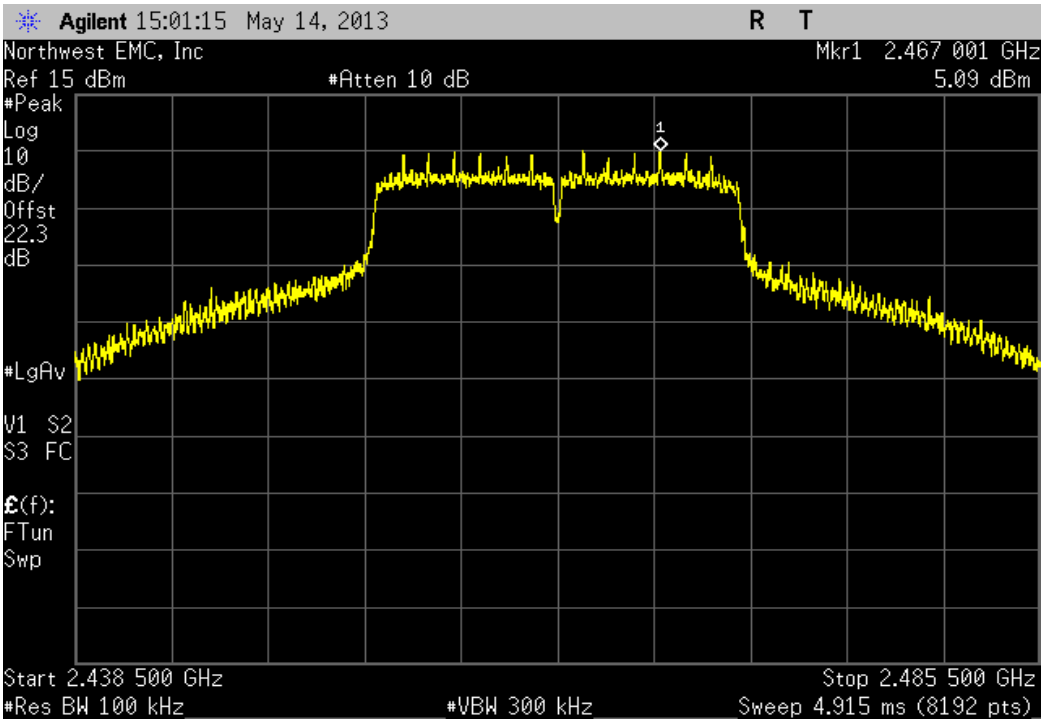


Spurious Conducted Emissions

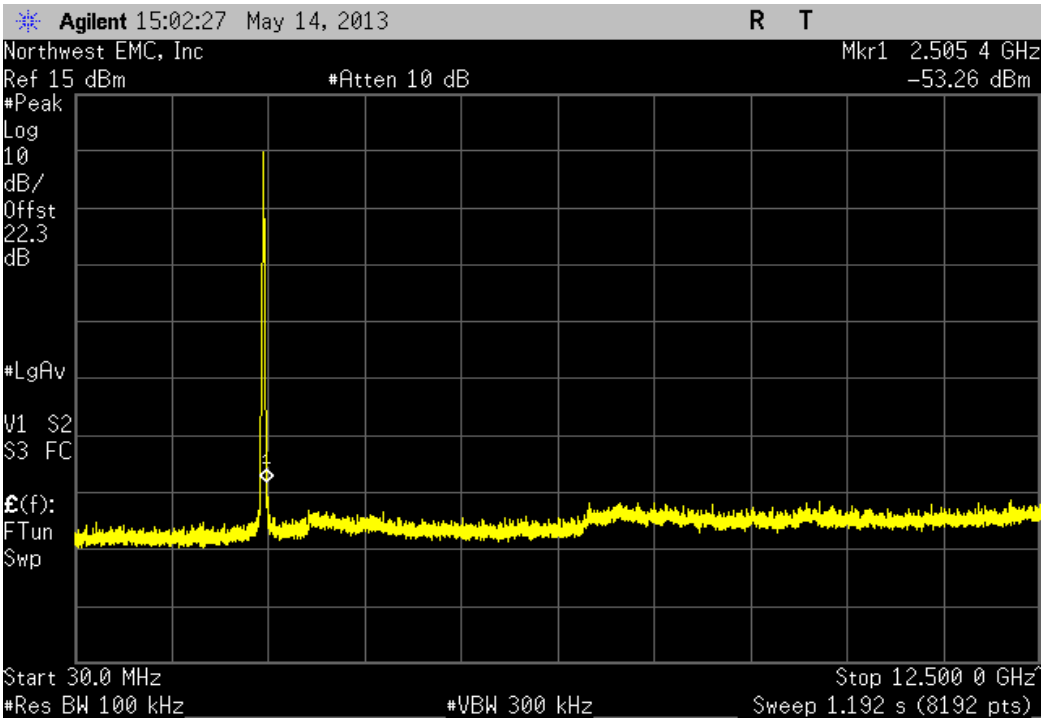
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.51 dBc	≤ -20 dBc	Pass



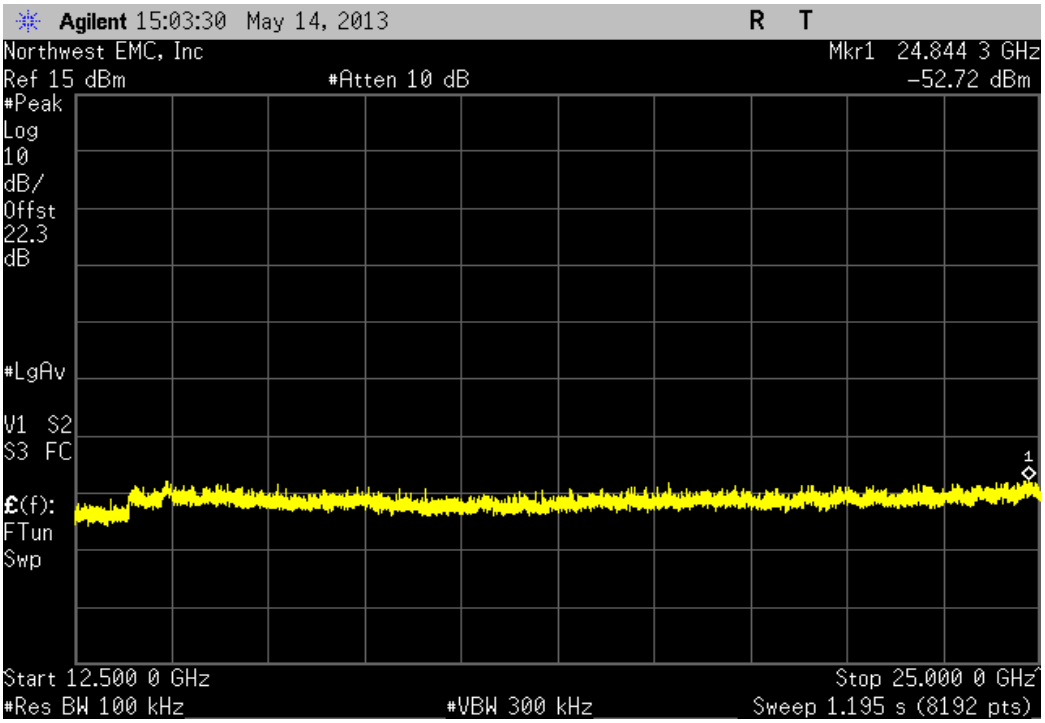
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



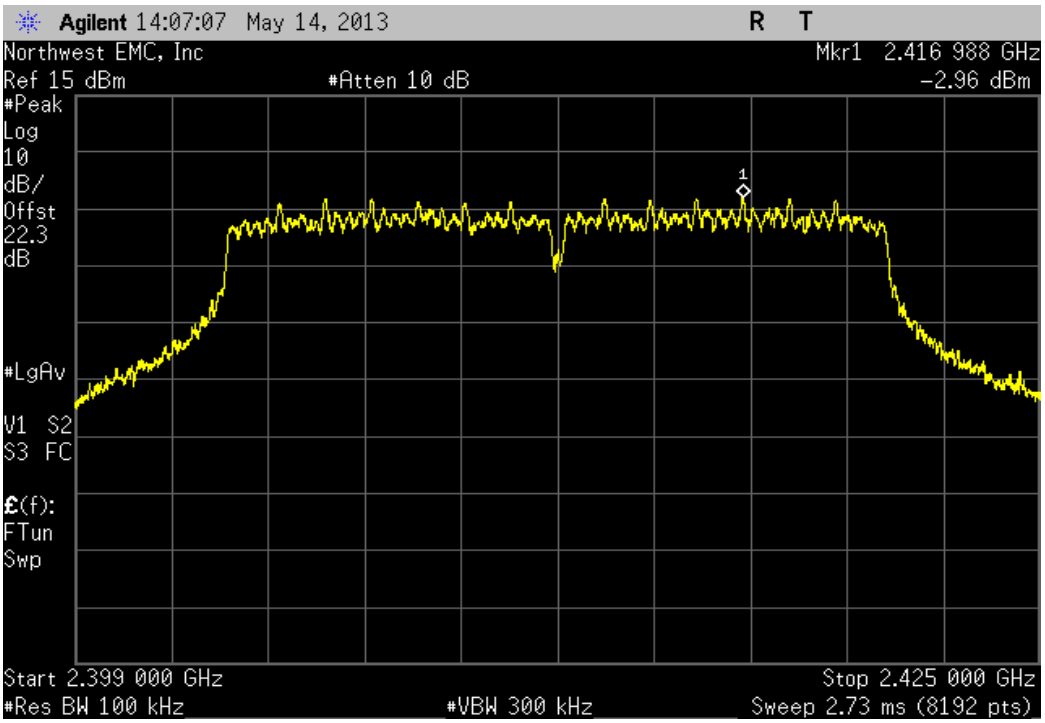
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-58.35 dBc	≤ -20 dBc	Pass



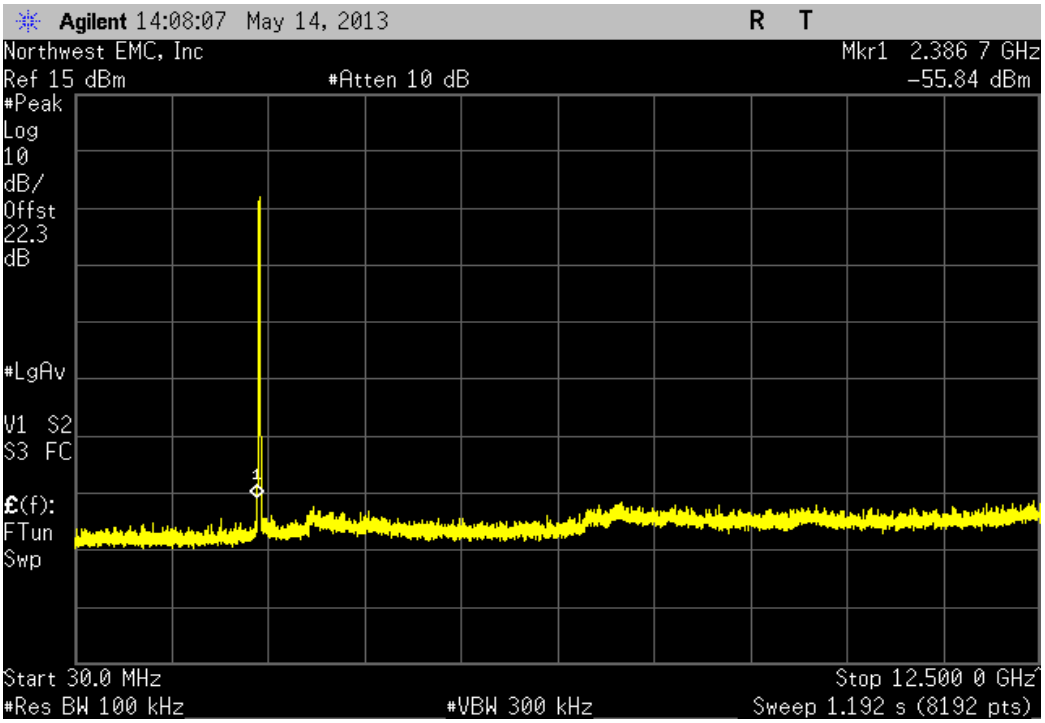
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.81 dBc	≤ -20 dBc	Pass



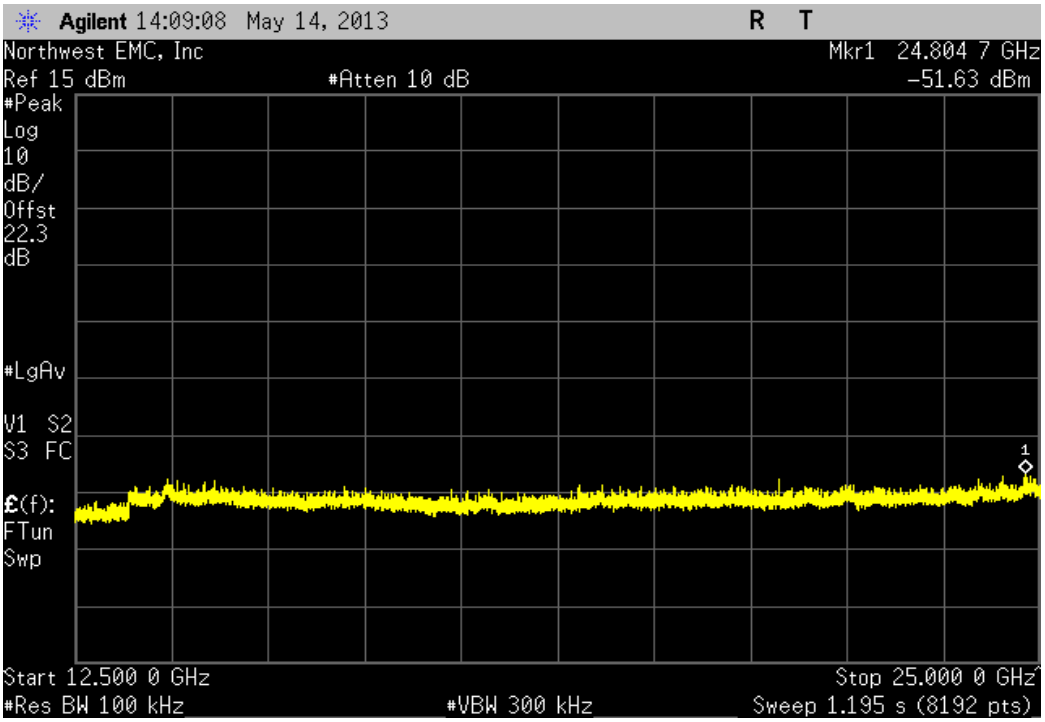
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A



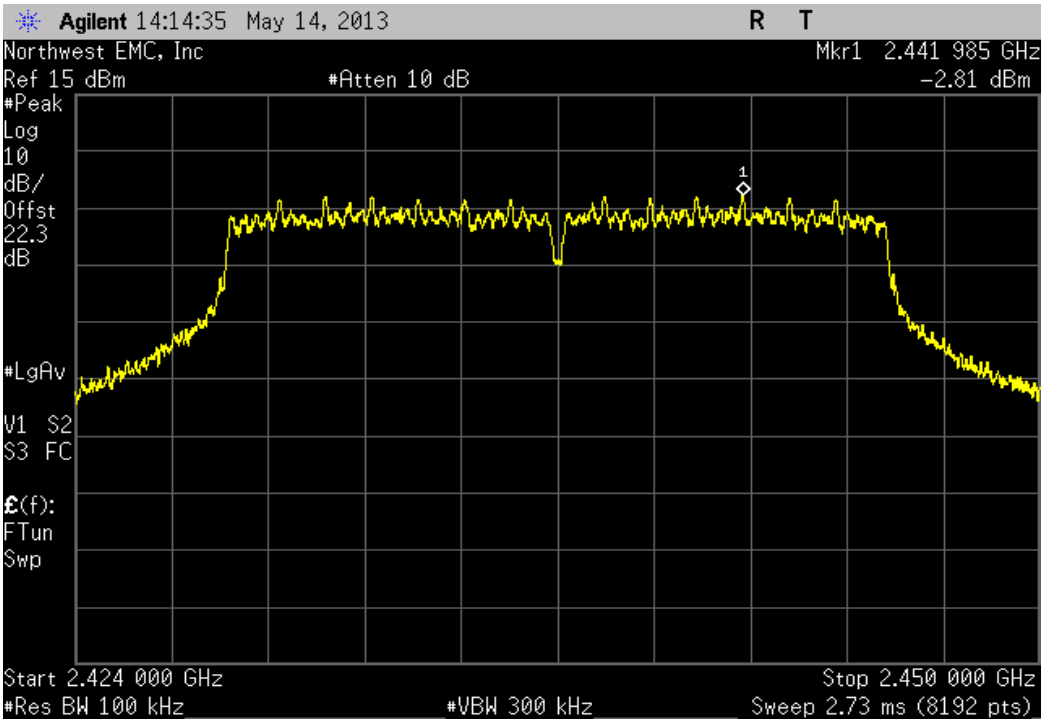
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-52.88 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-48.67 dBc	≤ -20 dBc	Pass

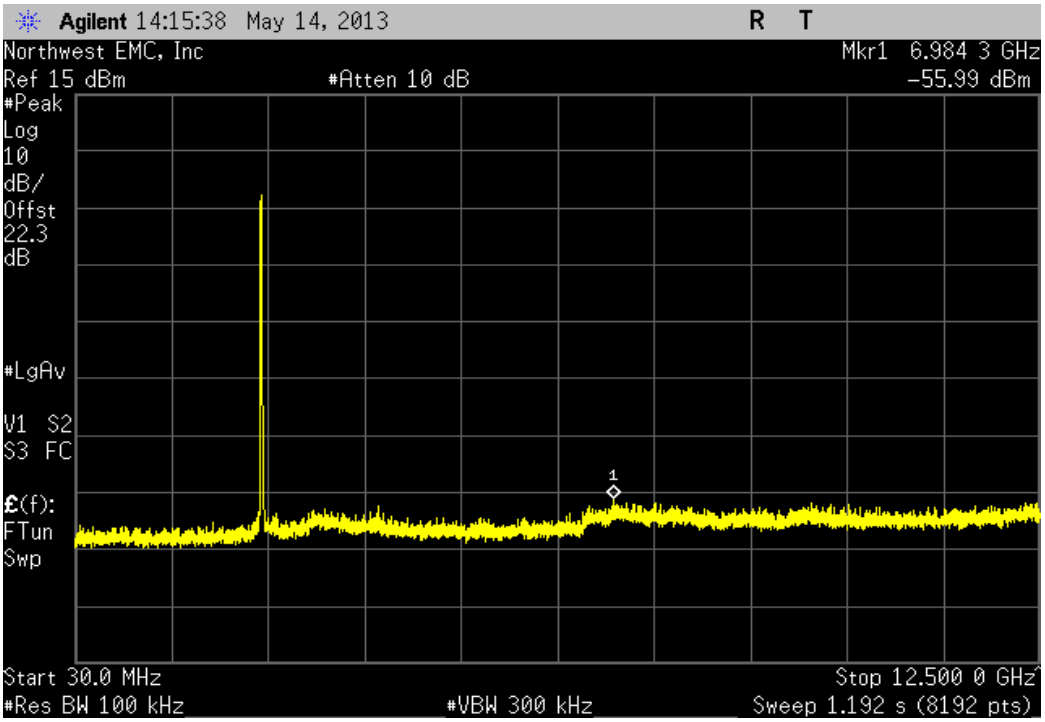


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

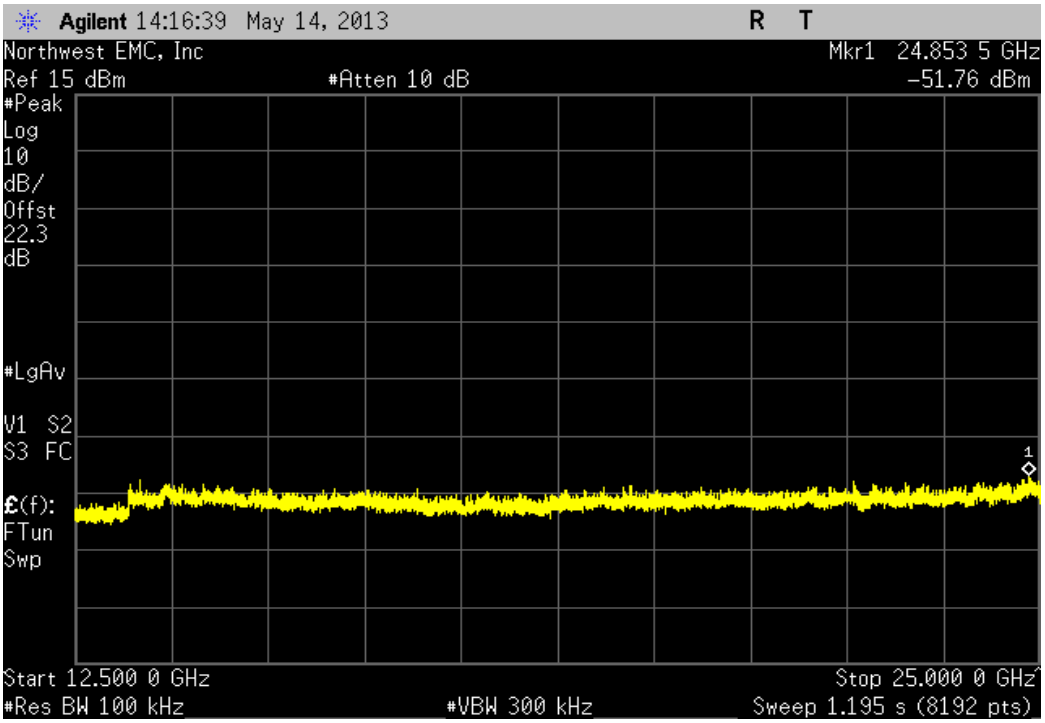


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-53.18 dBc	≤ -20 dBc	Pass

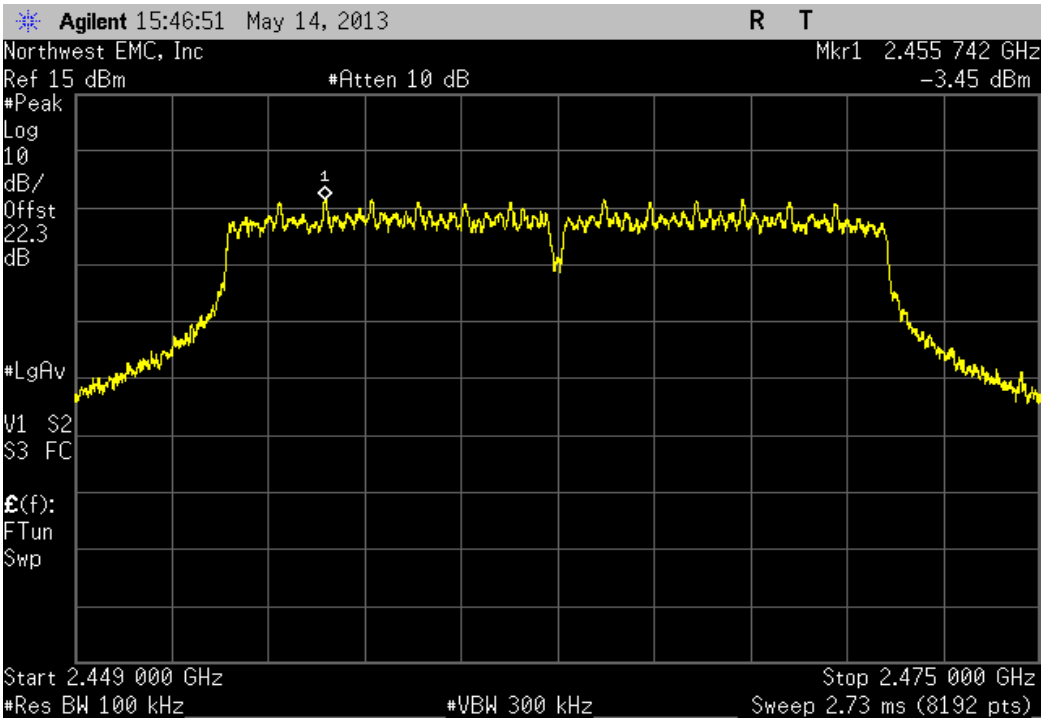


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.95 dBc	≤ -20 dBc	Pass

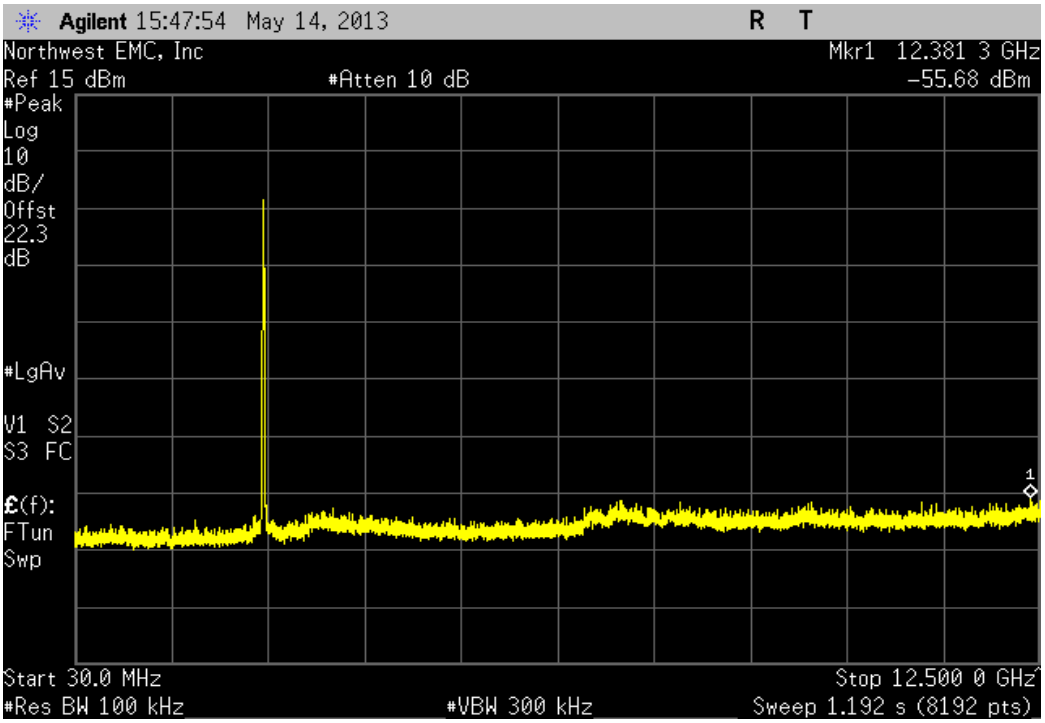


Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

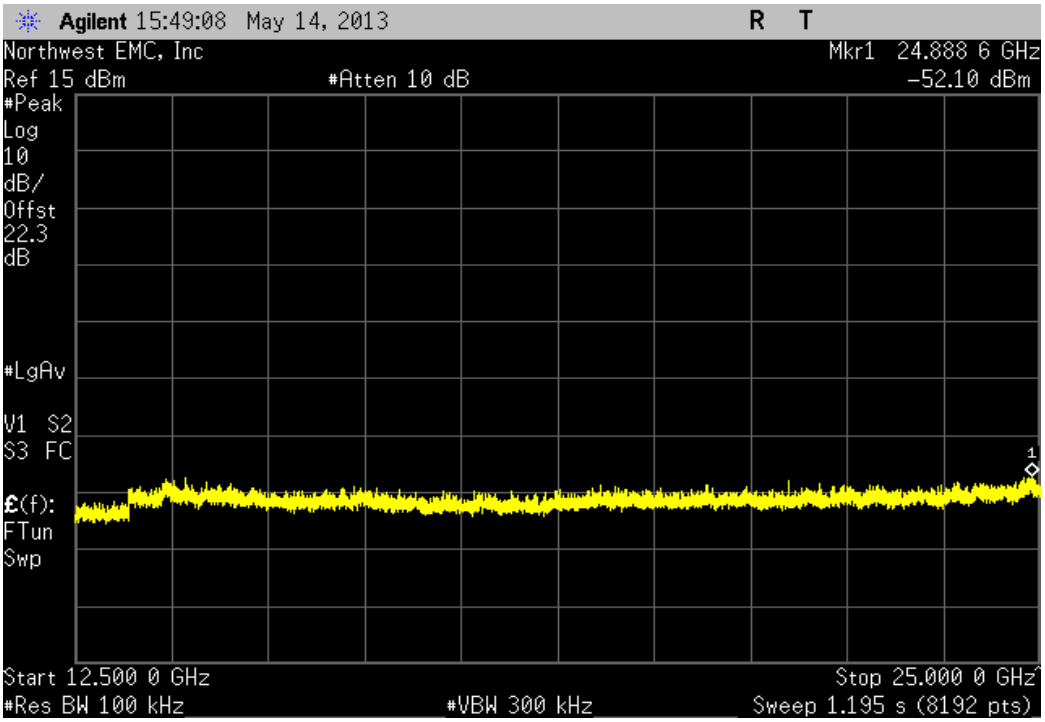


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-52.22 dBc	≤ -20 dBc	Pass



Spurious Conducted Emissions

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.64 dBc	≤ -20 dBc	Pass



Power Spectral Density

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36

TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to the required transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the lowest, middle, and maximum data rate for each modulation type available.

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:

- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

BWCF = 10*LOG (3 kHz / 100 kHz) = -15.2 dB

Power Spectral Density

EUT:	LifeSense Wireless Gateway			**Work Order:**	SPCD0019
Serial Number:	None			**Date:**	05/20/13
Customer:	Spectrum Design Solutions			**Temperature:**	23.5°C
Attendees:	Nick Burtyk			**Humidity:**	57%
Project:	None			**Barometric Pres.:**	999.4
Tested by:	Johnathan Lee	**Power:**	12VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

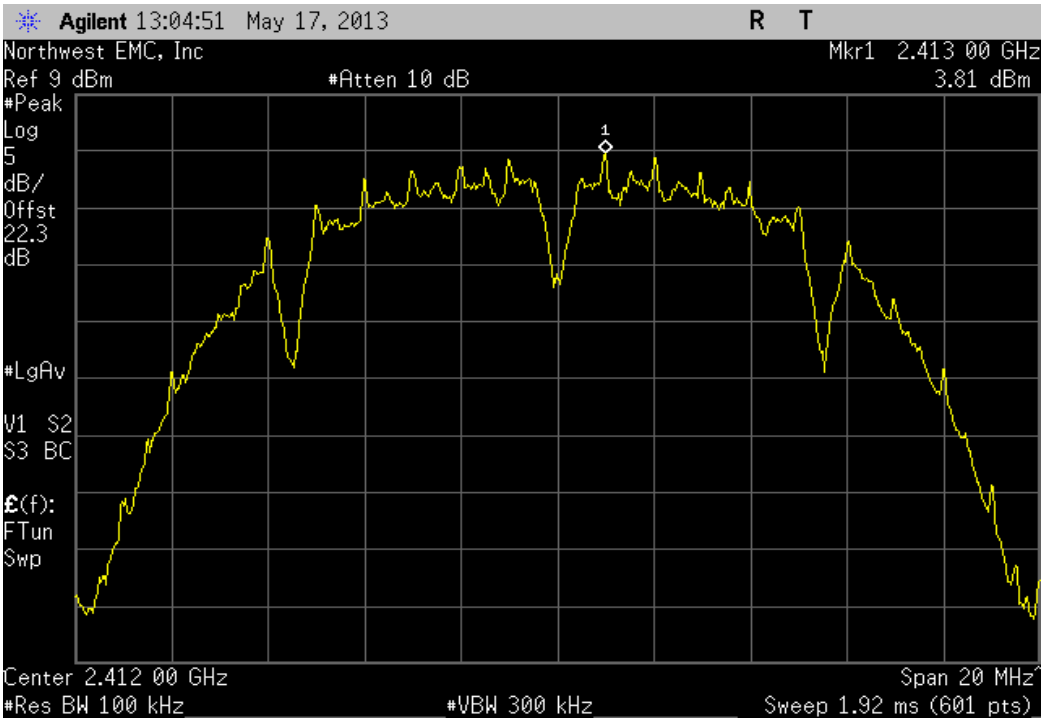
DEVIATIONS FROM TEST STANDARD

None

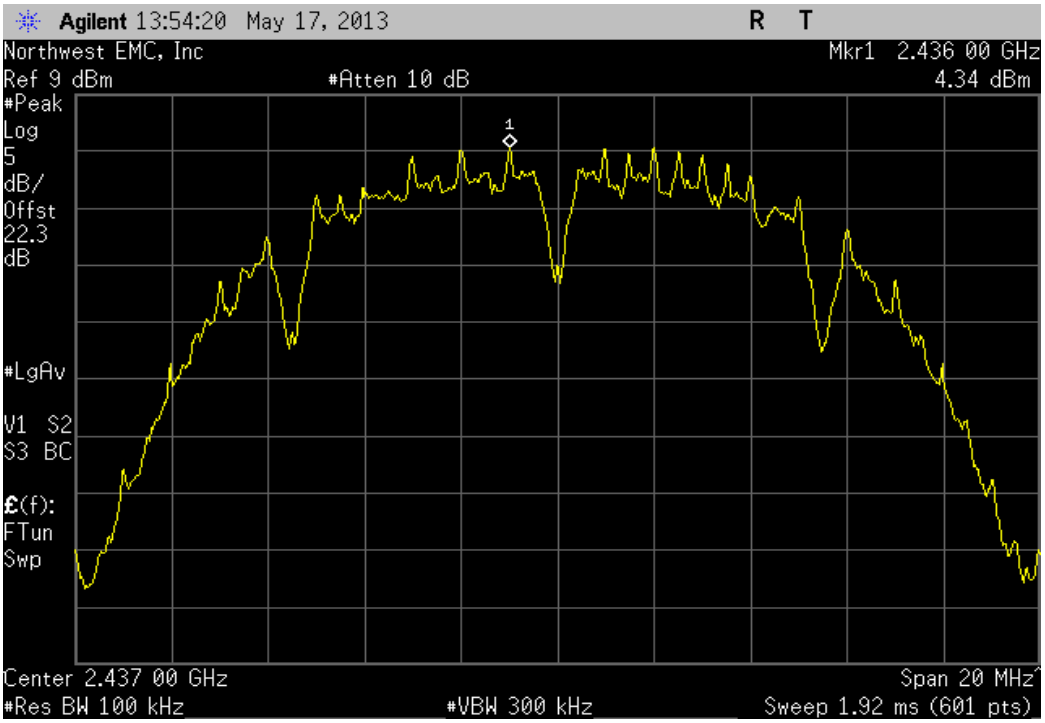
Configuration #	1	Signature

	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
2400 MHz - 2483.5 MHz Band					
802.11(b) 1 Mbps					
Low Channel 1, 2412 MHz	3.814	-15.2	-11.386	8	Pass
Mid Channel 6, 2437 MHz	4.344	-15.2	-10.856	8	Pass
High Channel 11, 2462 MHz	3.523	-15.2	-11.677	8	Pass
802.11(b) 11 Mbps					
Low Channel 1, 2412 MHz	3.553	-15.2	-11.647	8	Pass
Mid Channel 6, 2437 MHz	4.325	-15.2	-10.875	8	Pass
High Channel 11, 2462 MHz	3.135	-15.2	-12.065	8	Pass
802.11(g) 6 Mbps					
Low Channel 1, 2412 MHz	3.121	-15.2	-12.079	8	Pass
Mid Channel 6, 2437 MHz	3.141	-15.2	-12.059	8	Pass
High Channel 11, 2462 MHz	2.545	-15.2	-12.655	8	Pass
802.11(g) 36 Mbps					
Low Channel 1, 2412 MHz	3.416	-15.2	-11.784	8	Pass
Mid Channel 6, 2437 MHz	2.827	-15.2	-12.373	8	Pass
High Channel 11, 2462 MHz	2.348	-15.2	-12.852	8	Pass
802.11(g) 54 Mbps					
Low Channel 1, 2412 MHz	3.301	-15.2	-11.899	8	Pass
Mid Channel 6, 2437 MHz	2.969	-15.2	-12.231	8	Pass
High Channel 11, 2462 MHz	2.117	-15.2	-13.083	8	Pass
802.11(n) MCS0					
Low Channel 1, 2412 MHz	2.976	-15.2	-12.224	8	Pass
Mid Channel 6, 2437 MHz	-1.846	-15.2	-17.046	8	Pass
High Channel 11, 2462 MHz	-0.477	-15.2	-15.677	8	Pass
802.11(n) MCS7					
Low Channel 1, 2412 MHz	3.123	-15.2	-12.077	8	Pass
Mid Channel 6, 2437 MHz	3.035	-15.2	-12.165	8	Pass
High Channel 11, 2462 MHz	2.327	-15.2	-12.873	8	Pass

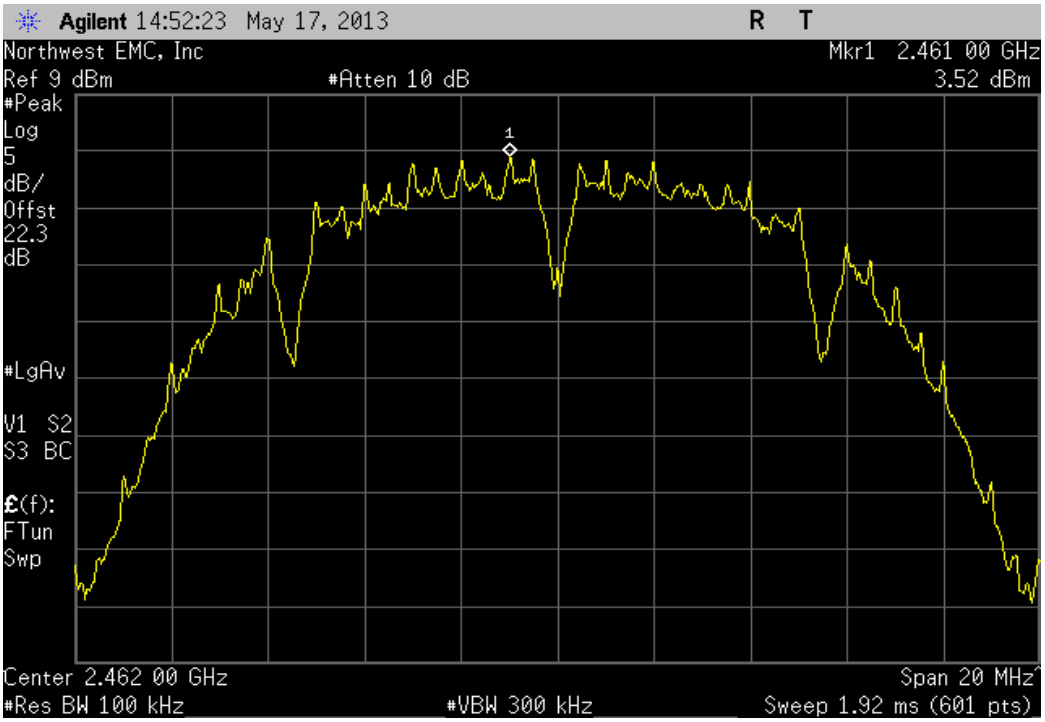
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.814	-15.2	-11.386	8	Pass



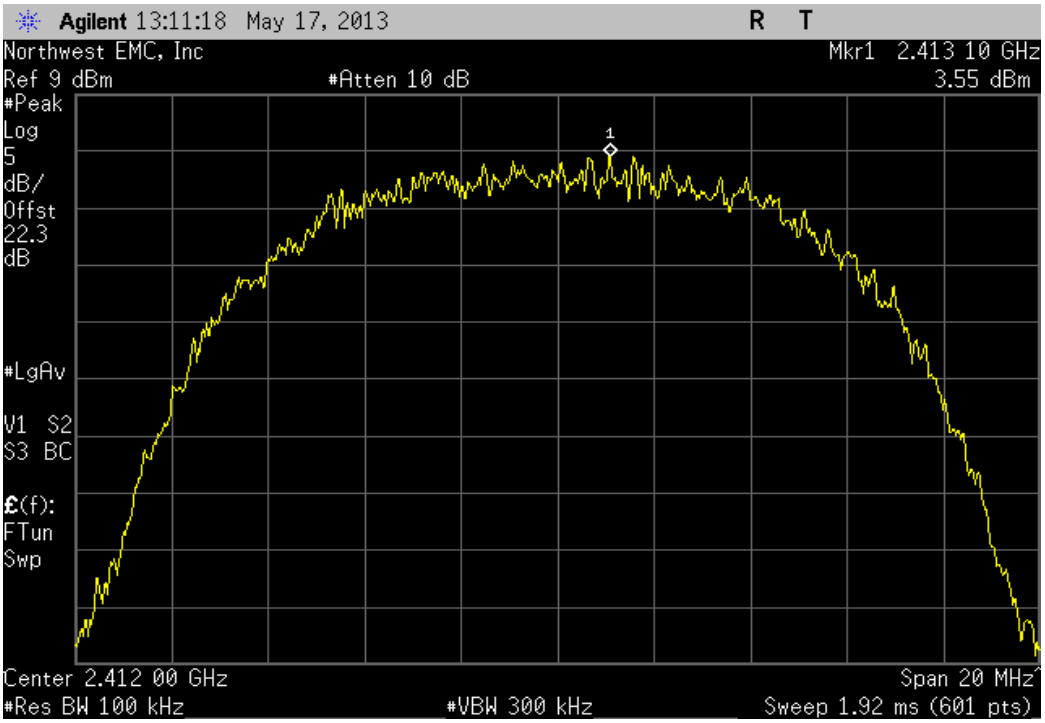
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.344	-15.2	-10.856	8	Pass



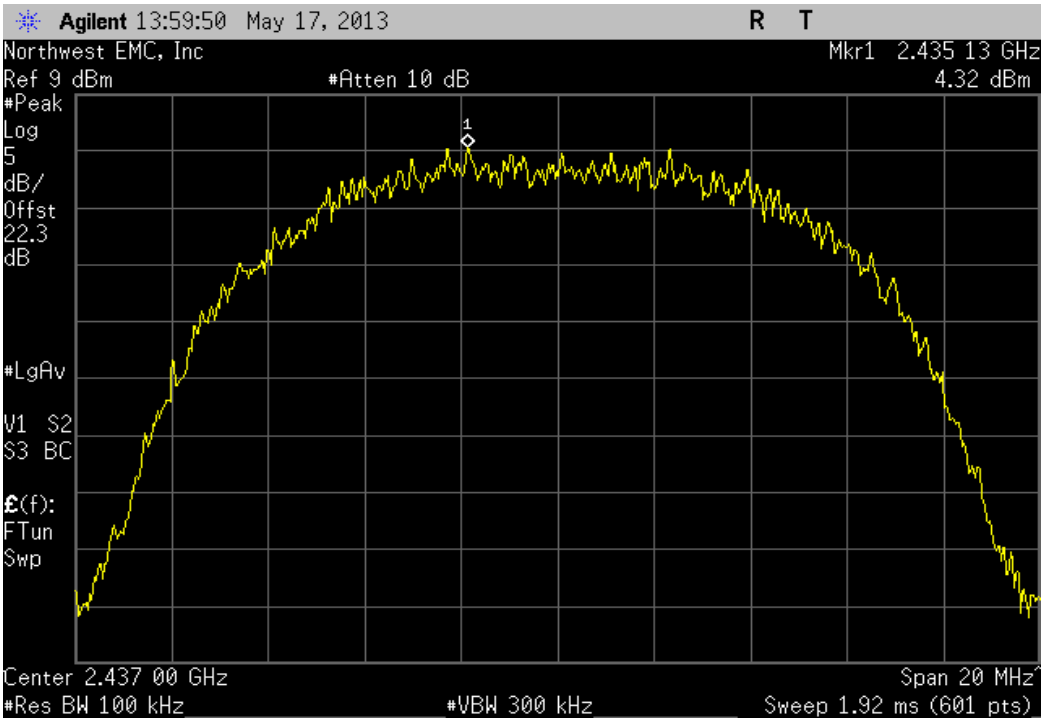
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.523	-15.2	-11.677	8	Pass



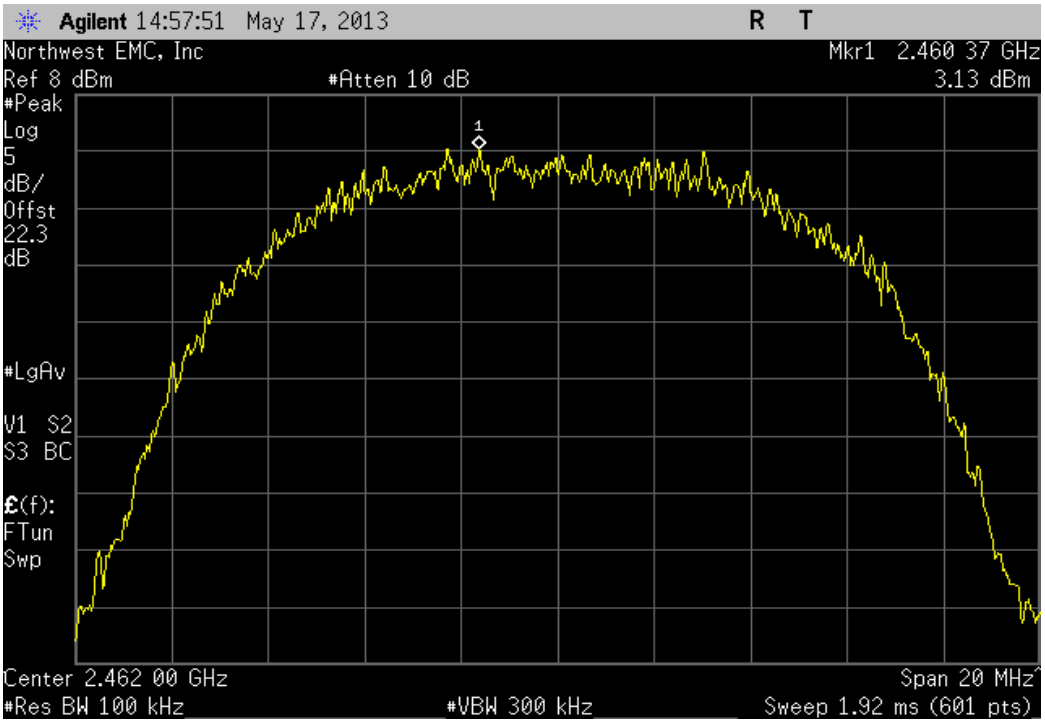
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.553	-15.2	-11.647	8	Pass



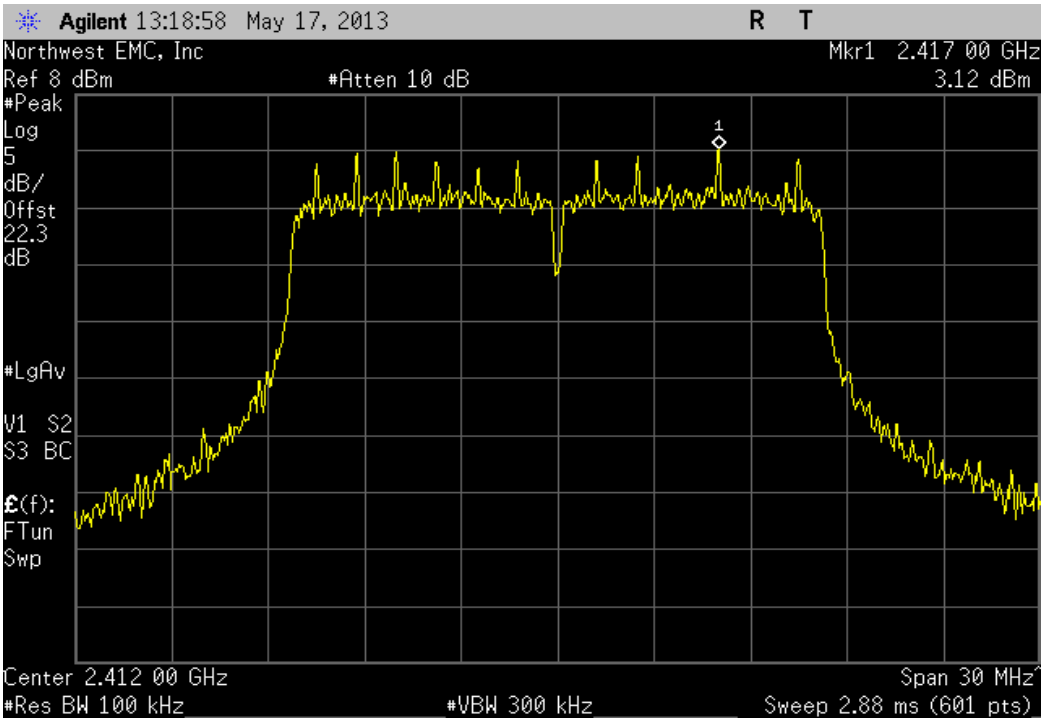
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.325	-15.2	-10.875	8	Pass



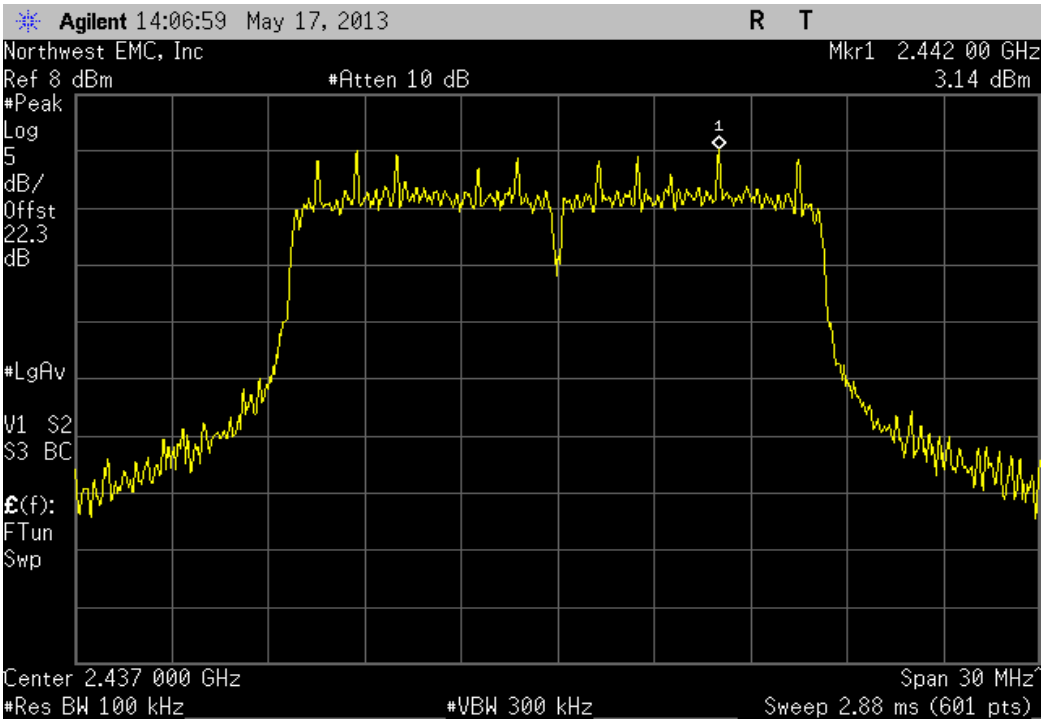
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.135	-15.2	-12.065	8	Pass



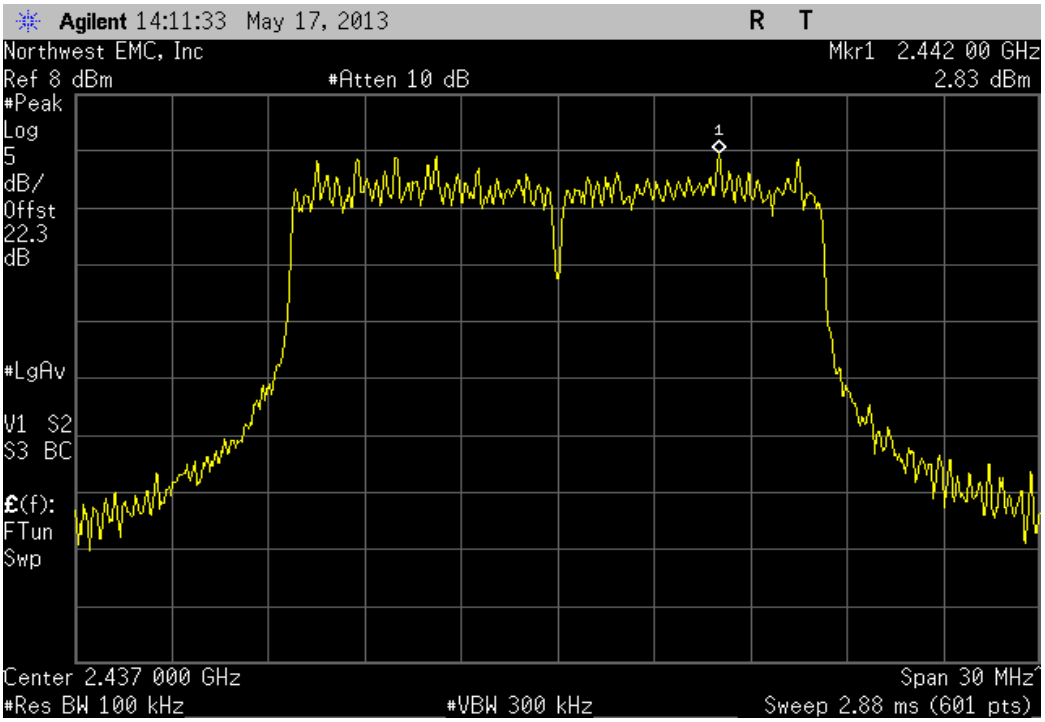
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.121	-15.2	-12.079	8	Pass



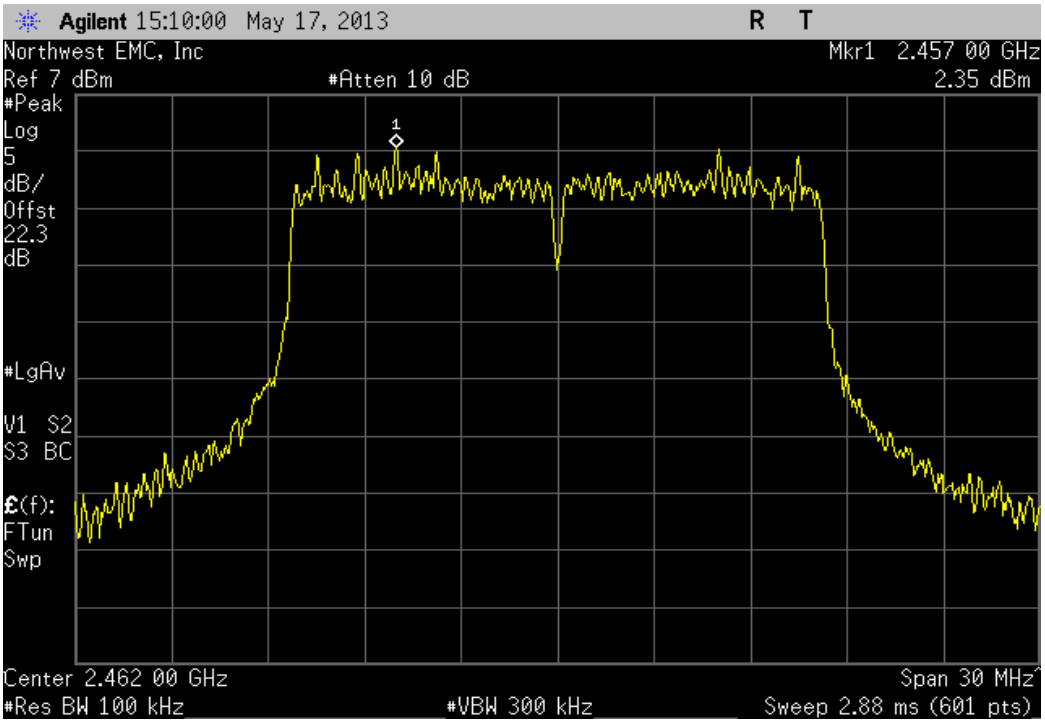
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.141	-15.2	-12.059	8	Pass



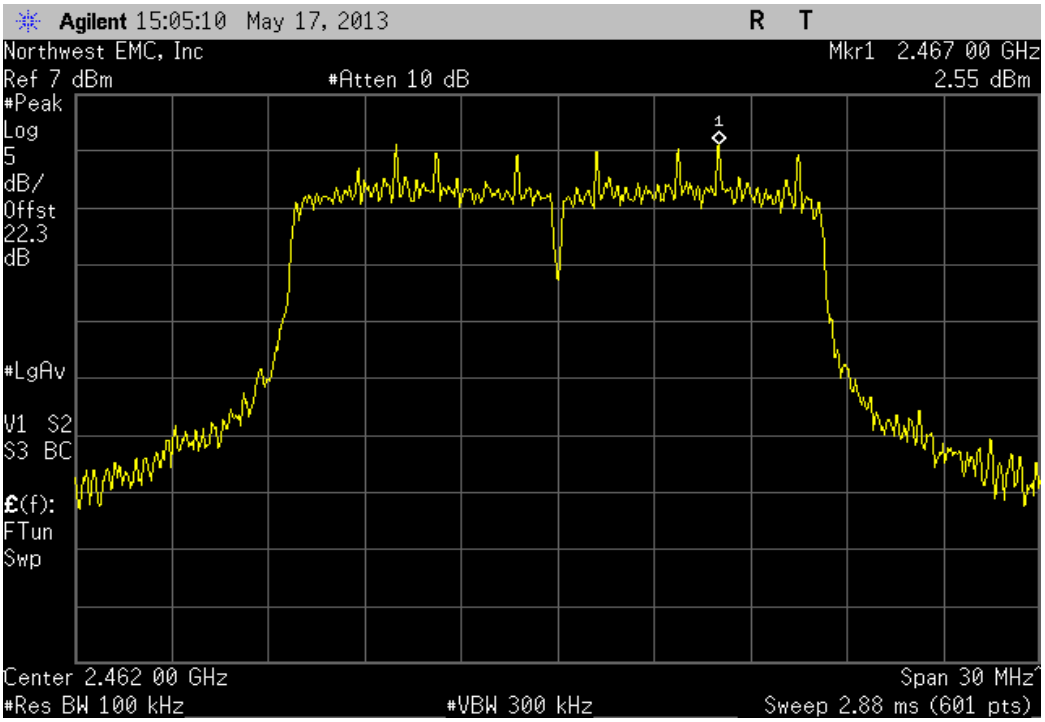
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.827	-15.2	-12.373	8	Pass



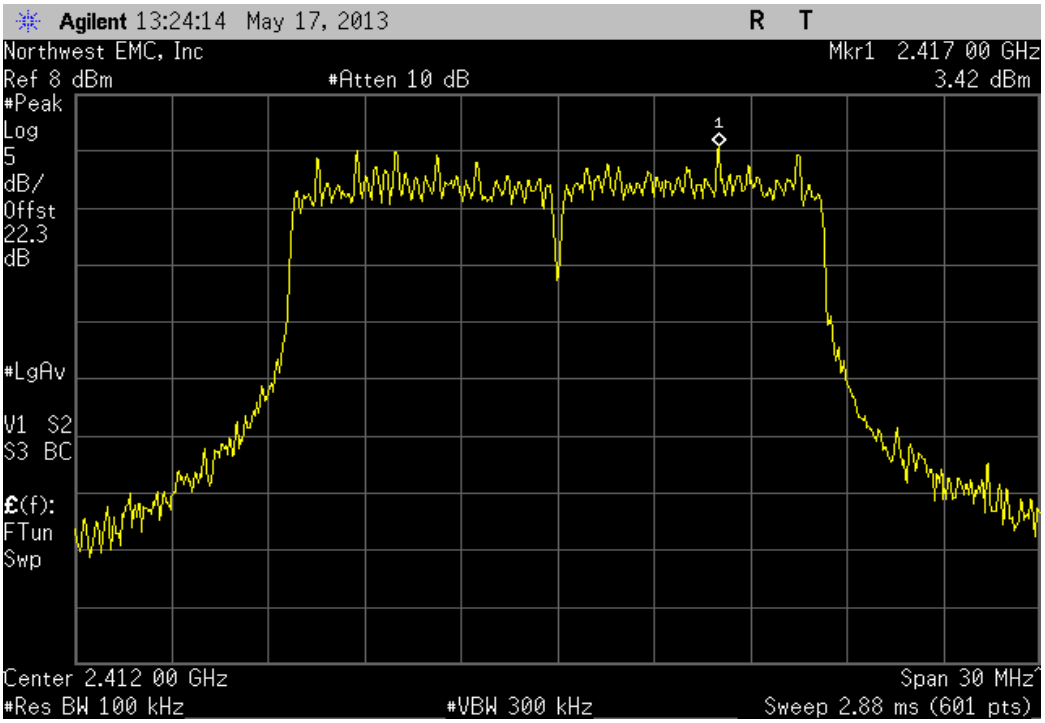
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.348	-15.2	-12.852	8	Pass



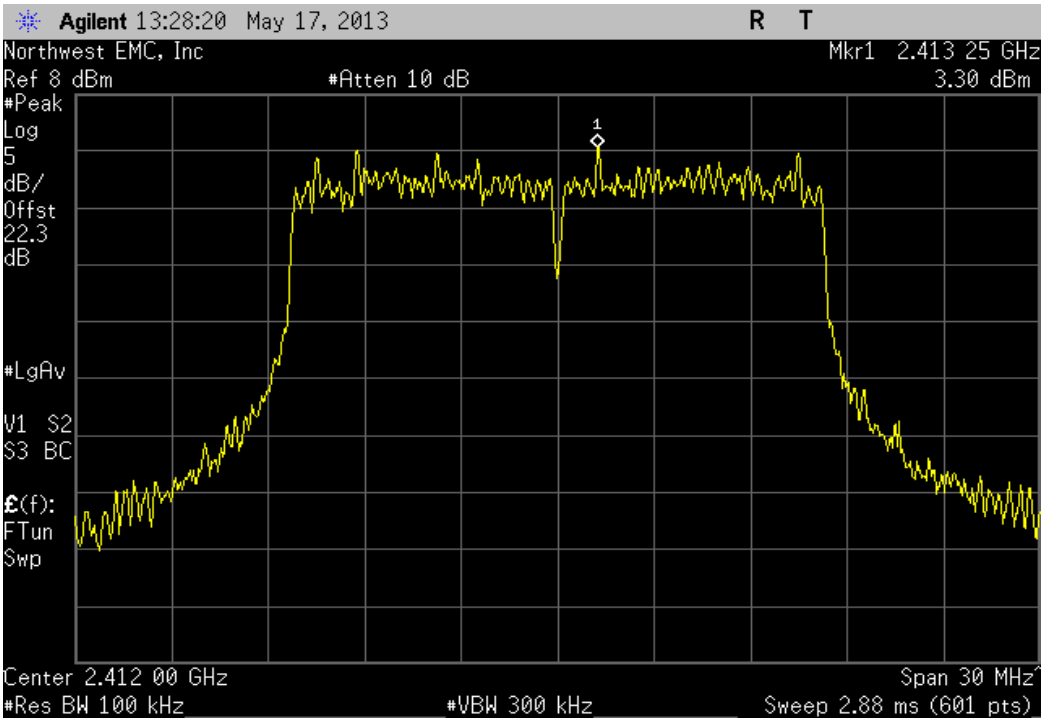
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.545	-15.2	-12.655	8	Pass



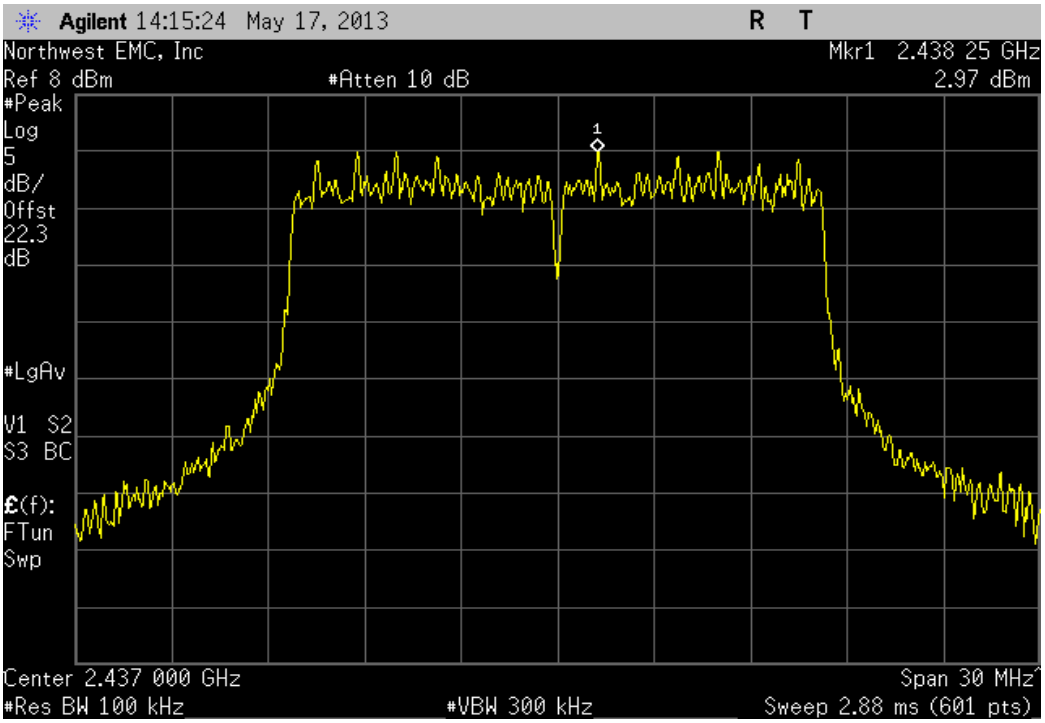
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.416	-15.2	-11.784	8	Pass



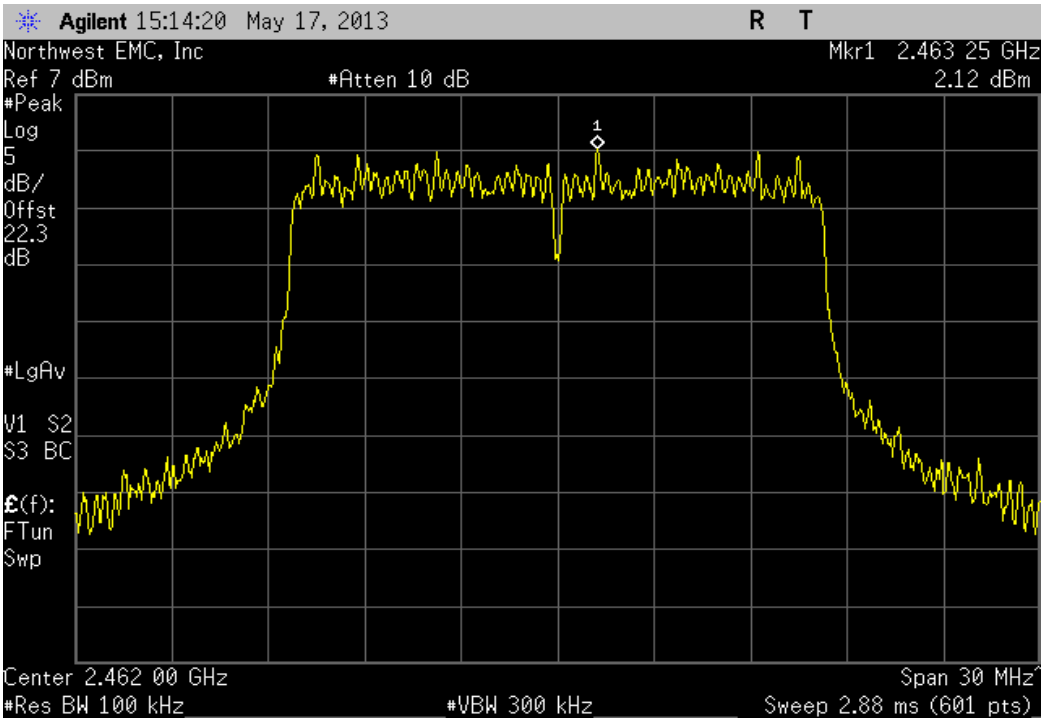
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.301	-15.2	-11.899	8	Pass



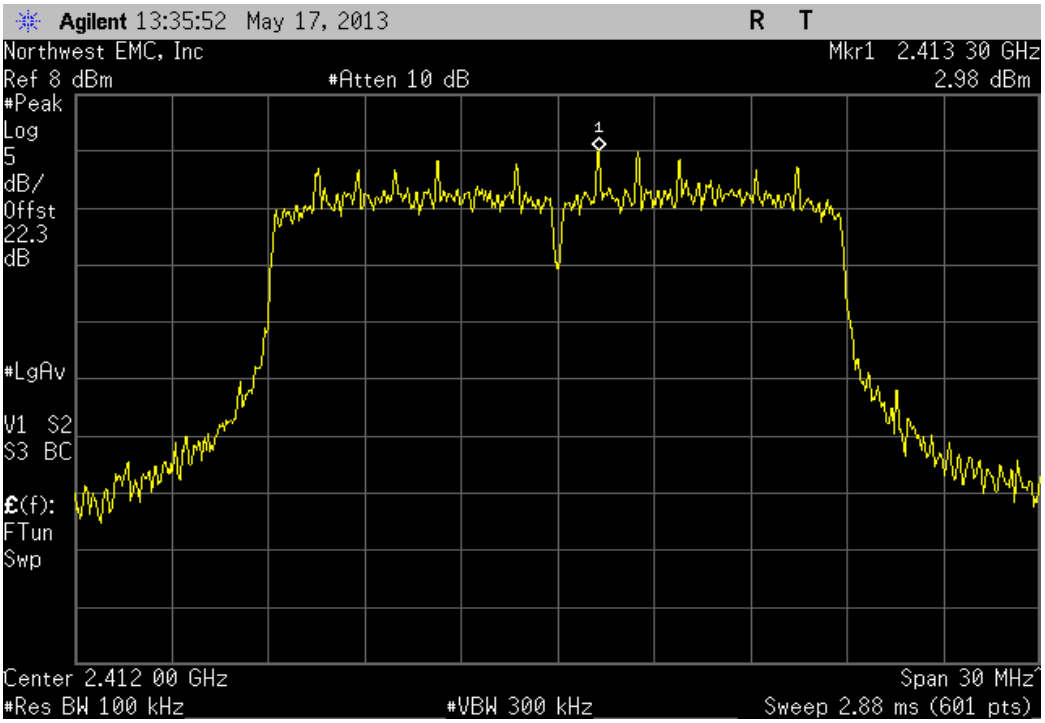
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.969	-15.2	-12.231	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.117	-15.2	-13.083	8	Pass

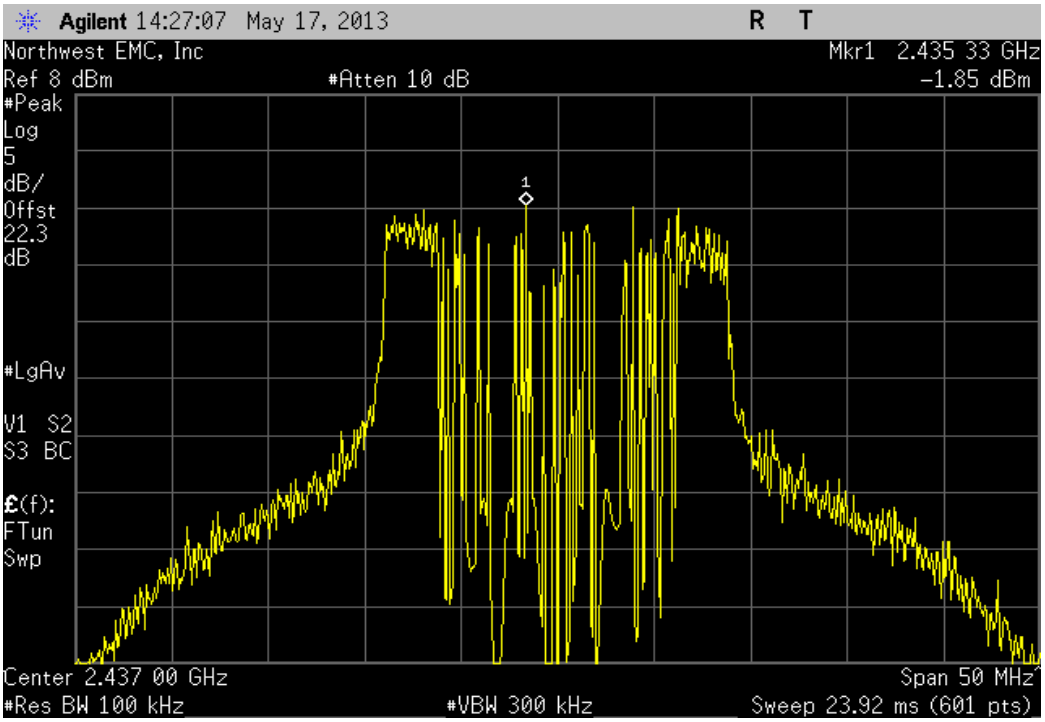


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.976	-15.2	-12.224	8	Pass

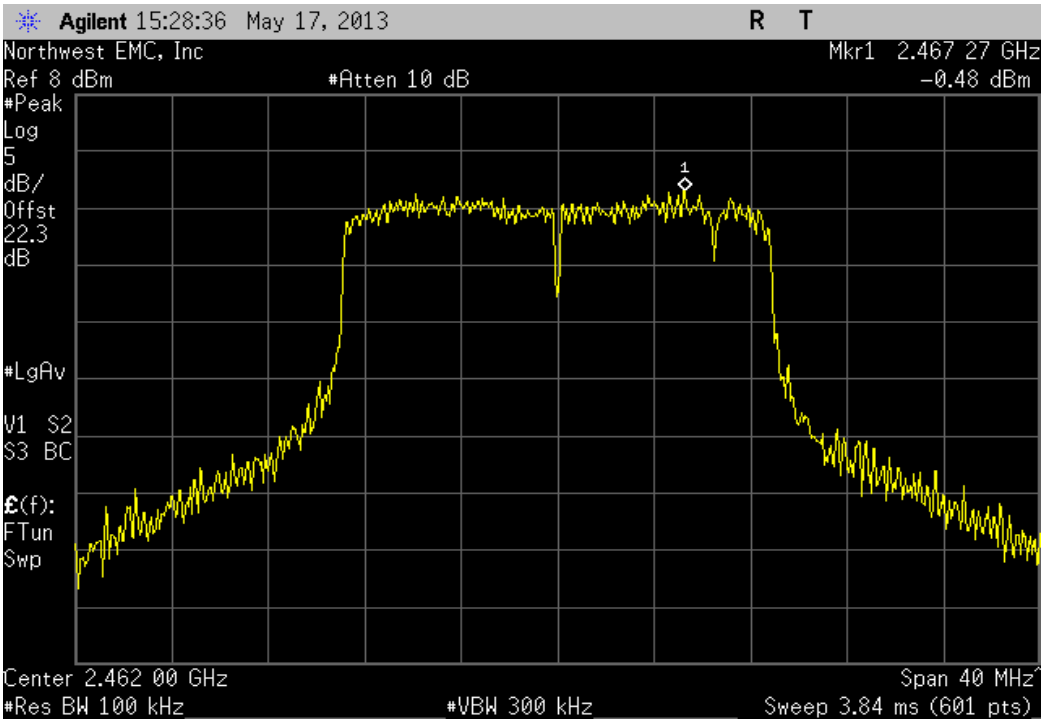


Power Spectral Density

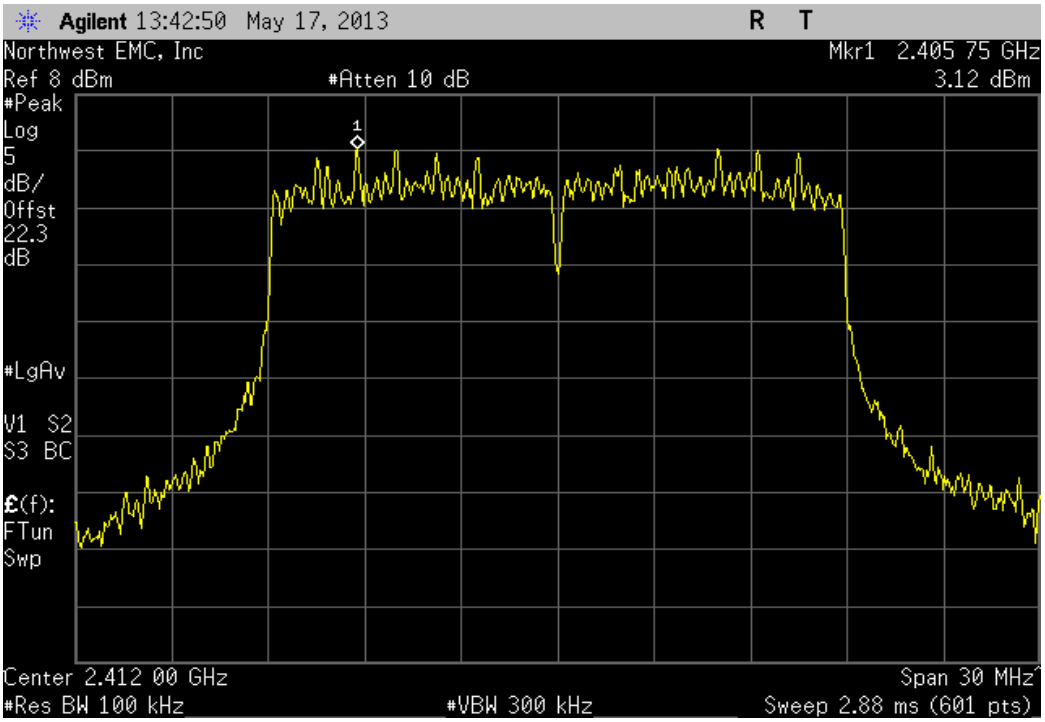
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-1.846	-15.2	-17.046	8	Pass



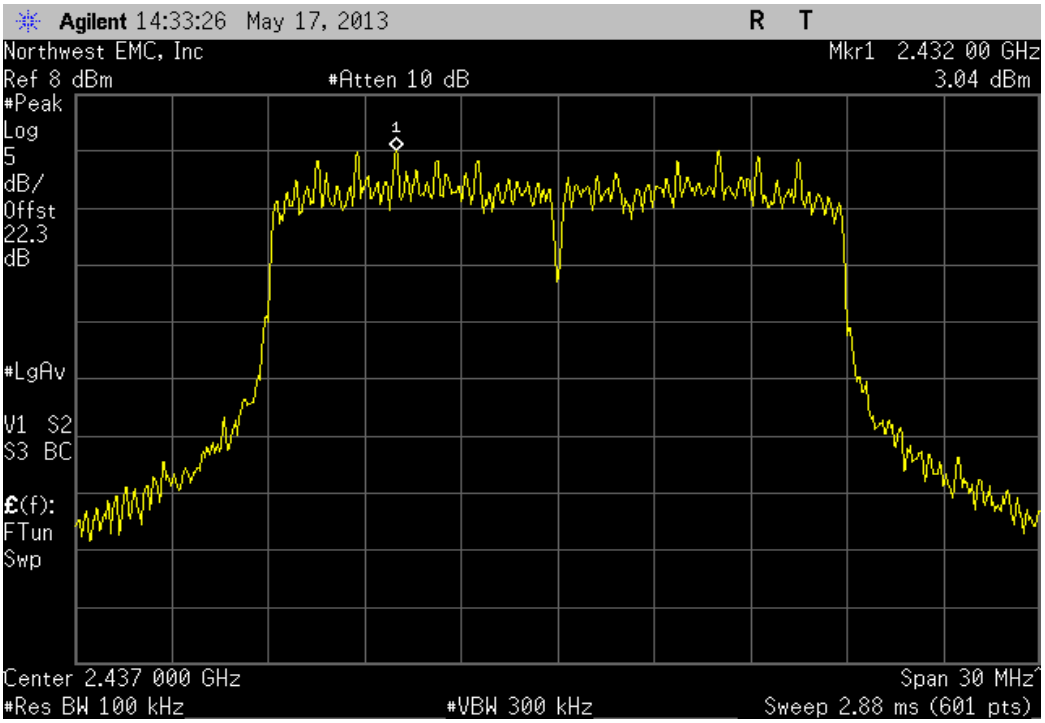
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-0.477	-15.2	-15.677	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.123	-15.2	-12.077	8	Pass

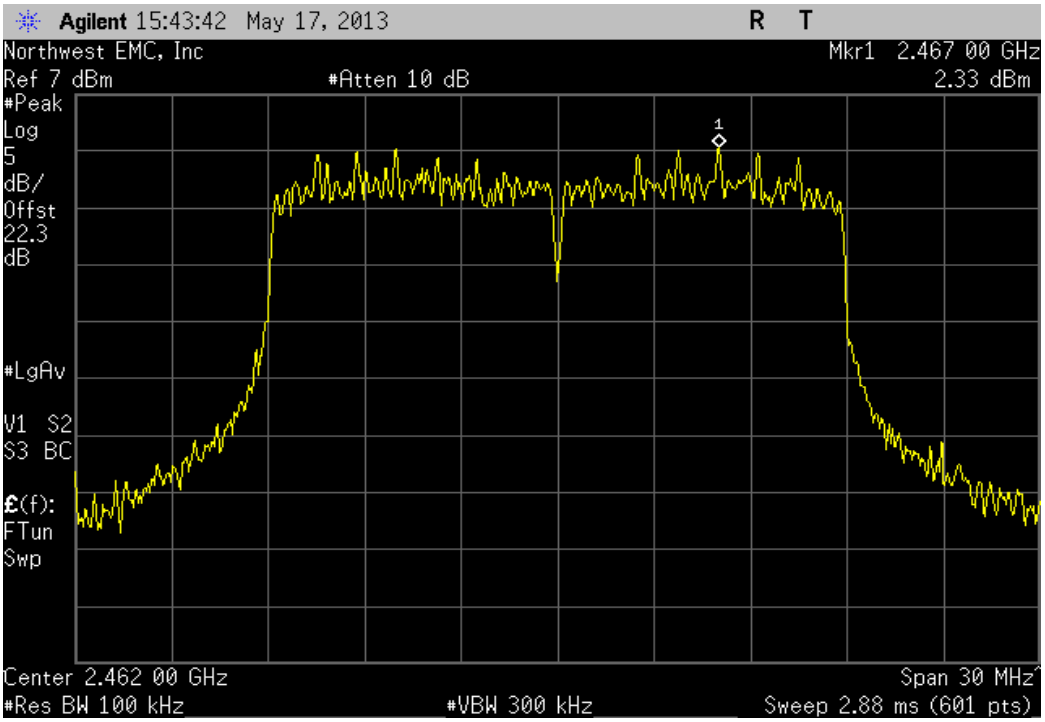


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.035	-15.2	-12.165	8	Pass



Power Spectral Density

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		2.327	-15.2	-12.873	8	Pass



SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting 1, 6, 11, 36, 54Mbps, MCS0, MCS7. Low, Mid, High channel. Power level 14

POWER SETTINGS INVESTIGATED

12VDC

CONFIGURATIONS INVESTIGATED

SPCD0019 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Low Pass Filter	Micro-Tronics	LPM50004	HGK	5/31/2012	24 mo
High Pass Filter	Micro-Tronics	HPM50111	HGQ	6/1/2012	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	5/31/2012	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	10/5/2012	12 mo
26-40GHz Cable	N/A	TTBJ141-KMKM-72	MNQ	10/5/2012	12 mo
Antenna, Horn	ETS	3160-10	AIC	NCR	0 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/5/2012	12 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	MNP	10/5/2012	12 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	5/30/2012	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	36 mo
Pre-Amplifier	Miteq	AM-1616-1000	PAD	8/28/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/17/2012	12 mo
Comb Generator Emitter	ARC Technical Resources, Inc.	CGE01KIT01	TUB	NCR	0 mo
Comb Generator Radiated	KJR Enterprises	Harmonics	TCT	NCR	0 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	24 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

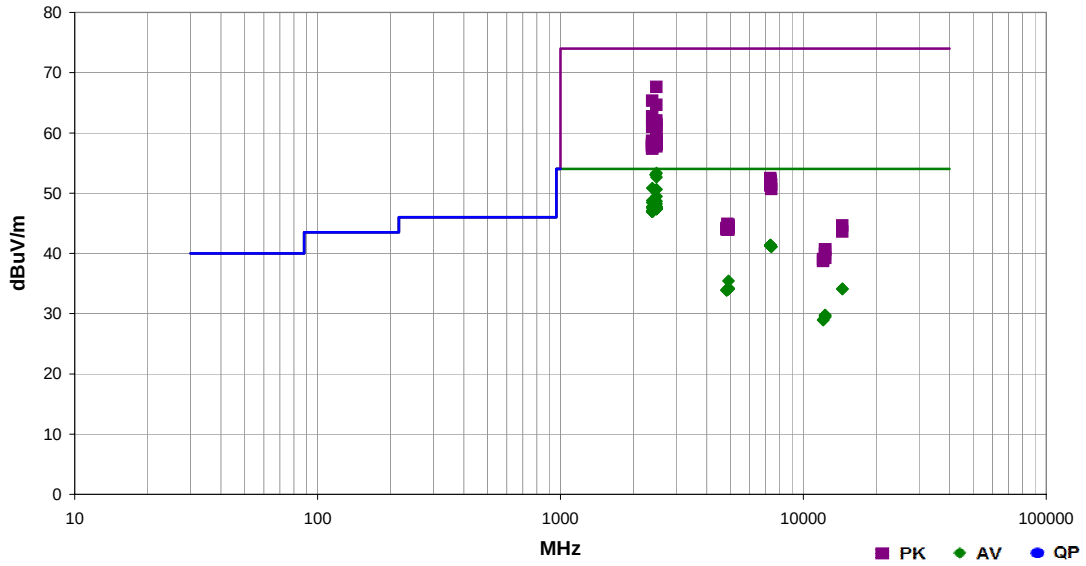
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	SPCD0019	**Date:**	05/16/13		
Project:	None	**Temperature:**	23.6 °C		
Job Site:	MN05	**Humidity:**	36.4% RH		
Serial Number:	None	**Barometric Pres.:**	1011.2 mbar	**Tested by:**	Johnathan Lee
EUT:	LifeSense Wireless Gateway				
Configuration:	2				
Customer:	Spectrum Design Solutions				
Attendees:	None				
EUT Power:	12VDC				
Operating Mode:	Transmitting 1, 6, 11, 36, 54Mbps, MCS0, MCS7. Low, Mid, High channel. Power level 14				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2013	ANSI C63.10:2009

Run #	8	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	73.0	-3.9	1.4	22.0	3.0	20.0	Vert	AV	0.0	53.3	54.0	-0.7	EUT Vertical, High Ch, 6Mbps, MD
2464.342	73.9	-3.8	1.6	29.0	3.0	20.0	Horz	AV	0.0	53.1	54.0	-0.9	EUT On Side, High Ch, 6Mbps, MD
2483.517	36.4	-3.8	1.6	5.0	3.0	20.0	Horz	AV	0.0	52.6	54.0	-1.4	EUT Vertical, High Ch, 6Mbps
2389.900	34.9	-4.0	2.0	3.0	3.0	20.0	Horz	AV	0.0	50.9	54.0	-3.1	EUT On Side, Low Ch, 6Mbps
2483.500	34.4	-3.8	1.0	200.0	3.0	20.0	Horz	AV	0.0	50.6	54.0	-3.4	EUT Horizontal, High Ch, 6Mbps
2483.533	33.2	-3.8	1.0	303.0	3.0	20.0	Vert	AV	0.0	49.4	54.0	-4.6	EUT On Side, High Ch, 6Mbps
2389.975	32.8	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	48.8	54.0	-5.2	EUT Vertical, Low Ch, MCS0
2483.500	32.4	-3.8	1.0	87.0	3.0	20.0	Vert	AV	0.0	48.6	54.0	-5.4	EUT Horizontal, High Ch, 6Mbps
2389.925	32.5	-4.0	1.0	349.0	3.0	20.0	Vert	AV	0.0	48.5	54.0	-5.5	EUT Vertical, Low Ch, 6Mbps
2483.558	32.0	-3.8	1.0	296.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	EUT Horizontal, High Ch, MCS0
2483.733	31.6	-3.8	1.0	296.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	EUT Horizontal, High Ch, MCS7
2389.950	31.8	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	EUT Vertical, Low Ch, MCS7
2483.817	31.4	-3.8	1.0	296.0	3.0	20.0	Vert	AV	0.0	47.6	54.0	-6.4	EUT Horizontal, High Ch, 36Mbps
2483.750	51.4	-3.8	1.6	5.0	3.0	20.0	Horz	PK	0.0	67.6	74.0	-6.4	EUT Vertical, High Ch, 6Mbps
2483.600	31.4	-3.8	1.0	296.0	3.0	20.0	Vert	AV	0.0	47.6	54.0	-6.4	EUT Horizontal, High Ch, 54Mbps
2390.000	31.6	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	47.6	54.0	-6.4	EUT Vertical, Low Ch, 36 Mbps
2484.017	31.3	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.5	54.0	-6.5	EUT Vertical, High Ch, MCS0
2488.425	31.2	-3.7	1.0	296.0	3.0	20.0	Vert	AV	0.0	47.5	54.0	-6.5	EUT Horizontal, High Ch, 11Mbps
2487.167	31.2	-3.8	1.0	296.0	3.0	20.0	Vert	AV	0.0	47.4	54.0	-6.6	EUT Horizontal, High Ch, 1Mbps
2486.558	31.2	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.4	54.0	-6.6	EUT Vertical, High Ch, 36Mbps
2486.533	31.2	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.4	54.0	-6.6	EUT Vertictal, High Ch, 54Mbps
2485.758	31.2	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.4	54.0	-6.6	EUT Vertictal, High Ch, MCS7
2484.275	31.2	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.4	54.0	-6.6	EUT Vertictal, High Ch, 11Mbps
2484.917	31.1	-3.8	1.0	163.0	3.0	20.0	Horz	AV	0.0	47.3	54.0	-6.7	EUT Vertictal, High Ch, 1Mbps
2385.542	31.1	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	47.1	54.0	-6.9	EUT Vertical, Low Ch, 54 Mbps
2387.208	31.1	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.1	54.0	-6.9	EUT Horizontal, Low Ch, 54 Mbps
2389.967	31.1	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.1	54.0	-6.9	EUT Horizontal, Low Ch, MCS0
2385.492	31.0	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.0	54.0	-7.0	EUT Horizontal, Low Ch, 11 Mbps
2385.558	31.0	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	47.0	54.0	-7.0	EUT Vertical, Low Ch, 11Mbps
2386.367	31.0	-4.0	1.0	32.0	3.0	20.0	Horz	AV	0.0	47.0	54.0	-7.0	EUT Vertical, Low Ch, 1Mbps
2386.467	31.0	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.0	54.0	-7.0	EUT Horizontal, Low Ch, MCS7
2386.842	31.0	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.0	54.0	-7.0	EUT Horizontal, Low Ch, 1 Mbps
2387.708	31.0	-4.0	1.0	91.0	3.0	20.0	Vert	AV	0.0	47.0	54.0	-7.0	EUT Horizontal, Low Ch, 36 Mbps
2389.833	49.4	-4.0	2.0	3.0	3.0	20.0	Horz	PK	0.0	65.4	74.0	-8.6	EUT On Side, Low Ch, 6Mbps

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.867	48.4	-3.8	1.0	200.0	3.0	20.0	Horz	PK	0.0	64.6	74.0	-9.4	EUT Horizontal, High Ch, 6Mbps
2389.767	46.8	-4.0	1.0	349.0	3.0	20.0	Vert	PK	0.0	62.8	74.0	-11.2	EUT Vertical, Low Ch, 6Mbps
2484.133	45.8	-3.8	1.0	303.0	3.0	20.0	Vert	PK	0.0	62.0	74.0	-12.0	EUT On Side, High Ch, 6Mbps
2464.475	82.5	-3.8	1.6	29.0	3.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	EUT On Side, High Ch, 6Mbps, MD
2484.225	45.2	-3.8	1.0	87.0	3.0	20.0	Vert	PK	0.0	61.4	74.0	-12.6	EUT Horizontal, High Ch, 6Mbps
7309.650	29.4	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.4	54.0	-12.6	EUT Horizontal, Mid Ch, 1Mbps
7309.433	29.4	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.4	54.0	-12.6	EUT Horizontal, Mid Ch, 11Mbps
2483.500	81.0	-3.9	1.4	22.0	3.0	20.0	Vert	PK	0.0	61.3	74.0	-12.7	EUT Vertical, High Ch, 6Mbps, MD
7310.508	29.3	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	EUT Horizontal, Mid Ch, 6Mbps
7310.008	29.3	12.0	3.3	331.0	3.0	0.0	Horz	AV	0.0	41.3	54.0	-12.7	EUT Vertical, Mid Ch, 1Mbps
7309.833	29.3	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	EUT Horizontal, Mid Ch, MCS7
7309.533	29.3	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	EUT Horizontal, Mid Ch, 54Mbps
7309.017	29.3	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	EUT Horizontal, Mid Ch, MCS0
7308.925	29.3	12.0	2.7	164.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	EUT Horizontal, Mid Ch, 36Mbps
7388.125	28.7	12.4	1.0	335.0	3.0	0.0	Horz	AV	0.0	41.1	54.0	-12.9	EUT Vertical, High Ch, 1Mbps
7387.350	28.7	12.4	1.0	355.0	3.0	0.0	Vert	AV	0.0	41.1	54.0	-12.9	EUT Horizontal, High Ch, 1Mbps
2389.140	45.0	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	61.0	74.0	-13.0	EUT Vertical, Low Ch, MCS0
2484.127	44.6	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	60.8	74.0	-13.2	EUT Horizontal, High Ch, MCS0
2484.267	43.2	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	EUT Vertical, High Ch, 36Mbps
2484.507	42.7	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	58.9	74.0	-15.1	EUT Horizontal, High Ch, 54Mbps
2484.080	42.6	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	EUT Horizontal, High Ch, MCS7
2387.153	42.7	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	58.7	74.0	-15.3	EUT Vertical, Low Ch, 36 Mbps
2389.140	42.7	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	58.7	74.0	-15.3	EUT Vertical, Low Ch, MCS7
2485.607	42.3	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	58.5	74.0	-15.5	EUT Vertictal, High Ch, 54Mbps
2487.200	42.1	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	58.3	74.0	-15.7	EUT Horizontal, High Ch, 11Mbps
2485.617	42.1	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	58.3	74.0	-15.7	EUT Horizontal, High Ch, 1Mbps
2385.492	42.3	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	58.3	74.0	-15.7	EUT Vertical, Low Ch, 1Mbps
2486.013	42.0	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	58.2	74.0	-15.8	EUT Vertical, High Ch, MCS0
2486.633	41.9	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	58.1	74.0	-15.9	EUT Vertictal, High Ch, 1Mbps
2385.092	42.1	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	58.1	74.0	-15.9	EUT Horizontal, Low Ch, 1 Mbps
2388.207	42.1	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	58.1	74.0	-15.9	EUT Vertical, Low Ch, 11Mbps
2485.053	41.8	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	58.0	74.0	-16.0	EUT Vertictal, High Ch, 11Mbps
2484.153	41.8	-3.8	1.0	163.0	3.0	20.0	Horz	PK	0.0	58.0	74.0	-16.0	EUT Vertictal, High Ch, MCS7
2387.600	42.0	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	58.0	74.0	-16.0	EUT Horizontal, Low Ch, 11 Mbps
2389.340	42.0	-4.0	1.0	32.0	3.0	20.0	Horz	PK	0.0	58.0	74.0	-16.0	EUT Vertical, Low Ch, 54 Mbps
2389.213	41.8	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	57.8	74.0	-16.2	EUT Horizontal, Low Ch, MCS0
2389.353	41.8	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	57.8	74.0	-16.2	EUT Horizontal, Low Ch, 54 Mbps
2484.507	41.5	-3.8	1.0	296.0	3.0	20.0	Vert	PK	0.0	57.7	74.0	-16.3	EUT Horizontal, High Ch, 36Mbps
2388.333	41.5	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	57.5	74.0	-16.5	EUT Horizontal, Low Ch, MCS7
2388.773	41.4	-4.0	1.0	91.0	3.0	20.0	Vert	PK	0.0	57.4	74.0	-16.6	EUT Horizontal, Low Ch, 36 Mbps
4924.033	31.0	4.4	1.0	84.0	3.0	0.0	Horz	AV	0.0	35.4	54.0	-18.6	EUT Vertical, High Ch, 1Mbps
4923.125	29.8	4.4	3.4	23.0	3.0	0.0	Vert	AV	0.0	34.2	54.0	-19.8	EUT Horizontal, High Ch, 1Mbps
4923.325	29.7	4.4	1.0	357.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	EUT On Side, High Ch, 1Mbps
4923.175	29.7	4.4	1.0	318.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	EUT Vertical, High Ch, 1Mbps
4922.317	29.7	4.4	1.2	346.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	EUT On Side, High Ch, 1Mbps
4921.508	29.7	4.4	2.3	206.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	EUT Horizontal, High Ch, 1Mbps
14470.360	32.6	1.5	1.0	190.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	EUT Vertical, Low Ch, 1Mbps
14469.840	32.6	1.5	1.0	266.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	EUT Horizontal, Low Ch, 1 Mbps
4876.325	29.8	4.3	1.0	326.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	EUT Horizontal, Mid Ch, 1Mbps
4875.825	29.7	4.3	1.6	77.0	3.0	0.0	Horz	AV	0.0	34.0	54.0	-20.0	EUT Vertical, Mid Ch, 1Mbps
4826.283	29.8	4.1	3.0	163.0	3.0	0.0	Horz	AV	0.0	33.9	54.0	-20.1	EUT Vertical, Low Ch, 1Mbps
4826.183	29.8	4.1	1.0	352.0	3.0	0.0	Vert	AV	0.0	33.9	54.0	-20.1	EUT Horizontal, Low Ch, 1 Mbps
7309.613	40.5	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	52.5	74.0	-21.5	EUT Horizontal, Mid Ch, 11Mbps
7311.280	40.2	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	EUT Horizontal, Mid Ch, 54Mbps
7310.600	40.2	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	EUT Horizontal, Mid Ch, 36Mbps
7311.420	40.0	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	52.0	74.0	-22.0	EUT Horizontal, Mid Ch, MCS0
7310.787	39.8	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	EUT Horizontal, Mid Ch, 6Mbps
7310.433	39.8	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	EUT Horizontal, Mid Ch, MCS7
7311.733	39.7	12.0	2.7	164.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	EUT Horizontal, Mid Ch, 1Mbps
7387.850	39.0	12.4	1.0	355.0	3.0	0.0	Vert	PK	0.0	51.4	74.0	-22.6	EUT Horizontal, High Ch, 1Mbps
7310.625	39.3	12.0	3.3	331.0	3.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	EUT Vertical, Mid Ch, 1Mbps
7386.608	38.3	12.4	1.0	335.0	3.0	0.0	Horz	PK	0.0	50.7	74.0	-23.3	EUT Vertical, High Ch, 1Mbps
12308.260	35.6	-5.9	2.4	238.0	3.0	0.0	Horz	AV	0.0	29.7	54.0	-24.3	EUT Vertical, Mid Ch, 1Mbps
12307.690	35.6	-5.9	1.0	1.0	3.0	0.0	Vert	AV	0.0	29.7	54.0	-24.3	EUT Horizontal, Mid Ch, 1Mbps
12307.700	35.4	-5.9	1.7	188.0	3.0	0.0	Horz	AV	0.0	29.5	54.0	-24.5	EUT Vertical, High Ch, 1Mbps
12309.070	35.3	-5.9	1.0	151.0	3.0	0.0	Vert	AV	0.0	29.4	54.0	-24.6	EUT Horizontal, High Ch, 1Mbps
12061.950	35.4	-6.5	1.0	267.0	3.0	0.0	Vert	AV	0.0	28.9	54.0	-25.1	EUT Horizontal, Low Ch, 1 Mbps
12061.800	35.4	-6.5	2.4	175.0	3.0	0.0	Horz	AV	0.0	28.9	54.0	-25.1	EUT Vertical, Low Ch, 1Mbps
4874.658	40.6	4.3	1.0	326.0	3.0	0.0	Vert	PK	0.0	44.9	74.0	-29.1	EUT Horizontal, Mid Ch, 1Mbps
4926.050	40.3	4.4	1.0	84.0	3.0	0.0	Horz	PK	0.0	44.7	74.0	-29.3	EUT Vertical, High Ch, 1Mbps
14470.610	43.1	1.5	1.0	266.0	3.0	0.0	Vert	PK	0.0	44.6	74.0	-29.4	EUT Horizontal, Low Ch, 1 Mbps
4922.908	39.8	4.4	1.2	346.0	3.0	0.0	Vert	PK	0.0	44.2	74.0	-29.8	EUT On Side, High Ch, 1Mbps
4922.825	39.8	4.4	3.4	23.0	3.0	0.0	Vert	PK	0.0	44.2	74.0	-29.8	EUT Horizontal, High Ch, 1Mbps
4922.567	39.8	4.4	2.3	206.0	3.0	0.0	Horz	PK	0.0	44.2	74.0	-29.8	EUT Horizontal, High Ch, 1Mbps
4822.333	40.1	4.1	3.0	163.0	3.0	0.0	Horz	PK	0.0	44.2	74.0	-29.8	EUT Vertical, Low Ch, 1Mbps
4923.608	39.7	4.4	1.0	357.0	3.0	0.0	Horz	PK	0.0	44.1	74.0	-29.9	EUT On Side, High Ch, 1Mbps
4826.325	39.9	4.1	1.0	352.0	3.0	0.0	Vert	PK	0.0	44.0	74.0	-30.0	EUT Horizontal, Low Ch, 1 Mbps
4872.508	39.7	4.3	1.6	77.0	3.0	0.0	Horz	PK	0.0	44.0	74.0	-30.0	EUT Vertical, Mid Ch, 1Mbps
4923.533	39.5	4.4	1.0	318.0	3.0	0.0	Vert	PK	0.0	43.9	74.0	-30.1	EUT Vertical, High Ch, 1Mbps
14470.800	42.1	1.5	1.0	190.0	3.0	0.0	Horz	PK	0.0	43.6	74.0	-30.4	EUT Vertical, Low Ch, 1Mbps
12310.080	46.5	-5.9	1.0	1.0	3.0	0.0	Vert	PK	0.0	40.6	74.0	-33.4	EUT Horizontal, Mid Ch, 1Mbps
12308.280	46.5	-5.9	2.4	238.0	3.0	0.0	Horz	PK	0.0	40.6	74.0	-33.4	EUT Vertical, Mid Ch, 1Mbps
12308.050	45.8	-5.9	1.0	151.0	3.0	0.0	Vert	PK	0.0	39.9	74.0	-34.1	EUT Horizontal, High Ch, 1Mbps
12309.920	45.1	-5.9	1.7	188.0	3.0	0.0	Horz	PK	0.0	39.2	74.0	-34.8	EUT Vertical, High Ch, 1Mbps
12060.880	45.5	-6.5	1.0	267.0	3.0	0.0	Vert	PK	0.0	39.0	74.0	-35.0	EUT Horizontal, Low Ch, 1 Mbps
12059.270	45.2	-6.5	2.4	175.0	3.0	0.0	Horz	PK	0.0	38.7	74.0	-35.3	EUT Vertical, Low Ch, 1Mbps

POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARG	04/01/2013	12 mo
MN03 Cables	ESM Cable Corp.	Conducted Cables	MNC	01/17/2013	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HGN	05/31/2012	24 mo
Attenuator 20dB, BNC	Fairview Microwave	SA01B-20	AQP	08/15/2012	12 mo
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	05/24/2013	12 mo
ISN	Teseq	T8000	NIM	11/26/2012	24 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

SPCD0019-3

MODES INVESTIGATED

Transmitting 802.11 1 Mbps, Low Channel 2412 MHz
Transmitting 802.11 1 Mbps, Mid Channel 2437 MHz
Transmitting 802.11 1 Mbps, High Channel 2462 MHz

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	8	Line:	Negative Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

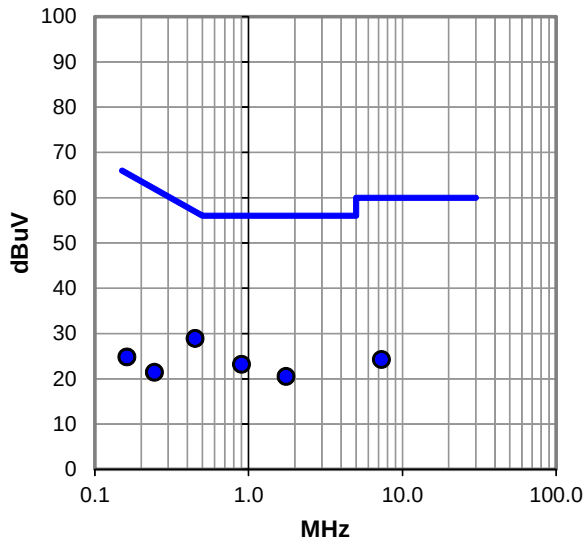
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, Low Channel 2412 MHz

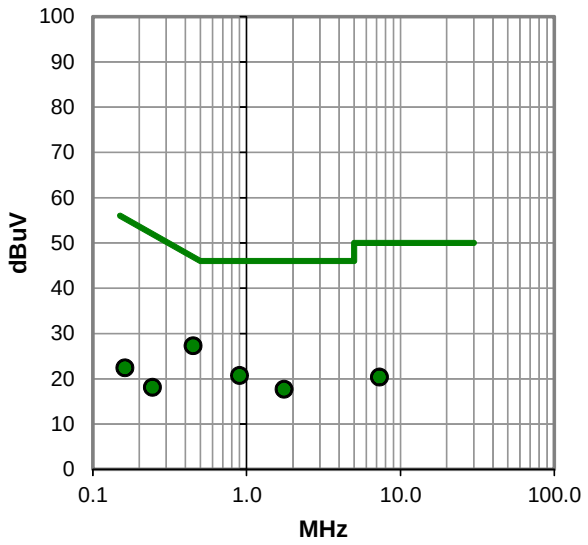
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	8.7	20.2	28.9	56.9	-28.0
0.899	3.0	20.2	23.2	56.0	-32.8
1.758	0.2	20.3	20.5	56.0	-35.5
7.312	3.7	20.5	24.2	60.0	-35.8
0.245	1.2	20.2	21.4	61.9	-40.5
0.162	4.6	20.2	24.8	65.4	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	7.1	20.2	27.3	46.9	-19.6
0.899	0.5	20.2	20.7	46.0	-25.3
1.758	-2.6	20.3	17.7	46.0	-28.3
7.312	-0.2	20.5	20.3	50.0	-29.7
0.162	2.2	20.2	22.4	55.4	-33.0
0.245	-2.1	20.2	18.1	51.9	-33.8

CONCLUSION

Pass

Trevor Buls

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	9	Line:	Positive Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

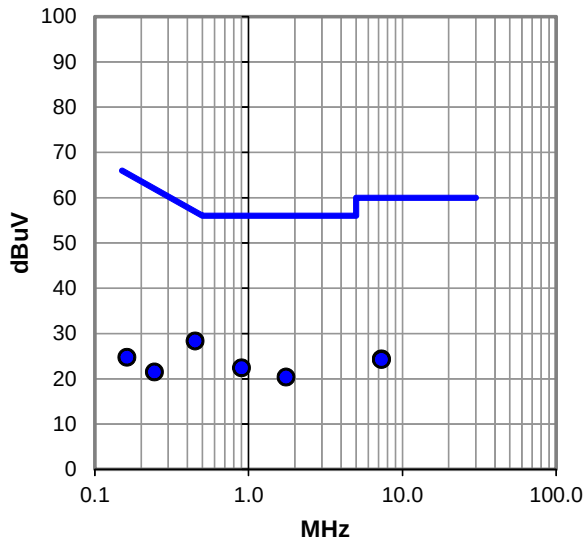
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, Low Channel 2412 MHz

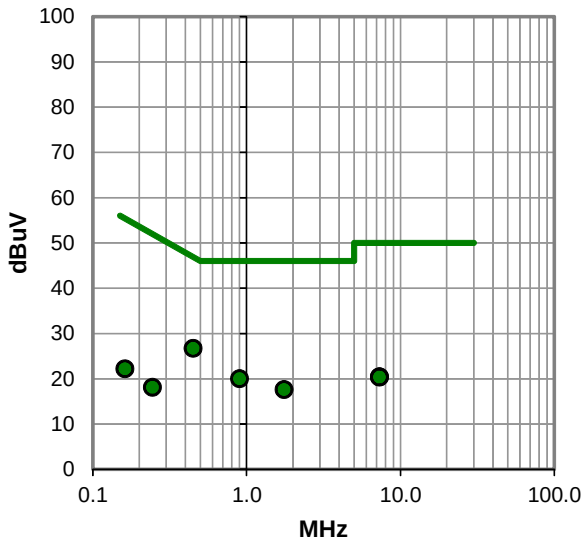
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



NORTHWEST EMC

WTD.2013.06.13, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	8.1	20.2	28.3	56.9	-28.6
0.899	2.2	20.2	22.4	56.0	-33.6
1.758	0.1	20.3	20.4	56.0	-35.6
7.312	3.8	20.5	24.3	60.0	-35.7
7.312	3.7	20.5	24.2	60.0	-35.8
0.245	1.3	20.2	21.5	61.9	-40.4
0.162	4.5	20.2	24.7	65.4	-40.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	6.5	20.2	26.7	46.9	-20.2
0.899	-0.2	20.2	20.0	46.0	-26.0
1.758	-2.7	20.3	17.6	46.0	-28.4
7.312	-0.1	20.5	20.4	50.0	-29.6
7.312	-0.2	20.5	20.3	50.0	-29.7
0.162	2.0	20.2	22.2	55.4	-33.2
0.245	-2.1	20.2	18.1	51.9	-33.8

CONCLUSION

Pass

Trevor Buls

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	10	Line:	Positive Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

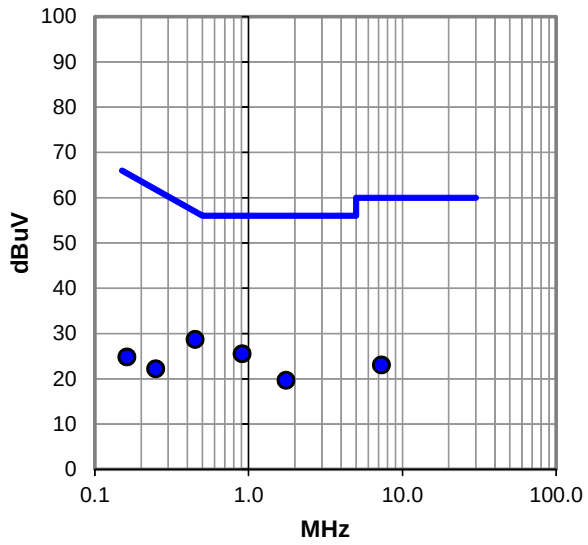
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, Mid Channel 2437 MHz

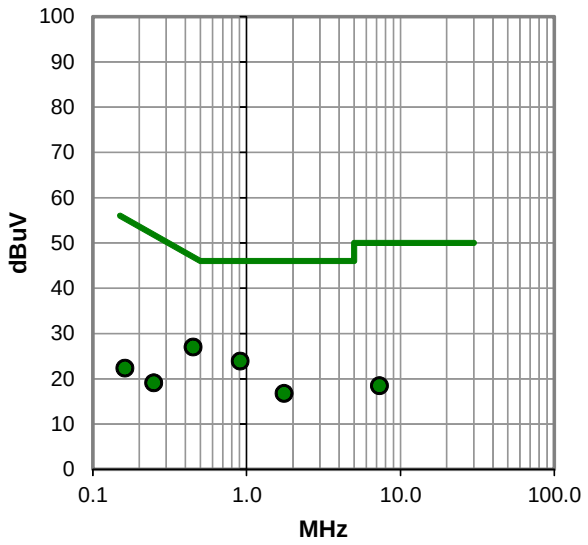
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	8.5	20.2	28.7	56.9	-28.2
0.911	5.3	20.2	25.5	56.0	-30.5
1.758	-0.6	20.3	19.7	56.0	-36.3
7.312	2.5	20.5	23.0	60.0	-37.0
0.249	2.0	20.2	22.2	61.8	-39.6
0.162	4.6	20.2	24.8	65.4	-40.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	6.8	20.2	27.0	46.9	-19.9
0.911	3.7	20.2	23.9	46.0	-22.1
1.758	-3.5	20.3	16.8	46.0	-29.2
7.312	-2.1	20.5	18.4	50.0	-31.6
0.249	-1.1	20.2	19.1	51.8	-32.7
0.162	2.1	20.2	22.3	55.4	-33.1

CONCLUSION

Pass

Trevor Buls

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	11	Line:	Negative Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

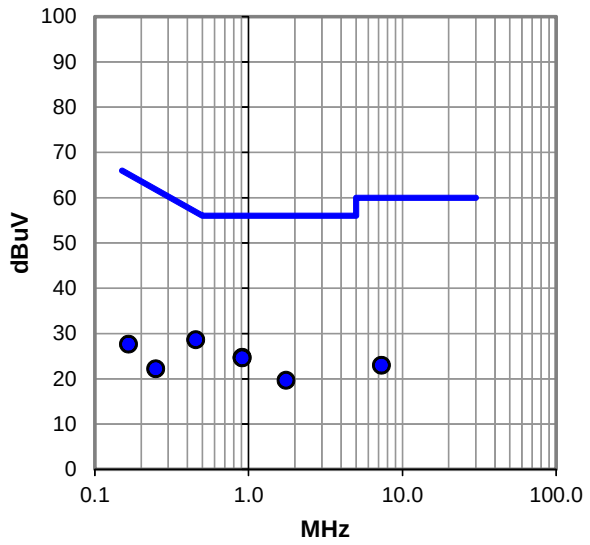
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, Mid Channel 2437 MHz

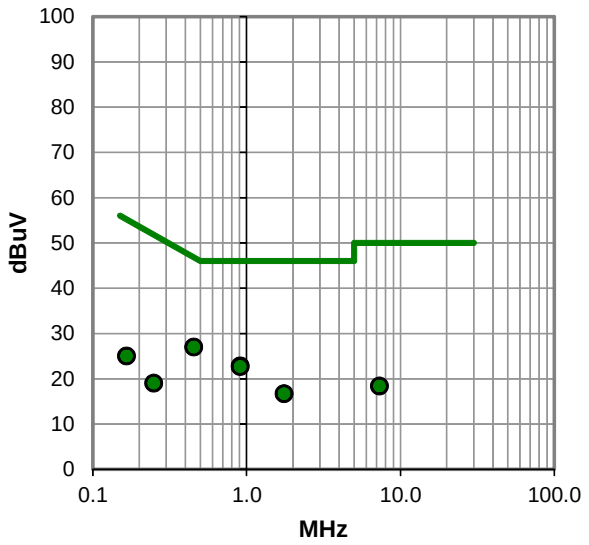
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.453	8.4	20.2	28.6	56.8	-28.2
0.911	4.5	20.2	24.7	56.0	-31.3
0.911	4.4	20.2	24.6	56.0	-31.4
1.758	-0.6	20.3	19.7	56.0	-36.3
7.312	2.4	20.5	22.9	60.0	-37.1
0.166	7.4	20.2	27.6	65.2	-37.6
0.249	2.0	20.2	22.2	61.8	-39.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.453	6.8	20.2	27.0	46.8	-19.8
0.911	2.6	20.2	22.8	46.0	-23.2
0.911	2.5	20.2	22.7	46.0	-23.3
1.758	-3.6	20.3	16.7	46.0	-29.3
0.166	4.8	20.2	25.0	55.2	-30.2
7.312	-2.2	20.5	18.3	50.0	-31.7
0.249	-1.2	20.2	19.0	51.8	-32.8

CONCLUSION

Pass

Trevor Buls

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	12	Line:	Negative Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

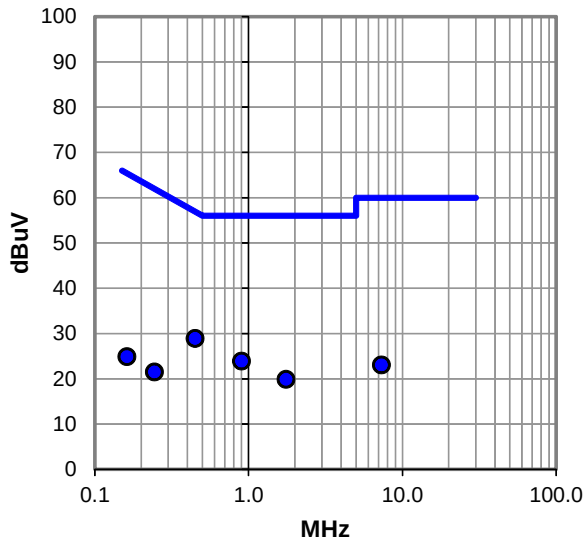
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, High Channel 2462 MHz

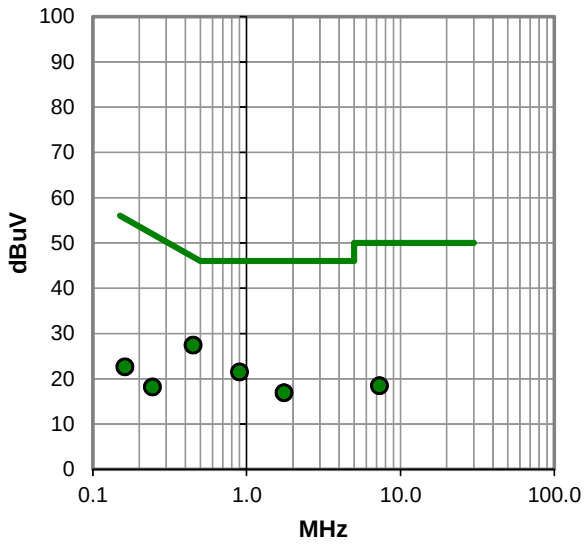
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	8.7	20.2	28.9	56.9	-28.0
0.899	3.7	20.2	23.9	56.0	-32.1
1.758	-0.4	20.3	19.9	56.0	-36.1
7.312	2.5	20.5	23.0	60.0	-37.0
0.245	1.3	20.2	21.5	61.9	-40.4
0.162	4.7	20.2	24.9	65.4	-40.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	7.2	20.2	27.4	46.9	-19.5
0.899	1.3	20.2	21.5	46.0	-24.5
1.758	-3.4	20.3	16.9	46.0	-29.1
7.312	-2.1	20.5	18.4	50.0	-31.6
0.162	2.4	20.2	22.6	55.4	-32.8
0.245	-2.0	20.2	18.2	51.9	-33.7

CONCLUSION

Pass

Trevor Buls

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	LifeSense Wireless Gateway	Work Order:	SPCD0019
Serial Number:	None	Date:	06/28/2013
Customer:	Spectrum Design Solutions	Temperature:	23.7°C
Attendees:	Jon Campbell	Relative Humidity:	54.5%
Customer Project:	None	Bar. Pressure:	1008.4 mb
Tested By:	Trevor Buls	Job Site:	MN03
Power:	12VDC	Configuration:	SPCD0019-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2013	ANSI C63.10:2009

TEST PARAMETERS

Run #:	13	Line:	Positive Lead	Ext. Attenuation (dB):	20

COMMENTS

Data below is representative of the intentional emissions.

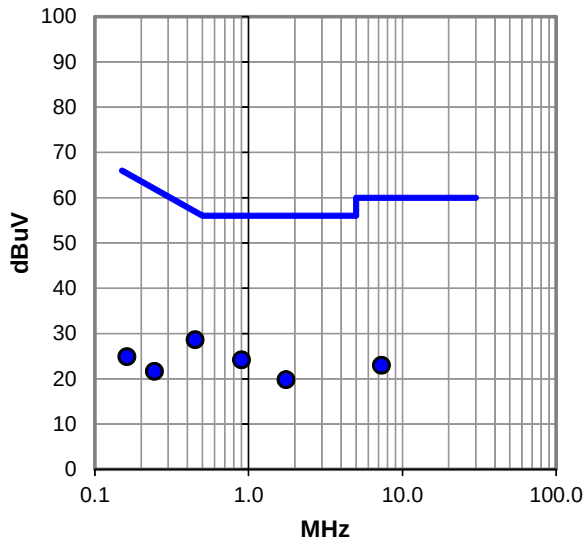
EUT OPERATING MODES

Transmitting 802.11 1 Mbps, High Channel 2462 MHz

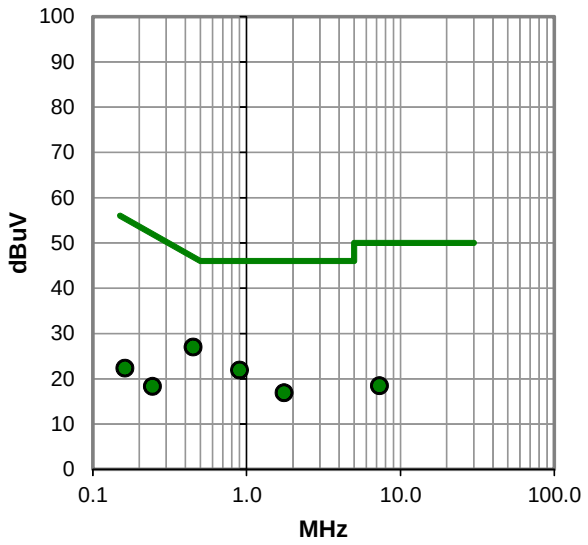
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



NORTHWEST EMC

WTD.2013.06.13, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	8.4	20.2	28.6	56.9	-28.3
0.899	4.0	20.2	24.2	56.0	-31.8
1.758	-0.5	20.3	19.8	56.0	-36.2
7.312	2.4	20.5	22.9	60.0	-37.1
0.245	1.4	20.2	21.6	61.9	-40.3
0.162	4.7	20.2	24.9	65.4	-40.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.449	6.8	20.2	27.0	46.9	-19.9
0.899	1.7	20.2	21.9	46.0	-24.1
1.758	-3.4	20.3	16.9	46.0	-29.1
7.312	-2.1	20.5	18.4	50.0	-31.6
0.162	2.1	20.2	22.3	55.4	-33.1
0.245	-1.9	20.2	18.3	51.9	-33.6

CONCLUSION

Pass

Trevor Buls

Tested By