

NORTHWEST EMC

Digi International Inc

Sigma Pumps Gen IV 802.11abgn Module

FCC 15.207:2016

FCC 15.209:2016

FCC 15.407:2016

802.11 an Radio

Report # DGII0152.4



NVLAP Lab Code: 200881-0

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

CERTIFICATE OF TEST

Last Date of Test: January 12, 2016
Digi International Inc
Model: Sigma Pumps Gen IV 802.11abgn Module

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2016	ANSI C63.10:2013
FCC 15.209:2016	ANSI C63.10:2013
FCC 15.407:2016	ANSI C63.10:2013

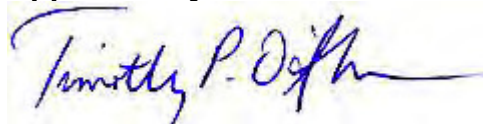
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	AC Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6, 12.7	Spurious Radiated Emissions	Yes	Pass	
6.7	Band Edge Compliance	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
12.2	Duty Cycle	Yes	N/A	
12.3.2.4	Maximum Conducted Output Power	Yes	Pass	
12.4.1	Emission Bandwidth	Yes	Pass	
12.4.2	Occupied Bandwidth	Yes	Pass	
12.5	Maximum Power Spectral Density	Yes	Pass	

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

REVISION HISTORY

Revision Number		Description	Date	Page Number
00		None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

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

A2LA - Accredited by A2LA to ISO / IEC 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

Measurement Uncertainty

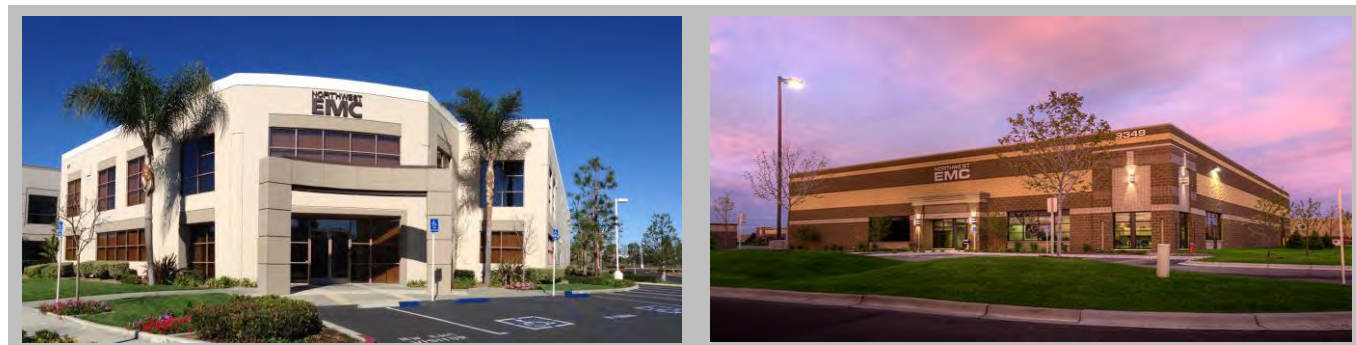
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement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

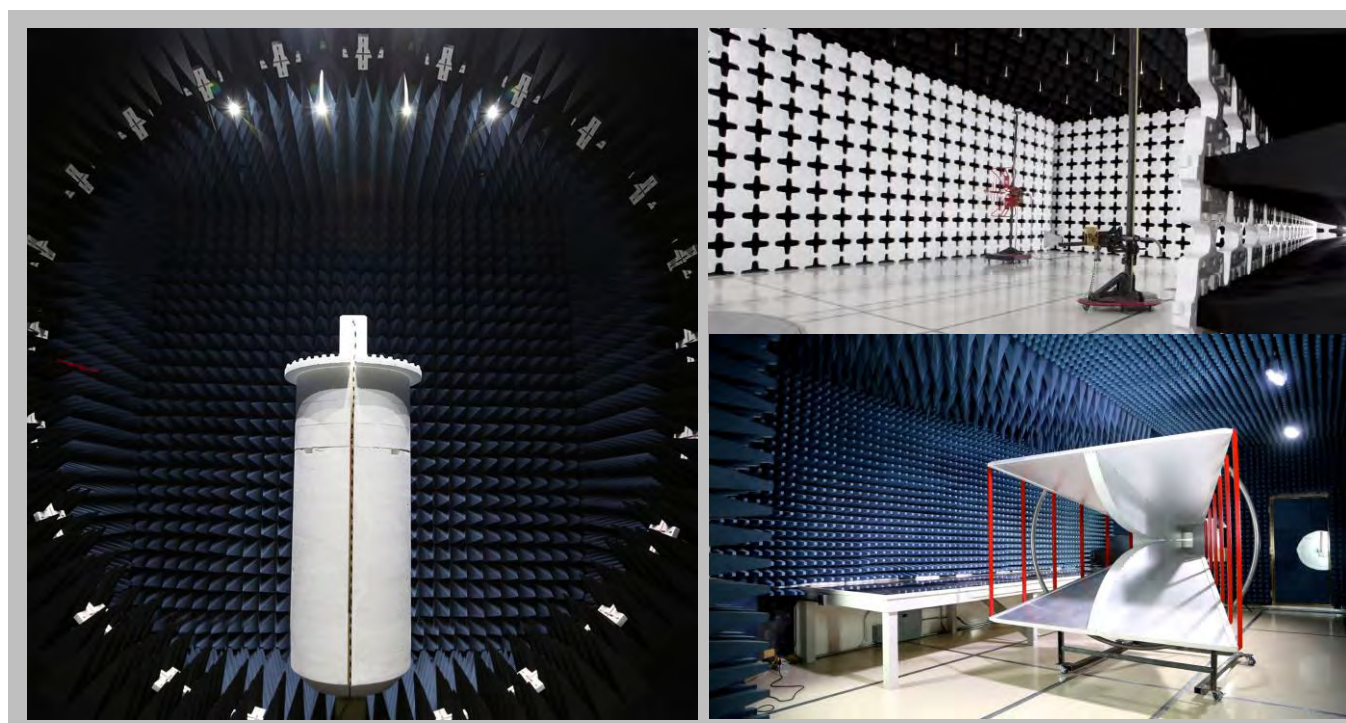
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

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)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

FACILITIES



California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
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/RRR, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Digi International Inc
Address:	11001 Bren Road E.
City, State, Zip:	Minnetonka, MN 55343
Test Requested By:	Slava Gekht
Model:	Sigma Pumps Gen IV 802.11abgn Module
First Date of Test:	January 04, 2016
Last Date of Test:	January 12, 2016
Receipt Date of Samples:	November 19, 2015
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Sigma Pump Radio Module
Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.407 for operation in the 5.2 GHz, 5.3 GHz, 5.6 GHz and 5.8 GHz band(s).

CONFIGURATIONS

Configuration DGII0152- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Sigma Pump Radio Module	Digi International Inc	50001857-1	UUT #7 (55001769-1 rev. 1P)
Development Board	Digi International Inc	55001610-2 rev. 01	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC Adapter (Development Board)	Bobbintron Electrical Corporation	VEG20C-120F	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Hewlett-Packard	Compaq nc6320	CNU7D62VS5
AC Adapter (Laptop)	Hewlett-Packard	PPP014L-S	W97950EBMVYB2Z

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial Cable	Yes	>3m	Yes	Development Board	Laptop
DC Cable (Development Board)	No	1.6m	Yes	Development Board	AC Adapter (Development Board)
AC Cable (Development Board)	No	2.3m	No	AC Mains	AC Adapter (Development Board)
DC Cable (Laptop)	No	1.8m	No	Laptop	AC Adapter (Laptop)
AC Cable (Laptop)	No	1.8m	No	AC Adapter (Laptop)	AC Mains

CONFIGURATIONS

Configuration DGII0152- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Sigma Pump Radio Module	Digi International Inc	50001857-1	UUT #7 (55001769-1 rev. 1P)
Development Board	Digi International Inc	55001610-2 rev. 01	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
DC Power Supply	Agilent	U8002A	TPZ

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Hewlett-Packard	Compaq nc6320	CNU7D62VS5
AC Adapter (Laptop)	Hewlett-Packard	PPP014L-S	W97950EBMVYB2Z

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial Cable	Yes	>3m	Yes	Development Board	Laptop
DC Cable (Laptop)	No	1.8m	No	Laptop	AC Adapter (Laptop)
AC Cable (Laptop)	No	1.8m	No	AC Adapter (Laptop)	AC Mains
DC Cable (DC Power Supply)	No	1.0m	No	DC Power Supply	Development Board

CONFIGURATIONS

Configuration DGII0152- 3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Sigma Pump Radio Module	Digi International Inc	50001857-1	UUT #7 (55001769-1 rev. 1P)
Development Board	Digi International Inc	55001610-2 rev. 01	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
DC Power Supply	Agilent	U8002A	TPZ

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Hewlett-Packard	Compaq nc6320	CNU7D62VS5
AC Adapter (Laptop)	Hewlett-Packard	PPP014L-S	W97950EBMVYB2Z
Wireless Router	Cisco	Linksys	Linksys 2
AC/DC Adapter	Cisco	None	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial Cable	Yes	>3m	Yes	Development Board	Laptop
DC Cable (Laptop)	No	1.8m	No	Laptop	AC Adapter (Laptop)
AC Cable (Laptop)	No	1.8m	No	AC Adapter (Laptop)	AC Mains
DC Cable (DC Power Supply)	No	1.0m	No	DC Power Supply	Development Board
DC Cable (Linksys PS)	No	1.5m	No	AC/DC Adapter	Wireless Router
Ethernet Cable	No	1.5m	No	Wireless Router	Cisco AP

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	1/4/2016	AC 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.
2	1/4/2016	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	1/7/2016	Frequency Stability	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	1/11/2016	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	1/11/2016	Move Time	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	1/11/2016	Closing Time	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	1/11/2016	Emissions 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.
8	1/11/2016	Maximum 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.
9	1/11/2016	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
10	1/11/2016	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
11	1/12/2016	Non Occupancy Period	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

AC POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. 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 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR7	ARI	5/21/2015	5/21/2016
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	3/23/2015	3/23/2016
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, AQP	MNCA	5/13/2015	5/13/2016

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

DGII0152-1

MODES INVESTIGATED

Transmitting 802.11 channel 120, 6 Mbps
Transmitting 802.11 channel 157, 6 Mbps
Transmitting 802.11 channel 48, 6 Mbps

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	12	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

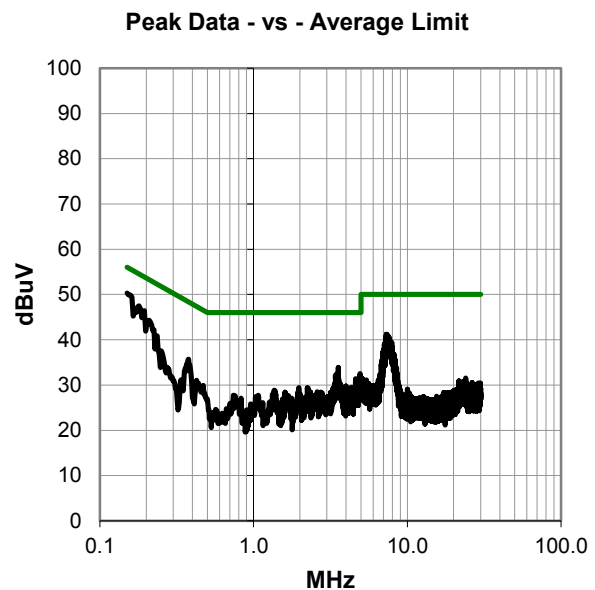
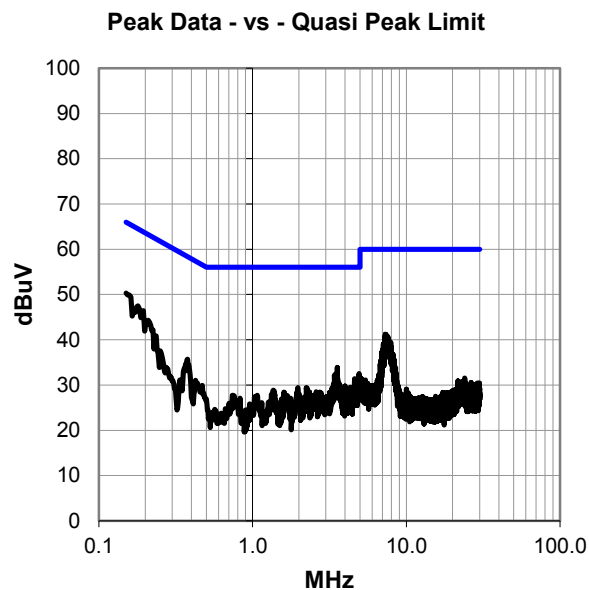
None

EUT OPERATING MODES

Transmitting 802.11 channel 48, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #12

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.9	20.4	50.3	66.0	-15.7
7.313	20.6	20.6	41.2	60.0	-18.8
7.377	20.5	20.6	41.1	60.0	-18.9
7.526	20.1	20.7	40.8	60.0	-19.2
7.253	20.0	20.6	40.6	60.0	-19.4
7.768	19.0	20.7	39.7	60.0	-20.3
7.906	18.8	20.7	39.5	60.0	-20.5
7.097	18.5	20.6	39.1	60.0	-20.9
7.130	18.4	20.6	39.0	60.0	-21.0
7.966	17.8	20.7	38.5	60.0	-21.5
3.560	13.5	20.4	33.9	56.0	-22.1
7.030	17.2	20.6	37.8	60.0	-22.2
0.378	15.5	20.2	35.7	58.3	-22.6
6.921	16.7	20.6	37.3	60.0	-22.7
8.179	16.1	20.7	36.8	60.0	-23.2
4.918	12.0	20.5	32.5	56.0	-23.5
8.156	15.8	20.7	36.5	60.0	-23.5
3.482	12.1	20.3	32.4	56.0	-23.6
8.238	15.6	20.7	36.3	60.0	-23.7
3.414	11.8	20.3	32.1	56.0	-23.9
4.985	11.4	20.5	31.9	56.0	-24.1
0.251	17.3	20.3	37.6	61.7	-24.2
6.899	15.1	20.6	35.7	60.0	-24.3
8.317	15.0	20.7	35.7	60.0	-24.3
3.582	11.1	20.4	31.5	56.0	-24.5
4.601	10.9	20.5	31.4	56.0	-24.6

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.9	20.4	50.3	56.0	-5.7
7.313	20.6	20.6	41.2	50.0	-8.8
7.377	20.5	20.6	41.1	50.0	-8.9
7.526	20.1	20.7	40.8	50.0	-9.2
7.253	20.0	20.6	40.6	50.0	-9.4
7.768	19.0	20.7	39.7	50.0	-10.3
7.906	18.8	20.7	39.5	50.0	-10.5
7.097	18.5	20.6	39.1	50.0	-10.9
7.130	18.4	20.6	39.0	50.0	-11.0
7.966	17.8	20.7	38.5	50.0	-11.5
3.560	13.5	20.4	33.9	46.0	-12.1
7.030	17.2	20.6	37.8	50.0	-12.2
0.378	15.5	20.2	35.7	48.3	-12.6
6.921	16.7	20.6	37.3	50.0	-12.7
8.179	16.1	20.7	36.8	50.0	-13.2
4.918	12.0	20.5	32.5	46.0	-13.5
8.156	15.8	20.7	36.5	50.0	-13.5
3.482	12.1	20.3	32.4	46.0	-13.6
8.238	15.6	20.7	36.3	50.0	-13.7
3.414	11.8	20.3	32.1	46.0	-13.9
4.985	11.4	20.5	31.9	46.0	-14.1
0.251	17.3	20.3	37.6	51.7	-14.2
6.899	15.1	20.6	35.7	50.0	-14.3
8.317	15.0	20.7	35.7	50.0	-14.3
3.582	11.1	20.4	31.5	46.0	-14.5
4.601	10.9	20.5	31.4	46.0	-14.6

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	13	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

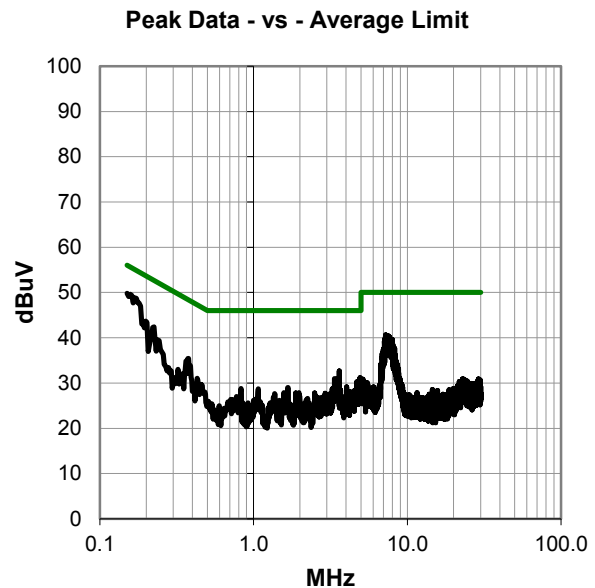
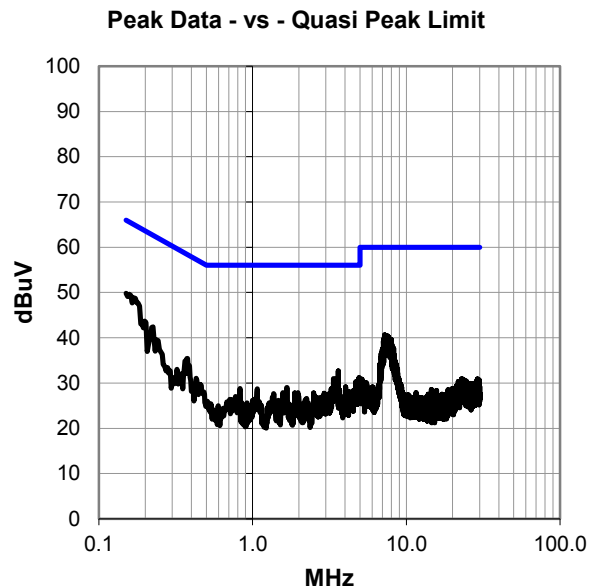
None

EUT OPERATING MODES

Transmitting 802.11 channel 48, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.4	20.4	49.8	66.0	-16.2
7.242	20.0	20.6	40.6	60.0	-19.4
7.507	19.8	20.7	40.5	60.0	-19.5
7.321	19.7	20.6	40.3	60.0	-19.7
7.619	19.6	20.7	40.3	60.0	-19.7
7.716	19.4	20.7	40.1	60.0	-19.9
7.541	19.4	20.7	40.1	60.0	-19.9
7.149	19.3	20.6	39.9	60.0	-20.1
0.225	22.1	20.3	42.4	62.6	-20.3
7.955	19.0	20.7	39.7	60.0	-20.3
7.209	18.8	20.6	39.4	60.0	-20.6
8.007	18.7	20.7	39.4	60.0	-20.6
7.112	18.6	20.6	39.2	60.0	-20.8
8.070	17.7	20.7	38.4	60.0	-21.6
8.093	17.3	20.7	38.0	60.0	-22.0
8.261	17.0	20.7	37.7	60.0	-22.3
7.033	17.0	20.6	37.6	60.0	-22.4
8.197	16.6	20.7	37.3	60.0	-22.7
0.374	15.2	20.2	35.4	58.4	-23.0
6.936	16.1	20.6	36.7	60.0	-23.3
3.608	12.3	20.4	32.7	56.0	-23.3
6.869	15.9	20.6	36.5	60.0	-23.5
8.354	15.5	20.7	36.2	60.0	-23.8
4.922	10.7	20.5	31.2	56.0	-24.8
3.366	10.6	20.3	30.9	56.0	-25.1
3.437	10.5	20.3	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.4	20.4	49.8	56.0	-6.2
7.242	20.0	20.6	40.6	50.0	-9.4
7.507	19.8	20.7	40.5	50.0	-9.5
7.321	19.7	20.6	40.3	50.0	-9.7
7.619	19.6	20.7	40.3	50.0	-9.7
7.716	19.4	20.7	40.1	50.0	-9.9
7.541	19.4	20.7	40.1	50.0	-9.9
7.149	19.3	20.6	39.9	50.0	-10.1
0.225	22.1	20.3	42.4	52.6	-10.3
7.955	19.0	20.7	39.7	50.0	-10.3
7.209	18.8	20.6	39.4	50.0	-10.6
8.007	18.7	20.7	39.4	50.0	-10.6
7.112	18.6	20.6	39.2	50.0	-10.8
8.070	17.7	20.7	38.4	50.0	-11.6
8.093	17.3	20.7	38.0	50.0	-12.0
8.261	17.0	20.7	37.7	50.0	-12.3
7.033	17.0	20.6	37.6	50.0	-12.4
8.197	16.6	20.7	37.3	50.0	-12.7
0.374	15.2	20.2	35.4	48.4	-13.0
6.936	16.1	20.6	36.7	50.0	-13.3
3.608	12.3	20.4	32.7	46.0	-13.3
6.869	15.9	20.6	36.5	50.0	-13.5
8.354	15.5	20.7	36.2	50.0	-13.8
4.922	10.7	20.5	31.2	46.0	-14.8
3.366	10.6	20.3	30.9	46.0	-15.1
3.437	10.5	20.3	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	14	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

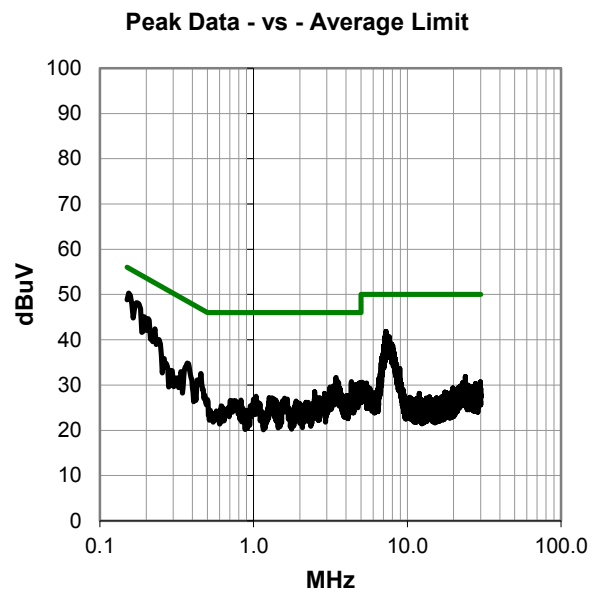
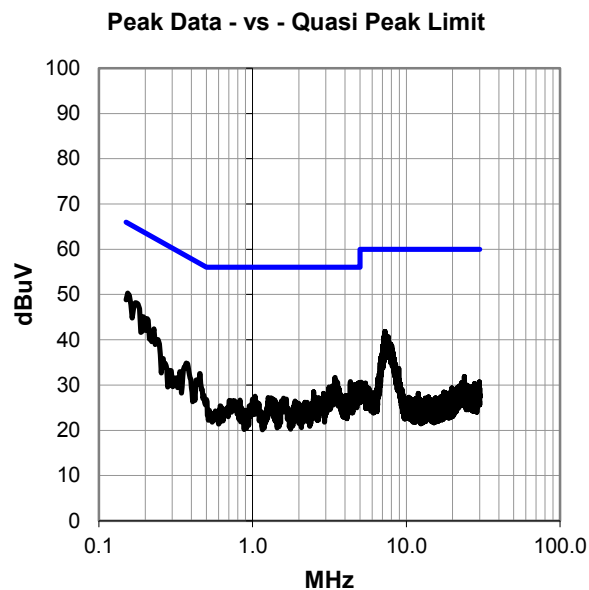
None

EUT OPERATING MODES

Transmitting 802.11 channel 120, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #14

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	29.9	20.4	50.3	65.8	-15.5
0.172	27.8	20.4	48.2	64.8	-16.7
7.276	21.2	20.6	41.8	60.0	-18.2
7.309	20.7	20.6	41.3	60.0	-18.7
0.195	24.8	20.3	45.1	63.8	-18.7
7.197	20.4	20.6	41.0	60.0	-19.0
7.350	20.2	20.6	40.8	60.0	-19.2
7.619	20.0	20.7	40.7	60.0	-19.3
7.418	20.0	20.6	40.6	60.0	-19.4
7.134	19.8	20.6	40.4	60.0	-19.6
7.529	19.6	20.7	40.3	60.0	-19.7
7.679	19.3	20.7	40.0	60.0	-20.0
7.862	18.4	20.7	39.1	60.0	-20.9
7.944	18.2	20.7	38.9	60.0	-21.1
7.074	18.2	20.6	38.8	60.0	-21.2
8.037	18.0	20.7	38.7	60.0	-21.3
8.179	16.5	20.7	37.2	60.0	-22.8
6.951	16.4	20.6	37.0	60.0	-23.0
0.370	14.6	20.2	34.8	58.5	-23.7
6.873	15.6	20.6	36.2	60.0	-23.8
8.350	15.2	20.7	35.9	60.0	-24.1
0.452	12.3	20.2	32.5	56.8	-24.3
3.433	11.3	20.3	31.6	56.0	-24.4
6.765	14.3	20.6	34.9	60.0	-25.1
3.511	10.5	20.4	30.9	56.0	-25.1
4.321	10.3	20.5	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	29.9	20.4	50.3	55.8	-5.5
0.172	27.8	20.4	48.2	54.8	-6.7
7.276	21.2	20.6	41.8	50.0	-8.2
7.309	20.7	20.6	41.3	50.0	-8.7
0.195	24.8	20.3	45.1	53.8	-8.7
7.197	20.4	20.6	41.0	50.0	-9.0
7.350	20.2	20.6	40.8	50.0	-9.2
7.619	20.0	20.7	40.7	50.0	-9.3
7.418	20.0	20.6	40.6	50.0	-9.4
7.134	19.8	20.6	40.4	50.0	-9.6
7.529	19.6	20.7	40.3	50.0	-9.7
7.679	19.3	20.7	40.0	50.0	-10.0
7.862	18.4	20.7	39.1	50.0	-10.9
7.944	18.2	20.7	38.9	50.0	-11.1
7.074	18.2	20.6	38.8	50.0	-11.2
8.037	18.0	20.7	38.7	50.0	-11.3
8.179	16.5	20.7	37.2	50.0	-12.8
6.951	16.4	20.6	37.0	50.0	-13.0
0.370	14.6	20.2	34.8	48.5	-13.7
6.873	15.6	20.6	36.2	50.0	-13.8
8.350	15.2	20.7	35.9	50.0	-14.1
0.452	12.3	20.2	32.5	46.8	-14.3
3.433	11.3	20.3	31.6	46.0	-14.4
6.765	14.3	20.6	34.9	50.0	-15.1
3.511	10.5	20.4	30.9	46.0	-15.1
4.321	10.3	20.5	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

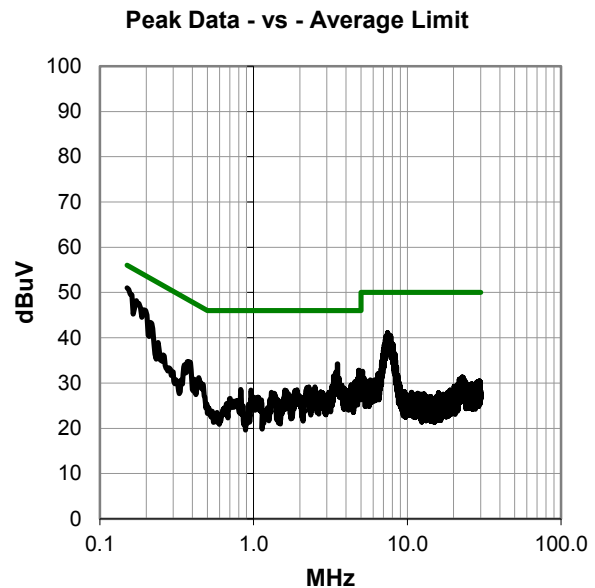
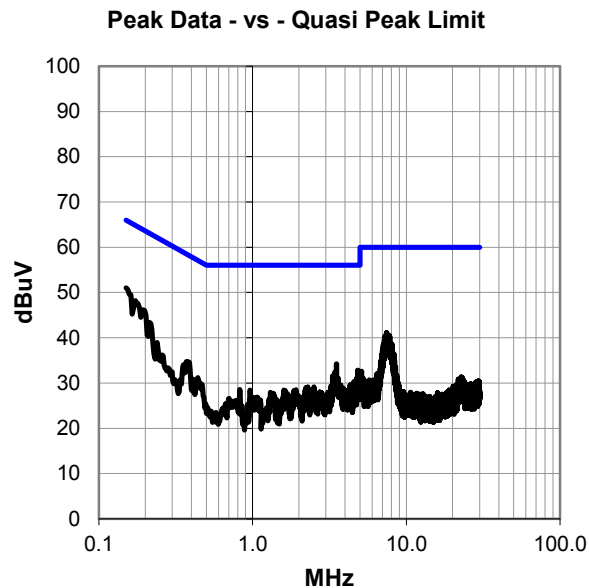
None

EUT OPERATING MODES

Transmitting 802.11 channel 120, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #15

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	30.6	20.4	51.0	66.0	-15.0
7.444	20.5	20.6	41.1	60.0	-18.9
7.470	20.0	20.6	40.6	60.0	-19.4
7.369	20.0	20.6	40.6	60.0	-19.4
7.750	19.9	20.7	40.6	60.0	-19.4
7.600	19.7	20.7	40.4	60.0	-19.6
0.213	23.1	20.3	43.4	63.1	-19.7
7.794	19.6	20.7	40.3	60.0	-19.7
7.197	19.0	20.6	39.6	60.0	-20.4
8.070	17.9	20.7	38.6	60.0	-21.4
7.104	17.9	20.6	38.5	60.0	-21.5
3.519	13.9	20.4	34.3	56.0	-21.7
7.026	17.1	20.6	37.7	60.0	-22.3
0.240	18.7	20.3	39.0	62.1	-23.1
4.836	12.3	20.5	32.8	56.0	-23.2
8.186	16.0	20.7	36.7	60.0	-23.3
3.500	12.2	20.4	32.6	56.0	-23.5
3.441	12.1	20.3	32.4	56.0	-23.6
8.302	15.7	20.7	36.4	60.0	-23.6
6.933	15.7	20.6	36.3	60.0	-23.7
0.370	14.5	20.2	34.7	58.5	-23.8
4.933	11.7	20.5	32.2	56.0	-23.8
3.321	11.3	20.3	31.6	56.0	-24.4
3.403	11.0	20.3	31.3	56.0	-24.7
6.880	14.7	20.6	35.3	60.0	-24.7
8.320	14.6	20.7	35.3	60.0	-24.7

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	30.6	20.4	51.0	56.0	-5.0
7.444	20.5	20.6	41.1	50.0	-8.9
7.470	20.0	20.6	40.6	50.0	-9.4
7.369	20.0	20.6	40.6	50.0	-9.4
7.750	19.9	20.7	40.6	50.0	-9.4
7.600	19.7	20.7	40.4	50.0	-9.6
0.213	23.1	20.3	43.4	53.1	-9.7
7.794	19.6	20.7	40.3	50.0	-9.7
7.197	19.0	20.6	39.6	50.0	-10.4
8.070	17.9	20.7	38.6	50.0	-11.4
7.104	17.9	20.6	38.5	50.0	-11.5
3.519	13.9	20.4	34.3	46.0	-11.7
7.026	17.1	20.6	37.7	50.0	-12.3
0.240	18.7	20.3	39.0	52.1	-13.1
4.836	12.3	20.5	32.8	46.0	-13.2
8.186	16.0	20.7	36.7	50.0	-13.3
3.500	12.2	20.4	32.6	46.0	-13.5
3.441	12.1	20.3	32.4	46.0	-13.6
8.302	15.7	20.7	36.4	50.0	-13.6
6.933	15.7	20.6	36.3	50.0	-13.7
0.370	14.5	20.2	34.7	48.5	-13.8
4.933	11.7	20.5	32.2	46.0	-13.8
3.321	11.3	20.3	31.6	46.0	-14.4
3.403	11.0	20.3	31.3	46.0	-14.7
6.880	14.7	20.6	35.3	50.0	-14.7
8.320	14.6	20.7	35.3	50.0	-14.7

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	16	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

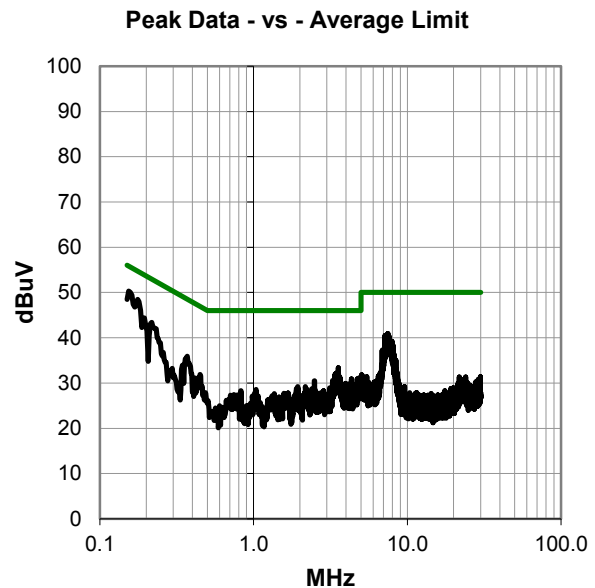
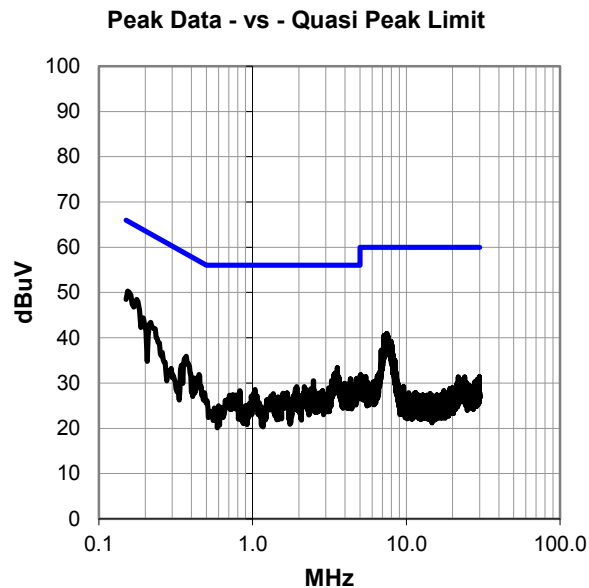
None

EUT OPERATING MODES

Transmitting 802.11 channel 157, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #16

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	29.9	20.4	50.3	65.8	-15.5
7.470	20.3	20.6	40.9	60.0	-19.1
7.459	20.2	20.6	40.8	60.0	-19.2
7.164	19.9	20.6	40.5	60.0	-19.5
0.217	23.1	20.3	43.4	62.9	-19.5
7.612	19.6	20.7	40.3	60.0	-19.7
7.388	19.5	20.6	40.1	60.0	-19.9
7.869	18.6	20.7	39.3	60.0	-20.7
7.959	18.5	20.7	39.2	60.0	-20.8
8.044	17.8	20.7	38.5	60.0	-21.5
0.370	15.7	20.2	35.9	58.5	-22.6
3.560	13.0	20.4	33.4	56.0	-22.6
6.951	16.7	20.6	37.3	60.0	-22.7
6.865	16.6	20.6	37.2	60.0	-22.8
8.130	16.1	20.7	36.8	60.0	-23.2
8.190	15.7	20.7	36.4	60.0	-23.6
3.497	12.0	20.3	32.3	56.0	-23.7
3.407	11.7	20.3	32.0	56.0	-24.0
3.523	11.6	20.4	32.0	56.0	-24.0
3.385	11.6	20.3	31.9	56.0	-24.1
8.238	15.1	20.7	35.8	60.0	-24.2
3.649	10.9	20.4	31.3	56.0	-24.7
3.631	10.9	20.4	31.3	56.0	-24.7
4.873	10.7	20.5	31.2	56.0	-24.8
0.448	11.7	20.2	31.9	56.9	-25.0
8.417	14.3	20.7	35.0	60.0	-25.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	29.9	20.4	50.3	55.8	-5.5
7.470	20.3	20.6	40.9	50.0	-9.1
7.459	20.2	20.6	40.8	50.0	-9.2
7.164	19.9	20.6	40.5	50.0	-9.5
0.217	23.1	20.3	43.4	52.9	-9.5
7.612	19.6	20.7	40.3	50.0	-9.7
7.388	19.5	20.6	40.1	50.0	-9.9
7.869	18.6	20.7	39.3	50.0	-10.7
7.959	18.5	20.7	39.2	50.0	-10.8
8.044	17.8	20.7	38.5	50.0	-11.5
0.370	15.7	20.2	35.9	48.5	-12.6
3.560	13.0	20.4	33.4	46.0	-12.6
6.951	16.7	20.6	37.3	50.0	-12.7
6.865	16.6	20.6	37.2	50.0	-12.8
8.130	16.1	20.7	36.8	50.0	-13.2
8.190	15.7	20.7	36.4	50.0	-13.6
3.497	12.0	20.3	32.3	46.0	-13.7
3.407	11.7	20.3	32.0	46.0	-14.0
3.523	11.6	20.4	32.0	46.0	-14.0
3.385	11.6	20.3	31.9	46.0	-14.1
8.238	15.1	20.7	35.8	50.0	-14.2
3.649	10.9	20.4	31.3	46.0	-14.7
3.631	10.9	20.4	31.3	46.0	-14.7
4.873	10.7	20.5	31.2	46.0	-14.8
0.448	11.7	20.2	31.9	46.9	-15.0
8.417	14.3	20.7	35.0	50.0	-15.0

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Sigma Pumps Gen IV 802.11abgn Module	Work Order:	DGII0152
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Date:	01/04/2016
Customer:	Digi International Inc	Temperature:	22.5°C
Attendees:	Slava Gehkt	Relative Humidity:	18.9%
Customer Project:	None	Bar. Pressure:	1004.2 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	DGII0152-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2016	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

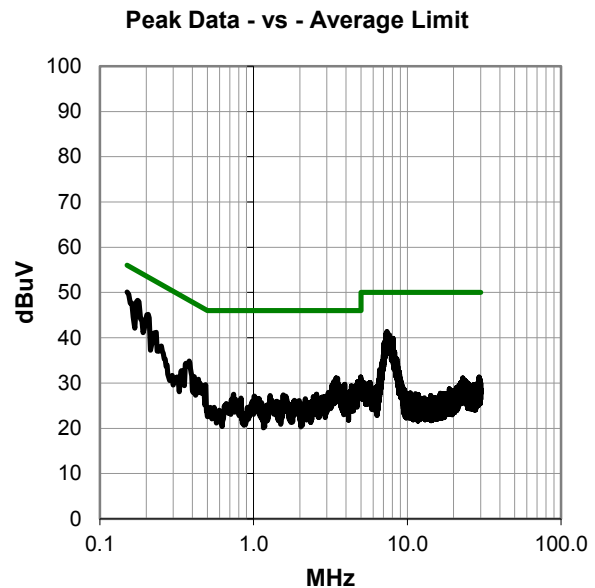
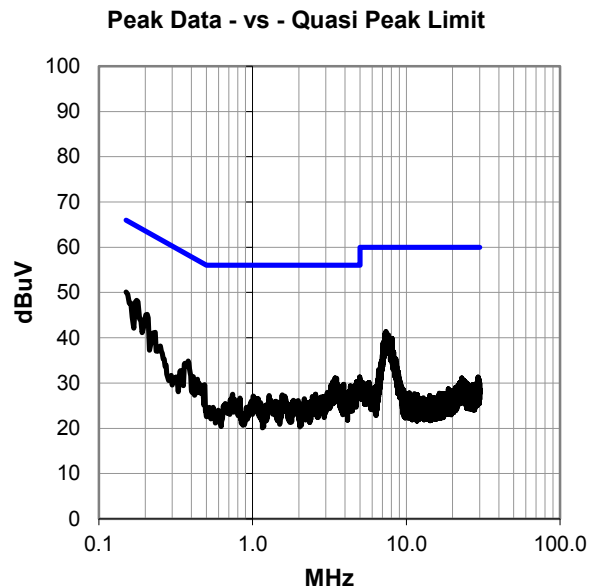
None

EUT OPERATING MODES

Transmitting 802.11 channel 157, 6 Mbps

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #17

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.7	20.4	50.1	66.0	-15.9
0.176	27.9	20.4	48.3	64.7	-16.4
0.206	24.9	20.3	45.2	63.4	-18.2
7.362	20.7	20.6	41.3	60.0	-18.7
7.280	20.3	20.6	40.9	60.0	-19.1
7.645	20.0	20.7	40.7	60.0	-19.3
7.444	19.7	20.6	40.3	60.0	-19.7
8.074	19.2	20.7	39.9	60.0	-20.1
7.160	18.6	20.6	39.2	60.0	-20.8
8.014	18.3	20.7	39.0	60.0	-21.0
0.232	20.9	20.3	41.2	62.4	-21.2
7.063	18.2	20.6	38.8	60.0	-21.2
7.970	18.1	20.7	38.8	60.0	-21.2
7.910	17.9	20.7	38.6	60.0	-21.4
8.130	17.1	20.7	37.8	60.0	-22.2
8.268	16.2	20.7	36.9	60.0	-23.1
0.381	14.6	20.2	34.8	58.3	-23.4
6.977	15.7	20.6	36.3	60.0	-23.7
8.395	14.9	20.7	35.6	60.0	-24.4
8.574	14.7	20.7	35.4	60.0	-24.6
8.458	14.7	20.7	35.4	60.0	-24.6
4.978	10.8	20.5	31.3	56.0	-24.7
8.477	14.5	20.7	35.2	60.0	-24.8
3.444	10.8	20.3	31.1	56.0	-24.9
3.519	10.7	20.4	31.1	56.0	-24.9
4.989	10.3	20.5	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.7	20.4	50.1	56.0	-5.9
0.176	27.9	20.4	48.3	54.7	-6.4
0.206	24.9	20.3	45.2	53.4	-8.2
7.362	20.7	20.6	41.3	50.0	-8.7
7.280	20.3	20.6	40.9	50.0	-9.1
7.645	20.0	20.7	40.7	50.0	-9.3
7.444	19.7	20.6	40.3	50.0	-9.7
8.074	19.2	20.7	39.9	50.0	-10.1
7.160	18.6	20.6	39.2	50.0	-10.8
8.014	18.3	20.7	39.0	50.0	-11.0
0.232	20.9	20.3	41.2	52.4	-11.2
7.063	18.2	20.6	38.8	50.0	-11.2
7.970	18.1	20.7	38.8	50.0	-11.2
7.910	17.9	20.7	38.6	50.0	-11.4
8.130	17.1	20.7	37.8	50.0	-12.2
8.268	16.2	20.7	36.9	50.0	-13.1
0.381	14.6	20.2	34.8	48.3	-13.4
6.977	15.7	20.6	36.3	50.0	-13.7
8.395	14.9	20.7	35.6	50.0	-14.4
8.574	14.7	20.7	35.4	50.0	-14.6
8.458	14.7	20.7	35.4	50.0	-14.6
4.978	10.8	20.5	31.3	46.0	-14.7
8.477	14.5	20.7	35.2	50.0	-14.8
3.444	10.8	20.3	31.1	46.0	-14.9
3.519	10.7	20.4	31.1	46.0	-14.9
4.989	10.3	20.5	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

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

MODES OF OPERATION

Transmitting 802.11 - channels 36 (5180 MHz), 48 (5240 MHz), 52 (5260 MHz), 64 (5320 MHz), 100 (5500 MHz), 120 (5600 MHz), 140 (5700 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0 20MHz, MCS7 20MHz, MCS0 40MHz, and MCS7 40MHz data rates.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

DGII0152 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Filter - Band Pass/Notch	Micro-Tronics	BRC50705	LFI	10/21/2015	12 mo
Filter - Band Pass/Notch	Micro-Tronics	BRC50704	LFH	10/21/2015	12 mo
Filter - Band Pass/Notch	Micro-Tronics	BRC50703	LFG	10/21/2015	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	LFK	10/21/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	9/18/2015	12 mo
Cable	Northwest EMC	TTBJ141-KMKM-72	MNQ	9/18/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-10	AIC	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	9/18/2015	12 mo
Cable	Northwest EMC	18-26GHz Standard Gain Horn Cable	MNP	9/18/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	12/10/2015	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/7/2015	12 mo
Antenna - Biconilog	ETS Lindgren	3142D	AXO	12/11/2015	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	3/2/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	12/7/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/2/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	3/10/2015	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	12/7/2015	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	6/3/2014	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2015	12 mo

MEASUREMENT BANDWIDTHS

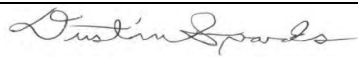
Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

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.

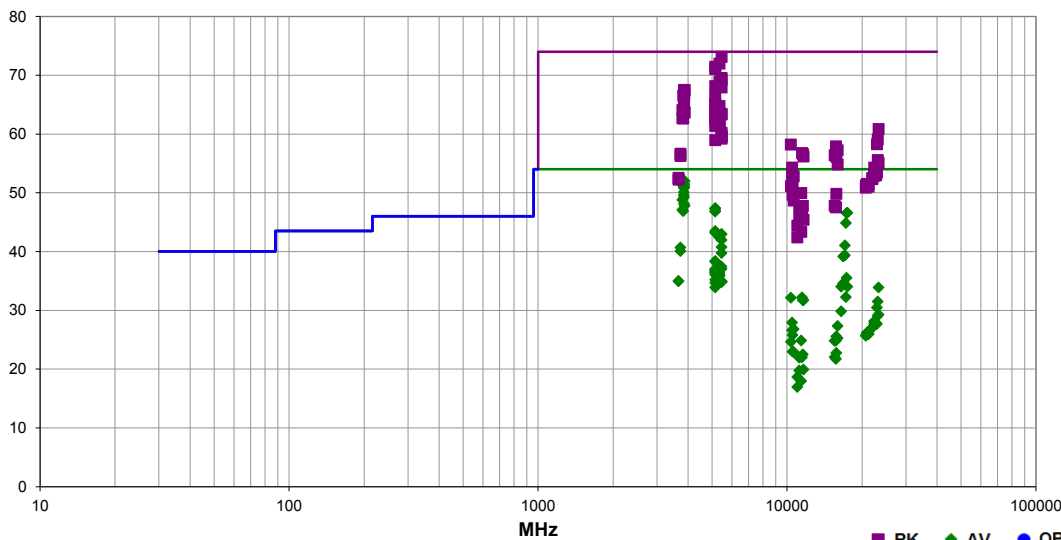
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter)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

SPURIOUS RADIATED EMISSIONS

Work Order:	DGII0152	Date:	01/05/16	
Project:	None	Temperature:	22.4 °C	
Job Site:	MN05	Humidity:	19.7% RH	
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Barometric Pres.:	996.3 mbar	
EUT:	Sigma Pumps Gen IV 802.11abgn Module			
Configuration:	1			
Customer:	Digi International Inc			
Attendees:	Slava Gehkt			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting 802.11 - channels 36 (5180 MHz), 48 (5240 MHz), 52 (5260 MHz), 64 (5320 MHz), 100 (5500 MHz), 120 (5600 MHz), 140 (5700 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0 20MHz, MCS7 20MHz, MCS0 40MHz, and MCS7 40MHz data rates.			
Deviations:	None			
Comments:	DCCF = -13.98dB. DCCF = 20 log10 (DC), duty cycle = 20%			

Test Specifications	Test Method
FCC 15.209:2016	ANSI C63.10:2013

Run #	109	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5459.683	46.7	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	73.1	74.0	-0.9	Ch 100, MCS0 40MHz, EUT on side, Pwr 20
3856.625	62.9	3.1	1.0	31.0	-14.0	0.0	Horz	AV	0.0	52.0	54.0	-2.0	Ch 157, 6 Mbps, EUT on side, pwr 14
3883.277	62.7	3.3	1.0	14.0	-14.0	0.0	Horz	AV	0.0	52.0	54.0	-2.0	Ch 165, 6 Mbps, EUT on side, pwr 14
5354.983	46.0	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	72.0	74.0	-2.0	Ch 64, MCS7 40MHz, EUT on side, Pwr 16
3856.608	62.4	3.1	1.0	347.9	-14.0	0.0	Horz	AV	0.0	51.5	54.0	-2.5	Ch 157, 6 Mbps, EUT horz, pwr 14
5149.883	46.0	35.0	1.7	296.9	0.0	0.0	Vert	PK	-9.5	71.5	74.0	-2.5	Ch 36, MCS0 40MHz, EUT on side, pwr 16
3856.608	62.2	3.1	1.1	6.0	-14.0	0.0	Vert	AV	0.0	51.3	54.0	-2.7	Ch 157, 6 Mbps, EUT vert, pwr 14
3829.947	62.2	3.0	1.4	19.1	-14.0	0.0	Horz	AV	0.0	51.2	54.0	-2.8	Ch 149, 6 Mbps, EUT on side, pwr 14
3856.642	62.0	3.1	1.0	155.1	-14.0	0.0	Vert	AV	0.0	51.1	54.0	-2.9	Ch 157, 6 Mbps, EUT on side, pwr 14
5148.325	45.6	35.0	1.7	296.9	0.0	0.0	Vert	PK	-9.5	71.1	74.0	-2.9	Ch 36, MCS7 40MHz, EUT on side, pwr 16
3856.663	61.8	3.1	1.4	210.1	-14.0	0.0	Horz	AV	0.0	50.9	54.0	-3.1	Ch 157, MCS7 20MHz, EUT on side, pwr 14
3856.647	61.8	3.1	1.4	210.1	-14.0	0.0	Horz	AV	0.0	50.9	54.0	-3.1	Ch 157, MCS0 20MHz, EUT on side, pwr 14
3856.613	61.7	3.1	1.4	210.1	-14.0	0.0	Horz	AV	0.0	50.8	54.0	-3.2	Ch 157, 36 Mbps, EUT on side, pwr 14
3856.622	61.7	3.1	1.4	210.1	-14.0	0.0	Horz	AV	0.0	50.8	54.0	-3.2	Ch 157, 54 Mbps, EUT on side, pwr 14
3849.955	61.0	3.1	1.3	207.0	-14.0	0.0	Horz	AV	0.0	50.1	54.0	-3.9	Ch 157, MCS0 40MHz, EUT on side, pwr 14
3849.955	60.5	3.1	1.3	207.0	-14.0	0.0	Horz	AV	0.0	49.6	54.0	-4.4	Ch 157, MCS7 40MHz, EUT on side, pwr 14
5459.525	43.1	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	69.5	74.0	-4.5	Ch 100, MCS0 40MHz, EUT on side, Pwr 18
3856.625	60.1	3.1	1.0	185.1	-14.0	0.0	Horz	AV	0.0	49.2	54.0	-4.8	Ch 157, 6 Mbps, EUT vert, pwr 14
5457.625	42.8	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	69.2	74.0	-4.8	Ch 100, MCS7 40MHz, EUT on side, Pwr 20
5351.367	43.0	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	69.0	74.0	-5.0	Ch 64, MCS7 40MHz, EUT on side, Pwr 14
3799.962	60.0	2.8	1.0	343.0	-14.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	Ch 140, 6 Mbps, EUT on side, pwr 14
5148.475	42.7	35.0	1.7	296.9	0.0	0.0	Vert	PK	-9.5	68.2	74.0	-5.8	Ch 36, MCS0 40MHz, EUT on side, pwr 14
3856.633	59.0	3.1	2.5	146.0	-14.0	0.0	Vert	AV	0.0	48.1	54.0	-5.9	Ch 157, 6 Mbps, EUT horz, pwr 14
5458.392	41.5	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	67.9	74.0	-6.1	Ch 100, MCS7 40MHz, EUT on side, Pwr 16
3883.293	58.5	3.3	1.0	208.0	-14.0	0.0	Vert	AV	0.0	47.8	54.0	-6.2	Ch 165, 6 Mbps, EUT on side, pwr 14
3856.642	64.4	3.1	1.0	31.0	0.0	0.0	Horz	PK	0.0	67.5	74.0	-6.5	Ch 157, 6 Mbps, EUT on side, pwr 14
3883.343	64.2	3.3	1.0	14.0	0.0	0.0	Horz	PK	0.0	67.5	74.0	-6.5	Ch 165, 6 Mbps, EUT on side, pwr 14
5149.992	35.9	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	47.4	54.0	-6.6	Ch 36, MCS0 40MHz, EUT on side, pwr 18
5149.983	35.8	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	47.3	54.0	-6.7	Ch 36, MCS0 40MHz, EUT on side, pwr 30
5149.892	35.8	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	47.3	54.0	-6.7	Ch 36, MCS0 40MHz, EUT on side, pwr 20
3856.683	64.1	3.1	1.0	347.9	0.0	0.0	Horz	PK	0.0	67.2	74.0	-6.8	Ch 157, 6 Mbps, EUT horz, pwr 14
3799.978	58.3	2.8	1.0	151.0	-14.0	0.0	Vert	AV	0.0	47.1	54.0	-6.9	Ch 140, 6 Mbps, EUT on side, pwr 14
5149.900	35.4	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	46.9	54.0	-7.1	Ch 36, MCS7 40MHz, EUT on side, pwr 20
3829.947	57.9	3.0	1.0	209.1	-14.0	0.0	Vert	AV	0.0	46.9	54.0	-7.1	Ch 149, 6 Mbps, EUT on side, pwr 14
3856.650	63.7	3.1	1.1	6.0	0.0	0.0	Vert	PK	0.0	66.8	74.0	-7.2	Ch 157, 6 Mbps, EUT vert, pwr 14
5149.992	35.3	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	46.8	54.0	-7.2	Ch 36, MCS7 40MHz, EUT on side, pwr 18
23301.690	46.7	14.2	1.5	279.9	0.0	0.0	Horz	PK	0.0	60.9	68.2	-7.3	Ch 165, 6 Mbps, EUT on side, pwr 14

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
3856.597	63.5	3.1	1.4	210.1	0.0	0.0	Horz	PK	0.0	66.6	74.0	-7.4	Ch 157, 54 Mbps, EUT on side, pwr 14
3856.538	63.5	3.1	1.4	210.1	0.0	0.0	Horz	PK	0.0	66.6	74.0	-7.4	Ch 157, MCS7 20MHz, EUT on side, pwr 14
3829.988	63.6	3.0	1.4	19.1	0.0	0.0	Horz	PK	0.0	66.6	74.0	-7.4	Ch 149, 6 Mbps, EUT on side, pwr 14
3856.633	63.4	3.1	1.0	155.1	0.0	0.0	Vert	PK	0.0	66.5	74.0	-7.5	Ch 157, 6 Mbps, EUT on side, pwr 14
3856.647	63.4	3.1	1.4	210.1	0.0	0.0	Horz	PK	0.0	66.5	74.0	-7.5	Ch 157, 36 Mbps, EUT on side, pwr 14
5148.442	40.9	35.0	1.7	296.9	0.0	0.0	Vert	PK	-9.5	66.4	74.0	-7.6	Ch 36, MCS7 40MHz, EUT on side, pwr 14
3856.655	63.2	3.1	1.4	210.1	0.0	0.0	Horz	PK	0.0	66.3	74.0	-7.7	Ch 157, MCS0 20MHz, EUT on side, pwr 14
3850.022	62.9	3.1	1.3	207.0	0.0	0.0	Horz	PK	0.0	66.0	74.0	-8.0	Ch 157, MCS0 40MHz, EUT on side, pwr 14
3849.963	62.9	3.1	1.3	207.0	0.0	0.0	Horz	PK	0.0	66.0	74.0	-8.0	Ch 157, MCS7 40MHz, EUT on side, pwr 14
5149.858	39.7	35.0	1.7	297.0	0.0	0.0	Vert	PK	-9.5	65.2	74.0	-8.8	Ch 36, 54 Mbps, EUT on side, pwr 30
5149.683	39.5	35.0	1.5	314.0	0.0	0.0	Horz	PK	-9.5	65.0	74.0	-9.0	Ch 36, 6 Mbps, EUT vert, pwr 30
3856.600	61.8	3.1	1.0	185.1	0.0	0.0	Horz	PK	0.0	64.9	74.0	-9.1	Ch 157, 6 Mbps, EUT vert, pwr 14
23140.980	45.0	14.1	1.5	275.0	0.0	0.0	Horz	PK	0.0	59.1	68.2	-9.1	Ch 157, 6 Mbps, EUT on side, pwr 14
5350.100	38.8	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	64.8	74.0	-9.2	Ch 64, MCS0 40MHz, EUT on side, Pwr 14
5149.933	38.7	35.0	1.7	297.0	0.0	0.0	Vert	PK	-9.5	64.2	74.0	-9.8	Ch 36, 6 Mbps, EUT on side, pwr 30
3799.945	61.3	2.8	1.0	343.0	0.0	0.0	Horz	PK	0.0	64.1	74.0	-9.9	Ch 140, 6 Mbps, EUT on side, pwr 14
10358.920	61.8	-3.6	1.8	314.0	0.0	0.0	Horz	PK	0.0	58.2	68.2	-10.0	Ch 36, 6 Mbps, EUT on side, pwr 14
5149.375	38.5	35.0	1.7	297.0	0.0	0.0	Vert	PK	-9.5	64.0	74.0	-10.0	Ch 36, 36 Mbps, EUT on side, pwr 30
3856.642	60.6	3.1	2.5	146.0	0.0	0.0	Vert	PK	0.0	63.7	74.0	-10.3	Ch 157, 6 Mbps, EUT horz, pwr 14
3883.285	60.4	3.3	1.0	208.0	0.0	0.0	Vert	PK	0.0	63.7	74.0	-10.3	Ch 165, 6 Mbps, EUT on side, pwr 14
5147.108	38.2	35.0	1.7	297.0	0.0	0.0	Vert	PK	-9.5	63.7	74.0	-10.3	Ch 36, MCS0 20MHz, EUT on side, pwr 30
5149.717	32.0	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	43.5	54.0	-10.5	Ch 36, MCS0 40MHz, EUT on side, pwr 16
5352.650	37.5	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	63.5	74.0	-10.5	Ch 64, 36 Mbps, EUT on side, Pwr 30
5459.975	37.0	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	63.4	74.0	-10.6	Ch 100, MCS0 40MHz, EUT on side, Pwr 14
5458.508	36.9	36.0	1.7	306.0	0.0	0.0	Vert	PK	-9.5	63.3	74.0	-10.7	Ch 100, MCS0 40MHz, EUT on side, Pwr 14
5149.592	37.8	35.0	1.7	297.0	0.0	0.0	Vert	PK	-9.5	63.3	74.0	-10.7	Ch 36, MCS7 20MHz, EUT on side, pwr 30
5149.975	31.7	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	43.2	54.0	-10.8	Ch 36, MCS7 40MHz, EUT on side, pwr 16
5353.283	37.1	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	63.1	74.0	-10.9	Ch 64, 6 Mbps, EUT on side, Pwr 30
5459.992	30.5	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	42.9	54.0	-11.1	Ch 100, MCS0 40MHz, EUT on side, Pwr 18
5459.875	30.5	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	42.9	54.0	-11.1	Ch 100, MCS0 40MHz, EUT on side, Pwr 20
5149.975	37.3	35.0	1.5	246.0	0.0	0.0	Horz	PK	-9.5	62.8	74.0	-11.2	Ch 36, 6 Mbps, EUT on side, pwr 30
3799.970	59.9	2.8	1.0	151.0	0.0	0.0	Vert	PK	0.0	62.7	74.0	-11.3	Ch 140, 6 Mbps, EUT on side, pwr 14
3830.055	59.7	3.0	1.0	209.1	0.0	0.0	Vert	PK	0.0	62.7	74.0	-11.3	Ch 149, 6 Mbps, EUT on side, pwr 14
5350.150	30.5	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	42.5	54.0	-11.5	Ch 64, MCS0 40MHz, EUT on side, Pwr 16
5350.083	30.4	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	42.4	54.0	-11.6	Ch 64, MCS7 40MHz, EUT on side, Pwr 16
5149.425	36.9	35.0	1.5	340.0	0.0	0.0	Vert	PK	-9.5	62.4	74.0	-11.6	Ch 36, 6 Mbps, EUT vert, pwr 30
5353.392	36.1	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	62.1	74.0	-11.9	Ch 64, MCS7 20MHz, EUT on side, Pwr 30
5351.217	36.1	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	62.1	74.0	-11.9	Ch 64, MCS0 20MHz, EUT on side, Pwr 30
5459.975	29.5	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	41.9	54.0	-12.1	Ch 100, MCS7 40MHz, EUT on side, Pwr 20
5351.100	35.5	35.5	1.6	293.0	0.0	0.0	Vert	PK	-9.5	61.5	74.0	-12.5	Ch 64, 54 Mbps, EUT on side, Pwr 30
5149.842	35.9	35.0	1.5	148.1	0.0	0.0	Vert	PK	-9.5	61.4	74.0	-12.6	Ch 36, 6 Mbps, EUT horz, pwr 30
23139.330	41.5	14.1	1.5	48.1	0.0	0.0	Vert	PK	0.0	55.6	68.2	-12.6	Ch 157, 6 Mbps, EUT on side, pwr 14
23301.480	40.9	14.2	1.5	318.9	0.0	0.0	Vert	PK	0.0	55.1	68.2	-13.1	Ch 165, 6 Mbps, EUT on side, pwr 14
5459.958	28.3	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	40.7	54.0	-13.3	Ch 100, MCS0 40MHz, EUT on side, Pwr 16
3733.275	52.4	2.3	1.8	213.1	-14.0	0.0	Horz	AV	0.0	40.7	54.0	-13.3	Ch 120, 6 Mbps, EUT on side, pwr 14
5456.292	33.8	36.0	1.7	214.1	0.0	0.0	Vert	PK	-9.5	60.2	74.0	-13.8	Ch 100, 6 Mbps, EUT on side, Pwr 30
10482.230	58.3	-4.0	1.0	347.9	0.0	0.0	Horz	PK	0.0	54.3	68.2	-13.9	Ch 48, 6 Mbps, EUT on side, pwr 14
3733.325	51.8	2.3	1.0	147.0	-14.0	0.0	Vert	AV	0.0	40.1	54.0	-13.9	Ch 120, 6 Mbps, EUT on side, pwr 14
5458.033	33.4	36.0	1.7	214.1	0.0	0.0	Vert	PK	-9.5	59.8	74.0	-14.2	Ch 100, MCS7 20MHz, EUT on side, Pwr 30
5459.983	27.3	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	39.7	54.0	-14.3	Ch 100, MCS7 40MHz, EUT on side, Pwr 16
5459.317	33.1	36.0	1.7	214.1	0.0	0.0	Vert	PK	-9.5	59.5	74.0	-14.5	Ch 100, 54 Mbps, EUT on side, Pwr 30
5459.867	33.0	36.0	1.7	214.1	0.0	0.0	Vert	PK	-9.5	59.4	74.0	-14.6	Ch 100, MCS0 20MHz, EUT on side, Pwr 30
5456.600	32.8	36.0	1.7	214.1	0.0	0.0	Vert	PK	-9.5	59.2	74.0	-14.8	Ch 100, 36 Mbps, EUT on side, Pwr 30
5149.208	33.5	35.0	1.5	327.0	0.0	0.0	Horz	PK	-9.5	59.0	74.0	-15.0	Ch 36, 6 Mbps, EUT horz, pwr 30
10482.490	56.9	-4.0	1.8	322.9	0.0	0.0	Vert	PK	0.0	52.9	68.2	-15.3	Ch 48, 6 Mbps, EUT on side, pwr 14
5149.800	26.9	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	38.4	54.0	-15.6	Ch 36, MCS0 40MHz, EUT on side, pwr 14
21998.210	39.1	13.4	1.5	96.0	0.0	0.0	Horz	PK	0.0	52.5	68.2	-15.7	Ch 100, 6 Mbps, EUT on side, pwr 14
5150.000	26.8	35.0	1.7	296.9	-14.0	0.0	Vert	AV	-9.5	38.3	54.0	-15.7	Ch 36, MCS7 40MHz, EUT on side, pwr 14
22981.230	44.3	14.0	1.5	322.0	0.0	0.0	Horz	PK	0.0	58.3	74.0	-15.7	Ch 149, 6 Mbps, EUT on side, pwr 14
22001.480	38.9	13.4	1.5	329.9	0.0	0.0	Vert	PK	0.0	52.3	68.2	-15.9	Ch 100, 6 Mbps, EUT on side, pwr 14
15719.500	48.6	9.3	1.7	6.0	0.0	0.0	Horz	PK	0.0	57.9	74.0	-16.1	Ch 48, 6 Mbps, EUT on side, pwr 14
10522.110	55.9	-4.0	1.0	44.1	0.0	0.0	Horz	PK	0.0	51.9	68.2	-16.3	Ch 52, 6 Mbps, EUT on side, pwr 14
5459.825	25.0	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	37.4	54.0	-16.6	Ch 100, MCS0 40MHz, EUT on side, Pwr 14
5350.108	25.3	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	37.3	54.0	-16.7	Ch 64, MCS7 40MHz, EUT on side, Pwr 14
15959.510	46.8	10.4	1.0	360.0	0.0	0.0	Horz	PK	0.0	57.2	74.0	-16.8	Ch 64, 6 Mbps, EUT on side, pwr 14
5459.775	24.6	36.0	1.7	306.0	-14.0	0.0	Vert	AV	-9.5	37.0	54.0	-17.0	Ch 100, MCS0 40MHz, EUT on side, Pwr 14
5149.992	25.5	35.0	1.7	297.0	-14.0	0.0	Vert	AV	-9.5	37.0	54.0	-17.0	Ch 36, 6 Mbps, EUT on side, pwr 30
5149.817	25.5	35.0	1.5	314.0	-14.0	0.0	Horz	AV	-9.5	37.0	54.0	-17.0	Ch 36, 6 Mbps, EUT vert, pwr 30
10362.120	54.7	-3.6	1.0	116.1	0.0	0.0	Vert	PK	0.0	51.1	68.2	-17.1	Ch 36, 6 Mbps, EUT on side, pwr 14
5350.383	24.9	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	36.9	54.0	-17.1	Ch 64, MCS0 40MHz, EUT on side, Pwr 14
5149.983	25.3	35.0	1.7	297.0	-14.0	0.0	Vert	AV	-9.5	36.8	54.0	-17.2	Ch 36, MCS0 20MHz, EUT on side, pwr 30
11490.740	59.8	-3.0	1.8	25.0	0.0	0.0	Horz	PK	0.0	56.8	74.0	-17.2	Ch 149, 6 Mbps, EUT on side, pwr 14
3733.192	54.4	2.3	1.8	213.1	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Ch 120, 6 Mbps, EUT on side, pwr 14
11571.580	58.7	-2.1	1.8	26.1	0.0	0.0	Horz	PK	0.0	56.6	74.0	-17.4	Ch 157, 6 Mbps, EUT on side, pwr 14
5149.992	25.1	35.0	1.7	297.0	-14.0	0.0	Vert	AV	-9.5	36.6	54.0	-17.4	Ch 36, 54 Mbps, EUT on side, pwr 30
15539.630	47.1	9.3	1.8	343.9	0.0	0.0	Horz	PK	0.0	56.4	74.0	-17.6	Ch 36, 6 Mbps, EUT on side, pwr 14
5150.000	24.9	35.0	1.7	297.0	-14.0	0.0	Vert	AV	-9.5	36.4	54.0	-17.6	Ch 36, MCS7 20MHz, EUT on side, pwr 30
5149.933	24.9	35.0	1.7	297.0	-14.0	0.0	Vert	AV	-9.5	36.4	54.0	-17.6	Ch 36, 36 Mbps, EUT on side, pwr 30
5350.158	24.4	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	36.4	54.0	-17.6	Ch 64, MCS7 20MHz, EUT on side, Pwr 30
3733.158	54.0	2.3	1.0	147.0	0.0	0.0	Vert	PK	0.0	56.3	74.0	-17.7	Ch 120, 6 Mbps, EUT on side, pwr 14
11651.530	58.6	-2.4	1.8	20.0	0.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	Ch 165, 6 Mbps, EUT on side, pwr 14
15779.630	46.7	9.4	1.0	12.1	0.0	0.0	Horz	PK	0.0	56.1	74.0	-17.9	Ch 52, 6 Mbps, EUT on side, pwr 14
5149.725	24.6	35.0	1.5	246.0	-14.0	0.0	Horz	AV	-9.5	36.1	54.0	-17.9	Ch 36, 6 Mbps, EUT on side, pwr 30
5350.058	24.1	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	36.1	54.0	-17.9	Ch 64, 36 Mbps, EUT on side, Pwr 30
5350.208	23.9	35.5	1.6	293.0	-14.0	0.0	Vert	AV	-9.5	35.9	54.0	-18.1	Ch 64, 6 Mbps, EUT on side, Pwr 30
5350.092	23.9	35.5	1.6	293.0	-14.0	0.0</							

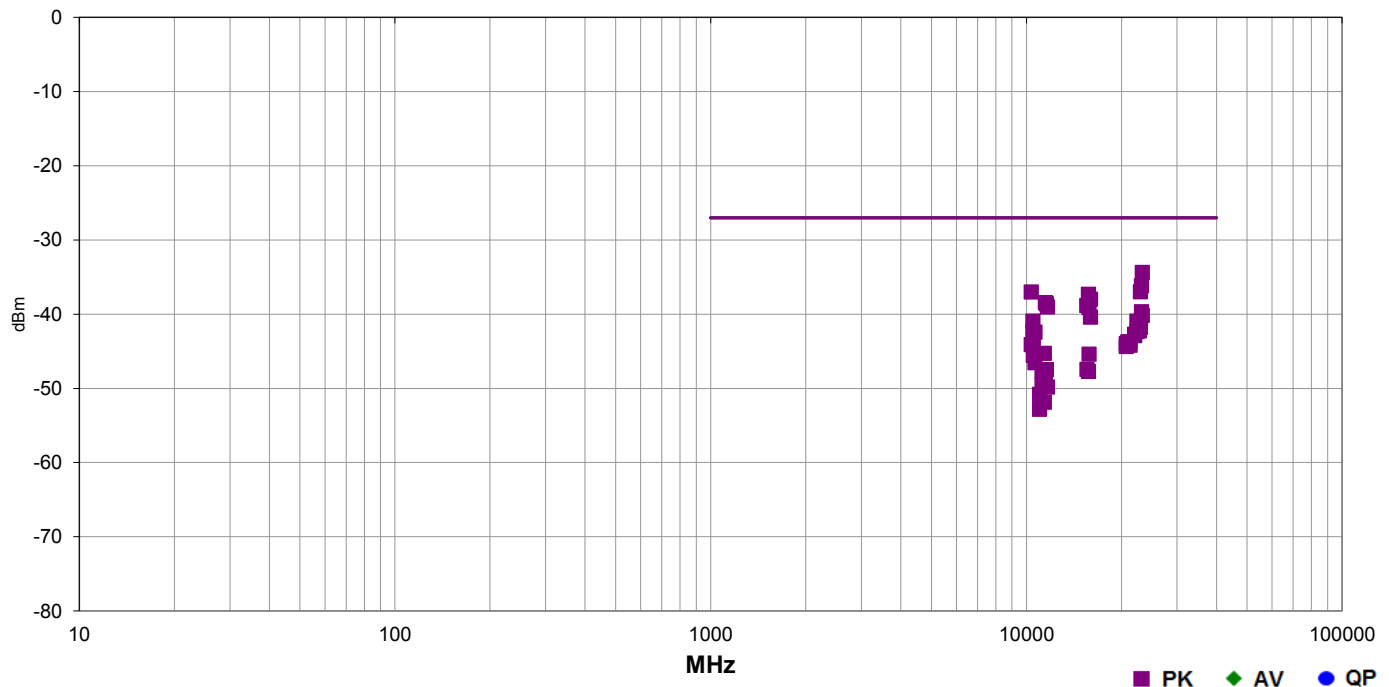
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
3666.617	50.8	1.7	1.0	358.0	0.0	0.0	Horz	PK	0.0	52.5	74.0	-21.5	Ch 100, 6 Mbps, EUT on side, pwr 14
17474.180	49.5	11.1	1.8	332.0	-14.0	0.0	Horz	AV	0.0	46.6	68.2	-21.6	Ch 165, 6 Mbps, EUT on side, pwr 14
17354.310	49.7	10.8	1.9	330.9	-14.0	0.0	Horz	AV	0.0	46.5	68.2	-21.7	Ch 157, 6 Mbps, EUT on side, pwr 14
3666.458	50.5	1.7	1.0	165.0	0.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	Ch 100, 6 Mbps, EUT on side, pwr 14
11489.980	49.2	-3.0	1.8	25.0	-14.0	0.0	Horz	AV	0.0	32.2	54.0	-21.8	Ch 149, 6 Mbps, EUT on side, pwr 14
11650.040	48.1	-2.4	1.8	20.0	-14.0	0.0	Horz	AV	0.0	31.7	54.0	-22.3	Ch 165, 6 Mbps, EUT on side, pwr 14
11569.980	47.8	-2.1	1.8	26.1	-14.0	0.0	Horz	AV	0.0	31.7	54.0	-22.3	Ch 157, 6 Mbps, EUT on side, pwr 14
21038.940	38.4	13.1	1.5	72.0	0.0	0.0	Horz	PK	0.0	51.5	74.0	-22.5	Ch 52, 6 Mbps, EUT on side, pwr 14
20958.980	38.4	13.1	1.5	175.0	0.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	Ch 48, 6 Mbps, EUT on side, pwr 14
21279.380	38.3	13.1	1.5	179.0	0.0	0.0	Horz	PK	0.0	51.4	74.0	-22.6	Ch 64, 6 Mbps, EUT on side, pwr 14
20960.150	38.3	13.1	1.5	31.0	0.0	0.0	Horz	PK	0.0	51.4	74.0	-22.6	Ch 48, 6 Mbps, EUT on side, pwr 14
21039.790	38.2	13.1	1.5	243.9	0.0	0.0	Vert	PK	0.0	51.3	74.0	-22.7	Ch 52, 6 Mbps, EUT on side, pwr 14
20718.190	38.3	13.0	1.5	102.1	0.0	0.0	Vert	PK	0.0	51.3	74.0	-22.7	Ch 36, 6 Mbps, EUT on side, pwr 14
21278.800	37.9	13.1	1.5	34.1	0.0	0.0	Vert	PK	0.0	51.0	74.0	-23.0	Ch 64, 6 Mbps, EUT on side, pwr 14
20719.490	37.9	13.0	1.5	175.0	0.0	0.0	Horz	PK	0.0	50.9	74.0	-23.1	Ch 36, 6 Mbps, EUT on side, pwr 14
17234.110	49.0	9.8	1.9	333.9	-14.0	0.0	Horz	AV	0.0	44.8	68.2	-23.4	Ch 149, 6 Mbps, EUT on side, pwr 14
22980.680	30.5	14.0	1.5	322.0	-14.0	0.0	Horz	AV	0.0	30.5	54.0	-23.5	Ch 149, 6 Mbps, EUT on side, pwr 14
11400.750	53.6	-3.7	1.0	221.1	0.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	Ch 140, 6 Mbps, EUT on side, pwr 14
15781.500	40.4	9.4	1.0	343.0	0.0	0.0	Vert	PK	0.0	49.8	74.0	-24.2	Ch 52, 6 Mbps, EUT on side, pwr 14
10642.330	52.2	-3.5	1.8	322.9	0.0	0.0	Vert	PK	0.0	48.7	74.0	-25.3	Ch 64, 6 Mbps, EUT on side, pwr 14
22400.240	28.5	13.6	1.5	304.9	-14.0	0.0	Horz	AV	0.0	28.1	54.0	-25.9	Ch 120, 6 Mbps, EUT on side, pwr 14
22800.830	28.0	13.8	1.5	358.0	-14.0	0.0	Vert	AV	0.0	27.8	54.0	-26.2	Ch 140, 6 Mbps, EUT on side, pwr 14
22799.530	28.0	13.8	1.5	154.0	-14.0	0.0	Horz	AV	0.0	27.8	54.0	-26.2	Ch 140, 6 Mbps, EUT on side, pwr 14
15541.980	38.5	9.3	1.0	257.0	0.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	Ch 36, 6 Mbps, EUT on side, pwr 14
11568.430	49.9	-2.1	1.0	76.1	0.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	Ch 157, 6 Mbps, EUT on side, pwr 14
22399.830	28.1	13.6	1.5	168.0	-14.0	0.0	Vert	AV	0.0	27.7	54.0	-26.3	Ch 120, 6 Mbps, EUT on side, pwr 14
22979.510	27.7	14.0	1.5	119.1	-14.0	0.0	Vert	AV	0.0	27.7	54.0	-26.3	Ch 149, 6 Mbps, EUT on side, pwr 14
11201.480	51.1	-3.6	1.9	360.0	0.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Ch 120, 6 Mbps, EUT on side, pwr 14
15722.420	38.2	9.3	1.0	228.1	0.0	0.0	Vert	PK	0.0	47.5	74.0	-26.5	Ch 48, 6 Mbps, EUT on side, pwr 14
15957.570	30.9	10.4	1.0	360.0	-14.0	0.0	Horz	AV	0.0	27.3	54.0	-26.7	Ch 64, 6 Mbps, EUT on side, pwr 14
11490.850	49.9	-3.0	1.1	89.0	0.0	0.0	Vert	PK	0.0	46.9	74.0	-27.1	Ch 149, 6 Mbps, EUT on side, pwr 14
17097.580	44.0	11.0	1.0	39.0	-14.0	0.0	Horz	AV	0.0	41.1	68.2	-27.1	Ch 140, 6 Mbps, EUT on side, pwr 14
10640.180	44.3	-3.5	1.7	72.0	-14.0	0.0	Horz	AV	0.0	26.8	54.0	-27.2	Ch 64, 6 Mbps, EUT on side, pwr 14
20958.070	27.1	13.1	1.5	31.0	-14.0	0.0	Horz	AV	0.0	26.2	54.0	-27.8	Ch 48, 6 Mbps, EUT on side, pwr 14
21037.670	27.0	13.1	1.5	243.9	-14.0	0.0	Vert	AV	0.0	26.1	54.0	-27.9	Ch 52, 6 Mbps, EUT on side, pwr 14
21038.530	27.0	13.1	1.5	72.0	-14.0	0.0	Horz	AV	0.0	26.1	54.0	-27.9	Ch 52, 6 Mbps, EUT on side, pwr 14
20958.970	27.0	13.1	1.5	175.0	-14.0	0.0	Vert	AV	0.0	26.1	54.0	-27.9	Ch 48, 6 Mbps, EUT on side, pwr 14
21280.020	26.8	13.1	1.5	34.1	-14.0	0.0	Vert	AV	0.0	26.0	54.0	-28.0	Ch 64, 6 Mbps, EUT on side, pwr 14
21279.490	26.8	13.1	1.5	179.0	-14.0	0.0	Horz	AV	0.0	26.0	54.0	-28.0	Ch 64, 6 Mbps, EUT on side, pwr 14
11200.920	49.3	-3.6	2.2	195.1	0.0	0.0	Vert	PK	0.0	45.7	74.0	-28.3	Ch 120, 6 Mbps, EUT on side, pwr 14
20721.180	26.7	13.0	1.5	102.1	-14.0	0.0	Vert	AV	0.0	25.7	54.0	-28.3	Ch 36, 6 Mbps, EUT on side, pwr 14
20717.940	26.7	13.0	1.5	175.0	-14.0	0.0	Horz	AV	0.0	25.7	54.0	-28.3	Ch 36, 6 Mbps, EUT on side, pwr 14
15781.440	30.1	9.4	1.0	12.1	-14.0	0.0	Horz	AV	0.0	25.6	54.0	-28.4	Ch 52, 6 Mbps, EUT on side, pwr 14
11650.530	47.8	-2.4	1.0	306.0	0.0	0.0	Vert	PK	0.0	45.4	74.0	-28.6	Ch 165, 6 Mbps, EUT on side, pwr 14
15959.210	28.8	10.4	2.3	318.9	-14.0	0.0	Vert	AV	0.0	25.2	54.0	-28.8	Ch 64, 6 Mbps, EUT on side, pwr 14
17097.570	42.3	11.0	1.9	336.0	-14.0	0.0	Vert	AV	0.0	39.4	68.2	-28.8	Ch 140, 6 Mbps, EUT on side, pwr 14
16799.110	43.2	9.9	1.0	12.1	-14.0	0.0	Horz	AV	0.0	39.2	68.2	-29.0	Ch 120, 6 Mbps, EUT on side, pwr 14
11400.200	42.5	-3.7	1.0	221.1	-14.0	0.0	Vert	AV	0.0	24.9	54.0	-29.1	Ch 140, 6 Mbps, EUT on side, pwr 14
15721.570	29.5	9.3	1.7	6.0	-14.0	0.0	Horz	AV	0.0	24.8	54.0	-29.2	Ch 48, 6 Mbps, EUT on side, pwr 14
15541.860	29.5	9.3	1.8	343.9	-14.0	0.0	Horz	AV	0.0	24.8	54.0	-29.2	Ch 36, 6 Mbps, EUT on side, pwr 14
11002.120	47.7	-3.3	1.8	68.0	0.0	0.0	Horz	PK	0.0	44.4	74.0	-29.6	Ch 100, 6 Mbps, EUT on side, pwr 14
11402.430	47.0	-3.6	1.0	19.1	0.0	0.0	Horz	PK	0.0	43.4	74.0	-30.6	Ch 140, 6 Mbps, EUT on side, pwr 14
10640.180	40.4	-3.5	1.8	322.9	-14.0	0.0	Vert	AV	0.0	22.9	54.0	-31.1	Ch 64, 6 Mbps, EUT on side, pwr 14
15782.220	27.3	9.4	1.0	343.0	-14.0	0.0	Vert	AV	0.0	22.8	54.0	-31.2	Ch 52, 6 Mbps, EUT on side, pwr 14
11570.180	38.6	-2.1	1.0	76.1	-14.0	0.0	Vert	AV	0.0	22.5	54.0	-31.5	Ch 157, 6 Mbps, EUT on side, pwr 14
11001.860	45.7	-3.3	1.1	294.9	0.0	0.0	Vert	PK	0.0	42.4	74.0	-31.6	Ch 100, 6 Mbps, EUT on side, pwr 14
15542.320	26.7	9.3	1.0	257.0	-14.0	0.0	Vert	AV	0.0	22.0	54.0	-32.0	Ch 36, 6 Mbps, EUT on side, pwr 14
11490.020	39.0	-3.0	1.1	89.0	-14.0	0.0	Vert	AV	0.0	22.0	54.0	-32.0	Ch 149, 6 Mbps, EUT on side, pwr 14
11200.030	39.5	-3.6	1.9	360.0	-14.0	0.0	Horz	AV	0.0	21.9	54.0	-32.1	Ch 120, 6 Mbps, EUT on side, pwr 14
15721.280	26.4	9.3	1.0	228.1	-14.0	0.0	Vert	AV	0.0	21.7	54.0	-32.3	Ch 48, 6 Mbps, EUT on side, pwr 14
17354.180	38.7	10.8	1.4	40.1	-14.0	0.0	Vert	AV	0.0	35.5	68.2	-32.7	Ch 157, 6 Mbps, EUT on side, pwr 14
16797.510	38.6	10.0	1.0	336.9	-14.0	0.0	Vert	AV	0.0	34.6	68.2	-33.6	Ch 120, 6 Mbps, EUT on side, pwr 14
11650.100	36.3	-2.4	1.0	306.0	-14.0	0.0	Vert	AV	0.0	19.9	54.0	-34.1	Ch 165, 6 Mbps, EUT on side, pwr 14
16499.630	37.3	10.7	2.0	329.9	-14.0	0.0	Horz	AV	0.0	34.0	68.2	-34.2	Ch 100, 6 Mbps, EUT on side, pwr 14
17474.000	36.9	11.1	2.3	310.0	-14.0	0.0	Vert	AV	0.0	34.0	68.2	-34.2	Ch 165, 6 Mbps, EUT on side, pwr 14
11199.940	37.3	-3.6	2.2	195.1	-14.0	0.0	Vert	AV	0.0	19.8	54.0	-34.3	Ch 120, 6 Mbps, EUT on side, pwr 14
23299.810	33.7	14.2	1.5	279.9	-14.0	0.0	Horz	AV	0.0	33.9	68.2	-34.3	Ch 165, 6 Mbps, EUT on side, pwr 14
10999.810	35.9	-3.3	1.8	68.0	-14.0	0.0	Horz	AV	0.0	18.6	54.0	-35.4	Ch 100, 6 Mbps, EUT on side, pwr 14
17234.080	36.4	9.8	2.0	24.0	-14.0	0.0	Vert	AV	0.0	32.2	68.2	-36.0	Ch 149, 6 Mbps, EUT on side, pwr 14
11399.980	35.6	-3.7	1.0	19.1	-14.0	0.0	Horz	AV	0.0	18.0	54.0	-36.0	Ch 140, 6 Mbps, EUT on side, pwr 14
10360.140	49.7	-3.6	1.8	314.0	-14.0	0.0	Horz	AV	0.0	32.1	68.2	-36.1	Ch 36, 6 Mbps, EUT on side, pwr 14
23140.530	31.4	14.1	1.5	275.0	-14.0	0.0	Horz	AV	0.0	31.5	68.2	-36.7	Ch 157, 6 Mbps, EUT on side, pwr 14
10999.850	34.2	-3.3	1.1	294.9	-14.0	0.0	Vert	AV	0.0	16.9	54.0	-37.1	Ch 100, 6 Mbps, EUT on side, pwr 14
16499.190	33.1	10.7	2.0	49.0	-14.0	0.0	Vert	AV	0.0	29.8	68.2	-38.4	Ch 100, 6 Mbps, EUT on side, pwr 14
23300.410	29.1	14.2	1.5	318.9	-14.0	0.0	Vert	AV	0.0	29.3	68.2	-38.9	Ch 165, 6 Mbps, EUT on side, pwr 14
23139.580	29.0	14.1	1.5	48.1	-14.0	0.0	Vert	AV	0.0	29.1	68.2	-39.1	Ch 157, 6 Mbps, EUT on side, pwr 14
10481.930	45.9	-4.0	1.0	347.9	-14.0	0.0	Horz	AV	0.0	27.9	68.2	-40.3	Ch 48, 6 Mbps, EUT on side, pwr 14
22002.100	27.6	13.4	1.5	329.9	-14.0	0.0	Vert	AV	0.0	27.1	68.2	-41.1	Ch 100, 6 Mbps, EUT on side, pwr 14
22000.780	27.6	13.4	1.5	96.0	-14.0	0.0	Horz	AV	0.0	27.1	68.2	-41.1	Ch 100, 6 Mbps, EUT on side, pwr 14
10481.980	44.6	-4.0	1.8	322.9	-14.0	0.0	Vert	AV	0.0	26.6	68.2	-41.6	Ch 48, 6 Mbps, EUT on side, pwr 14
10520.100	43.8	-4.0	1.0	44.1	-14.0	0.0	Horz	AV	0.0	25.8	68.2	-42.4	Ch 52, 6 Mbps, EUT on side, pwr 14
10359.970	42.2	-3.6	1.0	116.1	-14.0	0.0	Vert	AV	0.0	24.6	68.2	-43.6	Ch 36, 6 Mbps, EUT on side, pwr 14
10520.130	41.0	-4.0	1.0	48.1	-14.0	0.0	Vert	AV	0.0	23.0	68.2	-45.2	Ch 52, 6 Mbps, EUT on side, pwr 14

SPURIOUS RADIATED EMISSIONS

Work Order:	DGII0152	Date:	01/05/16	
Project:	None	Temperature:	22.4 °C	
Job Site:	MN05	Humidity:	19.7% RH	
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Barometric Pres.:	996.3 mbar	
EUT:		Sigma Pumps Gen IV 802.11abgn Module		
Configuration:		1		
Customer:		Digi International Inc		
Attendees:		Slava Gehkt		
EUT Power:		110VAC/60Hz		
Operating Mode:		Transmitting 802.11 - channels 36 (5180 MHz), 48 (5240 MHz), 52 (5260 MHz), 64 (5320 MHz), 100 (5500 MHz), 120 (5600 MHz), 140 (5700 MHz), 149 (5745 MHz), 157 (5785 MHz), and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0 20MHz, MCS7 20MHz, MCS0 40MHz, and MCS7 40MHz data rates.		
Deviations:		None		
Comments:		DCCF = -13.98dB. DCCF = 20 log10 (DC), duty cycle = 20%		

Test Specifications	Test Method
FCC 15.209:2016	ANSI C63.10:2013

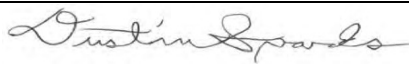
Run #	109	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
23301.690	1.5	279.9	Horz	PK	3.65E-07	-34.4	-27.0	-7.4	Ch 165, 6 Mbps, EUT on side, pwr 14
23140.980	1.5	275.0	Horz	PK	2.42E-07	-36.2	-27.0	-9.2	Ch 157, 6 Mbps, EUT on side, pwr 14
22981.230	1.5	322.0	Horz	PK	2.01E-07	-37.0	-27.0	-10.0	Ch 149, 6 Mbps, EUT on side, pwr 14
10358.920	1.8	314.0	Horz	PK	1.99E-07	-37.0	-27.0	-10.0	Ch 36, 6 Mbps, EUT on side, pwr 14
15719.500	1.7	6.0	Horz	PK	1.85E-07	-37.3	-27.0	-10.3	Ch 48, 6 Mbps, EUT on side, pwr 14
15959.510	1.0	360.0	Horz	PK	1.59E-07	-38.0	-27.0	-11.0	Ch 64, 6 Mbps, EUT on side, pwr 14
11490.740	1.8	25.0	Horz	PK	1.43E-07	-38.5	-27.0	-11.5	Ch 149, 6 Mbps, EUT on side, pwr 14
11571.580	1.8	26.1	Horz	PK	1.37E-07	-38.6	-27.0	-11.6	Ch 157, 6 Mbps, EUT on side, pwr 14
15539.630	1.8	343.9	Horz	PK	1.31E-07	-38.8	-27.0	-11.8	Ch 36, 6 Mbps, EUT on side, pwr 14
11651.530	1.8	20.0	Horz	PK	1.25E-07	-39.0	-27.0	-12.0	Ch 165, 6 Mbps, EUT on side, pwr 14
15779.630	1.0	12.1	Horz	PK	1.23E-07	-39.1	-27.0	-12.1	Ch 52, 6 Mbps, EUT on side, pwr 14
23139.330	1.5	48.1	Vert	PK	1.08E-07	-39.7	-27.0	-12.7	Ch 157, 6 Mbps, EUT on side, pwr 14
23301.480	1.5	318.9	Vert	PK	9.61E-08	-40.2	-27.0	-13.2	Ch 165, 6 Mbps, EUT on side, pwr 14

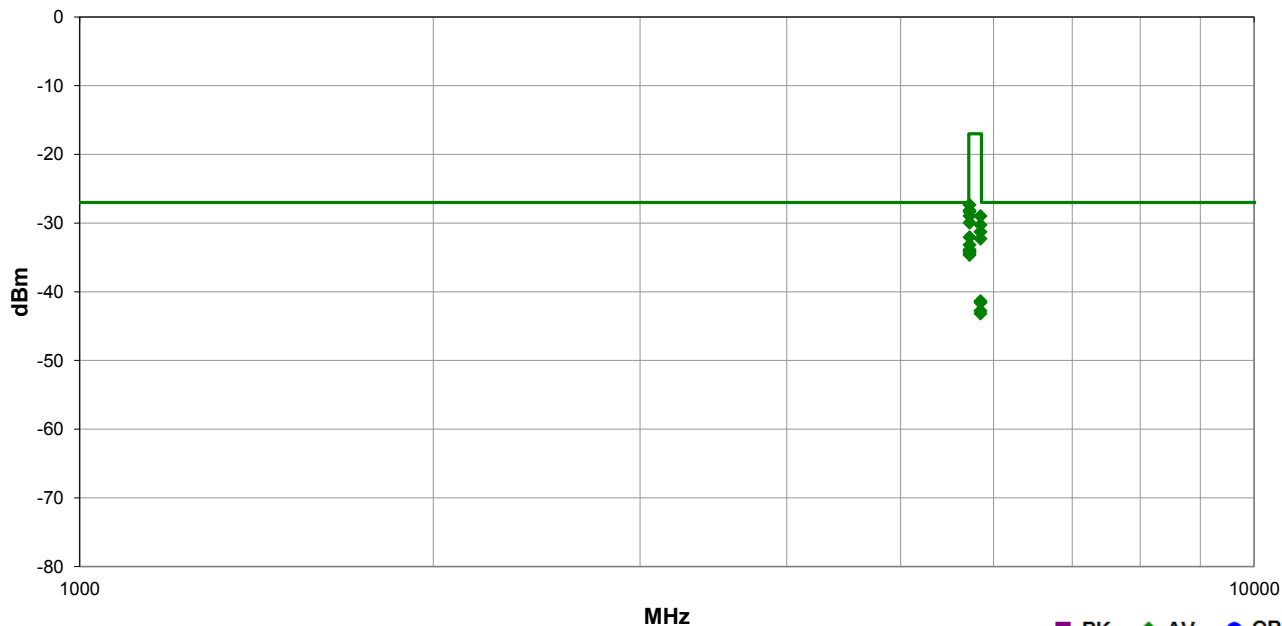
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	15959.720	2.3	318.9	Vert	PK	9.13E-08	-40.4	-27.0	-13.4	Ch 64, 6 Mbps, EUT on side, pwr 14
	22398.050	1.5	304.9	Horz	PK	8.08E-08	-40.9	-27.0	-13.9	Ch 120, 6 Mbps, EUT on side, pwr 14
	10482.230	1.0	347.9	Horz	PK	8.07E-08	-40.9	-27.0	-13.9	Ch 48, 6 Mbps, EUT on side, pwr 14
	22979.130	1.5	119.1	Vert	PK	6.64E-08	-41.8	-27.0	-14.8	Ch 149, 6 Mbps, EUT on side, pwr 14
	22797.620	1.5	154.0	Horz	PK	6.53E-08	-41.8	-27.0	-14.8	Ch 140, 6 Mbps, EUT on side, pwr 14
	22800.680	1.5	358.0	Vert	PK	5.96E-08	-42.2	-27.0	-15.2	Ch 140, 6 Mbps, EUT on side, pwr 14
	22401.680	1.5	168.0	Vert	PK	5.85E-08	-42.3	-27.0	-15.3	Ch 120, 6 Mbps, EUT on side, pwr 14
	10482.490	1.8	322.9	Vert	PK	5.84E-08	-42.3	-27.0	-15.3	Ch 48, 6 Mbps, EUT on side, pwr 14
	10642.330	1.7	72.0	Horz	PK	5.71E-08	-42.4	-27.0	-15.4	Ch 64, 6 Mbps, EUT on side, pwr 14
	21998.210	1.5	96.0	Horz	PK	5.37E-08	-42.7	-27.0	-15.7	Ch 100, 6 Mbps, EUT on side, pwr 14
	22001.480	1.5	329.9	Vert	PK	5.13E-08	-42.9	-27.0	-15.9	Ch 100, 6 Mbps, EUT on side, pwr 14
	10522.110	1.0	44.1	Horz	PK	4.60E-08	-43.4	-27.0	-16.4	Ch 52, 6 Mbps, EUT on side, pwr 14
	21038.940	1.5	72.0	Horz	PK	4.24E-08	-43.7	-27.0	-16.7	Ch 52, 6 Mbps, EUT on side, pwr 14
	20958.980	1.5	175.0	Vert	PK	4.22E-08	-43.7	-27.0	-16.7	Ch 48, 6 Mbps, EUT on side, pwr 14
	21279.380	1.5	179.0	Horz	PK	4.18E-08	-43.8	-27.0	-16.8	Ch 64, 6 Mbps, EUT on side, pwr 14
	20960.150	1.5	31.0	Horz	PK	4.13E-08	-43.8	-27.0	-16.8	Ch 48, 6 Mbps, EUT on side, pwr 14
	21039.790	1.5	243.9	Vert	PK	4.05E-08	-43.9	-27.0	-16.9	Ch 52, 6 Mbps, EUT on side, pwr 14
	20718.190	1.5	102.1	Vert	PK	4.03E-08	-44.0	-27.0	-17.0	Ch 36, 6 Mbps, EUT on side, pwr 14
	10362.120	1.0	116.1	Vert	PK	3.88E-08	-44.1	-27.0	-17.1	Ch 36, 6 Mbps, EUT on side, pwr 14
	21278.800	1.5	34.1	Vert	PK	3.81E-08	-44.2	-27.0	-17.2	Ch 64, 6 Mbps, EUT on side, pwr 14
	20719.490	1.5	175.0	Horz	PK	3.67E-08	-44.4	-27.0	-17.4	Ch 36, 6 Mbps, EUT on side, pwr 14
	11400.750	1.0	221.1	Vert	PK	2.96E-08	-45.3	-27.0	-18.3	Ch 140, 6 Mbps, EUT on side, pwr 14
	15781.500	1.0	343.0	Vert	PK	2.89E-08	-45.4	-27.0	-18.4	Ch 52, 6 Mbps, EUT on side, pwr 14
	10522.230	1.0	48.1	Vert	PK	2.77E-08	-45.6	-27.0	-18.6	Ch 52, 6 Mbps, EUT on side, pwr 14
	10642.330	1.8	322.9	Vert	PK	2.22E-08	-46.5	-27.0	-19.5	Ch 64, 6 Mbps, EUT on side, pwr 14
	15541.980	1.0	257.0	Vert	PK	1.81E-08	-47.4	-27.0	-20.4	Ch 36, 6 Mbps, EUT on side, pwr 14
	11568.430	1.0	76.1	Vert	PK	1.80E-08	-47.5	-27.0	-20.5	Ch 157, 6 Mbps, EUT on side, pwr 14
	11201.480	1.9	360.0	Horz	PK	1.70E-08	-47.7	-27.0	-20.7	Ch 120, 6 Mbps, EUT on side, pwr 14
	15722.420	1.0	228.1	Vert	PK	1.69E-08	-47.7	-27.0	-20.7	Ch 48, 6 Mbps, EUT on side, pwr 14
	11490.850	1.1	89.0	Vert	PK	1.46E-08	-48.4	-27.0	-21.4	Ch 149, 6 Mbps, EUT on side, pwr 14
	11200.920	2.2	195.1	Vert	PK	1.12E-08	-49.5	-27.0	-22.5	Ch 120, 6 Mbps, EUT on side, pwr 14
	11650.530	1.0	306.0	Vert	PK	1.04E-08	-49.8	-27.0	-22.8	Ch 165, 6 Mbps, EUT on side, pwr 14
	11002.120	1.8	68.0	Horz	PK	8.29E-09	-50.8	-27.0	-23.8	Ch 100, 6 Mbps, EUT on side, pwr 14
	11402.430	1.0	19.1	Horz	PK	6.50E-09	-51.9	-27.0	-24.9	Ch 140, 6 Mbps, EUT on side, pwr 14
	11001.860	1.1	294.9	Vert	PK	5.23E-09	-52.8	-27.0	-25.8	Ch 100, 6 Mbps, EUT on side, pwr 14

SPURIOUS RADIATED EMISSIONS

Work Order:	DGII0152	Date:	01/05/16	
Project:	None	Temperature:	22.4 °C	
Job Site:	MN05	Humidity:	19.7% RH	
Serial Number:	UUT #7 (55001769-1 rev. 1P)	Barometric Pres.:	996.3 mbar	
EUT:	Sigma Pumps Gen IV 802.11abgn Module			
Configuration:	1			
Customer:	Digi International Inc			
Attendees:	Slava Gehkt			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting 802.11 - channels 149 (5745 MHz) and 165 (5825 MHz); 6 Mbps, 36 Mbps, 54 Mbps, MCS0 20MHz, MCS7 20MHz, MCS0 40MHz, and MCS7 40MHz data rates.			
Deviations:	None			
Comments:	DCCF = -13.98dB. DCCF = 20 log10 (DC), duty cycle = 20%			

Test Specifications	FCC 15.407:2016	Test Method	ANSI C63.10:2013
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Run #	6	Test Distance (m)	1	Antenna Height(s)	1(m)	Results	Pass
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Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
5724.992	1.6	301.9	Vert	AV	1.83E-06	-27.4	-17.0	-10.4	Ch 149, MCS0 40MHz, EUT on side, pwr 18
5725.000	1.6	301.9	Vert	AV	1.53E-06	-28.2	-17.0	-11.2	Ch 149, MCS0 40MHz, EUT on side, pwr 20
5724.900	1.6	301.9	Vert	AV	1.46E-06	-28.4	-17.0	-11.4	Ch 149, MCS7 40MHz, EUT on side, pwr 20
5724.975	1.6	301.9	Vert	AV	1.27E-06	-29.0	-17.0	-12.0	Ch 149, MCS0 40MHz, EUT on side, pwr 16
5850.050	1.6	301.9	Vert	AV	1.27E-06	-29.0	-17.0	-12.0	Ch 165, MCS0 40MHz, EUT on side, pwr 20
5724.933	1.6	301.9	Vert	AV	1.01E-06	-30.0	-17.0	-13.0	Ch 149, MCS7 40MHz, EUT on side, pwr 16
5850.033	1.6	292.0	Vert	AV	9.38E-07	-30.3	-17.0	-13.3	Ch 165, MCS7 40MHz, EUT on side, pwr 20
5850.042	1.6	292.0	Vert	AV	7.45E-07	-31.3	-17.0	-14.3	Ch 165, MCS0 40MHz, EUT on side, pwr 16
5724.983	1.6	301.9	Vert	AV	6.22E-07	-32.1	-17.0	-15.1	Ch 149, MCS0 20MHz, EUT on side, pwr 30
5850.050	1.6	292.0	Vert	AV	5.92E-07	-32.3	-17.0	-15.3	Ch 165, MCS7 40MHz, EUT on side, pwr 16
5724.967	1.6	301.9	Vert	AV	4.83E-07	-33.2	-17.0	-16.2	Ch 149, MCS7 20MHz, EUT on side, pwr 30
5724.967	1.6	301.9	Vert	AV	4.11E-07	-33.9	-17.0	-16.9	Ch 149, MCS0 40MHz, EUT on side, pwr 14
5724.975	1.6	301.9	Vert	AV	3.92E-07	-34.1	-17.0	-17.1	Ch 149, MCS7 40MHz, EUT on side, pwr 14
5725.000	0.0	301.9	Vert	AV	3.83E-07	-34.2	-17.0	-17.2	Ch 149, 36 Mbps, EUT on side, pwr 30
5725.000	1.6	301.9	Vert	AV	3.58E-07	-34.5	-17.0	-17.5	Ch 149, 54 Mbps, EUT on side, pwr 30
5724.992	1.7	301.9	Vert	AV	3.42E-07	-34.7	-17.0	-17.7	Ch 149, 6 Mbps, EUT on side, pwr 30
5850.033	1.6	292.0	Vert	AV	7.28E-08	-41.4	-17.0	-24.4	Ch 165, MCS7 20MHz, EUT on side, pwr 30
5850.017	1.6	292.0	Vert	AV	6.96E-08	-41.6	-17.0	-24.6	Ch 165, MCS0 20MHz, EUT on side, pwr 30
5850.067	1.6	292.0	Vert	AV	5.28E-08	-42.8	-17.0	-25.8	Ch 165, 6 Mbps, EUT on side, pwr 30
5850.000	1.6	292.0	Vert	AV	4.81E-08	-43.2	-17.0	-26.2	Ch 165, 54 Mbps, EUT on side, pwr 30

BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

The 99% occupied bandwidth of the carrier was measured to ensure that no part of the carrier operating in the U-NII-1 band (5.2 GHz band) was contained within the U-NII-2A band.

The transmit frequencies and data rates listed in the datasheet were measured. The transmit power was set to its default maximum.

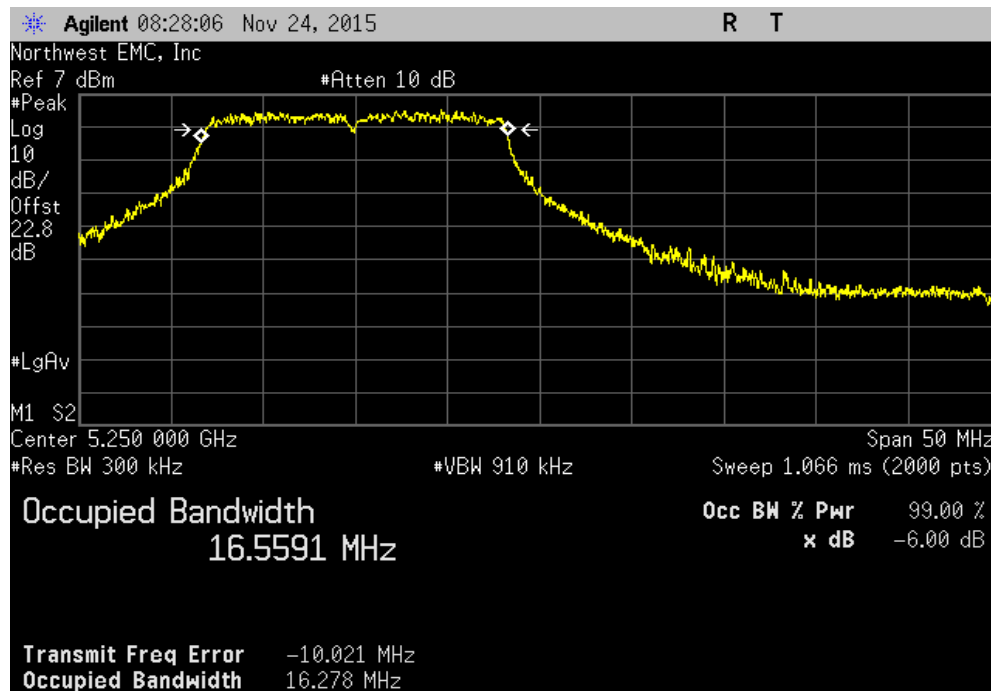
A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

BAND EDGE COMPLIANCE

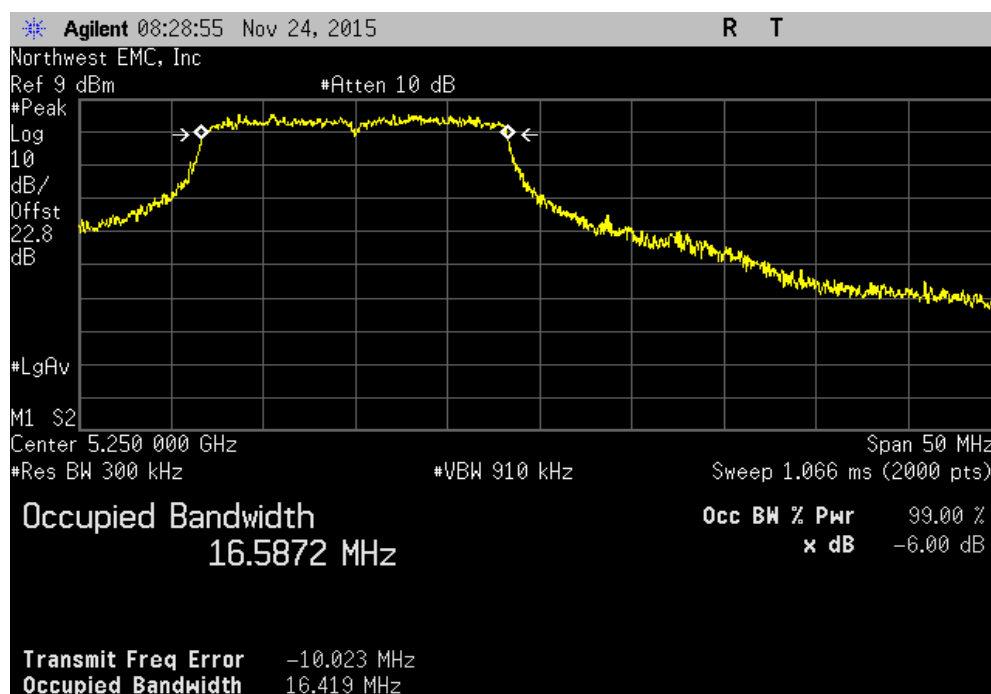
EUT: Sigma Pumps Gen IV 802.11abgn Module		Work Order: DGII0152	
Serial Number: UUT #7 (55001769-1 rev. 1P)		Date: 01/11/16	
Customer: Digi International Inc		Temperature: 21.1°C	
Attendees: Slava Gehkt		Humidity: 16%	
Project: None		Barometric Pres.: 984	
Tested by: Jared Ison	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2016		ANSI C63.10:2013	
COMMENTS			
802.11 radio set to single channel continuous transmission.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		OBW Within Band	Band Edge (MHz)
5150 - 5250 MHz Band			Result
High Channel, Ch 48 - 5240 MHz			
802.11(a) 6 Mbps		Yes	5250 Pass
802.11(a) 36 Mbps		Yes	5250 Pass
802.11(a) 54 Mbps		Yes	5250 Pass
802.11(n) MCS0		Yes	5250 Pass
802.11(n) MCS7		Yes	5250 Pass
802.11(n) MCS0 - 40 MHz		Yes	5250 Pass
802.11(n) MCS7 - 40 MHz		Yes	5250 Pass

BAND EDGE COMPLIANCE

5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 6 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass

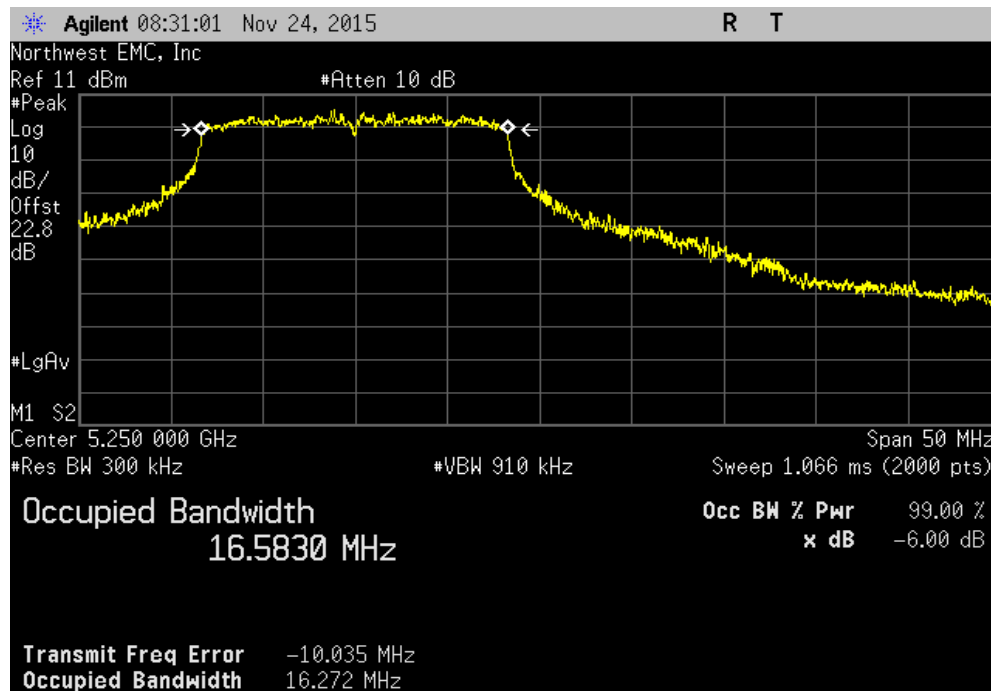


5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 36 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass

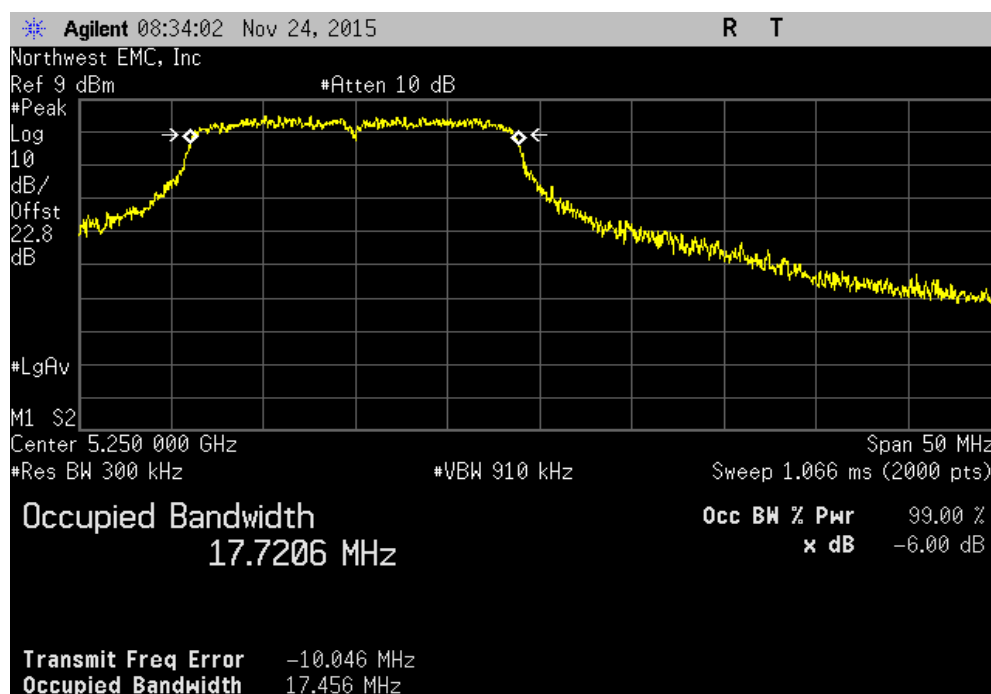


BAND EDGE COMPLIANCE

5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 54 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass

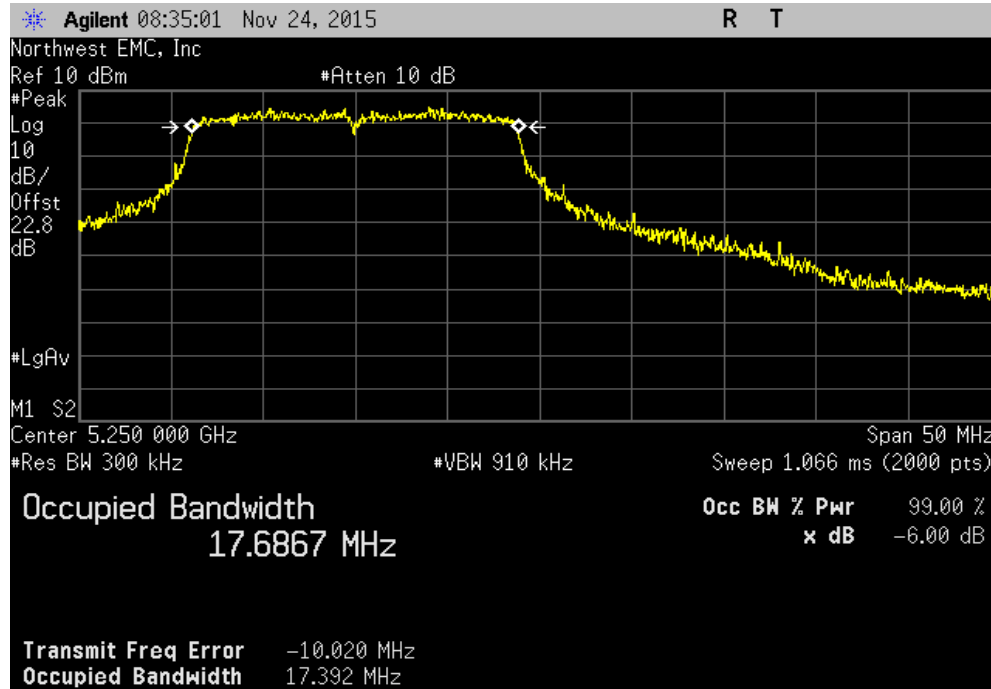


5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS0						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass

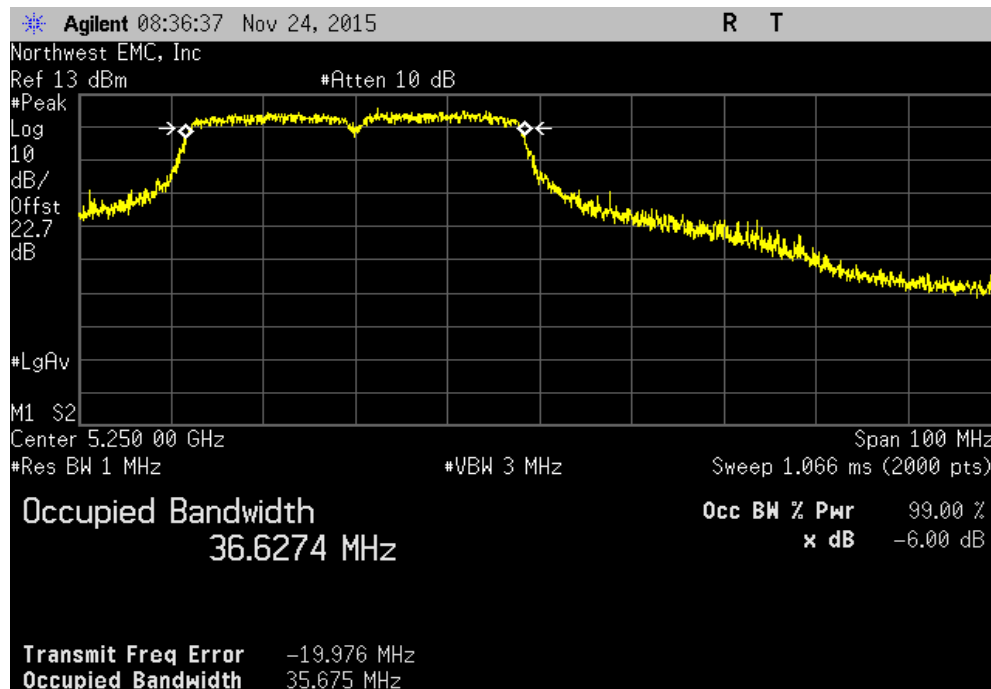


BAND EDGE COMPLIANCE

5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS7						
OBW				Band Edge	Result	
Within Band				(MHz)		
Yes				5250	Pass	

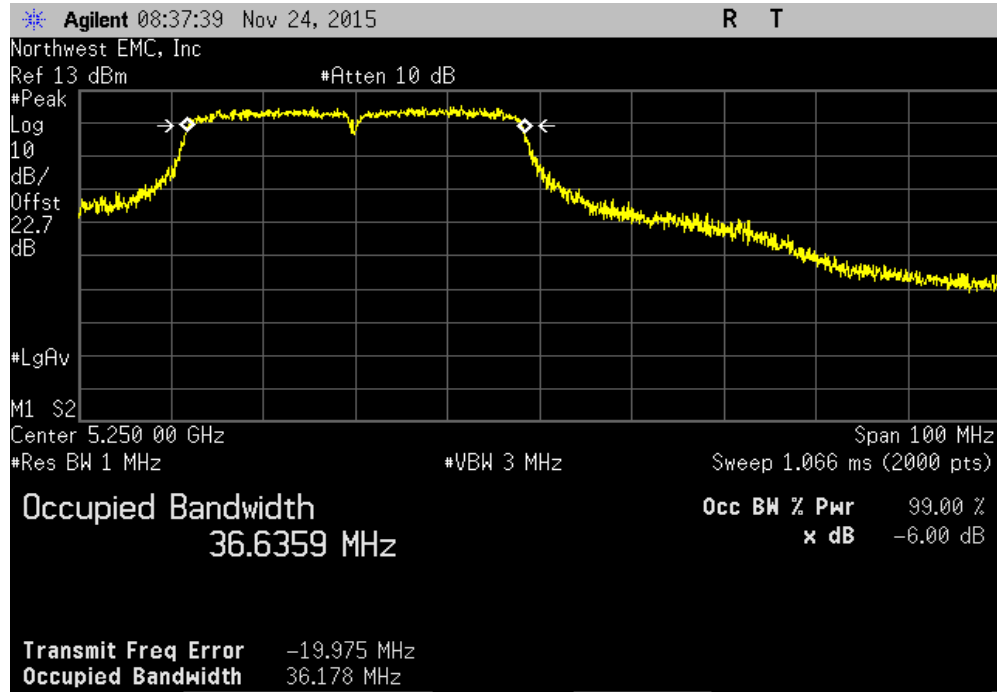


5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS0 - 40 MHz						
OBW				Band Edge	Result	
Within Band				(MHz)		
Yes				5250	Pass	



BAND EDGE COMPLIANCE

5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS7 - 40 MHz						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



FREQUENCY STABILITY

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)
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-SCT/AC	TBF	10/21/2015	12
Thermometer	Omega Engineering, Inc.	HH311	DUB	11/3/2014	36
Power Supply - DC	Agilent	U8002A	TPZ	NCR	0
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2015	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 (0° 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."

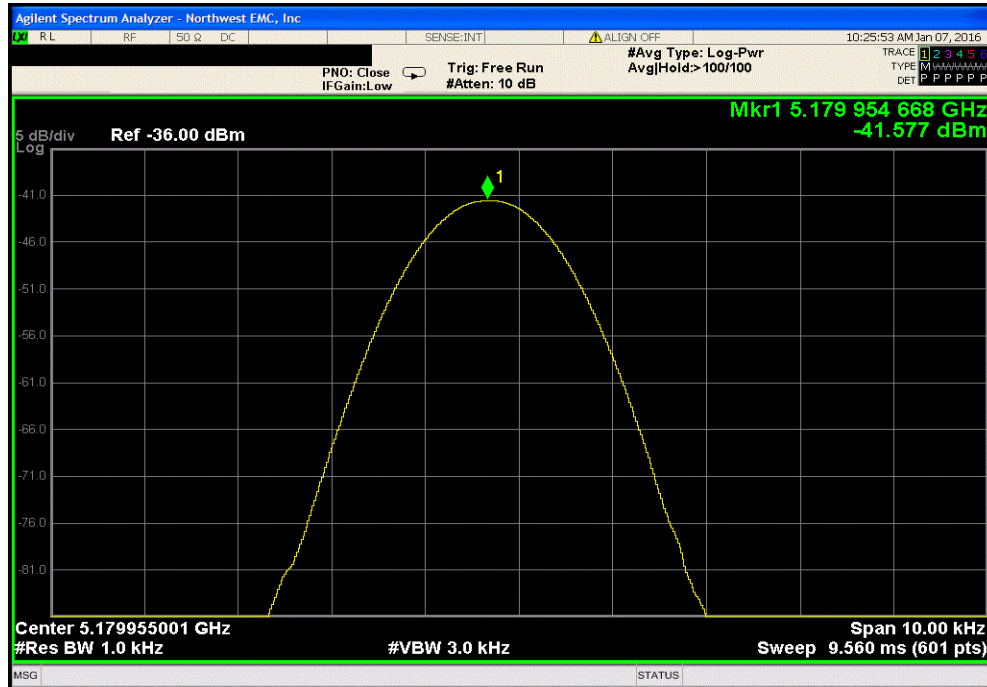
No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

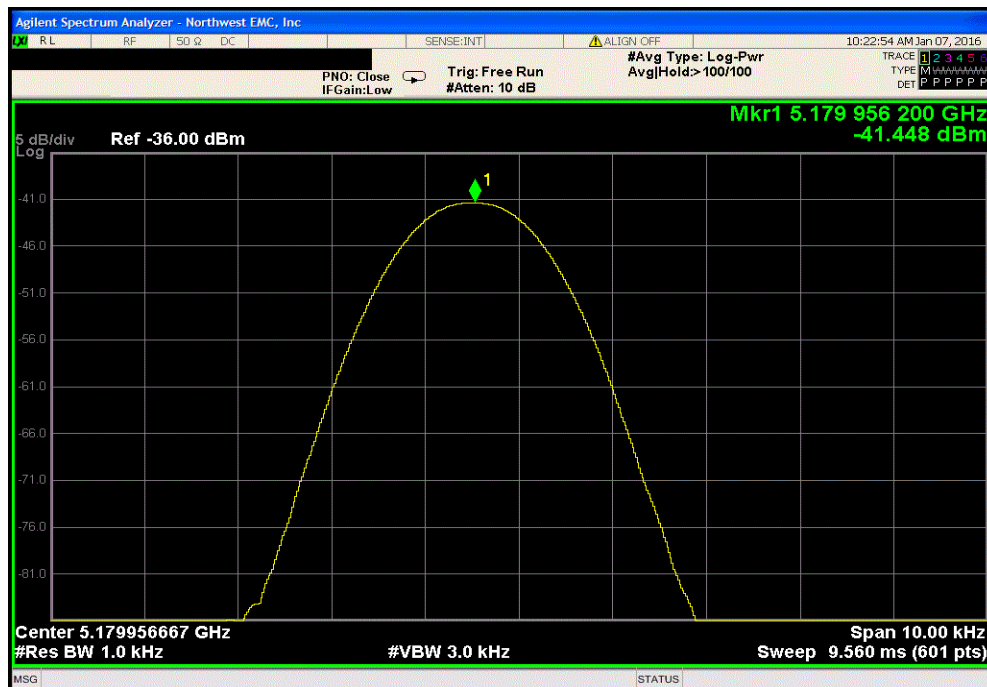
EUT: Sigma Pumps Gen IV 802.11abqn Module		Work Order: DGII0152	
Serial Number: UUT #7 (55001769-1 rev. 1P)		Date: 01/07/16	
Customer: Digi International Inc		Temperature: 21.9°C	
Attendees: Slava Gehkt		Humidity: 27%	
Project: None		Barometric Pres.: 984.2	
Tested by: Dustin Sparks, Trevor Buls		Power: 110VAC/60Hz	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2016		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Trevor Buls</i>	
		Measured Value (MHz)	Assigned Value (MHz)
		Error (ppm)	Limit (ppm)
			Results
5150 MHz - 5250 MHz - Low Channel, 5180 MHz			
	Voltage: 115%	5179.954668	5180
	Voltage: 100%	5179.9562	5180
	Voltage: 85%	5179.9542	5180
	Temperature: +50°	5179.930317	5180
	Temperature: +40°	5179.938167	5180
	Temperature: +30°	5179.952334	5180
	Temperature: +20°	5179.968151	5180
	Temperature: +10°	5179.985383	5180
	Temperature: 0°	5180.005534	5180
5250 MHz - 5350 MHz - High Channel, 5320 MHz			
	Voltage: 115%	5319.952284	5320
	Voltage: 100%	5319.9524	5320
	Voltage: 85%	5319.952601	5320
	Temperature: +50°	5319.928466	5320
	Temperature: +40°	5319.9365	5320
	Temperature: +30°	5319.950617	5320
	Temperature: +20°	5319.967134	5320
	Temperature: +10°	5319.98515	5320
	Temperature: 0°	5320.00555	5320
5470 MHz - 5725 MHz - Low Channel, 5500 MHz			
	Voltage: 115%	5499.9506	5500
	Voltage: 100%	5499.95045	5500
	Voltage: 85%	5499.950316	5500
	Temperature: +50°	5499.926117	5500
	Temperature: +40°	5499.9344	5500
	Temperature: +30°	5499.94865	5500
	Temperature: +20°	5499.966083	5500
	Temperature: +10°	5499.984333	5500
	Temperature: 0°	5500.005717	5500
5470 MHz - 5725 MHz - High Channel, 5700 MHz			
	Voltage: 115%	5699.948251	5700
	Voltage: 100%	5699.948333	5700
	Voltage: 85%	5699.94835	5700
	Temperature: +50°	5699.923399	5700
	Temperature: +40°	5699.9319	5700
	Temperature: +30°	5699.946683	5700
	Temperature: +20°	5699.96485	5700
	Temperature: +10°	5699.98345	5700
	Temperature: 0°	5700.005833	5700
5725 MHz - 5850 MHz - High Channel, 5825 MHz			
	Voltage: 115%	5824.946733	5825
	Voltage: 100%	5824.946683	5825
	Voltage: 85%	5824.946623	5825
	Temperature: +50°	5824.921557	5825
	Temperature: +40°	5824.930256	5825
	Temperature: +30°	5824.945291	5825
	Temperature: +20°	5824.96371	5825
	Temperature: +10°	5824.983278	5825
	Temperature: 0°	5825.005811	5825

FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.954668	5180	8.8	100	Pass	

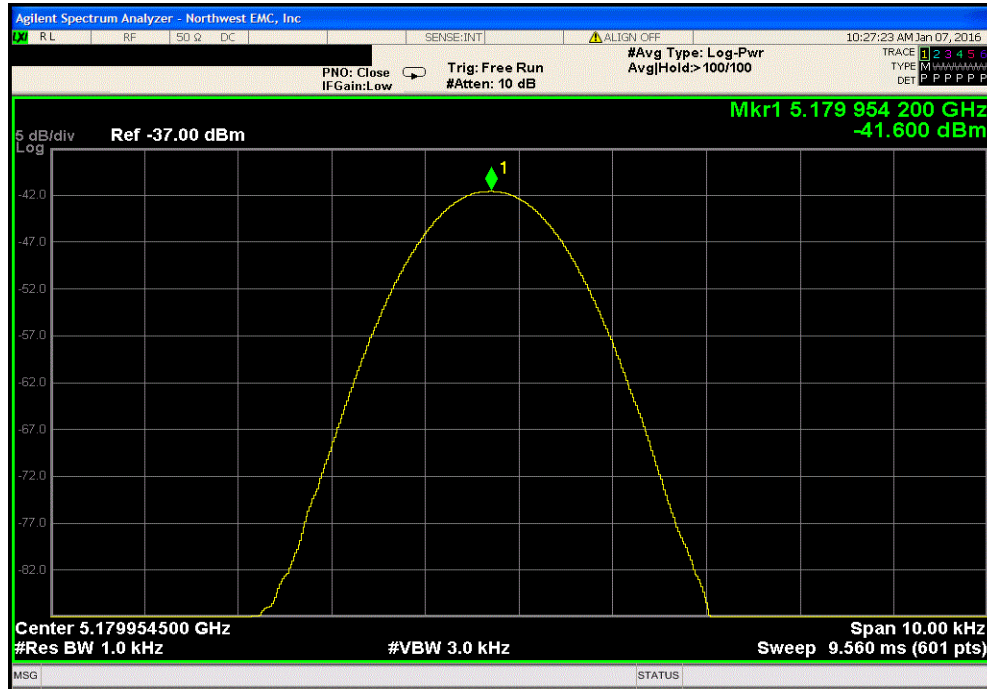


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.9562	5180	8.5	100	Pass	

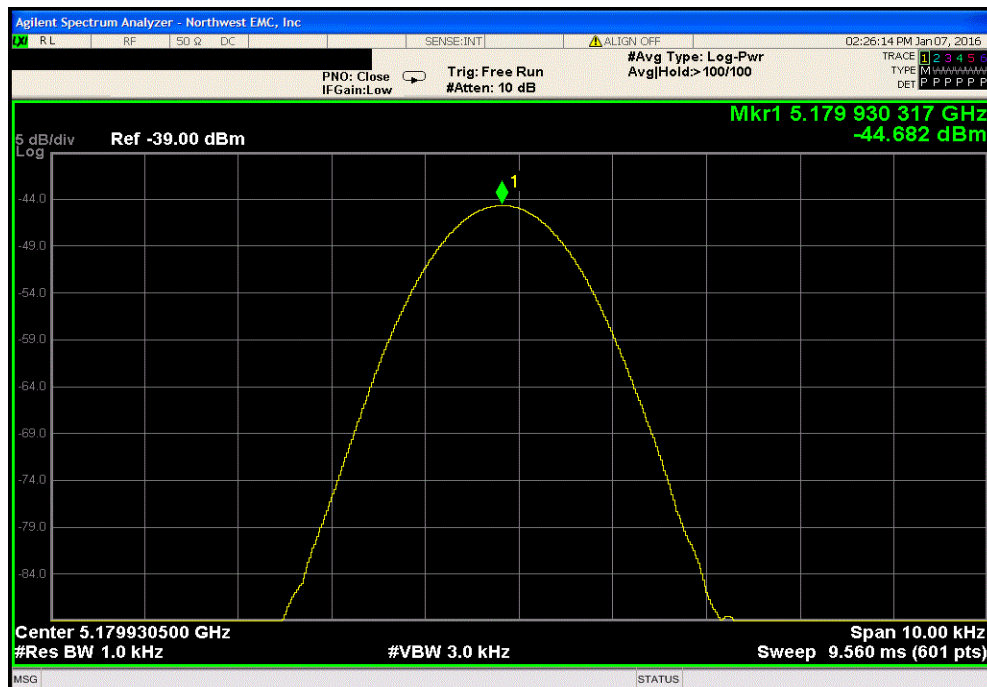


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.9542	5180	8.8	100	Pass	

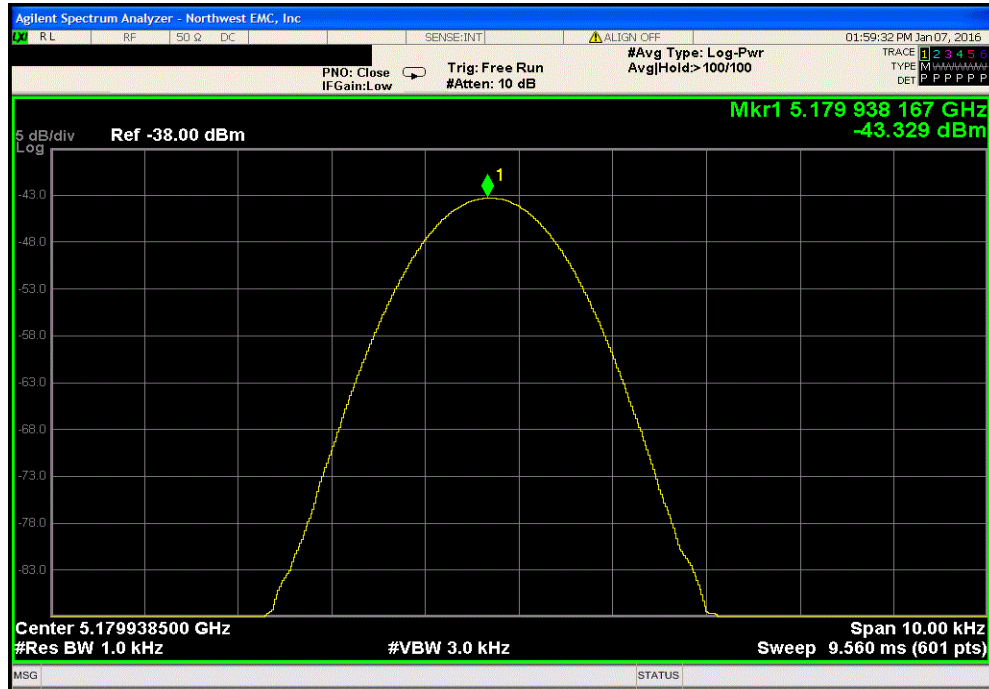


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.930317	5180	13.5	100	Pass	

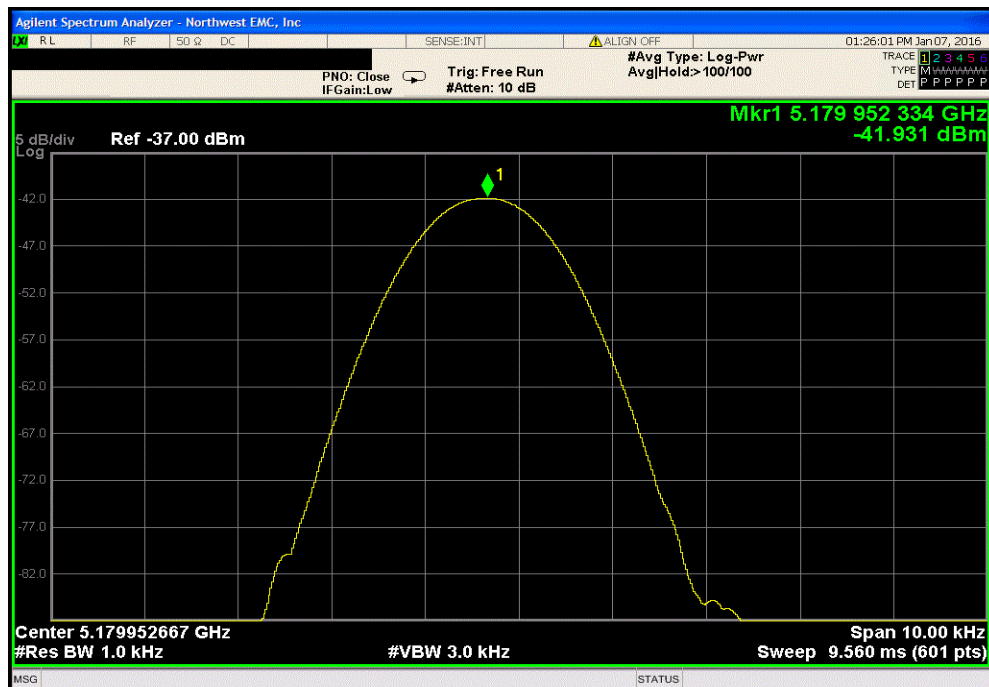


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5179.938167	5180	11.9	100	Pass

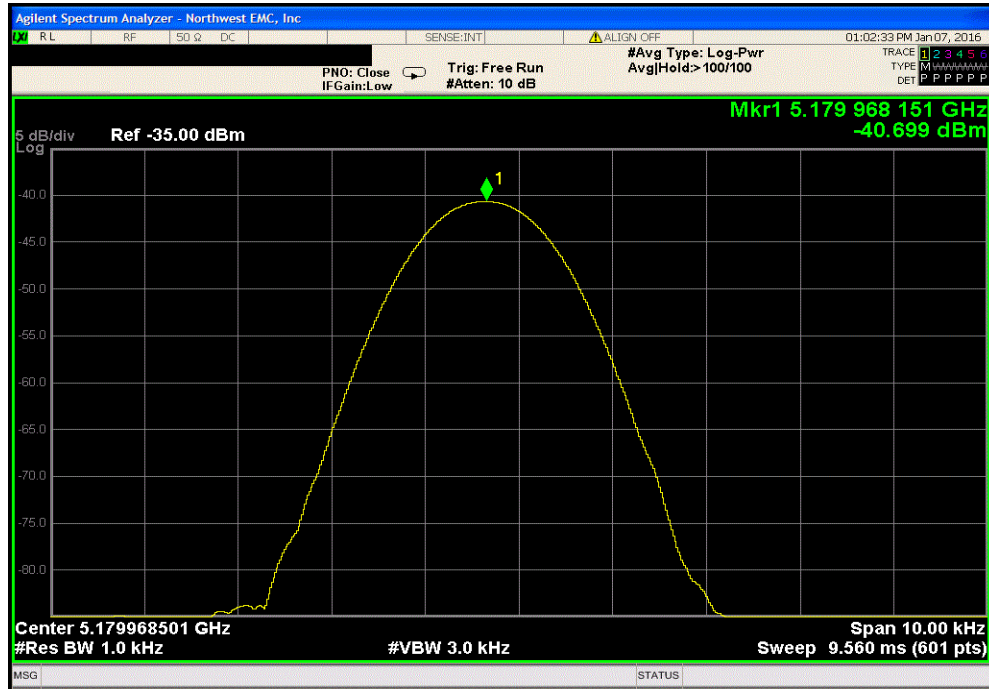


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5179.952334	5180	9.2	100	Pass

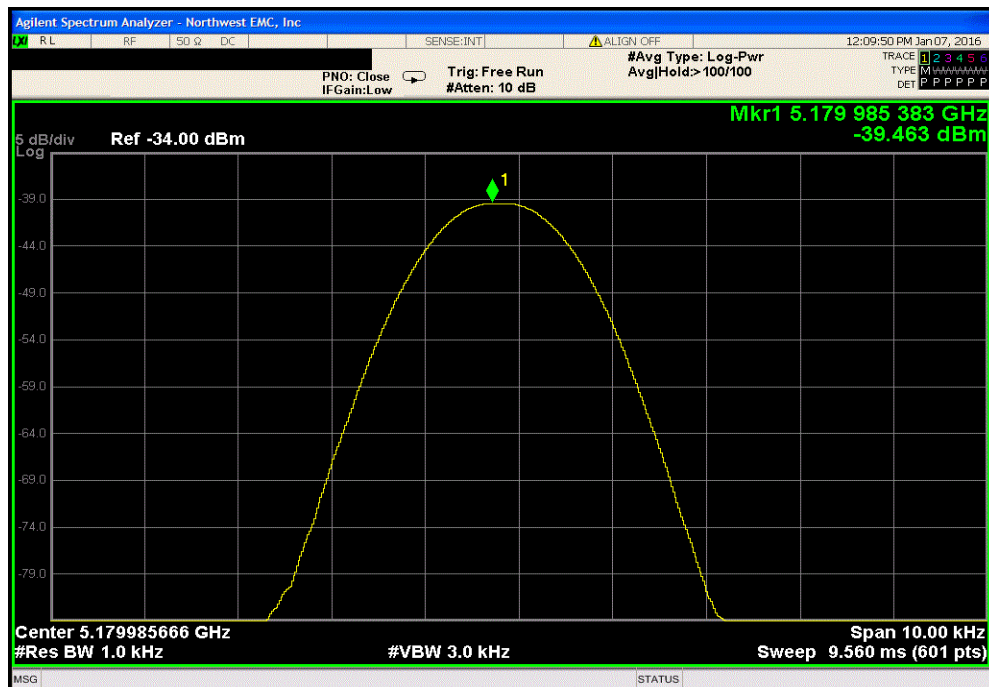


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.968151	5180	6.2	100	Pass	



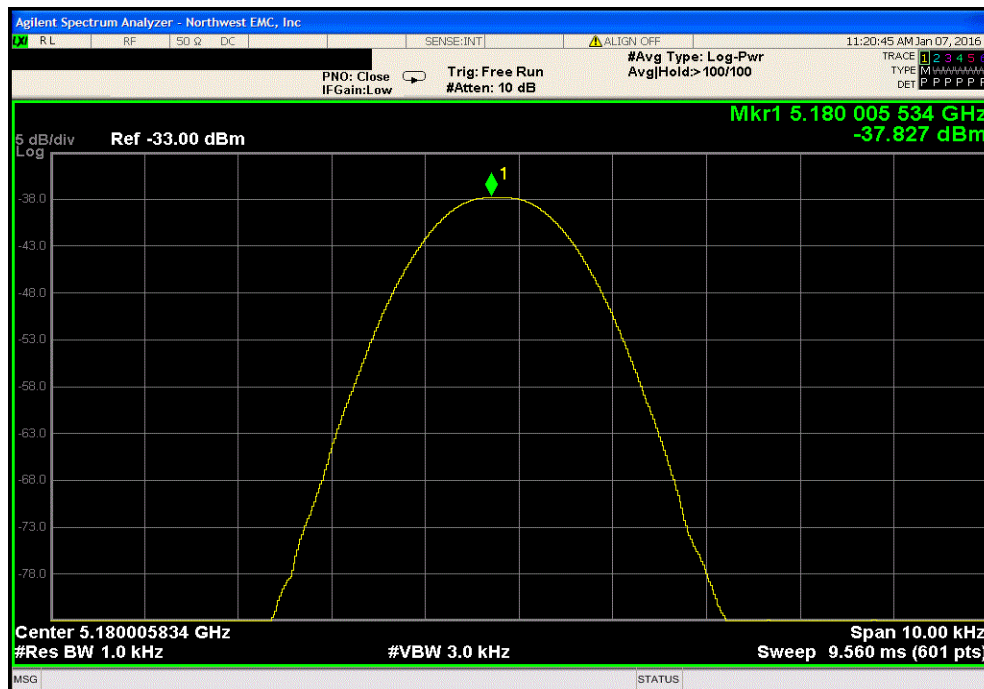
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5179.985383	5180	2.8	100	Pass	



FREQUENCY STABILITY

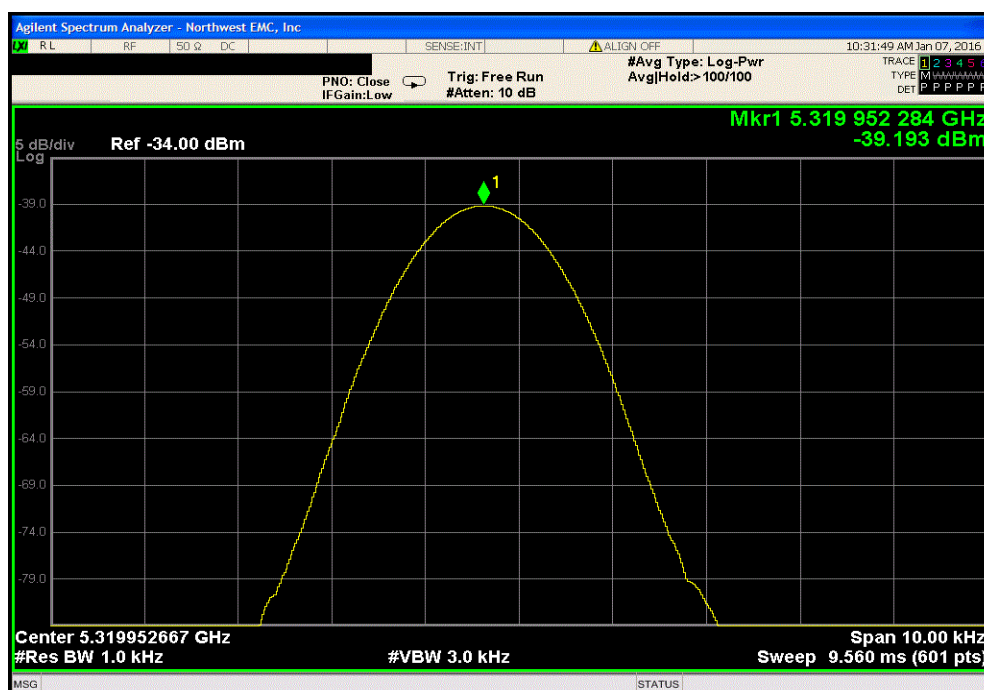
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5180.005534	5180	1.1	100	Pass



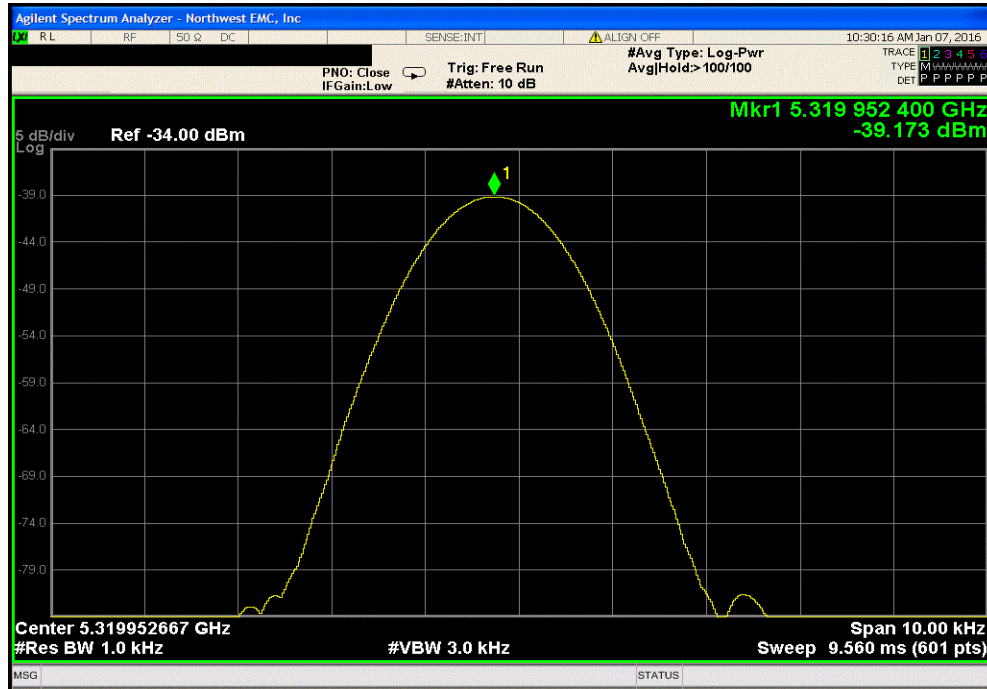
5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 115%

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5319.952284	5320	9	100	Pass

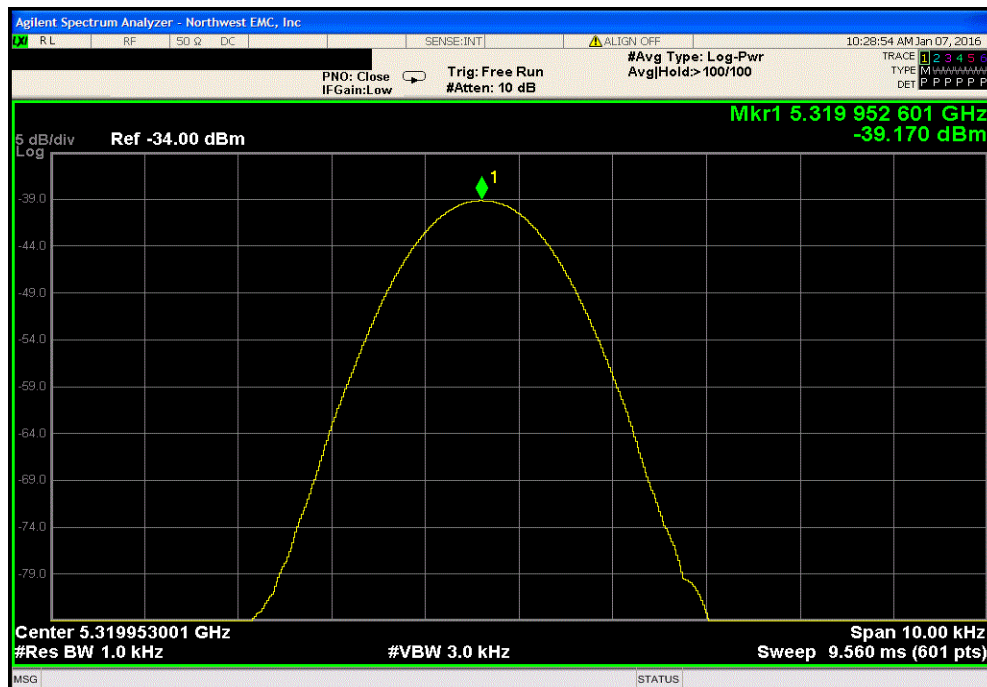


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 100%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5319.9524	5320	9	100	Pass	

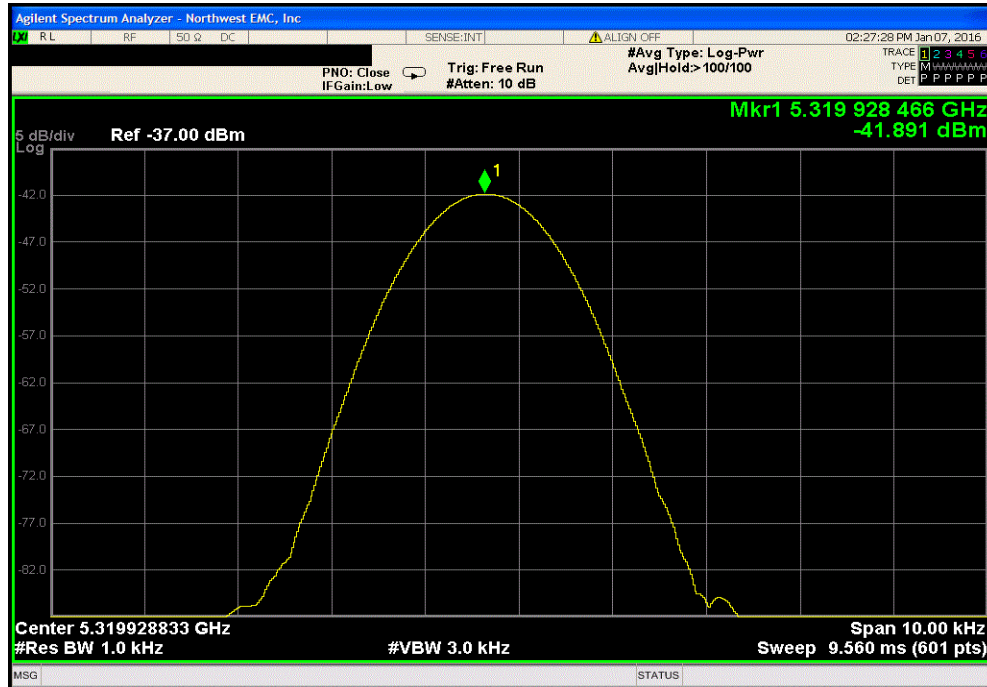


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 85%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5319.952601	5320	8.9	100	Pass	

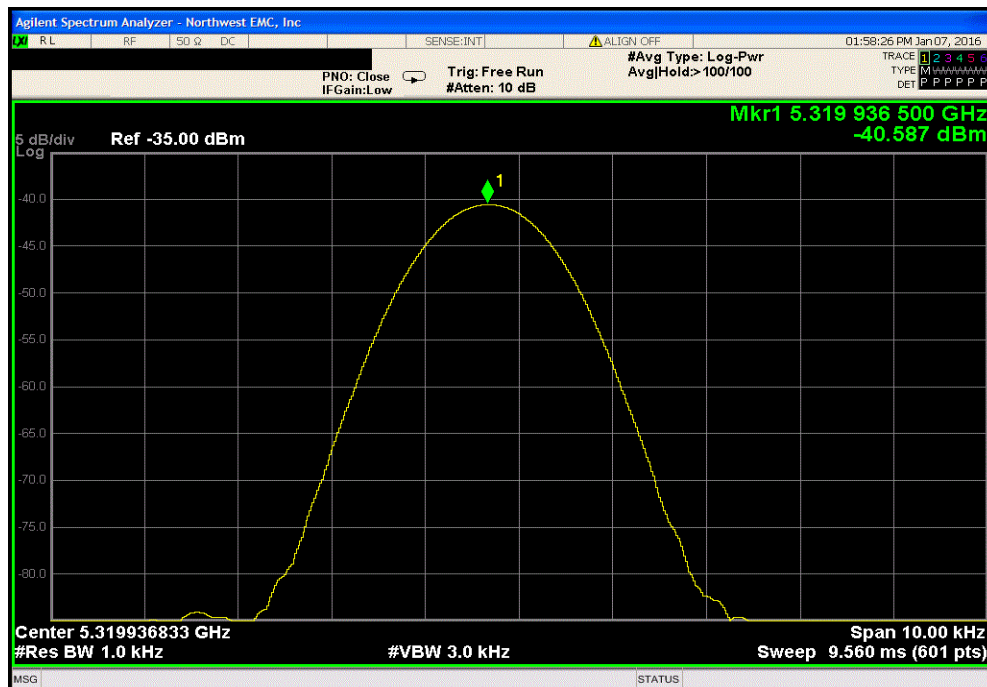


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +50°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5319.928466	5320	13.5	100	Pass

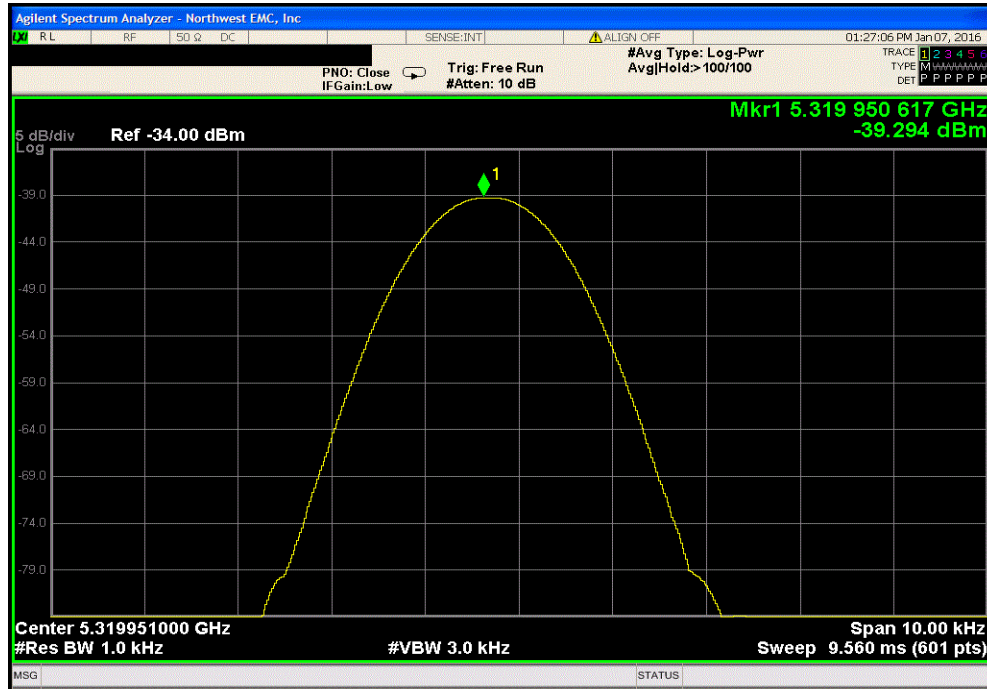


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +40°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5319.9365	5320	11.9	100	Pass

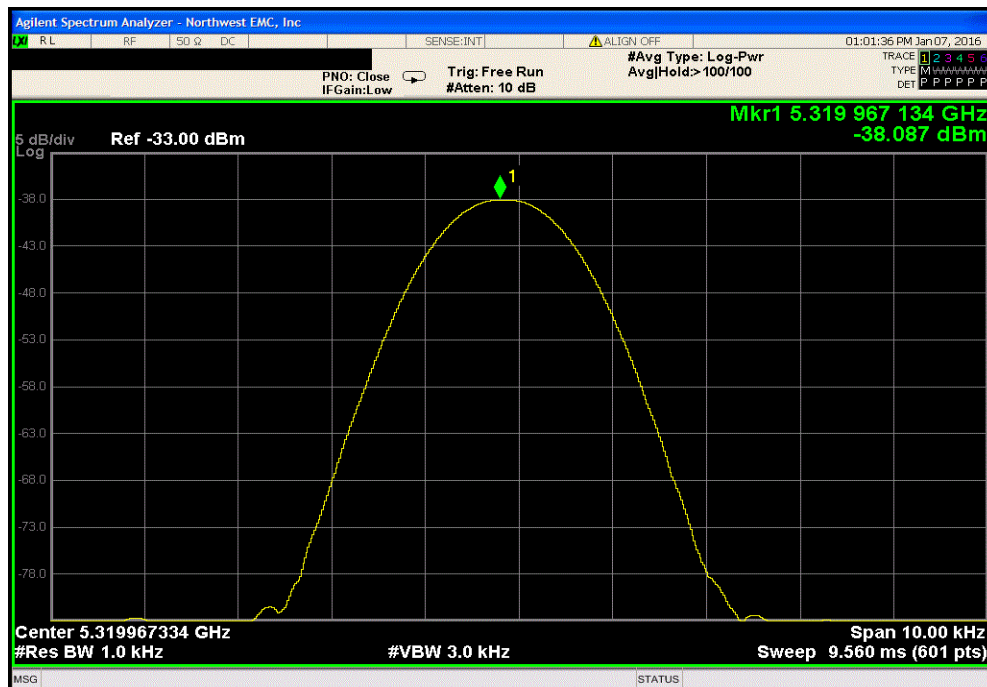


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +30°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5319.950617	5320	9.3	100	Pass

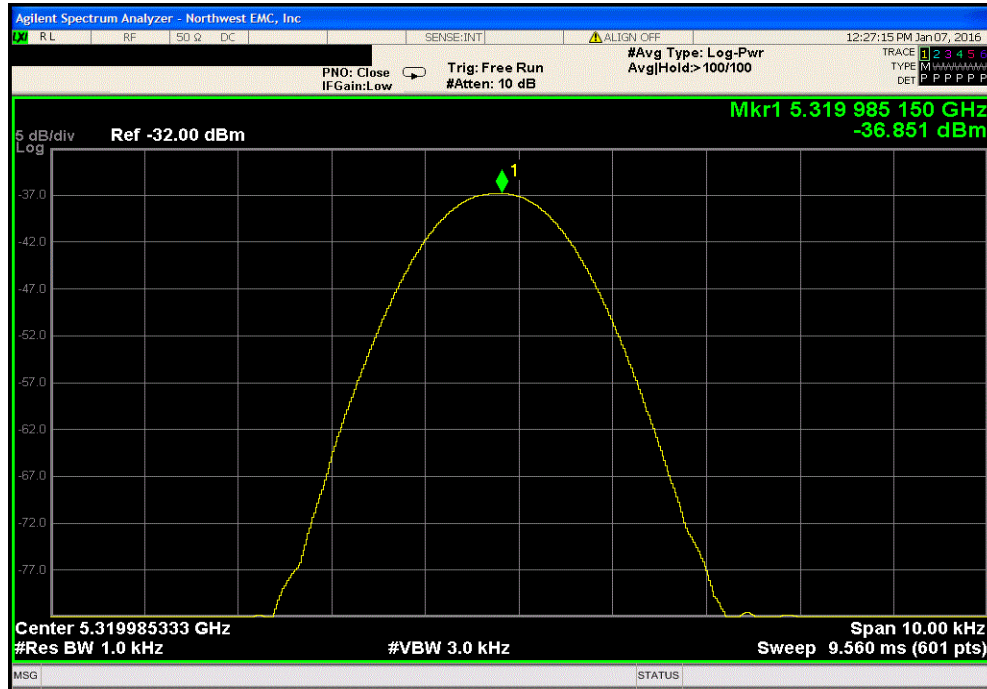


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +20°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5319.967134	5320	6.2	100	Pass

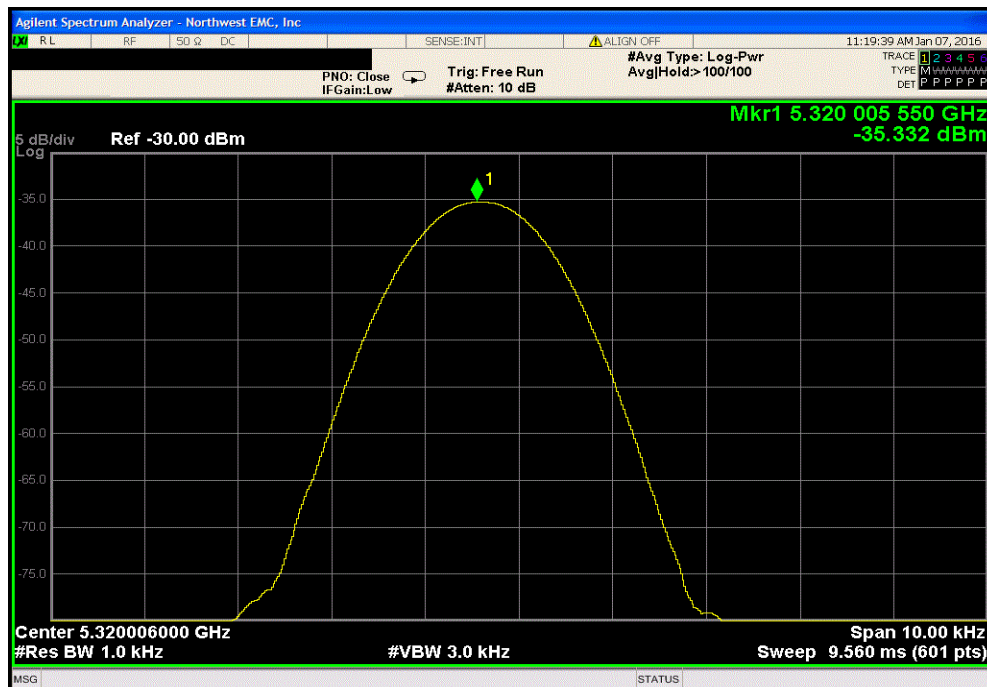


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5319.98515	5320	2.8	100	Pass	

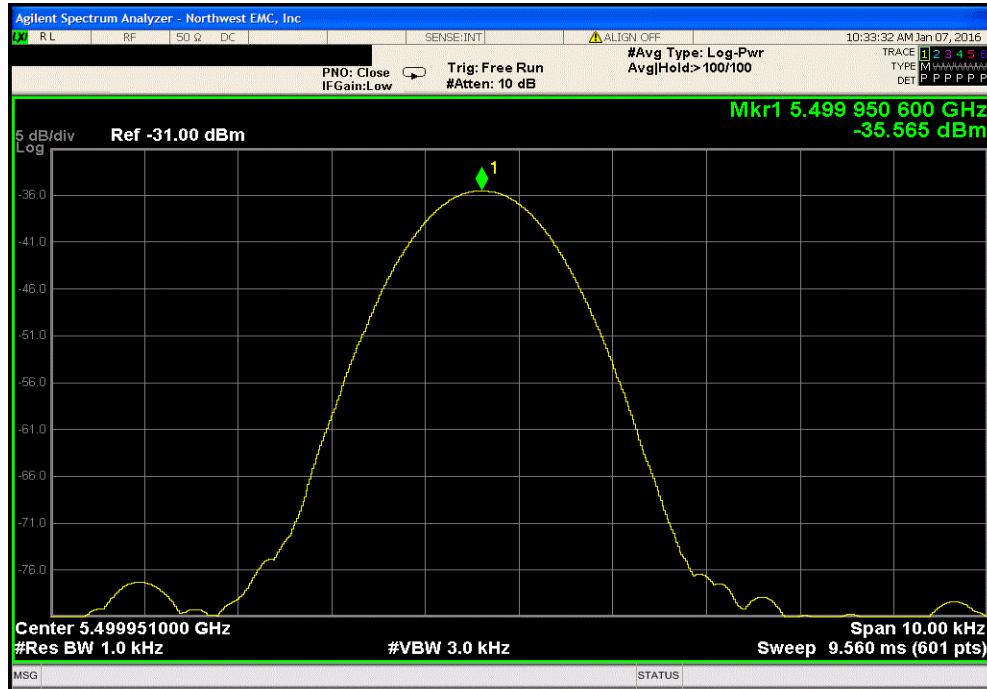


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.00555	5320	1	100	Pass	

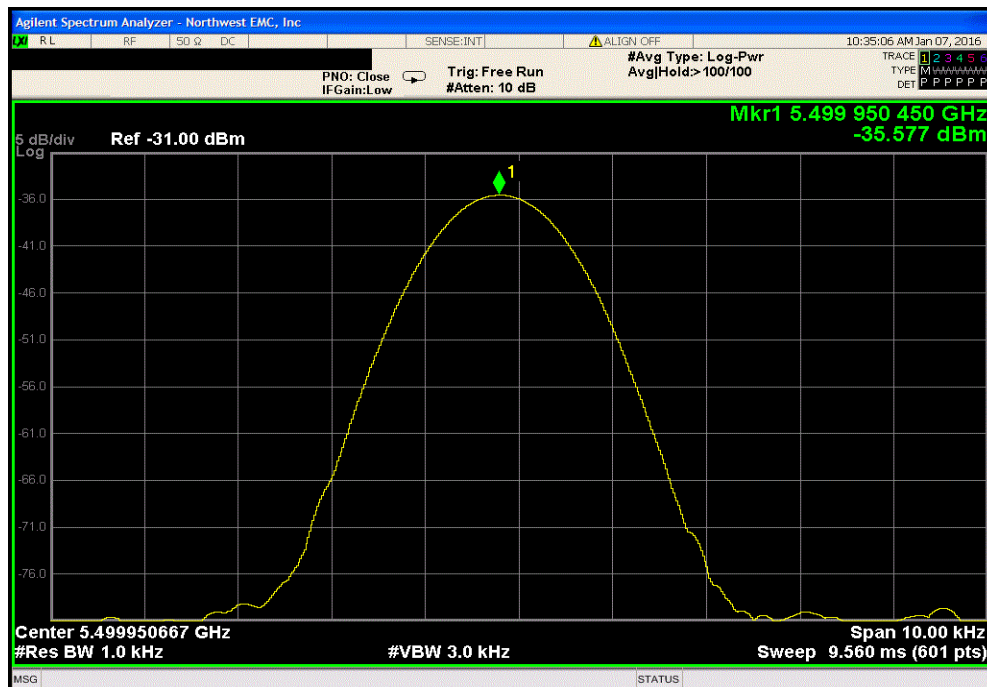


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 115%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.9506	5500	9	100	Pass	

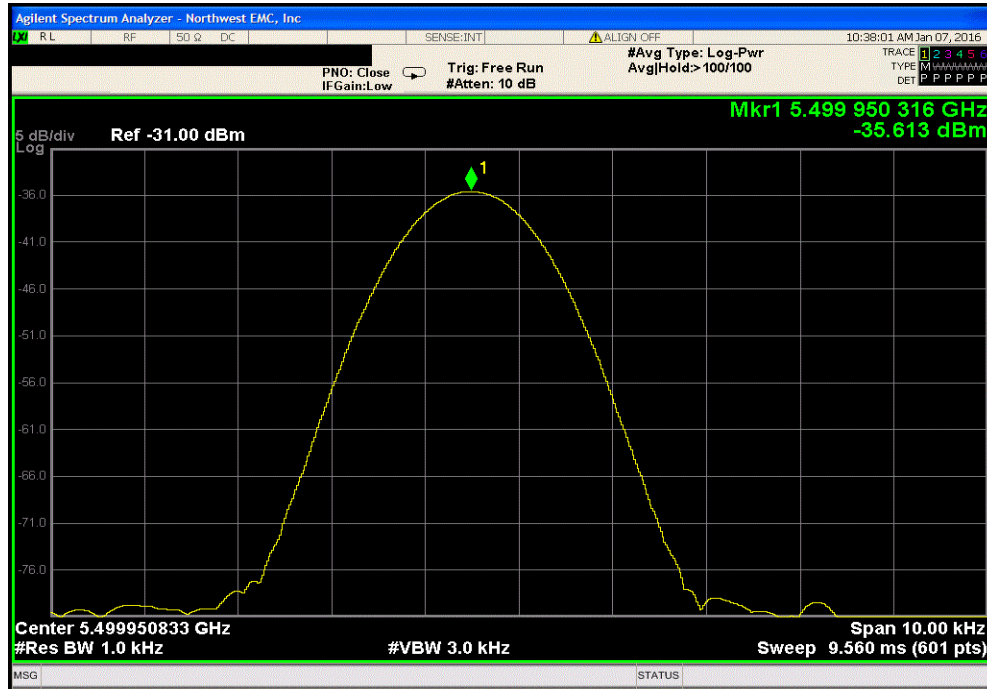


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 100%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.95045	5500	9	100	Pass	

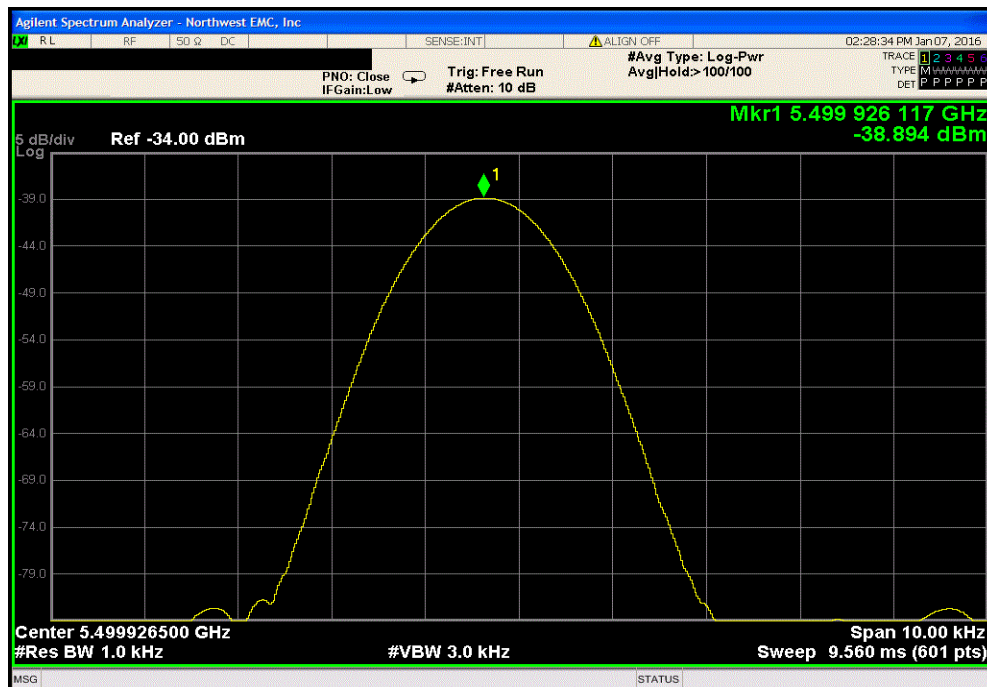


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 85%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.950316	5500	9	100	Pass	

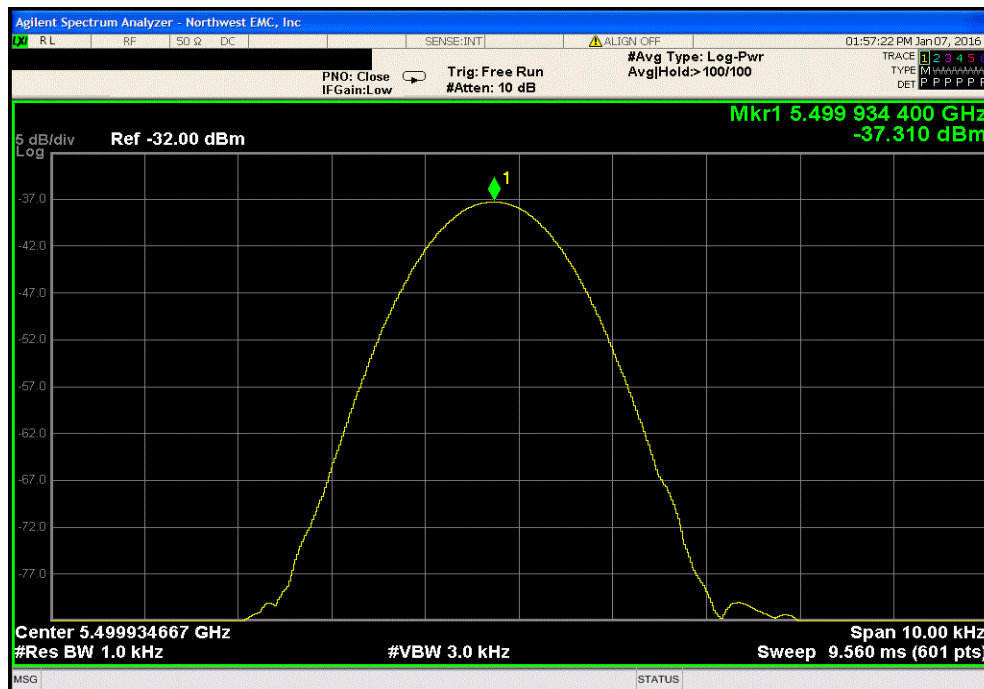


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.926117	5500	13.4	100	Pass	

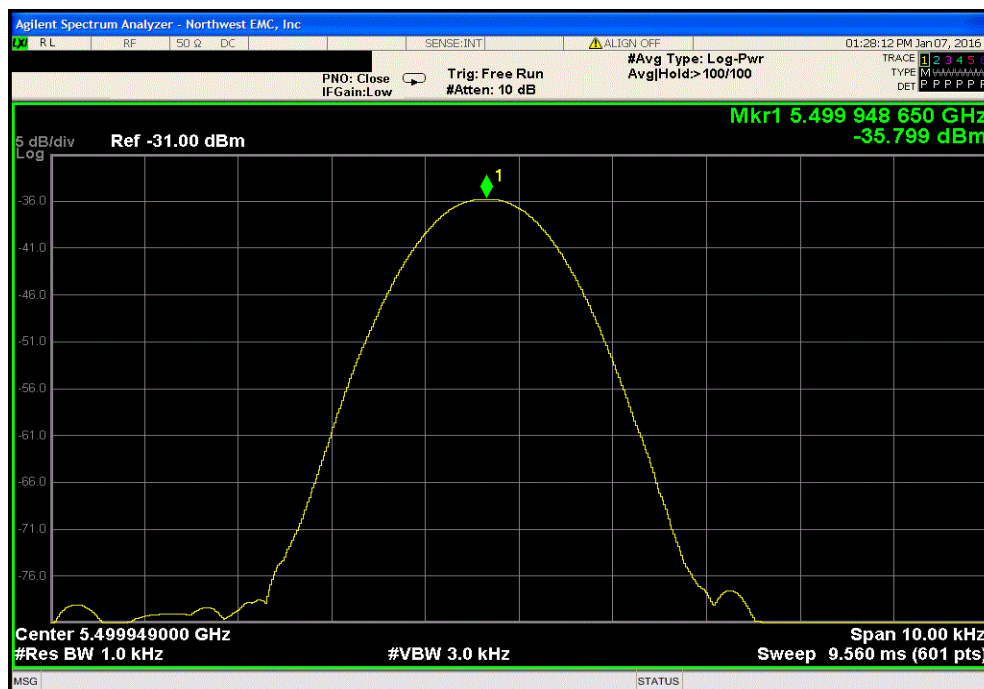


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.9344	5500	11.9	100	Pass	

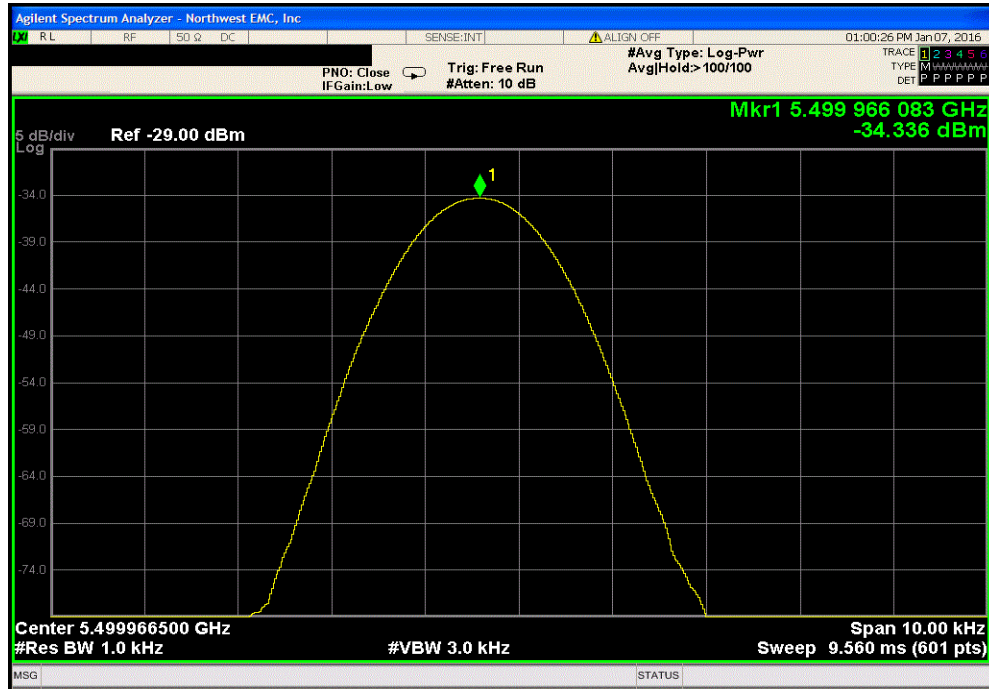


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.94865	5500	9.3	100	Pass	

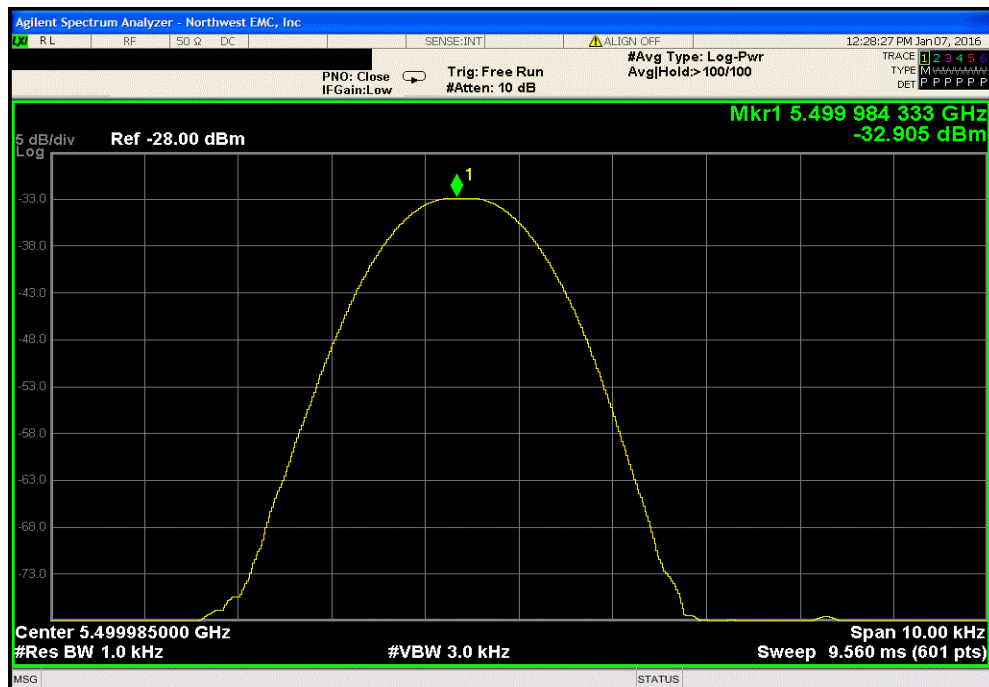


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.966083	5500	6.2	100	Pass	

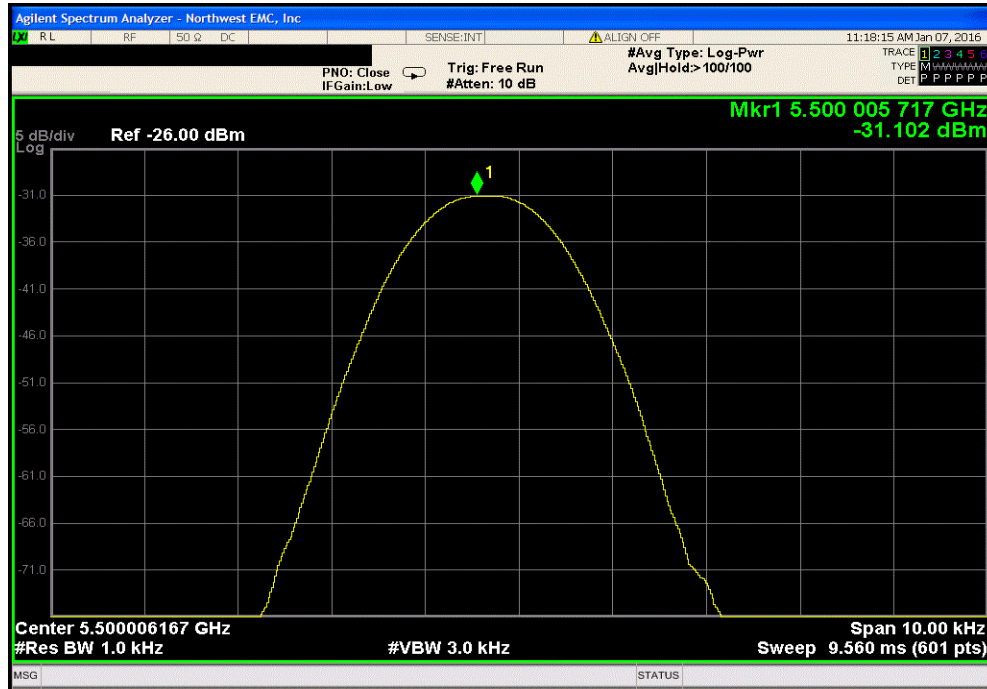


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5499.984333	5500	2.9	100	Pass	

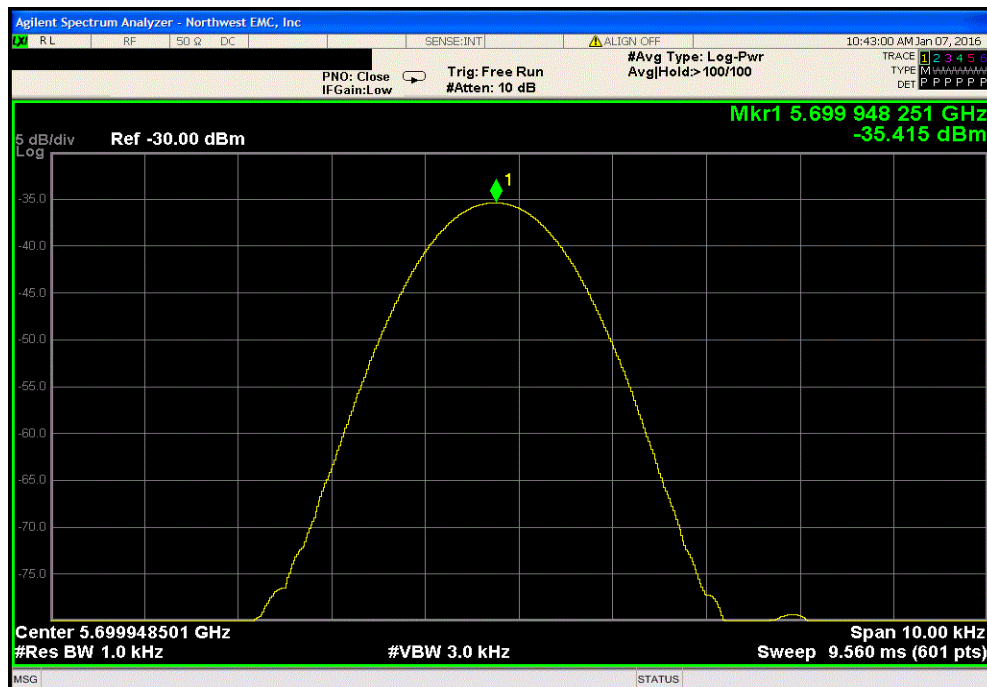


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.005717	5500	1	100	Pass	

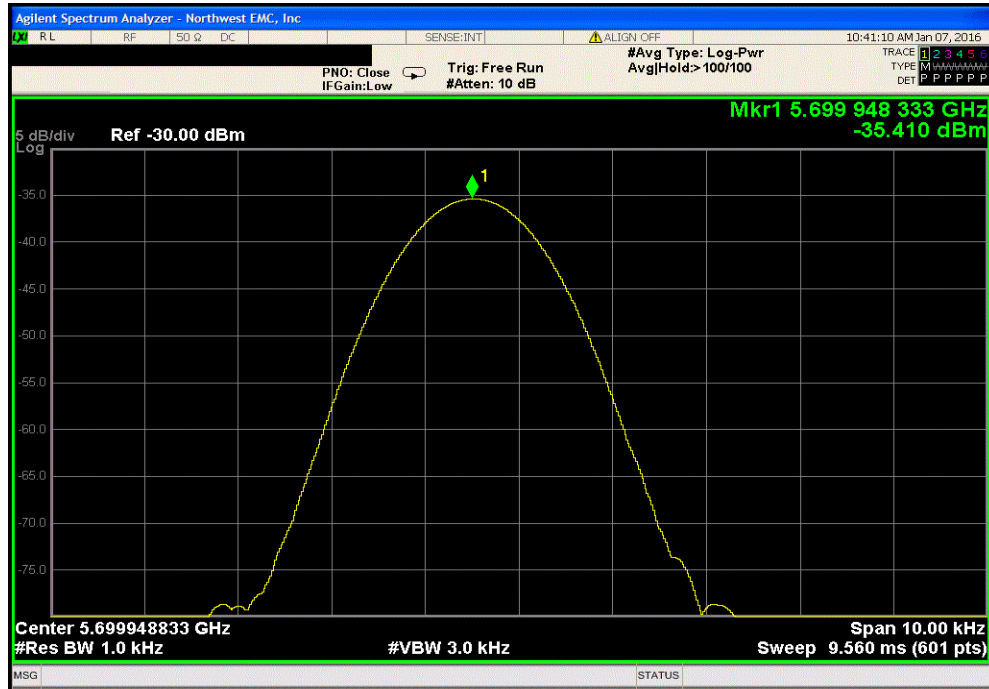


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 115%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5699.948251	5700	9.1	100	Pass	

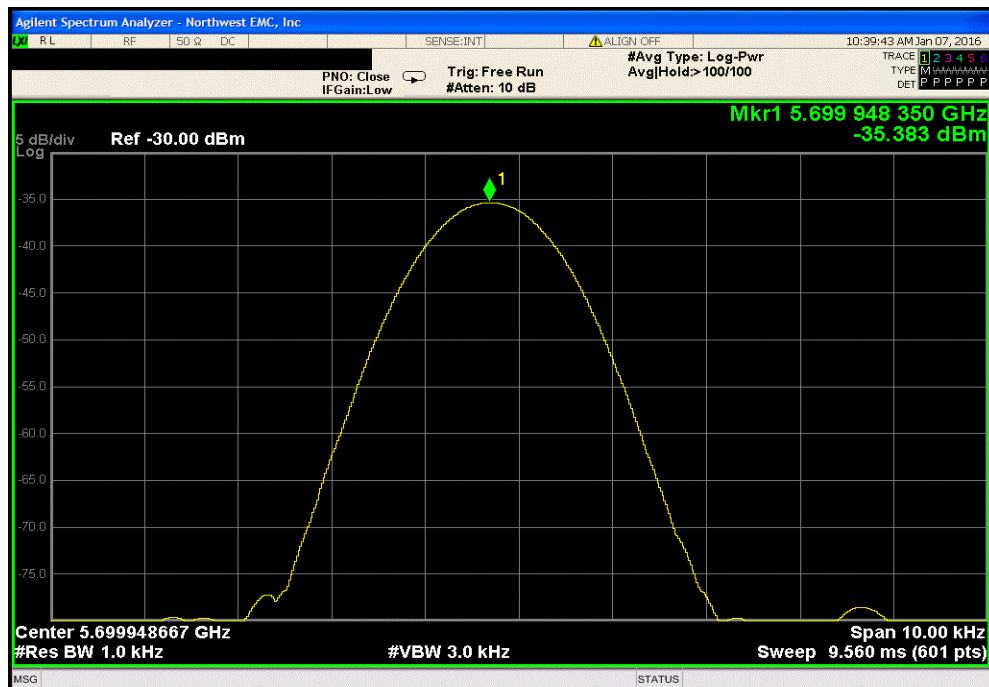


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 100%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5699.948333	5700	9.1	100	Pass	

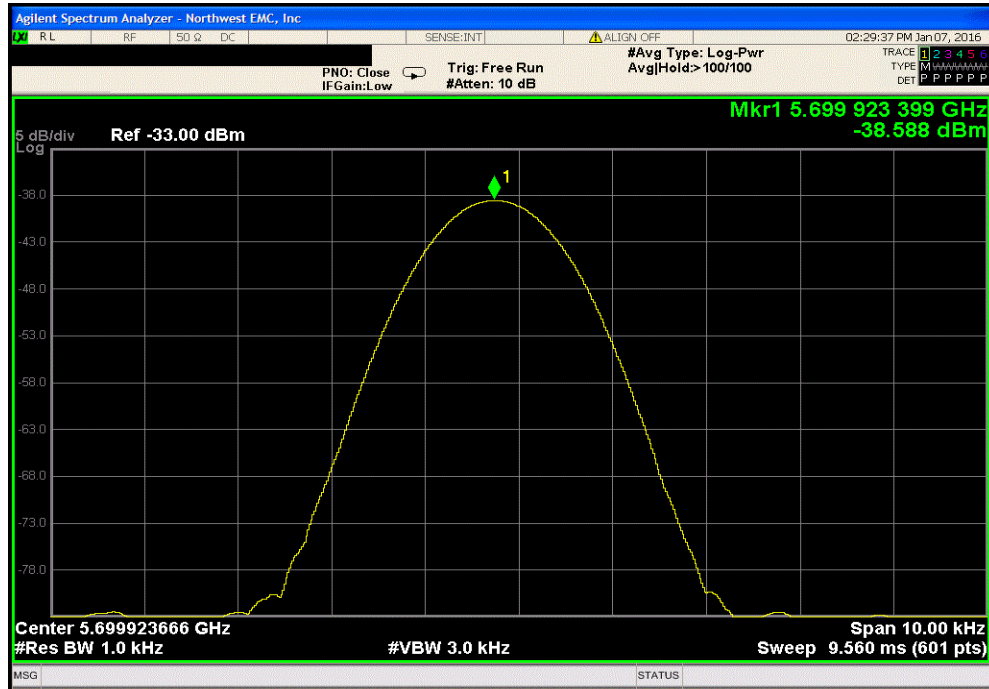


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 85%						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5699.94835	5700	9.1	100	Pass	

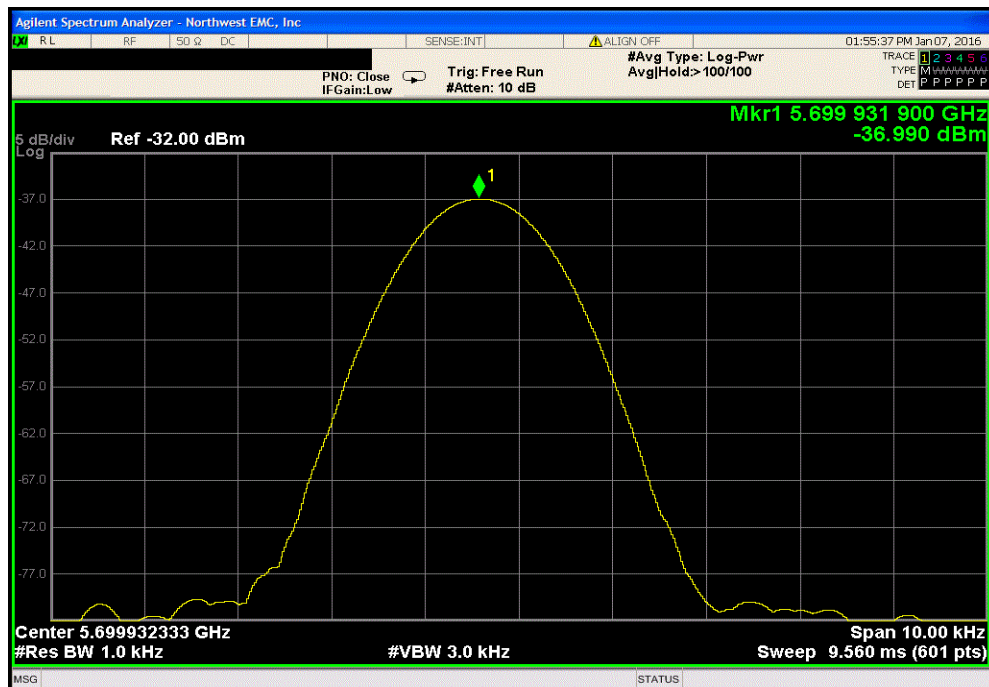


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +50°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5699.923399	5700	13.4	100	Pass

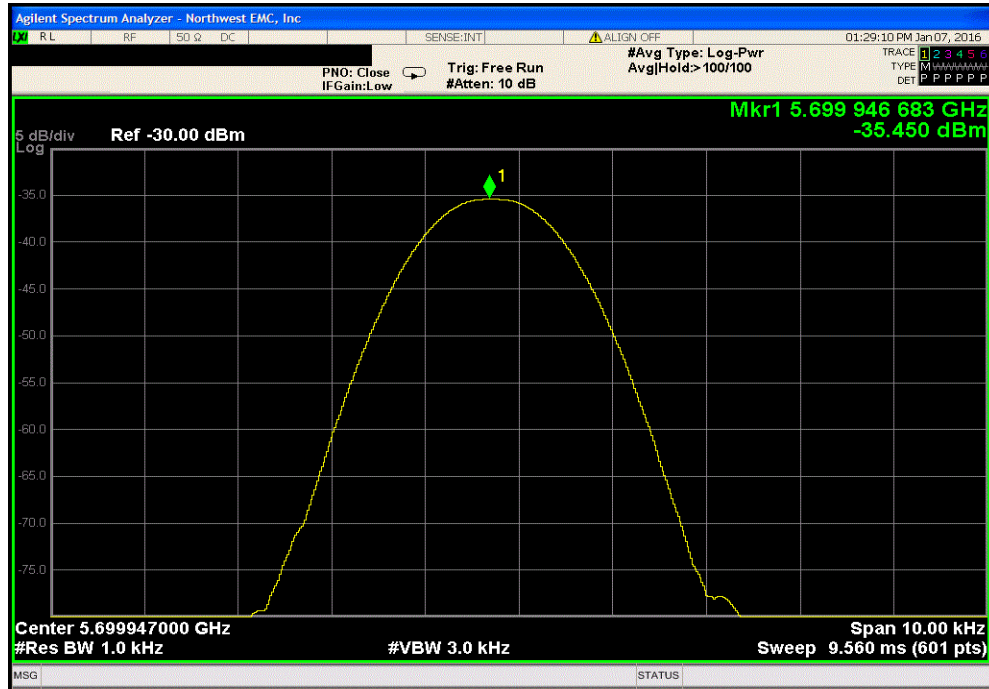


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +40°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5699.9319	5700	12	100	Pass

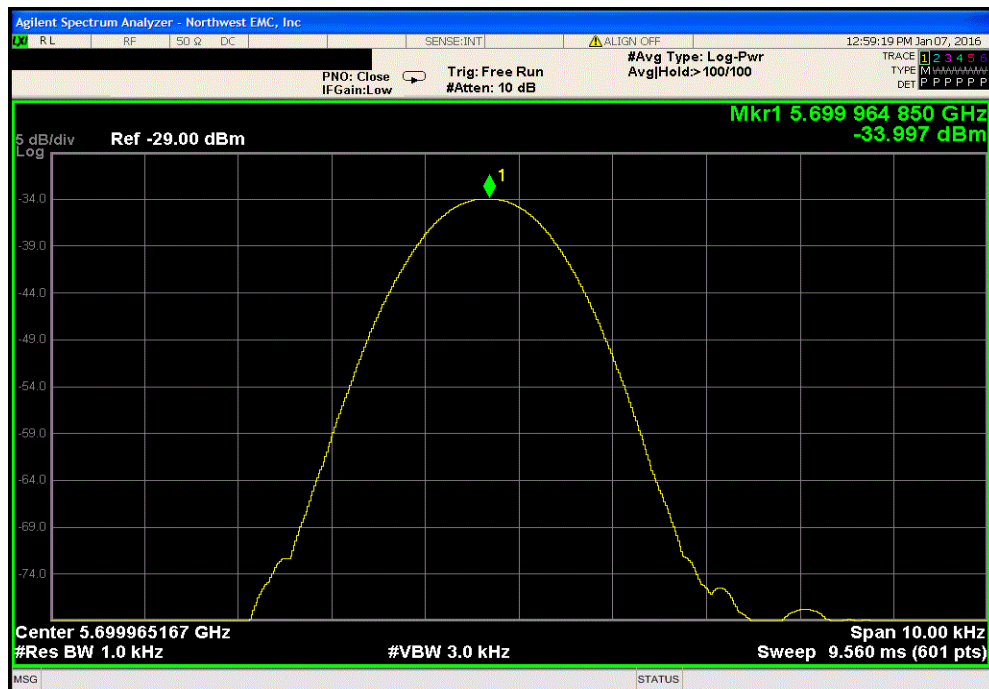


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +30°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5699.946683	5700	9.4	100	Pass

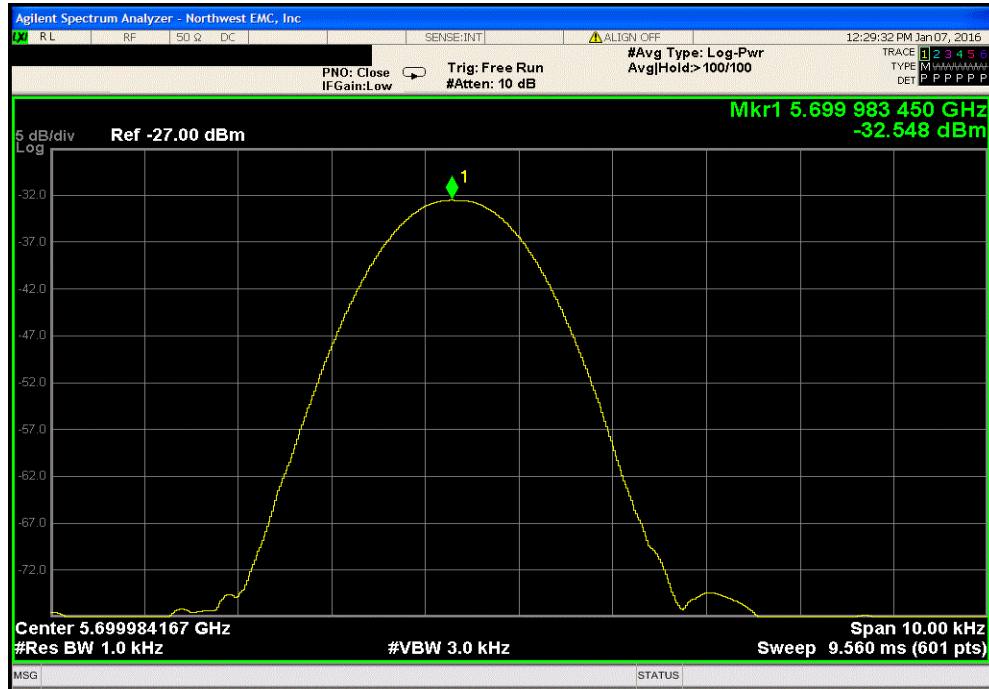


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +20°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5699.96485	5700	6.2	100	Pass

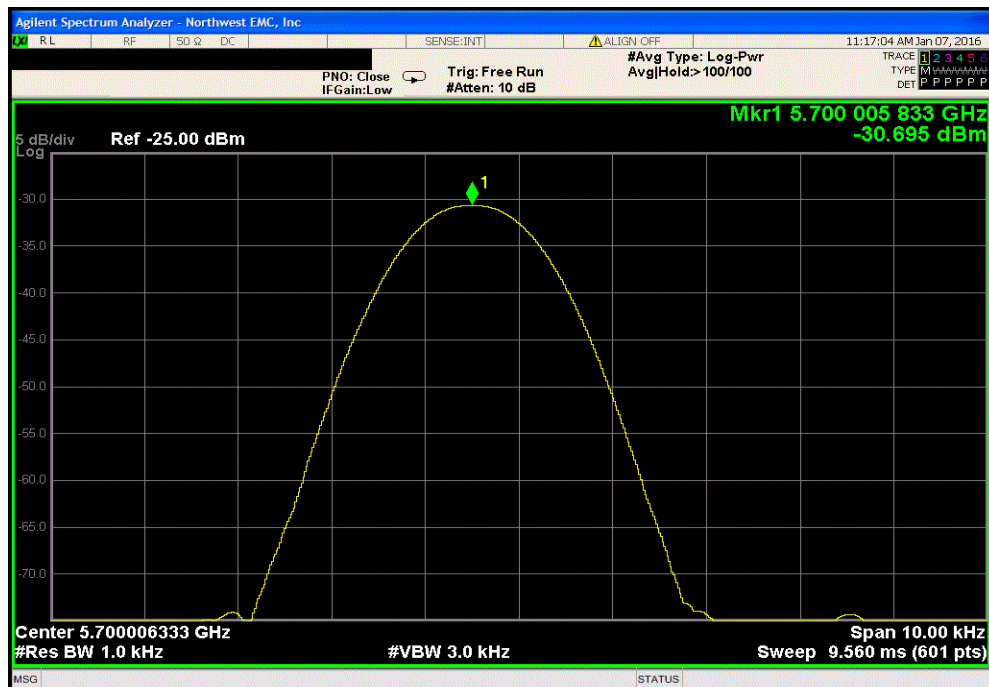


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5699.98345	5700	2.9	100	Pass	

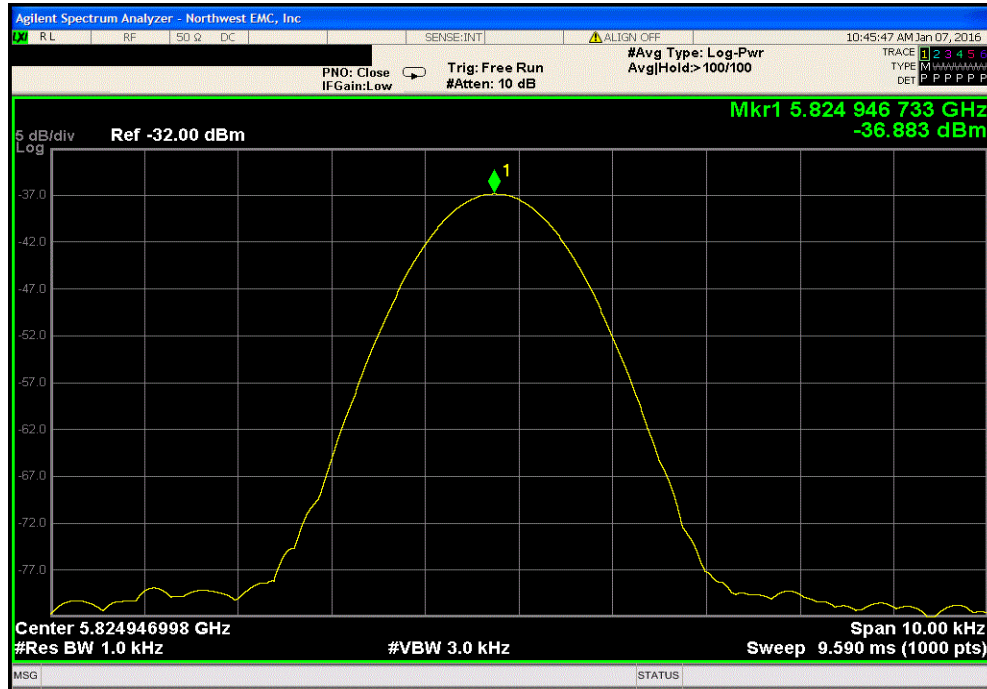


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.005833	5700	1	100	Pass	

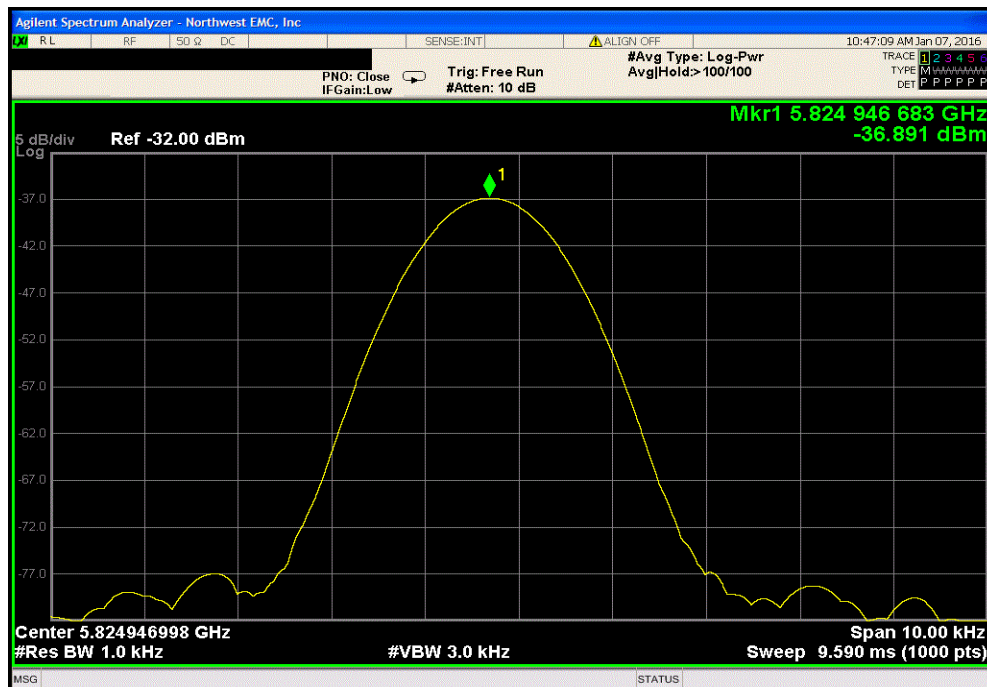


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5824.946733	5825	9.1	100	Pass

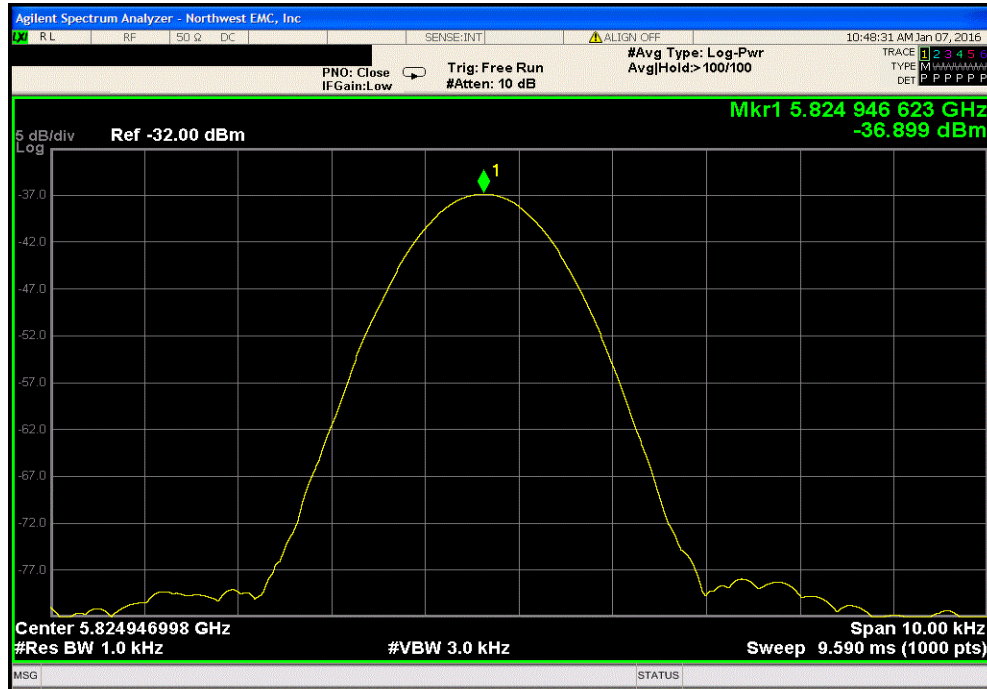


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5824.946683	5825	9.2	100	Pass

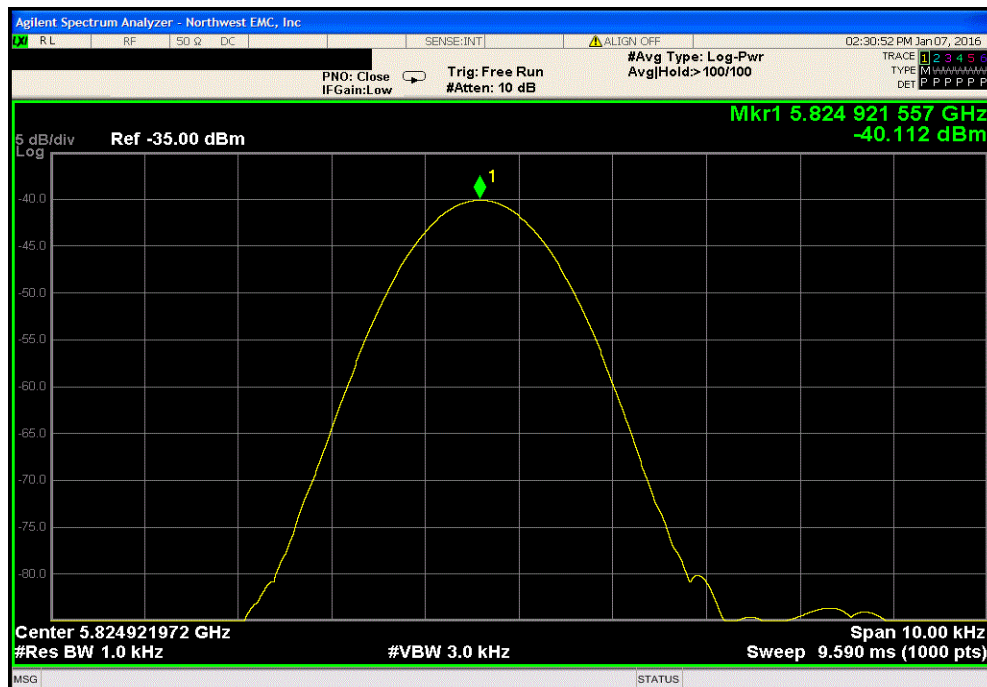


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5824.946623	5825	9.2	100	Pass

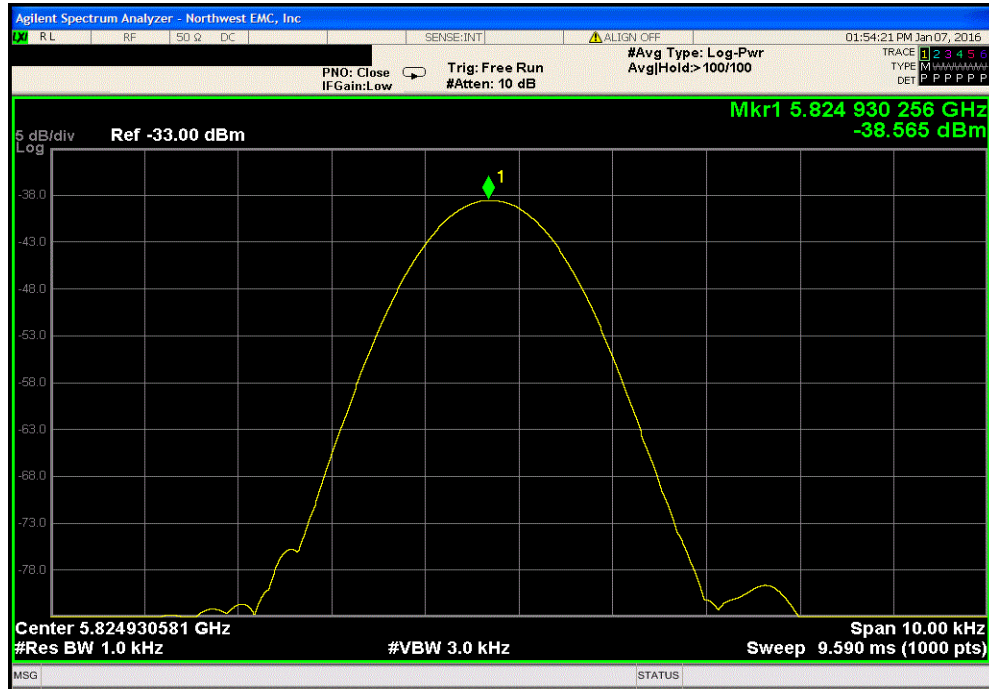


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
	5824.921557	5825	13.5	100	Pass

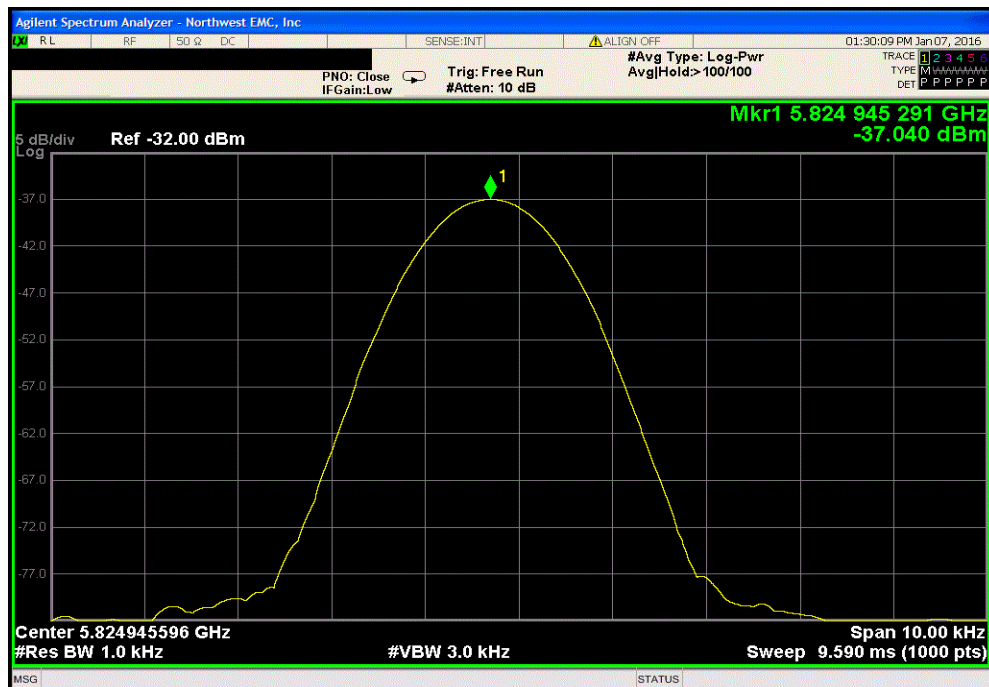


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5824.930256	5825	12	100	Pass	

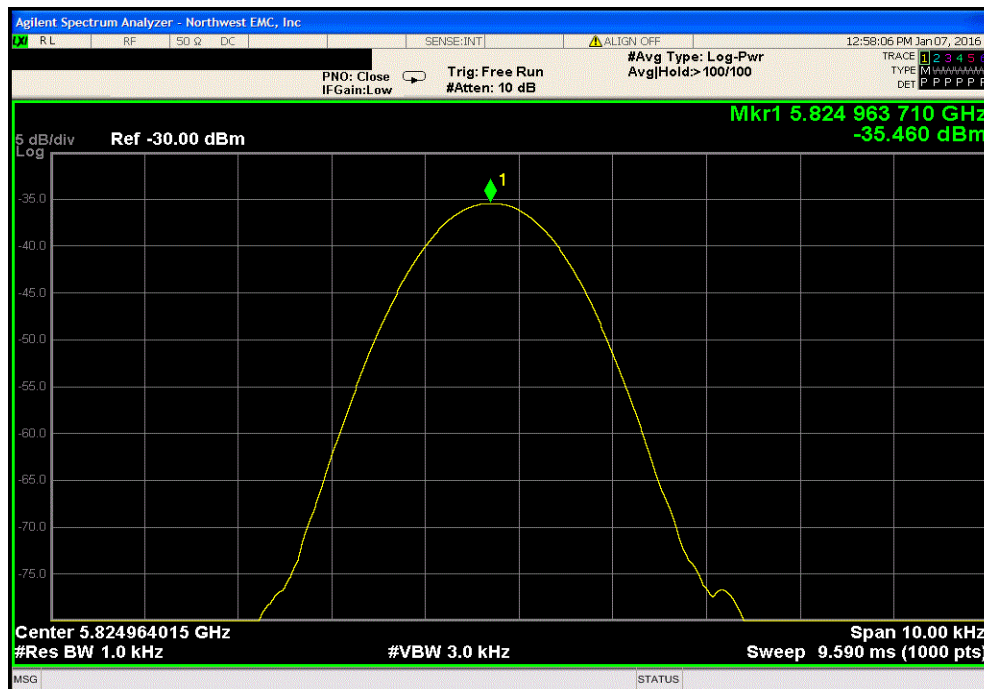


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5824.945291	5825	9.4	100	Pass	

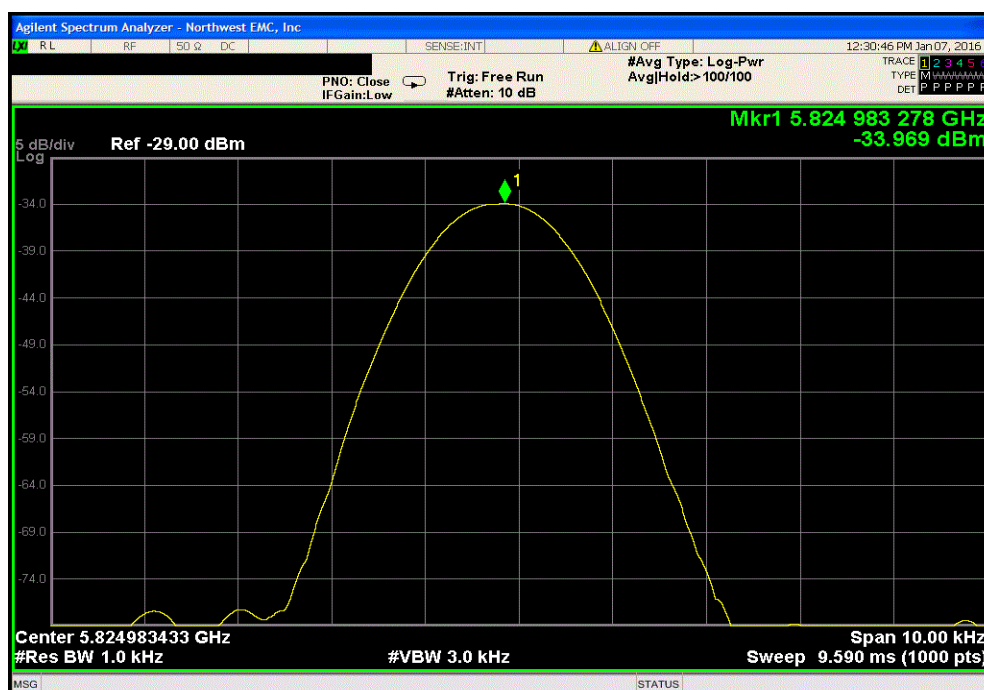


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5824.96371	5825	6.2	100	Pass	

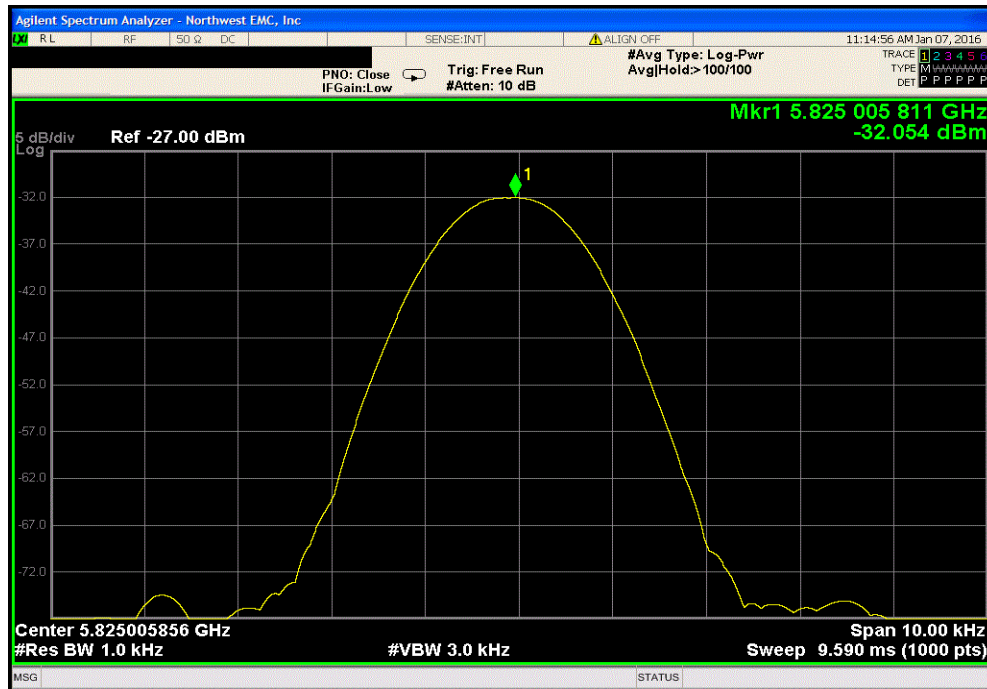


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5824.983278	5825	2.9	100	Pass	



FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.005811	5825	1	100	Pass	



DUTY CYCLE



TEST DESCRIPTION

The manufacturer does not have software to simulate actual usage allowing a measurement of the duty cycle. They specified a duty cycle correction factor of 13.98 dB based on the actual use of the equipment. The manufacturer has provided an attestation that is included in this report.

MAXIMUM CONDUCTED OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

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 maximum 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.

The maximum conducted output power was measured using ANSI C63.10, Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

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

- RMS Detector

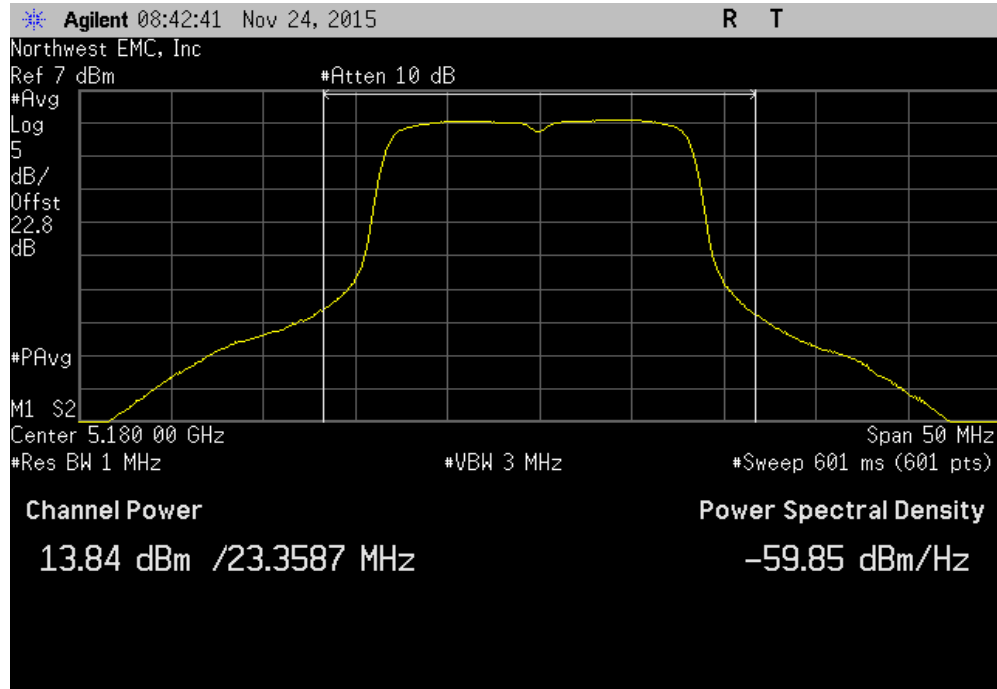
- Trace average 100 traces in power averaging mode.

MAXIMUM CONDUCTED OUTPUT POWER

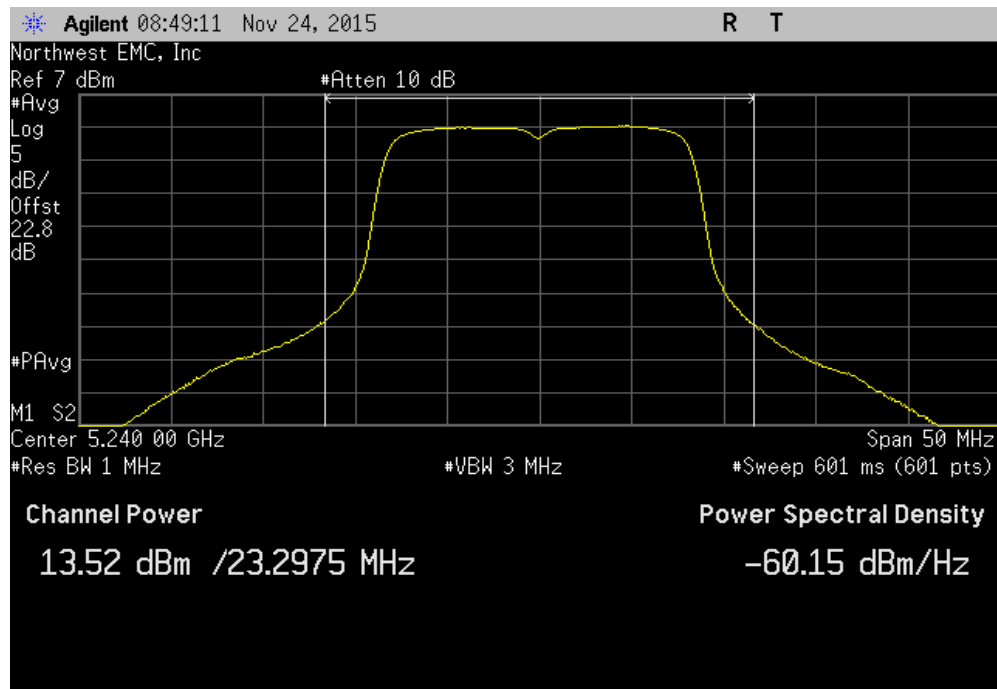
EUT: Sigma Pumps Gen IV 802.11abgn Module			Work Order: DGII0152			
Serial Number: UUT #7 (55001769-1 rev. 1P)			Date: 01/11/16			
Customer: Digi International Inc			Temperature: 21.1°C			
Attendees: Slava Gehkt			Humidity: 16%			
Project: None			Barometric Pres.: 984			
Tested by: Jared Ison		Power: 110VAC/60Hz	Job Site: MN08			
TEST SPECIFICATIONS		Test Method				
FCC 15.407:2016		ANSI C63.10:2013				
COMMENTS						
802.11 radio set to single channel continuous transmission.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	2	Signature				
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results
20 MHz						
802.11(a) 6 Mbps						
	Ch 36, Low Channel 5180 MHz	13.838	0	13.8	24	Pass
	Ch 48, High Channel 5240 MHz	13.519	0	13.5	24	Pass
	Ch 52, Low Channel 5260 MHz	13.425	0	13.4	24	Pass
	Ch 64, High Channel 5320 MHz	13.144	0	13.1	24	Pass
	Ch 100, Low Channel 5500 MHz	14.04	0	14	24	Pass
	Ch 116, Mid Channel 5580 MHz	15.595	0	15.6	24	Pass
	Ch 140, High Channel 5700 MHz	16.499	0	16.5	24	Pass
	Ch 149, Low Channel 5745 MHz	16.464	0	16.5	30	Pass
	Ch 157, Mid Channel 5785 MHz	16.72	0	16.7	30	Pass
	Ch 165, High Channel 5825 MHz	16.863	0	16.9	30	Pass
802.11(a) 36 Mbps						
	Ch 36, Low Channel 5180 MHz	14.145	0	14.1	24	Pass
	Ch 48, High Channel 5240 MHz	13.501	0	13.5	24	Pass
	Ch 52, Low Channel 5260 MHz	13.431	0	13.4	24	Pass
	Ch 64, High Channel 5320 MHz	13.079	0	13.1	24	Pass
	Ch 100, Low Channel 5500 MHz	13.986	0	14	24	Pass
	Ch 116, Mid Channel 5580 MHz	15.49	0	15.5	24	Pass
	Ch 140, High Channel 5700 MHz	16.481	0	16.5	24	Pass
	Ch 149, Low Channel 5745 MHz	16.374	0	16.4	30	Pass
	Ch 157, Mid Channel 5785 MHz	16.636	0	16.6	30	Pass
	Ch 165, High Channel 5825 MHz	16.782	0	16.8	30	Pass
802.11(a) 54 Mbps						
	Ch 36, Low Channel 5180 MHz	14.137	0	14.1	24	Pass
	Ch 48, High Channel 5240 MHz	13.448	0	13.4	24	Pass
	Ch 52, Low Channel 5260 MHz	13.48	0	13.5	24	Pass
	Ch 64, High Channel 5320 MHz	13.1	0	13.1	24	Pass
	Ch 100, Low Channel 5500 MHz	13.56	0	13.6	24	Pass
	Ch 116, Mid Channel 5580 MHz	15.502	0	15.5	24	Pass
	Ch 140, High Channel 5700 MHz	16.495	0	16.5	24	Pass
	Ch 149, Low Channel 5745 MHz	16.345	0	16.3	30	Pass
	Ch 157, Mid Channel 5785 MHz	16.651	0	16.7	30	Pass
	Ch 165, High Channel 5825 MHz	16.788	0	16.8	30	Pass
802.11(n) MCS0						
	Ch 36, Low Channel 5180 MHz	14.097	0	14.1	30	Pass
	Ch 48, High Channel 5240 MHz	13.4	0	13.4	30	Pass
	Ch 52, Low Channel 5260 MHz	13.326	0	13.3	24	Pass
	Ch 64, High Channel 5320 MHz	13.013	0	13	24	Pass
	Ch 100, Low Channel 5500 MHz	13.946	0	13.9	24	Pass
	Ch 116, Mid Channel 5580 MHz	15.431	0	15.4	24	Pass
	Ch 140, High Channel 5700 MHz	16.412	0	16.4	24	Pass
	Ch 149, Low Channel 5745 MHz	16.683	0	16.7	30	Pass
	Ch 157, Mid Channel 5785 MHz	16.927	0	16.9	30	Pass
	Ch 165, High Channel 5825 MHz	16.749	0	16.7	30	Pass
802.11(n) MCS7						
	Ch 36, Low Channel 5180 MHz	14.003	0	14	24	Pass
	Ch 48, High Channel 5240 MHz	13.417	0	13.4	24	Pass
	Ch 52, Low Channel 5260 MHz	13.314	0	13.3	24	Pass
	Ch 64, High Channel 5320 MHz	12.962	0	13	24	Pass
	Ch 100, Low Channel 5500 MHz	13.444	0	13.4	24	Pass
	Ch 116, Mid Channel 5580 MHz	15.379	0	15.4	24	Pass
	Ch 140, High Channel 5700 MHz	16.378	0	16.4	24	Pass
	Ch 149, Low Channel 5745 MHz	16.272	0	16.3	30	Pass
	Ch 157, Mid Channel 5785 MHz	16.52	0	16.5	30	Pass
	Ch 165, High Channel 5825 MHz	16.666	0	16.7	30	Pass
40 MHz						
802.11(n) MCS0						
	Ch 36/40, Low Channel 5190 MHz	14.267	0	14.3	24	Pass
	Ch 44/48, High Channel 5230 MHz	14.185	0	14.2	24	Pass
	Ch 52/56, Low Channel 5270 MHz	14.449	0	14.4	24	Pass
	Ch 60/64, High Channel 5310 MHz	14.109	0	14.1	24	Pass
	Ch 100/104, Low Channel 5510 MHz	14.715	0	14.7	24	Pass
	Ch 108/112, Mid Channel 5550 MHz	15.457	0	15.5	24	Pass
	Ch 132/136, High Channel 5670 MHz	16.996	0	17	24	Pass
	Ch 149/153, Low Channel 5755 MHz	17.044	0	17	30	Pass
	Ch 157/161, High Channel 5795 MHz	17.209	0	17.2	30	Pass
802.11(n) MCS7						
	Ch 36/40, Low Channel 5190 MHz	13.783	0	13.8	24	Pass
	Ch 44/48, High Channel 5230 MHz	14.184	0	14.2	24	Pass
	Ch 52/56, Low Channel 5270 MHz	14.106	0	14.1	24	Pass
	Ch 60/64, High Channel 5310 MHz	13.95	0	14	24	Pass
	Ch 100/104, Low Channel 5510 MHz	14.318	0	14.3	24	Pass
	Ch 108/112, Mid Channel 5550 MHz	15.349	0	15.3	24	Pass
	Ch 132/136, High Channel 5670 MHz	16.604	0	16.6	24	Pass
	Ch 149/153, Low Channel 5755 MHz	17.004	0	17	30	Pass
	Ch 157/161, High Channel 5795 MHz	17.184	0	17.2	30	Pass

MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 6 Mbps, Ch 36, Low Channel 5180 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.838	0	13.8	24	Pass		

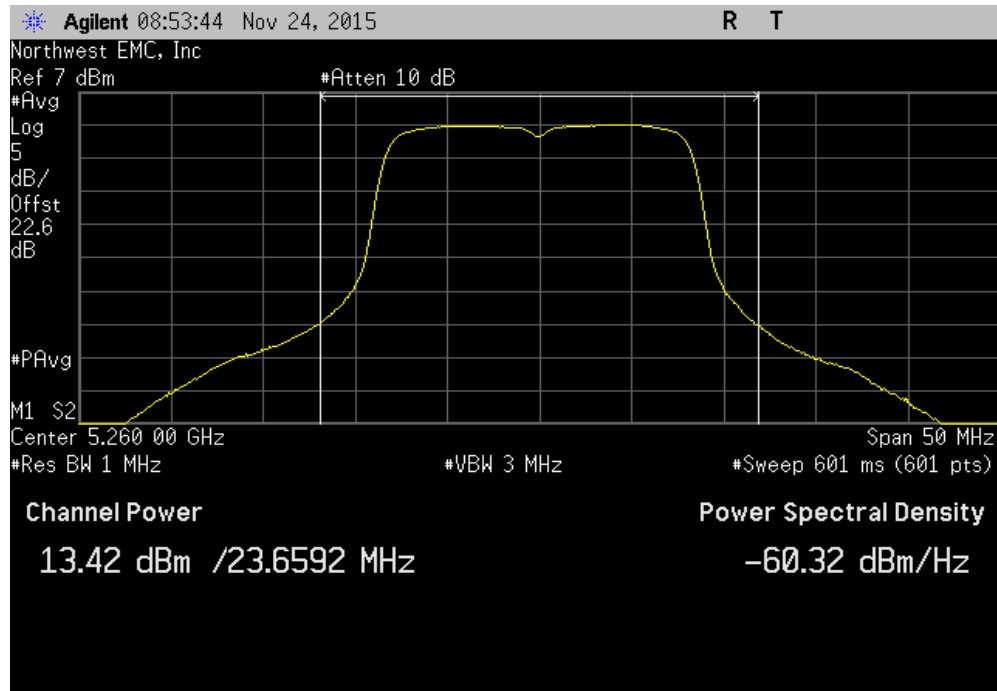


20 MHz, 802.11(a) 6 Mbps, Ch 48, High Channel 5240 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.519	0	13.5	24	Pass		

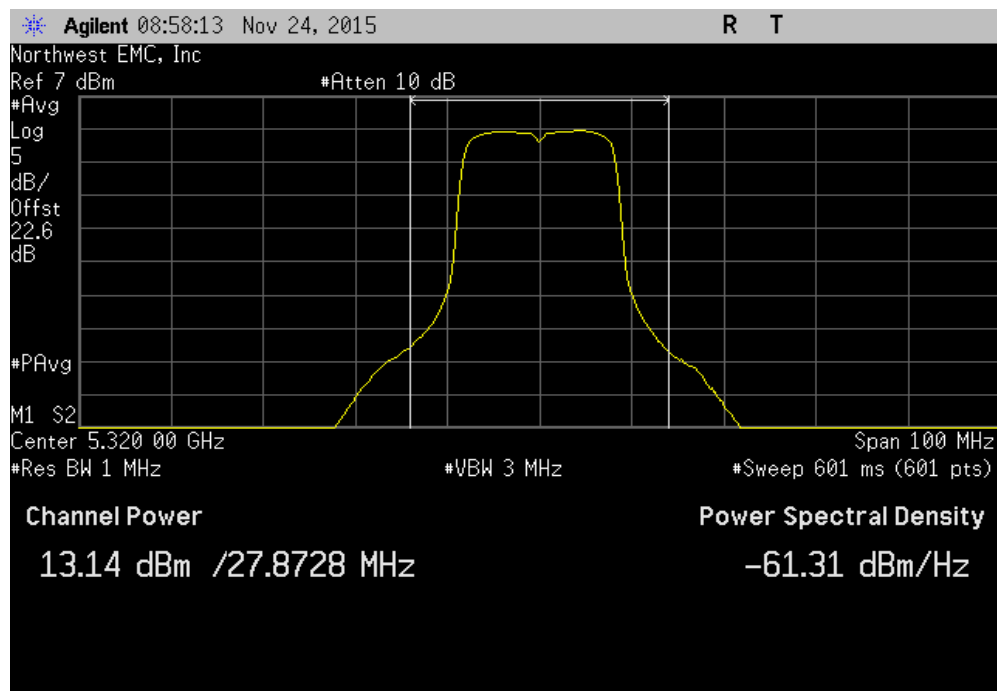


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 6 Mbps, Ch 52, Low Channel 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.425	0	13.4	24	Pass		

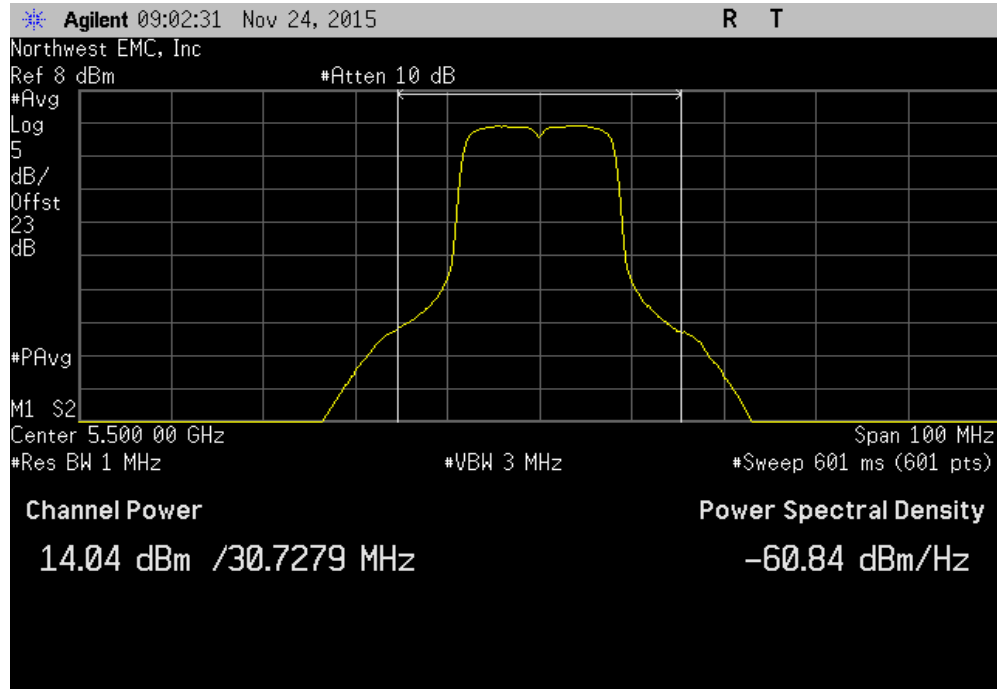


20 MHz, 802.11(a) 6 Mbps, Ch 64, High Channel 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.144	0	13.1	24	Pass		

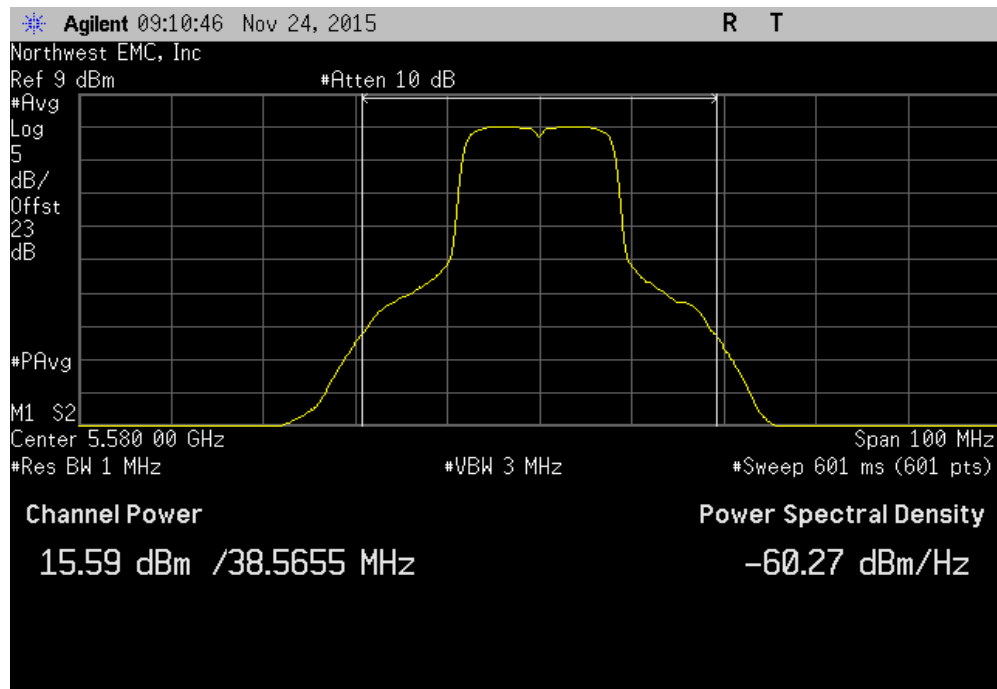


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 6 Mbps, Ch 100, Low Channel 5500 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
14.04	0	14	24	Pass	

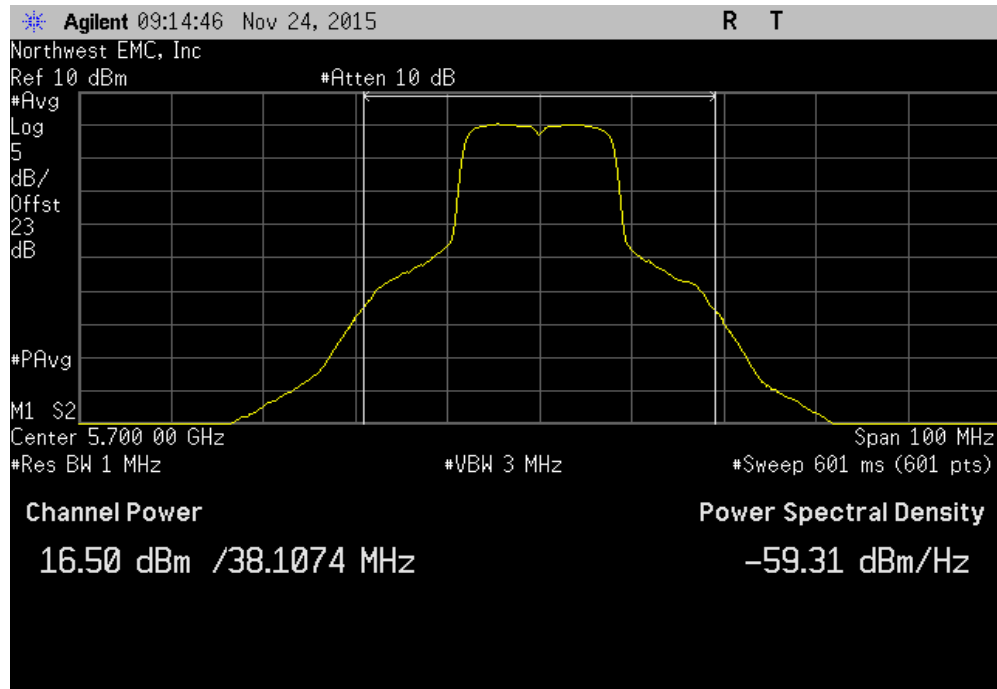


20 MHz, 802.11(a) 6 Mbps, Ch 116, Mid Channel 5580 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
15.595	0	15.6	24	Pass	

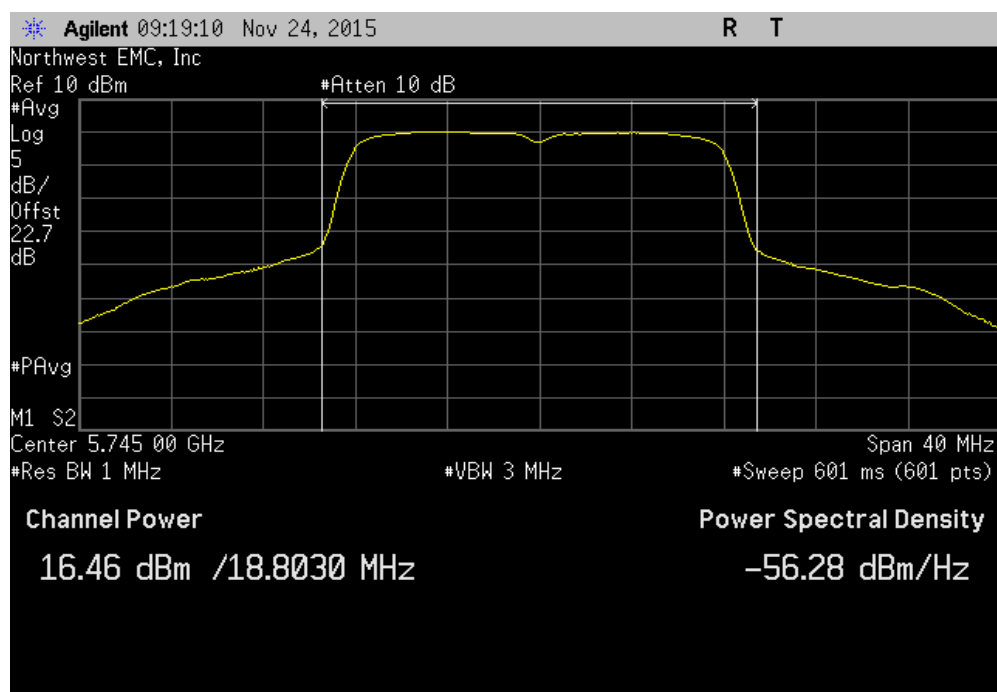


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 6 Mbps, Ch 140, High Channel 5700 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	16.499	0		16.5	24	Pass

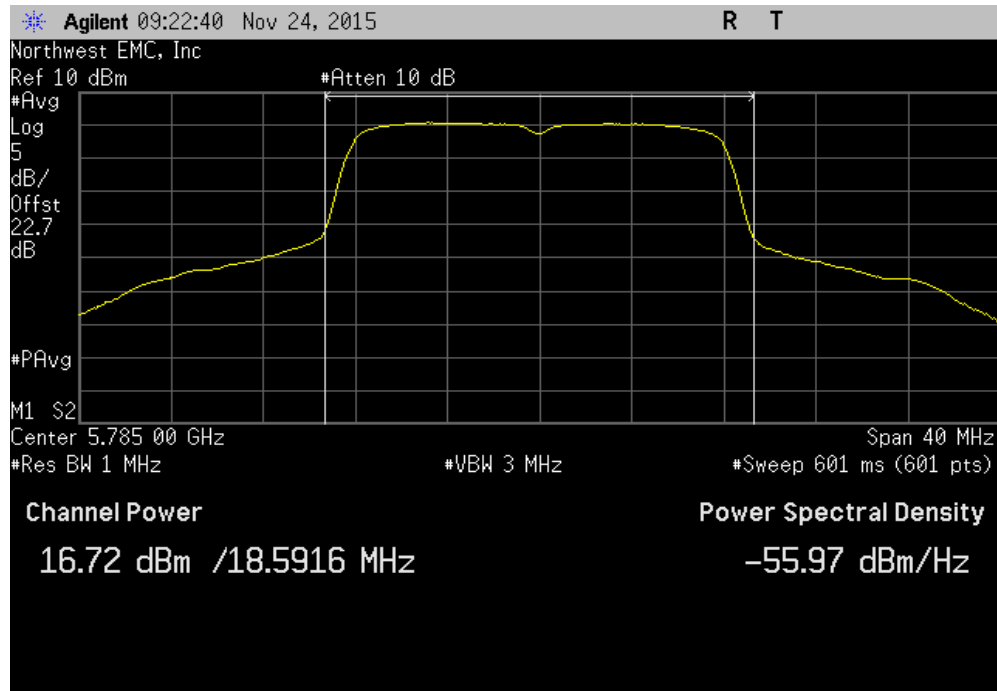


20 MHz, 802.11(a) 6 Mbps, Ch 149, Low Channel 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	16.464	0		16.5	30	Pass

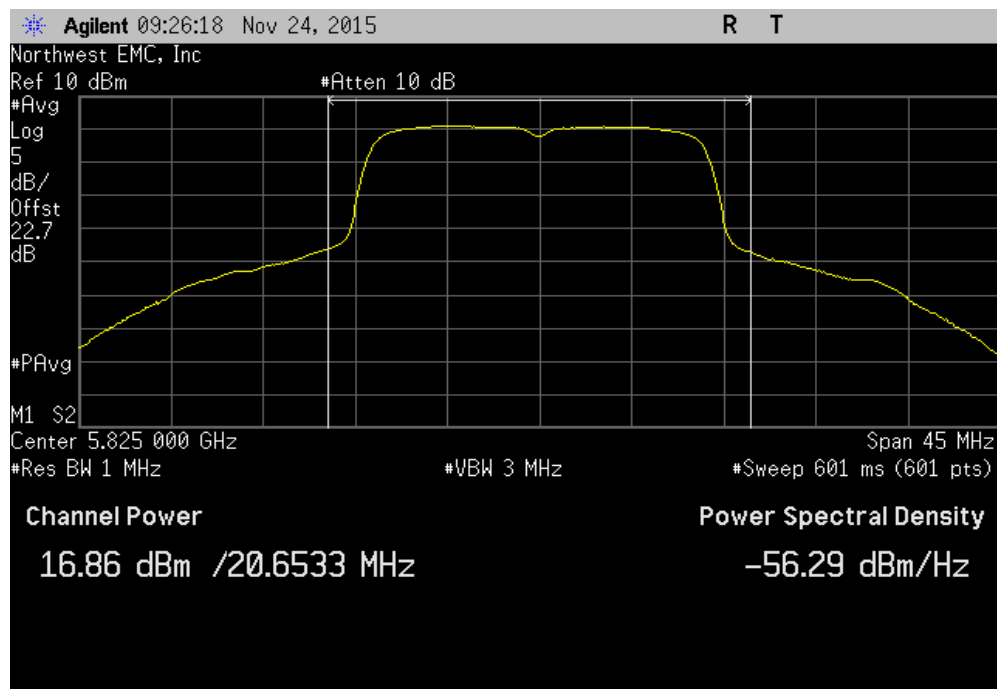


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 6 Mbps, Ch 157, Mid Channel 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.72	0	16.7	30	Pass		

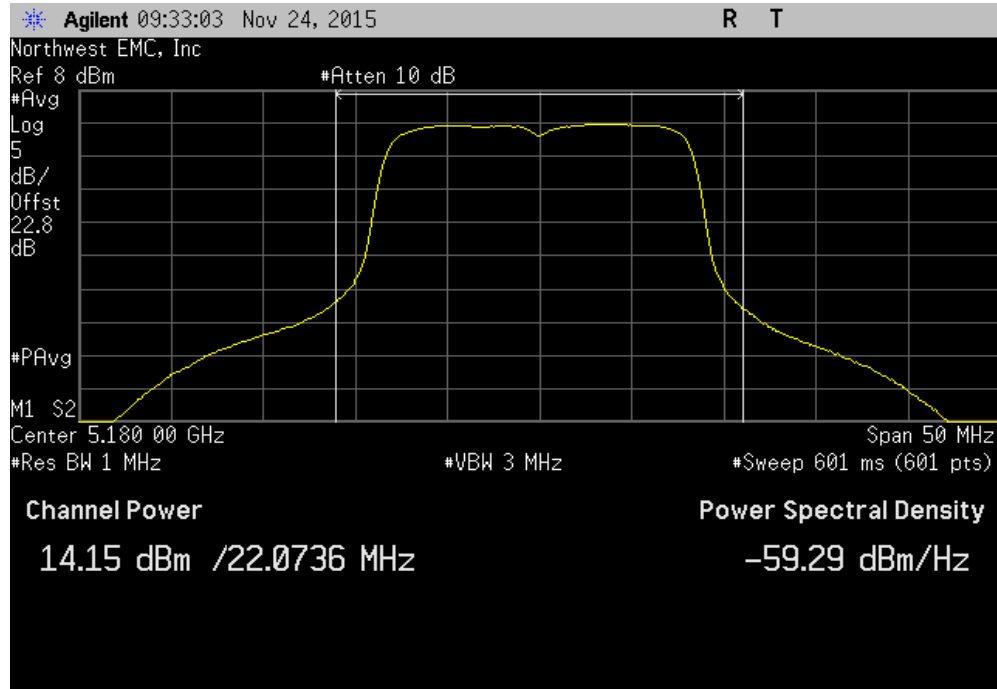


20 MHz, 802.11(a) 6 Mbps, Ch 165, High Channel 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.863	0	16.9	30	Pass		

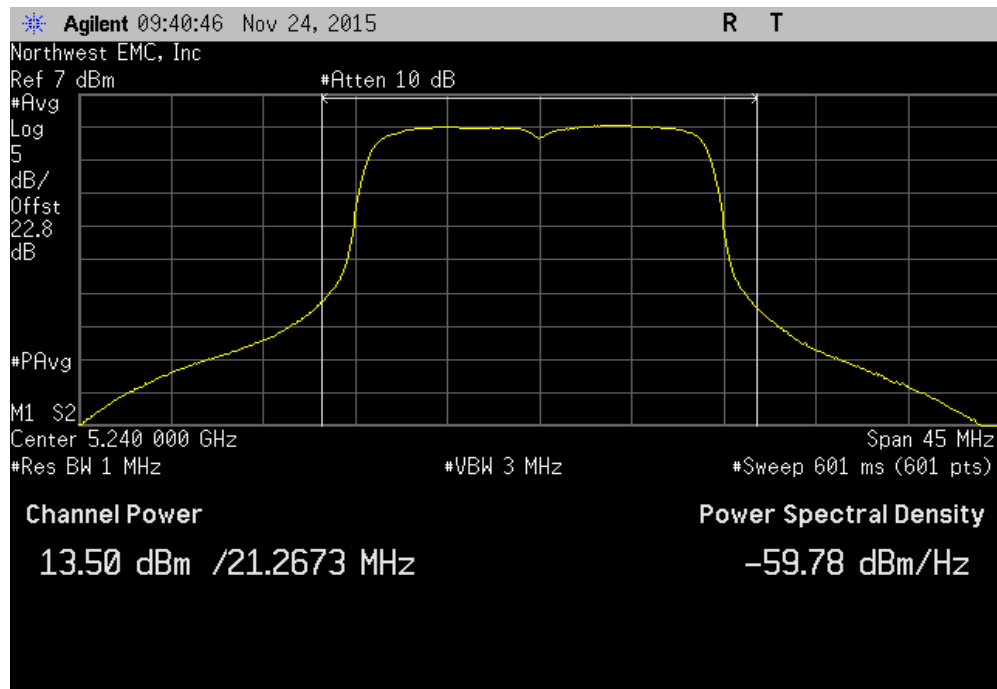


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 36 Mbps, Ch 36, Low Channel 5180 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.145	0	14.1	24	Pass		

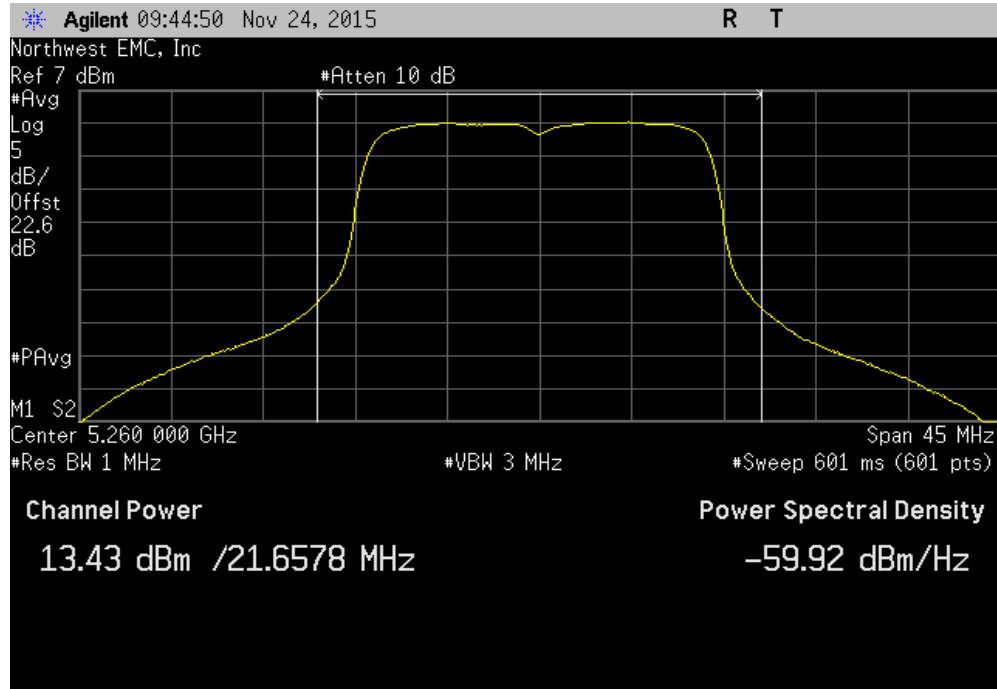


20 MHz, 802.11(a) 36 Mbps, Ch 48, High Channel 5240 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.501	0	13.5	24	Pass		

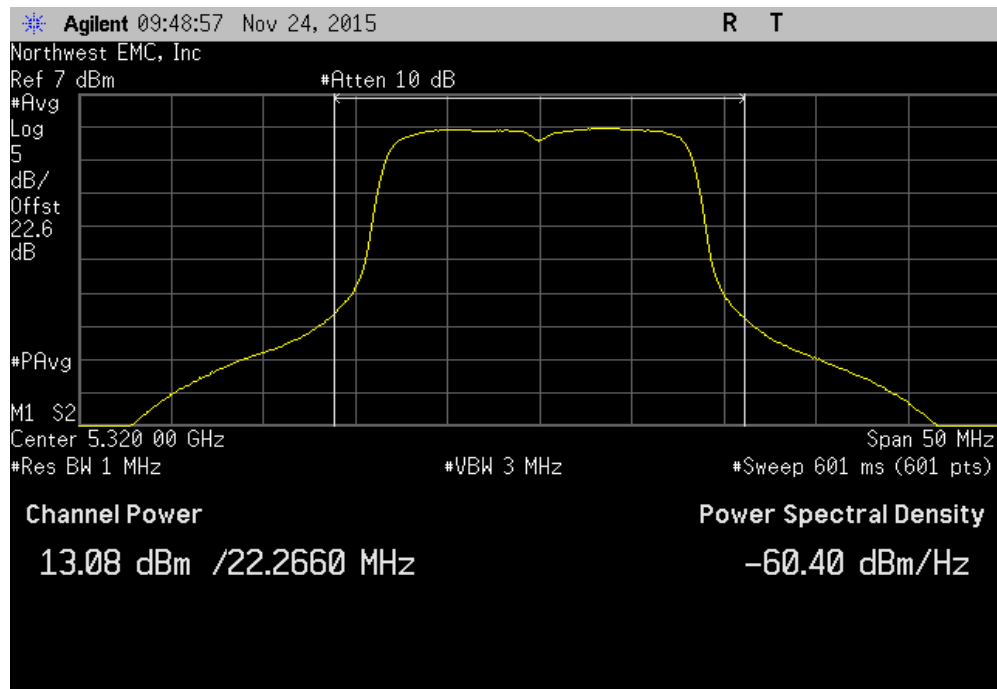


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 36 Mbps, Ch 52, Low Channel 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.431	0	13.4	24	Pass		

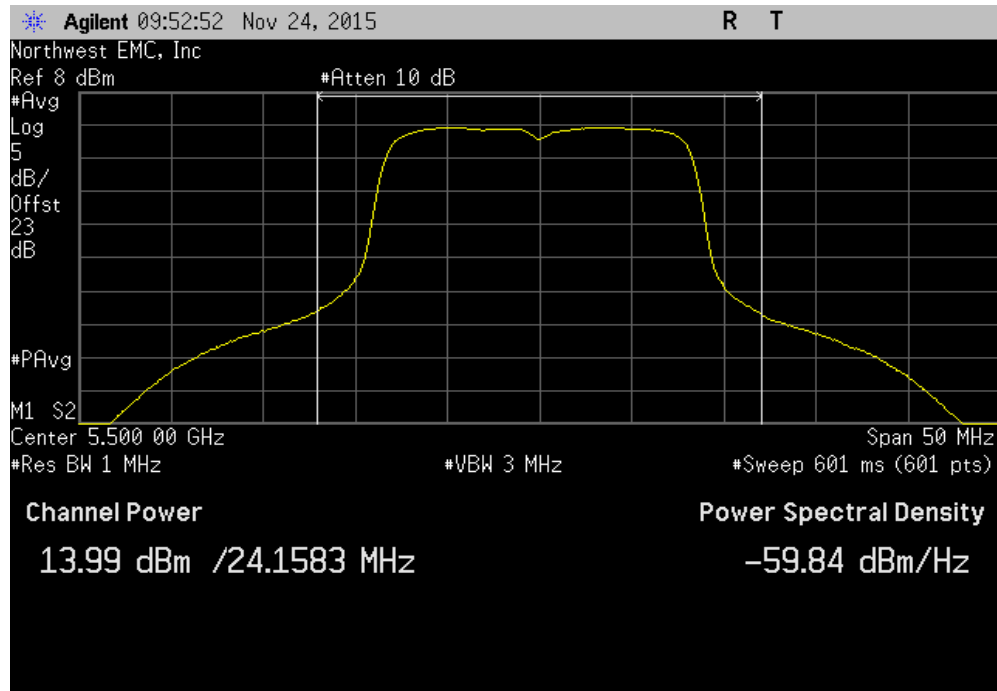


20 MHz, 802.11(a) 36 Mbps, Ch 64, High Channel 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.079	0	13.1	24	Pass		

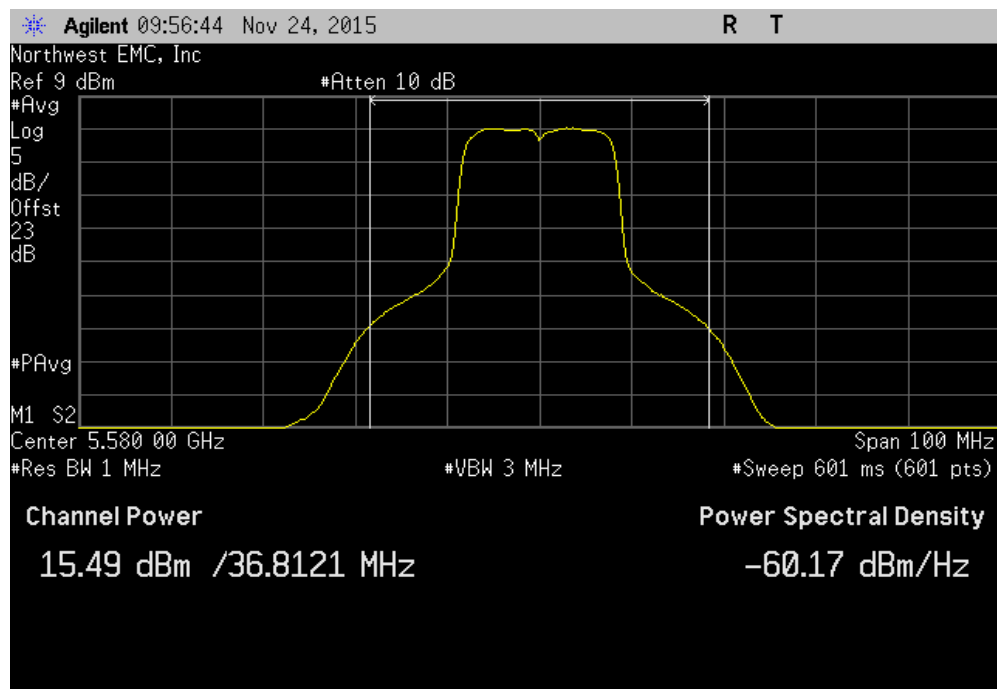


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 36 Mbps, Ch 100, Low Channel 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.986	0	14	24	Pass		

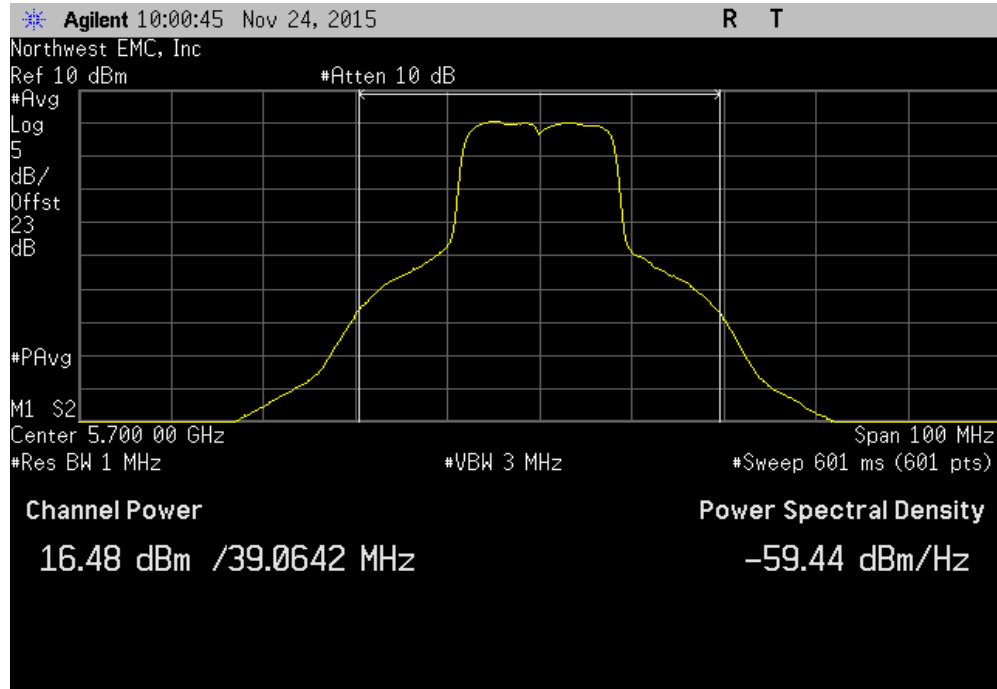


20 MHz, 802.11(a) 36 Mbps, Ch 116, Mid Channel 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.49	0	15.5	24	Pass		

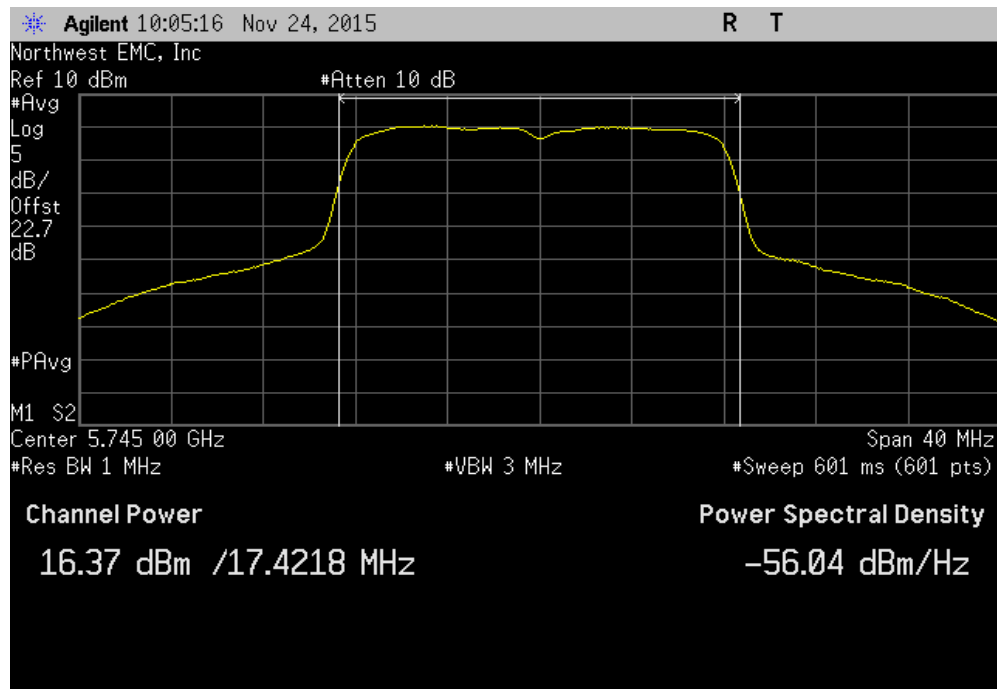


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 36 Mbps, Ch 140, High Channel 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.481	0	16.5	24	Pass		

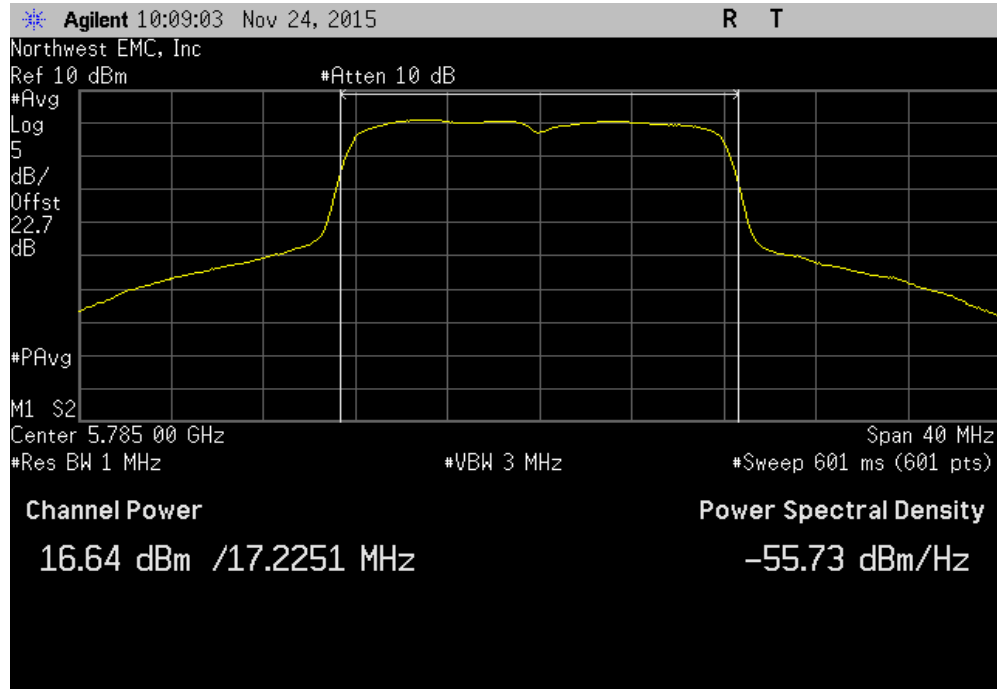


20 MHz, 802.11(a) 36 Mbps, Ch 149, Low Channel 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.374	0	16.4	30	Pass		

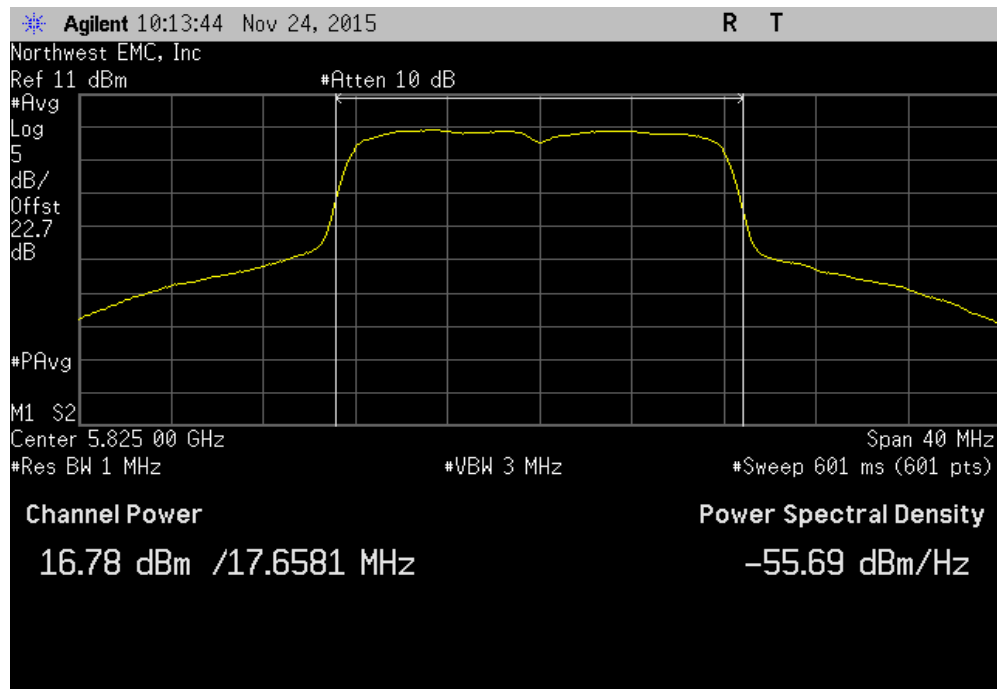


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 36 Mbps, Ch 157, Mid Channel 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.636	0	16.6	30	Pass		

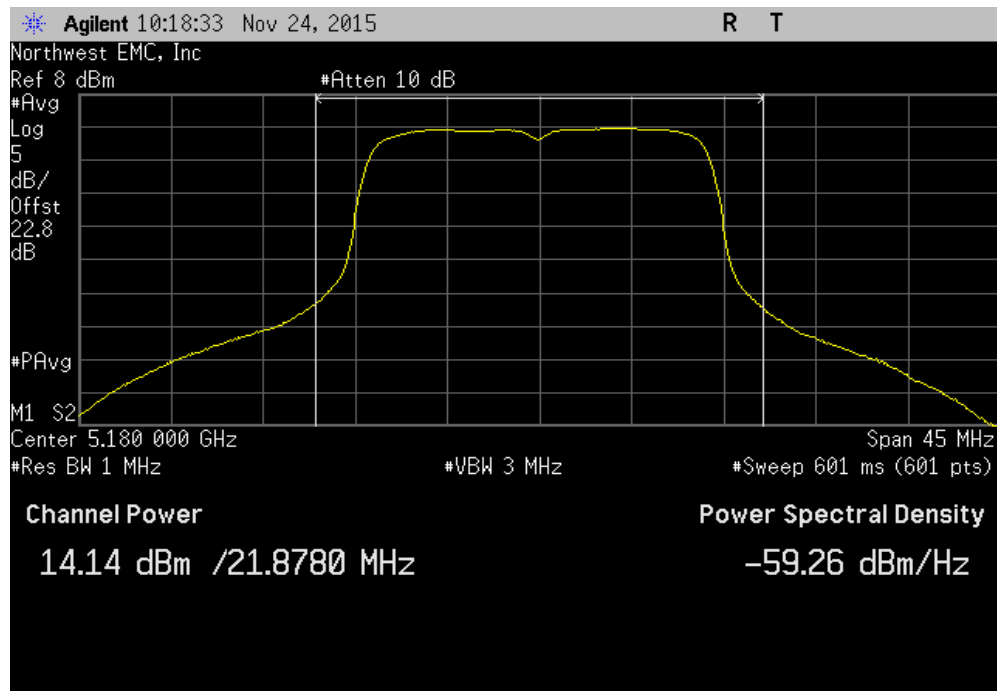


20 MHz, 802.11(a) 36 Mbps, Ch 165, High Channel 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.782	0	16.8	30	Pass		

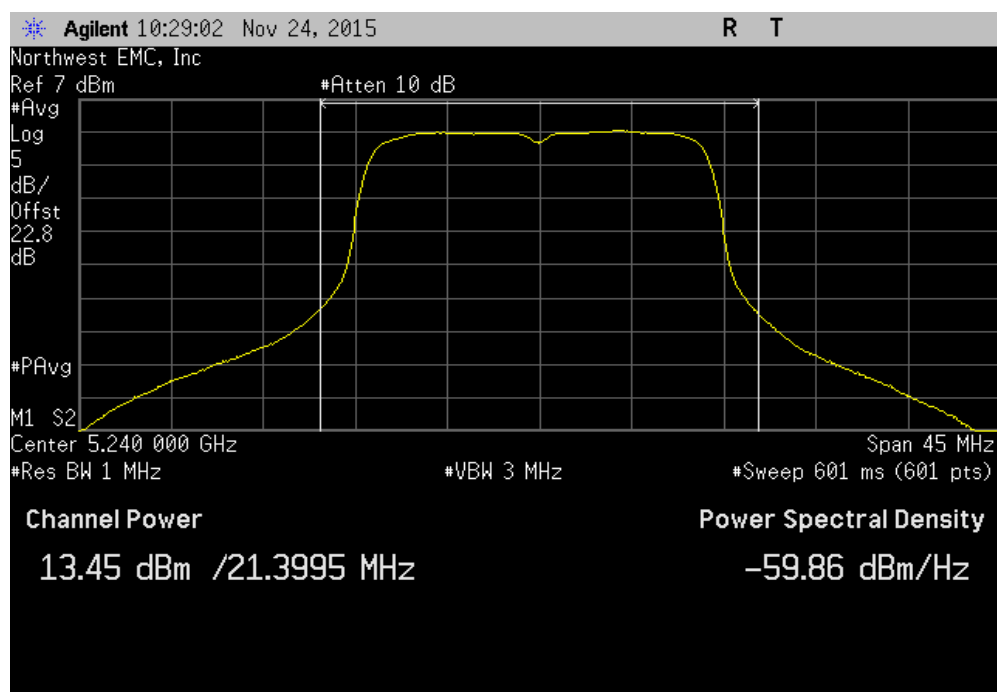


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 54 Mbps, Ch 36, Low Channel 5180 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	14.137	0		14.1	24	Pass

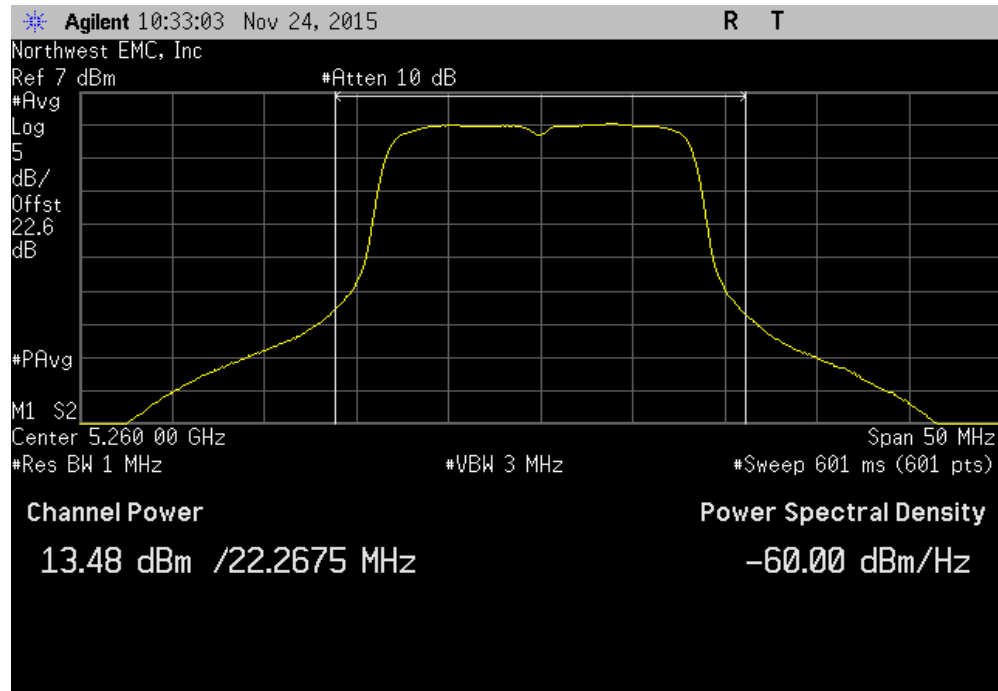


20 MHz, 802.11(a) 54 Mbps, Ch 48, High Channel 5240 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	13.448	0		13.4	24	Pass

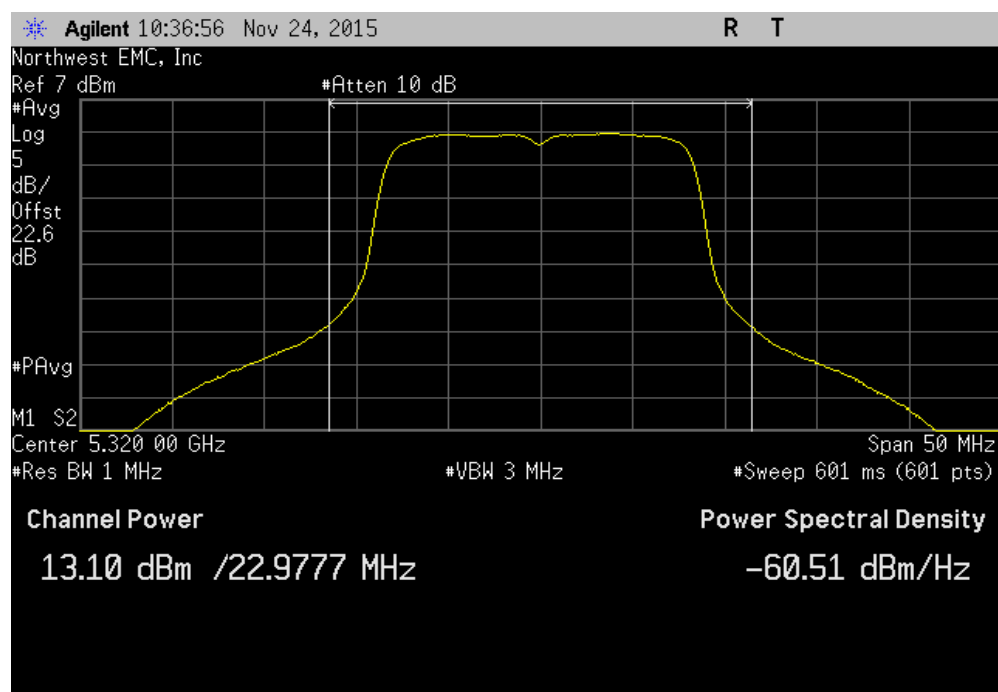


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 54 Mbps, Ch 52, Low Channel 5260 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	13.48	0		13.5	24	Pass

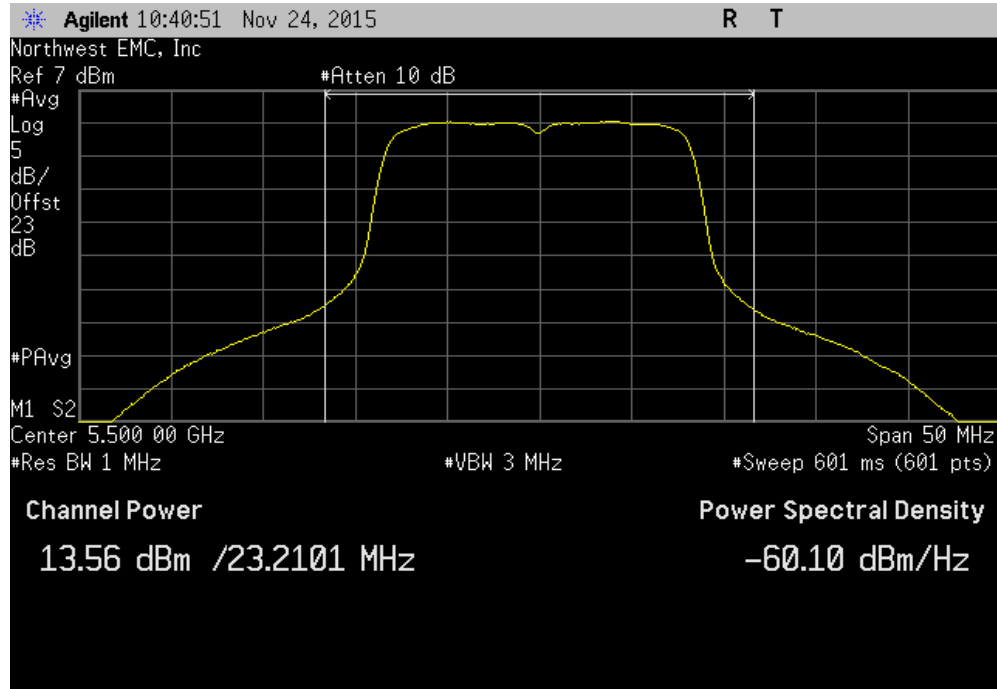


20 MHz, 802.11(a) 54 Mbps, Ch 64, High Channel 5320 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	13.1	0		13.1	24	Pass

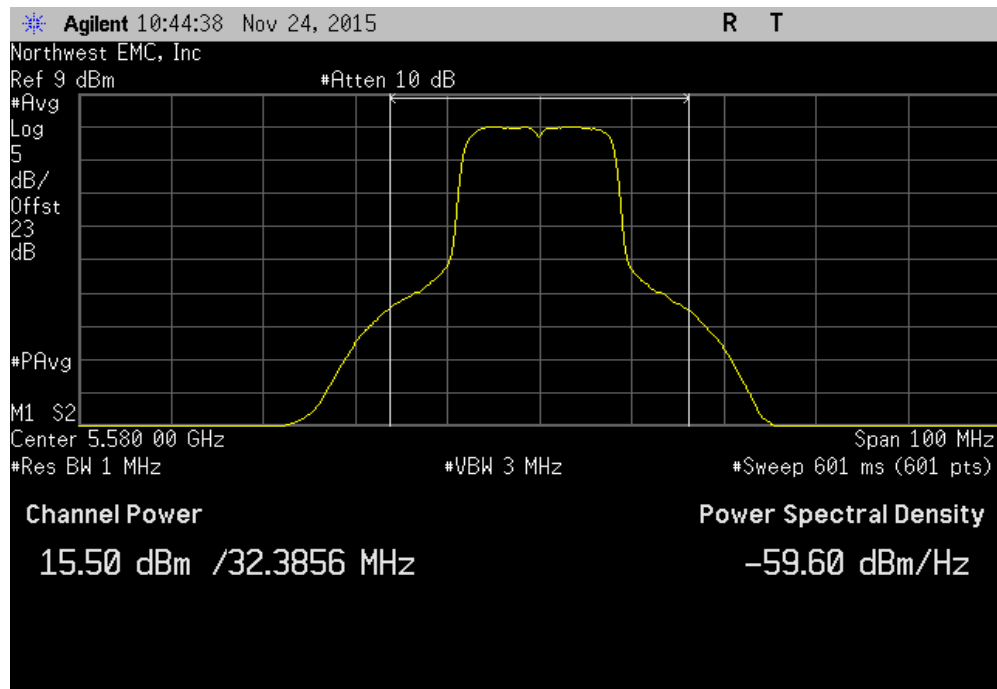


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 54 Mbps, Ch 100, Low Channel 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.56	0	13.6	24	Pass		

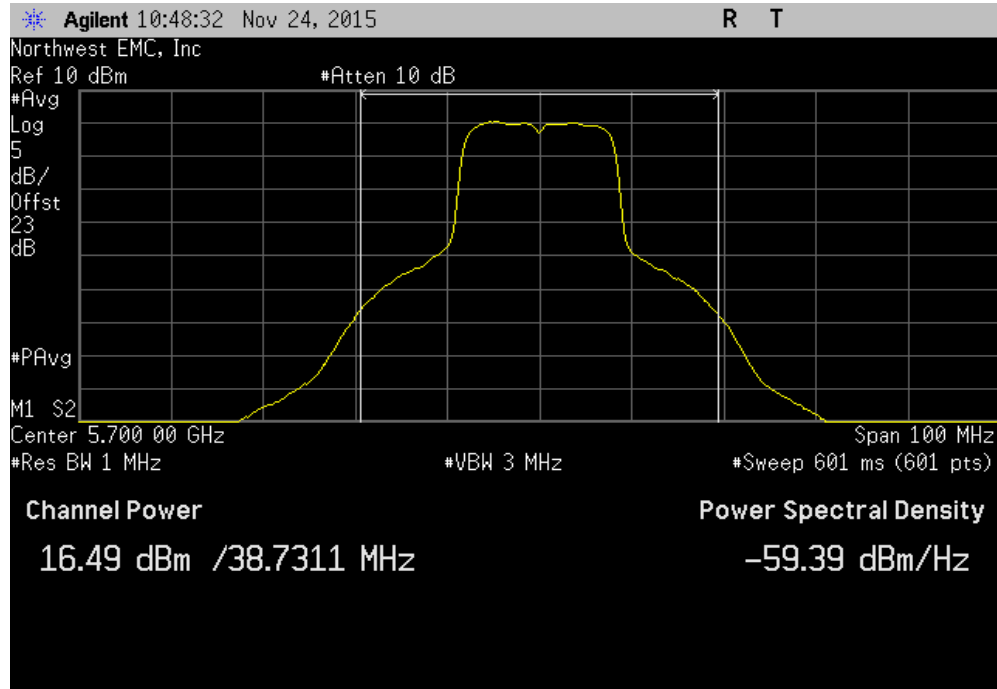


20 MHz, 802.11(a) 54 Mbps, Ch 116, Mid Channel 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.502	0	15.5	24	Pass		

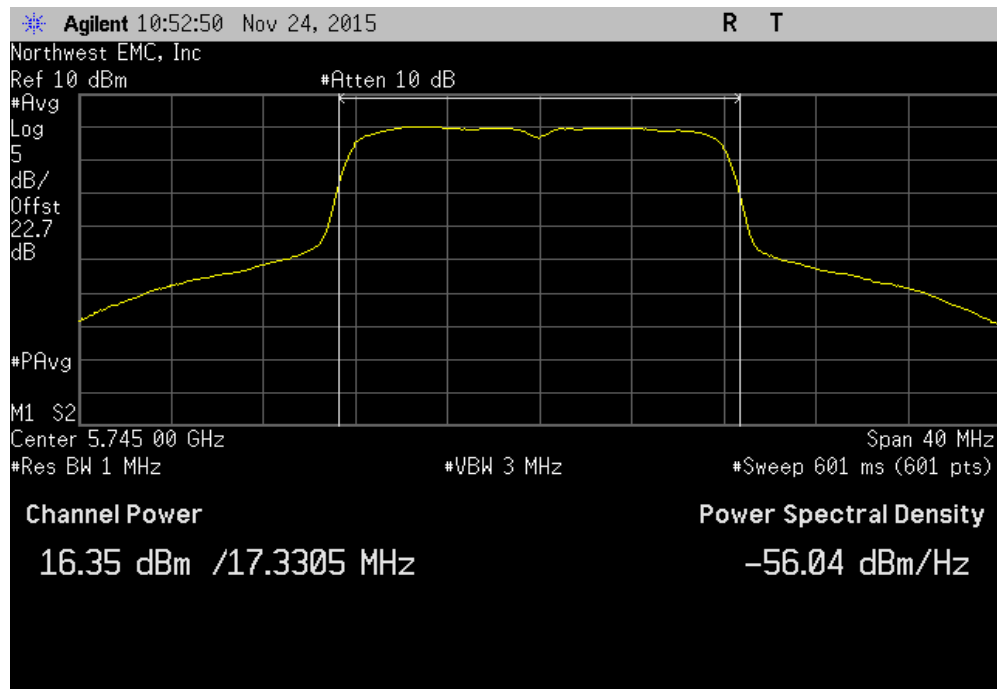


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 54 Mbps, Ch 140, High Channel 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.495	0	16.5	24	Pass		

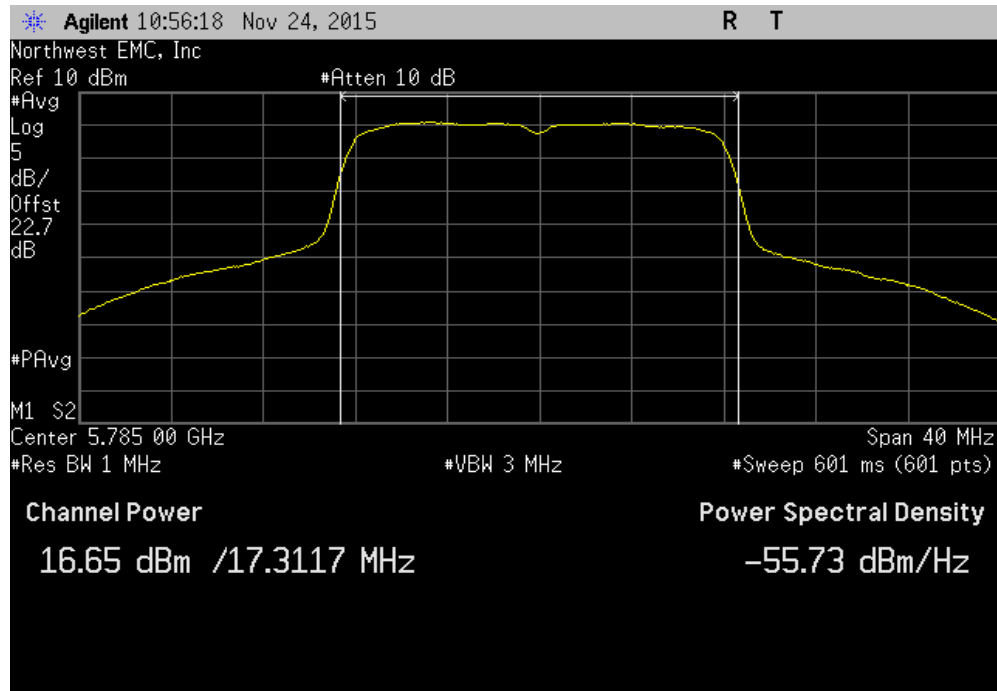


20 MHz, 802.11(a) 54 Mbps, Ch 149, Low Channel 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.345	0	16.3	30	Pass		

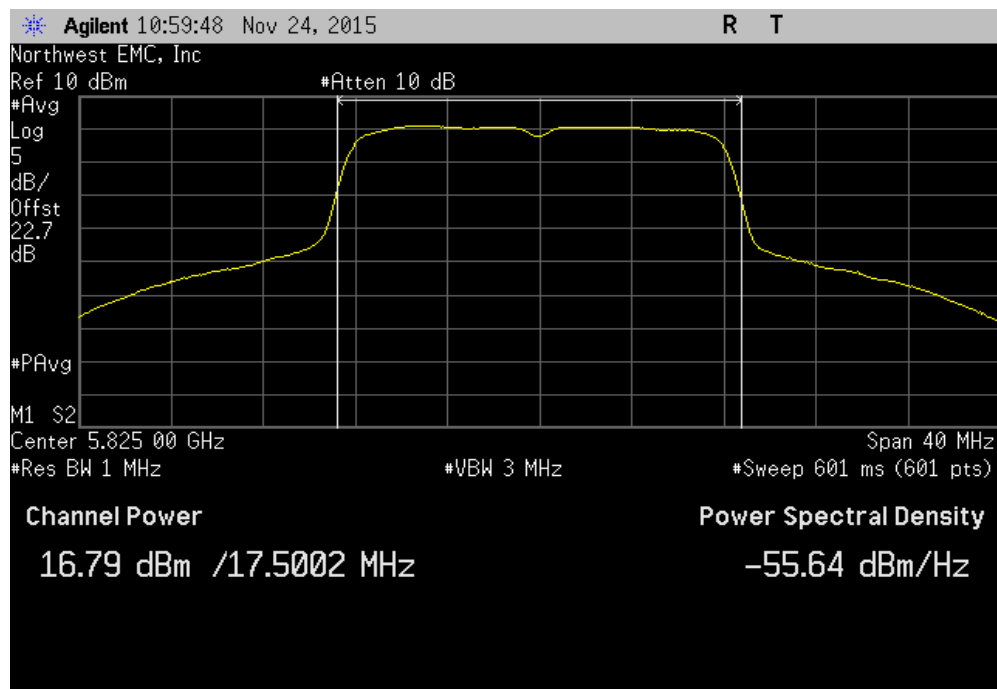


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(a) 54 Mbps, Ch 157, Mid Channel 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.651	0	16.7	30	Pass		

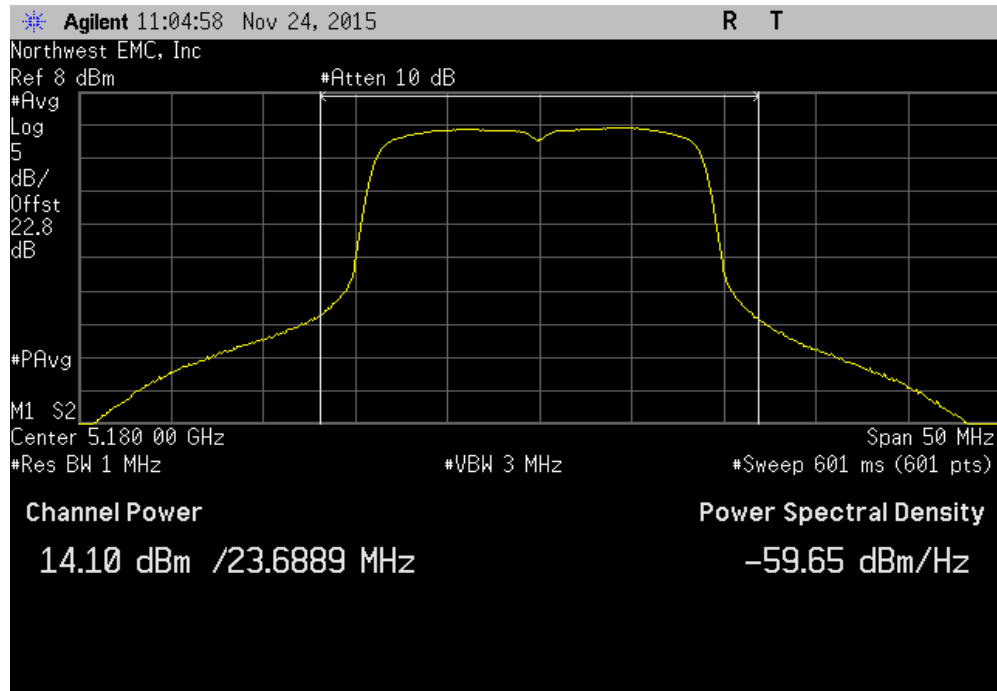


20 MHz, 802.11(a) 54 Mbps, Ch 165, High Channel 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.788	0	16.8	30	Pass		

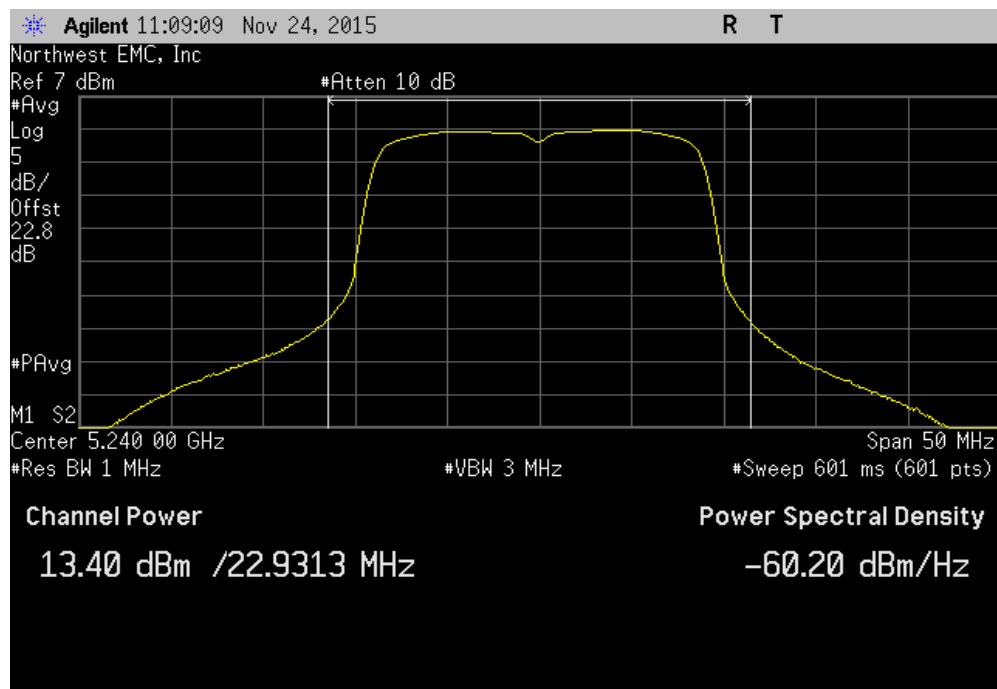


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS0, Ch 36, Low Channel 5180 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.097	0	14.1	30	Pass		

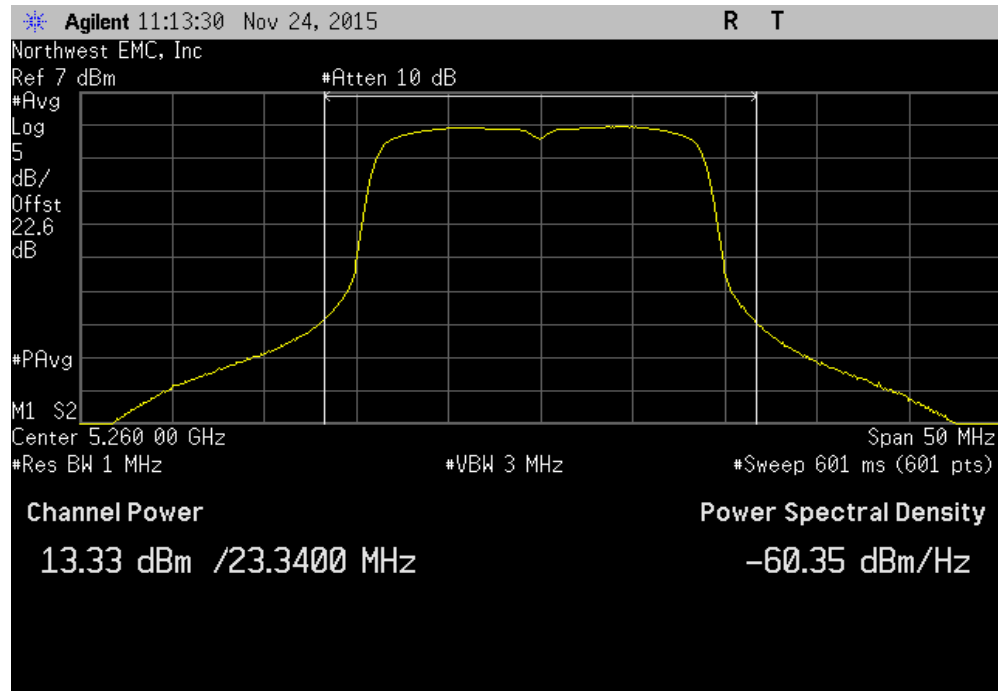


20 MHz, 802.11(n) MCS0, Ch 48, High Channel 5240 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.4	0	13.4	30	Pass		

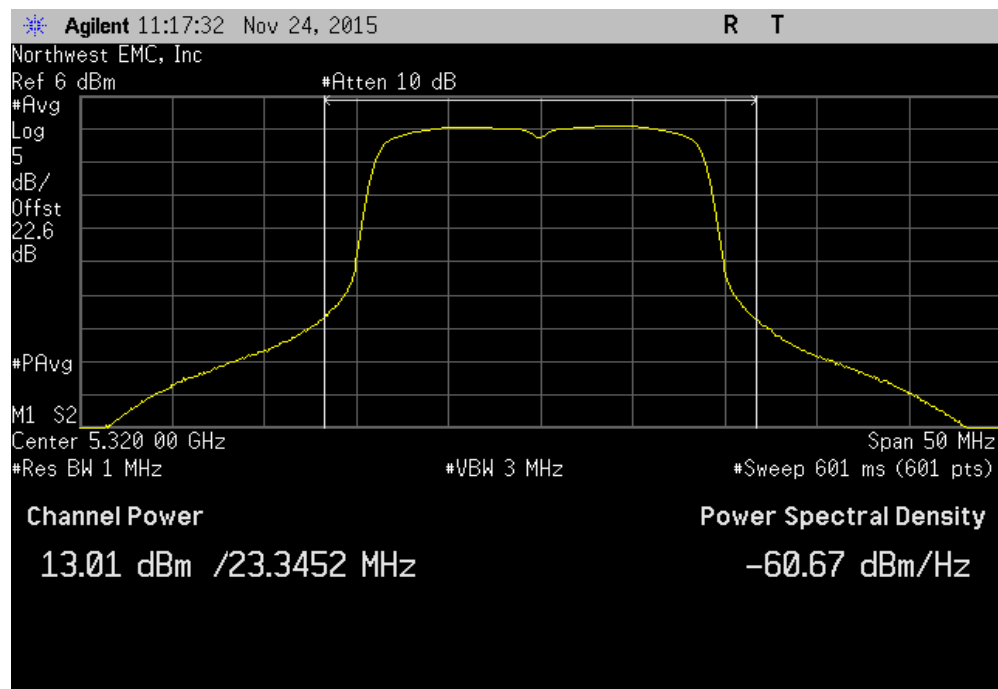


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS0, Ch 52, Low Channel 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.326	0	13.3	24	Pass		

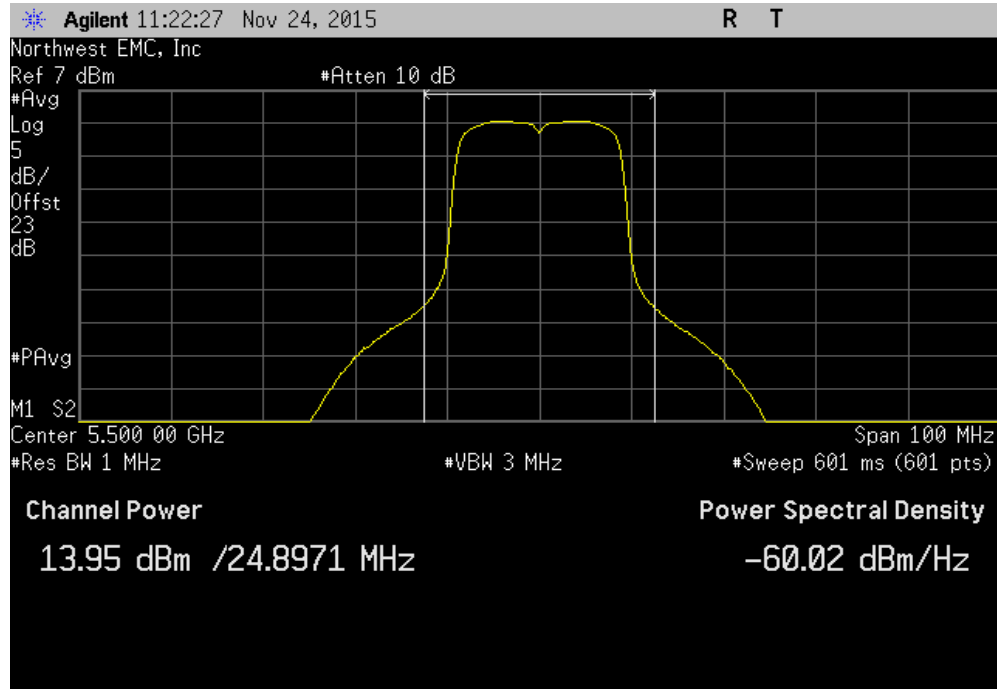


20 MHz, 802.11(n) MCS0, Ch 64, High Channel 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.013	0	13	24	Pass		

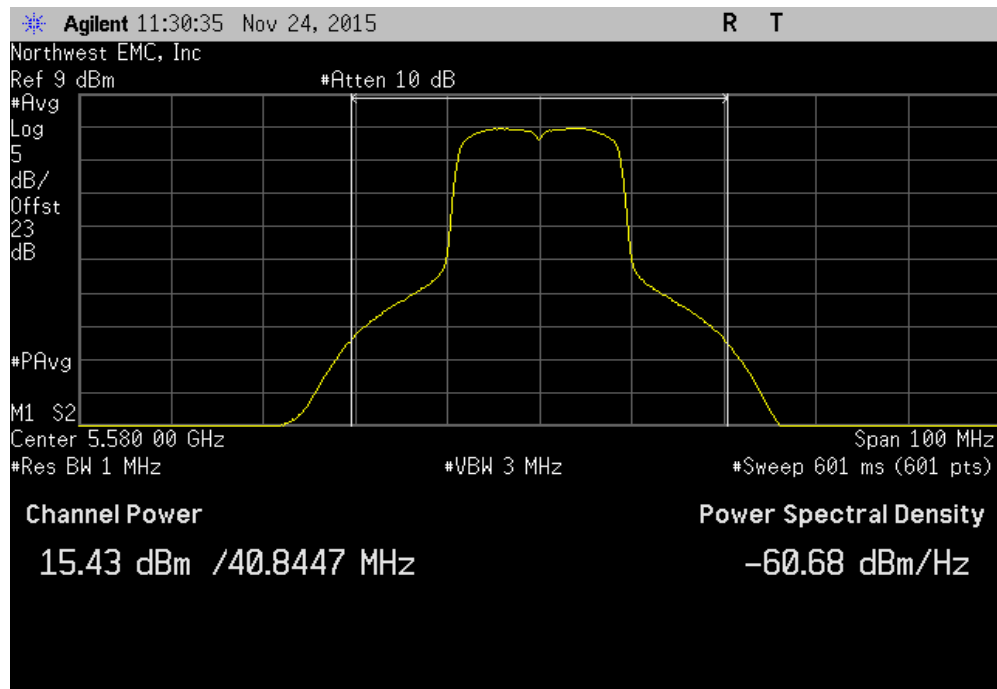


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS0, Ch 100, Low Channel 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.946	0	13.9	24	Pass		

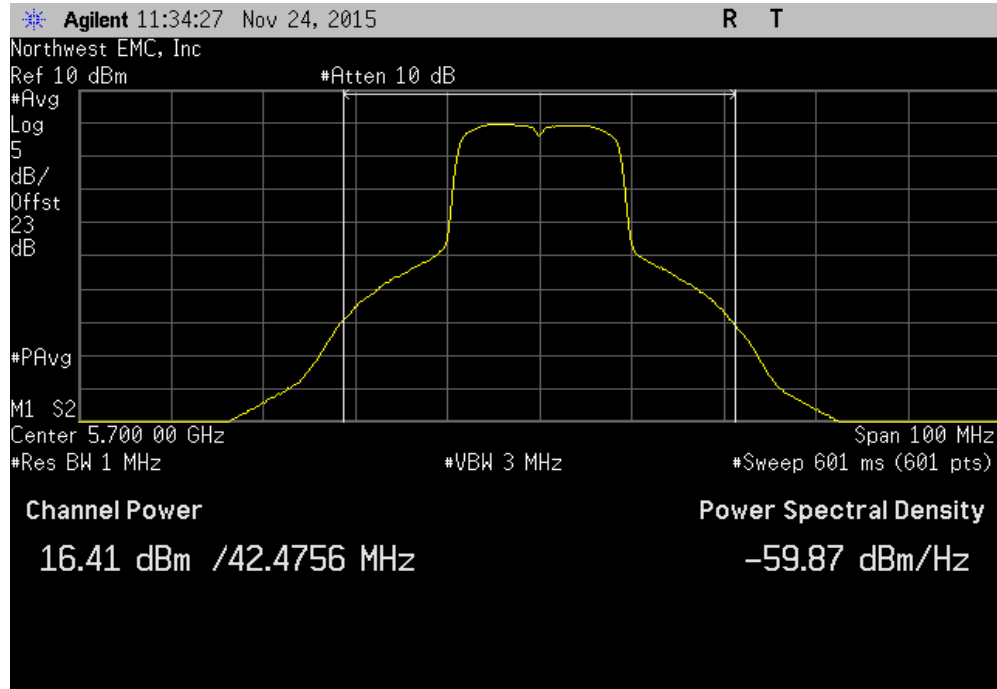


20 MHz, 802.11(n) MCS0, Ch 116, Mid Channel 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.431	0	15.4	24	Pass		

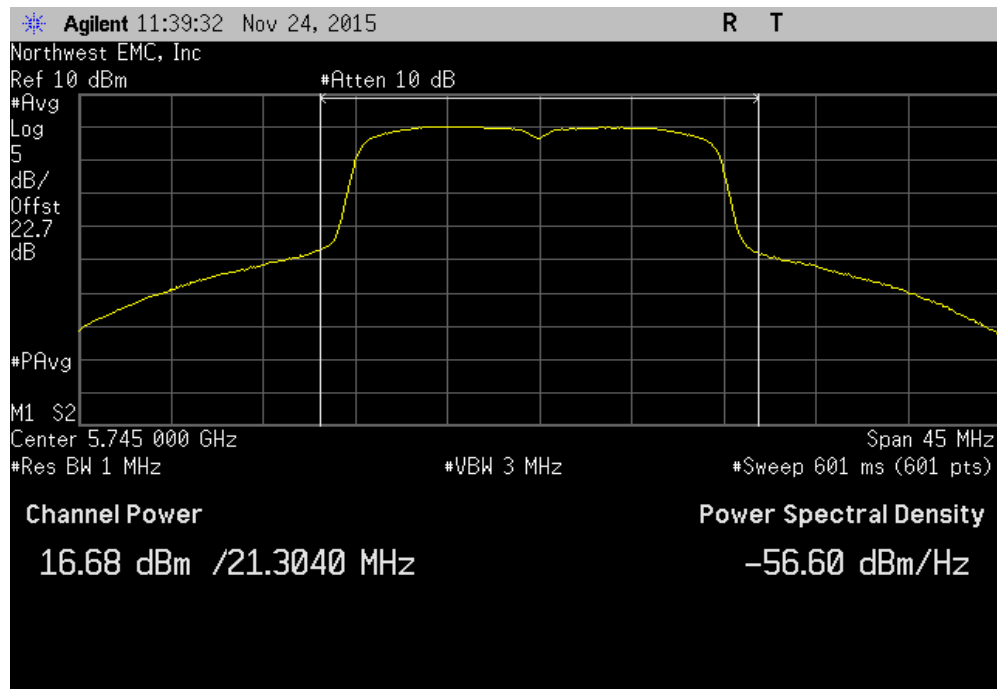


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS0, Ch 140, High Channel 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.412	0	16.4	24	Pass		

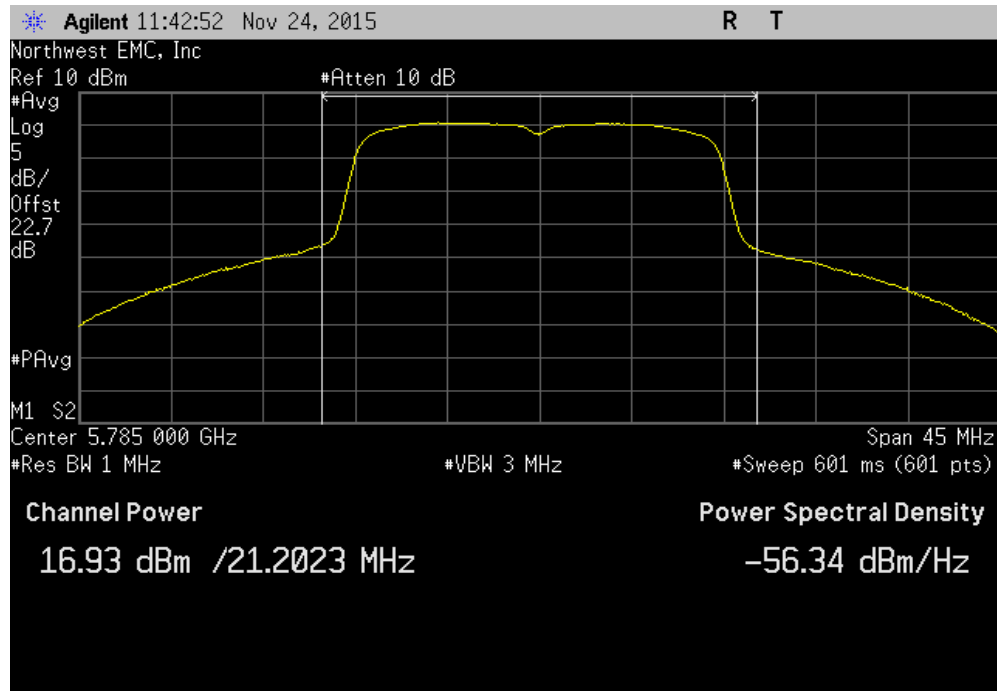


20 MHz, 802.11(n) MCS0, Ch 149, Low Channel 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.683	0	16.7	30	Pass		

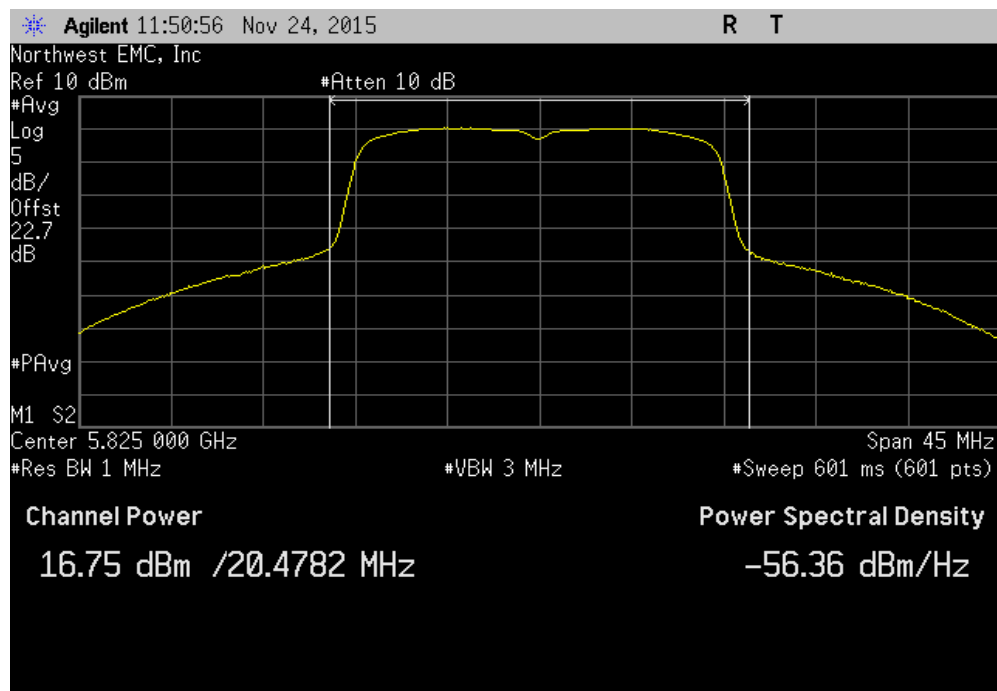


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS0, Ch 157, Mid Channel 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.927	0	16.9	30	Pass		

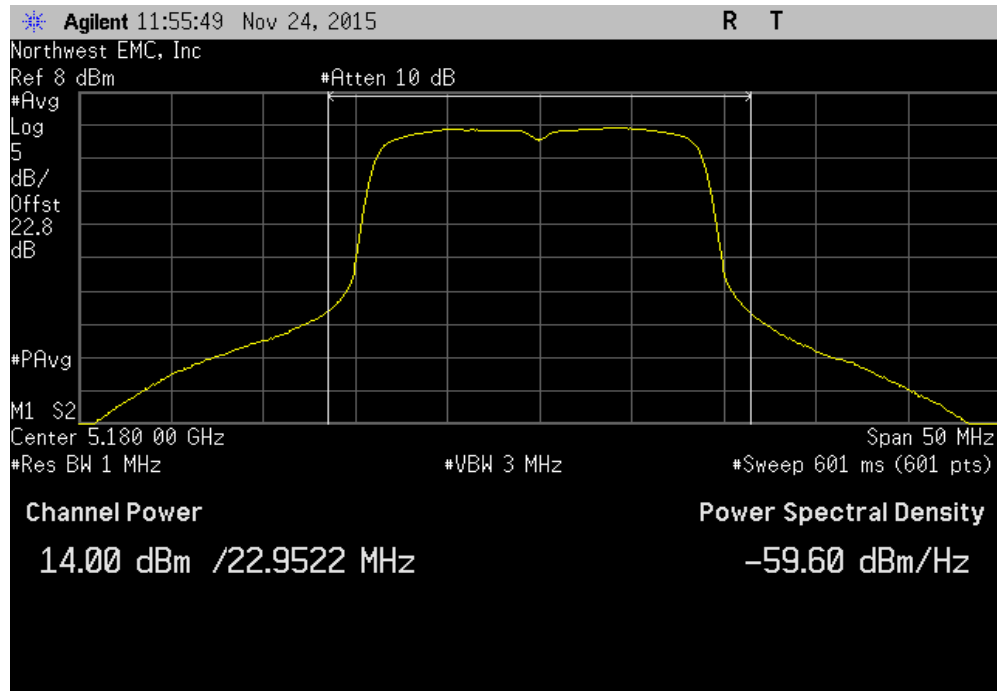


20 MHz, 802.11(n) MCS0, Ch 165, High Channel 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.749	0	16.7	30	Pass		

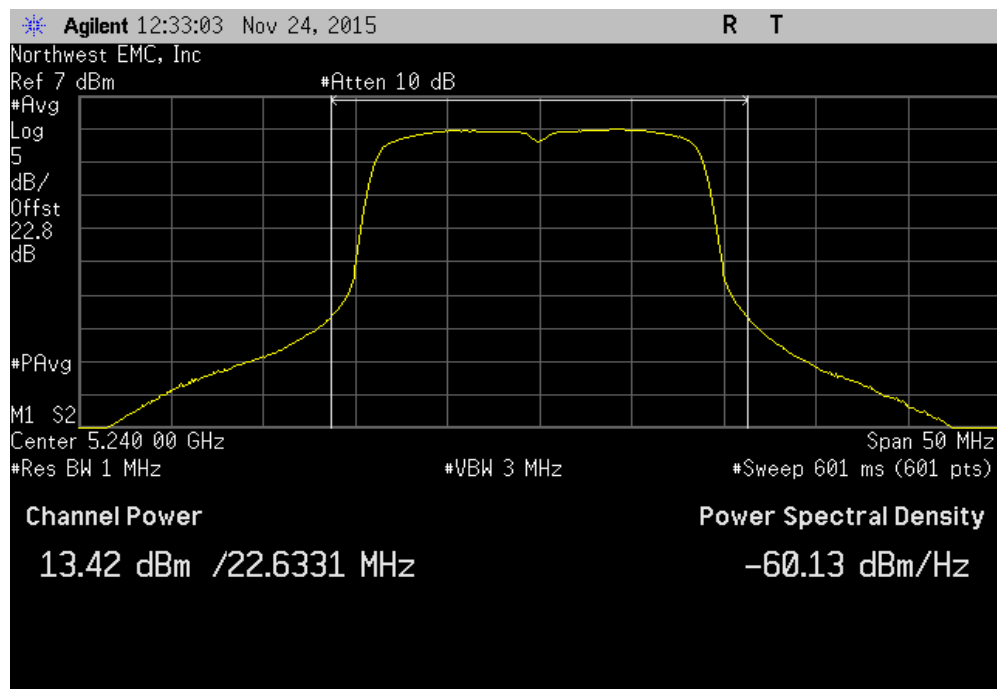


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS7, Ch 36, Low Channel 5180 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
14.003	0	14	24	Pass	

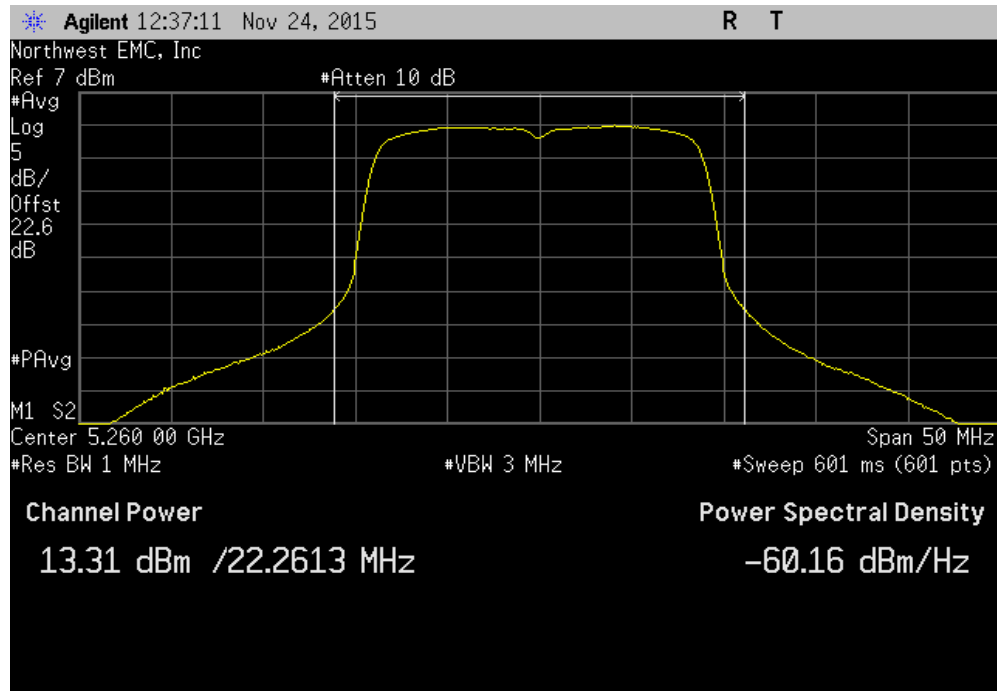


20 MHz, 802.11(n) MCS7, Ch 48, High Channel 5240 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
13.417	0	13.4	24	Pass	

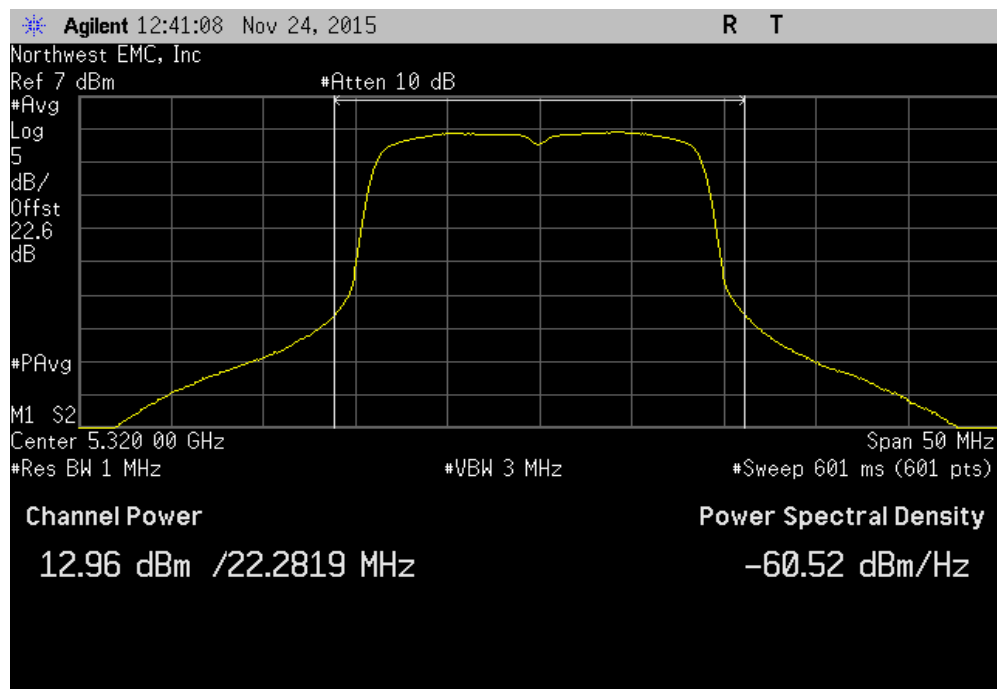


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS7, Ch 52, Low Channel 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.314	0	13.3	24	Pass		

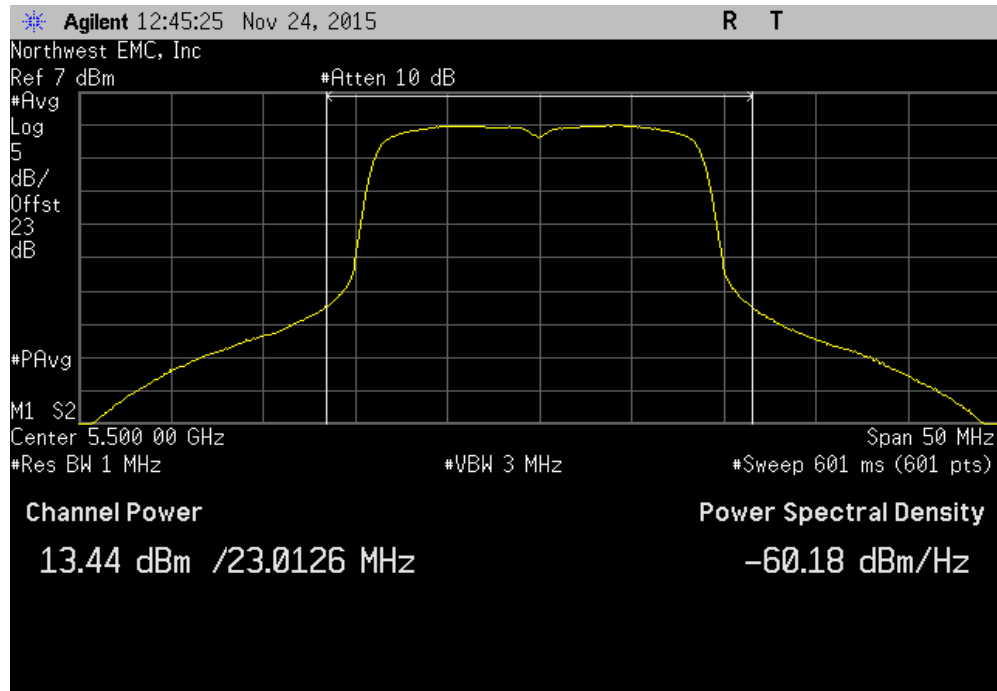


20 MHz, 802.11(n) MCS7, Ch 64, High Channel 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
12.962	0	13	24	Pass		

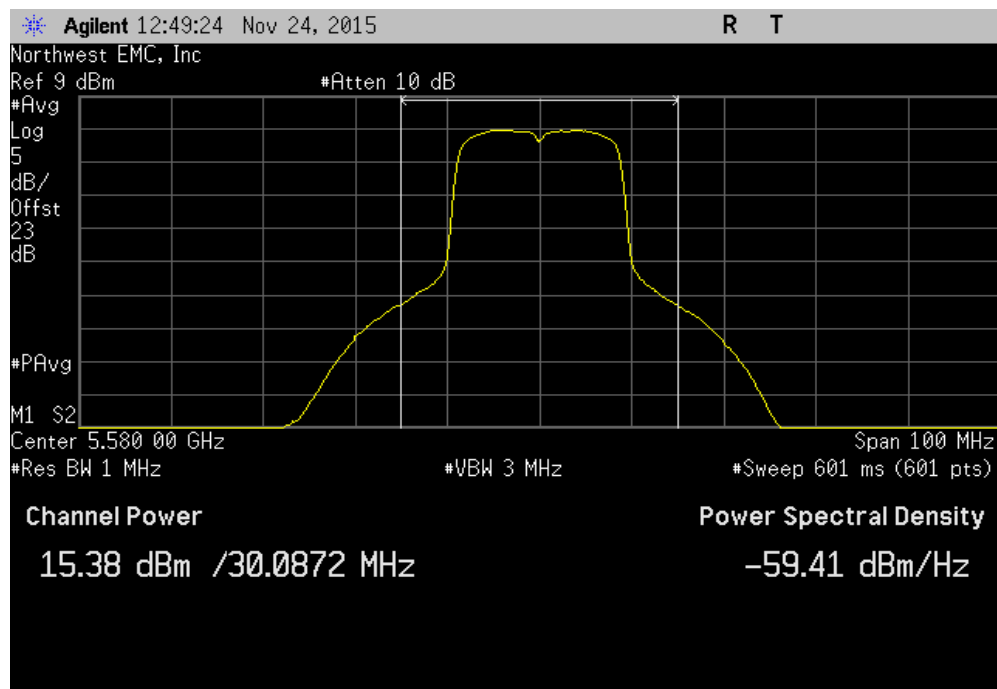


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS7, Ch 100, Low Channel 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.444	0	13.4	24	Pass		

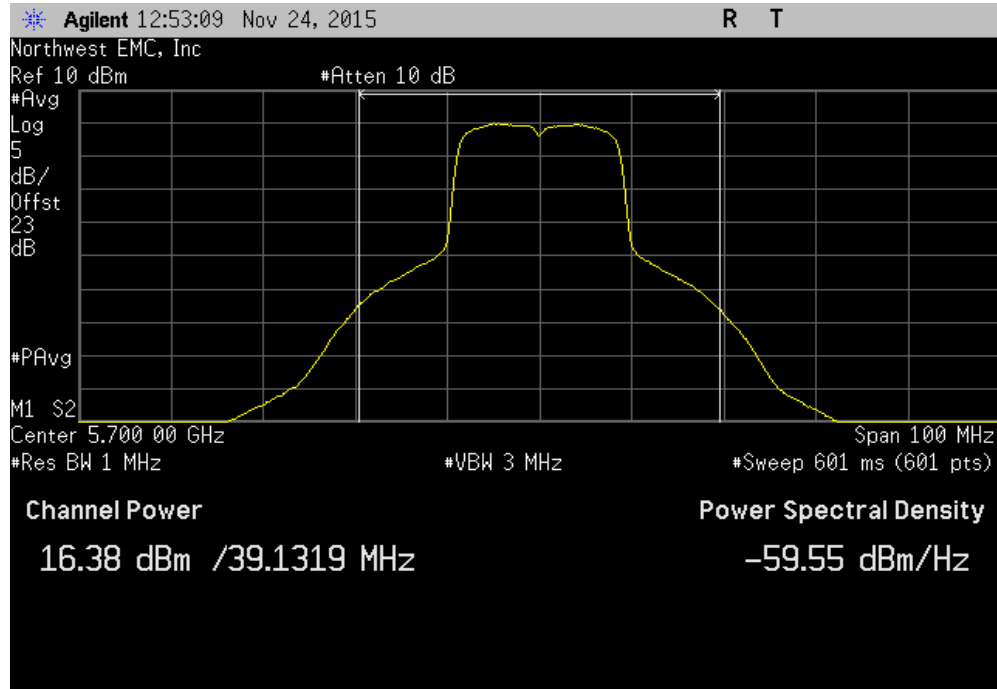


20 MHz, 802.11(n) MCS7, Ch 116, Mid Channel 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.379	0	15.4	24	Pass		

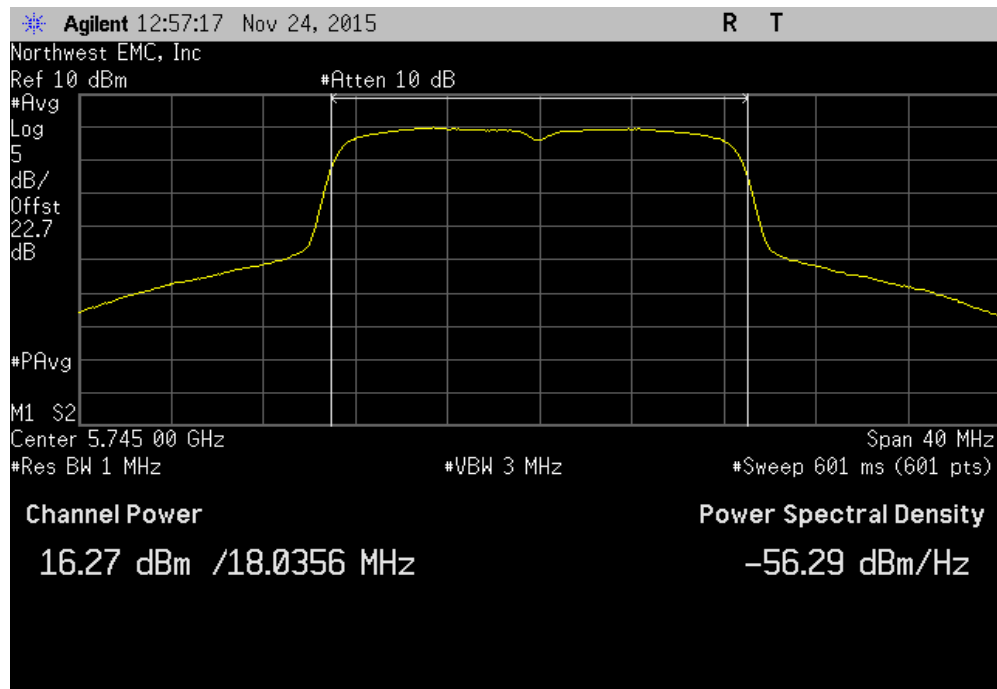


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS7, Ch 140, High Channel 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.378	0	16.4	24	Pass		

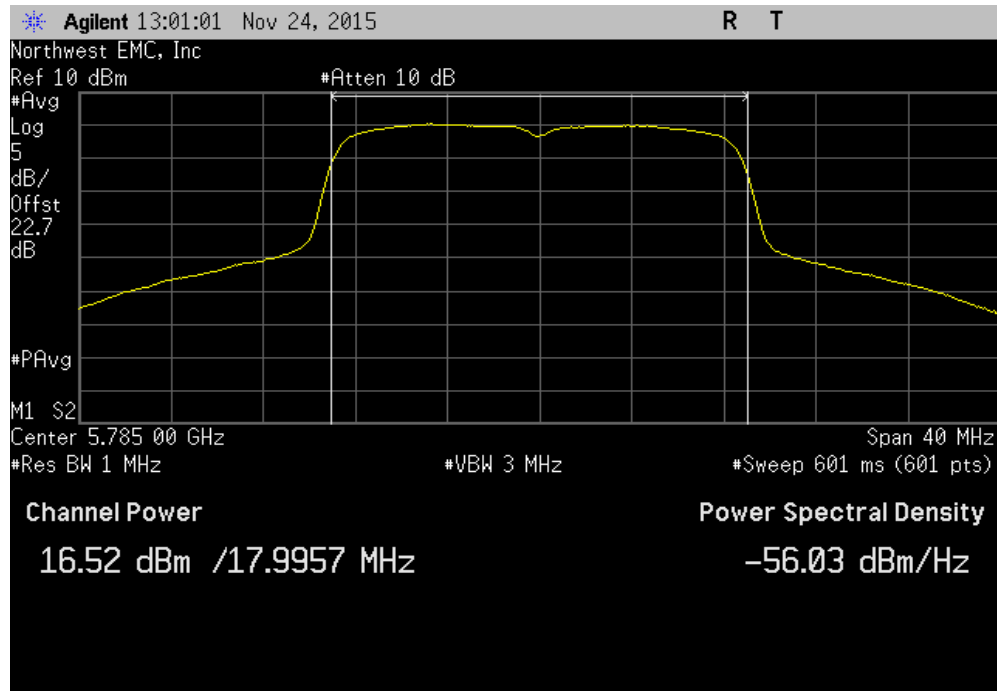


20 MHz, 802.11(n) MCS7, Ch 149, Low Channel 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.272	0	16.3	30	Pass		

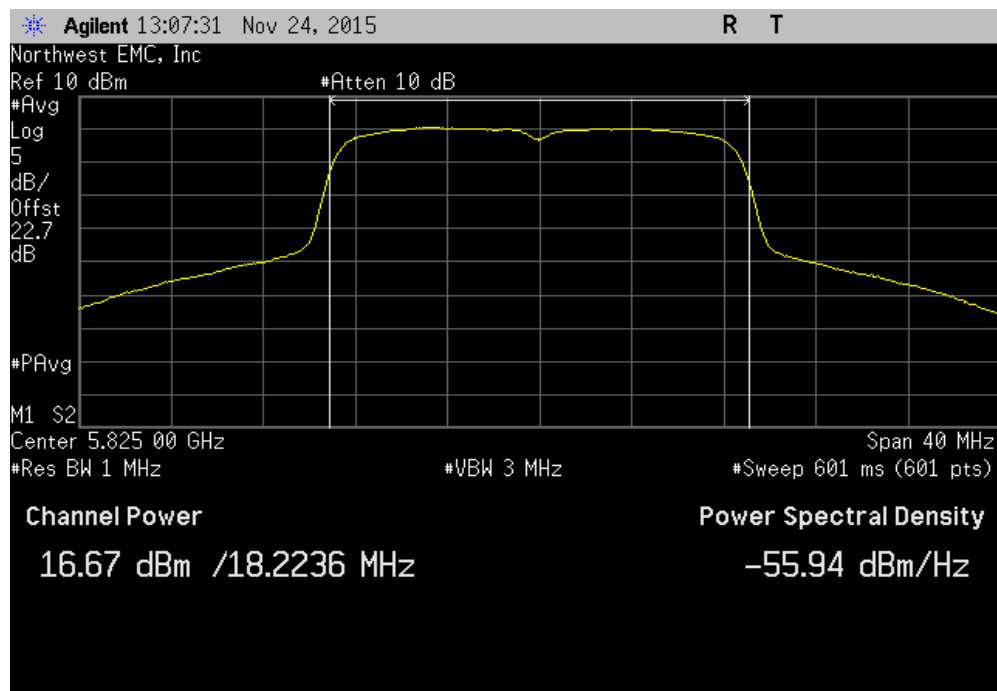


MAXIMUM CONDUCTED OUTPUT POWER

20 MHz, 802.11(n) MCS7, Ch 157, Mid Channel 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.52	0	16.5	30	Pass		

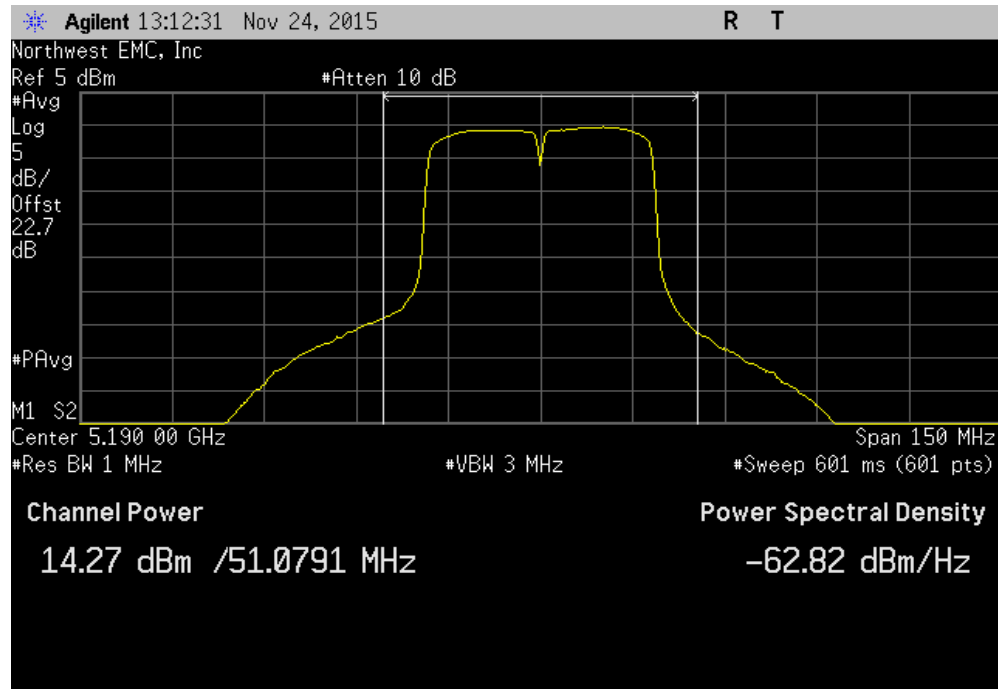


20 MHz, 802.11(n) MCS7, Ch 165, High Channel 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.666	0	16.7	30	Pass		

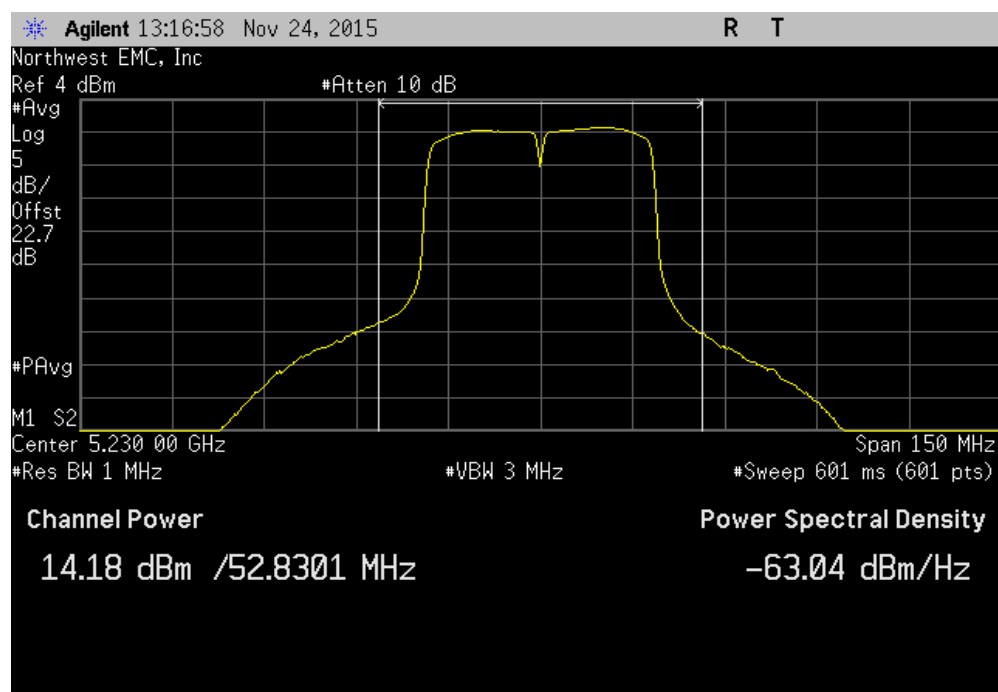


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS0, Ch 36/40, Low Channel 5190 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.267	0	14.3	24	Pass		

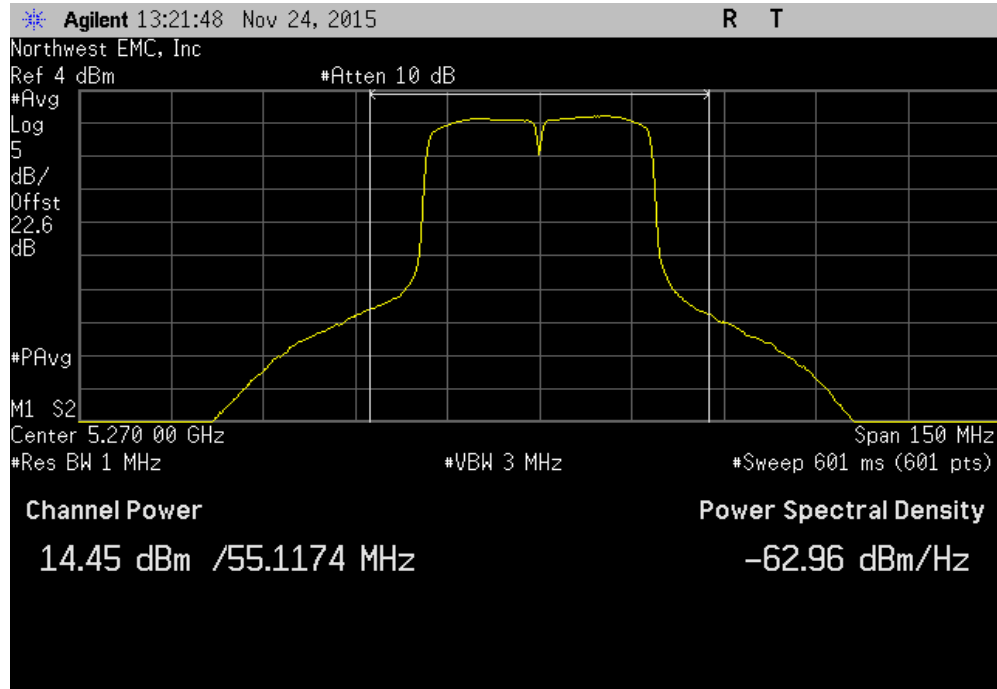


40 MHz, 802.11(n) MCS0, Ch 44/48, High Channel 5230 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.185	0	14.2	24	Pass		

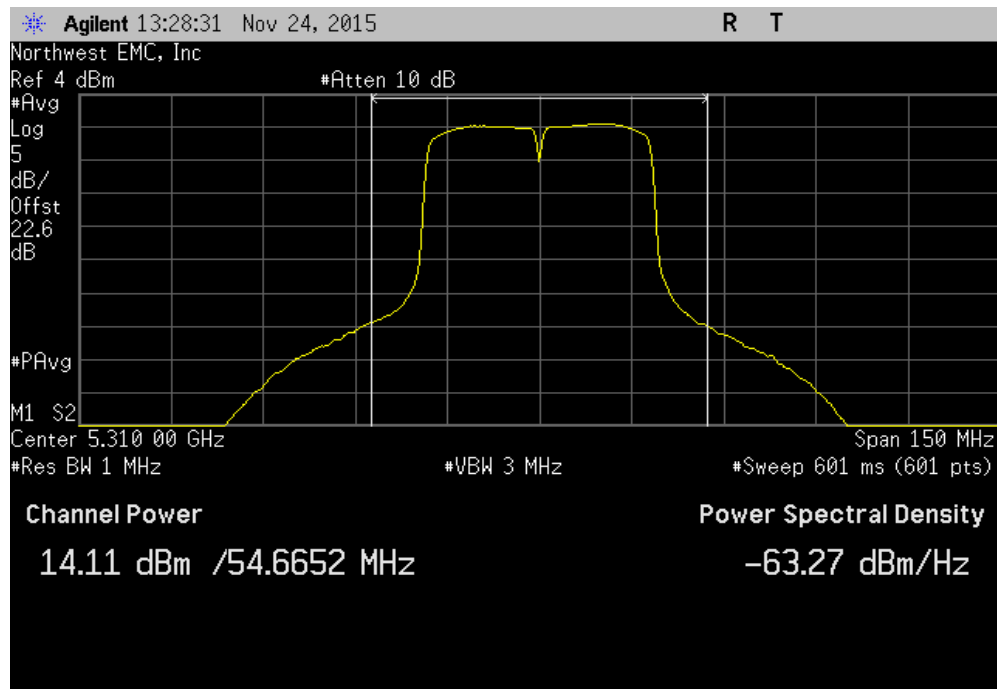


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS0, Ch 52/56, Low Channel 5270 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
14.449	0	14.4	24	Pass	

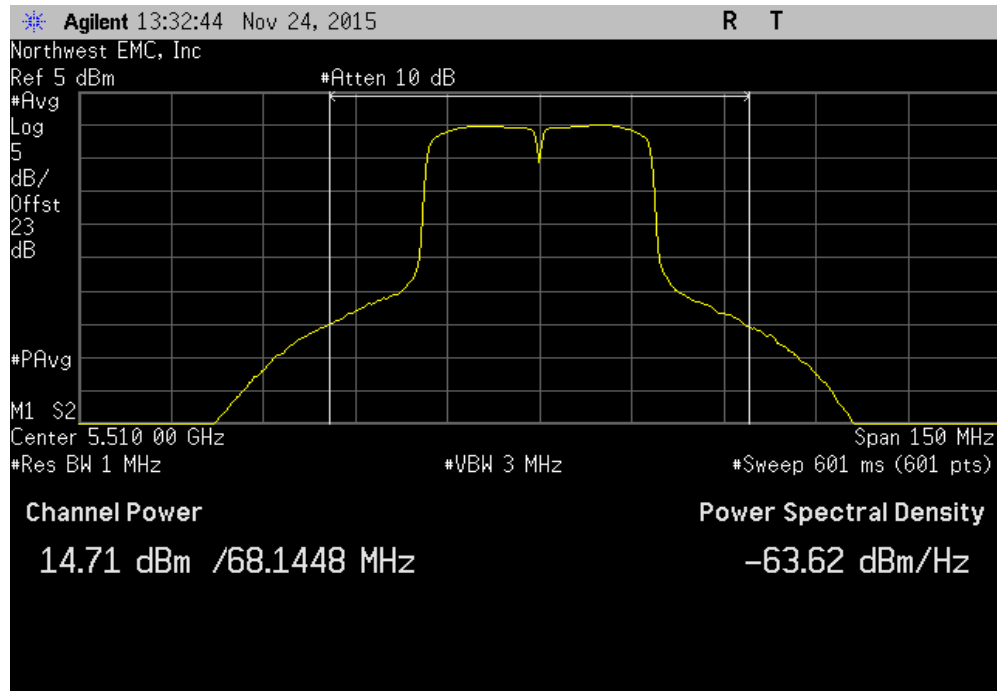


40 MHz, 802.11(n) MCS0, Ch 60/64, High Channel 5310 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
14.109	0	14.1	24	Pass	

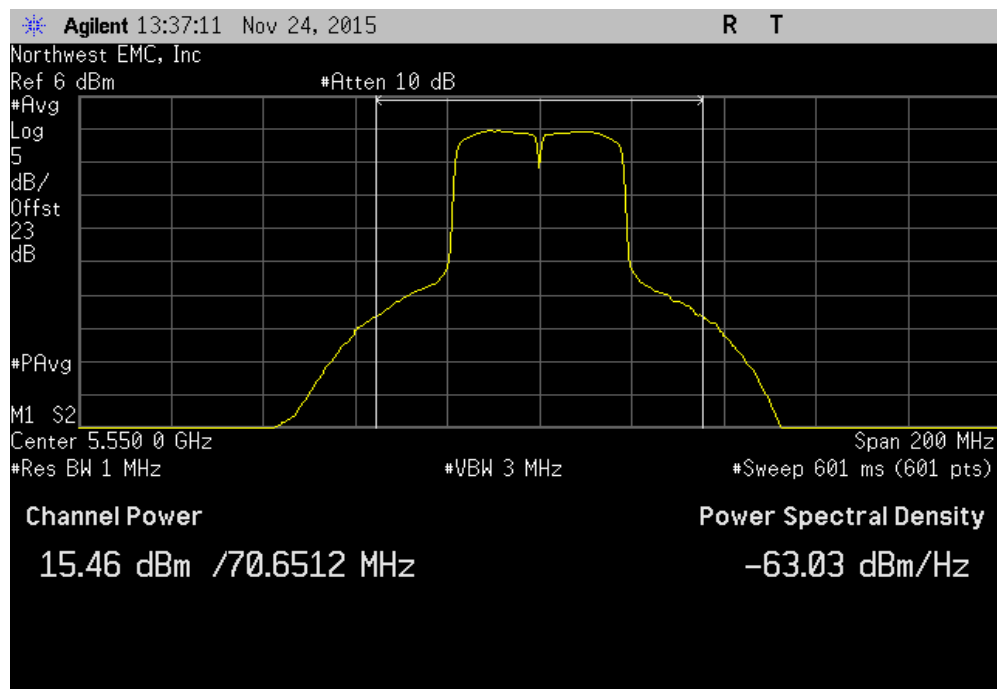


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS0, Ch 100/104, Low Channel 5510 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.715	0	14.7	24	Pass		

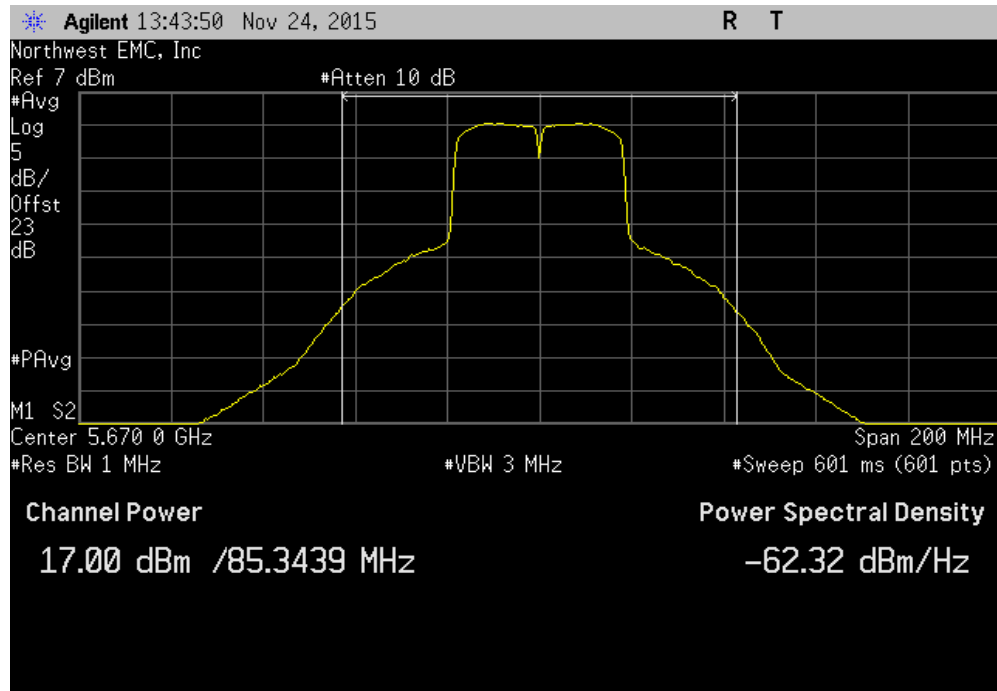


40 MHz, 802.11(n) MCS0, Ch 108/112, Mid Channel 5550 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.457	0	15.5	24	Pass		

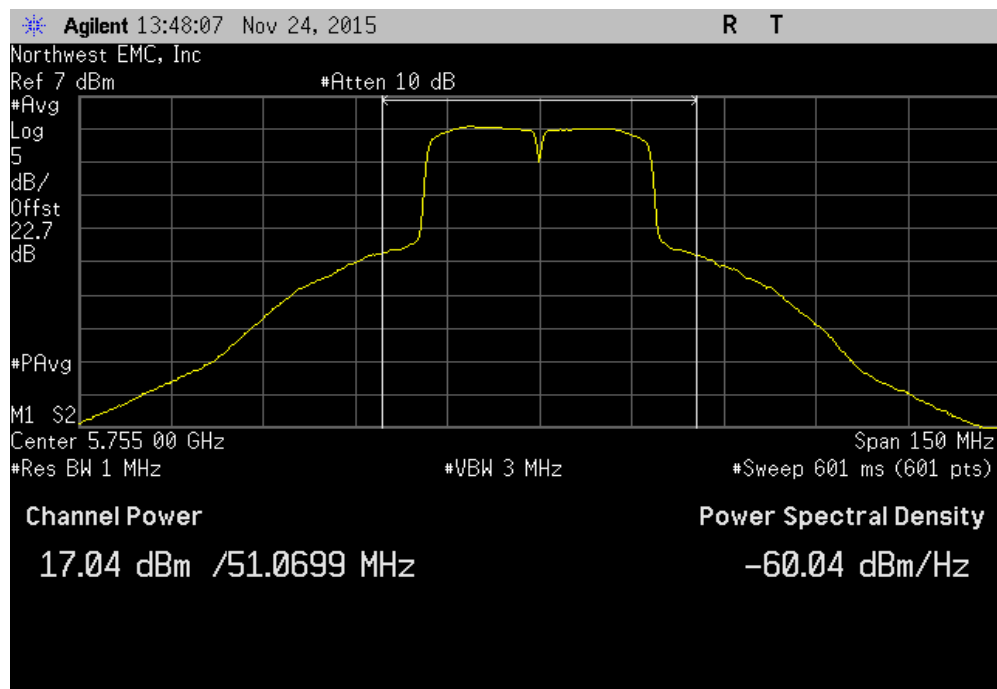


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS0, Ch 132/136, High Channel 5670 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
16.996	0	17	24	Pass	

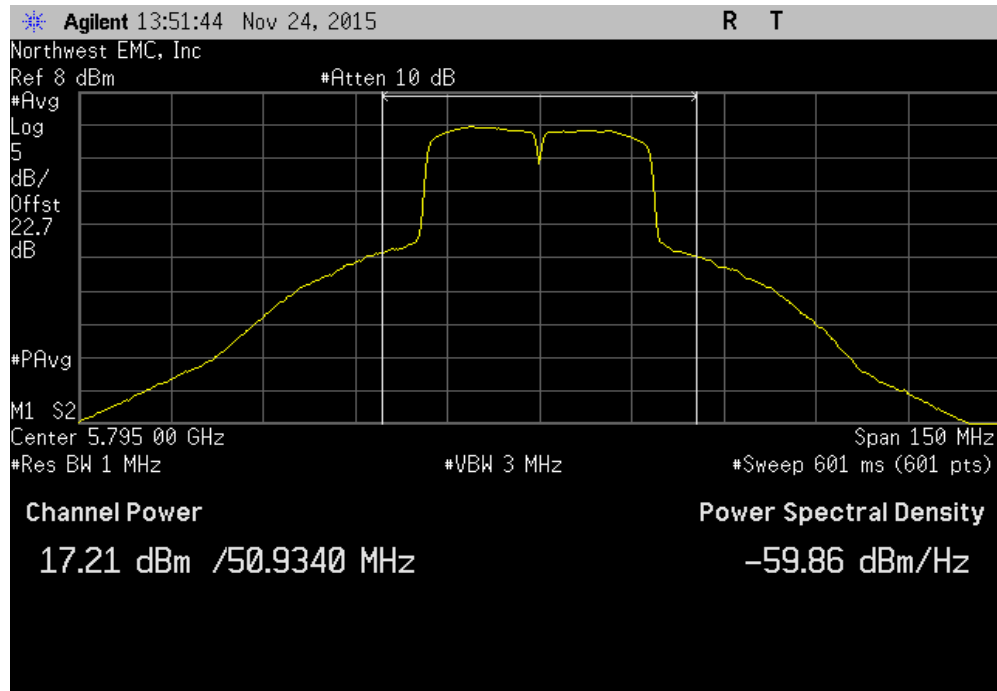


40 MHz, 802.11(n) MCS0, Ch 149/153, Low Channel 5755 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
17.044	0	17	30	Pass	

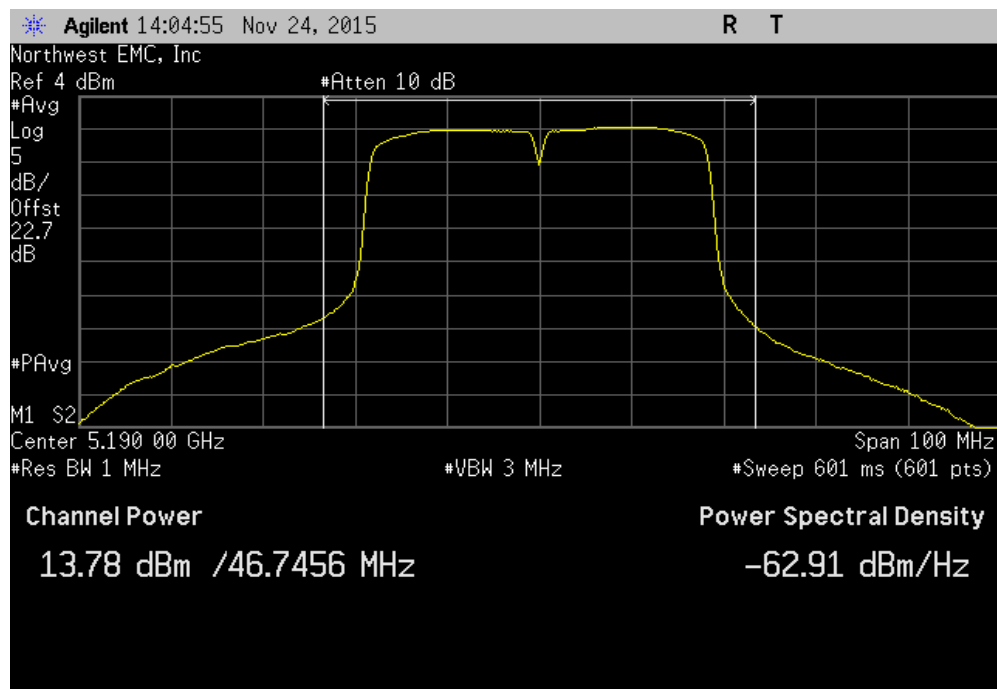


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS0, Ch 157/161, High Channel 5795 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	17.209	0		17.2	30	Pass

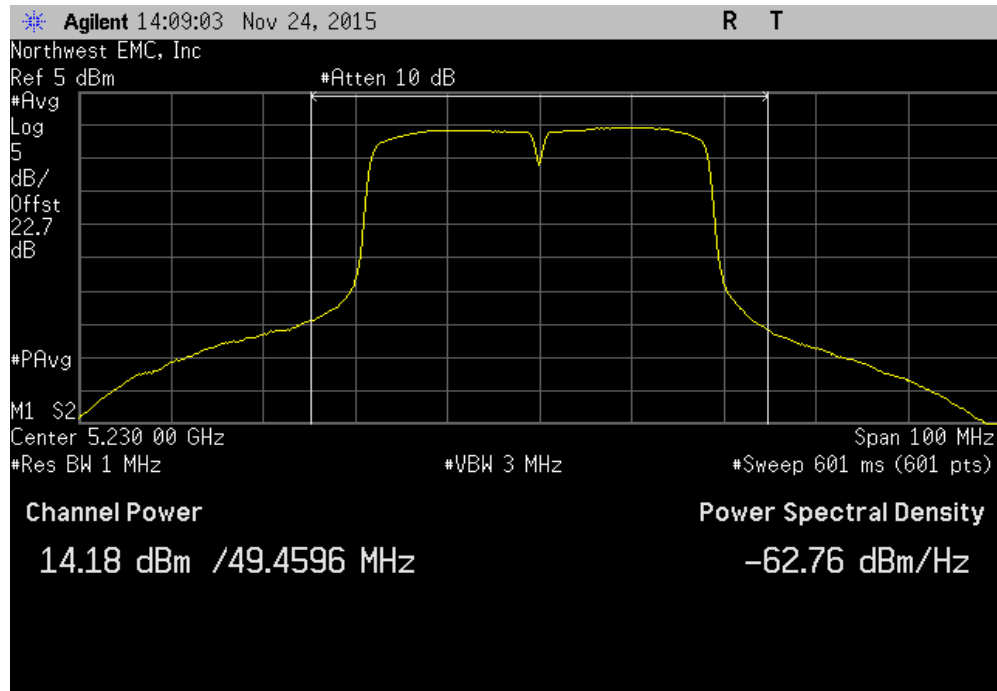


40 MHz, 802.11(n) MCS7, Ch 36/40, Low Channel 5190 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	13.783	0		13.8	24	Pass

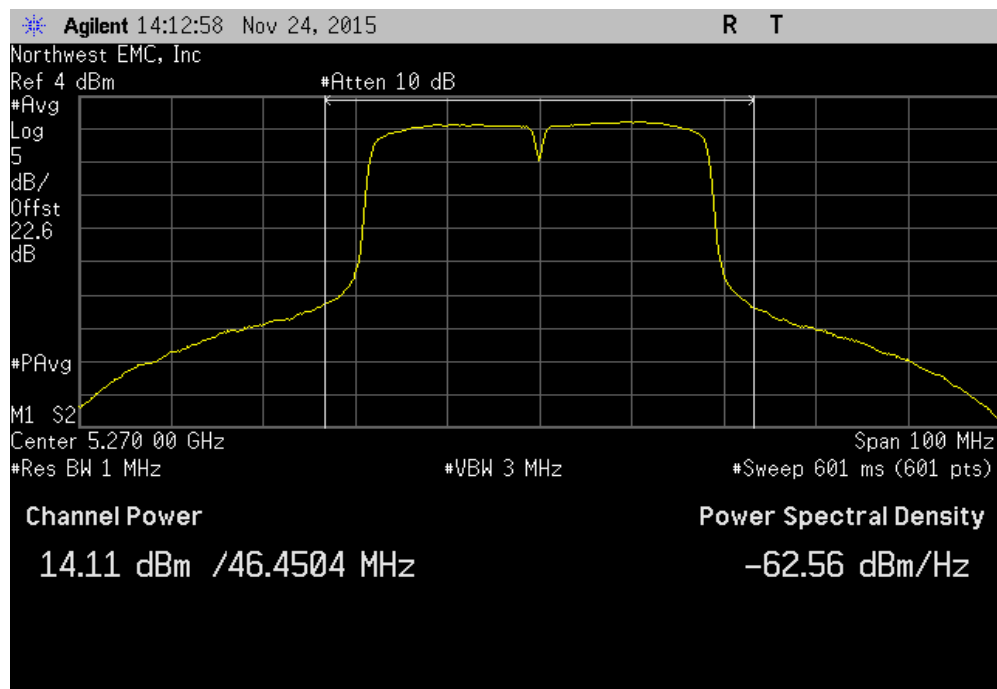


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS7, Ch 44/48, High Channel 5230 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.184	0	14.2	24	Pass		

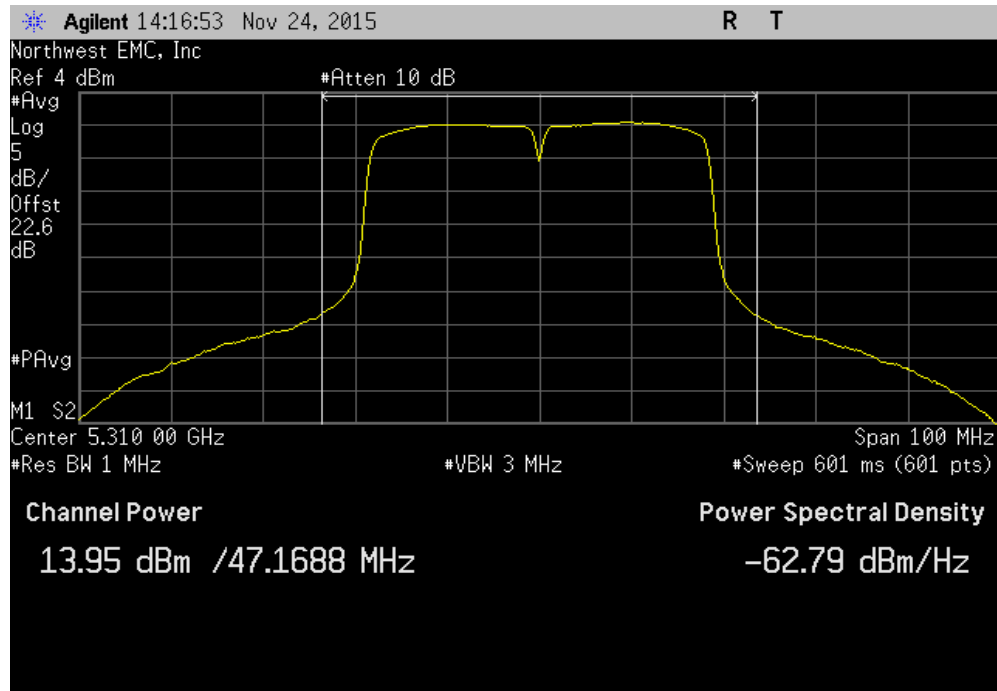


40 MHz, 802.11(n) MCS7, Ch 52/56, Low Channel 5270 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.106	0	14.1	24	Pass		

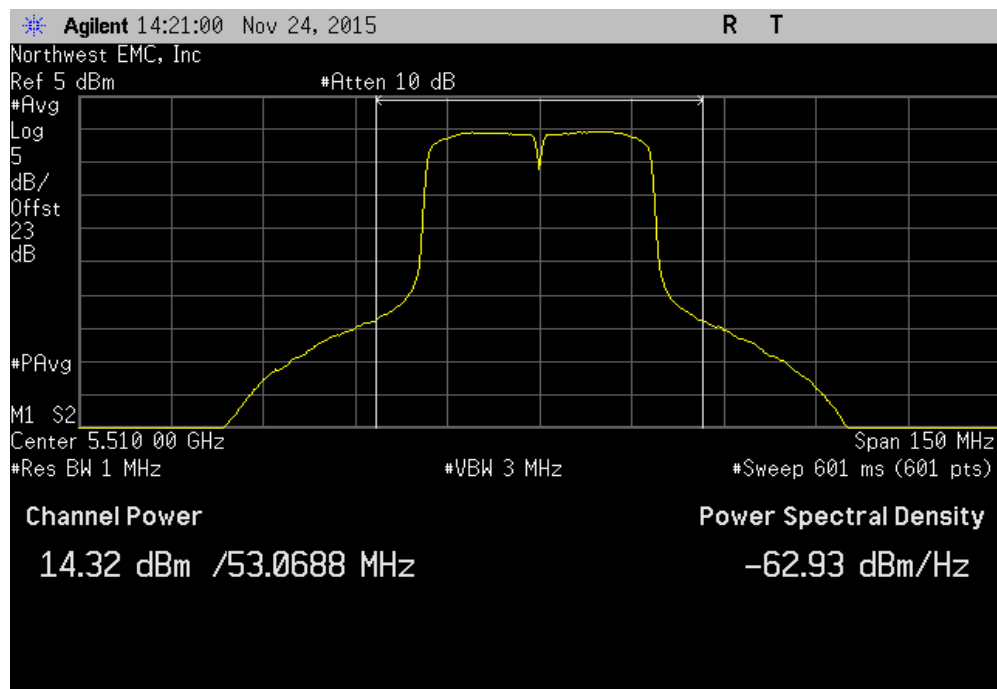


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS7, Ch 60/64, High Channel 5310 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.95	0	14	24	Pass		

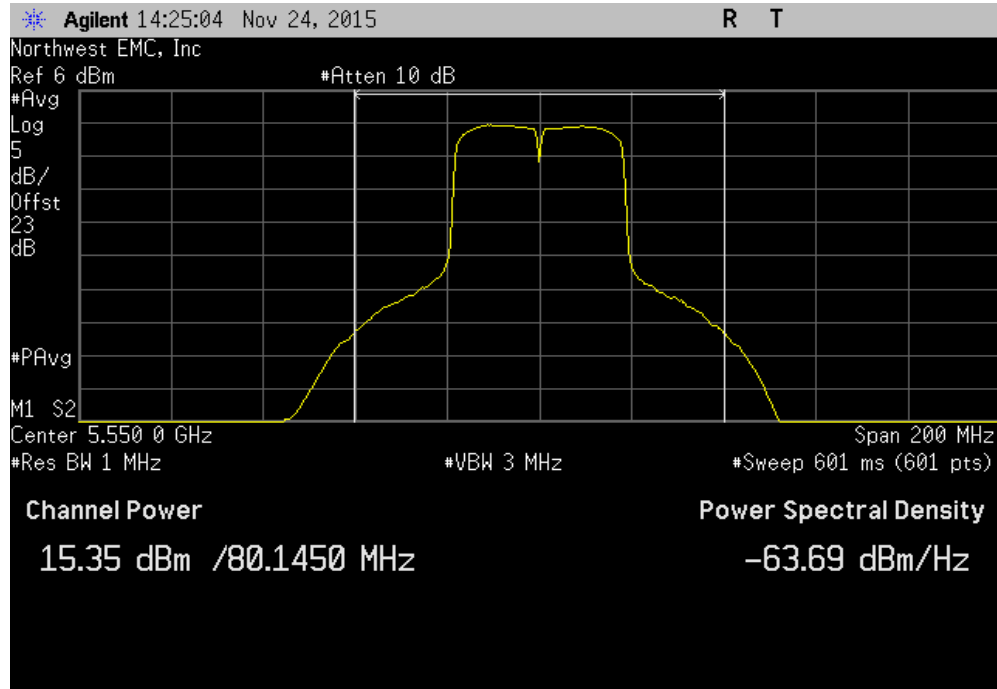


40 MHz, 802.11(n) MCS7, Ch 100/104, Low Channel 5510 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
14.318	0	14.3	24	Pass		

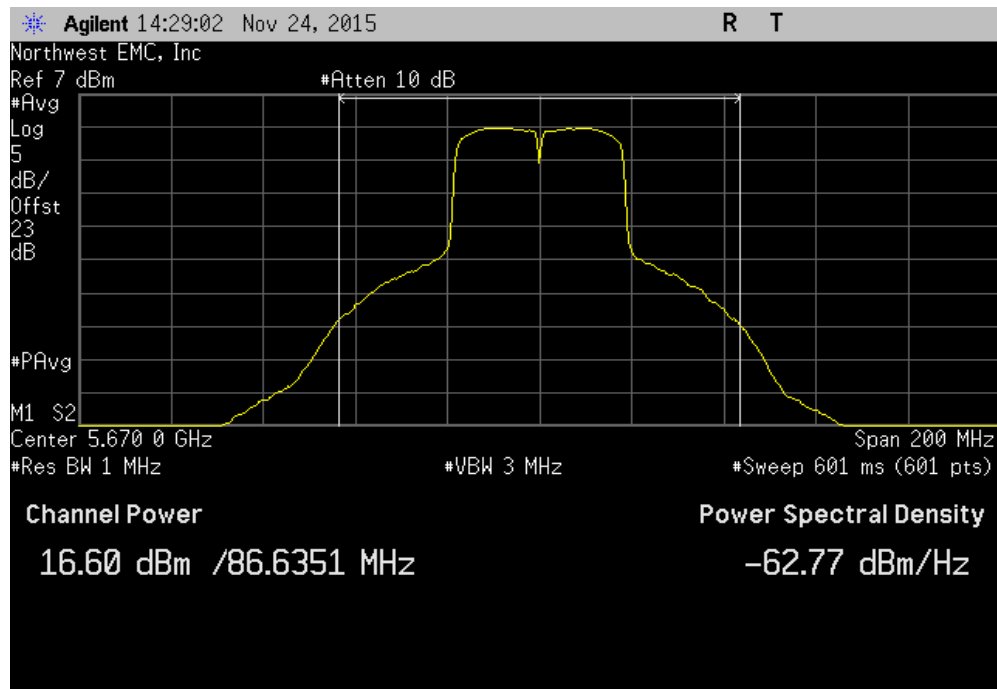


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS7, Ch 108/112, Mid Channel 5550 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
15.349	0	15.3	24	Pass		

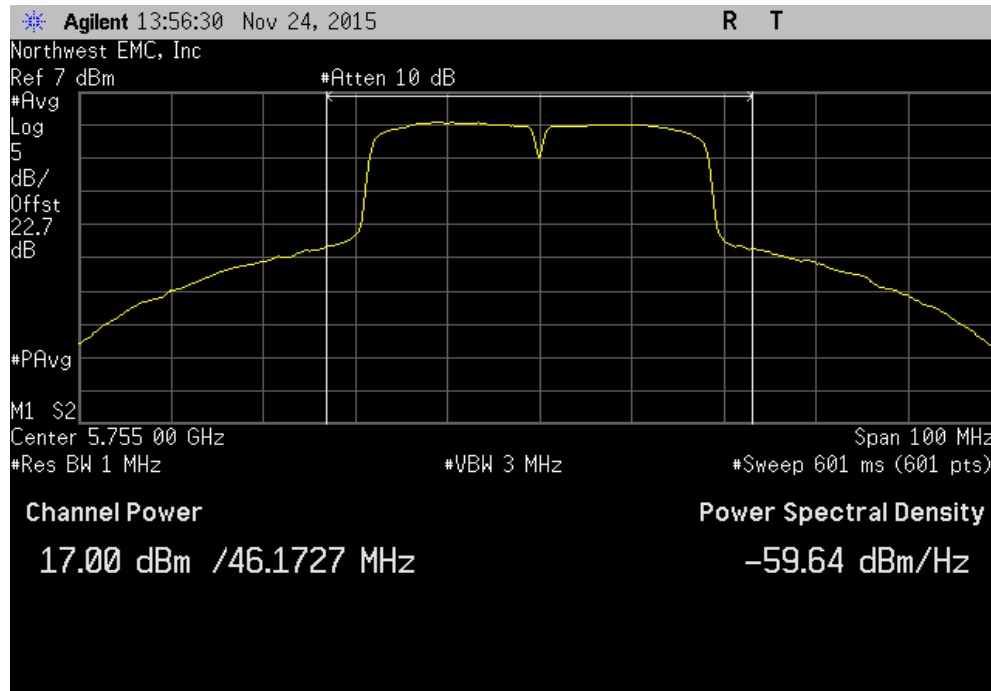


40 MHz, 802.11(n) MCS7, Ch 132/136, High Channel 5670 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
16.604	0	16.6	24	Pass		

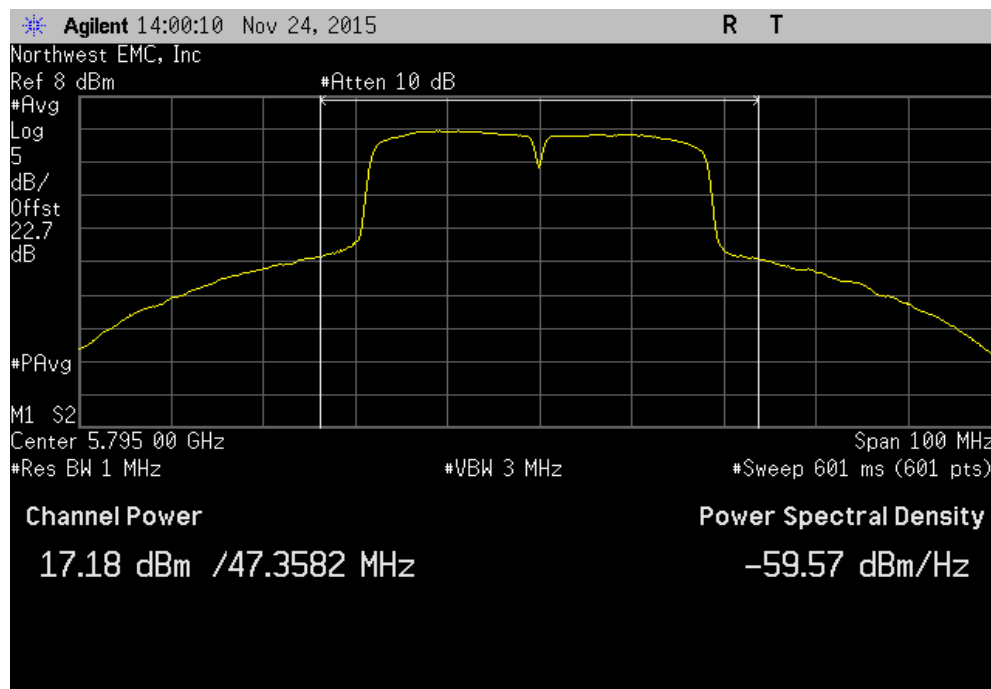


MAXIMUM CONDUCTED OUTPUT POWER

40 MHz, 802.11(n) MCS7, Ch 149/153, Low Channel 5755 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
17.004	0	17	30	Pass	



40 MHz, 802.11(n) MCS7, Ch 157/161, High Channel 5795 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results	
17.184	0	17.2	30	Pass	



EMISSION BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

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.

Per ANSI C63.10, 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.

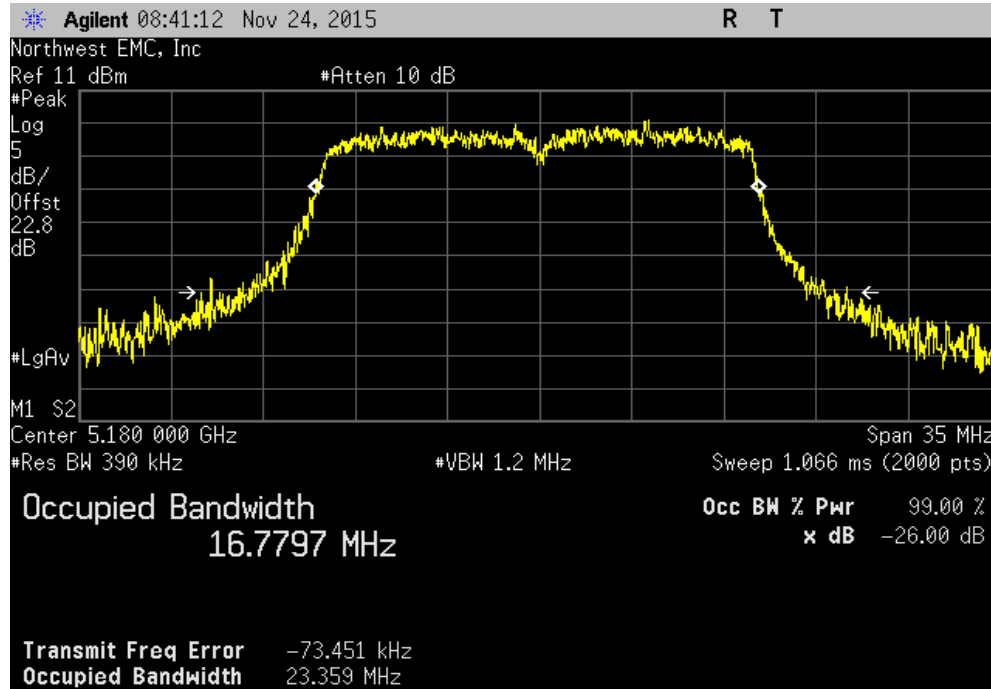
There is no required limit to be met in the rule part for this test. The purpose of the test is to both report the results as required and to utilize the emission bandwidth for setting the channel power integration bandwidth during conducted output power

EMISSION BANDWIDTH

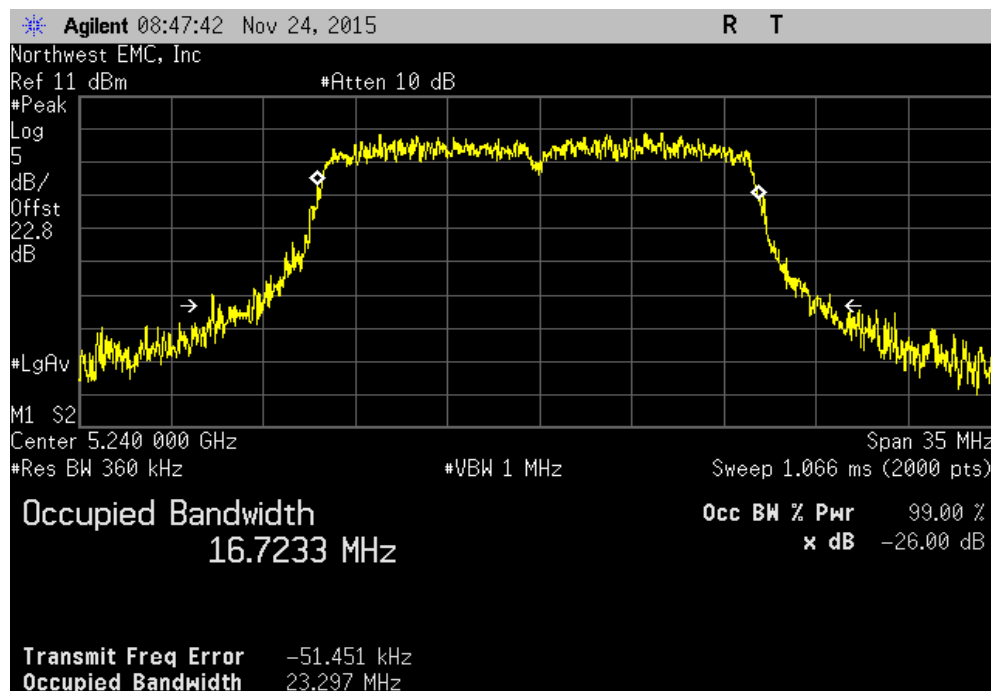
EUT: Sigma Pumps Gen IV 802.11abgn Module		Work Order: DGII0152	
Serial Number: None		Date: 01/11/16	
Customer: Digi International Inc		Temperature: 21.1°C	
Attendees: Slava Gehkt		Humidity: 16%	
Project: None		Barometric Pres.: 981.5	
Tested by: Jared Ison		Power: 110VAC/60Hz	
Job Site: MN08			
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2016		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
Configuration #	2	Signature 	
		Value	Limit (>) Result
20 MHz			
802.11(a) 6 Mbps			
Ch 36, Low Channel 5180 MHz		23.359 MHz	500 kHz Pass
Ch 48, High Channel 5240 MHz		23.297 MHz	500 kHz Pass
Ch 52, Low Channel 5260 MHz		23.659 MHz	500 kHz Pass
Ch 64, High Channel 5320 MHz		27.873 MHz	500 kHz Pass
Ch 100, Low Channel 5500 MHz		30.728 MHz	500 kHz Pass
Ch 116, Mid Channel 5580 MHz		38.565 MHz	500 kHz Pass
Ch 140, High Channel 5700 MHz		38.107 MHz	500 kHz Pass
802.11(a) 36 Mbps			
Ch 36, Low Channel 5180 MHz		22.074 MHz	500 kHz Pass
Ch 48, High Channel 5240 MHz		21.267 MHz	500 kHz Pass
Ch 52, Low Channel 5260 MHz		21.658 MHz	500 kHz Pass
Ch 64, High Channel 5320 MHz		22.266 MHz	500 kHz Pass
Ch 100, Low Channel 5500 MHz		24.158 MHz	500 kHz Pass
Ch 116, Mid Channel 5580 MHz		36.812 MHz	500 kHz Pass
Ch 140, High Channel 5700 MHz		39.064 MHz	500 kHz Pass
802.11(a) 54 Mbps			
Ch 36, Low Channel 5180 MHz		21.878 MHz	500 kHz Pass
Ch 48, High Channel 5240 MHz		21.4 MHz	500 kHz Pass
Ch 52, Low Channel 5260 MHz		22.267 MHz	500 kHz Pass
Ch 64, High Channel 5320 MHz		22.978 MHz	500 kHz Pass
Ch 100, Low Channel 5500 MHz		23.21 MHz	500 kHz Pass
Ch 116, Mid Channel 5580 MHz		32.386 MHz	500 kHz Pass
Ch 140, High Channel 5700 MHz		38.731 MHz	500 kHz Pass
802.11(n) MCS0			
Ch 36, Low Channel 5180 MHz		23.689 MHz	500 kHz Pass
Ch 48, High Channel 5240 MHz		22.931 MHz	500 kHz Pass
Ch 52, Low Channel 5260 MHz		23.34 MHz	500 kHz Pass
Ch 64, High Channel 5320 MHz		23.345 MHz	500 kHz Pass
Ch 100, Low Channel 5500 MHz		24.897 MHz	500 kHz Pass
Ch 116, Mid Channel 5580 MHz		40.845 MHz	500 kHz Pass
Ch 140, High Channel 5700 MHz		42.476 MHz	500 kHz Pass
802.11(n) MCS7			
Ch 36, Low Channel 5180 MHz		22.952 MHz	500 kHz Pass
Ch 48, High Channel 5240 MHz		22.633 MHz	500 kHz Pass
Ch 52, Low Channel 5260 MHz		22.261 MHz	500 kHz Pass
Ch 64, High Channel 5320 MHz		22.282 MHz	500 kHz Pass
Ch 100, Low Channel 5500 MHz		23.013 MHz	500 kHz Pass
Ch 116, Mid Channel 5580 MHz		30.087 MHz	500 kHz Pass
Ch 140, High Channel 5700 MHz		39.132 MHz	500 kHz Pass
40 MHz			
802.11(n) MCS0			
Ch 36/40, Low Channel 5190 MHz		51.079 MHz	500 kHz Pass
Ch 44/48, High Channel 5230 MHz		52.83 MHz	500 kHz Pass
Ch 52/56, Low Channel 5270 MHz		61.768 MHz	500 kHz Pass
Ch 60/64, High Channel 5310 MHz		54.665 MHz	500 kHz Pass
Ch 100/104, Low Channel 5510 MHz		68.145 MHz	500 kHz Pass
Ch 108/112, Mid Channel 5550 MHz		70.651 MHz	500 kHz Pass
Ch 132/136, High Channel 5670 MHz		85.344 MHz	500 kHz Pass
802.11(n) MCS7			
Ch 36/40, Low Channel 5190 MHz		46.746 MHz	500 kHz Pass
Ch 44/48, High Channel 5230 MHz		49.46 MHz	500 kHz Pass
Ch 52/56, Low Channel 5270 MHz		46.45 MHz	500 kHz Pass
Ch 60/64, High Channel 5310 MHz		47.169 MHz	500 kHz Pass
Ch 100/104, Low Channel 5510 MHz		53.069 MHz	500 kHz Pass
Ch 108/112, Mid Channel 5550 MHz		80.145 MHz	500 kHz Pass
Ch 132/136, High Channel 5670 MHz		86.635 MHz	500 kHz Pass

EMISSION BANDWIDTH

20 MHz, 802.11(a) 6 Mbps, Ch 36, Low Channel 5180 MHz						
				Value	Limit (>)	Result
				23.359 MHz	500 kHz	Pass

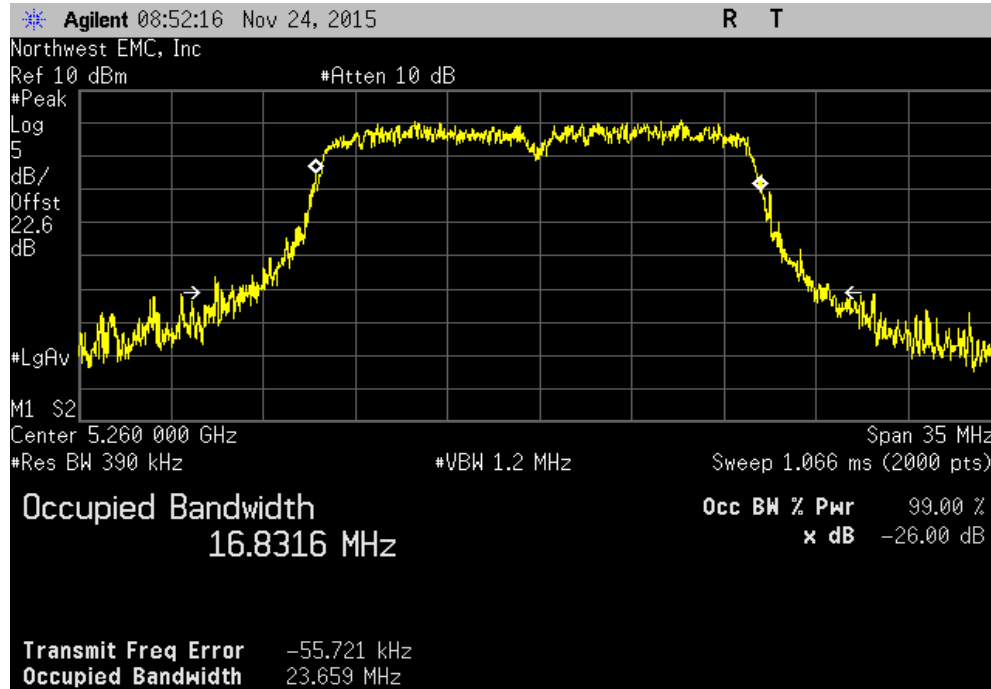


20 MHz, 802.11(a) 6 Mbps, Ch 48, High Channel 5240 MHz						
				Value	Limit (>)	Result
				23.297 MHz	500 kHz	Pass

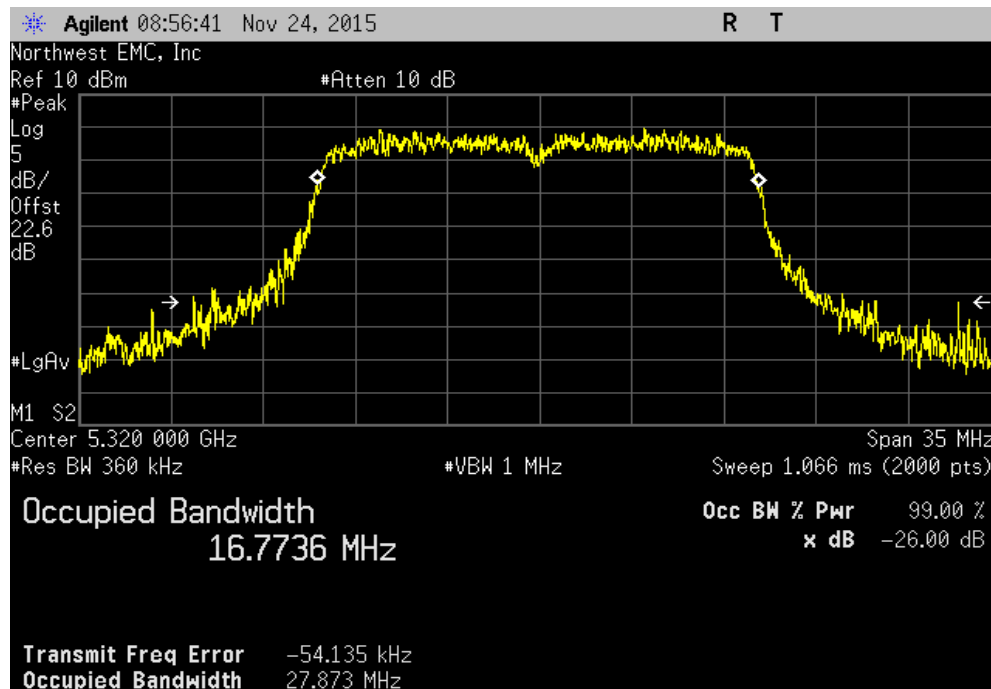


EMISSION BANDWIDTH

20 MHz, 802.11(a) 6 Mbps, Ch 52, Low Channel 5260 MHz						
				Value	Limit (>)	Result
				23.659 MHz	500 kHz	Pass

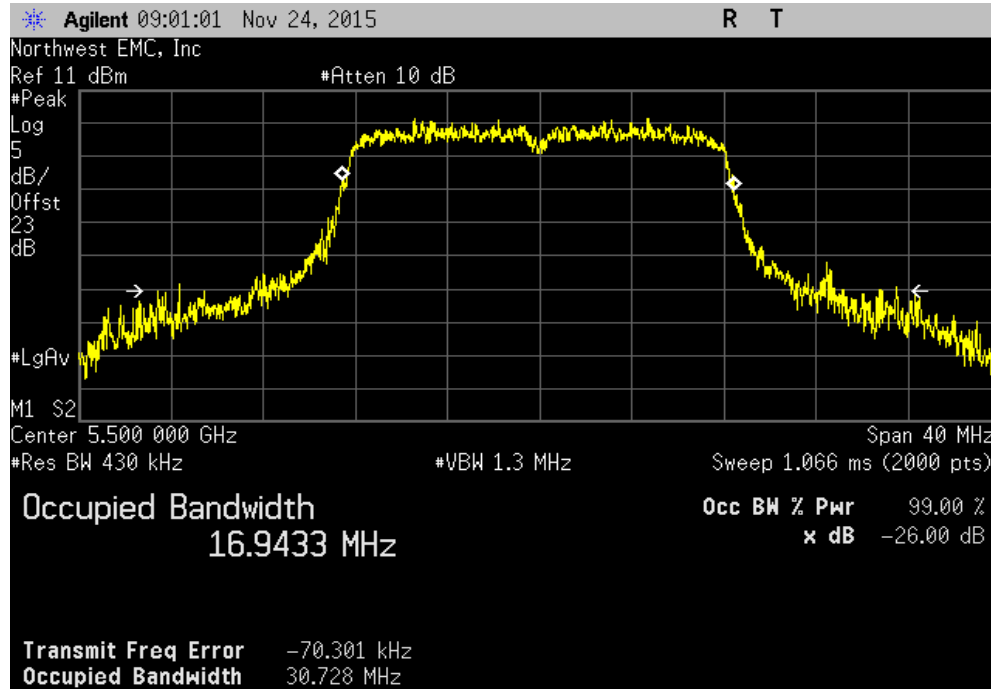


20 MHz, 802.11(a) 6 Mbps, Ch 64, High Channel 5320 MHz						
				Value	Limit (>)	Result
				27.873 MHz	500 kHz	Pass

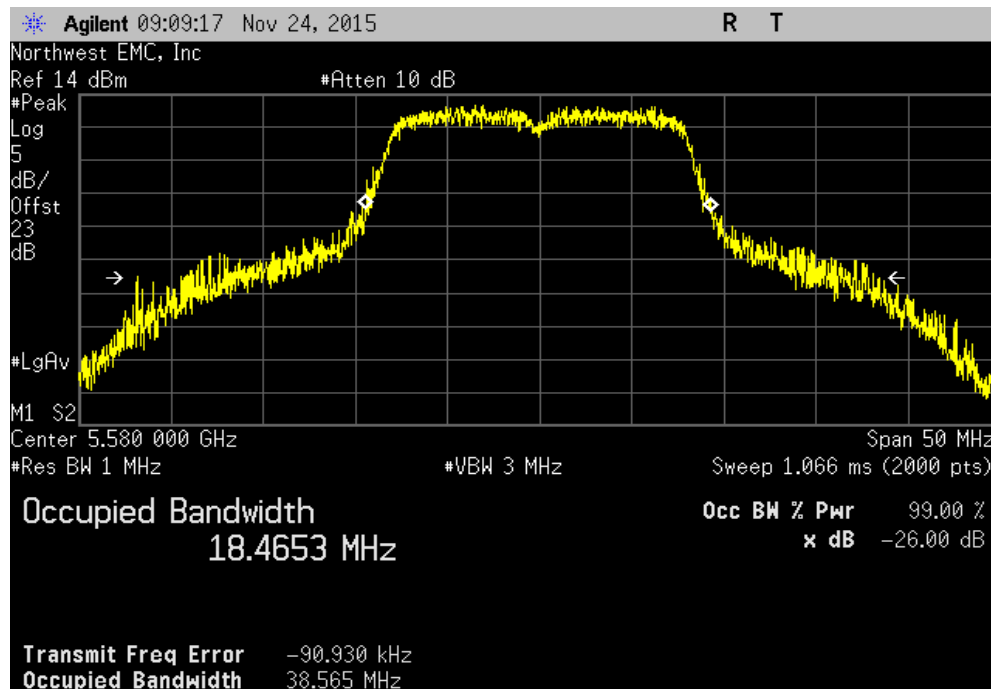


EMISSION BANDWIDTH

20 MHz, 802.11(a) 6 Mbps, Ch 100, Low Channel 5500 MHz						
				Value	Limit (>)	Result
				30.728 MHz	500 kHz	Pass

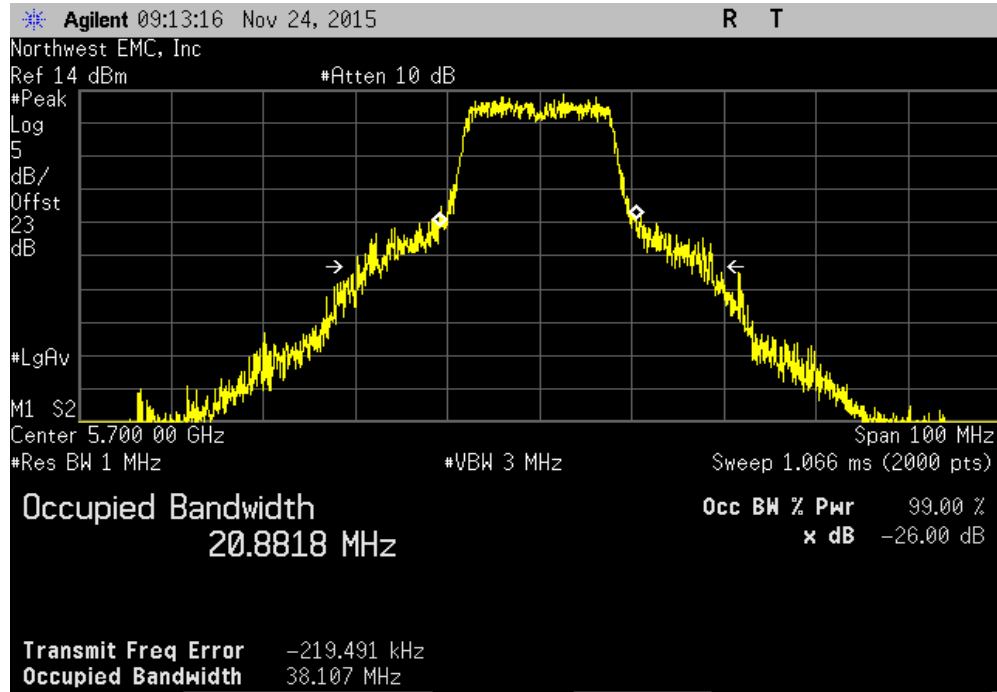


20 MHz, 802.11(a) 6 Mbps, Ch 116, Mid Channel 5580 MHz						
				Value	Limit (>)	Result
				38.565 MHz	500 kHz	Pass



EMISSION BANDWIDTH

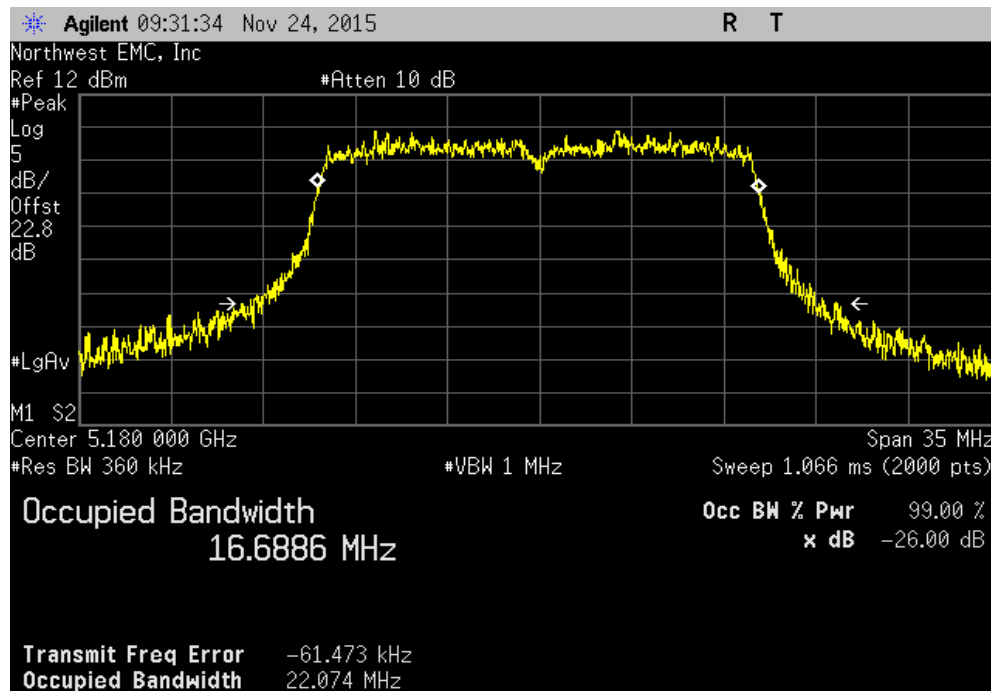
20 MHz, 802.11(a) 6 Mbps, Ch 140, High Channel 5700 MHz						
				Value	Limit (>)	Result
				38.107 MHz	500 kHz	Pass



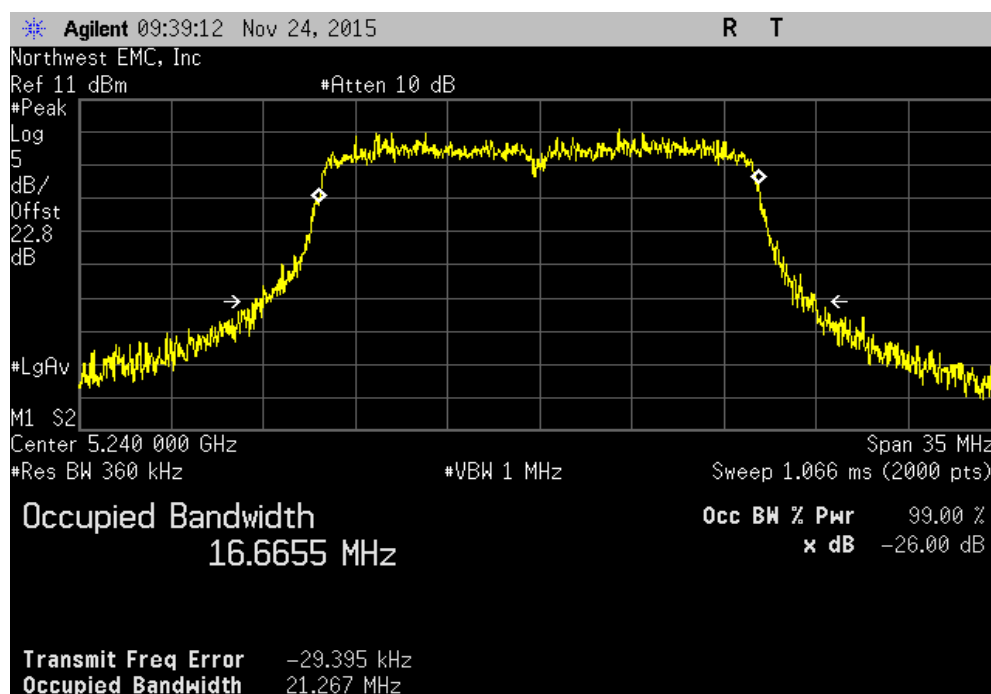
				Value	Limit (>)	Result

EMISSION BANDWIDTH

20 MHz, 802.11(a) 36 Mbps, Ch 36, Low Channel 5180 MHz						
				Value	Limit (>)	Result
				22.074 MHz	500 kHz	Pass

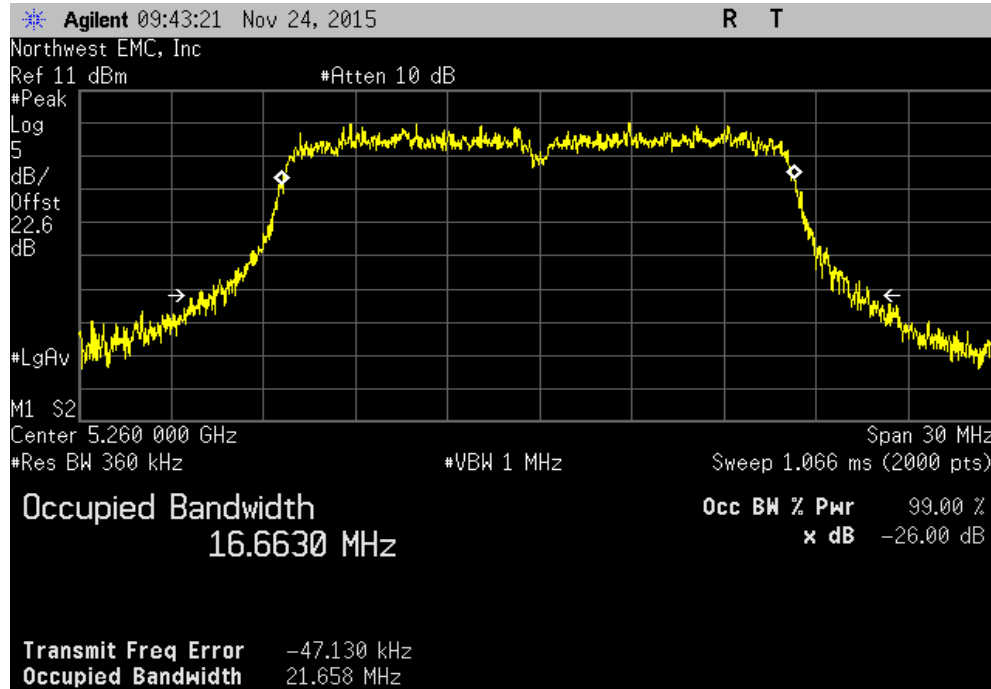


20 MHz, 802.11(a) 36 Mbps, Ch 48, High Channel 5240 MHz						
				Value	Limit (>)	Result
				21.267 MHz	500 kHz	Pass

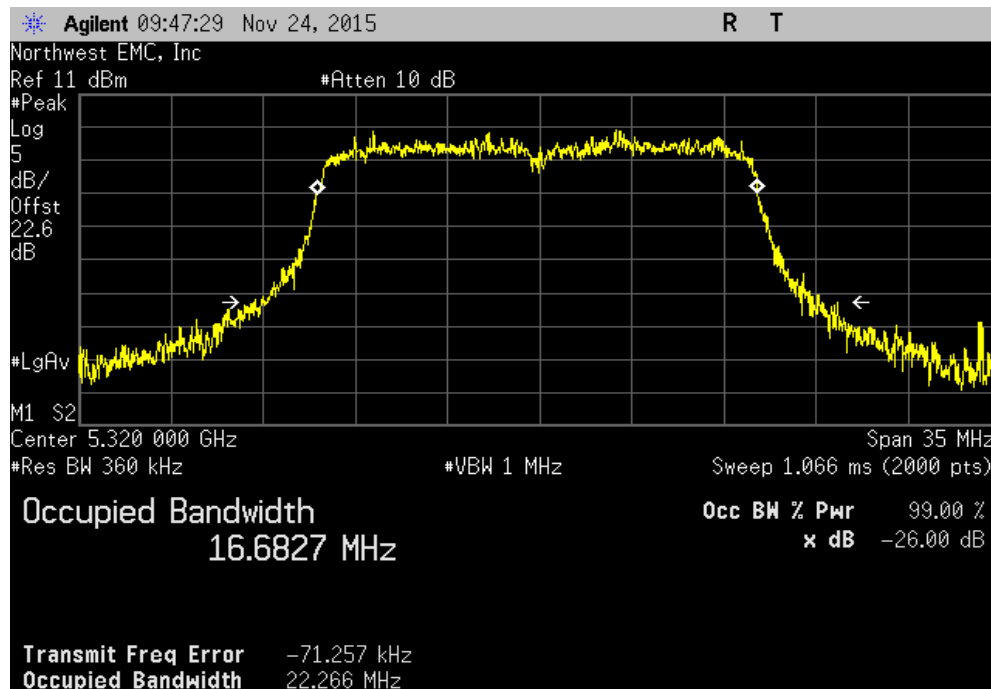


EMISSION BANDWIDTH

20 MHz, 802.11(a) 36 Mbps, Ch 52, Low Channel 5260 MHz						
				Value	Limit (>)	Result
				21.658 MHz	500 kHz	Pass

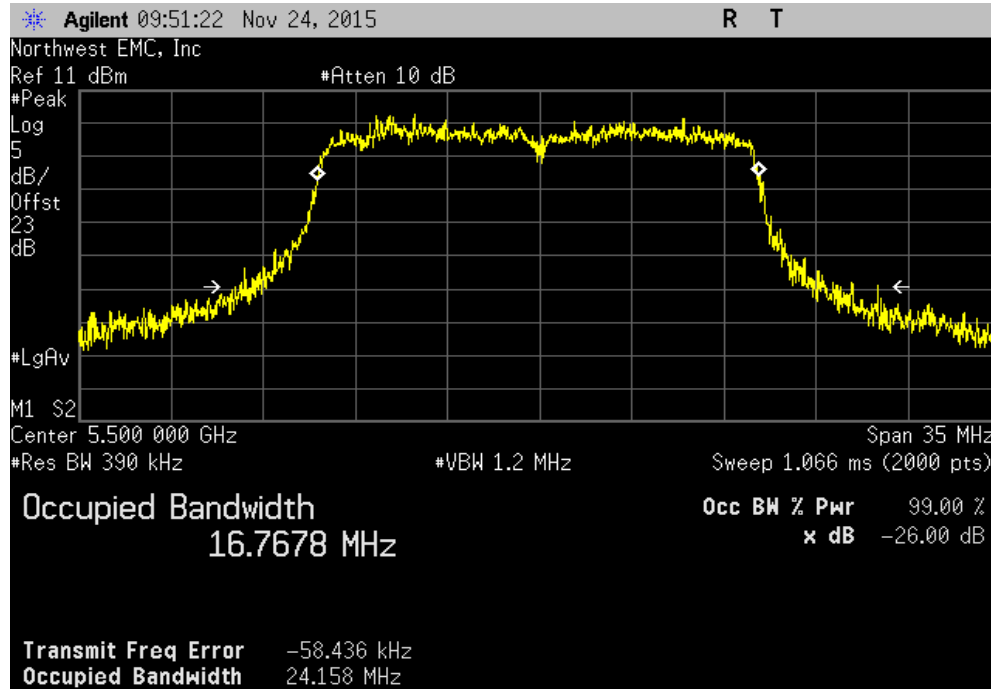


20 MHz, 802.11(a) 36 Mbps, Ch 64, High Channel 5320 MHz						
				Value	Limit (>)	Result
				22.266 MHz	500 kHz	Pass

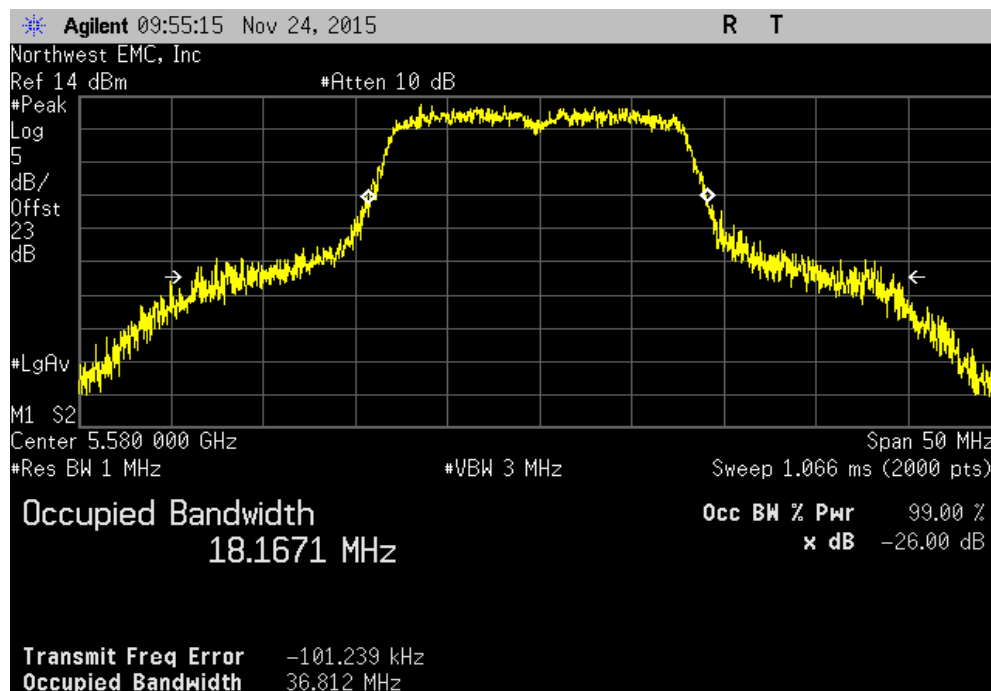


EMISSION BANDWIDTH

20 MHz, 802.11(a) 36 Mbps, Ch 100, Low Channel 5500 MHz						
				Value	Limit (>)	Result
				24.158 MHz	500 kHz	Pass

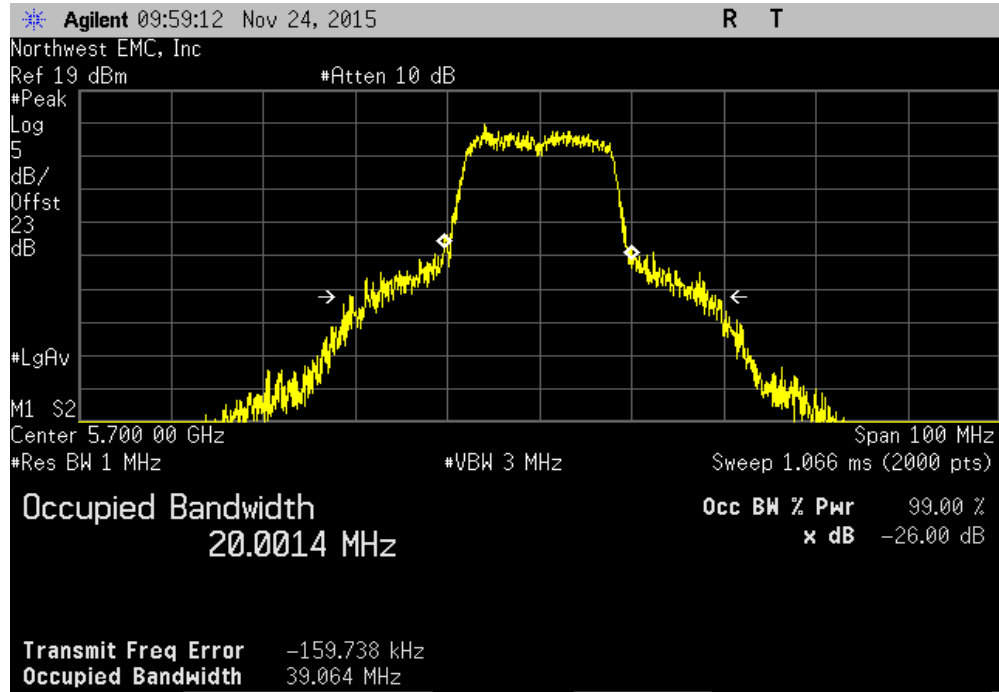


20 MHz, 802.11(a) 36 Mbps, Ch 116, Mid Channel 5580 MHz						
				Value	Limit (>)	Result
				36.812 MHz	500 kHz	Pass



EMISSION BANDWIDTH

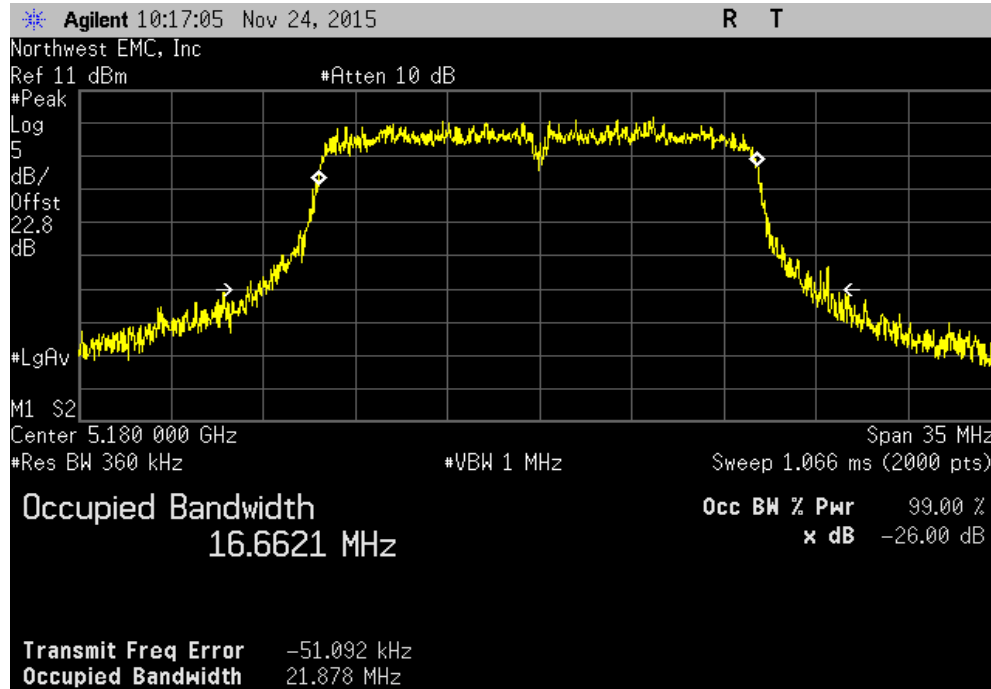
20 MHz, 802.11(a) 36 Mbps, Ch 140, High Channel 5700 MHz						
				Value	Limit (>)	Result
				39.064 MHz	500 kHz	Pass



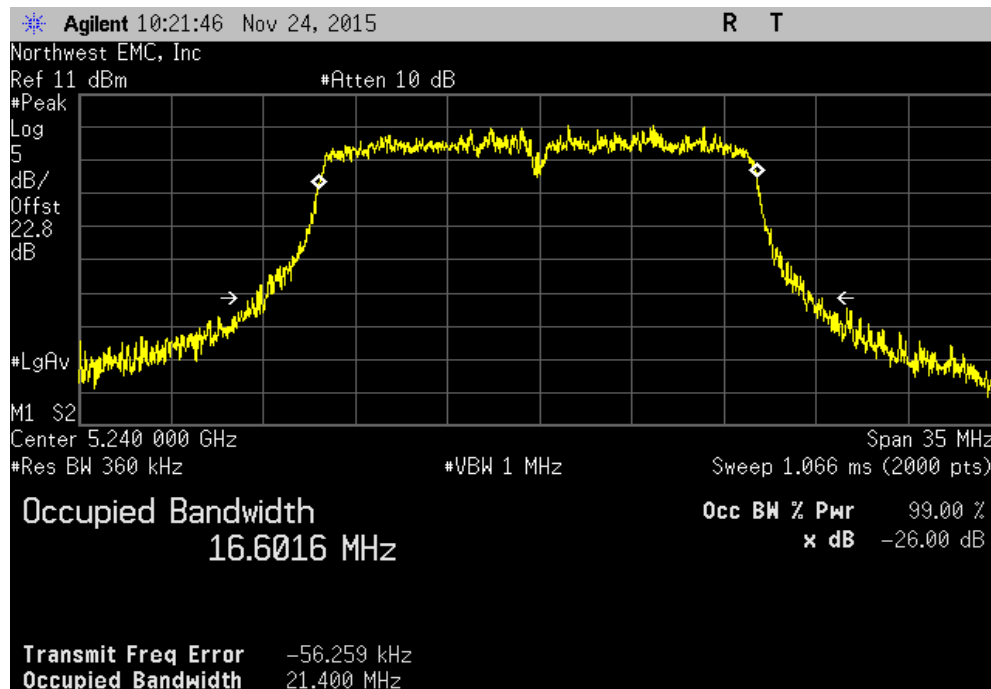
				Value	Limit (>)	Result

EMISSION BANDWIDTH

20 MHz, 802.11(a) 54 Mbps, Ch 36, Low Channel 5180 MHz						
				Value	Limit (>)	Result
				21.878 MHz	500 kHz	Pass



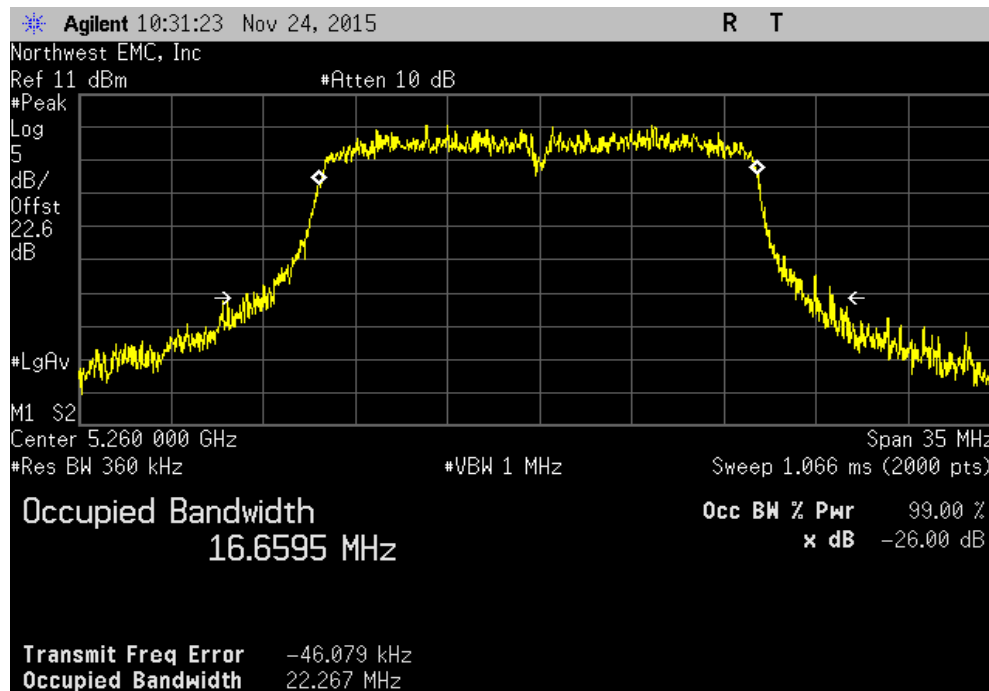
20 MHz, 802.11(a) 54 Mbps, Ch 48, High Channel 5240 MHz						
				Value	Limit (>)	Result
				21.4 MHz	500 kHz	Pass



EMISSION BANDWIDTH

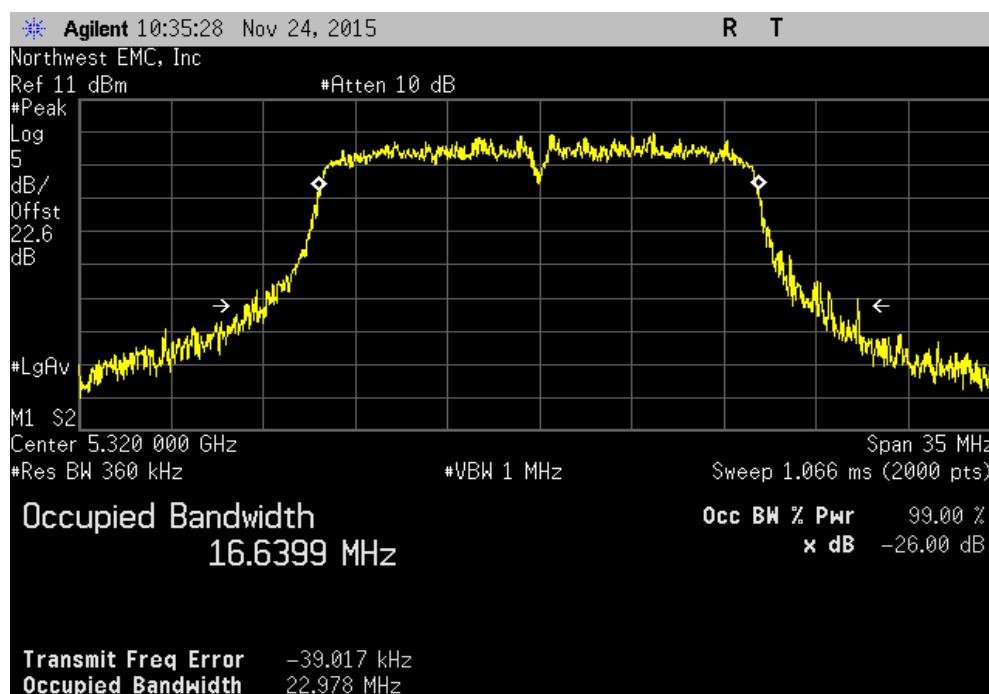
20 MHz, 802.11(a) 54 Mbps, Ch 52, Low Channel 5260 MHz

				Value	Limit (>)	Result
				22.267 MHz	500 kHz	Pass



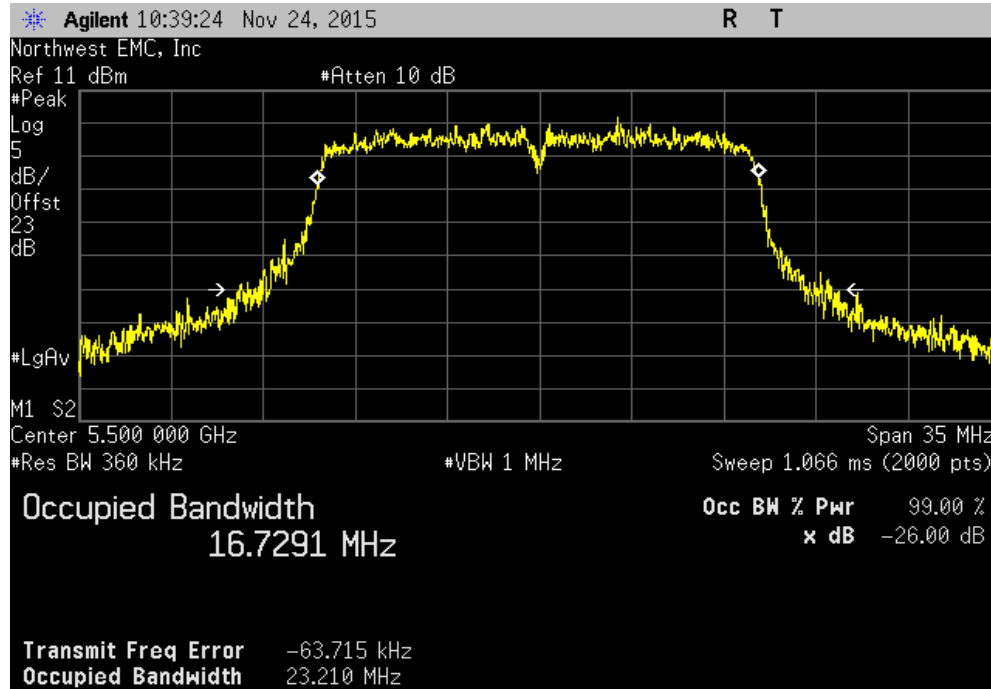
20 MHz, 802.11(a) 54 Mbps, Ch 64, High Channel 5320 MHz

				Value	Limit (>)	Result
				22.978 MHz	500 kHz	Pass

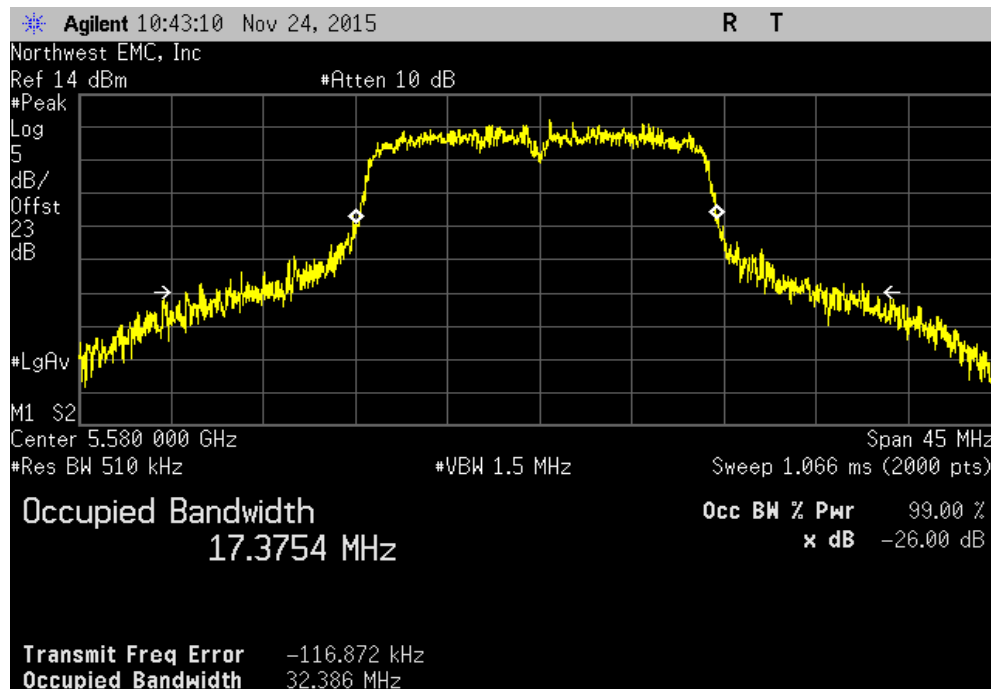


EMISSION BANDWIDTH

20 MHz, 802.11(a) 54 Mbps, Ch 100, Low Channel 5500 MHz						
				Value	Limit (>)	Result
				23.21 MHz	500 kHz	Pass

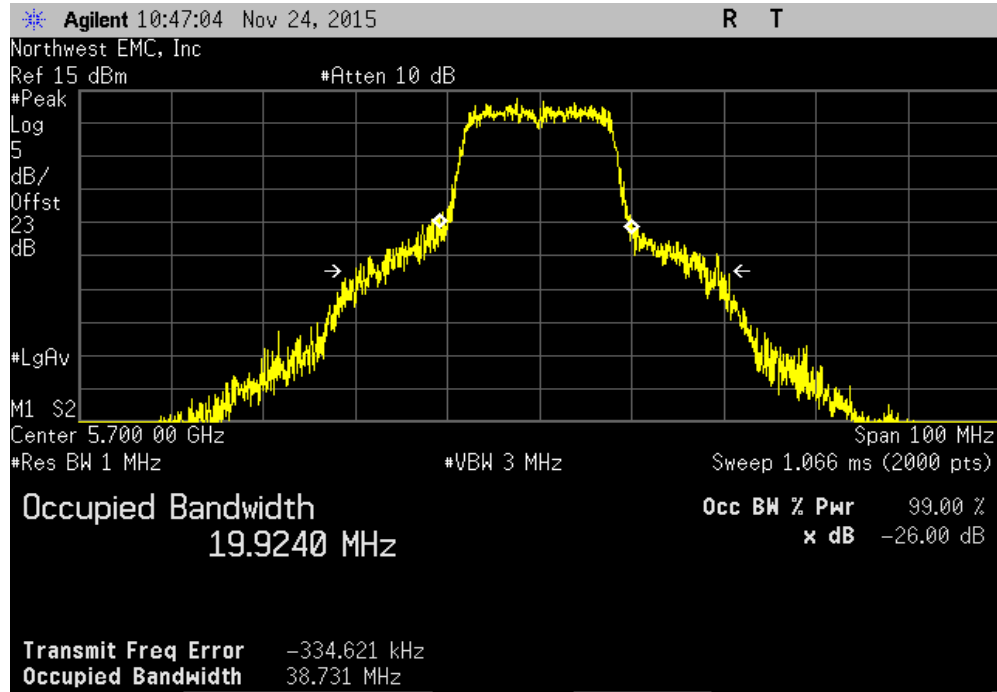


20 MHz, 802.11(a) 54 Mbps, Ch 116, Mid Channel 5580 MHz						
				Value	Limit (>)	Result
				32.386 MHz	500 kHz	Pass



EMISSION BANDWIDTH

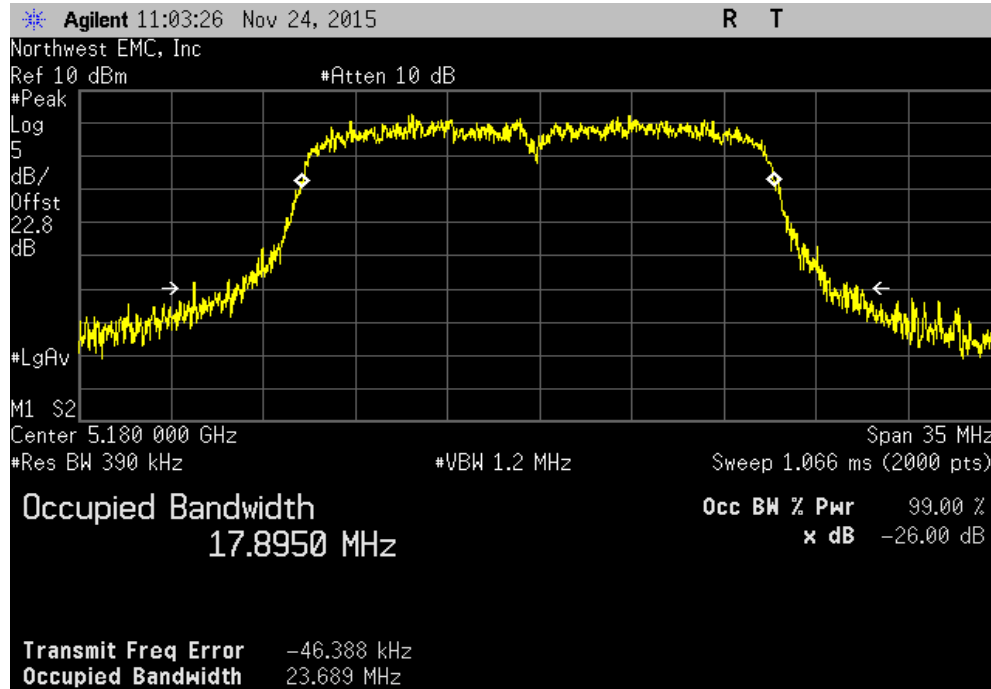
20 MHz, 802.11(a) 54 Mbps, Ch 140, High Channel 5700 MHz						
				Value	Limit (>)	Result
				38.731 MHz	500 kHz	Pass



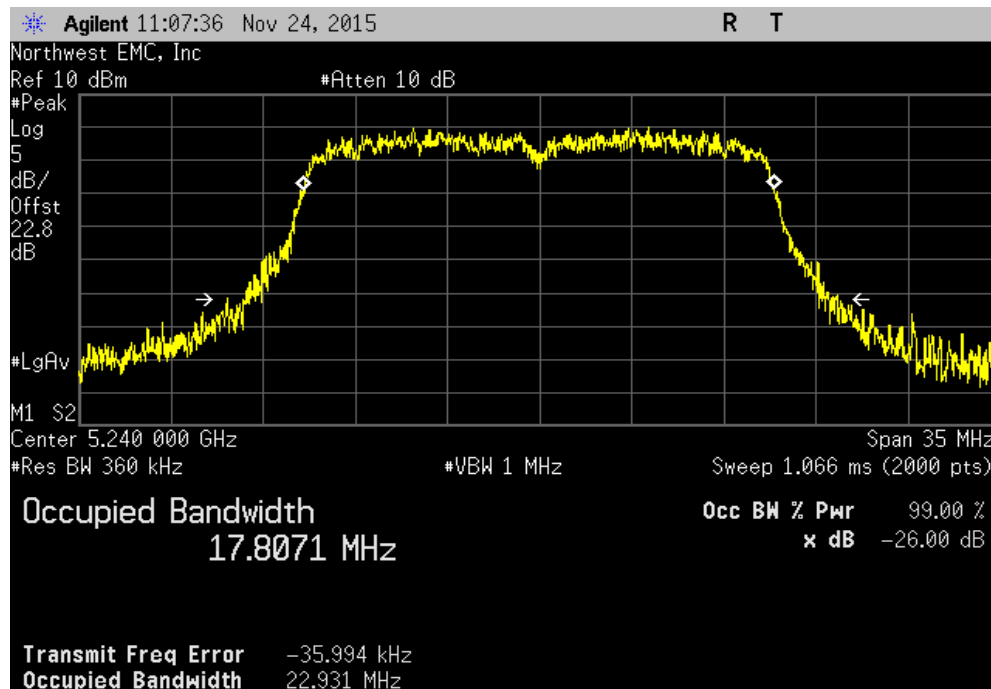
				Value	Limit (>)	Result

EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS0, Ch 36, Low Channel 5180 MHz						
				Value	Limit (>)	Result
				23.689 MHz	500 kHz	Pass

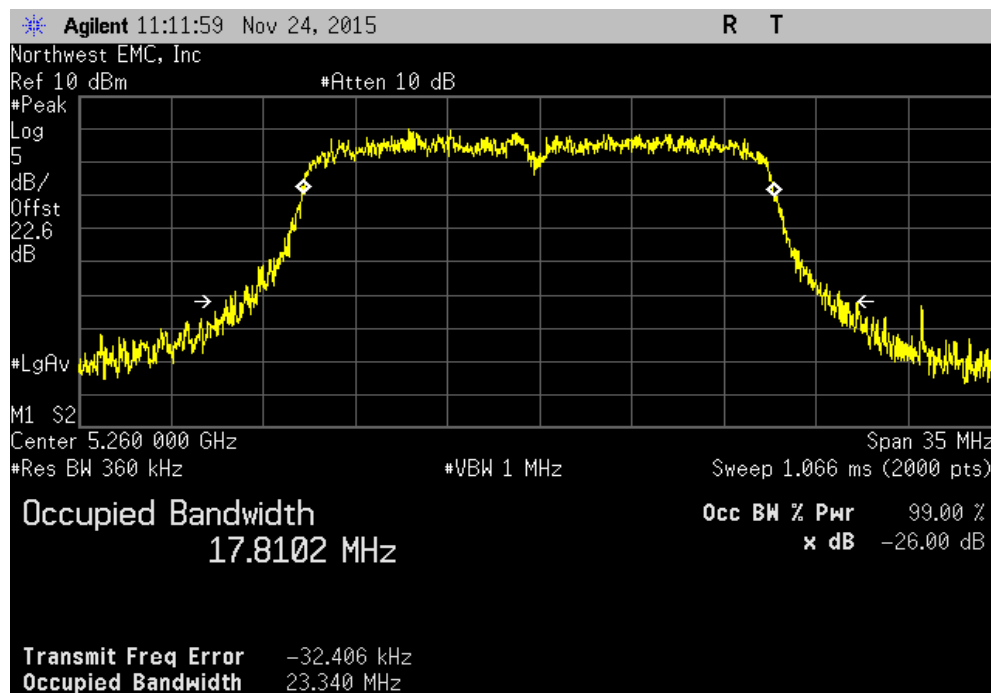


20 MHz, 802.11(n) MCS0, Ch 48, High Channel 5240 MHz						
				Value	Limit (>)	Result
				22.931 MHz	500 kHz	Pass

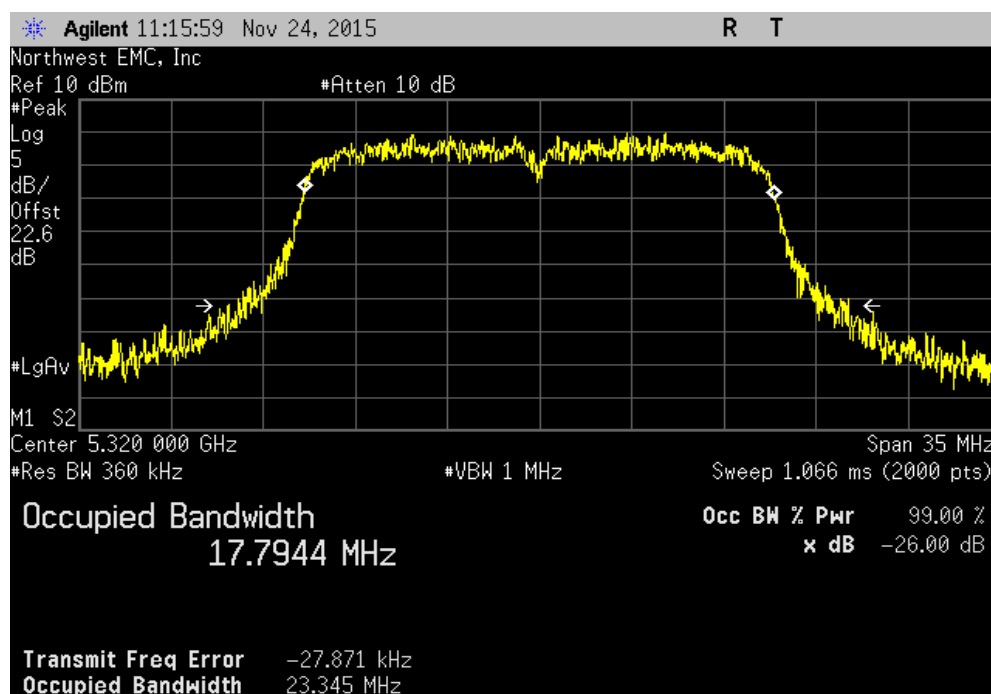


EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS0, Ch 52, Low Channel 5260 MHz						
				Value	Limit (>)	Result
				23.34 MHz	500 kHz	Pass

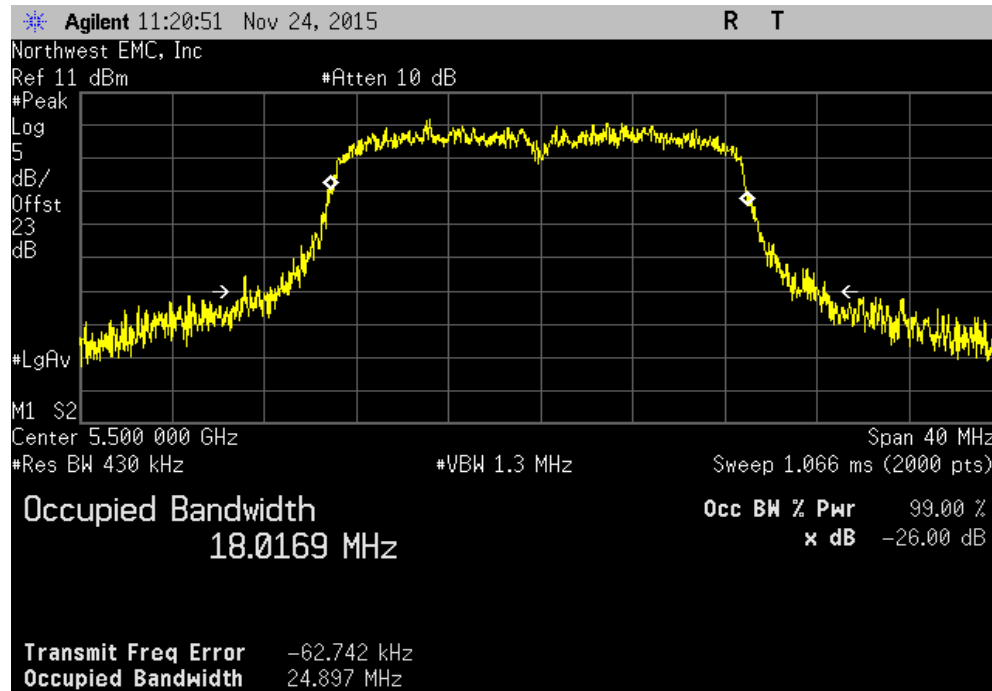


20 MHz, 802.11(n) MCS0, Ch 64, High Channel 5320 MHz						
				Value	Limit (>)	Result
				23.345 MHz	500 kHz	Pass

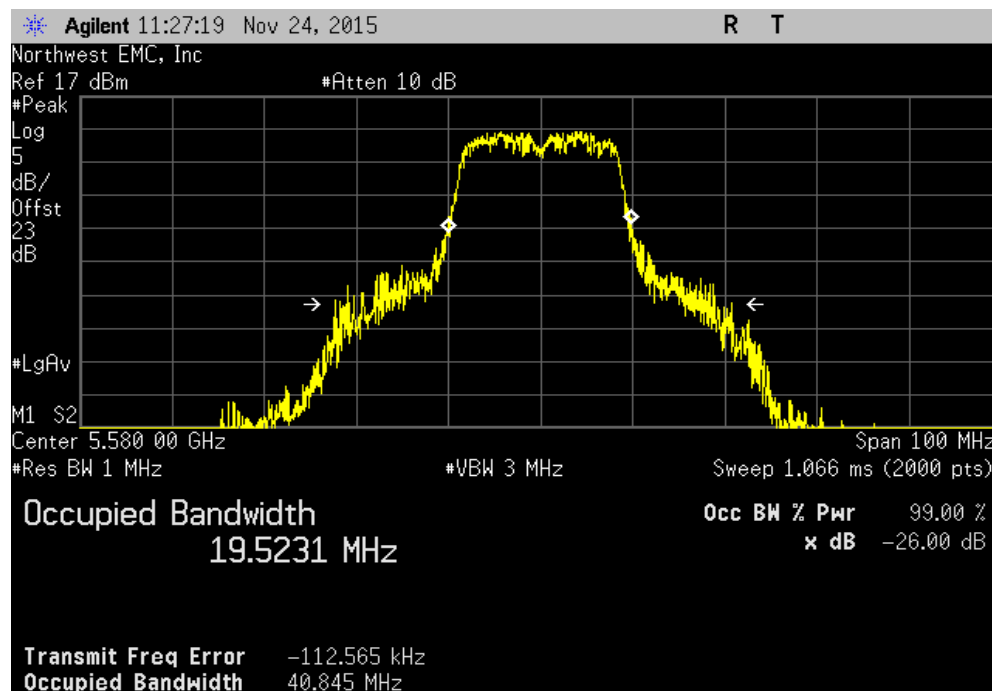


EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS0, Ch 100, Low Channel 5500 MHz						
				Value	Limit (>)	Result
				24.897 MHz	500 kHz	Pass

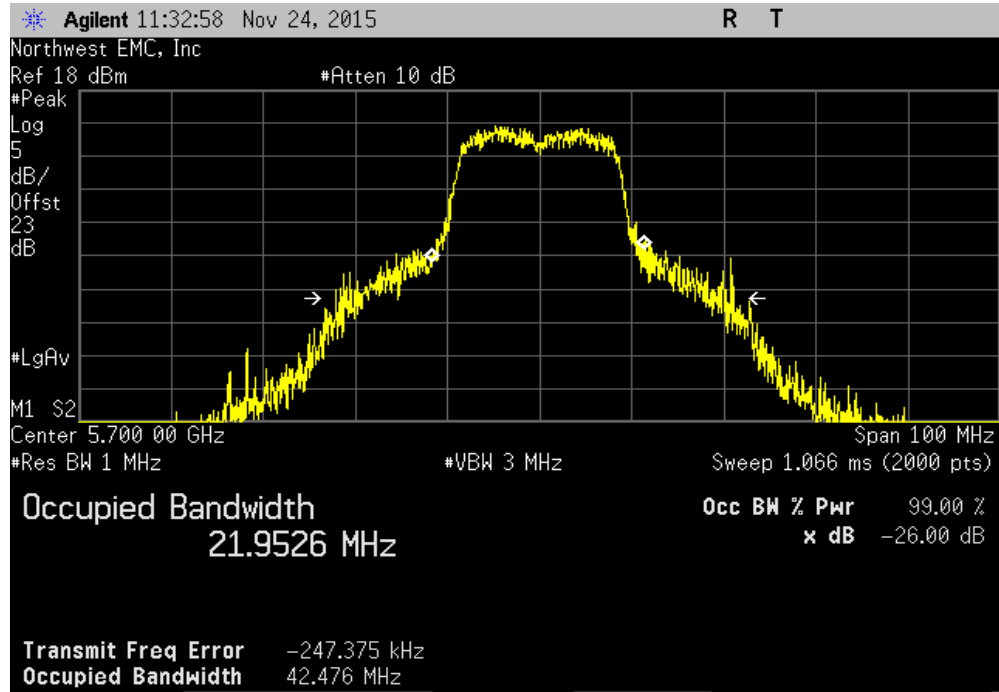


20 MHz, 802.11(n) MCS0, Ch 116, Mid Channel 5580 MHz						
				Value	Limit (>)	Result
				40.845 MHz	500 kHz	Pass



EMISSION BANDWIDTH

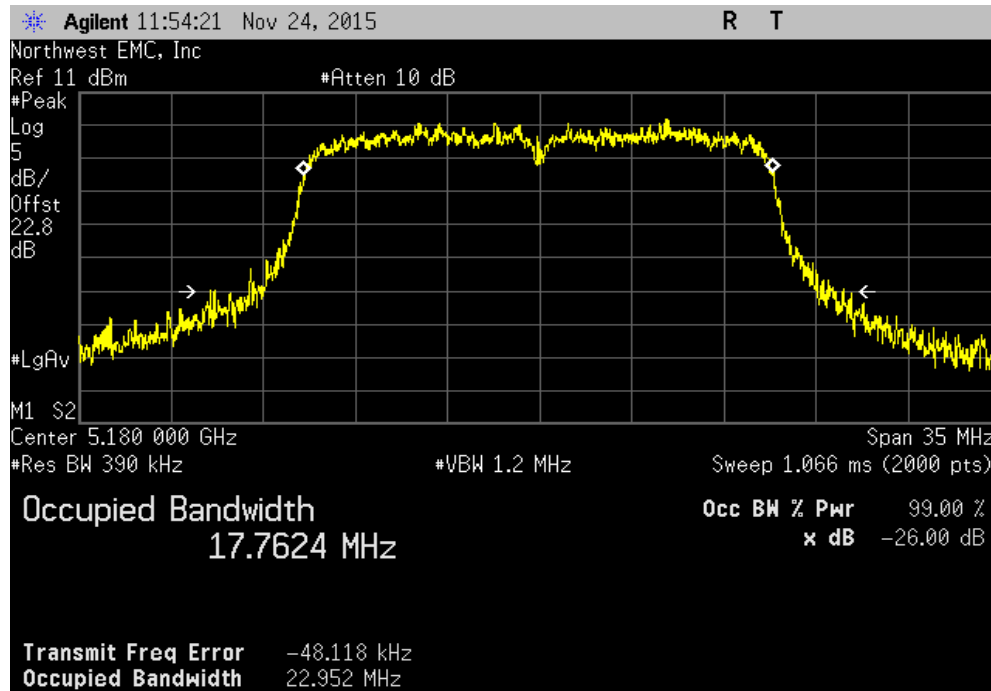
20 MHz, 802.11(n) MCS0, Ch 140, High Channel 5700 MHz						
				Value	Limit (>)	Result
				42.476 MHz	500 kHz	Pass



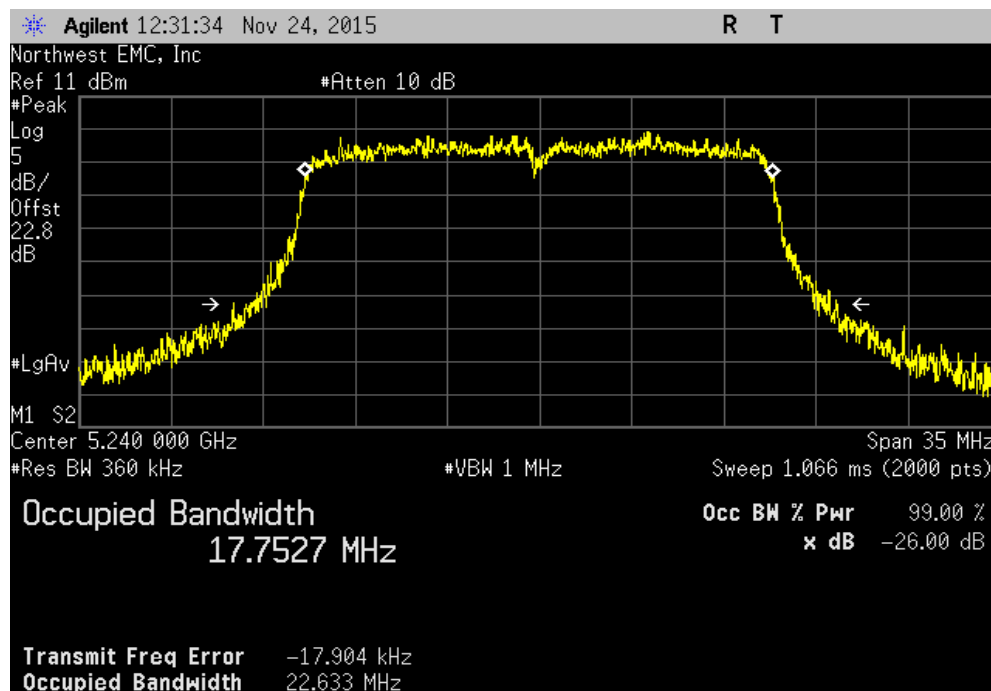
				Value	Limit (>)	Result

EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS7, Ch 36, Low Channel 5180 MHz						
				Value	Limit (>)	Result
				22.952 MHz	500 kHz	Pass

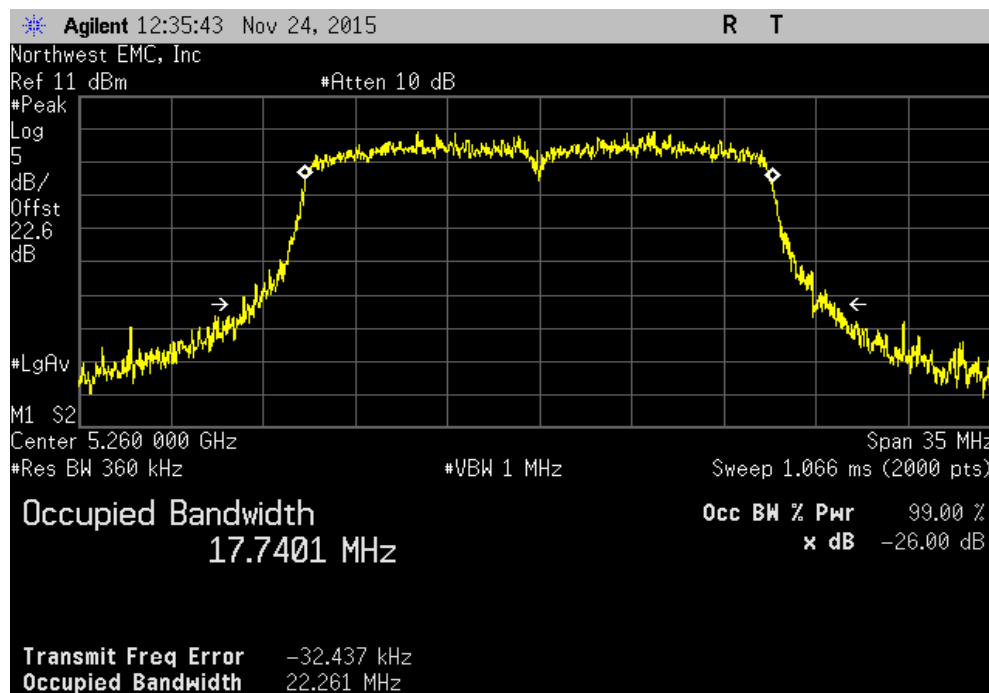


20 MHz, 802.11(n) MCS7, Ch 48, High Channel 5240 MHz						
				Value	Limit (>)	Result
				22.633 MHz	500 kHz	Pass

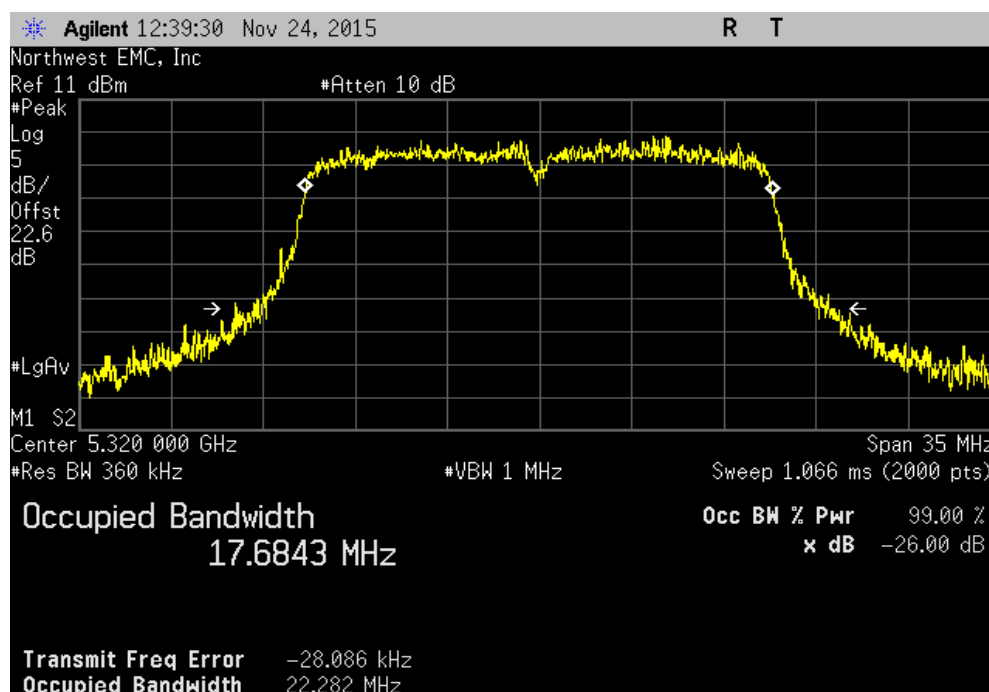


EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS7, Ch 52, Low Channel 5260 MHz						
				Value	Limit (>)	Result
				22.261 MHz	500 kHz	Pass

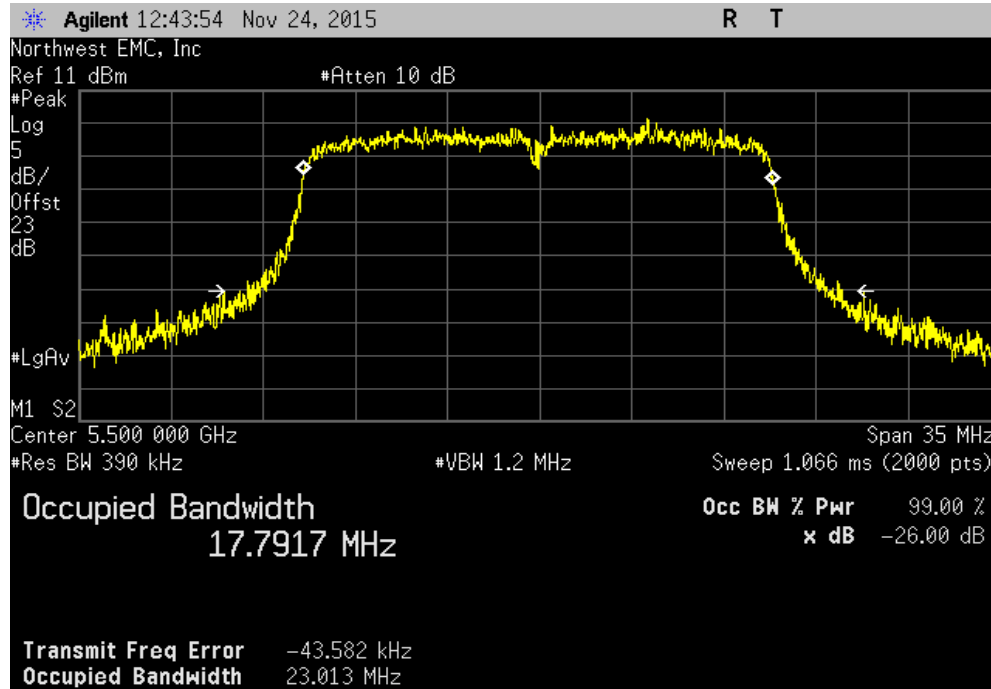


20 MHz, 802.11(n) MCS7, Ch 64, High Channel 5320 MHz						
				Value	Limit (>)	Result
				22.282 MHz	500 kHz	Pass

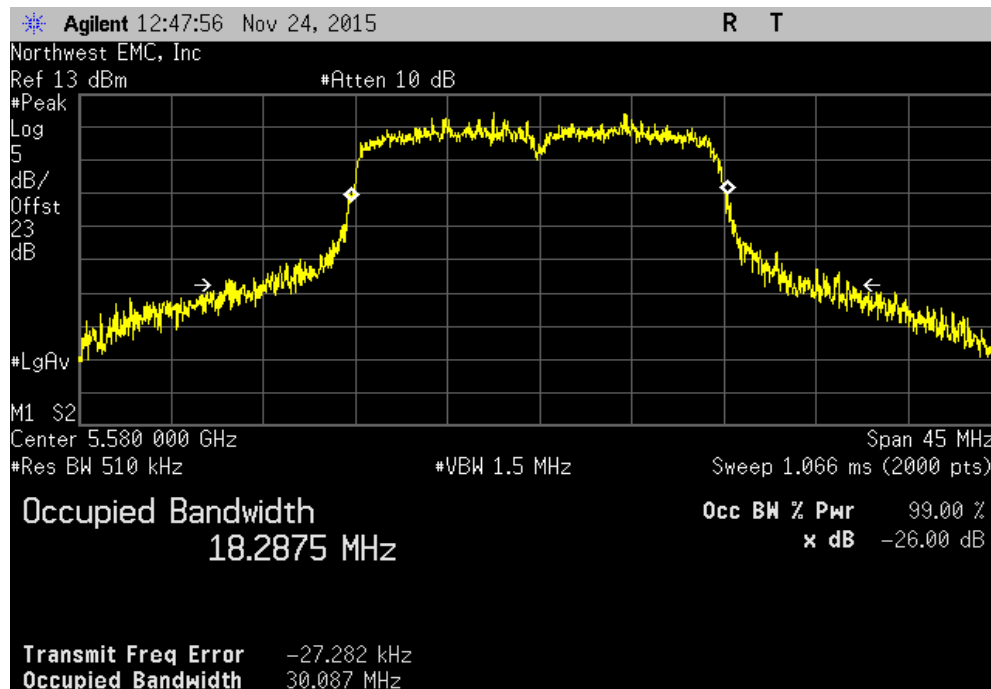


EMISSION BANDWIDTH

20 MHz, 802.11(n) MCS7, Ch 100, Low Channel 5500 MHz						
				Value	Limit (>)	Result
				23.013 MHz	500 kHz	Pass

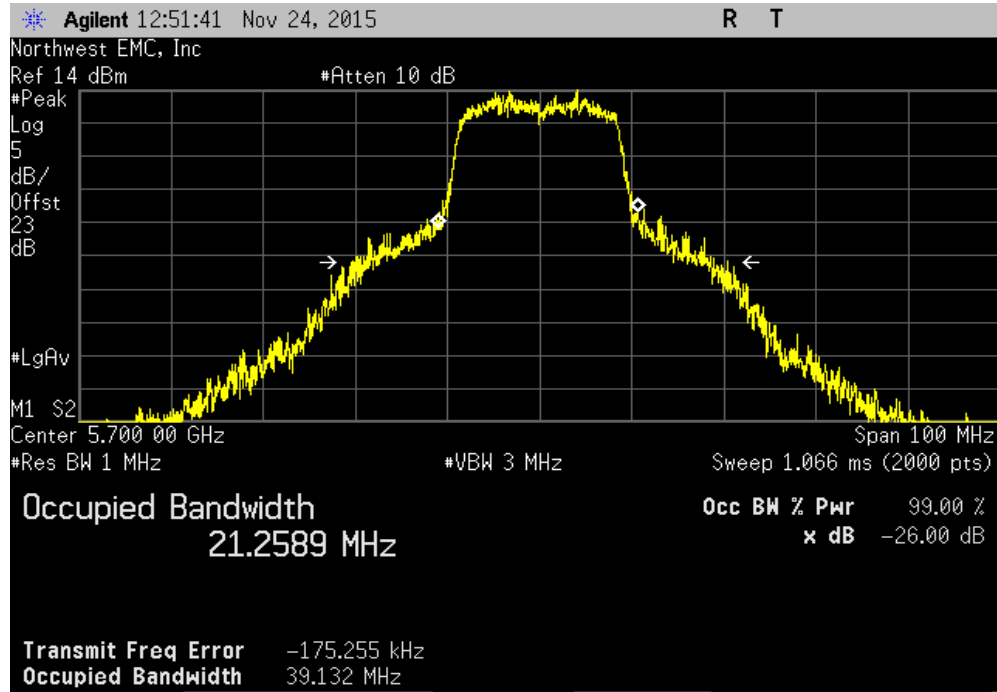


20 MHz, 802.11(n) MCS7, Ch 116, Mid Channel 5580 MHz						
				Value	Limit (>)	Result
				30.087 MHz	500 kHz	Pass



EMISSION BANDWIDTH

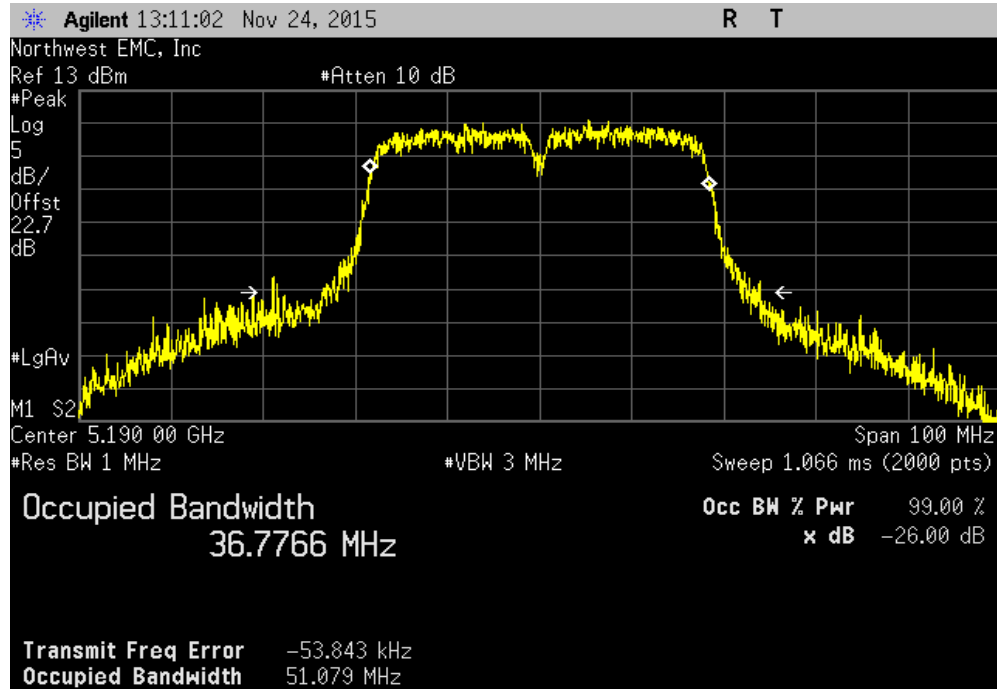
20 MHz, 802.11(n) MCS7, Ch 140, High Channel 5700 MHz						
				Value	Limit (>)	Result
				39.132 MHz	500 kHz	Pass



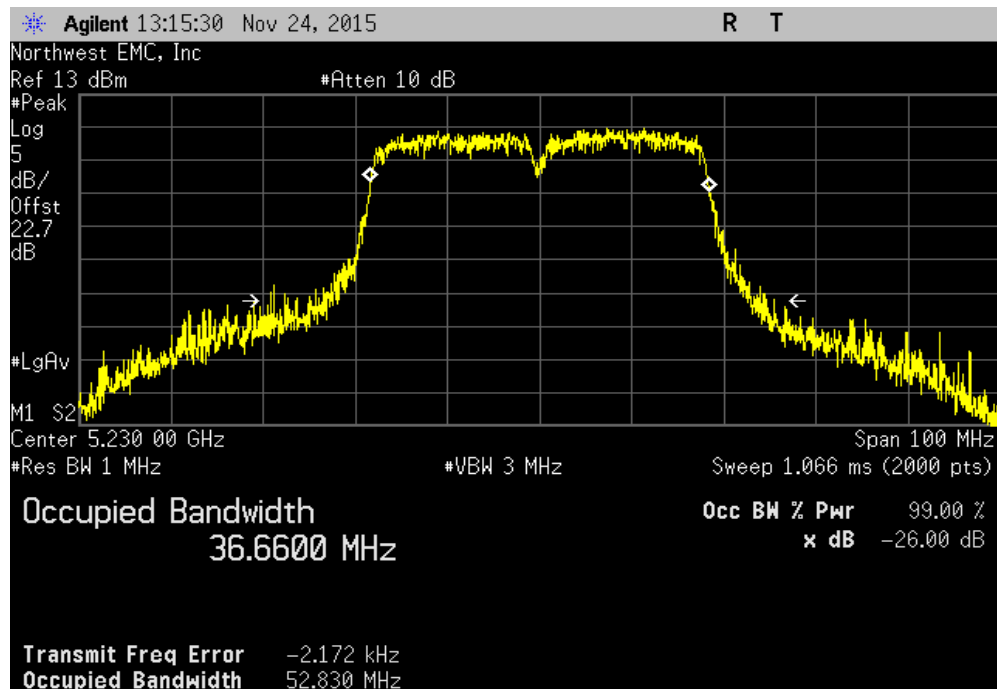
				Value	Limit (>)	Result

EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS0, Ch 36/40, Low Channel 5190 MHz						
				Value	Limit (>)	Result
				51.079 MHz	500 kHz	Pass

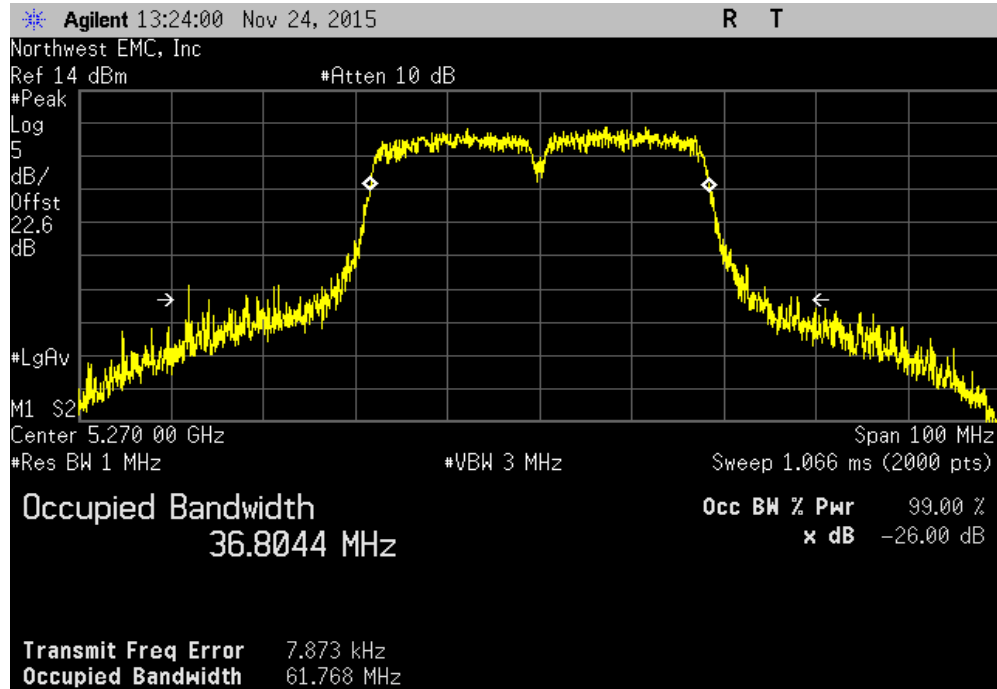


40 MHz, 802.11(n) MCS0, Ch 44/48, High Channel 5230 MHz						
				Value	Limit (>)	Result
				52.83 MHz	500 kHz	Pass

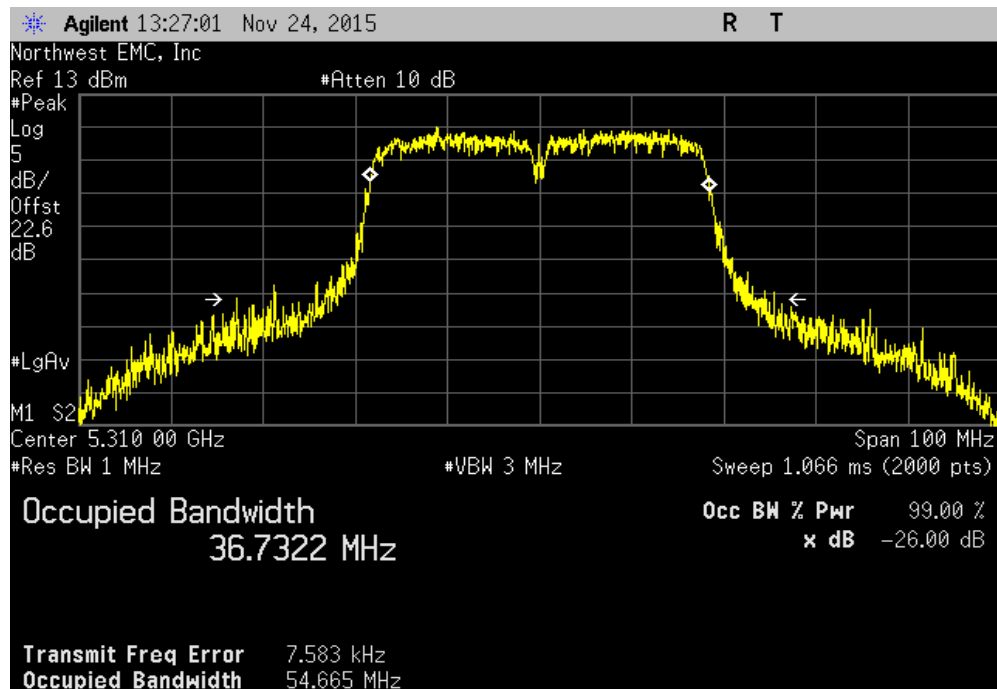


EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS0, Ch 52/56, Low Channel 5270 MHz						
				Value	Limit (>)	Result
				61.768 MHz	500 kHz	Pass

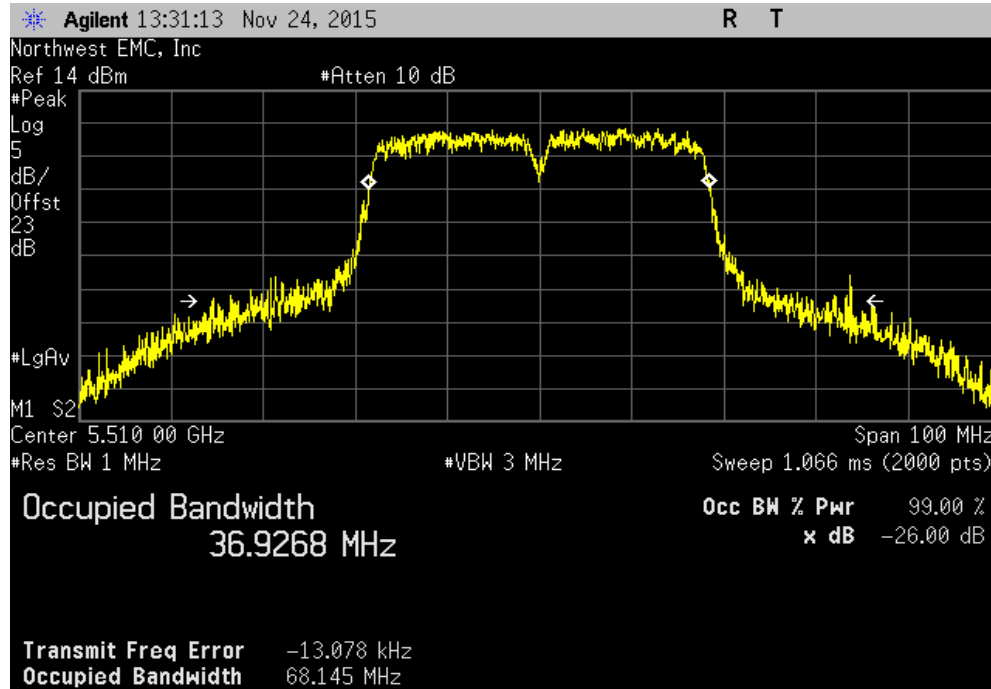


40 MHz, 802.11(n) MCS0, Ch 60/64, High Channel 5310 MHz						
				Value	Limit (>)	Result
				54.665 MHz	500 kHz	Pass

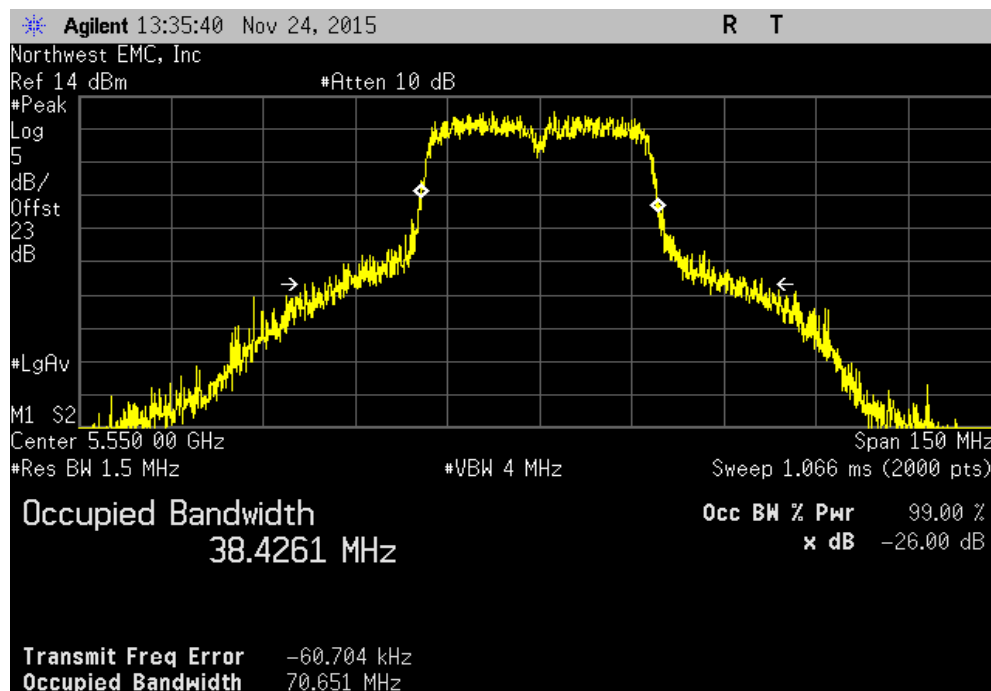


EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS0, Ch 100/104, Low Channel 5510 MHz						
				Value	Limit (>)	Result
				68.145 MHz	500 kHz	Pass

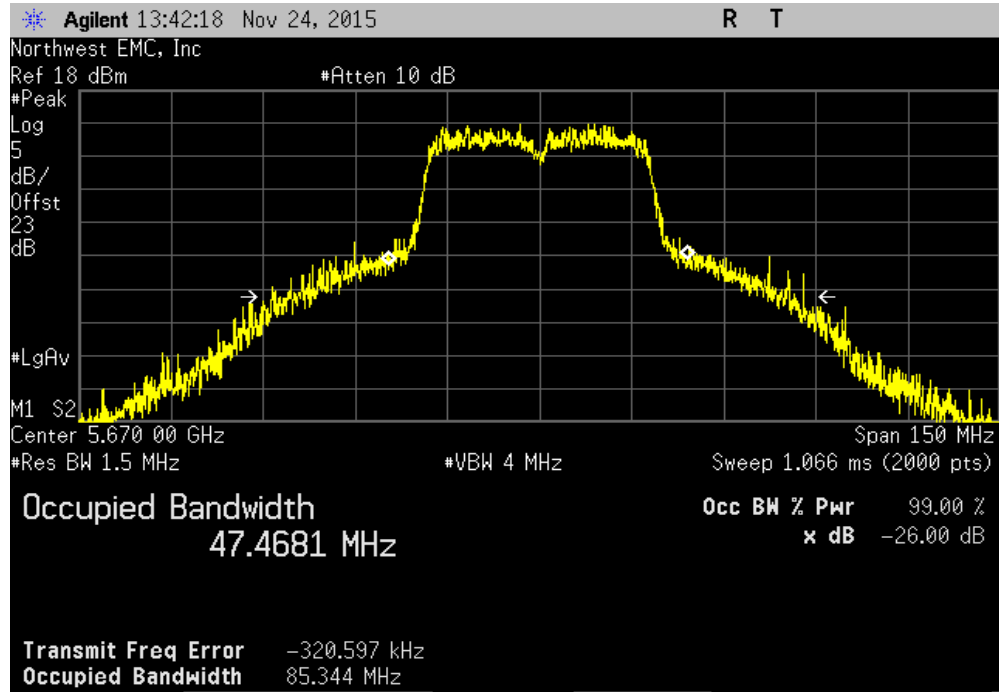


40 MHz, 802.11(n) MCS0, Ch 108/112, Mid Channel 5550 MHz						
				Value	Limit (>)	Result
				70.651 MHz	500 kHz	Pass



EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS0, Ch 132/136, High Channel 5670 MHz						
				Value	Limit (>)	Result
				85.344 MHz	500 kHz	Pass

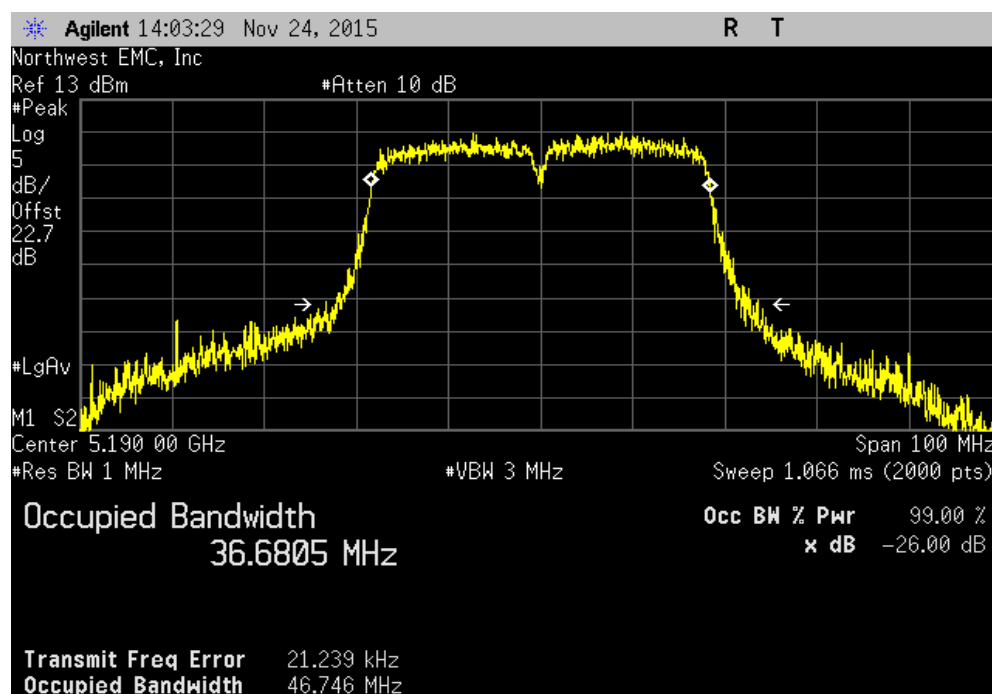


				Value	Limit (>)	Result

EMISSION BANDWIDTH

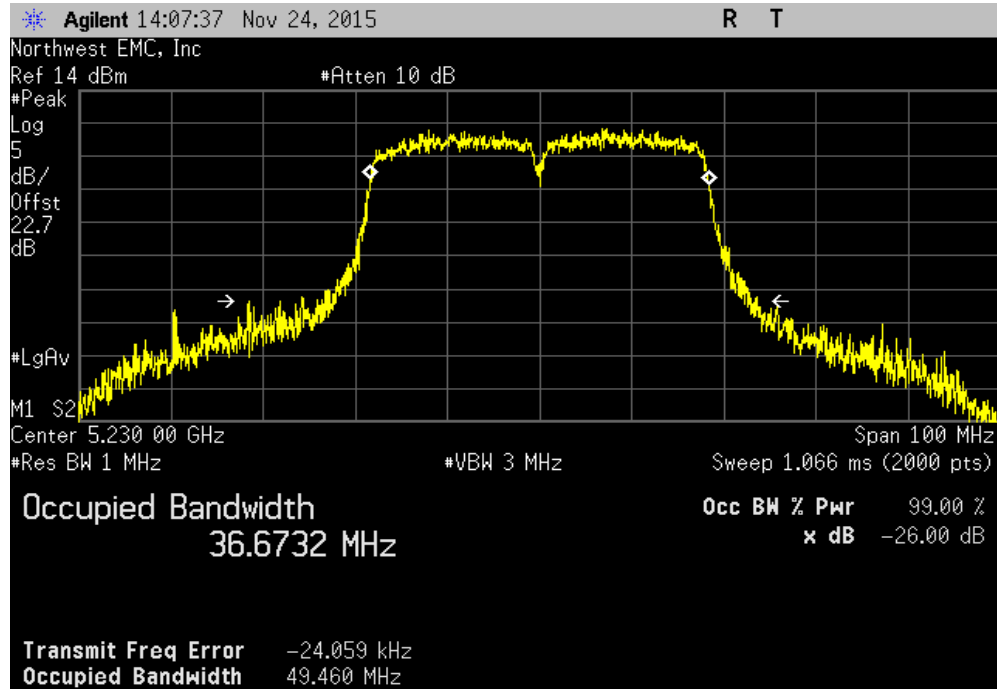
					Value	Limit (>)	Result

40 MHz, 802.11(n) MCS7, Ch 36/40, Low Channel 5190 MHz					Value	Limit (>)	Result
					46.746 MHz	500 kHz	Pass

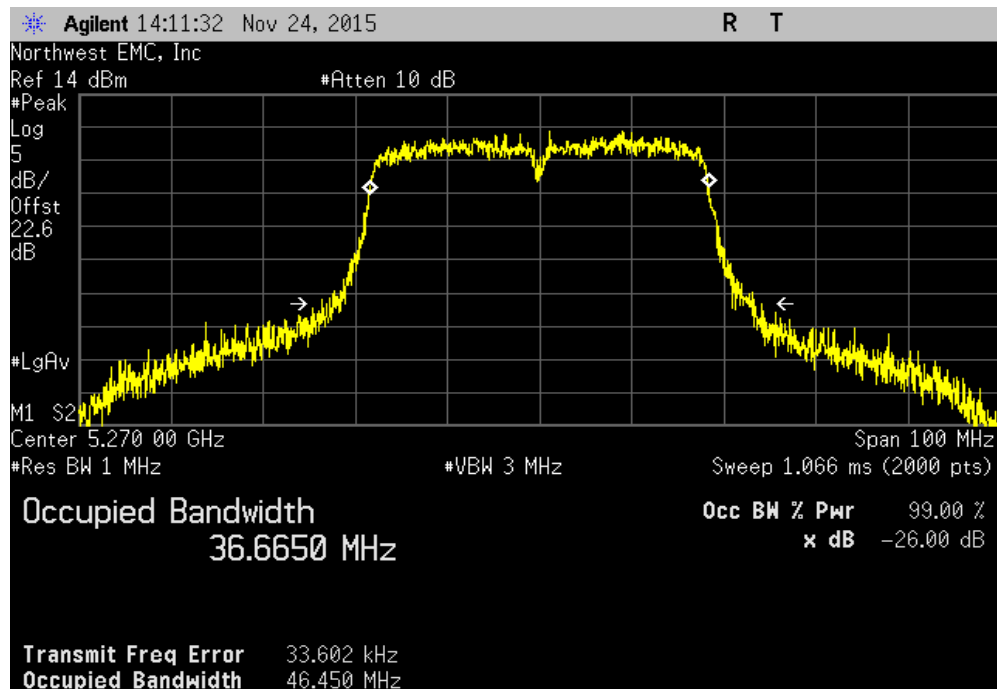


EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS7, Ch 44/48, High Channel 5230 MHz						
				Value	Limit (>)	Result
				49.46 MHz	500 kHz	Pass

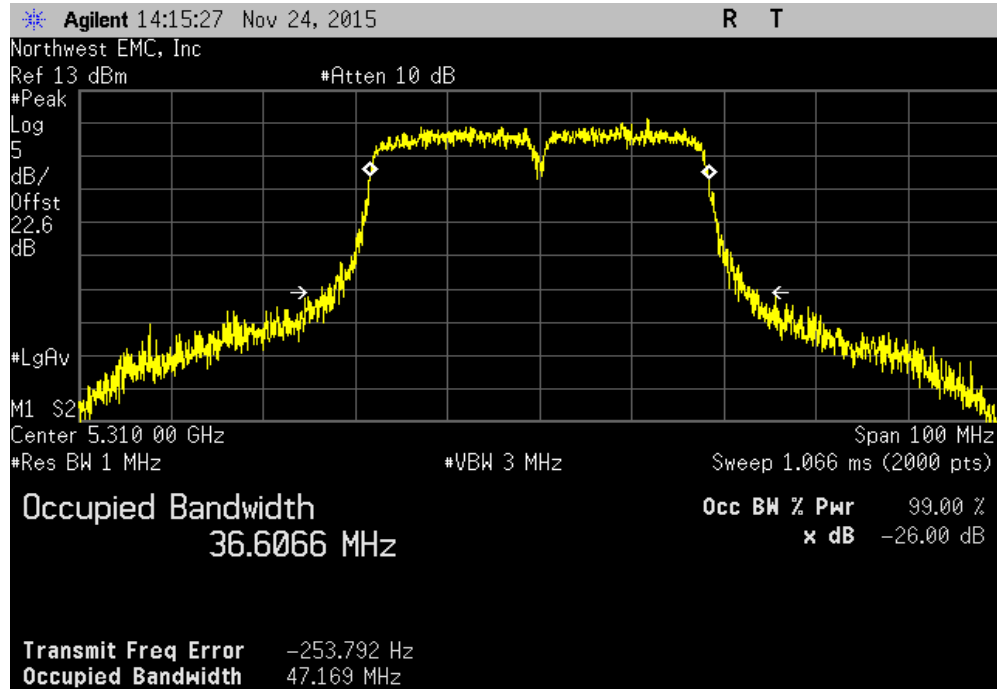


40 MHz, 802.11(n) MCS7, Ch 52/56, Low Channel 5270 MHz						
				Value	Limit (>)	Result
				46.45 MHz	500 kHz	Pass

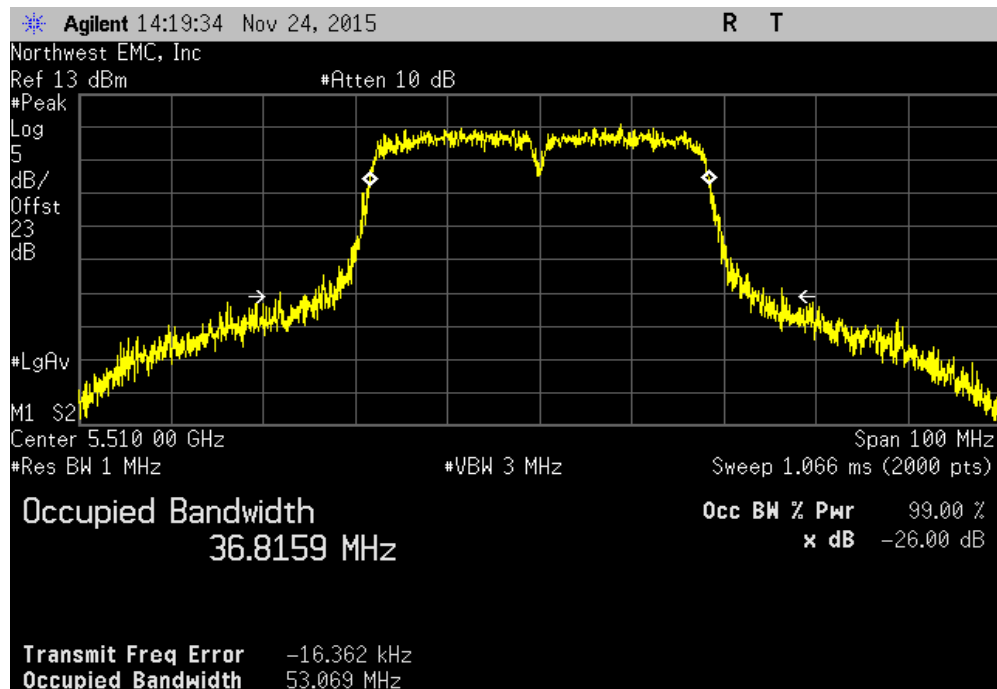


EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS7, Ch 60/64, High Channel 5310 MHz						
				Value	Limit (>)	Result
				47.169 MHz	500 kHz	Pass

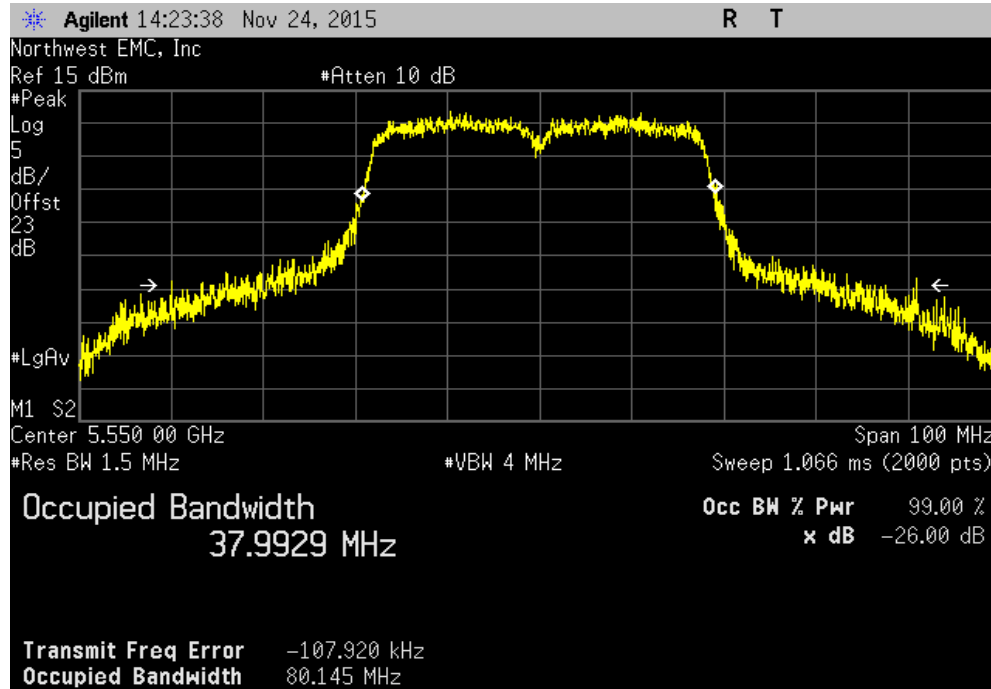


40 MHz, 802.11(n) MCS7, Ch 100/104, Low Channel 5510 MHz						
				Value	Limit (>)	Result
				53.069 MHz	500 kHz	Pass

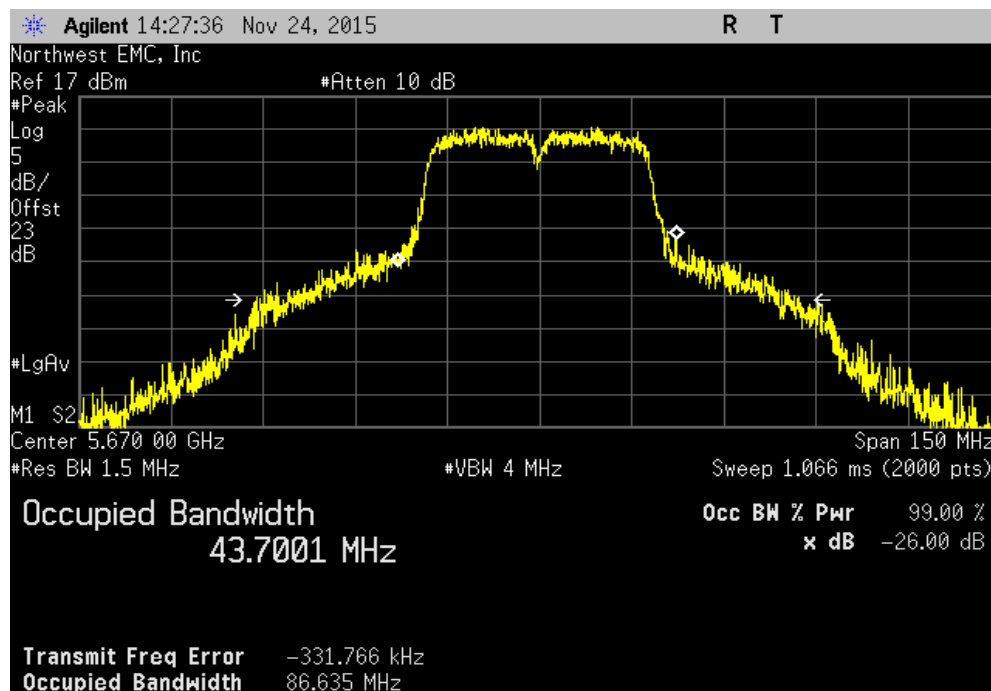


EMISSION BANDWIDTH

40 MHz, 802.11(n) MCS7, Ch 108/112, Mid Channel 5550 MHz						
				Value	Limit (>)	Result
				80.145 MHz	500 kHz	Pass



40 MHz, 802.11(n) MCS7, Ch 132/136, High Channel 5670 MHz						
				Value	Limit (>)	Result
				86.635 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

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.

Per ANSI C63.10, the spectrum analyzer settings were as follows:

RBW = 100 kHz

VBW = $\geq 3 \times$ RBW

Detector = Peak

Trace mode = max hold

The spectrum analyzer occupied bandwidth measurement function was then used to measure the 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.

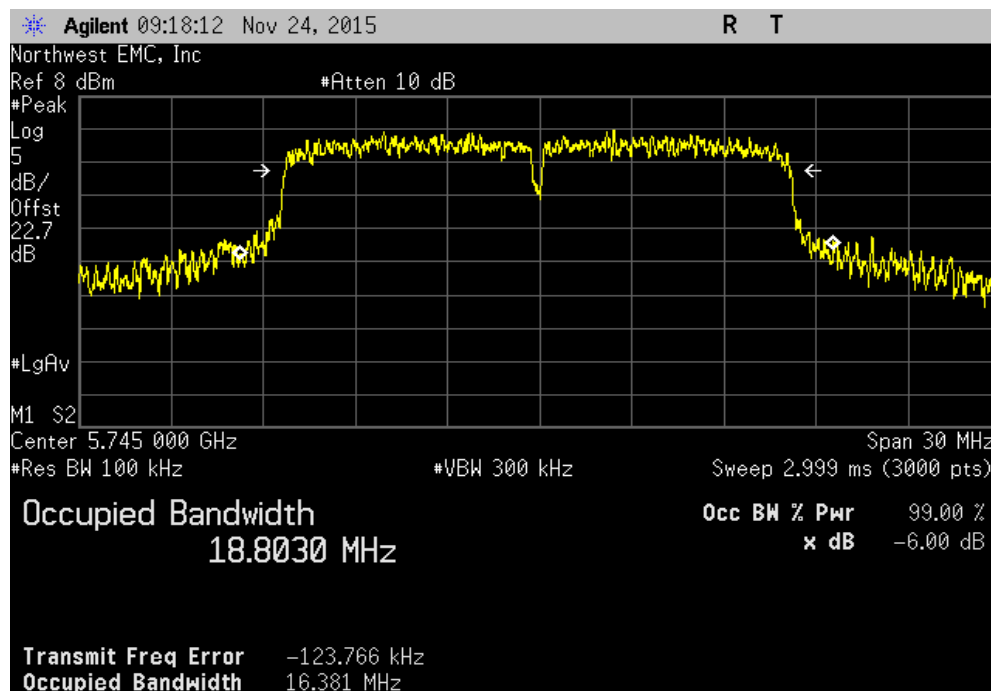
OCCUPIED BANDWIDTH

EUT: Sigma Pumps Gen IV 802.11abgn Module		Work Order: DGII0152	
Serial Number: None		Date: 01/11/16	
Customer: Digi International Inc		Temperature: 21.1°C	
Attendees: Slava Gehkt		Humidity: 16%	
Project: None		Barometric Pres.: 981.5	
Tested by: Jared Ison	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2016		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Value	Limit (>) Result
20 MHz			
802.11(a) 6 Mbps			
	Ch 149, Low Channel 5745 MHz	16.381 MHz	500 kHz Pass
	Ch 157, Mid Channel 5785 MHz	16.41 MHz	500 kHz Pass
	Ch 165, High Channel 5825 MHz	16.409 MHz	500 kHz Pass
802.11(a) 36 Mbps			
	Ch 149, Low Channel 5745 MHz	16.451 MHz	500 kHz Pass
	Ch 157, Mid Channel 5785 MHz	16.448 MHz	500 kHz Pass
	Ch 165, High Channel 5825 MHz	16.443 MHz	500 kHz Pass
802.11(a) 54 Mbps			
	Ch 149, Low Channel 5745 MHz	16.462 MHz	500 kHz Pass
	Ch 157, Mid Channel 5785 MHz	16.435 MHz	500 kHz Pass
	Ch 165, High Channel 5825 MHz	16.348 MHz	500 kHz Pass
802.11(n) MCS0			
	Ch 149, Low Channel 5745 MHz	17.703 MHz	500 kHz Pass
	Ch 157, Mid Channel 5785 MHz	17.609 MHz	500 kHz Pass
	Ch 165, High Channel 5825 MHz	17.615 MHz	500 kHz Pass
802.11(n) MCS7			
	Ch 149, Low Channel 5745 MHz	17.685 MHz	500 kHz Pass
	Ch 157, Mid Channel 5785 MHz	17.567 MHz	500 kHz Pass
	Ch 165, High Channel 5825 MHz	17.628 MHz	500 kHz Pass
40 MHz			
802.11(n) MCS0			
	Ch 149/153, Low Channel 5755 MHz	36.473 MHz	500 kHz Pass
	Ch 157/161, High Channel 5795 MHz	36.459 MHz	500 kHz Pass
802.11(n) MCS7			
	Ch 149/153, Low Channel 5755 MHz	36.401 MHz	500 kHz Pass
	Ch 157/161, High Channel 5795 MHz	36.449 MHz	500 kHz Pass

OCCUPIED BANDWIDTH

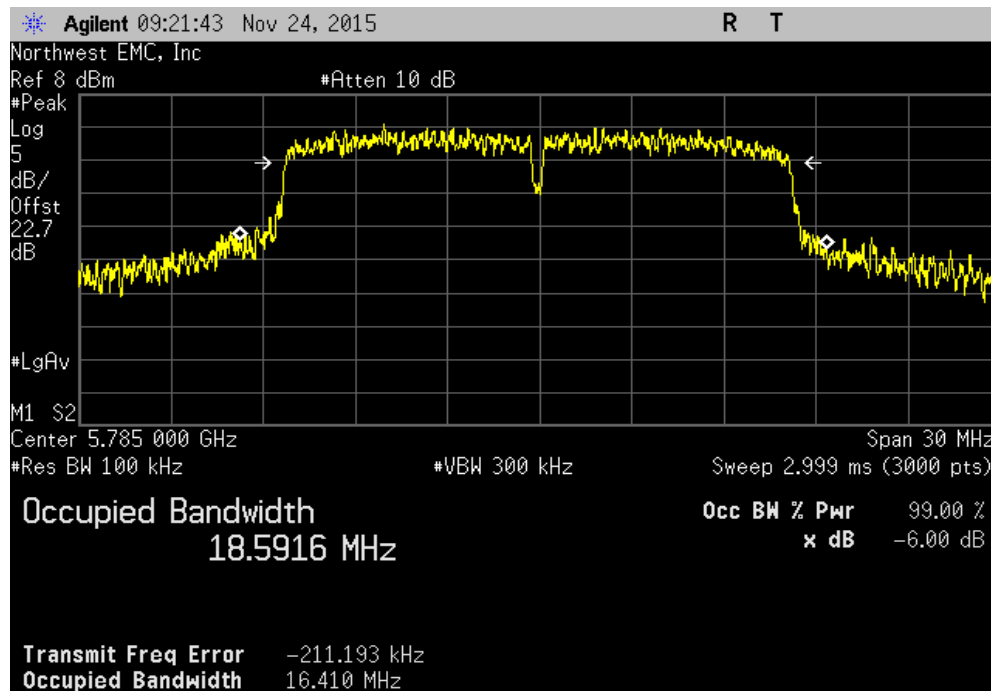
					Value	Limit (>)	Result

20 MHz, 802.11(a) 6 Mbps, Ch 149, Low Channel 5745 MHz					Value	Limit (>)	Result
					16.381 MHz	500 kHz	Pass

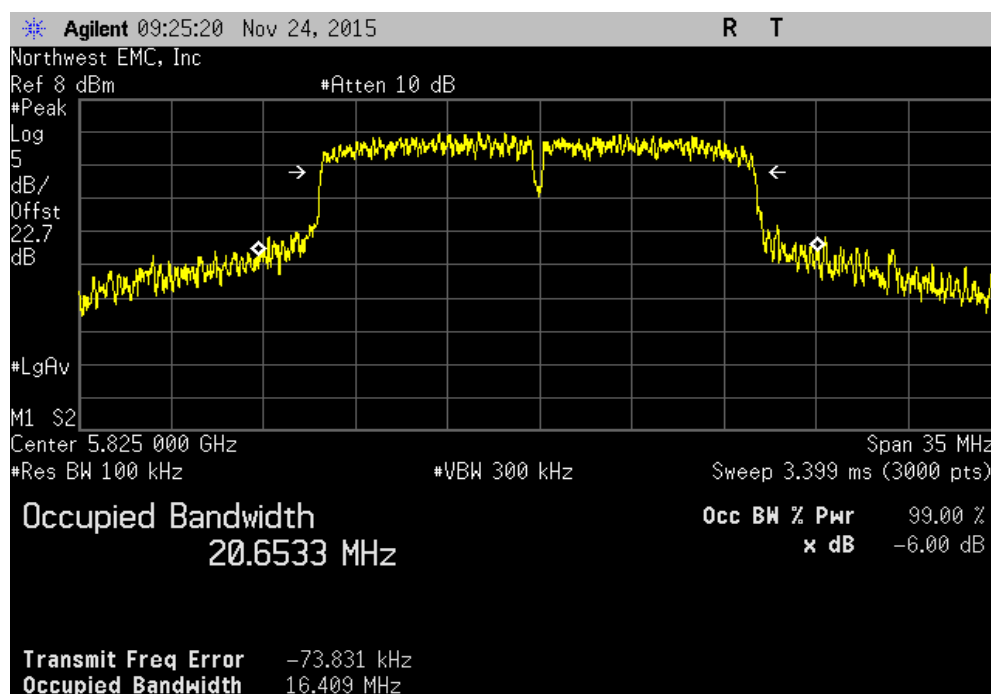


OCCUPIED BANDWIDTH

20 MHz, 802.11(a) 6 Mbps, Ch 157, Mid Channel 5785 MHz						
				Value	Limit (>)	Result
				16.41 MHz	500 kHz	Pass



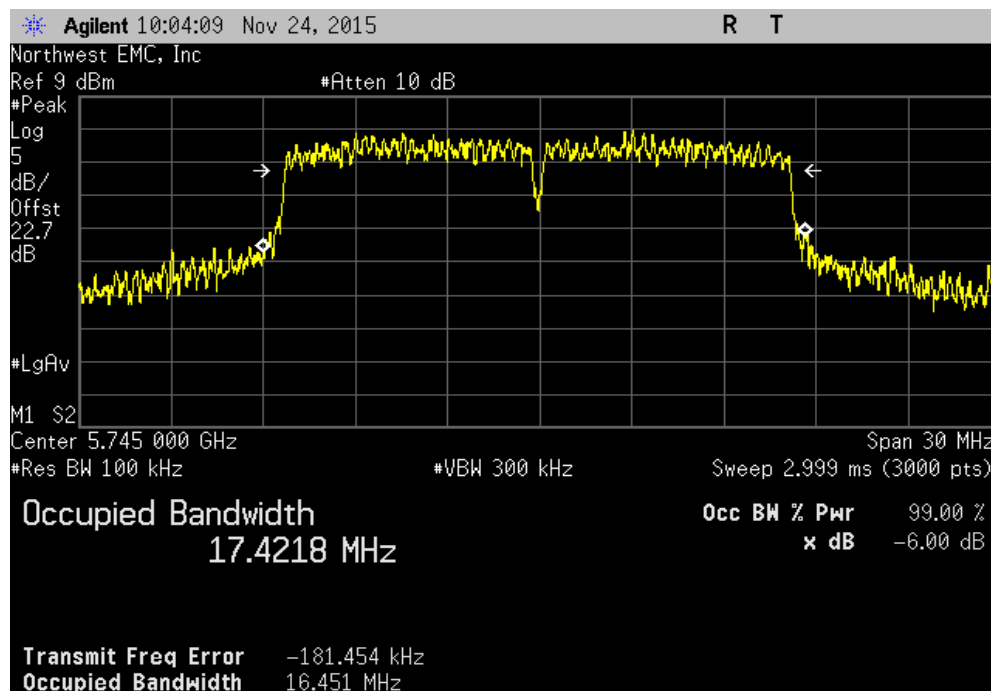
20 MHz, 802.11(a) 6 Mbps, Ch 165, High Channel 5825 MHz						
				Value	Limit (>)	Result
				16.409 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

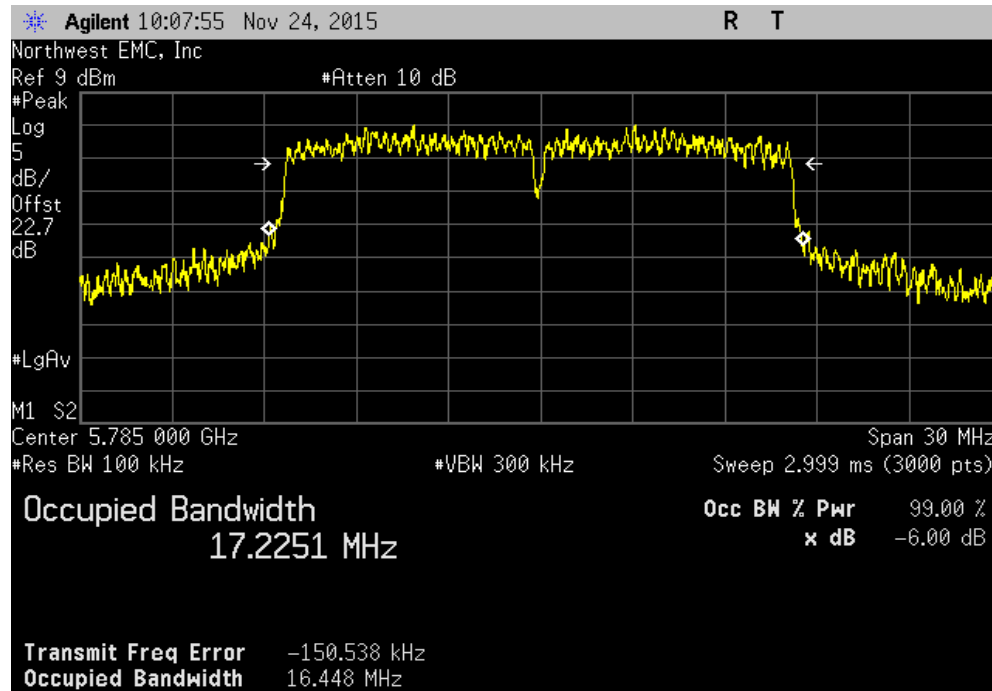
					Value	Limit (>)	Result

20 MHz, 802.11(a) 36 Mbps, Ch 149, Low Channel 5745 MHz							
					Value	Limit (>)	Result
					16.451 MHz	500 kHz	Pass

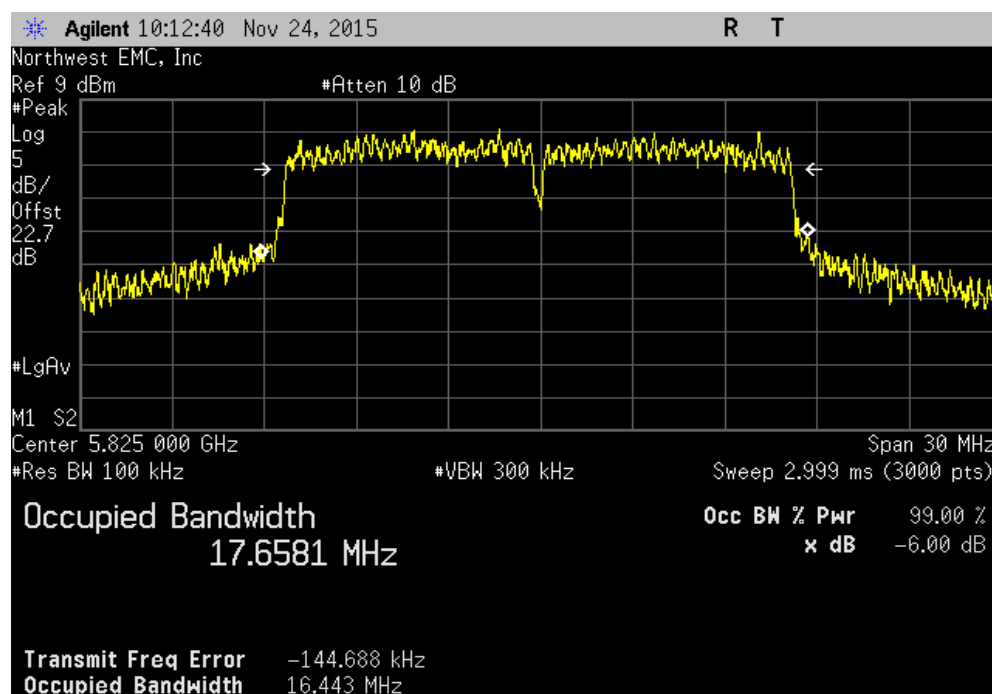


OCCUPIED BANDWIDTH

20 MHz, 802.11(a) 36 Mbps, Ch 157, Mid Channel 5785 MHz						
				Value	Limit (>)	Result
				16.448 MHz	500 kHz	Pass



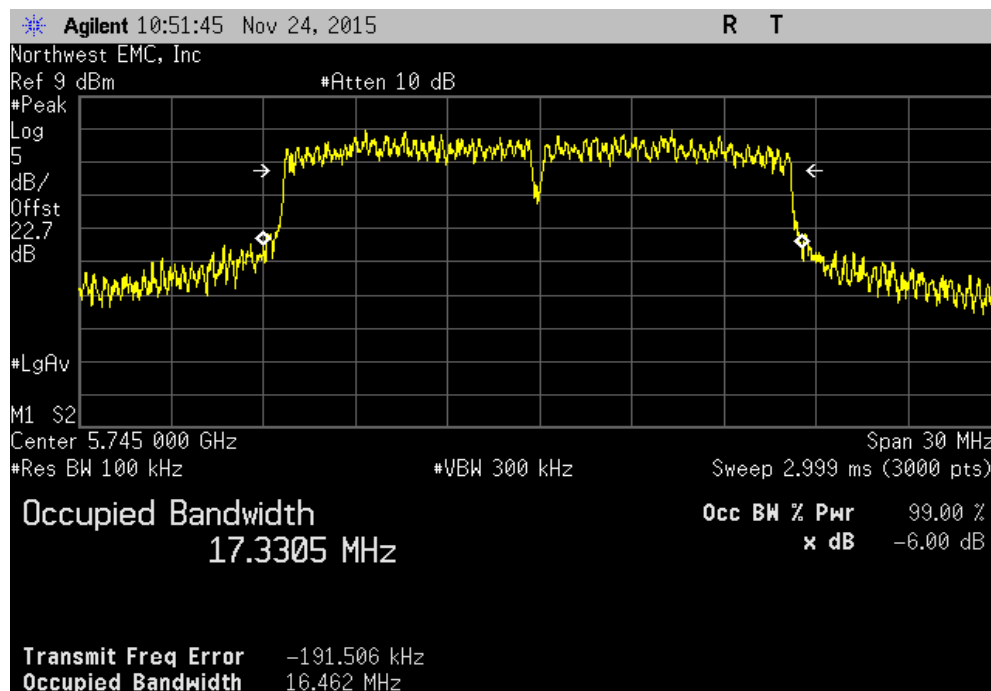
20 MHz, 802.11(a) 36 Mbps, Ch 165, High Channel 5825 MHz						
				Value	Limit (>)	Result
				16.443 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

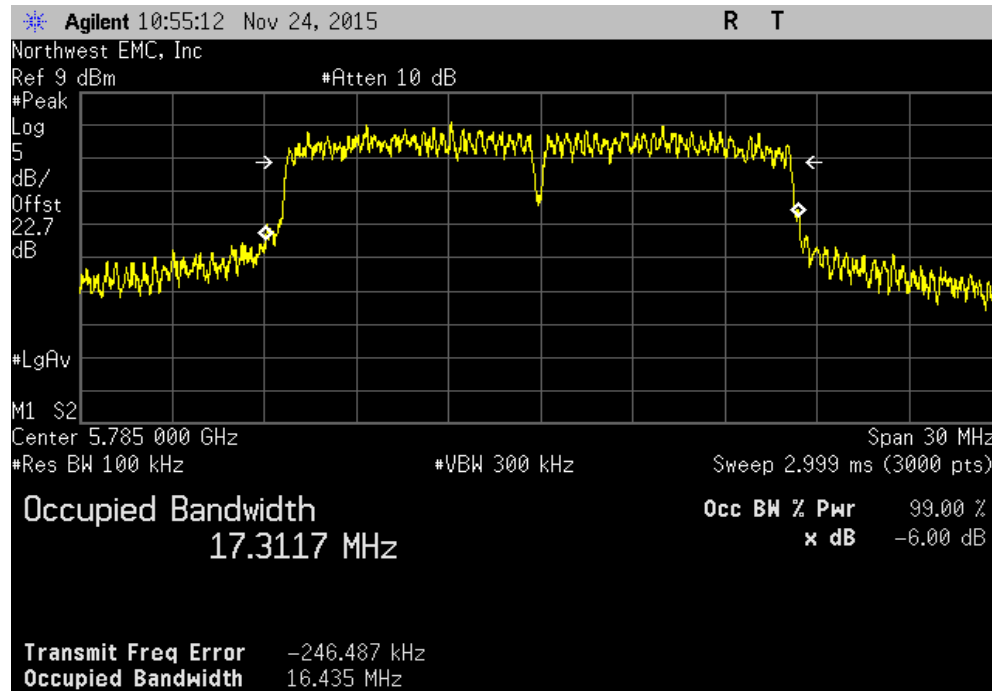
					Value	Limit (>)	Result

20 MHz, 802.11(a) 54 Mbps, Ch 149, Low Channel 5745 MHz							
					Value	Limit (>)	Result
					16.462 MHz	500 kHz	Pass

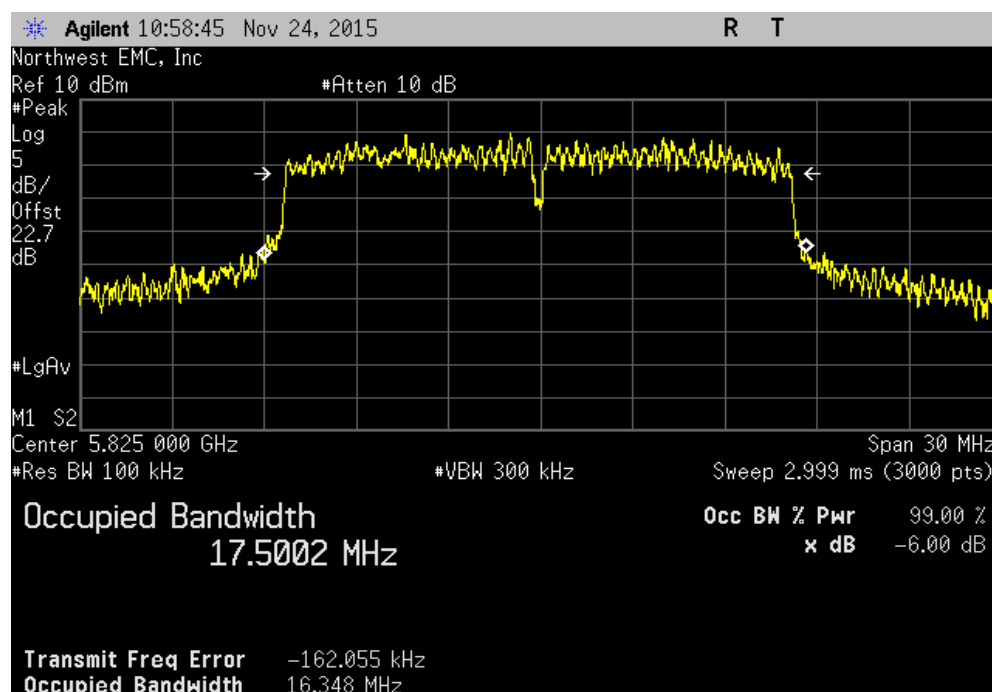


OCCUPIED BANDWIDTH

20 MHz, 802.11(a) 54 Mbps, Ch 157, Mid Channel 5785 MHz						
				Value	Limit (>)	Result
				16.435 MHz	500 kHz	Pass



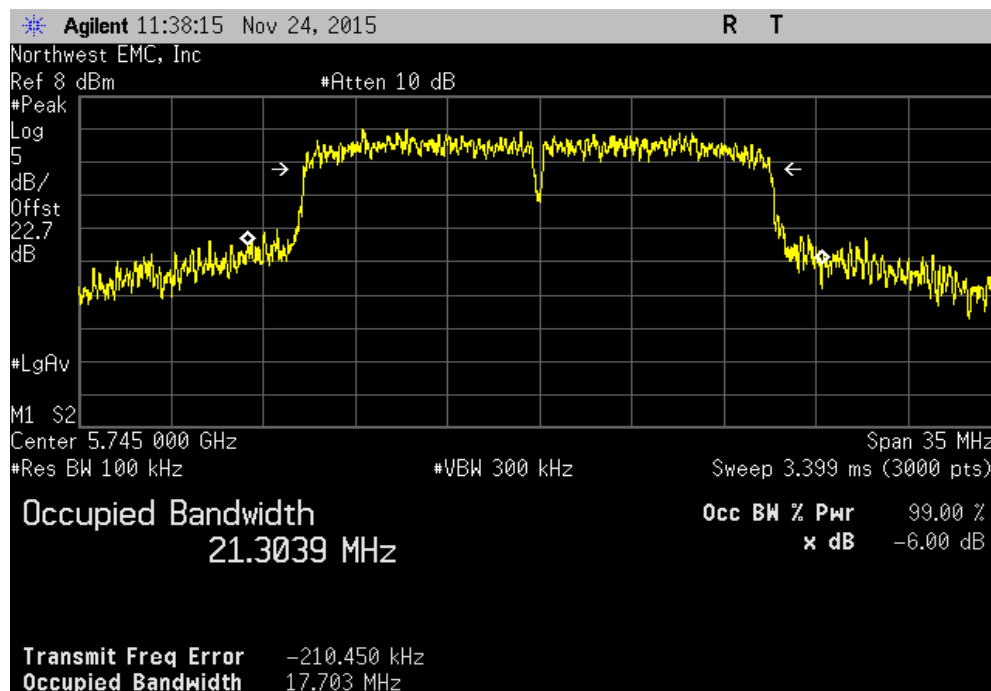
20 MHz, 802.11(a) 54 Mbps, Ch 165, High Channel 5825 MHz						
				Value	Limit (>)	Result
				16.348 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

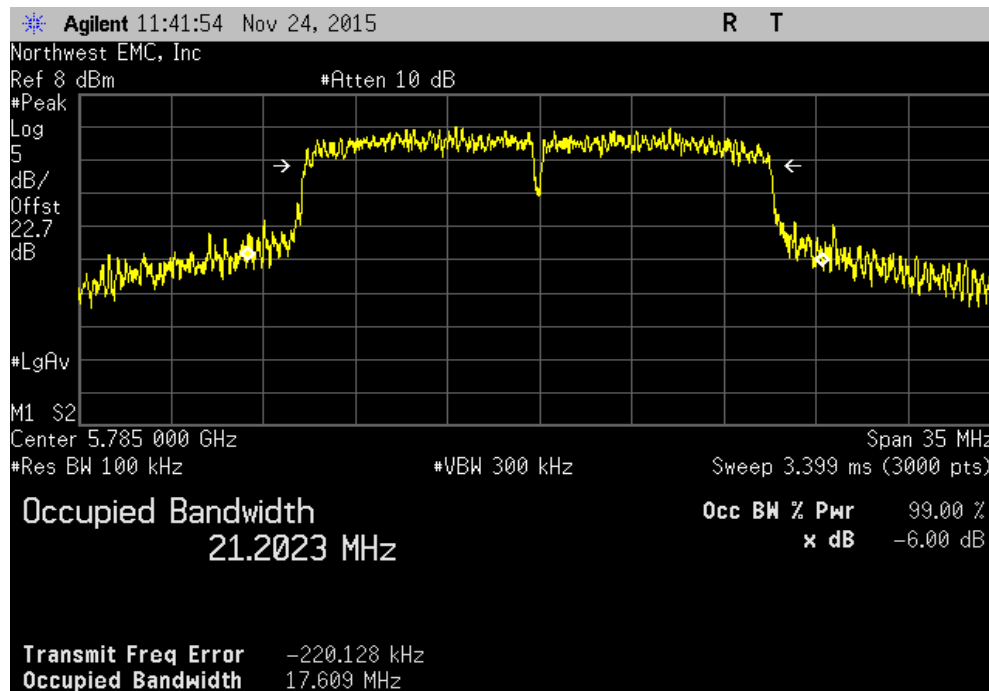
					Value	Limit (>)	Result

20 MHz, 802.11(n) MCS0, Ch 149, Low Channel 5745 MHz					Value	Limit (>)	Result
					17.703 MHz	500 kHz	Pass

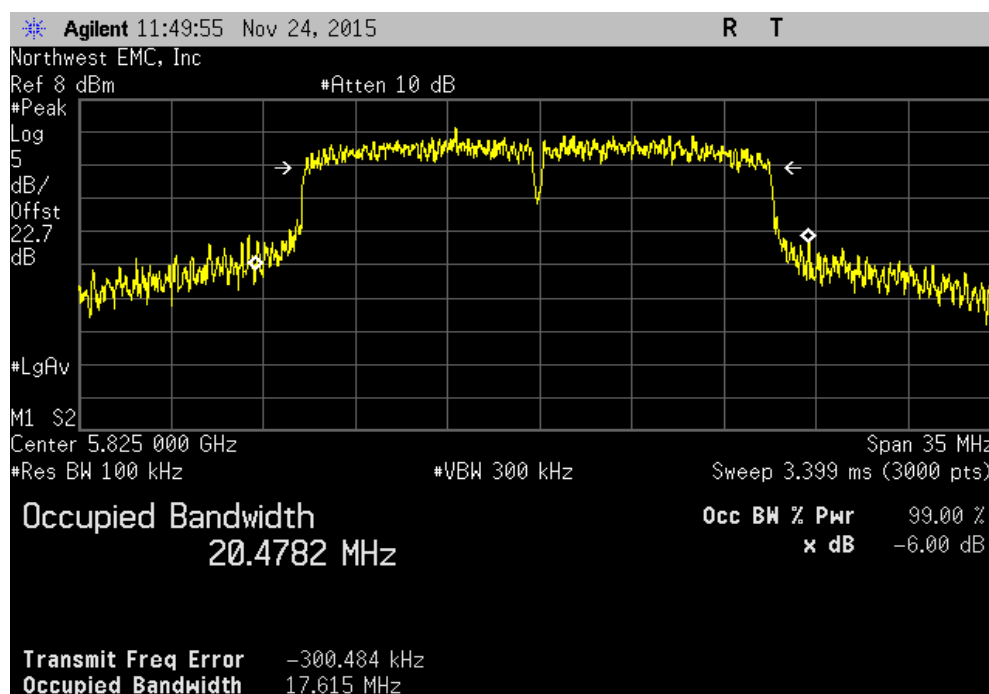


OCCUPIED BANDWIDTH

20 MHz, 802.11(n) MCS0, Ch 157, Mid Channel 5785 MHz						
				Value	Limit (>)	Result
				17.609 MHz	500 kHz	Pass



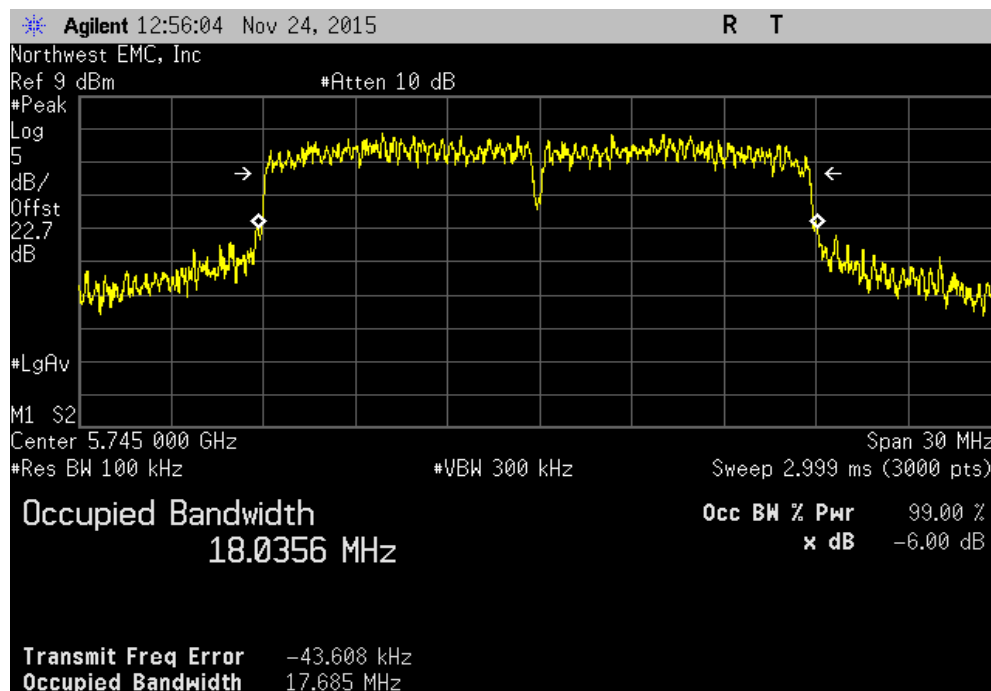
20 MHz, 802.11(n) MCS0, Ch 165, High Channel 5825 MHz						
				Value	Limit (>)	Result
				17.615 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

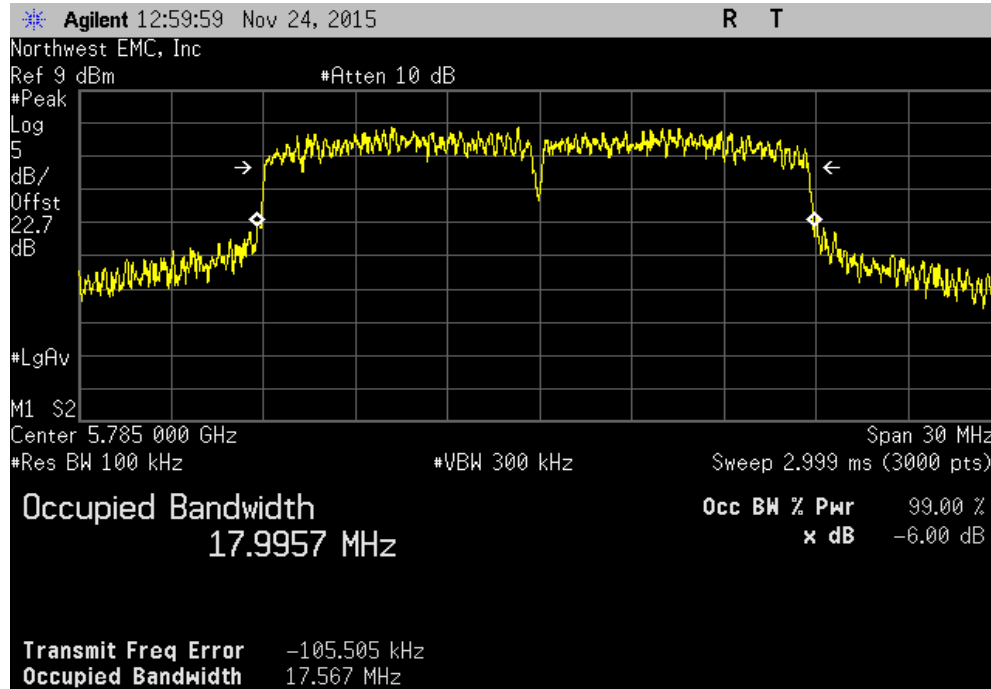
					Value	Limit (>)	Result

20 MHz, 802.11(n) MCS7, Ch 149, Low Channel 5745 MHz							
					Value	Limit (>)	Result
					17.685 MHz	500 kHz	Pass

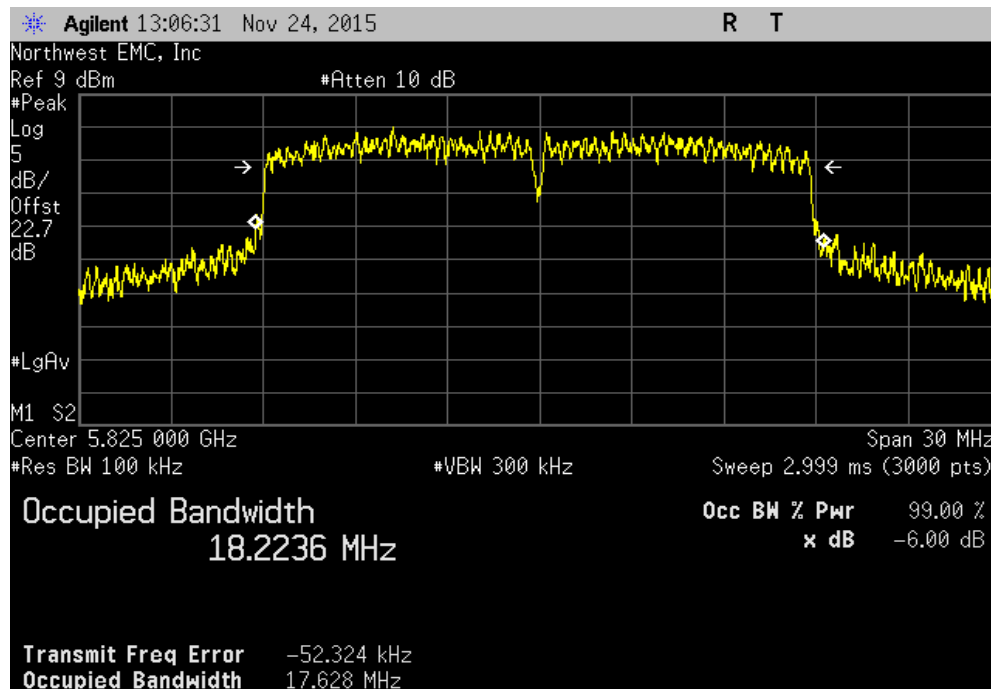


OCCUPIED BANDWIDTH

20 MHz, 802.11(n) MCS7, Ch 157, Mid Channel 5785 MHz						
				Value	Limit (>)	Result
				17.567 MHz	500 kHz	Pass



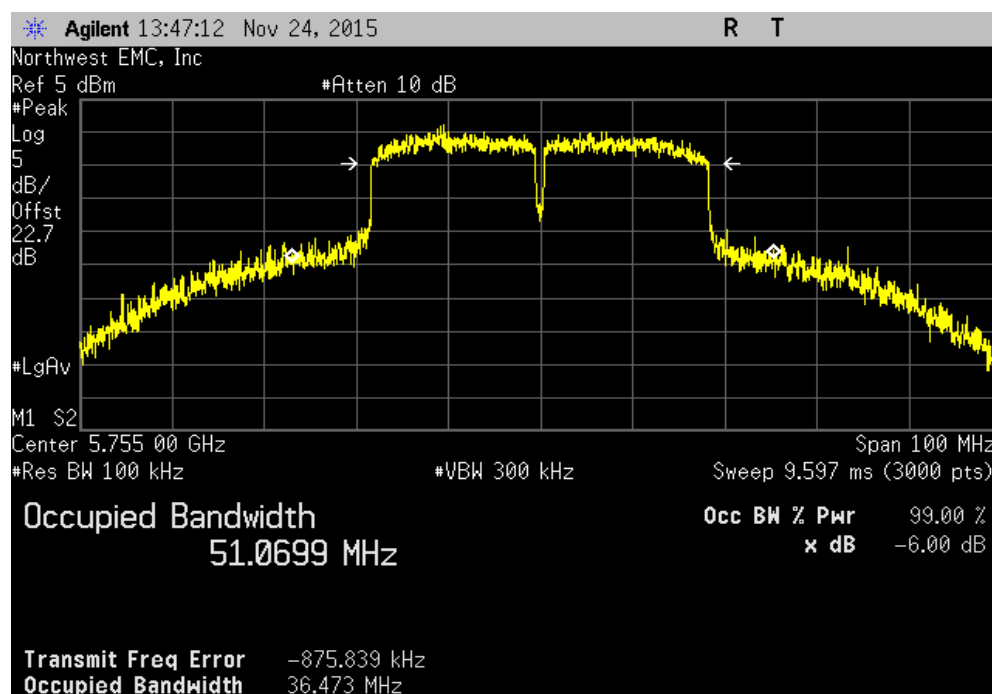
20 MHz, 802.11(n) MCS7, Ch 165, High Channel 5825 MHz						
				Value	Limit (>)	Result
				17.628 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

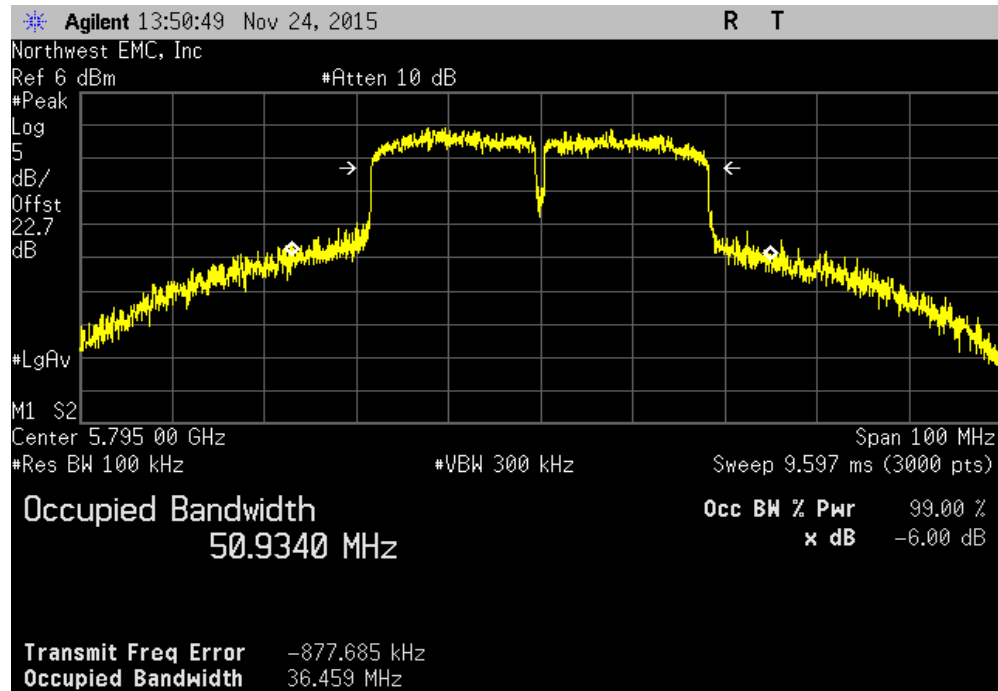
					Value	Limit (>)	Result

40 MHz, 802.11(n) MCS0, Ch 149/153, Low Channel 5755 MHz							
					Value	Limit (>)	Result
					36.473 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

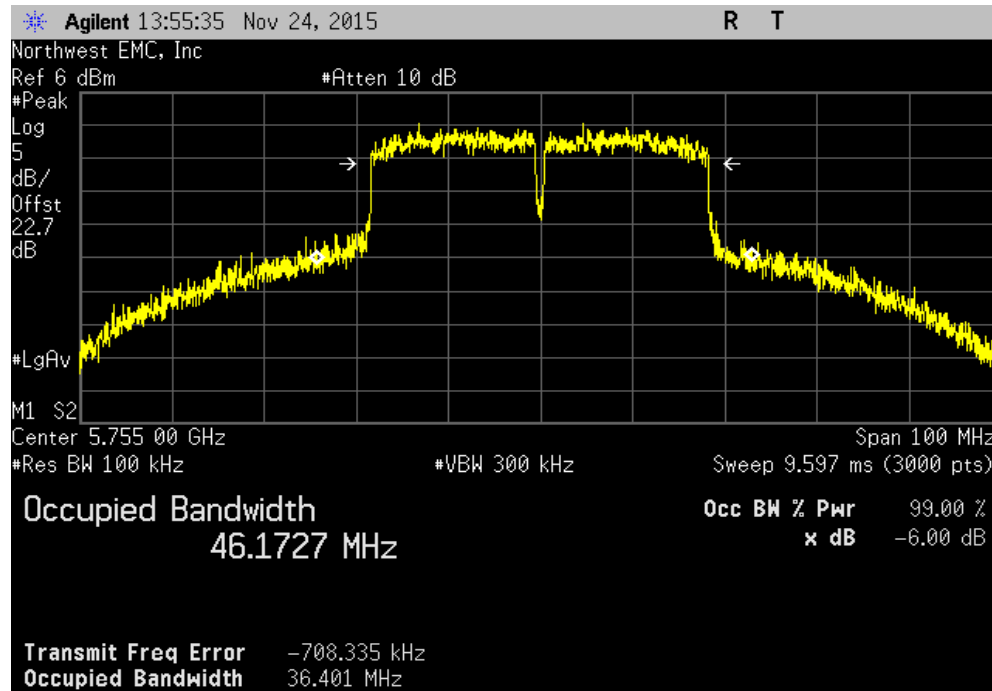
40 MHz, 802.11(n) MCS0, Ch 157/161, High Channel 5795 MHz						
				Value	Limit (>)	Result
				36.459 MHz	500 kHz	Pass



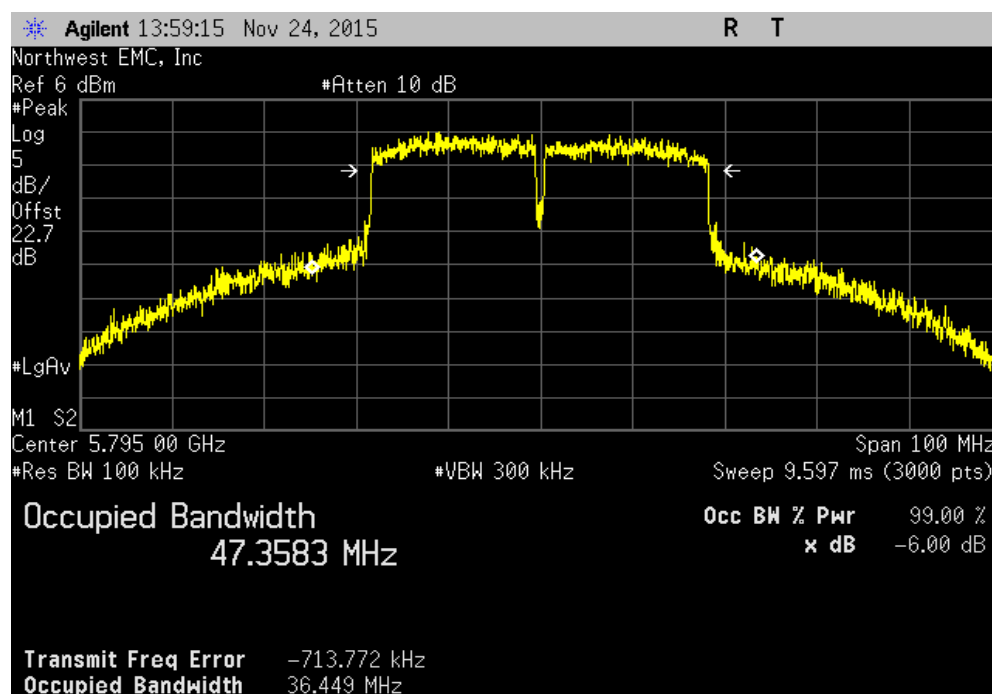
				Value	Limit (>)	Result

OCCUPIED BANDWIDTH

40 MHz, 802.11(n) MCS7, Ch 149/153, Low Channel 5755 MHz						
				Value	Limit (>)	Result
				36.401 MHz	500 kHz	Pass



40 MHz, 802.11(n) MCS7, Ch 157/161, High Channel 5795 MHz						
				Value	Limit (>)	Result
				36.449 MHz	500 kHz	Pass



MAXIMUM POWER SPECTRAL DENSITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

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 maximum 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.

The maximum power spectral density was measured using ANSI C63.10, Method SA-1 (RMS detection and trace averaging with the EUT transmitting at full power throughout each sweep), consistent with the method used for maximum conducted output power.

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

- Resolution Bandwidth of 1 MHz
- RMS Detector
- Trace average 100 traces in power averaging mode

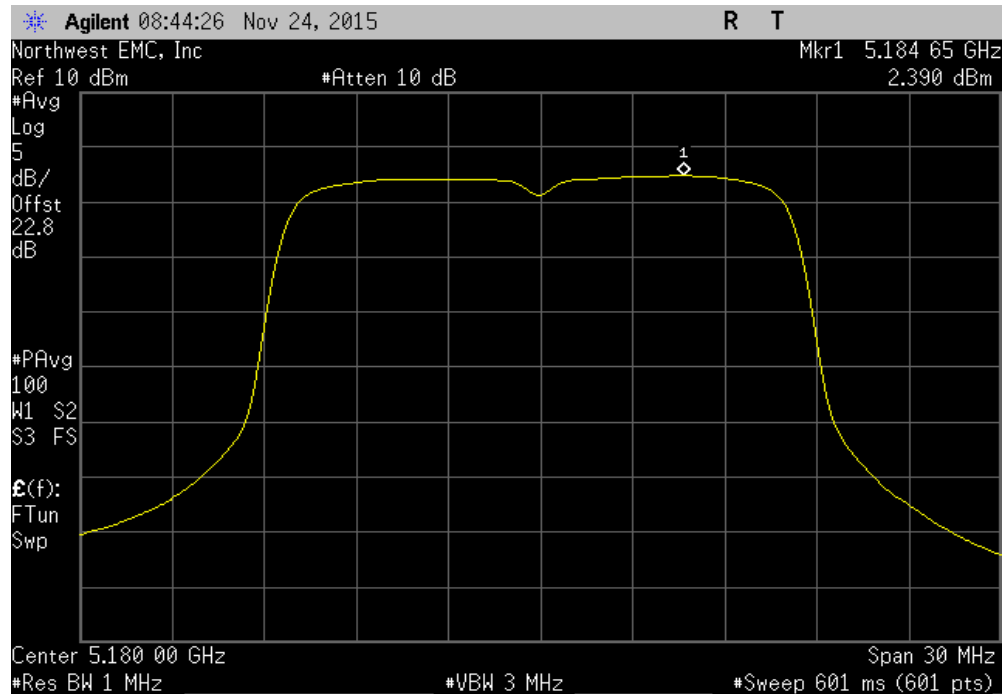
The peak power spectral density (PPSD) was determined to be the highest level found across the emission in any 1 MHz band

MAXIMUM POWER SPECTRAL DENSITY

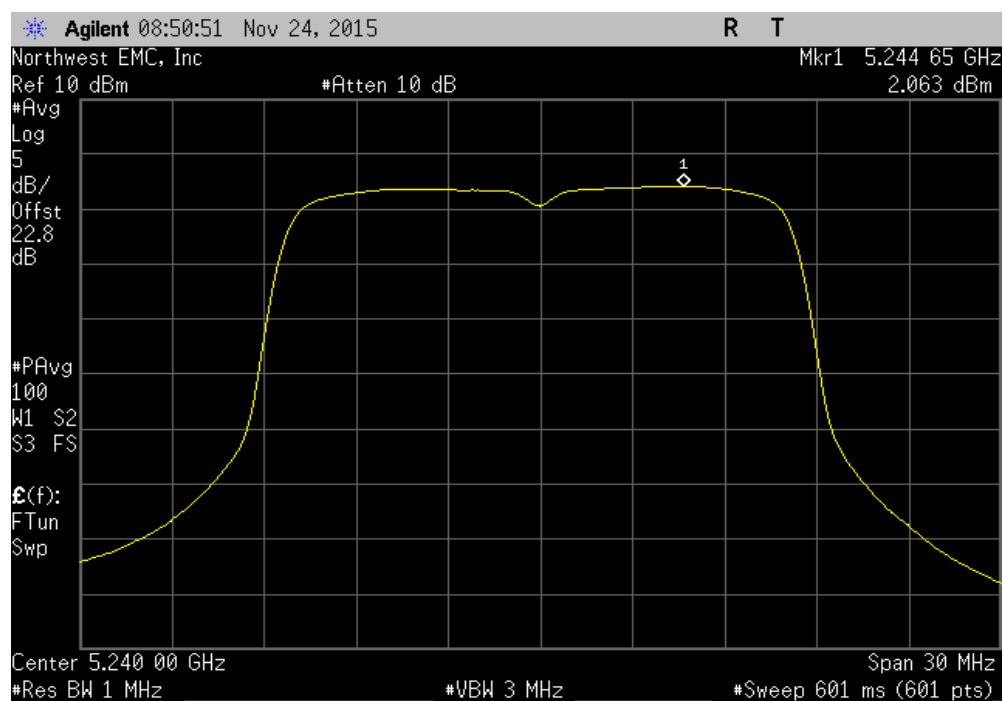
EUT: Sigma Pumps Gen IV 802.11abgn Module			Work Order: DGII0152			
Serial Number: UUT #7 (55001769-1 rev. 1P)			Date: 01/11/16			
Customer: Digi International Inc			Temperature: 21.1°C			
Attendees: Slava Gehkt			Humidity: 16%			
Project: None			Barometric Pres.: 984			
Tested by: Jared Ison		Power: 110VAC/60Hz	Job Site: MN08			
TEST SPECIFICATIONS		Test Method				
FCC 15.407:2016		ANSI C63.10:2013				
COMMENTS						
802.11 radio set to single channel continuous transmission.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	2					
		Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ≤ (dBm / Ref BW)	Results
20 MHz						
802.11(a) 6 Mbps						
	Ch 36, Low Channel 5180 MHz	2.39	0	2.4	11	Pass
	Ch 48, High Channel 5240 MHz	2.063	0	2.1	11	Pass
	Ch 52, Low Channel 5260 MHz	1.909	0	1.9	11	Pass
	Ch 64, High Channel 5320 MHz	1.67	0	1.7	11	Pass
	Ch 100, Low Channel 5500 MHz	2.438	0	2.4	11	Pass
	Ch 116, Mid Channel 5580 MHz	3.993	0	4	11	Pass
	Ch 140, High Channel 5700 MHz	4.957	0	5	11	Pass
	Ch 149, Low Channel 5745 MHz	2.106	0	2.1	30	Pass
	Ch 157, Mid Channel 5785 MHz	2.404	0	2.4	30	Pass
	Ch 165, High Channel 5825 MHz	2.432	0	2.4	30	Pass
802.11(a) 36 Mbps						
	Ch 36, Low Channel 5180 MHz	2.357	0	2.4	11	Pass
	Ch 48, High Channel 5240 MHz	2.066	0	2.1	11	Pass
	Ch 52, Low Channel 5260 MHz	1.95	0	2	11	Pass
	Ch 64, High Channel 5320 MHz	1.62	0	1.6	11	Pass
	Ch 100, Low Channel 5500 MHz	2.447	0	2.4	11	Pass
	Ch 116, Mid Channel 5580 MHz	3.967	0	4	11	Pass
	Ch 140, High Channel 5700 MHz	4.999	0	5	11	Pass
	Ch 149, Low Channel 5745 MHz	2.255	0	2.3	30	Pass
	Ch 157, Mid Channel 5785 MHz	2.576	0	2.6	30	Pass
	Ch 165, High Channel 5825 MHz	2.639	0	2.6	30	Pass
802.11(a) 54 Mbps						
	Ch 36, Low Channel 5180 MHz	2.556	0	2.6	11	Pass
	Ch 48, High Channel 5240 MHz	2.219	0	2.2	11	Pass
	Ch 52, Low Channel 5260 MHz	2.017	0	2	11	Pass
	Ch 64, High Channel 5320 MHz	1.678	0	1.7	11	Pass
	Ch 100, Low Channel 5500 MHz	2.073	0	2.1	11	Pass
	Ch 116, Mid Channel 5580 MHz	3.947	0	3.9	11	Pass
	Ch 140, High Channel 5700 MHz	4.934	0	4.9	11	Pass
	Ch 149, Low Channel 5745 MHz	2.105	0	2.1	30	Pass
	Ch 157, Mid Channel 5785 MHz	2.469	0	2.5	30	Pass
	Ch 165, High Channel 5825 MHz	2.539	0	2.5	30	Pass
802.11(n) MCS0						
	Ch 36, Low Channel 5180 MHz	2.126	0	2.1	17	Pass
	Ch 48, High Channel 5240 MHz	1.721	0	1.7	17	Pass
	Ch 52, Low Channel 5260 MHz	1.654	0	1.7	11	Pass
	Ch 64, High Channel 5320 MHz	1.318	0	1.3	11	Pass
	Ch 100, Low Channel 5500 MHz	2.178	0	2.2	11	Pass
	Ch 116, Mid Channel 5580 MHz	3.752	0	3.8	11	Pass
	Ch 140, High Channel 5700 MHz	4.66	0	4.7	11	Pass
	Ch 149, Low Channel 5745 MHz	2.06	0	2.1	30	Pass
	Ch 157, Mid Channel 5785 MHz	2.321	0	2.3	30	Pass
	Ch 165, High Channel 5825 MHz	2.15	0	2.2	30	Pass
802.11(n) MCS7						
	Ch 36, Low Channel 5180 MHz	2.426	0	2.4	11	Pass
	Ch 48, High Channel 5240 MHz	1.772	0	1.8	11	Pass
	Ch 52, Low Channel 5260 MHz	1.621	0	1.6	11	Pass
	Ch 64, High Channel 5320 MHz	1.288	0	1.3	11	Pass
	Ch 100, Low Channel 5500 MHz	1.704	0	1.7	11	Pass
	Ch 116, Mid Channel 5580 MHz	3.594	0	3.6	11	Pass
	Ch 140, High Channel 5700 MHz	4.603	0	4.6	11	Pass
	Ch 149, Low Channel 5745 MHz	1.798	0	1.8	30	Pass
	Ch 157, Mid Channel 5785 MHz	2.102	0	2.1	30	Pass
	Ch 165, High Channel 5825 MHz	2.163	0	2.2	30	Pass
40 MHz						
802.11(n) MCS0						
	Ch 36/40, Low Channel 5190 MHz	-0.292	0	-0.3	11	Pass
	Ch 44/48, High Channel 5230 MHz	-0.826	0	-0.8	11	Pass
	Ch 52/56, Low Channel 5270 MHz	-0.058	0	-0.1	11	Pass
	Ch 60/64, High Channel 5310 MHz	-0.61	0	-0.6	11	Pass
	Ch 100/104, Low Channel 5510 MHz	-0.1	0	-0.1	11	Pass
	Ch 108/112, Mid Channel 5550 MHz	0.64	0	0.6	11	Pass
	Ch 132/136, High Channel 5670 MHz	2.05	0	2.1	11	Pass
	Ch 149/153, Low Channel 5755 MHz	-0.516	0	-0.5	30	Pass
	Ch 157/161, High Channel 5795 MHz	-0.202	0	-0.2	30	Pass
802.11(n) MCS7						
	Ch 36/40, Low Channel 5190 MHz	-0.984	0	-1	11	Pass
	Ch 44/48, High Channel 5230 MHz	-0.486	0	-0.5	11	Pass
	Ch 52/56, Low Channel 5270 MHz	-0.493	0	-0.5	11	Pass
	Ch 60/64, High Channel 5310 MHz	-0.821	0	-0.8	11	Pass
	Ch 100/104, Low Channel 5510 MHz	-0.379	0	-0.4	11	Pass
	Ch 108/112, Mid Channel 5550 MHz	0.516	0	0.5	11	Pass
	Ch 132/136, High Channel 5670 MHz	1.861	0	1.9	11	Pass
	Ch 149/153, Low Channel 5755 MHz	-0.565	0	-0.6	30	Pass
	Ch 157/161, High Channel 5795 MHz	-0.231	0	-0.2	30	Pass

MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 6 Mbps, Ch 36, Low Channel 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.39	0	2.4	11	Pass		

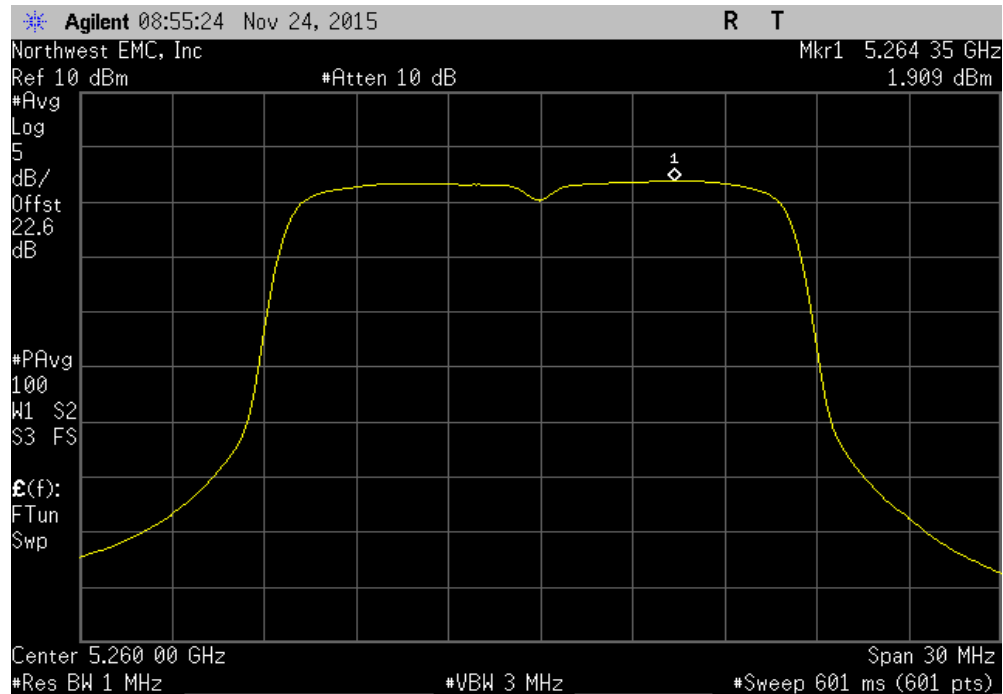


20 MHz, 802.11(a) 6 Mbps, Ch 48, High Channel 5240 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.063	0	2.1	11	Pass		

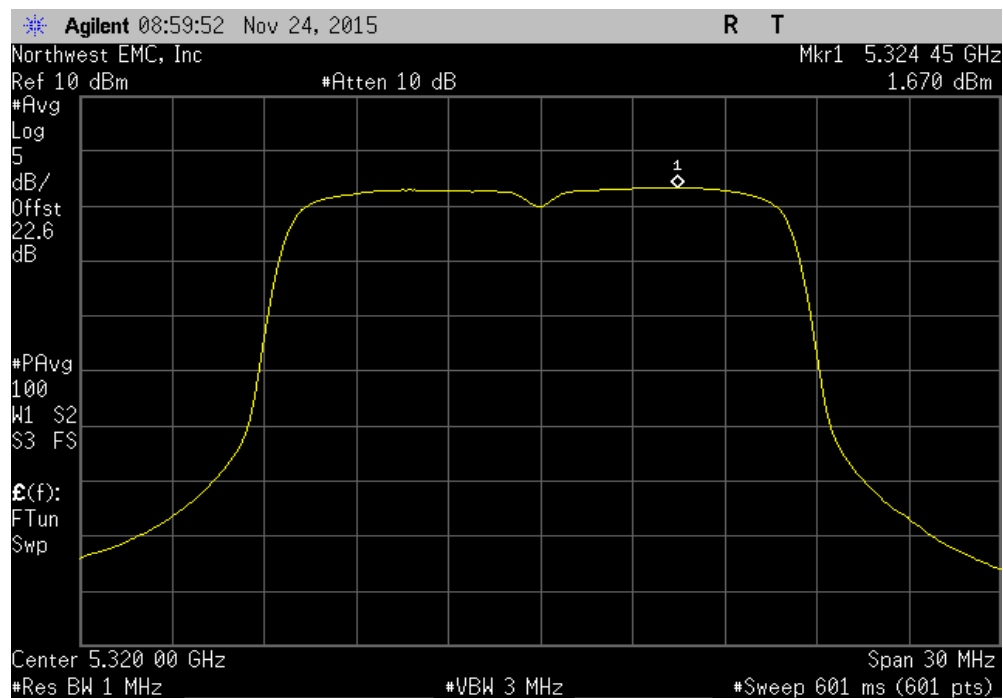


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 6 Mbps, Ch 52, Low Channel 5260 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.909	0	1.9	11	Pass		

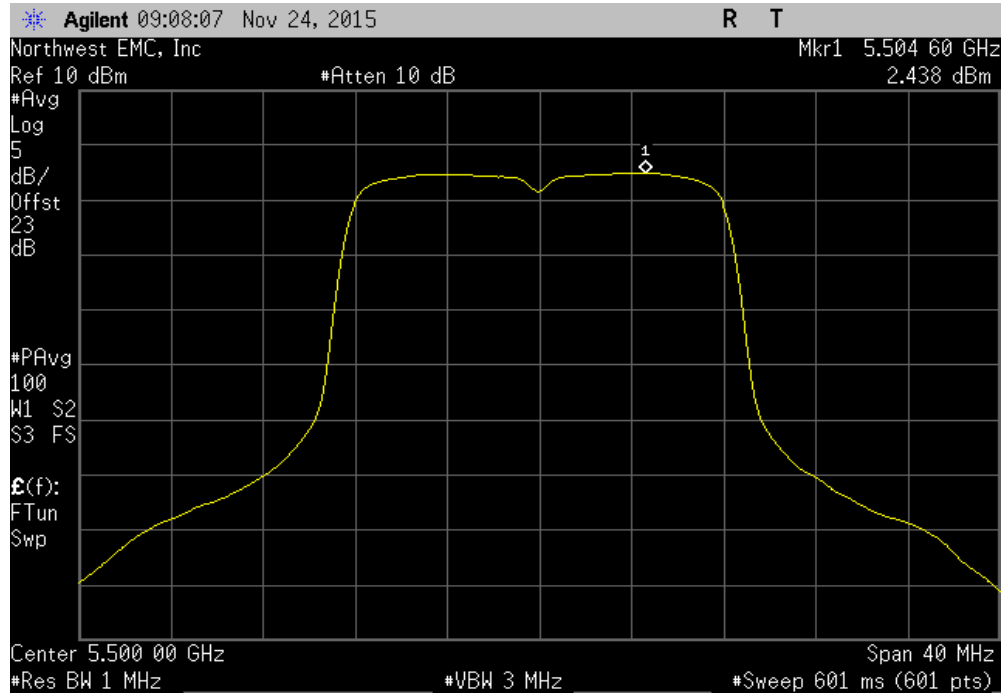


20 MHz, 802.11(a) 6 Mbps, Ch 64, High Channel 5320 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.67	0	1.7	11	Pass		

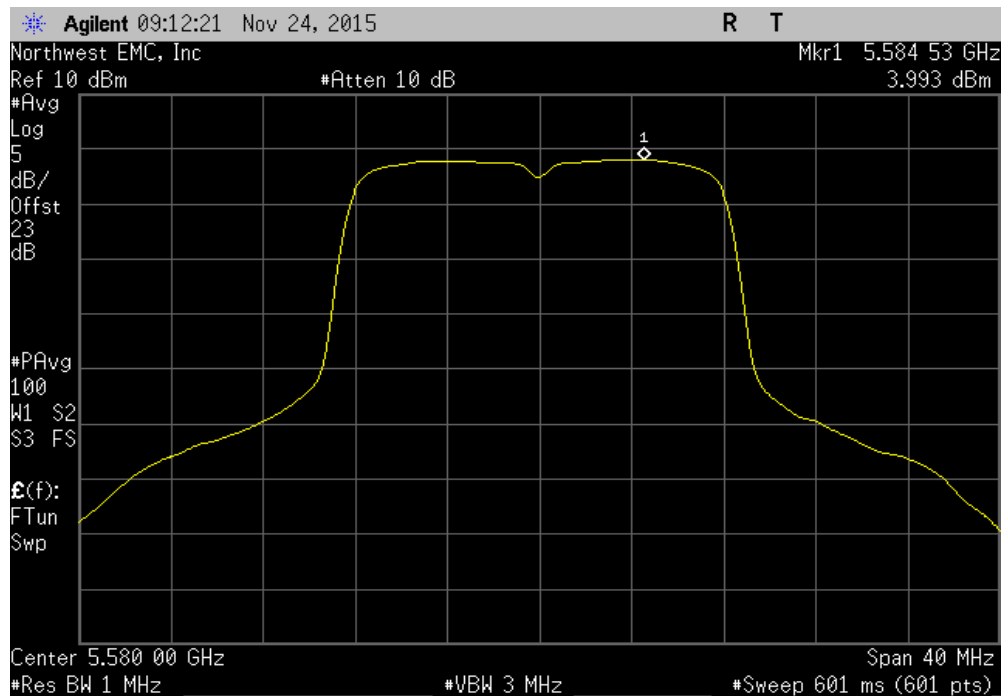


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 6 Mbps, Ch 100, Low Channel 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.438	0	2.4	11	Pass		

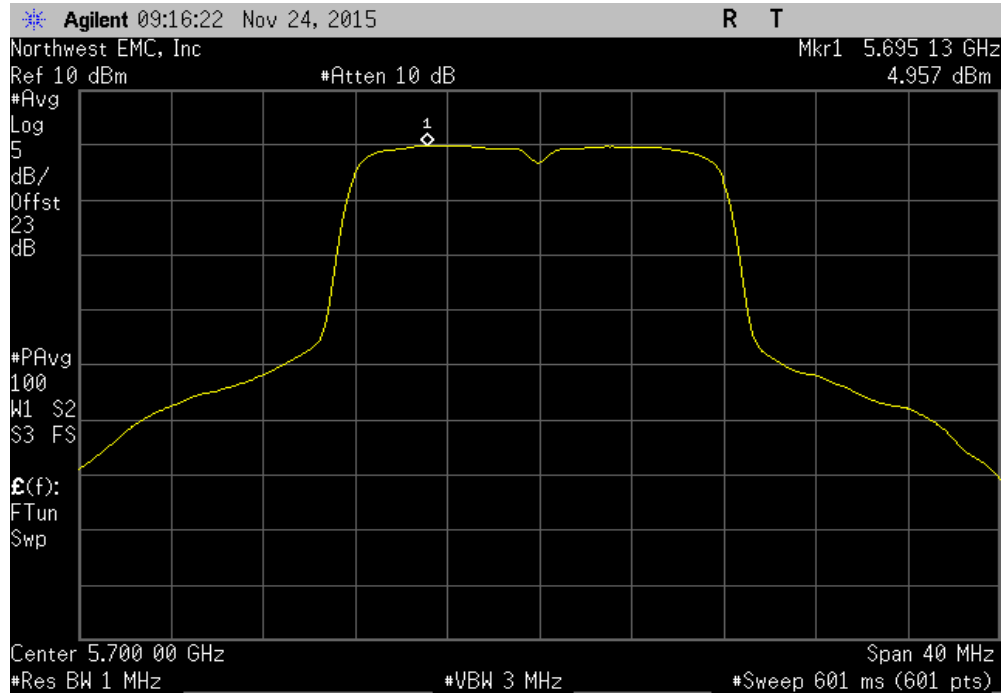


20 MHz, 802.11(a) 6 Mbps, Ch 116, Mid Channel 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
3.993	0	4	11	Pass		

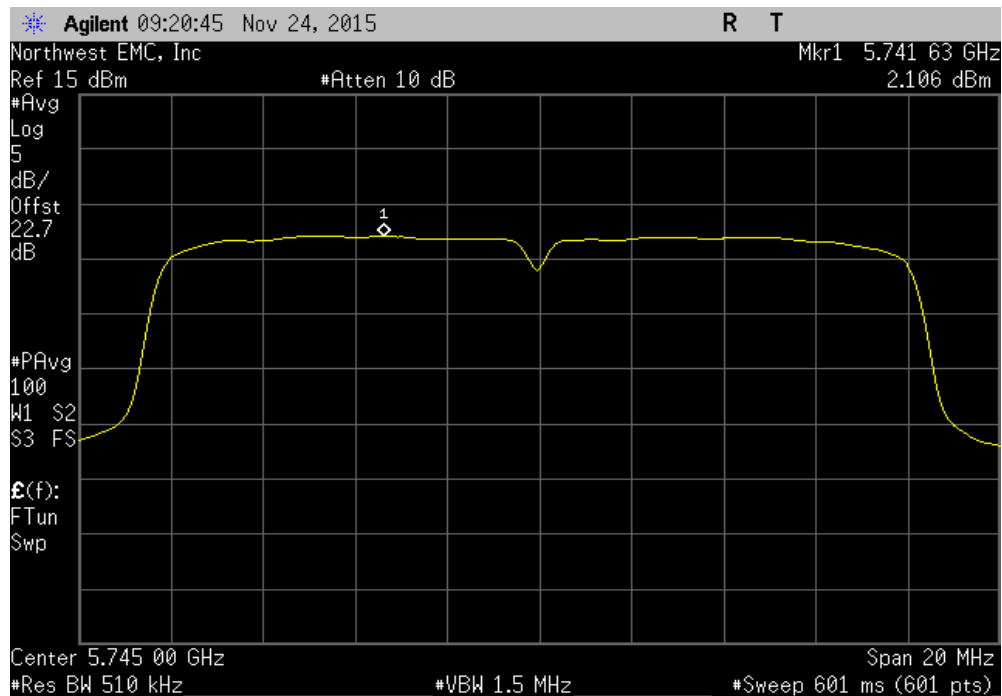


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 6 Mbps, Ch 140, High Channel 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
4.957	0	5	11	Pass		

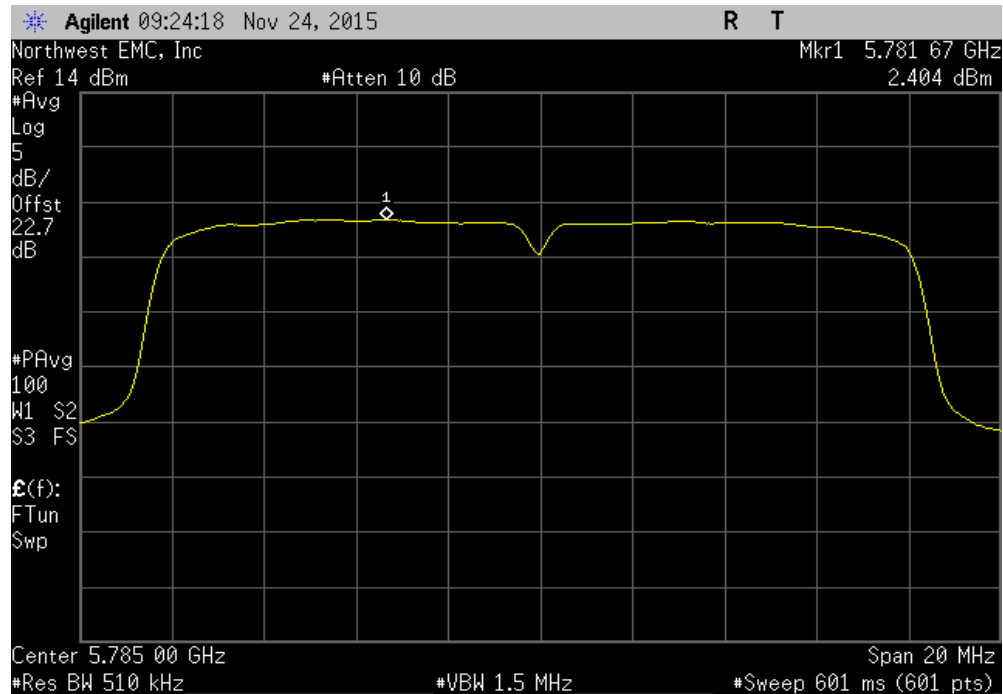


20 MHz, 802.11(a) 6 Mbps, Ch 149, Low Channel 5745 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.106	0	2.1	30	Pass		

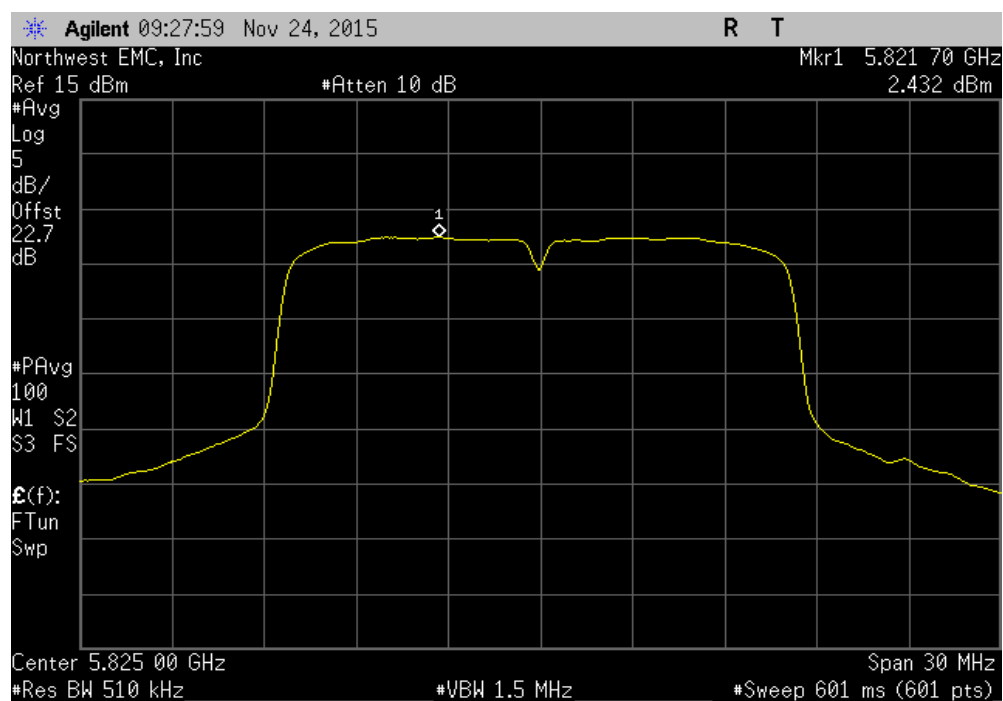


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 6 Mbps, Ch 157, Mid Channel 5785 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ± (dBm / Ref BW)	Results		
2.404	0	2.4	30	Pass		

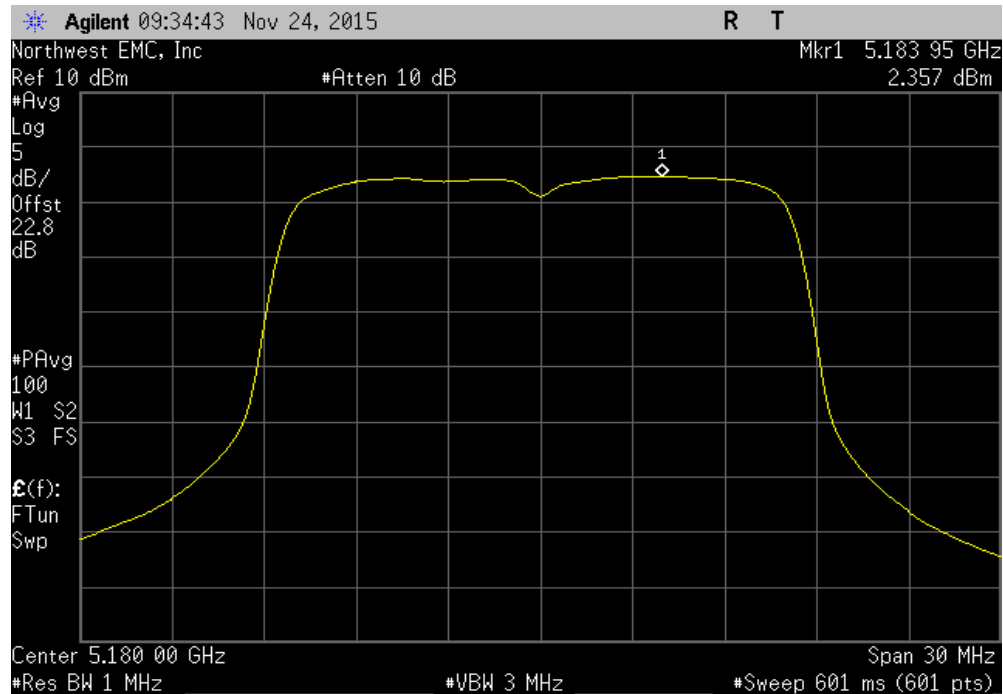


20 MHz, 802.11(a) 6 Mbps, Ch 165, High Channel 5825 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ± (dBm / Ref BW)	Results		
2.432	0	2.4	30	Pass		

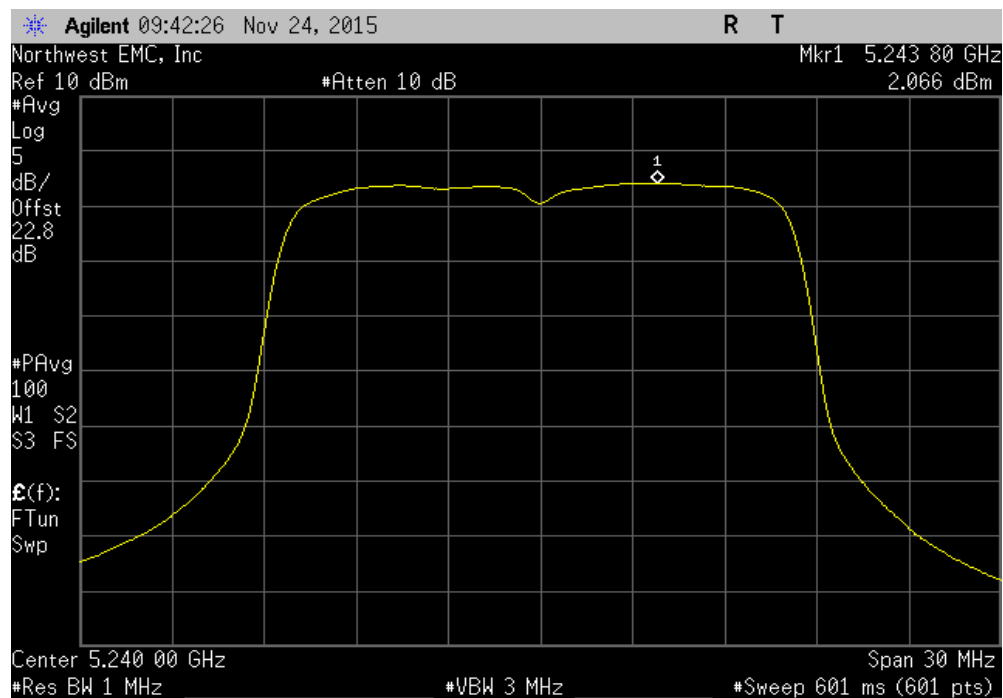


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 36 Mbps, Ch 36, Low Channel 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.357	0	2.4	11	Pass		

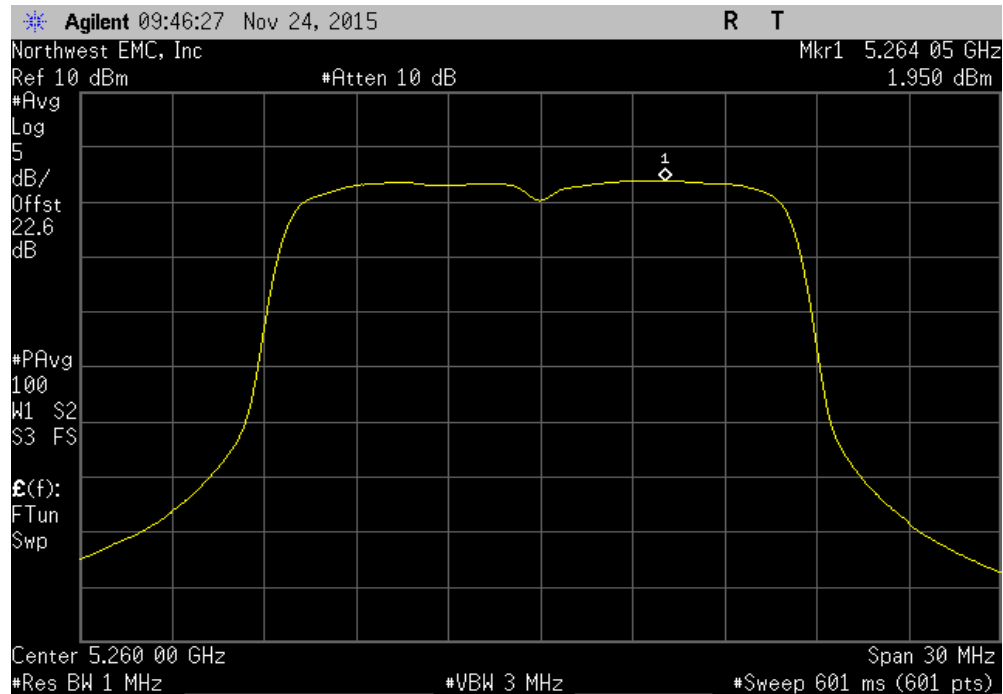


20 MHz, 802.11(a) 36 Mbps, Ch 48, High Channel 5240 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.066	0	2.1	11	Pass		

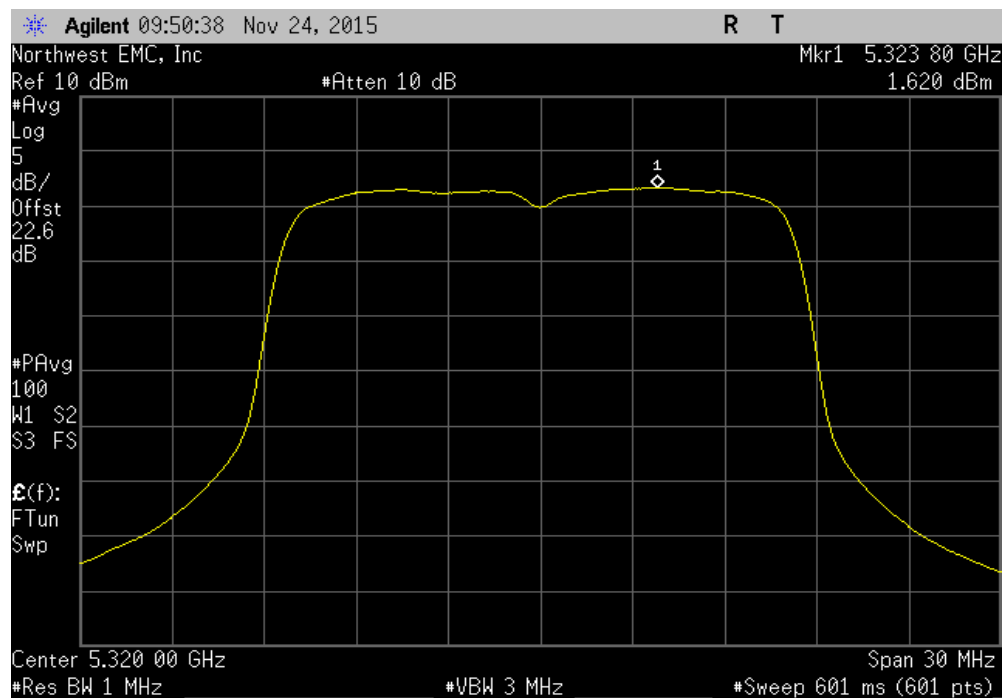


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 36 Mbps, Ch 52, Low Channel 5260 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.95	0	2	11	Pass		

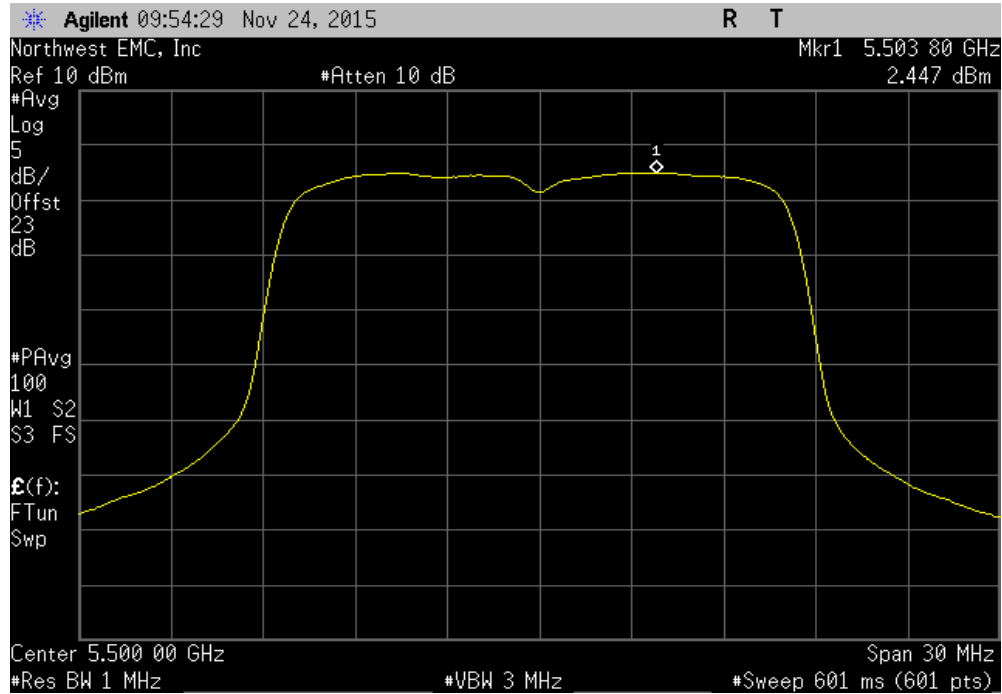


20 MHz, 802.11(a) 36 Mbps, Ch 64, High Channel 5320 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.62	0	1.6	11	Pass		

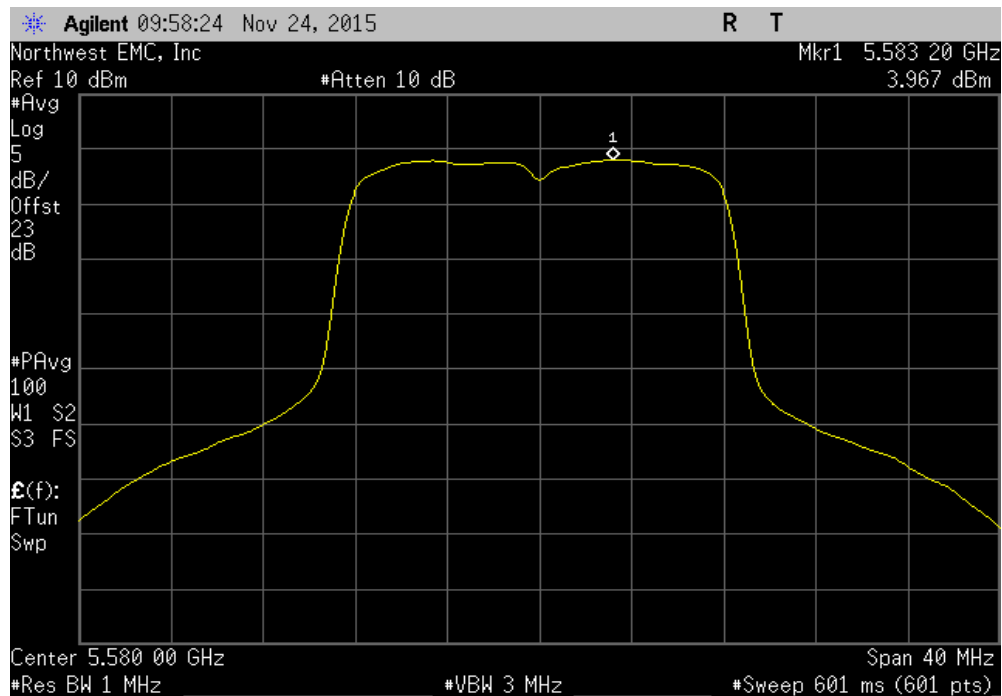


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 36 Mbps, Ch 100, Low Channel 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.447	0	2.4	11	Pass		

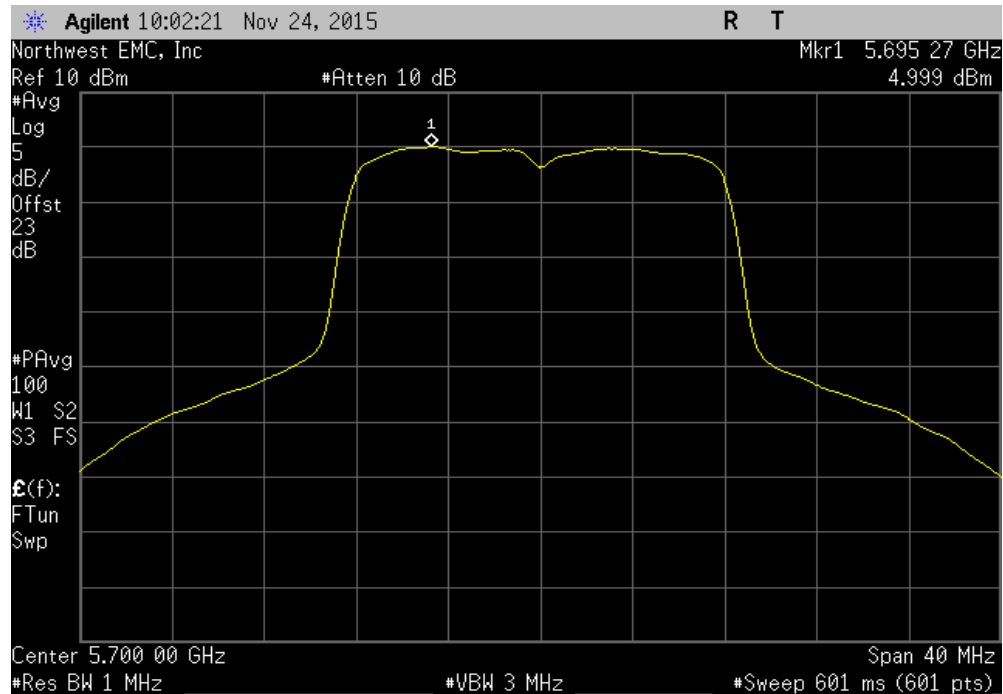


20 MHz, 802.11(a) 36 Mbps, Ch 116, Mid Channel 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
3.967	0	4	11	Pass		

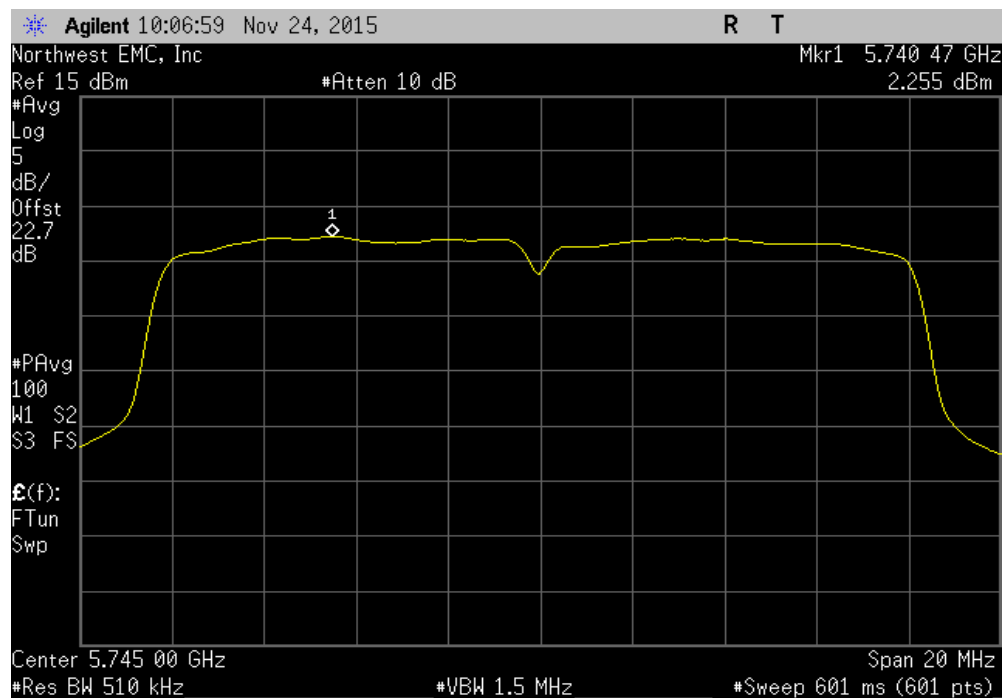


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 36 Mbps, Ch 140, High Channel 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
4.999	0	5	11	Pass		

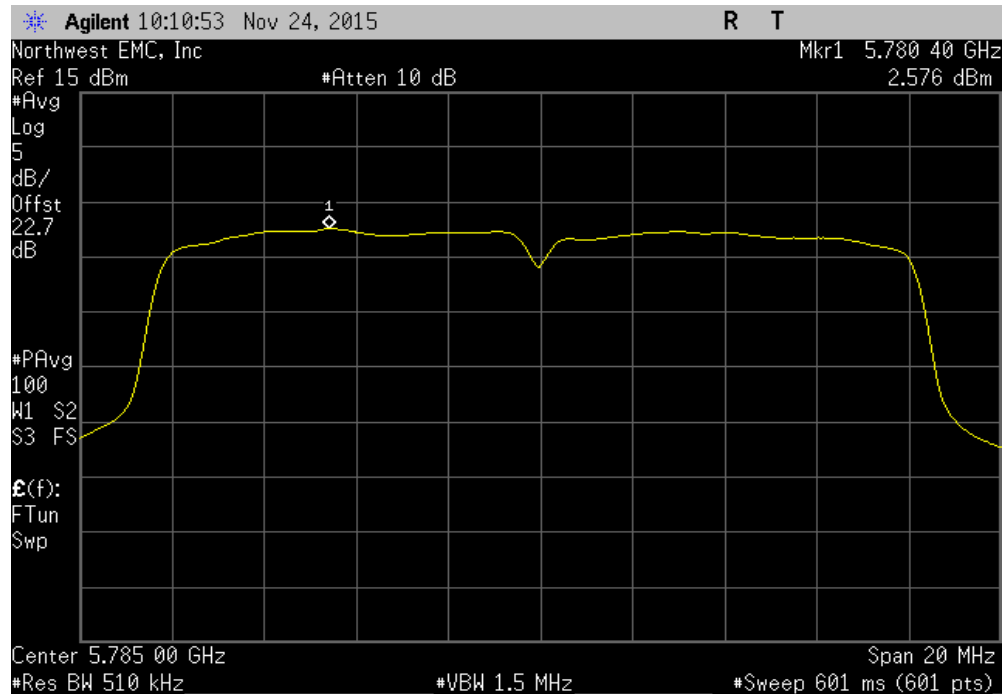


20 MHz, 802.11(a) 36 Mbps, Ch 149, Low Channel 5745 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.255	0	2.3	30	Pass		

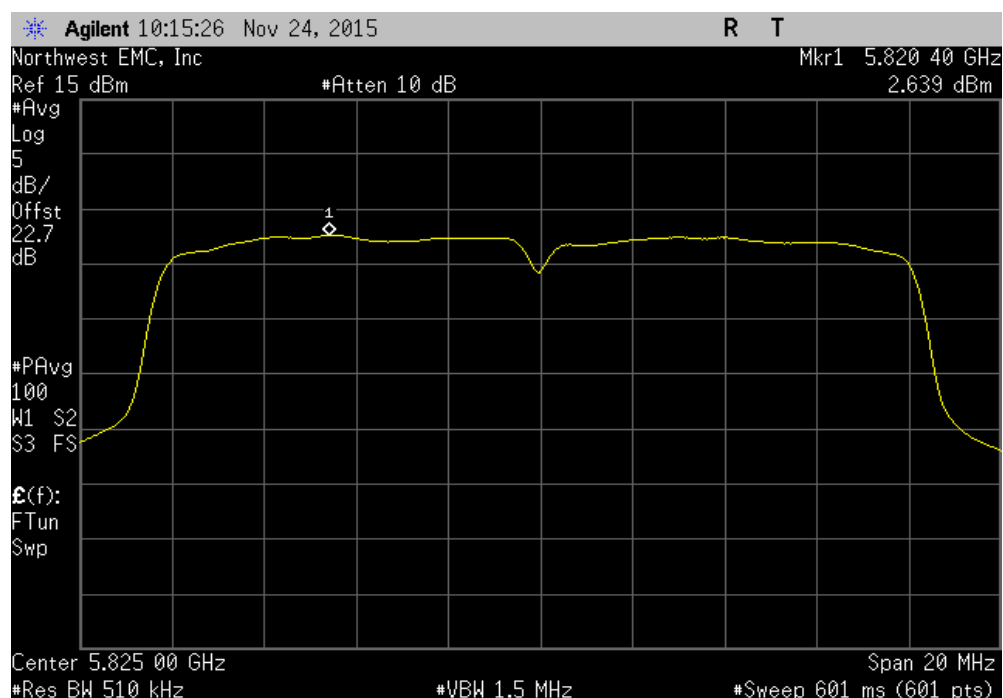


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 36 Mbps, Ch 157, Mid Channel 5785 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.576	0	2.6	30	Pass		

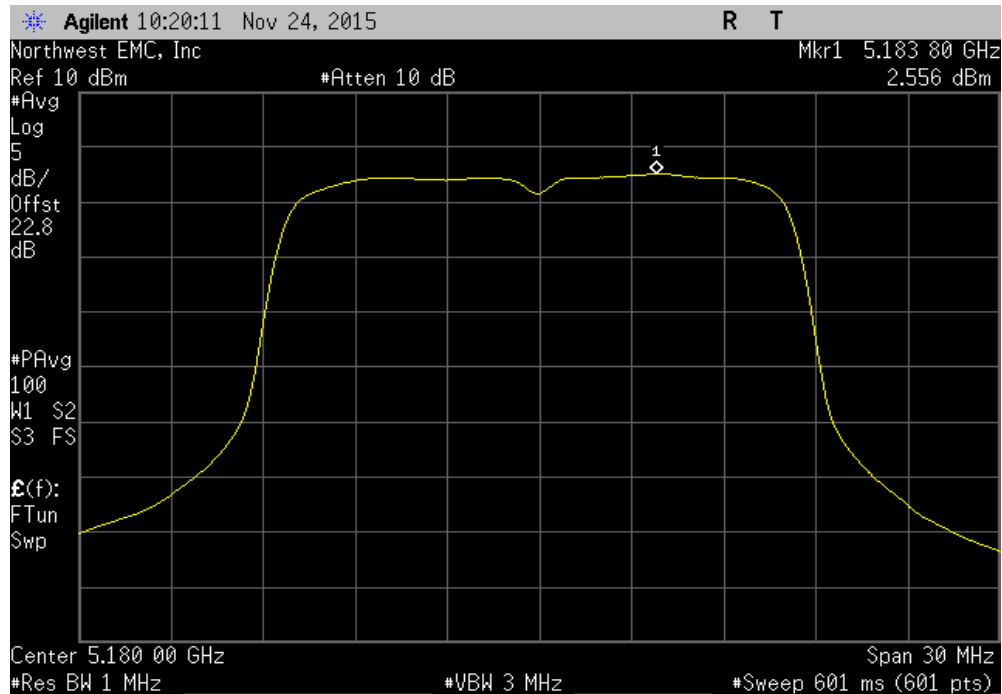


20 MHz, 802.11(a) 36 Mbps, Ch 165, High Channel 5825 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.639	0	2.6	30	Pass		

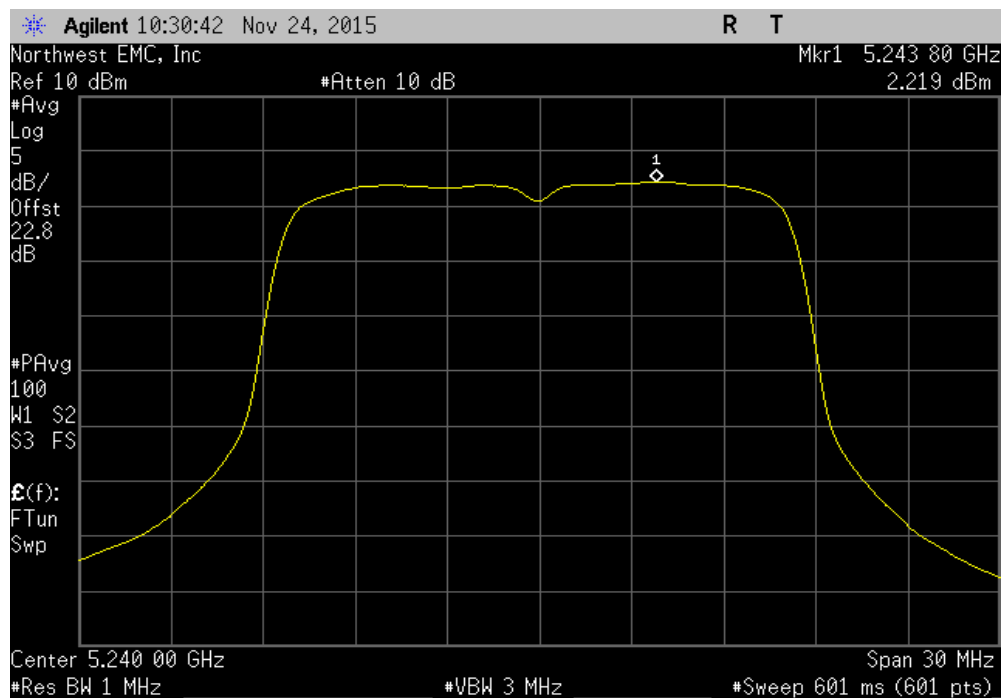


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 54 Mbps, Ch 36, Low Channel 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.556	0	2.6	11	Pass		

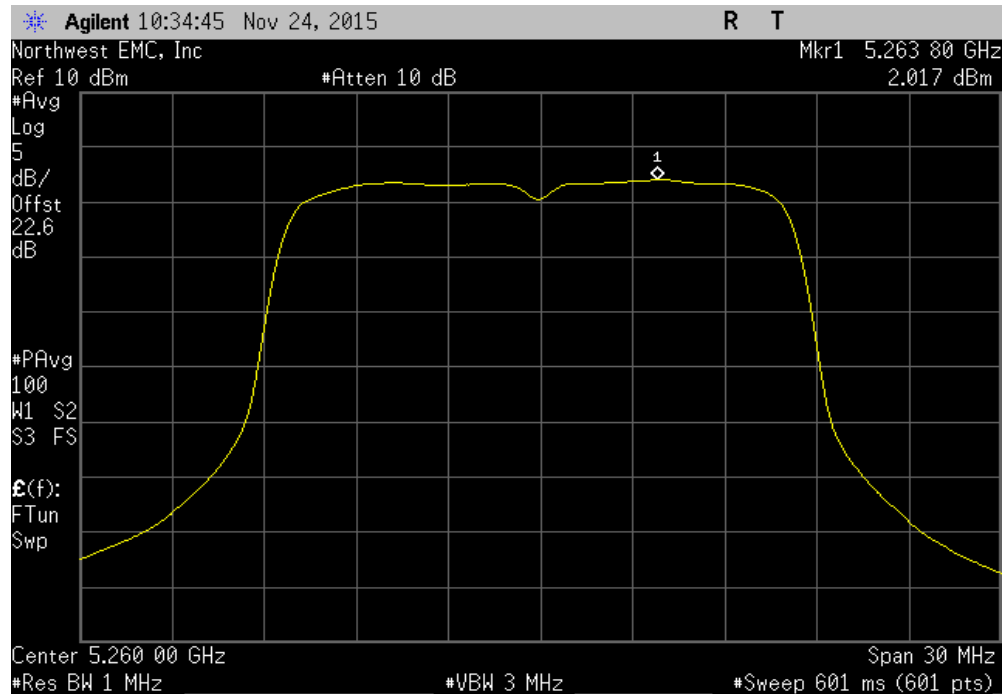


20 MHz, 802.11(a) 54 Mbps, Ch 48, High Channel 5240 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.219	0	2.2	11	Pass		

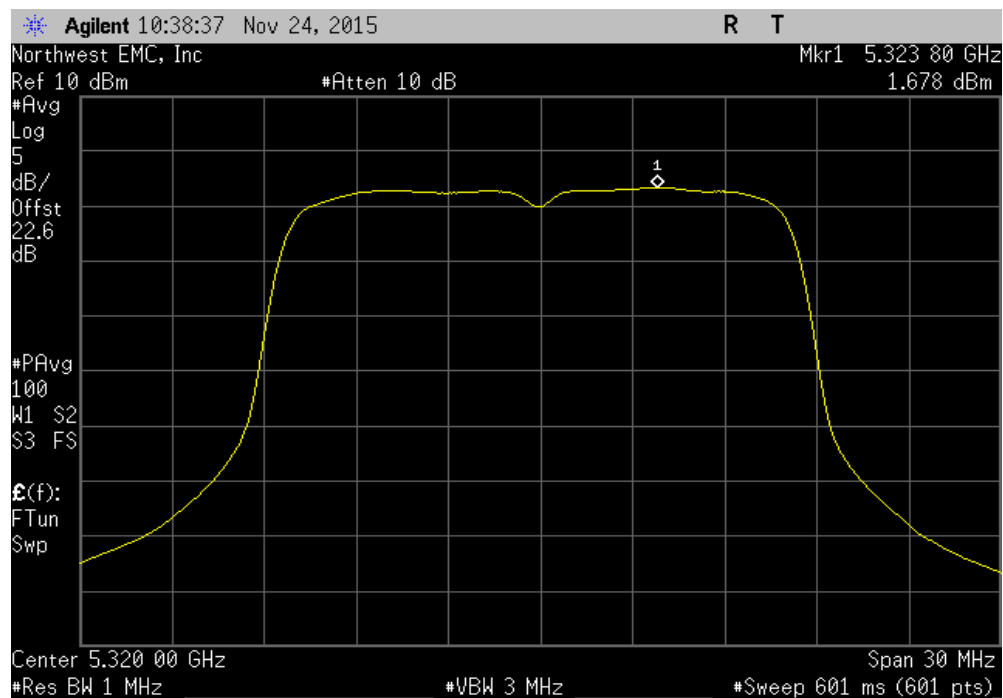


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 54 Mbps, Ch 52, Low Channel 5260 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.017	0	2	11	Pass		

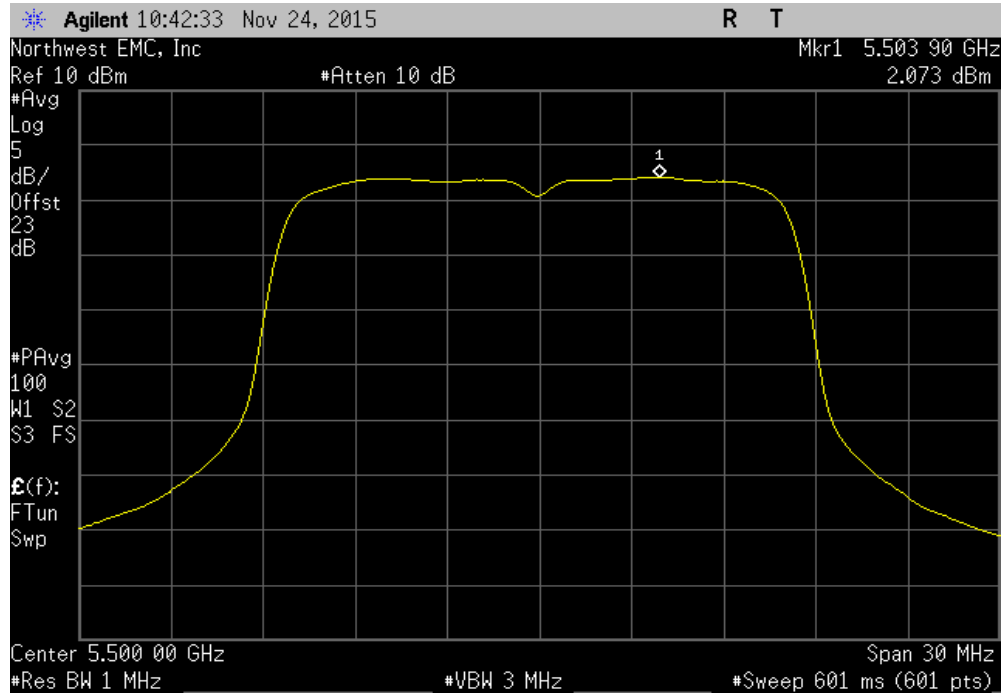


20 MHz, 802.11(a) 54 Mbps, Ch 64, High Channel 5320 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.678	0	1.7	11	Pass		

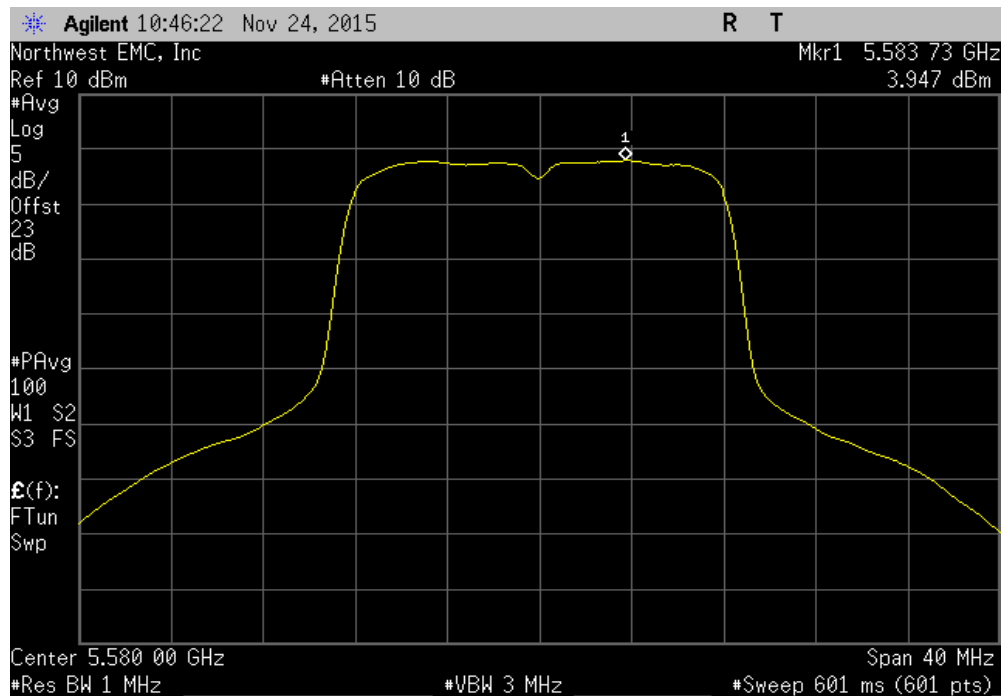


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 54 Mbps, Ch 100, Low Channel 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.073	0	2.1	11	Pass		

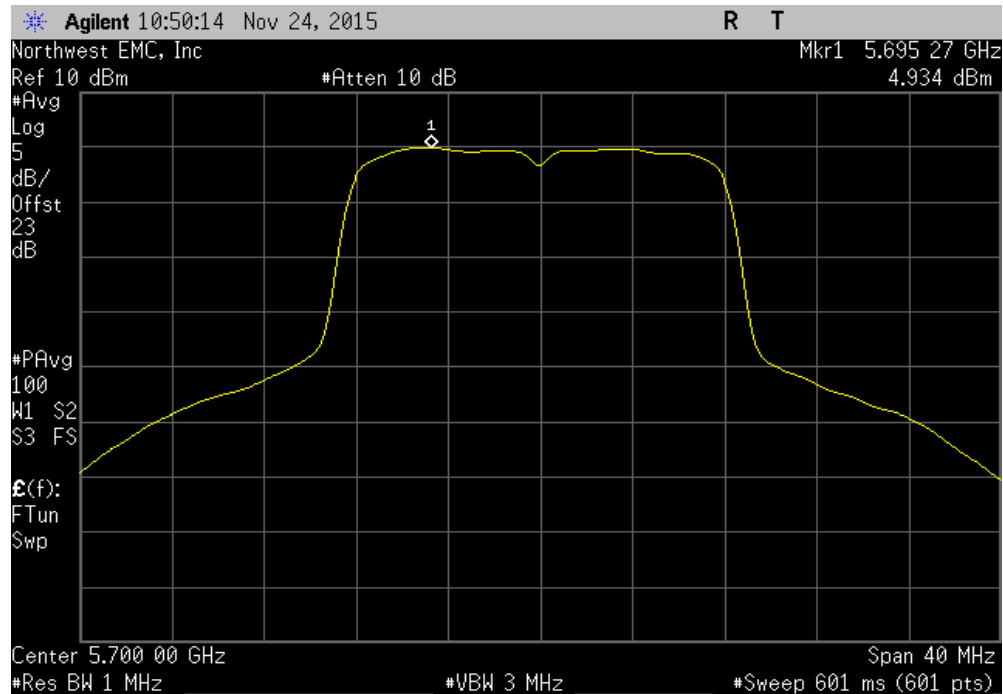


20 MHz, 802.11(a) 54 Mbps, Ch 116, Mid Channel 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
3.947	0	3.9	11	Pass		

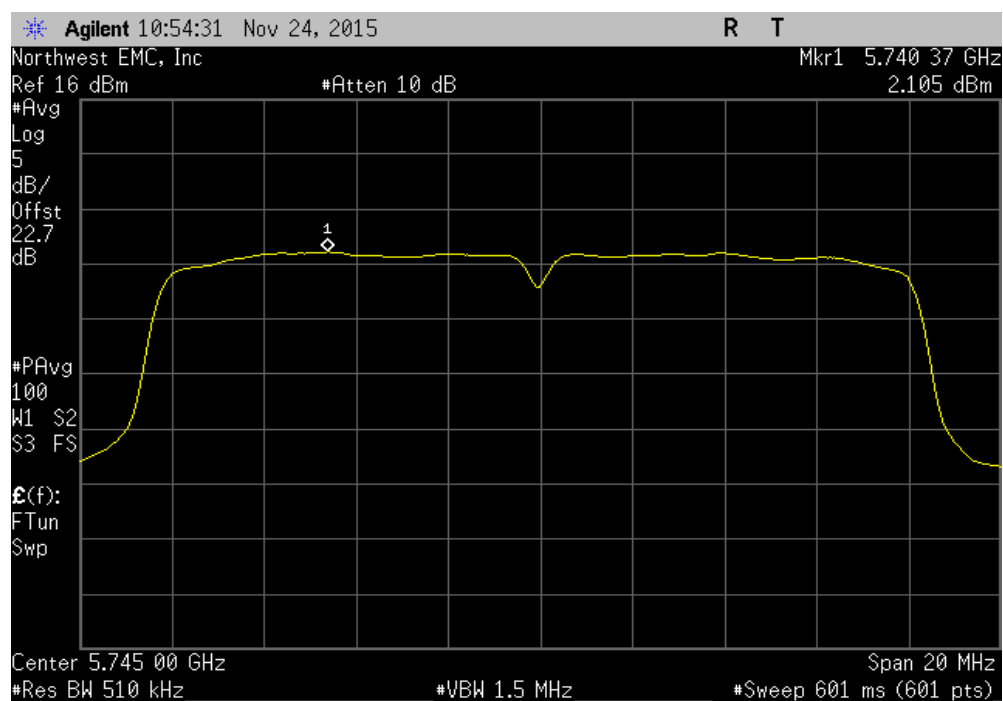


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 54 Mbps, Ch 140, High Channel 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
4.934	0	4.9	11	Pass		

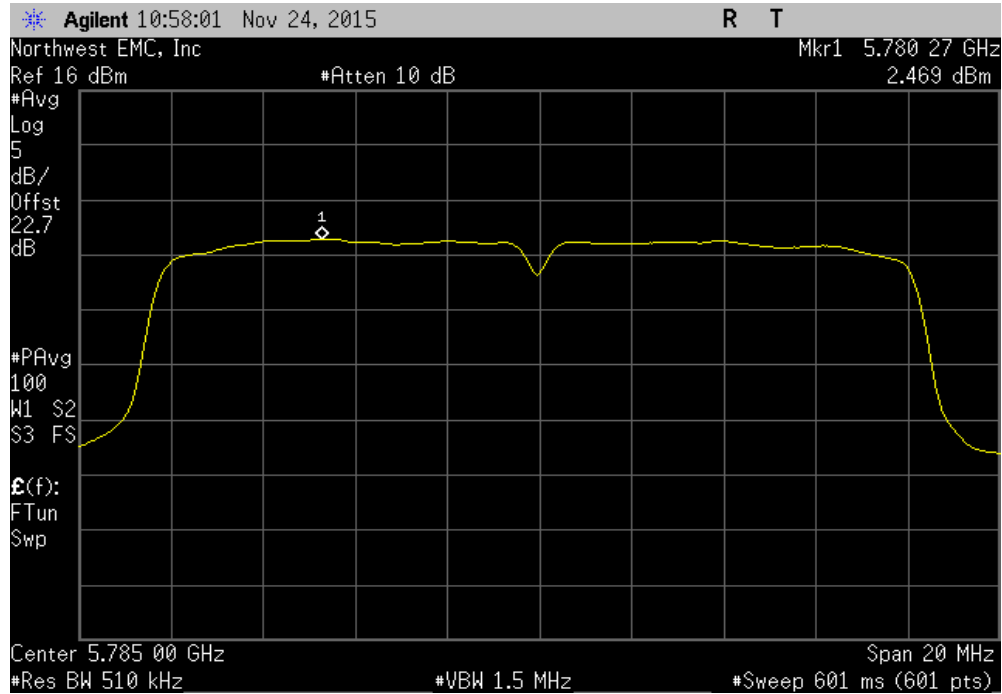


20 MHz, 802.11(a) 54 Mbps, Ch 149, Low Channel 5745 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.105	0	2.1	30	Pass		

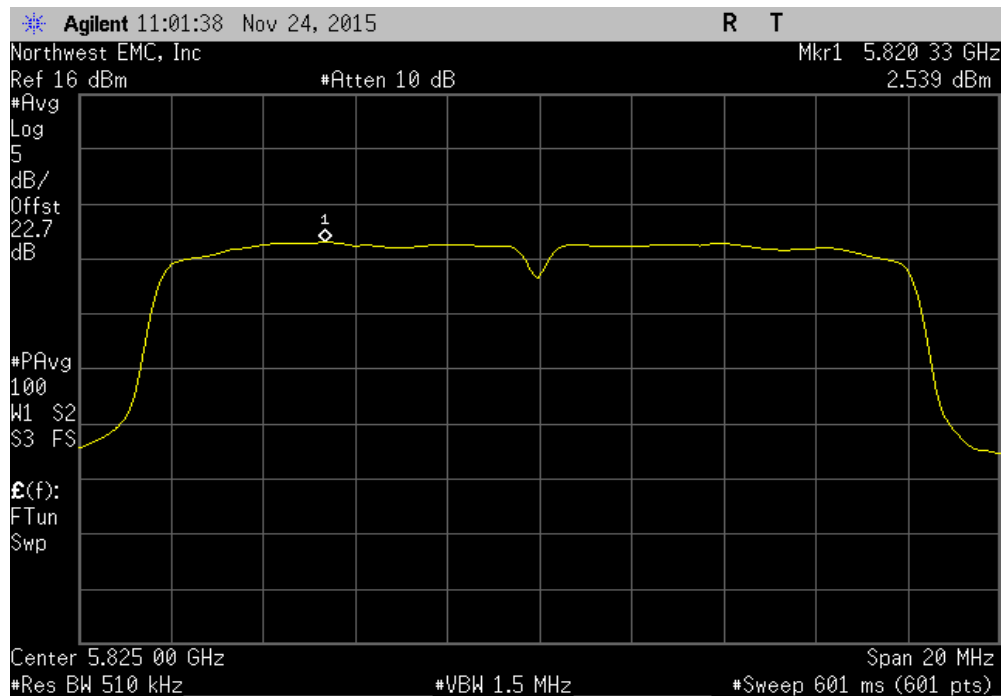


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(a) 54 Mbps, Ch 157, Mid Channel 5785 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ± (dBm / Ref BW)	Results		
2.469	0	2.5	30	Pass		

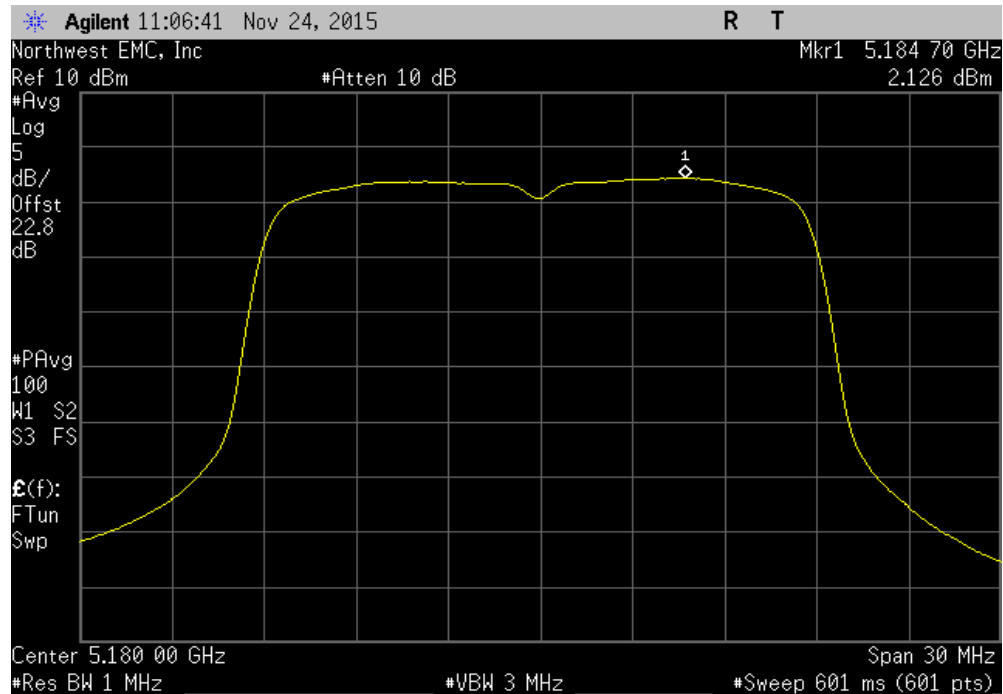


20 MHz, 802.11(a) 54 Mbps, Ch 165, High Channel 5825 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ± (dBm / Ref BW)	Results		
2.539	0	2.5	30	Pass		

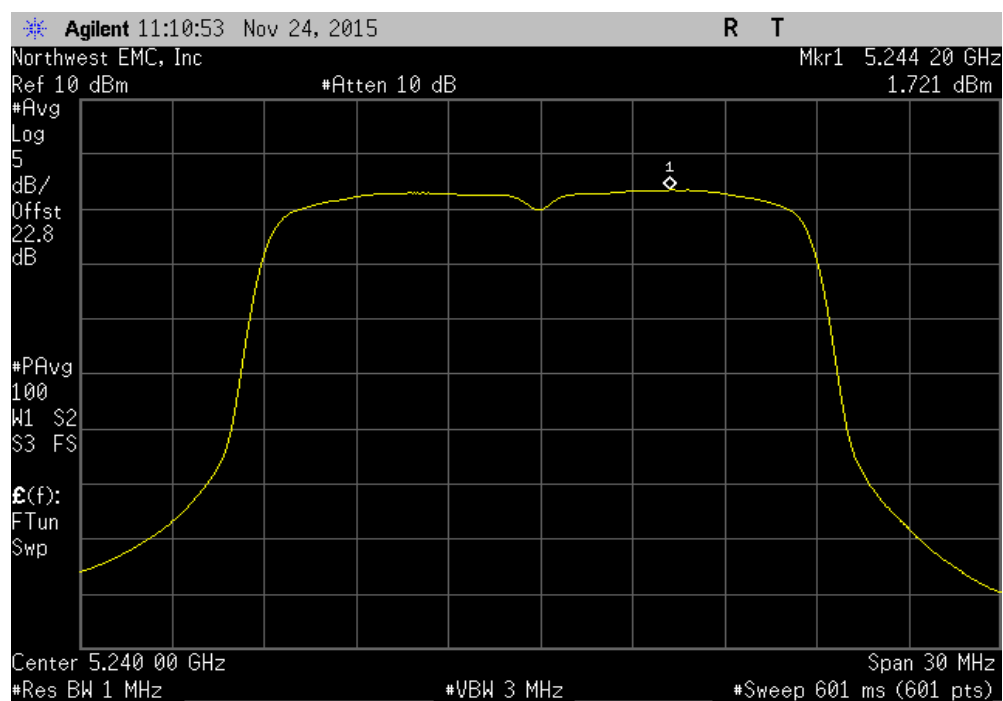


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS0, Ch 36, Low Channel 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.126	0	2.1	17	Pass		

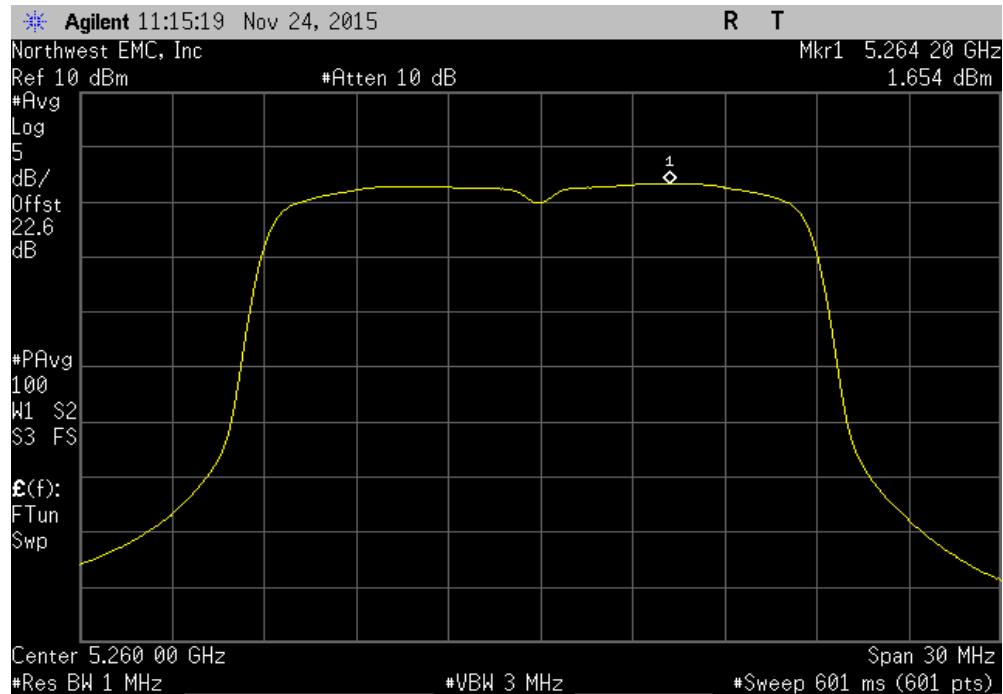


20 MHz, 802.11(n) MCS0, Ch 48, High Channel 5240 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.721	0	1.7	17	Pass		

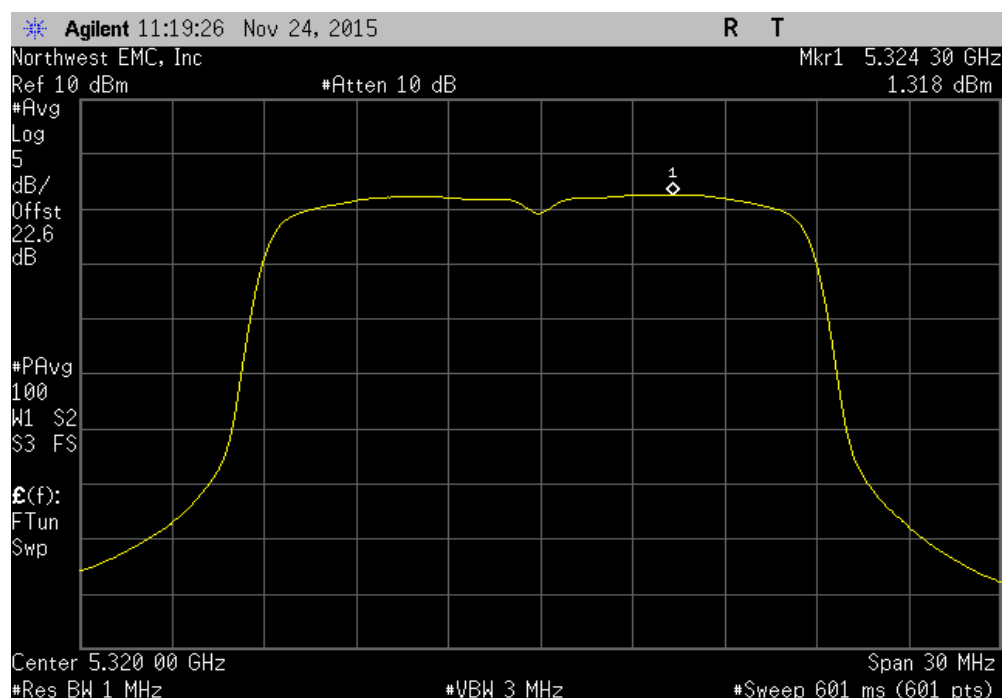


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS0, Ch 52, Low Channel 5260 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.654	0	1.7	11	Pass		

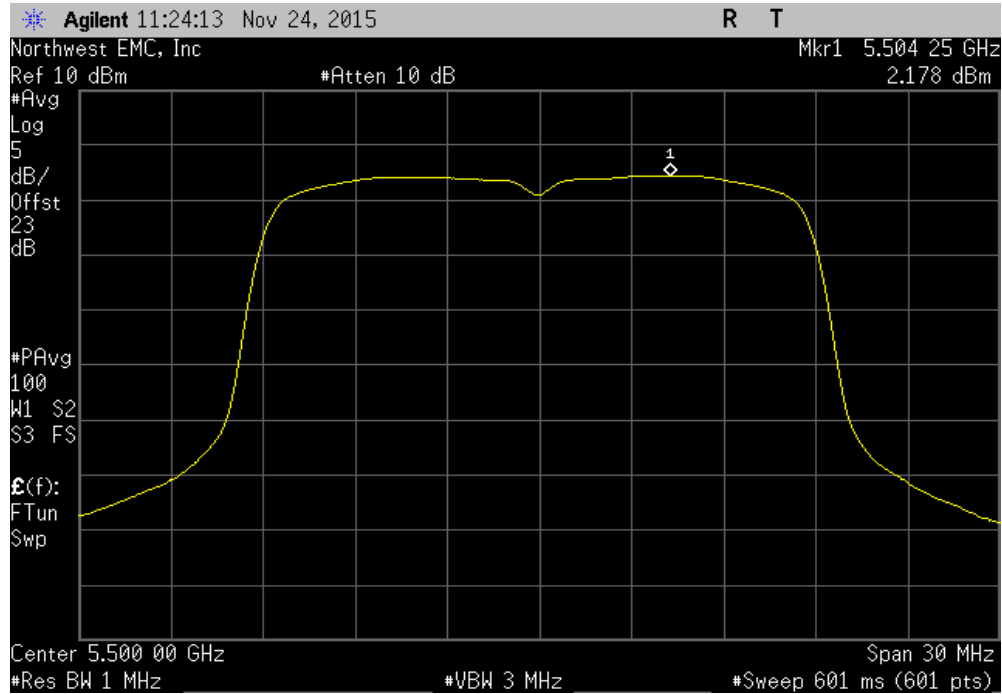


20 MHz, 802.11(n) MCS0, Ch 64, High Channel 5320 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.318	0	1.3	11	Pass		

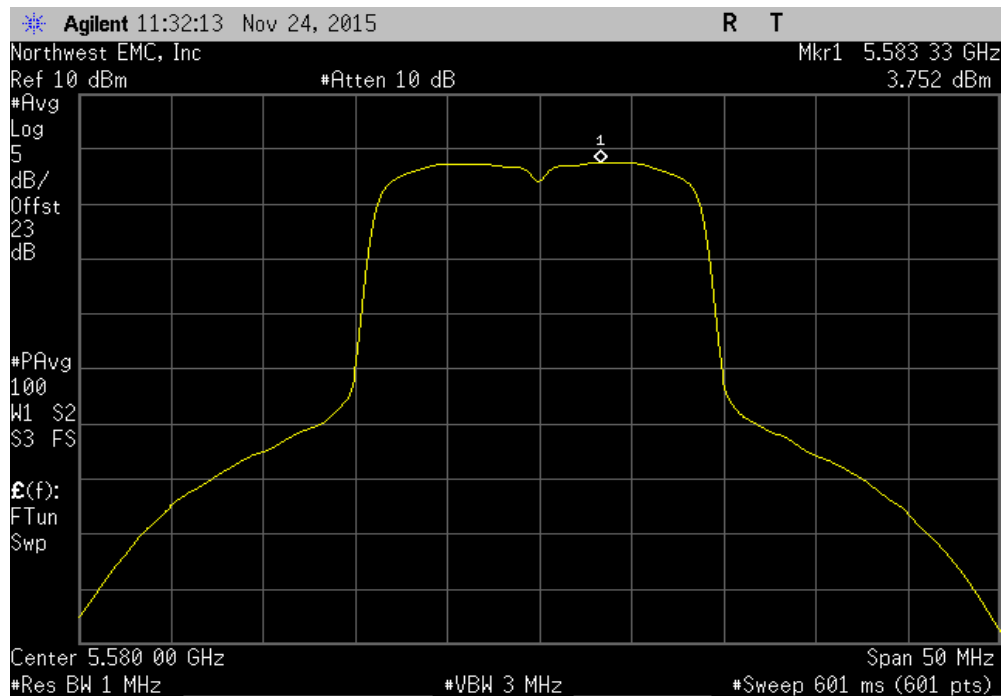


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS0, Ch 100, Low Channel 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.178	0	2.2	11	Pass		

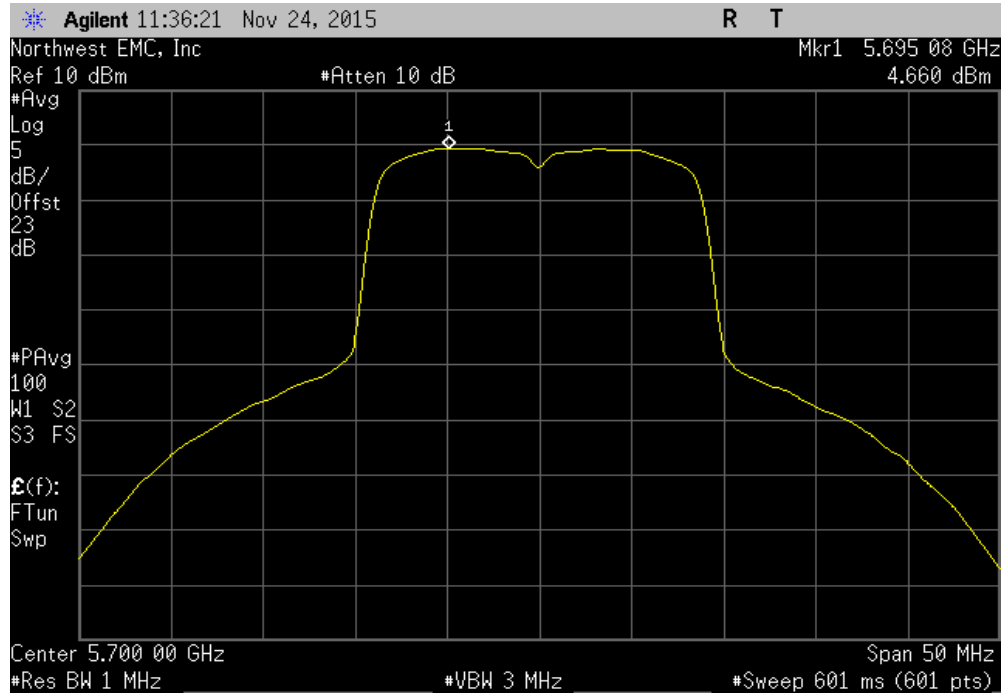


20 MHz, 802.11(n) MCS0, Ch 116, Mid Channel 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
3.752	0	3.8	11	Pass		

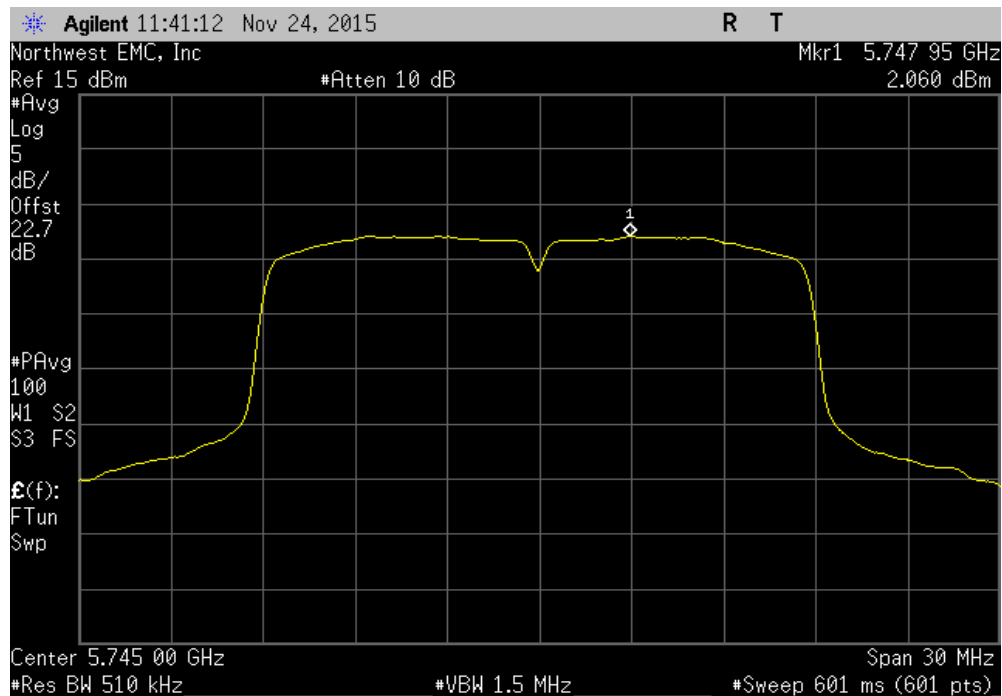


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS0, Ch 140, High Channel 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
4.66	0	4.7	11	Pass		

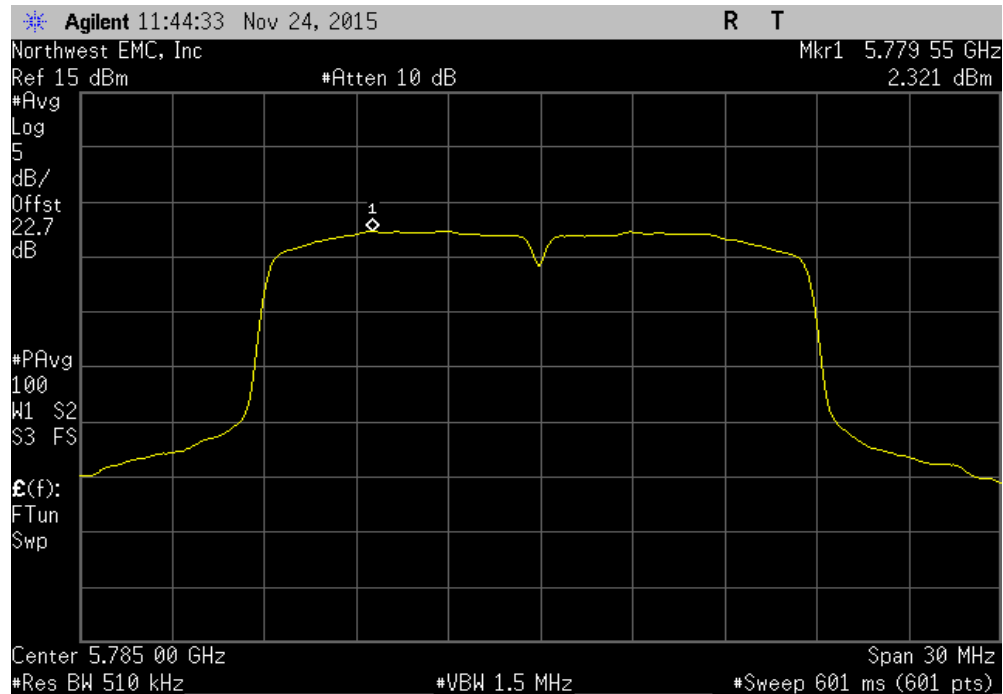


20 MHz, 802.11(n) MCS0, Ch 149, Low Channel 5745 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.06	0	2.1	30	Pass		

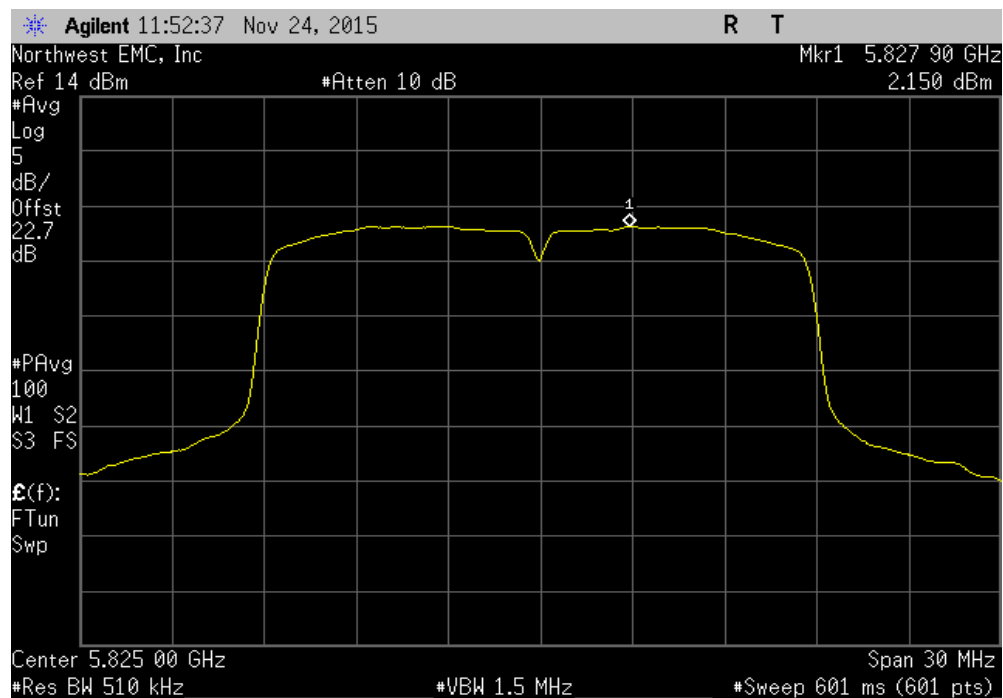


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS0, Ch 157, Mid Channel 5785 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.321	0	2.3	30	Pass		

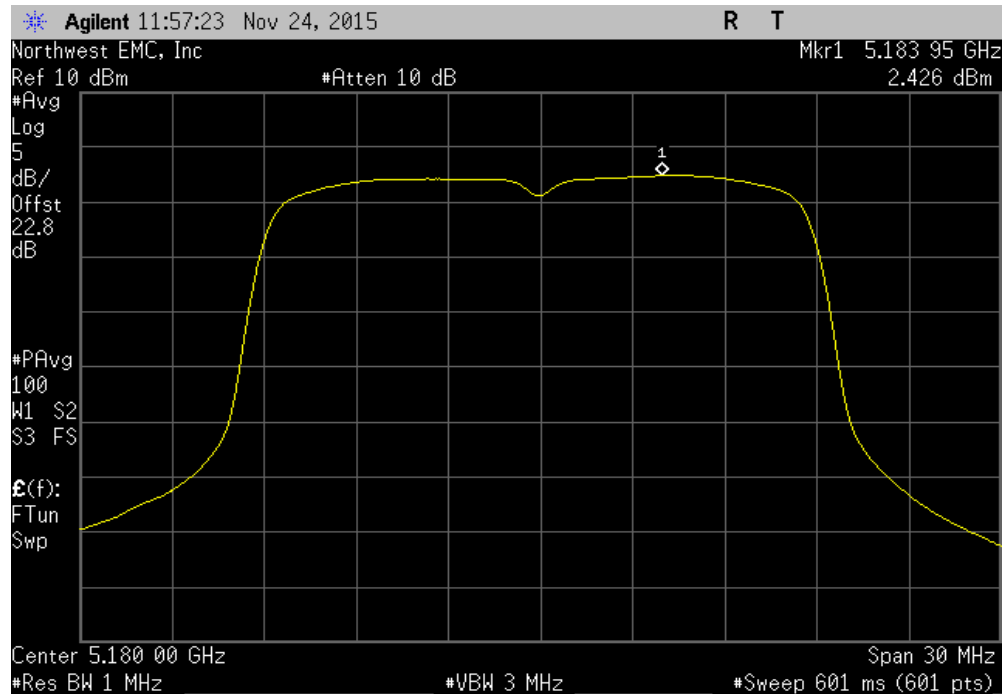


20 MHz, 802.11(n) MCS0, Ch 165, High Channel 5825 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.15	0	2.2	30	Pass		

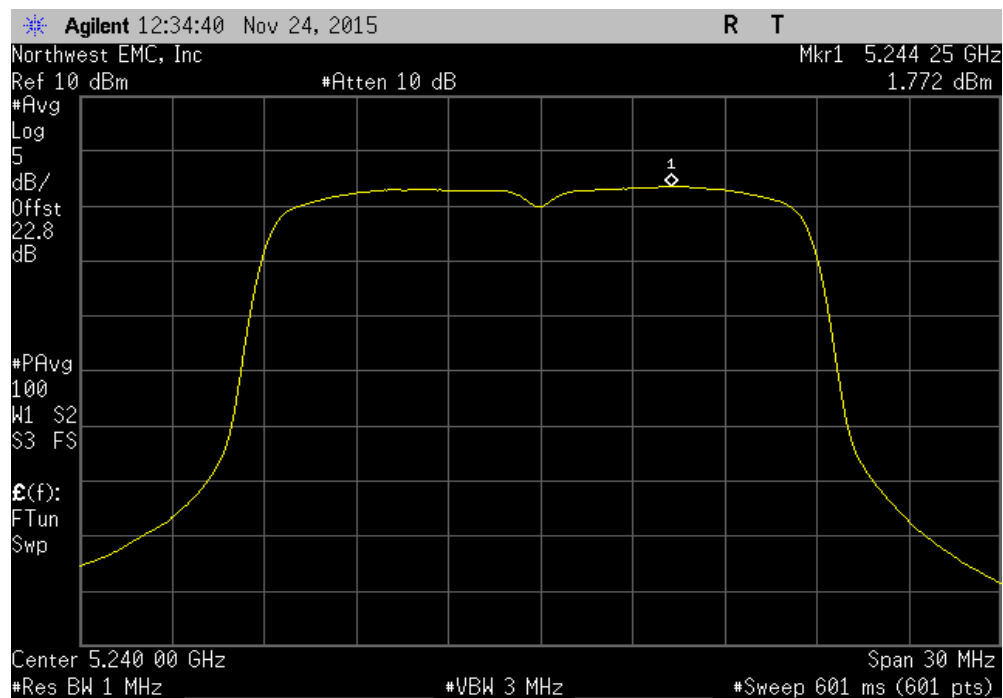


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS7, Ch 36, Low Channel 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
2.426	0	2.4	11	Pass		

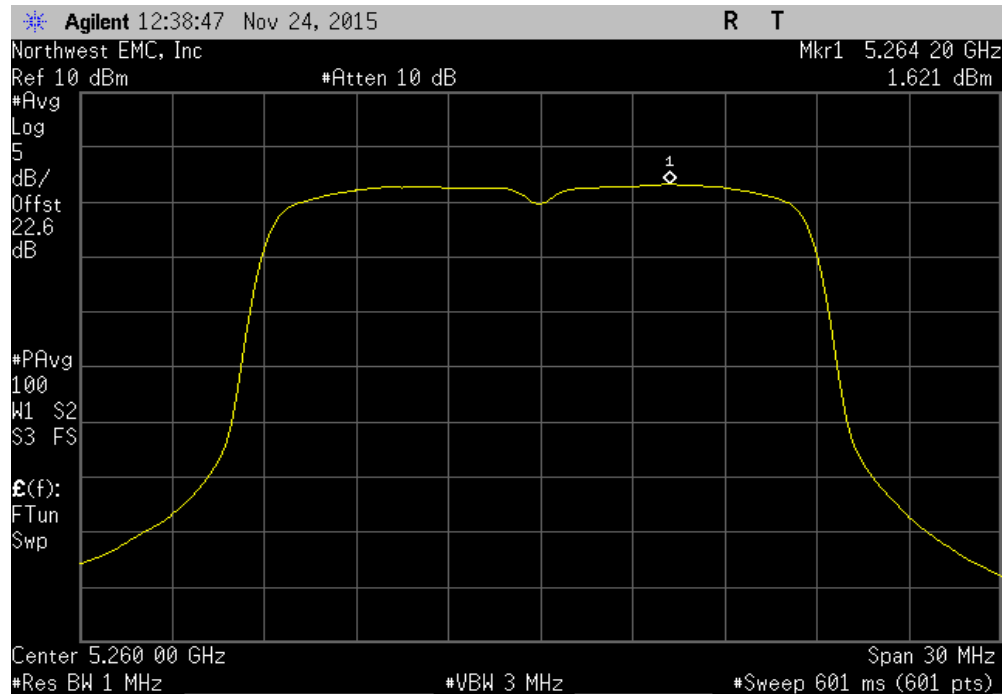


20 MHz, 802.11(n) MCS7, Ch 48, High Channel 5240 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.772	0	1.8	11	Pass		

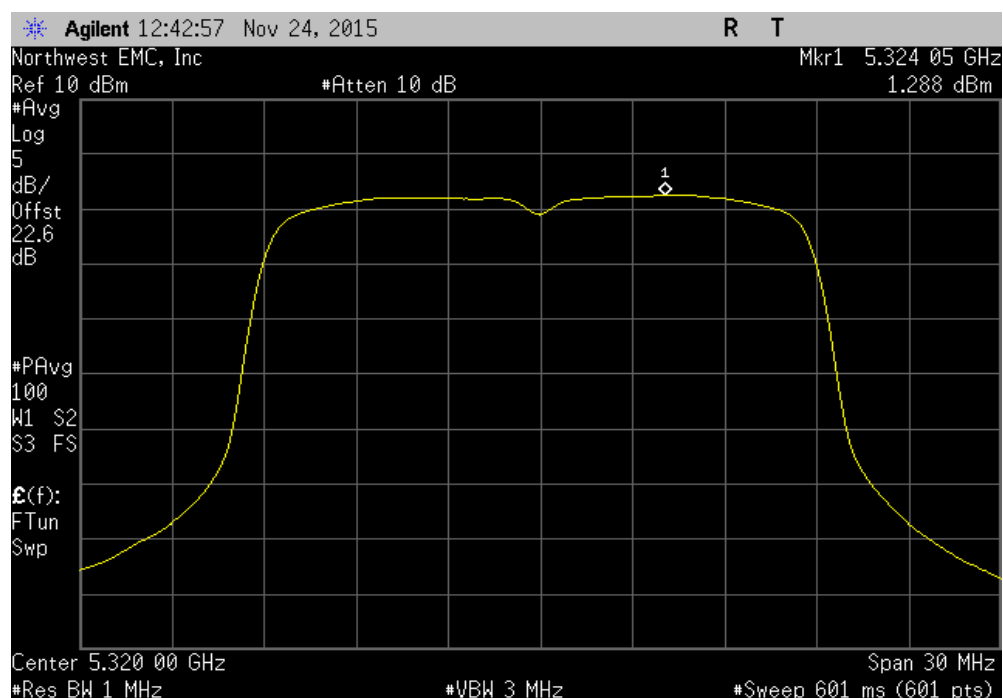


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS7, Ch 52, Low Channel 5260 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.621	0	1.6	11	Pass		

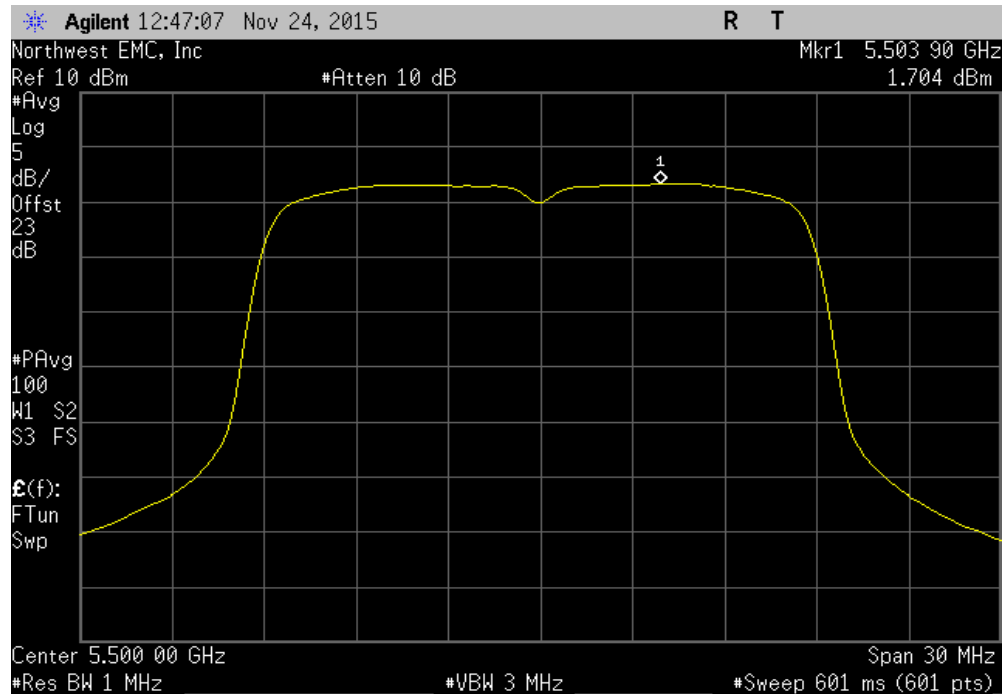


20 MHz, 802.11(n) MCS7, Ch 64, High Channel 5320 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.288	0	1.3	11	Pass		

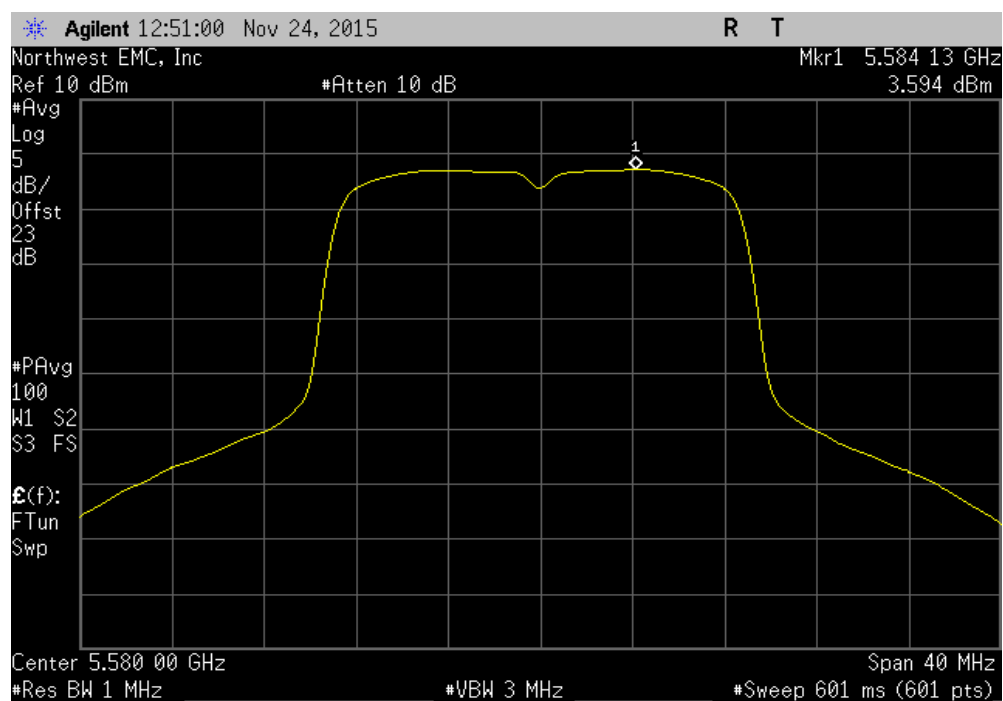


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS7, Ch 100, Low Channel 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
1.704	0	1.7	11	Pass		

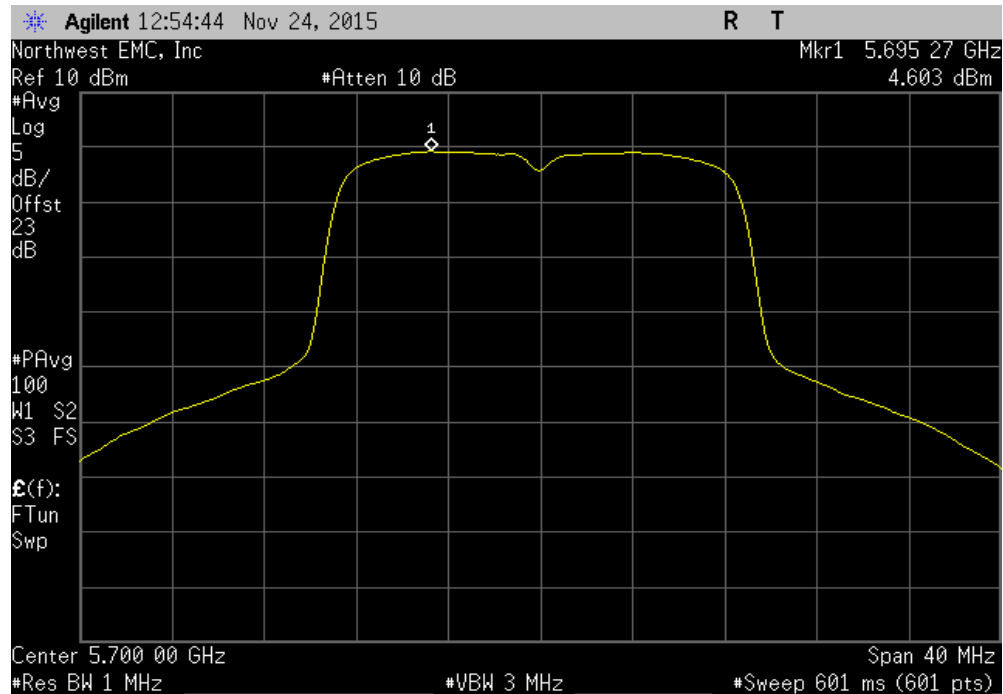


20 MHz, 802.11(n) MCS7, Ch 116, Mid Channel 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
3.594	0	3.6	11	Pass		

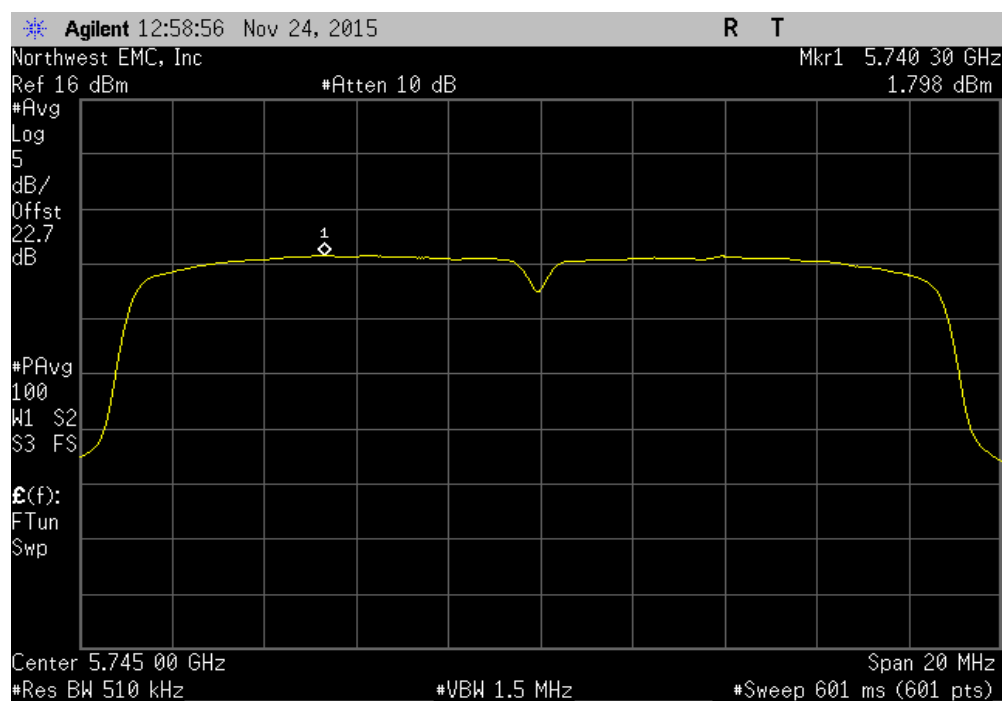


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS7, Ch 140, High Channel 5700 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results	
	4.603	0	4.6	11	Pass	

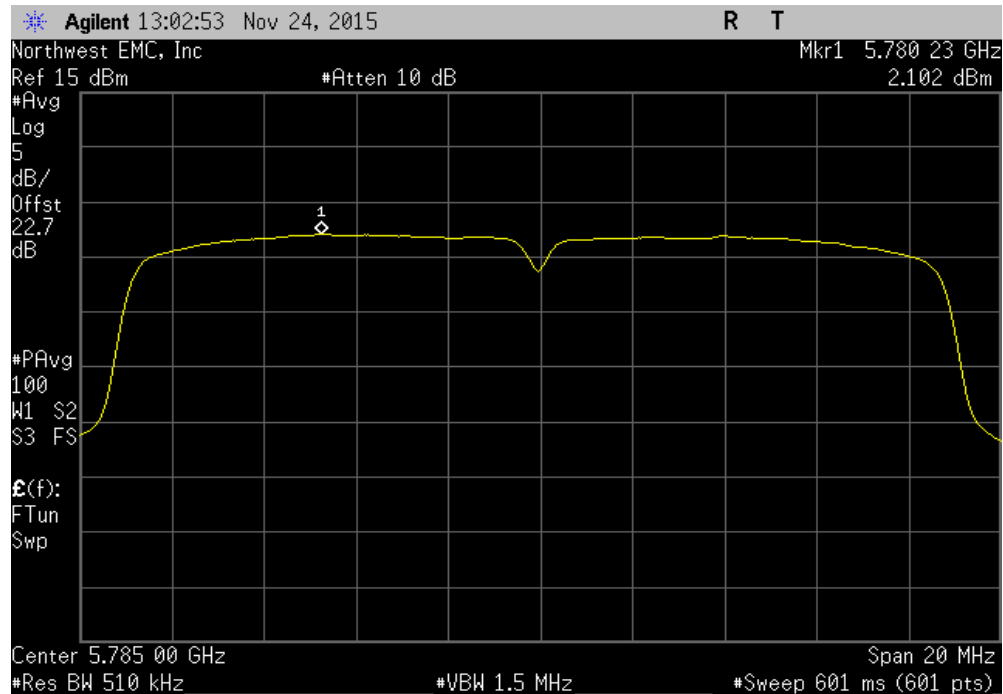


20 MHz, 802.11(n) MCS7, Ch 149, Low Channel 5745 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results	
	1.798	0	1.8	30	Pass	

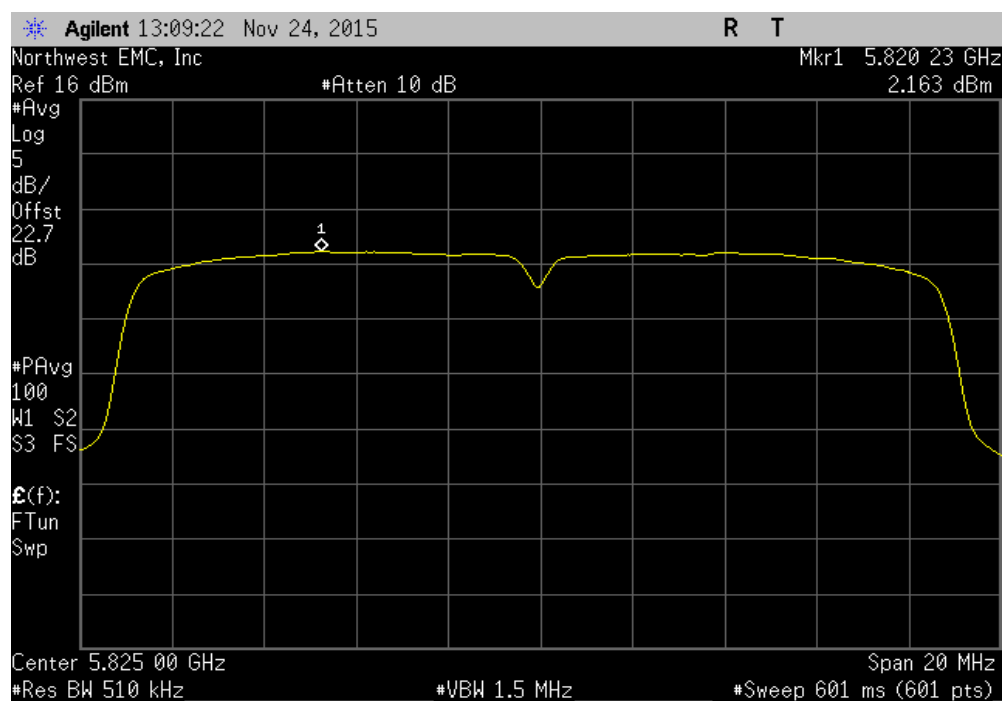


MAXIMUM POWER SPECTRAL DENSITY

20 MHz, 802.11(n) MCS7, Ch 157, Mid Channel 5785 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results	
	2.102	0	2.1	30	Pass	

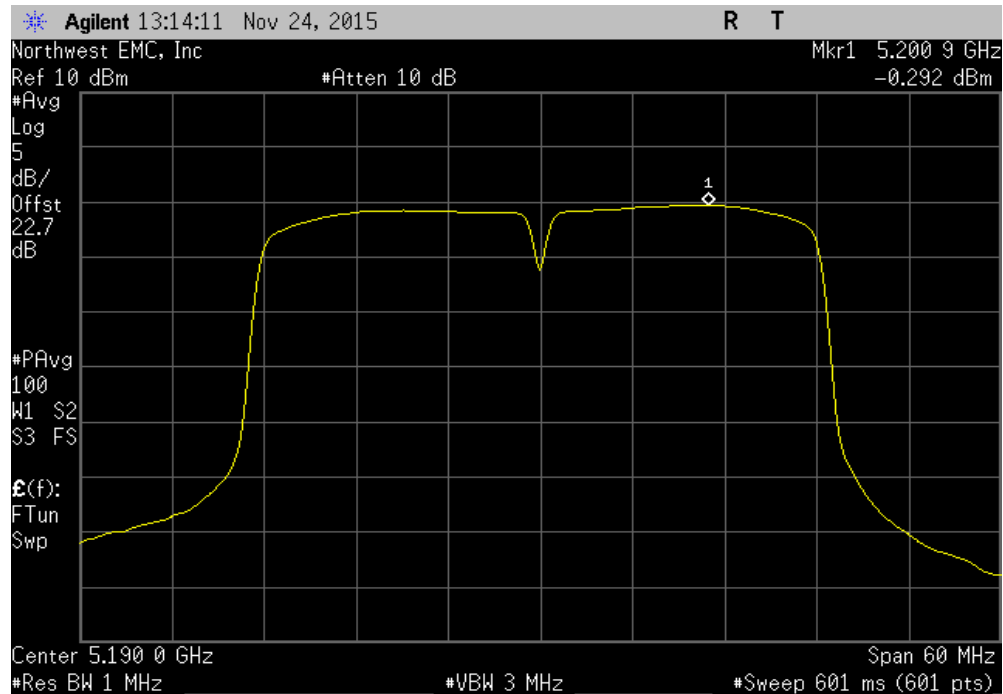


20 MHz, 802.11(n) MCS7, Ch 165, High Channel 5825 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results	
	2.163	0	2.2	30	Pass	

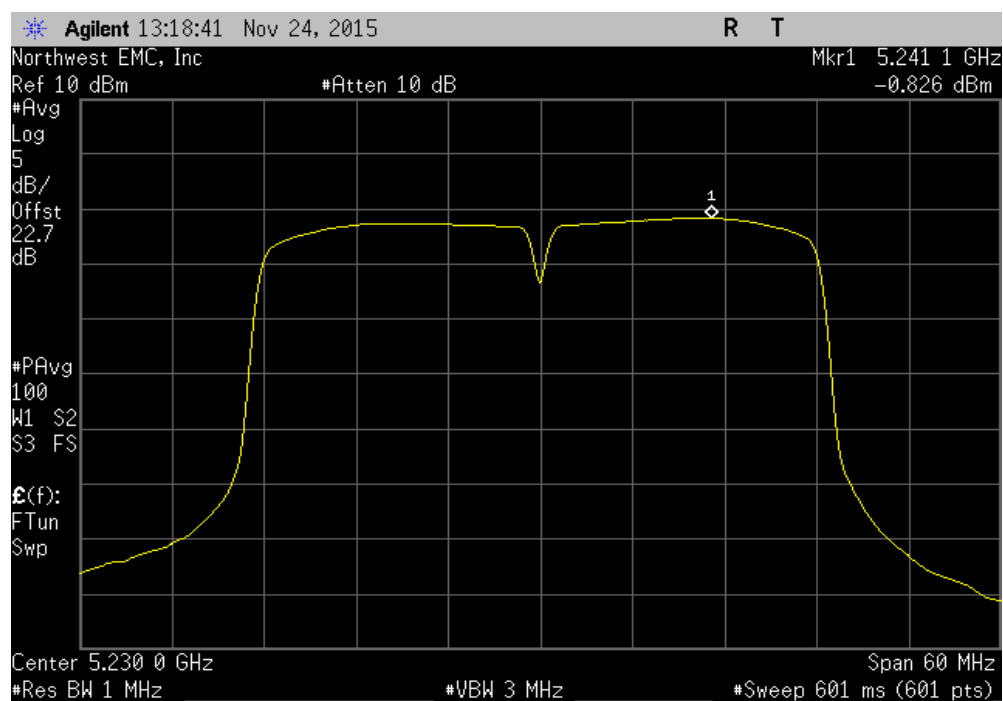


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS0, Ch 36/40, Low Channel 5190 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.292	0	-0.3	11	Pass		

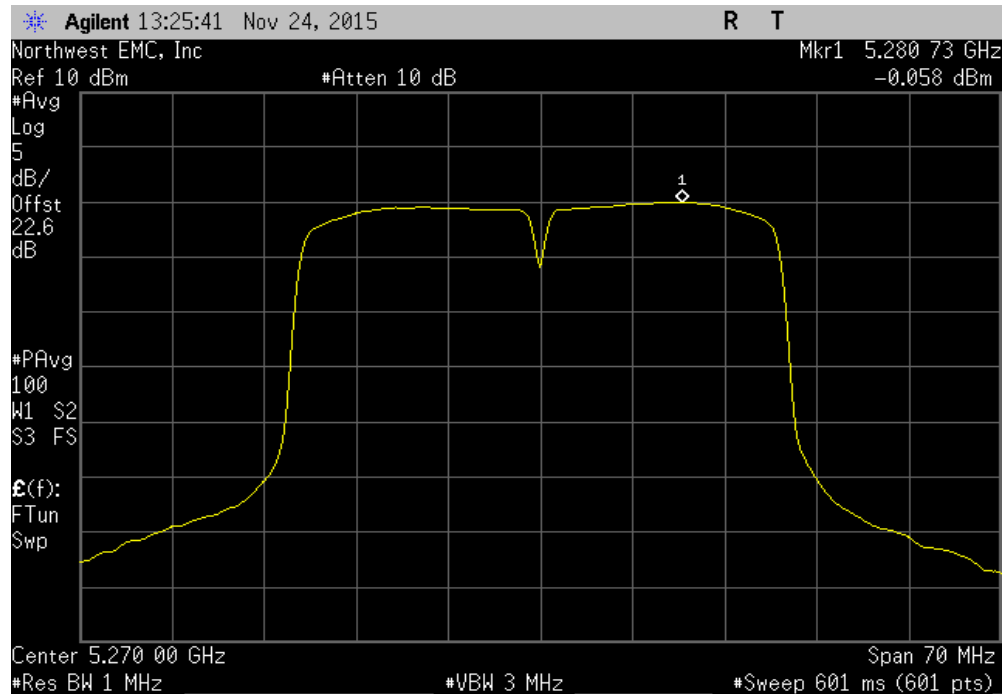


40 MHz, 802.11(n) MCS0, Ch 44/48, High Channel 5230 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.826	0	-0.8	11	Pass		

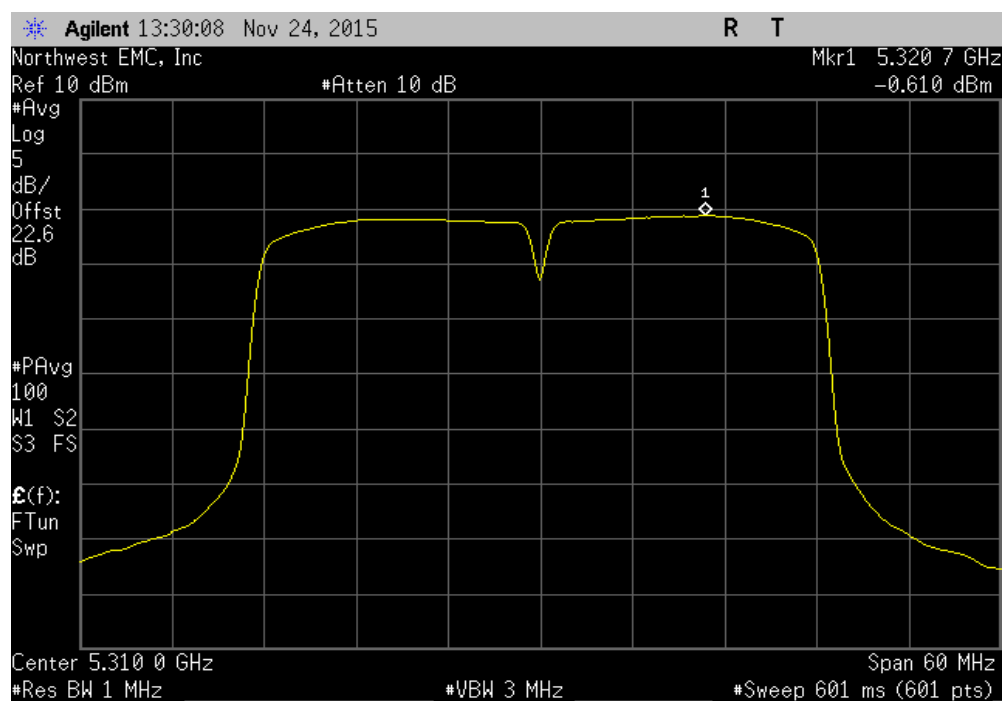


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS0, Ch 52/56, Low Channel 5270 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.058	0	-0.1	11	Pass		

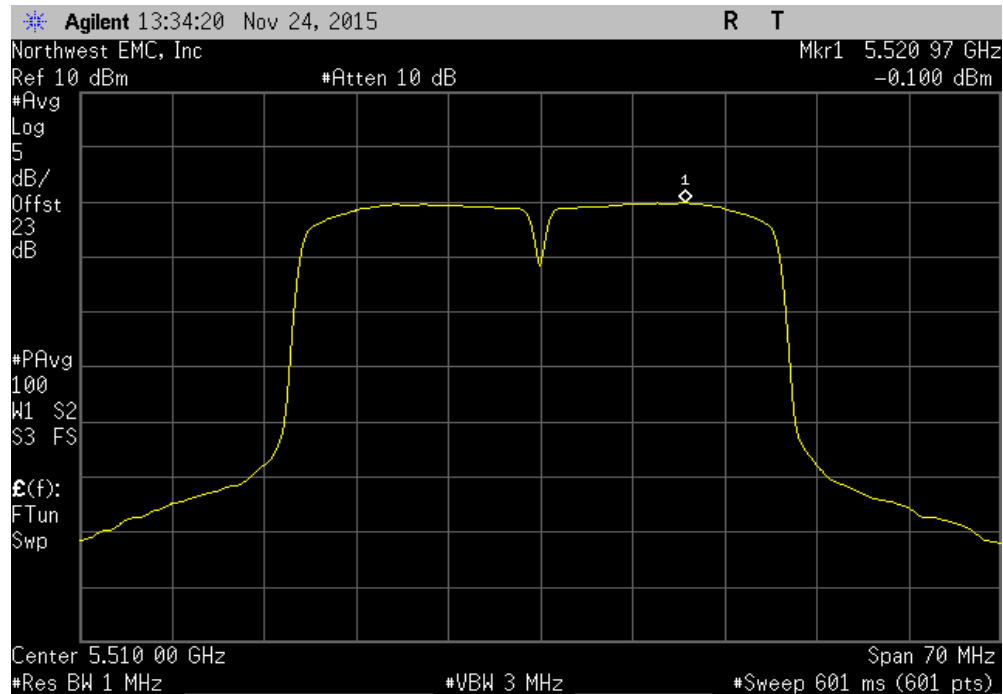


40 MHz, 802.11(n) MCS0, Ch 60/64, High Channel 5310 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.61	0	-0.6	11	Pass		

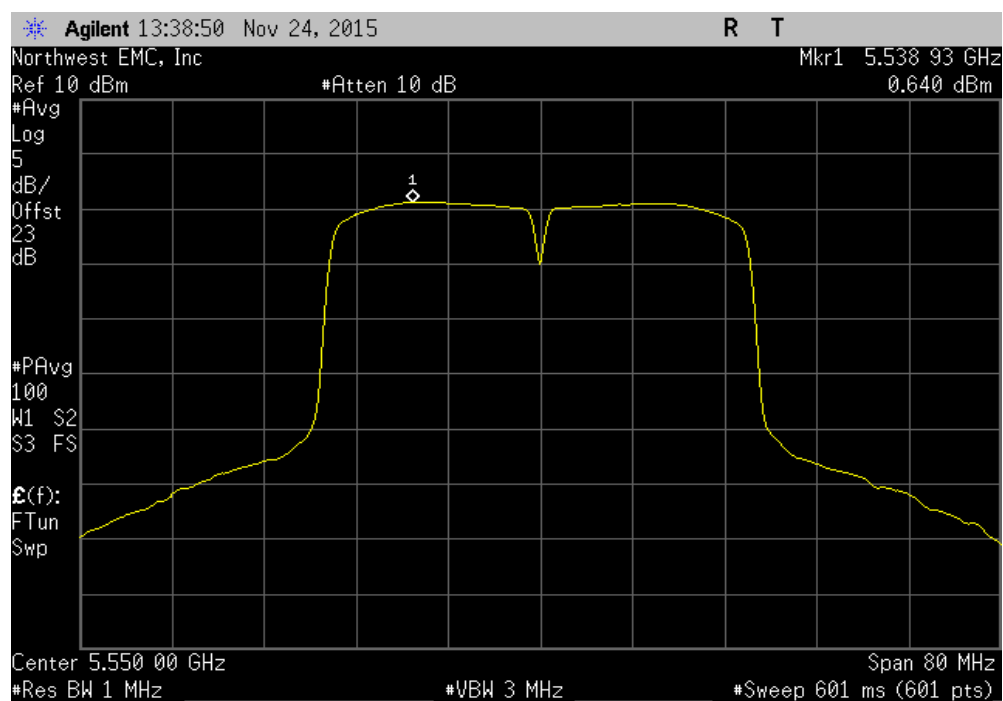


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS0, Ch 100/104, Low Channel 5510 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.1	0	-0.1	11	Pass		

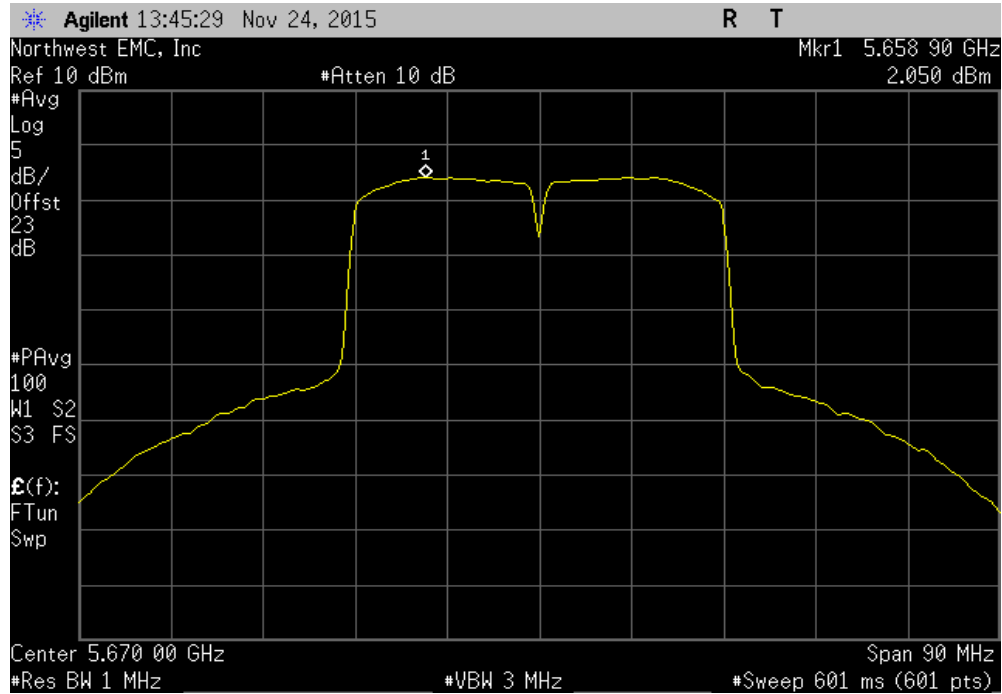


40 MHz, 802.11(n) MCS0, Ch 108/112, Mid Channel 5550 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
0.64	0	0.6	11	Pass		

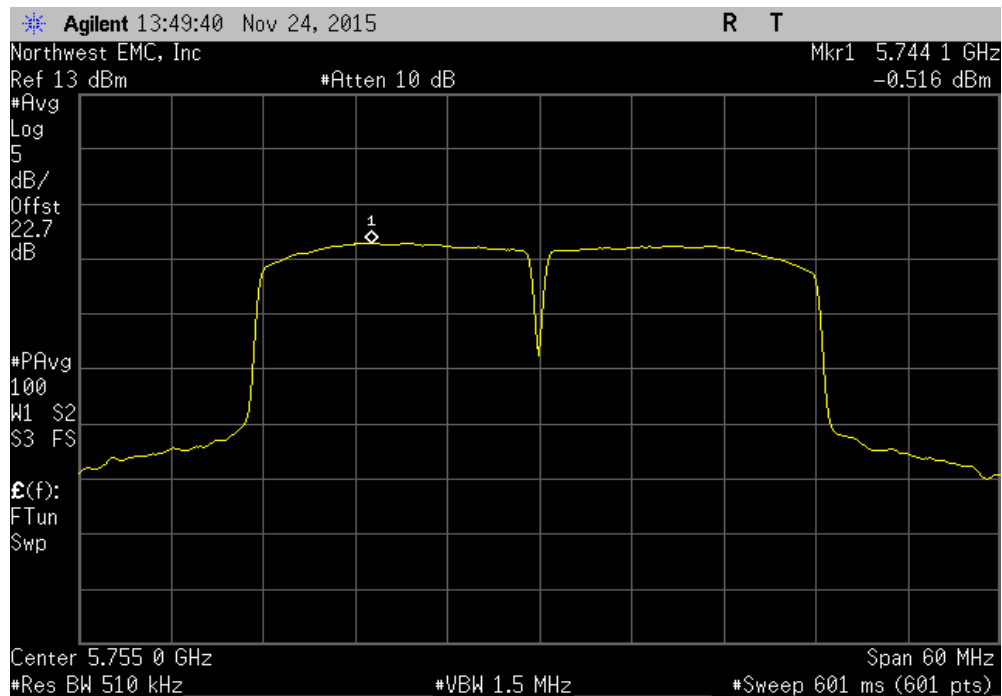


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS0, Ch 132/136, High Channel 5670 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
2.05	0	2.1	11	Pass		

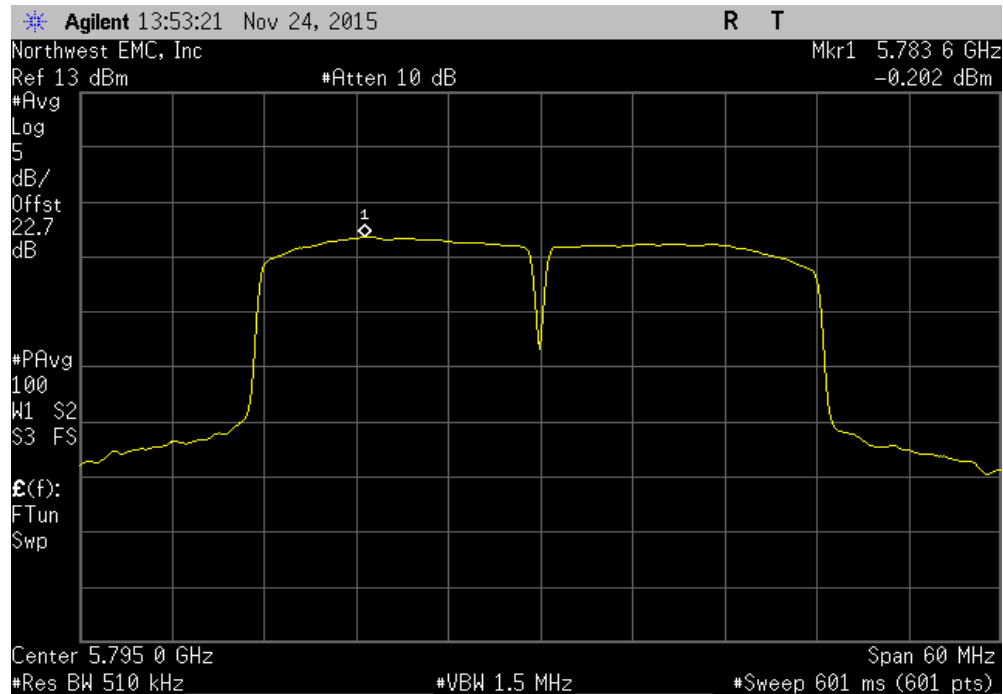


40 MHz, 802.11(n) MCS0, Ch 149/153, Low Channel 5755 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
-0.516	0	-0.5	30	Pass		

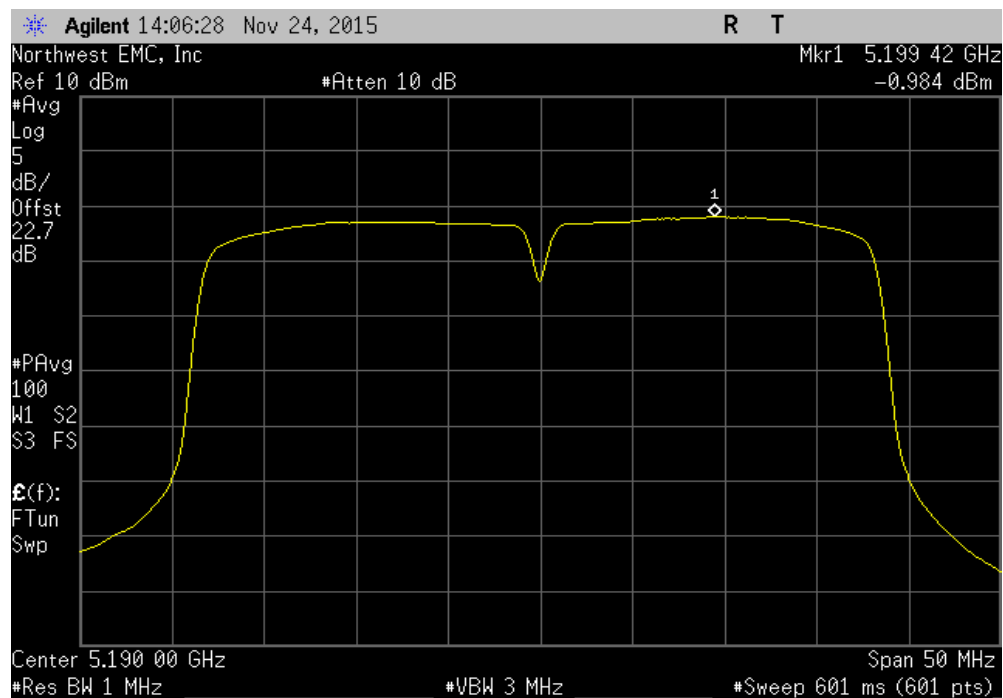


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS0, Ch 157/161, High Channel 5795 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.202	0	-0.2	30	Pass		

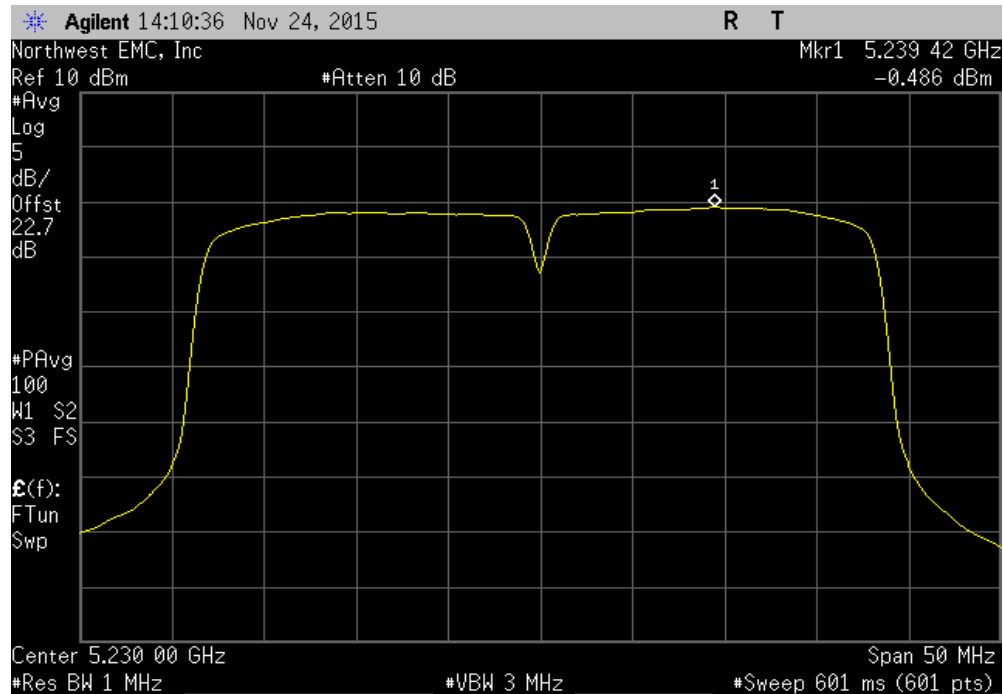


40 MHz, 802.11(n) MCS7, Ch 36/40, Low Channel 5190 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.984	0	-1	11	Pass		

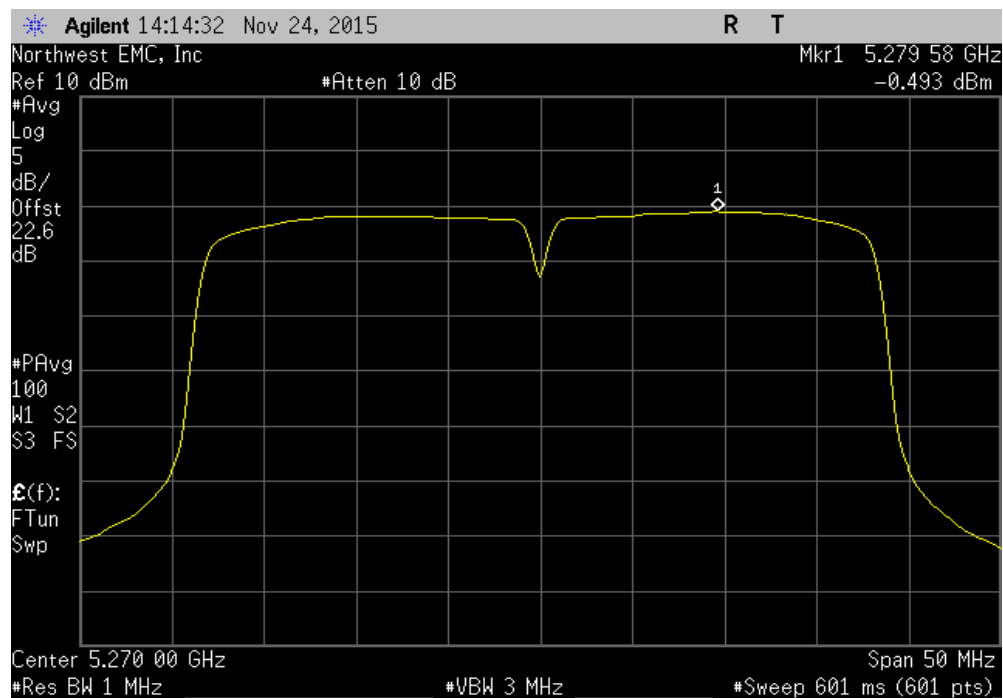


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS7, Ch 44/48, High Channel 5230 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.486	0	-0.5	11	Pass		

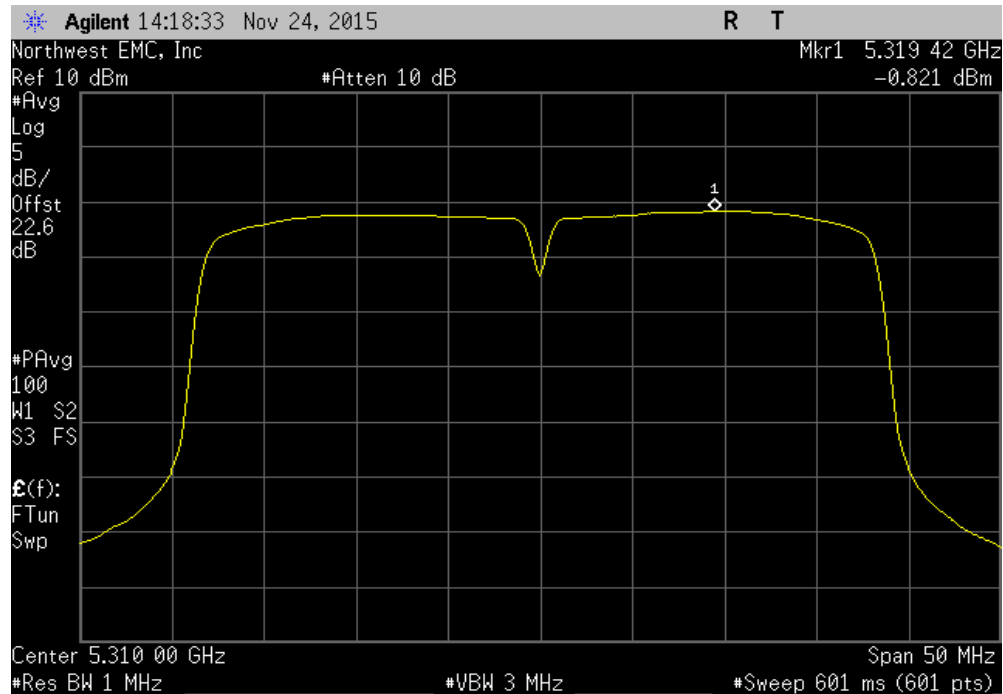


40 MHz, 802.11(n) MCS7, Ch 52/56, Low Channel 5270 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.493	0	-0.5	11	Pass		

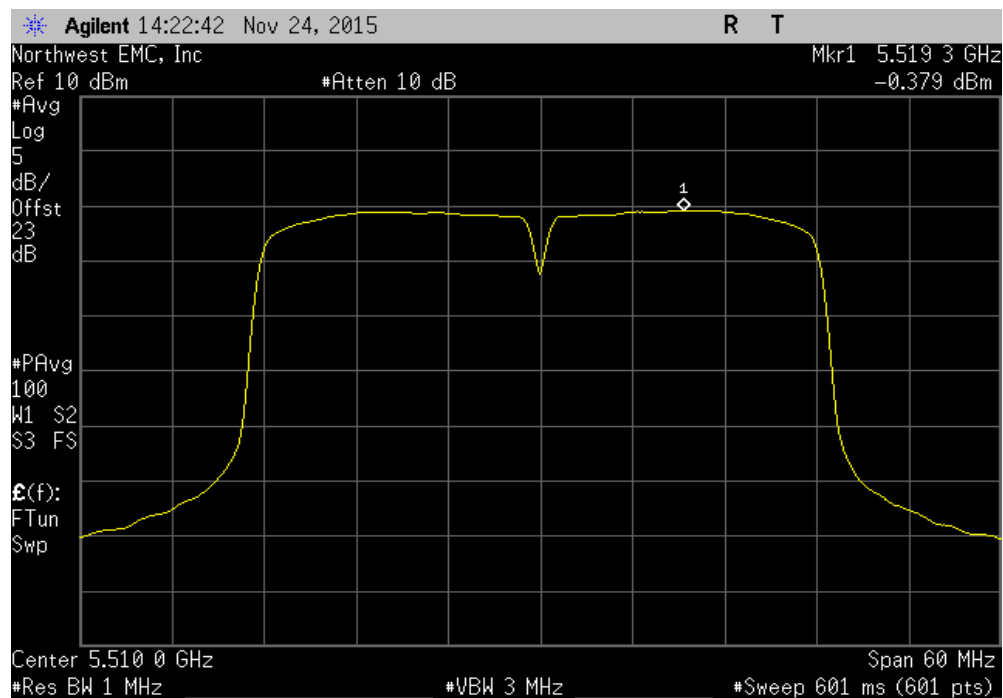


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS7, Ch 60/64, High Channel 5310 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.821	0	-0.8	11	Pass		

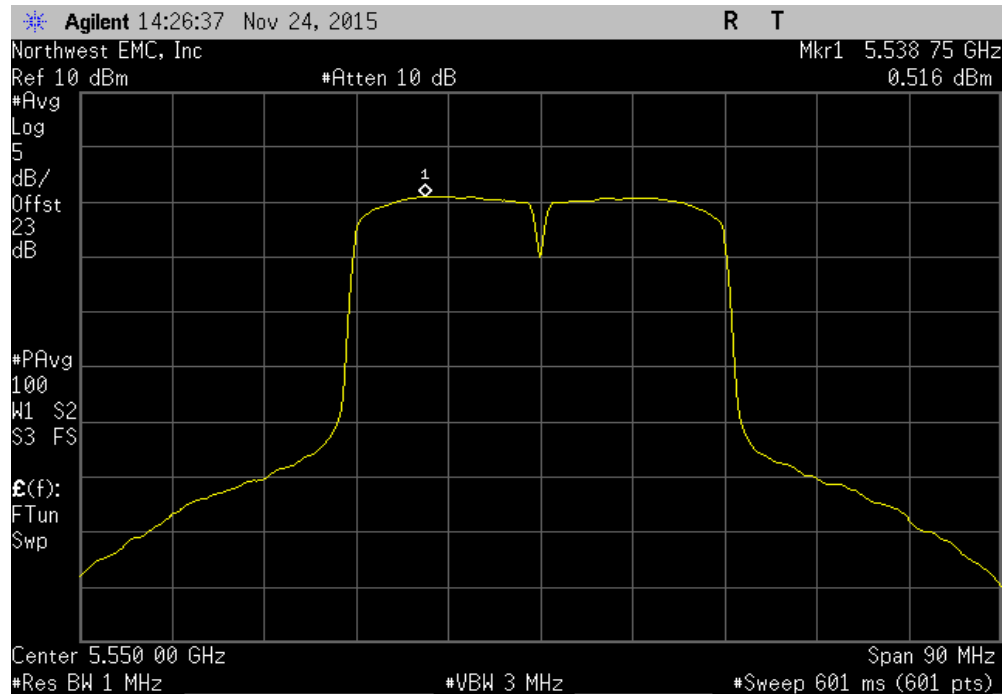


40 MHz, 802.11(n) MCS7, Ch 100/104, Low Channel 5510 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.379	0	-0.4	11	Pass		

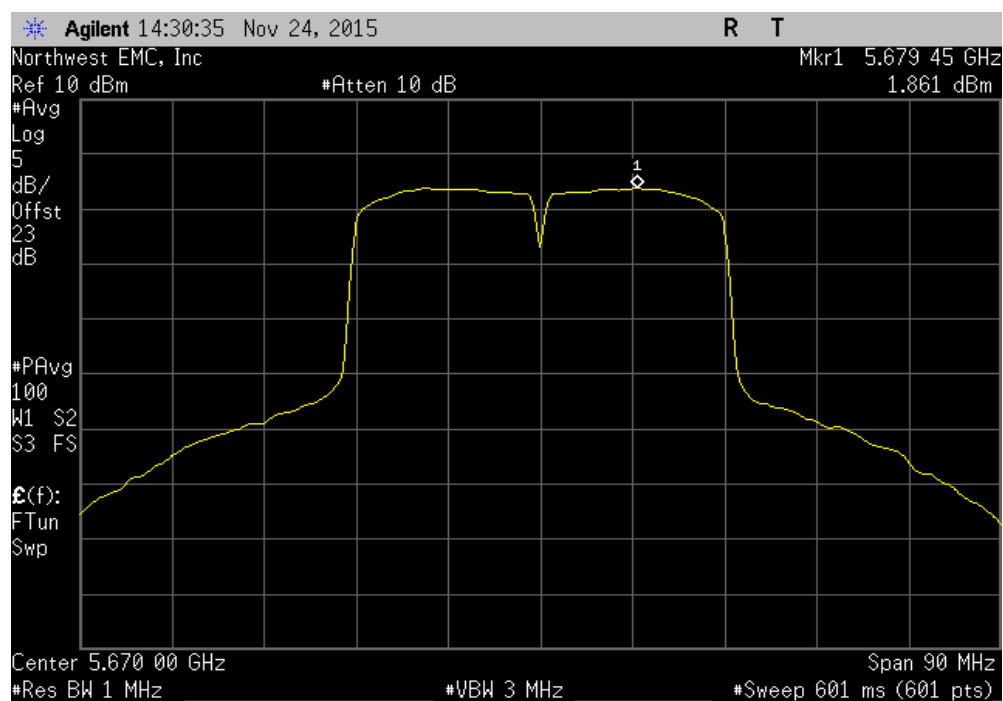


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS7, Ch 108/112, Mid Channel 5550 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
0.516	0	0.5	11	Pass		

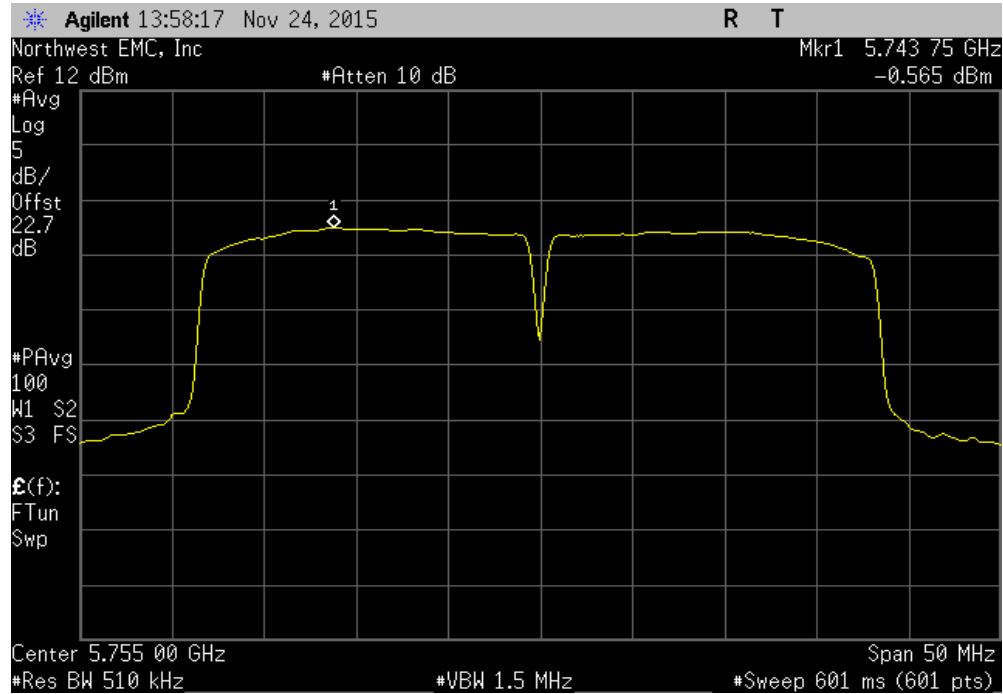


40 MHz, 802.11(n) MCS7, Ch 132/136, High Channel 5670 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
1.861	0	1.9	11	Pass		

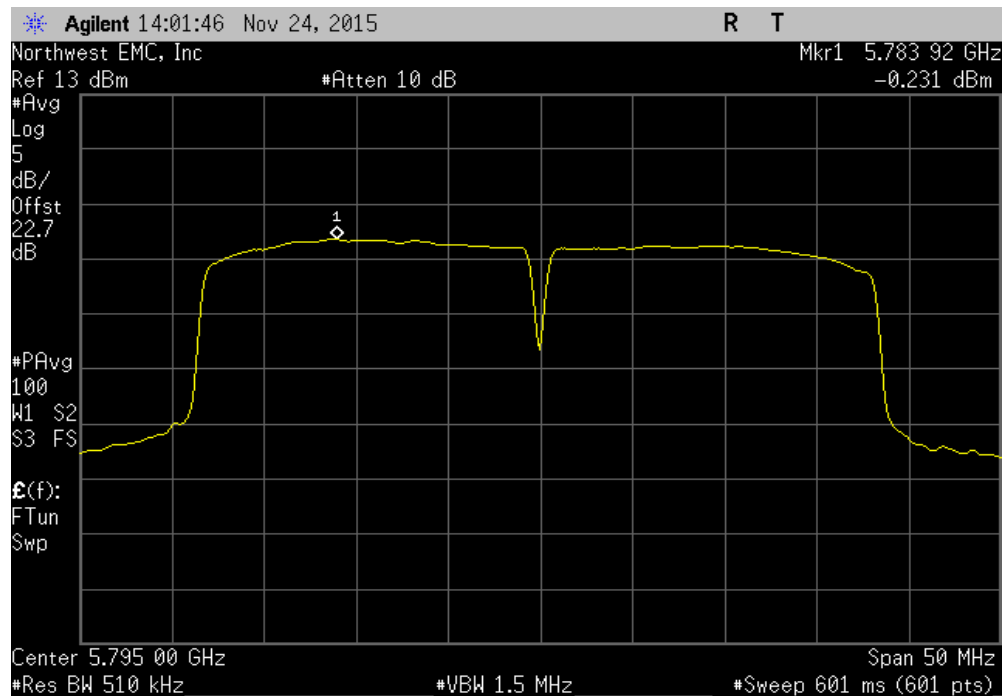


MAXIMUM POWER SPECTRAL DENSITY

40 MHz, 802.11(n) MCS7, Ch 149/153, Low Channel 5755 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.565	0	-0.6	30	Pass		



40 MHz, 802.11(n) MCS7, Ch 157/161, High Channel 5795 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ε (dBm / Ref BW)	Results		
-0.231	0	-0.2	30	Pass		



APPENDIX

DUTY CYCLE DECLARATION



Digi International Inc
11001 Bren Road East
Minnetonka, MN 55343
952-912-3444 tel
952-912-4991 central fax

Date: February 4, 2016

Subject: Duty Cycle

FCC ID: MCQ-50M1768
IC: 1846A-50M1857
Applicant: Digi International Inc.
FRN: 0010283307

To Whom It May Concern:

We hereby attest that Digi's Sigma Pumps Gen IV 802.11abgn Module operates at or below 20% Duty Cycle during Transmit Mode.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott McCall", written over a horizontal line.

Scott McCall
Mgr, Hardware Engineering
Digi International Inc.
scott.mccall@digicom
office: 952-912-4248