NORTHWEST EMC

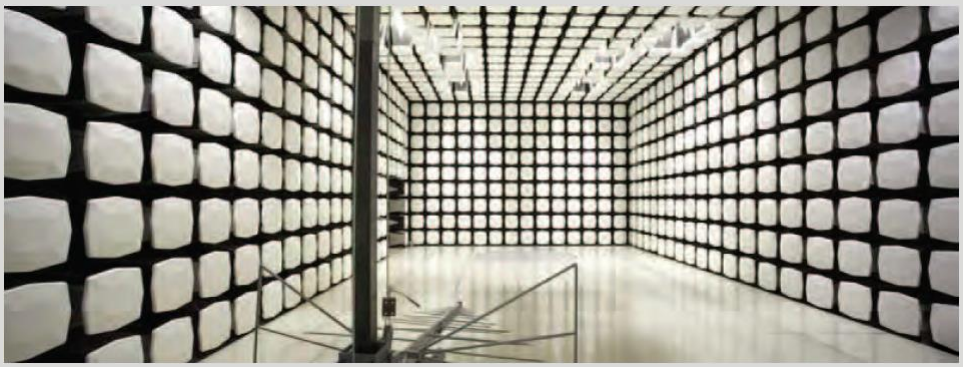
Awarepoint Corporation

BLEB

FCC 15.247:2016

802.11 bg SISO Radio Module

Report # AWAR0023.2



NVLAP TESTING

NVLAP Lab Code: 200676-0

CERTIFICATE OF TEST

NORTHWEST EMC
2014-12-10

Last Date of Test: August 8, 2016
Awarepoint Corporation
Model: BLEB

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2016	ANSI C63.10:2013, KDB 558074

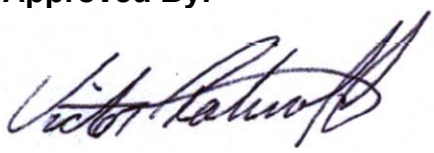
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for a battery powered EUT.
6.5, 6.6, 11.12.1, 11.13.2	Spurious Radiated Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.2.2.4	Output Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Victor Ratinoff, Operations Manager

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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

REVISION HISTORY

NORTHWEST EMC
REV 2014.10.14

Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

REV 2016.7.25

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 17065 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

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

European Union

European Commission – Validated by the European Commission 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

MSIP / 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.

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/
http://gsi.nist.gov/global/docs/cabs/designations.html

MEASUREMENT UNCERTAINTY

TMU.2015.07.10

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 QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. 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 16-4-2 as applicable), and are available upon request.

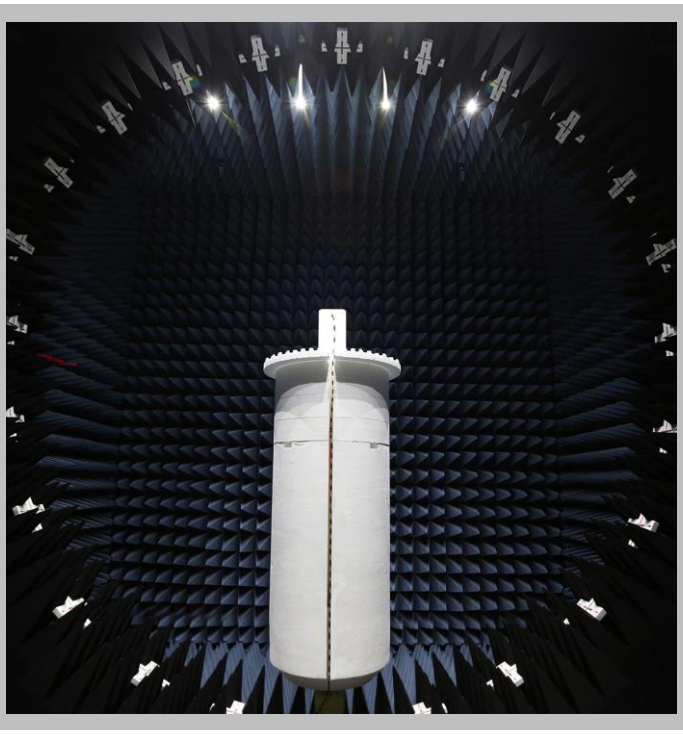
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

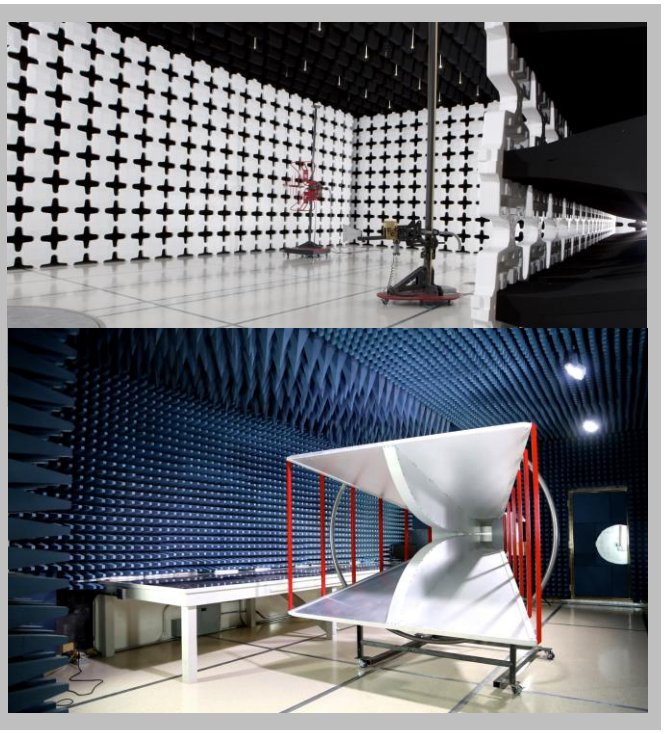
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

FACILITIES

REV 2016.7.25

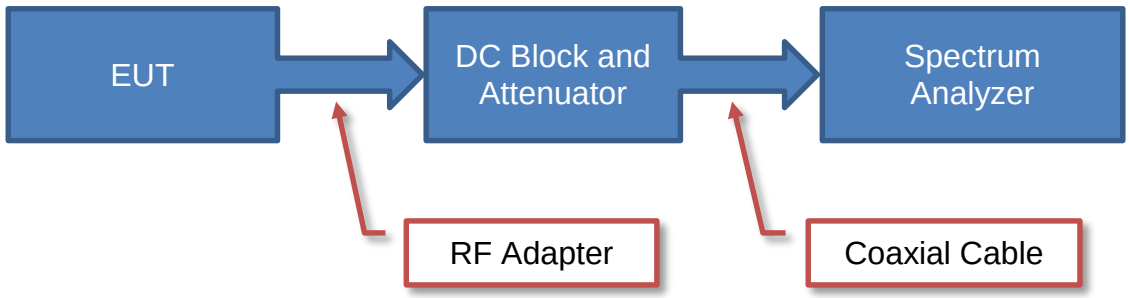
California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-*2*	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



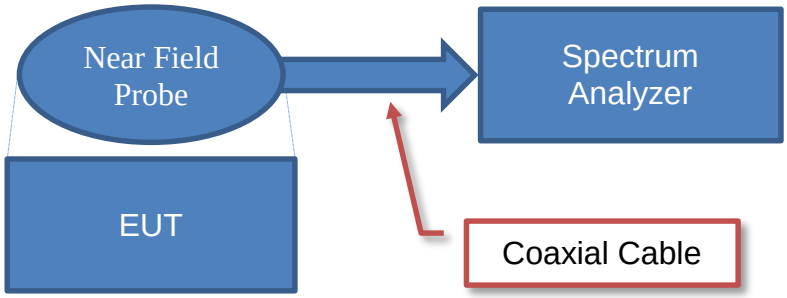


Test Setup Block Diagrams

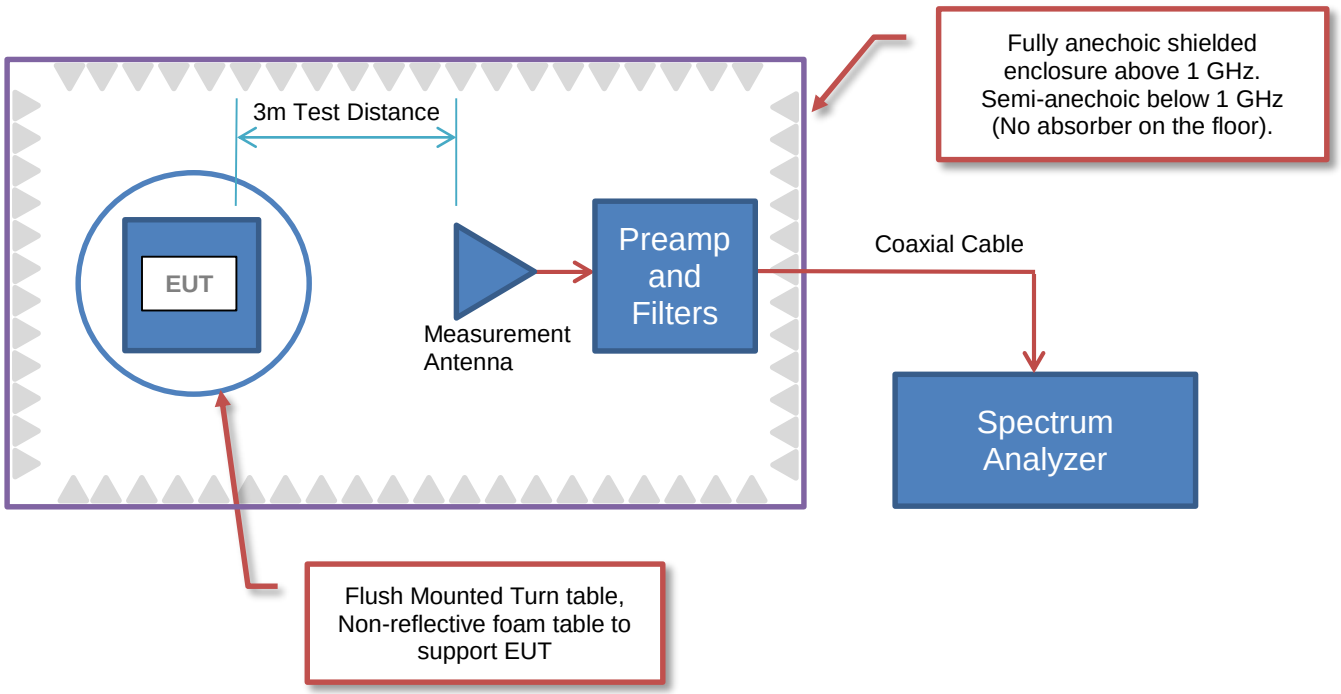
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

2014-12-10

Client and Equipment Under Test (EUT) Information

Company Name:	Awarepoint Corporation
Address:	600 W. Broadway Suite 250
City, State, Zip:	San Diego, CA 92101
Test Requested By:	John Taylor
Model:	BLEB
First Date of Test:	August 1, 2016
Last Date of Test:	August 8, 2016
Receipt Date of Samples:	July 26, 2016
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
BLE Beacon: Primarily a Bluetooth low energy broadcaster (transmitter) that sends out beacon messages at a typical 5 per second rate. Periodically (about once per day) this device will connect to a WiFi access point for configuration and firmware updates.

Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.247 for operation in the 2.4 GHz band.

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration AWAR0023- 3

Software/Firmware Running during test	
Description	**Version**
RadioTool GUI	1.2.5942.19689

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
WiFi and Bluetooth Radio	Awarepoint Corporation	BLEB	QS15260346

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	VOSTRO 3550	FJRVLR1
AC/DC Power Supply	Dell	LA90PS0-00	CN-0DF266-71615-73O-0B34
WiFi Interface Board	Texas Instruments	CC3100BOOST	A8013723

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	0.75m	No	AC mains	AC/DC Power Supply
DC Cable	No	1.5m	Yes	AC/DC Power Supply	Laptop
Ribbon Cable	No	0.1m	No	WiFi Interface Board	WiFi and Bluetooth Radio
Micro USB Cable	No	1.0m	No	WiFi Interface Board	Laptop

MODIFICATIONS

NORTHWEST EMC
2014-12-10

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	8/1/2016	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.
2	8/8/2016	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.
3	8/8/2016	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.
4	8/8/2016	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.
5	8/8/2016	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.
6	8/8/2016	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.
7	8/8/2016	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

OCCUPIED BANDWIDTH

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

OCCUPIED BANDWIDTH

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**50% RH**
Project:	**None**			**Barometric Pres.:**	**1013 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2016	ANSI C63.10:2013

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

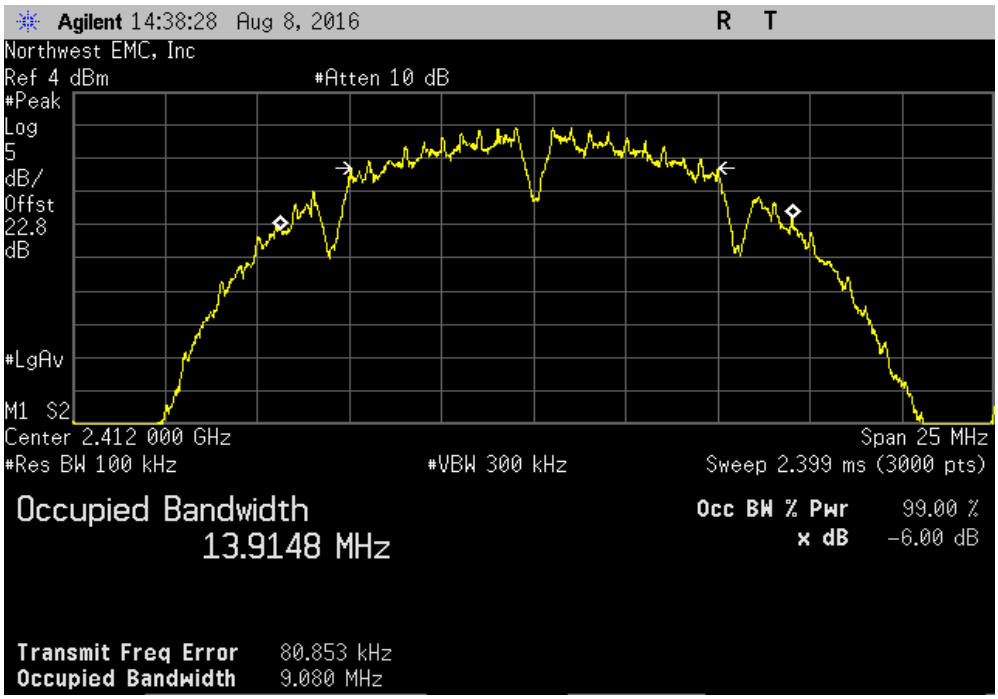
DEVIATIONS FROM TEST STANDARD

None

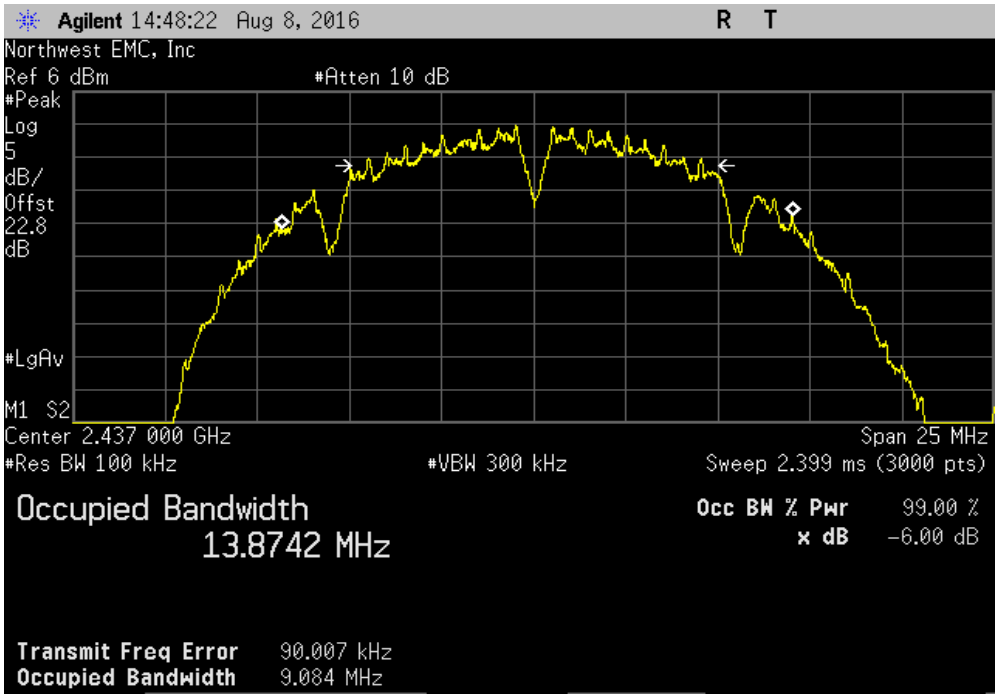
Configuration #	**3**	*Signature*

	Value	Limit (>)	Result
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	9.08 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	9.084 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	9.107 MHz	500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	9.266 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	9.86 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	10.44 MHz	500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	14.872 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	14.979 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	15.093 MHz	500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	16.386 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.198 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.037 MHz	500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	16.152 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.307 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	15.967 MHz	500 kHz	Pass

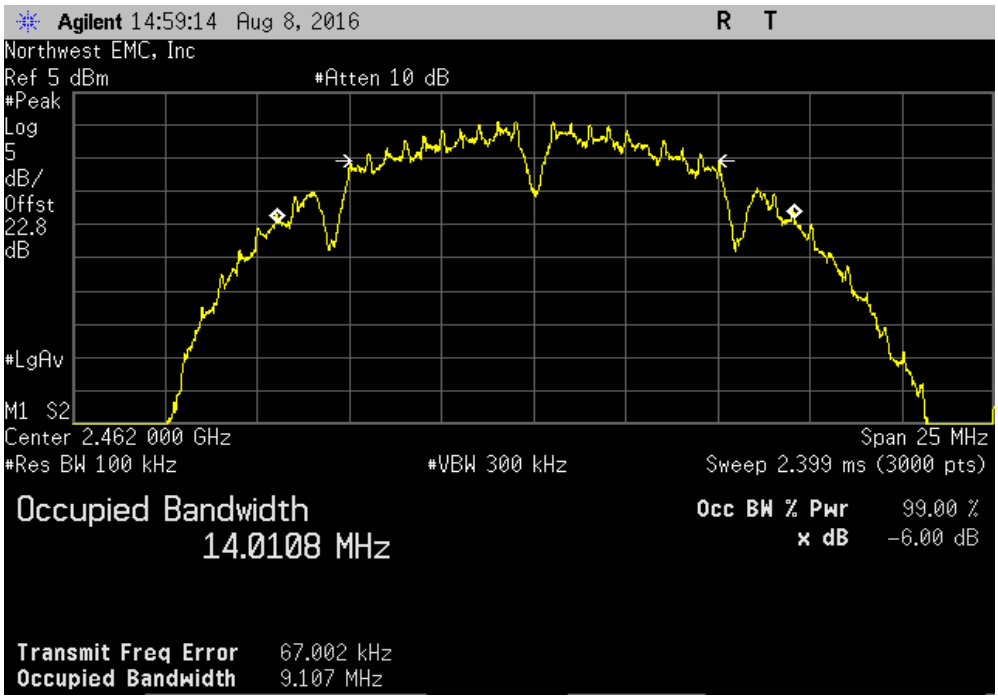
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				9.08 MHz	500 kHz	Pass



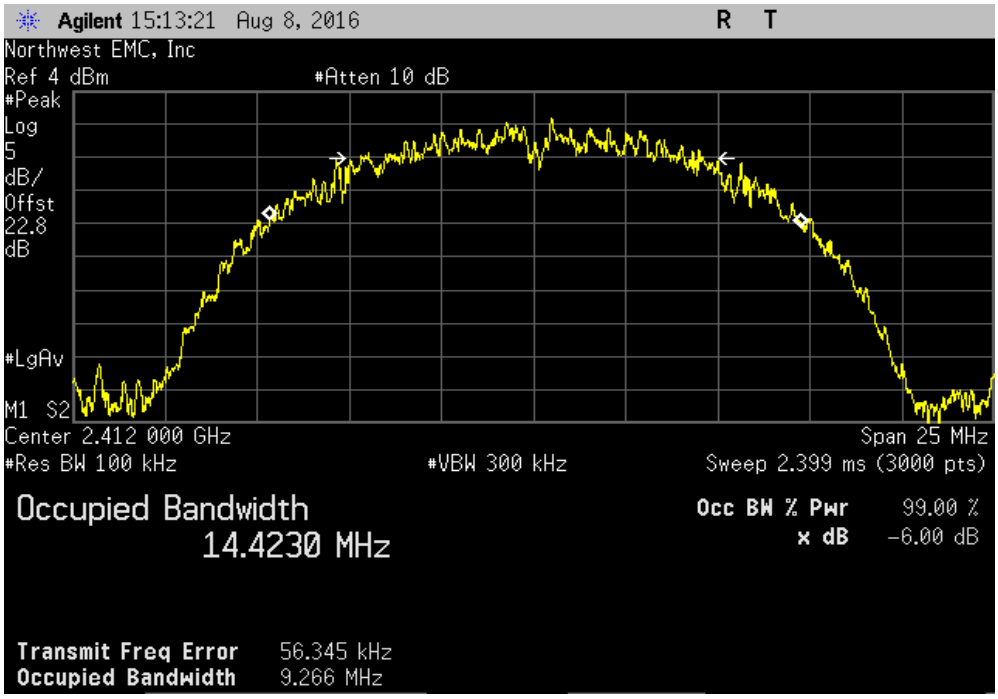
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				9.084 MHz	500 kHz	Pass



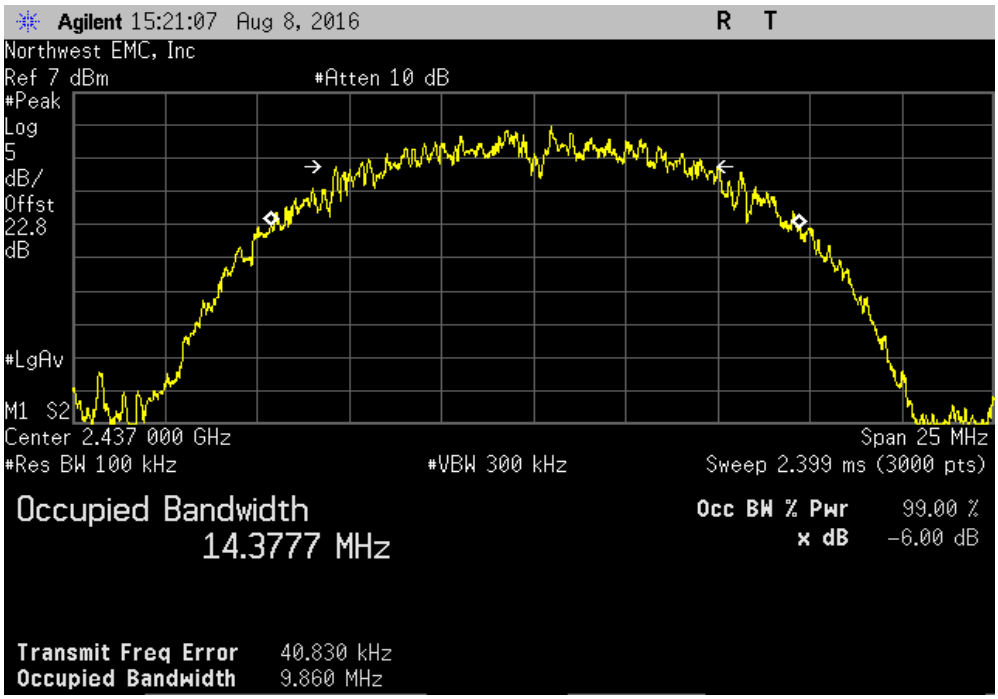
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				9.107 MHz	500 kHz	Pass



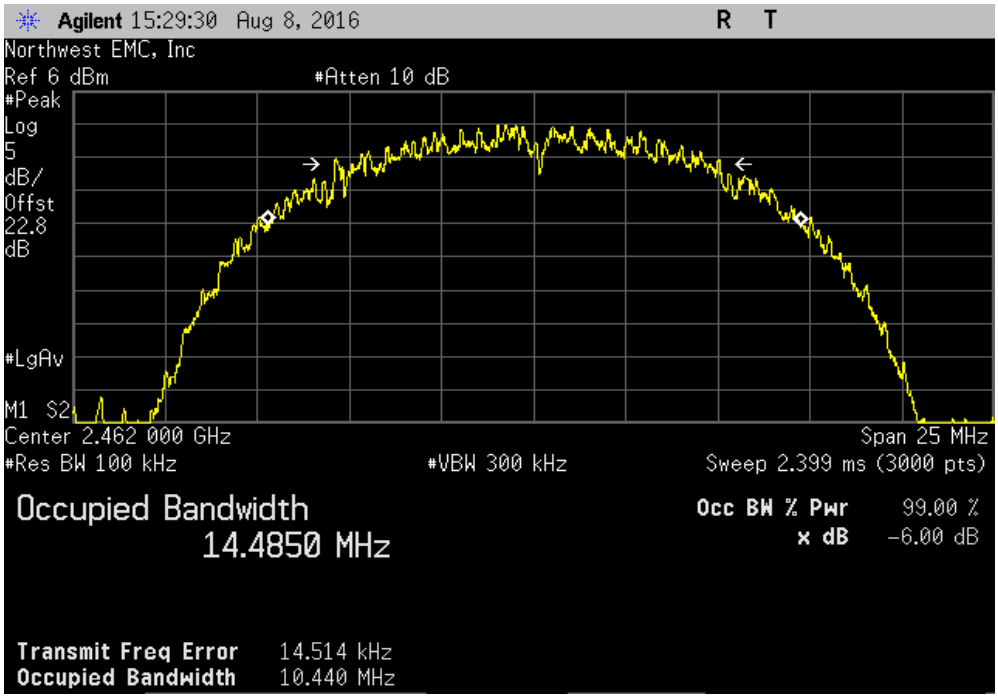
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				9.266 MHz	500 kHz	Pass



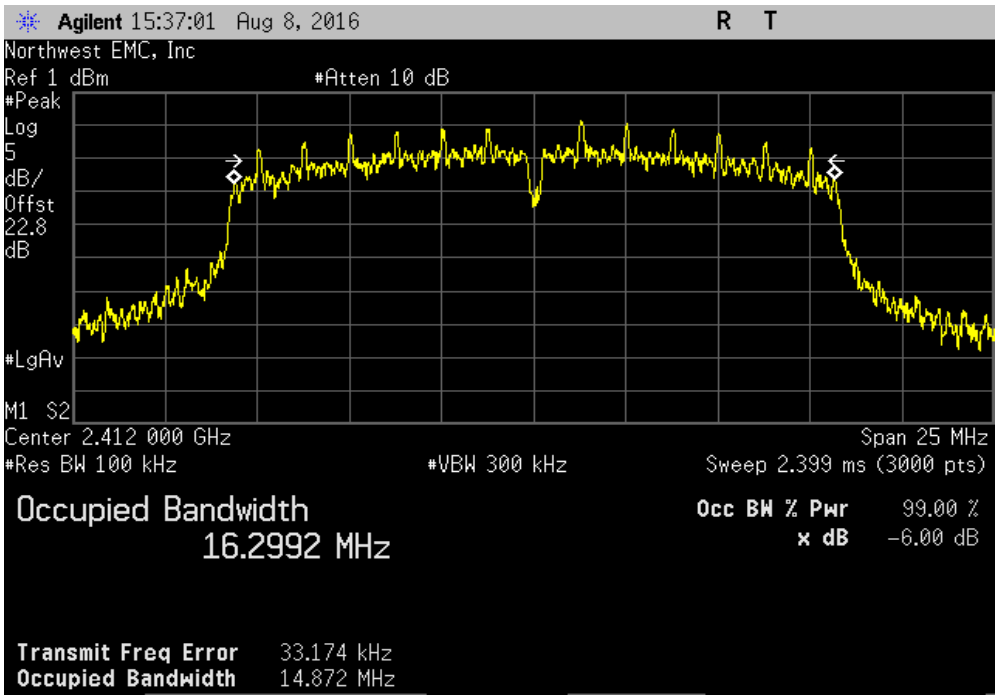
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				9.86 MHz	500 kHz	Pass



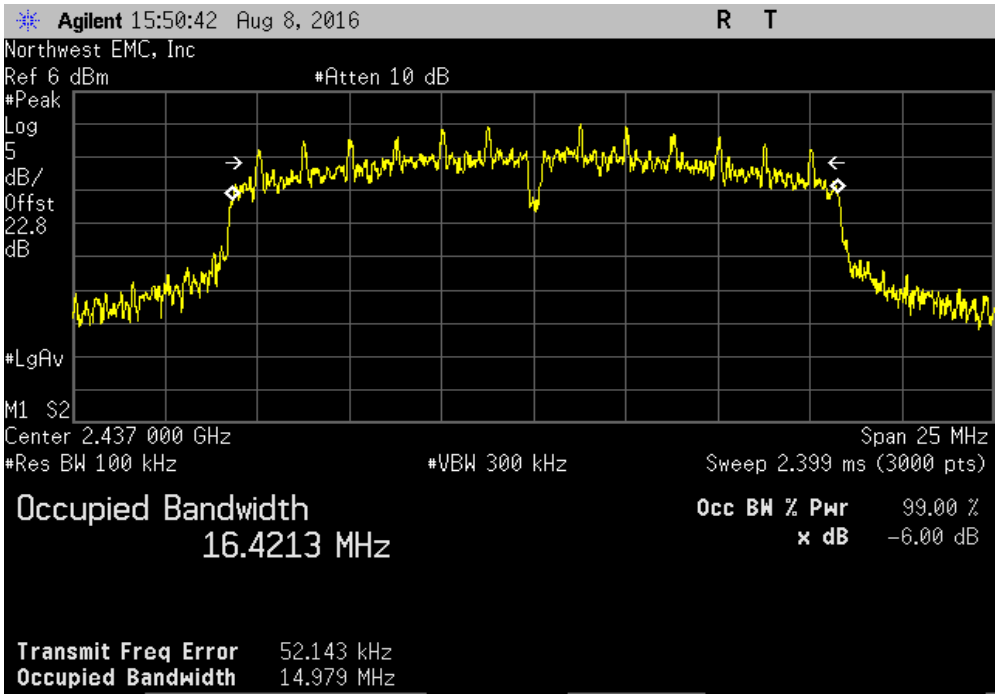
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				10.44 MHz	500 kHz	Pass



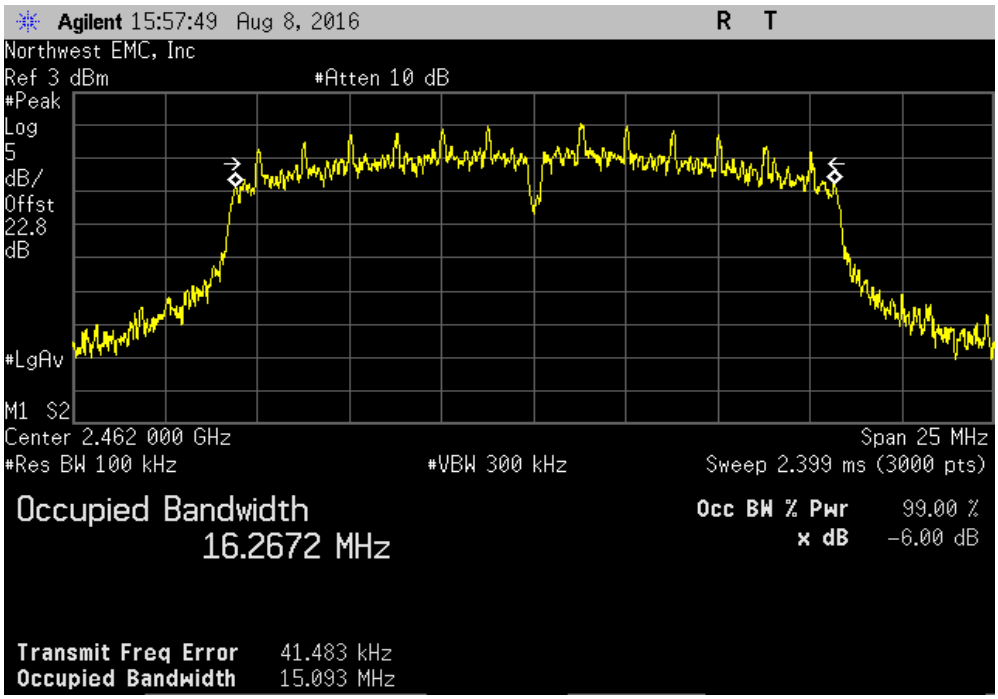
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				14.872 MHz	500 kHz	Pass



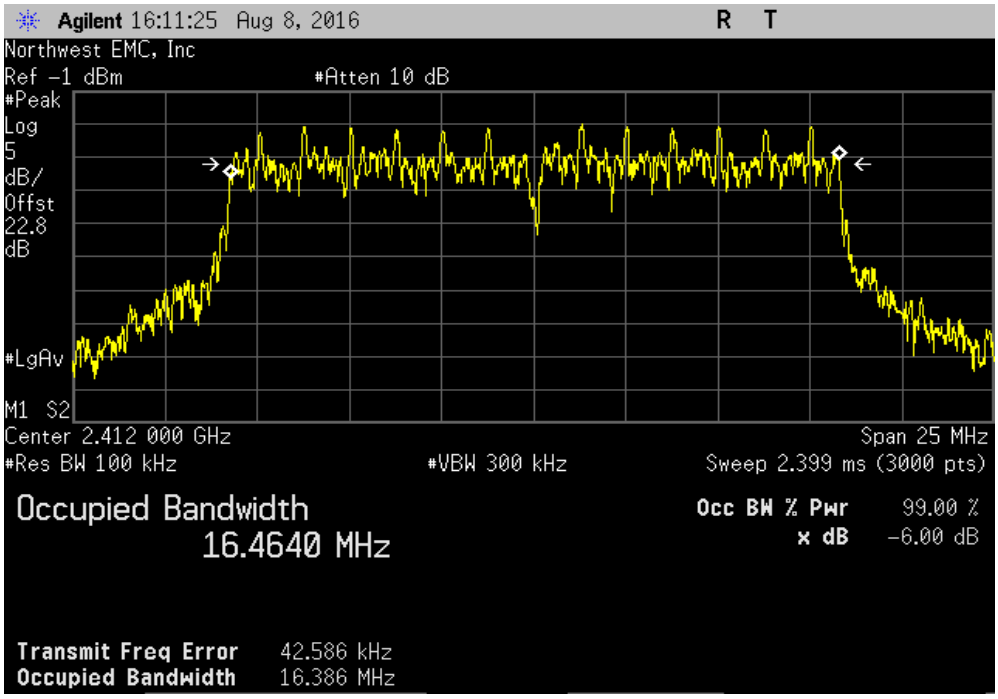
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				14.979 MHz	500 kHz	Pass



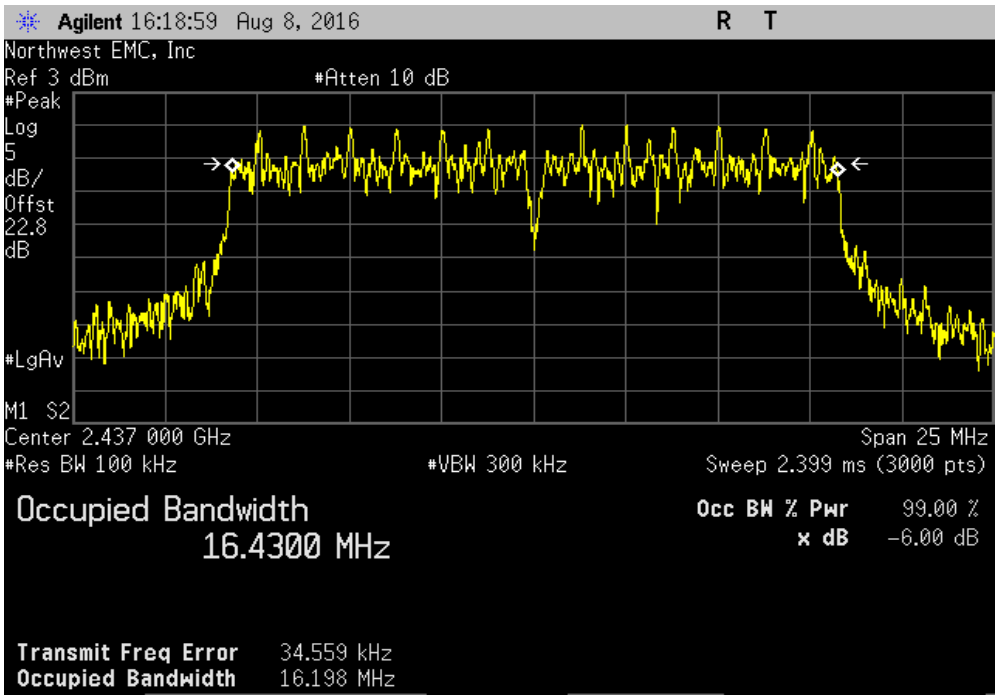
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.093 MHz	500 kHz	Pass



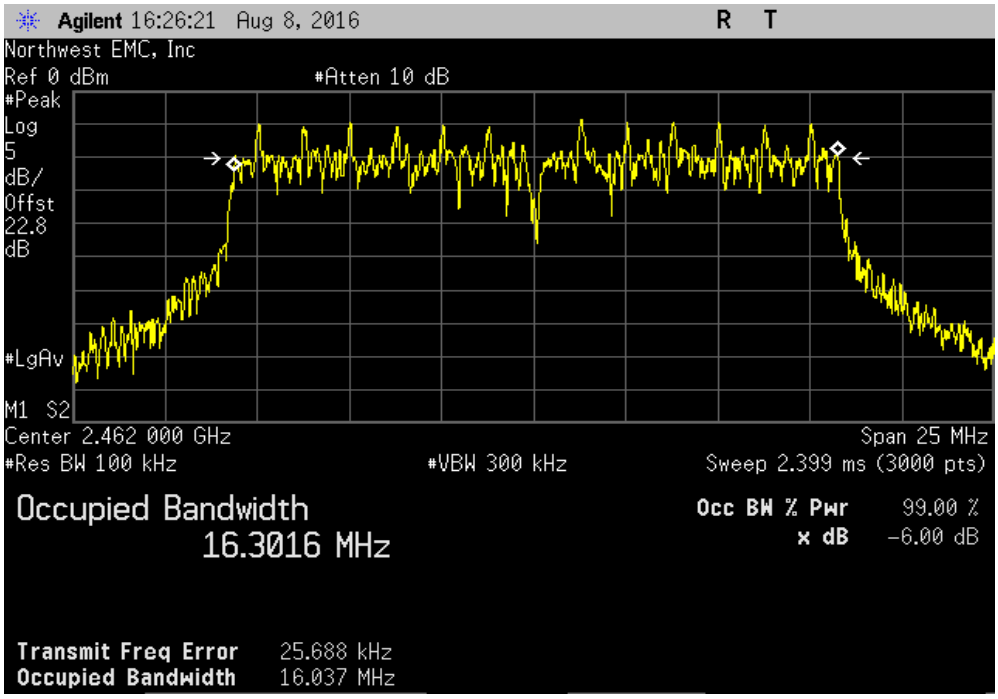
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.386 MHz	500 kHz	Pass



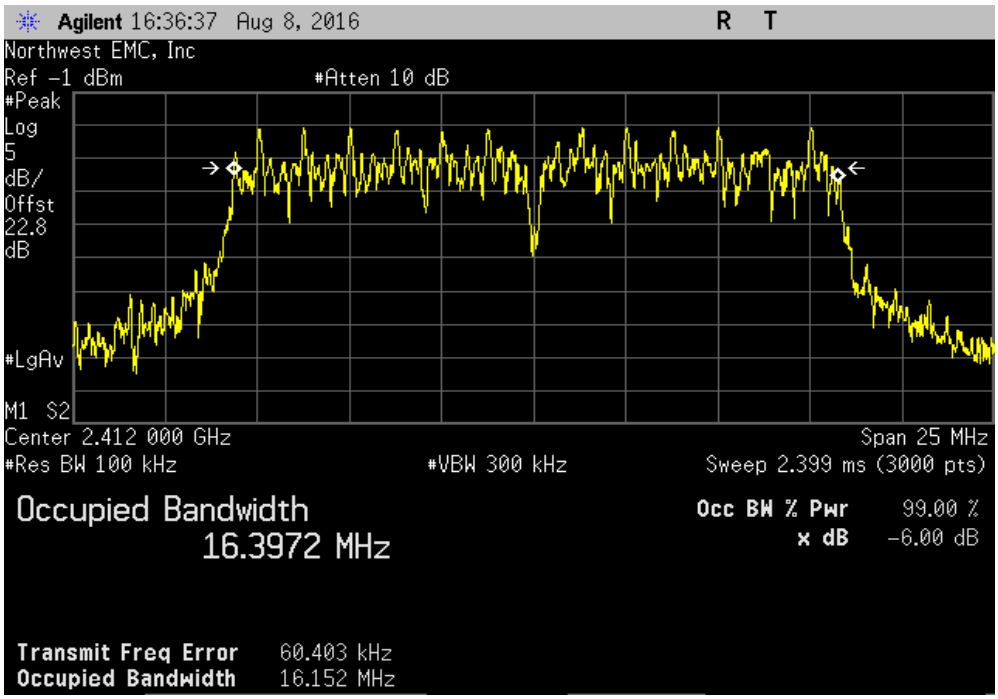
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.198 MHz	500 kHz	Pass



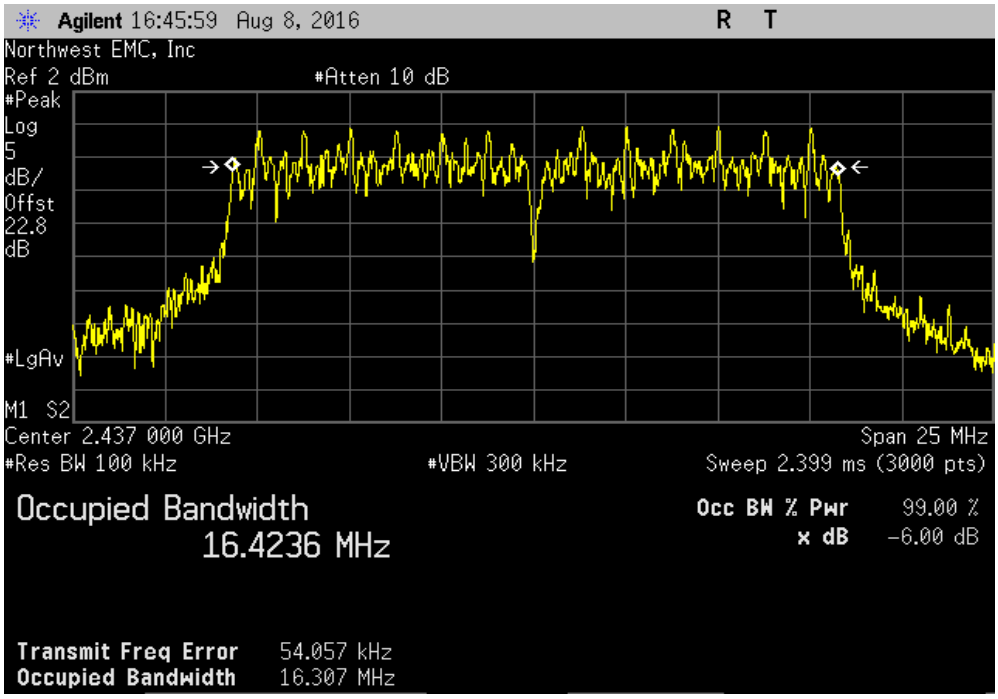
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.037 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.152 MHz	500 kHz	Pass



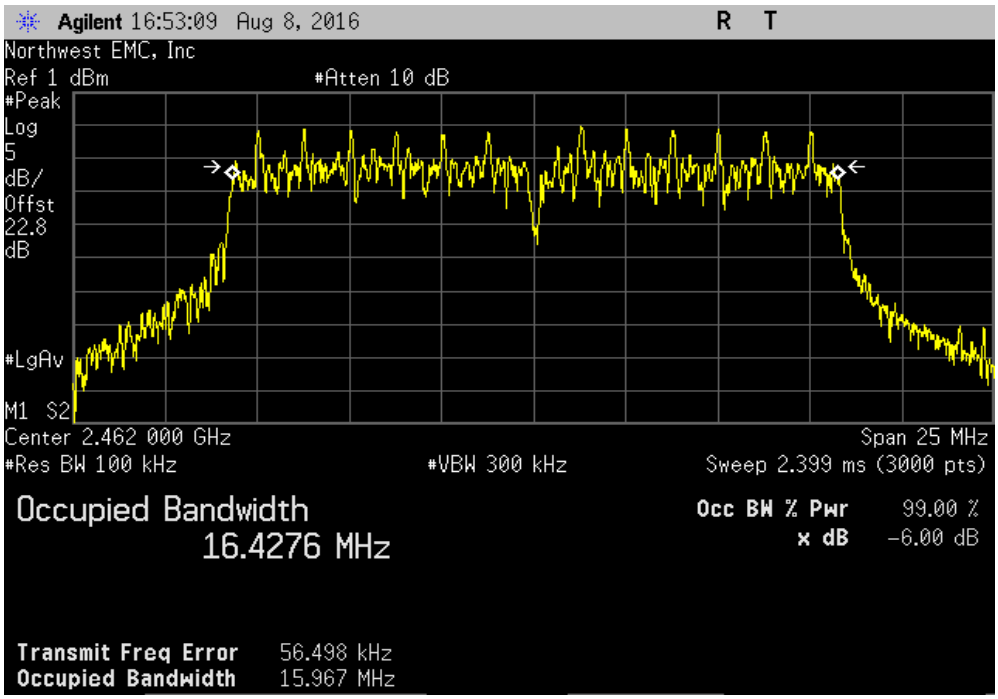
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.307 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.967 MHz	500 kHz	Pass



SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2016.04.26.1

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 802.11bg at Low Channel 1(2412MHz), Mid Channel 6(2437MHz), and High Channel 11(2462MHz)

POWER SETTINGS INVESTIGATED

USB Powered

CONFIGURATIONS INVESTIGATED

AWAR0023 - 3

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
Filter - Low Pass	Micro-Tronics	LPM50004	LFC	11/3/2015	12 mo
Attenuator	Coaxicom	66702 3910AF-20	TKI	3/3/2016	12 mo
Cable	Northwest EMC	8-18GHz RE Cables	OCO	8/26/2015	12 mo
Cable	Northwest EMC	18-26GHz RE Cables	OCK	1/6/2016	12 mo
Cable	Northwest EMC	1-8GHz RE Cables	OCJ	8/26/2015	12 mo
Cable	Northwest EMC	10kHz-1GHz RE Cables	OCH	3/3/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HFM	2/9/2016	12 mo
Antenna - Biconilog	EMCO	3142B	AXK	10/6/2014	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	8/26/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1064-9079	AOO	3/3/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	1/6/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	8/31/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	8/31/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AHT	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHR	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHN	NCR	0 mo
Antenna - Double Ridge	EMCO	3115	AHB	3/21/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	2/9/2016	12 mo

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

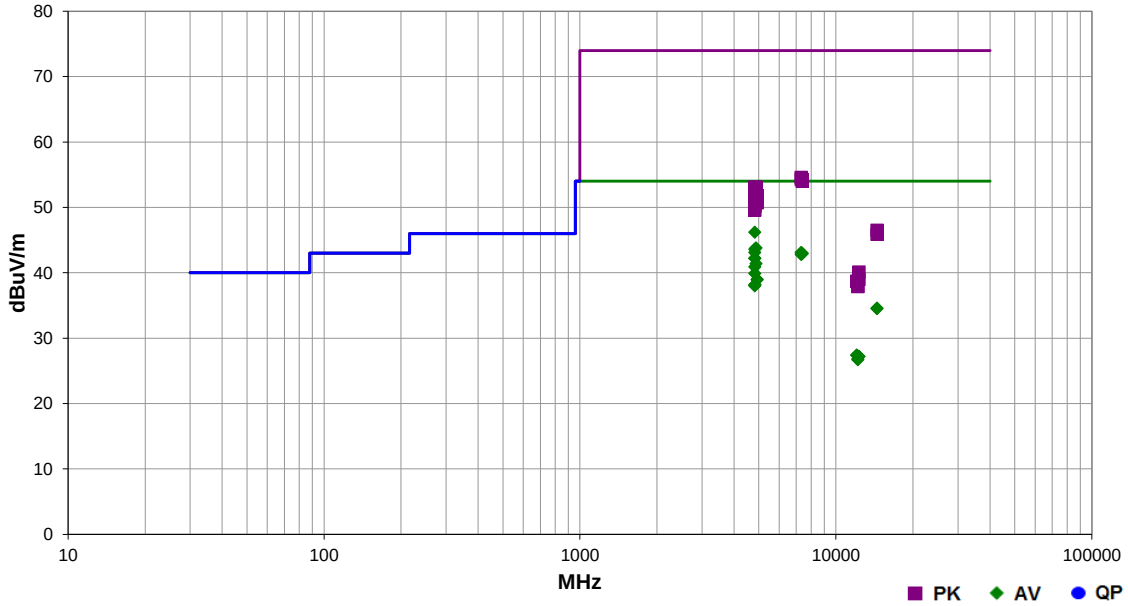
NORTHWEST EMC

PSA-ESCI 2016.04.26.1
EmiR5 2016.04.26.1

Work Order:	AWAR0023	**Date:**	08/01/16		
Project:	None	**Temperature:**	21.9 °C		
Job Site:	OC03	**Humidity:**	46% RH		
Serial Number:	QS15260346	**Barometric Pres.:**	1017 mbar	**Tested by:**	Mike Tran
EUT:	BLEB				
Configuration:	3				
Customer:	Awarepoint Corporation				
Attendees:	None				
EUT Power:	USB Powered				
Operating Mode:	Transmitting 802.11bg at Low Channel 1(2412MHz), Mid Channel 6(2437MHz), and High Channel 11(2462MHz)				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2016	ANSI C63.10:2013

Run #	12	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**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
4823.992	35.7	10.5	1.0	244.0	3.0	0.0	Horz	AV	0.0	46.2	54.0	-7.8	Low Ch 1, 1Mbps, EUT on Side
4874.042	33.2	10.6	1.7	216.0	3.0	0.0	Horz	AV	0.0	43.8	54.0	-10.2	Mid Ch 6, 1Mbps, EUT on Side
4824.083	33.1	10.5	1.0	335.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	Low Ch 1, 1Mbps, EUT Horz
4824.017	32.6	10.5	1.7	168.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	Low Ch 1, 1Mbps, EUT Vert
7311.450	26.9	16.2	1.7	77.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	Mid Ch 6, 1Mbps, EUT Horz
7387.917	26.6	16.4	1.7	131.0	3.0	0.0	Vert	AV	0.0	43.0	54.0	-11.0	High Ch 11, 1Mbps, EUT Horz
7388.375	26.5	16.4	1.7	346.0	3.0	0.0	Horz	AV	0.0	42.9	54.0	-11.1	High Ch 11, 1Mbps, EUT on Side
7311.608	26.6	16.2	1.7	84.0	3.0	0.0	Horz	AV	0.0	42.8	54.0	-11.2	Mid Ch 6, 1Mbps, EUT on Side
4824.067	31.7	10.5	1.7	218.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Low Ch 1, 1Mbps, EUT Horz
4824.008	31.7	10.5	1.7	216.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Low Ch 1, 1Mbps, EUT Vert
4874.017	30.8	10.6	1.7	4.0	3.0	0.0	Vert	AV	0.0	41.4	54.0	-12.6	Mid Ch 6, 1Mbps, EUT Horz
4824.025	30.4	10.5	1.7	203.0	3.0	0.0	Horz	AV	0.0	40.9	54.0	-13.1	Low Ch 1, 11Mbps, EUT on Side
4823.983	29.4	10.5	1.9	348.0	3.0	0.0	Vert	AV	0.0	39.9	54.0	-14.1	Low Ch 1, 1Mbps, EUT on Side
4924.458	28.3	10.7	1.7	197.0	3.0	0.0	Horz	AV	0.0	39.0	54.0	-15.0	High Ch 11, 1Mbps, EUT on Side
4923.883	28.2	10.7	1.7	148.0	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	High Ch 11, 1Mbps, EUT Horz
4826.342	27.7	10.5	1.7	203.0	3.0	0.0	Horz	AV	0.0	38.2	54.0	-15.8	Low Ch 1, 6Mbps, EUT on Side
4824.583	27.6	10.5	1.7	203.0	3.0	0.0	Horz	AV	0.0	38.1	54.0	-15.9	Low Ch 1, 54Mbps, EUT on Side
4825.433	27.5	10.5	1.7	203.0	3.0	0.0	Horz	AV	0.0	38.0	54.0	-16.0	Low Ch 1, 36Mbps, EUT on Side
7312.442	38.4	16.2	1.7	77.0	3.0	0.0	Vert	PK	0.0	54.6	74.0	-19.4	Mid Ch 6, 1Mbps, EUT Horz
14472.300	28.0	6.6	1.7	48.0	3.0	0.0	Horz	AV	0.0	34.6	54.0	-19.4	Low Ch 1, 1Mbps, EUT on Side
14472.190	27.9	6.6	2.9	214.0	3.0	0.0	Vert	AV	0.0	34.5	54.0	-19.5	Low Ch 1, 1Mbps, EUT Horz
7310.008	38.1	16.2	1.7	84.0	3.0	0.0	Horz	PK	0.0	54.3	74.0	-19.7	Mid Ch 6, 1Mbps, EUT on Side
7385.533	37.8	16.4	1.7	131.0	3.0	0.0	Vert	PK	0.0	54.2	74.0	-19.8	High Ch 11, 1Mbps, EUT Horz

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
7383.967	37.6	16.4	1.7	346.0	3.0	0.0	Horz	PK	0.0	54.0	74.0	-20.0	High Ch 11, 1Mbps, EUT on Side
4823.933	42.6	10.5	1.0	244.0	3.0	0.0	Horz	PK	0.0	53.1	74.0	-20.9	Low Ch 1, 1Mbps, EUT on Side
4873.675	42.5	10.6	1.7	216.0	3.0	0.0	Horz	PK	0.0	53.1	74.0	-20.9	Mid Ch 6, 1Mbps, EUT on Side
4823.792	41.4	10.5	1.7	203.0	3.0	0.0	Horz	PK	0.0	51.9	74.0	-22.1	Low Ch 1, 11Mbps, EUT on Side
4922.750	41.1	10.7	1.7	197.0	3.0	0.0	Horz	PK	0.0	51.8	74.0	-22.2	High Ch 11, 1Mbps, EUT on Side
4823.700	41.1	10.5	1.0	335.0	3.0	0.0	Vert	PK	0.0	51.6	74.0	-22.4	Low Ch 1, 1Mbps, EUT Horz
4874.217	40.9	10.6	1.7	4.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	Mid Ch 6, 1Mbps, EUT Horz
4823.342	40.8	10.5	1.7	218.0	3.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	Low Ch 1, 1Mbps, EUT Horz
4823.958	40.8	10.5	1.7	216.0	3.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	Low Ch 1, 1Mbps, EUT Vert
4824.208	40.7	10.5	1.7	168.0	3.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	Low Ch 1, 1Mbps, EUT Vert
4925.058	40.0	10.7	1.7	148.0	3.0	0.0	Vert	PK	0.0	50.7	74.0	-23.3	High Ch 11, 1Mbps, EUT Horz
4824.117	39.9	10.5	1.9	348.0	3.0	0.0	Vert	PK	0.0	50.4	74.0	-23.6	Low Ch 1, 1Mbps, EUT on Side
4823.783	39.8	10.5	1.7	203.0	3.0	0.0	Horz	PK	0.0	50.3	74.0	-23.7	Low Ch 1, 6Mbps, EUT on Side
4822.625	39.6	10.5	1.7	203.0	3.0	0.0	Horz	PK	0.0	50.1	74.0	-23.9	Low Ch 1, 36Mbps, EUT on Side
4824.283	39.1	10.5	1.7	203.0	3.0	0.0	Horz	PK	0.0	49.6	74.0	-24.4	Low Ch 1, 54Mbps, EUT on Side
12058.920	35.7	-8.3	1.7	203.0	3.0	0.0	Vert	AV	0.0	27.4	54.0	-26.6	Low Ch 1, 1Mbps, EUT Horz
12058.320	35.7	-8.3	1.7	303.0	3.0	0.0	Horz	AV	0.0	27.4	54.0	-26.6	Low Ch 1, 1Mbps, EUT on Side
12307.580	35.1	-7.9	1.7	236.0	3.0	0.0	Horz	AV	0.0	27.2	54.0	-26.8	High Ch 11, 1Mbps, EUT on Side
12307.590	35.1	-7.9	1.9	208.0	3.0	0.0	Vert	AV	0.0	27.2	54.0	-26.8	High Ch 11, 1Mbps, EUT Horz
12183.120	34.8	-8.0	1.7	336.0	3.0	0.0	Horz	AV	0.0	26.8	54.0	-27.2	Mid Ch 6, 1Mbps, EUT on Side
12182.720	34.7	-8.0	1.7	182.0	3.0	0.0	Vert	AV	0.0	26.7	54.0	-27.3	Mid Ch 6, 1Mbps, EUT Horz
14473.090	39.9	6.6	1.7	48.0	3.0	0.0	Horz	PK	0.0	46.5	74.0	-27.5	Low Ch 1, 1Mbps, EUT on Side
14473.500	39.3	6.6	2.9	214.0	3.0	0.0	Vert	PK	0.0	45.9	74.0	-28.1	Low Ch 1, 1Mbps, EUT Horz
12309.760	48.0	-7.9	1.9	208.0	3.0	0.0	Vert	PK	0.0	40.1	74.0	-33.9	High Ch 11, 1Mbps, EUT Horz
12310.440	46.9	-7.9	1.7	236.0	3.0	0.0	Horz	PK	0.0	39.0	74.0	-35.0	High Ch 11, 1Mbps, EUT on Side
12058.410	47.0	-8.3	1.7	203.0	3.0	0.0	Vert	PK	0.0	38.7	74.0	-35.3	Low Ch 1, 1Mbps, EUT Horz
12058.050	47.0	-8.3	1.7	303.0	3.0	0.0	Horz	PK	0.0	38.7	74.0	-35.3	Low Ch 1, 1Mbps, EUT on Side
12182.580	45.9	-8.0	1.7	182.0	3.0	0.0	Vert	PK	0.0	37.9	74.0	-36.1	Mid Ch 6, 1Mbps, EUT Horz
12184.830	45.9	-8.0	1.7	336.0	3.0	0.0	Horz	PK	0.0	37.9	74.0	-36.1	Mid Ch 6, 1Mbps, EUT on Side

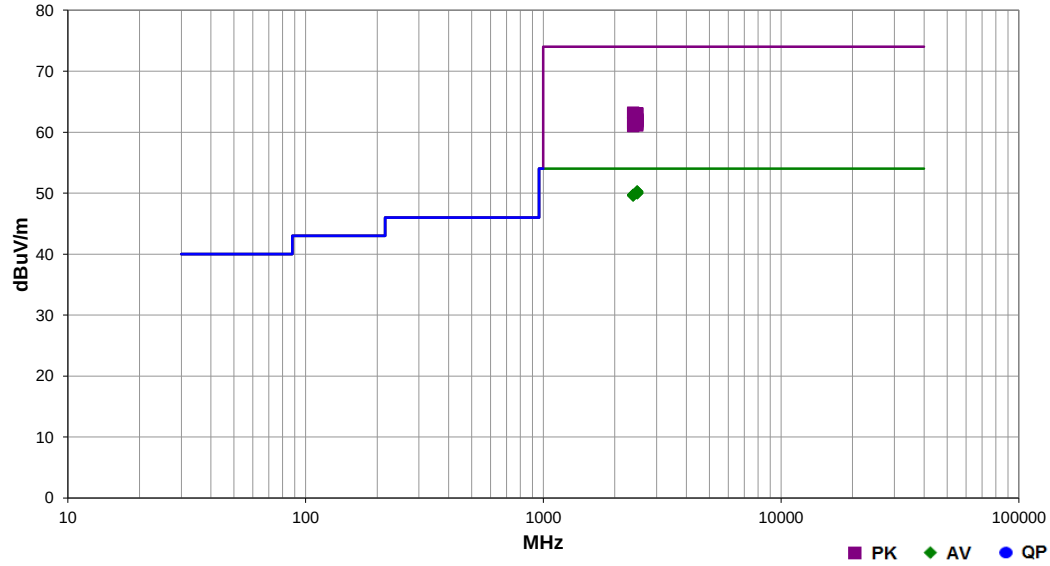
SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2016.04.26.1
EmiR5 2016.04.26.1

Work Order:	AWAR0023	**Date:**	08/01/16		
Project:	None	**Temperature:**	21.9 °C		
Job Site:	OC03	**Humidity:**	46% RH		
Serial Number:	QS15260346	**Barometric Pres.:**	1017 mbar	**Tested by:**	Mike Tran
EUT:	BLEB				
Configuration:	3				
Customer:	Awarepoint Corporation				
Attendees:	None				
EUT Power:	USB Powered				
Operating Mode:	Transmitting 802.11bg at Low Channel 1(2412MHz) and High Channel 11(2462MHz)				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2016	ANSI C63.10:2013

Run #	16	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**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
2483.667	28.5	1.8	1.7	331.0	3.0	20.0	Horz	AV	0.0	50.3	54.0	-3.7	High Ch 11, 6Mbps, EUT on Side
2485.127	28.4	1.8	1.7	252.0	3.0	20.0	Horz	AV	0.0	50.2	54.0	-3.8	High Ch 11, 6Mbjps, EUT Horz
2485.220	28.4	1.8	1.7	331.0	3.0	20.0	Horz	AV	0.0	50.2	54.0	-3.8	High Ch 11, 1Mbps, EUT on Side
2484.260	28.4	1.8	1.7	331.0	3.0	20.0	Horz	AV	0.0	50.2	54.0	-3.8	High Ch 11, 11Mbps, EUT on Side
2483.650	28.3	1.8	4.0	193.0	3.0	20.0	Vert	AV	0.0	50.1	54.0	-3.9	High Ch 11, 6Mbps, EUT Vert
2484.720	28.2	1.8	1.7	127.0	3.0	20.0	Vert	AV	0.0	50.0	54.0	-4.0	High Ch 11, 6Mbps, EUT on Side
2484.913	28.2	1.8	1.7	73.0	3.0	20.0	Horz	AV	0.0	50.0	54.0	-4.0	High Ch 11, 6Mbps, EUT Vert
2484.157	28.2	1.8	2.5	115.0	3.0	20.0	Vert	AV	0.0	50.0	54.0	-4.0	High Ch 11, 6Mbjps, EUT Horz
2485.220	28.2	1.8	1.7	331.0	3.0	20.0	Horz	AV	0.0	50.0	54.0	-4.0	High Ch 11, 36Mbps, EUT on Side
2484.150	28.2	1.8	1.7	331.0	3.0	20.0	Horz	AV	0.0	50.0	54.0	-4.0	High Ch 11, 54Mbps, EUT on Side
2389.963	28.4	1.3	1.7	343.0	3.0	20.0	Vert	AV	0.0	49.7	54.0	-4.3	Low Ch 1, 6Mbps, EUT Vert
2389.957	28.4	1.3	1.9	318.0	3.0	20.0	Horz	AV	0.0	49.7	54.0	-4.3	Low Ch 1, 6Mbps, EUT on Side
2388.567	28.3	1.3	1.7	20.0	3.0	20.0	Horz	AV	0.0	49.6	54.0	-4.4	Low Ch 1, 1Mbps, EUT on Side
2388.160	28.3	1.3	1.7	286.0	3.0	20.0	Vert	AV	0.0	49.6	54.0	-4.4	Low Ch 1, 1Mbps, EUT Vert
2389.873	41.9	1.3	1.9	318.0	3.0	20.0	Horz	PK	0.0	63.2	74.0	-10.8	Low Ch 1, 6Mbps, EUT on Side
2483.947	41.3	1.8	1.7	331.0	3.0	20.0	Horz	PK	0.0	63.1	74.0	-10.9	High Ch 11, 6Mbps, EUT on Side
2484.807	41.2	1.8	1.7	252.0	3.0	20.0	Horz	PK	0.0	63.0	74.0	-11.0	High Ch 11, 6Mbjps, EUT Horz
2389.743	41.7	1.3	1.7	343.0	3.0	20.0	Vert	PK	0.0	63.0	74.0	-11.0	Low Ch 1, 6Mbps, EUT Vert
2485.063	40.3	1.8	1.7	331.0	3.0	20.0	Horz	PK	0.0	62.1	74.0	-11.9	High Ch 11, 11Mbps, EUT on Side
2484.730	40.3	1.8	1.7	331.0	3.0	20.0	Horz	PK	0.0	62.1	74.0	-11.9	High Ch 11, 36Mbps, EUT on Side
2485.453	40.1	1.8	1.7	127.0	3.0	20.0	Vert	PK	0.0	61.9	74.0	-12.1	High Ch 11, 6Mbps, EUT on Side
2485.377	40.1	1.8	1.7	331.0	3.0	20.0	Horz	PK	0.0	61.9	74.0	-12.1	High Ch 11, 1Mbps, EUT on Side
2484.460	40.0	1.8	2.5	115.0	3.0	20.0	Vert	PK	0.0	61.8	74.0	-12.2	High Ch 11, 6Mbjps, EUT Horz
2484.380	39.8	1.8	1.7	331.0	3.0	20.0	Horz	PK	0.0	61.6	74.0	-12.4	High Ch 11, 54Mbps, EUT on Side
2388.753	40.2	1.3	1.7	20.0	3.0	20.0	Horz	PK	0.0	61.5	74.0	-12.5	Low Ch 1, 1Mbps, EUT on Side
2485.473	39.5	1.8	4.0	193.0	3.0	20.0	Vert	PK	0.0	61.3	74.0	-12.7	High Ch 11, 6Mbps, EUT Vert
2484.450	39.3	1.8	1.7	73.0	3.0	20.0	Horz	PK	0.0	61.1	74.0	-12.9	High Ch 11, 6Mbps, EUT Vert
2389.173	39.7	1.3	1.7	286.0	3.0	20.0	Vert	PK	0.0	61.0	74.0	-13.0	Low Ch 1, 1Mbps, EUT Vert

DUTY CYCLE

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

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.

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 may have been used during some of the other tests in this report to only take the measurement during the burst duration.

DUTY CYCLE

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**23 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1012 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**
TEST SPECIFICATIONS		**Test Method**			
FCC 15.247:2016		ANSI C63.10:2013			

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

DEVIATIONS FROM TEST STANDARD

None

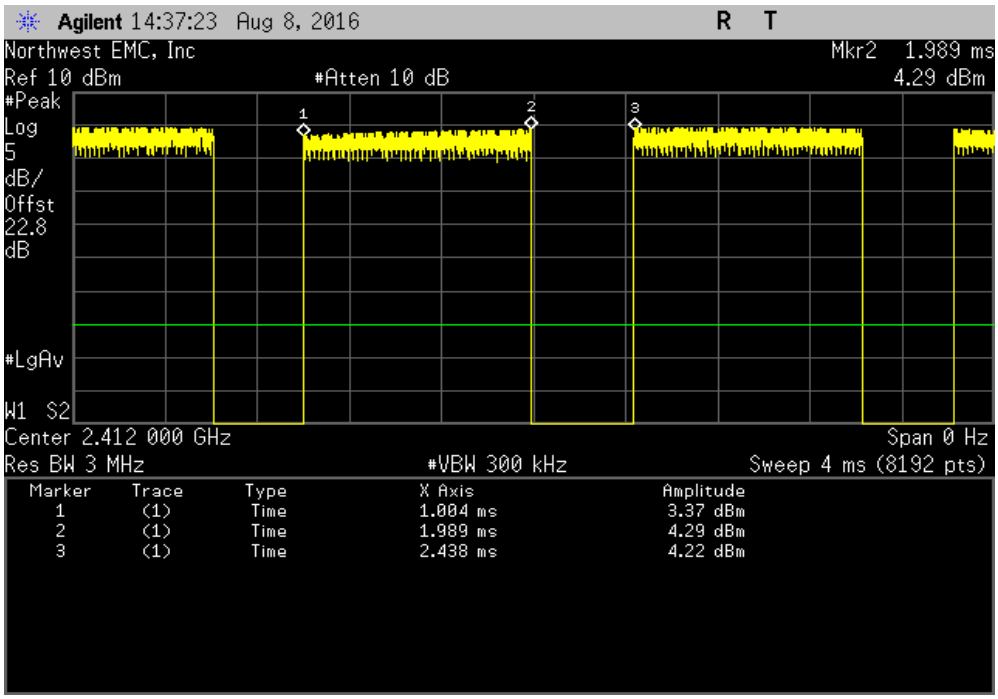
Configuration #	**3**	*Signature*

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
2400 MHz - 2483.5 MHz Band						
802.11(b) 1 Mbps						
Low Channel 1, 2412 MHz	984.975 us	1.434 ms	1	68.7	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	985.952 us	1.435 ms	1	68.7	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	984.975 us	1.454 ms	1	67.7	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	260.305 us	581.344 us	1	44.8	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	259.328 us	599.2 us	1	43.3	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	260.205 us	590.344 us	1	44.1	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	157.802 us	338.01 us	1	46.7	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	156.958 us	447.099 us	1	35.1	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	156.282 us	328.188 us	1	47.6	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	41.606 us	176.676 us	1	23.5	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	41.643 us	176.438 us	1	23.6	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	41.222 us	158.302 us	1	26	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(g) 54 Mbps						
Low Channel 1, 2412 MHz	33.79 us	168.557 us	1	20	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	33.407 us	150.366 us	1	22.2	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	33.274 us	204.8 us	1	16.2	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A

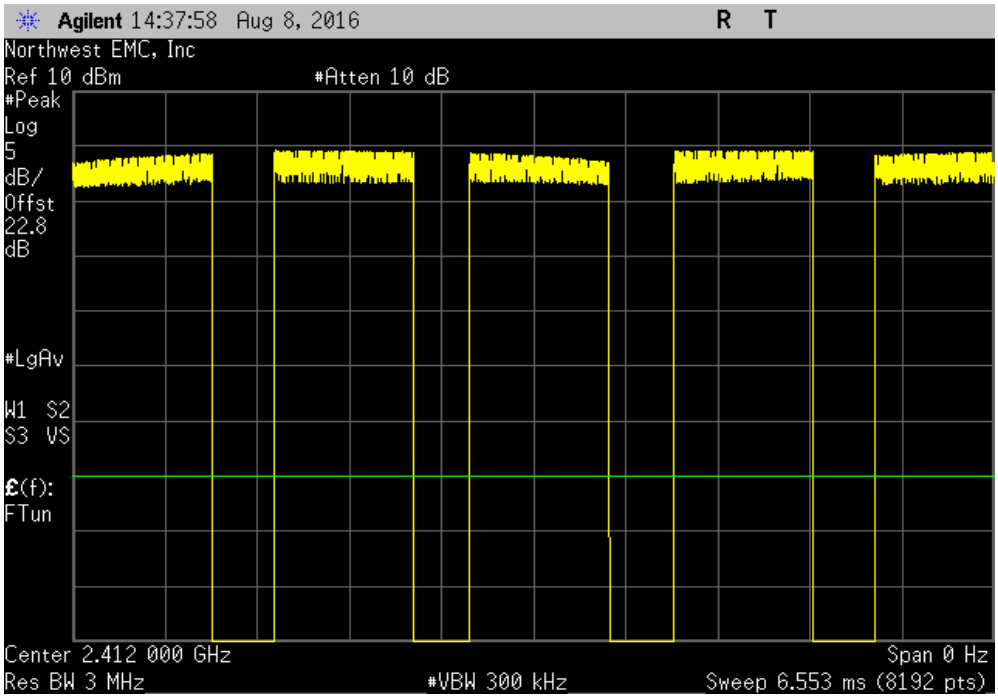
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	984.975 us	1.434 ms	1	68.7	N/A	N/A



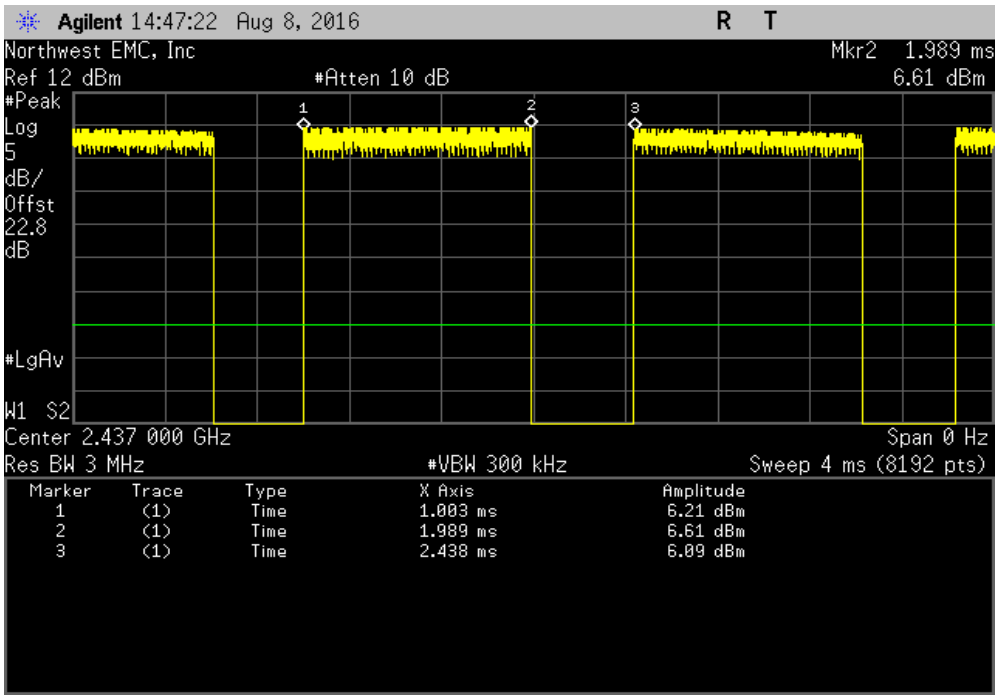
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



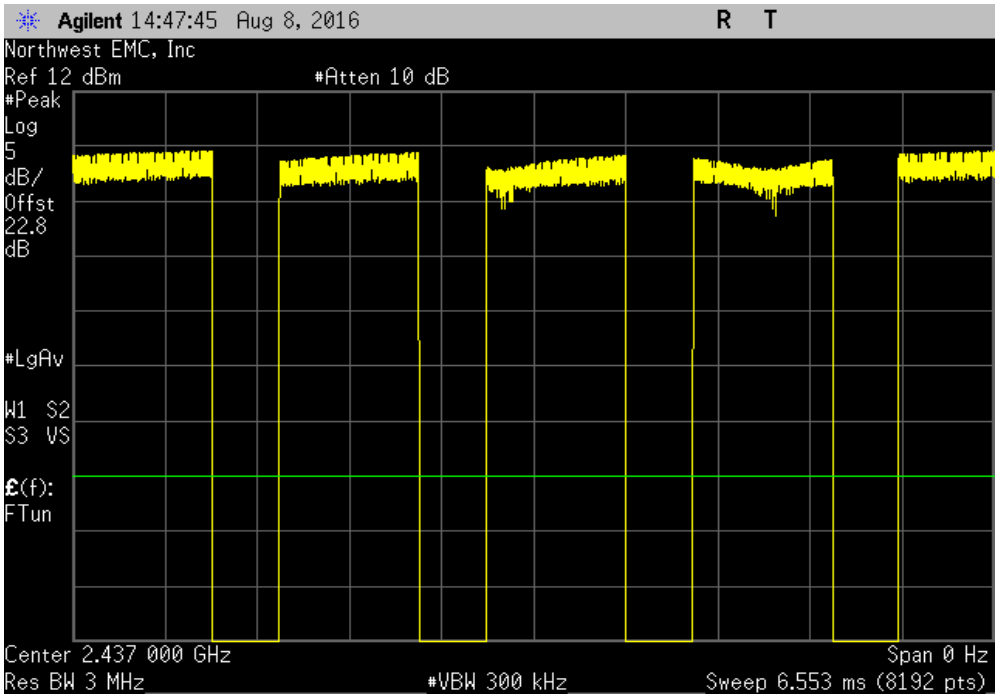
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	985.952 us	1.435 ms	1	68.7	N/A	N/A



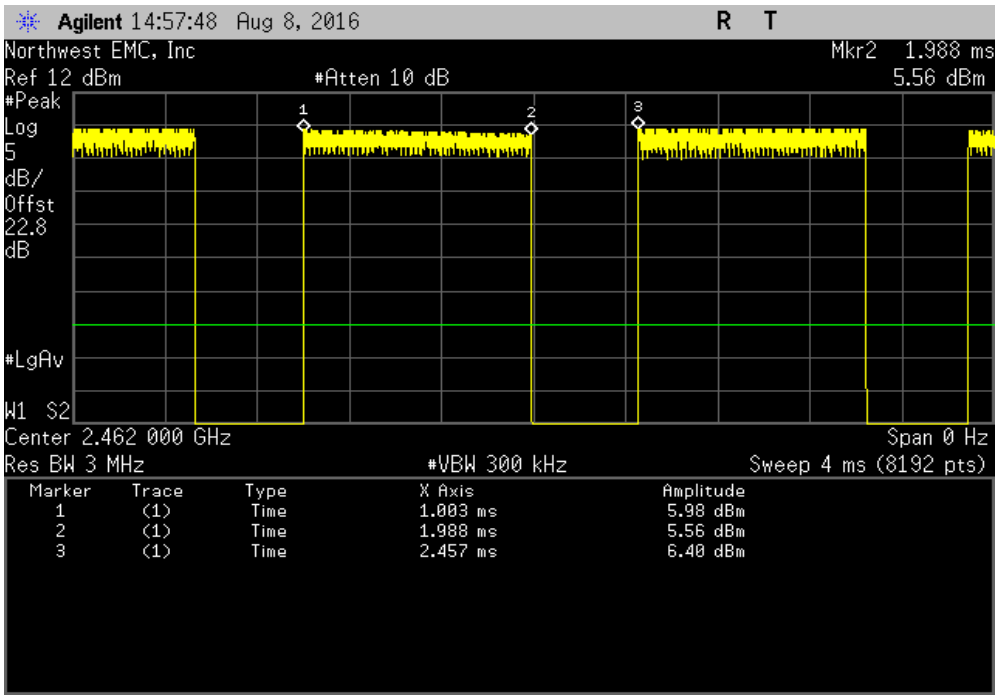
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



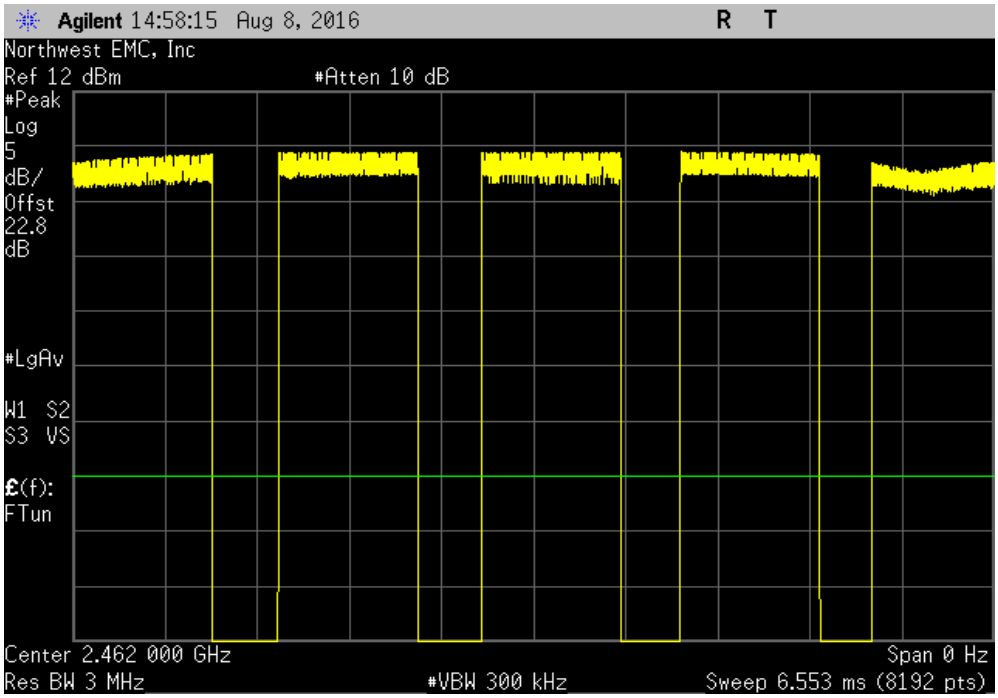
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	984.975 us	1.454 ms	1	67.7	N/A	N/A



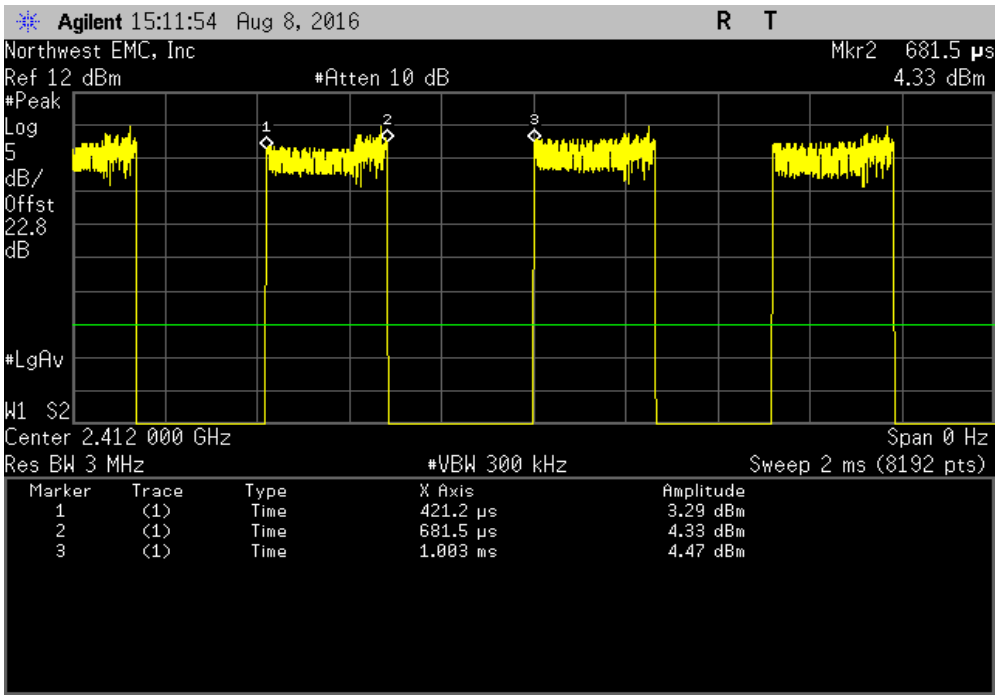
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



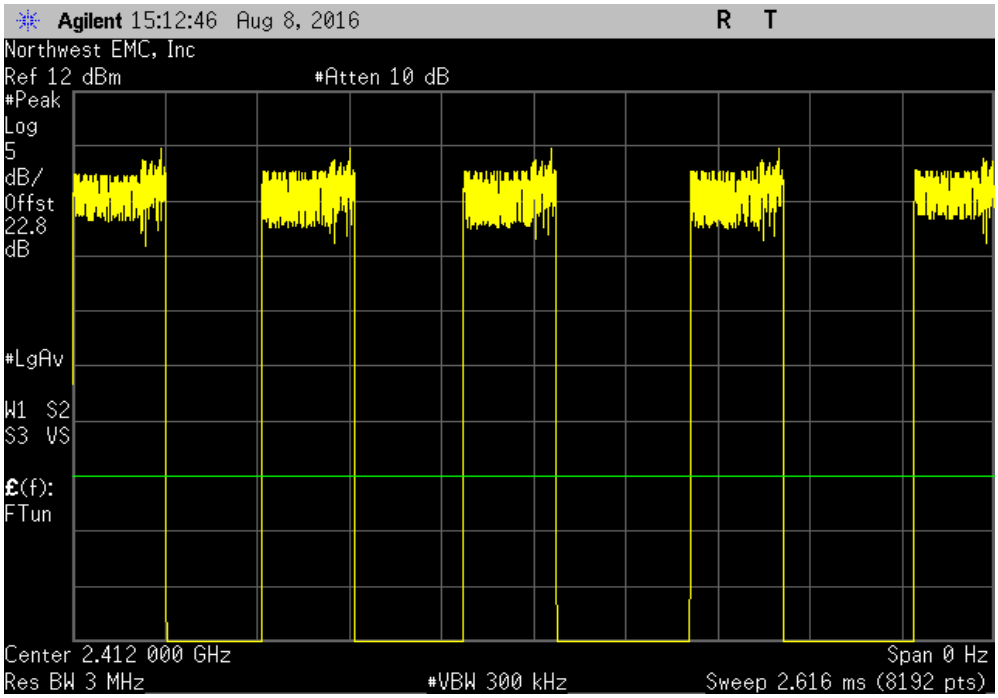
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	260.305 us	581.344 us	1	44.8	N/A	N/A



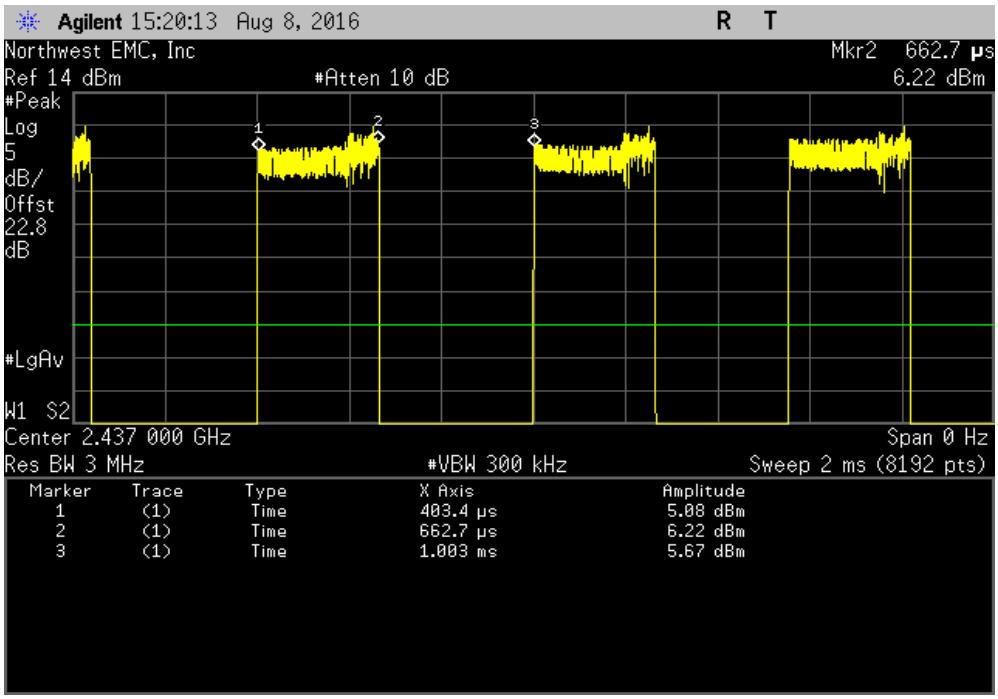
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



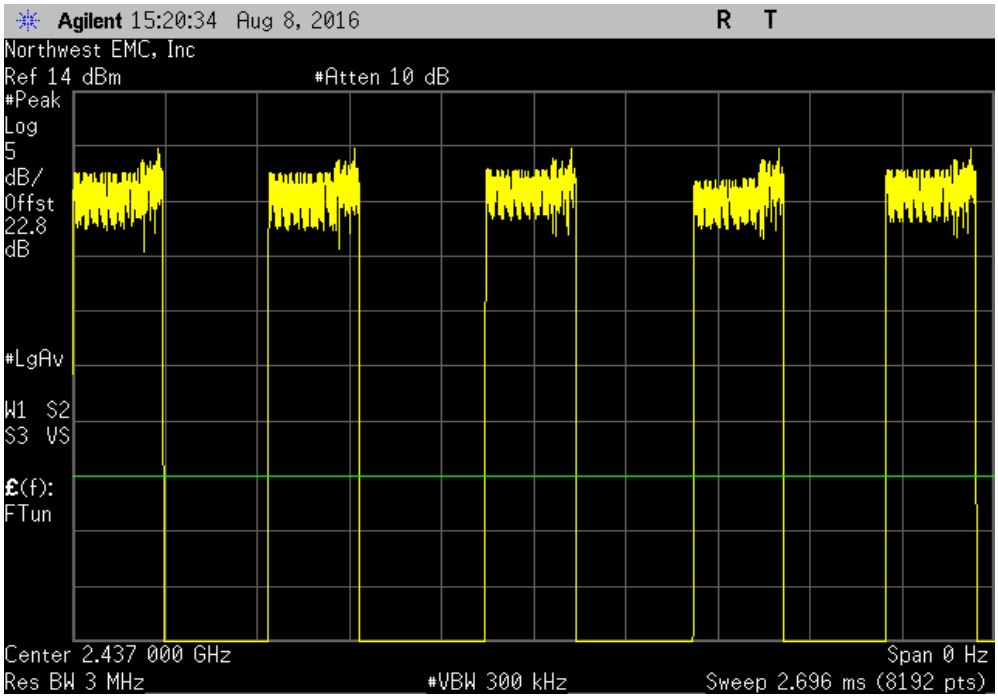
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	259.328 us	599.2 us	1	43.3	N/A	N/A



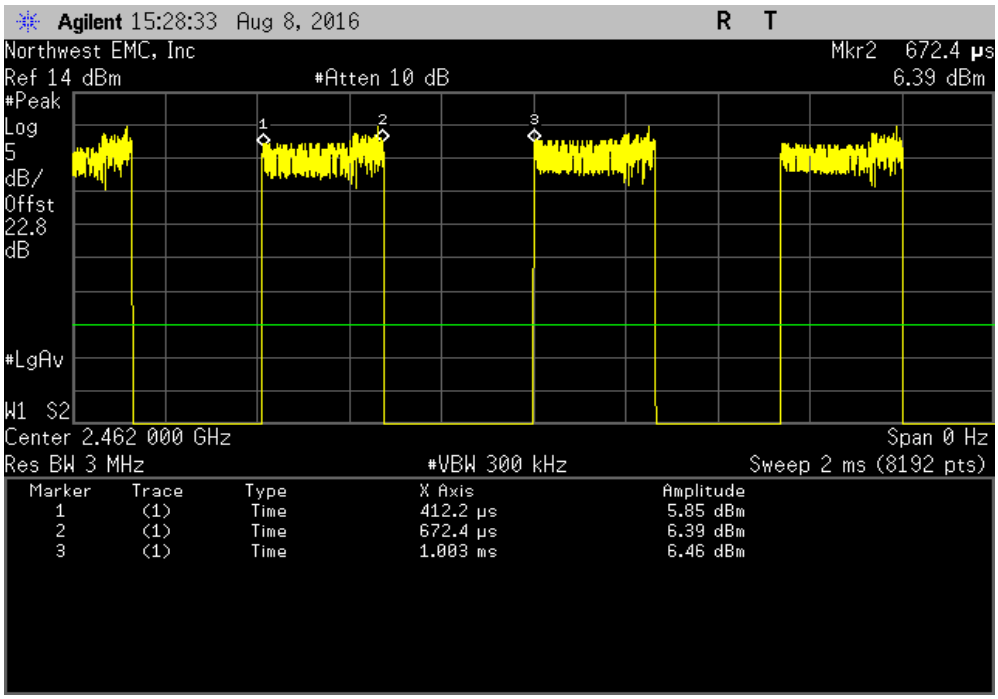
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



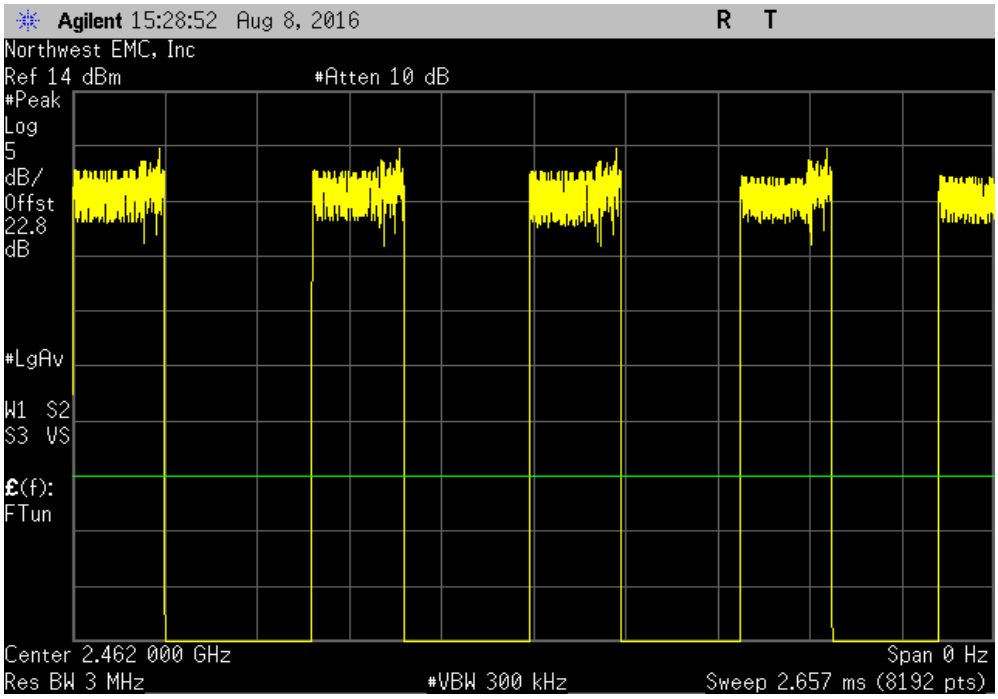
DUTY CYCLE

XMit 2016.05.06

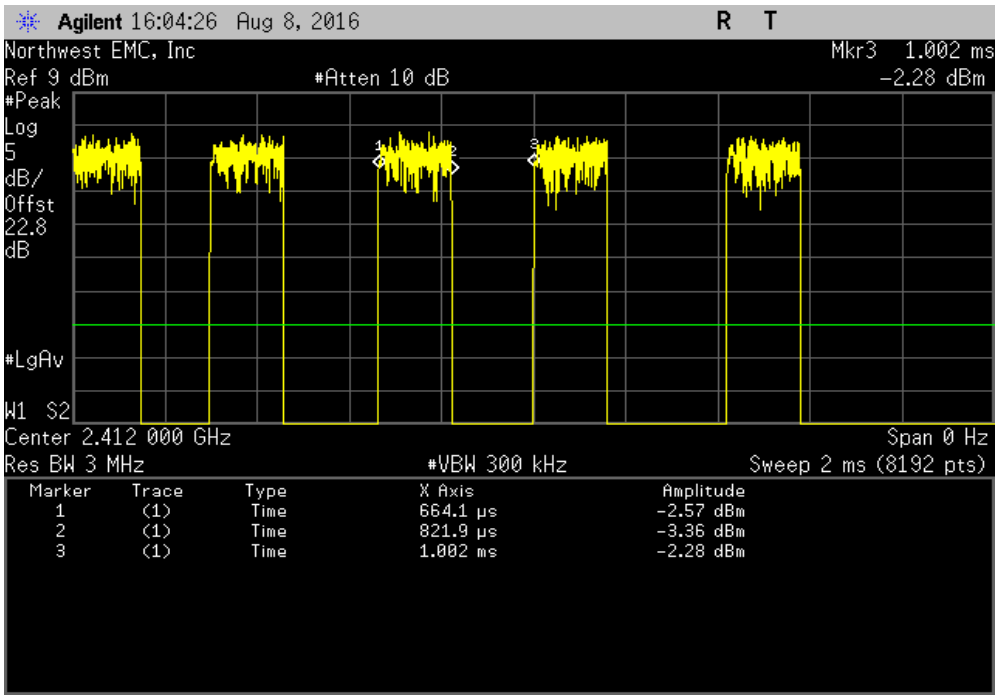
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	260.205 us	590.344 us	1	44.1	N/A	N/A



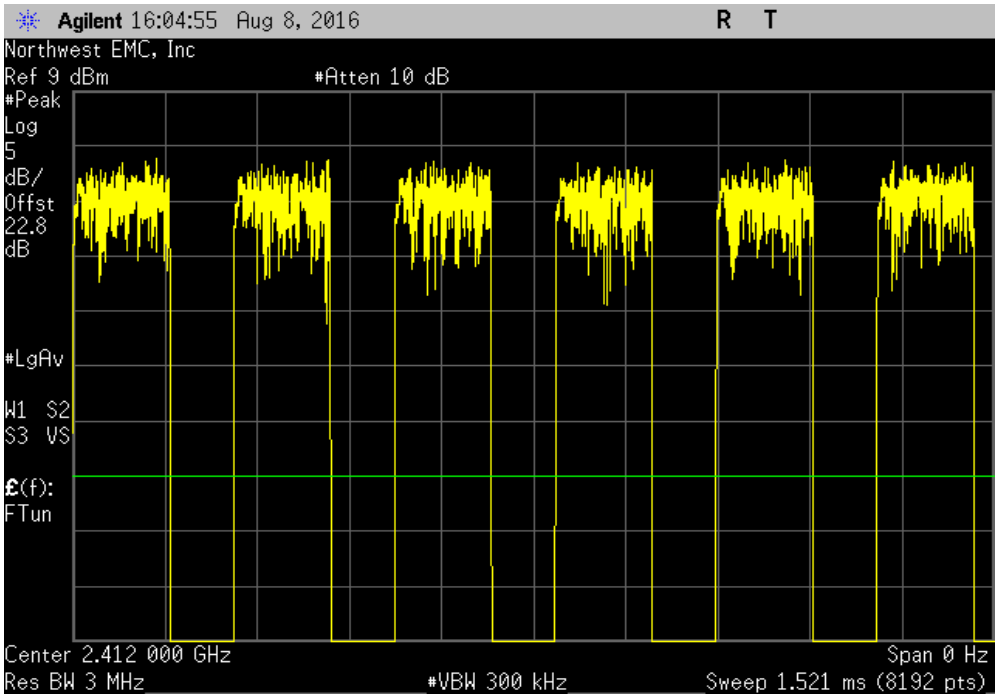
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	157.802 us	338.01 us	1	46.7	N/A	N/A



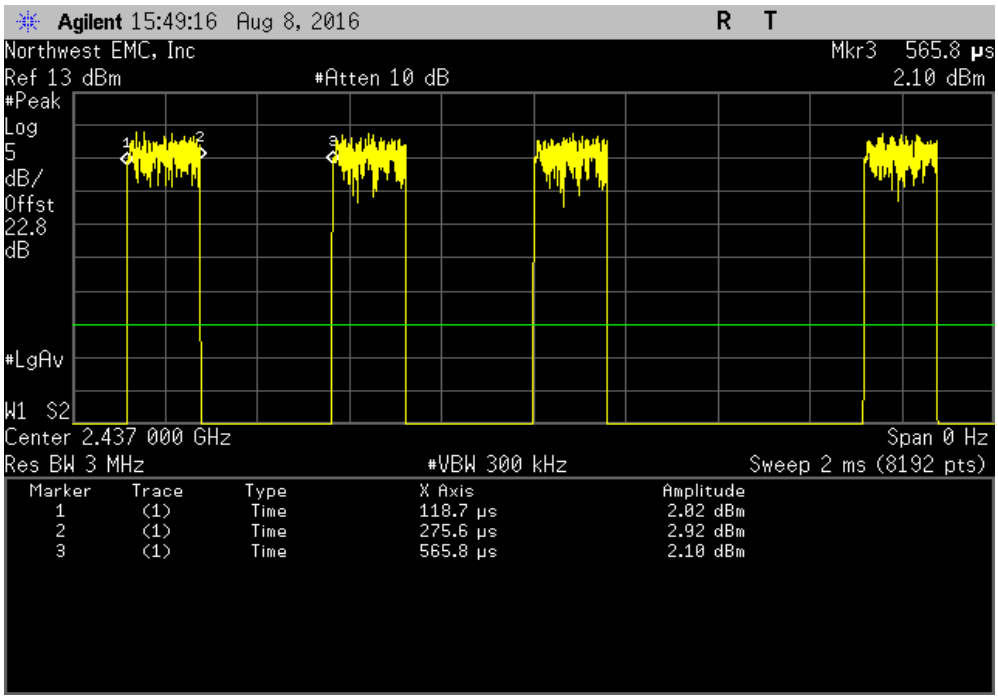
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	6	N/A	N/A	N/A



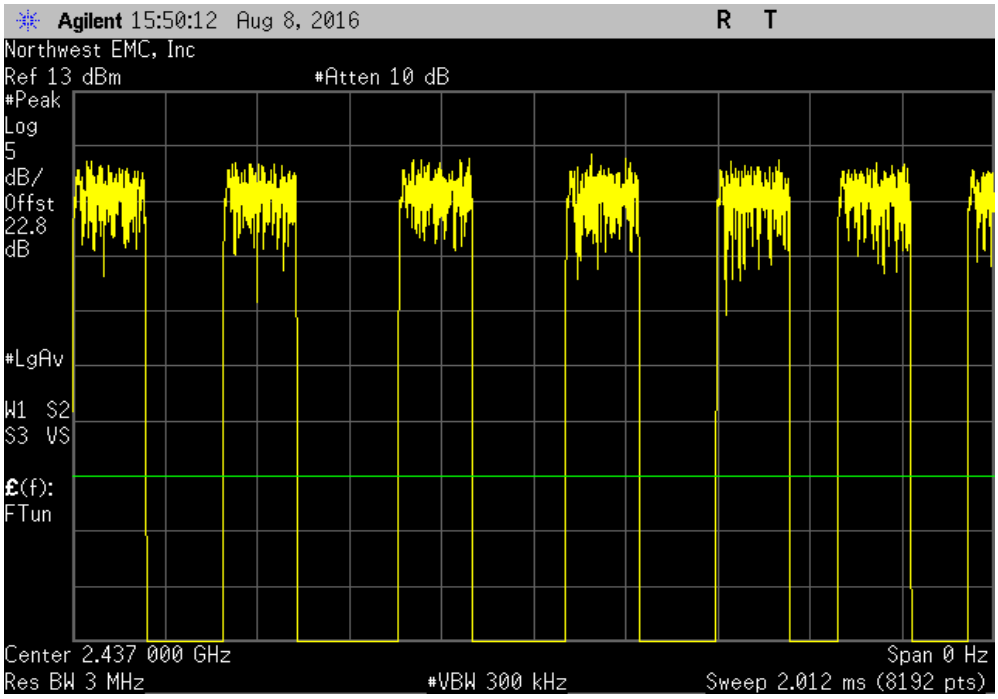
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	156.958 us	447.099 us	1	35.1	N/A	N/A



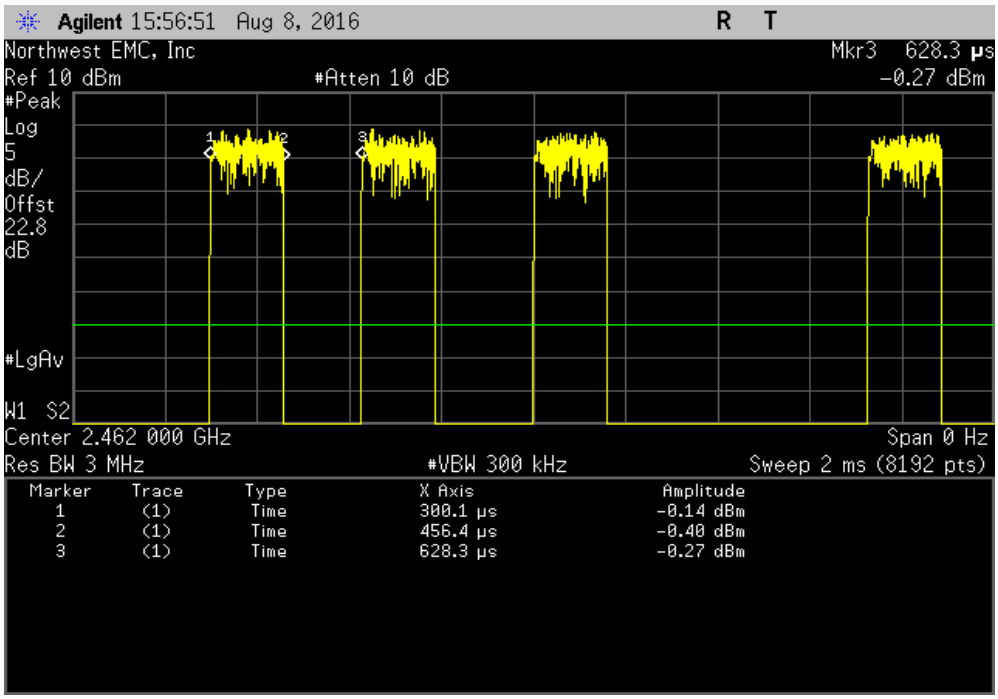
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	7	N/A	N/A	N/A



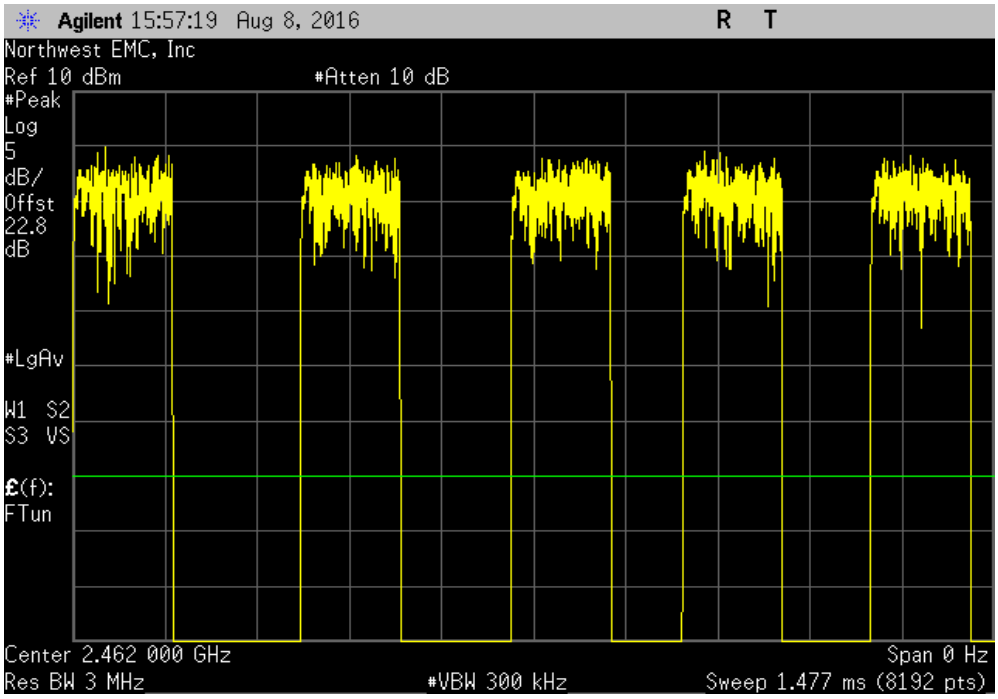
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	156.282 us	328.188 us	1	47.6	N/A	N/A



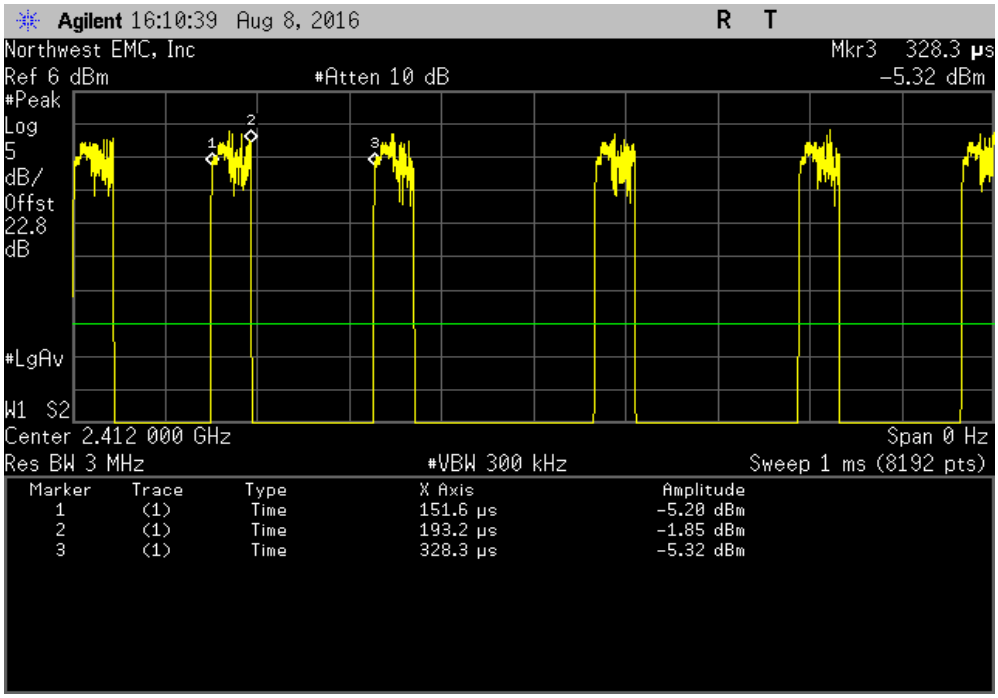
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



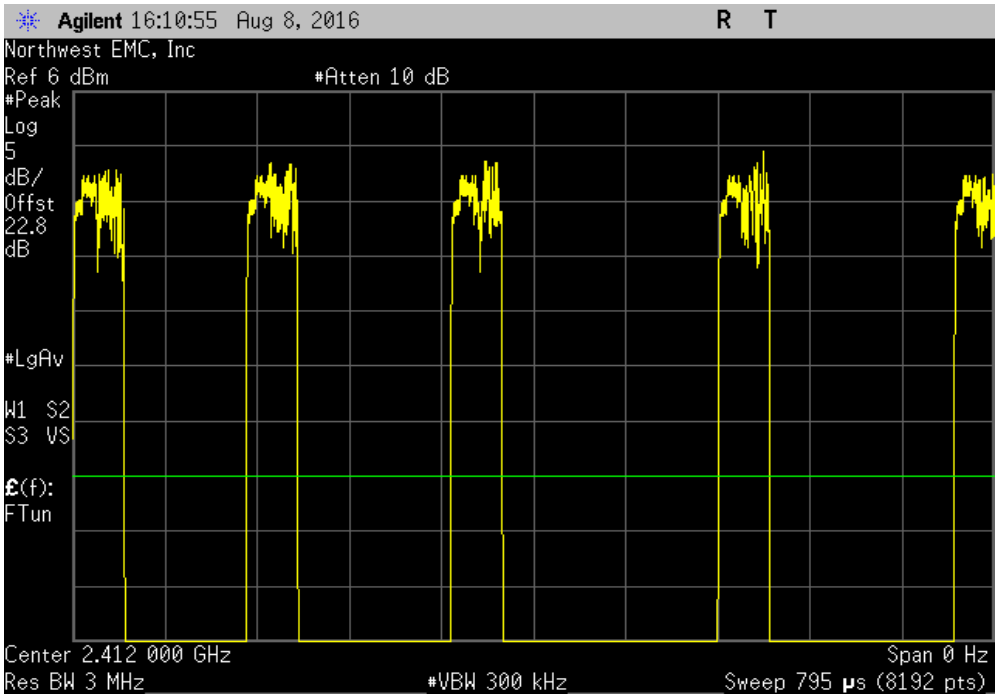
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	41.606 us	176.676 us	1	23.5	N/A	N/A



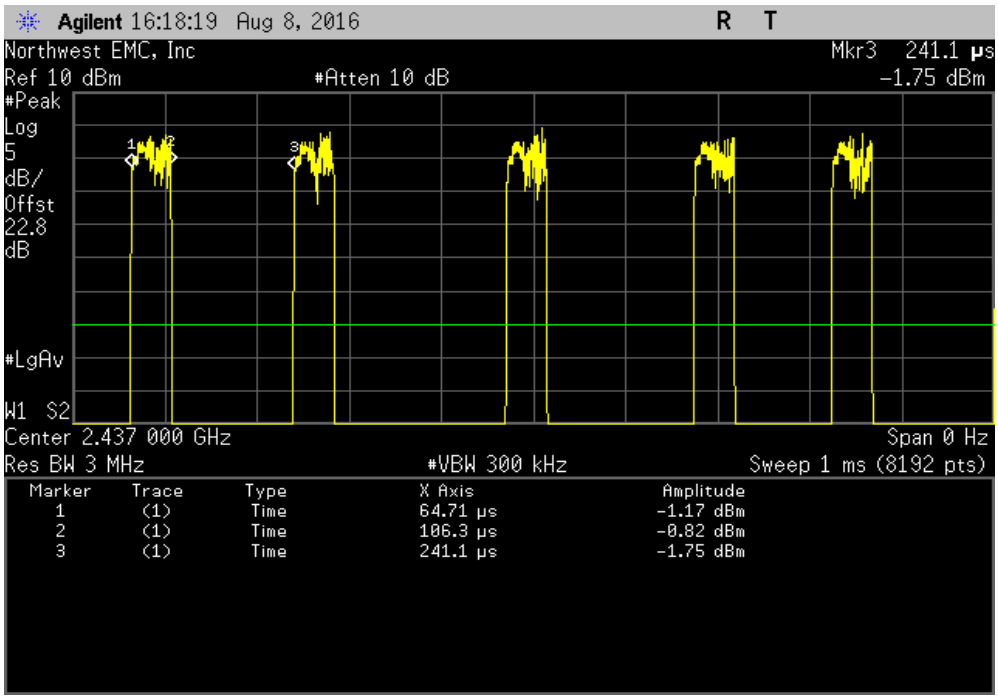
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



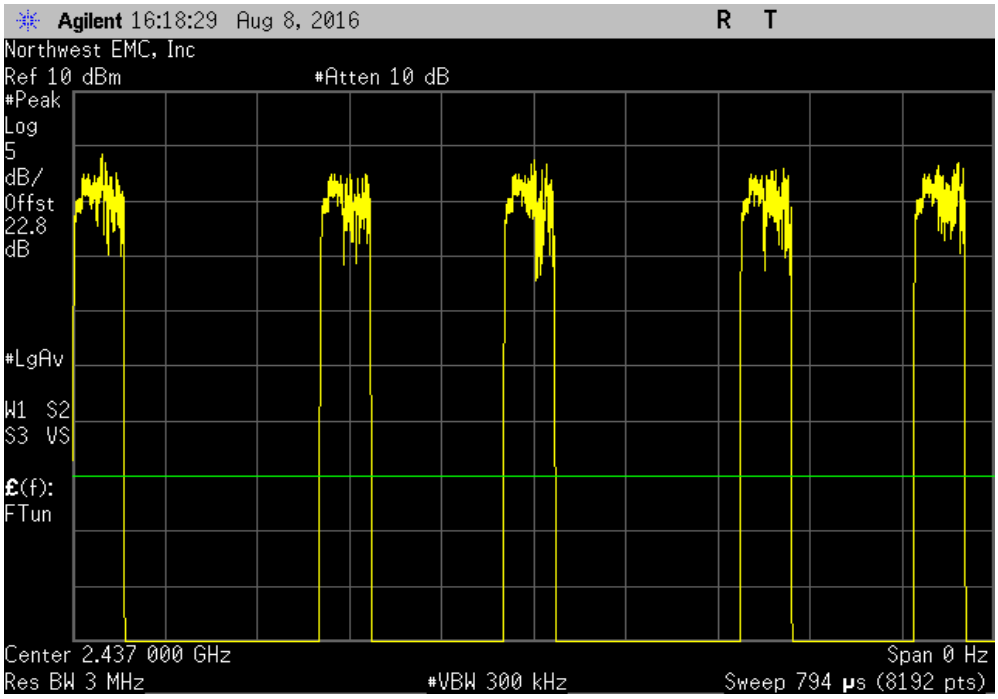
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	41.643 us	176.438 us	1	23.6	N/A	N/A



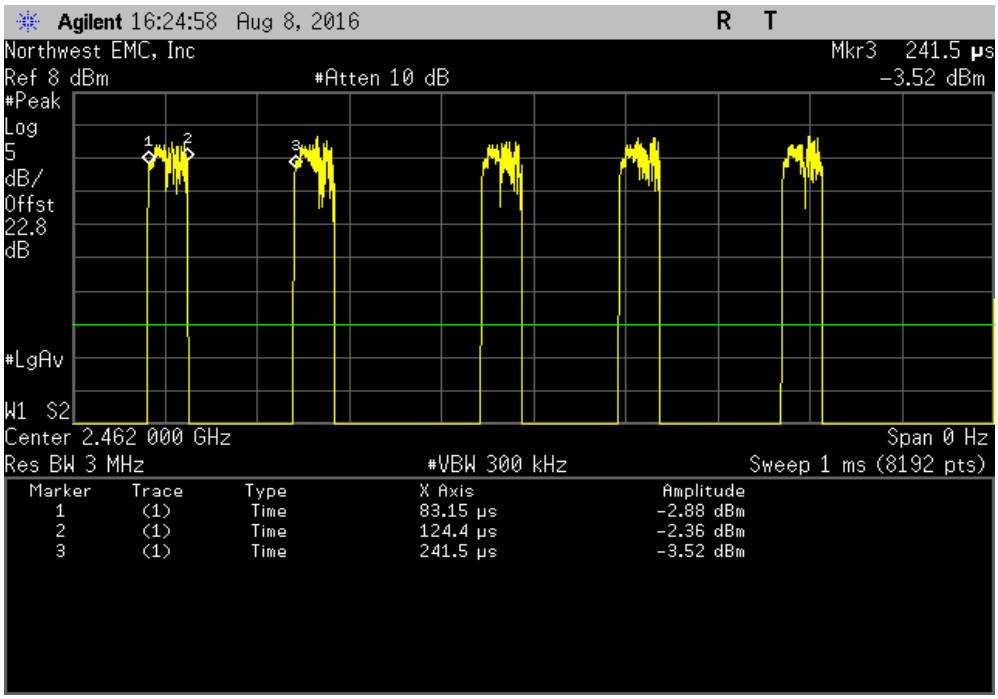
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



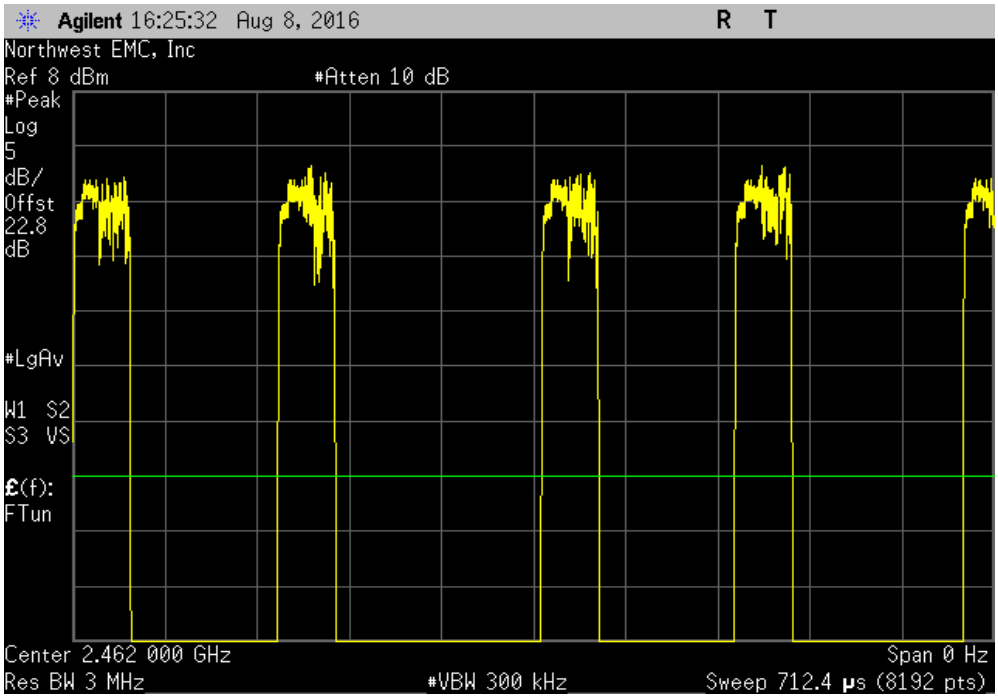
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	41.222 us	158.302 us	1	26	N/A	N/A



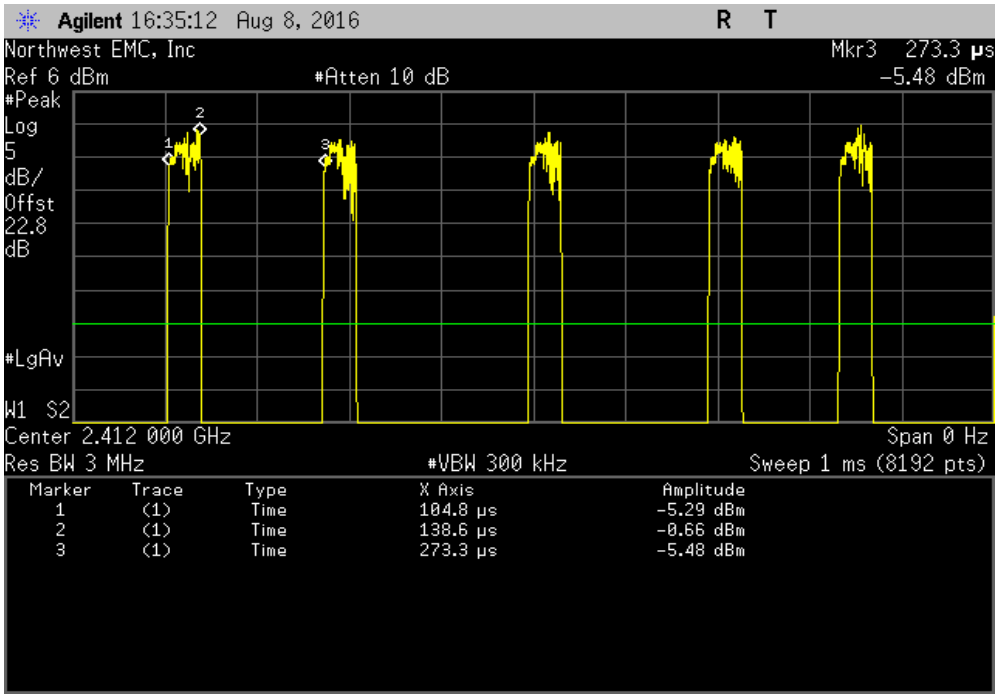
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



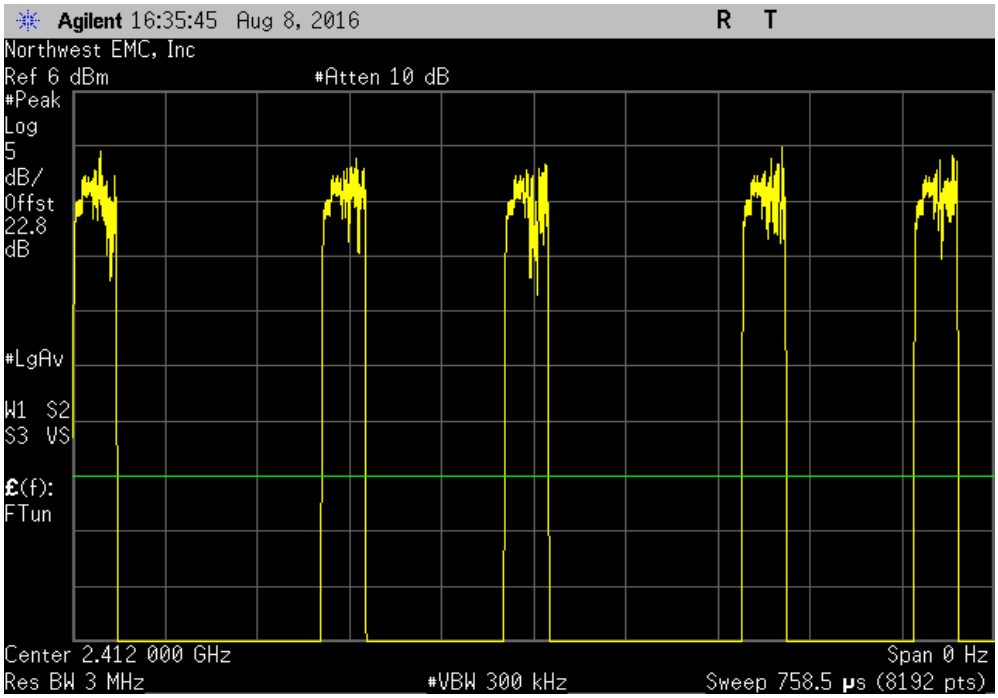
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	33.79 us	168.557 us	1	20	N/A	N/A



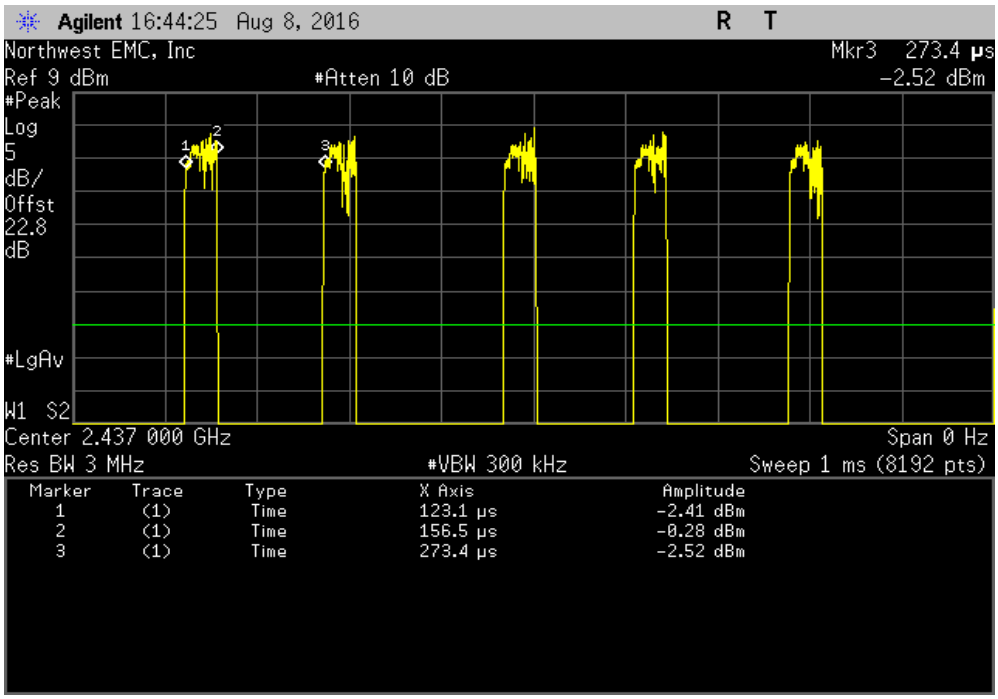
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



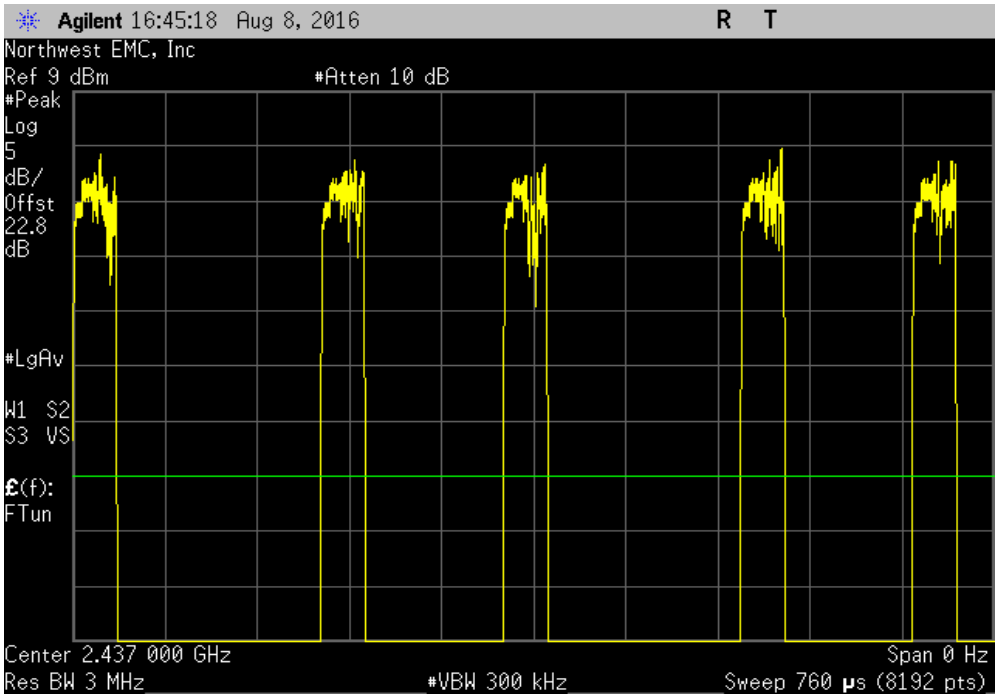
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	33.407 us	150.366 us	1	22.2	N/A	N/A



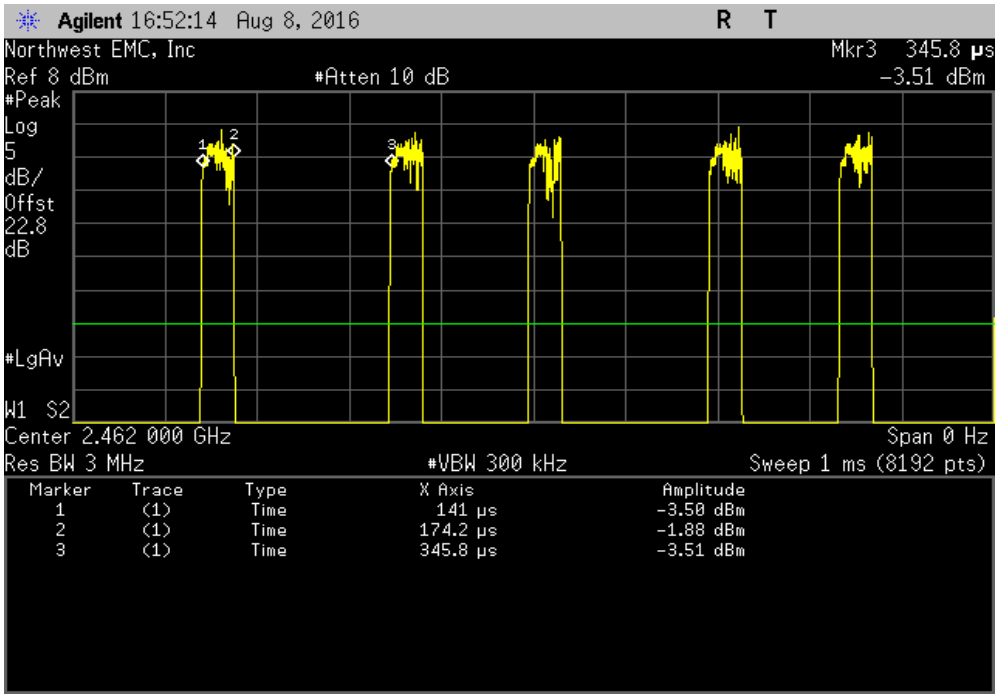
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



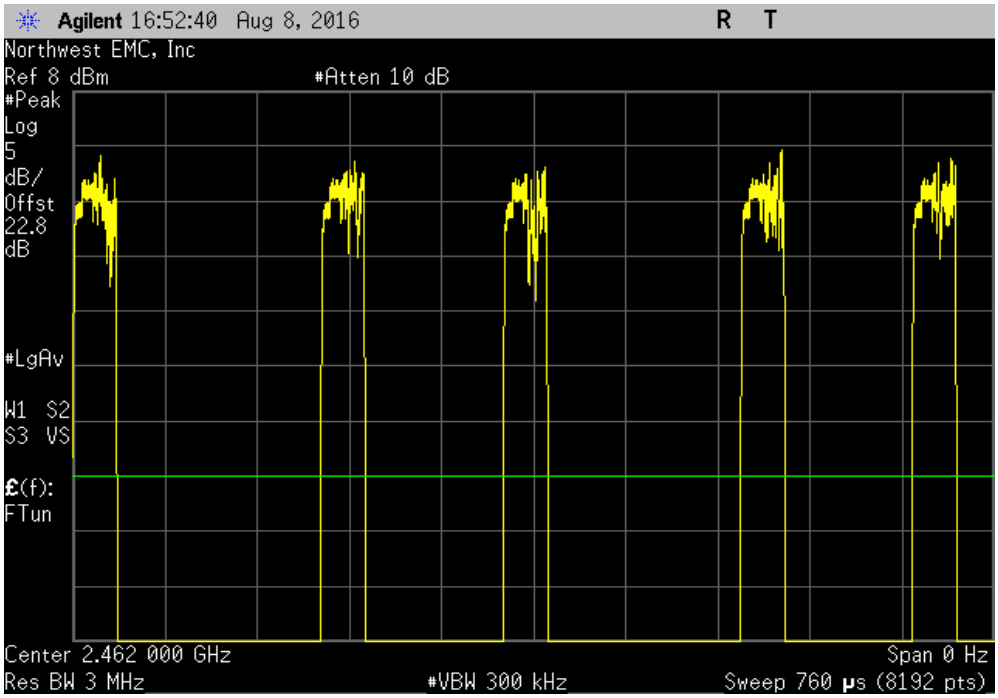
DUTY CYCLE

XMit 2016.05.06

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	33.274 us	204.8 us	1	16.2	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 (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



OUTPUT POWER

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

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

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**23 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1012 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**
TEST SPECIFICATIONS			**Test Method**		
FCC 15.247:2016			ANSI C63.10:2013		

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

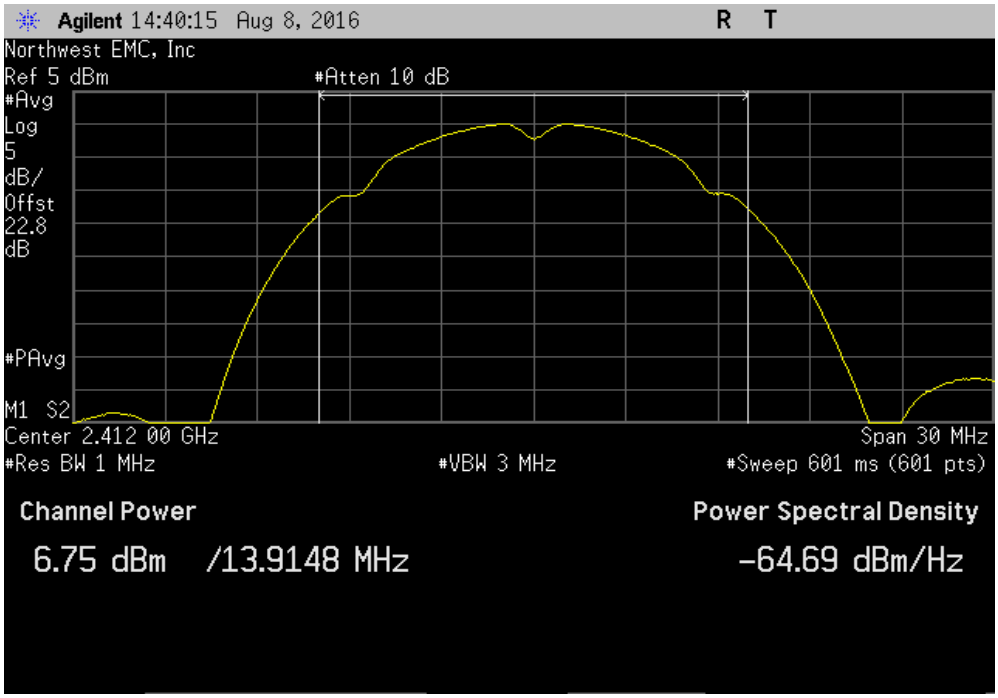
DEVIATIONS FROM TEST STANDARD

None

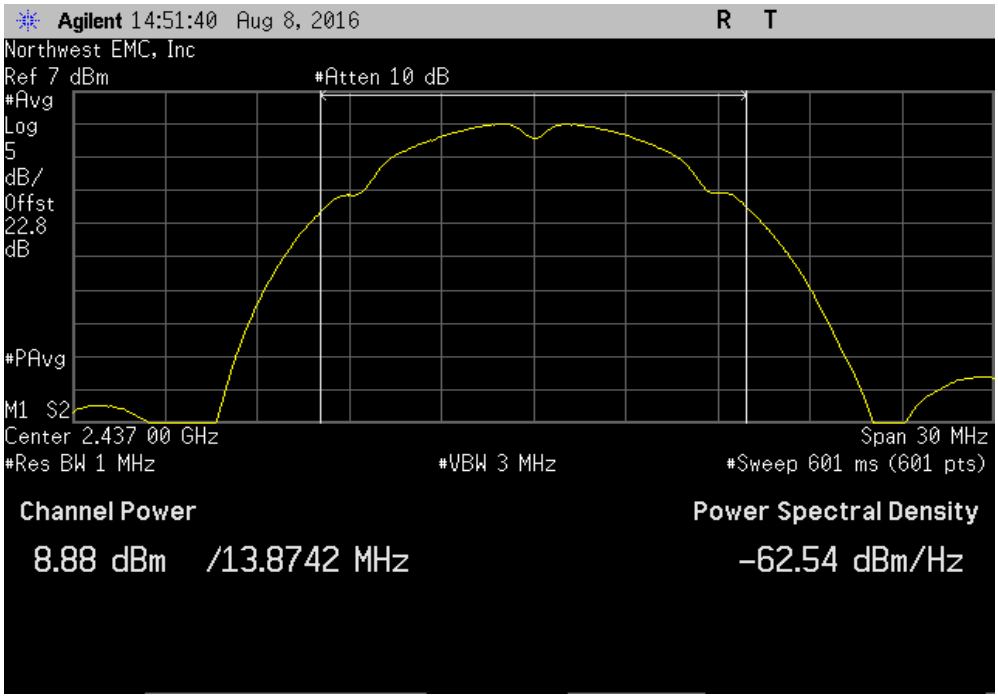
Configuration #	**3**	*Signature*

	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results
2400 MHz - 2483.5 MHz Band					
802.11(b) 1 Mbps					
Low Channel 1, 2412 MHz	6.747	1.6	8.4	30	Pass
Mid Channel 6, 2437 MHz	8.882	1.6	10.5	30	Pass
High Channel 11, 2462 MHz	8.806	1.7	10.5	30	Pass
802.11(b) 11 Mbps					
Low Channel 1, 2412 MHz	5.44	3.5	8.9	30	Pass
Mid Channel 6, 2437 MHz	7.484	3.6	11.1	30	Pass
High Channel 11, 2462 MHz	7.568	3.6	11.1	30	Pass
802.11(g) 6 Mbps					
Low Channel 1, 2412 MHz	1.512	7	8.5	30	Pass
Mid Channel 6, 2437 MHz	5.718	4.5	10.3	30	Pass
High Channel 11, 2462 MHz	3.176	3.2	6.4	30	Pass
802.11(g) 36 Mbps					
Low Channel 1, 2412 MHz	-6.001	6.3	0.3	30	Pass
Mid Channel 6, 2437 MHz	-1.961	6.3	4.3	30	Pass
High Channel 11, 2462 MHz	-4.408	5.9	1.4	30	Pass
802.11(g) 54 Mbps					
Low Channel 1, 2412 MHz	-6.717	7	0.3	30	Pass
Mid Channel 6, 2437 MHz	-3.961	6.5	2.6	30	Pass
High Channel 11, 2462 MHz	-5.093	7.9	2.8	30	Pass

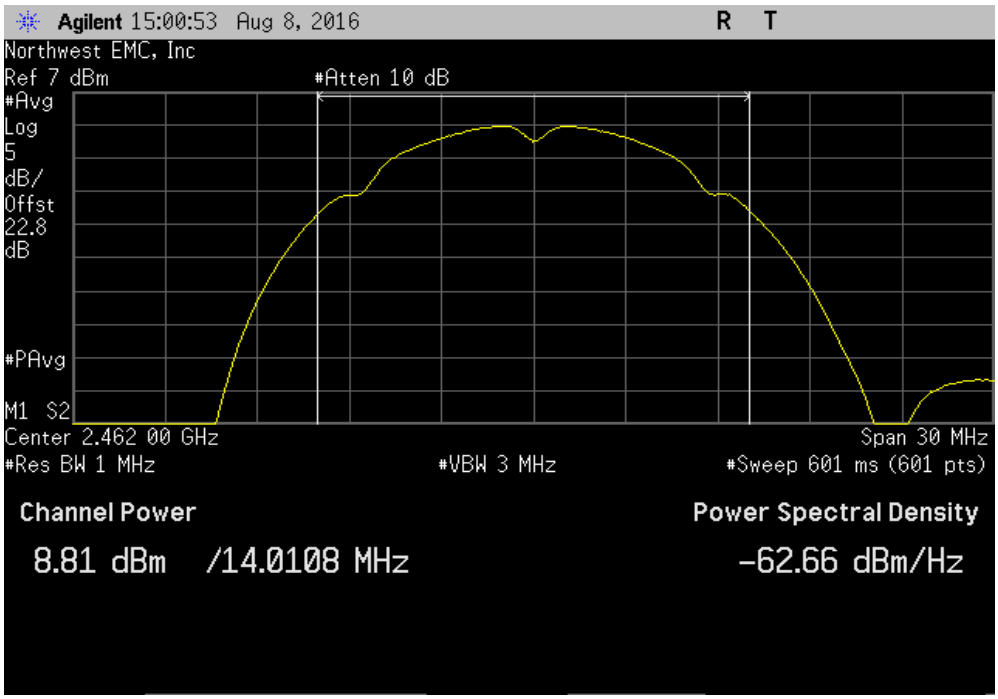
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	6.747	1.6		8.4	30	Pass



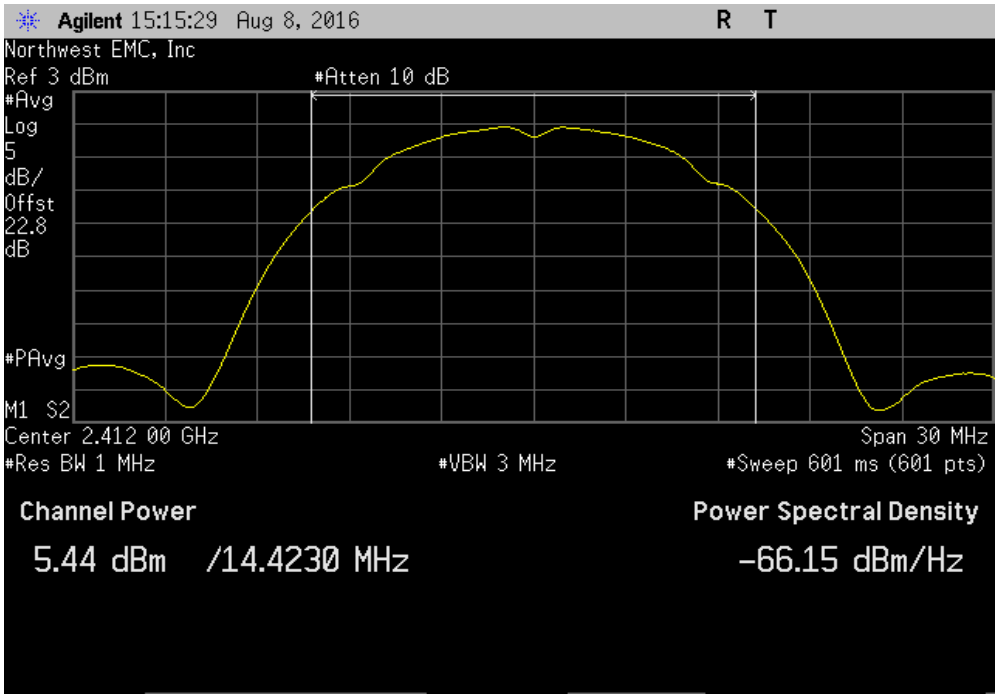
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	8.882	1.6		10.5	30	Pass



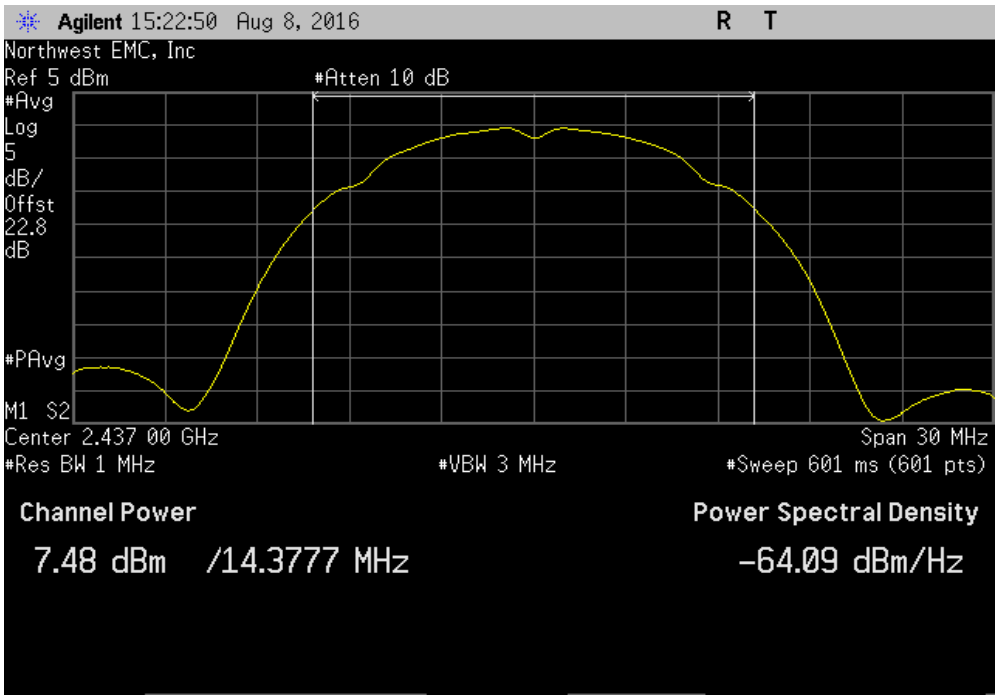
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	8.806	1.7		10.5	30	Pass



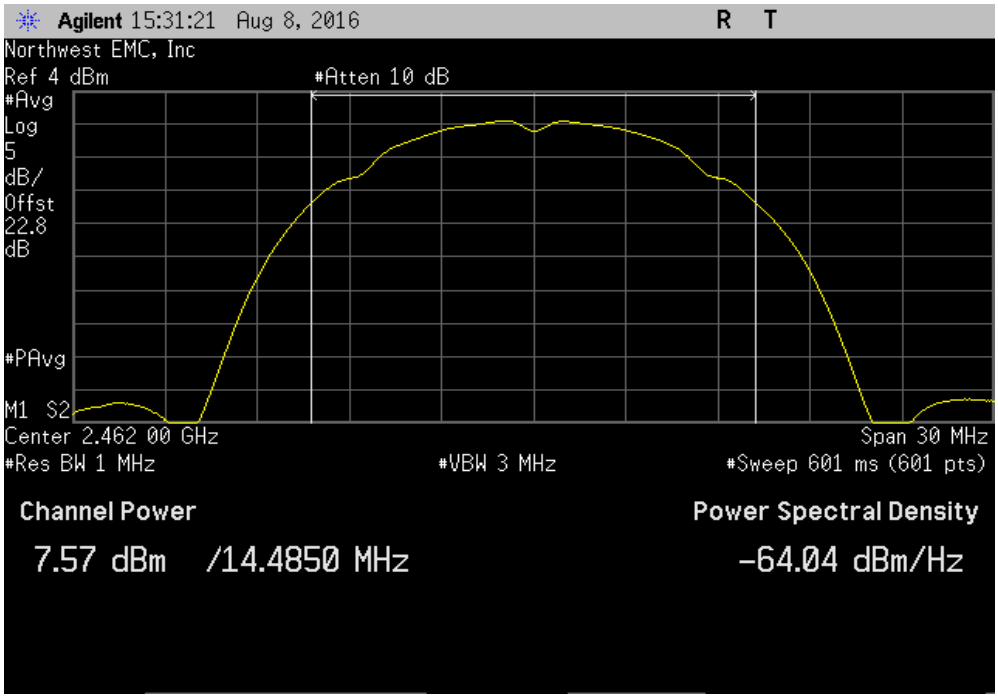
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	5.44	3.5		8.9	30	Pass



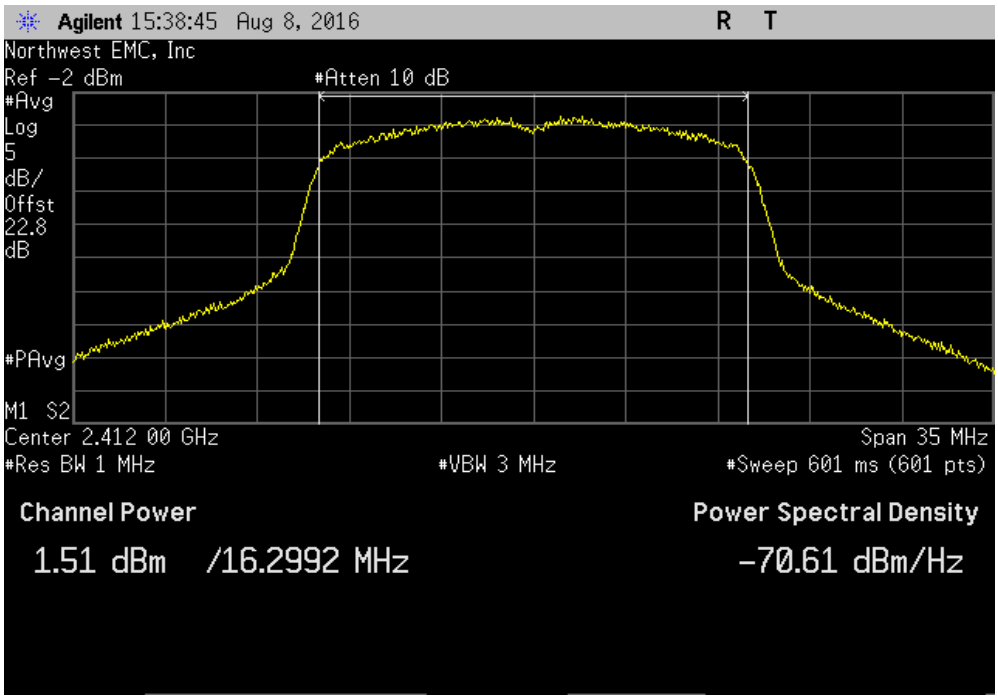
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	7.484	3.6		11.1	30	Pass



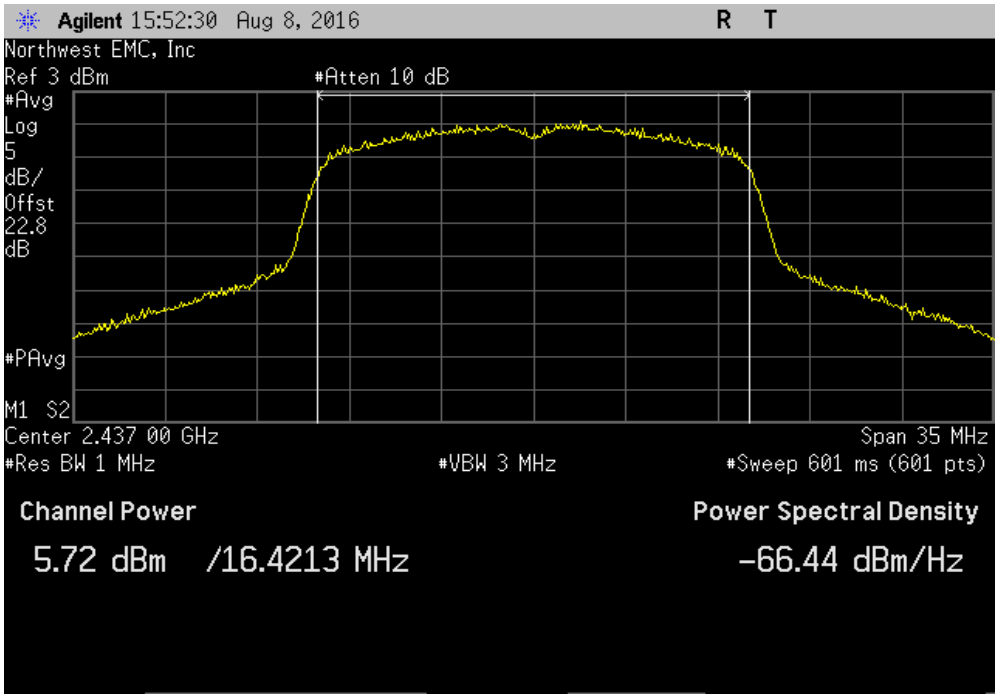
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	7.568	3.6		11.1	30	Pass



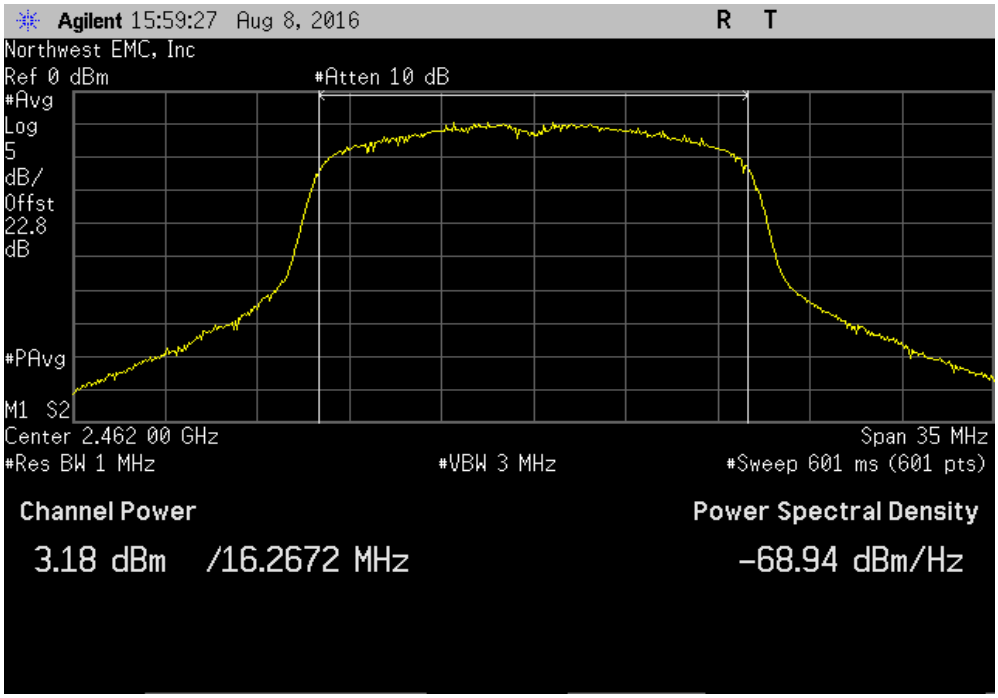
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	1.512	7		8.5	30	Pass



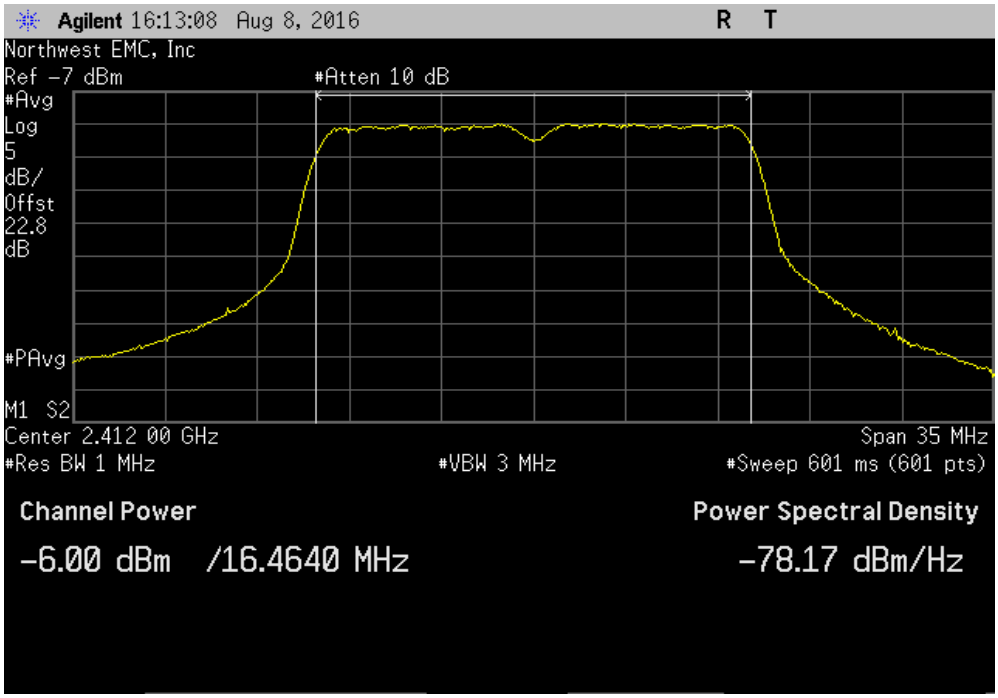
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	5.718	4.5		10.3	30	Pass



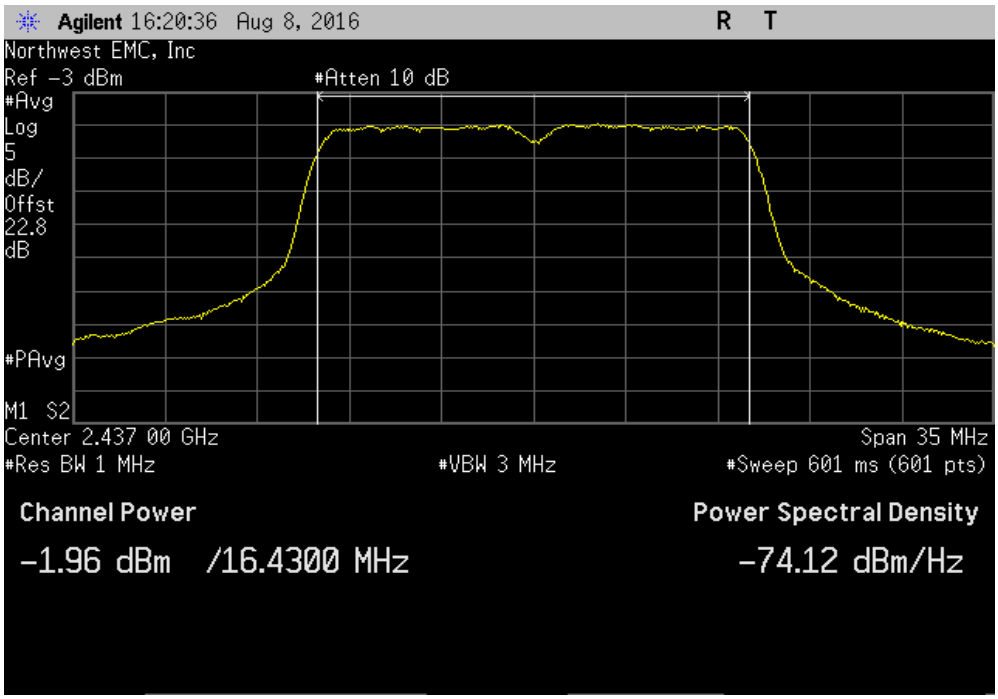
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	3.176	3.2		6.4	30	Pass



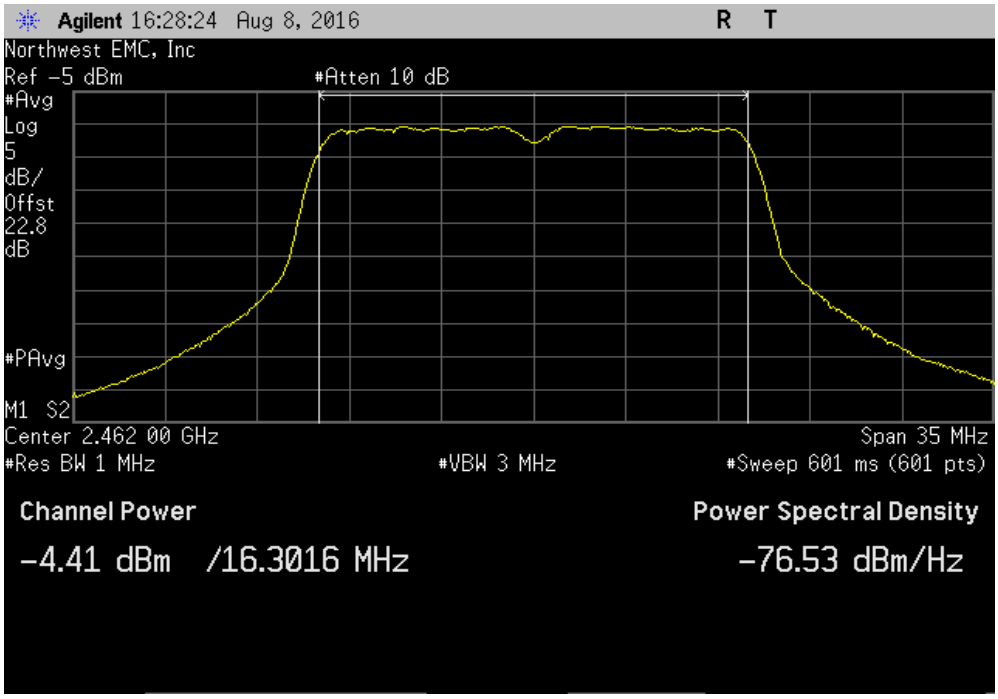
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-6.001	6.3		0.3	30	Pass



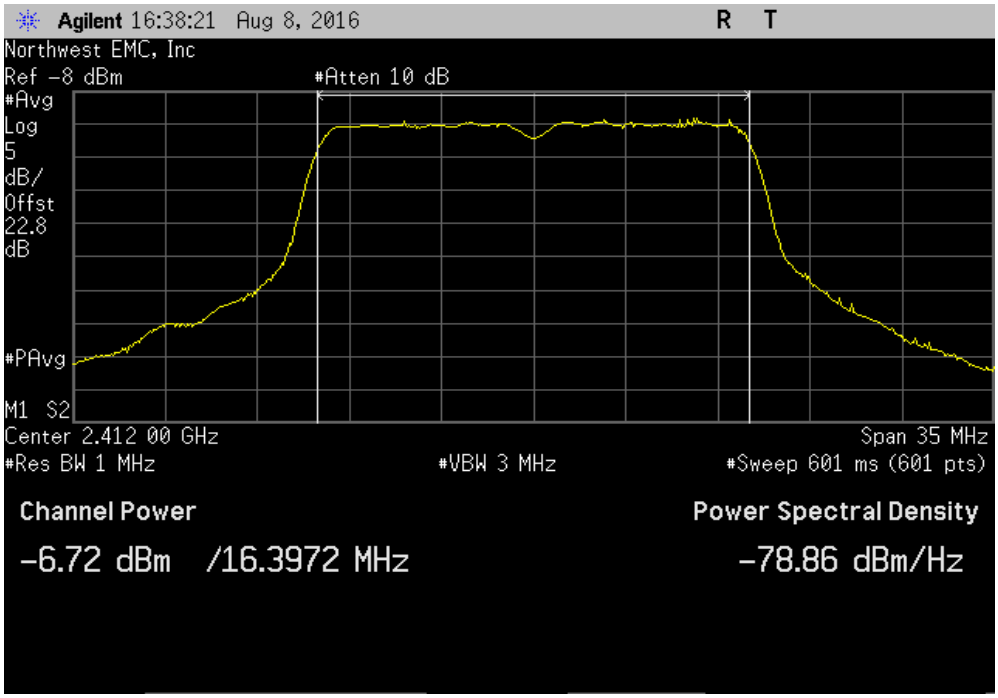
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-1.961	6.3		4.3	30	Pass



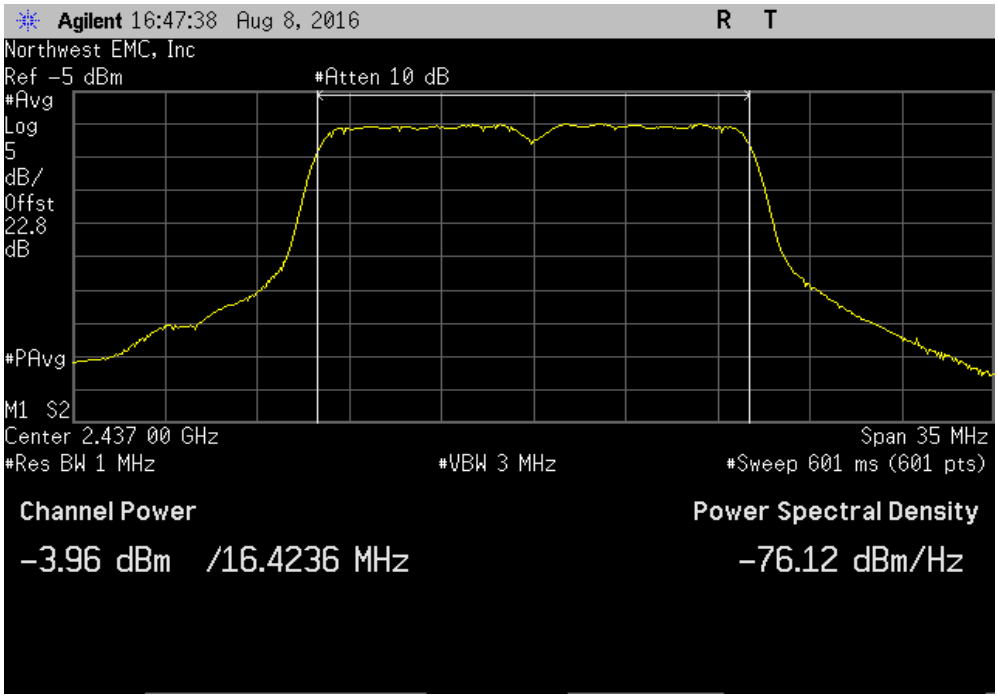
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-4.408	5.9		1.4	30	Pass



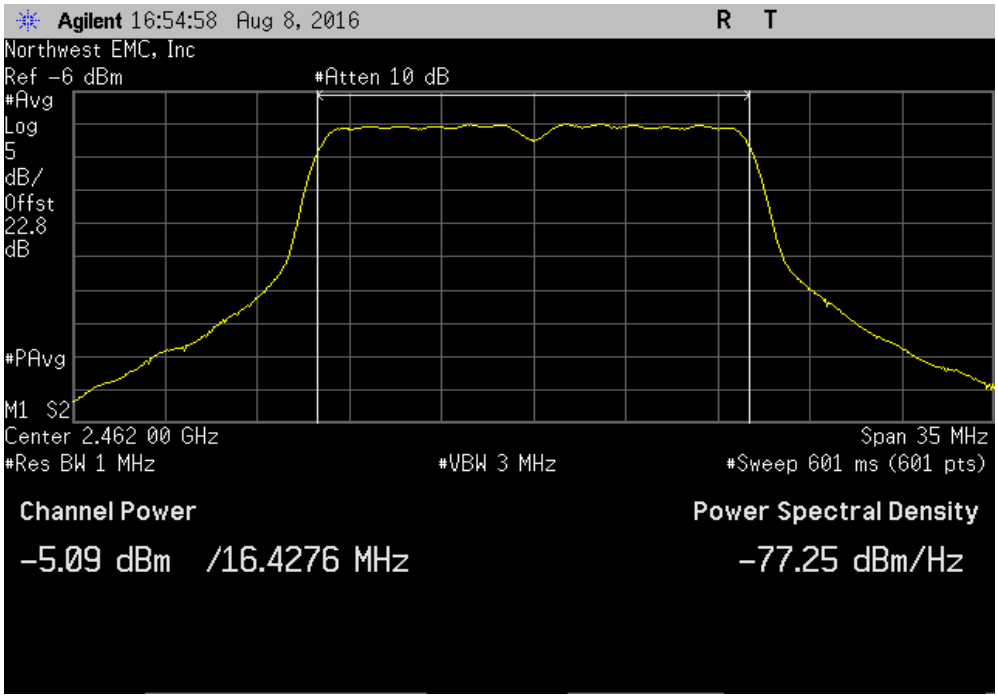
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-6.717	7		0.3	30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-3.961	6.5		2.6	30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	-5.093	7.9		2.8	30	Pass



POWER SPECTRAL DENSITY

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

POWER SPECTRAL DENSITY

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**23 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1012 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**
TEST SPECIFICATIONS			**Test Method**		
FCC 15.247:2016			ANSI C63.10:2013		

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

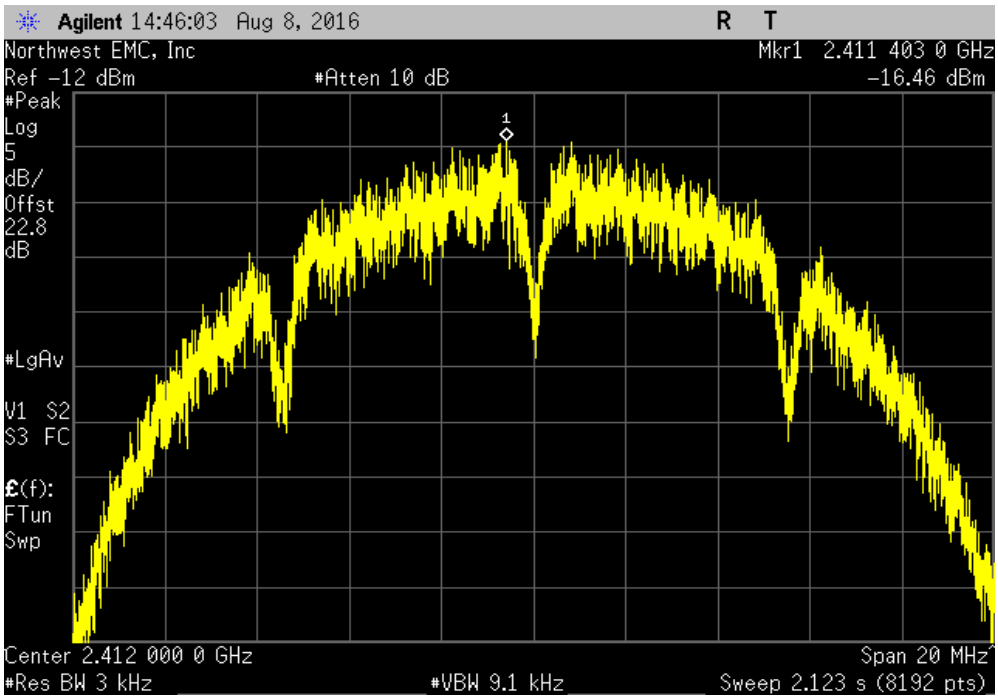
DEVIATIONS FROM TEST STANDARD

None

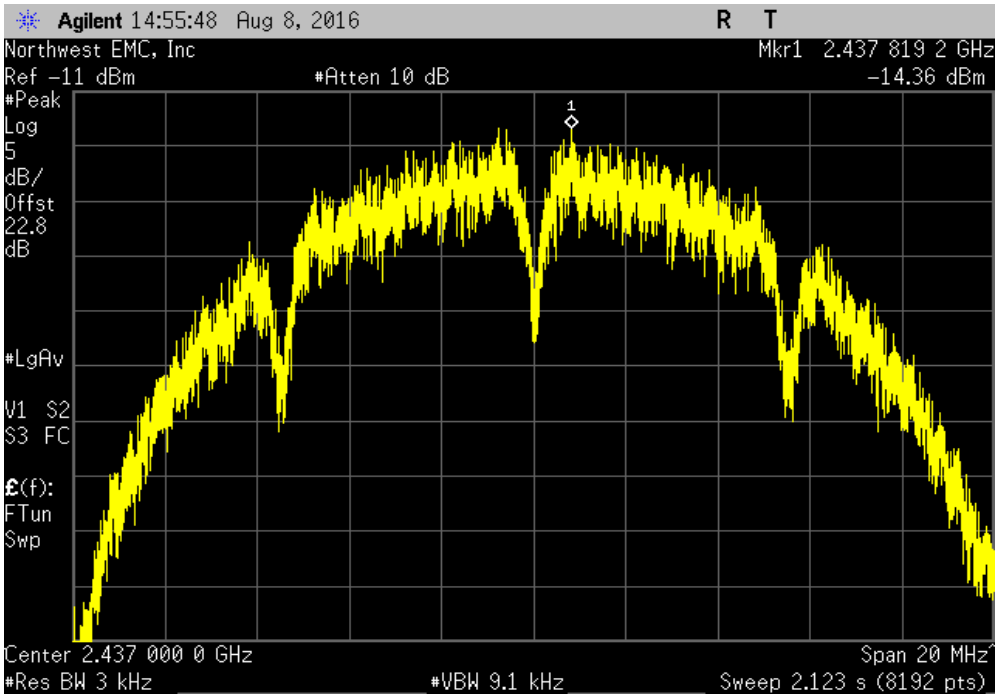
Configuration #	**3**	*Signature*

	Value dBm/3kHz	Limit < dBm/3kHz	Results
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	-16.457	8	Pass
Mid Channel 6, 2437 MHz	-14.356	8	Pass
High Channel 11, 2462 MHz	-14.418	8	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	-14.551	8	Pass
Mid Channel 6, 2437 MHz	-12.506	8	Pass
High Channel 11, 2462 MHz	-12.609	8	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	-19.097	8	Pass
Mid Channel 6, 2437 MHz	-15.351	8	Pass
High Channel 11, 2462 MHz	-17.581	8	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	-24.866	8	Pass
Mid Channel 6, 2437 MHz	-20.368	8	Pass
High Channel 11, 2462 MHz	-22.78	8	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	-24.974	8	Pass
Mid Channel 6, 2437 MHz	-22.372	8	Pass
High Channel 11, 2462 MHz	-23.232	8	Pass

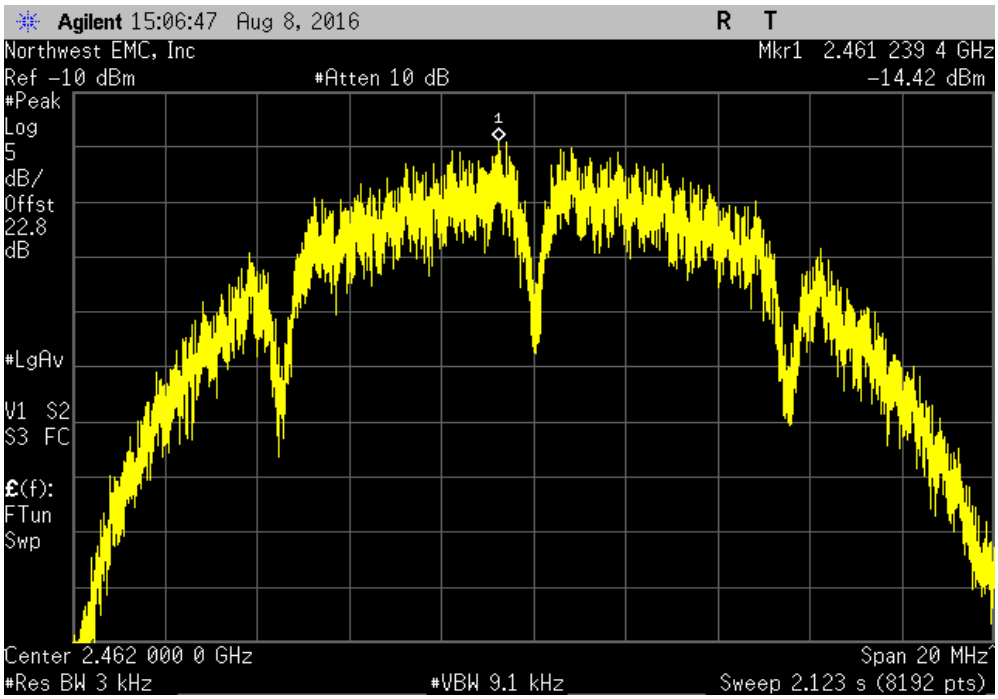
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-16.457	8	Pass



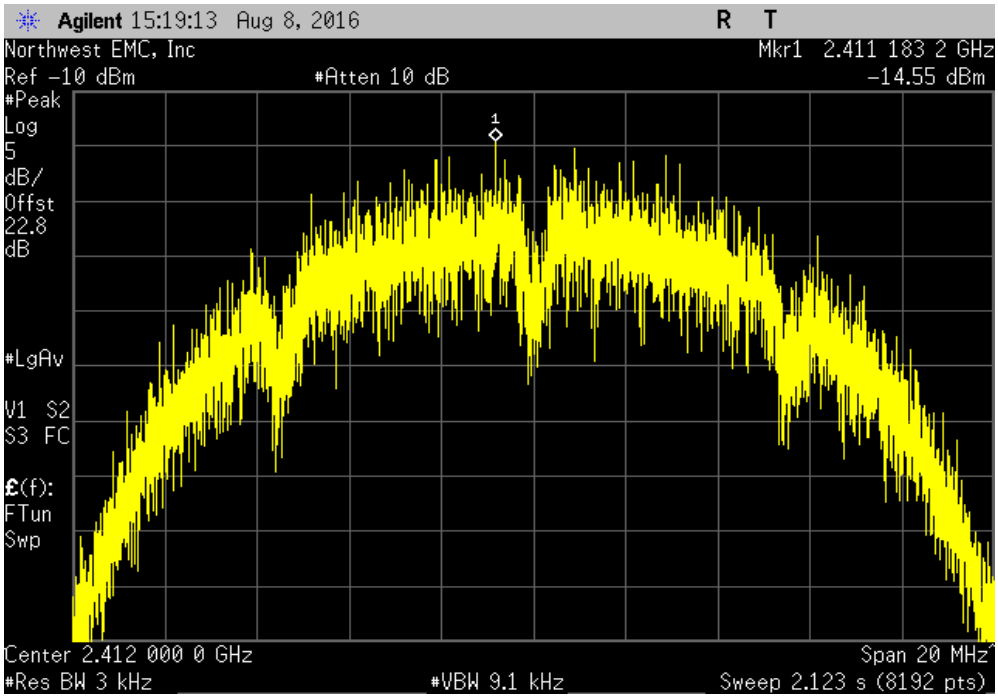
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-14.356	8	Pass



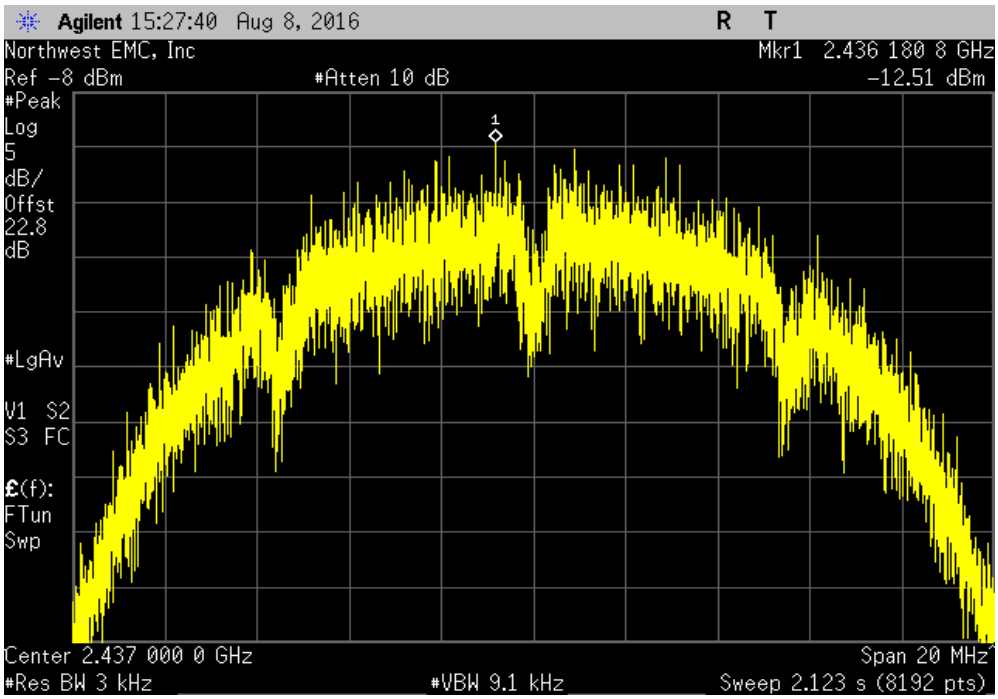
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-14.418	8	Pass



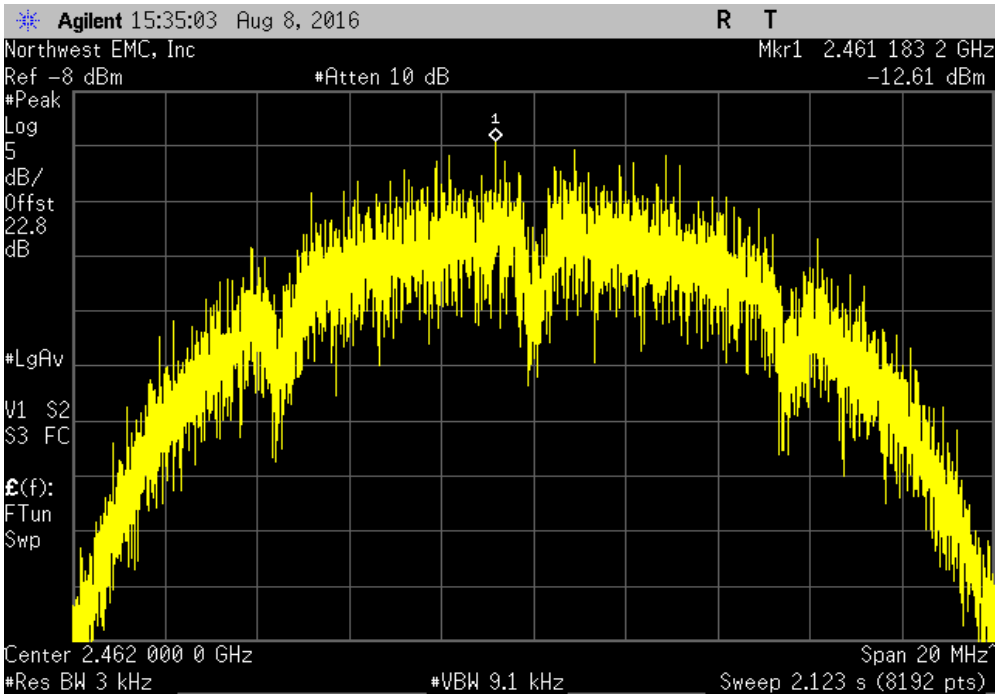
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-14.551	8	Pass



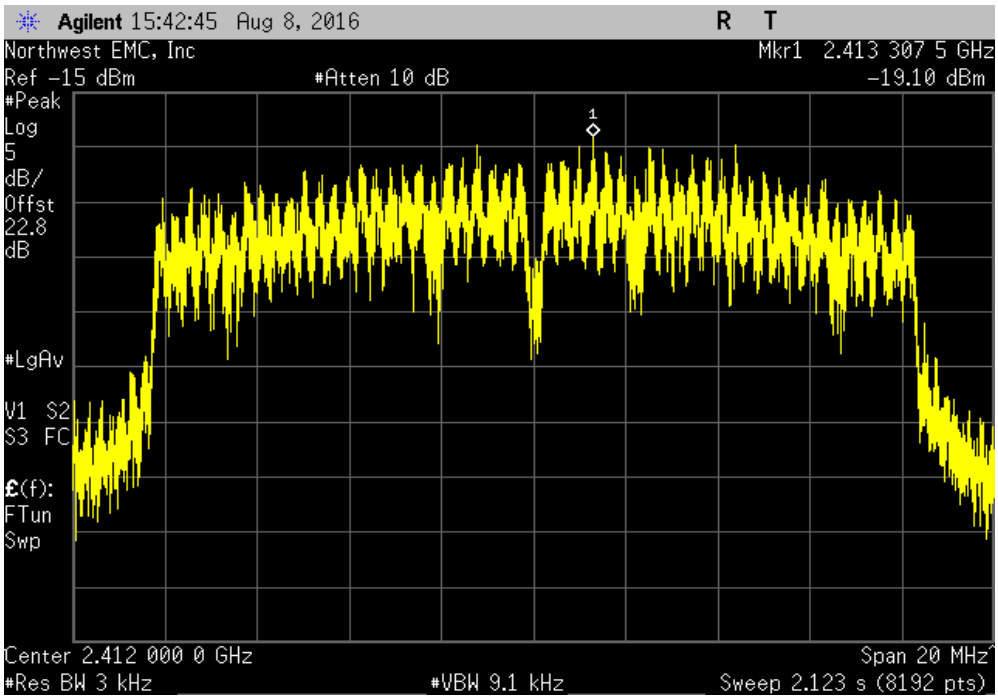
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-12.506	8	Pass



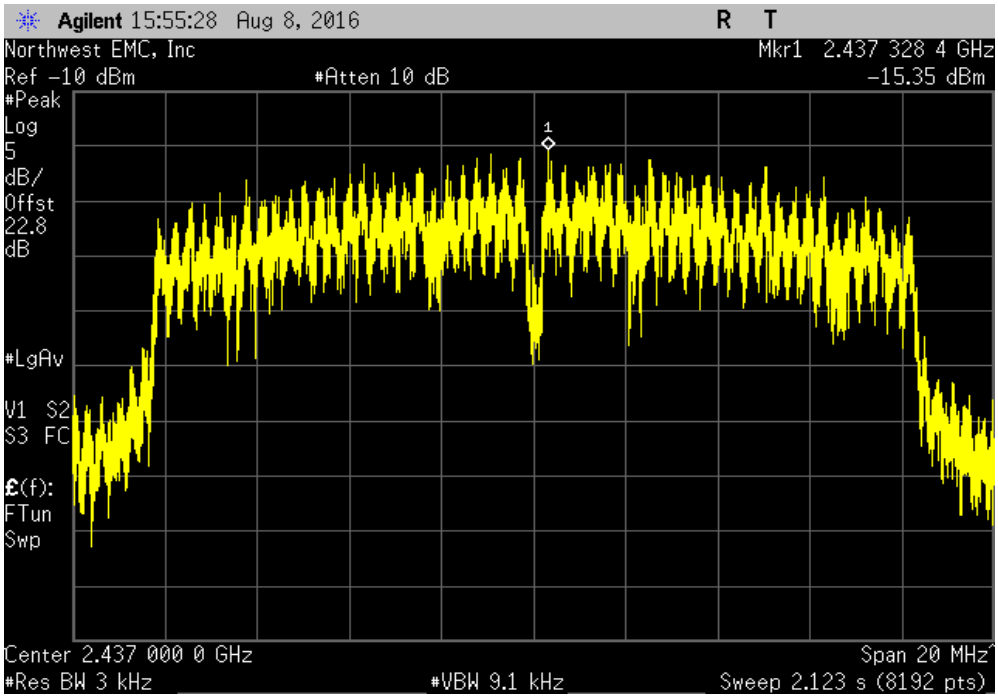
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-12.609	8	Pass



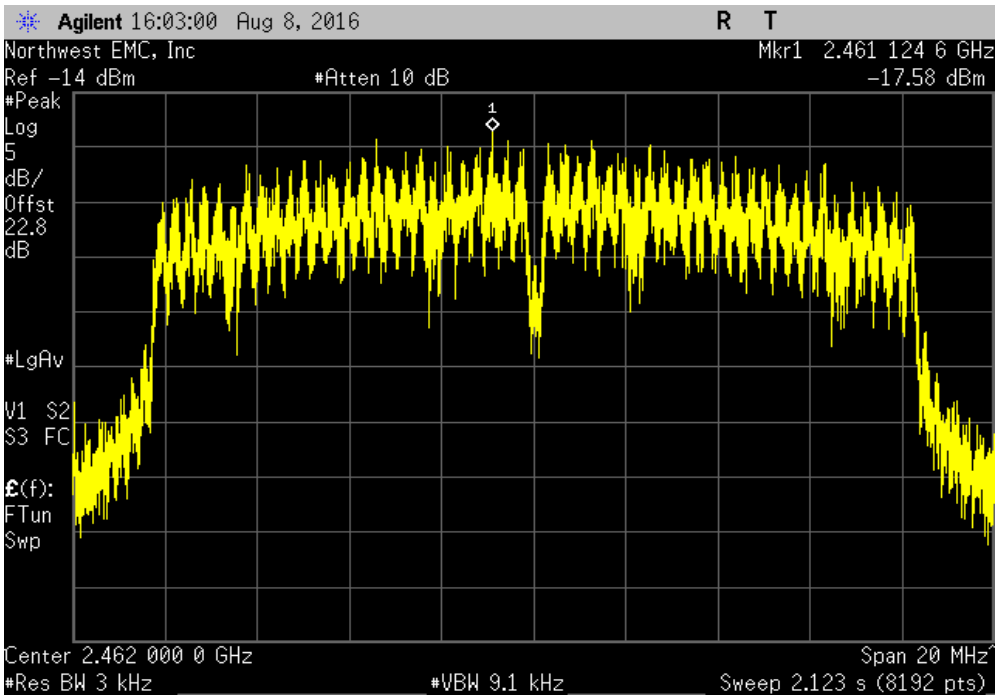
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-19.097	8	Pass



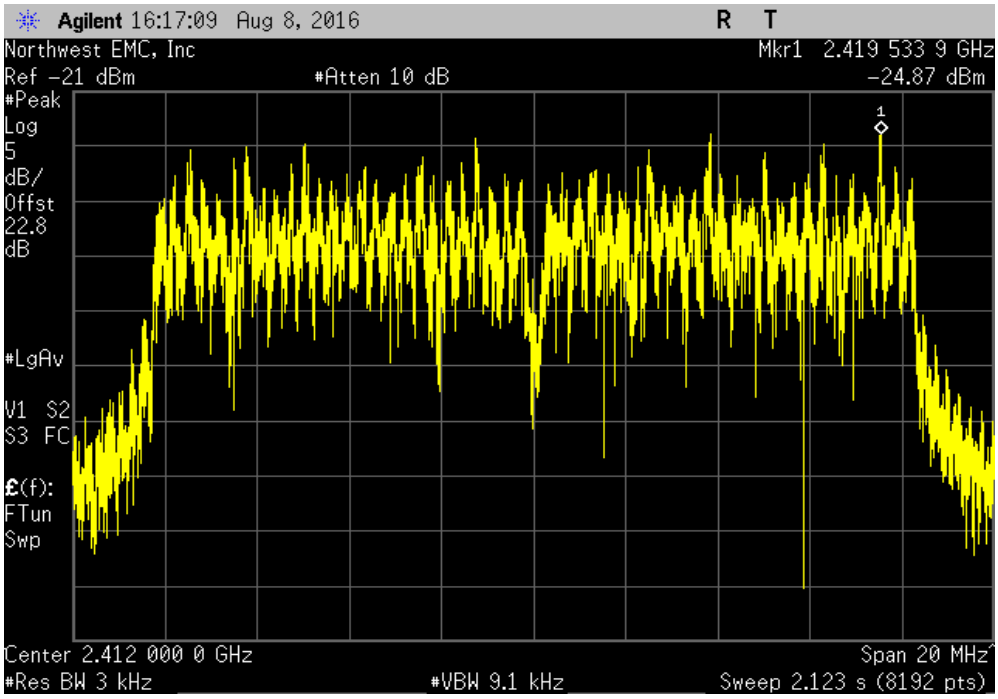
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-15.351	8	Pass



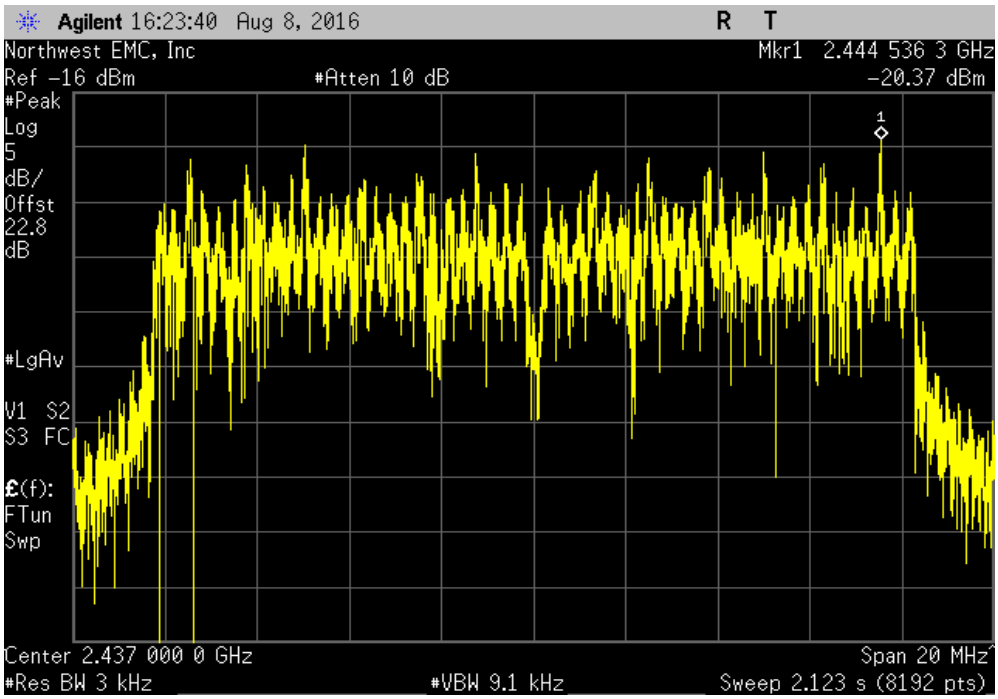
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-17.581	8	Pass



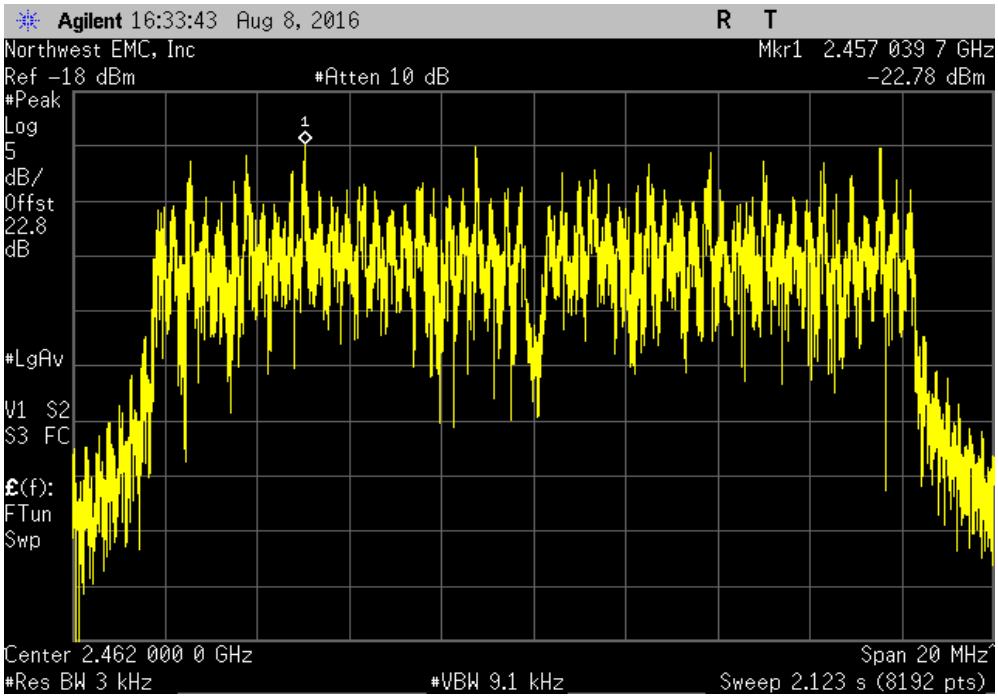
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-24.866	8	Pass



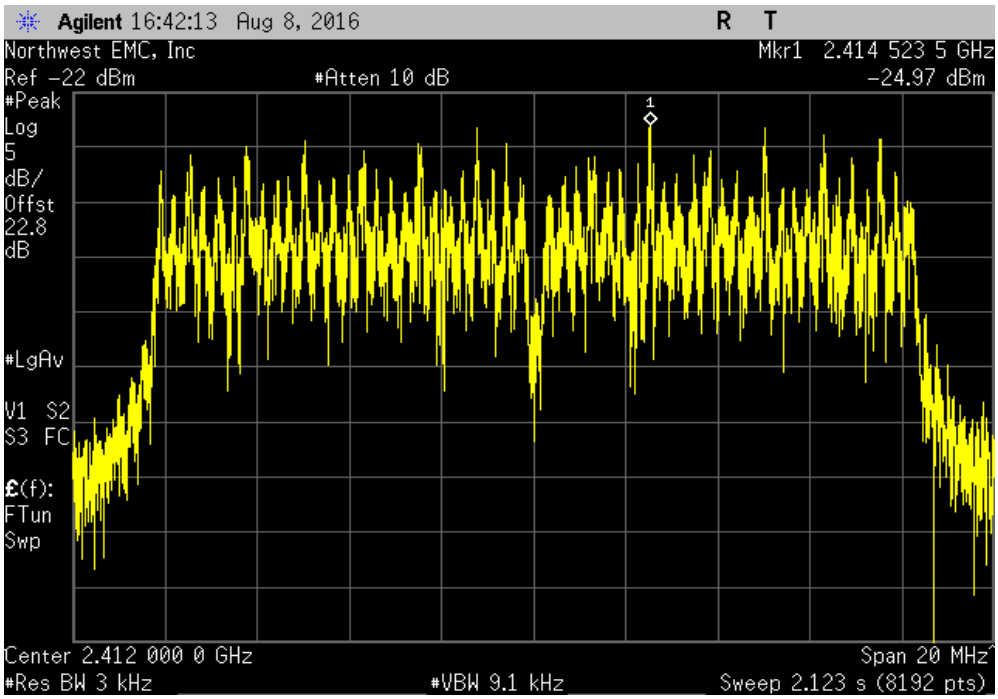
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-20.368	8	Pass



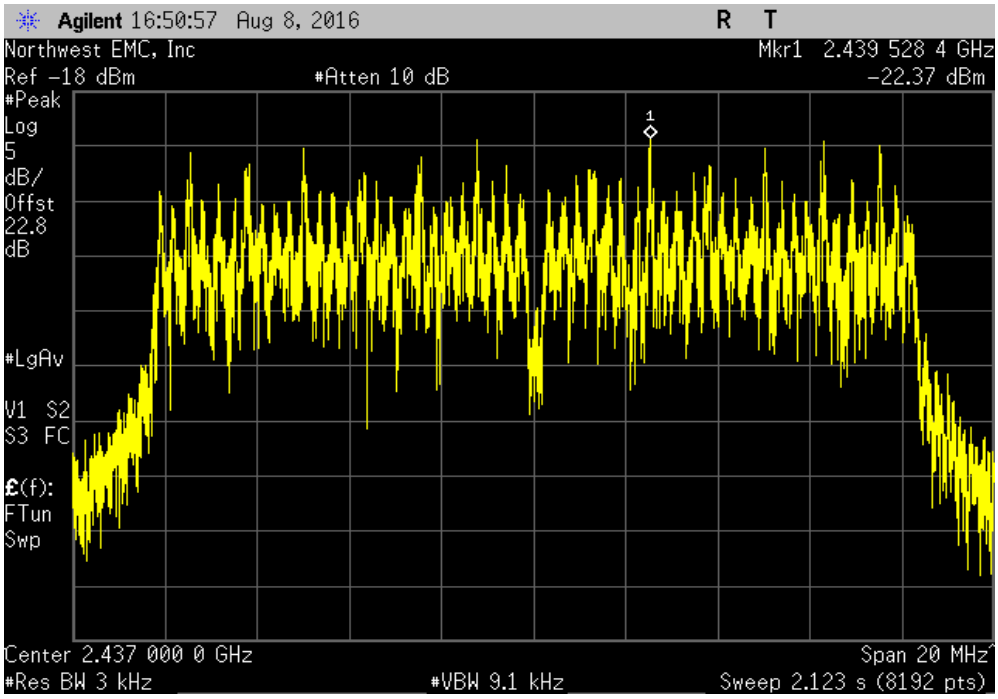
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-22.78	8	Pass



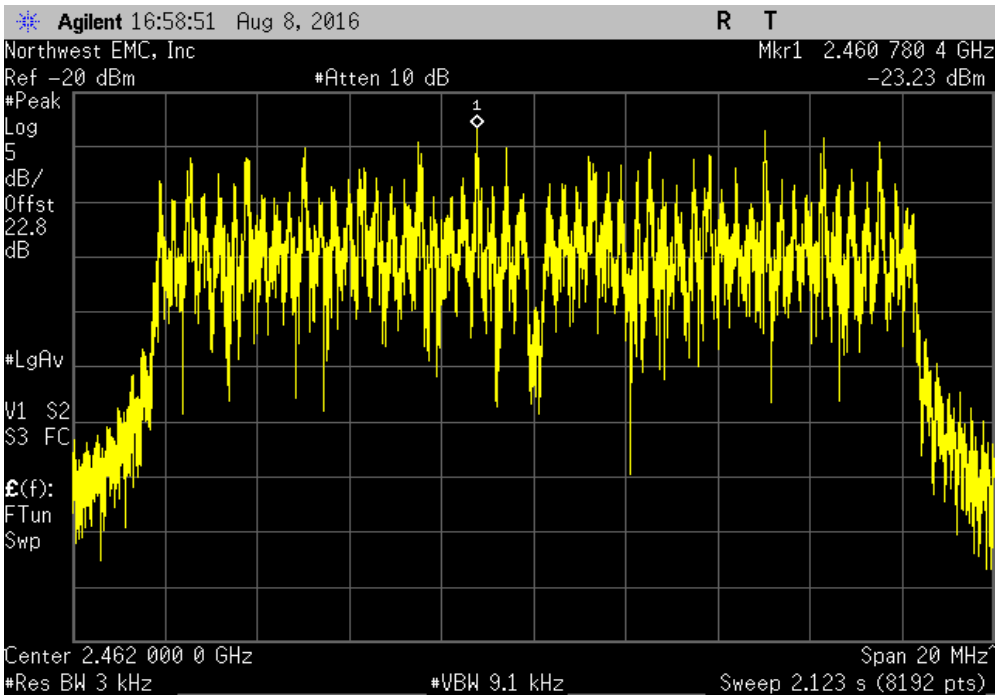
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-24.974	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-22.372	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-23.232	8	Pass



BAND EDGE COMPLIANCE

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. 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 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

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**50% RH**
Project:	**None**			**Barometric Pres.:**	**1013 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2016	ANSI C63.10:2013

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

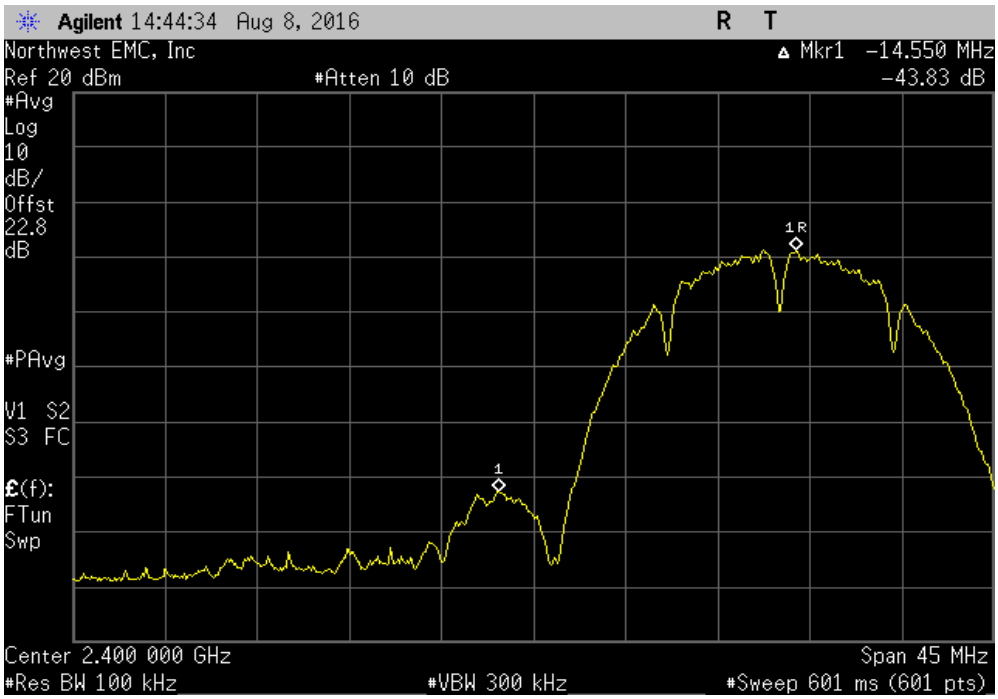
DEVIATIONS FROM TEST STANDARD

None

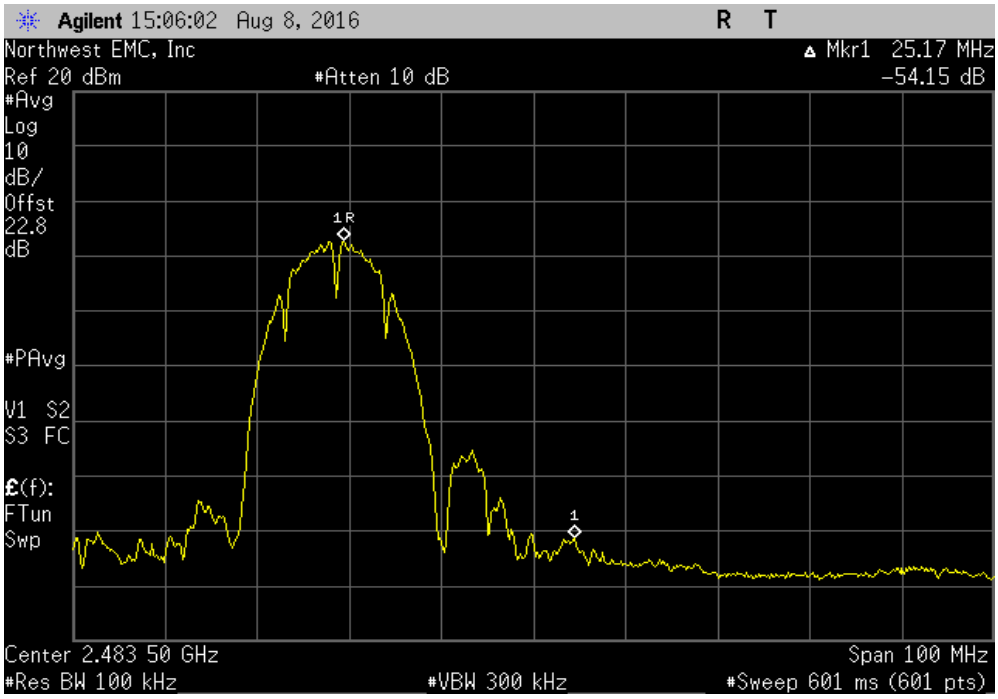
Configuration #	**3**	*Signature*

		Value (dBc)	**Limit ≤ (dBc)**	**Result**
2400 MHz - 2483.5 MHz Band				
	802.11(b) 1 Mbps			
	Low Channel 1, 2412 MHz	-43.83	-30	Pass
	High Channel 11, 2462 MHz	-54.15	-30	Pass
	802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	-36.08	-30	Pass
	High Channel 11, 2462 MHz	-54.71	-30	Pass
	802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	-30.25	-30	Pass
	High Channel 11, 2462 MHz	-47.09	-30	Pass
	802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	-33.05	-30	Pass
	High Channel 11, 2462 MHz	-46.16	-30	Pass
	802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	-30.33	-30	Pass
	High Channel 11, 2462 MHz	-46.18	-30	Pass

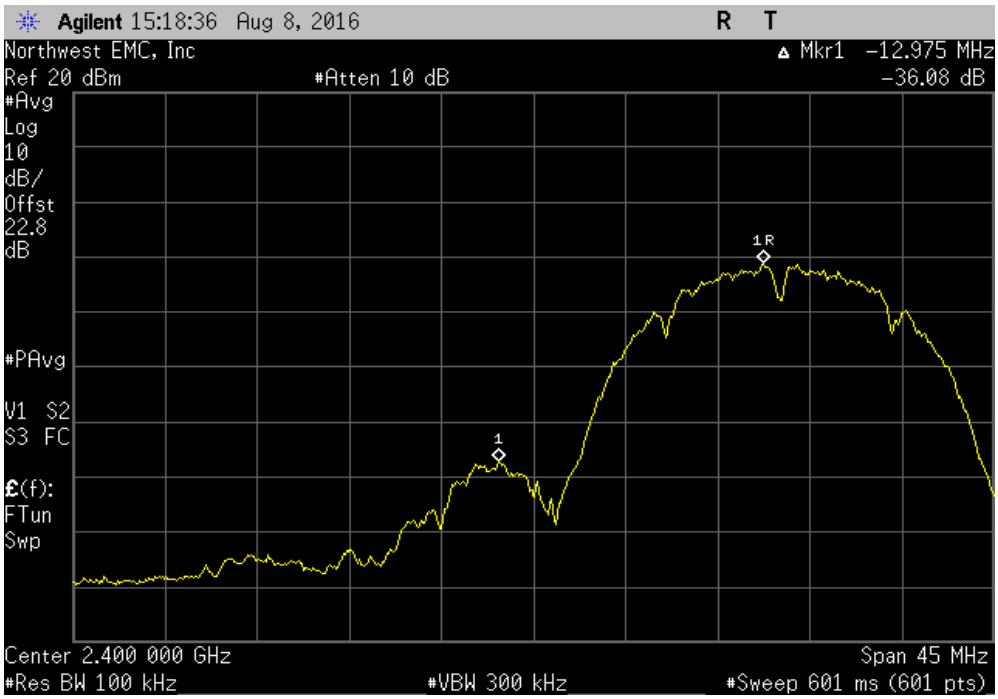
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-43.83	-30	Pass



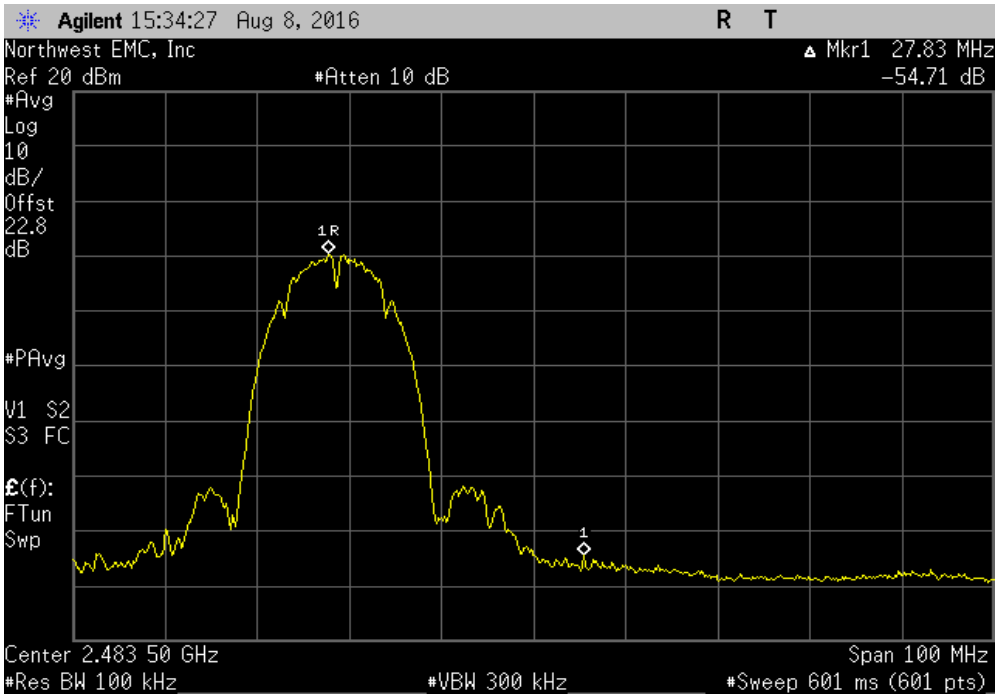
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-54.15	-30	Pass



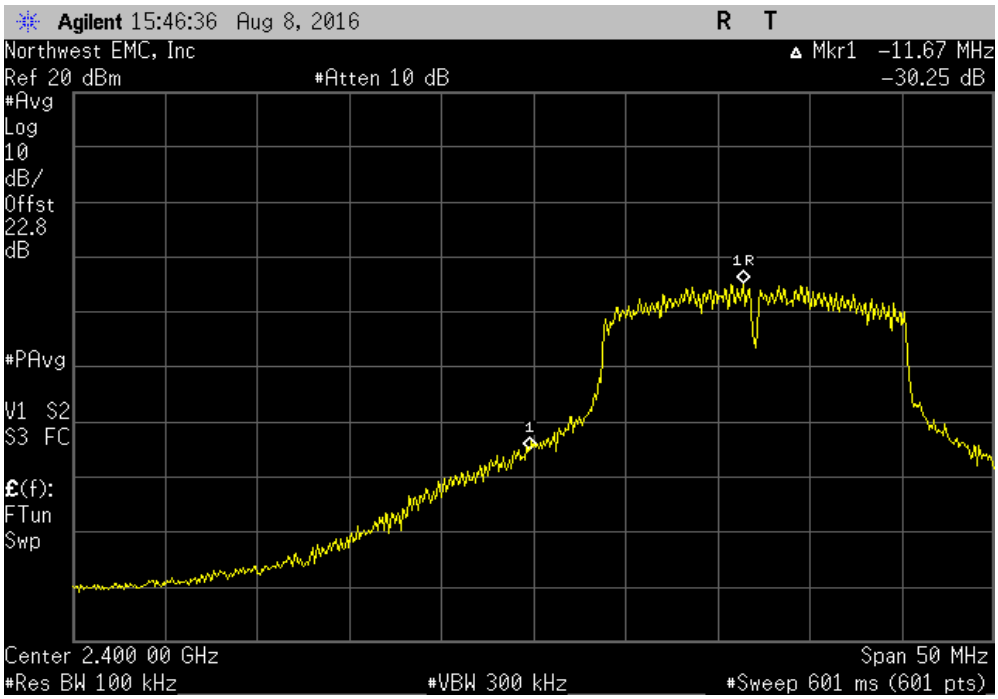
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-36.08	-30	Pass



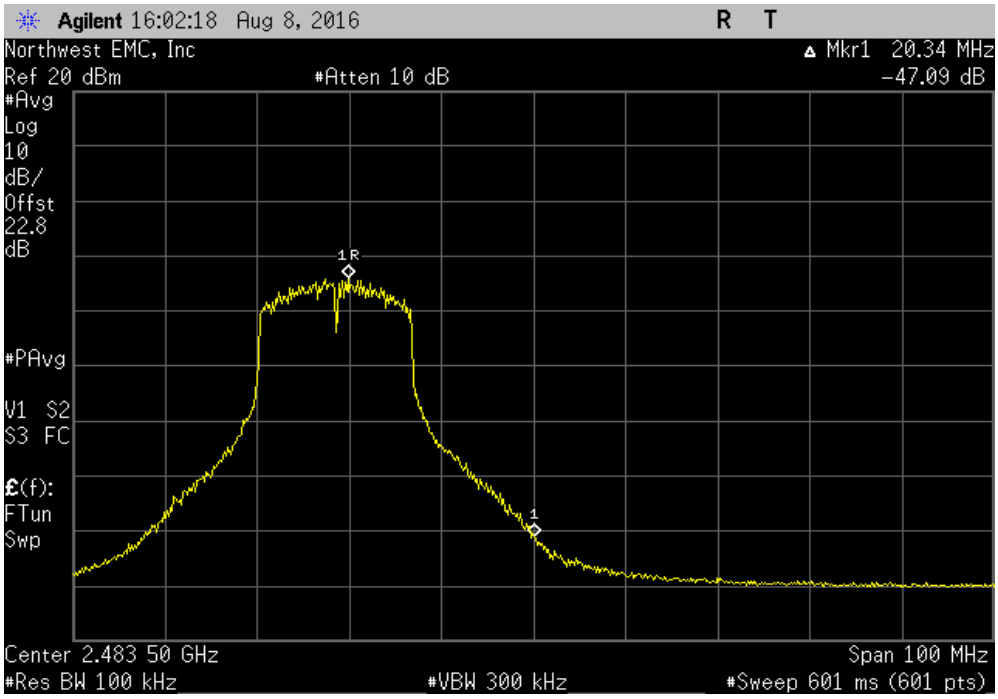
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-54.71	-30	Pass



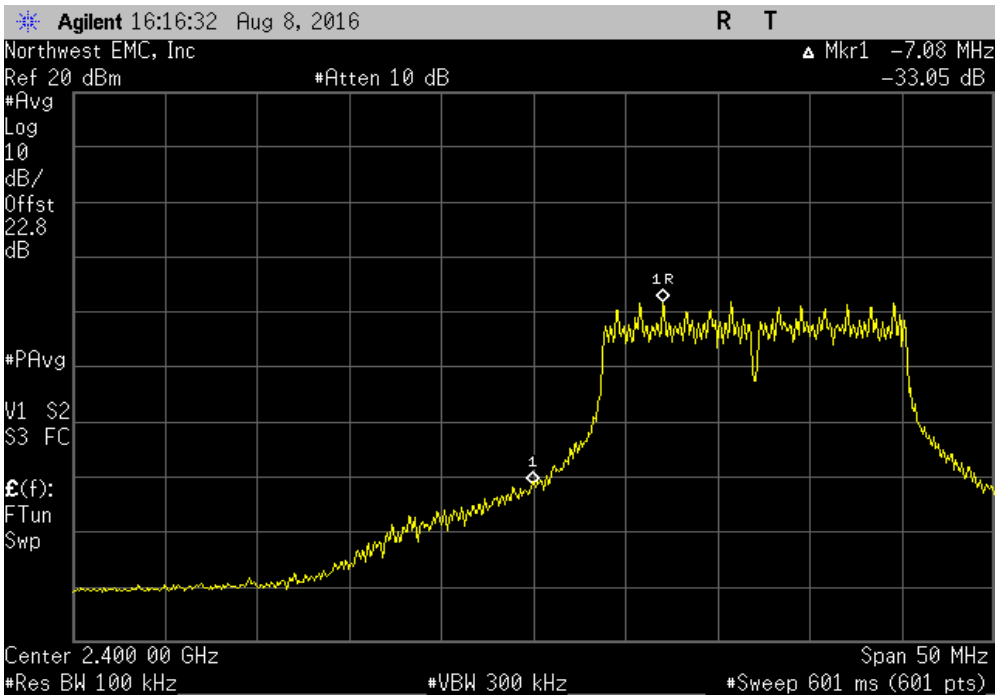
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-30.25	-30	Pass



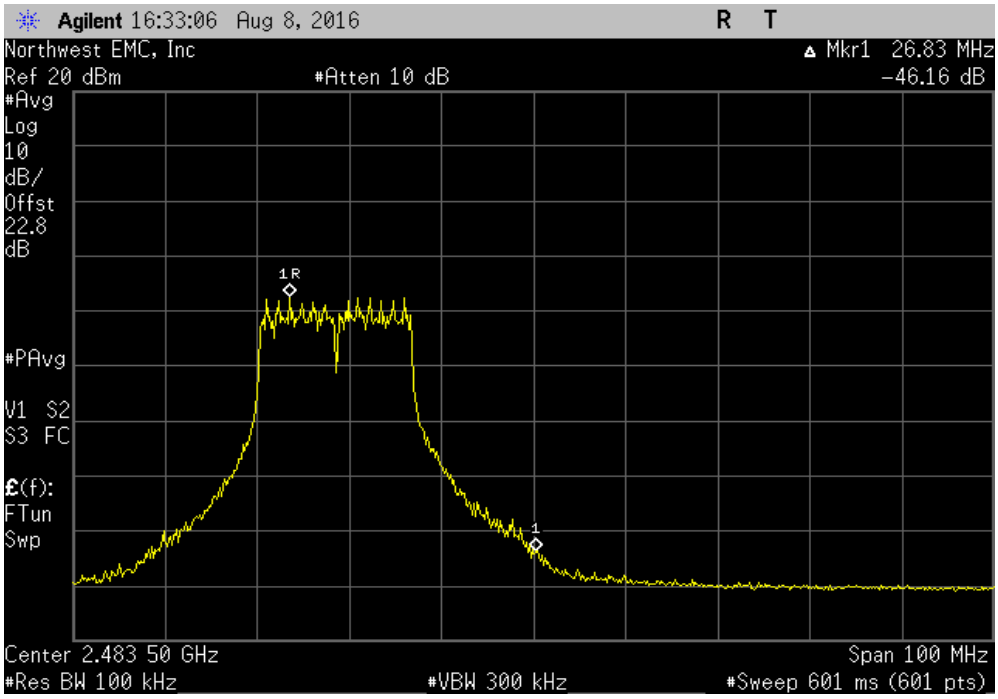
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-47.09	-30	Pass



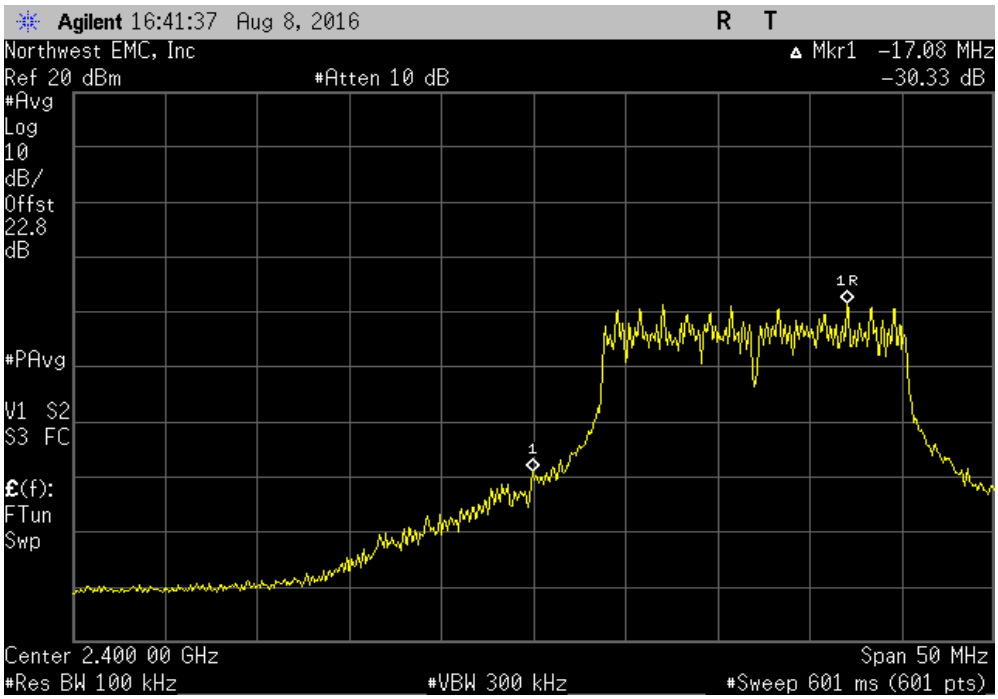
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-33.05	-30	Pass



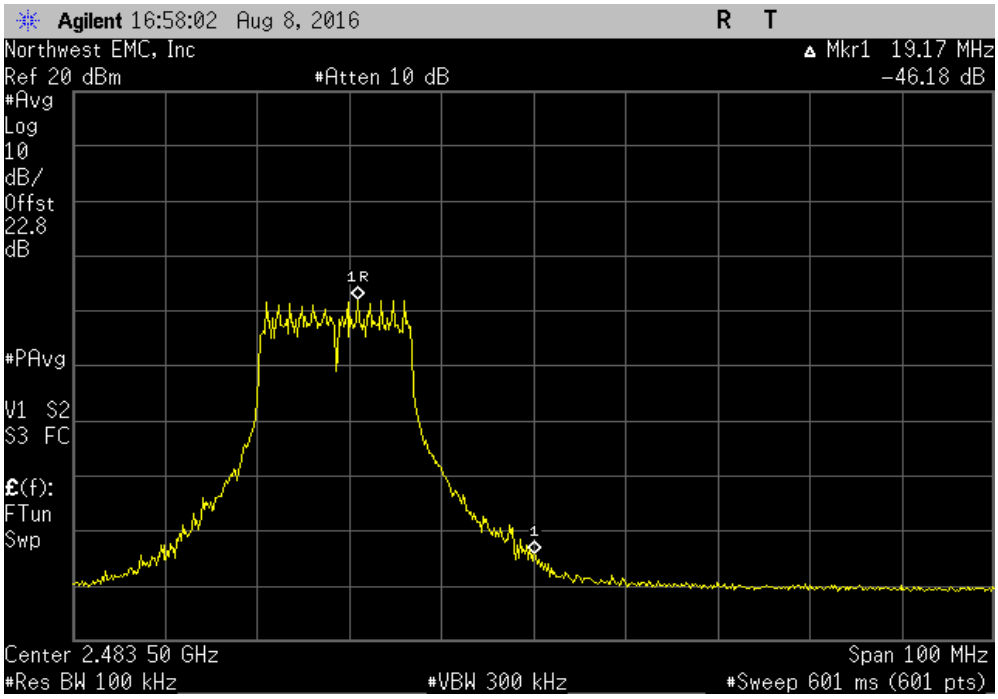
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.16	-30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-30.33	-30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.18	-30	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2016.05.06

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.	Cal. Due
Attenuator	Fairview Microwave	SA18E-20	TKS	4/4/2016	4/4/2017
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	4/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. 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

NORTHWEST EMC

XMit 2016.05.06

EUT:	**BLEB**			**Work Order:**	**AWAR0023**
Serial Number:	**QS15260346**			**Date:**	**08/08/16**
Customer:	**Awarepoint Corporation**			**Temperature:**	**23 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1012 mbar**
Tested by:	**Mike Tran**	**Power:**	**USB Powered**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2016	ANSI C63.10:2013

COMMENTS

Total reference level offset: DC Block + 20dB attenuator + RF Cable + Patch Cable = 22.75 dB. Power setting = 0

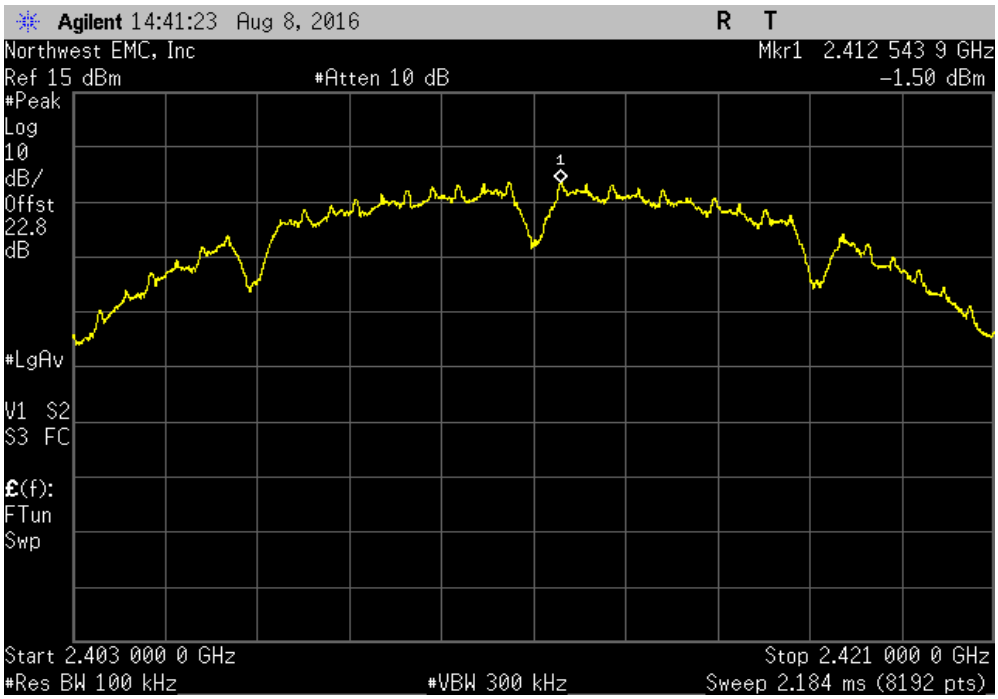
DEVIATIONS FROM TEST STANDARD

None

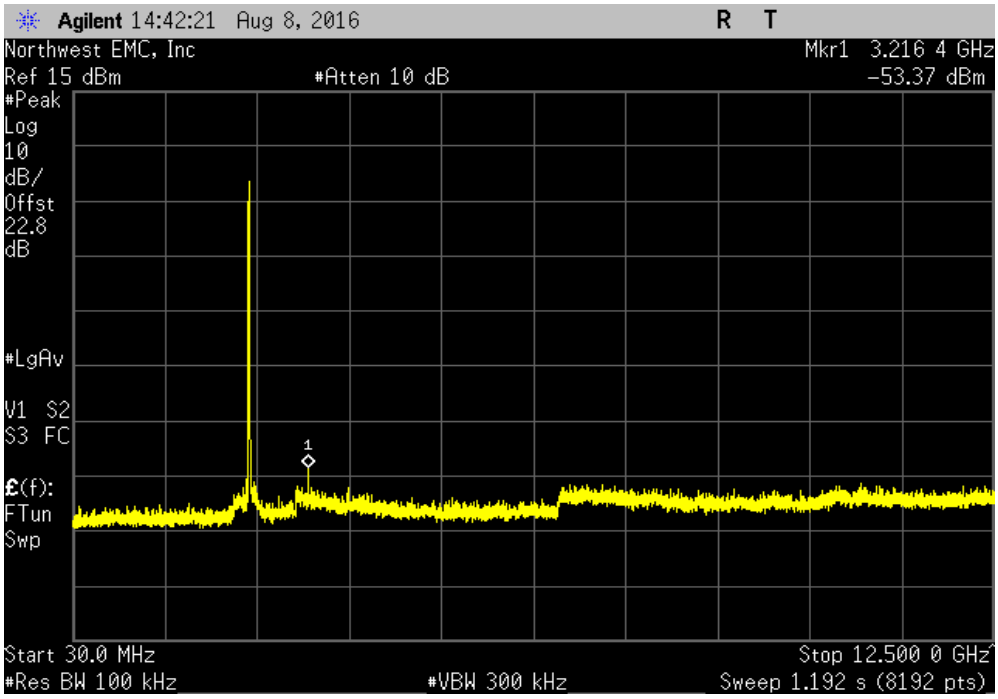
Configuration #	**3**	*Signature*

		Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	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	-51.86	-30	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-50.26	-30	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-55.39	-30	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-52.99	-30	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-55.5	-30	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-53.18	-30	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	-52.36	-30	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-52.08	-30	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-57.3	-30	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-53.99	-30	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-55.45	-30	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-53.56	-30	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	-48.73	-30	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-48.32	-30	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-56.71	-30	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-53.06	-30	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-52.26	-30	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-50.27	-30	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	-47.52	-30	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-46.18	-30	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-54.06	-30	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-50.78	-30	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-50.95	-30	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-47.78	-30	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	-43.54	-30	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-46.45	-30	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-52.65	-30	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-48.96	-30	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-51.67	-30	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-48.17	-30	Pass

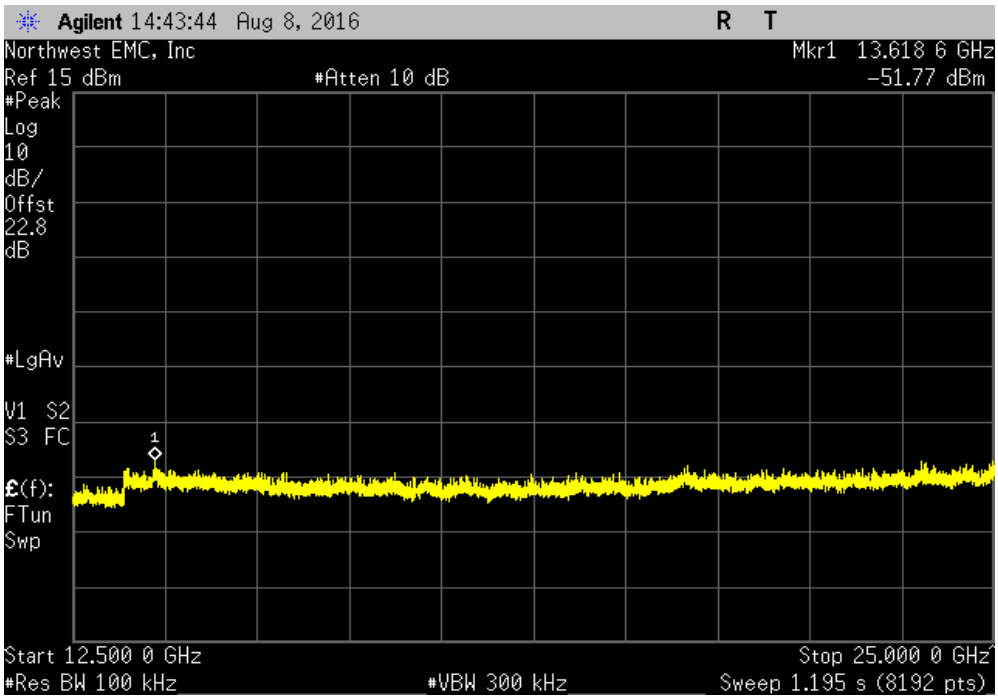
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



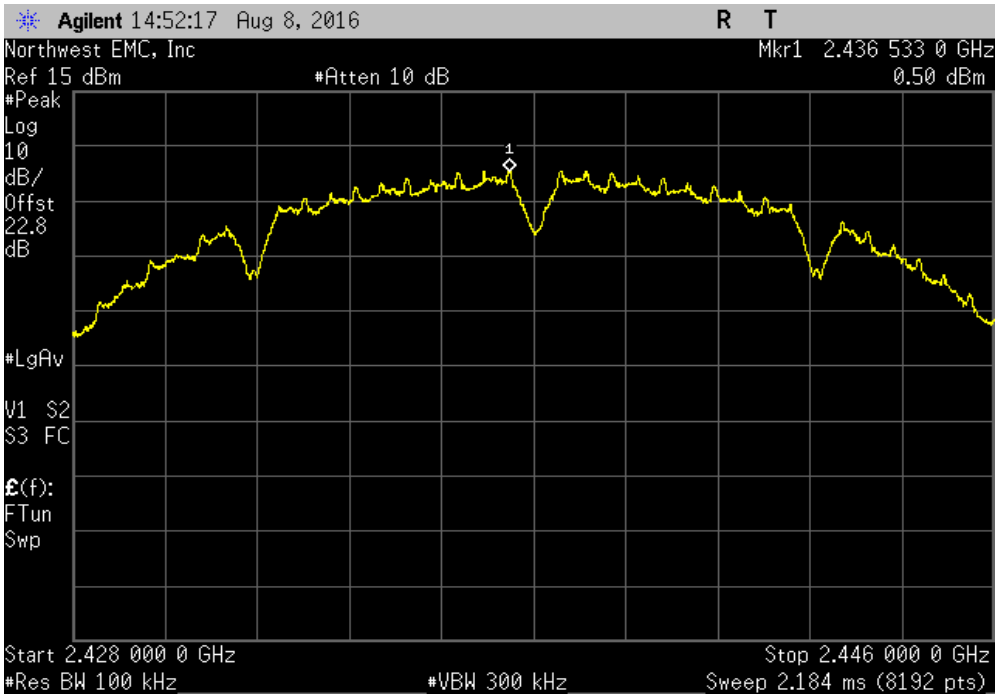
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-51.86	-30	Pass



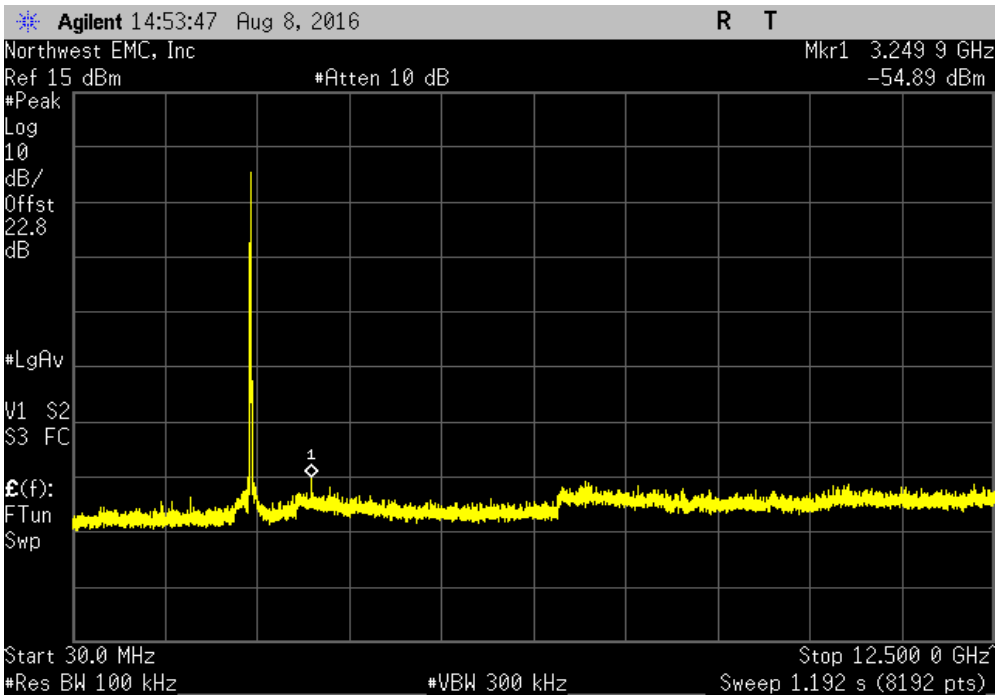
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-50.26	-30	Pass



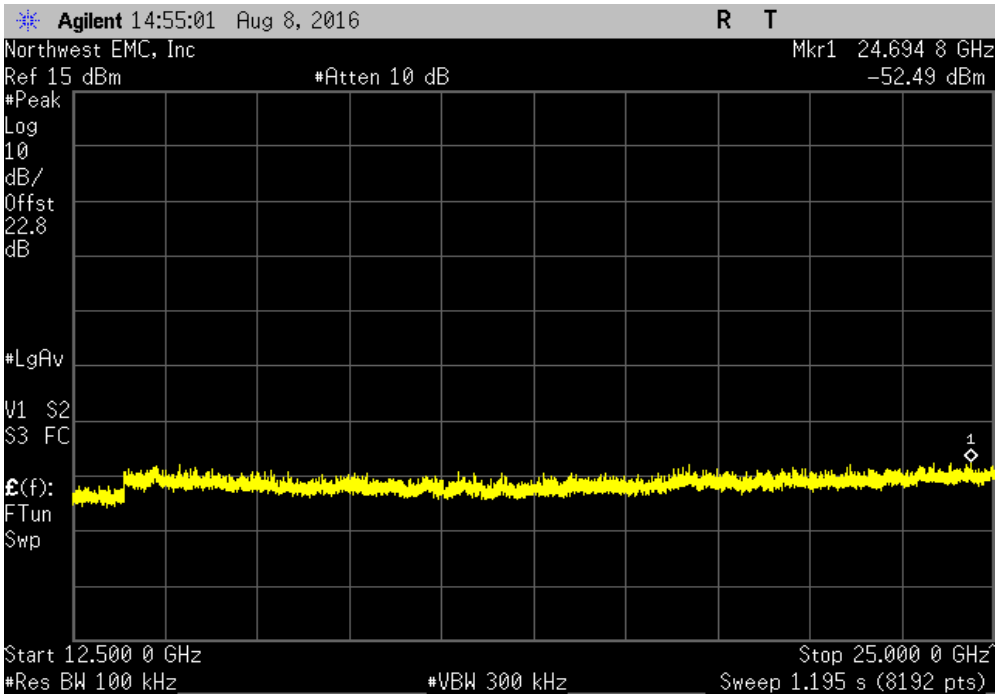
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



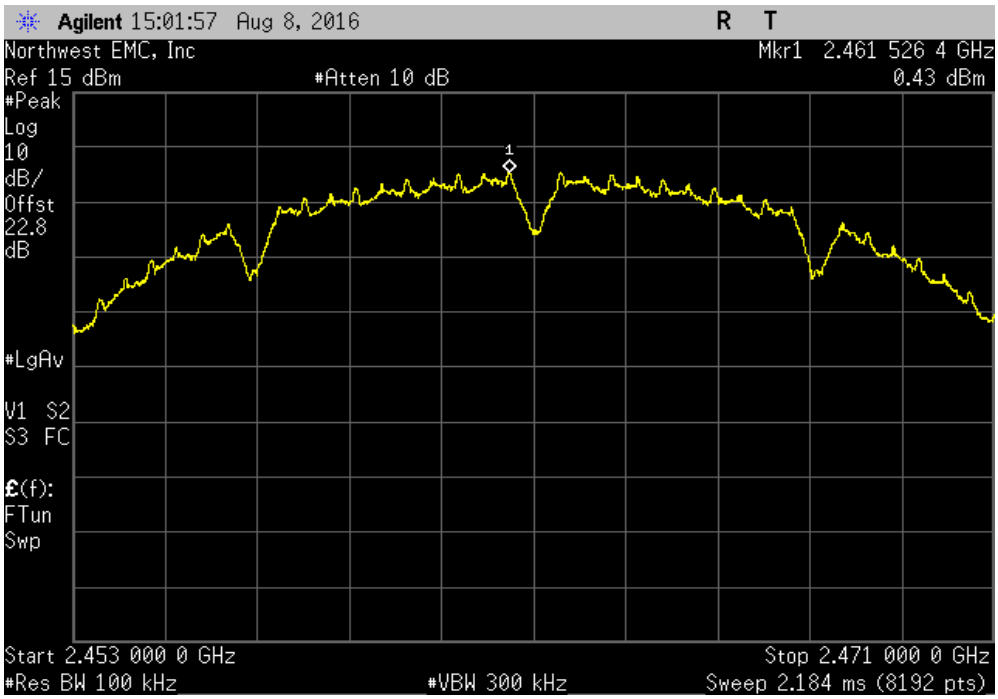
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-55.39	-30	Pass



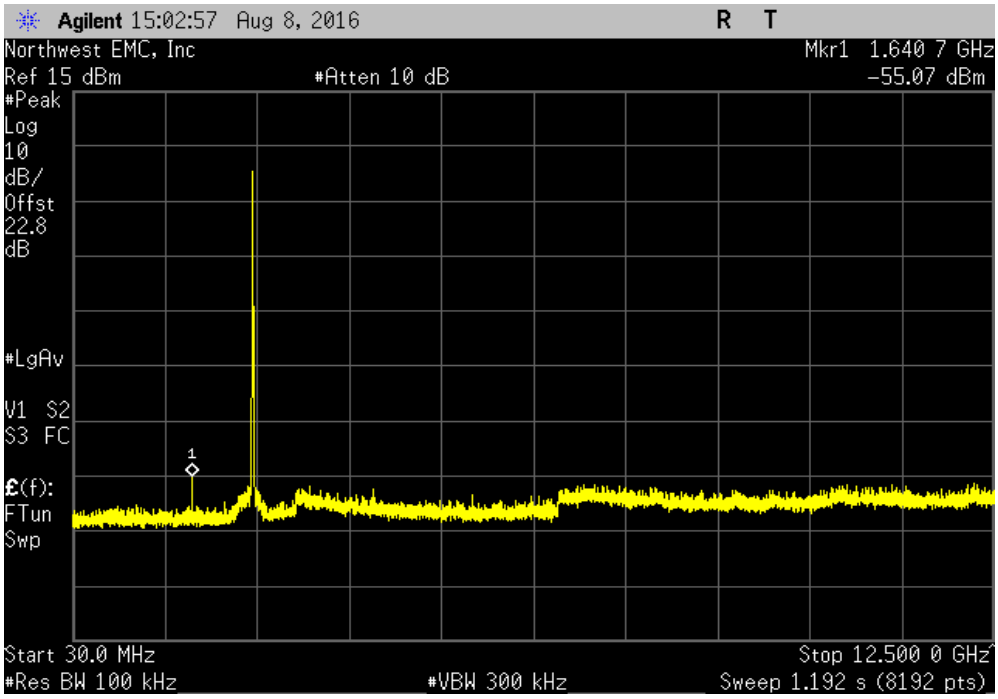
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-52.99	-30	Pass



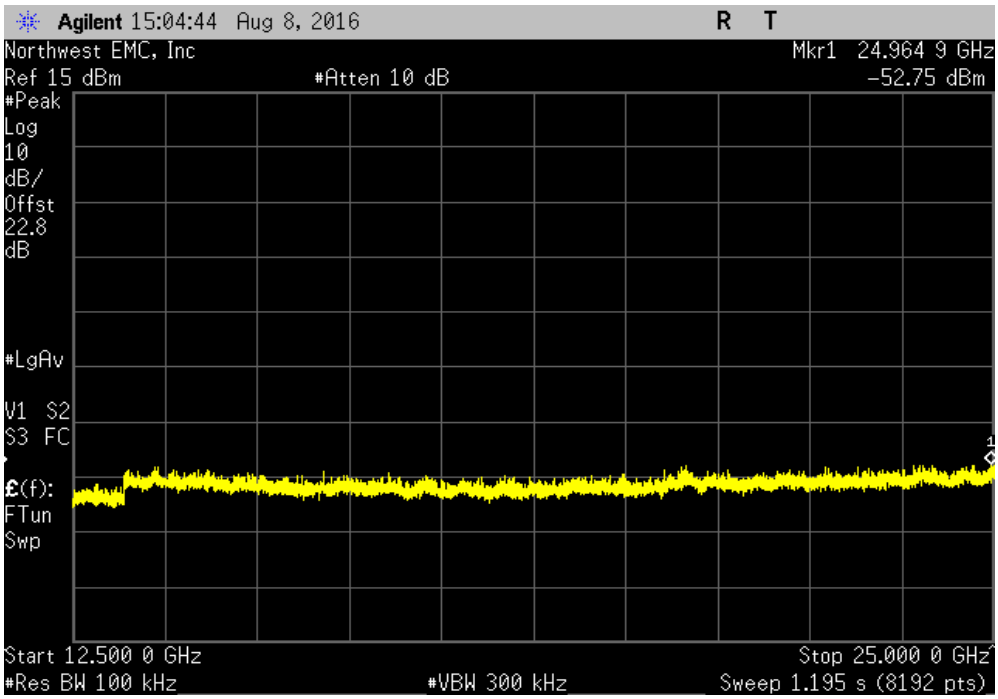
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



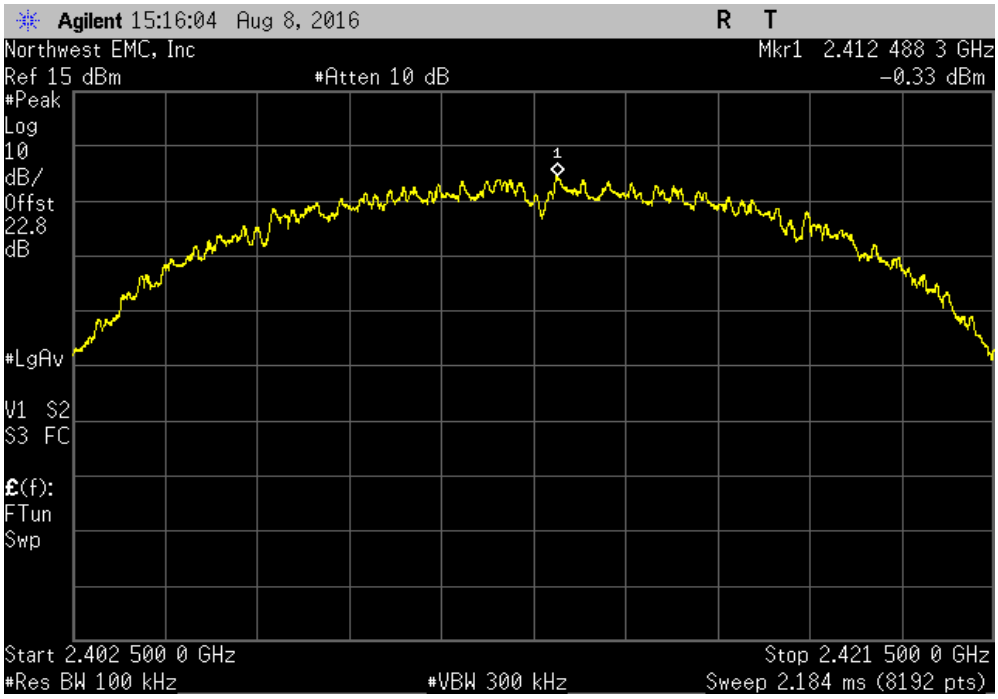
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-55.5	-30	Pass	



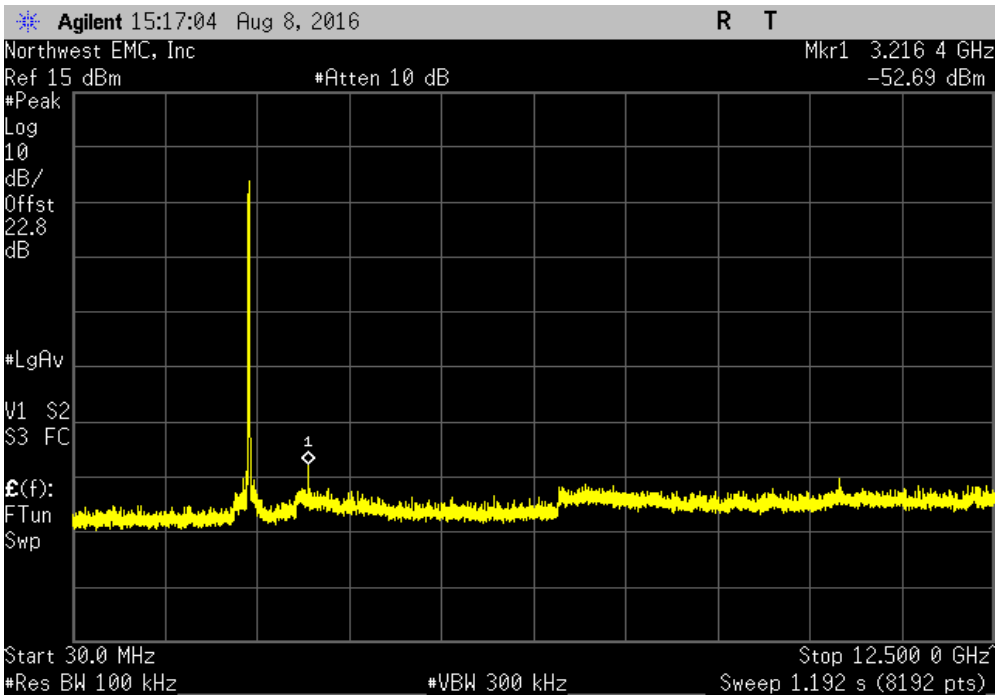
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-53.18	-30	Pass



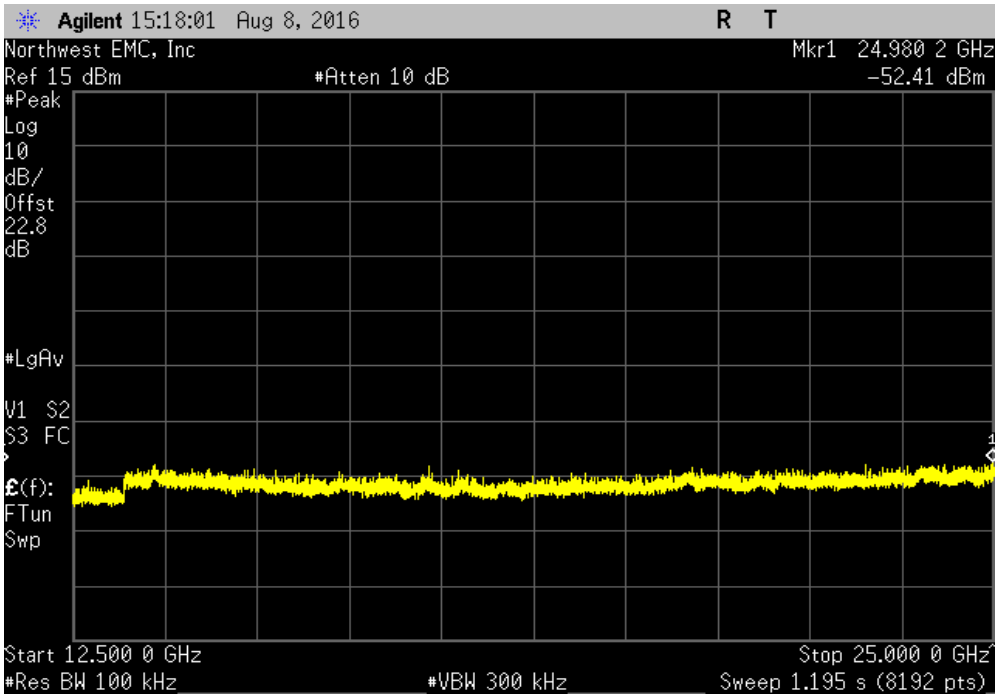
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



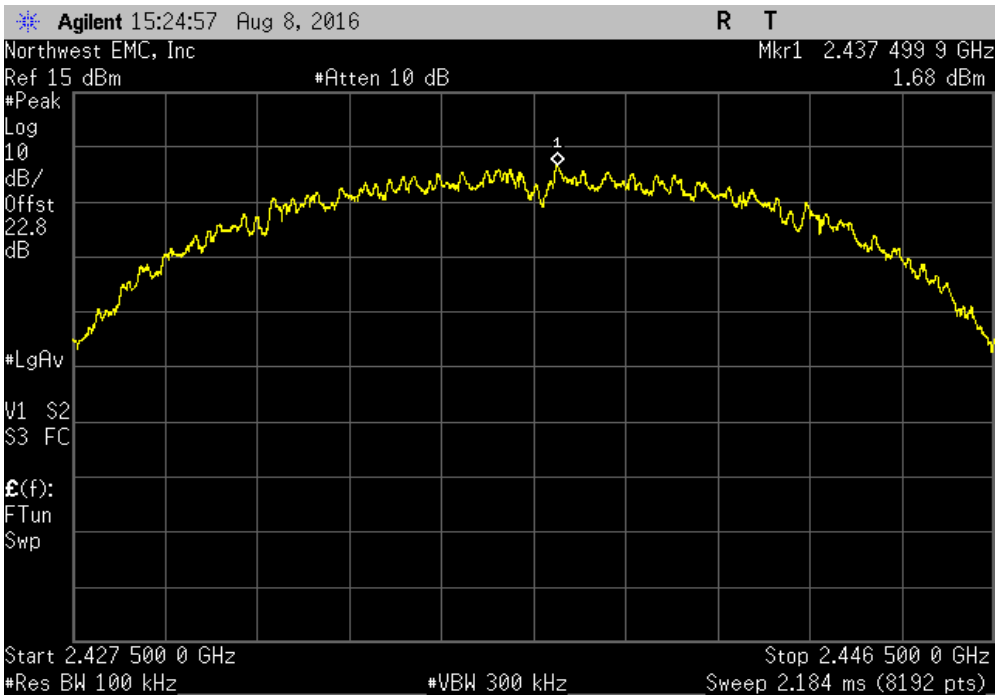
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-52.36	-30	Pass



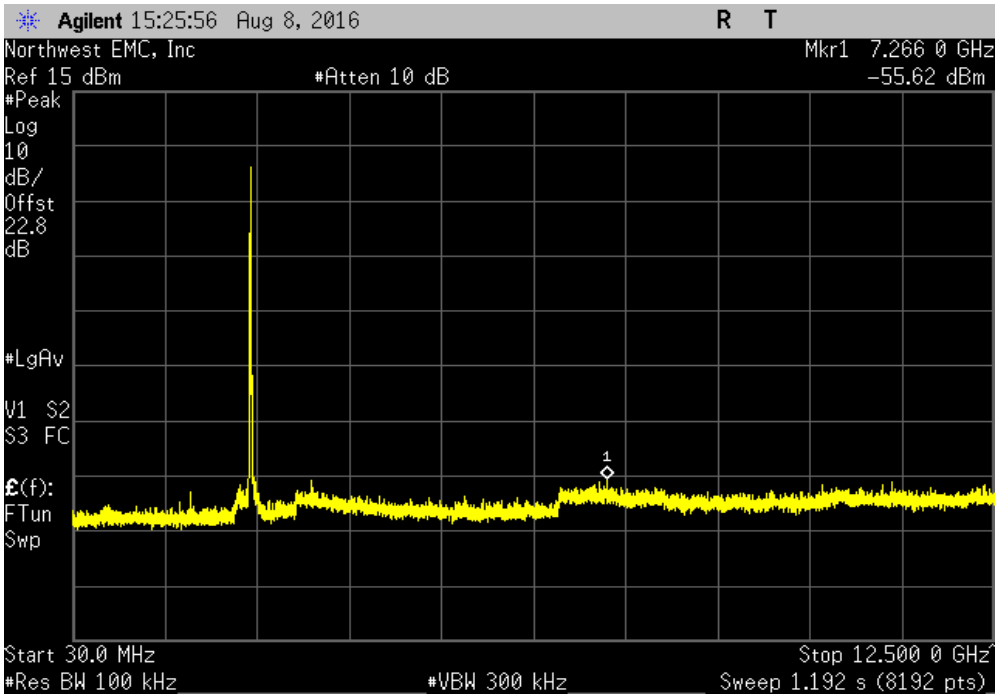
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-52.08	-30	Pass



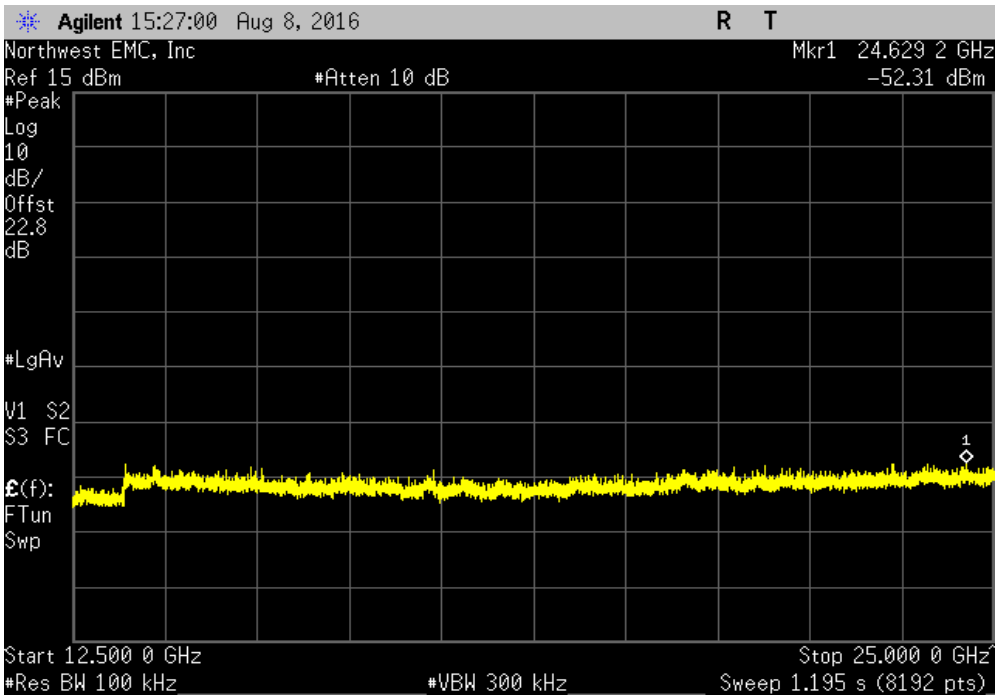
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



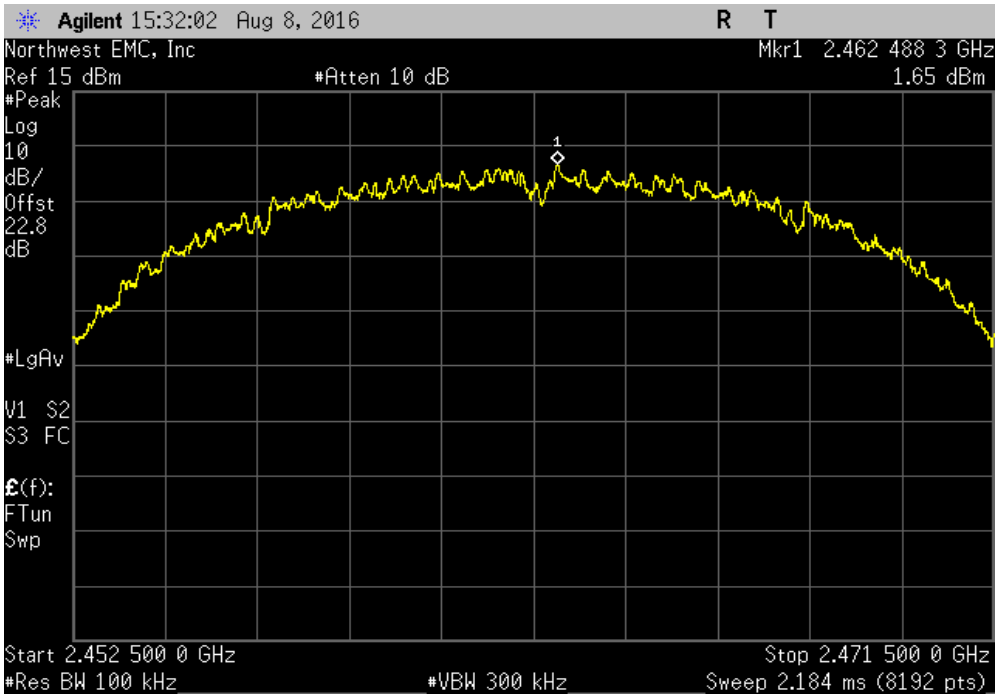
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz					
	Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
	30 MHz - 12.5 GHz		-57.3	-30	Pass



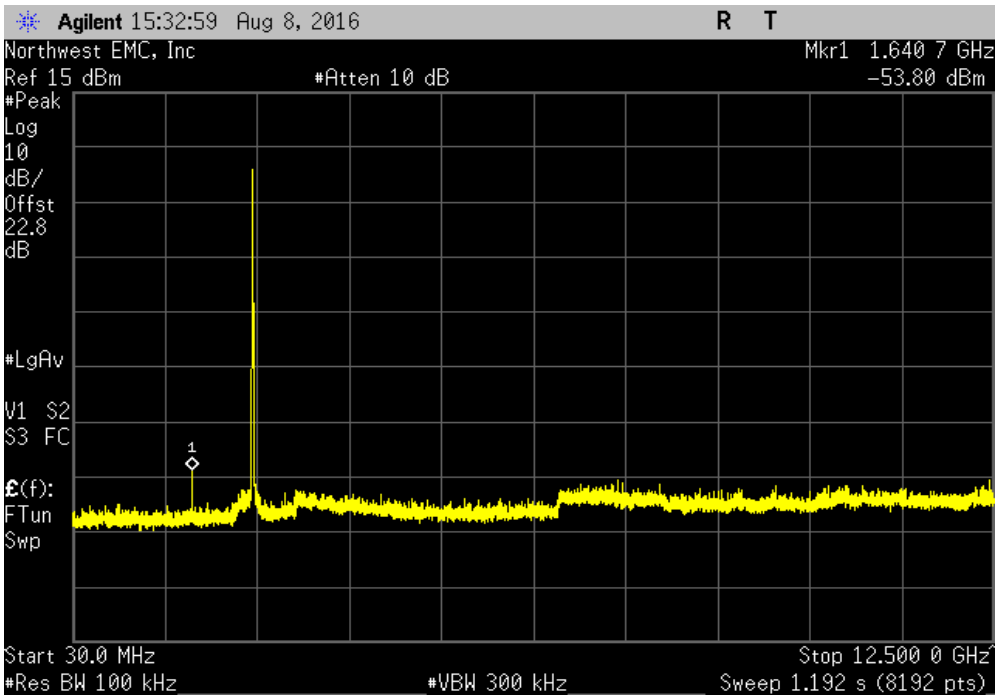
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-53.99	-30	Pass



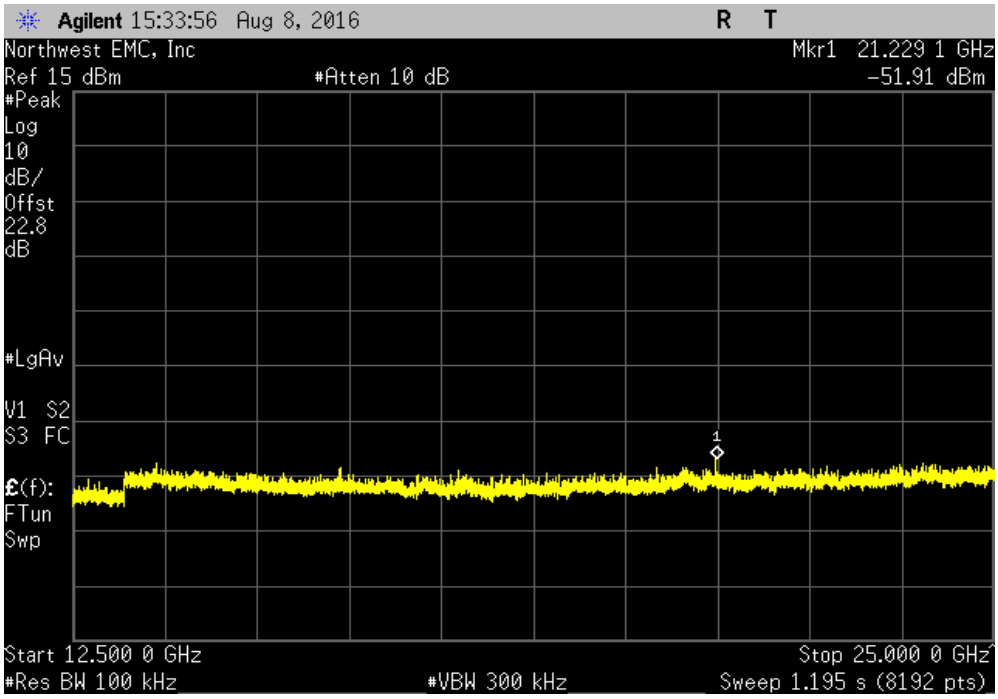
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



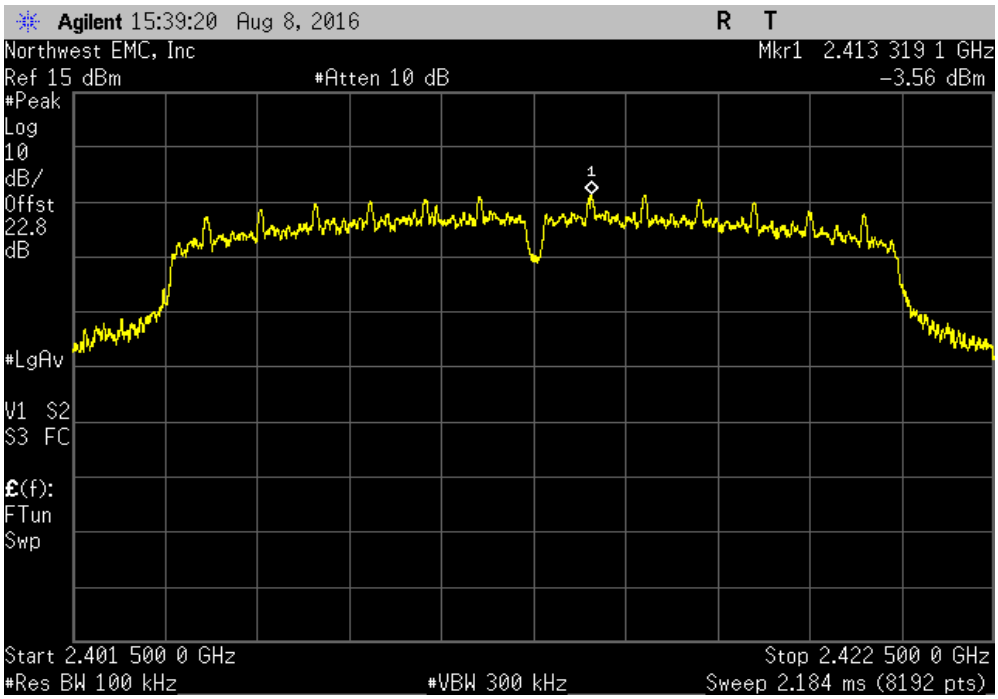
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-55.45	-30	Pass



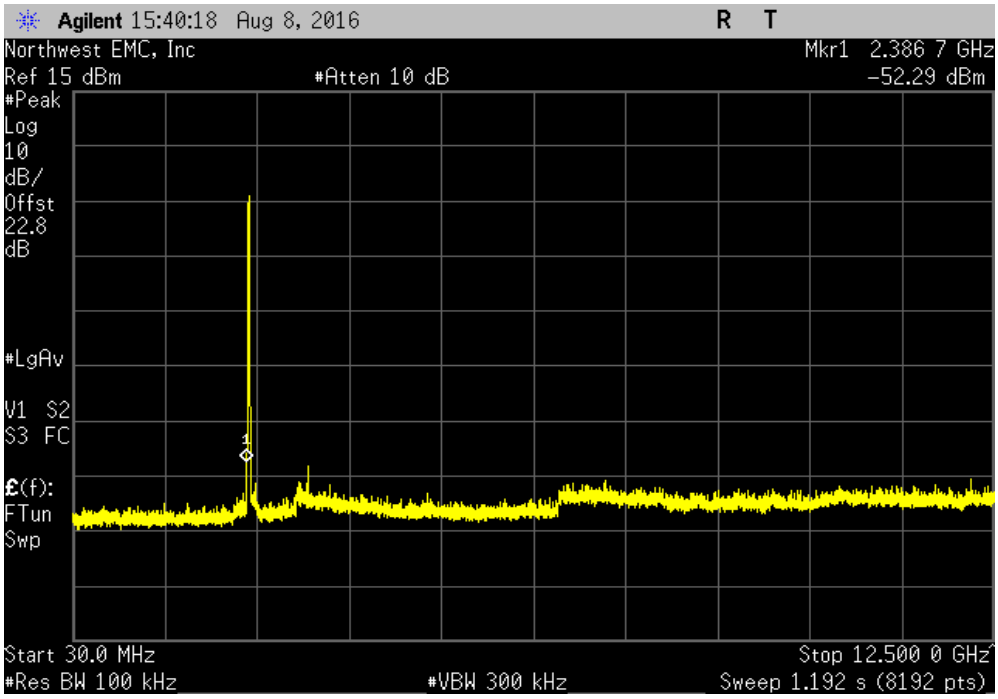
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-53.56	-30	Pass



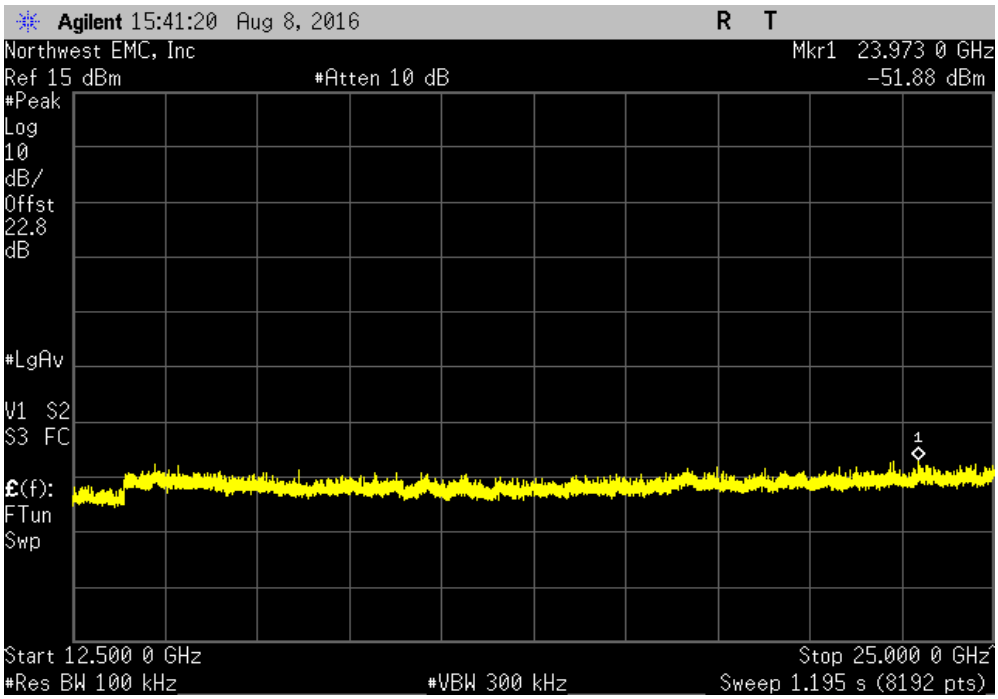
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



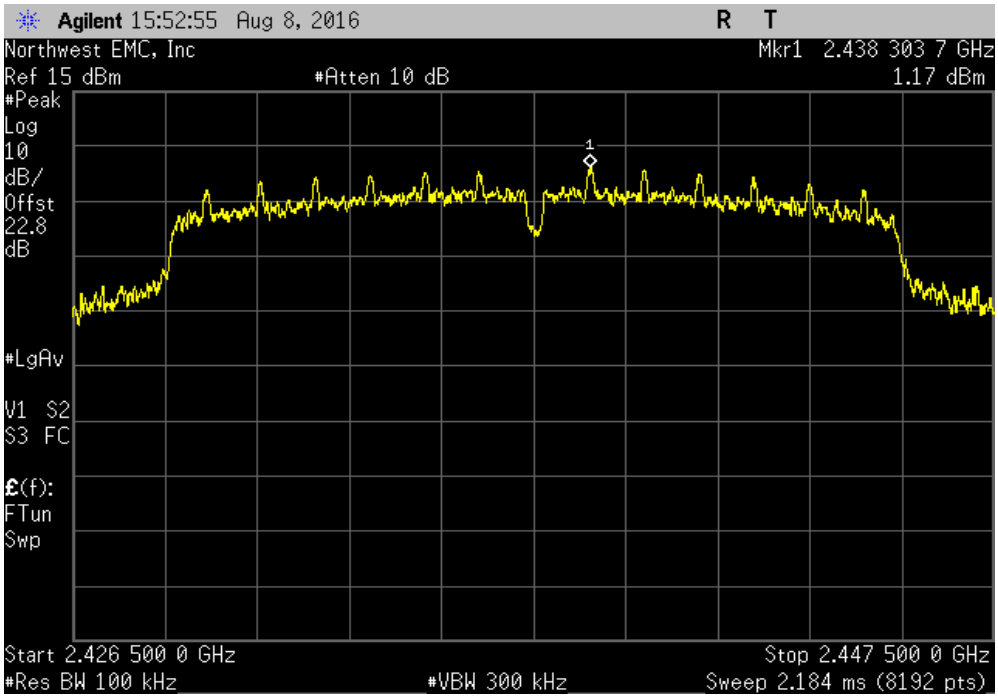
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-48.73	-30	Pass



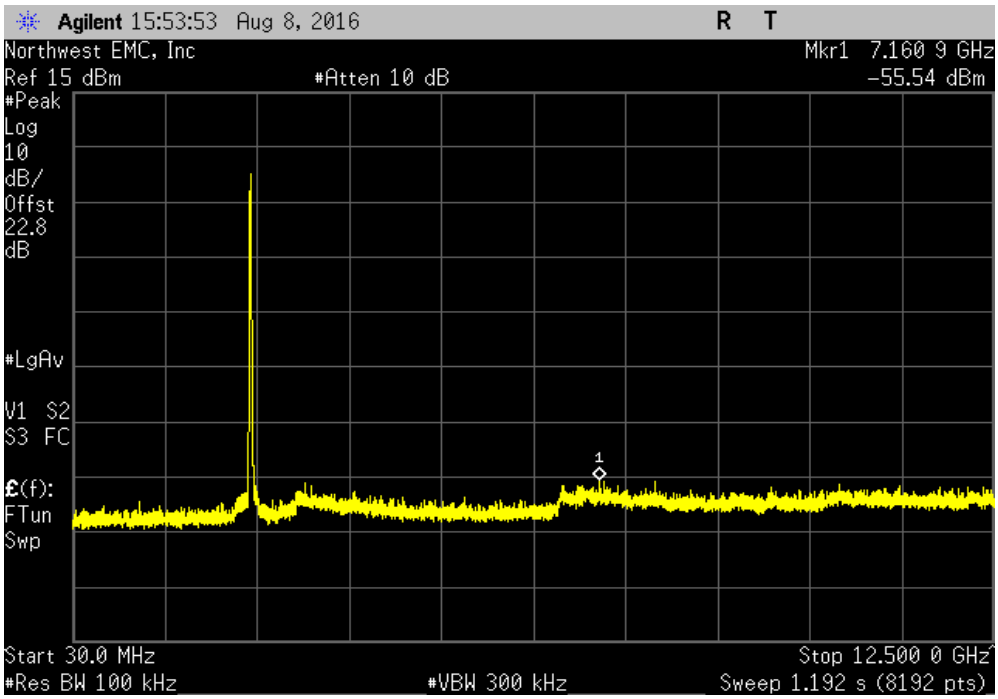
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-48.32	-30	Pass



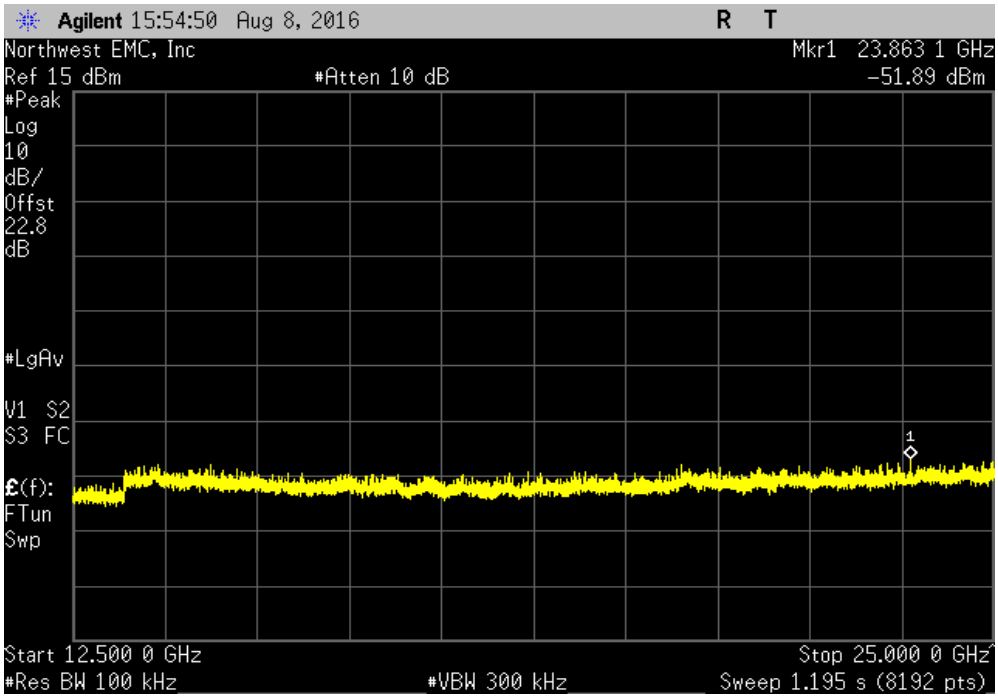
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



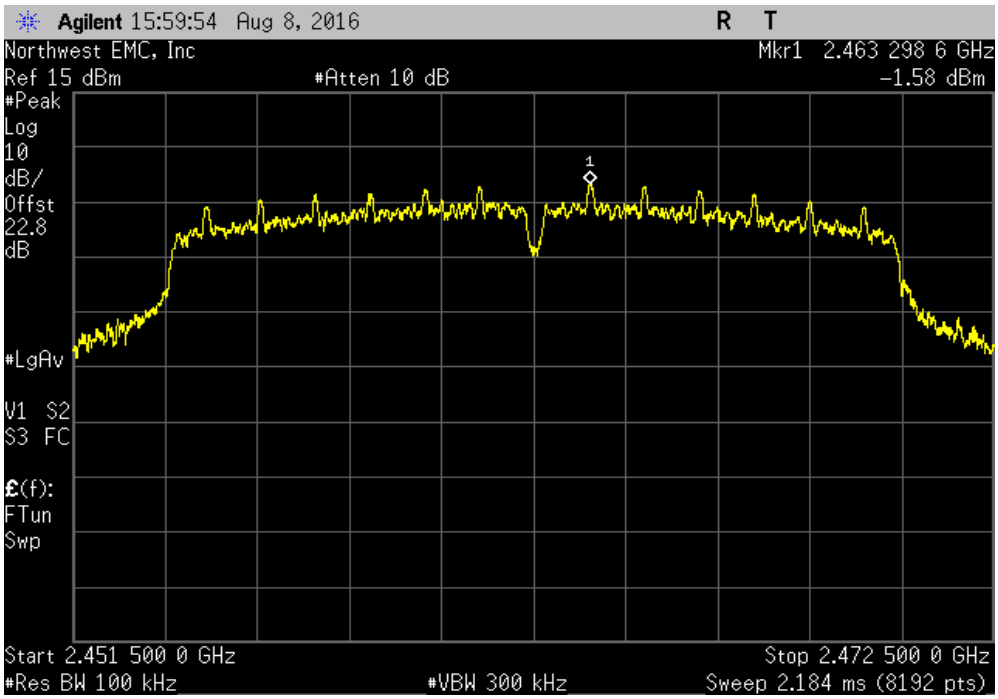
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-56.71	-30	Pass



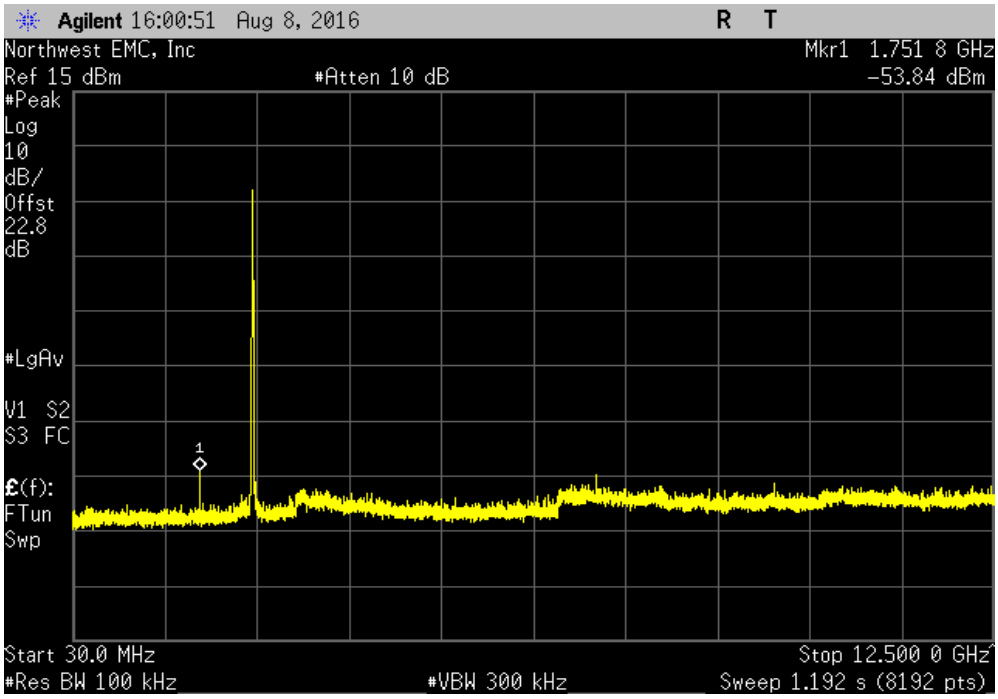
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-53.06	-30	Pass



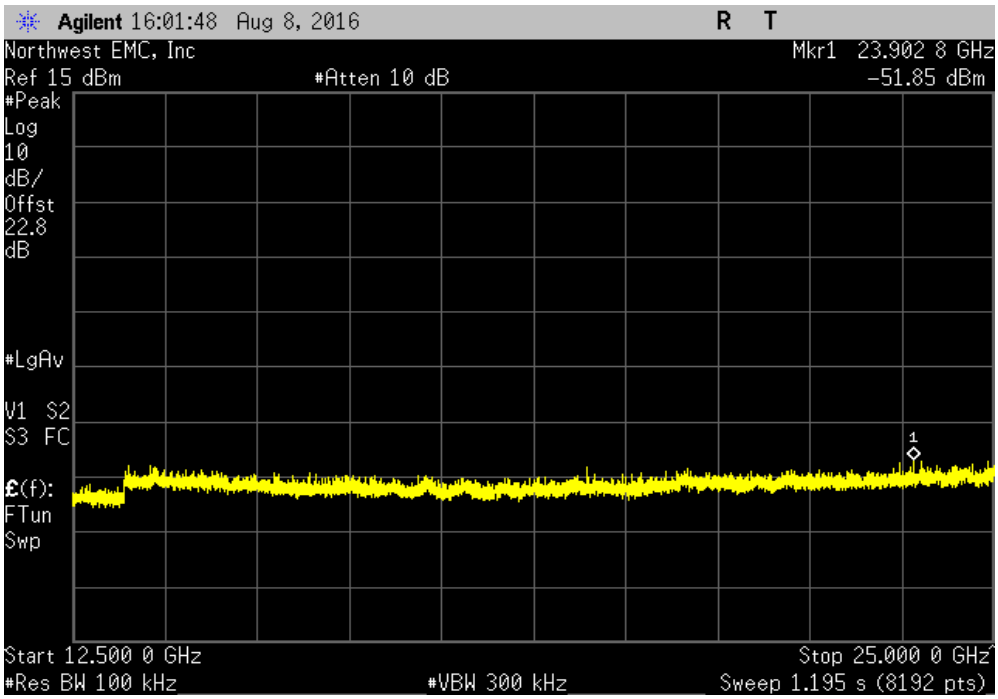
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



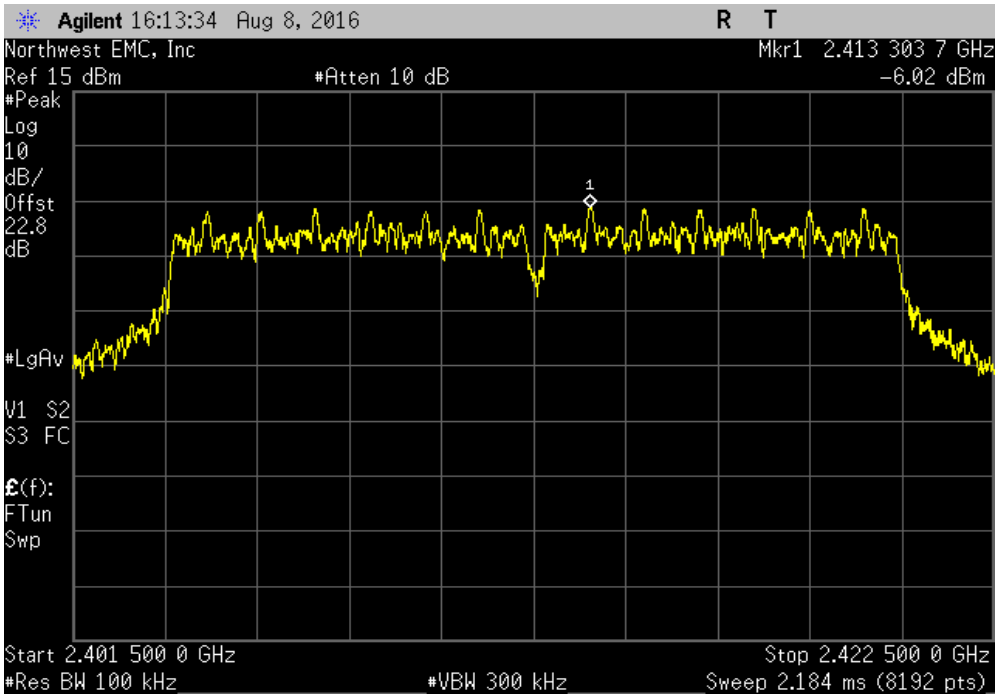
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-52.26	-30	Pass



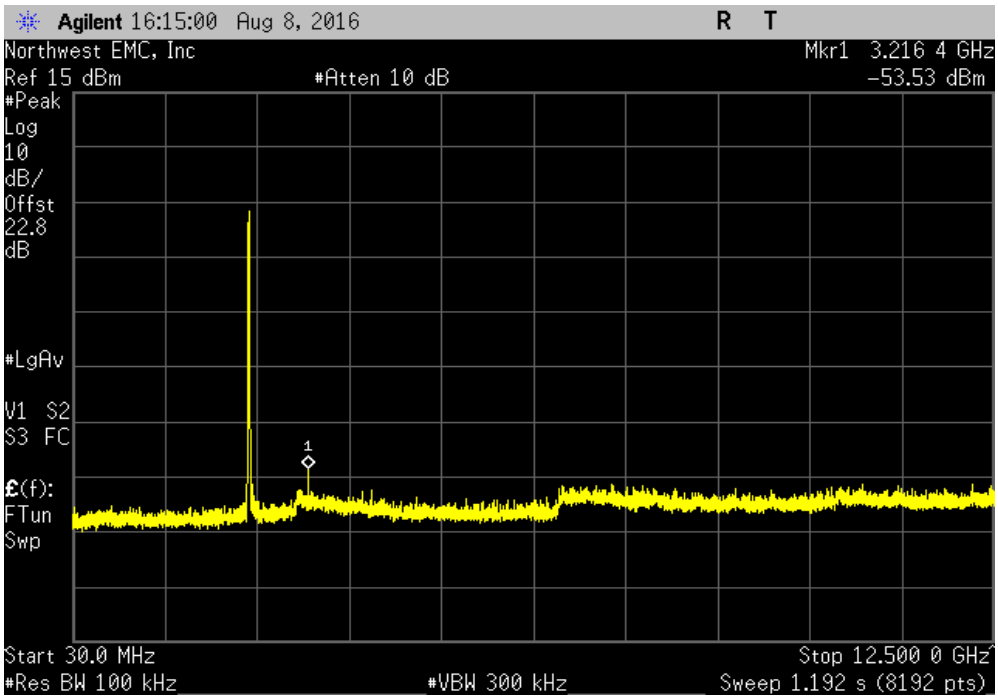
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-50.27	-30	Pass



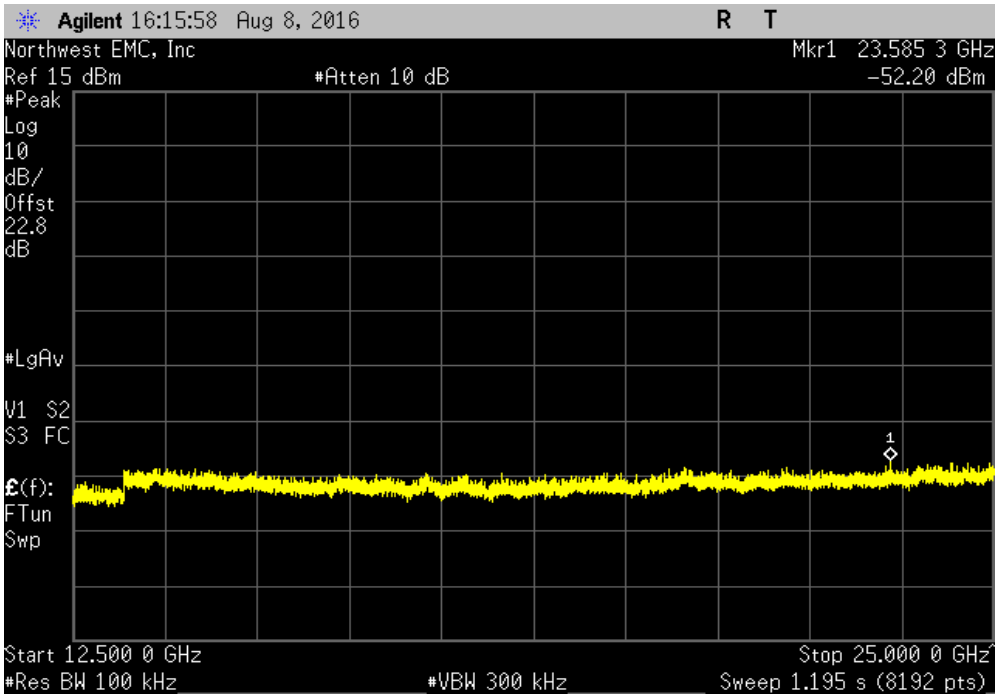
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



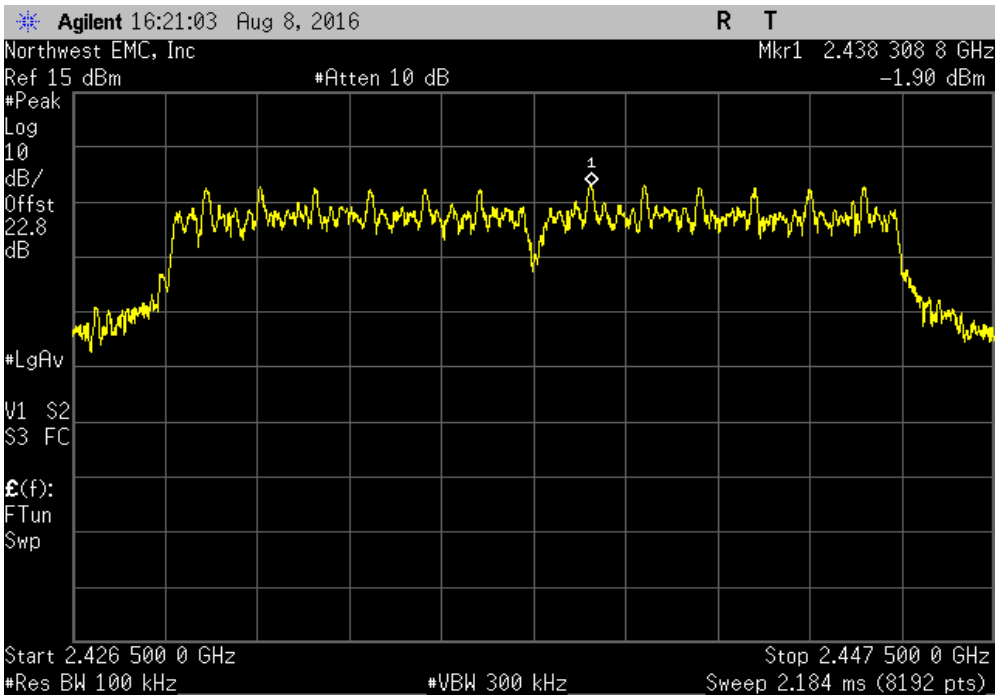
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-47.52	-30	Pass



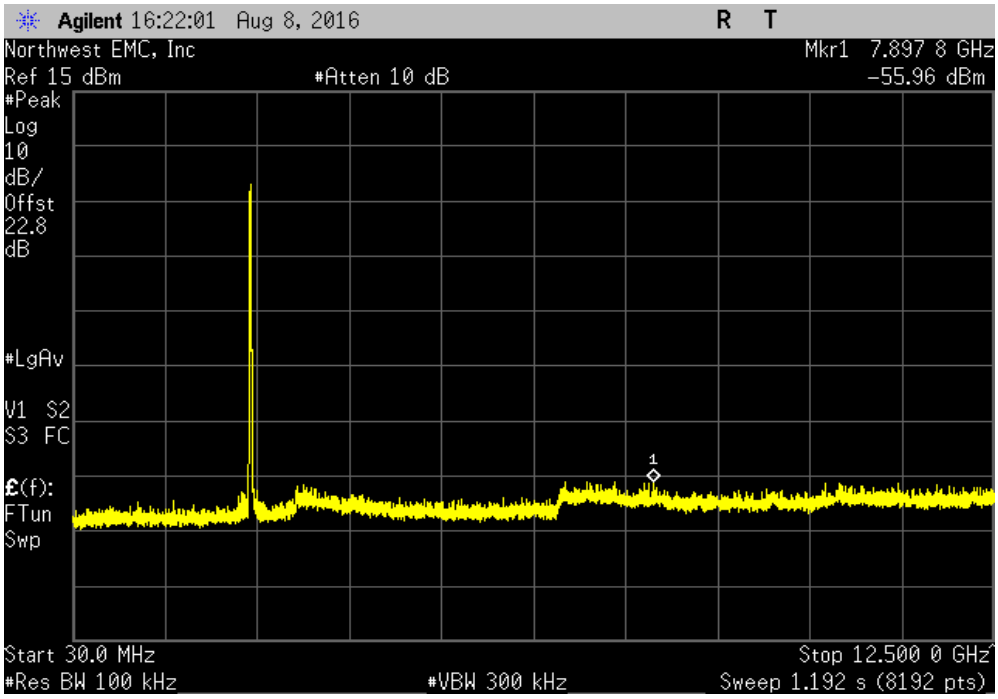
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-46.18	-30	Pass



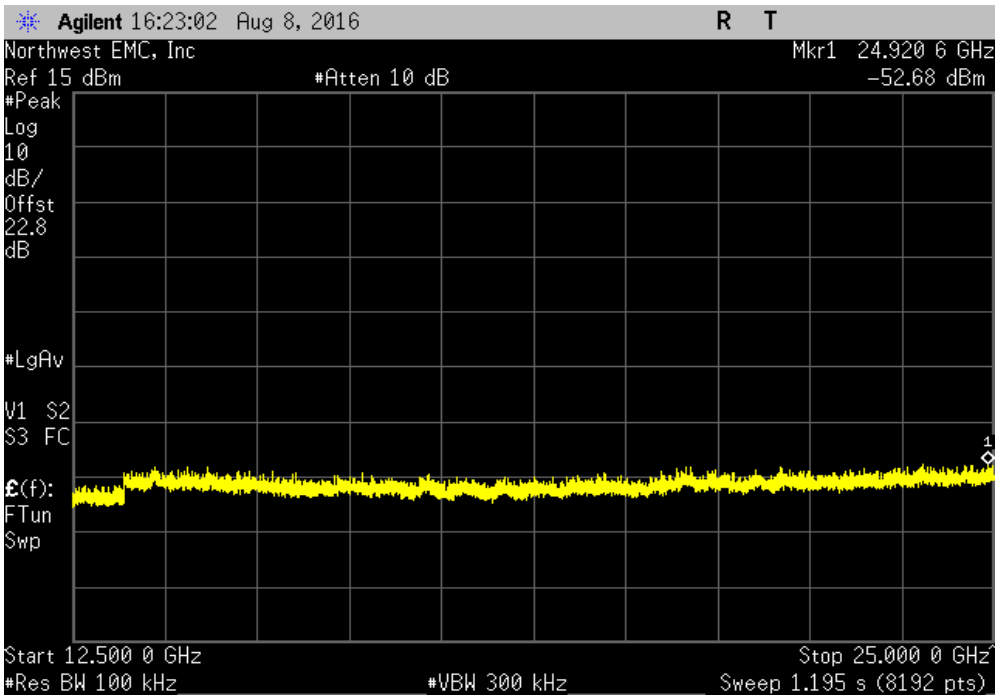
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



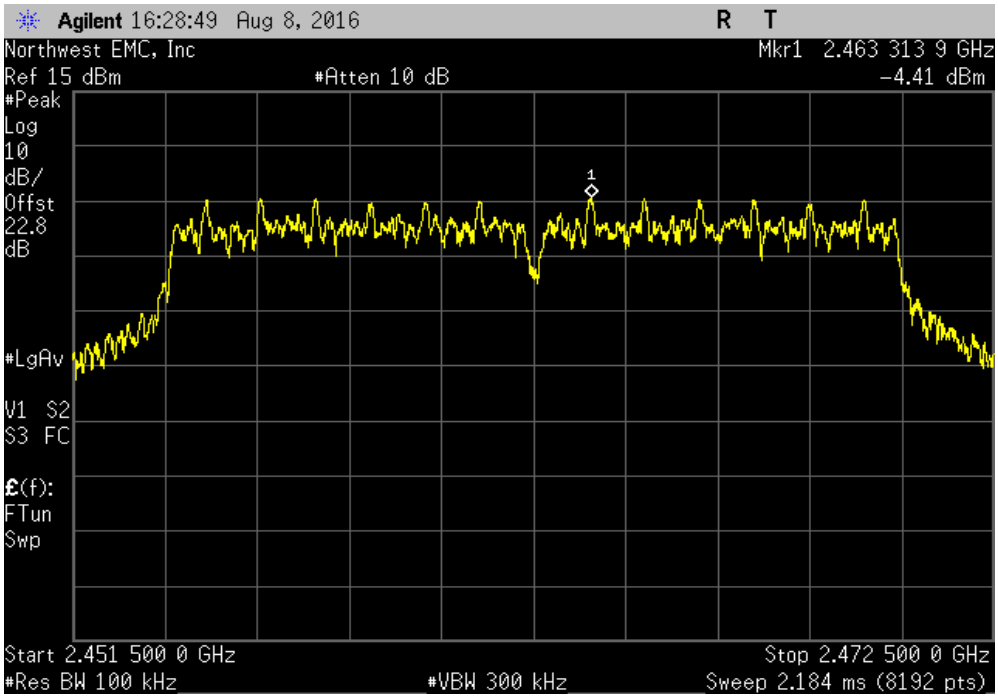
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz			-54.06	-30	Pass



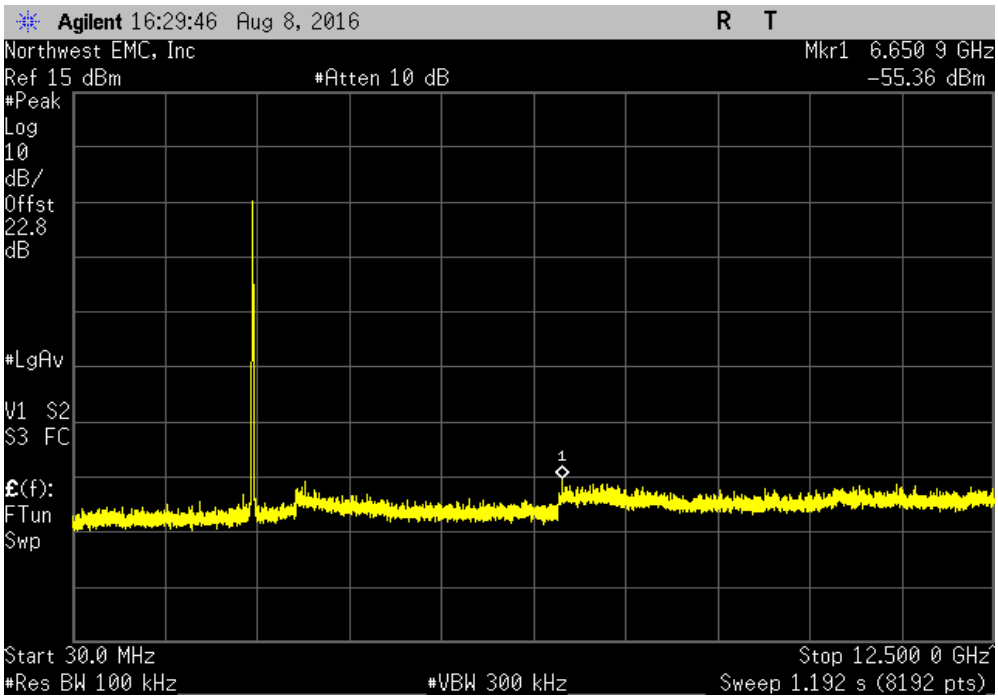
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-50.78	-30	Pass



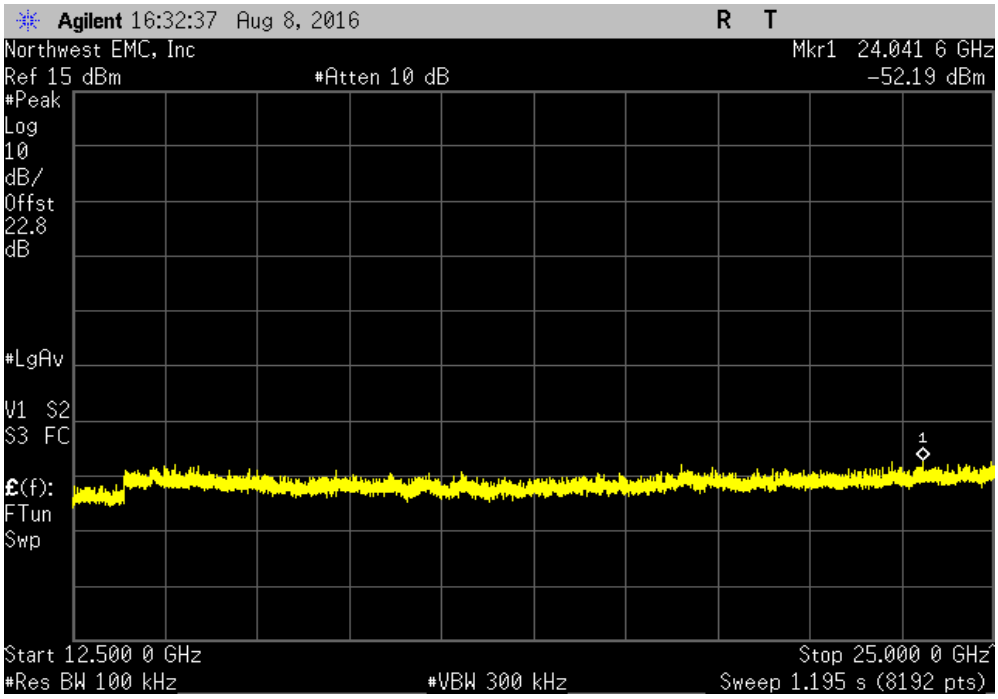
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



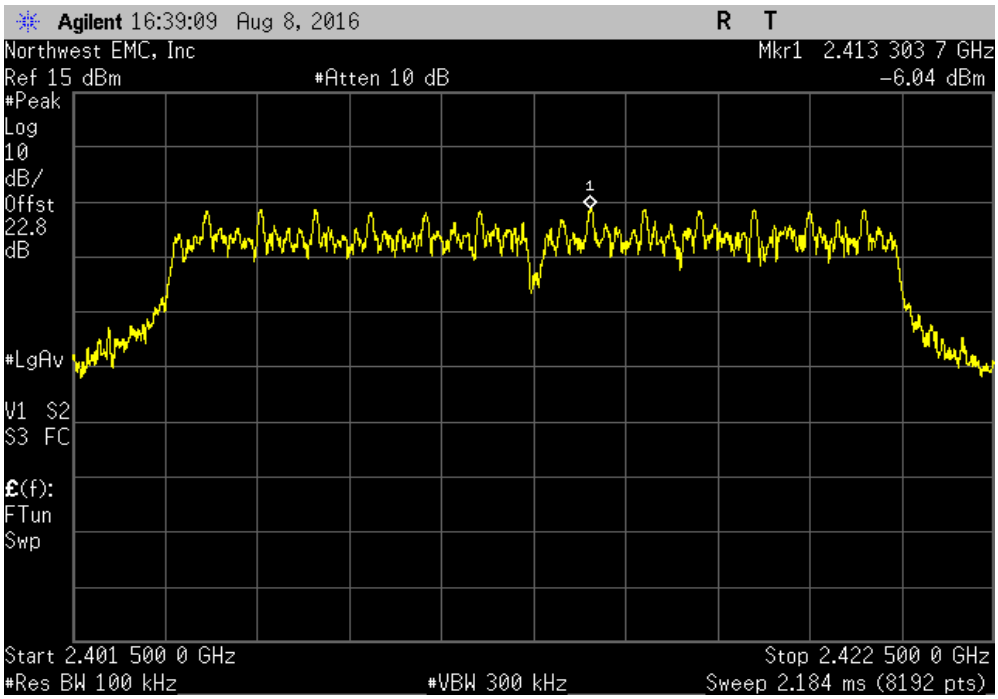
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-50.95	-30	Pass



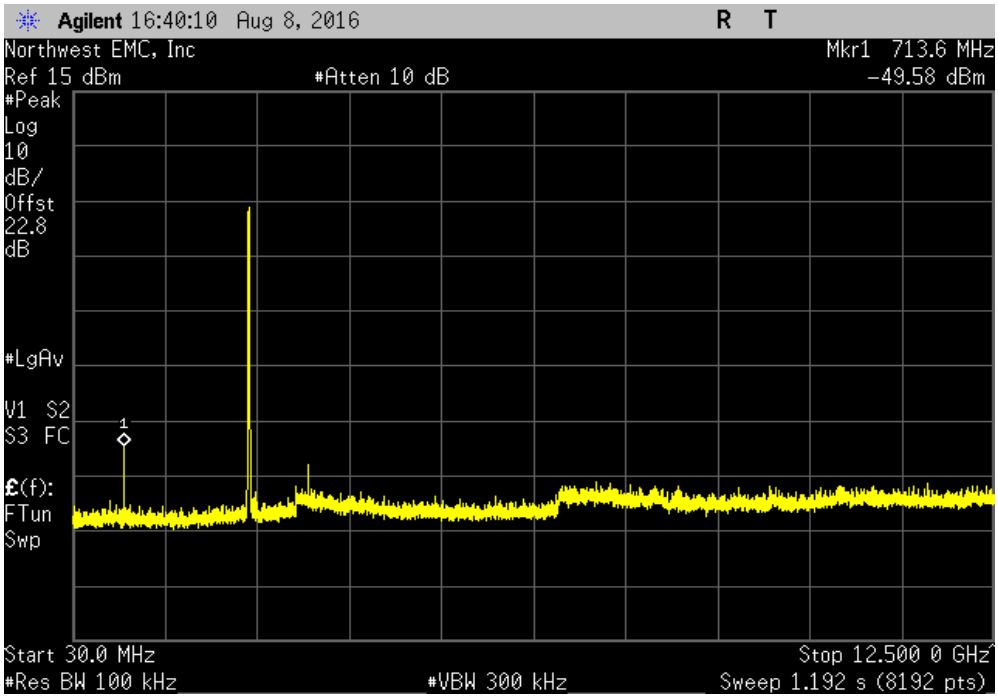
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-47.78	-30	Pass



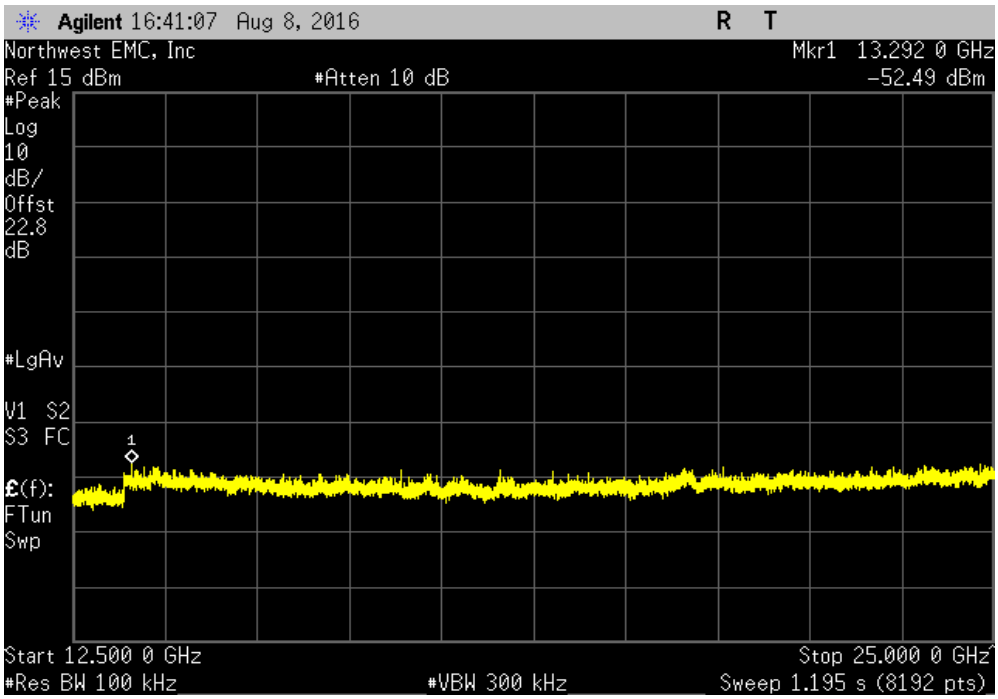
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



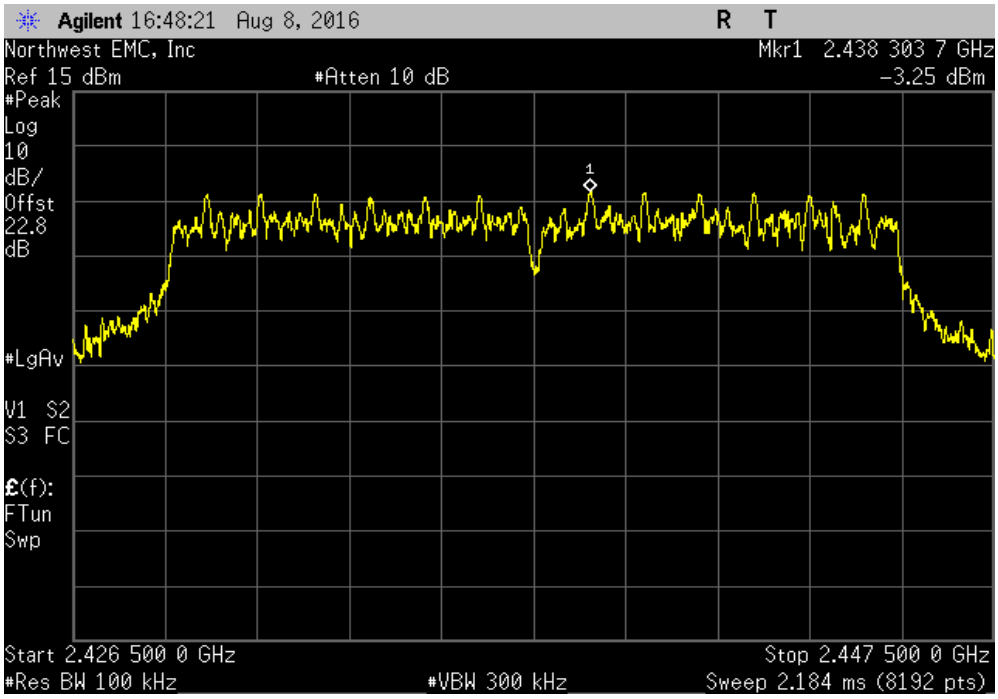
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-43.54	-30	Pass



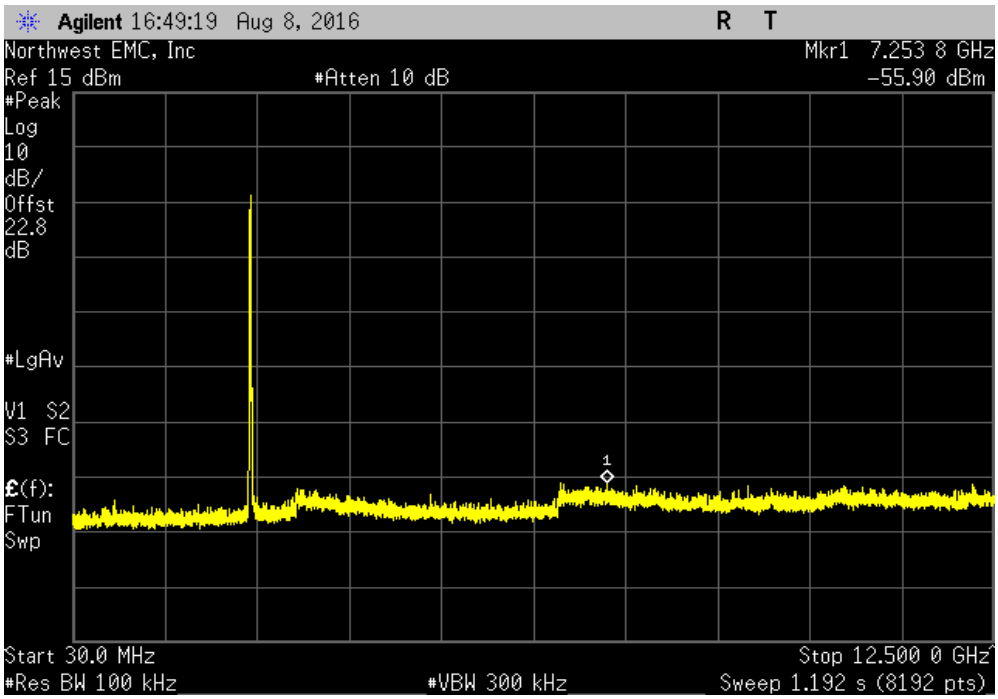
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-46.45	-30	Pass



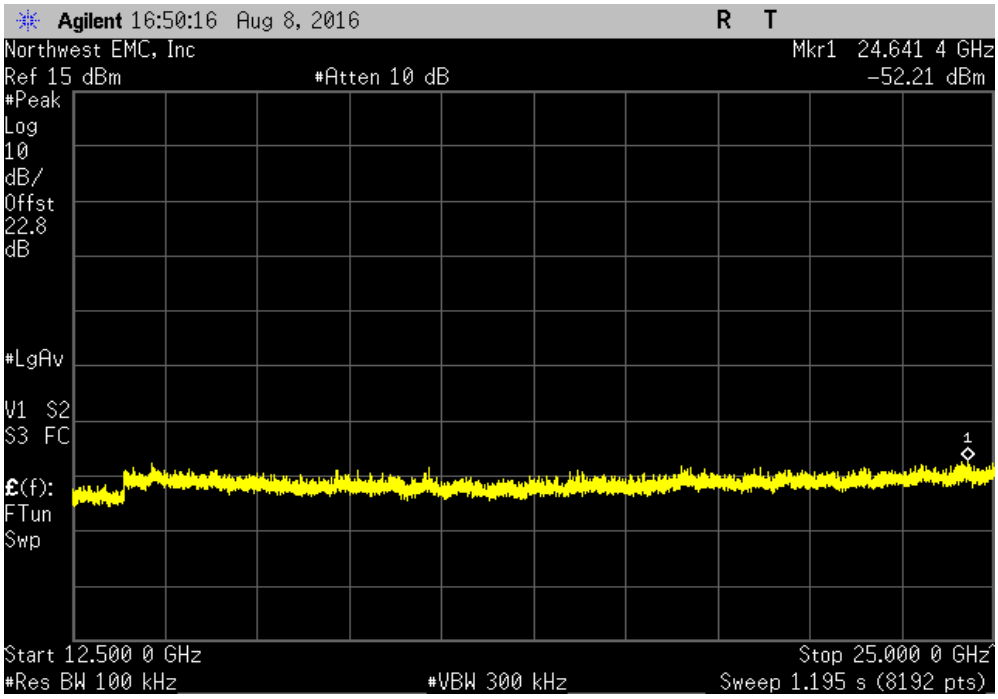
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range			**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental			N/A	N/A	N/A



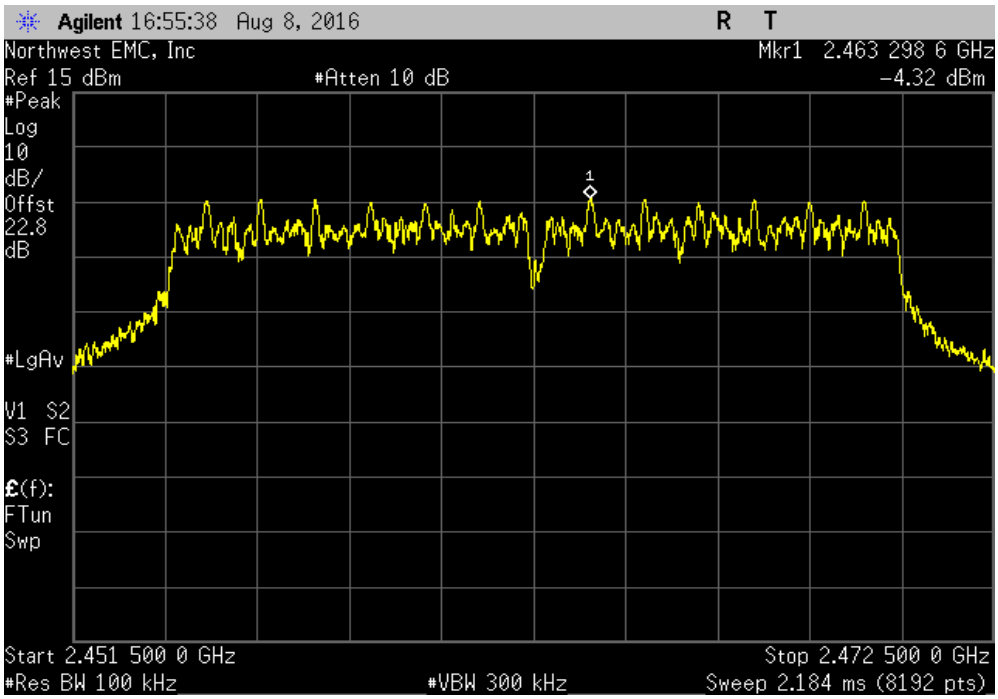
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz		-52.65	-30	Pass



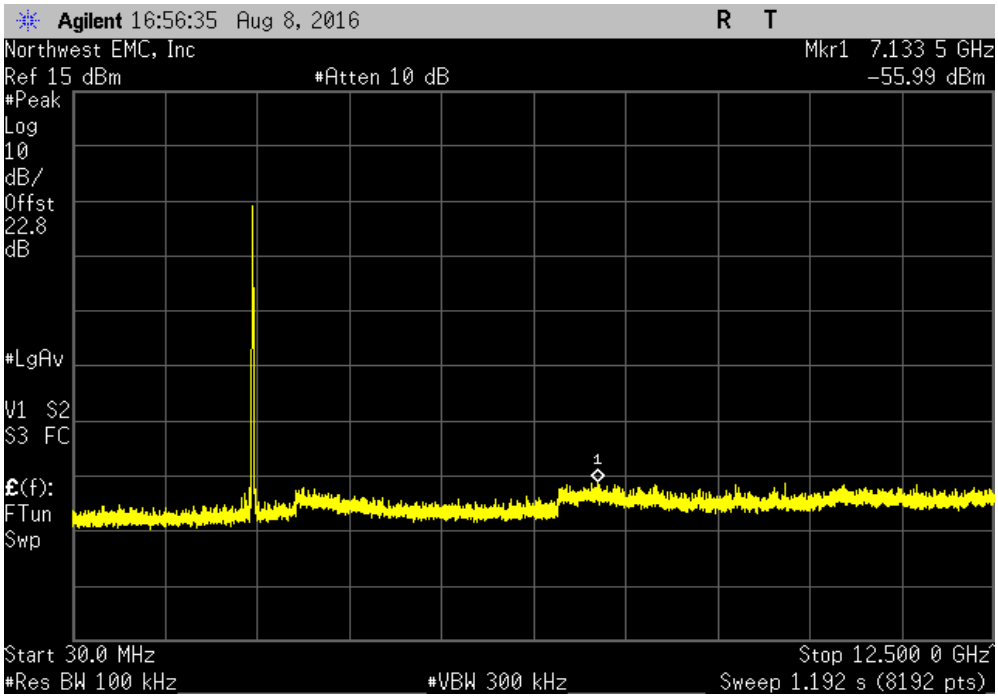
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-48.96	-30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	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			Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz			-51.67	-30	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz				
Frequency Range		**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz		-48.17	-30	Pass