NORTHWEST EMC

Logic PD

DM3730 Torpedo + Wireless SOM -32

FCC 15.207:2015

FCC 15.407:2015

Report # LGPD0151.4

NVLAP Lab Code: 200881-0

CERTIFICATE OF TEST

NORTHWEST EMC
2014-12-10

Last Date of Test: May 8, 2015
Logic PD
Model: DM3730 Torpedo + Wireless SOM -32

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2015	ANSI C63.10:2009
FCC 15.407:2015	ANSI C63.10:2009

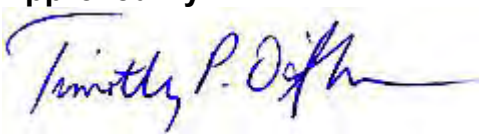
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
6.9.1	Emission Bandwidth	Yes	Pass	
6.9.1	Occupied Bandwidth	Yes	Pass	
6.10.3	Peak Transmit Power	Yes	Pass	
6.11.1	Peak Power Spectral Density	Yes	Pass	
7.5	Transmission Burst Duration	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

NORTHWEST EMC
REV 2014.10.14

Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

NORTHWEST EMC
REV 2015.2.19

United States

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

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

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

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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

MEASUREMENT UNCERTAINTY

TMU.2014.12.03

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.

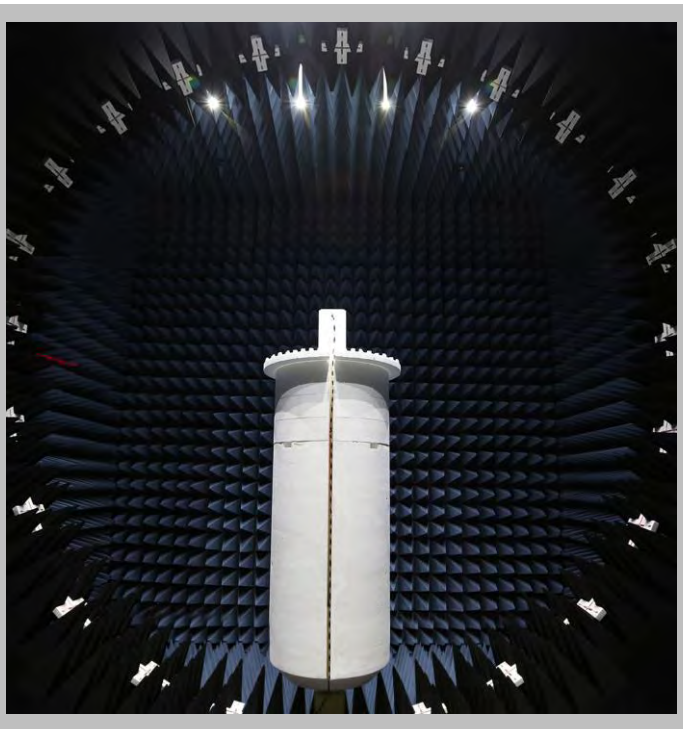
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

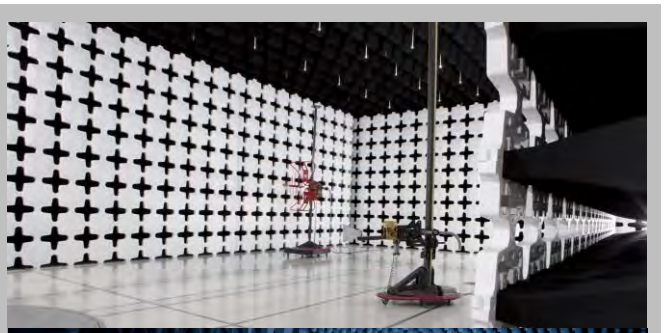
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	4.7 dB	-4.7 dB
AC Powerline Conducted Emissions (dB)	2.9 dB	-2.9 dB

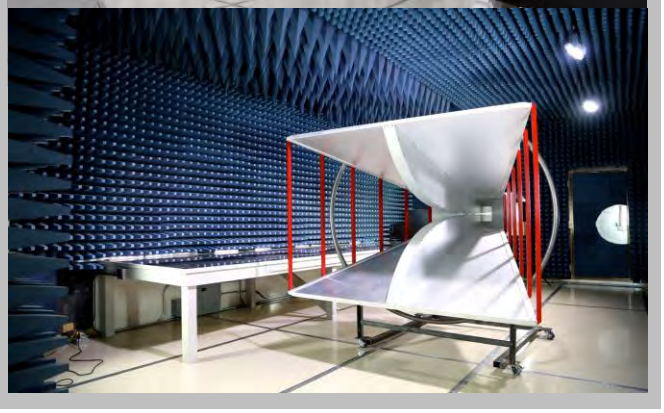
FACILITIES

NORTHWEST EMC
REV 2015.2.19

California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 9801 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-*2*	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157







PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Logic PD
Address:	6201 Bury Drive
City, State, Zip:	Eden Prairie, MN 55346
Test Requested By:	Adam Ford
Model:	DM3730 Torpedo + Wireless SOM -32
First Date of Test:	April 22, 2015
Last Date of Test:	May 11, 2015
Receipt Date of Samples:	April 22, 2015
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
A system module with an ARM processor, wireless module that includes Wifi (802.11 a,b,g,n) module, GPS and Bluetooth.

Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.407 for operation in the 5.2 GHz band.

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

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

NORTHWEST EMC 2014-12-10

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

NORTHWEST EMC 2014-12-10

Configuration LGPD0151- 3

Software/Firmware Running during test	
Description	**Version**
TeraTerm	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
SOM 2	Logic PD	None	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
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

NORTHWEST EMC 2014-12-10

Configuration LGPD0151- 4

Software/Firmware Running during test	
Description	**Version**
TeraTerm	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
SOM 2	Logic PD	None	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
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

NORTHWEST EMC 2014-12-10

Configuration LGPD0151- 5

Software/Firmware Running during test	
Description	**Version**
TeraTerm	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
SOM 2	Logic PD	None	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

NORTHWEST EMC 2014-12-10

Configuration LGPD0151- 7

Software/Firmware Running during test	
Description	**Version**
TeraTerm	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
SOM 2	Logic PD	None	1215M00013
Dev Board	Logic PD	DM3730 Torpedo	2012M00624

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
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	1.8m	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
DC Leads	No	1.2m	No	Dev Board	DC power supply

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration LGPD0151- 8

Software/Firmware Running during test	
Description	**Version**
TeraTerm	Unknown

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
SOM 2	Logic PD	None	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

NORTHWEST EMC
2014-12-10

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/28/2015	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	Peak Transmit 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.
3	5/7/2015	Peak 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.
4	5/7/2015	Transmission Burst Duration	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	Emission 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	5/8/2015	Powerline 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.
7	5/8/2015	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50Ω.

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.149 5745MHz Low Channel 6Mbps
On, Tx Continuous Ch.157 5785MHz Mid Channel 6Mbps
On, Tx Continuous Ch.165 5825MHz High Channel 6Mbps
On, Tx Continuous Ch.36 5180MHz Low Channel 6Mbps
On, Tx Continuous Ch.48 5240MHz High Channel 6Mbps

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	11	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

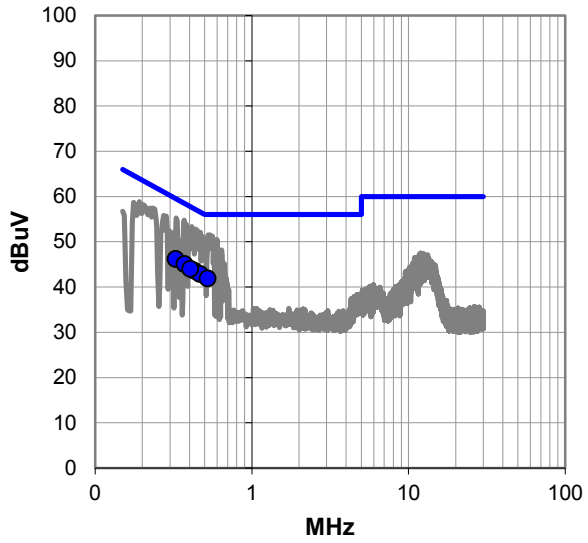
EUT OPERATING MODES

On, Tx Continuous Ch.36 5180MHz Low Channel 6Mbps

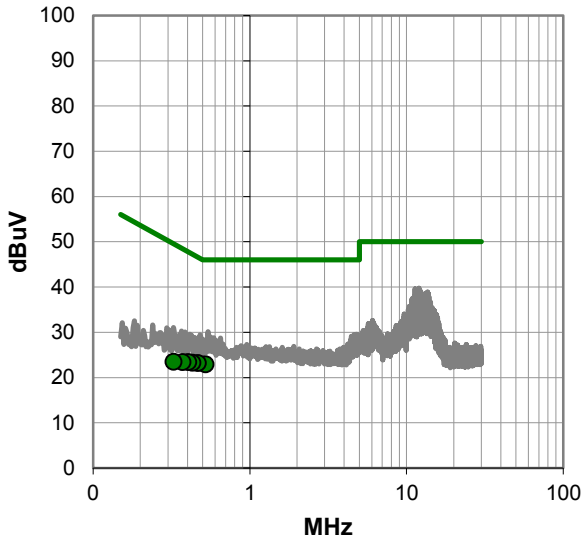
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.326	26.0	20.2	46.2	59.5	-13.4
0.372	24.9	20.2	45.1	58.5	-13.4
0.431	23.4	20.2	43.6	57.2	-13.6
0.467	22.7	20.2	42.9	56.6	-13.7
0.406	23.8	20.2	44.0	57.7	-13.8
0.523	21.7	20.2	41.9	56.0	-14.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.523	2.7	20.2	22.9	46.0	-23.1
0.467	3.0	20.2	23.2	46.6	-23.4
0.431	3.1	20.2	23.3	47.2	-23.9
0.406	3.2	20.2	23.4	47.7	-24.4
0.372	3.2	20.2	23.4	48.5	-25.1
0.326	3.3	20.2	23.5	49.5	-26.1

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	12	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

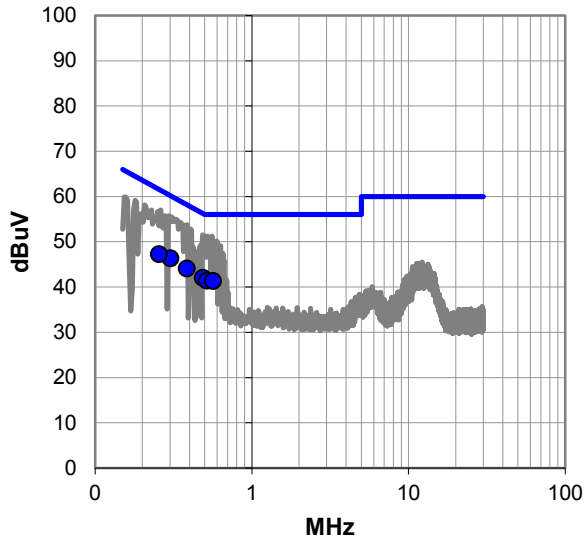
EUT OPERATING MODES

On, Tx Continuous Ch.36 5180MHz Low Channel 6Mbps

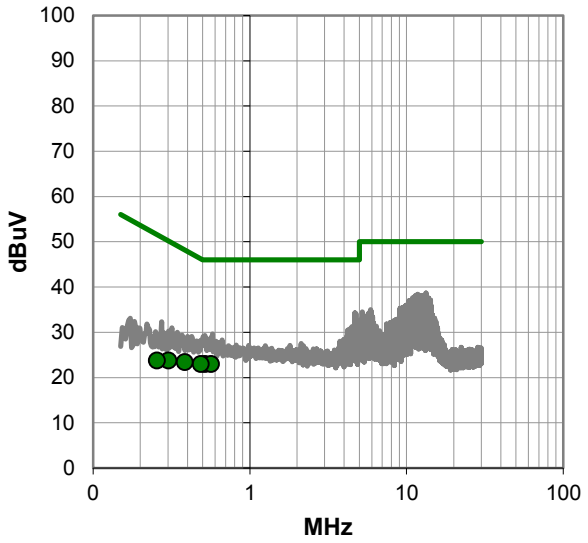
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.303	26.2	20.2	46.4	60.2	-13.8
0.384	23.9	20.2	44.1	58.2	-14.1
0.486	21.8	20.2	42.0	56.2	-14.2
0.256	27.1	20.1	47.2	61.6	-14.3
0.518	21.2	20.2	41.4	56.0	-14.6
0.565	21.1	20.2	41.3	56.0	-14.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.518	2.8	20.2	23.0	46.0	-23.0
0.565	2.8	20.2	23.0	46.0	-23.0
0.486	2.8	20.2	23.0	46.2	-23.2
0.384	3.2	20.2	23.4	48.2	-24.8
0.303	3.6	20.2	23.8	50.2	-26.4
0.256	3.6	20.1	23.7	51.6	-27.8

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	13	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

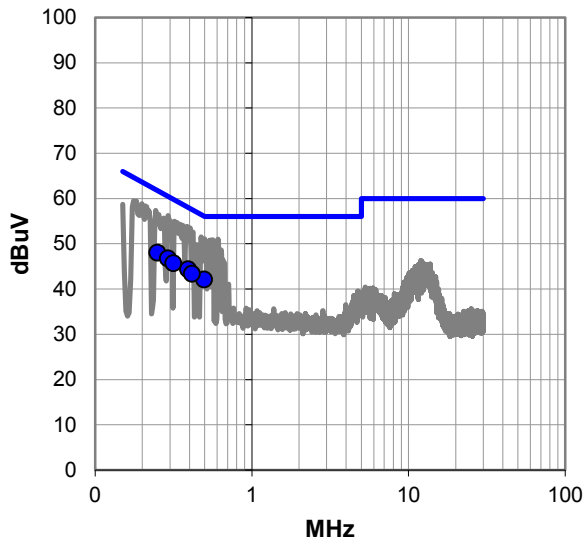
EUT OPERATING MODES

On, Tx Continuous Ch.48 5240MHz High Channel 6Mbps

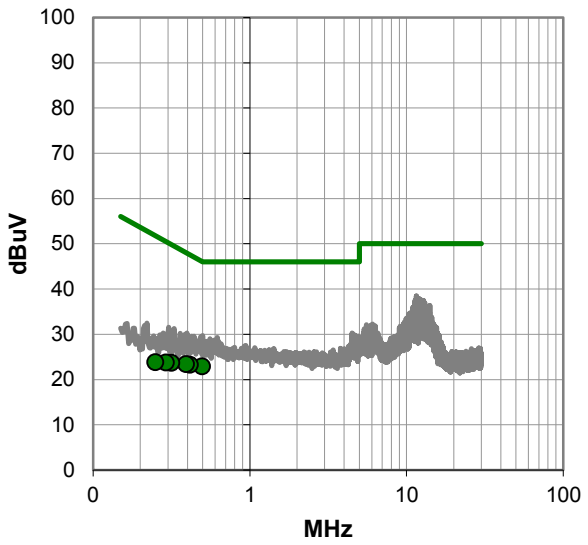
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.392	24.2	20.2	44.4	58.0	-13.7
0.250	27.9	20.1	48.0	61.8	-13.7
0.291	26.6	20.1	46.7	60.5	-13.7
0.497	21.9	20.2	42.1	56.0	-13.9
0.416	23.2	20.2	43.4	57.5	-14.2
0.315	25.5	20.2	45.7	59.8	-14.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.497	2.7	20.2	22.9	46.0	-23.1
0.416	3.1	20.2	23.3	47.5	-24.3
0.392	3.2	20.2	23.4	48.0	-24.7
0.315	3.5	20.2	23.7	49.8	-26.2
0.291	3.6	20.1	23.7	50.5	-26.7
0.250	3.7	20.1	23.8	51.8	-27.9

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	14	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

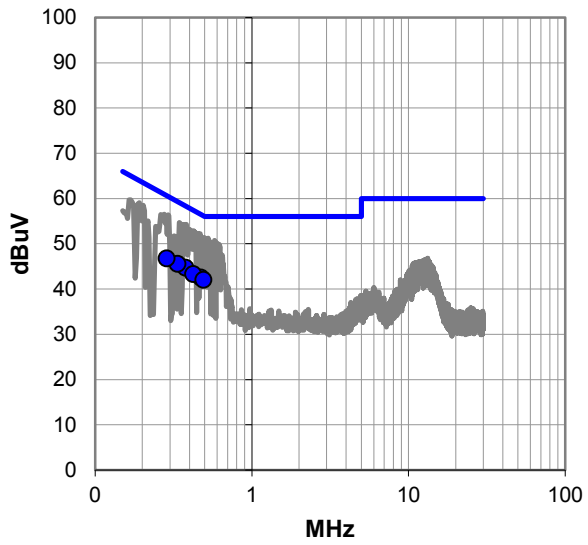
EUT OPERATING MODES

On, Tx Continuous Ch.48 5240MHz High Channel 6Mbps

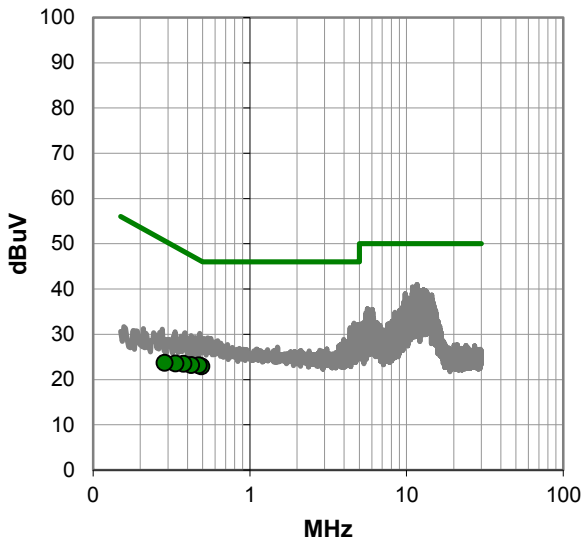
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.377	24.5	20.2	44.7	58.3	-13.7
0.335	25.4	20.2	45.6	59.3	-13.8
0.286	26.6	20.1	46.7	60.6	-13.9
0.473	22.3	20.2	42.5	56.5	-14.0
0.422	23.1	20.2	43.3	57.4	-14.1
0.492	21.8	20.2	42.0	56.1	-14.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	2.7	20.2	22.9	46.1	-23.2
0.473	2.9	20.2	23.1	46.5	-23.4
0.422	3.0	20.2	23.2	47.4	-24.2
0.377	3.3	20.2	23.5	48.3	-24.9
0.335	3.4	20.2	23.6	49.3	-25.8
0.286	3.5	20.1	23.6	50.6	-27.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	15	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

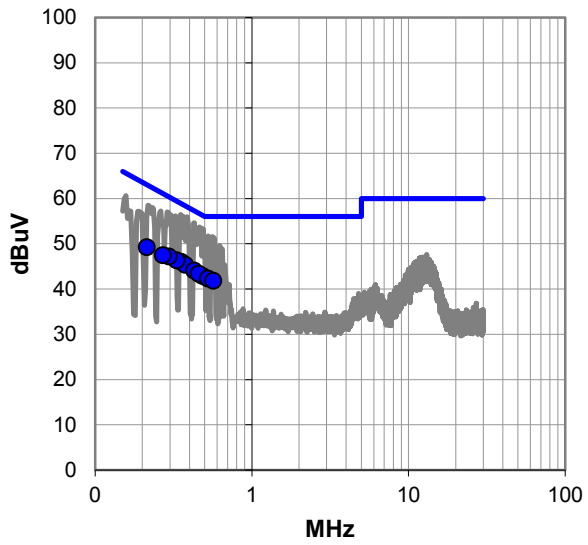
EUT OPERATING MODES

On, Tx Continuous Ch.149 5745MHz Low Channel 6Mbps

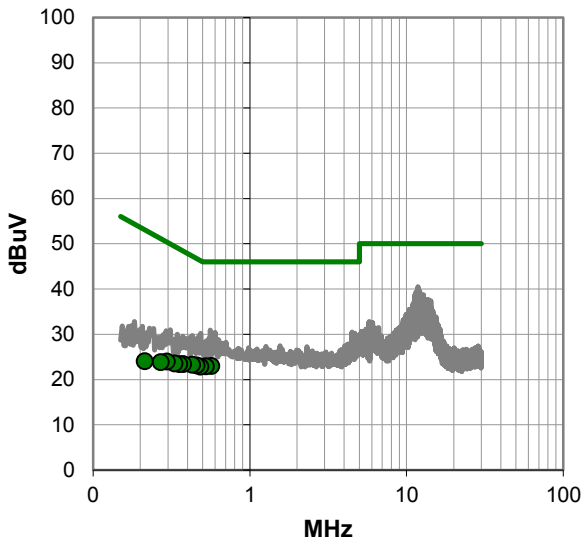
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.355	25.8	20.2	46.0	58.8	-12.9
0.377	25.2	20.2	45.4	58.4	-13.0
0.332	26.2	20.2	46.4	59.4	-13.0
0.429	23.9	20.2	44.1	57.3	-13.2
0.295	27.0	20.1	47.1	60.4	-13.2
0.486	22.7	20.2	42.9	56.2	-13.3
0.458	23.2	20.2	43.4	56.7	-13.3
0.271	27.3	20.1	47.4	61.1	-13.6
0.525	22.1	20.2	42.3	56.0	-13.7
0.213	29.1	20.1	49.2	63.1	-13.8
0.568	21.6	20.2	41.8	56.0	-14.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.568	2.8	20.2	23.0	46.0	-23.0
0.525	2.7	20.2	22.9	46.0	-23.1
0.486	2.6	20.2	22.8	46.2	-23.4
0.458	2.9	20.2	23.1	46.7	-23.6
0.429	3.1	20.2	23.3	47.3	-24.0
0.377	3.2	20.2	23.4	48.4	-25.0
0.355	3.2	20.2	23.4	48.8	-25.5
0.332	3.4	20.2	23.6	49.4	-25.8
0.295	3.8	20.1	23.9	50.4	-26.4
0.271	3.7	20.1	23.8	51.1	-27.2
0.213	3.9	20.1	24.0	53.1	-29.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	16	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

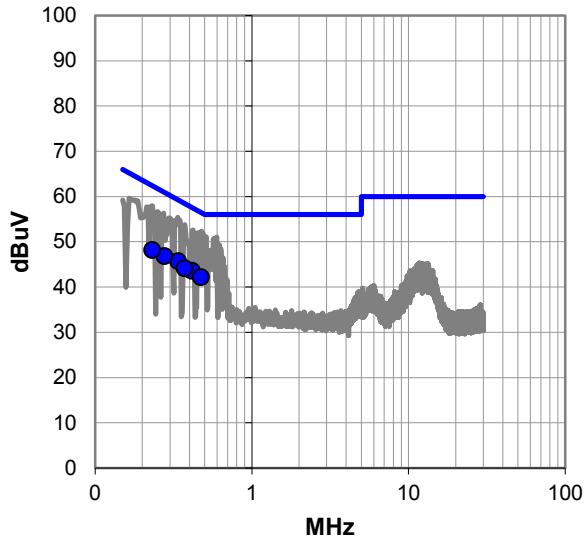
EUT OPERATING MODES

On, Tx Continuous Ch.149 5745MHz Low Channel 6Mbps

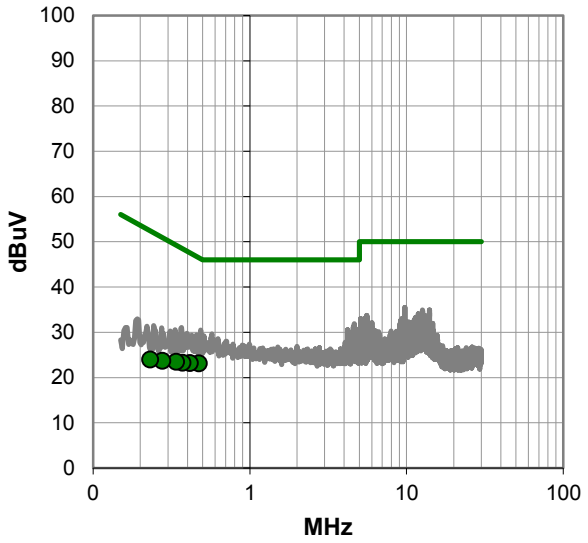
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #16

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.340	25.5	20.2	45.7	59.2	-13.6
0.415	23.4	20.2	43.6	57.6	-14.0
0.277	26.7	20.1	46.8	60.9	-14.1
0.232	28.0	20.1	48.1	62.4	-14.2
0.472	22.0	20.2	42.2	56.5	-14.3
0.372	24.0	20.2	44.2	58.5	-14.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.472	2.9	20.2	23.1	46.5	-23.4
0.415	3.0	20.2	23.2	47.6	-24.4
0.372	3.1	20.2	23.3	48.5	-25.2
0.340	3.3	20.2	23.5	49.2	-25.8
0.277	3.5	20.1	23.6	50.9	-27.3
0.232	3.8	20.1	23.9	52.4	-28.4

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	17	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

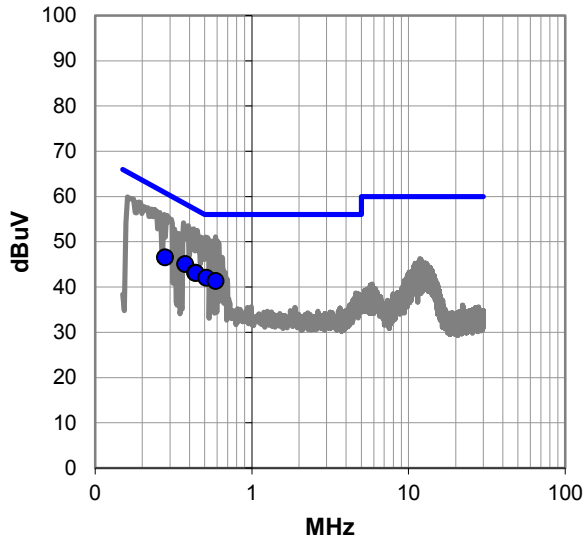
EUT OPERATING MODES

On, Tx Continuous Ch.157 5785MHz Low Channel 6Mbps

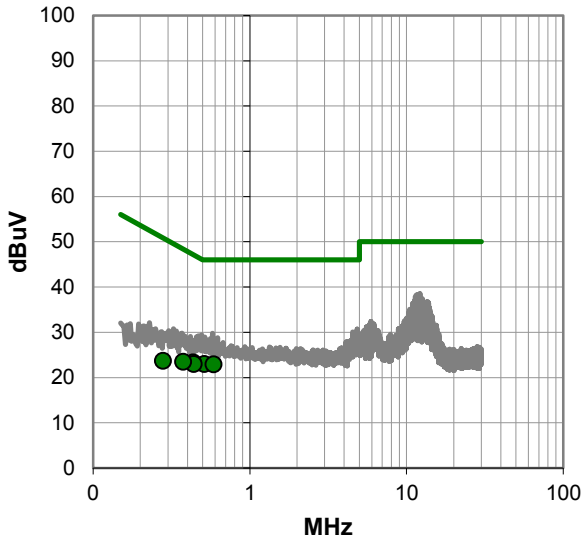
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #17

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.376	24.9	20.2	45.1	58.4	-13.3
0.435	23.0	20.2	43.2	57.2	-14.0
0.440	22.9	20.2	43.1	57.1	-14.0
0.513	21.8	20.2	42.0	56.0	-14.0
0.279	26.4	20.1	46.5	60.8	-14.3
0.588	21.1	20.2	41.3	56.0	-14.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.513	2.8	20.2	23.0	46.0	-23.0
0.588	2.7	20.2	22.9	46.0	-23.1
0.435	3.1	20.2	23.3	47.2	-23.9
0.440	2.8	20.2	23.0	47.1	-24.1
0.376	3.3	20.2	23.5	48.4	-24.9
0.279	3.5	20.1	23.6	50.8	-27.2

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	18	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

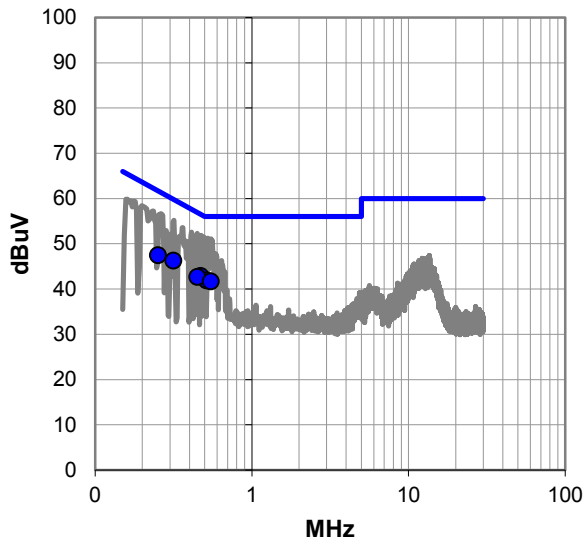
EUT OPERATING MODES

On, Tx Continuous Ch.157 5785MHz Low Channel 6Mbps

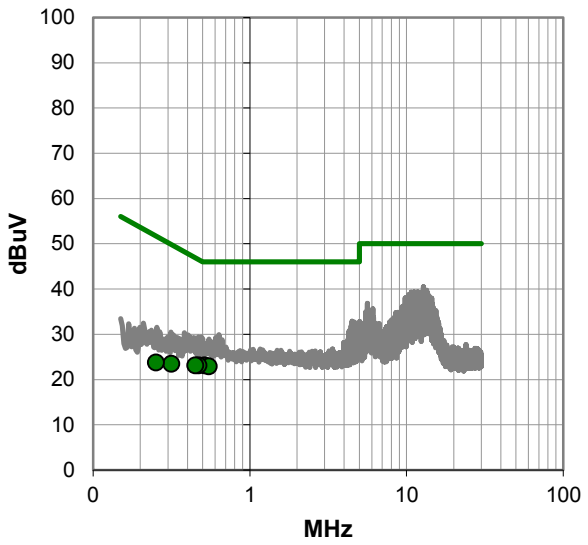
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #18

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.316	26.1	20.2	46.3	59.8	-13.6
0.472	22.7	20.2	42.9	56.5	-13.6
0.515	21.7	20.2	41.9	56.0	-14.1
0.449	22.5	20.2	42.7	56.9	-14.2
0.252	27.3	20.1	47.4	61.7	-14.2
0.548	21.5	20.2	41.7	56.0	-14.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.515	2.9	20.2	23.1	46.0	-22.9
0.548	2.7	20.2	22.9	46.0	-23.1
0.472	2.9	20.2	23.1	46.5	-23.4
0.449	2.9	20.2	23.1	46.9	-23.8
0.316	3.3	20.2	23.5	49.8	-26.4
0.252	3.6	20.1	23.7	51.7	-27.9

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	19	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

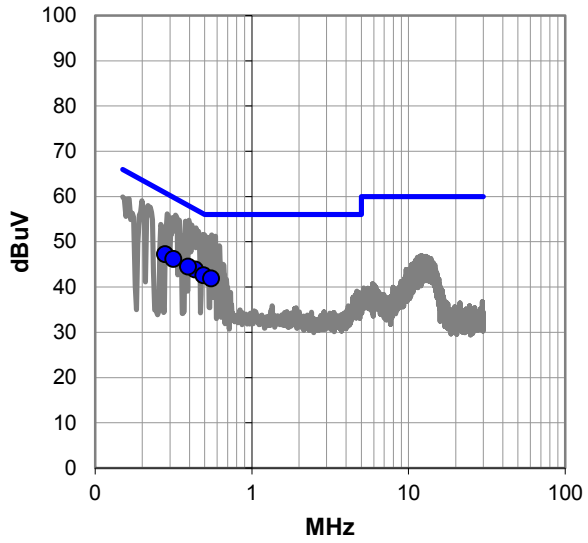
EUT OPERATING MODES

On, Tx Continuous Ch.165 5825MHz Low Channel 6Mbps

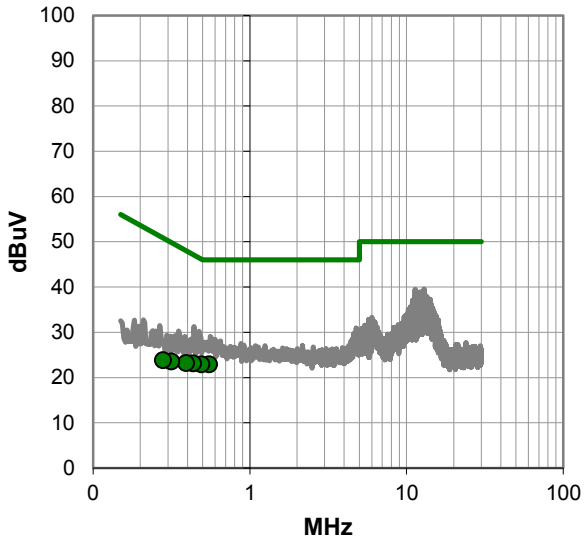
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #19

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.436	23.7	20.2	43.9	57.1	-13.3
0.393	24.3	20.2	44.5	58.0	-13.5
0.491	22.4	20.2	42.6	56.2	-13.6
0.279	27.1	20.1	47.2	60.8	-13.6
0.316	26.0	20.2	46.2	59.8	-13.6
0.551	21.7	20.2	41.9	56.0	-14.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.551	2.7	20.2	22.9	46.0	-23.1
0.491	2.7	20.2	22.9	46.2	-23.3
0.436	2.9	20.2	23.1	47.1	-24.1
0.393	3.0	20.2	23.2	48.0	-24.8
0.316	3.4	20.2	23.6	49.8	-26.2
0.279	3.7	20.1	23.8	50.8	-27.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

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 #:	20	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

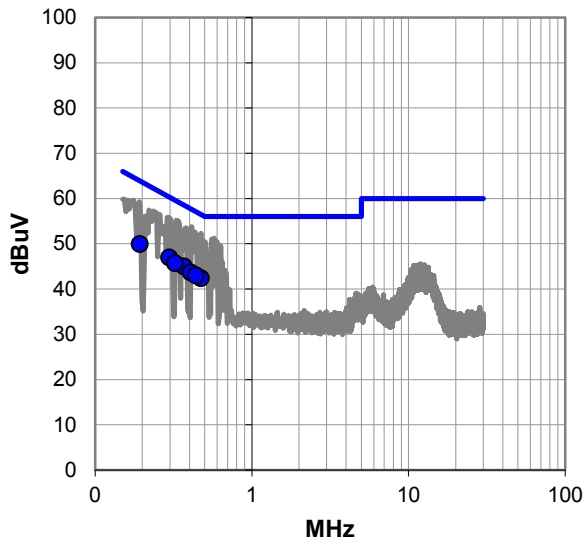
EUT OPERATING MODES

On, Tx Continuous Ch.165 5825MHz Low Channel 6Mbps

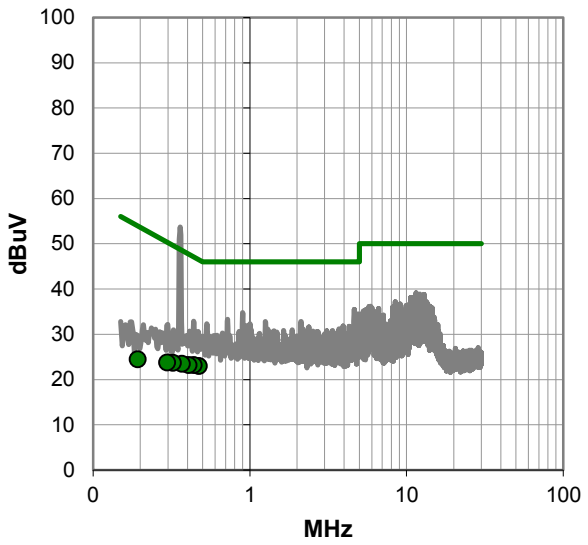
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC

WTD.2015.03.10
PSA-ESCI 2015.03.03, EmiR5 2015.03.19.1

RESULTS - Run #20

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.297	26.8	20.1	46.9	60.3	-13.4
0.368	24.8	20.2	45.0	58.5	-13.6
0.193	29.8	20.2	50.0	63.9	-13.9
0.323	25.5	20.2	45.7	59.6	-14.0
0.406	23.5	20.2	43.7	57.7	-14.0
0.474	22.2	20.2	42.4	56.4	-14.1
0.439	22.8	20.2	43.0	57.1	-14.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.474	2.8	20.2	23.0	46.4	-23.5
0.439	3.0	20.2	23.2	47.1	-23.9
0.406	3.0	20.2	23.2	47.7	-24.5
0.368	3.3	20.2	23.5	48.5	-25.1
0.323	3.5	20.2	23.7	49.6	-26.0
0.297	3.6	20.1	23.7	50.3	-26.6
0.193	4.3	20.2	24.5	53.9	-29.4

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

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

MODES OF OPERATION

Transmitting 802.11a - channel 149 (5745 MHz) and channel 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.

Transmitting 802.11a channel 36 (5180 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.

Transmitting 802.11a - channel 36 (5180 MHz), 48 (5240 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

LGPD0151 - 1
LGPD0151 - 2
LGPD0151 - 3
LGPD0151 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Notch Filter, 5.15 - 5.35 GHz	Micro-Tronics	BRC50703	HHB	5/23/2014	12 mo
Notch Filter, 5.725-5.875 GHz	Micro-Tronics	BRC50705	HGZ	5/23/2014	12 mo
Notch Filter, 5.47-5.725 GHz	Micro-Tronics	BRC50704	HHA	5/23/2014	12 mo
Low Pass Filter, 0 - 1000 MHz	Micro-Tronics	LPM50004	HGK	3/2/2015	12 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	3/2/2015	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	10/3/2014	12 mo
26-40GHz Cable	N/A	TTBJ141-KMKM-72	MNQ	10/3/2014	12 mo
Antenna, Horn	ETS	3160-10	AIC	NCR	0 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
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	3/2/2015	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	3/30/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/2/2015	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 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
Antenna, Horn	ETS	3115	AJA	6/3/2014	24 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
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 antenna of each type to be used with the EUT were tested. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to satisfy the three requirements of 47 CFR 15.407: Field strength under 1GHz, Restricted Bands of 47 CFR 15.205, and EIRP of 47 CFR 15.407.

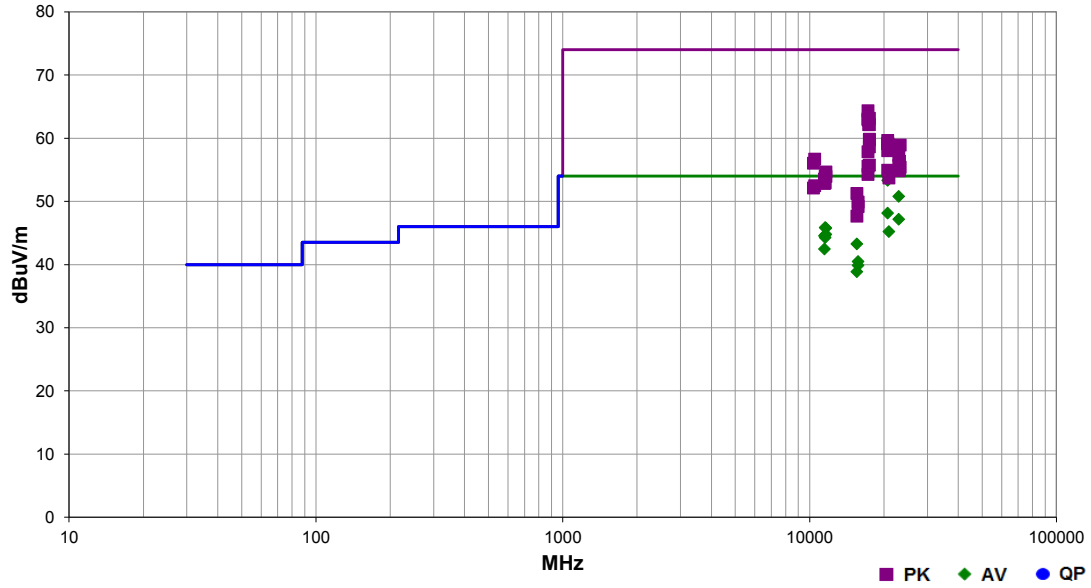
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks, Jared Ison
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	2, 4				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a - channel 36 (5180 MHz), 48 (5240 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Isolated Magnetic Dipole Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	184	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 1.25(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
20720.030	41.7	12.2	1.4	73.1	3.0	0.0	Horz	AV	0.0	53.9	54.0	-0.1	EUT vert, ch 36, 6 Mbps
20959.970	41.5	12.2	1.3	73.3	3.0	0.0	Horz	AV	0.0	53.7	54.0	-0.3	EUT vert, ch 48, 6 Mbps
20719.980	41.1	12.2	1.4	73.1	3.0	0.0	Horz	AV	0.0	53.3	54.0	-0.7	EUT vert, ch 36, MCS0
22980.050	38.1	12.7	1.4	306.0	3.0	0.0	Horz	AV	0.0	50.8	54.0	-3.2	EUT vert, ch 149, 6 Mbps
20719.970	35.9	12.2	1.3	307.9	3.0	0.0	Vert	AV	0.0	48.1	54.0	-5.9	EUT vert, ch 36, 6 Mbps
22979.990	34.5	12.7	1.4	336.9	3.0	0.0	Vert	AV	0.0	47.2	54.0	-6.8	EUT vert, ch 149, 6 Mbps
11569.980	52.3	-6.5	1.0	179.0	3.0	0.0	Vert	AV	0.0	45.8	54.0	-8.2	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11650.030	52.4	-6.6	1.0	179.8	3.0	0.0	Vert	AV	0.0	45.8	54.0	-8.2	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
20960.050	33.0	12.2	1.3	348.9	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	EUT vert, ch 48, 6 Mbps
11649.960	51.4	-6.6	1.2	182.0	3.0	0.0	Horz	AV	0.0	44.8	54.0	-9.2	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
11490.020	51.7	-7.2	1.0	180.0	3.0	0.0	Vert	AV	0.0	44.5	54.0	-9.5	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
17236.580	60.8	3.6	1.0	164.0	3.0	0.0	Horz	PK	0.0	64.4	74.0	-9.6	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
11569.960	50.7	-6.5	1.2	180.0	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
15539.950	39.5	3.8	1.0	187.0	3.0	0.0	Horz	AV	0.0	43.3	54.0	-10.7	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
17469.400	58.8	4.3	1.0	150.0	3.0	0.0	Vert	PK	0.0	63.1	74.0	-10.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
17234.830	59.5	3.6	1.0	165.0	3.0	0.0	Horz	PK	0.0	63.1	74.0	-10.9	Ch. 149, 5745 MHz, MCS0, EUT Vert
17229.330	59.3	3.6	1.0	164.0	3.0	0.0	Vert	PK	0.0	62.9	74.0	-11.1	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
17355.200	59.0	3.8	1.0	165.0	3.0	0.0	Horz	PK	0.0	62.8	74.0	-11.2	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11490.010	49.6	-7.2	1.0	168.0	3.0	0.0	Horz	AV	0.0	42.4	54.0	-11.6	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
17355.530	58.3	3.9	1.0	151.1	3.0	0.0	Vert	PK	0.0	62.2	74.0	-11.8	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
17468.530	57.8	4.3	1.0	149.1	3.0	0.0	Horz	PK	0.0	62.1	74.0	-11.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
15719.980	36.7	3.8	1.0	176.0	3.0	0.0	Horz	AV	0.0	40.5	54.0	-13.5	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
15720.000	36.1	3.8	1.0	184.2	3.0	0.0	Vert	AV	0.0	39.9	54.0	-14.1	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
17471.230	55.5	4.3	1.0	271.1	3.0	0.0	Horz	PK	0.0	59.8	74.0	-14.2	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
17478.500	55.4	4.3	1.0	242.9	3.0	0.0	Vert	PK	0.0	59.7	74.0	-14.3	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
20720.180	47.4	12.2	1.4	73.1	3.0	0.0	Horz	PK	0.0	59.6	74.0	-14.4	EUT vert, ch 36, 6 Mbps
20720.250	46.9	12.2	1.5	69.1	3.0	0.0	Horz	PK	0.0	59.1	74.0	-14.9	EUT vert, ch 36, 6 Mbps
20720.010	46.9	12.2	1.4	73.1	3.0	0.0	Horz	PK	0.0	59.1	74.0	-14.9	EUT vert, ch 36, 6 Mbps
23300.150	46.1	12.8	1.3	300.0	3.0	0.0	Horz	PK	0.0	58.9	74.0	-15.1	EUT vert, ch 165, 6 Mbps
20960.220	46.7	12.2	1.3	73.3	3.0	0.0	Horz	PK	0.0	58.9	74.0	-15.1	EUT vert, ch 48, 6 Mbps

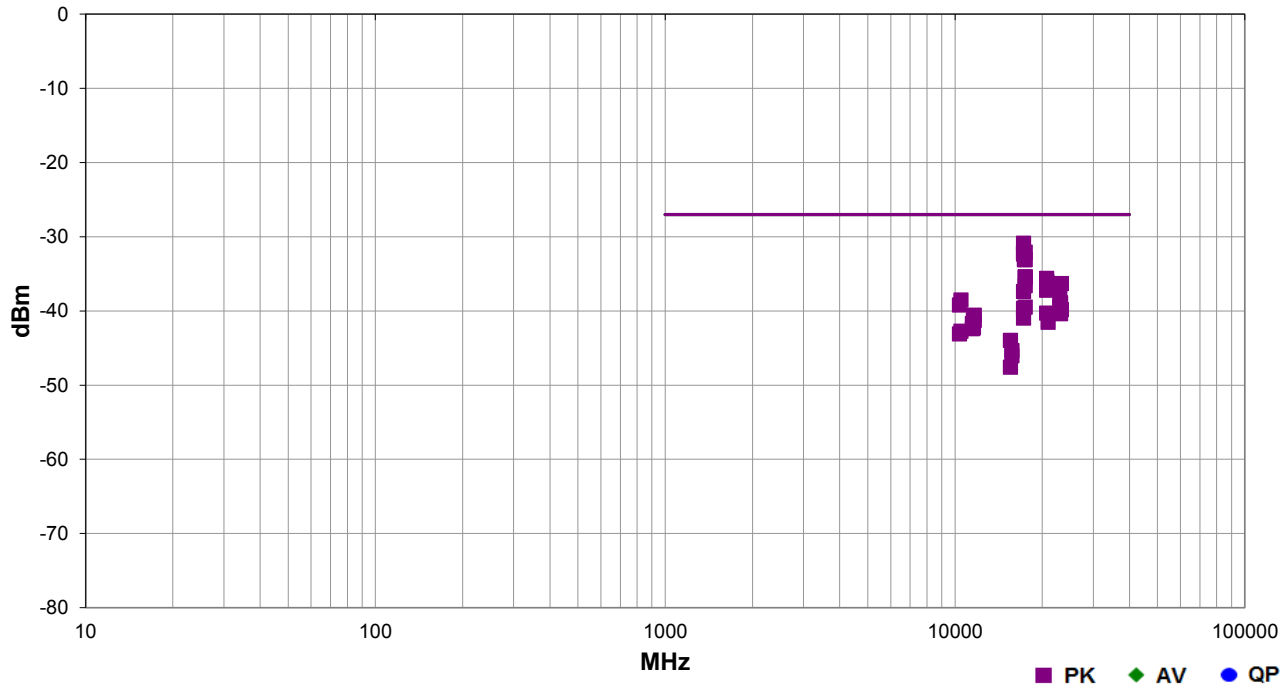
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15540.000	35.1	3.8	1.0	264.9	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
17476.580	54.3	4.3	1.3	70.1	3.0	0.0	Vert	PK	0.0	58.6	74.0	-15.4	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz
20720.080	45.8	12.2	1.4	73.1	3.0	0.0	Horz	PK	0.0	58.0	74.0	-16.0	EUT vert, ch 36, MCS0
17235.790	54.3	3.6	1.0	165.0	3.0	0.0	Horz	PK	0.0	57.9	74.0	-16.1	Ch. 149, 5745 MHz, 36 Mbps, EUT Vert
22980.410	44.6	12.7	1.4	306.0	3.0	0.0	Horz	PK	0.0	57.3	74.0	-16.7	EUT vert, ch 149, 6 Mbps
10482.130	64.1	-7.4	1.0	168.0	3.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
23140.040	43.6	12.7	1.3	317.0	3.0	0.0	Horz	PK	0.0	56.3	74.0	-17.7	EUT vert, ch 157, 6 Mbps
10361.820	63.6	-7.6	1.0	166.9	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
17477.800	51.4	4.3	1.3	307.0	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz
22980.310	43.0	12.7	1.4	336.9	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	EUT vert, ch 149, 6 Mbps
17232.080	52.0	3.6	1.0	165.0	3.0	0.0	Horz	PK	0.0	55.6	74.0	-18.4	Ch. 149, 5745 MHz, 54 Mbps, EUT Vert
23300.080	42.6	12.8	1.3	332.0	3.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	EUT vert, ch 165, 6 Mbps
20720.010	42.7	12.2	1.3	307.9	3.0	0.0	Vert	PK	0.0	54.9	74.0	-19.1	EUT vert, ch 36, 6 Mbps
23139.980	42.1	12.7	1.3	330.9	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	EUT vert, ch 157, 6 Mbps
11649.990	61.3	-6.6	1.2	182.0	3.0	0.0	Horz	PK	0.0	54.7	74.0	-19.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
17236.210	50.7	3.6	1.0	165.0	3.0	0.0	Horz	PK	0.0	54.3	74.0	-19.7	Ch. 149, 5745 MHz, MCS7, EUT Vert
11569.850	60.5	-6.5	1.0	179.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11650.040	60.6	-6.6	1.0	179.8	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
20960.260	41.5	12.2	1.3	348.9	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	EUT vert, ch 48, 6 Mbps
11490.370	60.7	-7.2	1.0	180.0	3.0	0.0	Vert	PK	0.0	53.5	74.0	-20.5	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
11570.450	59.4	-6.4	1.2	180.0	3.0	0.0	Horz	PK	0.0	53.0	74.0	-21.0	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11489.970	60.0	-7.2	1.0	168.0	3.0	0.0	Horz	PK	0.0	52.8	74.0	-21.2	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
10480.230	59.9	-7.4	1.1	181.1	3.0	0.0	Vert	PK	0.0	52.5	74.0	-21.5	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
10360.090	59.7	-7.6	1.0	182.0	3.0	0.0	Vert	PK	0.0	52.1	74.0	-21.9	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
15539.650	47.5	3.8	1.0	187.0	3.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
15724.550	46.1	3.8	1.0	176.0	3.0	0.0	Horz	PK	0.0	49.9	74.0	-24.1	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
15726.750	45.4	3.8	1.0	184.2	3.0	0.0	Vert	PK	0.0	49.2	74.0	-24.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
15540.200	43.9	3.8	1.0	264.9	3.0	0.0	Vert	PK	0.0	47.7	74.0	-26.3	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	2, 4				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a - channel 36 (5180 MHz), 48 (5240 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Isolated Magnetic Dipole Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	184	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 1.25(m)	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17236.580	1.0	164.0	Horz	PK	8.18E-07	-30.9	-27.0	-3.9	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	17469.400	1.0	150.0	Vert	PK	6.19E-07	-32.1	-27.0	-5.1	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	17229.330	1.0	164.0	Vert	PK	5.84E-07	-32.3	-27.0	-5.3	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	17355.200	1.0	165.0	Horz	PK	5.78E-07	-32.4	-27.0	-5.4	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	17355.530	1.0	151.1	Vert	PK	4.92E-07	-33.1	-27.0	-6.1	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	17468.530	1.0	149.1	Horz	PK	4.91E-07	-33.1	-27.0	-6.1	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	17471.230	1.0	271.1	Horz	PK	2.89E-07	-35.4	-27.0	-8.4	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
	17478.500	1.0	242.9	Vert	PK	2.83E-07	-35.5	-27.0	-8.5	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
	23300.150	1.3	300.0	Horz	PK	2.33E-07	-36.3	-27.0	-9.3	EUT vert, ch 165, 6 Mbps
	17476.580	1.3	70.1	Vert	PK	2.20E-07	-36.6	-27.0	-9.6	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz
	17234.830	1.0	165.0	Horz	PK	6.08E-07	-32.2	-27.0	-5.2	Ch. 149, 5745 MHz, MCS0, EUT Vert
	10482.130	1.0	168.0	Horz	PK	1.40E-07	-38.5	-27.0	-11.5	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	23140.040	1.3	317.0	Horz	PK	1.29E-07	-38.9	-27.0	-11.9	EUT vert, ch 157, 6 Mbps
	10361.820	1.0	166.9	Horz	PK	1.20E-07	-39.2	-27.0	-12.2	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	17477.800	1.3	307.0	Horz	PK	1.13E-07	-39.5	-27.0	-12.5	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz

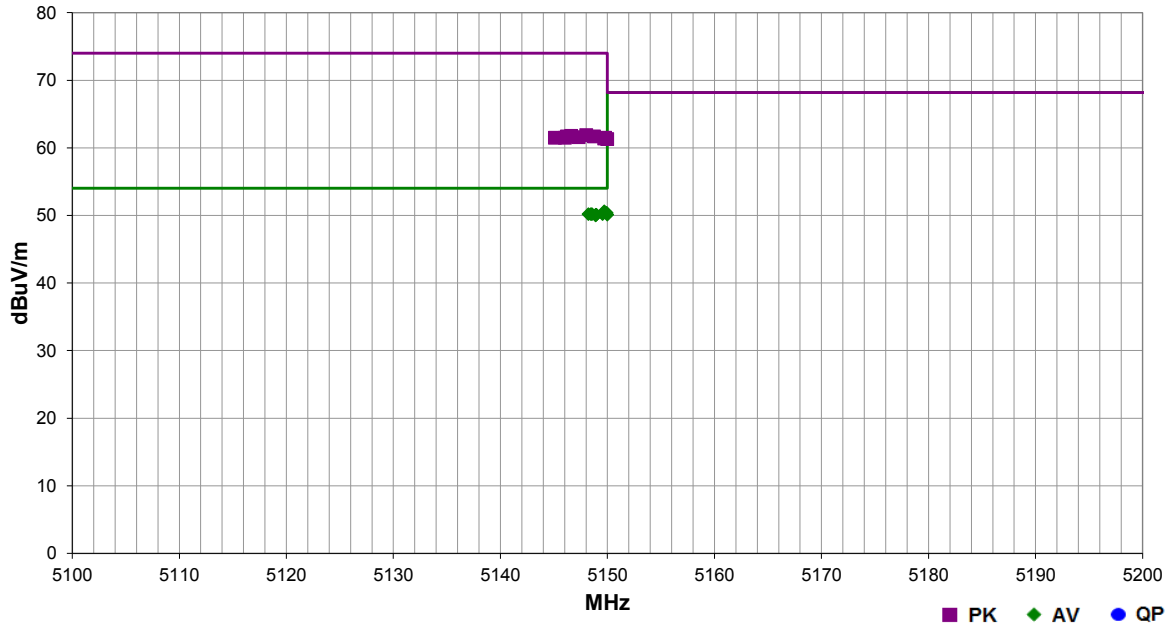
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	23300.080	1.3	332.0	Vert	PK	1.04E-07	-39.8	-27.0	-12.8	EUT vert, ch 165, 6 Mbps
	23139.980	1.3	330.9	Vert	PK	9.15E-08	-40.4	-27.0	-13.4	EUT vert, ch 157, 6 Mbps
	20720.180	1.4	73.1	Horz	PK	2.75E-07	-35.6	-27.0	-8.6	EUT vert, ch 36, 6 Mbps
	20720.250	1.5	69.1	Horz	PK	2.45E-07	-36.1	-27.0	-9.1	EUT vert, ch 36, 6 Mbps
	20720.010	1.4	73.1	Horz	PK	2.45E-07	-36.1	-27.0	-9.1	EUT vert, ch 36, 6 Mbps
	20960.220	1.3	73.3	Horz	PK	2.33E-07	-36.3	-27.0	-9.3	EUT vert, ch 48, 6 Mbps
	10480.230	1.1	181.1	Vert	PK	5.32E-08	-42.7	-27.0	-15.7	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	20720.080	1.4	73.1	Horz	PK	1.91E-07	-37.2	-27.0	-10.2	EUT vert, ch 36, MCS0
	10360.090	1.0	182.0	Vert	PK	4.90E-08	-43.1	-27.0	-16.1	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	17235.790	1.0	165.0	Horz	PK	1.83E-07	-37.4	-27.0	-10.4	Ch. 149, 5745 MHz, 36 Mbps, EUT Vert
	22980.410	1.4	306.0	Horz	PK	1.60E-07	-38.0	-27.0	-11.0	EUT vert, ch 149, 6 Mbps
	22980.310	1.4	336.9	Vert	PK	1.11E-07	-39.6	-27.0	-12.6	EUT vert, ch 149, 6 Mbps
	17232.080	1.0	165.0	Horz	PK	1.08E-07	-39.6	-27.0	-12.6	Ch. 149, 5745 MHz, 54 Mbps, EUT Vert
	20720.010	1.3	307.9	Vert	PK	9.33E-08	-40.3	-27.0	-13.3	EUT vert, ch 36, 6 Mbps
	11649.990	1.2	182.0	Horz	PK	8.77E-08	-40.6	-27.0	-13.6	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	17236.210	1.0	165.0	Horz	PK	8.00E-08	-41.0	-27.0	-14.0	Ch. 149, 5745 MHz, MCS7, EUT Vert
	11569.850	1.0	179.0	Vert	PK	7.62E-08	-41.2	-27.0	-14.2	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	11650.040	1.0	179.8	Vert	PK	7.46E-08	-41.3	-27.0	-14.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	20960.260	1.3	348.9	Vert	PK	7.04E-08	-41.5	-27.0	-14.5	EUT vert, ch 48, 6 Mbps
	11490.370	1.0	180.0	Vert	PK	6.78E-08	-41.7	-27.0	-14.7	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	11570.450	1.2	180.0	Horz	PK	5.92E-08	-42.3	-27.0	-15.3	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	11489.970	1.0	168.0	Horz	PK	5.77E-08	-42.4	-27.0	-15.4	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	15539.650	1.0	187.0	Horz	PK	4.00E-08	-44.0	-27.0	-17.0	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	15724.550	1.0	176.0	Horz	PK	2.92E-08	-45.3	-27.0	-18.3	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	15726.750	1.0	184.2	Vert	PK	2.49E-08	-46.0	-27.0	-19.0	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	15540.200	1.0	264.9	Vert	PK	1.75E-08	-47.6	-27.0	-20.6	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	4				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a channel 36 (5180 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Isolated Magnetic Dipole Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	185	**Test Distance (m)**	1	**Antenna Height(s)**	1(m)	**Results**	Pass



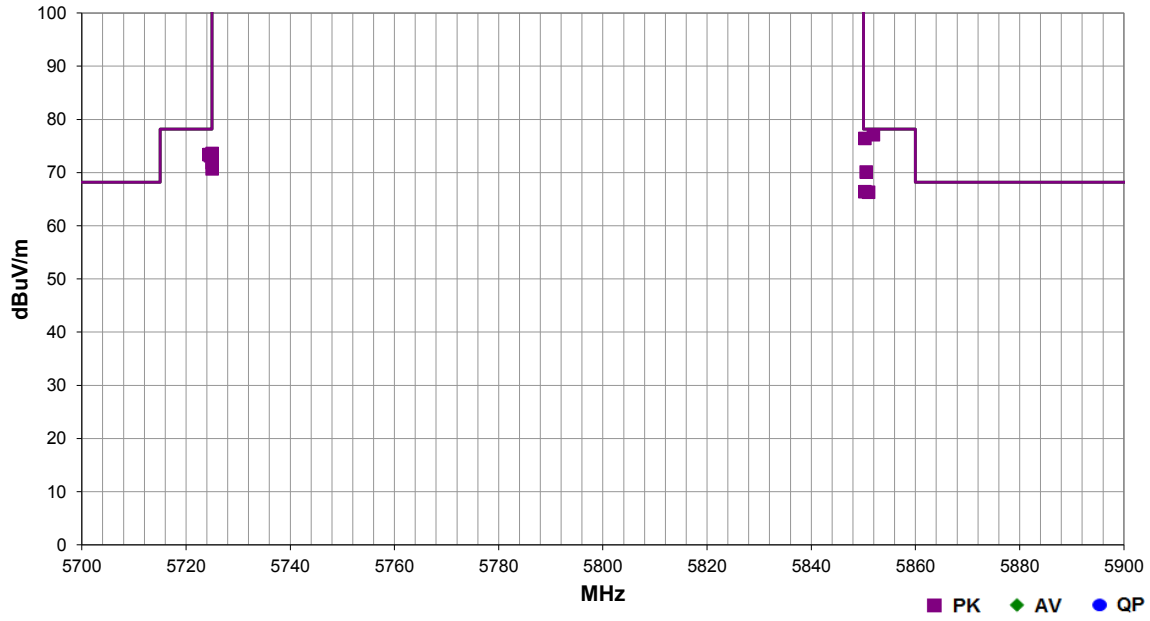
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5149.717	25.1	35.0	1.0	89.0	1.0	0.0	Horz	AV	-9.5	50.6	54.0	-3.4	EUT horz, ch 36, 6 Mbps
5149.942	24.9	35.0	1.0	22.1	1.0	0.0	Vert	AV	-9.5	50.4	54.0	-3.6	EUT on side, ch 36, 6 Mbps
5149.558	24.7	35.0	1.0	171.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, 54 Mbps
5148.458	24.7	35.0	1.0	171.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, 36 Mbps
5148.567	24.7	35.0	1.0	171.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, MCS0
5148.225	24.7	35.0	1.0	171.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, MCS7
5150.000	24.6	35.0	1.0	318.0	1.0	0.0	Horz	AV	-9.5	50.1	54.0	-3.9	EUT on side, ch 36, 6 Mbps
5148.967	24.6	35.0	1.0	153.0	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	EUT vert, ch 36, 6 Mbps
5148.925	24.6	35.0	1.0	286.9	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	EUT horz, ch 36, 6 Mbps
5148.908	24.5	35.0	1.0	178.1	1.0	0.0	Horz	AV	-9.5	50.0	54.0	-4.0	EUT vert, ch 36, 6 Mbps
5148.017	36.4	35.0	1.0	89.0	1.0	0.0	Horz	PK	-9.5	61.9	74.0	-12.1	EUT horz, ch 36, 6 Mbps
5146.608	36.3	35.0	1.0	153.0	1.0	0.0	Vert	PK	-9.5	61.8	74.0	-12.2	EUT vert, ch 36, 6 Mbps
5148.742	36.2	35.0	1.0	171.0	1.0	0.0	Horz	PK	-9.5	61.7	74.0	-12.3	EUT horz, ch 36, MCS0
5146.217	36.2	35.0	1.0	286.9	1.0	0.0	Vert	PK	-9.5	61.7	74.0	-12.3	EUT horz, ch 36, 6 Mbps
5147.317	36.1	35.0	1.0	318.0	1.0	0.0	Horz	PK	-9.5	61.6	74.0	-12.4	EUT on side, ch 36, 6 Mbps
5149.775	36.0	35.0	1.0	171.0	1.0	0.0	Horz	PK	-9.5	61.5	74.0	-12.5	EUT horz, ch 36, 54 Mbps
5146.025	36.0	35.0	1.0	22.1	1.0	0.0	Vert	PK	-9.5	61.5	74.0	-12.5	EUT on side, ch 36, 6 Mbps
5145.092	36.0	35.0	1.0	171.0	1.0	0.0	Horz	PK	-9.5	61.5	74.0	-12.5	EUT horz, ch 36, 36 Mbps
5149.700	35.9	35.0	1.0	171.0	1.0	0.0	Horz	PK	-9.5	61.4	74.0	-12.6	EUT horz, ch 36, MCS7
5149.983	35.8	35.0	1.0	178.1	1.0	0.0	Horz	PK	-9.5	61.3	74.0	-12.7	EUT vert, ch 36, 6 Mbps

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	4				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a - channel 149 (5745 MHz) and channel 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Dipole Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	186	**Test Distance (m)**	1	**Antenna Height(s)**	1(m)	**Results**	Pass



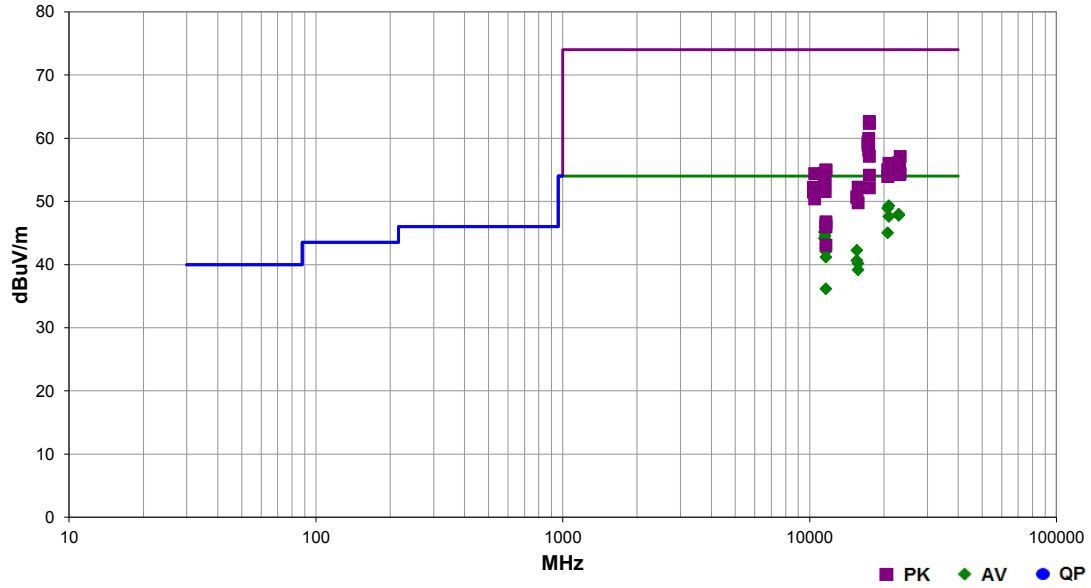
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5851.933	49.9	36.8	1.3	308.9	1.0	0.0	Horz	PK	-9.5	77.1	78.2	-1.1	EUT horz, ch 165, 6 Mbps
5850.283	49.2	36.8	1.3	308.9	1.0	0.0	Horz	PK	-9.5	76.4	78.2	-1.8	EUT horz, ch 165, MCS0
5725.000	86.1	36.3	1.2	300.0	1.0	0.0	Horz	PK	-9.5	73.6	78.2	-4.6	EUT horz, ch 149, MCS0, MD
5724.383	46.7	36.2	1.2	296.0	1.0	0.0	Horz	PK	-9.5	73.4	78.2	-4.8	EUT horz, ch 149, 54 Mbps
5724.675	46.5	36.2	1.2	297.9	1.0	0.0	Horz	PK	-9.5	73.2	78.2	-5.0	EUT horz, ch 149, MCS7
5725.000	86.7	36.3	1.0	304.9	1.0	0.0	Horz	PK	-9.5	71.9	78.2	-6.3	EUT horz, ch 149, 6 Mbps, MD
5725.000	83.9	36.3	1.3	300.0	1.0	0.0	Horz	PK	-9.5	70.7	78.2	-7.5	EUT horz, ch 149, 36 Mbps, MD
5850.542	42.9	36.8	1.3	308.9	1.0	0.0	Horz	PK	-9.5	70.1	78.2	-8.1	EUT horz, ch 165, 36 Mbps
5850.283	39.2	36.8	1.3	308.9	1.0	0.0	Horz	PK	-9.5	66.4	78.2	-11.8	EUT horz, ch 165, MCS7
5850.983	39.1	36.8	1.3	308.9	1.0	0.0	Horz	PK	-9.5	66.3	78.2	-11.9	EUT horz, ch 165, 54 Mbps

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/29/15		
Project:	None	**Temperature:**	23.7 °C		
Job Site:	MN05	**Humidity:**	26.7% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	1018.7 mbar	**Tested by:**	Trevor Buls, Jared Ison, Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	1, 3				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a - channel 36 (5180 MHz), 48 (5240 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Chip Antenna				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	201	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 1.25(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
20959.960	37.1	12.2	1.3	130.1	3.0	0.0	Vert	AV	0.0	49.3	54.0	-4.7	EUT Vertical, Ch 48, 6 Mbps
20719.990	36.7	12.2	1.3	183.0	3.0	0.0	Horz	AV	0.0	48.9	54.0	-5.1	EUT Vertical, Ch 36, 6 Mbps
17475.530	58.3	4.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	62.6	68.2	-5.6	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
17481.500	58.1	4.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	62.4	68.2	-5.8	Ch. 165, 5825 MHz, MCS0, EUT Vert
17470.570	58.0	4.3	1.0	228.1	3.0	0.0	Horz	PK	0.0	62.3	68.2	-5.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
22979.980	35.3	12.7	1.3	117.0	3.0	0.0	Horz	AV	0.0	48.0	54.0	-6.0	EUT Vertical, Ch 149, 6 Mbps
22979.930	35.1	12.7	1.3	107.0	3.0	0.0	Vert	AV	0.0	47.8	54.0	-6.2	EUT Vertical, Ch 149, 6 Mbps
20960.060	35.4	12.2	1.3	213.1	3.0	0.0	Horz	AV	0.0	47.6	54.0	-6.4	EUT Vertical, Ch 48, 6 Mbps
11649.950	52.7	-6.6	1.0	200.0	3.0	0.0	Horz	AV	0.0	46.1	54.0	-7.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
17349.500	56.2	3.8	1.0	229.0	3.0	0.0	Horz	PK	0.0	60.0	68.2	-8.2	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11649.930	52.4	-6.6	1.0	214.7	3.0	0.0	Vert	AV	0.0	45.8	54.0	-8.2	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
17238.230	55.8	3.5	1.0	178.1	3.0	0.0	Vert	PK	0.0	59.3	68.2	-8.9	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
11490.050	52.3	-7.2	1.0	174.1	3.0	0.0	Horz	AV	0.0	45.1	54.0	-8.9	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
11569.990	51.5	-6.5	1.0	137.1	3.0	0.0	Vert	AV	0.0	45.0	54.0	-9.0	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
20719.980	32.8	12.2	1.3	122.0	3.0	0.0	Vert	AV	0.0	45.0	54.0	-9.0	EUT Vertical, Ch 36, 6 Mbps
17233.050	55.3	3.6	1.0	164.0	3.0	0.0	Horz	PK	0.0	58.9	68.2	-9.3	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
11570.020	51.0	-6.4	1.0	172.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11490.000	51.3	-7.2	1.0	134.9	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
17358.600	54.2	3.9	1.0	216.0	3.0	0.0	Vert	PK	0.0	58.1	68.2	-10.1	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
17474.830	52.8	4.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	57.1	68.2	-11.1	Ch. 165, 5825 MHz, 36 Mbps, EUT Vert
11650.010	49.3	-6.6	1.0	253.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
15539.960	38.5	3.8	1.0	181.1	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
11650.040	48.7	-6.6	1.0	166.9	3.0	0.0	Vert	AV	0.0	42.1	54.0	-11.9	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
11650.010	47.8	-6.6	1.0	157.0	3.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
15539.860	36.9	3.8	1.0	262.0	3.0	0.0	Vert	AV	0.0	40.7	54.0	-13.3	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
10480.420	61.8	-7.4	1.0	160.1	3.0	0.0	Horz	PK	0.0	54.4	68.2	-13.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
15720.210	36.4	3.8	1.0	264.0	3.0	0.0	Horz	AV	0.0	40.2	54.0	-13.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
17479.200	49.8	4.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	54.1	68.2	-14.1	Ch. 165, 5825 MHz, 54 Mbps, EUT Vert
15720.040	35.4	3.8	1.0	261.0	3.0	0.0	Vert	AV	0.0	39.2	54.0	-14.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
10362.060	59.8	-7.6	1.1	159.1	3.0	0.0	Horz	PK	0.0	52.2	68.2	-16.0	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert

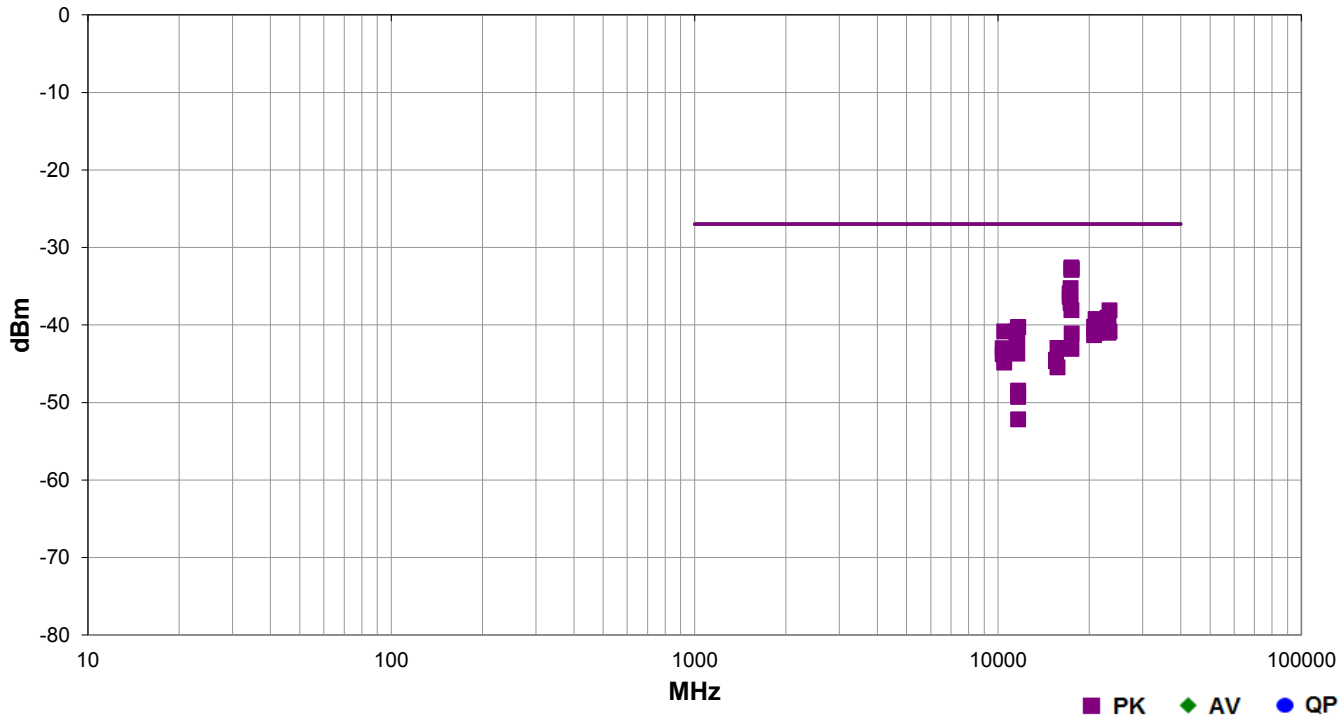
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
17467.700	47.8	4.3	1.0	176.0	3.0	0.0	Vert	PK	0.0	52.1	68.2	-16.1	Ch. 165, 5825 MHz, MCS7, EUT Vert
10362.030	59.0	-7.6	1.0	219.0	3.0	0.0	Vert	PK	0.0	51.4	68.2	-16.8	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
23300.260	44.3	12.8	1.3	99.0	3.0	0.0	Horz	PK	0.0	57.1	74.0	-16.9	EUT Vertical, Ch 165, 6 Mbps
10482.020	57.8	-7.4	1.0	180.8	3.0	0.0	Vert	PK	0.0	50.4	68.2	-17.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
22980.280	43.5	12.7	1.3	117.0	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	EUT Vertical, Ch 149, 6 Mbps
11650.000	42.8	-6.6	1.0	252.9	3.0	0.0	Horz	AV	0.0	36.2	54.0	-17.8	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz
20960.120	43.8	12.2	1.3	130.1	3.0	0.0	Vert	PK	0.0	56.0	74.0	-18.0	EUT Vertical, Ch 48, 6 Mbps
23139.830	42.9	12.7	1.3	117.0	3.0	0.0	Horz	PK	0.0	55.6	74.0	-18.4	EUT Vertical, Ch 157, 6 Mbps
22980.140	42.6	12.7	1.3	107.0	3.0	0.0	Vert	PK	0.0	55.3	74.0	-18.7	EUT Vertical, Ch 149, 6 Mbps
20720.170	42.8	12.2	1.3	183.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	EUT Vertical, Ch 36, 6 Mbps
11649.600	61.6	-6.6	1.0	200.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
11649.980	61.6	-6.6	1.0	214.7	3.0	0.0	Vert	PK	0.0	55.0	74.0	-19.0	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
11489.990	61.6	-7.2	1.0	174.1	3.0	0.0	Horz	PK	0.0	54.4	74.0	-19.6	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
23300.020	41.6	12.8	1.3	143.0	3.0	0.0	Vert	PK	0.0	54.4	74.0	-19.6	EUT Vertical, Ch 165, 6 Mbps
23139.590	41.5	12.7	1.3	190.0	3.0	0.0	Vert	PK	0.0	54.2	74.0	-19.8	EUT Vertical, Ch 157, 6 Mbps
20959.980	42.0	12.2	1.3	213.1	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	EUT Vertical, Ch 48, 6 Mbps
20720.200	41.7	12.2	1.3	122.0	3.0	0.0	Vert	PK	0.0	53.9	74.0	-20.1	EUT Vertical, Ch 36, 6 Mbps
11569.970	59.9	-6.5	1.0	172.0	3.0	0.0	Horz	PK	0.0	53.4	74.0	-20.6	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
11490.220	59.8	-7.2	1.0	134.9	3.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
15719.810	48.5	3.8	1.0	264.0	3.0	0.0	Horz	PK	0.0	52.3	74.0	-21.7	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
11569.900	58.0	-6.5	1.0	137.1	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
15540.180	47.0	3.8	1.0	181.1	3.0	0.0	Horz	PK	0.0	50.8	74.0	-23.2	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
15539.830	46.8	3.8	1.0	262.0	3.0	0.0	Vert	PK	0.0	50.6	74.0	-23.4	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
15720.580	46.0	3.8	1.0	261.0	3.0	0.0	Vert	PK	0.0	49.8	74.0	-24.2	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
11649.950	53.4	-6.6	1.0	253.0	3.0	0.0	Vert	PK	0.0	46.8	74.0	-27.2	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
11649.850	53.0	-6.6	1.0	166.9	3.0	0.0	Vert	PK	0.0	46.4	74.0	-27.6	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
11649.980	52.6	-6.6	1.0	157.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
11649.930	49.7	-6.6	1.0	252.9	3.0	0.0	Horz	PK	0.0	43.1	74.0	-30.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/29/15		
Project:	None	**Temperature:**	23.7 °C		
Job Site:	MN05	**Humidity:**	26.7% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	1018.7 mbar	**Tested by:**	Trevor Buls, Jared Ison, Dustin Spark
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	1, 3				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11a - channel 36 (5180 MHz), 48 (5240 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Chip Antenna				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	201	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 1.25(m)	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17475.530	1.0	176.0	Vert	PK	5.52E-07	-32.6	-27.0	-5.6	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	17481.500	1.0	176.0	Vert	PK	5.27E-07	-32.8	-27.0	-5.8	Ch. 165, 5825 MHz, MCS0, EUT Vert
	17470.570	1.0	228.1	Horz	PK	5.15E-07	-32.9	-27.0	-5.9	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	17349.500	1.0	229.0	Horz	PK	2.99E-07	-35.2	-27.0	-8.2	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	17238.230	1.0	178.1	Vert	PK	2.58E-07	-35.9	-27.0	-8.9	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	17233.050	1.0	164.0	Horz	PK	2.32E-07	-36.4	-27.0	-9.4	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	17358.600	1.0	216.0	Vert	PK	1.93E-07	-37.1	-27.0	-10.1	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	17474.830	1.0	176.0	Vert	PK	1.55E-07	-38.1	-27.0	-11.1	Ch. 165, 5825 MHz, 36 Mbps, EUT Vert
	10480.420	1.0	160.1	Horz	PK	8.24E-08	-40.8	-27.0	-13.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	17479.200	1.0	176.0	Vert	PK	7.79E-08	-41.1	-27.0	-14.1	Ch. 165, 5825 MHz, 54 Mbps, EUT Vert
	10362.060	1.1	159.1	Horz	PK	5.02E-08	-43.0	-27.0	-16.0	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert

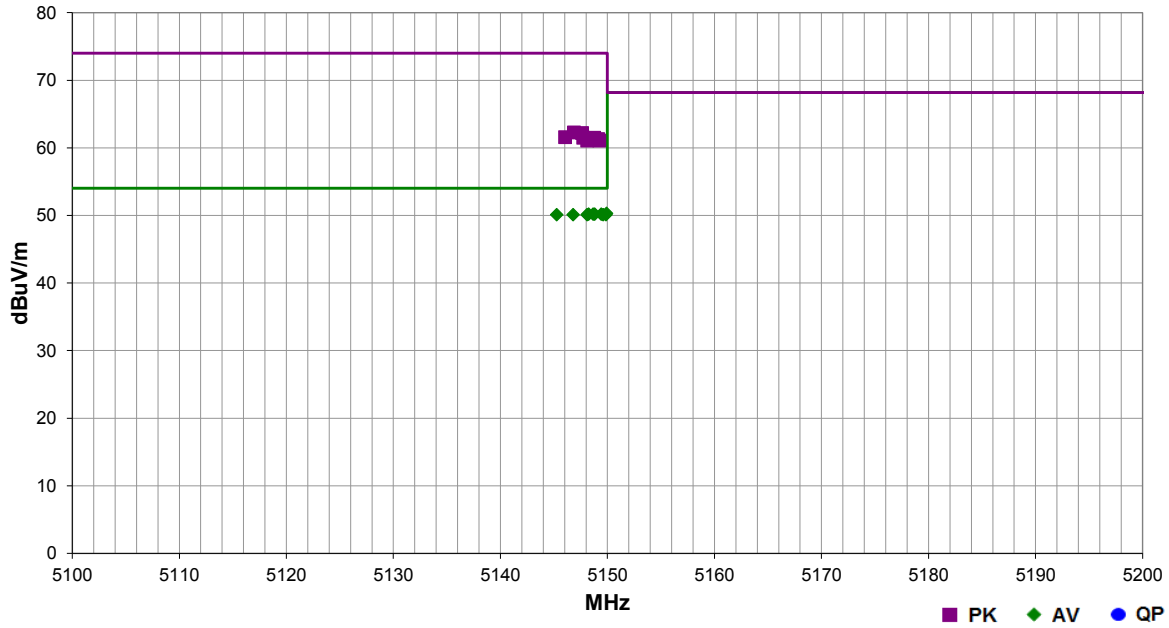
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17467.700	1.0	176.0	Vert	PK	4.91E-08	-43.1	-27.0	-16.1	Ch. 165, 5825 MHz, MCS7, EUT Vert
	10362.030	1.0	219.0	Vert	PK	4.18E-08	-43.8	-27.0	-16.8	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	23300.260	1.3	99.0	Horz	PK	1.54E-07	-38.1	-27.0	-11.1	EUT Vertical, Ch 165, 6 Mbps
	10482.020	1.0	180.8	Vert	PK	3.28E-08	-44.8	-27.0	-17.8	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	22980.280	1.3	117.0	Horz	PK	1.24E-07	-39.1	-27.0	-12.1	EUT Vertical, Ch 149, 6 Mbps
	20960.120	1.3	130.1	Vert	PK	1.20E-07	-39.2	-27.0	-12.2	EUT Vertical, Ch 48, 6 Mbps
	23139.830	1.3	117.0	Horz	PK	1.10E-07	-39.6	-27.0	-12.6	EUT Vertical, Ch 157, 6 Mbps
	22980.140	1.3	107.0	Vert	PK	1.01E-07	-40.0	-27.0	-13.0	EUT Vertical, Ch 149, 6 Mbps
	20720.170	1.3	183.0	Horz	PK	9.55E-08	-40.2	-27.0	-13.2	EUT Vertical, Ch 36, 6 Mbps
	11649.600	1.0	200.0	Horz	PK	9.41E-08	-40.3	-27.0	-13.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	11649.980	1.0	214.7	Vert	PK	9.40E-08	-40.3	-27.0	-13.3	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	11489.990	1.0	174.1	Horz	PK	8.34E-08	-40.8	-27.0	-13.8	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	23300.020	1.3	143.0	Vert	PK	8.28E-08	-40.8	-27.0	-13.8	EUT Vertical, Ch 165, 6 Mbps
	23139.590	1.3	190.0	Vert	PK	7.97E-08	-41.0	-27.0	-14.0	EUT Vertical, Ch 157, 6 Mbps
	20959.980	1.3	213.1	Horz	PK	7.90E-08	-41.0	-27.0	-14.0	EUT Vertical, Ch 48, 6 Mbps
	20720.200	1.3	122.0	Vert	PK	7.41E-08	-41.3	-27.0	-14.3	EUT Vertical, Ch 36, 6 Mbps
	11569.970	1.0	172.0	Horz	PK	6.64E-08	-41.8	-27.0	-14.8	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	11490.220	1.0	134.9	Vert	PK	5.51E-08	-42.6	-27.0	-15.6	Ch. 149, 5745 MHz, 6 Mbps, EUT Vert
	15719.810	1.0	264.0	Horz	PK	5.05E-08	-43.0	-27.0	-16.0	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	11569.900	1.0	137.1	Vert	PK	4.29E-08	-43.7	-27.0	-16.7	Ch. 157, 5785 MHz, 6 Mbps, EUT Vert
	15540.180	1.0	181.1	Horz	PK	3.57E-08	-44.5	-27.0	-17.5	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	15539.830	1.0	262.0	Vert	PK	3.41E-08	-44.7	-27.0	-17.7	Ch. 36, 5180 MHz, 6 Mbps, EUT Vert
	15720.580	1.0	261.0	Vert	PK	2.84E-08	-45.5	-27.0	-18.5	Ch. 48, 5240 MHz, 6 Mbps, EUT Vert
	11649.950	1.0	253.0	Vert	PK	1.42E-08	-48.5	-27.0	-21.5	Ch. 165, 5825 MHz, 6 Mbps, EUT Vert
	11649.850	1.0	166.9	Vert	PK	1.30E-08	-48.9	-27.0	-21.9	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
	11649.980	1.0	157.0	Horz	PK	1.18E-08	-49.3	-27.0	-22.3	Ch. 165, 5825 MHz, 6 Mbps, EUT On Side
	11649.930	1.0	252.9	Horz	PK	6.07E-09	-52.2	-27.0	-25.2	Ch. 165, 5825 MHz, 6 Mbps, EUT Horz

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	3				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11 6 Mbps channel 36.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Chip Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	189	**Test Distance (m)**	1	**Antenna Height(s)**	1(m)	**Results**	Pass



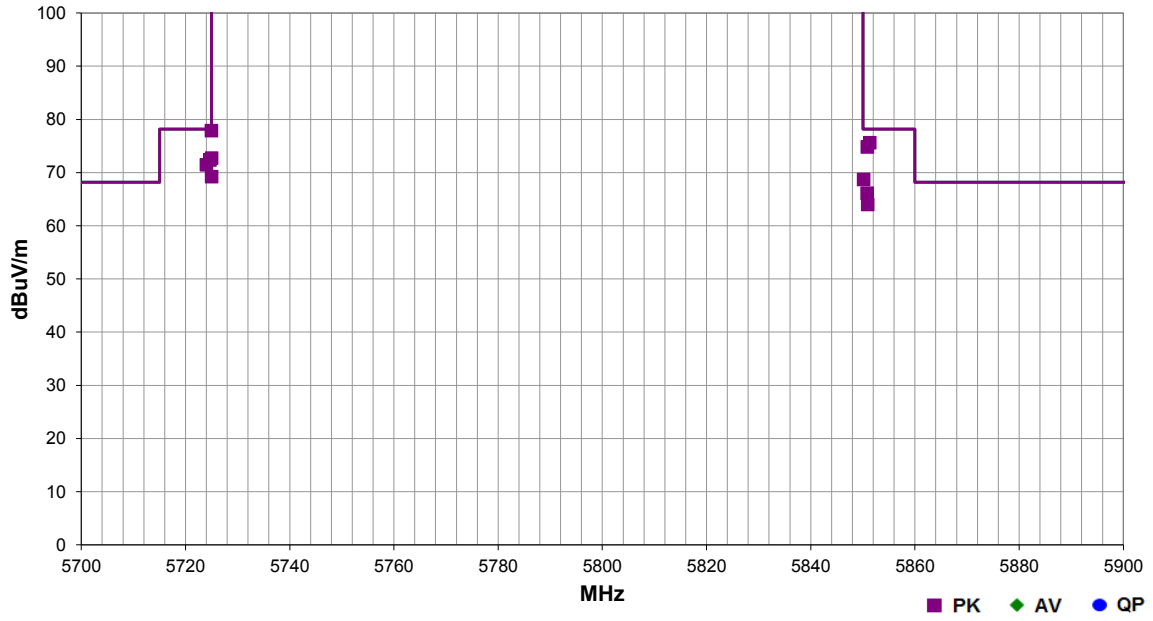
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5149.925	24.8	35.0	1.3	293.9	1.0	0.0	Horz	AV	-9.5	50.3	54.0	-3.7	EUT horz, ch 36, 6 Mbps
5149.433	24.7	35.0	1.1	253.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, MCS0
5148.817	24.7	35.0	1.1	253.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, MCS7
5148.675	24.7	35.0	1.1	253.0	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT horz, ch 36, 36 Mbps
5148.242	24.7	35.0	1.1	265.9	1.0	0.0	Horz	AV	-9.5	50.2	54.0	-3.8	EUT on side, ch 36, 6 Mbps
5149.875	24.6	35.0	1.1	239.0	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	EUT vert, ch 36, 6 Mbps
5149.600	24.6	35.0	1.1	253.0	1.0	0.0	Horz	AV	-9.5	50.1	54.0	-3.9	EUT horz, ch 36, 54 Mbps
5148.108	24.6	35.0	1.1	263.0	1.0	0.0	Horz	AV	-9.5	50.1	54.0	-3.9	EUT vert, ch 36, 6 Mbps
5146.808	24.6	35.0	1.1	290.9	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	EUT on side, ch 36, 6 Mbps
5145.258	24.6	35.0	1.1	300.9	1.0	0.0	Vert	AV	-9.5	50.1	54.0	-3.9	EUT horz, ch 36, 6 Mbps
5146.875	36.8	35.0	1.1	263.0	1.0	0.0	Horz	PK	-9.5	62.3	74.0	-11.7	EUT vert, ch 36, 6 Mbps
5147.633	36.7	35.0	1.1	253.0	1.0	0.0	Horz	PK	-9.5	62.2	74.0	-11.8	EUT horz, ch 36, MCS7
5146.050	36.1	35.0	1.1	290.9	1.0	0.0	Vert	PK	-9.5	61.6	74.0	-12.4	EUT on side, ch 36, 6 Mbps
5148.758	36.0	35.0	1.1	253.0	1.0	0.0	Horz	PK	-9.5	61.5	74.0	-12.5	EUT horz, ch 36, 54 Mbps
5147.733	36.0	35.0	1.3	293.9	1.0	0.0	Horz	PK	-9.5	61.5	74.0	-12.5	EUT horz, ch 36, 6 Mbps
5149.125	35.8	35.0	1.1	265.9	1.0	0.0	Horz	PK	-9.5	61.3	74.0	-12.7	EUT on side, ch 36, 6 Mbps
5148.550	35.8	35.0	1.1	253.0	1.0	0.0	Horz	PK	-9.5	61.3	74.0	-12.7	EUT horz, ch 36, MCS0
5148.450	35.7	35.0	1.1	253.0	1.0	0.0	Horz	PK	-9.5	61.2	74.0	-12.8	EUT horz, ch 36, 36 Mbps
5149.233	35.6	35.0	1.1	300.9	1.0	0.0	Vert	PK	-9.5	61.1	74.0	-12.9	EUT horz, ch 36, 6 Mbps
5148.100	35.6	35.0	1.1	239.0	1.0	0.0	Vert	PK	-9.5	61.1	74.0	-12.9	EUT vert, ch 36, 6 Mbps

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0151	**Date:**	04/28/15		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	MN05	**Humidity:**	28.3% RH		
Serial Number:	See Configurations	**Barometric Pres.:**	989.8 mbar	**Tested by:**	Dustin Sparks
EUT:	DM3730 Torpedo + Wireless SOM -32				
Configuration:	3				
Customer:	Logic PD				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11 channels 149 (5745 MHz) and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0, and MCS7 data rates.				
Deviations:	None				
Comments:	Reference data comments for EUT channel, modulation rate and orientation. Chip Antenna.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2009

Run #	190	**Test Distance (m)**	1	**Antenna Height(s)**	1(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
5724.967	51.2	36.2	1.2	328.0	1.0	0.0	Horz	PK	-9.5	77.9	78.2	-0.3	EUT horz, ch 149, 36 Mbps
5851.325	48.4	36.8	1.2	337.9	1.0	0.0	Horz	PK	-9.5	75.6	78.2	-2.6	EUT horz, ch 165, MCS0
5850.867	47.6	36.8	1.2	337.9	1.0	0.0	Horz	PK	-9.5	74.8	78.2	-3.4	EUT horz, ch 165, 6 Mbps
5725.000	82.8	36.3	1.2	336.9	1.0	0.0	Horz	PK	-9.5	72.7	78.2	-5.5	EUT horz, ch 149, MCS0, MD
5724.667	45.7	36.2	1.2	336.9	1.0	0.0	Horz	PK	-9.5	72.4	78.2	-5.8	EUT horz, ch 149, MCS7
5723.992	44.8	36.2	1.2	328.0	1.0	0.0	Horz	PK	-9.5	71.5	78.2	-6.7	EUT horz, ch 149, 54 Mbps
5725.000	83.1	36.3	1.2	337.9	1.0	0.0	Horz	PK	-9.5	69.2	78.2	-9.0	EUT horz, ch 149, 6 Mbps, MD
5850.150	41.5	36.8	1.2	337.9	1.0	0.0	Horz	PK	-9.5	68.7	78.2	-9.5	EUT horz, ch 165, 36 Mbps
5850.817	38.9	36.8	1.2	337.9	1.0	0.0	Horz	PK	-9.5	66.1	78.2	-12.1	EUT horz, ch 165, 54 Mbps
5850.917	36.8	36.8	1.2	337.9	1.0	0.0	Horz	PK	-9.5	64.0	78.2	-14.2	EUT horz, ch 165, MCS7

FREQUENCY STABILITY

XMit 2015.01.14

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)
Multimeter	Fluke	117	MLS	1/20/2014	36
Humidity Temperature Chamber	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-SCT/AC	TBF	10/10/2014	12
DC Power Supply	EZ Digital Co	GP-4303D	TPY	NCR	0
Thermometer	Omega Engineering, Inc.	HH311	DUB	11/3/2014	36
Attenuator, 20db, 'SMA'	SM Electronics	SA26B-20	RFW	3/10/2015	12
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50° C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

NORTHWEST EMC

XMit 2015.01.14

EUT:	DM3730 Torpedo + Wireless SOM -32			**Work Order:**	LGPD0151
Serial Number:	See Configurations			**Date:**	05/08/15
Customer:	Logic PD			**Temperature:**	22.1°C
Attendees:	Adam Ford			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1014.5
Tested by:	Brandon Hobbs	**Power:**	5 VDC Nominal	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2015	ANSI C63.10:2009

COMMENTS

The EUT was tested with the fundamental modulated while under test. All cable losses were accounted for.

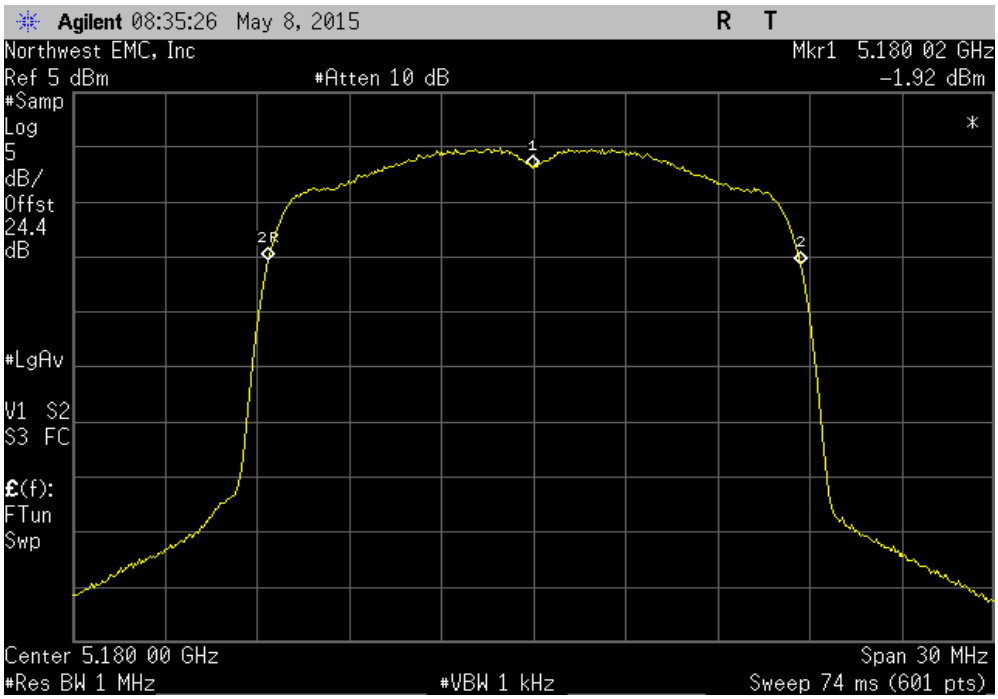
DEVIATIONS FROM TEST STANDARD

None

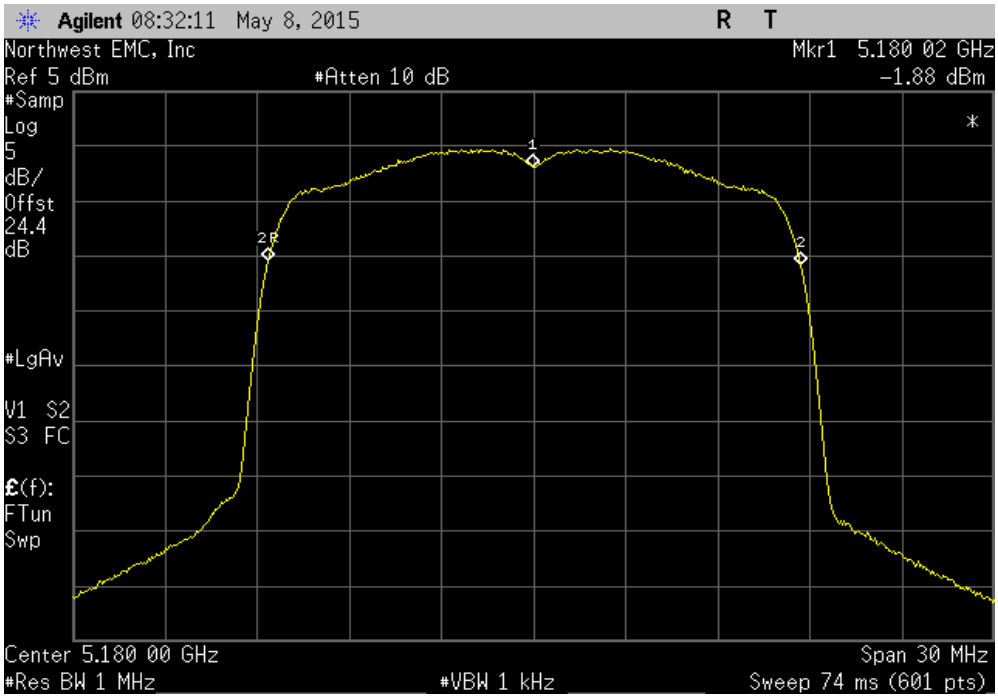
Configuration #	7	Signature

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
5150 MHz - 5250 MHz - Low Channel, 5180 MHz					
Voltage: 115%	5180.02	5180	3.9	100	Pass
Voltage: 100%	5180.02	5180	3.9	100	Pass
Voltage: 85%	5180.02	5180	3.9	100	Pass
Temperature: +50°	5180.02	5180	3.9	100	Pass
Temperature: +40°	5180.02	5180	3.9	100	Pass
Temperature: +30°	5180.02	5180	3.9	100	Pass
Temperature: +20°	5180.02	5180	3.9	100	Pass
Temperature: +10°	5180.02	5180	3.9	100	Pass
Temperature: 0°	5180.02	5180	3.9	100	Pass
Temperature: -10°	5180.02	5180	3.9	100	Pass
Temperature: -20°	5180.02	5180	3.9	100	Pass
Temperature: -30°	5180.02	5180	3.9	100	Pass
5470 MHz - 5725 MHz - High Channel, 5700 MHz					
Voltage: 115%	5700.02	5700	3.5	100	Pass
Voltage: 100%	5700.02	5700	3.5	100	Pass
Voltage: 85%	5700.02	5700	3.5	100	Pass
Temperature: +50°	5700.02	5700	3.5	100	Pass
Temperature: +40°	5700.02	5700	3.5	100	Pass
Temperature: +30°	5700.02	5700	3.5	100	Pass
Temperature: +20°	5700.02	5700	3.5	100	Pass
Temperature: +10°	5700.02	5700	3.5	100	Pass
Temperature: 0°	5700.02	5700	3.5	100	Pass
Temperature: -10°	5700.02	5700	3.5	100	Pass
Temperature: -20°	5700.02	5700	3.5	100	Pass
Temperature: -30°	5700.02	5700	3.5	100	Pass

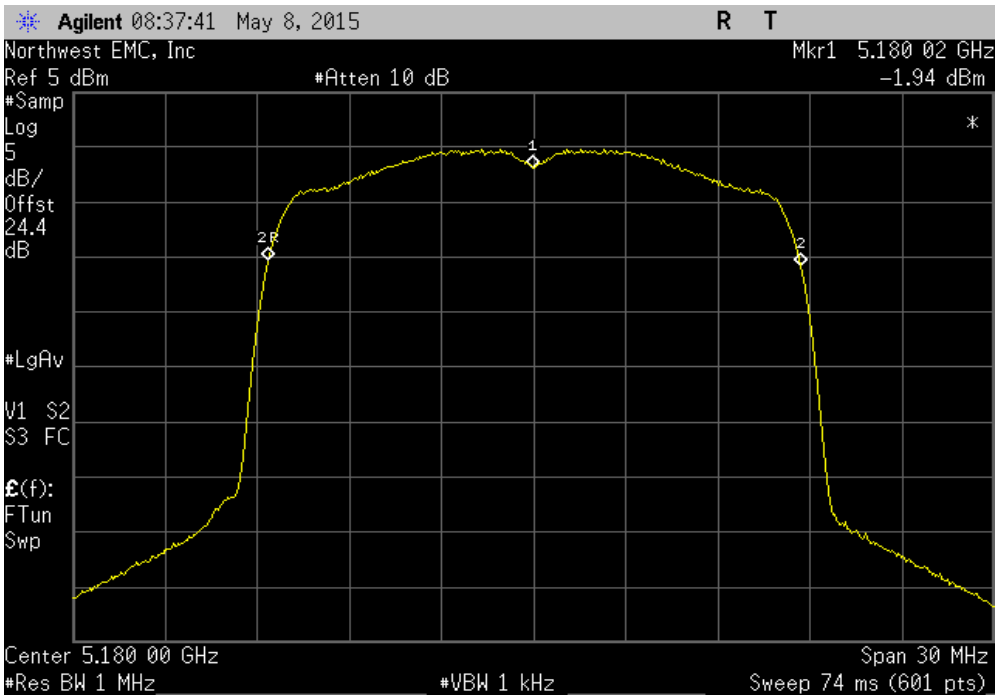
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



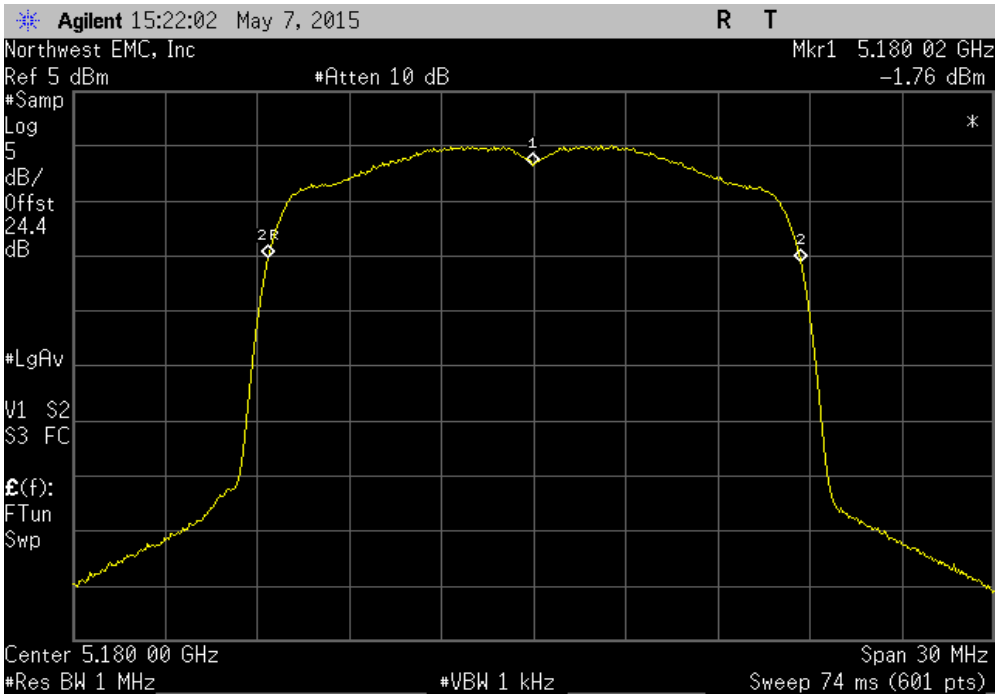
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



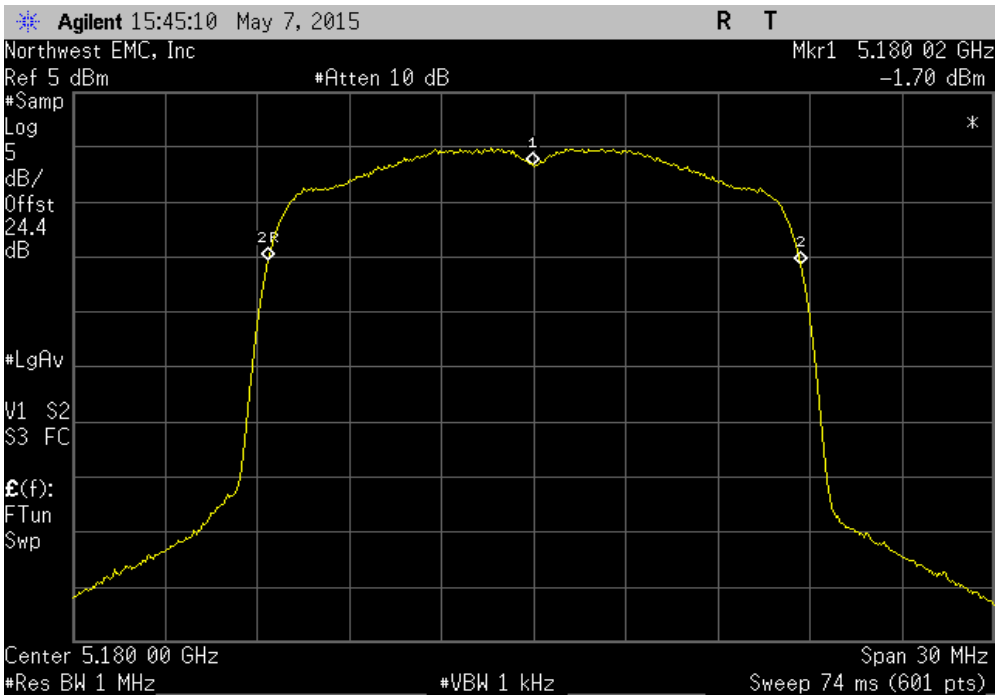
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



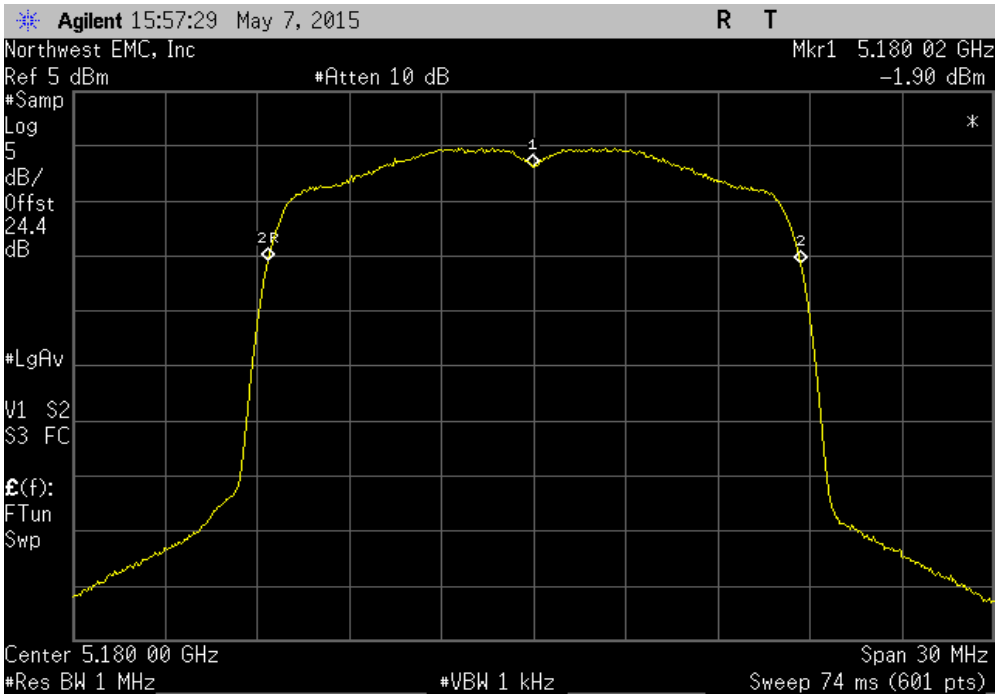
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



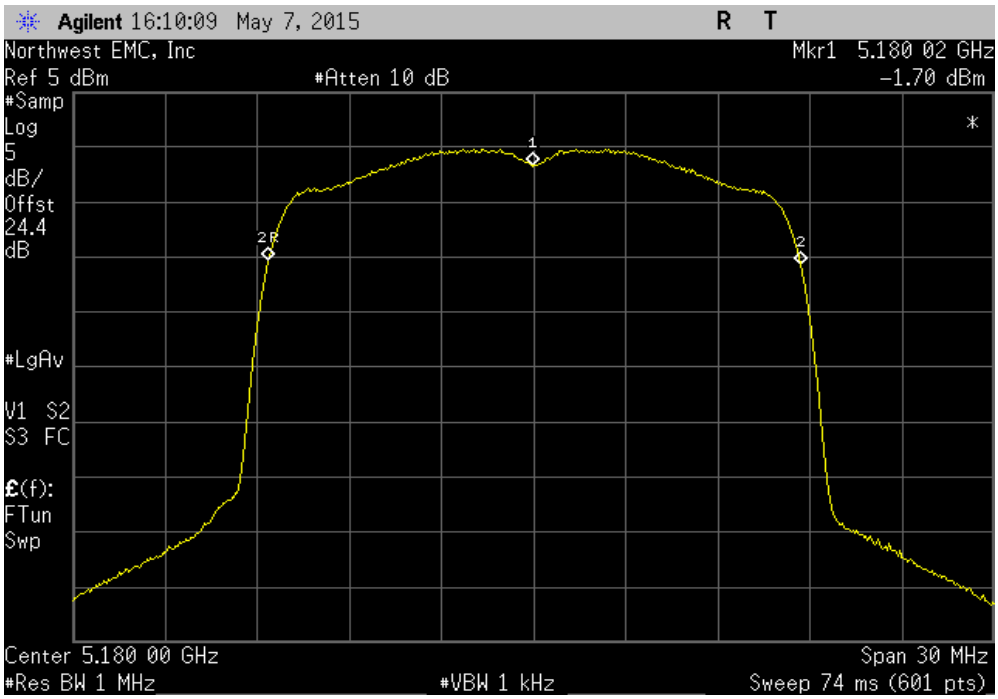
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



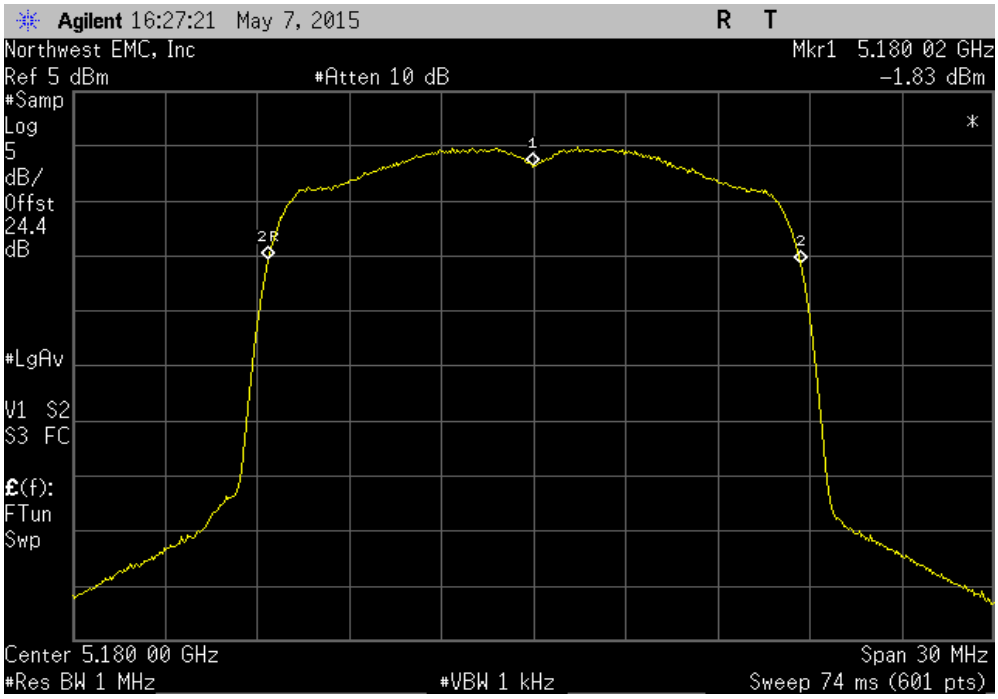
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



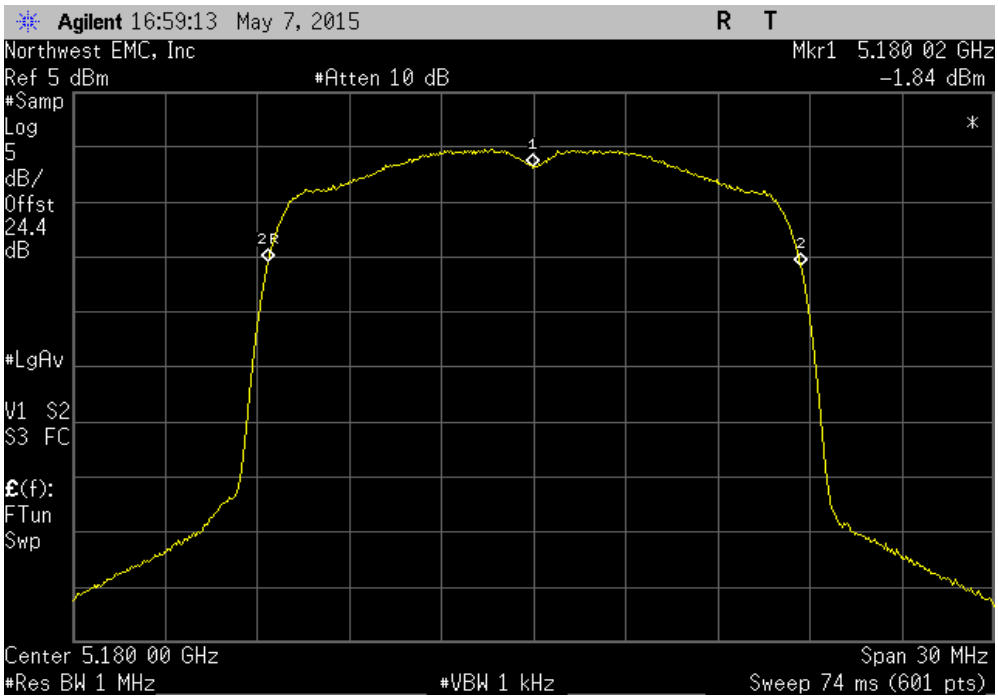
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



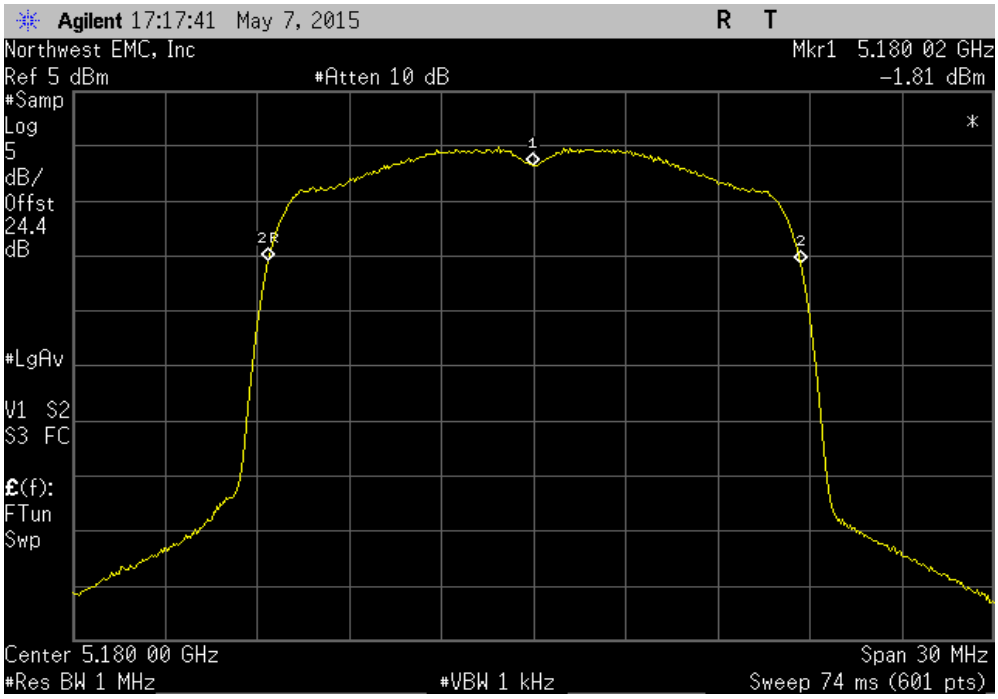
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



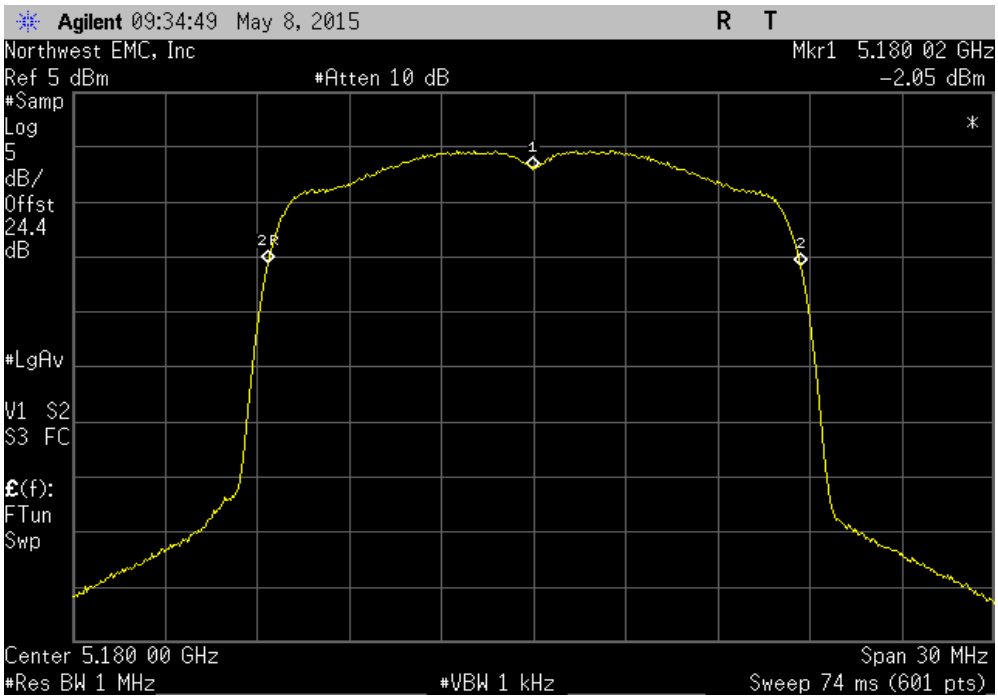
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



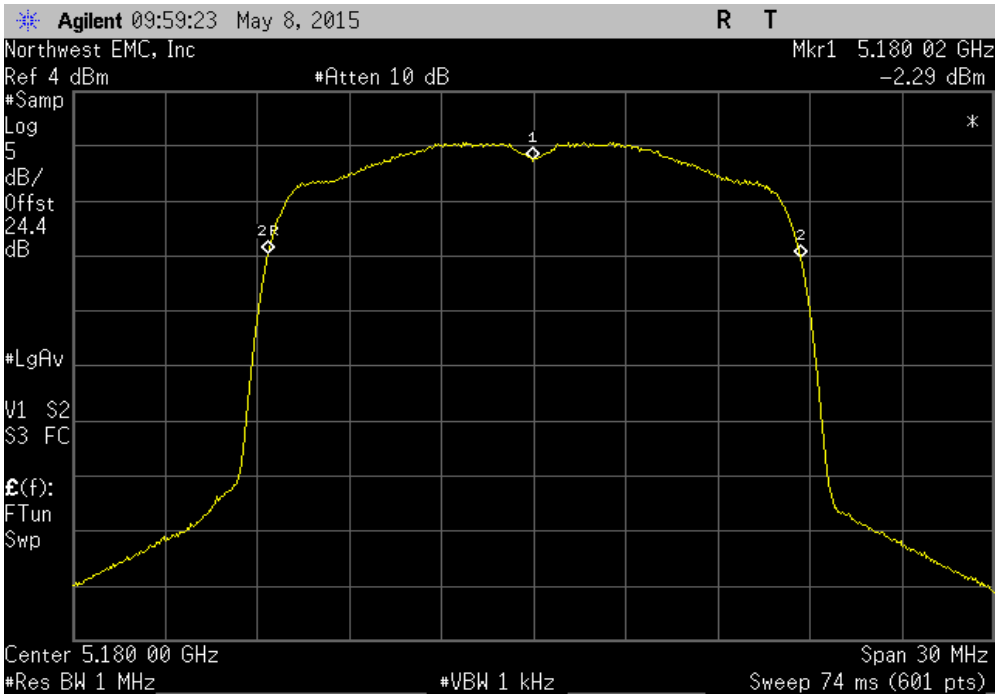
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



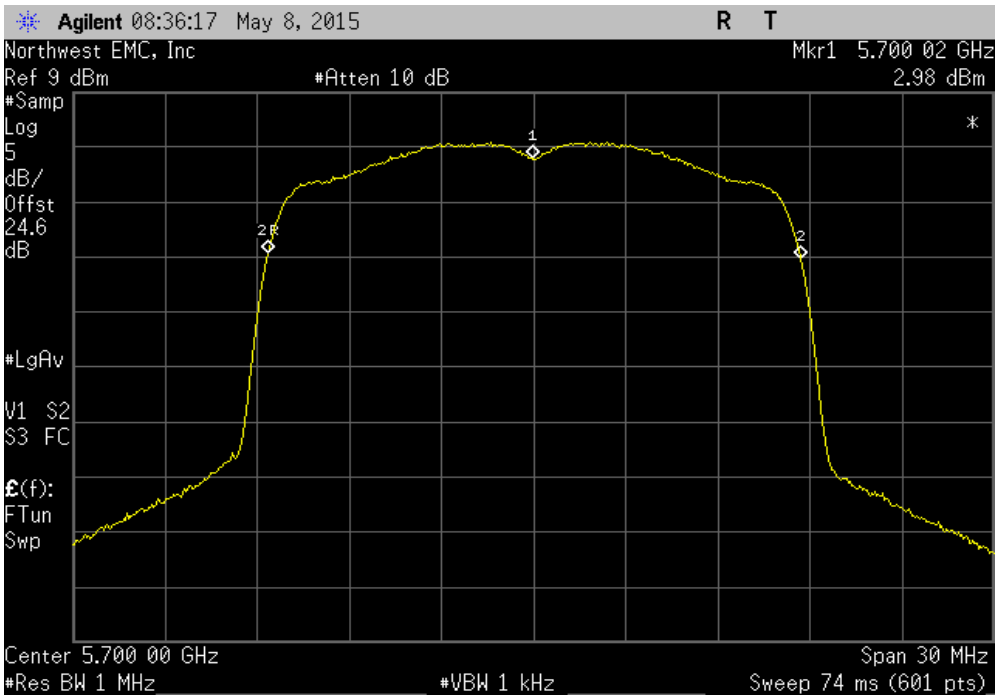
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



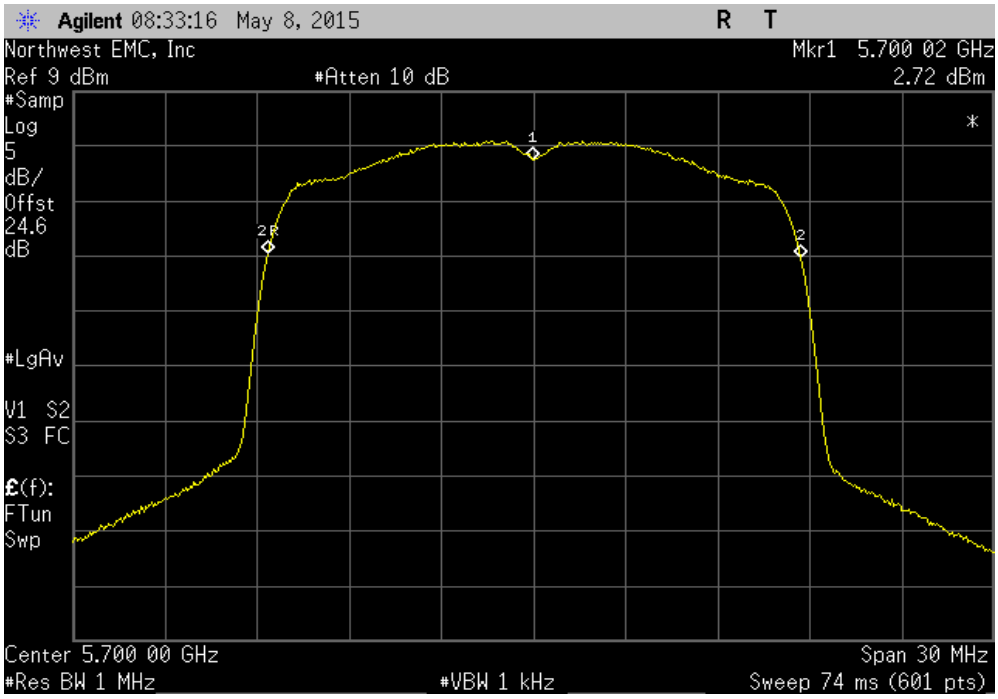
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5180.02	5180	3.9	100	Pass



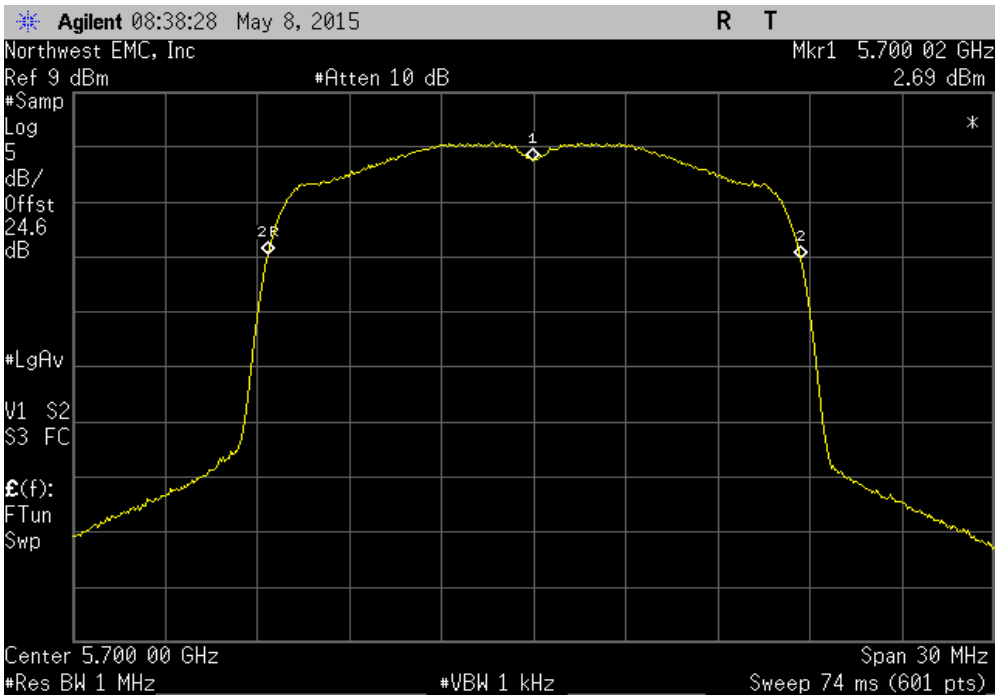
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



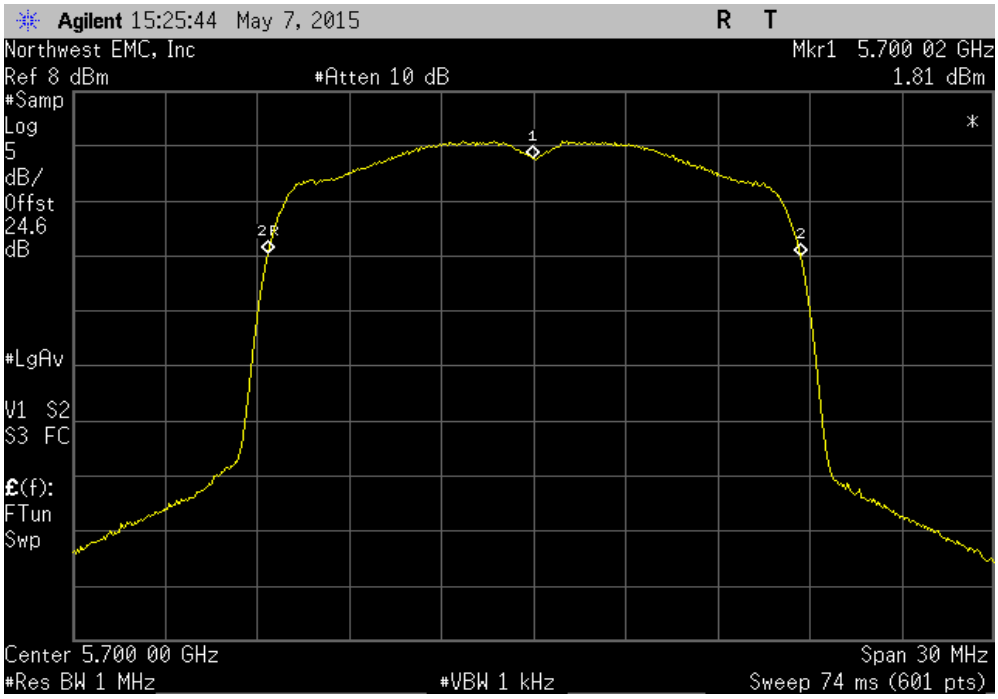
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



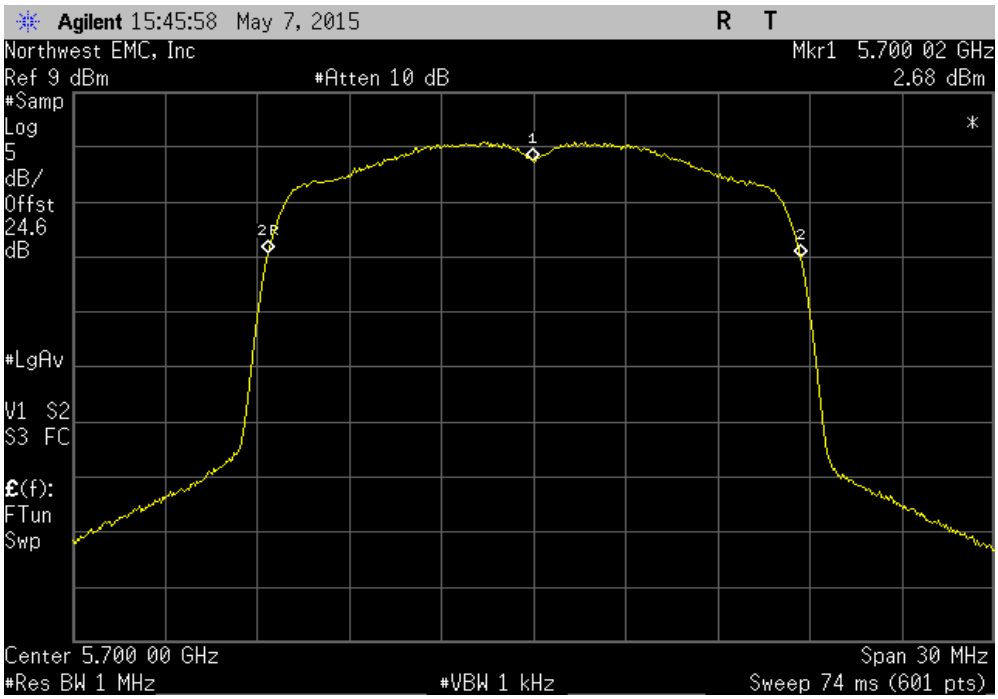
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



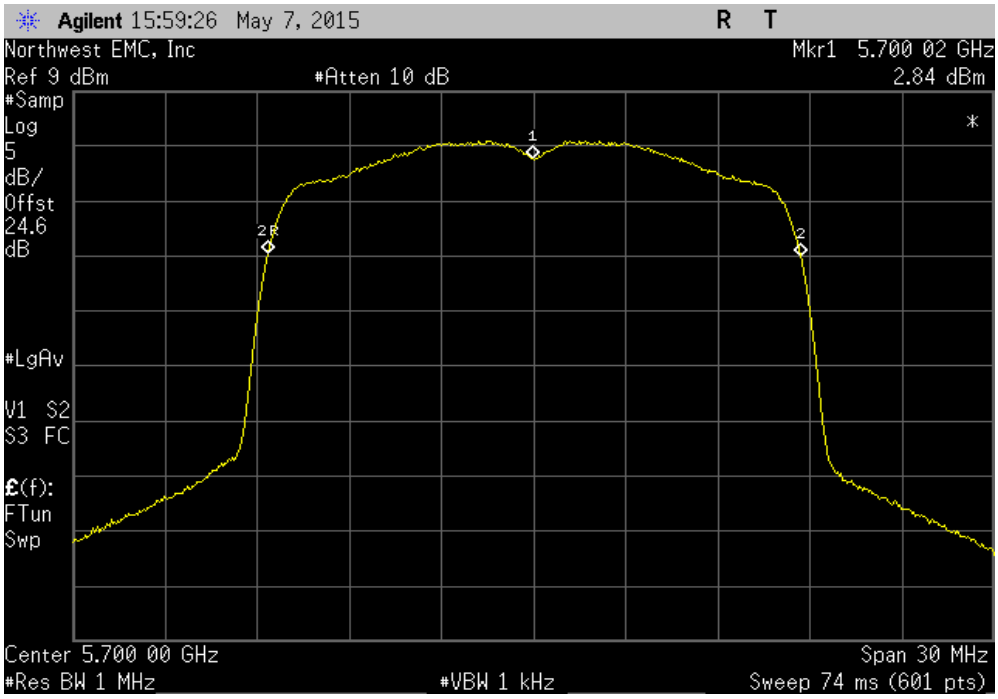
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



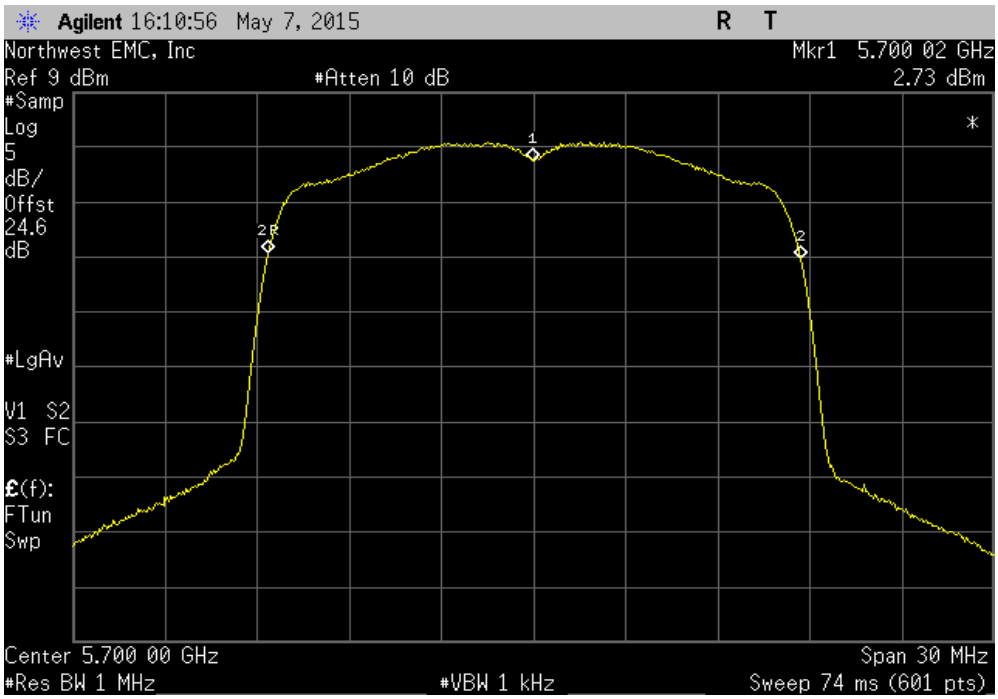
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



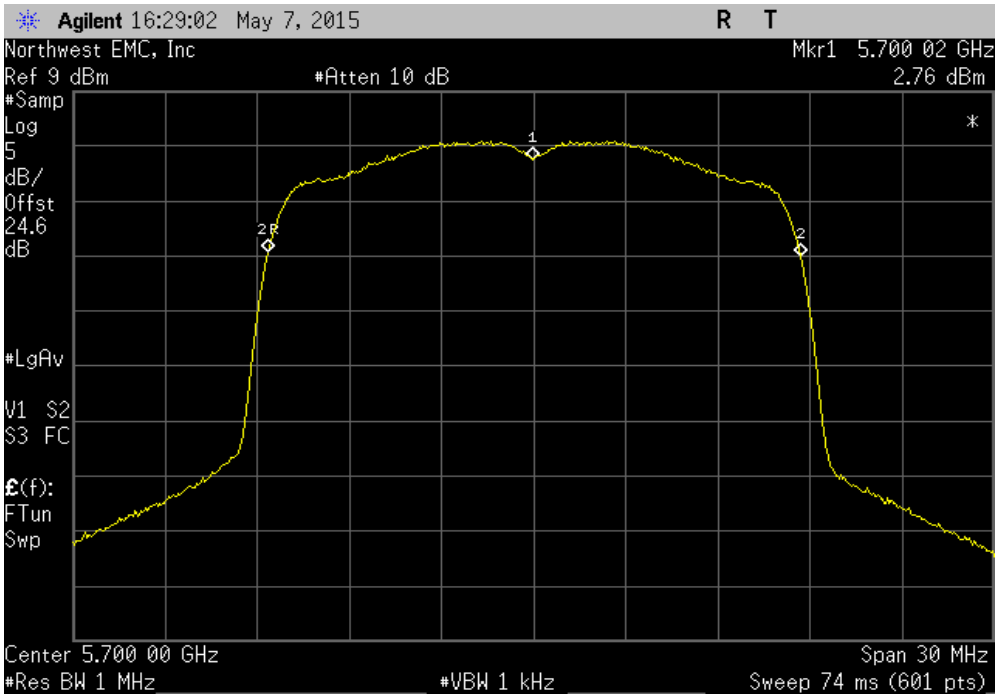
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



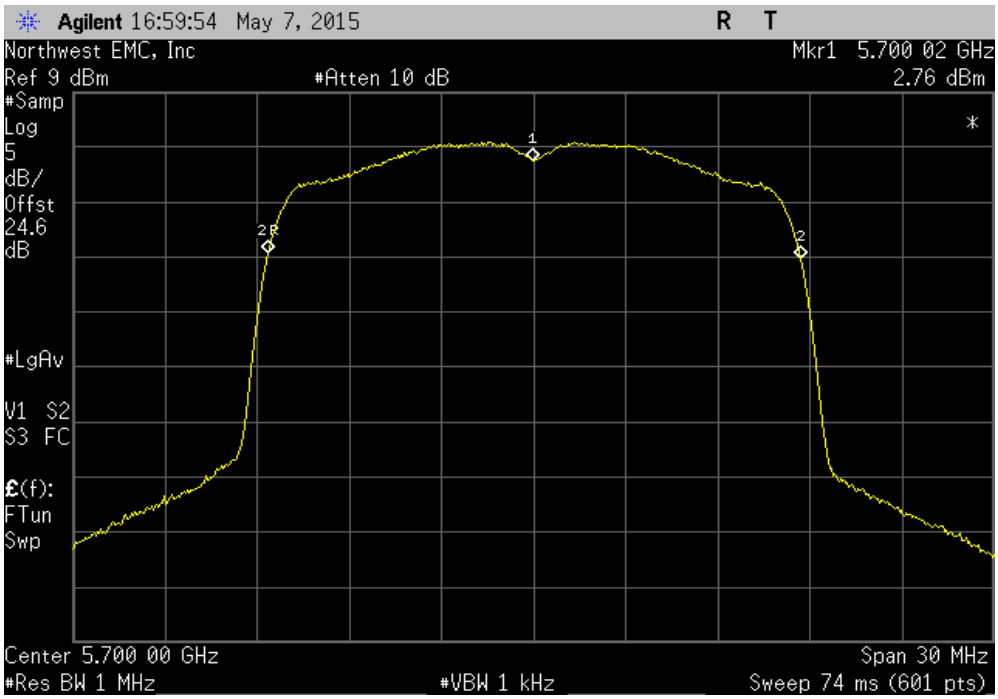
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



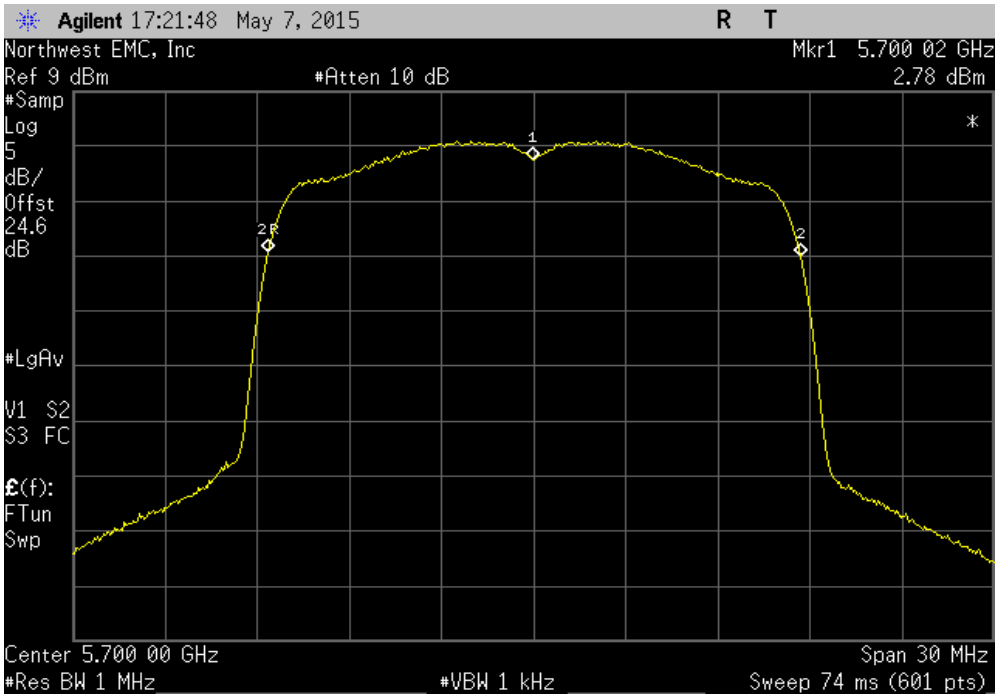
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



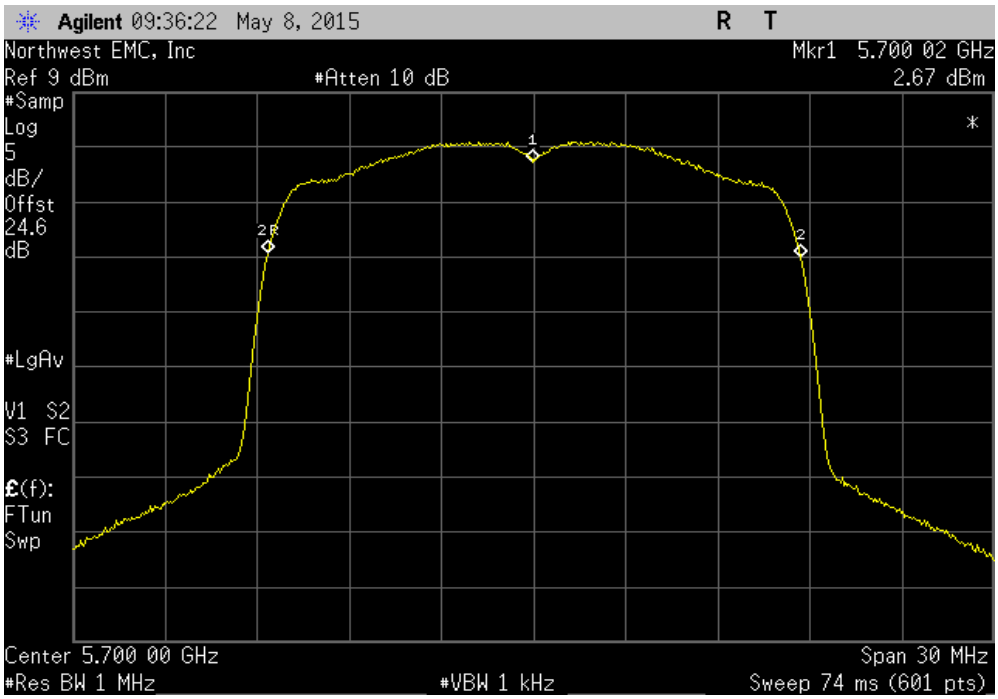
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



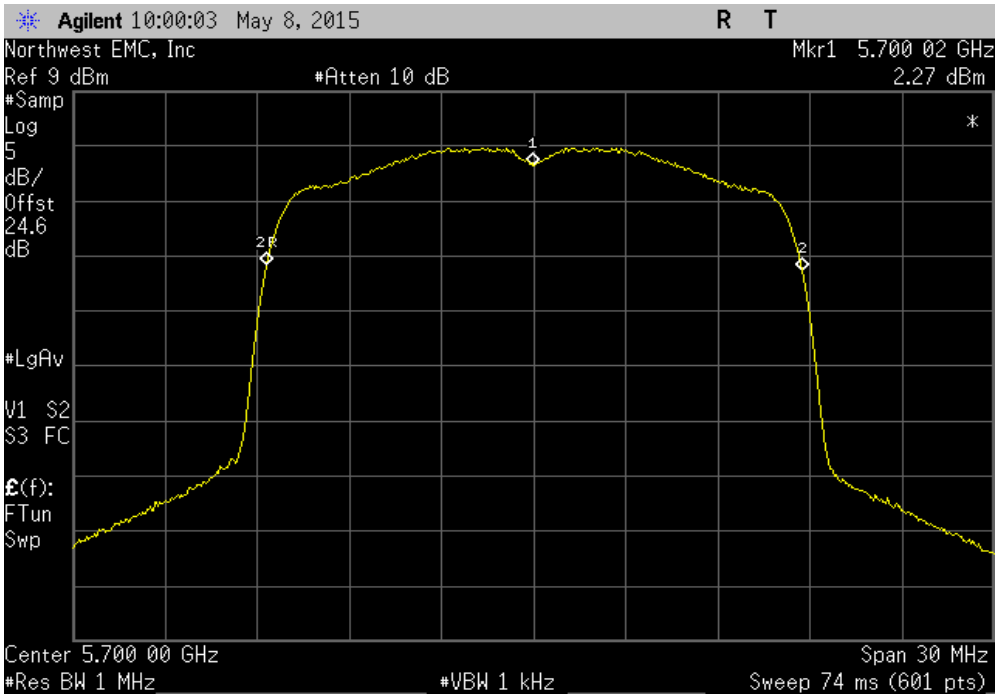
5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5700.02	5700	3.5	100	Pass



EMISSION BANDWIDTH

NORTHWEST EMC

XMit 2015.01.14

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

TEST DESCRIPTION

FCC KDB 789033 General UNII Test Procedures were followed.

The transmit frequencies and data rates listed in the datasheet were measured in each band utilized by the radio. 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.

The spectrum analyzer settings were as follows:

RBW = Approx. 1% of the emission bandwidth (B).
VBW = > RBW
Detector = Peak
Trace mode = max hold

The spectrum analyzer occupied bandwidth measurement function was then used to measure 26 dB emission bandwidth.

There is no required limit to be met in the rule part for this test. The purpose of the test is to both report the results as required by the KDB, and to utilize the emission bandwidth for setting the channel power integration bandwidth during conducted output power testing.

EMISSION BANDWIDTH

NORTHWEST EMC

XMit 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 15.407:2015	ANSI C63.10:2009

COMMENTS

None

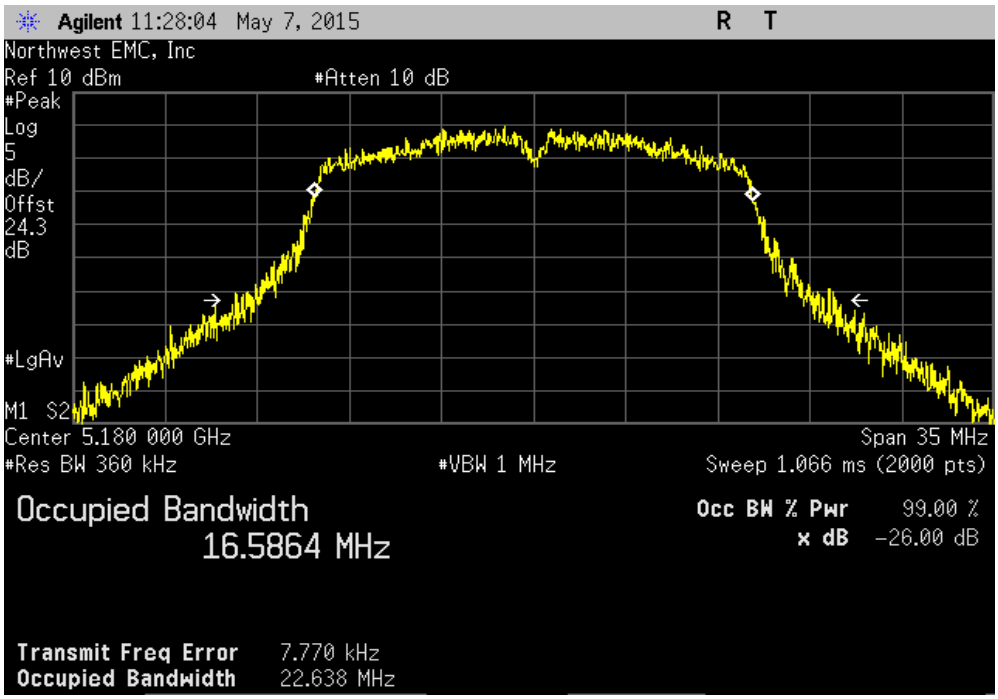
DEVIATIONS FROM TEST STANDARD

None

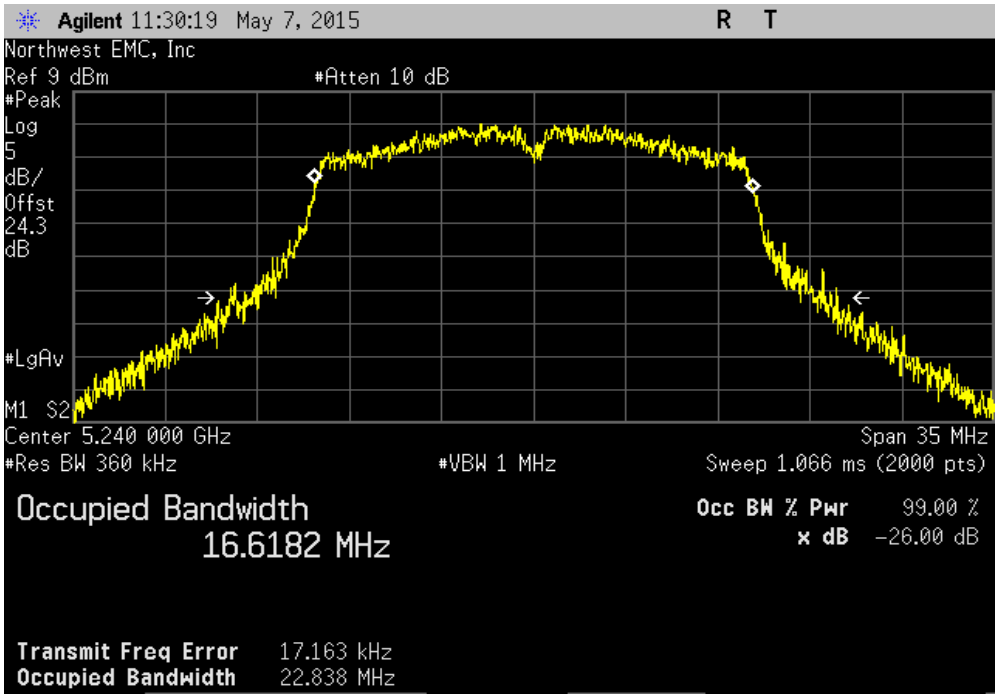
Configuration #	5	*Signature*

		Value	Limit (N/A)	Result
5.2 GHz Band				
	802.11(a) 6 Mbps			
	Low Channel 36, 5180MHz	22.638 MHz	N/A	Pass
	High Channel 48, 5240MHz	22.838 MHz	N/A	Pass
	802.11(a) 36 Mbps			
	Low Channel 36, 5180MHz	22.791 MHz	N/A	Pass
	High Channel 48, 5240MHz	23.299 MHz	N/A	Pass
	802.11(a) 54 Mbps			
	Low Channel 36, 5180MHz	22.843 MHz	N/A	Pass
	High Channel 48, 5240MHz	22.669 MHz	N/A	Pass
	802.11(n) MCS0			
	Low Channel 36, 5180MHz	24.239 MHz	N/A	Pass
	High Channel 48, 5240MHz	23.714 MHz	N/A	Pass
	802.11(n) MCS7			
	Low Channel 36, 5180MHz	24.410 MHz	N/A	Pass
	High Channel 48, 5240MHz	24.247 MHz	N/A	Pass

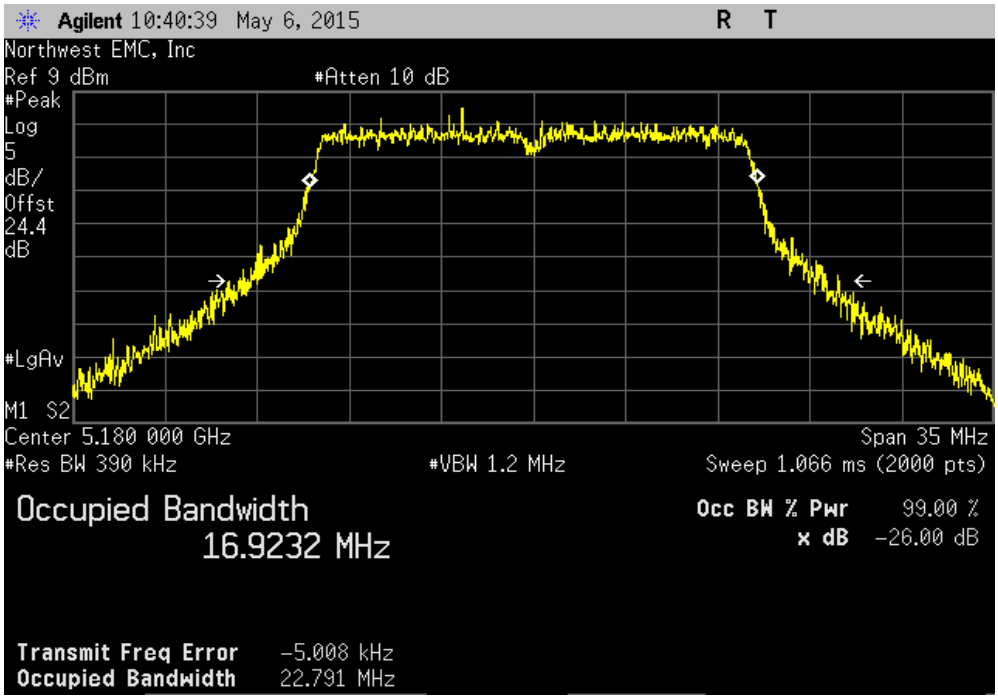
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (N/A)	Result
				22.638 MHz	N/A	Pass



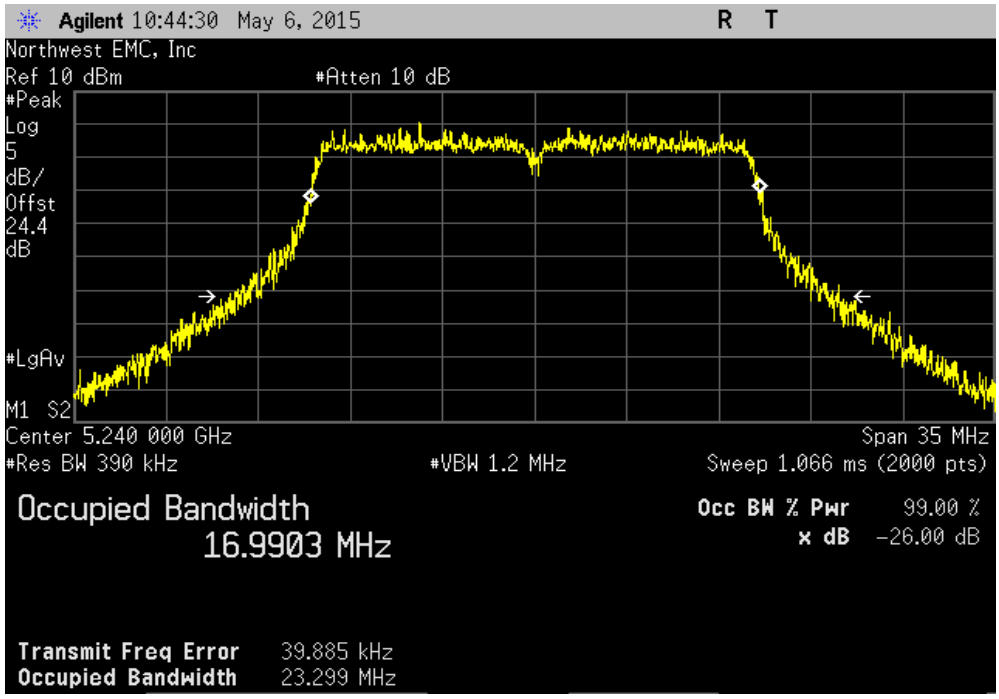
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 48, 5240MHz						
				Value	Limit (N/A)	Result
				22.838 MHz	N/A	Pass



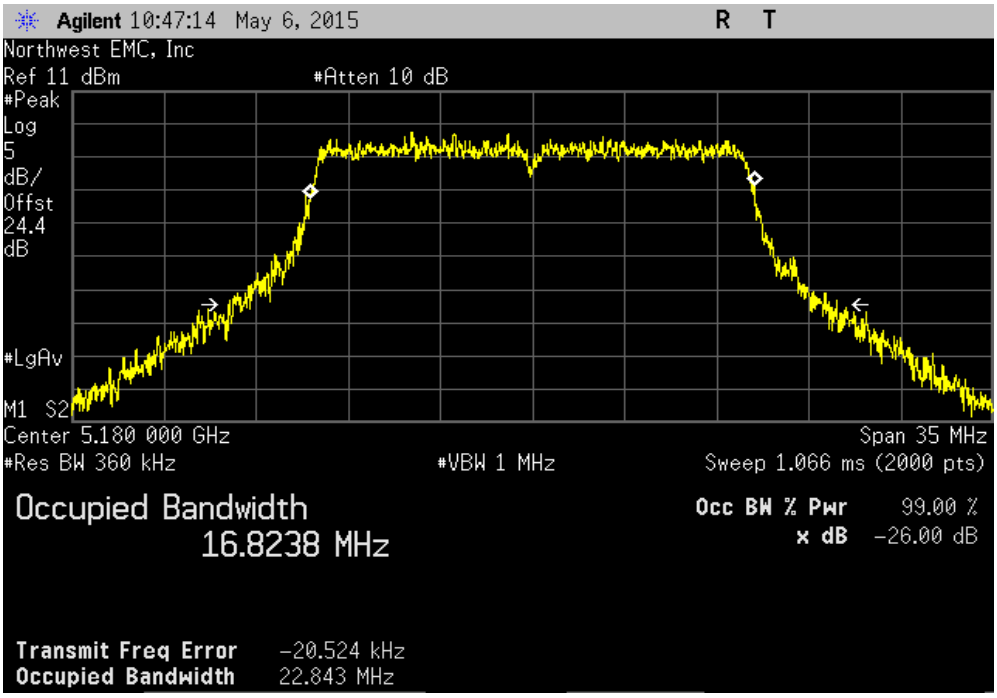
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (N/A)	Result
				22.791 MHz	N/A	Pass



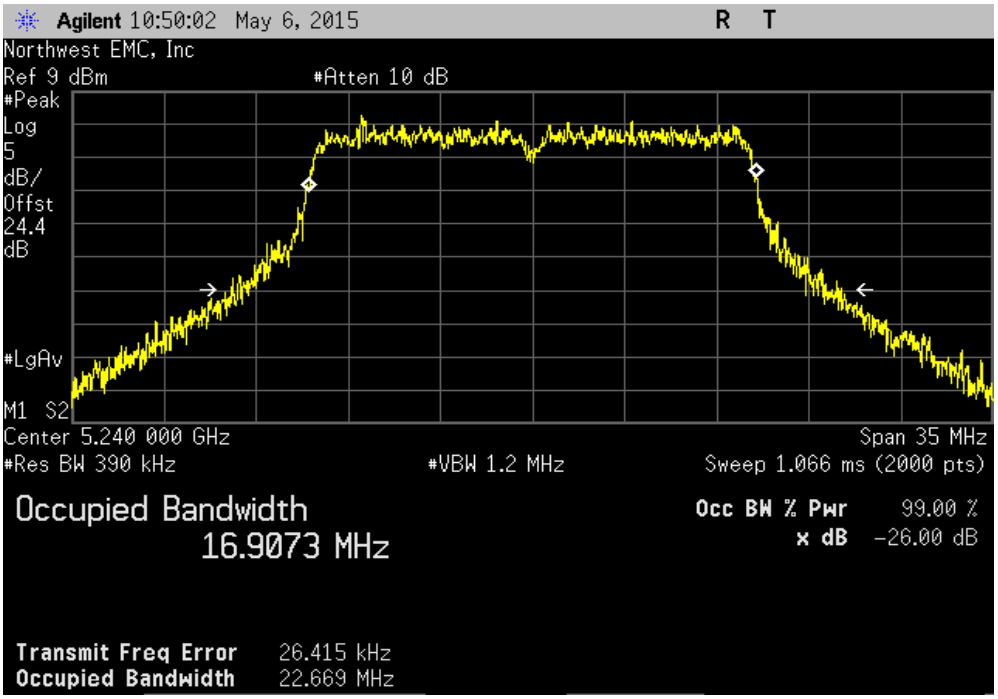
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 48, 5240MHz						
				Value	Limit (N/A)	Result
				23.299 MHz	N/A	Pass



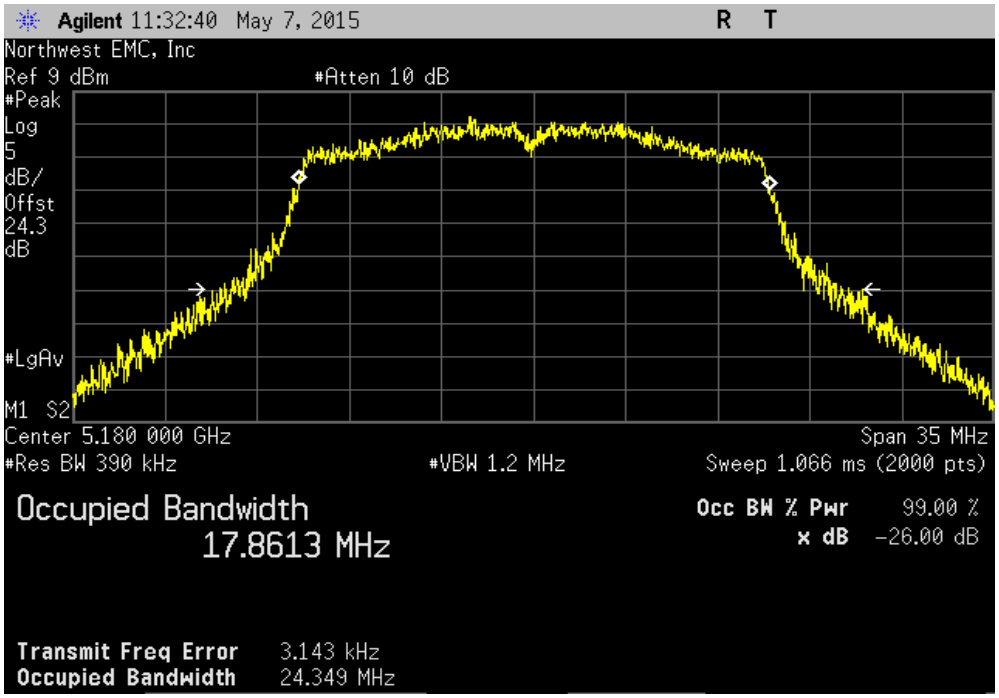
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (N/A)	Result
				22.843 MHz	N/A	Pass



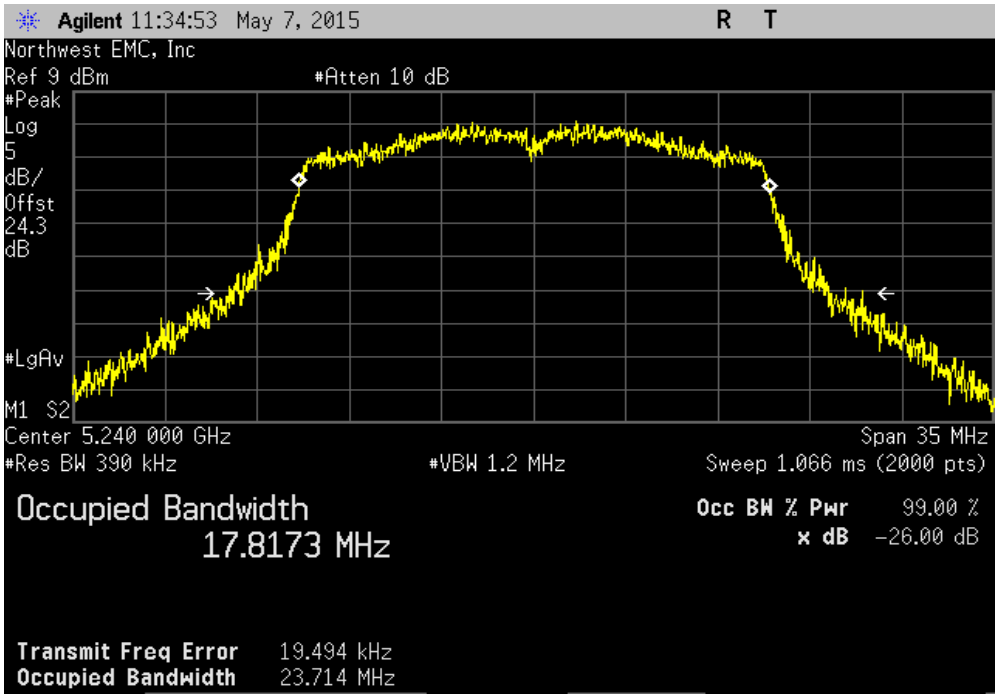
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 48, 5240MHz						
				Value	Limit (N/A)	Result
				22.669 MHz	N/A	Pass



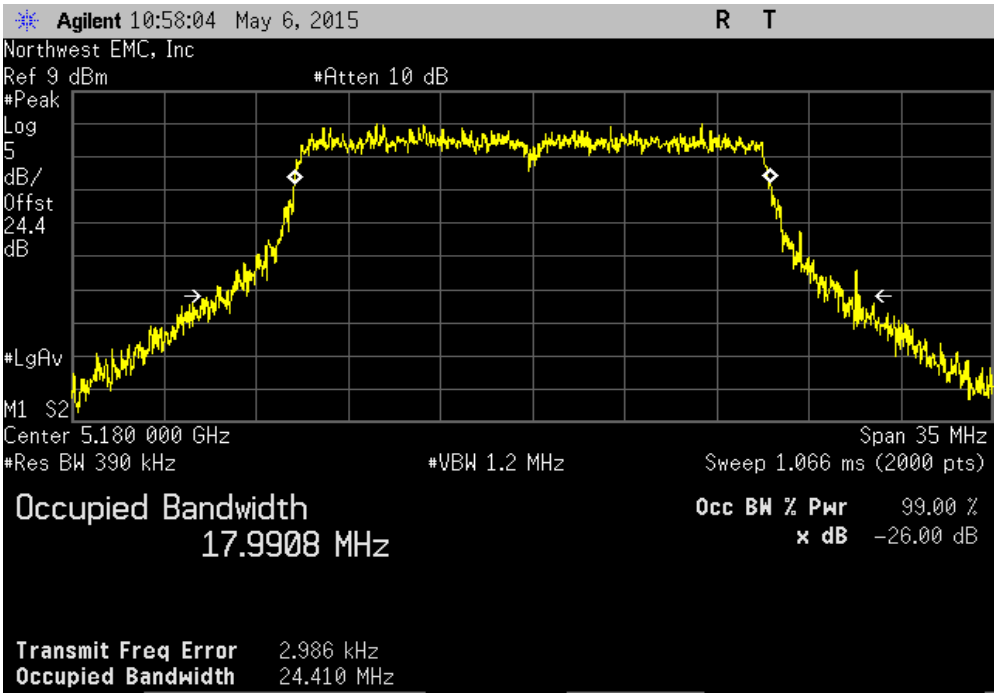
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 36, 5180MHz						
				Value	Limit (N/A)	Result
				24.239 MHz	N/A	Pass



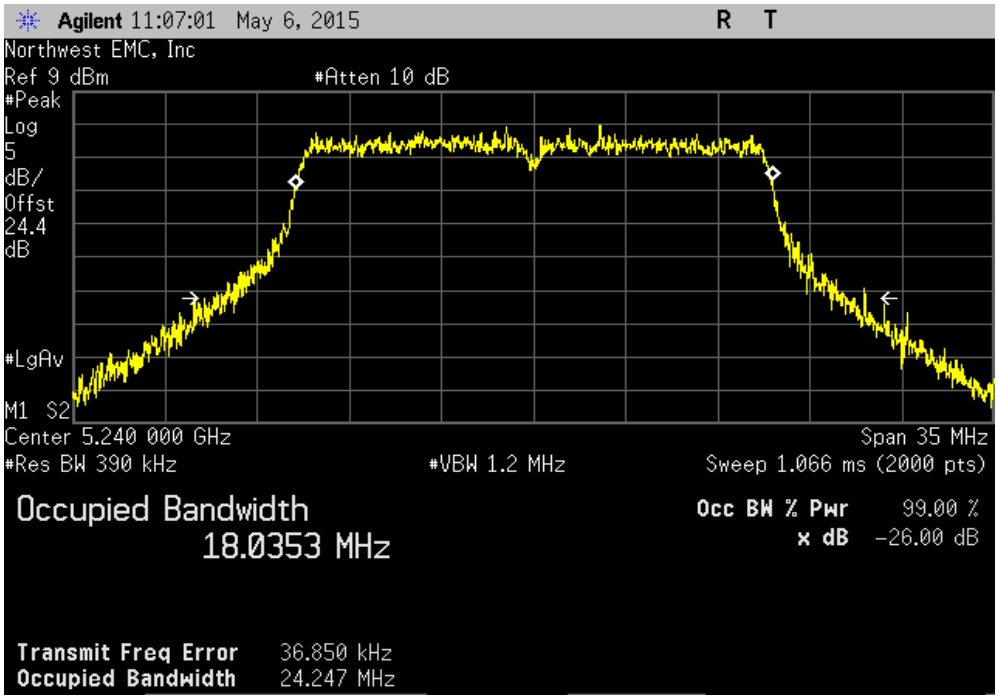
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 48, 5240MHz						
				Value	Limit (N/A)	Result
				23.714 MHz	N/A	Pass



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 36, 5180MHz						
				Value	Limit (N/A)	Result
				24.410 MHz	N/A	Pass



5 GHz Antenna Port, 802.11(n) MCS7, High Channel 48, 5240MHz						
				Value	Limit (N/A)	Result
				24.247 MHz	N/A	Pass



OCCUPIED BANDWIDTH

XMit 2015.01.14

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

TEST DESCRIPTION

FCC KDB 789033 General UNII Test Procedures were followed to measure the minimum emission bandwidth for the 5.725-5.85 GHz band.

The transmit frequencies and data rates listed in the datasheet were measured in each band utilized by the radio. 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.

The spectrum analyzer settings were as follows:

RBW = 100 kHz
VBW = ≥ 3x RBW
Detector = Peak
Trace mode = max hold

The spectrum analyzer occupied bandwidth measurement function was then used to measure 6 dB emission bandwidth.

The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time to be used for setting the channel power integration bandwidth during conducted output power testing.

OCCUPIED BANDWIDTH

NORTHWEST EMC

XMit 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 15.407:2015	ANSI C63.10:2009

COMMENTS

None

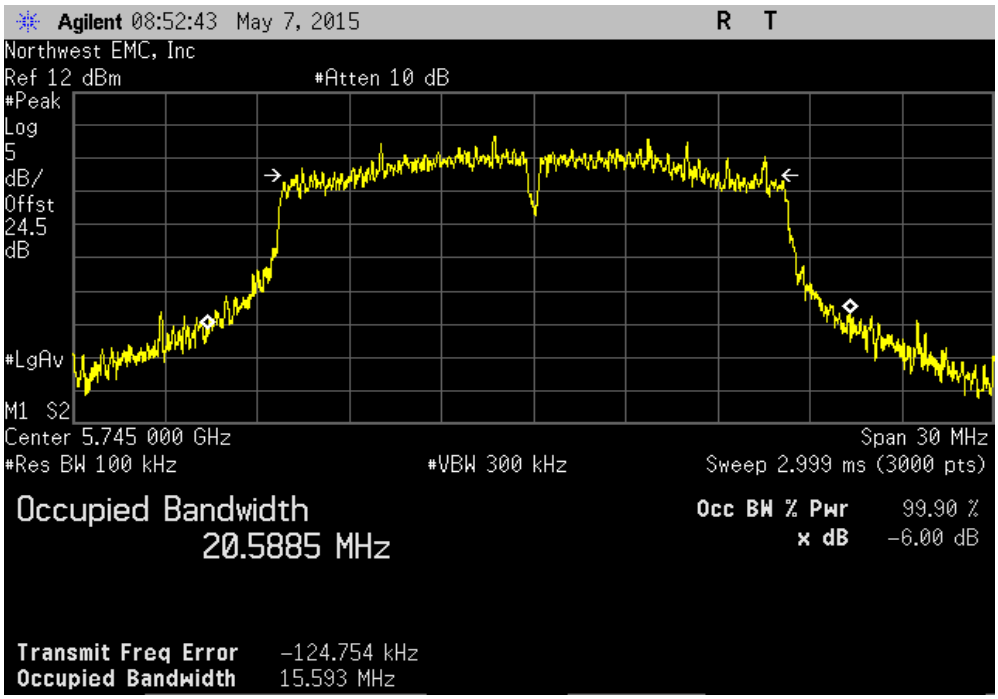
DEVIATIONS FROM TEST STANDARD

None

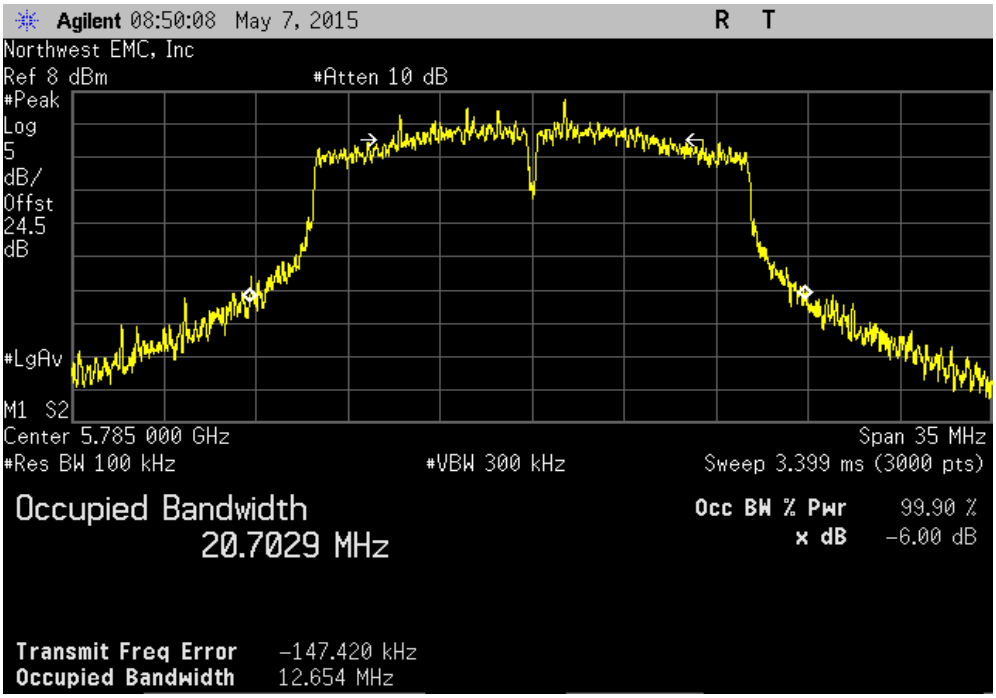
Configuration #	5	Signature

		Value	Limit (≥)	Result
5.8 GHz Band				
	802.11(a) 6 Mbps			
	Low Channel 36, 5180MHz	15.593 MHz	500 kHz	Pass
	High Channel 48, 5240MHz	12.654 MHz	500 kHz	Pass
	Low Channel 149, 5745MHz	13.598 MHz	500 kHz	Pass
	802.11(a) 36 Mbps			
	Mid Channel 157, 5785MHz	16.430 MHz	500 kHz	Pass
	High Channel 165, 5825MHz	16.411 MHz	500 kHz	Pass
	Low Channel 36, 5180MHz	16.408 MHz	500 kHz	Pass
	802.11(a) 54 Mbps			
	High Channel 48, 5240MHz	16.429 MHz	500 kHz	Pass
	Low Channel 149, 5745MHz	16.437 MHz	500 kHz	Pass
	Mid Channel 157, 5785MHz	16.398 MHz	500 kHz	Pass
	802.11(n) MCS0			
	High Channel 165, 5825MHz	14.315 MHz	500 kHz	Pass
	Low Channel 36, 5180MHz	14.994 MHz	500 kHz	Pass
	High Channel 48, 5240MHz	15.665 MHz	500 kHz	Pass
	802.11(n) MCS7			
	Low Channel 149, 5745MHz	17.637 MHz	500 kHz	Pass
	Mid Channel 157, 5785MHz	17.549 MHz	500 kHz	Pass
	High Channel 165, 5825MHz	17.642 MHz	500 kHz	Pass

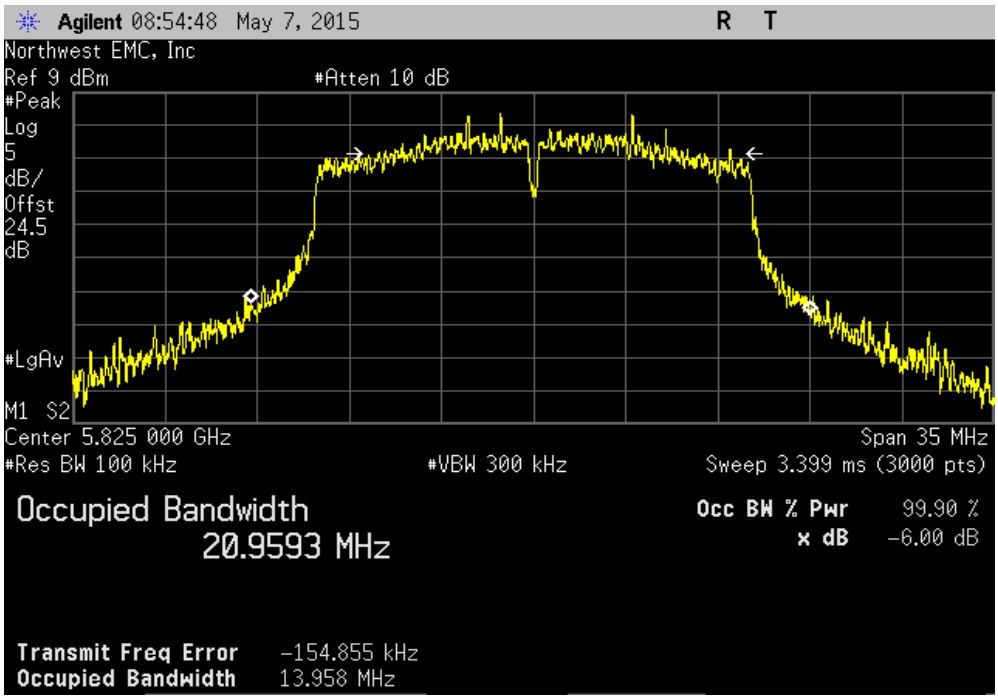
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (≥)	Result
				15.593 MHz	500 kHz	Pass



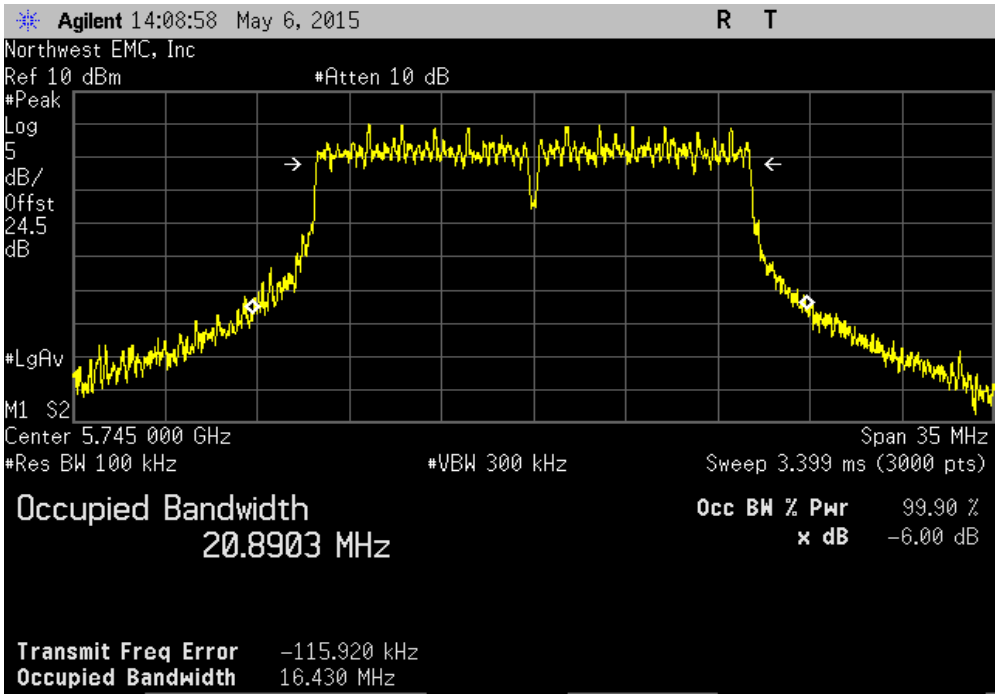
5 GHz Antenna Port, 802.11(a) 6 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (≥)	Result
				12.654 MHz	500 kHz	Pass



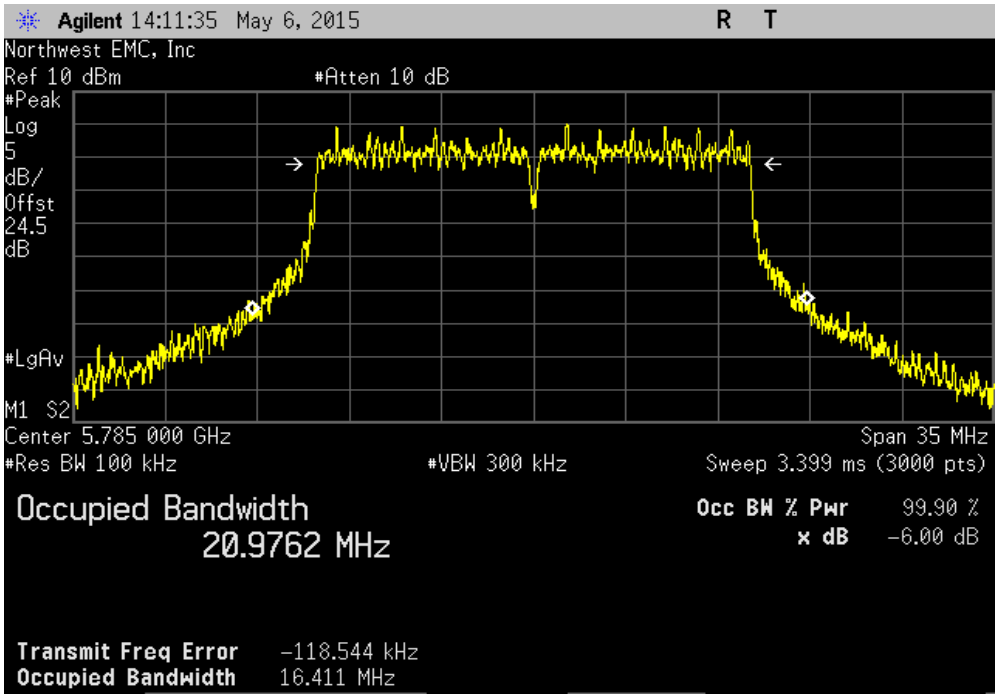
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 165, 5825MHz						
				Value	Limit (≥)	Result
				13.598 MHz	500 kHz	Pass



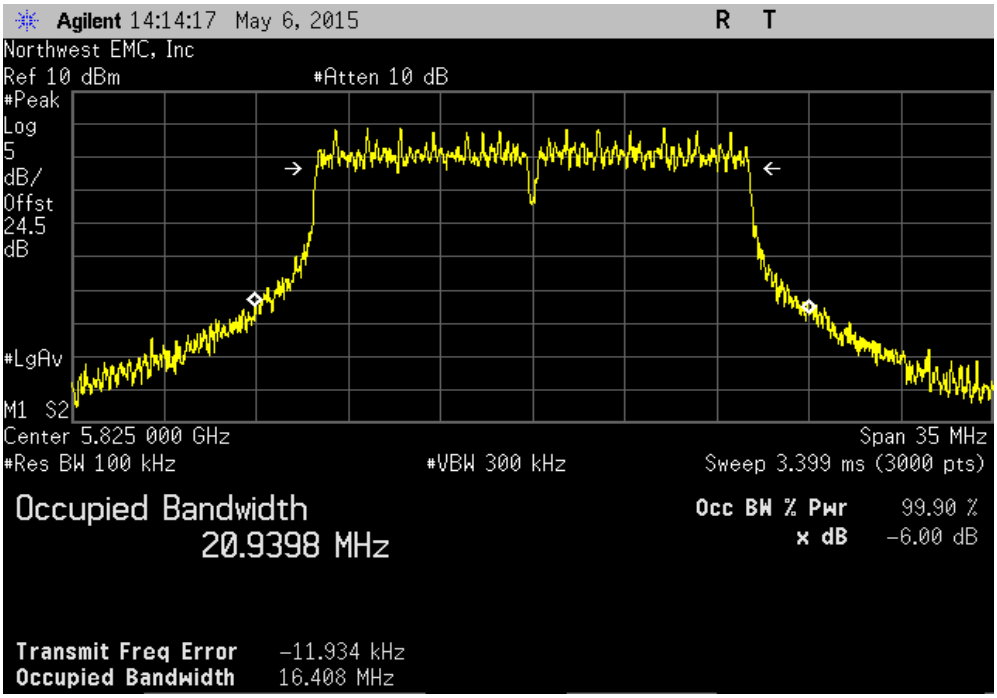
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (≥)	Result
				16.430 MHz	500 kHz	Pass



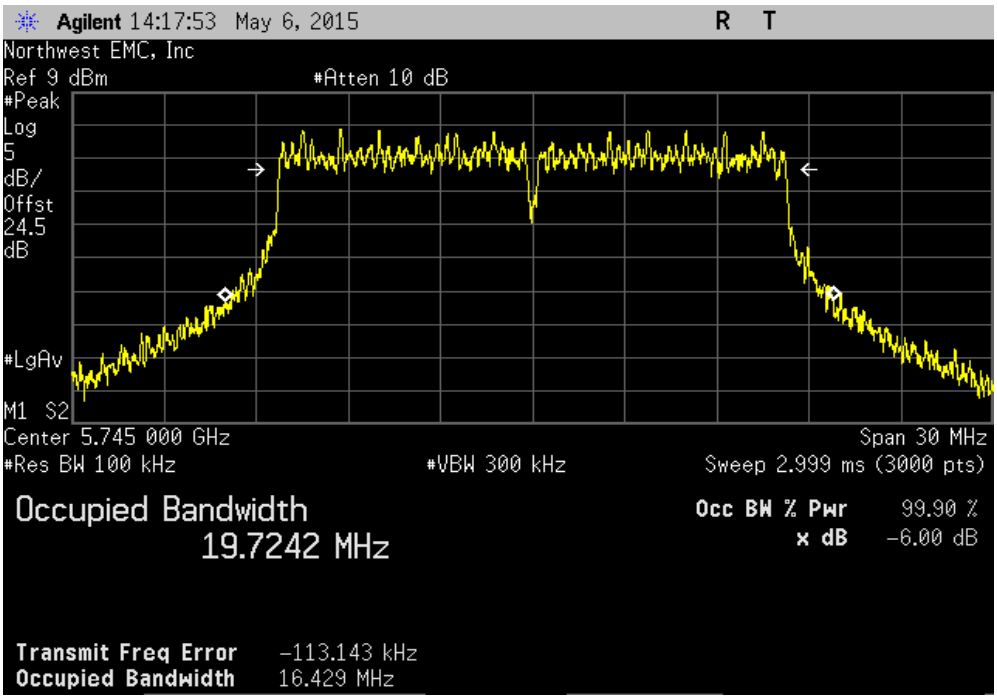
5 GHz Antenna Port, 802.11(a) 36 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (≥)	Result
				16.411 MHz	500 kHz	Pass



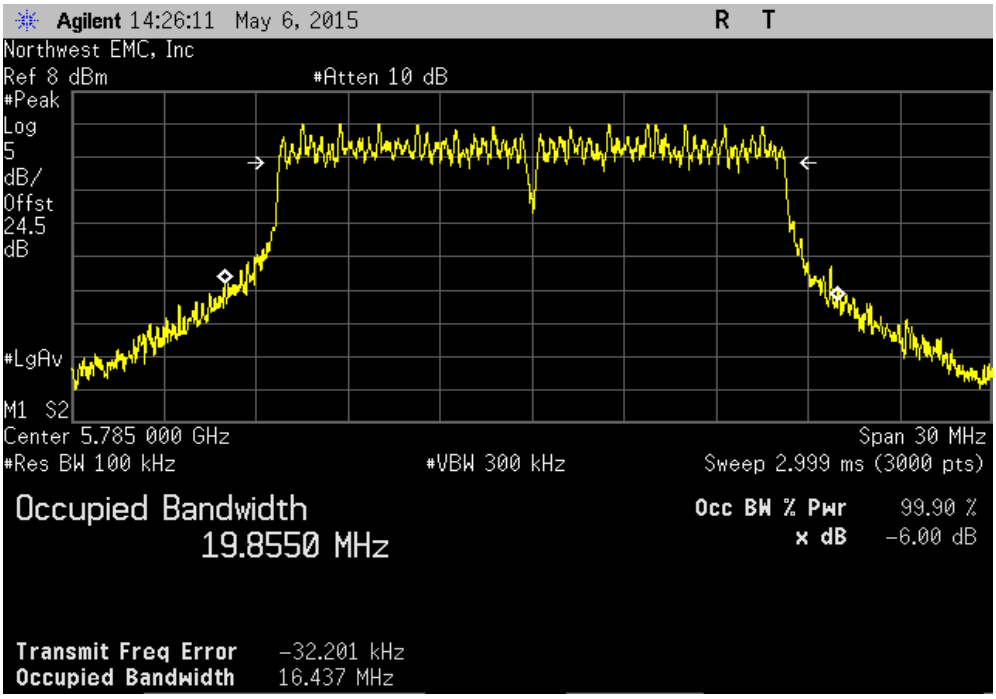
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 165, 5825MHz						
				Value	Limit (≥)	Result
				16.408 MHz	500 kHz	Pass



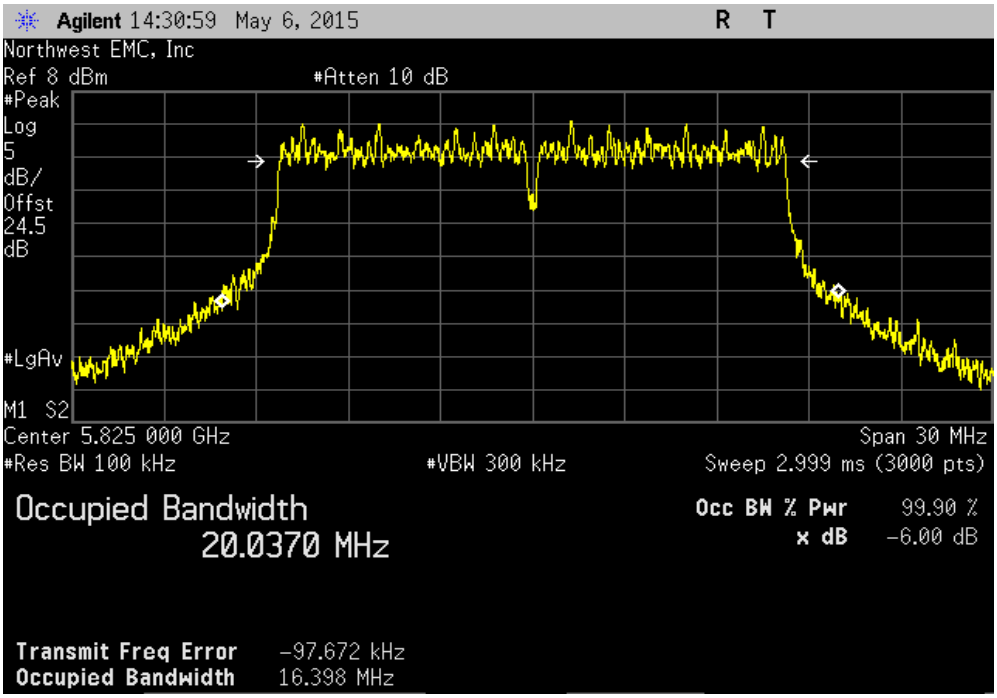
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (≥)	Result
				16.429 MHz	500 kHz	Pass



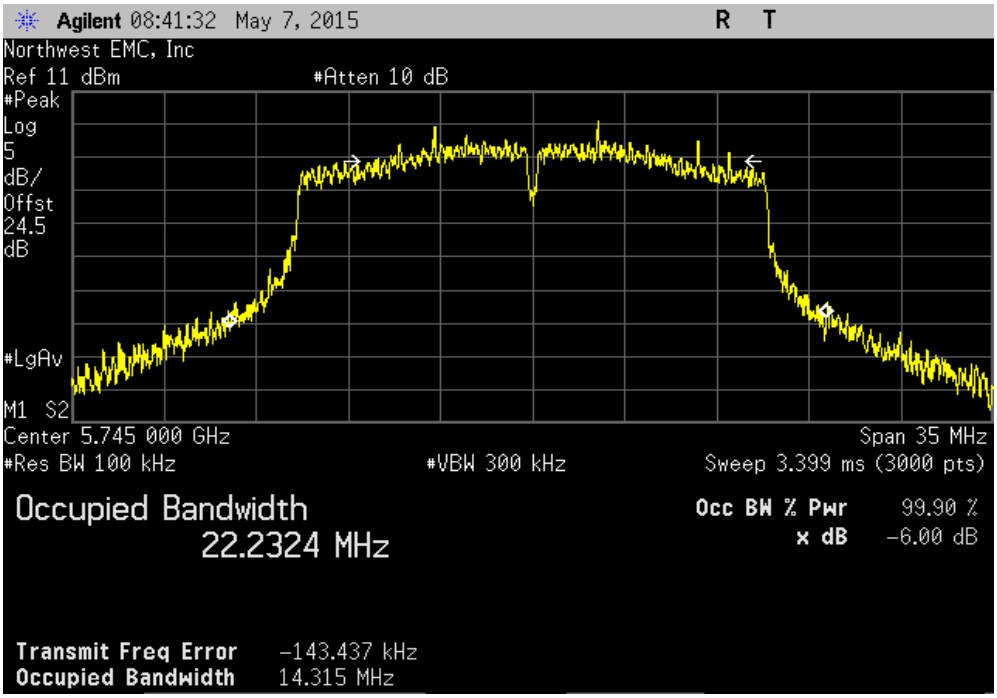
5 GHz Antenna Port, 802.11(a) 54 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (≥)	Result
				16.437 MHz	500 kHz	Pass



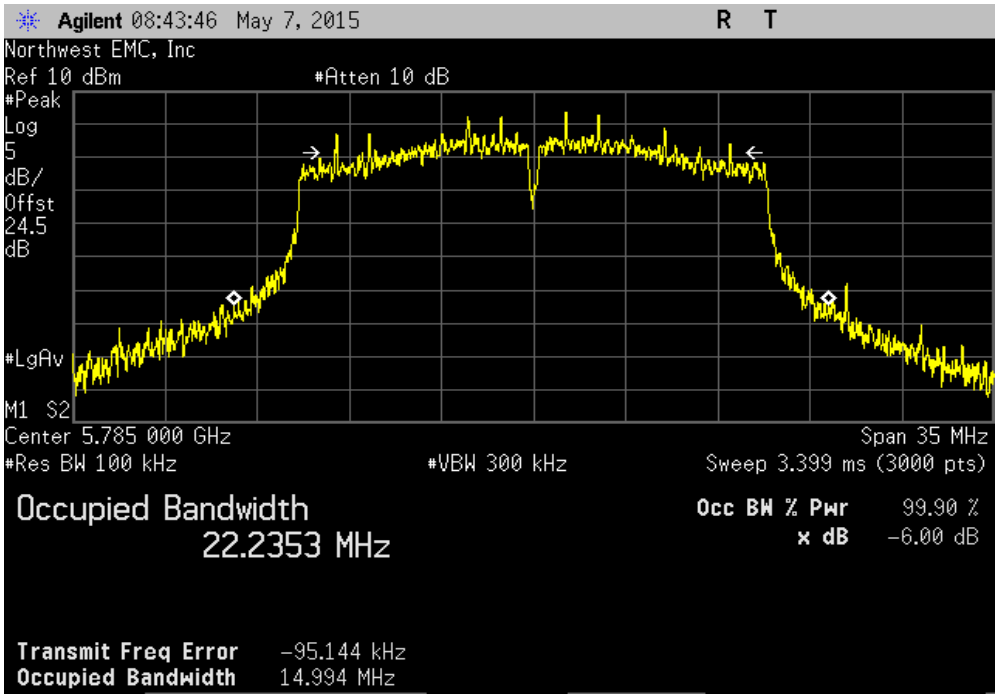
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 165, 5825MHz						
				Value	Limit (≥)	Result
				16.398 MHz	500 kHz	Pass



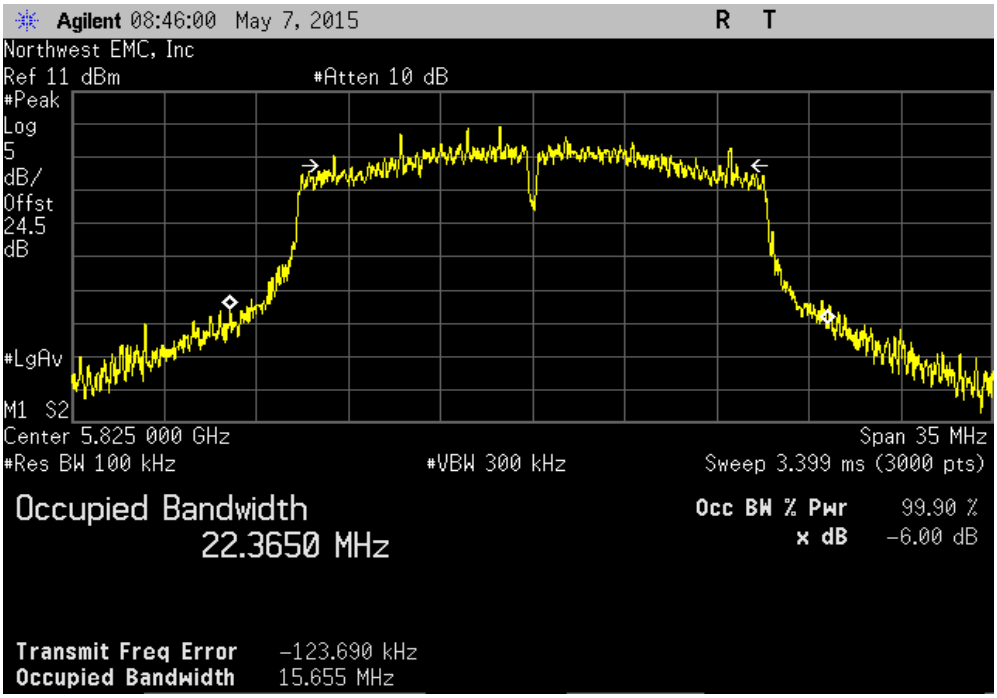
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 149, 5745MHz						
				Value	Limit (≥)	Result
				14.315 MHz	500 kHz	Pass



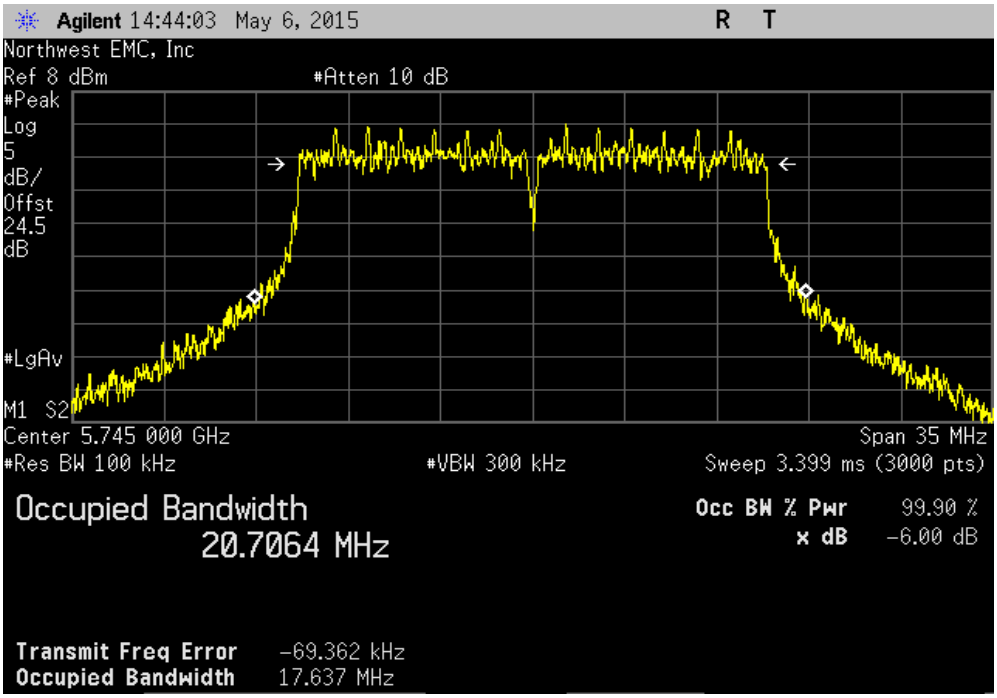
5 GHz Antenna Port, 802.11(n) MCS0, Mid Channel 157, 5785MHz						
				Value	Limit (≥)	Result
				14.994 MHz	500 kHz	Pass



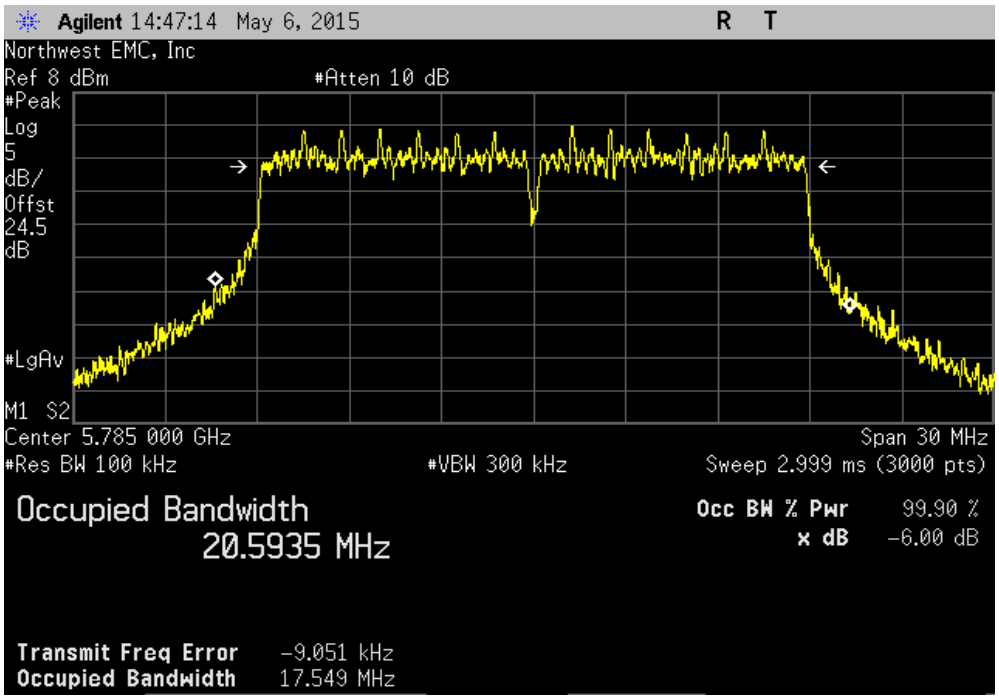
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 165, 5825MHz						
				Value	Limit (≥)	Result
				15.665 MHz	500 kHz	Pass



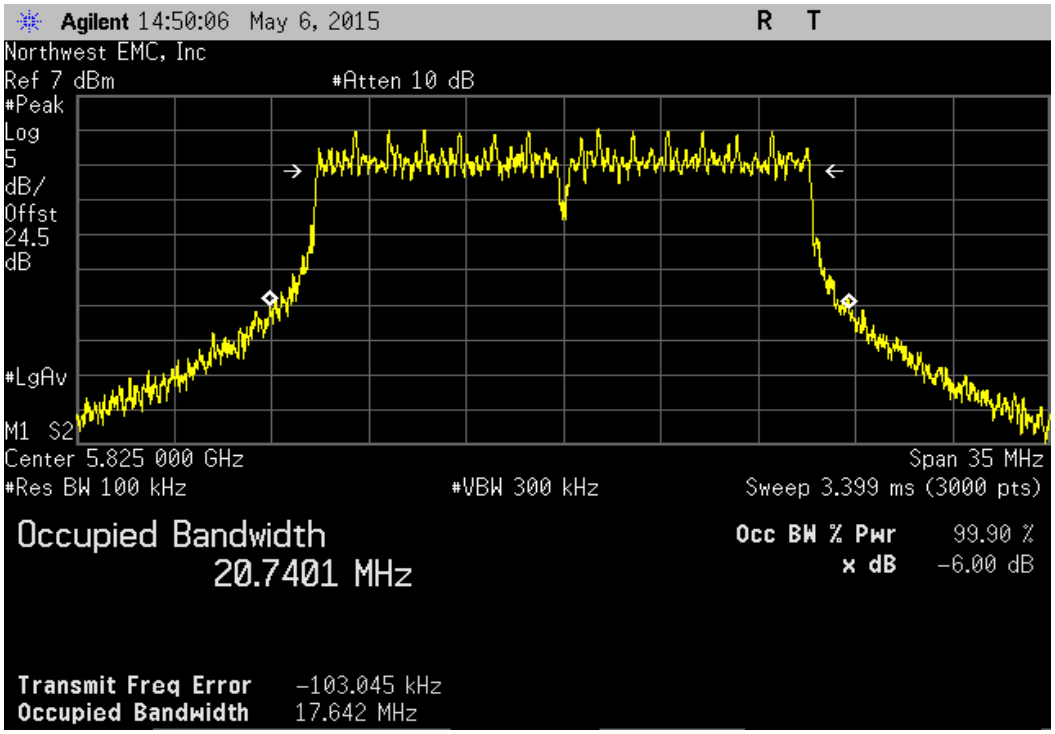
5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 149, 5745MHz						
				Value	Limit (≥)	Result
				17.637 MHz	500 kHz	Pass



5 GHz Antenna Port, 802.11(n) MCS7, Mid Channel 157, 5785MHz						
				Value	Limit (≥)	Result
				17.549 MHz	500 kHz	Pass



5 GHz Antenna Port, 802.11(n) MCS7, High Channel 165, 5825MHz						
				Value	Limit (≥)	Result
				17.642 MHz	500 kHz	Pass



PEAK TRANSMIT POWER

XMit 2015.01.14

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)
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
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

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section C was followed. 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. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep) was used for this test.

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RBW = 1 MHz, VBW = 3 MHz
- Sample Detector
- The number of points was set to 601. This satisfied the requirement of being > 2 * span / RBW
- Trace average 100 traces in power averaging mode.
- Power was integrated across “B”, by using the channel power function of the analyzer.

PEAK TRANSMIT POWER

NORTHWEST EMC

XMit 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 15.407:2015	ANSI C63.10:2009

COMMENTS

None

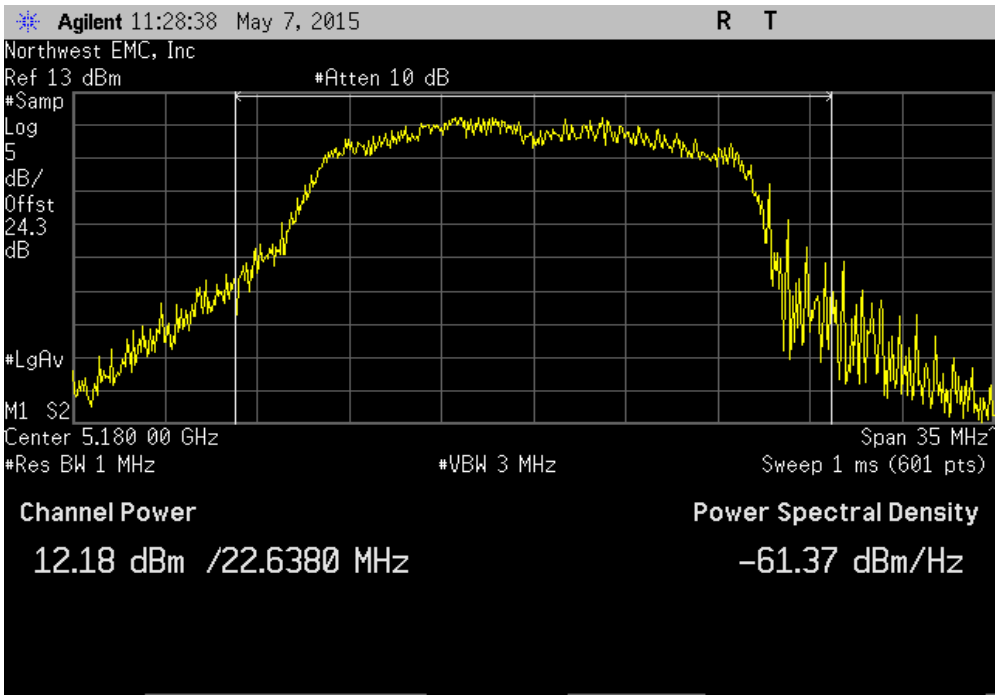
DEVIATIONS FROM TEST STANDARD

None

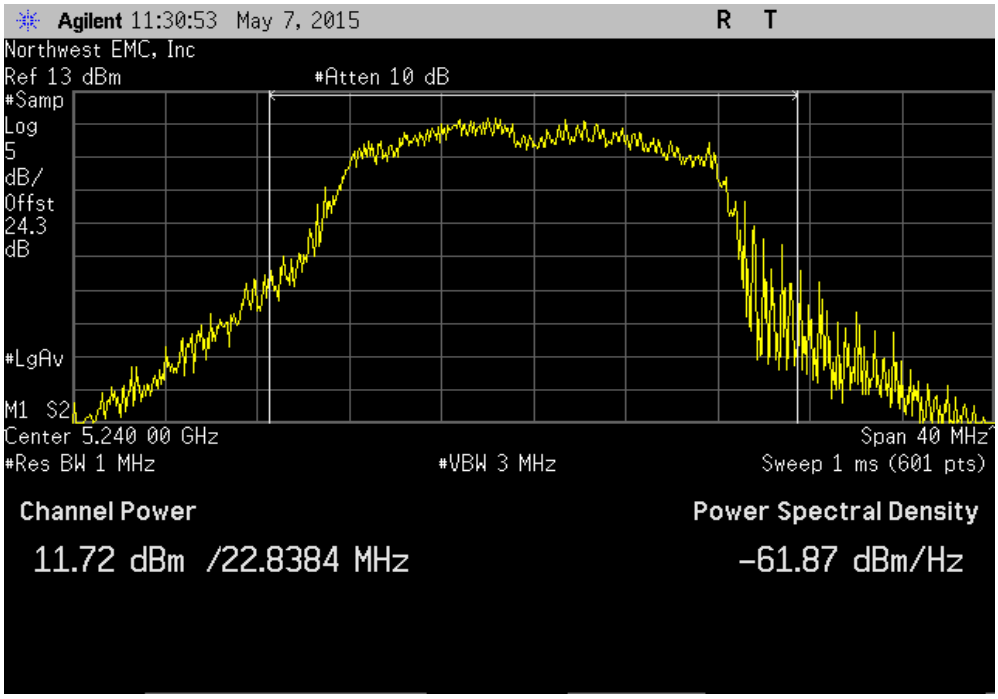
Configuration #	5	*Signature*

	Value	Limit (<)	Result
5 GHz Antenna Port			
802.11(a) 6 Mbps			
Low Channel 36, 5180MHz	12.177 dBm	24 dBm	Pass
High Channel 48, 5240MHz	11.722 dBm	24 dBm	Pass
Low Channel 149, 5745MHz	18.481 dBm	30 dBm	Pass
Mid Channel 157, 5785MHz	17.939 dBm	30 dBm	Pass
High Channel 165, 5825MHz	17.789 dBm	30 dBm	Pass
802.11(a) 36 Mbps			
Low Channel 36, 5180MHz	12.12 dBm	17 dBm	Pass
High Channel 48, 5240MHz	11.762 dBm	17 dBm	Pass
Low Channel 149, 5745MHz	18.107 dBm	30 dBm	Pass
Mid Channel 157, 5785MHz	17.902 dBm	30 dBm	Pass
High Channel 165, 5825MHz	17.518 dBm	30 dBm	Pass
802.11(a) 54 Mbps			
Low Channel 36, 5180MHz	12.255 dBm	17 dBm	Pass
High Channel 48, 5240MHz	11.817 dBm	17 dBm	Pass
Low Channel 149, 5745MHz	16.568 dBm	30 dBm	Pass
Mid Channel 157, 5785MHz	16.477 dBm	30 dBm	Pass
High Channel 165, 5825MHz	16.22 dBm	30 dBm	Pass
802.11(n) MCS0			
Low Channel 36, 5180MHz	12.133 dBm	24 dBm	Pass
High Channel 48, 5240MHz	11.562 dBm	24 dBm	Pass
Low Channel 149, 5745MHz	18.588 dBm	30 dBm	Pass
Mid Channel 157, 5785MHz	18.538 dBm	30 dBm	Pass
High Channel 165, 5825MHz	18.238 dBm	30 dBm	Pass
802.11(n) MCS7			
Low Channel 36, 5180MHz	11.362 dBm	17 dBm	Pass
High Channel 48, 5240MHz	10.97 dBm	17 dBm	Pass
Low Channel 149, 5745MHz	15.772 dBm	30 dBm	Pass
Mid Channel 157, 5785MHz	15.557 dBm	30 dBm	Pass
High Channel 165, 5825MHz	15.154 dBm	30 dBm	Pass

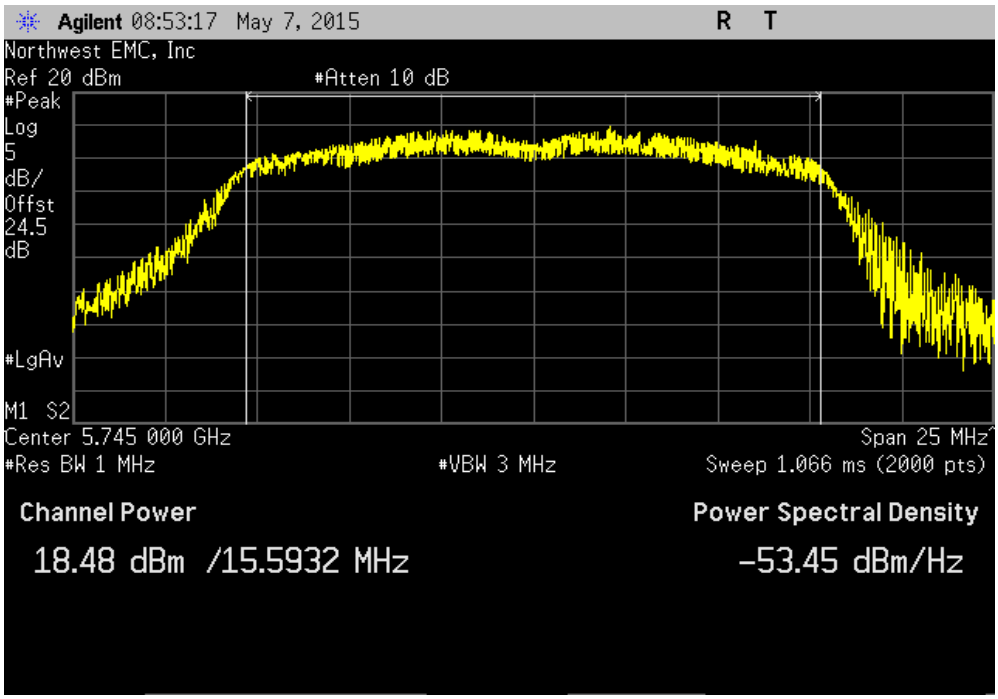
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (<)	Result
				12.177 dBm	24 dBm	Pass



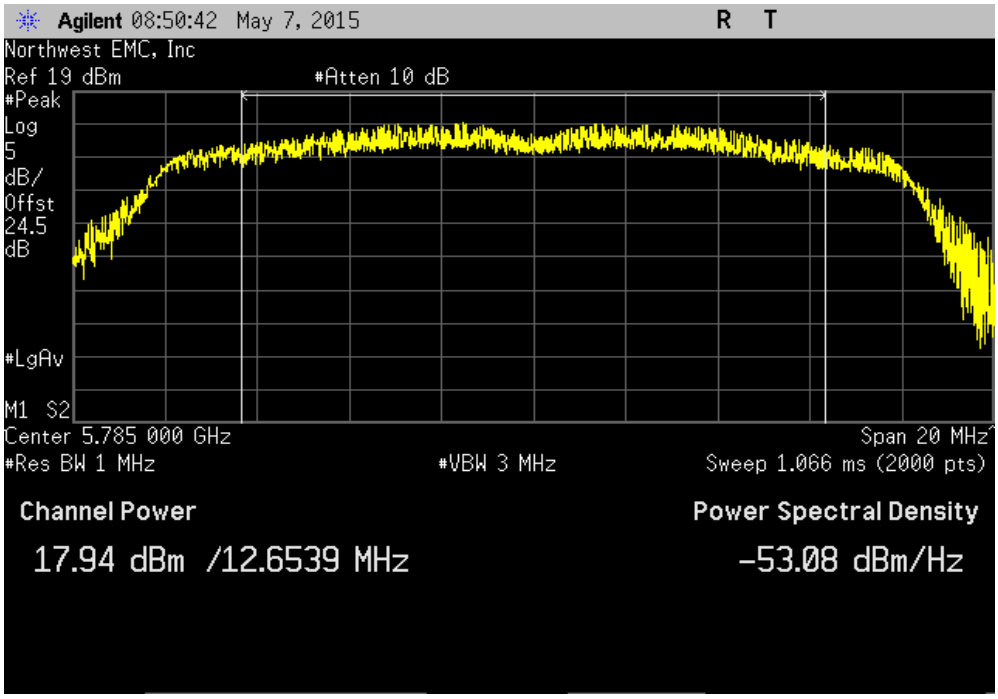
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 48, 5240MHz						
				Value	Limit (<)	Result
				11.722 dBm	24 dBm	Pass



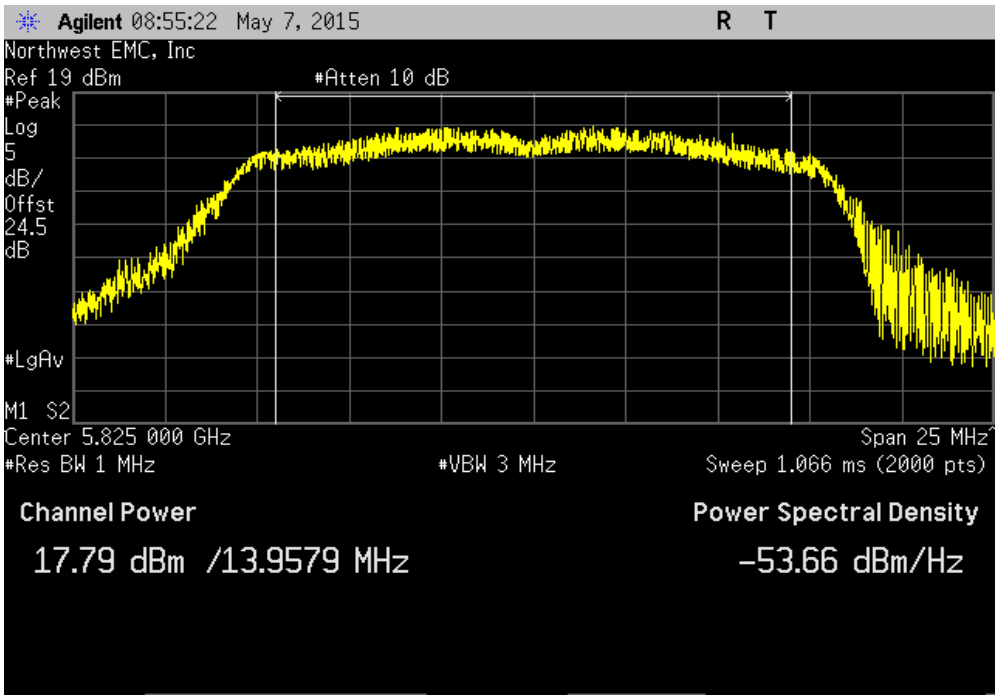
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (<)	Result
				18.481 dBm	30 dBm	Pass



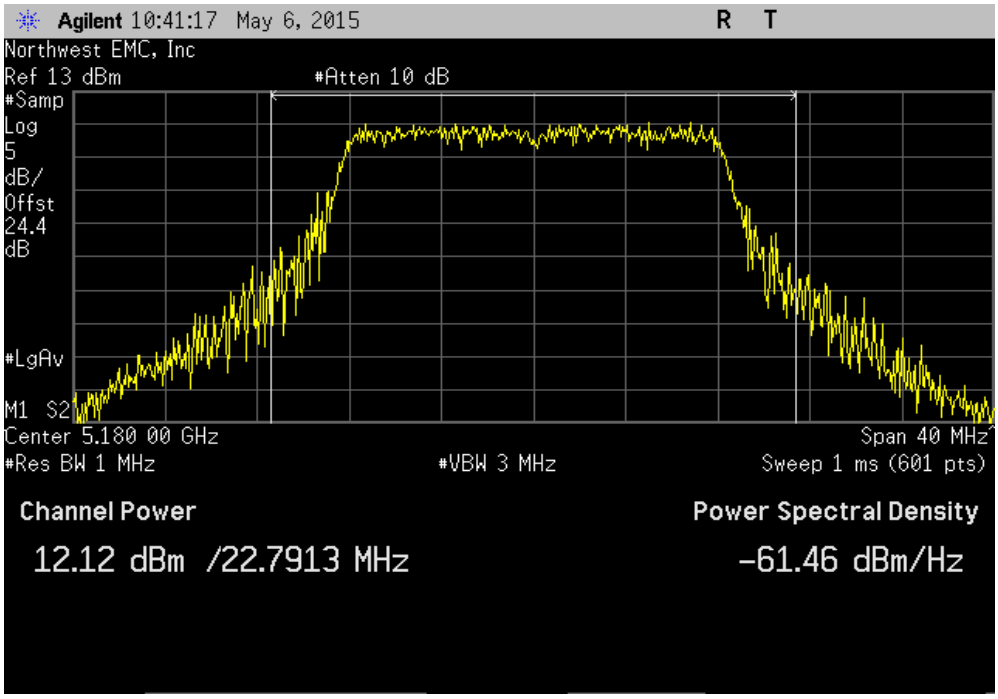
5 GHz Antenna Port, 802.11(a) 6 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (<)	Result
				17.939 dBm	30 dBm	Pass



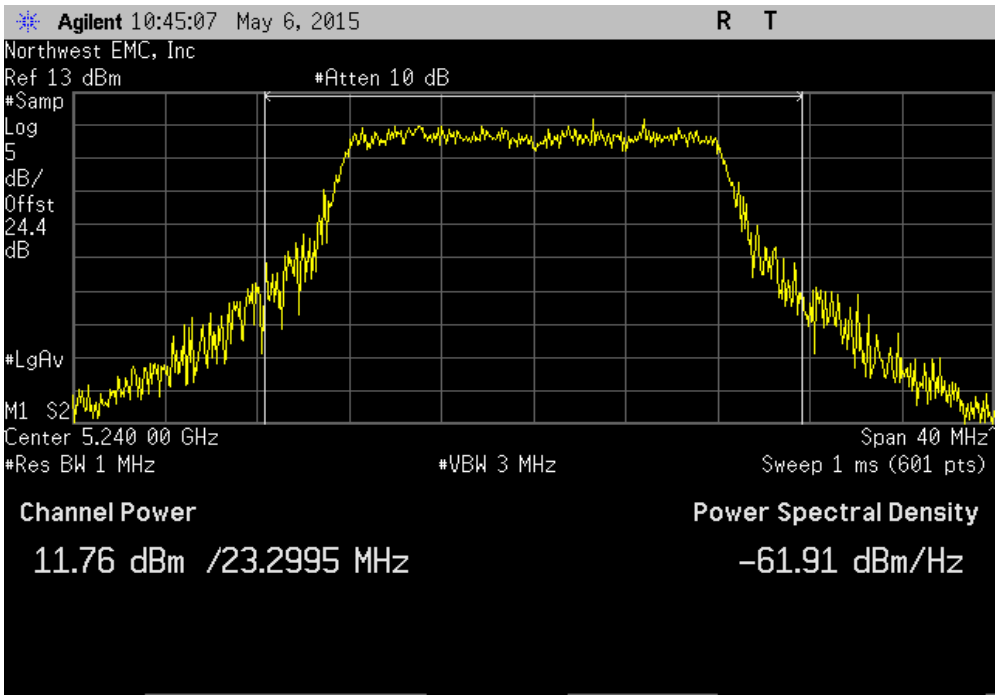
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 165, 5825MHz						
				Value	Limit (<)	Result
				17.789 dBm	30 dBm	Pass



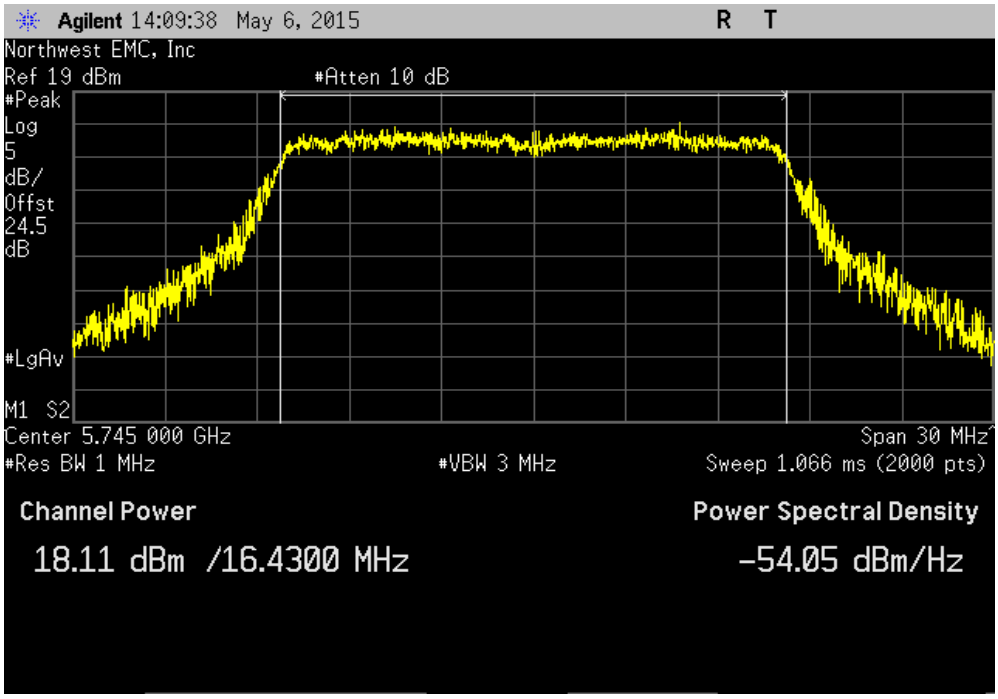
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (<)	Result
				12.12 dBm	17 dBm	Pass



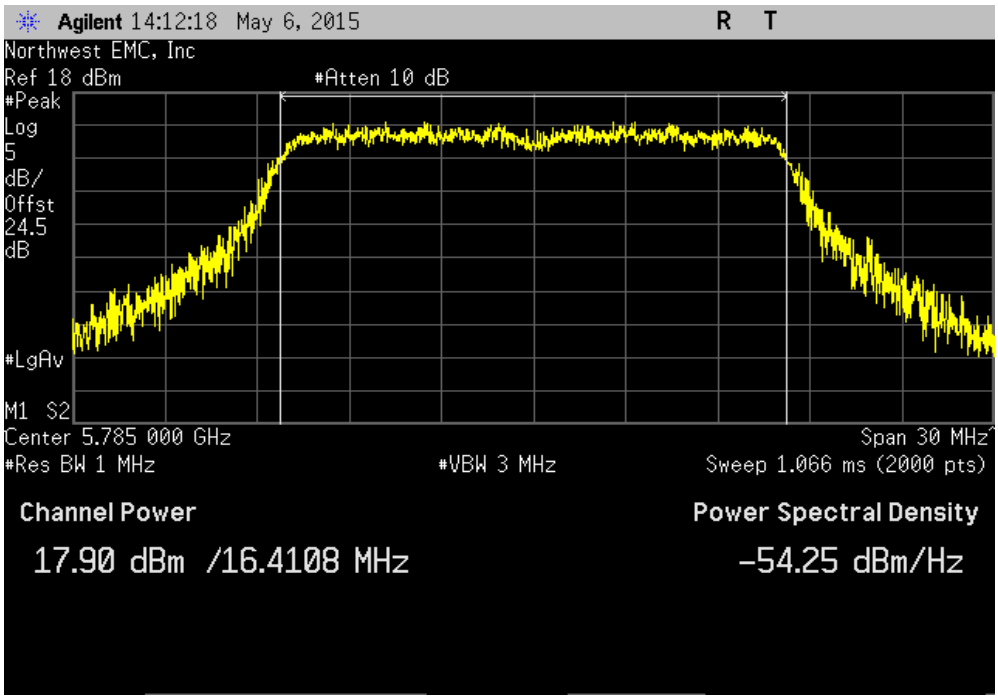
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 48, 5240MHz						
				Value	Limit (<)	Result
				11.762 dBm	17 dBm	Pass



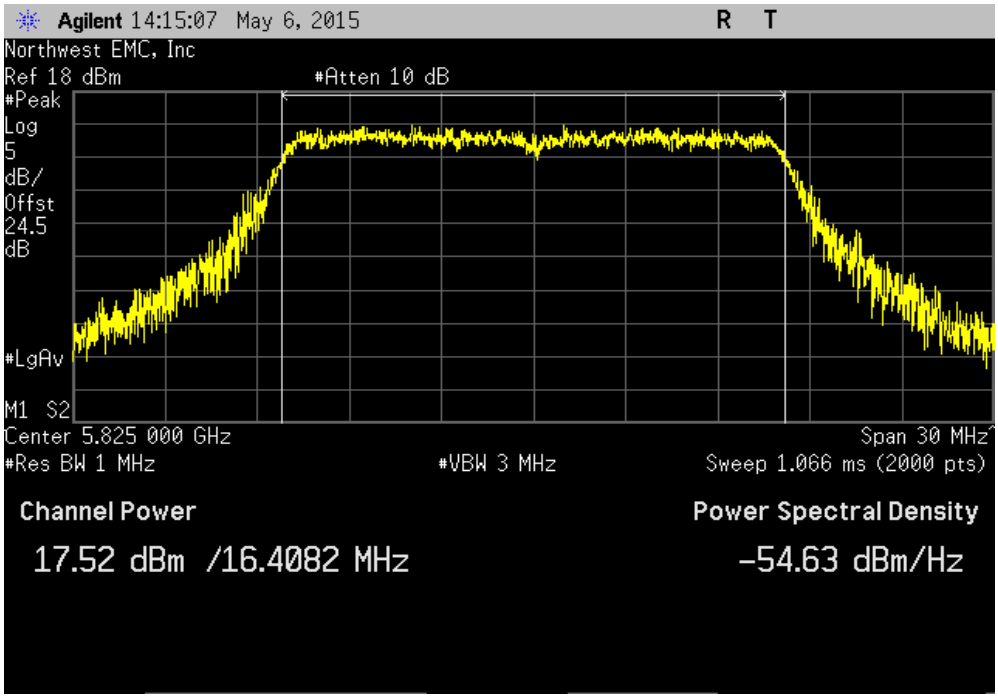
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (<)	Result
				18.107 dBm	30 dBm	Pass



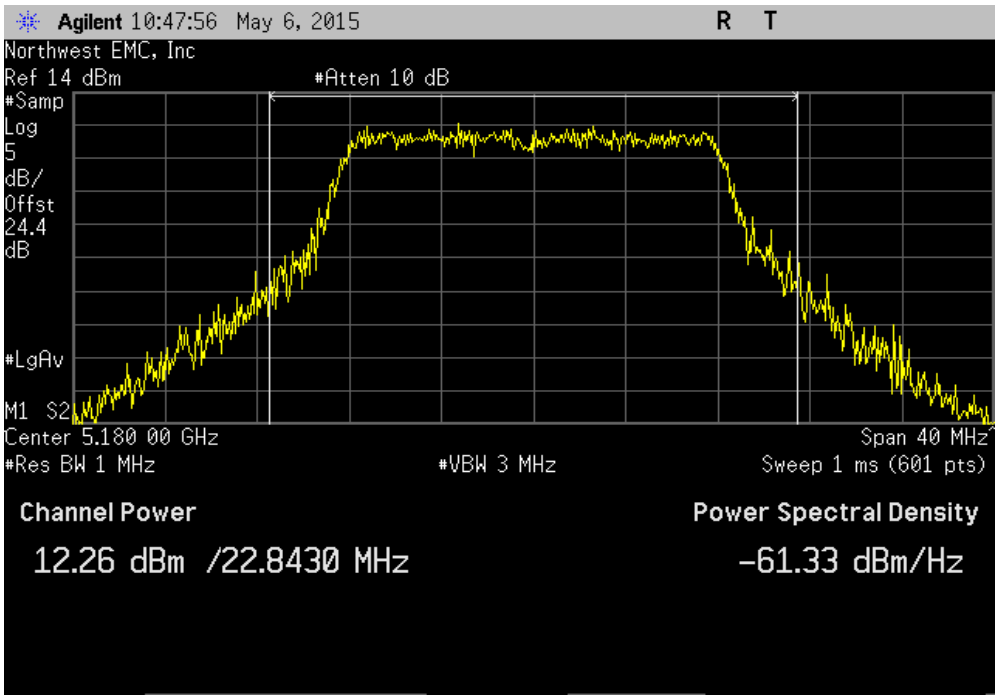
5 GHz Antenna Port, 802.11(a) 36 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (<)	Result
				17.902 dBm	30 dBm	Pass



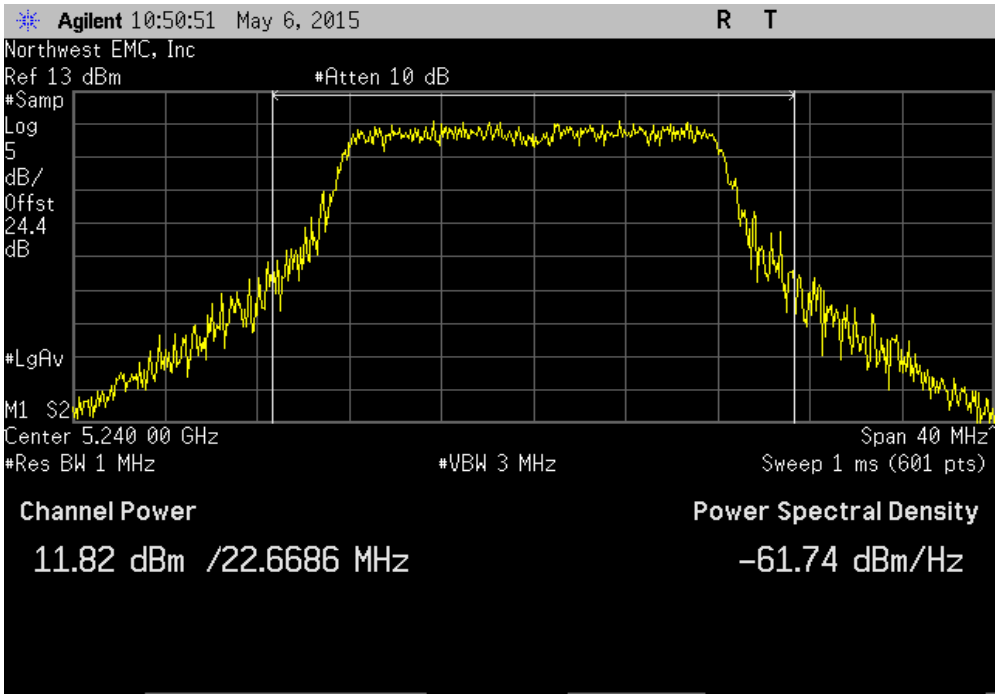
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 165, 5825MHz						
				Value	Limit (<)	Result
				17.518 dBm	30 dBm	Pass



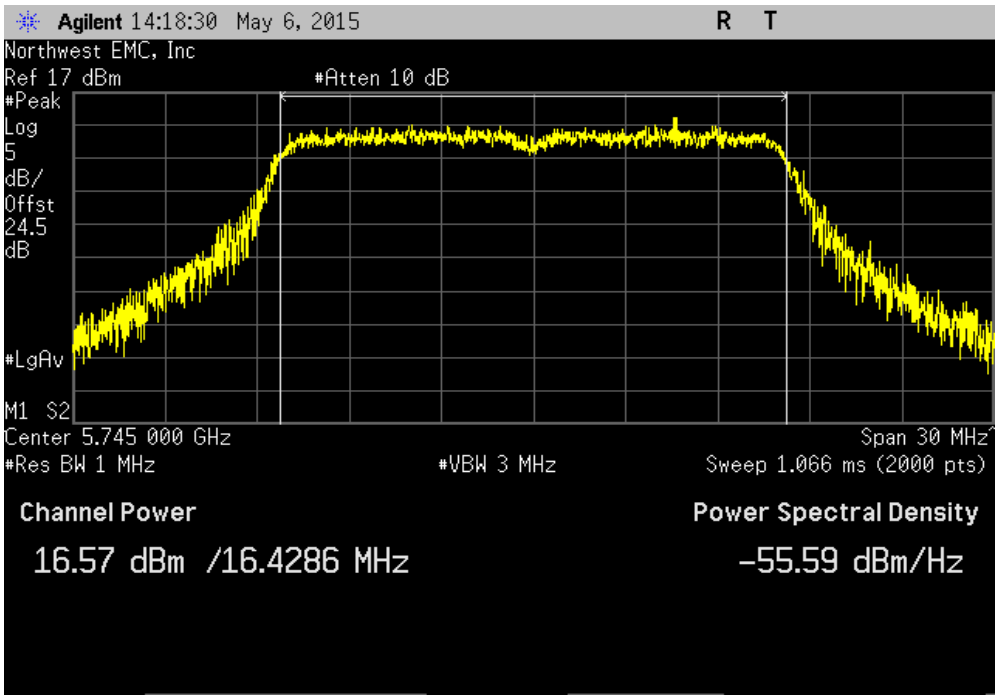
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 36, 5180MHz						
				Value	Limit (<)	Result
				12.255 dBm	17 dBm	Pass



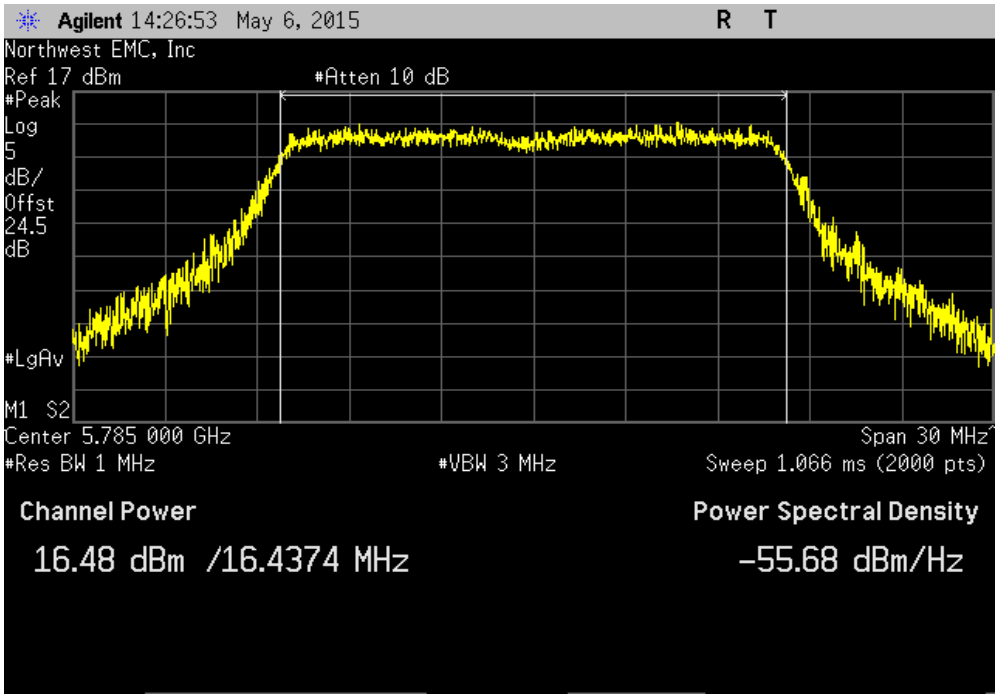
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 48, 5240MHz						
				Value	Limit (<)	Result
				11.817 dBm	17 dBm	Pass



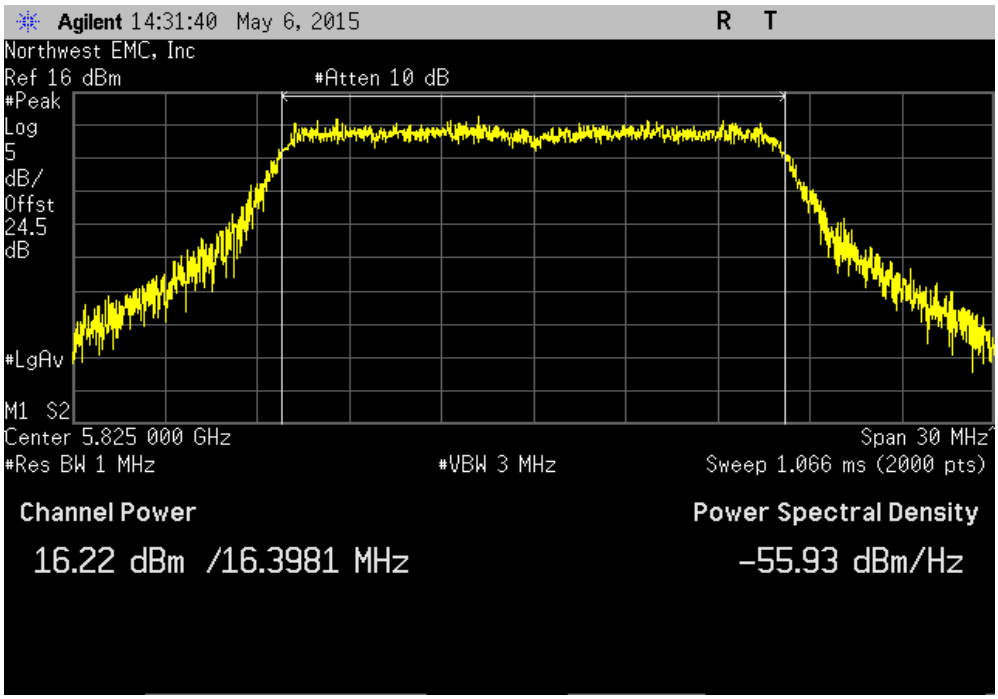
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 149, 5745MHz						
				Value	Limit (<)	Result
				16.568 dBm	30 dBm	Pass



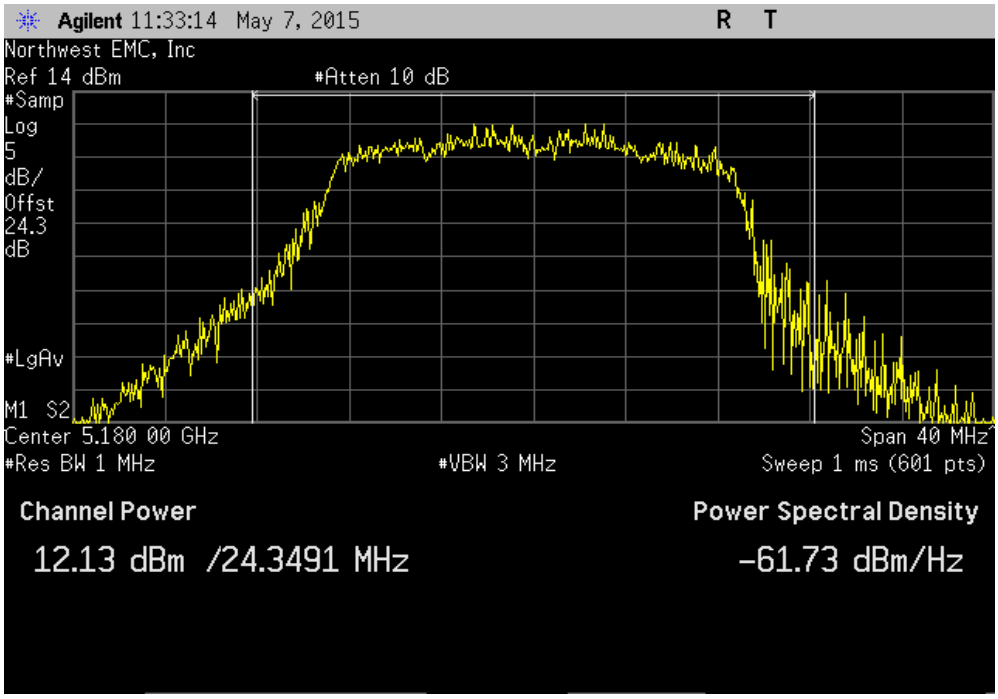
5 GHz Antenna Port, 802.11(a) 54 Mbps, Mid Channel 157, 5785MHz						
				Value	Limit (<)	Result
				16.477 dBm	30 dBm	Pass



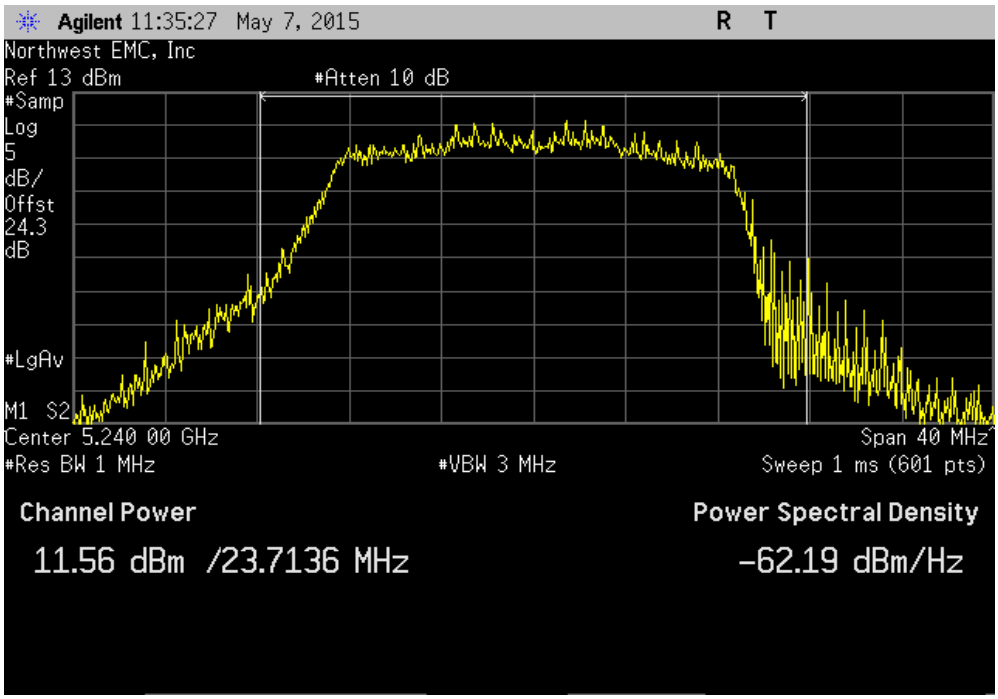
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 165, 5825MHz						
				Value	Limit (<)	Result
				16.22 dBm	30 dBm	Pass



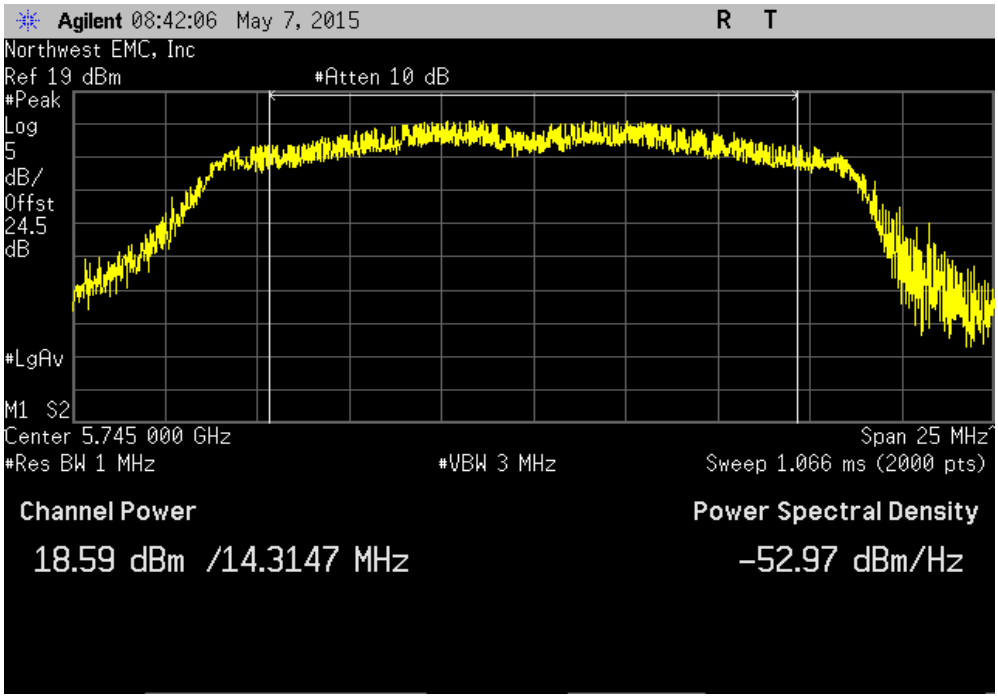
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 36, 5180MHz						
				Value	Limit (<)	Result
				12.133 dBm	24 dBm	Pass



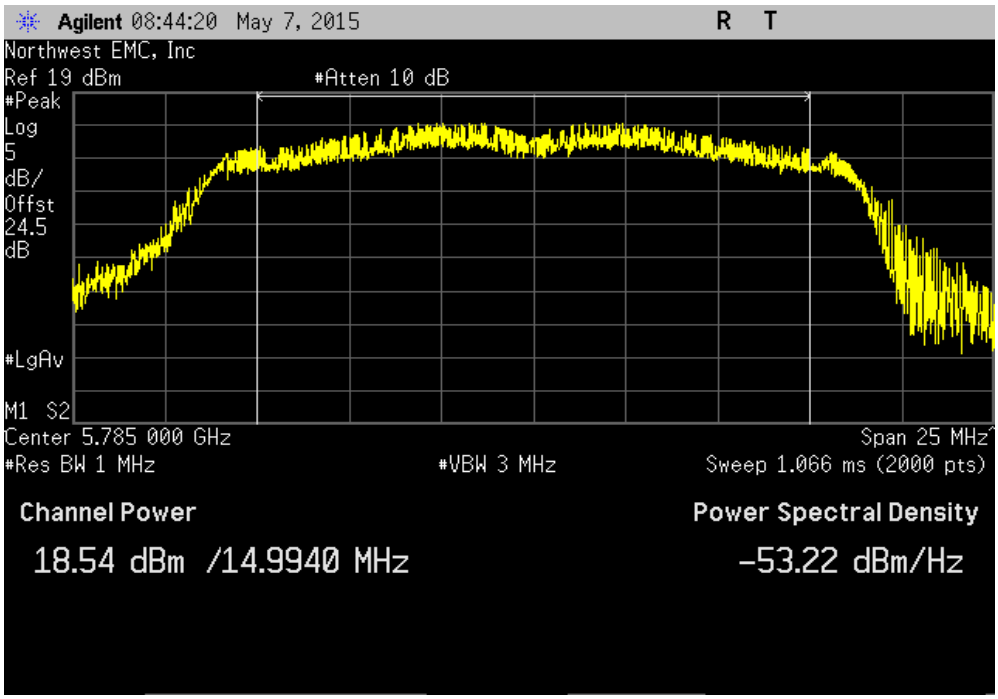
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 48, 5240MHz						
				Value	Limit (<)	Result
				11.562 dBm	24 dBm	Pass



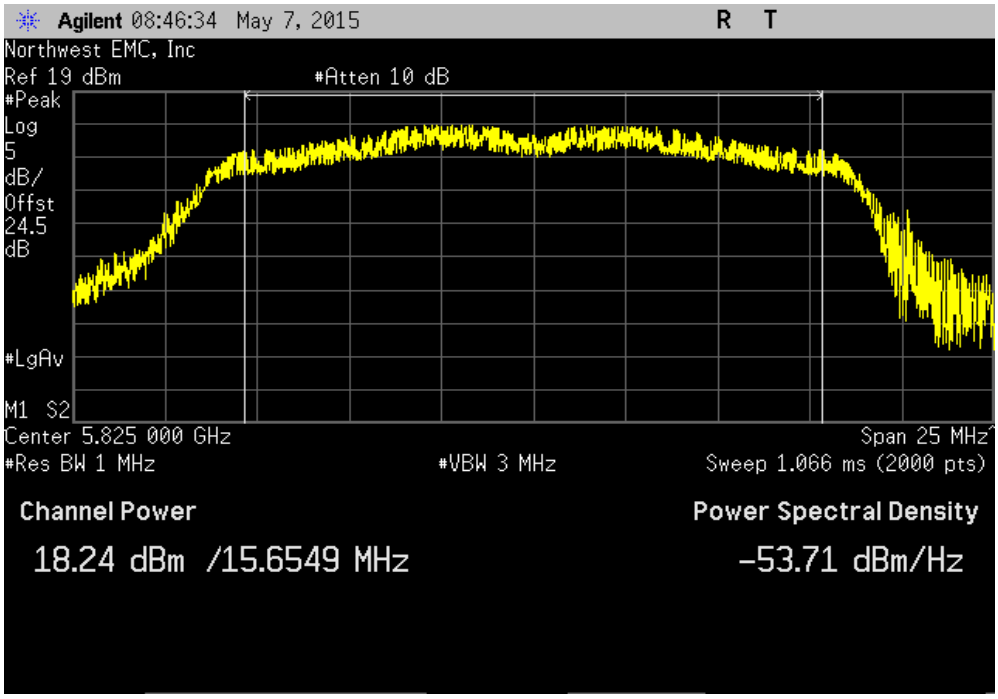
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 149, 5745MHz						
				Value	Limit (<)	Result
				18.588 dBm	30 dBm	Pass



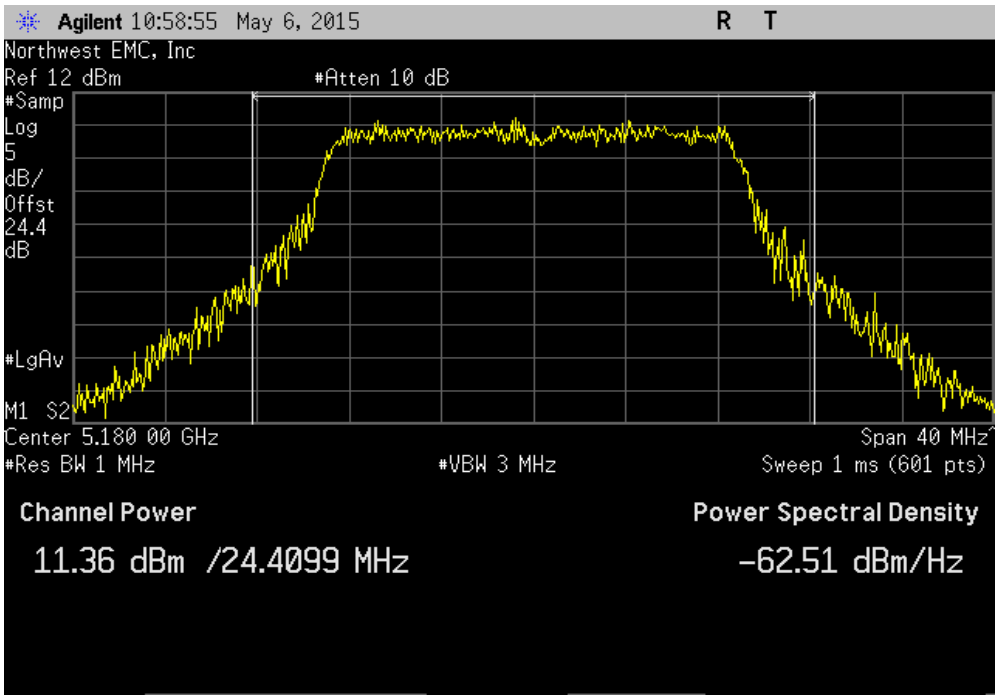
5 GHz Antenna Port, 802.11(n) MCS0, Mid Channel 157, 5785MHz						
				Value	Limit (<)	Result
				18.538 dBm	30 dBm	Pass



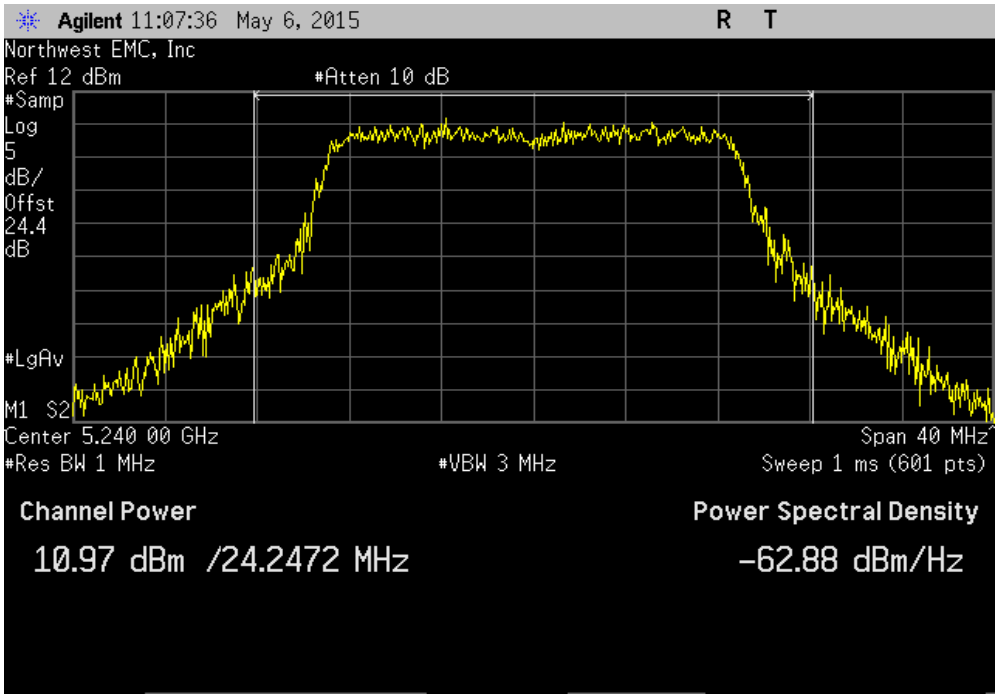
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 165, 5825MHz						
				Value	Limit (<)	Result
				18.238 dBm	30 dBm	Pass



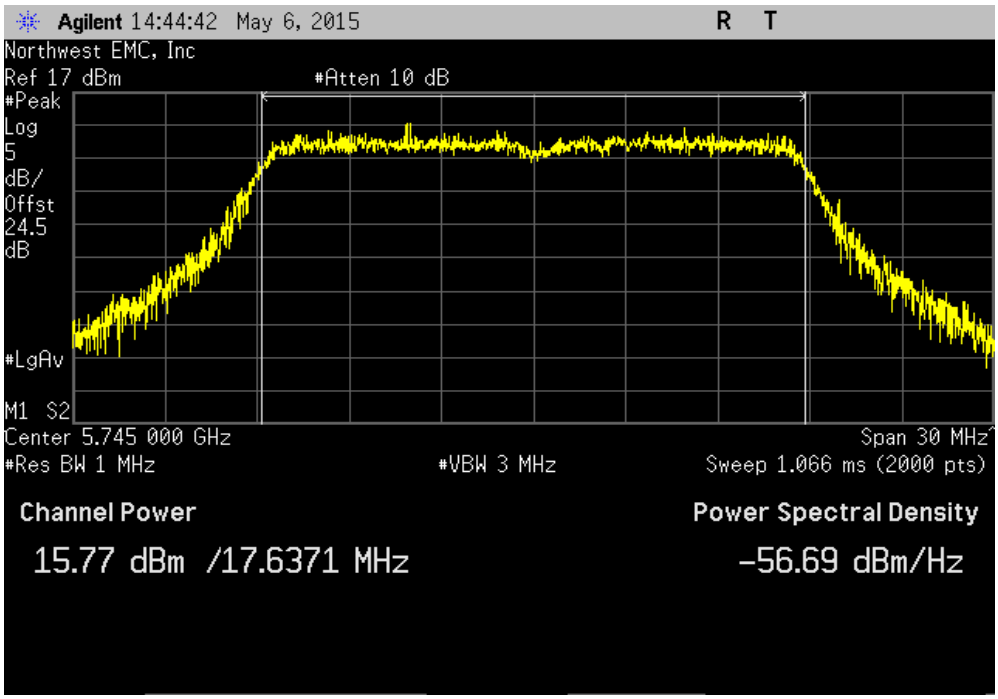
5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 36, 5180MHz						
				Value	Limit (<)	Result
				11.362 dBm	17 dBm	Pass



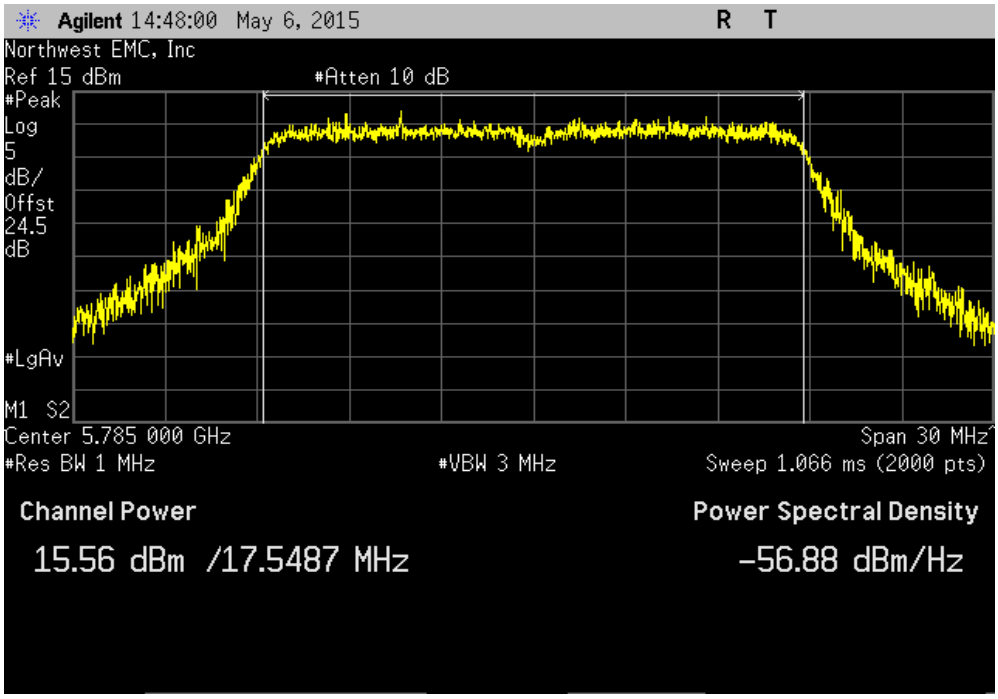
5 GHz Antenna Port, 802.11(n) MCS7, High Channel 48, 5240MHz						
				Value	Limit (<)	Result
				10.97 dBm	17 dBm	Pass



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 149, 5745MHz						
				Value	Limit (<)	Result
				15.772 dBm	30 dBm	Pass



5 GHz Antenna Port, 802.11(n) MCS7, Mid Channel 157, 5785MHz						
				Value	Limit (<)	Result
				15.557 dBm	30 dBm	Pass



PEAK TRANSMIT POWER

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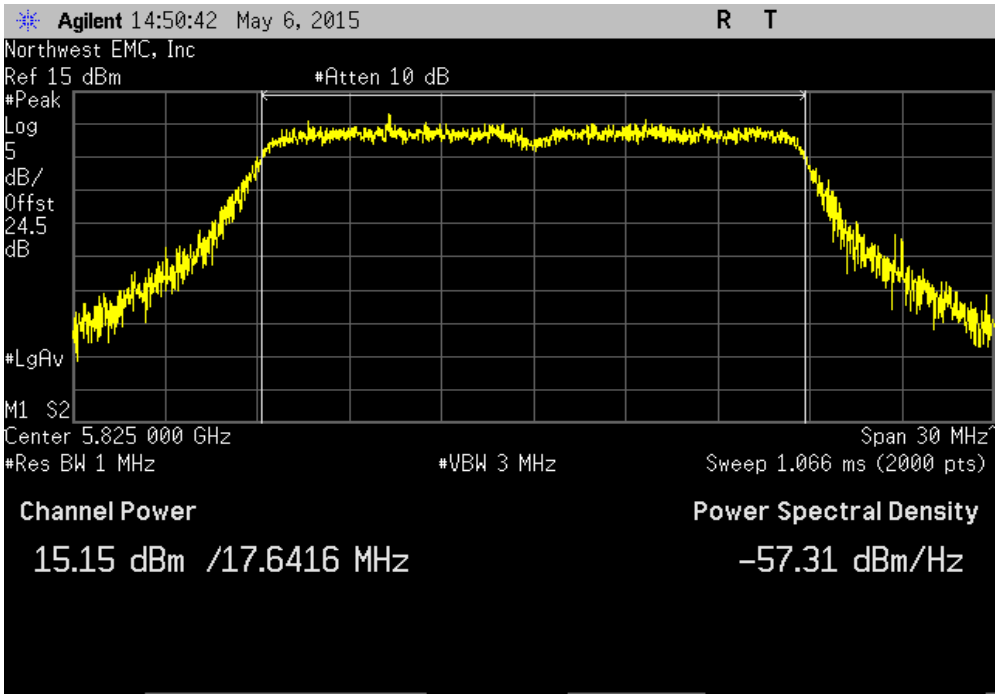
5 GHz Antenna Port, 802.11(n) MCS7, High Channel 165, 5825MHz						
				Value	Limit (<)	Result
				15.154 dBm	30 dBm	Pass



PEAK POWER SPECTRAL DENSITY

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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
DC Block, 40 GHz	Fairview Microwave	SD3379	AMI	10/2/2014	12
MN08 Direct Connect Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section F was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The data rate(s) listed in the datasheet were tested. 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 power spectral density, the transmission pulse duration (T) was measured. The transmission pulse duration and the associated data are found elsewhere in this test report.

PEAK POWER SPECTRAL DENSITY

NORTHWEST EMC

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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 15.407:2015	ANSI C63.10:2009

COMMENTS

None

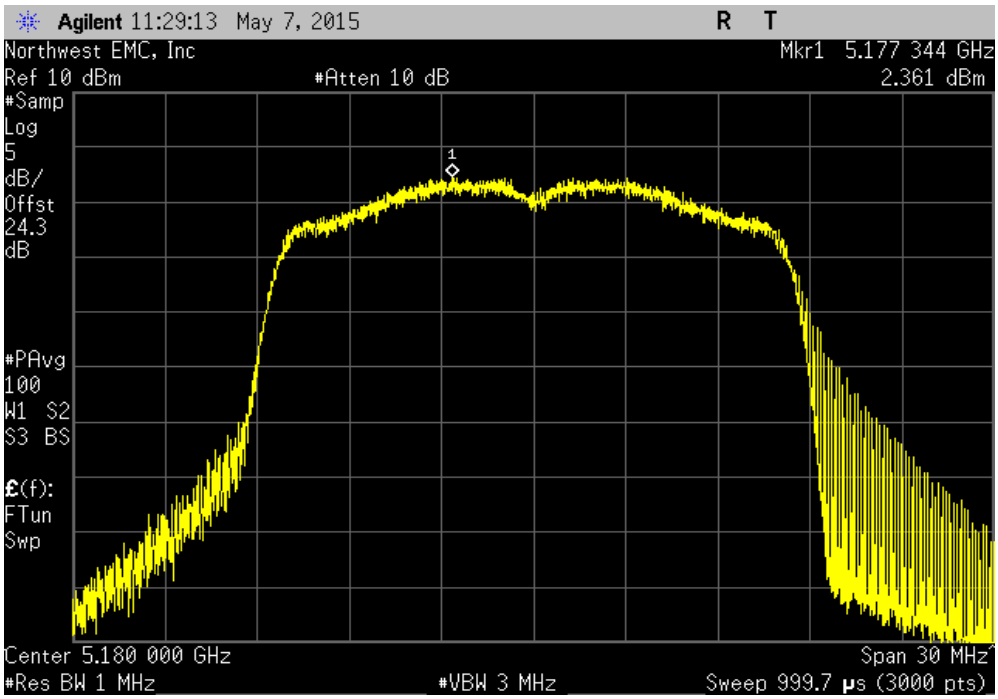
DEVIATIONS FROM TEST STANDARD

None

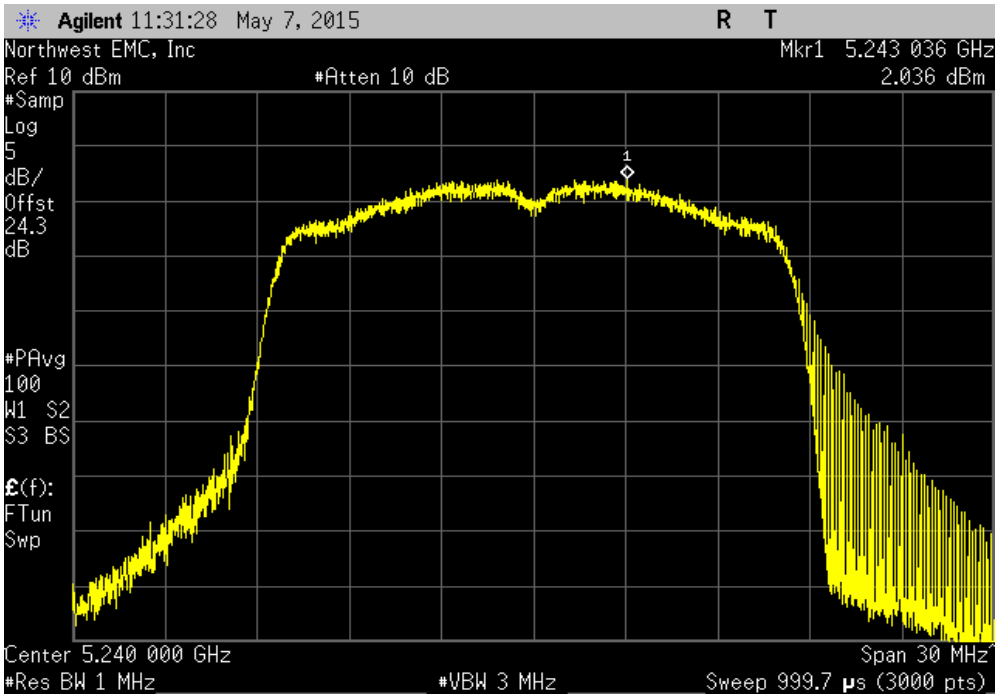
Configuration #	5	*Signature*

		Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
5 GHz Antenna Port				
	802.11(a) 6 Mbps			
	Low Channel 36, 5180MHz	2.361	11	Pass
	High Channel 48, 5240MHz	2.036	11	Pass
	Low Channel 149, 5745MHz	5.341	30	Pass
	Mid Channel 157, 5785MHz	5.025	30	Pass
	High Channel 165, 5825MHz	4.738	30	Pass
	802.11(a) 36 Mbps			
	Low Channel 36, 5180MHz	2.224	4	Pass
	High Channel 48, 5240MHz	1.779	4	Pass
	Low Channel 149, 5745MHz	3.978	30	Pass
	Mid Channel 157, 5785MHz	3.051	30	Pass
	High Channel 165, 5825MHz	3.693	30	Pass
	802.11(a) 54 Mbps			
	Low Channel 36, 5180MHz	2.024	4	Pass
	High Channel 48, 5240MHz	1.215	4	Pass
	Low Channel 149, 5745MHz	1.746	30	Pass
	Mid Channel 157, 5785MHz	1.52	30	Pass
	High Channel 165, 5825MHz	1.151	30	Pass
	802.11(n) MCS0			
	Low Channel 36, 5180MHz	3.768	11	Pass
	High Channel 48, 5240MHz	2.742	11	Pass
	Low Channel 149, 5745MHz	6.016	30	Pass
	Mid Channel 157, 5785MHz	5.831	30	Pass
	High Channel 165, 5825MHz	5.605	30	Pass
	802.11(n) MCS7			
	Low Channel 36, 5180MHz	0.475	4	Pass
	High Channel 48, 5240MHz	0.133	4	Pass
	Low Channel 149, 5745MHz	0.348	30	Pass
	Mid Channel 157, 5785MHz	0.017	30	Pass
	High Channel 165, 5825MHz	-0.361	30	Pass

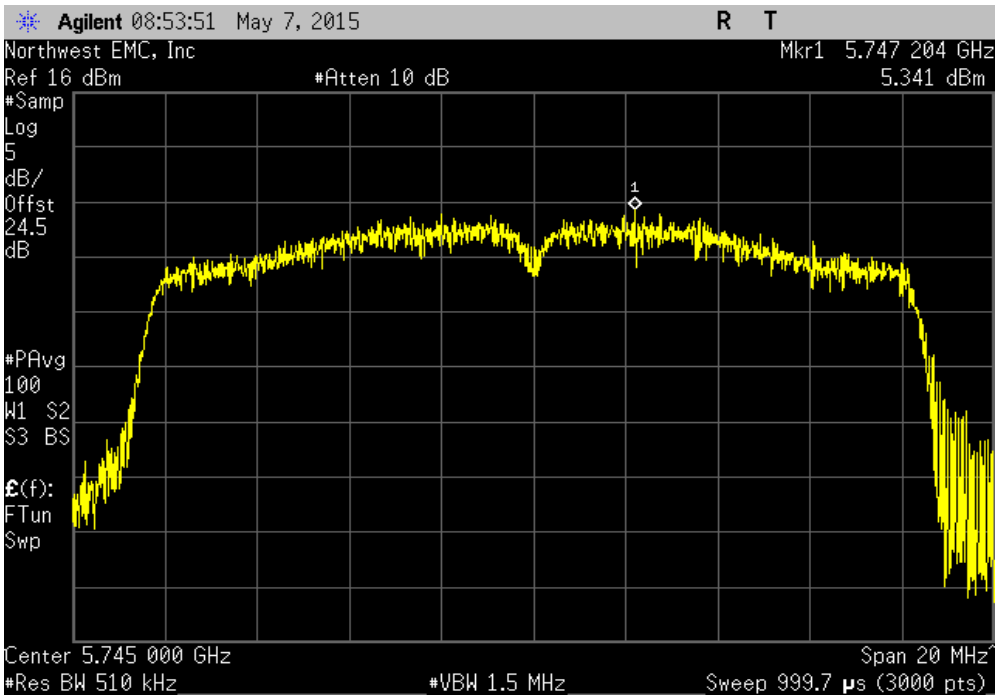
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 36, 5180MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				2.361	11	Pass



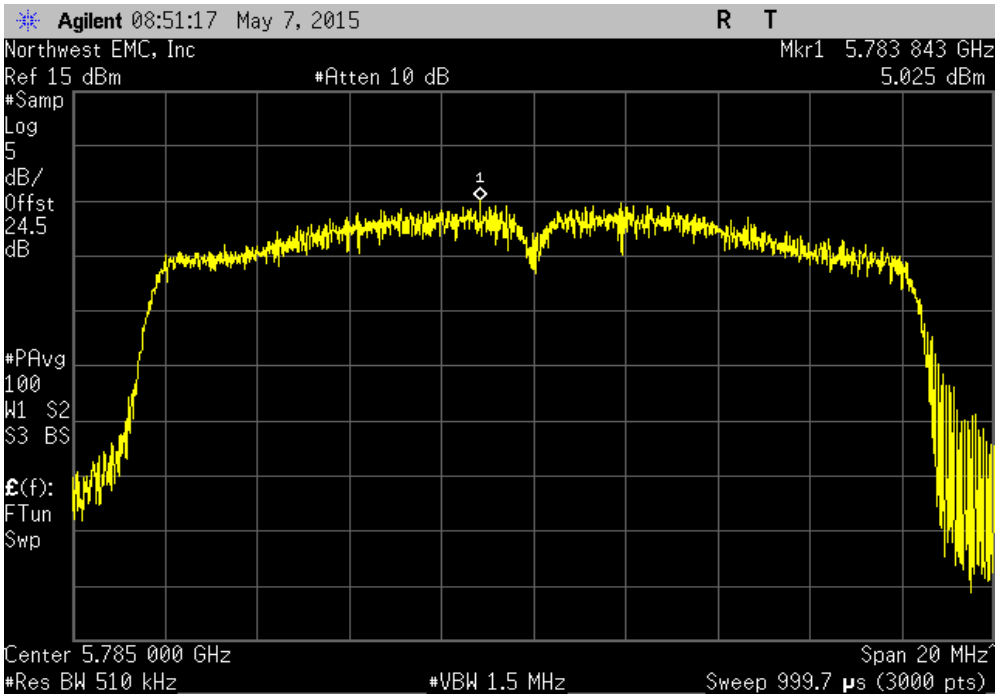
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 48, 5240MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				2.036	11	Pass



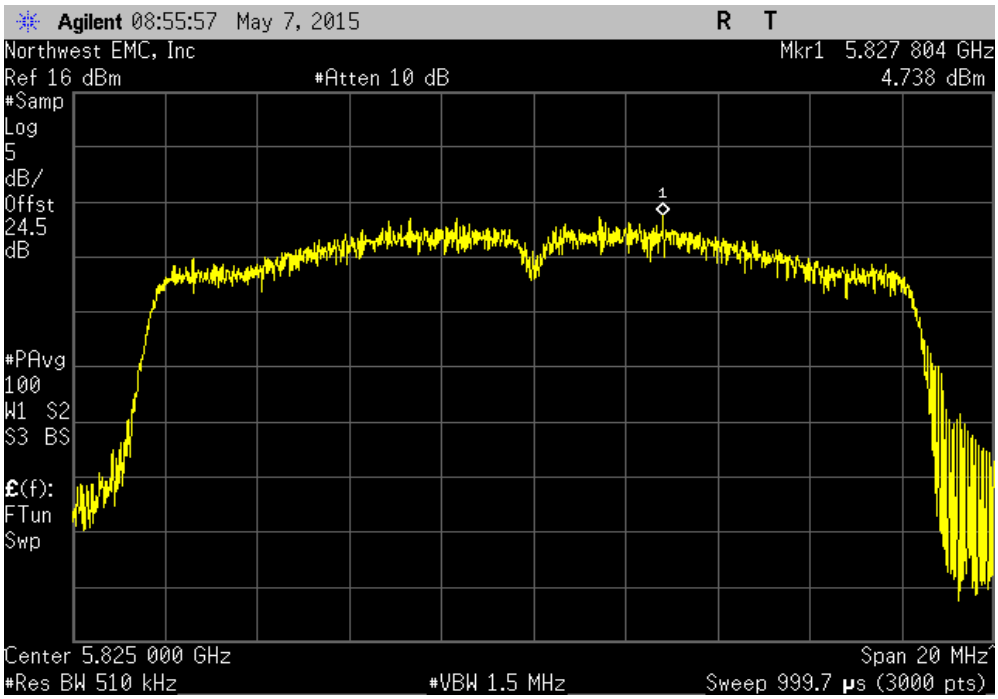
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 149, 5745MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				5.341	30	Pass



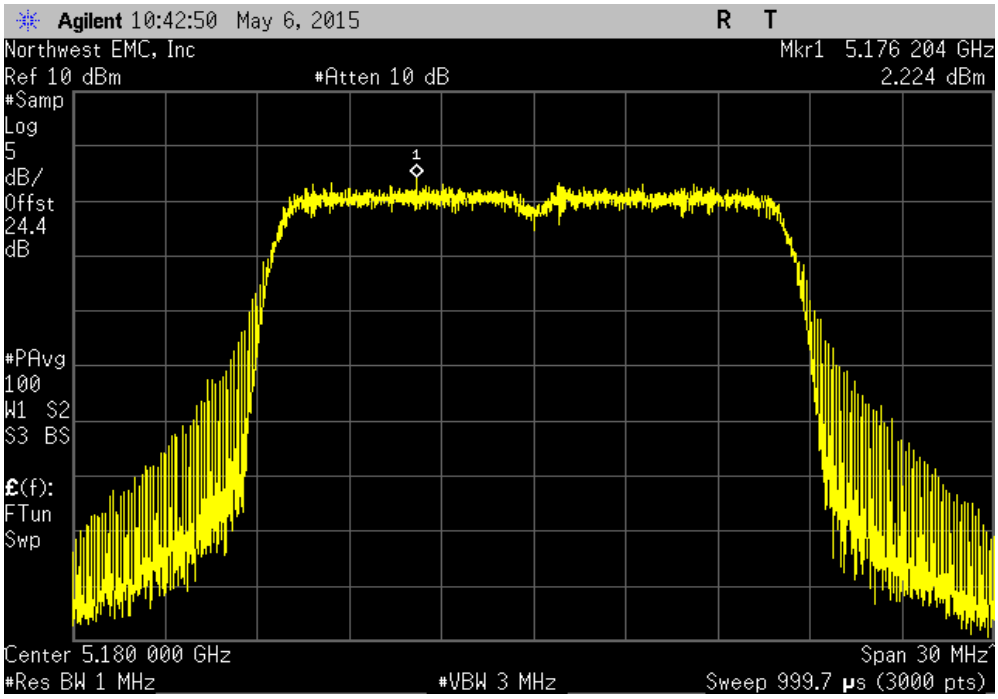
5 GHz Antenna Port, 802.11(a) 6 Mbps, Mid Channel 157, 5785MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				5.025	30	Pass



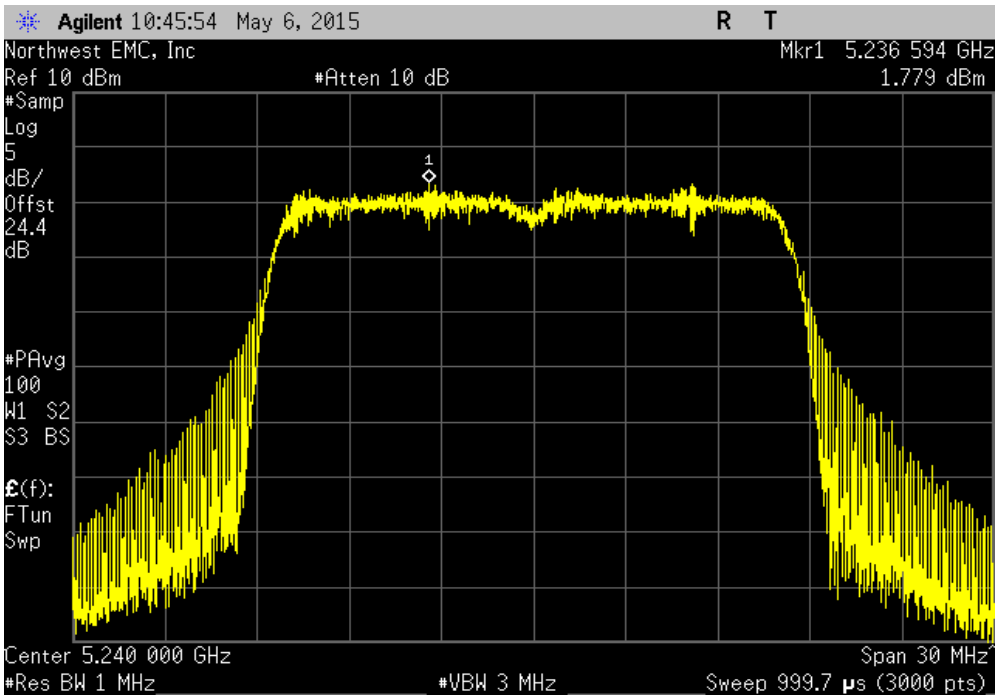
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 165, 5825MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				4.738	30	Pass



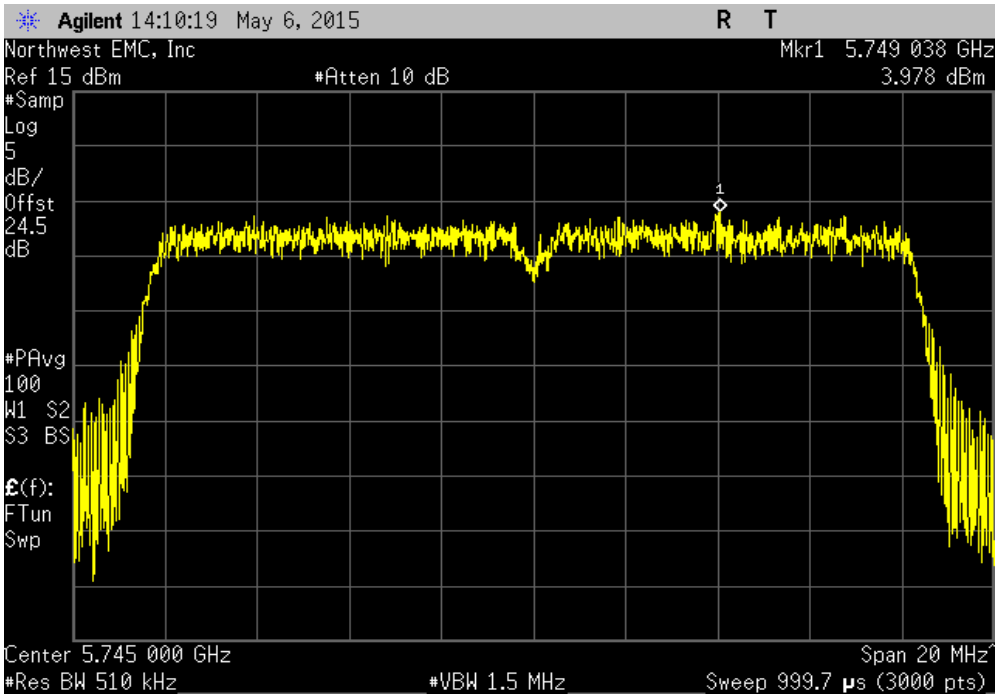
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 36, 5180MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				2.224	4	Pass



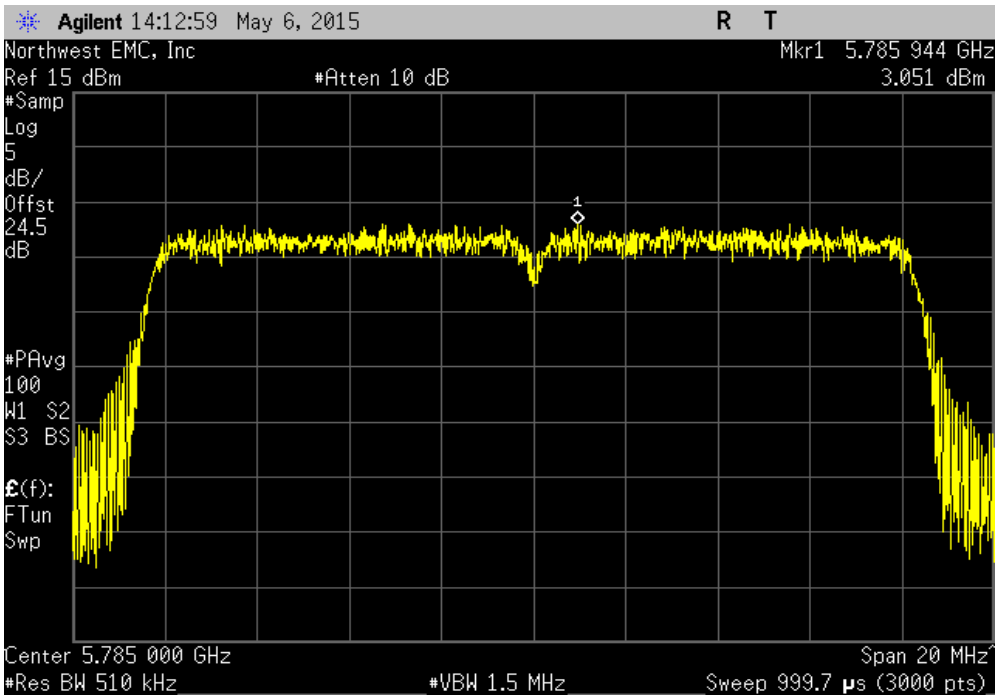
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 48, 5240MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				1.779	4	Pass



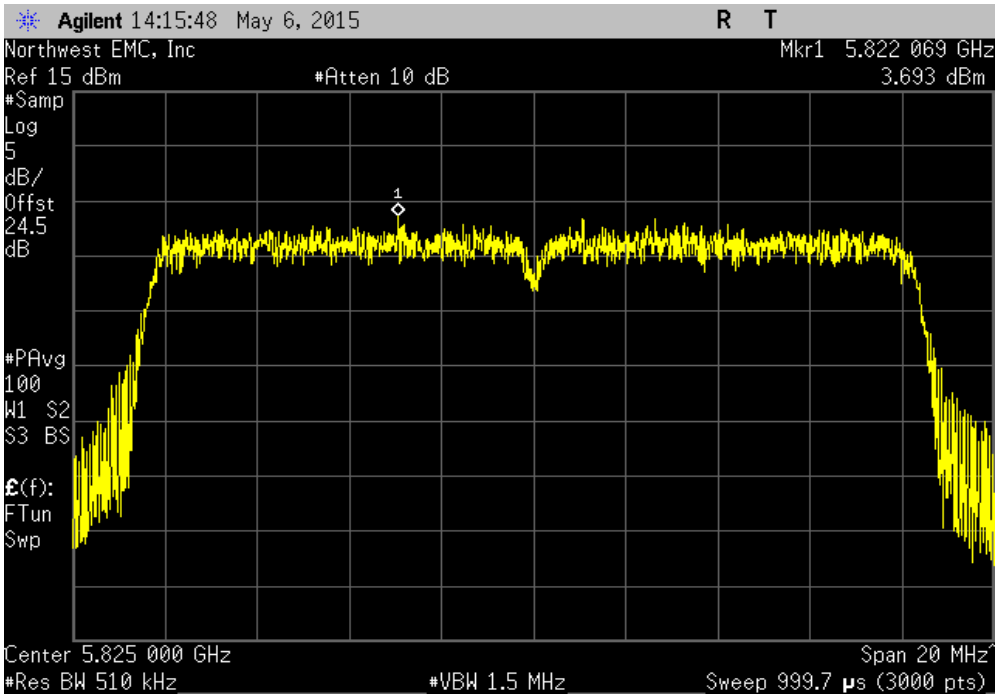
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 149, 5745MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				3.978	30	Pass



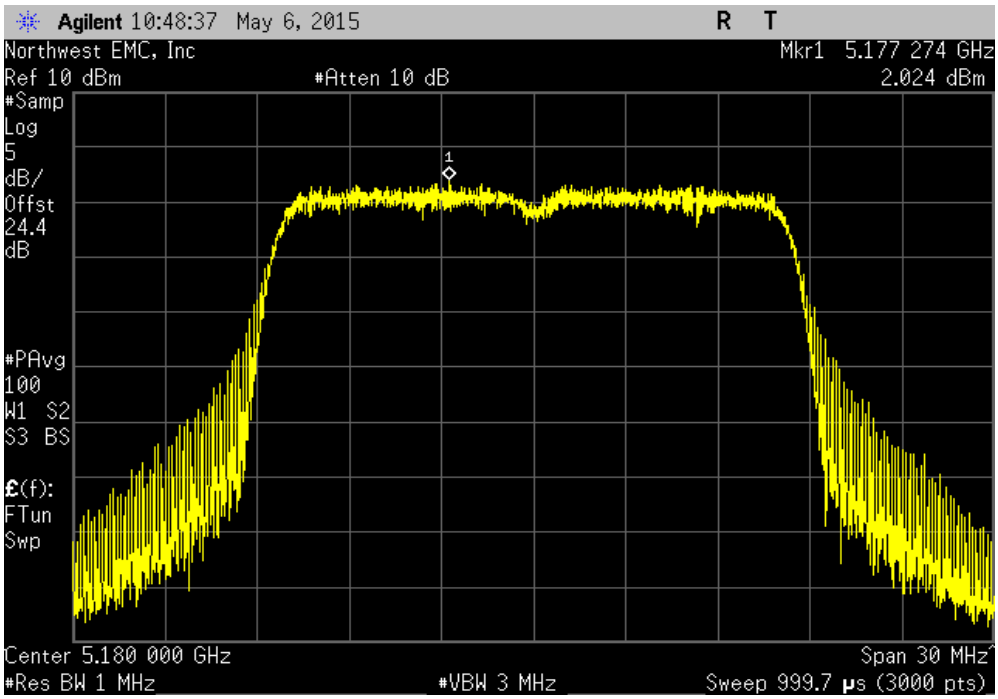
5 GHz Antenna Port, 802.11(a) 36 Mbps, Mid Channel 157, 5785MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				3.051	30	Pass



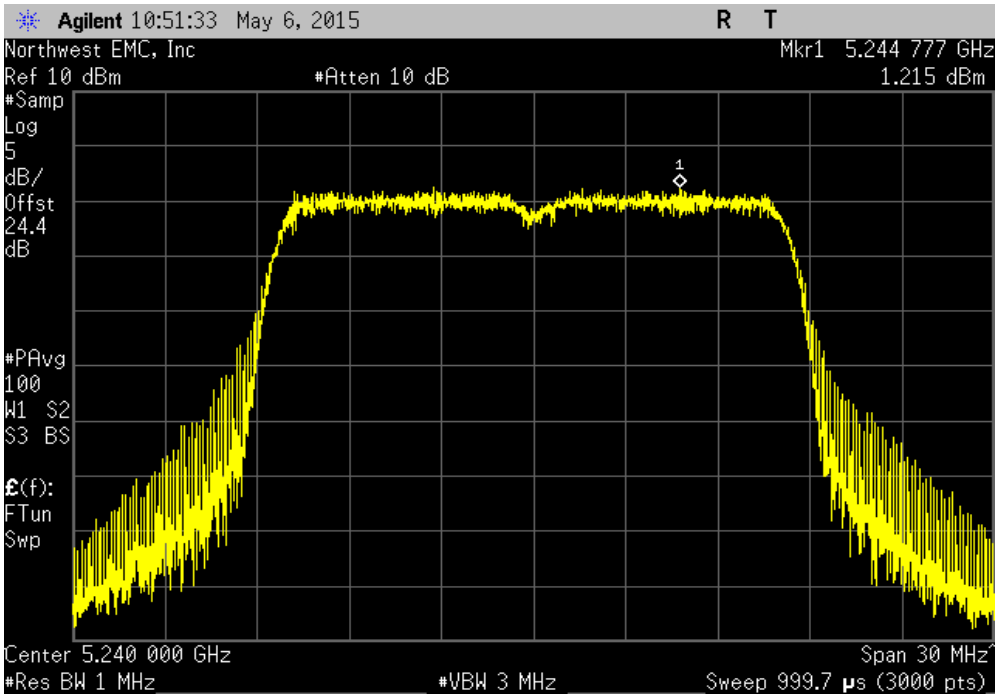
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 165, 5825MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				3.693	30	Pass



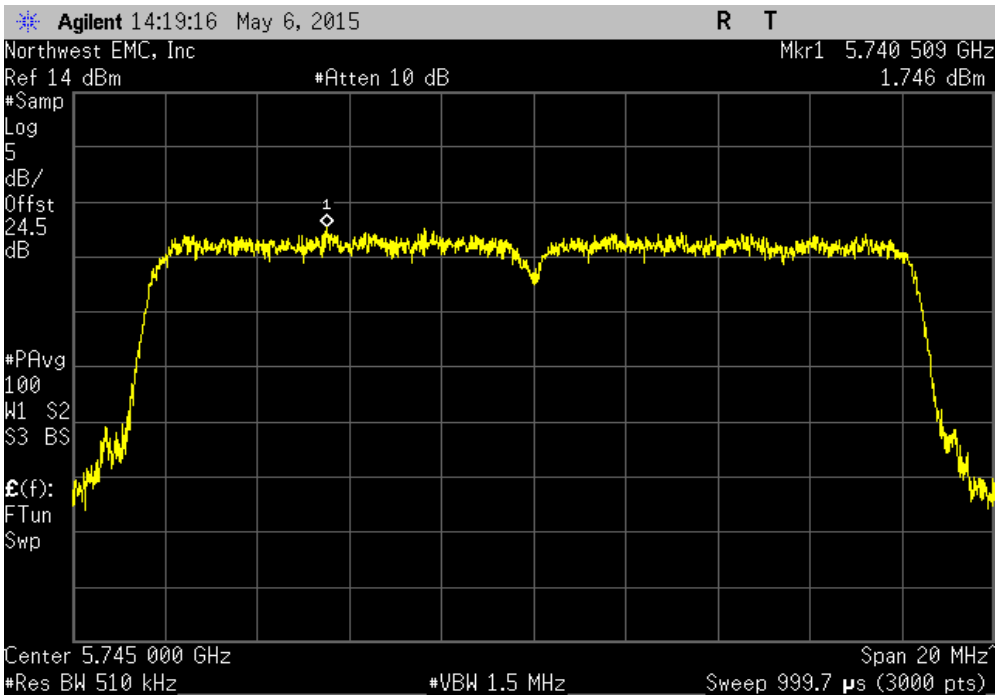
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 36, 5180MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				2.024	4	Pass



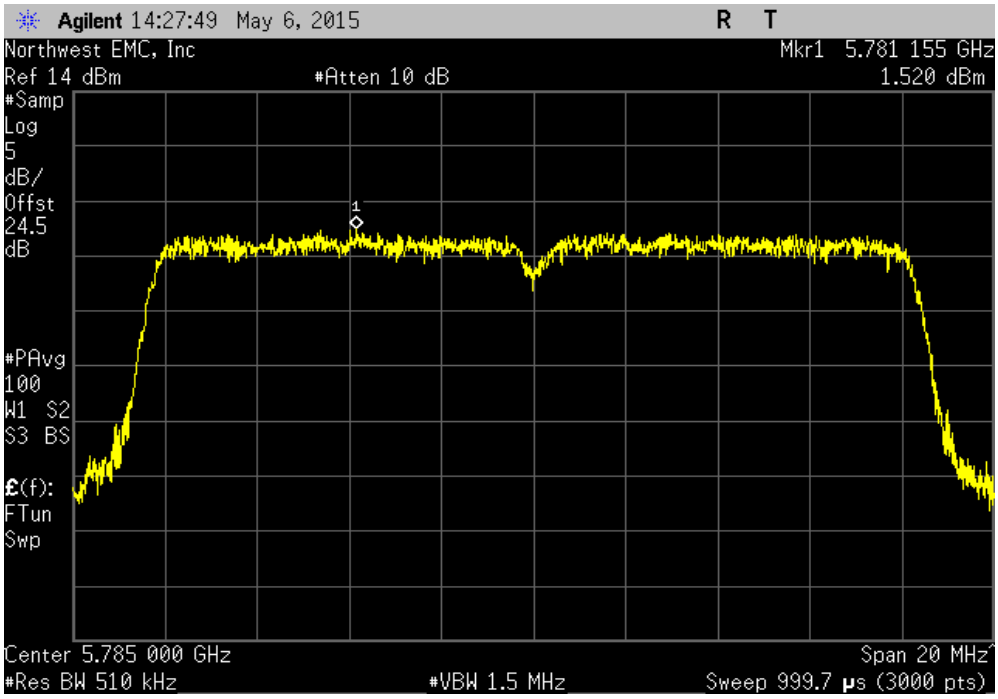
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 48, 5240MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				1.215	4	Pass



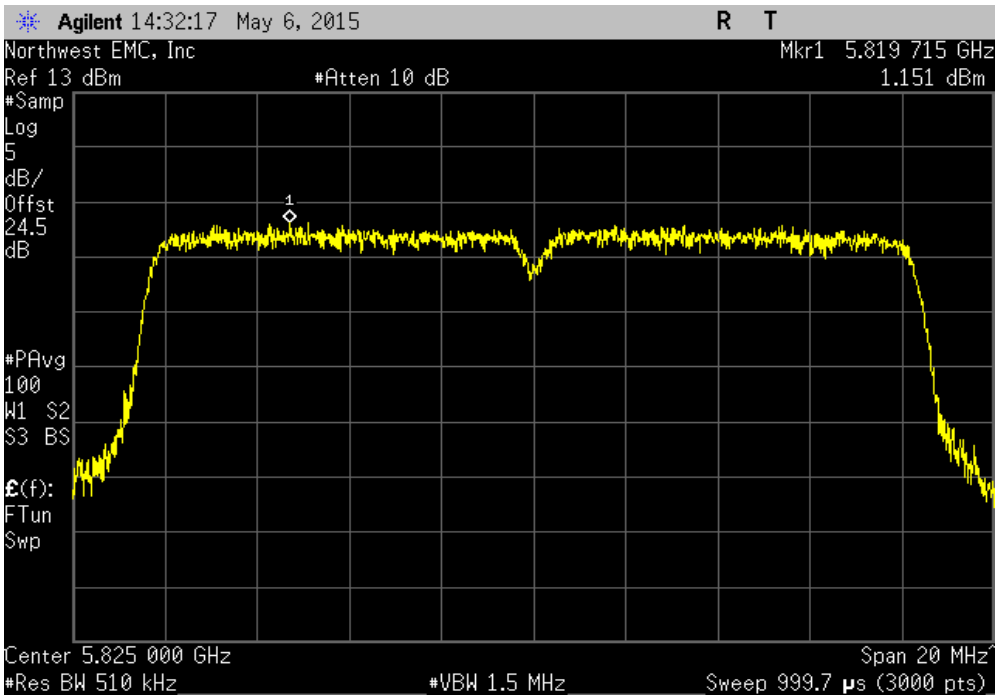
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 149, 5745MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				1.746	30	Pass



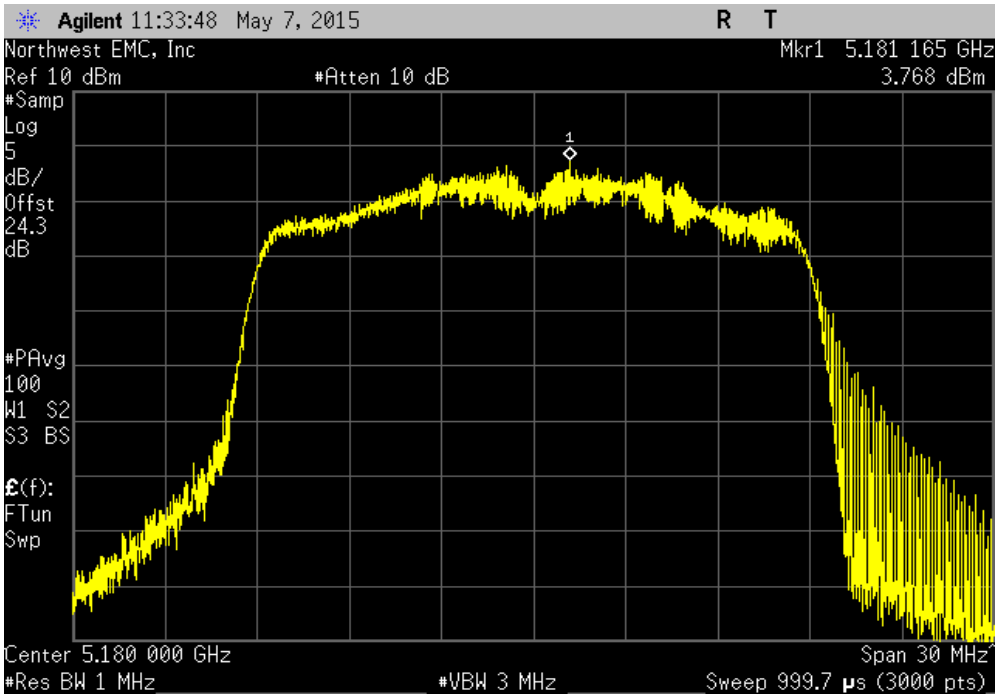
5 GHz Antenna Port, 802.11(a) 54 Mbps, Mid Channel 157, 5785MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				1.52	30	Pass



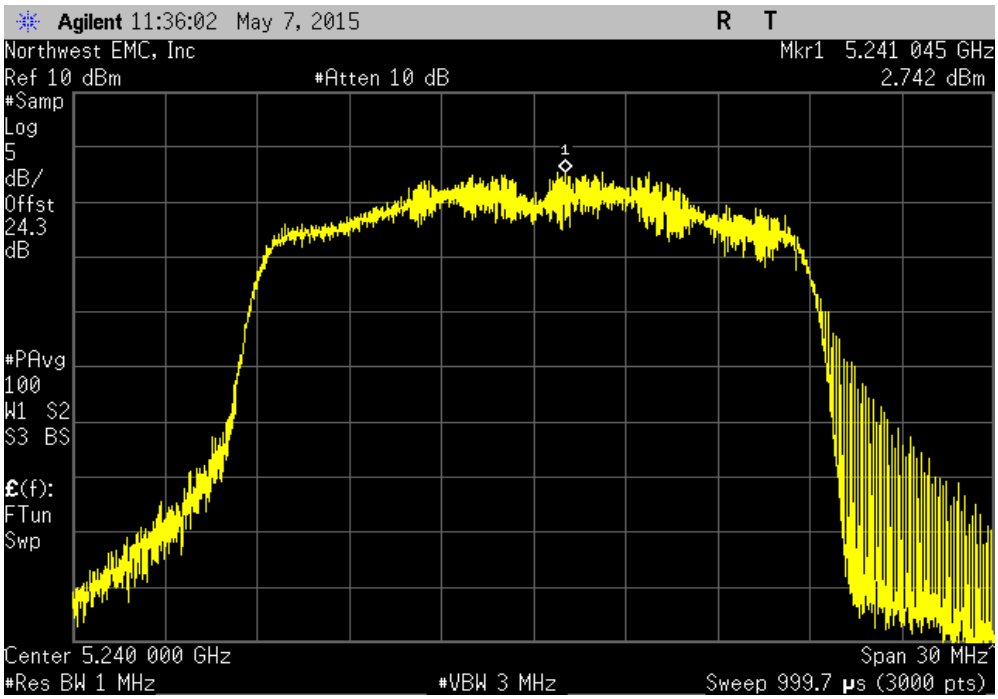
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 165, 5825MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				1.151	30	Pass



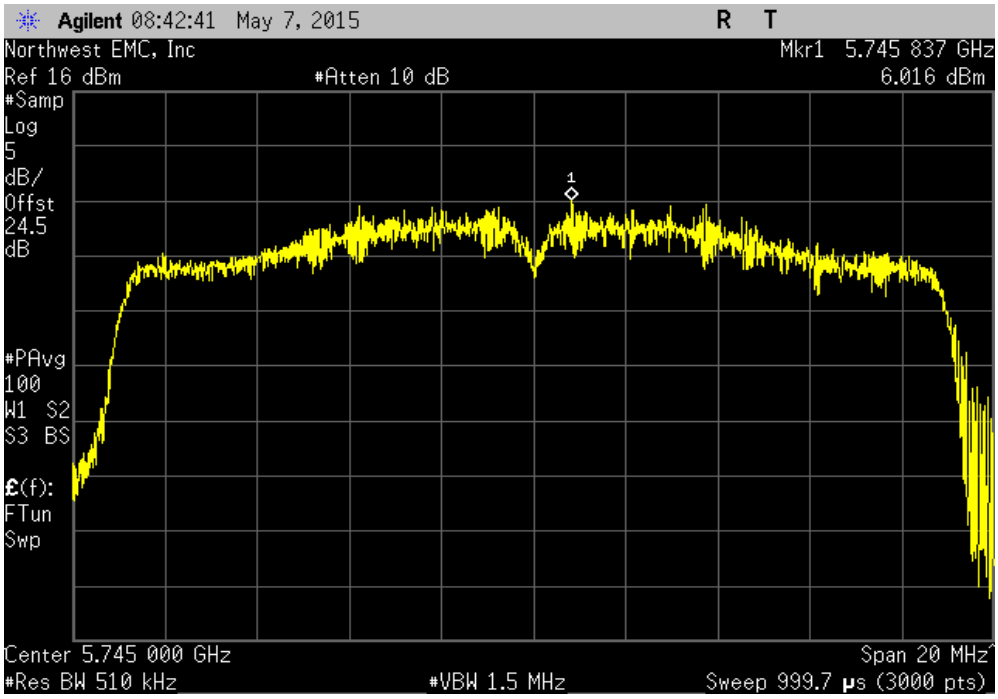
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 36, 5180MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				3.768	11	Pass



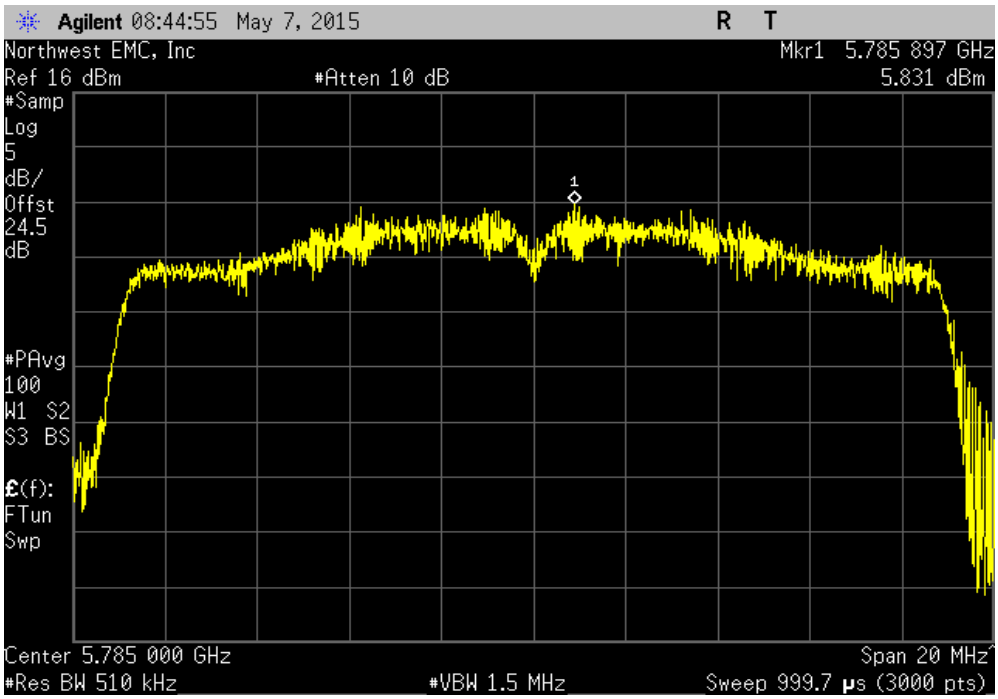
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 48, 5240MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				2.742	11	Pass



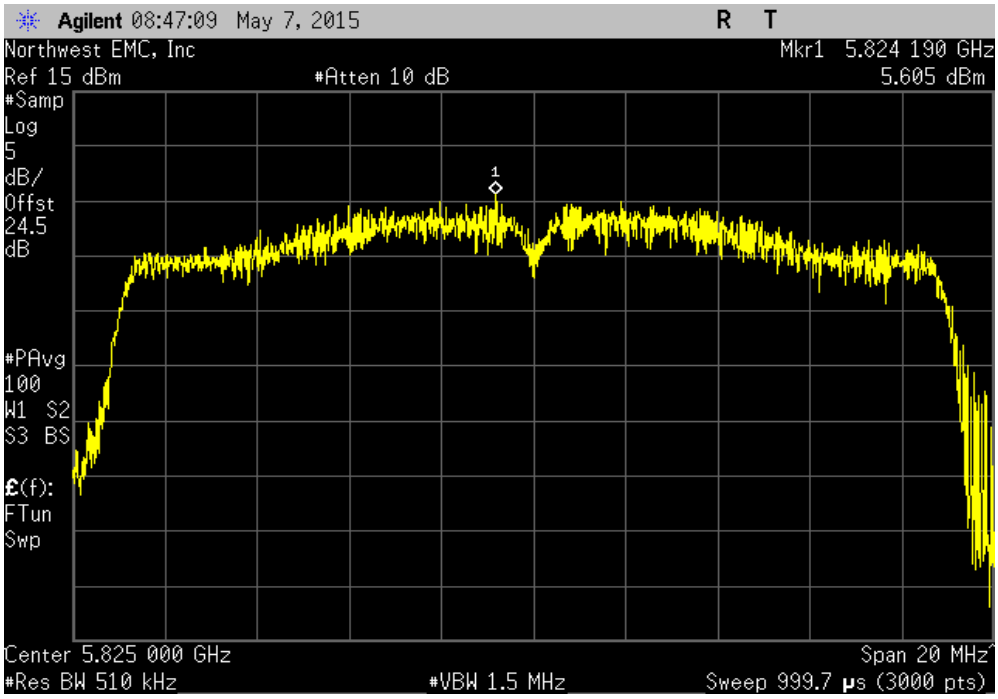
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 149, 5745MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				6.016	30	Pass



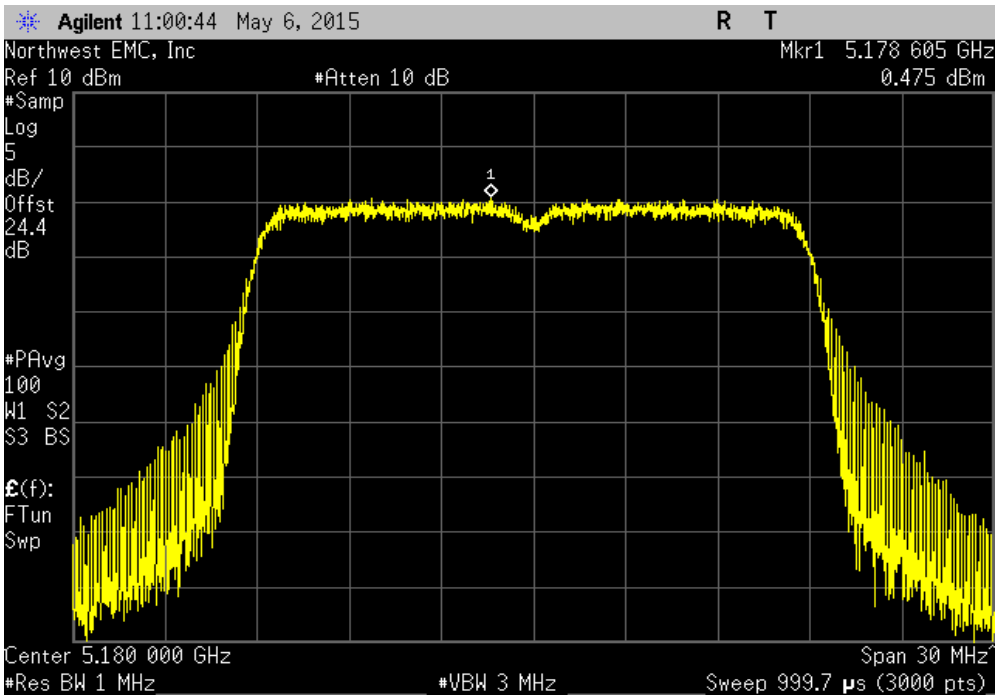
5 GHz Antenna Port, 802.11(n) MCS0, Mid Channel 157, 5785MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				5.831	30	Pass



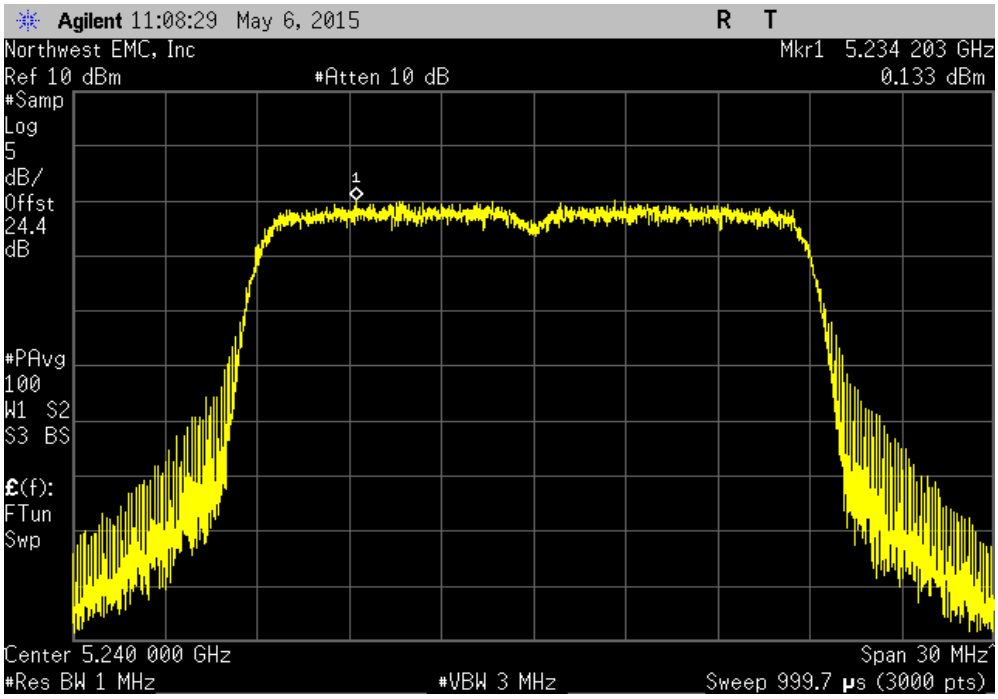
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 165, 5825MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				5.605	30	Pass



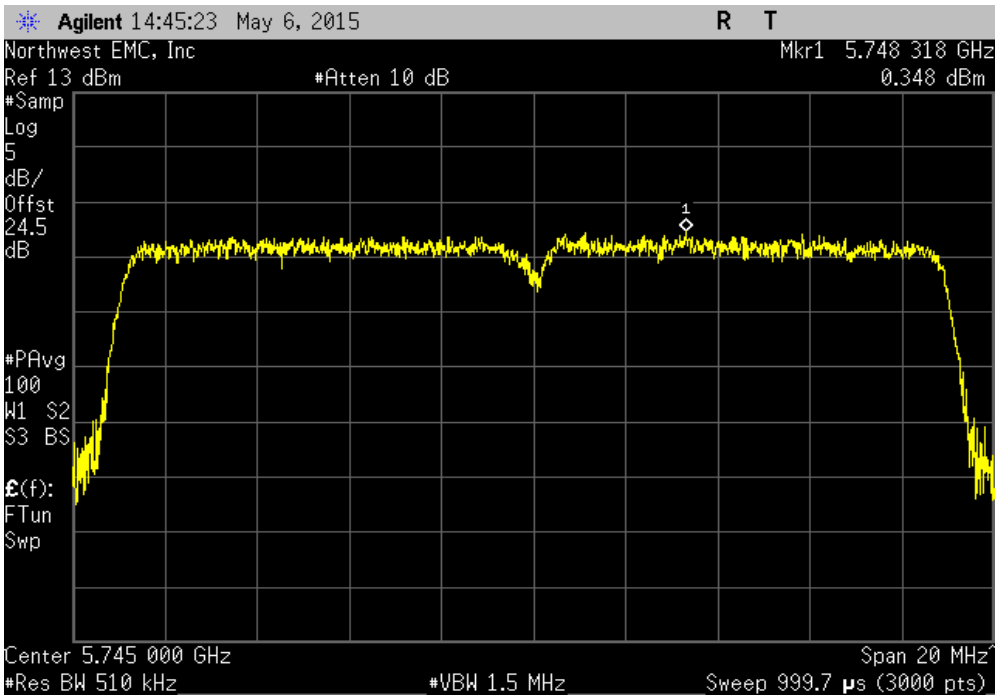
5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 36, 5180MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				0.475	4	Pass



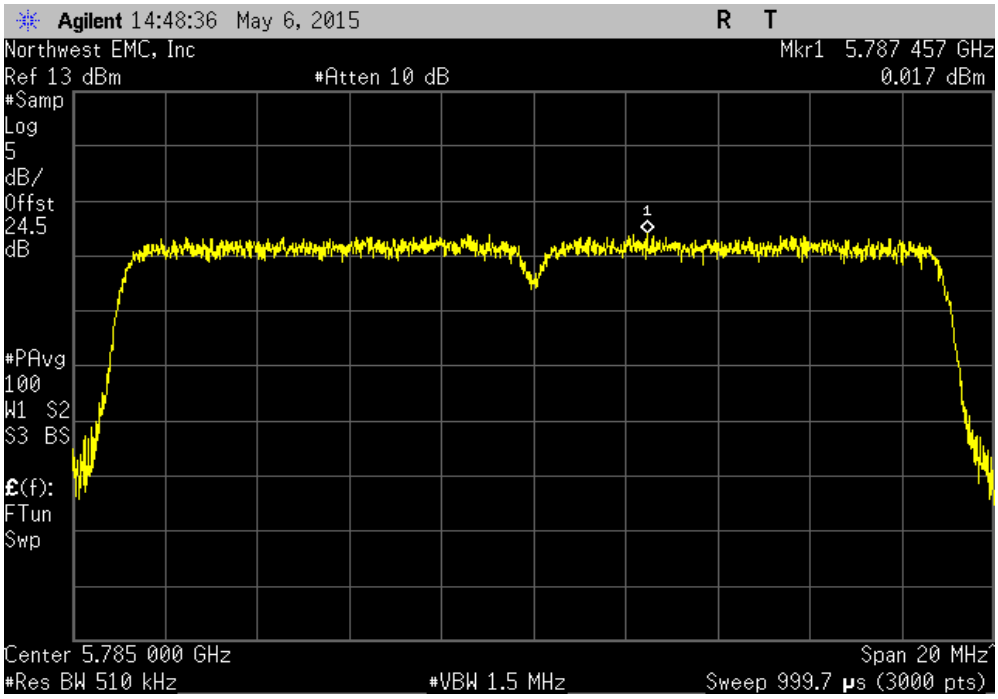
5 GHz Antenna Port, 802.11(n) MCS7, High Channel 48, 5240MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				0.133	4	Pass



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 149, 5745MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				0.348	30	Pass



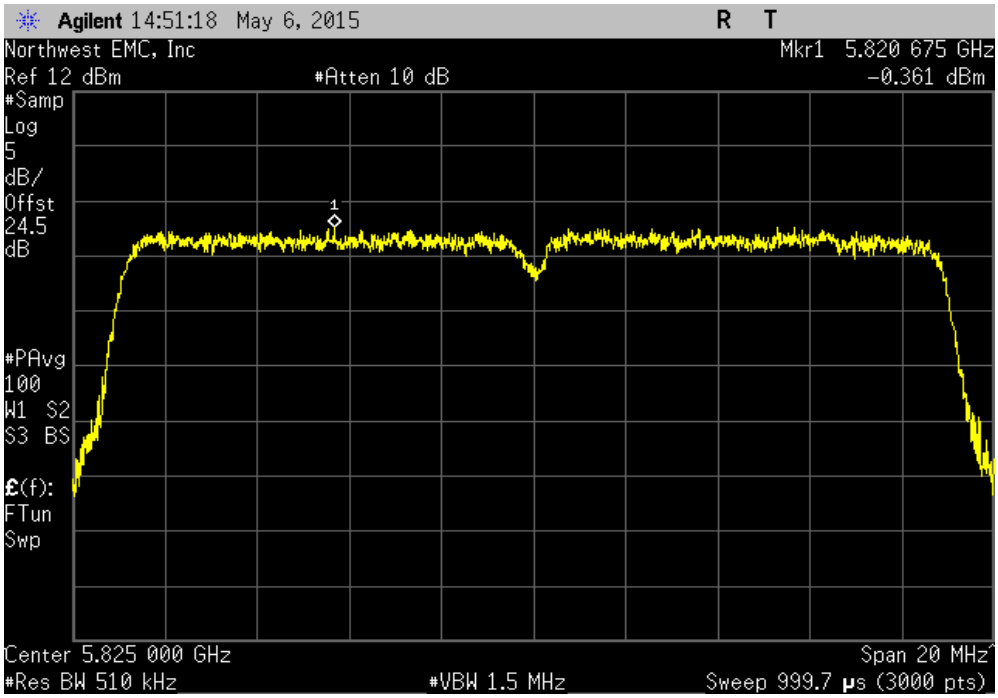
5 GHz Antenna Port, 802.11(n) MCS7, Mid Channel 157, 5785MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				0.017	30	Pass



PEAK POWER SPECTRAL DENSITY

XMit 2015.01.14

5 GHz Antenna Port, 802.11(n) MCS7, High Channel 165, 5825MHz						
				Value (dBm / MHz)	Limit (dBm / Ref BW)	Results
				-0.361	30	Pass



TRANSMISSION BURST DURATION

XMit 2015.01.14

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 transmission pulse duration (T) and Duty Cycle (x) were measured for each of the EUT operating modes per the FCC KDB 789033 D01 General UNII Test Procedures.

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 only measure during the burst duration.

TRANSMISSION BURST DURATION

NORTHWEST EMC

XMit 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 15.407:2015	ANSI C63.10:2009

COMMENTS

None

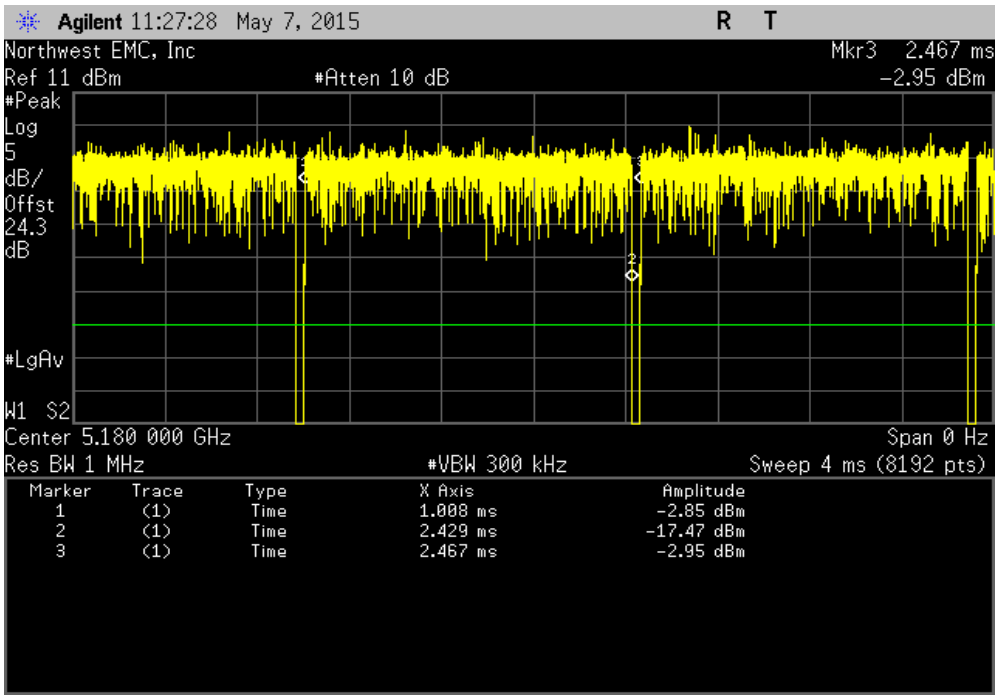
DEVIATIONS FROM TEST STANDARD

None

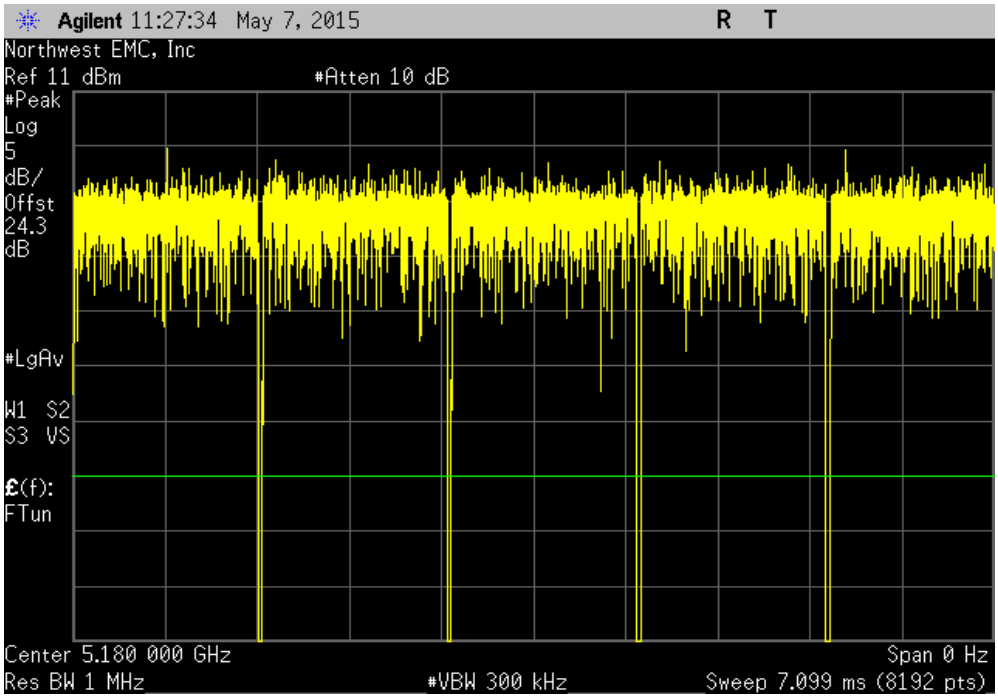
Configuration #	5	*Signature*

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
5 GHz Antenna Port						
802.11(a) 6 Mbps						
Low Channel 36, 5180MHz	1.42 ms	1.459 ms	1	97.4	N/A	N/A
Low Channel 36, 5180MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 48, 5240MHz	1.421 ms	1.459 ms	1	97.4	N/A	N/A
High Channel 48, 5240MHz	N/A	N/A	5	N/A	N/A	N/A
Low Channel 149, 5745MHz	1.421 ms	1.459 ms	1	97.4	N/A	N/A
Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 157, 5785MHz	1.421 ms	1.459 ms	1	97.4	N/A	N/A
Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 165, 5825MHz	1.421 ms	1.459 ms	1	97.4	N/A	N/A
High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps						
Low Channel 36, 5180MHz	248.5 us	286.9 us	1	86.6	N/A	N/A
Low Channel 36, 5180MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 48, 5240MHz	248.6 us	286.7 us	1	86.7	N/A	N/A
High Channel 48, 5240MHz	N/A	N/A	5	N/A	N/A	N/A
Low Channel 149, 5745MHz	248.6 us	286.7 us	1	86.7	N/A	N/A
Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 157, 5785MHz	248.5 us	286.9 us	1	86.6	N/A	N/A
Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 165, 5825MHz	248.6 us	286.7 us	1	86.7	N/A	N/A
High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps						
Low Channel 36, 5180MHz	172.8 us	210.7 us	1	82	N/A	N/A
Low Channel 36, 5180MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 48, 5240MHz	172.9 us	210.7 us	1	82.1	N/A	N/A
High Channel 48, 5240MHz	N/A	N/A	5	N/A	N/A	N/A
Low Channel 149, 5745MHz	172.8 us	210.9 us	1	81.9	N/A	N/A
Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 157, 5785MHz	172.6 us	210.7 us	1	81.9	N/A	N/A
Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 165, 5825MHz	172.6 us	210.7 us	1	81.9	N/A	N/A
High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0						
Low Channel 36, 5180MHz	1.329 ms	1.367 ms	1	97.2	N/A	N/A
Low Channel 36, 5180MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 48, 5240MHz	1.329 ms	1.367 ms	1	97.2	N/A	N/A
High Channel 48, 5240MHz	N/A	N/A	5	N/A	N/A	N/A
Low Channel 149, 5745MHz	1.329 ms	1.367 ms	1	97.2	N/A	N/A
Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 157, 5785MHz	1.329 ms	1.367 ms	1	97.2	N/A	N/A
Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 165, 5825MHz	1.328 ms	1.367 ms	1	97.2	N/A	N/A
High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7						
Low Channel 36, 5180MHz	160.7 us	198.8 us	1	80.8	N/A	N/A
Low Channel 36, 5180MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 48, 5240MHz	160.7 us	199 us	1	80.8	N/A	N/A
High Channel 48, 5240MHz	N/A	N/A	5	N/A	N/A	N/A
Low Channel 149, 5745MHz	160.7 us	198.5 us	1	81	N/A	N/A
Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel 157, 5785MHz	160.7 us	198.8 us	1	80.8	N/A	N/A
Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel 165, 5825MHz	160.7 us	198.8 us	1	80.8	N/A	N/A
High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A

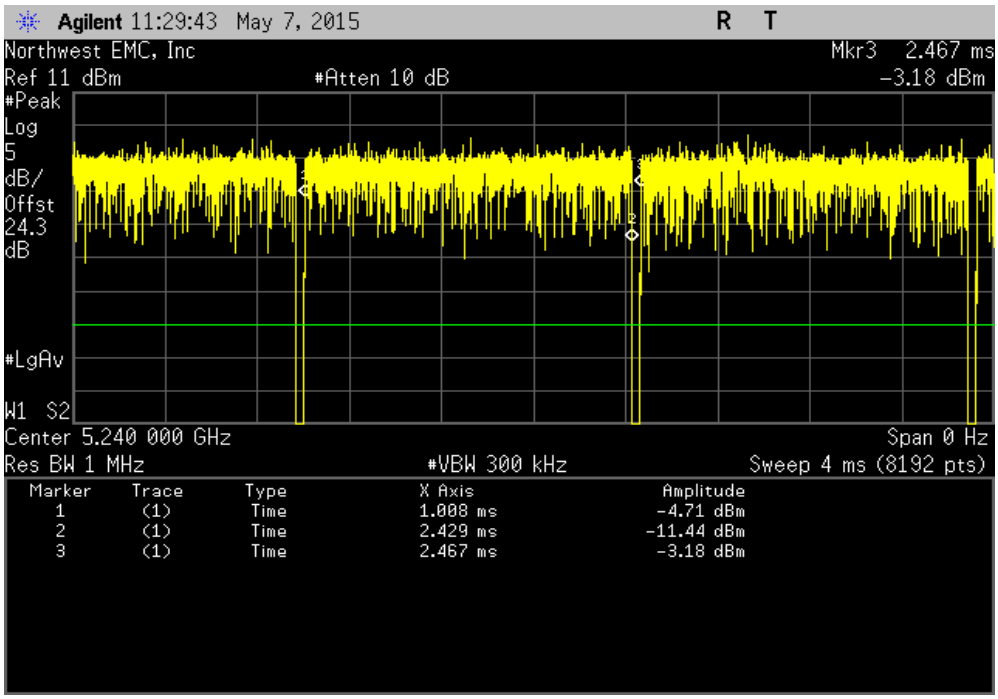
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.42 ms	1.459 ms	1	97.4	N/A	N/A



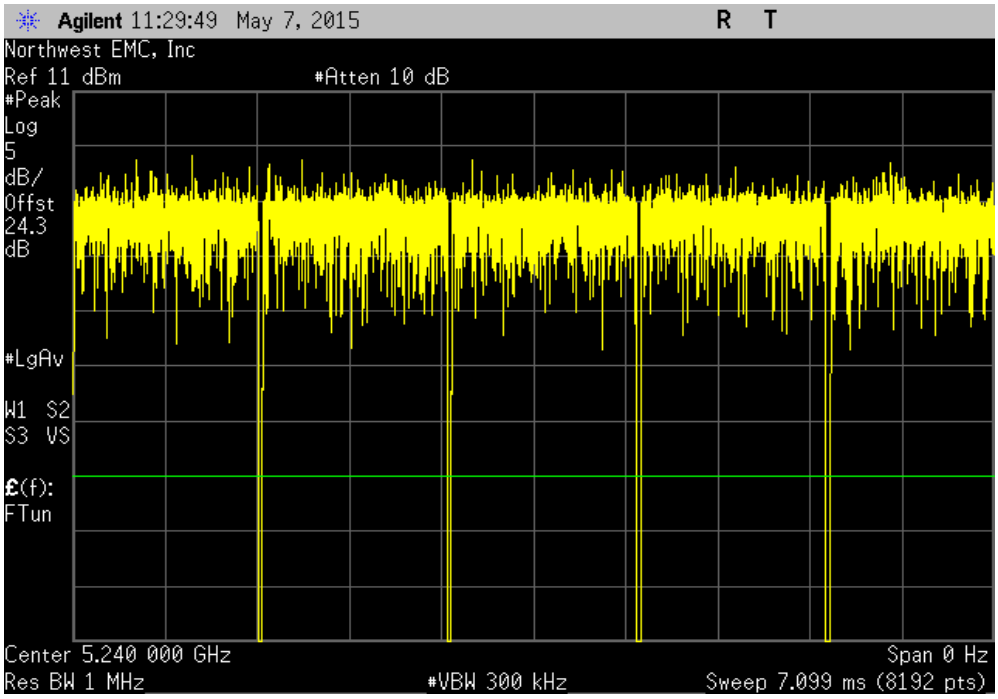
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



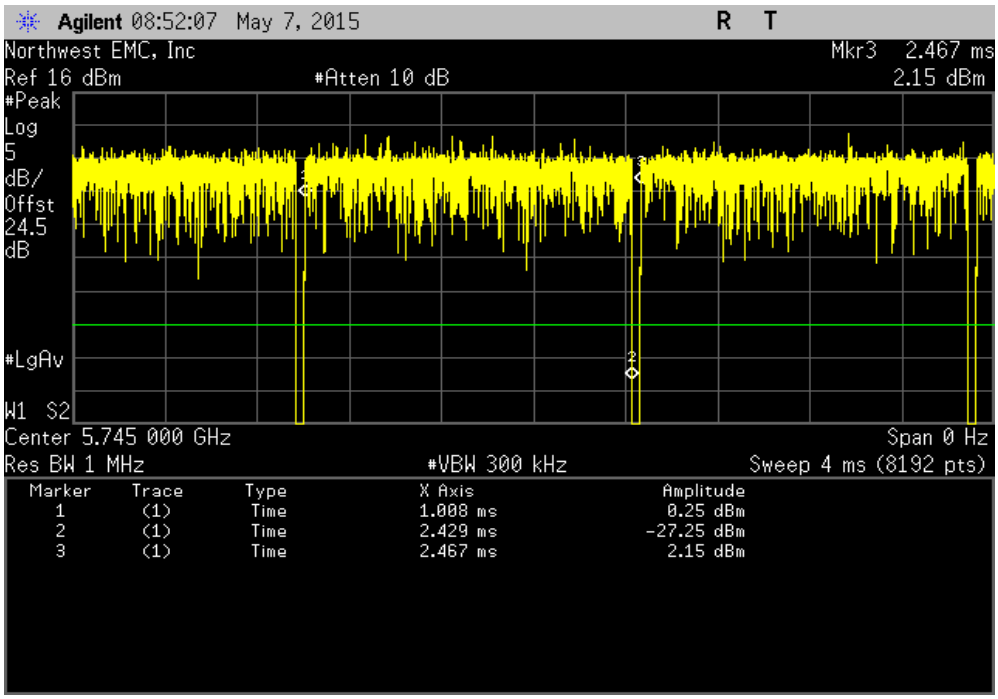
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A



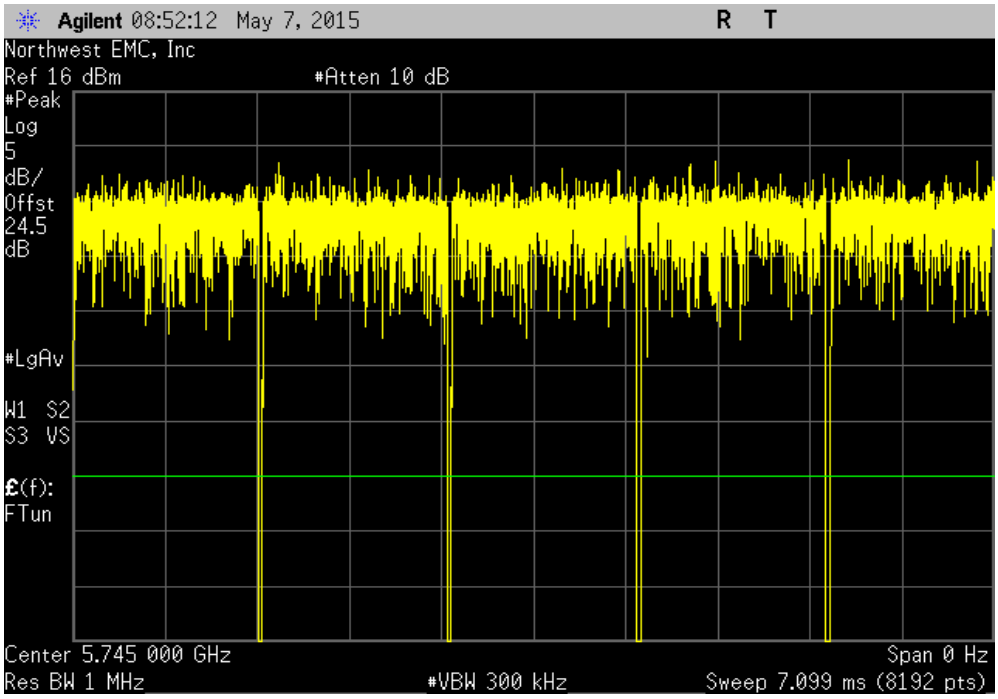
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



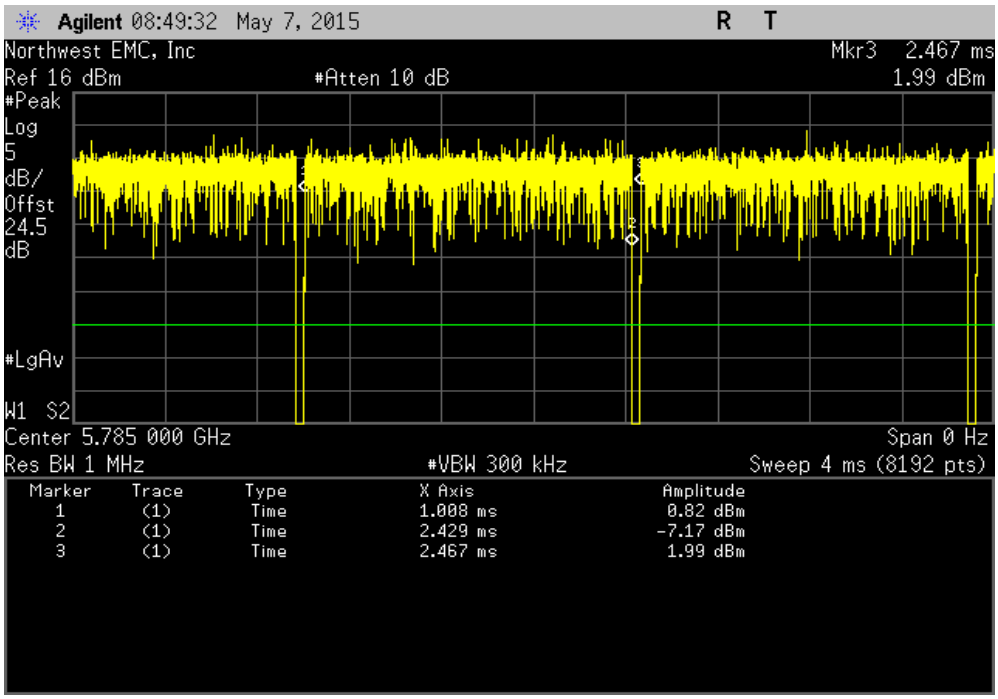
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A



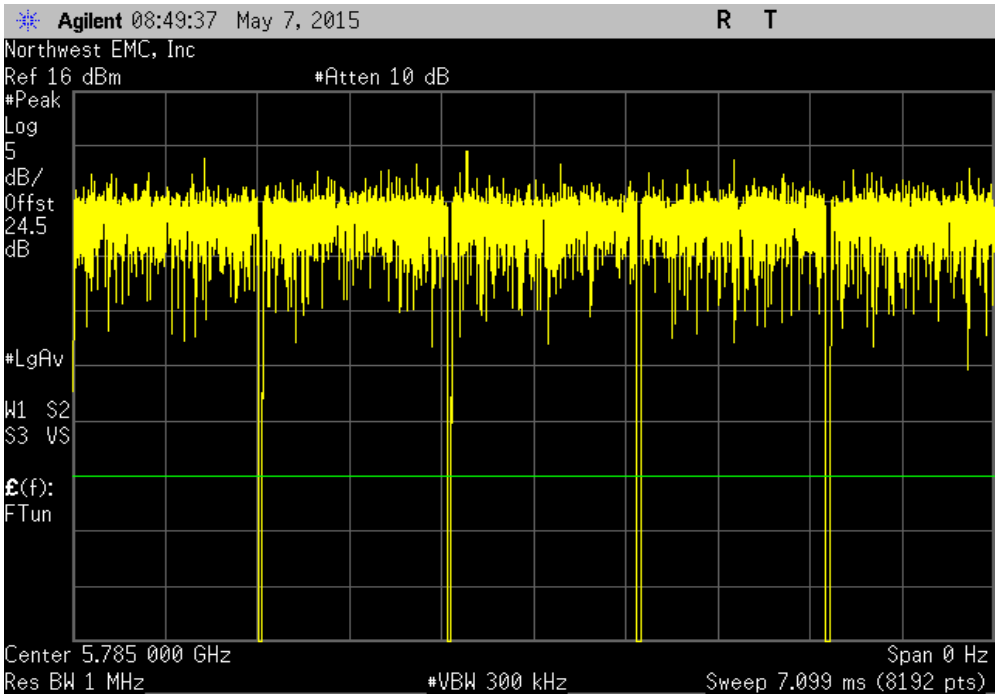
5 GHz Antenna Port, 802.11(a) 6 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



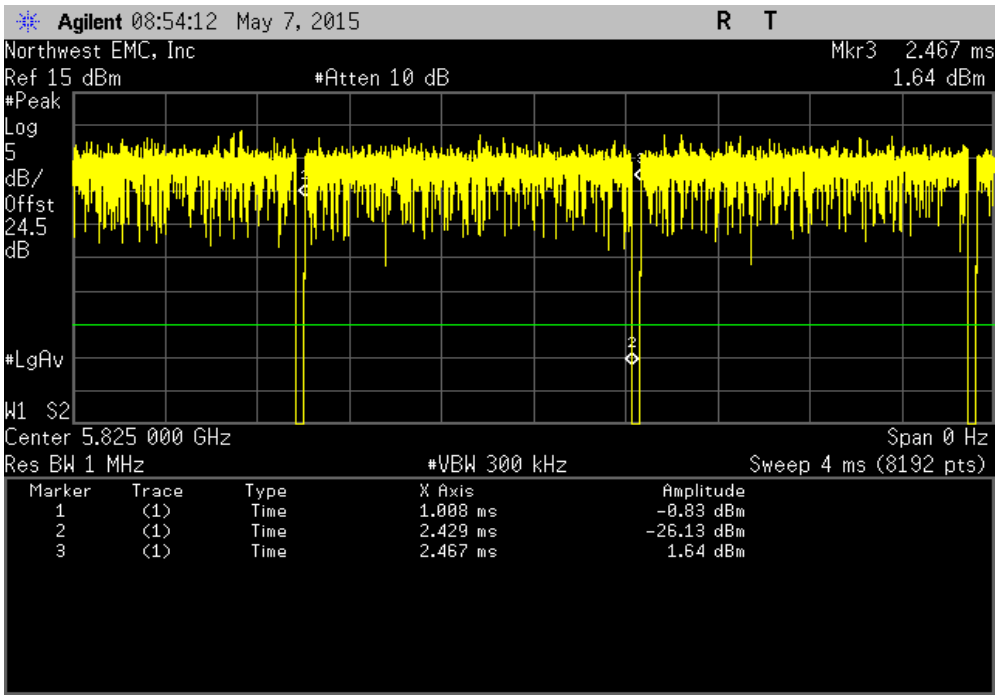
5 GHz Antenna Port, 802.11(a) 6 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A



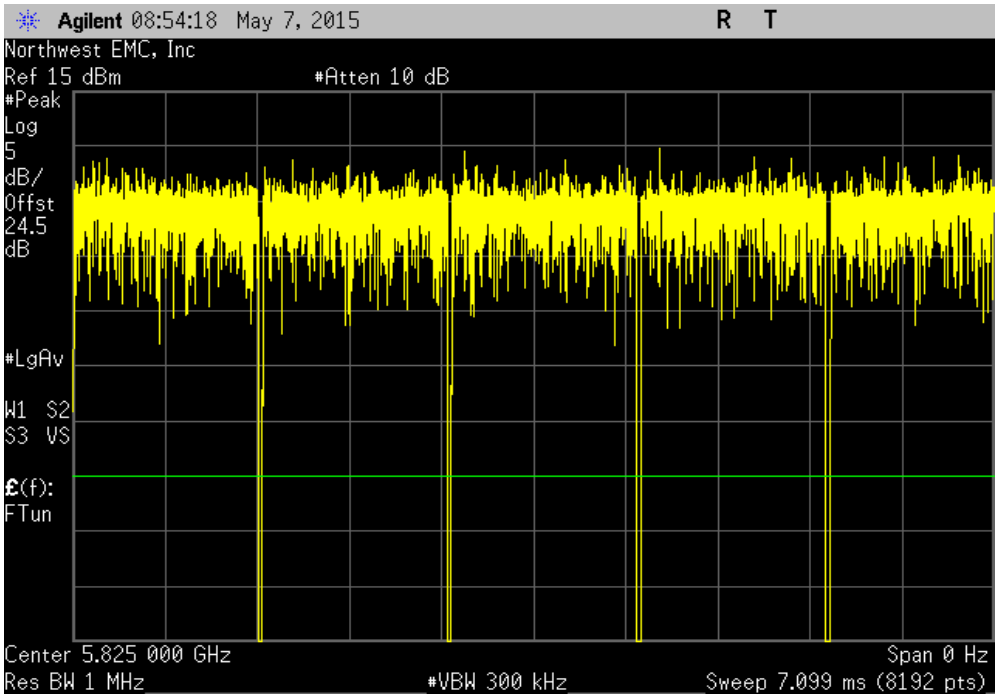
5 GHz Antenna Port, 802.11(a) 6 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



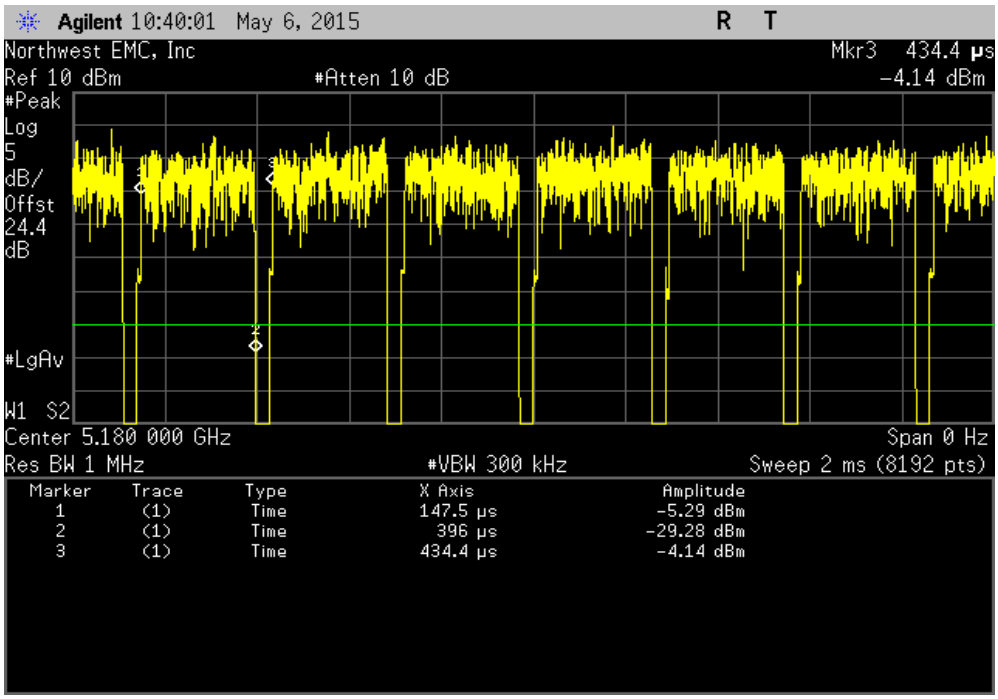
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	1.459 ms	1	97.4	N/A	N/A



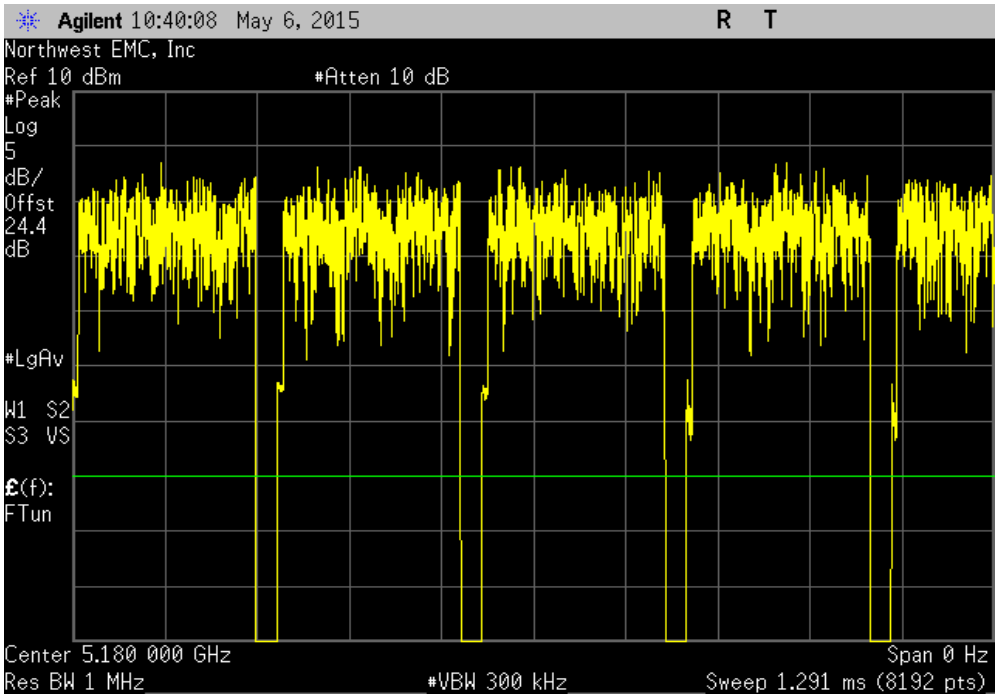
5 GHz Antenna Port, 802.11(a) 6 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



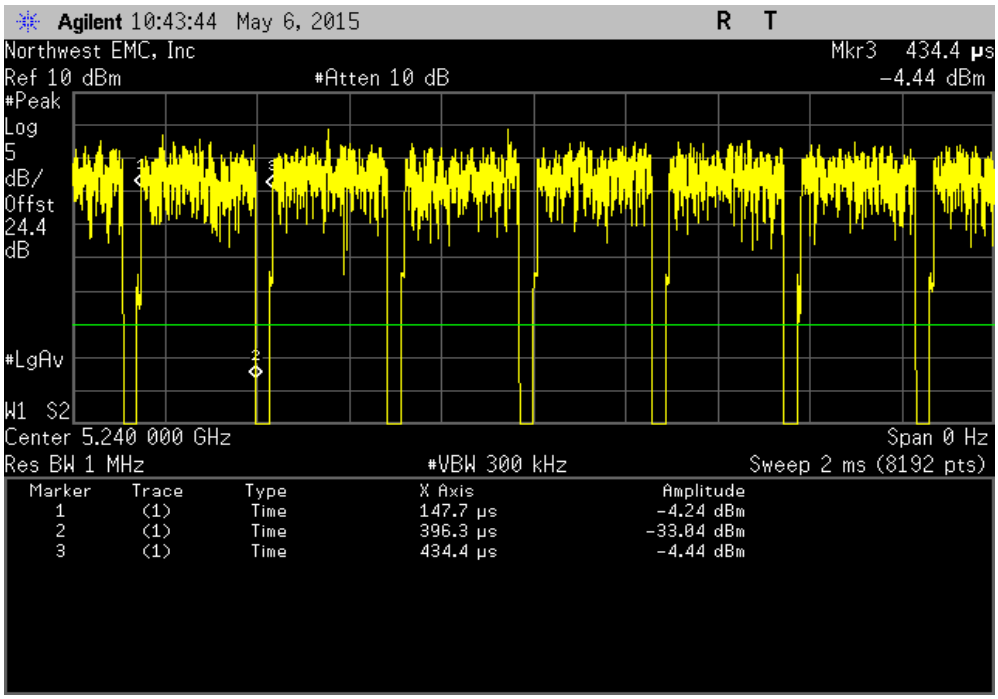
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.5 us	286.9 us	1	86.6	N/A	N/A



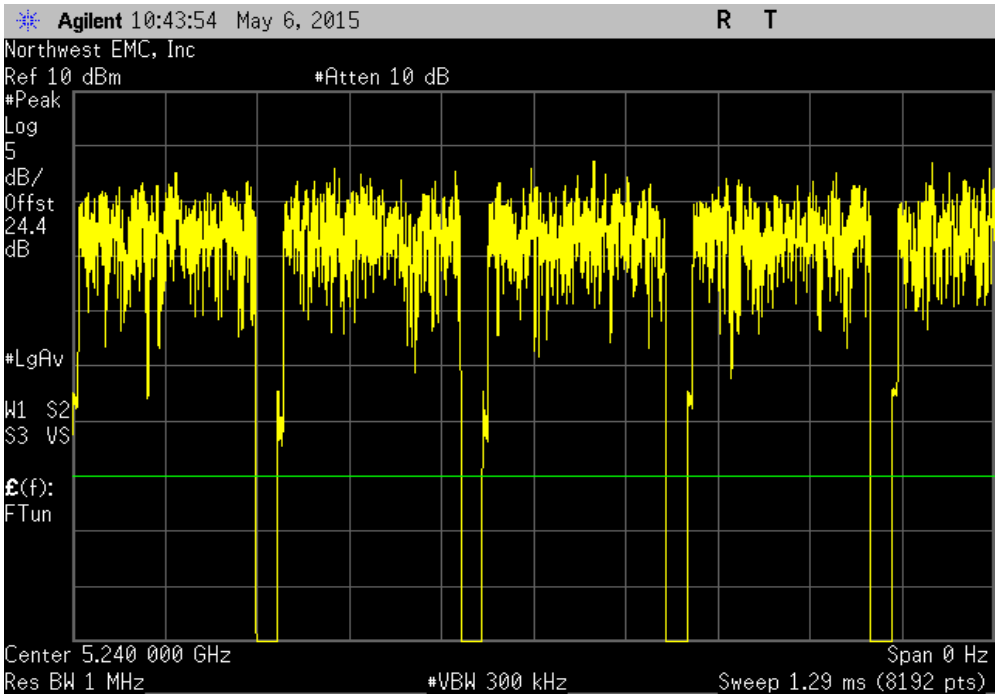
5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



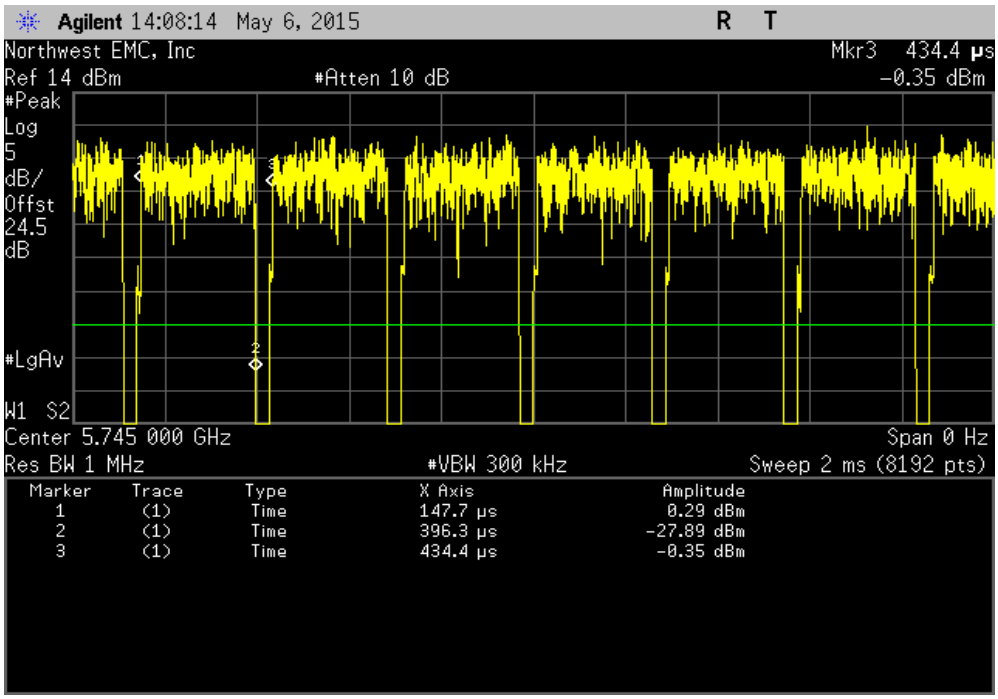
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.6 us	286.7 us	1	86.7	N/A	N/A



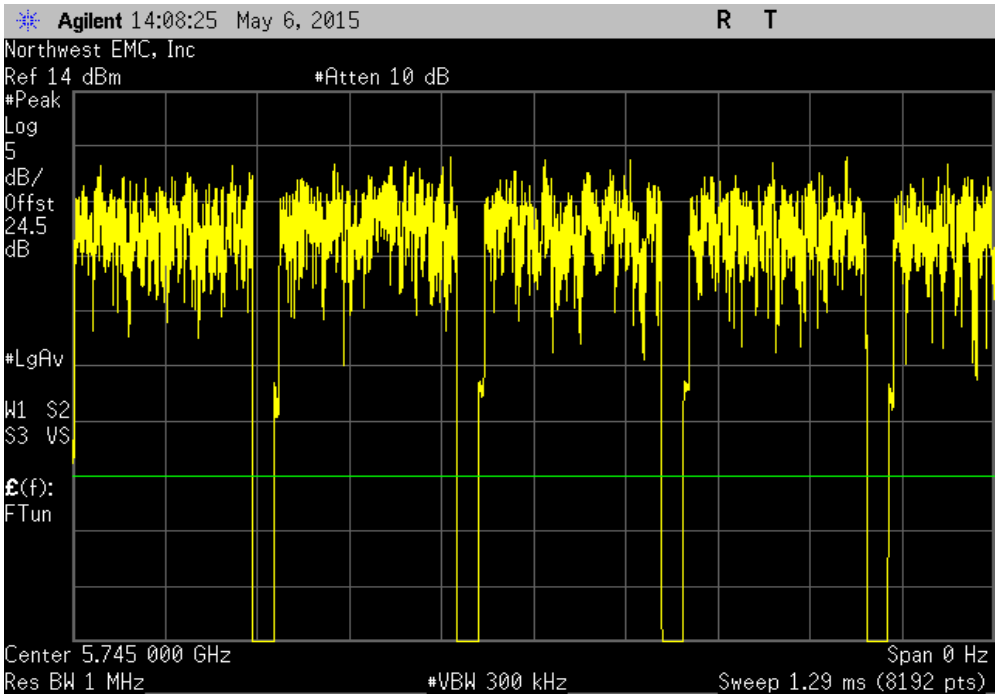
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.6 us	286.7 us	1	86.7	N/A	N/A



5 GHz Antenna Port, 802.11(a) 36 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

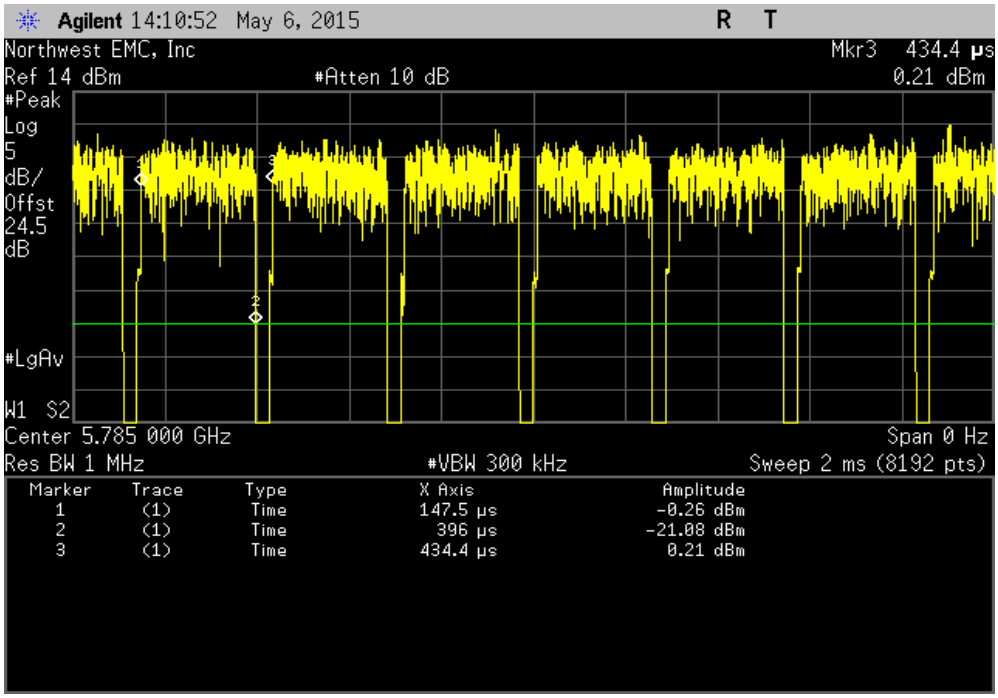


TRANSMISSION BURST DURATION

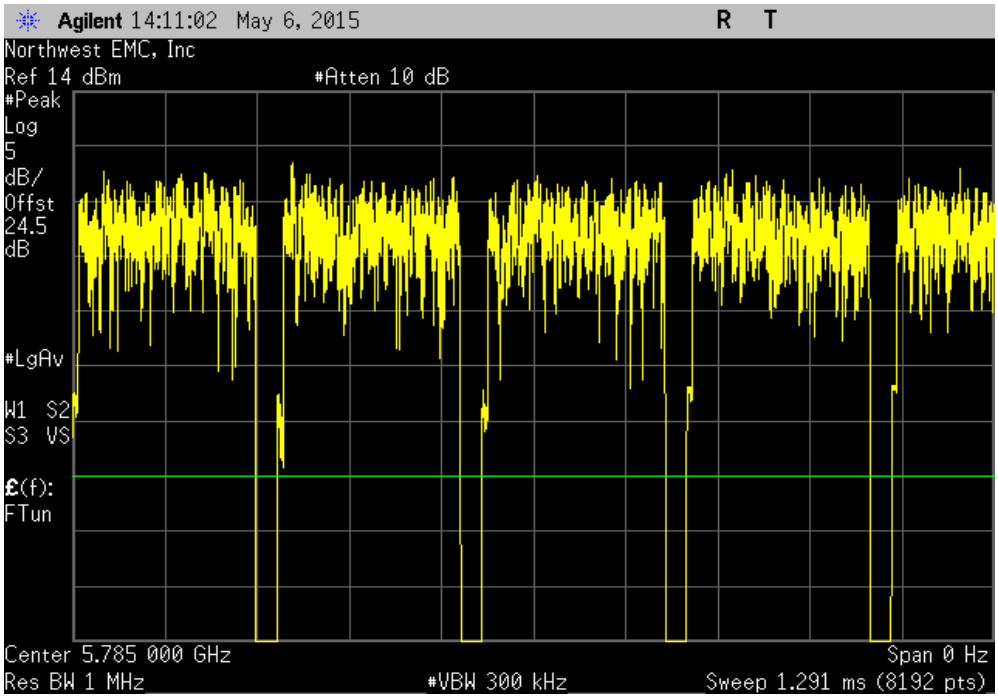
NORTHWEST EMC

XMit 2015.01.14

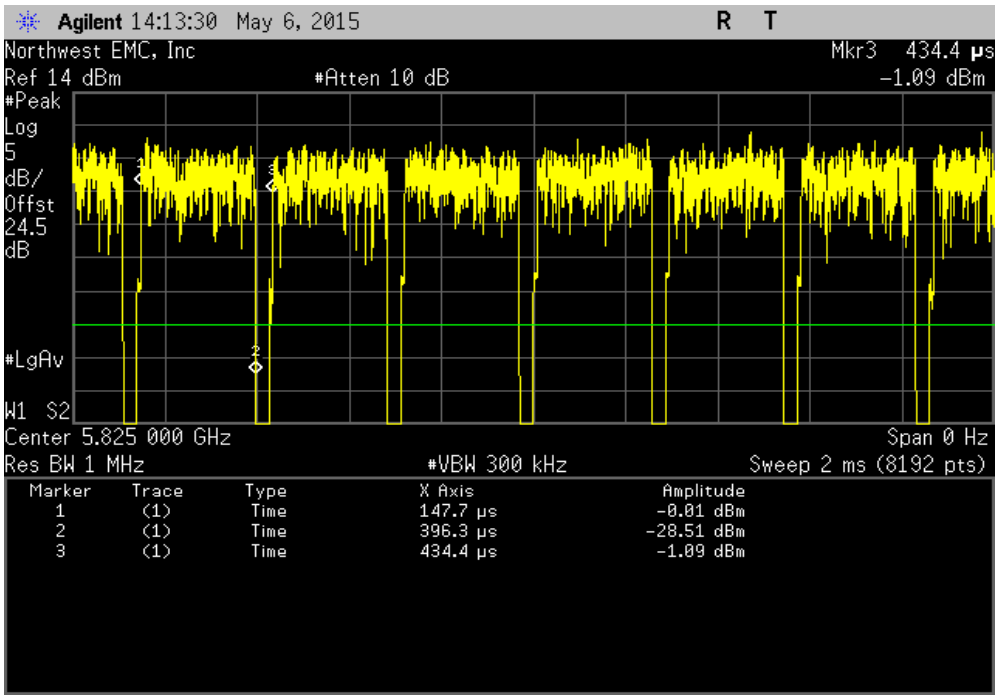
5 GHz Antenna Port, 802.11(a) 36 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.5 us	286.9 us	1	86.6	N/A	N/A



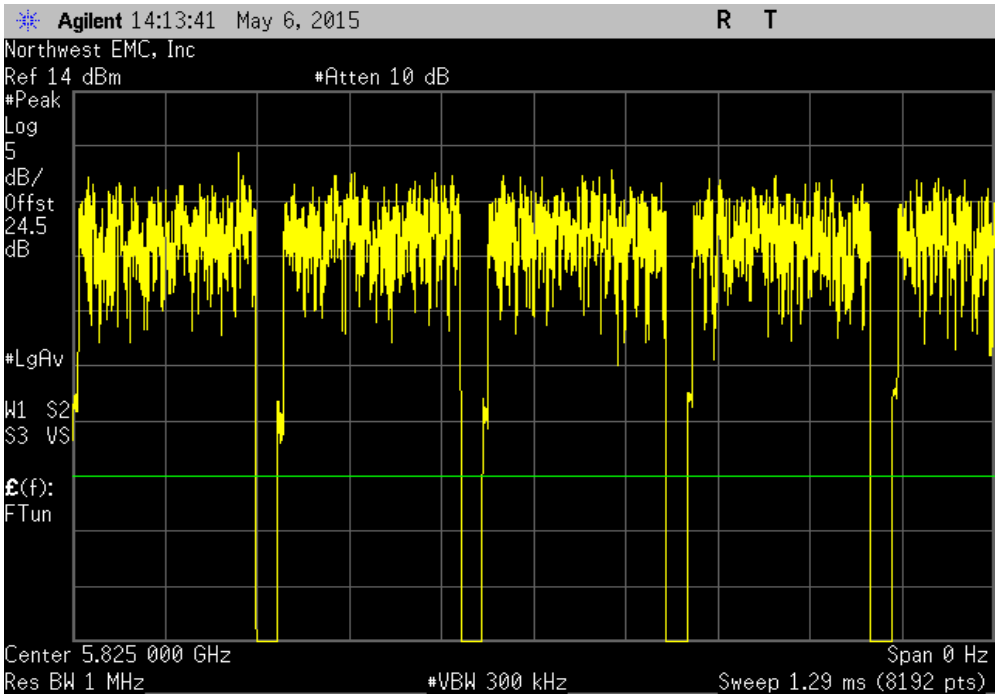
5 GHz Antenna Port, 802.11(a) 36 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



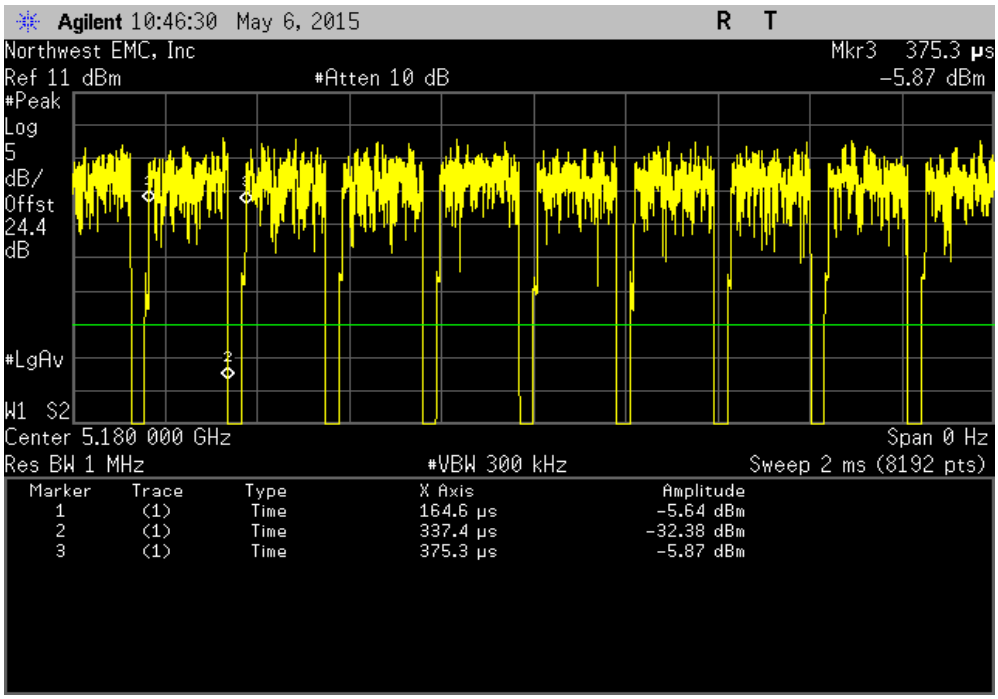
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.6 us	286.7 us	1	86.7	N/A	N/A



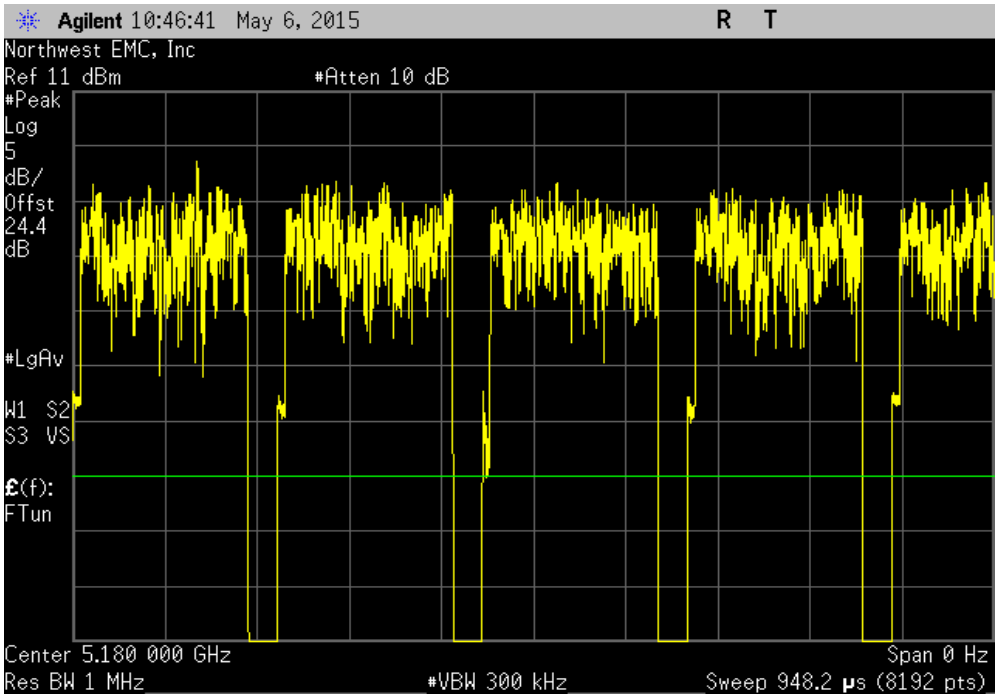
5 GHz Antenna Port, 802.11(a) 36 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



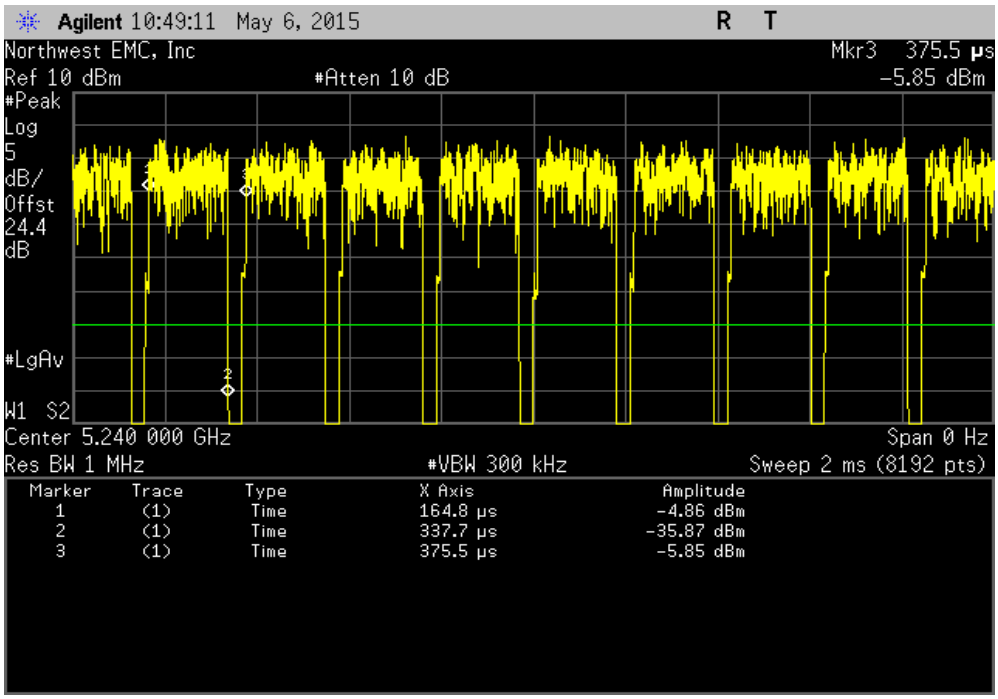
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.8 us	210.7 us	1	82	N/A	N/A



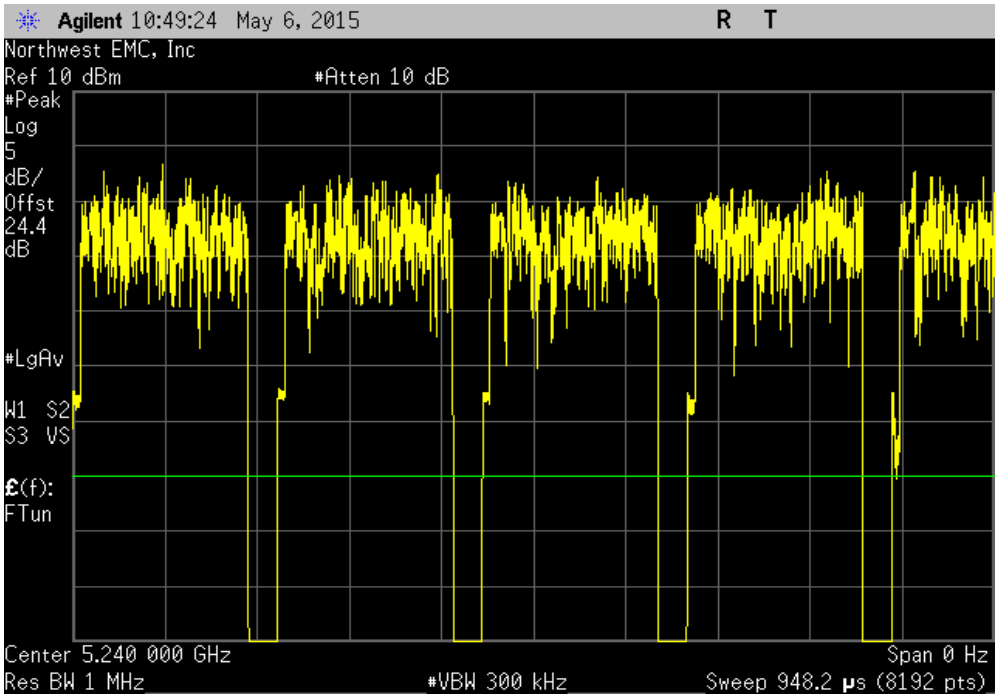
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



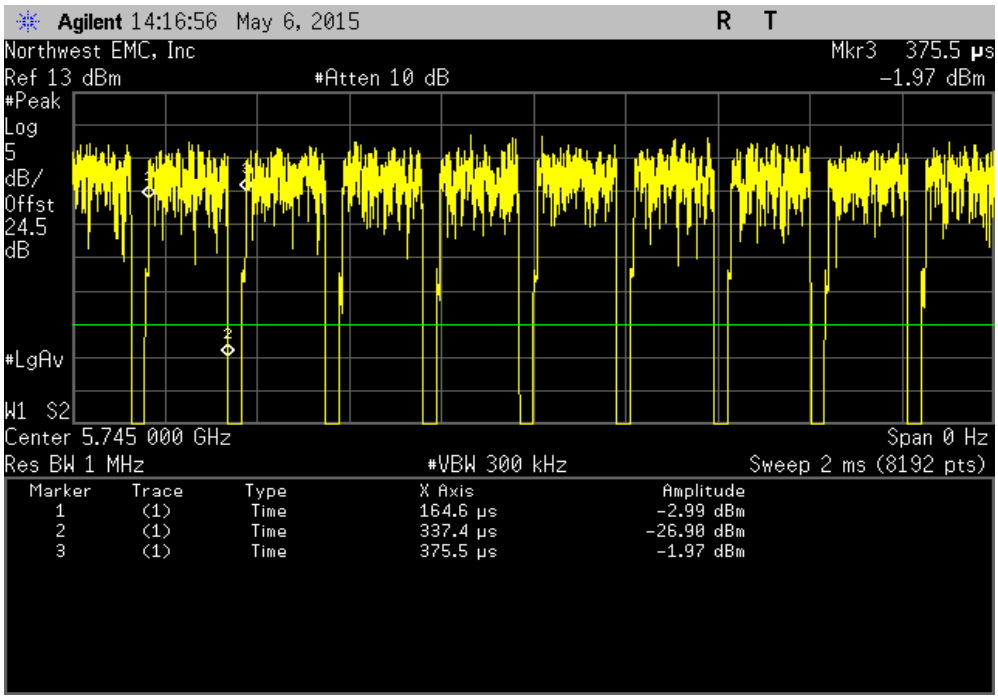
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.9 us	210.7 us	1	82.1	N/A	N/A



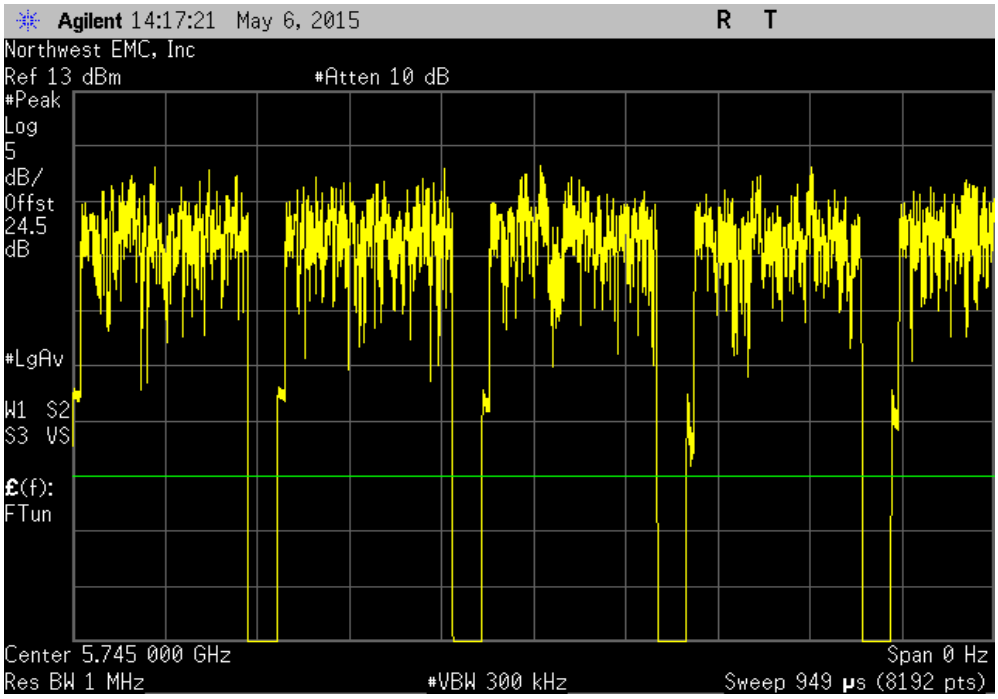
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



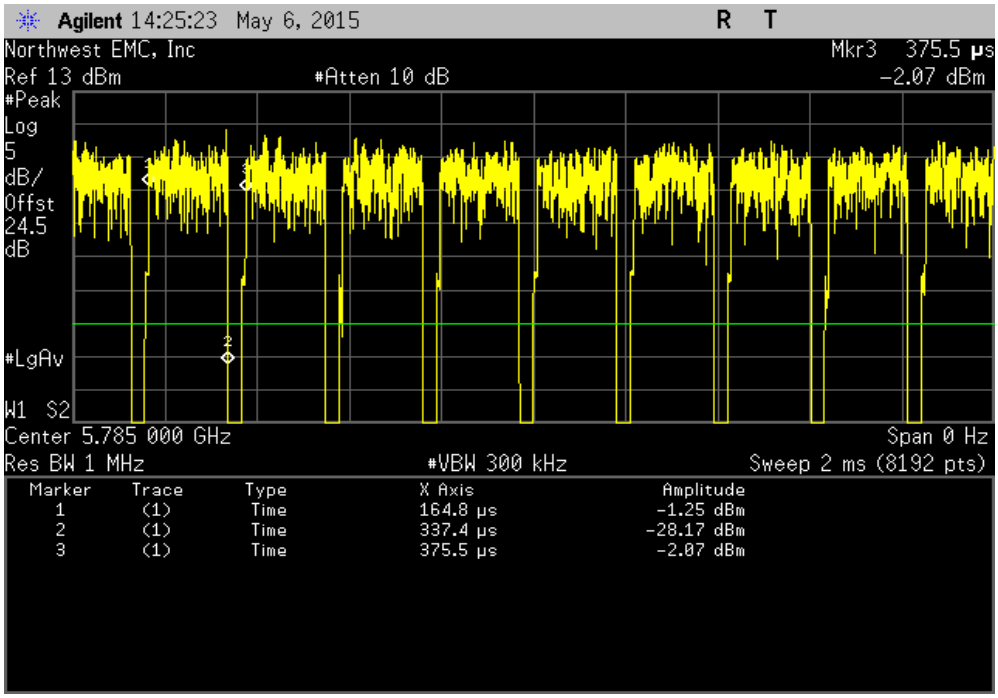
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.8 us	210.9 us	1	81.9	N/A	N/A



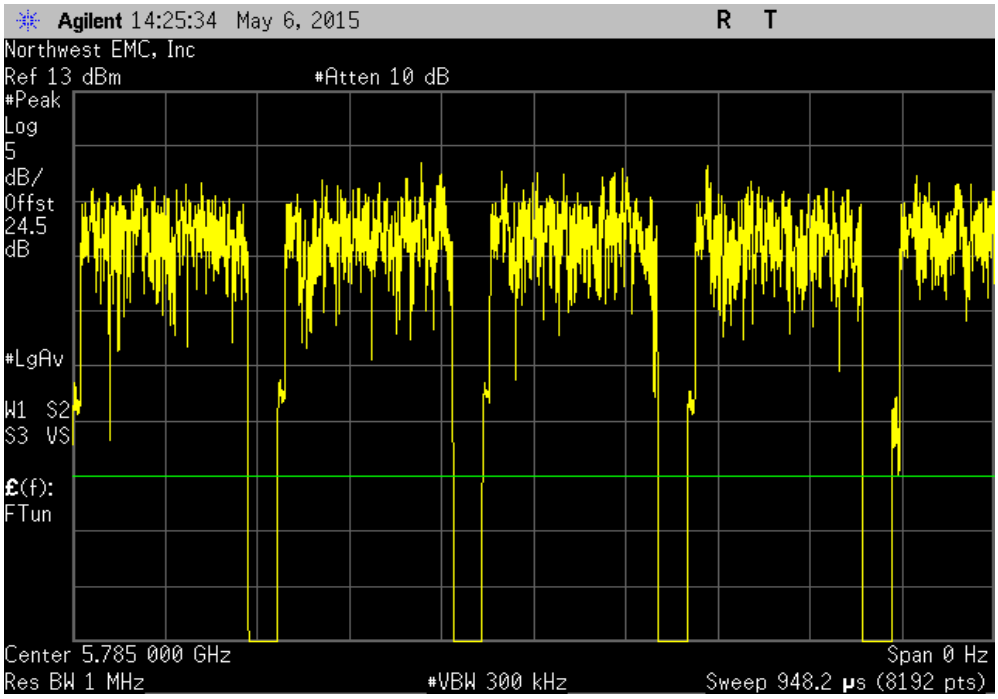
5 GHz Antenna Port, 802.11(a) 54 Mbps, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



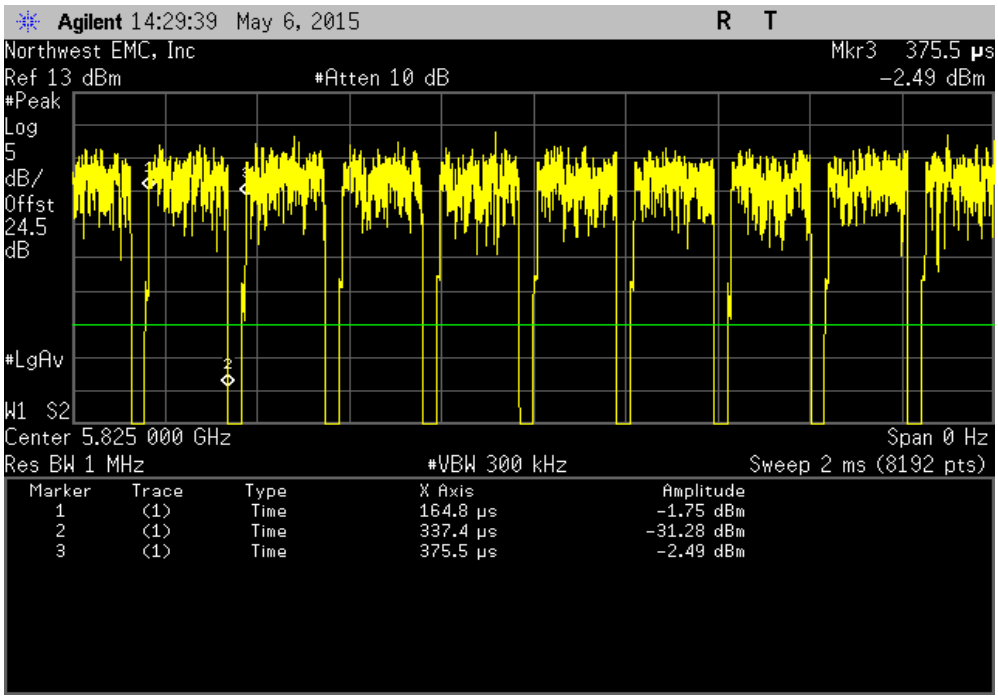
5 GHz Antenna Port, 802.11(a) 54 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.6 us	210.7 us	1	81.9	N/A	N/A



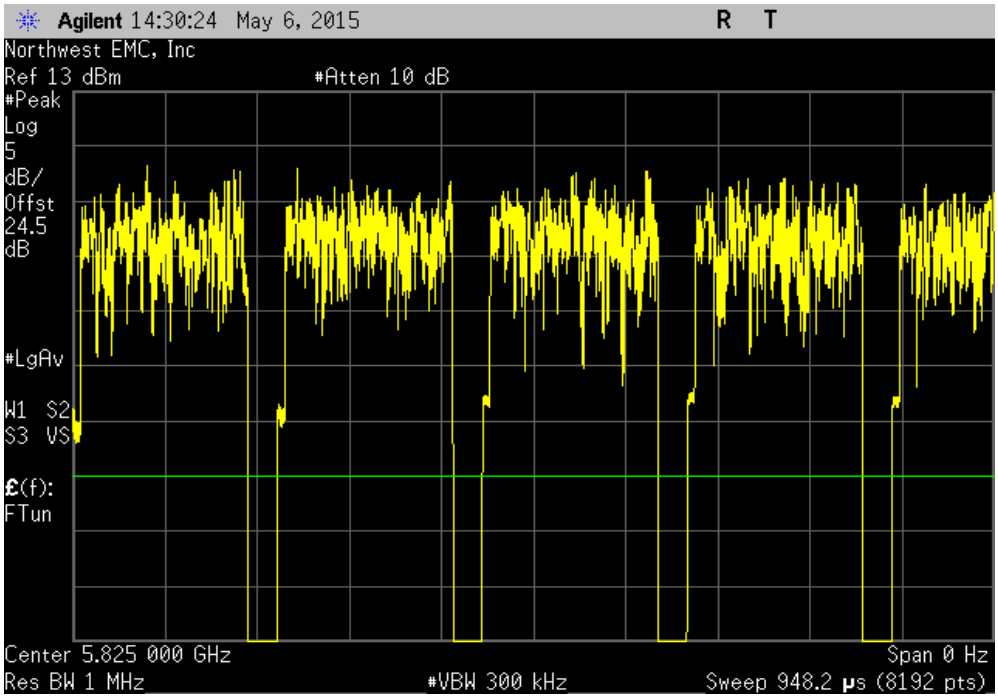
5 GHz Antenna Port, 802.11(a) 54 Mbps, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



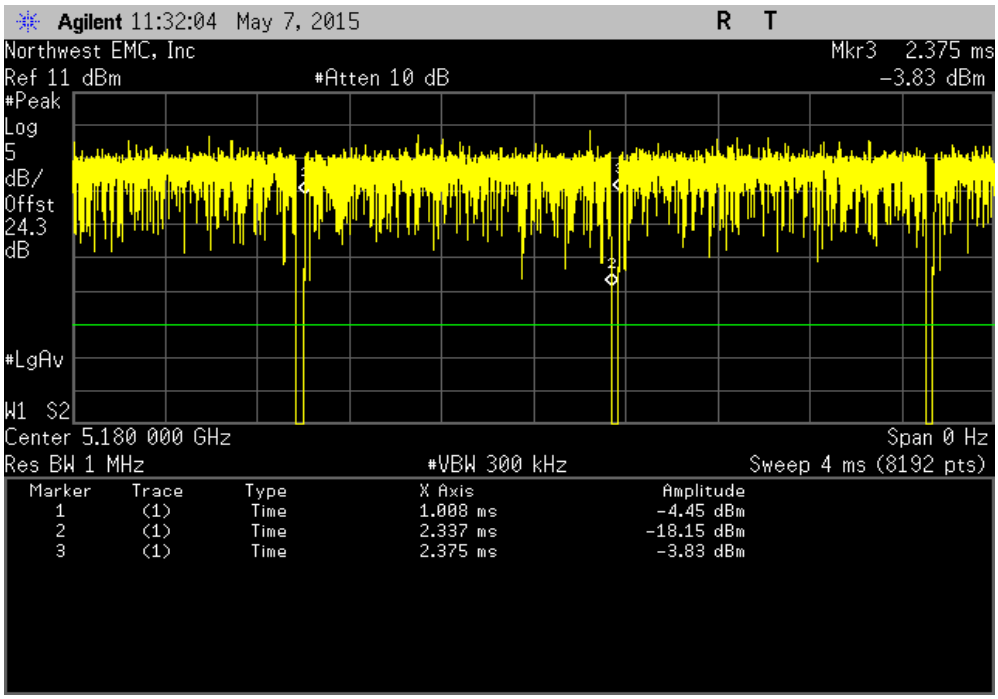
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.6 us	210.7 us	1	81.9	N/A	N/A



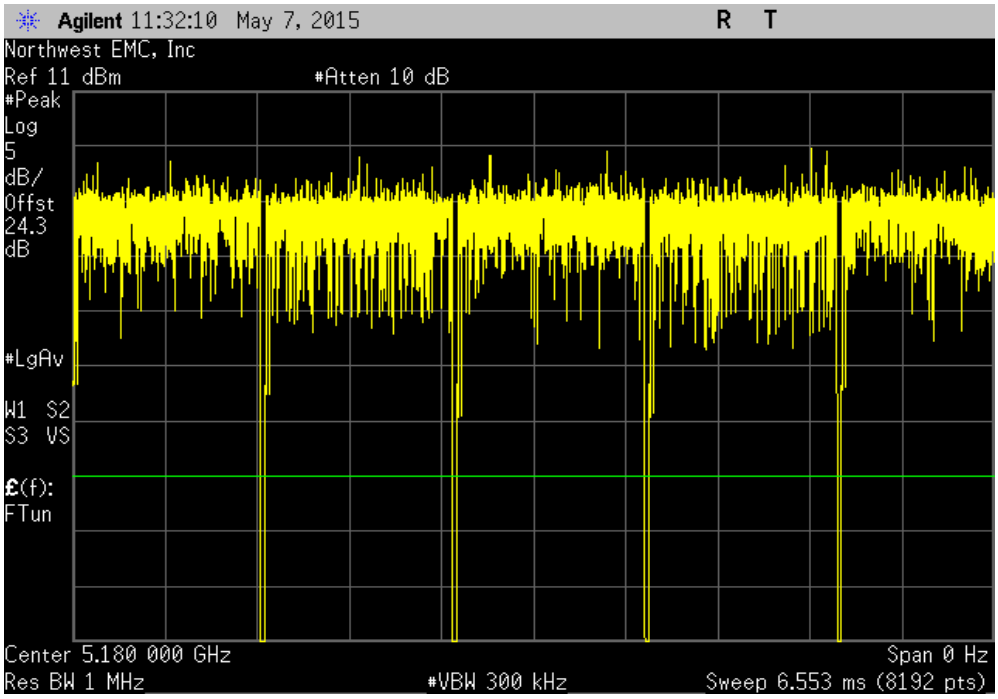
5 GHz Antenna Port, 802.11(a) 54 Mbps, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



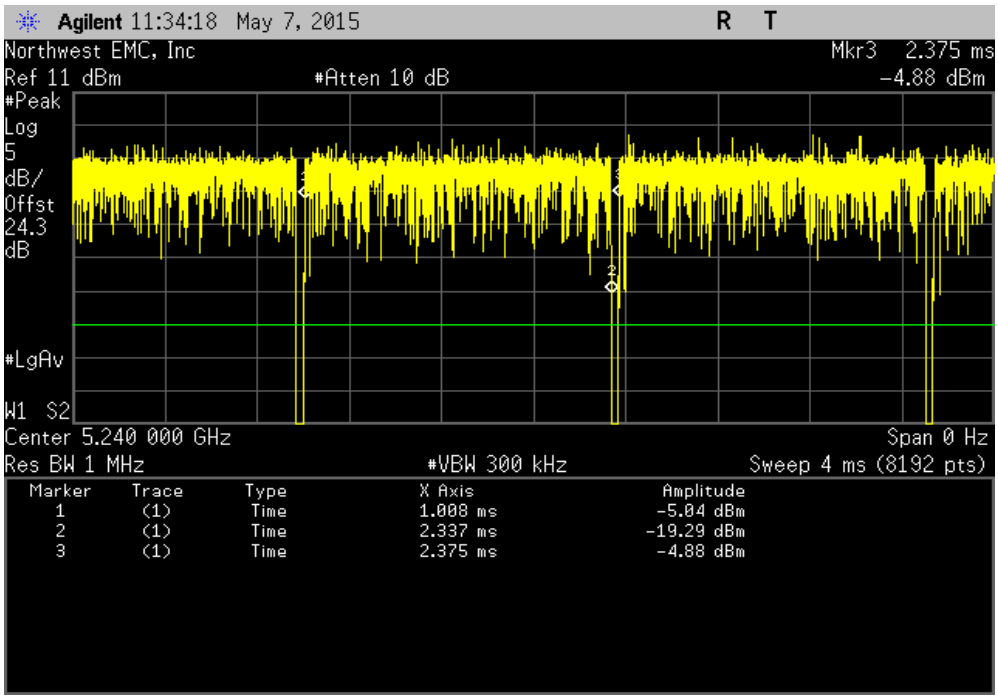
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A



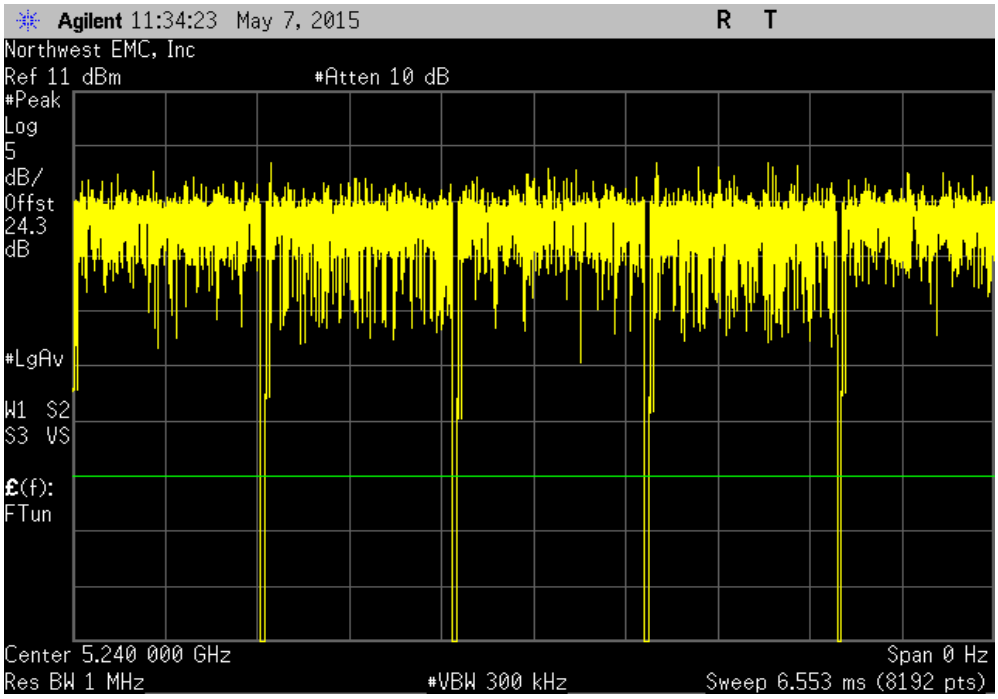
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS0, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS0, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



TRANSMISSION BURST DURATION

NORTHWEST EMC

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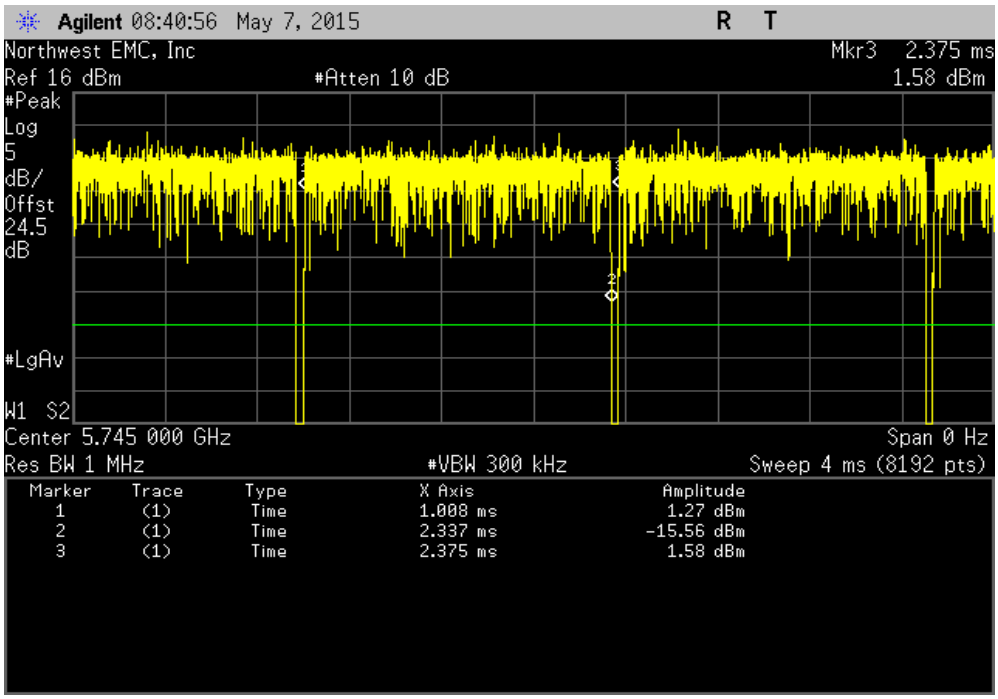
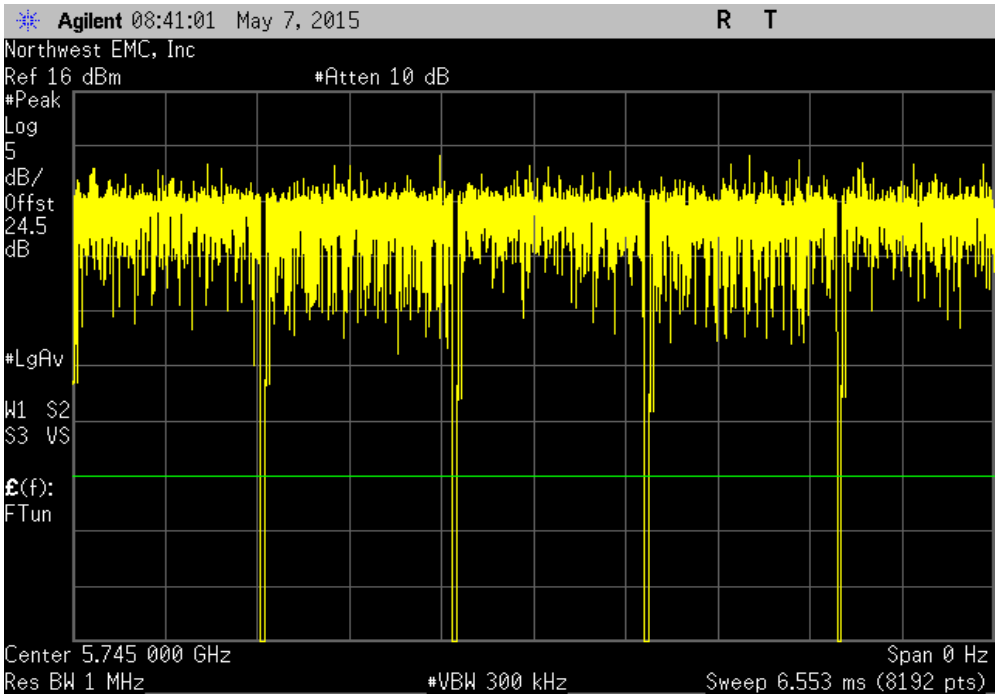
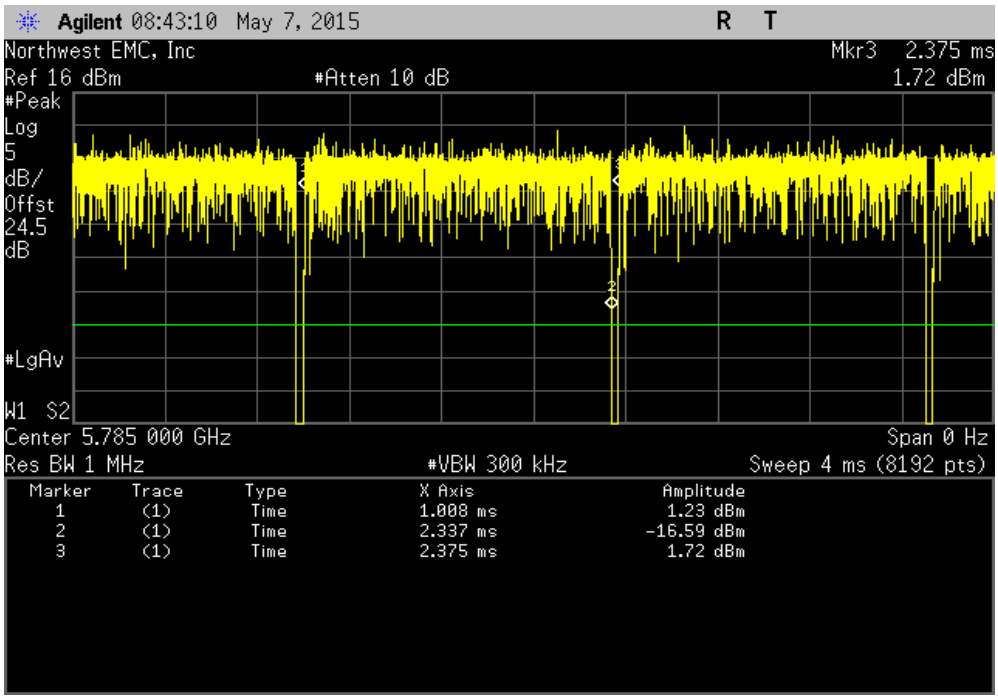
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A



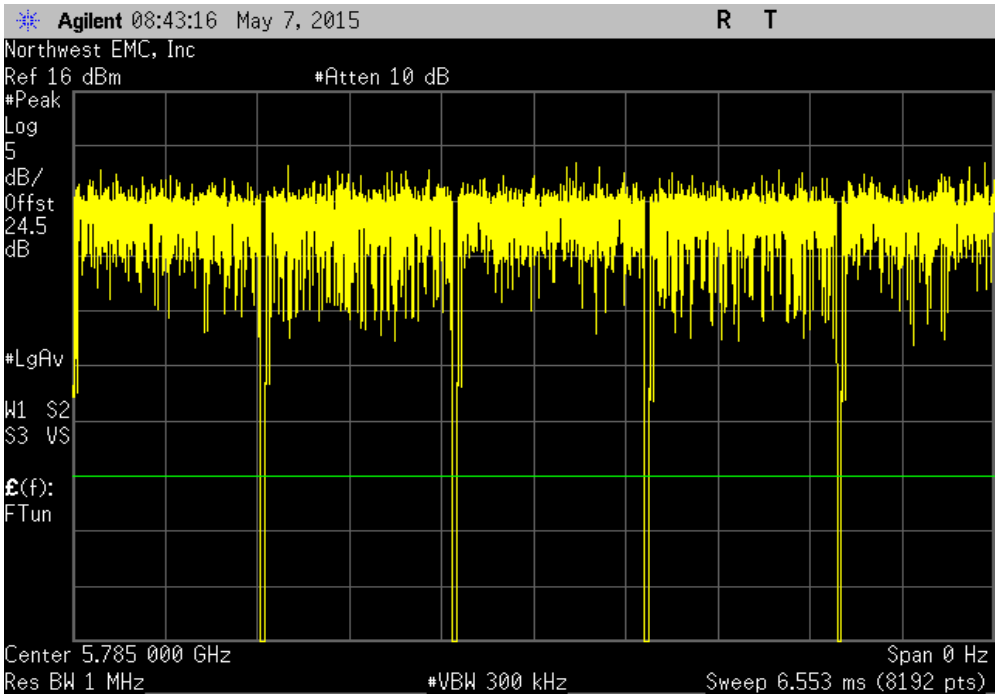
5 GHz Antenna Port, 802.11(n) MCS0, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



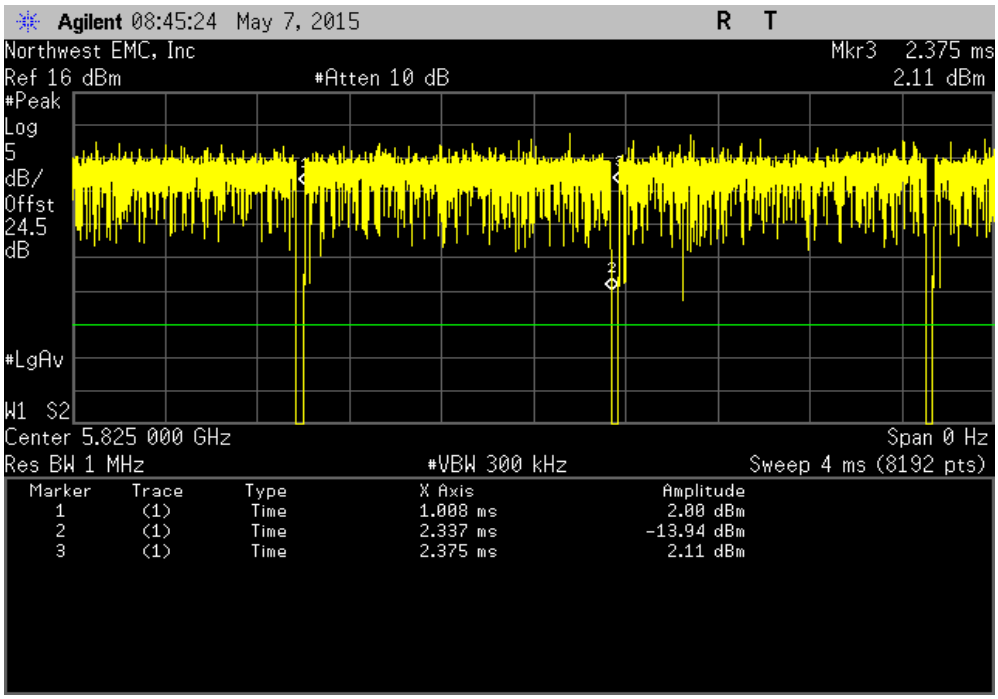
5 GHz Antenna Port, 802.11(n) MCS0, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	1.367 ms	1	97.2	N/A	N/A



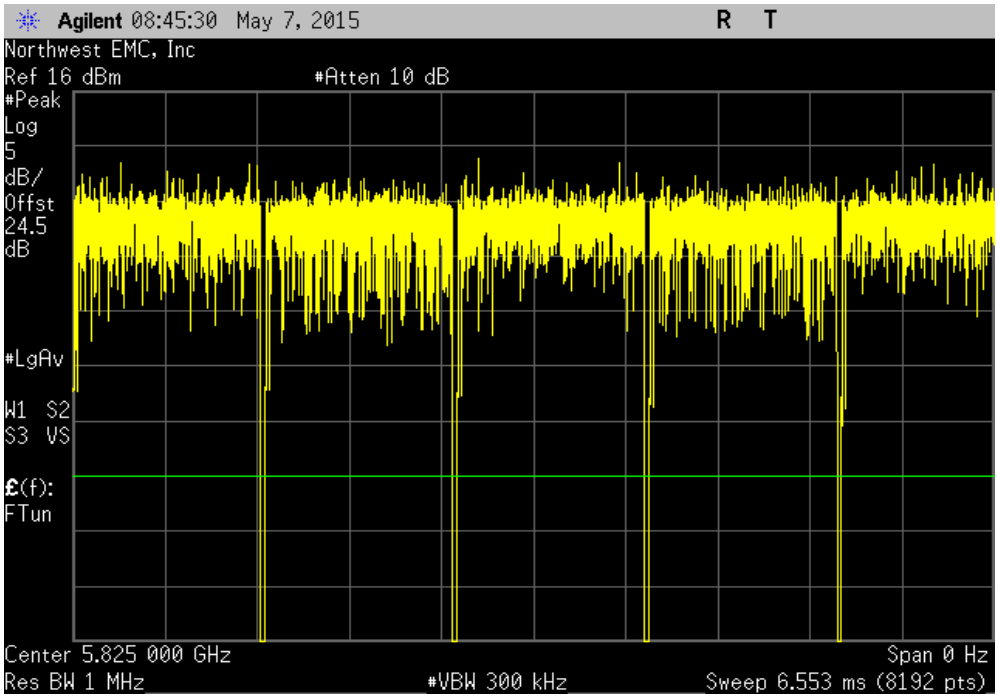
5 GHz Antenna Port, 802.11(n) MCS0, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



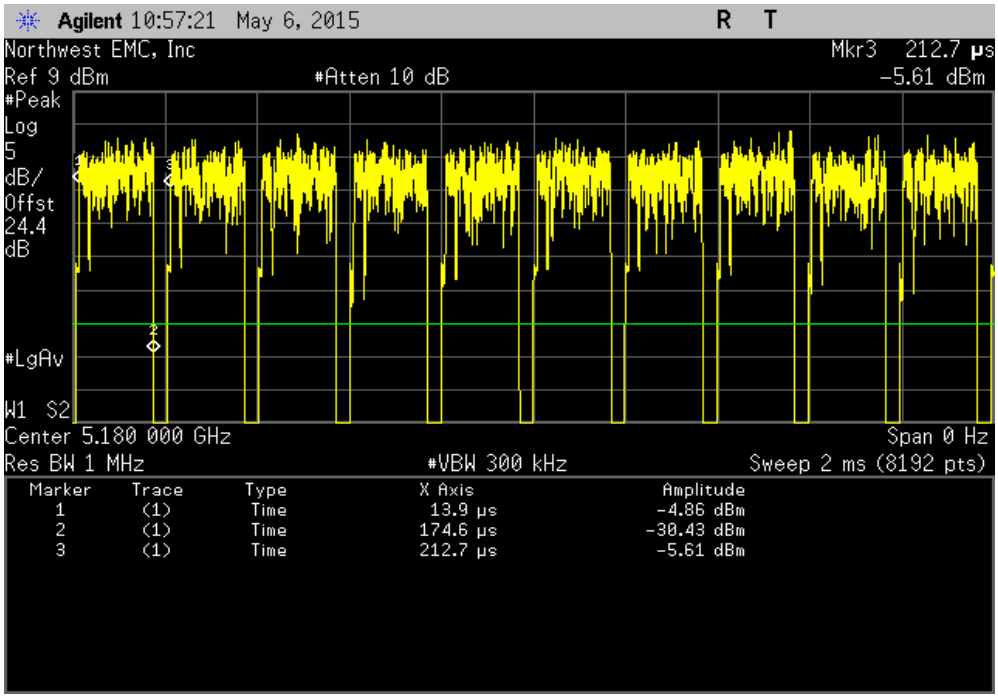
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.328 ms	1.367 ms	1	97.2	N/A	N/A



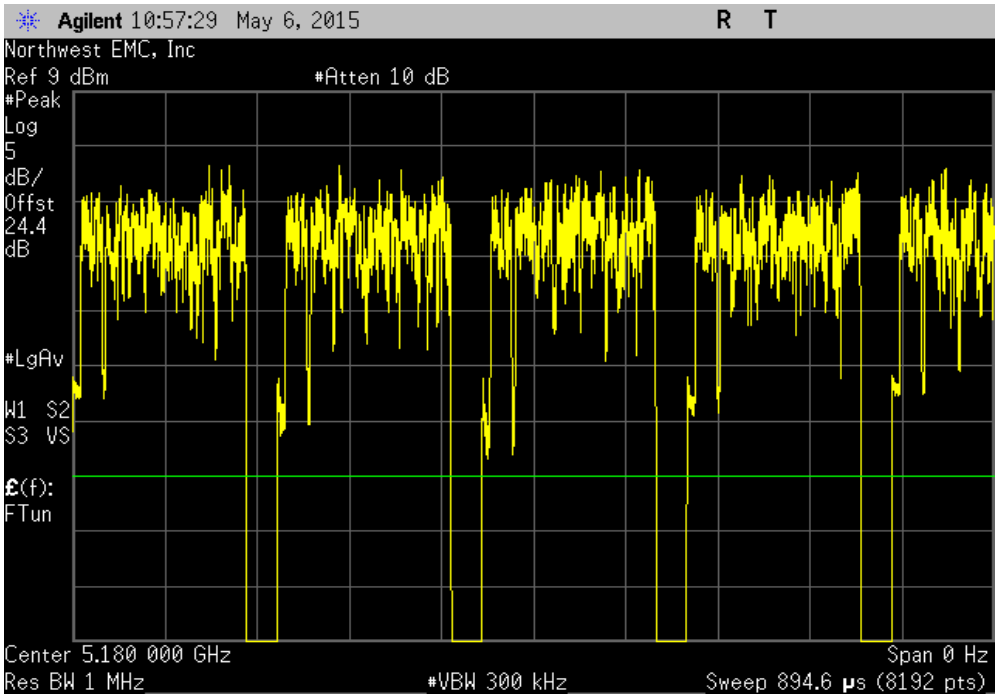
5 GHz Antenna Port, 802.11(n) MCS0, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.7 us	198.8 us	1	80.8	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 36, 5180MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



TRANSMISSION BURST DURATION

NORTHWEST EMC

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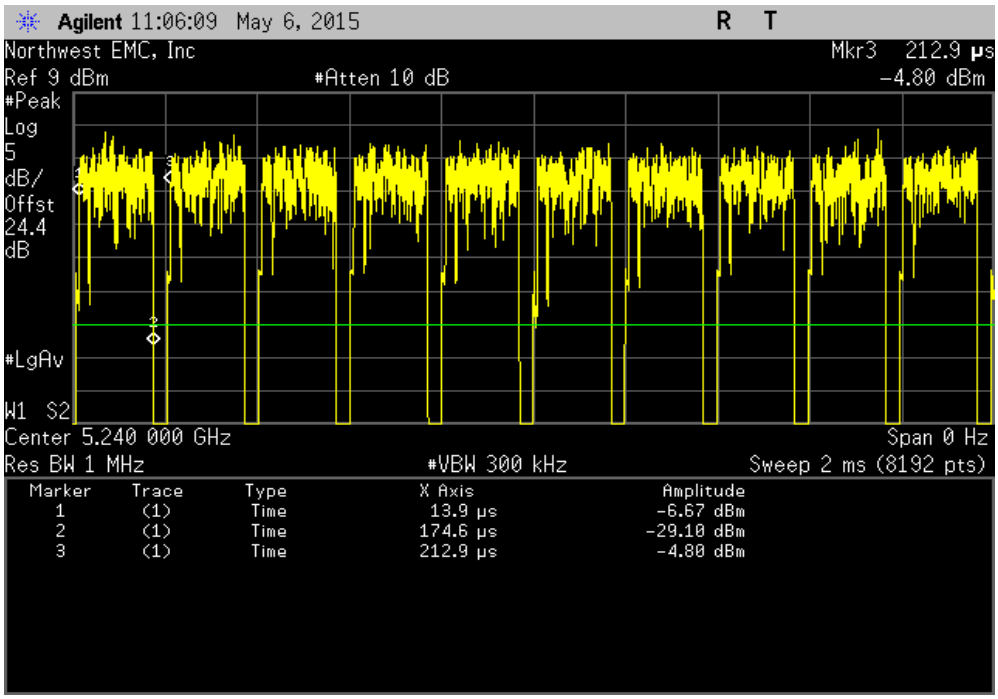
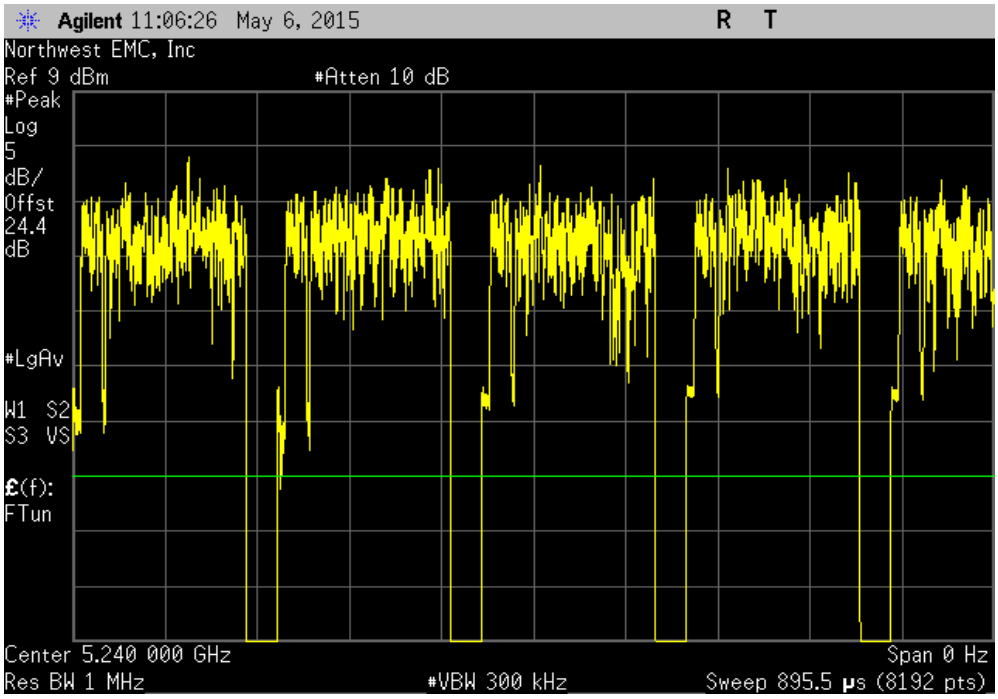
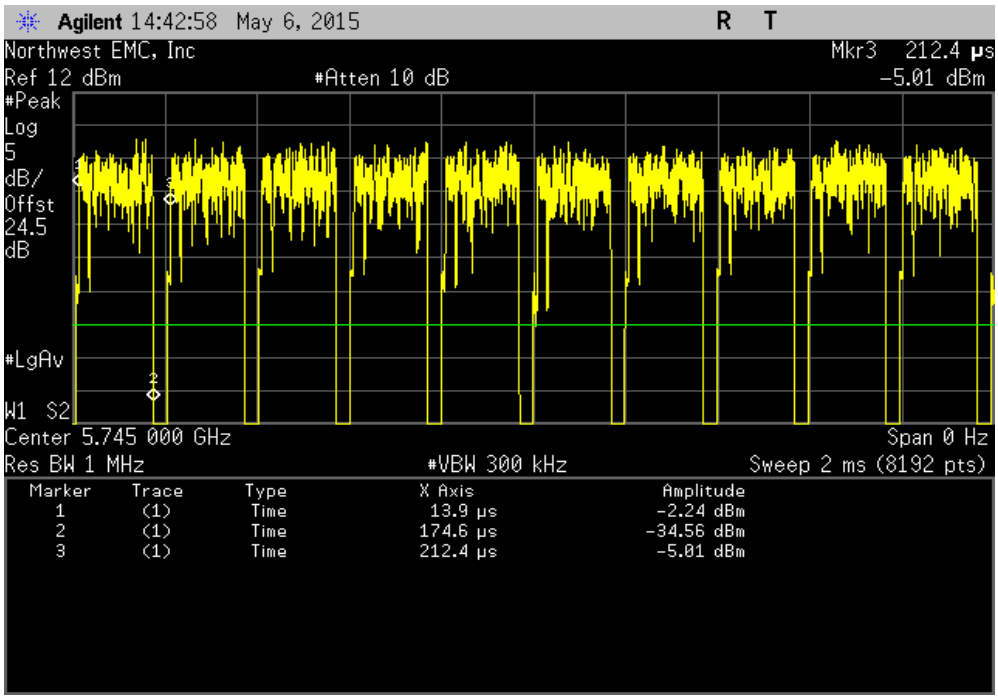
5 GHz Antenna Port, 802.11(n) MCS7, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.7 us	199 us	1	80.8	N/A	N/A



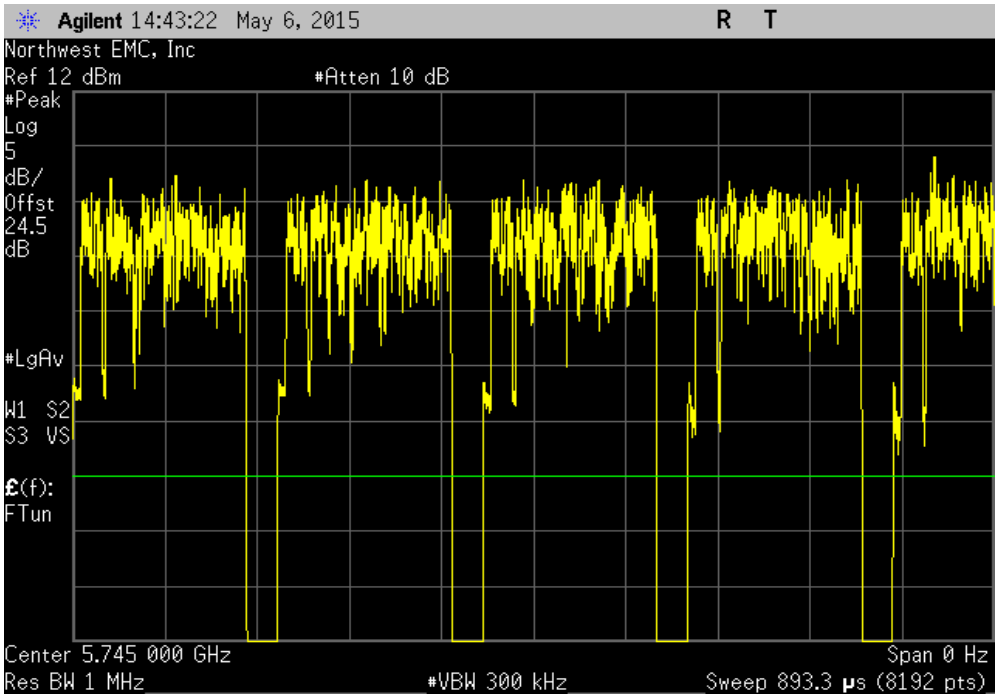
5 GHz Antenna Port, 802.11(n) MCS7, High Channel 48, 5240MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.7 us	198.5 us	1	81	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, Low Channel 149, 5745MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

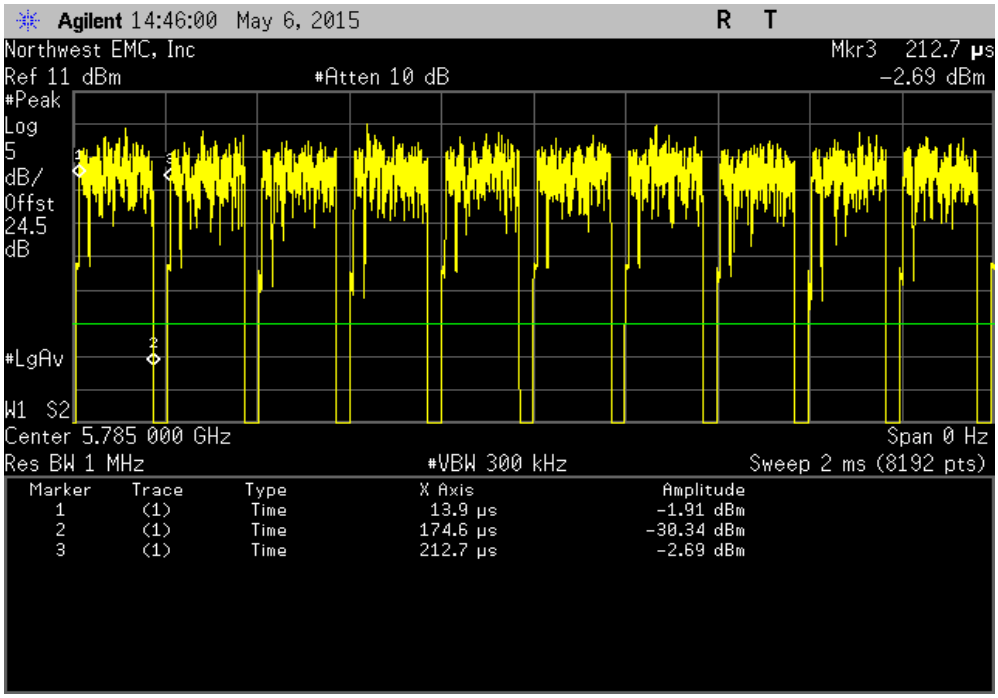


TRANSMISSION BURST DURATION

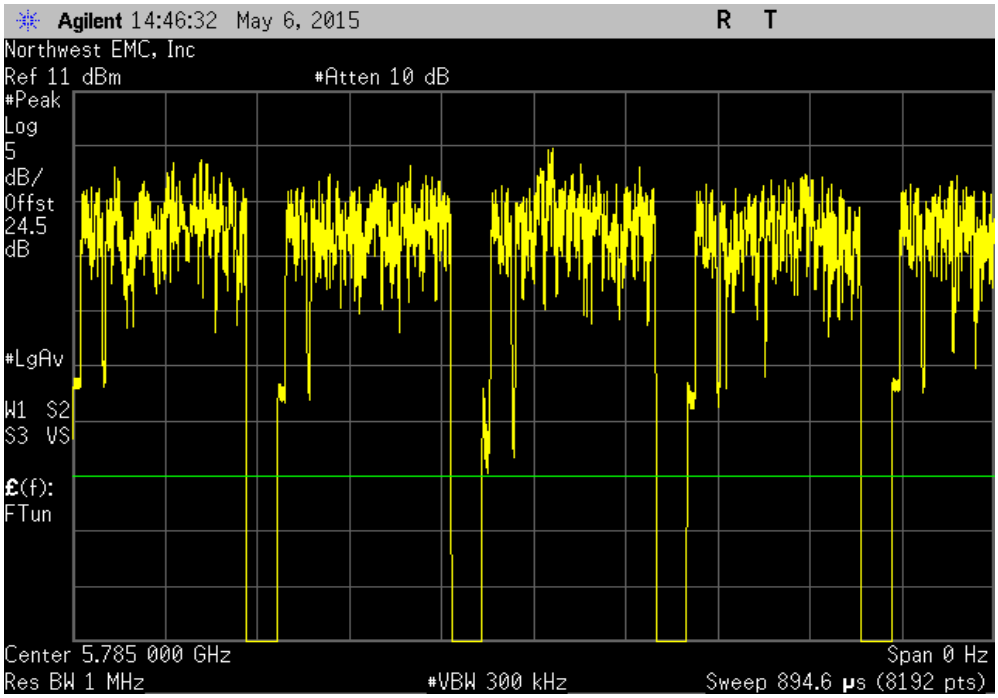
NORTHWEST EMC

XMit 2015.01.14

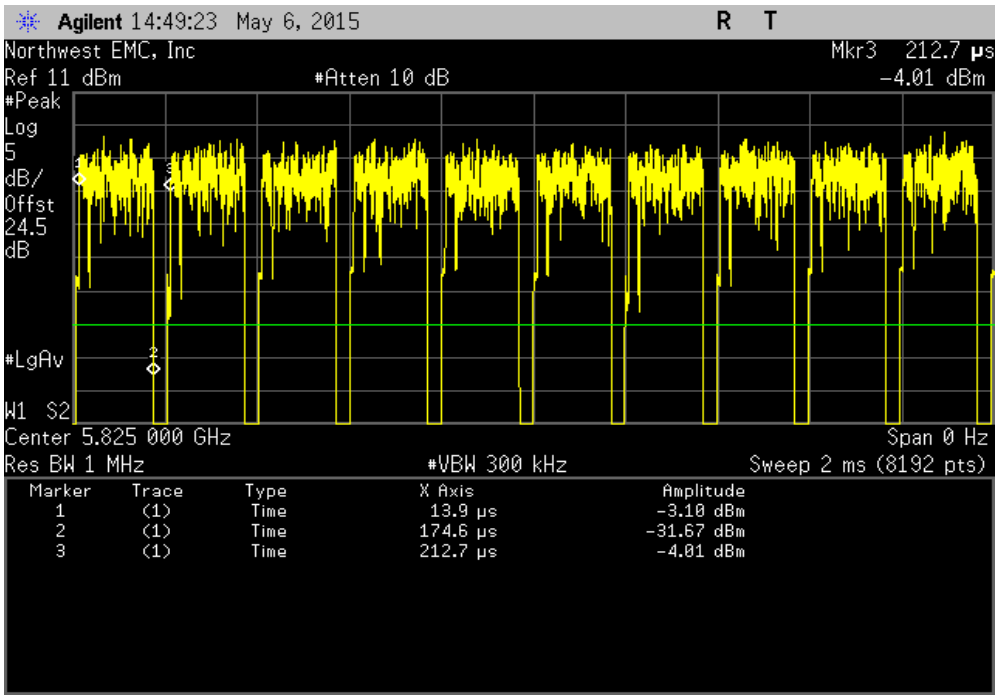
5 GHz Antenna Port, 802.11(n) MCS7, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.7 us	198.8 us	1	80.8	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, Mid Channel 157, 5785MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.7 us	198.8 us	1	80.8	N/A	N/A



5 GHz Antenna Port, 802.11(n) MCS7, High Channel 165, 5825MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A