

# NORTHWEST EMC

## Logic PD

DM3730 Torpedo + Wireless SOM -32

FCC 15.207:2015

FCC 15.247:2015

Report # LGPD0151.2



NVLAP Lab Code: 200881-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety*

# CERTIFICATE OF TEST

Last Date of Test: May 7, 2015  
Logic PD  
Model: DM3730 Torpedo + Wireless SOM -32

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.207:2015	ANSI C63.10:2009
FCC 15.247:2015	ANSI C63.10:2009

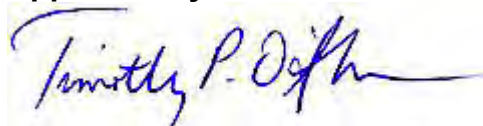
### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.7	Band Edge Compliance	Yes	Pass	
6.7	Spurious Conducted Emissions	Yes	Pass	
6.9.1	Occupied Bandwidth	Yes	Pass	
6.10.2	Output Power	Yes	Pass	
6.11.2	Power Spectral Density	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	Characterization of radio operation

### Deviations From Test Standards

None

### Approved By:



Tim O'Shea, 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.*

# REVISION HISTORY

Revision Number		Description	Date	Page Number
00		None		

# ACCREDITATIONS AND AUTHORIZATIONS

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## United States

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**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

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## Canada

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

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## European Union

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

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## Taiwan

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**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.

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## Singapore

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

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## Israel

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

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## Hong Kong

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

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## Vietnam

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

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## SCOPE

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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

## Measurement Uncertainty

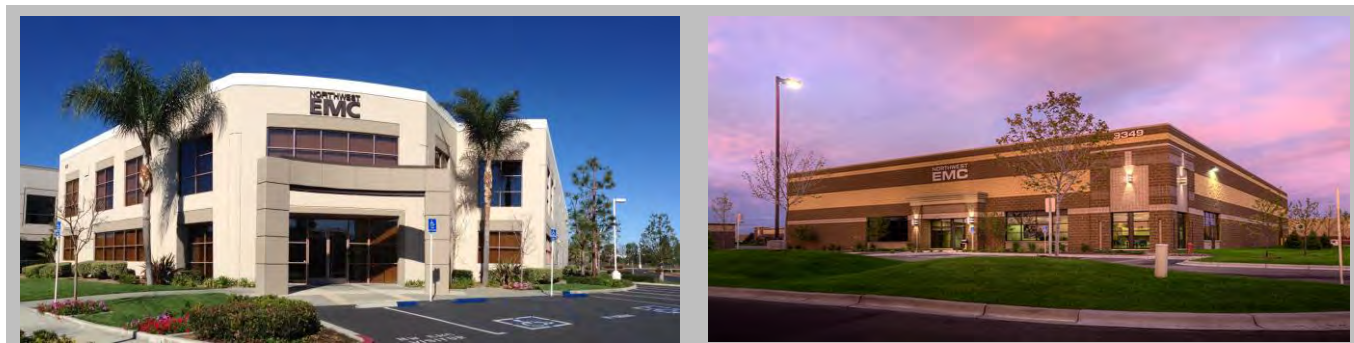
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement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

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

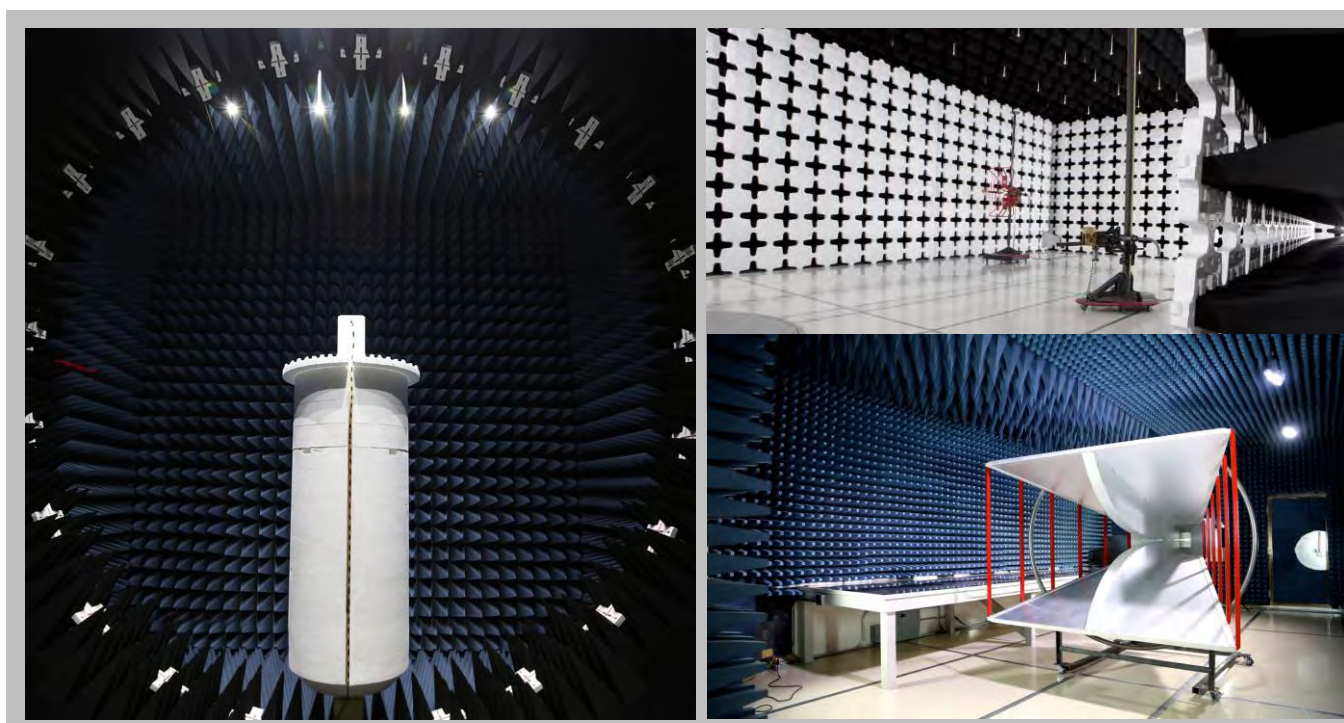
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
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)	4.7 dB	-4.7 dB
AC Powerline Conducted Emissions (dB)	2.9 dB	-2.9 dB

# FACILITIES



<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	<b>Oregon</b> Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 9801 (425)984-6600
<b>NVLAP</b>					
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
<b>Industry Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Logic PD
<b>Address:</b>	6201 Bury Drive
<b>City, State, Zip:</b>	Eden Prairie, MN 55346
<b>Test Requested By:</b>	Adam Ford
<b>Model:</b>	DM3730 Torpedo + Wireless SOM -32
<b>First Date of Test:</b>	April 22, 2015
<b>Last Date of Test:</b>	May 7, 2015
<b>Receipt Date of Samples:</b>	April 22, 2015
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

<b>Functional Description of the EUT:</b>
A system module with an ARM processor, wireless module that includes Wifi (802.11 a,b,g,n) module, GPS and Bluetooth.
<b>Testing Objective:</b>
To demonstrate compliance of the 802.11 radio under FCC 15.247 for operation in the 2.4 GHz band.



# CONFIGURATIONS

## Configuration LGPD0151- 1

Software/Firmware Running during test	
Description	Version
TeraTerm	Unknown

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SOM 1	Logic PD	None	1215M00018
Dev Board	Logic PD	DM3730 Torpedo	2012M00624

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
DC Brick	Sceptre	PS2D-5038APL6A	None
Laptop	Lenovo	ThinkPad T400	001C25968CA1
Laptop Supply	Lenovo	92P1160	11S92P1160Z1ZBGH9338XW
GPS Antenna	Unknown	None	None
Chip Antennas (x2)	Pulse	W3006	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial	Yes	> 3m	No	Dev Board	Laptop
Coax	Yes	3.0m	No	Dev Board	GPS Antenna
DC Power	No	1.5m	Yes	Dev Board	DC Brick
AC Power	No	1.8m	No	DC Brick	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	0.95m	No	Laptop Supply	AC Mains
Chip Antenna Cables (x2)	No	0.05m	No	Chip Antennas	Wireless SOM



# CONFIGURATIONS

## Configuration LGPD0151- 2

Software/Firmware Running during test	
Description	Version
TeraTerm	Unknown

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SOM 1	Logic PD	None	1215M00018
Dev Board	Logic PD	DM3730 Torpedo	2012M00624

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
DC Brick	Sceptre	PS2D-5038APL6A	None
Laptop	Lenovo	ThinkPad T400	001C25968CA1
Laptop Supply	Lenovo	92P1160	11S92P1160Z1ZBGH9338XW
GPS Antenna	Unknown	None	None
Isolated Magnetic Dipole Antennas (x2)	Ethertronics, Inc.	1000418	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial	Yes	> 3m	No	Dev Board	Laptop
Coax	Yes	3.0m	No	Dev Board	GPS Antenna
DC Power	No	1.5m	Yes	Dev Board	DC Brick
AC Power	No	1.8m	No	DC Brick	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	0.95m	No	Laptop Supply	AC Mains
Dipole Antenna Cables (x2)	No	0.1m	No	Isolated Magnetic Dipole Antennas	Wireless SOM

# CONFIGURATIONS

## Configuration LGPD0151- 5

Software/Firmware Running during test	
Description	Version
TeraTerm	Unknown

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SOM 2	Logic PD	DM3730 Torpedo + Wireless SOM -32	1215M00013
Dev Board	Logic PD	DM3730 Torpedo	2012M00624

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
DC Brick	Sceptre	PS2D-5038APL6A	None
Laptop	Lenovo	ThinkPad T400	001C25968CA1
Laptop Supply	Lenovo	92P1160	11S92P1160Z1ZBGH9338XW
GPS Antenna	Unknown	None	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Coax	Yes	3.0m	No	Dev Board	GPS Antenna
DC Power	No	1.5m	Yes	Dev Board	DC Brick
AC Power	No	1.8m	No	DC Brick	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
AC Power	No	0.95m	No	Laptop Supply	AC Mains
Serial	Yes	2m	No	Dev Board	USB to Serial Adapter
USB to Serial Adapter	Unknown	.2m	No	Serial	Laptop

# CONFIGURATIONS

## Configuration LGPD0151- 8

Software/Firmware Running during test					
Description				Version	
TeraTerm				Unknown	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SOM 2	Logic PD	DM3730 Torpedo + Wireless SOM -32	1215M00013
Dev Board	Logic PD	DM3730 Torpedo	2012M00624

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
GPS Antenna	Unknown	None	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Lenovo	ThinkPad T400	001C25968CA1
Laptop Supply	Lenovo	92P1160	11S92P1160Z1ZBGH9338XW

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Coax	Yes	3.0m	No	Dev Board	GPS Antenna
Serial	Yes	2m	No	Dev Board	USB to Serial Adapter
USB to Serial Adapter	Unknown	.2m	No	Serial	Laptop
DC Leads	No	1.2m	No	Dev Board	DC power supply
AC Power	No	1.5m	No	DC power Supply	AC mains

# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/22/2015	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	5/7/2015	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	5/7/2015	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.
4	5/7/2015	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	5/7/2015	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.
6	5/7/2015	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.
7	5/7/2015	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.
8	5/8/2015	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

# POWERLINE CONDUCTED EMISSIONS

## TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50  $\Omega$  measuring port is terminated by a 50  $\Omega$  EMI meter or a 50  $\Omega$  resistive load. All 50  $\Omega$  measuring ports of the LISN are terminated by 50 $\Omega$ .

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Spectrum Analyzer	Agilent	E4443A	AAS	3/24/2015	03/24/2016
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	3/23/2015	03/23/2016
MN03 Cables	ESM Cable Corp.	Conducted Cables	MNC	11/20/2014	11/20/2015
Attenuator 20dB, BNC	Fairview Microwave	SA01B-20	AQP	7/22/2014	07/22/2015
High Pass Filter	TTE	H97-100K-50-720B	HGN	5/23/2014	05/23/2015
DC Power Supply	EZ Digital Co	GP-4303D	TPY	NCR	NCR

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

## CONFIGURATIONS INVESTIGATED

LGPD0151-8

## MODES INVESTIGATED

On, Tx Continuous Ch.1 2412MHz Low Channel 1Mbps  
On, Tx Continuous Ch.6 2437MHz Mid Channel 1Mbps  
On, Tx Continuous Ch.11 2462MHz High Channel 1Mbps

# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	2	Line:	High Line	Ext. Attenuation (dB):	20
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## COMMENTS

None

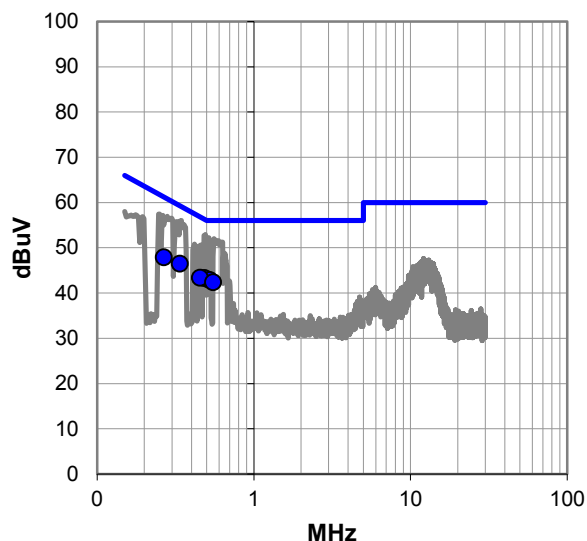
## EUT OPERATING MODES

On, Tx Continuous Ch.1 2412MHz Low Channel 1Mbps

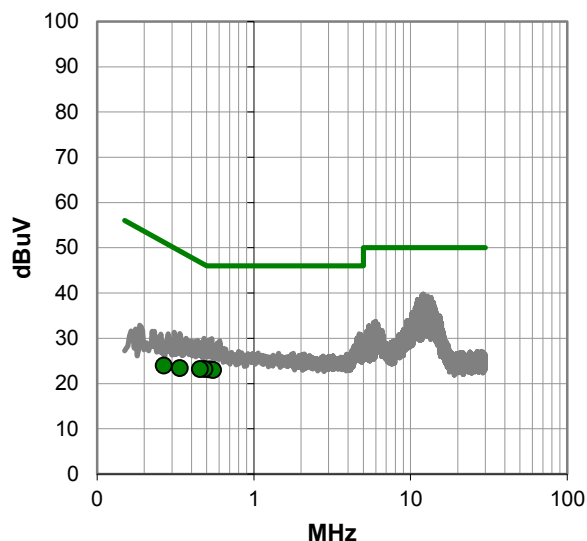
## DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #2

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.337	26.3	20.2	46.5	59.3	-12.8
0.485	23.1	20.2	43.3	56.2	-12.9
0.523	22.7	20.2	42.9	56.0	-13.1
0.267	27.7	20.1	47.8	61.2	-13.4
0.453	23.2	20.2	43.4	56.8	-13.4
0.549	22.2	20.2	42.4	56.0	-13.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.523	2.9	20.2	23.1	46.0	-22.9
0.549	2.8	20.2	23.0	46.0	-23.0
0.485	3.0	20.2	23.2	46.2	-23.0
0.453	3.0	20.2	23.2	46.8	-23.6
0.337	3.2	20.2	23.4	49.3	-25.9
0.267	3.8	20.1	23.9	51.2	-27.3

## CONCLUSION

Pass



Tested By



# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	3	Line:	Neutral	Ext. Attenuation (dB):	20
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## COMMENTS

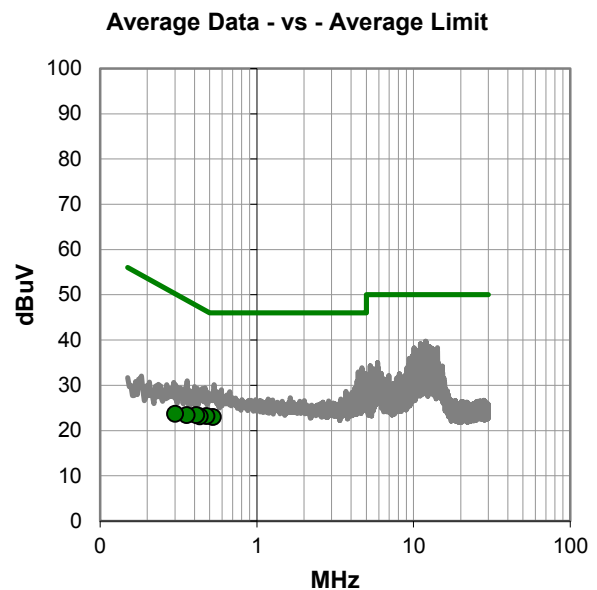
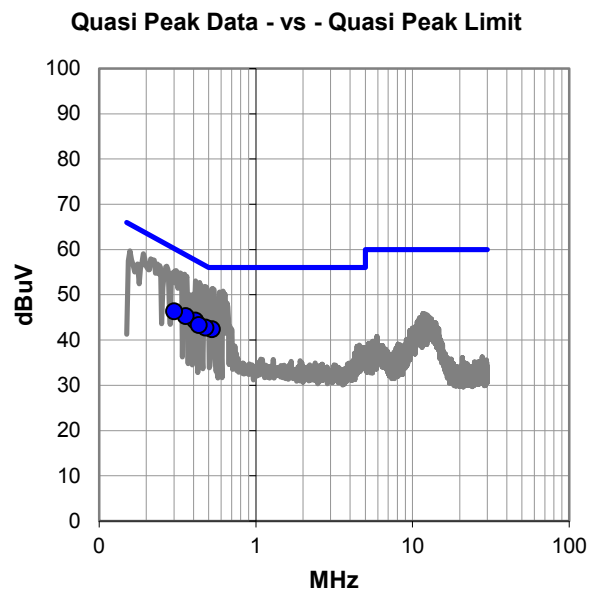
None
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## EUT OPERATING MODES

On, Tx Continuous Ch.1 2412MHz Low Channel 1Mbps
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## DEVIATIONS FROM TEST STANDARD

None
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# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.411	24.1	20.2	44.3	57.6	-13.4
0.358	25.1	20.2	45.3	58.8	-13.5
0.526	22.2	20.2	42.4	56.0	-13.6
0.477	22.5	20.2	42.7	56.4	-13.7
0.301	26.2	20.2	46.4	60.2	-13.9
0.433	23.1	20.2	43.3	57.2	-13.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.526	2.8	20.2	23.0	46.0	-23.0
0.477	3.0	20.2	23.2	46.4	-23.2
0.433	2.9	20.2	23.1	47.2	-24.1
0.411	3.2	20.2	23.4	47.6	-24.3
0.358	3.2	20.2	23.4	48.8	-25.4
0.301	3.5	20.2	23.7	50.2	-26.6

## CONCLUSION

Pass



Tested By

# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	4	Line:	Neutral	Ext. Attenuation (dB):	20
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## COMMENTS

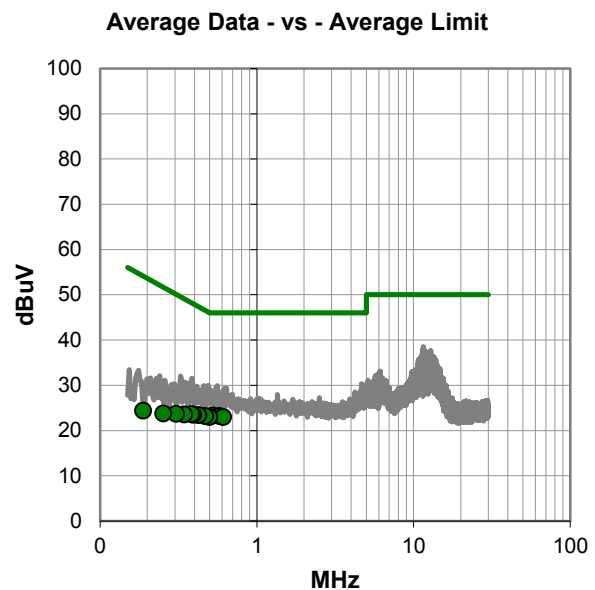
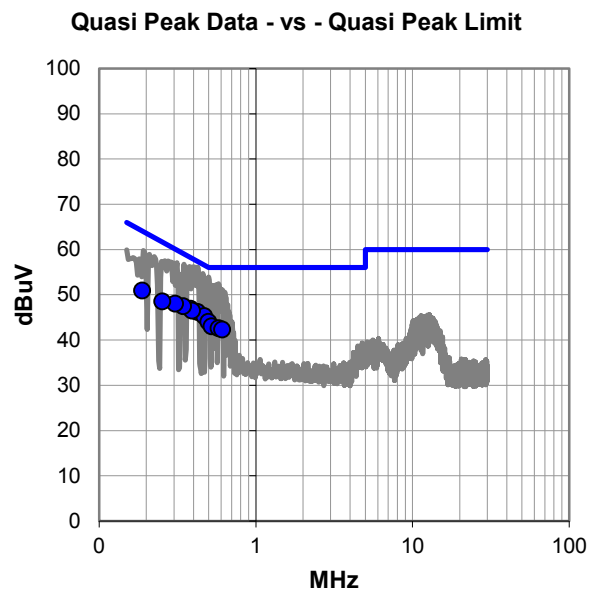
None

## EUT OPERATING MODES

On, Tx Continuous Ch.6 2437MHz Mid Channel 1Mbps

## DEVIATIONS FROM TEST STANDARD

None



# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.424	26.0	20.2	46.2	57.4	-11.2
0.468	25.1	20.2	45.3	56.5	-11.3
0.383	26.7	20.2	46.9	58.2	-11.3
0.393	26.3	20.2	46.5	58.0	-11.5
0.344	27.3	20.2	47.5	59.1	-11.6
0.306	27.9	20.2	48.1	60.1	-12.0
0.498	23.8	20.2	44.0	56.0	-12.0
0.523	22.8	20.2	43.0	56.0	-13.0
0.254	28.4	20.1	48.5	61.6	-13.1
0.188	30.7	20.2	50.9	64.1	-13.2
0.579	22.4	20.2	42.6	56.0	-13.4
0.610	22.1	20.2	42.3	56.0	-13.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.523	3.1	20.2	23.3	46.0	-22.7
0.579	3.0	20.2	23.2	46.0	-22.8
0.610	2.8	20.2	23.0	46.0	-23.0
0.498	2.8	20.2	23.0	46.0	-23.0
0.468	3.0	20.2	23.2	46.5	-23.4
0.424	3.2	20.2	23.4	47.4	-24.0
0.393	3.3	20.2	23.5	48.0	-24.5
0.383	3.4	20.2	23.6	48.2	-24.6
0.344	3.4	20.2	23.6	49.1	-25.5
0.306	3.5	20.2	23.7	50.1	-26.4
0.254	3.6	20.1	23.7	51.6	-27.9
0.188	4.2	20.2	24.4	54.1	-29.7

## CONCLUSION

Pass



Tested By

# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	5	Line:	High Line	Ext. Attenuation (dB):	20
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## COMMENTS

None

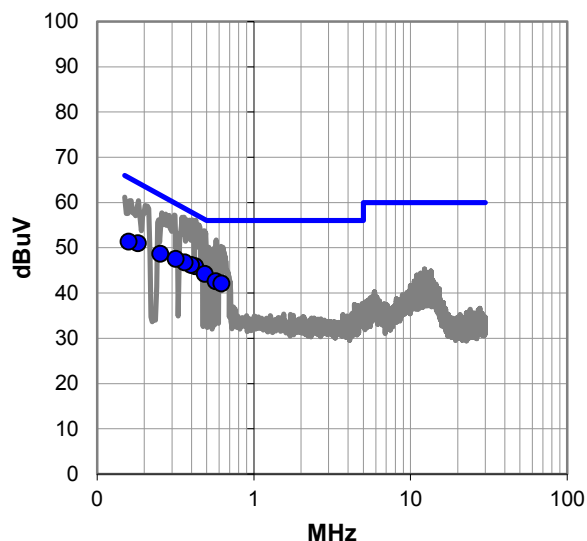
## EUT OPERATING MODES

On, Tx Continuous Ch.6 2437MHz Mid Channel 1Mbps

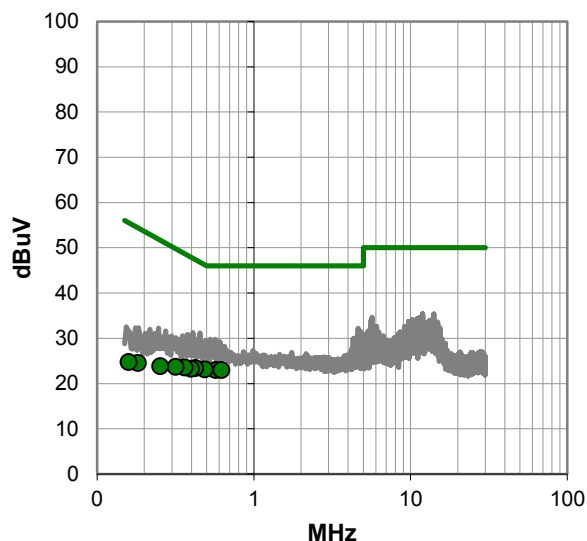
## DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.423	25.7	20.2	45.9	57.4	-11.5
0.397	26.0	20.2	46.2	57.9	-11.7
0.361	26.6	20.2	46.8	58.7	-11.9
0.486	24.0	20.2	44.2	56.2	-12.0
0.317	27.4	20.2	47.6	59.8	-12.2
0.254	28.5	20.1	48.6	61.6	-13.0
0.182	30.8	20.2	51.0	64.4	-13.4
0.572	22.4	20.2	42.6	56.0	-13.4
0.620	21.9	20.2	42.1	56.0	-13.9
0.159	31.1	20.2	51.3	65.5	-14.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.572	2.8	20.2	23.0	46.0	-23.0
0.620	2.8	20.2	23.0	46.0	-23.0
0.486	2.9	20.2	23.1	46.2	-23.1
0.423	3.2	20.2	23.4	47.4	-24.0
0.397	3.1	20.2	23.3	47.9	-24.6
0.361	3.4	20.2	23.6	48.7	-25.1
0.317	3.5	20.2	23.7	49.8	-26.1
0.254	3.7	20.1	23.8	51.6	-27.8
0.182	4.3	20.2	24.5	54.4	-29.9
0.159	4.5	20.2	24.7	55.5	-30.8

## CONCLUSION

Pass



Tested By

# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	7	Line:	High Line	Ext. Attenuation (dB):	20
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## COMMENTS

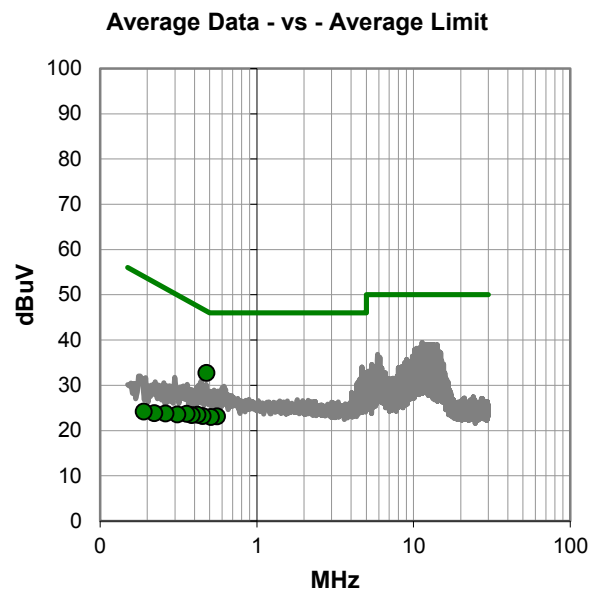
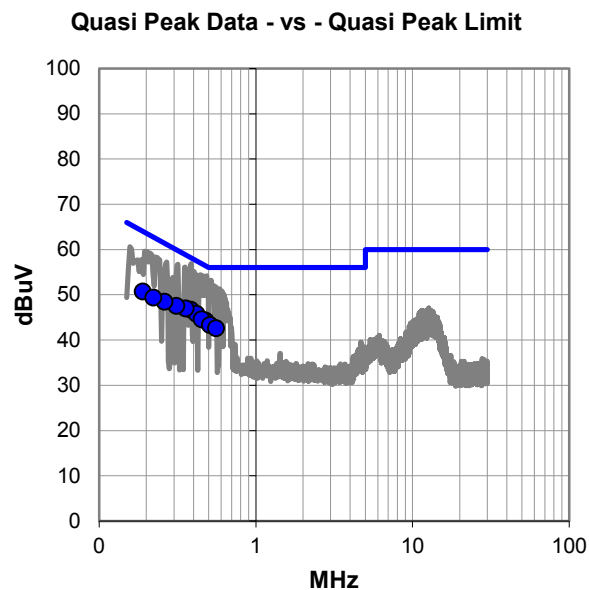
None
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## EUT OPERATING MODES

On, Tx Continuous Ch.11 2462MHz High Channel 1Mbps
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## DEVIATIONS FROM TEST STANDARD

None
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# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.386	26.5	20.2	46.7	58.2	-11.5
0.420	25.6	20.2	45.8	57.5	-11.7
0.357	26.8	20.2	47.0	58.8	-11.8
0.477	24.1	20.2	44.3	56.4	-12.1
0.452	24.4	20.2	44.6	56.8	-12.2
0.312	27.4	20.2	47.6	59.9	-12.4
0.510	23.1	20.2	43.3	56.0	-12.7
0.261	28.3	20.1	48.4	61.4	-12.9
0.190	30.5	20.2	50.7	64.0	-13.3
0.557	22.4	20.2	42.6	56.0	-13.4
0.222	29.2	20.1	49.3	62.7	-13.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.477	12.5	20.2	32.7	46.4	-13.7
0.557	2.9	20.2	23.1	46.0	-22.9
0.510	2.8	20.2	23.0	46.0	-23.0
0.452	3.0	20.2	23.2	46.8	-23.6
0.420	3.3	20.2	23.5	47.5	-24.0
0.386	3.2	20.2	23.4	48.2	-24.8
0.357	3.5	20.2	23.7	48.8	-25.1
0.312	3.4	20.2	23.6	49.9	-26.4
0.261	3.6	20.1	23.7	51.4	-27.6
0.222	3.7	20.1	23.8	52.7	-28.9
0.190	4.0	20.2	24.2	54.0	-29.8

## CONCLUSION

Pass



Tested By

# POWERLINE CONDUCTED EMISSIONS

EUT:	DM3730 Torpedo + Wireless SOM -32	Work Order:	LGPD0151
Serial Number:	See Configurations	Date:	05/08/2015
Customer:	Logic PD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47.2%
Customer Project:	None	Bar. Pressure:	1015.6 mb
Tested By:	Brandon Hobbs	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	LGPD0151-8

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2009

## TEST PARAMETERS

Run #:	8	Line:	Neutral	Ext. Attenuation (dB):	20
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## COMMENTS

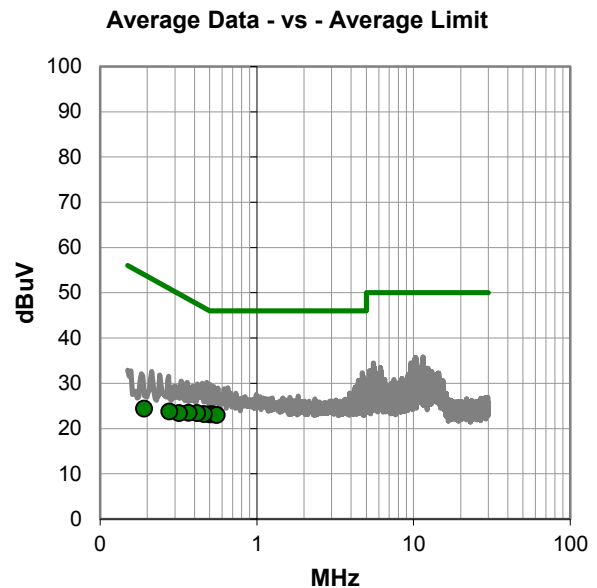
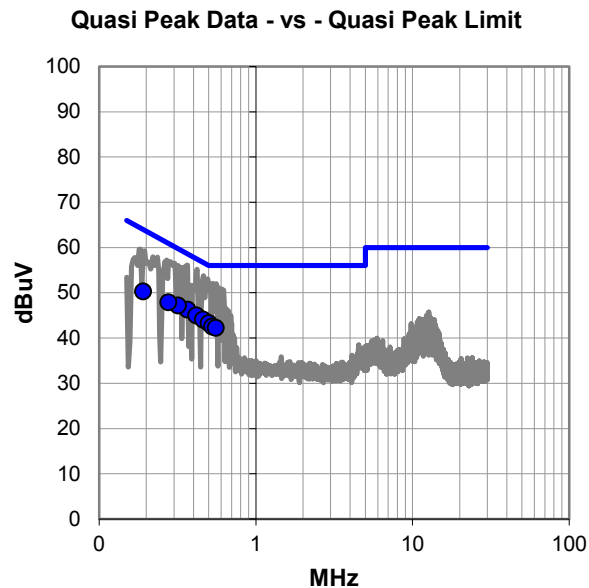
None
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## EUT OPERATING MODES

On, Tx Continuous Ch.11 2462MHz High Channel 1Mbps
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## DEVIATIONS FROM TEST STANDARD

None
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# POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.368	26.1	20.2	46.3	58.5	-12.3
0.416	24.8	20.2	45.0	57.5	-12.5
0.318	27.0	20.2	47.2	59.7	-12.6
0.460	23.9	20.2	44.1	56.7	-12.6
0.500	23.1	20.2	43.3	56.0	-12.7
0.277	27.7	20.1	47.8	60.9	-13.1
0.529	22.3	20.2	42.5	56.0	-13.5
0.191	30.1	20.2	50.3	64.0	-13.7
0.555	22.0	20.2	42.2	56.0	-13.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.500	2.9	20.2	23.1	46.0	-22.9
0.529	2.9	20.2	23.1	46.0	-22.9
0.555	2.8	20.2	23.0	46.0	-23.0
0.460	3.0	20.2	23.2	46.7	-23.5
0.416	3.2	20.2	23.4	47.5	-24.1
0.368	3.3	20.2	23.5	48.5	-25.1
0.318	3.2	20.2	23.4	49.7	-26.4
0.277	3.6	20.1	23.7	50.9	-27.2
0.191	4.2	20.2	24.4	54.0	-29.6

## CONCLUSION

Pass



Tested By

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 802.11 Channel 1, 6, 11 (2412, 2437, 2462 MHz) @ 1, 11, 6, 36, 54 Mbps, MCS0, MCS7 (see comments)

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

LGPD0151 - 1

LGPD0151 - 2

## FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 25 GHz

## SAMPLE CALCULATIONS

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Low Pass Filter, 0 - 1000 MHz	Micro-Tronics	LPM50004	HGK	3/2/2015	12 mo
High Pass Filter, 2.8 - 18 GHz	Micro-Tronics	HPM50111	HGQ	3/2/2015	12 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	3/2/2015	12 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/3/2014	12 mo
MN05 Cable	N/A	18-26GHz Standard Gain Horn Cable	MNP	10/3/2014	12 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	3/30/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	3/2/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/2/2015	12 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	3/2/2015	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	3/30/2015	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	PAD	3/2/2015	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	3/30/2015	12 mo
Antenna, Biconilog	Teseq	CBL 6141B	AYD	12/17/2013	24 mo
Antenna, Horn	ETS	3115	AJA	6/3/2014	24 mo
Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2015	12 mo

## MEASUREMENT BANDWIDTHS

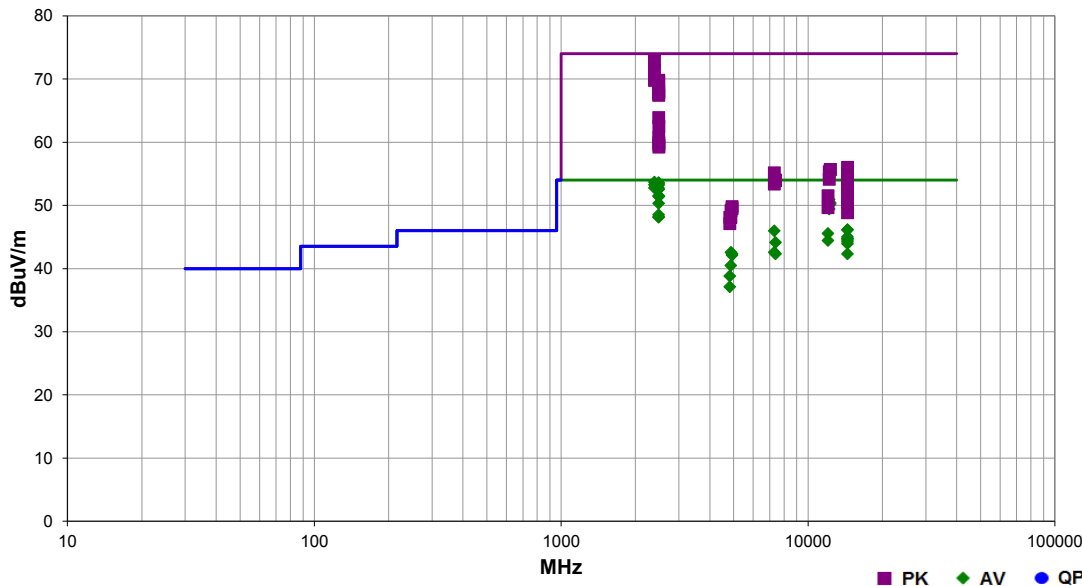
Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

## TEST DESCRIPTION

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

Work Order:	LGPD0151	Date:	04/22/15	<i>Trevor Buls</i>
Project:	None	Temperature:	22.8 °C	
Job Site:	MN05	Humidity:	21.7% RH	
Serial Number:	See Configurations	Barometric Pres.:	981.5 mbar	
EUT:	DM3730 Torpedo + Wireless SOM -32			Tested by: Trevor Buls
Configuration:	2			
Customer:	Logic PD			
Attendees:	Nathan Kro, Adam Ford			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting 802.11 Channel 1, 6, 11 (2412, 2437, 2462 MHz) @ 1, 11, 6, 36, 54 Mbps, MCS0, MCS7 (see comments)			
Deviations:	None			
Comments:	Isolated Magnetic Dipole Antenna			

Test Specifications				Test Method			
FCC 15.247:2015				ANSI C63.10:2009			
Run #	6	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass



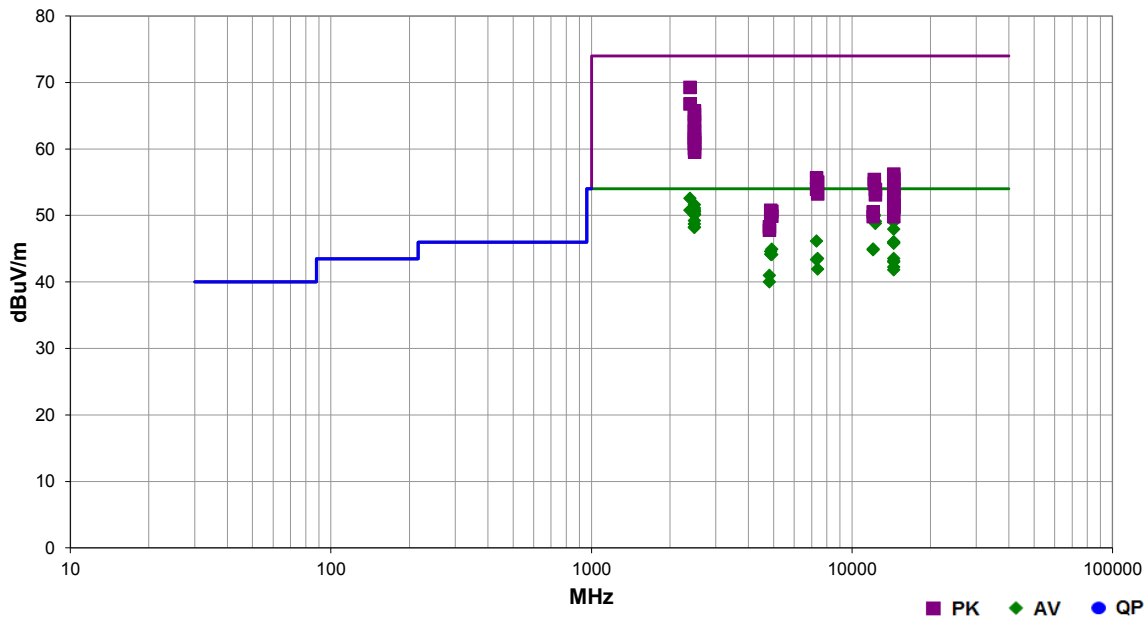
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2389.983	36.9	-3.2	1.4	204.0	3.0	20.0	Horz	AV	0.0	53.7	54.0	-0.3	EUT Horizontal, Ch 1, 6 Mbps
2483.517	36.5	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	53.6	54.0	-0.4	EUT Horizontal, Ch 11, MCS0
2483.500	36.3	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	53.4	54.0	-0.6	EUT Horizontal, Ch 11, 36 Mbps
2389.983	36.5	-3.2	1.4	204.0	3.0	20.0	Horz	AV	0.0	53.3	54.0	-0.7	EUT Horizontal, Ch 1, MCS0
2483.550	36.1	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	53.2	54.0	-0.8	EUT Horizontal, Ch 11, 54 Mbps
14472.010	50.1	3.0	1.3	222.1	3.0	0.0	Vert	AV	0.0	53.1	54.0	-0.9	EUT on Side, Ch 1, 1 Mbps
2389.633	56.1	-3.2	1.4	204.0	3.0	20.0	Horz	PK	0.0	72.9	74.0	-1.1	EUT Horizontal, Ch 1, MCS0
2389.992	36.0	-3.2	1.4	204.0	3.0	20.0	Horz	AV	0.0	52.8	54.0	-1.2	EUT Horizontal, Ch 1, 6 Mbps
2483.550	35.6	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	52.7	54.0	-1.3	EUT Horizontal, Ch 11, MCS7
2483.508	35.4	-2.9	1.0	207.0	3.0	20.0	Horz	AV	0.0	52.5	54.0	-1.5	EUT Horizontal, Ch 11, 6 Mbps
14471.980	48.8	3.0	1.2	179.0	3.0	0.0	Horz	AV	0.0	51.8	54.0	-2.2	EUT Vertical, Ch 1, 1 Mbps
2483.542	34.4	-2.9	1.0	100.0	3.0	20.0	Vert	AV	0.0	51.5	54.0	-2.5	EUT Vertical, Ch 11, 6 Mbps
2488.425	34.3	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	51.4	54.0	-2.6	EUT Horizontal, Ch 11, 1 Mbps
2487.842	34.3	-2.9	1.4	204.0	3.0	20.0	Horz	AV	0.0	51.4	54.0	-2.6	EUT Horizontal, Ch 11, 36 Mbps
2389.833	54.6	-3.2	1.4	204.0	3.0	20.0	Horz	PK	0.0	71.4	74.0	-2.6	EUT Horizontal, Ch 1, 6 Mbps
12186.040	55.7	-4.8	1.0	175.0	3.0	0.0	Horz	AV	0.0	50.9	54.0	-3.1	EUT Vertical, Ch 6, 1 Mbps
12310.980	55.1	-4.7	1.0	199.1	3.0	0.0	Vert	AV	0.0	50.4	54.0	-3.6	EUT on Side, Ch 11, 1 Mbps
14471.980	47.3	3.0	1.2	178.1	3.0	0.0	Vert	AV	0.0	50.3	54.0	-3.7	EUT Vertical, Ch 1, 1 Mbps
2483.508	33.2	-2.9	1.0	192.1	3.0	20.0	Horz	AV	0.0	50.3	54.0	-3.7	EUT on Side, Ch 11, 6 Mbps
12310.940	54.9	-4.7	1.0	210.1	3.0	0.0	Horz	AV	0.0	50.2	54.0	-3.8	EUT Vertical, Ch 11, 1 Mbps
2483.892	52.7	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	69.8	74.0	-4.2	EUT Horizontal, Ch 11, 36 Mbps
2389.867	53.0	-3.2	1.4	204.0	3.0	20.0	Horz	PK	0.0	69.8	74.0	-4.2	EUT Horizontal, Ch 11, 6 Mbps
2483.800	52.5	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	69.6	74.0	-4.4	EUT Horizontal, Ch 11, MCS0
12186.180	54.2	-4.8	1.0	197.0	3.0	0.0	Vert	AV	0.0	49.4	54.0	-4.6	EUT on Side, Ch 6, 1 Mbps
2483.592	31.4	-2.9	1.0	113.1	3.0	20.0	Vert	AV	0.0	48.5	54.0	-5.5	EUT on Side, Ch 11, 6 Mbps
2483.500	31.1	-2.9	1.0	82.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	EUT Horizontal, Ch 11, 6 Mbps
2483.658	31.0	-2.9	1.0	351.9	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	EUT Vertical, Ch 11, 6 Mbps
2483.558	50.9	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	68.0	74.0	-6.0	EUT Horizontal, Ch 11, MCS7
2483.875	50.8	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	67.9	74.0	-6.1	EUT Horizontal, Ch 11, 54 Mbps
2484.533	50.5	-2.9	1.0	100.0	3.0	20.0	Vert	PK	0.0	67.6	74.0	-6.4	EUT Vertical, Ch 11, 6 Mbps

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
2484.208	50.3	-2.9	1.0	207.0	3.0	20.0	Horz	PK	0.0	67.4	74.0	-6.6	EUT Horizontal, Ch 11, 6 Mbps
14471.980	43.1	3.0	1.2	351.9	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	EUT Horizontal, Ch 1, 1 Mbps
14472.000	43.1	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	Ch 1 2412 MHz, 11 Mbps, EUT On Side
7311.058	33.2	12.8	1.3	174.1	3.0	0.0	Horz	AV	0.0	46.0	54.0	-8.0	EUT Vertical, Ch 6, 1 Mbps
12060.010	50.8	-5.3	1.0	176.0	3.0	0.0	Vert	AV	0.0	45.5	54.0	-8.5	EUT on Side, Ch 1, 1 Mbps
14472.000	42.0	3.0	1.2	217.1	3.0	0.0	Horz	AV	0.0	45.0	54.0	-9.0	EUT on Side, Ch 1, 1 Mbps
14471.960	41.7	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	44.7	54.0	-9.3	Ch 1 2412 MHz, MCS0, EUT On Side
14471.990	41.7	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	44.7	54.0	-9.3	Ch 1 2412 MHz, 6 Mbps, EUT On Side
14471.940	41.5	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	44.5	54.0	-9.5	Ch 1 2412 MHz, 36 Mbps, EUT On Side
12060.010	49.7	-5.3	1.1	154.0	3.0	0.0	Horz	AV	0.0	44.4	54.0	-9.6	EUT Vertical, Ch 1, 1 Mbps
14472.000	41.2	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	44.2	54.0	-9.8	Ch 1 2412 MHz, 54 Mbps, EUT On Side
7386.008	31.1	13.0	1.0	176.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	EUT on Side, Ch 11, 1 Mbps
14472.010	40.9	3.0	1.0	223.1	3.0	0.0	Vert	AV	0.0	43.9	54.0	-10.1	Ch 1 2412 MHz, MCS7, EUT On Side
2483.658	46.8	-2.9	1.0	192.1	3.0	20.0	Horz	PK	0.0	63.9	74.0	-10.1	EUT on Side, Ch 11, 6 Mbps
4874.000	37.6	5.0	1.1	274.0	3.0	0.0	Horz	AV	0.0	42.6	54.0	-11.4	EUT Vertical, Ch 6, 1 Mbps
7311.042	29.8	12.8	1.0	200.0	3.0	0.0	Vert	AV	0.0	42.6	54.0	-11.4	EUT on Side, Ch 6, 1 Mbps
2487.183	45.4	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	62.5	74.0	-11.5	EUT Horizontal, Ch 11, 11 Mbps
14472.000	39.3	3.0	1.8	82.0	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	EUT Horizontal, Ch 1, 1 Mbps
7386.117	29.3	13.0	1.0	198.0	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	EUT Vertical, Ch 11, 1 Mbps
4923.950	37.3	5.0	1.0	124.1	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	EUT Vertical, Ch 11, 1 Mbps
4923.942	37.1	5.0	1.0	172.0	3.0	0.0	Vert	AV	0.0	42.1	54.0	-11.9	EUT on Side, Ch 11, 1 Mbps
2484.900	43.6	-2.9	1.4	204.0	3.0	20.0	Horz	PK	0.0	60.7	74.0	-13.3	EUT Horizontal, Ch 11, 1 Mbps
4873.983	35.5	5.0	1.5	234.0	3.0	0.0	Vert	AV	0.0	40.5	54.0	-13.5	EUT on Side, Ch 6, 1 Mbps
2487.950	42.8	-2.9	1.0	113.1	3.0	20.0	Vert	PK	0.0	59.9	74.0	-14.1	EUT on Side, Ch 11, 6 Mbps
2486.583	42.4	-2.9	1.0	351.9	3.0	20.0	Horz	PK	0.0	59.5	74.0	-14.5	EUT Vertical, Ch 11, 6 Mbps
2486.608	42.1	-2.9	1.0	82.0	3.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	EUT Horizontal, Ch 11, 6 Mbps
4824.042	33.7	5.1	1.0	279.0	3.0	0.0	Horz	AV	0.0	38.8	54.0	-15.2	EUT Vertical, Ch 1, 1 Mbps
4824.033	32.0	5.1	1.8	172.0	3.0	0.0	Vert	AV	0.0	37.1	54.0	-16.9	EUT on Side, Ch 1, 1 Mbps
14472.000	53.0	3.0	1.3	222.1	3.0	0.0	Vert	PK	0.0	56.0	74.0	-18.0	EUT on Side, Ch 1, 1 Mbps
12309.980	60.4	-4.7	1.0	210.1	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	EUT Vertical, Ch 11, 1 Mbps
12310.030	60.4	-4.7	1.0	199.1	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT on Side, Ch 11, 1 Mbps
12186.240	60.1	-4.8	1.0	175.0	3.0	0.0	Horz	PK	0.0	55.3	74.0	-18.7	EUT Vertical, Ch 6, 1 Mbps
7311.450	42.4	12.8	1.3	174.1	3.0	0.0	Horz	PK	0.0	55.2	74.0	-18.8	EUT Vertical, Ch 6, 1 Mbps
14471.810	52.0	3.0	1.2	179.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	EUT Vertical, Ch 1, 1 Mbps
14471.800	51.1	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	Ch 1 2412 MHz, 6 Mbps, EUT On Side
12185.880	58.9	-4.8	1.0	197.0	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	EUT on Side, Ch 6, 1 Mbps
7385.967	41.0	13.0	1.0	176.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	EUT on Side, Ch 11, 1 Mbps
7383.908	40.9	13.0	1.0	198.0	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	EUT Vertical, Ch 11, 1 Mbps
14471.980	50.7	3.0	1.2	178.1	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	EUT Vertical, Ch 1, 1 Mbps
14472.080	50.4	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	53.4	74.0	-20.6	Ch 1 2412 MHz, 54 Mbps, EUT On Side
14472.230	50.4	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	53.4	74.0	-20.6	Ch 1 2412 MHz, MCS0, EUT On Side
7311.000	40.6	12.8	1.0	200.0	3.0	0.0	Vert	PK	0.0	53.4	74.0	-20.6	EUT on Side, Ch 6, 1 Mbps
14472.040	50.2	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	53.2	74.0	-20.8	Ch 1 2412 MHz, 11 Mbps, EUT On Side
14472.100	49.7	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	Ch 1 2412 MHz, 36 Mbps, EUT On Side
14471.990	49.5	3.0	1.3	214.1	3.0	0.0	Horz	PK	0.0	52.5	74.0	-21.5	EUT on Side, Ch 1, 1 Mbps
12059.920	56.8	-5.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	EUT on Side, Ch 1, 1 Mbps
14471.940	47.9	3.0	1.2	351.9	3.0	0.0	Vert	PK	0.0	50.9	74.0	-23.1	EUT Horizontal, Ch 1, 1 Mbps
14472.000	47.4	3.0	1.0	223.1	3.0	0.0	Vert	PK	0.0	50.4	74.0	-23.6	Ch 1 2412 MHz, MCS7, EUT On Side
4924.300	44.8	5.0	1.0	124.1	3.0	0.0	Horz	PK	0.0	49.8	74.0	-24.2	EUT Vertical, Ch 11, 1 Mbps
12060.020	54.9	-5.3	1.1	154.0	3.0	0.0	Horz	PK	0.0	49.6	74.0	-24.4	EUT Vertical, Ch 1, 1 Mbps
4923.842	44.5	5.0	1.0	172.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	EUT on Side, Ch 11, 1 Mbps
4874.225	44.2	5.0	1.1	274.0	3.0	0.0	Horz	PK	0.0	49.2	74.0	-24.8	EUT Vertical, Ch 6, 1 Mbps
14471.730	45.8	3.0	1.8	82.0	3.0	0.0	Horz	PK	0.0	48.8	74.0	-25.2	EUT Horizontal, Ch 1, 1 Mbps
4823.658	43.0	5.1	1.0	279.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	EUT Vertical, Ch 1, 1 Mbps
4873.958	43.1	5.0	1.5	234.0	3.0	0.0	Vert	PK	0.0	48.1	74.0	-25.9	EUT on Side, Ch 6, 1 Mbps
4824.092	42.0	5.1	1.8	172.0	3.0	0.0	Vert	PK	0.0	47.1	74.0	-26.9	EUT on Side, Ch 1, 1 Mbps

Work Order:	LGPD0151	Date:	04/22/15	<i>Trevor Buls</i>
Project:	None	Temperature:	22.8 °C	
Job Site:	MN05	Humidity:	21.7% RH	
Serial Number:	See Configurations	Barometric Pres.:	981.5 mbar	
EUT:	DM3730 Torpedo + Wireless SOM -32			Tested by: Trevor Buls
Configuration:	1			
Customer:	Logic PD			
Attendees:	Nathan Kro, Adam Ford			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting 802.11 Channel 1, 6, 11 (2412, 2437, 2462 MHz) @ 1, 11, 6, 36, 54 Mbps, MCS0, MCS7 (see comments)			
Deviations:	None			
Comments:	Chip Antenna			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	15	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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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
14471.980	50.3	3.0	1.2	181.1	3.0	0.0	Horz	AV	0.0	53.3	54.0	-0.7	EUT Vertical, Ch 1, 1 Mbps
2389.975	35.8	-3.2	1.0	145.1	3.0	20.0	Vert	AV	0.0	52.6	54.0	-1.4	EUT Vertical, Ch 1, MCS0
14472.020	49.4	3.0	1.0	342.0	3.0	0.0	Vert	AV	0.0	52.4	54.0	-1.6	EUT on Side, Ch 1, 1 Mbps
2483.592	34.5	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	51.6	54.0	-2.4	EUT Vertical, Ch 11, MCS0
2483.517	34.0	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	51.1	54.0	-2.9	EUT Vertical, Ch 11, 36 Mbps
2483.758	33.7	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.8	54.0	-3.2	EUT Vertical, Ch 11, 54 Mbps
2389.975	34.0	-3.2	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.8	54.0	-3.2	EUT Vertical, Ch 1, 6 Mbps
2487.950	33.5	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.6	54.0	-3.4	EUT Vertical, Ch 11, 11 Mbps
2483.542	33.2	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.3	54.0	-3.7	EUT Vertical, Ch 11, MCS7
2483.550	33.1	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.2	54.0	-3.8	EUT Vertical, Ch 11, 6 Mbps
2488.033	33.0	-2.9	1.0	145.1	3.0	20.0	Vert	AV	0.0	50.1	54.0	-3.9	EUT Vertical, Ch 11, 1 Mbps
12185.980	54.9	-4.8	1.0	214.1	3.0	0.0	Vert	AV	0.0	50.1	54.0	-3.9	EUT on Side, Ch 6, 1 Mbps
2483.633	33.0	-2.9	1.0	222.0	3.0	20.0	Horz	AV	0.0	50.1	54.0	-3.9	EUT on Side, Ch 11, 6 Mbps
12186.030	54.7	-4.8	1.0	267.0	3.0	0.0	Horz	AV	0.0	49.9	54.0	-4.1	EUT Vertical, Ch 6, 1 Mbps
2389.525	52.5	-3.2	1.0	145.1	3.0	20.0	Vert	PK	0.0	69.3	74.0	-4.7	EUT Vertical, Ch 1, MCS0
2483.650	32.1	-2.9	1.0	176.0	3.0	20.0	Vert	AV	0.0	49.2	54.0	-4.8	EUT Horizontal, Ch 11, 6 Mbps
12311.020	53.8	-4.7	1.0	157.0	3.0	0.0	Vert	AV	0.0	49.1	54.0	-4.9	EUT on Side, Ch 11, 1 Mbps
14472.020	46.0	3.0	1.0	160.1	3.0	0.0	Vert	AV	0.0	49.0	54.0	-5.0	EUT Vertical, Ch 11, 1 Mbps
12310.930	53.5	-4.7	1.0	268.9	3.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	EUT Vertical, Ch 11, 1 Mbps
2483.617	31.6	-2.9	2.7	3.0	3.0	20.0	Horz	AV	0.0	48.7	54.0	-5.3	EUT Horizontal, Ch 11, 6 Mbps
2486.217	31.1	-2.9	3.8	188.1	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	EUT Vertical, Ch 11, 6 Mbps
2484.300	31.1	-2.9	1.0	354.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	EUT on Side, Ch 11, 6 Mbps
14472.010	44.9	3.0	1.1	268.9	3.0	0.0	Horz	AV	0.0	47.9	54.0	-6.1	EUT on Side, Ch 1, 1 Mbps
2389.767	50.0	-3.2	1.0	145.1	3.0	20.0	Vert	PK	0.0	66.8	74.0	-7.2	EUT Vertical, Ch 1, 6 Mbps
7310.792	33.4	12.8	1.7	258.9	3.0	0.0	Vert	AV	0.0	46.2	54.0	-7.8	EUT on Side, Ch 6, 1 Mbps



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
14472.030	43.0	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	46.0	54.0	-8.0	EUT Vertical, Ch 1, 11 Mbps
14471.980	42.9	3.0	1.1	329.9	3.0	0.0	Horz	AV	0.0	45.9	54.0	-8.1	EUT Horizontal, Ch 1, 1 Mbps
14472.020	42.8	3.0	1.2	229.9	3.0	0.0	Vert	AV	0.0	45.8	54.0	-8.2	EUT Horizontal, Ch 1, 1 Mbps
2483.700	48.6	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	65.7	74.0	-8.3	EUT Vertical, Ch 11, 36 Mbps
2483.858	48.1	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	65.2	74.0	-8.8	EUT Vertical, Ch 11, MCS0
12059.990	50.2	-5.3	1.0	161.0	3.0	0.0	Horz	AV	0.0	44.9	54.0	-9.1	EUT Vertical, Ch 1, 1 Mbps
4923.975	39.9	5.0	1.0	232.9	3.0	0.0	Horz	AV	0.0	44.9	54.0	-9.1	EUT Vertical, Ch 11, 1 Mbps
12060.070	50.1	-5.3	1.0	170.1	3.0	0.0	Vert	AV	0.0	44.8	54.0	-9.2	EUT on Side, Ch 1, 1 Mbps
4873.992	39.6	5.0	1.1	171.0	3.0	0.0	Vert	AV	0.0	44.6	54.0	-9.4	EUT on Side, Ch 6, 1 Mbps
4874.000	39.2	5.0	1.0	243.9	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	EUT Vertical, Ch 6, 1 Mbps
4924.017	39.1	5.0	1.1	205.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	EUT on Side, Ch 11, 1 Mbps
2483.708	47.0	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	64.1	74.0	-9.9	EUT Vertical, Ch 11, 54 Mbps
2483.500	46.6	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	63.7	74.0	-10.3	EUT Vertical, Ch 11, MCS7
14472.000	40.5	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	43.5	54.0	-10.5	EUT Vertical, Ch 1, 6 Mbps
7384.658	30.5	13.0	1.0	311.0	3.0	0.0	Horz	AV	0.0	43.5	54.0	-10.5	EUT Vertical, Ch 11, 1 Mbps
7310.908	30.6	12.8	1.0	150.0	3.0	0.0	Horz	AV	0.0	43.4	54.0	-10.6	EUT Vertical, Ch 6, 1 Mbps
14472.010	40.1	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	43.1	54.0	-10.9	EUT Vertical, Ch 11, MCS0
14472.050	40.0	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	43.0	54.0	-11.0	EUT Vertical, Ch 1, 36 Mbps
2483.575	45.6	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	62.7	74.0	-11.3	EUT Vertical, Ch 11, 6 Mbps
14471.970	39.2	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	EUT Vertical, Ch 1, 54 Mbps
2483.508	45.0	-2.9	1.0	222.0	3.0	20.0	Horz	PK	0.0	62.1	74.0	-11.9	EUT on Side, Ch 11, 6 Mbps
7385.600	28.9	13.0	1.0	199.1	3.0	0.0	Vert	AV	0.0	41.9	54.0	-12.1	EUT on Side, Ch 11, 1 Mbps
14471.950	38.8	3.0	1.0	271.0	3.0	0.0	Horz	AV	0.0	41.8	54.0	-12.2	EUT Vertical, Ch 1, MCS7
2486.383	44.6	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	61.7	74.0	-12.3	EUT Vertical, Ch 11, 11 Mbps
2483.575	44.4	-2.9	2.7	3.0	3.0	20.0	Horz	PK	0.0	61.5	74.0	-12.5	EUT Horizontal, Ch 11, 6 Mbps
4824.058	35.9	5.1	1.0	226.0	3.0	0.0	Horz	AV	0.0	41.0	54.0	-13.0	EUT Vertical, Ch 1, 1 Mbps
2487.650	43.8	-2.9	1.0	145.1	3.0	20.0	Vert	PK	0.0	60.9	74.0	-13.1	EUT Vertical, Ch 11, 1 Mbps
2483.950	43.6	-2.9	1.0	176.0	3.0	20.0	Vert	PK	0.0	60.7	74.0	-13.3	EUT Horizontal, Ch 11, 6 Mbps
2486.292	42.9	-2.9	1.0	354.0	3.0	20.0	Vert	PK	0.0	60.0	74.0	-14.0	EUT on Side, Ch 11, 6 Mbps
4823.967	34.9	5.1	1.0	202.1	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	EUT on Side, Ch 1, 1 Mbps
2488.033	42.4	-2.9	3.8	188.1	3.0	20.0	Horz	PK	0.0	59.5	74.0	-14.5	EUT Vertical, Ch 11, 6 Mbps
14472.000	53.2	3.0	1.2	181.1	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	EUT Vertical, Ch 1, 1 Mbps
7311.250	42.9	12.8	1.7	258.9	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT on Side, Ch 6, 1 Mbps
14472.030	52.5	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	55.5	74.0	-18.5	EUT Vertical, Ch 1, MCS0
12185.030	60.2	-4.8	1.0	267.0	3.0	0.0	Horz	PK	0.0	55.4	74.0	-18.6	EUT Vertical, Ch 6, 1 Mbps
14471.960	52.3	3.0	1.0	342.0	3.0	0.0	Vert	PK	0.0	55.3	74.0	-18.7	EUT on Side, Ch 1, 1 Mbps
7385.283	42.0	13.0	1.0	311.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	EUT Vertical, Ch 11, 1 Mbps
12185.030	59.6	-4.8	1.0	214.1	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	EUT on Side, Ch 6, 1 Mbps
14472.150	51.1	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	54.1	74.0	-19.9	EUT Vertical, Ch 1, 6 Mbps
7310.692	41.2	12.8	1.0	150.0	3.0	0.0	Horz	PK	0.0	54.0	74.0	-20.0	EUT Vertical, Ch 6, 1 Mbps
14472.030	50.9	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	EUT Vertical, Ch 1, 11 Mbps
12310.020	58.6	-4.7	1.0	268.9	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	EUT Vertical, Ch 11, 1 Mbps
7387.192	40.2	13.0	1.0	199.1	3.0	0.0	Vert	PK	0.0	53.2	74.0	-20.8	EUT on Side, Ch 11, 1 Mbps
12309.920	57.8	-4.7	1.0	157.0	3.0	0.0	Vert	PK	0.0	53.1	74.0	-20.9	EUT on Side, Ch 11, 1 Mbps
14472.020	50.0	3.0	1.0	160.1	3.0	0.0	Vert	PK	0.0	53.0	74.0	-21.0	EUT Vertical, Ch 1, 1 Mbps
14471.930	49.7	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	EUT Vertical, Ch 1, 36 Mbps
14471.840	48.8	3.0	1.1	268.9	3.0	0.0	Horz	PK	0.0	51.8	74.0	-22.2	EUT on Side, Ch 1, 1 Mbps
14472.240	48.4	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	51.4	74.0	-22.6	EUT Vertical, Ch 1, 54 Mbps
14472.010	48.2	3.0	1.1	329.9	3.0	0.0	Horz	PK	0.0	51.2	74.0	-22.8	EUT Horizontal, Ch 1, 1 Mbps
14471.950	48.1	3.0	1.2	229.9	3.0	0.0	Vert	PK	0.0	51.1	74.0	-22.9	EUT Horizontal, Ch 1, 1 Mbps
4873.792	45.8	5.0	1.1	171.0	3.0	0.0	Vert	PK	0.0	50.8	74.0	-23.2	EUT on Side, Ch 6, 1 Mbps
4923.900	45.6	5.0	1.0	232.9	3.0	0.0	Horz	PK	0.0	50.6	74.0	-23.4	EUT Vertical, Ch 11, 1 Mbps
12059.980	55.8	-5.3	1.0	170.1	3.0	0.0	Vert	PK	0.0	50.5	74.0	-23.5	EUT on Side, Ch 1, 1 Mbps
4874.067	45.0	5.0	1.0	243.9	3.0	0.0	Horz	PK	0.0	50.0	74.0	-24.0	EUT Vertical, Ch 6, 1 Mbps
4924.200	44.9	5.0	1.1	205.0	3.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	EUT on Side, Ch 11, 1 Mbps
12060.090	55.1	-5.3	1.0	161.0	3.0	0.0	Horz	PK	0.0	49.8	74.0	-24.2	EUT Vertical, Ch 1, 1 Mbps
14471.880	46.8	3.0	1.0	271.0	3.0	0.0	Horz	PK	0.0	49.8	74.0	-24.2	EUT Vertical, Ch 1, MCS7
4824.058	43.2	5.1	1.0	226.0	3.0	0.0	Horz	PK	0.0	48.3	74.0	-25.7	EUT Vertical, Ch 1, 1 Mbps
4824.058	42.7	5.1	1.0	202.1	3.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	EUT on Side, Ch 1, 1 Mbps

# BAND EDGE COMPLIANCE

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	3/30/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12

## TEST DESCRIPTION


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

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

# BAND EDGE COMPLIANCE

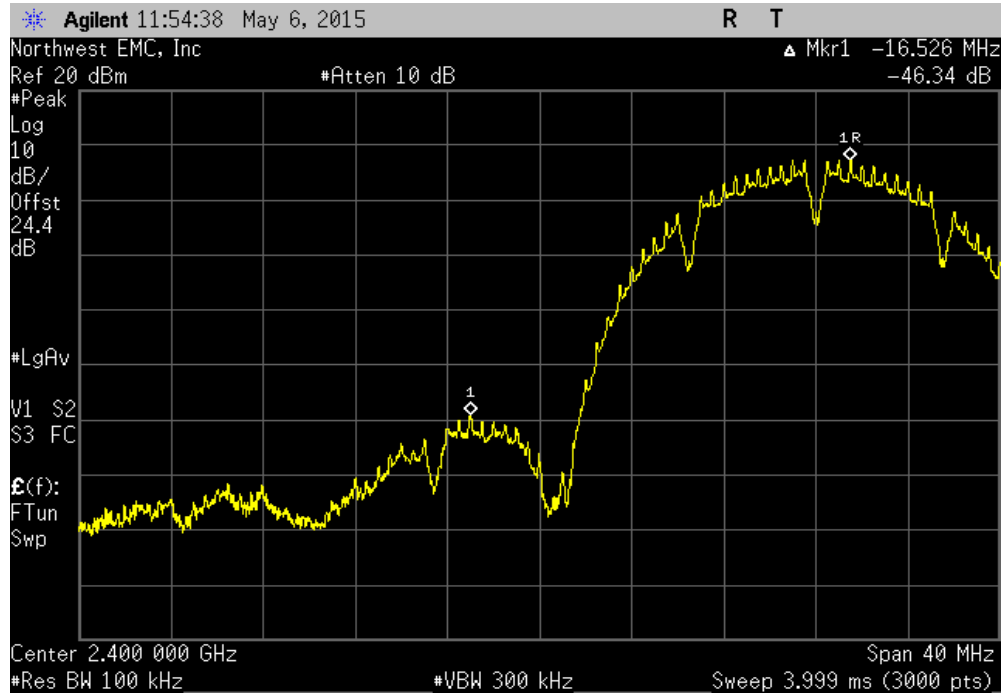


XMR 2015.01.14

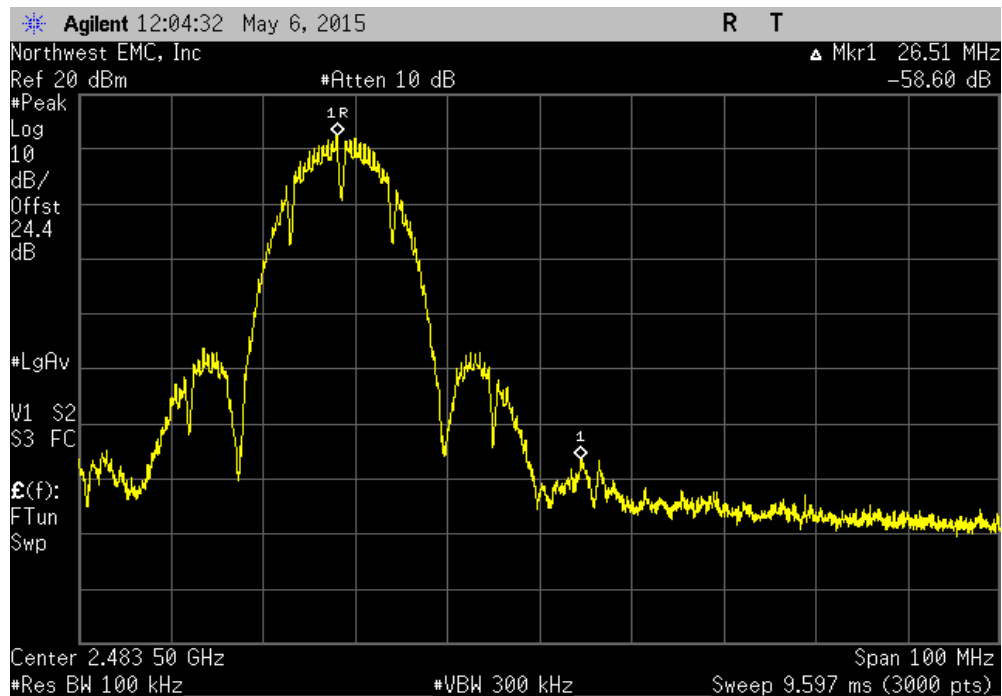
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151	
Serial Number: See Configurations		Date: 05/07/15	
Customer: Logic PD		Temperature: 23.1°C	
Attendees: Adam Ford		Humidity: 41%	
Project: None		Barometric Pres.: 1018.5	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	Job Site: MN08
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was tested with the fundamental modulated while under test			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature 	
		Value (dBc)	Limit ≤ (dBc) Result
ANT 2.4GHz			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		-46.34	-20 Pass
High Channel 11, 2462 MHz		-58.6	-20 Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		-46.08	-20 Pass
High Channel 11, 2462 MHz		-56.4	-20 Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		-33.65	-20 Pass
High Channel 11, 2462 MHz		-52.2	-20 Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		-30.47	-20 Pass
High Channel 11, 2462 MHz		-48.87	-20 Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		-32.69	-20 Pass
High Channel 11, 2462 MHz		-47.13	-20 Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz		-31.77	-20 Pass
High Channel 11, 2462 MHz		-48.79	-20 Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz		-29.94	-20 Pass
High Channel 11, 2462 MHz		-46.15	-20 Pass

# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.34	-20	Pass

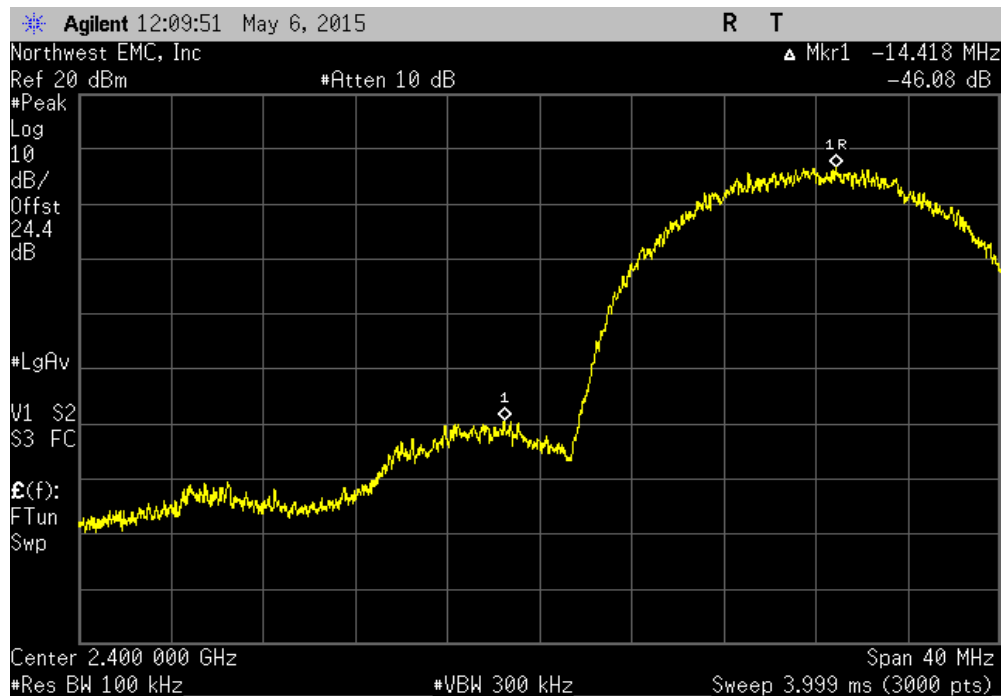


ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-58.6	-20	Pass

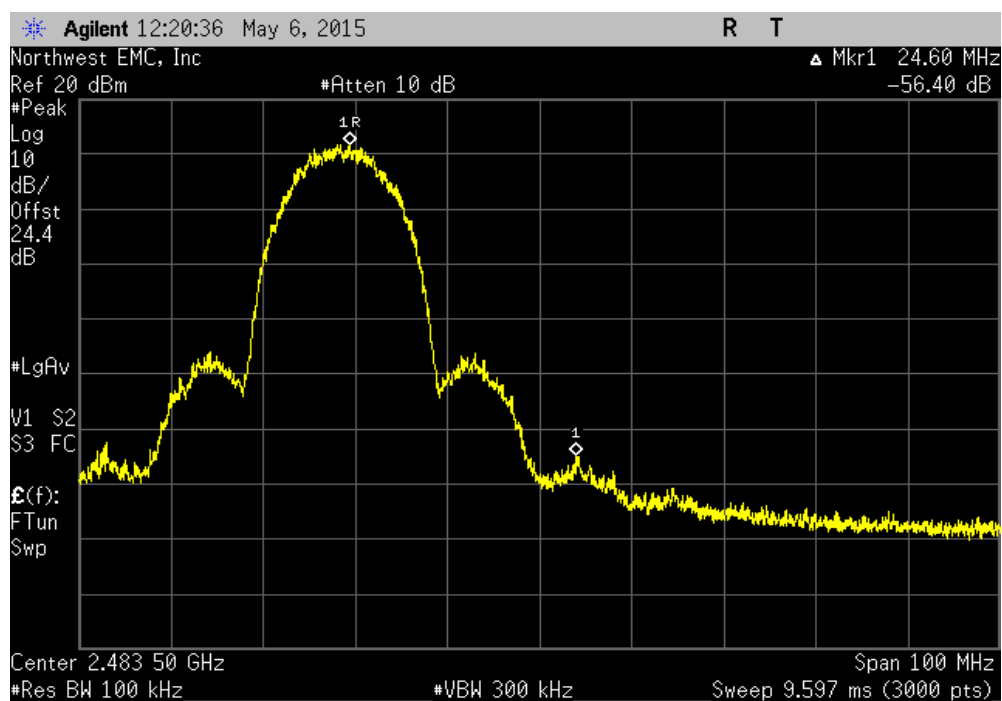


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.08	-20	Pass

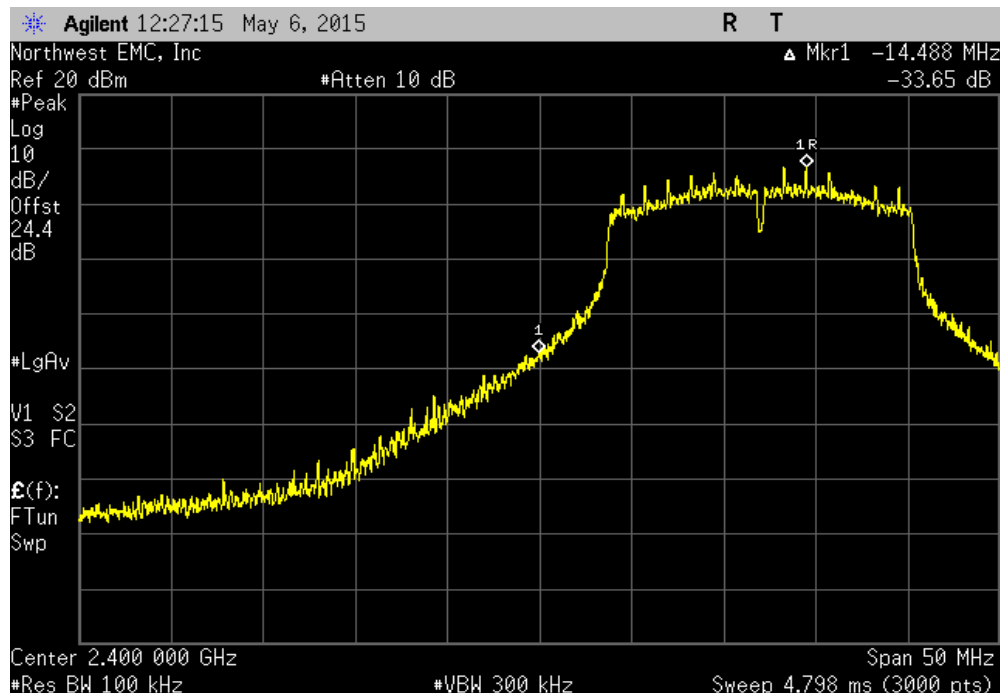


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-56.4	-20	Pass

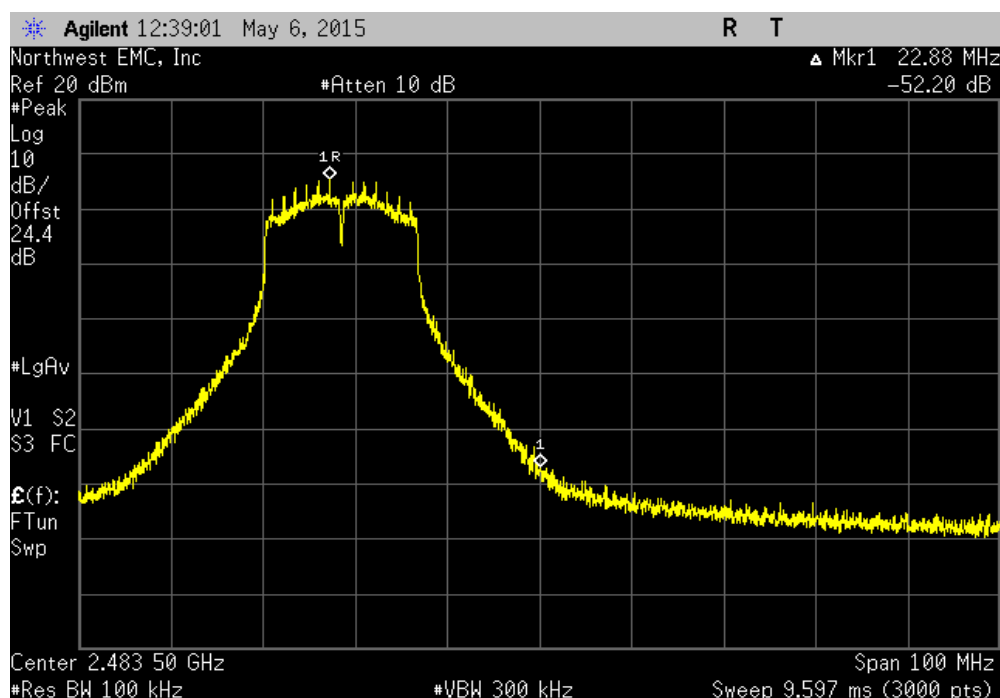


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-33.65	-20	Pass

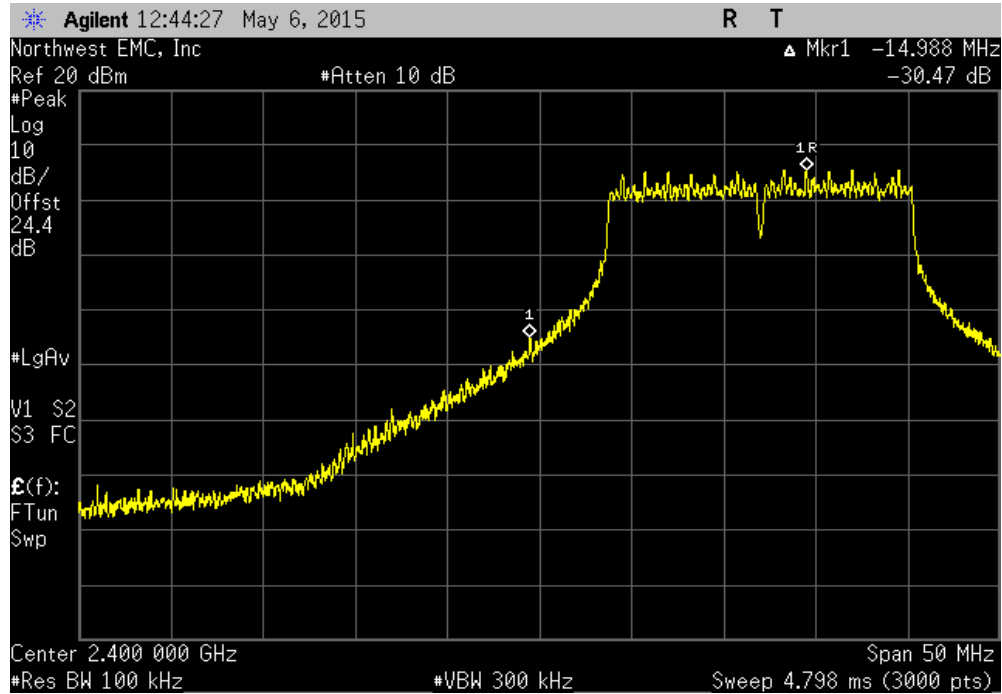


ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-52.2	-20	Pass

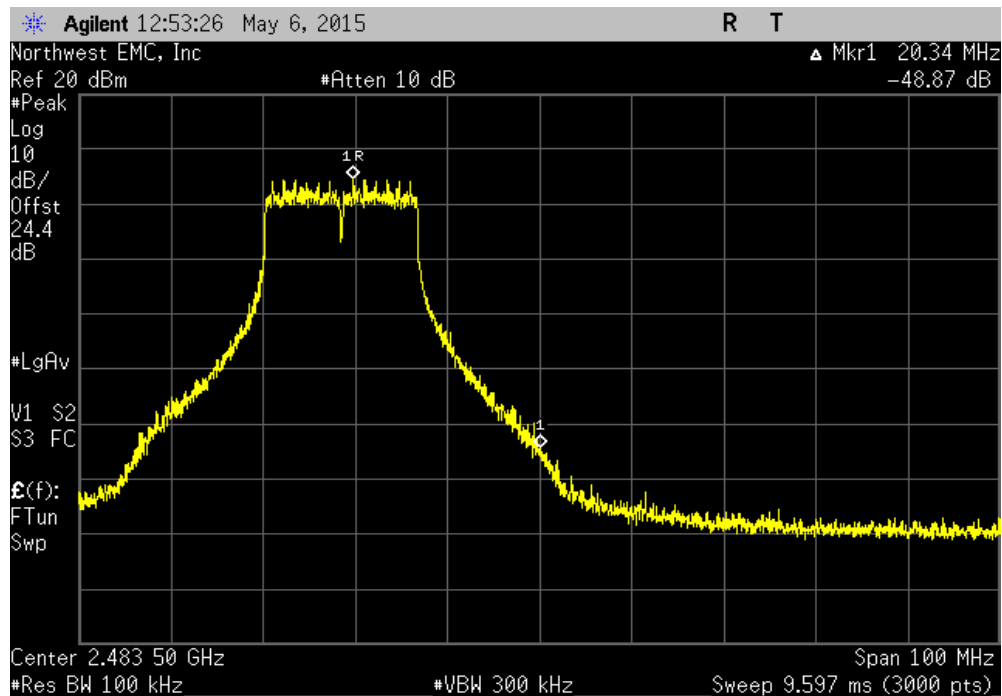


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-30.47	-20	Pass



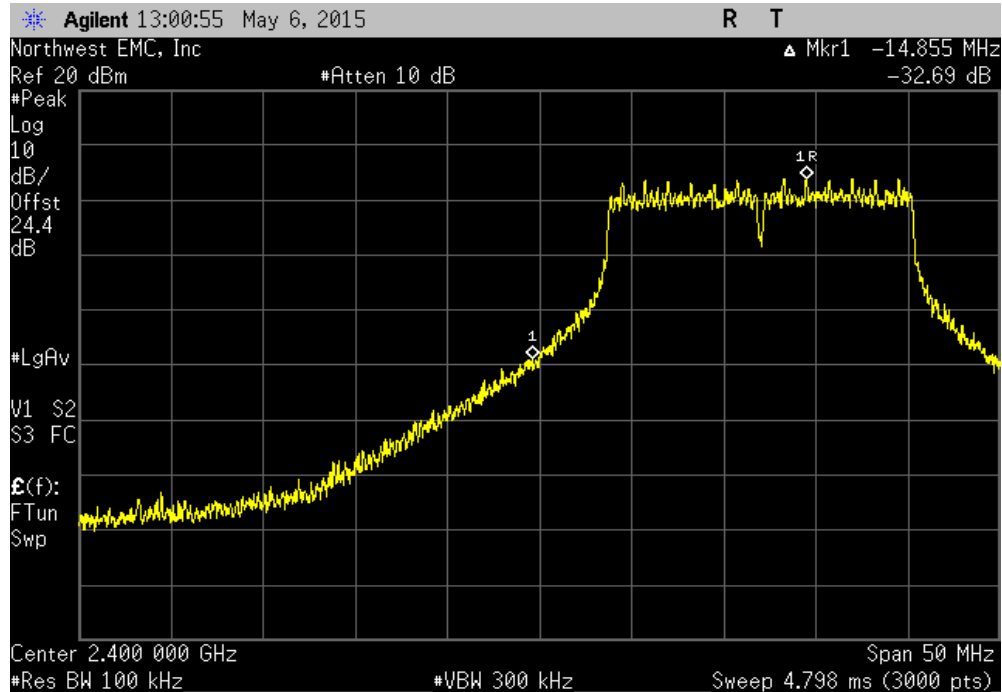
ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-48.87	-20	Pass



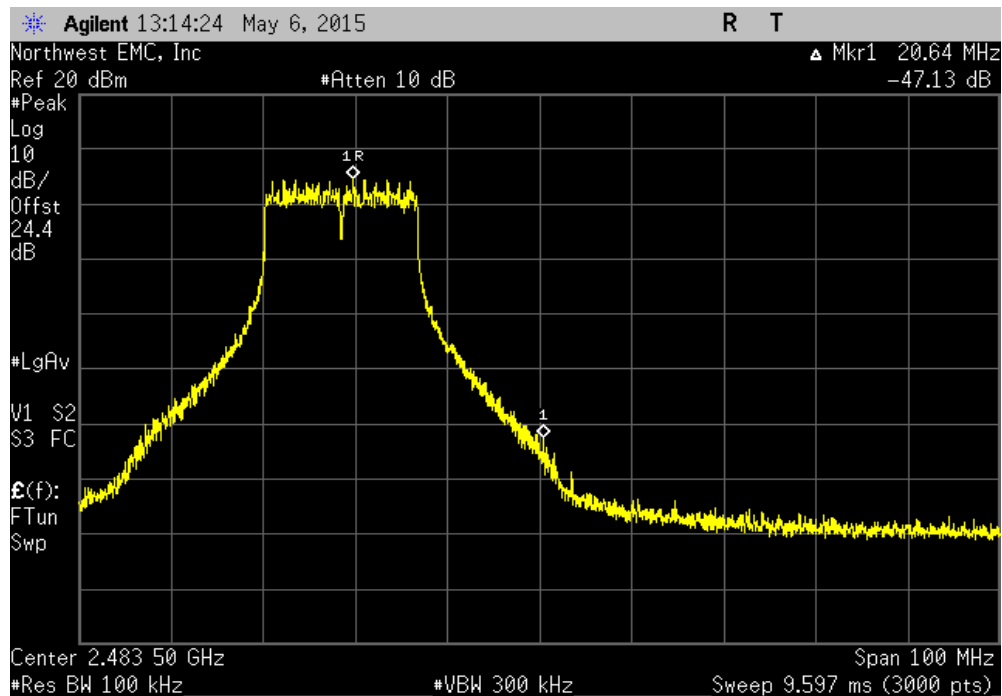


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-32.69	-20	Pass

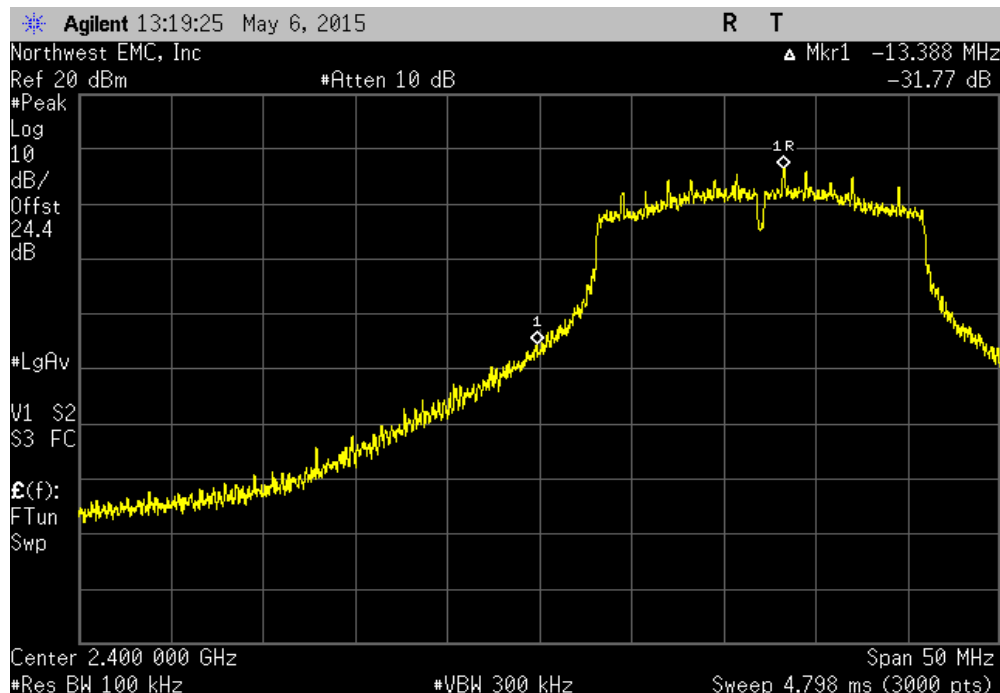


ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-47.13	-20	Pass

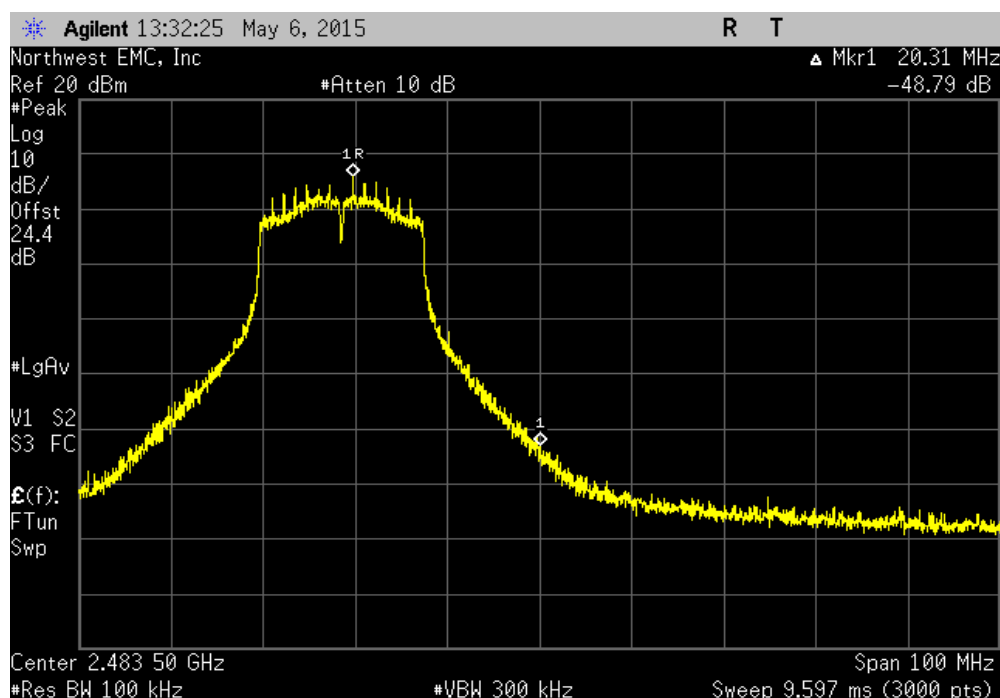


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-31.77	-20	Pass

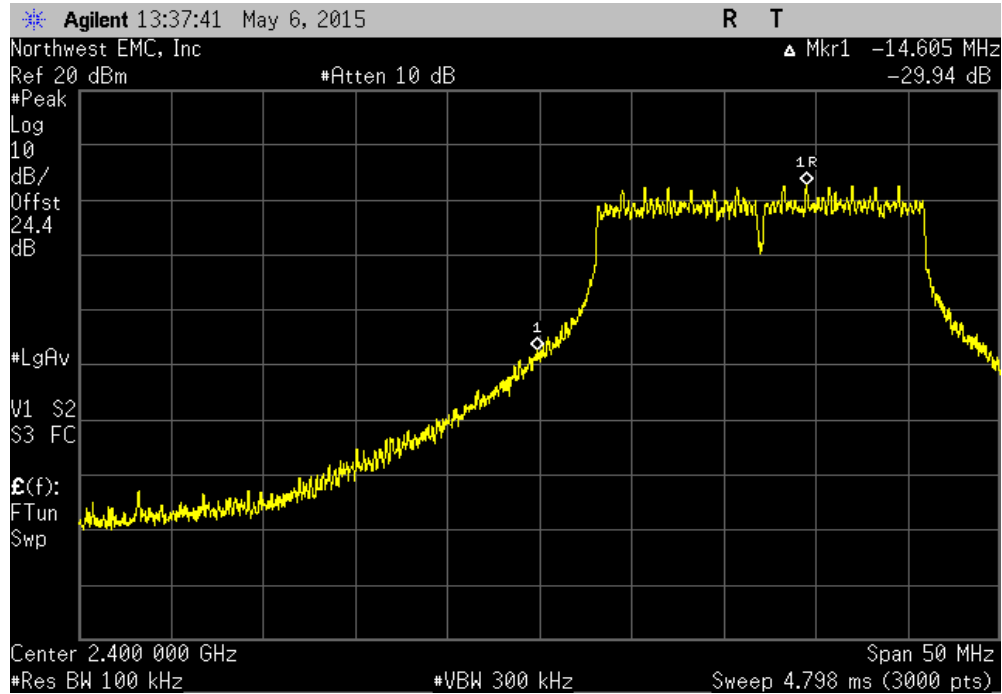


ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-48.79	-20	Pass

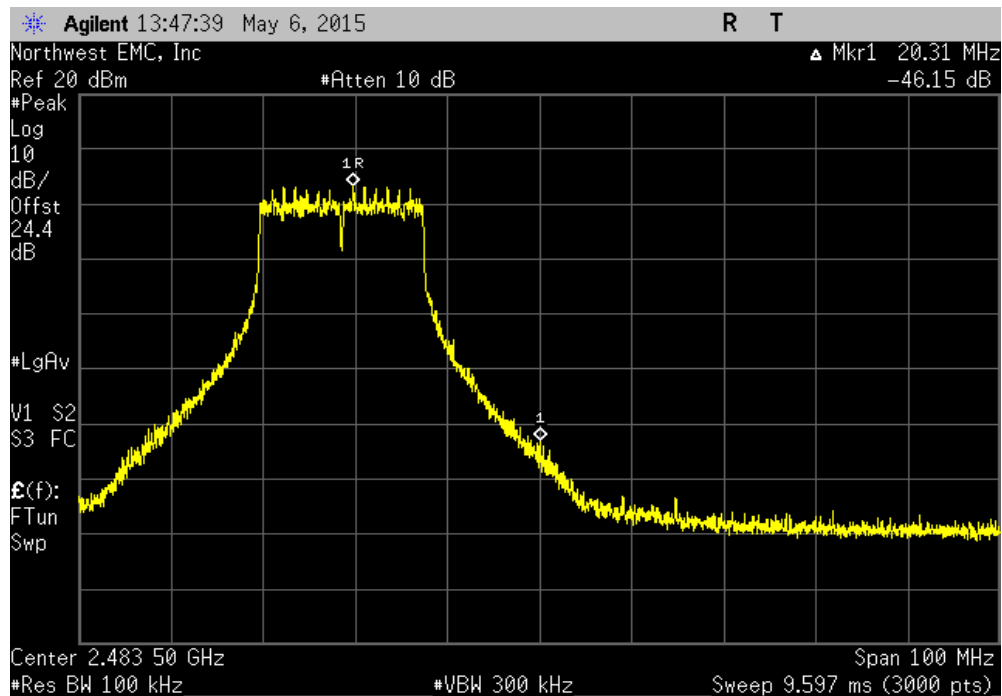


# BAND EDGE COMPLIANCE

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-29.94	-20	Pass



ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.15	-20	Pass



# SPURIOUS CONDUCTED EMISSIONS

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


## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

## TEST DESCRIPTION

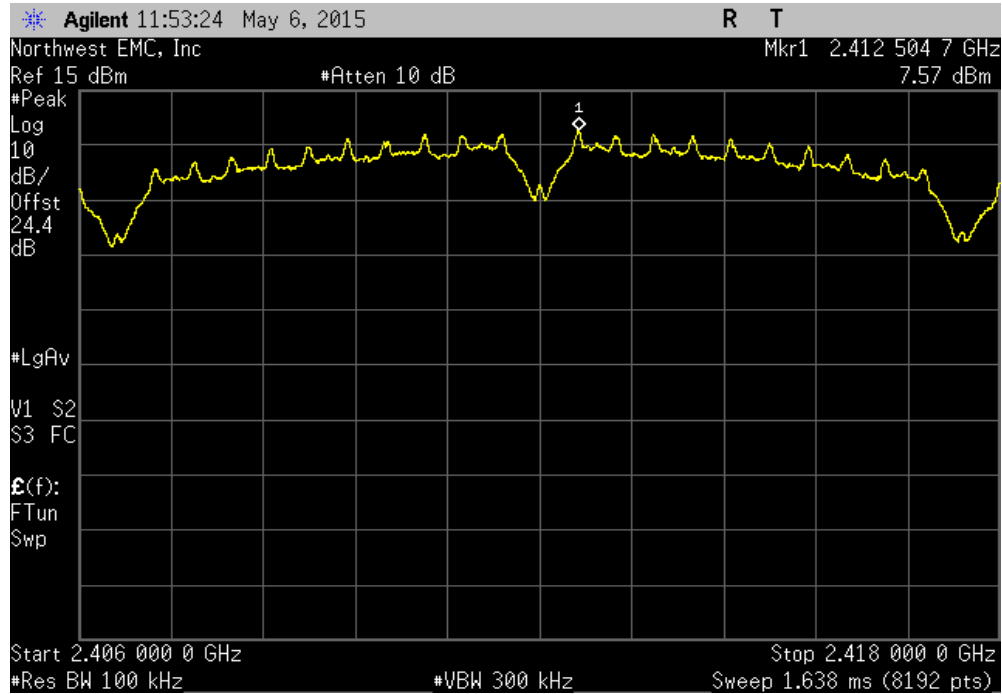
The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet. For each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

# SPURIOUS CONDUCTED EMISSIONS

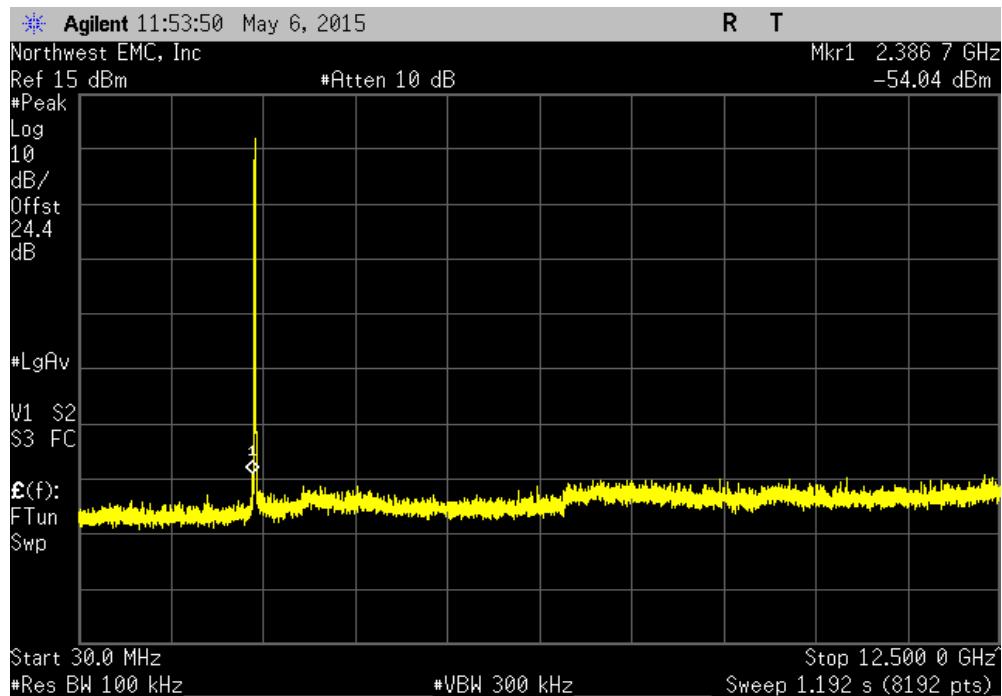
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151			
Serial Number: See Configurations		Date: 05/07/15			
Customer: Logic PD		Temperature: 23.1°C			
Attendees: Adam Ford		Humidity: 41%			
Project: None		Barometric Pres.: 1018.5			
Tested by: Brandon Hobbs		Job Site: MN08			
Power: 110VAC/60Hz					
TEST SPECIFICATIONS		Test Method			
FCC 15.247:2015		ANSI C63.10:2009			
COMMENTS					
The EUT was tested with the fundamental modulated while under test					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	5	Signature 			
		Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result
ANT 2.4GHz					
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	-61.61	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-57.88	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-64.62	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-59.86	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-64.86	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-61.63	-20	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	-57.95	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-57.31	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-65.38	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-61.04	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-66.04	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-61.41	-20	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	-57.12	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-56.81	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-64.23	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-60.49	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.93	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-55.4	-20	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	-55.88	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-54.71	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-60.37	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-56.33	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.16	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-54.99	-20	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	-57.97	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-53.96	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-58.68	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-55.09	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-58.56	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-55.05	-20	Pass
802.11(n) MCS0					
	Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-56.7	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-56.7	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-63.55	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-59.35	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-60.27	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-55	-20	Pass
802.11(n) MCS7					
	Low Channel 1, 2412 MHz	Fundamental	N/A	N/A	N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-56.48	-20	Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-52.96	-20	Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-57.23	-20	Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-53.41	-20	Pass
	High Channel 11, 2462 MHz	Fundamental	N/A	N/A	N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-57.92	-20	Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-53.31	-20	Pass

# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

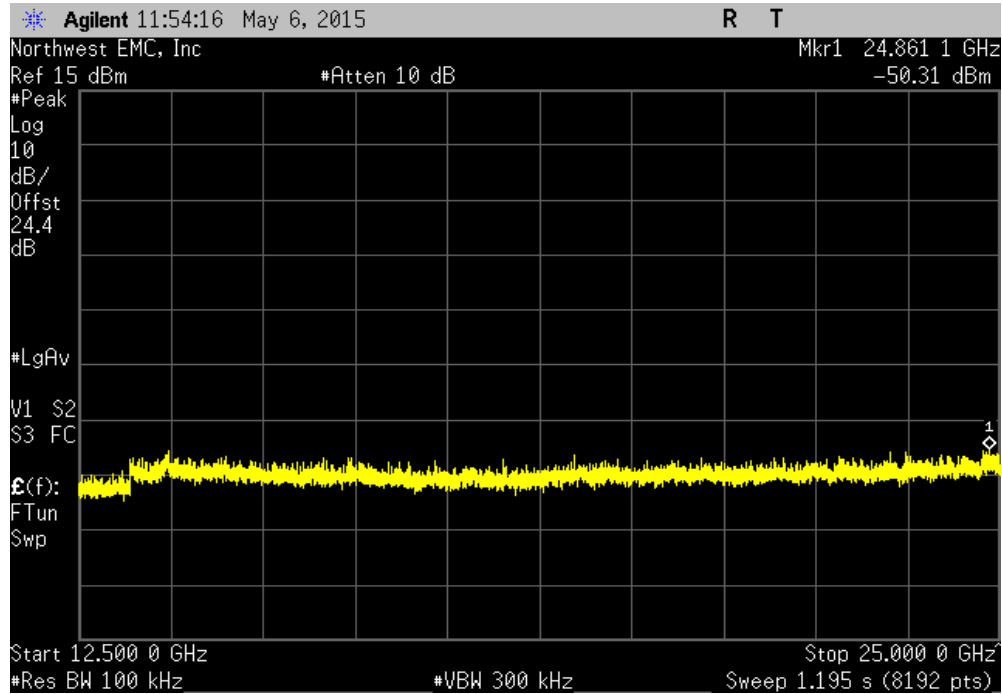


ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-61.61	-20	Pass		

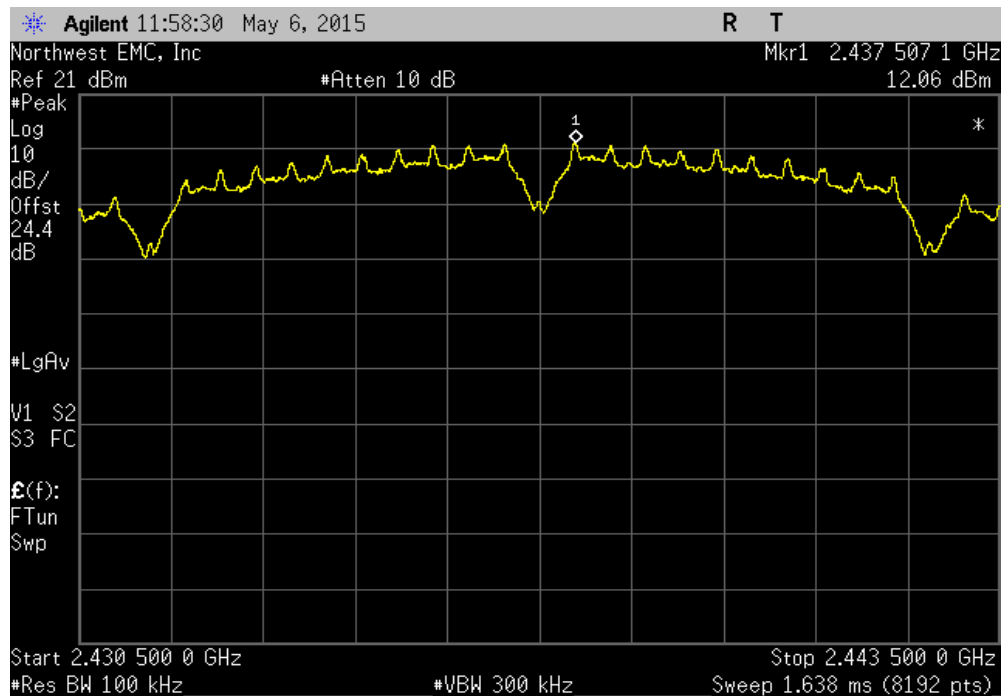


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.88	-20	Pass	

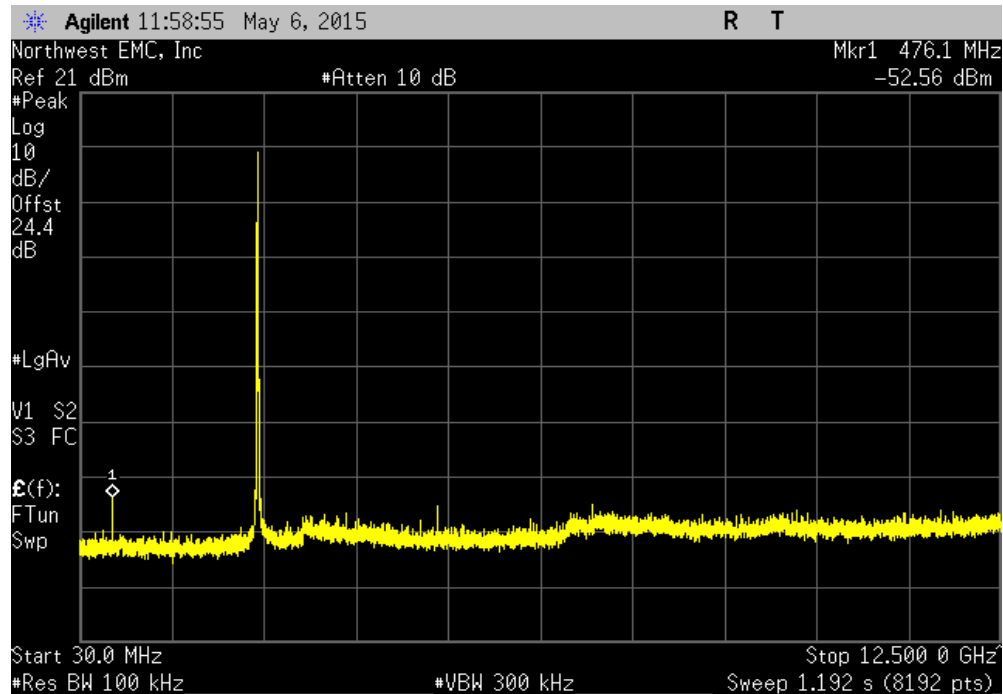


ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

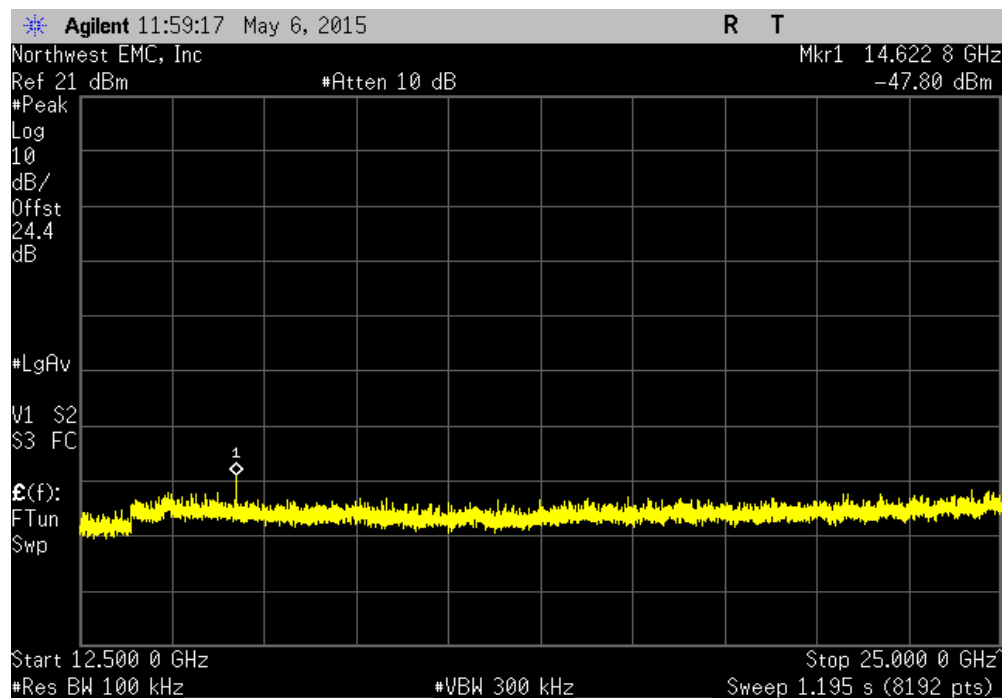


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-64.62	-20	Pass	



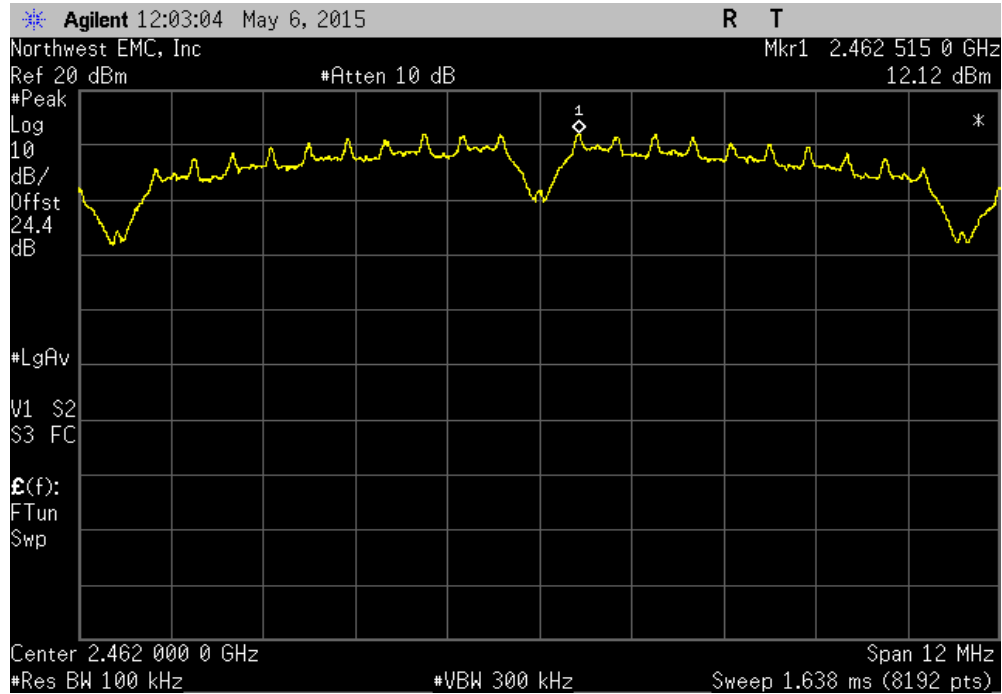
ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-59.86	-20	Pass	



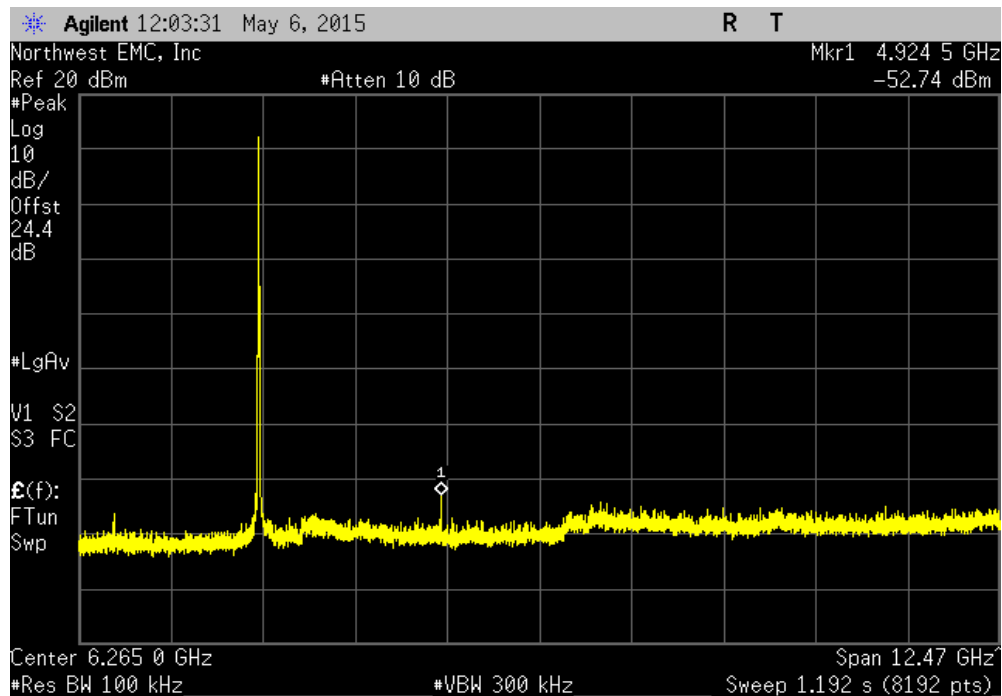


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

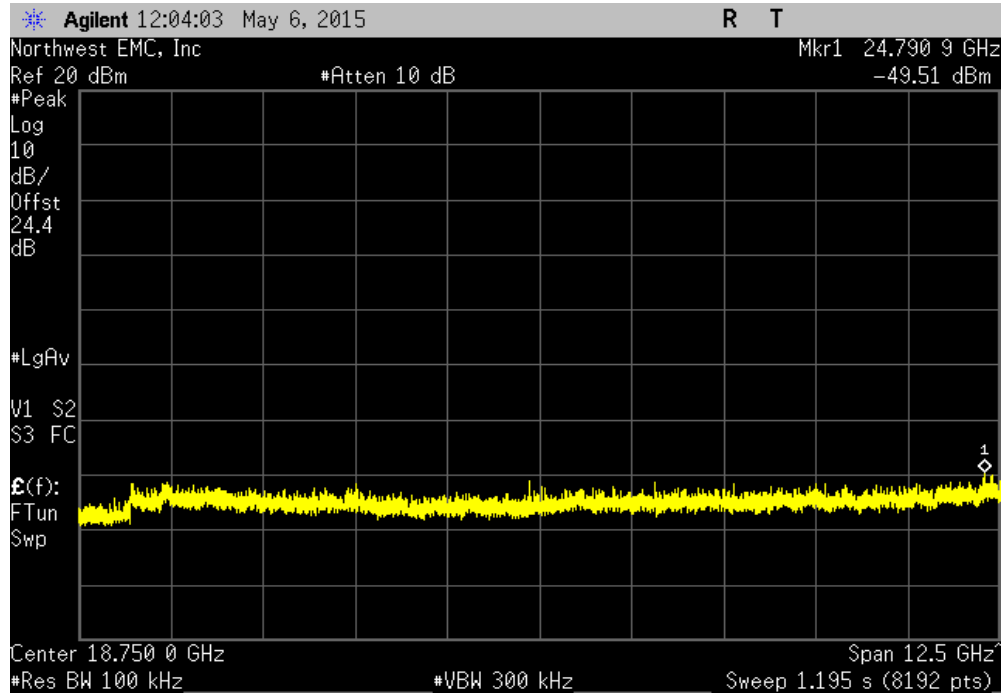


ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-64.86	-20	Pass		

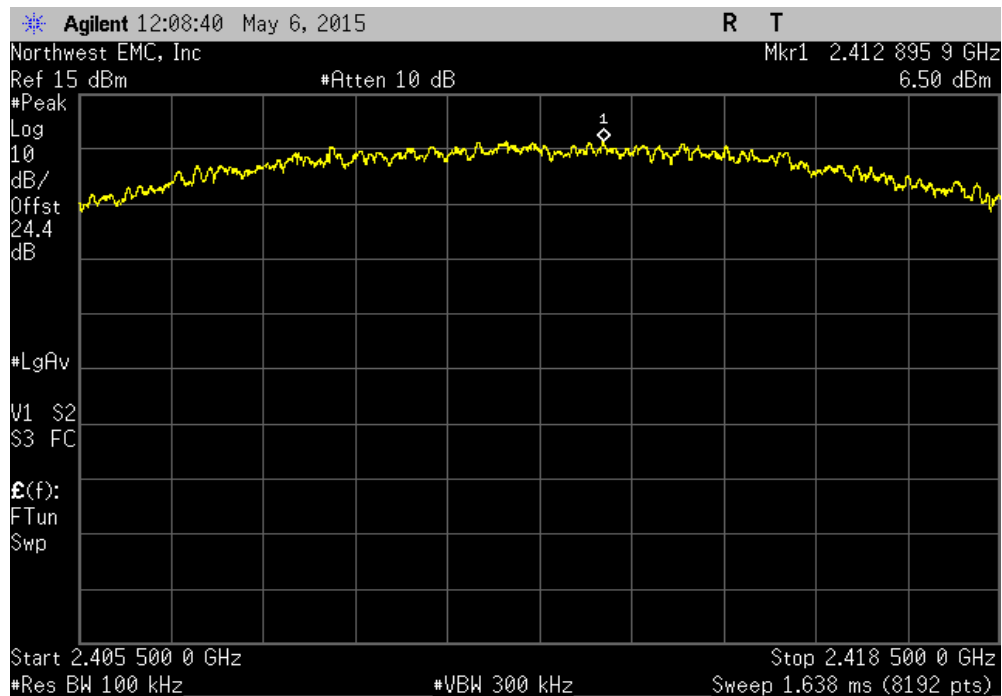


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-61.63	-20	Pass	

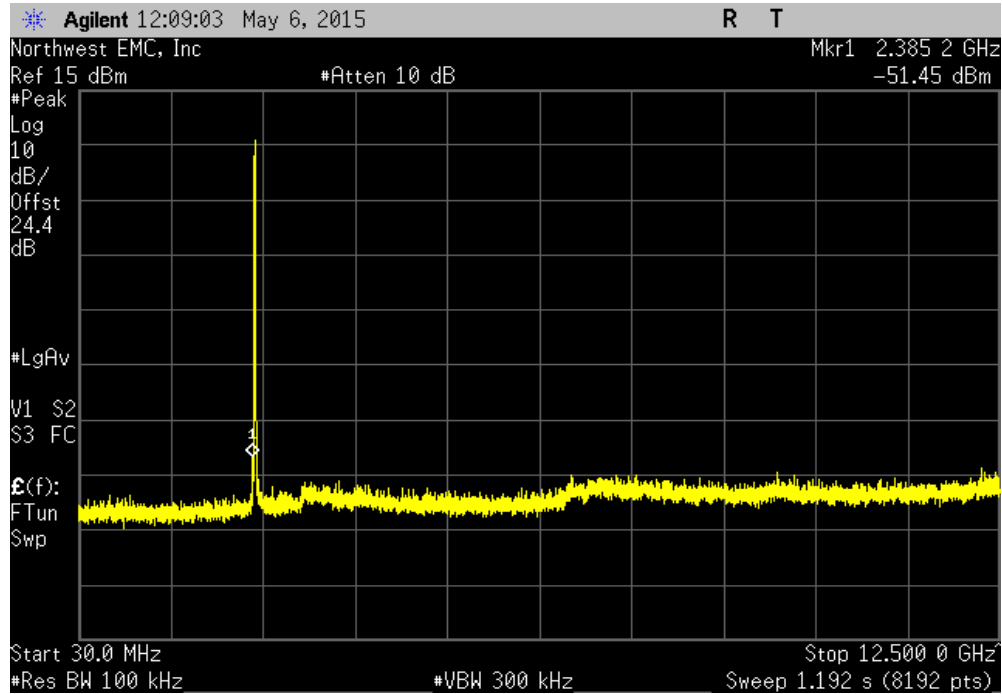


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

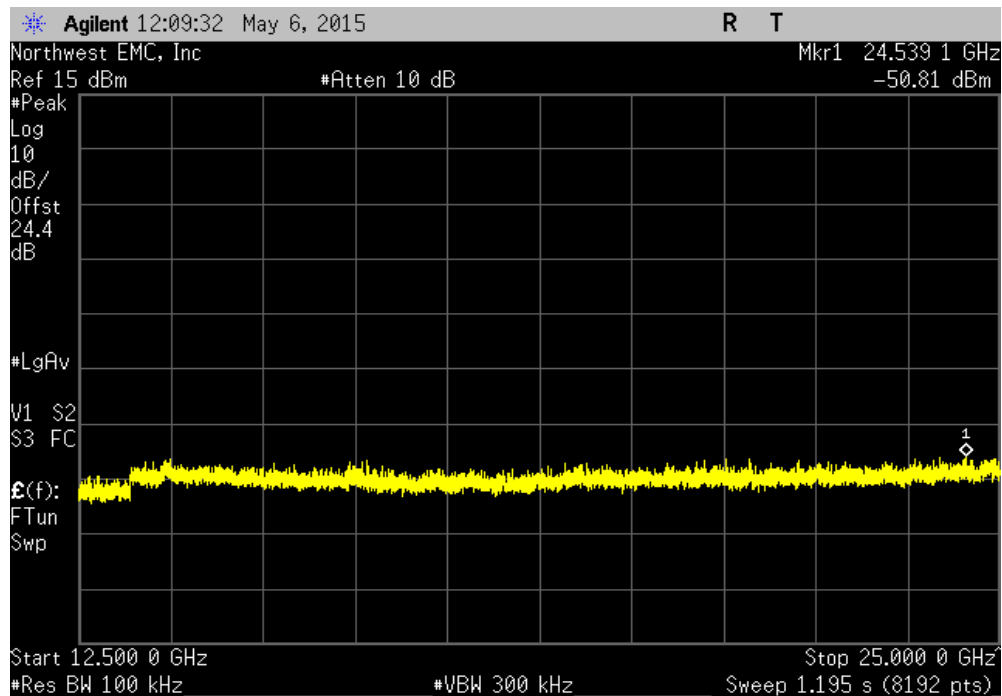


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-57.95	-20	Pass	

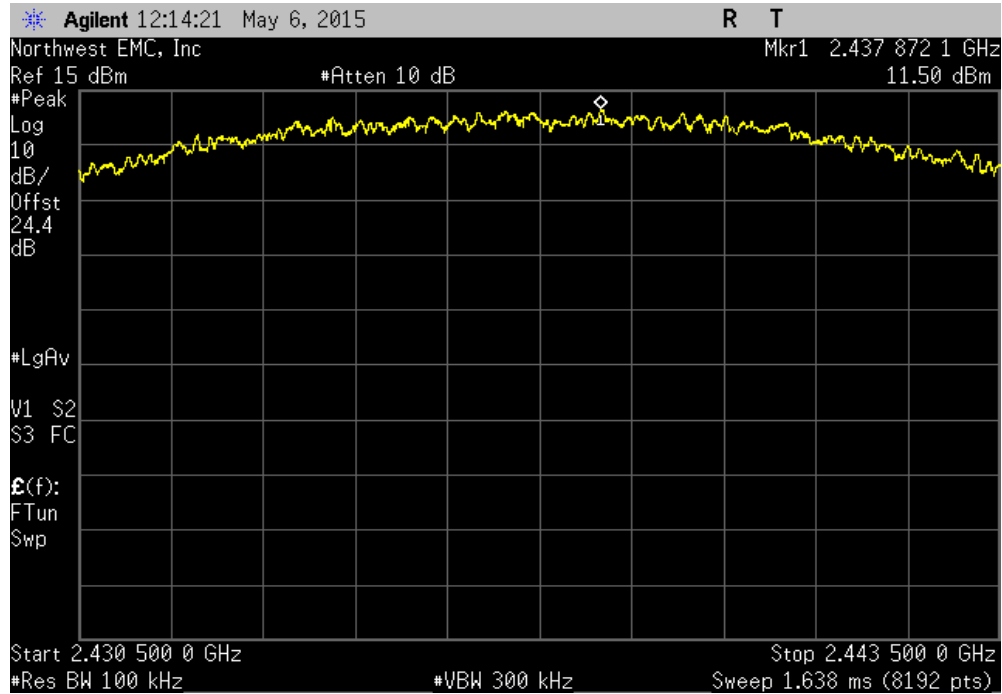


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.31	-20	Pass	

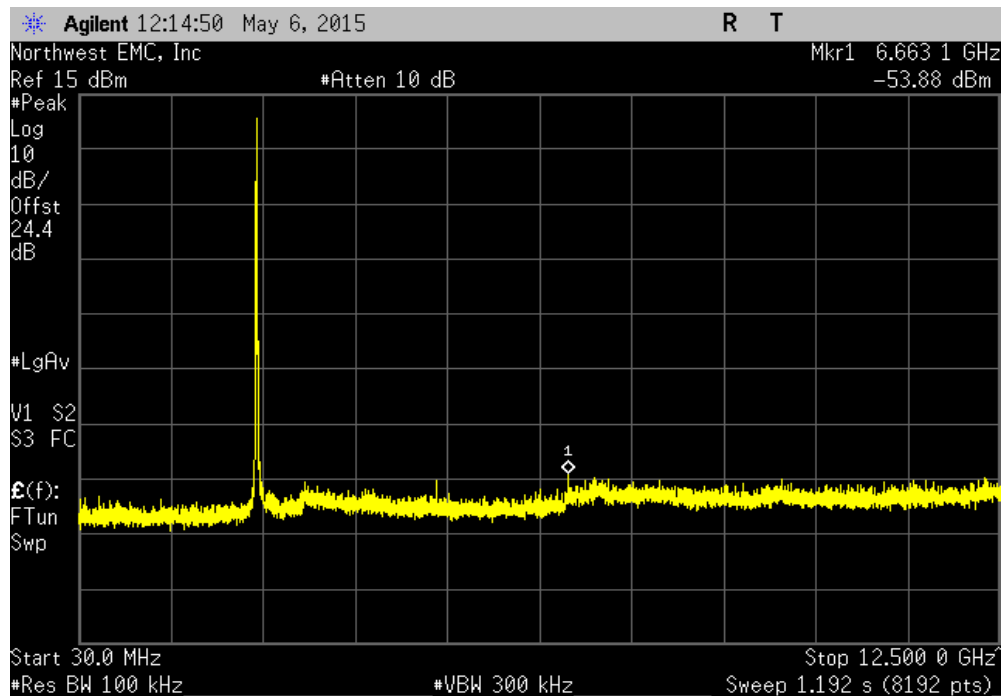


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

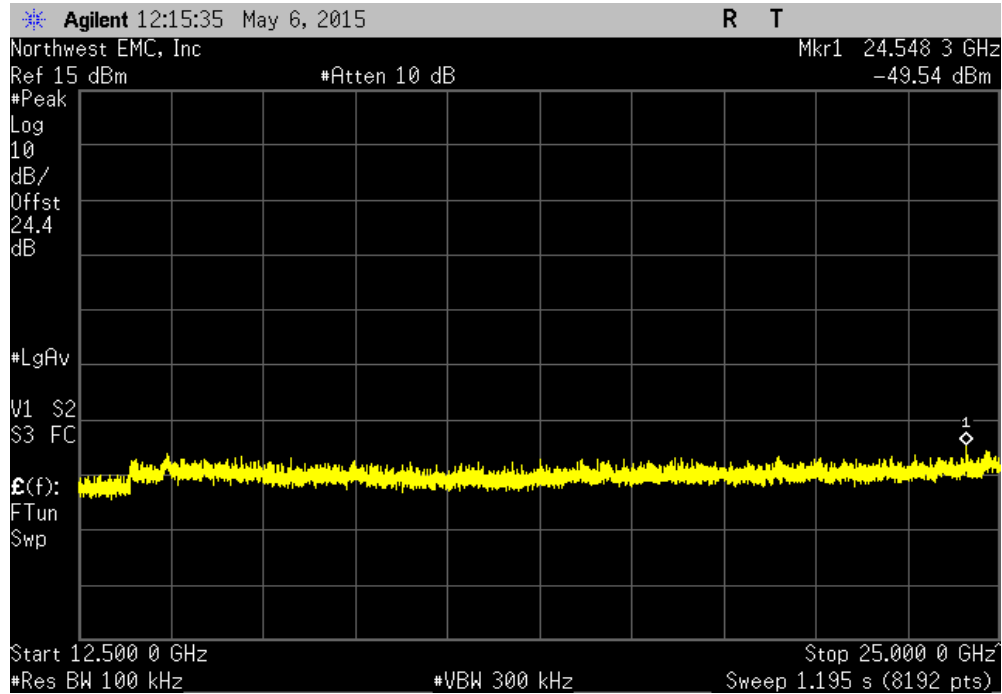


ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-65.38	-20	Pass		

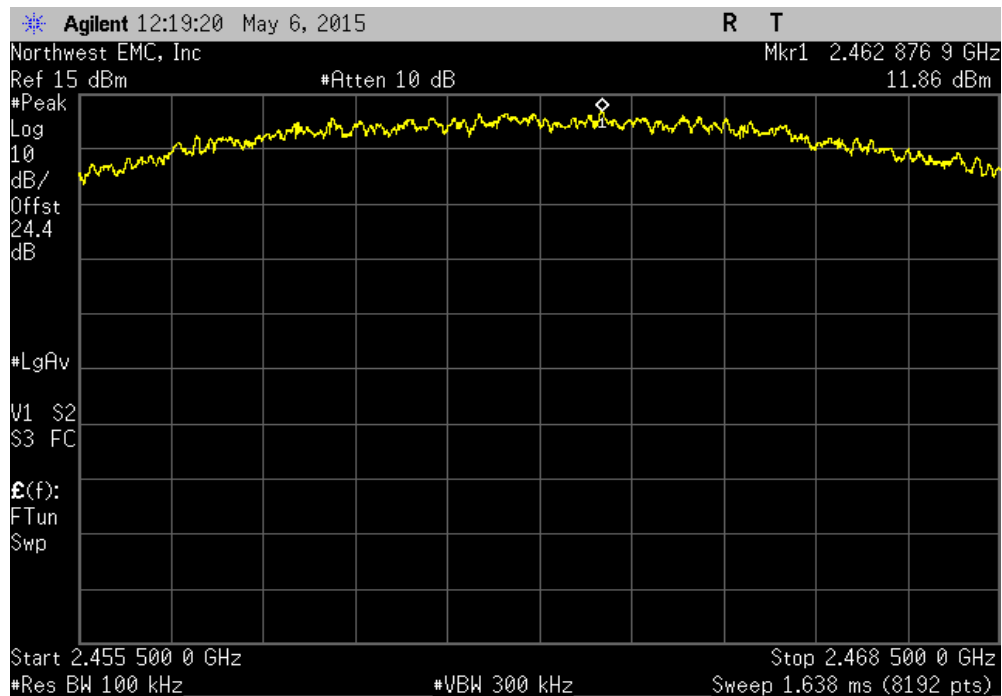


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-61.04	-20	Pass	

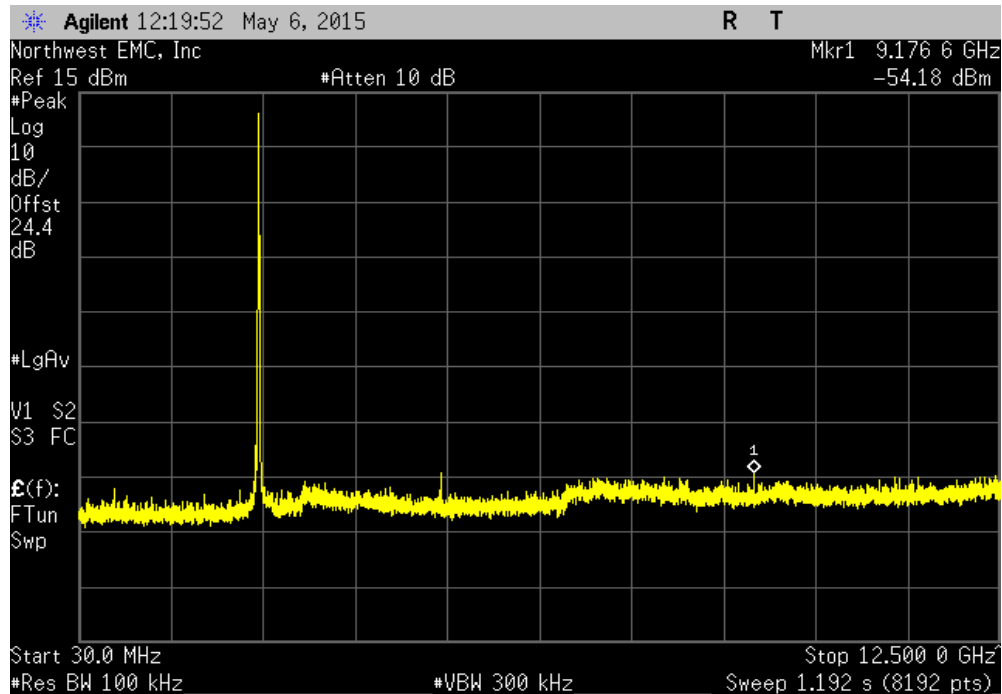


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

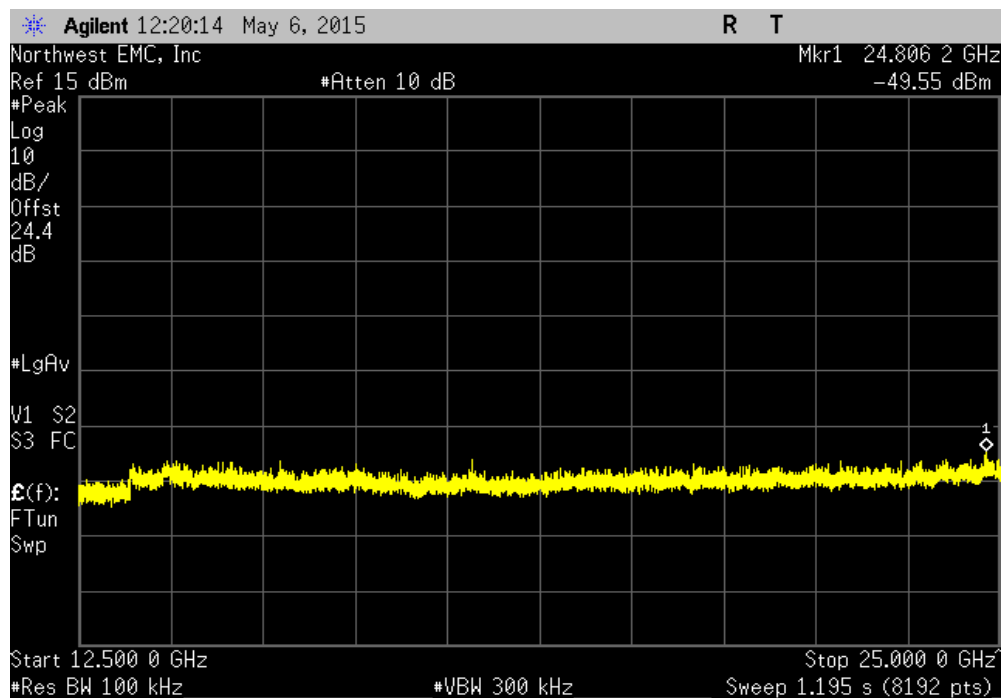


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-66.04	-20	Pass	

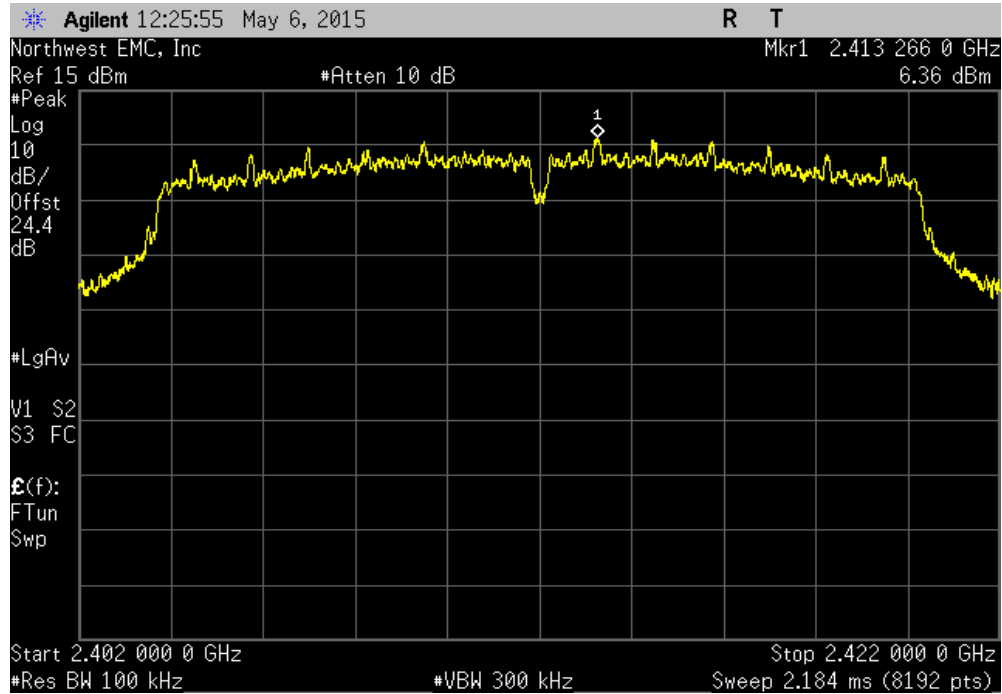


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-61.41	-20	Pass	

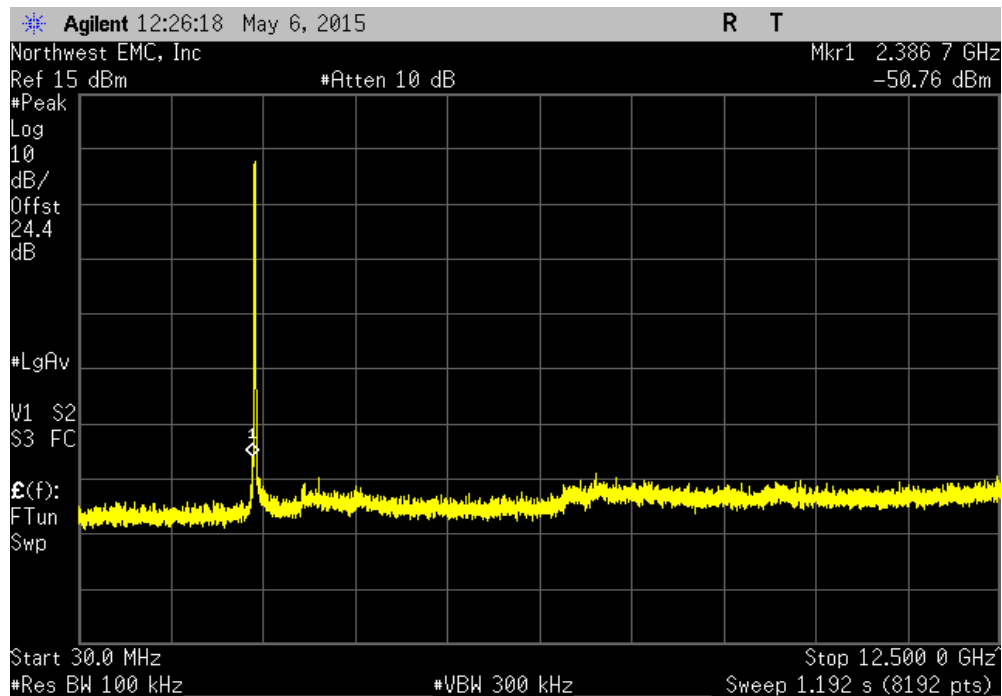


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

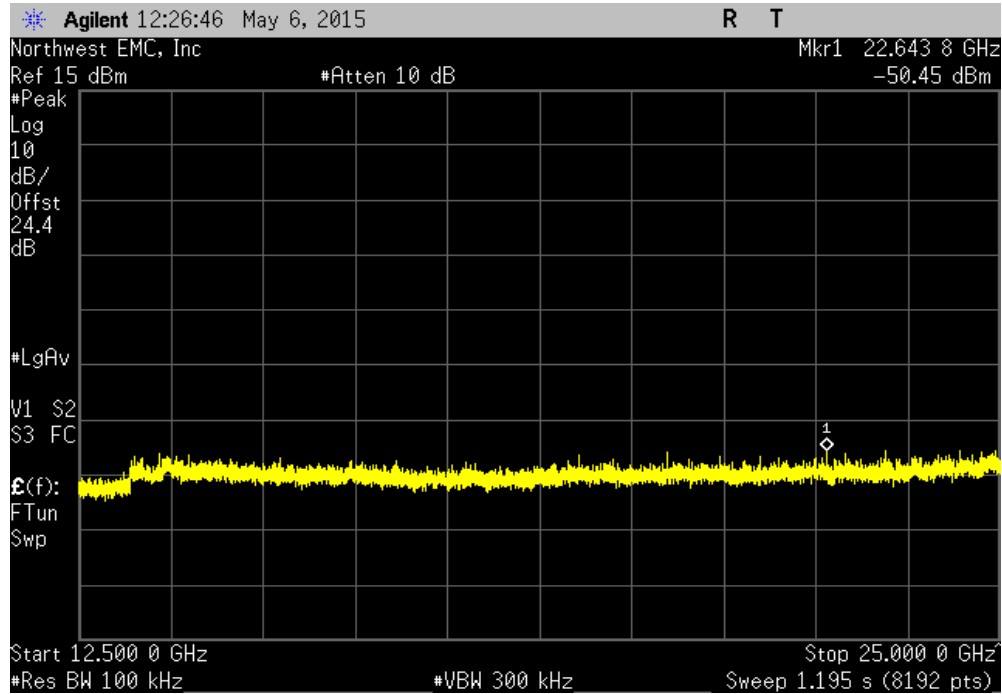


ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-57.12	-20	Pass		

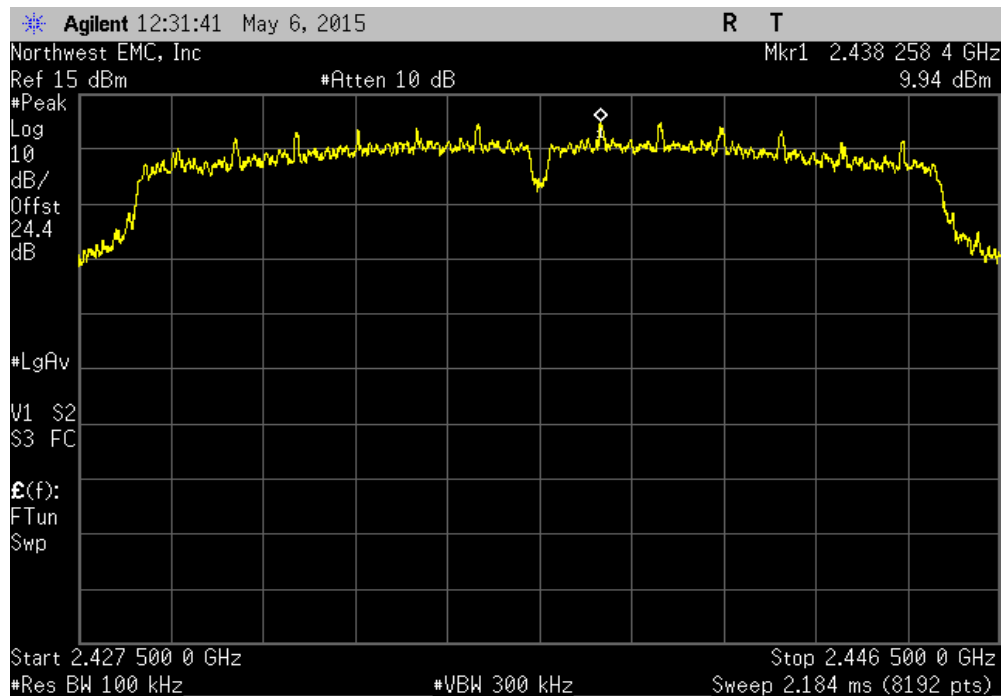


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.81	-20	Pass	



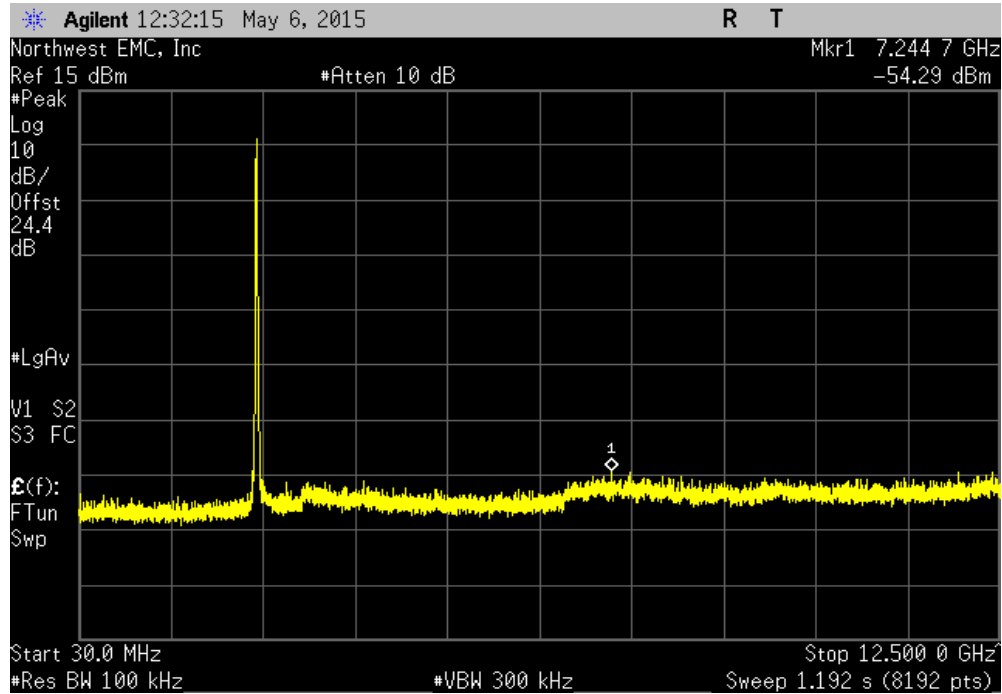
ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	



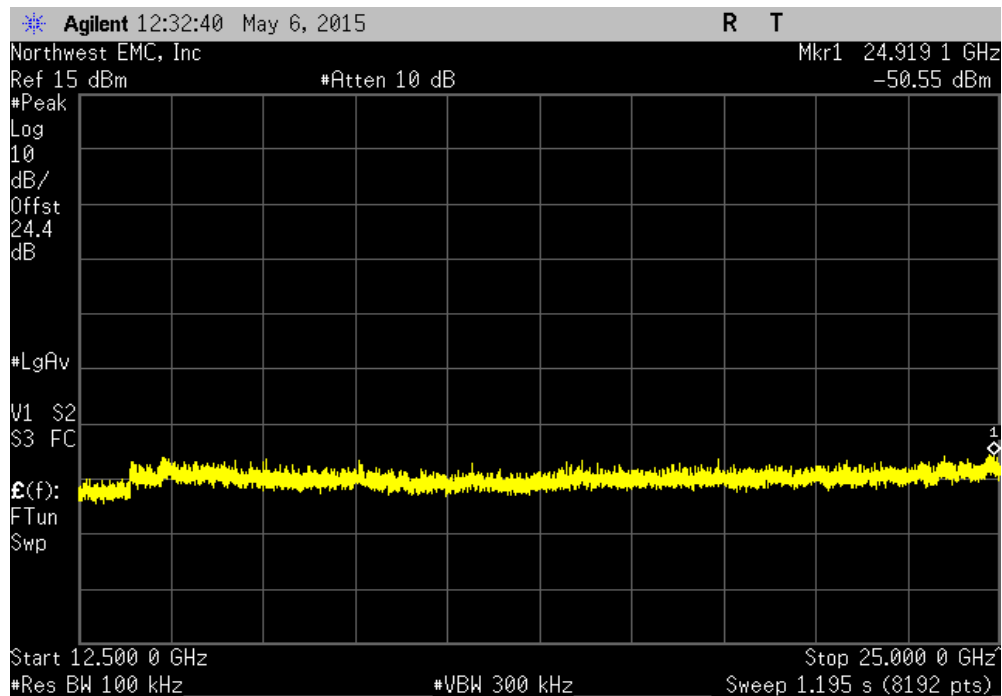


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-64.23	-20	Pass	

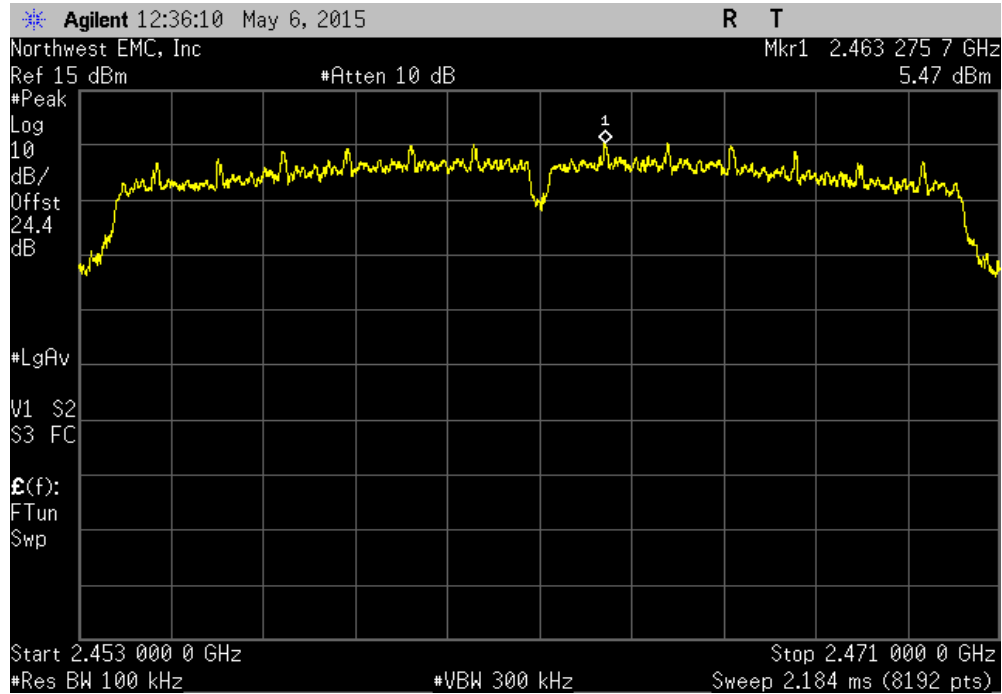


ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-60.49	-20	Pass	

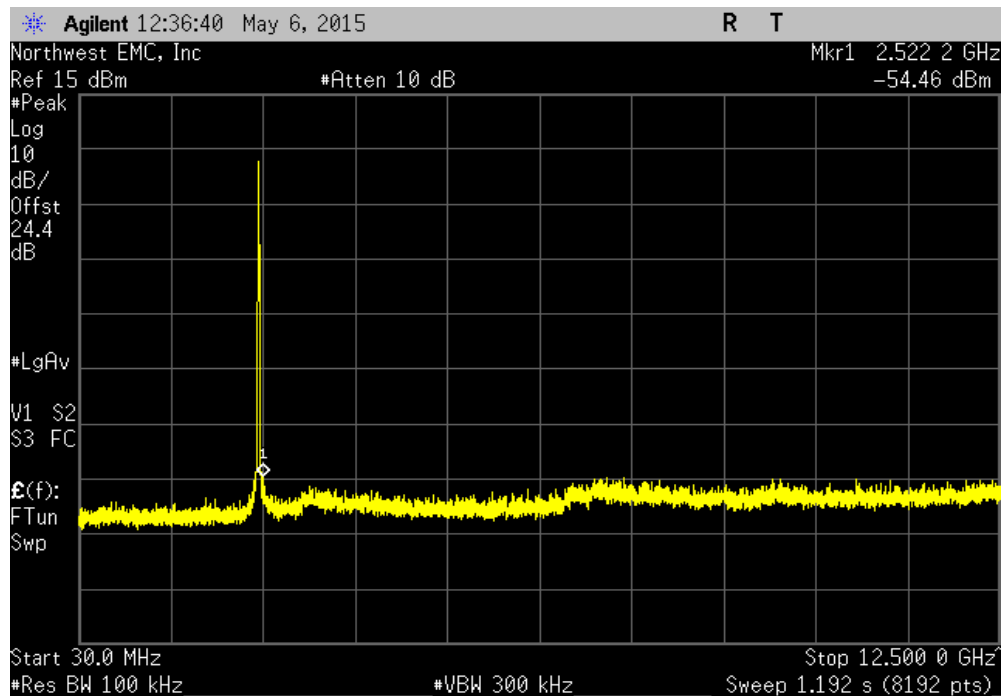


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

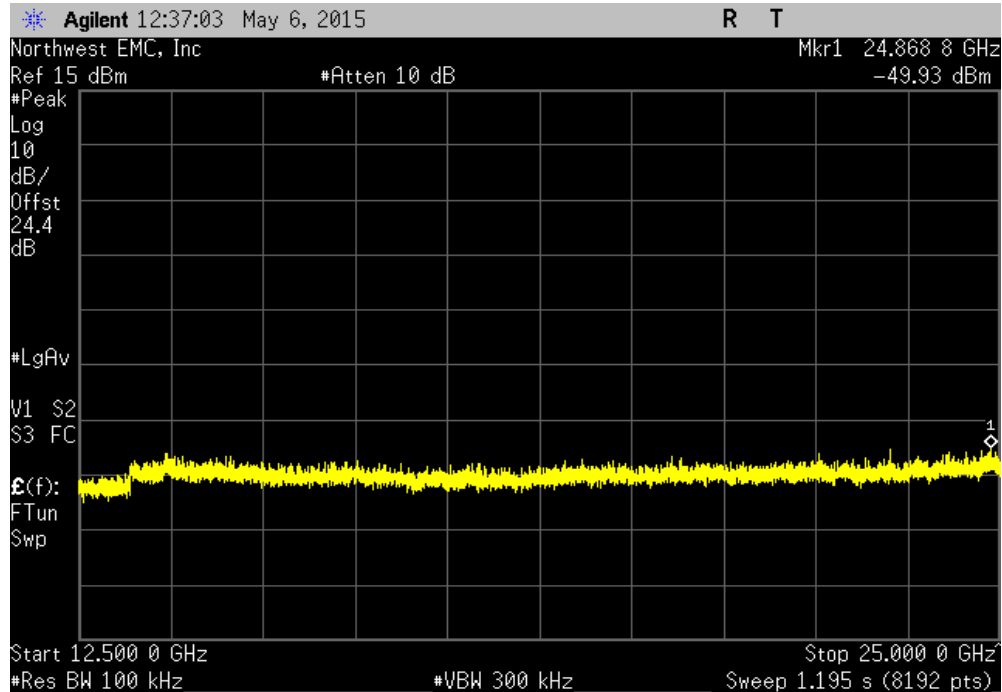


ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-59.93	-20	Pass		

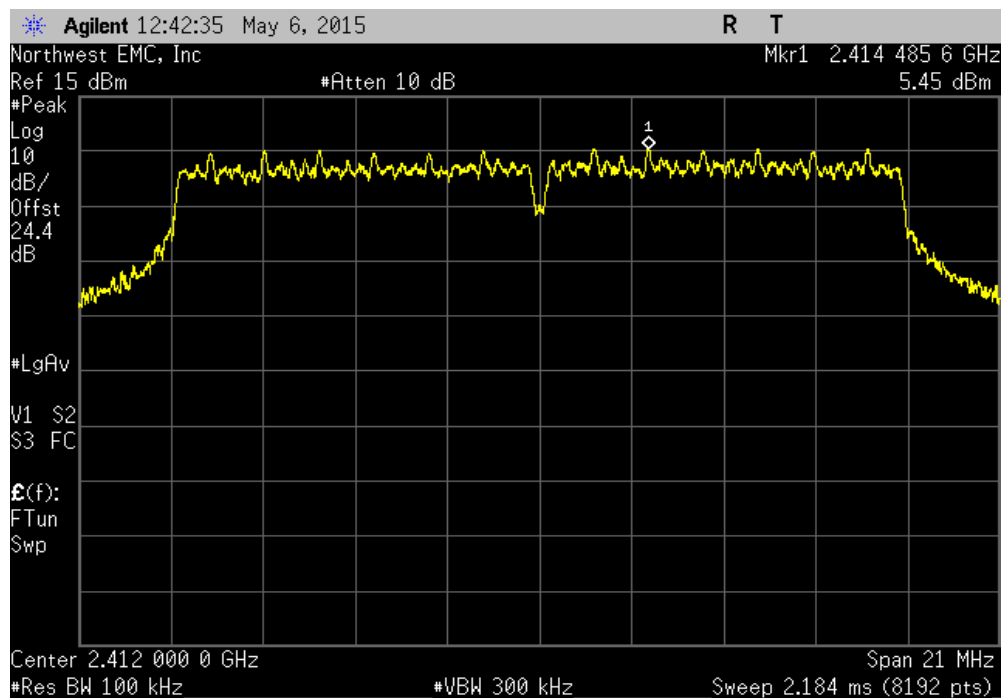


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz		-55.4	-20	Pass	

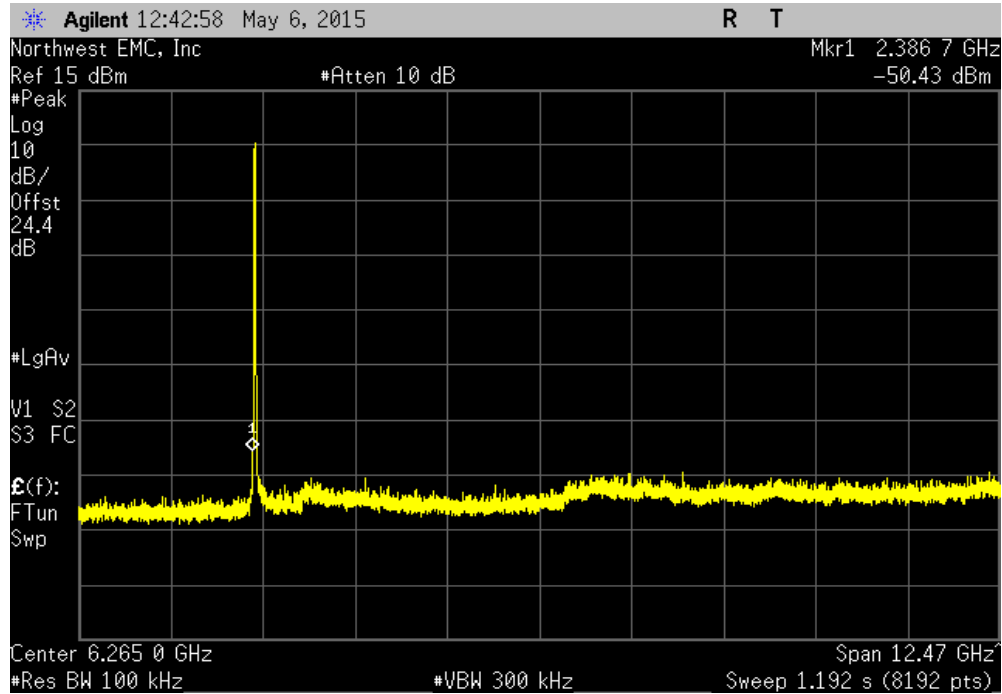


ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental		N/A	N/A	N/A	

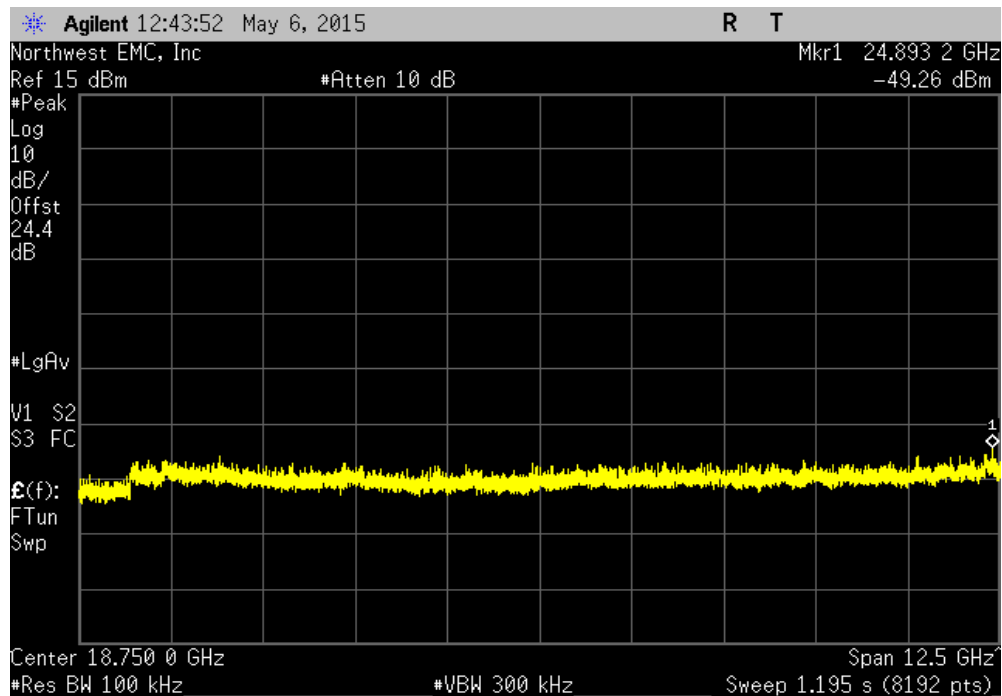


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-55.88	-20	Pass	

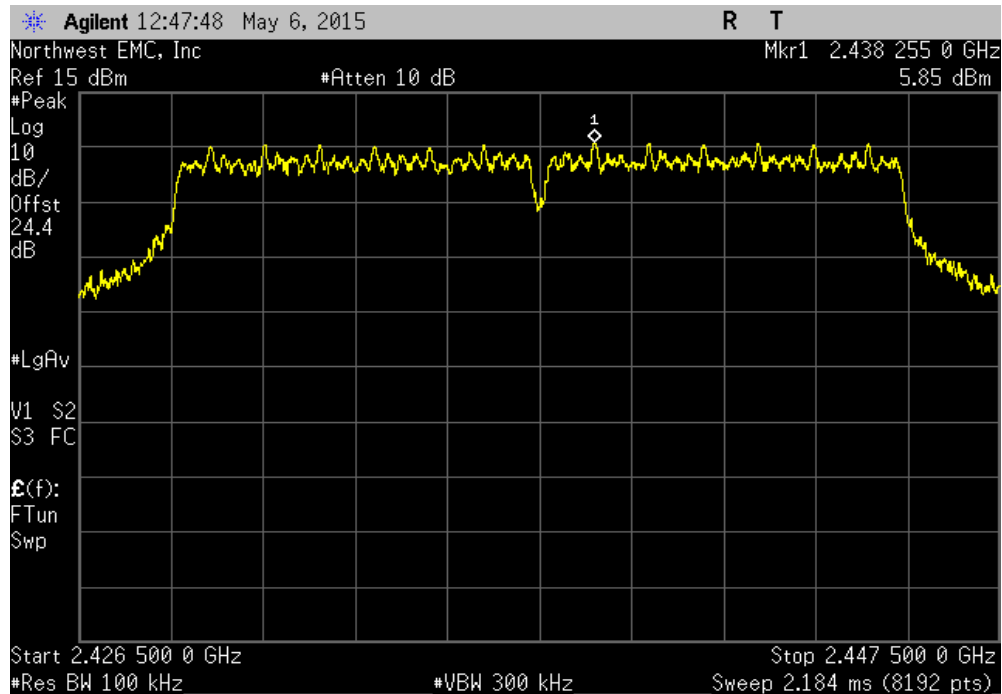


ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-54.71	-20	Pass	

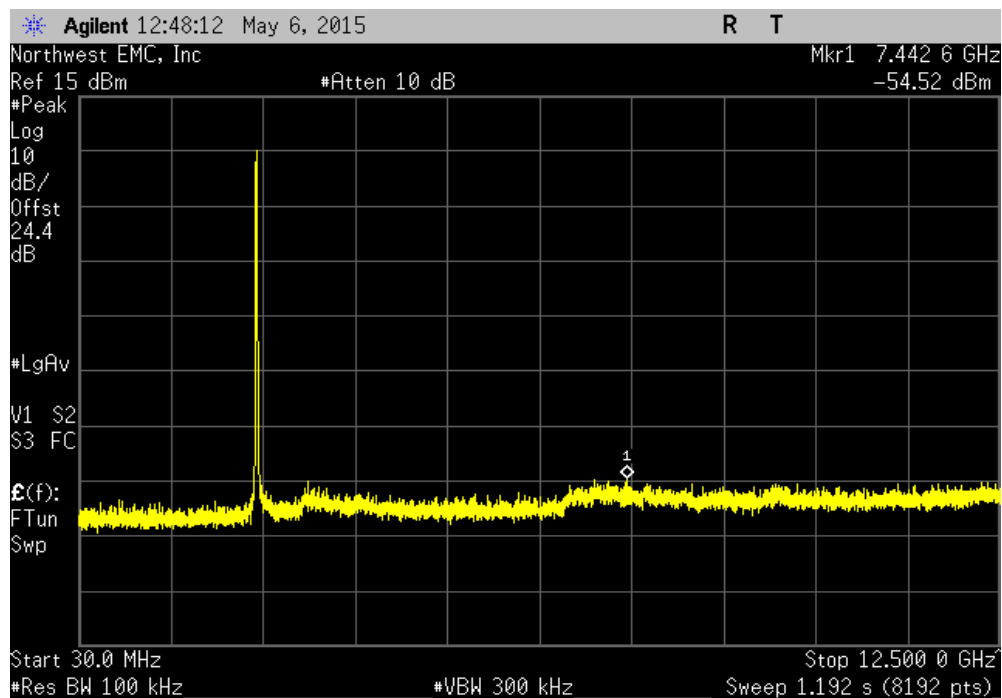


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

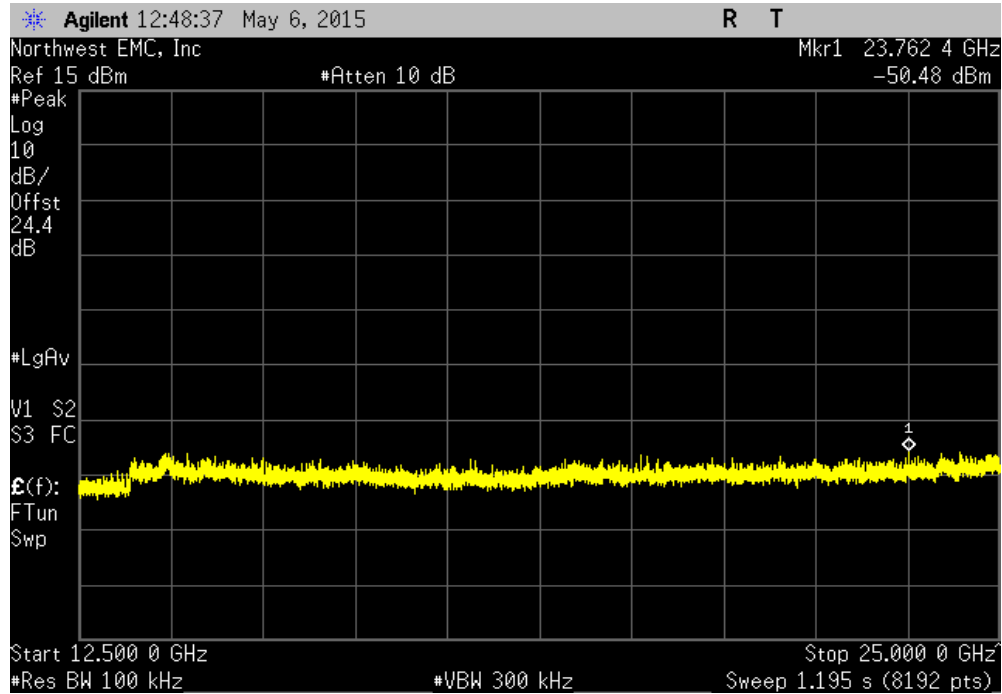


ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-60.37	-20	Pass		

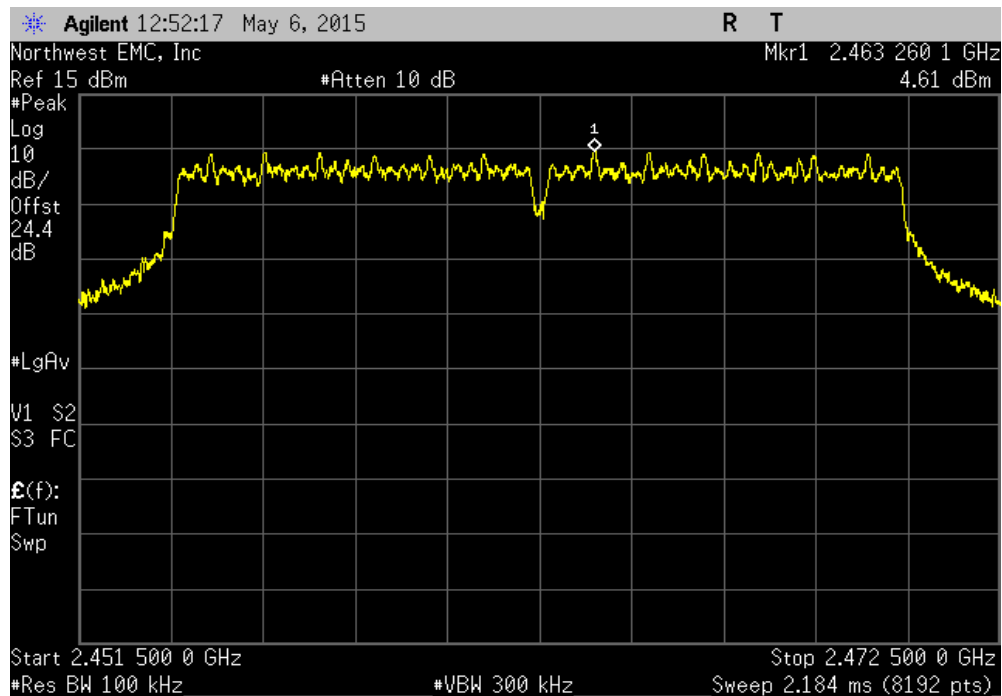


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.33	-20	Pass	

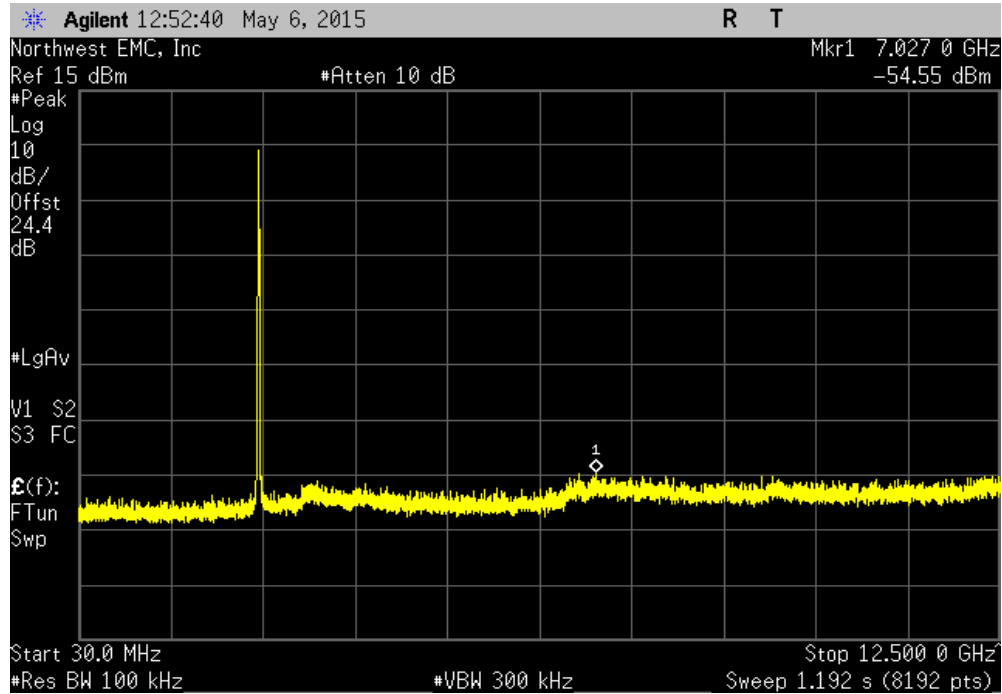


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

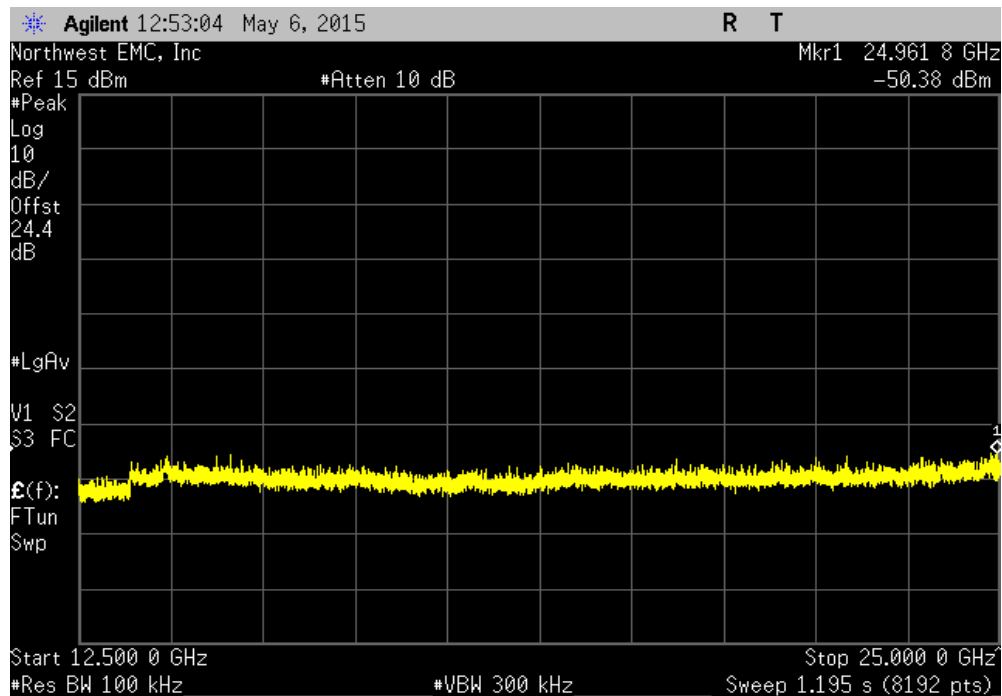


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-59.16	-20	Pass	

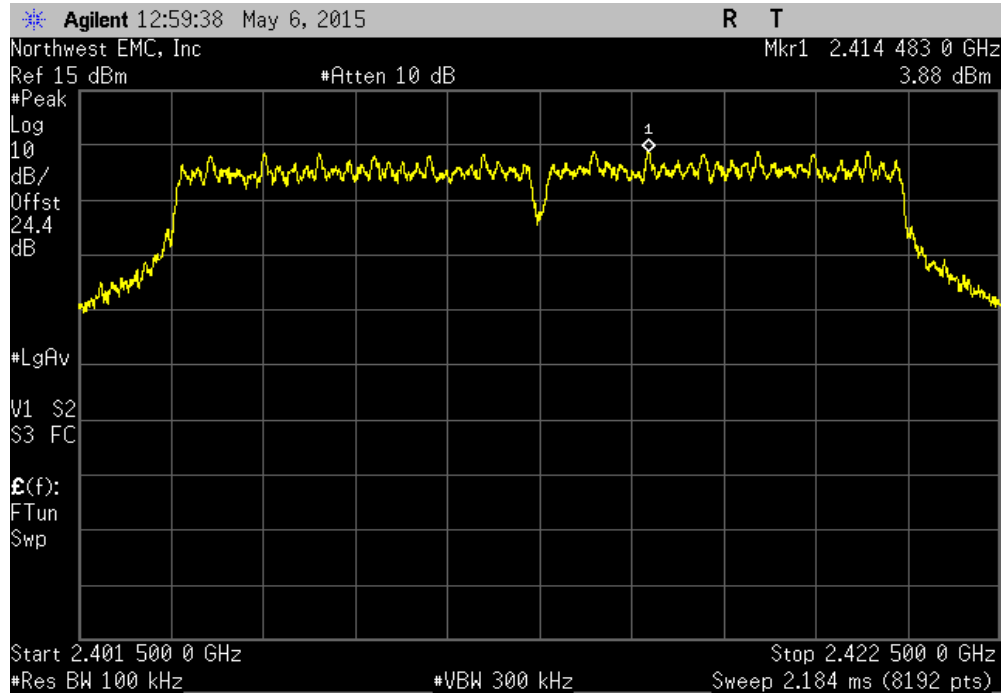


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-54.99	-20	Pass	

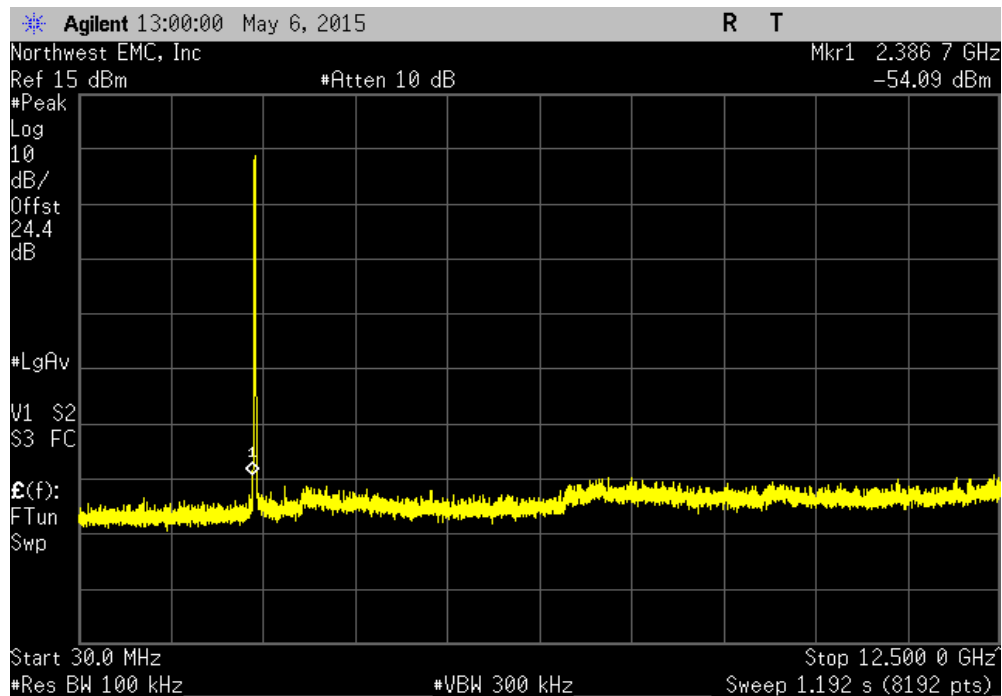


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		



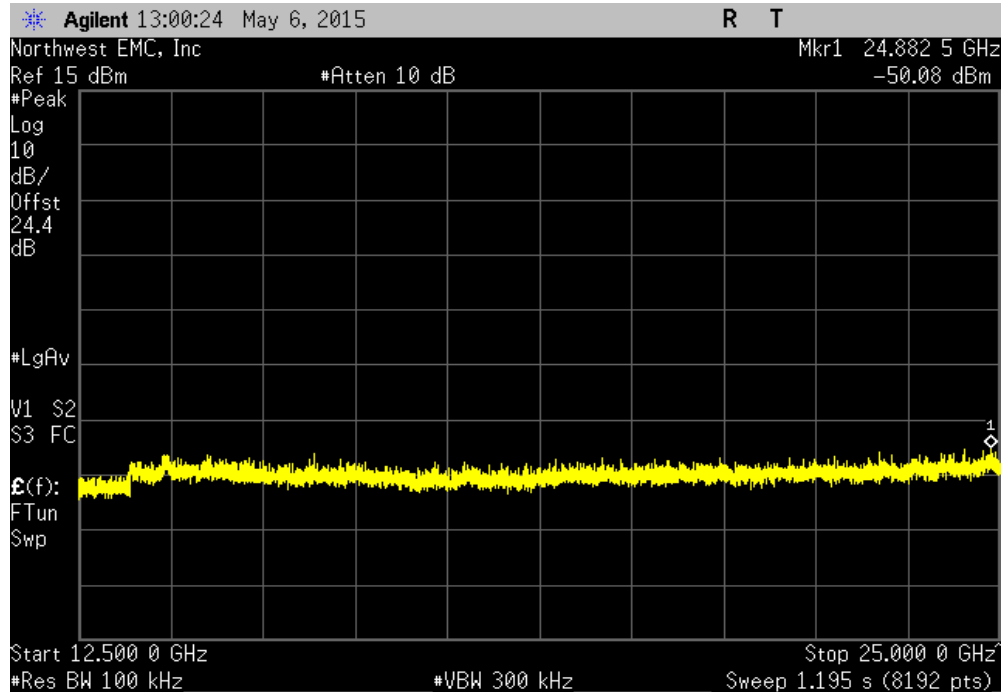
ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-57.97	-20	Pass		



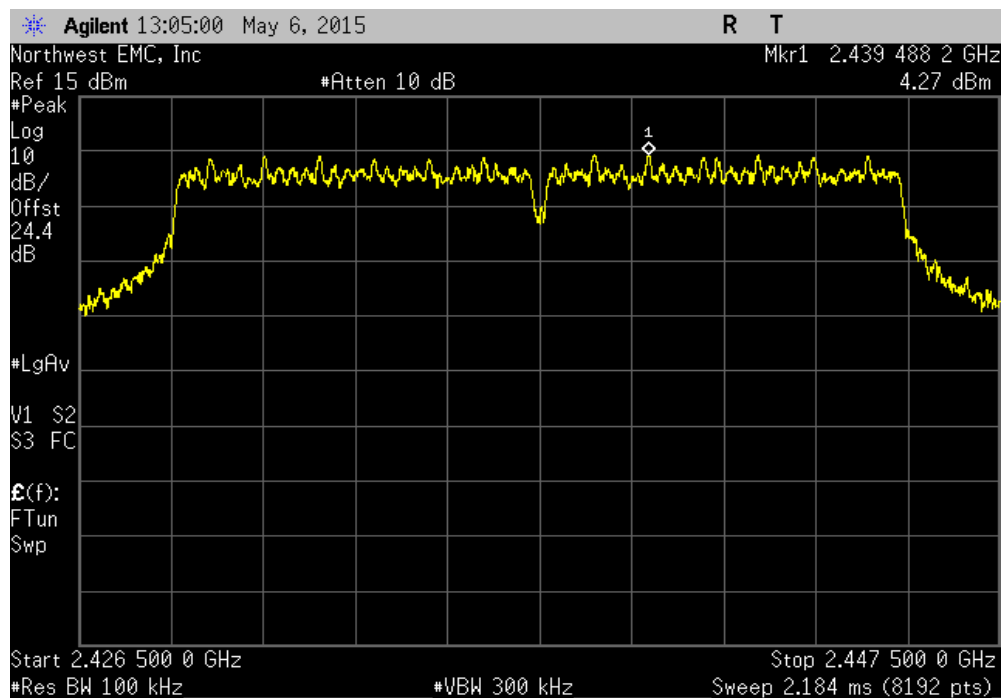


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-53.96	-20	Pass	

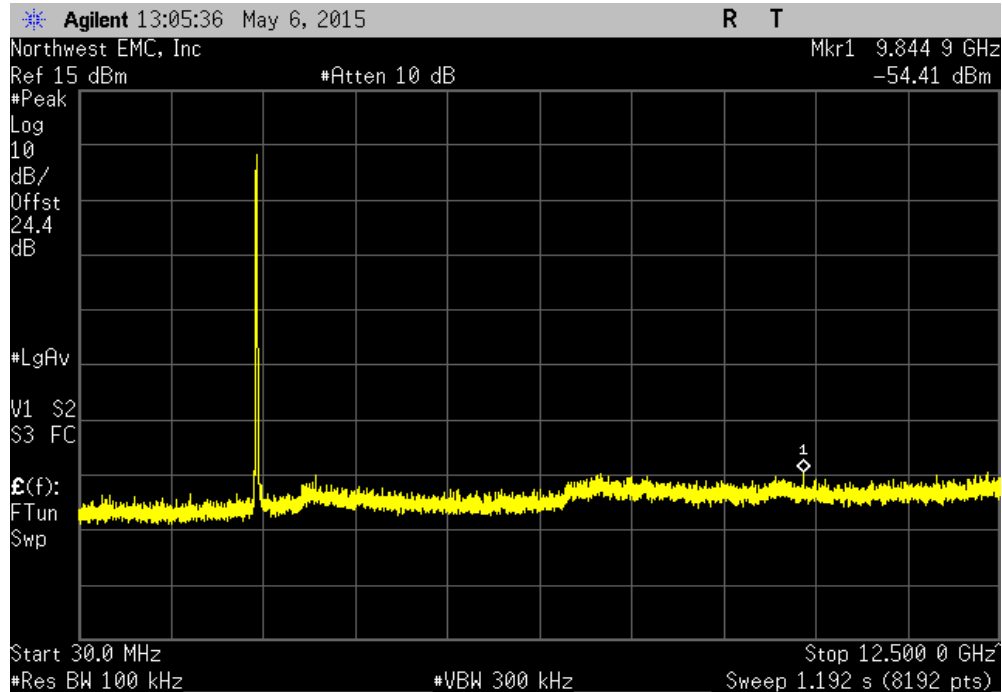


ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

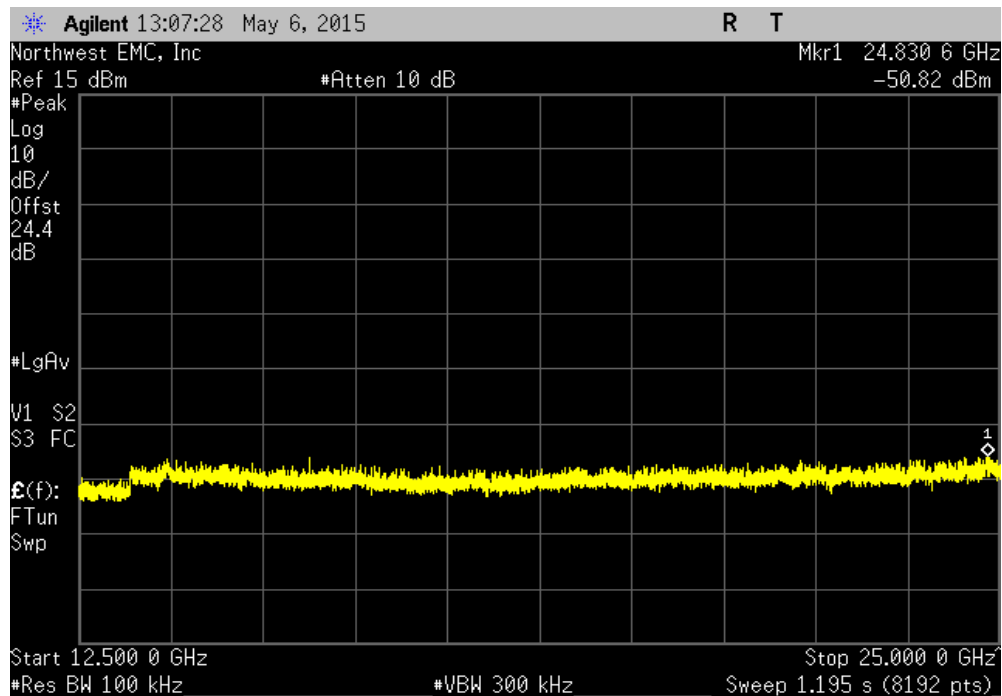


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-58.68	-20	Pass	

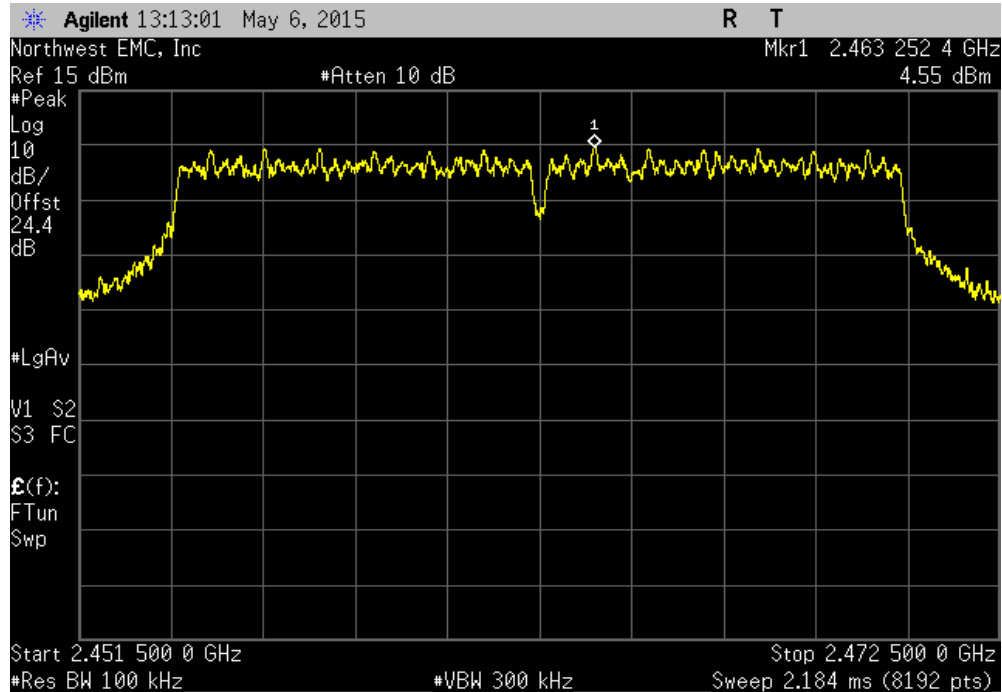


ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55.09	-20	Pass	

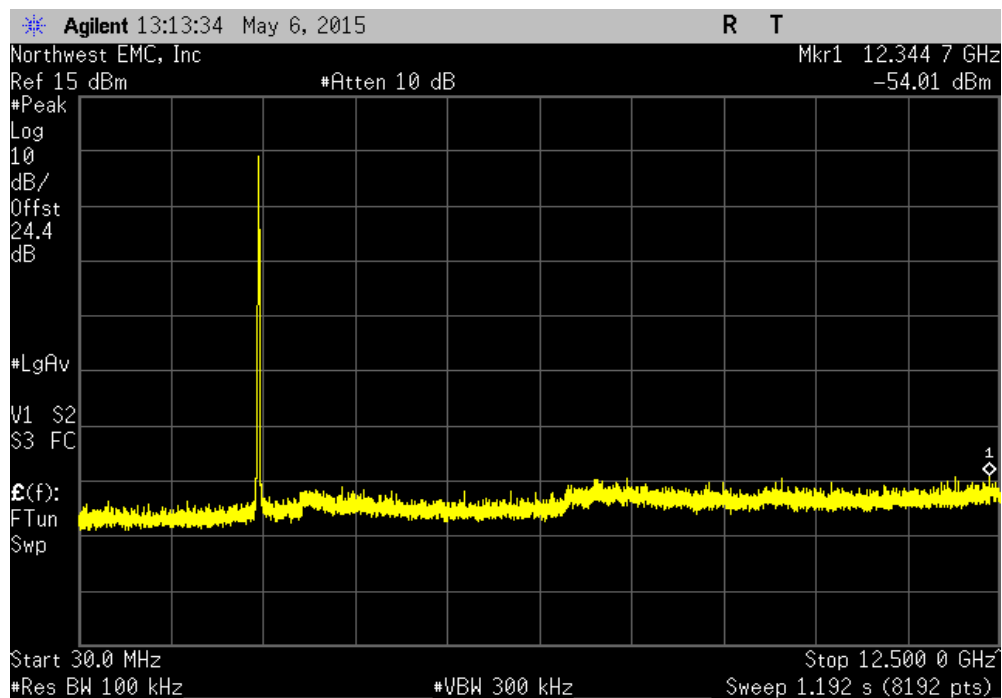


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

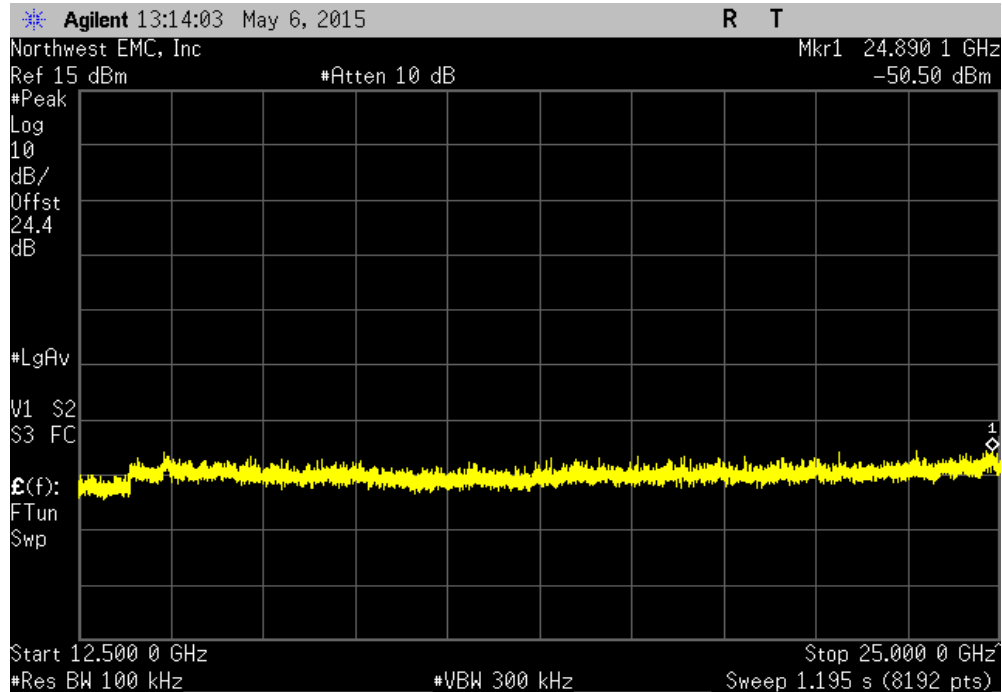


ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-58.56	-20	Pass		

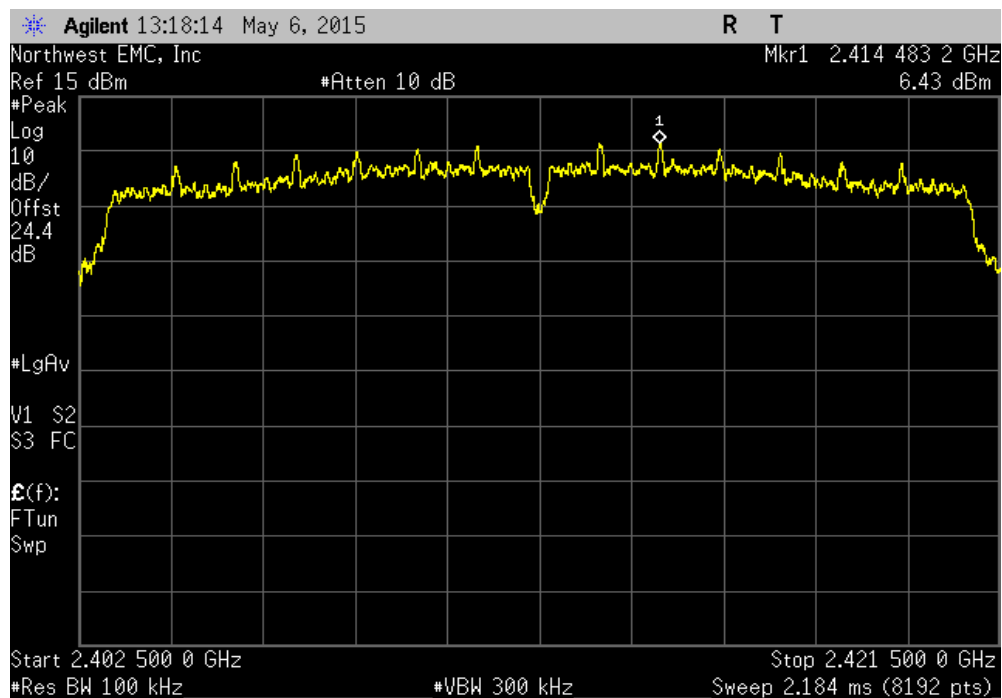


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55.05	-20	Pass	

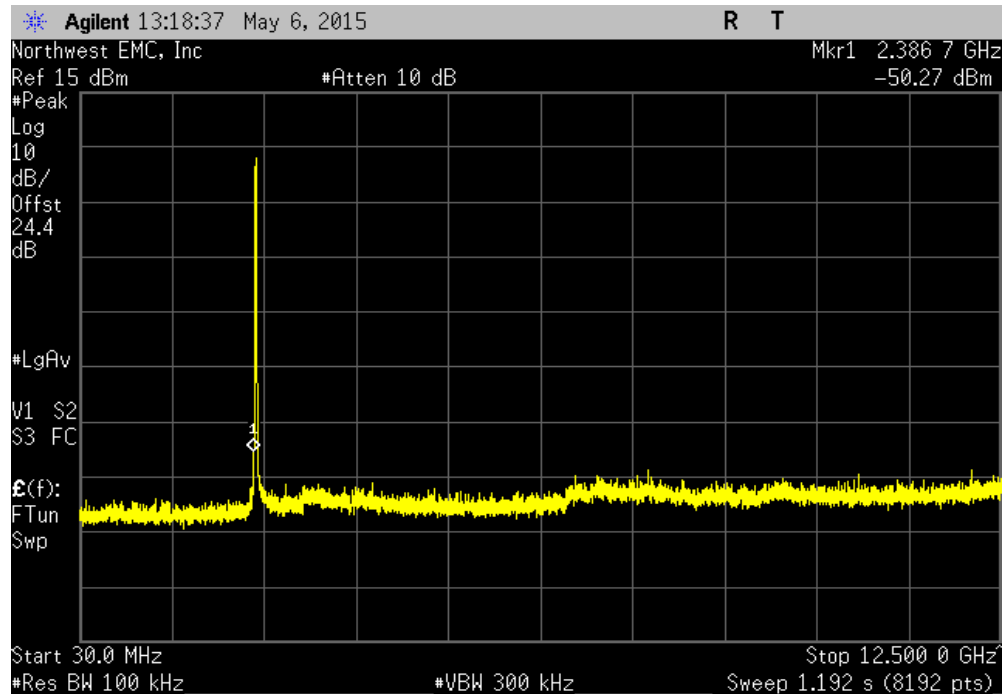


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

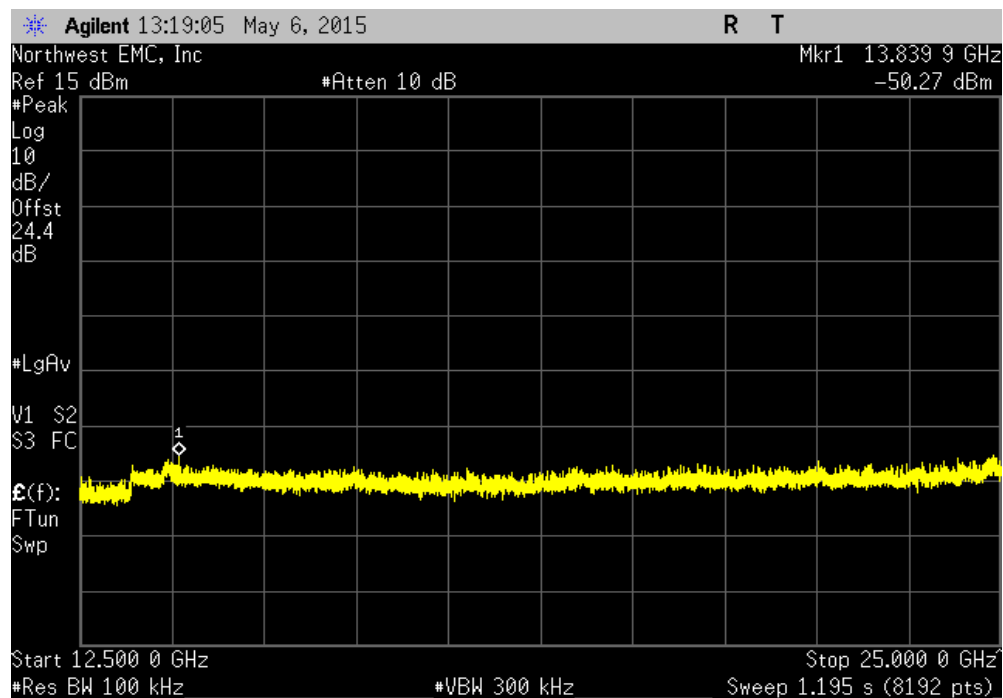


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-56.7	-20	Pass	

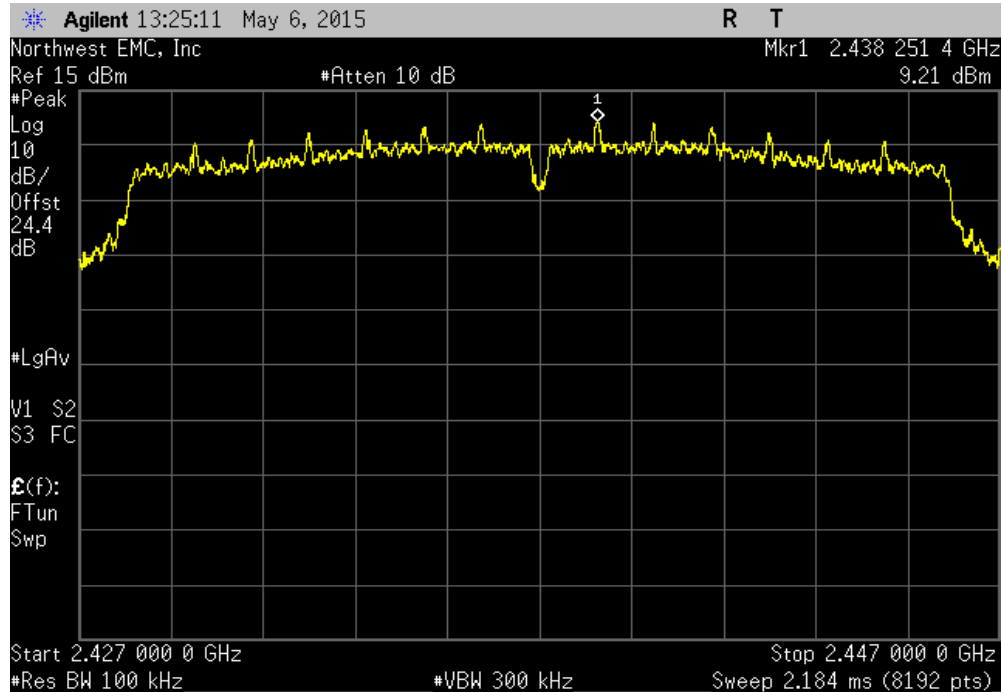


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.7	-20	Pass	

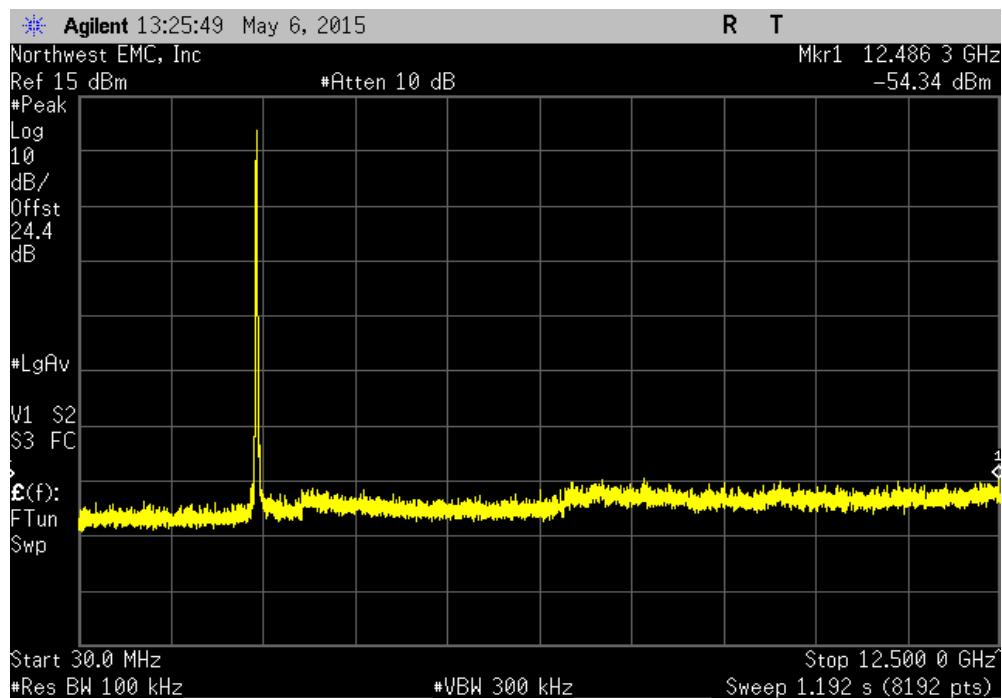


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

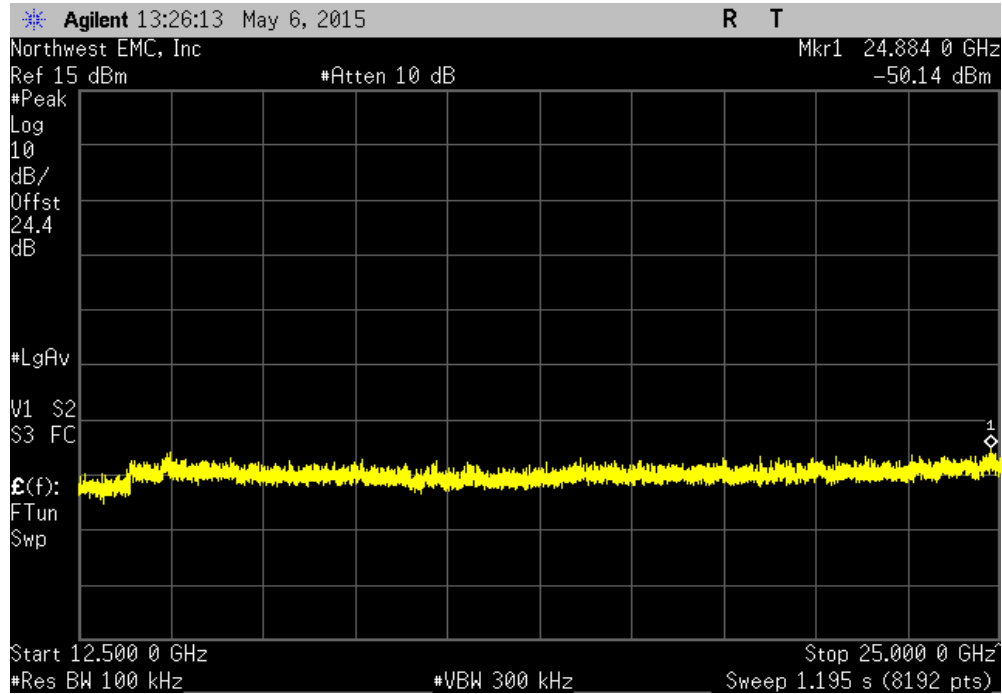


ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-63.55	-20	Pass		

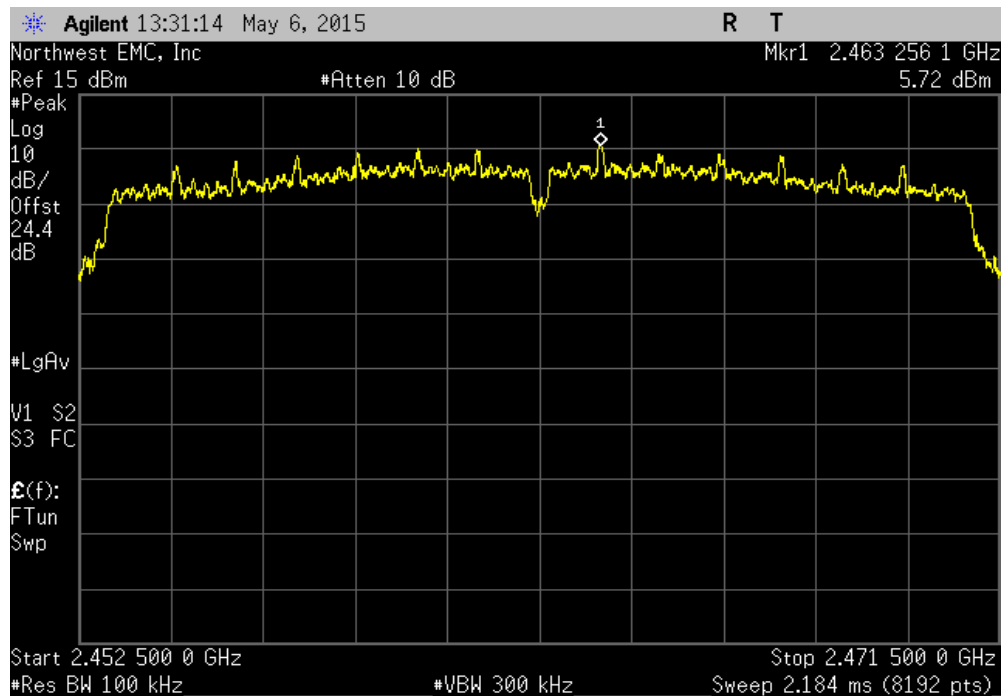


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-59.35	-20	Pass	

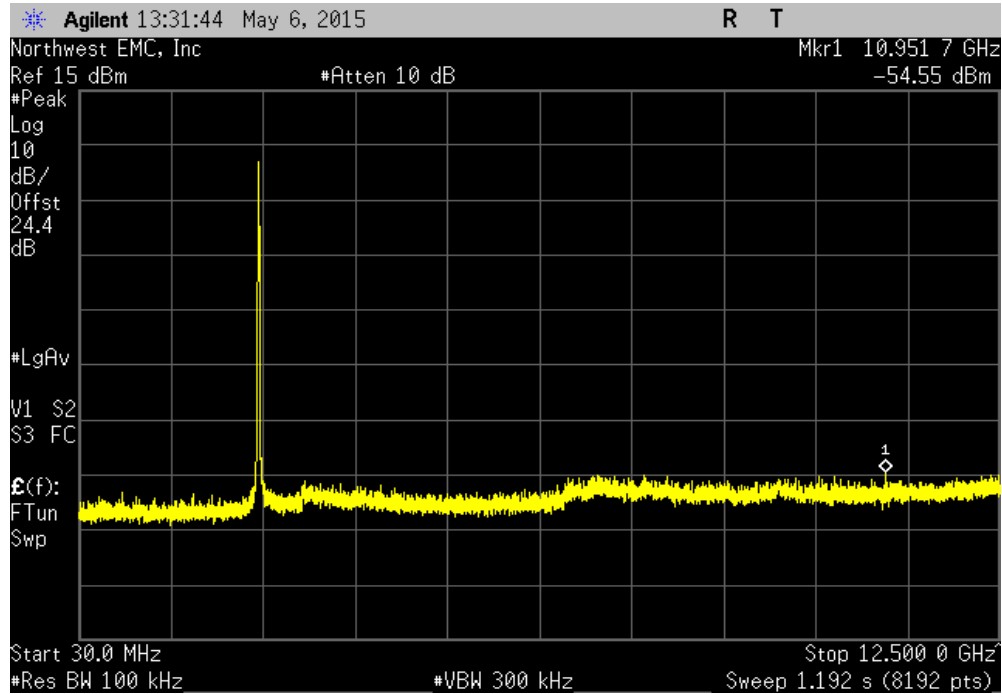


ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

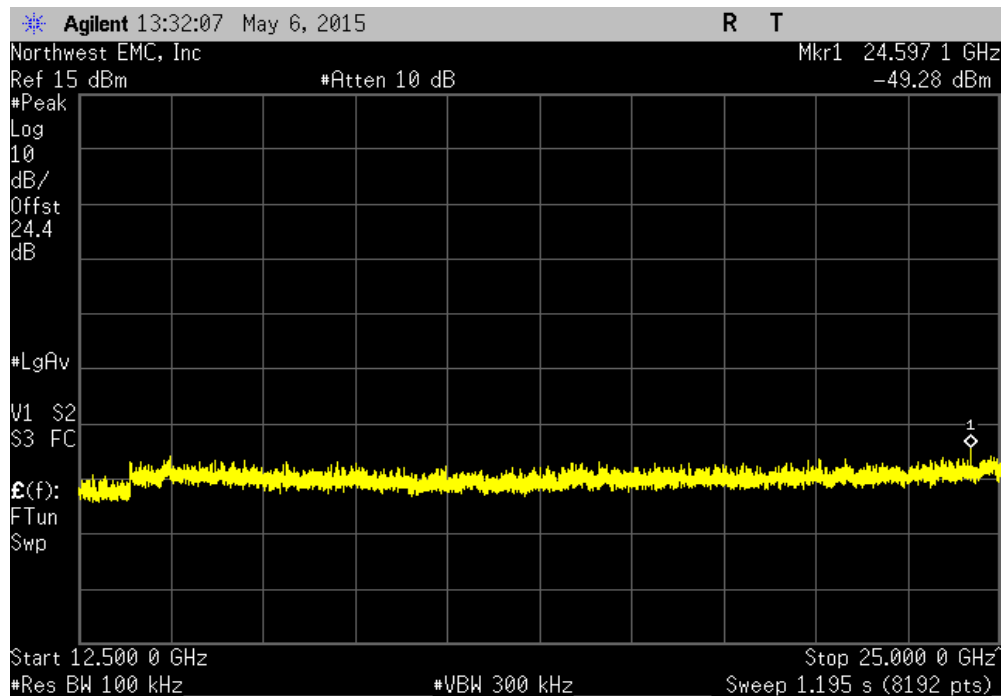


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-60.27	-20	Pass	



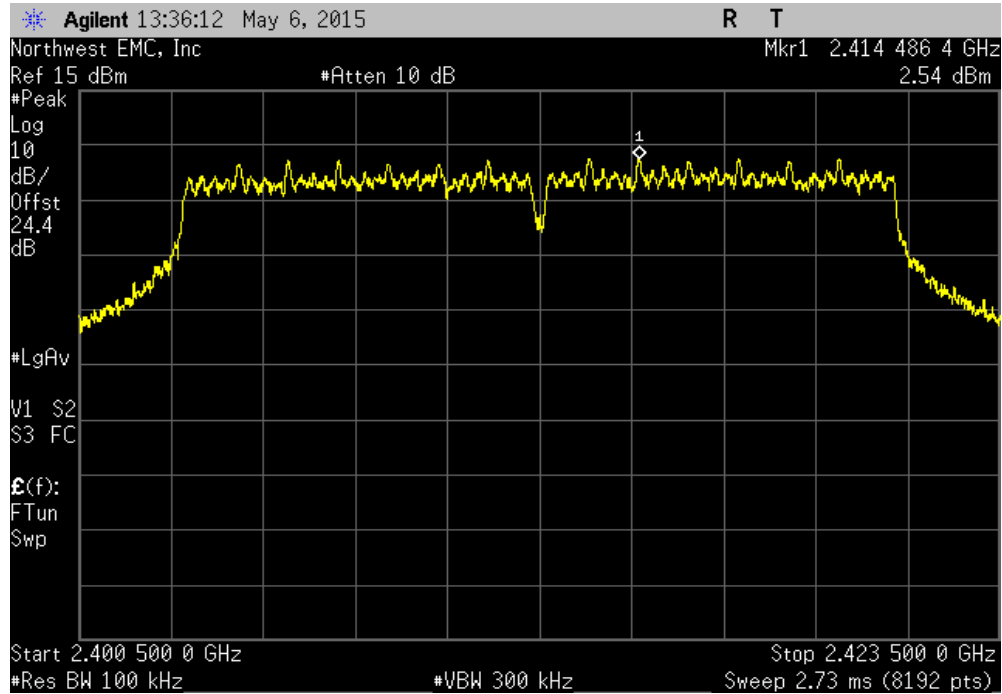
ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55	-20	Pass	



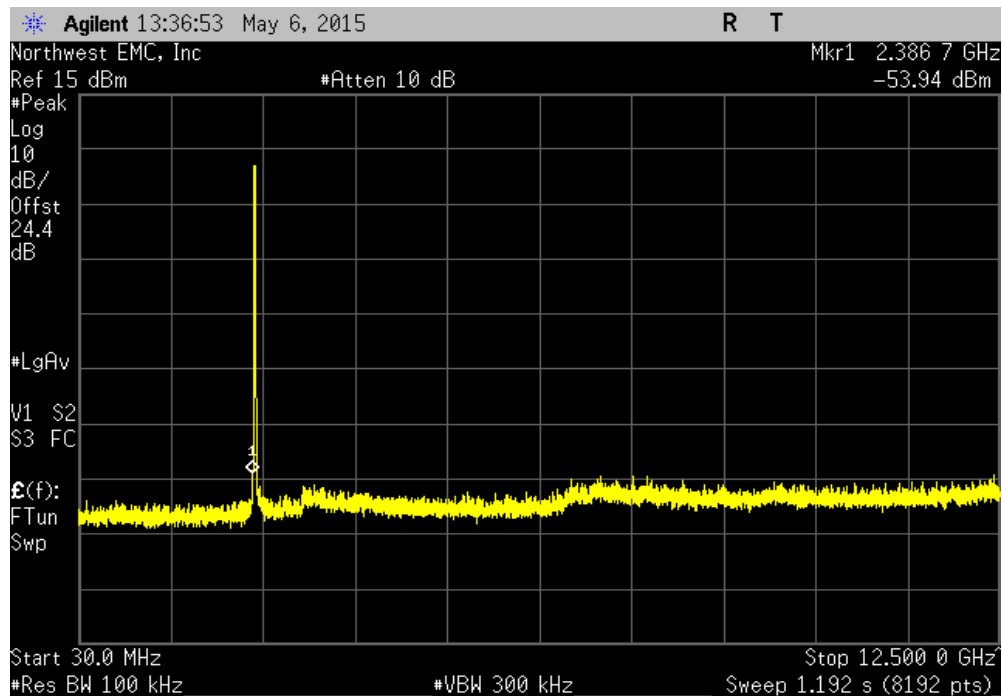


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

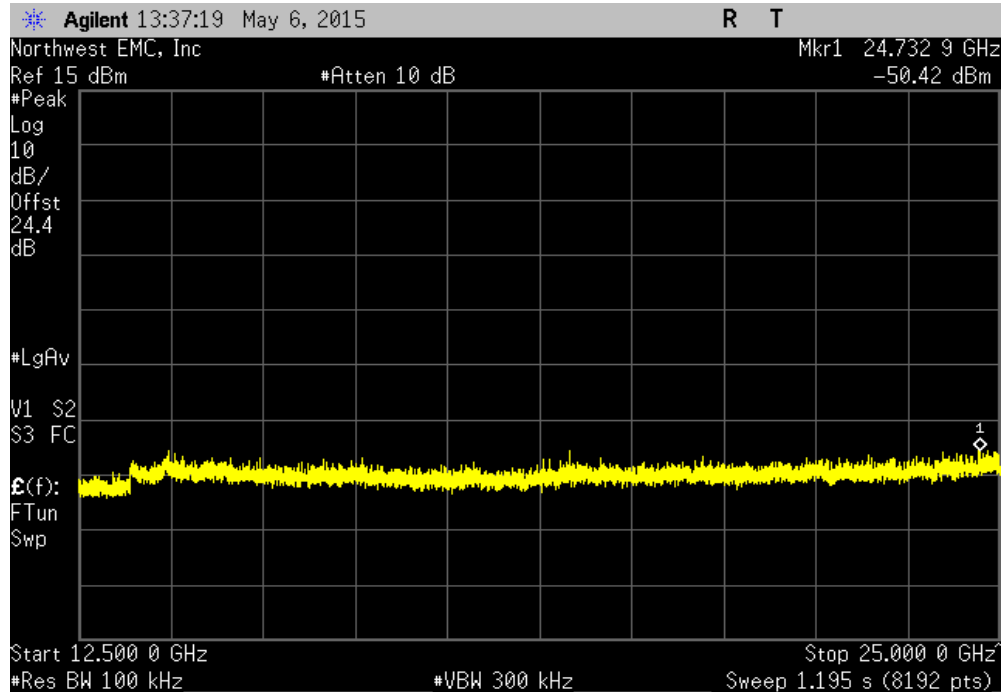


ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-56.48	-20	Pass		

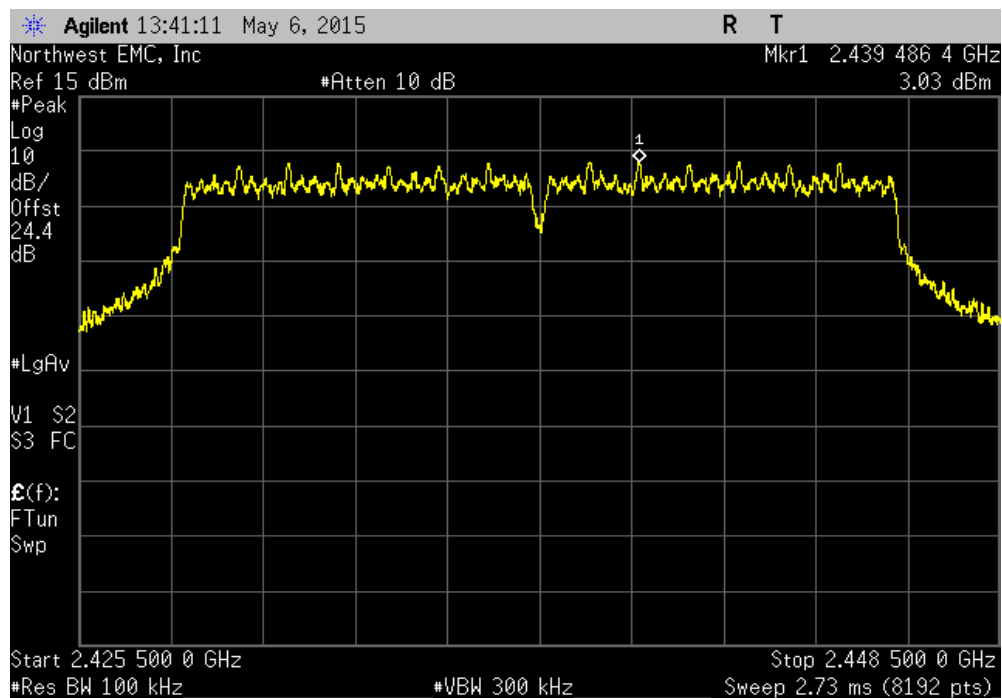


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-52.96	-20	Pass	

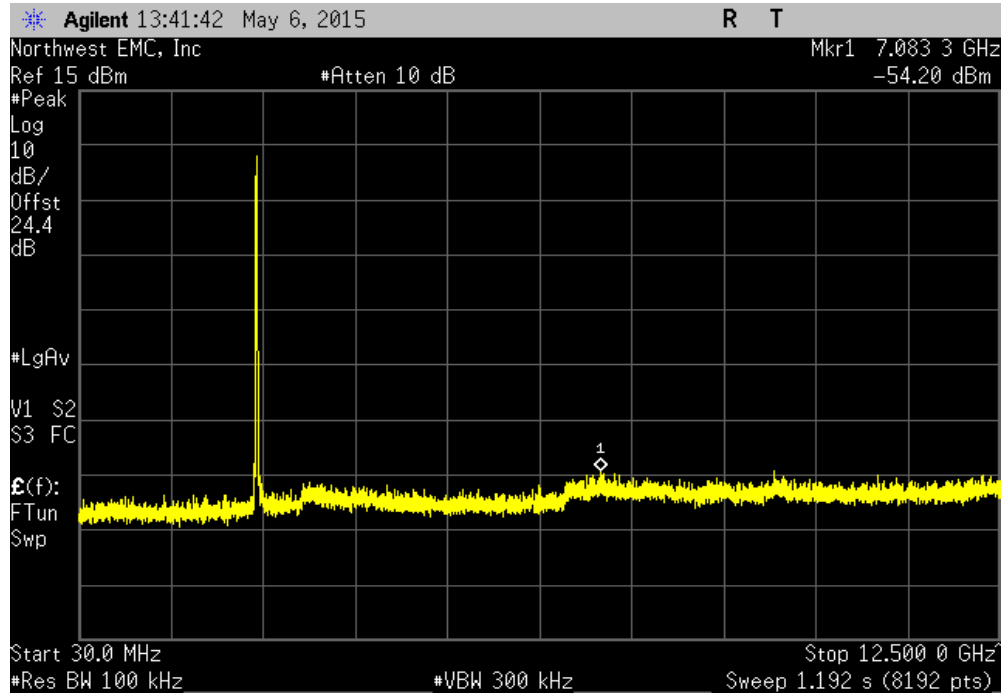


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

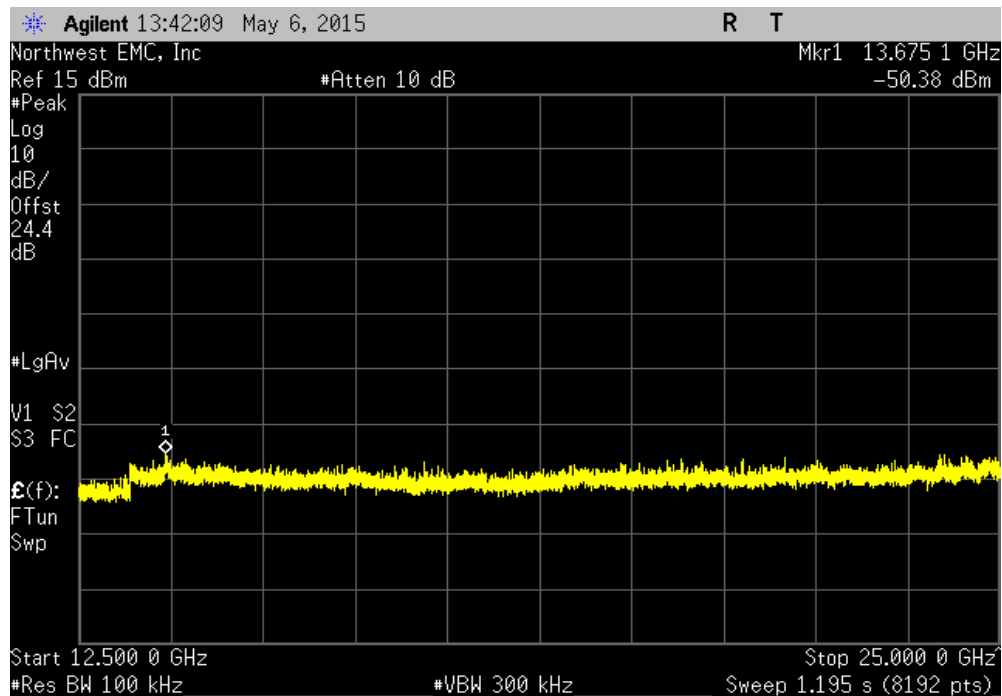


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-57.23	-20	Pass	

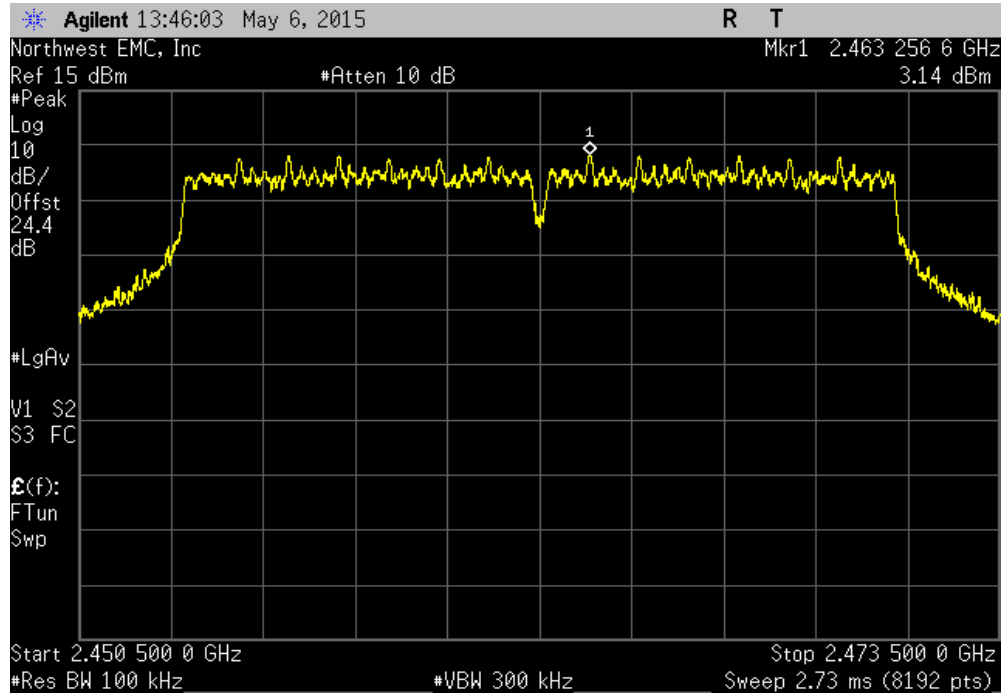


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-53.41	-20	Pass	

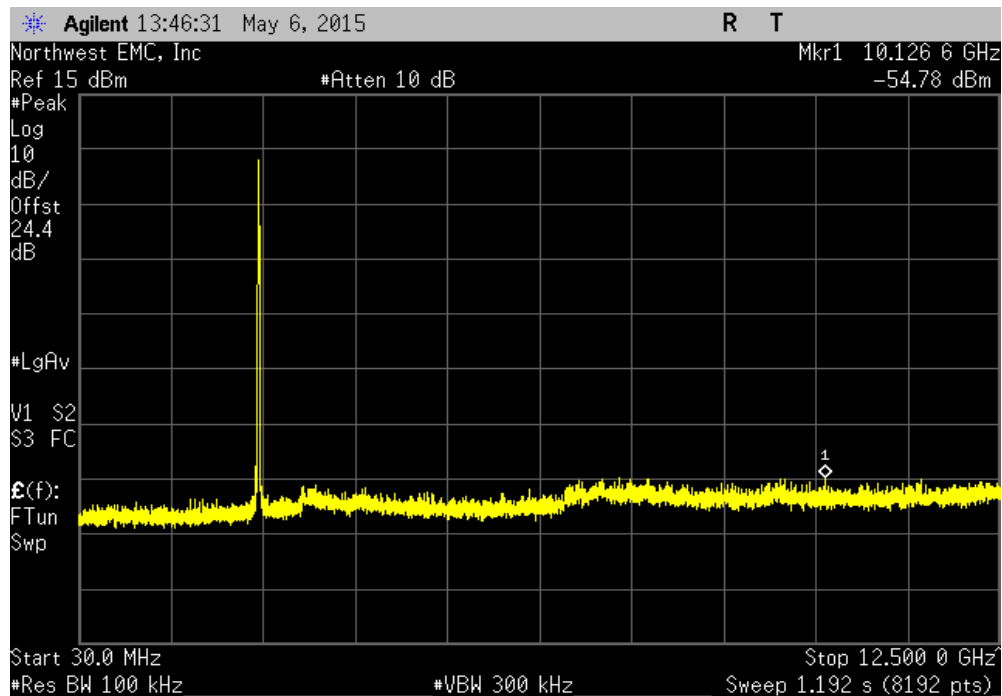


# SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental		N/A	N/A	N/A		

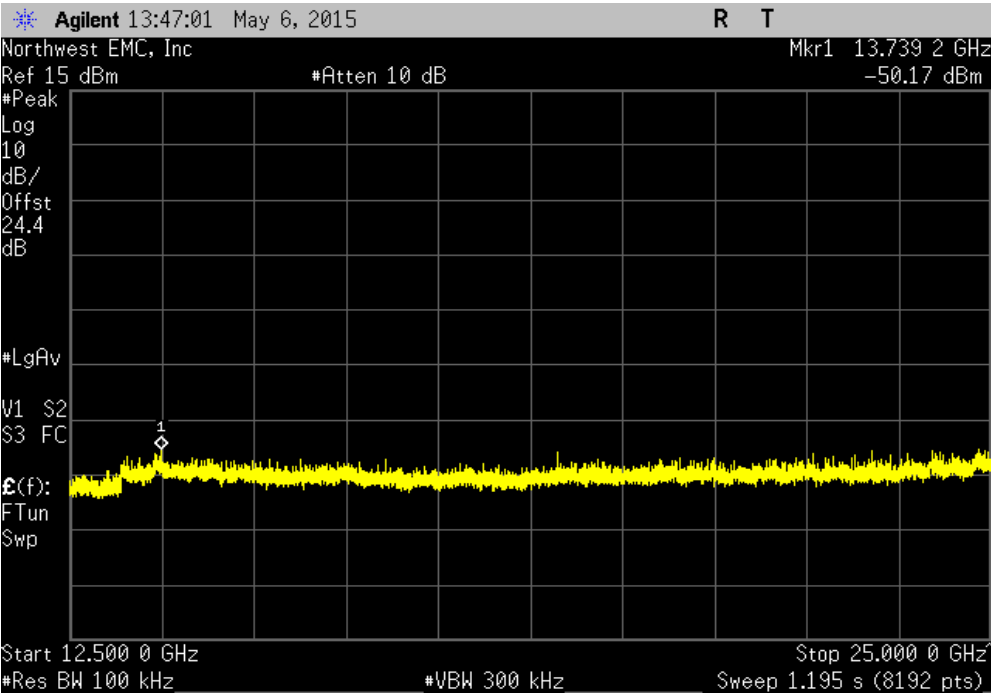


ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Frequency Range		Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 12.5 GHz		-57.92	-20	Pass		



SPURIOUS CONDUCTED EMISSIONS

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz				
Frequency Range	Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-53.31	-20	Pass	



# OCCUPIED BANDWIDTH

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

## TEST EQUIPMENT


Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

## TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time.

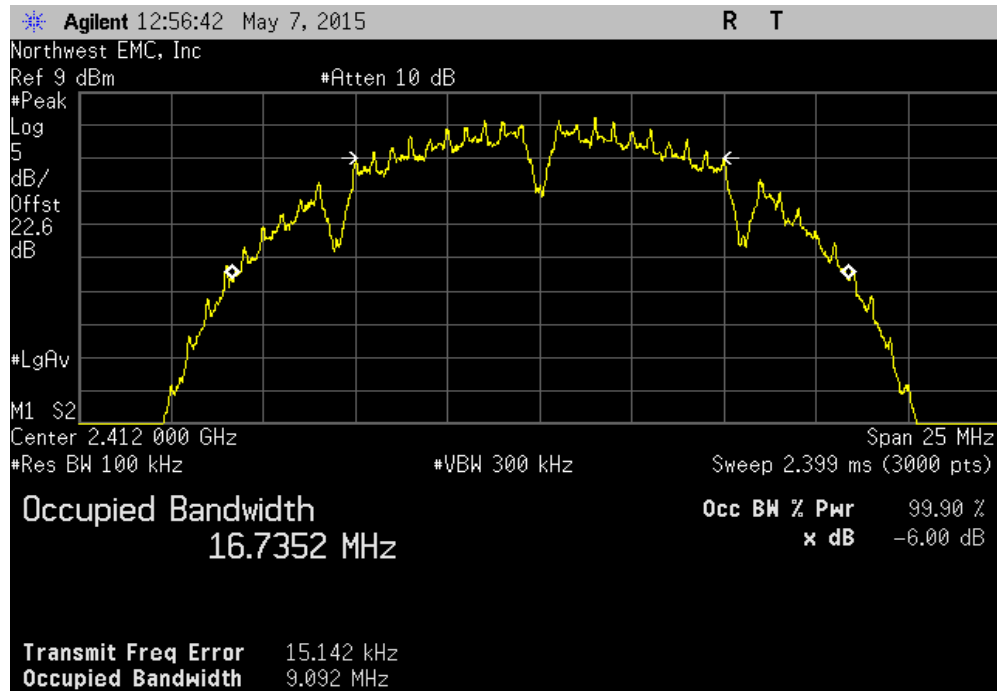
The EUT was set to the channels and modes listed in the datasheet. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer.

# OCCUPIED BANDWIDTH

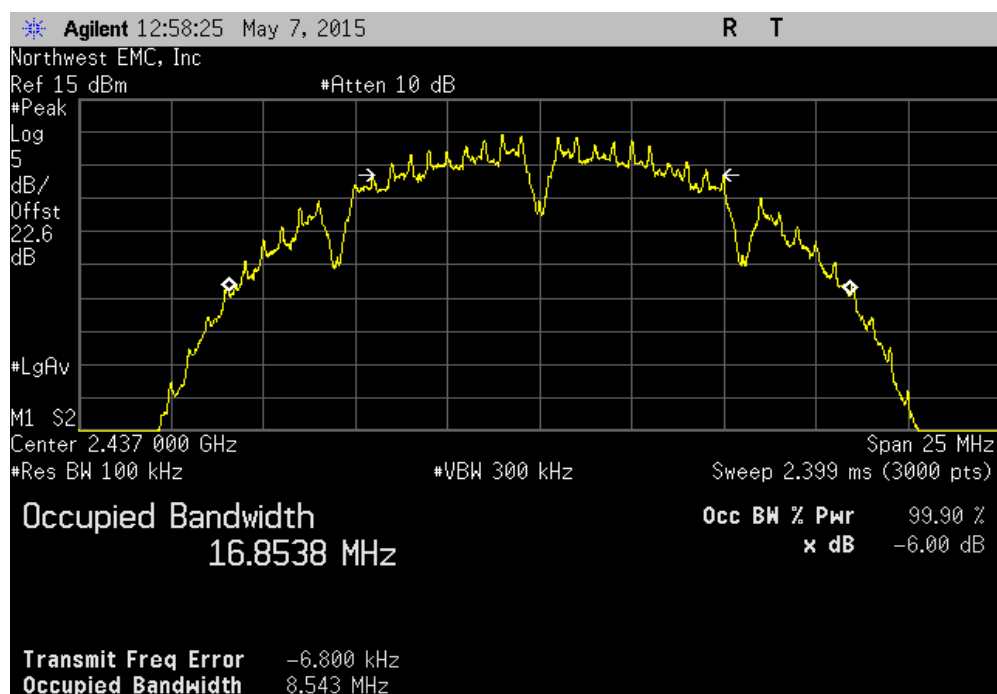
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151	
Serial Number: See Configurations		Date: 05/07/15	
Customer: Logic PD		Temperature: 23.1°C	
Attendees: Adam Ford		Humidity: 41%	
Project: None		Barometric Pres.: 1018.5	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	Job Site: MN08
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was tested with the fundamental modulated while under test			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature 	
		Value	Limit (>) Result
ANT 2.4GHz			
802.11(b) 1 Mbps			
	Low Channel 1, 2412 MHz	9.092 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	8.543 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	9.556 MHz	500 kHz Pass
802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	9.769 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	9.903 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	9.723 MHz	500 kHz Pass
802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	15.239 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	14.777 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	13.746 MHz	500 kHz Pass
802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	16.468 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	16.459 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	16.432 MHz	500 kHz Pass
802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	16.476 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	16.462 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	16.461 MHz	500 kHz Pass
802.11(n) MCS0			
	Low Channel 1, 2412 MHz	13.762 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	11.907 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	15.025 MHz	500 kHz Pass
802.11(n) MCS7			
	Low Channel 1, 2412 MHz	17.677 MHz	500 kHz Pass
	Mid Channel 6, 2437 MHz	17.683 MHz	500 kHz Pass
	High Channel 11, 2462 MHz	17.667 MHz	500 kHz Pass

# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				9.092 MHz	500 kHz	Pass



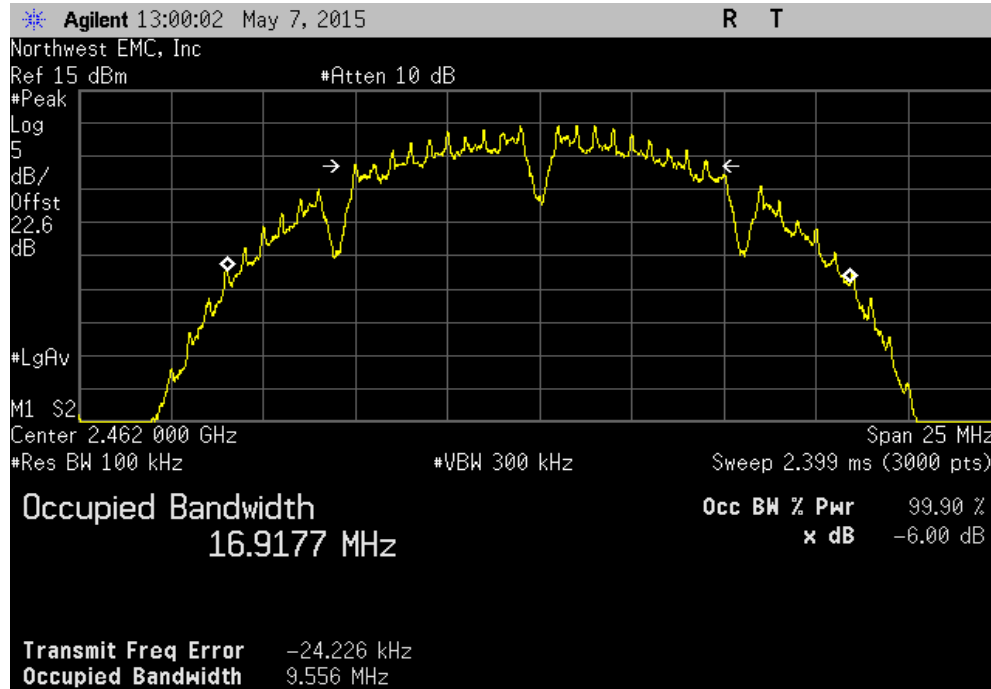
ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				8.543 MHz	500 kHz	Pass



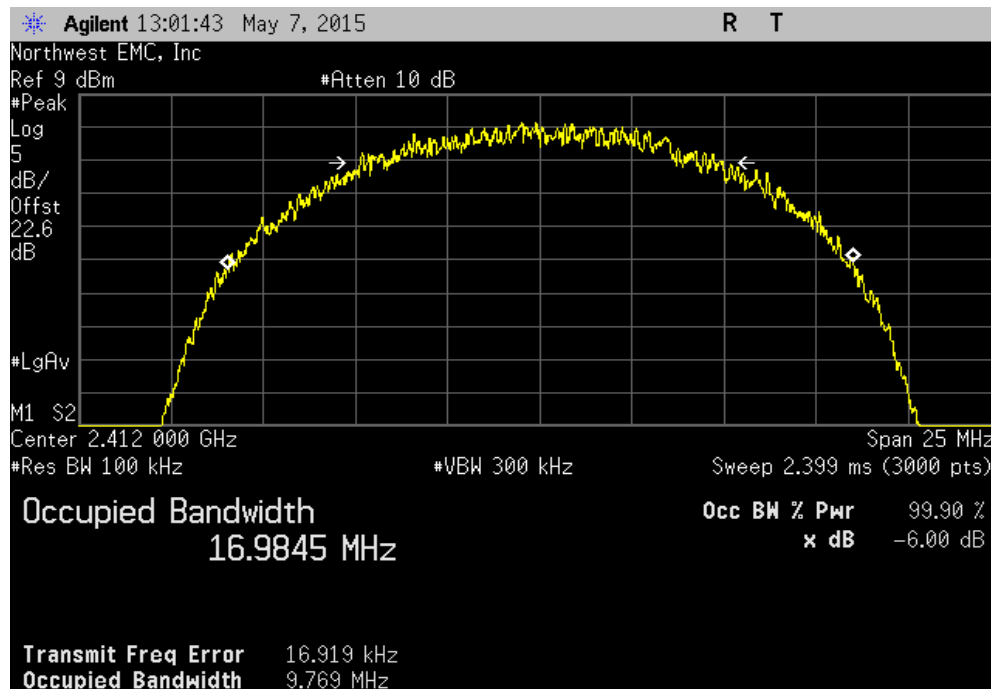


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				9.556 MHz	500 kHz	Pass

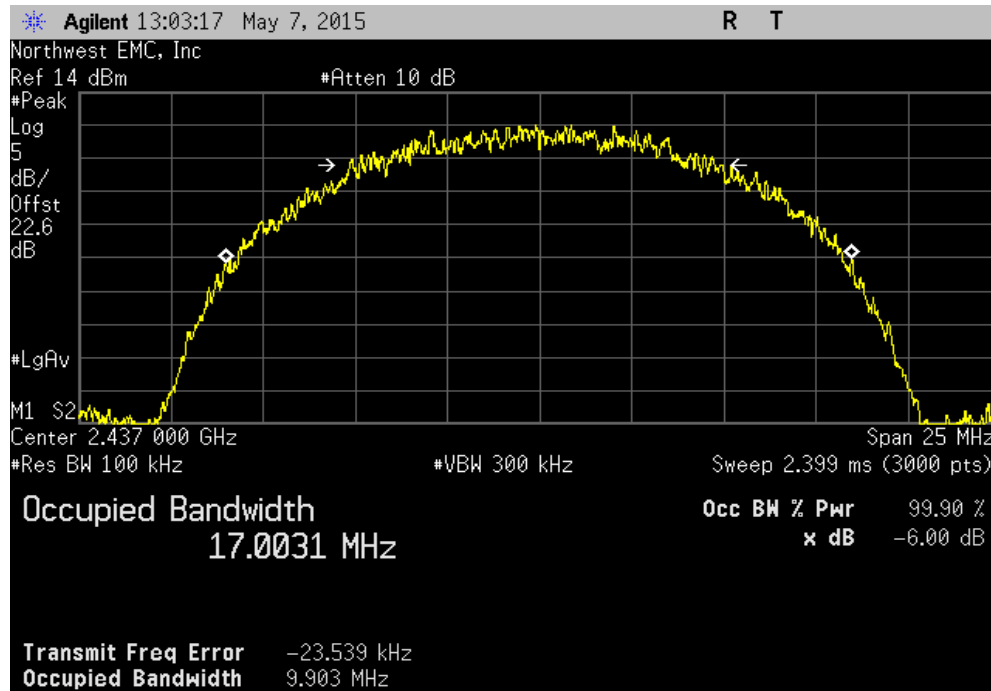


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				9.769 MHz	500 kHz	Pass

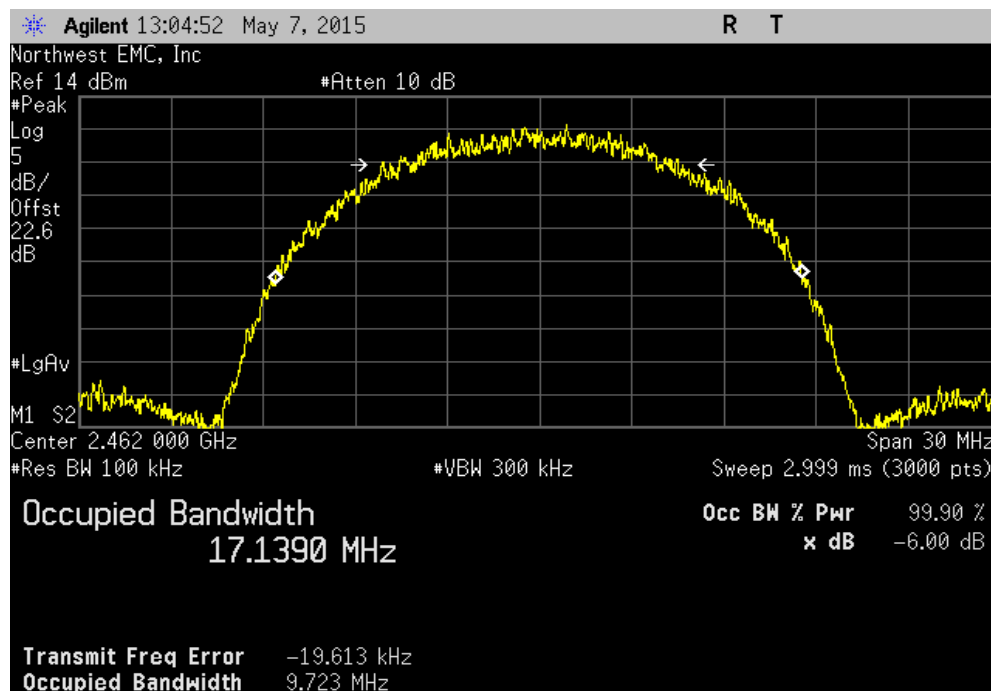


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				9.903 MHz	500 kHz	Pass

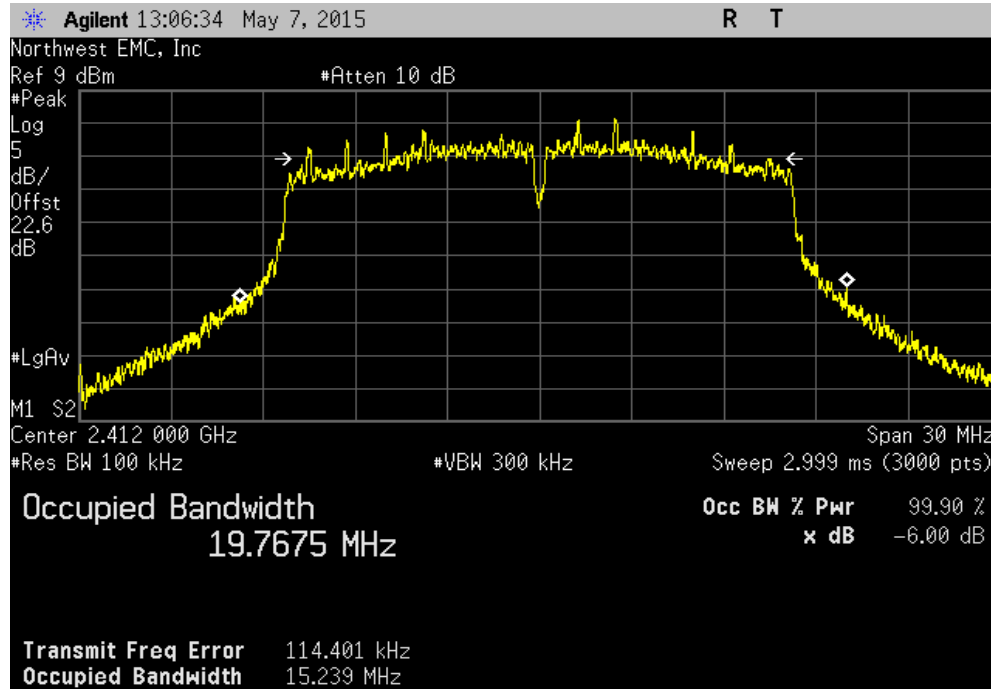


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				9.723 MHz	500 kHz	Pass

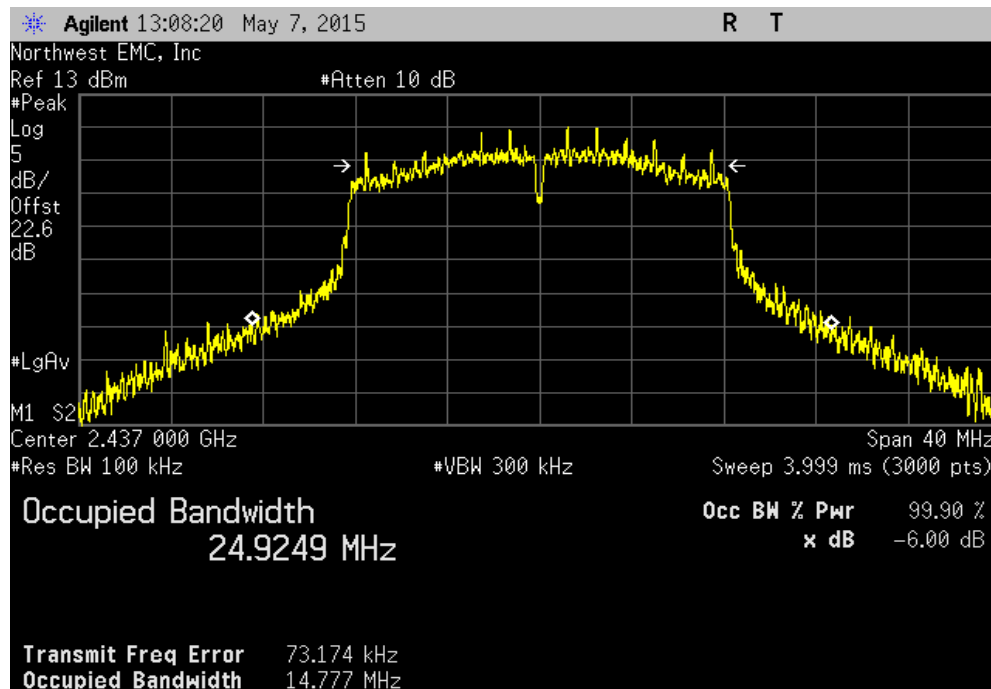


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				15.239 MHz	500 kHz	Pass

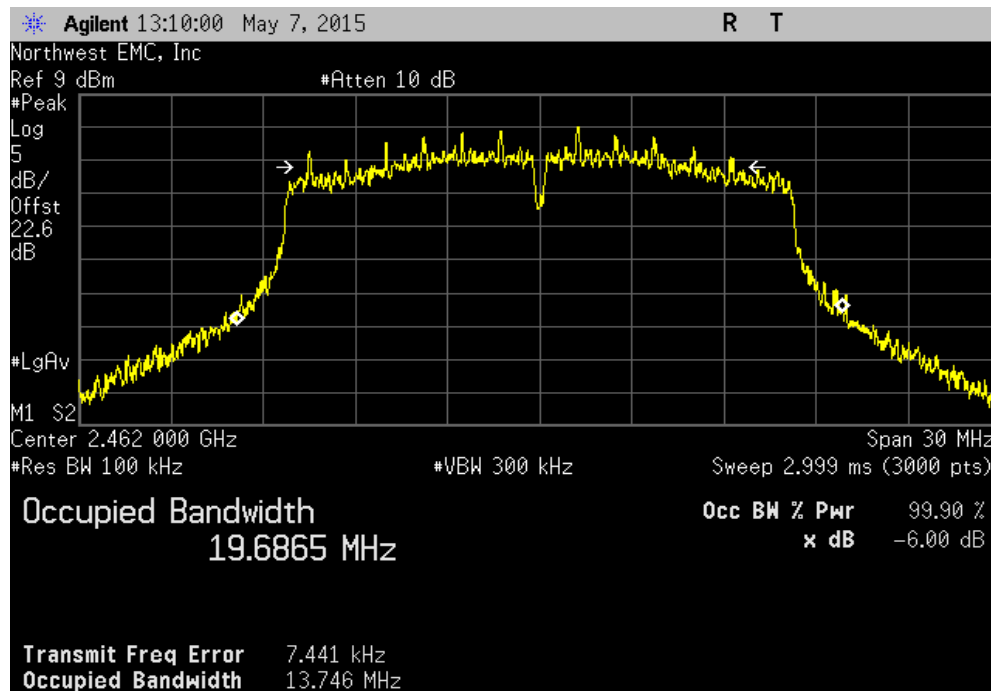


ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				14.777 MHz	500 kHz	Pass

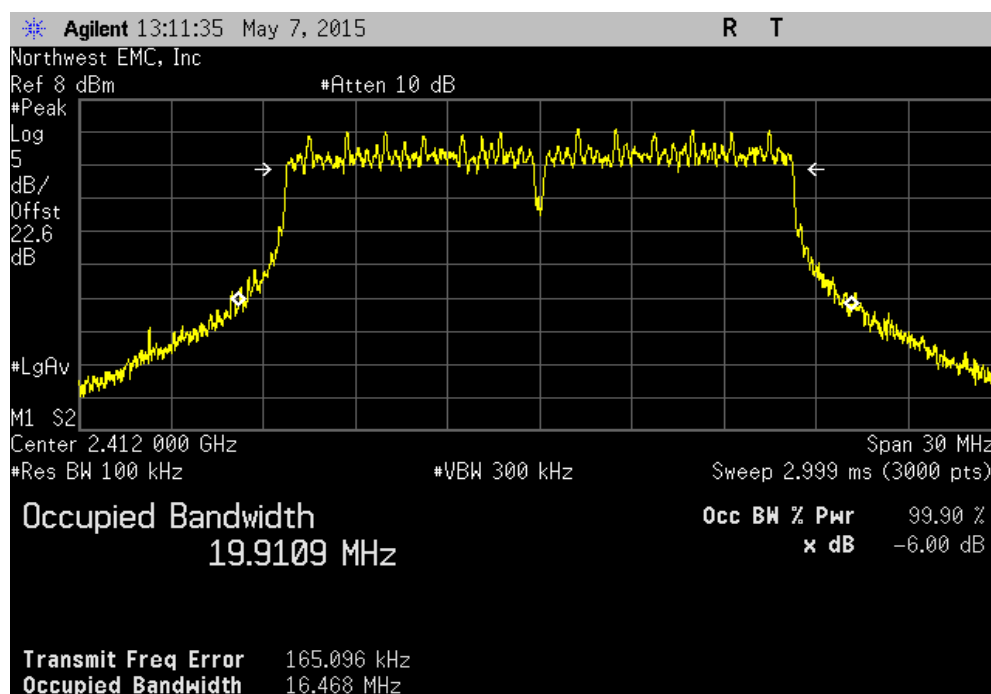


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				13.746 MHz	500 kHz	Pass

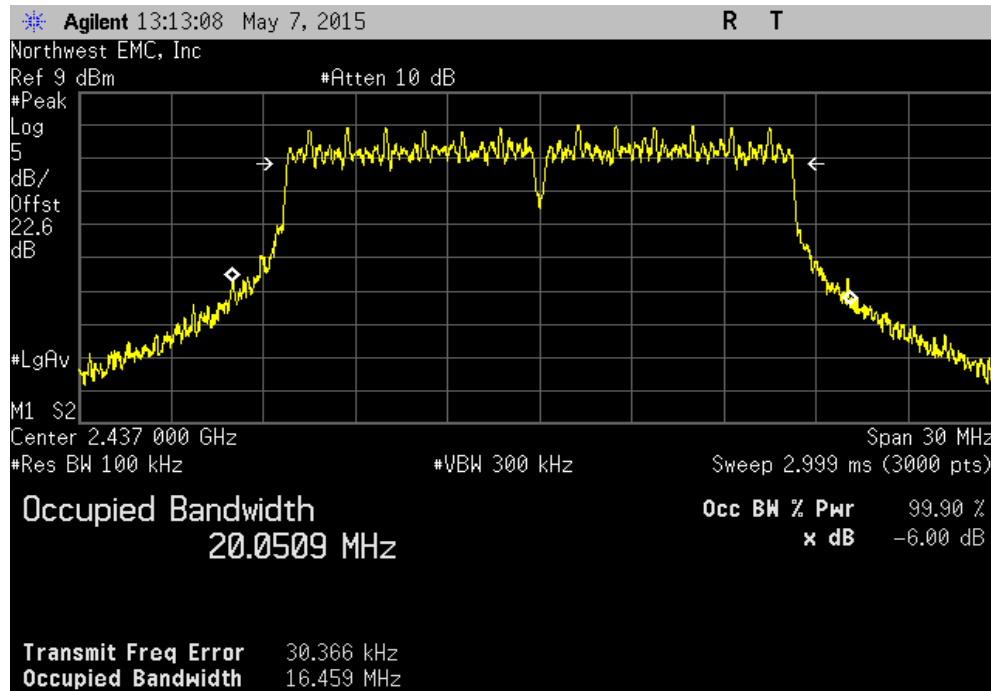


ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.468 MHz	500 kHz	Pass

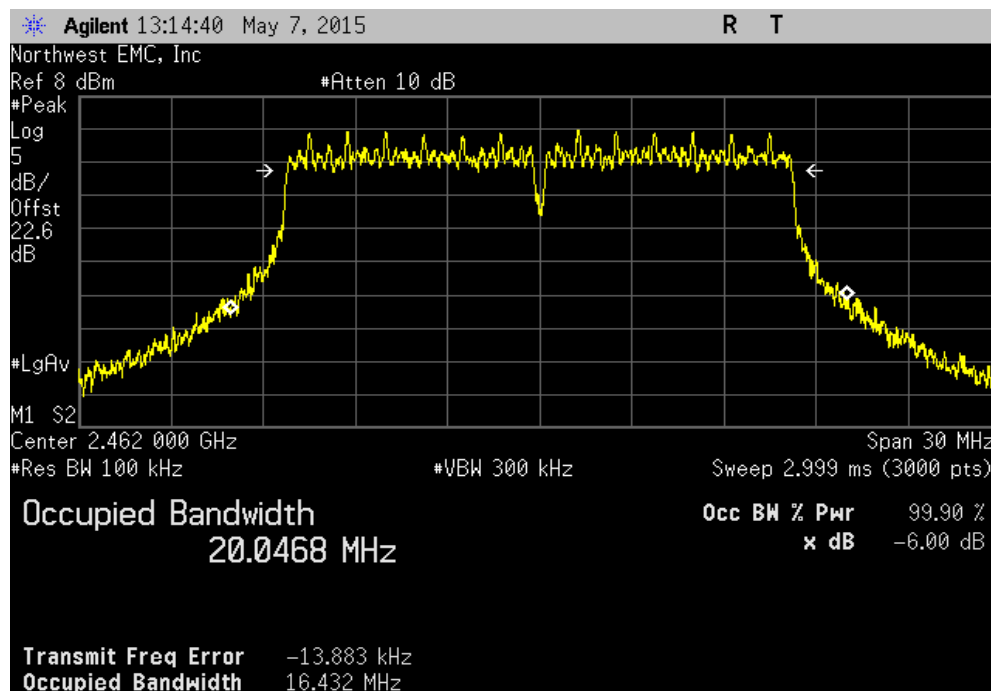


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.459 MHz	500 kHz	Pass

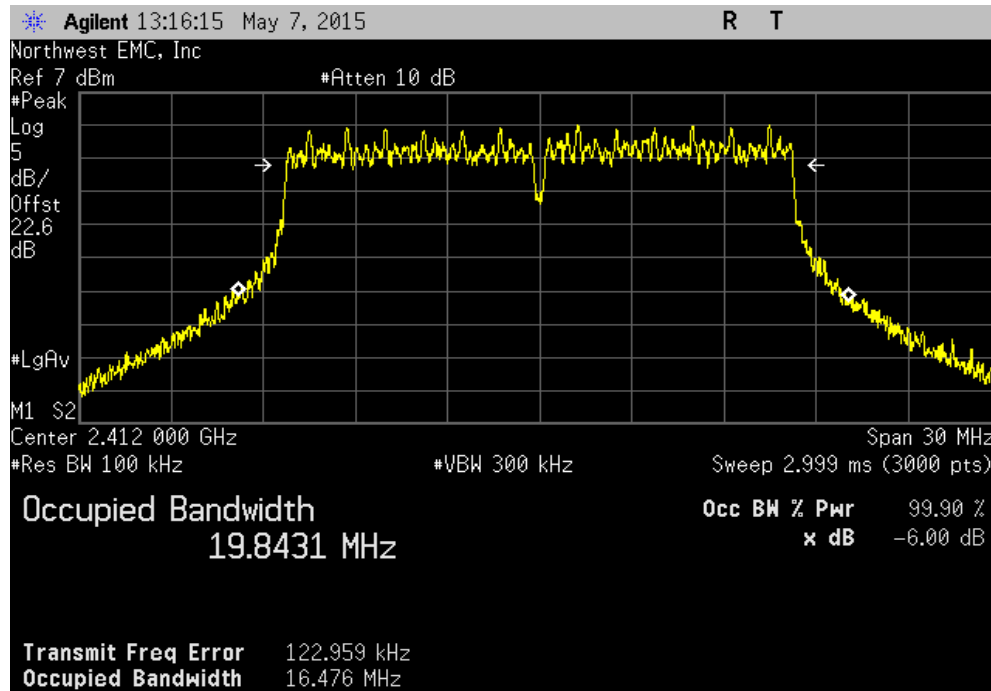


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.432 MHz	500 kHz	Pass

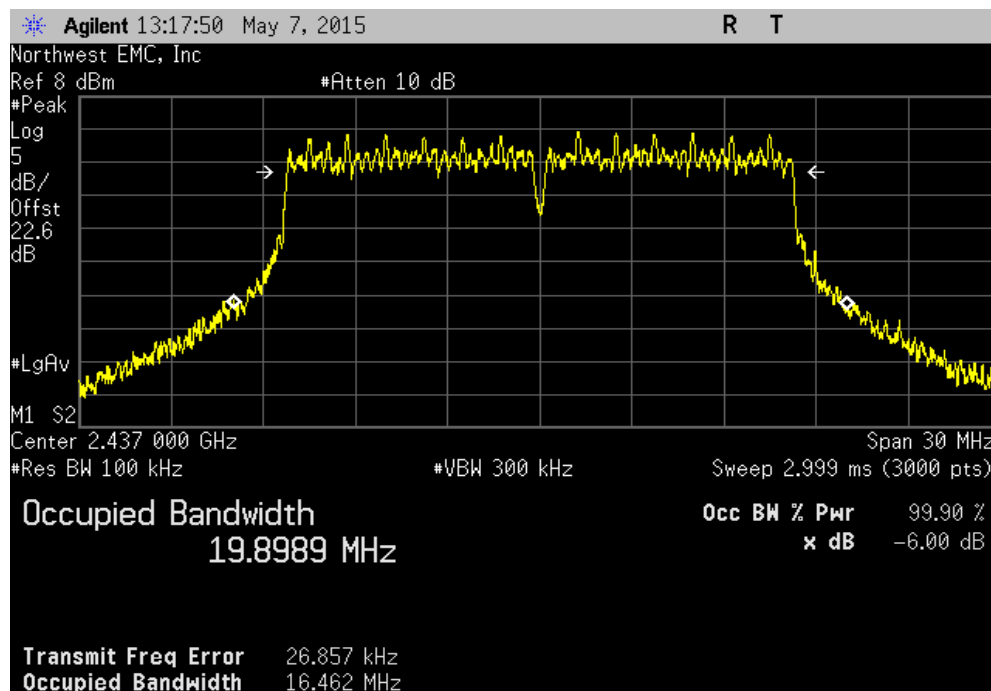


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.476 MHz	500 kHz	Pass

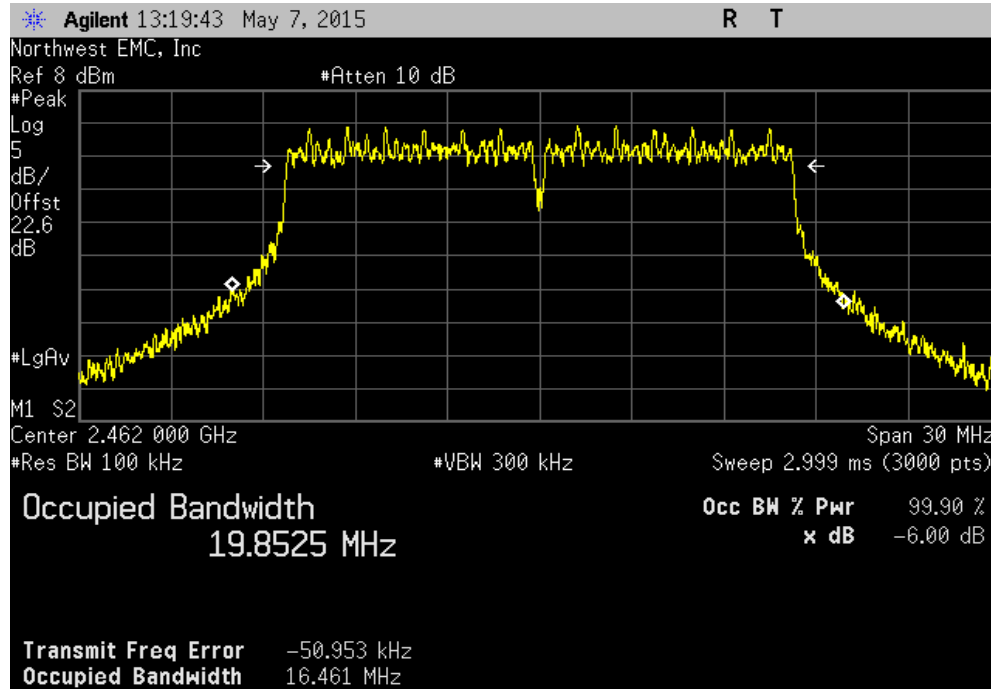


ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.462 MHz	500 kHz	Pass

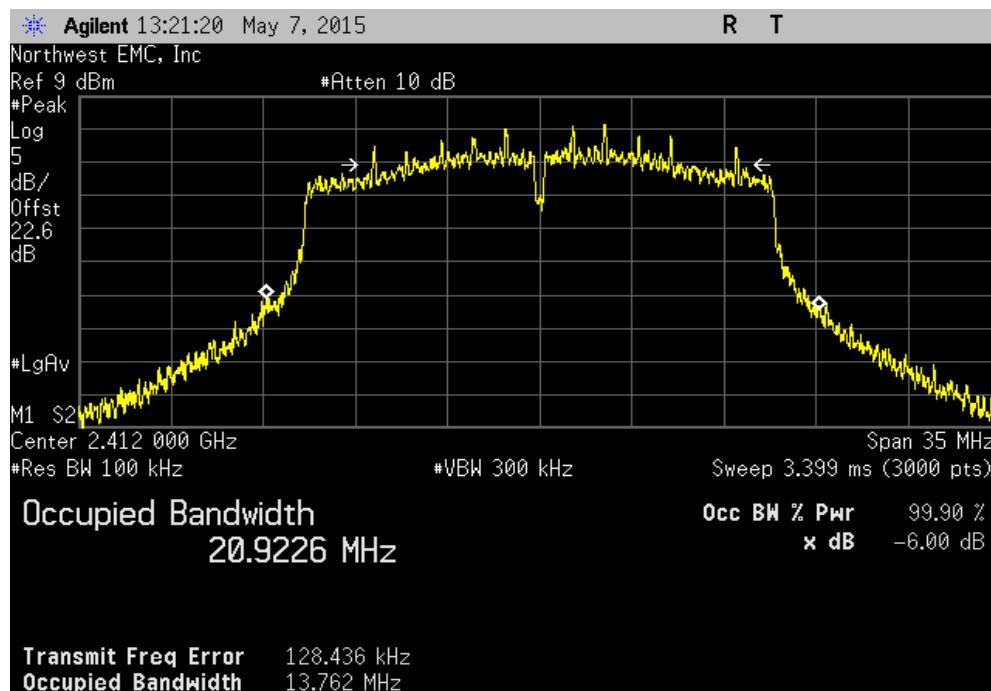


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.461 MHz	500 kHz	Pass

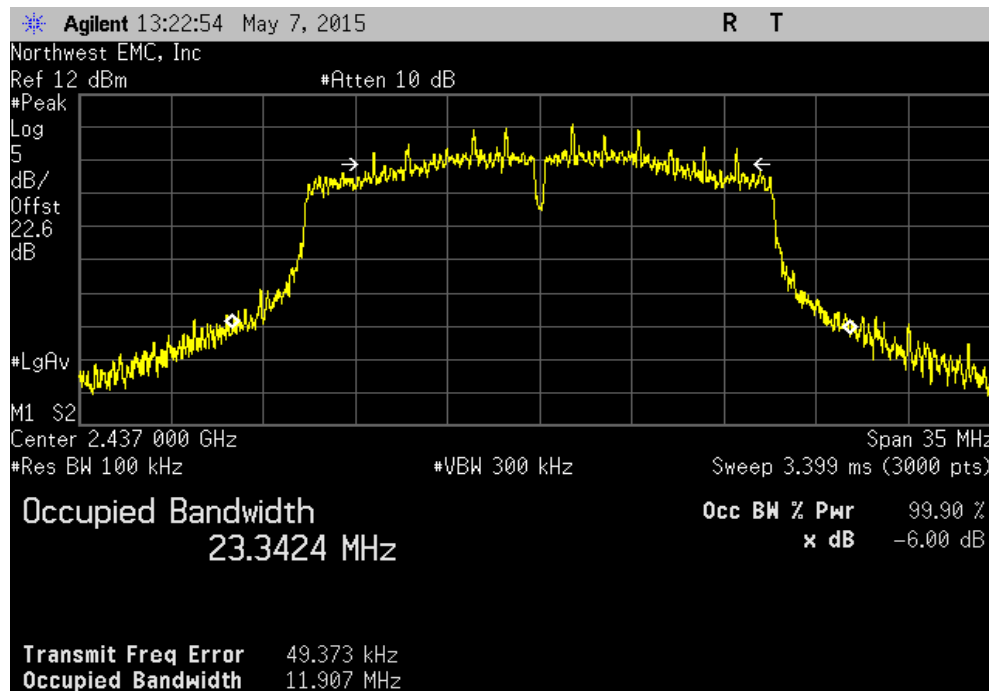


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				13.762 MHz	500 kHz	Pass

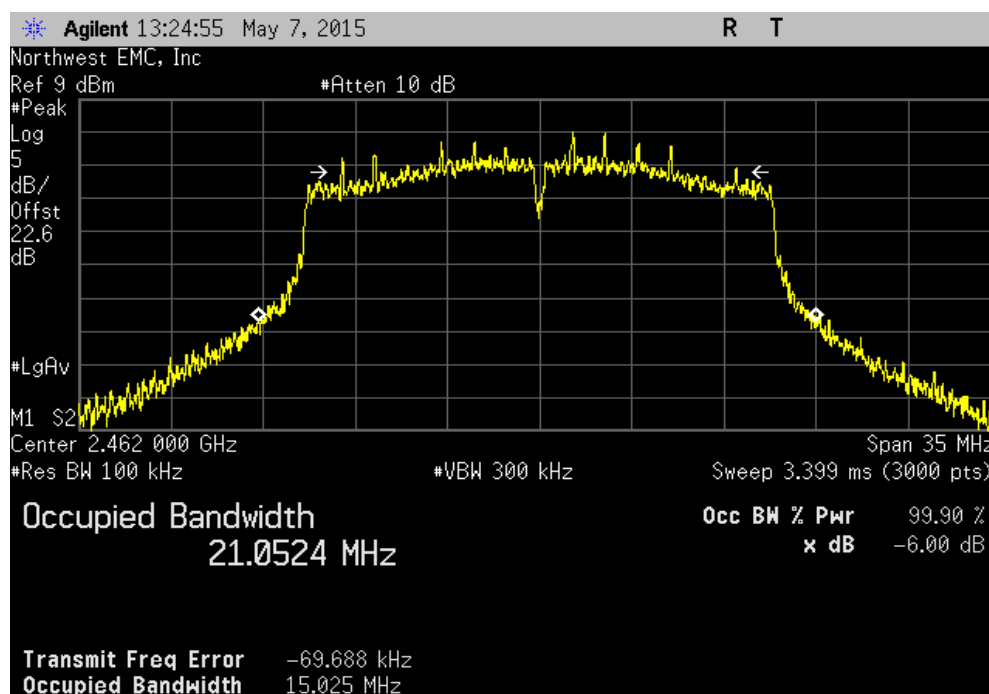


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				11.907 MHz	500 kHz	Pass



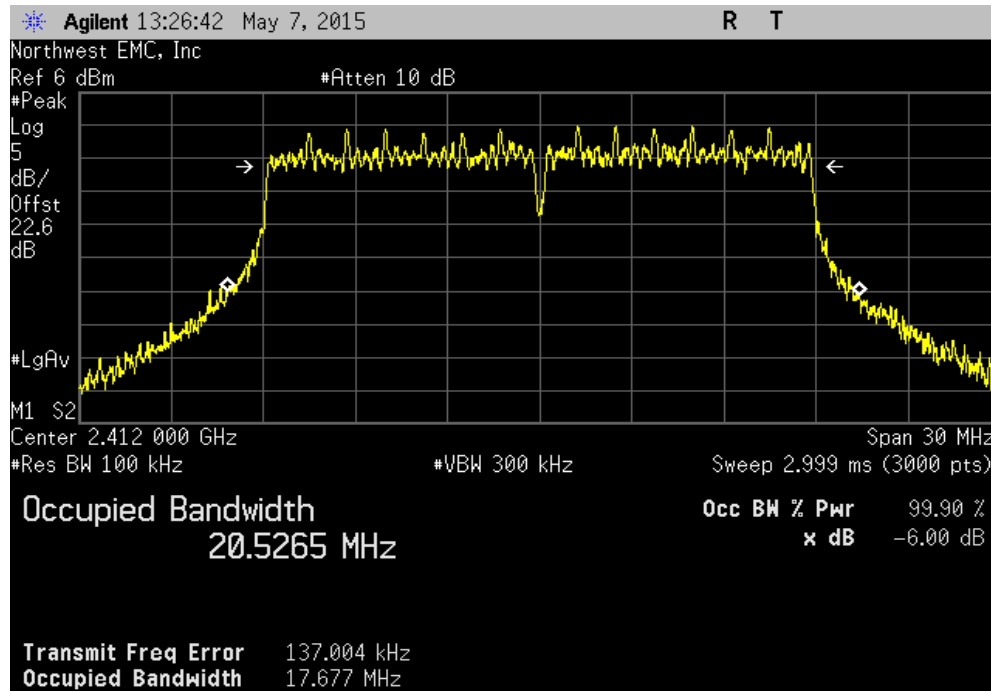
ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.025 MHz	500 kHz	Pass



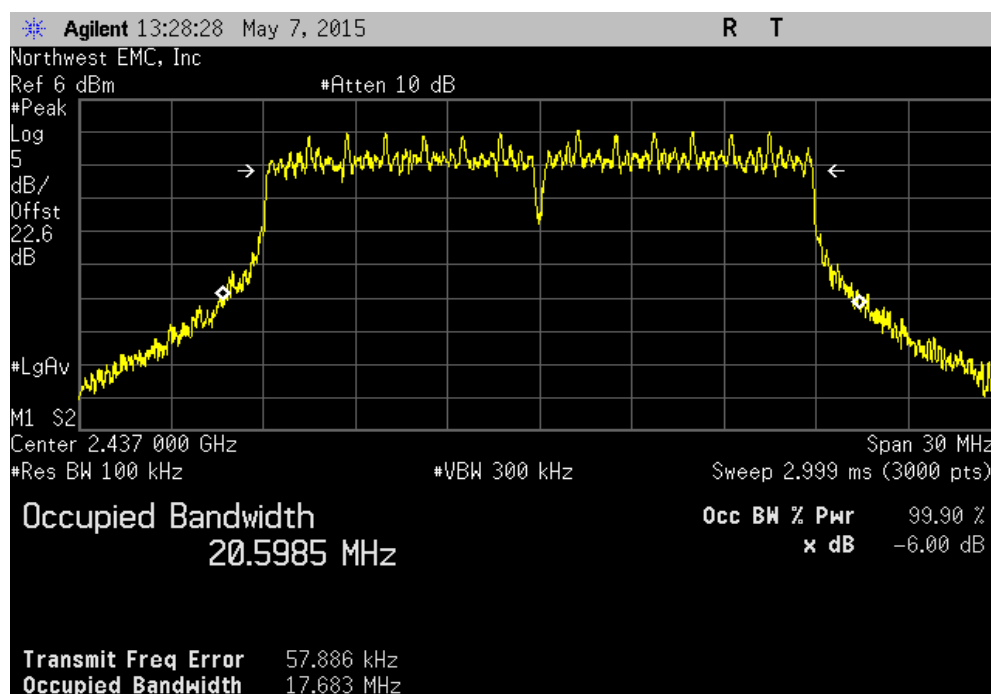


# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				17.677 MHz	500 kHz	Pass

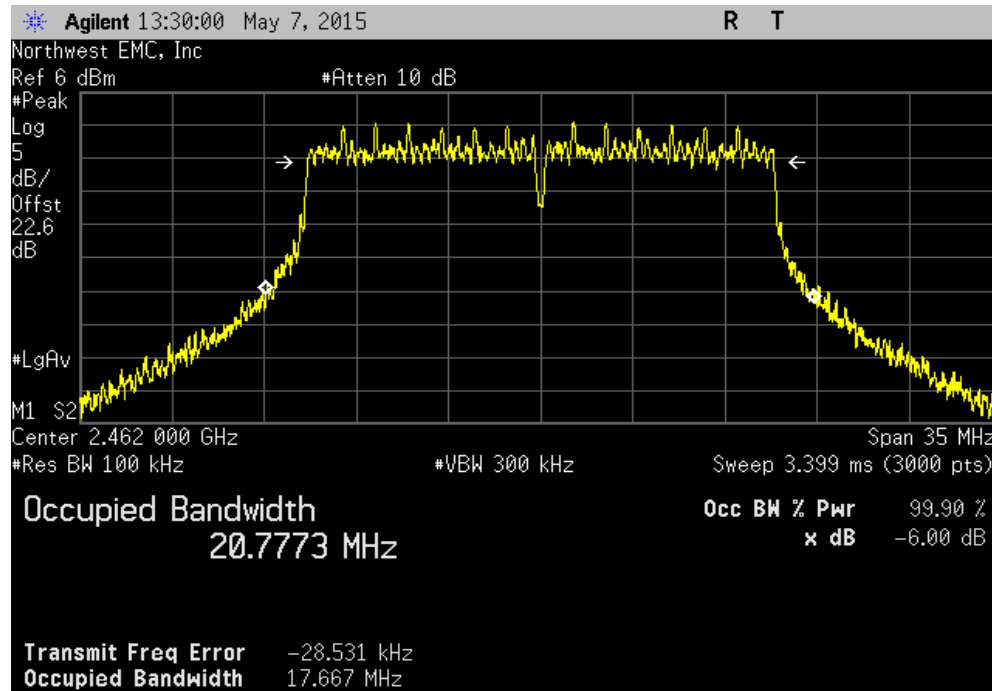


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				17.683 MHz	500 kHz	Pass



# OCCUPIED BANDWIDTH

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				17.667 MHz	500 kHz	Pass



# OUTPUT POWER

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

## TEST DESCRIPTION


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

Prior to measuring peak transmit 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 channel power integration method found in KDB 558074 DTS D01 Measurement Section 9.1.2 was used because the DTS Bandwidth of the radio was greater than the RBW on the analyzer.

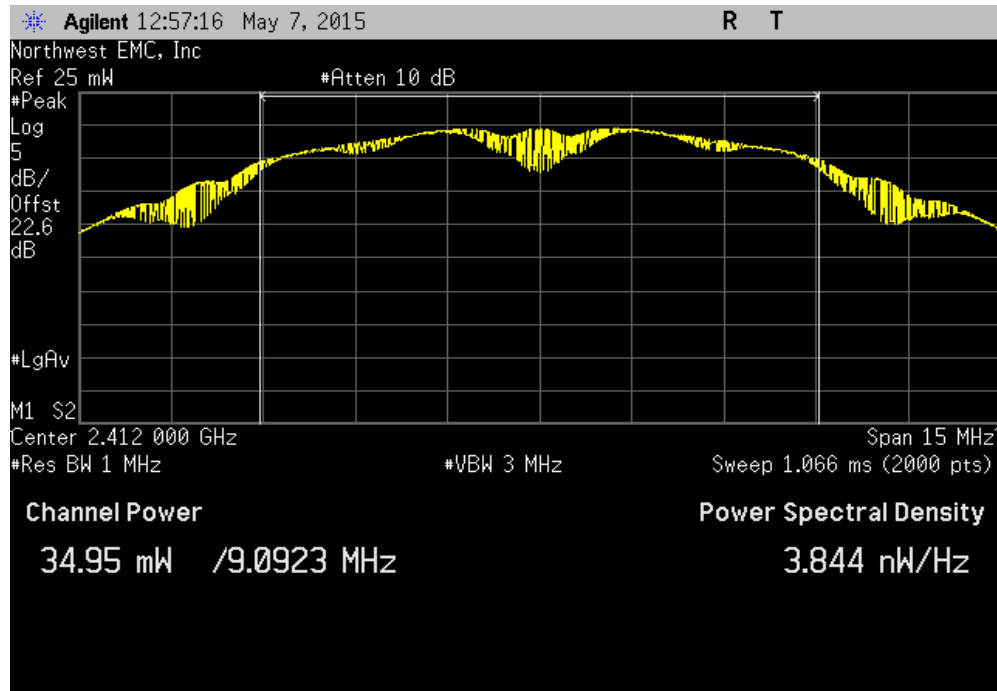
**De Facto EIRP Limit:** Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36 dBm.

# OUTPUT POWER

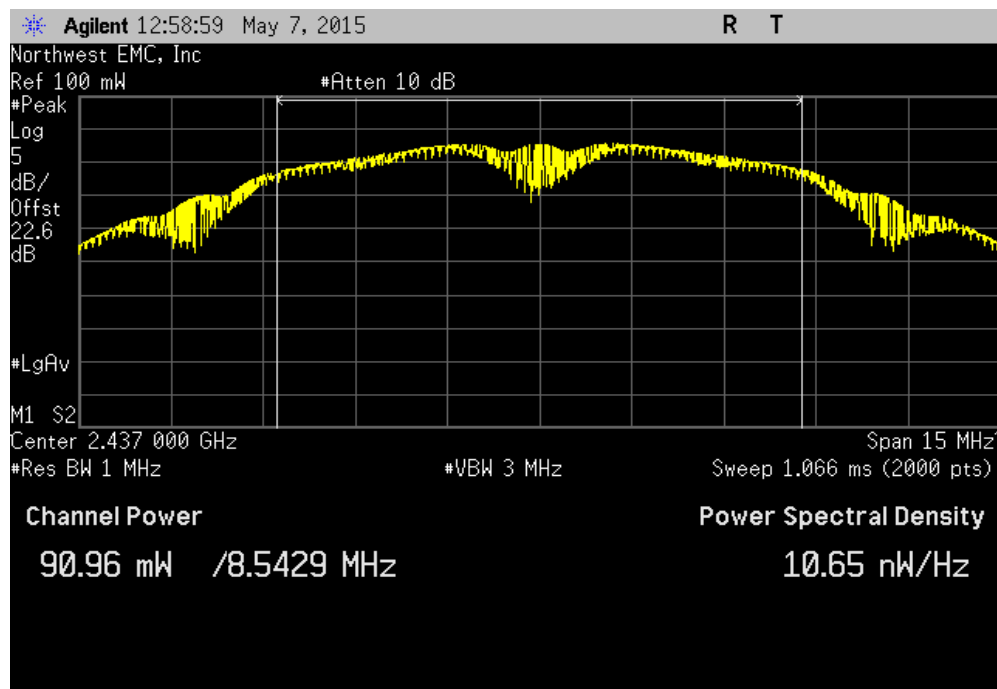
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151	
Serial Number: See Configurations		Date: 05/07/15	
Customer: Logic PD		Temperature: 23.1°C	
Attendees: Adam Ford		Humidity: 41%	
Project: None		Barometric Pres.: 1018.5	
Tested by: Brandon Hobbs	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
FCC 15.247:2015		Test Method	
		ANSI C63.10:2009	
COMMENTS			
The EUT was tested with the fundamental modulated while under test			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature 	
		Value	Limit (<)
ANT 2.4GHz			
802.11(b) 1 Mbps			
	Low Channel 1, 2412 MHz	34.947 mW	1 W
	Mid Channel 6, 2437 MHz	90.962 mW	1 W
	High Channel 11, 2462 MHz	103.463 mW	1 W
802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	33.521 mW	1 W
	Mid Channel 6, 2437 MHz	95.751 mW	1 W
	High Channel 11, 2462 MHz	98.576 mW	1 W
802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	42.236 mW	1 W
	Mid Channel 6, 2437 MHz	94.735 mW	1 W
	High Channel 11, 2462 MHz	34.364 mW	1 W
802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	41.852 mW	1 W
	Mid Channel 6, 2437 MHz	47.26 mW	1 W
	High Channel 11, 2462 MHz	36.575 mW	1 W
802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	31.363 mW	1 W
	Mid Channel 6, 2437 MHz	34.644 mW	1 W
	High Channel 11, 2462 MHz	35.54 mW	1 W
802.11(n) MCS0			
	Low Channel 1, 2412 MHz	38.515 mW	1 W
	Mid Channel 6, 2437 MHz	63.975 mW	1 W
	High Channel 11, 2462 MHz	33.034 mW	1 W
802.11(n) MCS7			
	Low Channel 1, 2412 MHz	22.645 mW	1 W
	Mid Channel 6, 2437 MHz	24.946 mW	1 W
	High Channel 11, 2462 MHz	26.103 mW	1 W

# OUTPUT POWER

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				34.947 mW	1 W	Pass

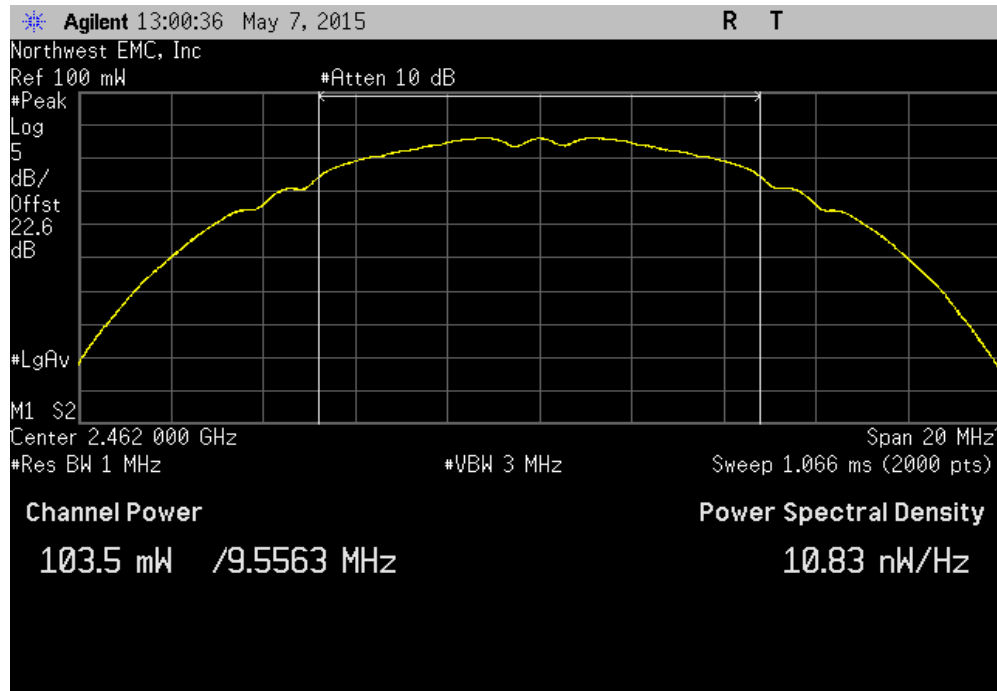


ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				90.962 mW	1 W	Pass

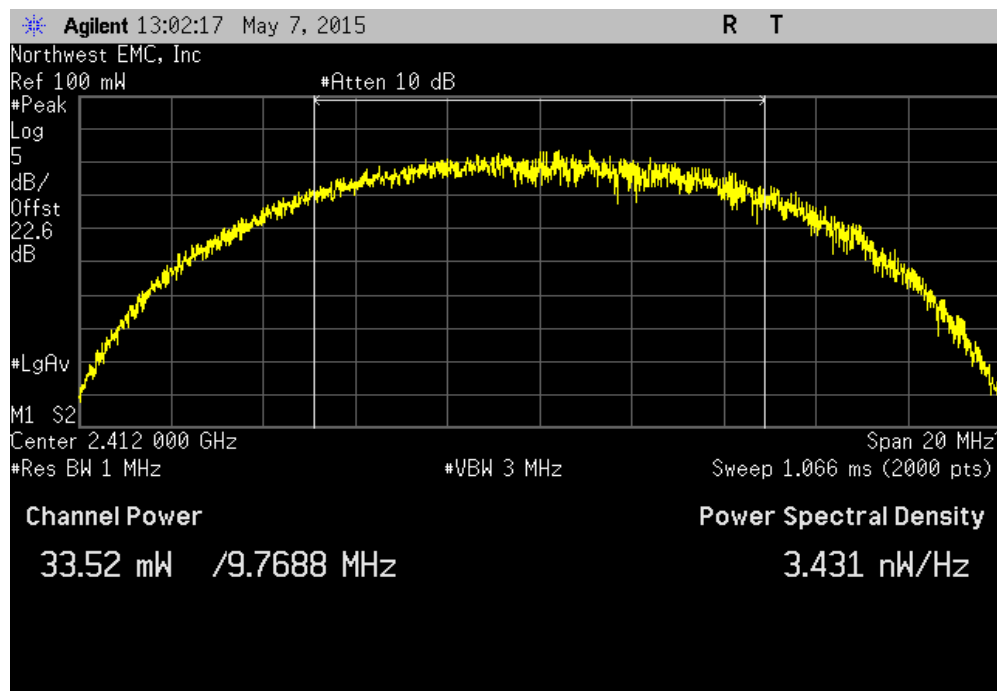


# OUTPUT POWER

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				103.463 mW	1 W	Pass

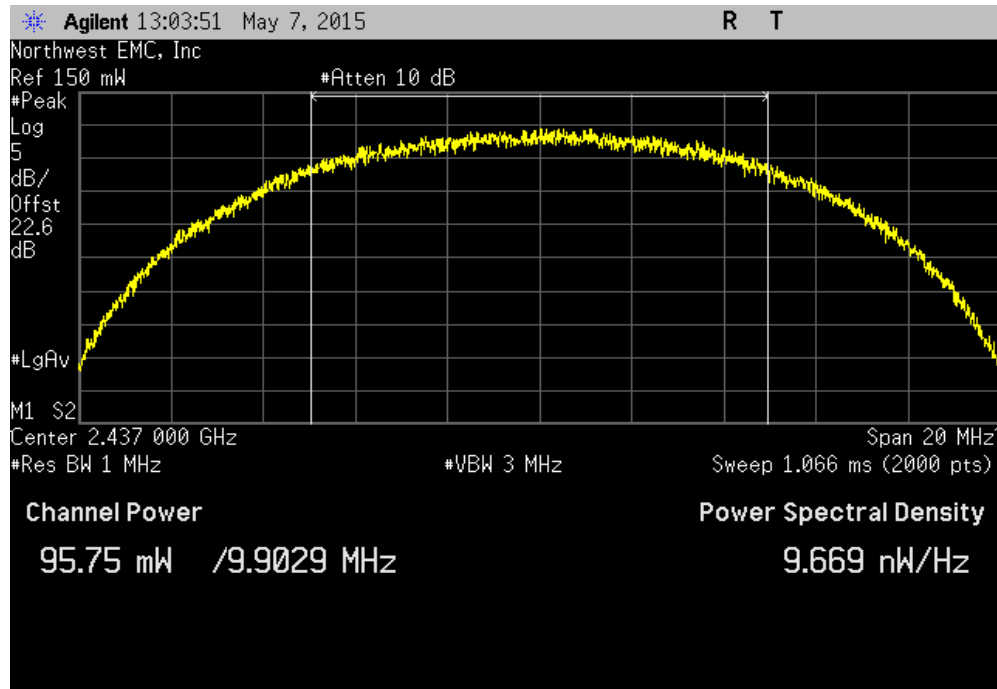


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				33.521 mW	1 W	Pass

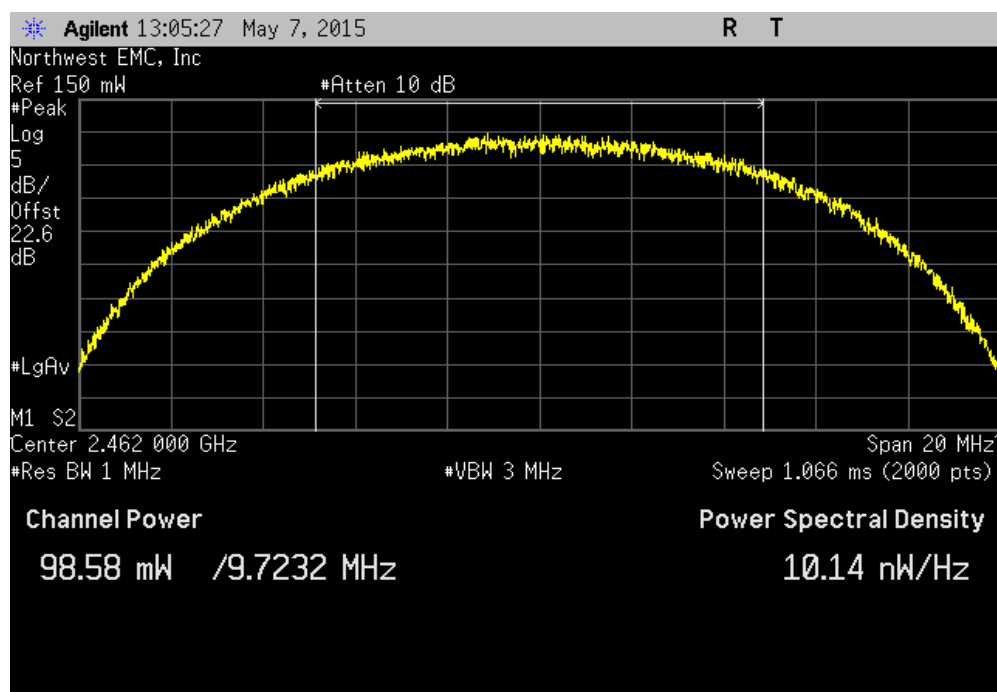


# OUTPUT POWER

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				95.751 mW	1 W	Pass

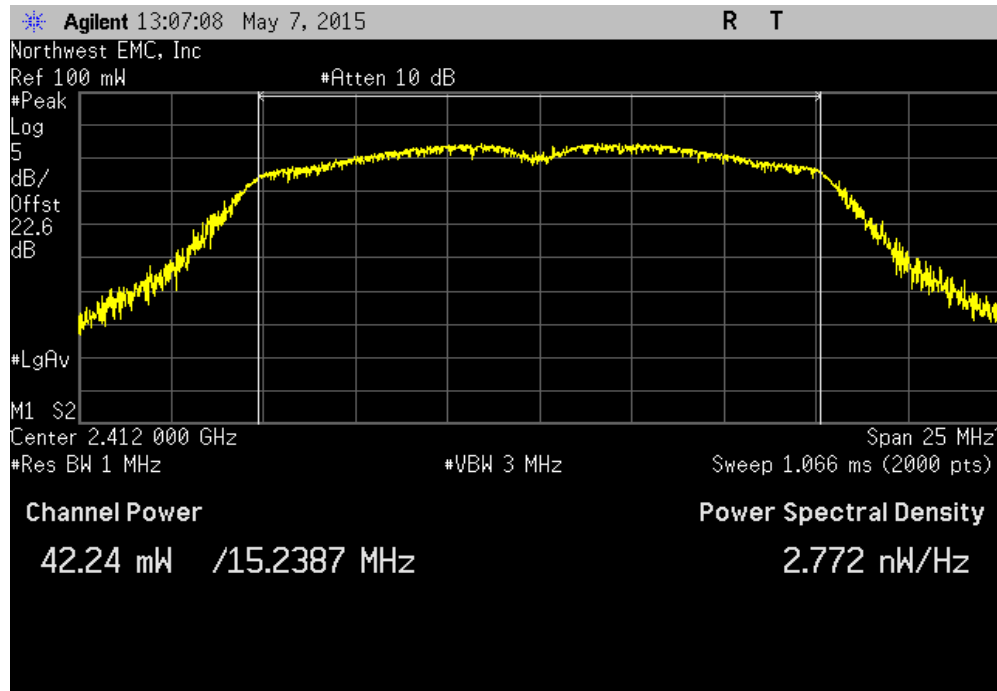


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				98.576 mW	1 W	Pass

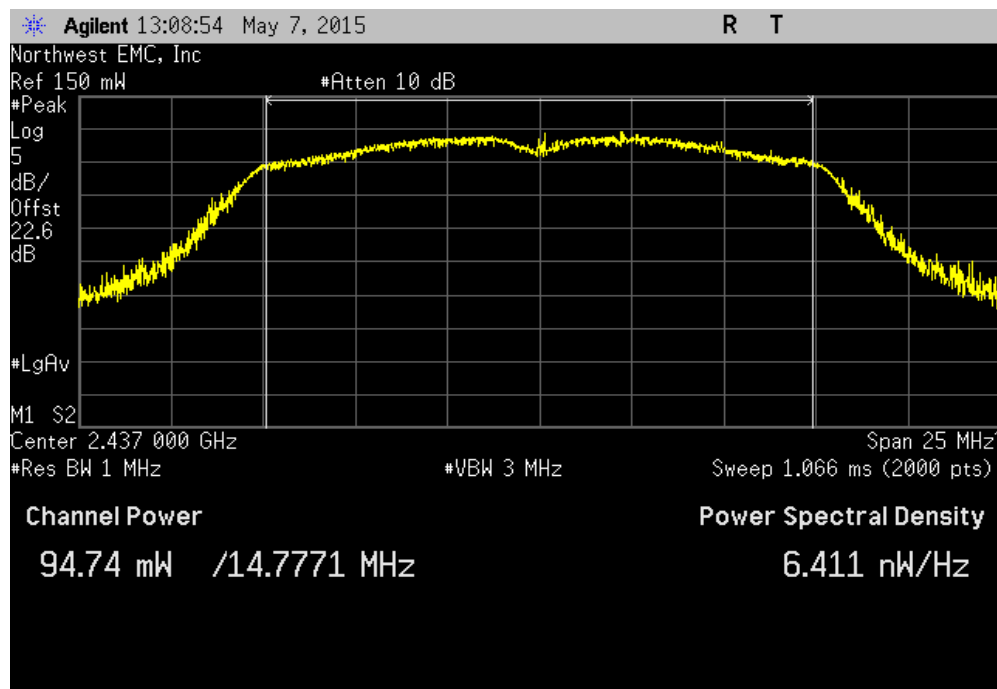


# OUTPUT POWER

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				42.236 mW	1 W	Pass



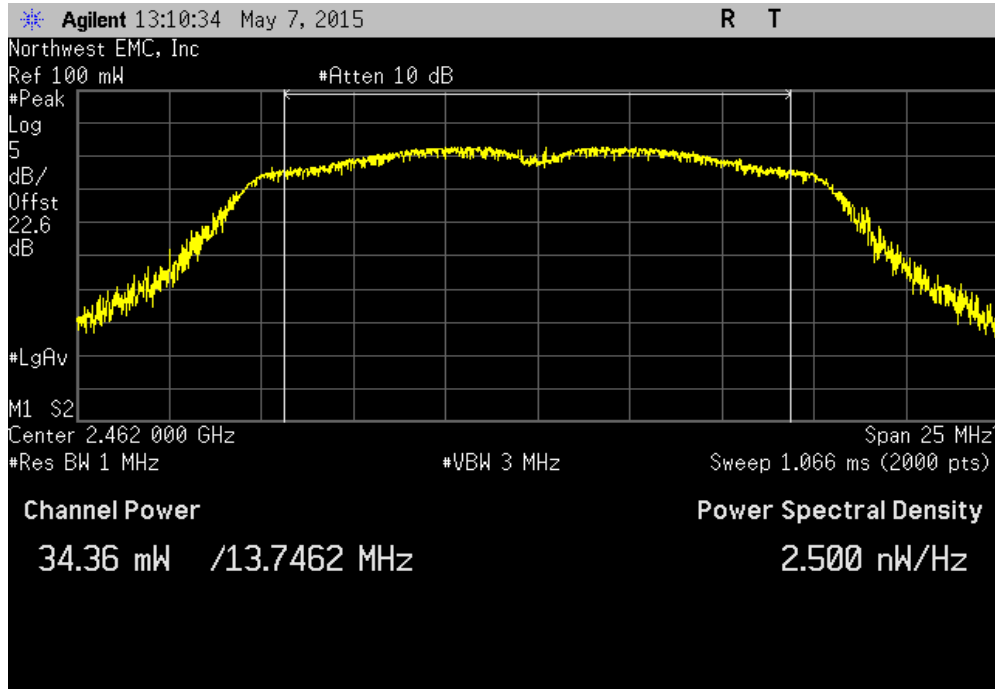
ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				94.735 mW	1 W	Pass



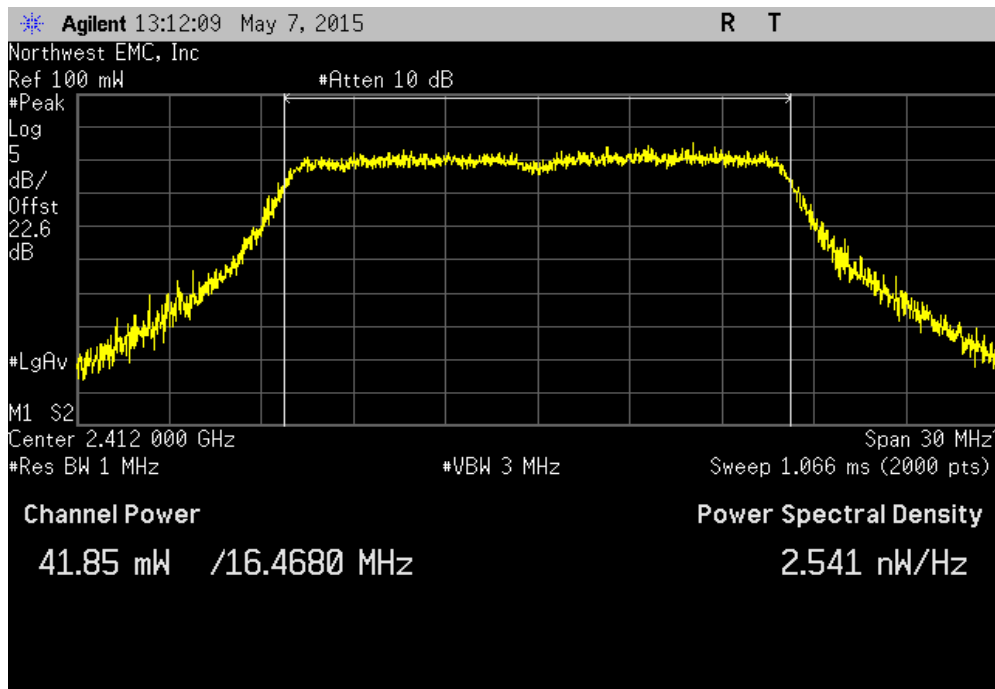


# OUTPUT POWER

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				34.364 mW	1 W	Pass

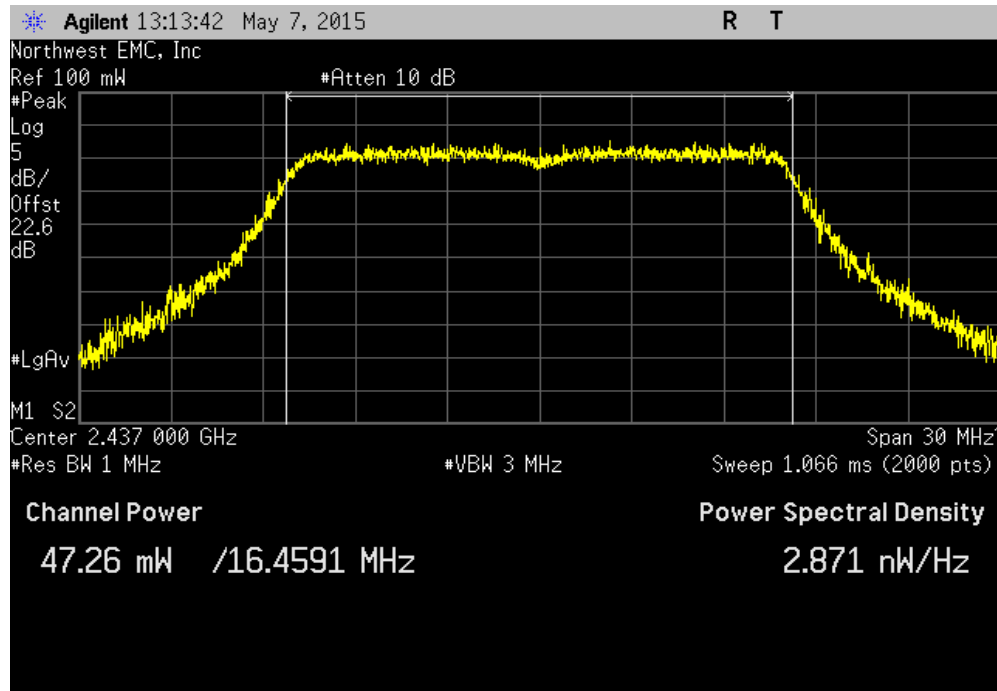


ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				41.852 mW	1 W	Pass

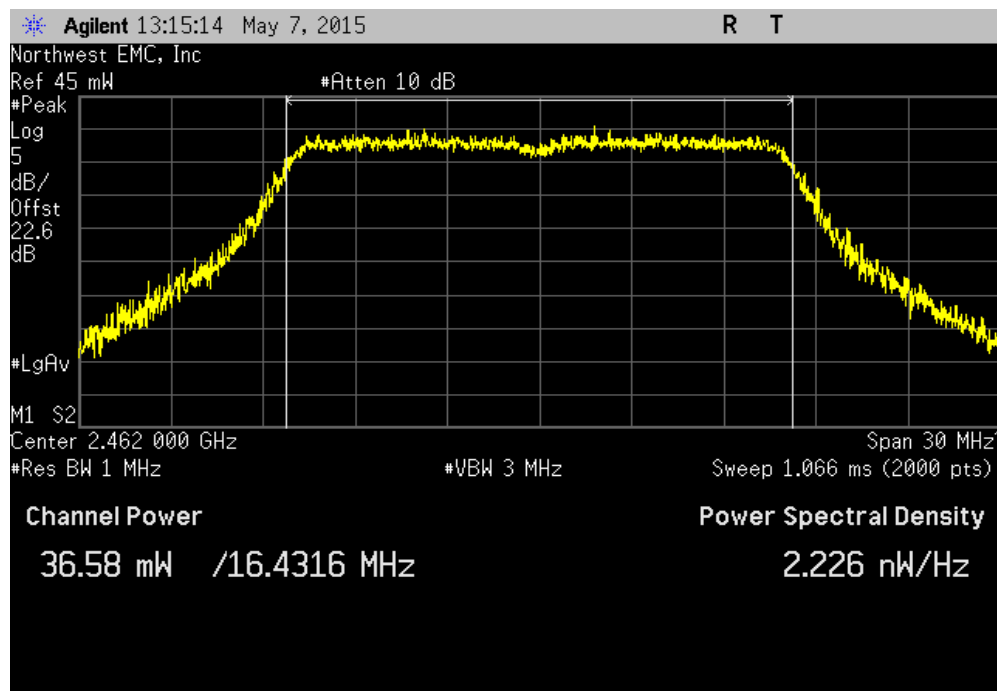


# OUTPUT POWER

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				47.26 mW	1 W	Pass

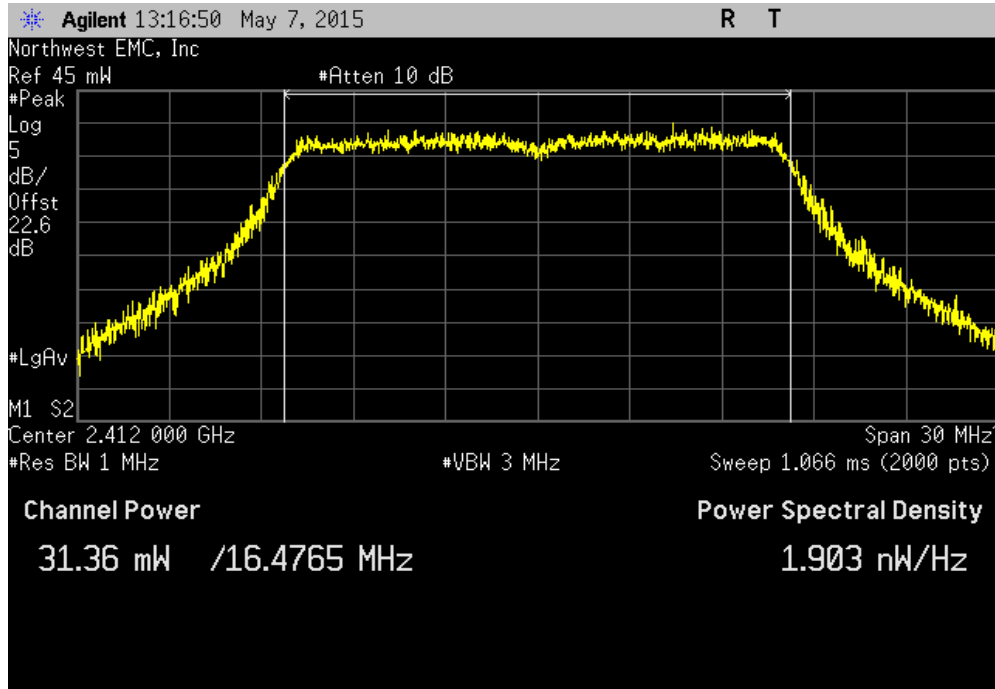


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				36.575 mW	1 W	Pass

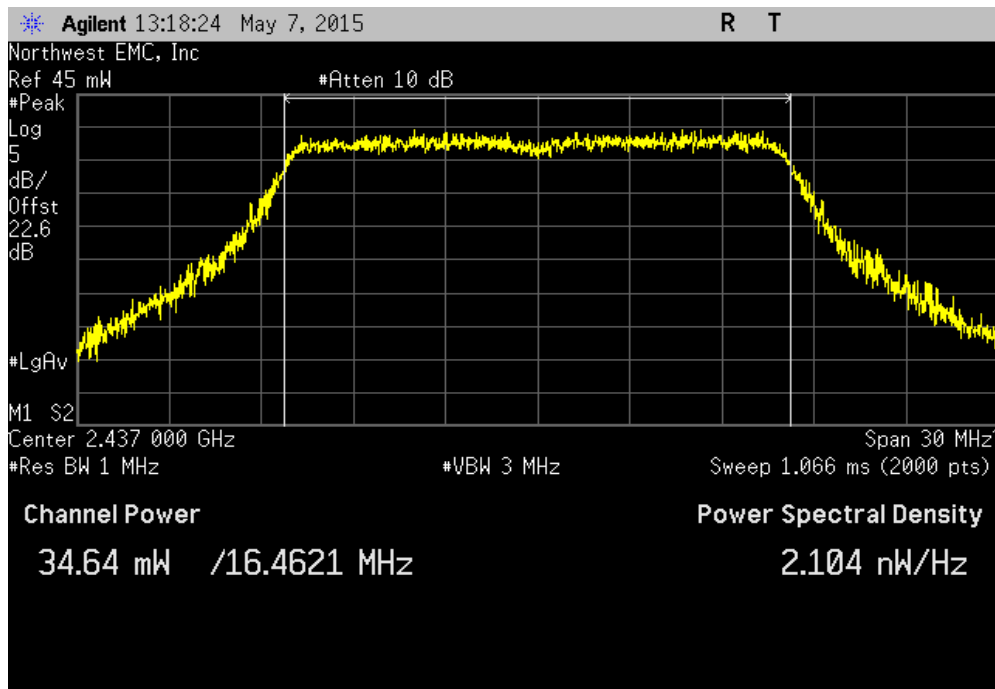


# OUTPUT POWER

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				31.363 mW	1 W	Pass

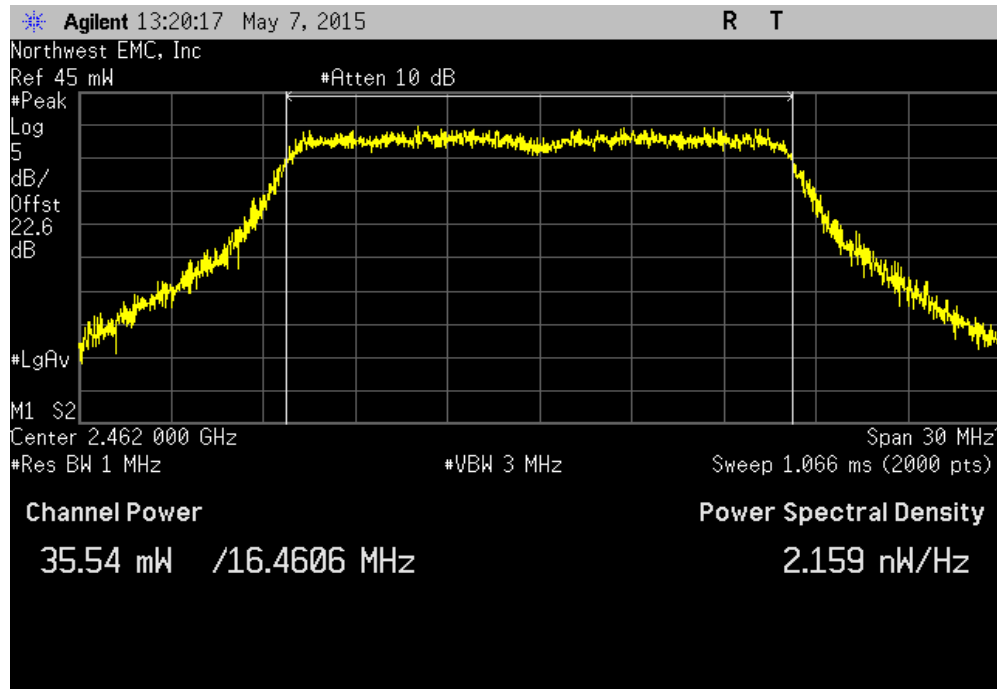


ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				34.644 mW	1 W	Pass

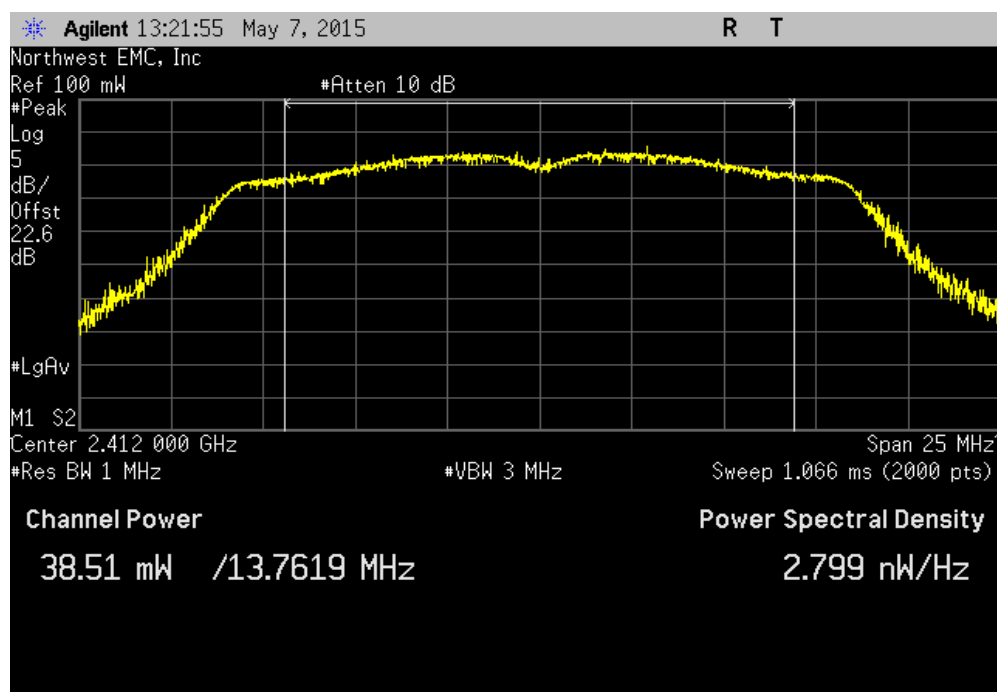


# OUTPUT POWER

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				35.54 mW	1 W	Pass

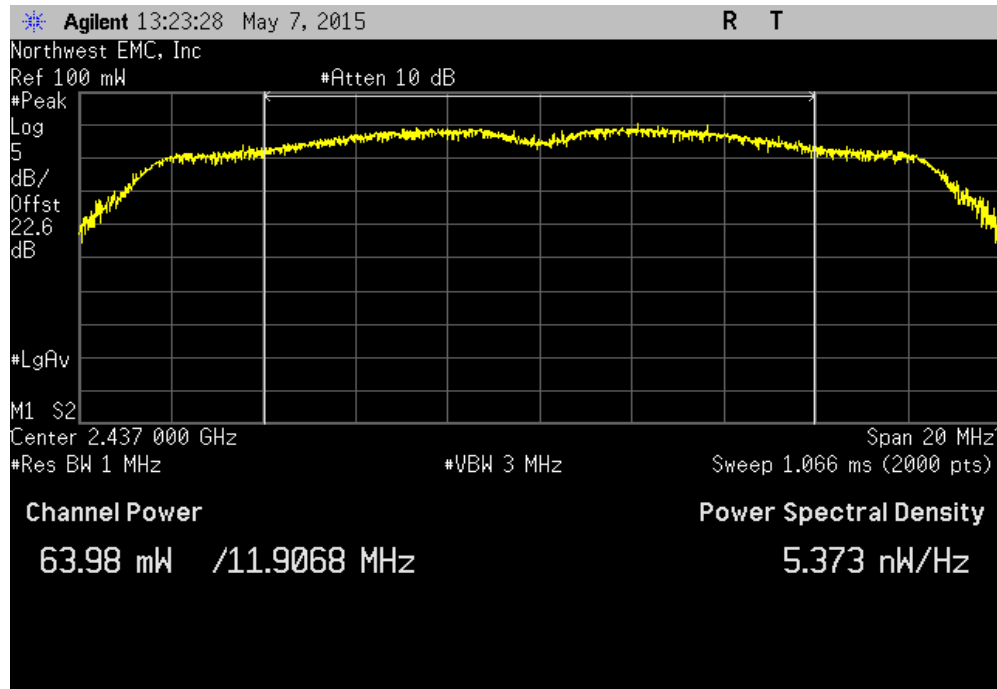


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				38.515 mW	1 W	Pass

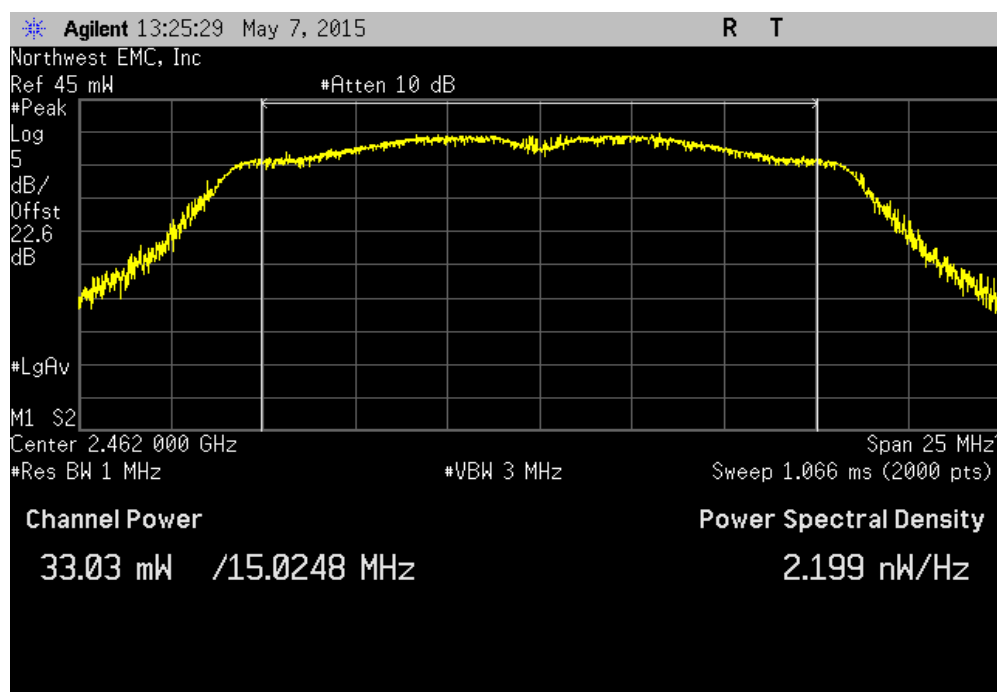


# OUTPUT POWER

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				63.975 mW	1 W	Pass

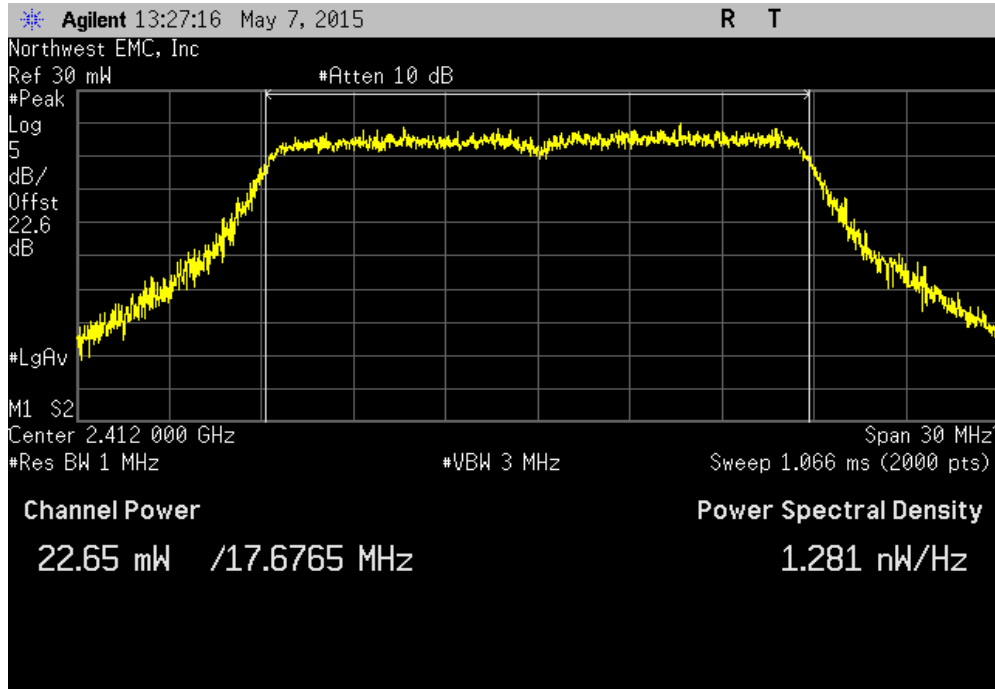


ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				33.034 mW	1 W	Pass

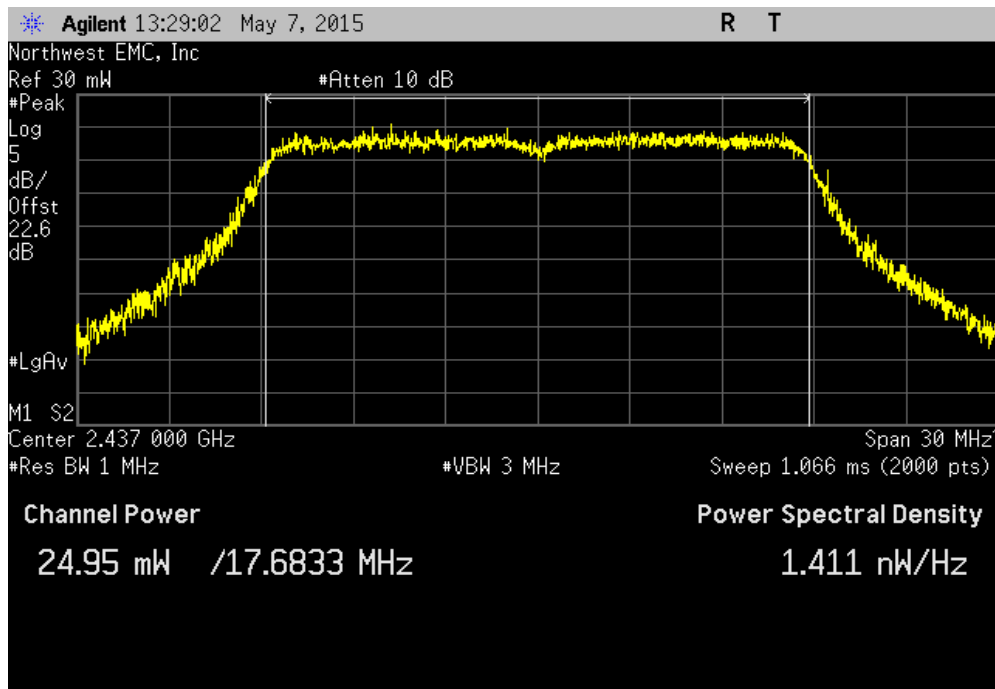


# OUTPUT POWER

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Value				Limit	Result	
22.645 mW				1 W	Pass	

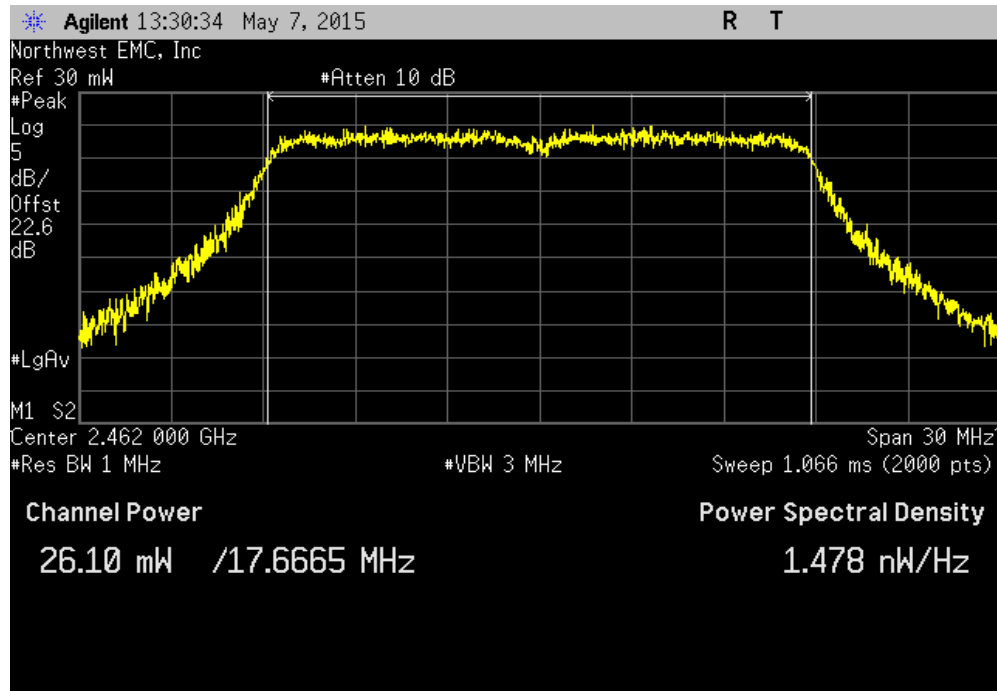


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Value				Limit	Result	
24.946 mW				1 W	Pass	



# OUTPUT POWER

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Value				Limit	Result	
26.103 mW				1 W	Pass	



# POWER SPECTRAL DENSITY

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

## TEST DESCRIPTION

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

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


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

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

$$\text{BWCF} = 10 \cdot \text{LOG} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

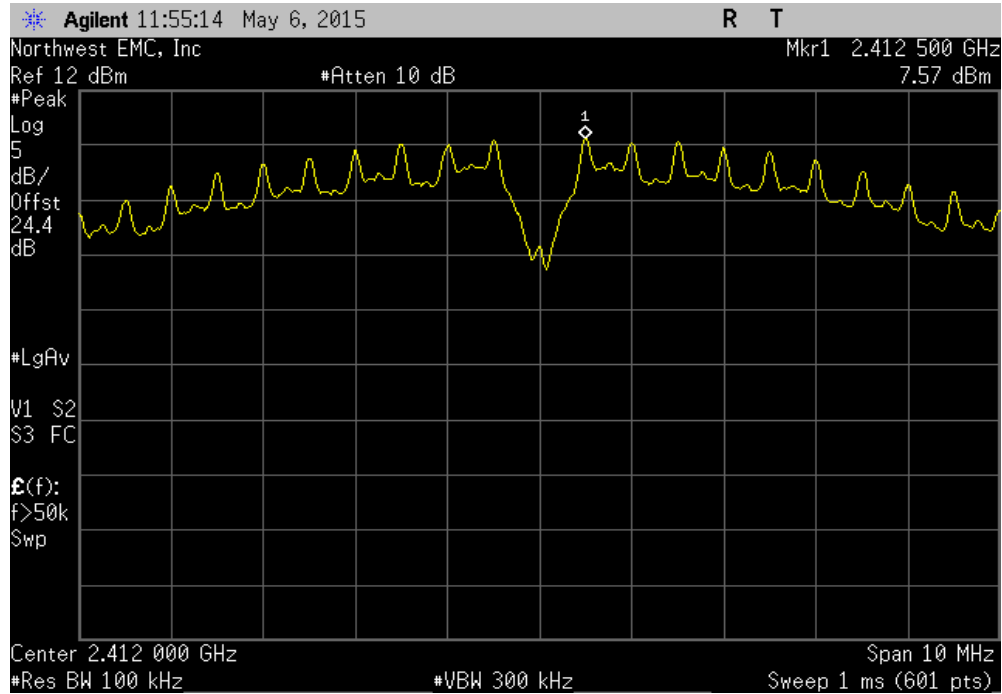


# POWER SPECTRAL DENSITY

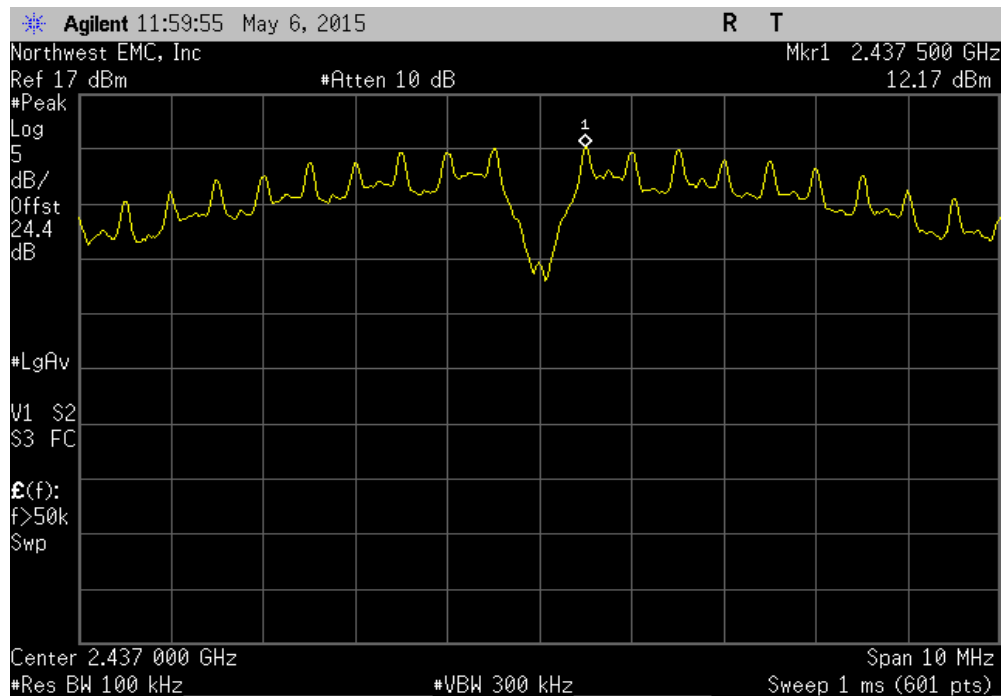
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151	
Serial Number: See Configurations		Date: 05/07/15	
Customer: Logic PD		Temperature: 23.1°C	
Attendees: Adam Ford		Humidity: 41%	
Project: None		Barometric Pres.: 1018.5	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was tested with the fundamental modulated while under test			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature 	
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz
		Value dBm/3kHz	Limit dBm/3kHz
			Results
ANT 2.4GHz			
802.11(b) 1 Mbps			
	Low Channel 1, 2412 MHz	7.575	-15.2
	Mid Channel 6, 2437 MHz	12.167	-15.2
	High Channel 11, 2462 MHz	12.549	-15.2
802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	6.899	-15.2
	Mid Channel 6, 2437 MHz	11.692	-15.2
	High Channel 11, 2462 MHz	11.934	-15.2
802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	6.554	-15.2
	Mid Channel 6, 2437 MHz	10.099	-15.2
	High Channel 11, 2462 MHz	5.851	-15.2
802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	5.496	-15.2
	Mid Channel 6, 2437 MHz	5.934	-15.2
	High Channel 11, 2462 MHz	4.692	-15.2
802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	3.932	-15.2
	Mid Channel 6, 2437 MHz	4.337	-15.2
	High Channel 11, 2462 MHz	4.641	-15.2
802.11(n) MCS0			
	Low Channel 1, 2412 MHz	6.453	-15.2
	Mid Channel 6, 2437 MHz	9.318	-15.2
	High Channel 11, 2462 MHz	5.886	-15.2
802.11(n) MCS7			
	Low Channel 1, 2412 MHz	2.684	-15.2
	Mid Channel 6, 2437 MHz	3.202	-15.2
	High Channel 11, 2462 MHz	3.333	-15.2

# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.575	-15.2	-7.625	8	Pass

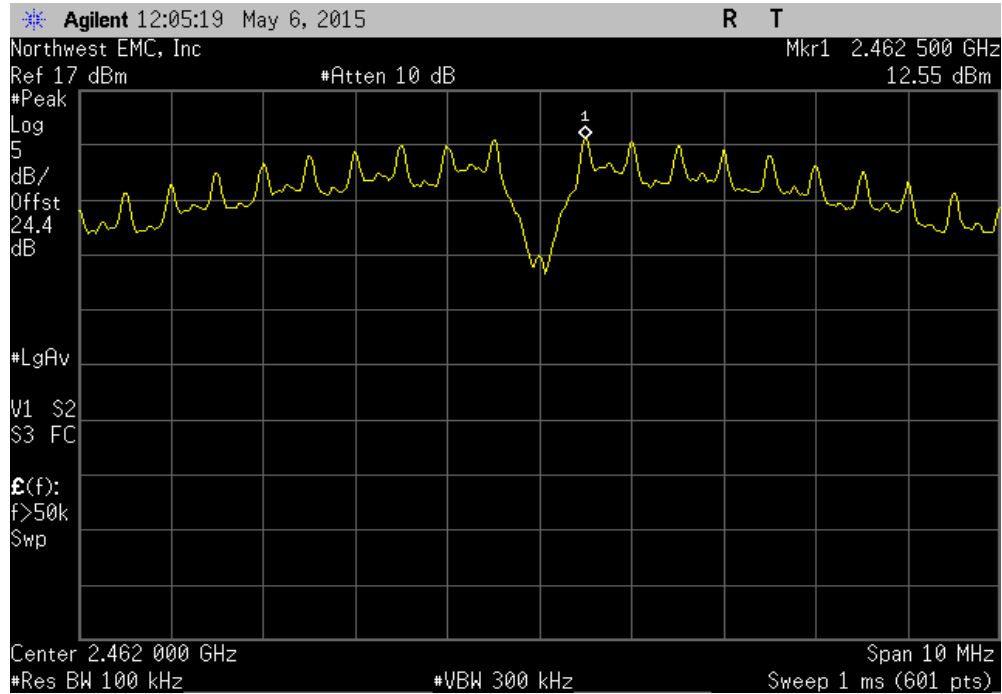


ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	12.167	-15.2	-3.033	8	Pass

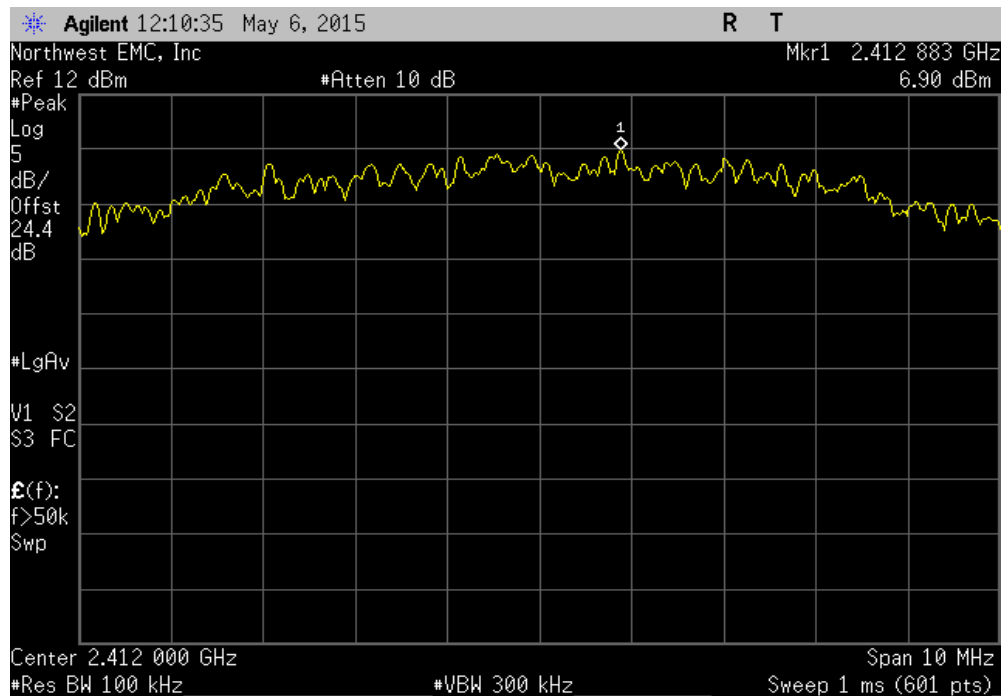


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	12.549	-15.2	-2.651	8	Pass	

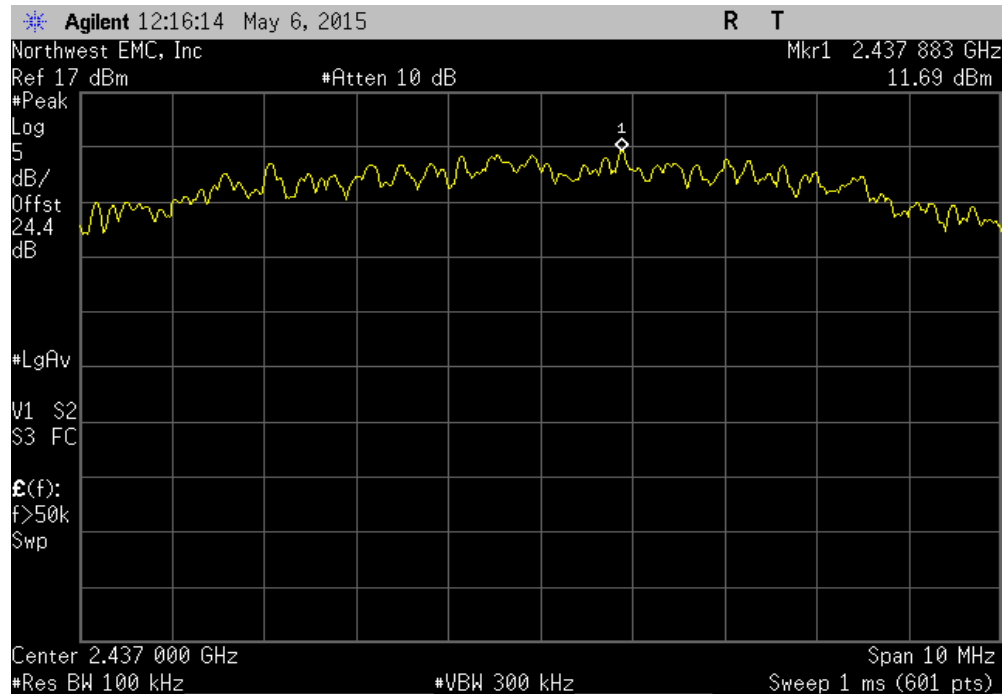


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.899	-15.2	-8.301	8	Pass	

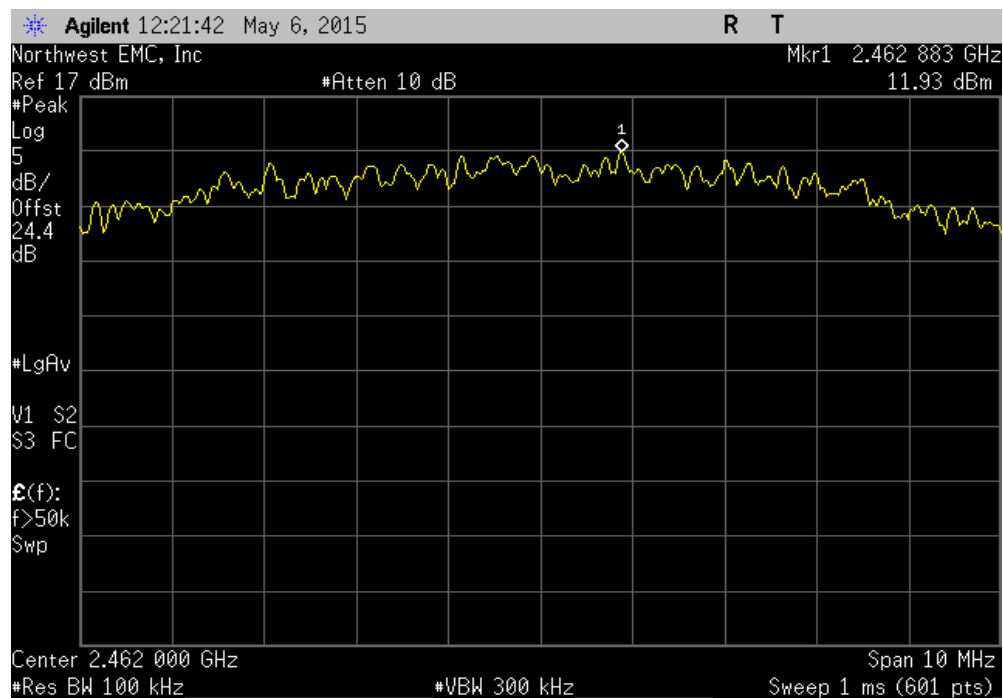


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	11.692	-15.2	-3.508	8	Pass	

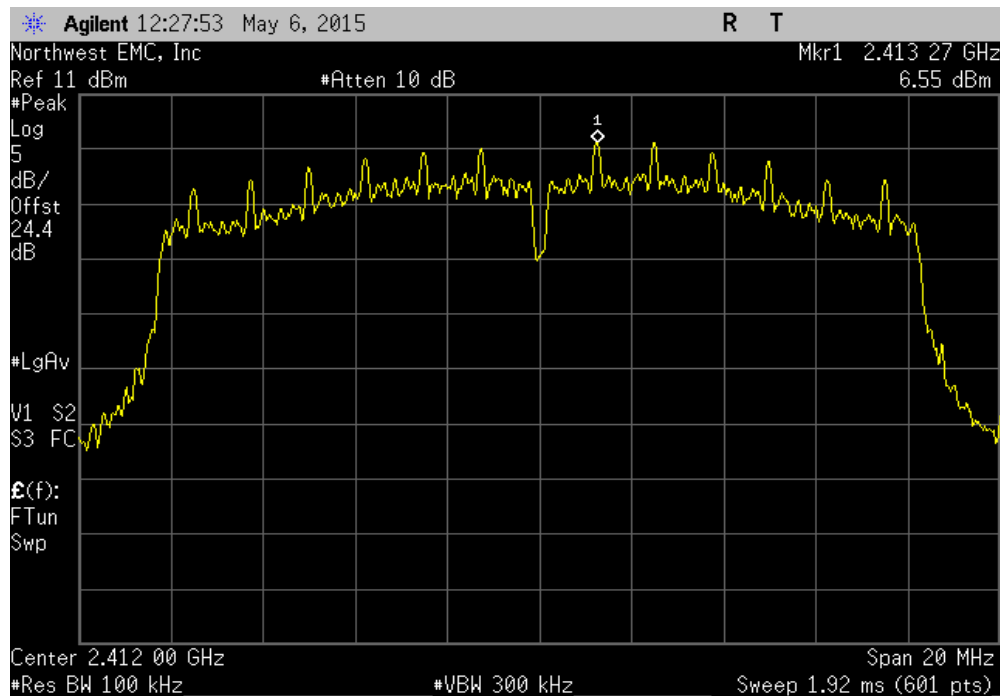


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	11.934	-15.2	-3.266	8	Pass	

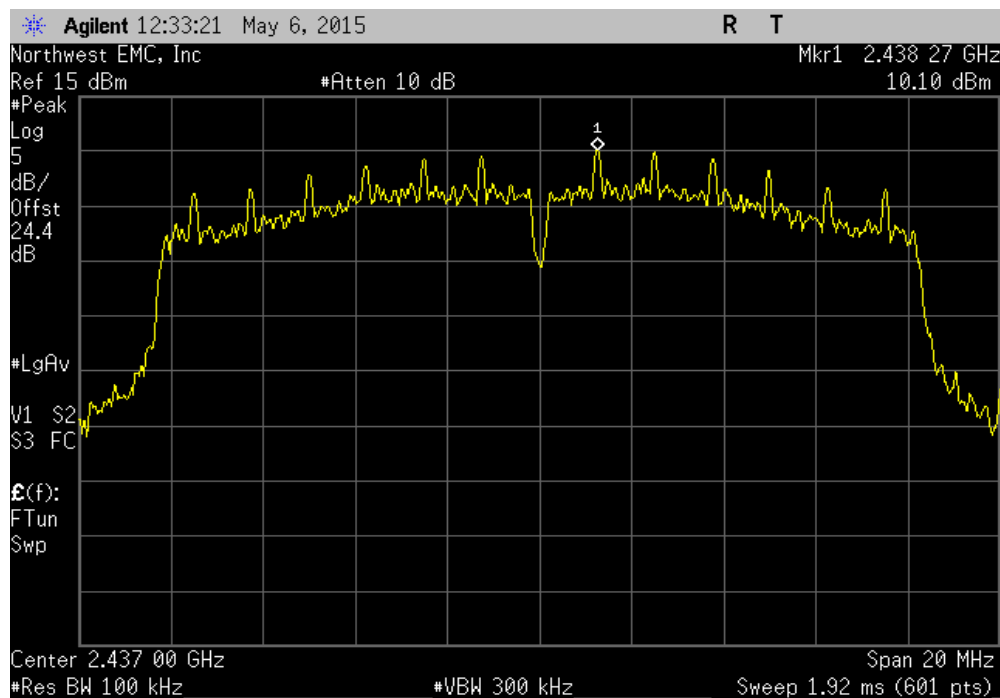


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.554	-15.2	-8.646	8	Pass	

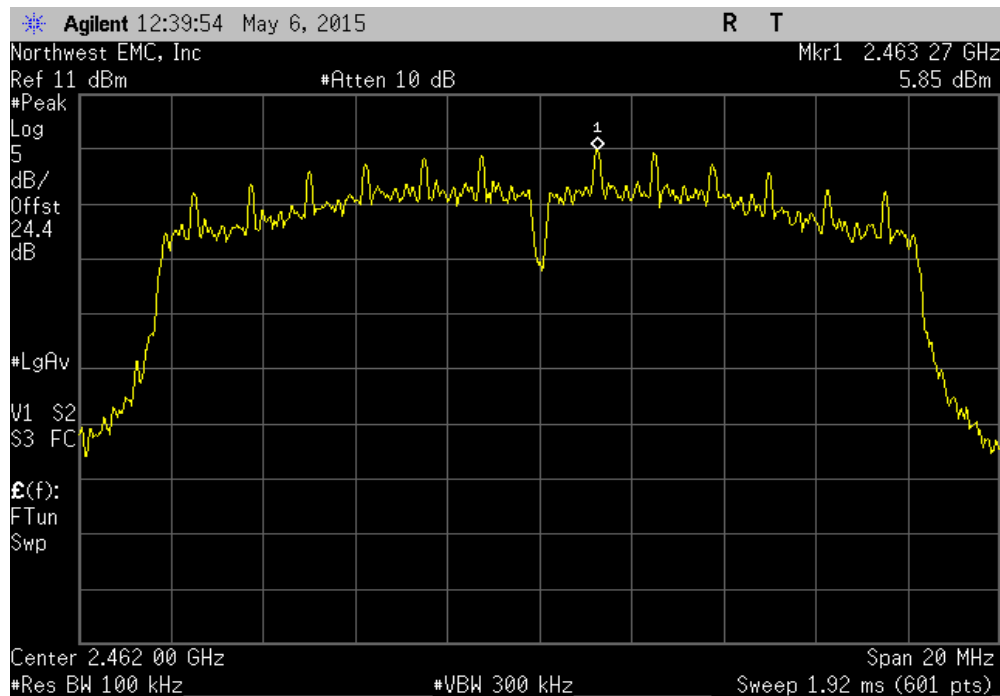


ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	10.099	-15.2	-5.101	8	Pass	

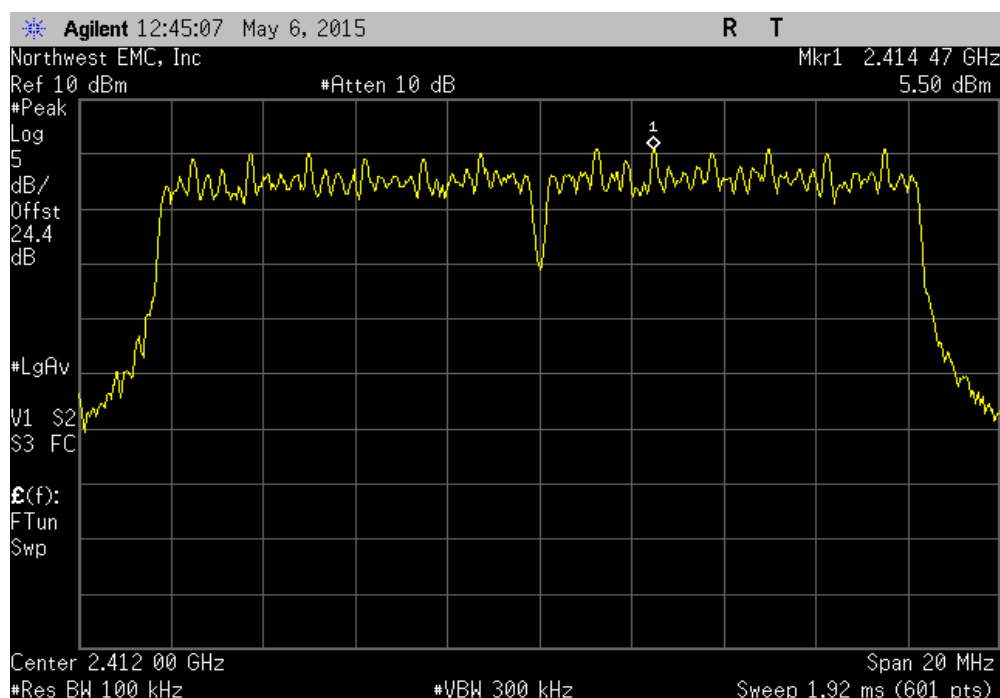


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.851	-15.2	-9.349	8	Pass

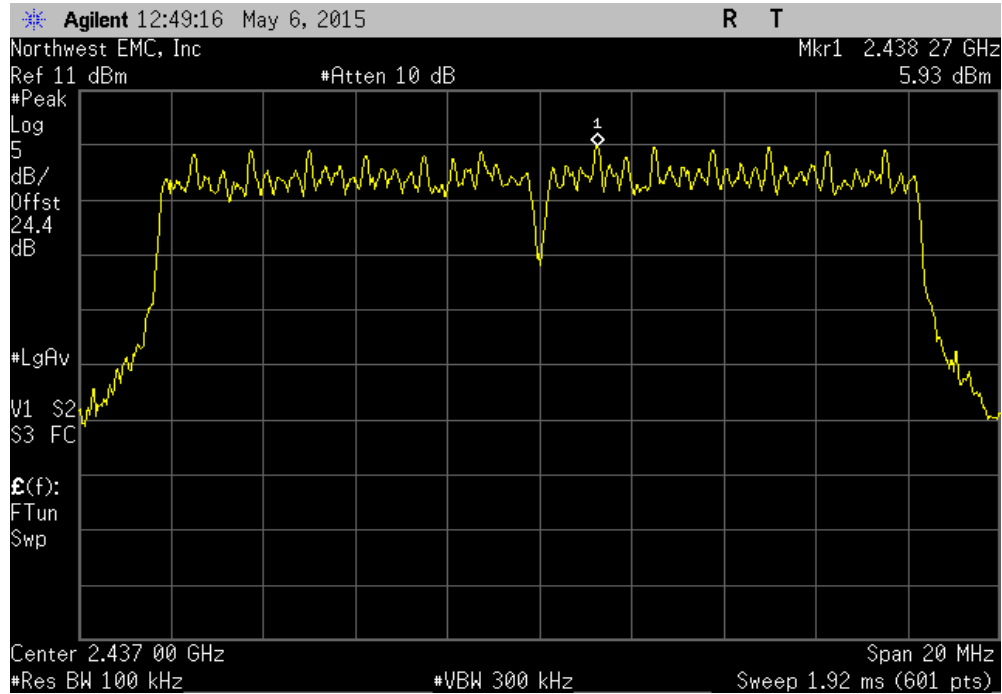


ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.496	-15.2	-9.704	8	Pass

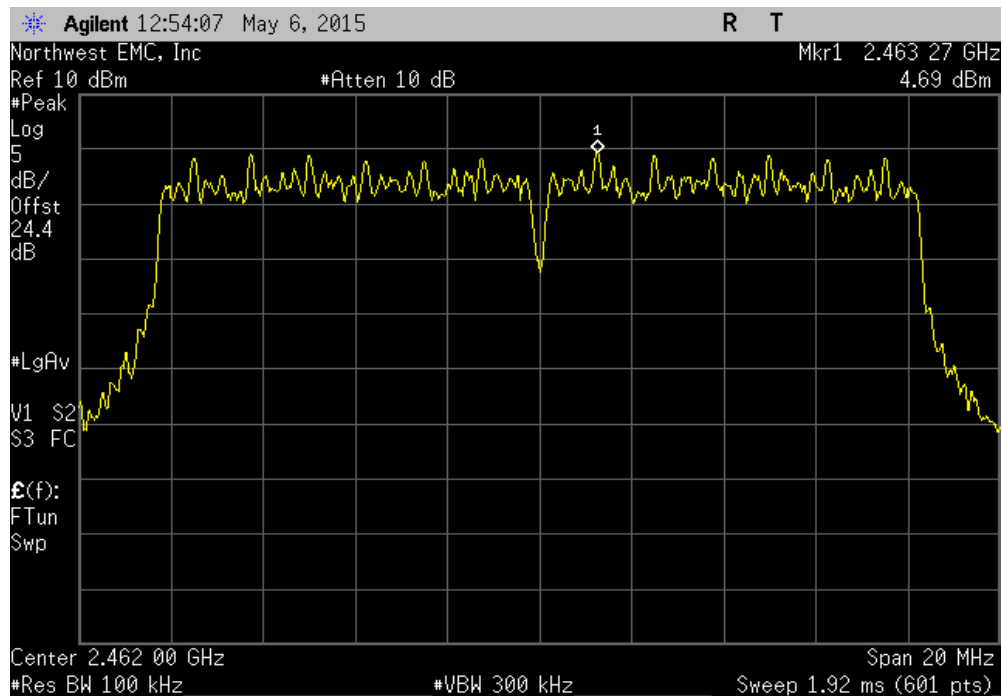


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.934	-15.2	-9.266	8	Pass	

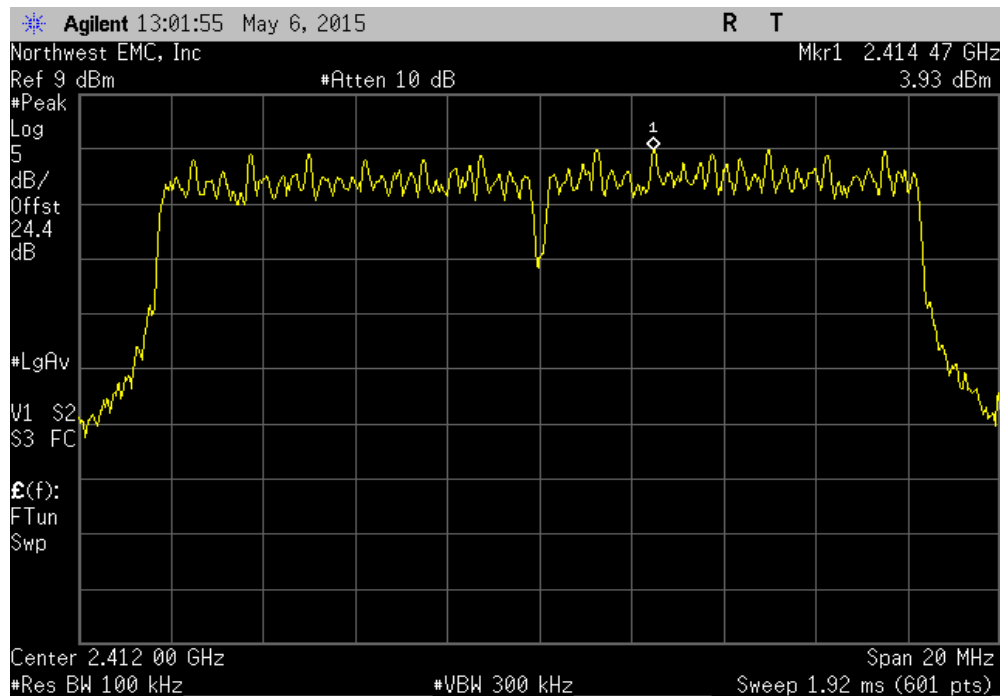


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.692	-15.2	-10.508	8	Pass	

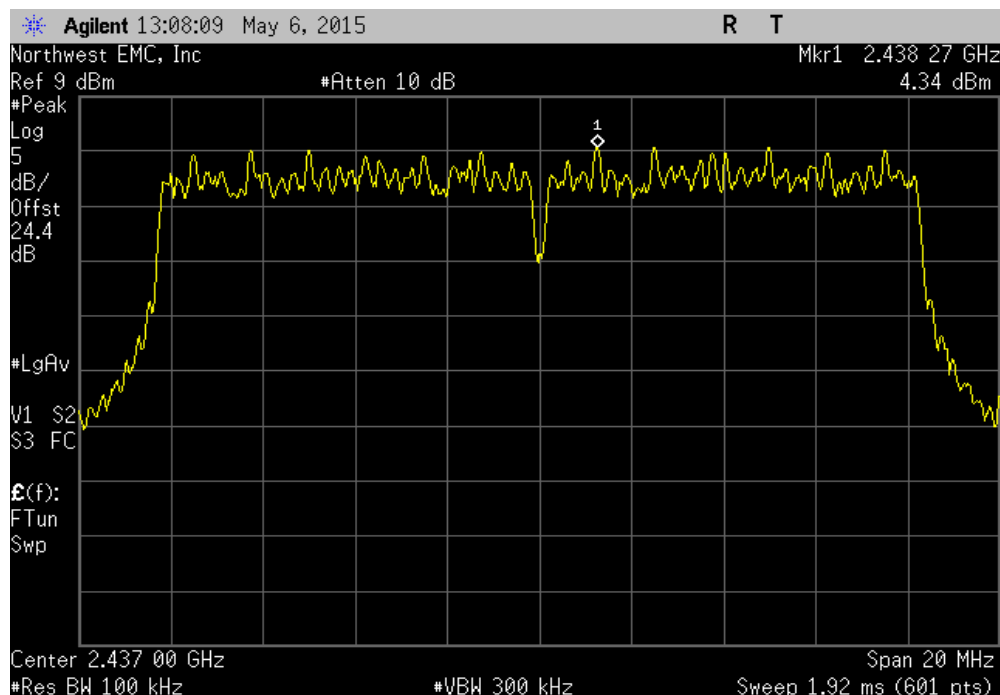


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	3.932	-15.2	-11.268	8	Pass	



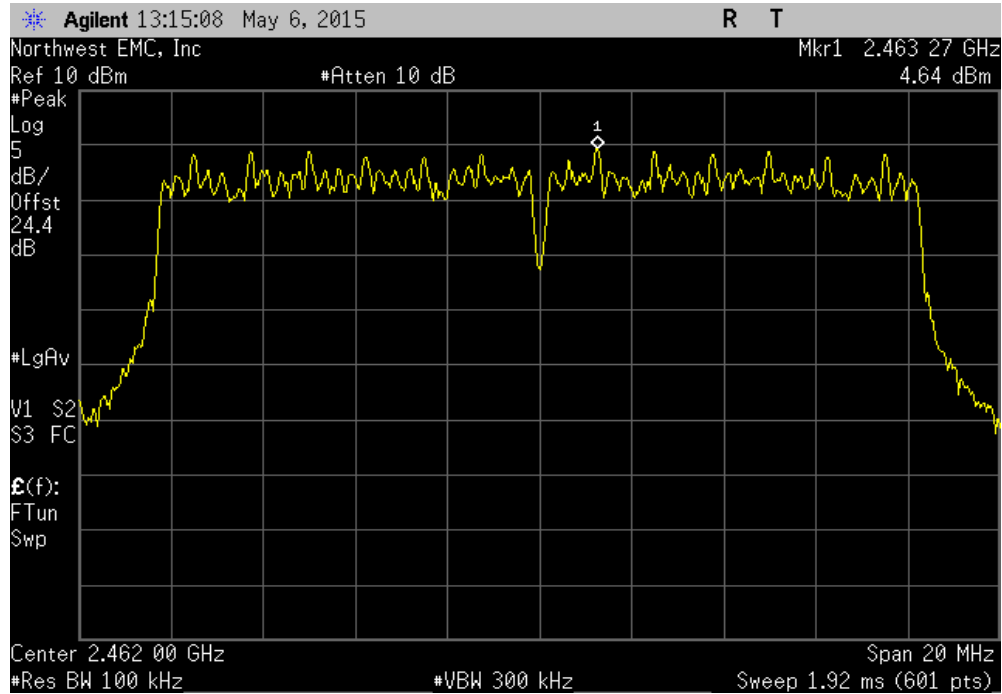
ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.337	-15.2	-10.863	8	Pass	



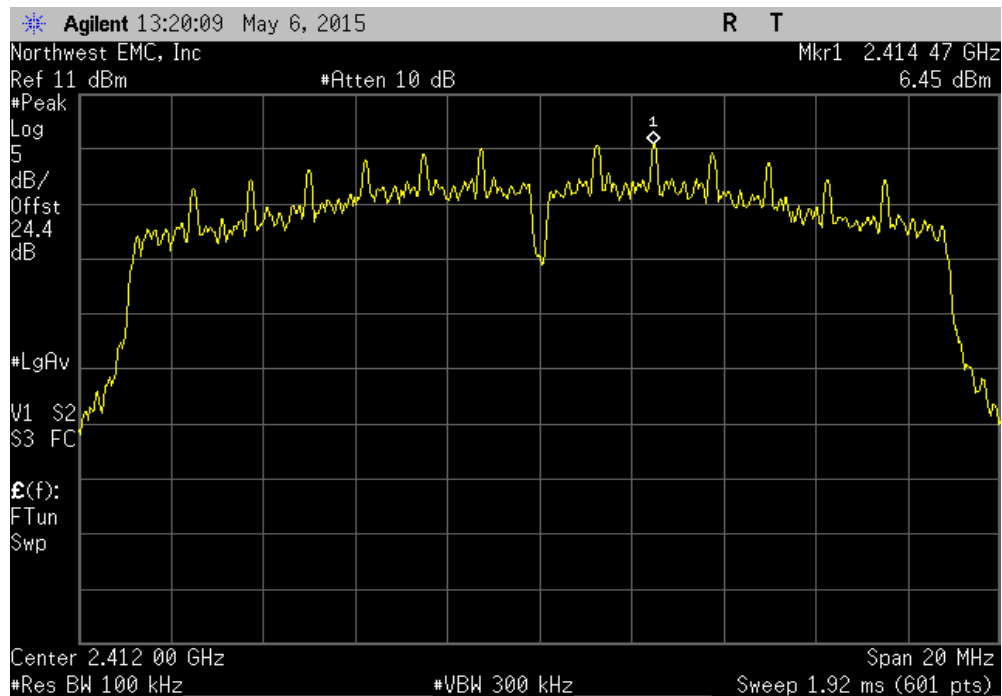


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.641	-15.2	-10.559	8	Pass	

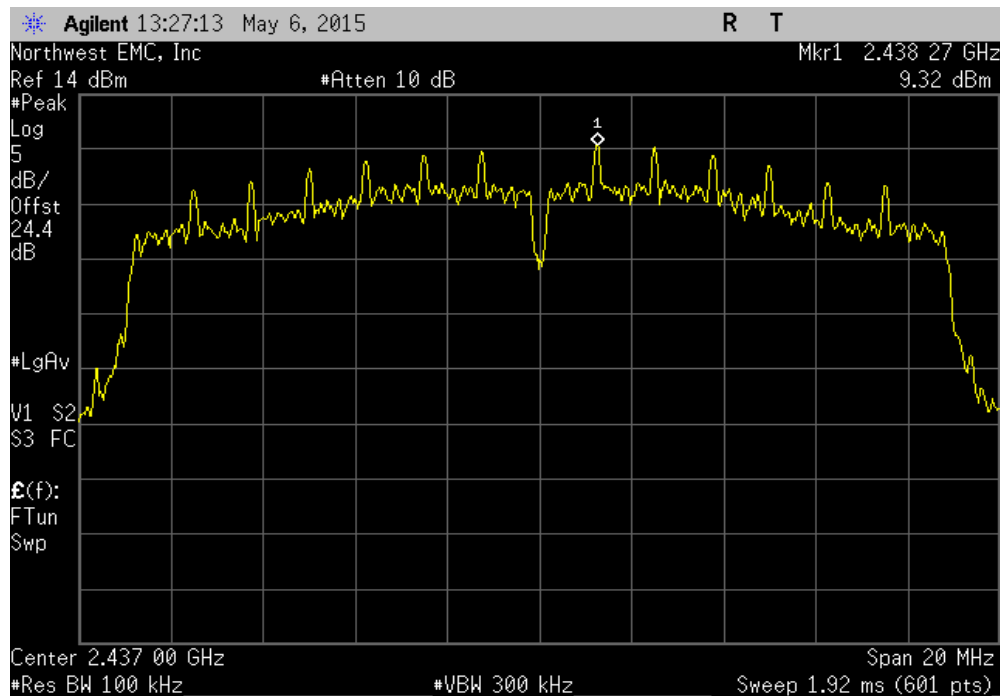


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.453	-15.2	-8.747	8	Pass	

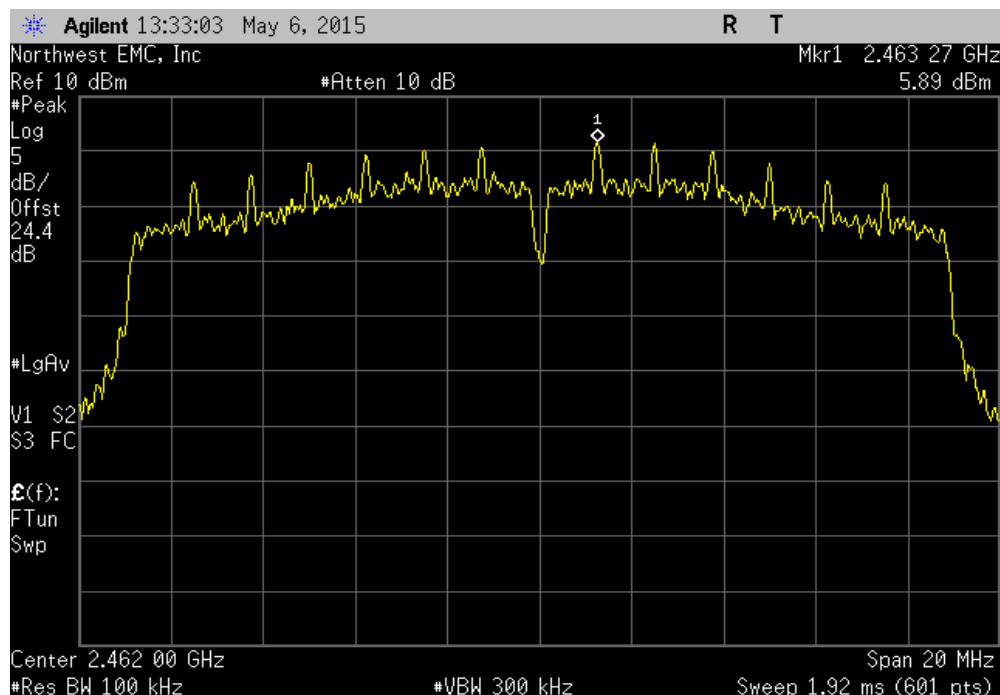


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	9.318	-15.2	-5.882	8	Pass

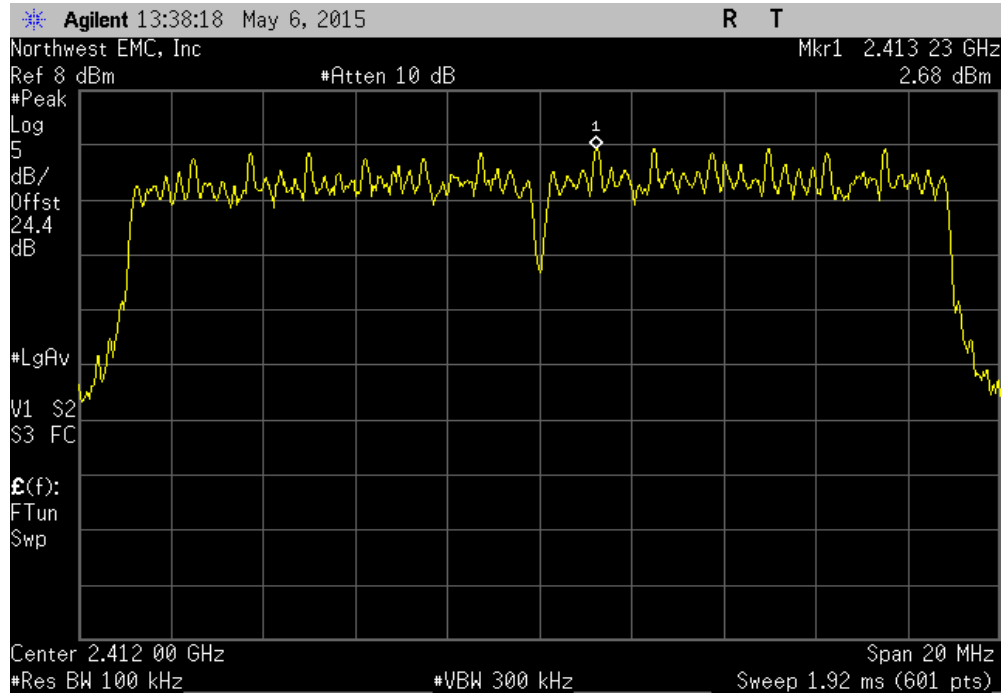


ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.886	-15.2	-9.314	8	Pass

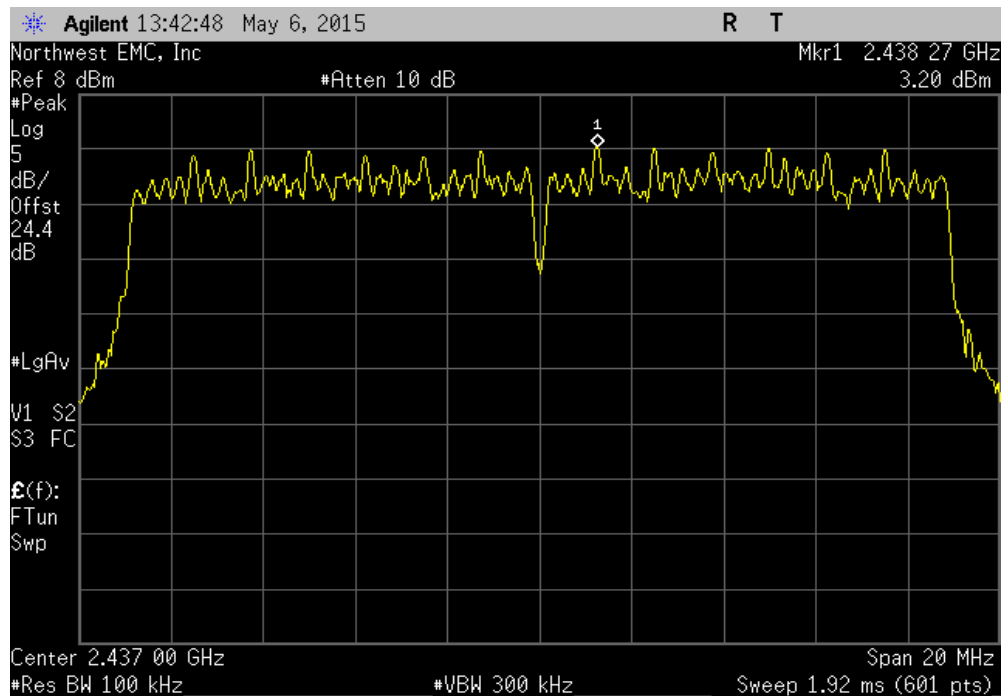


# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	2.684	-15.2	-12.516	8	Pass	

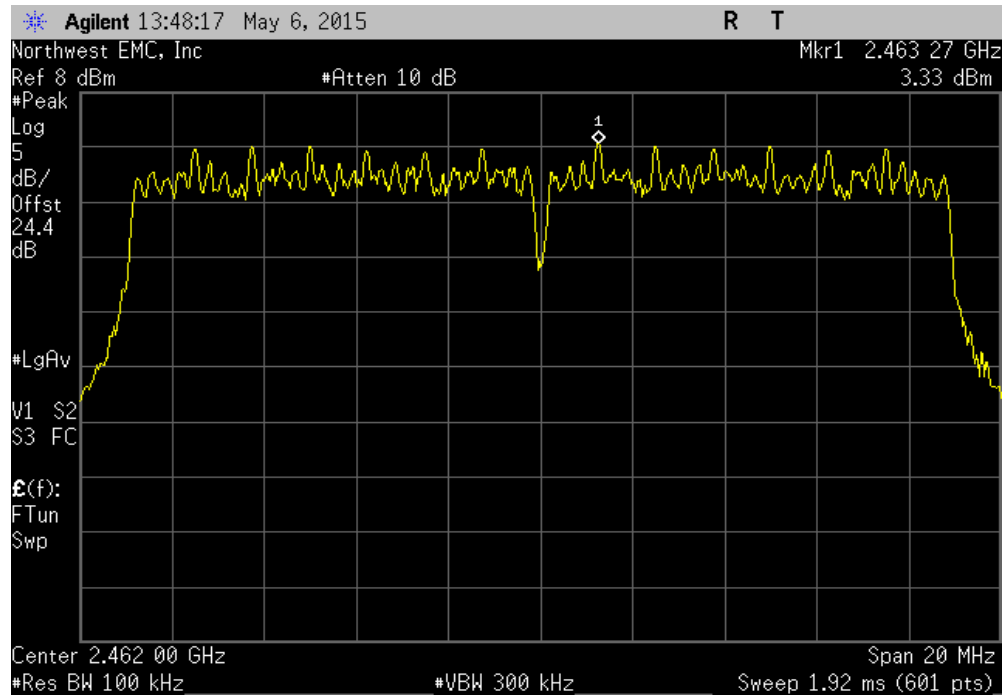


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	3.202	-15.2	-11.998	8	Pass	



# POWER SPECTRAL DENSITY

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	3.333	-15.2	-11.867	8	Pass



# DUTY CYCLE

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

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Signal Generator MXG	Agilent	N5183A	TIK	10/17/2014	36
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

## TEST DESCRIPTION


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.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used.

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

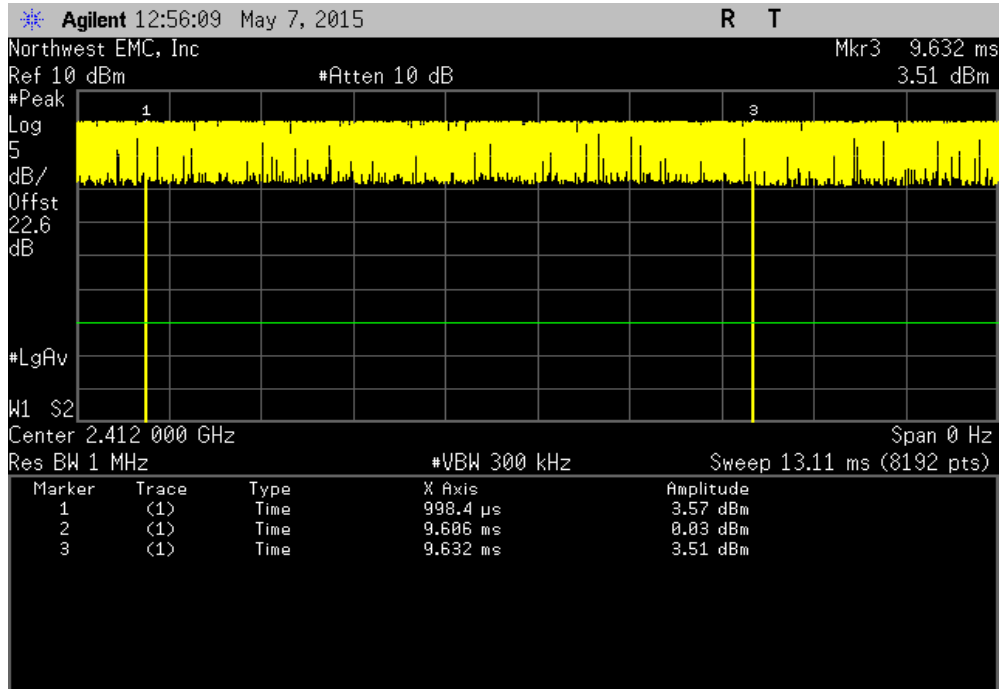
If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in this report to only measure during the burst duration.

# DUTY CYCLE

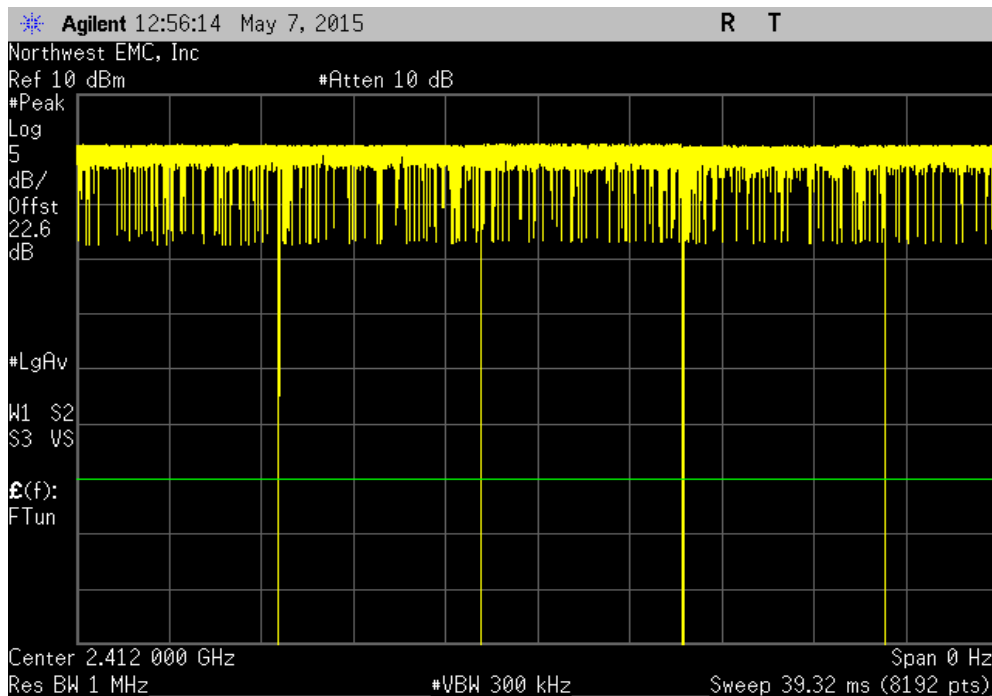
EUT: DM3730 Torpedo + Wireless SOM -32		Work Order: LGPD0151				
Serial Number: See Configurations		Date: 05/07/15				
Customer: Logic PD		Temperature: 23.1°C				
Attendees: Adam Ford		Humidity: 41%				
Project: None		Barometric Pres.: 1018.5				
Tested by: Brandon Hobbs		Power: 110VAC/60Hz				
Job Site: MN08		Test Method				
FCC 15.247:2015		ANSI C63.10:2009				
COMMENTS						
The EUT was tested with the fundamental modulated while under test						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	5	Signature 				
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
ANT 2.4GHz						
802.11(b) 1 Mbps						
Low Channel 1, 2412 MHz	8.608 ms	8.634 ms	1	99.7	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	8.61 ms	8.634 ms	1	99.7	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	8.608 ms	8.634 ms	1	99.7	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	859.2 us	886.7 us	1	96.9	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	859.2 us	886.7 us	1	96.9	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	859.2 us	886.3 us	1	96.9	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	1.421 ms	1.459 ms	1	97.4	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	1.421 ms	1.459 ms	1	97.4	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 11, 2462 MHz	1.421 ms	1.459 ms	1	97.4	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	248.6 us	286.7 us	1	86.7	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	248.8 us	286.9 us	1	86.7	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	248.6 us	286.7 us	1	86.7	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	172.6 us	210.7 us	1	81.9	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	172.3 us	210.7 us	1	81.8	N/A	N/A
Mid Channel 6, 2437 MHz	N/A	N/A	6	N/A	N/A	N/A
High Channel 11, 2462 MHz	172.9 us	211 us	1	81.9	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	6	N/A	N/A	N/A
802.11(n) MCS0						
Low Channel 1, 2412 MHz	1.329 ms	1.367 ms	1	97.2	N/A	N/A
Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 6, 2437 MHz	1.329 ms	1.367 ms	1	97.2	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	1.329 ms	1.367 ms	1	97.2	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7						
Low Channel 1, 2412 MHz	160.7 us	198.8 us	1	80.8	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	160.6 us	198.7 us	1	80.8	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	160.9 us	199 us	1	80.9	N/A	N/A
High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A

# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.608 ms	8.634 ms	1	99.7	N/A	N/A

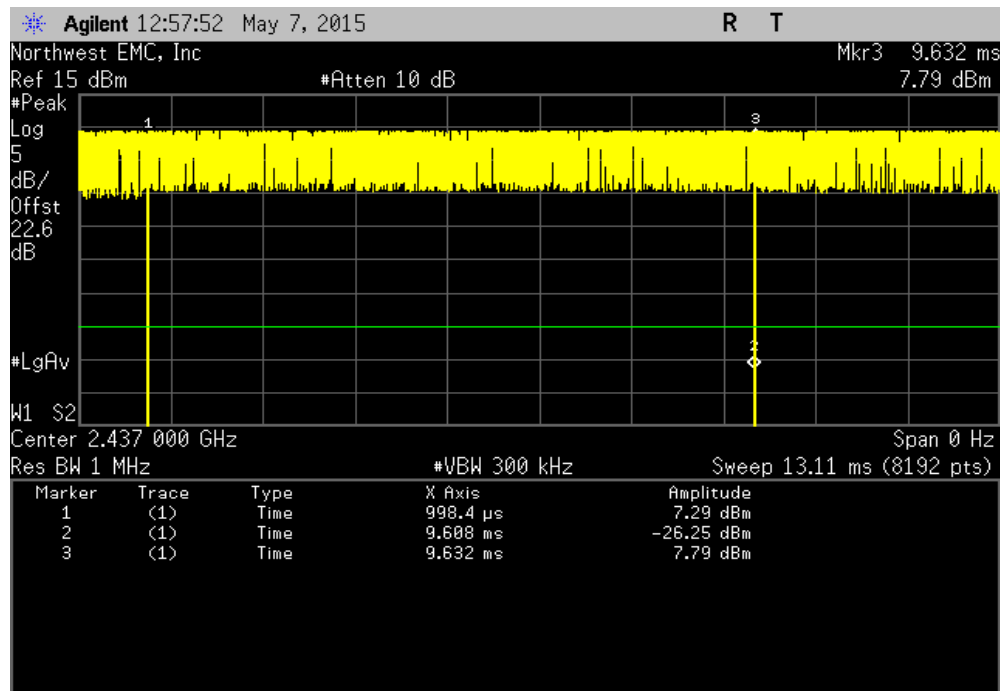


ANT 2.4GHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

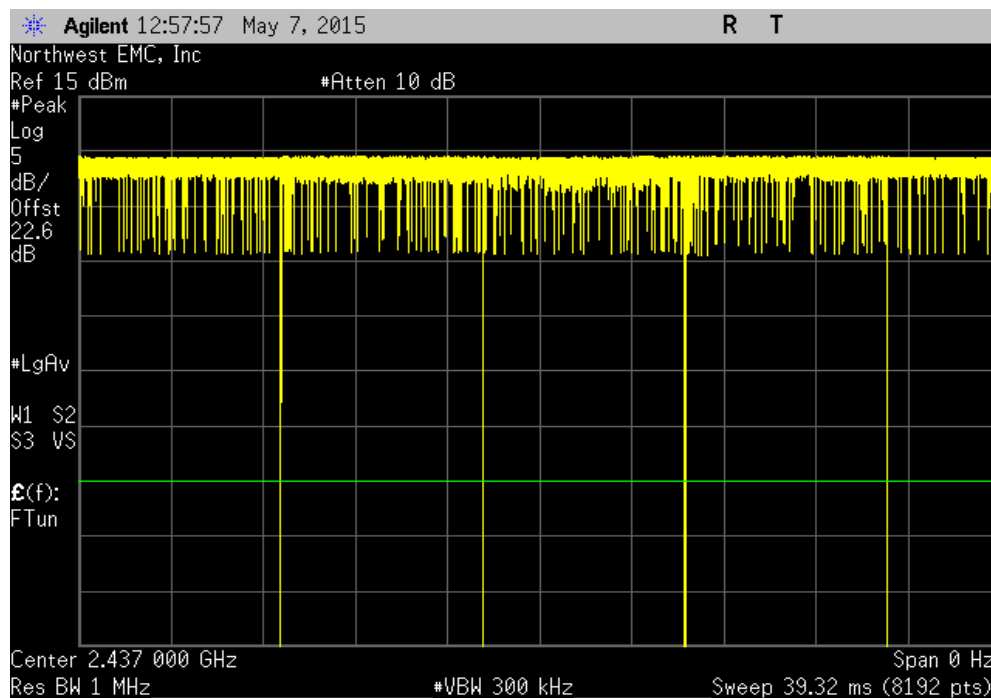


# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.61 ms	8.634 ms	1	99.7	N/A	N/A



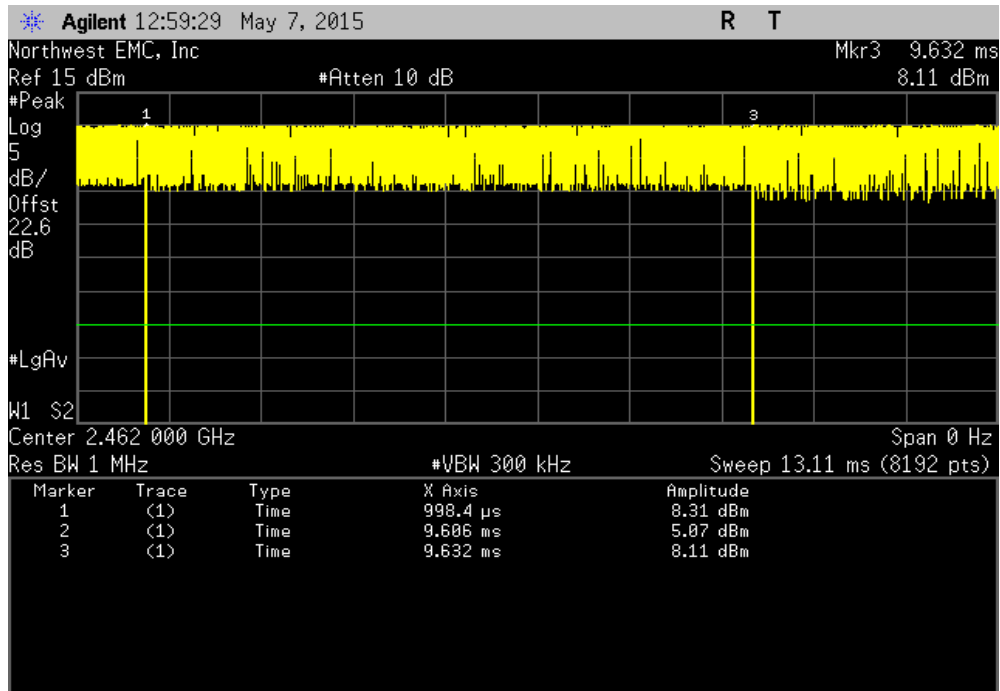
ANT 2.4GHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



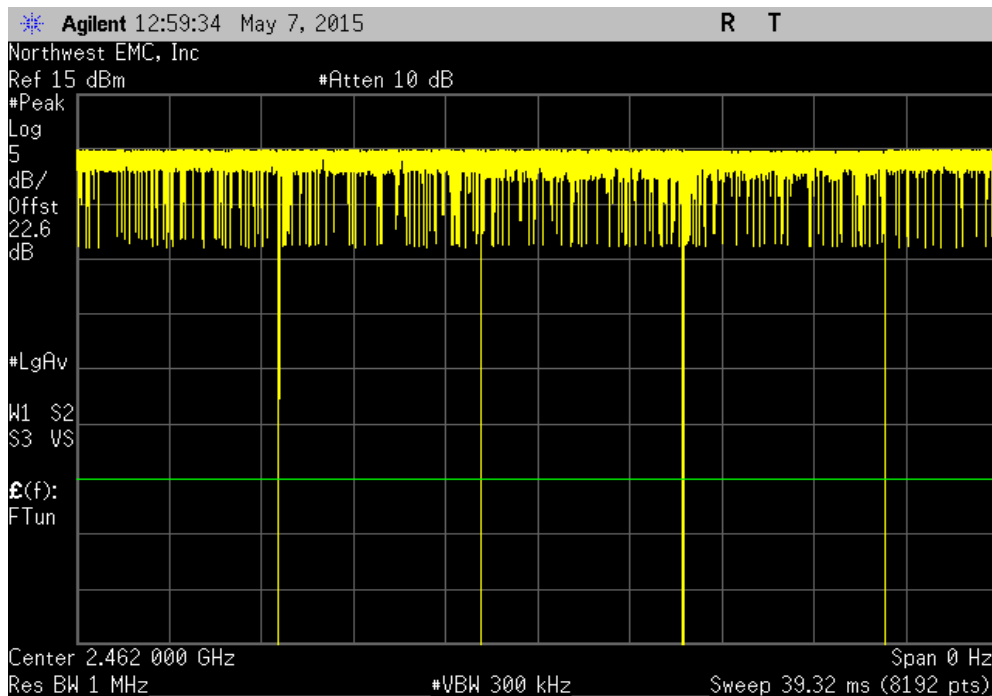


# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.608 ms	8.634 ms	1	99.7	N/A	N/A

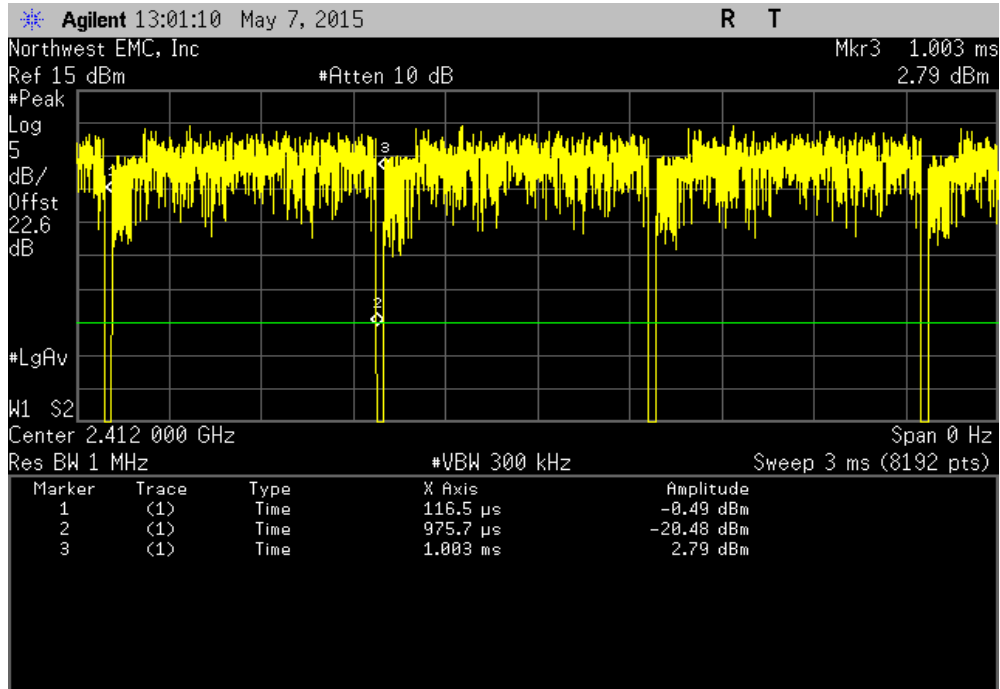


ANT 2.4GHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

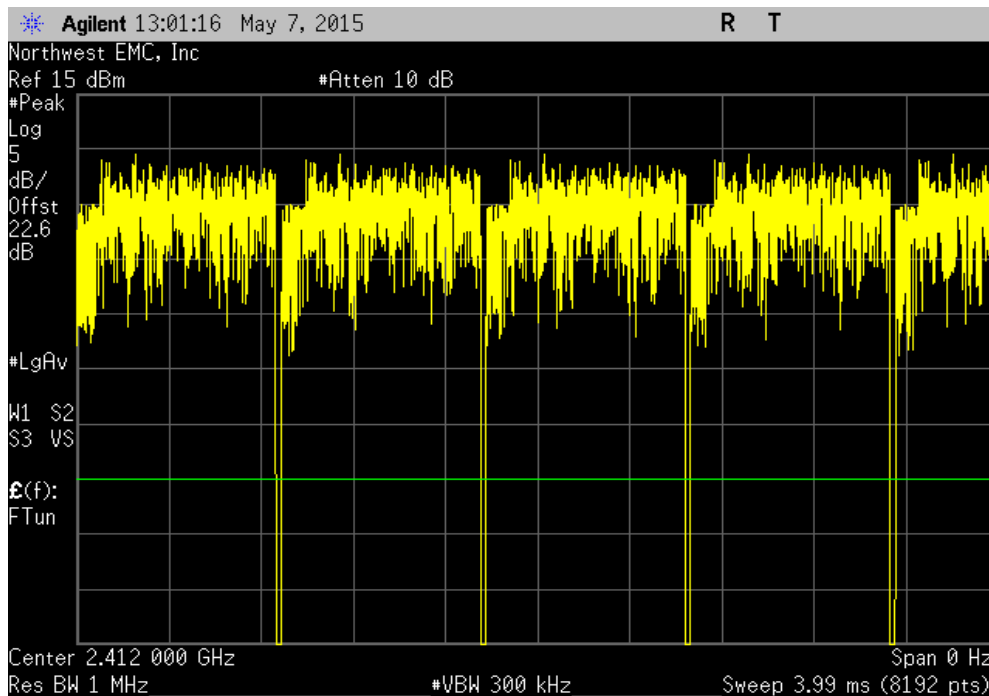


# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
859.2 us	886.7 us	1	96.9	N/A	N/A	

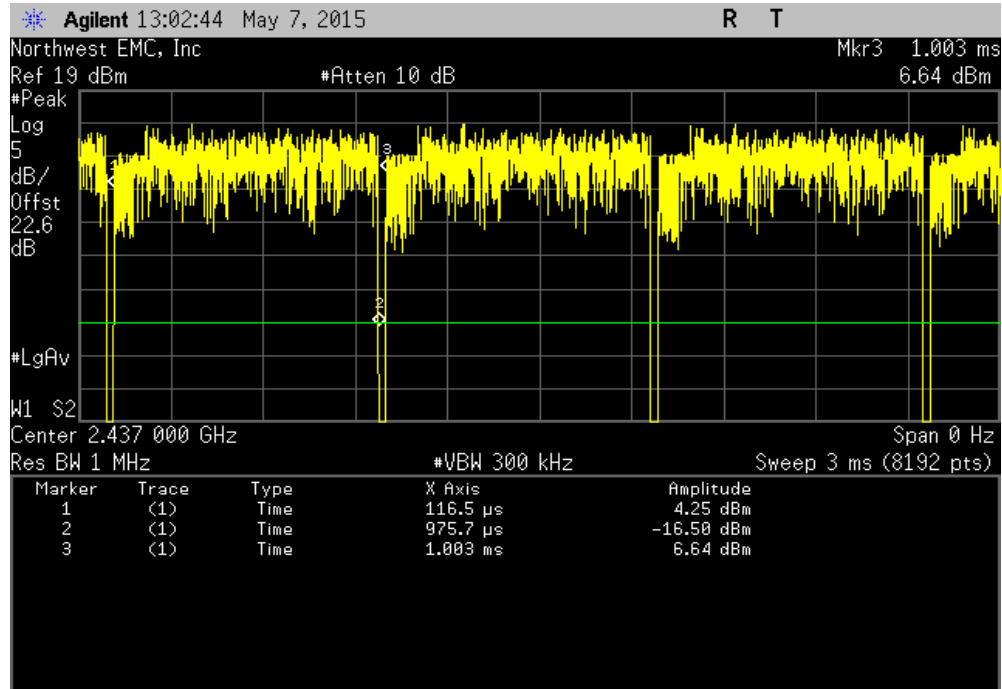


ANT 2.4GHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

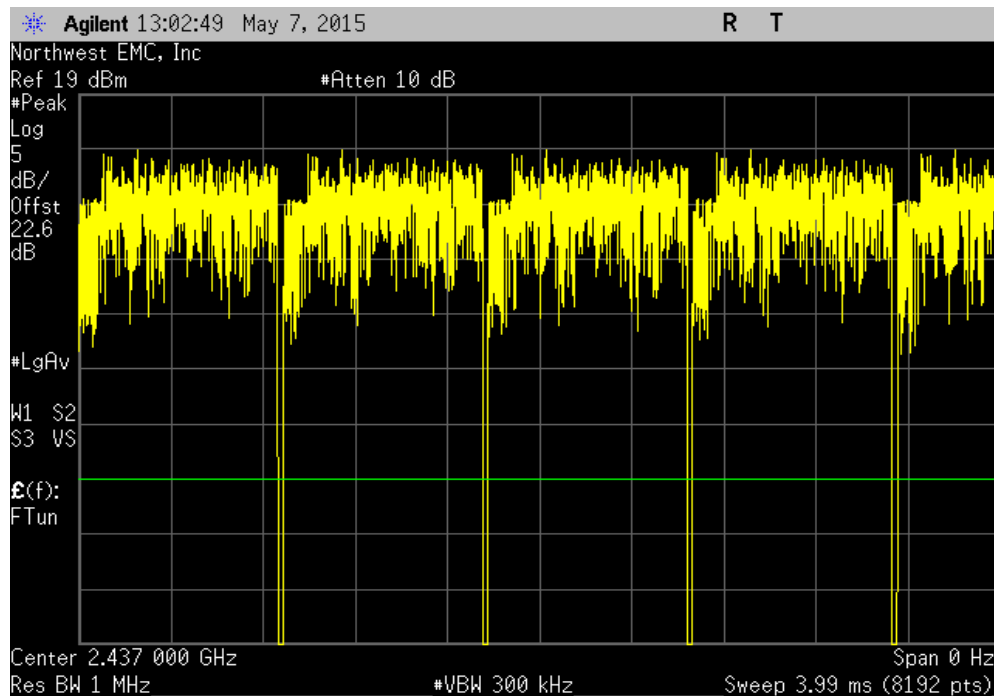


# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
859.2 us	886.7 us	1	96.9	N/A	N/A	

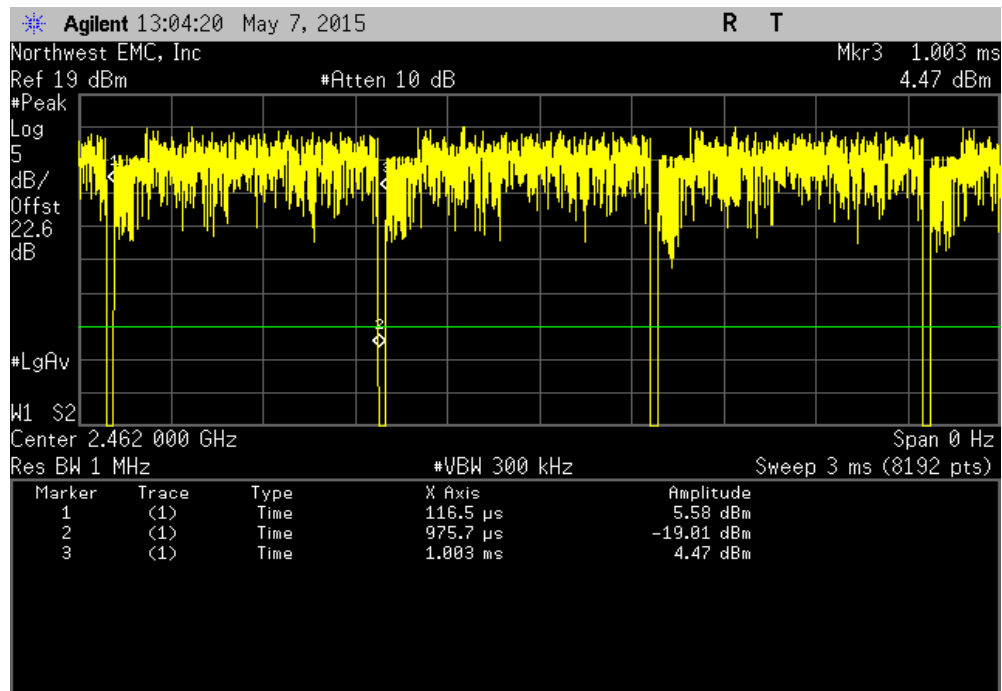


ANT 2.4GHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

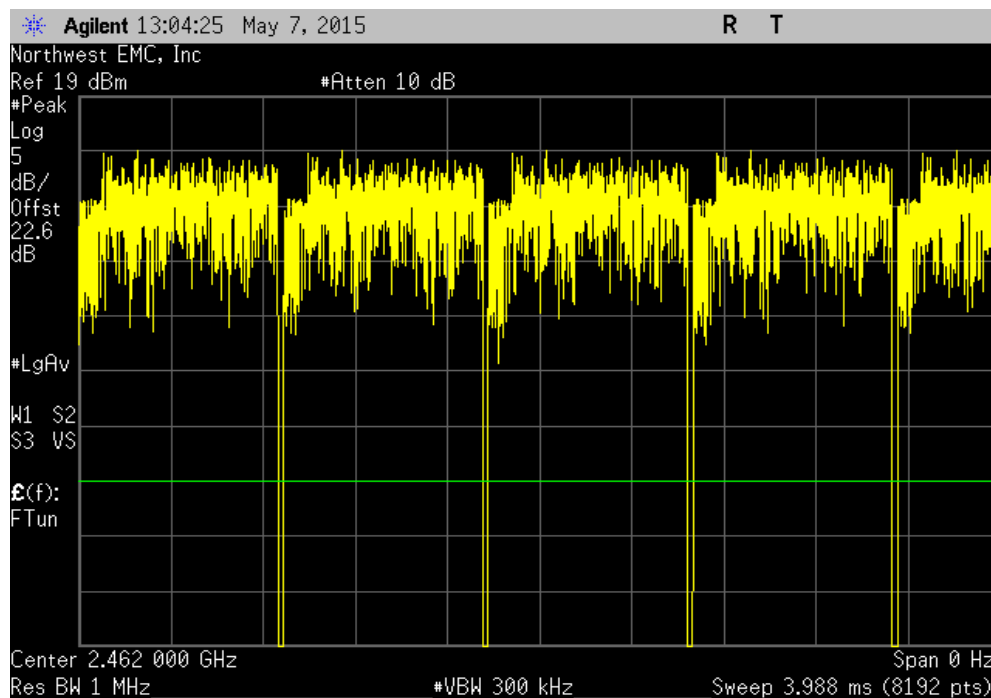


# DUTY CYCLE

ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
859.2 us	886.3 us	1	96.9	N/A	N/A	

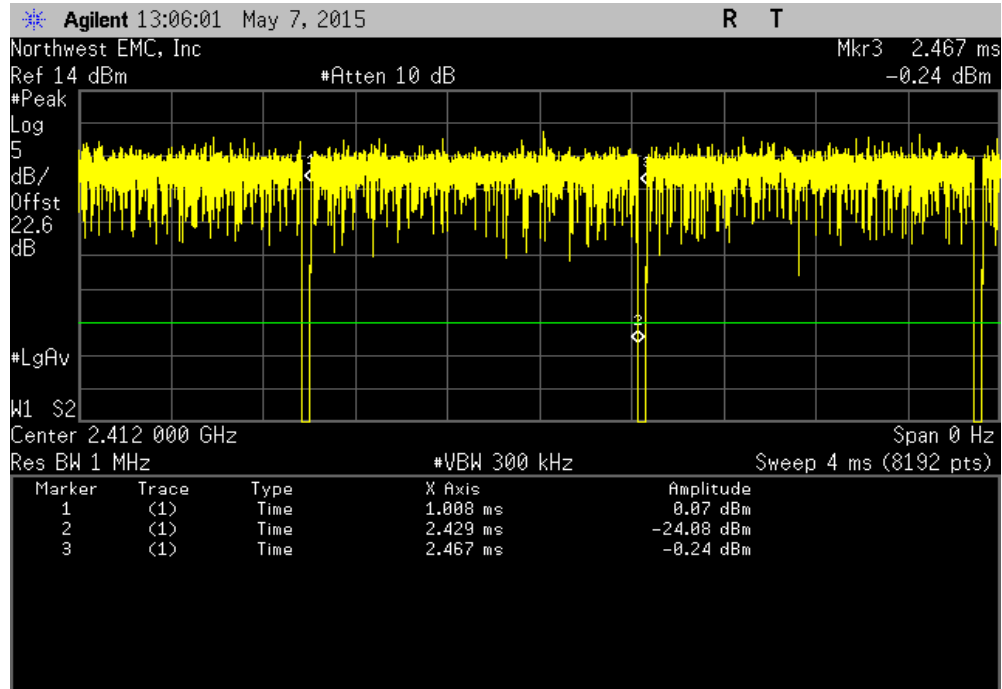


ANT 2.4GHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

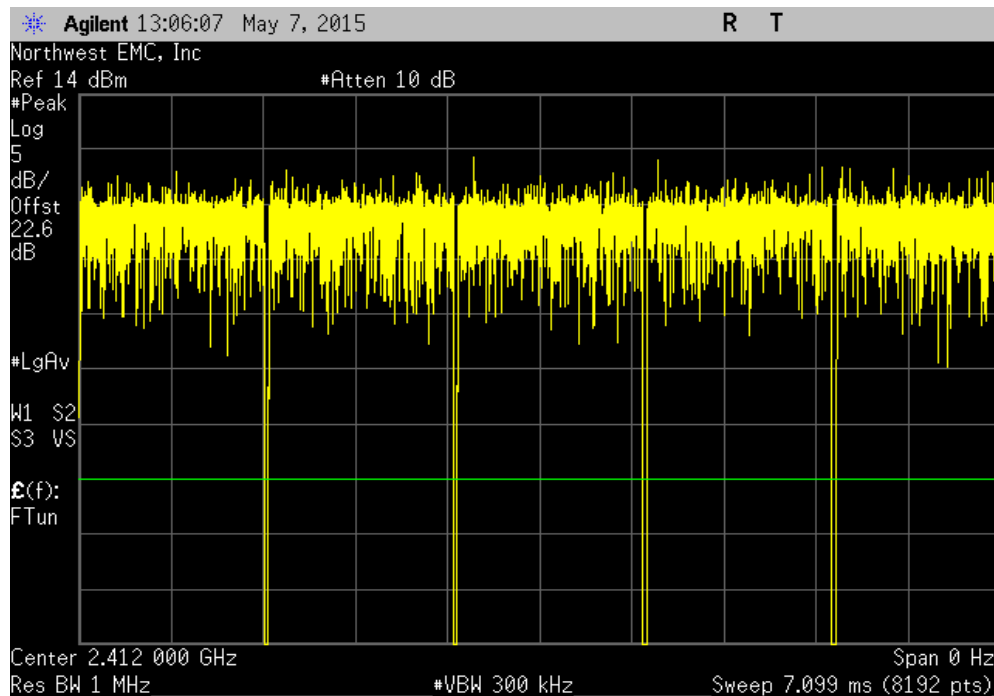


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A

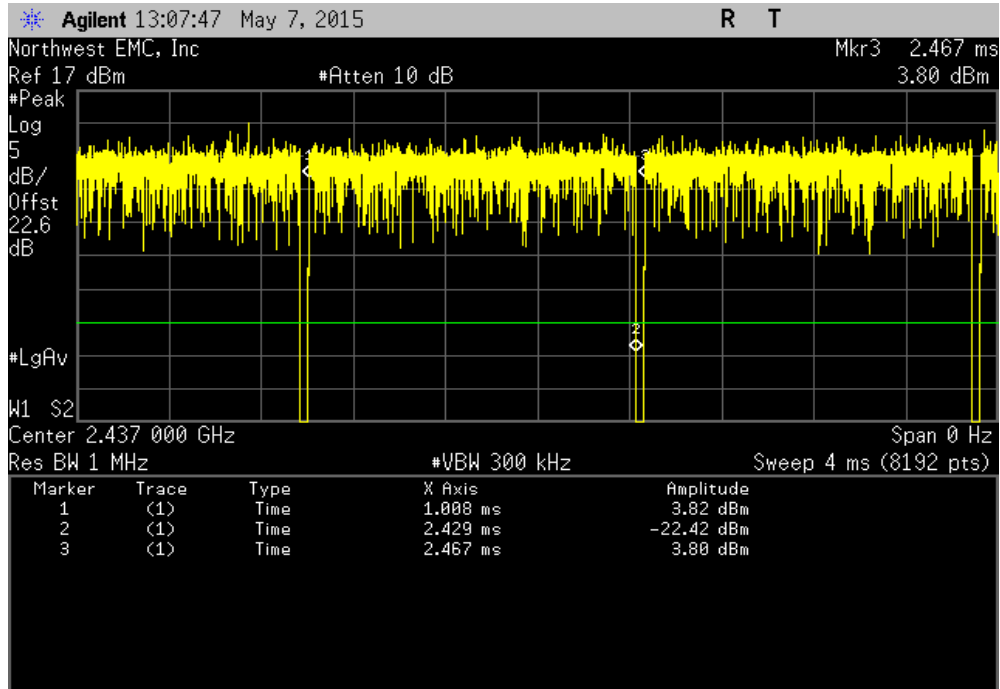


ANT 2.4GHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

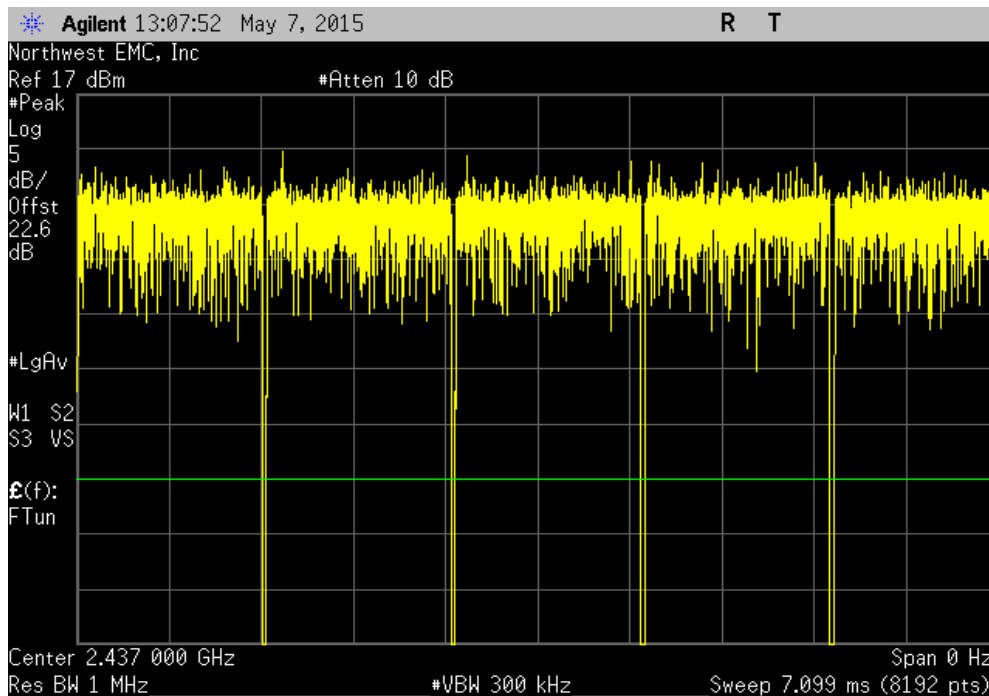


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A

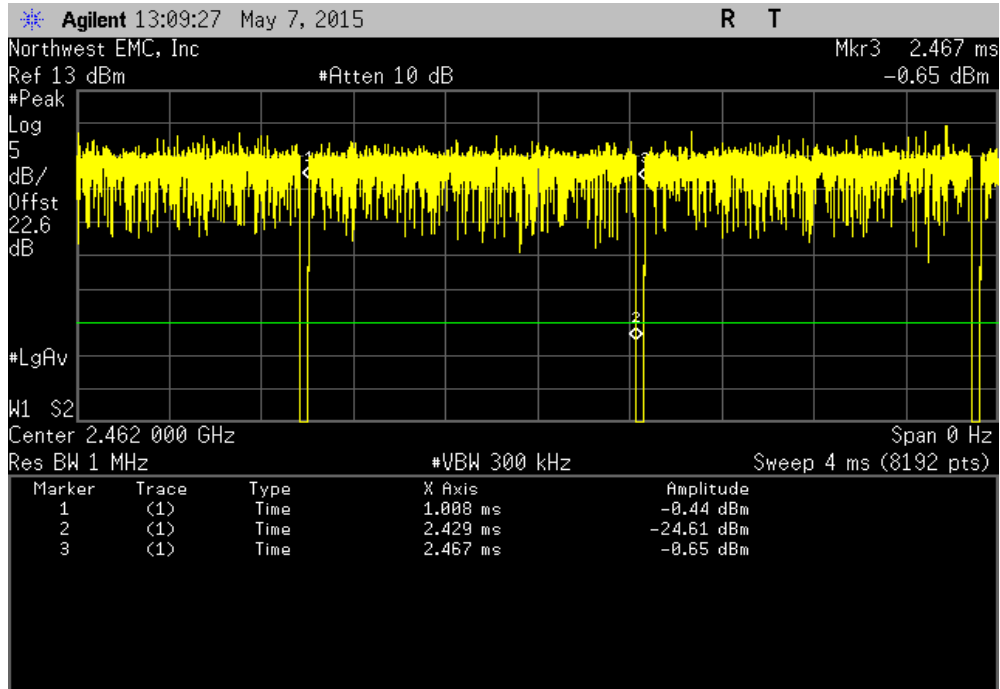


ANT 2.4GHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

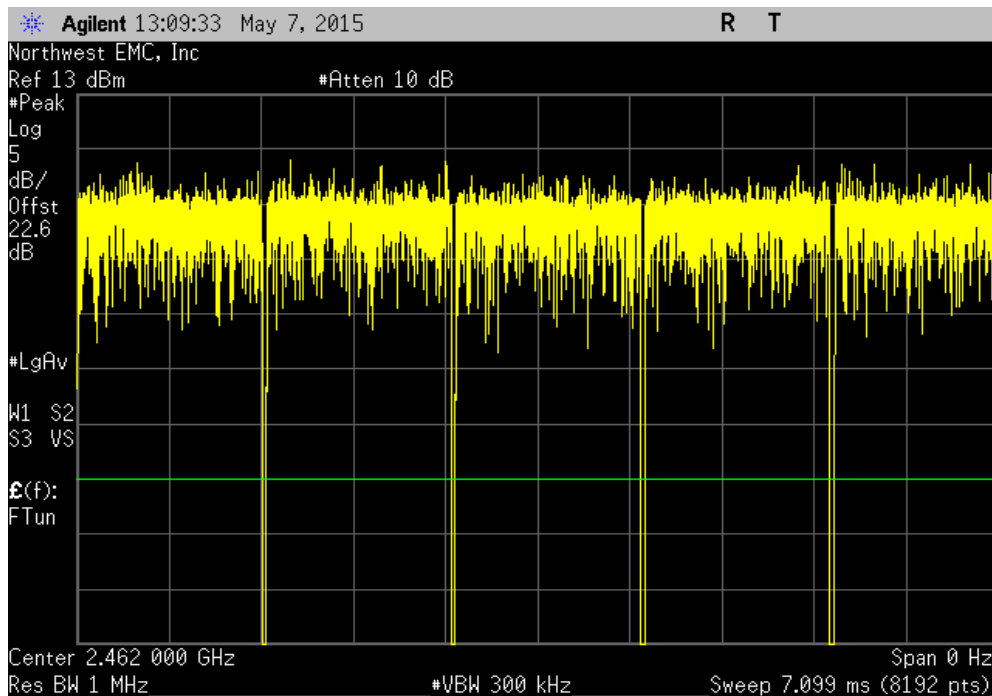


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
1.421 ms	1.459 ms	1	97.4	N/A	N/A	

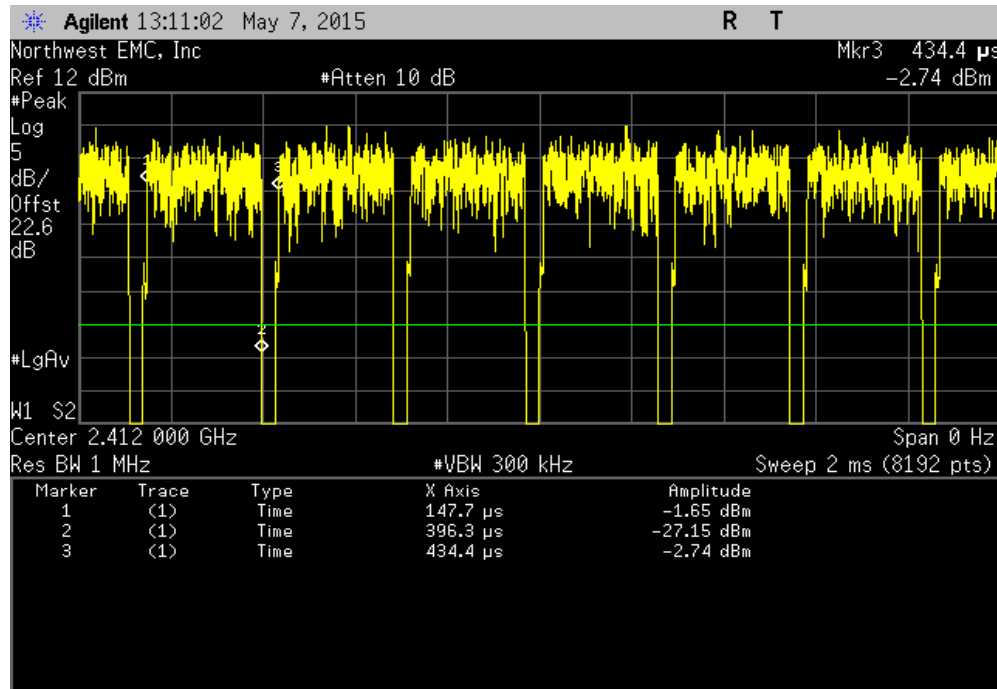


ANT 2.4GHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

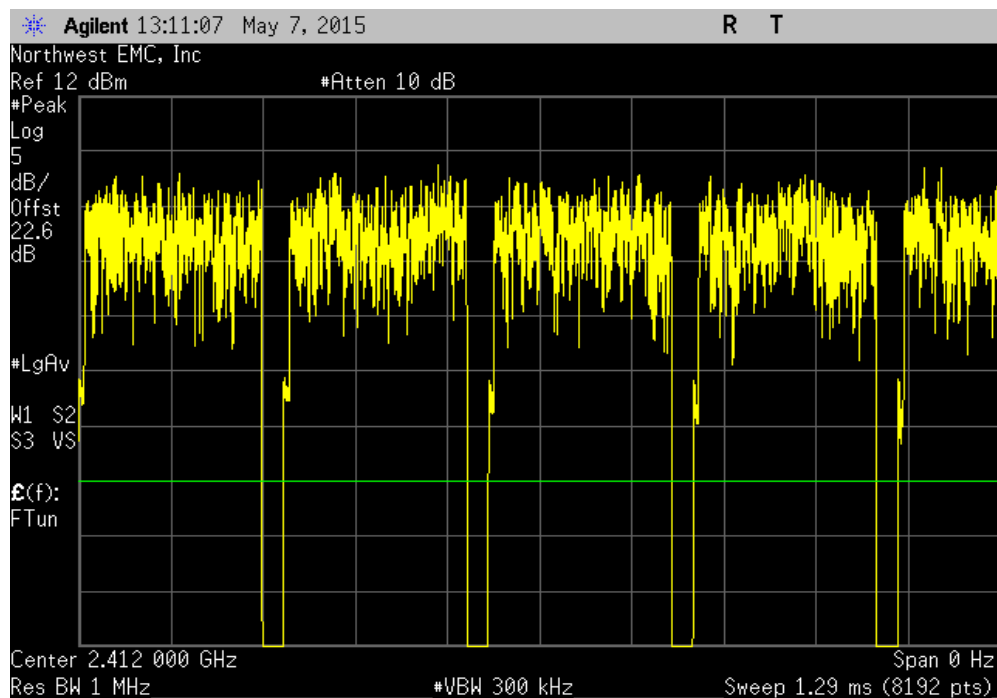


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
248.6 us	286.7 us	1	86.7	N/A	N/A	



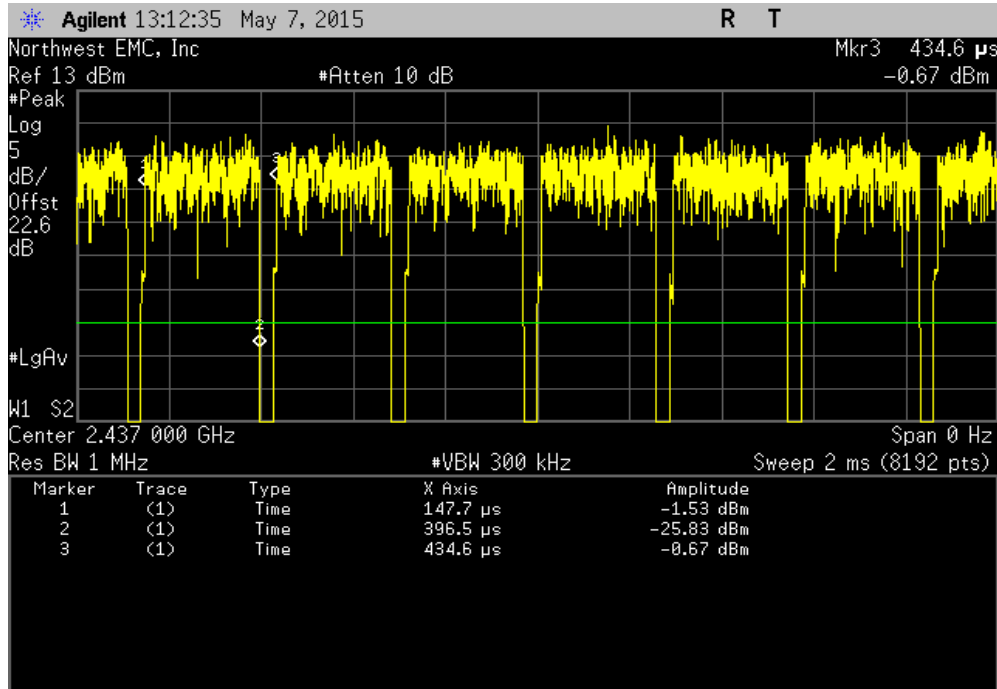
ANT 2.4GHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	



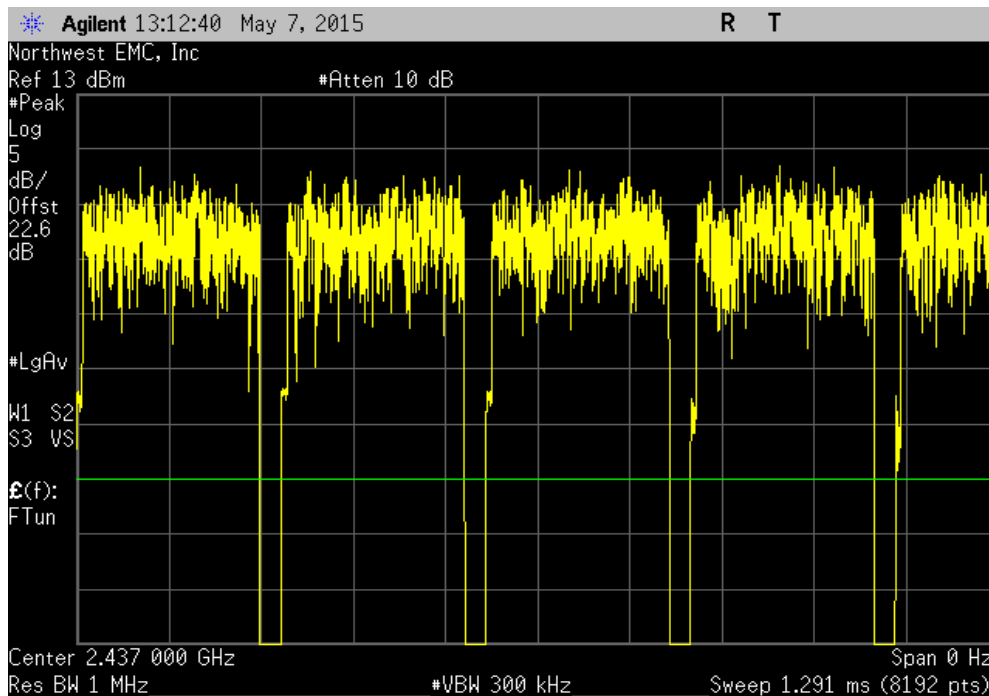


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
248.8 us	286.9 us	1	86.7	N/A	N/A	

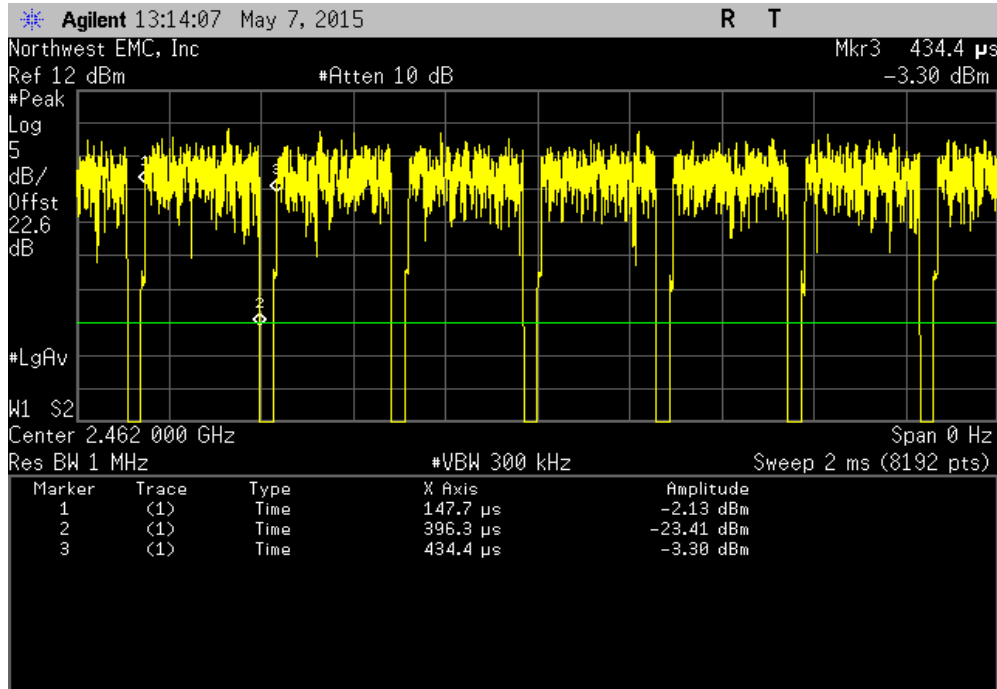


ANT 2.4GHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

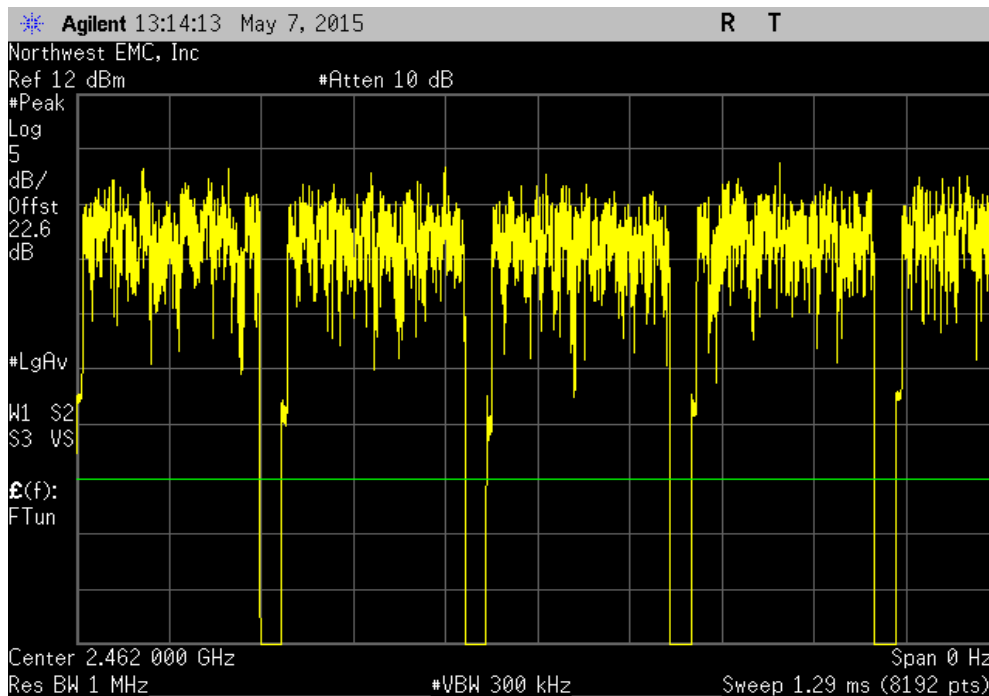


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
248.6 us	286.7 us	1	86.7	N/A	N/A	

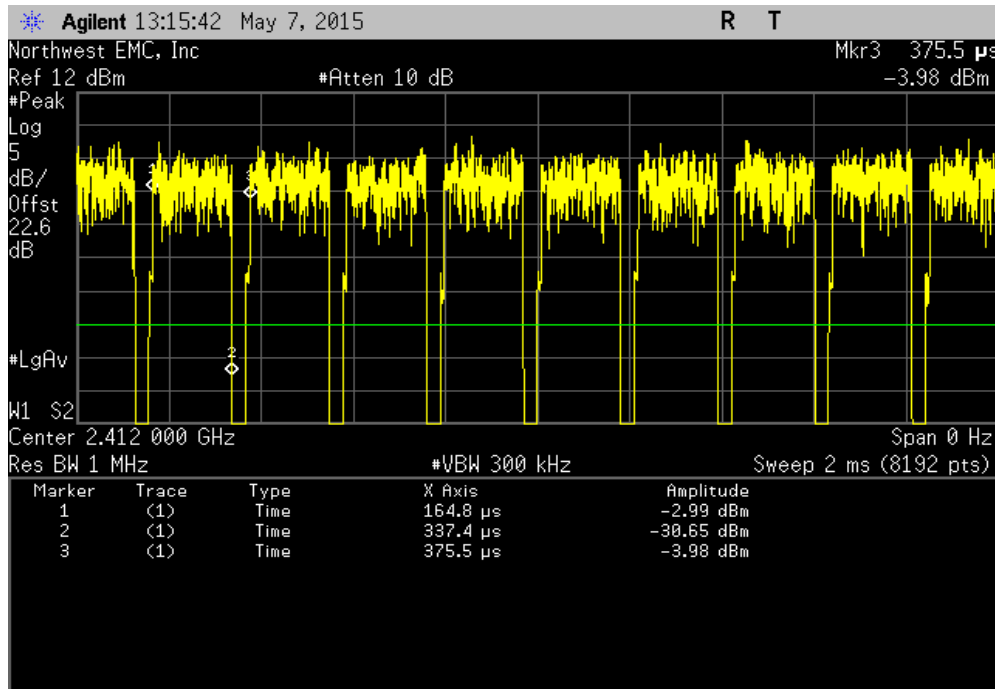


ANT 2.4GHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

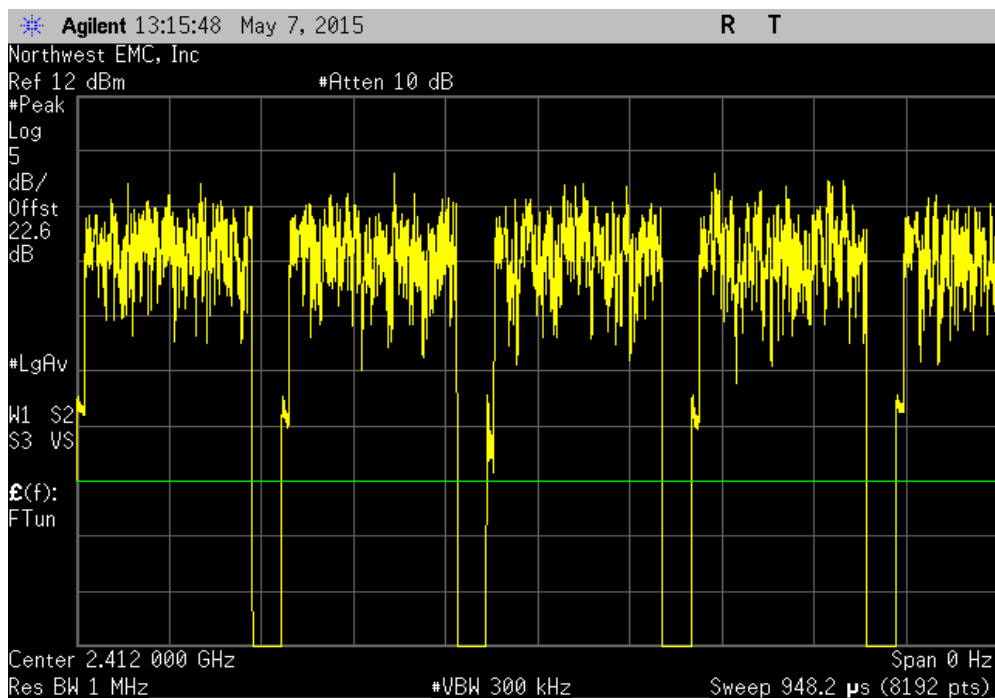


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.6 us	210.7 us	1	81.9	N/A	N/A

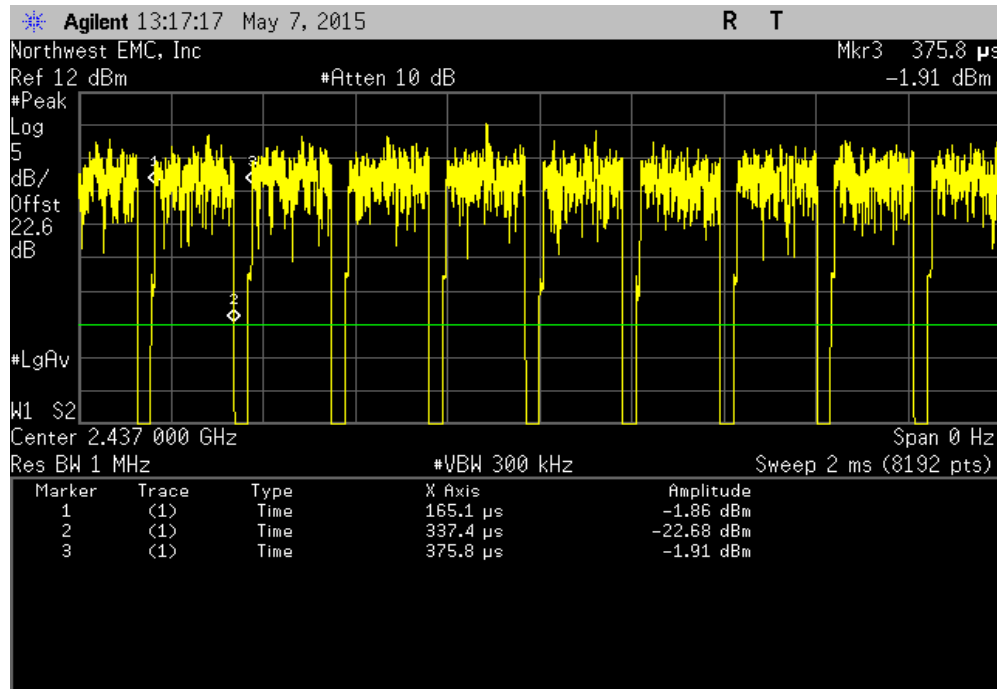


ANT 2.4GHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

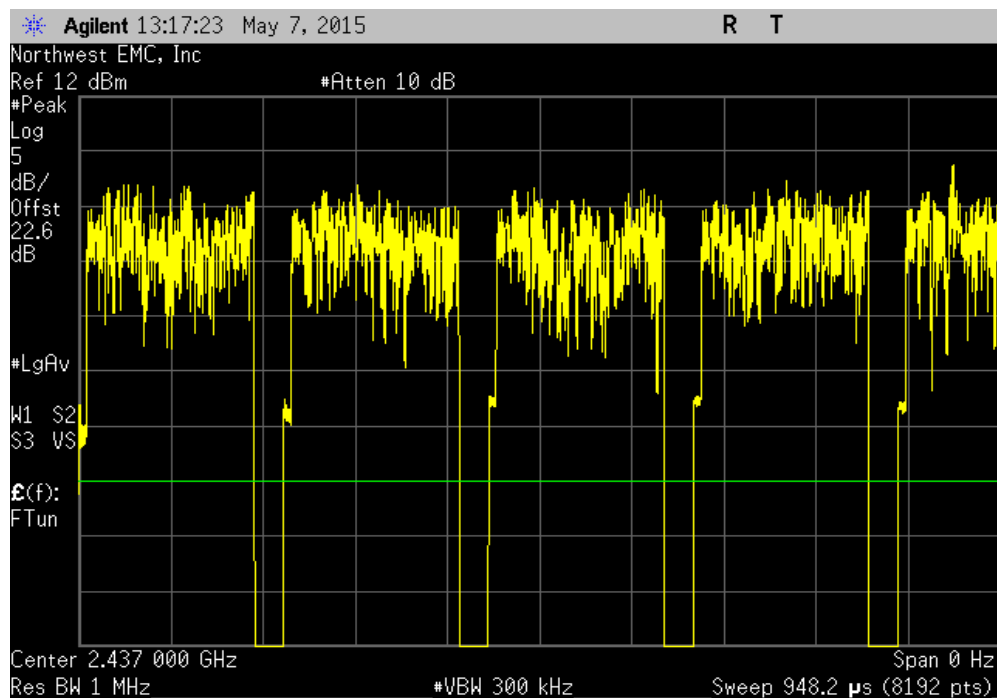


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.3 us	210.7 us	1	81.8	N/A	N/A

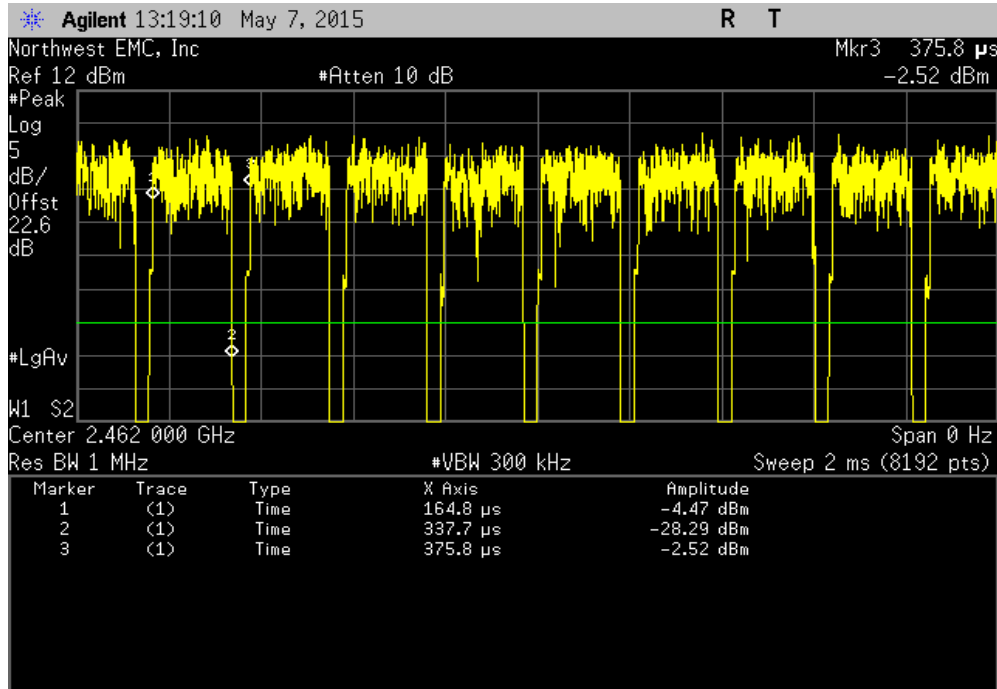


ANT 2.4GHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	6	N/A	N/A	N/A

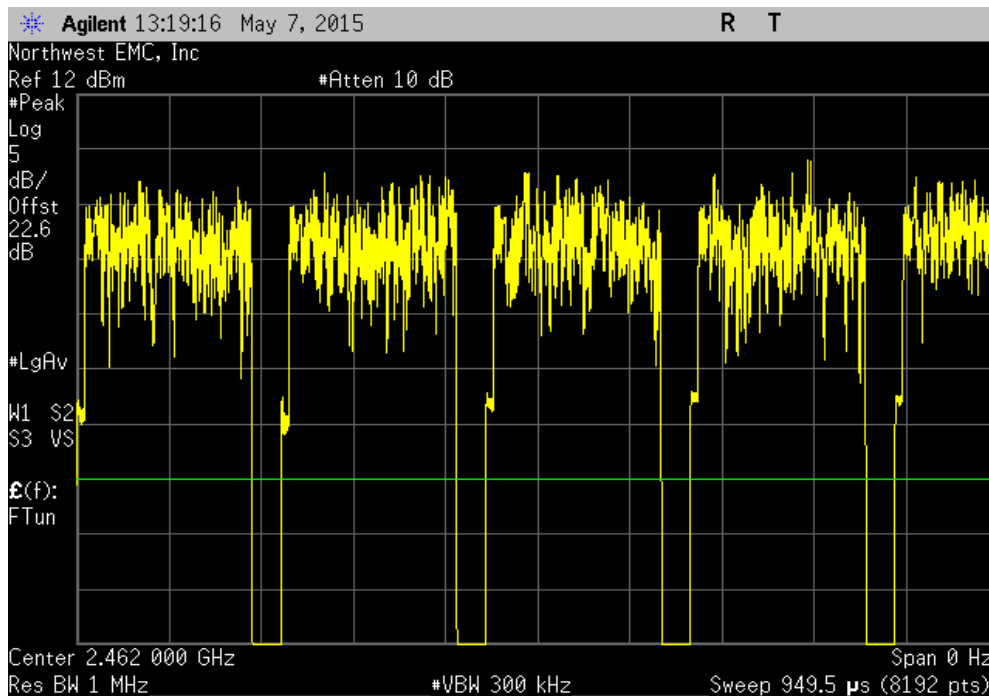


# DUTY CYCLE

ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.9 us	211 us	1	81.9	N/A	N/A

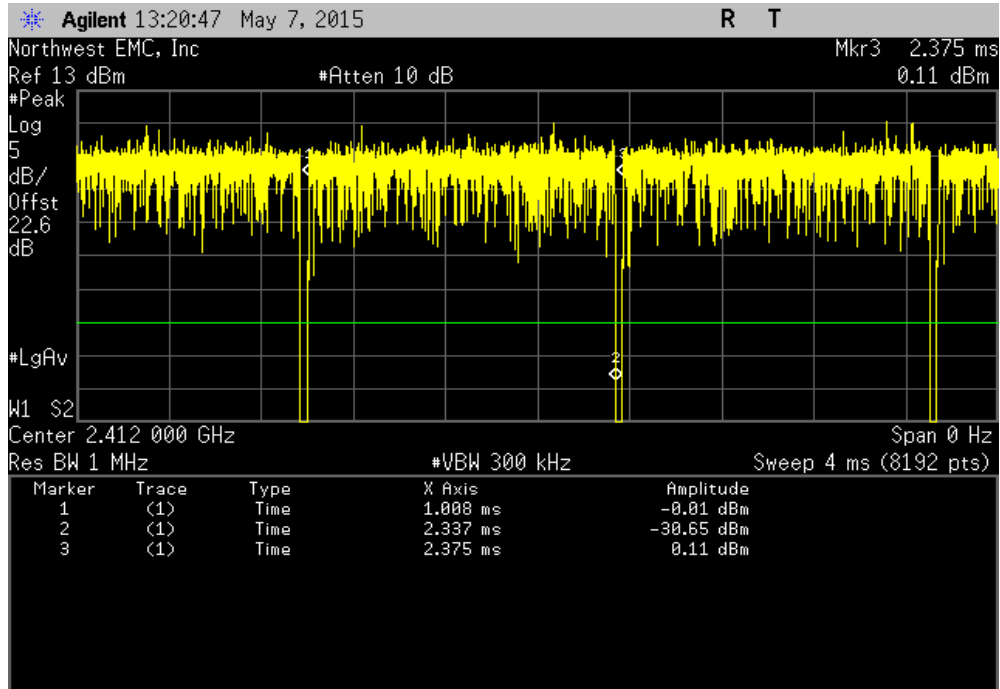


ANT 2.4GHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	6	N/A	N/A	N/A

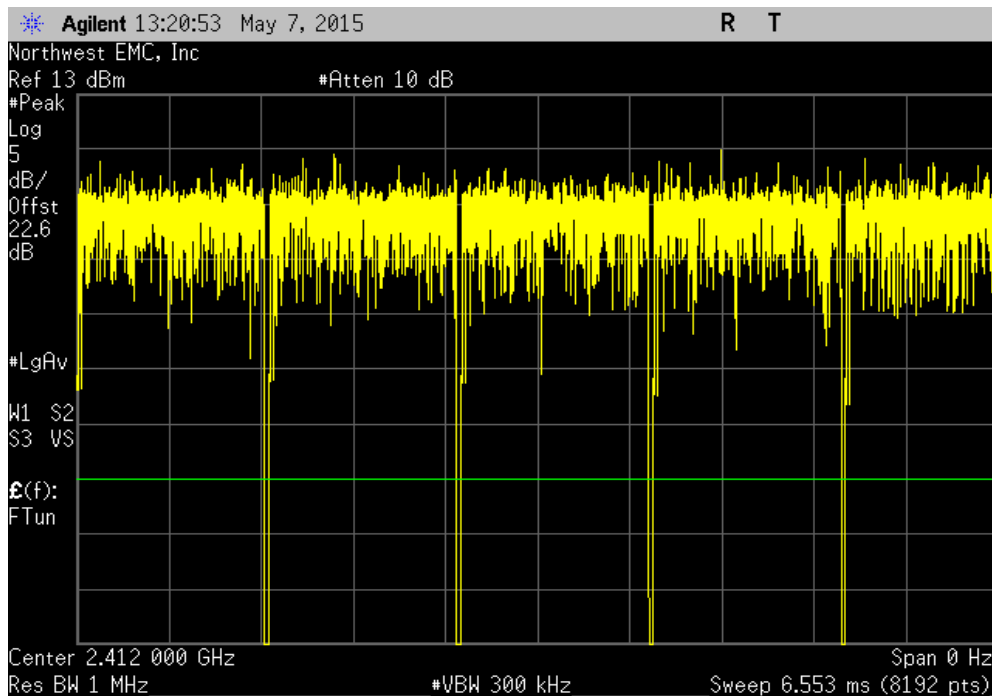


# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
1.329 ms	1.367 ms	1	97.2	N/A	N/A	

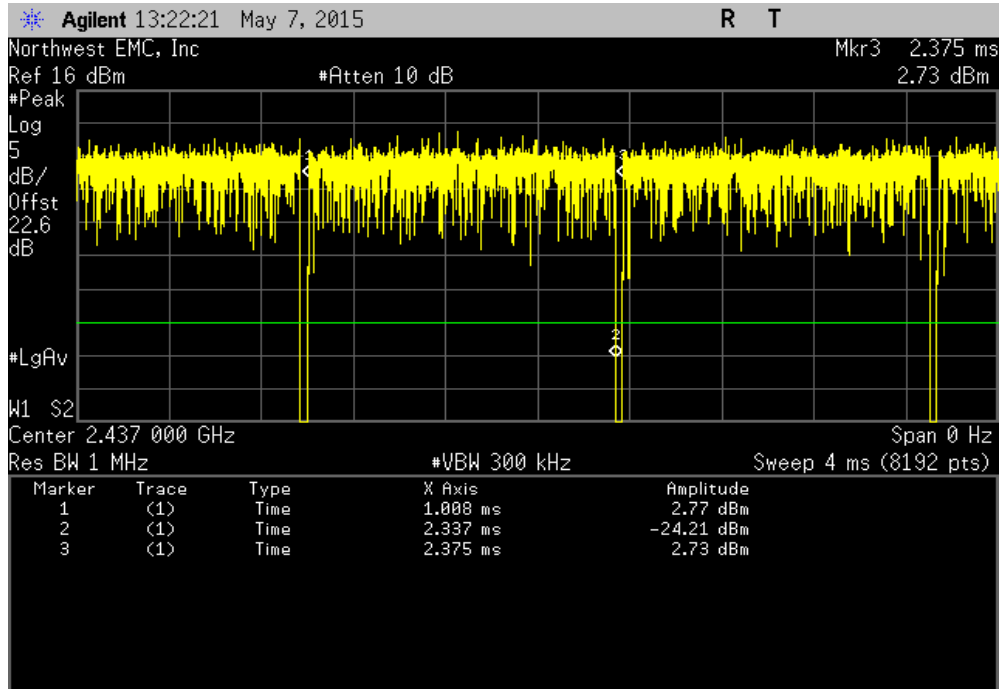


ANT 2.4GHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

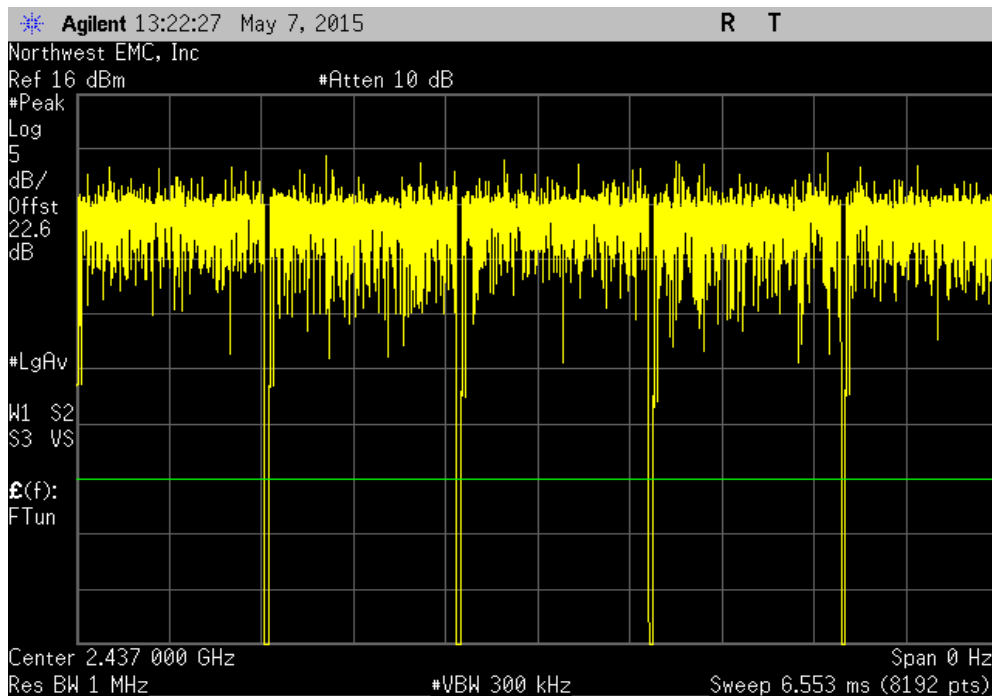


# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A

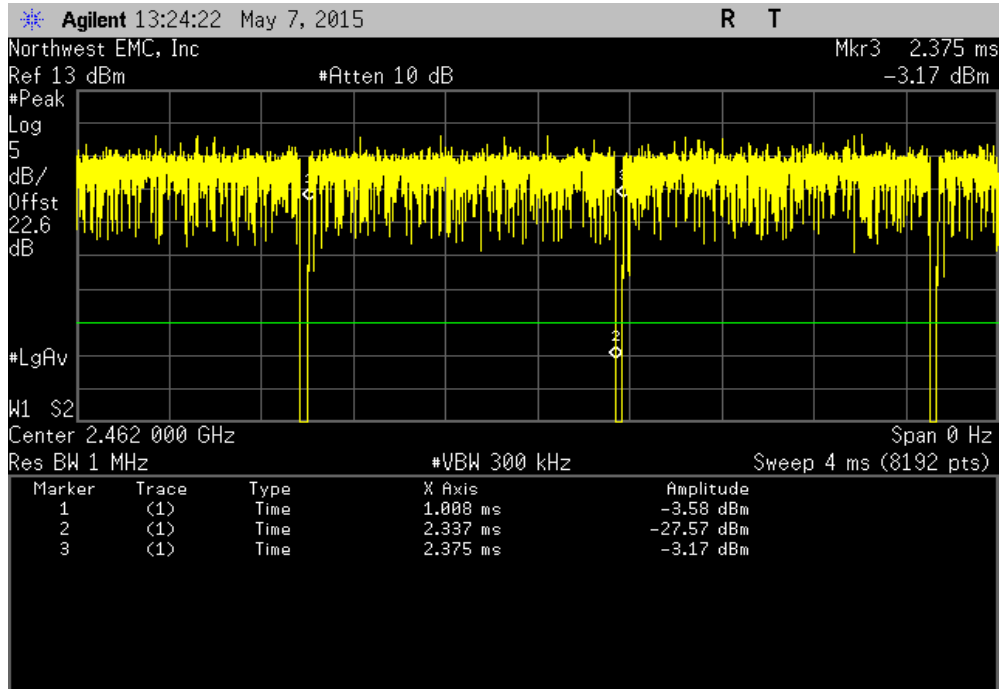


ANT 2.4GHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

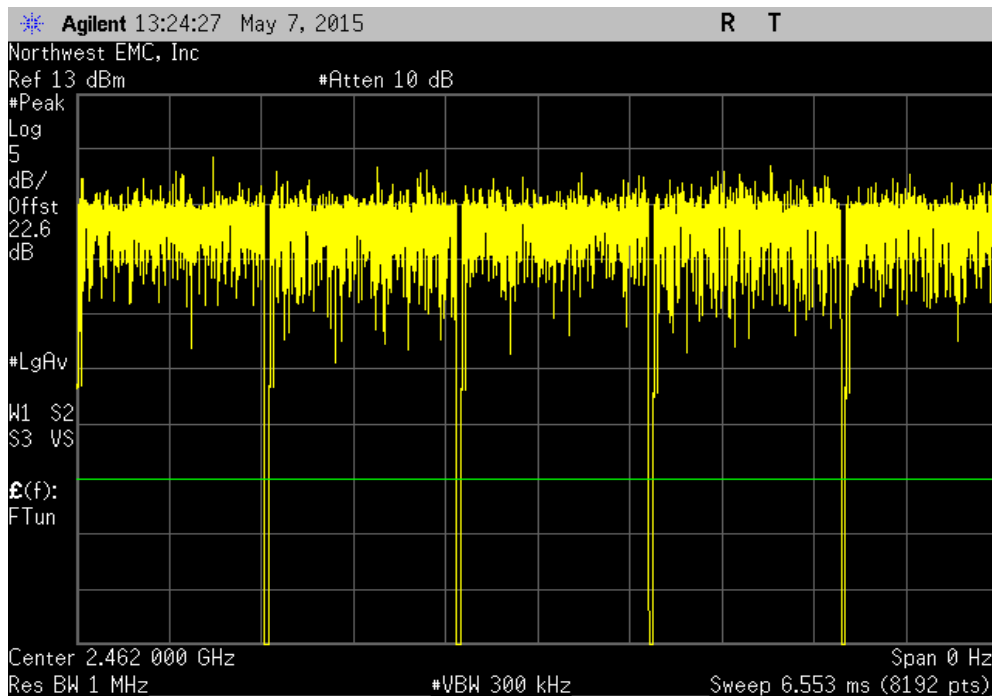


# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A



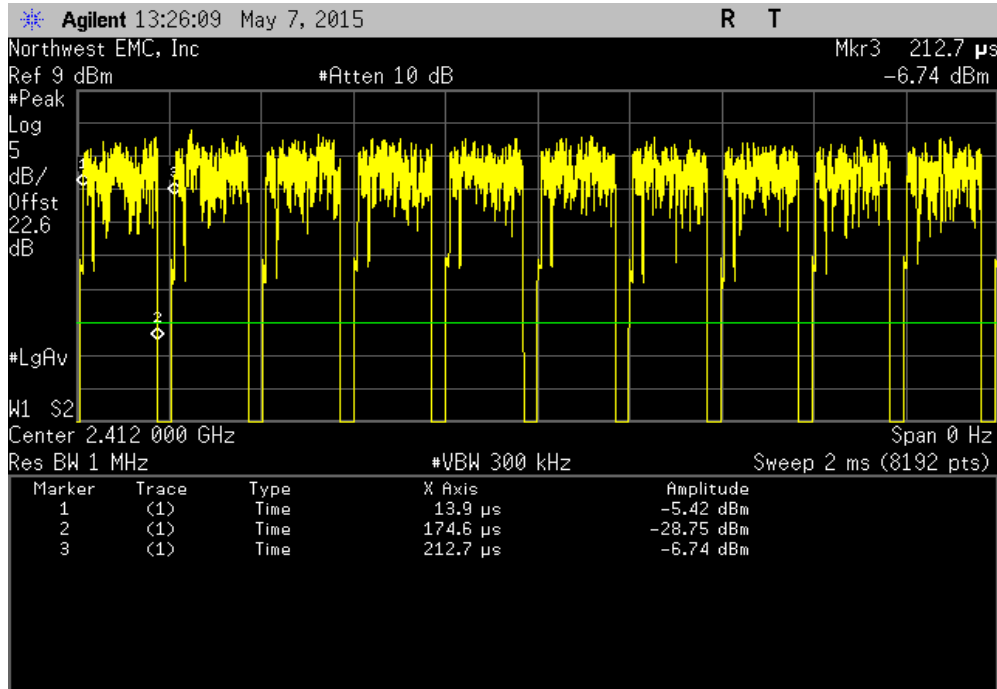
ANT 2.4GHz, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



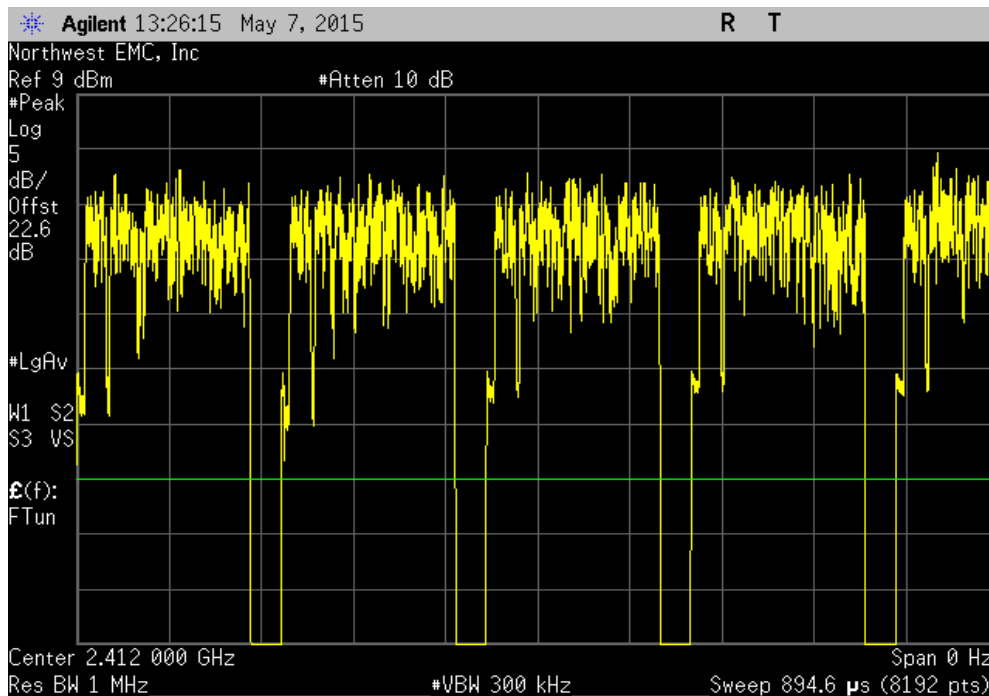


# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
160.7 us	198.8 us	1	80.8	N/A	N/A	

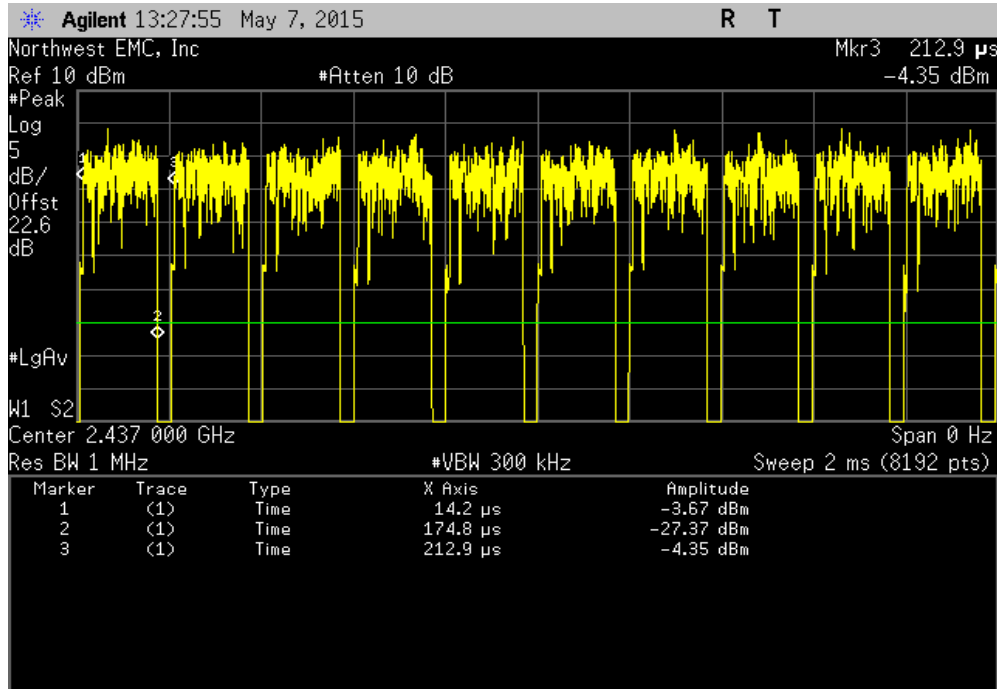


ANT 2.4GHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	

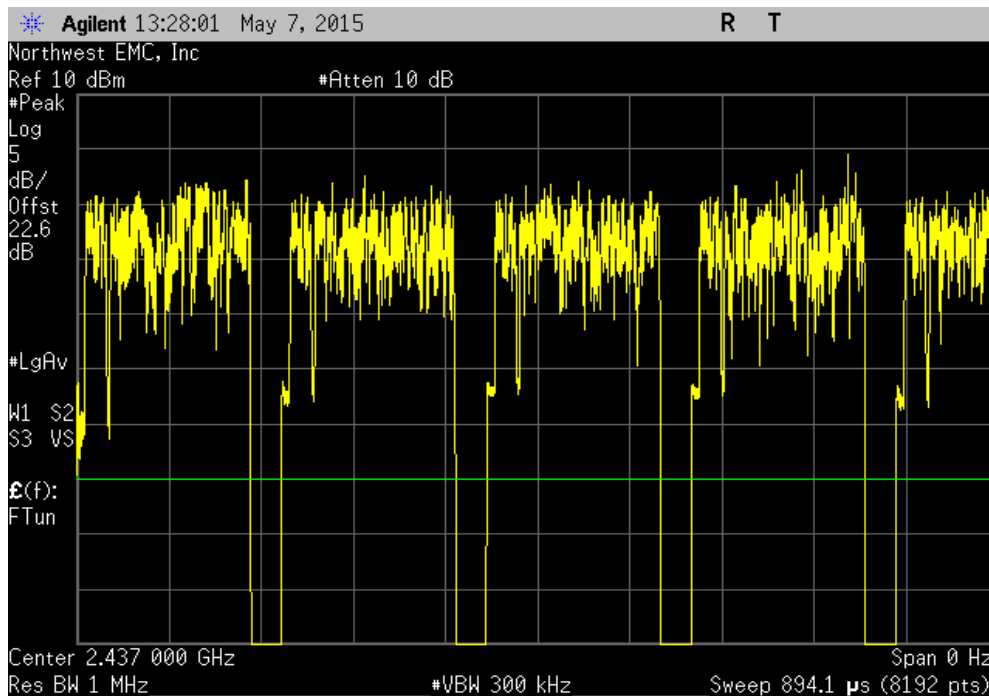


# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
160.6 us	198.7 us	1	80.8	N/A	N/A	

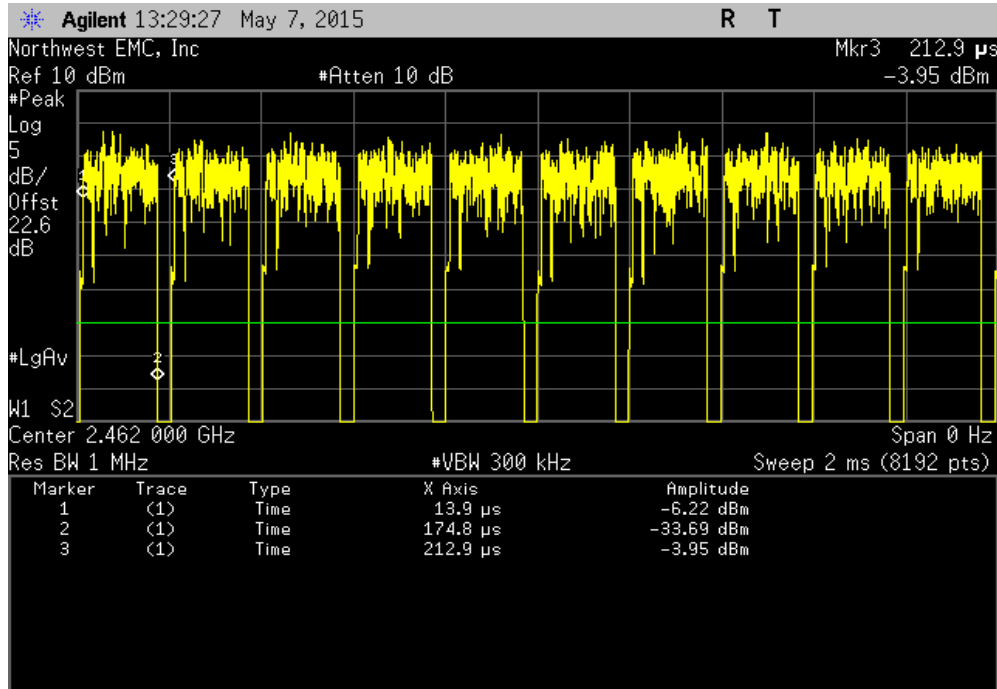


ANT 2.4GHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	5	N/A	N/A	N/A	



# DUTY CYCLE

ANT 2.4GHz, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
160.9 us	199 us	1	80.9	N/A	N/A	



ANT 2.4GHz, 802.11(n) MCS7, 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	

