NORTHWEST EMC

ZOLL Medical Corp.

Zoll CF Card Module

FCC 15.407:2016

802.11an

Report # LGPD0188

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

NORTHWEST EMC
2014-12-10

Last Date of Test: April 22, 2016
ZOLL Medical Corp.
Model:Zoll CF Card Module

Radio Equipment Testing

Standards

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

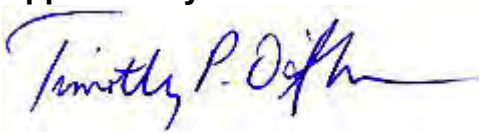
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for testing the new UNII rule changes.
6.5, 6.6, 12.7	Spurious Radiated Emissions	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
12.2	Duty Cycle	Yes	Pass	
12.3.2.4	Maximum Conducted Output Power	Yes	Pass	
12.4.1	Emission Bandwidth	No	N/A	Not tested. Applicable to the 5.2, 5.3 and 5.6 GHz bands only.
12.4.2	Occupied Bandwidth	Yes	Pass	
12.4.2	Band Edge	Yes	Pass	
12.5	Maximum Power Spectral Density	Yes	Pass	
KDB 789033 -H	Measurement of Emission at Elevation Angle Higher Than 30 Degrees From Horizon	No	N/A	Not required unless the EUT is a Master device used outdoors.

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

NORTHWEST EMC
REV 2014.10.14

Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

NORTHWEST EMC
REV 2016.3.22

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 Notified Body under the R&TTE Directive.

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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

MEASUREMENT UNCERTAINTY

TMU.2015.07.10

Measurement Uncertainty

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

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

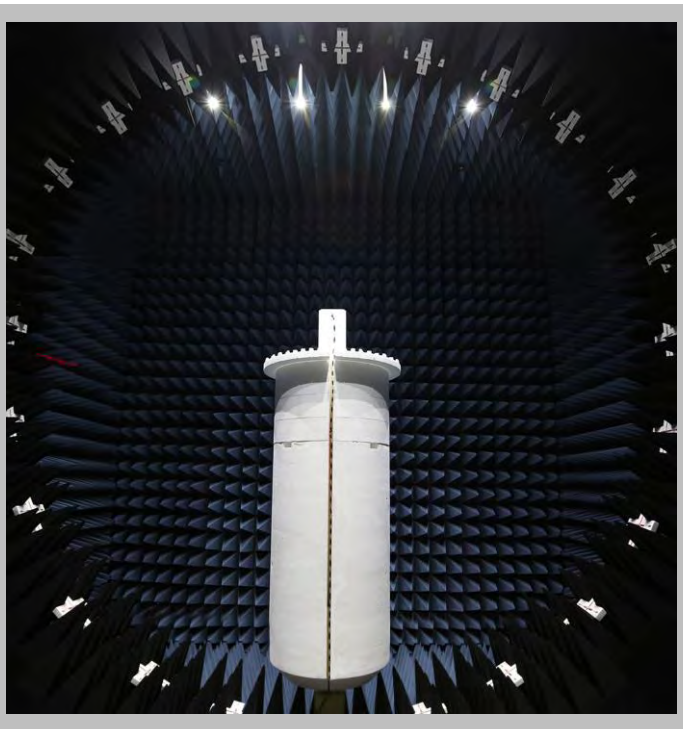
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

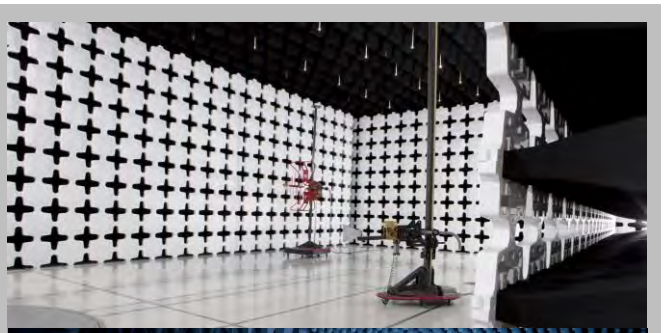
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%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

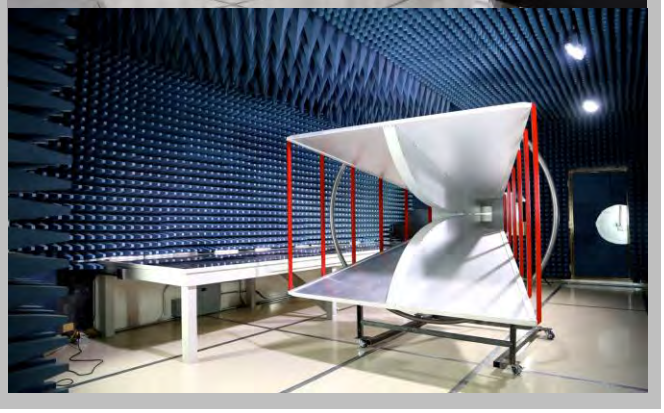
FACILITIES

NORTHWEST EMC
REV 2015.2.19

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







PRODUCT DESCRIPTION

NORTHWEST EMC
2014-12-10

Client and Equipment Under Test (EUT) Information

Company Name:	ZOLL Medical Corp.
Address:	269 Mill Road
City, State, Zip:	Chelmsford, MA 01824
Test Requested By:	Adam Ford
Model:	ZOLL CF Card Module
First Date of Test:	April 07, 2016
Last Date of Test:	April 22, 2016
Receipt Date of Samples:	April 06, 2016
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
802.11abgn CF wireless card containing 1x1 SISO radio module operating in 20 MHz channel bandwidth

Testing Objective:
To demonstrate compliance of the 802.11an radio under the new UNII rule part changes for FCC 15.407 for operation in the 5.8 GHz bands.

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration LGPD0188- 1

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

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Wireless Module	ZOLL Medical Corp.	1021711	2012M01206

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter	Sceptre	AD2405A/PS2D-5038APL6A	None
CF Extender	ZOLL Medical Corp.	CFExtend	Unknown
Test Laptop	Lenevo	Thinkpad T400	A3-L9568-08/09
AC Adapter (Laptop)	Dell	DA180PM111	CN-074X5J-48661-15V-0WZ1-A00

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable (CF Extender)	No	1m	No	AC Adapter	AC Mains
AC Cable	No	2.5m	No	AC Adapter (Laptop)	AC Mains
DC Cable (CF Extender)	No	1m	No	AC Adapter	Banana to Mini Grabber
DC Cable (Laptop)	No	1m	No	Test Laptop	AC Adapter (Laptop)
Serial Cable	Yes	1.8m	No	CF Extender	CF Extender
Serial USB Adapter	Unknown	.5m	No	CF Extender	Serial USB Adapter
w.fl - SMA Cable	Unknown	.1m	No	Test Laptop	Serial Cable
Banana to Mini Grabber	No	1m	No	DC Cable (CF Extender)	CF Extender

MODIFICATIONS

NORTHWEST EMC
2014-12-10

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/7/2016	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	4/8/2016	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	4/8/2016	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	4/8/2016	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.
5	4/8/2016	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.
6	4/21/2016	Band Edge	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	4/22/2016	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

SPURIOUS RADIATED EMISSIONS

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

CHANNELS OF OPERATION

Channel 149, 5745 MHz
Channel 157, 5785 MHz
Channel 165, 5825 MHz

MODULATION OF OPERATION

6 Mbps
36 Mbps
54 Mbps
MCS0
MCS7

POWER SETTINGS INVESTIGATED

5 VDC

CONFIGURATIONS INVESTIGATED

LGPD0188 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36 mo
Power Sensor	Agilent	N8481A	SQN	8/17/2015	12 mo
Meter - Power	Agilent	N1913A	SQL	8/17/2015	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIB	8/12/2014	24 mo
Cable	Northwest EMC	TTBJ141-KMKM-72	MNQ	9/18/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVN	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	AMF-6F-12001800-30-10P	AVW	3/1/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/1/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	3/1/2016	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
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	3/11/2016	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/7/2015	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2016	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.

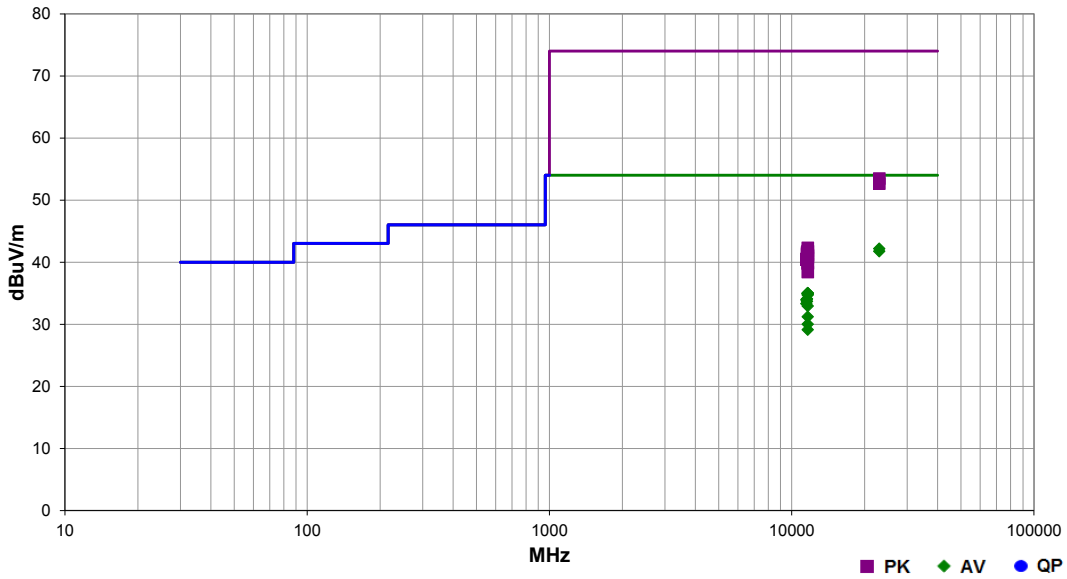
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter)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

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0188	**Date:**	04/06/16		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	MN05	**Humidity:**	25.4% RH		
Serial Number:	2012M01206	**Barometric Pres.:**	1007 mbar	**Tested by:**	Jared Ison
EUT:	Zoll CF Card Module				
Configuration:	1				
Customer:	ZOLL Medical Corp.				
Attendees:	Adam Ford				
EUT Power:	5 VDC				
Operating Mode:	Transmit.				
Deviations:	None				
Comments:	5 VDC supplied via AC adapter using 110VAC/60Hz.				

Test Specifications	**Test Method**
FCC 15.407:2016	ANSI C63.10:2013

Run #	9	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



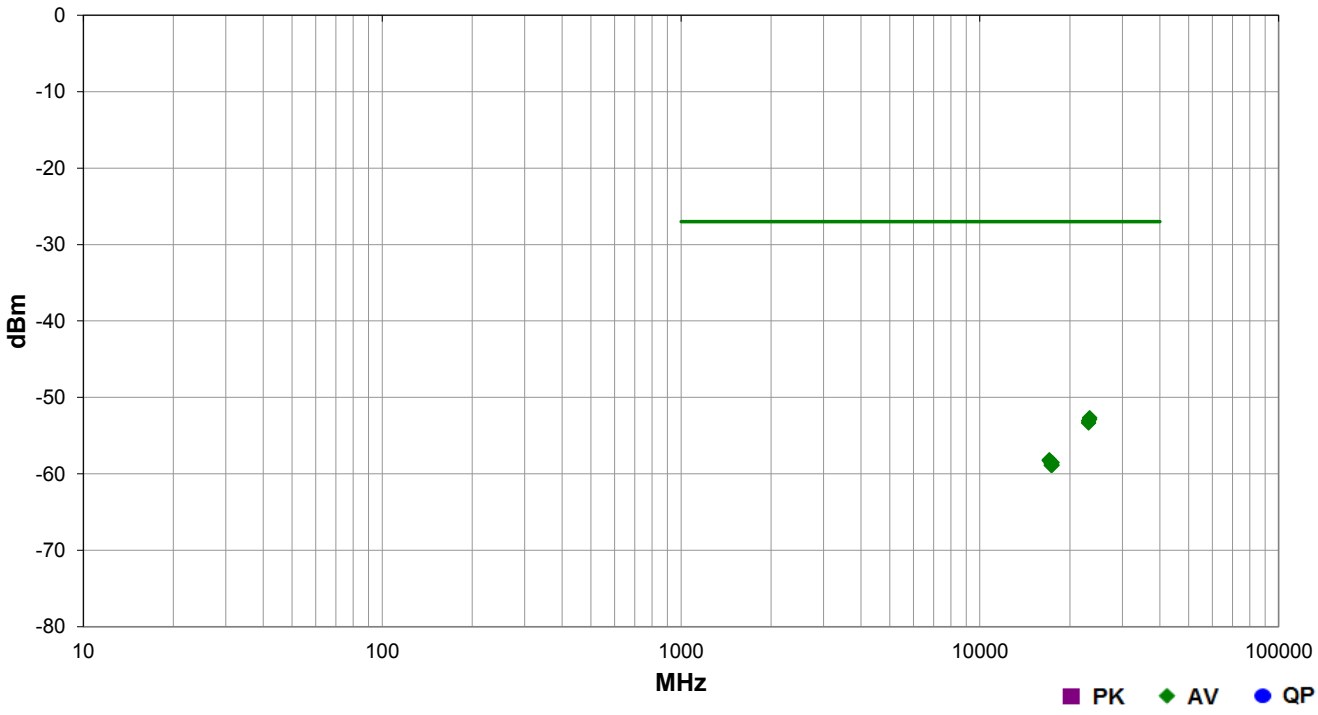
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
22980.080	28.2	14.0	1.7	121.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
22979.730	27.8	14.0	1.7	166.1	3.0	0.0	Vert	AV	0.0	41.8	54.0	-12.2	Ch. 149: 5745 MHz 6 Mbps, EUT Vertical
11649.980	37.3	-2.3	2.0	105.1	3.0	0.0	Horz	AV	0.0	35.0	54.0	-19.0	Ch. 165: 5825 MHz 54 Mbps, EUT On Side
11650.030	37.3	-2.3	2.0	105.1	3.0	0.0	Horz	AV	0.0	35.0	54.0	-19.0	Ch. 165: 5825 MHz MCS7, EUT On Side
11649.960	37.2	-2.3	2.0	105.1	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Ch. 165: 5825 MHz MCS0, EUT On Side
11649.990	37.2	-2.3	2.0	101.1	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
11650.040	37.2	-2.3	2.0	105.1	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Ch. 165: 5825 MHz 36 Mbps, EUT On Side
11649.990	37.0	-2.3	1.6	88.1	3.0	0.0	Vert	AV	0.0	34.7	54.0	-19.3	Ch. 165: 5825 MHz 6 Mbps, EUT Vert
11569.950	36.4	-2.3	2.0	99.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	Ch. 157: 5785 MHz 6 Mbps, EUT On Side
11490.020	37.2	-3.3	1.7	105.1	3.0	0.0	Horz	AV	0.0	33.9	54.0	-20.1	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
11569.990	36.0	-2.3	1.7	82.0	3.0	0.0	Vert	AV	0.0	33.7	54.0	-20.3	Ch. 157: 5785 MHz 6 Mbps, EUT Vert
22978.430	39.5	14.0	1.7	166.1	3.0	0.0	Vert	PK	0.0	53.5	74.0	-20.5	Ch. 149: 5745 MHz 6 Mbps, EUT Vertical
11489.950	36.6	-3.3	1.7	87.1	3.0	0.0	Vert	AV	0.0	33.3	54.0	-20.7	Ch. 149: 5745 MHz 6 Mbps, EUT Vert
11650.020	35.2	-2.3	1.8	55.1	3.0	0.0	Vert	AV	0.0	32.9	54.0	-21.1	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
22978.080	38.7	14.0	1.7	121.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
11649.950	33.5	-2.3	1.0	62.1	3.0	0.0	Vert	AV	0.0	31.2	54.0	-22.8	Ch. 165: 5825 MHz 6 Mbps, EUT Horz
11649.940	32.3	-2.3	2.4	43.0	3.0	0.0	Horz	AV	0.0	30.0	54.0	-24.0	Ch. 165: 5825 MHz 6 Mbps, EUT Horz
11649.960	31.4	-2.3	1.0	158.0	3.0	0.0	Horz	AV	0.0	29.1	54.0	-24.9	Ch. 165: 5825 MHz 6 Mbps, EUT Vert
11649.940	44.6	-2.3	2.0	105.1	3.0	0.0	Horz	PK	0.0	42.3	74.0	-31.7	Ch. 165: 5825 MHz MCS7, EUT On Side
11649.930	44.1	-2.3	2.0	105.1	3.0	0.0	Horz	PK	0.0	41.8	74.0	-32.2	Ch. 165: 5825 MHz 54 Mbps, EUT On Side
11649.990	44.0	-2.3	2.0	105.1	3.0	0.0	Horz	PK	0.0	41.7	74.0	-32.3	Ch. 165: 5825 MHz 36 Mbps, EUT On Side
11570.030	43.9	-2.3	2.0	99.0	3.0	0.0	Horz	PK	0.0	41.6	74.0	-32.4	Ch. 157: 5785 MHz 6 Mbps, EUT On Side
11570.030	43.6	-2.3	1.7	82.0	3.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	Ch. 157: 5785 MHz 6 Mbps, EUT Vert
11650.220	43.5	-2.3	2.0	105.1	3.0	0.0	Horz	PK	0.0	41.2	74.0	-32.8	Ch. 165: 5825 MHz MCS0, EUT On Side
11649.920	43.4	-2.3	1.6	88.1	3.0	0.0	Vert	PK	0.0	41.1	74.0	-32.9	Ch. 165: 5825 MHz 6 Mbps, EUT Vert
11650.010	43.3	-2.3	2.0	101.1	3.0	0.0	Horz	PK	0.0	41.0	74.0	-33.0	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
11649.970	43.0	-2.3	2.4	43.0	3.0	0.0	Horz	PK	0.0	40.7	74.0	-33.3	Ch. 165: 5825 MHz 6 Mbps, EUT Horz
11489.710	43.8	-3.3	1.7	87.1	3.0	0.0	Vert	PK	0.0	40.5	74.0	-33.5	Ch. 149: 5745 MHz 6 Mbps, EUT Vert
11490.160	43.7	-3.3	1.7	105.1	3.0	0.0	Horz	PK	0.0	40.4	74.0	-33.6	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
11649.820	42.1	-2.3	1.0	62.1	3.0	0.0	Vert	PK	0.0	39.8	74.0	-34.2	Ch. 165: 5825 MHz 6 Mbps, EUT Horz
11650.060	42.1	-2.3	1.8	55.1	3.0	0.0	Vert	PK	0.0	39.8	74.0	-34.2	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
11650.050	40.7	-2.3	1.0	158.0	3.0	0.0	Horz	PK	0.0	38.4	74.0	-35.6	Ch. 165: 5825 MHz 6 Mbps, EUT Vert

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0188	**Date:**	04/06/16		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	MN05	**Humidity:**	25.4% RH		
Serial Number:	2012M01206	**Barometric Pres.:**	1007 mbar	**Tested by:**	Jared Ison
EUT:	Zoll CF Card Module				
Configuration:	1				
Customer:	ZOLL Medical Corp.				
Attendees:	Adam Ford				
EUT Power:	5 VDC				
Operating Mode:	Transmit.				
Deviations:	None				
Comments:	5 VDC supplied via AC adapter using 110VAC/60Hz.				

Test Specifications	**Test Method**
FCC 15.407:2016	ANSI C63.10:2013

Run #	10	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



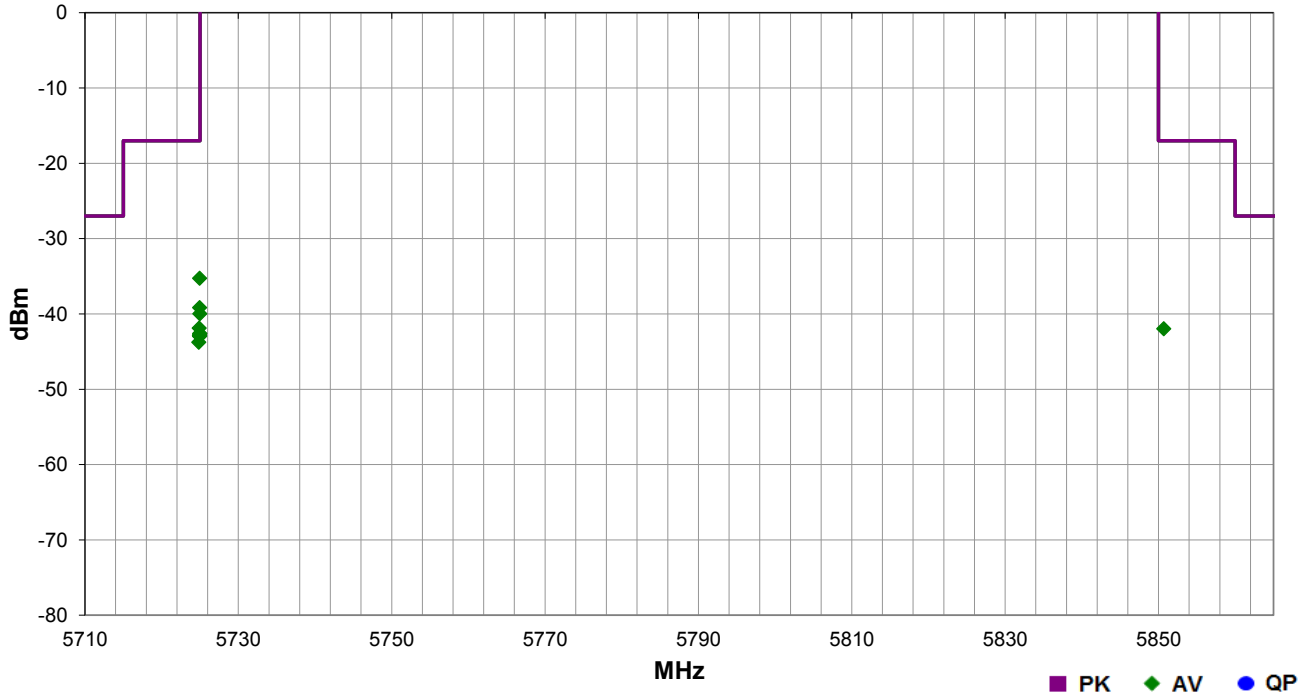
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	23299.910	1.7	218.0	Horz	AV	5.40E-09	-52.7	-27.0	-25.7	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
	23300.110	1.7	193.0	Vert	AV	5.16E-09	-52.9	-27.0	-25.9	Ch. 165: 5825 MHz 6 Mbps, EUT Vertical
	23140.170	1.7	165.0	Horz	AV	4.93E-09	-53.1	-27.0	-26.1	Ch. 157: 5825 MHz 6 Mbps, EUT On Side
	23140.460	1.7	79.0	Vert	AV	4.61E-09	-53.4	-27.0	-26.4	Ch. 157: 5825 MHz 6 Mbps, EUT Vertical
	17098.900	3.2	109.1	Horz	AV	1.52E-09	-58.2	-27.0	-31.2	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
	17098.540	3.2	126.0	Vert	AV	1.48E-09	-58.3	-27.0	-31.3	Ch. 149: 5745 MHz 6 Mbps, EUT Vert
	17474.920	1.4	38.0	Vert	AV	1.39E-09	-58.6	-27.0	-31.6	Ch. 165: 5825 MHz 6 Mbps, EUT Vert
	17353.560	1.7	59.1	Vert	AV	1.36E-09	-58.7	-27.0	-31.7	Ch. 157: 5785 MHz 6 Mbps, EUT Vert
	17475.620	1.0	9.0	Horz	AV	1.30E-09	-58.9	-27.0	-31.9	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
	17355.210	1.0	55.1	Horz	AV	1.28E-09	-58.9	-27.0	-31.9	Ch. 157: 5785 MHz 6 Mbps, EUT On Side

SPURIOUS RADIATED EMISSIONS

Work Order:	LGPD0188	**Date:**	04/07/16		
Project:	None	**Temperature:**	22.7 °C		
Job Site:	MN05	**Humidity:**	24.4% RH		
Serial Number:	2012M01206	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jared Ison
EUT:	Zoll CF Card Module				
Configuration:	1				
Customer:	ZOLL Medical Corp.				
Attendees:	Adam Ford				
EUT Power:	5 VDC				
Operating Mode:	Transmit.				
Deviations:	None				
Comments:	5 VDC supplied via AC adapter using 110VAC/60Hz.				

Test Specifications	**Test Method**
FCC 15.407:2016	ANSI C63.10:2013

Run #	14	**Test Distance (m)**	1	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	5724.970	1.6	270.0	Horz	AV	2.96E-07	-35.3	-17.0	-18.3	Ch. 149: 5745 MHz MCS0, EUT On Side
	5724.973	1.6	272.9	Horz	AV	1.21E-07	-39.2	-17.0	-22.2	Ch. 149: 5745 MHz 36 Mbps, EUT On Side
	5725.000	1.6	272.9	Horz	AV	1.00E-07	-40.0	-17.0	-23.0	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
	5724.910	1.6	326.9	Vert	AV	6.48E-08	-41.9	-17.0	-24.9	Ch. 149: 5745 MHz 6 Mbps, EUT On Side
	5850.683	1.6	268.0	Horz	AV	6.32E-08	-42.0	-17.0	-25.0	Ch. 165: 5825 MHz 6 Mbps, EUT On Side
	5724.983	1.6	340.0	Horz	AV	5.52E-08	-42.6	-17.0	-25.6	Ch. 149: 5745 MHz 6 Mbps, EUT Vert
	5724.960	1.6	97.0	Horz	AV	5.39E-08	-42.7	-17.0	-25.7	Ch. 149: 5745 MHz 6 Mbps, EUT Horz
	5724.973	1.6	270.0	Horz	AV	5.15E-08	-42.9	-17.0	-25.9	Ch. 149: 5745 MHz 54 Mbps, EUT On Side
	5724.940	1.6	159.1	Vert	AV	5.15E-08	-42.9	-17.0	-25.9	Ch. 149: 5745 MHz 6 Mbps, EUT Vert
	5724.957	1.6	270.0	Horz	AV	5.03E-08	-43.0	-17.0	-26.0	Ch. 149: 5745 MHz MCS7, EUT On Side
	5724.840	1.6	13.0	Vert	AV	4.18E-08	-43.8	-17.0	-26.8	Ch. 149: 5745 MHz 6 Mbps, EUT Horz

FREQUENCY STABILITY

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Meter - Multimeter	Fluke	117	MLS	1/20/2014	36
Thermometer	Omega Engineering, Inc.	HH311	DUB	11/3/2014	36
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-SCT/AC	TBF	10/21/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	12

TEST DESCRIPTION

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

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

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

Where a ppm limit applies: ppm = (Measured Frequency / Measured Nominal Frequency - 1) * 1,000,000

Per the requirements of FCC 15.407:

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

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

FREQUENCY STABILITY

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/22/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	None			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

None

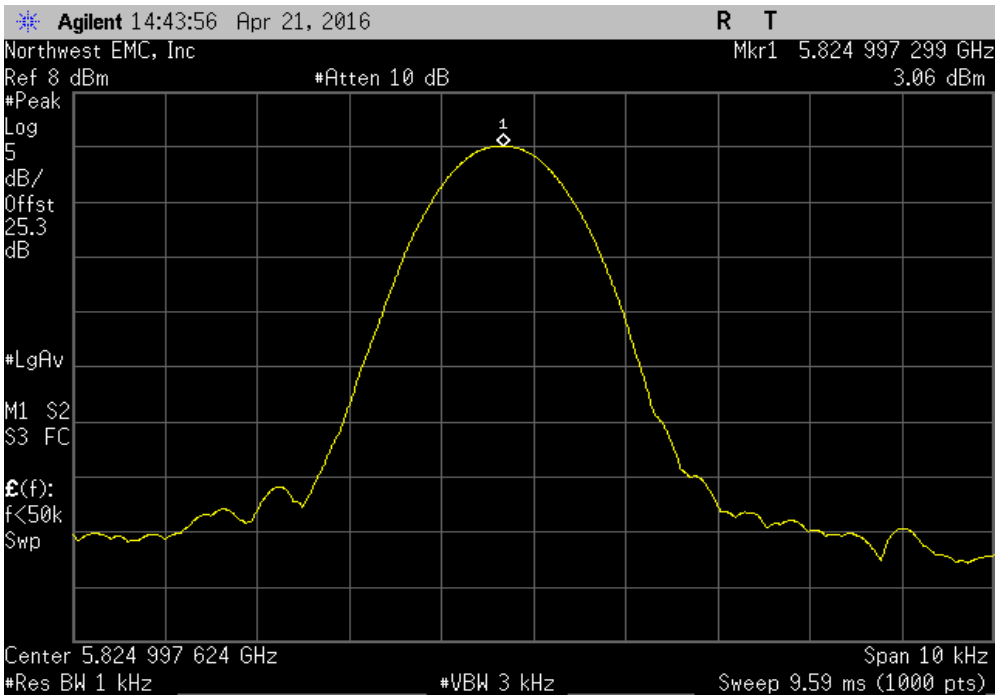
DEVIATIONS FROM TEST STANDARD

None

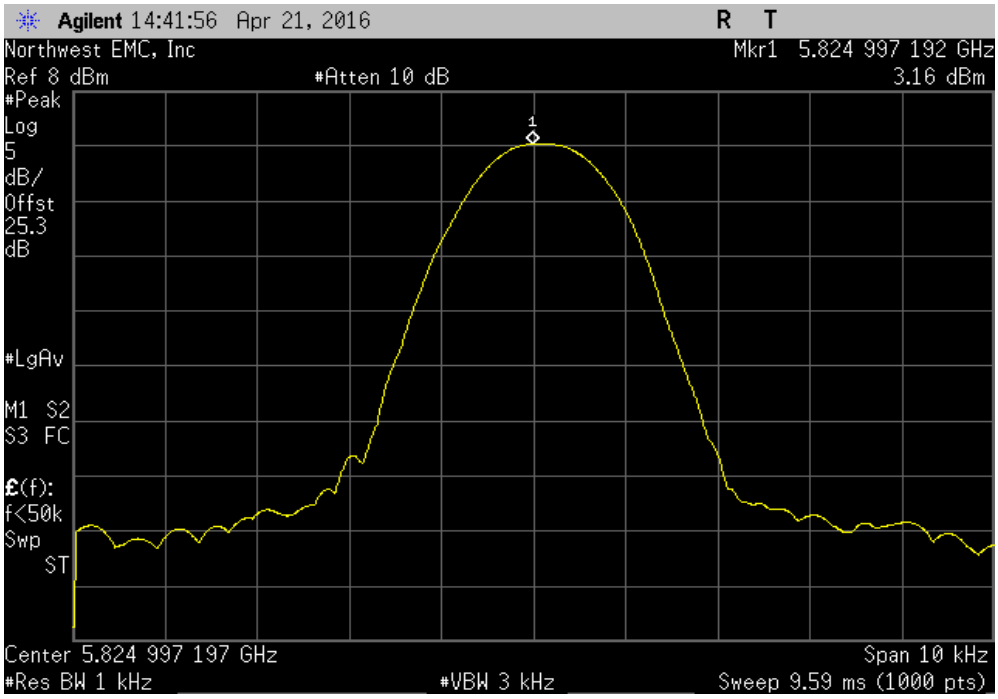
Configuration #	1	Signature

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
5725 MHz - 5850 MHz - High Channel, 5825 MHz					
Voltage: 115%	5824.997299	5825	0.5	100	Pass
Voltage: 100%	5824.997227	5825	0.5	100	Pass
Voltage: 85%	5824.997131	5825	0.5	100	Pass
Temperature: +50°	5824.997459	5825	0.4	100	Pass
Temperature: +40°	5824.998103	5825	0.3	100	Pass
Temperature: +30°	5824.99769	5825	0.4	100	Pass
Temperature: +20°	5824.997289	5825	0.5	100	Pass
Temperature: +10°	5824.997248	5825	0.5	100	Pass
Temperature: 0°	5824.997569	5825	0.4	100	Pass
Temperature: -10°	5824.998151	5825	0.3	100	Pass
Temperature: -20°	5824.998466	5825	0.3	100	Pass
Temperature: -30°	5824.998838	5825	0.2	100	Pass

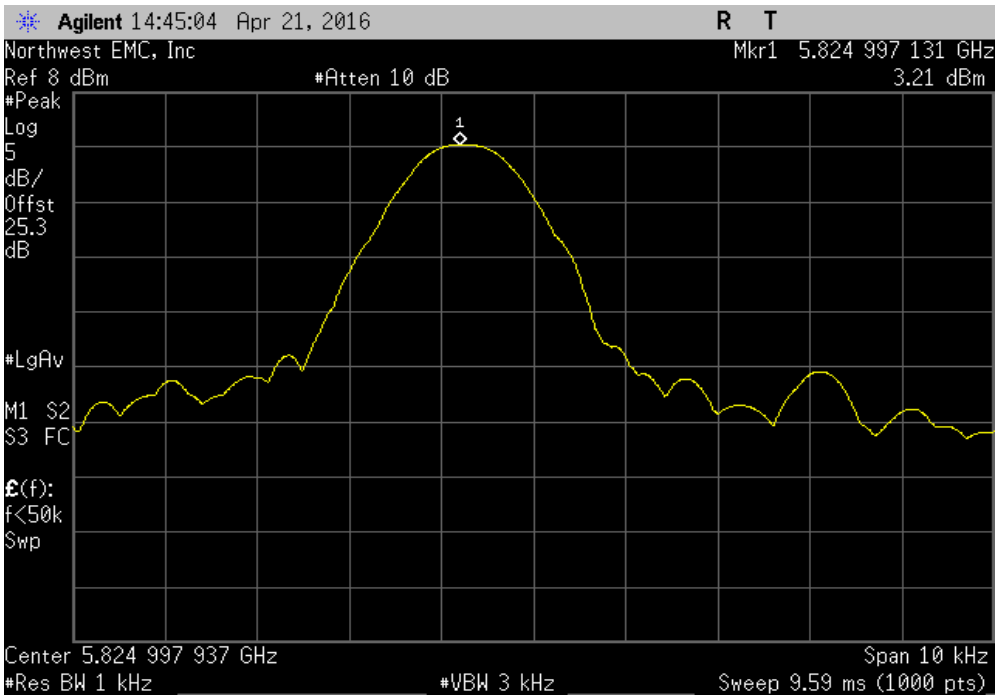
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997299	5825	0.5	100	Pass



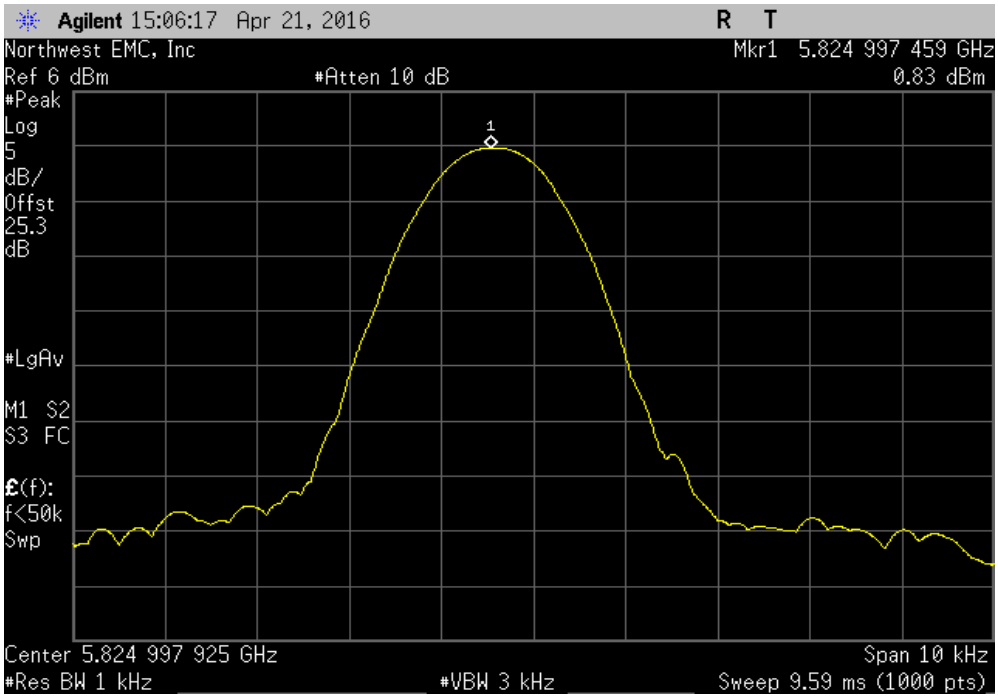
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997227	5825	0.5	100	Pass



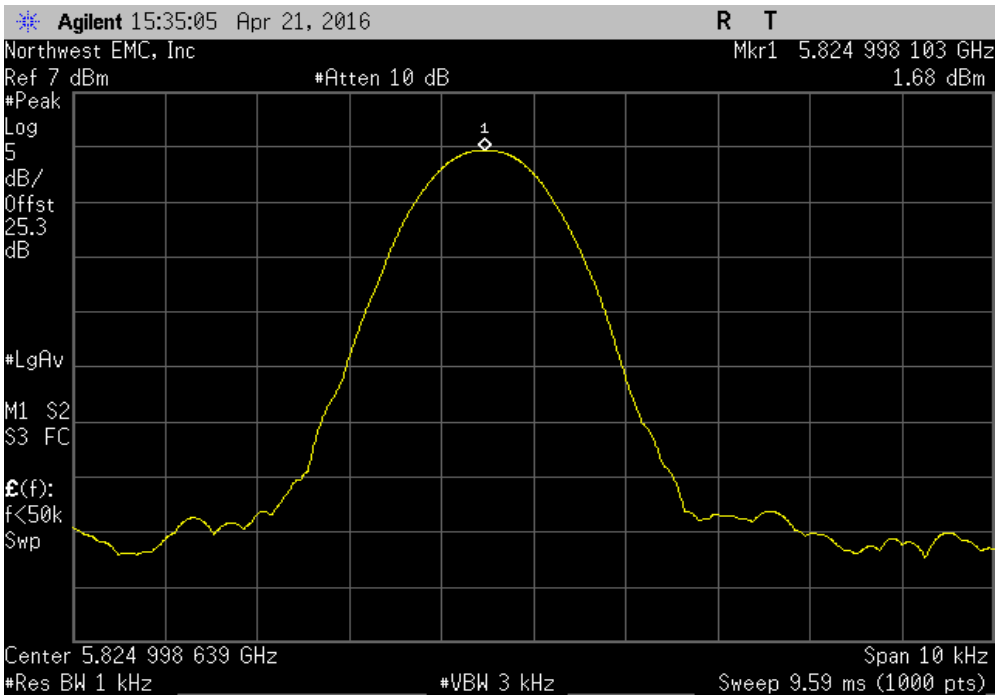
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997131	5825	0.5	100	Pass



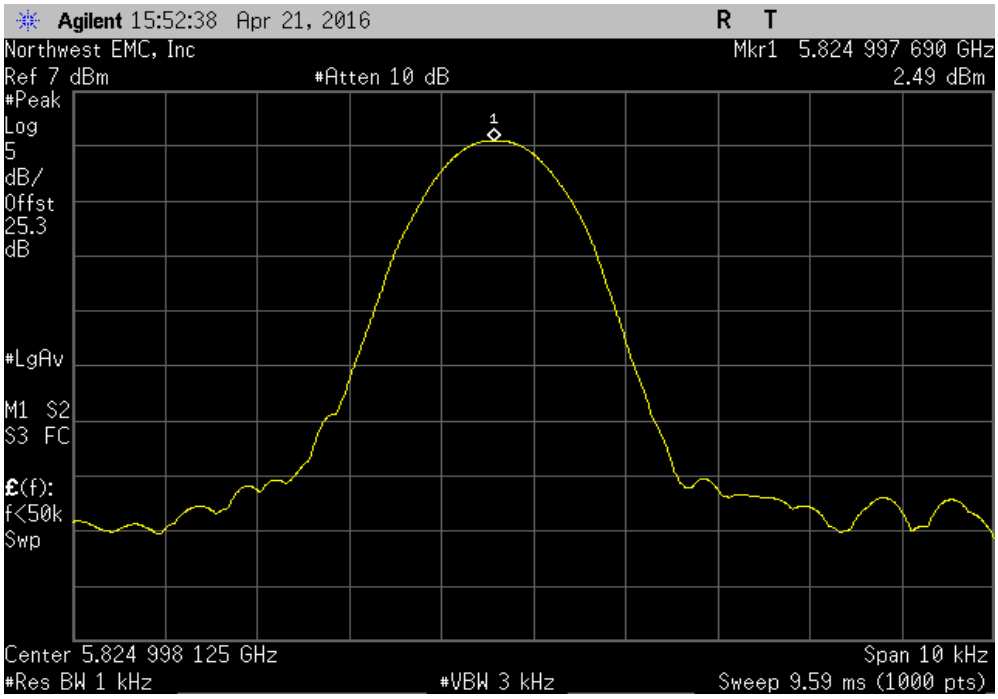
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997459	5825	0.4	100	Pass



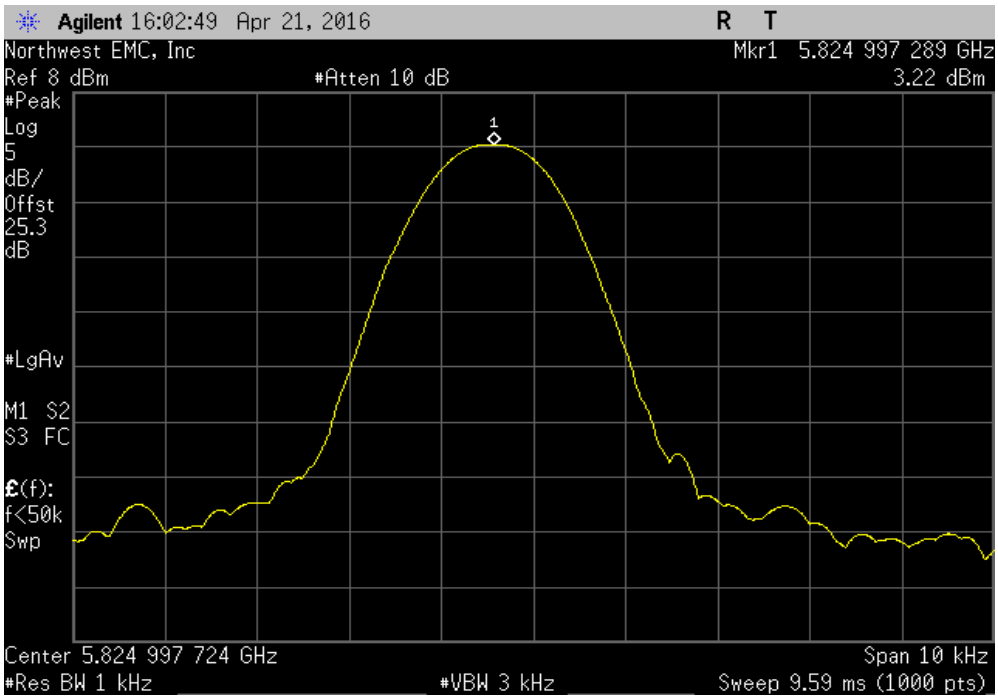
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998103	5825	0.3	100	Pass



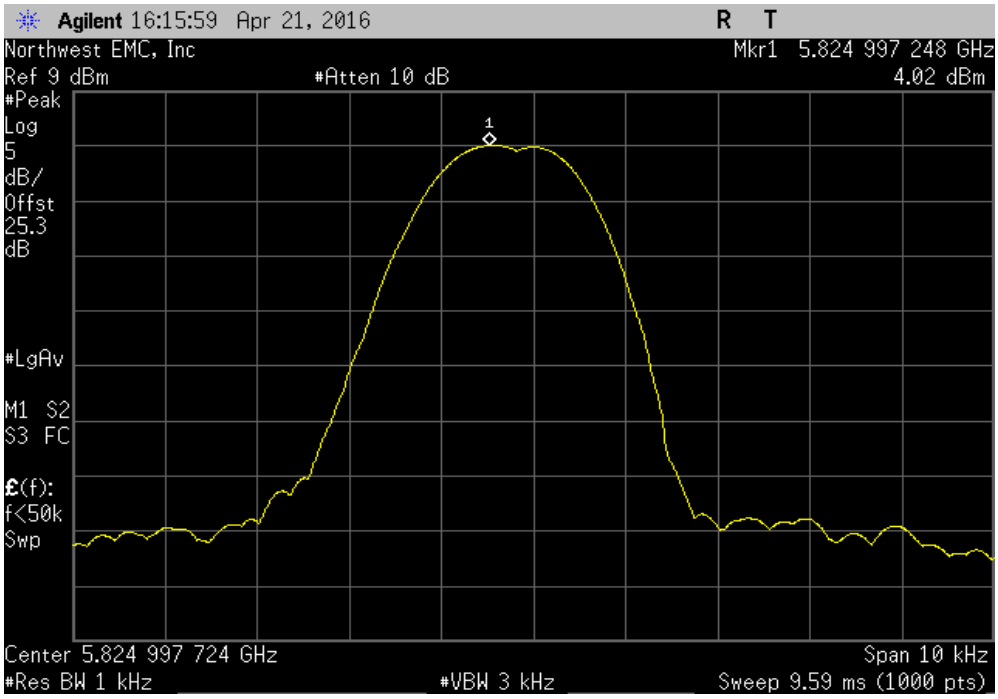
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.99769	5825	0.4	100	Pass



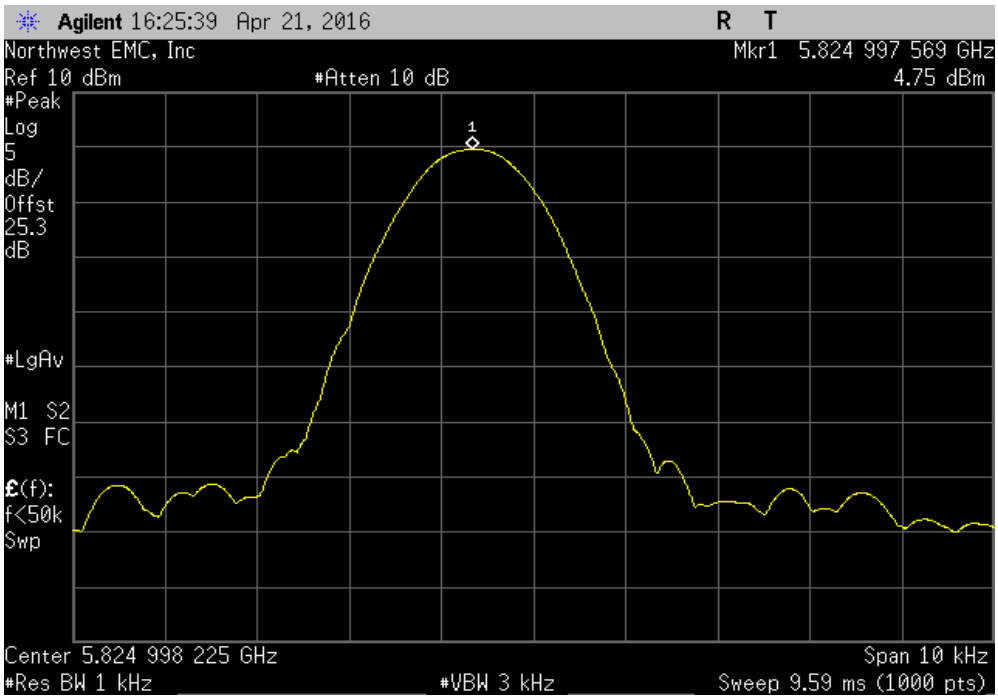
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997289	5825	0.5	100	Pass



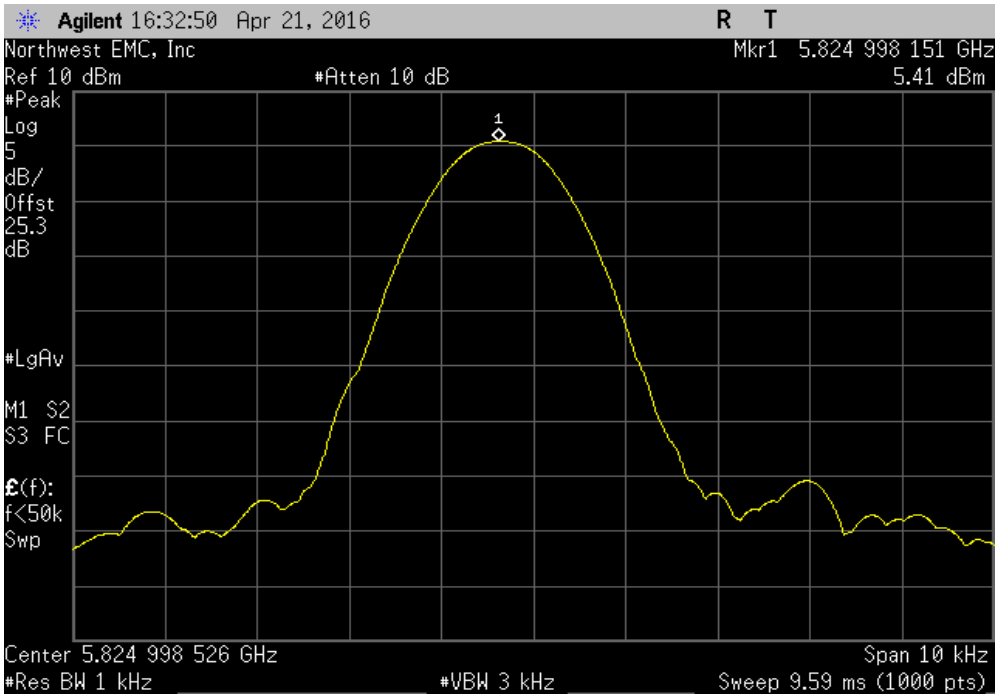
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997248	5825	0.5	100	Pass



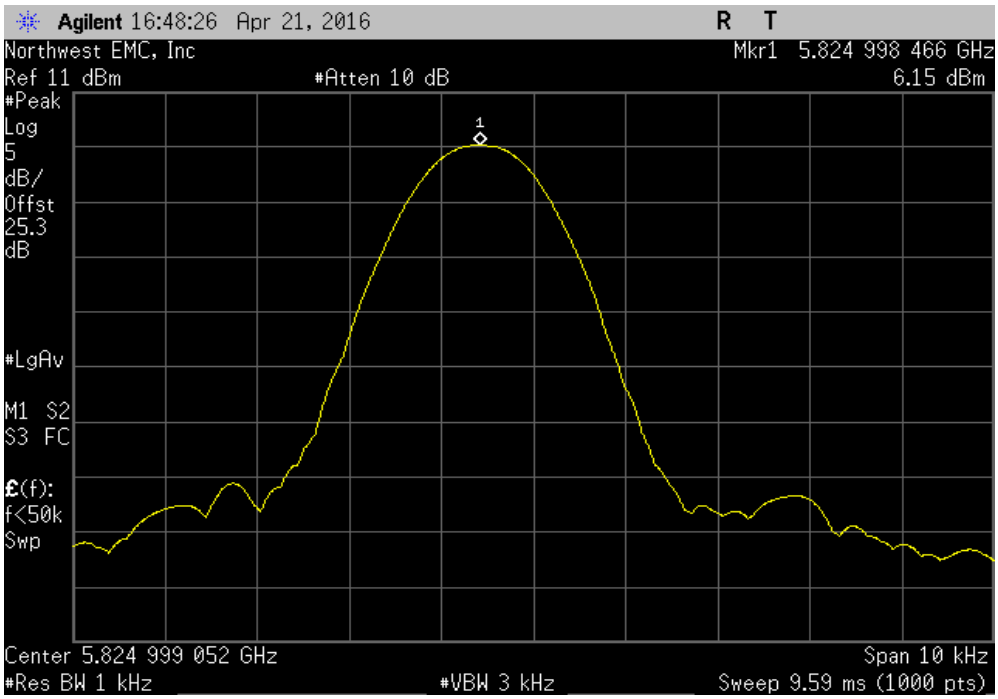
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.997569	5825	0.4	100	Pass



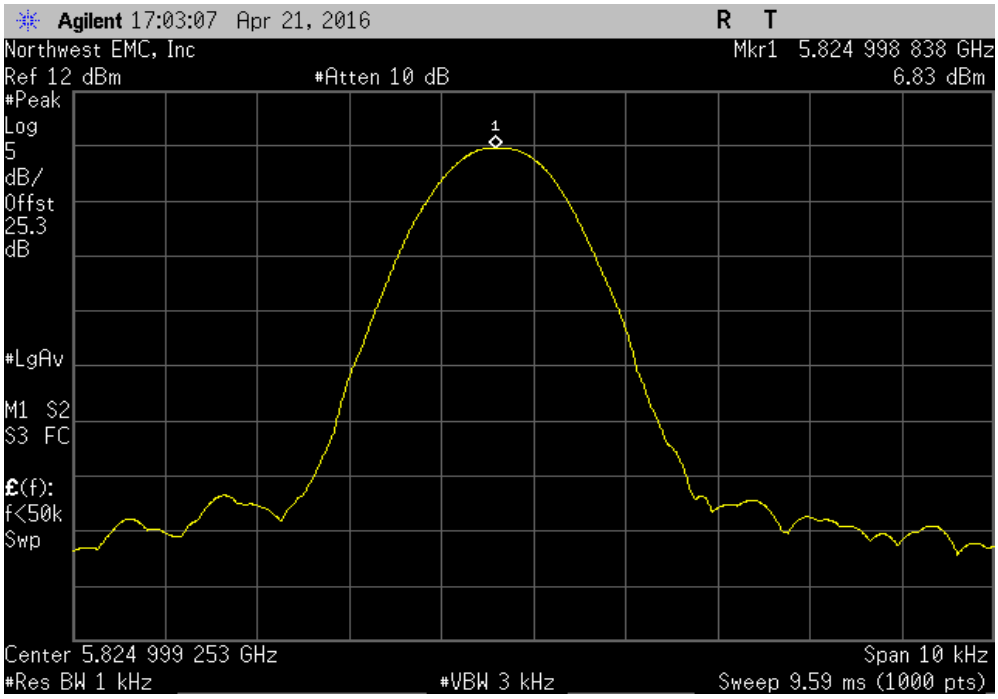
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998151	5825	0.3	100	Pass



5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998466	5825	0.3	100	Pass



5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998838	5825	0.2	100	Pass



DUTY CYCLE

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	12
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	12

TEST DESCRIPTION

The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

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

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

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

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

DUTY CYCLE

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/08/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	Adam Ford			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

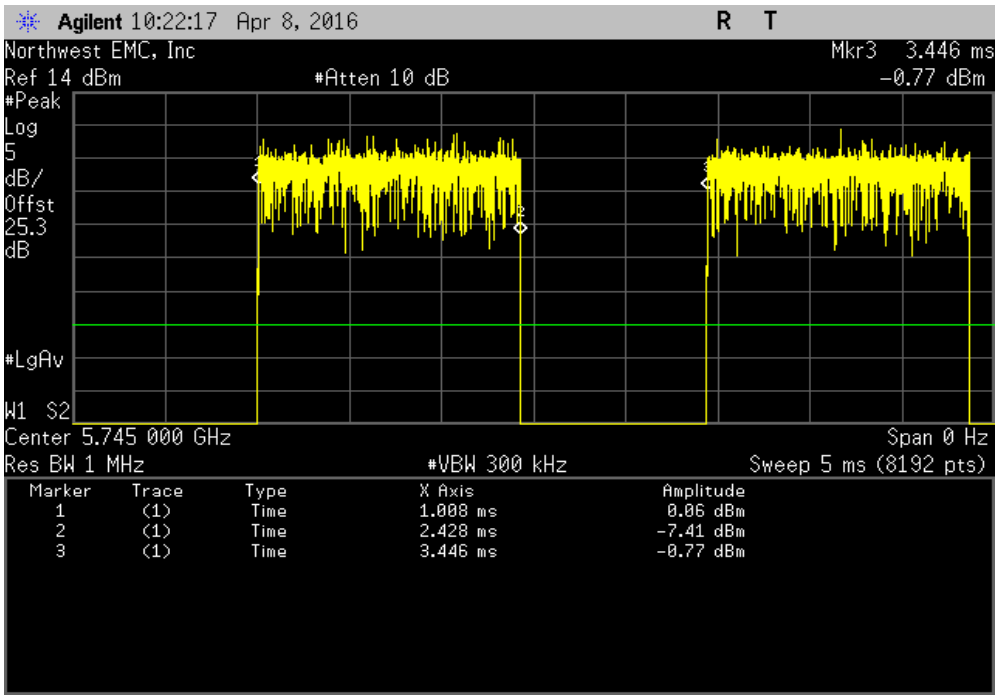
Configuration #	1	Signature

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
5725 - 5825 MHz Band						
Low Channel, Ch 149 - 5745 MHz						
802.11(a) 6 Mbps	1.421 ms	2.439 ms	1	58.2	N/A	N/A
802.11(a) 6 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps	249.1 us	1.267 ms	1	19.7	N/A	N/A
802.11(a) 36 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps	172.9 us	1.191 ms	1	14.5	N/A	N/A
802.11(a) 54 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0	1.329 ms	2.347 ms	1	56.6	N/A	N/A
802.11(n) MCS0	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7	160.8 us	1.179 ms	1	13.6	N/A	N/A
802.11(n) MCS7	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz						
802.11(a) 6 Mbps	1.421 ms	2.439 ms	1	58.3	N/A	N/A
802.11(a) 6 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps	249.1 us	1.267 ms	1	19.7	N/A	N/A
802.11(a) 36 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps	172.9 us	1.191 ms	1	14.5	N/A	N/A
802.11(a) 54 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0	1.329 ms	2.347 ms	1	56.6	N/A	N/A
802.11(n) MCS0	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7	160.8 us	1.179 ms	1	13.6	N/A	N/A
802.11(n) MCS7	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz						
802.11(a) 6 Mbps	1.421 ms	2.439 ms	1	58.3	N/A	N/A
802.11(a) 6 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps	248.7 us	1.267 ms	1	19.6	N/A	N/A
802.11(a) 36 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps	172.9 us	1.191 ms	1	14.5	N/A	N/A
802.11(a) 54 Mbps	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0	1.329 ms	2.347 ms	1	56.6	N/A	N/A
802.11(n) MCS0	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7	160.8 us	1.179 ms	1	13.6	N/A	N/A
802.11(n) MCS7	N/A	N/A	5	N/A	N/A	N/A

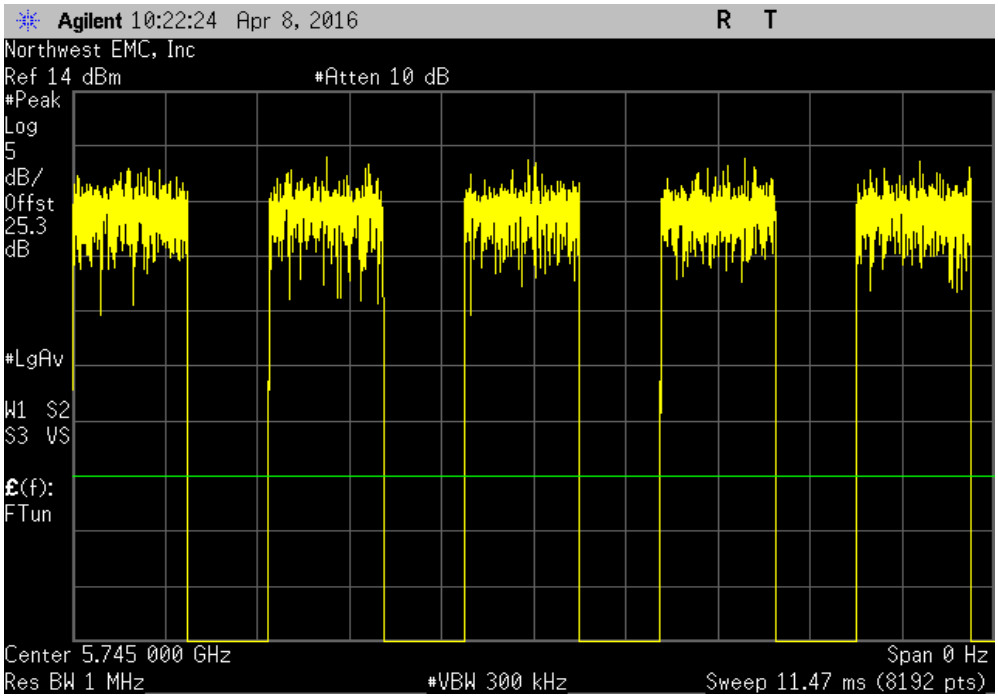
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	2.439 ms	1	58.2	N/A	N/A



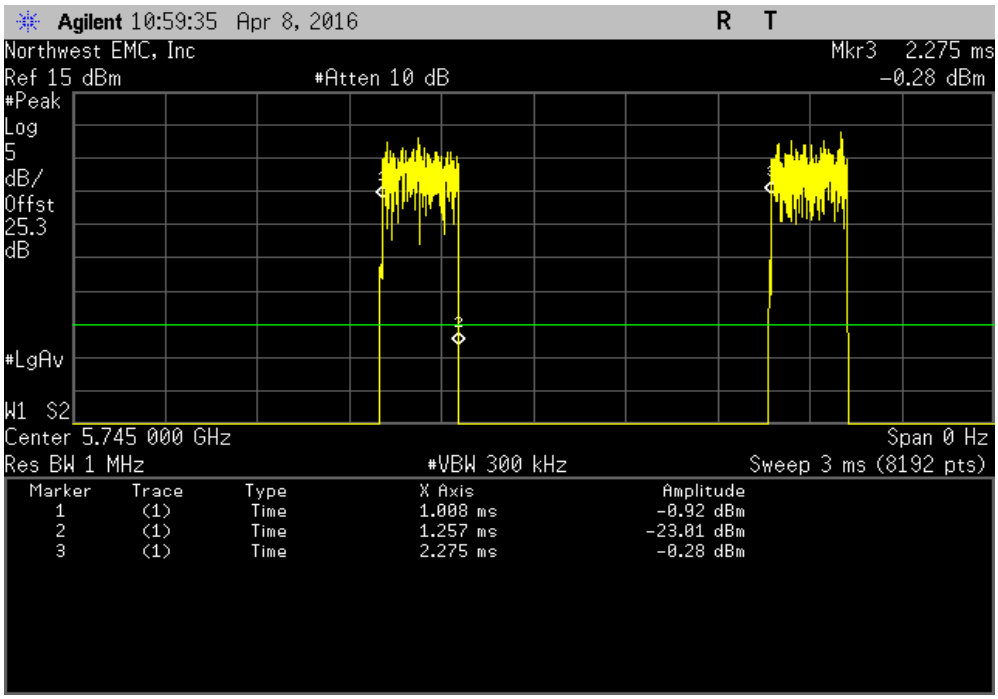
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



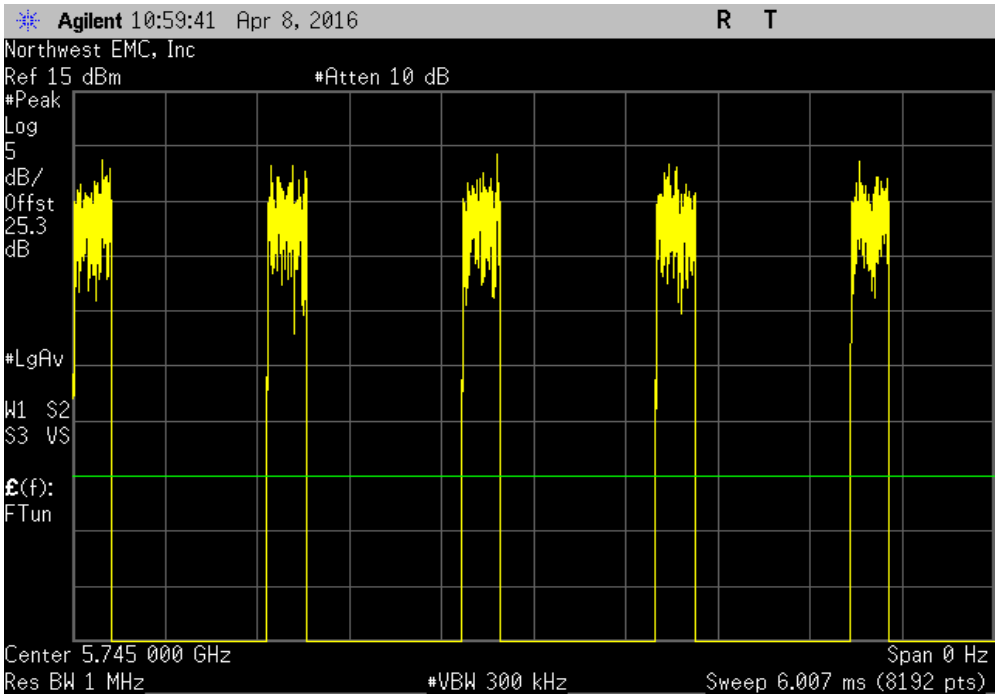
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	249.1 us	1.267 ms	1	19.7	N/A	N/A



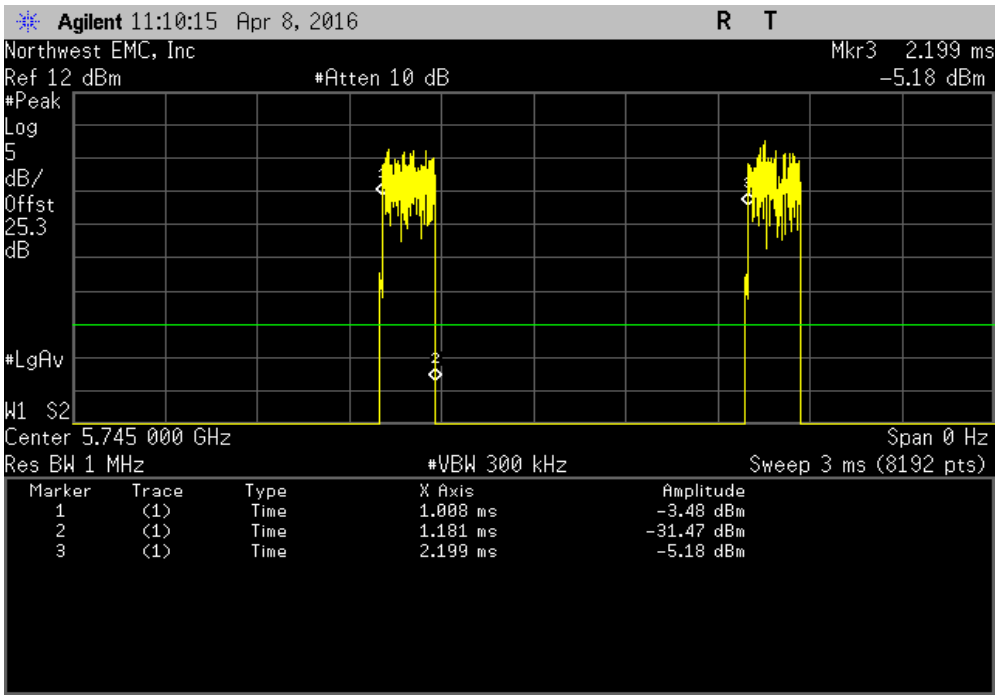
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



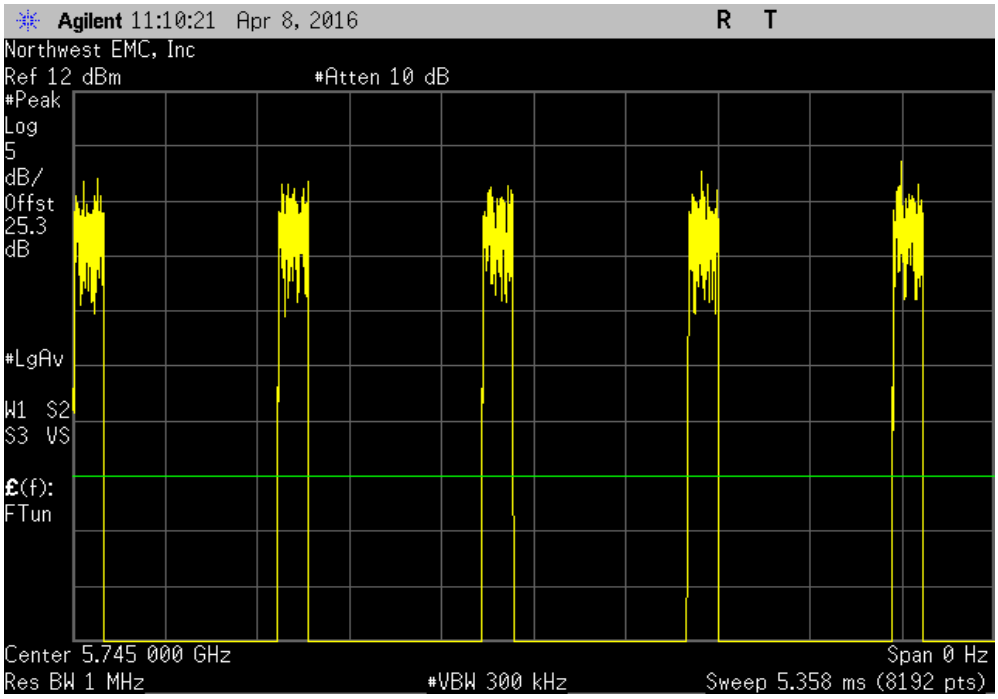
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.9 us	1.191 ms	1	14.5	N/A	N/A



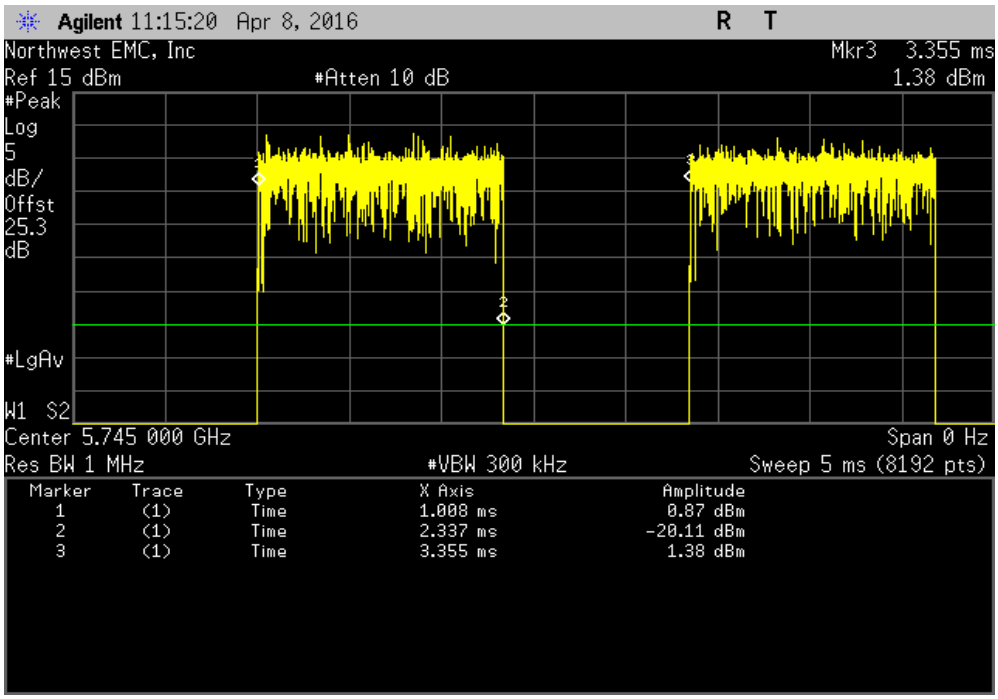
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



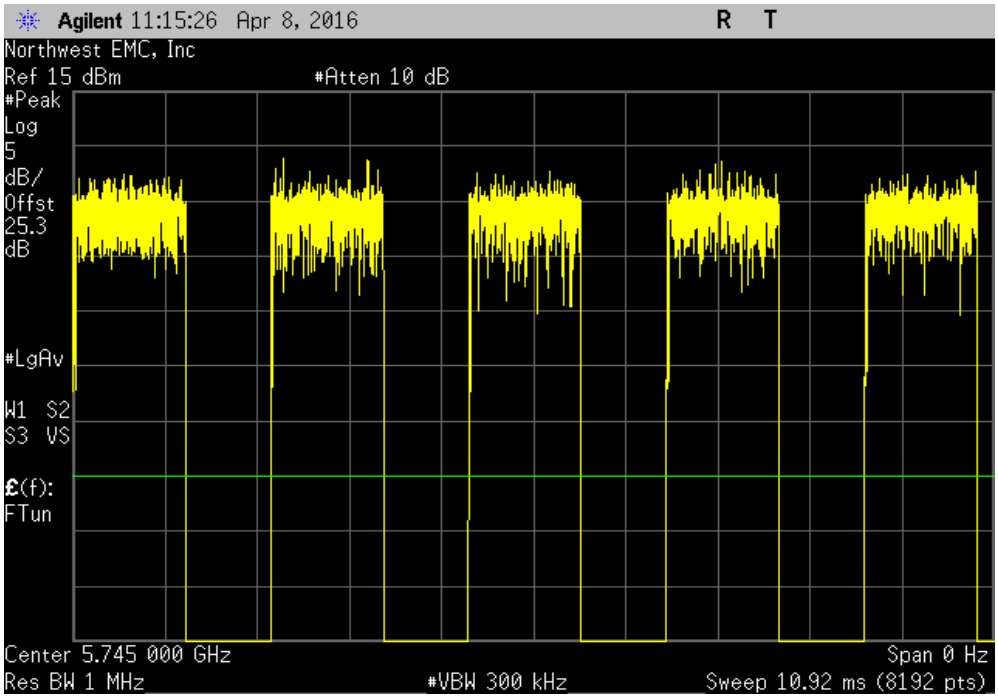
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	2.347 ms	1	56.6	N/A	N/A



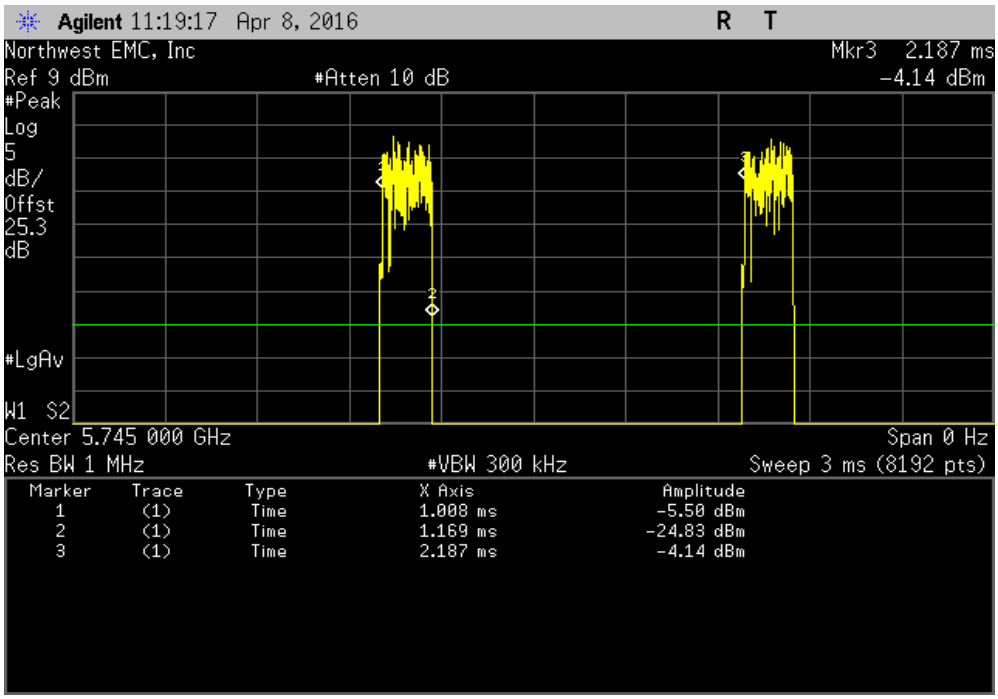
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



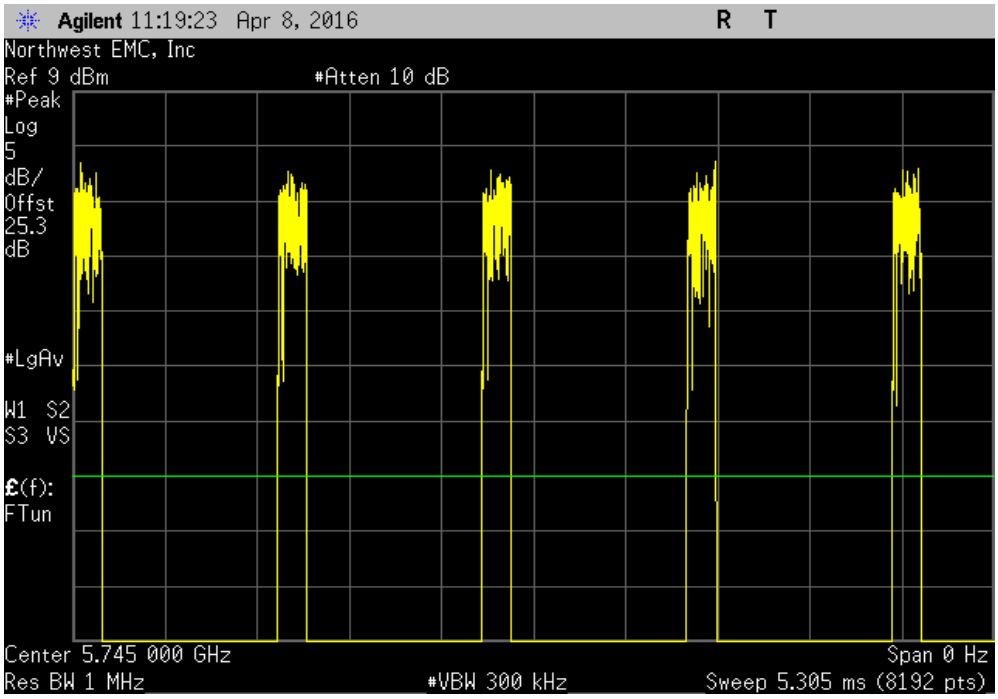
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.8 us	1.179 ms	1	13.6	N/A	N/A



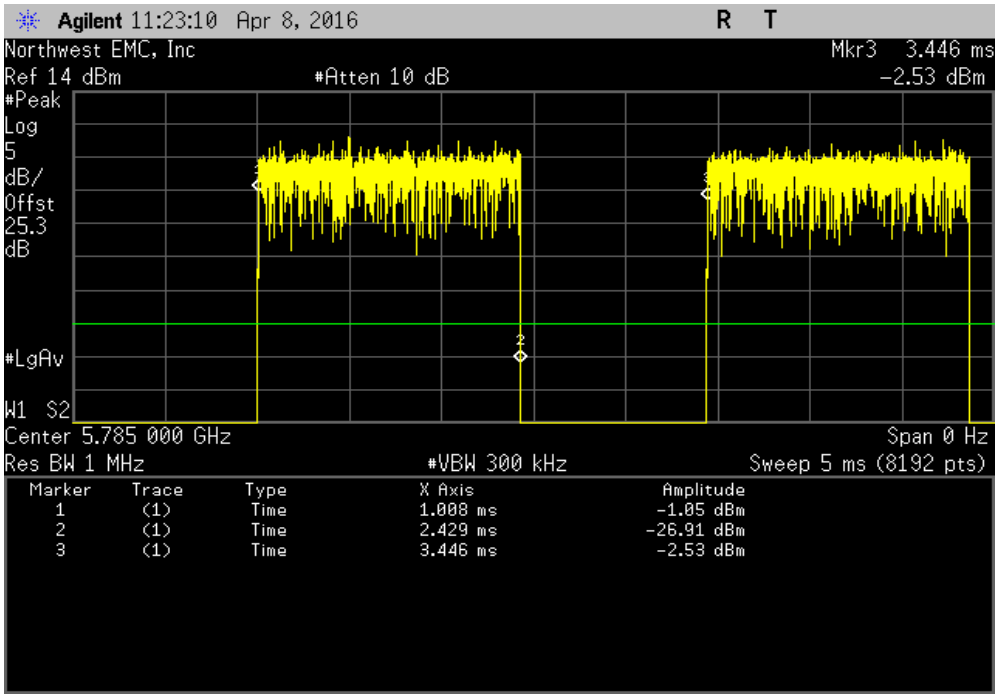
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



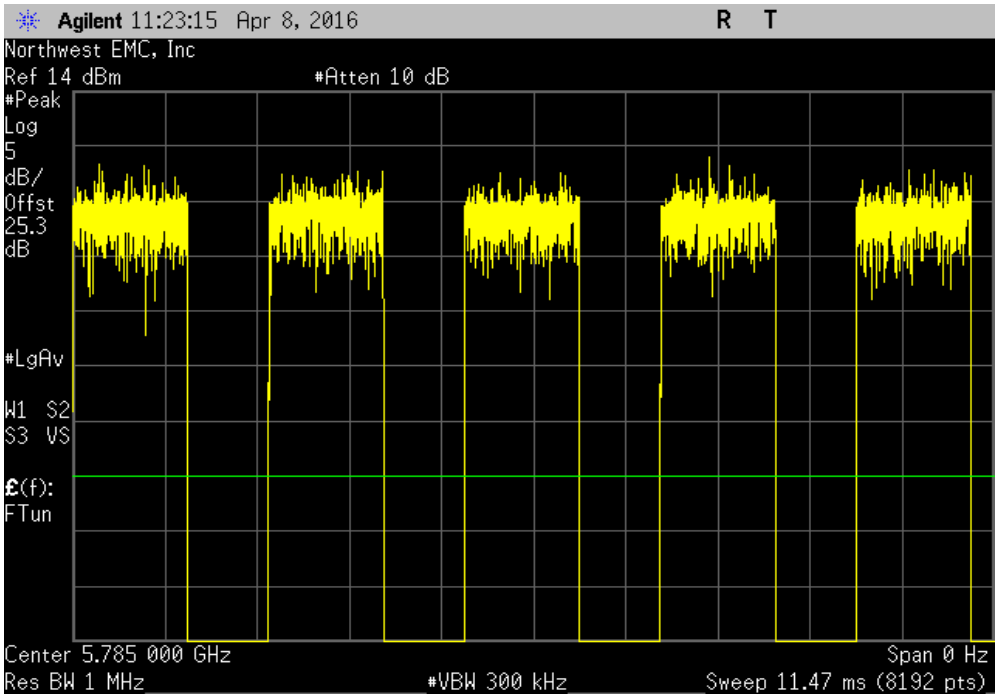
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	2.439 ms	1	58.3	N/A	N/A



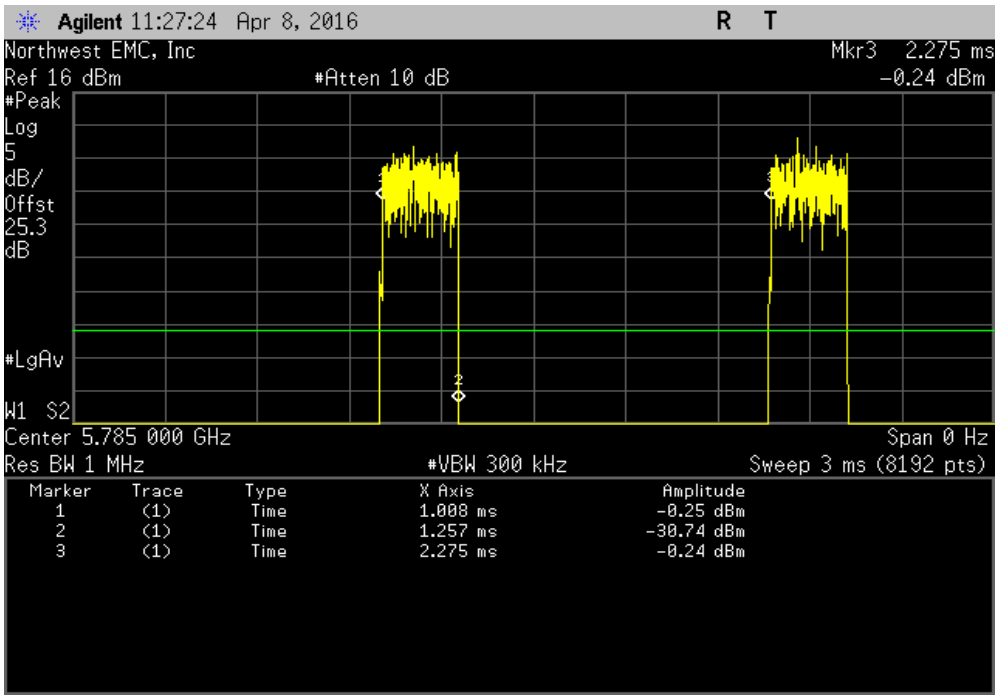
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



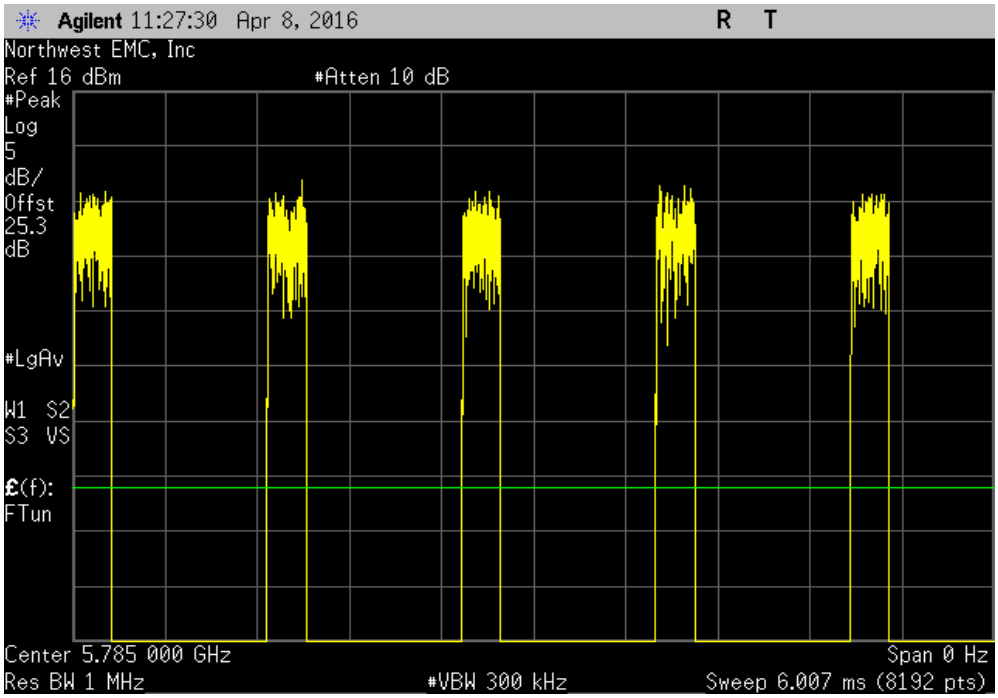
DUTY CYCLE

XMit 2015.01.14

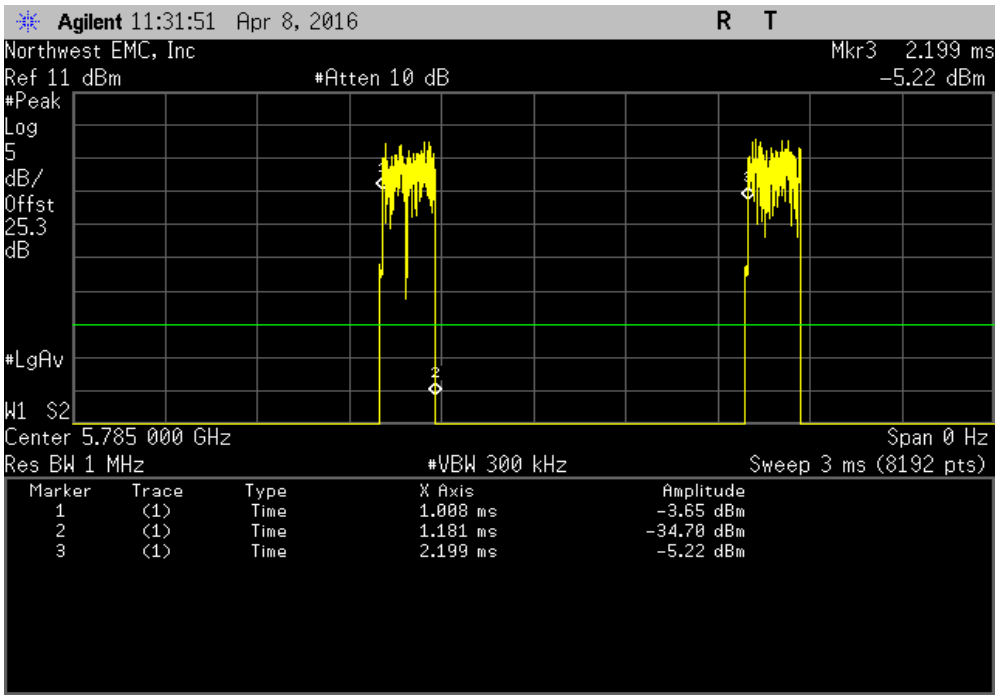
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	249.1 us	1.267 ms	1	19.7	N/A	N/A



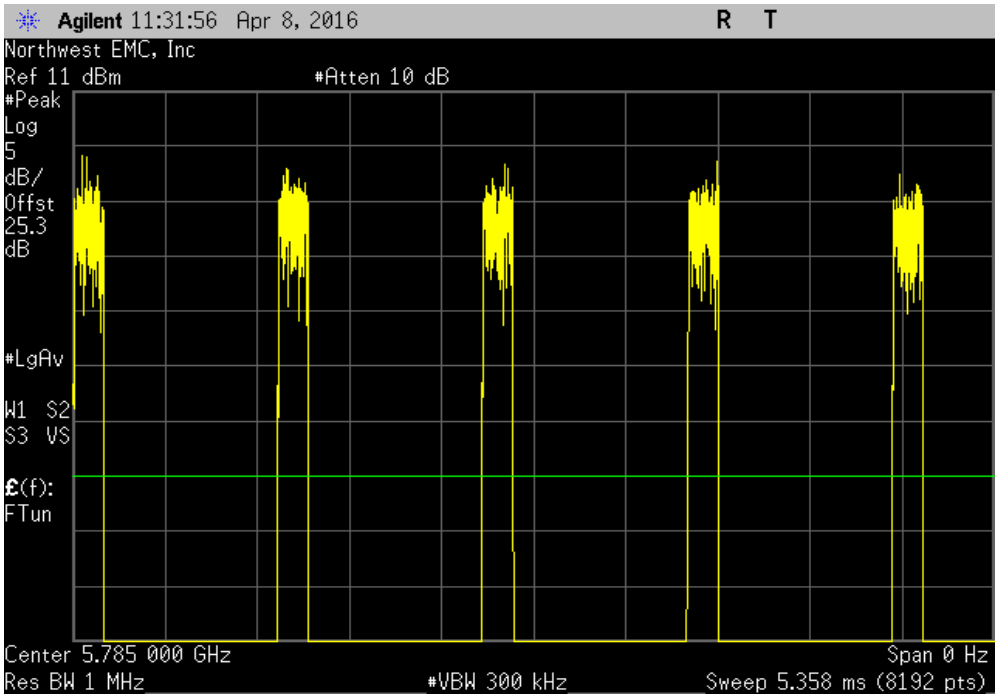
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



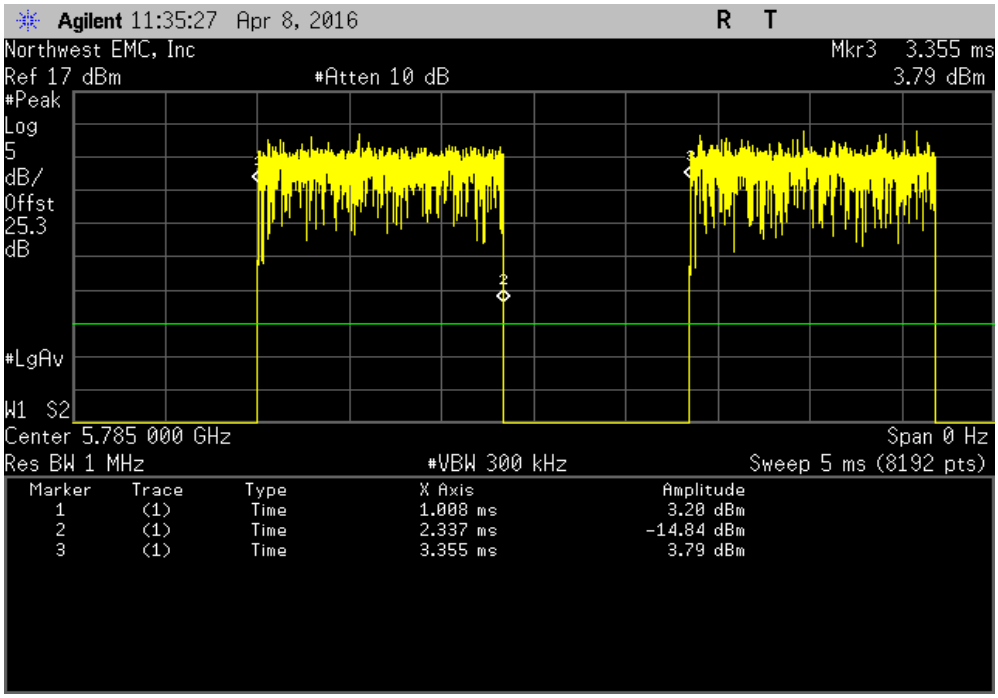
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.9 us	1.191 ms	1	14.5	N/A	N/A



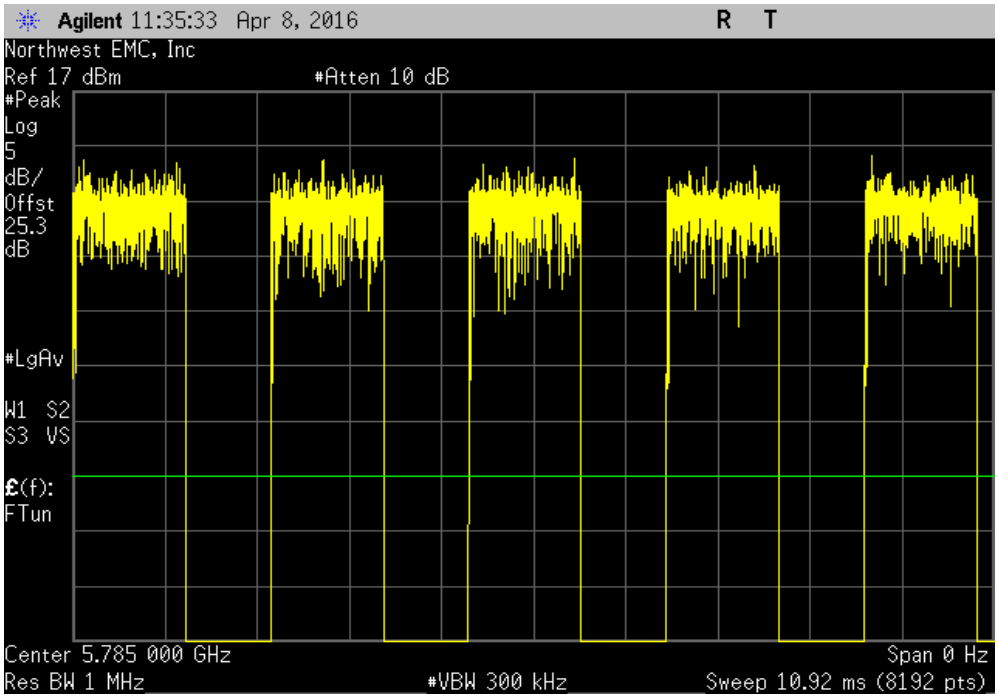
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	2.347 ms	1	56.6	N/A	N/A



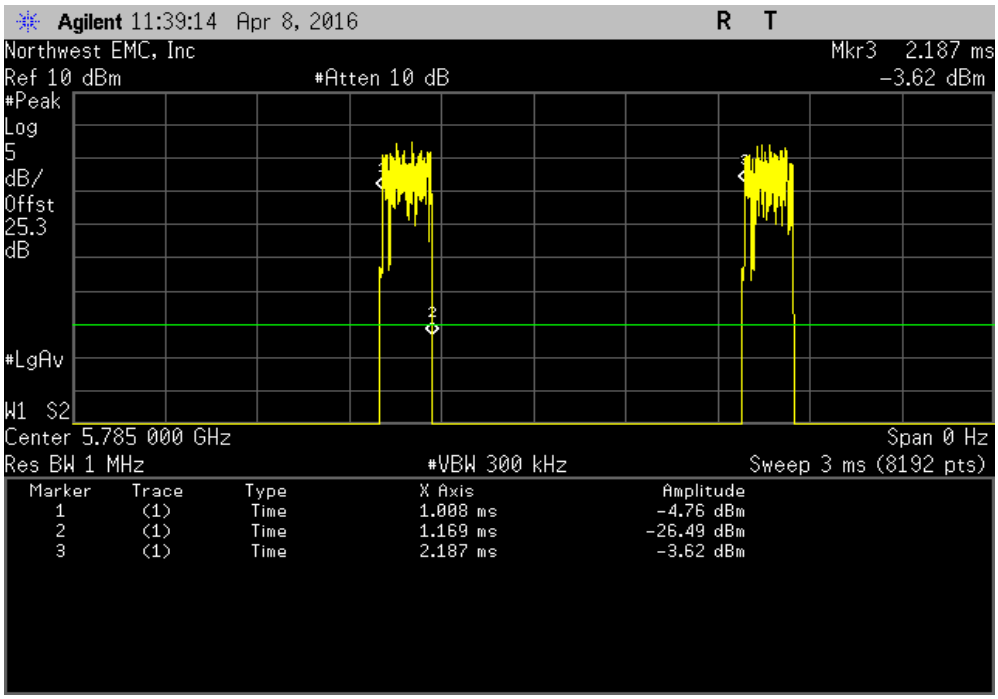
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



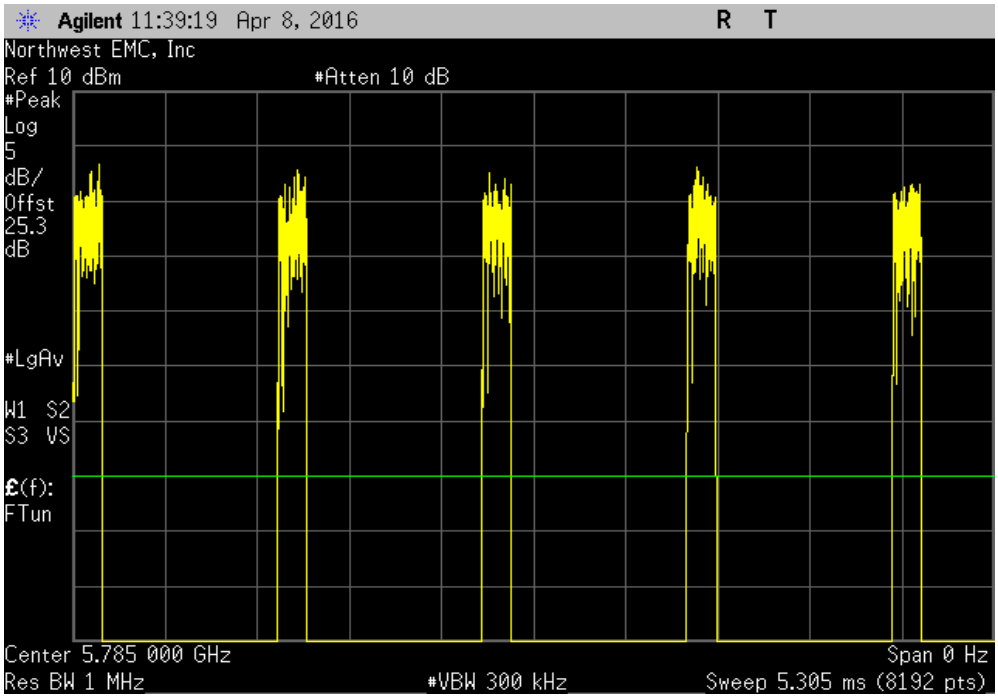
DUTY CYCLE

XMit 2015.01.14

5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.8 us	1.179 ms	1	13.6	N/A	N/A



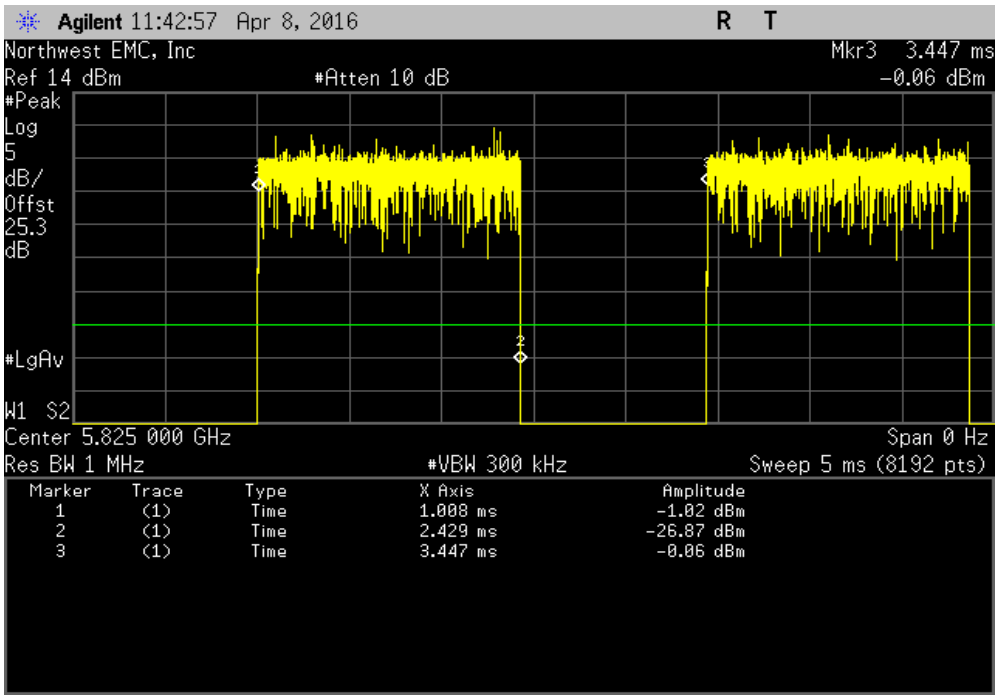
5725 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



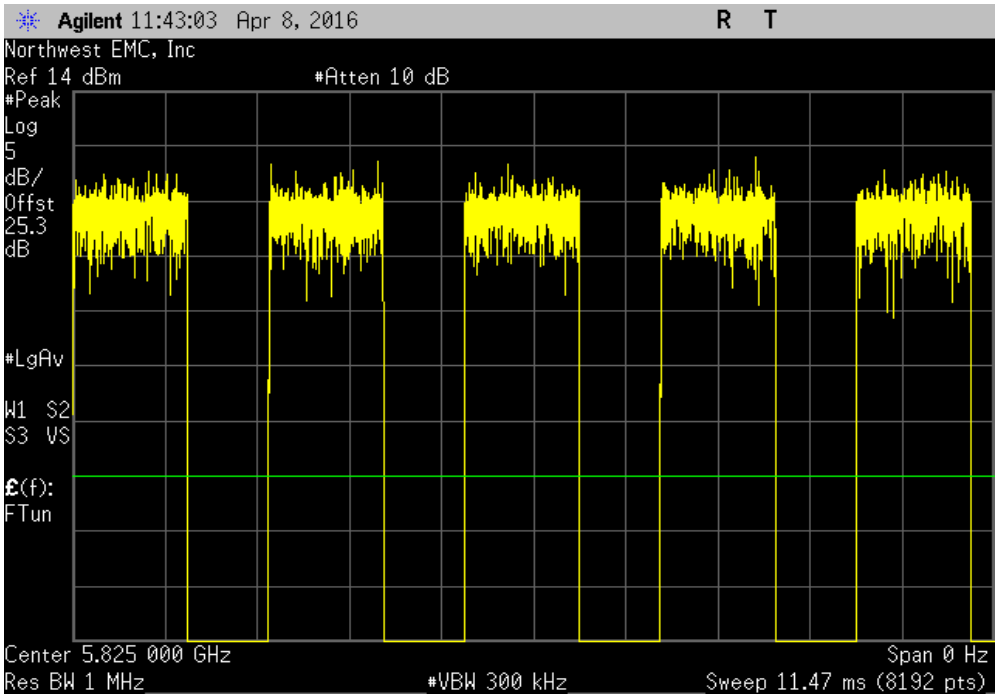
DUTY CYCLE

XMit 2015.01.14

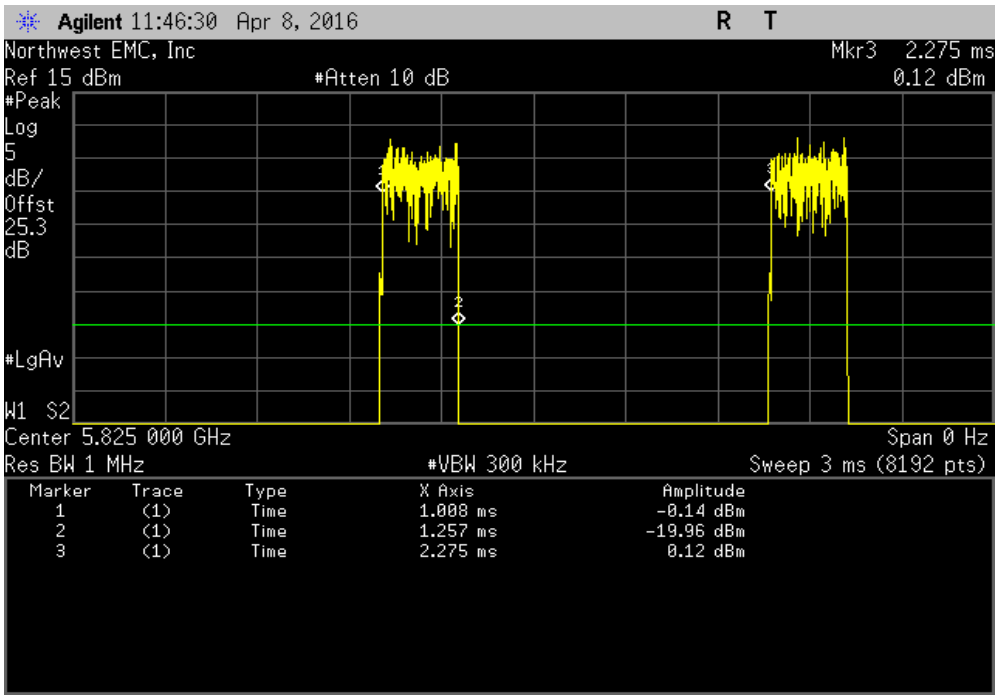
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.421 ms	2.439 ms	1	58.3	N/A	N/A



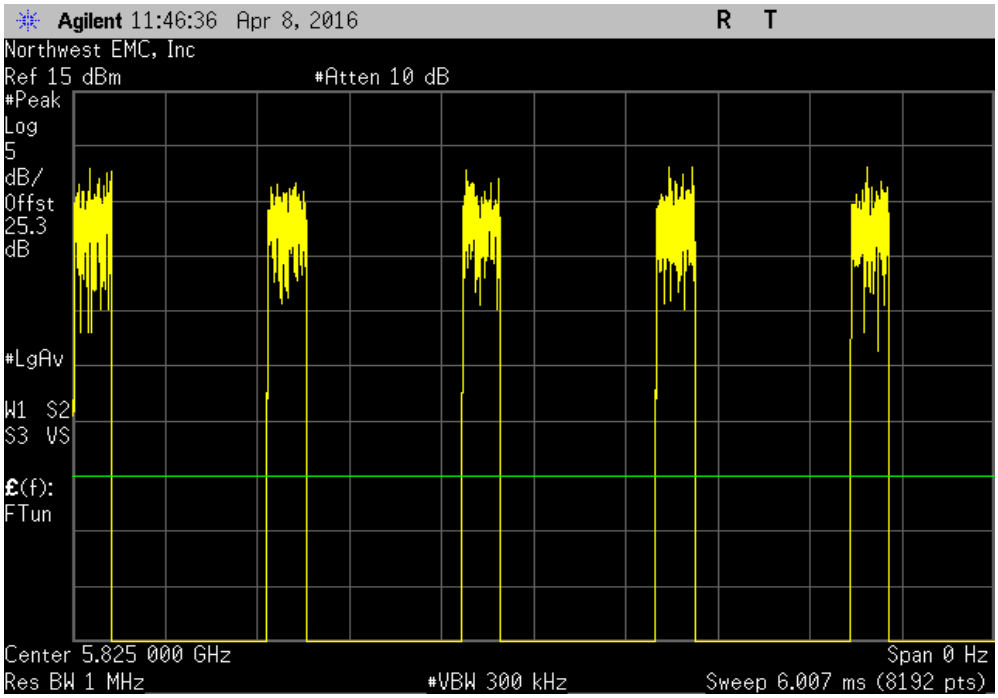
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 6 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	248.7 us	1.267 ms	1	19.6	N/A	N/A



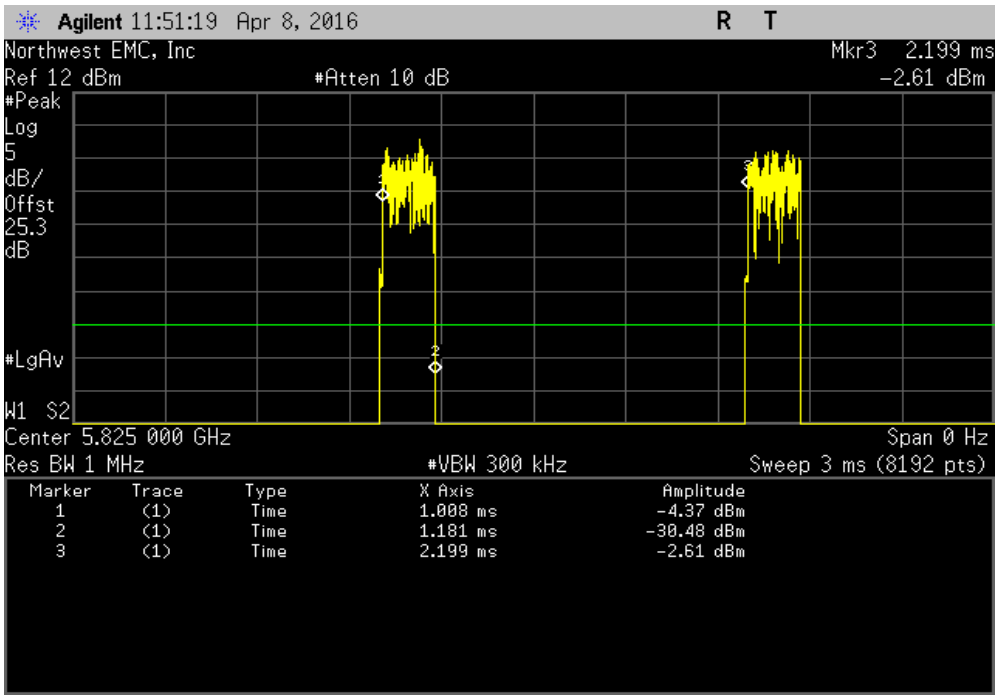
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 36 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



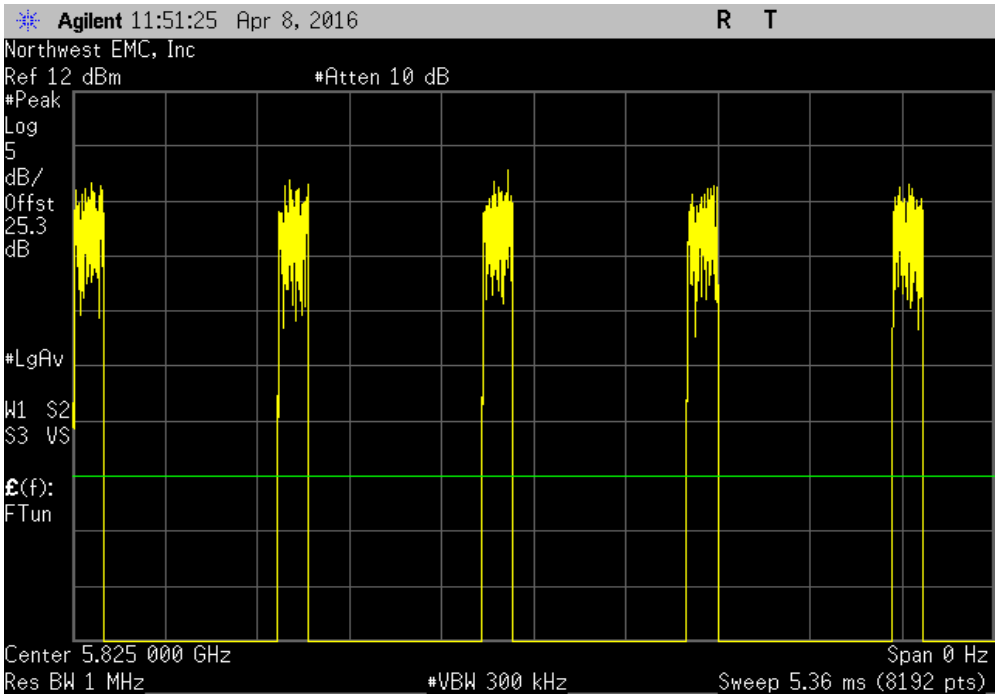
DUTY CYCLE

XMit 2015.01.14

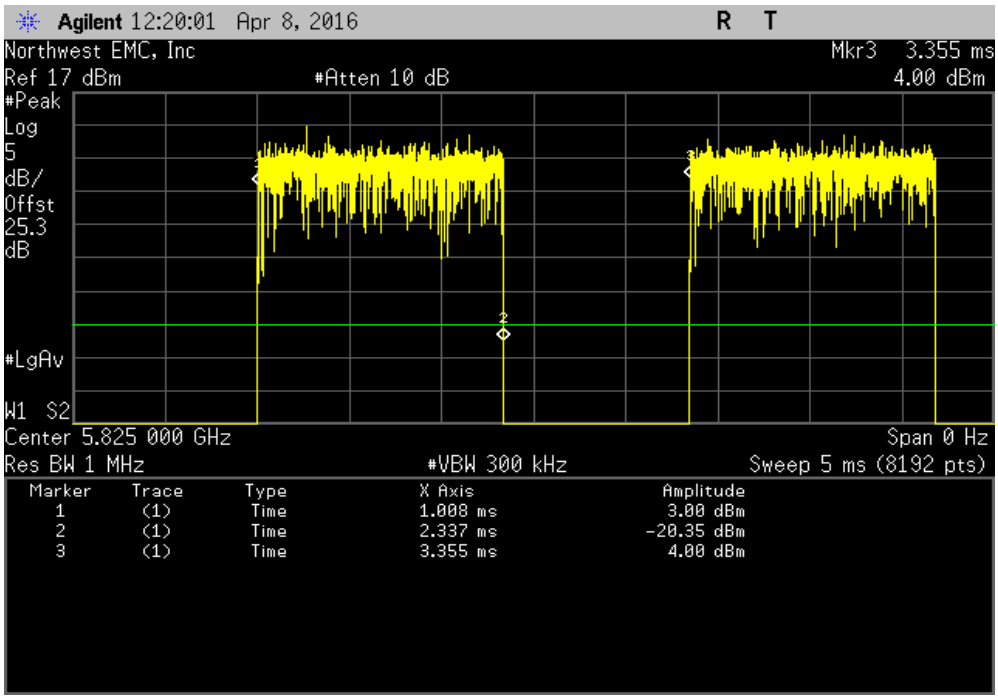
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	172.9 us	1.191 ms	1	14.5	N/A	N/A



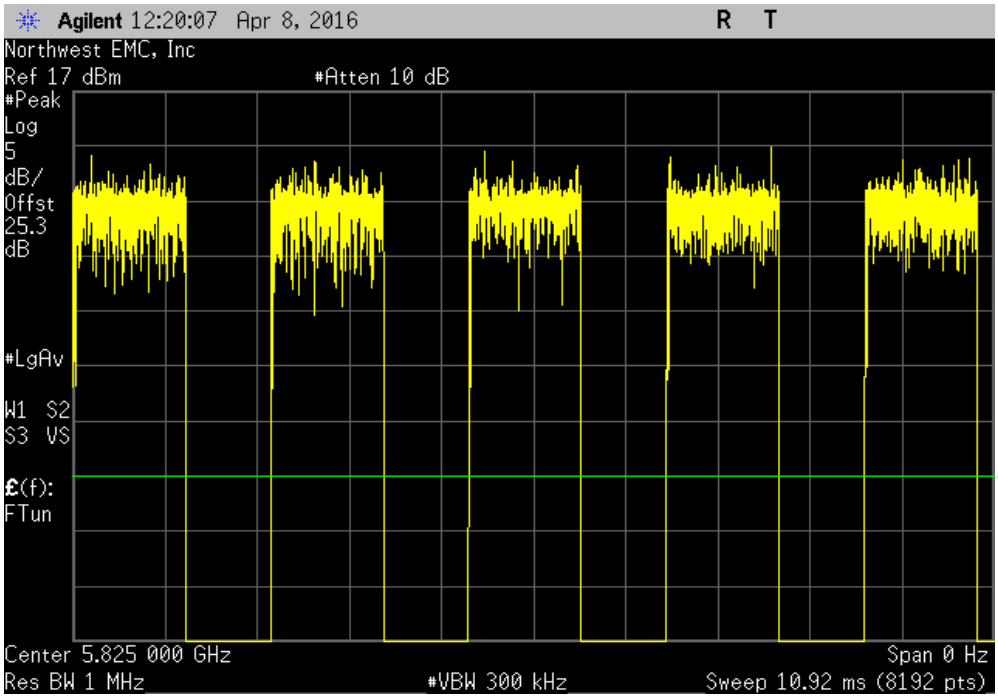
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 54 Mbps						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



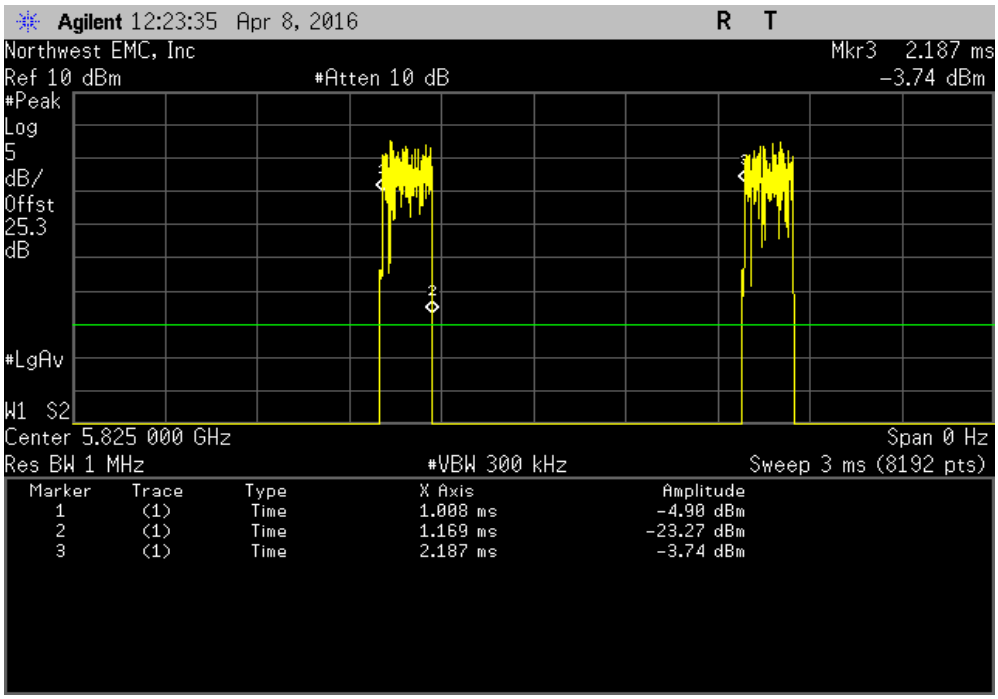
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.329 ms	2.347 ms	1	56.6	N/A	N/A



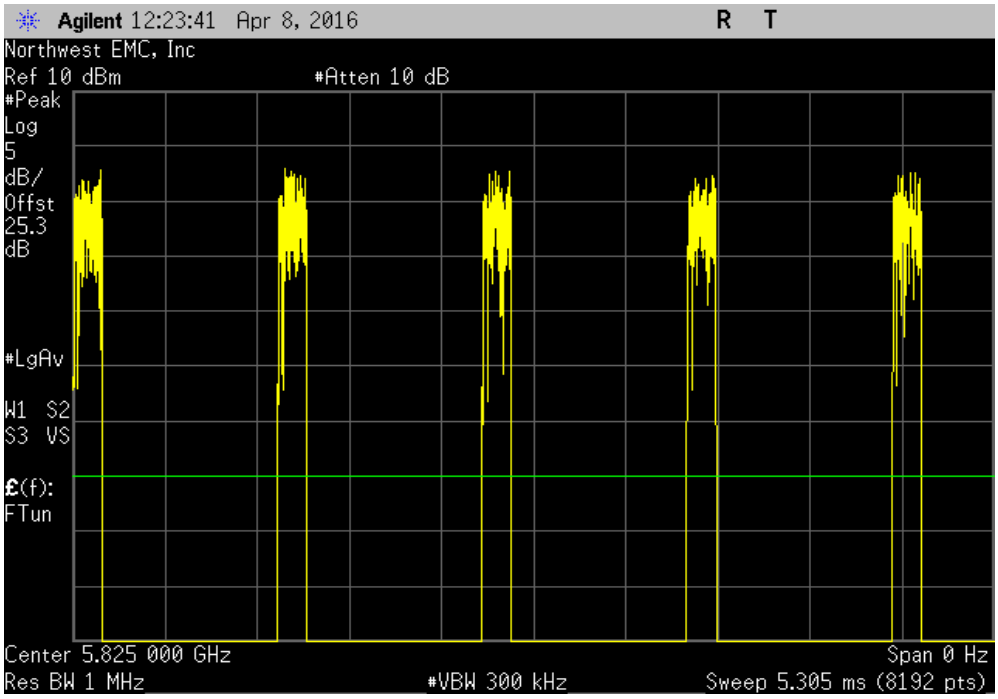
5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	160.8 us	1.179 ms	1	13.6	N/A	N/A



5725 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS7						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



MAXIMUM CONDUCTED OUTPUT POWER

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	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.

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-2 (RMS detection and trace averaging across the on and off times of the EUT transmission and use of a duty cycle correction factor).

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.

-Power was integrated across “B”, by using the channel power function of the analyzer.

A duty cycle correction factor was added to the measurement using the results of the formula of 10*LOG(1/D) where D is the duty cycle.

MAXIMUM CONDUCTED OUTPUT POWER

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/08/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	Adam Ford			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

Using the channel and modulation combination that produced the highest output power, a measurement was captured using original Peak detector method in order to match verified power against the original grant.

DEVIATIONS FROM TEST STANDARD

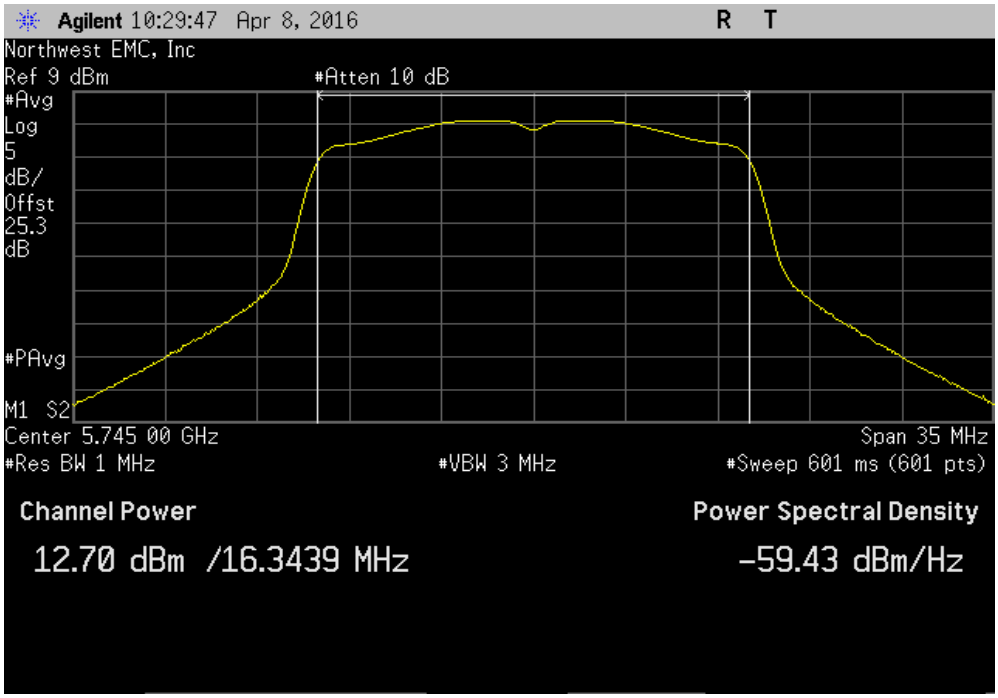
None

Configuration #	1	Signature

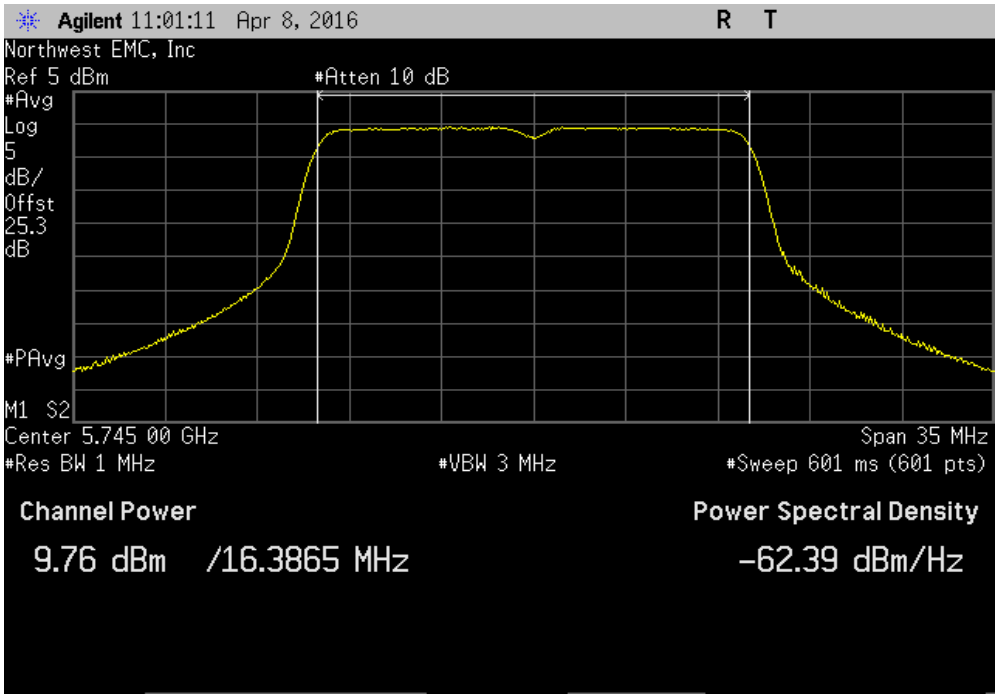
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results
5785 - 5825 MHz Band					
Low Channel, Ch 149 - 5745 MHz					
802.11(a) 6 Mbps	12.705	2.4	15.1	30	Pass
802.11(a) 36 Mbps	9.757	7.1	16.8	30	Pass
802.11(a) 54 Mbps	4.792	8.4	13.2	30	Pass
802.11(n) MCS0	13.471	2.5	15.9	30	Pass
802.11(n) MCS7	2.833	8.7	11.5	30	Pass
Mid Channel, Ch 157 - 5785 MHz					
802.11(a) 6 Mbps	12.083	2.3	14.4	30	Pass
802.11(a) 36 Mbps	9.383	7.1	16.4	30	Pass
802.11(a) 54 Mbps	4.78	8.4	13.2	30	Pass
802.11(n) MCS0	15.854	2.5	18.3	30	Pass
802.11(n) MCS7	3.525	8.7	12.2	30	Pass
High Channel, Ch 165 - 5825 MHz					
802.11(a) 6 Mbps	12.367	2.3	14.7	30	Pass
802.11(a) 36 Mbps	9.543	7.1	16.6	30	Pass
802.11(a) 54 Mbps	4.632	8.4	13	30	Pass
802.11(n) MCS0	15.903	2.5	18.4	30	Pass
802.11(n) MCS7	3.547	8.7	12.2	30	Pass

	Value (dBm)	Limit (dBm)	Results
Peak Detector Method, Verification of power from Original Grant			
High Channel, Ch 165 - 5825 MHz			
802.11(n) MCS0	20.096	30	Pass

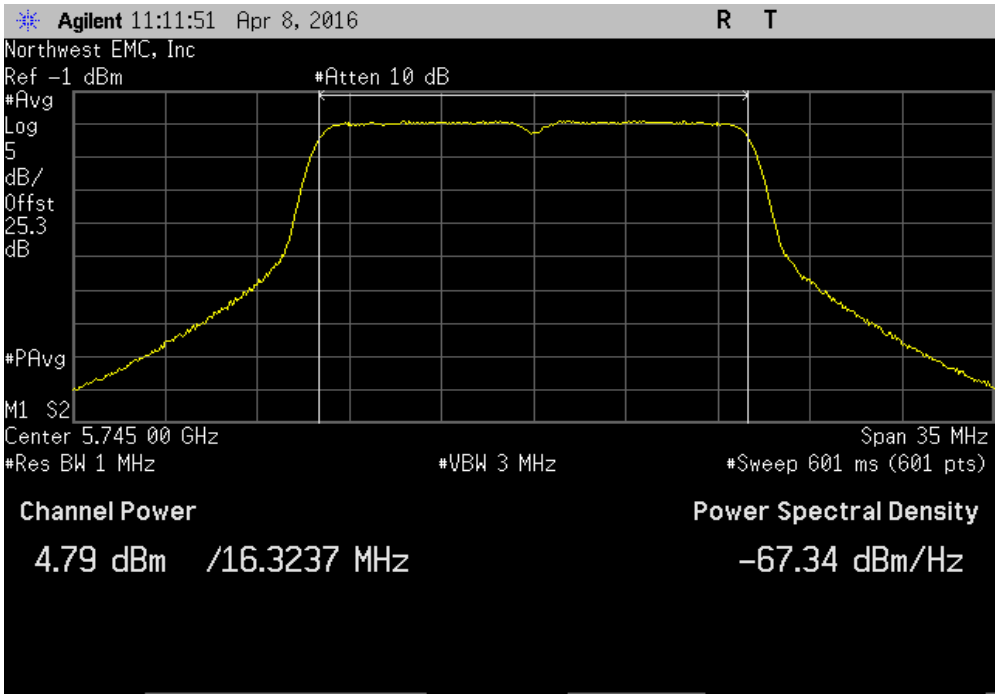
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.705	2.4		15.1	30	Pass



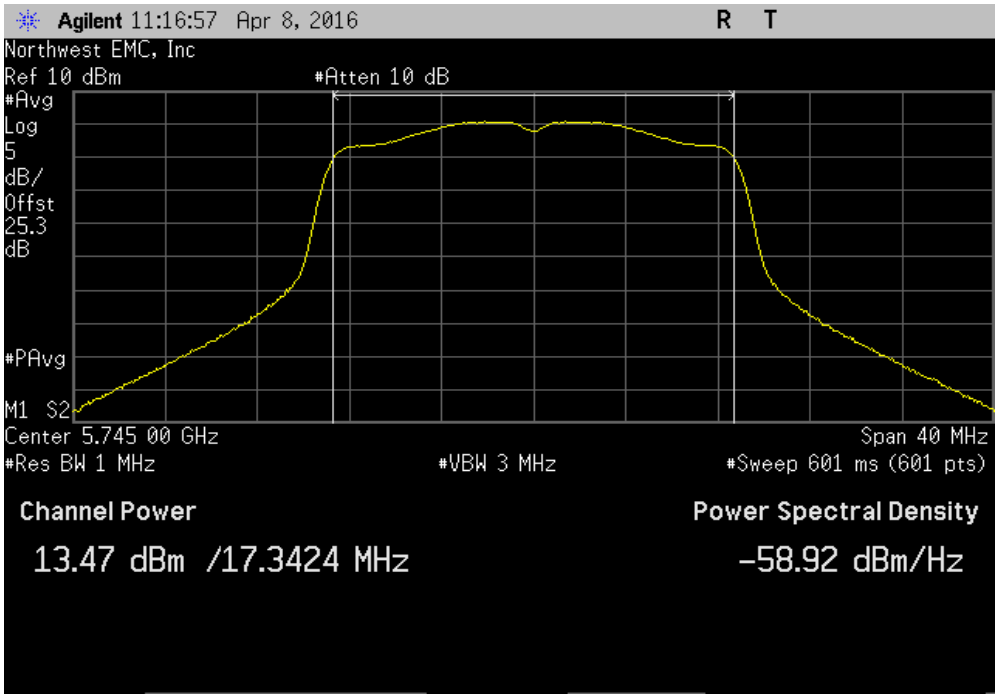
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	9.757	7.1		16.8	30	Pass



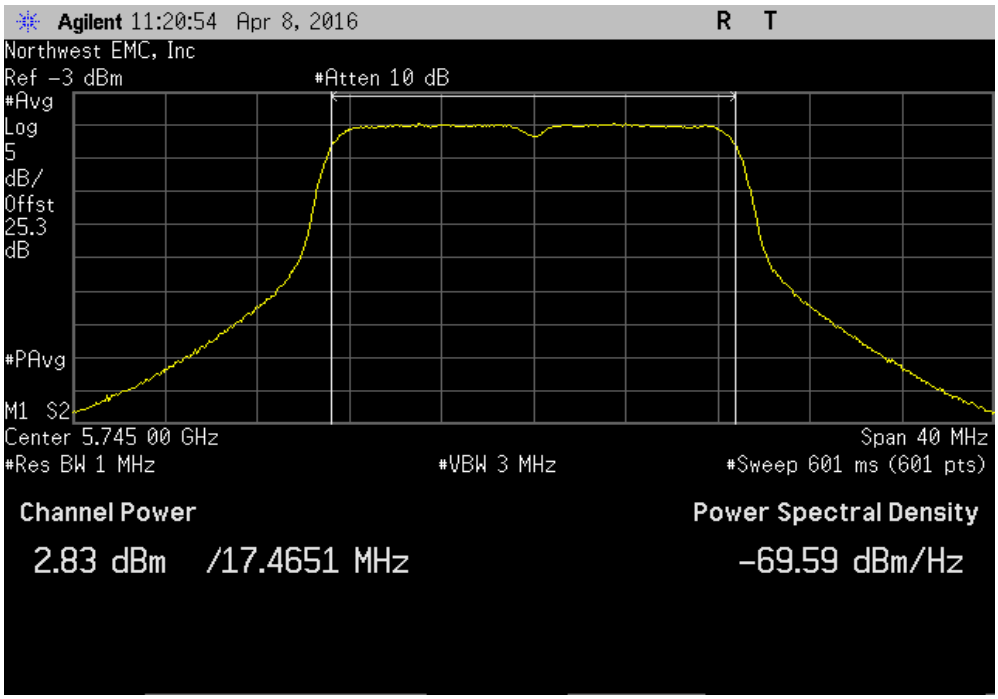
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	4.792	8.4		13.2	30	Pass



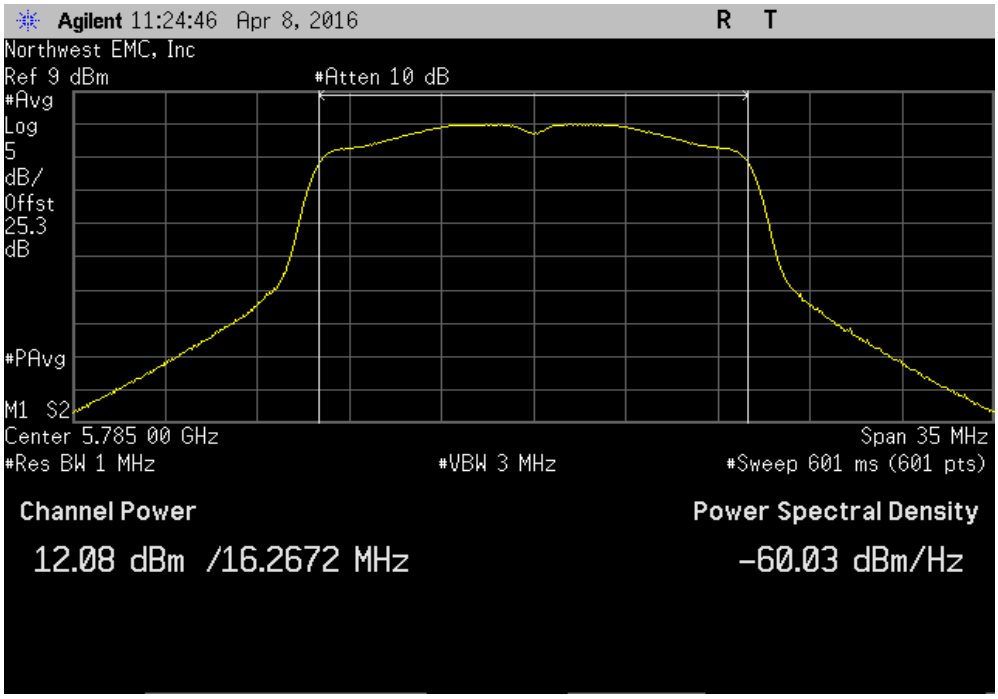
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	13.471	2.5		15.9	30	Pass



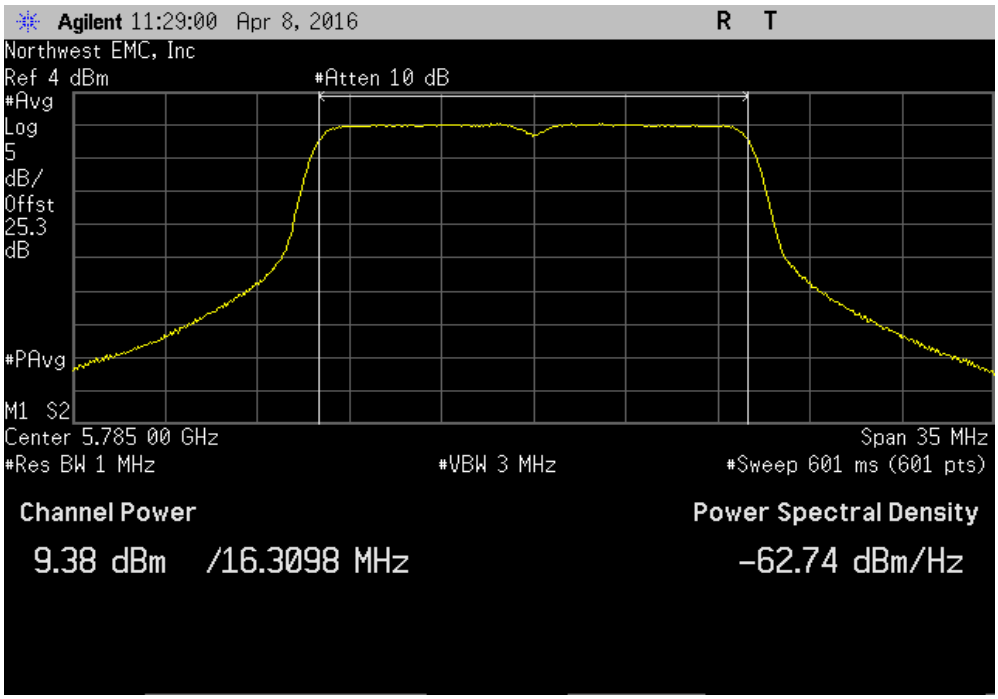
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	2.833	8.7		11.5	30	Pass



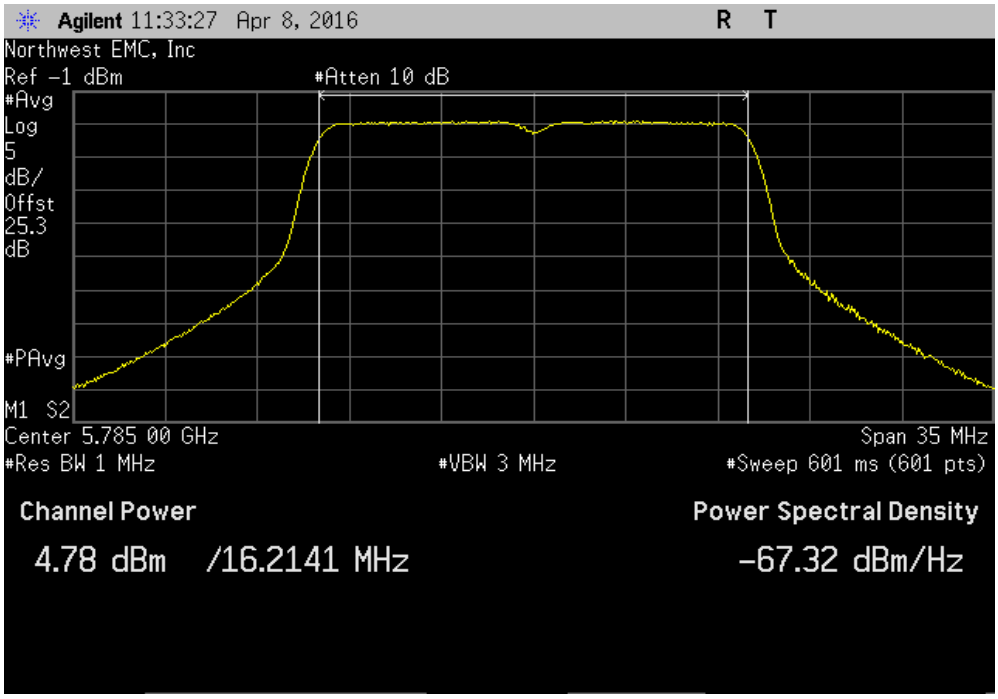
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 6 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.083	2.3		14.4	30	Pass



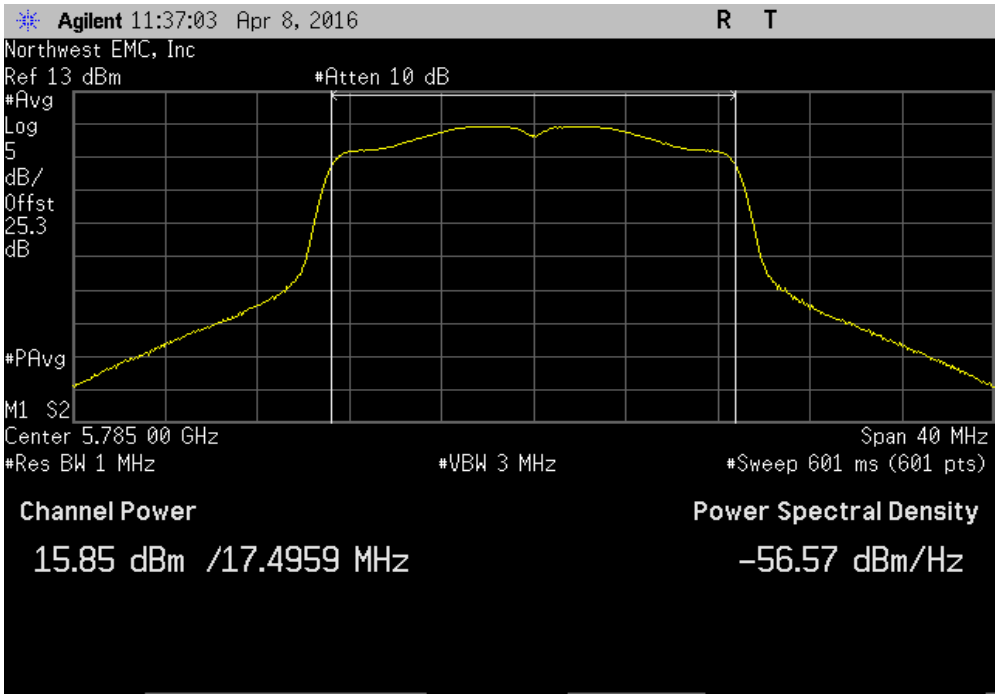
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 36 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	9.383	7.1		16.4	30	Pass



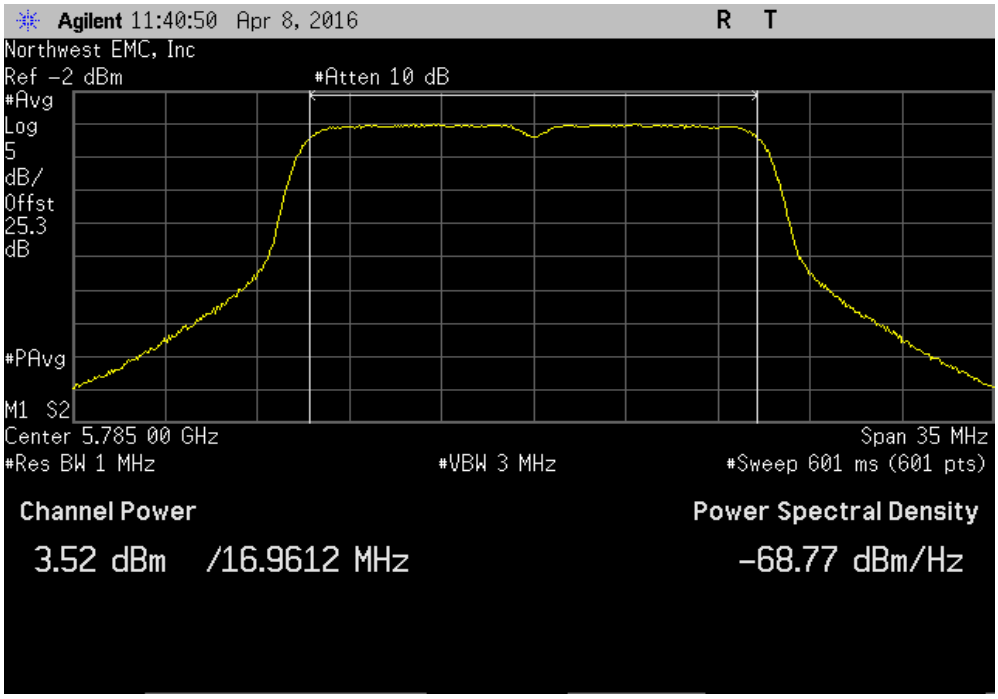
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 54 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	4.78	8.4		13.2	30	Pass



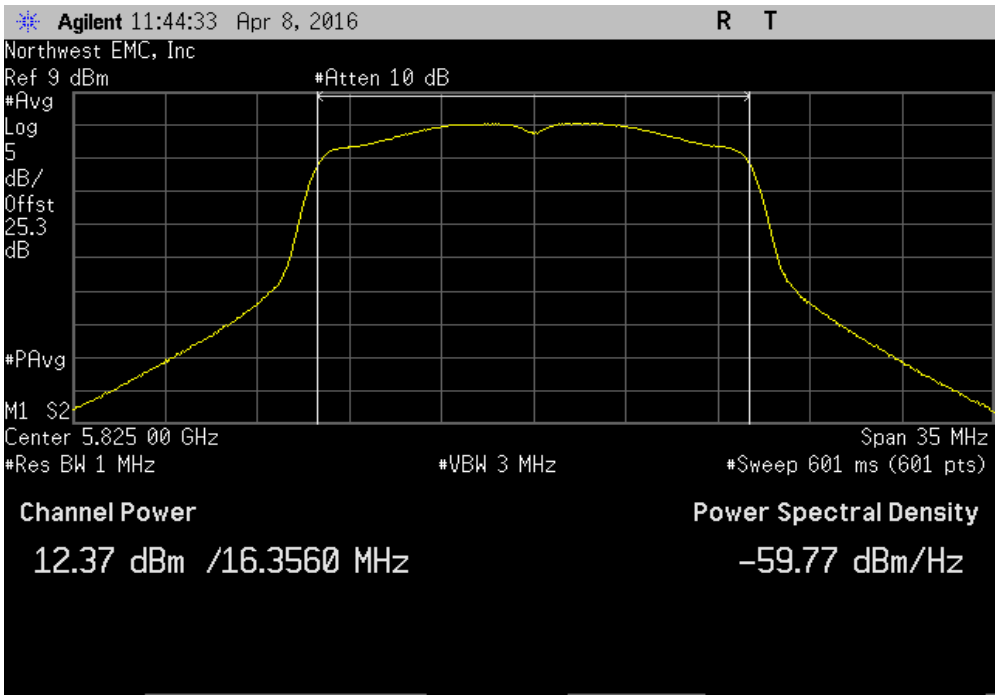
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS0						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	15.854	2.5		18.3	30	Pass



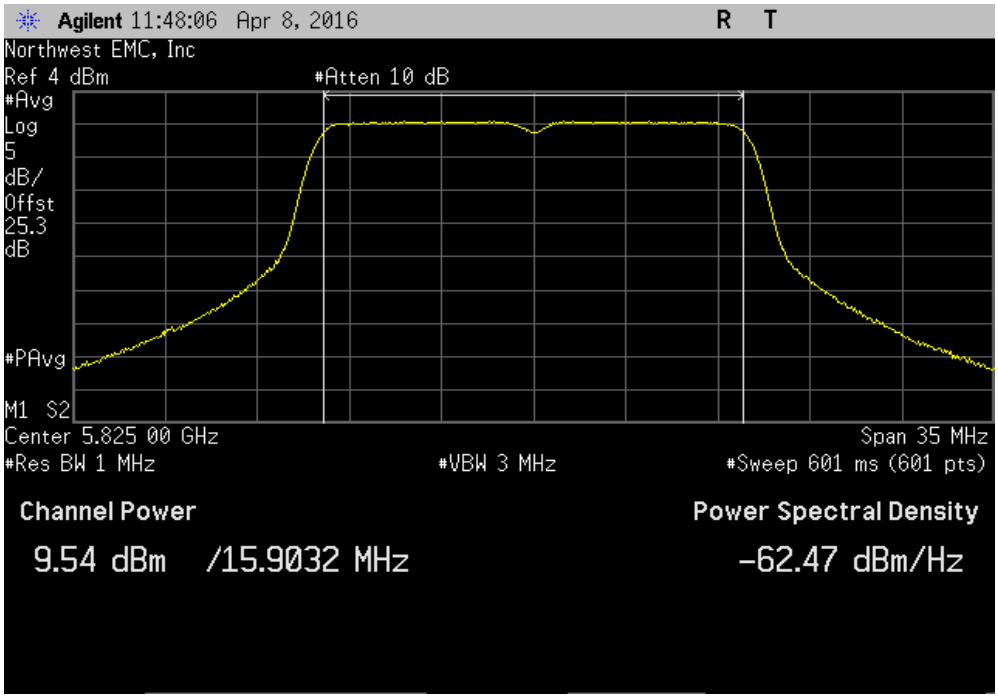
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS7						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	3.525	8.7		12.2	30	Pass



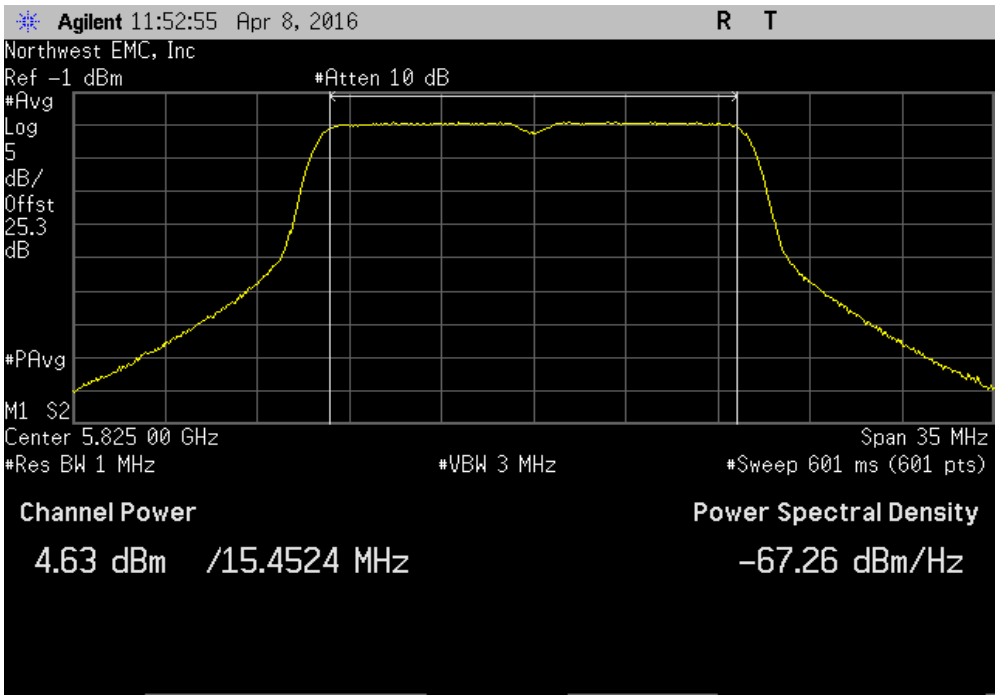
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 6 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.367	2.3		14.7	30	Pass



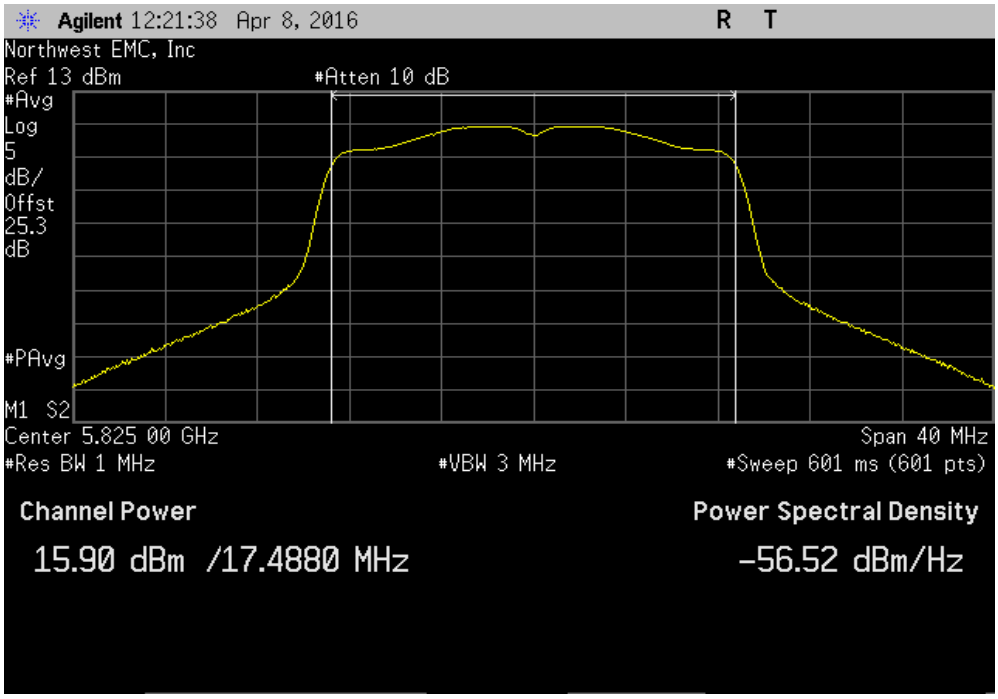
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 36 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	9.543	7.1		16.6	30	Pass



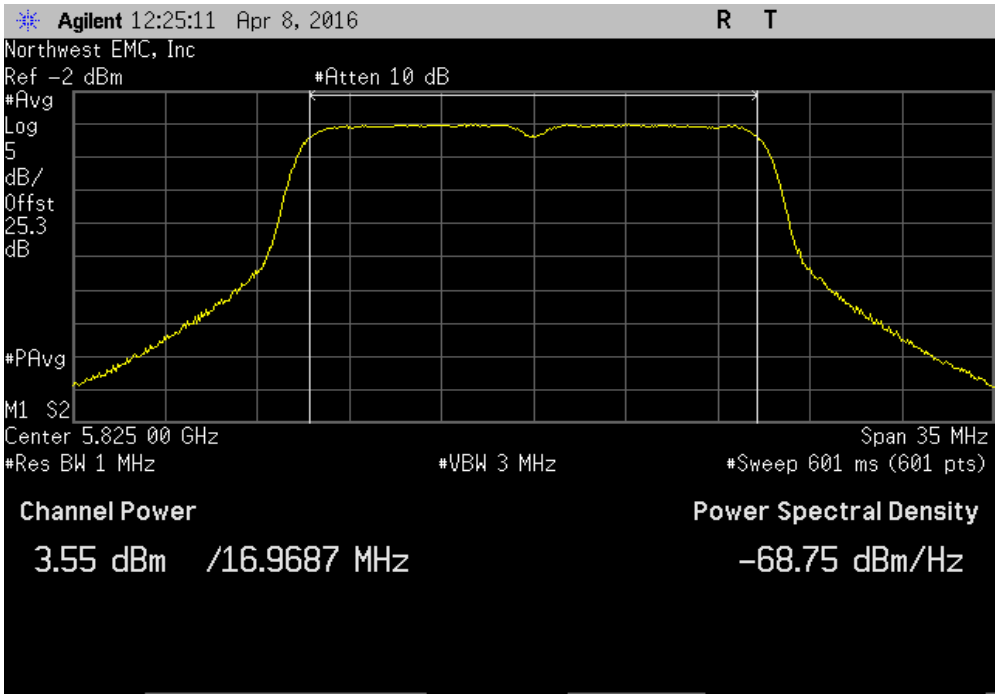
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 54 Mbps						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	4.632	8.4		13	30	Pass



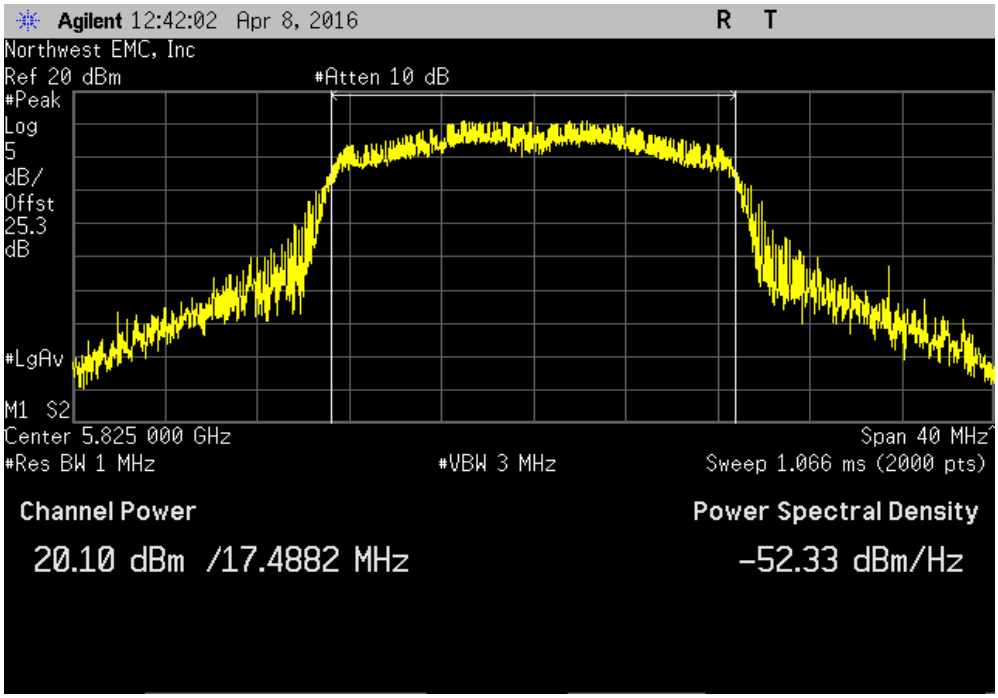
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	15.903	2.5		18.4	30	Pass



5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS7						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	3.547	8.7		12.2	30	Pass



5725 - 5785 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
				Value (dBm)	Limit (<)	Results
				20.096	30	Pass



OCCUPIED BANDWIDTH

NORTHWEST EMC

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	12
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	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 = ≥ 3x 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

OCCUPIED BANDWIDTH

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/08/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	Adam Ford			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

None

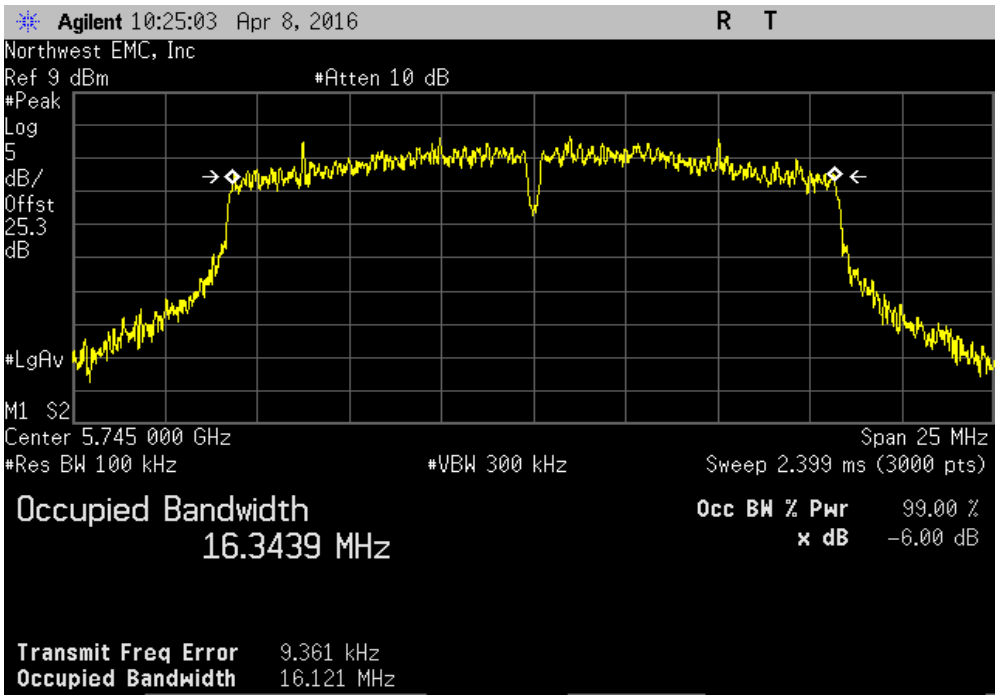
DEVIATIONS FROM TEST STANDARD

None

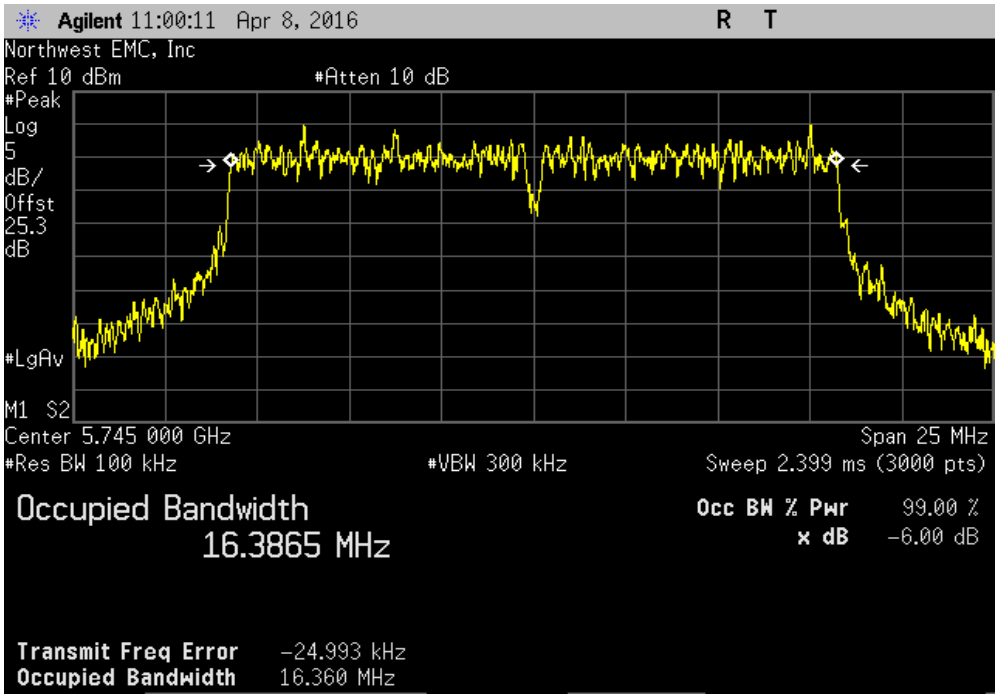
Configuration #	1	Signature

	Value	Limit (>)	Result
5785 - 5825 MHz Band			
Low Channel, Ch 149 - 5745 MHz			
802.11(a) 6 Mbps	16.121 MHz	500 kHz	Pass
802.11(a) 36 Mbps	16.36 MHz	500 kHz	Pass
802.11(a) 54 Mbps	16.199 MHz	500 kHz	Pass
802.11(n) MCS0	11.659 MHz	500 kHz	Pass
802.11(n) MCS7	17.215 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz			
802.11(a) 6 Mbps	14.491 MHz	500 kHz	Pass
802.11(a) 36 Mbps	16.023 MHz	500 kHz	Pass
802.11(a) 54 Mbps	15.778 MHz	500 kHz	Pass
802.11(n) MCS0	14.252 MHz	500 kHz	Pass
802.11(n) MCS7	16.474 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz			
802.11(a) 6 Mbps	14.899 MHz	500 kHz	Pass
802.11(a) 36 Mbps	15.8 MHz	500 kHz	Pass
802.11(a) 54 Mbps	15.337 MHz	500 kHz	Pass
802.11(n) MCS0	14.423 MHz	500 kHz	Pass
802.11(n) MCS7	16.456 MHz	500 kHz	Pass

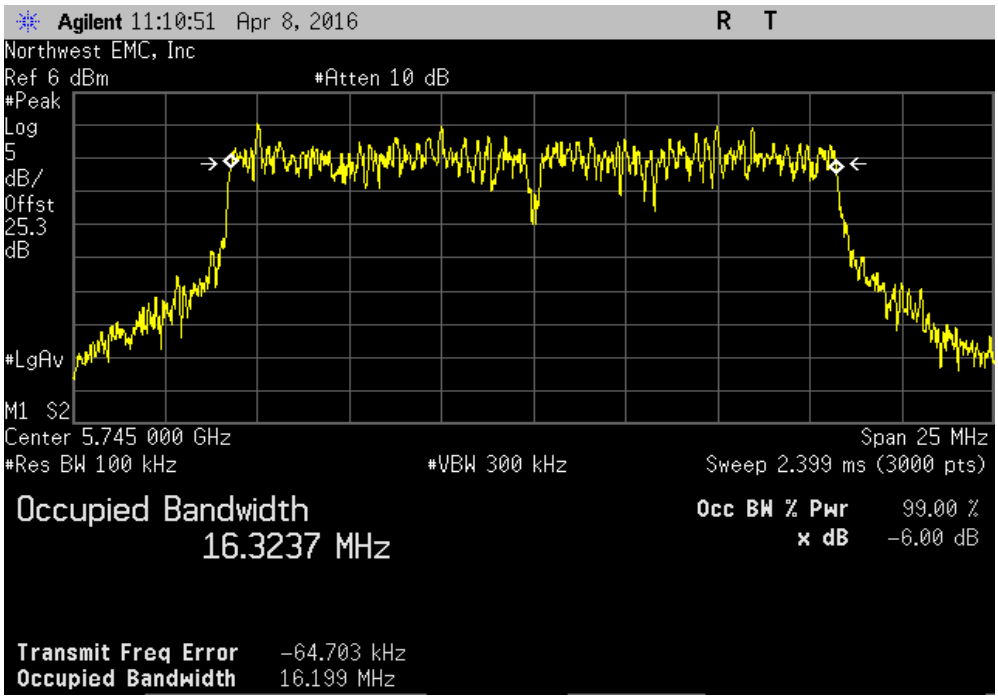
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
				Value	Limit (>)	Result
				16.121 MHz	500 kHz	Pass



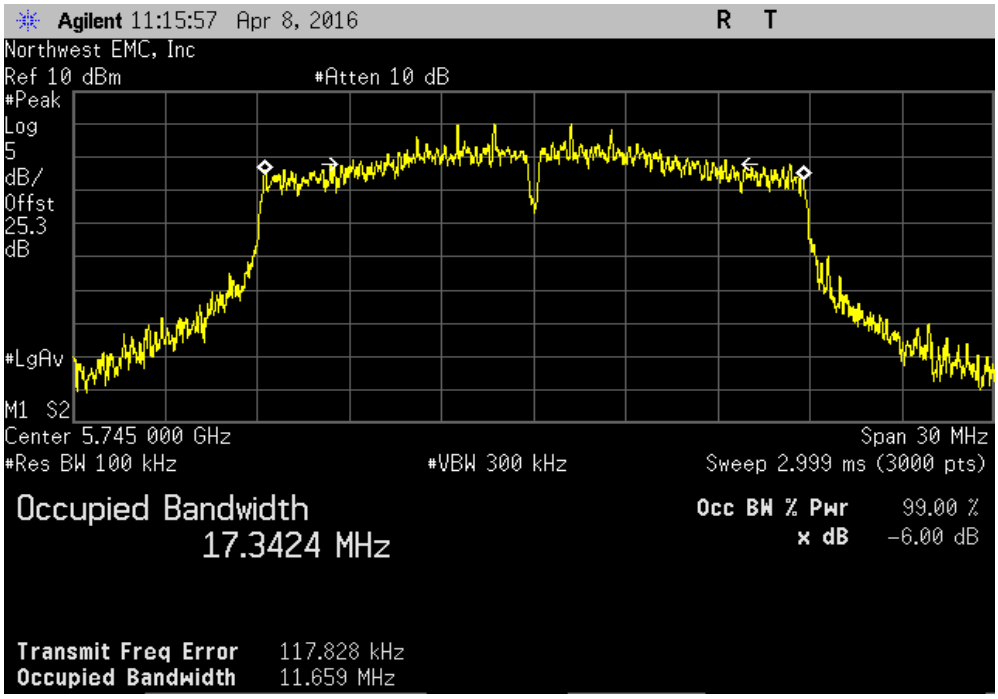
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
				Value	Limit (>)	Result
				16.36 MHz	500 kHz	Pass



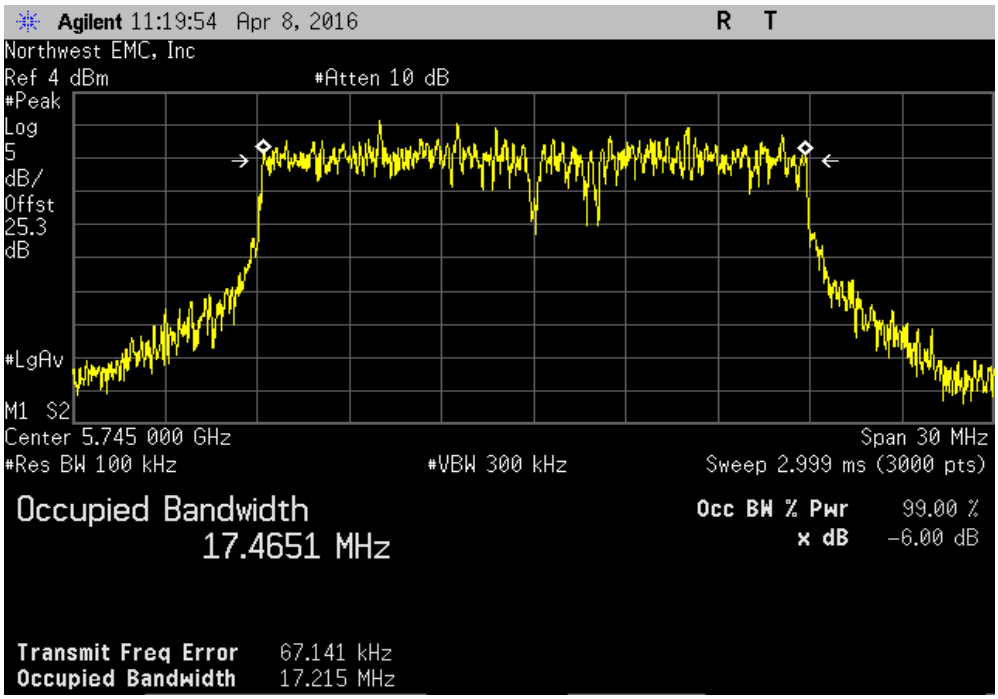
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
				Value	Limit (>)	Result
				16.199 MHz	500 kHz	Pass



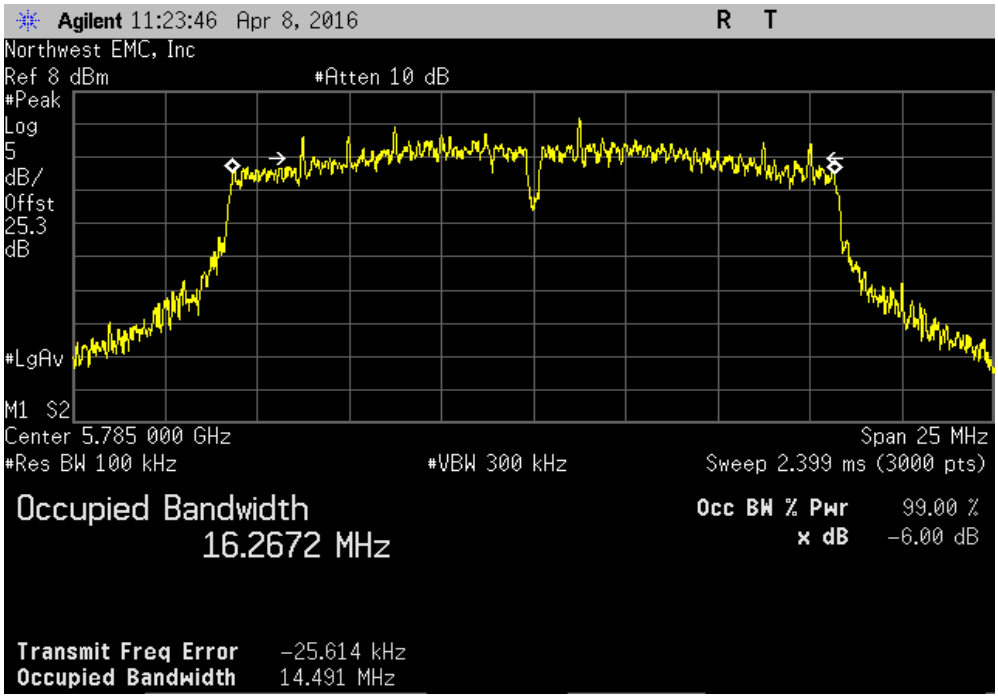
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
				Value	Limit (>)	Result
				11.659 MHz	500 kHz	Pass



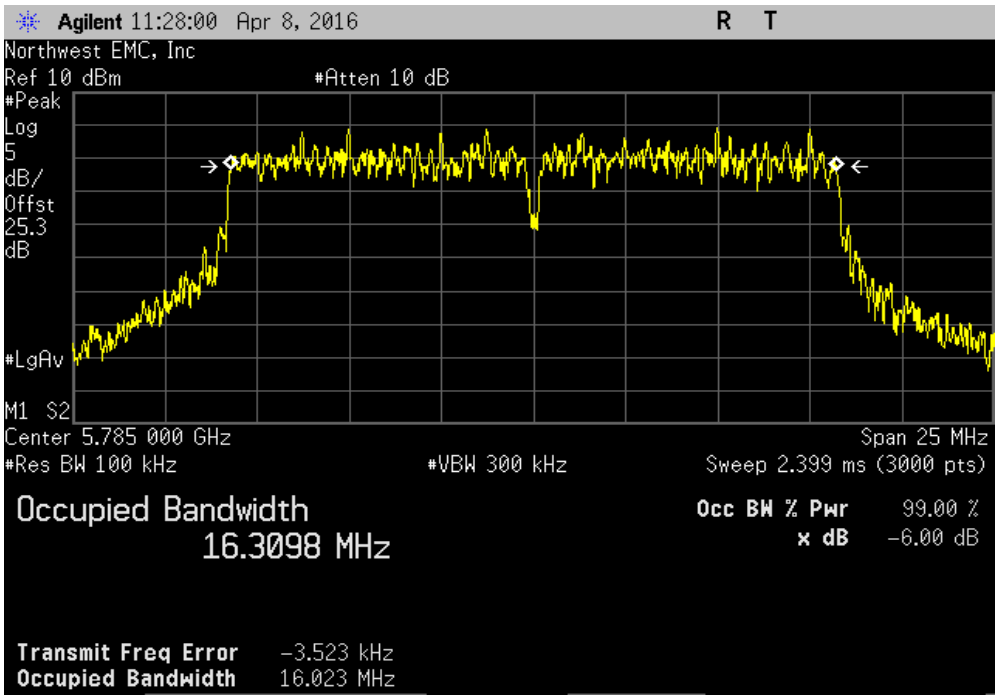
5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
				Value	Limit (>)	Result
				17.215 MHz	500 kHz	Pass



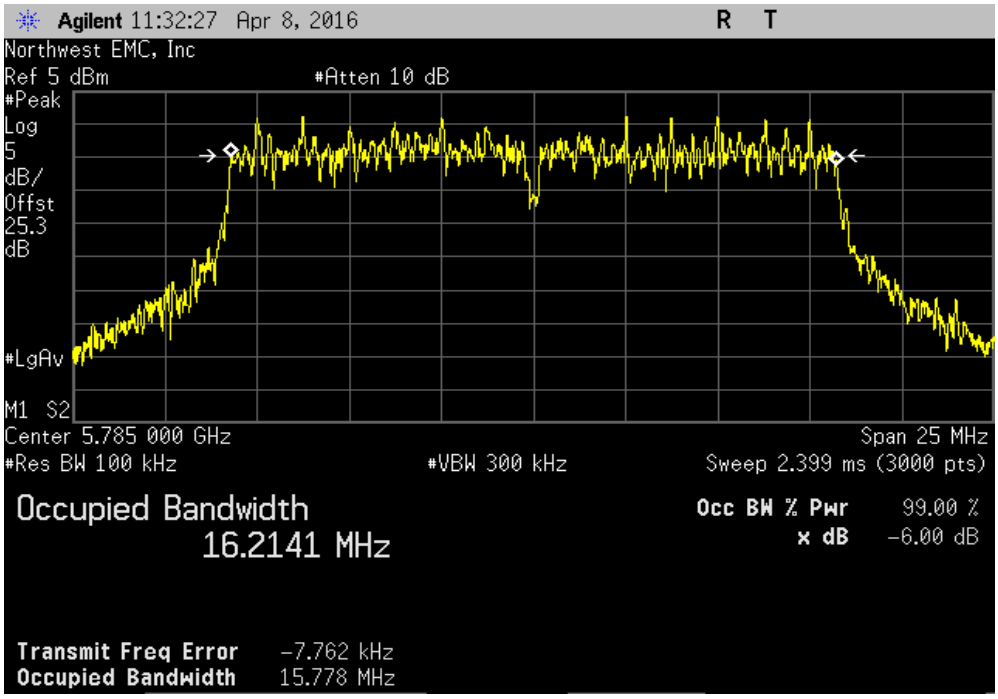
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 6 Mbps						
				Value	Limit (>)	Result
				14.491 MHz	500 kHz	Pass



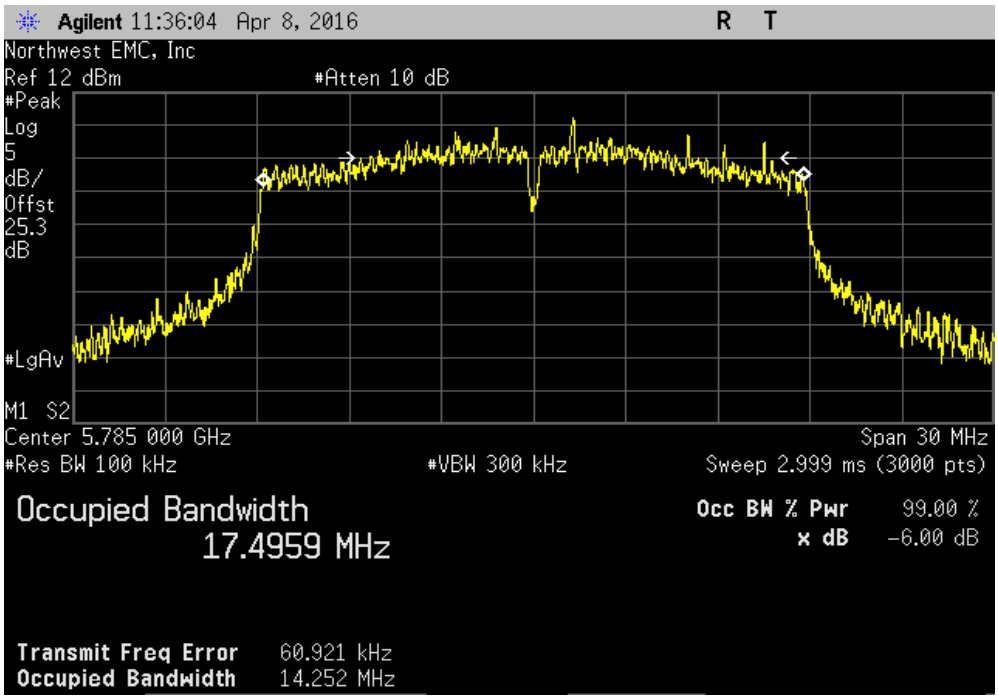
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 36 Mbps						
				Value	Limit (>)	Result
				16.023 MHz	500 kHz	Pass



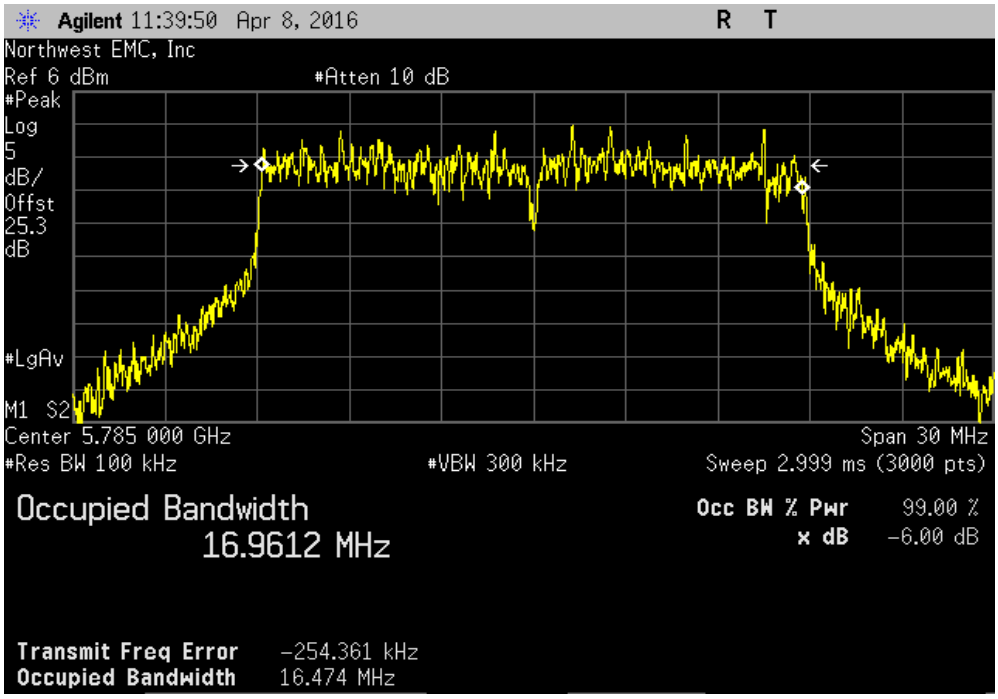
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 54 Mbps						
				Value	Limit (>)	Result
				15.778 MHz	500 kHz	Pass



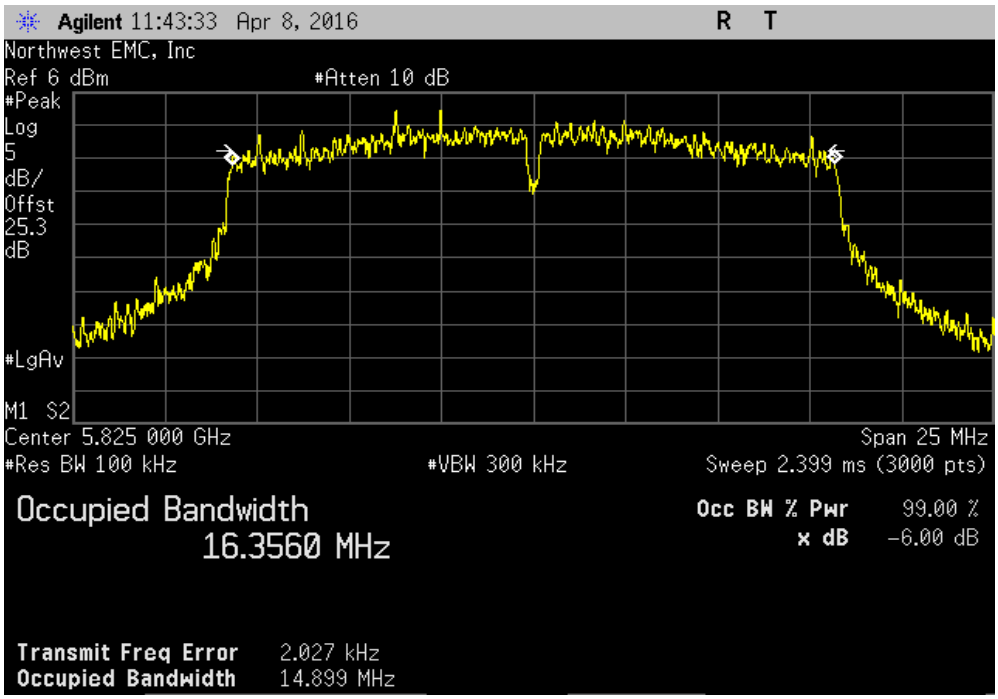
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS0						
				Value	Limit (>)	Result
				14.252 MHz	500 kHz	Pass



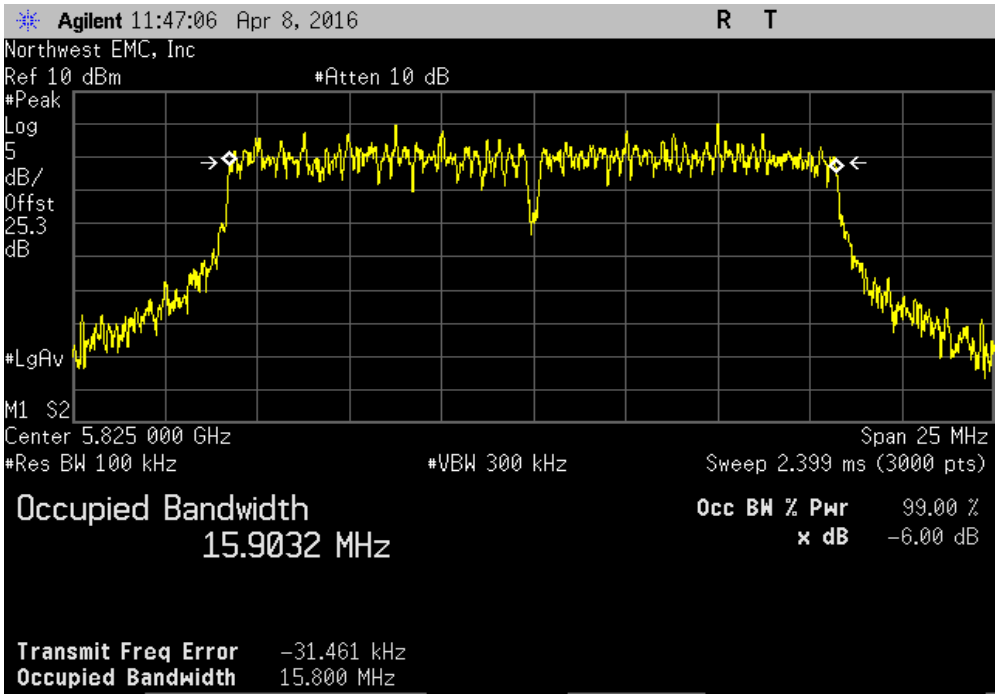
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS7						
				Value	Limit (>)	Result
				16.474 MHz	500 kHz	Pass



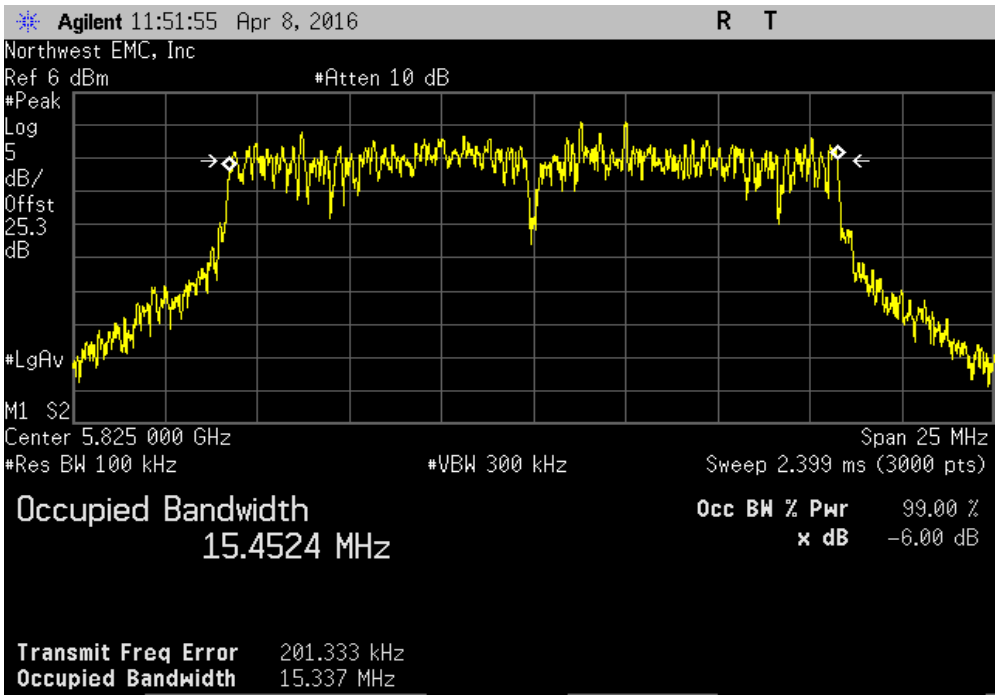
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 6 Mbps						
				Value	Limit (>)	Result
				14.899 MHz	500 kHz	Pass



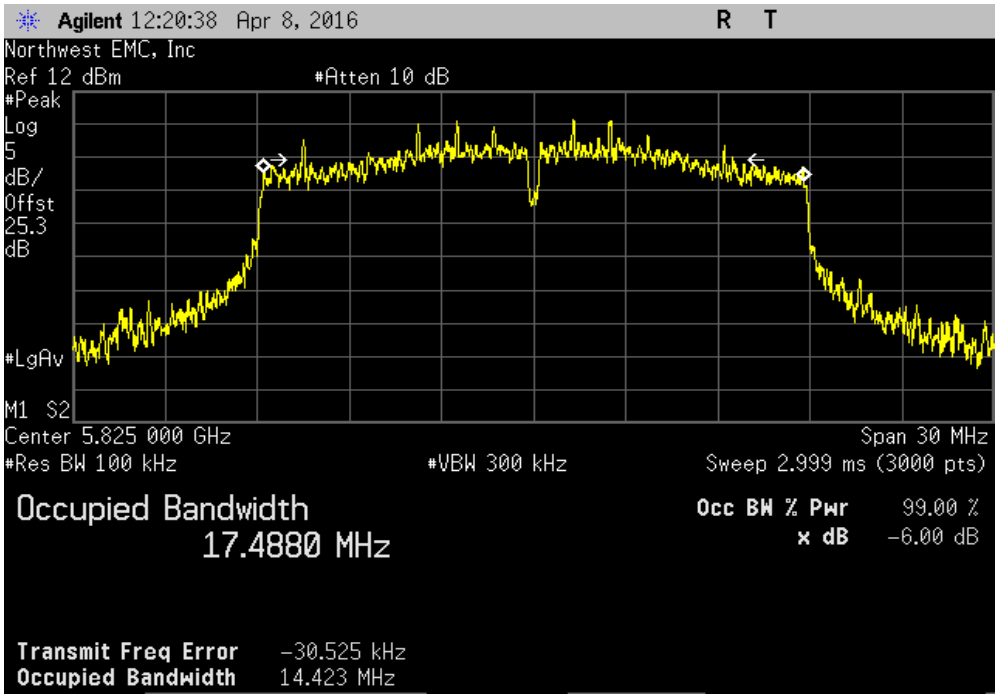
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 36 Mbps						
				Value	Limit (>)	Result
				15.8 MHz	500 kHz	Pass



5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 54 Mbps						
				Value	Limit (>)	Result
				15.337 MHz	500 kHz	Pass



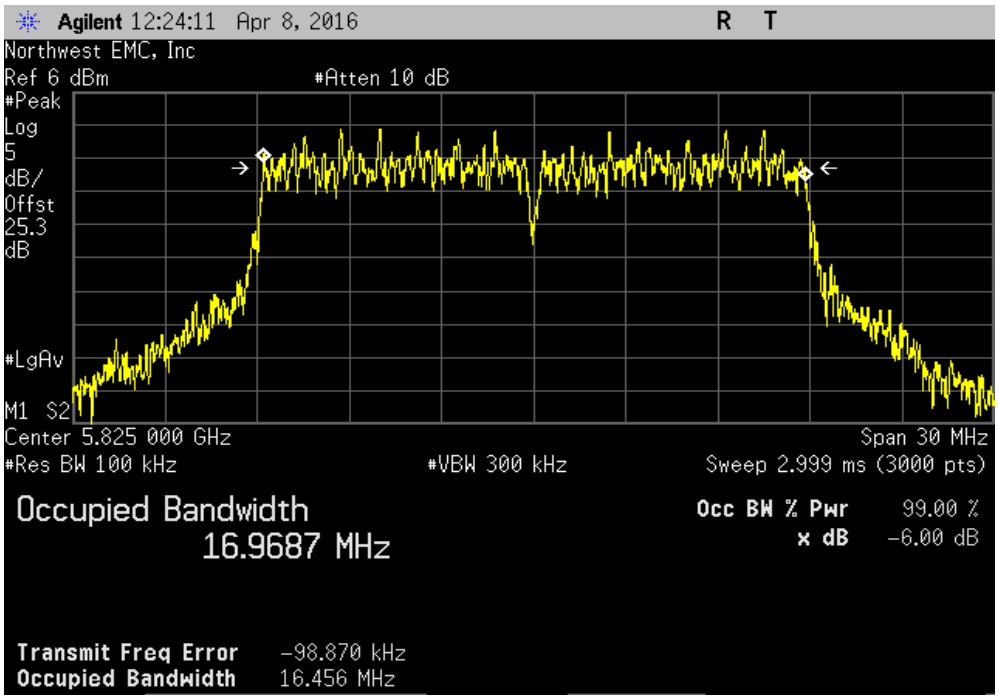
5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
				Value	Limit (>)	Result
				14.423 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

XMit 2015.01.14

5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS7						
				Value	Limit (>)	Result
				16.456 MHz	500 kHz	Pass



BAND EDGE

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Meter - Multimeter	Fluke	117	MLS	1/20/2014	36
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Block - DC	Fairview Microwave	SD3379	AMI	9/18/2015	12
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	12

TEST DESCRIPTION

The -99% occupied bandwidth of the carrier was measured to ensure that no part of the emission of the carrier operating in a non-DFS band was operating in a band where DFS testing is required. This test is done with the U-NII-1 band (5.2 GHz band) to ensure no portion of the carrier is contained within the U-NII-2A band and with the U-NII-3 band (5.8 GHz band) to ensure no portion of the carrier is contained in the U-NII-2C 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

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/21/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	None			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

None

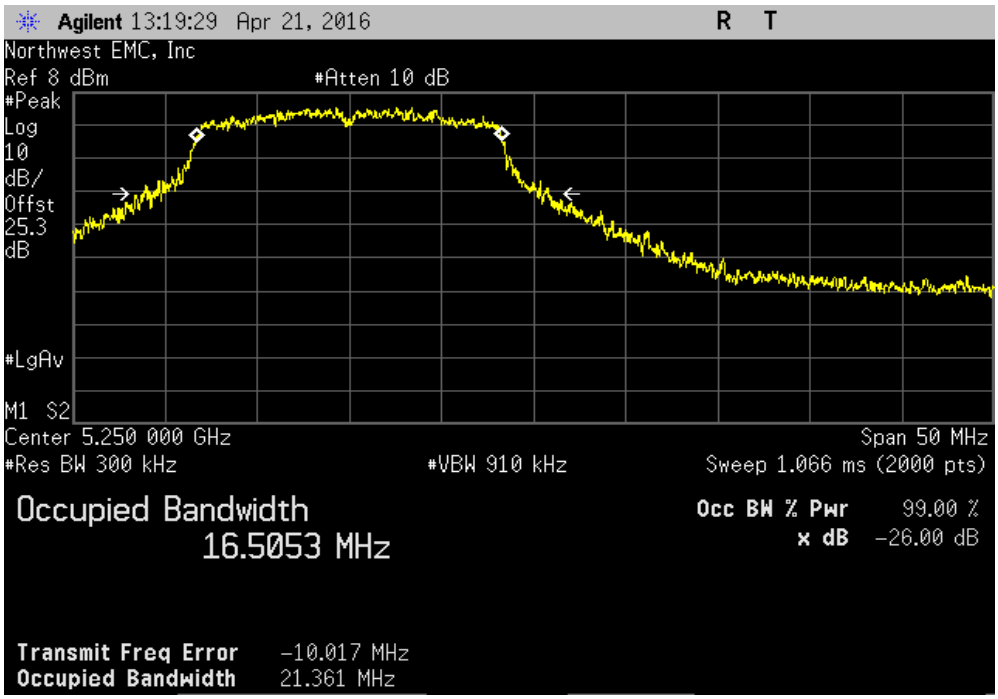
DEVIATIONS FROM TEST STANDARD

None

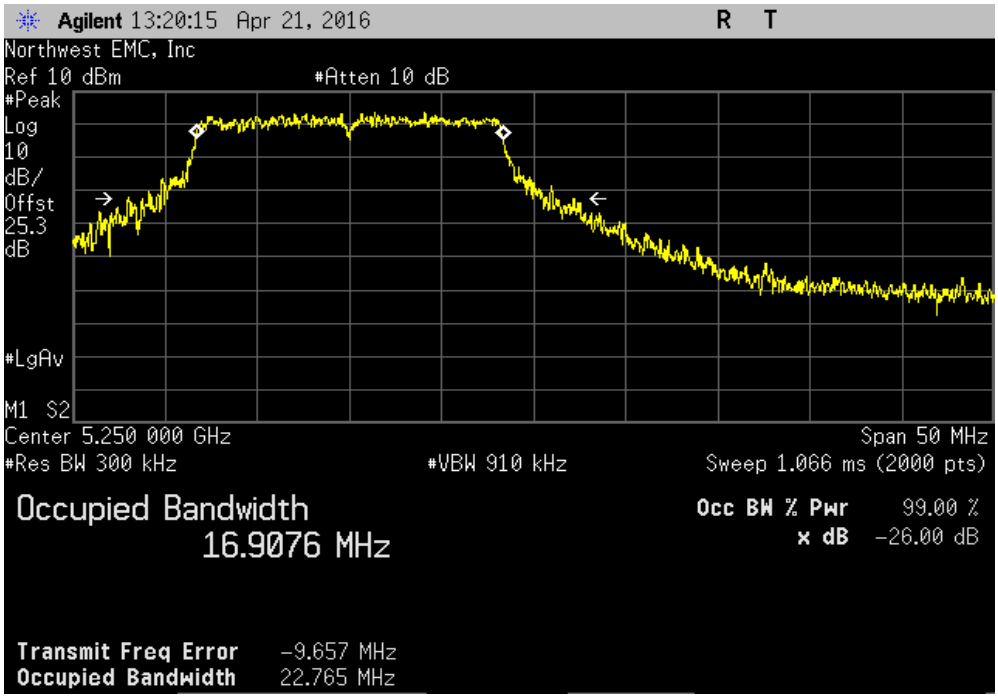
Configuration #	1	Signature

	OBW Within Band	Band Edge (MHz)	Result
5150 - 5250 MHz Band			
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
5725 - 5825 MHz Band			
Low Channel, Ch 149 - 5745 MHz			
802.11(a) 6 Mbps	Yes	5725	Pass
802.11(a) 36 Mbps	Yes	5725	Pass
802.11(a) 54 Mbps	Yes	5725	Pass
802.11(n) MCS0	Yes	5725	Pass
802.11(n) MCS7	Yes	5725	Pass

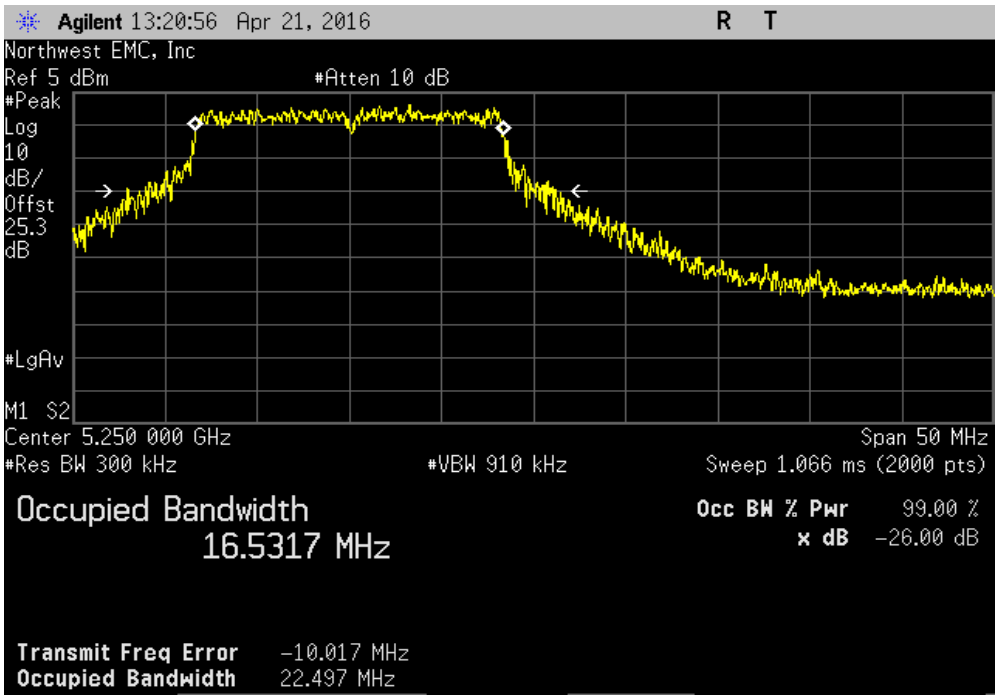
5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 6 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



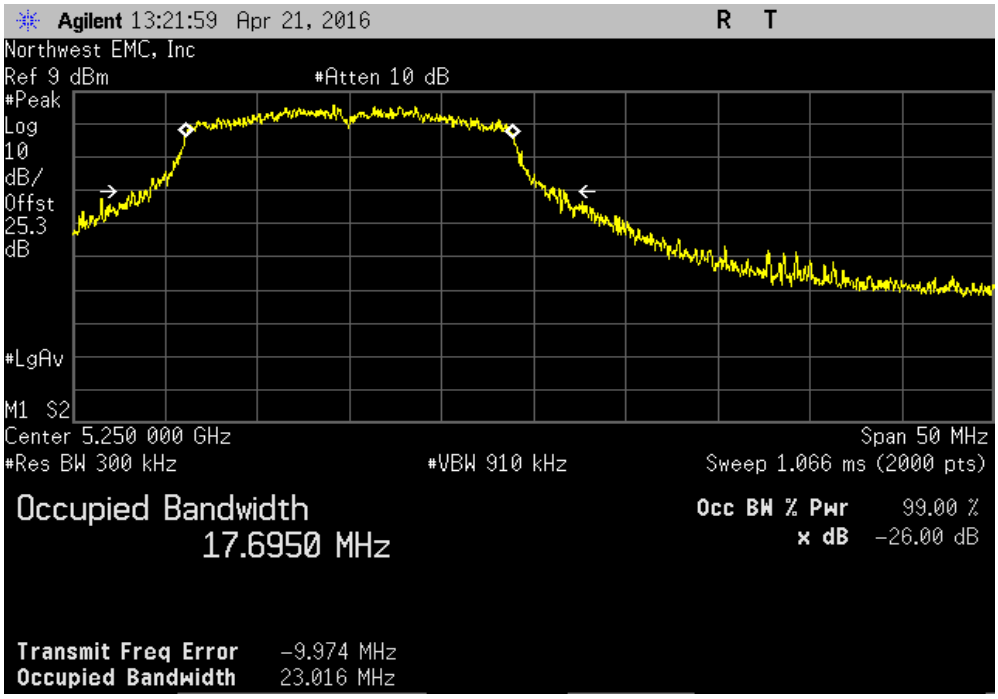
5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 36 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



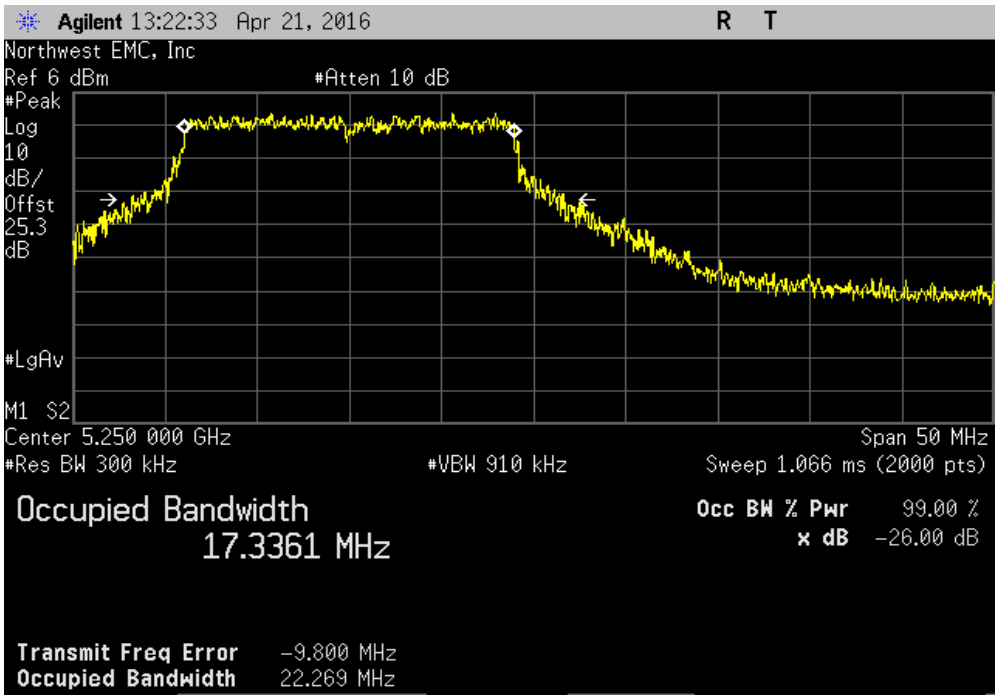
5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(a) 54 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



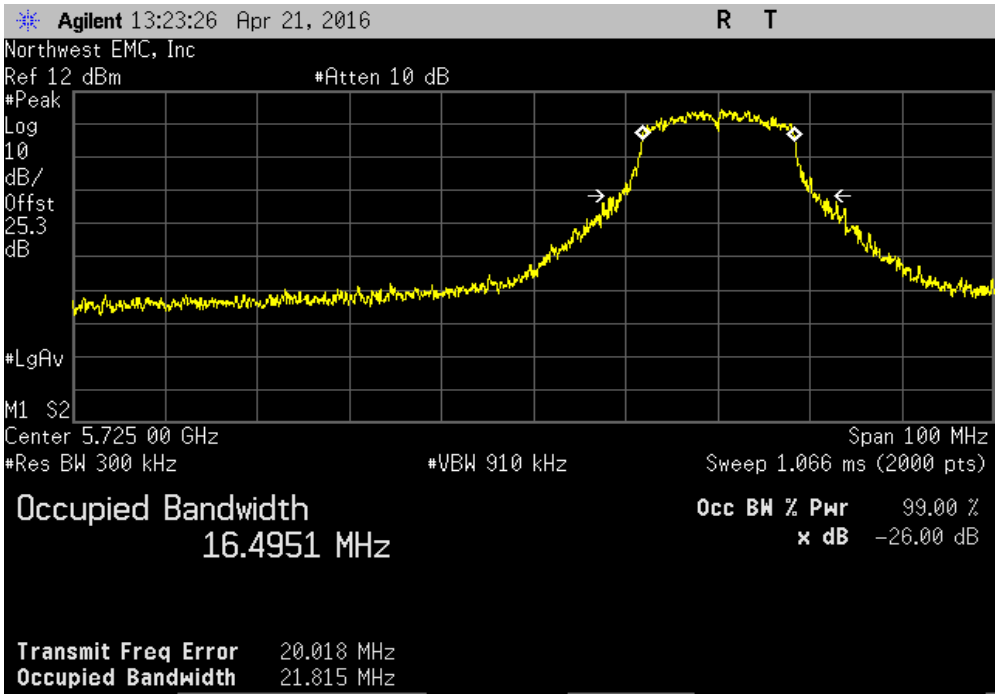
5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS0						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



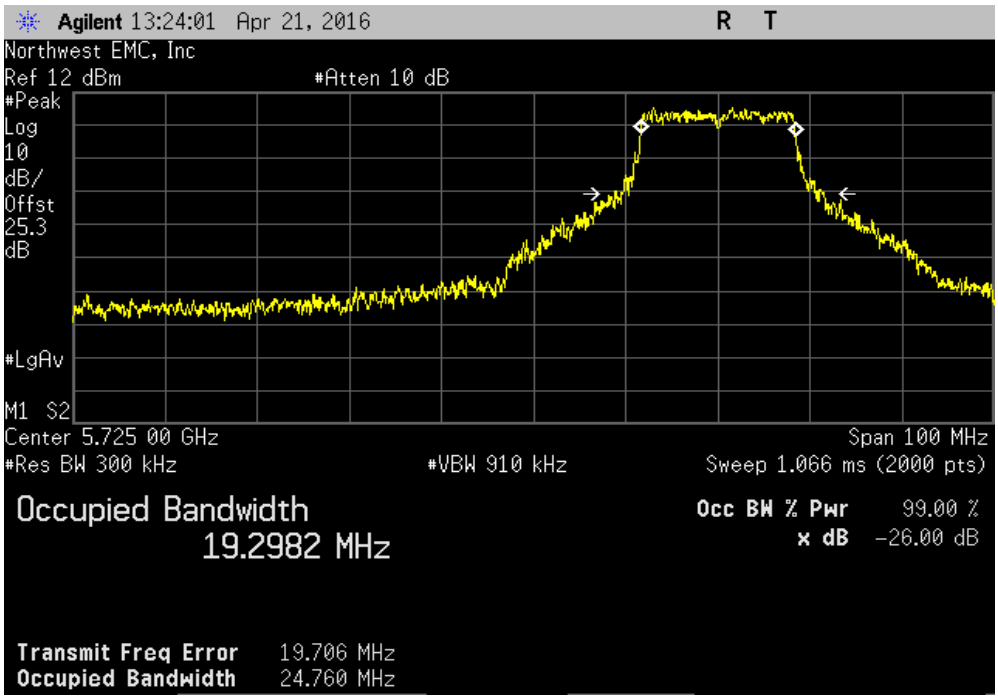
5150 - 5250 MHz Band, High Channel, Ch 48 - 5240 MHz, 802.11(n) MCS7						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5250	Pass



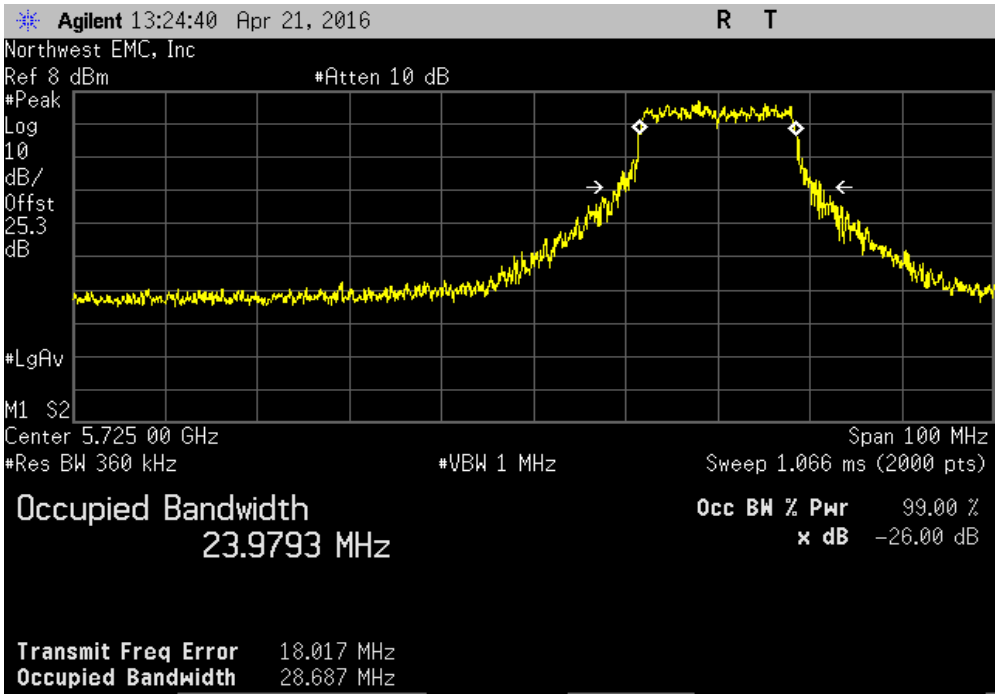
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5725	Pass



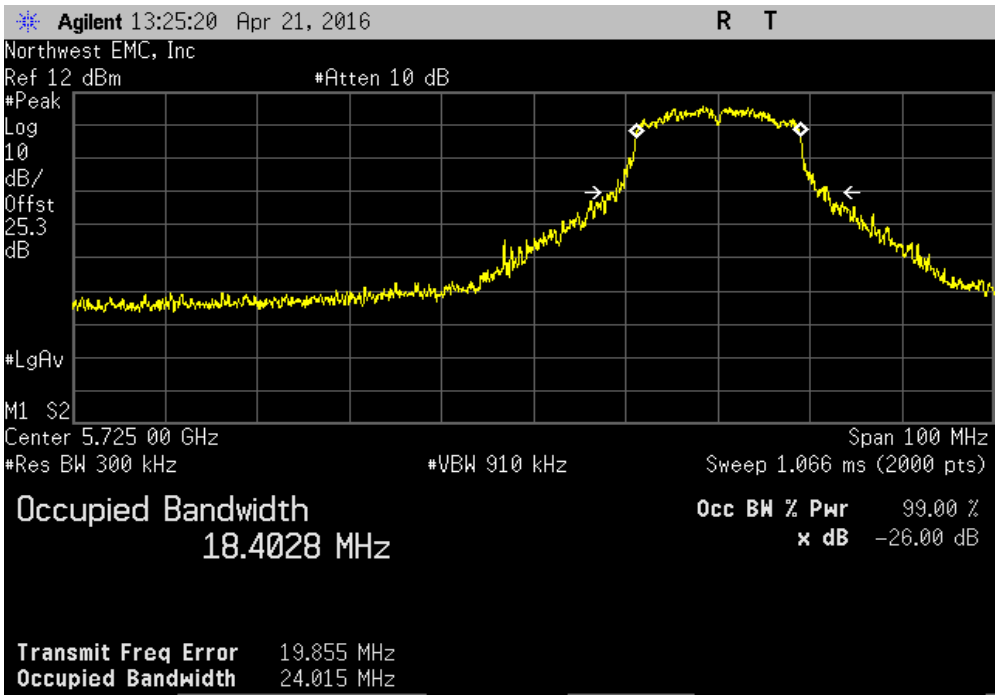
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5725	Pass



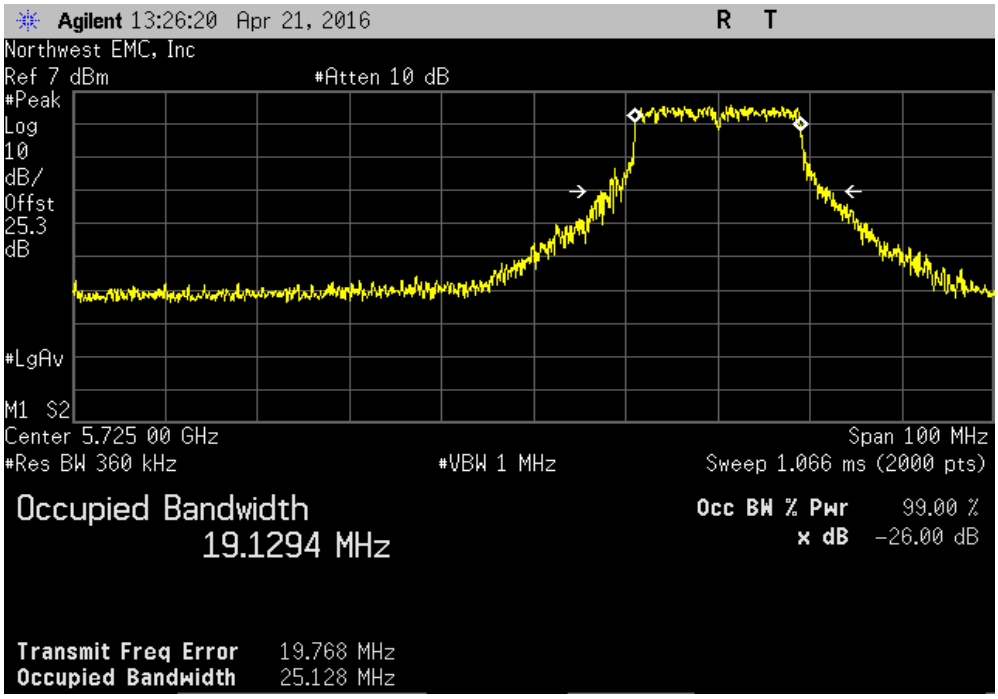
5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5725	Pass



5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5725	Pass



5725 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
				OBW Within Band	Band Edge (MHz)	Result
				Yes	5725	Pass



MAXIMUM POWER SPECTRAL DENSITY

XMit 2015.01.14

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	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	3/24/2016	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 emission bandwidth (B) was measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report

The maximum power spectral density was measured using ANSI C63.10, Method SA-2 (RMS detection and trace averaging across the on and off times of the EUT transmission and use of a duty cycle correction factor), 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 510 kHz

-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 the reference bandwidth after 100 sweeps of power averaging (not video averaging).

A duty cycle correction factor was added to the measurement using the results of the formula of 10*LOG(1/D) where D is the duty cycle.

MAXIMUM POWER SPECTRAL DENSITY

NORTHWEST EMC

XMit 2015.01.14

EUT:	Zoll CF Card Module			**Work Order:**	LGPD0188
Serial Number:	2012M01206			**Date:**	04/08/16
Customer:	ZOLL Medical Corp.			**Temperature:**	22.8°C
Attendees:	Adam Ford			**Humidity:**	24%
Project:	None			**Barometric Pres.:**	987.1 mb
Tested by:	Jared Ison	**Power:**	5 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.407:2016	ANSI C63.10:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	1	Signature

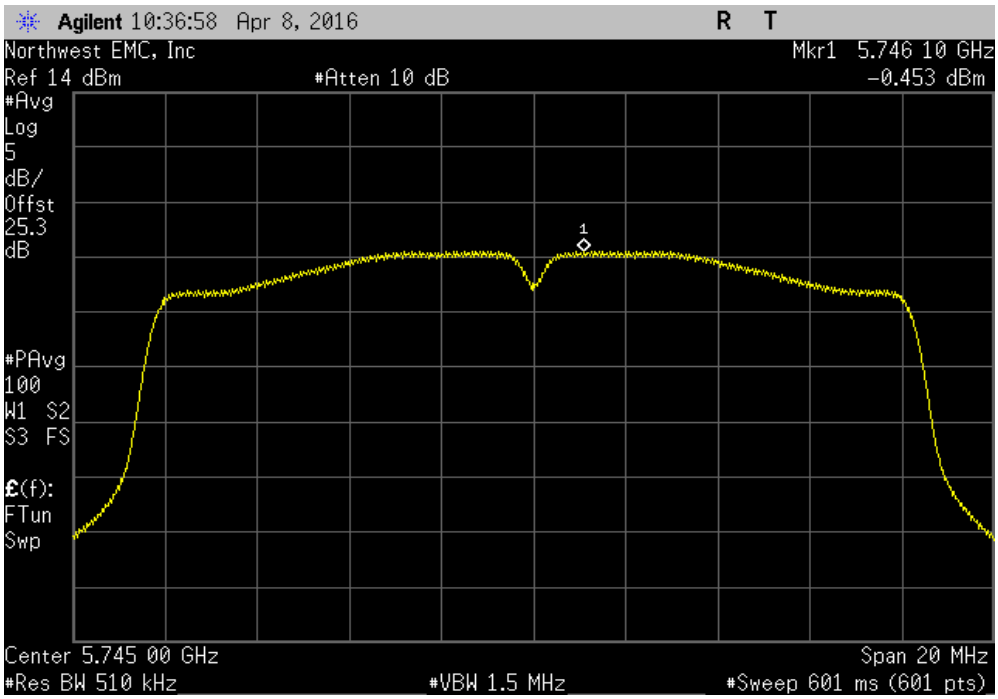
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit ≤ (dBm / Ref BW)	Results
5785 - 5825 MHz Band					
Low Channel, Ch 149 - 5745 MHz					
802.11(a) 6 Mbps	-0.453	2.4	1.9	30	Pass
802.11(a) 36 Mbps	-4.291	7.1	2.8	30	Pass
802.11(a) 54 Mbps	-9.203	8.4	-0.8	30	Pass
802.11(n) MCS0	0.602	2.5	3.1	30	Pass
802.11(n) MCS7	-11.381	8.7	-2.7	30	Pass
Mid Channel, Ch 157 - 5785 MHz					
802.11(a) 6 Mbps	-1.161	2.3	1.2	30	Pass
802.11(a) 36 Mbps	-4.48	7.1	2.6	30	Pass
802.11(a) 54 Mbps	-9.468	8.4	-1.1	30	Pass
802.11(n) MCS0	2.466	2.5	4.9	30	Pass
802.11(n) MCS7	-10.642	8.7	-2	30	Pass
High Channel, Ch 165 - 5825 MHz					
802.11(a) 6 Mbps	-0.835	2.3	1.5	30	Pass
802.11(a) 36 Mbps	-4.339	7.1	2.7	30	Pass
802.11(a) 54 Mbps	-9.373	8.4	-1	30	Pass
802.11(n) MCS0	2.45	2.5	4.9	30	Pass
802.11(n) MCS7	-10.513	8.7	-1.8	30	Pass

MAXIMUM POWER SPECTRAL DENSITY

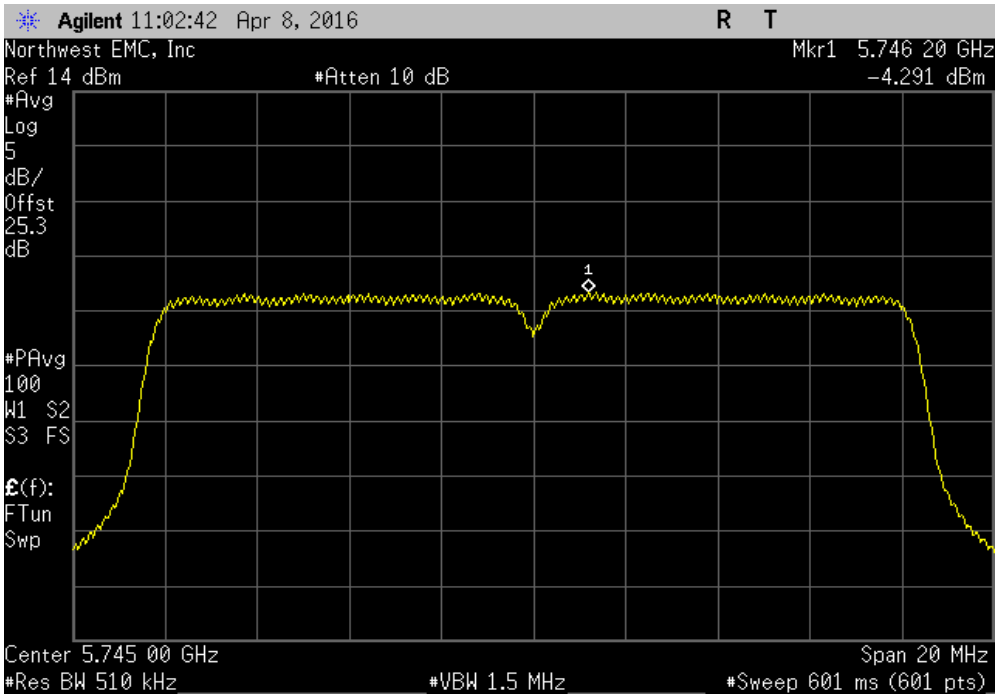
NORTHWEST EMC

XMit 2015.01.14

5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 6 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-0.453	2.4		1.9	30	Pass



5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 36 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-4.291	7.1		2.8	30	Pass

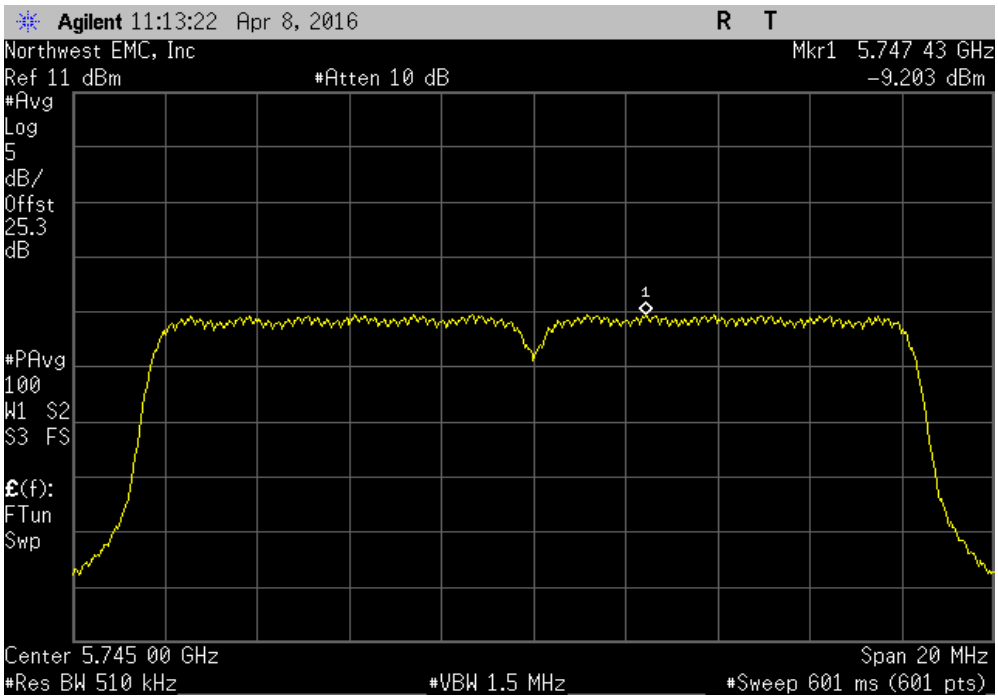


MAXIMUM POWER SPECTRAL DENSITY

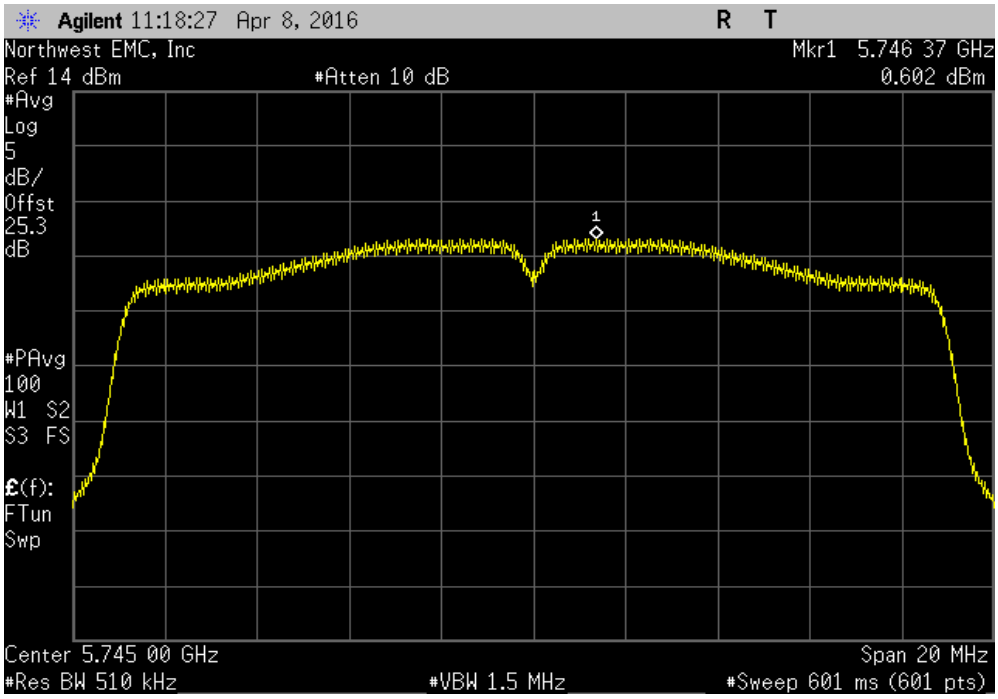
NORTHWEST EMC

XMit 2015.01.14

5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(a) 54 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-9.203	8.4		-0.8	30	Pass



5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS0						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	0.602	2.5		3.1	30	Pass

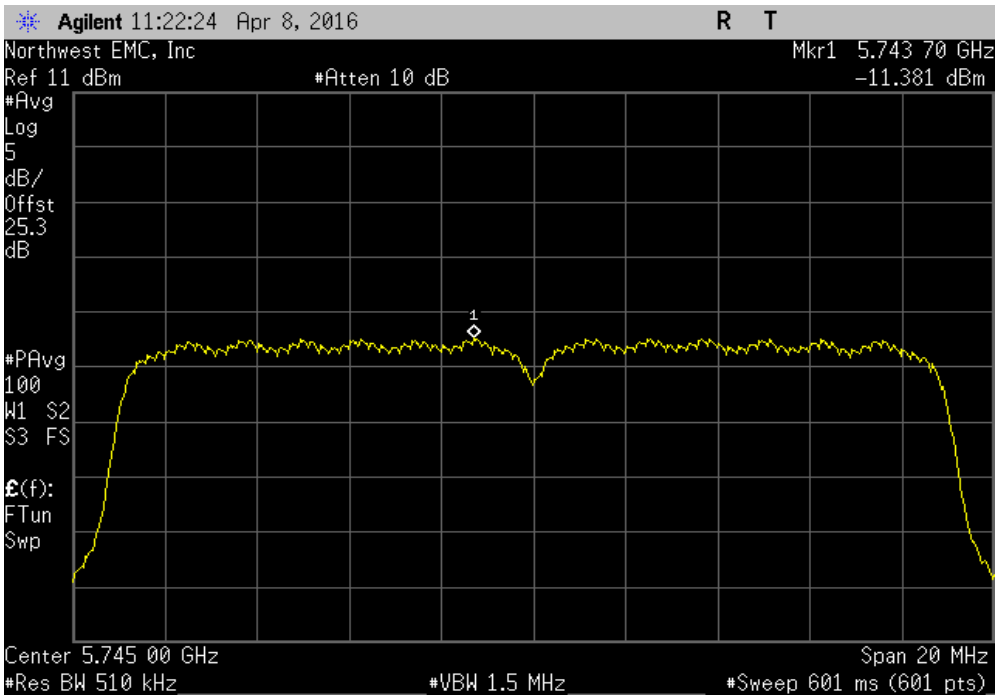


MAXIMUM POWER SPECTRAL DENSITY

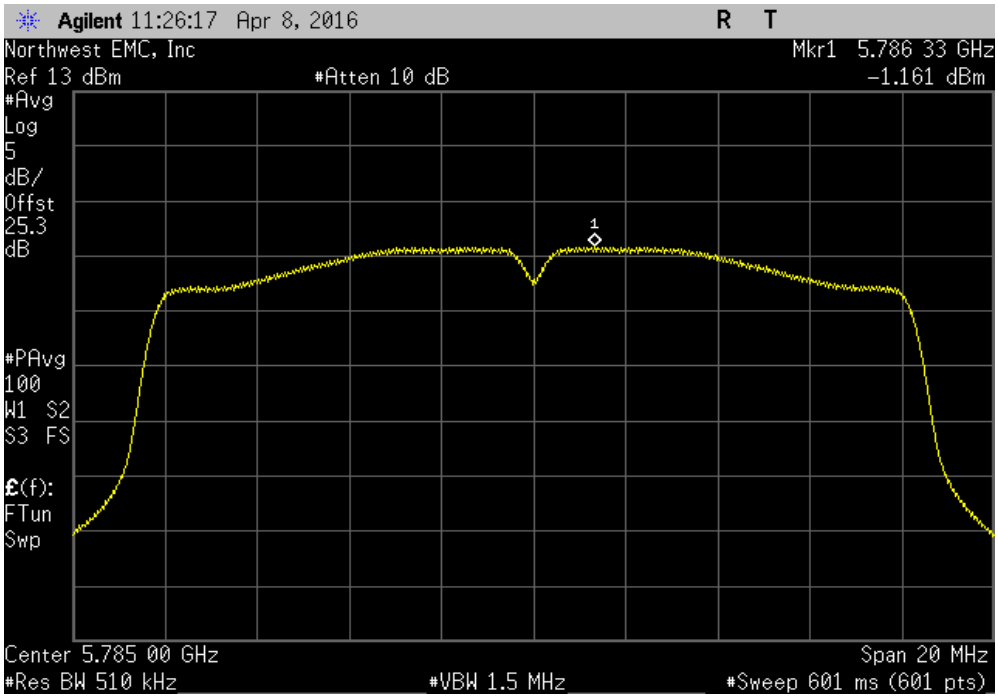
NORTHWEST EMC

XMit 2015.01.14

5785 - 5825 MHz Band, Low Channel, Ch 149 - 5745 MHz, 802.11(n) MCS7						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-11.381	8.7		-2.7	30	Pass



5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 6 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-1.161	2.3		1.2	30	Pass

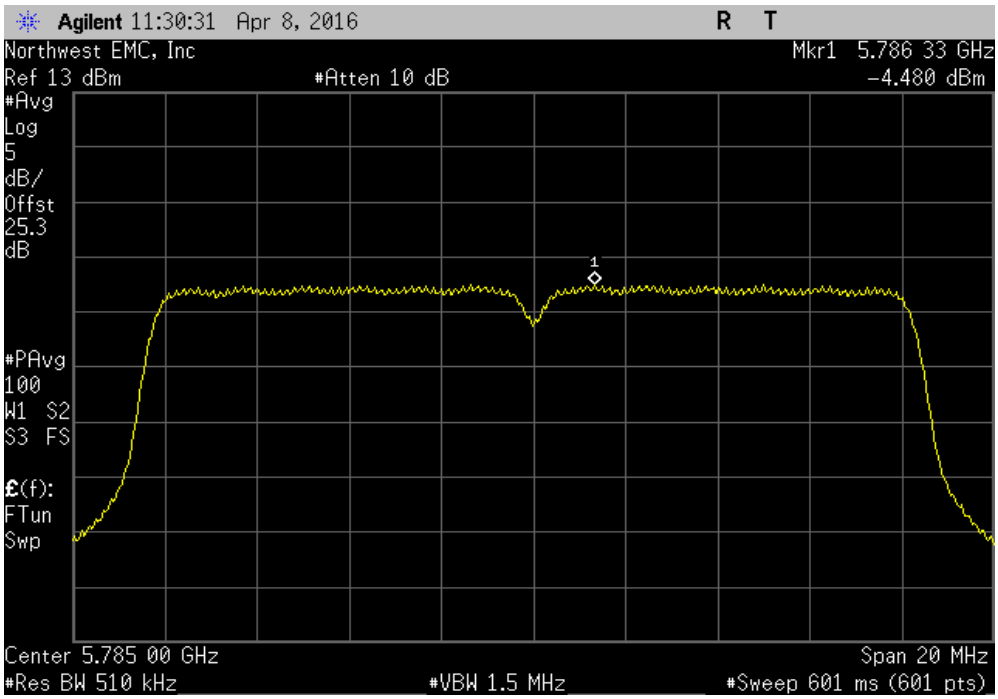


MAXIMUM POWER SPECTRAL DENSITY

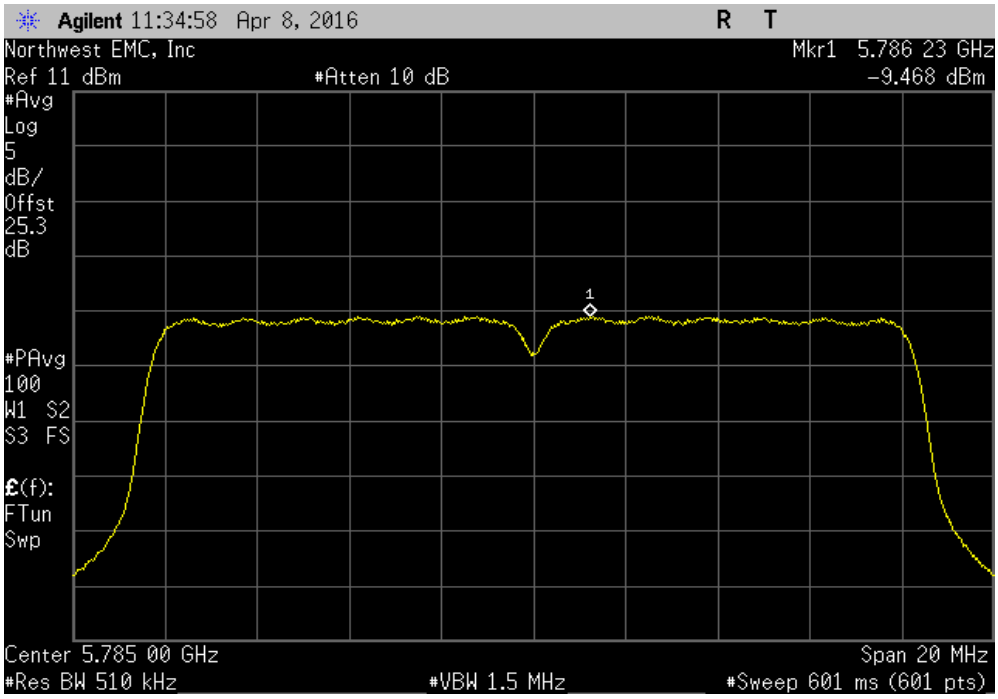
NORTHWEST EMC

XMit 2015.01.14

5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 36 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-4.48	7.1		2.6	30	Pass



5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(a) 54 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-9.468	8.4		-1.1	30	Pass

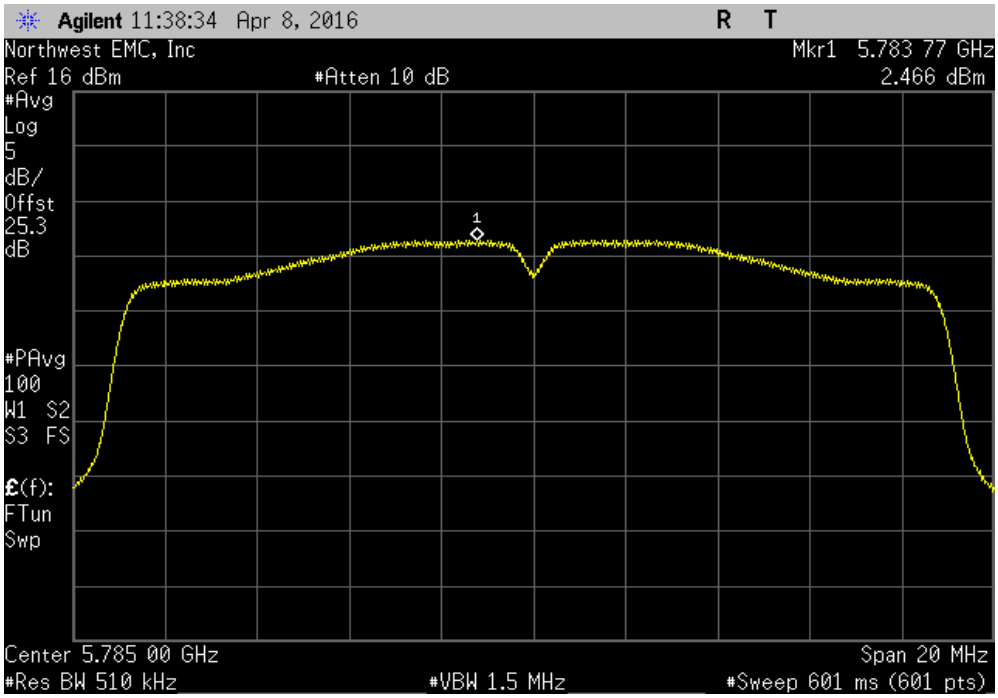


MAXIMUM POWER SPECTRAL DENSITY

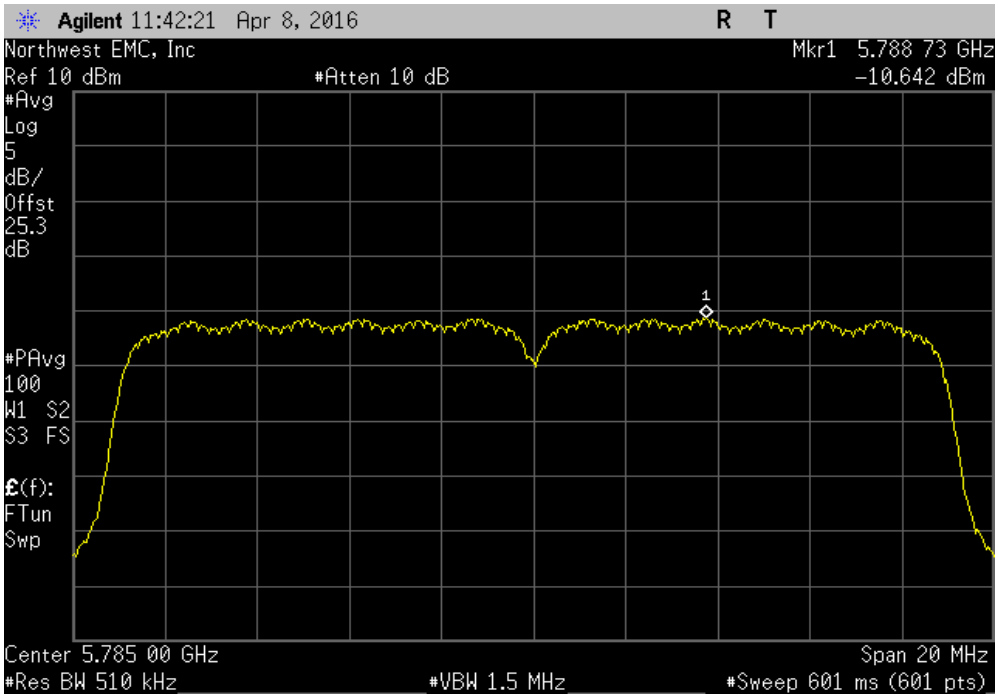
NORTHWEST EMC

XMit 2015.01.14

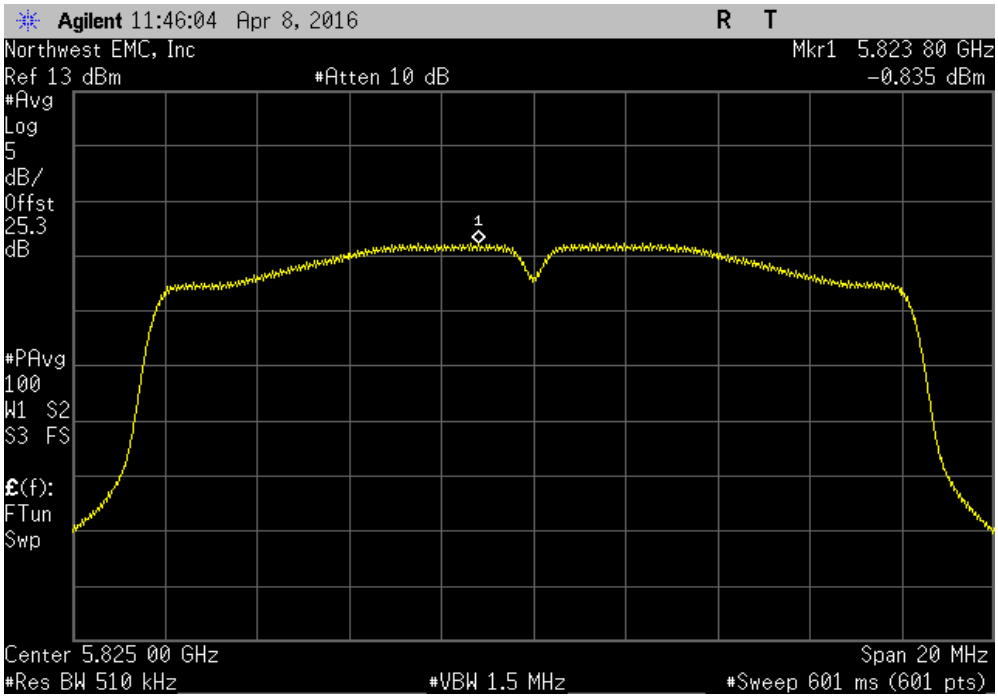
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS0						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	2.466	2.5		4.9	30	Pass



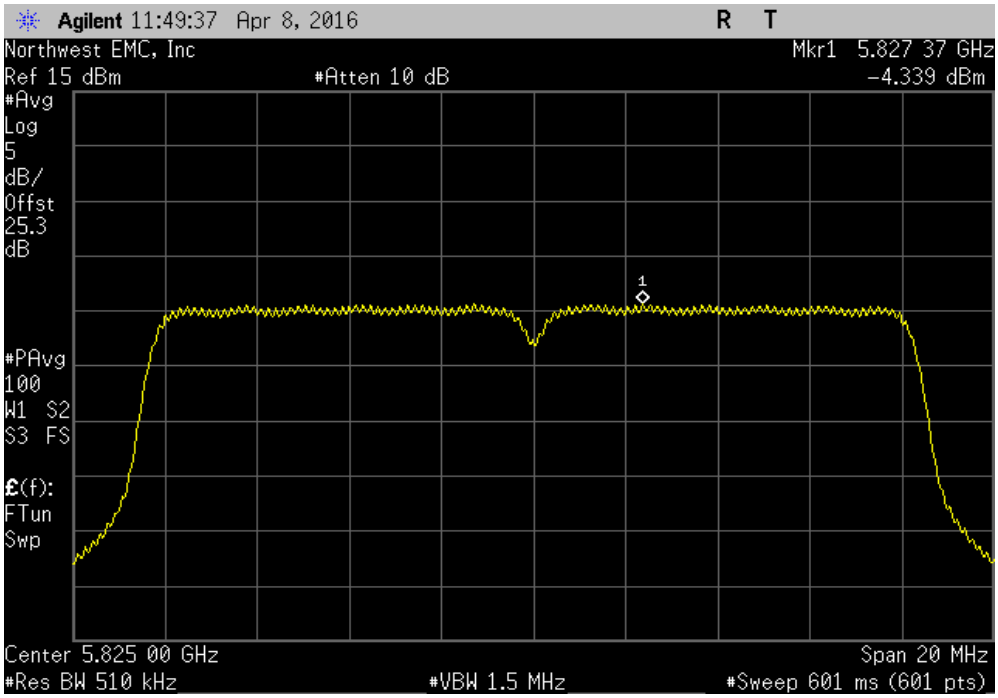
5785 - 5825 MHz Band, Mid Channel, Ch 157 - 5785 MHz, 802.11(n) MCS7						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-10.642	8.7		-2	30	Pass



5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 6 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-0.835	2.3		1.5	30	Pass



5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 36 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-4.339	7.1		2.7	30	Pass

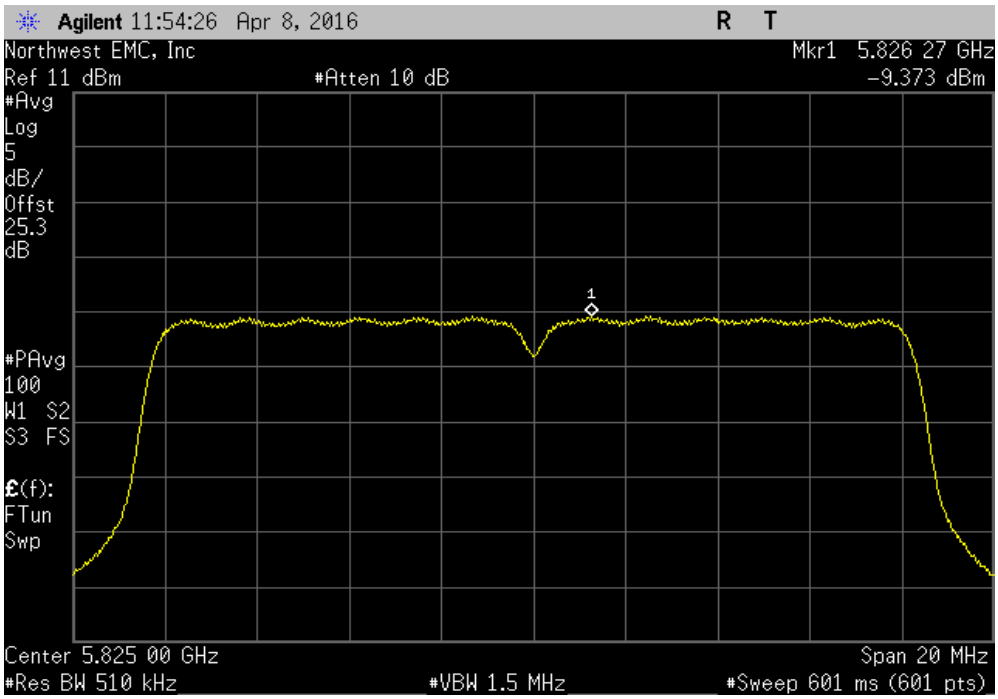


MAXIMUM POWER SPECTRAL DENSITY

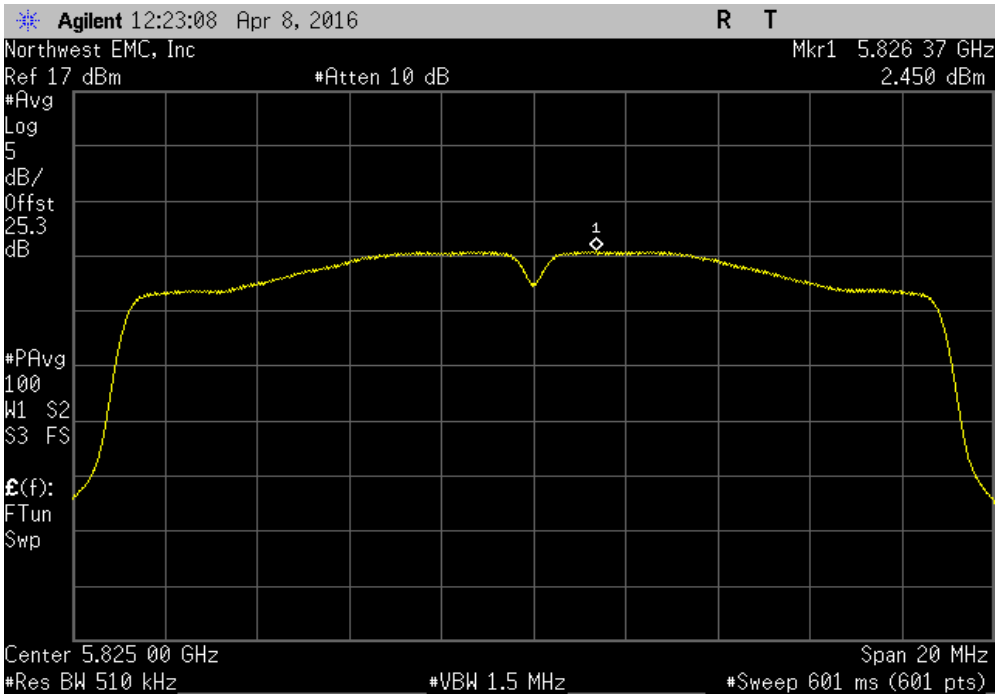
NORTHWEST EMC

XMit 2015.01.14

5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(a) 54 Mbps						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-9.373	8.4		-1	30	Pass



5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS0						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	2.45	2.5		4.9	30	Pass



MAXIMUM POWER SPECTRAL DENSITY

XMit 2015.01.14

5785 - 5825 MHz Band, High Channel, Ch 165 - 5825 MHz, 802.11(n) MCS7						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW	Results
	-10.513	8.7		-1.8	30	Pass