NORTHWEST EMC

Intermec Technologies Corporation

RC12

FCC 15.207:2016

FCC 15.407:2016

802.11 Radio

Report # INMC0943

NVLAP Lab Code: 200629-0

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: January 13, 2016
Intermec Technologies Corporation
Model: RC12

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2016	ANSI C63.10:2013, KDB 789033
FCC 15.407:2016	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6, 12.7	Spurious Radiated Emissions	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
12.2	Duty Cycle	Yes	N/A	
12.3	Maximum Conducted Output Power	Yes	Pass	
12.4.1	Emission Bandwidth	No	N/A	Not required for 5.2, 5.3 or 5.6 GHz bands.
12.4.2	Occupied Bandwidth	Yes	Pass	
12.5	Maximum Power Spectral Density	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Rod Munro, 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 2015.2.19

United States

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

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

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

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

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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

MEASUREMENT UNCERTAINTY

TMU.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 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.

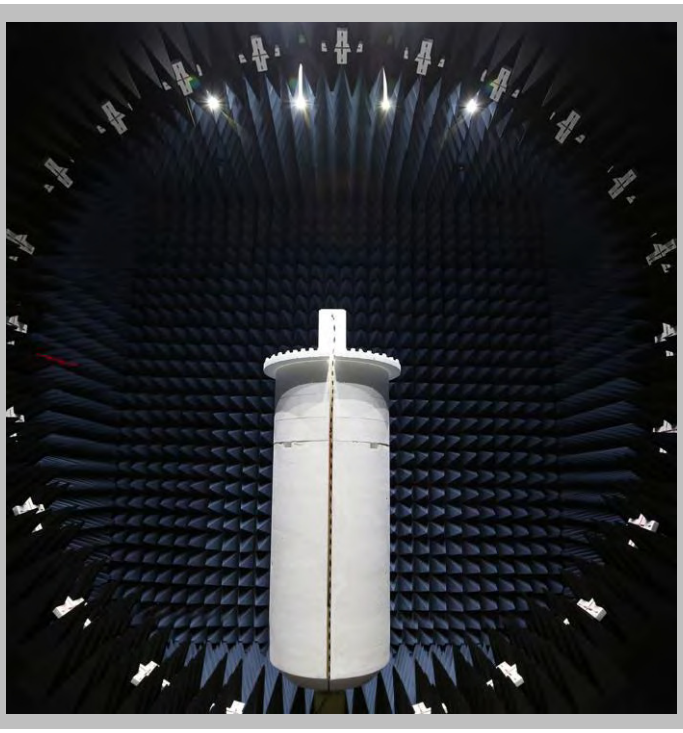
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

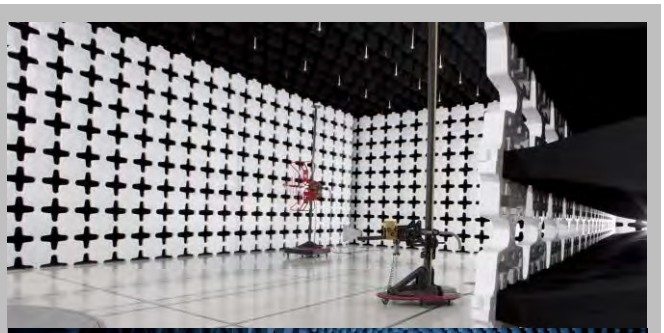
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.0 dB	-5.0 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

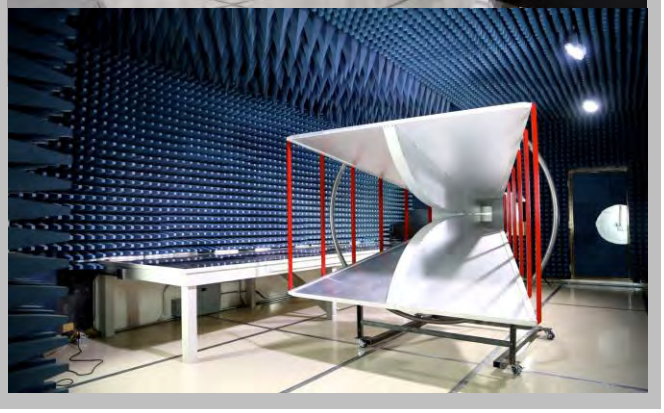
FACILITIES

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:	Intermec Technologies Corporation
Address:	16201 25th Ave W
City, State, Zip:	Lynnwood, WA 98087
Test Requested By:	Sean MacKellar with Honeywell Sensing and Productivity Solutions
Model:	RC12
First Date of Test:	January 11, 2016
Last Date of Test:	January 13, 2016
Receipt Date of Samples:	January 11, 2016
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

802.11 Radio Module
Testing was done on only the 5.8 GHz portion of the radio for the new FCC 15.407 rules. This was previously approved under the following FCC ID's:
EHA-RC12
EHA-1000CP01X2
EHA-1000CP01UX1
EHA-1000CP01SX1
EHA-1000CP01CX2
EHA-1000CP01F

Testing Objective:

To demonstrate compliance of the 802.11 radio under the new FCC 15.407 rules for operation in the 5.8 GHz band.

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INMC0943- 1

Software/Firmware Running during test	
Description	**Version**
Galileo Regulatory Test Tool	1.01.00.0007

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Galileo 802.11abgn and Bluetooth Radio Module	Intermec Technologies Corporation	RC12	ES5 / R11
Shuttle Board	Intermec Technologies Corporation	145-375-001	None
Modular Antenna PCB Assembly	Centurion Wireless Technologies, Inc.	CAF94400	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC DC Power Supply (EUT)	Intermec Technologies Corporation	074749	None

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop Computer	Asus	Eee PC 1001PX	A70AAS299971
AC DC Power Supply (Laptop)	Asus	ADP-40PH	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.7m	No	AC DC Power Supply (EUT)	Shuttle Board
USB Cable	No	2.8m	No	Laptop Computer	Shuttle Board
AC Power	No	1.3m	No	AC DC Power Supply (Laptop)	AC Mains
DC Power	No	1.7m	No	AC DC Power Supply (Laptop)	Laptop Computer

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INMC0943- 2

Software/Firmware Running during test	
Description	**Version**
Galileo Regulatory Test Tool	1.01.00.0007

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Galileo 802.11abgn and Bluetooth Radio Module	Intermec Technologies Corporation	RC12	ES5 / R11
Shuttle Board	Intermec Technologies Corporation	145-375-001	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop Computer	Asus	Eee PC 1001PX	A70AAS299971
AC DC Power Supply (Laptop)	Asus	ADP-40PH	None
AC DC Power Supply (EUT)	Intermec Technologies Corporation	074749	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.7m	No	AC DC Power Supply (EUT)	Shuttle Board
USB Cable	No	2.8m	No	Laptop Computer	Shuttle Board
AC Power	No	1.3m	No	AC DC Power Supply (Laptop)	AC Mains
DC Power	No	1.7m	No	AC DC Power Supply (Laptop)	Laptop Computer

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INMC0943- 3

Software/Firmware Running during test	
Description	**Version**
Galileo Regulatory Test Tool	1.01.00.0007

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Galileo 802.11abgn and Bluetooth Radio Module	Intermec Technologies Corporation	RC12	ES5 / R11
Shuttle Board	Intermec Technologies Corporation	145-375-001	None
Modular Antenna PCB Assembly	Centurion Wireless Technologies, Inc.	CAF94400	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop Computer	Asus	Eee PC 1001PX	A70AAS299971

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Kikisui	PWC0620	1930492

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB Cable	No	2.8m	No	Laptop Computer	Shuttle Board
DC Power	No	1.0m	No	DC Power Supply	Shuttle Board

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INMC0943- 4

Software/Firmware Running during test	
Description	**Version**
Galileo Regulatory Test Tool	1.01.00.0007

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Galileo 802.11abgn and Bluetooth Radio Module	Intermec Technologies Corporation	RC12	ES5 / R11
Shuttle Board	Intermec Technologies Corporation	145-375-001	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop Computer	Asus	Eee PC 1001PX	A70AAS299971
AC DC Power Supply (Laptop)	Asus	ADP-40PH	None

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Kikisui	PWC0620	1930492

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB Cable	No	2.8m	No	Laptop Computer	Shuttle Board
DC Power	No	1.0m	No	DC Power Supply	Shuttle Board

MODIFICATIONS

NORTHWEST EMC
2014-12-10

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	1/11/2016	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	1/13/2016	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.
3	1/13/2016	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	1/13/2016	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.
5	1/13/2016	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	1/13/2016	Emission Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	1/13/2016	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.
8	1/13/2016	Maximum Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

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	ESCI	ARE	8/5/2015	8/5/2016
LISN	Solar Electronics	9252-50-R-24-BNC	LIM	11/3/2015	11/3/2016
Cable - Conducted Cable Assembly	Northwest EMC	NC4, HHF, RKD	NC4A	12/28/2015	12/28/2016

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

INMC0943-3

MODES INVESTIGATED

Transmitting 802.11(a), 6Mbps, Low Channel 149, 5745 MHz. Power setting at default, Constant TX mode enabled.
Transmitting 802.11(a), 6Mbps, Mid Channel 157, 5785 MHz. Power setting at default, Constant TX mode enabled.
Transmitting 802.11(a), 6Mbps, High Channel 165, 5825 MHz. Power setting at default, Constant TX mode enabled.

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	1	Line:	Positive Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

None.

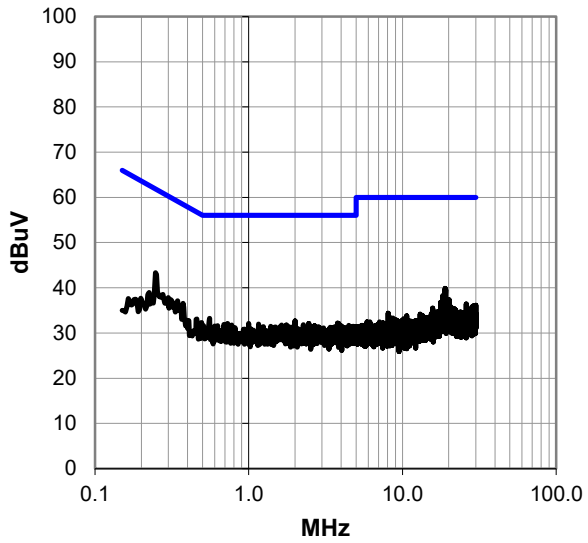
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, Low Channel 149, 5745 MHz. Power setting at default, Constant TX mode enabled.

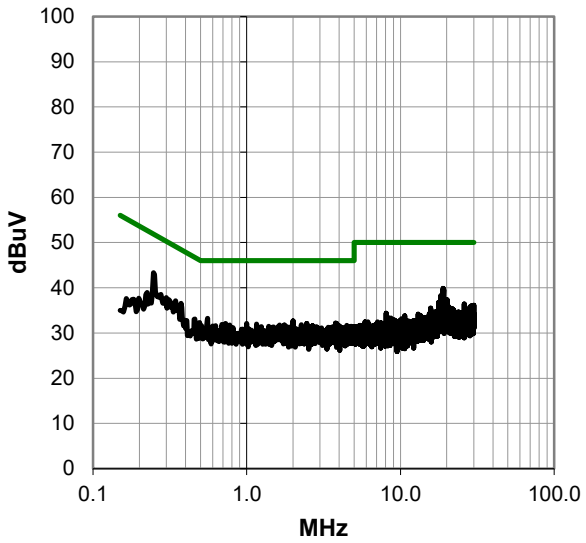
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #1

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	22.9	20.4	43.3	61.9	-18.5
18.920	17.6	22.3	39.9	60.0	-20.1
19.095	17.3	22.3	39.6	60.0	-20.4
18.961	17.2	22.3	39.5	60.0	-20.5
19.076	16.7	22.3	39.0	60.0	-21.0
19.054	16.3	22.3	38.6	60.0	-21.4
18.338	16.0	22.2	38.2	60.0	-21.8
0.374	16.1	20.4	36.5	58.4	-21.9
19.013	15.7	22.3	38.0	60.0	-22.0
18.688	15.1	22.3	37.4	60.0	-22.6
20.106	14.9	22.4	37.3	60.0	-22.7
20.057	14.9	22.4	37.3	60.0	-22.7
18.826	15.0	22.3	37.3	60.0	-22.7
0.557	12.8	20.4	33.2	56.0	-22.8
18.763	14.7	22.3	37.0	60.0	-23.0
18.472	14.6	22.2	36.8	60.0	-23.2
17.718	14.6	22.1	36.7	60.0	-23.3
20.196	14.3	22.4	36.7	60.0	-23.3
2.000	12.2	20.5	32.7	56.0	-23.3
20.136	14.1	22.4	36.5	60.0	-23.5
0.460	12.7	20.4	33.1	56.7	-23.6
25.956	13.1	23.3	36.4	60.0	-23.6
19.890	13.9	22.4	36.3	60.0	-23.7
0.493	11.9	20.4	32.3	56.1	-23.8
3.784	11.6	20.6	32.2	56.0	-23.8
29.989	12.1	24.1	36.2	60.0	-23.8

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	22.9	20.4	43.3	51.9	-8.5
18.920	17.6	22.3	39.9	50.0	-10.1
19.095	17.3	22.3	39.6	50.0	-10.4
18.961	17.2	22.3	39.5	50.0	-10.5
19.076	16.7	22.3	39.0	50.0	-11.0
19.054	16.3	22.3	38.6	50.0	-11.4
18.338	16.0	22.2	38.2	50.0	-11.8
0.374	16.1	20.4	36.5	48.4	-11.9
19.013	15.7	22.3	38.0	50.0	-12.0
18.688	15.1	22.3	37.4	50.0	-12.6
20.106	14.9	22.4	37.3	50.0	-12.7
20.057	14.9	22.4	37.3	50.0	-12.7
18.826	15.0	22.3	37.3	50.0	-12.7
0.557	12.8	20.4	33.2	46.0	-12.8
18.763	14.7	22.3	37.0	50.0	-13.0
18.472	14.6	22.2	36.8	50.0	-13.2
17.718	14.6	22.1	36.7	50.0	-13.3
20.196	14.3	22.4	36.7	50.0	-13.3
2.000	12.2	20.5	32.7	46.0	-13.3
20.136	14.1	22.4	36.5	50.0	-13.5
0.460	12.7	20.4	33.1	46.7	-13.6
25.956	13.1	23.3	36.4	50.0	-13.6
19.890	13.9	22.4	36.3	50.0	-13.7
0.493	11.9	20.4	32.3	46.1	-13.8
3.784	11.6	20.6	32.2	46.0	-13.8
29.989	12.1	24.1	36.2	50.0	-13.8

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	2	Line:	Negative Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

None.

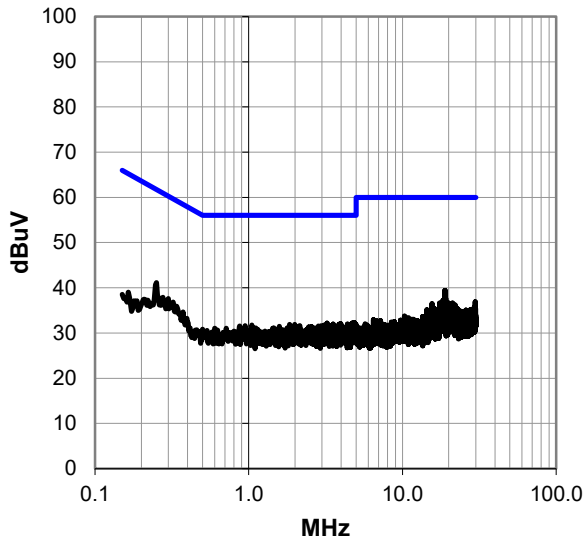
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, Low Channel 149, 5745 MHz. Power setting at default, Constant TX mode enabled.

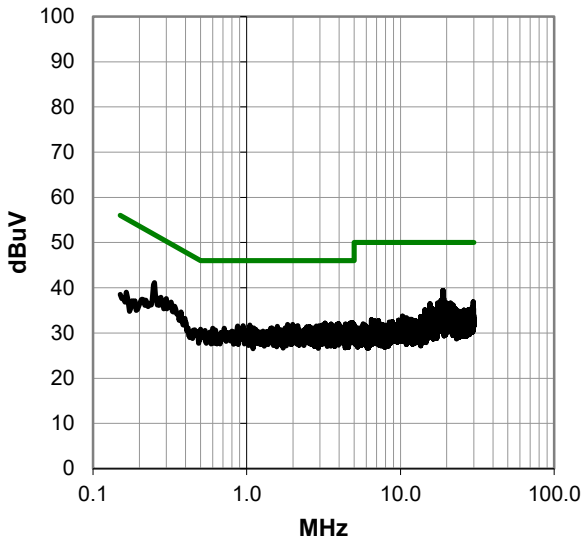
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #2

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
18.994	17.1	22.3	39.4	60.0	-20.6
0.251	20.7	20.4	41.1	61.7	-20.6
18.905	17.1	22.3	39.4	60.0	-20.6
19.009	16.5	22.3	38.8	60.0	-21.2
19.054	15.7	22.3	38.0	60.0	-22.0
19.181	15.3	22.3	37.6	60.0	-22.4
18.356	15.0	22.2	37.2	60.0	-22.8
29.724	12.9	24.0	36.9	60.0	-23.1
18.408	14.6	22.2	36.8	60.0	-23.2
19.080	14.5	22.3	36.8	60.0	-23.2
18.852	14.5	22.3	36.8	60.0	-23.2
18.319	14.5	22.2	36.7	60.0	-23.3
17.494	14.5	22.1	36.6	60.0	-23.4
21.188	14.1	22.5	36.6	60.0	-23.4
18.196	14.4	22.2	36.6	60.0	-23.4
20.005	14.2	22.4	36.6	60.0	-23.4
15.584	14.6	21.9	36.5	60.0	-23.5
18.793	14.1	22.3	36.4	60.0	-23.6
4.866	11.6	20.7	32.3	56.0	-23.7
20.658	13.8	22.5	36.3	60.0	-23.7
17.666	14.1	22.1	36.2	60.0	-23.8
22.031	13.6	22.6	36.2	60.0	-23.8
20.076	13.8	22.4	36.2	60.0	-23.8
4.694	11.5	20.7	32.2	56.0	-23.8
18.770	13.9	22.3	36.2	60.0	-23.8
3.232	11.6	20.6	32.2	56.0	-23.8

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
18.994	17.1	22.3	39.4	50.0	-10.6
0.251	20.7	20.4	41.1	51.7	-10.6
18.905	17.1	22.3	39.4	50.0	-10.6
19.009	16.5	22.3	38.8	50.0	-11.2
19.054	15.7	22.3	38.0	50.0	-12.0
19.181	15.3	22.3	37.6	50.0	-12.4
18.356	15.0	22.2	37.2	50.0	-12.8
29.724	12.9	24.0	36.9	50.0	-13.1
18.408	14.6	22.2	36.8	50.0	-13.2
19.080	14.5	22.3	36.8	50.0	-13.2
18.852	14.5	22.3	36.8	50.0	-13.2
18.319	14.5	22.2	36.7	50.0	-13.3
17.494	14.5	22.1	36.6	50.0	-13.4
21.188	14.1	22.5	36.6	50.0	-13.4
18.196	14.4	22.2	36.6	50.0	-13.4
20.005	14.2	22.4	36.6	50.0	-13.4
15.584	14.6	21.9	36.5	50.0	-13.5
18.793	14.1	22.3	36.4	50.0	-13.6
4.866	11.6	20.7	32.3	46.0	-13.7
20.658	13.8	22.5	36.3	50.0	-13.7
17.666	14.1	22.1	36.2	50.0	-13.8
22.031	13.6	22.6	36.2	50.0	-13.8
20.076	13.8	22.4	36.2	50.0	-13.8
4.694	11.5	20.7	32.2	46.0	-13.8
18.770	13.9	22.3	36.2	50.0	-13.8
3.232	11.6	20.6	32.2	46.0	-13.8

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	3	Line:	Positive Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

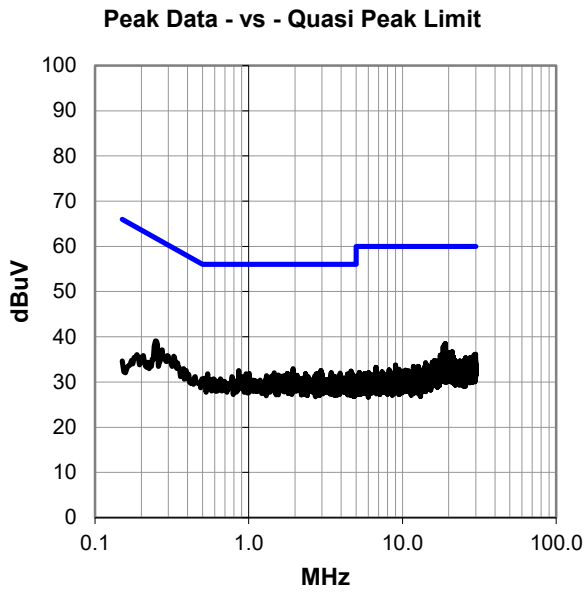
None.

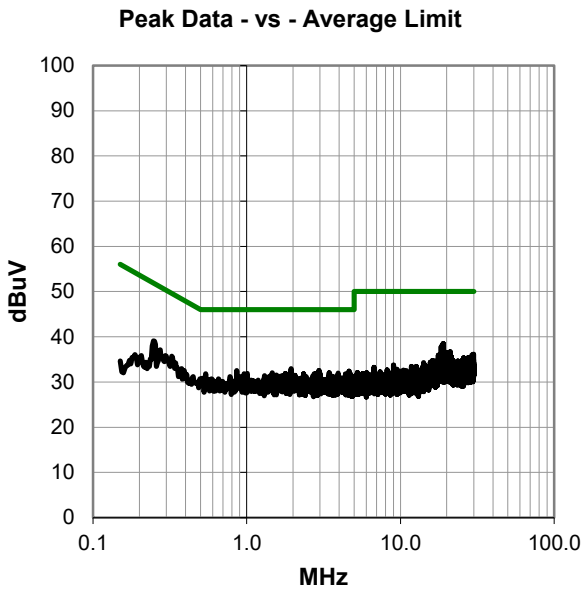
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, Mid Channel 157, 5785 MHz. Power setting at default, Constant TX mode enabled.

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #3

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
18.946	16.2	22.3	38.5	60.0	-21.5
18.927	16.2	22.3	38.5	60.0	-21.5
19.009	15.6	22.3	37.9	60.0	-22.1
18.908	15.6	22.3	37.9	60.0	-22.1
18.386	15.6	22.2	37.8	60.0	-22.2
0.247	18.7	20.4	39.1	61.9	-22.7
18.796	14.8	22.3	37.1	60.0	-22.9
19.099	14.7	22.3	37.0	60.0	-23.0
1.941	12.5	20.5	33.0	56.0	-23.0
21.035	14.2	22.5	36.7	60.0	-23.3
2.952	12.0	20.5	32.5	56.0	-23.5
0.859	12.1	20.4	32.5	56.0	-23.5
20.054	14.1	22.4	36.5	60.0	-23.5
4.627	11.7	20.7	32.4	56.0	-23.6
29.836	12.1	24.0	36.1	60.0	-23.9
18.282	13.9	22.2	36.1	60.0	-23.9
0.273	16.7	20.4	37.1	61.0	-23.9
3.441	11.5	20.6	32.1	56.0	-23.9
1.463	11.6	20.5	32.1	56.0	-23.9
20.225	13.6	22.4	36.0	60.0	-24.0
20.192	13.6	22.4	36.0	60.0	-24.0
29.116	12.1	23.9	36.0	60.0	-24.0
1.915	11.5	20.5	32.0	56.0	-24.0
19.543	13.6	22.3	35.9	60.0	-24.1
19.531	13.6	22.3	35.9	60.0	-24.1
17.662	13.8	22.1	35.9	60.0	-24.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
18.946	16.2	22.3	38.5	50.0	-11.5
18.927	16.2	22.3	38.5	50.0	-11.5
19.009	15.6	22.3	37.9	50.0	-12.1
18.908	15.6	22.3	37.9	50.0	-12.1
18.386	15.6	22.2	37.8	50.0	-12.2
0.247	18.7	20.4	39.1	51.9	-12.7
18.796	14.8	22.3	37.1	50.0	-12.9
19.099	14.7	22.3	37.0	50.0	-13.0
1.941	12.5	20.5	33.0	46.0	-13.0
21.035	14.2	22.5	36.7	50.0	-13.3
2.952	12.0	20.5	32.5	46.0	-13.5
0.859	12.1	20.4	32.5	46.0	-13.5
20.054	14.1	22.4	36.5	50.0	-13.5
4.627	11.7	20.7	32.4	46.0	-13.6
29.836	12.1	24.0	36.1	50.0	-13.9
18.282	13.9	22.2	36.1	50.0	-13.9
0.273	16.7	20.4	37.1	51.0	-13.9
3.441	11.5	20.6	32.1	46.0	-13.9
1.463	11.6	20.5	32.1	46.0	-13.9
20.225	13.6	22.4	36.0	50.0	-14.0
20.192	13.6	22.4	36.0	50.0	-14.0
29.116	12.1	23.9	36.0	50.0	-14.0
1.915	11.5	20.5	32.0	46.0	-14.0
19.543	13.6	22.3	35.9	50.0	-14.1
19.531	13.6	22.3	35.9	50.0	-14.1
17.662	13.8	22.1	35.9	50.0	-14.1

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	4	Line:	Negative Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

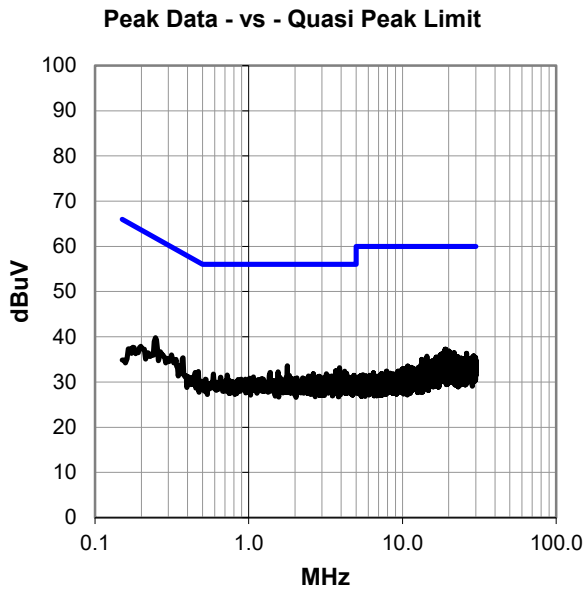
None.

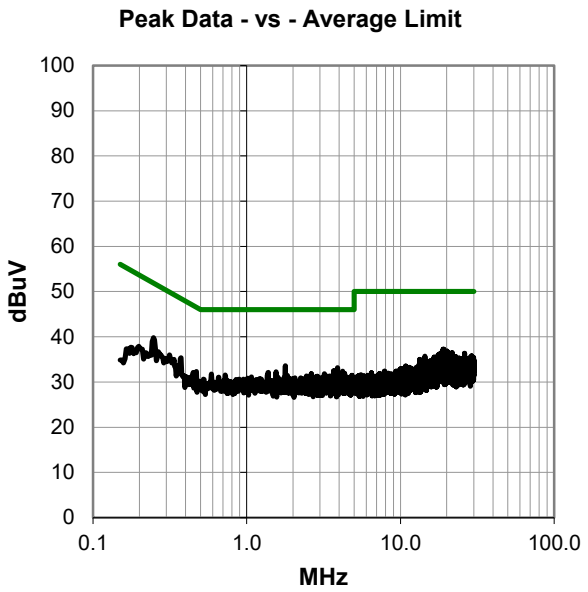
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, Mid Channel 157, 5785 MHz. Power setting at default, Constant TX mode enabled.

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	19.4	20.4	39.8	61.9	-22.0
1.780	13.1	20.5	33.6	56.0	-22.4
19.017	15.0	22.3	37.3	60.0	-22.7
3.903	12.5	20.6	33.1	56.0	-22.9
18.938	14.8	22.3	37.1	60.0	-22.9
18.811	14.7	22.3	37.0	60.0	-23.0
0.374	14.9	20.4	35.3	58.4	-23.1
20.065	14.4	22.4	36.8	60.0	-23.2
20.154	14.3	22.4	36.7	60.0	-23.3
18.875	14.4	22.3	36.7	60.0	-23.3
19.942	14.2	22.4	36.6	60.0	-23.4
19.912	14.2	22.4	36.6	60.0	-23.4
3.877	11.9	20.6	32.5	56.0	-23.5
20.225	14.1	22.4	36.5	60.0	-23.5
3.683	11.9	20.6	32.5	56.0	-23.5
21.684	13.9	22.6	36.5	60.0	-23.5
4.217	11.7	20.7	32.4	56.0	-23.6
26.168	13.0	23.4	36.4	60.0	-23.6
18.136	14.1	22.2	36.3	60.0	-23.7
1.549	11.8	20.5	32.3	56.0	-23.7
20.595	13.8	22.5	36.3	60.0	-23.7
18.084	14.0	22.2	36.2	60.0	-23.8
1.381	11.7	20.4	32.1	56.0	-23.9
17.737	13.9	22.1	36.0	60.0	-24.0
18.397	13.8	22.2	36.0	60.0	-24.0
21.184	13.5	22.5	36.0	60.0	-24.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	19.4	20.4	39.8	51.9	-12.0
1.780	13.1	20.5	33.6	46.0	-12.4
19.017	15.0	22.3	37.3	50.0	-12.7
3.903	12.5	20.6	33.1	46.0	-12.9
18.938	14.8	22.3	37.1	50.0	-12.9
18.811	14.7	22.3	37.0	50.0	-13.0
0.374	14.9	20.4	35.3	48.4	-13.1
20.065	14.4	22.4	36.8	50.0	-13.2
20.154	14.3	22.4	36.7	50.0	-13.3
18.875	14.4	22.3	36.7	50.0	-13.3
19.942	14.2	22.4	36.6	50.0	-13.4
19.912	14.2	22.4	36.6	50.0	-13.4
3.877	11.9	20.6	32.5	46.0	-13.5
20.225	14.1	22.4	36.5	50.0	-13.5
3.683	11.9	20.6	32.5	46.0	-13.5
21.684	13.9	22.6	36.5	50.0	-13.5
4.217	11.7	20.7	32.4	46.0	-13.6
26.168	13.0	23.4	36.4	50.0	-13.6
18.136	14.1	22.2	36.3	50.0	-13.7
1.549	11.8	20.5	32.3	46.0	-13.7
20.595	13.8	22.5	36.3	50.0	-13.7
18.084	14.0	22.2	36.2	50.0	-13.8
1.381	11.7	20.4	32.1	46.0	-13.9
17.737	13.9	22.1	36.0	50.0	-14.0
18.397	13.8	22.2	36.0	50.0	-14.0
21.184	13.5	22.5	36.0	50.0	-14.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	5	Line:	Positive Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

None.

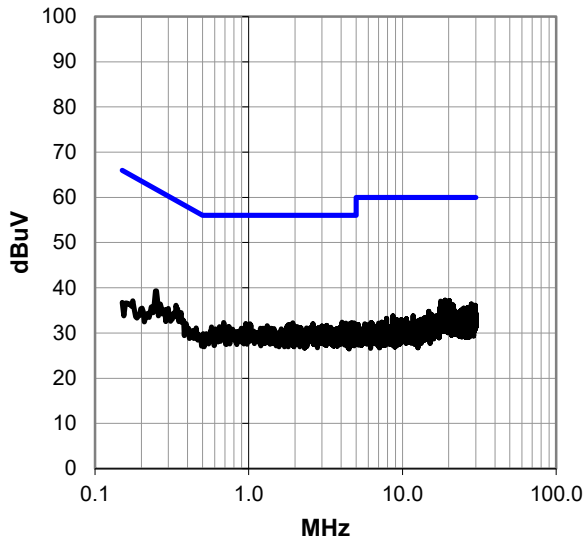
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, High Channel 165, 5825 MHz. Power setting at default, Constant TX mode enabled.

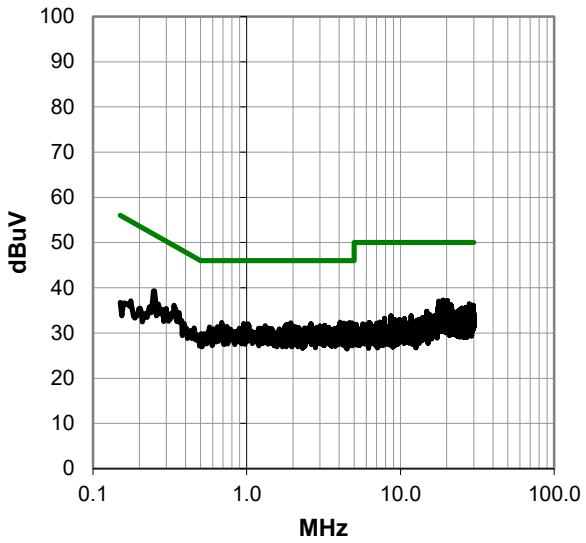
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #5

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	18.9	20.4	39.3	61.9	-22.5
18.990	15.0	22.3	37.3	60.0	-22.7
20.143	14.8	22.4	37.2	60.0	-22.8
17.767	14.9	22.2	37.1	60.0	-22.9
18.826	14.6	22.3	36.9	60.0	-23.1
0.337	15.7	20.4	36.1	59.3	-23.2
19.084	14.2	22.3	36.5	60.0	-23.5
18.520	14.2	22.2	36.4	60.0	-23.6
28.108	12.7	23.7	36.4	60.0	-23.6
4.041	11.7	20.7	32.4	56.0	-23.6
18.405	14.1	22.2	36.3	60.0	-23.7
0.687	11.9	20.4	32.3	56.0	-23.7
20.169	13.9	22.4	36.3	60.0	-23.7
21.117	13.8	22.5	36.3	60.0	-23.7
4.668	11.6	20.7	32.3	56.0	-23.7
1.937	11.8	20.5	32.3	56.0	-23.7
20.005	13.8	22.4	36.2	60.0	-23.8
4.866	11.5	20.7	32.2	56.0	-23.8
4.280	11.5	20.7	32.2	56.0	-23.8
0.956	11.7	20.4	32.1	56.0	-23.9
29.690	12.1	24.0	36.1	60.0	-23.9
18.793	13.8	22.3	36.1	60.0	-23.9
21.494	13.5	22.5	36.0	60.0	-24.0
2.620	11.5	20.5	32.0	56.0	-24.0
1.019	11.6	20.4	32.0	56.0	-24.0
18.226	13.8	22.2	36.0	60.0	-24.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	18.9	20.4	39.3	51.9	-12.5
18.990	15.0	22.3	37.3	50.0	-12.7
20.143	14.8	22.4	37.2	50.0	-12.8
17.767	14.9	22.2	37.1	50.0	-12.9
18.826	14.6	22.3	36.9	50.0	-13.1
0.337	15.7	20.4	36.1	49.3	-13.2
19.084	14.2	22.3	36.5	50.0	-13.5
18.520	14.2	22.2	36.4	50.0	-13.6
28.108	12.7	23.7	36.4	50.0	-13.6
4.041	11.7	20.7	32.4	46.0	-13.6
18.405	14.1	22.2	36.3	50.0	-13.7
0.687	11.9	20.4	32.3	46.0	-13.7
20.169	13.9	22.4	36.3	50.0	-13.7
21.117	13.8	22.5	36.3	50.0	-13.7
4.668	11.6	20.7	32.3	46.0	-13.7
1.937	11.8	20.5	32.3	46.0	-13.7
20.005	13.8	22.4	36.2	50.0	-13.8
4.866	11.5	20.7	32.2	46.0	-13.8
4.280	11.5	20.7	32.2	46.0	-13.8
0.956	11.7	20.4	32.1	46.0	-13.9
29.690	12.1	24.0	36.1	50.0	-13.9
18.793	13.8	22.3	36.1	50.0	-13.9
21.494	13.5	22.5	36.0	50.0	-14.0
2.620	11.5	20.5	32.0	46.0	-14.0
1.019	11.6	20.4	32.0	46.0	-14.0
18.226	13.8	22.2	36.0	50.0	-14.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

EUT:	RC12	Work Order:	INMC0943
Serial Number:	R11	Date:	01/13/2016
Customer:	Intermec Technologies Corporation	Temperature:	23°C
Attendees:	None	Relative Humidity:	36%
Customer Project:	None	Bar. Pressure:	1004 mb
Tested By:	Richard Mellroth	Job Site:	NC05
Power:	5 VDC	Configuration:	INMC0943-3

TEST SPECIFICATIONS

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

TEST PARAMETERS

Run #:	6	Line:	Negative Lead	Add. Ext. Attenuation (dB):	0

COMMENTS

None.

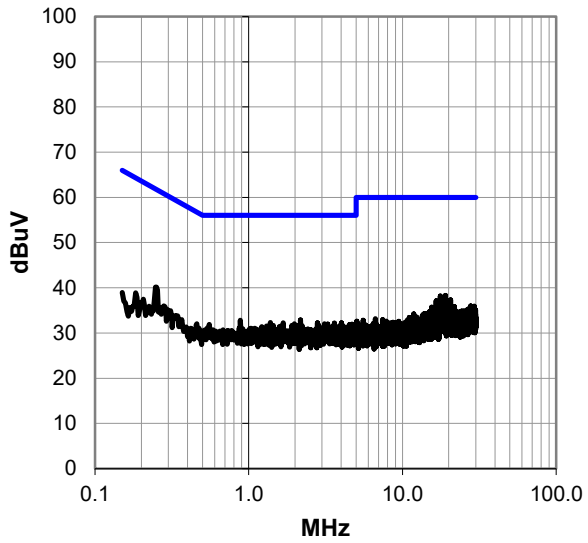
EUT OPERATING MODES

Transmitting 802.11(a), 6Mbps, High Channel 165, 5825 MHz. Power setting at default, Constant TX mode enabled.

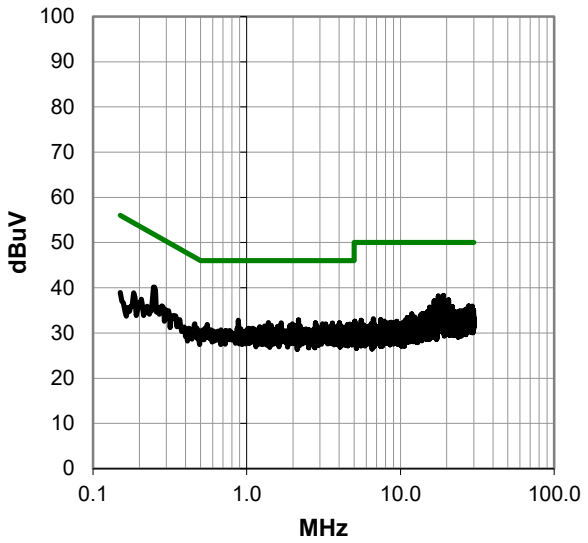
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

NORTHWEST EMC
WTD.2015.12.01
PSA-ESCI 2015.07.01, EmiR5 2015.11.06

RESULTS - Run #6

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
19.058	16.0	22.3	38.3	60.0	-21.7
0.247	19.7	20.4	40.1	61.9	-21.7
17.644	16.0	22.1	38.1	60.0	-21.9
19.046	15.5	22.3	37.8	60.0	-22.2
20.587	14.9	22.5	37.4	60.0	-22.6
19.983	14.8	22.4	37.2	60.0	-22.8
16.569	15.1	22.0	37.1	60.0	-22.9
20.378	14.6	22.4	37.0	60.0	-23.0
20.188	14.6	22.4	37.0	60.0	-23.0
17.618	14.8	22.1	36.9	60.0	-23.1
2.172	12.4	20.5	32.9	56.0	-23.1
18.767	14.6	22.3	36.9	60.0	-23.1
0.881	12.4	20.4	32.8	56.0	-23.2
20.054	14.4	22.4	36.8	60.0	-23.2
20.035	14.4	22.4	36.8	60.0	-23.2
18.946	14.1	22.3	36.4	60.0	-23.6
1.381	11.9	20.4	32.3	56.0	-23.7
19.184	14.0	22.3	36.3	60.0	-23.7
1.676	11.8	20.5	32.3	56.0	-23.7
4.015	11.6	20.7	32.3	56.0	-23.7
2.799	11.7	20.5	32.2	56.0	-23.8
3.612	11.6	20.6	32.2	56.0	-23.8
18.371	13.9	22.2	36.1	60.0	-23.9
19.028	13.8	22.3	36.1	60.0	-23.9
18.084	13.9	22.2	36.1	60.0	-23.9
1.986	11.6	20.5	32.1	56.0	-23.9

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
19.058	16.0	22.3	38.3	50.0	-11.7
0.247	19.7	20.4	40.1	51.9	-11.7
17.644	16.0	22.1	38.1	50.0	-11.9
19.046	15.5	22.3	37.8	50.0	-12.2
20.587	14.9	22.5	37.4	50.0	-12.6
19.983	14.8	22.4	37.2	50.0	-12.8
16.569	15.1	22.0	37.1	50.0	-12.9
20.378	14.6	22.4	37.0	50.0	-13.0
20.188	14.6	22.4	37.0	50.0	-13.0
17.618	14.8	22.1	36.9	50.0	-13.1
2.172	12.4	20.5	32.9	46.0	-13.1
18.767	14.6	22.3	36.9	50.0	-13.1
0.881	12.4	20.4	32.8	46.0	-13.2
20.054	14.4	22.4	36.8	50.0	-13.2
20.035	14.4	22.4	36.8	50.0	-13.2
18.946	14.1	22.3	36.4	50.0	-13.6
1.381	11.9	20.4	32.3	46.0	-13.7
19.184	14.0	22.3	36.3	50.0	-13.7
1.676	11.8	20.5	32.3	46.0	-13.7
4.015	11.6	20.7	32.3	46.0	-13.7
2.799	11.7	20.5	32.2	46.0	-13.8
3.612	11.6	20.6	32.2	46.0	-13.8
18.371	13.9	22.2	36.1	50.0	-13.9
19.028	13.8	22.3	36.1	50.0	-13.9
18.084	13.9	22.2	36.1	50.0	-13.9
1.986	11.6	20.5	32.1	46.0	-13.9

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

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

MODES OF OPERATION

Transmitting 802.11(a), 6Mbps
Transmitting 802.11(a), 36Mbps
Transmitting 802.11(a), 54Mbps
Transmitting 802.11(n), MCS0
Transmitting 802.11(n), MCS7

CHANNELS TESTED

Low Channel 149, 5745 MHz
Mid Channel 157, 5785 MHz
High Channel 165, 5825 MHz

POWER SETTINGS INVESTIGATED

5 VDC

CONFIGURATIONS INVESTIGATED

INMC0943 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40 GHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	6/23/2015	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	LFF	3/6/2015	12 mo
Cable	Northwest EMC	Bilog Cables	NC1	8/27/2015	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYL	7/30/2015	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	PAB	7/31/2015	12 mo
Filter - Band Pass/Notch	Micro-Tronics	BRC50705	HHM	3/6/2015	12 mo
Cable	Northwest EMC	3115 Horn Cable	NC2	6/17/2015	12 mo
Antenna - Double Ridge	EMCO	3115	AHM	6/3/2014	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVZ	7/31/2015	12 mo
Cable	Northwest EMC	Standard Gain Horn Cable	NC3	6/17/2015	12 mo
Antenna - Standard Gain	EMCO	3160-07	AHP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOK	9/21/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOJ	9/21/2015	12 mo
Antenna - Standard Gain	EMCO	3160-08	AHO	NCR	0 mo
Cable	Northwest EMC	N/A	NC8	6/6/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOD	6/6/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AIY	NCR	0 mo
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC7	11/3/2015	12 mo
Amplifier	Miteq	JSW45-2600400-40-5P	TTK	11/3/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-10	AJE	NCR	0 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.

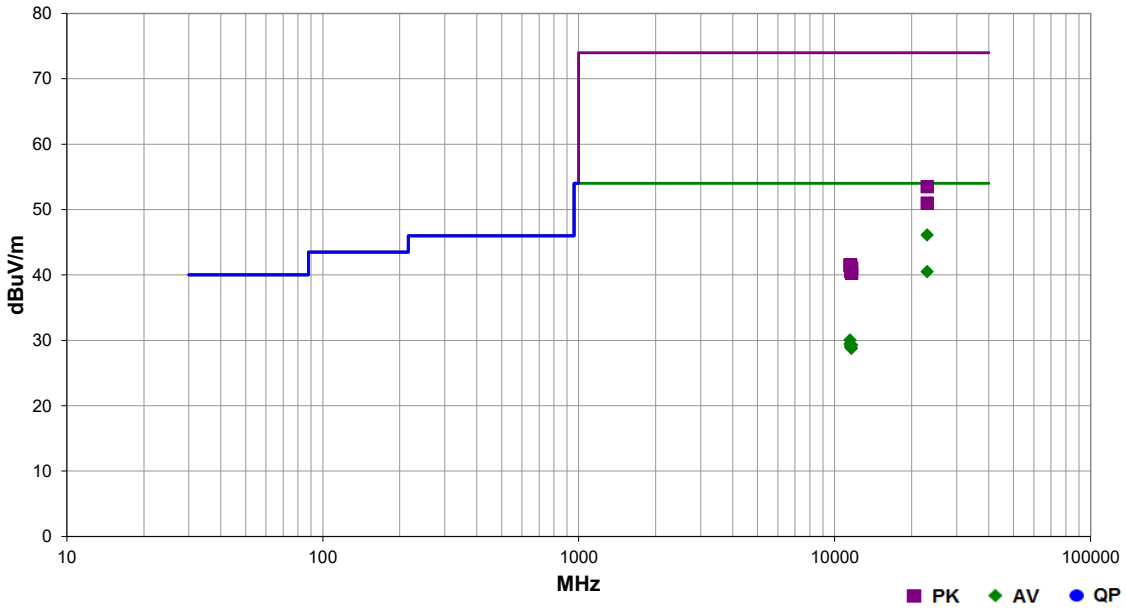
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter)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

SPURIOUS RADIATED EMISSIONS

Work Order:	INMC0943	**Date:**	01/11/16		
Project:	None	**Temperature:**	22 °C		
Job Site:	NC01	**Humidity:**	31% RH		
Serial Number:	R11	**Barometric Pres.:**	1020 mbar	**Tested by:**	Richard Mellroth
EUT:	RC12				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	5 VDC				
Operating Mode:	Transmitting 802.11(a/n). Power setting at default, Continuous Transmit mode enabled. See comments next to data points for EUT channel, data rate, and orientation.				
Deviations:	None				
Comments:	None				

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

Run #	10,18	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



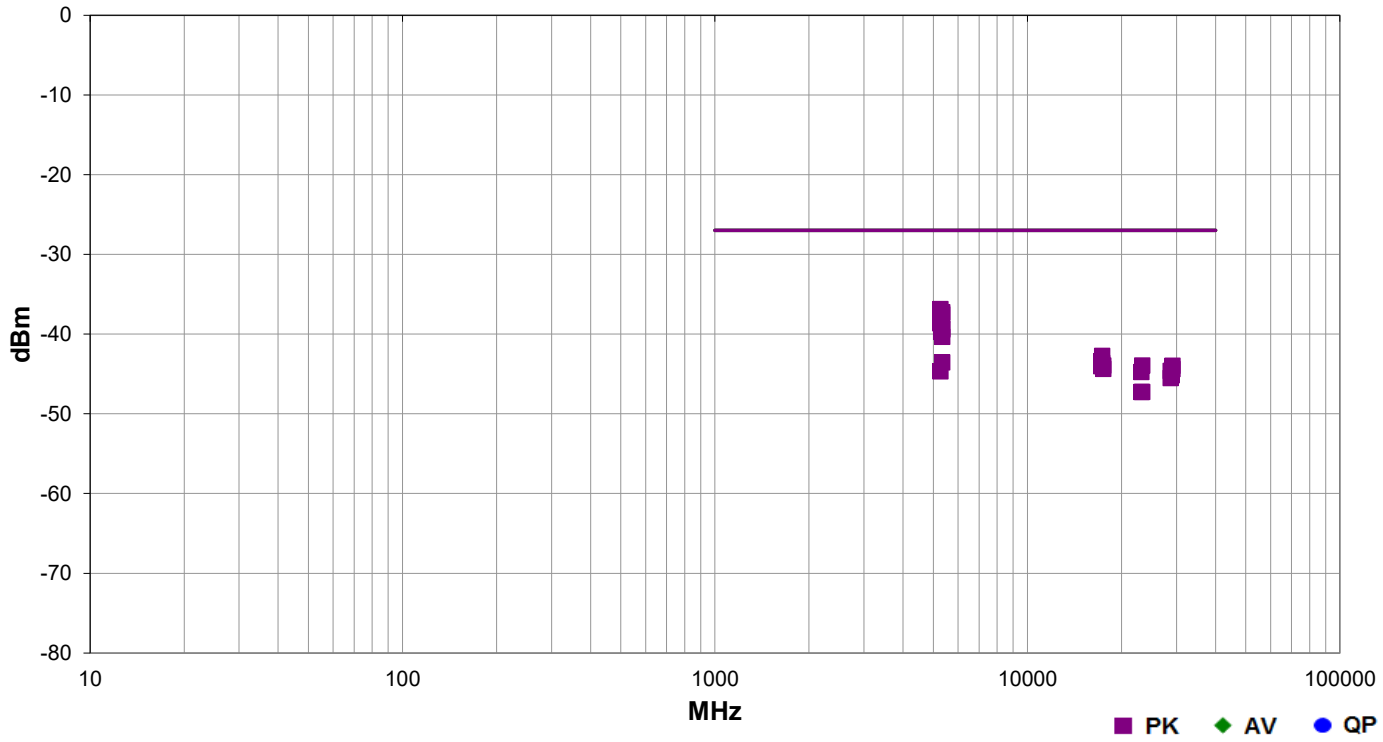
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
22980.000	46.1	0.0	1.5	70.0	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	Low Ch 149, 6Mbps, EUT Flat
22979.930	40.5	0.0	1.5	359.0	3.0	0.0	Horz	AV	0.0	40.5	54.0	-13.5	Low Ch 149, 6Mbps, EUT Flat
22980.220	53.5	0.0	1.5	70.0	3.0	0.0	Vert	PK	0.0	53.5	74.0	-20.5	Low Ch 149, 6Mbps, EUT Flat
22979.710	51.0	0.0	1.5	359.0	3.0	0.0	Horz	PK	0.0	51.0	74.0	-23.0	Low Ch 149, 6Mbps, EUT Flat
11489.840	32.1	-2.1	3.6	224.0	3.0	0.0	Vert	AV	0.0	30.0	54.0	-24.0	Low Ch 149, 6Mbps, EUT Flat
11489.510	31.5	-2.1	1.5	69.0	3.0	0.0	Horz	AV	0.0	29.4	54.0	-24.6	Low Ch 149, 6Mbps, EUT Flat
11650.100	31.2	-1.9	4.0	167.0	3.0	0.0	Vert	AV	0.0	29.3	54.0	-24.7	High Ch 165, 6Mbps, EUT Flat
11569.380	31.0	-2.0	3.1	42.0	3.0	0.0	Horz	AV	0.0	29.0	54.0	-25.0	Mid Ch 157, 6Mbps, EUT Flat
11568.010	31.0	-2.0	1.5	9.0	3.0	0.0	Vert	AV	0.0	29.0	54.0	-25.0	Mid Ch 157, 6Mbps, EUT Flat
11647.730	30.7	-1.9	1.5	55.0	3.0	0.0	Horz	AV	0.0	28.8	54.0	-25.2	High Ch 165, 6Mbps, EUT Flat
11490.290	43.6	-2.1	3.6	224.0	3.0	0.0	Vert	PK	0.0	41.5	74.0	-32.5	Low Ch 149, 6Mbps, EUT Flat
11568.180	43.5	-2.0	1.5	9.0	3.0	0.0	Vert	PK	0.0	41.5	74.0	-32.5	Mid Ch 157, 6Mbps, EUT Flat
11488.740	43.5	-2.1	1.5	69.0	3.0	0.0	Horz	PK	0.0	41.4	74.0	-32.6	Low Ch 149, 6Mbps, EUT Flat
11652.480	43.0	-2.0	4.0	167.0	3.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	High Ch 165, 6Mbps, EUT Flat
11571.590	42.6	-2.0	3.1	42.0	3.0	0.0	Horz	PK	0.0	40.6	74.0	-33.4	Mid Ch 157, 6Mbps, EUT Flat
11648.380	42.2	-1.9	1.5	55.0	3.0	0.0	Horz	PK	0.0	40.3	74.0	-33.7	High Ch 165, 6Mbps, EUT Flat

SPURIOUS RADIATED EMISSIONS

Work Order:	INMC0943	**Date:**	01/11/16		
Project:	None	**Temperature:**	22 °C		
Job Site:	NC01	**Humidity:**	31% RH		
Serial Number:	R11	**Barometric Pres.:**	1020 mbar	**Tested by:**	Richard Mellroth
EUT:	RC12				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	5 VDC				
Operating Mode:	Transmitting 802.11(a/n). Power setting at default, Continuous Transmit mode enabled. See comments next to data points for EUT channel, data rate, and orientation.				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2013

Run #	9,11,17,18,21	**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
	5266.258	2.4	228.0	Horz	PK	2.06E-07	-36.9	-27.0	-9.9	Low Ch 149, 6Mbps, EUT Flat
	5339.560	2.3	228.0	Horz	PK	1.89E-07	-37.2	-27.0	-10.2	High Ch 165, 6Mbps, EUT Flat
	5266.133	2.6	220.0	Horz	PK	1.84E-07	-37.4	-27.0	-10.4	Low Ch 149, 36Mbps, EUT Flat
	5339.715	2.8	127.0	Horz	PK	1.76E-07	-37.5	-27.0	-10.5	High Ch 165, 6Mbps, EUT on Side
	5266.375	2.4	225.0	Horz	PK	1.56E-07	-38.1	-27.0	-11.1	Low Ch 149, MCS0, EUT Flat
	5266.267	2.3	227.0	Horz	PK	1.53E-07	-38.2	-27.0	-11.2	Low Ch 149, 54Mbps, EUT Flat
	5266.225	3.4	224.0	Horz	PK	1.36E-07	-38.7	-27.0	-11.7	Low Ch 149, MCS7, EUT Flat
	5339.505	4.0	182.0	Vert	PK	1.16E-07	-39.3	-27.0	-12.3	High Ch 165, 6Mbps, EUT Flat

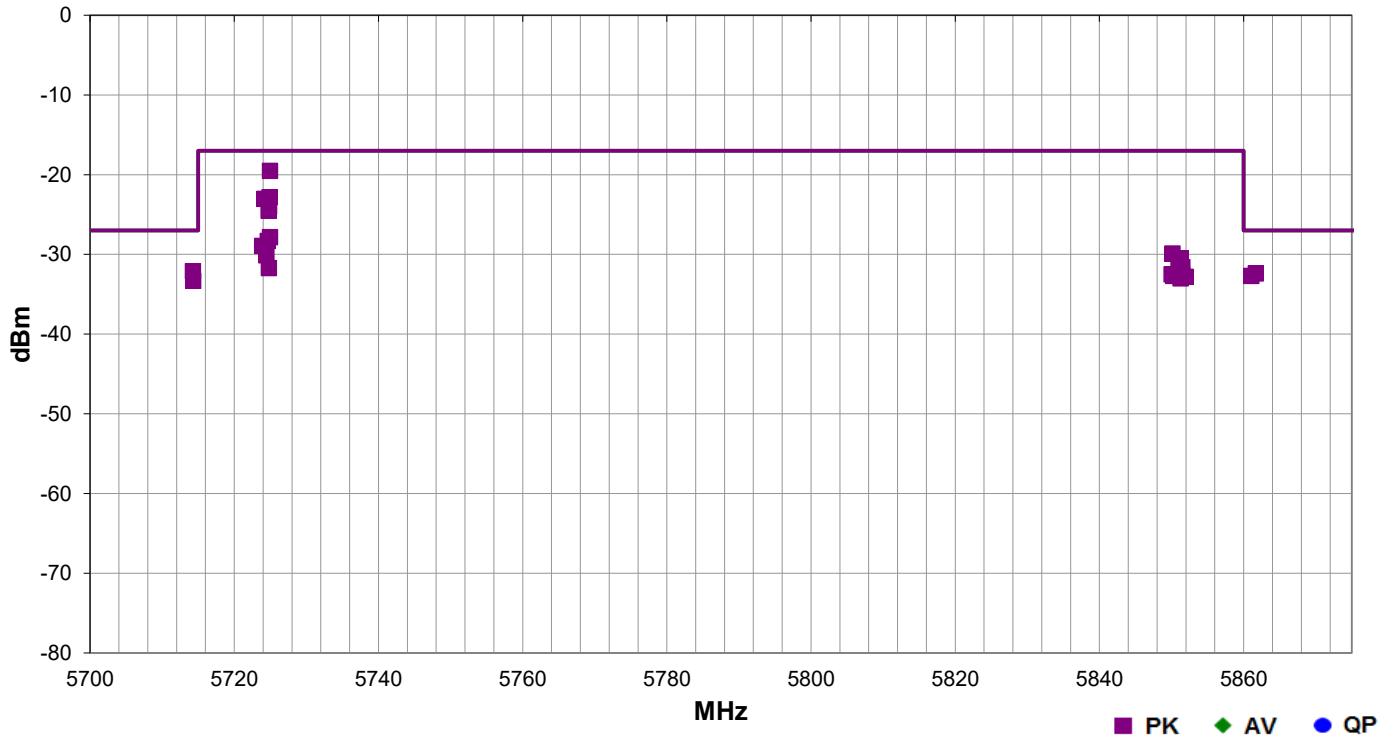
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	5339.520	3.9	151.0	Vert	PK	1.14E-07	-39.4	-27.0	-12.4	High Ch 165, 6Mbps, EUT on Side
	5302.725	1.2	228.0	Horz	PK	1.12E-07	-39.5	-27.0	-12.5	Mid Ch 157, 6Mbps, EUT Flat
	5302.892	4.0	145.0	Vert	PK	1.07E-07	-39.7	-27.0	-12.7	Mid Ch 157, 6Mbps, EUT Flat
	5339.795	4.0	246.0	Vert	PK	9.24E-08	-40.3	-27.0	-13.3	High Ch 165, 6Mbps, EUT Vert
	17353.420	3.9	353.0	Vert	PK	5.32E-08	-42.7	-27.0	-15.7	Mid Ch 157, 6Mbps, EUT Flat
	17236.540	3.0	92.0	Vert	PK	4.57E-08	-43.4	-27.0	-16.4	Low Ch 149, 6Mbps, EUT Flat
	5339.640	3.5	226.0	Horz	PK	4.42E-08	-43.5	-27.0	-16.5	High Ch 165, 6Mbps, EUT Vert
	17352.750	2.2	293.0	Horz	PK	4.32E-08	-43.6	-27.0	-16.6	Mid Ch 157, 6Mbps, EUT Flat
	23300.060	1.5	69.0	Vert	PK	4.03E-08	-43.9	-27.0	-16.9	High Ch 165, 6Mbps, EUT Flat
	17474.940	1.5	136.0	Horz	PK	4.03E-08	-44.0	-27.0	-17.0	High Ch 165, 6Mbps, EUT Flat
	29123.510	1.5	111.0	Horz	PK	4.00E-08	-44.0	-27.0	-17.0	High Ch 165, 6Mbps, EUT Flat
	17233.660	1.5	259.0	Horz	PK	3.97E-08	-44.0	-27.0	-17.0	Low Ch 149, 6Mbps, EUT Flat
	17475.770	1.5	355.0	Vert	PK	3.67E-08	-44.4	-27.0	-17.4	High Ch 165, 6Mbps, EUT Flat
	29126.180	1.5	357.0	Vert	PK	3.65E-08	-44.4	-27.0	-17.4	High Ch 165, 6Mbps, EUT Flat
	28723.320	1.5	171.0	Vert	PK	3.45E-08	-44.6	-27.0	-17.6	Low Ch 149, 6Mbps, EUT Flat
	5266.333	1.5	226.0	Vert	PK	3.42E-08	-44.7	-27.0	-17.7	Low Ch 149, 6Mbps, EUT Flat
	23139.680	1.5	35.0	Vert	PK	3.35E-08	-44.7	-27.0	-17.7	Mid Ch 157, 6Mbps, EUT Flat
	28925.570	1.5	276.0	Horz	PK	3.19E-08	-45.0	-27.0	-18.0	Mid Ch 157, 6Mbps, EUT Flat
	28923.420	1.5	165.0	Vert	PK	3.04E-08	-45.2	-27.0	-18.2	Mid Ch 157, 6Mbps, EUT Flat
	28724.380	1.5	163.0	Horz	PK	2.80E-08	-45.5	-27.0	-18.5	Low Ch 149, 6Mbps, EUT Flat
	23139.420	1.5	254.0	Horz	PK	1.88E-08	-47.2	-27.0	-20.2	Mid Ch 157, 6Mbps, EUT Flat
	23300.180	1.5	42.0	Horz	PK	1.88E-08	-47.2	-27.0	-20.2	High Ch 165, 6Mbps, EUT Flat

SPURIOUS RADIATED EMISSIONS

Work Order:	INMC0943	**Date:**	01/12/16		
Project:	None	**Temperature:**	23 °C		
Job Site:	NC01	**Humidity:**	32% RH		
Serial Number:	R11	**Barometric Pres.:**	1016 mbar	**Tested by:**	Richard Mellroth
EUT:	RC12				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	5 VDC				
Operating Mode:	Transmitting 802.11(a/n). Power setting at default, Continuous Transmit mode enabled. See comments next to data points for EUT channel, data rate, and orientation.				
Deviations:	None				
Comments:	Band Edge Measurements.				

Test Specifications	**Test Method**
FCC 15.407:2015	ANSI C63.10:2013

Run #	22	**Test Distance (m)**	1	**Antenna Height(s)**	1(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
	5724.963	1.0	154.0	Horz	PK	1.12E-05	-19.5	-17.0	-2.5	Low Ch 149, MCS0, EUT on Side
	5714.253	1.0	99.0	Horz	PK	6.13E-07	-32.1	-27.0	-5.1	Low Ch 149, MCS0, EUT on Side
	5861.673	1.0	208.0	Vert	PK	5.77E-07	-32.4	-27.0	-5.4	High Ch 165, MCS0, EUT on Side
	5861.060	1.0	334.0	Horz	PK	5.38E-07	-32.7	-27.0	-5.7	High Ch 165, MCS0, EUT on Side
	5724.887	1.0	148.0	Horz	PK	5.22E-06	-22.8	-17.0	-5.8	Low Ch 149, 6Mbps, EUT on Side
	5724.177	1.0	110.0	Horz	PK	4.98E-06	-23.0	-17.0	-6.0	Low Ch 149, 54Mbps, EUT on Side
	5714.303	1.0	126.0	Vert	PK	4.65E-07	-33.3	-27.0	-6.3	Low Ch 149, MCS0, EUT on Side
	5724.840	1.0	148.0	Horz	PK	3.96E-06	-24.0	-17.0	-7.0	Low Ch 149, 36Mbps, EUT on Side

	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	5724.757	1.0	234.0	Horz	PK	3.53E-06	-24.5	-17.0	-7.5	Low Ch 149, 6Mbps, EUT Flat
	5724.950	1.0	199.0	Vert	PK	1.65E-06	-27.8	-17.0	-10.8	Low Ch 149, 6Mbps, EUT on Side
	5724.643	1.0	157.0	Horz	PK	1.47E-06	-28.3	-17.0	-11.3	Low Ch 149, MCS7, EUT on Side
	5723.857	1.0	23.0	Vert	PK	1.28E-06	-28.9	-17.0	-11.9	Low Ch 149, 6Mbps, EUT Vert
	5850.143	1.0	165.0	Horz	PK	1.02E-06	-29.9	-17.0	-12.9	High Ch 165, MCS0, EUT on Side
	5724.453	1.0	191.0	Vert	PK	9.71E-07	-30.1	-17.0	-13.1	Low Ch 149, 6Mbps, EUT Flat
	5851.257	1.0	134.0	Horz	PK	8.91E-07	-30.5	-17.0	-13.5	High Ch 165, 6Mbps, EUT on Side
	5850.967	1.0	137.0	Horz	PK	7.08E-07	-31.5	-17.0	-14.5	High Ch 165, 36Mbps, EUT on Side
	5851.487	1.0	160.0	Horz	PK	6.92E-07	-31.6	-17.0	-14.6	High Ch 165, 54Mbps, EUT on Side
	5724.807	1.0	122.0	Horz	PK	6.72E-07	-31.7	-17.0	-14.7	Low Ch 149, 6Mbps, EUT Vert
	5851.463	1.0	160.0	Horz	PK	5.62E-07	-32.5	-17.0	-15.5	High Ch 165, MCS7, EUT on Side
	5850.003	1.0	188.0	Vert	PK	5.62E-07	-32.5	-17.0	-15.5	High Ch 165, 6Mbps, EUT on Side
	5851.283	1.0	110.0	Horz	PK	5.37E-07	-32.7	-17.0	-15.7	High Ch 165, 6Mbps, EUT Vert
	5850.250	1.0	274.0	Horz	PK	5.37E-07	-32.7	-17.0	-15.7	High Ch 165, 6Mbps, EUT Flat
	5851.973	1.0	208.0	Vert	PK	5.25E-07	-32.8	-17.0	-15.8	High Ch 165, 6Mbps, EUT Flat
	5851.233	1.0	293.0	Vert	PK	5.01E-07	-33.0	-17.0	-16.0	High Ch 165, 6Mbps, EUT Vert

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)
Chamber - Temperature/Humidity	Tenney	T6S	TBG	NCR	0
Thermometer	Omega Engineering, Inc.	HH311	DUH	4/3/2015	36
Meter - Multimeter	Fluke	111	MMM	3/20/2013	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	6/22/2015	12
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC5	6/6/2015	12
Attenuator	S.M. Electronics	SA18H-20	REK	9/28/2015	12
Block - DC	Fairview Microwave	SD3379	AMJ	6/6/2015	12

TEST DESCRIPTION

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

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

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

Per the requirements of FCC 15.407:

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

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

FREQUENCY STABILITY

NORTHWEST EMC

XMit 2015.01.14

EUT:	RC12			**Work Order:**	INMC0943
Serial Number:	R11			**Date:**	01/13/16
Customer:	Intermec Technologies Corporation			**Temperature:**	23°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1004 mbar
Tested by:	Richard Mellroth	**Power:**	5 VDC	**Job Site:**	NC01

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

COMMENTS

CW Transmit mode enabled.

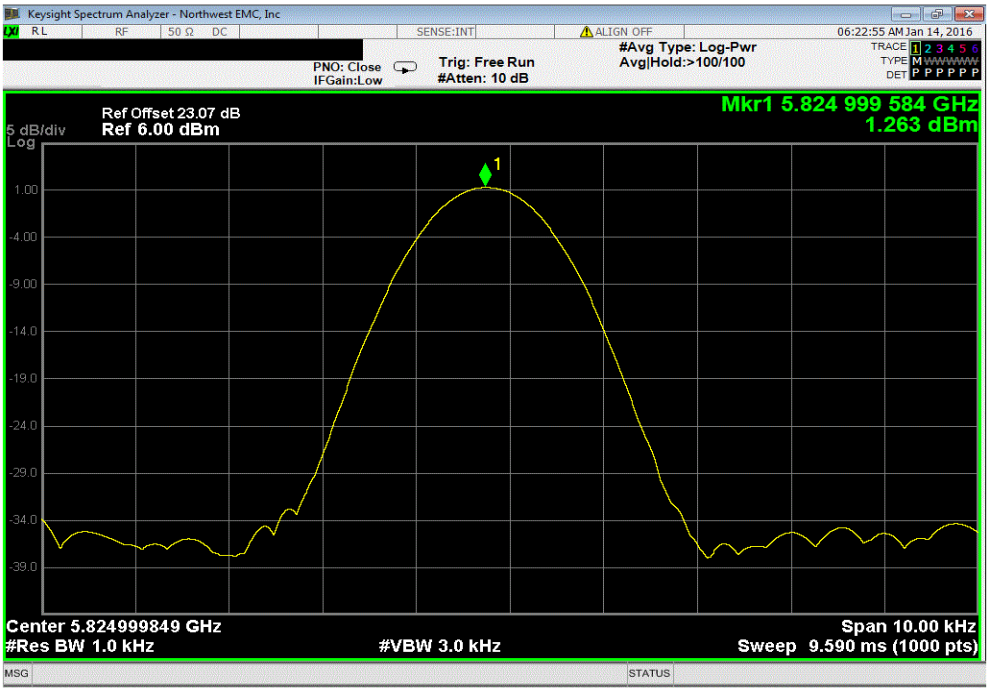
DEVIATIONS FROM TEST STANDARD

None

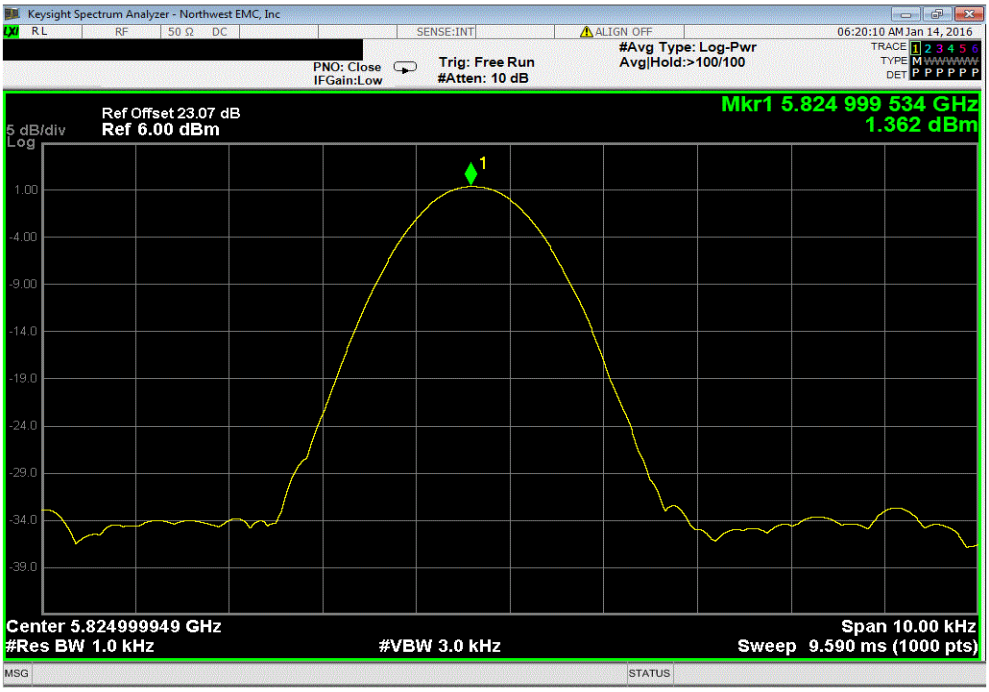
Configuration #	4	Signature

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
5725 MHz - 5850 MHz - High Channel, 5825 MHz					
Voltage: 115%	5824.999584	5825	0.1	100	Pass
Voltage: 100%	5824.999534	5825	0.1	100	Pass
Voltage: 85%	5824.999544	5825	0.1	100	Pass
Temperature: +50°	5824.999154	5825	0.2	100	Pass
Temperature: +40°	5824.999574	5825	0.1	100	Pass
Temperature: +30°	5824.999624	5825	0.1	100	Pass
Temperature: +20°	5824.998934	5825	0.2	100	Pass
Temperature: +10°	5824.998754	5825	0.2	100	Pass
Temperature: 0°	5824.999624	5825	0.1	100	Pass
Temperature: -10°	5825.000135	5825	0.0	100	Pass
Temperature: -20°	5824.999795	5825	0.0	100	Pass
Temperature: -30°	5825.000505	5825	0.1	100	Pass

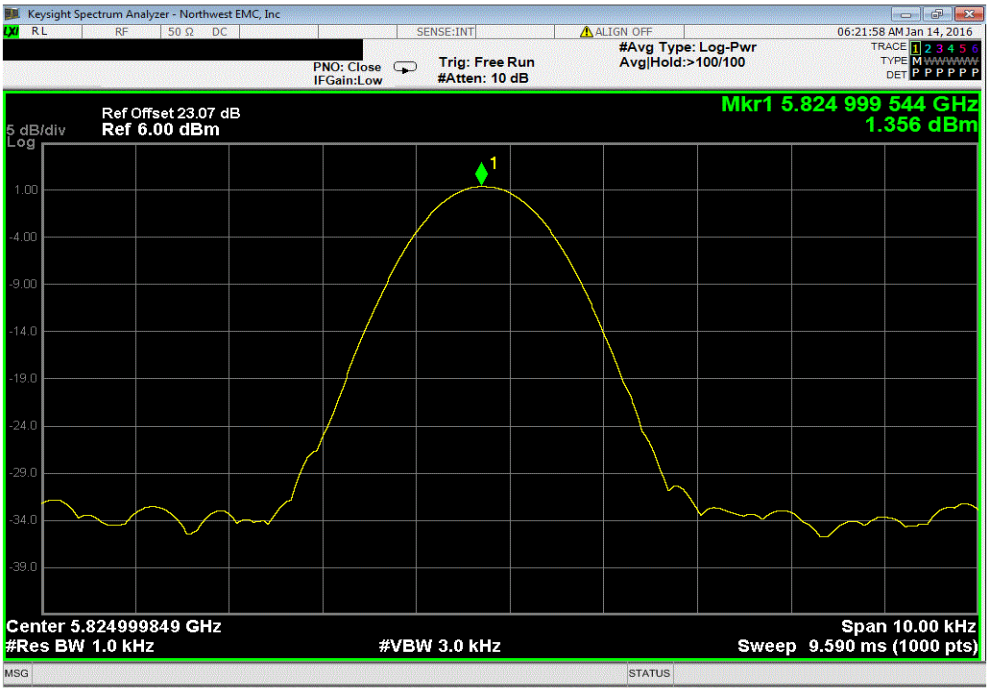
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999584	5825	0.1	100	Pass



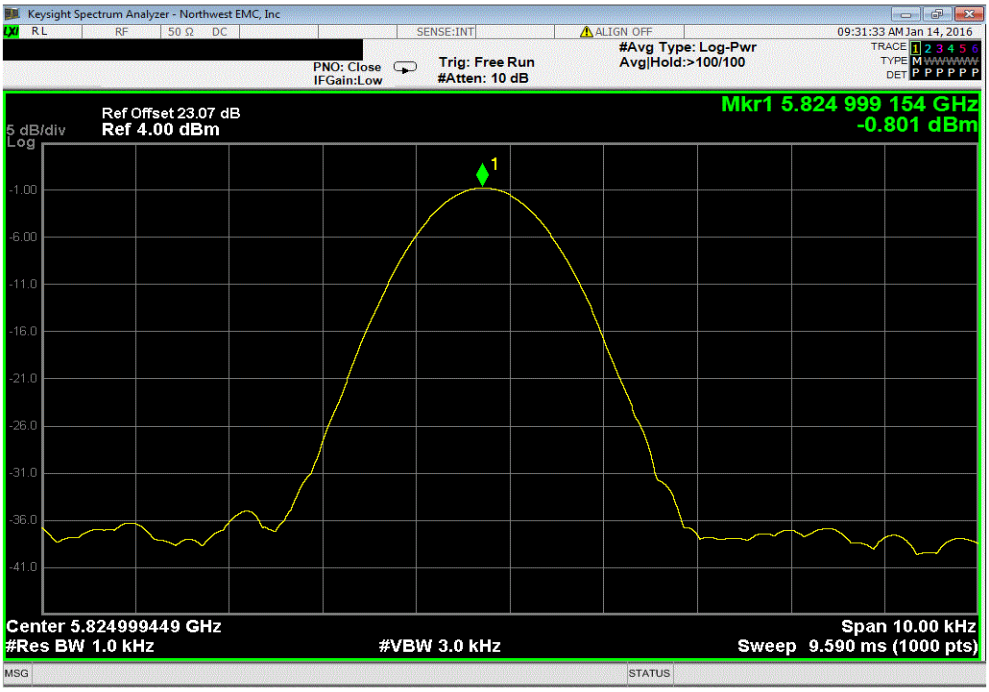
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999534	5825	0.1	100	Pass



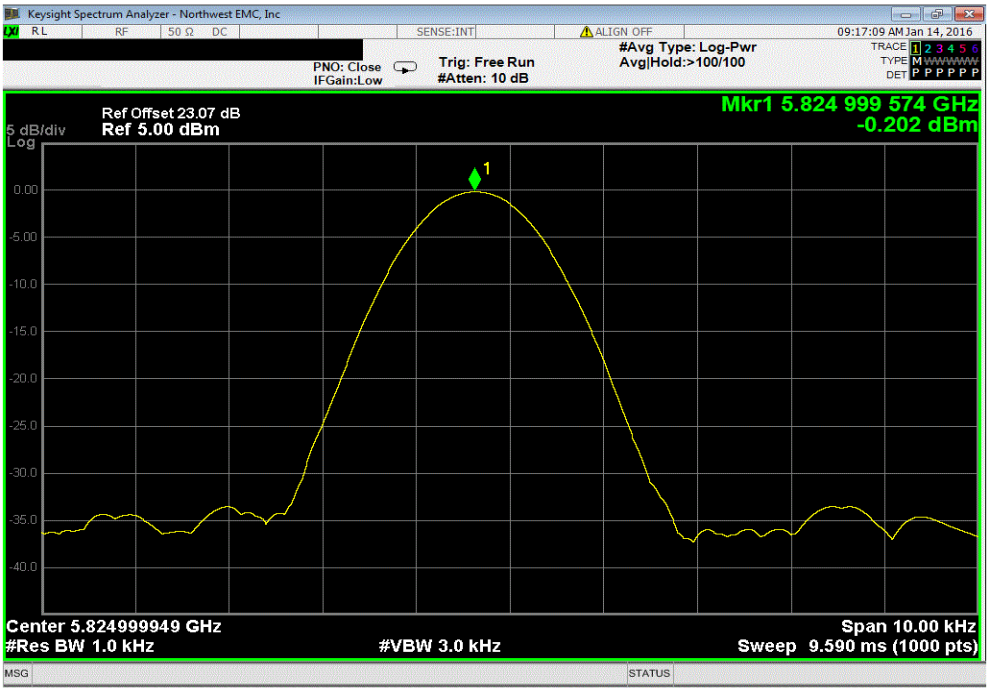
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999544	5825	0.1	100	Pass



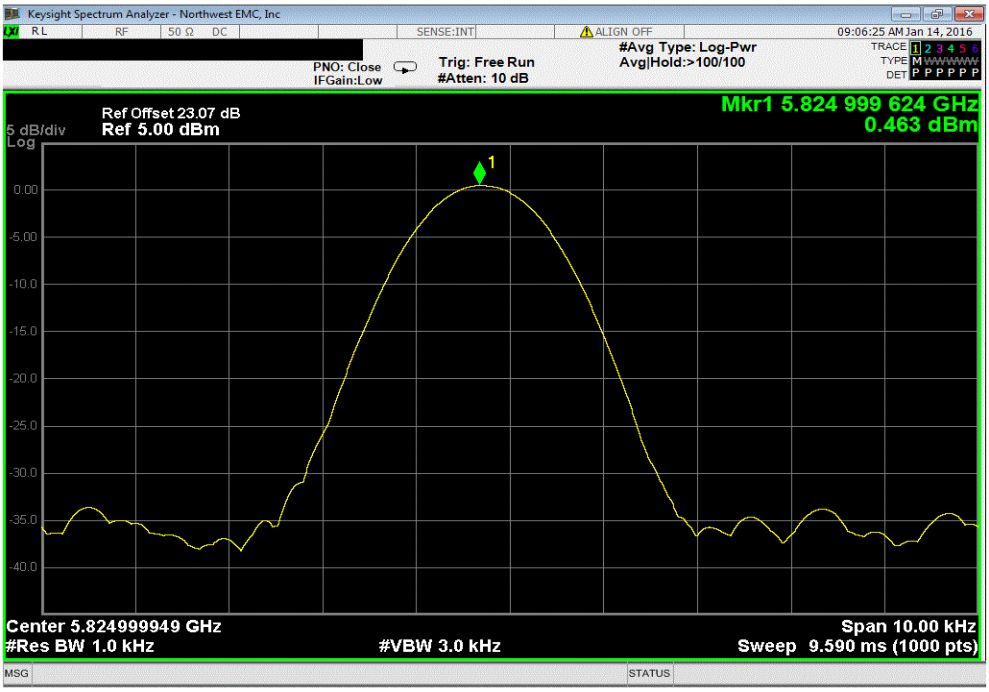
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999154	5825	0.2	100	Pass



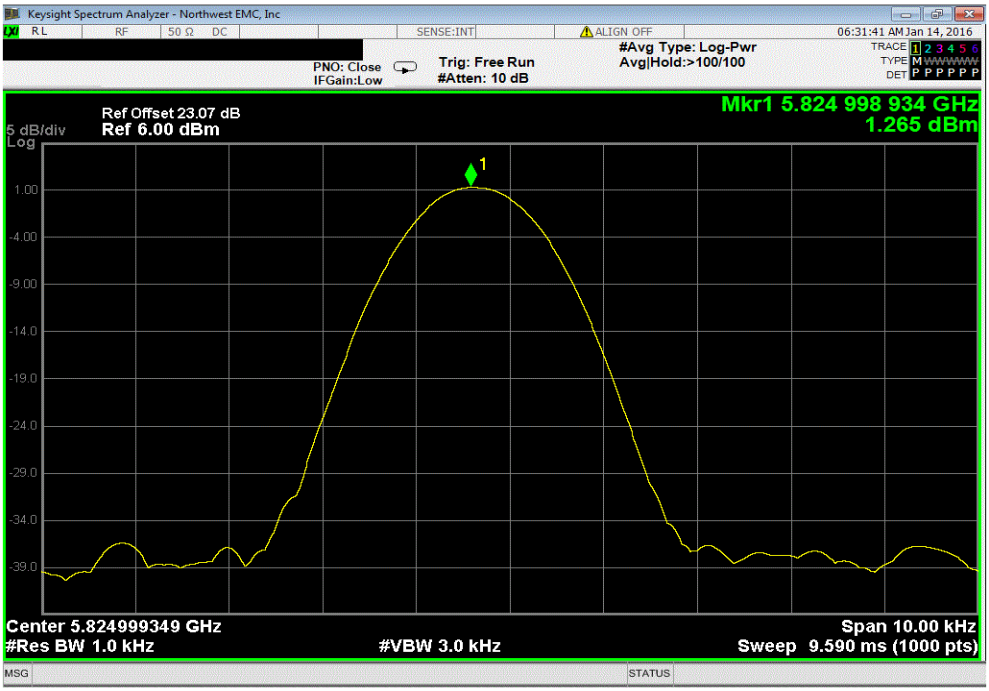
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999574	5825	0.1	100	Pass



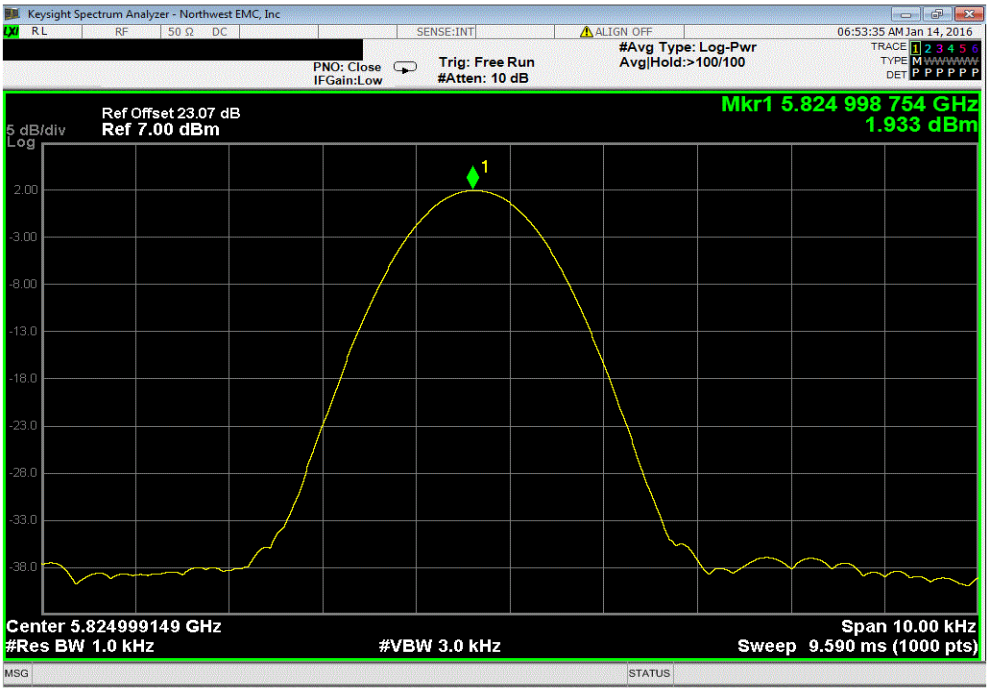
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999624	5825	0.1	100	Pass



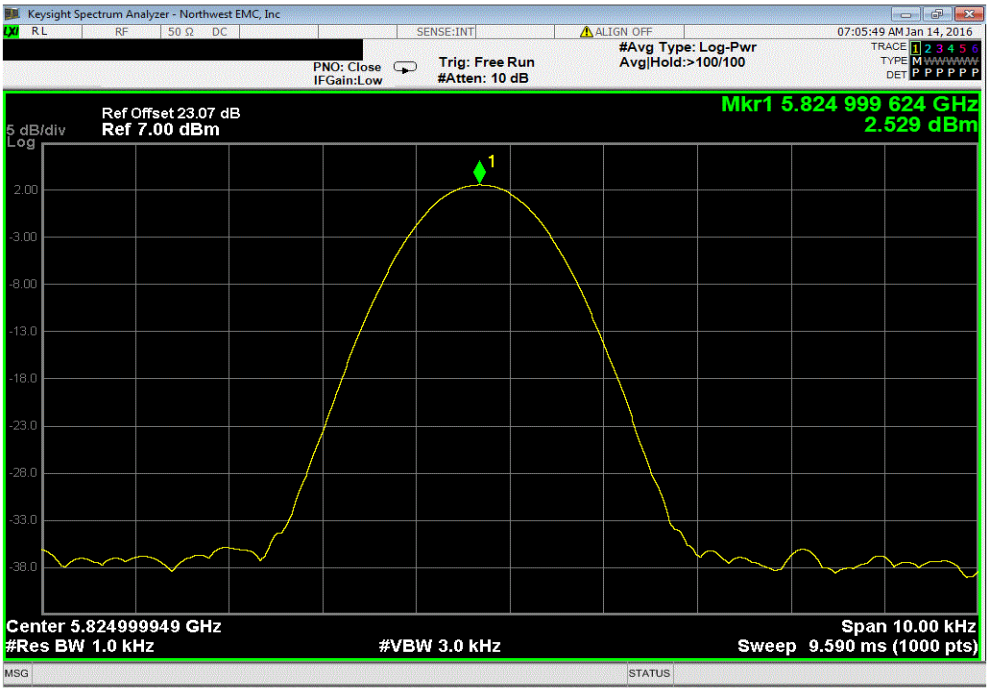
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998934	5825	0.2	100	Pass



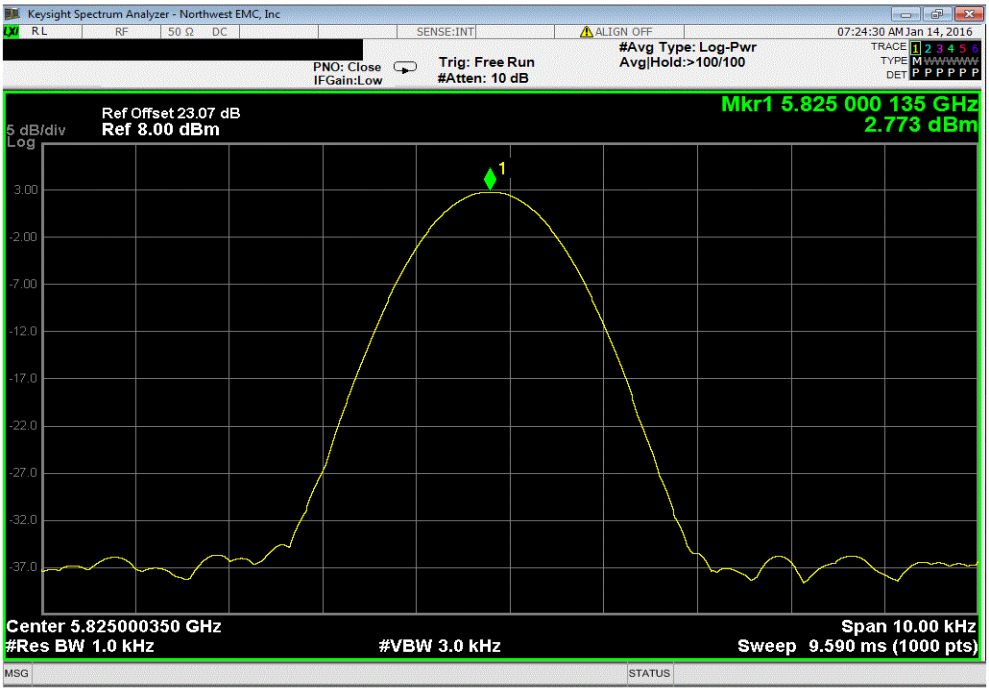
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.998754	5825	0.2	100	Pass



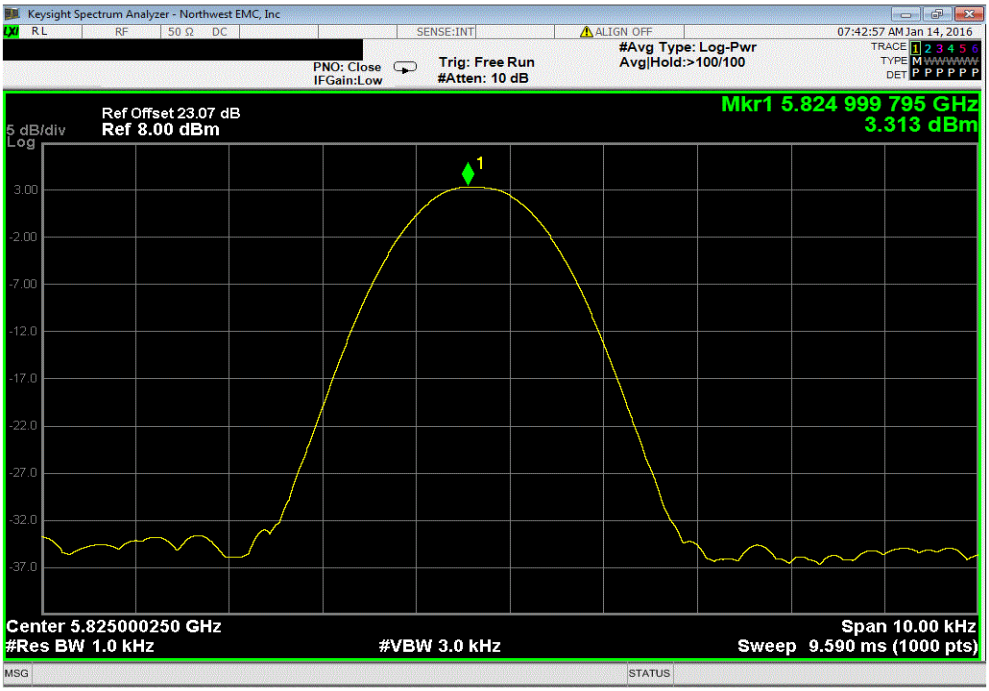
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999624	5825	0.1	100	Pass



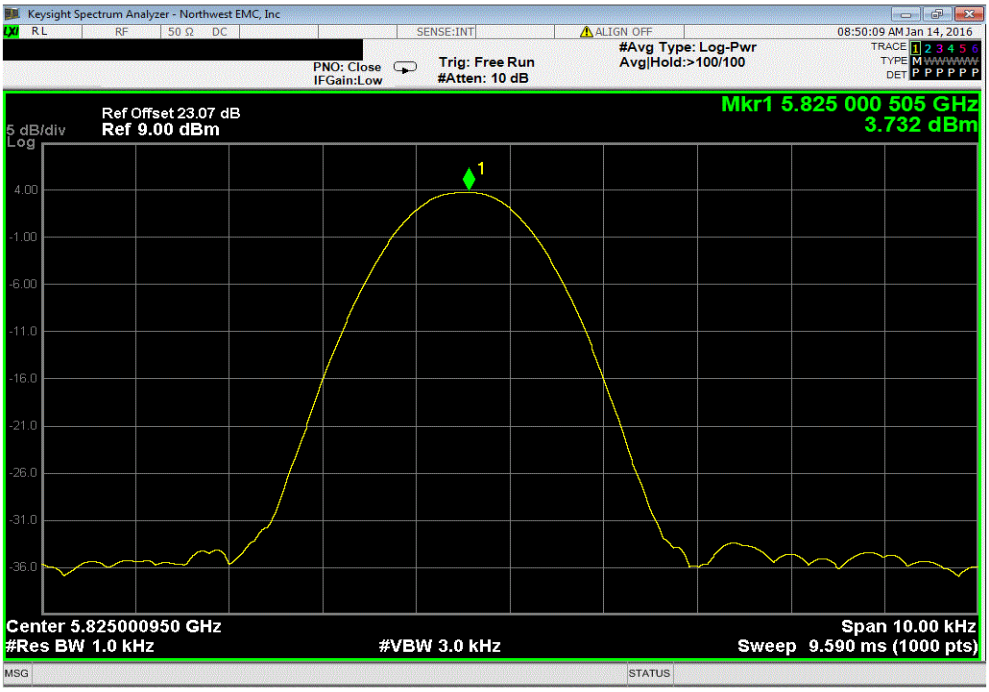
5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5825.000135	5825	0	100	Pass



5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5824.999795	5825	0	100	Pass



5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		5825.000505	5825	0.1	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)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	6/22/2015	12
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC5	6/6/2015	12
Attenuator	S.M. Electronics	SA18H-20	REK	9/28/2015	12
Block - DC	Fairview Microwave	SD3379	AMJ	6/6/2015	12
Generator - Signal	Agilent	N5183A	TIA	4/7/2014	24

TEST DESCRIPTION

Per ANSI C63.10, all measurements are to be performed with the EUT operating at 100% duty cycle at its maximum power level. In the event the EUT cannot be operated at 100% duty cycle, the transmission pulse duration (T) and Duty Cycle (x) are required to be measured for each of the EUT operating modes.

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

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

If the transmit duty cycle < 98 percent, a duty cycle correction factor in dB can be calculated to add to power measurements if required in the test method guidance using the following formula

10 * LOG (1/D) = dB

Where D is duty cycle of the radio transmissions

DUTY CYCLE

NORTHWEST EMC

XMit 2015.01.14

EUT:	RC12			**Work Order:**	INMC0943
Serial Number:	R11			**Date:**	01/13/16
Customer:	Intermec Technologies Corporation			**Temperature:**	23°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1004 mbar
Tested by:	Richard Mellroth	**Power:**	5 VDC	**Job Site:**	NC02

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

COMMENTS

Power settings at default. Constant TX mode enabled.

DEVIATIONS FROM TEST STANDARD

None

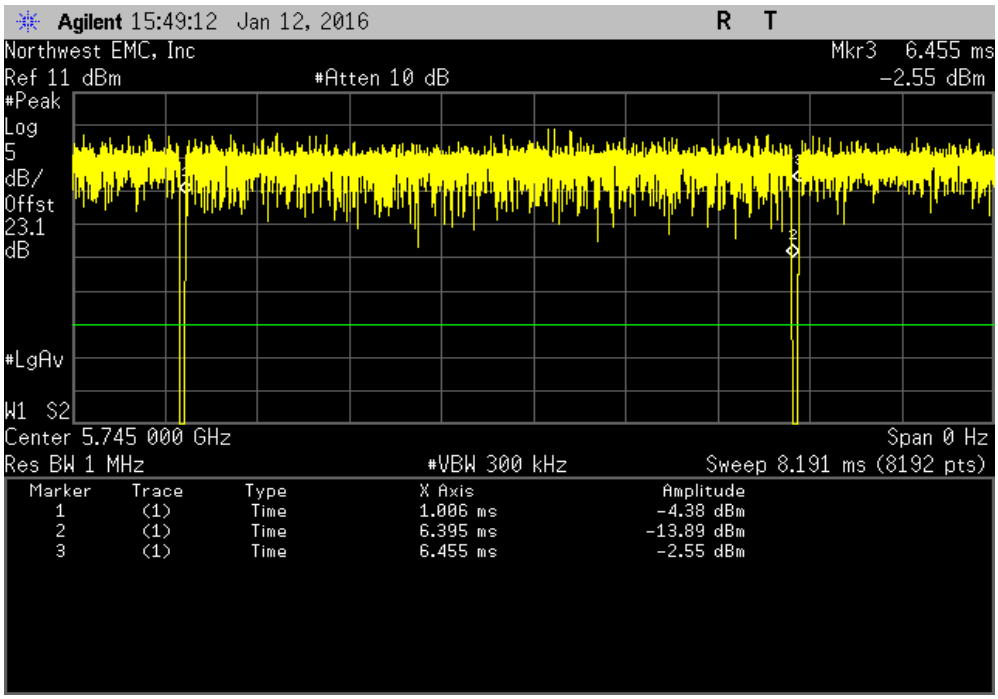
Configuration #	2	Signature

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
5725 - 5785 MHz Band						
802.11(a) 6 Mbps						
Low Channel, Ch 149 - 5745 MHz	5.389 ms	5.449 ms	1	98.9	N/A	N/A
Low Channel, Ch 149 - 5745 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	5.389 ms	5.448 ms	1	98.9	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz	5.388 ms	5.448 ms	1	98.9	N/A	N/A
High Channel, Ch 165 - 5825 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps						
Low Channel, Ch 149 - 5745 MHz	908.6 us	968.3 us	1	93.8	N/A	N/A
Low Channel, Ch 149 - 5745 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	908.6 us	968.3 us	1	93.8	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz	908.6 us	968.3 us	1	93.8	N/A	N/A
High Channel, Ch 165 - 5825 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps						
Low Channel, Ch 149 - 5745 MHz	612.9 us	672.4 us	1	91.2	N/A	N/A
Low Channel, Ch 149 - 5745 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	612.7 us	672.5 us	1	91.1	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz	612.4 us	672.2 us	1	91.1	N/A	N/A
High Channel, Ch 165 - 5825 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0						
Low Channel, Ch 149 - 5745 MHz	4.981 ms	5.041 ms	1	98.8	N/A	N/A
Low Channel, Ch 149 - 5745 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	4.981 ms	5.041 ms	1	98.8	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz	4.98 ms	5.04 ms	1	98.8	N/A	N/A
High Channel, Ch 165 - 5825 MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7						
Low Channel, Ch 149 - 5745 MHz	516.7 us	576.5 us	1	89.6	N/A	N/A
Low Channel, Ch 149 - 5745 MHz	N/A	N/A	5	N/A	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	516.7 us	576.5 us	1	89.6	N/A	N/A
Mid Channel, Ch 157 - 5785 MHz	N/A	N/A	5	N/A	N/A	N/A
High Channel, Ch 165 - 5825 MHz	517 us	576.5 us	1	89.7	N/A	N/A
High Channel, Ch 165 - 5825 MHz	N/A	N/A	5	N/A	N/A	N/A

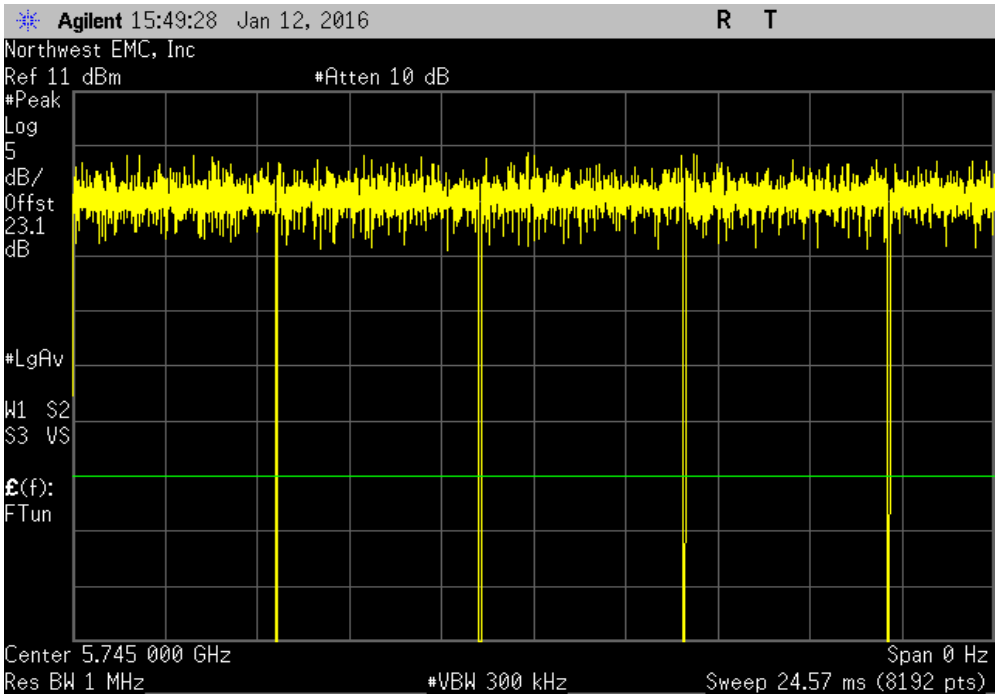
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	5.389 ms	5.449 ms	1	98.9	N/A	N/A



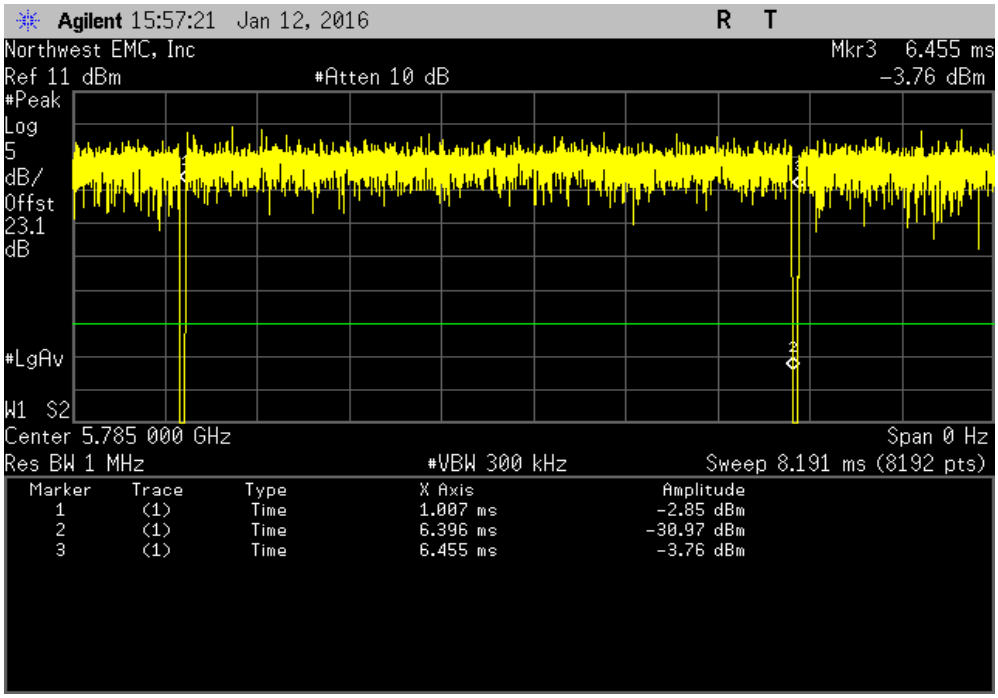
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



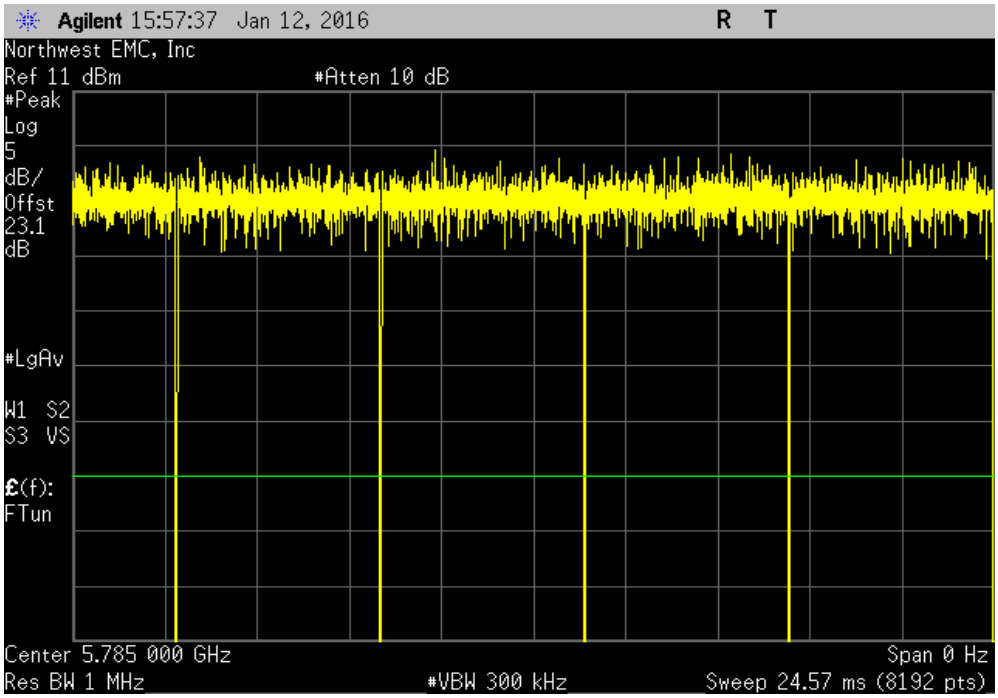
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	5.389 ms	5.448 ms	1	98.9	N/A	N/A



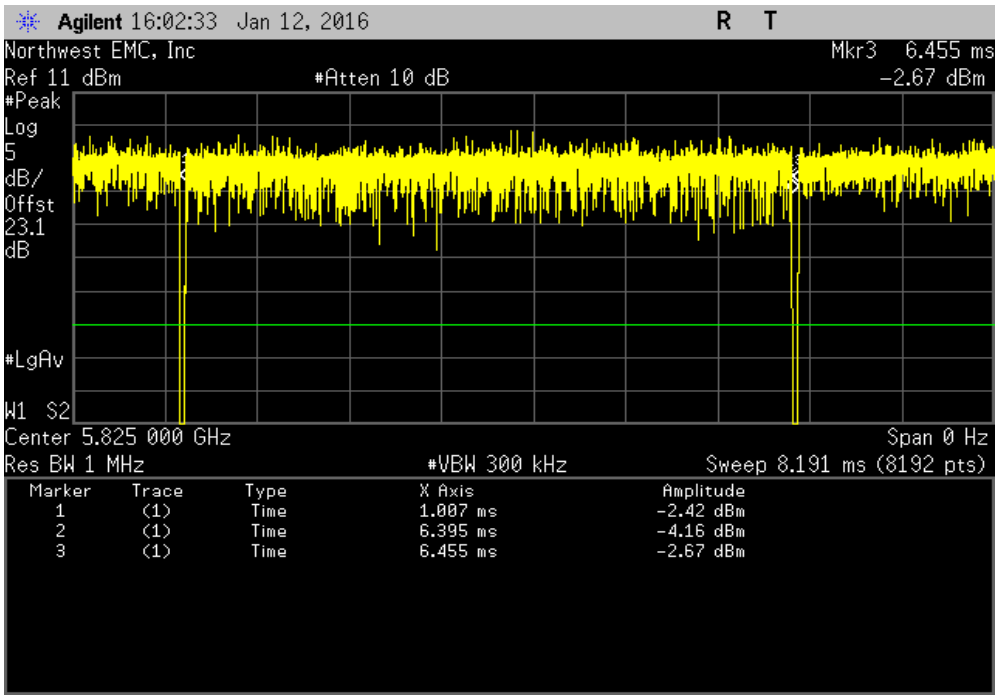
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



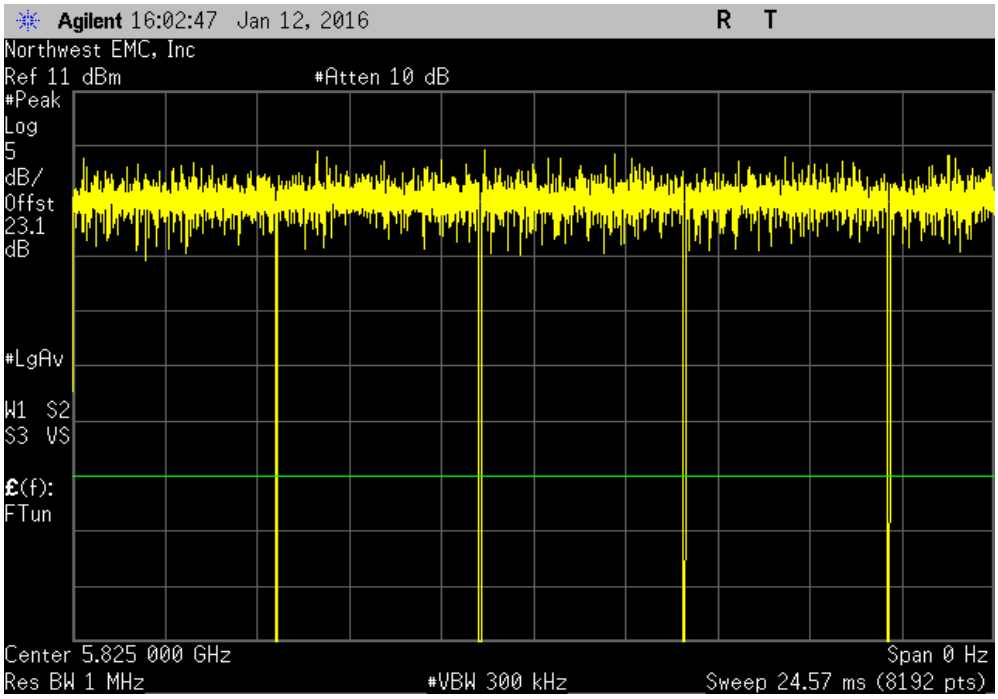
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	5.388 ms	5.448 ms	1	98.9	N/A	N/A



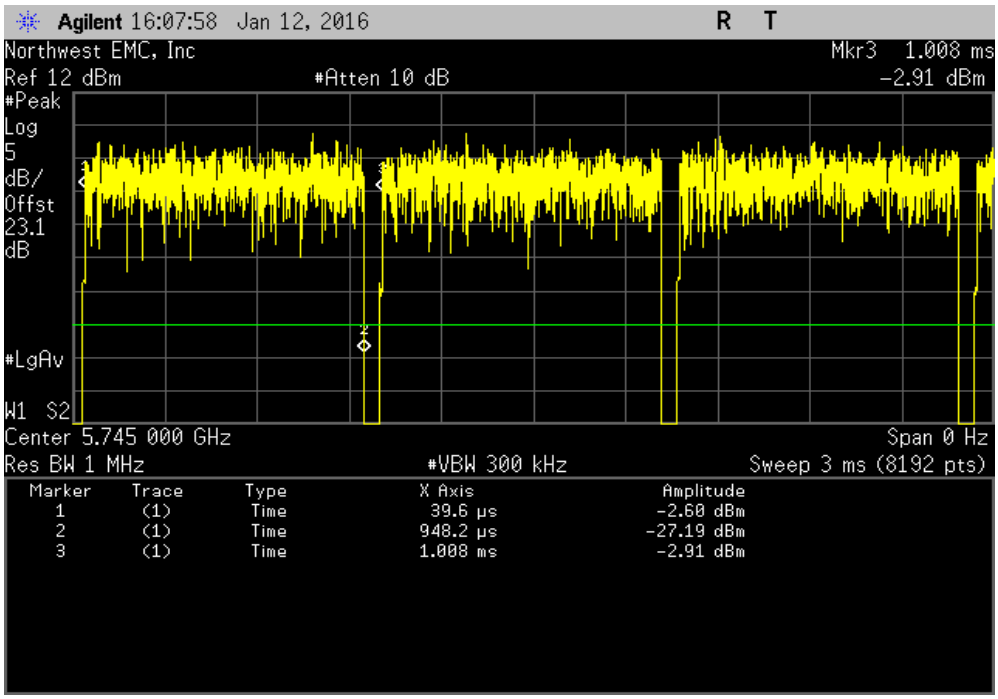
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



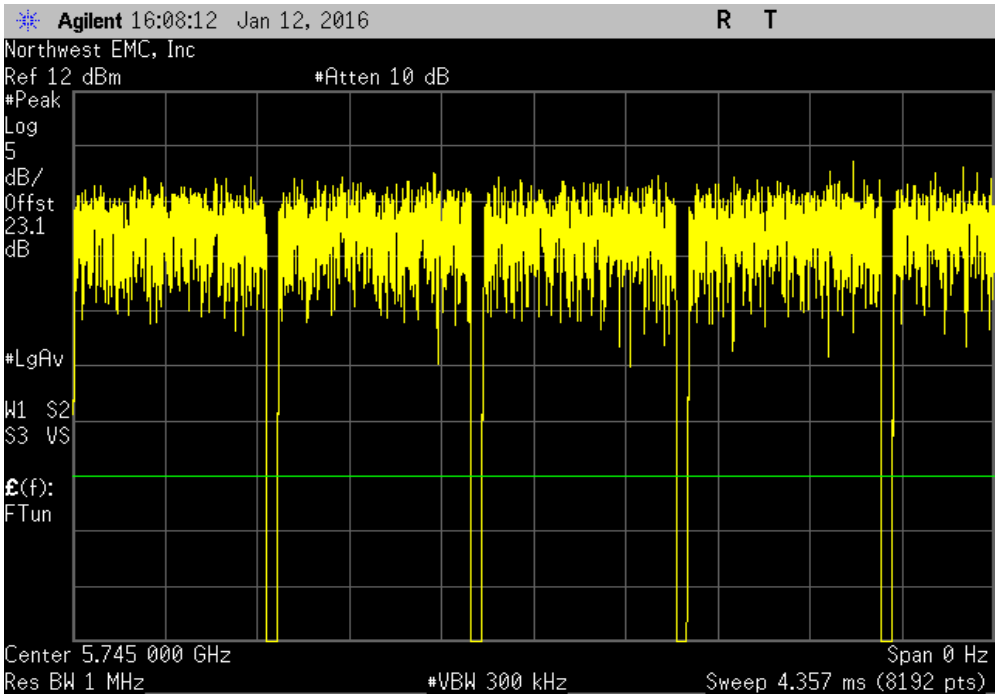
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	908.6 us	968.3 us	1	93.8	N/A	N/A



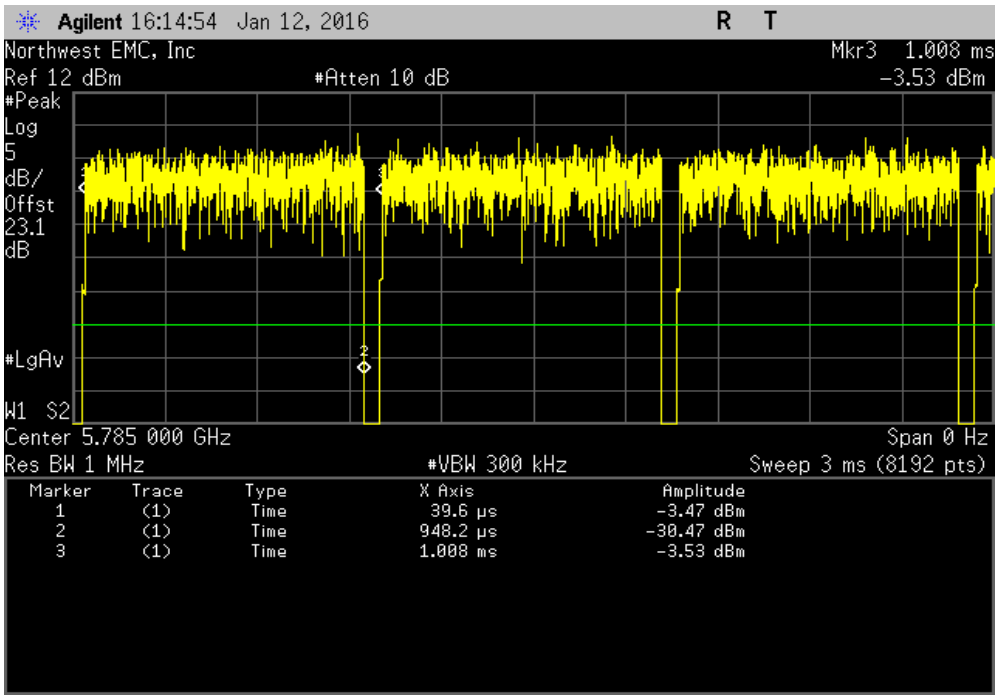
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



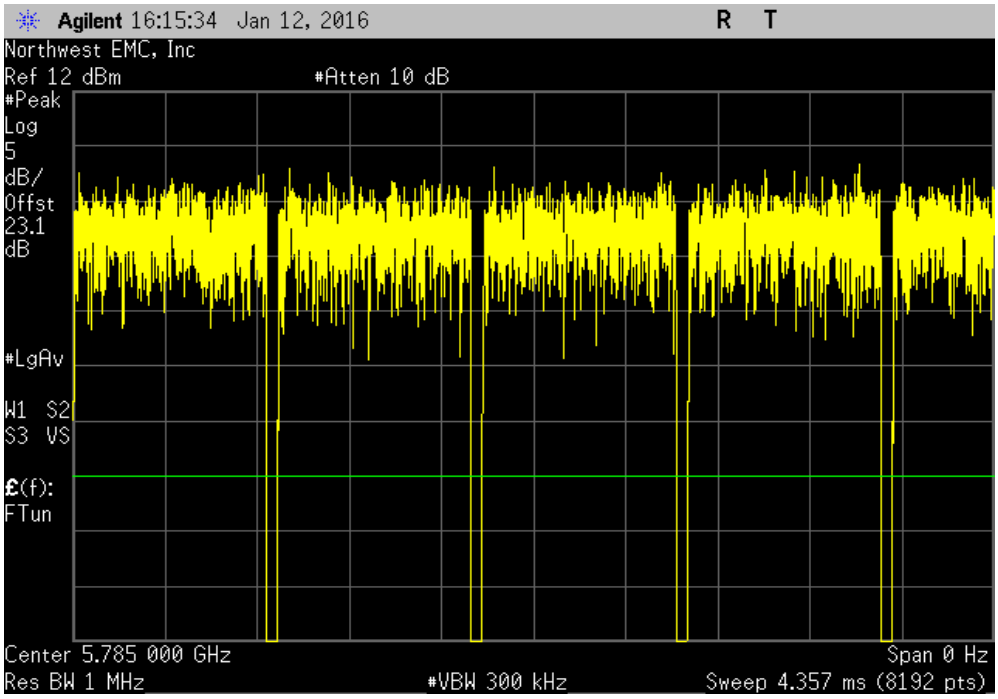
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	908.6 us	968.3 us	1	93.8	N/A	N/A



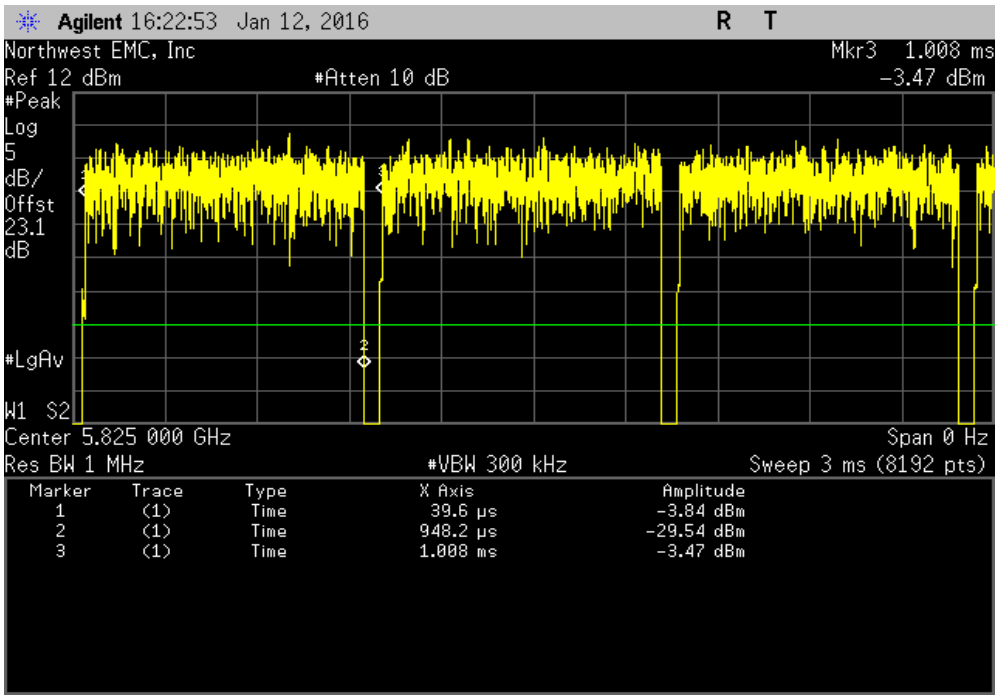
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



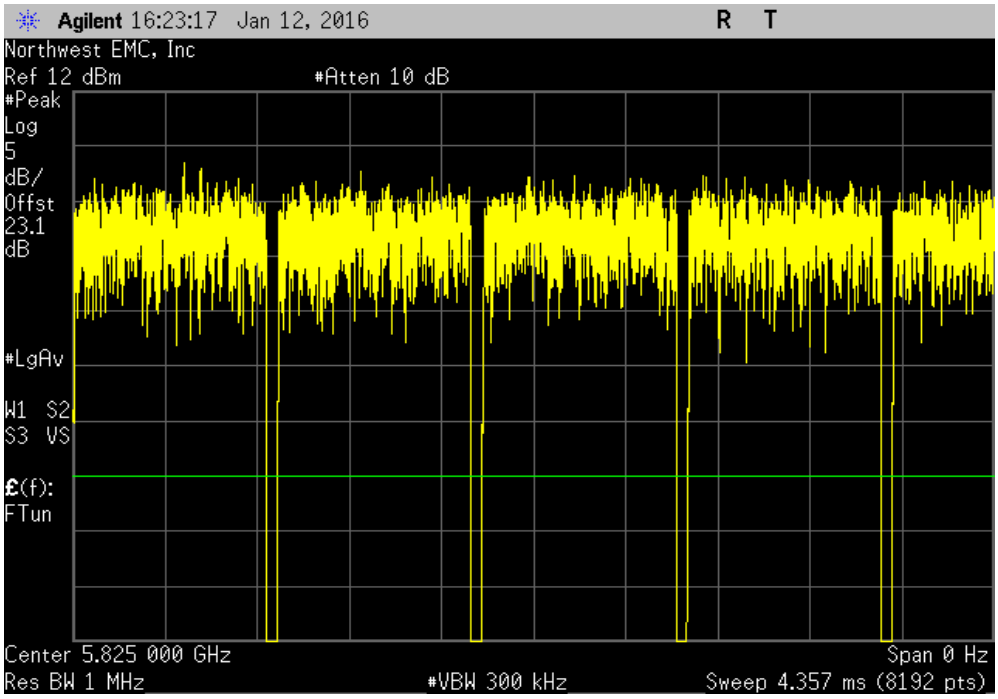
DUTY CYCLE

XMit 2015.01.14

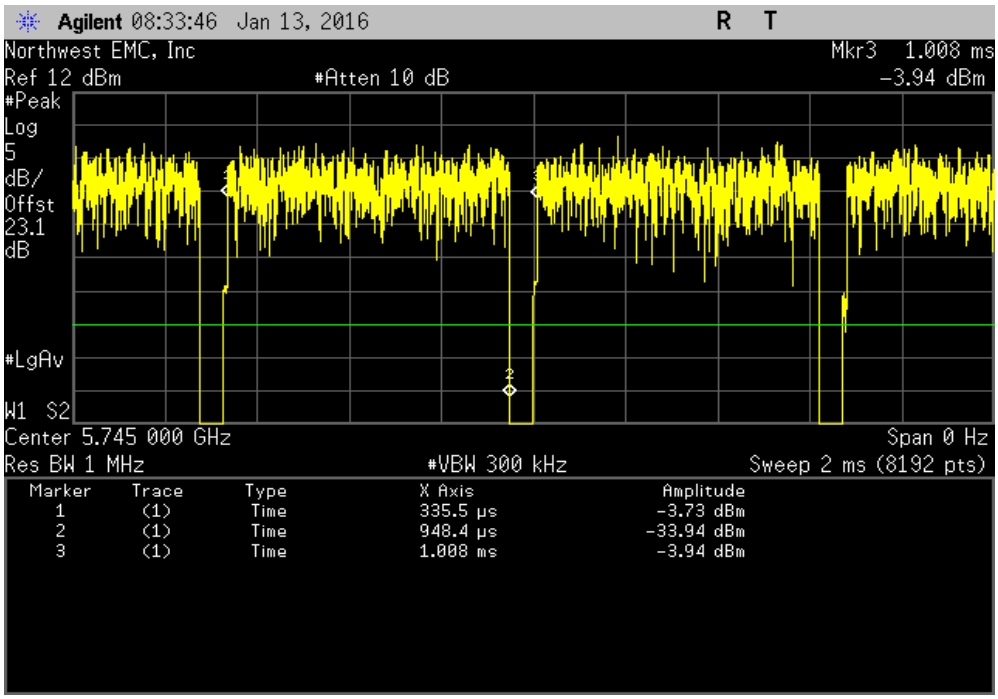
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	908.6 us	968.3 us	1	93.8	N/A	N/A



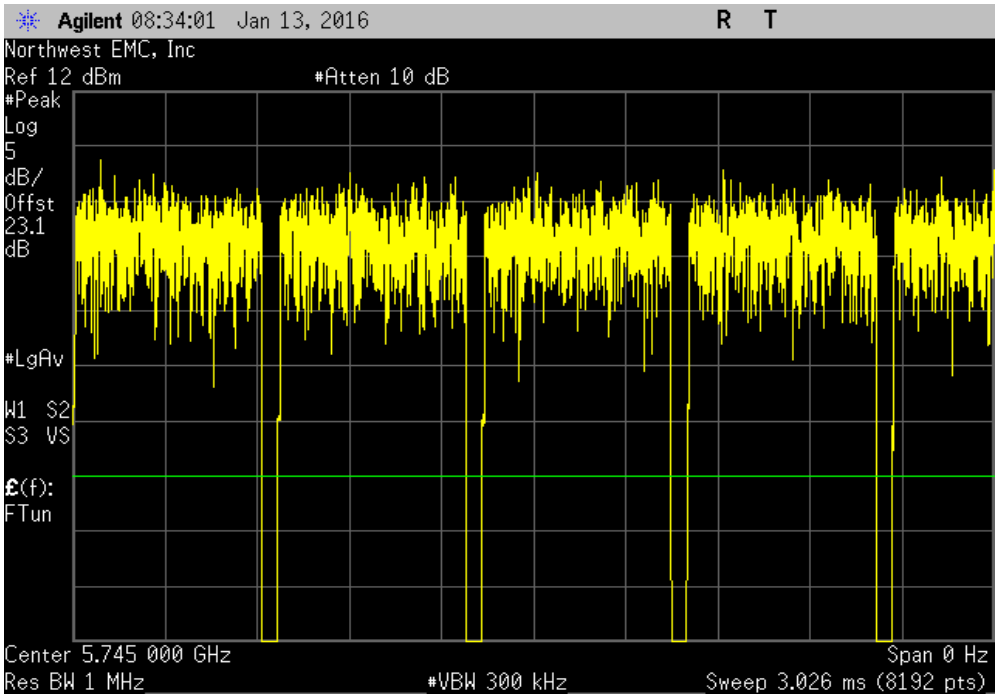
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	612.9 us	672.4 us	1	91.2	N/A	N/A



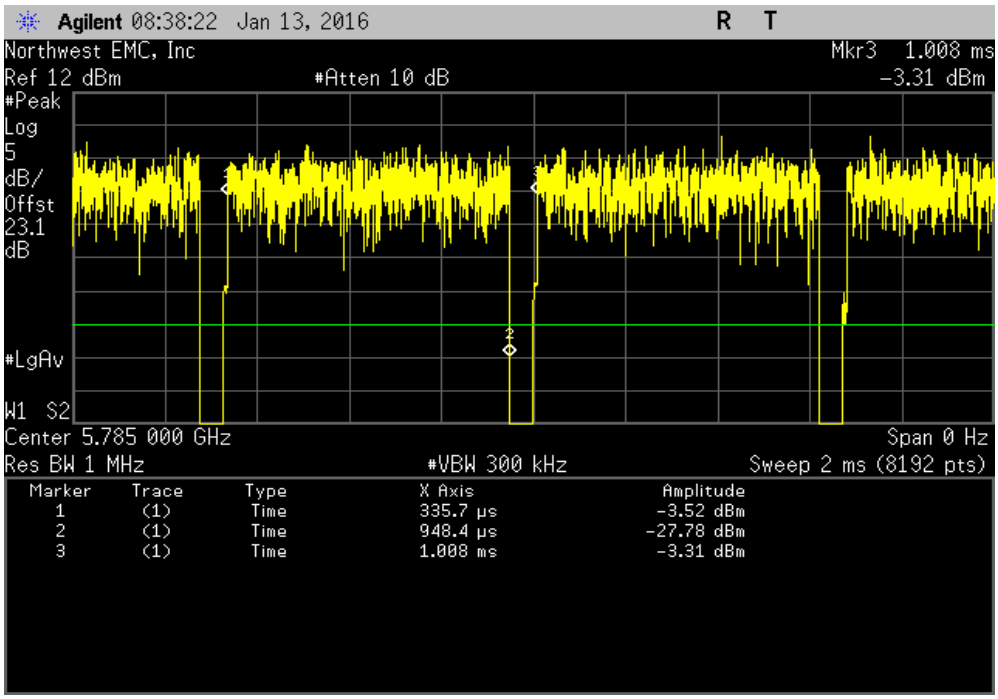
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



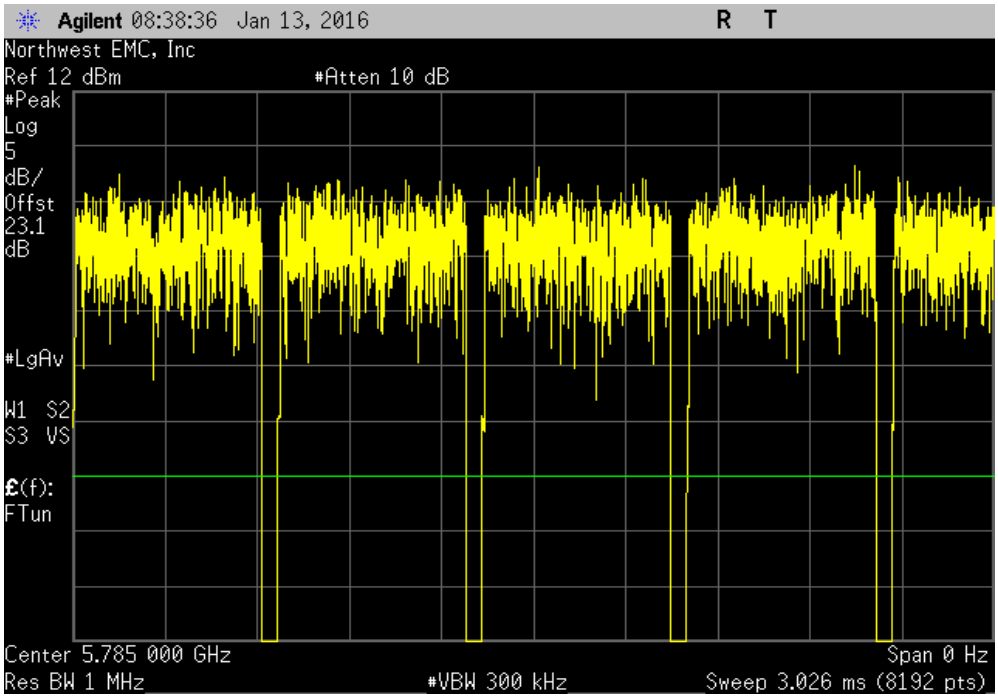
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	612.7 us	672.5 us	1	91.1	N/A	N/A



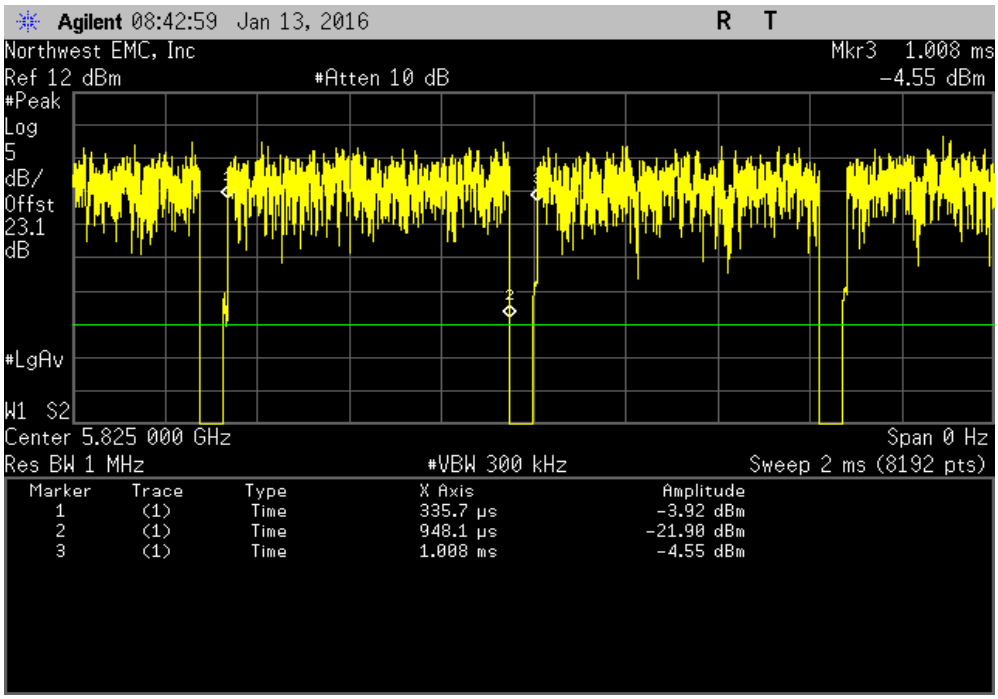
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



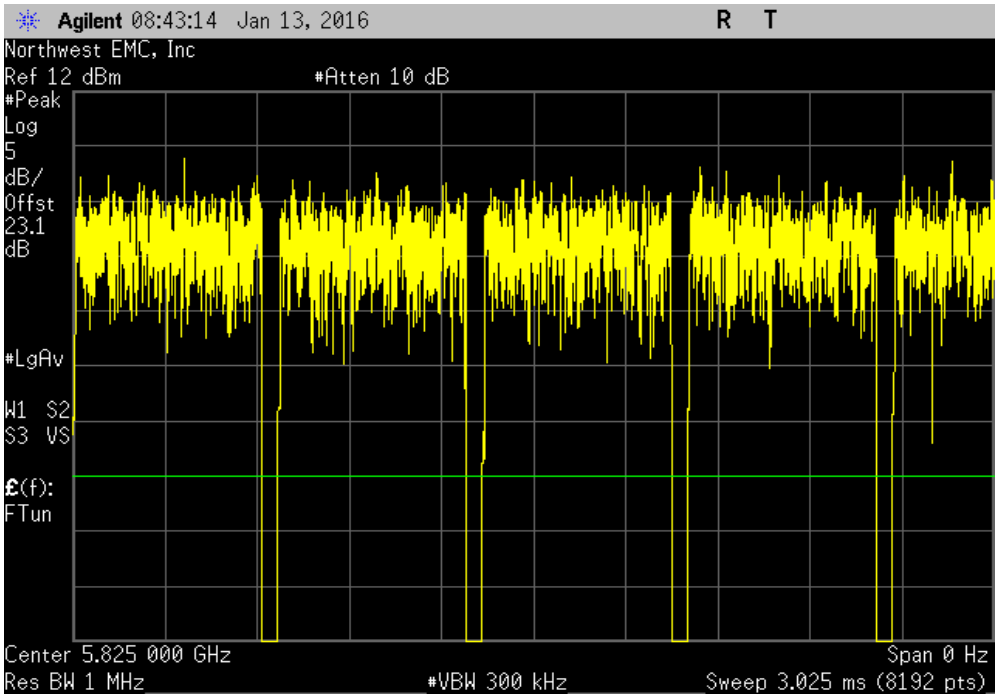
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(a) 54 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	612.4 us	672.2 us	1	91.1	N/A	N/A



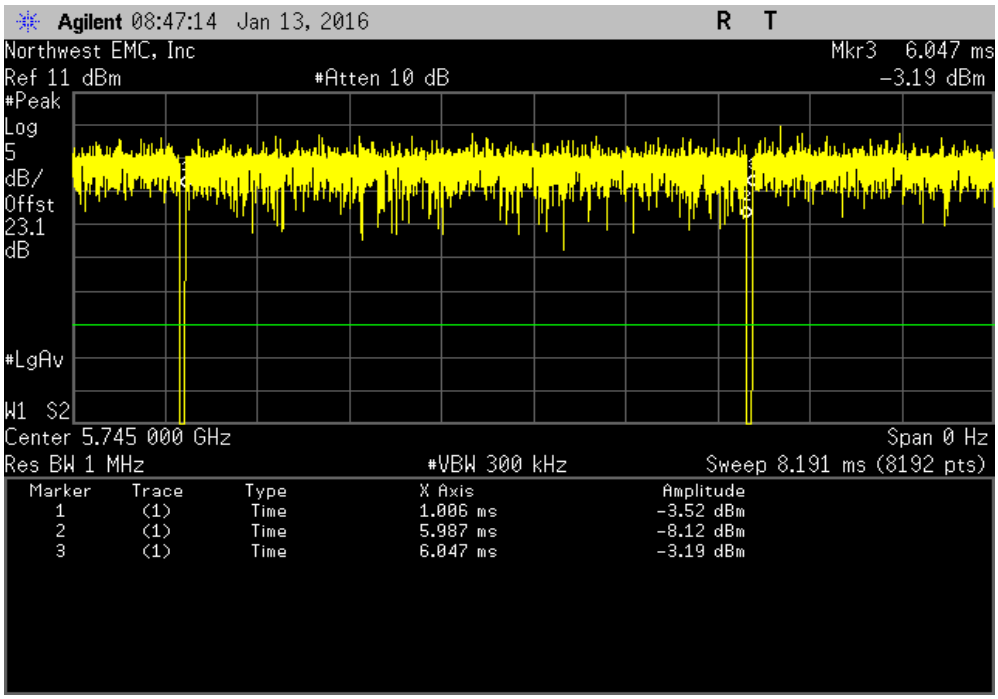
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



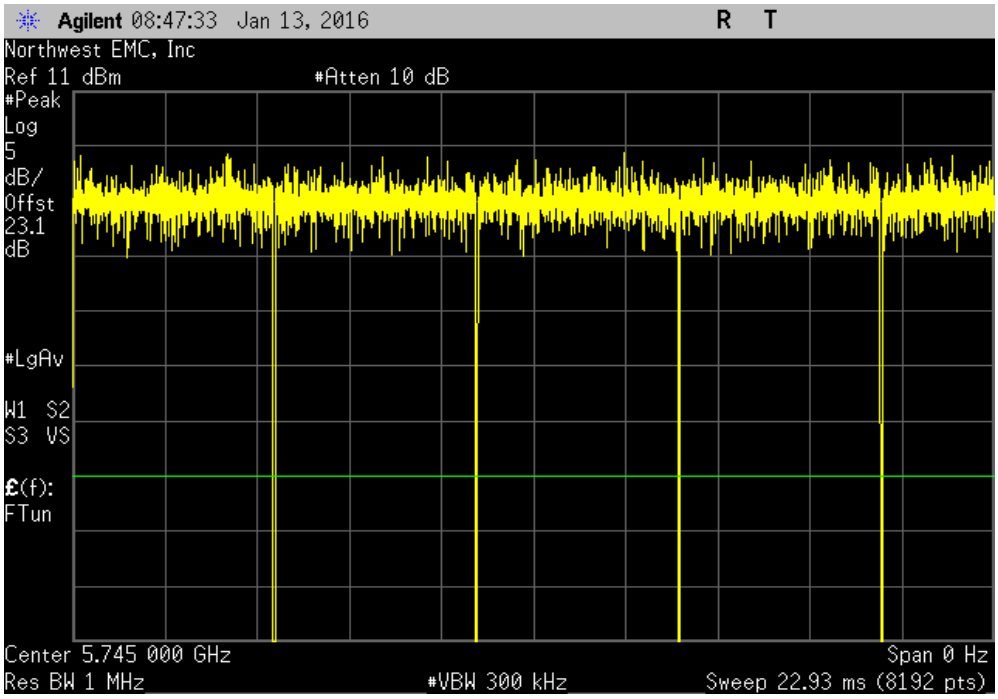
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.981 ms	5.041 ms	1	98.8	N/A	N/A



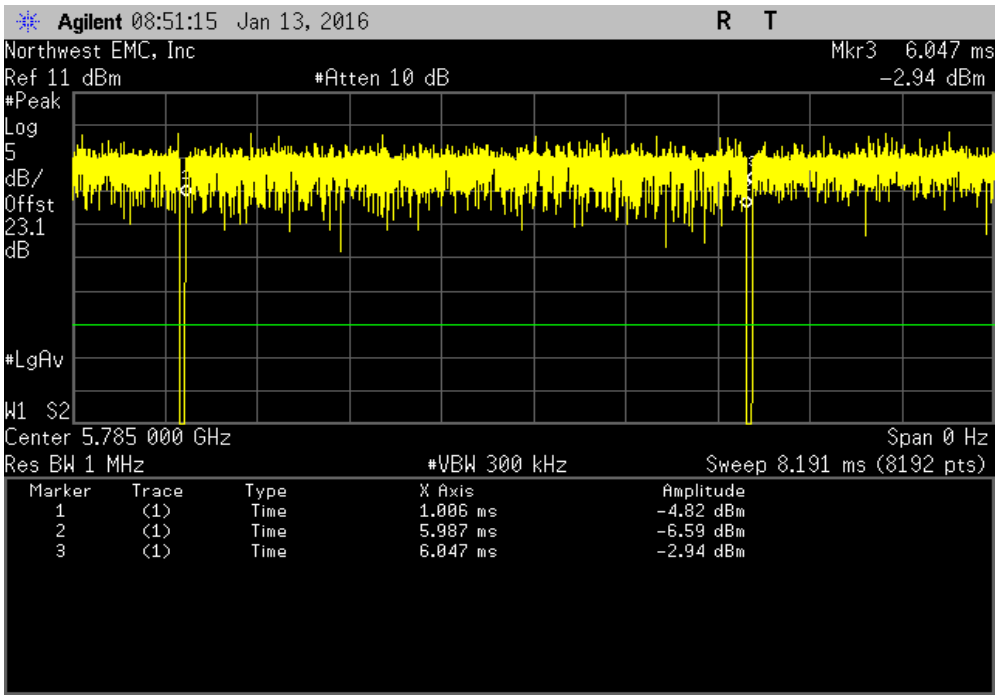
5725 - 5785 MHz Band, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



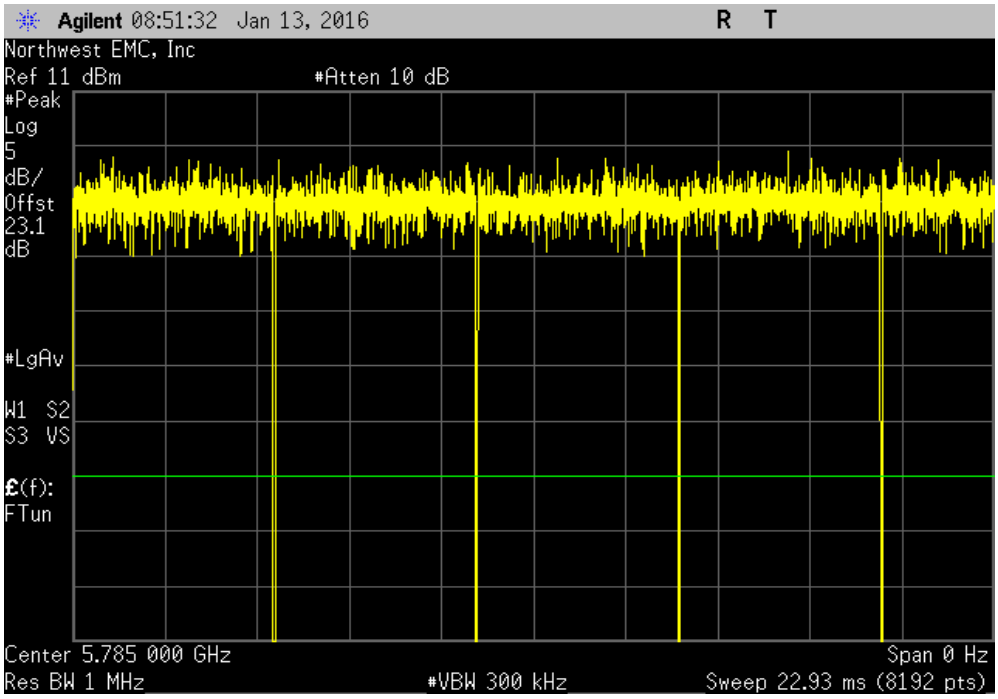
DUTY CYCLE

XMit 2015.01.14

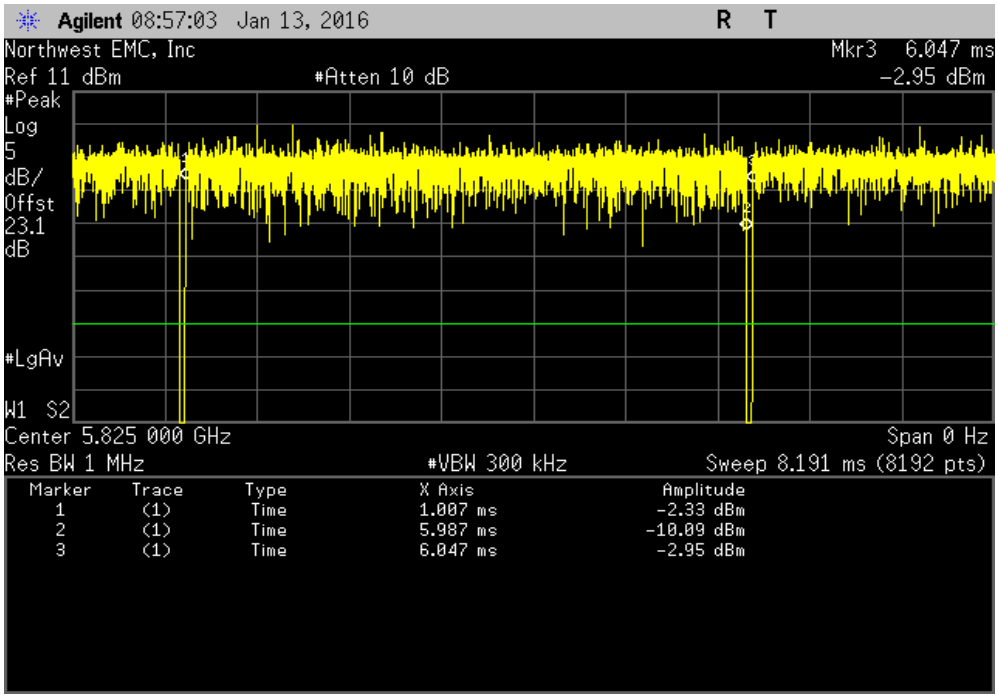
5725 - 5785 MHz Band, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.981 ms	5.041 ms	1	98.8	N/A	N/A



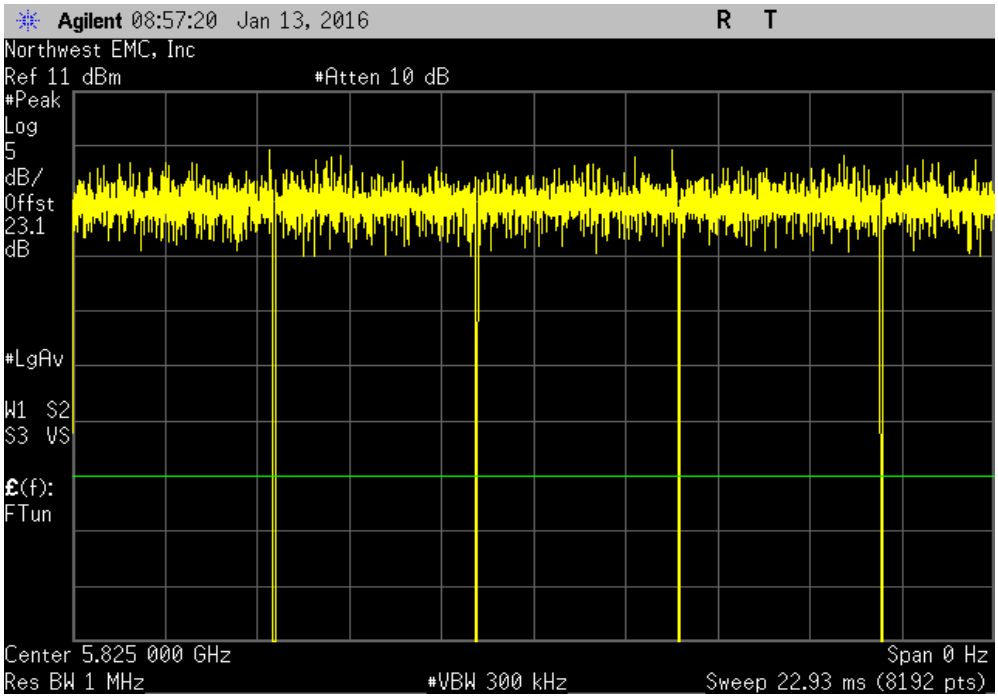
5725 - 5785 MHz Band, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



5725 - 5785 MHz Band, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.98 ms	5.04 ms	1	98.8	N/A	N/A

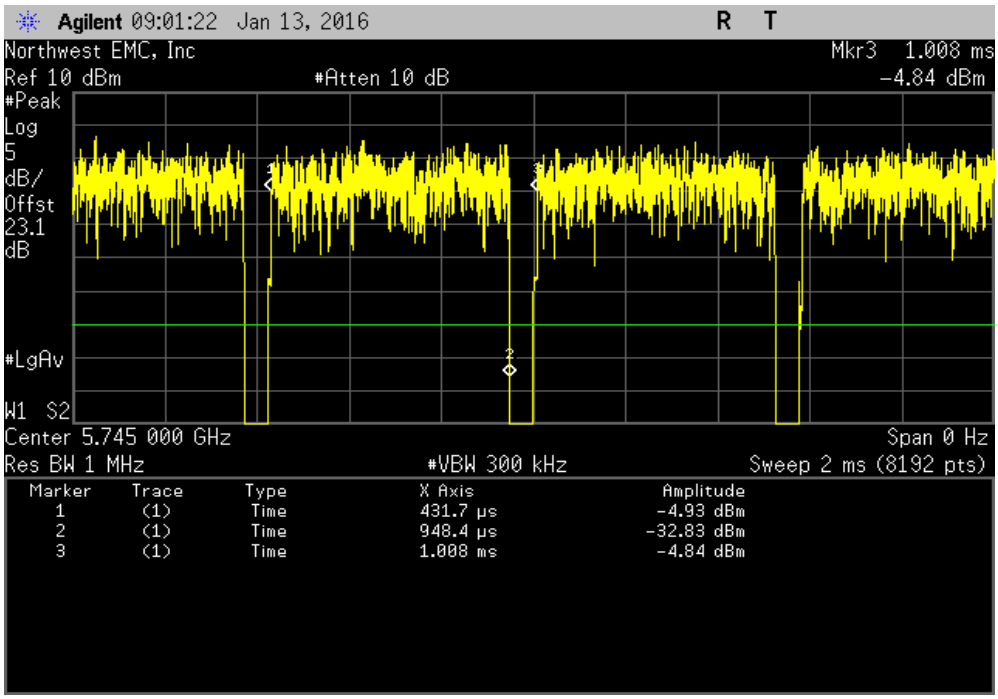


5725 - 5785 MHz Band, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

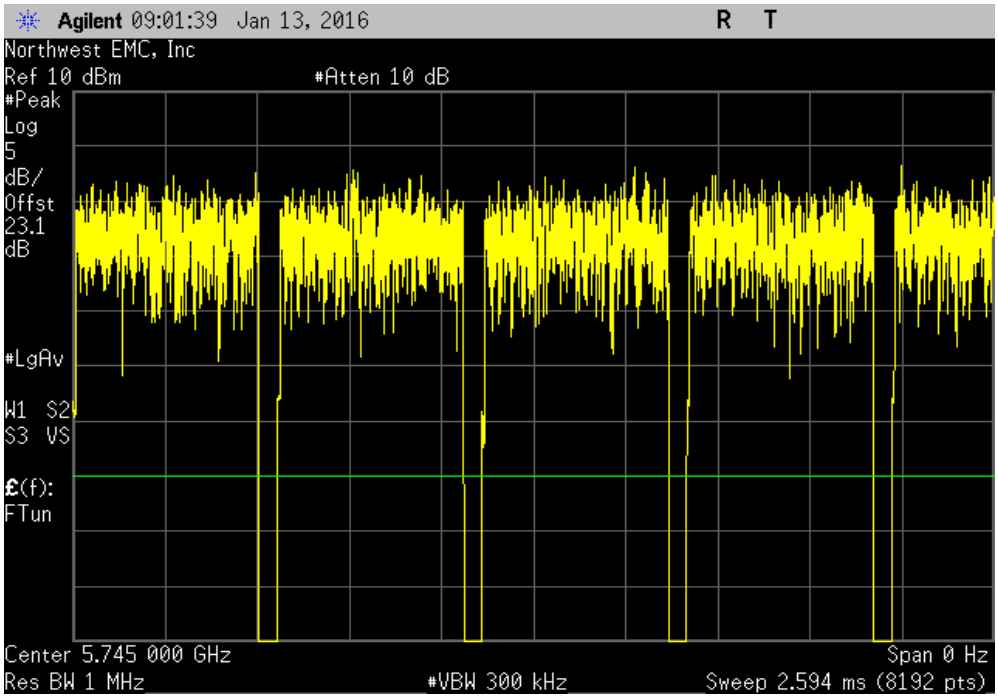


DUTY CYCLE

5725 - 5785 MHz Band, 802.11(n) MCS7, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	516.7 us	576.5 us	1	89.6	N/A	N/A



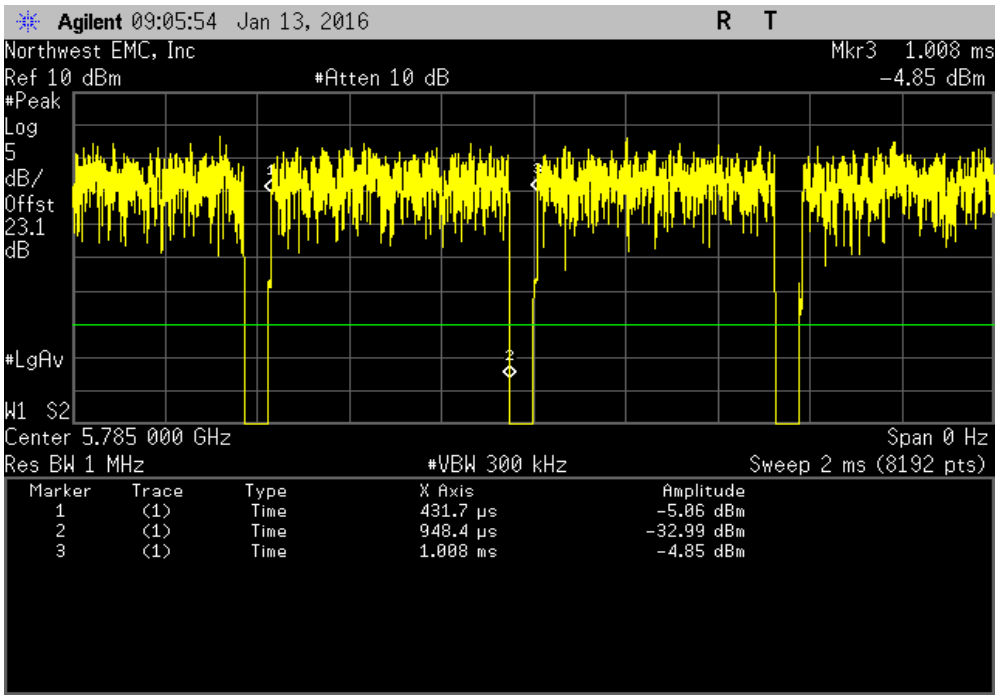
5725 - 5785 MHz Band, 802.11(n) MCS7, Low Channel, Ch 149 - 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



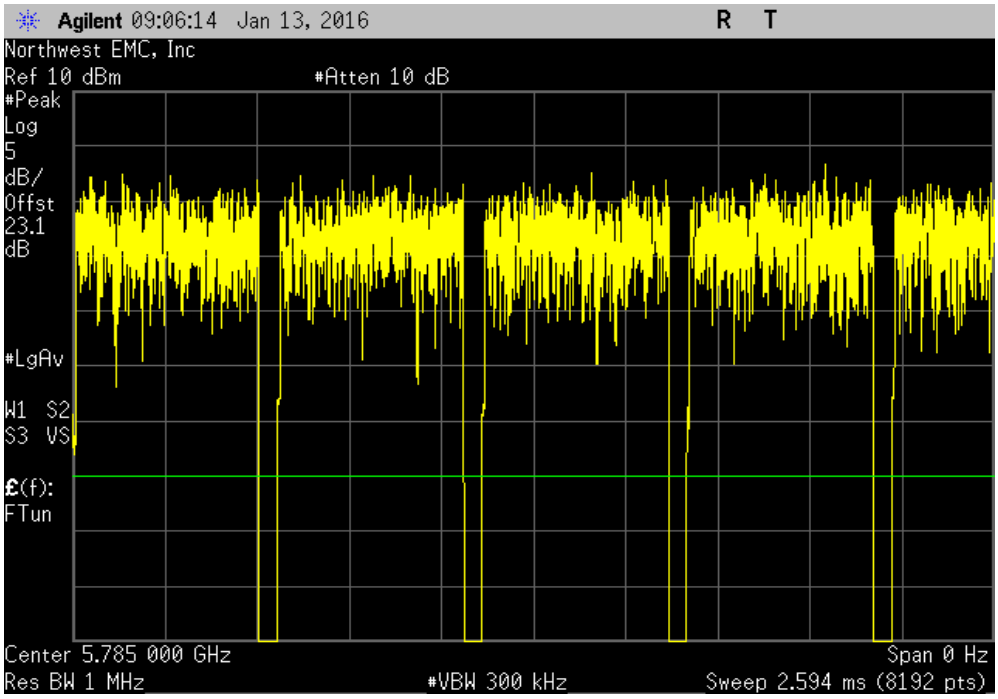
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(n) MCS7, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	516.7 us	576.5 us	1	89.6	N/A	N/A



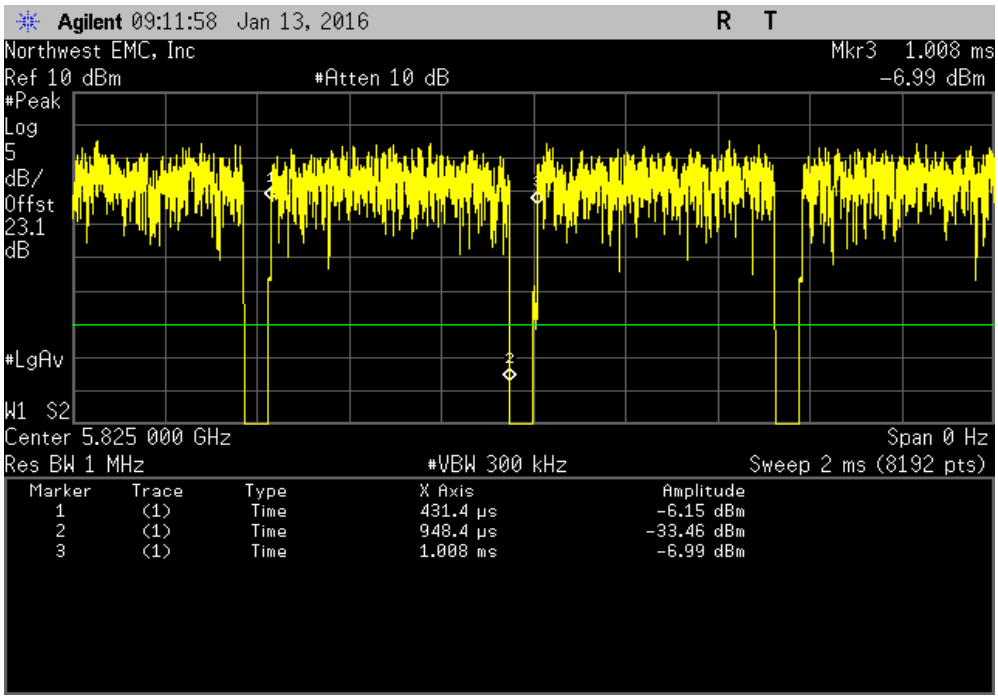
5725 - 5785 MHz Band, 802.11(n) MCS7, Mid Channel, Ch 157 - 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



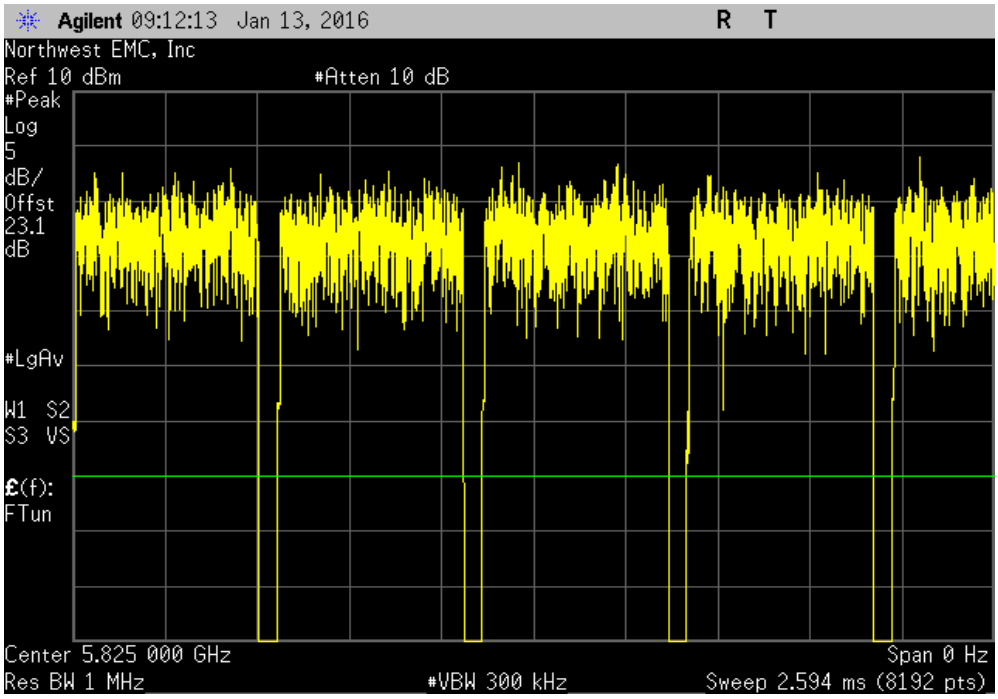
DUTY CYCLE

XMit 2015.01.14

5725 - 5785 MHz Band, 802.11(n) MCS7, High Channel, Ch 165 - 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	517 us	576.5 us	1	89.7	N/A	N/A



5725 - 5785 MHz Band, 802.11(n) MCS7, High Channel, Ch 165 - 5825 MHz						
	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)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	6/22/2015	12
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC5	6/6/2015	12
Attenuator	S.M. Electronics	SA18H-20	REK	9/28/2015	12
Block - DC	Fairview Microwave	SD3379	AMJ	6/6/2015	12
Generator - Signal	Agilent	N5183A	TIA	4/7/2014	24

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:	RC12			**Work Order:**	INMC0943
Serial Number:	R11			**Date:**	01/13/16
Customer:	Intermec Technologies Corporation			**Temperature:**	23°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1004 mbar
Tested by:	Richard Mellroth	**Power:**	5 VDC	**Job Site:**	NC02

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

COMMENTS

Power settings at default. Constant TX mode enabled.

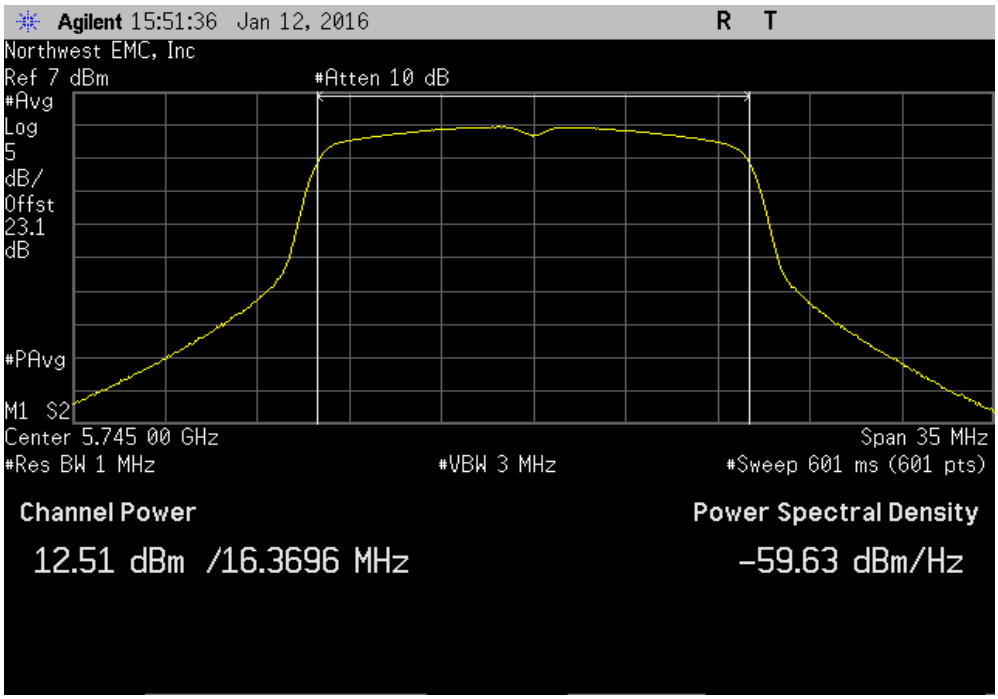
DEVIATIONS FROM TEST STANDARD

None

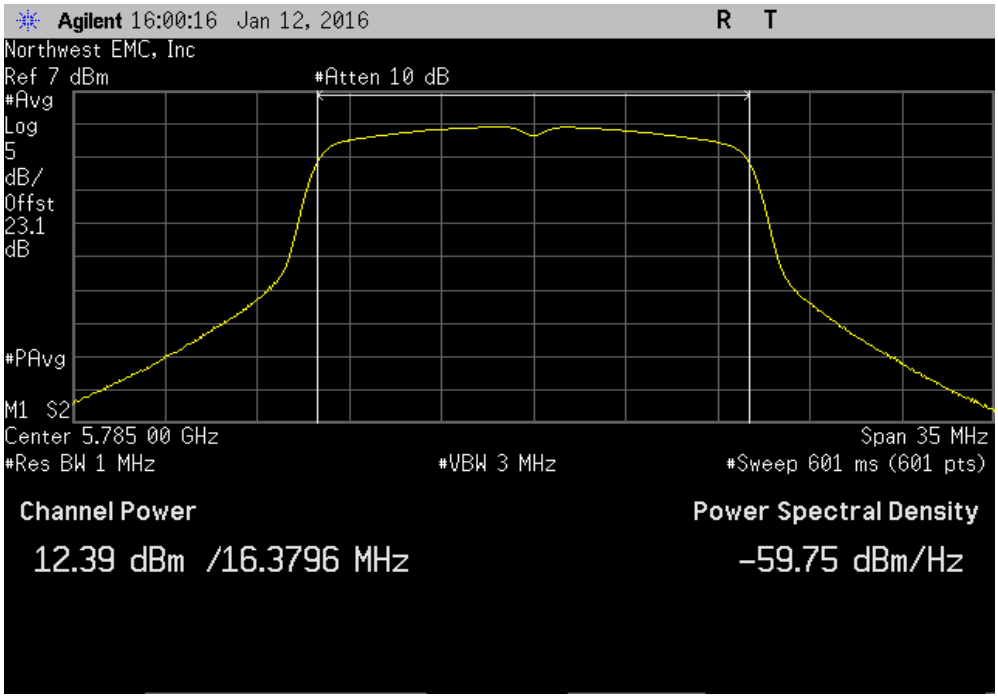
Configuration #	2	Signature

	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results
5725 - 5785 MHz Band					
802.11(a) 6 Mbps					
Low Channel, Ch 149 - 5745 MHz	12.508	0	12.6	30	Pass
Mid Channel, Ch 157 - 5785 MHz	12.394	0	12.4	30	Pass
High Channel, Ch 165 - 5825 MHz	12.273	0	12.3	30	Pass
802.11(a) 36 Mbps					
Low Channel, Ch 149 - 5745 MHz	12.343	0.3	12.6	30	Pass
Mid Channel, Ch 157 - 5785 MHz	12.137	0.3	12.4	30	Pass
High Channel, Ch 165 - 5825 MHz	12.096	0.3	12.4	30	Pass
802.11(a) 54 Mbps					
Low Channel, Ch 149 - 5745 MHz	11.749	0.4	12.1	30	Pass
Mid Channel, Ch 157 - 5785 MHz	11.529	0.4	11.9	30	Pass
High Channel, Ch 165 - 5825 MHz	11.493	0.4	11.9	30	Pass
802.11(n) MCS0					
Low Channel, Ch 149 - 5745 MHz	12.509	0.1	12.6	30	Pass
Mid Channel, Ch 157 - 5785 MHz	12.299	0.1	12.4	30	Pass
High Channel, Ch 165 - 5825 MHz	12.287	0.1	12.3	30	Pass
802.11(n) MCS7					
Low Channel, Ch 149 - 5745 MHz	10.279	0.5	10.8	30	Pass
Mid Channel, Ch 157 - 5785 MHz	10.08	0.5	10.6	30	Pass
High Channel, Ch 165 - 5825 MHz	10.093	0.5	10.6	30	Pass

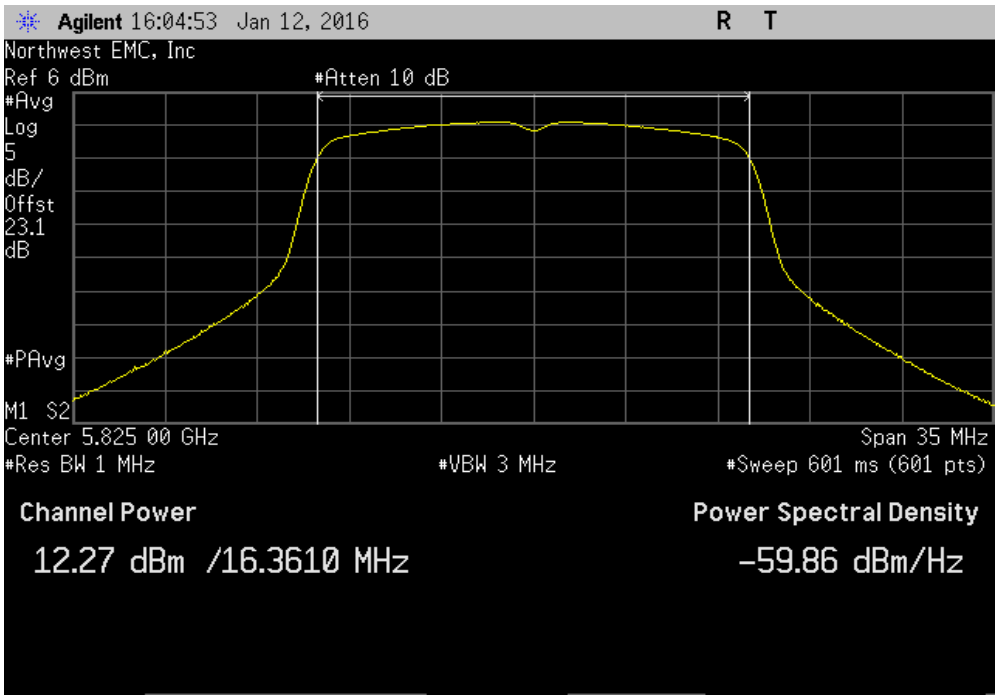
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.508	0		12.6	30	Pass



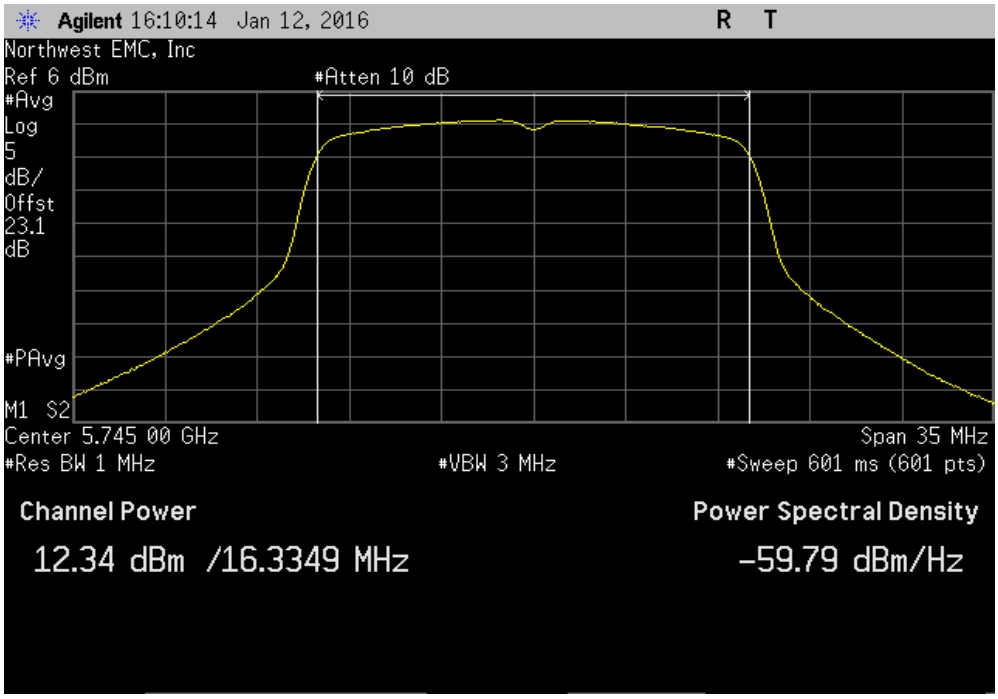
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.394	0		12.4	30	Pass



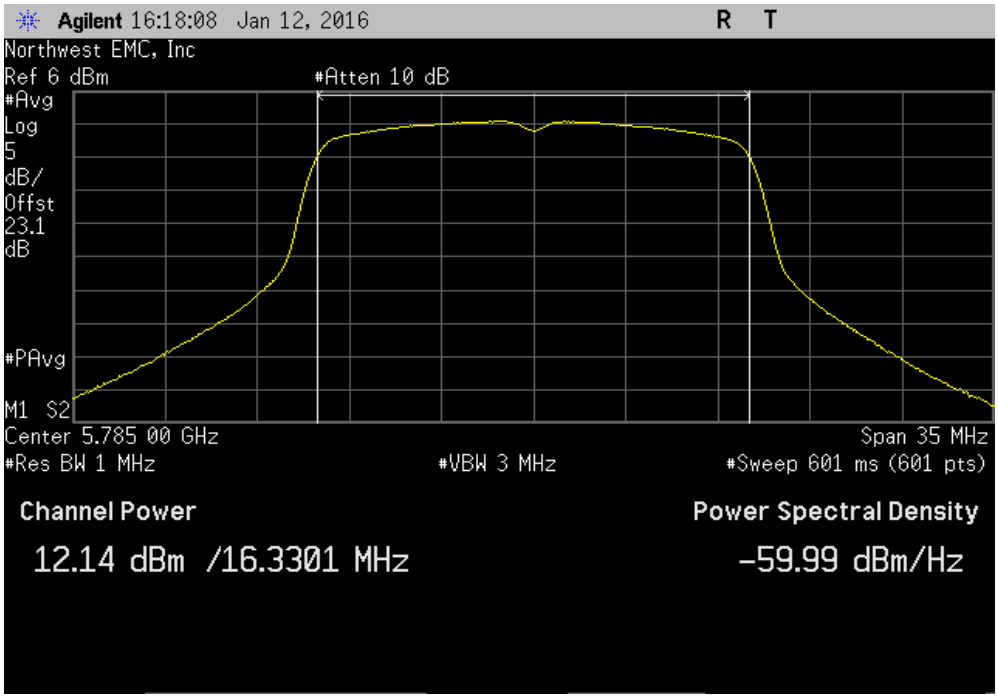
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.273	0		12.3	30	Pass



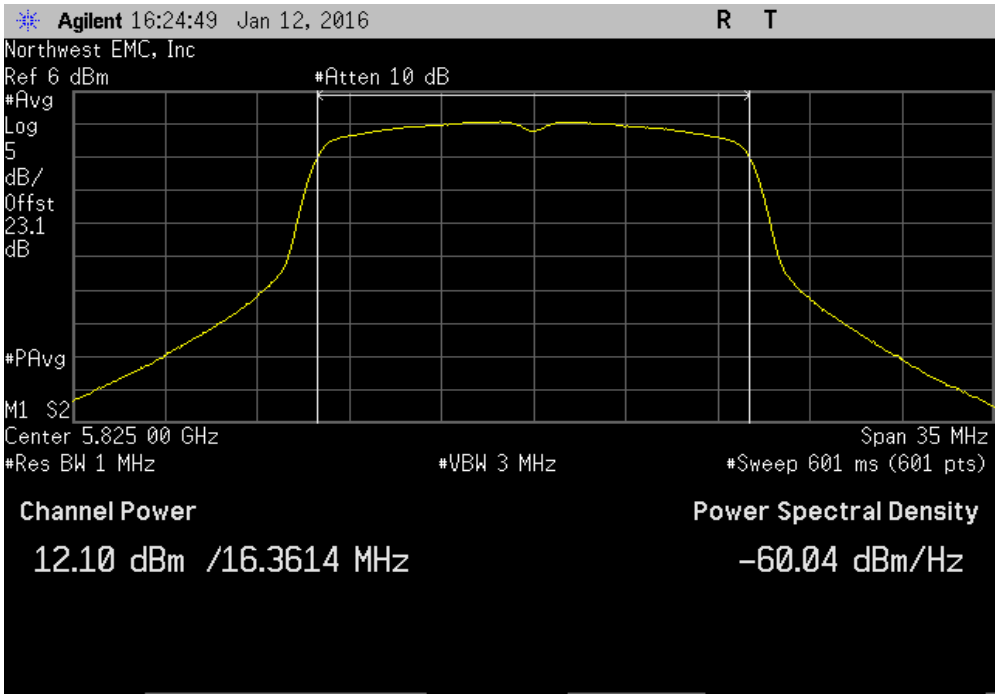
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.343	0.3		12.6	30	Pass



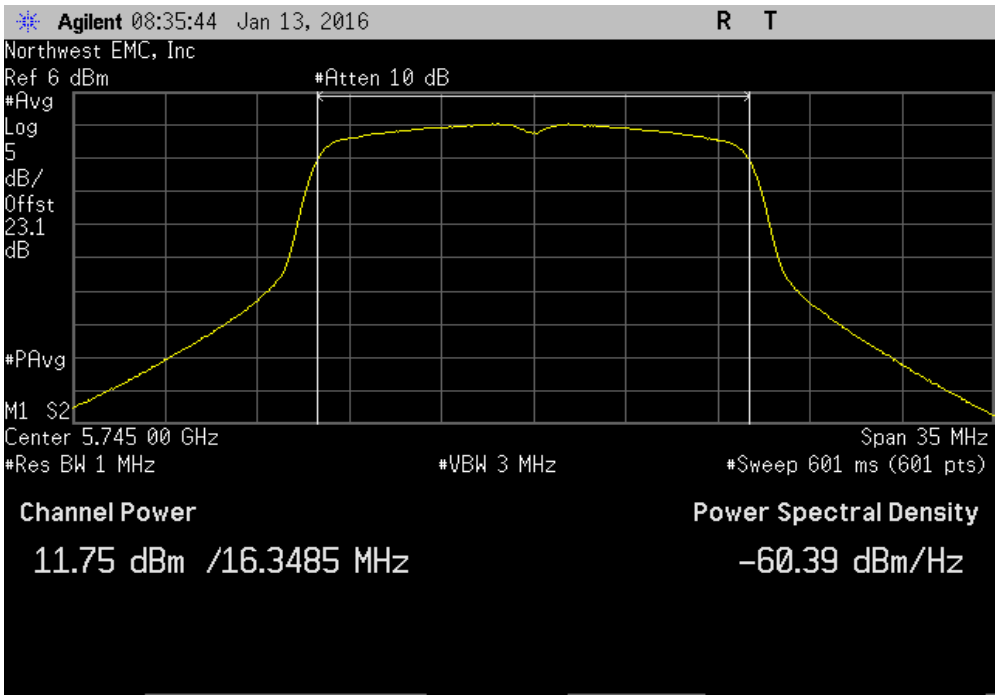
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.137	0.3		12.4	30	Pass



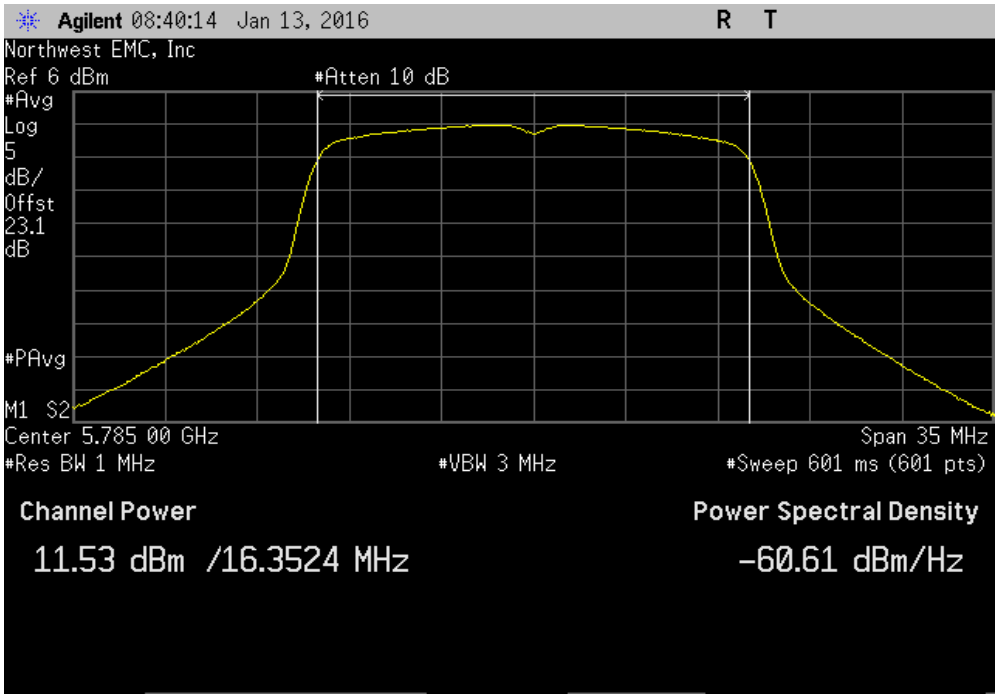
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, High Channel, Ch 165 - 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.096	0.3		12.4	30	Pass



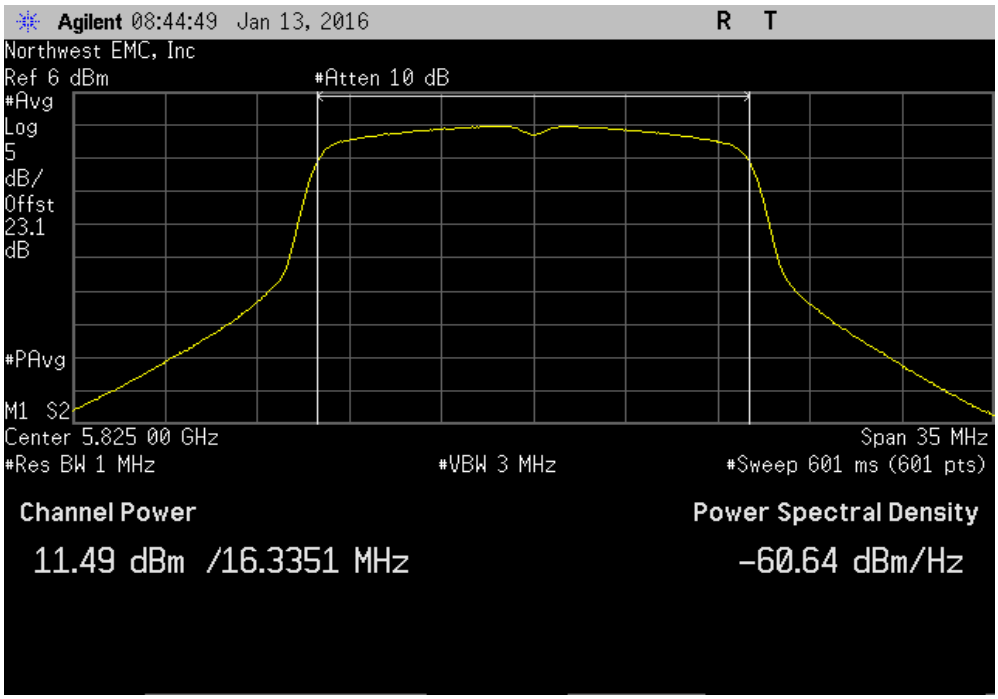
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	11.749	0.4		12.1	30	Pass



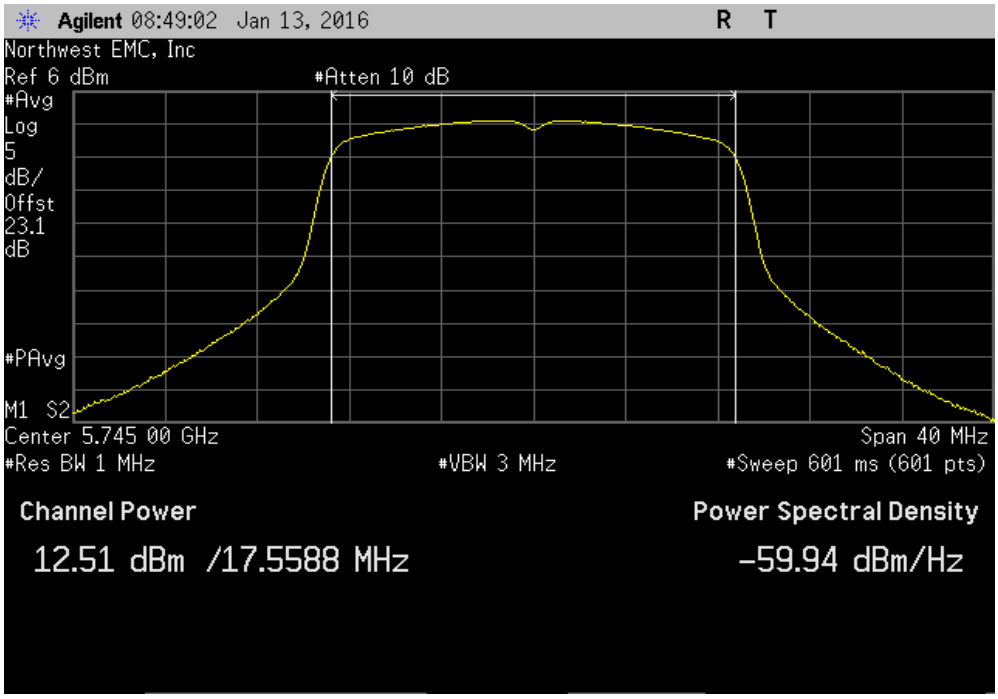
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	11.529	0.4		11.9	30	Pass



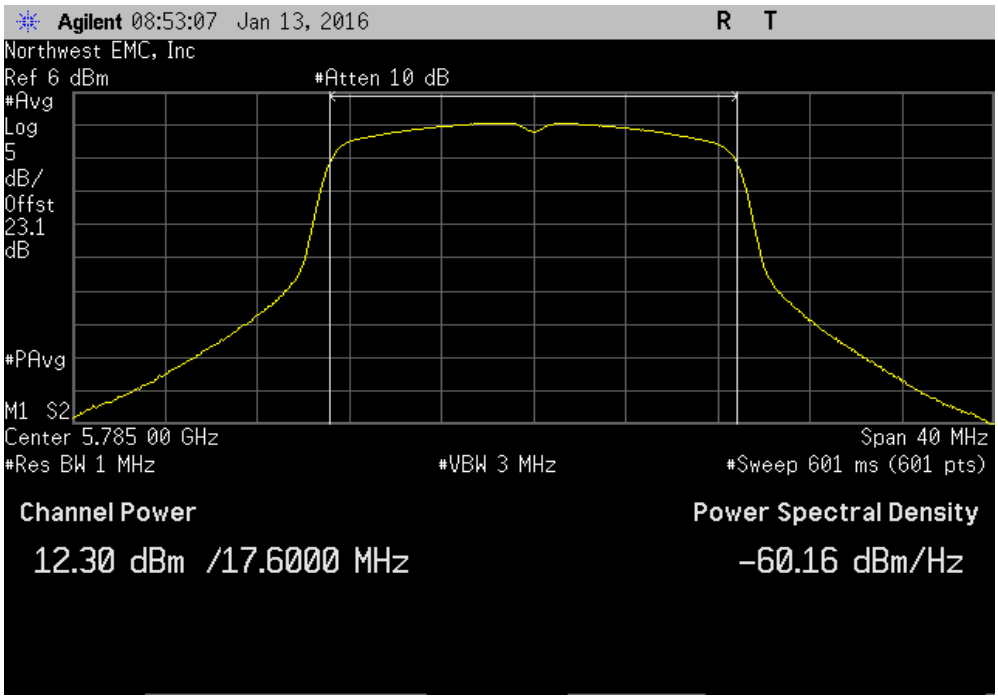
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, High Channel, Ch 165 - 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	11.493	0.4		11.9	30	Pass



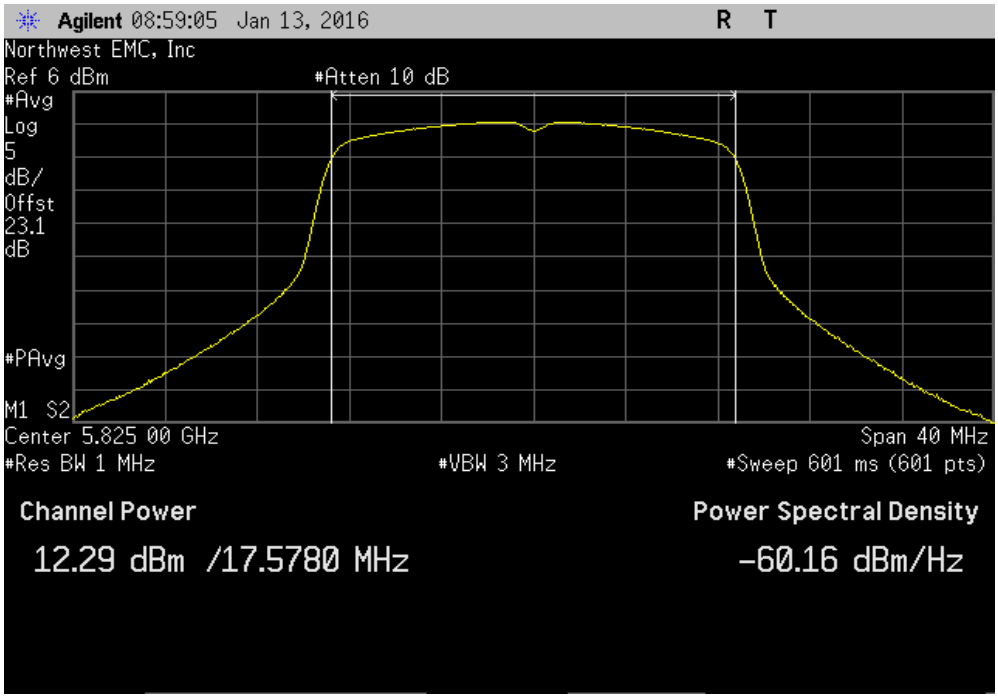
5725 - 5785 MHz Band, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.509	0.1		12.6	30	Pass



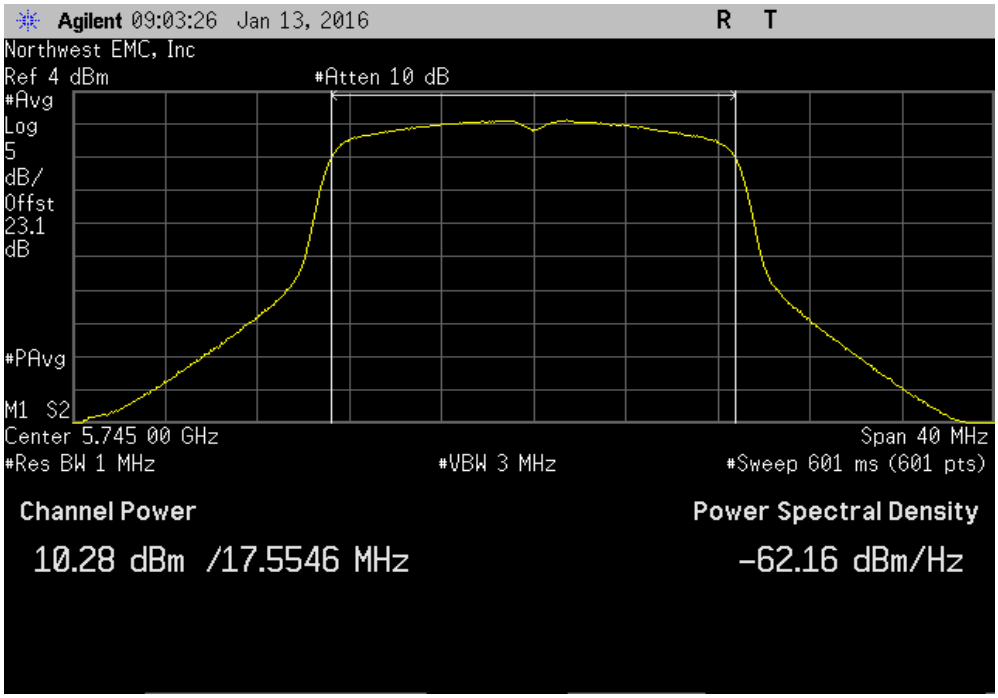
5725 - 5785 MHz Band, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.299	0.1		12.4	30	Pass



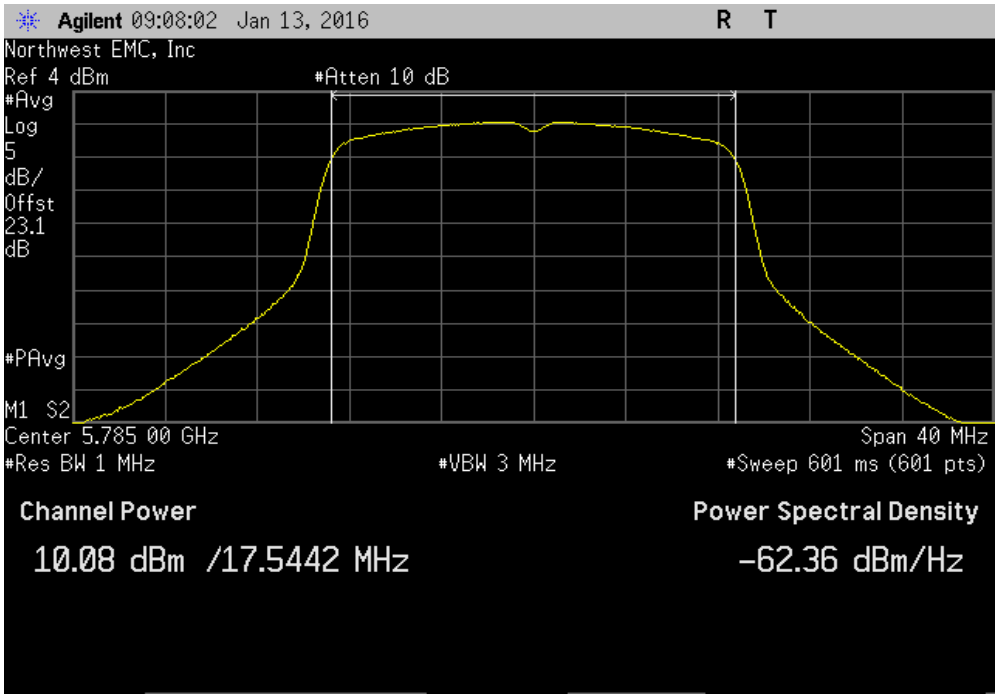
5725 - 5785 MHz Band, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	12.287	0.1		12.3	30	Pass



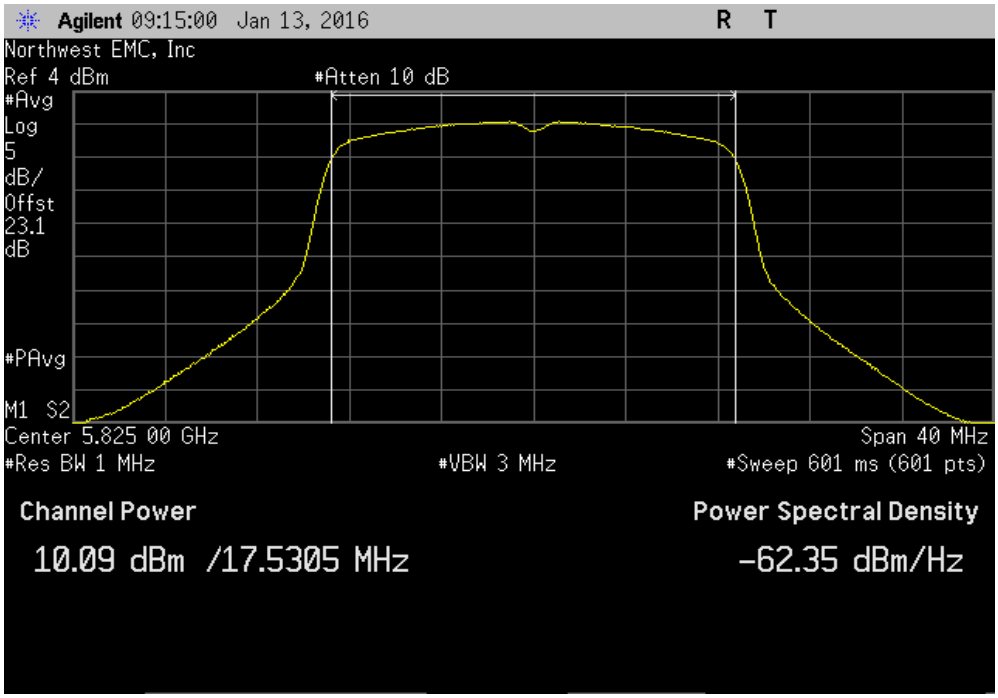
5725 - 5785 MHz Band, 802.11(n) MCS7, Low Channel, Ch 149 - 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	10.279	0.5		10.8	30	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, Mid Channel, Ch 157 - 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	10.08	0.5		10.6	30	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, High Channel, Ch 165 - 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Value (dBm)	Limit (dBm)	Results
	10.093	0.5		10.6	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)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	6/22/2015	12
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC5	6/6/2015	12
Attenuator	S.M. Electronics	SA18H-20	REK	9/28/2015	12
Block - DC	Fairview Microwave	SD3379	AMJ	6/6/2015	12
Generator - Signal	Agilent	N5183A	TIA	4/7/2014	24

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 99.0% emission bandwidth (EBW) was also measured at the same time to be used for setting the channel power integration bandwidth during conducted output power testing.

OCCUPIED BANDWIDTH

NORTHWEST EMC

XMit 2015.01.14

EUT:	RC12			**Work Order:**	INMC0943
Serial Number:	R11			**Date:**	01/13/16
Customer:	Intermec Technologies Corporation			**Temperature:**	23°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1004 mbar
Tested by:	Richard Mellroth	**Power:**	5 VDC	**Job Site:**	NC02

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

COMMENTS

Power settings at default. Constant TX mode enabled.

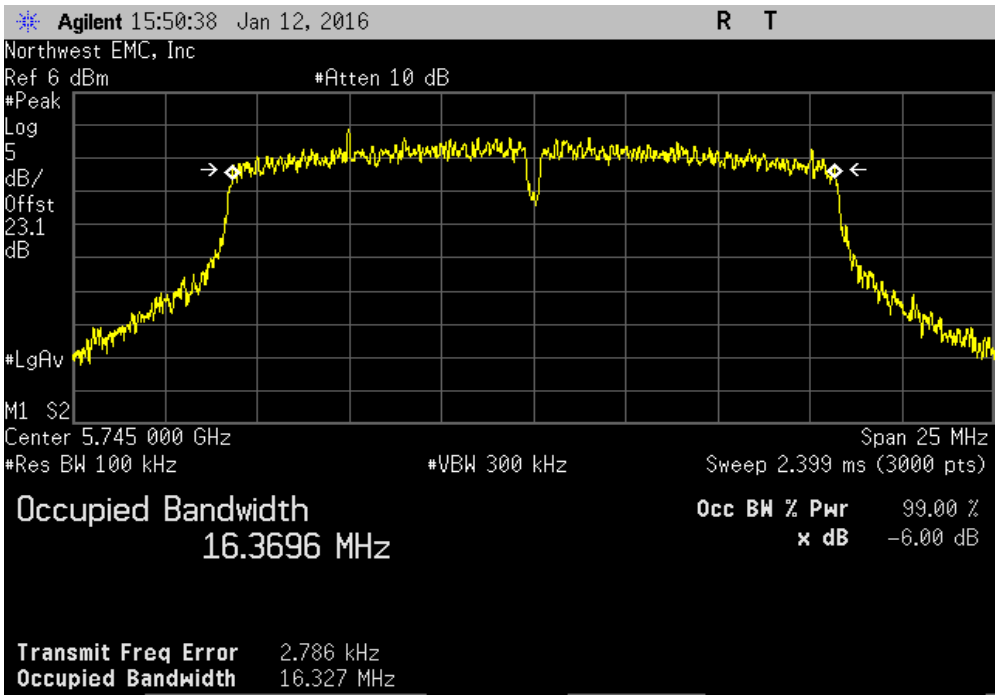
DEVIATIONS FROM TEST STANDARD

None

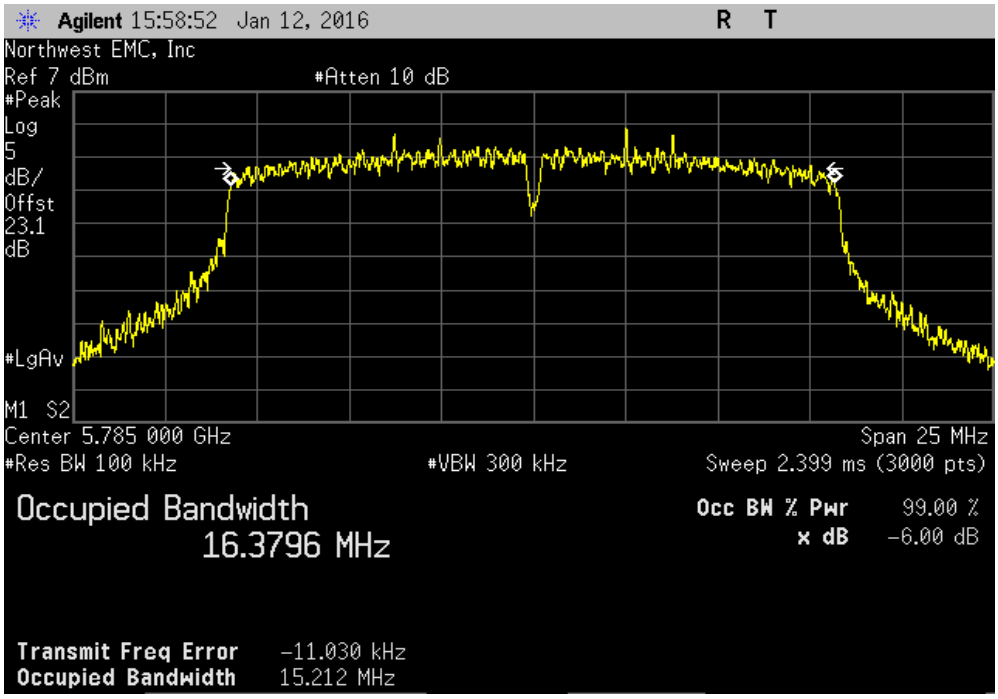
Configuration #	2	Signature

	Value	Limit (>)	Result
5725 - 5785 MHz Band			
802.11(a) 6 Mbps			
Low Channel, Ch 149 - 5745 MHz	16.327 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz	15.212 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz	16.341 MHz	500 kHz	Pass
802.11(a) 36 Mbps			
Low Channel, Ch 149 - 5745 MHz	15.885 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz	15.872 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz	16.186 MHz	500 kHz	Pass
802.11(a) 54 Mbps			
Low Channel, Ch 149 - 5745 MHz	16.298 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz	15.812 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz	15.457 MHz	500 kHz	Pass
802.11(n) MCS0			
Low Channel, Ch 149 - 5745 MHz	17.5 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz	16.986 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz	15.329 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel, Ch 149 - 5745 MHz	16.354 MHz	500 kHz	Pass
Mid Channel, Ch 157 - 5785 MHz	17.345 MHz	500 kHz	Pass
High Channel, Ch 165 - 5825 MHz	15.774 MHz	500 kHz	Pass

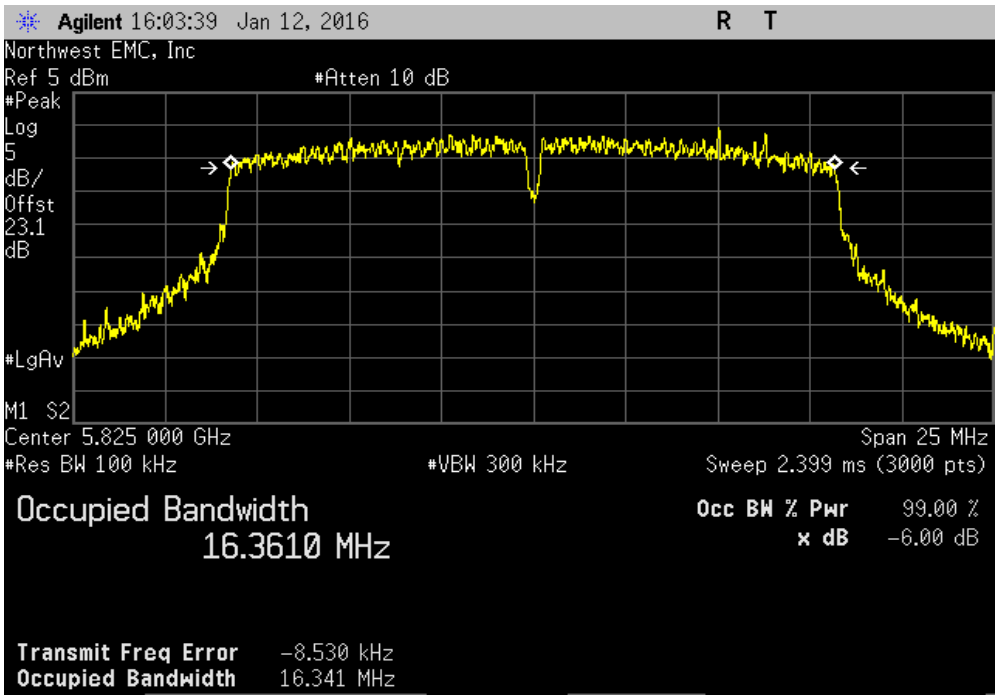
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
				Value	Limit (>)	Result
				16.327 MHz	500 kHz	Pass



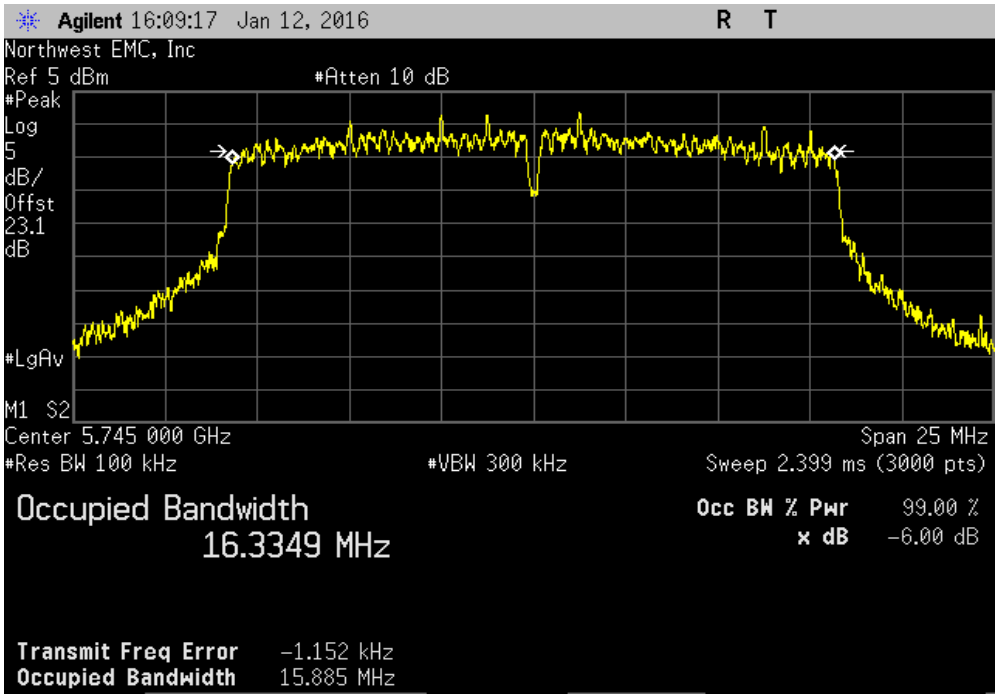
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
				Value	Limit (>)	Result
				15.212 MHz	500 kHz	Pass



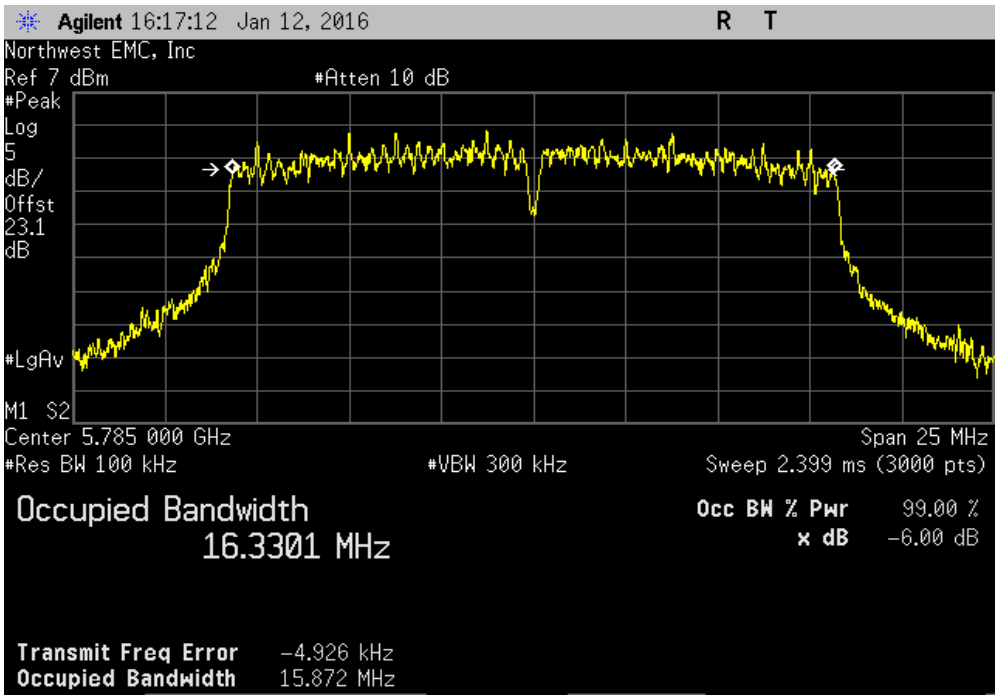
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
				Value	Limit (>)	Result
				16.341 MHz	500 kHz	Pass



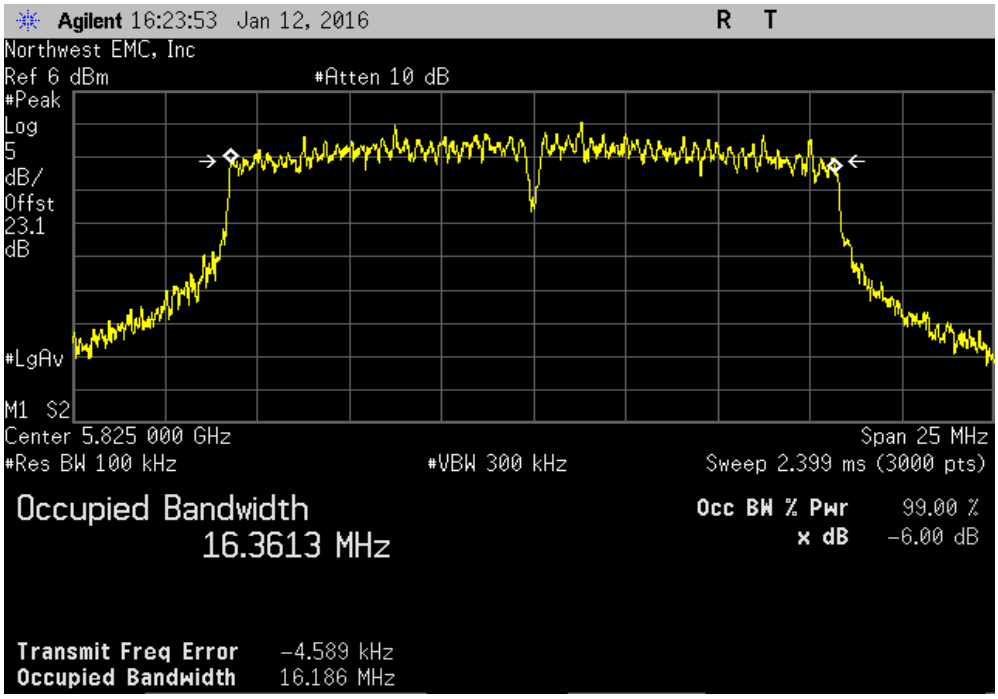
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Low Channel, Ch 149 - 5745 MHz						
				Value	Limit (>)	Result
				15.885 MHz	500 kHz	Pass



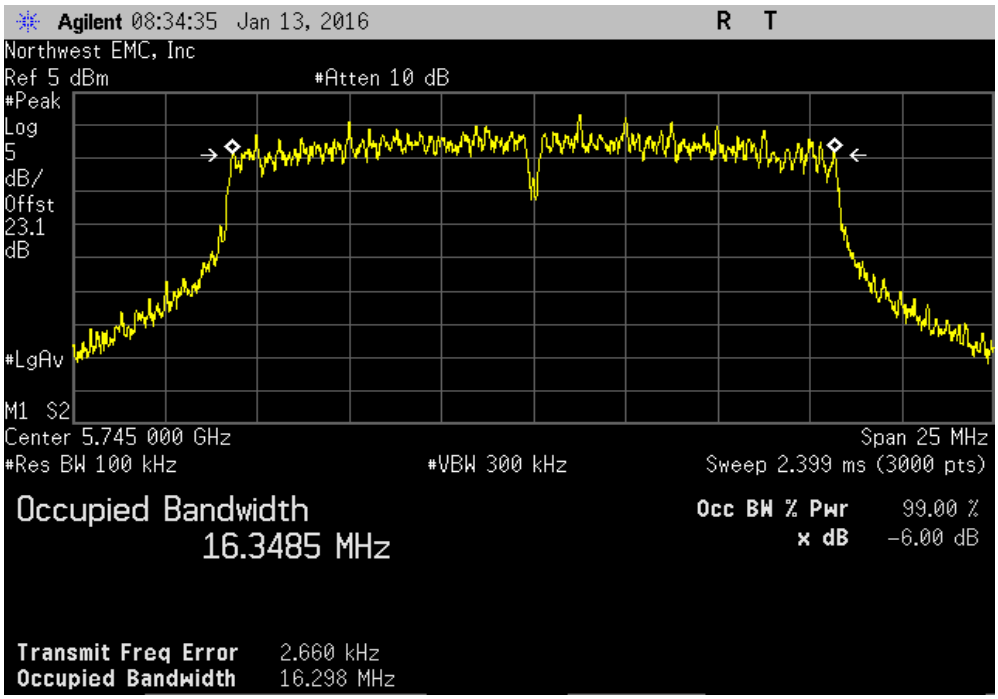
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Mid Channel, Ch 157 - 5785 MHz						
				Value	Limit (>)	Result
				15.872 MHz	500 kHz	Pass



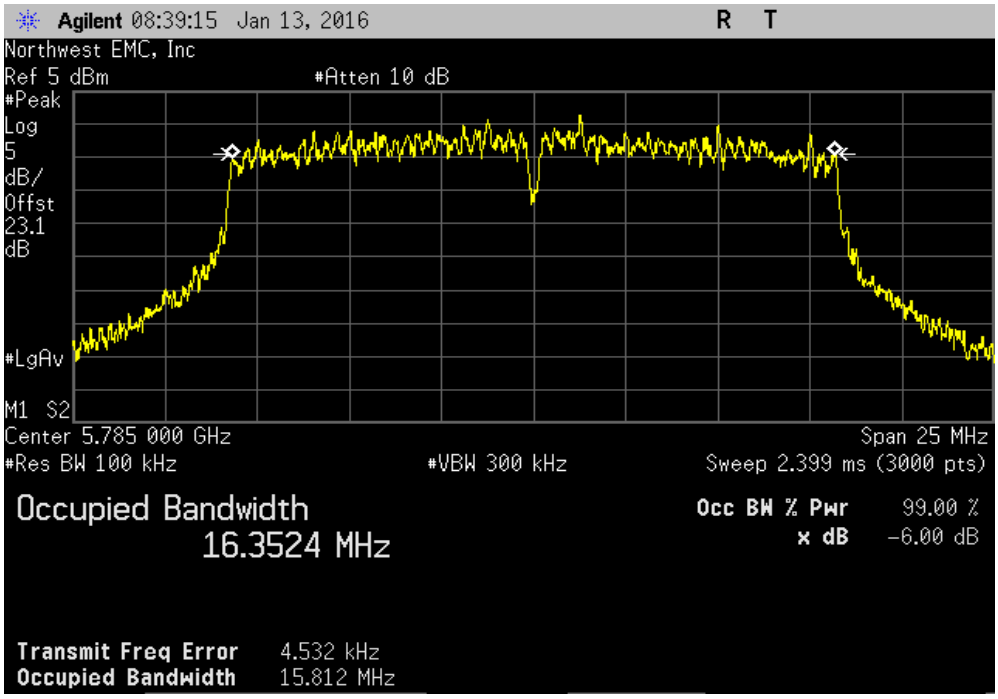
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, High Channel, Ch 165 - 5825 MHz						
				Value	Limit (>)	Result
				16.186 MHz	500 kHz	Pass



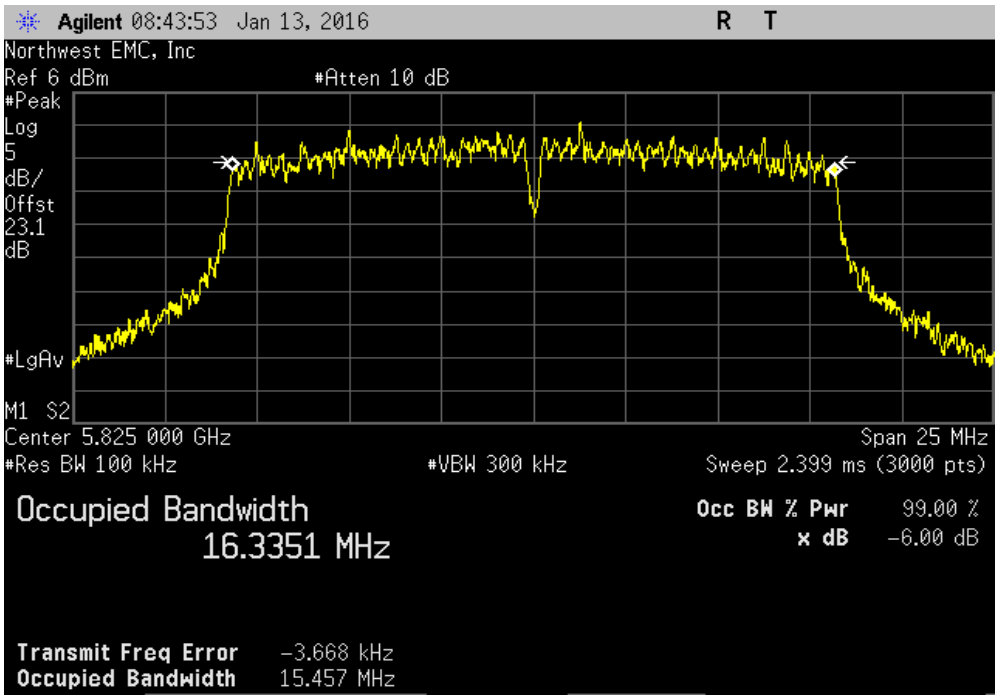
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Low Channel, Ch 149 - 5745 MHz						
				Value	Limit (>)	Result
				16.298 MHz	500 kHz	Pass



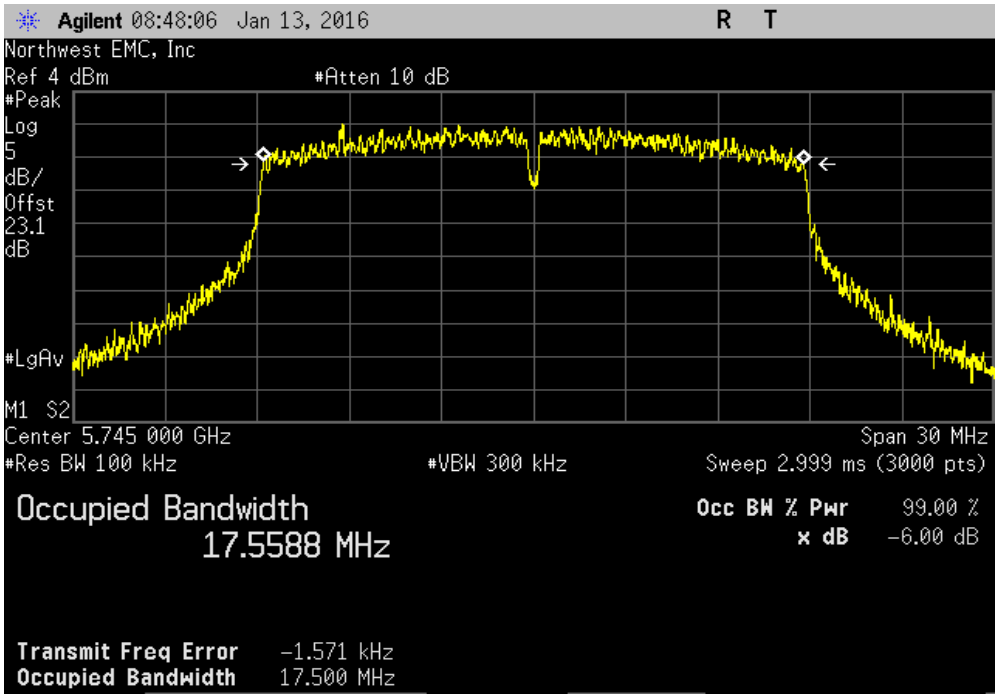
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Mid Channel, Ch 157 - 5785 MHz						
				Value	Limit (>)	Result
				15.812 MHz	500 kHz	Pass



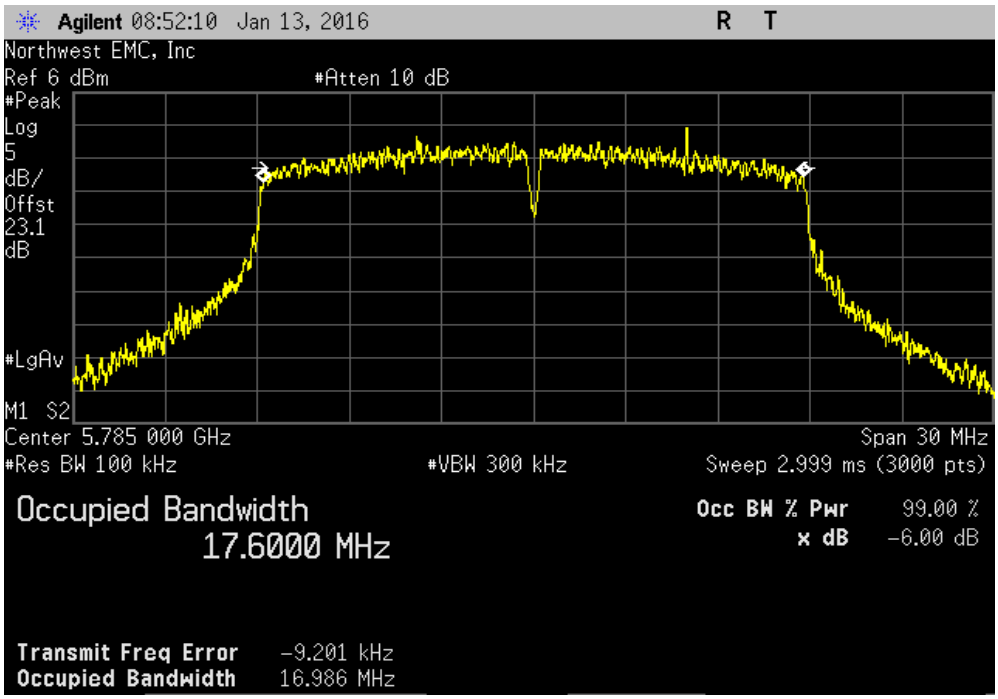
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, High Channel, Ch 165 - 5825 MHz						
				Value	Limit (>)	Result
				15.457 MHz	500 kHz	Pass



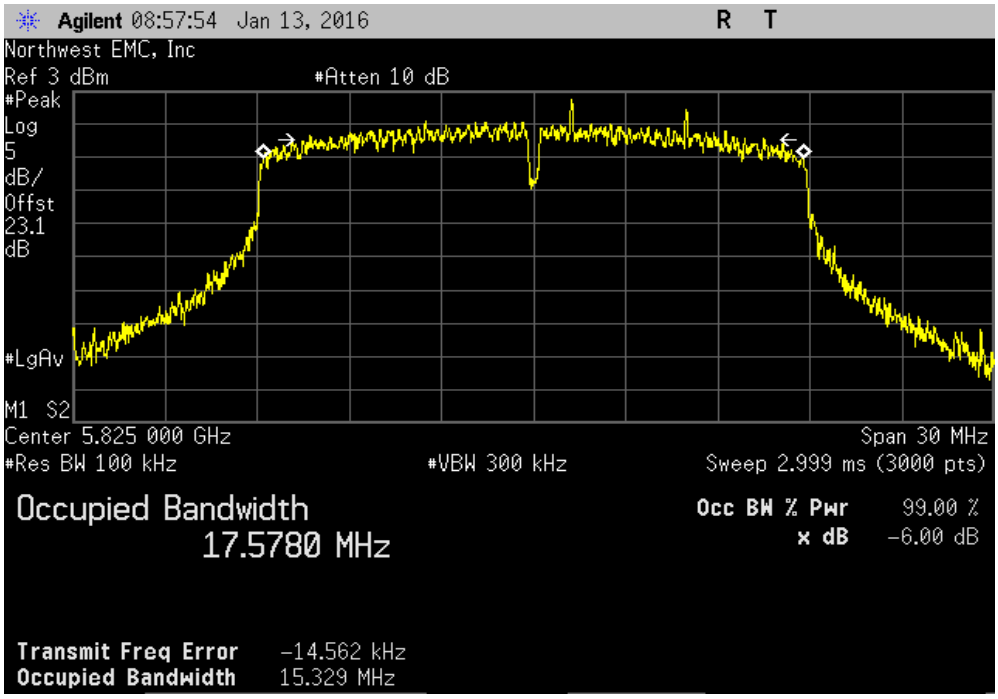
5725 - 5785 MHz Band, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
				Value	Limit (>)	Result
				17.5 MHz	500 kHz	Pass



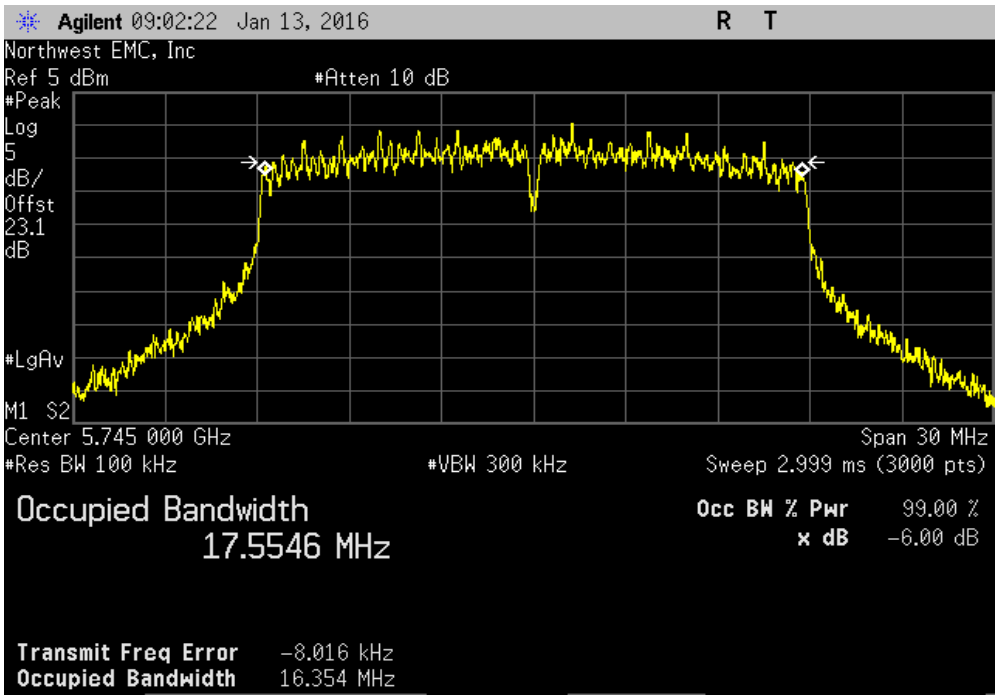
5725 - 5785 MHz Band, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
				Value	Limit (>)	Result
				16.986 MHz	500 kHz	Pass



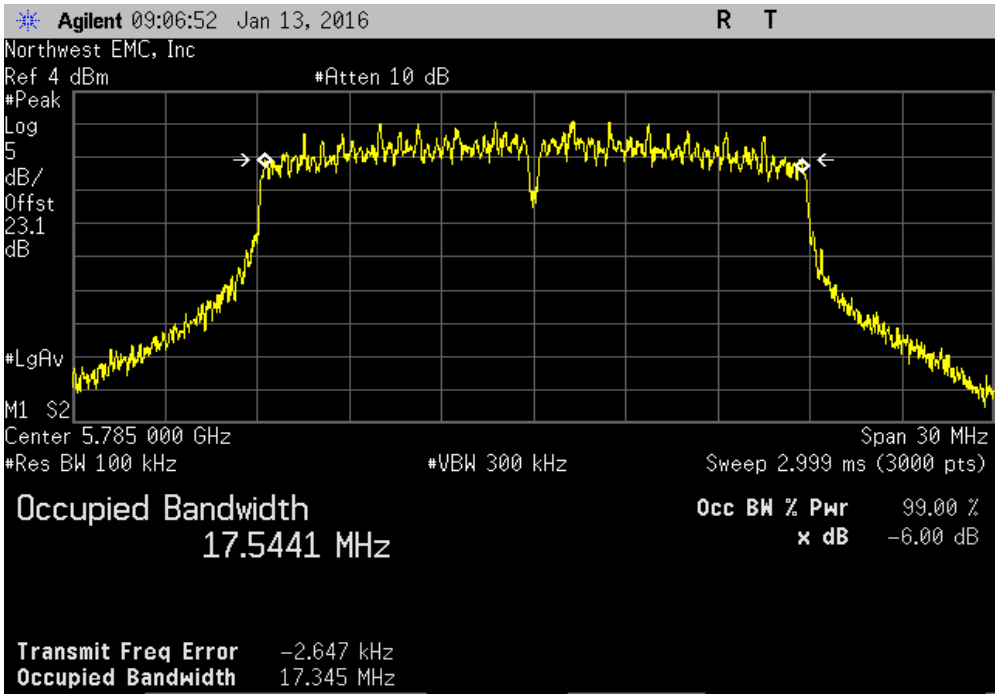
5725 - 5785 MHz Band, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
				Value	Limit (>)	Result
				15.329 MHz	500 kHz	Pass



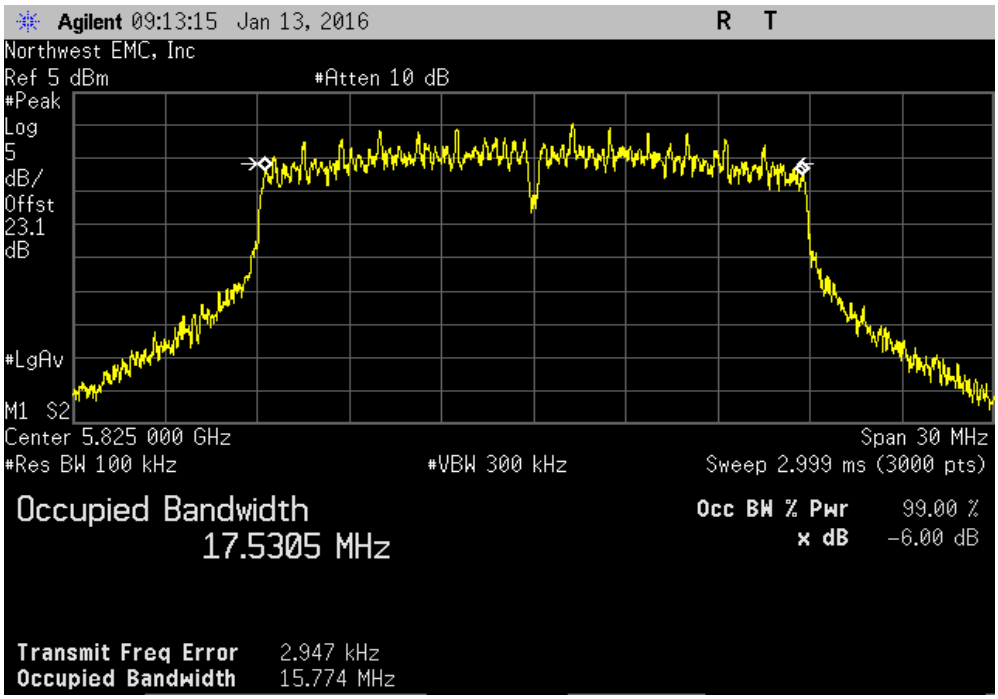
5725 - 5785 MHz Band, 802.11(n) MCS7, Low Channel, Ch 149 - 5745 MHz						
				Value	Limit (>)	Result
				16.354 MHz	500 kHz	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, Mid Channel, Ch 157 - 5785 MHz						
				Value	Limit (>)	Result
				17.345 MHz	500 kHz	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, High Channel, Ch 165 - 5825 MHz						
				Value	Limit (>)	Result
				15.774 MHz	500 kHz	Pass



MAXIMUM POWER SPECTRAL DENSITY

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)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	6/22/2015	12
Cable	ESM Cable Corp.	TTBJ-141 KMKM-72	NC5	6/6/2015	12
Attenuator	S.M. Electronics	SA18H-20	REK	9/28/2015	12
Block - DC	Fairview Microwave	SD3379	AMJ	6/6/2015	12
Generator - Signal	Agilent	N5183A	TIA	4/7/2014	24

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

MAXIMUM POWER SPECTRAL DENSITY

NORTHWEST EMC

XMit 2015.01.14

EUT:	RC12			**Work Order:**	INMC0943
Serial Number:	R11			**Date:**	01/13/16
Customer:	Intermec Technologies Corporation			**Temperature:**	23°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	1004 mbar
Tested by:	Richard Mellroth	**Power:**	5 VDC	**Job Site:**	NC02

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

COMMENTS

Power settings at default. Constant TX mode enabled.

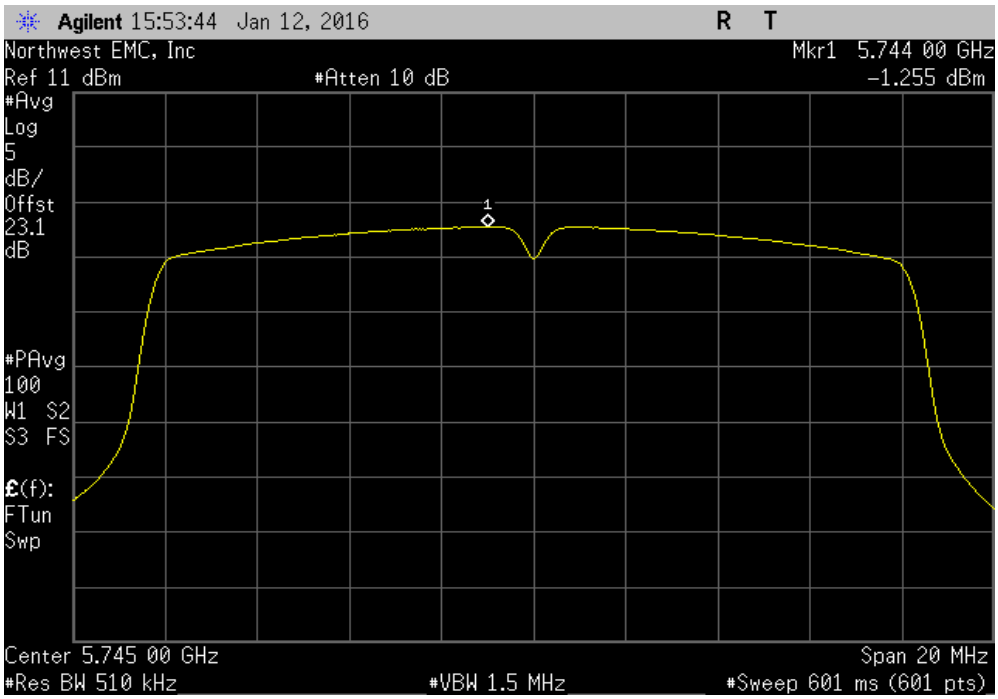
DEVIATIONS FROM TEST STANDARD

None

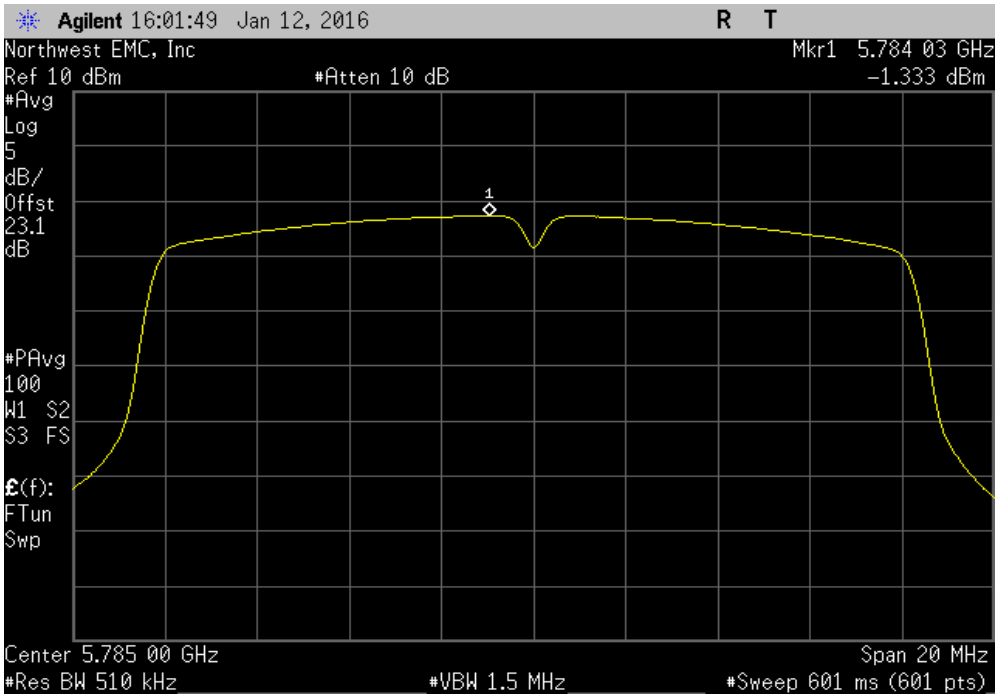
Configuration #	2	Signature

	Power (dBm/Ref BW)	Duty Cycle Factor (dB)	Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
5725 - 5785 MHz Band					
802.11(a) 6 Mbps					
Low Channel, Ch 149 - 5745 MHz	-1.255	0	-1.2	30	Pass
Mid Channel, Ch 157 - 5785 MHz	-1.333	0	-1.3	30	Pass
High Channel, Ch 165 - 5825 MHz	-1.456	0	-1.4	30	Pass
802.11(a) 36 Mbps					
Low Channel, Ch 149 - 5745 MHz	-1.357	0.3	-1.1	30	Pass
Mid Channel, Ch 157 - 5785 MHz	-1.444	0.3	-1.2	30	Pass
High Channel, Ch 165 - 5825 MHz	-1.58	0.3	-1.3	30	Pass
802.11(a) 54 Mbps					
Low Channel, Ch 149 - 5745 MHz	-2.005	0.4	-1.6	30	Pass
Mid Channel, Ch 157 - 5785 MHz	-2.167	0.4	-1.8	30	Pass
High Channel, Ch 165 - 5825 MHz	-2.186	0.4	-1.8	30	Pass
802.11(n) MCS0					
Low Channel, Ch 149 - 5745 MHz	-1.48	0.1	-1.4	30	Pass
Mid Channel, Ch 157 - 5785 MHz	-1.66	0.1	-1.6	30	Pass
High Channel, Ch 165 - 5825 MHz	-1.641	0.1	-1.6	30	Pass
802.11(n) MCS7					
Low Channel, Ch 149 - 5745 MHz	-3.553	0.5	-3.1	30	Pass
Mid Channel, Ch 157 - 5785 MHz	-3.768	0.5	-3.3	30	Pass
High Channel, Ch 165 - 5825 MHz	-3.74	0.5	-3.3	30	Pass

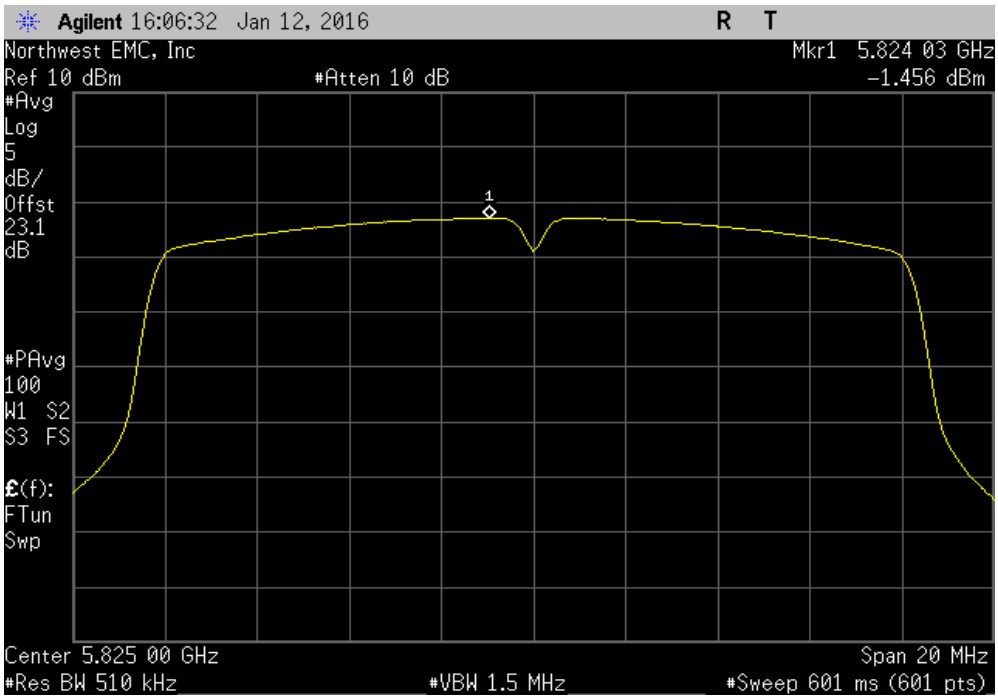
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.255	0		-1.2	30	Pass



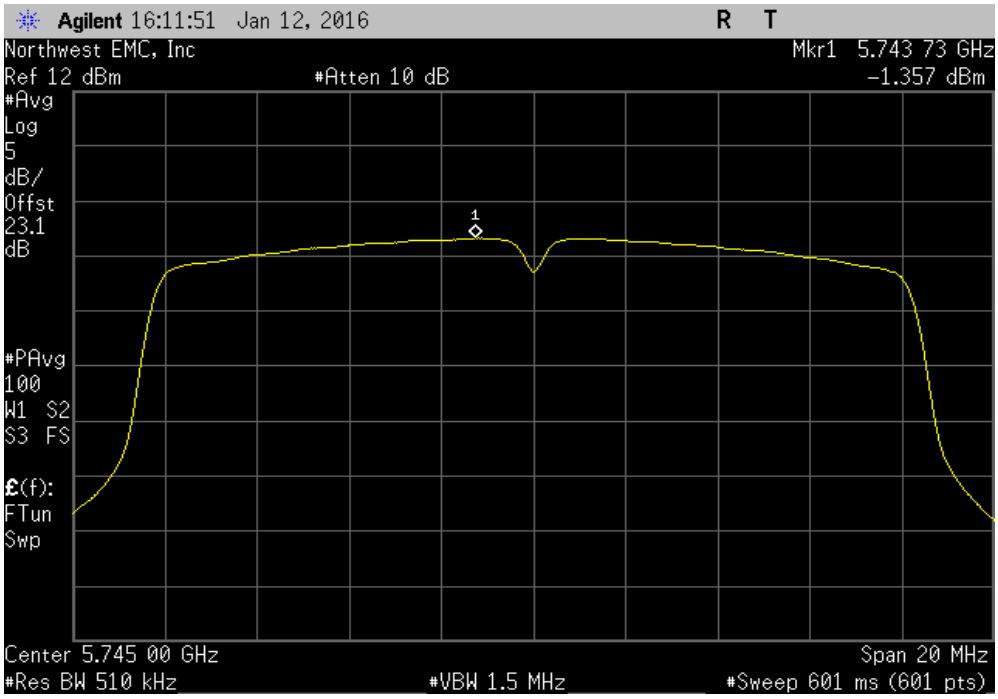
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.333	0		-1.3	30	Pass



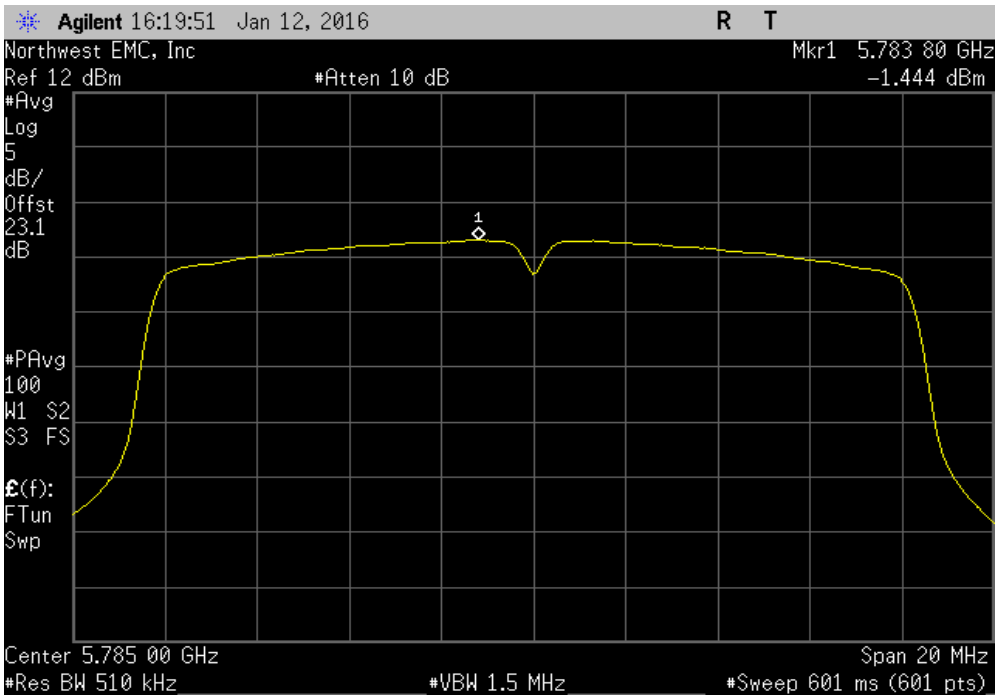
5725 - 5785 MHz Band, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.456	0		-1.4	30	Pass



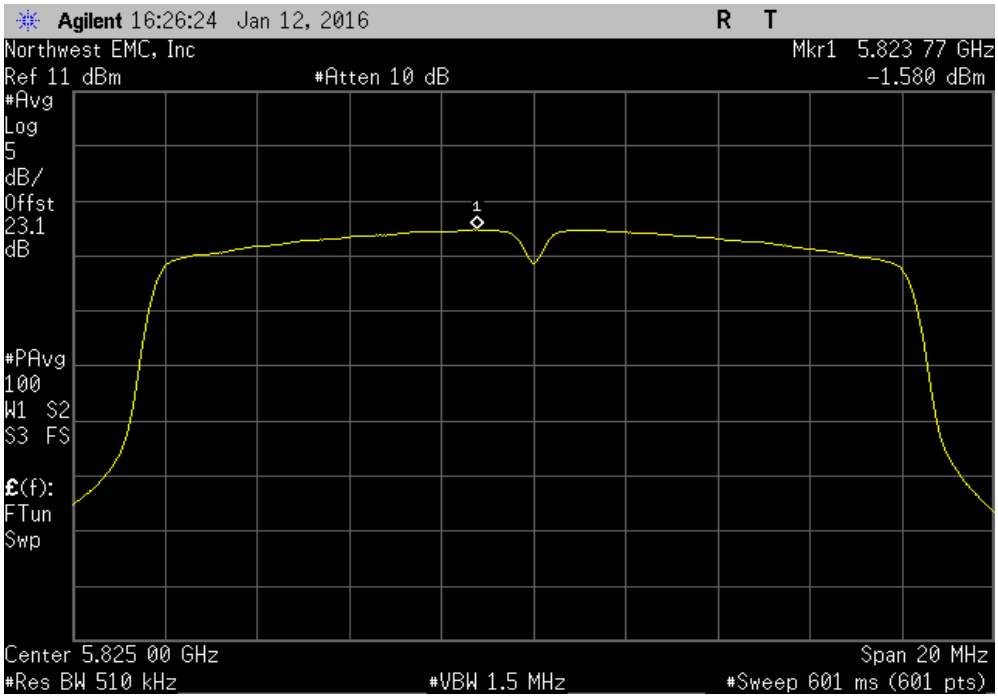
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.357	0.3		-1.1	30	Pass



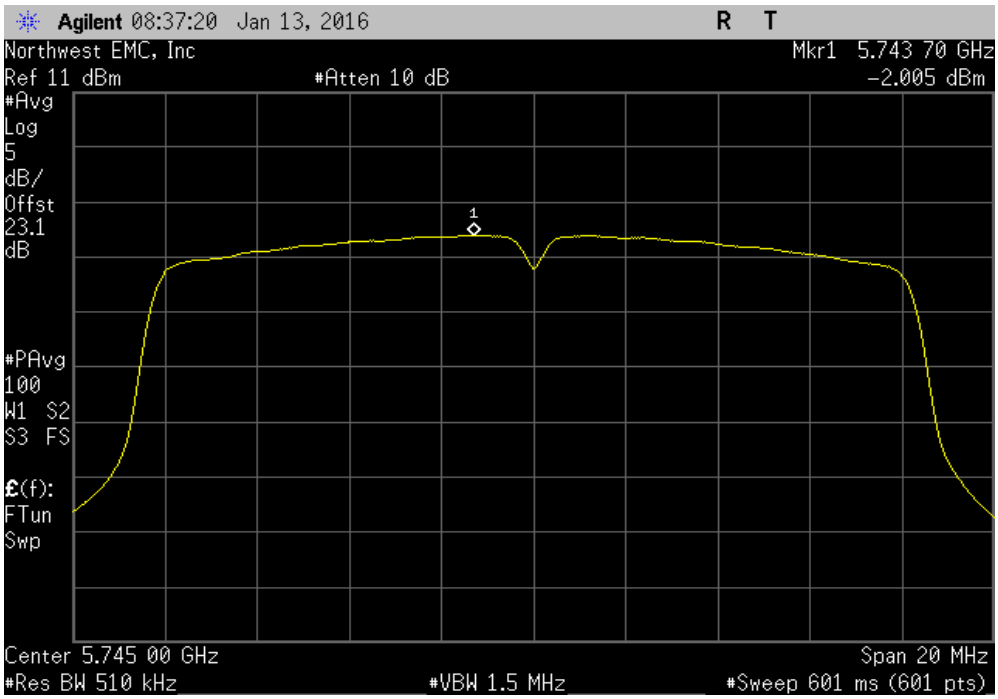
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.444	0.3		-1.2	30	Pass



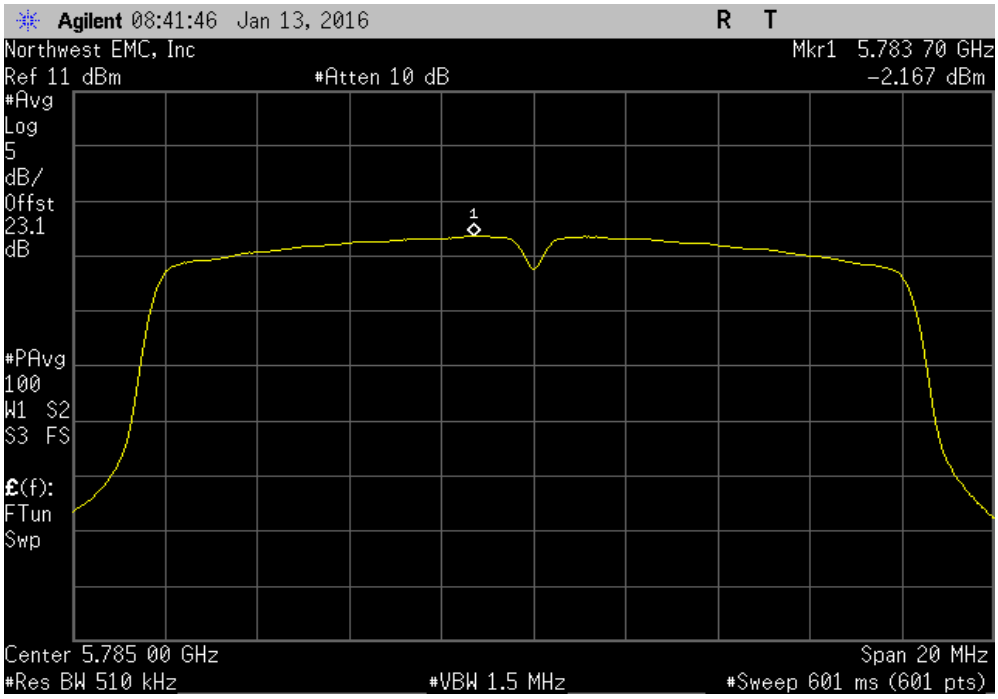
5725 - 5785 MHz Band, 802.11(a) 36 Mbps, High Channel, Ch 165 - 5825 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.58	0.3		-1.3	30	Pass



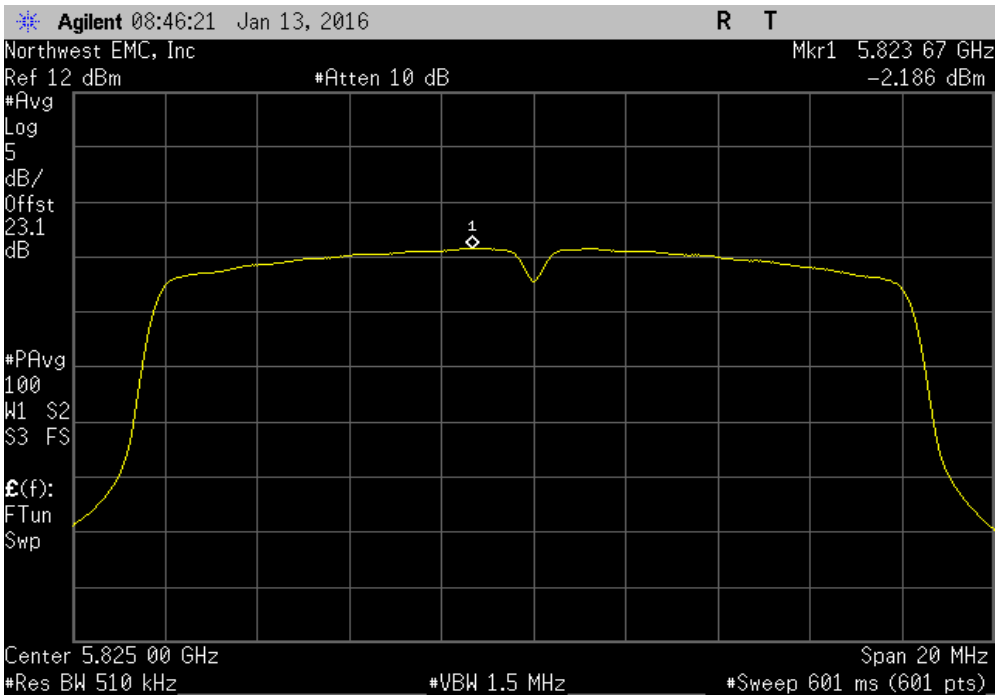
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Low Channel, Ch 149 - 5745 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-2.005	0.4		-1.6	30	Pass



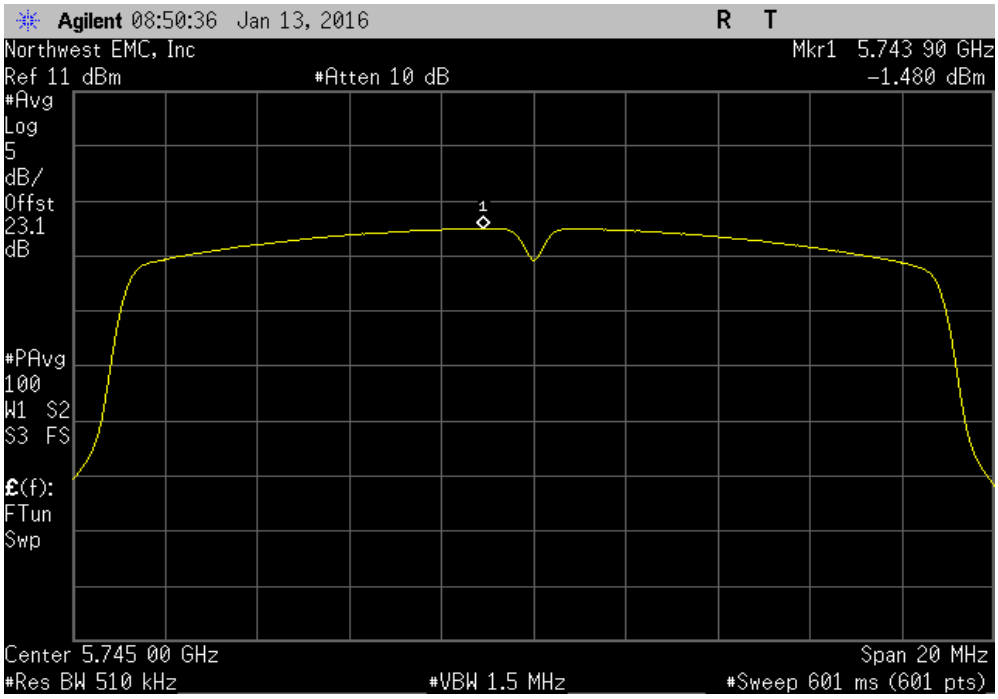
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, Mid Channel, Ch 157 - 5785 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-2.167	0.4		-1.8	30	Pass



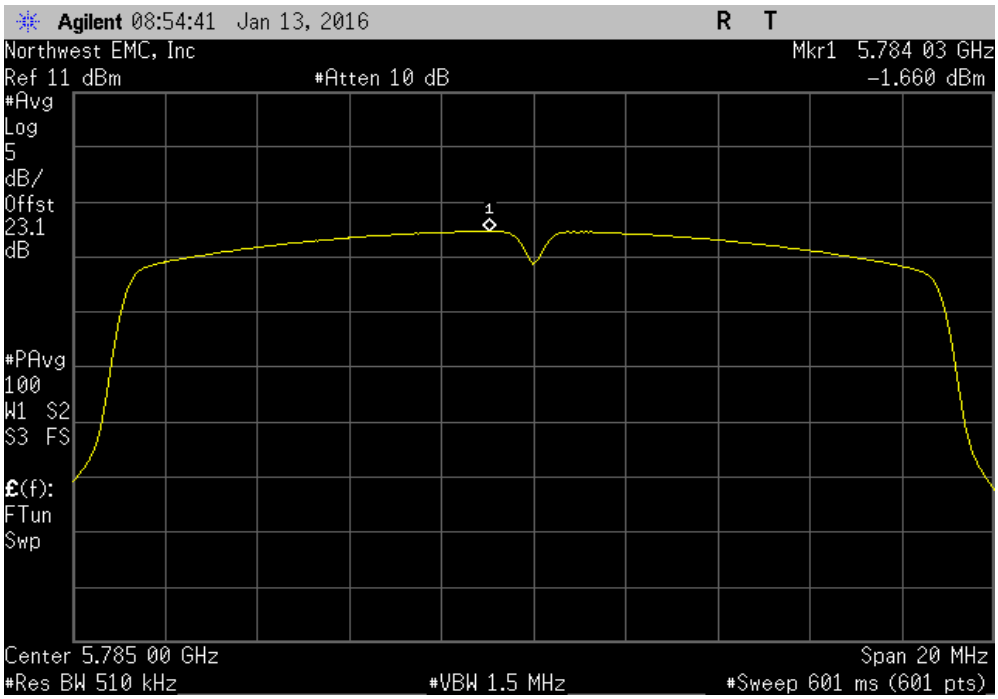
5725 - 5785 MHz Band, 802.11(a) 54 Mbps, High Channel, Ch 165 - 5825 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-2.186	0.4		-1.8	30	Pass



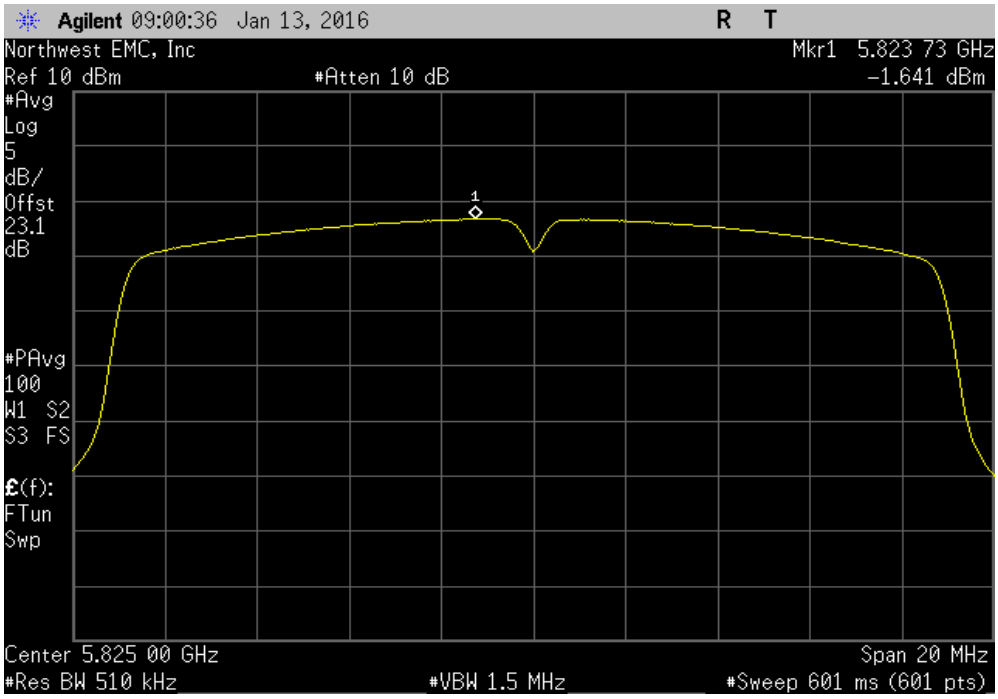
5725 - 5785 MHz Band, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.48	0.1		-1.4	30	Pass



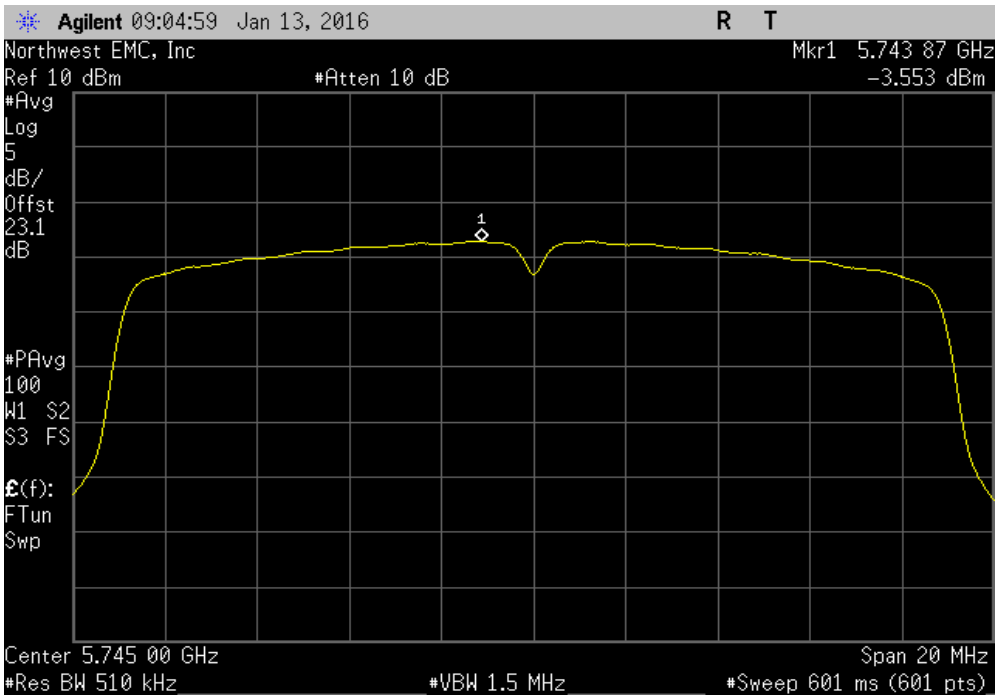
5725 - 5785 MHz Band, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.66	0.1		-1.6	30	Pass



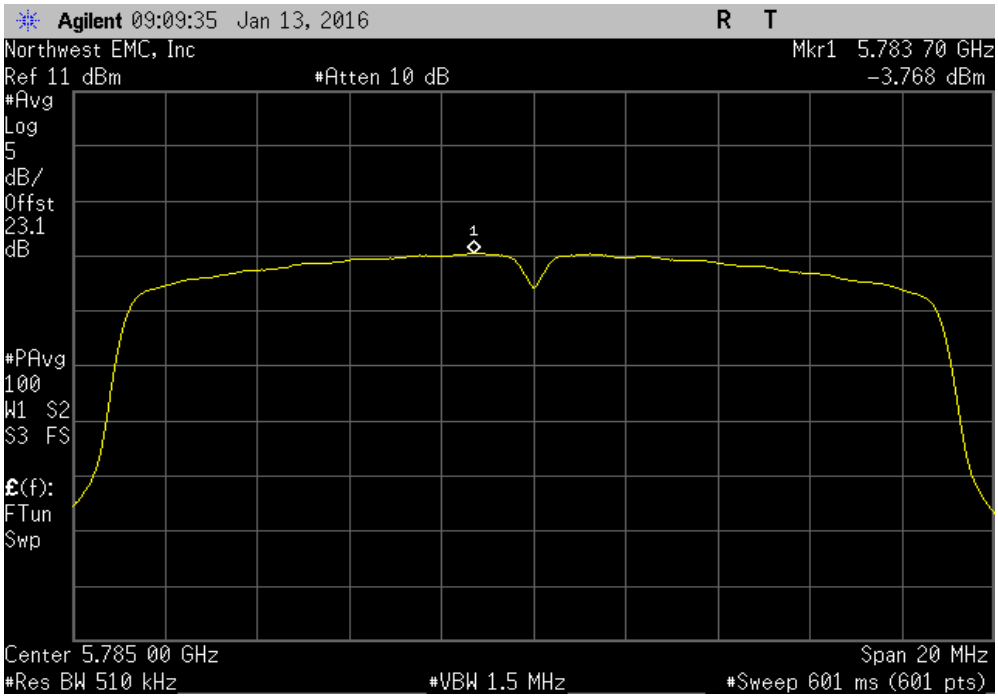
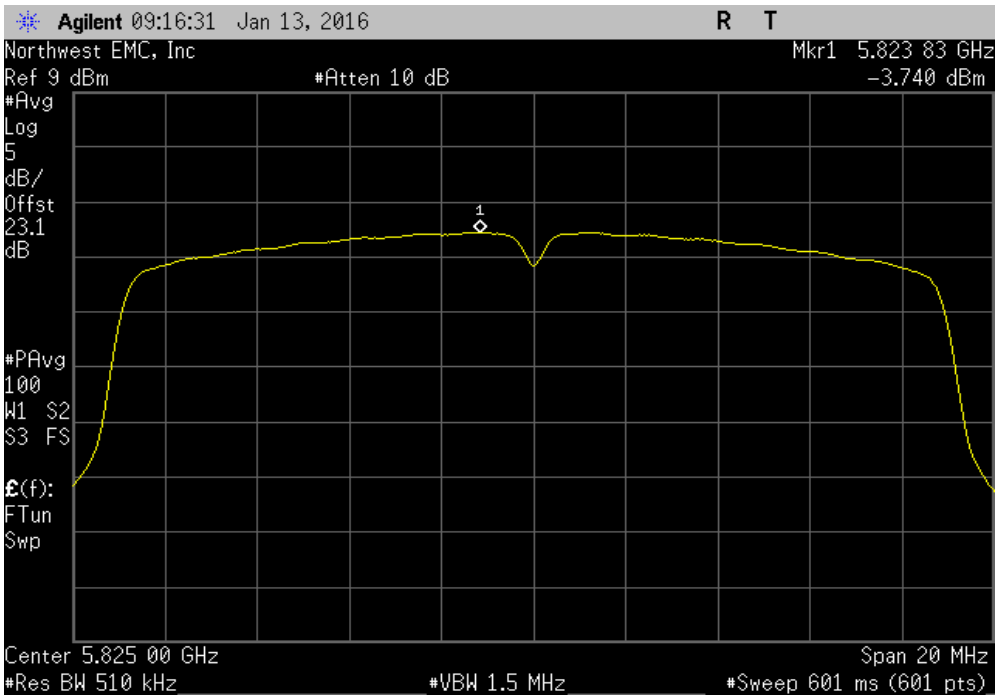
5725 - 5785 MHz Band, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-1.641	0.1		-1.6	30	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, Low Channel, Ch 149 - 5745 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-3.553	0.5		-3.1	30	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, Mid Channel, Ch 157 - 5785 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-3.768	0.5		-3.3	30	Pass



5725 - 5785 MHz Band, 802.11(n) MCS7, High Channel, Ch 165 - 5825 MHz						
	Power (dBm/Ref BW)	Duty Cycle Factor (dB)		Density (dBm/Ref BW)	Limit ≤ (dBm/Ref BW)	Results
	-3.74	0.5		-3.3	30	Pass