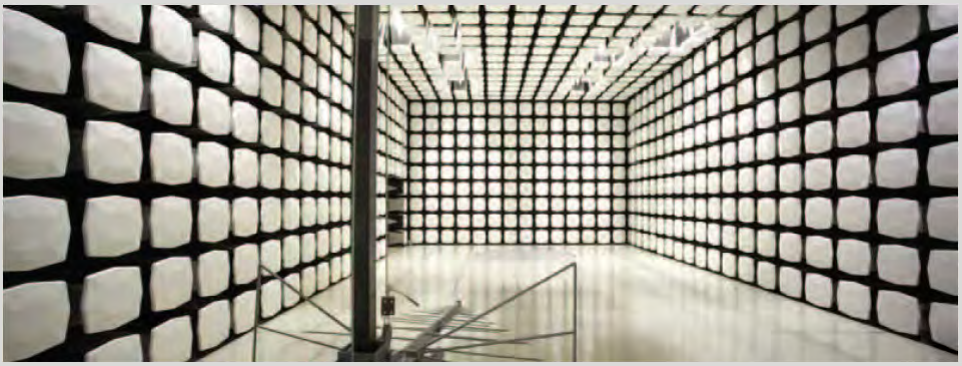
Microsoft Corporation

1516

Report #: MCSO1601

FCC 15.247:2012

WLAN Radio



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

Last Date of Test: August 14, 2012
Microsoft Corporation
Model: 1516

Emissions

Test Description	Specification	Test Method	Pass/Fail
Occupied Bandwidth	FCC 15.247:2012	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2012	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.207:2012	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP Lab Code: 200881-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503)844-4066 Fax: (503) 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

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.

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. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision History

Revision Number	Description	Date	Page Number
00	None		

Accreditations and Authorizations

Revision
02/21/2012

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 Guide 65 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. The scope includes radio, ITE, and medical standards from around the world. See: http://www.nwemc.com/accreditations/

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

KCC / 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.

Hong Kong

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

Vietnam

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

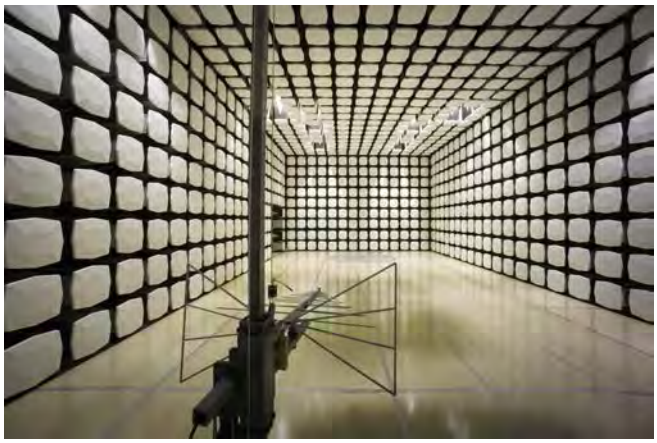
Russia

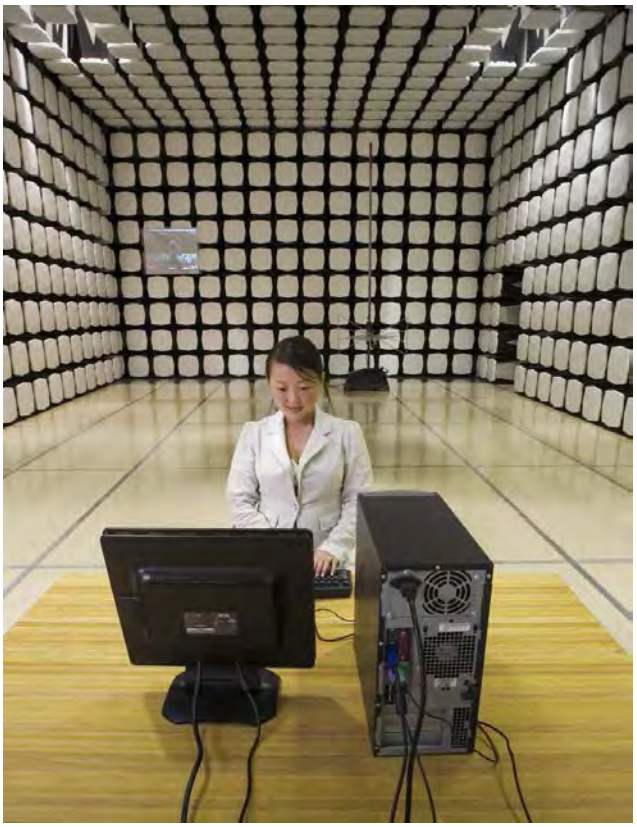
GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards**.**

Locations

Revision 8/3/12

Oregon	California	New York	Minnesota	Washington
Labs EV01-EV12 22975 NW Evergreen Pkwy, #400 Hillsboro, OR 97124 (503) 844-4066	Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs SU01-SU07 14128 339th Ave. SE Sultan, WA 98294 (360) 793-8675
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1





PRODUCT DESCRIPTION

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	Microsoft Corporation
Address:	One Microsoft Way
City, State, Zip:	Redmond, WA 98052-6399
Test Requested By:	Mike Boucher
Model:	1516
First Date of Test:	July 17, 2012
Last Date of Test:	August 14, 2012
Receipt Date of Samples:	July 16, 2012
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
Tablet computer containing WLAN (802.11a/b/g/n, 2x2 MIMO) and Bluetooth radios

Clocks and Oscillators of the EUT:
None Provided

Testing Objective:
To demonstrate compliance of the WLAN radio under FCC 15.247 for operation in the 2.4 and 5.8 GHz bands

CONFIGURATIONS

Configuration MCSO1601- 2

Software/Firmware Running during test	
Description	**Version**
Wifi Tool	1.0

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Tablet	Microsoft Corporation	EV3BB-V24	000309122652

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Topward Electric	TPS-2000	946425
Remote PC	Lenovo	L420	7854CT0
Digital Multi-Meter	Tektronix	DMM912	AL2807

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains	Yes	1.0m	No	AC Mains	Tablet
USB Adapter	Yes	.2m	No	Tablet	Ethernet CAT 5 Cable
Ethernet CAT 5 Cable	Yes	1.0m	No	USB adapter	Remote PC
USB	Yes	2.5m	No	Tablet	USB adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration MCSO1602- 2

Software/Firmware Running during test	
Description	**Version**
BT_scripts	1.0

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Tablet	Microsoft Corporation	EV3BB-V24	000309122652

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
USB Ethernet Adapter	Cisco		
DC Power Supply	Topward Electric	TPS-2000	946425

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Digital Multi-Meter	Tektronix	DMM912	AL2807
Remote PC	Lenovo	L420	7854CT0

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.5m	No	DC Power Supply	1516
CAT-5e	No	3.0m	Yes	USB Ethernet Adapter	Ethernet Hub
USB	Yes	0.1m	No	USB Ethernet Adapter	1516
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration MCSO1608- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
1516 Sample 2	Microsoft	1516	000364122652

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Membrane Keyboard	Microsoft Corporation	unknown	000759722151
AC Adapter	Microsoft Corporation	PA-1240-06MX	0D21005652219
USB Ethernet Adapter	Cisco	USB300M	CU906M310544
Earbuds	Microsoft Corporation	Unknown	none

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.5m	No	DC Power Supply	1516
Headphone	No	1.3m	No	1516	Earbuds
CAT-5e	No	3.0m	Yes	USB Ethernet Adapter	Ethernet Hub
USB	Yes	0.1m	No	USB Ethernet Adapter	1516
HDMI	Yes	1.0m	No	1516	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration MCSO1608- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
1516 Sample 4	Microsoft Corporation	1516	000215622952

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Membrane Keyboard	Microsoft Corporation	unknown	000759722151
AC Adapter	Microsoft Corporation	PA-1240-06MX	0D21005652219
USB Ethernet Adapter	Cisco	USB300M	CU906M310544
Earbuds	Microsoft Corporation	Unknown	none

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.5m	No	DC Power Supply	1516
Headphone	No	1.3m	No	1516	Earbuds
CAT-5e	No	3.0m	Yes	USB Ethernet Adapter	Ethernet Hub
USB	Yes	0.1m	No	USB Ethernet Adapter	1516
HDMI	Yes	1.0m	No	1516	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	7/17/2012	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	8/1/2012	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	8/1/2012	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	8/8/2012	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	8/9/2012	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	8/9/2012	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	8/14/2012	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Occupied Bandwidth

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Multimeter	Tektronix	DMM912	MMH	1/28/2011	24
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	3/21/2012	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440	AFE	1/23/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The power levels used while under test were 11dBm for 5GHz frequencies with a 40MHz bandwidth, 12dBm for 5GHz frequencies with a 20MHz bandwidth, 16dBm for 2.4GHz frequencies with a 20MHz bandwidth and 11dBm for 2.4GHz frequencies with a 40MHz bandwidth.

Occupied Bandwidth

EUT:	1516			**Work Order:**	MCSO1602
Serial Number:	000309122652			**Date:**	08/09/12
Customer:	Microsoft Corporation			**Temperature:**	24°C
Attendees:	none			**Humidity:**	45%
Project:	None			**Barometric Pres.:**	1016
Tested by:	Brandon Hobbs	**Power:**	12VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

EUT was set to 100% duty cycle for all the points listed.

DEVIATIONS FROM TEST STANDARD

None

Configuration #	2	Signature

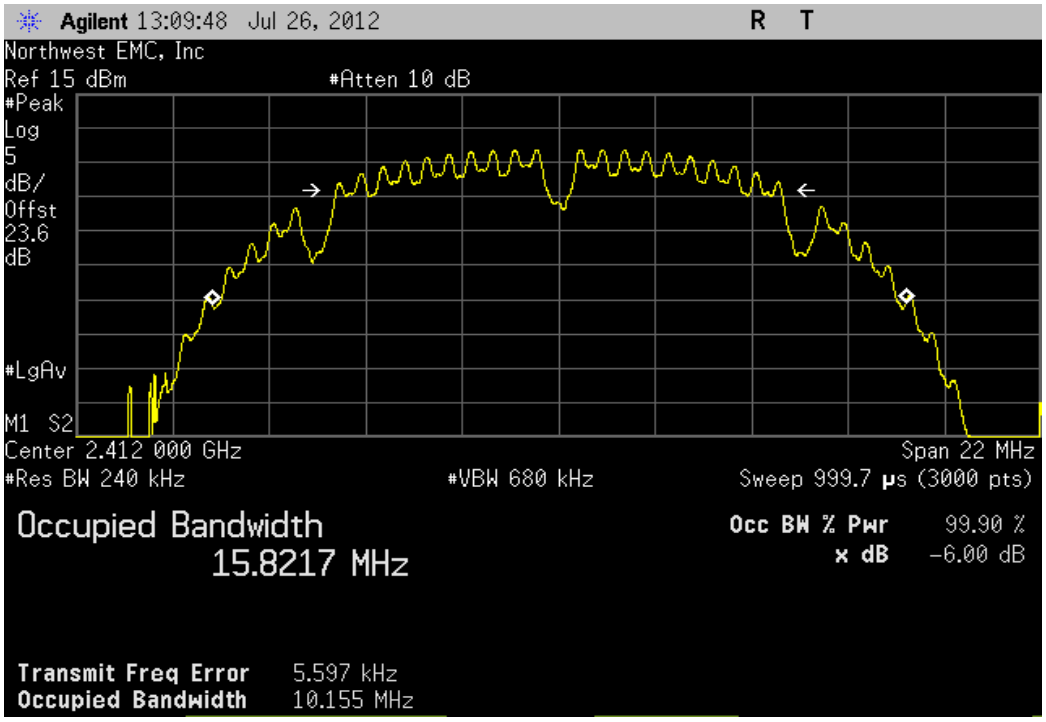
	Value	Limit	Result
20MHz			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	10.155 MHz	> 500 kHz	Pass
Antenna A	10.16 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz			
Antenna B	10.162 MHz	> 500 kHz	Pass
Antenna A	10.16 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz			
Antenna B	10.164 MHz	> 500 kHz	Pass
Antenna A	10.155 MHz	> 500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	10.114 MHz	> 500 kHz	Pass
Antenna A	10.123 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz			
Antenna B	10.146 MHz	> 500 kHz	Pass
Antenna A	10.069 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz			
Antenna B	10.083 MHz	> 500 kHz	Pass
Antenna A	10.136 MHz	> 500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	16.472 MHz	> 500 kHz	Pass
Antenna A	16.432 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz			
Antenna B	16.499 MHz	> 500 kHz	Pass
Antenna A	16.451 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz			
Antenna B	16.517 MHz	> 500 kHz	Pass
Antenna A	16.456 MHz	> 500 kHz	Pass
802.11(a) 6 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	16.409 MHz	> 500 kHz	Pass
Antenna A	16.495 MHz	> 500 kHz	Pass
Mid Channel 157, 5785 MHz			
Antenna B	16.461 MHz	> 500 kHz	Pass
Antenna A	16.469 MHz	> 500 kHz	Pass
High Channel 165, 5825 MHz			
Antenna B	16.465 MHz	> 500 kHz	Pass
Antenna A	16.388 MHz	> 500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	16.507 MHz	> 500 kHz	Pass
Antenna A	16.543 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz			
Antenna B	16.501 MHz	> 500 kHz	Pass
Antenna A	16.593 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz			
Antenna B	16.519 MHz	> 500 kHz	Pass
Antenna A	16.534 MHz	> 500 kHz	Pass
802.11(a) 36 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	16.437 MHz	> 500 kHz	Pass
Antenna A	16.514 MHz	> 500 kHz	Pass
Mid Channel 157, 5785 MHz			
Antenna B	16.484 MHz	> 500 kHz	Pass
Antenna A	16.459 MHz	> 500 kHz	Pass
High Channel 165, 5825 MHz			
Antenna B	16.436 MHz	> 500 kHz	Pass
Antenna A	16.469 MHz	> 500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	16.506 MHz	> 500 kHz	Pass
Antenna A	16.497 MHz	> 500 kHz	Pass
Mid Channel 6, 2437 MHz			
Antenna B	16.495 MHz	> 500 kHz	Pass
Antenna A	16.535 MHz	> 500 kHz	Pass
High Channel 11, 2462 MHz			
Antenna B	16.552 MHz	> 500 kHz	Pass
Antenna A	16.493 MHz	> 500 kHz	Pass

802.11(a) 54 Mbps				
	Low Channel 149, 5745 MHz			
		Antenna B	16.499 MHz	> 500 kHz	Pass
		Antenna A	16.46 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785 MHz			
		Antenna B	16.441 MHz	> 500 kHz	Pass
		Antenna A	16.484 MHz	> 500 kHz	Pass
	High Channel 165, 5825 MHz			
		Antenna B	16.494 MHz	> 500 kHz	Pass
		Antenna A	16.475 MHz	> 500 kHz	Pass
802.11(n) MCS0				
	Low Channel 1, 2412 MHz			
		Antenna B	17.549 MHz	> 500 kHz	Pass
		Antenna A	17.679 MHz	> 500 kHz	Pass
	Mid Channel 6, 2437 MHz			
		Antenna B	17.549 MHz	> 500 kHz	Pass
		Antenna A	17.685 MHz	> 500 kHz	Pass
	High Channel 11, 2462 MHz			
		Antenna B	17.567 MHz	> 500 kHz	Pass
		Antenna A	17.65 MHz	> 500 kHz	Pass
	Low Channel 149, 5745 MHz			
		Antenna B	17.553 MHz	> 500 kHz	Pass
		Antenna A	17.638 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785 MHz			
		Antenna B	17.55 MHz	> 500 kHz	Pass
		Antenna A	17.635 MHz	> 500 kHz	Pass
	High Channel 165, 5825 MHz			
		Antenna B	17.58 MHz	> 500 kHz	Pass
		Antenna A	17.65 MHz	> 500 kHz	Pass
802.11(n) MCS7				
	Low Channel 1, 2412 MHz			
		Antenna B	17.545 MHz	> 500 kHz	Pass
		Antenna A	17.648 MHz	> 500 kHz	Pass
	Mid Channel 6, 2437 MHz			
		Antenna B	17.575 MHz	> 500 kHz	Pass
		Antenna A	17.679 MHz	> 500 kHz	Pass
	High Channel 11, 2462 MHz			
		Antenna B	17.599 MHz	> 500 kHz	Pass
		Antenna A	17.649 MHz	> 500 kHz	Pass
	Low Channel 149, 5745 MHz			
		Antenna B	17.576 MHz	> 500 kHz	Pass
		Antenna A	17.634 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785 MHz			
		Antenna B	17.569 MHz	> 500 kHz	Pass
		Antenna A	17.637 MHz	> 500 kHz	Pass
	High Channel 165, 5825 MHz			
		Antenna B	17.54 MHz	> 500 kHz	Pass
		Antenna A	17.641 MHz	> 500 kHz	Pass
802.11(n) MCS8				
	Low Channel 1, 2412 MHz			
		Antenna B	17.559 MHz	> 500 kHz	Pass
		Antenna A	17.65 MHz	> 500 kHz	Pass
	Mid Channel 6, 2437 MHz			
		Antenna B	17.552 MHz	> 500 kHz	Pass
		Antenna A	17.674 MHz	> 500 kHz	Pass
	High Channel 11, 2462 MHz			
		Antenna B	17.56 MHz	> 500 kHz	Pass
		Antenna A	17.667 MHz	> 500 kHz	Pass
	Low Channel 149, 5745 MHz			
		Antenna B	17.495 MHz	> 500 kHz	Pass
		Antenna A	17.632 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785 MHz			
		Antenna B	17.555 MHz	> 500 kHz	Pass
		Antenna A	17.648 MHz	> 500 kHz	Pass
	High Channel 165, 5825 MHz			
		Antenna B	17.521 MHz	> 500 kHz	Pass
		Antenna A	17.62 MHz	> 500 kHz	Pass
802.11(n) MCS15				
	Low Channel 1, 2412 MHz			
		Antenna B	17.554 MHz	> 500 kHz	Pass
		Antenna A	17.653 MHz	> 500 kHz	Pass
	Mid Channel 6, 2437 MHz			
		Antenna B	17.55 MHz	> 500 kHz	Pass
		Antenna A	17.713 MHz	> 500 kHz	Pass
	High Channel 11, 2462 MHz			
		Antenna B	17.554 MHz	> 500 kHz	Pass
		Antenna A	17.661 MHz	> 500 kHz	Pass
	Low Channel 149, 5745 MHz			
		Antenna B	17.506 MHz	> 500 kHz	Pass
		Antenna A	17.625 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785 MHz			
		Antenna B	17.546 MHz	> 500 kHz	Pass
		Antenna A	17.64 MHz	> 500 kHz	Pass
	High Channel 165, 5825 MHz			
		Antenna B	17.532 MHz	> 500 kHz	Pass
		Antenna A	17.641 MHz	> 500 kHz	Pass

40MHz				
802.11(n) MCS0				
Low Channel 1/5, 2422 MHz				
	Antenna B	36.562 MHz	> 500 kHz	Pass
	Antenna A	36.47 MHz	> 500 kHz	Pass
Mid Channel 4/8, 2437 MHz				
	Antenna B	36.543 MHz	> 500 kHz	Pass
	Antenna A	36.477 MHz	> 500 kHz	Pass
High Channel 7/11, 2452 MHz				
	Antenna B	77.848 MHz	> 500 kHz	Pass
	Antenna A	36.475 MHz	> 500 kHz	Pass
Low Channel 149/153, 5755 MHz				
	Antenna B	36.514 MHz	> 500 kHz	Pass
	Antenna A	36.491 MHz	> 500 kHz	Pass
High Channel 157/161, 5795 MHz				
	Antenna B	36.516 MHz	> 500 kHz	Pass
	Antenna A	36.451 MHz	> 500 kHz	Pass
802.11(n) MCS7				
Low Channel 1/5, 2422 MHz				
	Antenna B	36.372 MHz	> 500 kHz	Pass
	Antenna A	36.424 MHz	> 500 kHz	Pass
Mid Channel 4/8, 2437 MHz				
	Antenna B	36.406 MHz	> 500 kHz	Pass
	Antenna A	36.446 MHz	> 500 kHz	Pass
High Channel 7/11, 2452 MHz				
	Antenna B	36.436 MHz	> 500 kHz	Pass
	Antenna A	36.418 MHz	> 500 kHz	Pass
Low Channel 149/153, 5755 MHz				
	Antenna B	36.089 MHz	> 500 kHz	Pass
	Antenna A	35.876 MHz	> 500 kHz	Pass
High Channel 157/161, 5795 MHz				
	Antenna B	36.091 MHz	> 500 kHz	Pass
	Antenna A	35.98 MHz	> 500 kHz	Pass
802.11(n) MCS8				
Low Channel 1/5, 2422 MHz				
	Antenna B	36.65 MHz	> 500 kHz	Pass
	Antenna A	36.507 MHz	> 500 kHz	Pass
Mid Channel 4/8, 2437 MHz				
	Antenna B	36.396 MHz	> 500 kHz	Pass
	Antenna A	36.519 MHz	> 500 kHz	Pass
High Channel 7/11, 2452 MHz				
	Antenna B	36.663 MHz	> 500 kHz	Pass
	Antenna A	36.501 MHz	> 500 kHz	Pass
Low Channel 149/153, 5755 MHz				
	Antenna B	36.095 MHz	> 500 kHz	Pass
	Antenna A	36.485 MHz	> 500 kHz	Pass
High Channel 157/161, 5795 MHz				
	Antenna B	36.318 MHz	> 500 kHz	Pass
	Antenna A	36.473 MHz	> 500 kHz	Pass
802.11(n) MCS15				
Low Channel 1/5, 2422 MHz				
	Antenna B	36.444 MHz	> 500 kHz	Pass
	Antenna A	36.428 MHz	> 500 kHz	Pass
Mid Channel 4/8, 2437 MHz				
	Antenna B	36.381 MHz	> 500 kHz	Pass
	Antenna A	36.442 MHz	> 500 kHz	Pass
High Channel 7/11, 2452 MHz				
	Antenna B	36.388 MHz	> 500 kHz	Pass
	Antenna A	36.391 MHz	> 500 kHz	Pass
Low Channel 149/153, 5755 MHz				
	Antenna B	36.254 MHz	> 500 kHz	Pass
	Antenna A	36.056 MHz	> 500 kHz	Pass
High Channel 157/161, 5795 MHz				
	Antenna B	36.223 MHz	> 500 kHz	Pass
	Antenna A	35.524 MHz	> 500 kHz	Pass

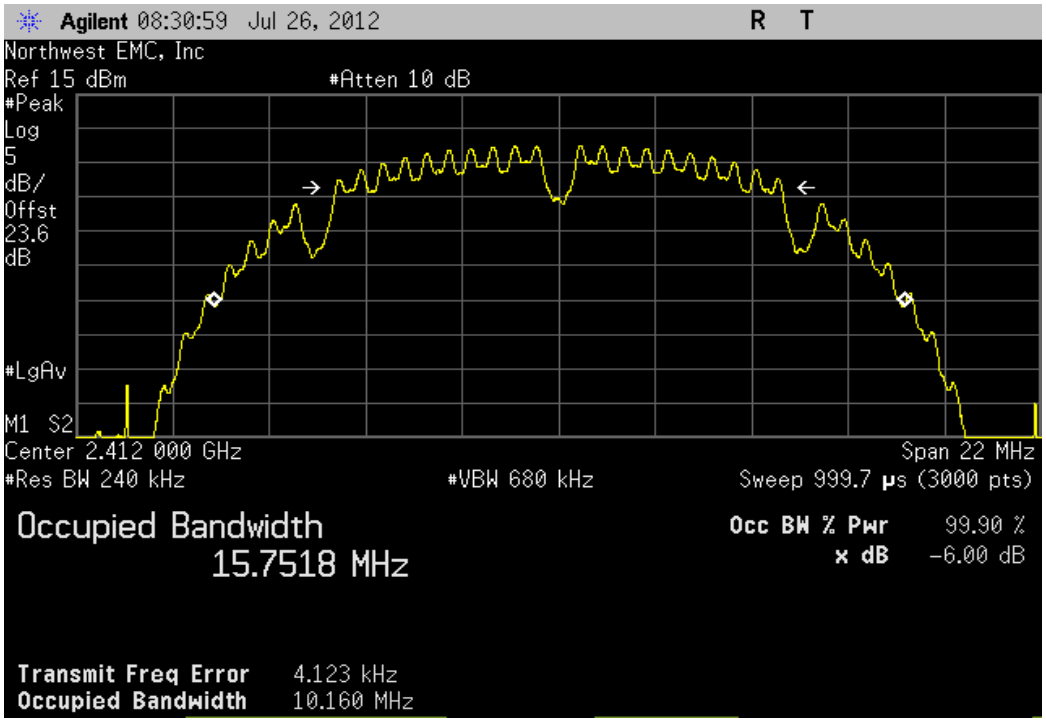
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				10.155 MHz	> 500 kHz	Pass



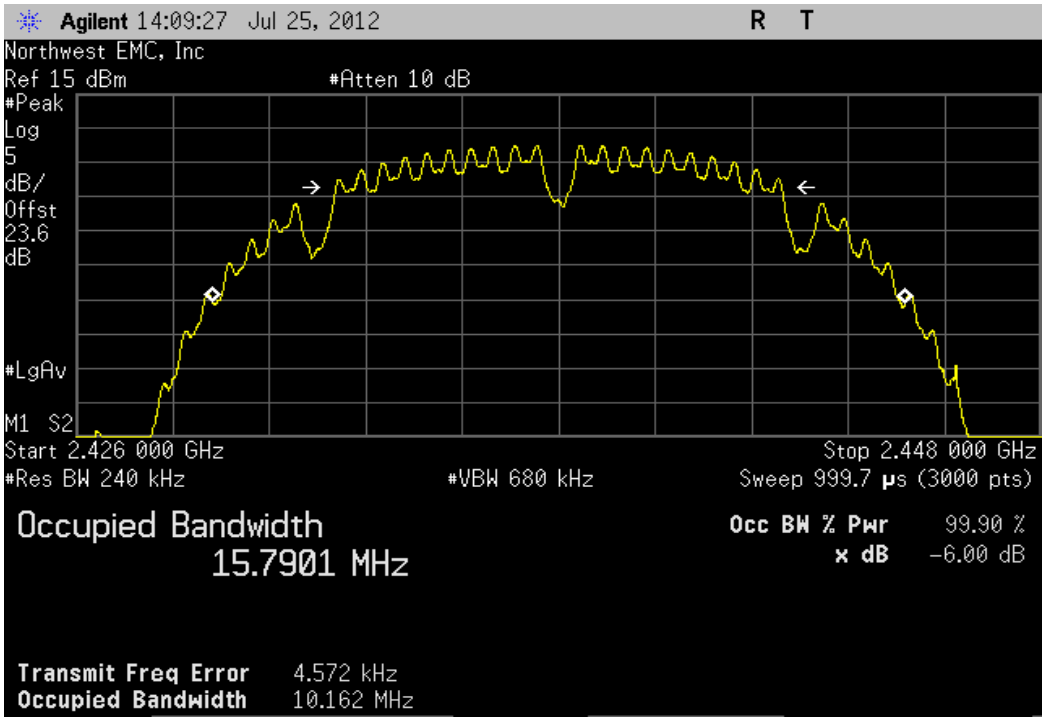
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				10.16 MHz	> 500 kHz	Pass



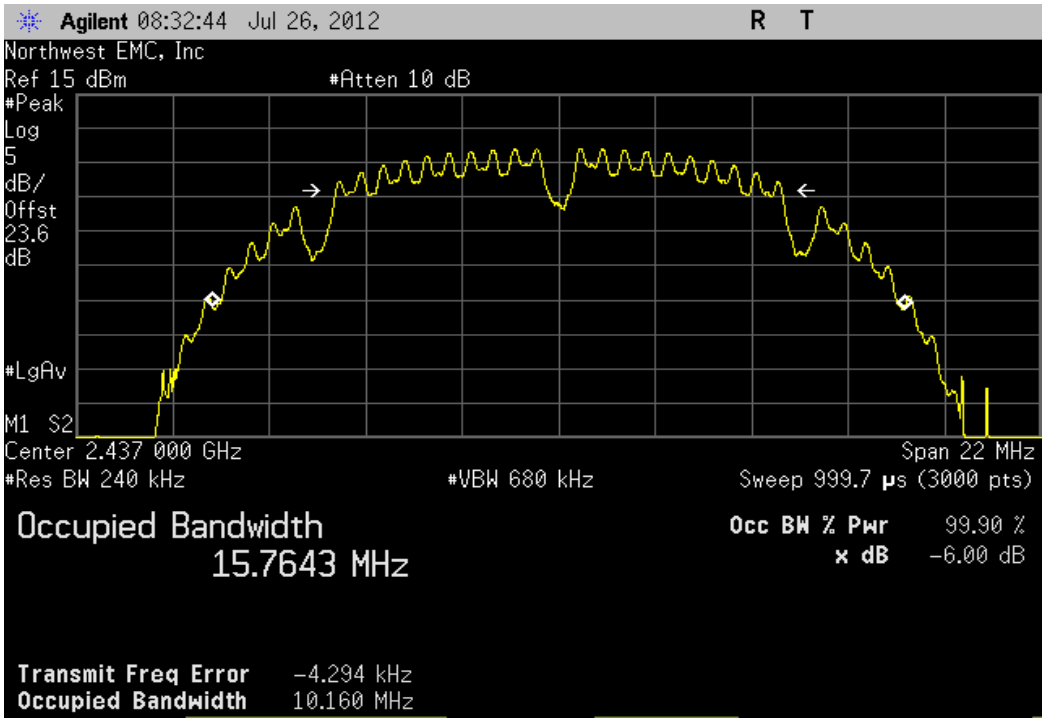
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				10.162 MHz	> 500 kHz	Pass



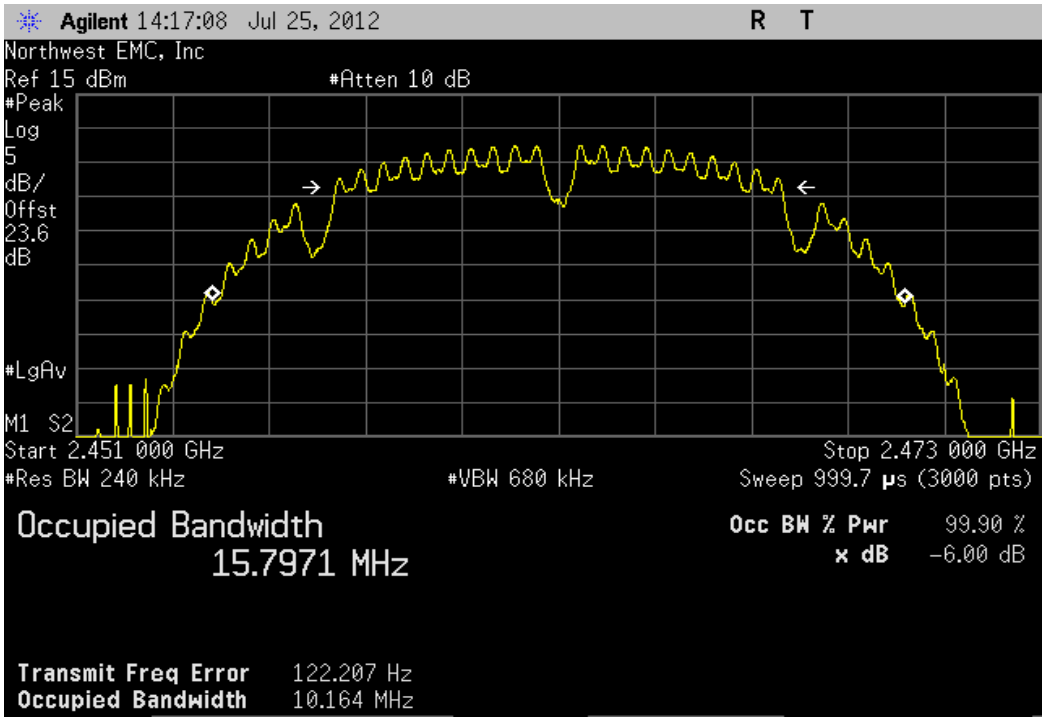
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				10.16 MHz	> 500 kHz	Pass



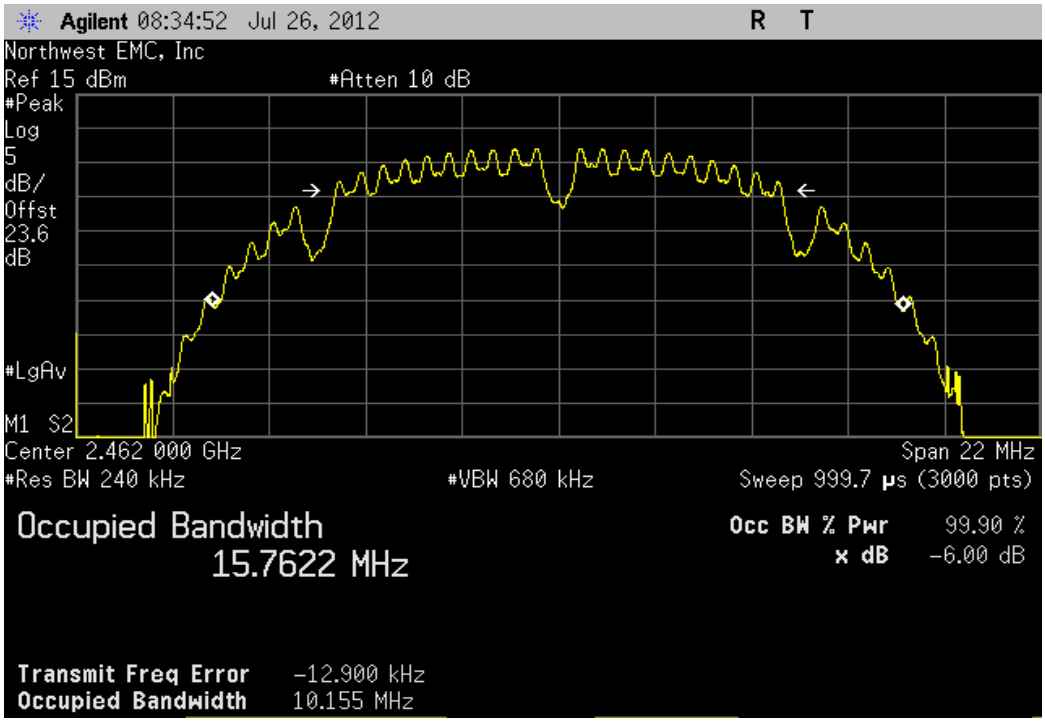
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				10.164 MHz	> 500 kHz	Pass



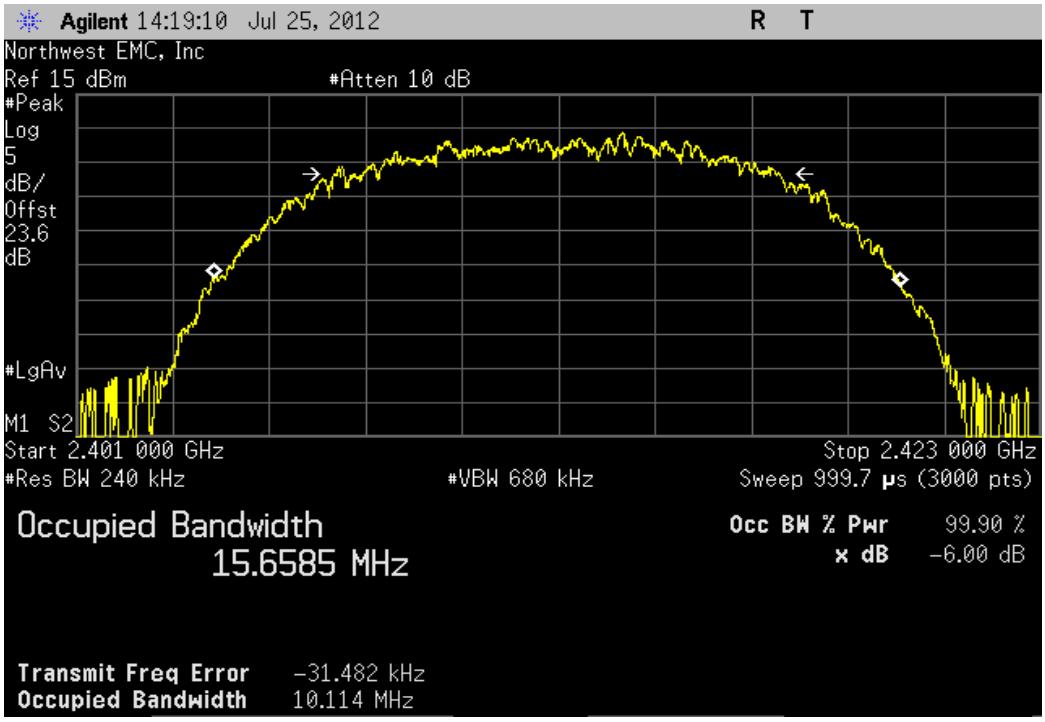
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				10.155 MHz	> 500 kHz	Pass



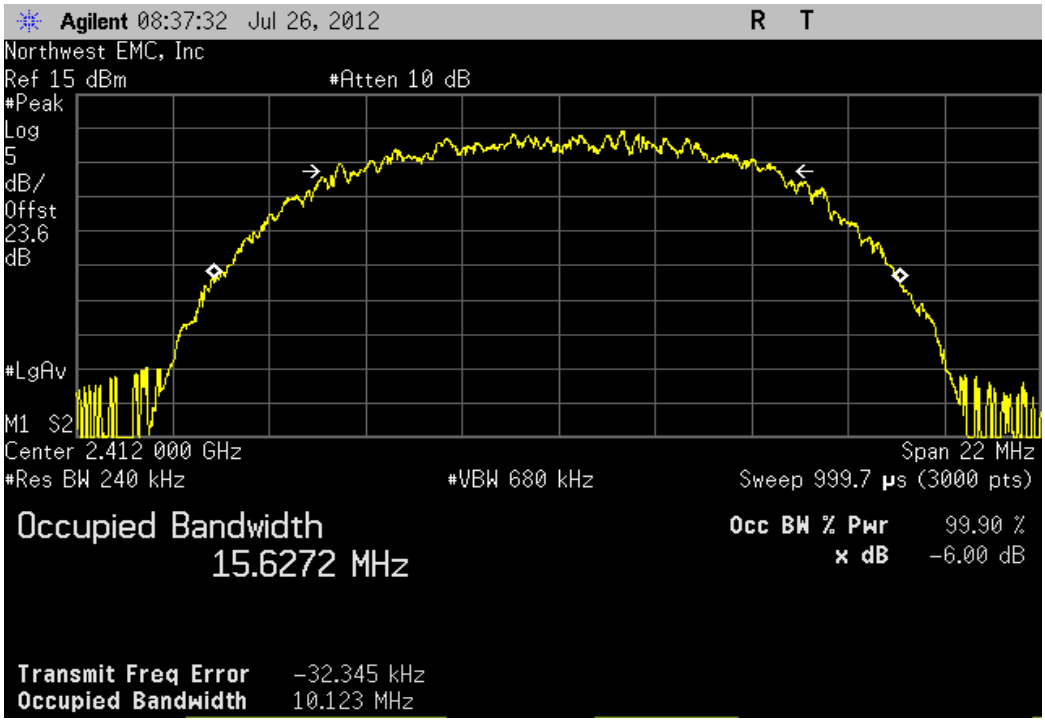
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				10.114 MHz	> 500 kHz	Pass



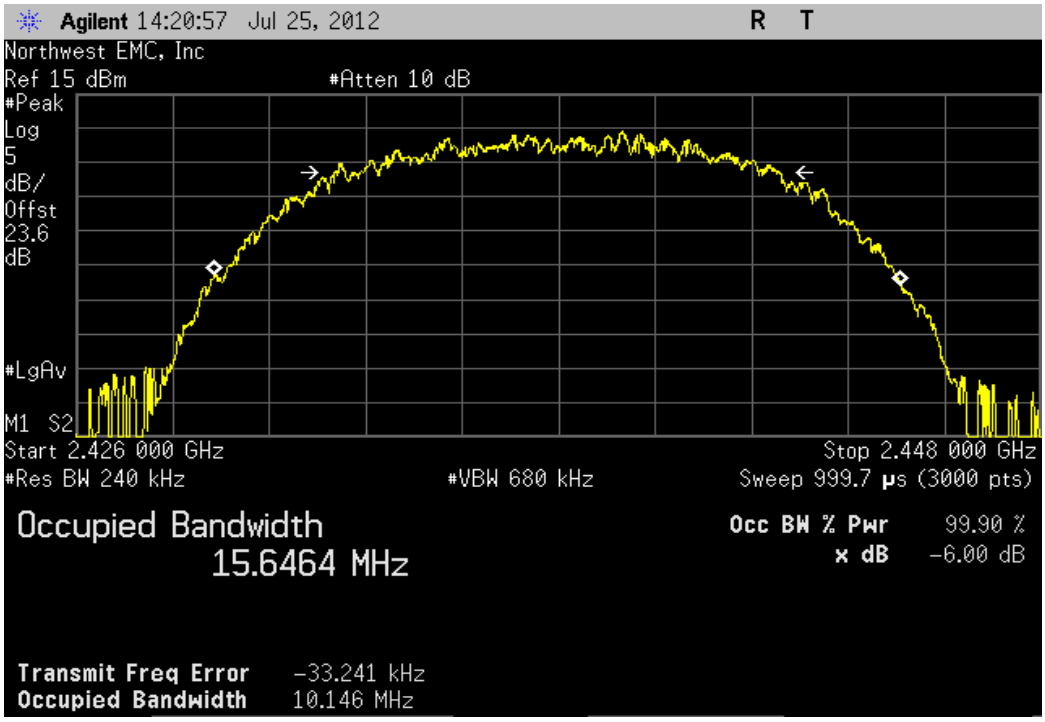
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				10.123 MHz	> 500 kHz	Pass



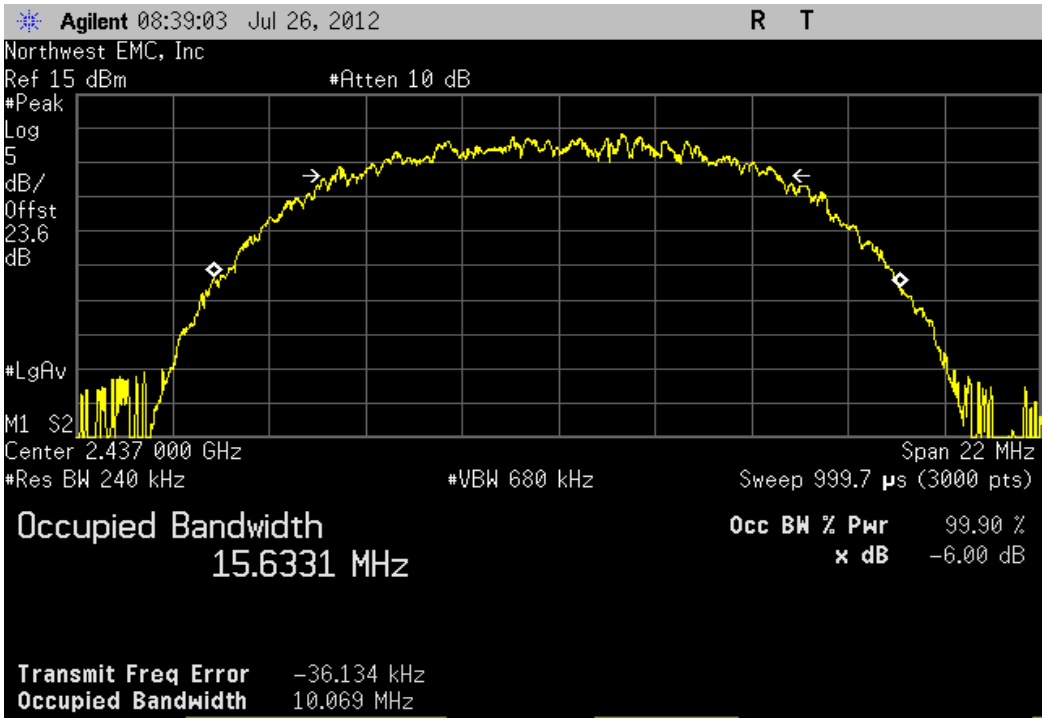
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				10.146 MHz	> 500 kHz	Pass



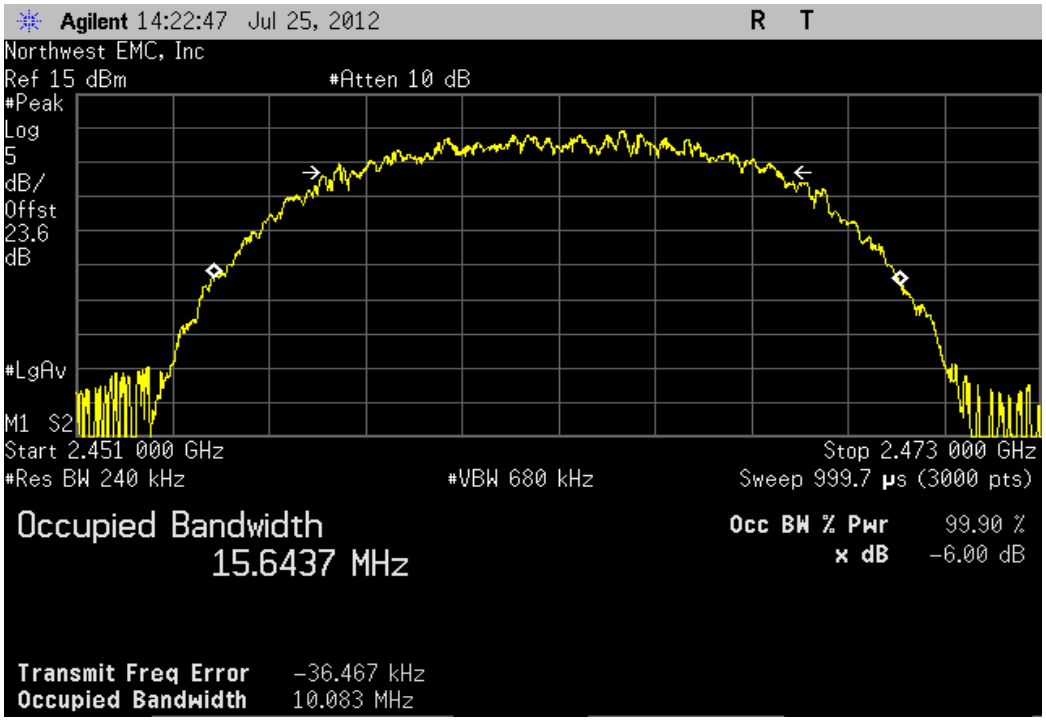
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				10.069 MHz	> 500 kHz	Pass



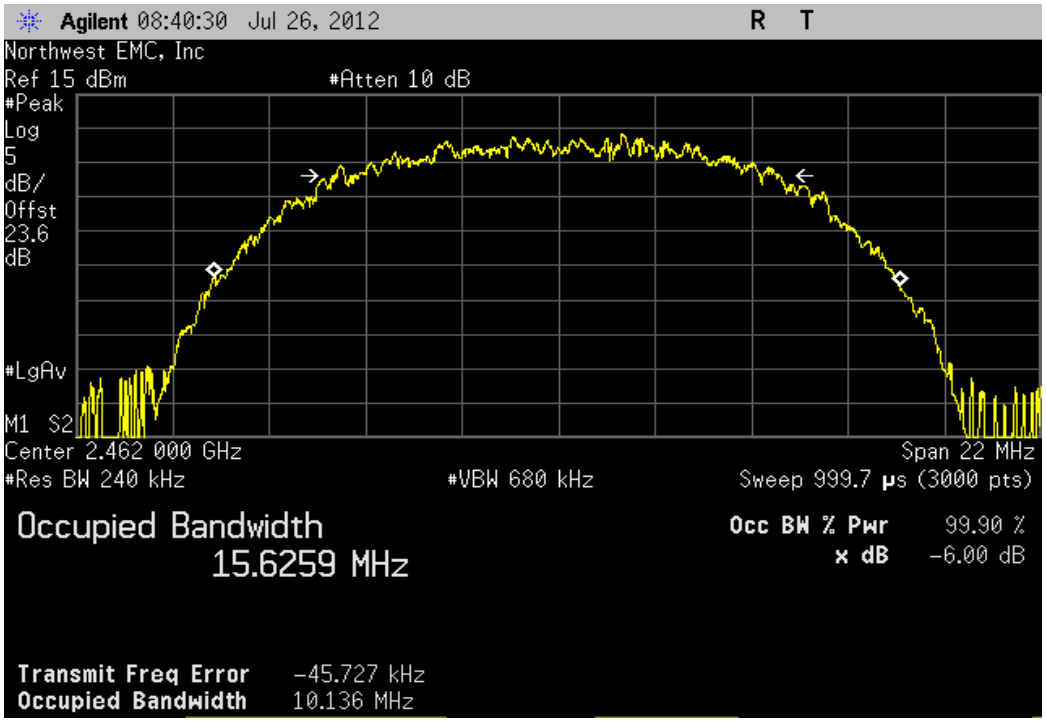
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				10.083 MHz	> 500 kHz	Pass



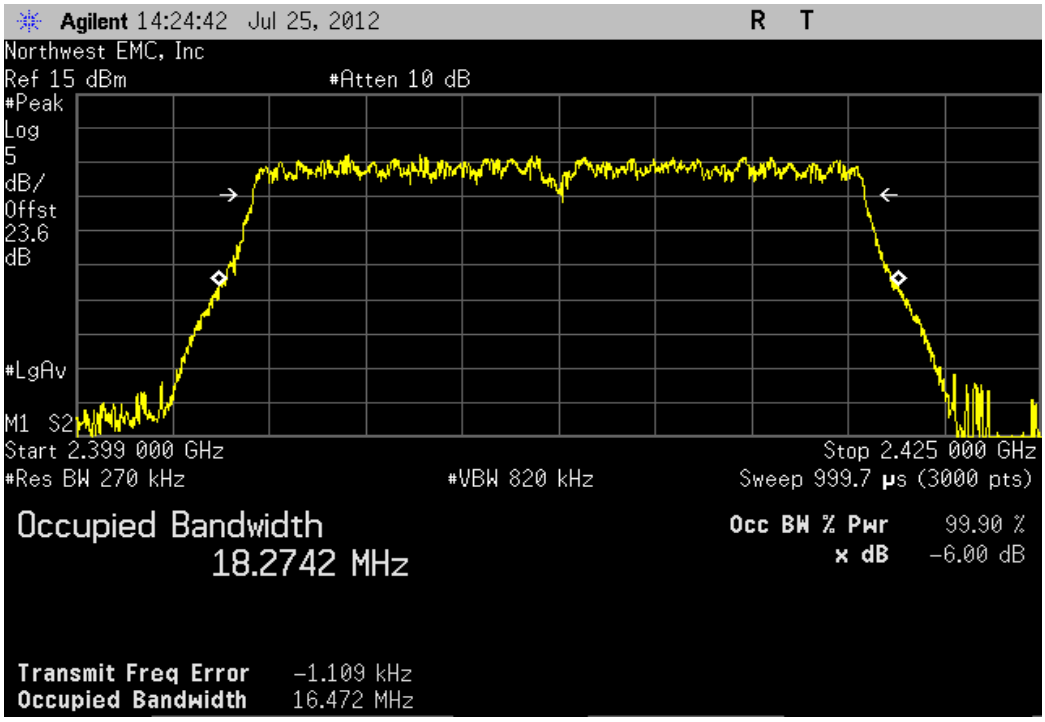
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				10.136 MHz	> 500 kHz	Pass



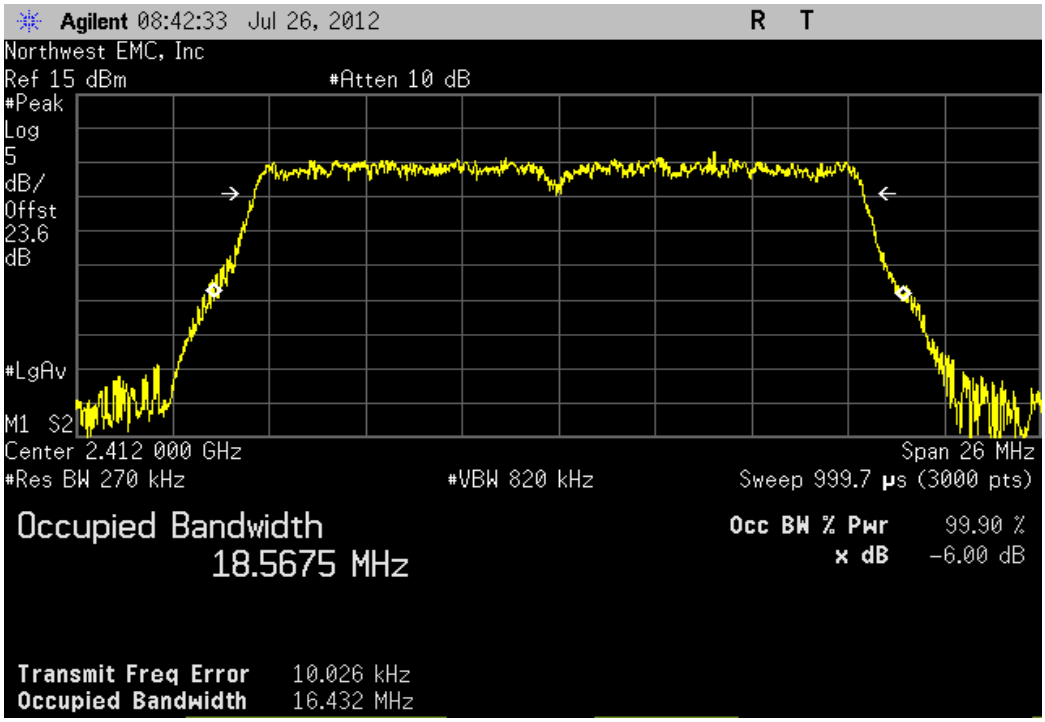
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				16.472 MHz	> 500 kHz	Pass



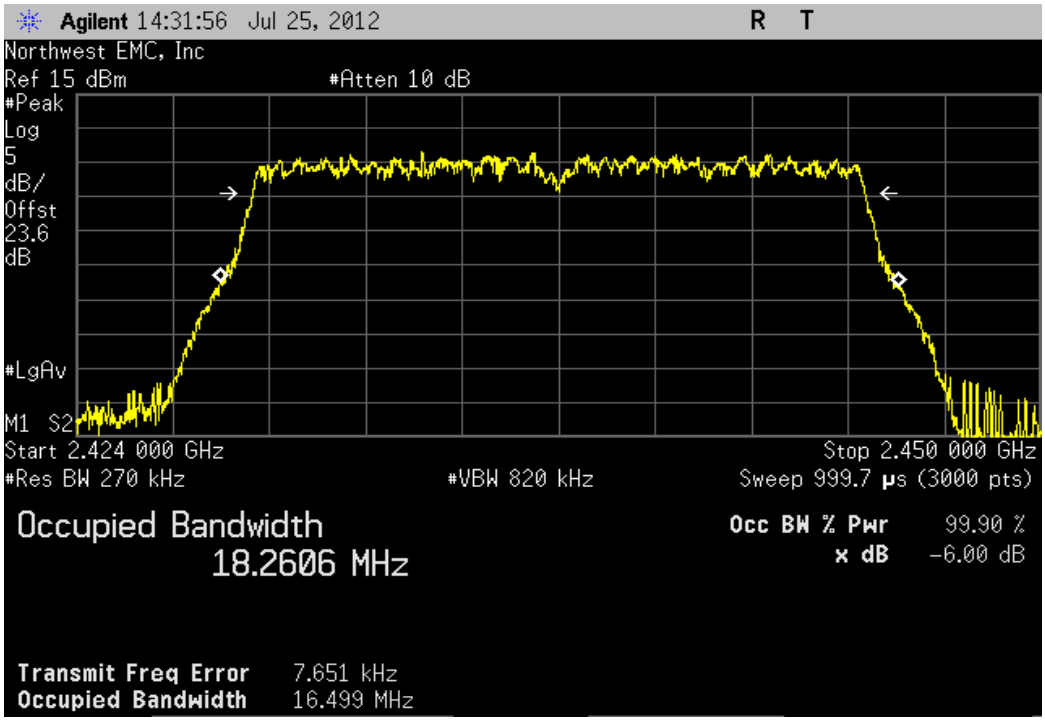
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				16.432 MHz	> 500 kHz	Pass



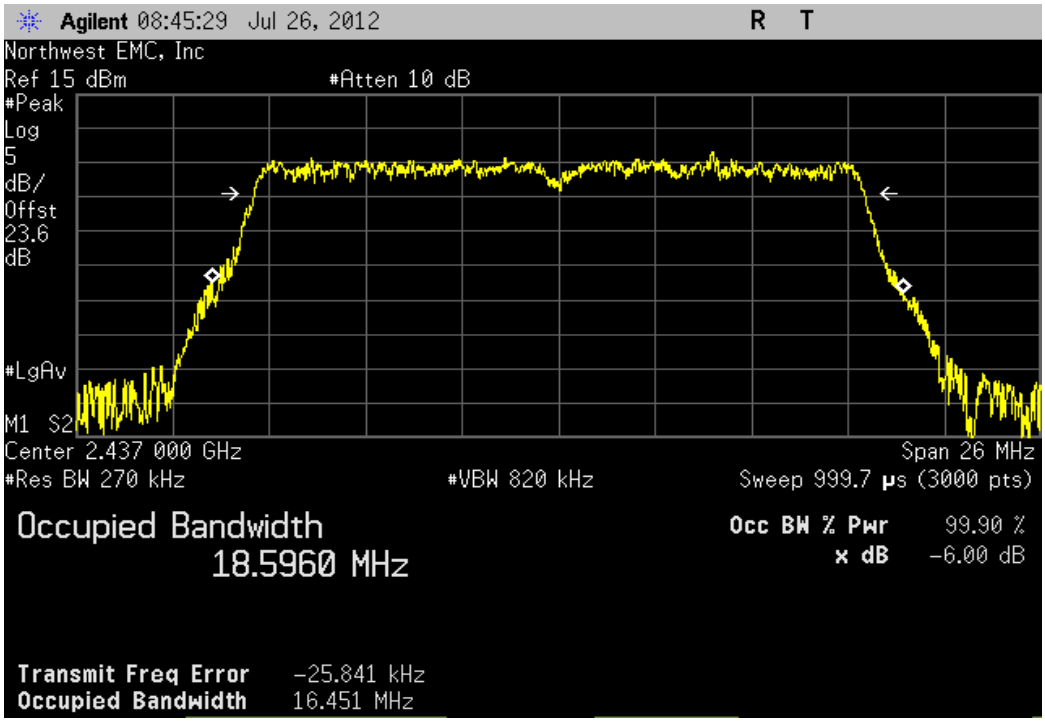
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				16.499 MHz	> 500 kHz	Pass



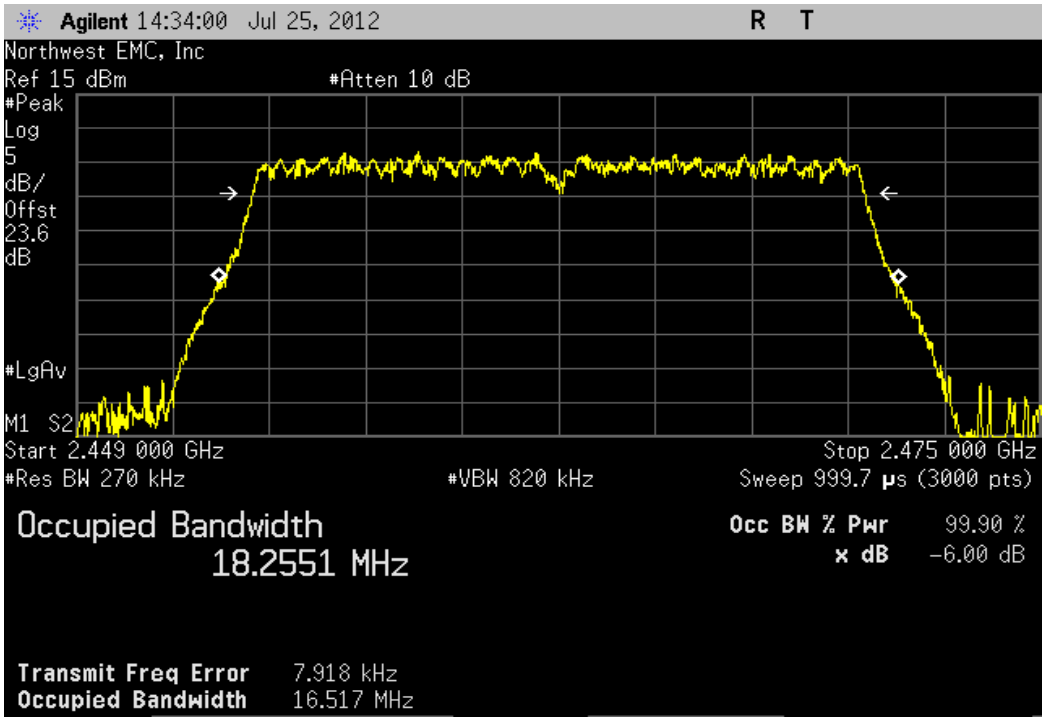
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				16.451 MHz	> 500 kHz	Pass



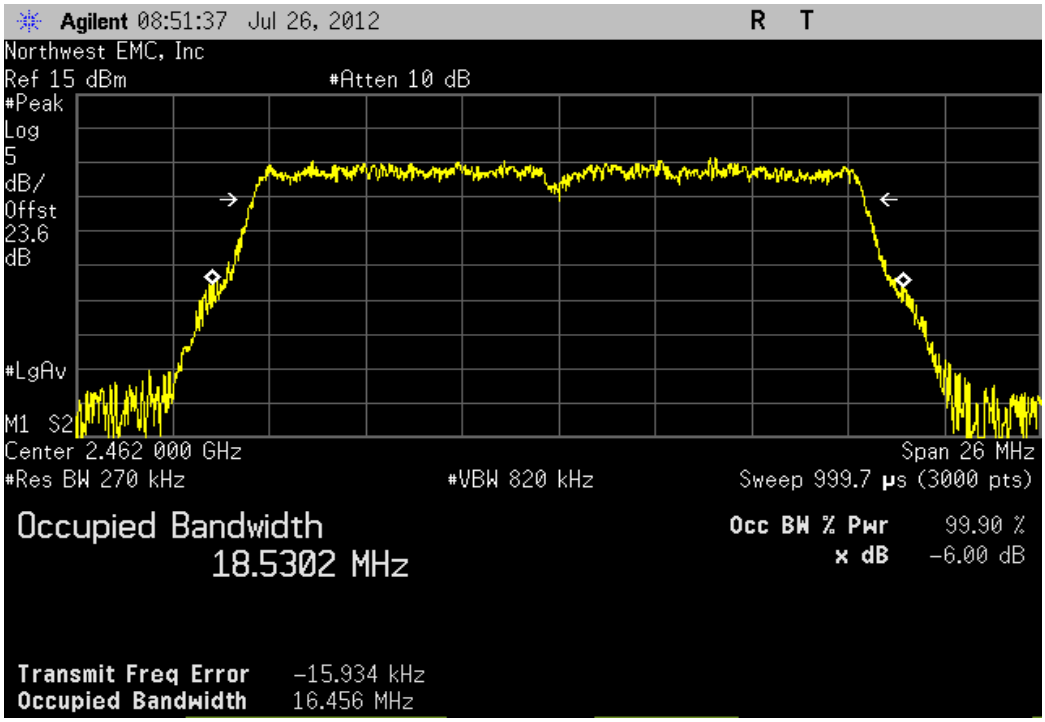
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				16.517 MHz	> 500 kHz	Pass



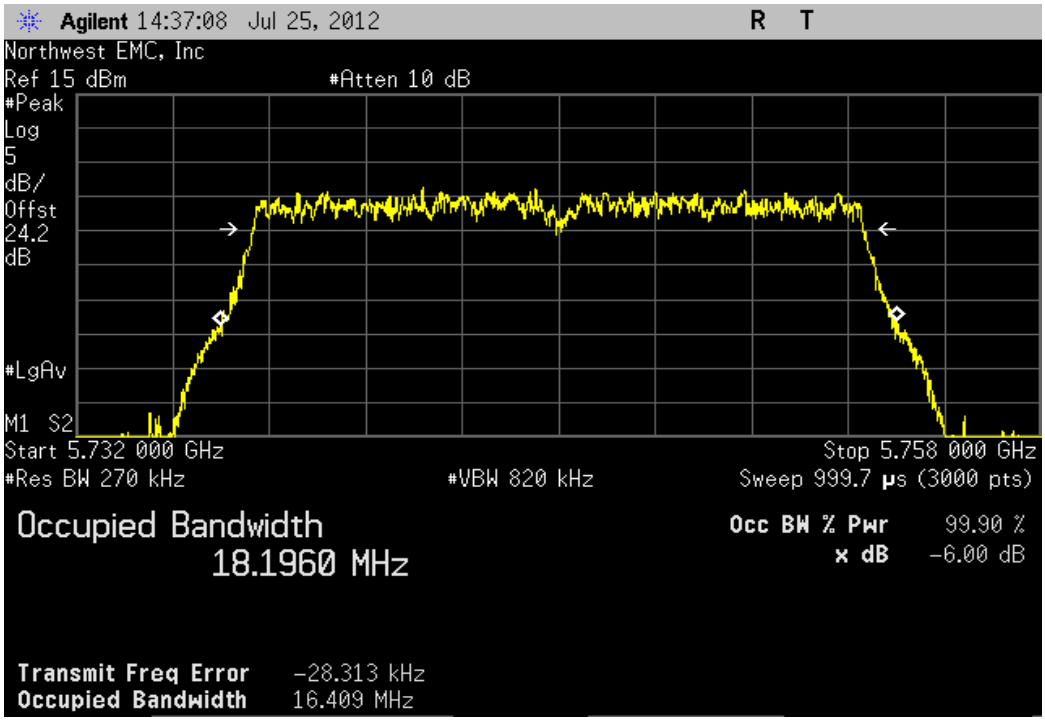
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				16.456 MHz	> 500 kHz	Pass



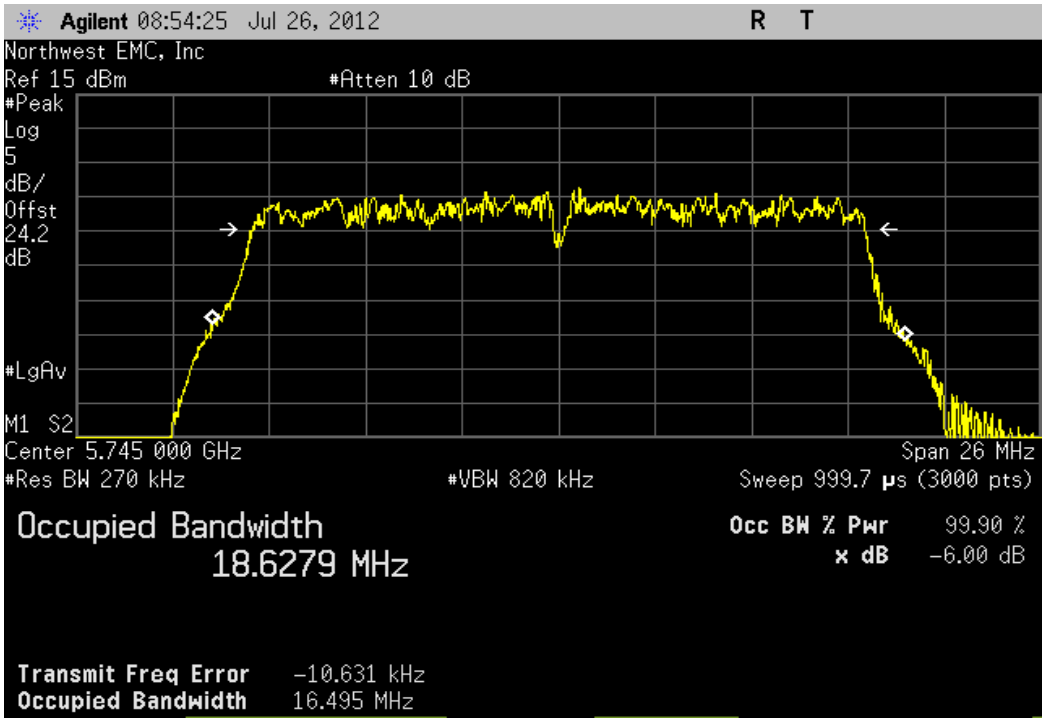
20MHz, 802.11(g) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				16.409 MHz	> 500 kHz	Pass



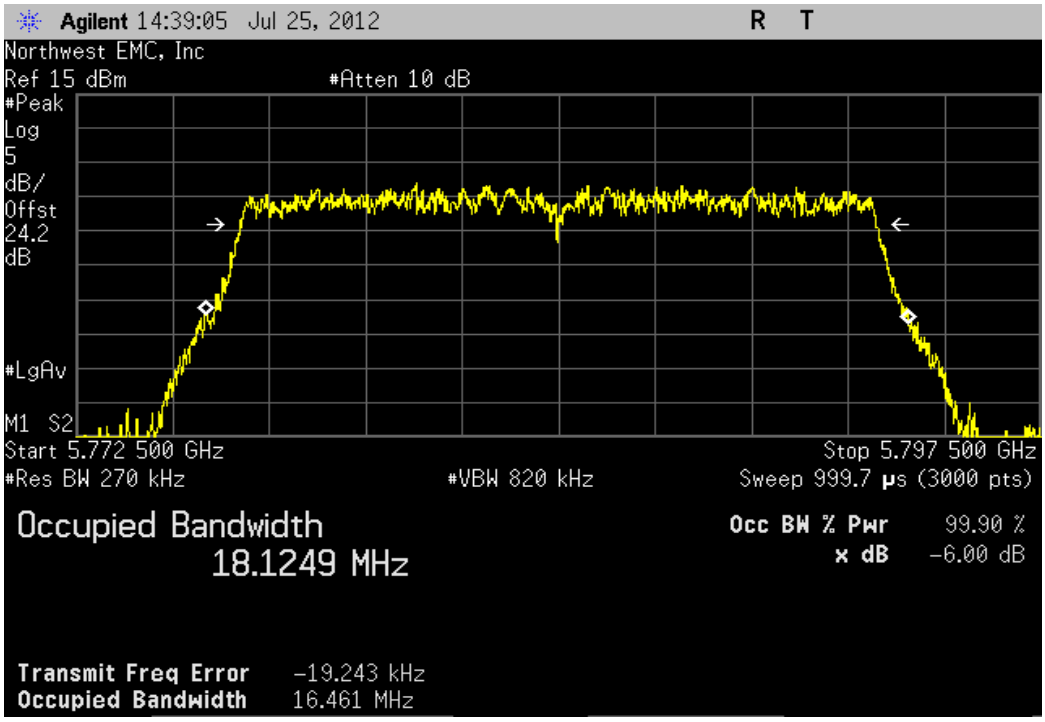
20MHz, 802.11(g) 6 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				16.495 MHz	> 500 kHz	Pass



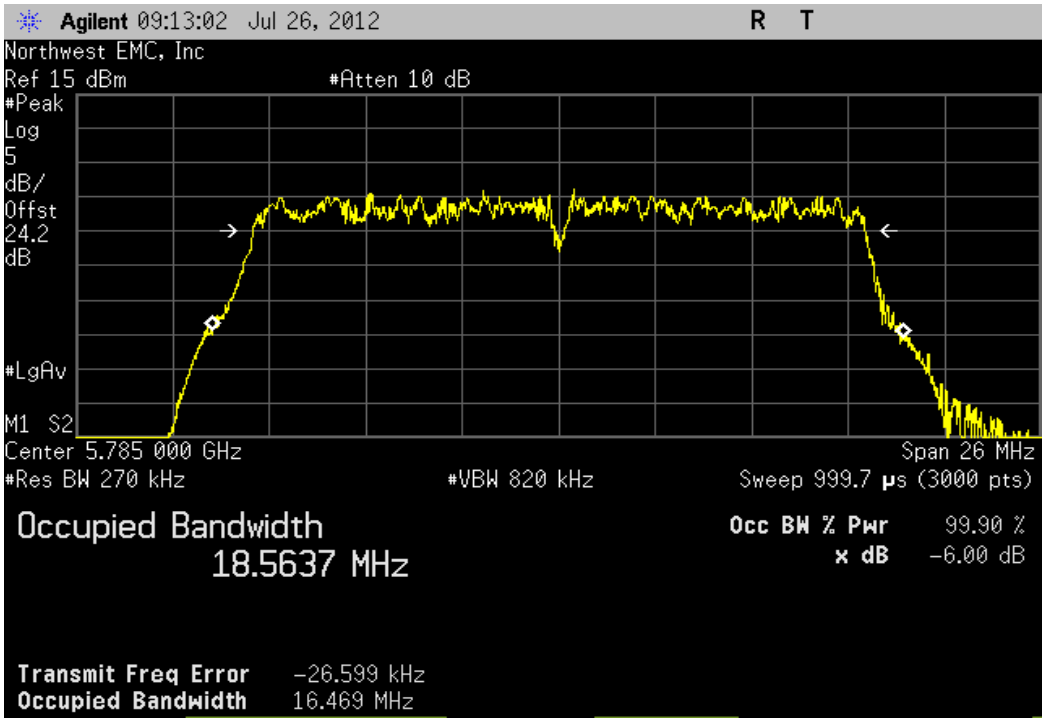
20MHz, 802.11(g) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				16.461 MHz	> 500 kHz	Pass



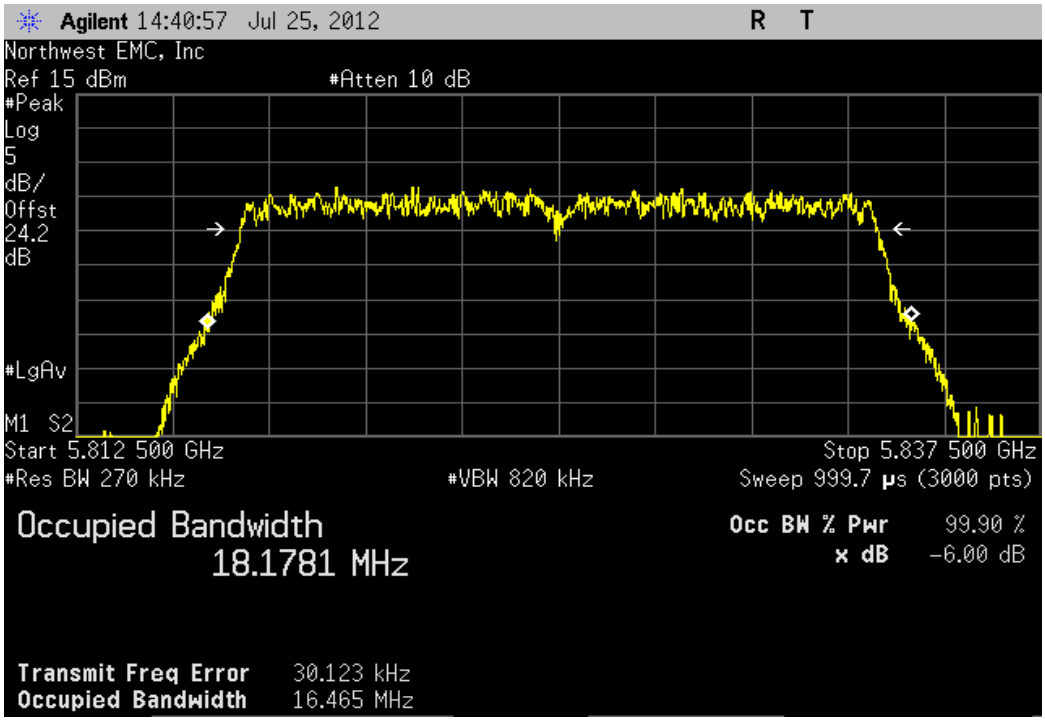
20MHz, 802.11(g) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				16.469 MHz	> 500 kHz	Pass



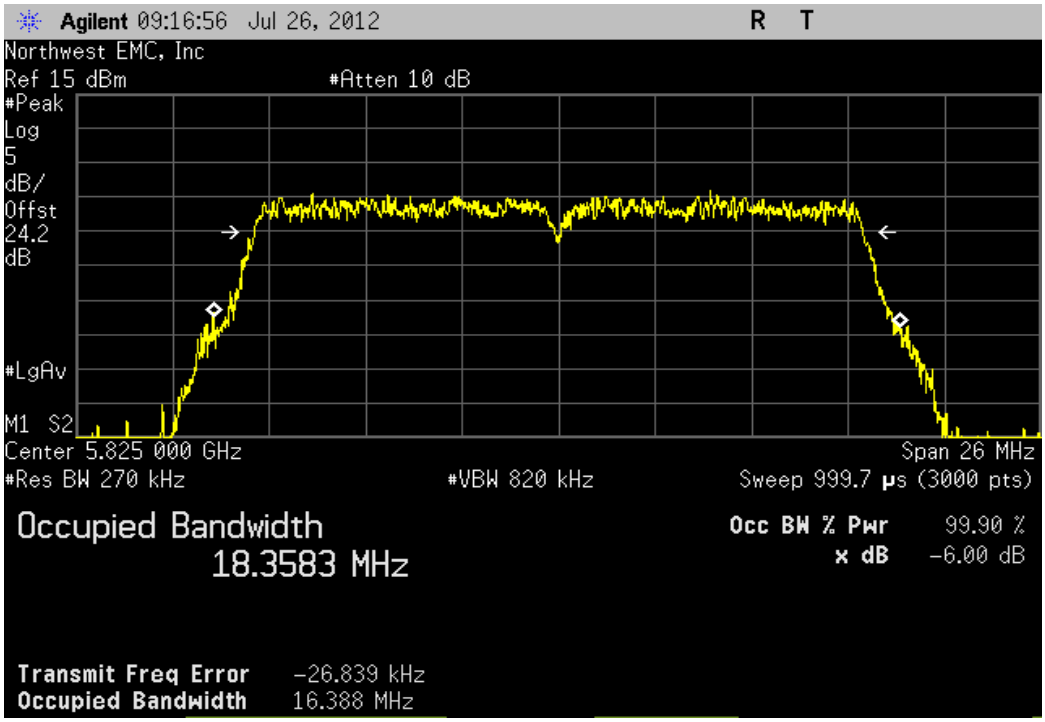
20MHz, 802.11(g) 6 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				16.465 MHz	> 500 kHz	Pass



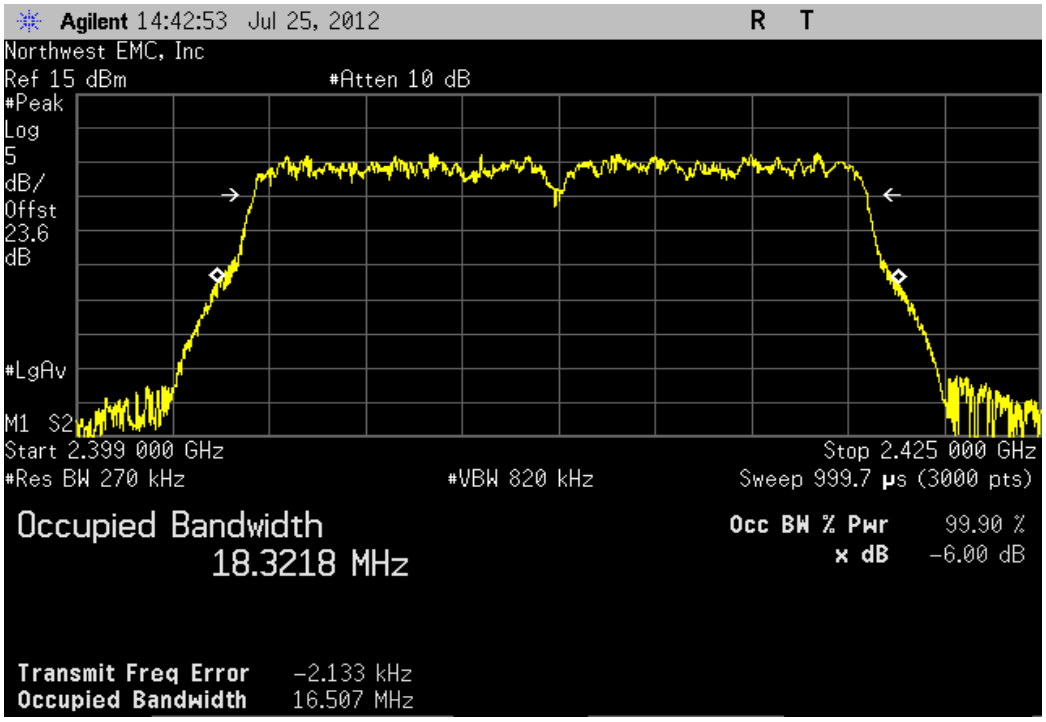
20MHz, 802.11(g) 6 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				16.388 MHz	> 500 kHz	Pass



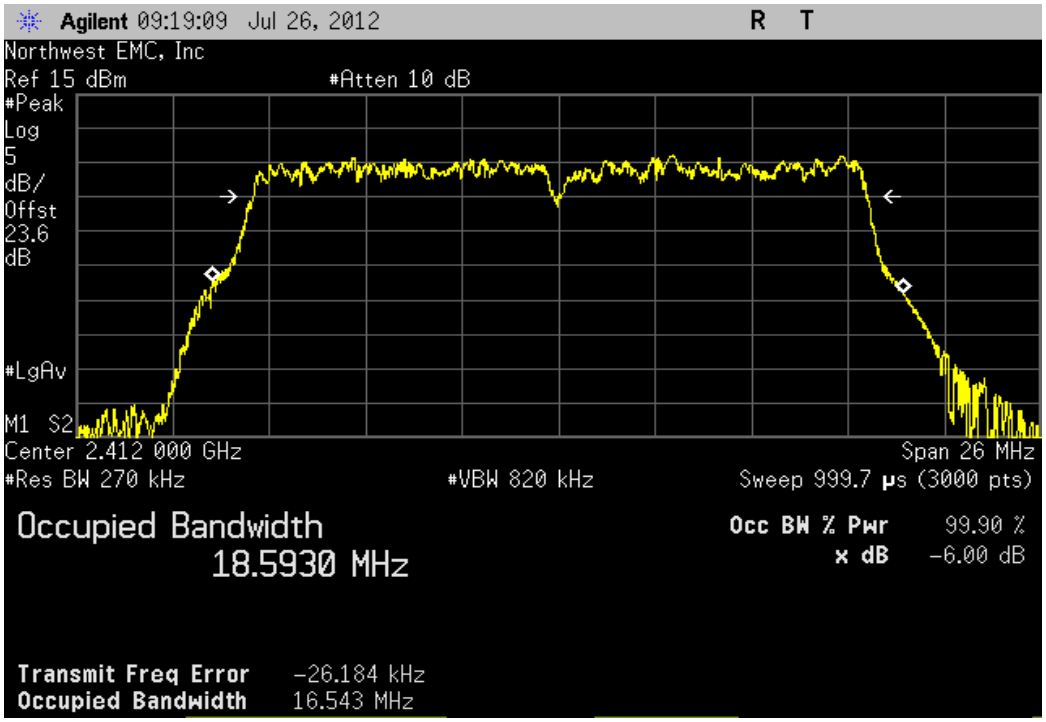
20MHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				16.507 MHz	> 500 kHz	Pass



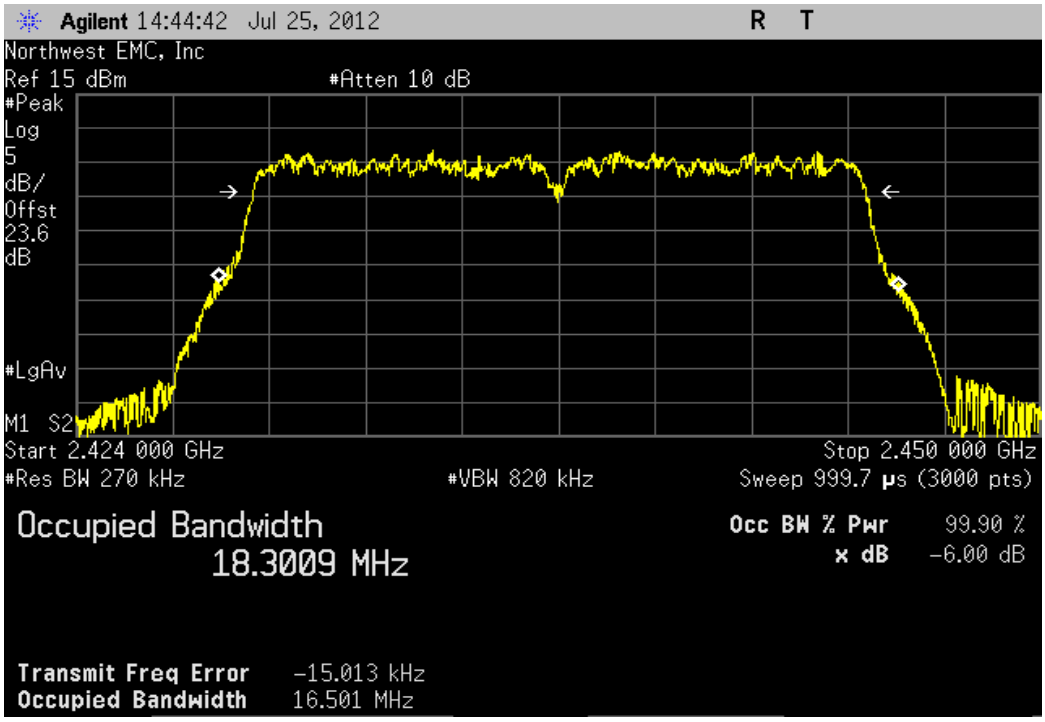
20MHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				16.543 MHz	> 500 kHz	Pass



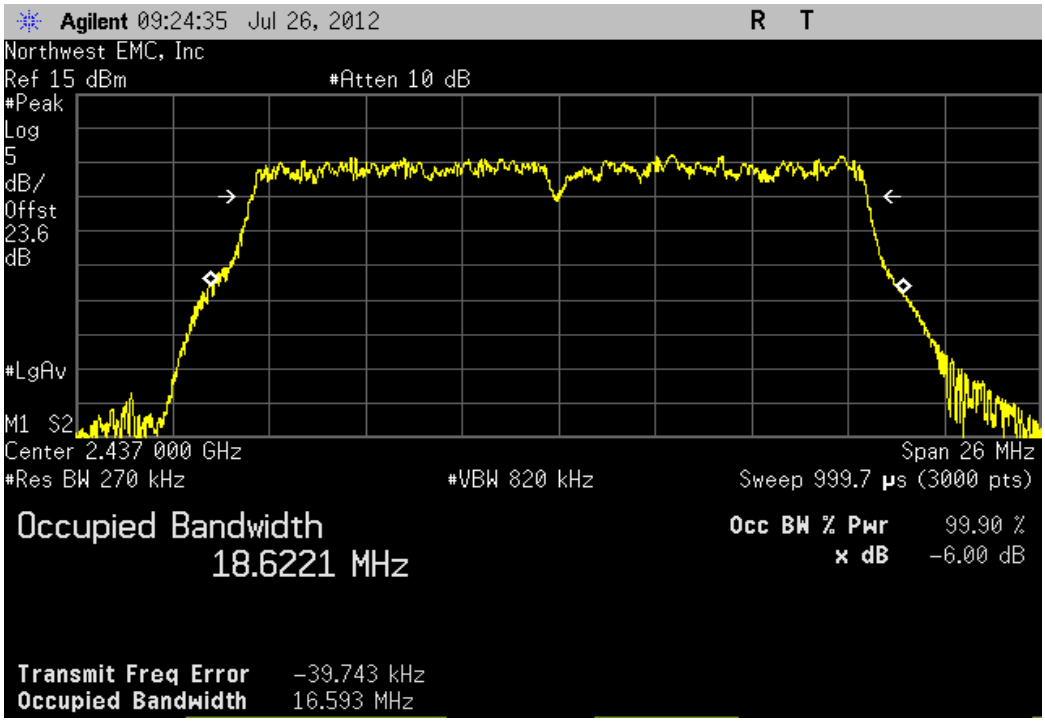
20MHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				16.501 MHz	> 500 kHz	Pass



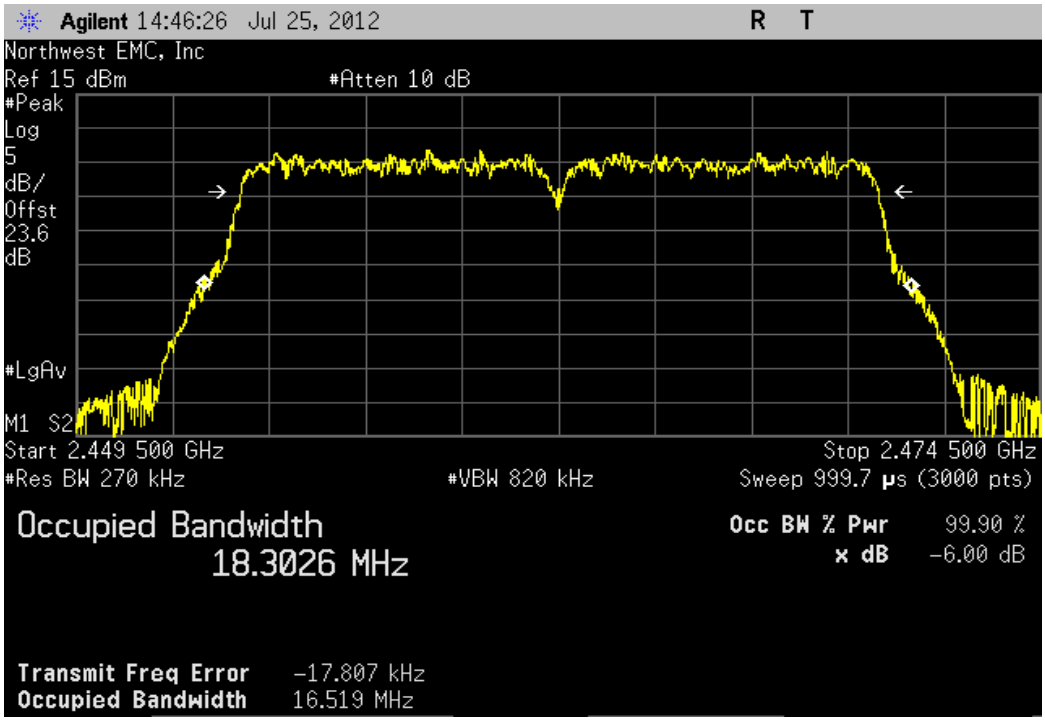
20MHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				16.593 MHz	> 500 kHz	Pass



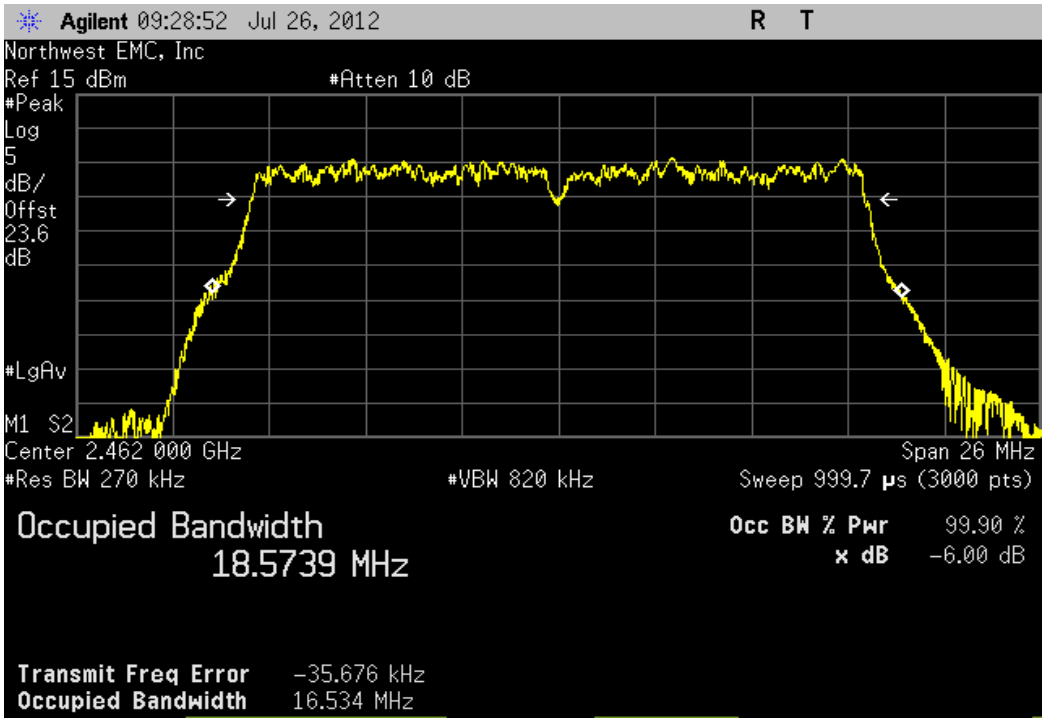
20MHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				16.519 MHz	> 500 kHz	Pass



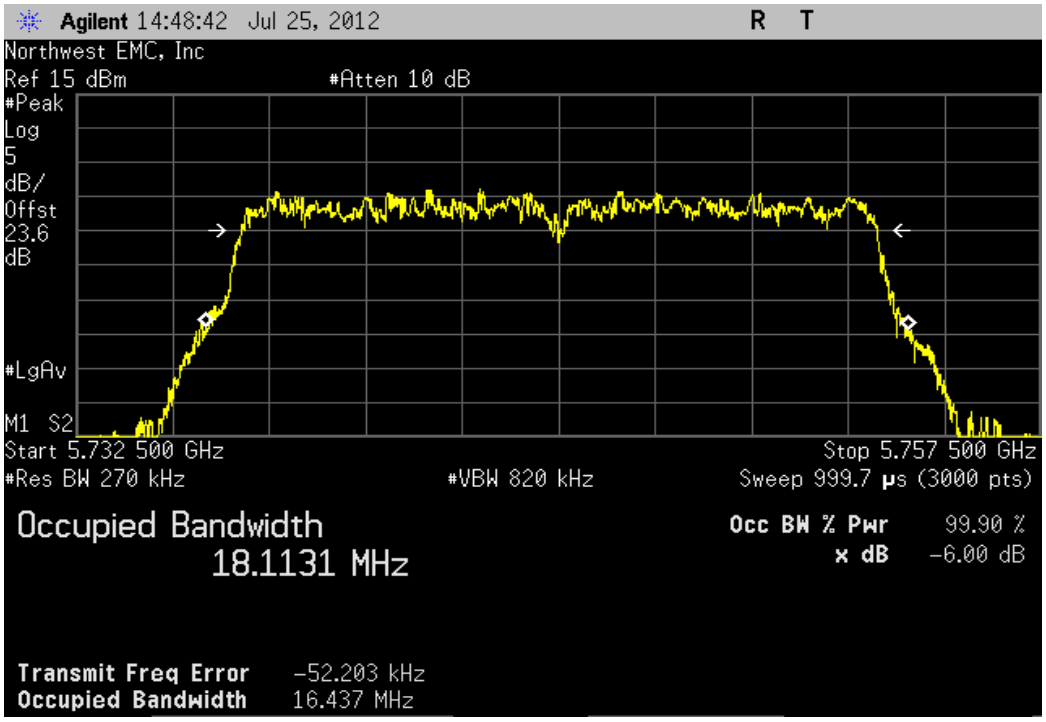
20MHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				16.534 MHz	> 500 kHz	Pass



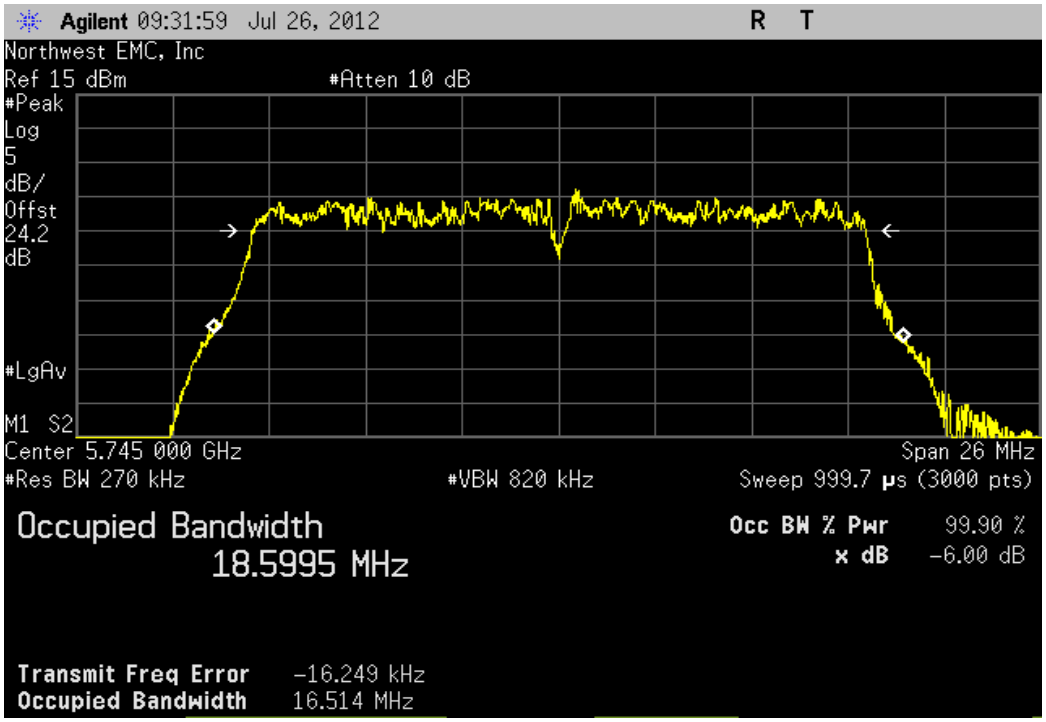
20MHz, 802.11(g) 36 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				16.437 MHz	> 500 kHz	Pass



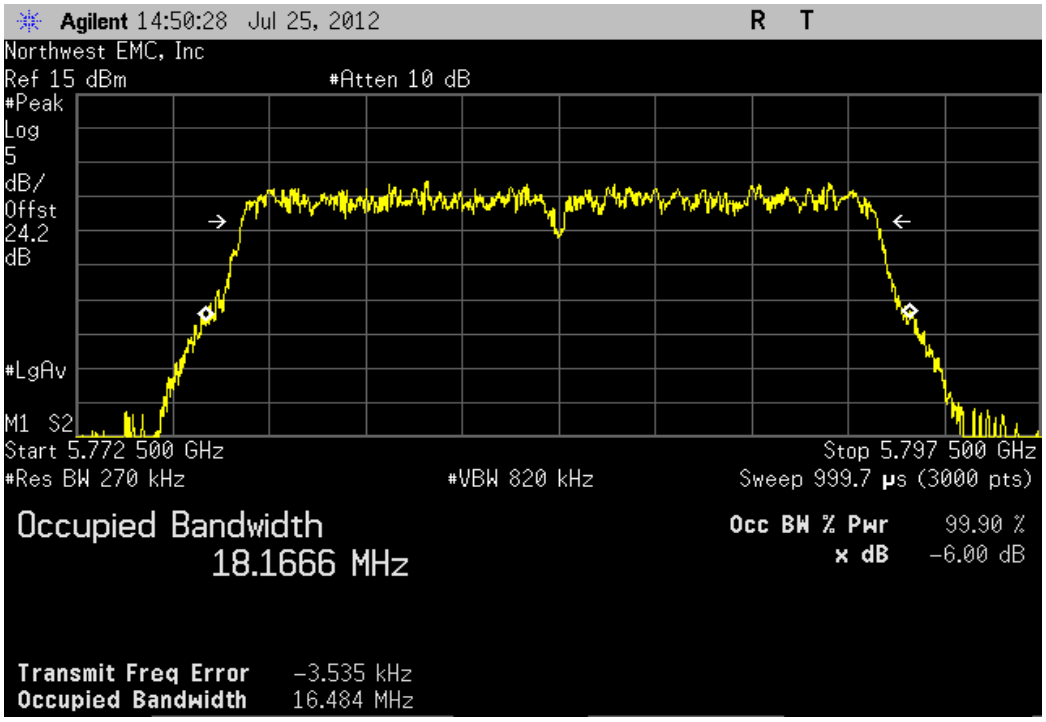
20MHz, 802.11(g) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				16.514 MHz	> 500 kHz	Pass



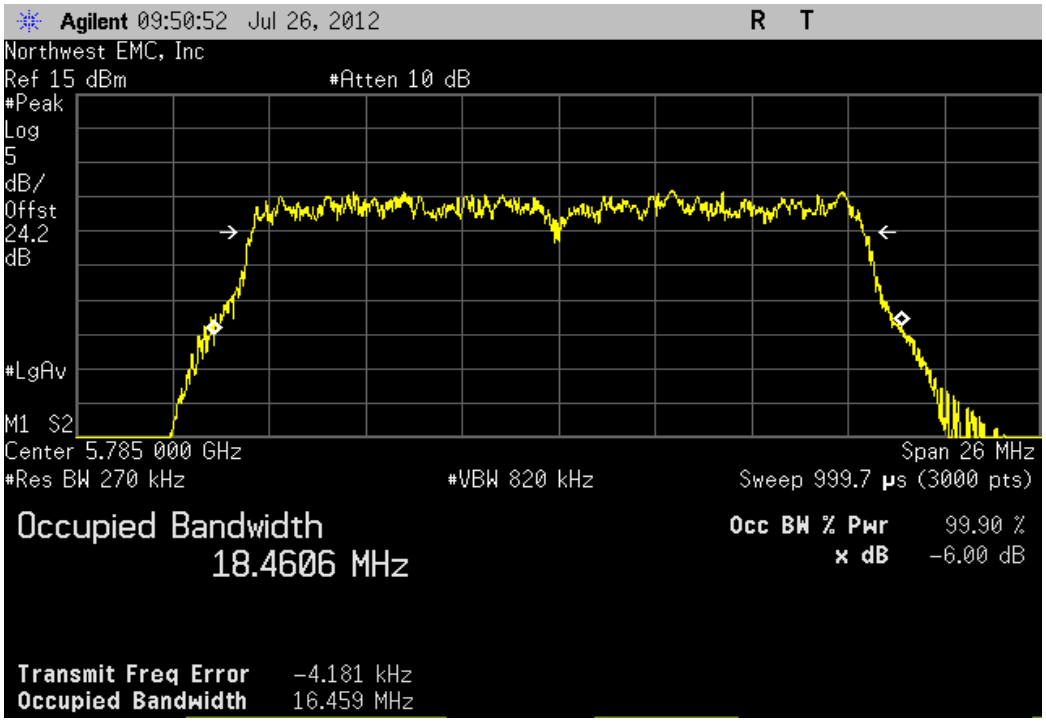
20MHz, 802.11(g) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				16.484 MHz	> 500 kHz	Pass



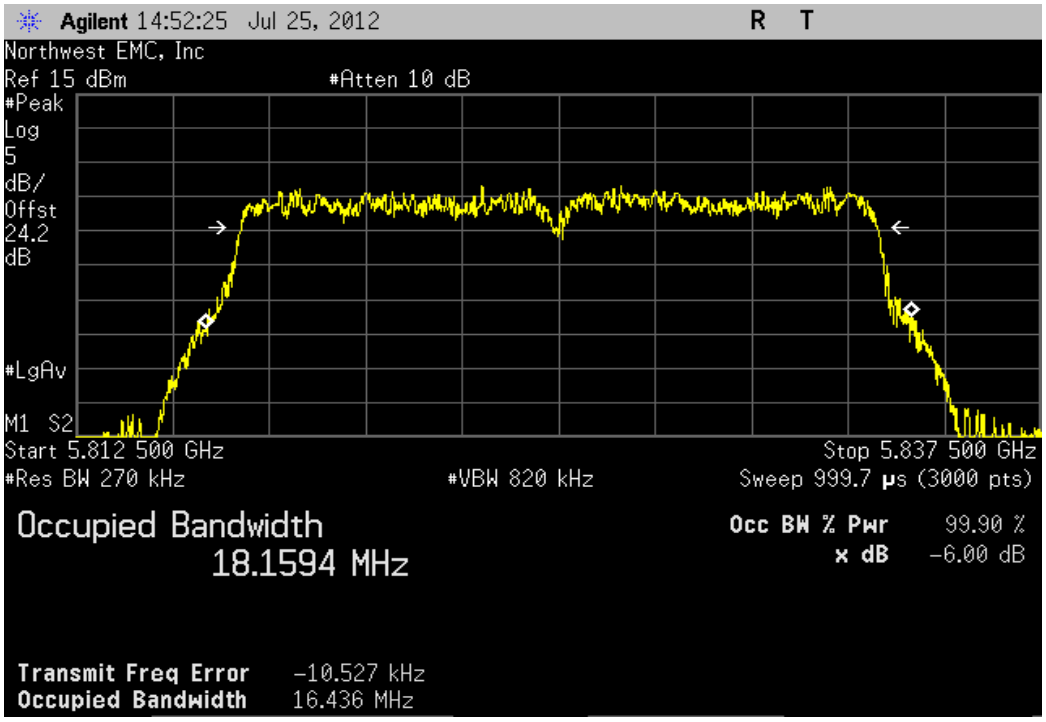
20MHz, 802.11(g) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				16.459 MHz	> 500 kHz	Pass



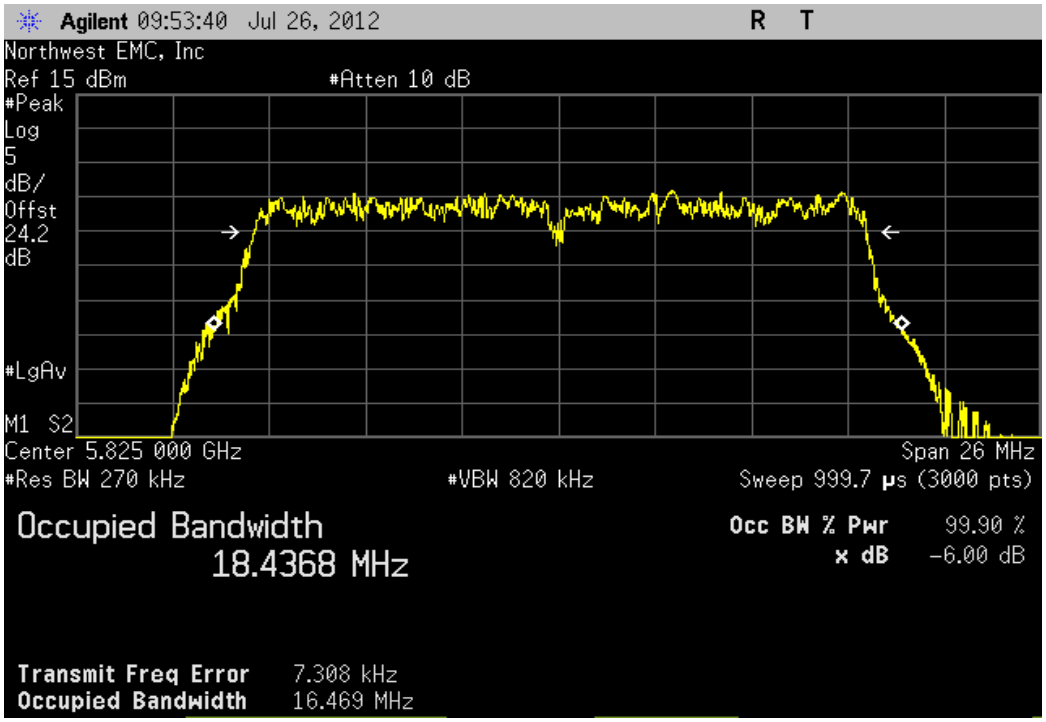
20MHz, 802.11(g) 36 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				16.436 MHz	> 500 kHz	Pass



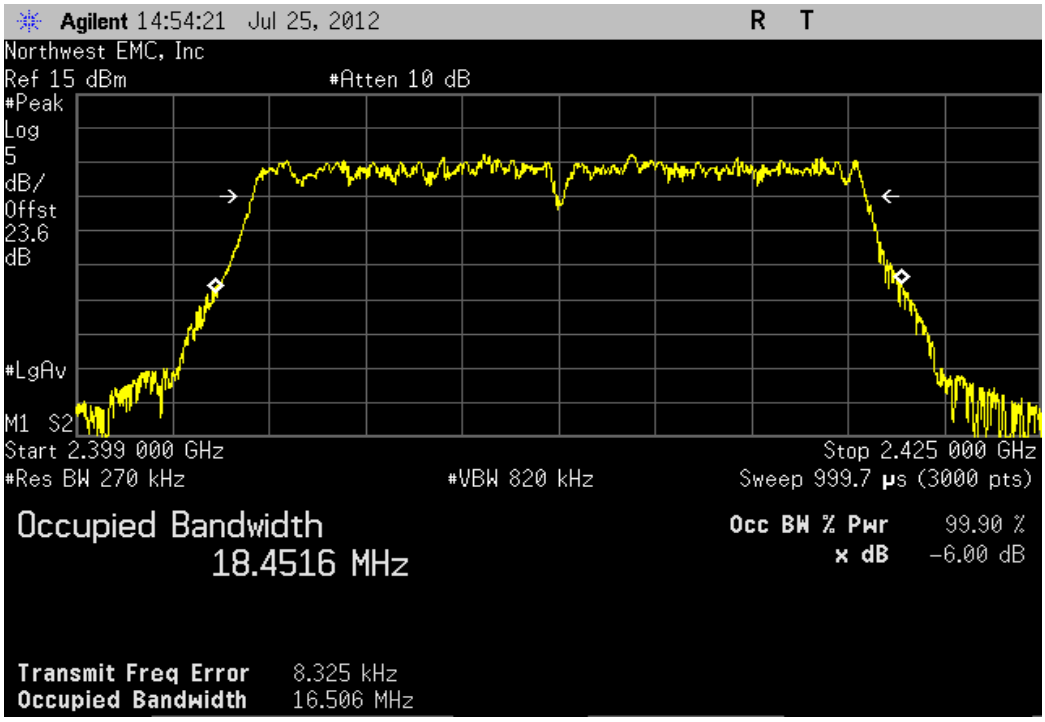
20MHz, 802.11(g) 36 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				16.469 MHz	> 500 kHz	Pass



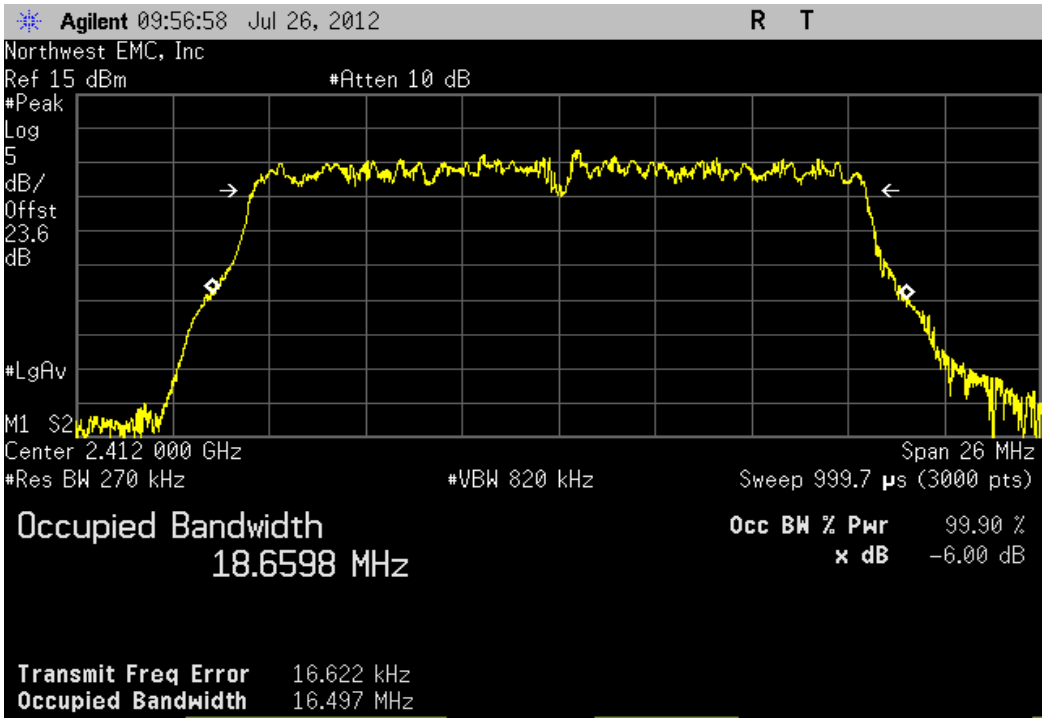
20MHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				16.506 MHz	> 500 kHz	Pass



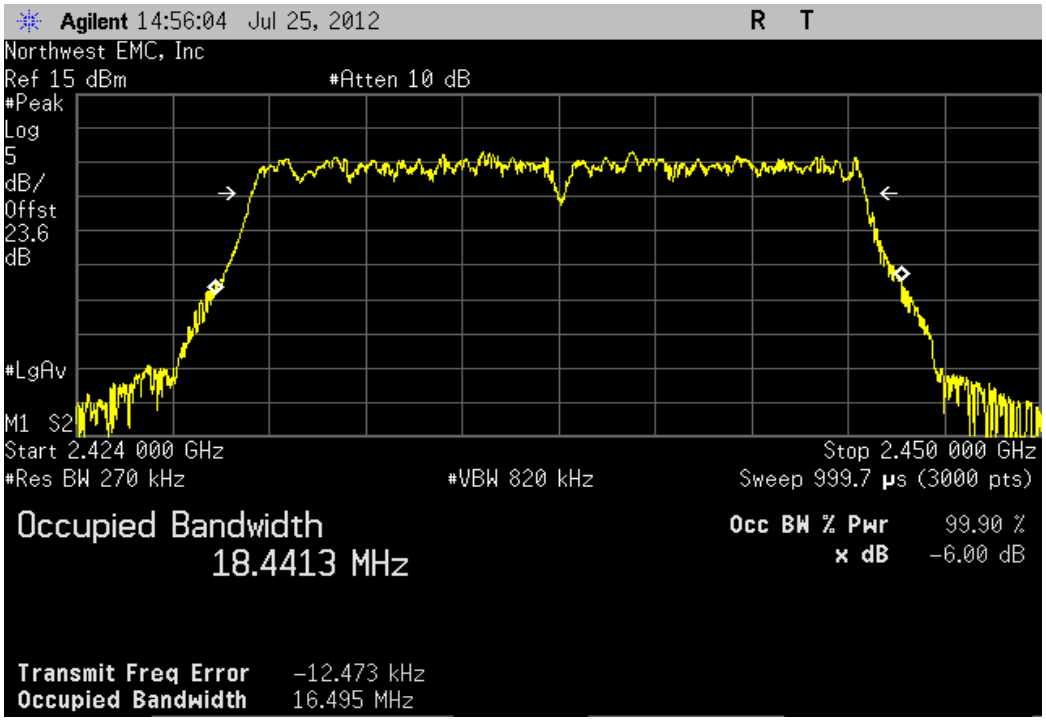
20MHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				16.497 MHz	> 500 kHz	Pass



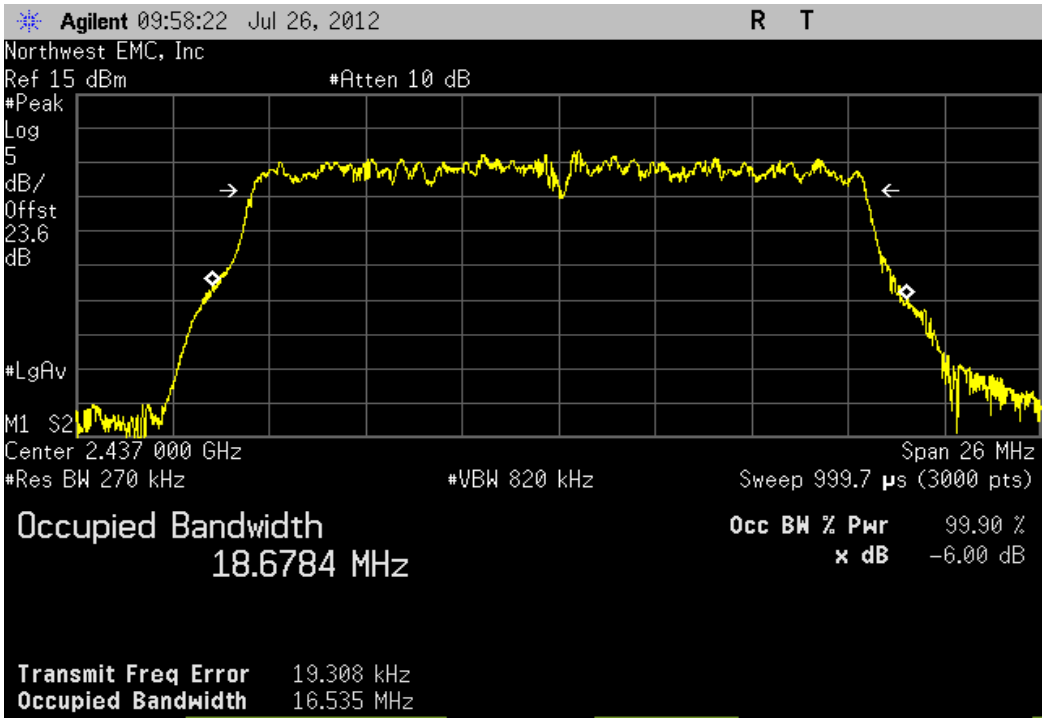
20MHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				16.495 MHz	> 500 kHz	Pass



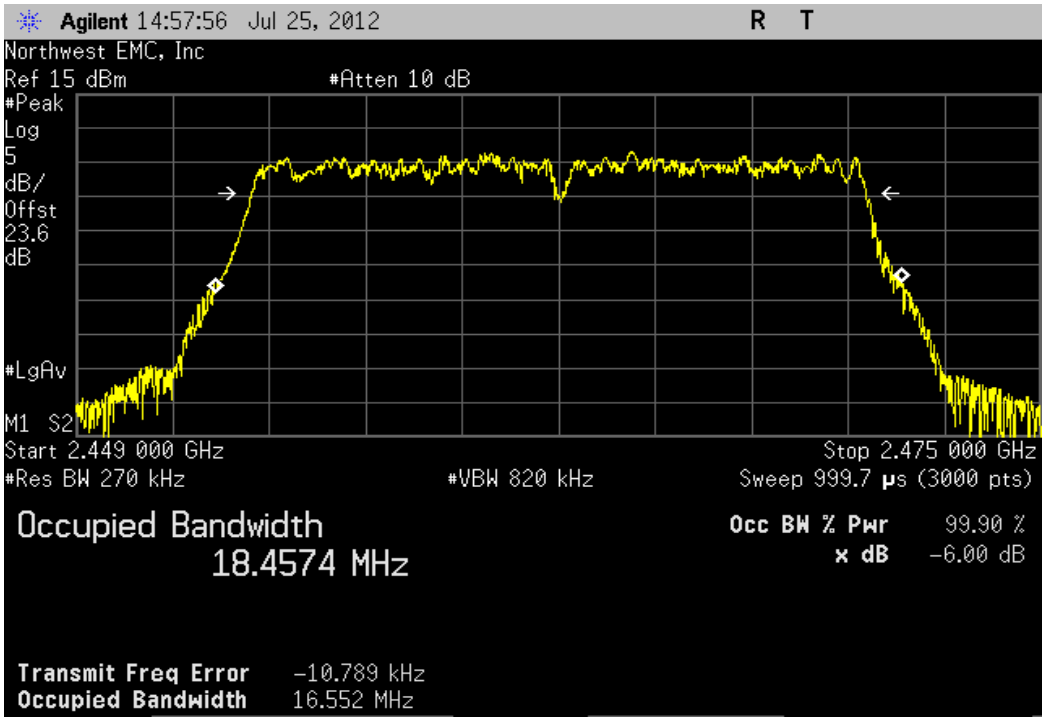
20MHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				16.535 MHz	> 500 kHz	Pass



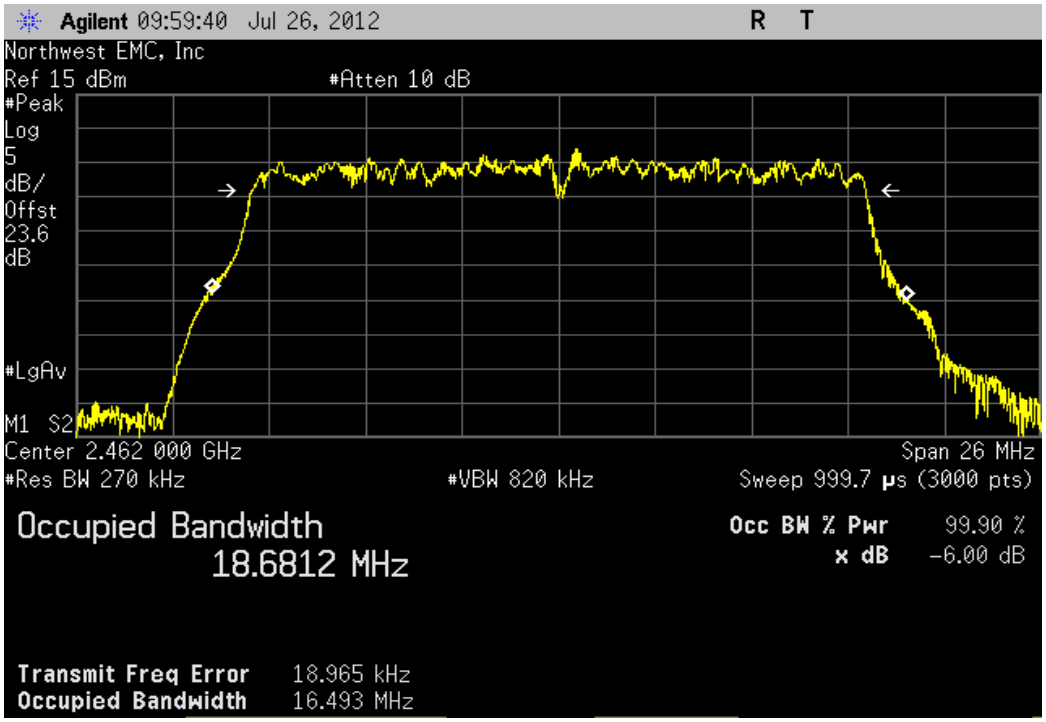
20MHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				16.552 MHz	> 500 kHz	Pass



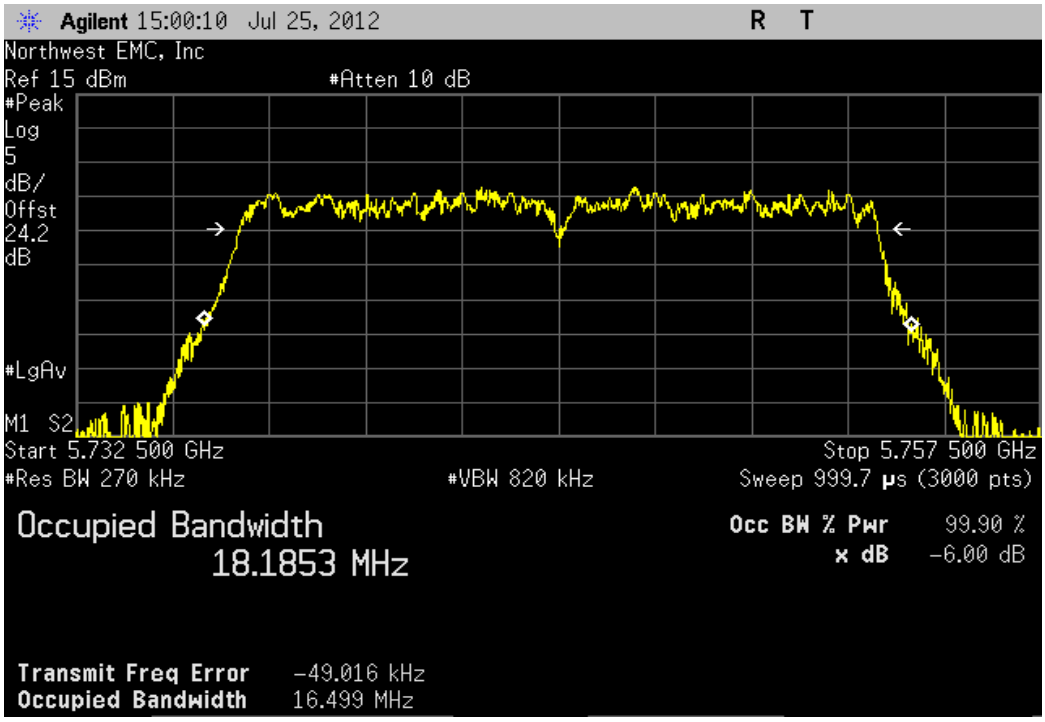
20MHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				16.493 MHz	> 500 kHz	Pass



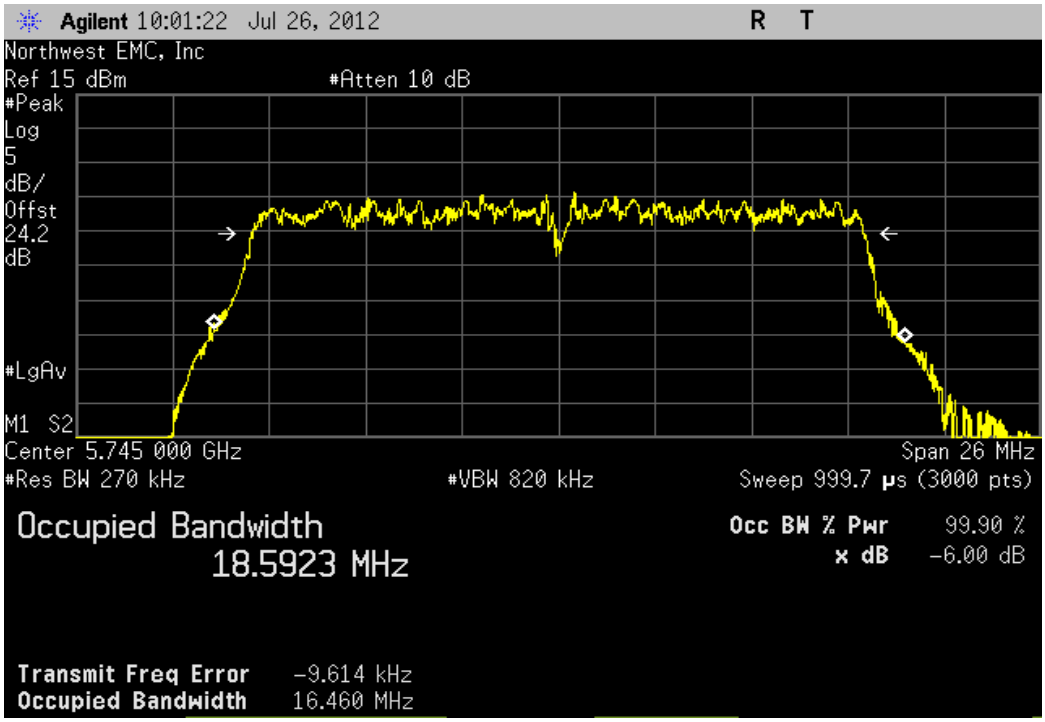
20MHz, 802.11(g) 54 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				16.499 MHz	> 500 kHz	Pass



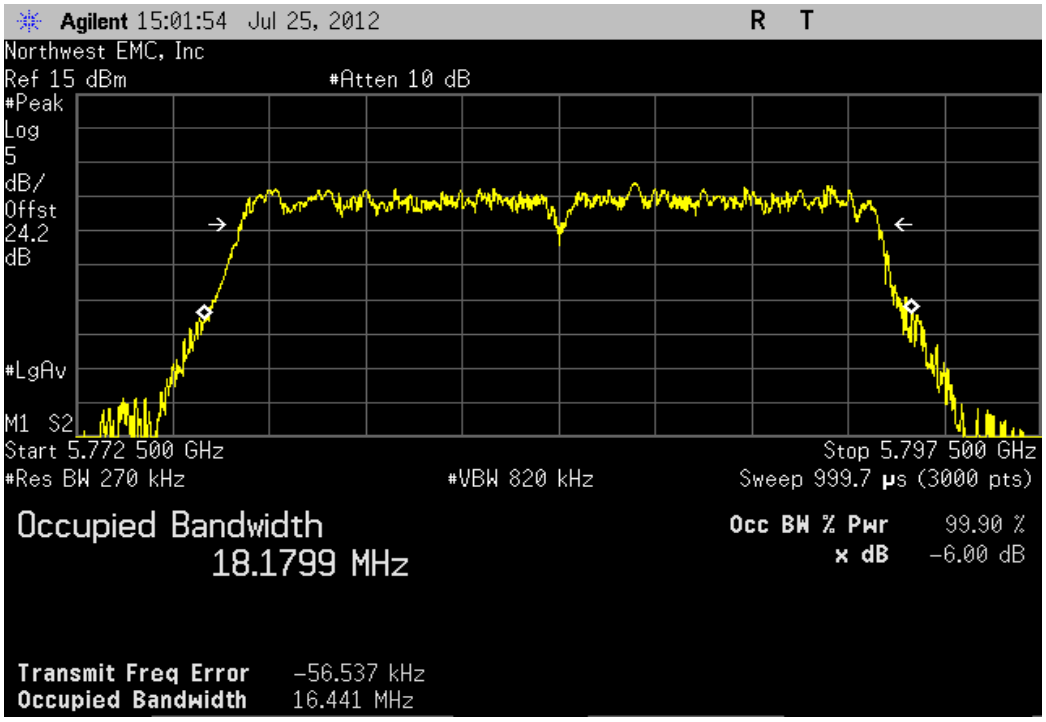
20MHz, 802.11(g) 54 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				16.46 MHz	> 500 kHz	Pass



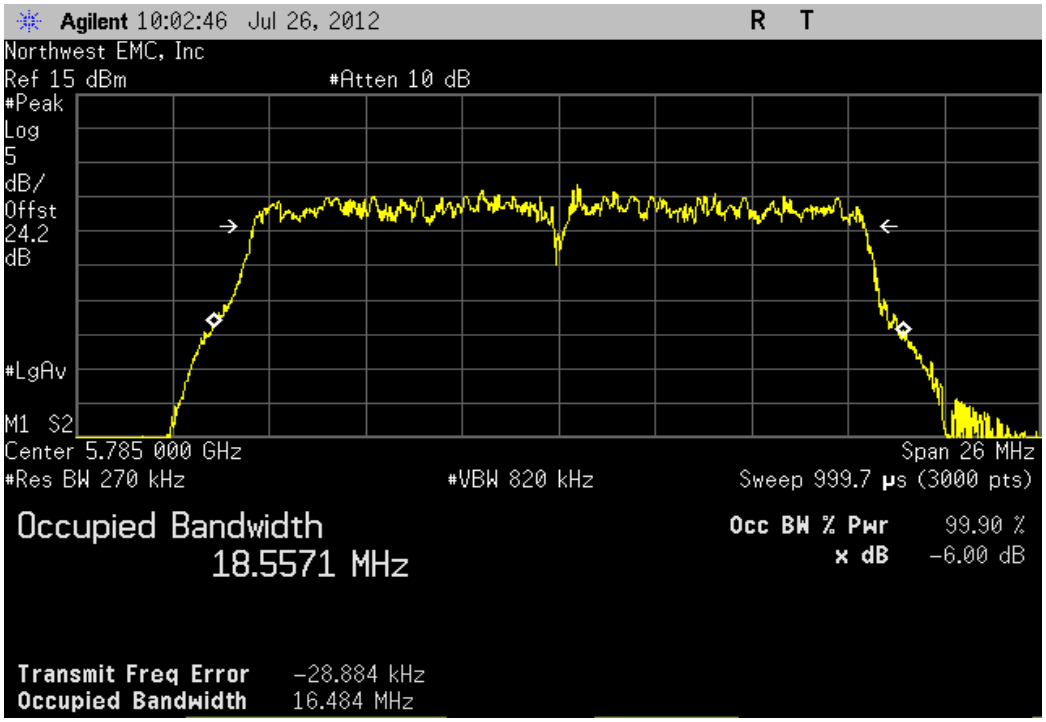
20MHz, 802.11(g) 54 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				16.441 MHz	> 500 kHz	Pass



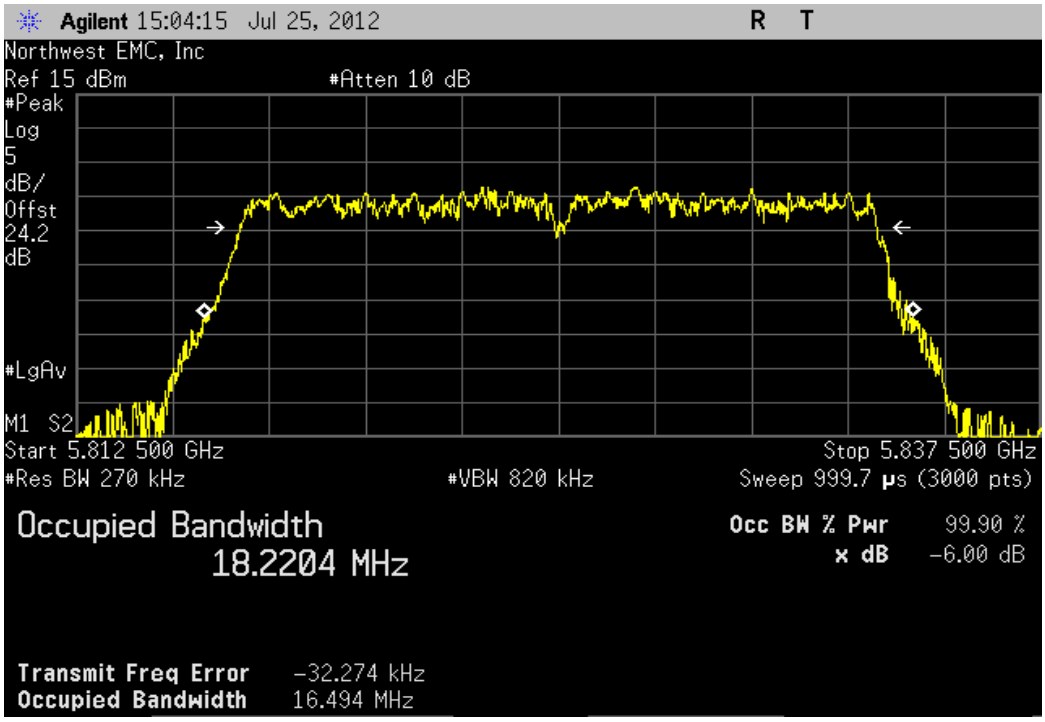
20MHz, 802.11(g) 54 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				16.484 MHz	> 500 kHz	Pass



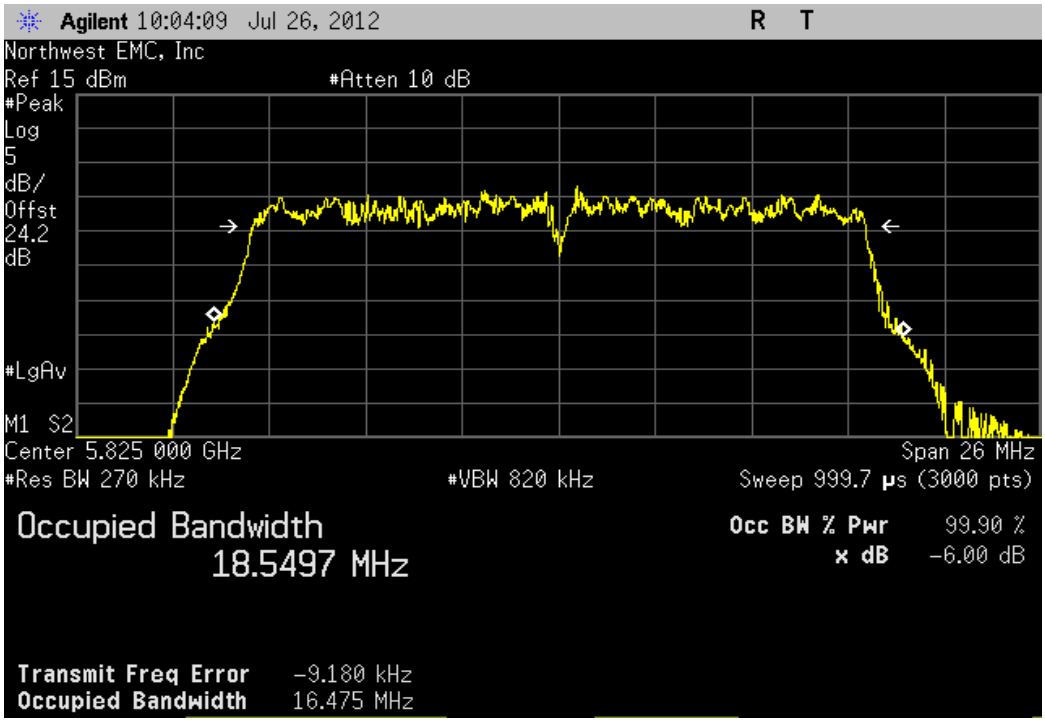
20MHz, 802.11(g) 54 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				16.494 MHz	> 500 kHz	Pass



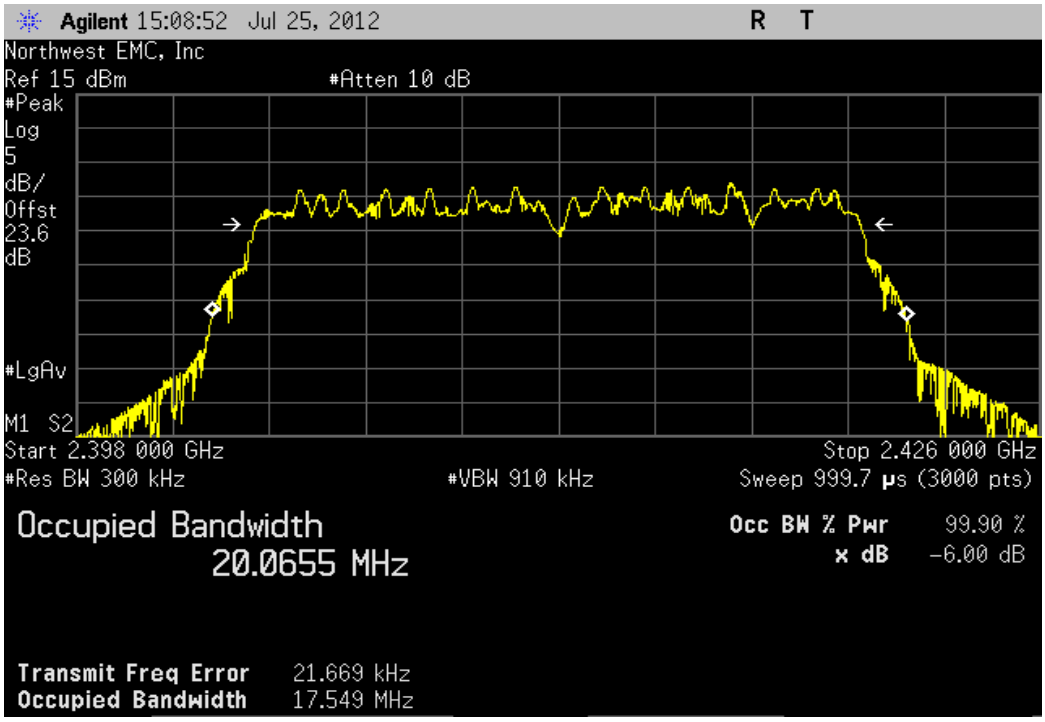
20MHz, 802.11(g) 54 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				16.475 MHz	> 500 kHz	Pass



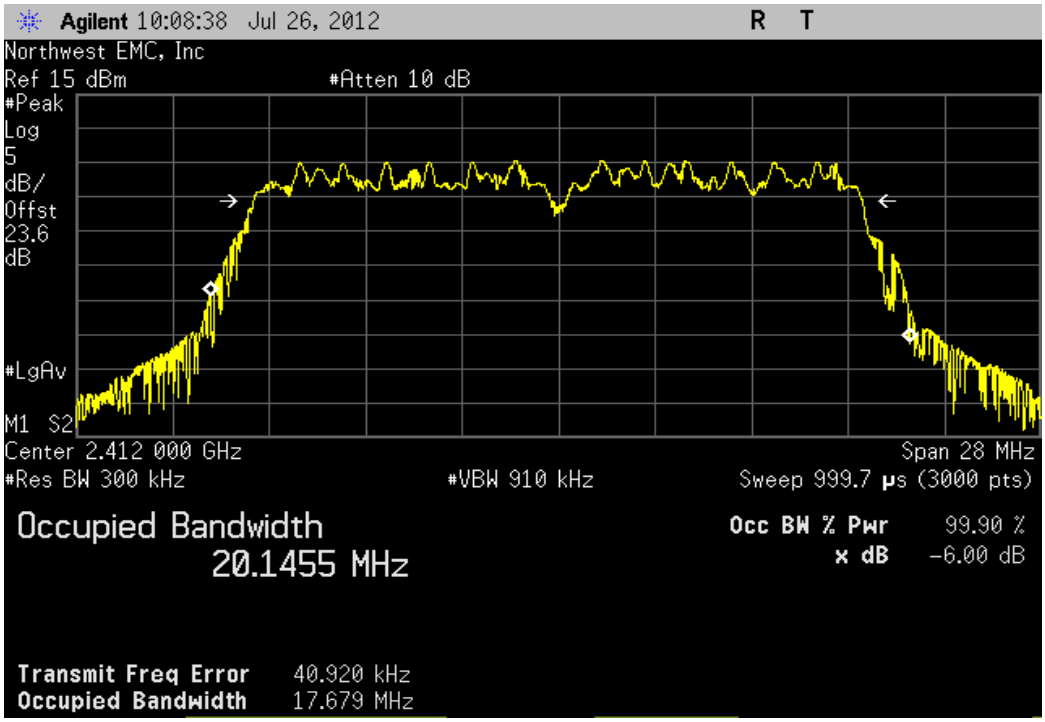
20MHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				17.549 MHz	> 500 kHz	Pass



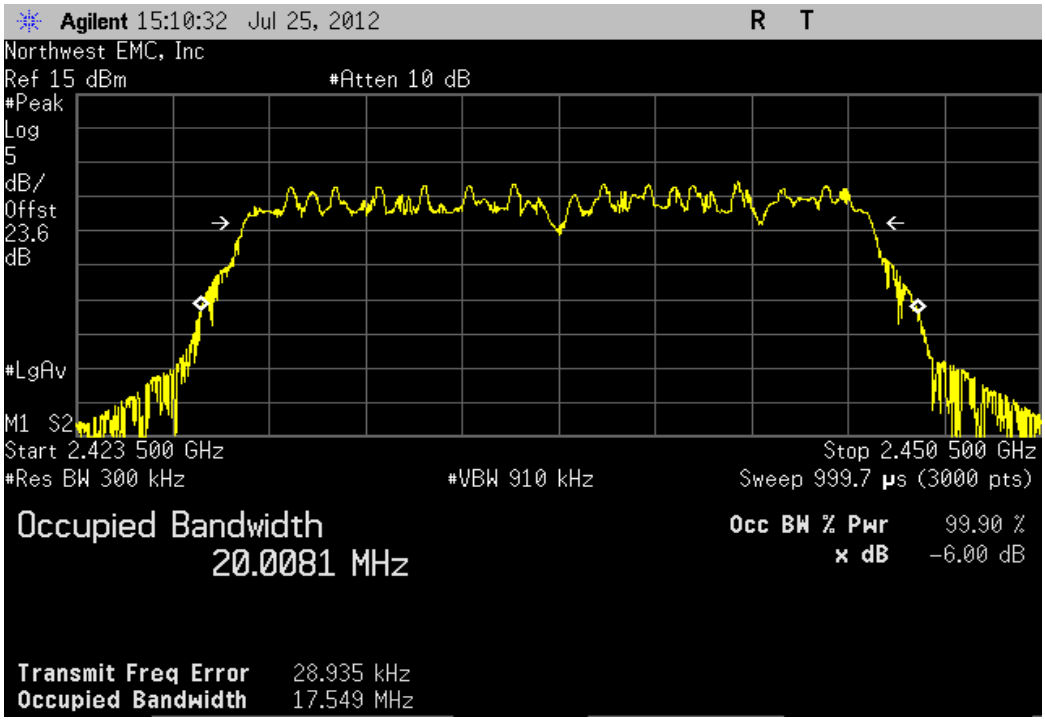
20MHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				17.679 MHz	> 500 kHz	Pass



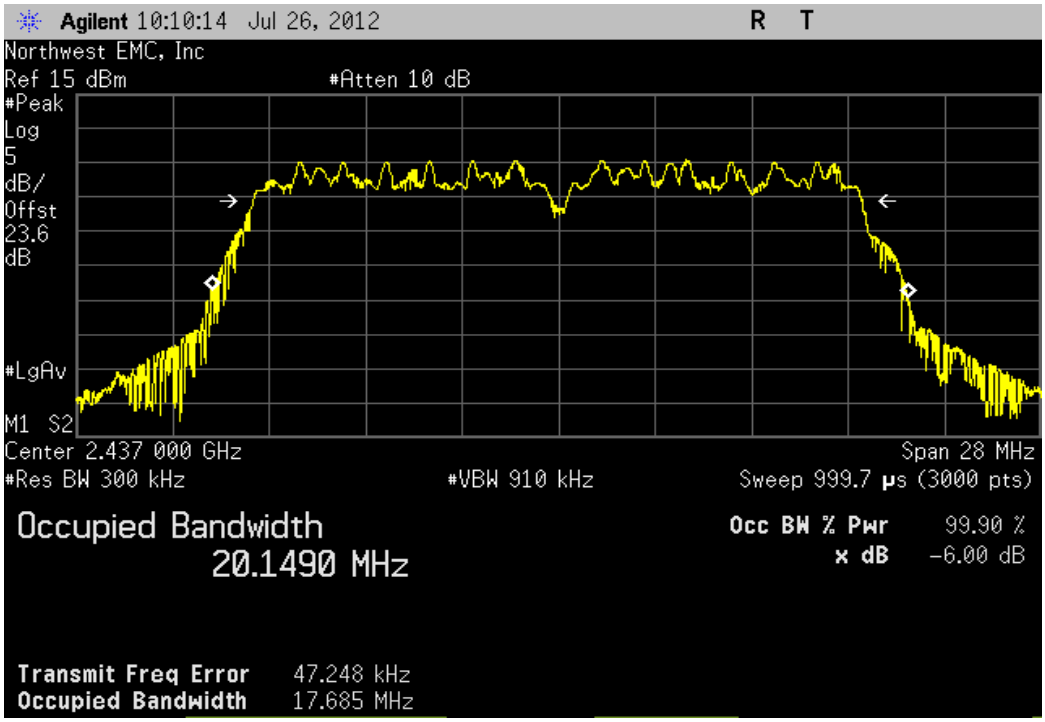
20MHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				17.549 MHz	> 500 kHz	Pass



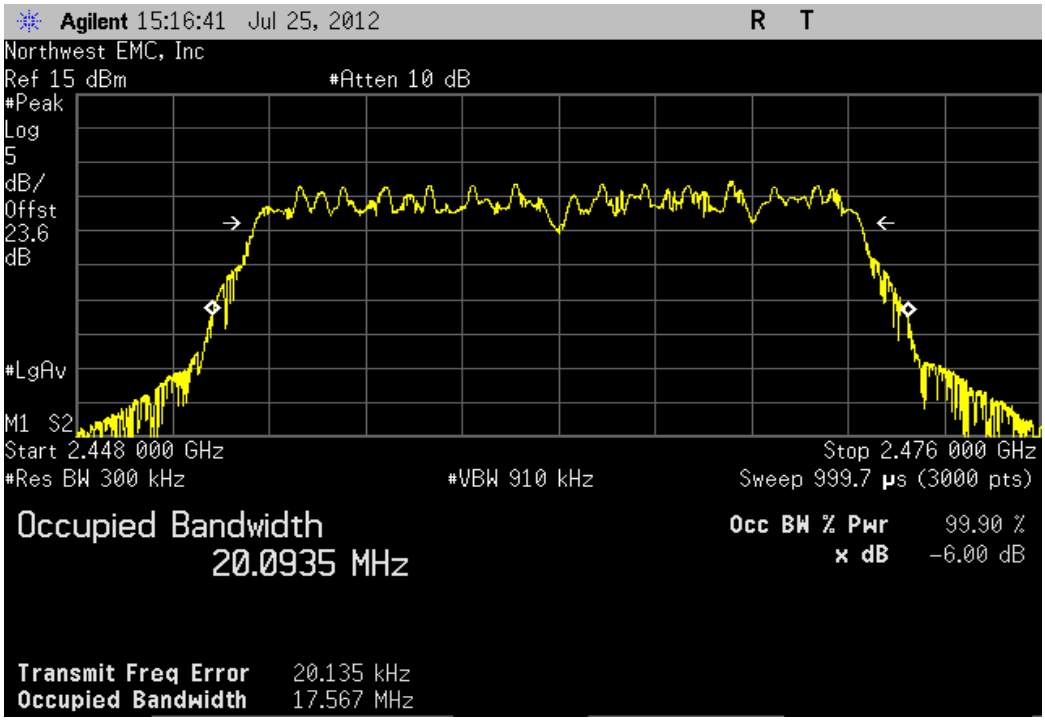
20MHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				17.685 MHz	> 500 kHz	Pass



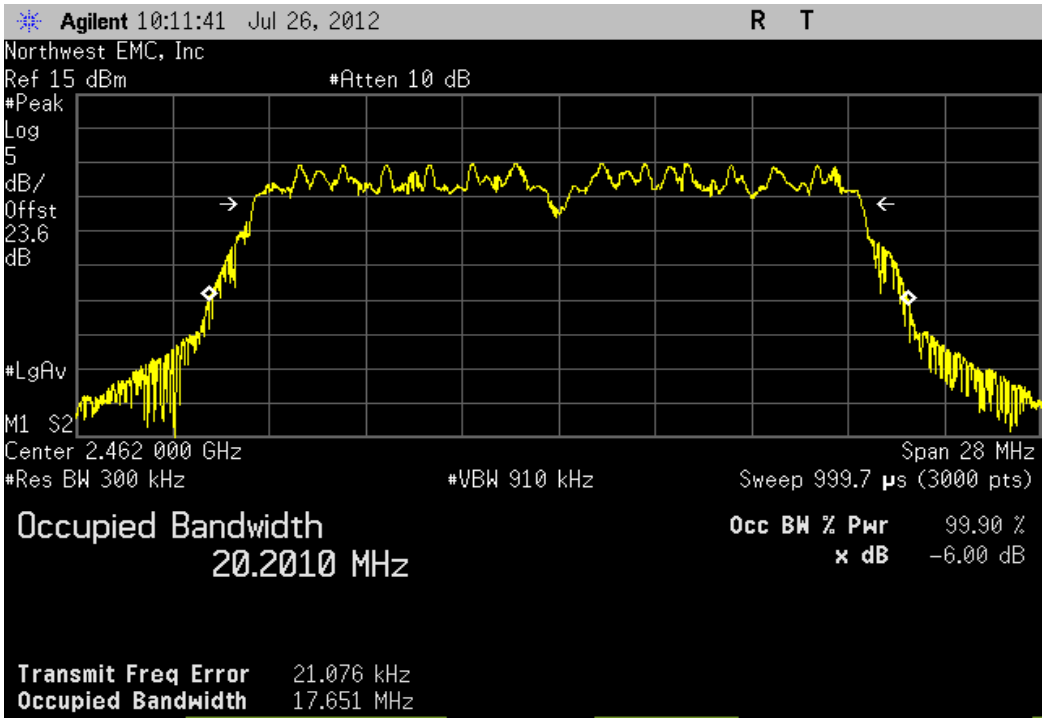
20MHz, 802.11(n) MCS0, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				17.567 MHz	> 500 kHz	Pass



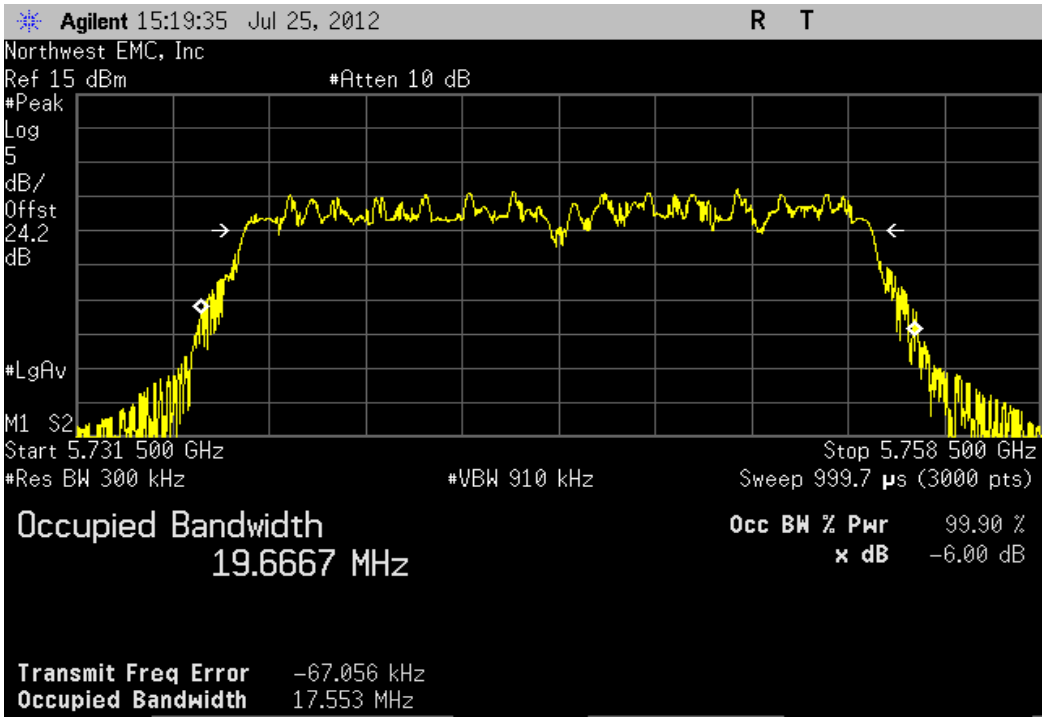
20MHz, 802.11(n) MCS0, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				17.65 MHz	> 500 kHz	Pass



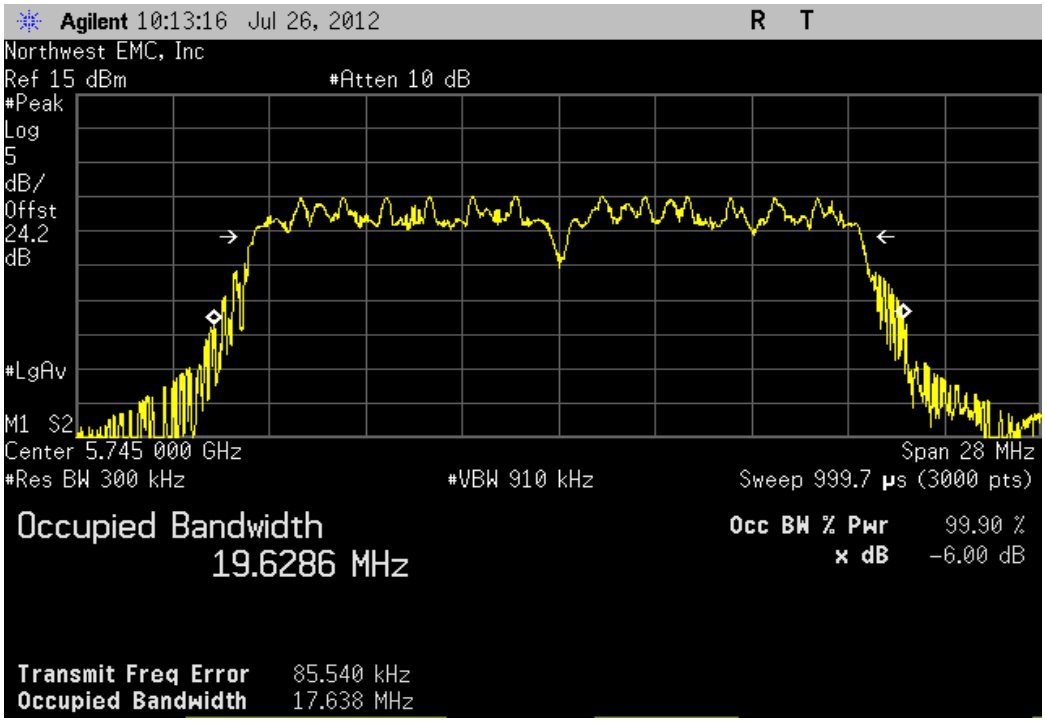
20MHz, 802.11(n) MCS0, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				17.553 MHz	> 500 kHz	Pass



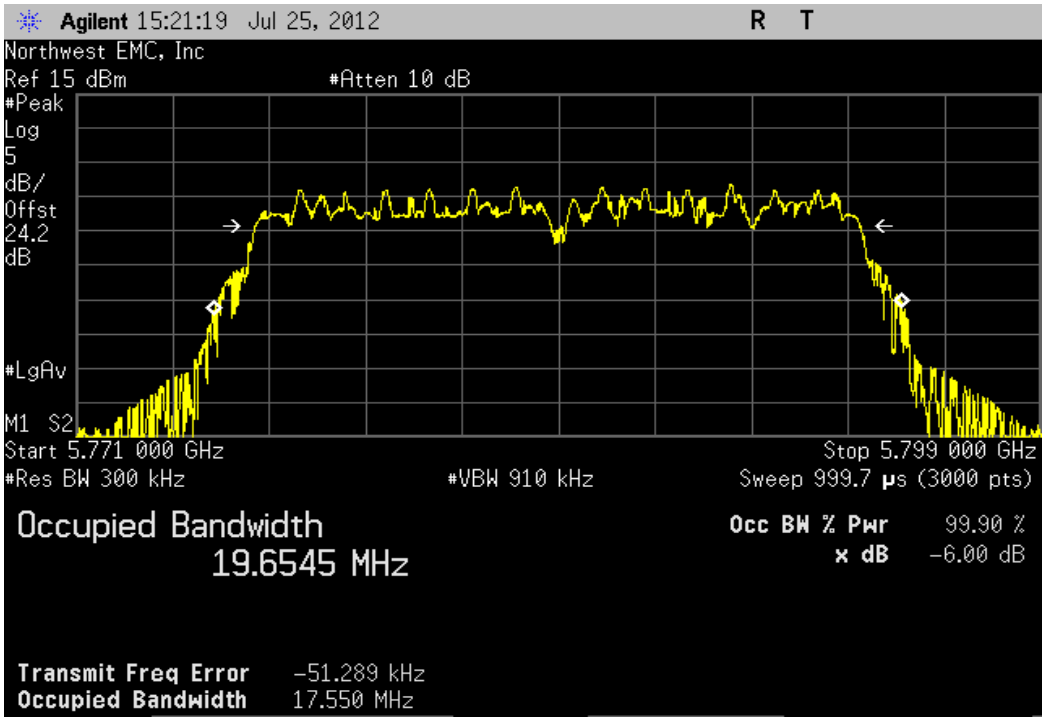
20MHz, 802.11(n) MCS0, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				17.638 MHz	> 500 kHz	Pass



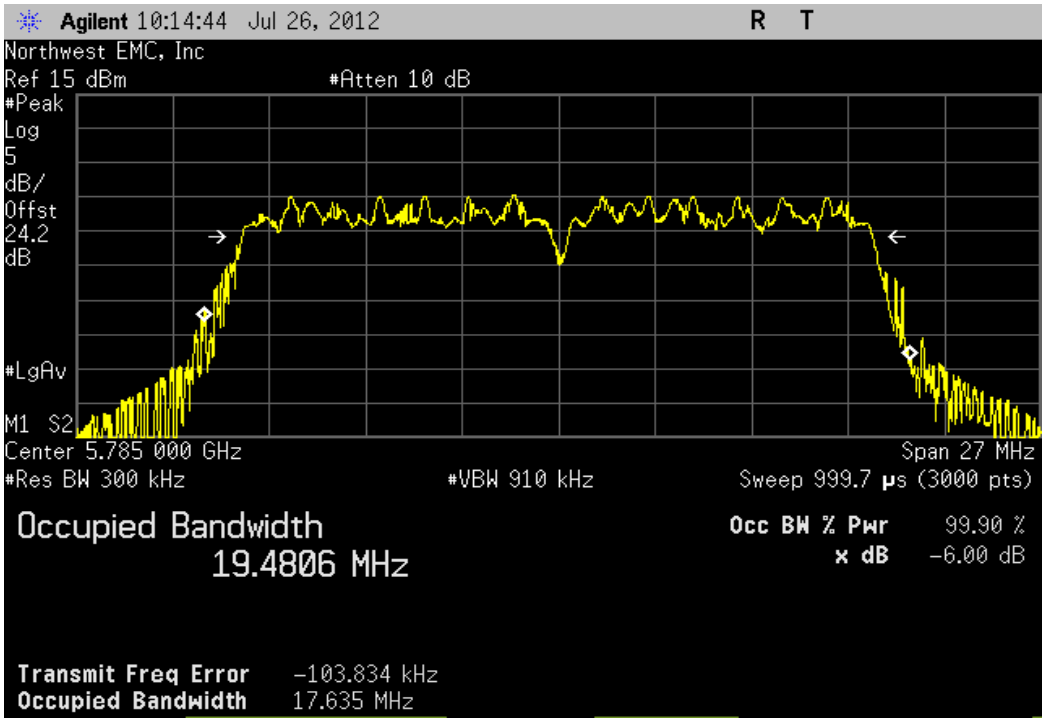
20MHz, 802.11(n) MCS0, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				17.55 MHz	> 500 kHz	Pass



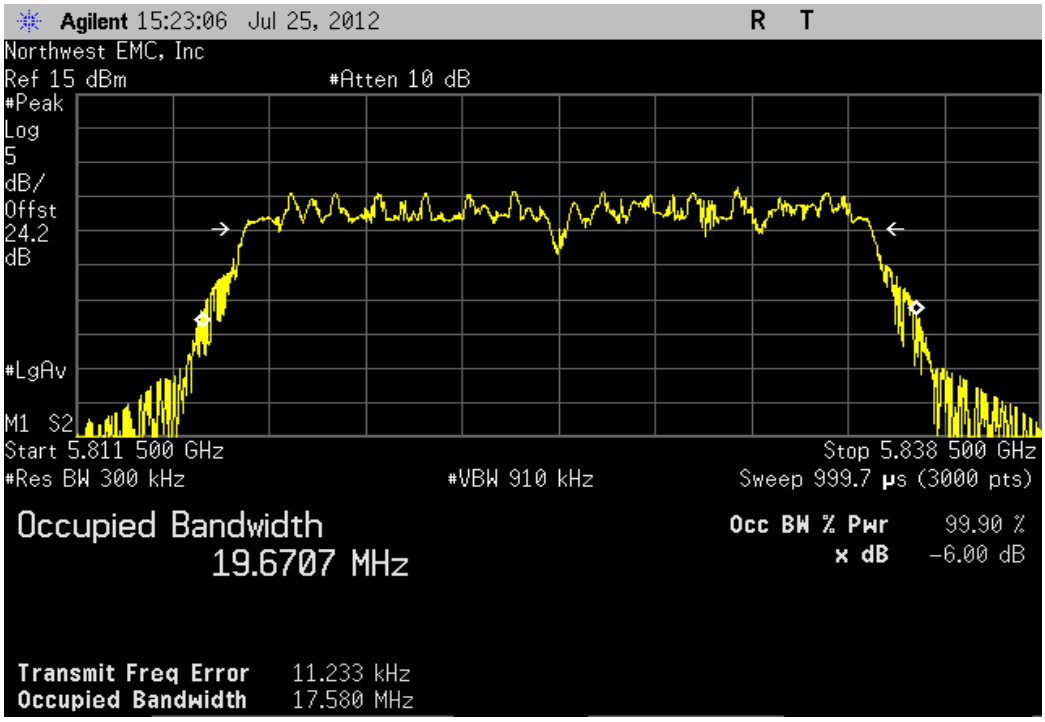
20MHz, 802.11(n) MCS0, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				17.635 MHz	> 500 kHz	Pass



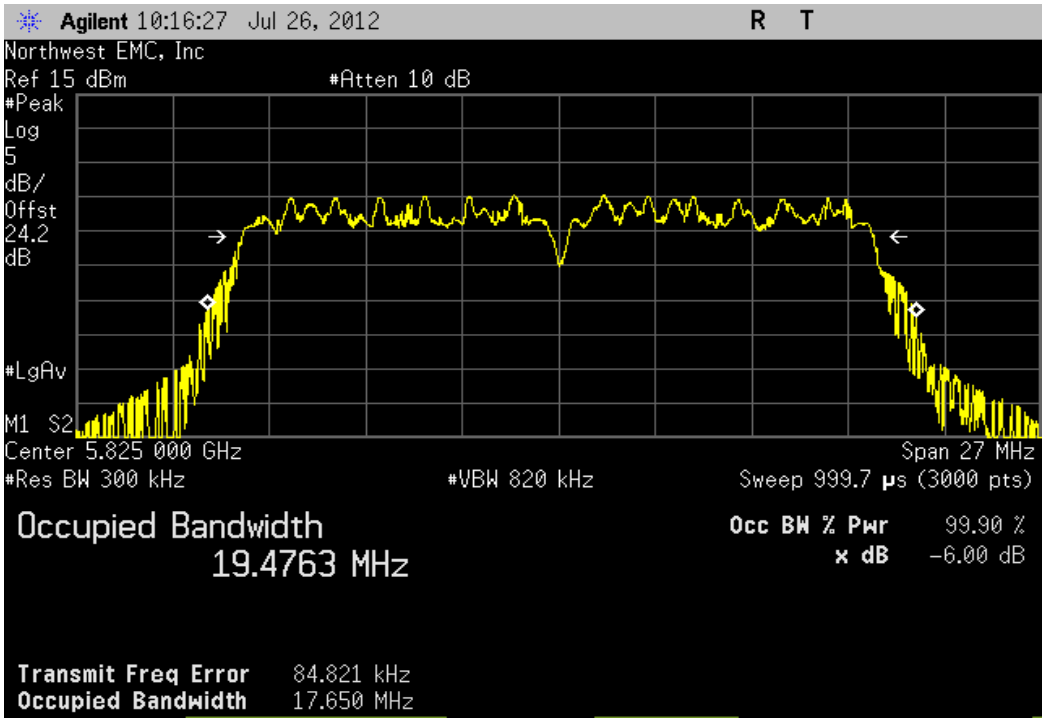
20MHz, 802.11(n) MCS0, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				17.58 MHz	> 500 kHz	Pass



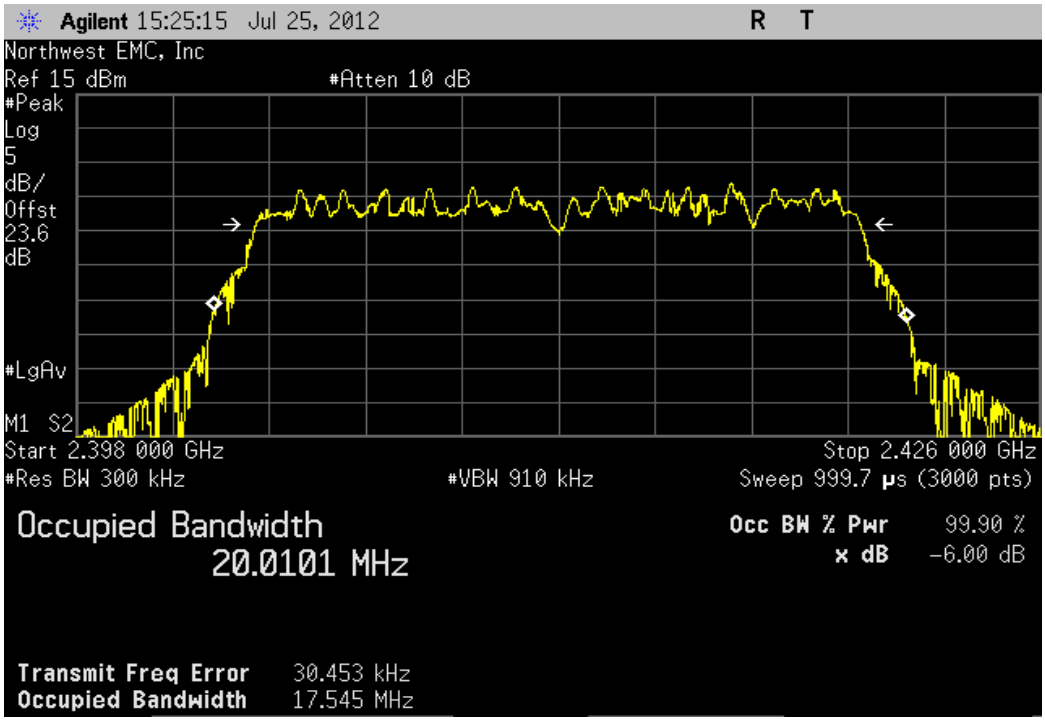
20MHz, 802.11(n) MCS0, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				17.65 MHz	> 500 kHz	Pass



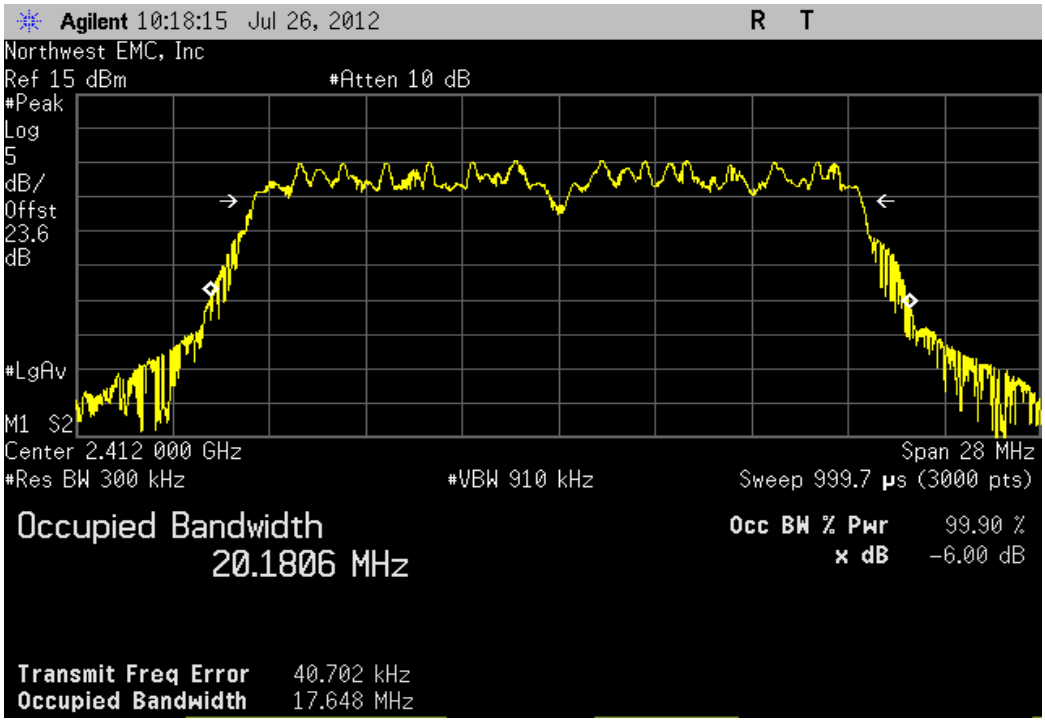
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				17.545 MHz	> 500 kHz	Pass



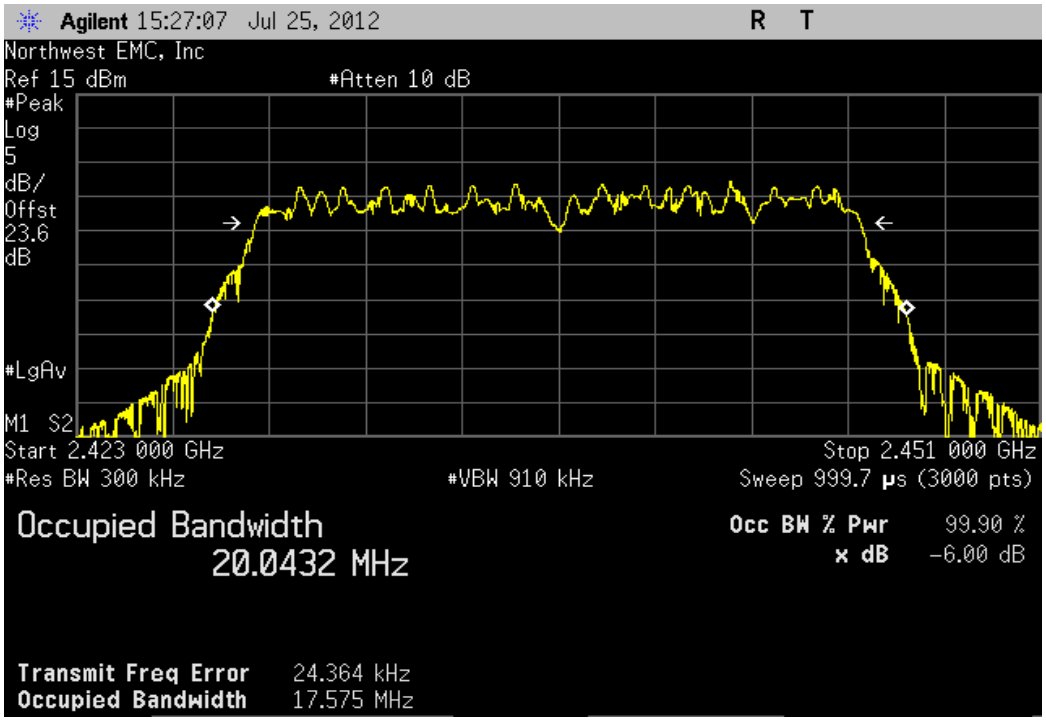
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				17.648 MHz	> 500 kHz	Pass



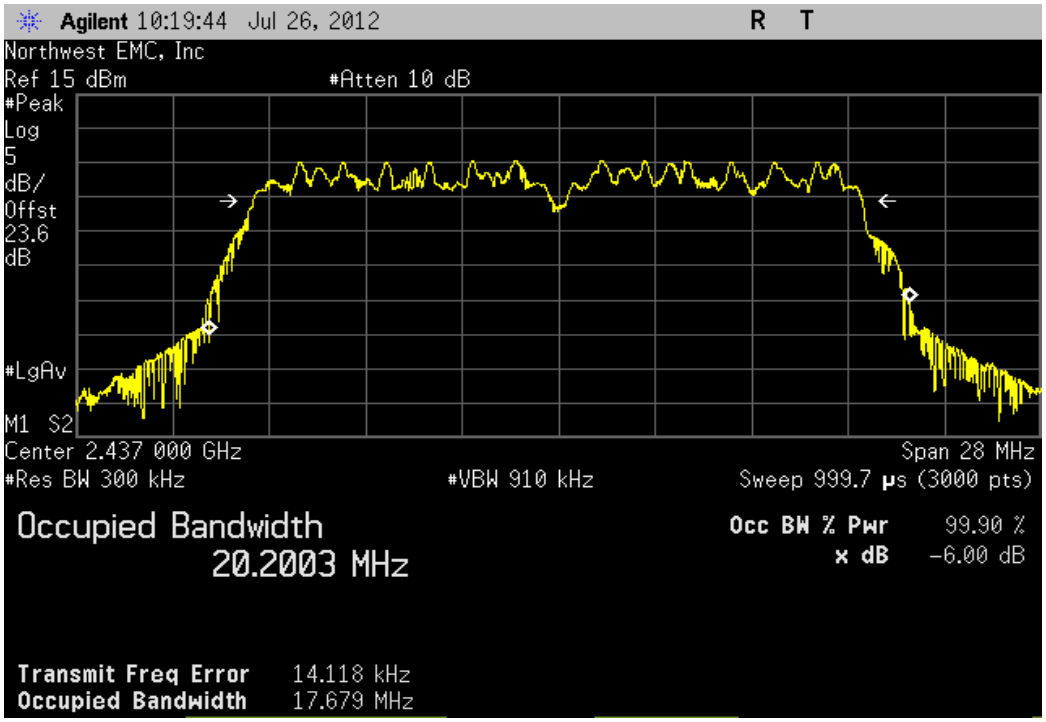
20MHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				17.575 MHz	> 500 kHz	Pass



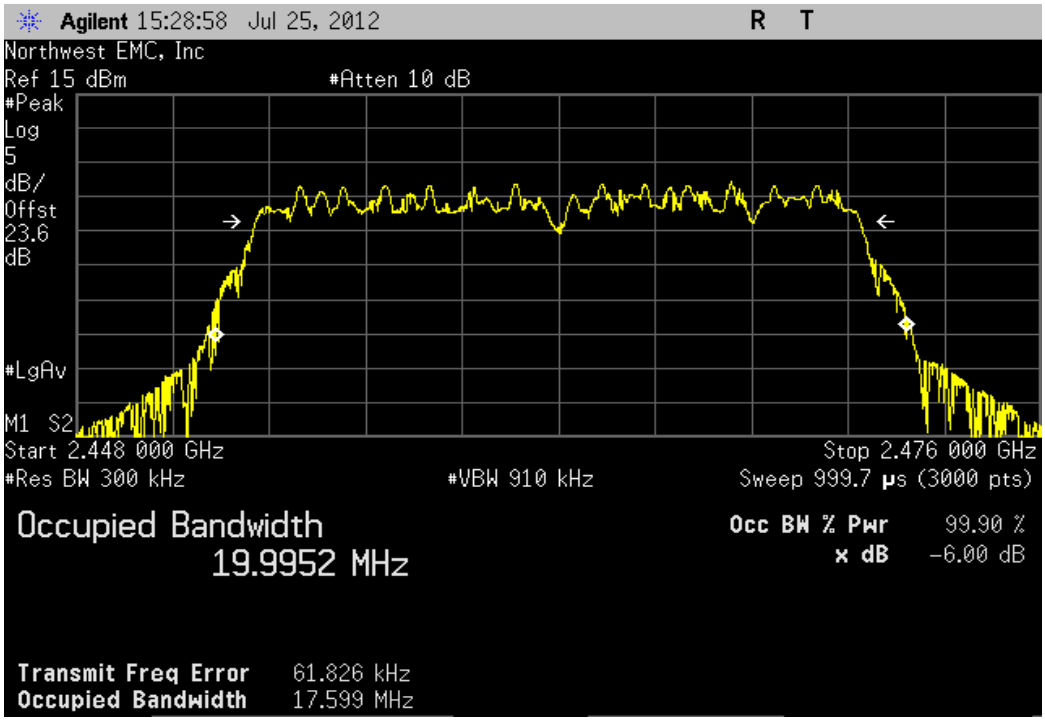
20MHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				17.679 MHz	> 500 kHz	Pass



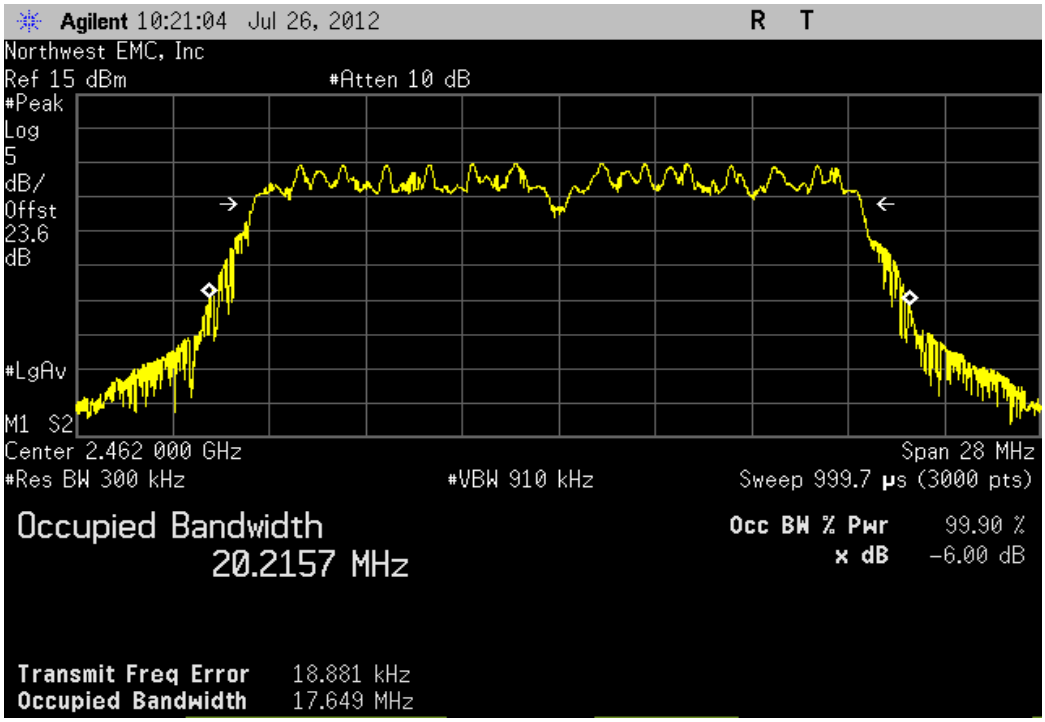
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				17.599 MHz	> 500 kHz	Pass



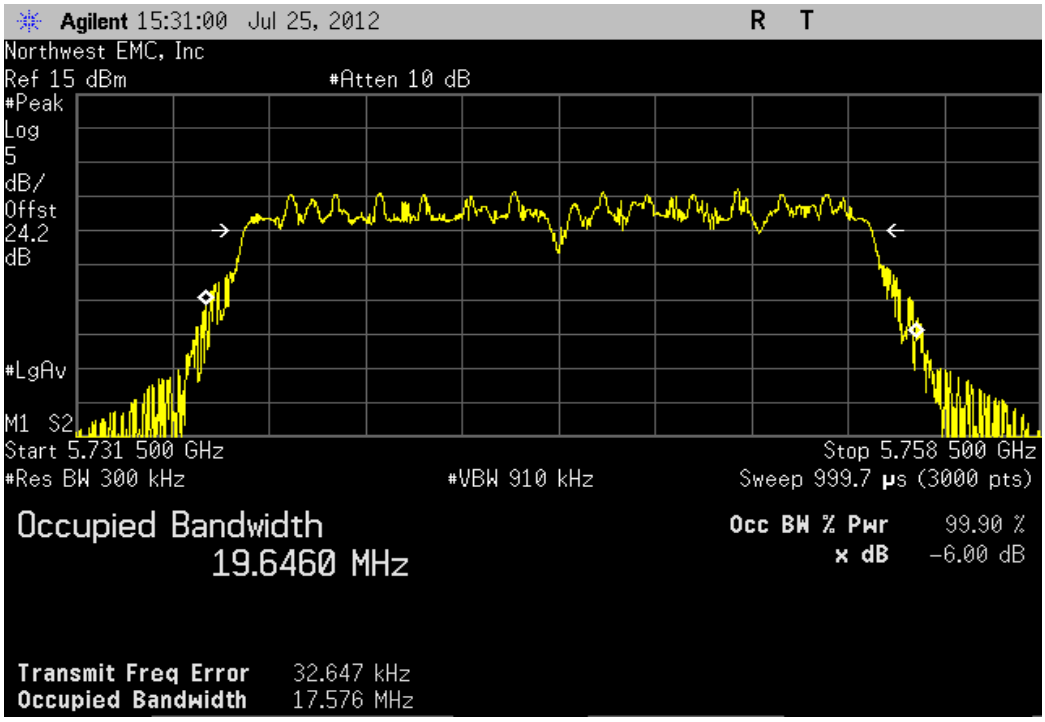
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				17.649 MHz	> 500 kHz	Pass



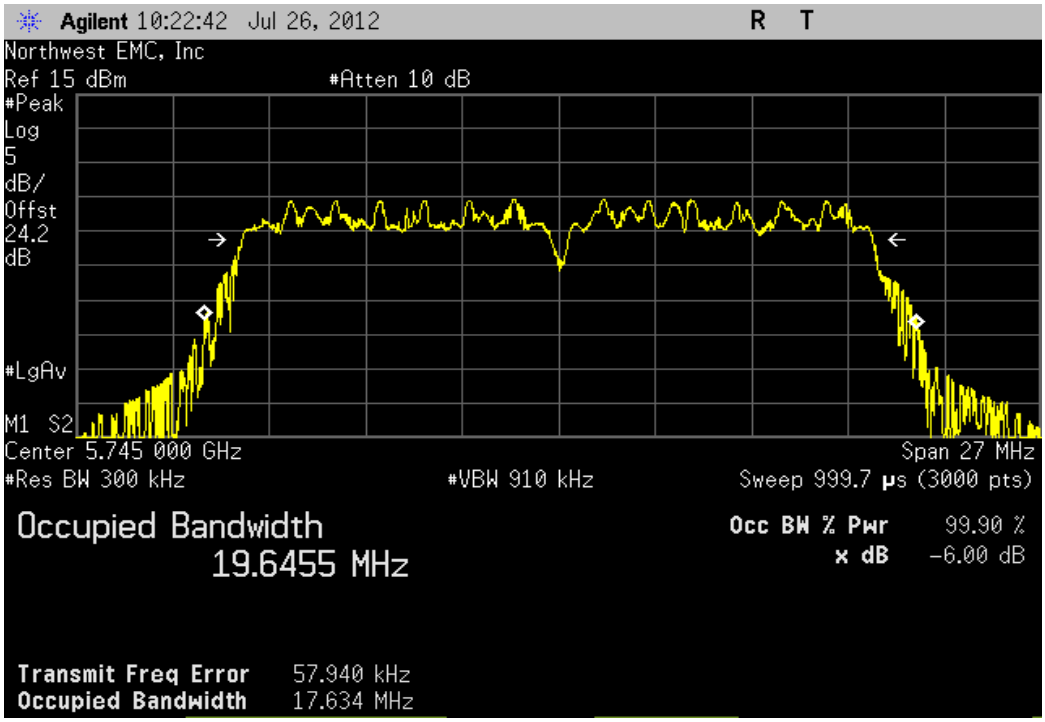
20MHz, 802.11(n) MCS7, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				17.576 MHz	> 500 kHz	Pass



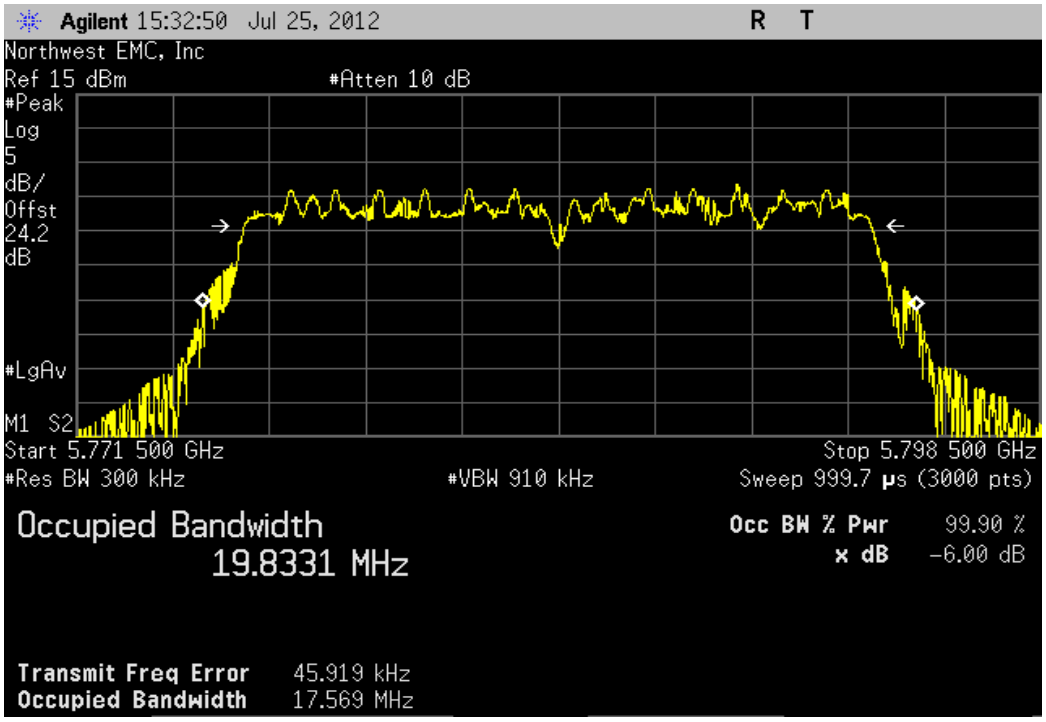
20MHz, 802.11(n) MCS7, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				17.634 MHz	> 500 kHz	Pass



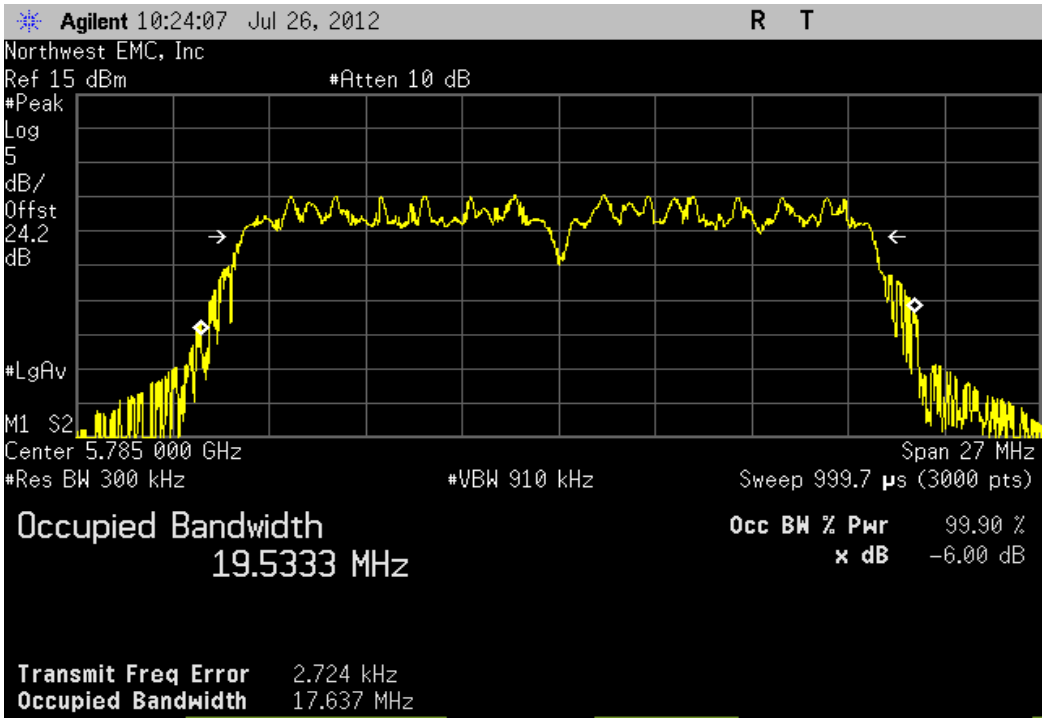
20MHz, 802.11(n) MCS7, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				17.569 MHz	> 500 kHz	Pass



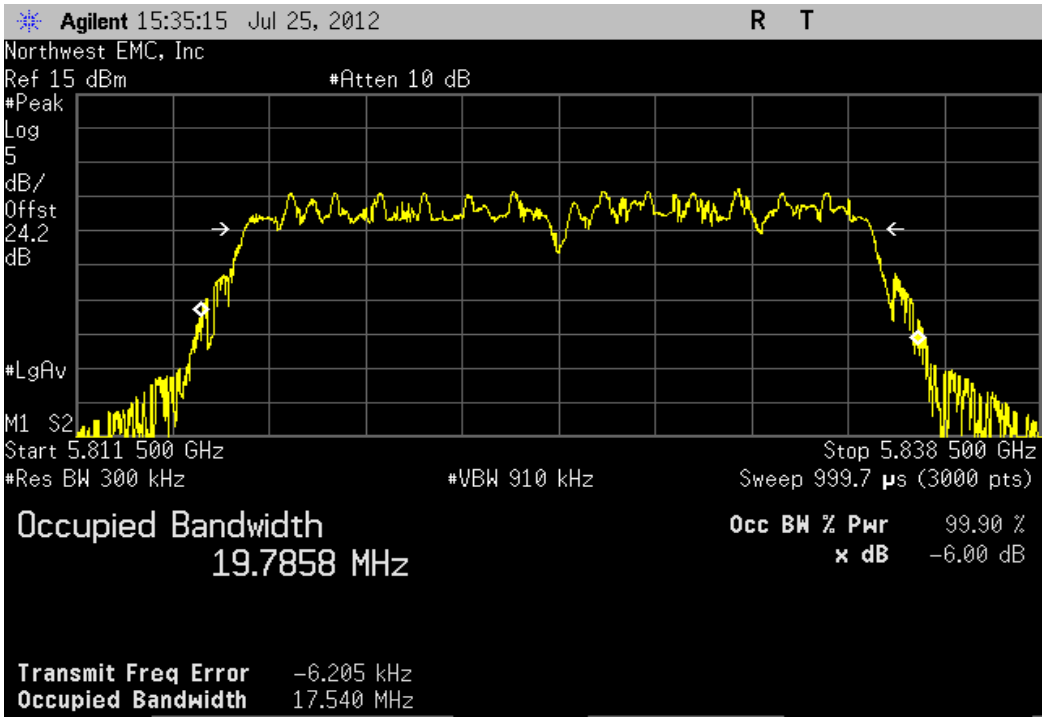
20MHz, 802.11(n) MCS7, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				17.637 MHz	> 500 kHz	Pass



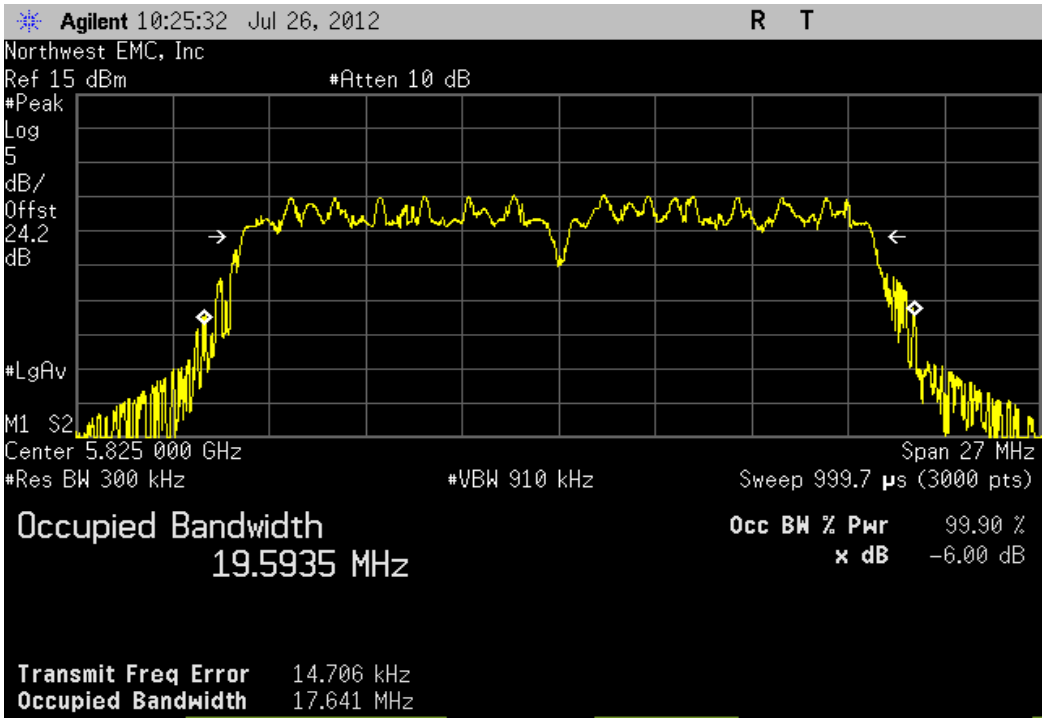
20MHz, 802.11(n) MCS7, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				17.54 MHz	> 500 kHz	Pass



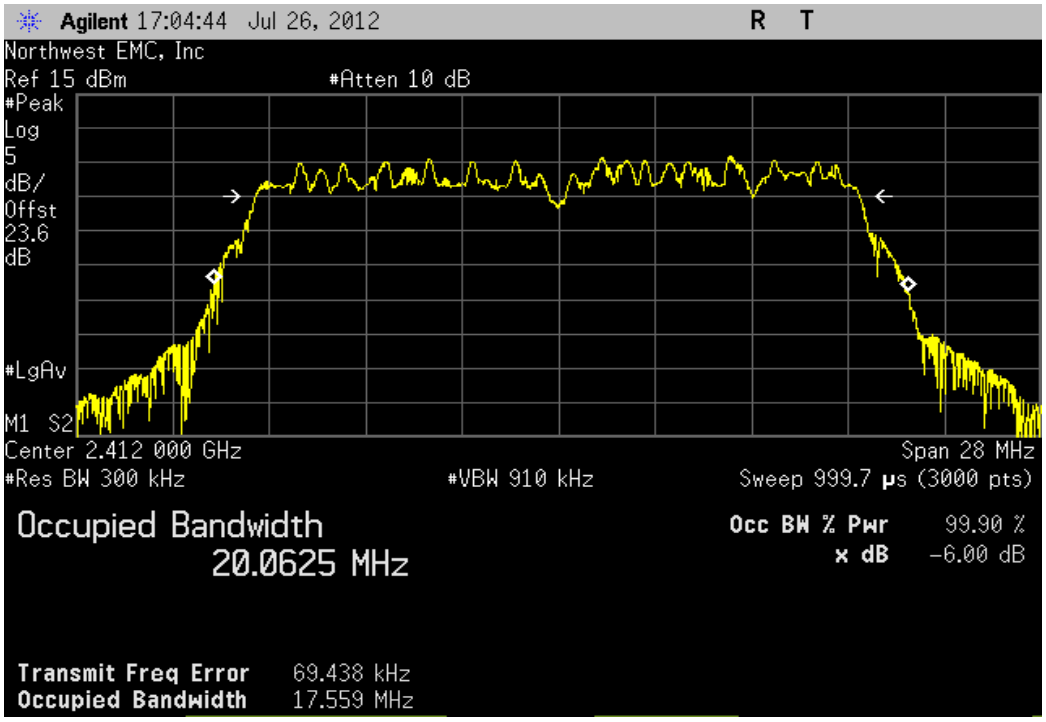
20MHz, 802.11(n) MCS7, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				17.641 MHz	> 500 kHz	Pass



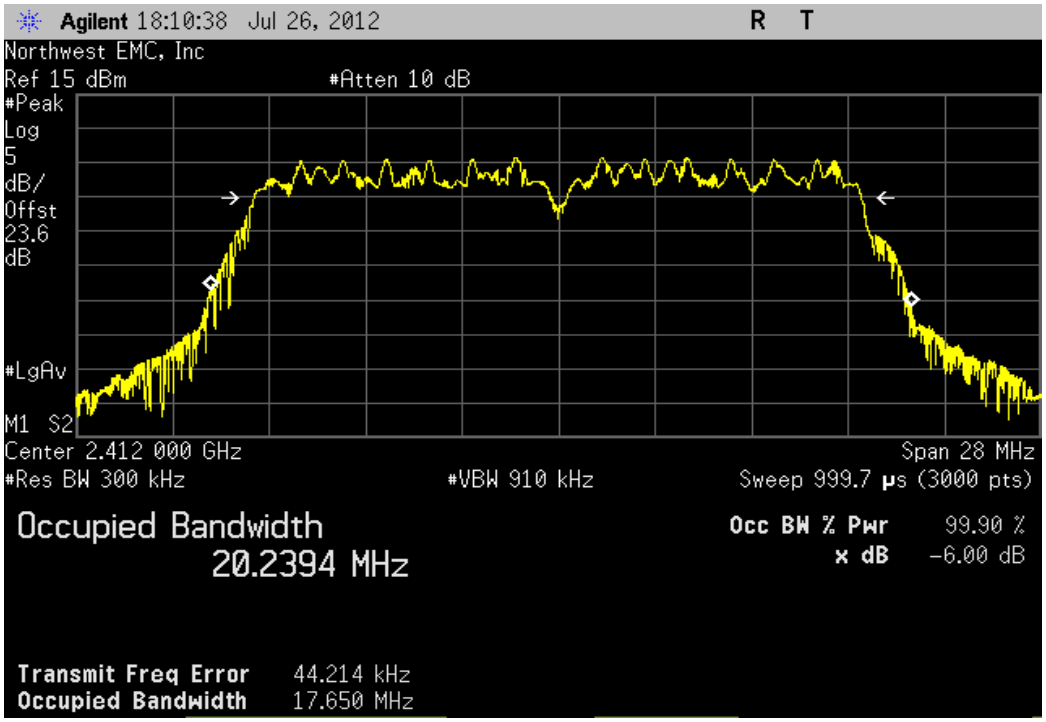
20MHz, 802.11(n) MCS8, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				17.559 MHz	> 500 kHz	Pass



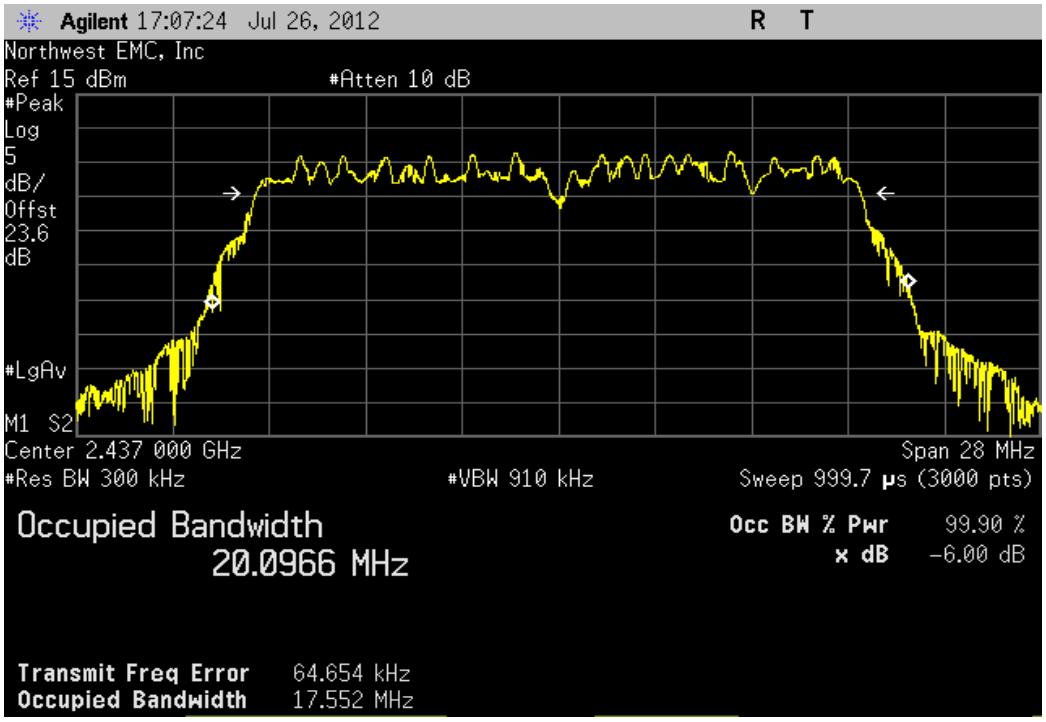
20MHz, 802.11(n) MCS8, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				17.65 MHz	> 500 kHz	Pass



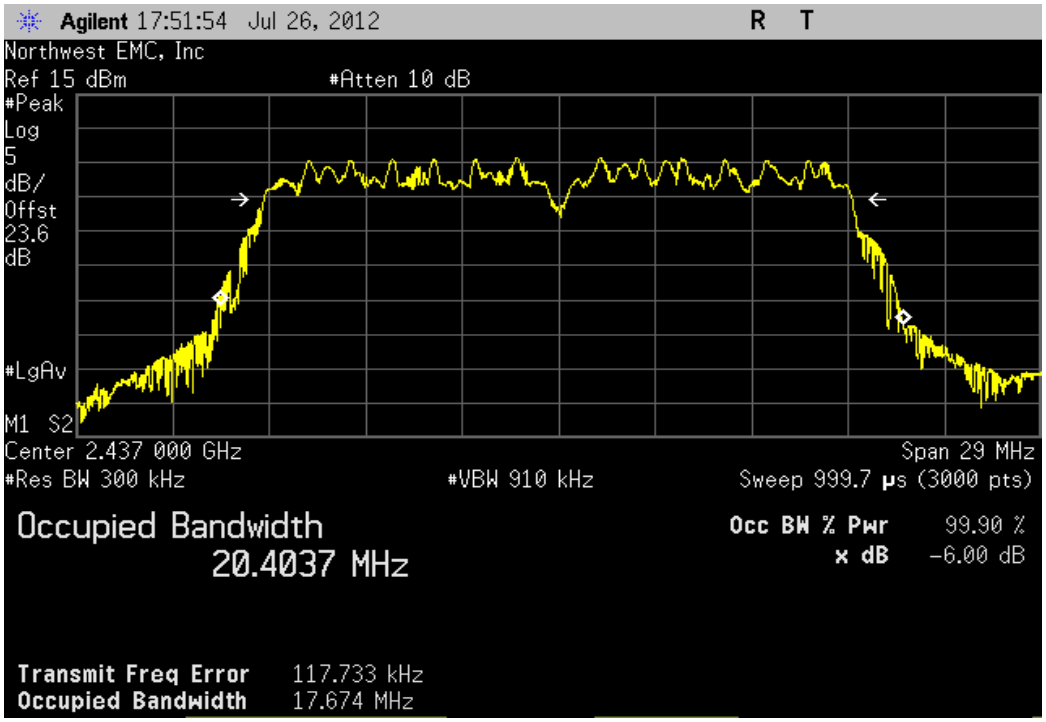
20MHz, 802.11(n) MCS8, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				17.552 MHz	> 500 kHz	Pass



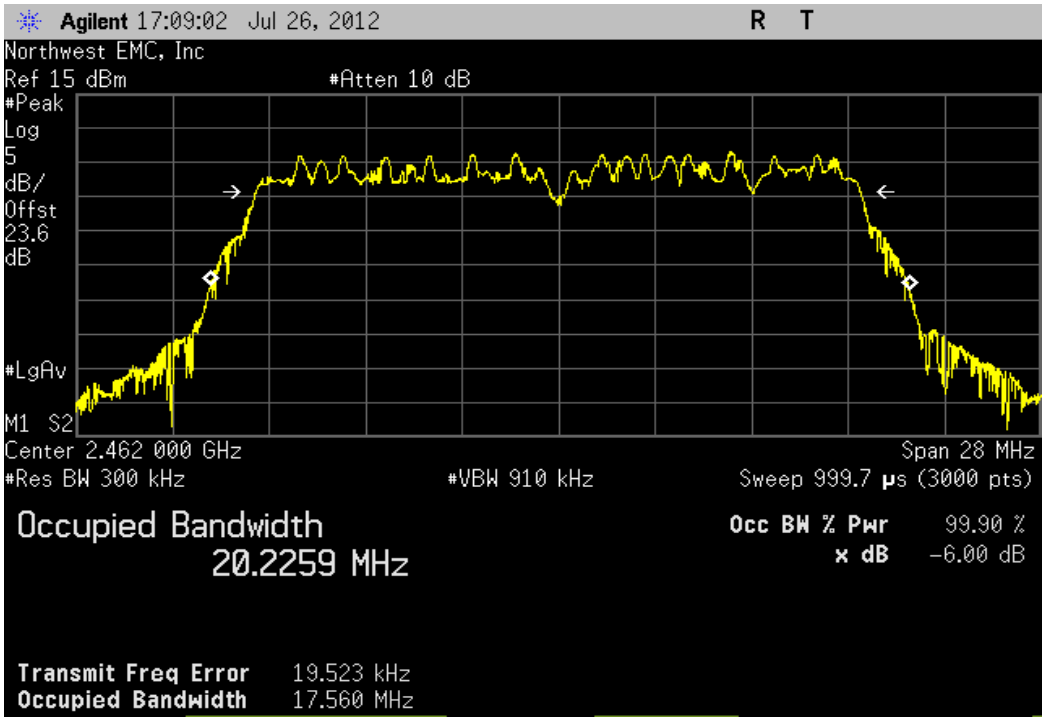
20MHz, 802.11(n) MCS8, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				17.674 MHz	> 500 kHz	Pass



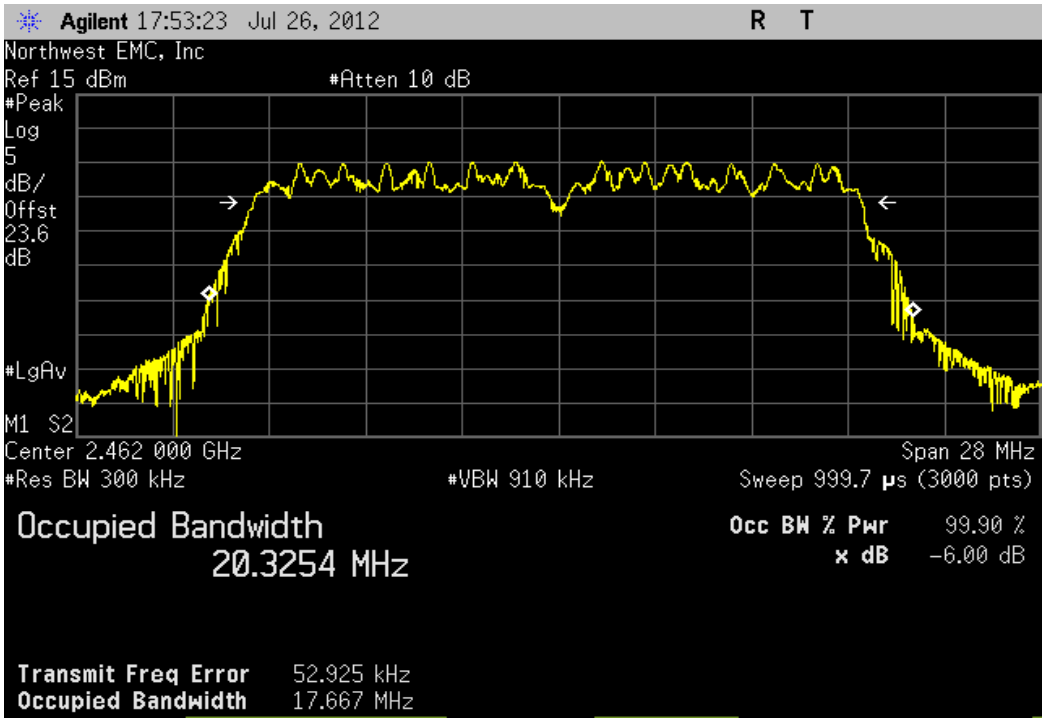
20MHz, 802.11(n) MCS8, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				17.56 MHz	> 500 kHz	Pass



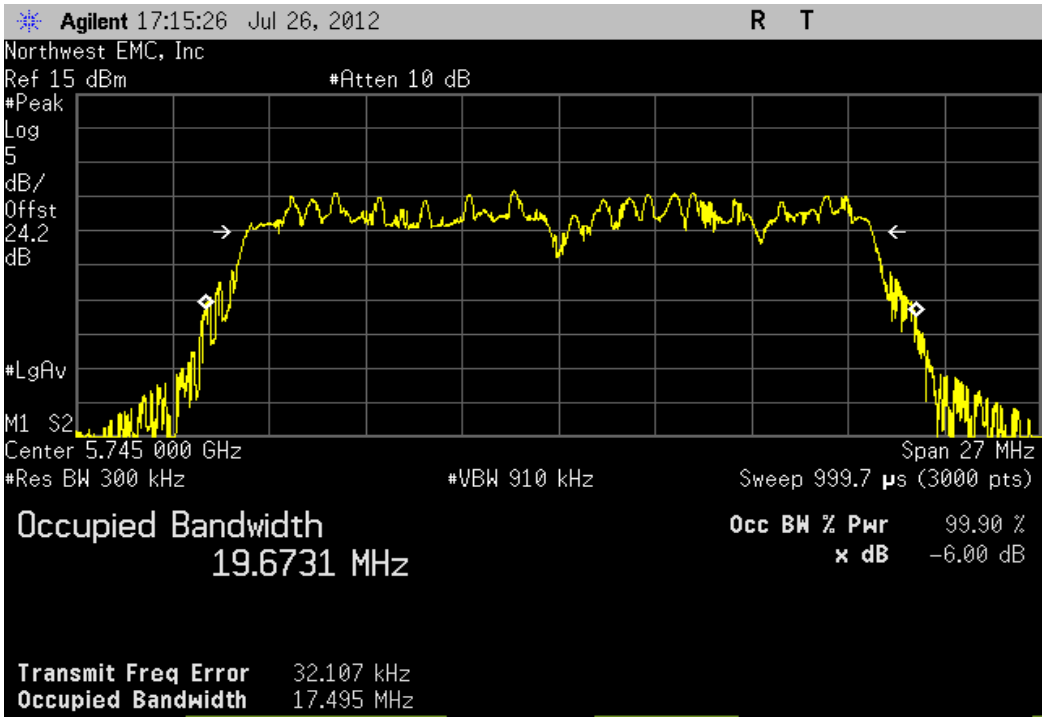
20MHz, 802.11(n) MCS8, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				17.667 MHz	> 500 kHz	Pass



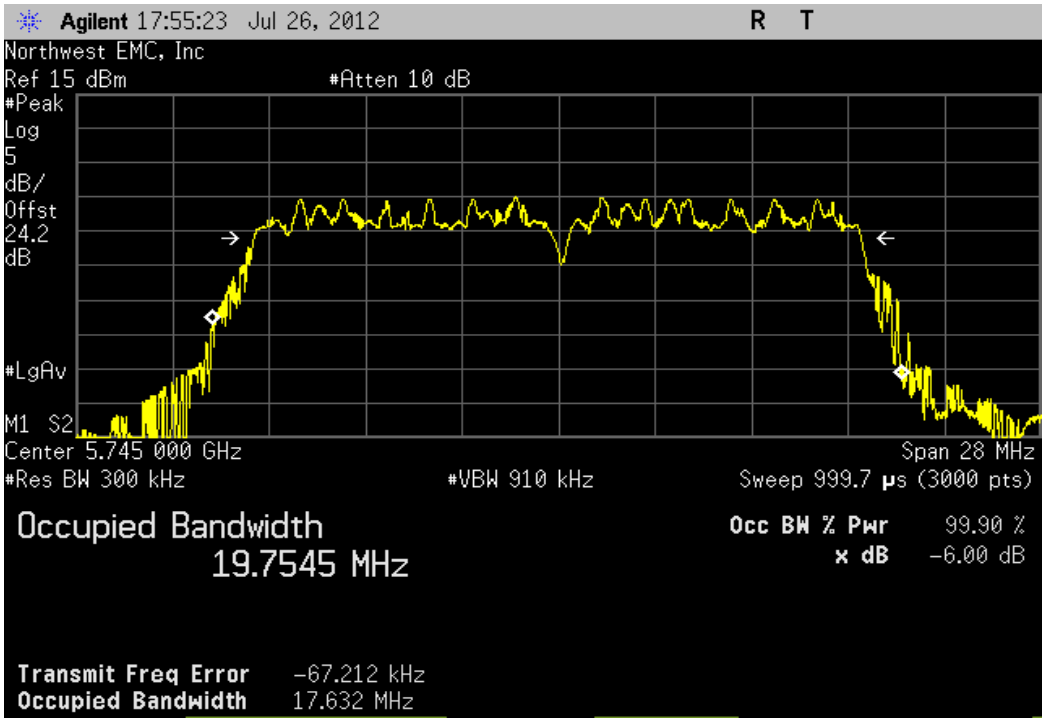
20MHz, 802.11(n) MCS8, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				17.495 MHz	> 500 kHz	Pass



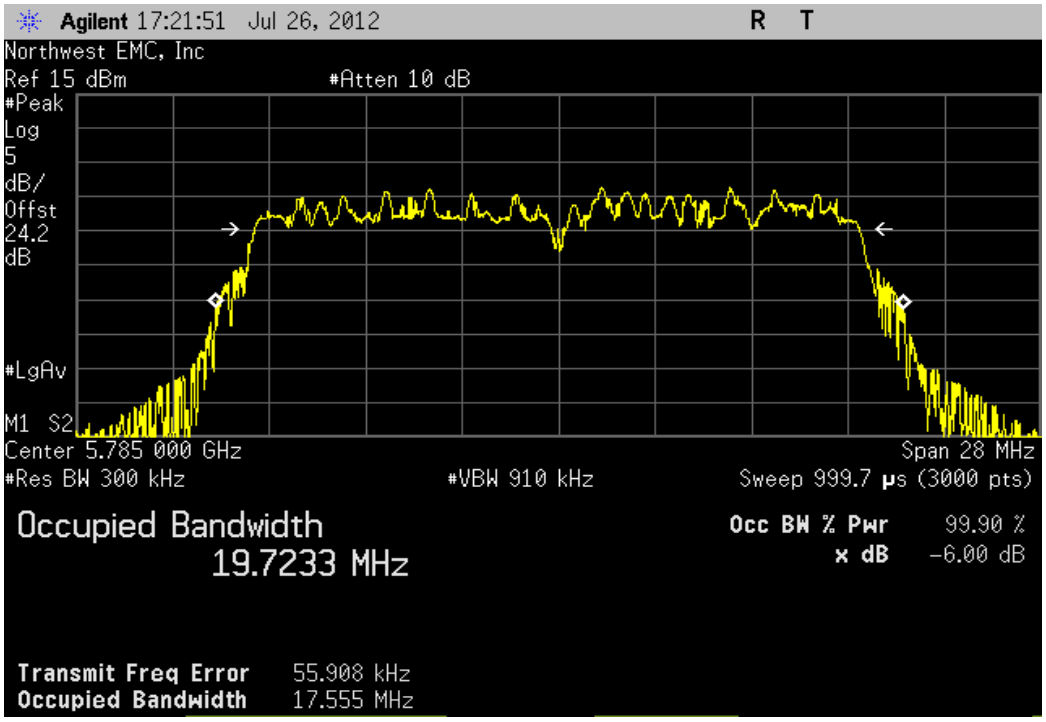
20MHz, 802.11(n) MCS8, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				17.632 MHz	> 500 kHz	Pass



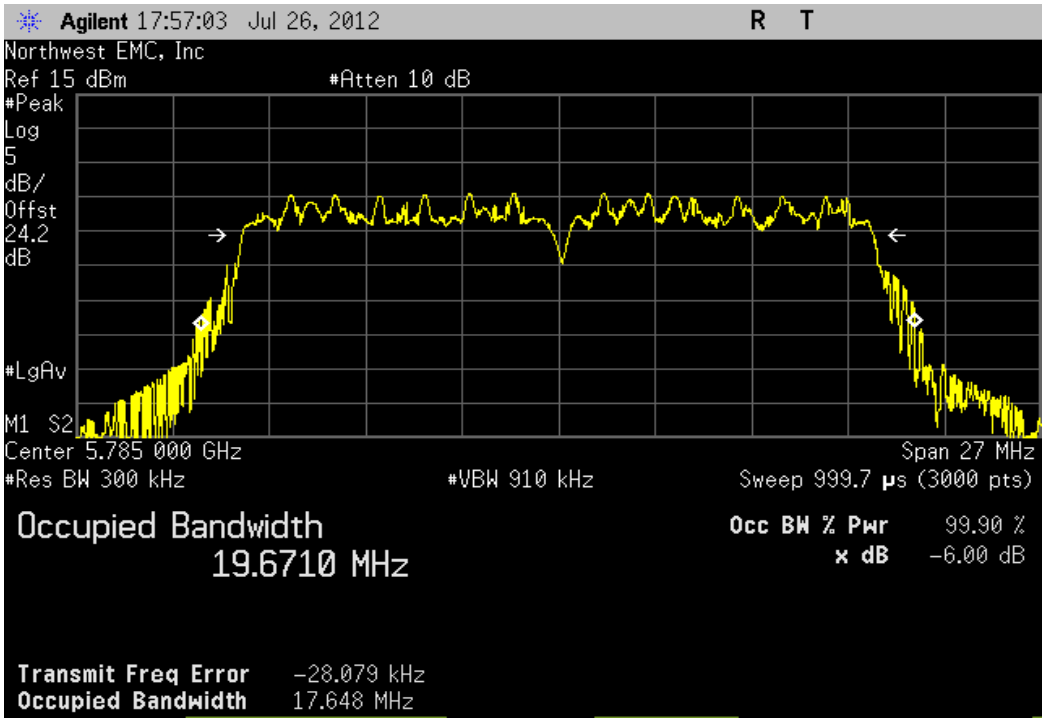
20MHz, 802.11(n) MCS8, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				17.555 MHz	> 500 kHz	Pass



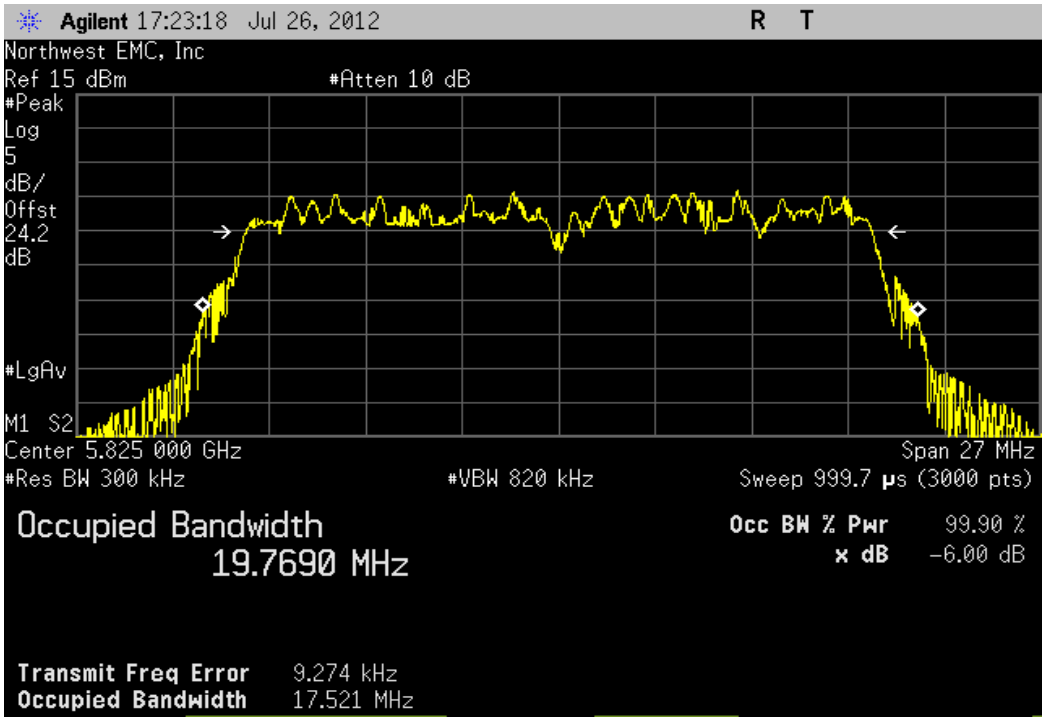
20MHz, 802.11(n) MCS8, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				17.648 MHz	> 500 kHz	Pass



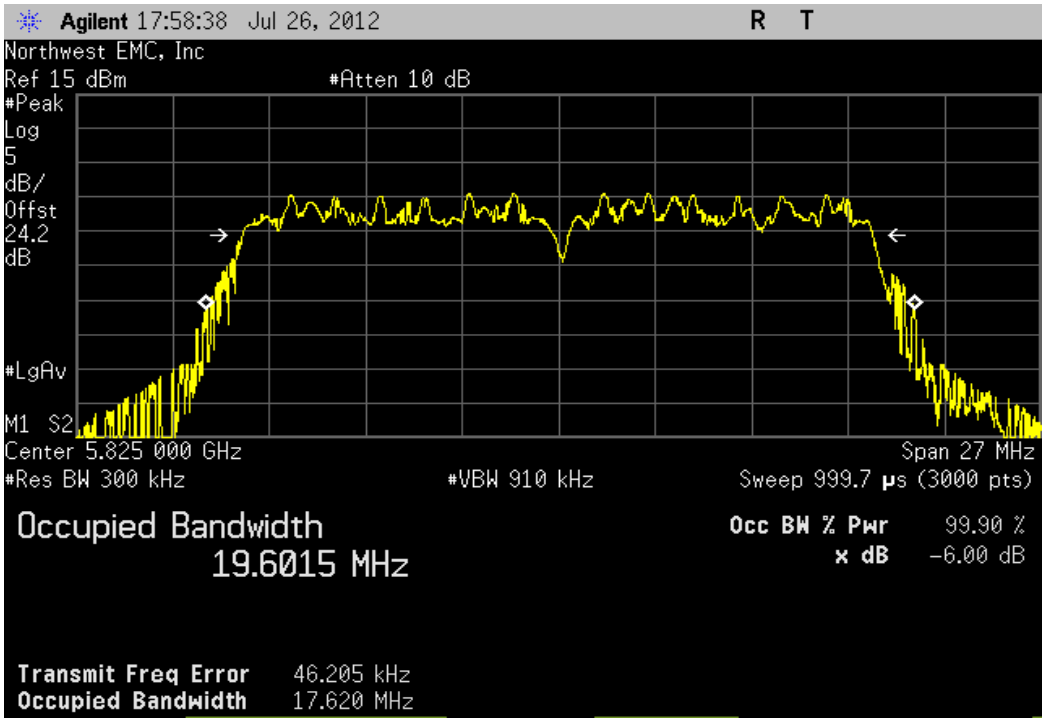
20MHz, 802.11(n) MCS8, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				17.521 MHz	> 500 kHz	Pass



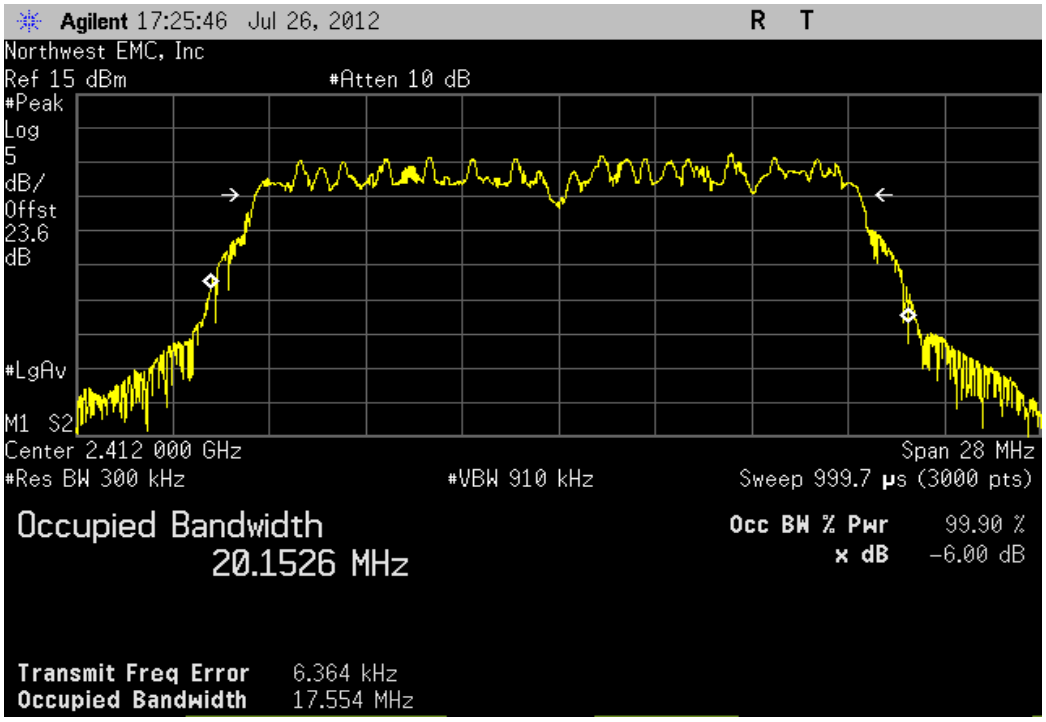
20MHz, 802.11(n) MCS8, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				17.62 MHz	> 500 kHz	Pass



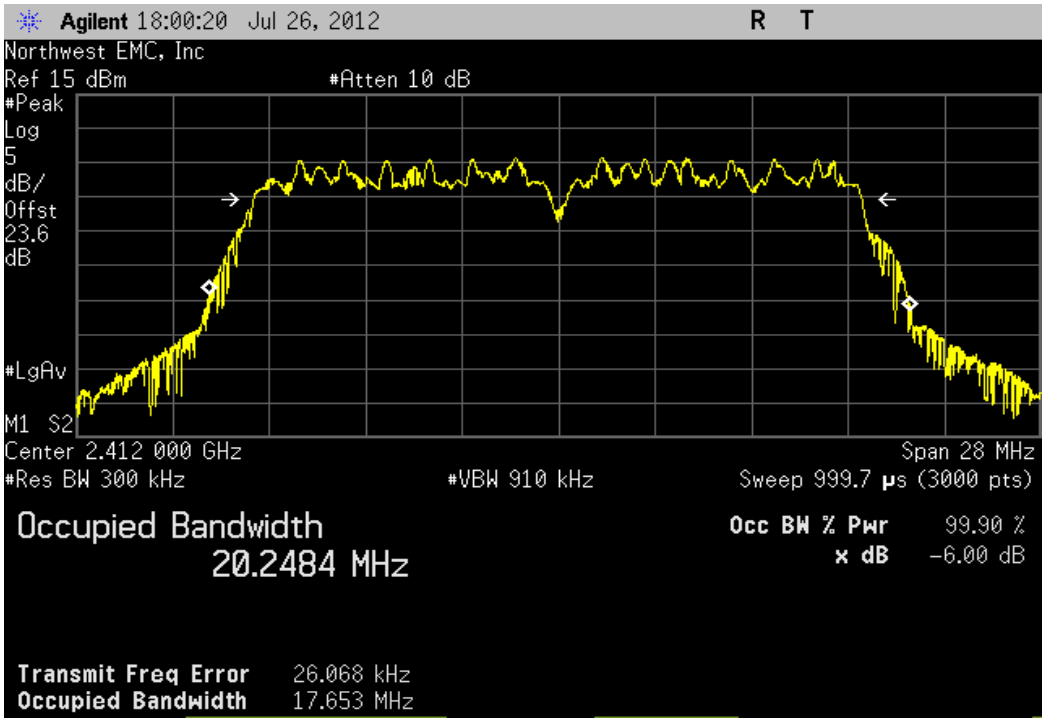
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				17.554 MHz	> 500 kHz	Pass



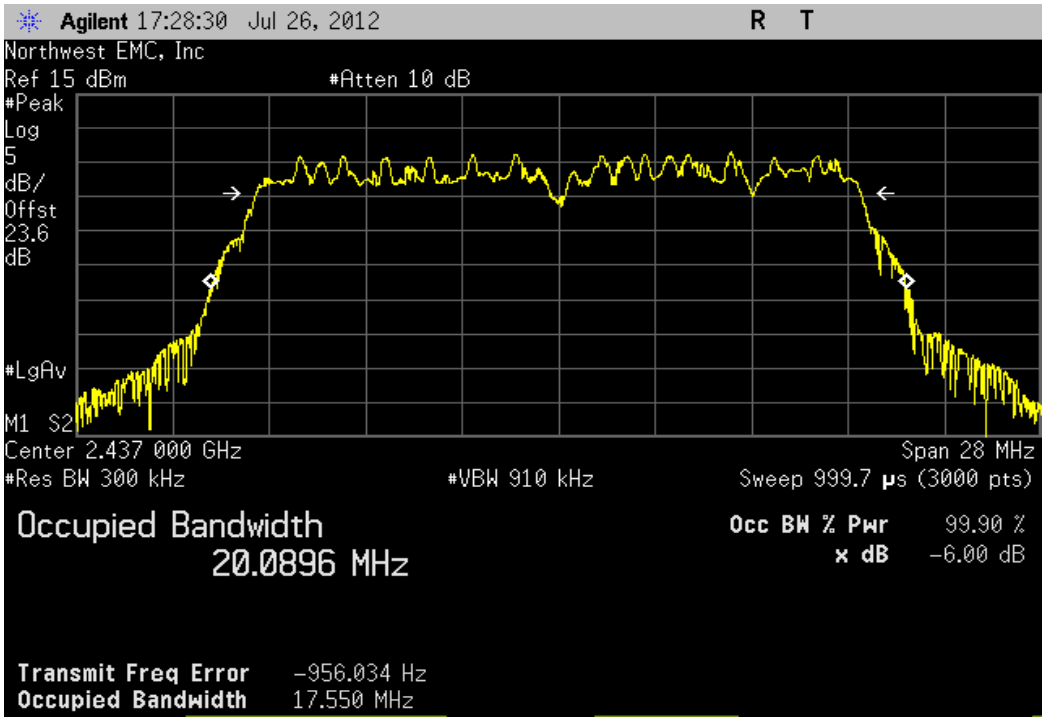
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				17.653 MHz	> 500 kHz	Pass



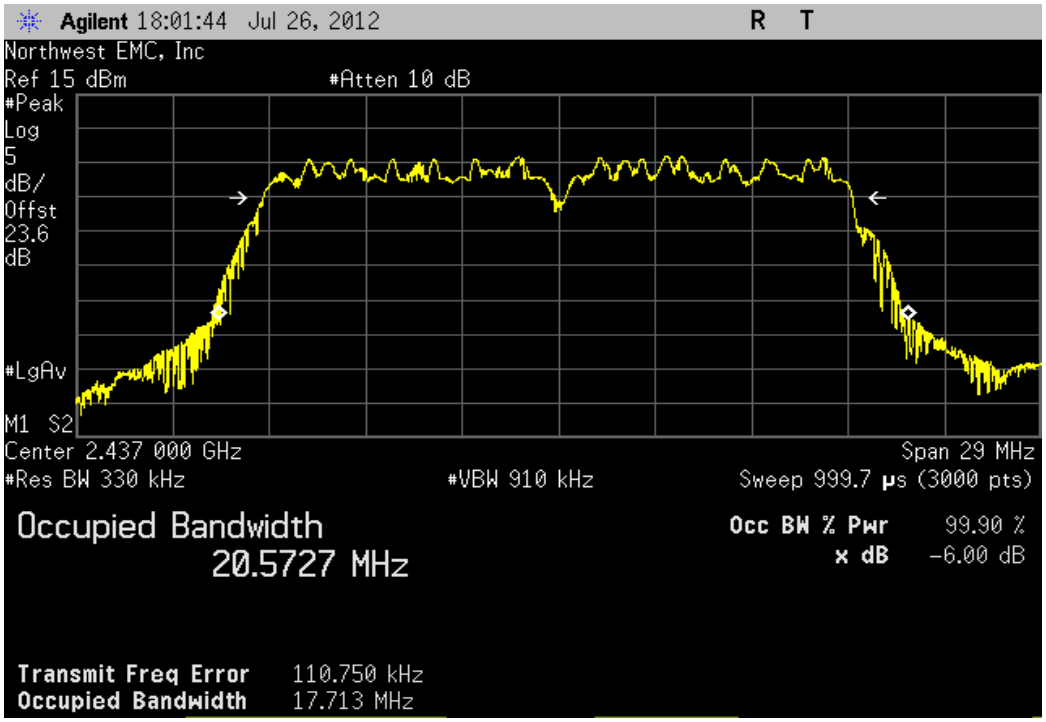
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				17.55 MHz	> 500 kHz	Pass



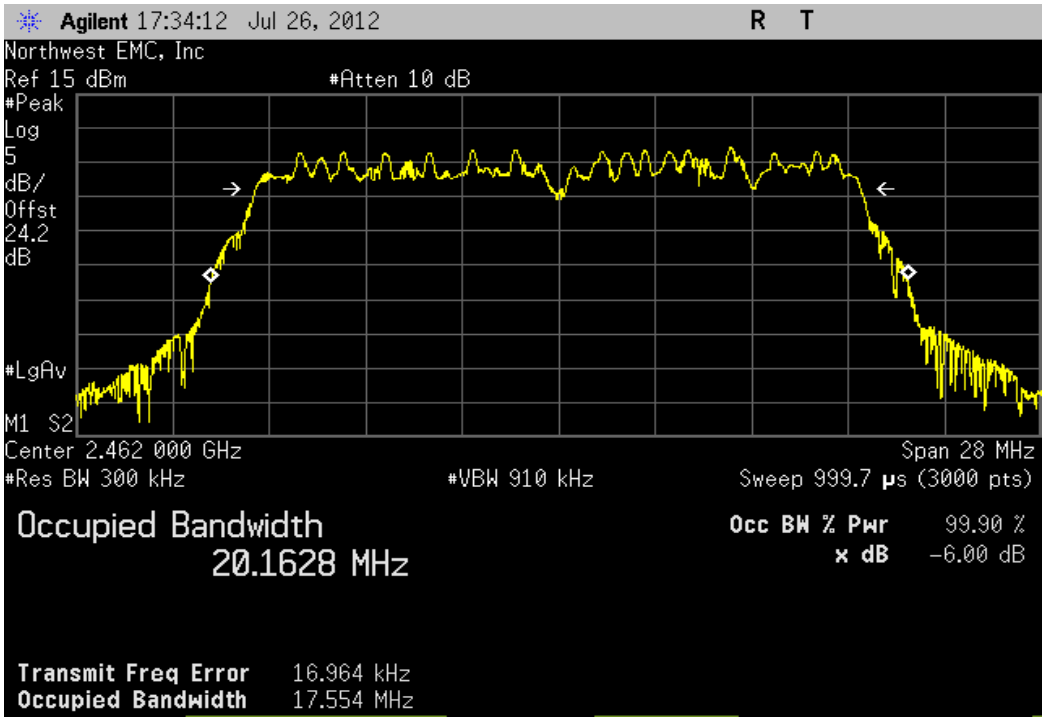
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				17.713 MHz	> 500 kHz	Pass



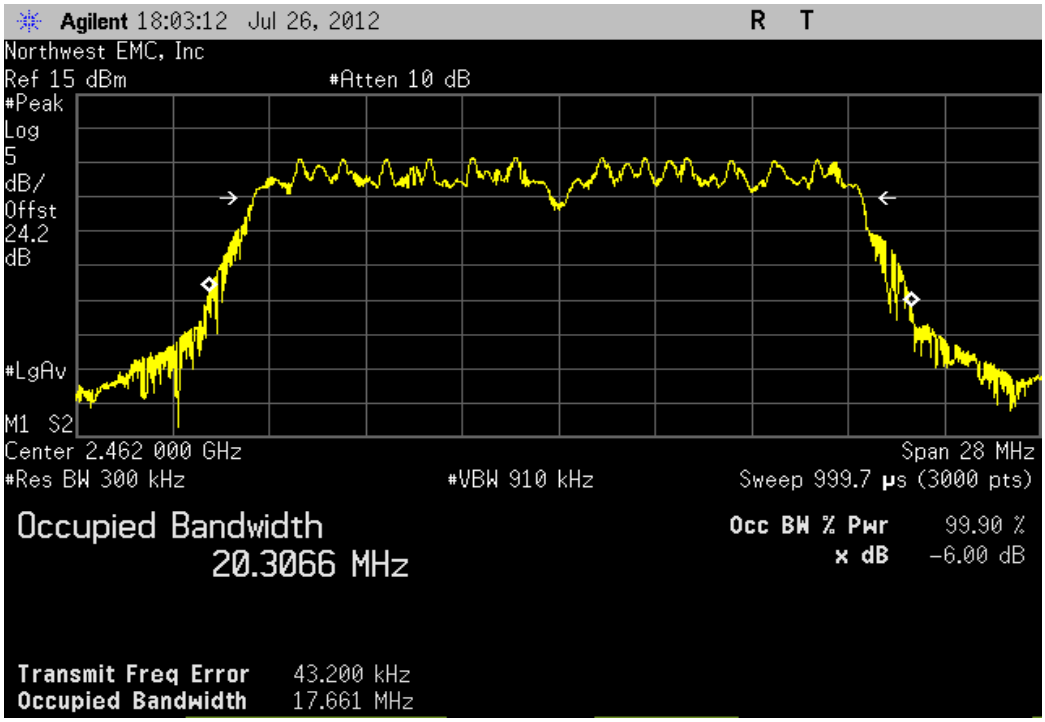
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				17.554 MHz	> 500 kHz	Pass



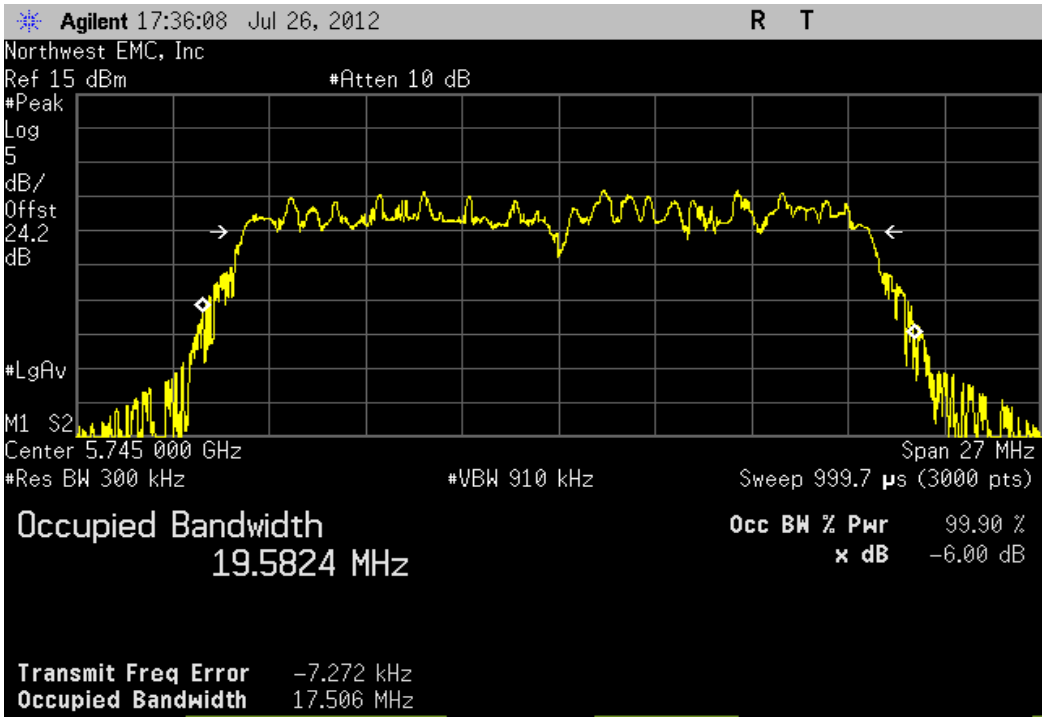
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				17.661 MHz	> 500 kHz	Pass



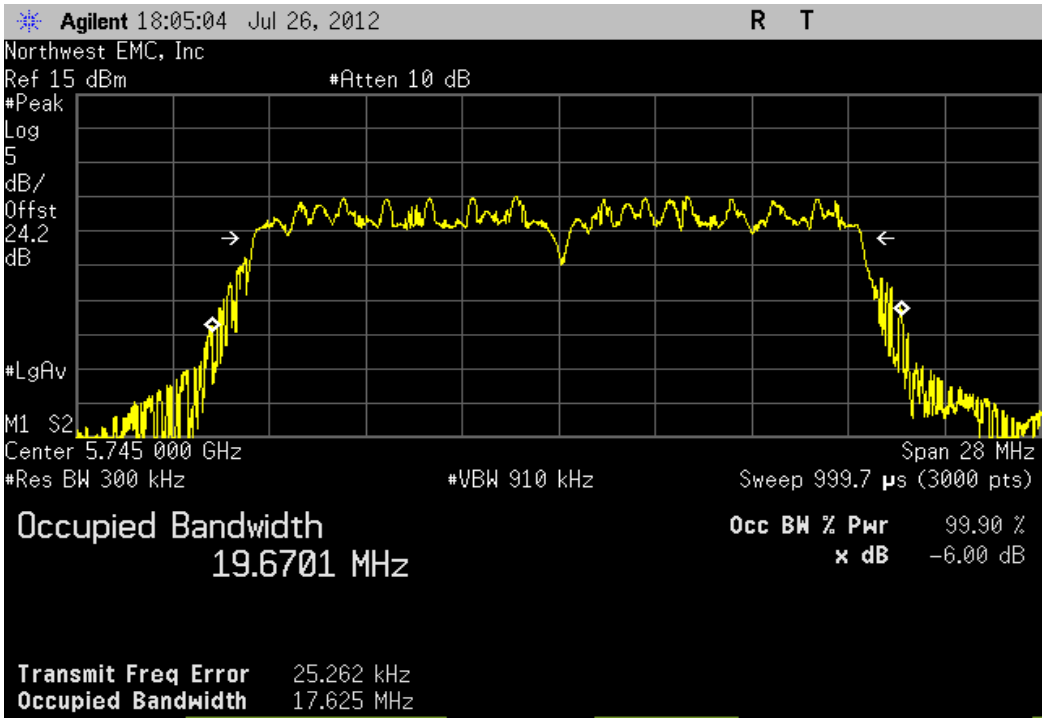
20MHz, 802.11(n) MCS15, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				17.506 MHz	> 500 kHz	Pass



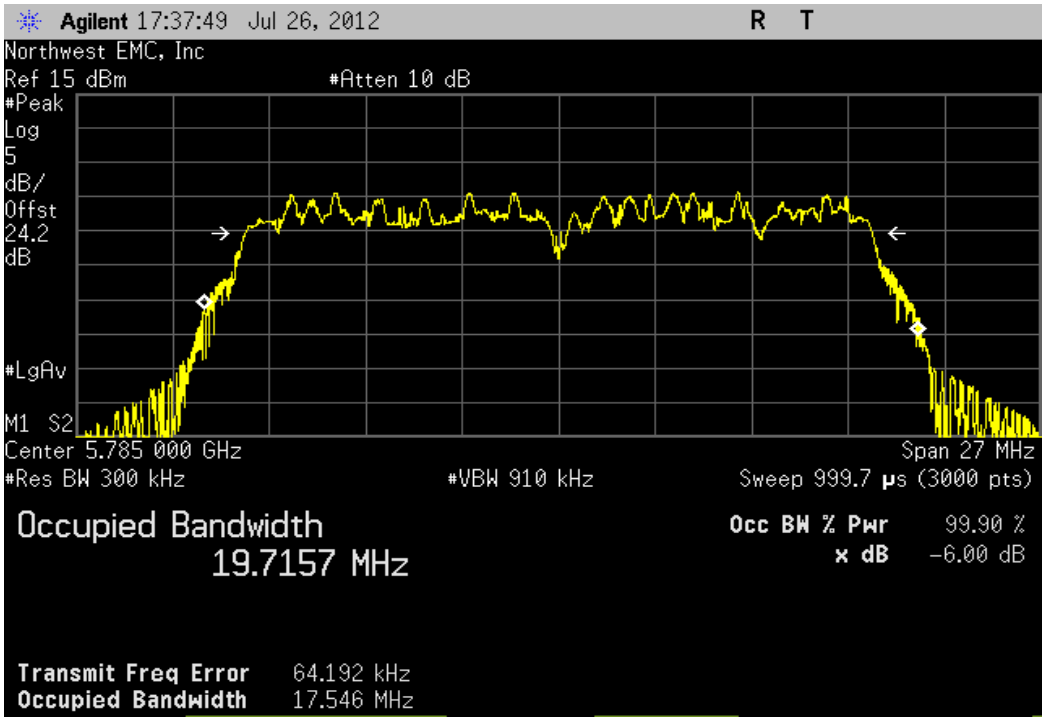
20MHz, 802.11(n) MCS15, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				17.625 MHz	> 500 kHz	Pass



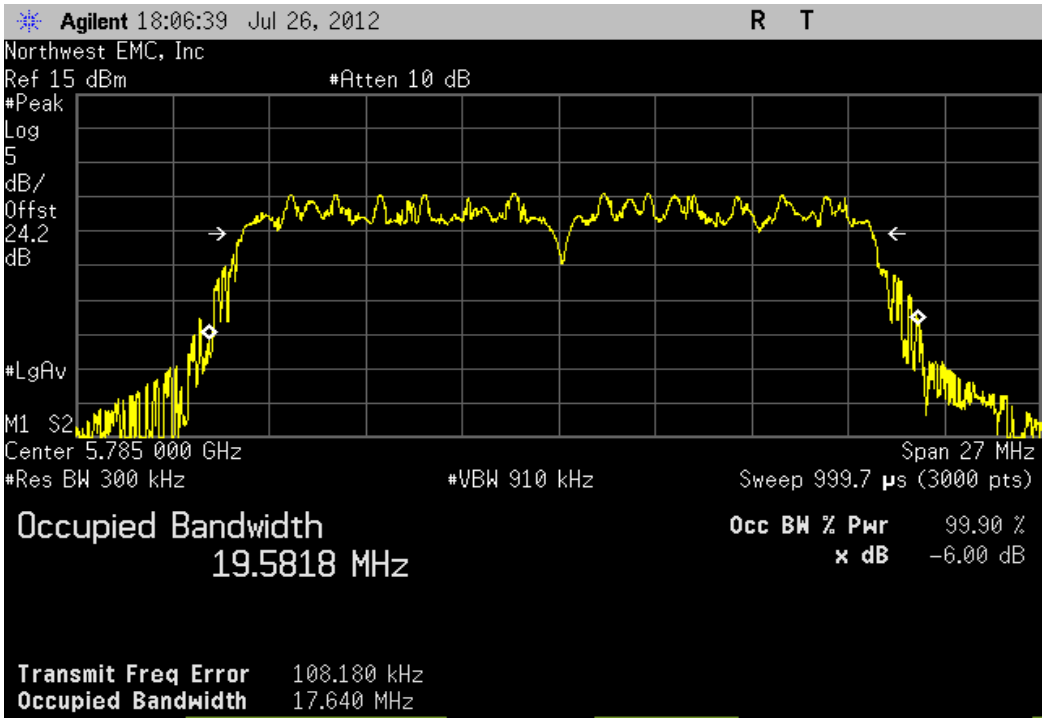
20MHz, 802.11(n) MCS15, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				17.546 MHz	> 500 kHz	Pass



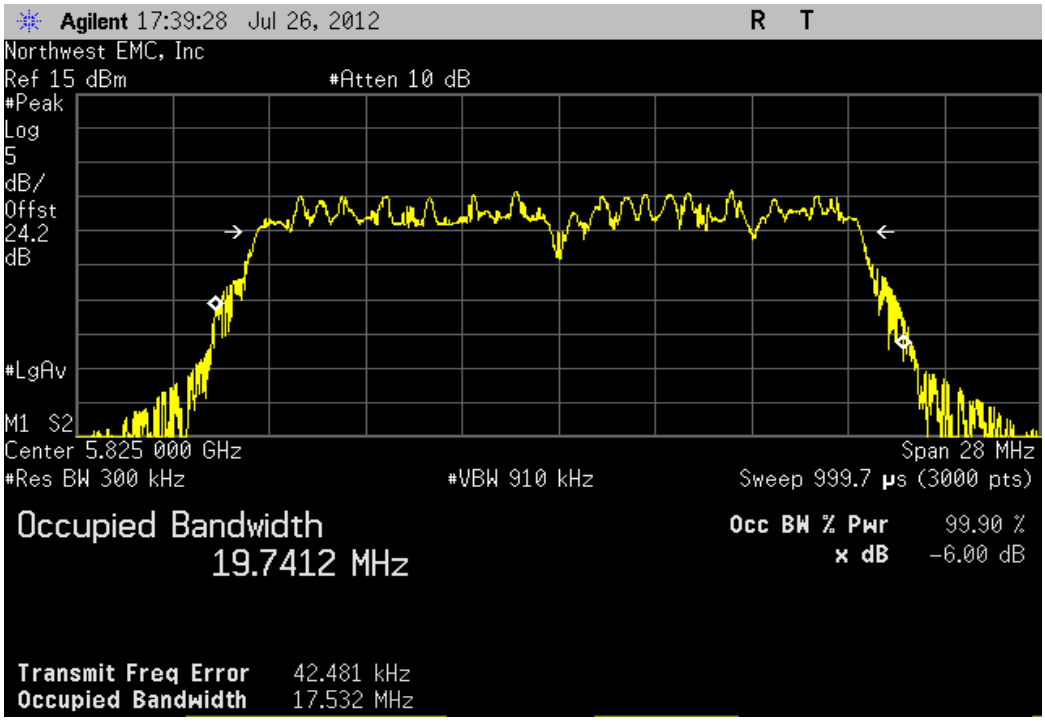
20MHz, 802.11(n) MCS15, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				17.64 MHz	> 500 kHz	Pass



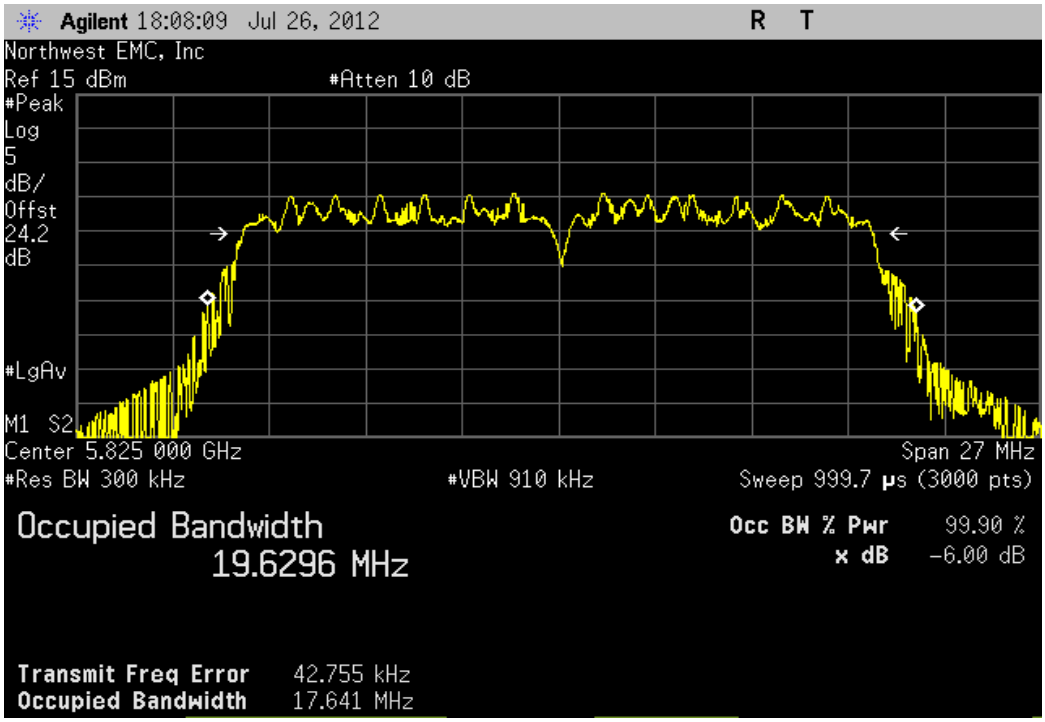
20MHz, 802.11(n) MCS15, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				17.532 MHz	> 500 kHz	Pass



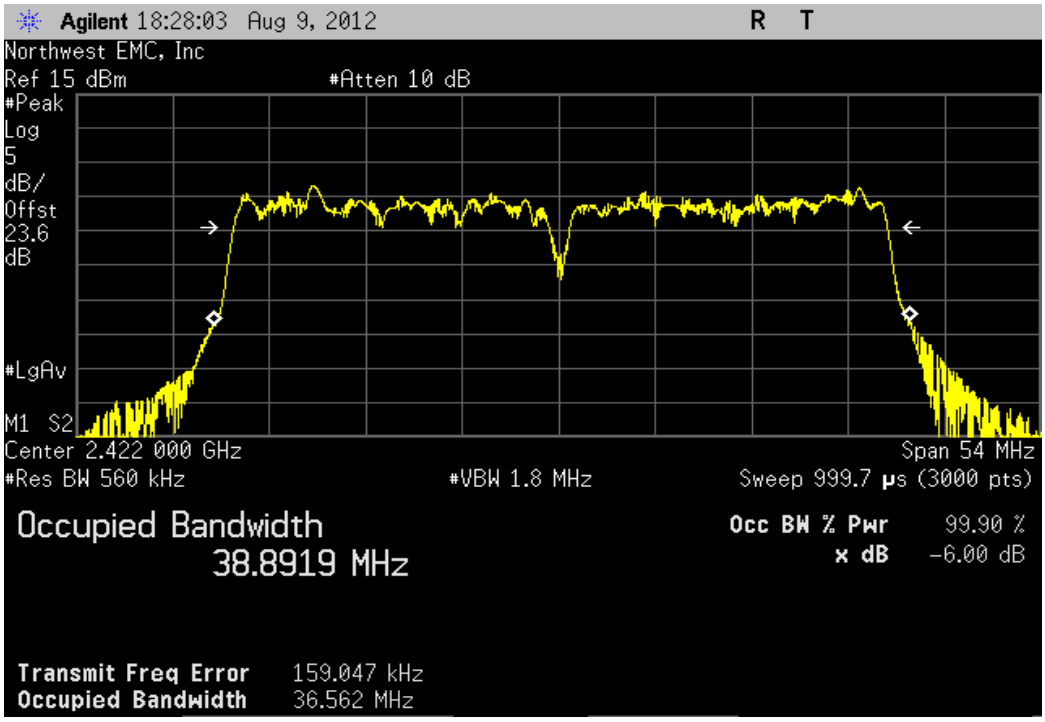
20MHz, 802.11(n) MCS15, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				17.641 MHz	> 500 kHz	Pass



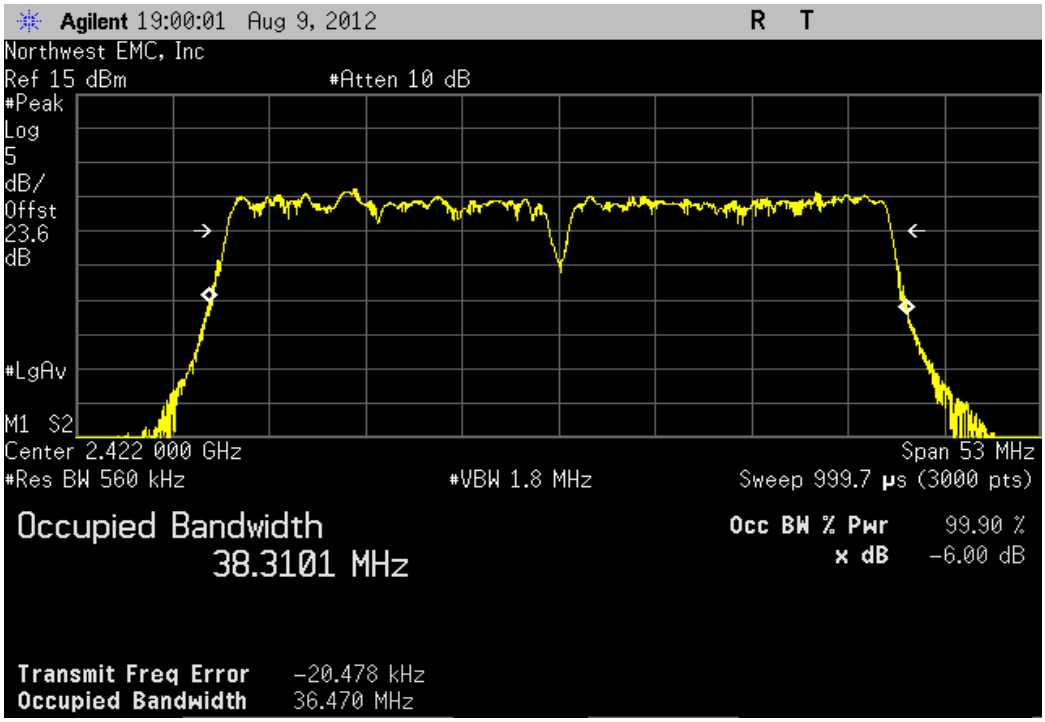
40MHz, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				36.562 MHz	> 500 kHz	Pass



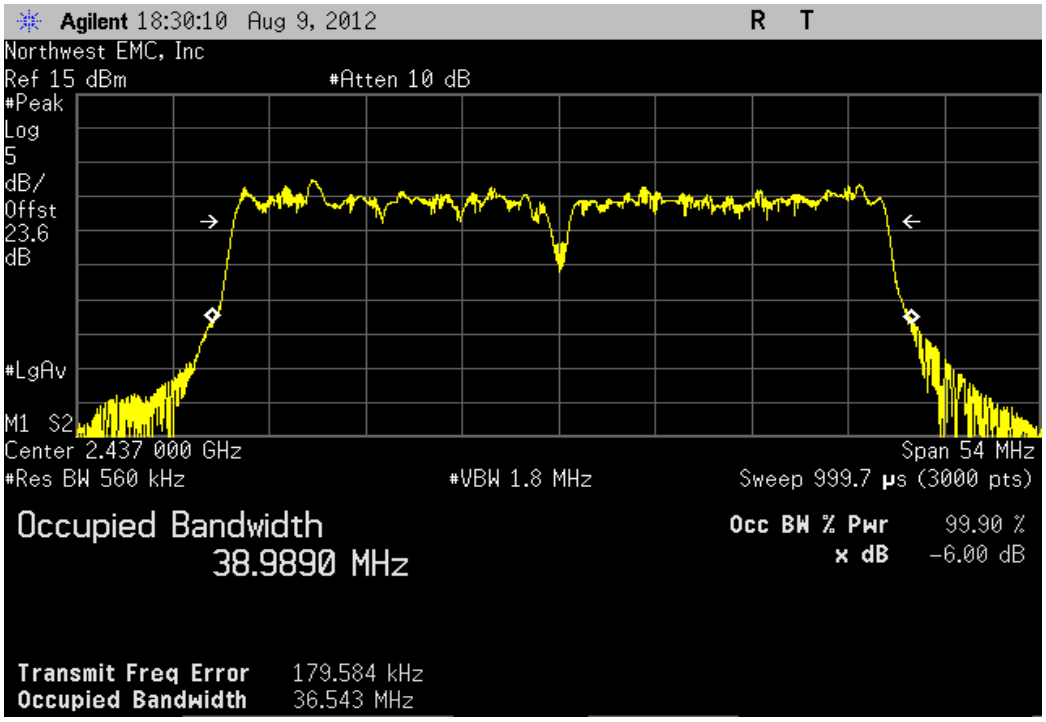
40MHz, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				36.47 MHz	> 500 kHz	Pass



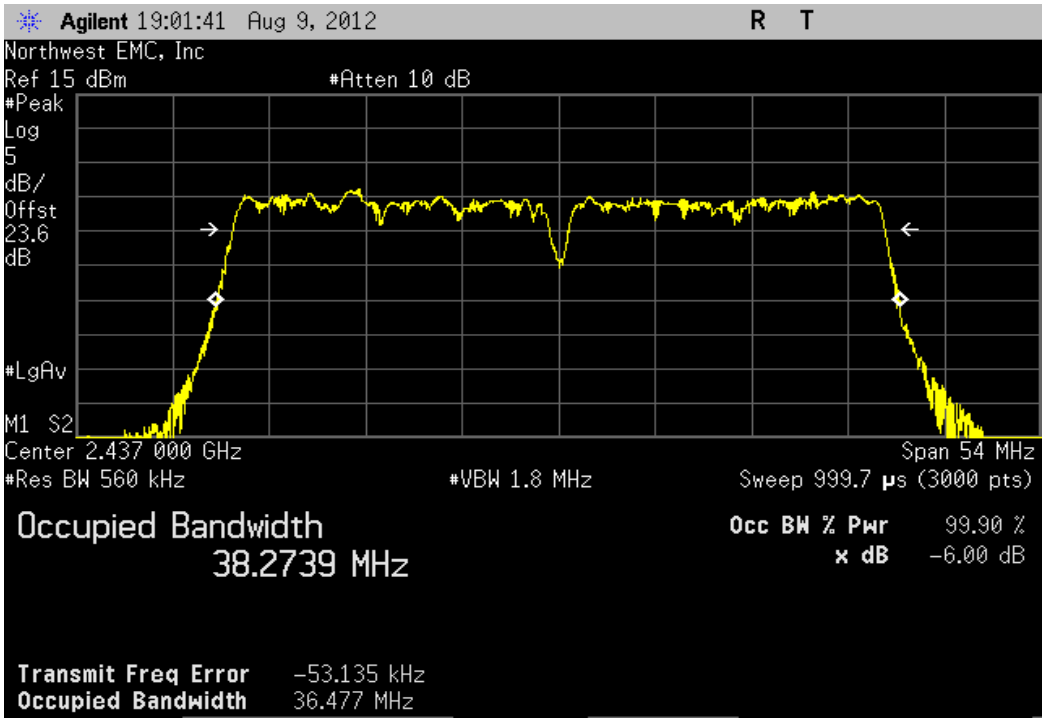
40MHz, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				36.543 MHz	> 500 kHz	Pass



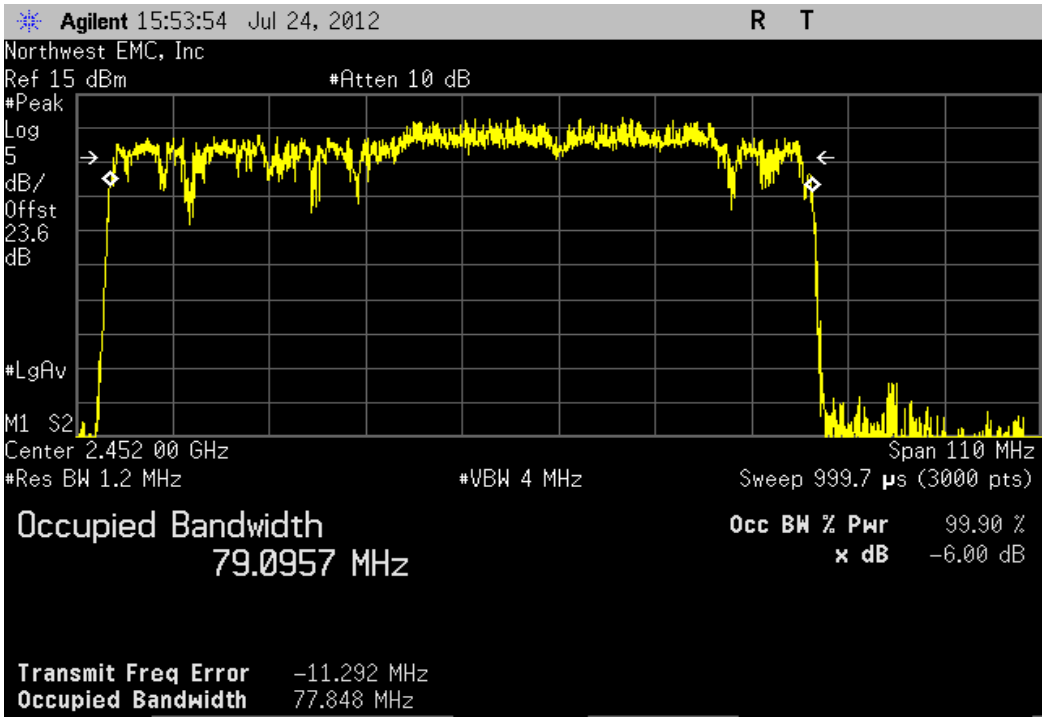
40MHz, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				36.477 MHz	> 500 kHz	Pass



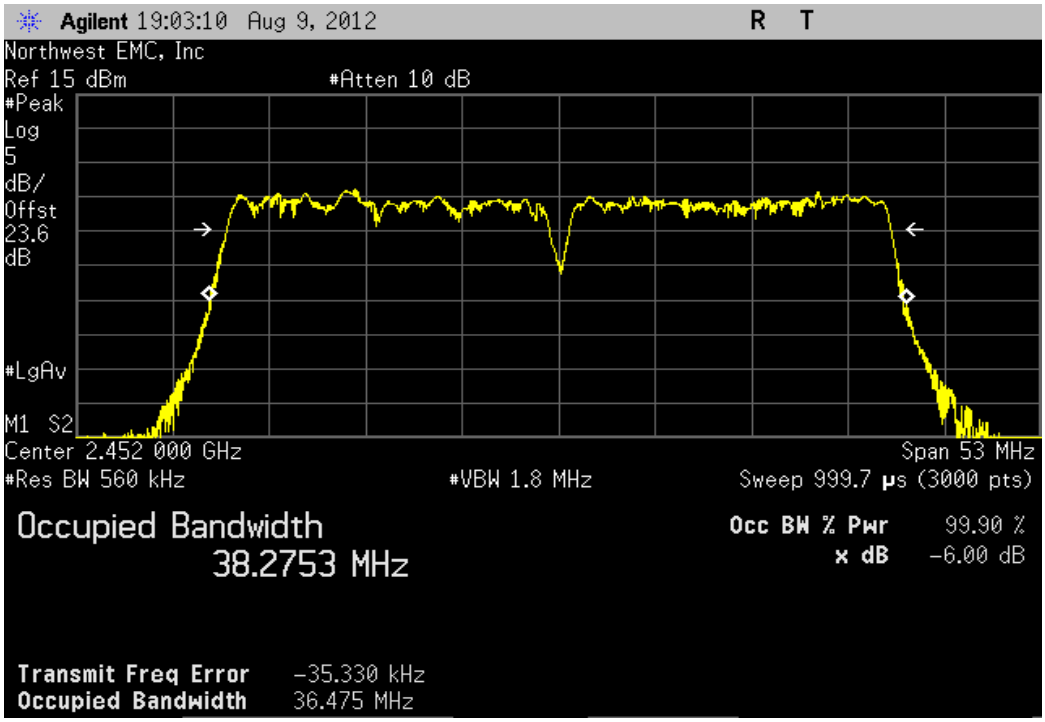
40MHz, 802.11(n) MCS0, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				77.848 MHz	> 500 kHz	Pass



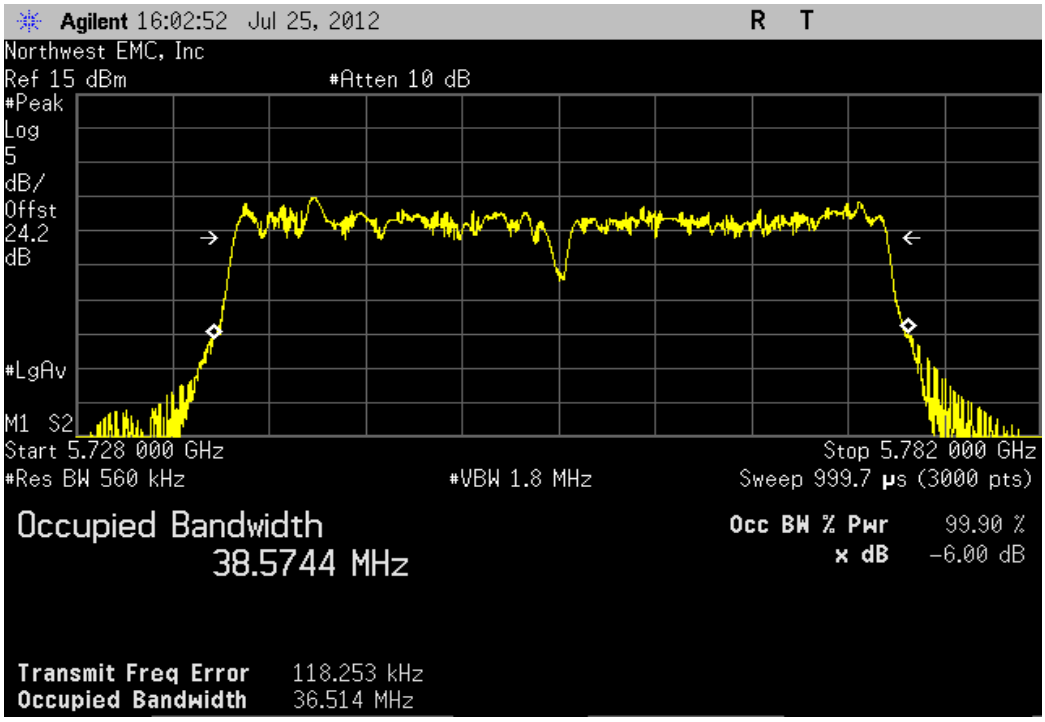
40MHz, 802.11(n) MCS0, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				36.475 MHz	> 500 kHz	Pass



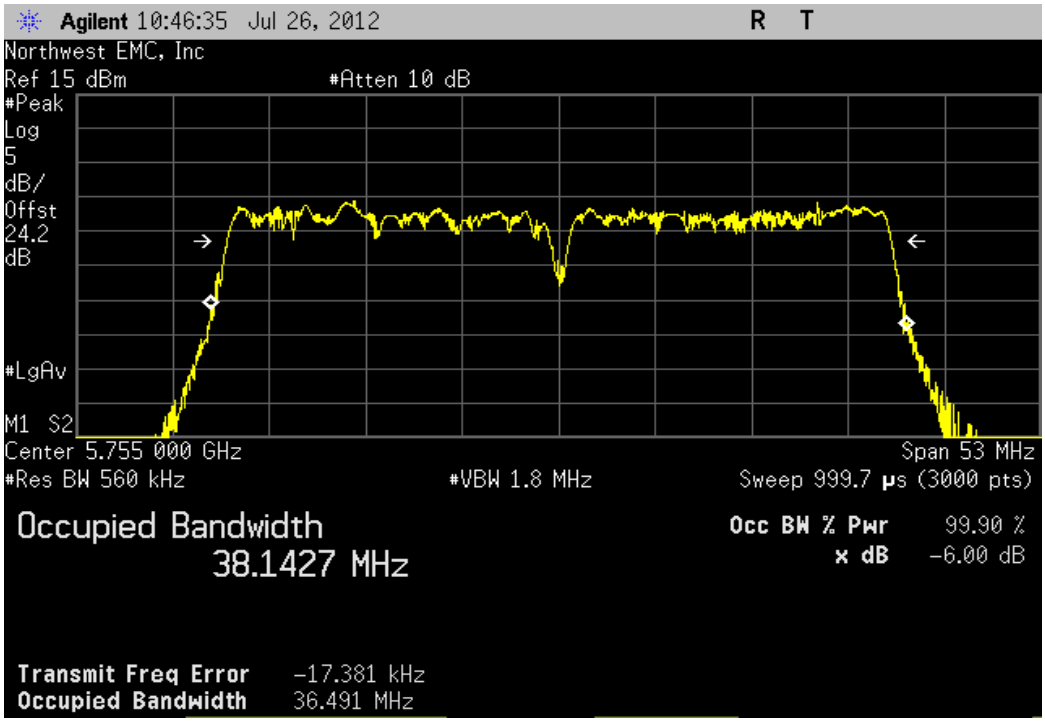
40MHz, 802.11(n) MCS0, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				36.514 MHz	> 500 kHz	Pass



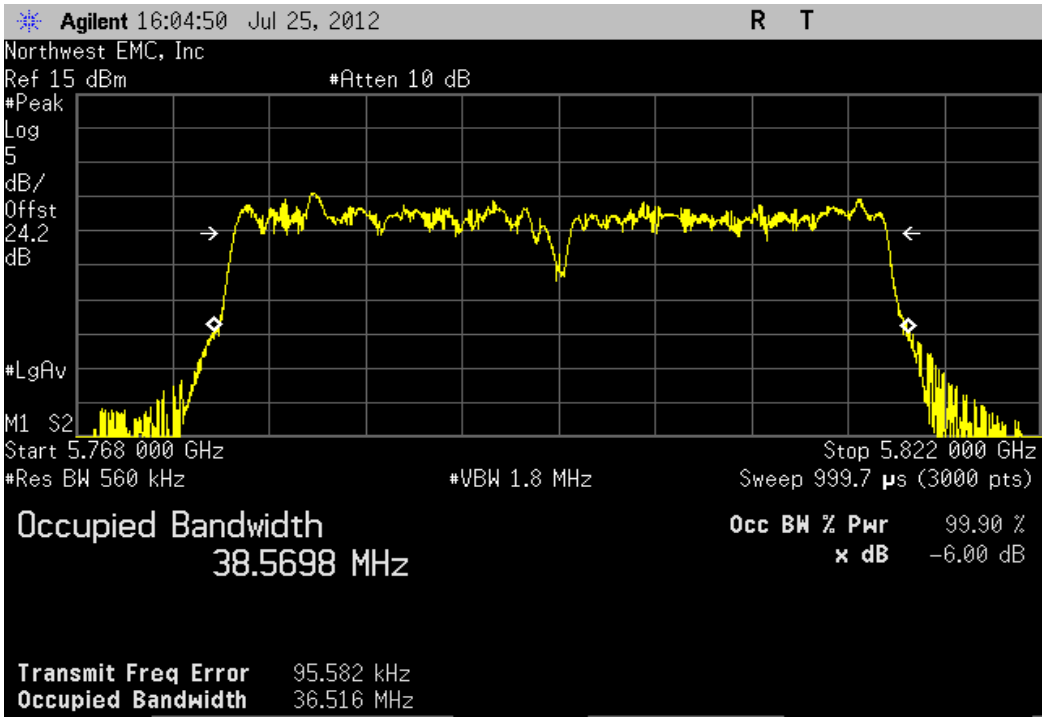
40MHz, 802.11(n) MCS0, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				36.491 MHz	> 500 kHz	Pass



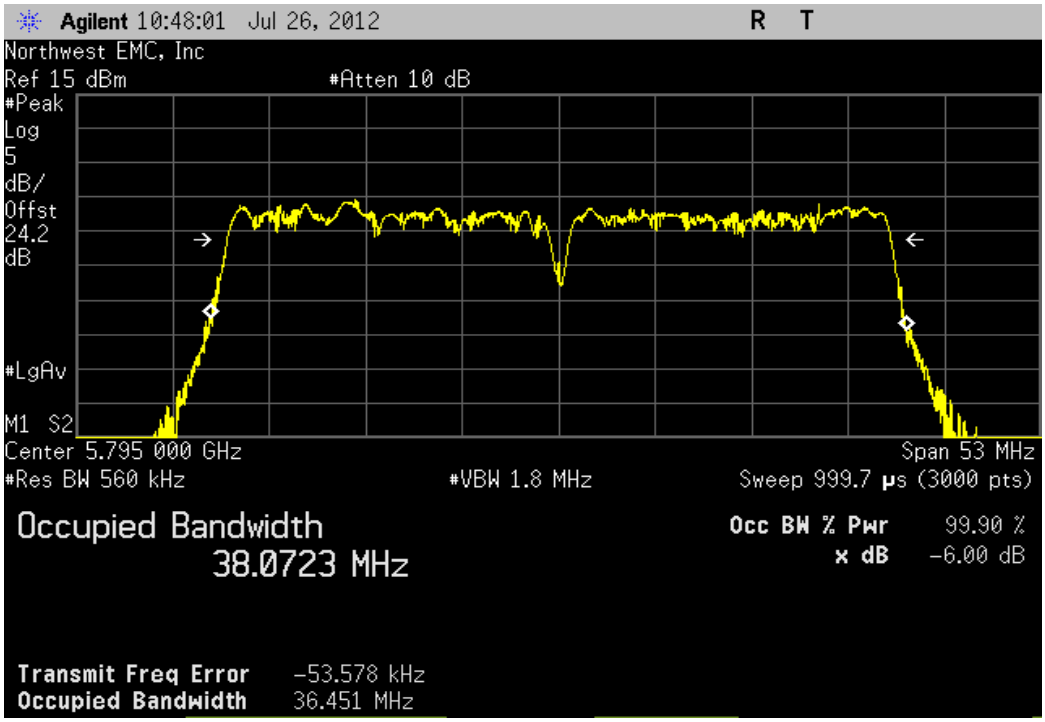
40MHz, 802.11(n) MCS0, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				36.516 MHz	> 500 kHz	Pass



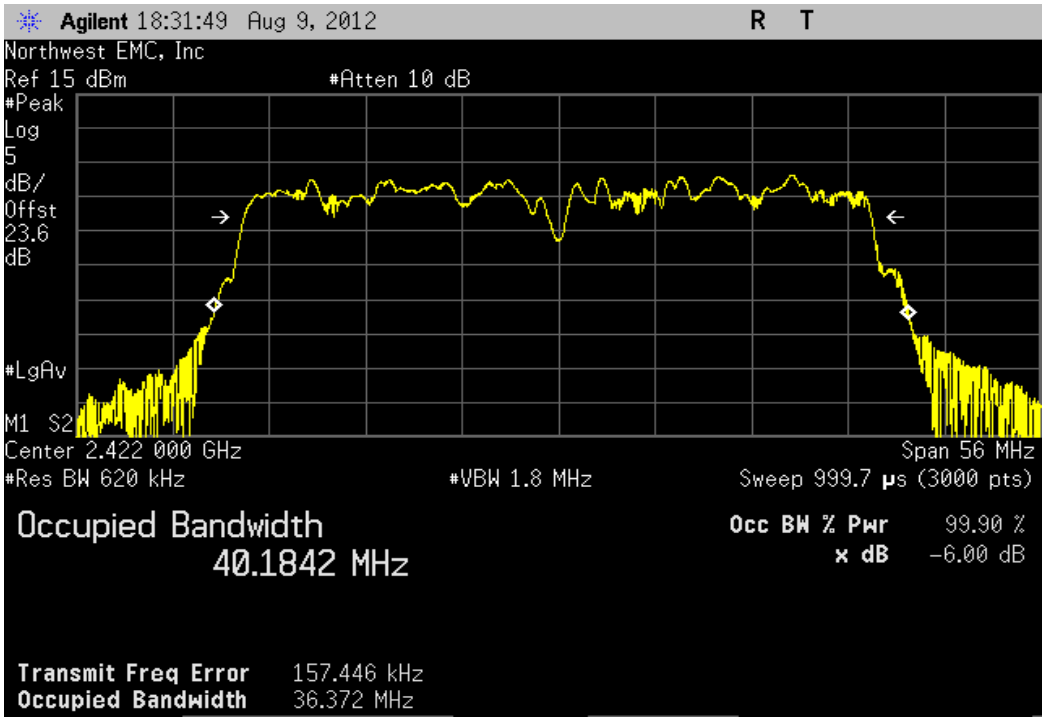
40MHz, 802.11(n) MCS0, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				36.451 MHz	> 500 kHz	Pass



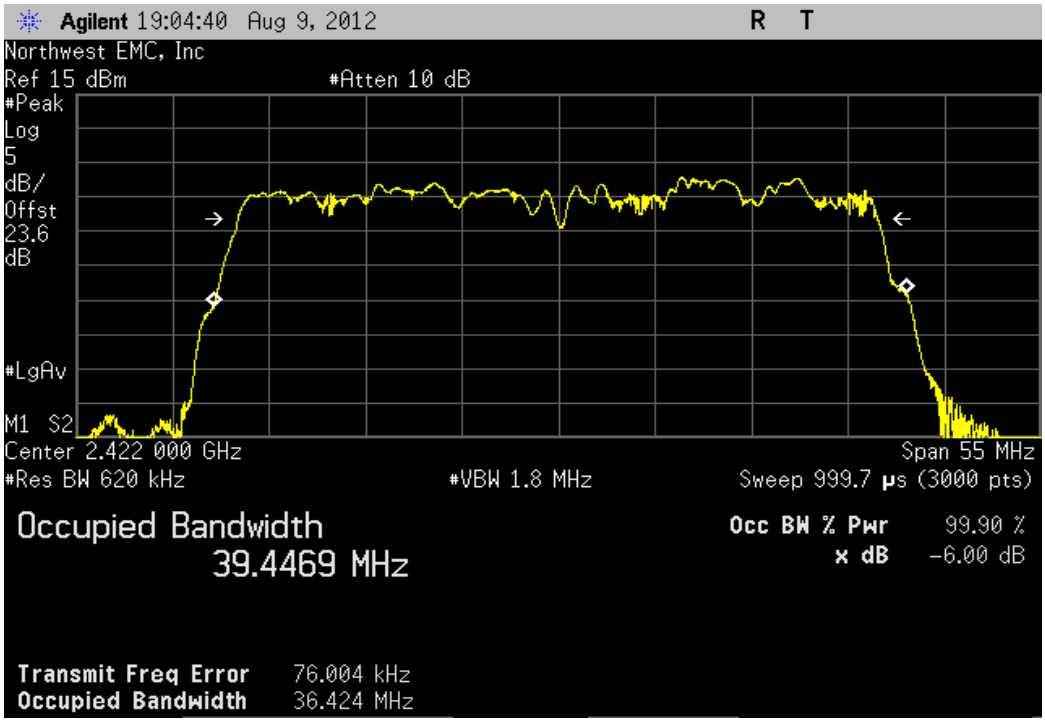
40MHz, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				36.372 MHz	> 500 kHz	Pass



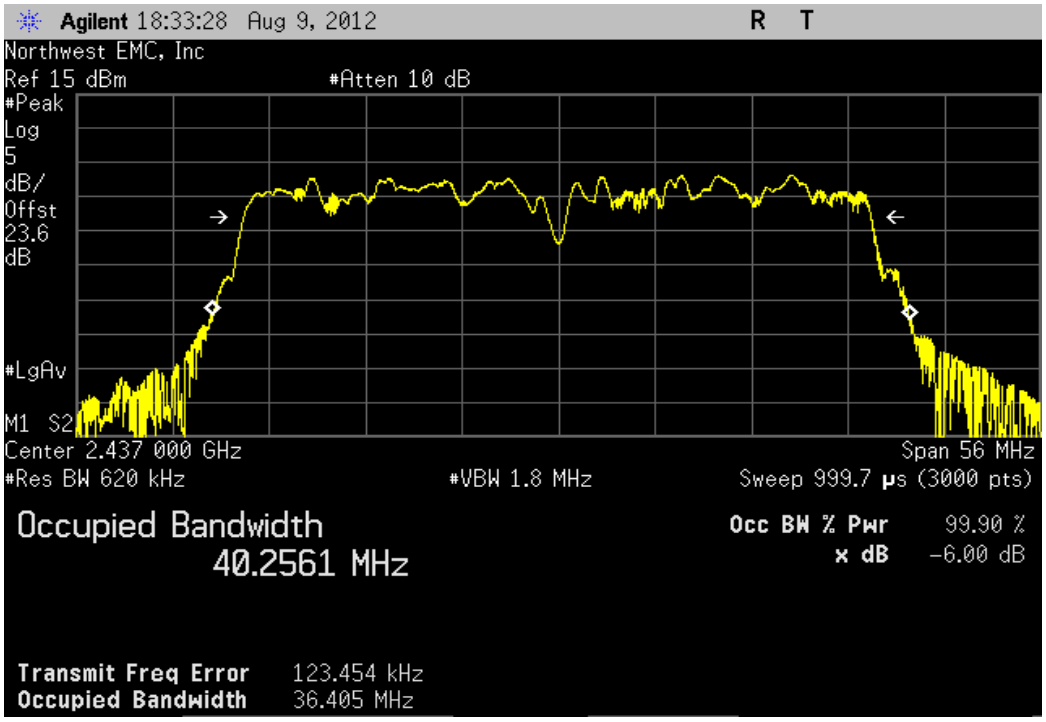
40MHz, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				36.424 MHz	> 500 kHz	Pass



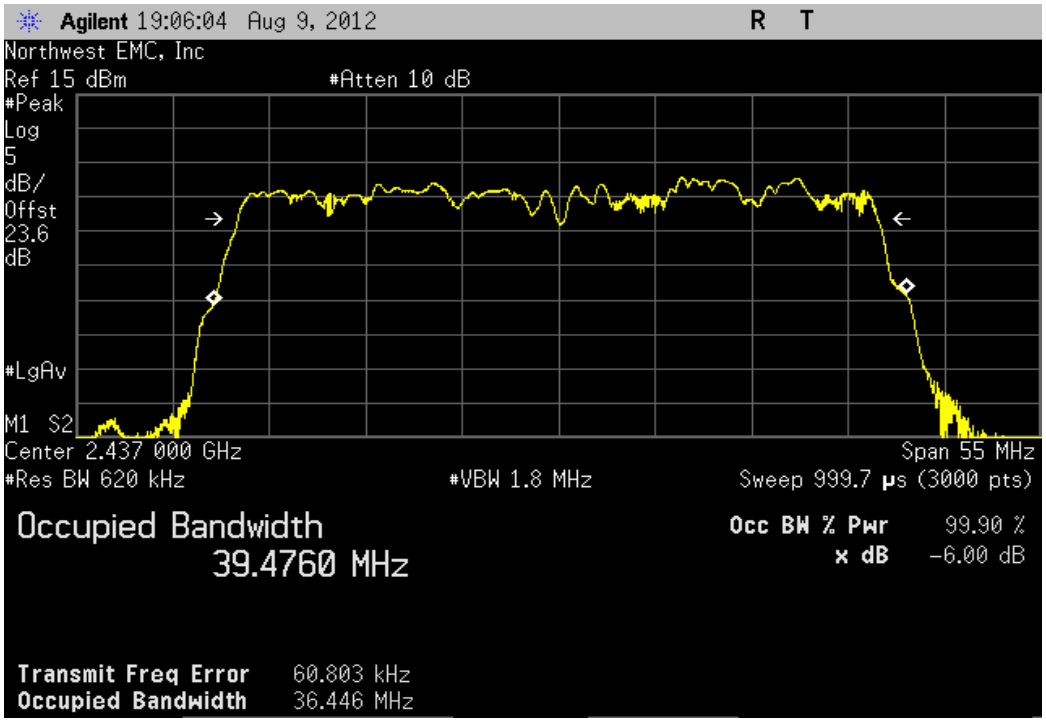
40MHz, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				36.406 MHz	> 500 kHz	Pass



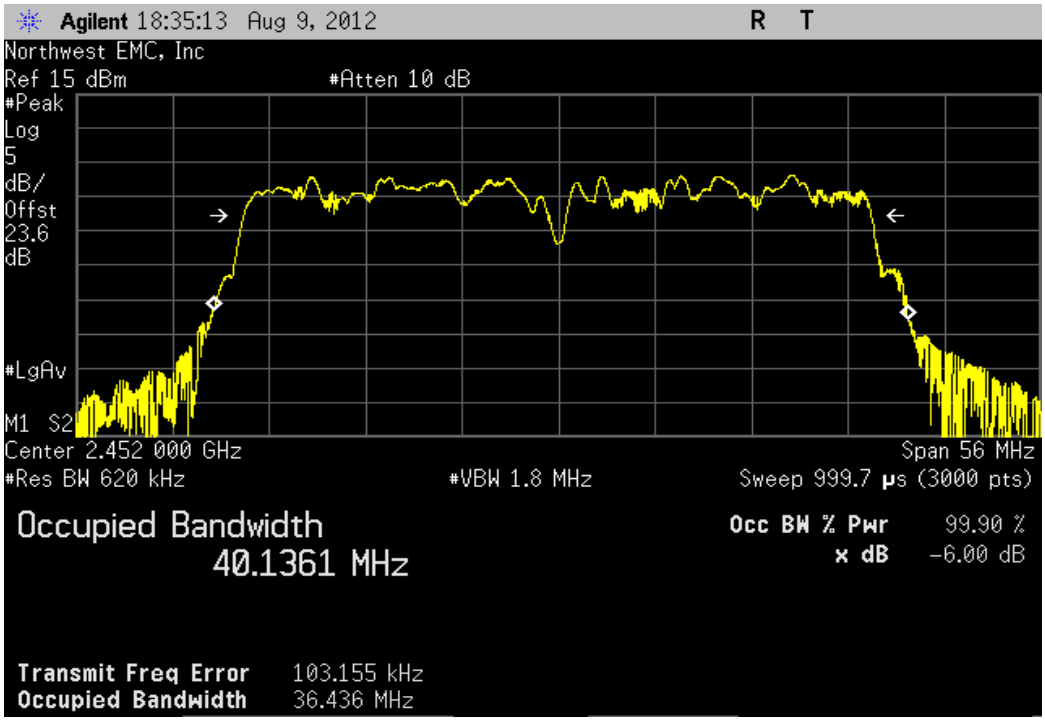
40MHz, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				36.446 MHz	> 500 kHz	Pass



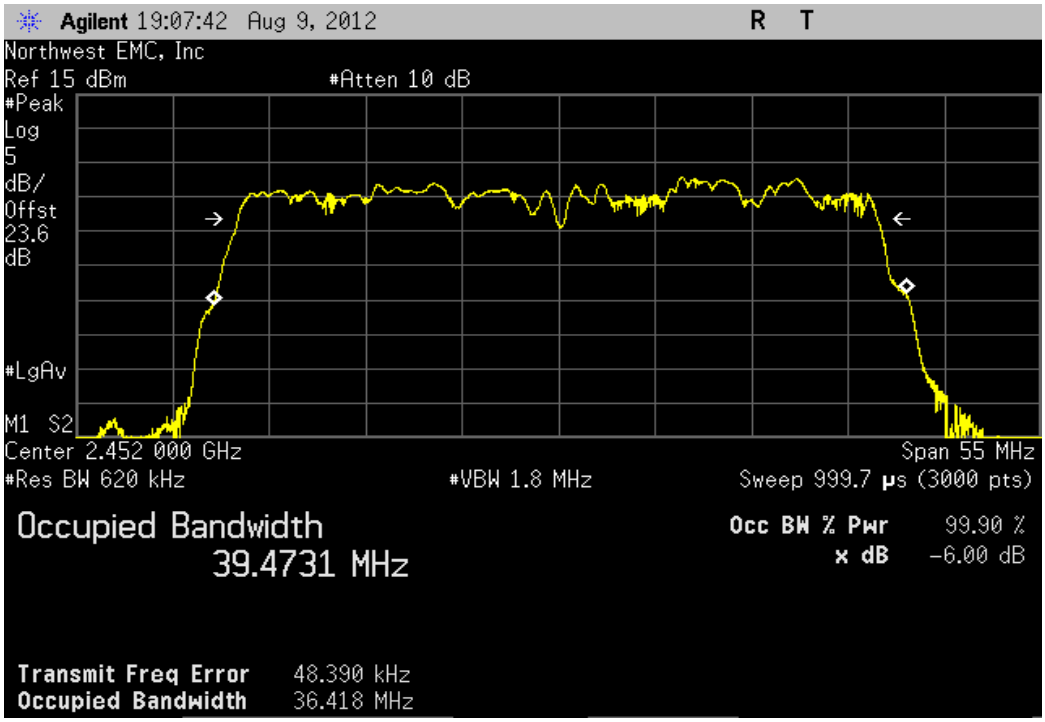
40MHz, 802.11(n) MCS7, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				36.436 MHz	> 500 kHz	Pass



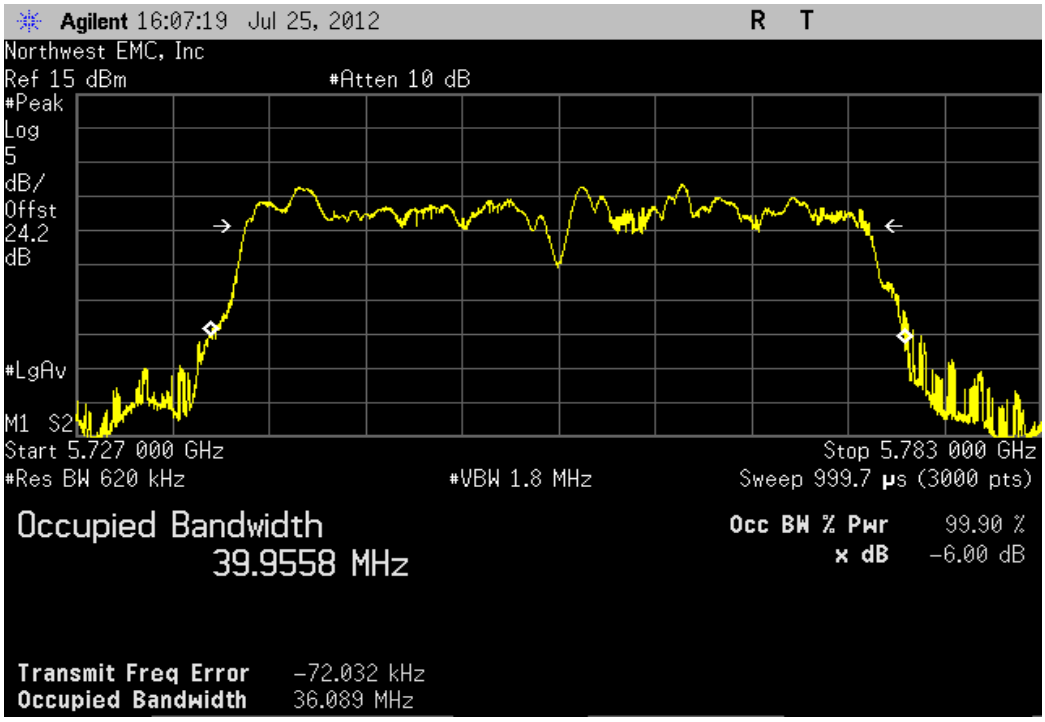
40MHz, 802.11(n) MCS7, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				36.418 MHz	> 500 kHz	Pass



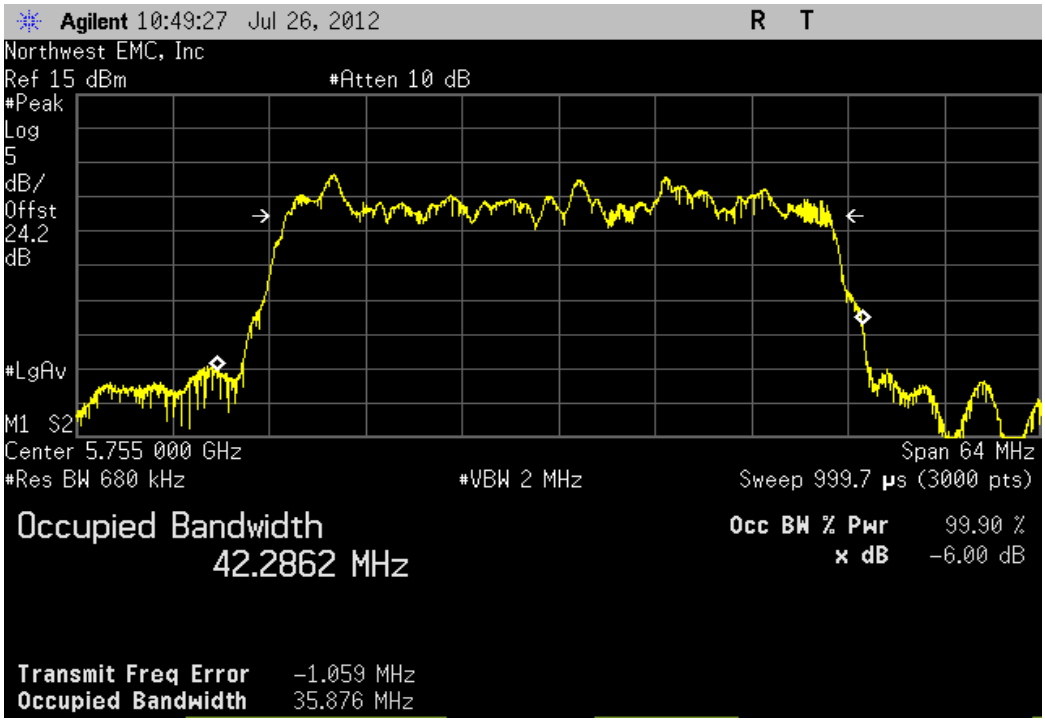
40MHz, 802.11(n) MCS7, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				36.089 MHz	> 500 kHz	Pass



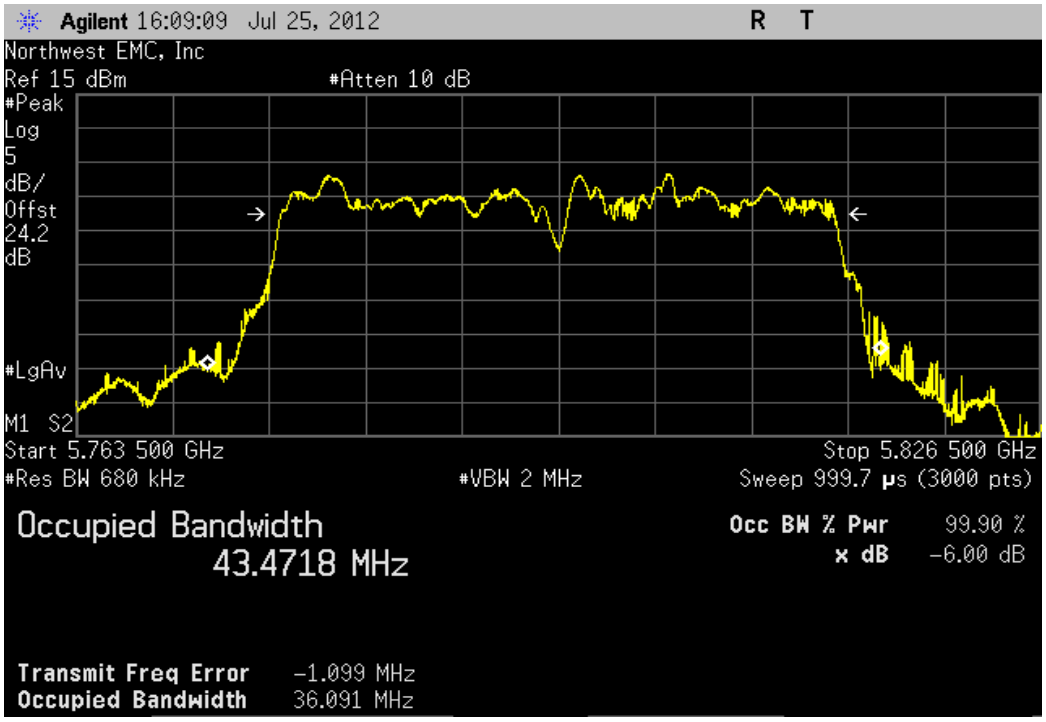
40MHz, 802.11(n) MCS7, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				35.876 MHz	> 500 kHz	Pass



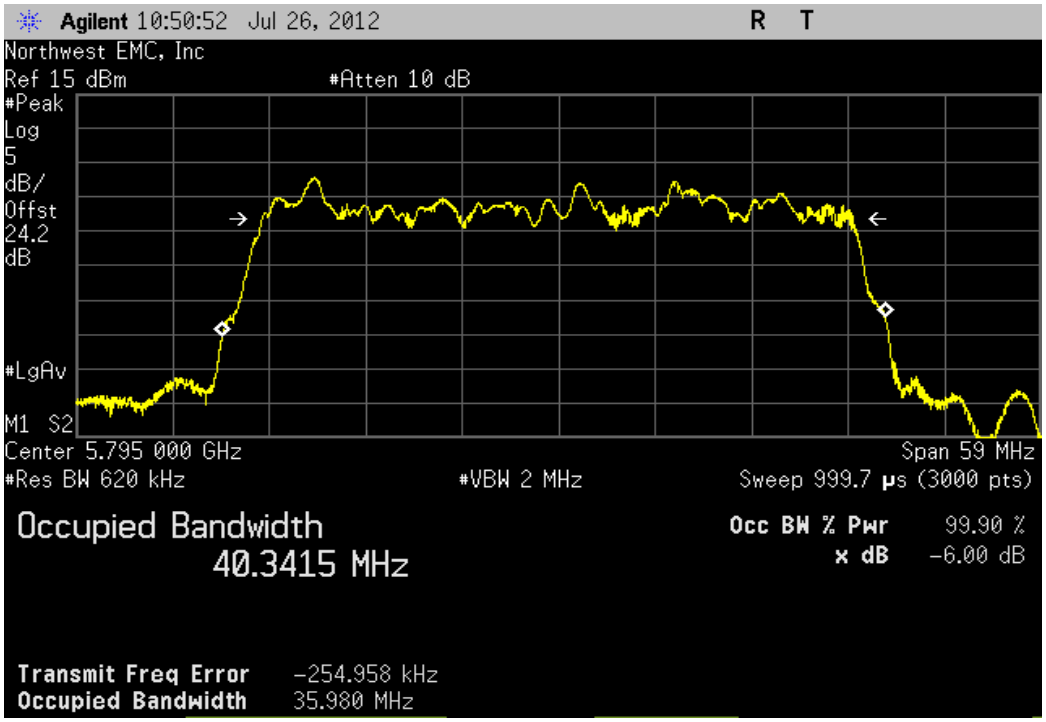
40MHz, 802.11(n) MCS7, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				36.091 MHz	> 500 kHz	Pass



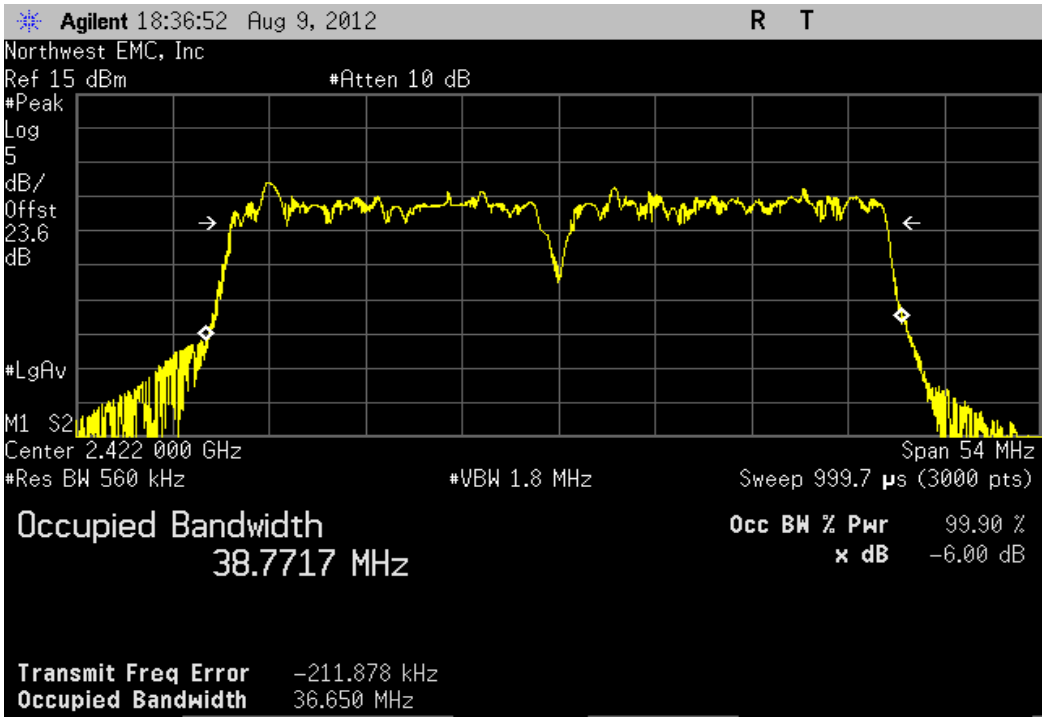
40MHz, 802.11(n) MCS7, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				35.98 MHz	> 500 kHz	Pass



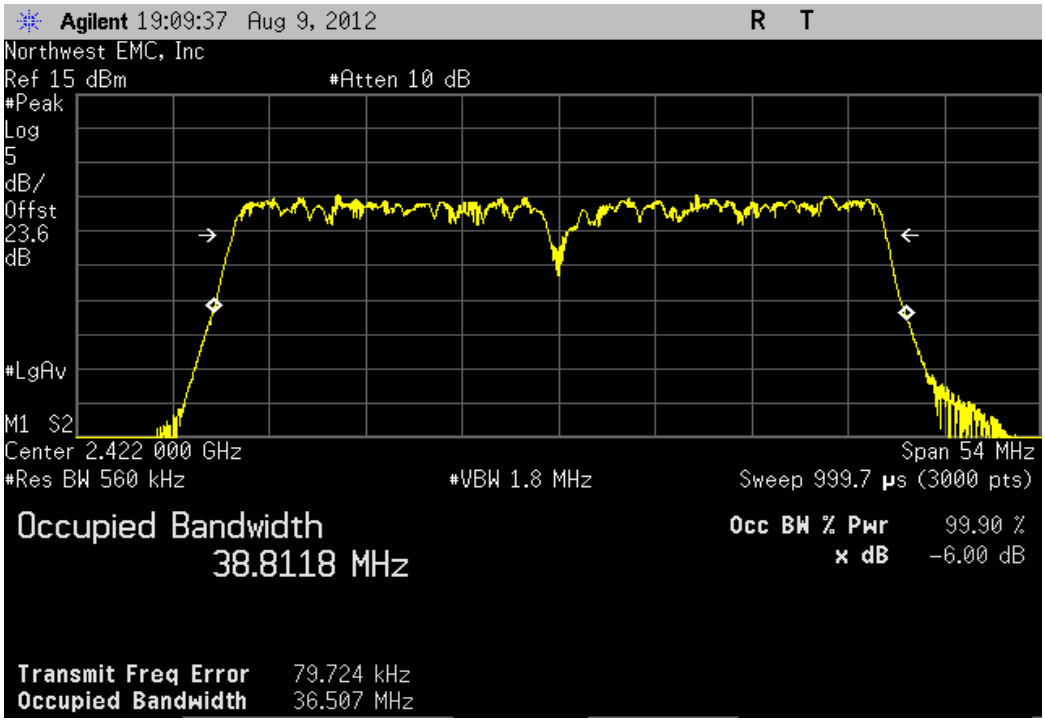
40MHz, 802.11(n) MCS8, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				36.65 MHz	> 500 kHz	Pass



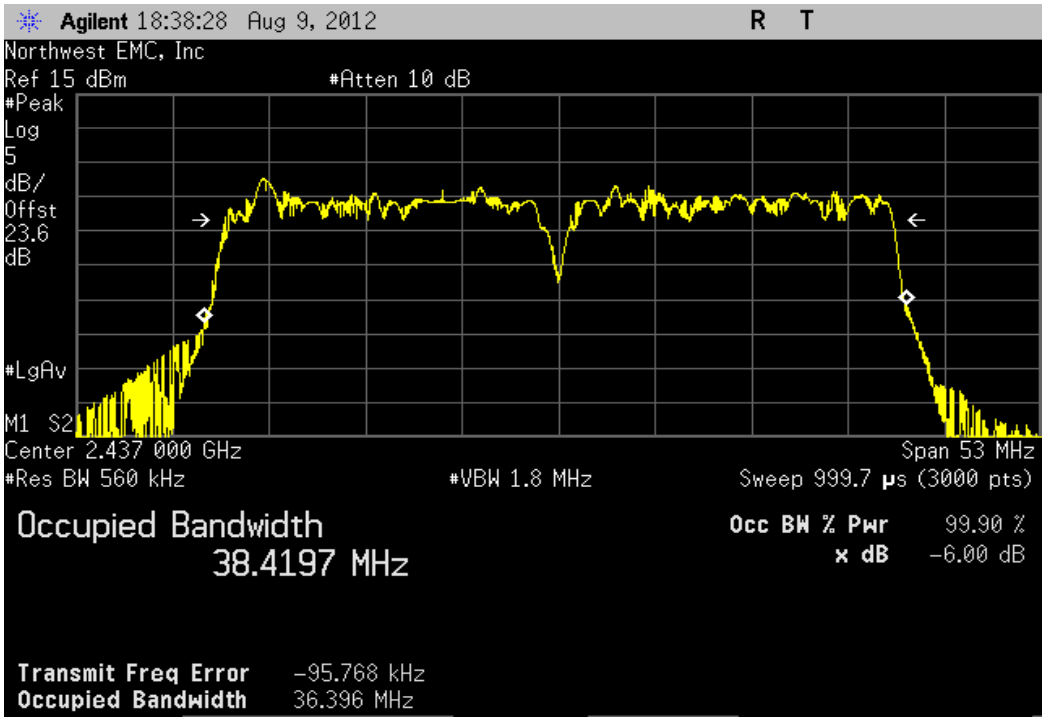
40MHz, 802.11(n) MCS8, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				36.507 MHz	> 500 kHz	Pass



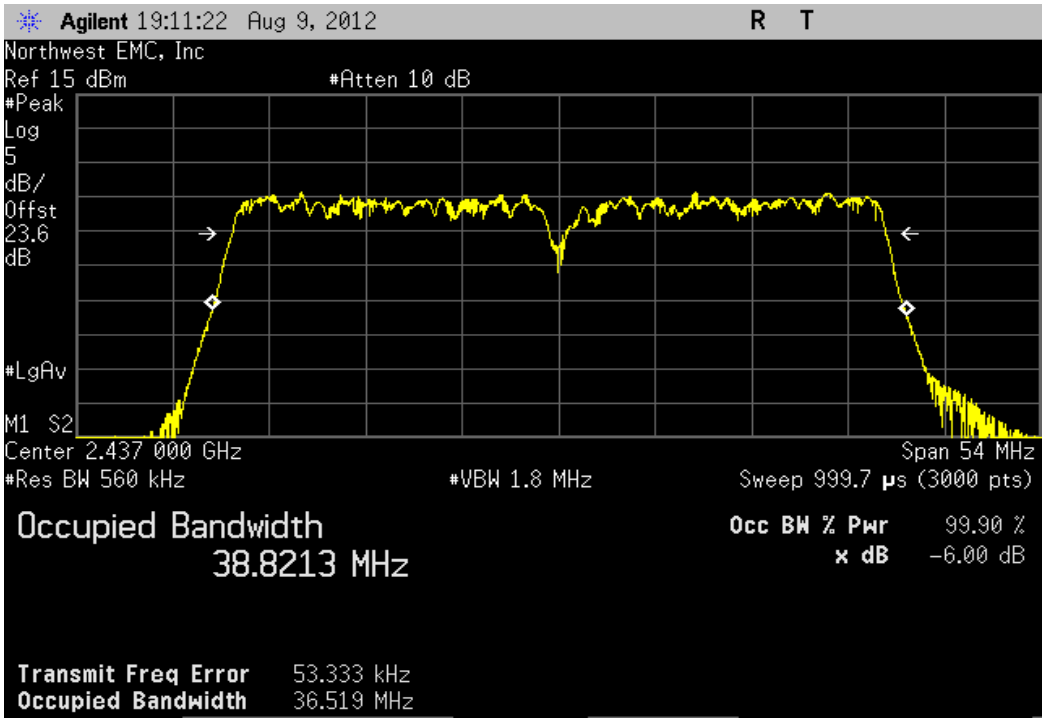
40MHz, 802.11(n) MCS8, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				36.396 MHz	> 500 kHz	Pass



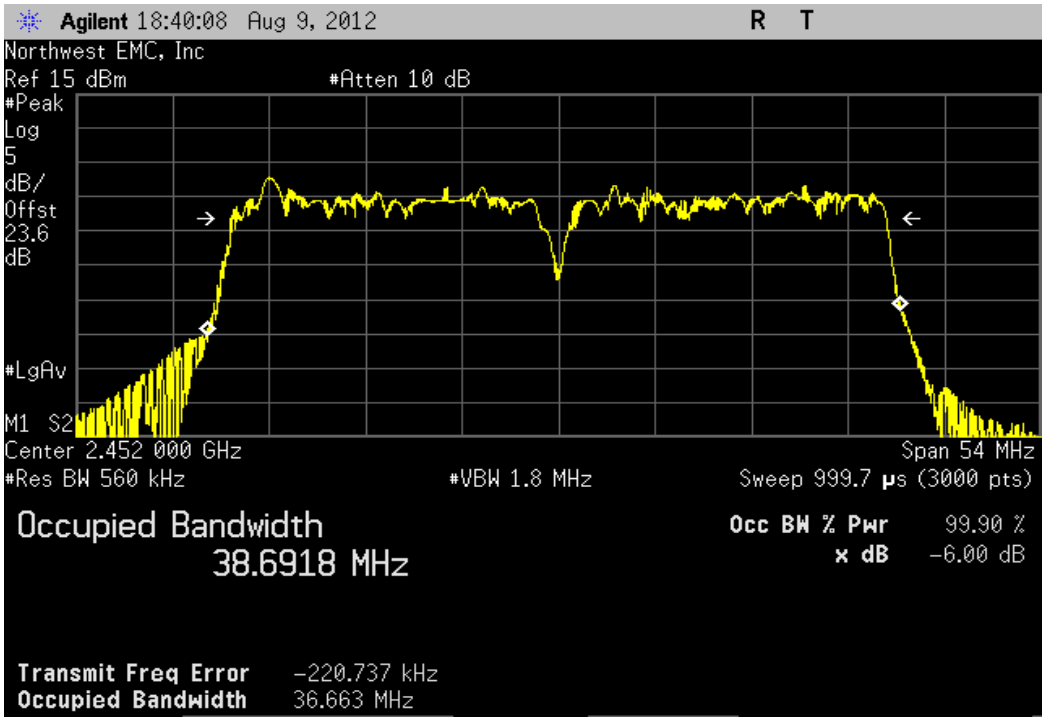
40MHz, 802.11(n) MCS8, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				36.519 MHz	> 500 kHz	Pass



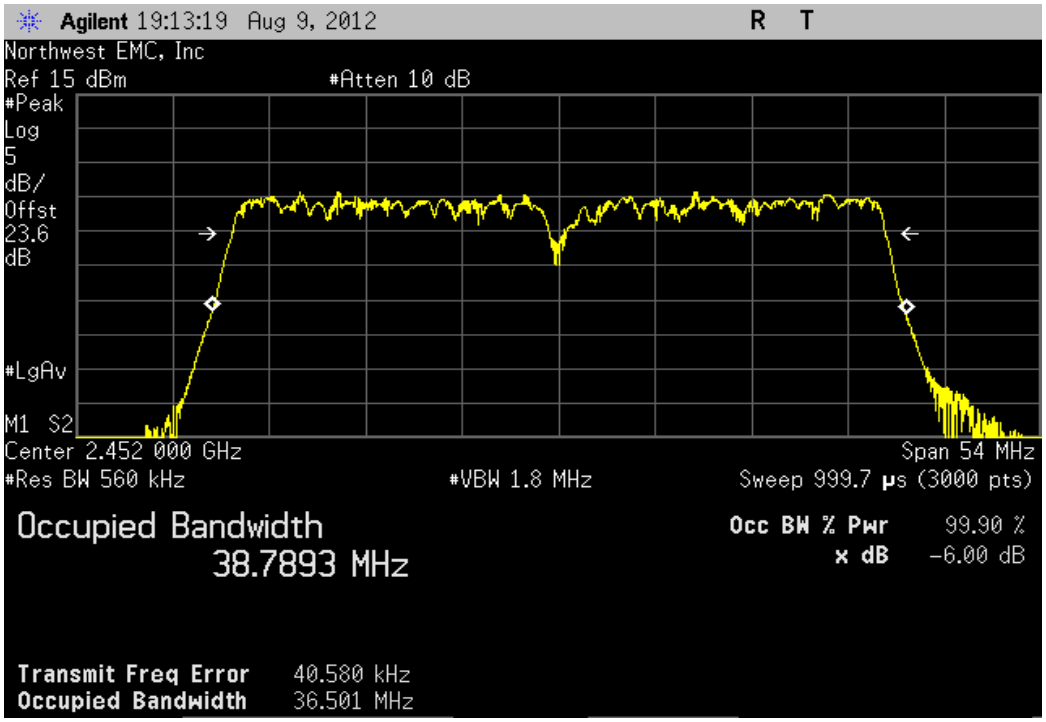
40MHz, 802.11(n) MCS8, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				36.663 MHz	> 500 kHz	Pass



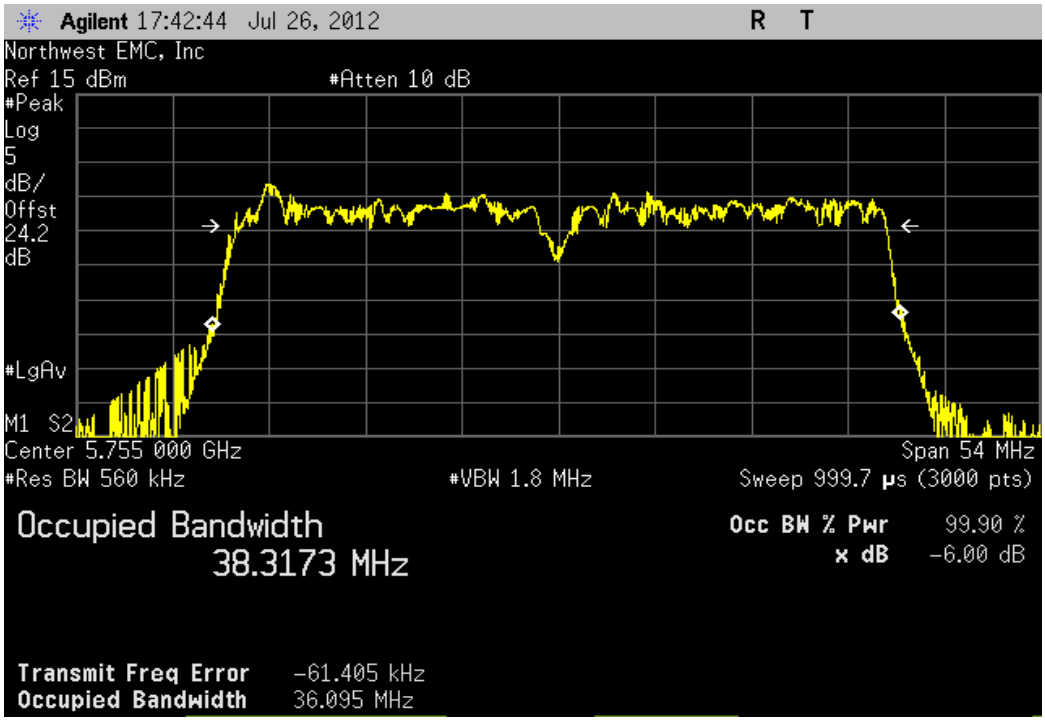
40MHz, 802.11(n) MCS8, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				36.501 MHz	> 500 kHz	Pass



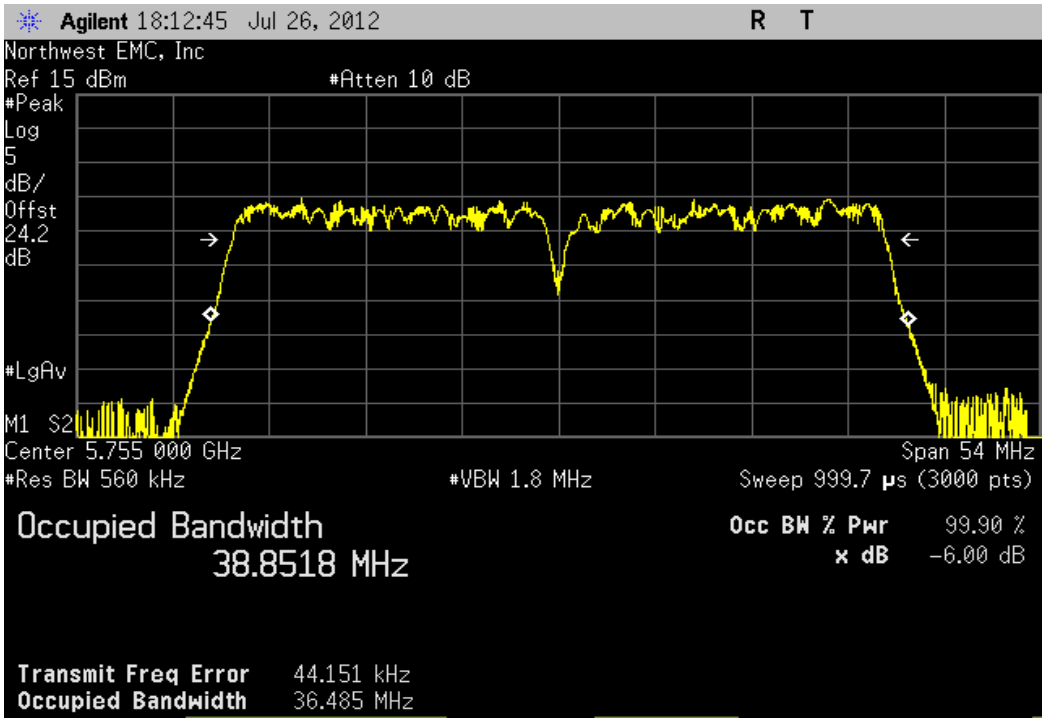
40MHz, 802.11(n) MCS8, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				36.095 MHz	> 500 kHz	Pass



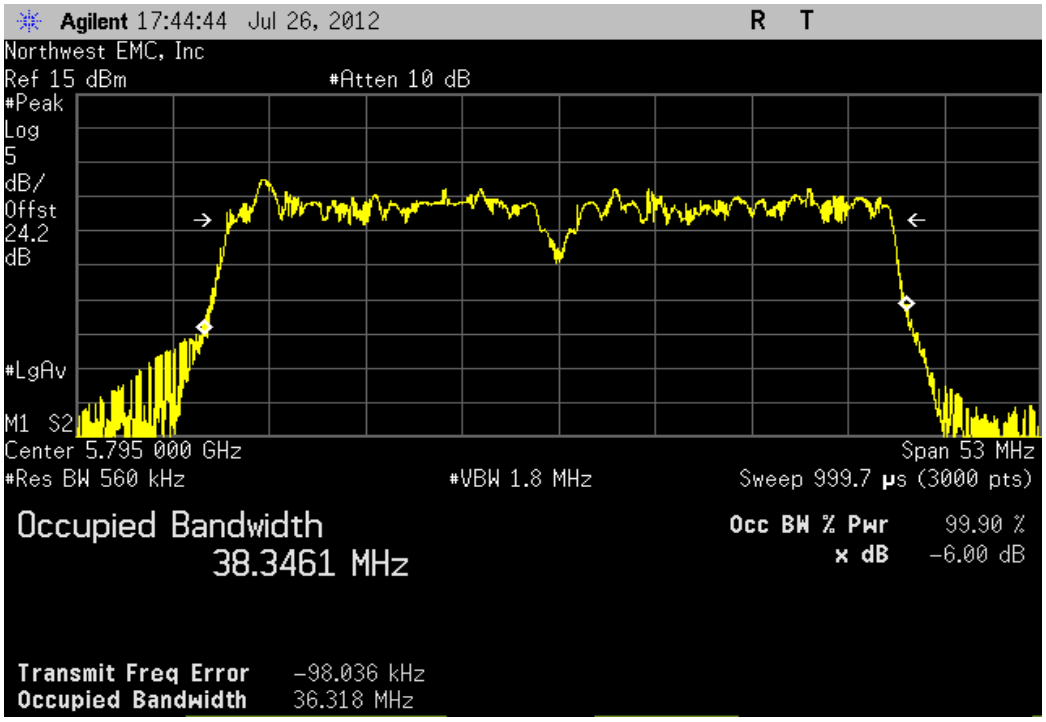
40MHz, 802.11(n) MCS8, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				36.485 MHz	> 500 kHz	Pass



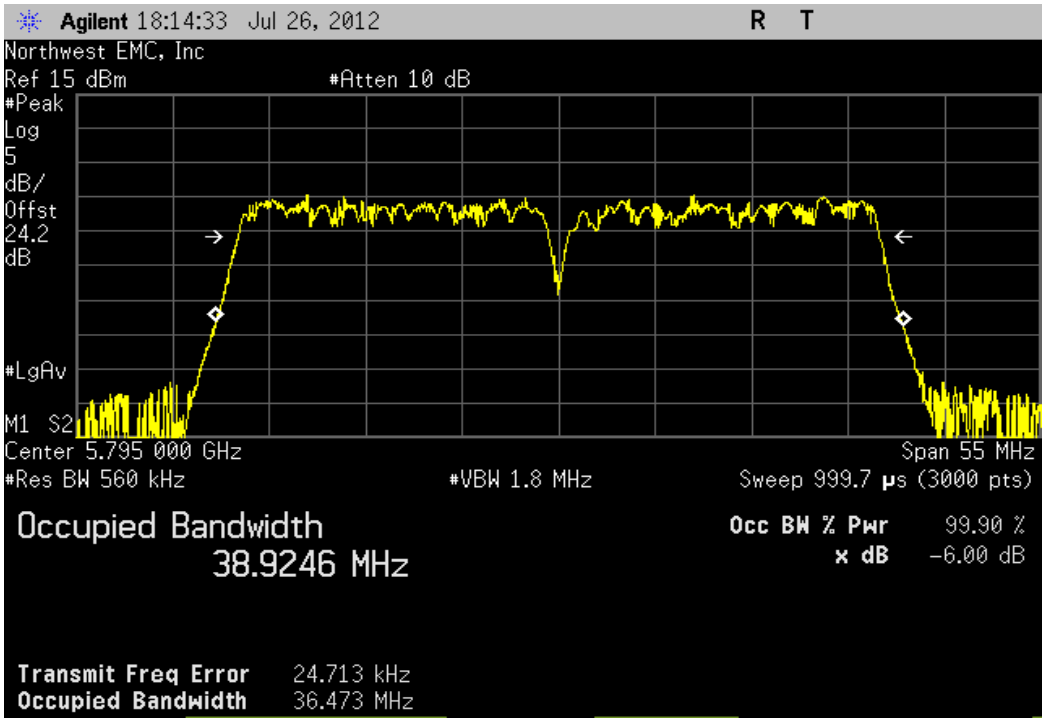
40MHz, 802.11(n) MCS8, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				36.318 MHz	> 500 kHz	Pass



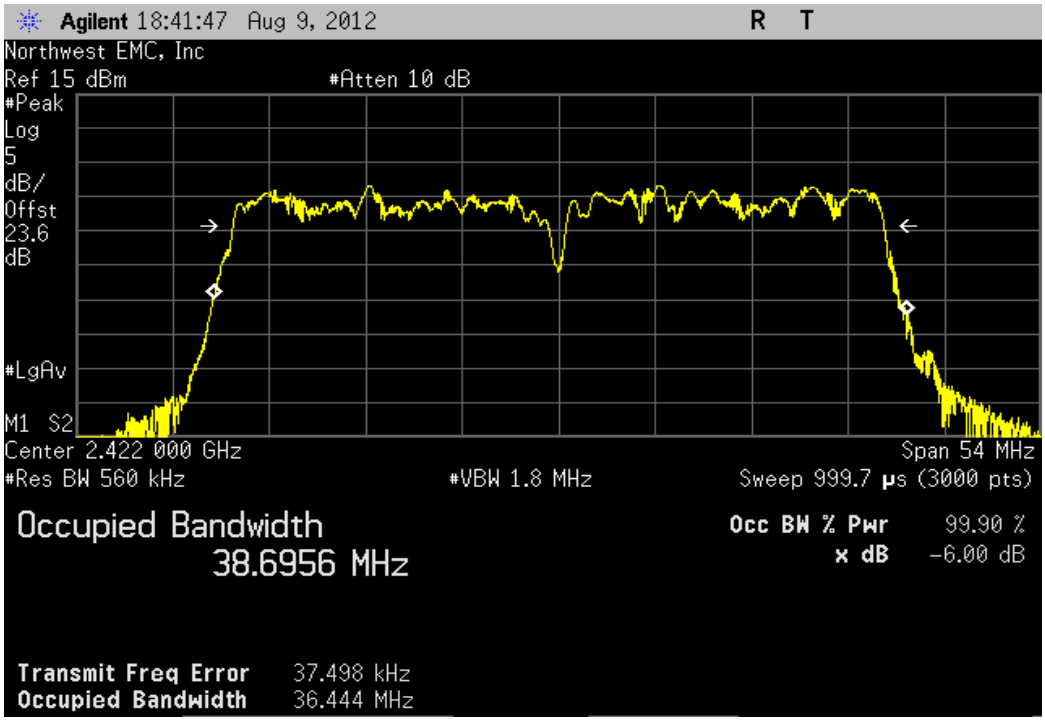
40MHz, 802.11(n) MCS8, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				36.473 MHz	> 500 kHz	Pass



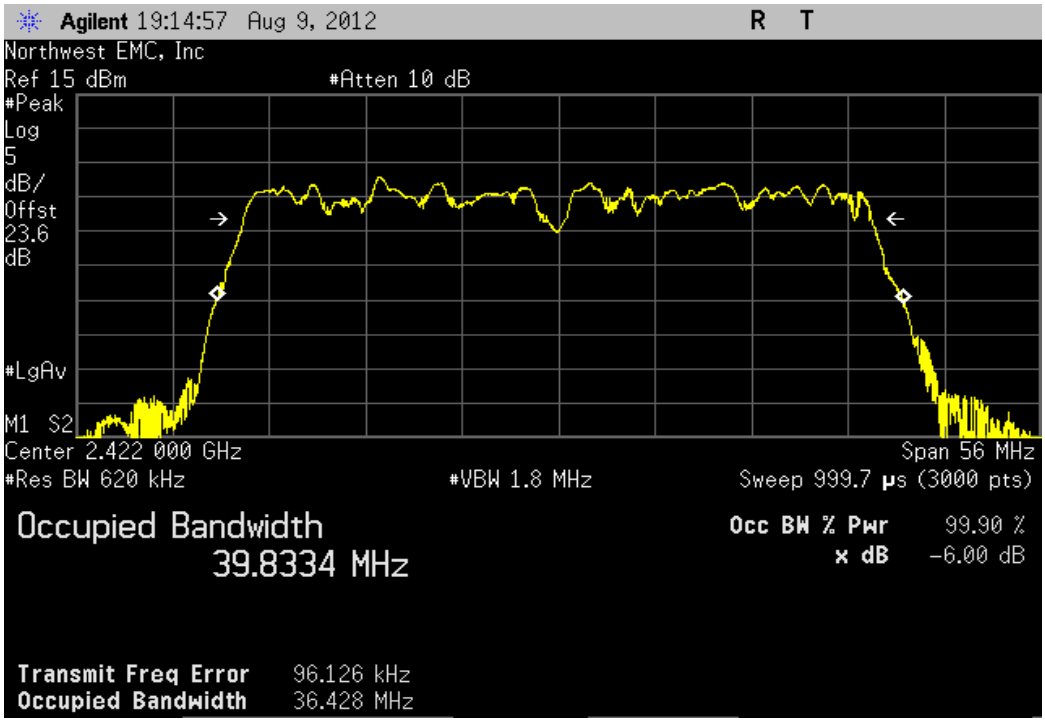
40MHz, 802.11(n) MCS15, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				36.444 MHz	> 500 kHz	Pass



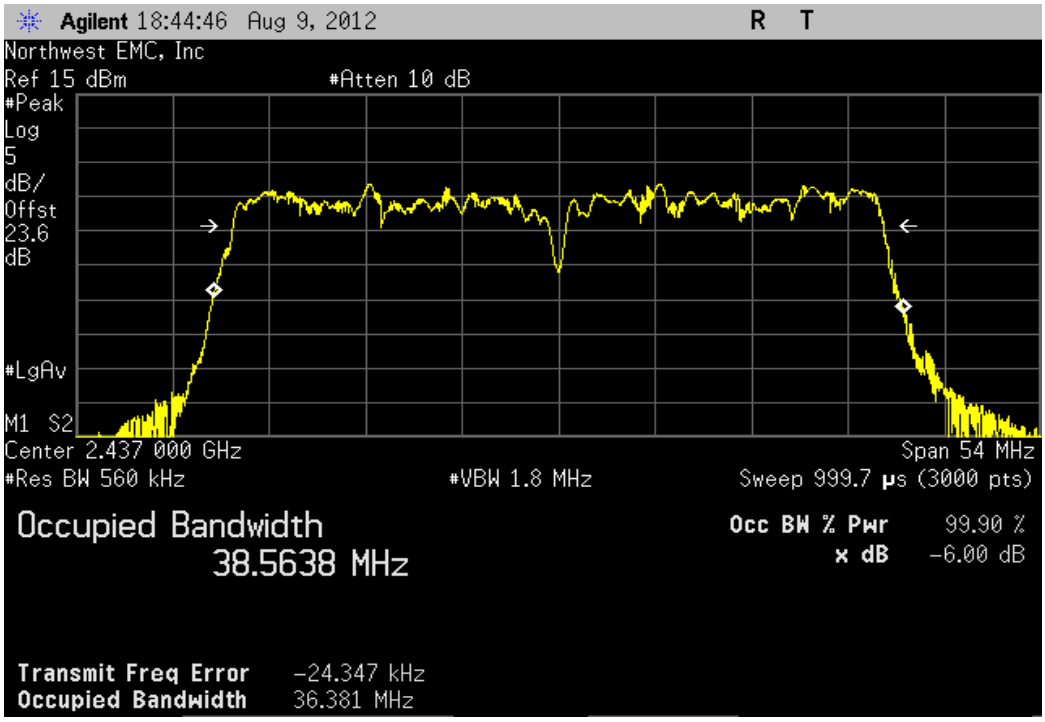
40MHz, 802.11(n) MCS15, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				36.428 MHz	> 500 kHz	Pass



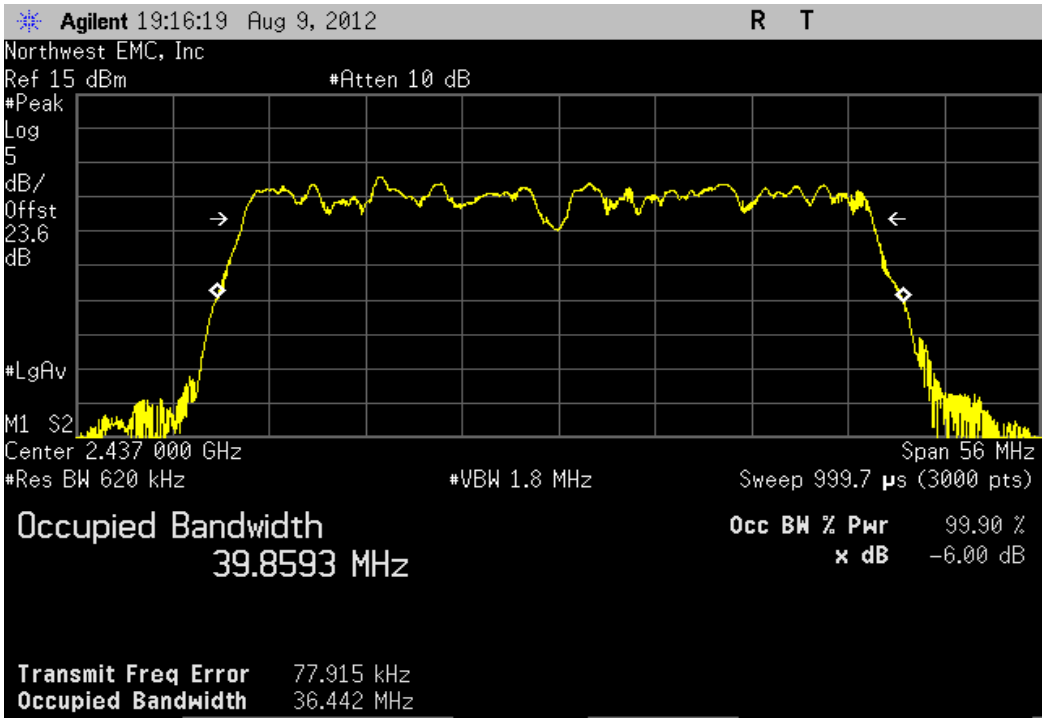
40MHz, 802.11(n) MCS15, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				36.381 MHz	> 500 kHz	Pass



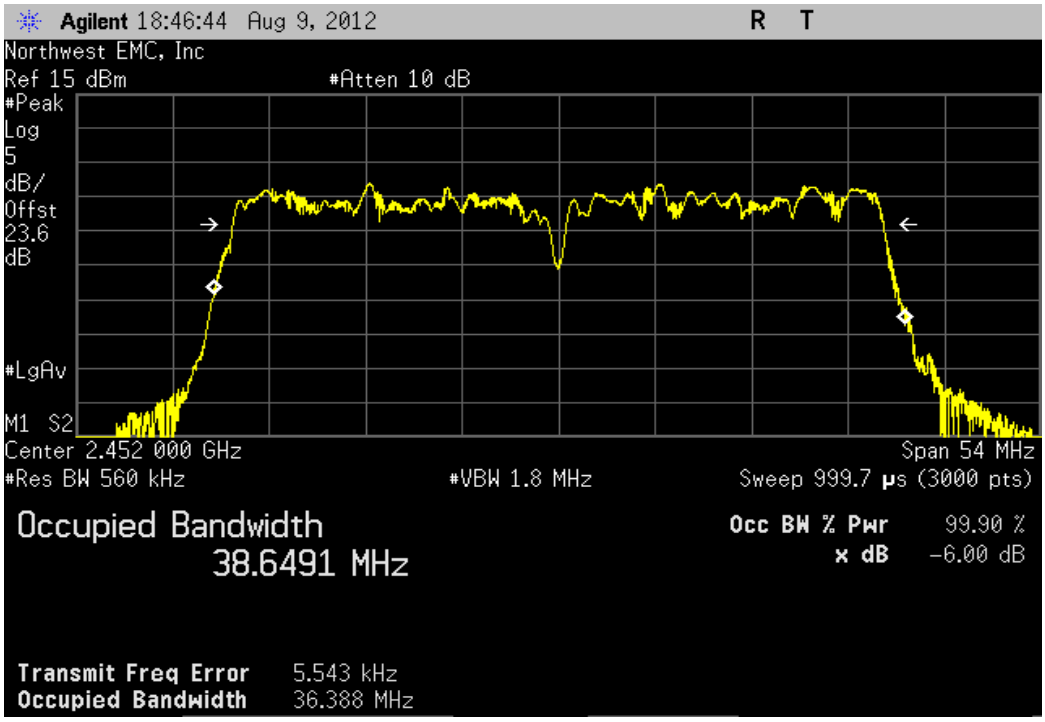
40MHz, 802.11(n) MCS15, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				36.442 MHz	> 500 kHz	Pass



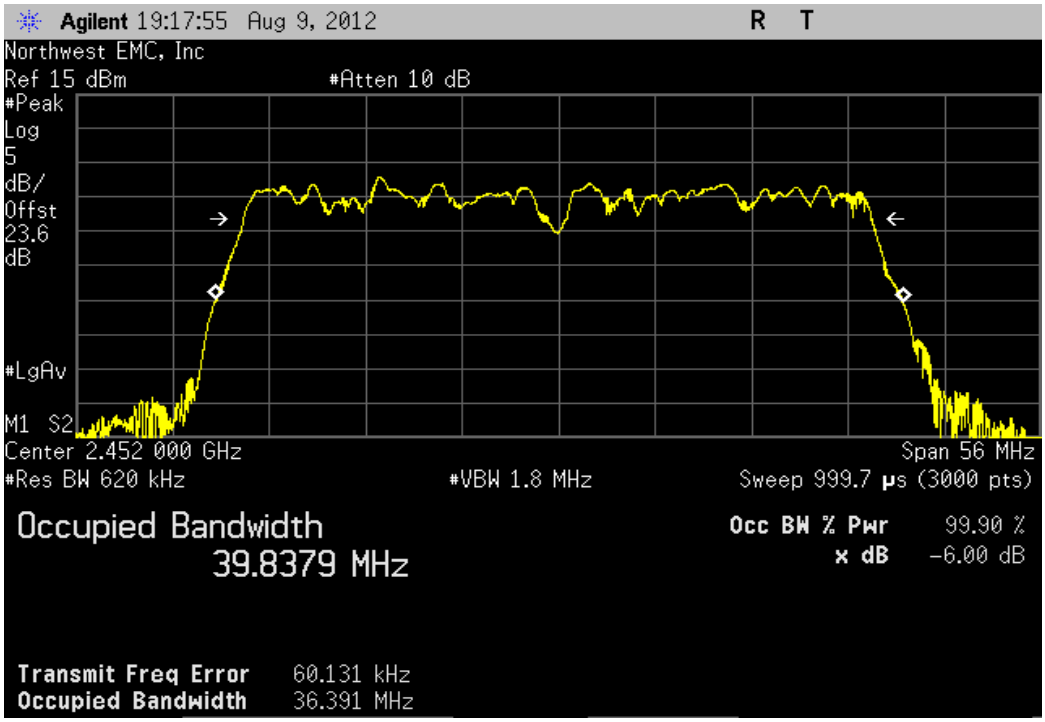
40MHz, 802.11(n) MCS15, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				36.388 MHz	> 500 kHz	Pass



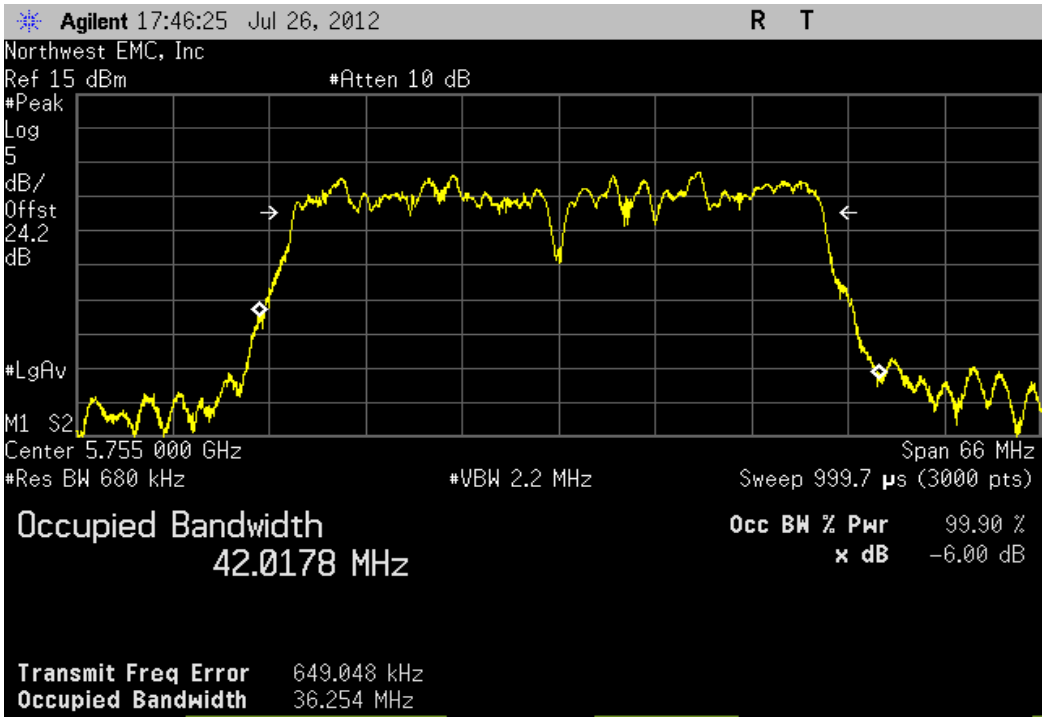
40MHz, 802.11(n) MCS15, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				36.391 MHz	> 500 kHz	Pass



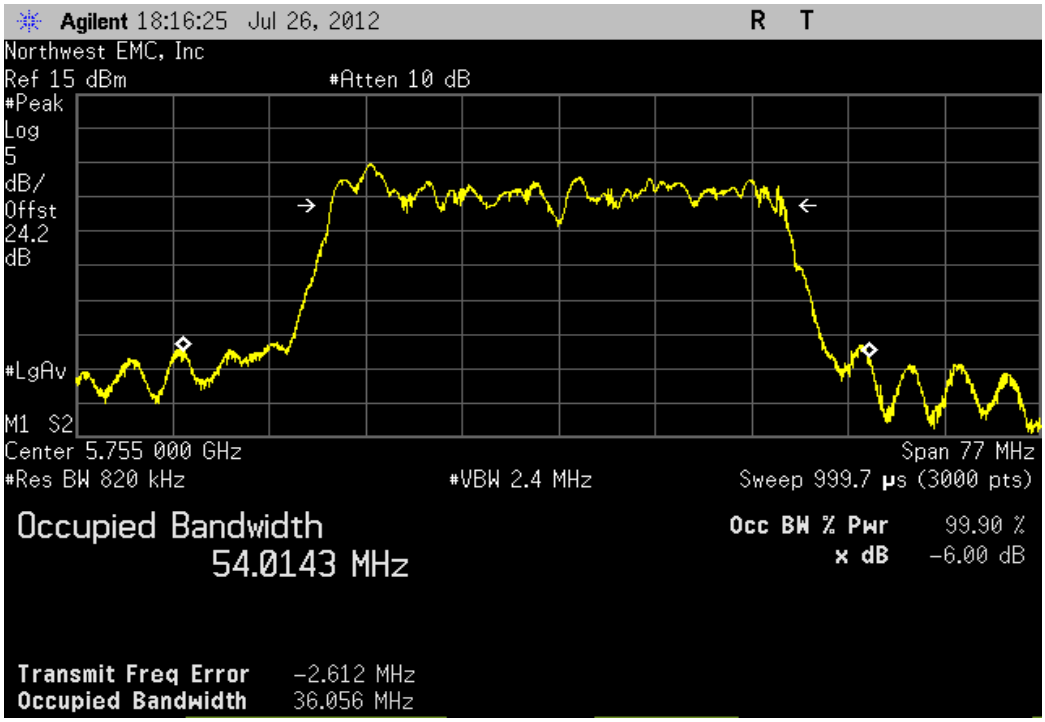
40MHz, 802.11(n) MCS15, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				36.254 MHz	> 500 kHz	Pass



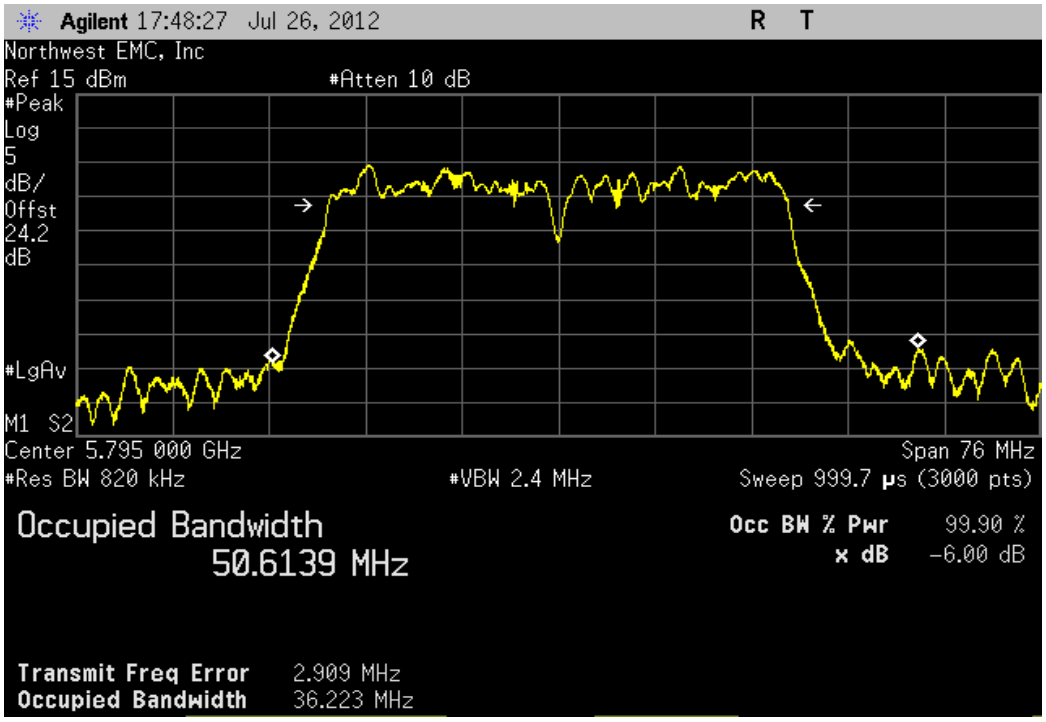
40MHz, 802.11(n) MCS15, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				36.056 MHz	> 500 kHz	Pass



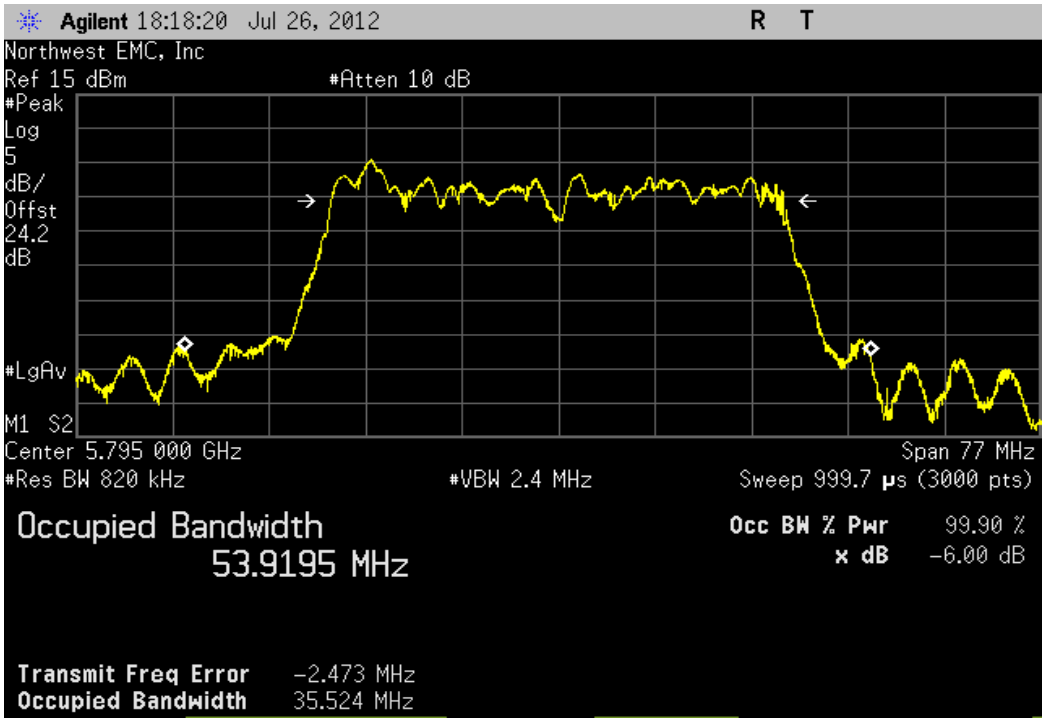
40MHz, 802.11(n) MCS15, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				36.223 MHz	> 500 kHz	Pass



40MHz, 802.11(n) MCS15, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				35.524 MHz	> 500 kHz	Pass



Output Power

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Multimeter	Tektronix	DMM912	MMH	1/28/2011	24
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	3/21/2012	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440	AFE	1/23/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

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

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

Method PK2 found in KDB 558074 DTS D01 Measurement Section 5.2.1.2 was used because the Emission Bandwidth was greater than the largest RBW on the analyzer.

The spectrum analyzer settings were as follows:
- The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- The RBW = 1 MHz, VBW = 3 MHz.
- Sample detector mode because the bin width (span / number of spectral points) < 0.5 RBW.

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

The power levels used while under test were 11dBm for 5GHz frequencies with a 40MHz bandwidth, 12dBm for 5GHz frequencies with a 20MHz bandwidth, 16dBm for 2.4GHz frequencies with a 20MHz bandwidth and 11dBm for 2.4GHz frequencies with a 40MHz bandwidth.

Output Power

EUT:	1516	Work Order:	MCSO1602
Serial Number:	000309122652	Date:	08/09/12
Customer:	Microsoft Corporation	Temperature:	24°C
Attendees:	None	Humidity:	45%
Project:	None	Barometric Pres.:	1016
Tested by:	Brandon Hobbs	Power: 12VDC	Job Site: EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

EUT was set to 100% duty cycle for all the points listed.

DEVIATIONS FROM TEST STANDARD

None

Configuration #	2	Signature

	Value	Limit	Result
20MHz			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	37.729 mW	< 1 W	Pass
Antenna A	42.524 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz			
Antenna B	42.591 mW	< 1 W	Pass
Antenna A	38.546 mW	< 1 W	Pass
High Channel 11, 2462 MHz			
Antenna B	42.757 mW	< 1 W	Pass
Antenna A	38.933 mW	< 1 W	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	39.806 mW	< 1 W	Pass
Antenna A	42.824 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz			
Antenna B	41.689 mW	< 1 W	Pass
Antenna A	38.612 mW	< 1 W	Pass
High Channel 11, 2462 MHz			
Antenna B	42.105 mW	< 1 W	Pass
Antenna A	39.202 mW	< 1 W	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	37.172 mW	< 1 W	Pass
Antenna A	37.011 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz			
Antenna B	40.308 mW	< 1 W	Pass
Antenna A	37.335 mW	< 1 W	Pass
High Channel 11, 2462 MHz			
Antenna B	40.693 mW	< 1 W	Pass
Antenna A	33.256 mW	< 1 W	Pass
802.11(a) 6 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	12.299 mW	< 1 W	Pass
Antenna A	10.593 mW	< 1 W	Pass
Mid Channel 157, 5785 MHz			
Antenna B	14.202 mW	< 1 W	Pass
Antenna A	10.651 mW	< 1 W	Pass
High Channel 165, 5825 MHz			
Antenna B	12.627 mW	< 1 W	Pass
Antenna A	11.172 mW	< 1 W	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	36.205 mW	< 1 W	Pass
Antenna A	35.581 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz			
Antenna B	39.183 mW	< 1 W	Pass
Antenna A	36.601 mW	< 1 W	Pass
High Channel 11, 2462 MHz			
Antenna B	39.509 mW	< 1 W	Pass
Antenna A	32.56 mW	< 1 W	Pass
802.11(a) 36 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	10.679 mW	< 1 W	Pass
Antenna A	9.294 mW	< 1 W	Pass
Mid Channel 157, 5785 MHz			
Antenna B	13.824 mW	< 1 W	Pass
Antenna A	11.277 mW	< 1 W	Pass
High Channel 165, 5825 MHz			
Antenna B	12.24 mW	< 1 W	Pass
Antenna A	11.158 mW	< 1 W	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	35.973 mW	< 1 W	Pass
Antenna A	34.592 mW	< 1 W	Pass
Mid Channel 6, 2437 MHz			
Antenna B	39.15 mW	< 1 W	Pass
Antenna A	35.863 mW	< 1 W	Pass
High Channel 11, 2462 MHz			
Antenna B	39.931 mW	< 1 W	Pass
Antenna A	35.154 mW	< 1 W	Pass
802.11(a) 54 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	12.204 mW	< 1 W	Pass
Antenna A	9.395 mW	< 1 W	Pass
Mid Channel 157, 5785 MHz			
Antenna B	13.986 mW	< 1 W	Pass
Antenna A	10.887 mW	< 1 W	Pass
High Channel 165, 5825 MHz			

	Antenna B		12.44 mW	< 1 W	Pass
	Antenna A		10.678 mW	< 1 W	Pass
802.11(n) MCS0					
	Low Channel 1, 2412 MHz				
	Antenna B		14.511 mW	< 1 W	Pass
	Antenna A		35.244 mW	< 1 W	Pass
	Mid Channel 6, 2437 MHz				
	Antenna B		15.464 mW	< 1 W	Pass
	Antenna A		35.168 mW	< 1 W	Pass
	High Channel 11, 2462 MHz				
	Antenna B		15.518 mW	< 1 W	Pass
	Antenna A		31.926 mW	< 1 W	Pass
	Low Channel 149, 5745 MHz				
	Antenna B		12.069 mW	< 1 W	Pass
	Antenna A		10.66 mW	< 1 W	Pass
	Mid Channel 157, 5785 MHz				
	Antenna B		13.615 mW	< 1 W	Pass
	Antenna A		10.961 mW	< 1 W	Pass
	High Channel 165, 5825 MHz				
	Antenna B		12.22 mW	< 1 W	Pass
	Antenna A		10.773 mW	< 1 W	Pass
802.11(n) MCS7					
	Low Channel 1, 2412 MHz				
	Antenna B		14.539 mW	< 1 W	Pass
	Antenna A		35.252 mW	< 1 W	Pass
	Mid Channel 6, 2437 MHz				
	Antenna B		15.731 mW	< 1 W	Pass
	Antenna A		35.674 mW	< 1 W	Pass
	High Channel 11, 2462 MHz				
	Antenna B		15.751 mW	< 1 W	Pass
	Antenna A		31.463 mW	< 1 W	Pass
	Low Channel 149, 5745 MHz				
	Antenna B		11.961 mW	< 1 W	Pass
	Antenna A		9.461 mW	< 1 W	Pass
	Mid Channel 157, 5785 MHz				
	Antenna B		13.686 mW	< 1 W	Pass
	Antenna A		10.844 mW	< 1 W	Pass
	High Channel 165, 5825 MHz				
	Antenna B		12.444 mW	< 1 W	Pass
	Antenna A		10.759 mW	< 1 W	Pass

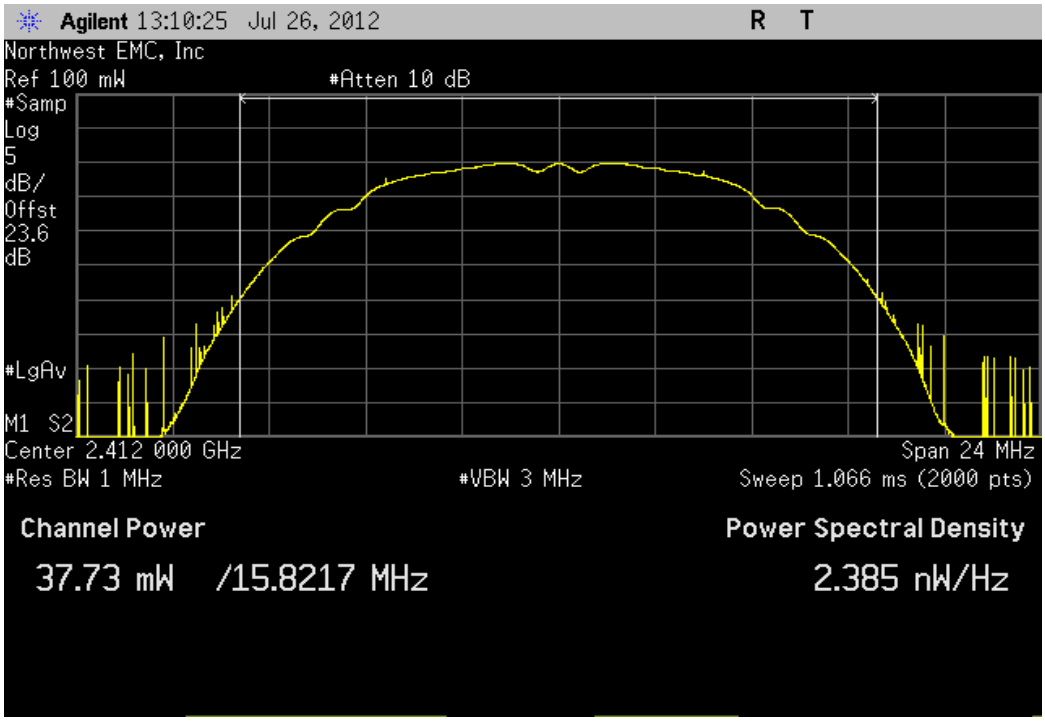
Antenna Chain AB, Power Summing	Measured Power (mW)	Summed Power (mW)	Summed Power (Watts)	
802.11(n) MCS8				
Low Channel 1, 2412 MHz	Value	Value	Limit	Results
Antenna B	36.143	74.080	< 1 W	Pass
Antenna A	37.937			
Mid Channel 6, 2437 MHz				
Antenna B	43.419	80.964	< 1 W	Pass
Antenna A	37.545			
High Channel 11, 2462 MHz				
Antenna B	43.190	75.835	< 1 W	Pass
Antenna A	32.645			
Low Channel 149, 5745 MHz				
Antenna B	10.884	20.786	< 1 W	Pass
Antenna A	9.902			
Mid Channel 157, 5785 MHz				
Antenna B	12.553	23.821	< 1 W	Pass
Antenna A	11.268			
High Channel 165, 5825 MHz				
Antenna B	11.352	22.671	< 1 W	Pass
Antenna A	11.319			
802.11(n) MCS15				
Low Channel 1, 2412 MHz				
Antenna B	39.151	76.754	< 1 W	Pass
Antenna A	37.603			
Mid Channel 6, 2437 MHz				
Antenna B	42.426	80.529	< 1 W	Pass
Antenna A	38.103			
High Channel 11, 2462 MHz				
Antenna B	49.402	87.436	< 1 W	Pass
Antenna A	38.034			
Low Channel 149, 5745 MHz				
Antenna B	11.038	20.985	< 1 W	Pass
Antenna A	9.947			
Mid Channel 157, 5785 MHz				
Antenna B	11.422	22.711	< 1 W	Pass
Antenna A	11.289			
High Channel 165, 5825 MHz				
Antenna B	11.424	22.662	< 1 W	Pass
Antenna A	11.238			

40MHz				
802.11(n) MCS0				
Low Channel 1/5, 2422 MHz		Value	Limit	Result
Antenna B		12.238 mW	< 1 W	Pass
Antenna A		13.374 mW	< 1 W	Pass
Mid Channel 4/8, 2437 MHz				
Antenna B		14 mW	< 1 W	Pass
Antenna A		13.407 mW	< 1 W	Pass
High Channel 7/11, 2452 MHz				
Antenna B		5.887 mW	< 1 W	Pass
Antenna A		13.395 mW	< 1 W	Pass
Low Channel 149/153, 5755 MHz				
Antenna B		7.912 mW	< 1 W	Pass
Antenna A		9.14 mW	< 1 W	Pass
High Channel 157/161, 5795 MHz				
Antenna B		8.944 mW	< 1 W	Pass
Antenna A		9.086 mW	< 1 W	Pass
802.11(n) MCS7				
Low Channel 1/5, 2422 MHz				
Antenna B		16.568 mW	< 1 W	Pass
Antenna A		15.574 mW	< 1 W	Pass
Mid Channel 4/8, 2437 MHz				
Antenna B		17.549 mW	< 1 W	Pass
Antenna A		16.047 mW	< 1 W	Pass
High Channel 7/11, 2452 MHz				
Antenna B		17.552 mW	< 1 W	Pass
Antenna A		15.801 mW	< 1 W	Pass

Low Channel 149/153, 5755 MHz				
Antenna B		9.618 mW	< 1 W	Pass
Antenna A		10.489 mW	< 1 W	Pass
High Channel 157/161, 5795 MHz				
Antenna B		12.254 mW	< 1 W	Pass
Antenna A		10.539 mW	< 1 W	Pass
Antenna Chain AB, Power Summing	**Measured Power (mW)**	**Summed Power (mW)**	**Summed Power (Watts)**	
802.11(n) MCS8				
Low Channel 1/5, 2422 MHz	**Value**	**Value**	**Limit**	**Results**
Antenna B	12.149	24.145	< 1 W	Pass
Antenna A	11.996			
Mid Channel 4/8, 2437 MHz				
Antenna B	13.937	27.212	< 1 W	Pass
Antenna A	13.275		< 1 W	Pass
High Channel 7/11, 2452 MHz				
Antenna B	14.051	27.146	< 1 W	Pass
Antenna A	13.095		< 1 W	Pass
Low Channel 149/153, 5755 MHz				
Antenna B	11.396	22.200	< 1 W	Pass
Antenna A	10.804		< 1 W	Pass
High Channel 157/161, 5795 MHz				
Antenna B	13.000	24.847	< 1 W	Pass
Antenna A	11.847		< 1 W	Pass
802.11(n) MCS15				
Low Channel 1/5, 2422 MHz				
Antenna B	12.991	28.516	< 1 W	Pass
Antenna A	15.525		< 1 W	Pass
Mid Channel 4/8, 2437 MHz				
Antenna B	13.192	28.680	< 1 W	Pass
Antenna A	15.488		< 1 W	Pass
High Channel 7/11, 2452 MHz				
Antenna B	13.471	28.850	< 1 W	Pass
Antenna A	15.379		< 1 W	Pass
Low Channel 149/153, 5755 MHz				
Antenna B	14.197	26.477	< 1 W	Pass
Antenna A	12.280		< 1 W	Pass
High Channel 157/161, 5795 MHz				
Antenna B	15.715	29.398	< 1 W	Pass
Antenna A	13.683		< 1 W	Pass

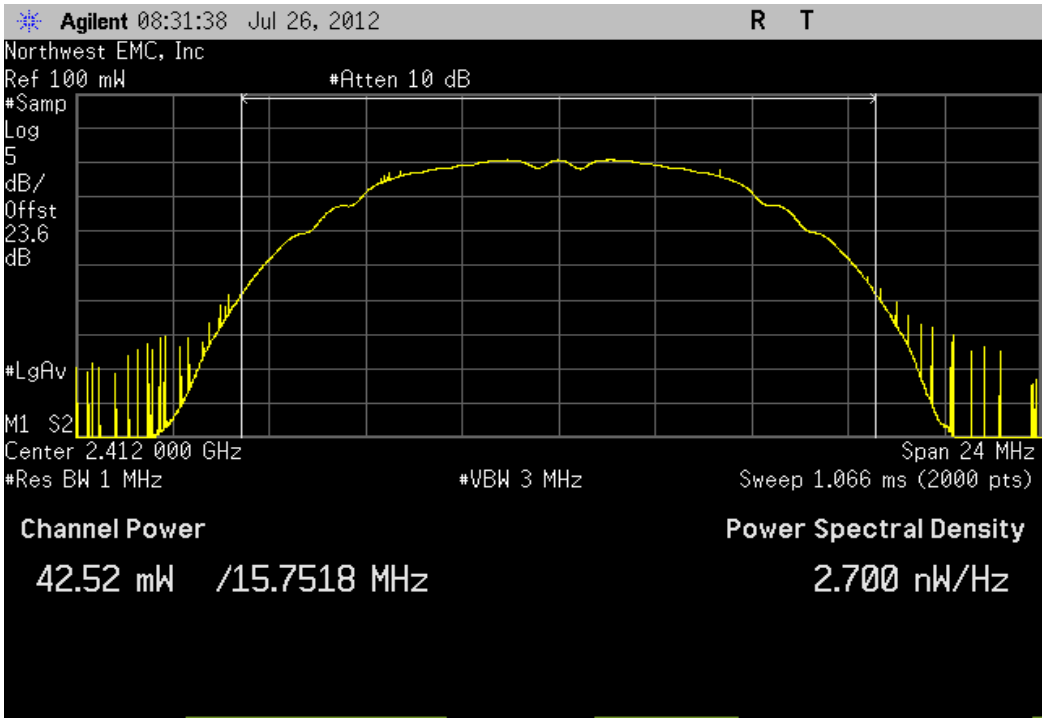
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				37.729 mW	< 1 W	Pass



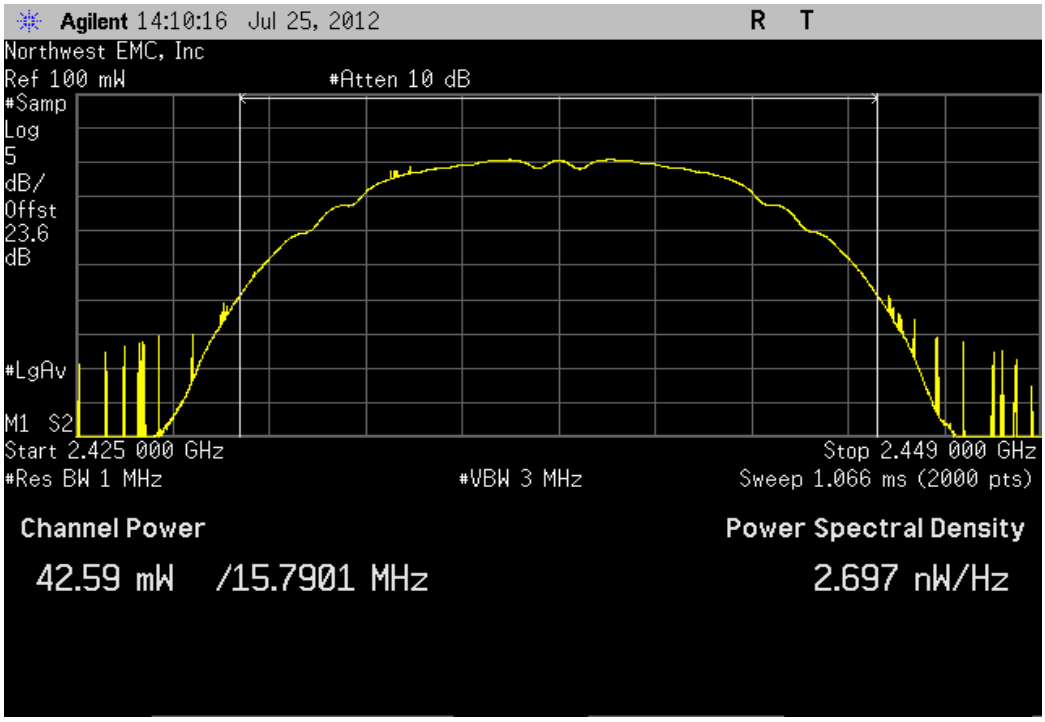
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				42.524 mW	< 1 W	Pass



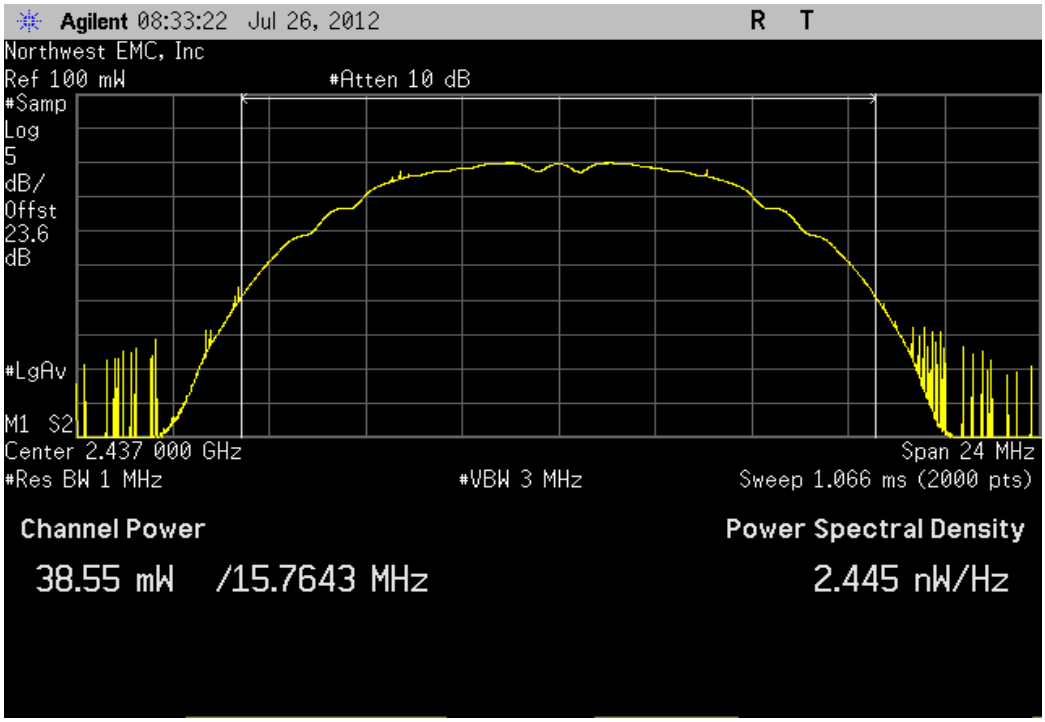
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				42.591 mW	< 1 W	Pass



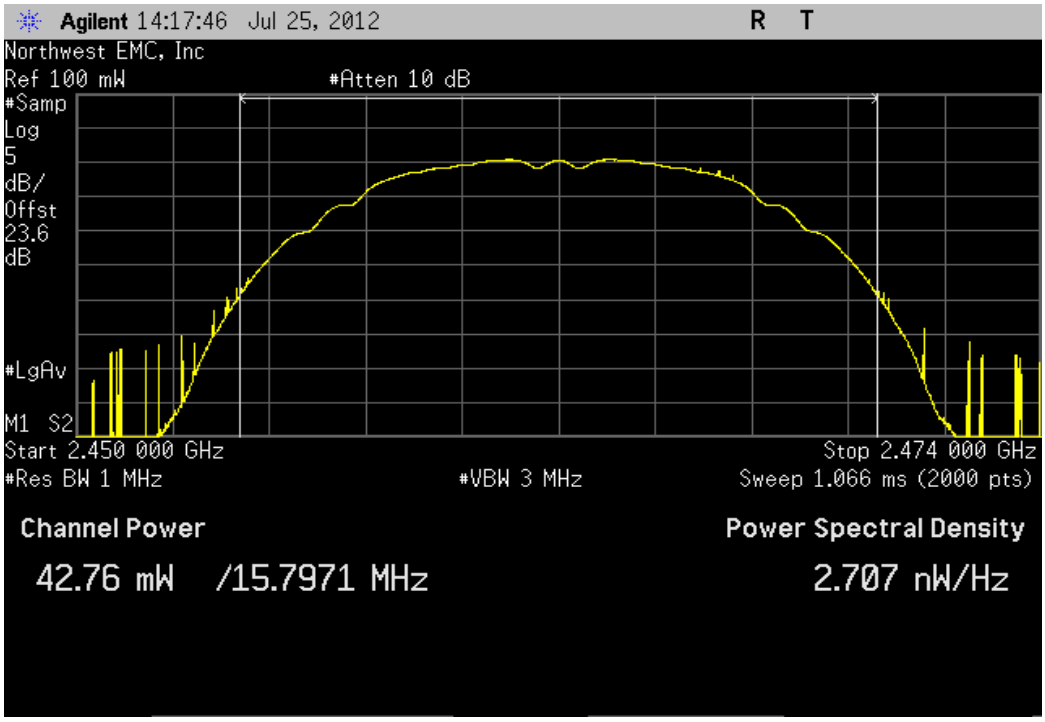
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				38.546 mW	< 1 W	Pass



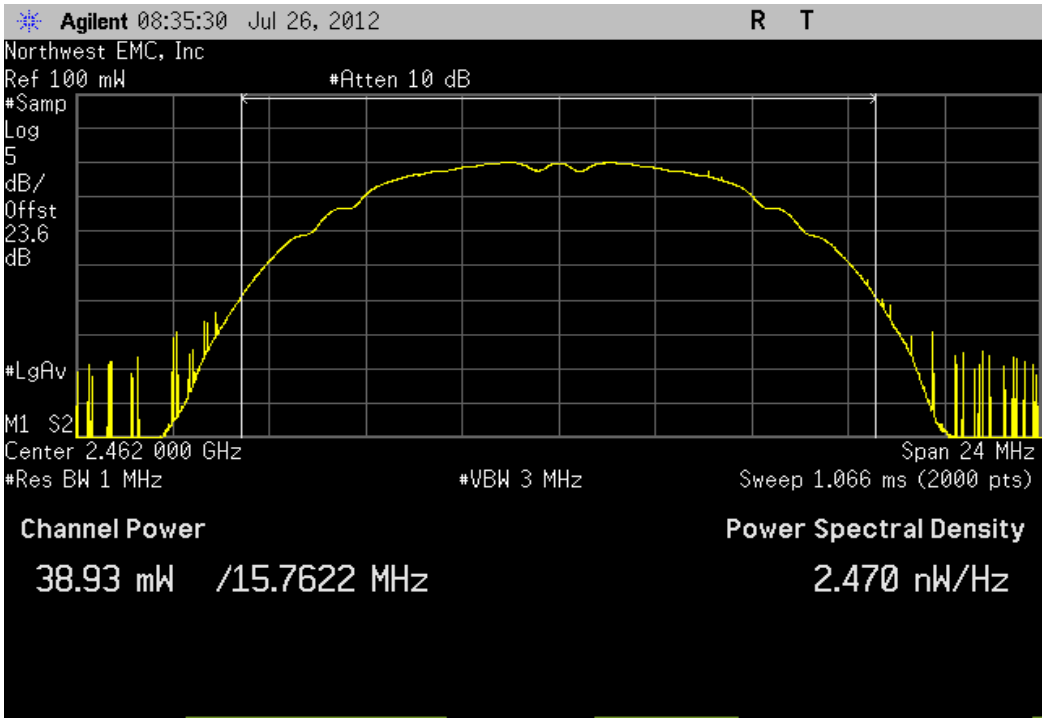
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				42.757 mW	< 1 W	Pass

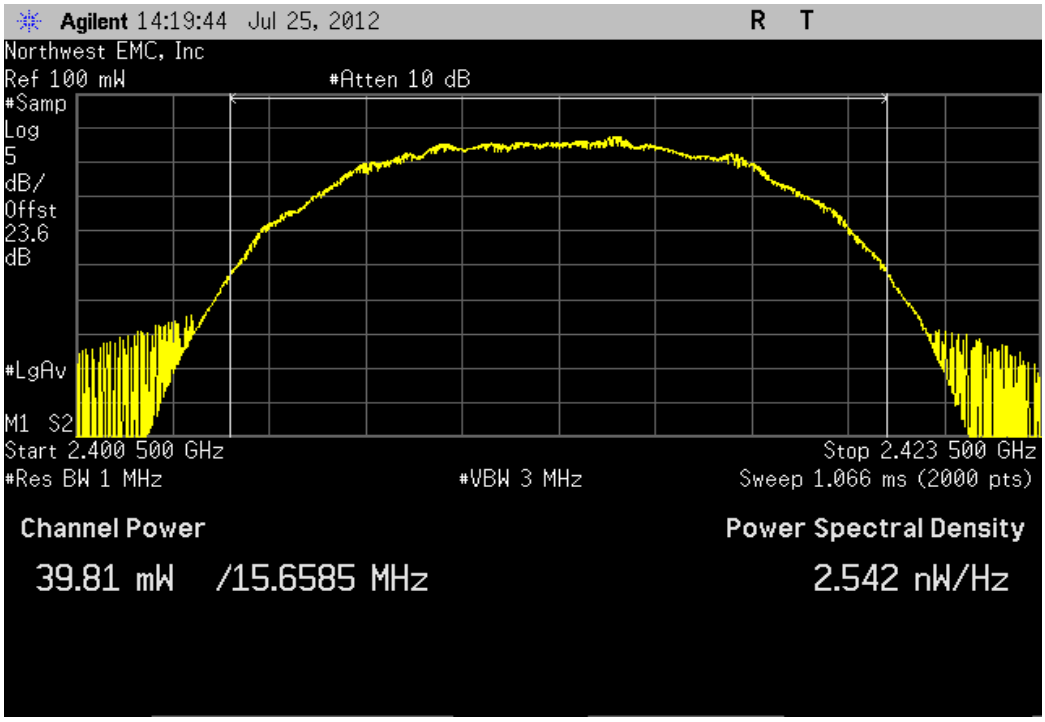


20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna A

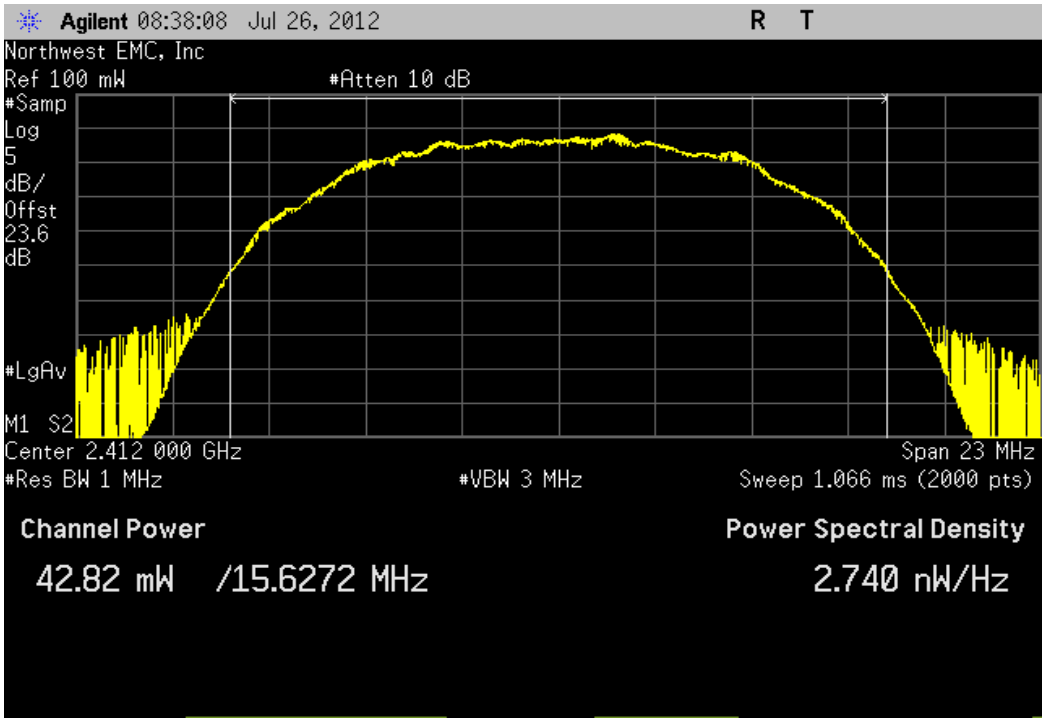
				Value	Limit	Result
				38.933 mW	< 1 W	Pass



20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna B						
				Value	Limit	Result
				39.806 mW	< 1 W	Pass

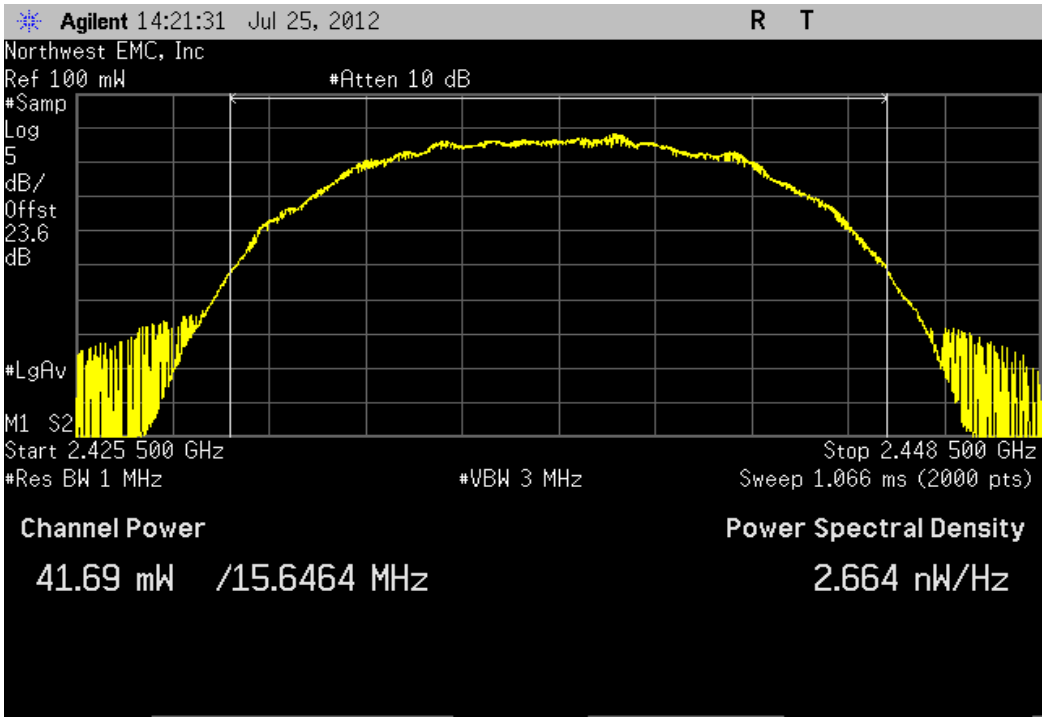


20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A						
				Value	Limit	Result
				42.824 mW	< 1 W	Pass



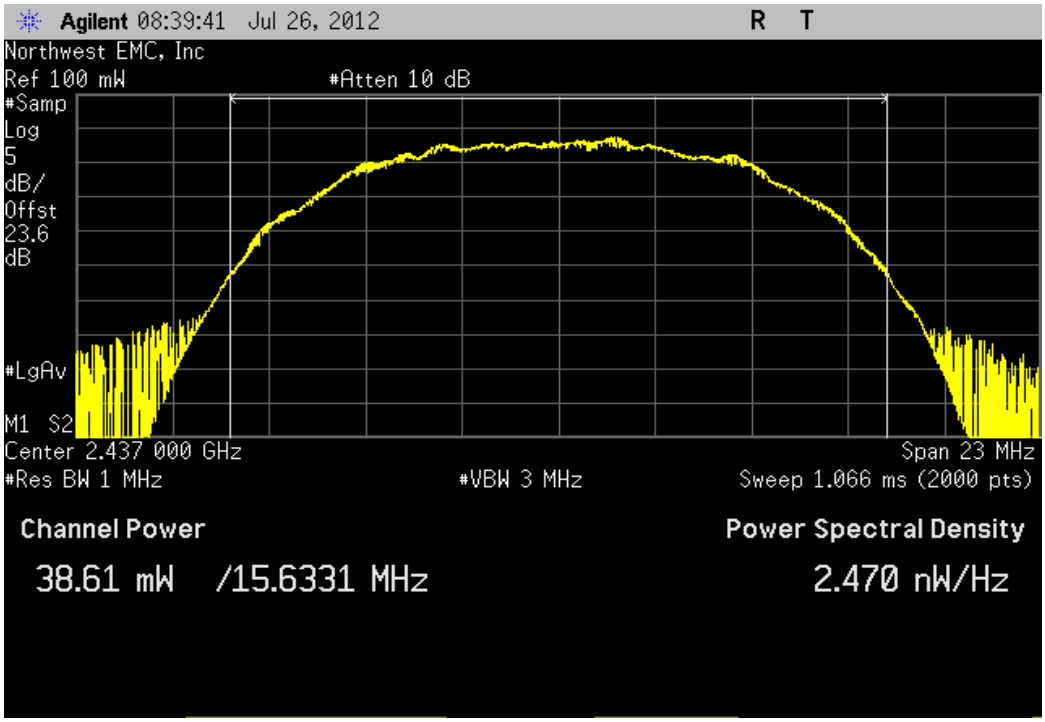
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				41.689 mW	< 1 W	Pass



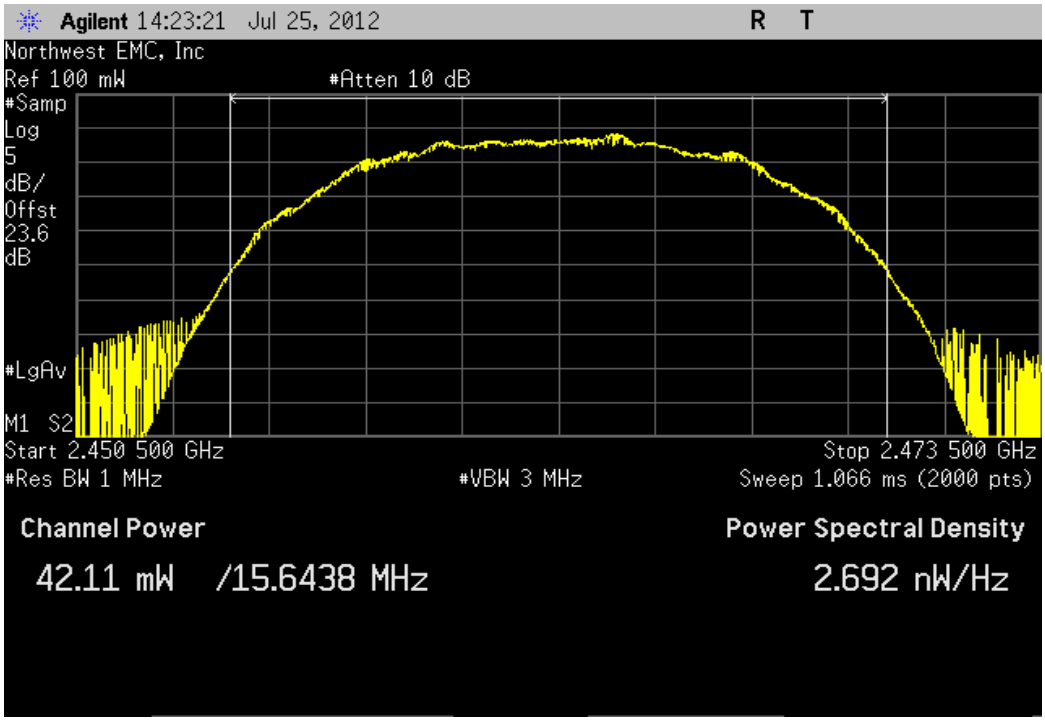
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				38.612 mW	< 1 W	Pass



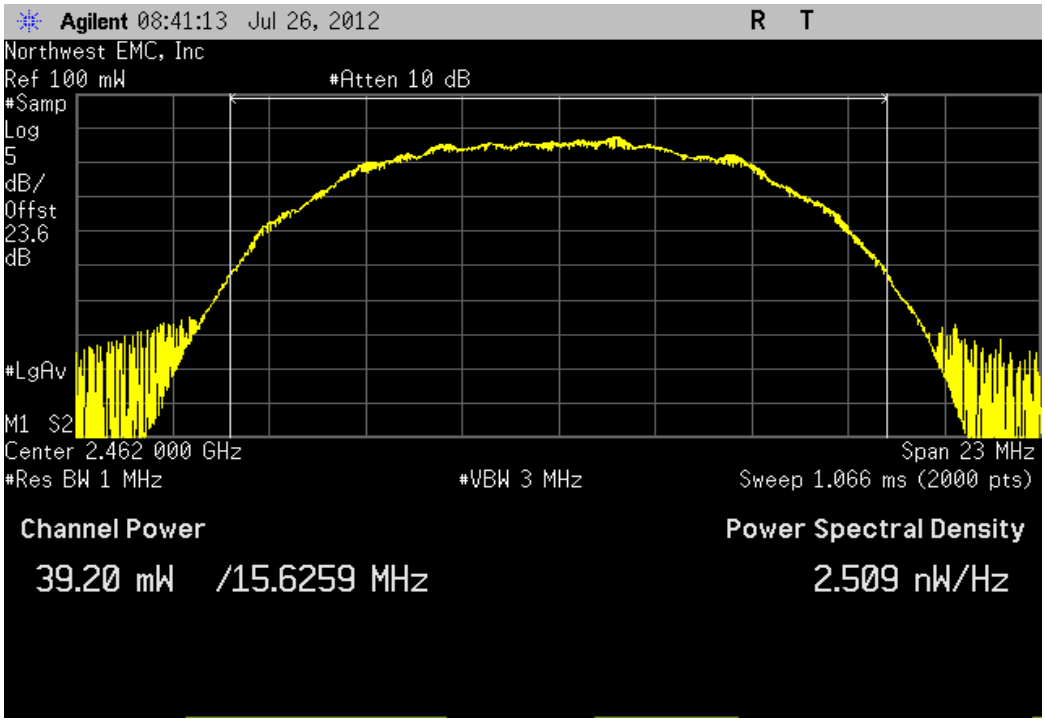
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				42.105 mW	< 1 W	Pass



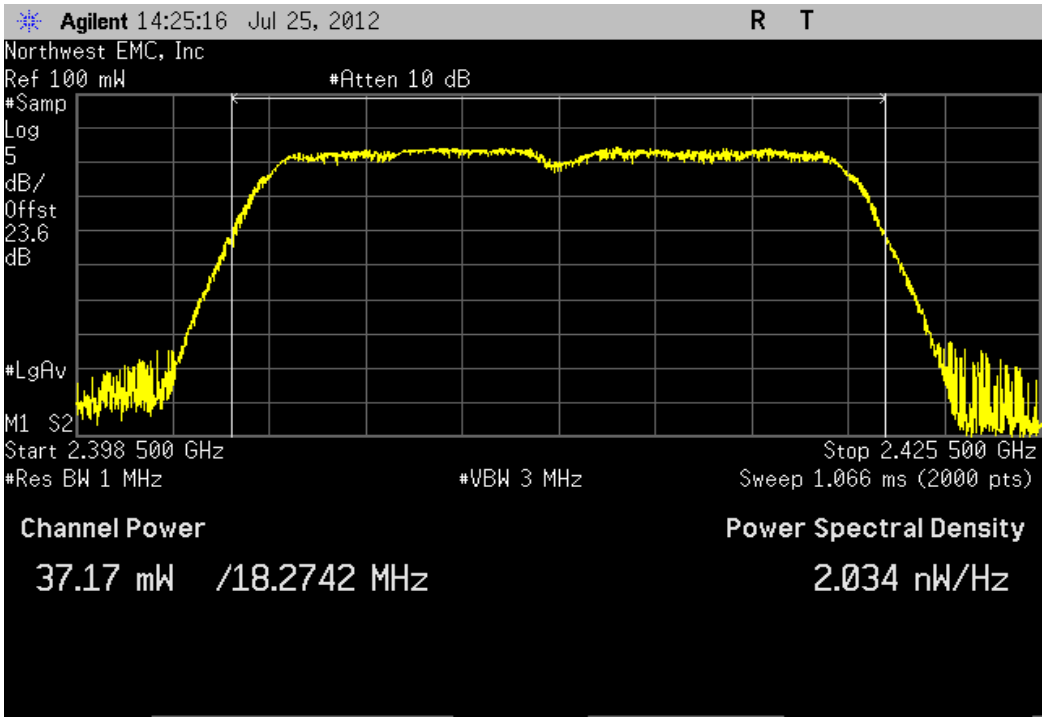
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				39.202 mW	< 1 W	Pass



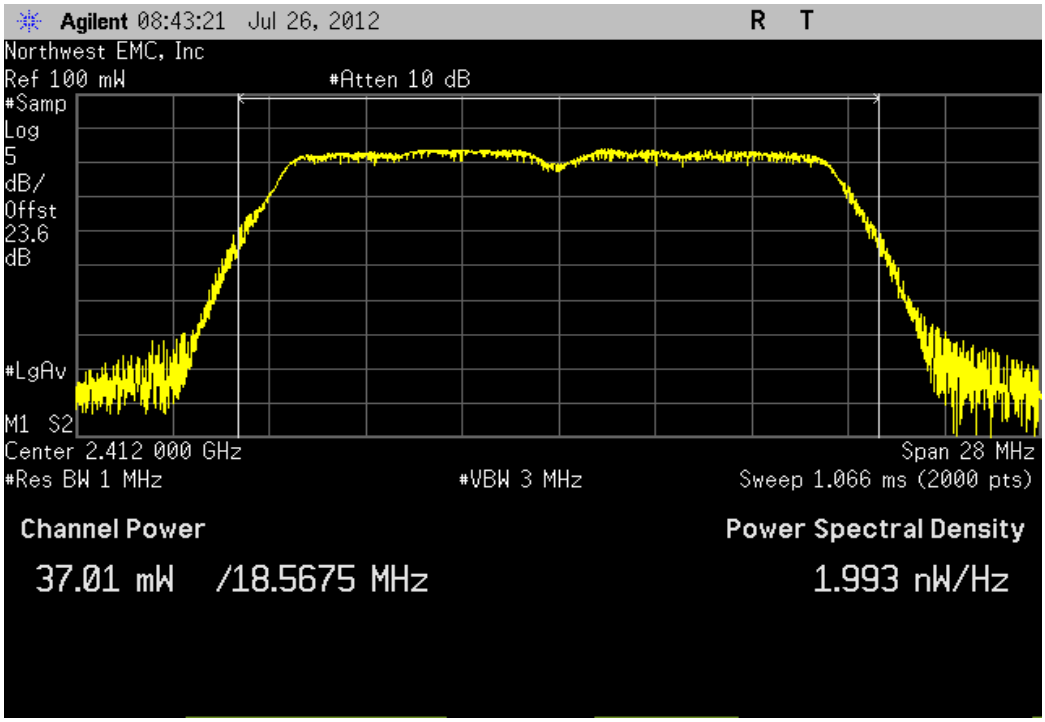
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				37.172 mW	< 1 W	Pass



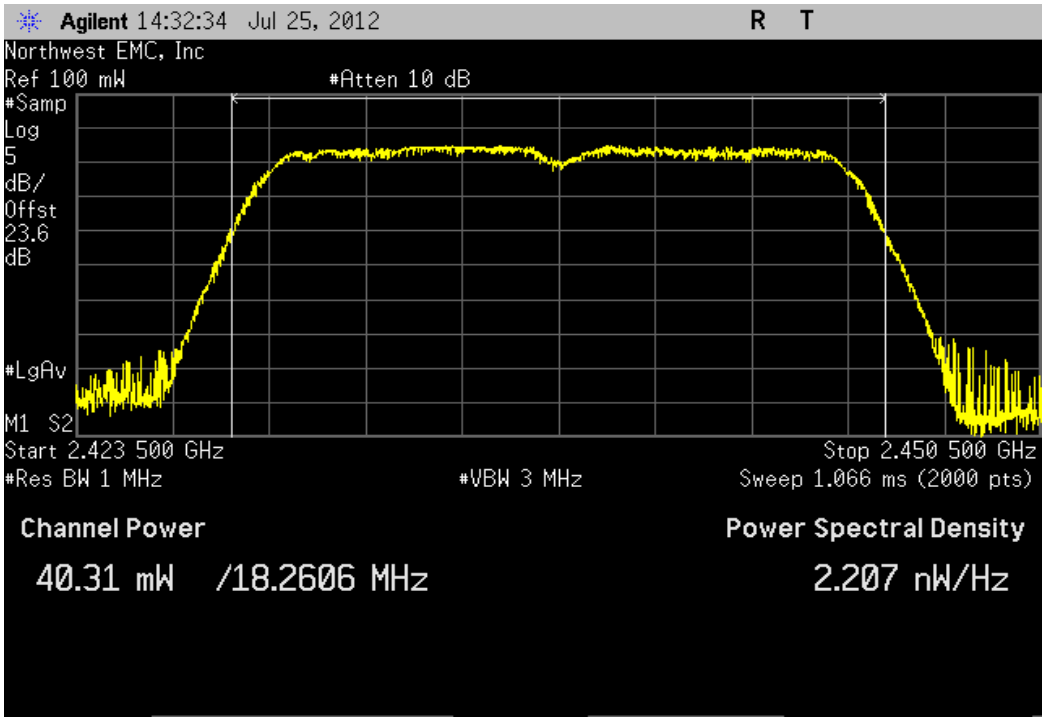
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				37.011 mW	< 1 W	Pass



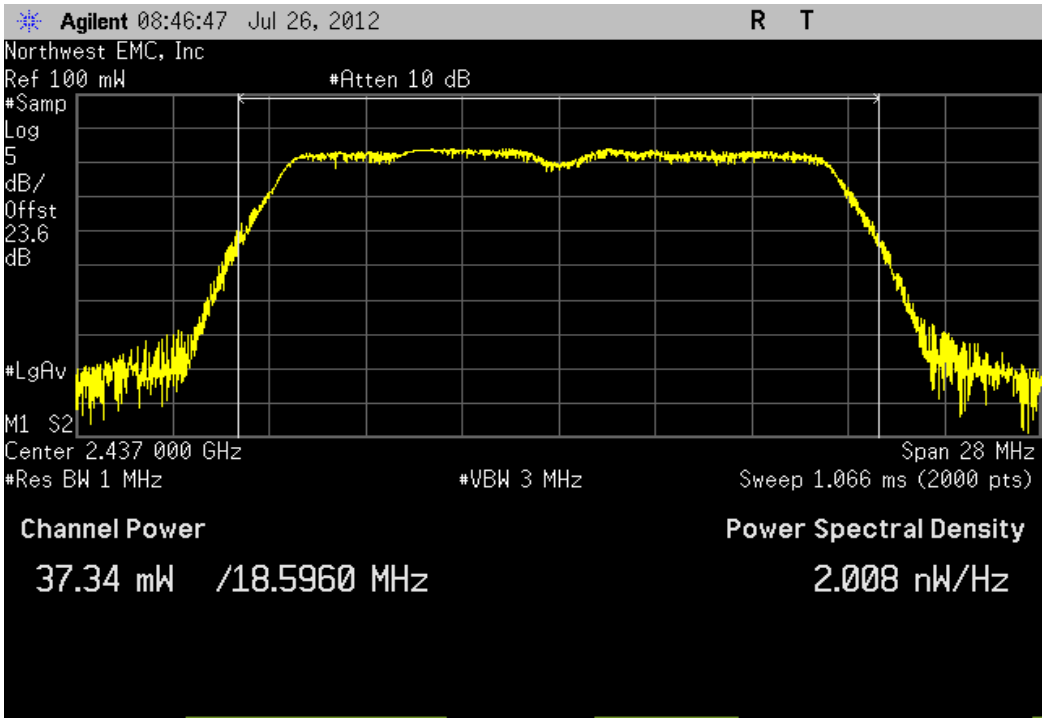
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				40.308 mW	< 1 W	Pass

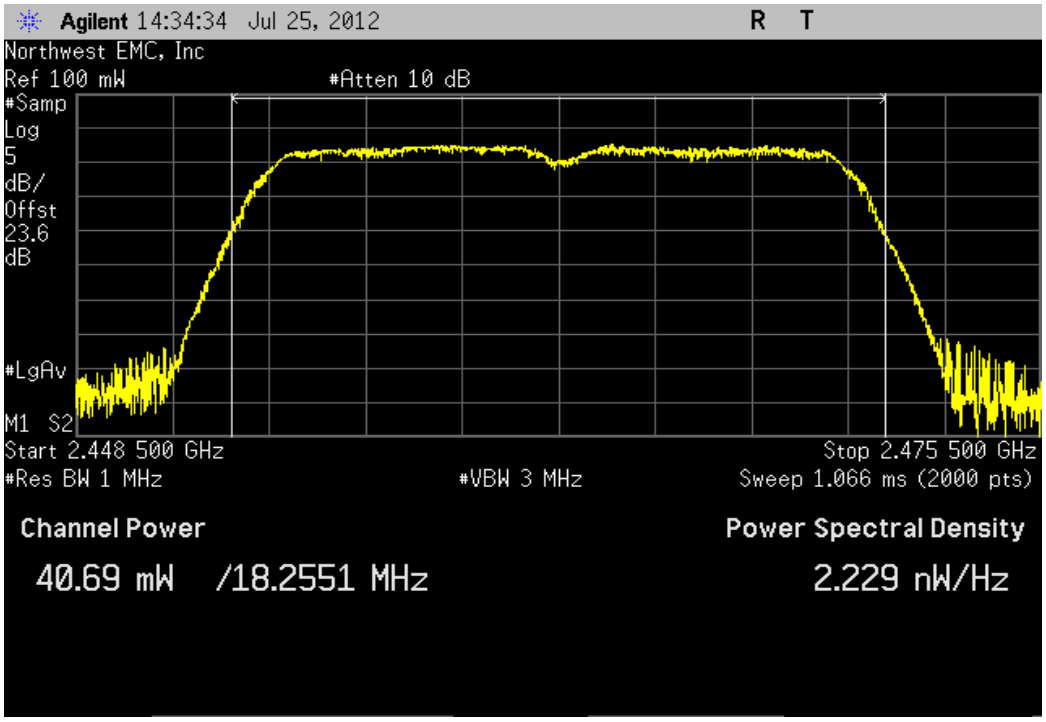


20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A

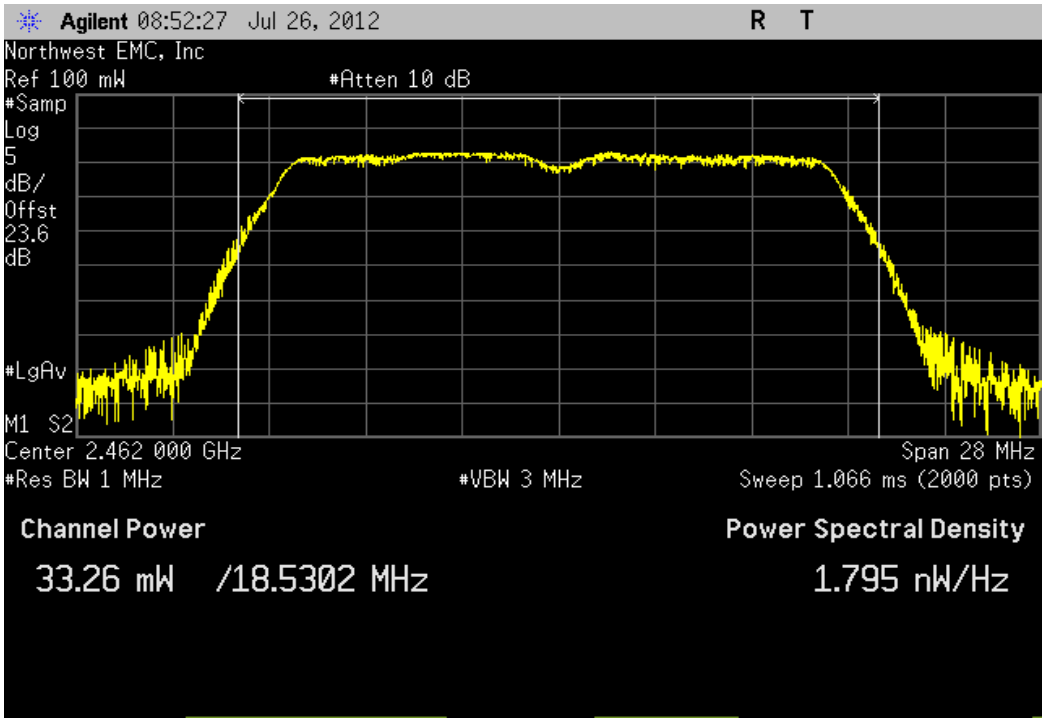
				Value	Limit	Result
				37.335 mW	< 1 W	Pass



20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B						
				Value	Limit	Result
				40.693 mW	< 1 W	Pass

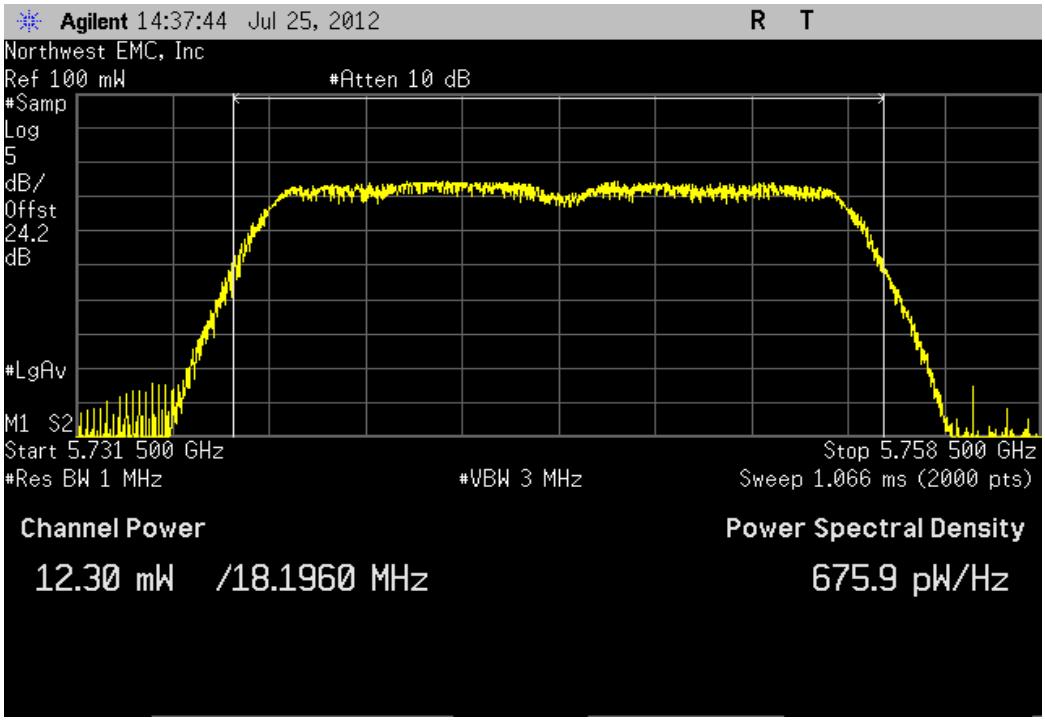


20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A						
				Value	Limit	Result
				33.256 mW	< 1 W	Pass



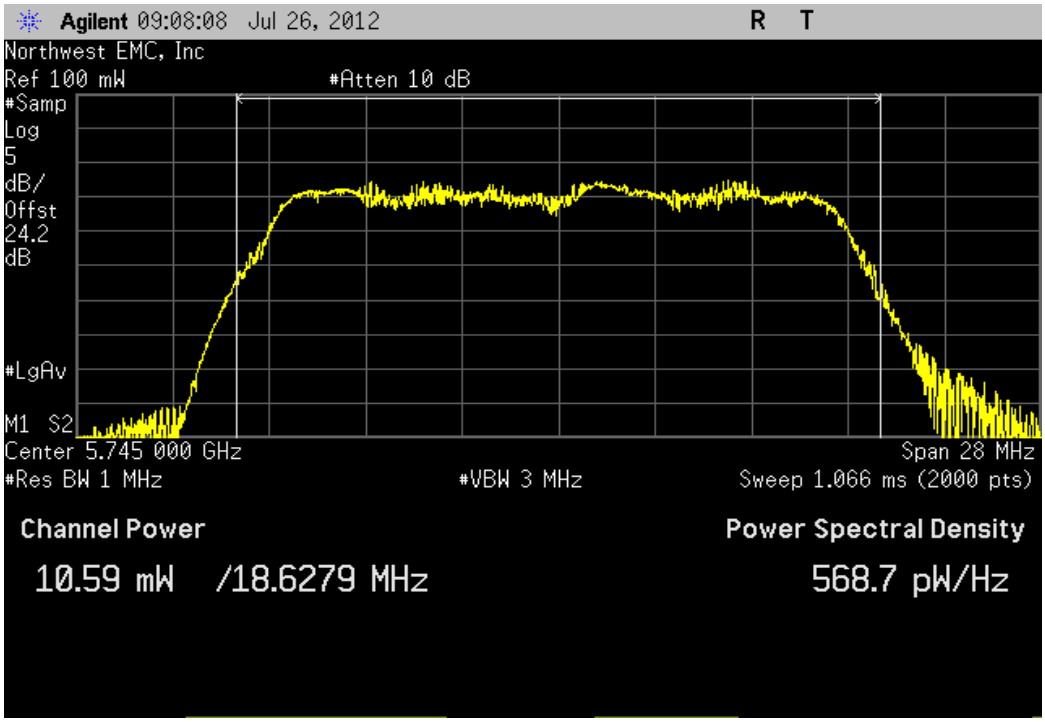
20MHz, 802.11(g) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				12.299 mW	< 1 W	Pass



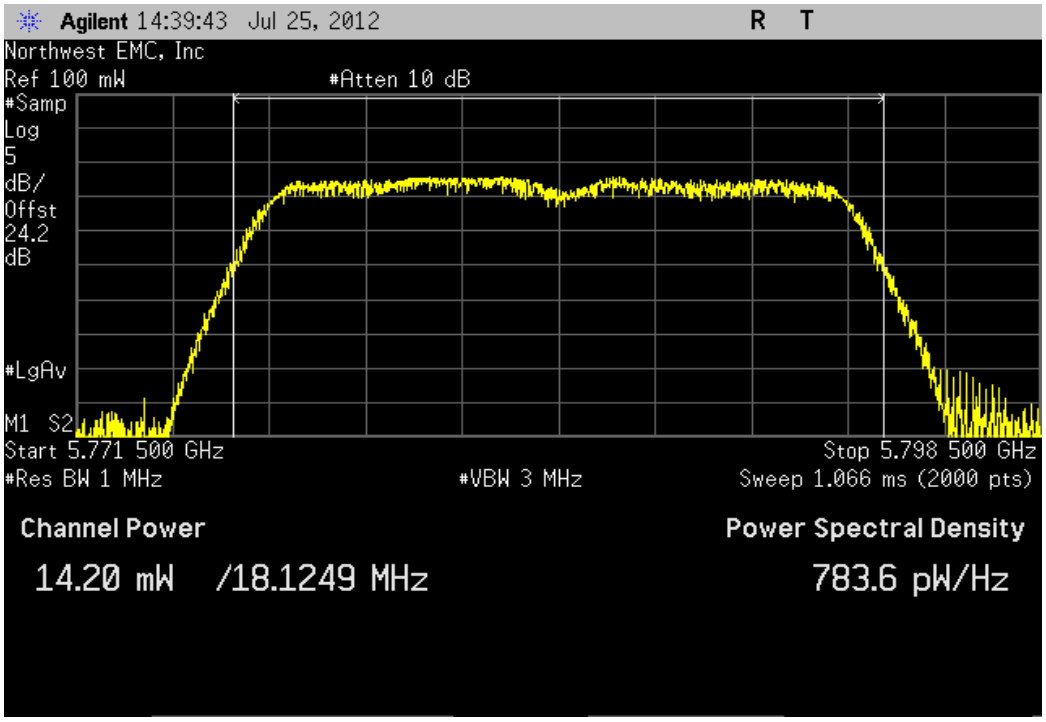
20MHz, 802.11(g) 6 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				10.593 mW	< 1 W	Pass



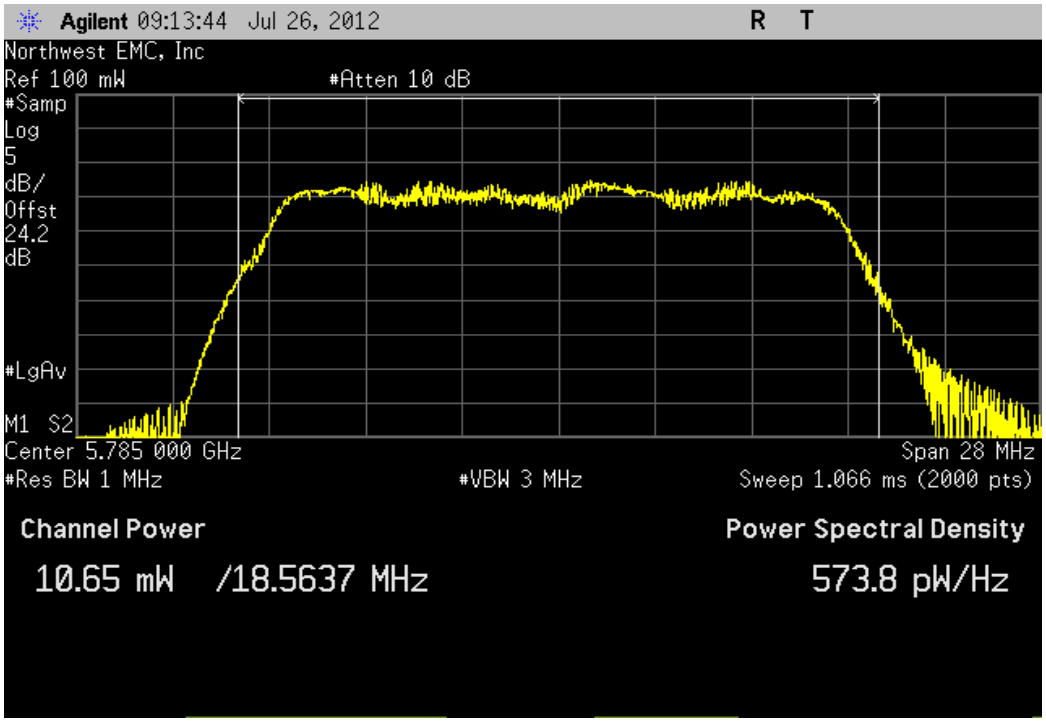
20MHz, 802.11(g) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				14.202 mW	< 1 W	Pass



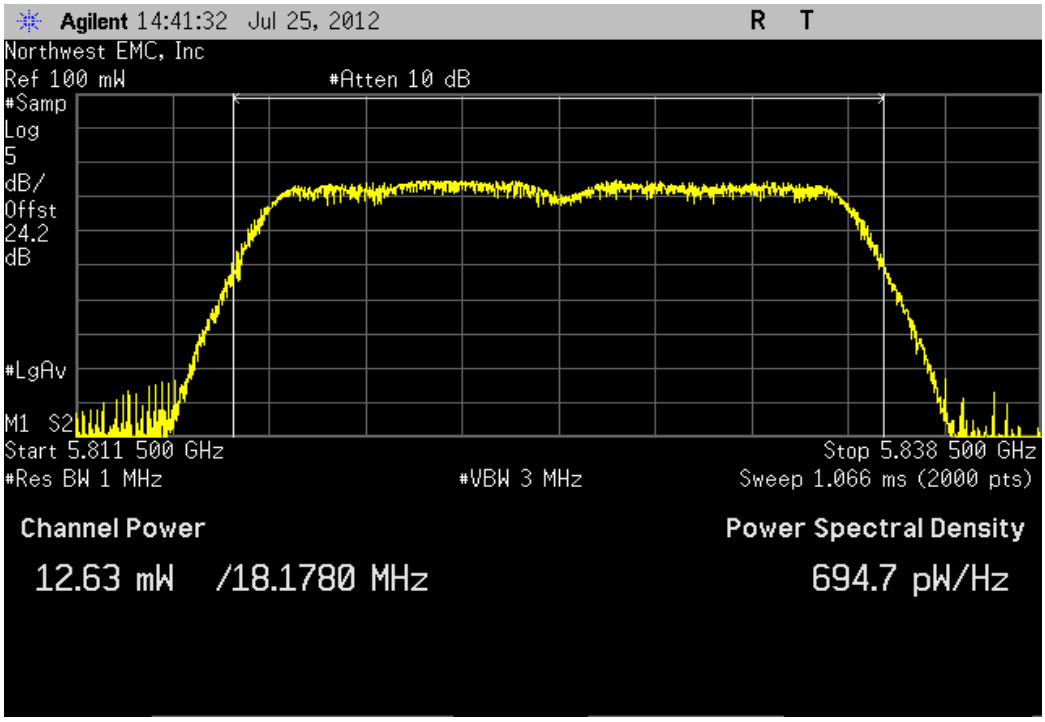
20MHz, 802.11(g) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				10.651 mW	< 1 W	Pass



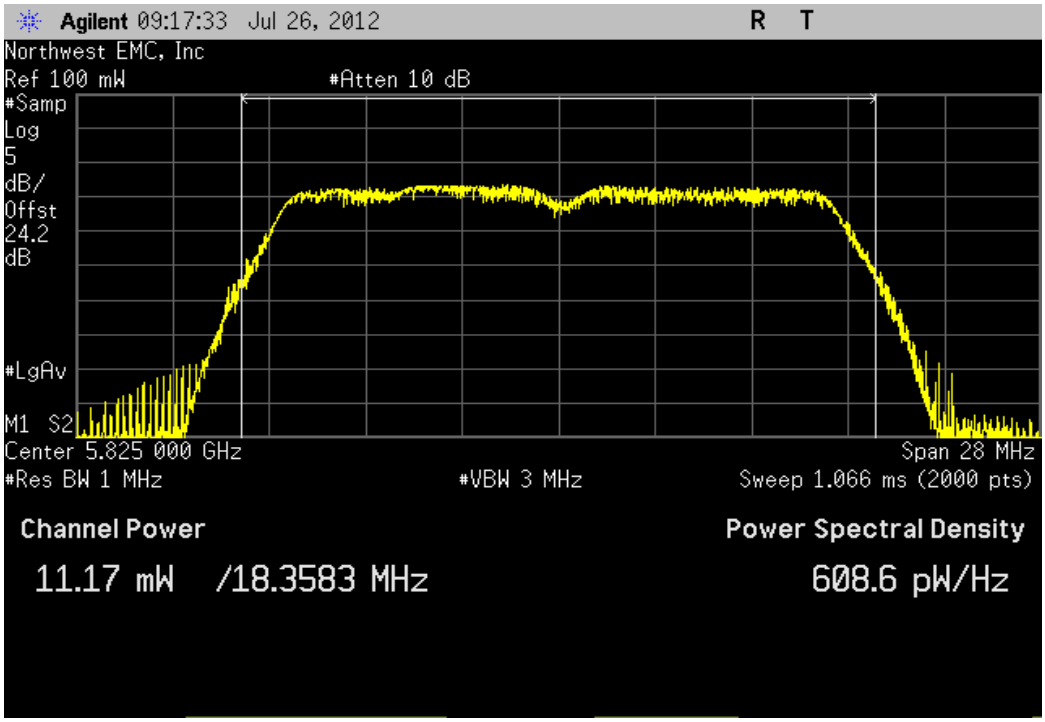
20MHz, 802.11(g) 6 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				12.627 mW	< 1 W	Pass



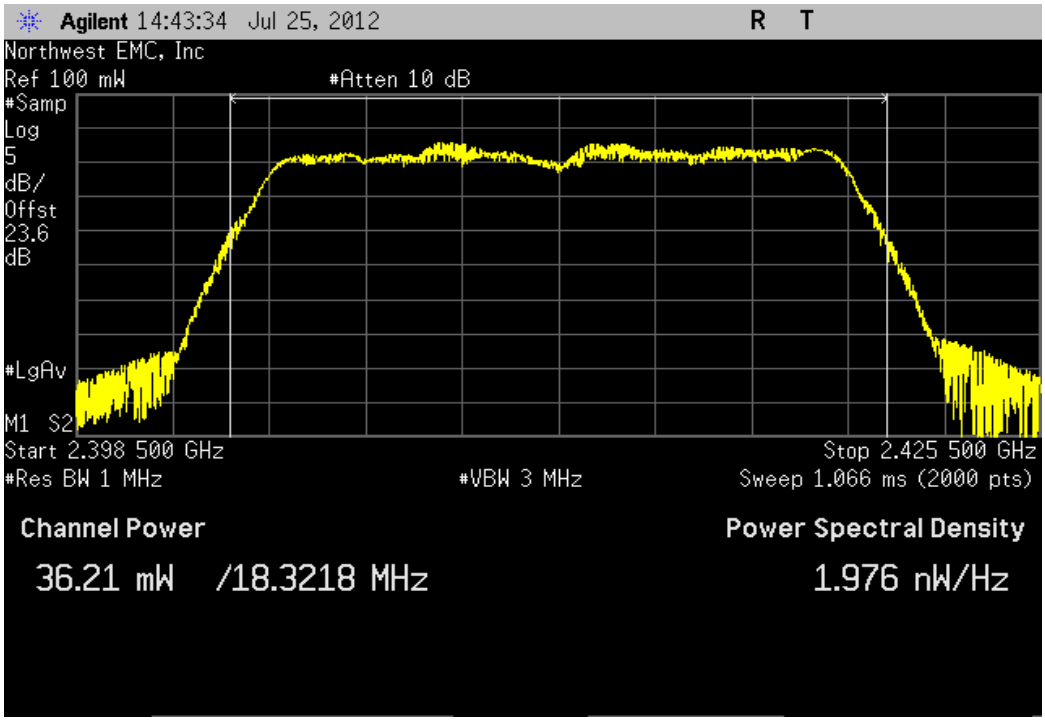
20MHz, 802.11(g) 6 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				11.172 mW	< 1 W	Pass



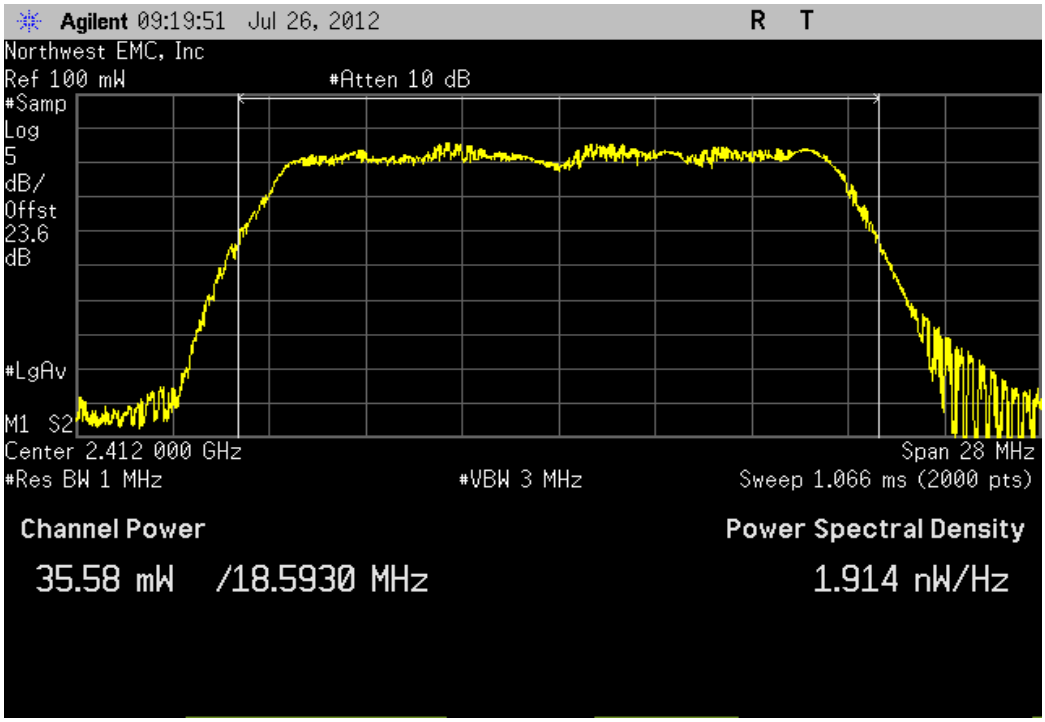
20MHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				36.205 mW	< 1 W	Pass



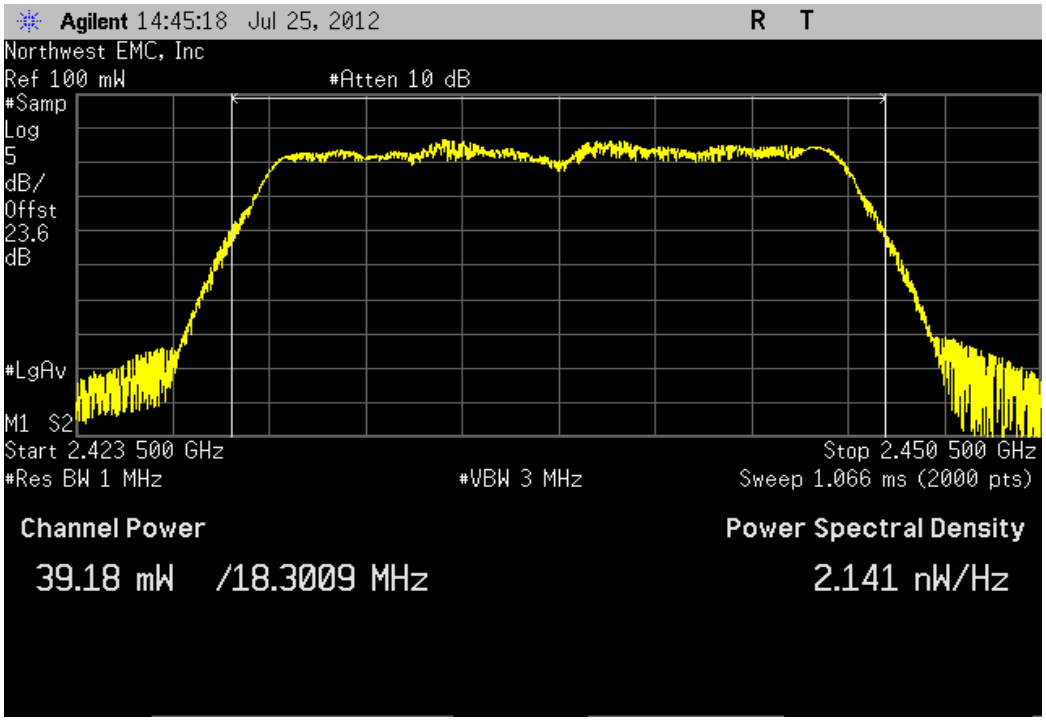
20MHz, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				35.581 mW	< 1 W	Pass



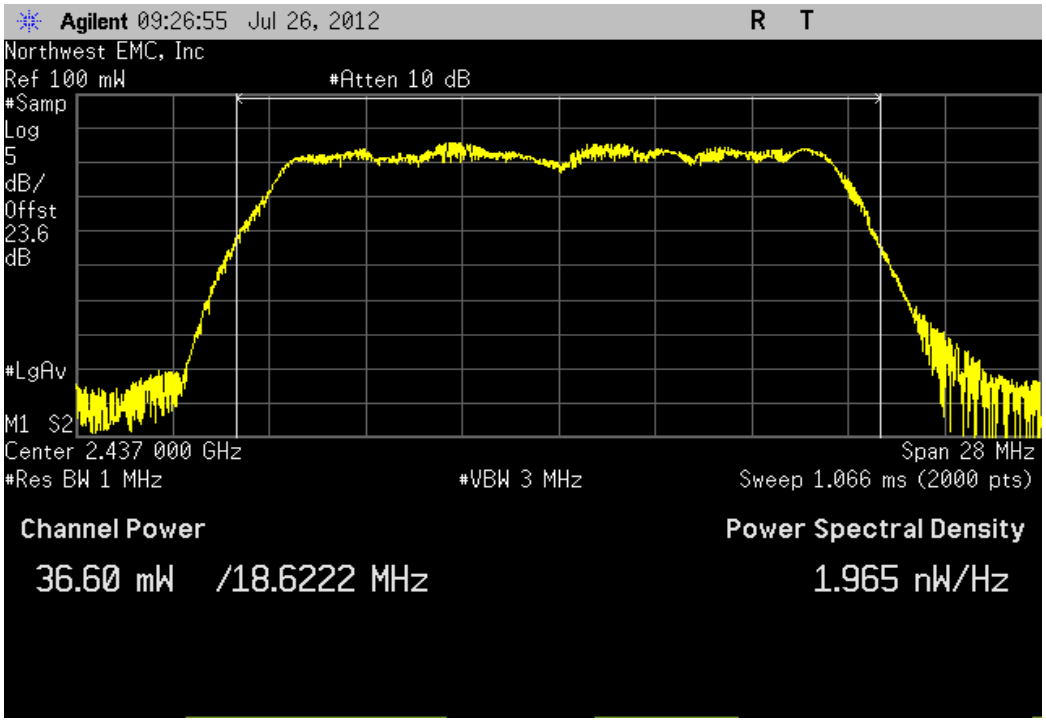
20MHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				39.183 mW	< 1 W	Pass



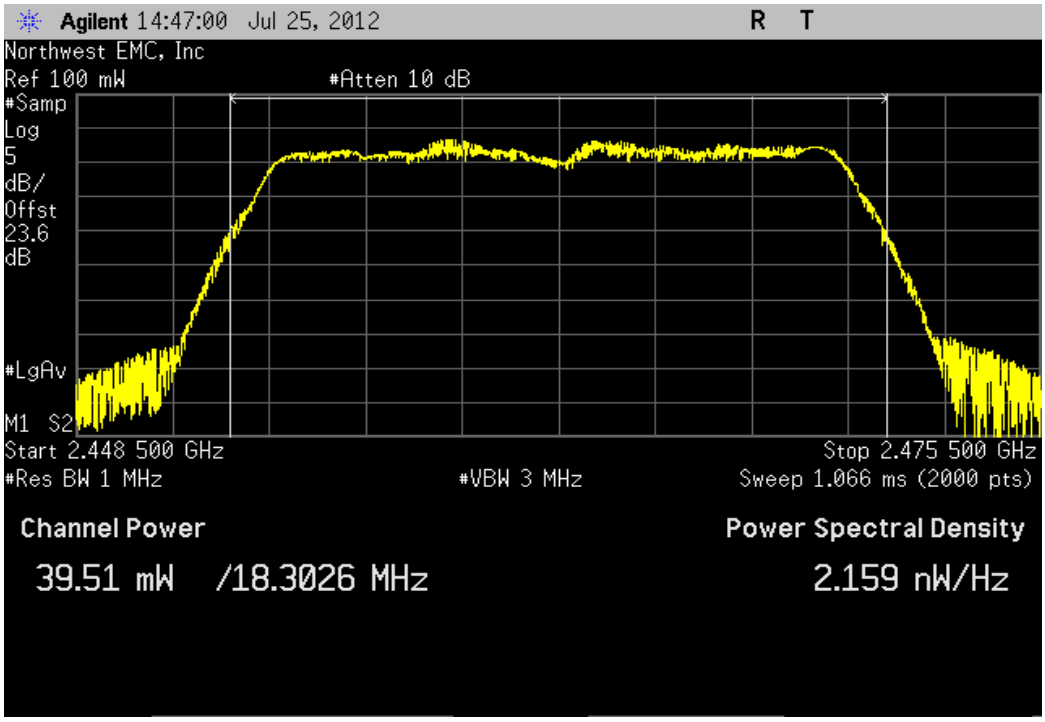
20MHz, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				36.601 mW	< 1 W	Pass



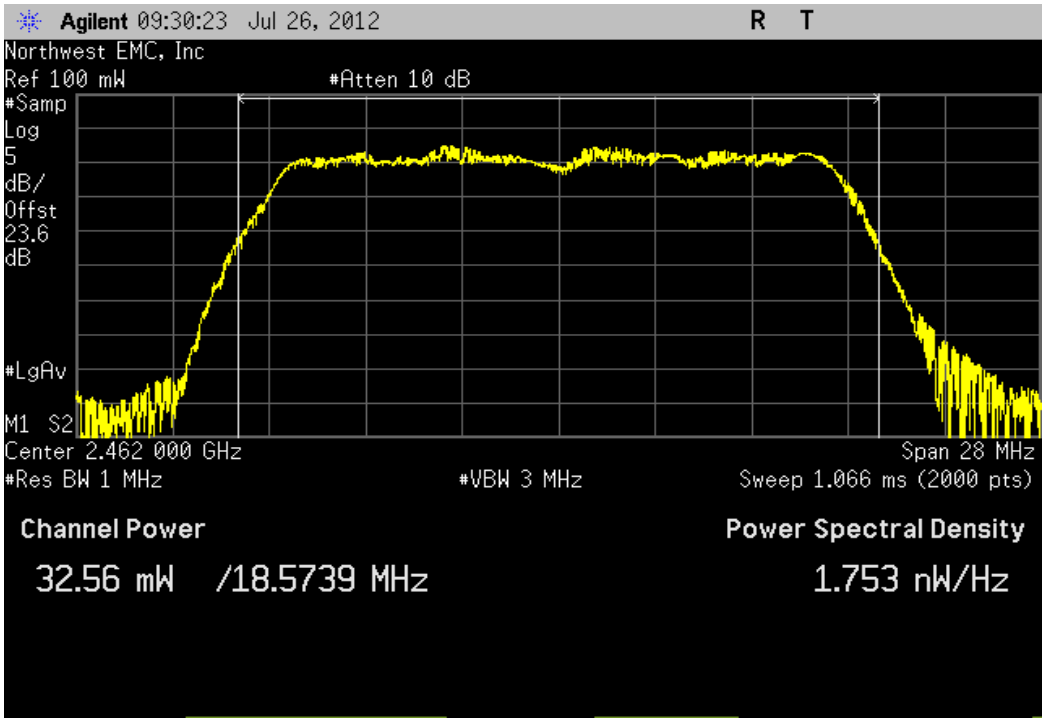
20MHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				39.509 mW	< 1 W	Pass



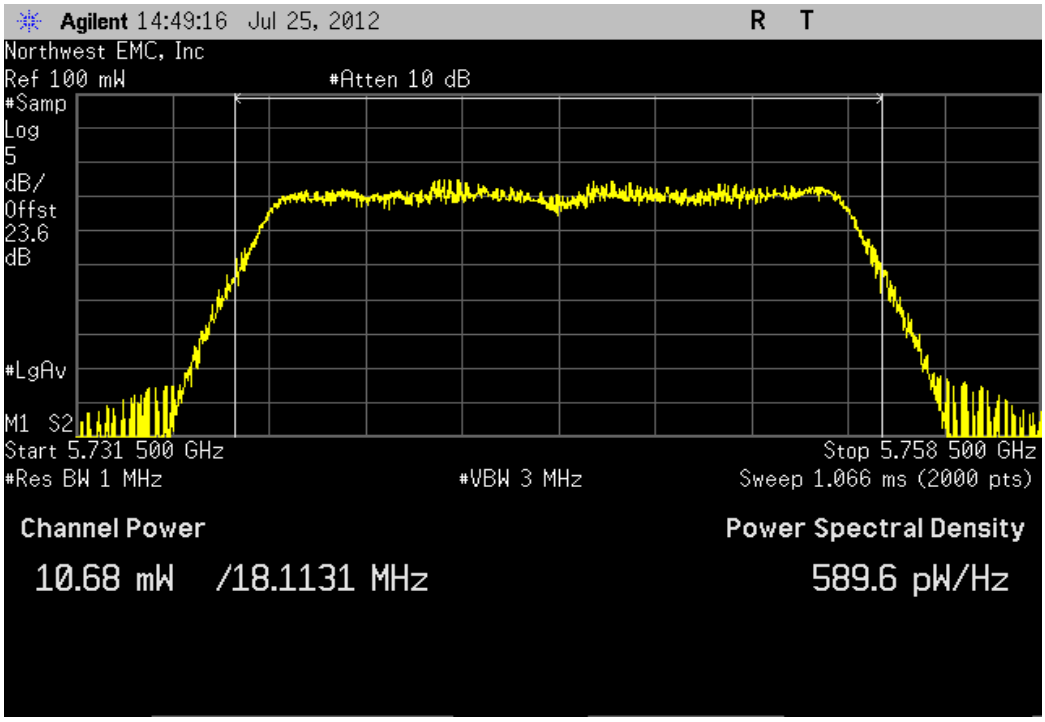
20MHz, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				32.56 mW	< 1 W	Pass



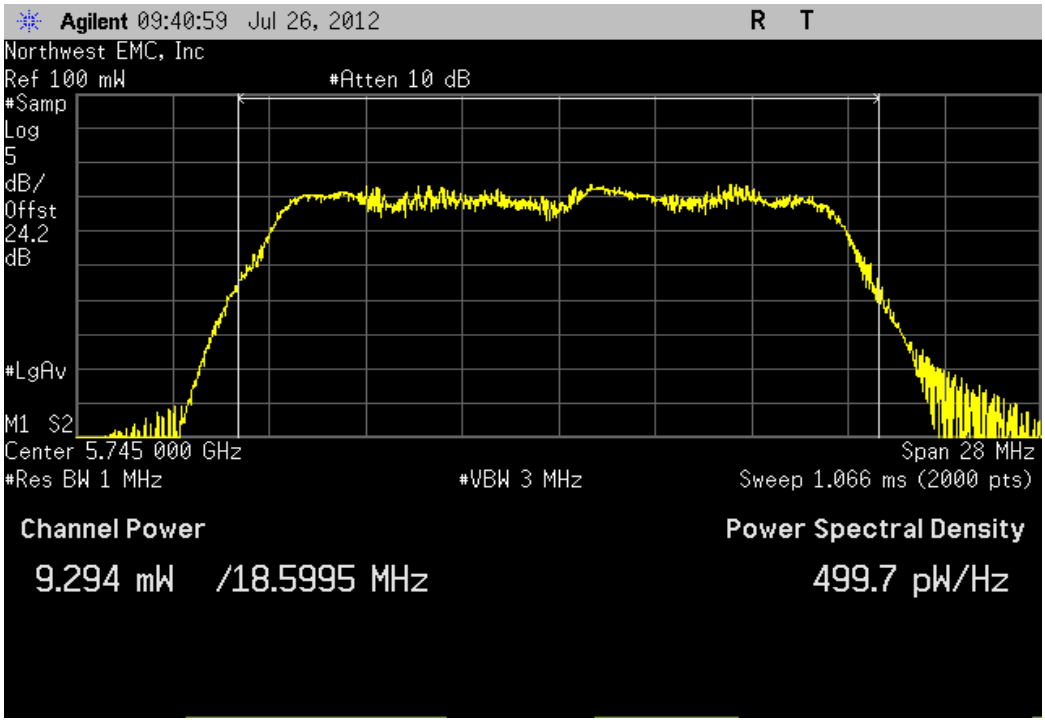
20MHz, 802.11(g) 36 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				10.679 mW	< 1 W	Pass



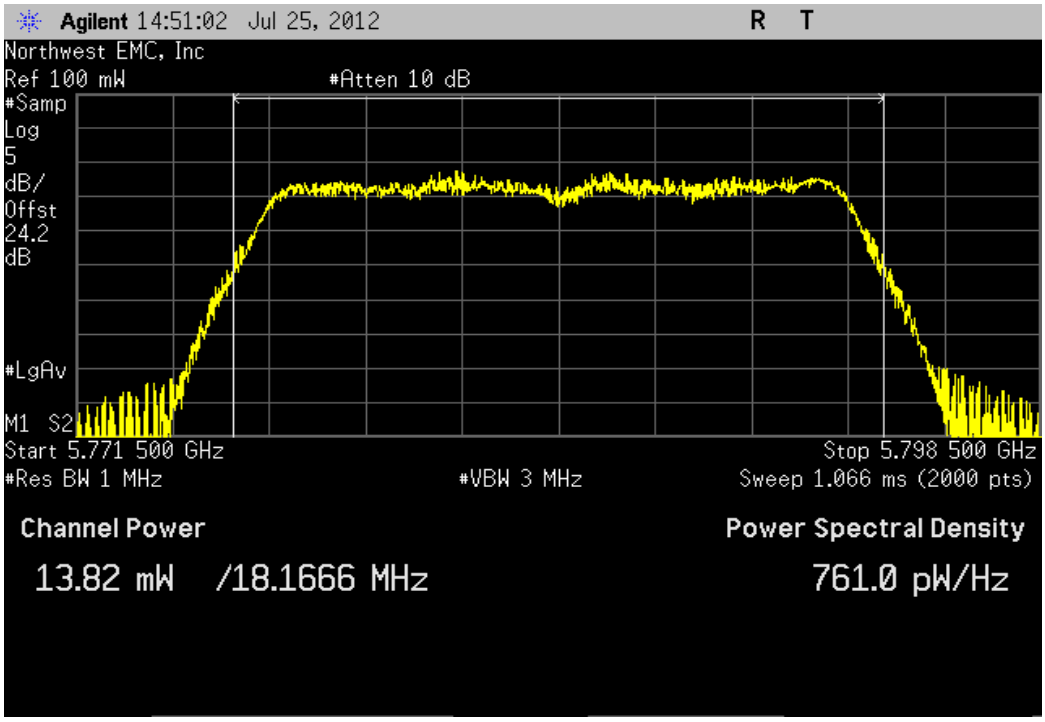
20MHz, 802.11(g) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				9.294 mW	< 1 W	Pass



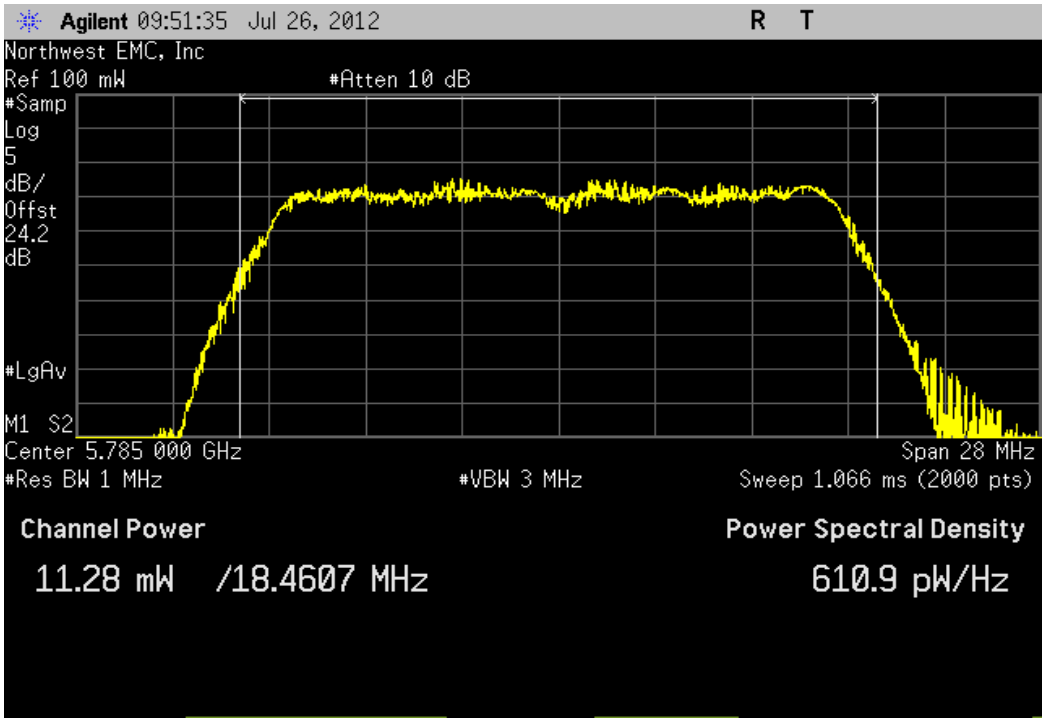
20MHz, 802.11(g) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				13.824 mW	< 1 W	Pass



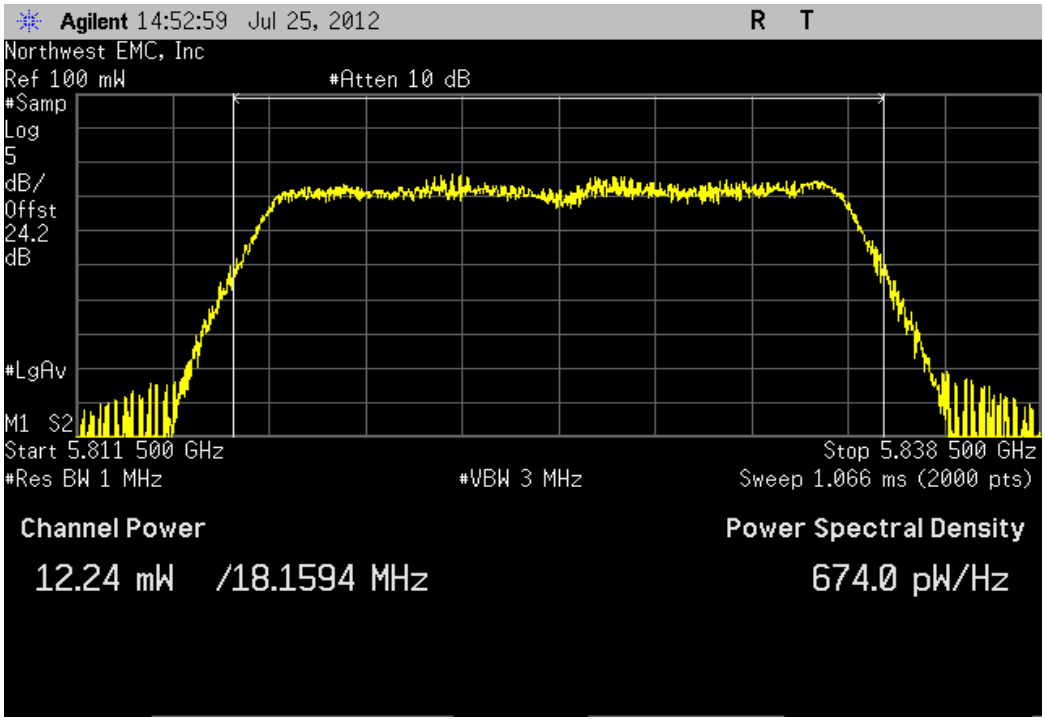
20MHz, 802.11(g) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				11.277 mW	< 1 W	Pass



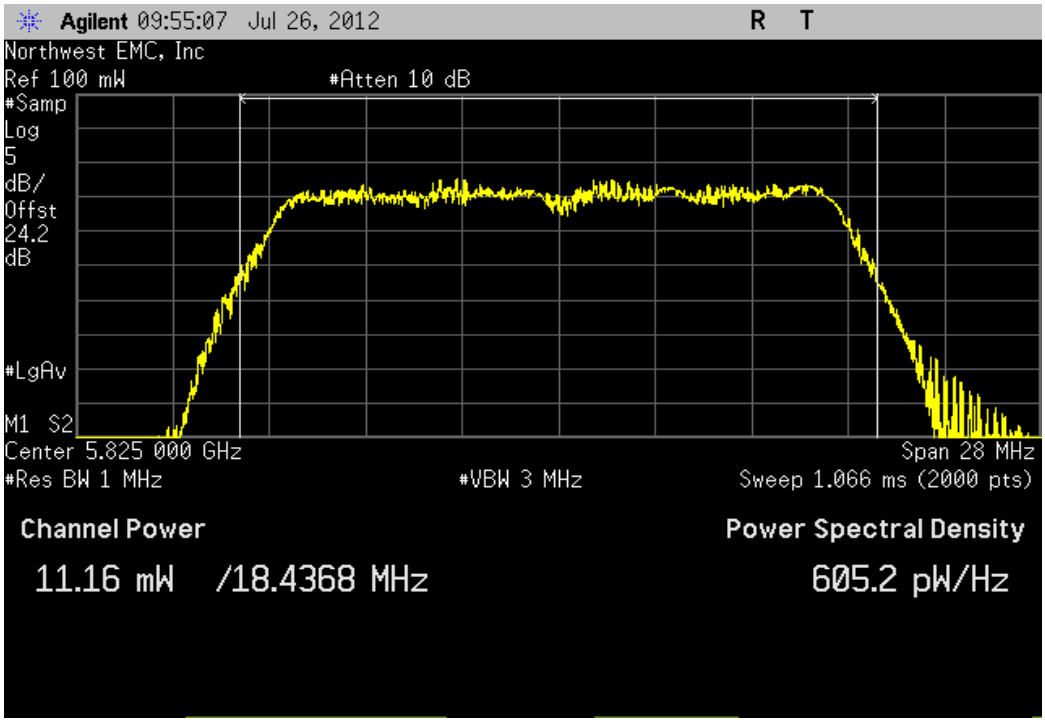
20MHz, 802.11(g) 36 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				12.24 mW	< 1 W	Pass

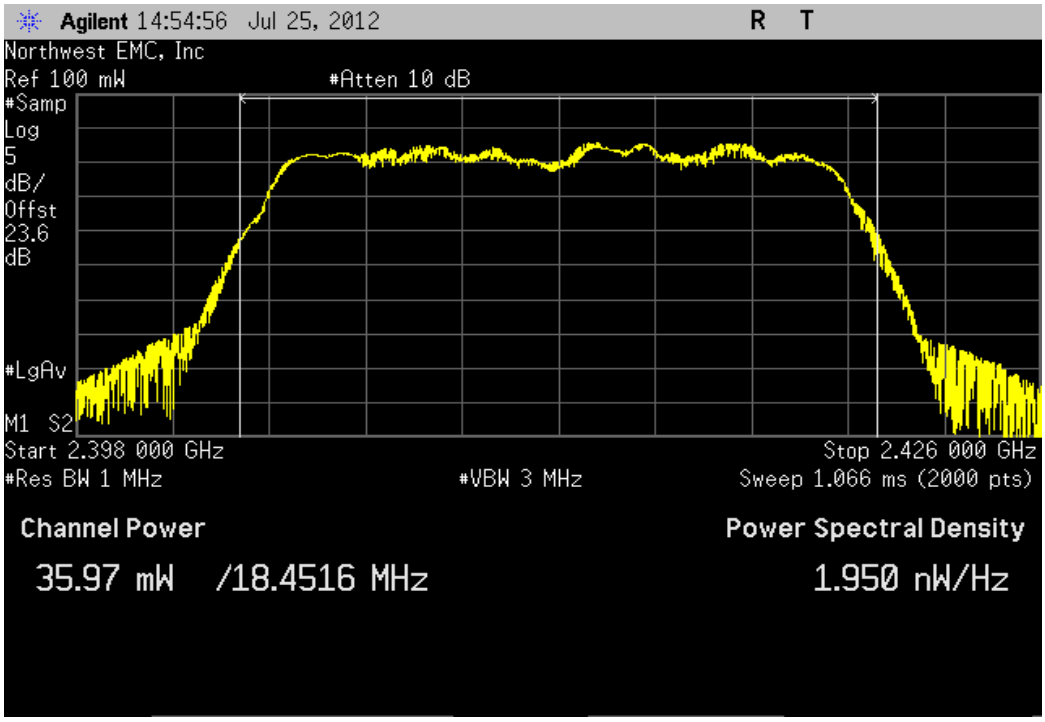


20MHz, 802.11(g) 36 Mbps, High Channel 165, 5825 MHz, Antenna A

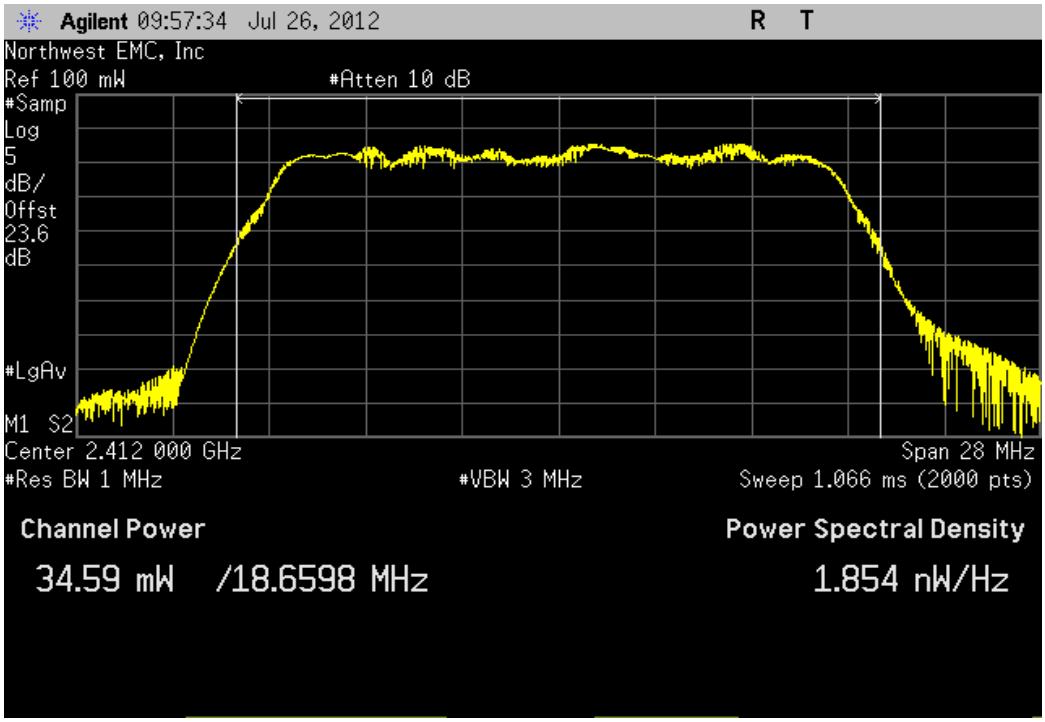
				Value	Limit	Result
				11.158 mW	< 1 W	Pass



20MHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz, Antenna B						
				Value	Limit	Result
				35.973 mW	< 1 W	Pass

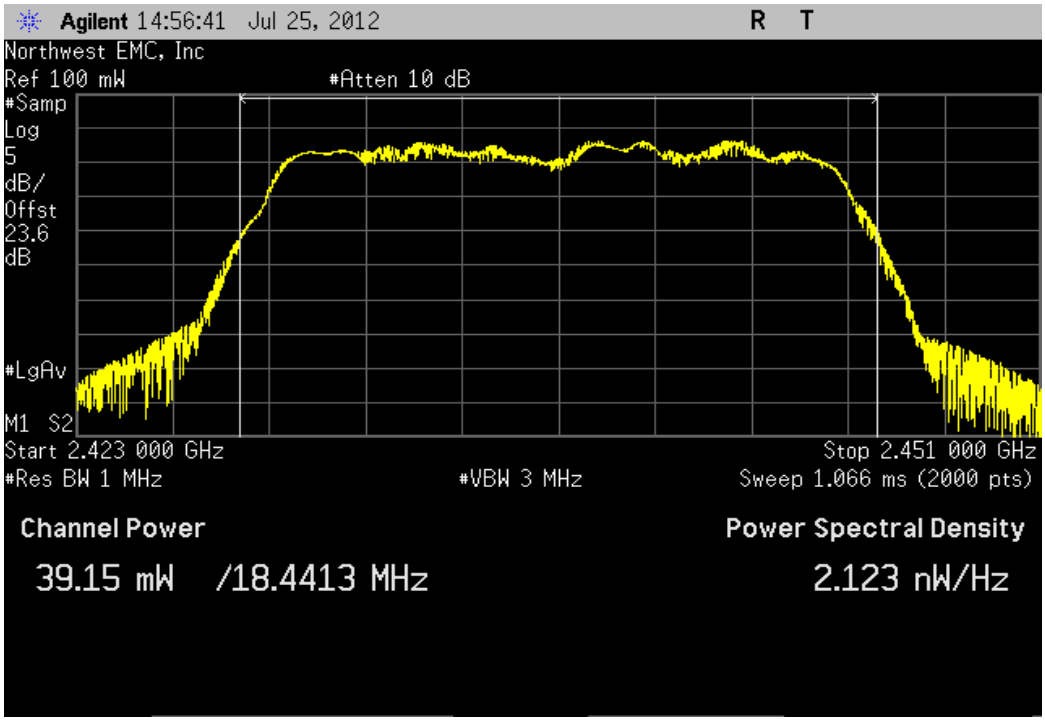


20MHz, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz, Antenna A						
				Value	Limit	Result
				34.592 mW	< 1 W	Pass



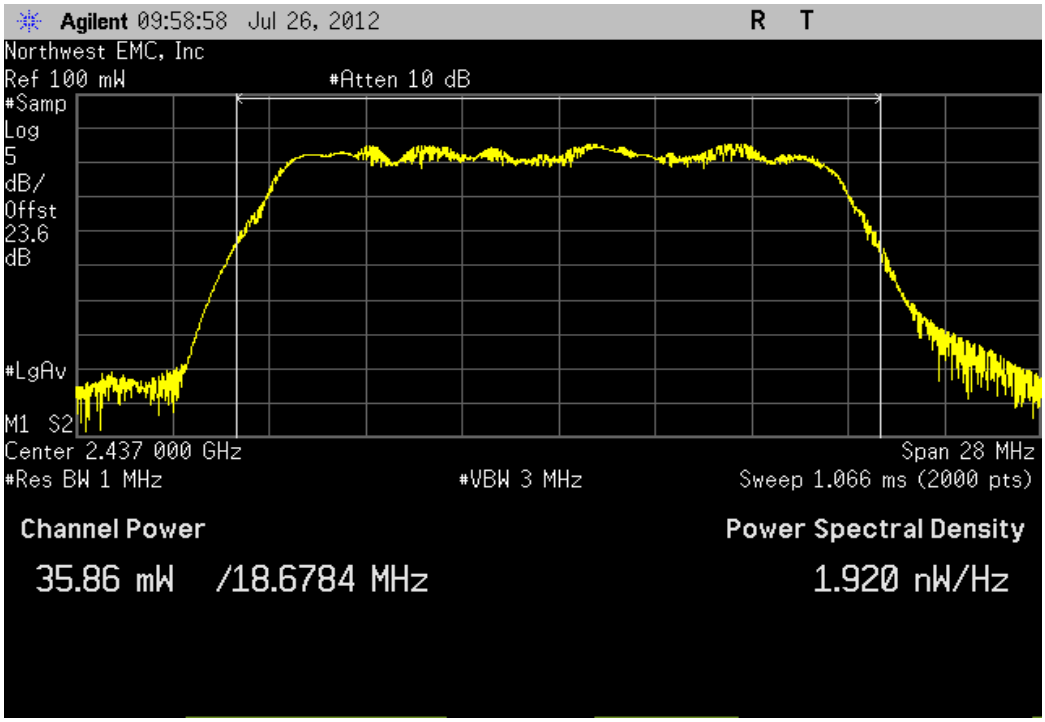
20MHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				39.15 mW	< 1 W	Pass



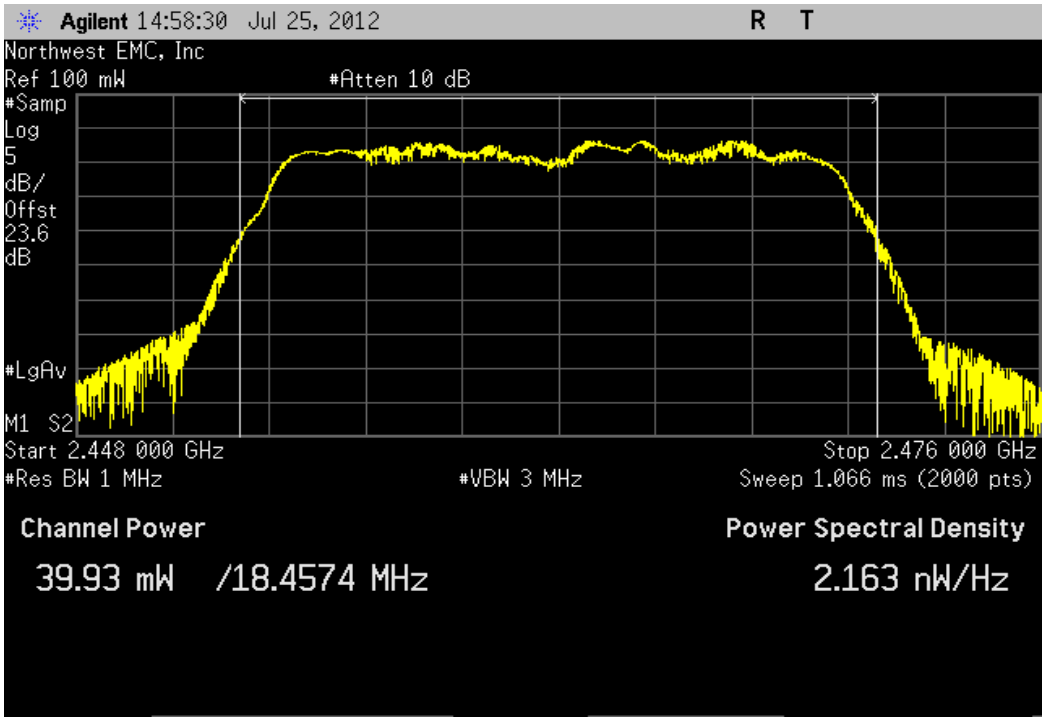
20MHz, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				35.863 mW	< 1 W	Pass



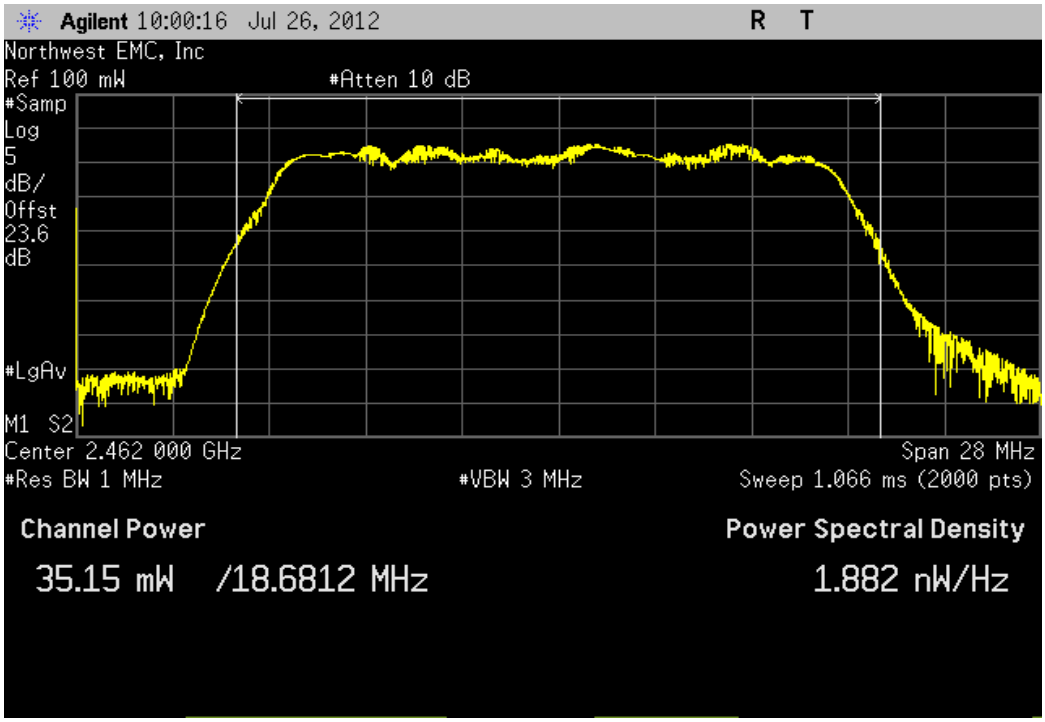
20MHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				39.931 mW	< 1 W	Pass



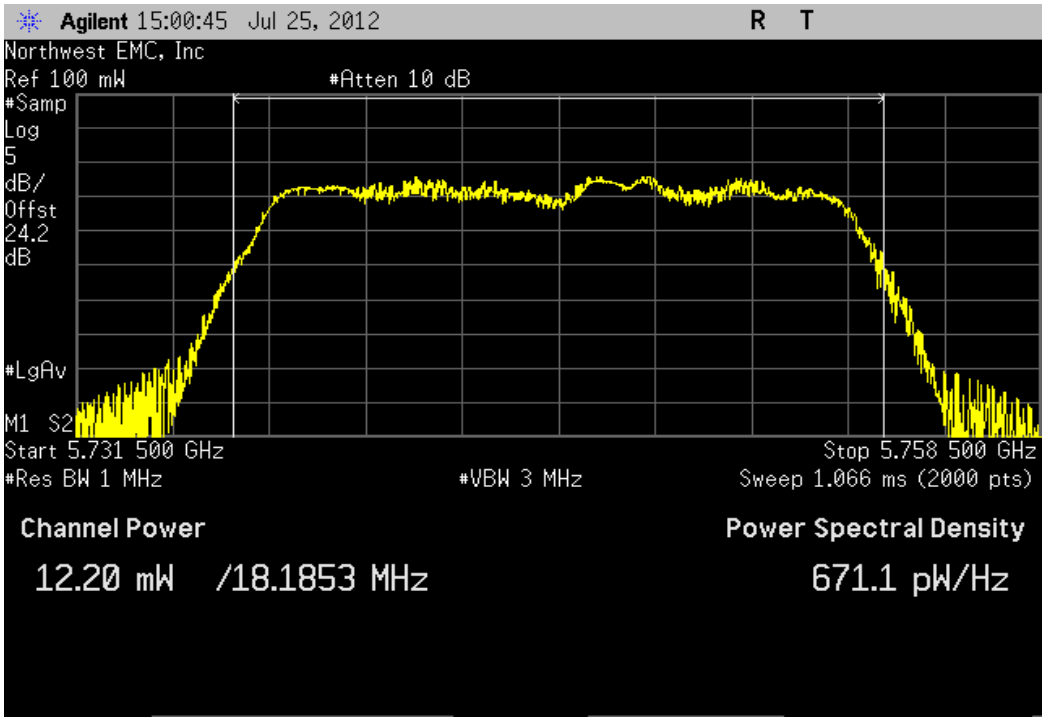
20MHz, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				35.154 mW	< 1 W	Pass



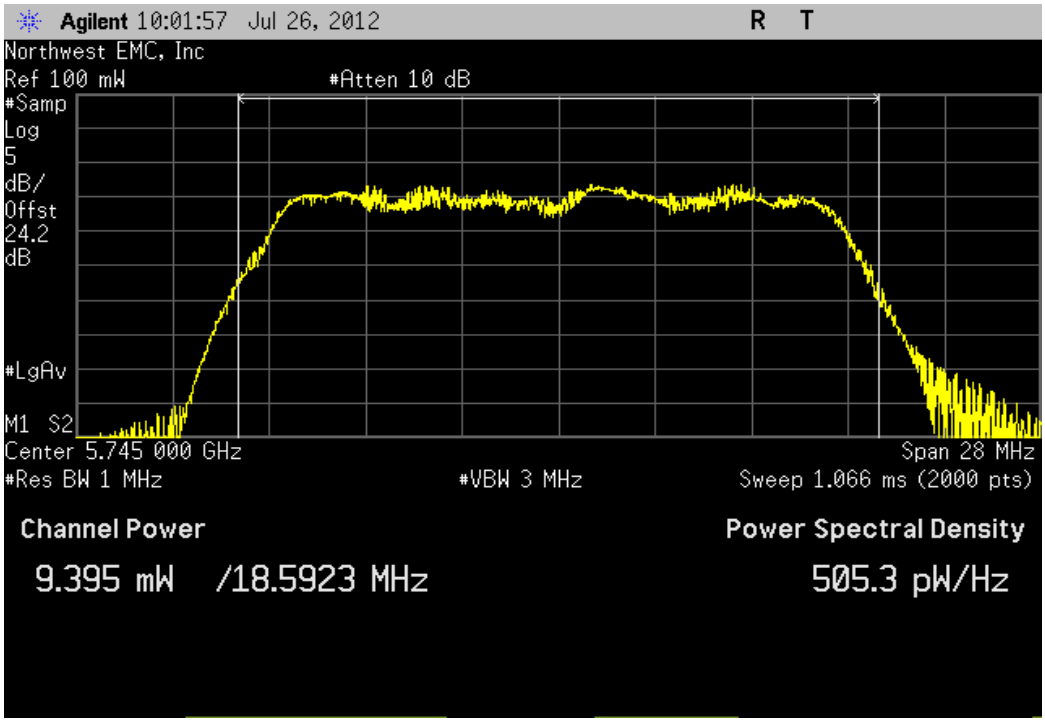
20MHz, 802.11(g) 54 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				12.204 mW	< 1 W	Pass



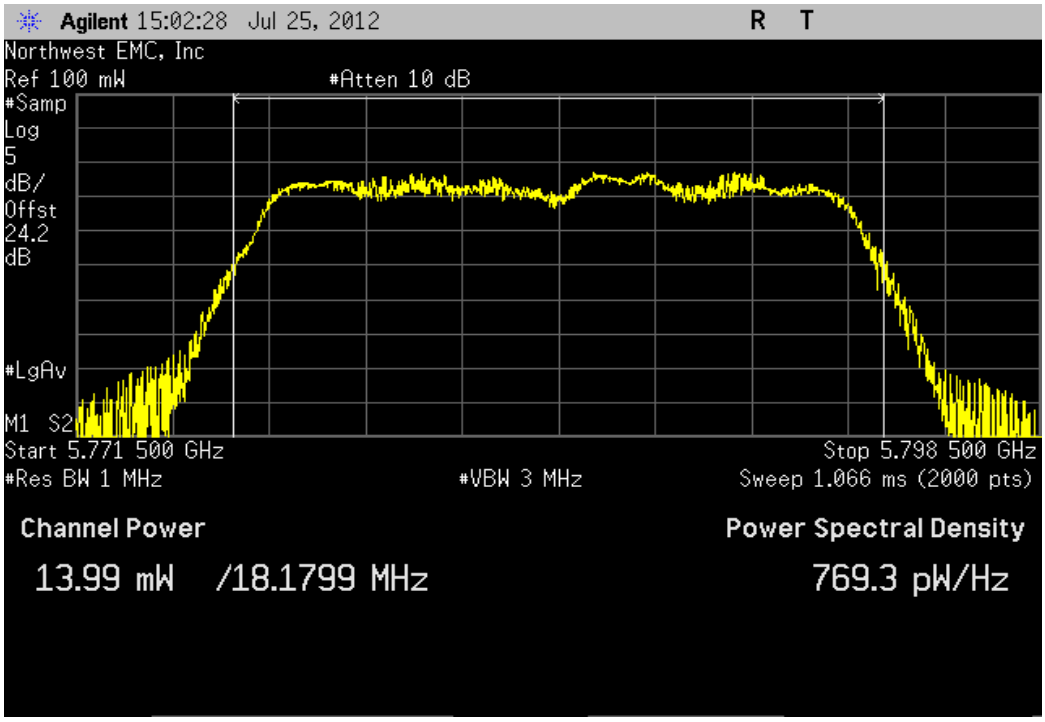
20MHz, 802.11(g) 54 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				9.395 mW	< 1 W	Pass



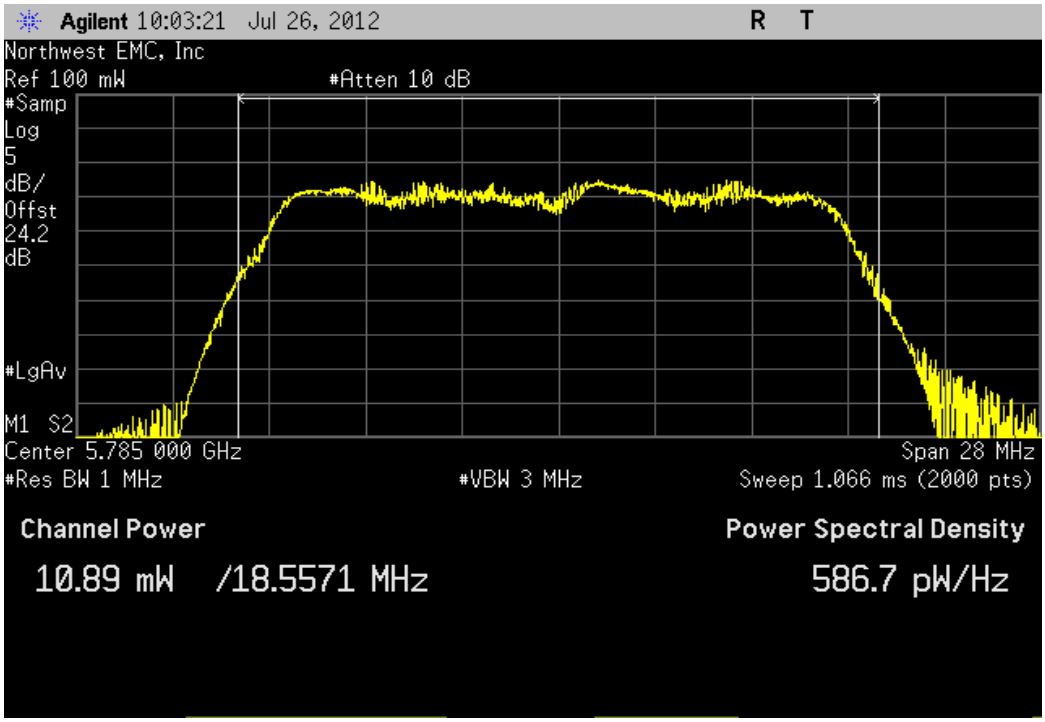
20MHz, 802.11(g) 54 Mbps, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				13.986 mW	< 1 W	Pass



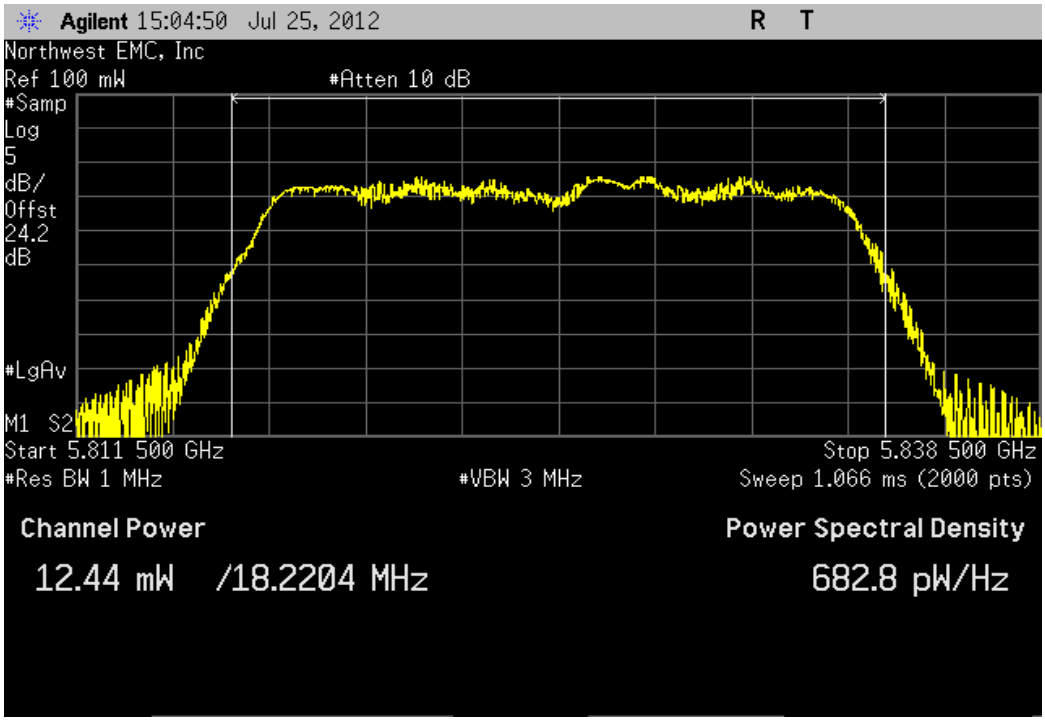
20MHz, 802.11(g) 54 Mbps, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				10.887 mW	< 1 W	Pass



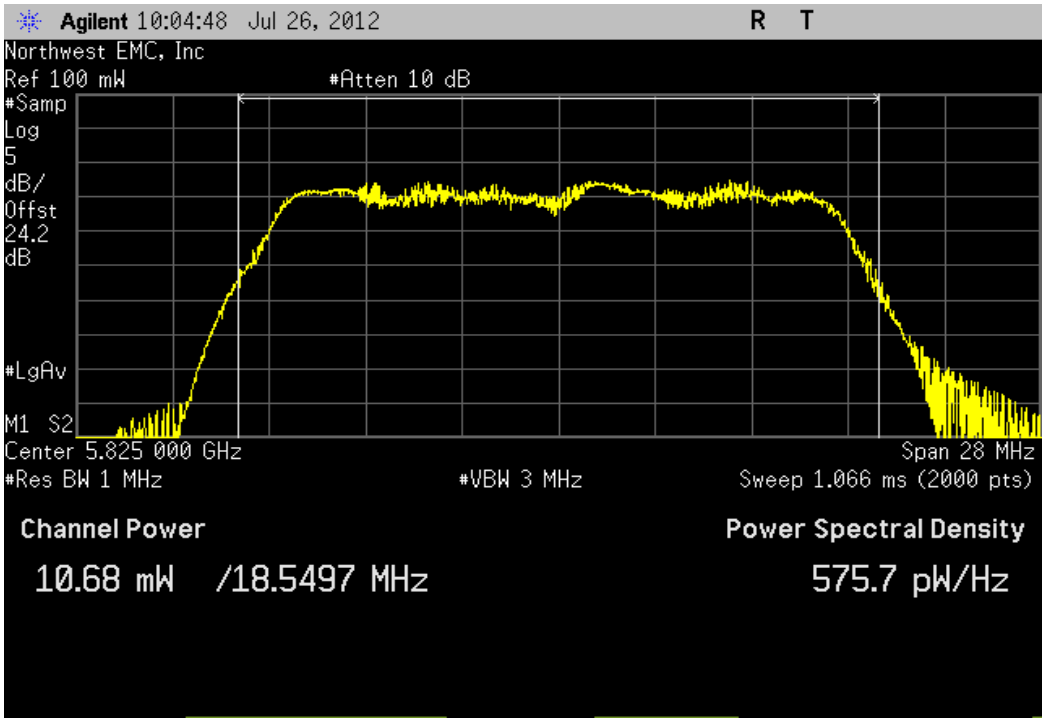
20MHz, 802.11(g) 54 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				12.44 mW	< 1 W	Pass



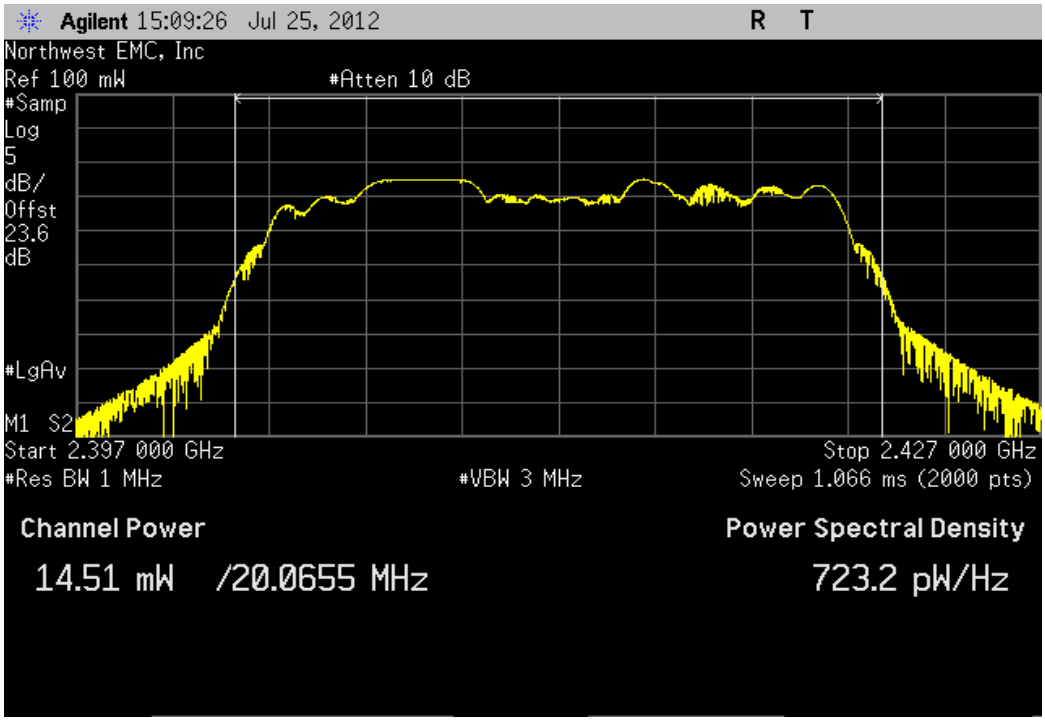
20MHz, 802.11(g) 54 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				10.678 mW	< 1 W	Pass



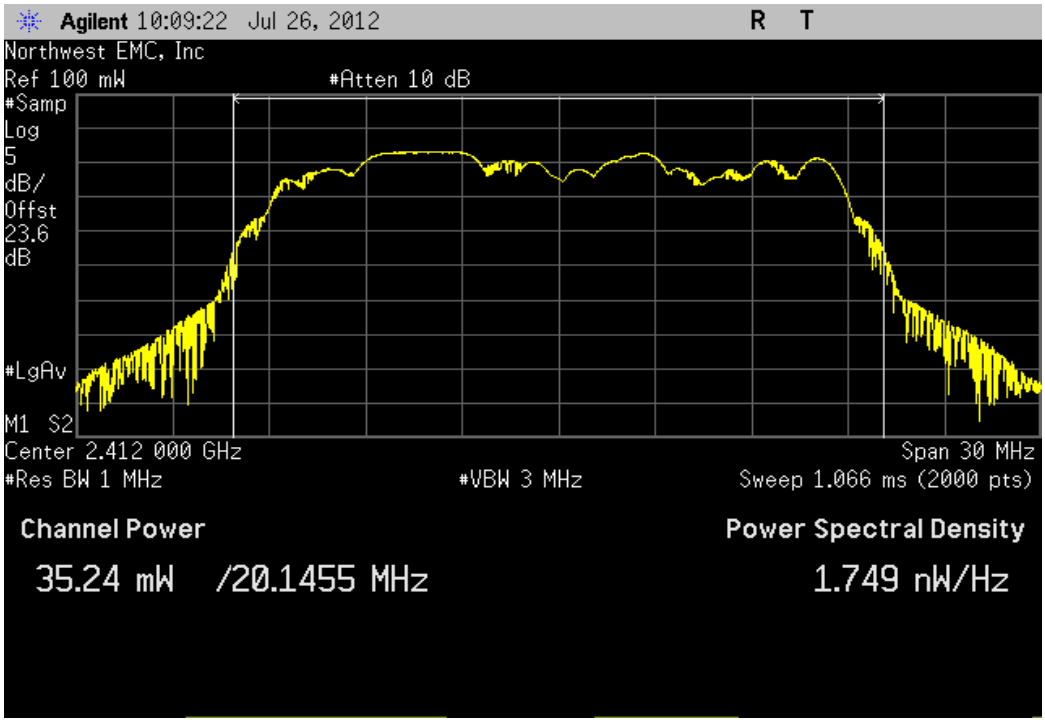
20MHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				14.511 mW	< 1 W	Pass



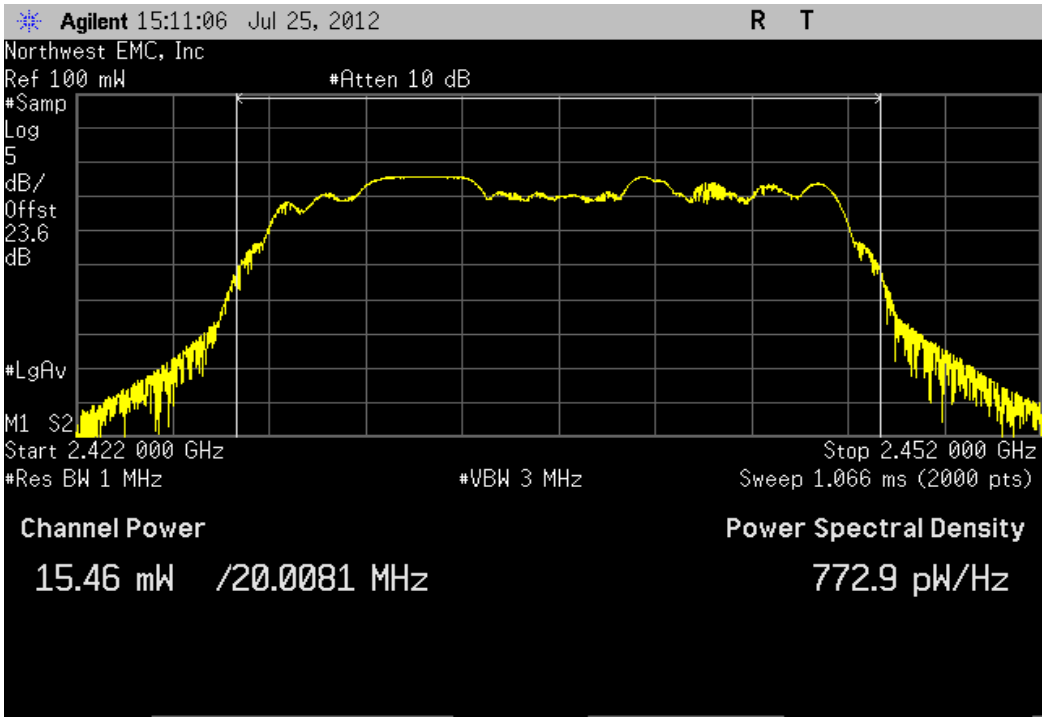
20MHz, 802.11(n) MCS0, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				35.244 mW	< 1 W	Pass



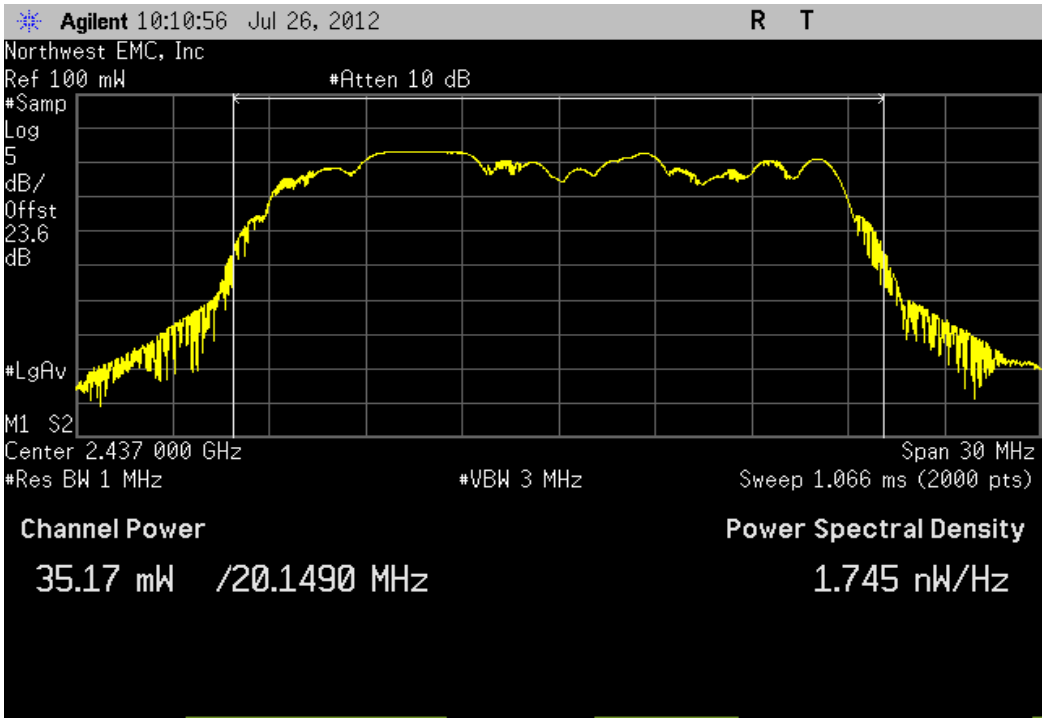
20MHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				15.464 mW	< 1 W	Pass



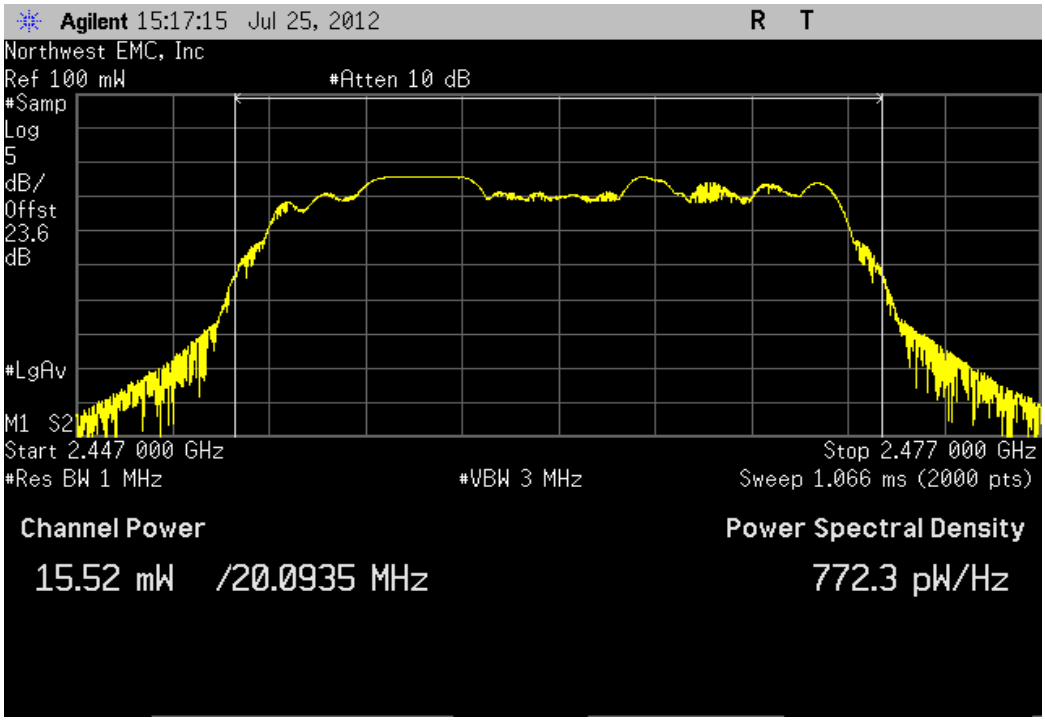
20MHz, 802.11(n) MCS0, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				35.168 mW	< 1 W	Pass



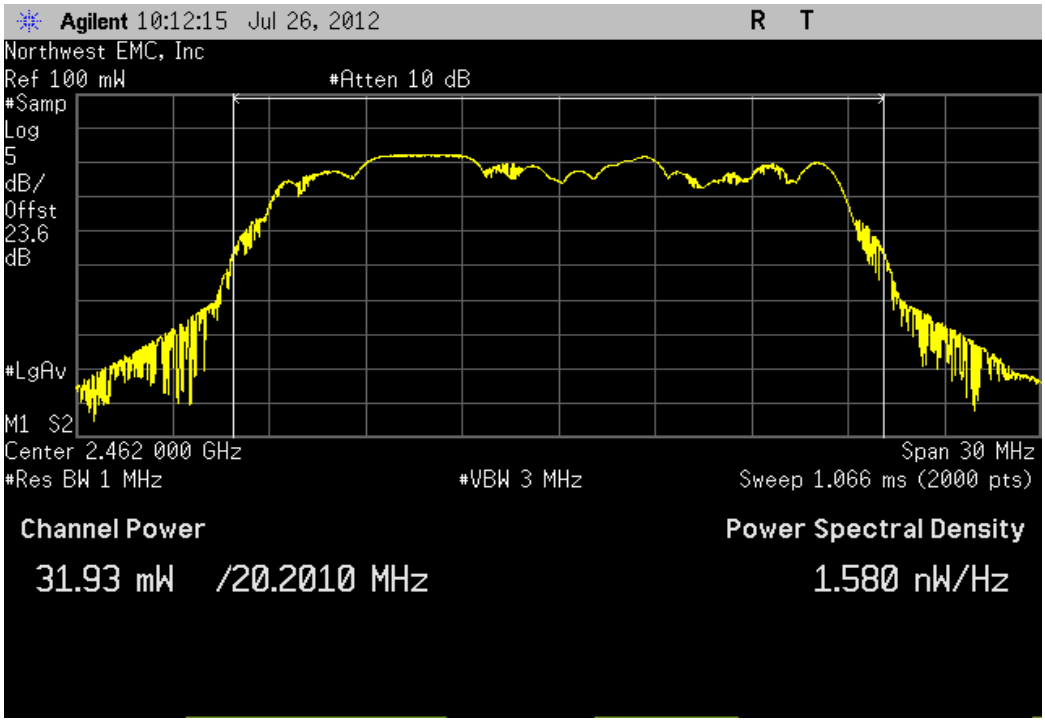
20MHz, 802.11(n) MCS0, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				15.518 mW	< 1 W	Pass



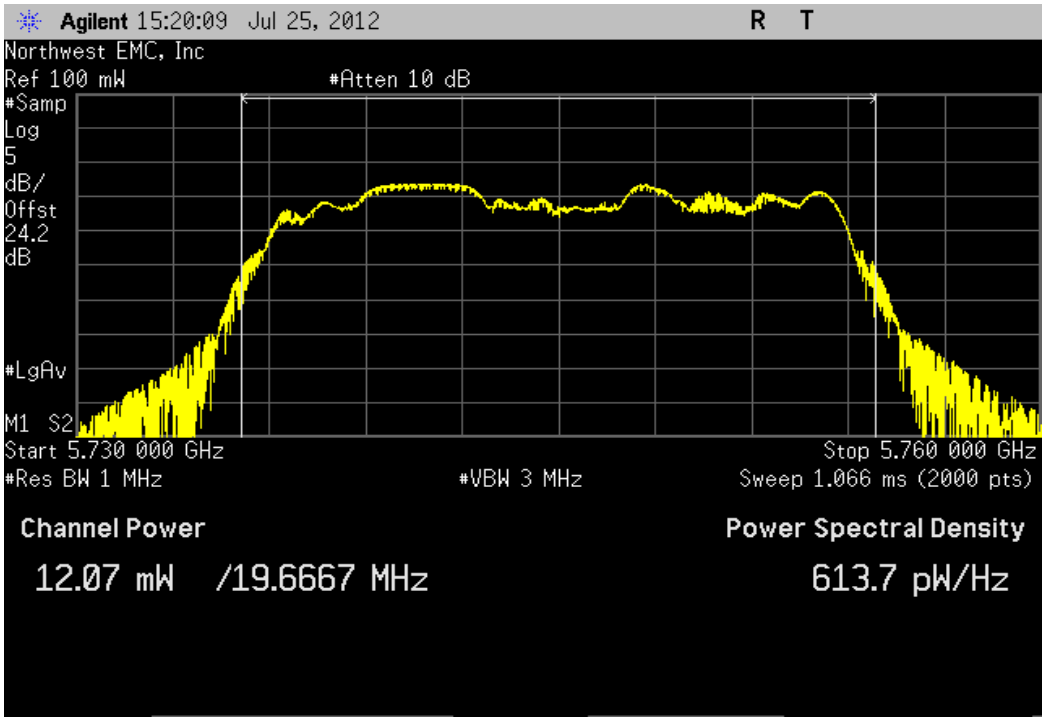
20MHz, 802.11(n) MCS0, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				31.926 mW	< 1 W	Pass



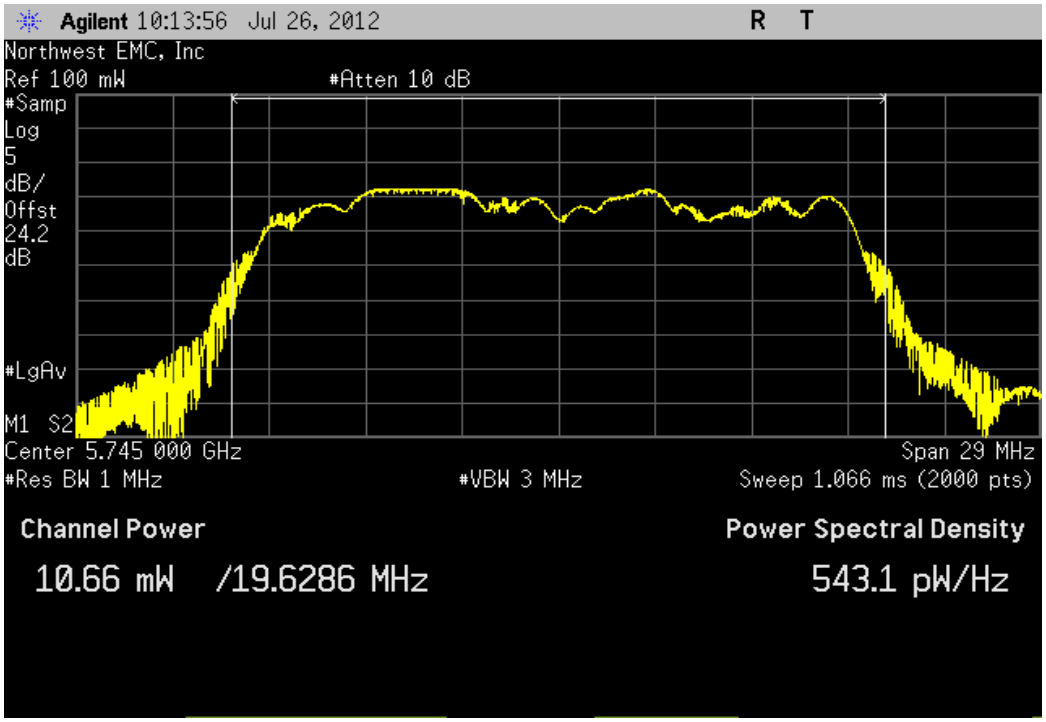
20MHz, 802.11(n) MCS0, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				12.069 mW	< 1 W	Pass



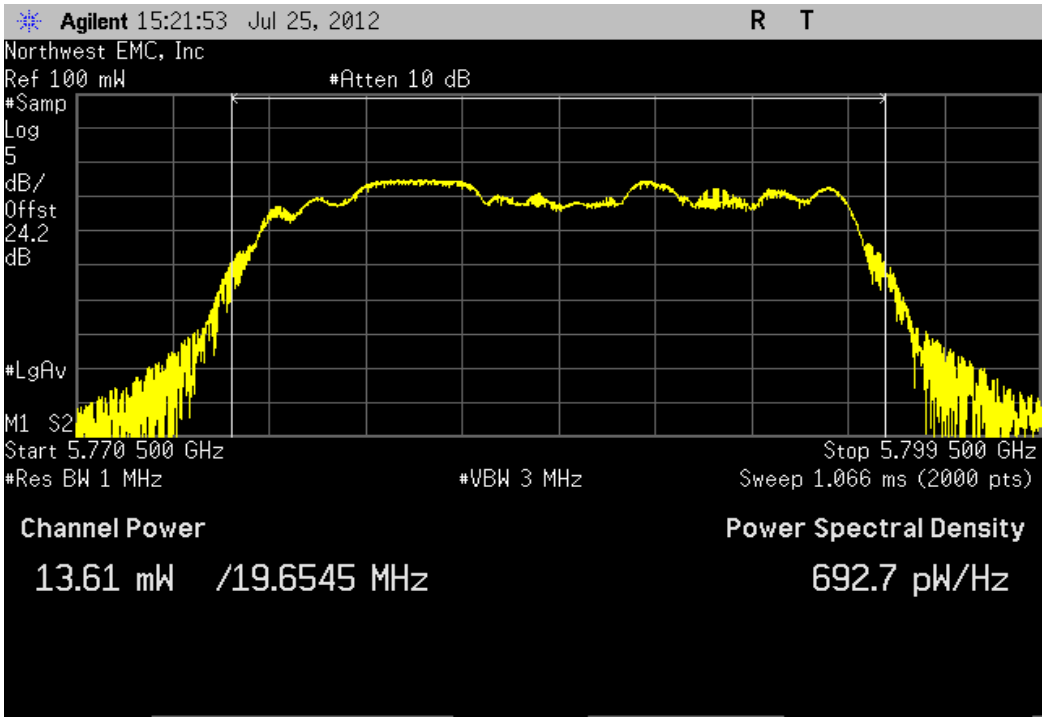
20MHz, 802.11(n) MCS0, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				10.66 mW	< 1 W	Pass



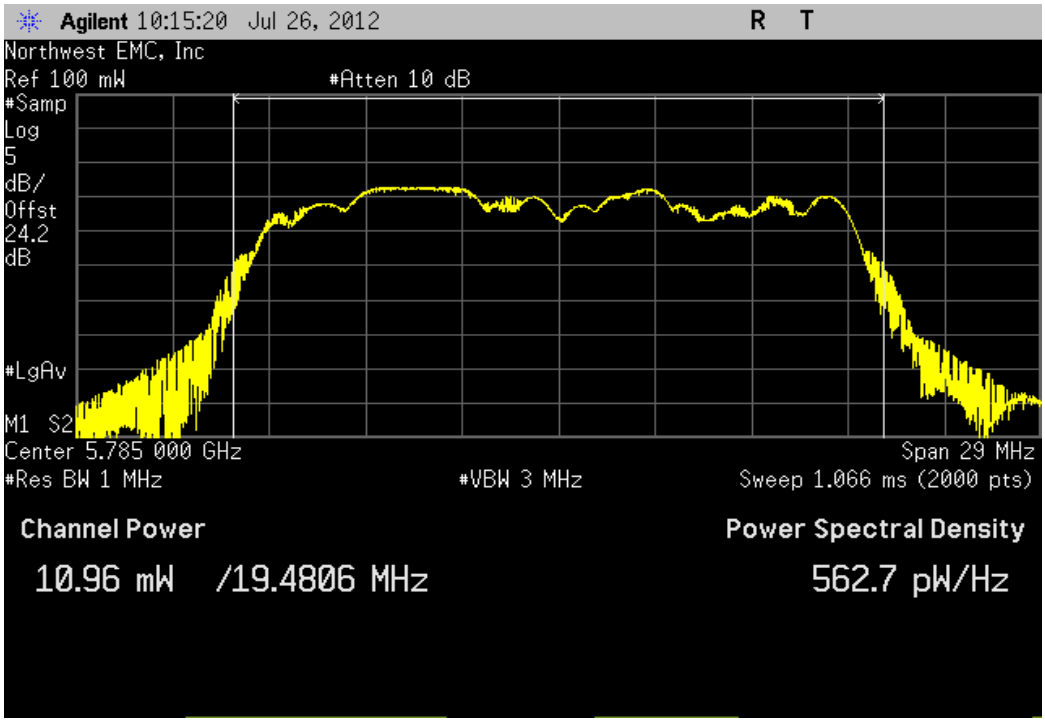
20MHz, 802.11(n) MCS0, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				13.615 mW	< 1 W	Pass



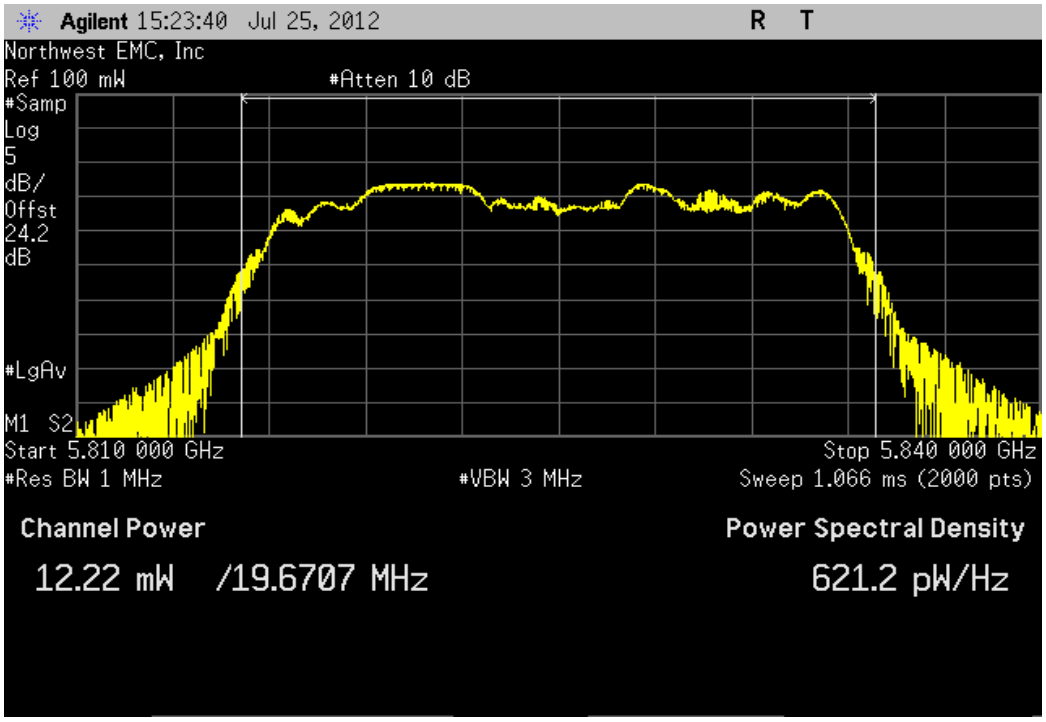
20MHz, 802.11(n) MCS0, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				10.961 mW	< 1 W	Pass



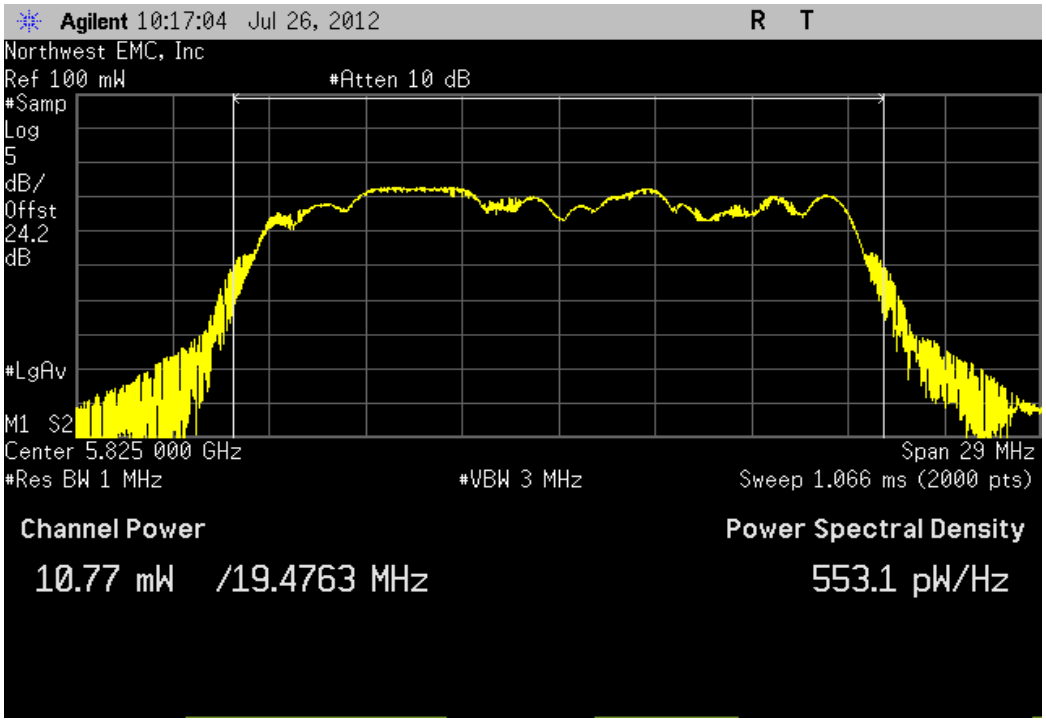
20MHz, 802.11(n) MCS0, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				12.22 mW	< 1 W	Pass



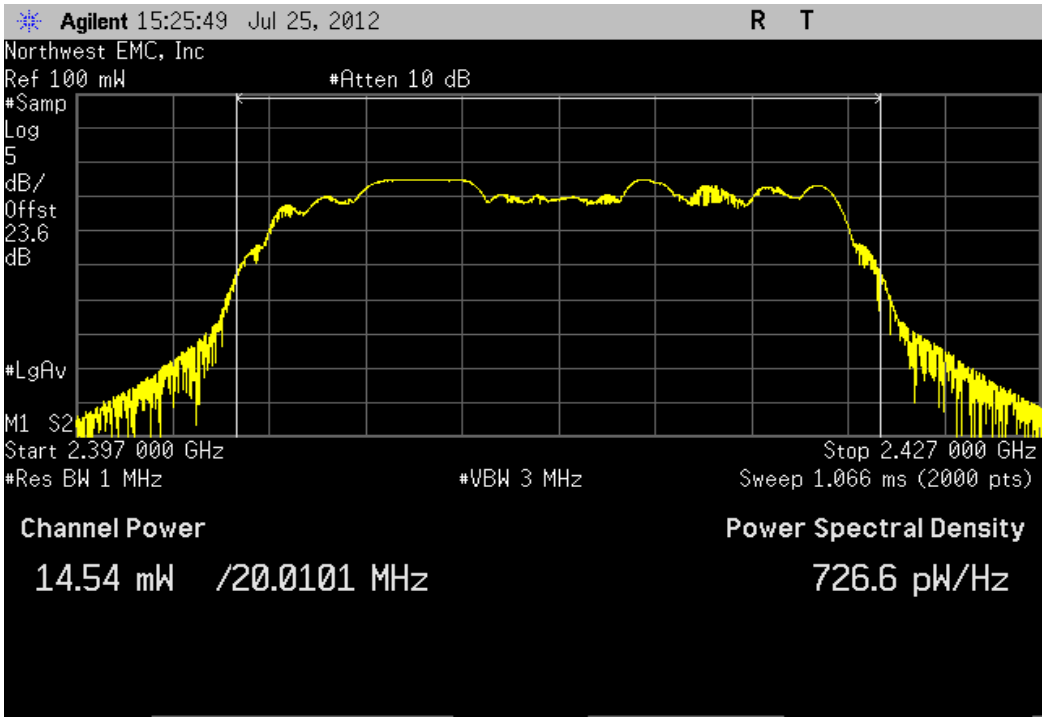
20MHz, 802.11(n) MCS0, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				10.773 mW	< 1 W	Pass



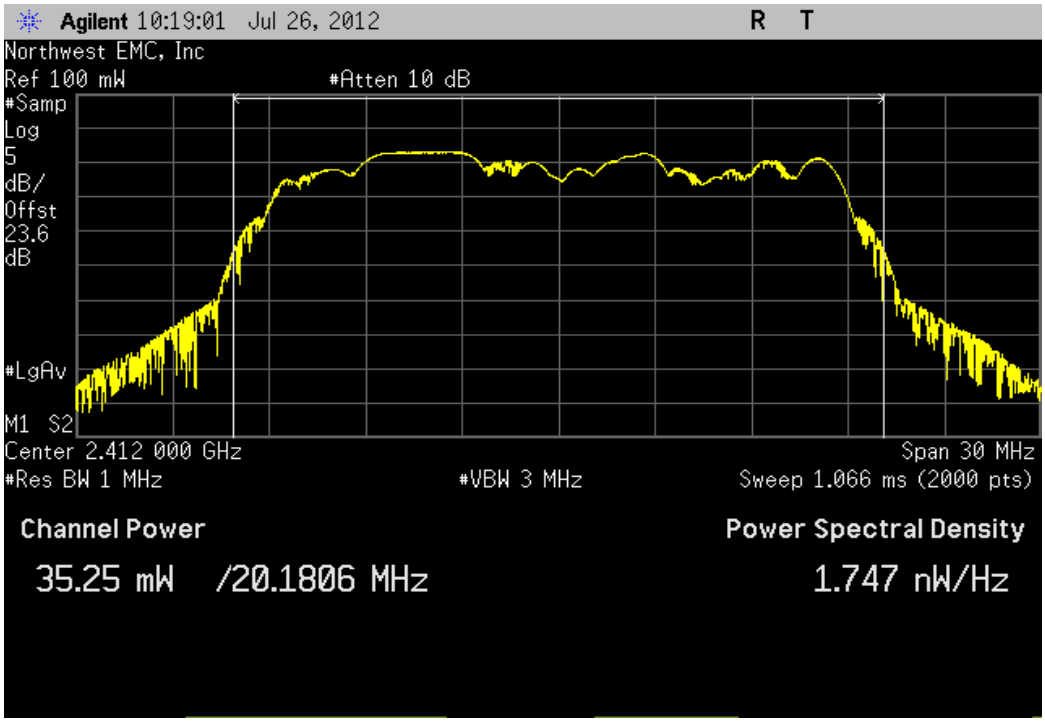
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				14.539 mW	< 1 W	Pass



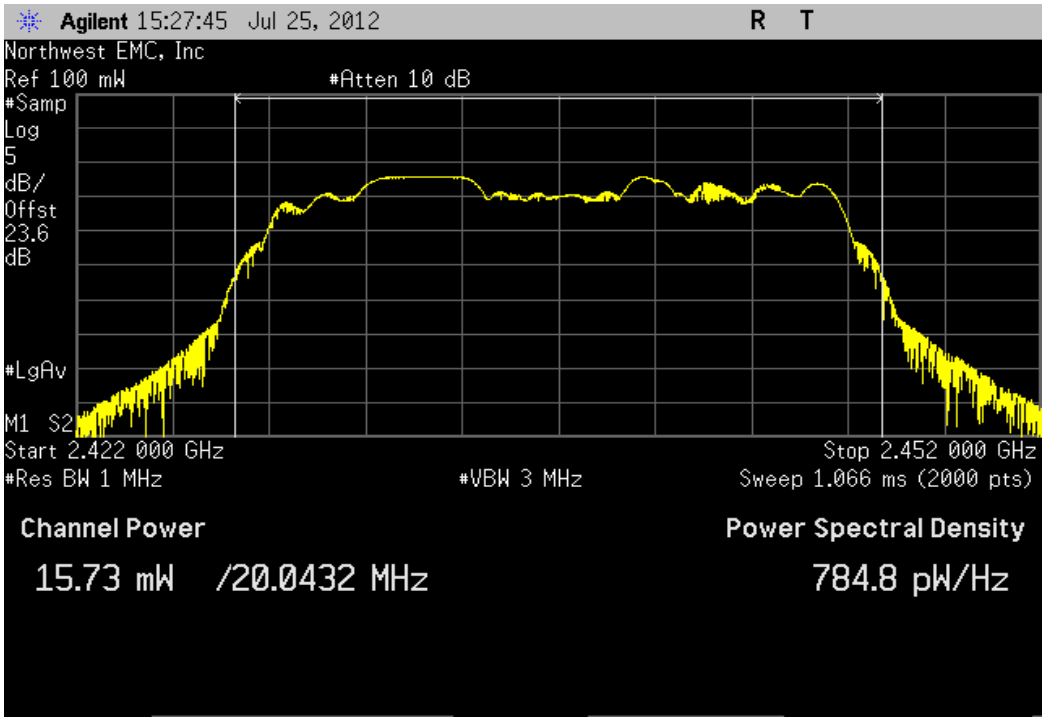
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				35.252 mW	< 1 W	Pass



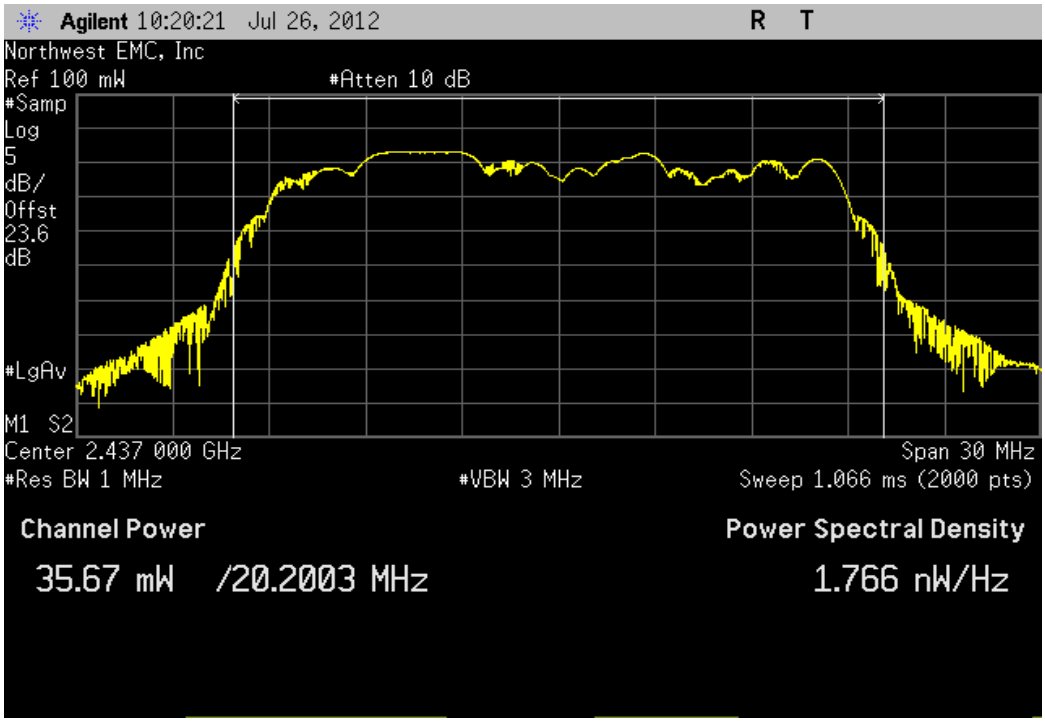
20MHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				15.731 mW	< 1 W	Pass



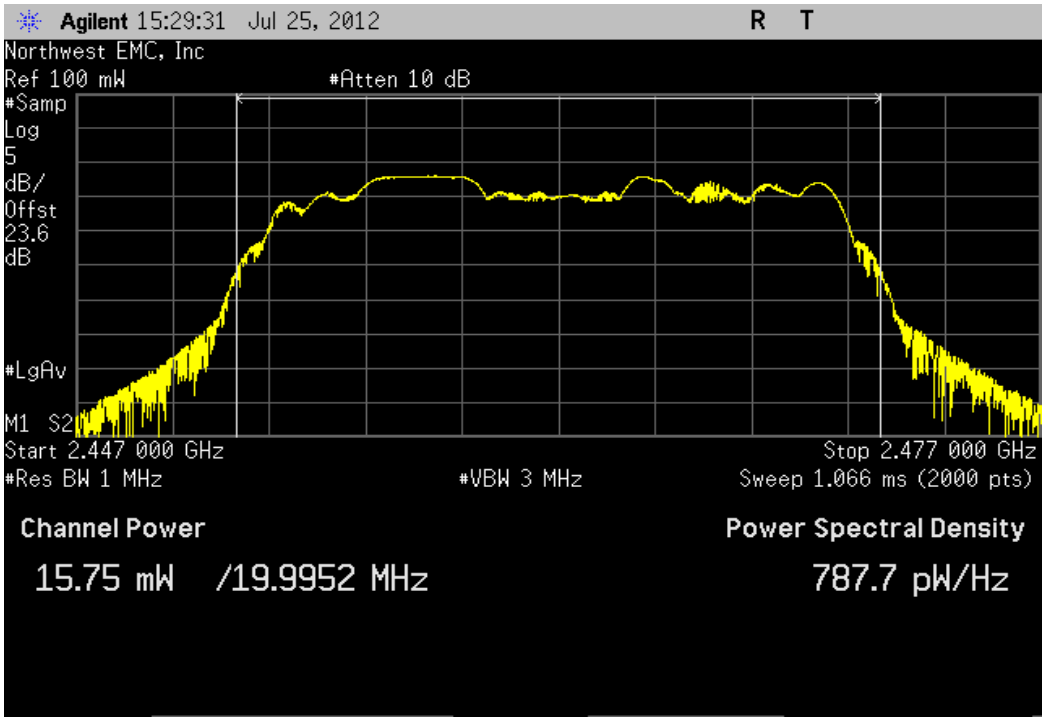
20MHz, 802.11(n) MCS7, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				35.674 mW	< 1 W	Pass



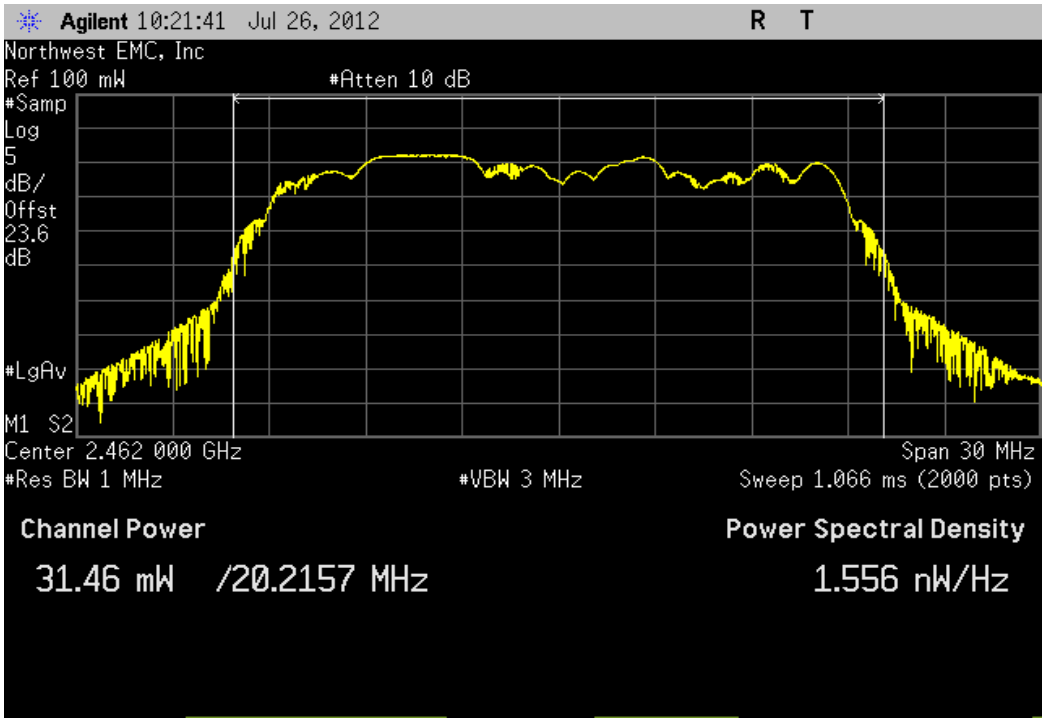
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				15.751 mW	< 1 W	Pass



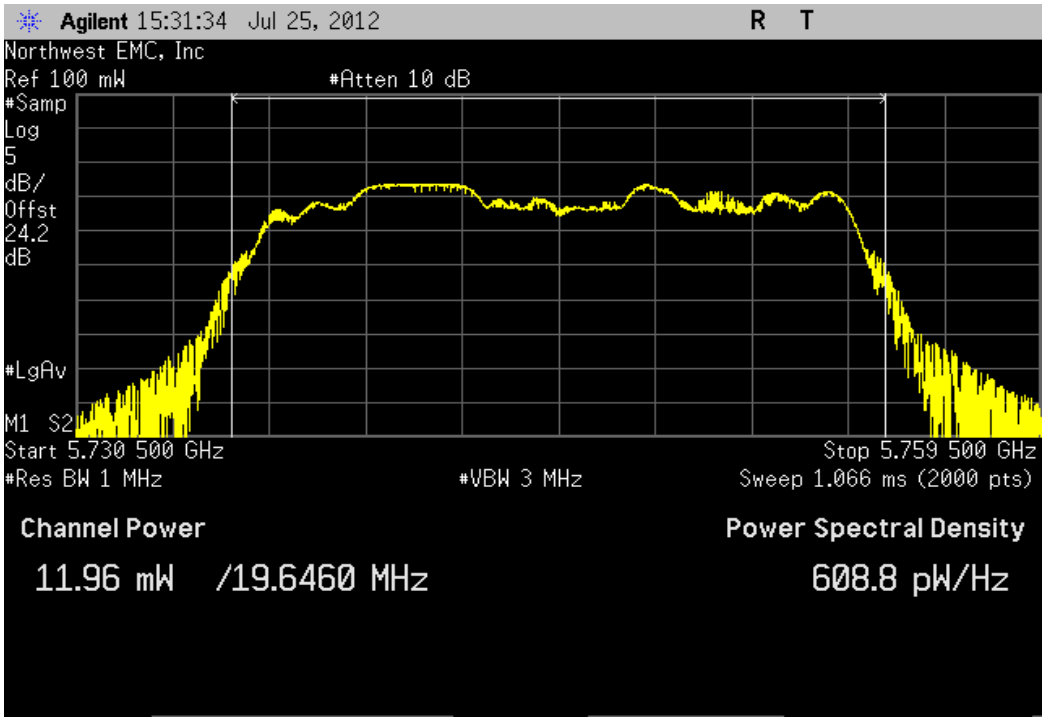
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				31.463 mW	< 1 W	Pass



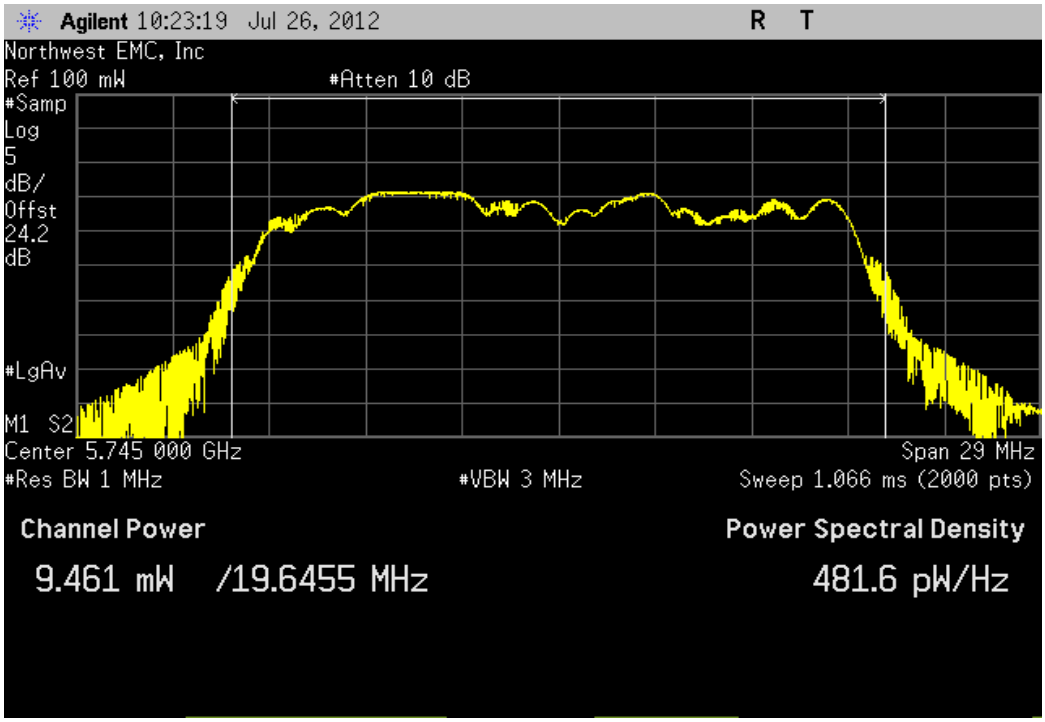
20MHz, 802.11(n) MCS7, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				11.961 mW	< 1 W	Pass



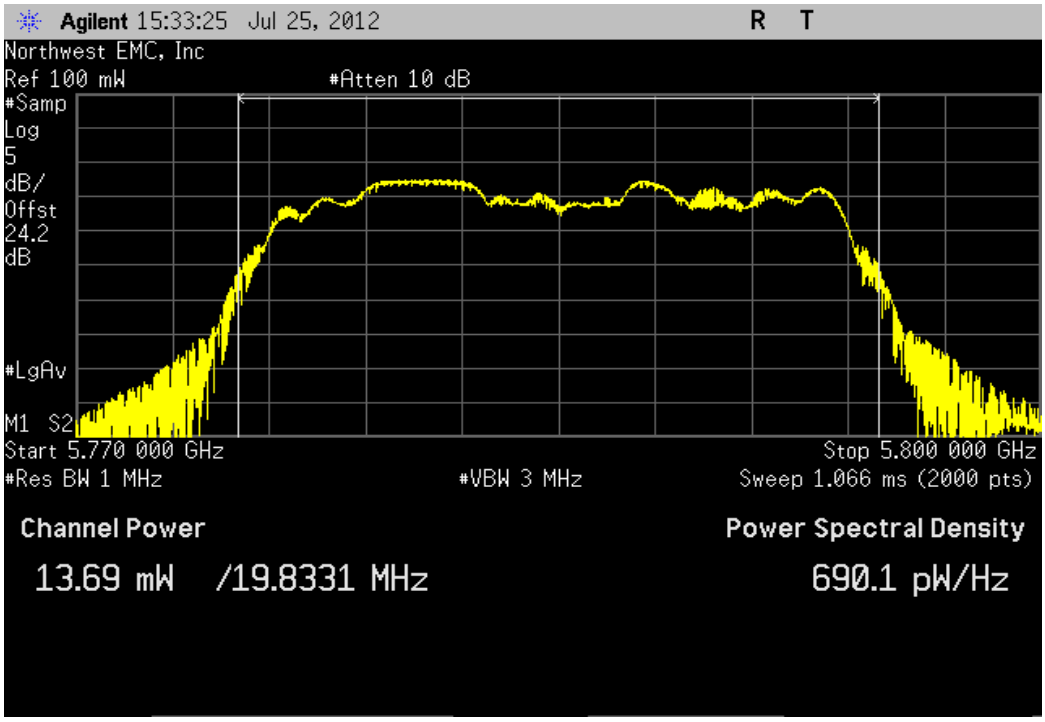
20MHz, 802.11(n) MCS7, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				9.461 mW	< 1 W	Pass



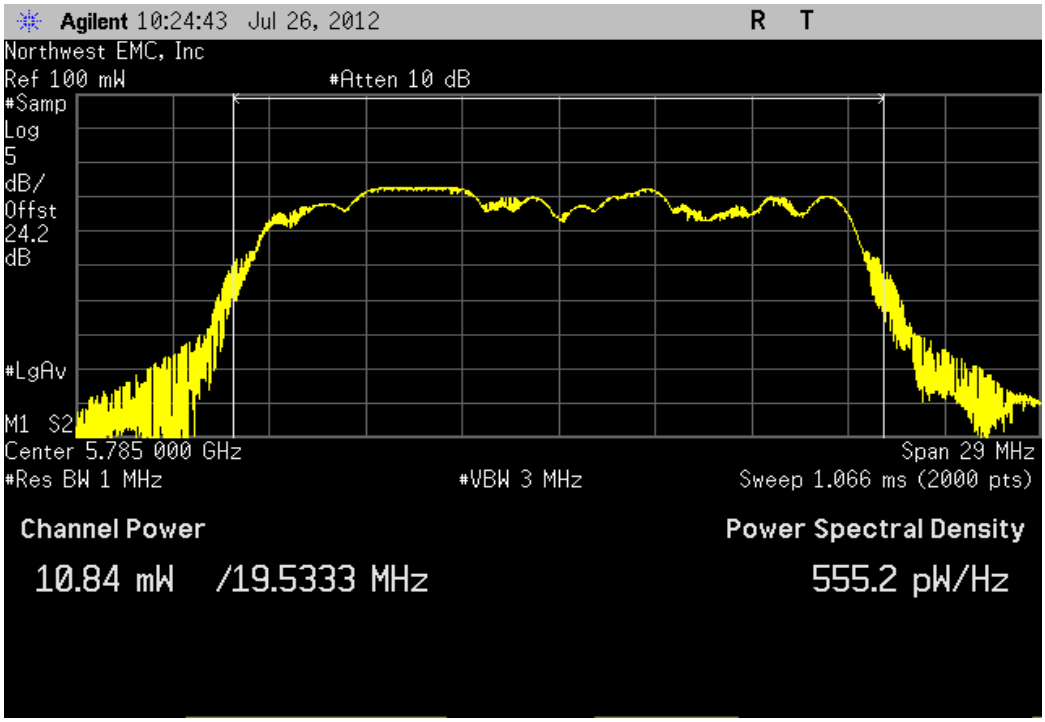
20MHz, 802.11(n) MCS7, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				13.686 mW	< 1 W	Pass



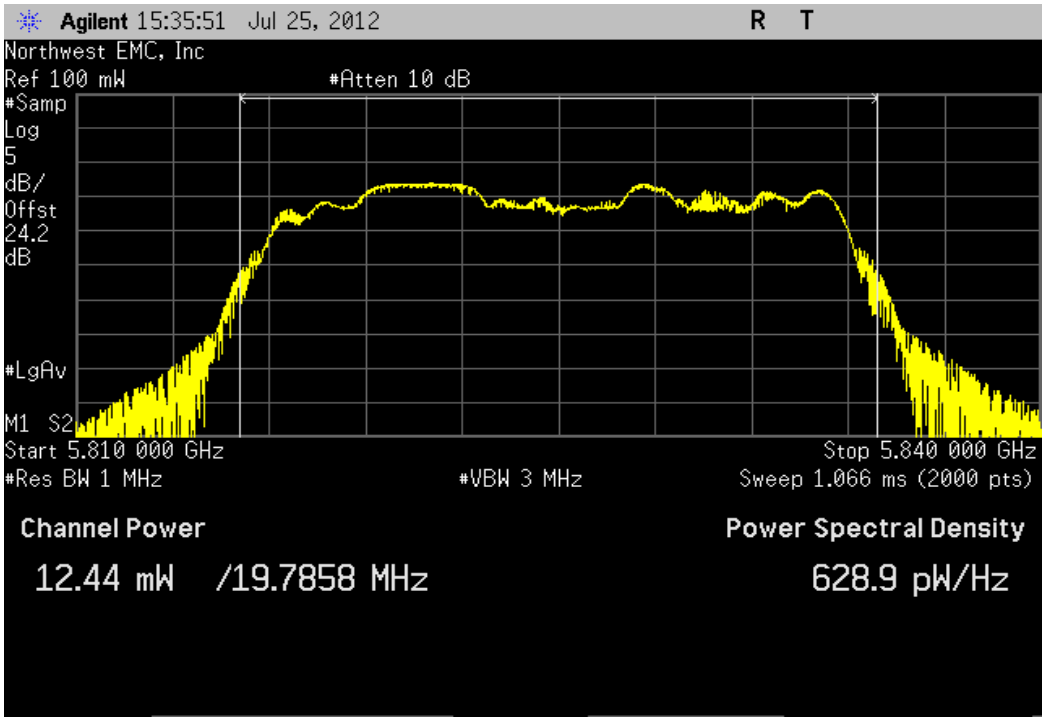
20MHz, 802.11(n) MCS7, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				10.844 mW	< 1 W	Pass



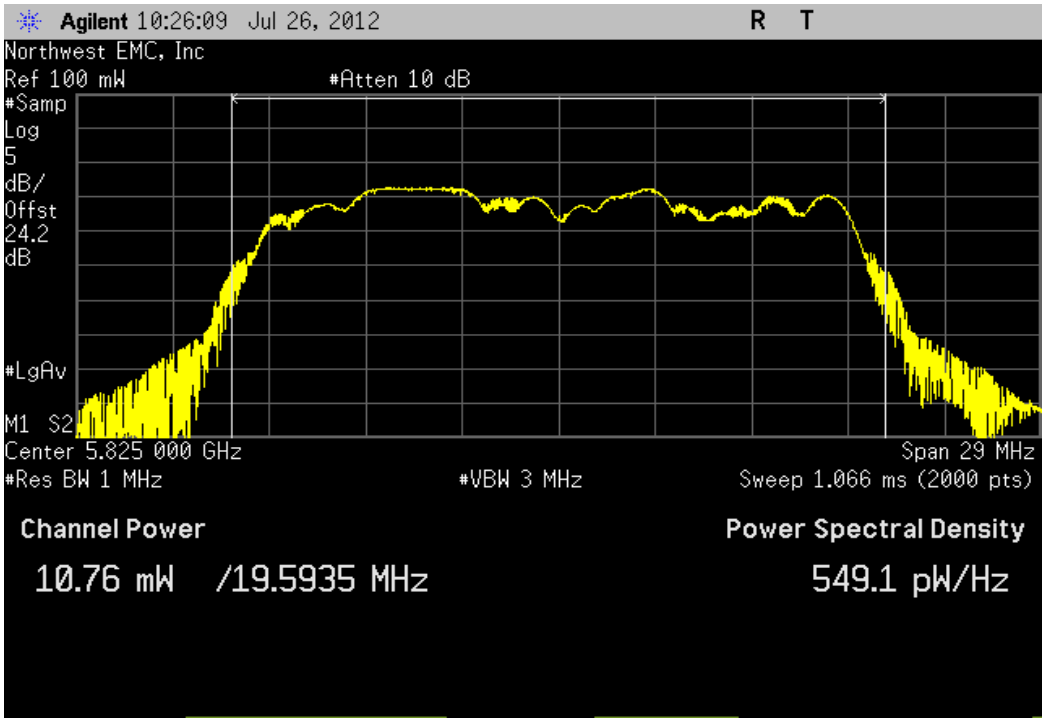
20MHz, 802.11(n) MCS7, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				12.444 mW	< 1 W	Pass



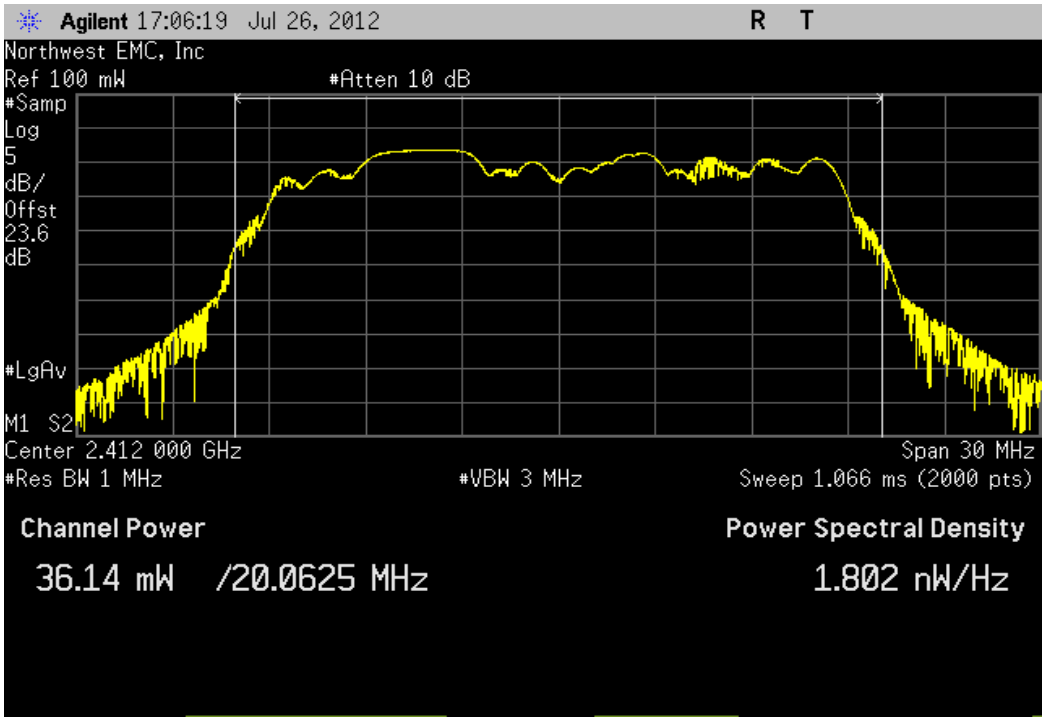
20MHz, 802.11(n) MCS7, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				10.759 mW	< 1 W	Pass



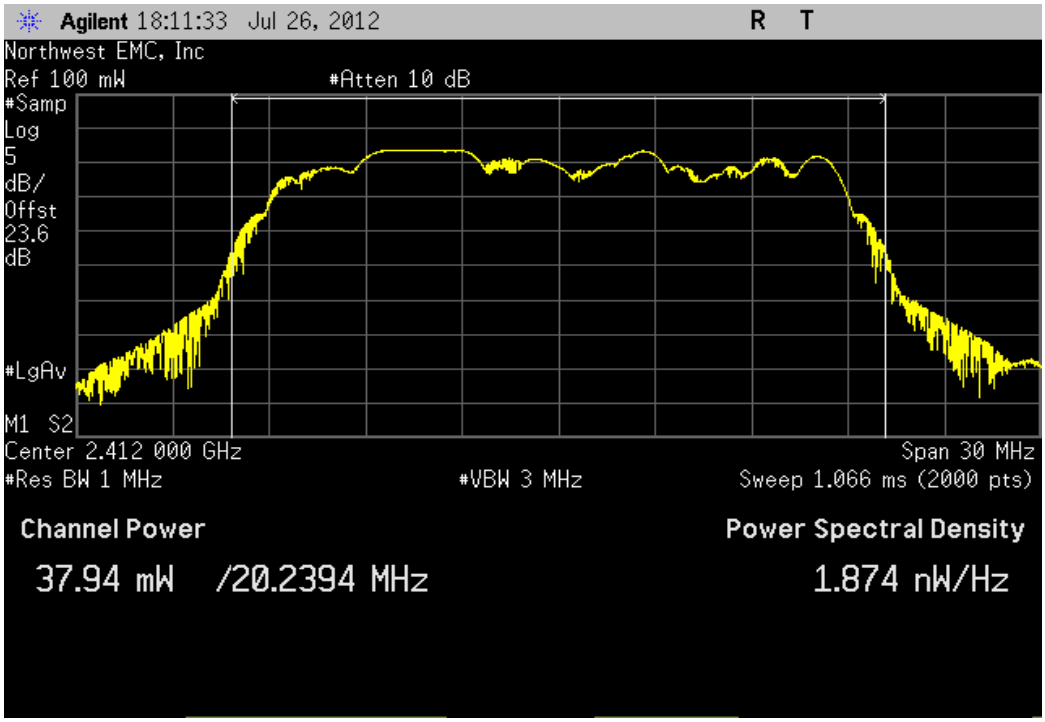
20MHz, 802.11(n) MCS8, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				36.143 mW	< 1 W	Pass



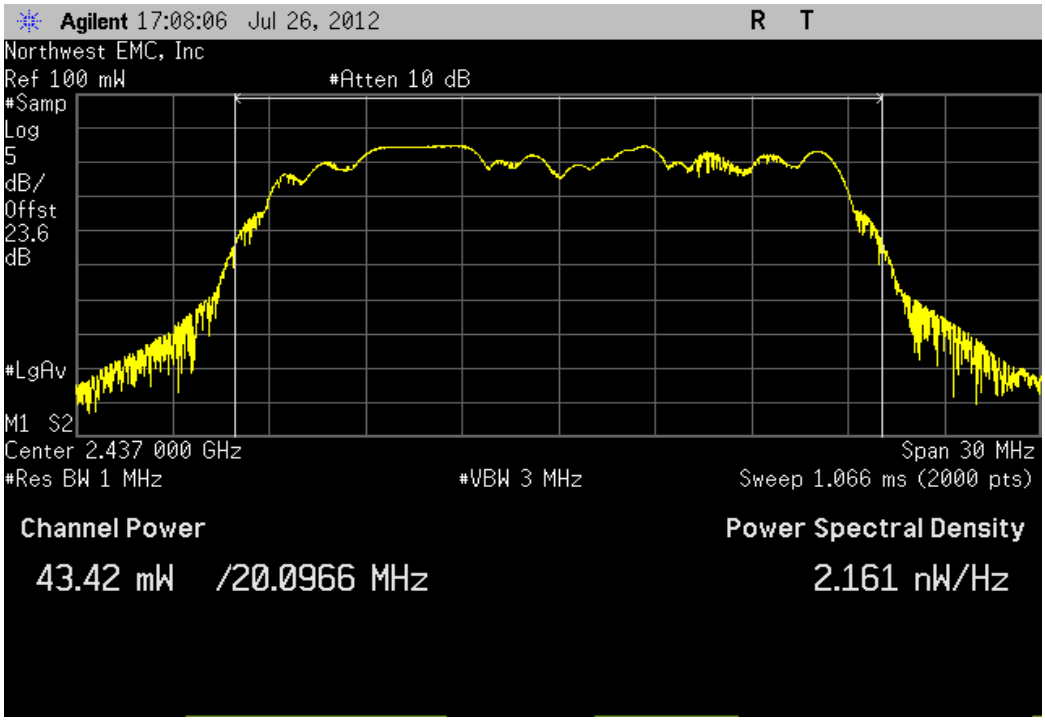
20MHz, 802.11(n) MCS8, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				37.937 mW	< 1 W	Pass



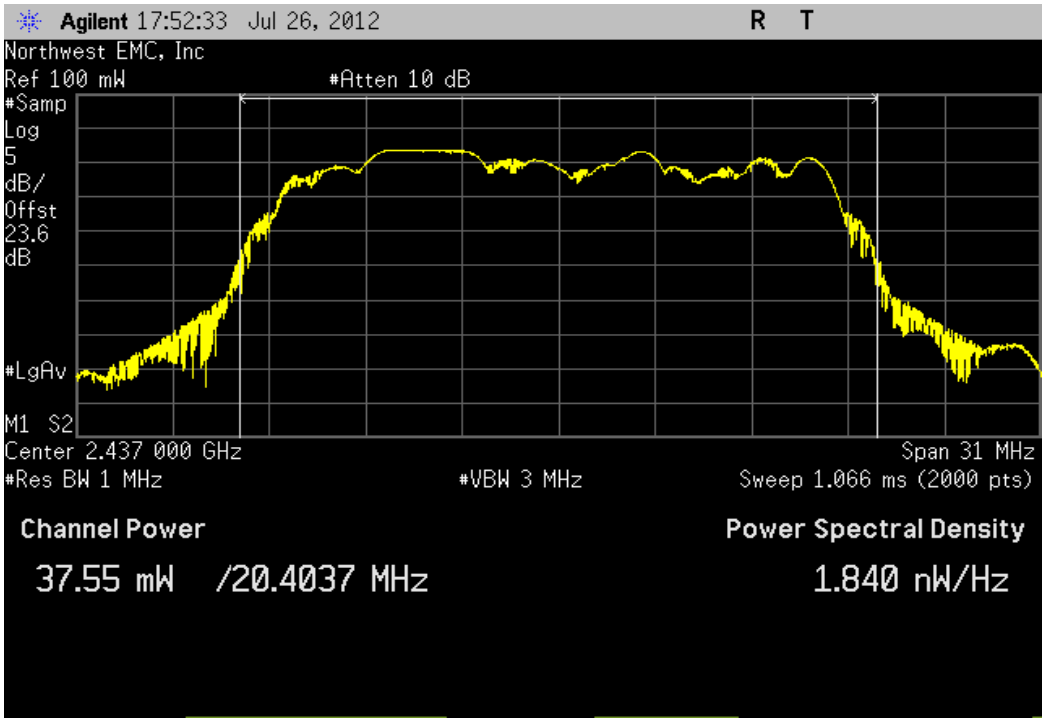
20MHz, 802.11(n) MCS8, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				43.419 mW	< 1 W	Pass



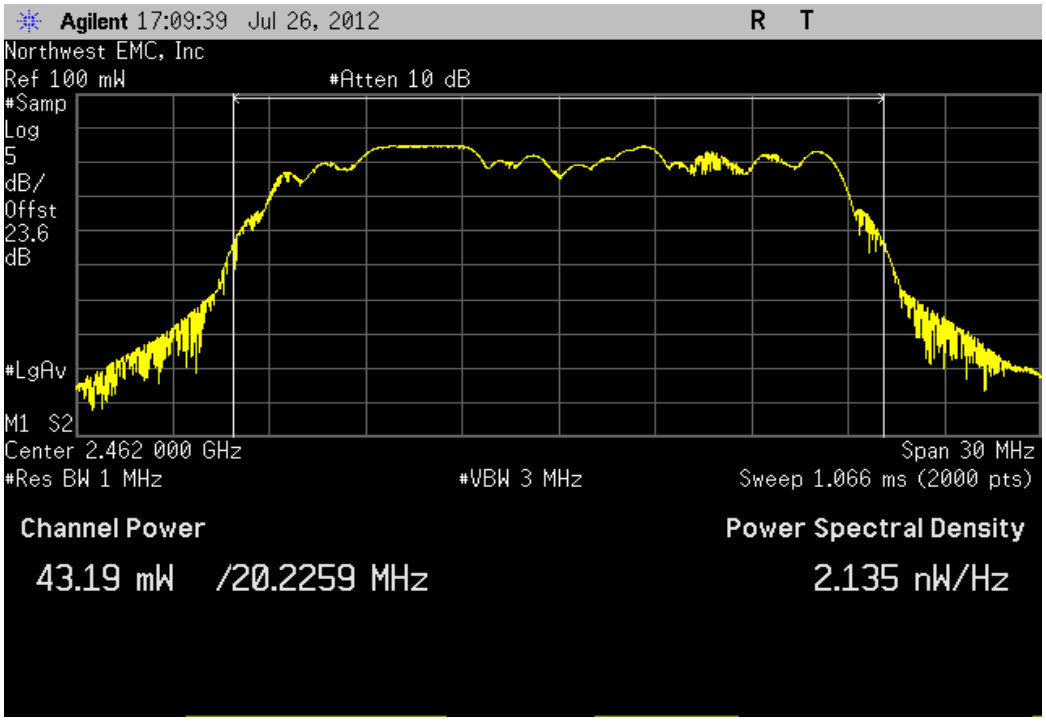
20MHz, 802.11(n) MCS8, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				37.545 mW	< 1 W	Pass



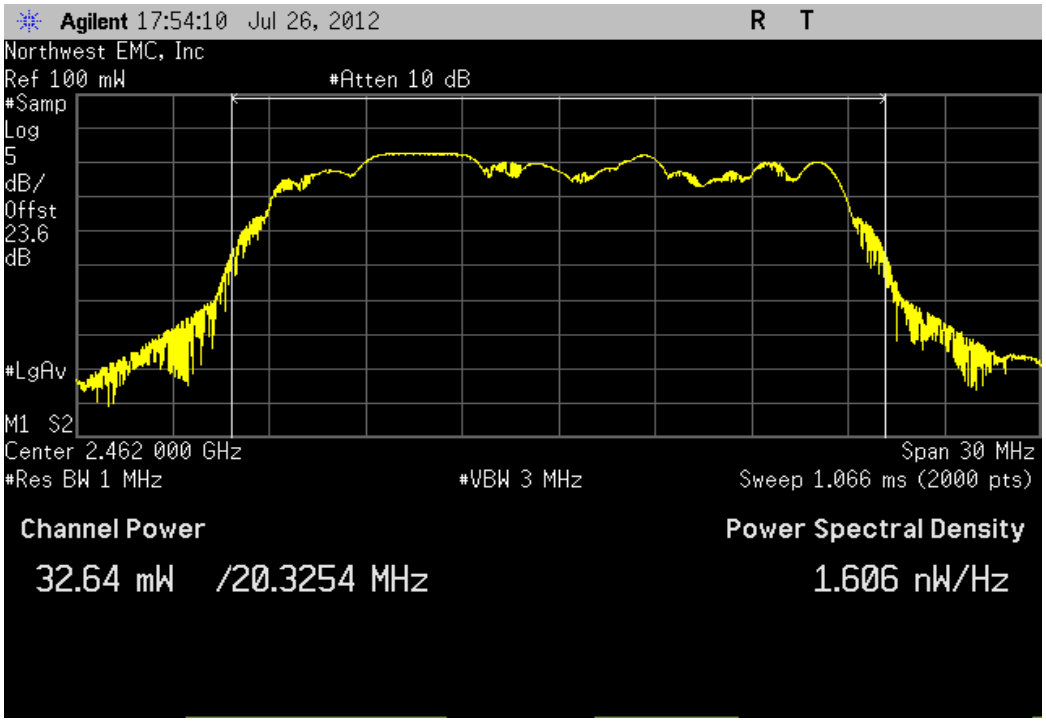
20MHz, 802.11(n) MCS8, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				43.19 mW	< 1 W	Pass



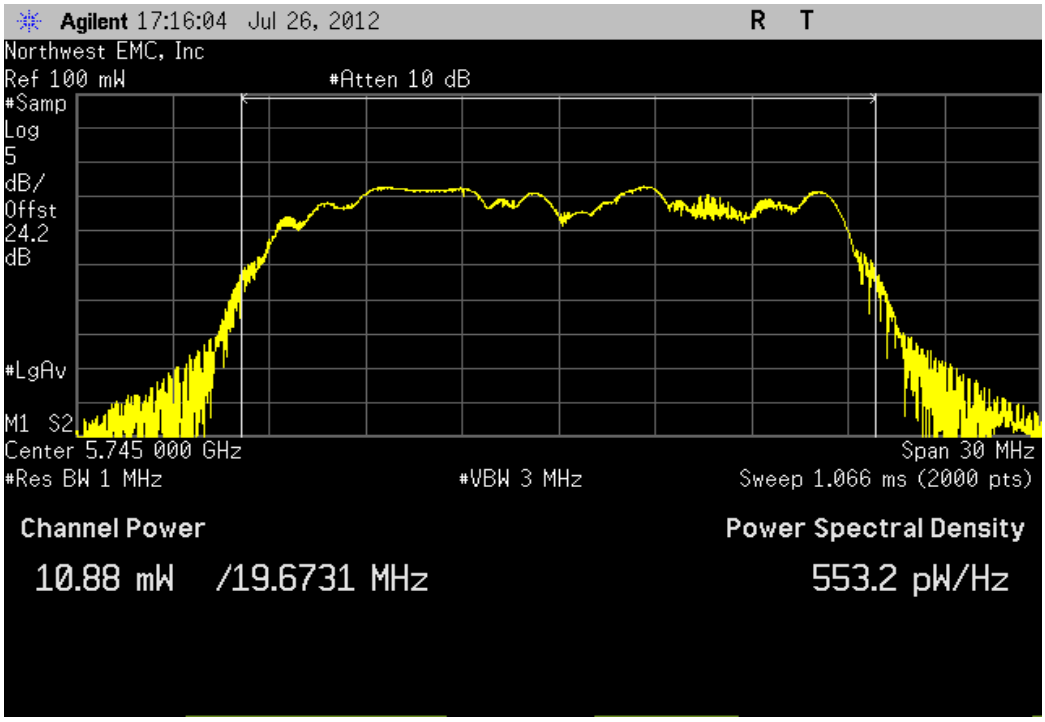
20MHz, 802.11(n) MCS8, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				32.645 mW	< 1 W	Pass



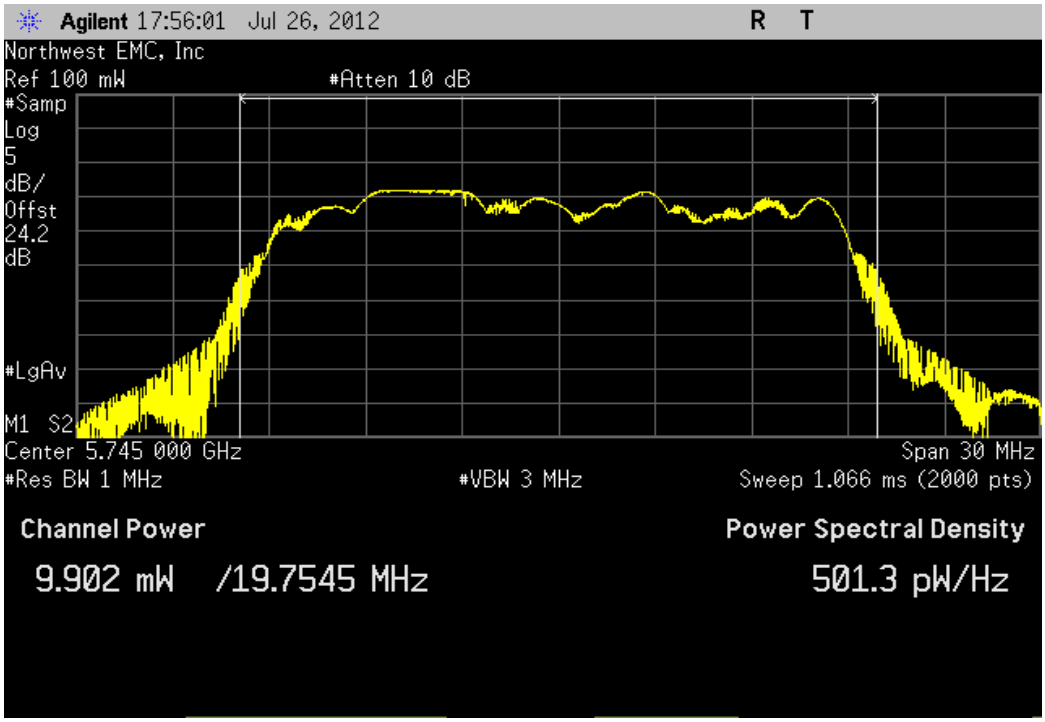
20MHz, 802.11(n) MCS8, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				10.884 mW	< 1 W	Pass



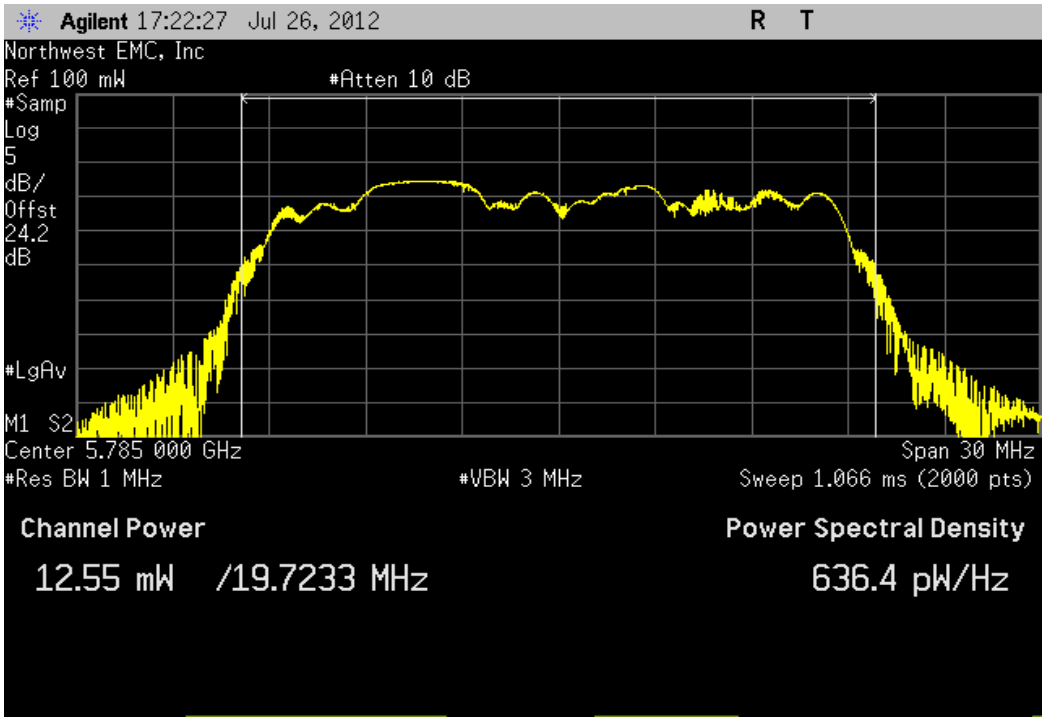
20MHz, 802.11(n) MCS8, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				9.902 mW	< 1 W	Pass



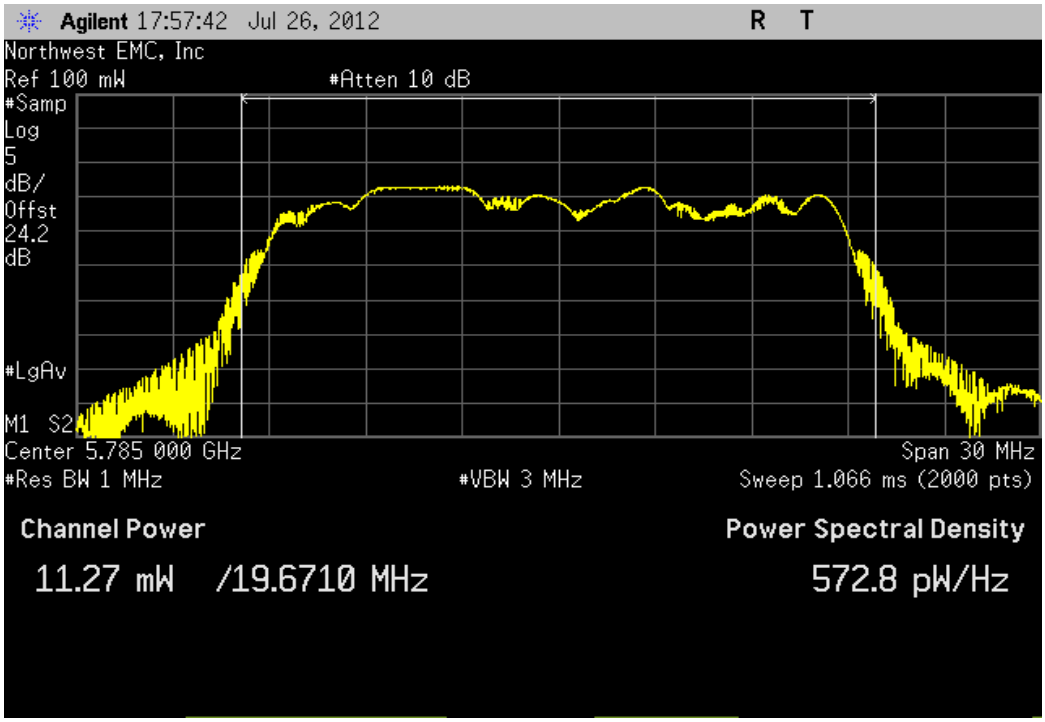
20MHz, 802.11(n) MCS8, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				12.553 mW	< 1 W	Pass



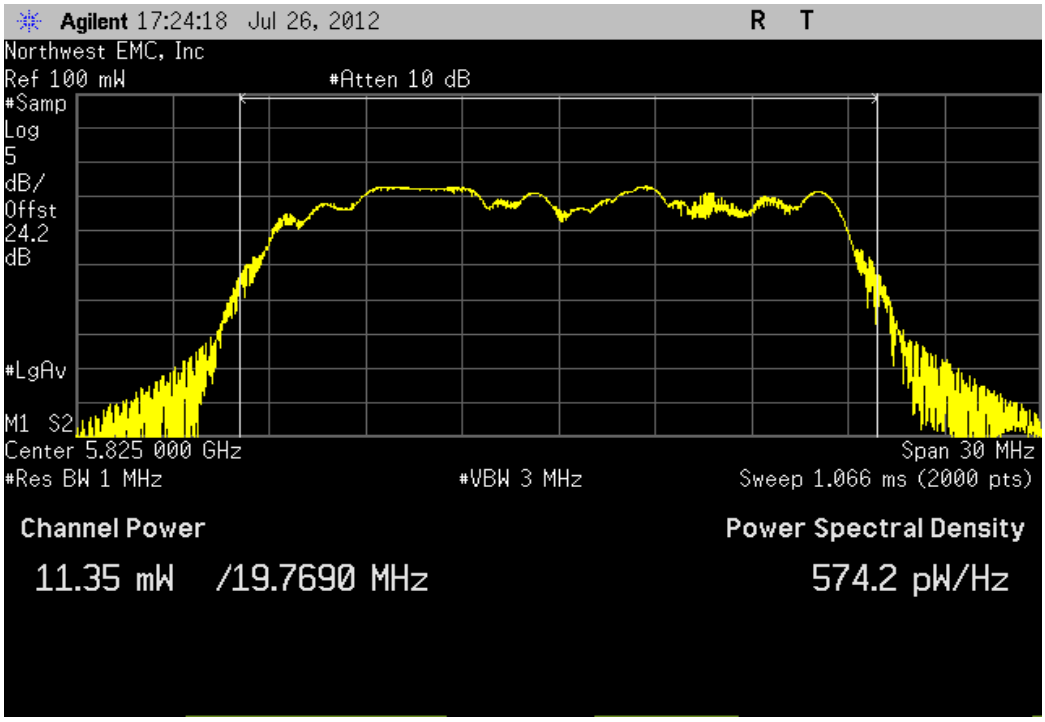
20MHz, 802.11(n) MCS8, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				11.268 mW	< 1 W	Pass



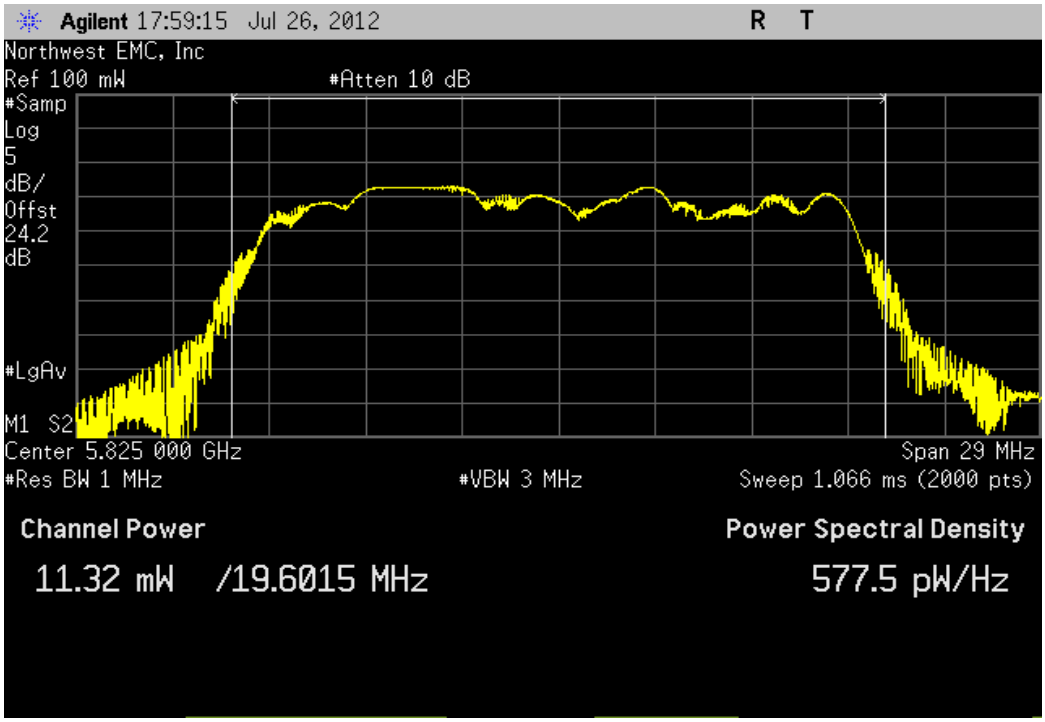
20MHz, 802.11(n) MCS8, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				11.352 mW	< 1 W	Pass

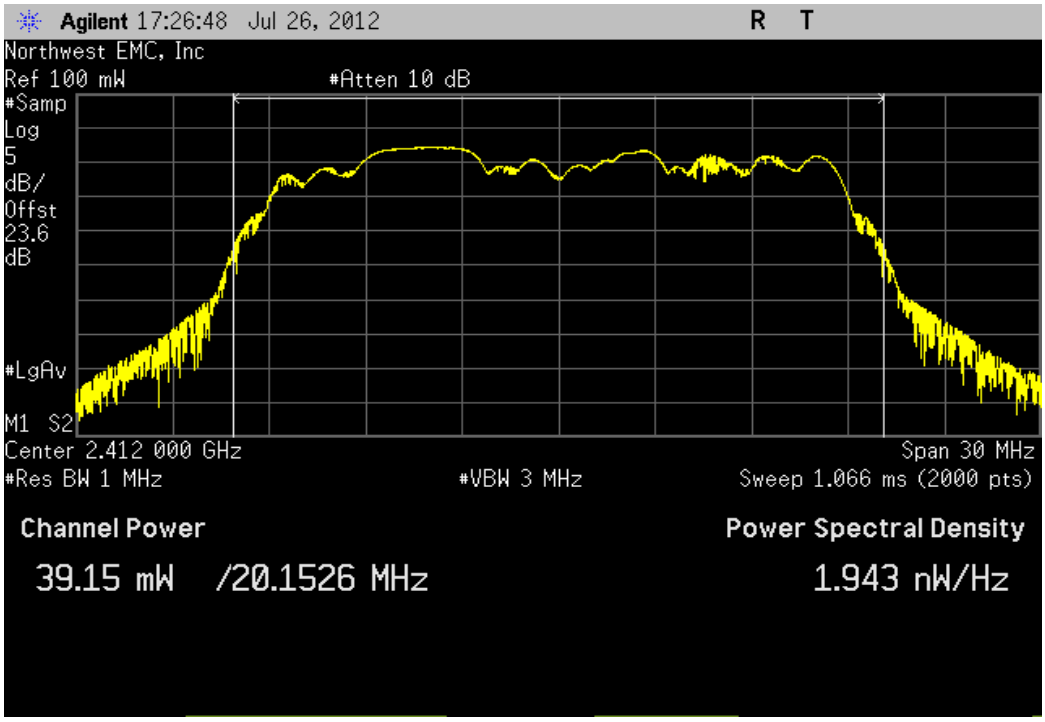


20MHz, 802.11(n) MCS8, High Channel 165, 5825 MHz, Antenna A

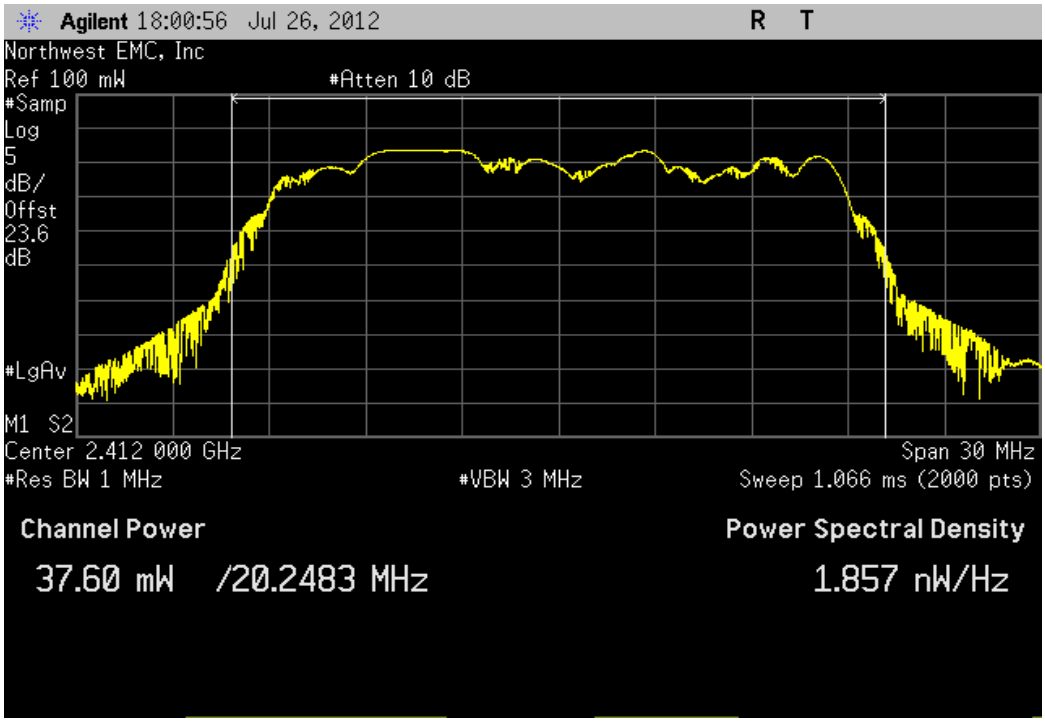
				Value	Limit	Result
				11.319 mW	< 1 W	Pass



20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B							
					Value	Limit	Result
					39.151 mW	< 1 W	Pass

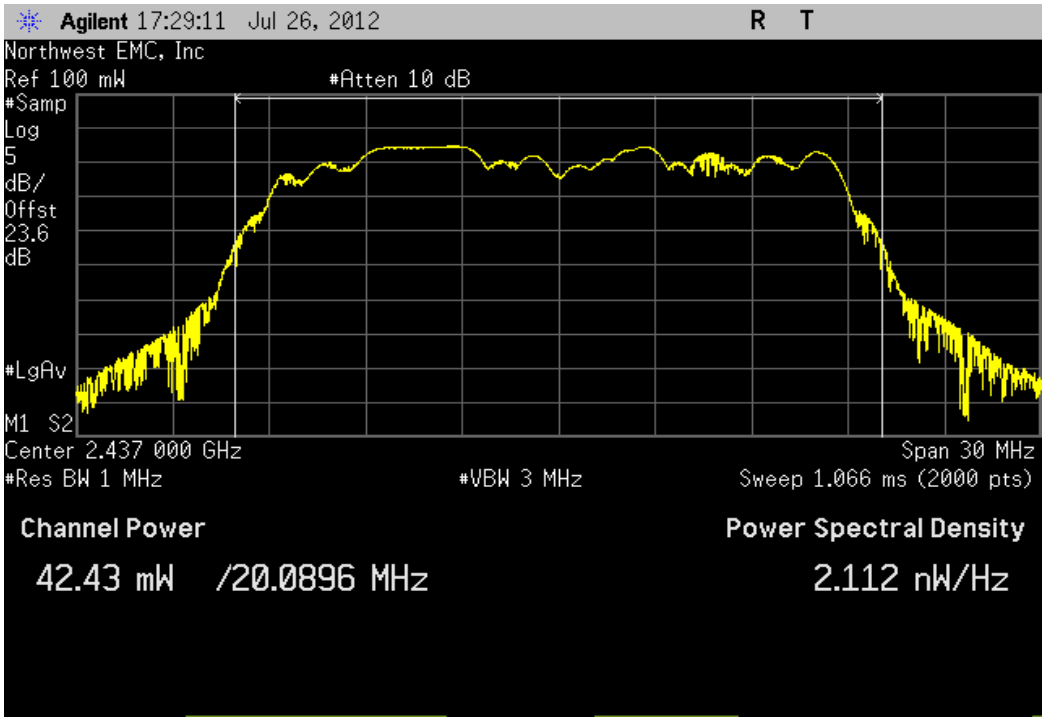


20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A							
					Value	Limit	Result
					37.603 mW	< 1 W	Pass



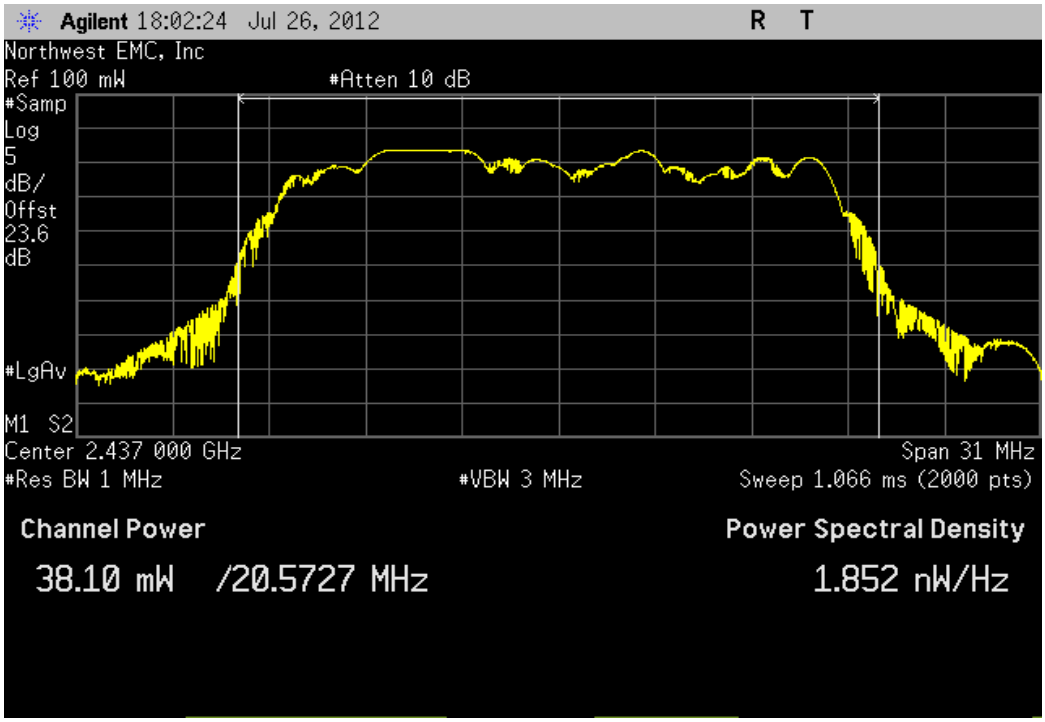
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B

				Value	Limit	Result
				42.426 mW	< 1 W	Pass



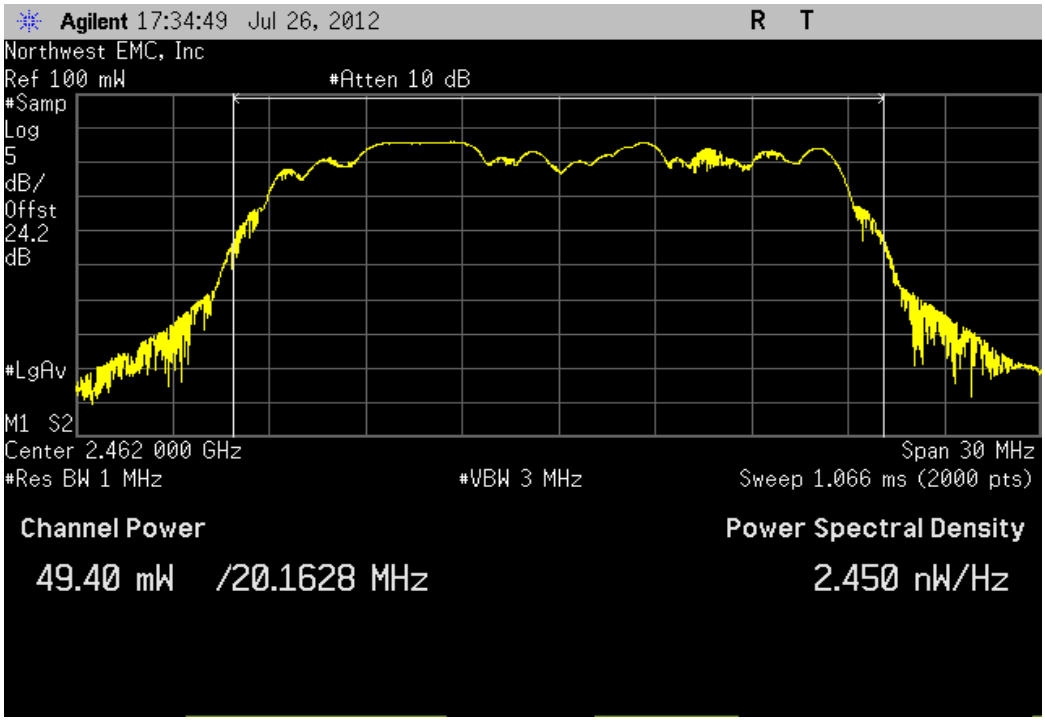
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A

				Value	Limit	Result
				38.103 mW	< 1 W	Pass



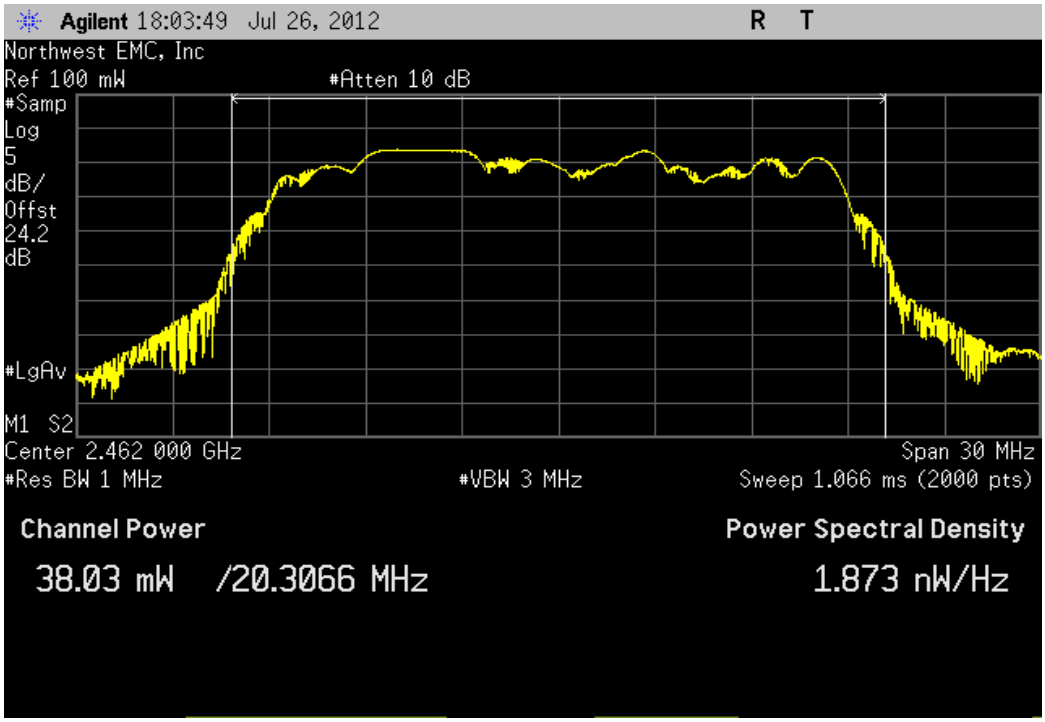
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				49.402 mW	< 1 W	Pass



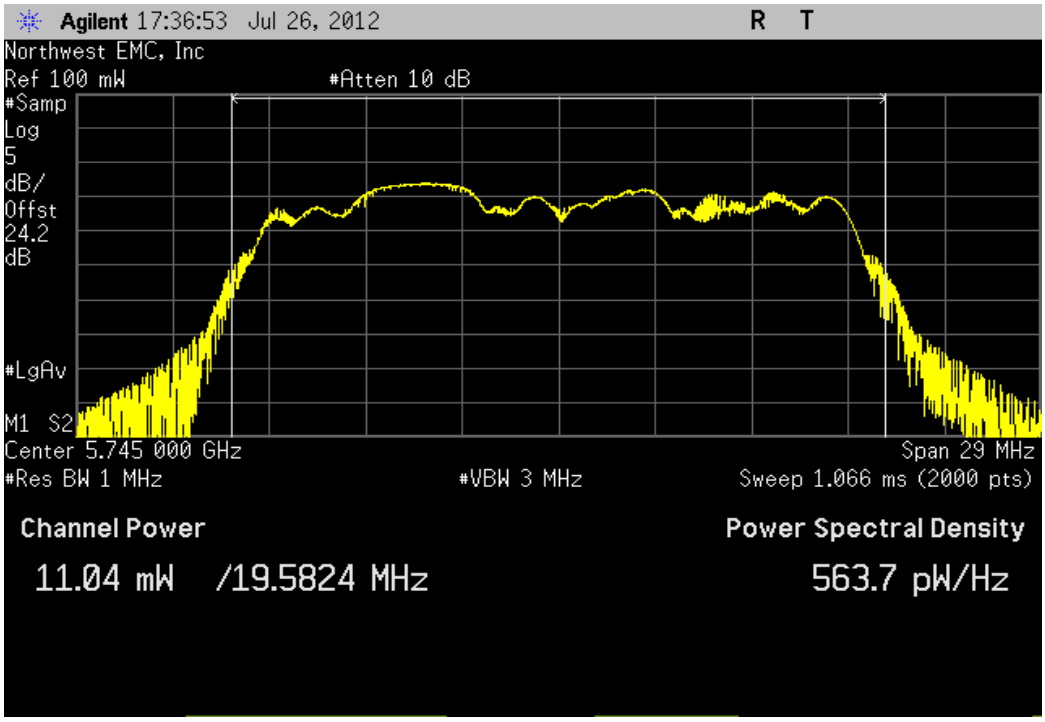
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				38.034 mW	< 1 W	Pass



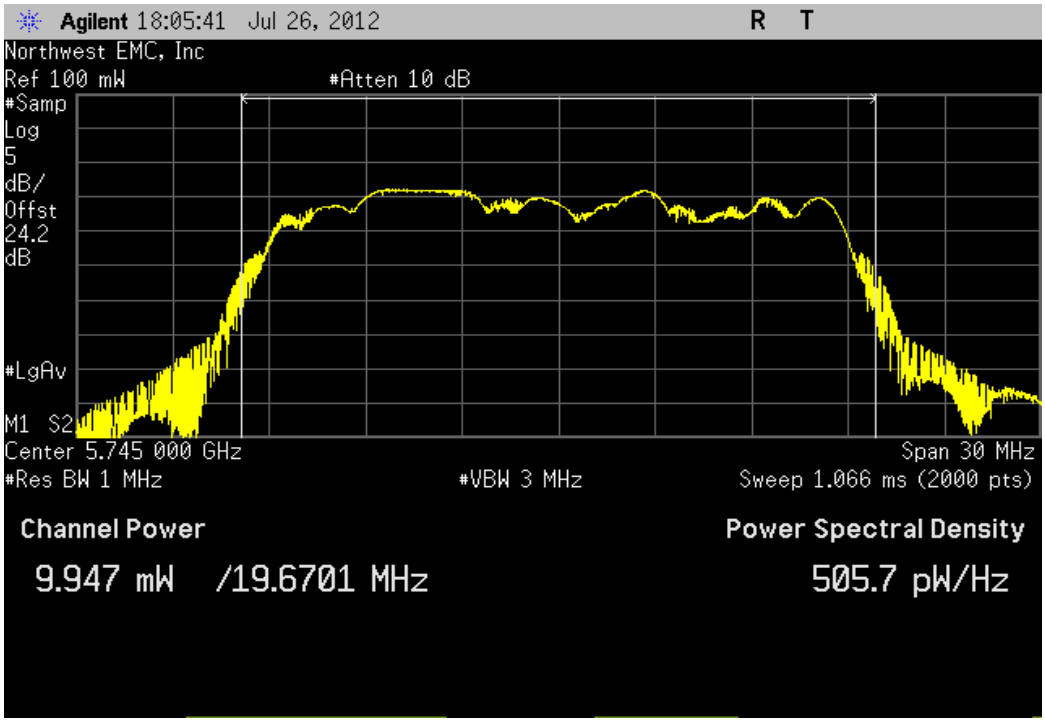
20MHz, 802.11(n) MCS15, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				11.038 mW	< 1 W	Pass



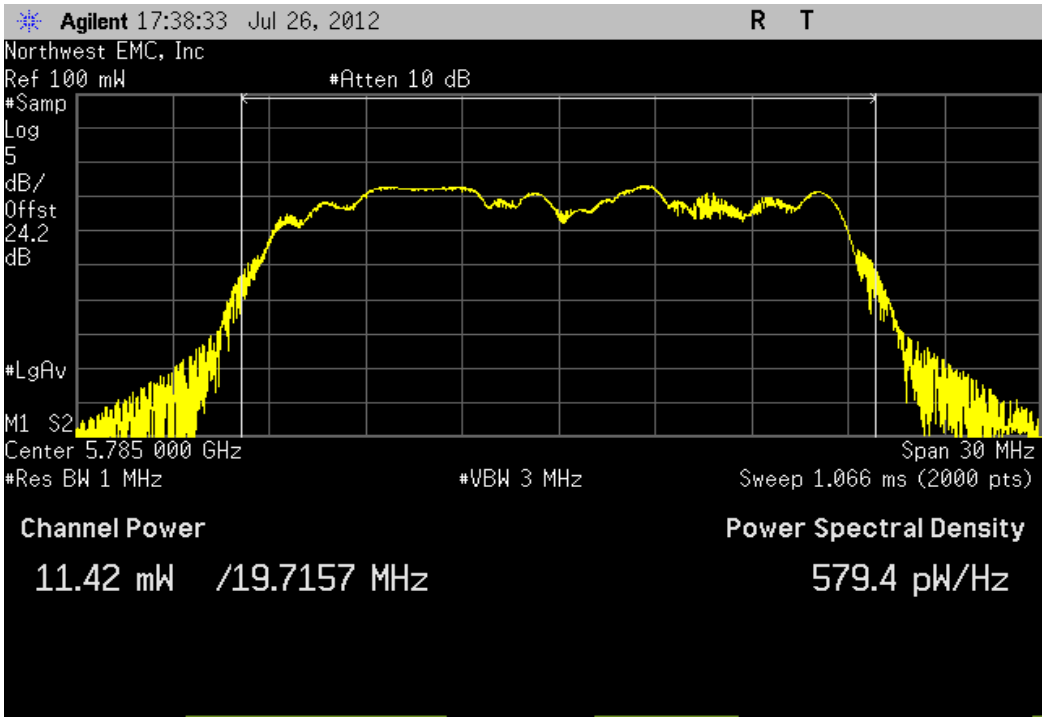
20MHz, 802.11(n) MCS15, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				9.947 mW	< 1 W	Pass



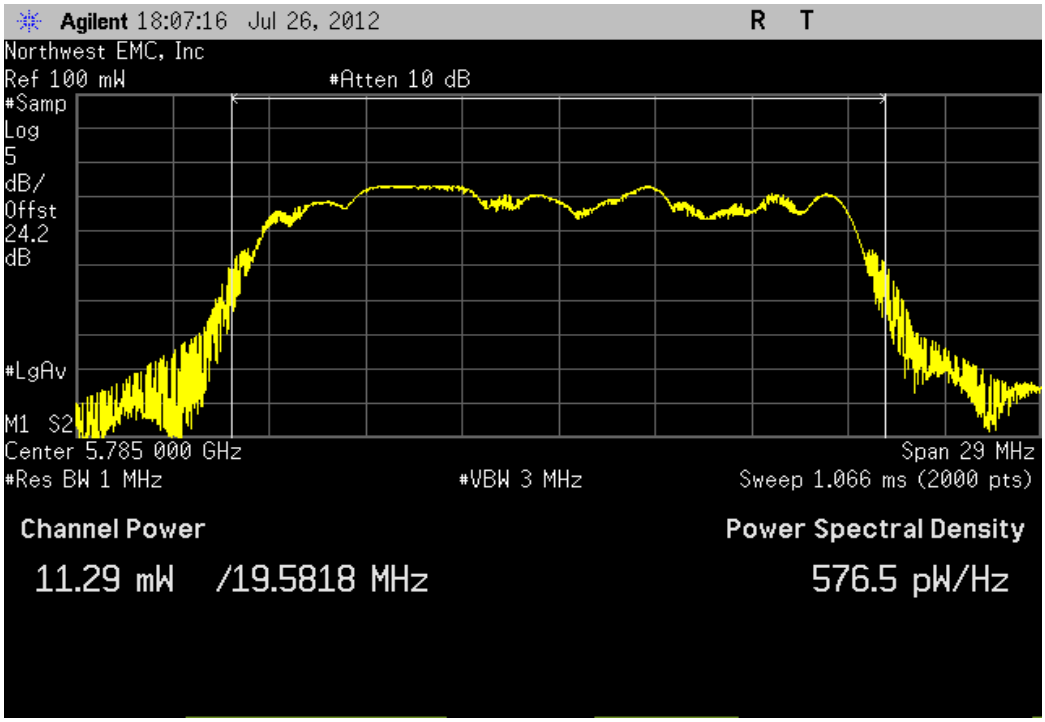
20MHz, 802.11(n) MCS15, Mid Channel 157, 5785 MHz, Antenna B

				Value	Limit	Result
				11.422 mW	< 1 W	Pass



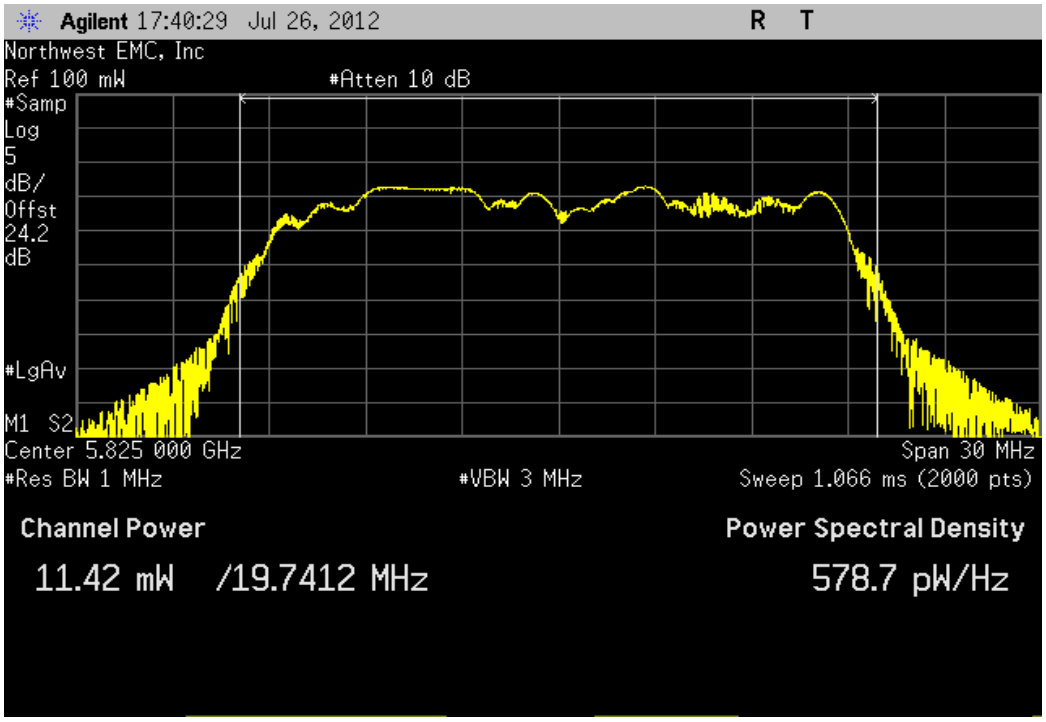
20MHz, 802.11(n) MCS15, Mid Channel 157, 5785 MHz, Antenna A

				Value	Limit	Result
				11.289 mW	< 1 W	Pass



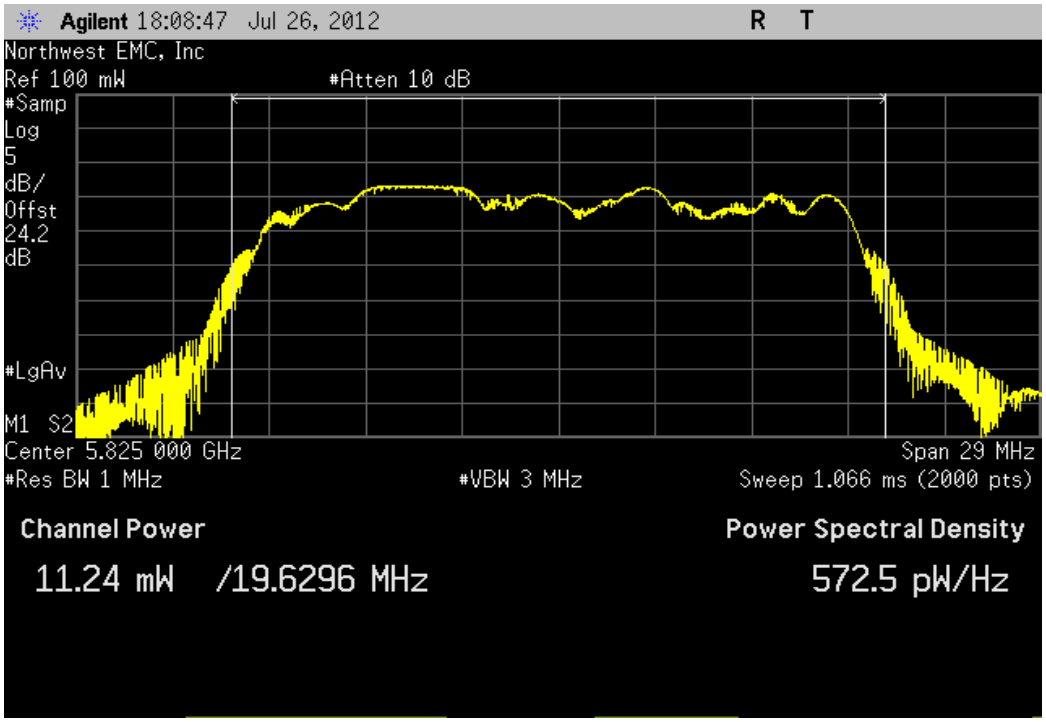
20MHz, 802.11(n) MCS15, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				11.424 mW	< 1 W	Pass



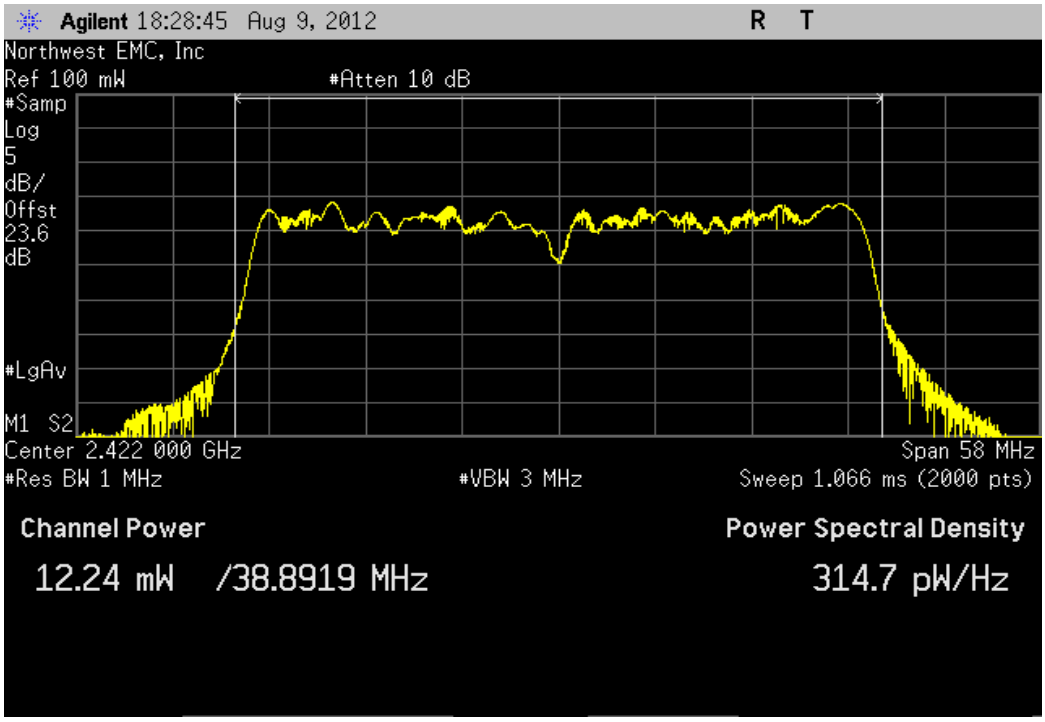
20MHz, 802.11(n) MCS15, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				11.238 mW	< 1 W	Pass



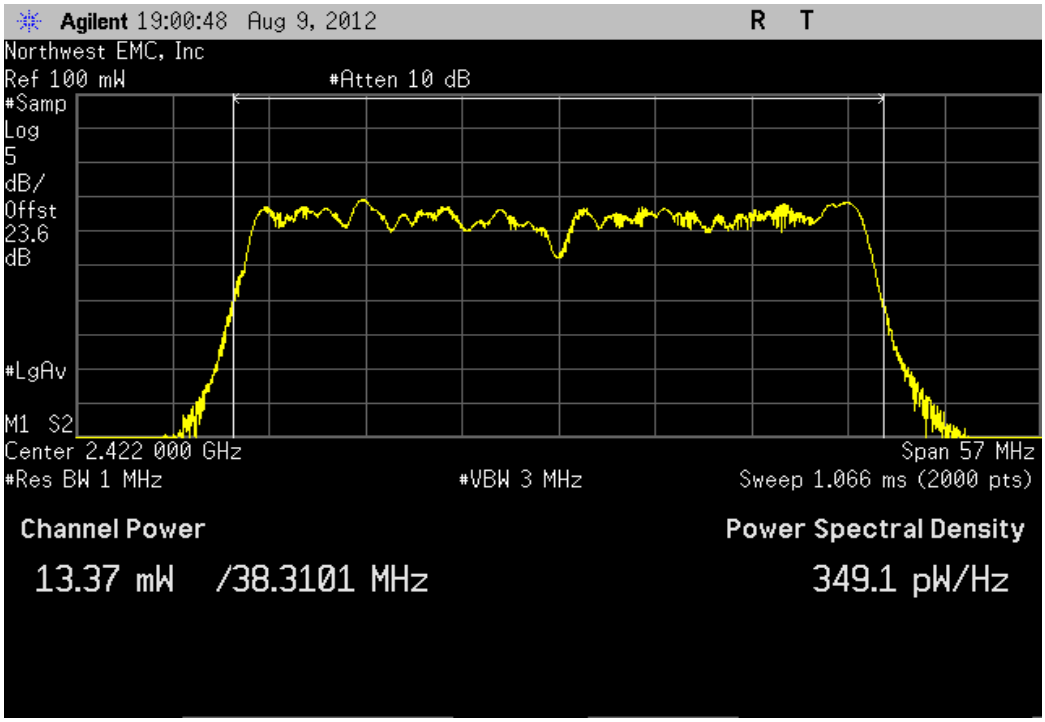
40MHz, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				12.238 mW	< 1 W	Pass



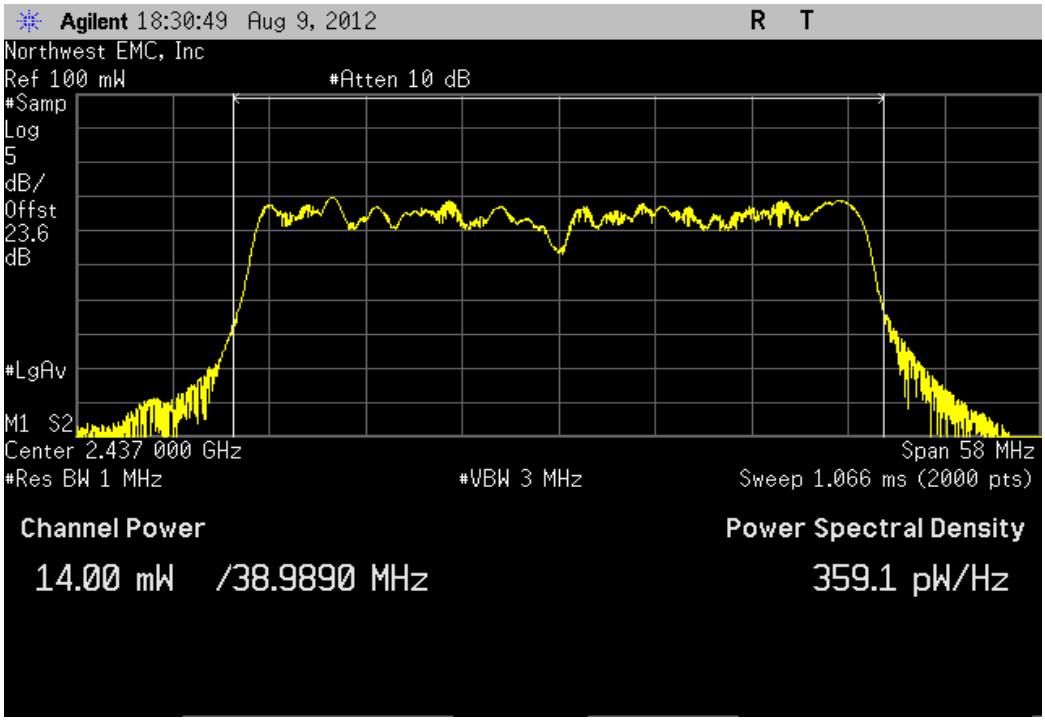
40MHz, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				13.374 mW	< 1 W	Pass



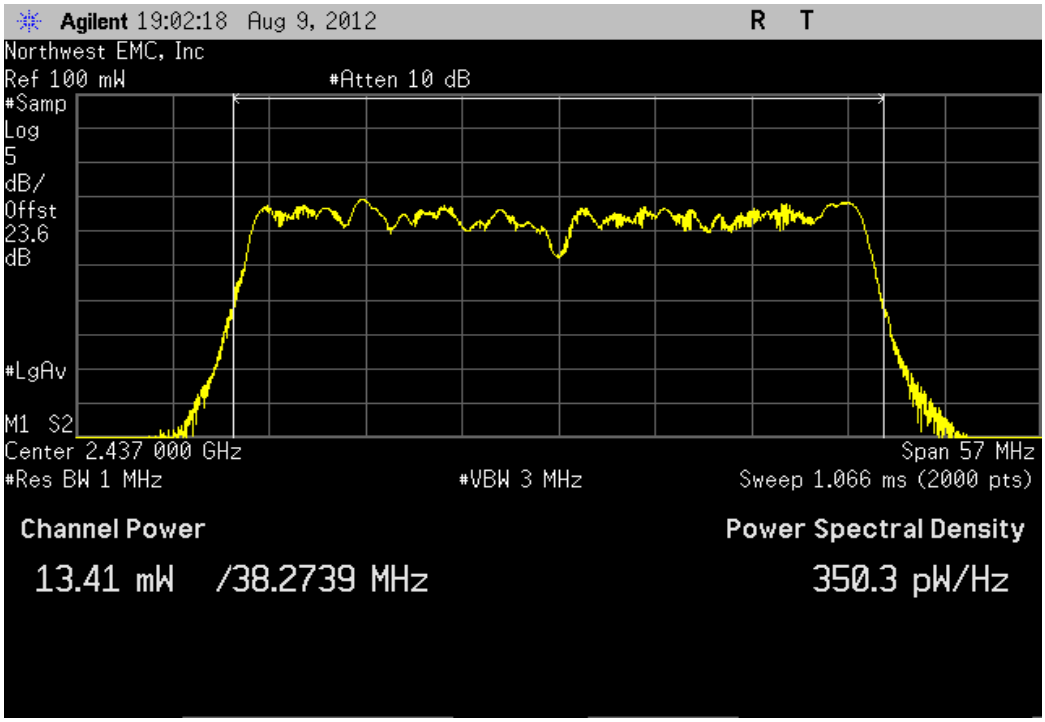
40MHz, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				14 mW	< 1 W	Pass



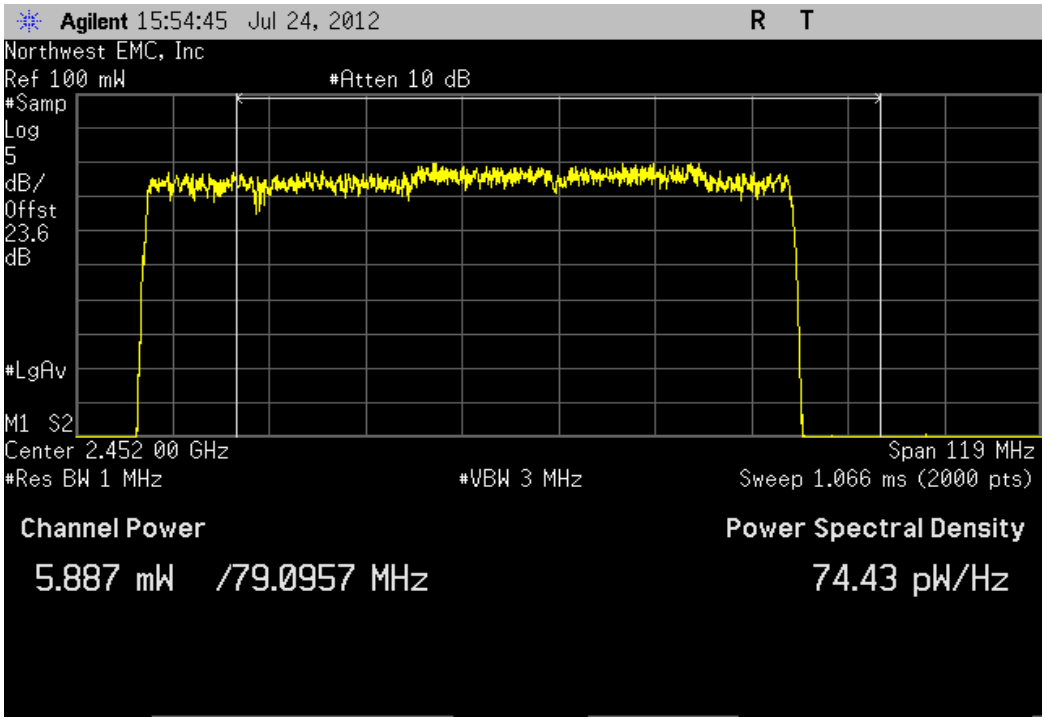
40MHz, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				13.407 mW	< 1 W	Pass



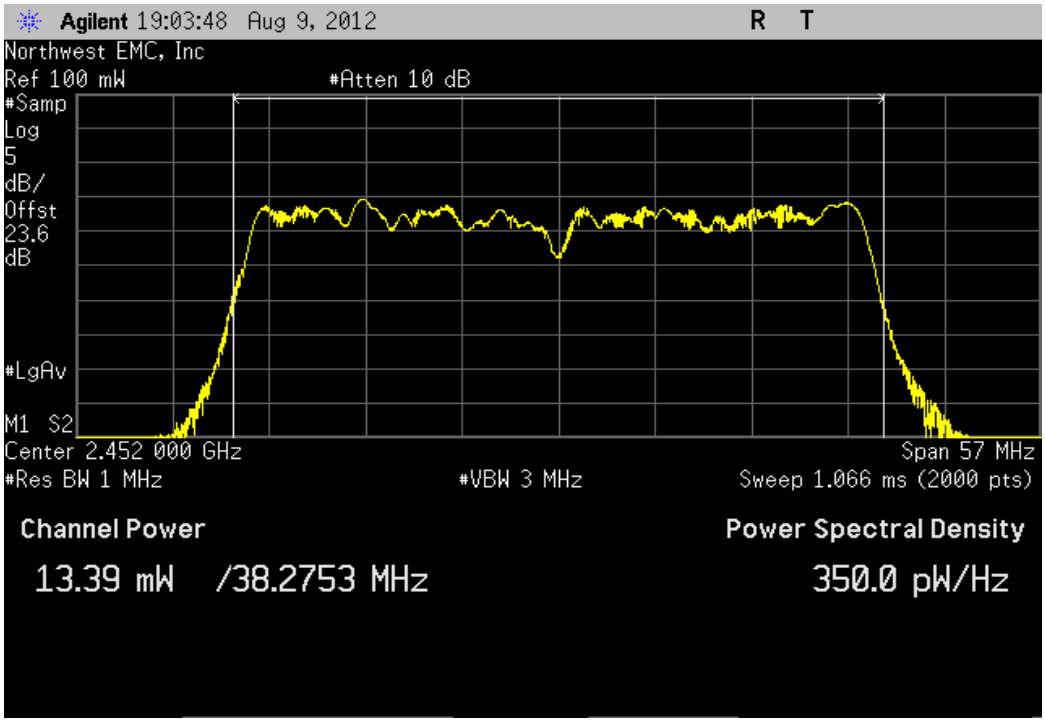
40MHz, 802.11(n) MCS0, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				5.887 mW	< 1 W	Pass



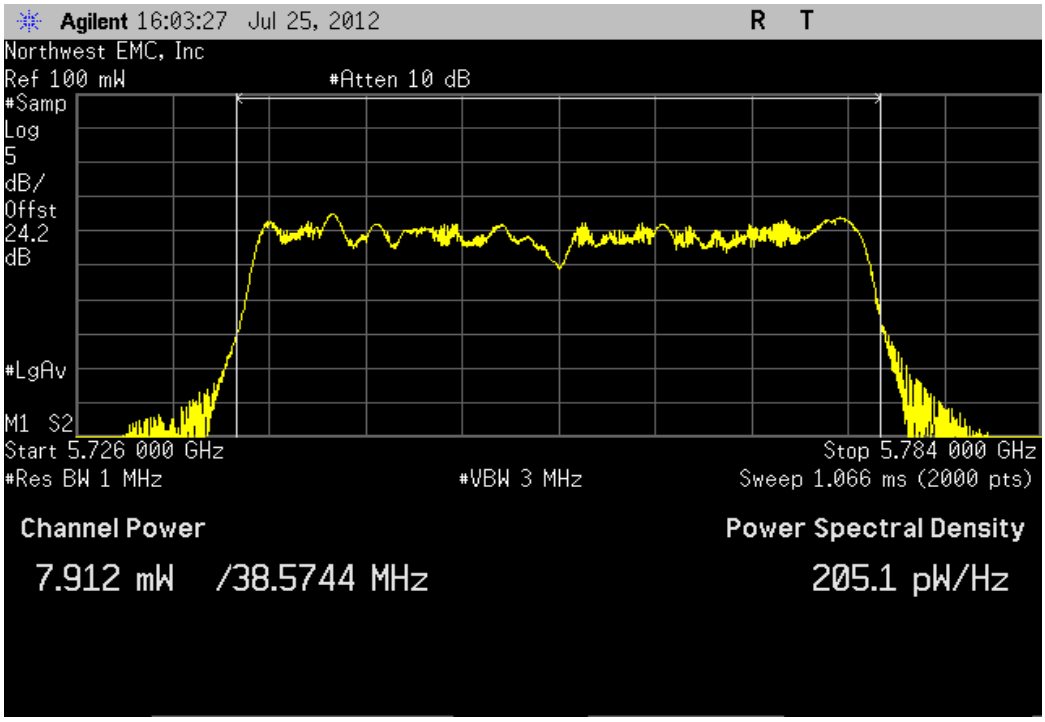
40MHz, 802.11(n) MCS0, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				13.395 mW	< 1 W	Pass



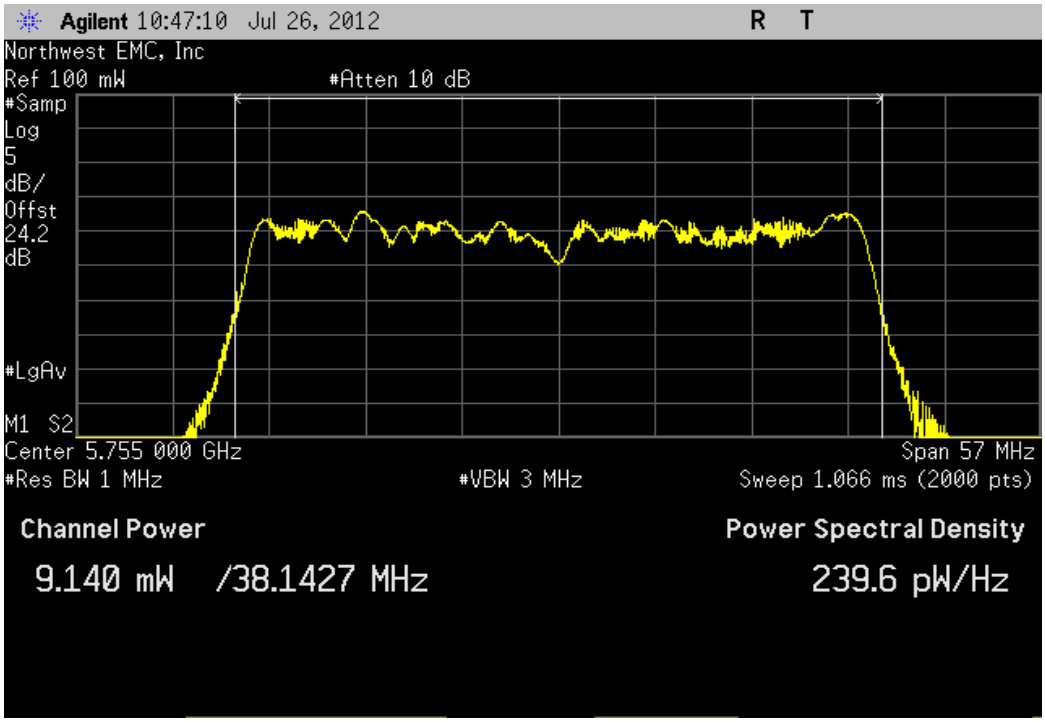
40MHz, 802.11(n) MCS0, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				7.912 mW	< 1 W	Pass



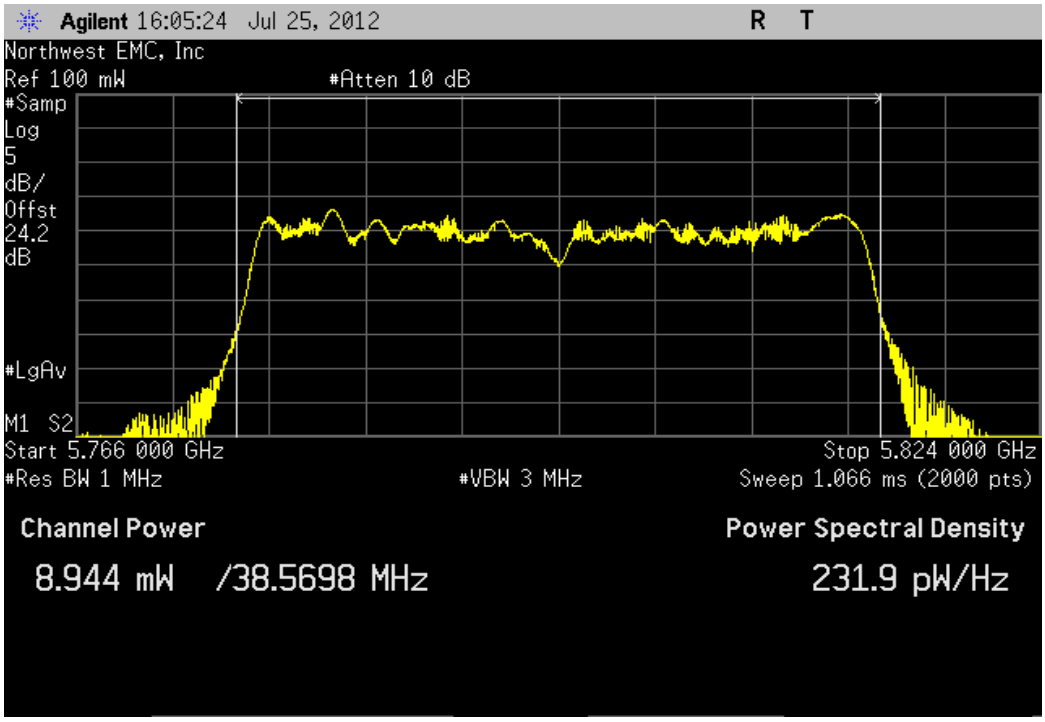
40MHz, 802.11(n) MCS0, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				9.14 mW	< 1 W	Pass



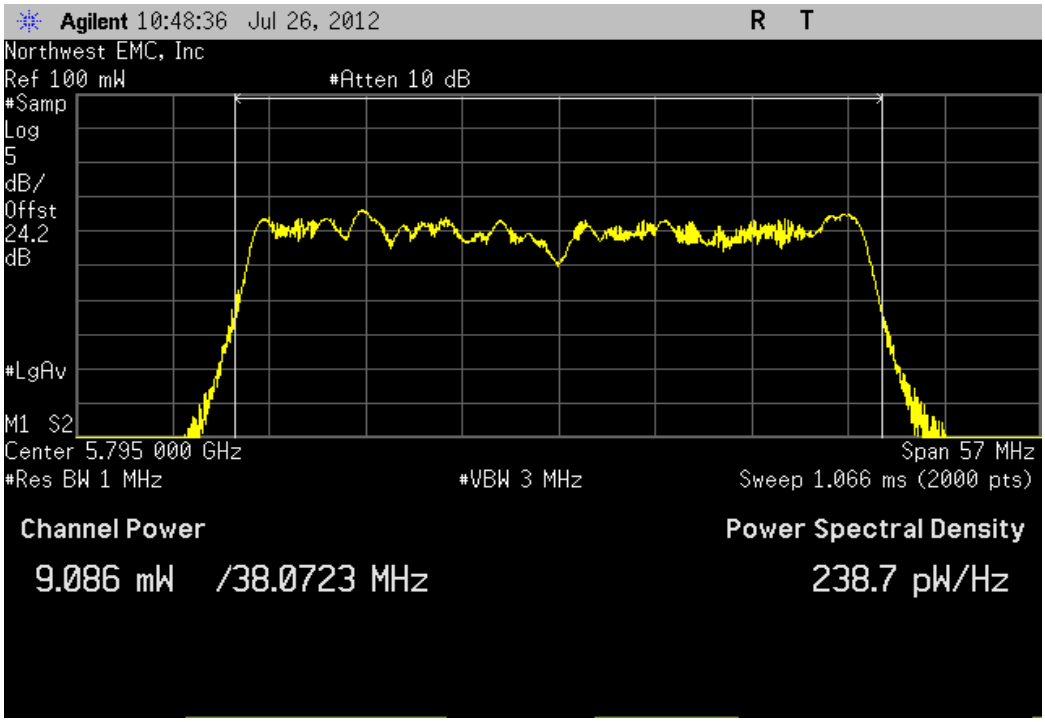
40MHz, 802.11(n) MCS0, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				8.944 mW	< 1 W	Pass



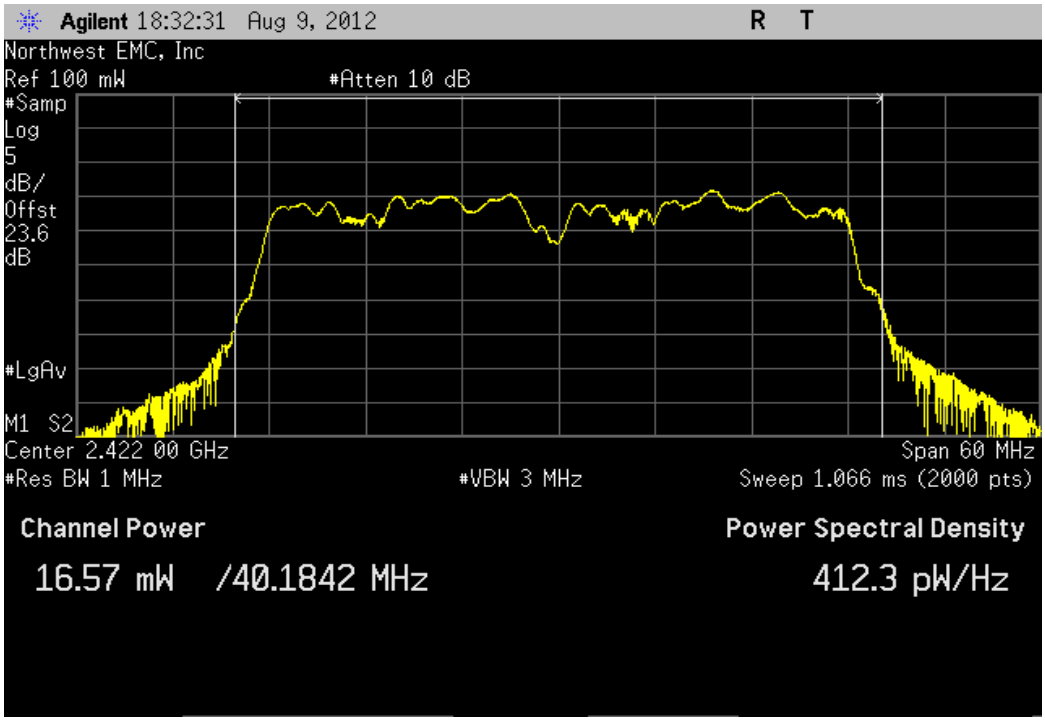
40MHz, 802.11(n) MCS0, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				9.086 mW	< 1 W	Pass



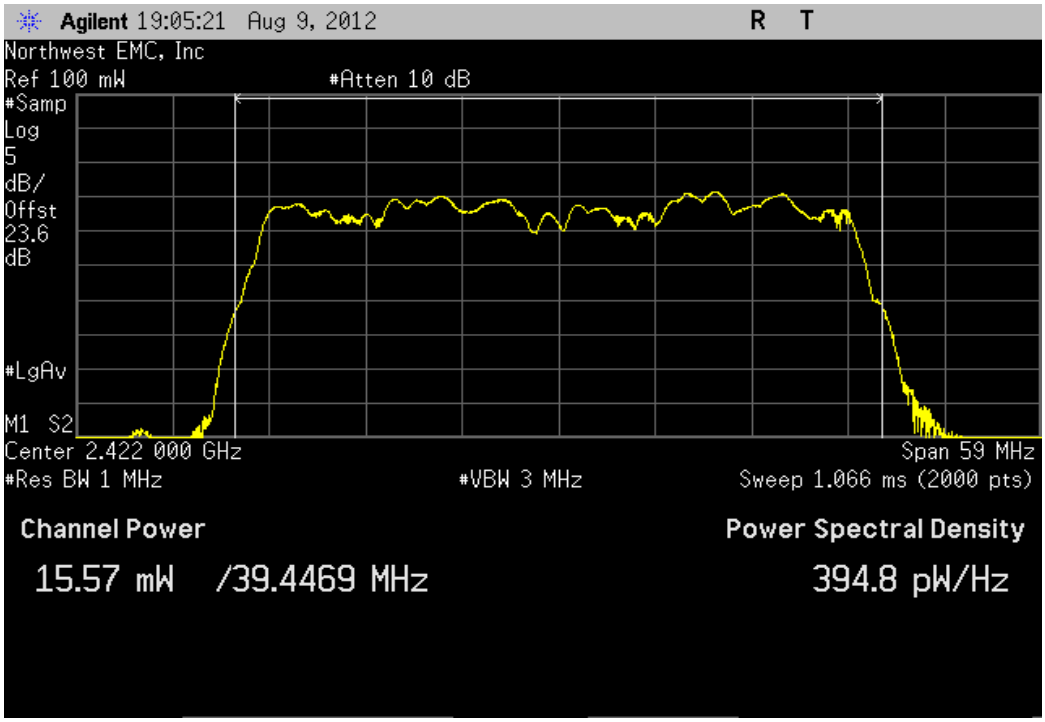
40MHz, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				16.568 mW	< 1 W	Pass



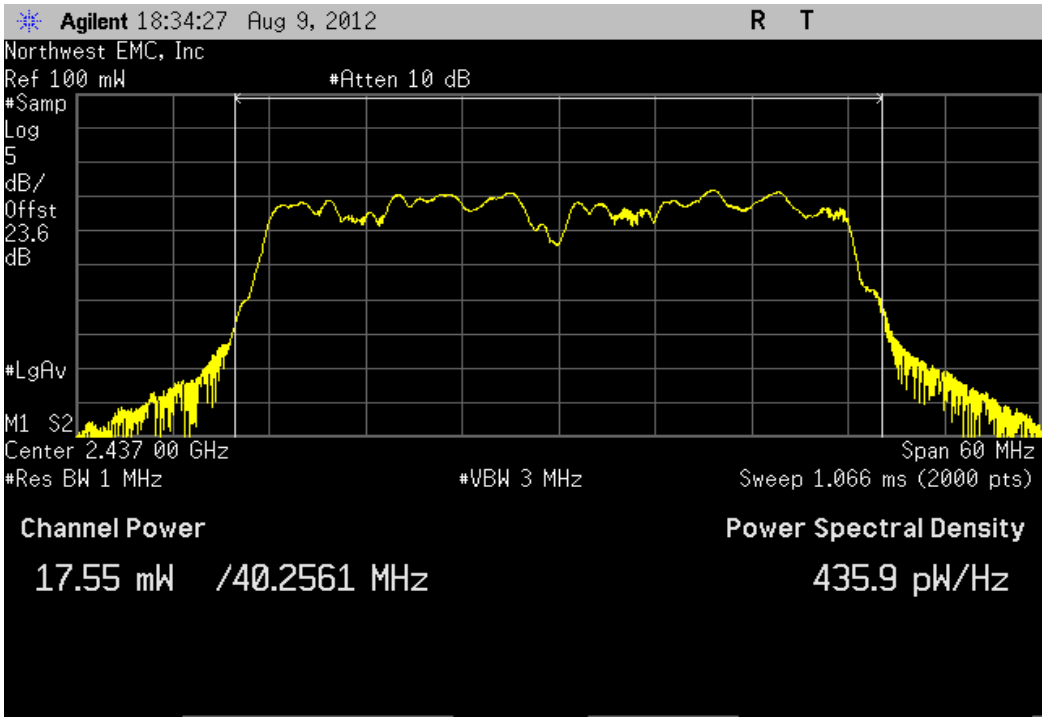
40MHz, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				15.574 mW	< 1 W	Pass



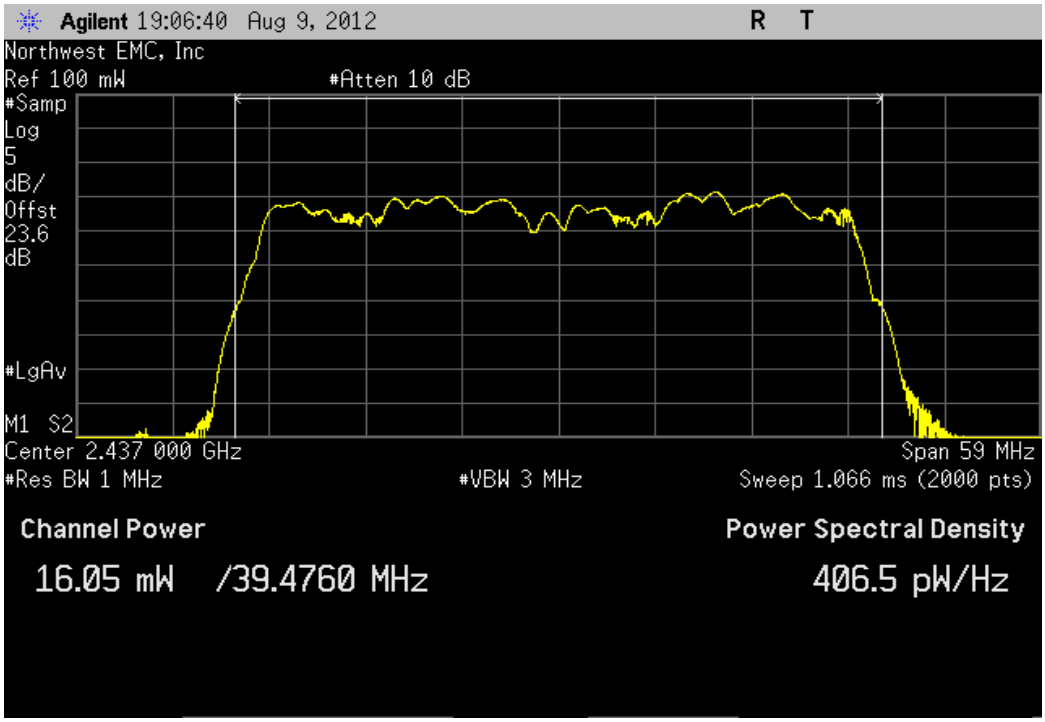
40MHz, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				17.549 mW	< 1 W	Pass



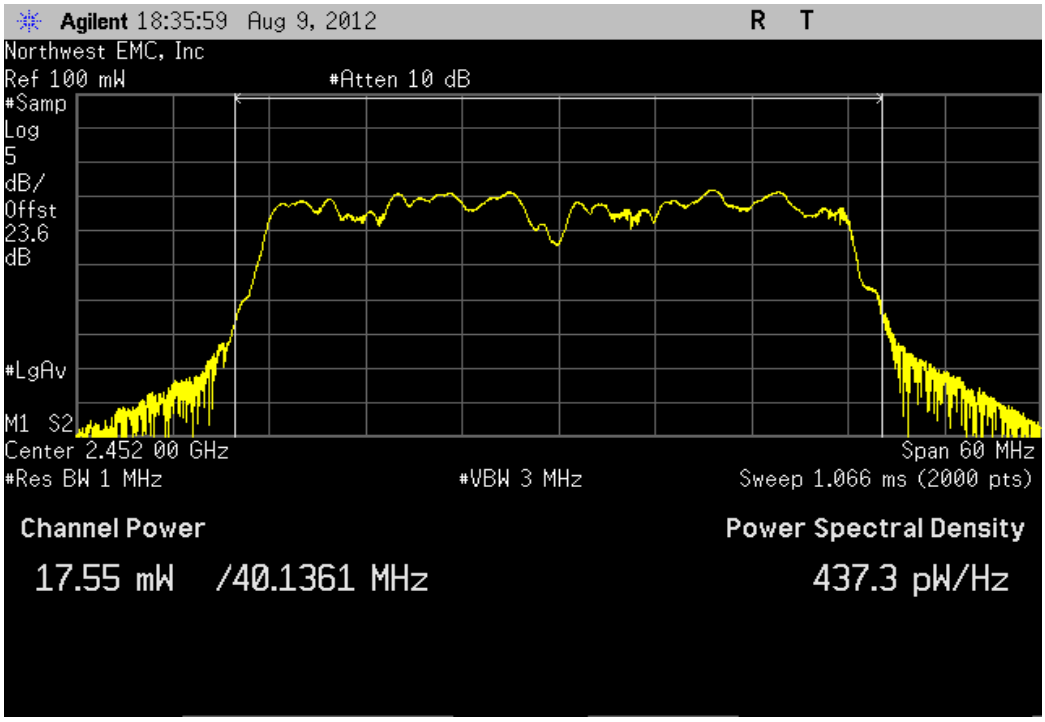
40MHz, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				16.047 mW	< 1 W	Pass



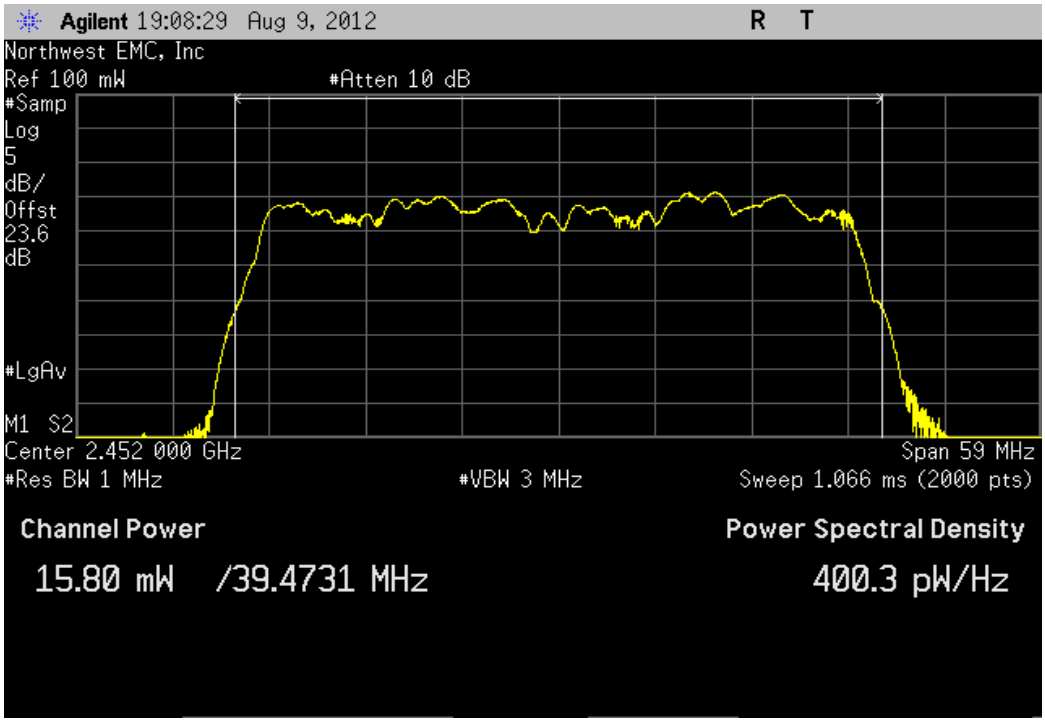
40MHz, 802.11(n) MCS7, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				17.552 mW	< 1 W	Pass



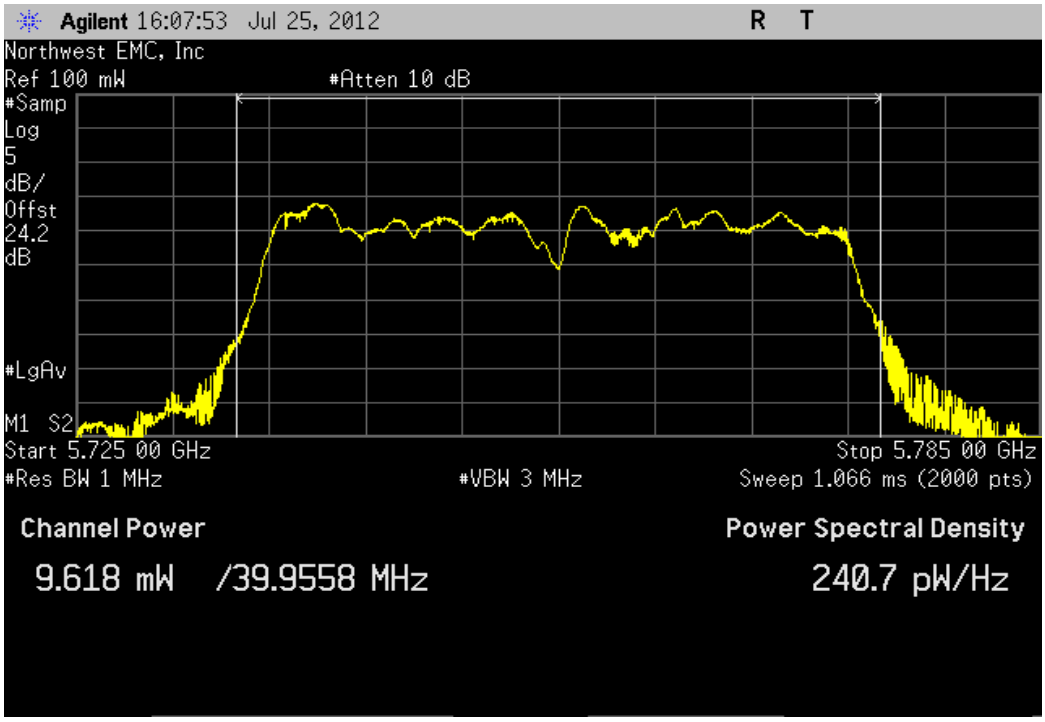
40MHz, 802.11(n) MCS7, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				15.801 mW	< 1 W	Pass



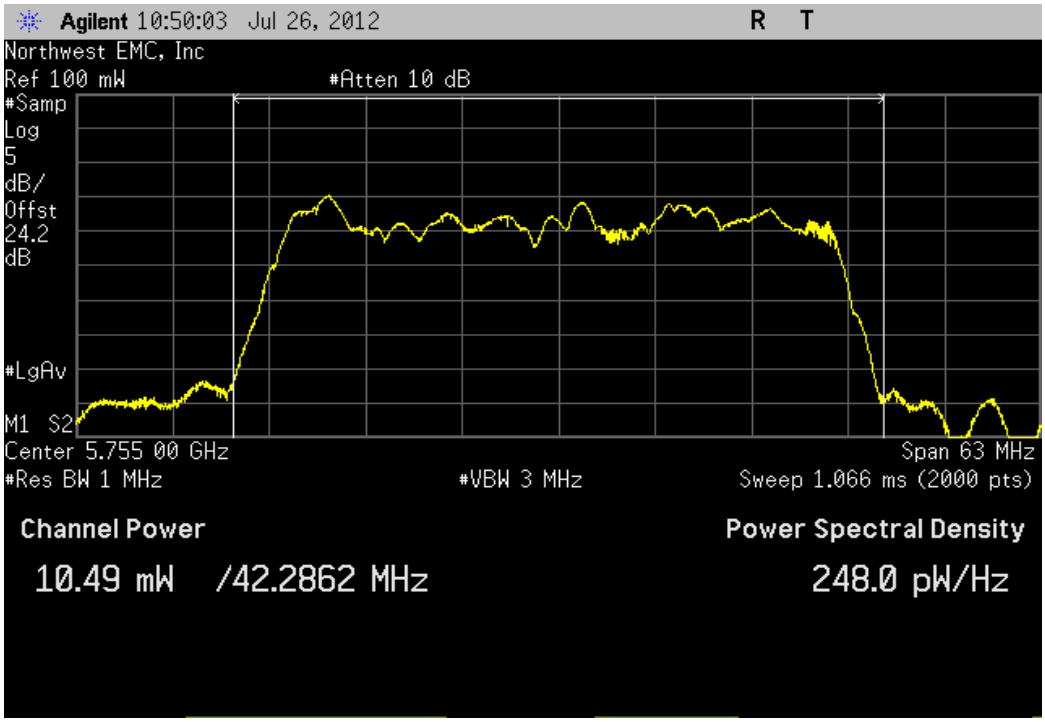
40MHz, 802.11(n) MCS7, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				9.618 mW	< 1 W	Pass



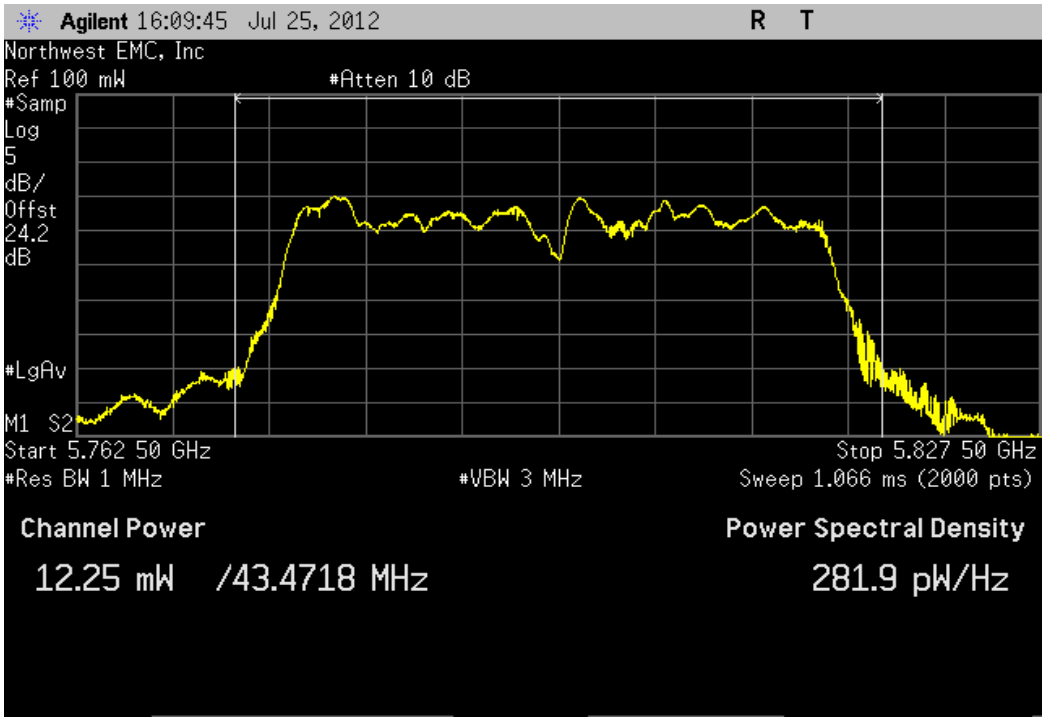
40MHz, 802.11(n) MCS7, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				10.489 mW	< 1 W	Pass



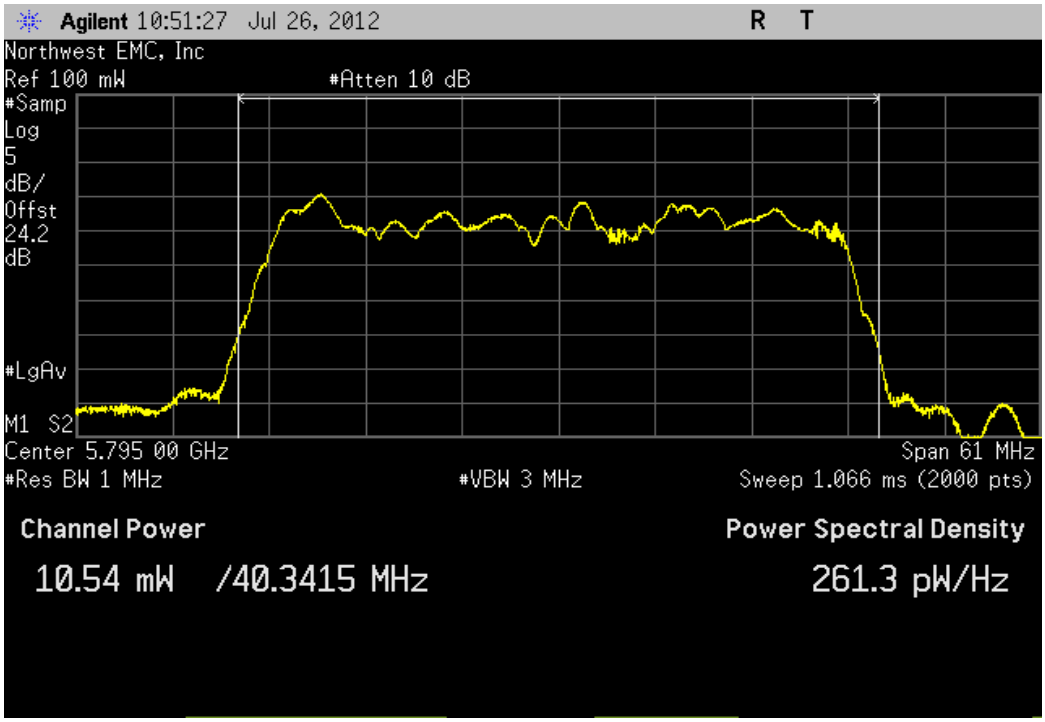
40MHz, 802.11(n) MCS7, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				12.254 mW	< 1 W	Pass



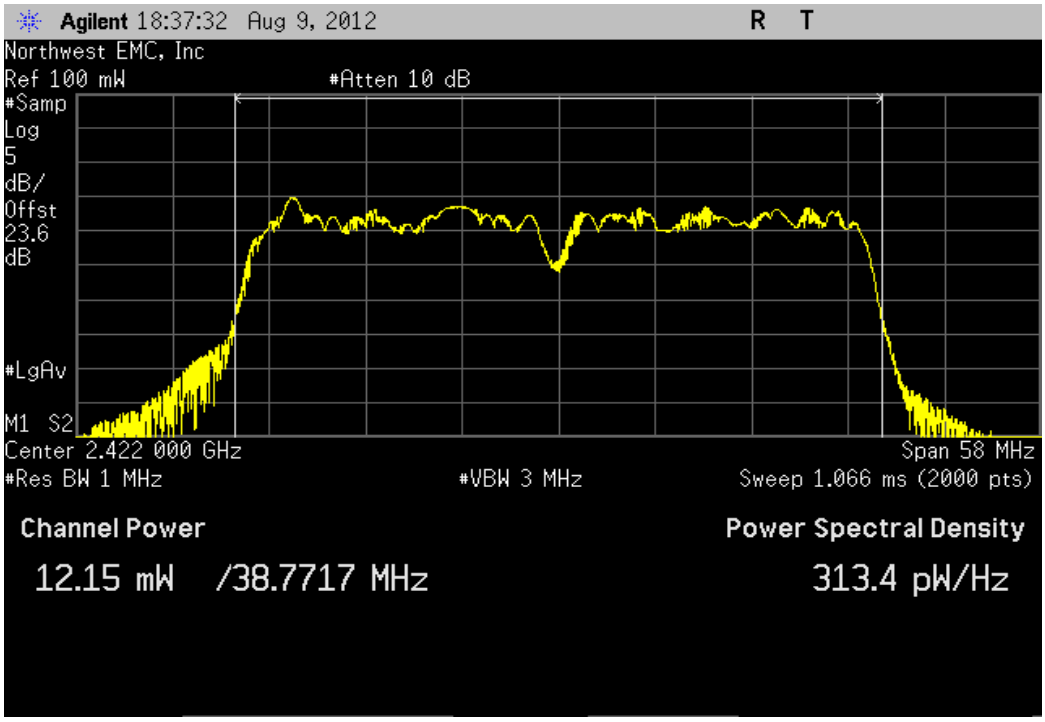
40MHz, 802.11(n) MCS7, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				10.539 mW	< 1 W	Pass



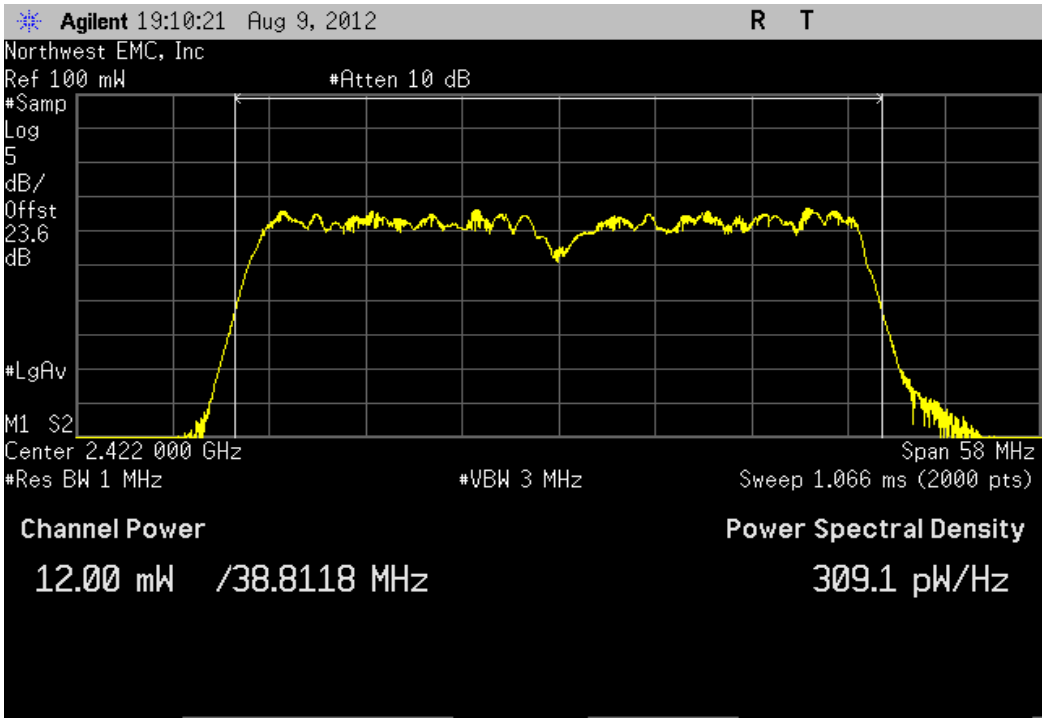
40MHz, 802.11(n) MCS8, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				12.149 mW	< 1 W	Pass



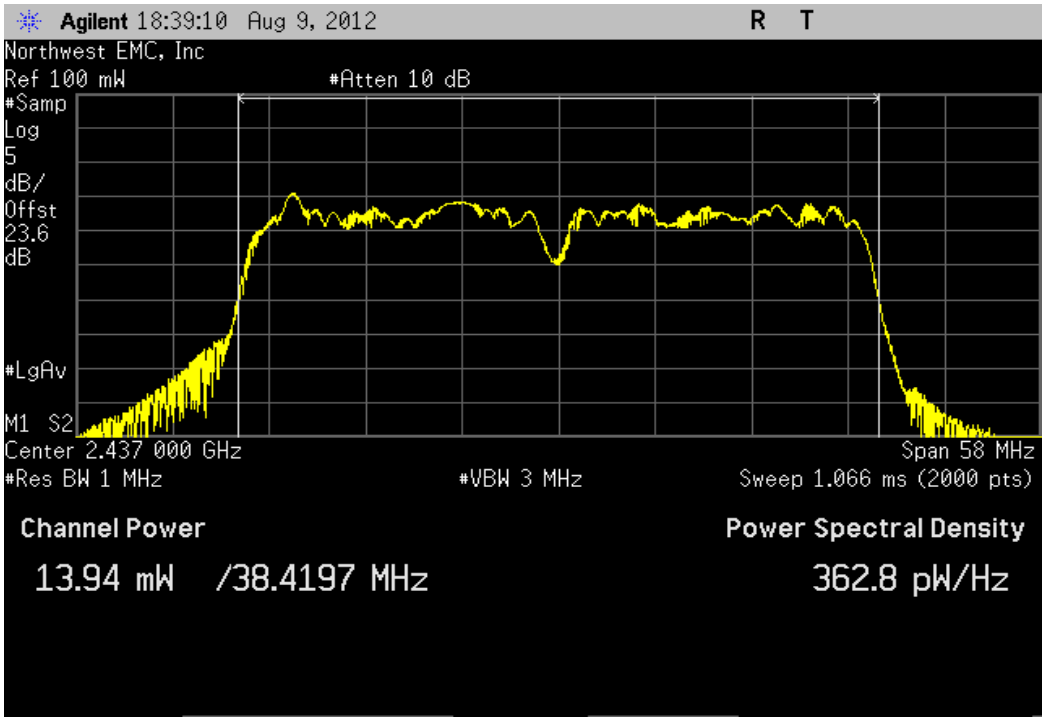
40MHz, 802.11(n) MCS8, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				11.996 mW	< 1 W	Pass



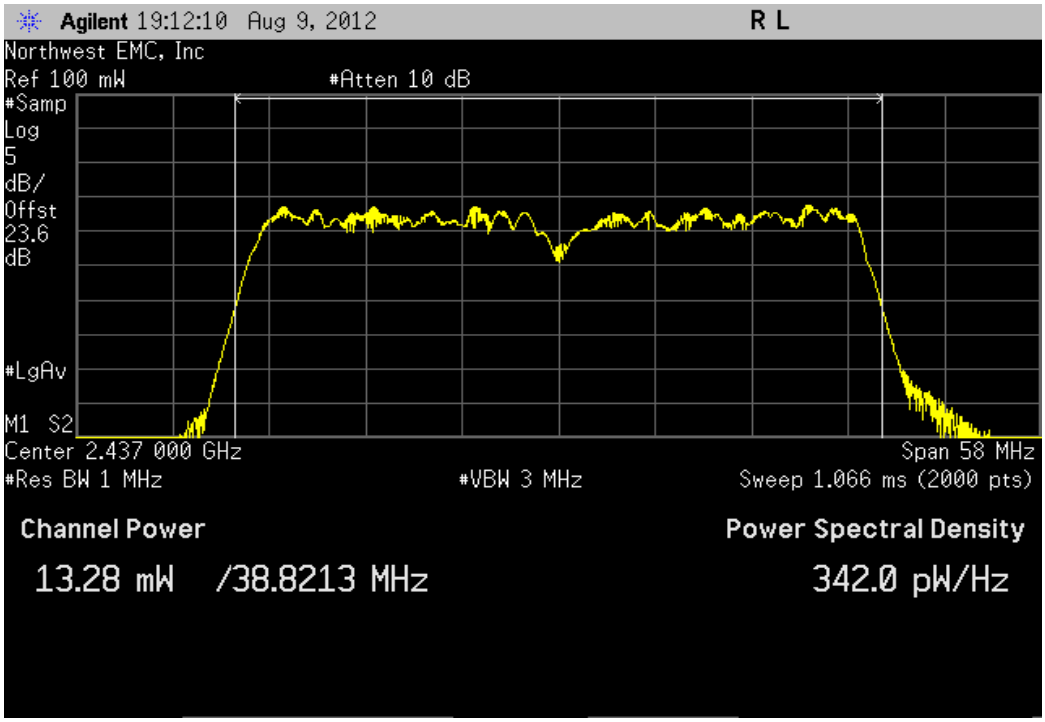
40MHz, 802.11(n) MCS8, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				13.937 mW	< 1 W	Pass



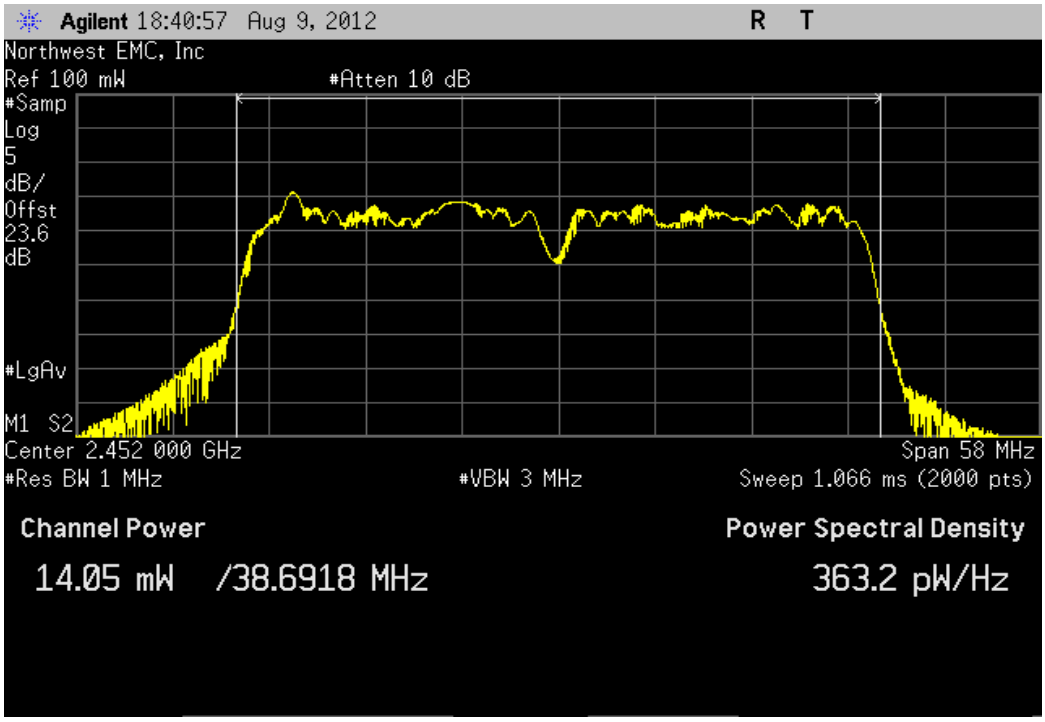
40MHz, 802.11(n) MCS8, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				13.275 mW	< 1 W	Pass



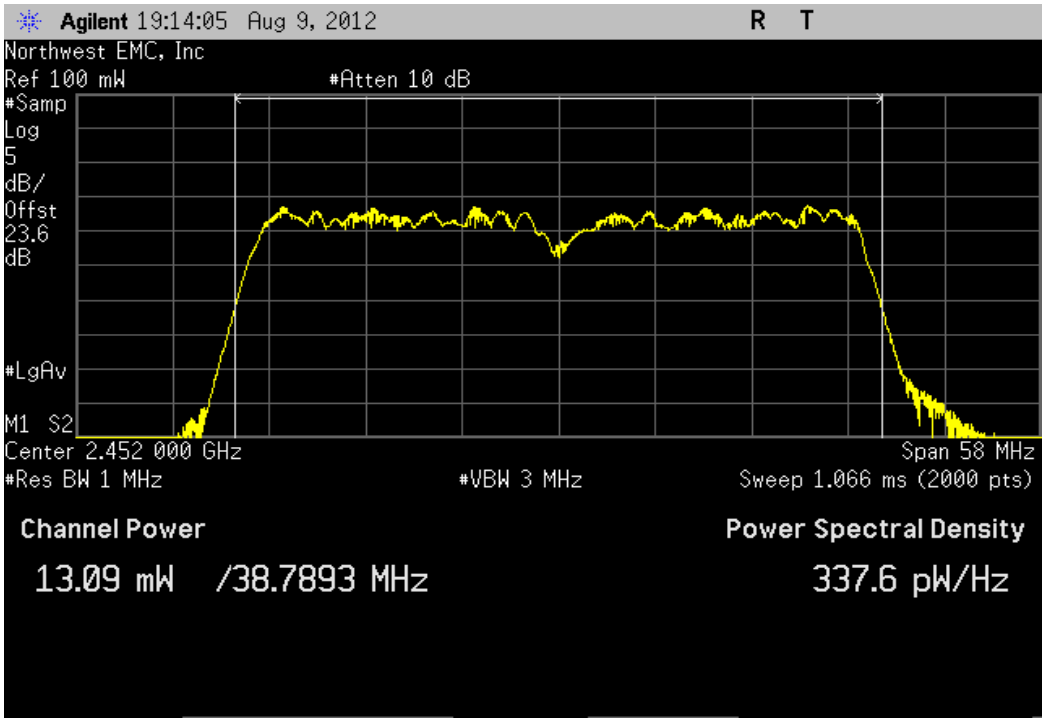
40MHz, 802.11(n) MCS8, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				14.051 mW	< 1 W	Pass



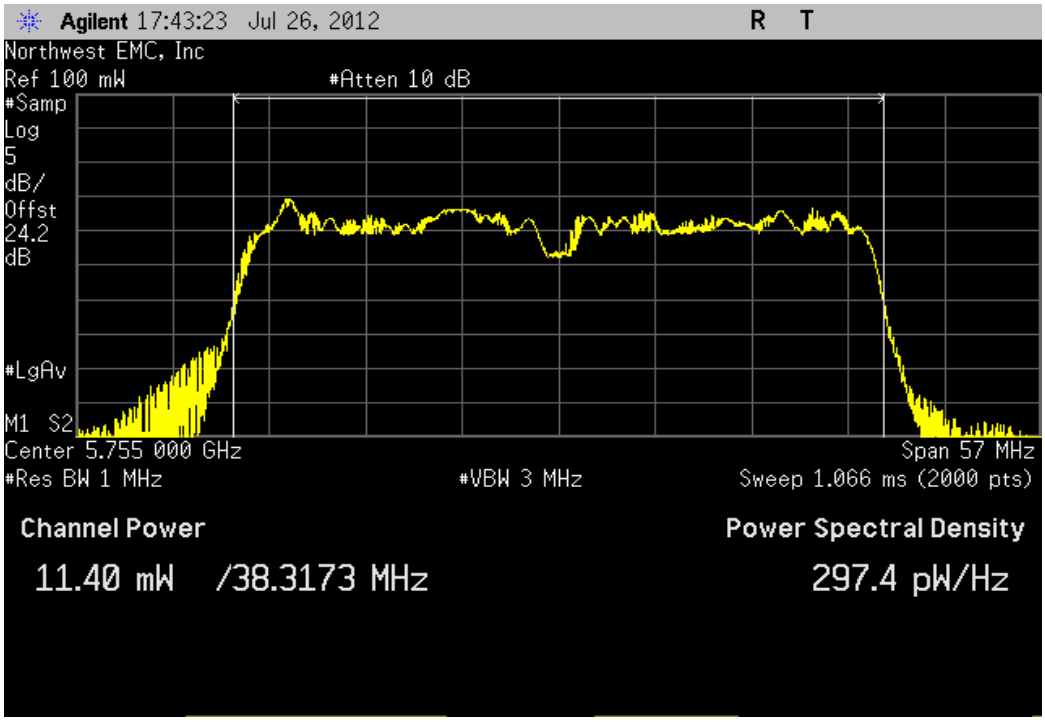
40MHz, 802.11(n) MCS8, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				13.095 mW	< 1 W	Pass



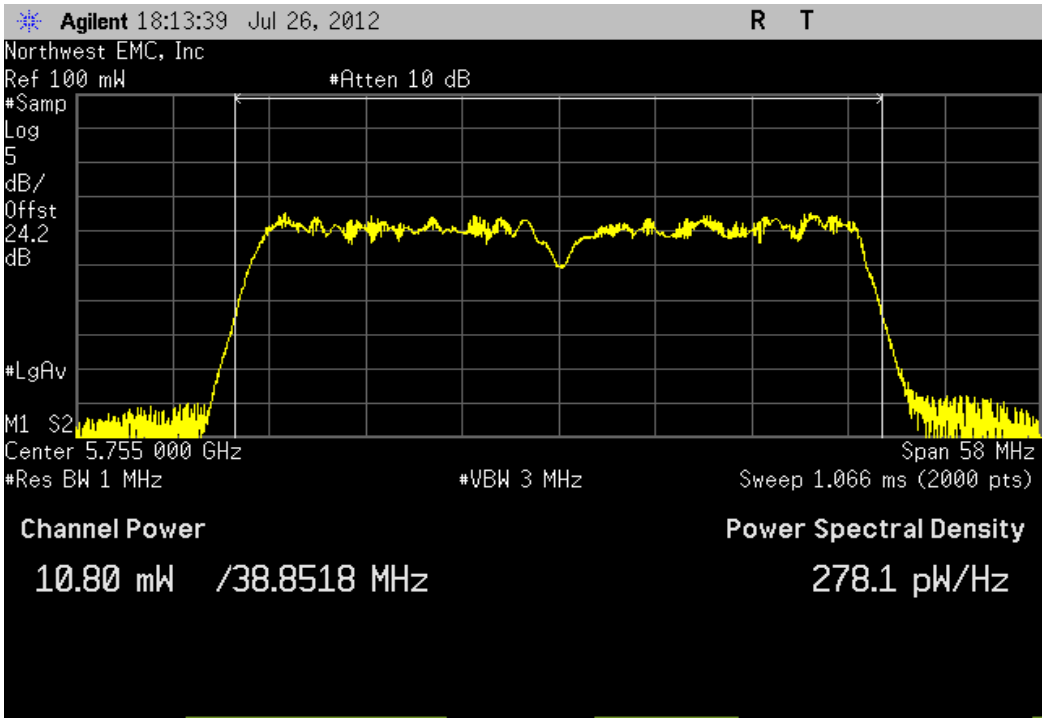
40MHz, 802.11(n) MCS8, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				11.396 mW	< 1 W	Pass



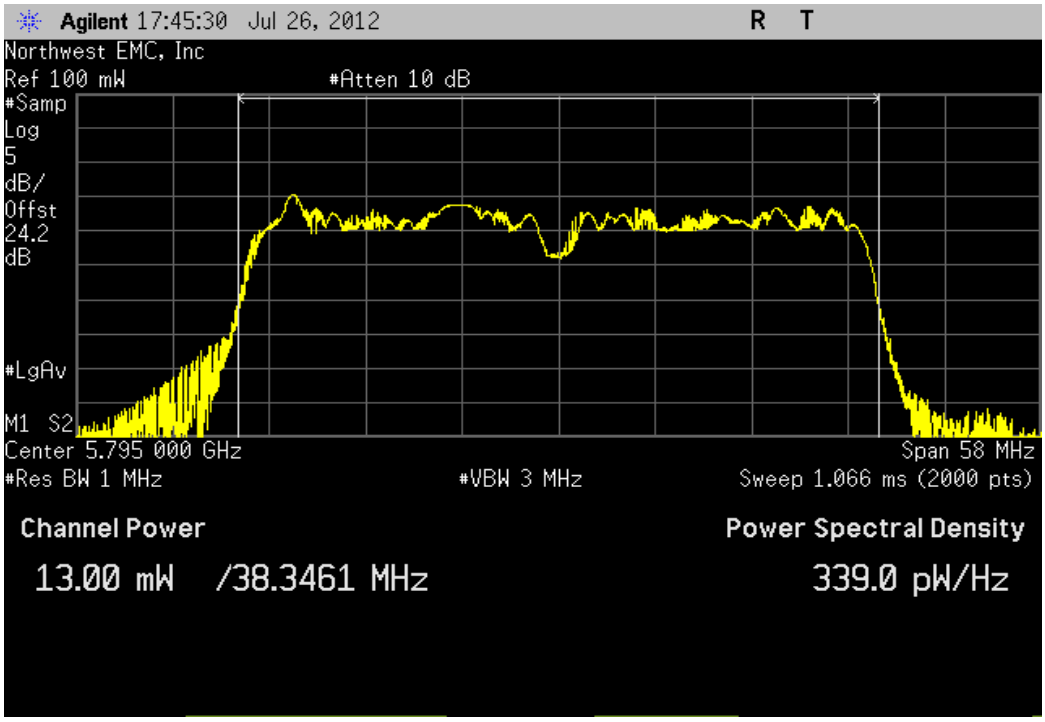
40MHz, 802.11(n) MCS8, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				10.804 mW	< 1 W	Pass



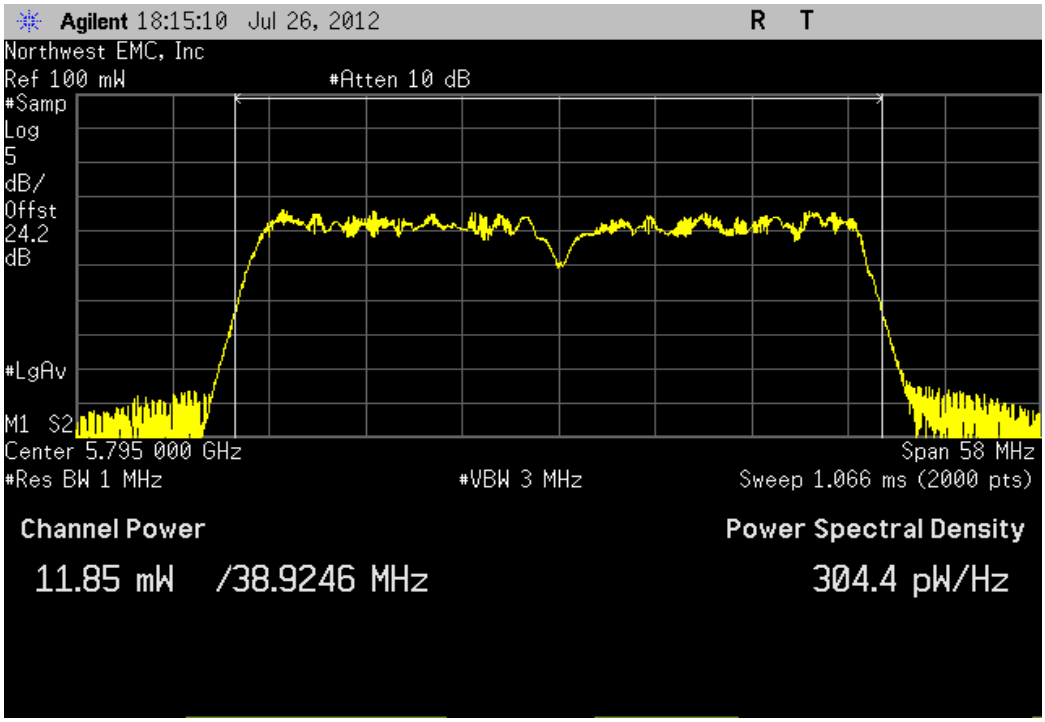
40MHz, 802.11(n) MCS8, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				13 mW	< 1 W	Pass



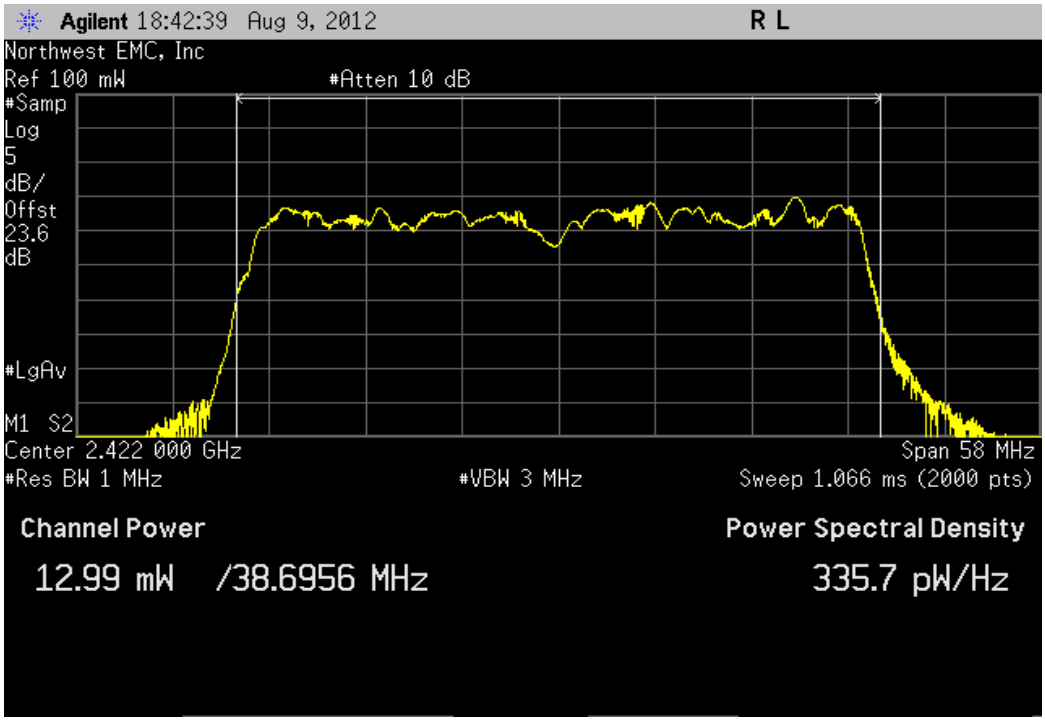
40MHz, 802.11(n) MCS8, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				11.847 mW	< 1 W	Pass



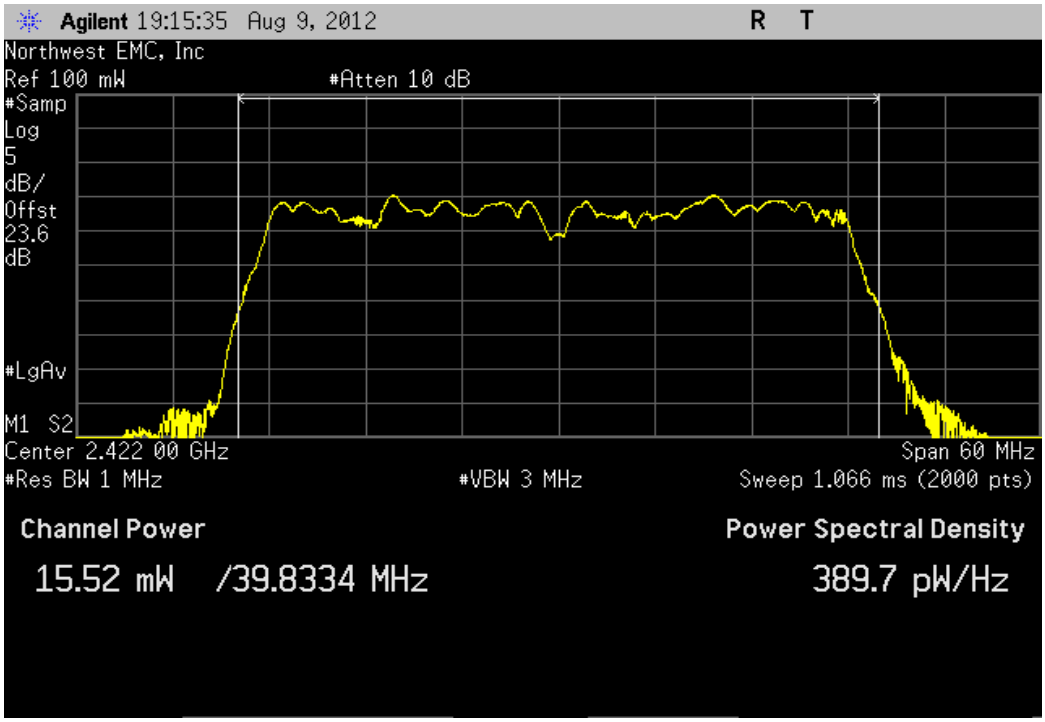
40MHz, 802.11(n) MCS15, Low Channel 1/5, 2422 MHz, Antenna B

				Value	Limit	Result
				12.991 mW	< 1 W	Pass



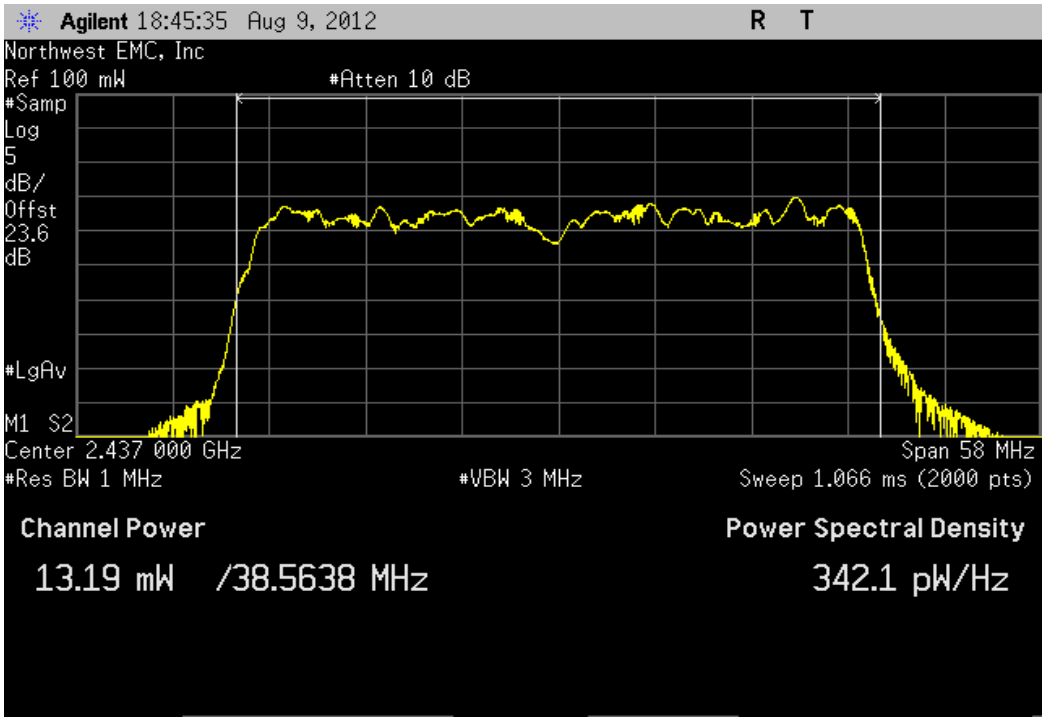
40MHz, 802.11(n) MCS15, Low Channel 1/5, 2422 MHz, Antenna A

				Value	Limit	Result
				15.525 mW	< 1 W	Pass



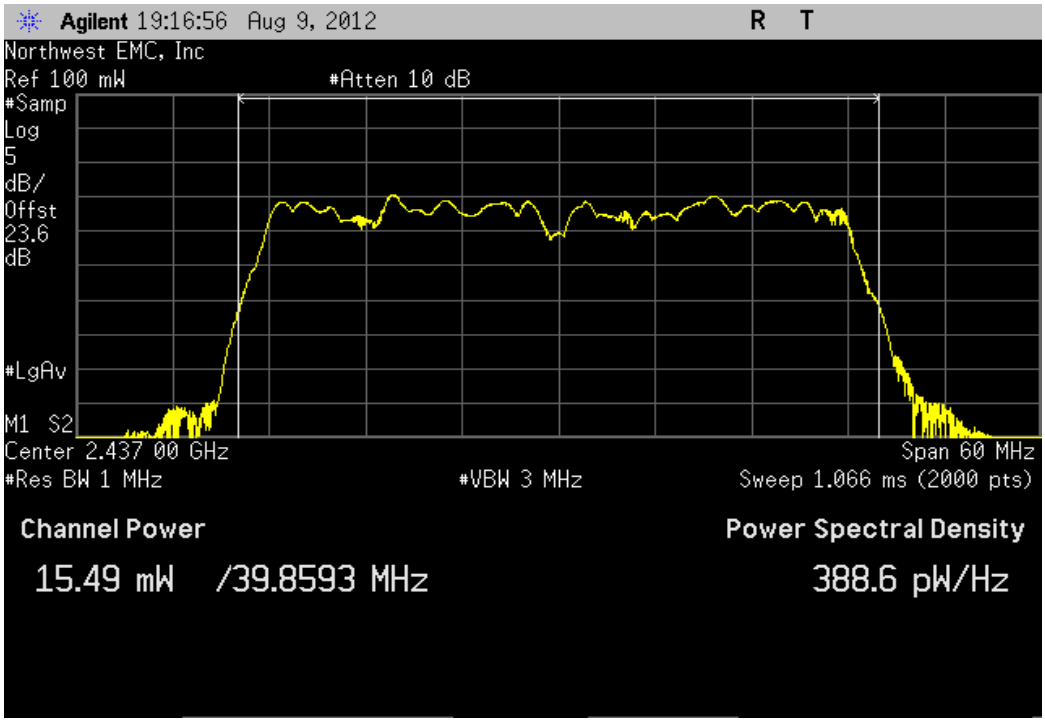
40MHz, 802.11(n) MCS15, Mid Channel 4/8, 2437 MHz, Antenna B

				Value	Limit	Result
				13.192 mW	< 1 W	Pass



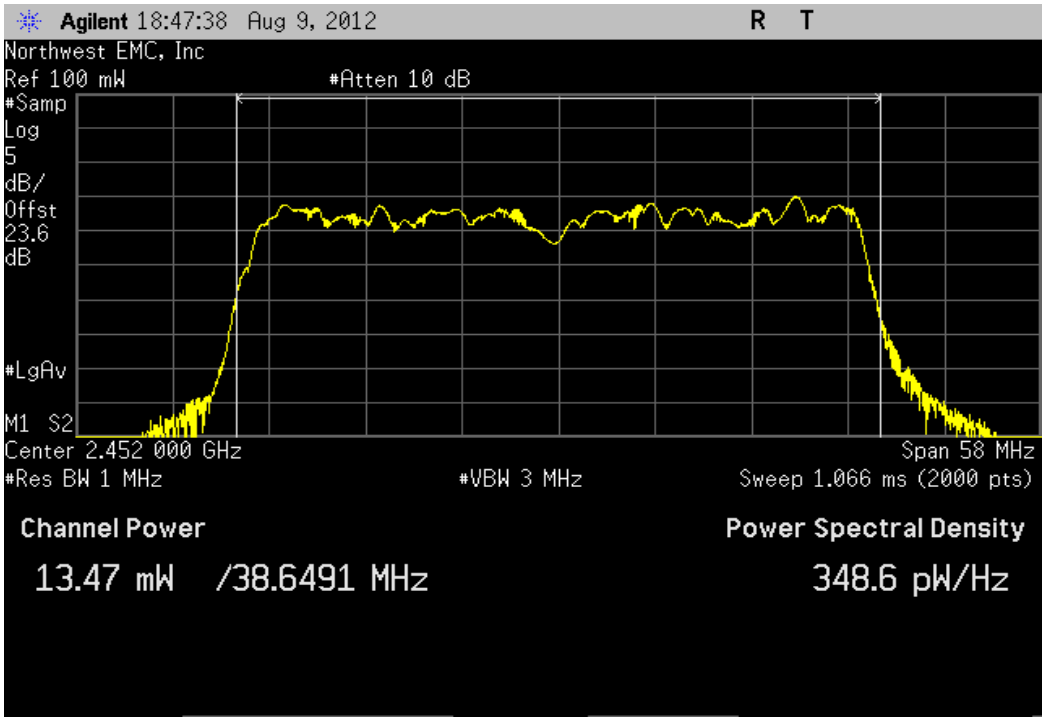
40MHz, 802.11(n) MCS15, Mid Channel 4/8, 2437 MHz, Antenna A

				Value	Limit	Result
				15.488 mW	< 1 W	Pass



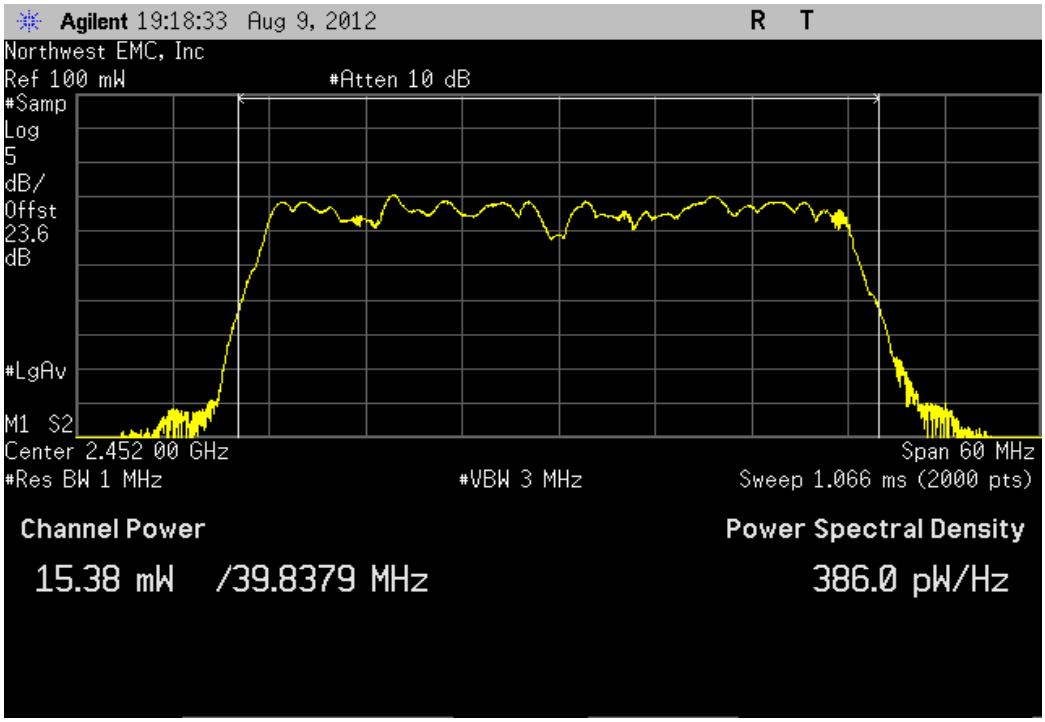
40MHz, 802.11(n) MCS15, High Channel 7/11, 2452 MHz, Antenna B

				Value	Limit	Result
				13.471 mW	< 1 W	Pass



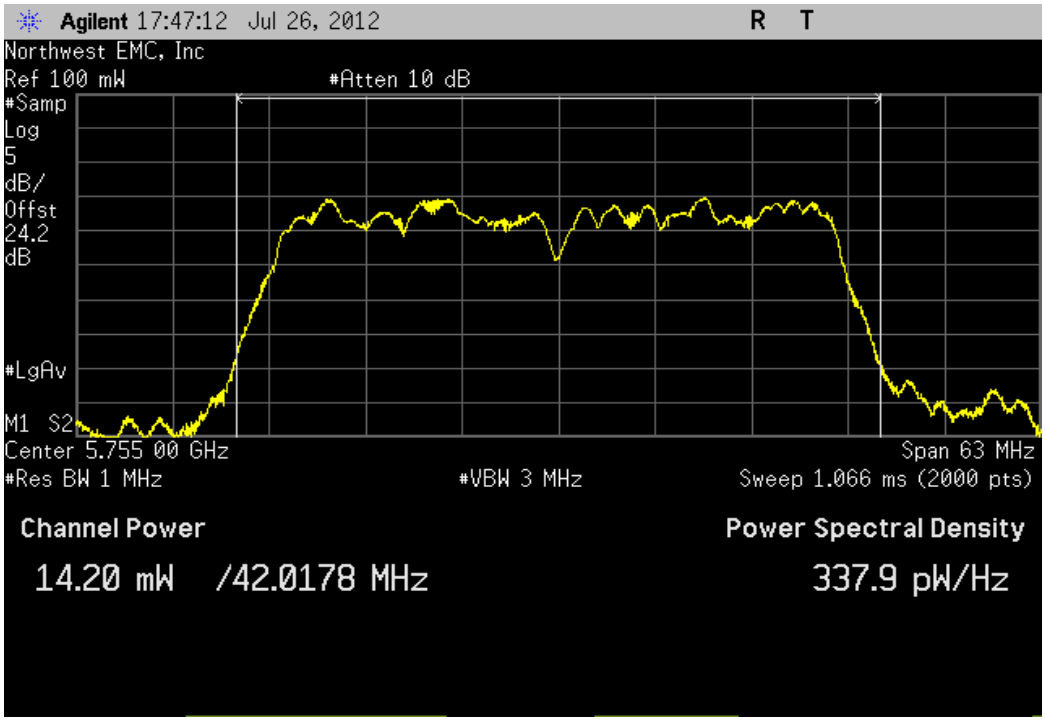
40MHz, 802.11(n) MCS15, High Channel 7/11, 2452 MHz, Antenna A

				Value	Limit	Result
				15.379 mW	< 1 W	Pass



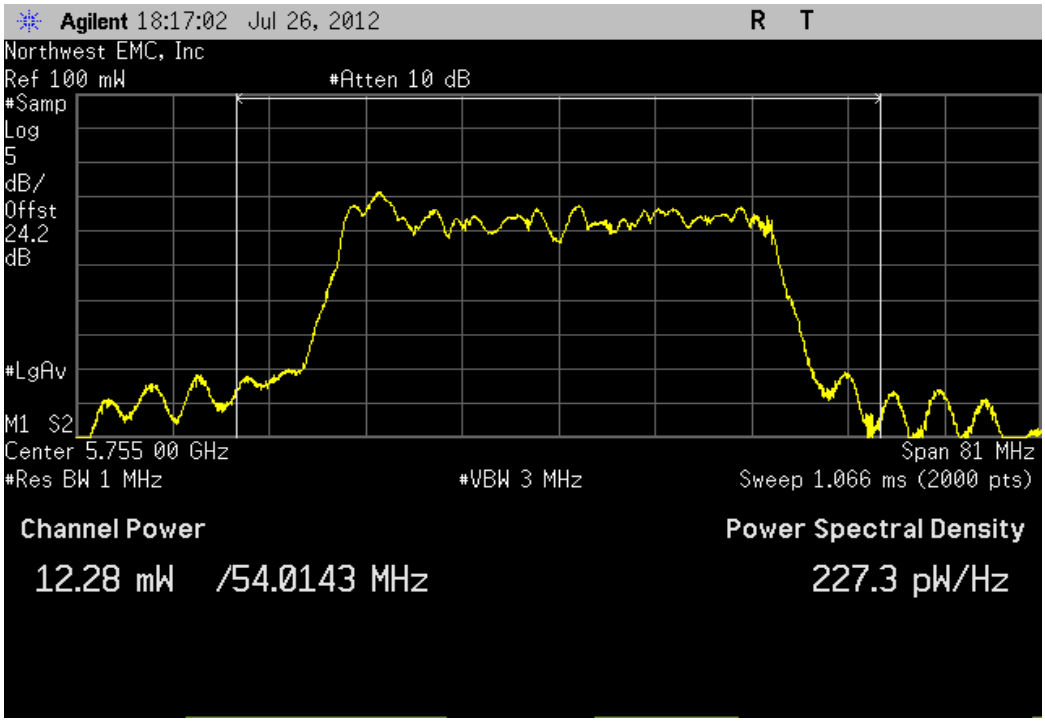
40MHz, 802.11(n) MCS15, Low Channel 149/153, 5755 MHz, Antenna B

				Value	Limit	Result
				14.197 mW	< 1 W	Pass



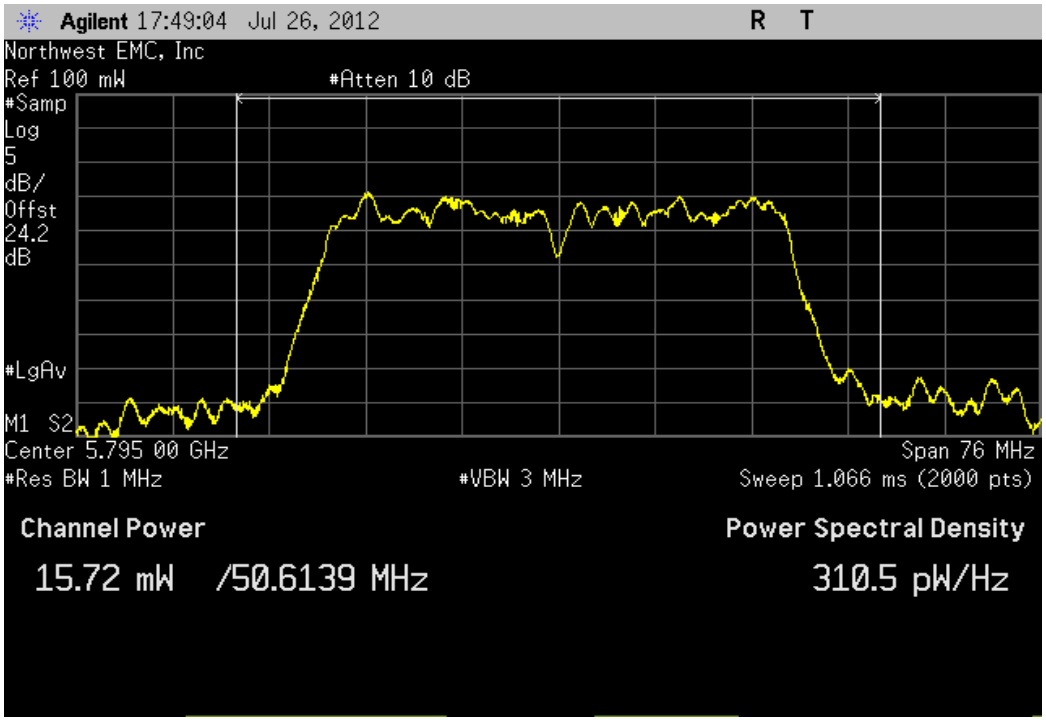
40MHz, 802.11(n) MCS15, Low Channel 149/153, 5755 MHz, Antenna A

				Value	Limit	Result
				12.28 mW	< 1 W	Pass



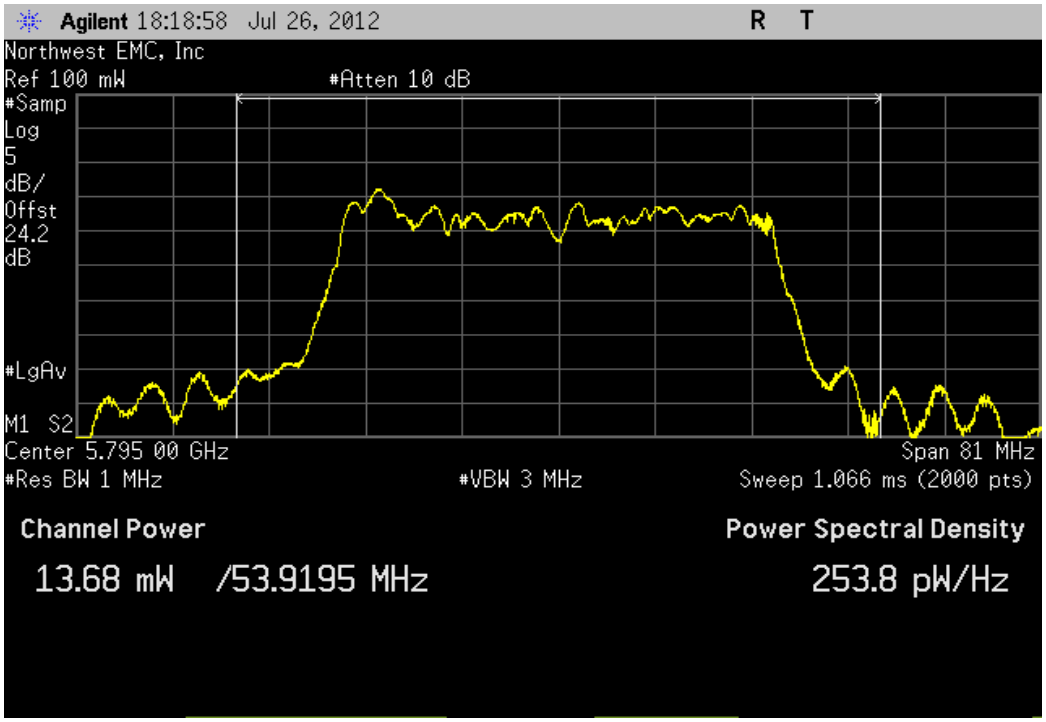
40MHz, 802.11(n) MCS15, High Channel 157/161, 5795 MHz, Antenna B

				Value	Limit	Result
				15.715 mW	< 1 W	Pass



40MHz, 802.11(n) MCS15, High Channel 157/161, 5795 MHz, Antenna A

				Value	Limit	Result
				13.683 mW	< 1 W	Pass



Band Edge Compliance

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2012	12
Multimeter	Tektronix	DMM912	MMH	1/28/2011	24
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/15/2011	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

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

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

The power levels used while under test were 11dBm for 5GHz frequencies with a 40MHz bandwidth, 12dBm for 5GHz frequencies with a 20MHz bandwidth, 16dBm for 2.4GHz frequencies with a 20MHz bandwidth and 11dBm for 2.4GHz frequencies with a 40MHz bandwidth.

This testing was only done on the worst case output power modes / antenna ports as noted elsewhere in this report.

The guidance for testing multiple outputs as defined in KDB662911 D01 v01r01 item (2) was followed: Measure and add 10 log (N) dB, where N is the numer of outputs.

Band Edge Compliance

EUT:	1516			**Work Order:**	MCSO1601
Serial Number:	000309122652			**Date:**	08/14/12
Customer:	Microsoft Corporation			**Temperature:**	24°C
Attendees:	none			**Humidity:**	48%
Project:	None			**Barometric Pres.:**	1016
Tested by:	Brandon Hobbs	**Power:**	12VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

EUT was set to 100% duty cycle for all the points listed.

DEVIATIONS FROM TEST STANDARD

None

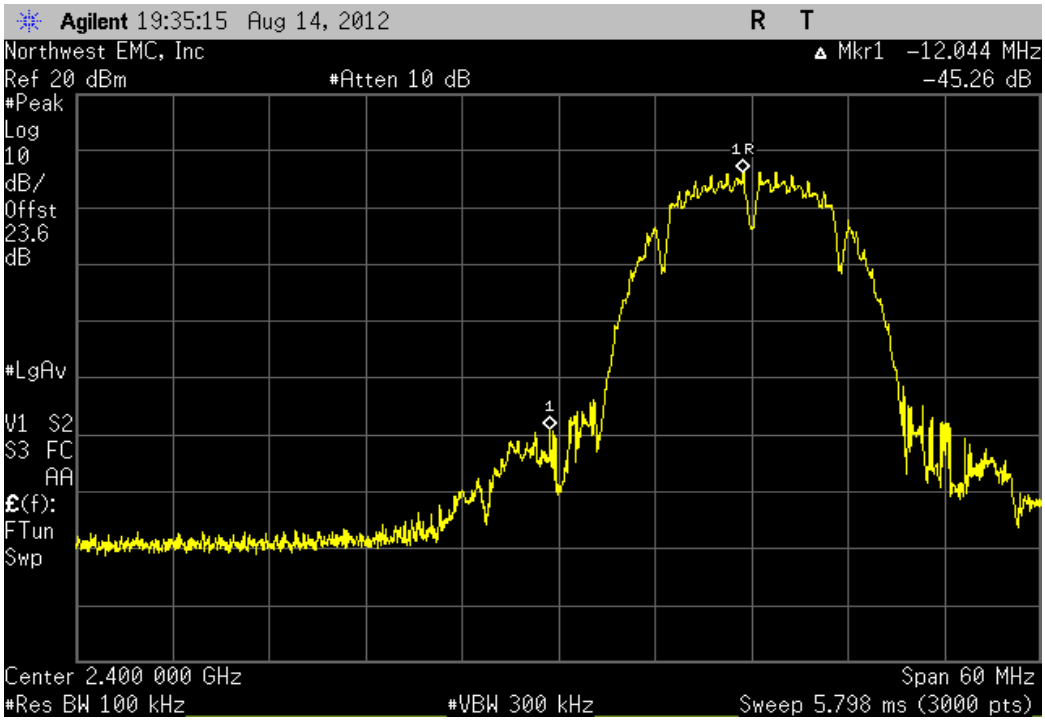
Configuration #	2	Signature

	Value	Limit	Result
20MHz			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	-45.26 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz			
Antenna B	-61.38 dBc	≤ -20 dBc	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz			
Antenna A	-43.05 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz			
Antenna A	-62.79 dBc	≤ -20 dBc	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz			
Antenna B	-38.17 dBc	≤ -20 dBc	Pass
Antenna A	-35.5 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz			
Antenna B	-49.58 dBc	≤ -20 dBc	Pass
Antenna A	-49.24 dBc	≤ -20 dBc	Pass
802.11(a) 6 Mbps			
Low Channel 149, 5745 MHz			
Antenna B	-48.29 dBc	≤ -20 dBc	Pass
High Channel 165, 5825 MHz			
Antenna B	-56.1 dBc	≤ -20 dBc	Pass
802.11(a) 36 Mbps			
Low Channel 149, 5745 MHz			
Antenna A	-49.2 dBc	≤ -20 dBc	Pass
High Channel 165, 5825 MHz			
Antenna A	-54.41 dBc	≤ -20 dBc	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz			
Antenna B	-36.46 dBc	≤ -20 dBc	Pass
Antenna A	-35.58 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz			
Antenna B	-46.97 dBc	≤ -20 dBc	Pass
Antenna A	-45.01 dBc	≤ -20 dBc	Pass
802.11(n) MCS15			
Low Channel 1, 2412 MHz			
Antenna B	-36.83 dBc	≤ -20 dBc	Pass
Antenna A	-35.67 dBc	≤ -20 dBc	Pass
High Channel 11, 2462 MHz			
Antenna B	-47.61 dBc	≤ -20 dBc	Pass
Antenna A	-45.1 dBc	≤ -20 dBc	Pass

Power summing 802.11(n) MCS15	Measured Value (dBc)	Sum Factor (dB)	Summed Value (dBc)		
Low Channel 1, 2412 MHz					
Antenna B	-36.8	3	-33.8	≤ -20 dBc	Pass
Antenna A	-35.6	3	-32.6	≤ -20 dBc	Pass
High Channel 11, 2462 MHz					
Antenna B	-47.6	3	-44.6	≤ -20 dBc	Pass
Antenna A	-45.0	3	-42.0	≤ -20 dBc	Pass

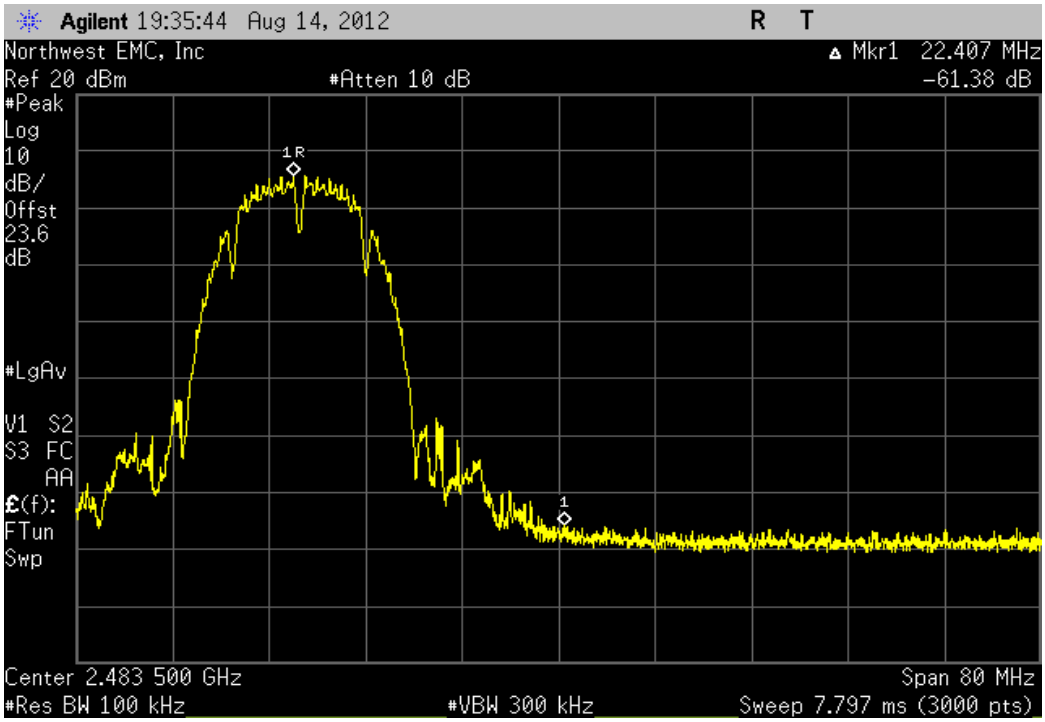
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				-45.26 dBc	≤ -20 dBc	Pass



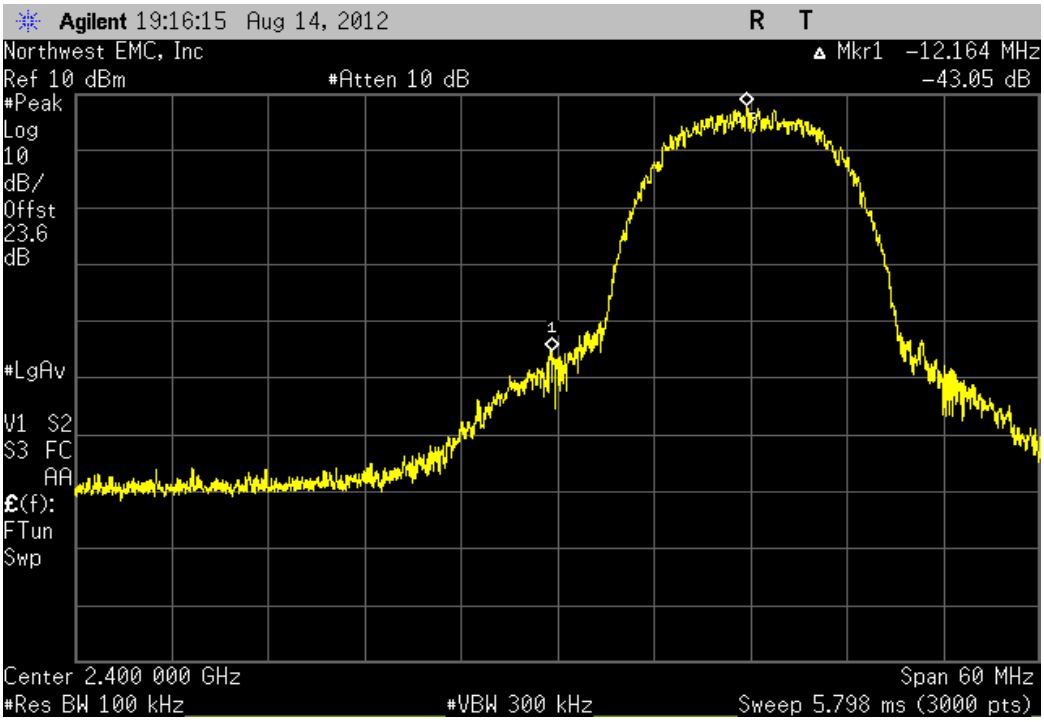
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				-61.38 dBc	≤ -20 dBc	Pass



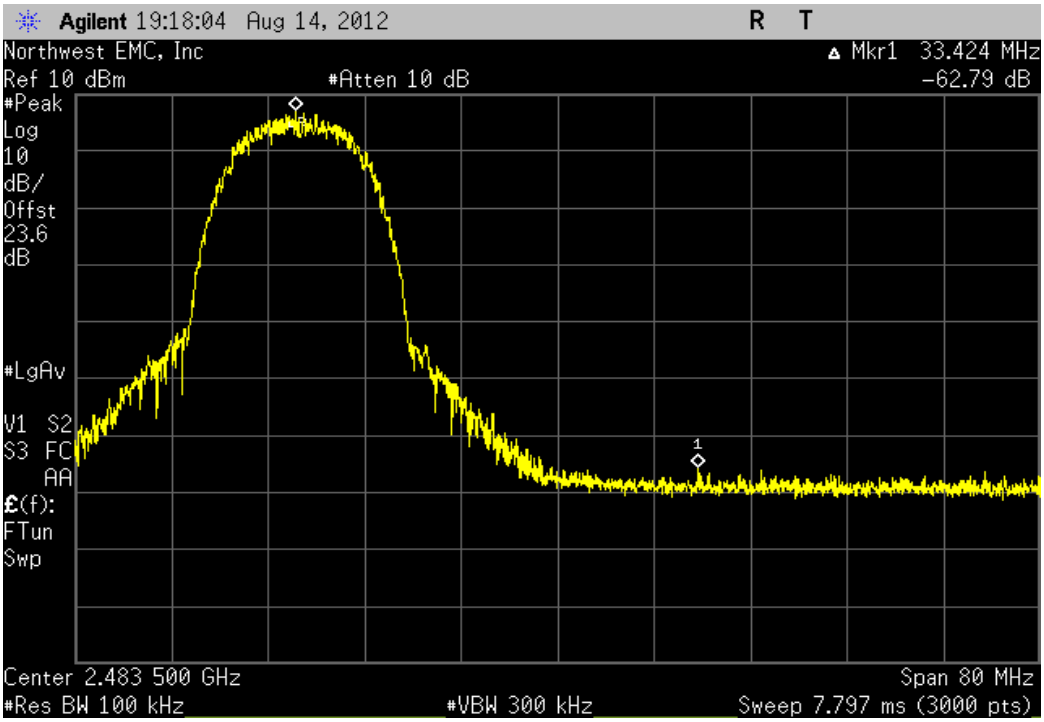
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				-43.05 dBc	≤ -20 dBc	Pass



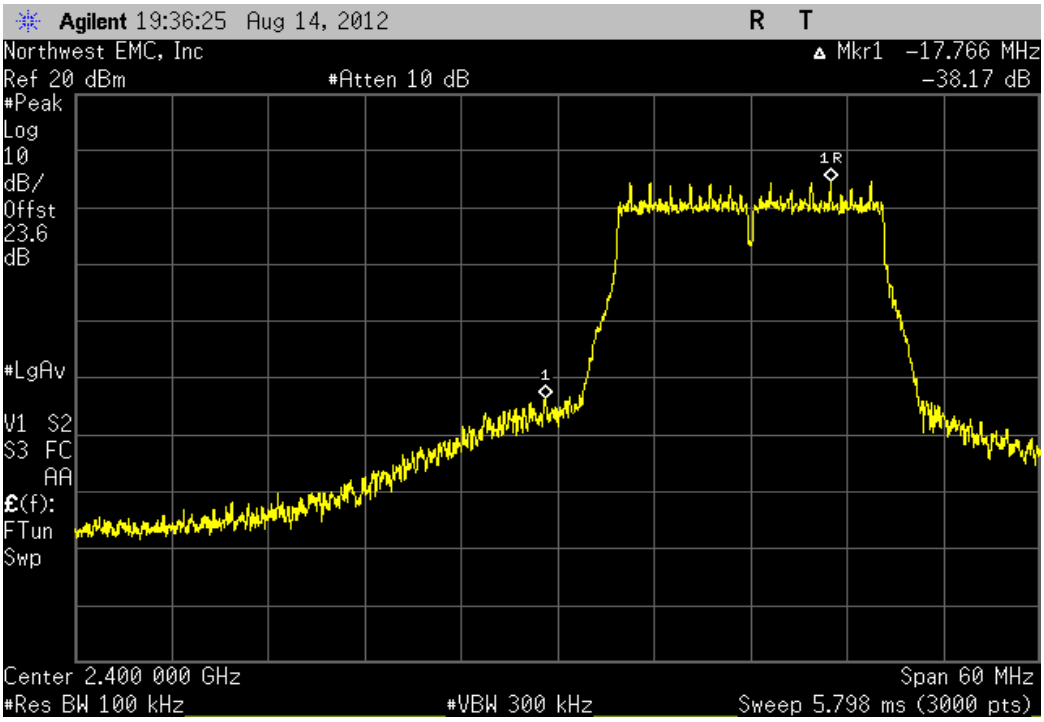
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				-62.79 dBc	≤ -20 dBc	Pass



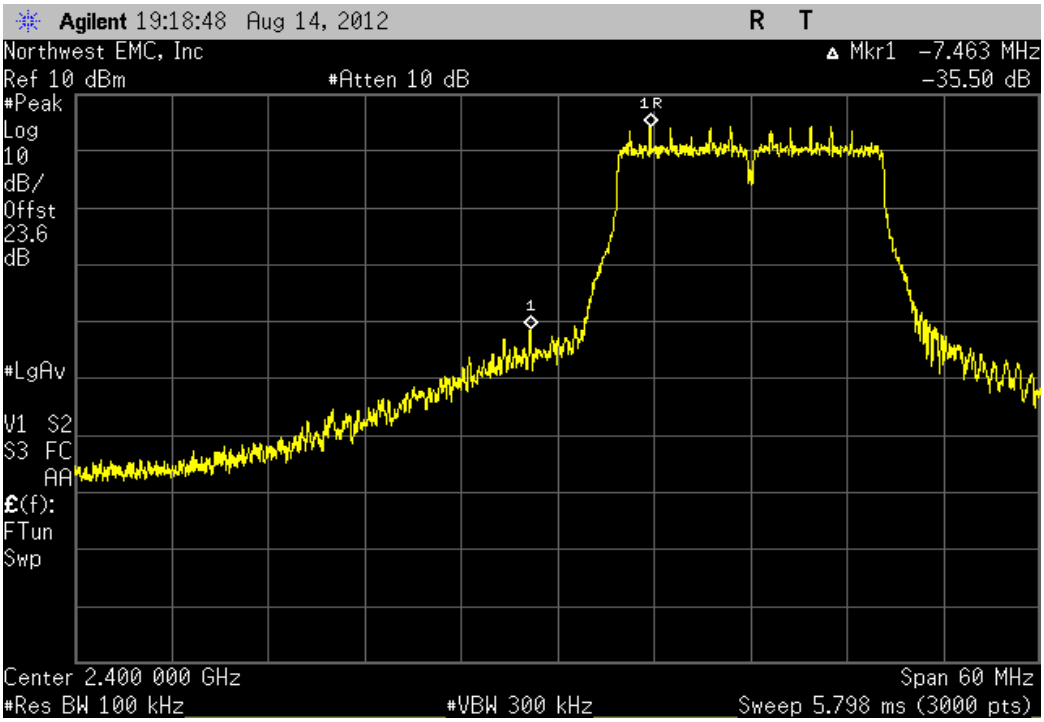
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				-38.17 dBc	≤ -20 dBc	Pass



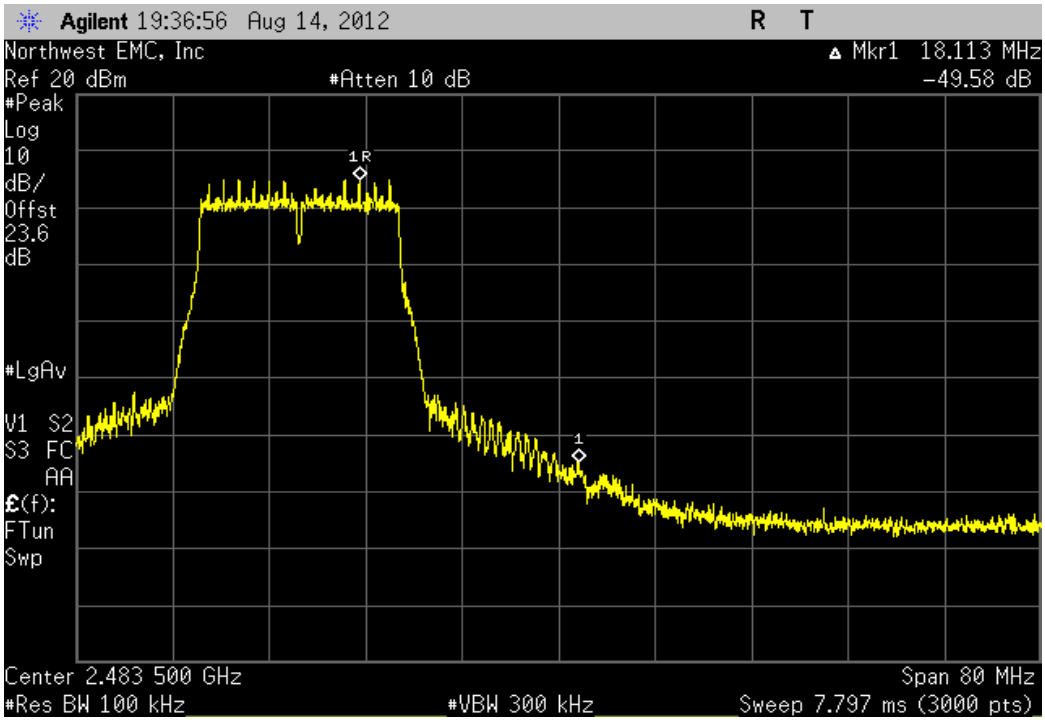
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				-35.5 dBc	≤ -20 dBc	Pass



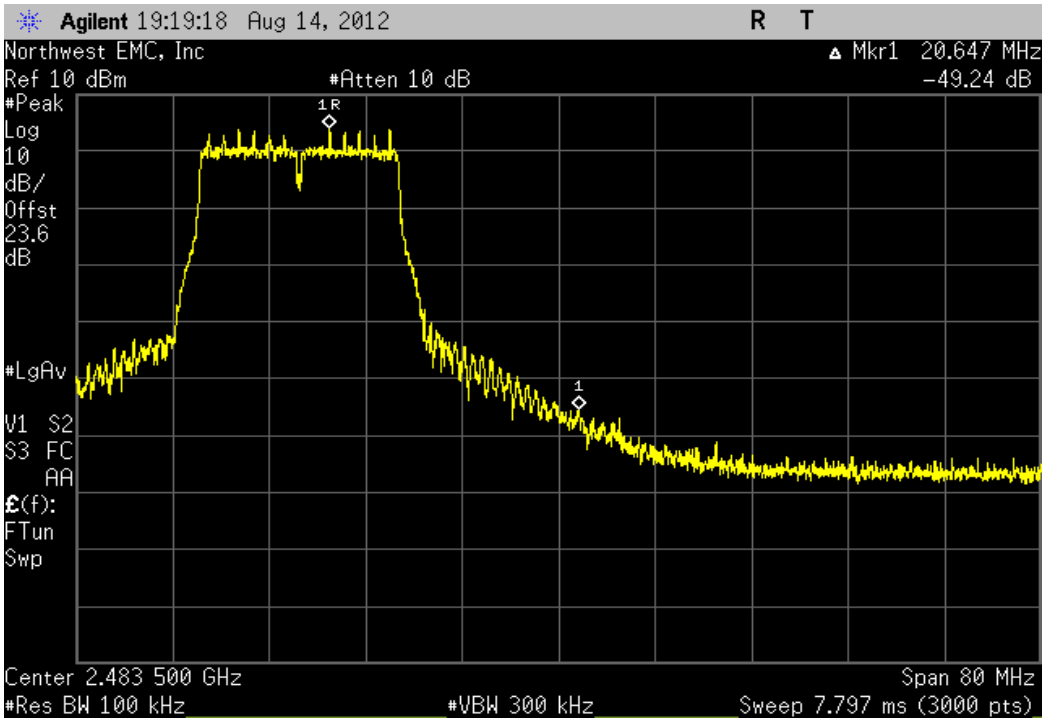
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				-49.58 dBc	≤ -20 dBc	Pass



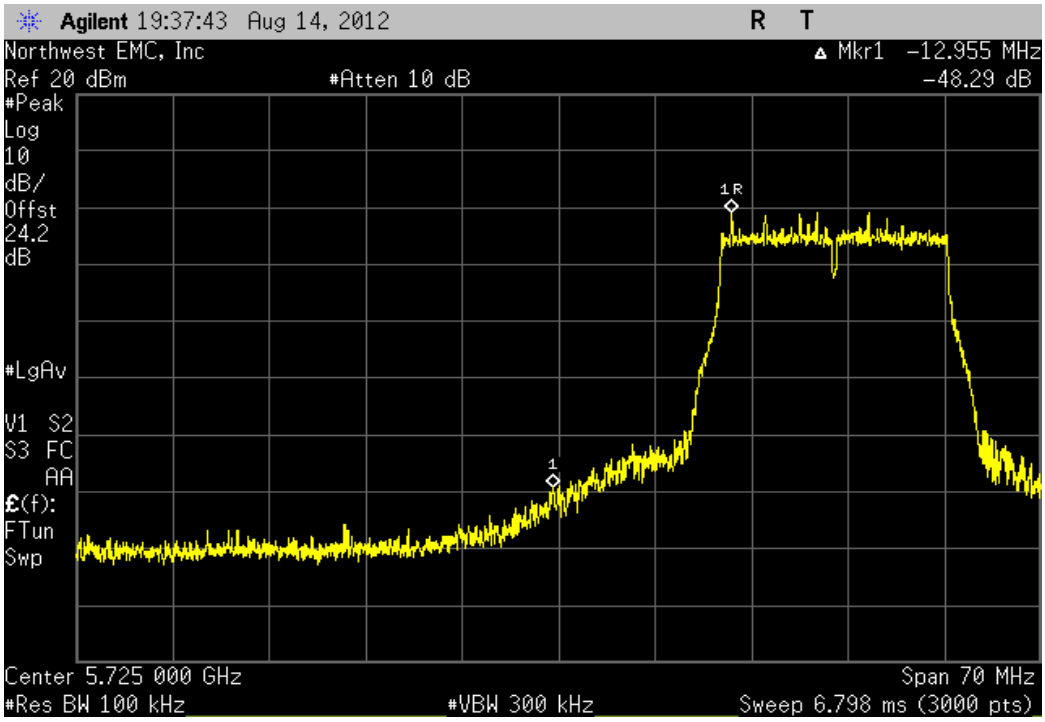
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				-49.24 dBc	≤ -20 dBc	Pass



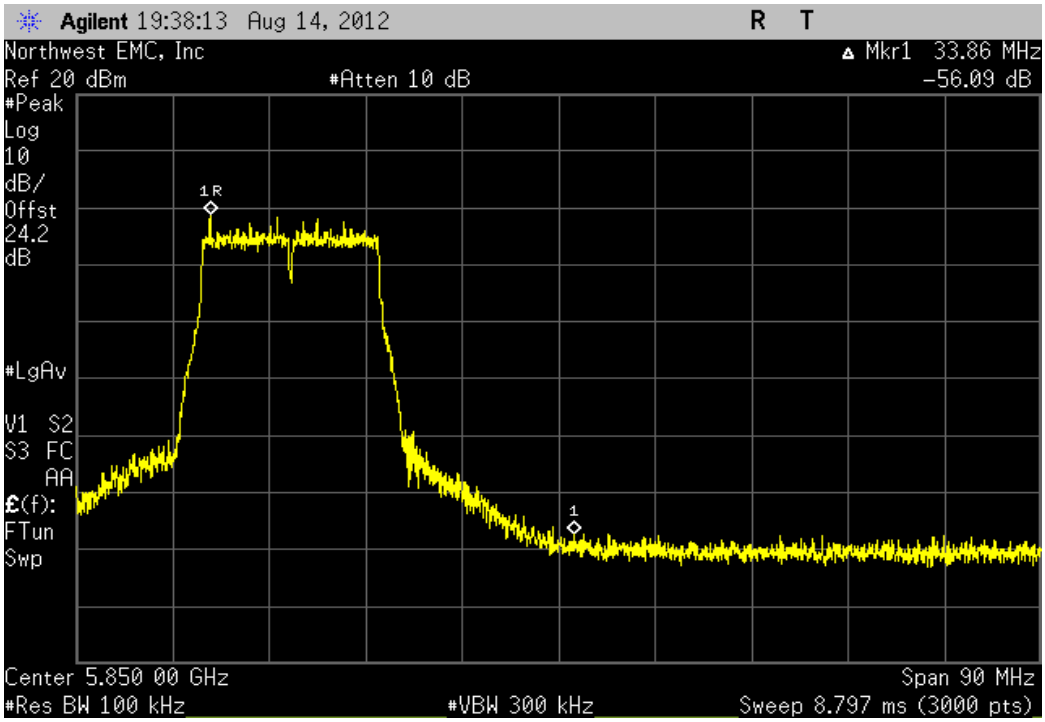
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B

				Value	Limit	Result
				-48.29 dBc	≤ -20 dBc	Pass



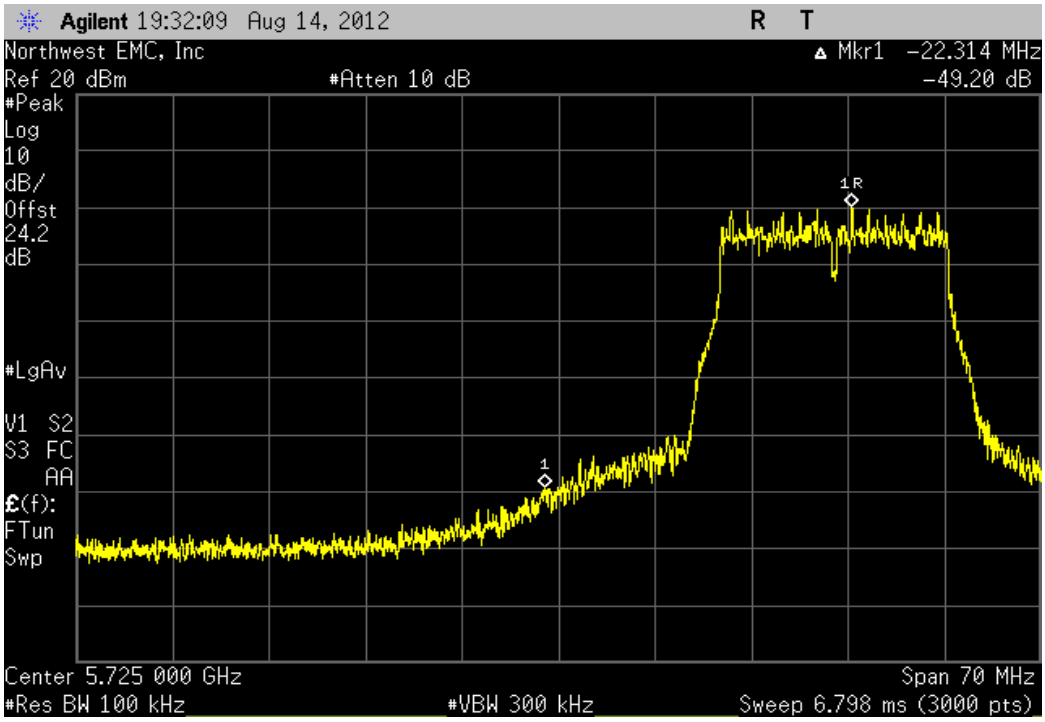
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B

				Value	Limit	Result
				-56.1 dBc	≤ -20 dBc	Pass



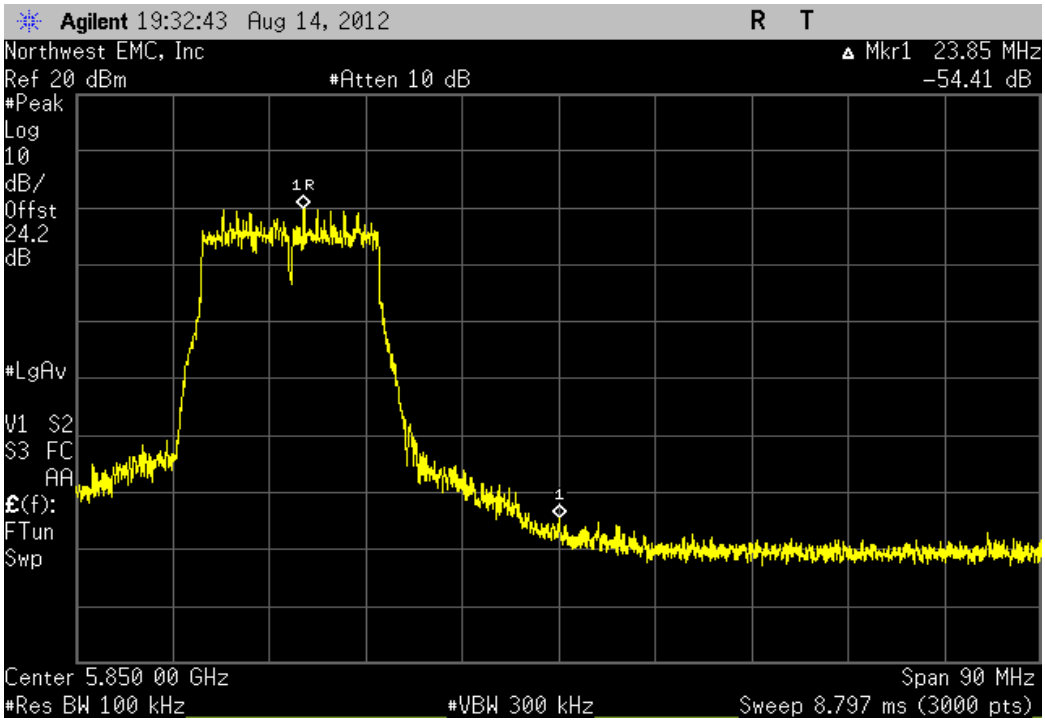
20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A

				Value	Limit	Result
				-49.2 dBc	≤ -20 dBc	Pass



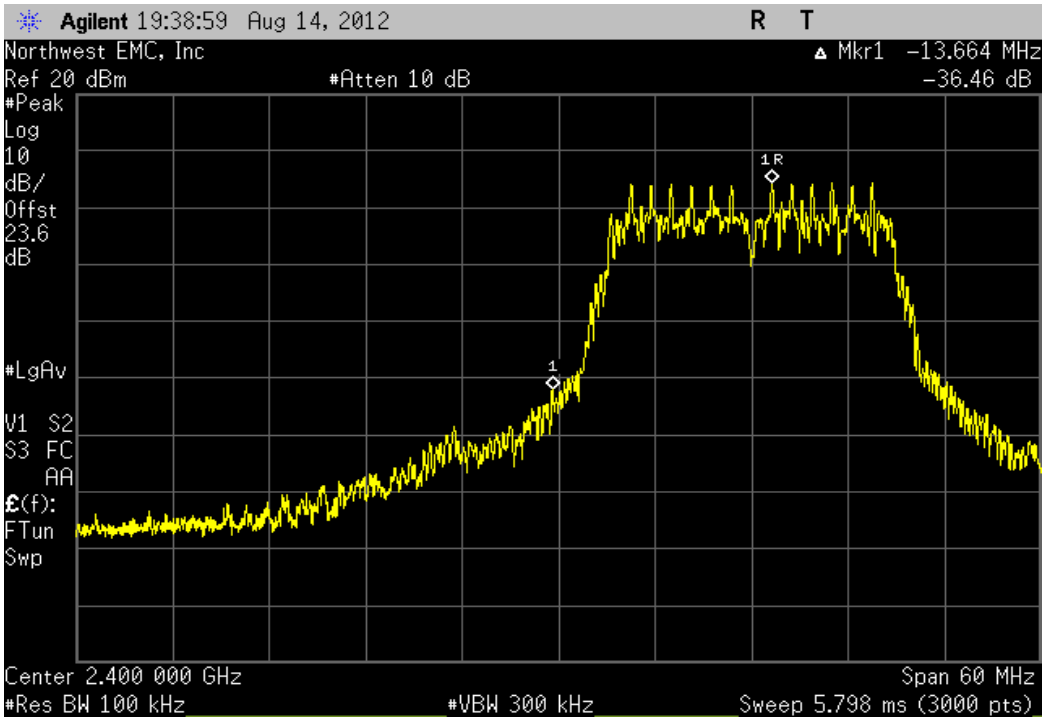
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A

				Value	Limit	Result
				-54.41 dBc	≤ -20 dBc	Pass



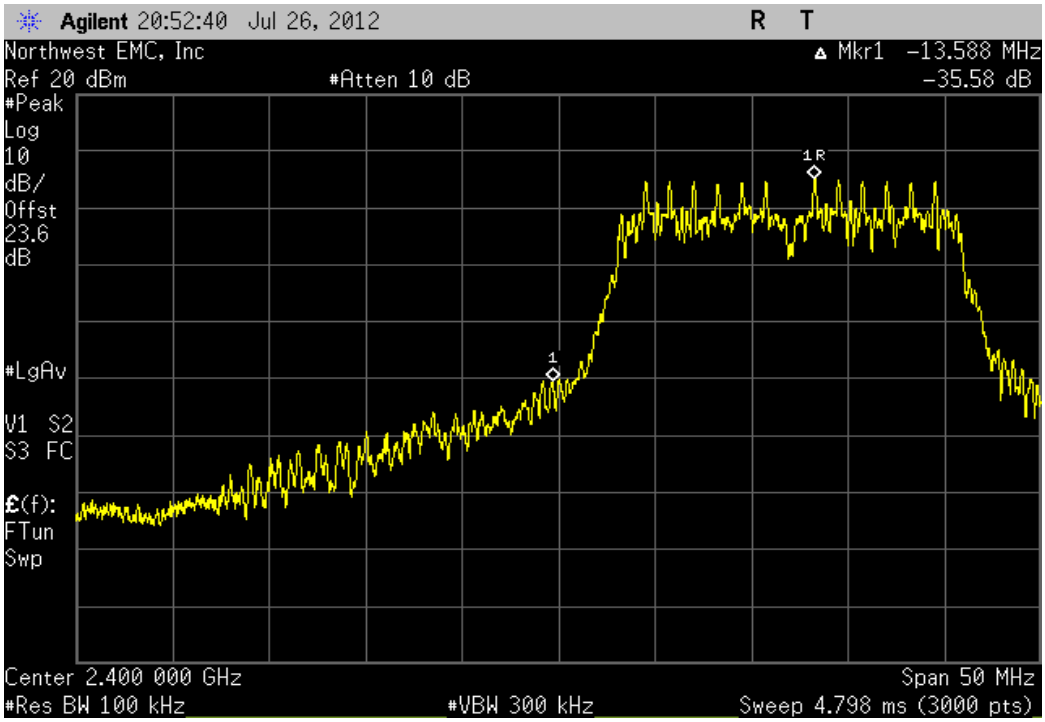
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				-36.46 dBc	≤ -20 dBc	Pass



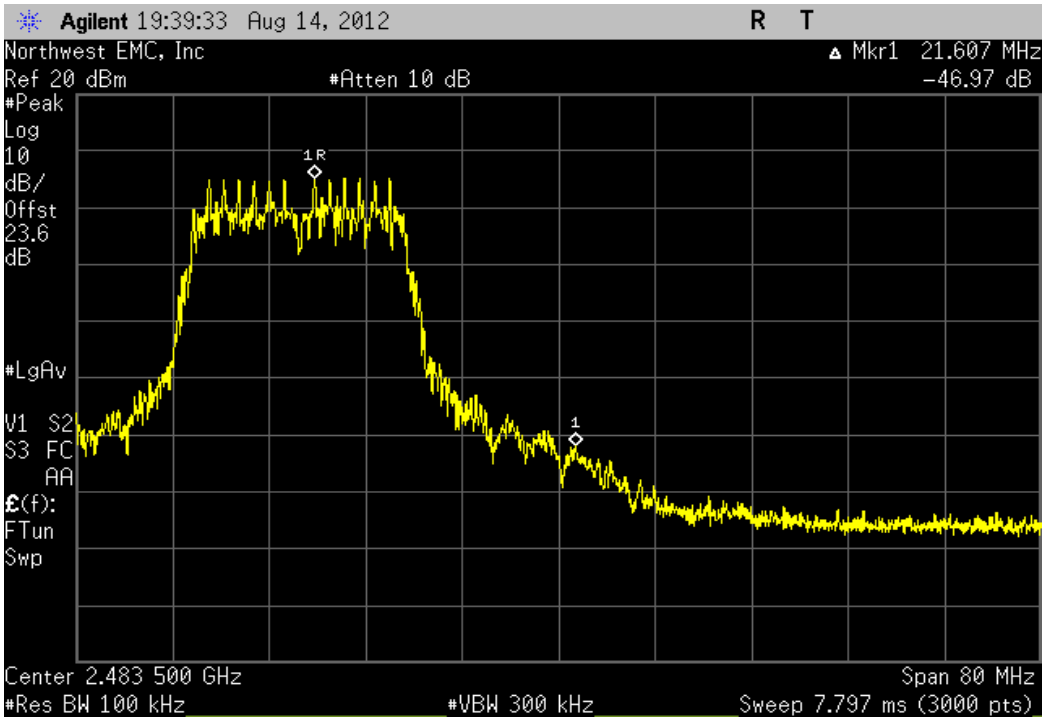
20MHz, 802.11(n) MCS7, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				-35.58 dBc	≤ -20 dBc	Pass



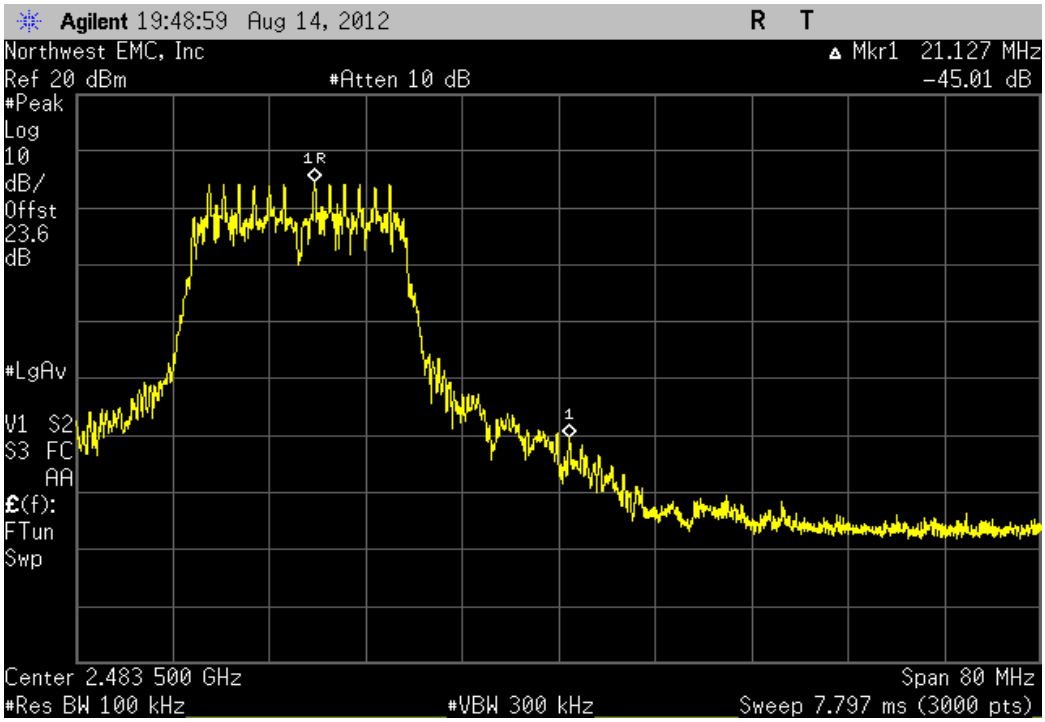
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna B

Value	Limit	Result
-46.97 dBc	≤ -20 dBc	Pass



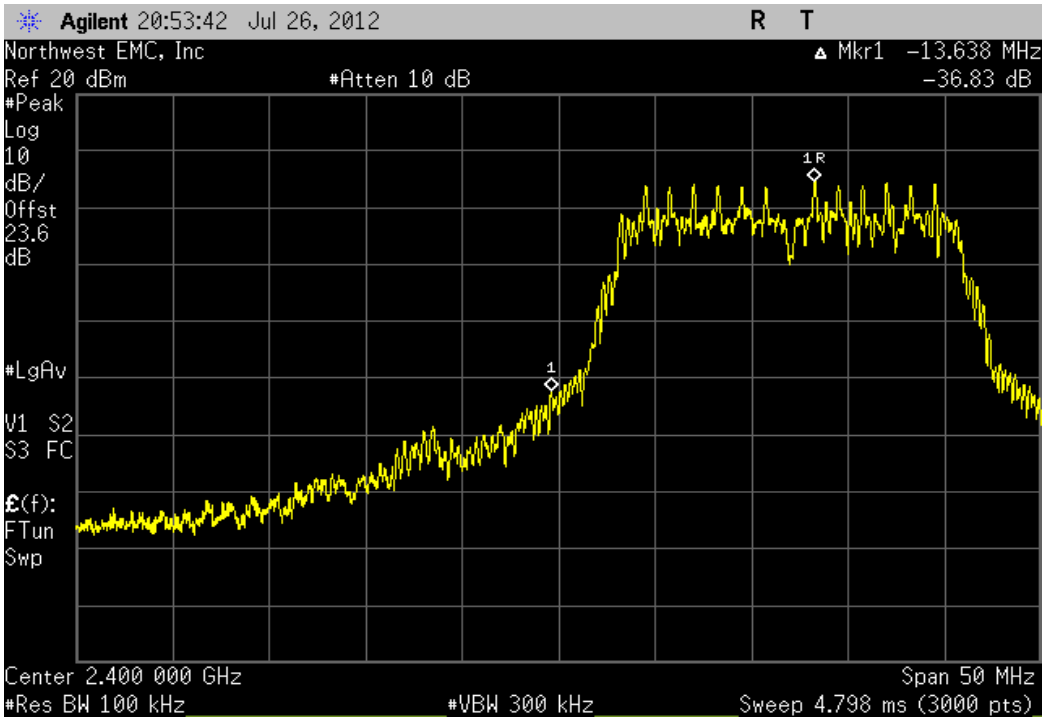
20MHz, 802.11(n) MCS7, High Channel 11, 2462 MHz, Antenna A

Value	Limit	Result
-45.01 dBc	≤ -20 dBc	Pass



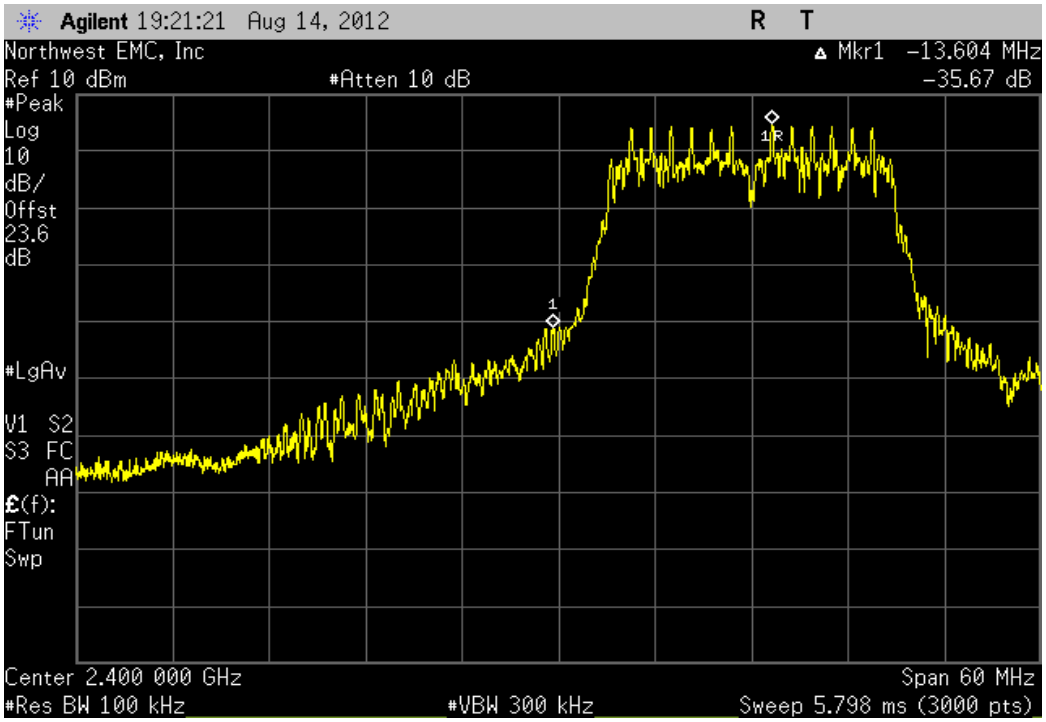
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B

				Value	Limit	Result
				-36.83 dBc	≤ -20 dBc	Pass



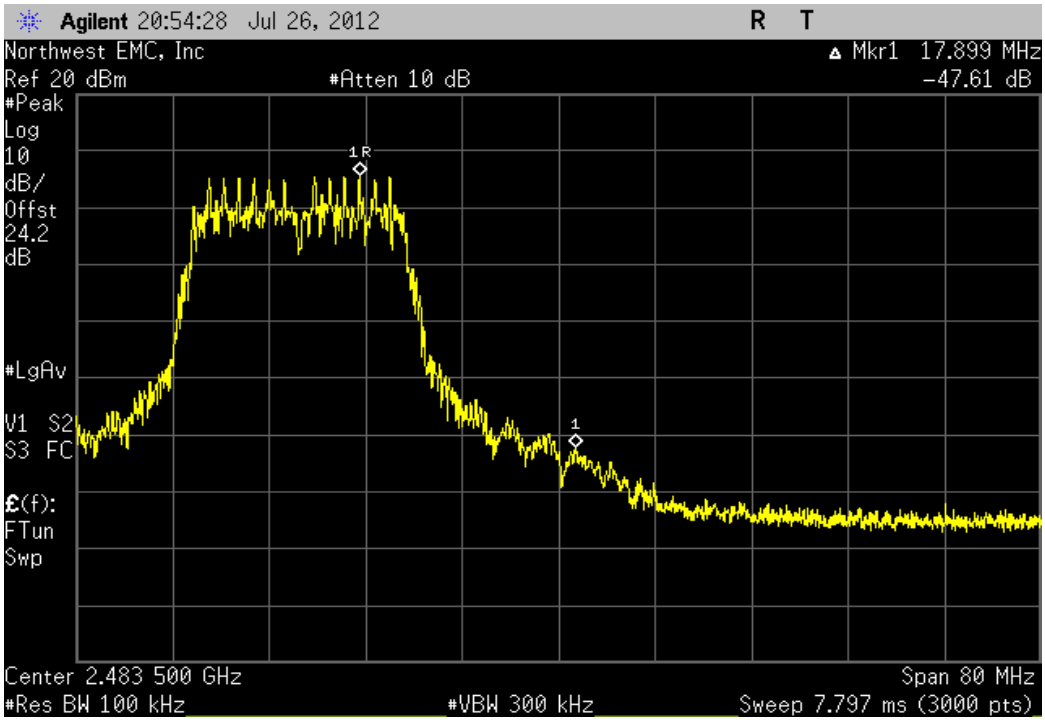
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A

				Value	Limit	Result
				-35.67 dBc	≤ -20 dBc	Pass



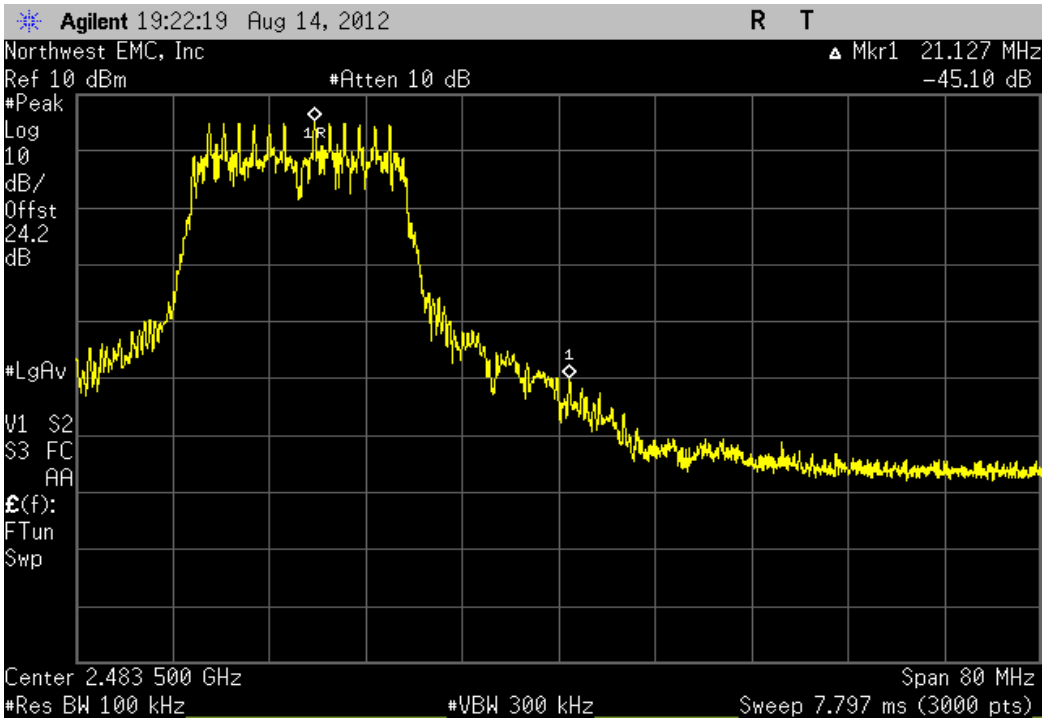
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B

				Value	Limit	Result
				-47.61 dBc	≤ -20 dBc	Pass



20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A

				Value	Limit	Result
				-45.1 dBc	≤ -20 dBc	Pass



Spurious Conducted Emissions

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	3/21/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4440	AFE	1/23/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

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

The power levels used while under test were 11dBm for 5GHz frequencies with a 40MHz bandwidth, 12dBm for 5GHz frequencies with a 20MHz bandwidth, 16dBm for 2.4GHz frequencies with a 20MHz bandwidth and 11dBm for 2.4GHz frequencies with a 40MHz bandwidth.

This testing was only done on the worst case output power modes / antenna ports as noted elsewhere in this report.

The guidance for testing multiple outputs as defined in KDB662911 D01 v01r01 item (2) was followed: Measure and add 10 log (N) dB, where N is the numer of outputs.

Spurious Conducted Emissions

EUT:	1516	**Work Order:**	MCSO1601
Serial Number:	000309122652	**Date:**	08/01/12
Customer:	Microsoft Corporation	**Temperature:**	24°C
Attendees:	none	**Humidity:**	48%
Project:	None	**Barometric Pres.:**	1016
Tested by:	Brandon Hobbs	**Power:** 12VDC	**Job Site:** EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

EUT was set to 100% duty cycle for all the points listed.

DEVIATIONS FROM TEST STANDARD

None

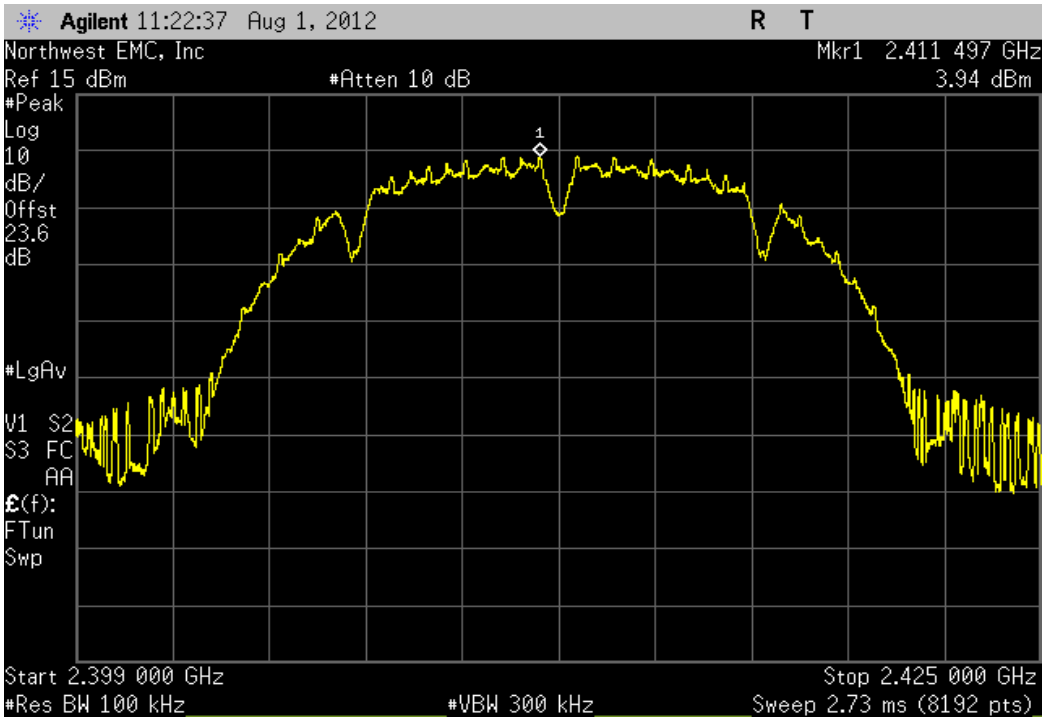
Configuration #	2	Signature

		Frequency Range	Value	Limit	Result
20MHz					
	802.11(b) 1 Mbps				
	Low Channel 1, 2412 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-58.41 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-54.99 dBc	≤ -20 dBc	Pass
	Mid Channel 6, 2437 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-59.63 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-57.07 dBc	≤ -20 dBc	Pass
	High Channel 11, 2462 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-60.1 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-56.62 dBc	≤ -20 dBc	Pass
	802.11(b) 11 Mbps				
	Low Channel 1, 2412 MHz				
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-61.37 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-58.77 dBc	≤ -20 dBc	Pass
	Mid Channel 6, 2437 MHz				
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-61.48 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-57.88 dBc	≤ -20 dBc	Pass
	High Channel 11, 2462 MHz				
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-61.52 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-58.28 dBc	≤ -20 dBc	Pass
	802.11(g) 6 Mbps				
	Low Channel 1, 2412 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-51.42 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-50.75 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-47.25 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-50.42 dBc	≤ -20 dBc	Pass
	Mid Channel 6, 2437 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-54.08 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-51.35 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-54.03 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-50.89 dBc	≤ -20 dBc	Pass
	High Channel 11, 2462 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-52.74 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-51.48 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-56.87 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-53.07 dBc	≤ -20 dBc	Pass
	802.11(a) 6 Mbps				
	Low Channel 149, 5745 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-45.79 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-43.92 dBc	≤ -20 dBc	Pass
	Antenna B	25 GHz - 32 GHz	-42.55 dBc	≤ -20 dBc	Pass
	Antenna B	32 GHz - 40 GHz	-32.76 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-29.59 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-44.11 dBc	≤ -20 dBc	Pass
	Antenna B	25 GHz - 32 GHz	-42.73 dBc	≤ -20 dBc	Pass
	Antenna B	32 GHz - 40 GHz	-33.81 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825 MHz				
	Antenna B	Fundamental	N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz	-29.76 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz	-42.97 dBc	≤ -20 dBc	Pass
	Antenna B	25 GHz - 32 GHz	-42.12 dBc	≤ -20 dBc	Pass
	Antenna B	32 GHz - 40 GHz	-33.04 dBc	≤ -20 dBc	Pass
	802.11(a) 36 Mbps				
	Low Channel 149, 5745 MHz				
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-49.2 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-44.02 dBc	≤ -20 dBc	Pass
	Antenna A	25 GHz - 32 GHz	-42.82 dBc	≤ -20 dBc	Pass
	Antenna A	32 GHz - 40 GHz	-33.63 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785 MHz				
	Antenna A	Fundamental	N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz	-44.45 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz	-43.3 dBc	≤ -20 dBc	Pass

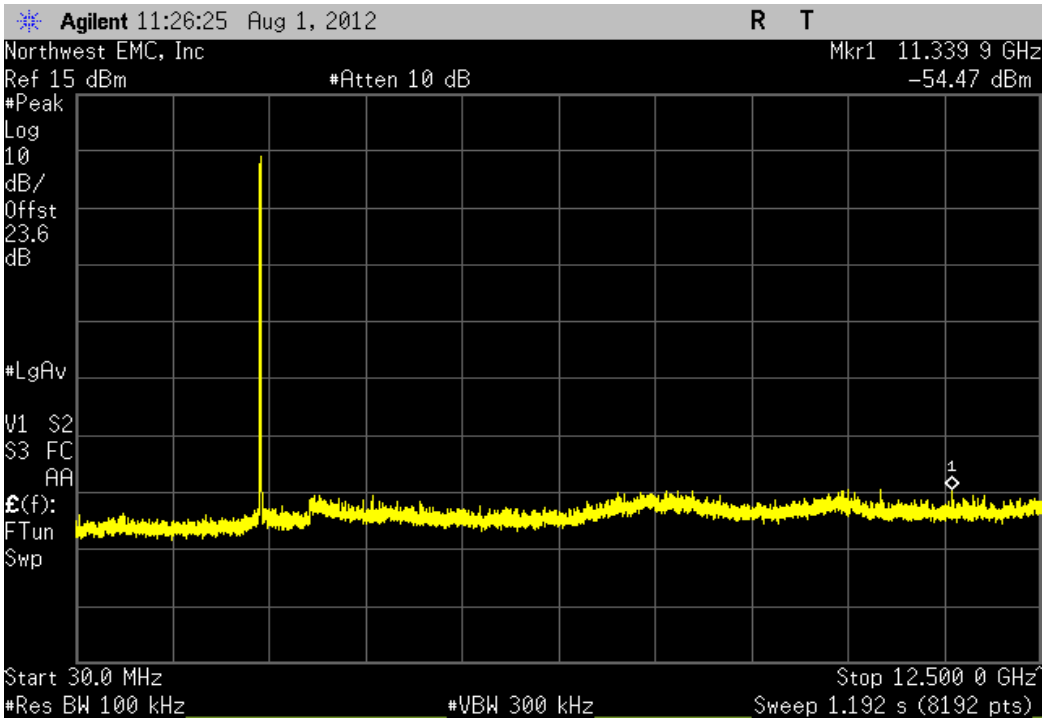
	Antenna A	25 GHz - 32 GHz		-42.7 dBc	≤ -20 dBc	Pass
	Antenna A	32 GHz - 40 GHz		-33.25 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825 MHz					
	Antenna A	Fundamental		N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz		-51.32 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz		-44.94 dBc	≤ -20 dBc	Pass
	Antenna A	25 GHz - 32 GHz		-43.31 dBc	≤ -20 dBc	Pass
	Antenna A	32 GHz - 40 GHz		-34.73 dBc	≤ -20 dBc	Pass
802.11(n) MCS15						
	Low Channel 1, 2412 MHz					
	Antenna B	Fundamental		N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz		-51.05 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz		-55.99 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental		N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz		-55.05 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz		-49.44 dBc	≤ -20 dBc	Pass
	Mid Channel 6, 2437 MHz					
	Antenna B	Fundamental		N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz		-57.54 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz		-51.08 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental		N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz		-57.85 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz		-51.28 dBc	≤ -20 dBc	Pass
	High Channel 11, 2462 MHz					
	Antenna B	Fundamental		N/A	N/A	N/A
	Antenna B	30 MHz - 12.5 GHz		-52.11 dBc	≤ -20 dBc	Pass
	Antenna B	12.5 GHz - 25 GHz		-50.23 dBc	≤ -20 dBc	Pass
	Antenna A	Fundamental		N/A	N/A	N/A
	Antenna A	30 MHz - 12.5 GHz		-57.77 dBc	≤ -20 dBc	Pass
	Antenna A	12.5 GHz - 25 GHz		-54.71 dBc	≤ -20 dBc	Pass

Power Summing 802.11(n) MCS15		Measured Value (dBc)	Sum Factor (dB)	Summed Value (dBc)	Limit	Result
Low Channel 1, 2412 MHz						
Antenna B	30 MHz - 12.5 GHz	-51.0	3	-48.0	≤ -20 dBc	Pass
Antenna B	12.5 GHz - 25 GHz	-55.9	3	-52.9	≤ -20 dBc	Pass
Antenna A	30 MHz - 12.5 GHz	-55.0	3	-52.0	≤ -20 dBc	Pass
Antenna A	12.5 GHz - 25 GHz	-49.4	3	-46.4	≤ -20 dBc	Pass
Mid Channel 6, 2437 MHz						
Antenna B	30 MHz - 12.5 GHz	-57.5	3	-54.5	≤ -20 dBc	Pass
Antenna B	12.5 GHz - 25 GHz	-51.0	3	-48.0	≤ -20 dBc	Pass
Antenna A	30 MHz - 12.5 GHz	-57.8	3	-54.8	≤ -20 dBc	Pass
Antenna A	12.5 GHz - 25 GHz	-51.2	3	-48.2	≤ -20 dBc	Pass
High Channel 11, 2462 MHz						
Antenna B	30 MHz - 12.5 GHz	-52.1	3	-49.1	≤ -20 dBc	Pass
Antenna B	12.5 GHz - 25 GHz	-50.2	3	-47.2	≤ -20 dBc	Pass
Antenna A	30 MHz - 12.5 GHz	-57.7	3	-54.7	≤ -20 dBc	Pass
Antenna A	12.5 GHz - 25 GHz	-54.7	3	-51.7	≤ -20 dBc	Pass

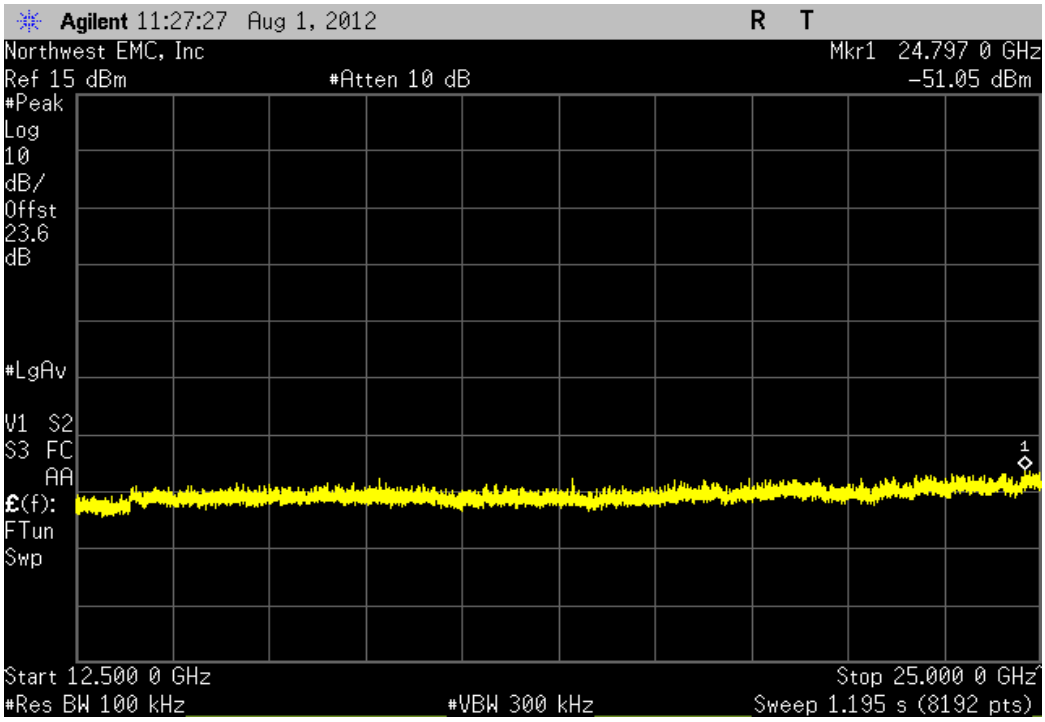
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



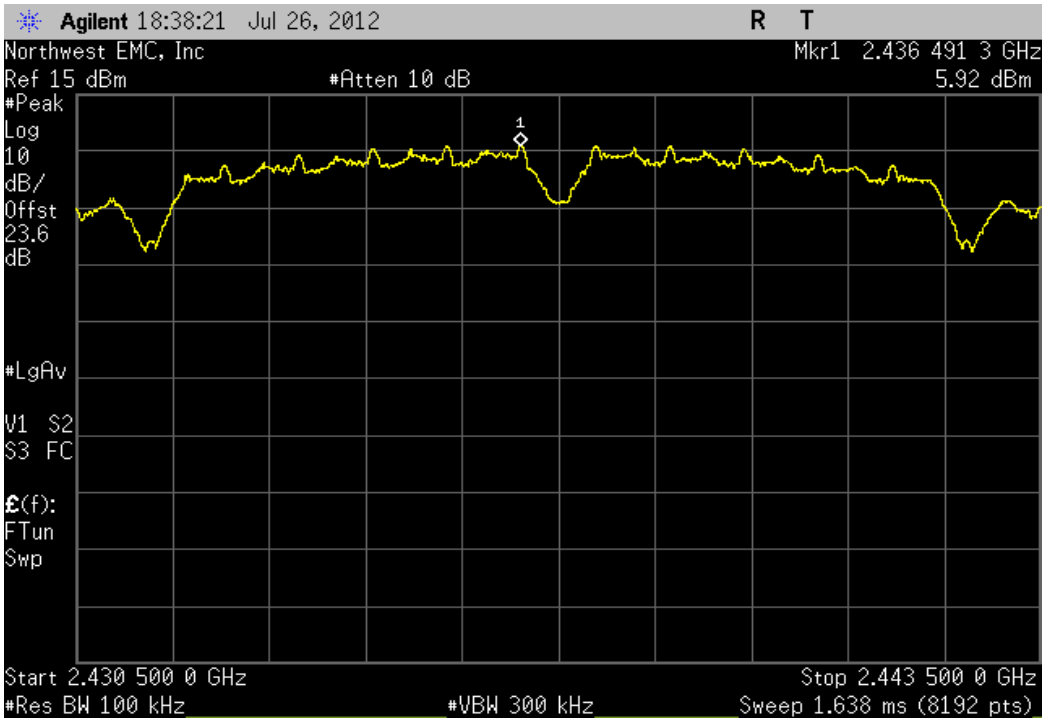
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-58.41 dBc	≤ -20 dBc	Pass



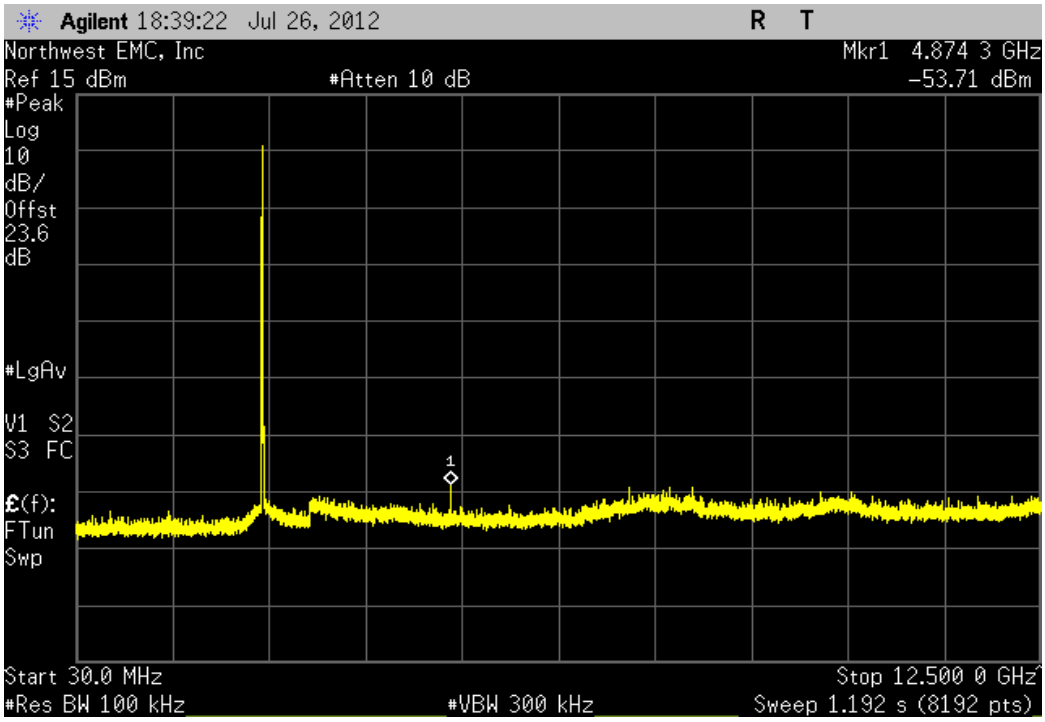
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-54.99 dBc	≤ -20 dBc	Pass



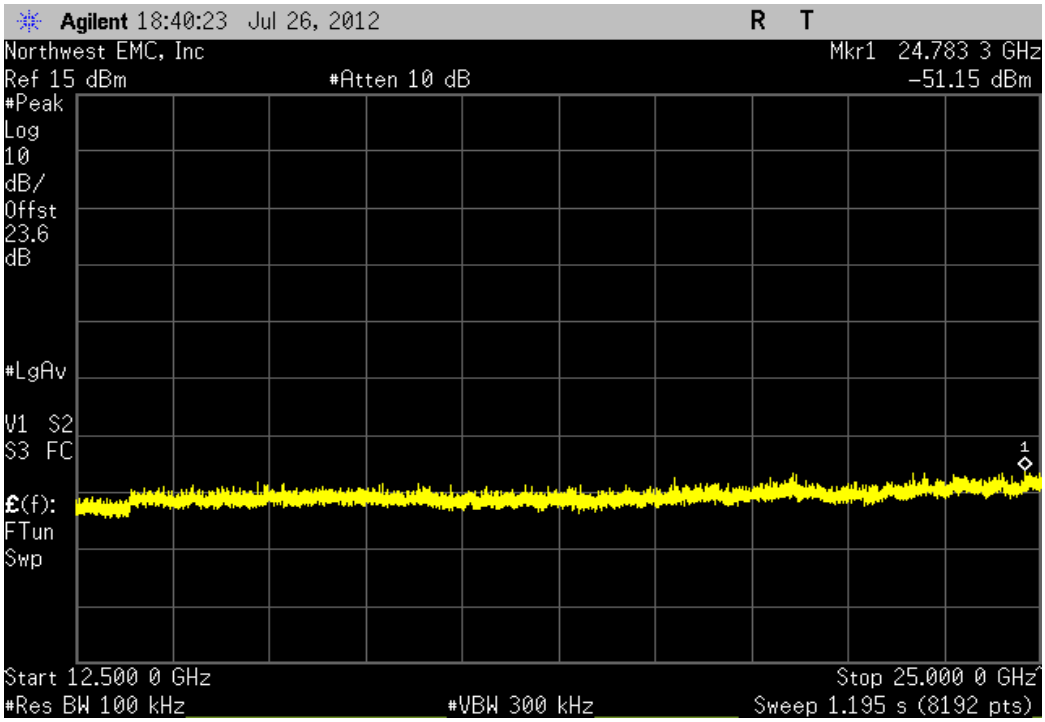
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



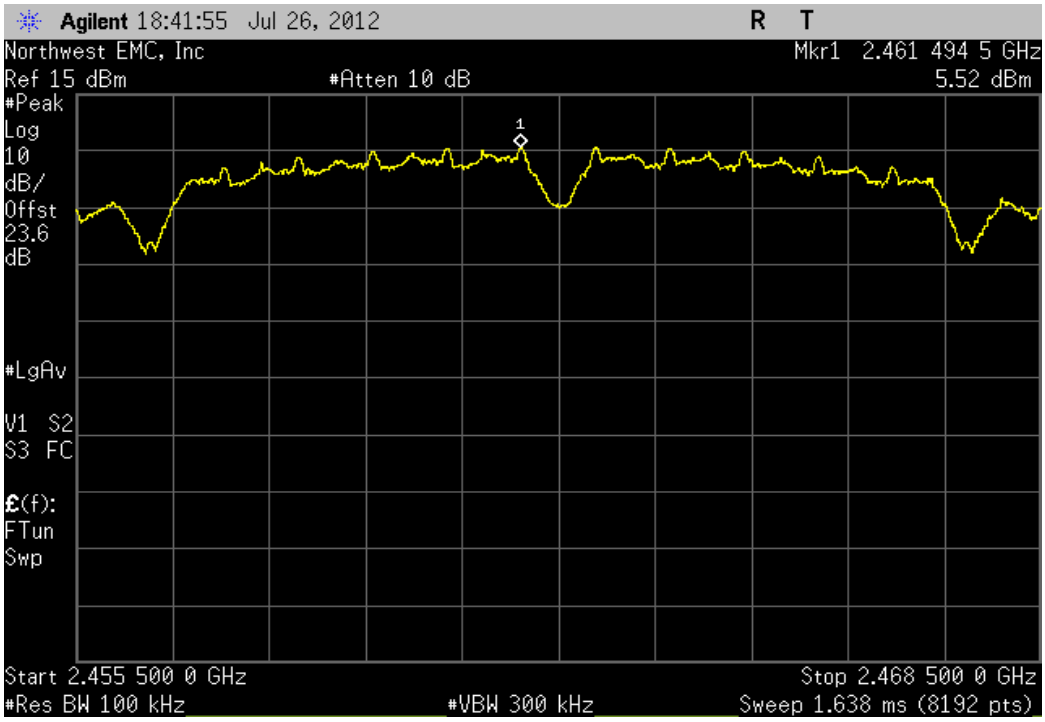
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-59.63 dBc	≤ -20 dBc	Pass



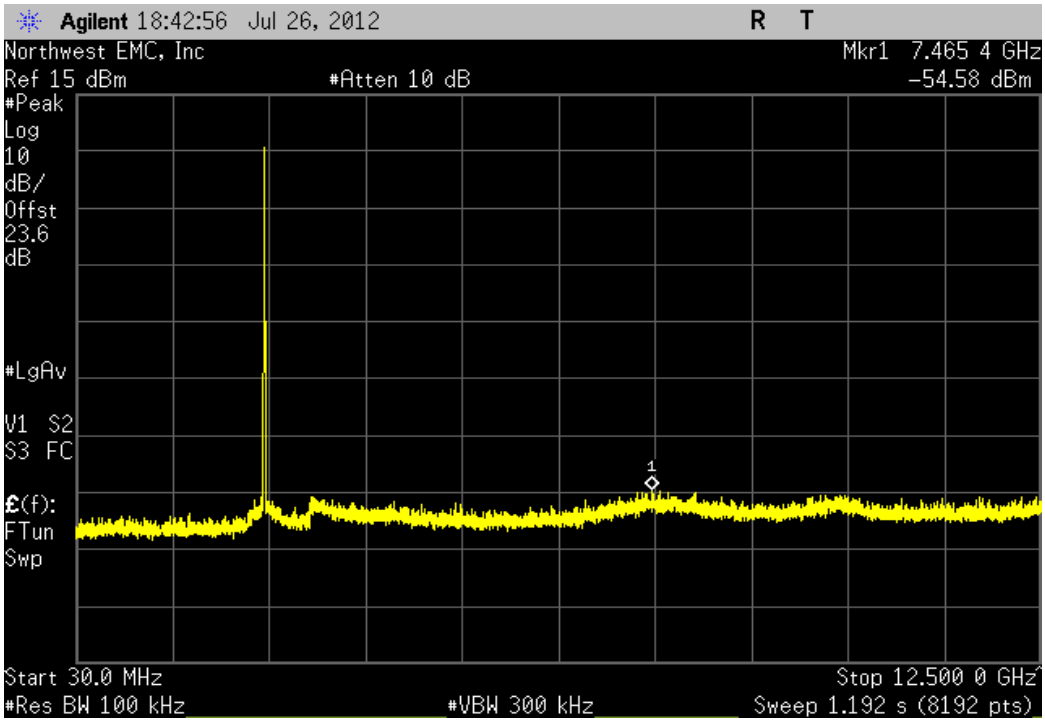
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.07 dBc	≤ -20 dBc	Pass



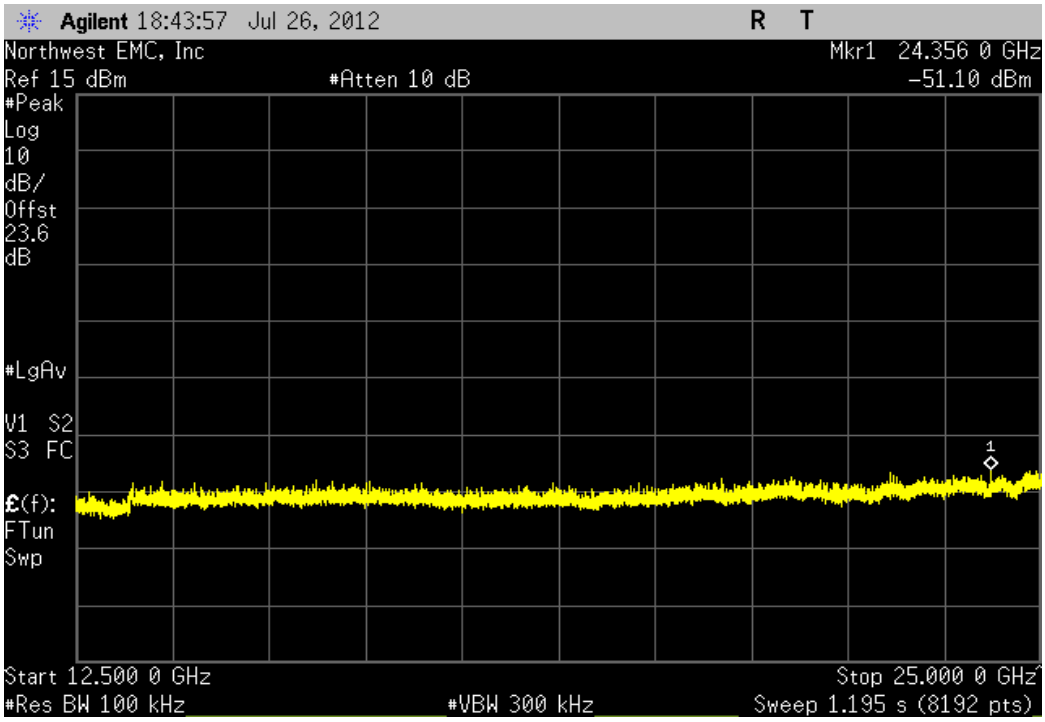
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



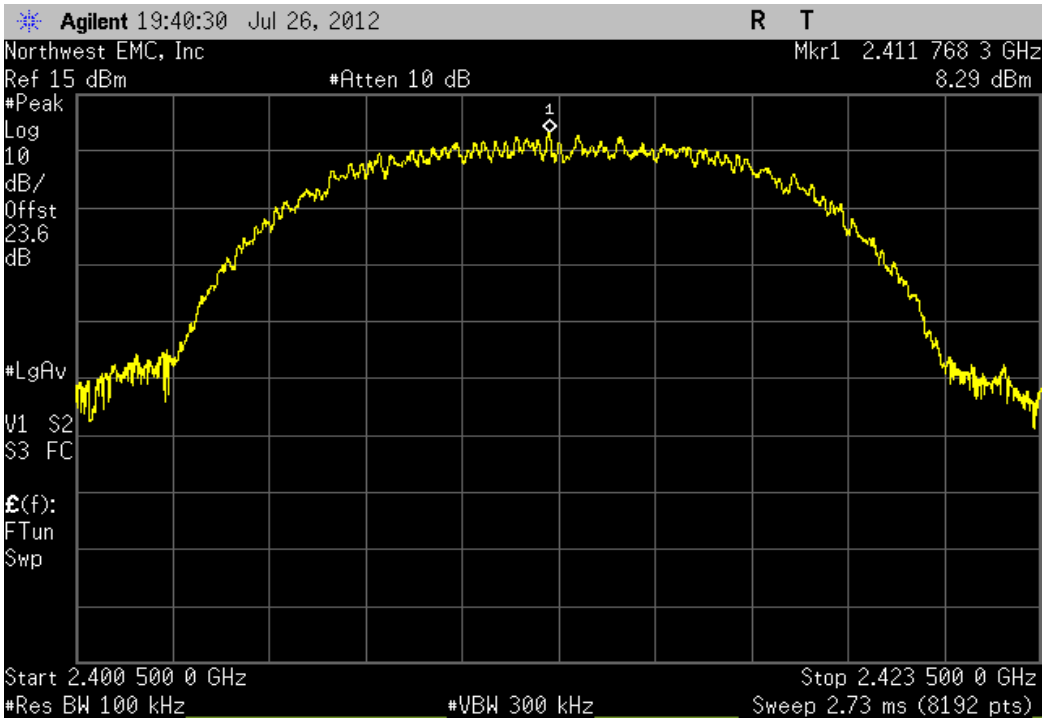
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-60.1 dBc	≤ -20 dBc	Pass



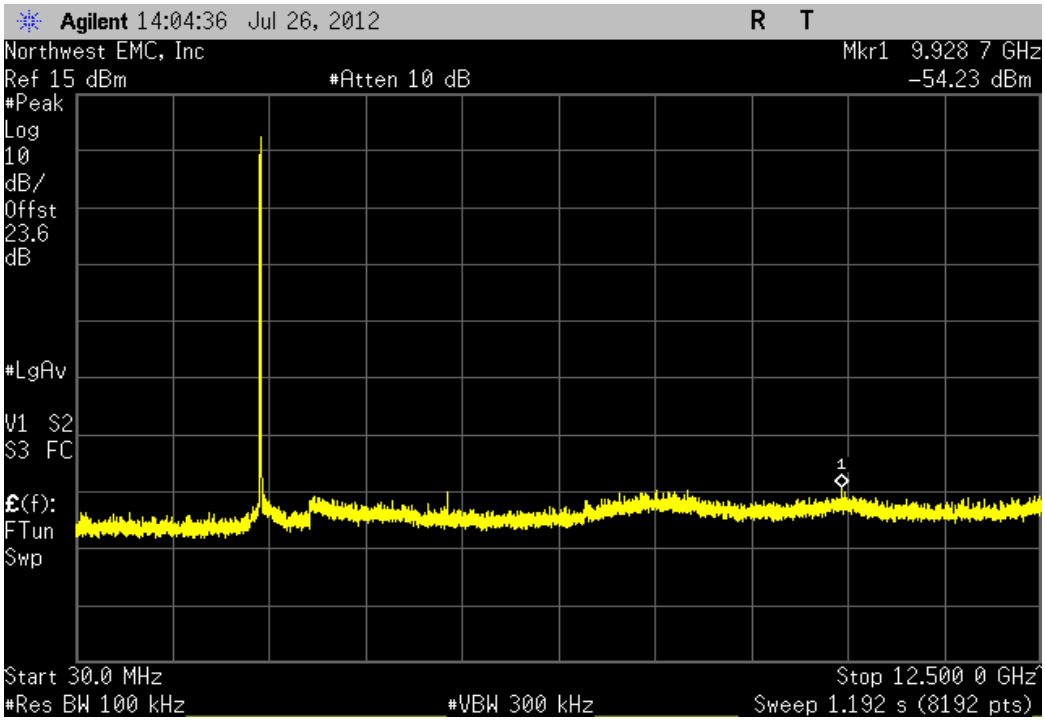
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-56.62 dBc	≤ -20 dBc	Pass



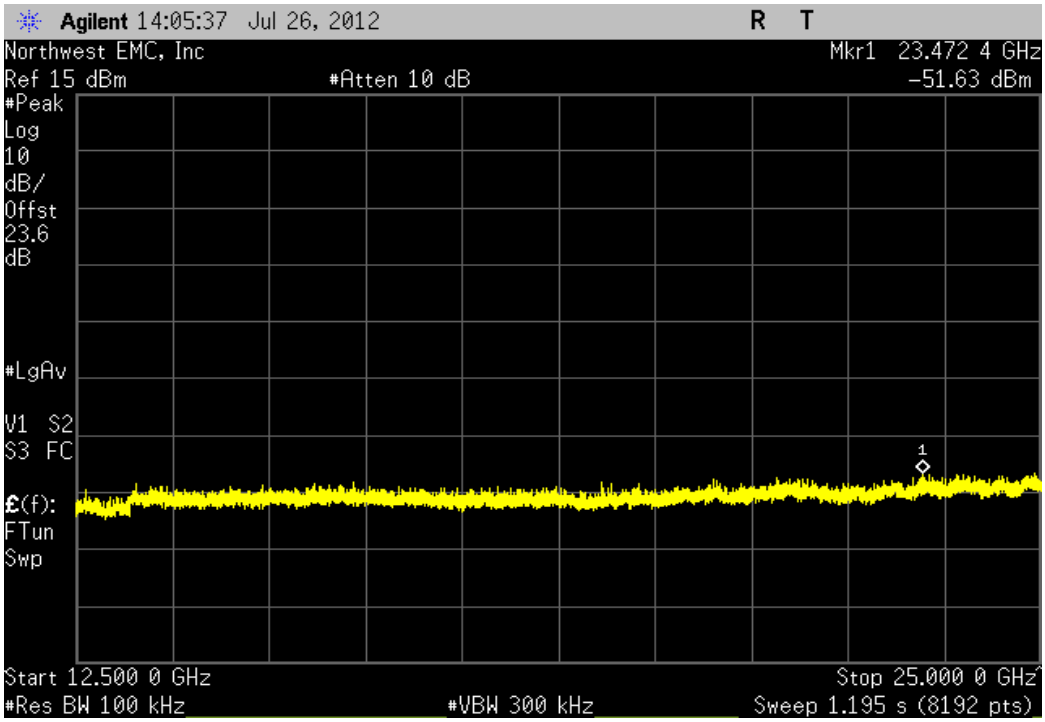
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



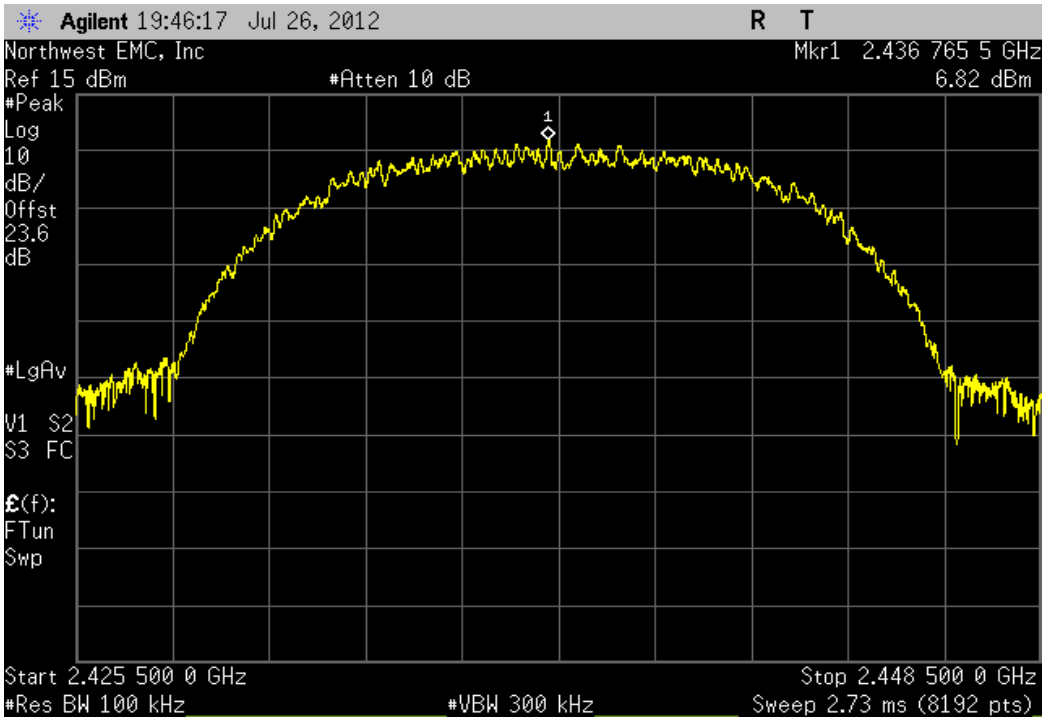
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-61.37 dBc	≤ -20 dBc	Pass



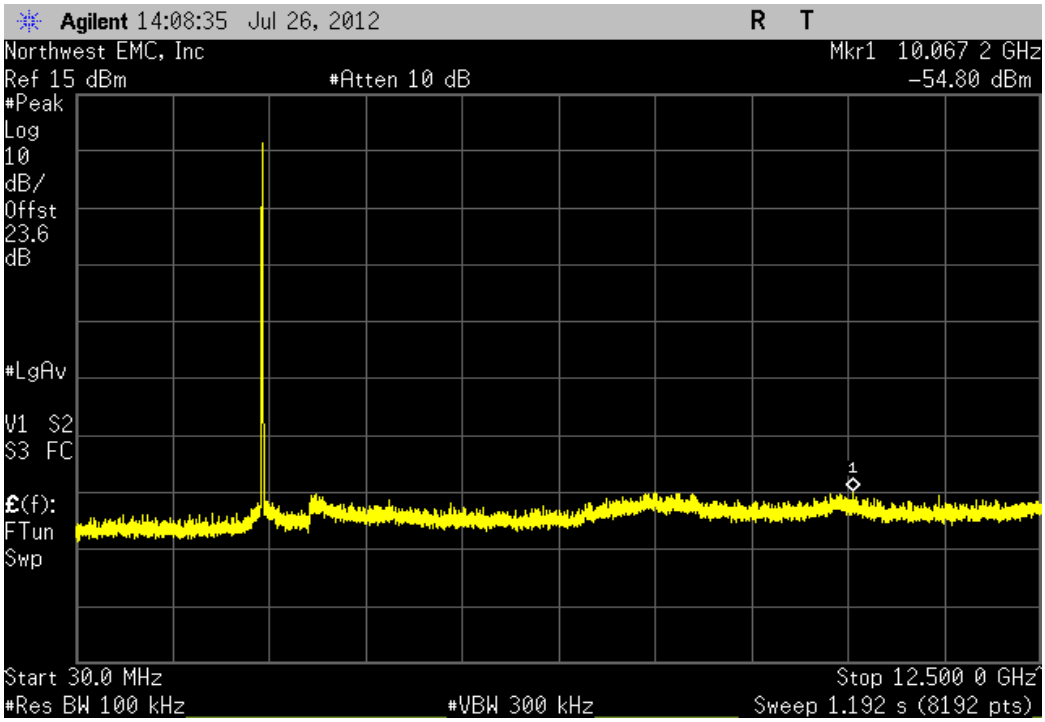
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.77 dBc	≤ -20 dBc	Pass



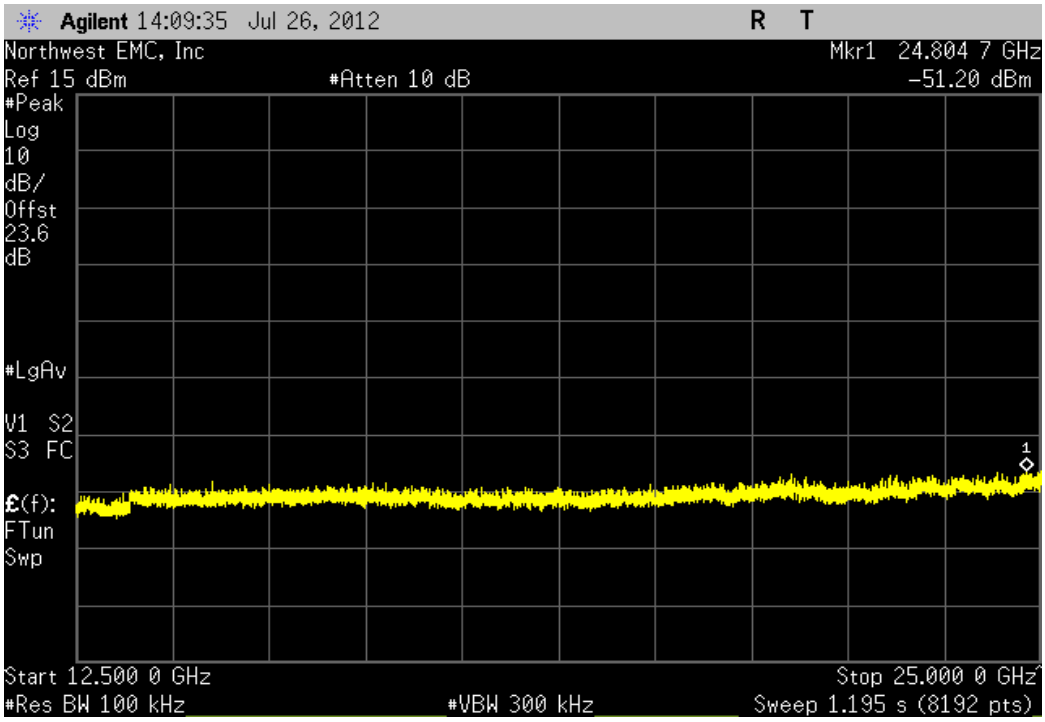
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



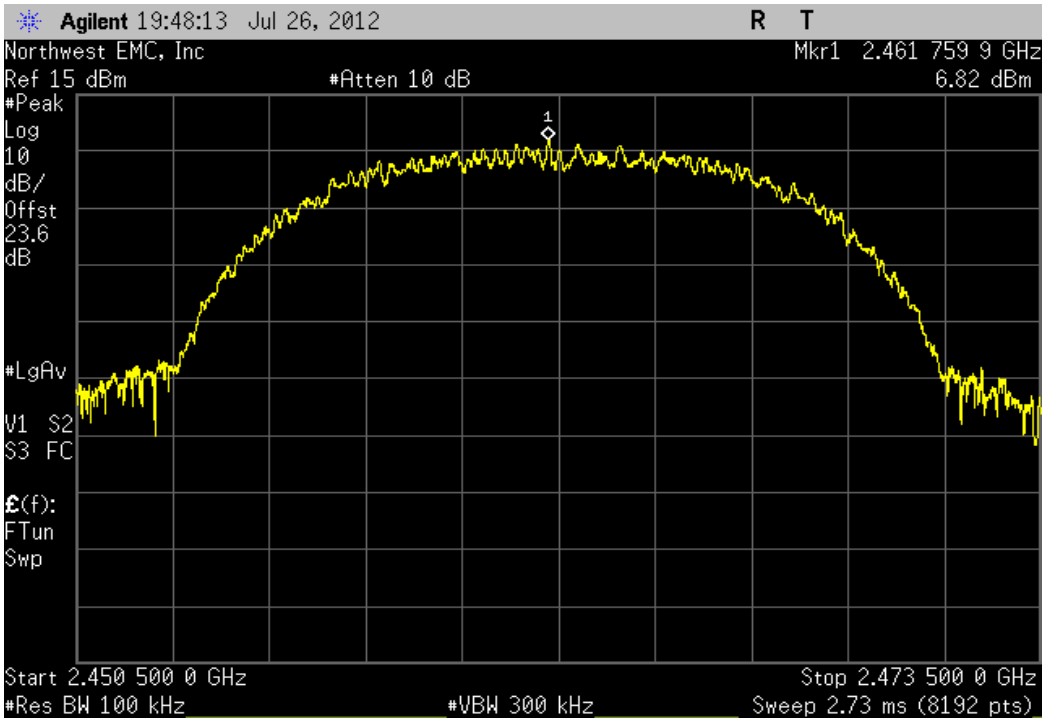
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A					
	Frequency Range		Value	Limit	Result
	30 MHz - 12.5 GHz		-61.48 dBc	≤ -20 dBc	Pass



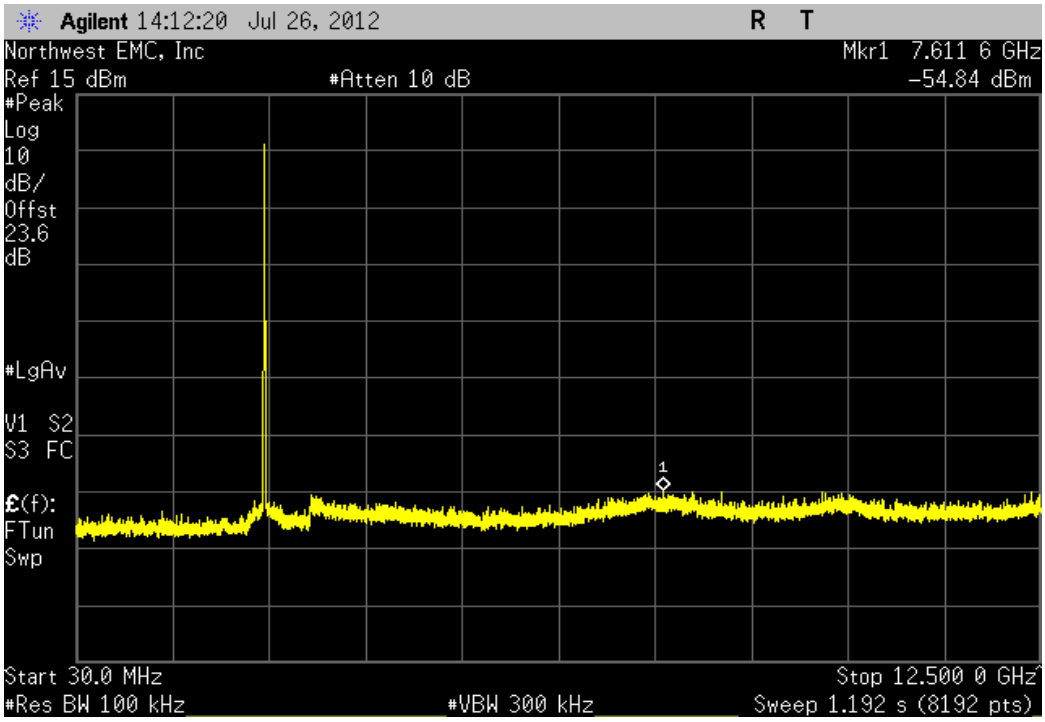
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-57.88 dBc	≤ -20 dBc	Pass



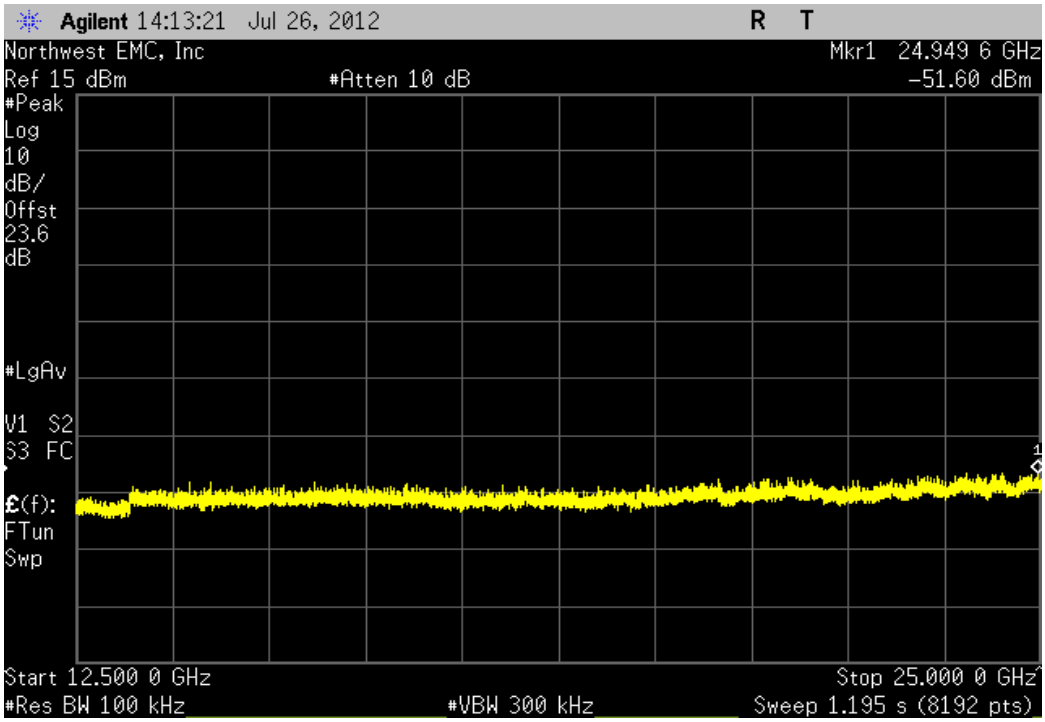
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



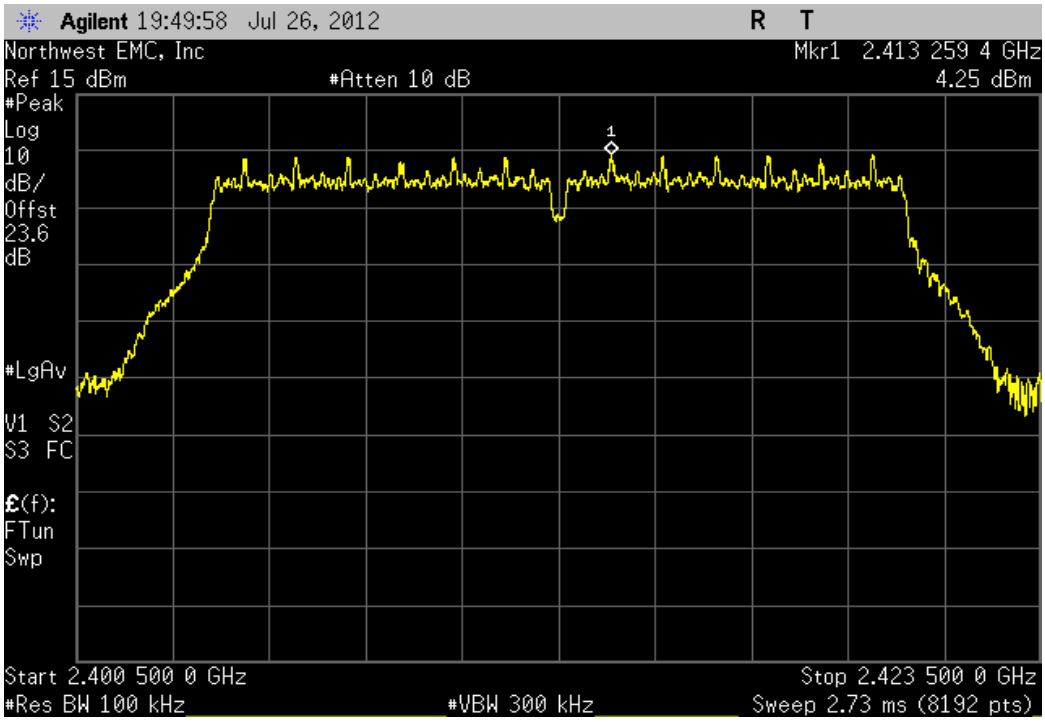
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-61.52 dBc	≤ -20 dBc	Pass



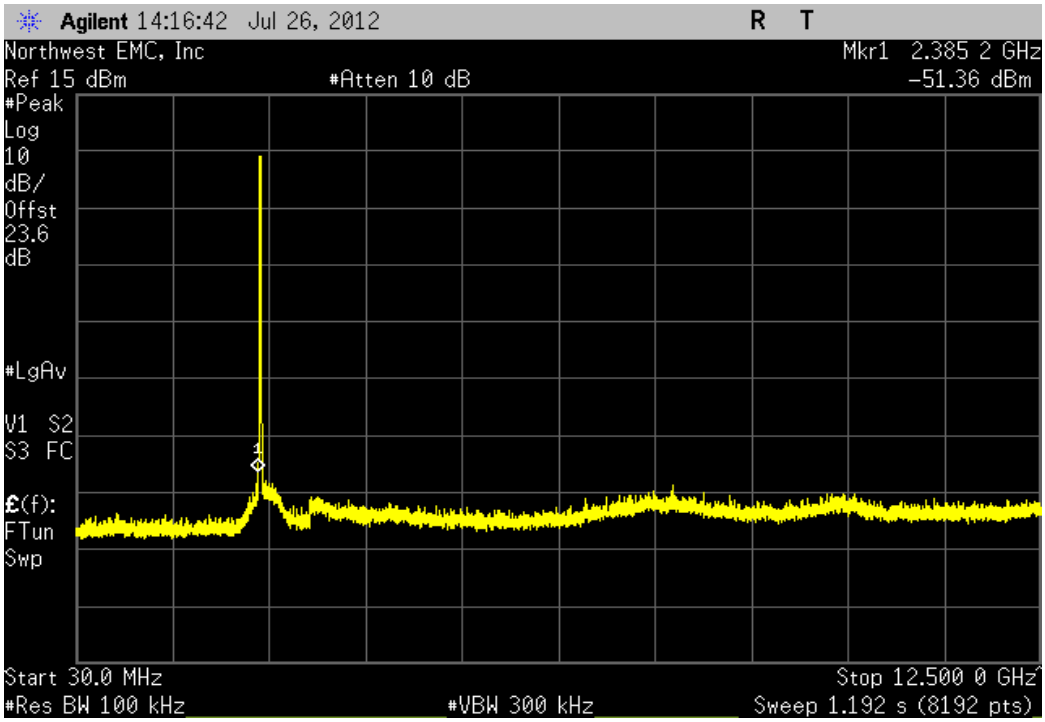
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-58.28 dBc	≤ -20 dBc	Pass



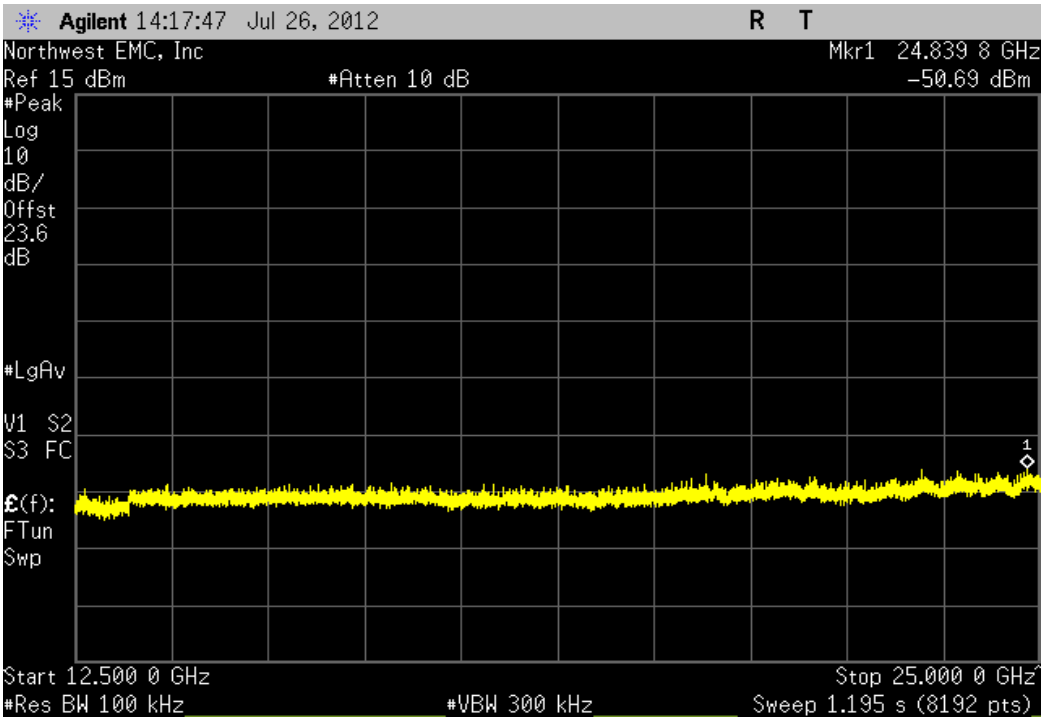
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



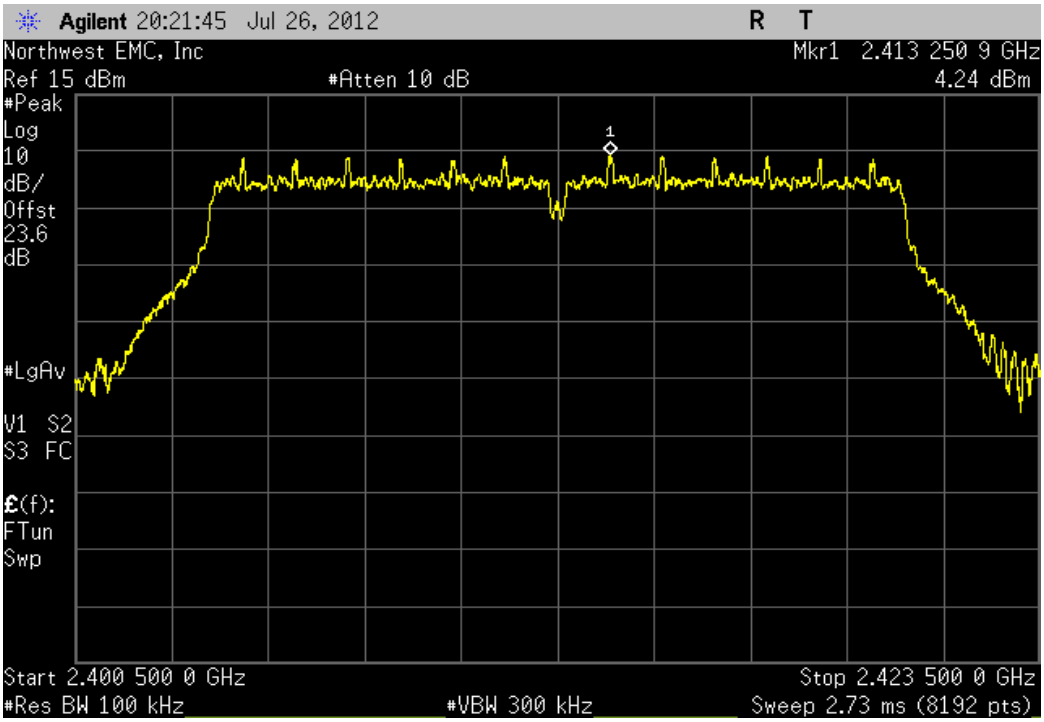
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-51.42 dBc	≤ -20 dBc	Pass



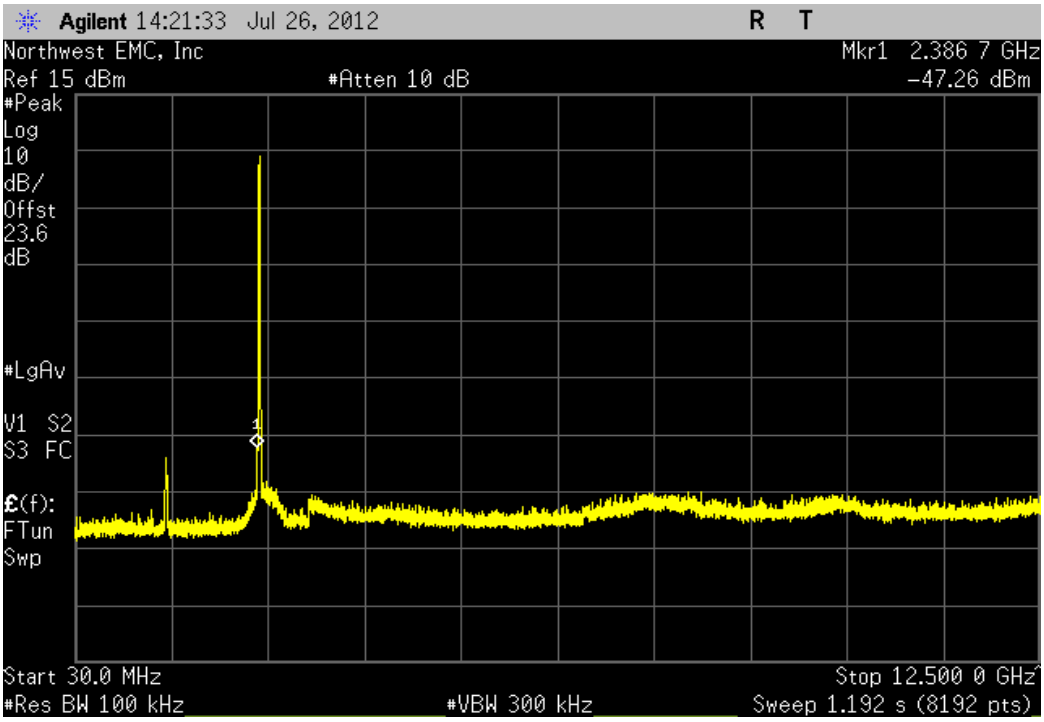
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-50.75 dBc	≤ -20 dBc	Pass



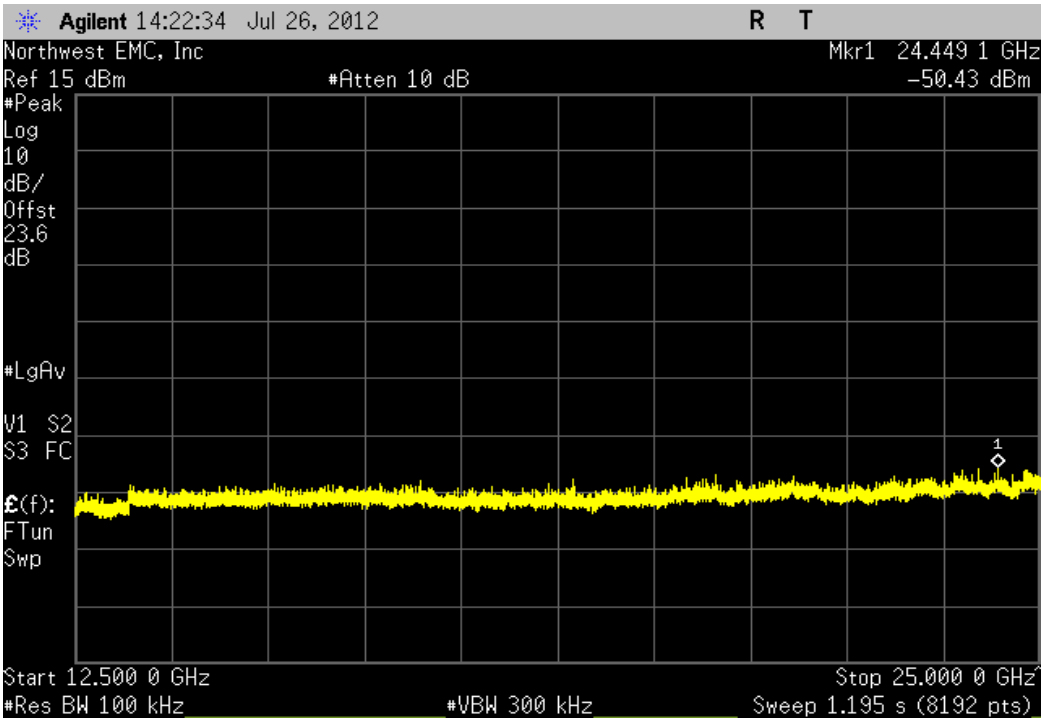
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



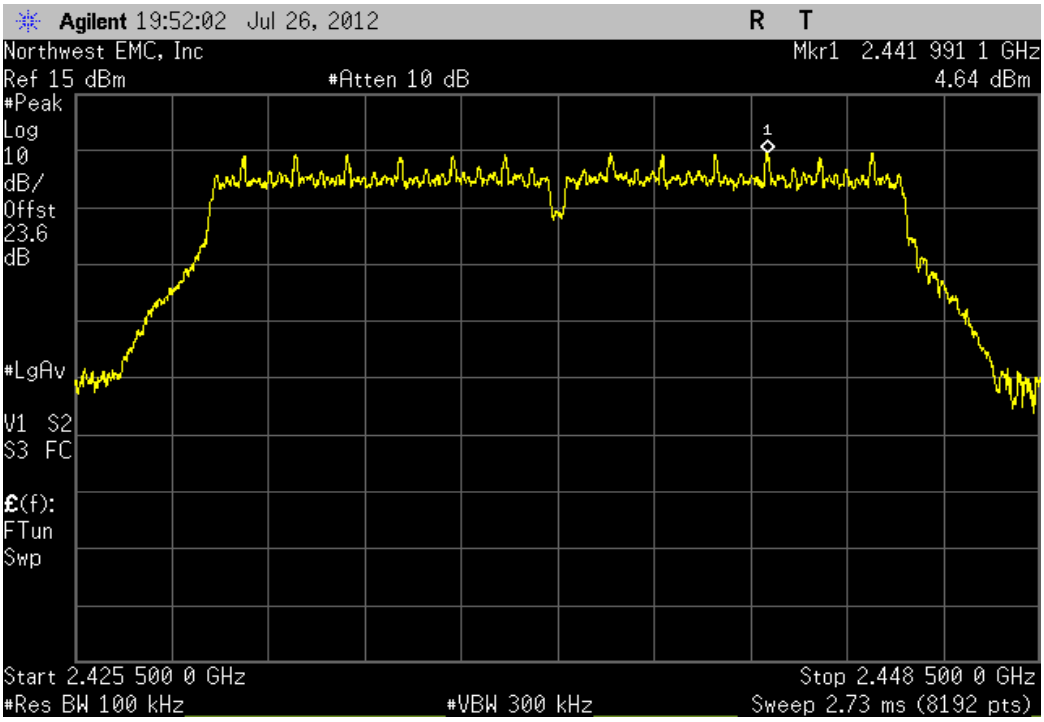
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-47.25 dBc	≤ -20 dBc	Pass



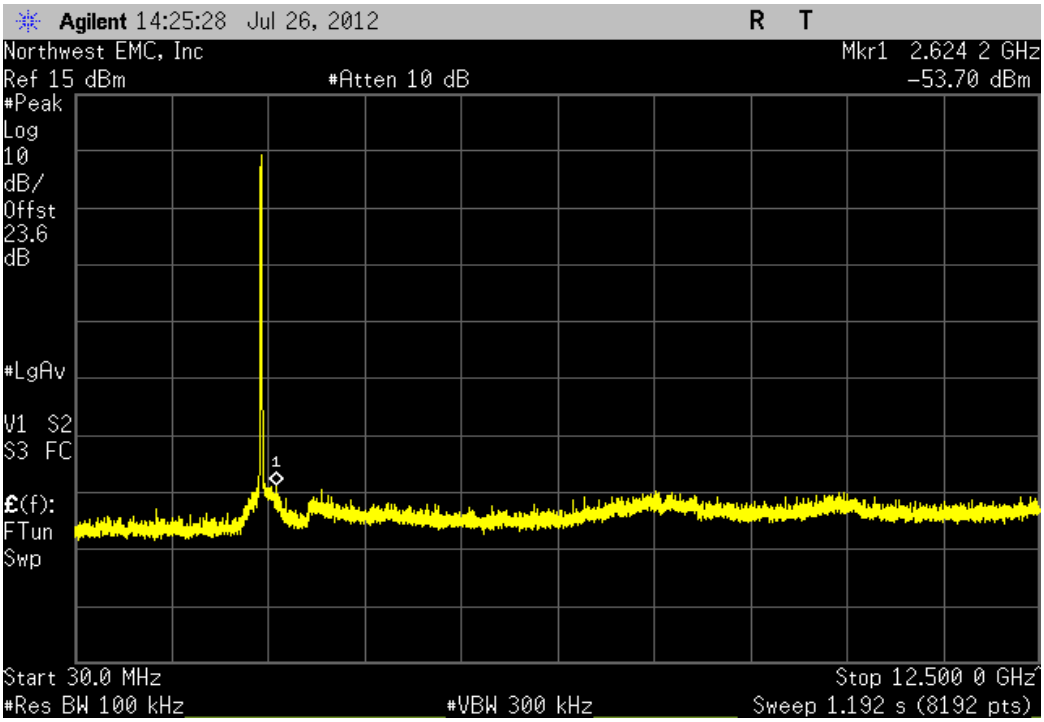
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-50.42 dBc	≤ -20 dBc	Pass



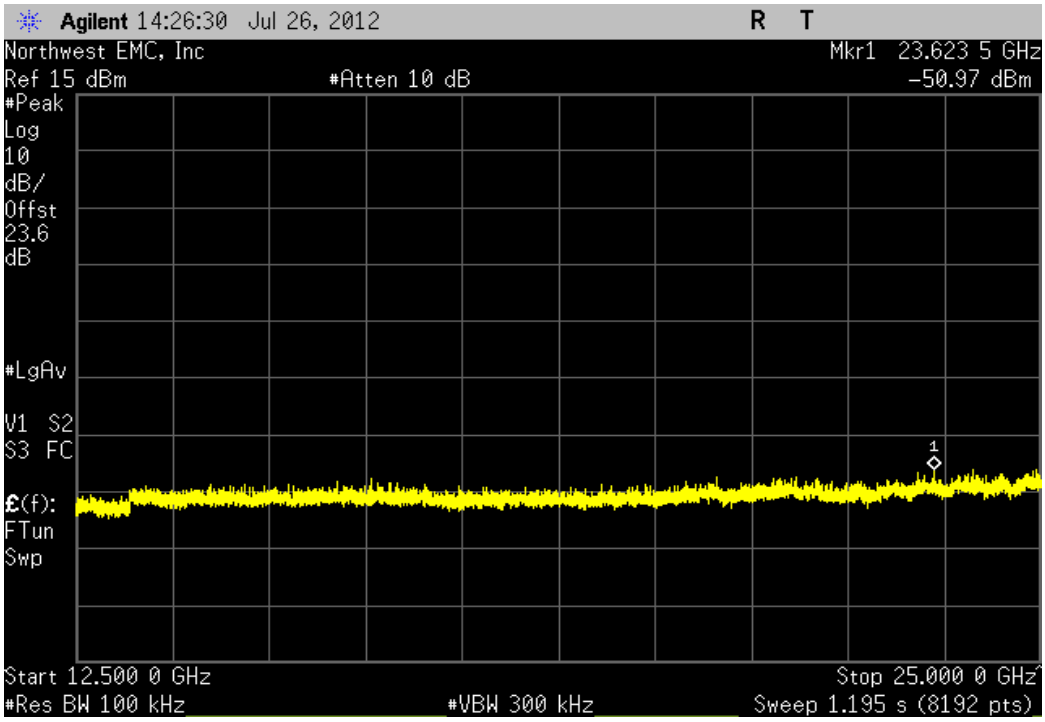
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



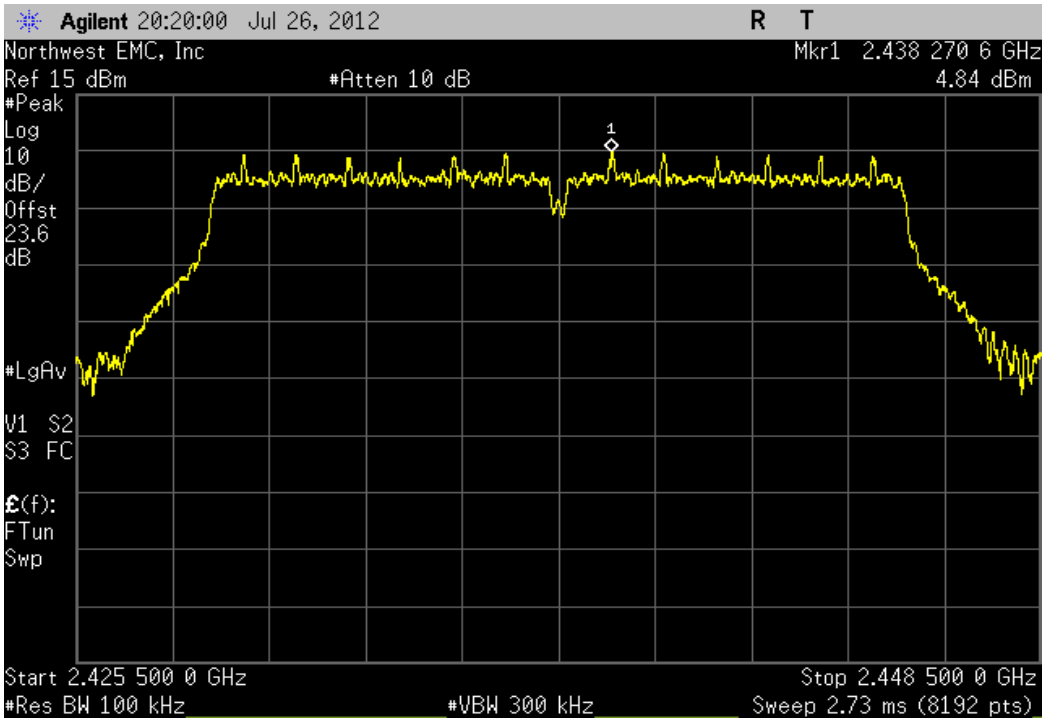
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B					
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-54.08 dBc	≤ -20 dBc	Pass



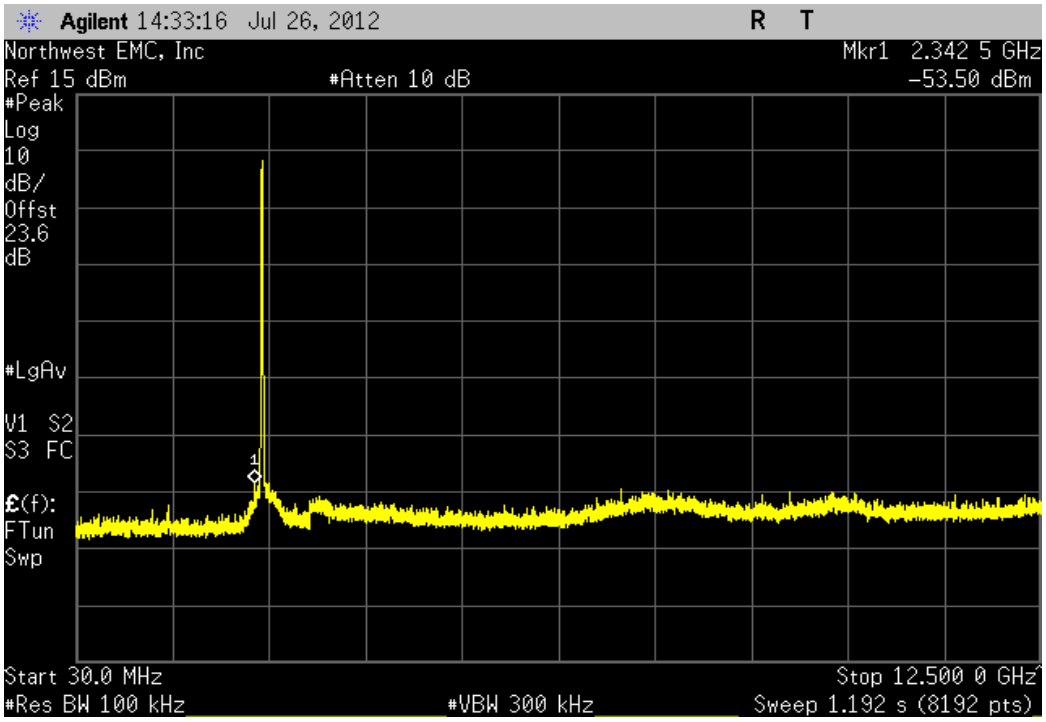
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.35 dBc	≤ -20 dBc	Pass



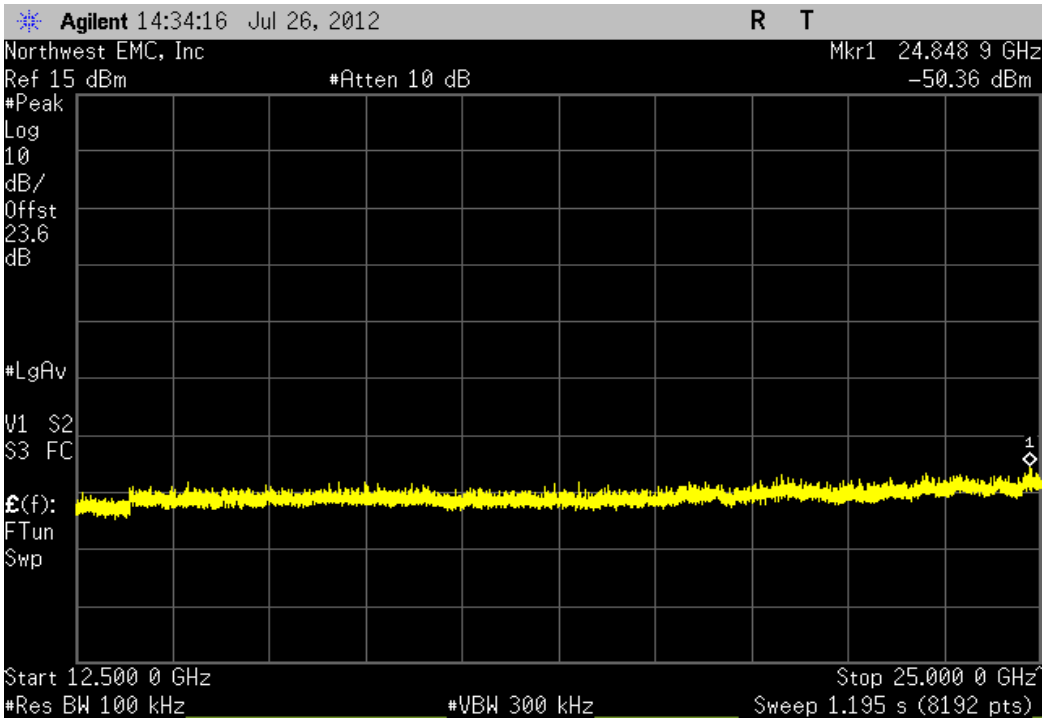
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



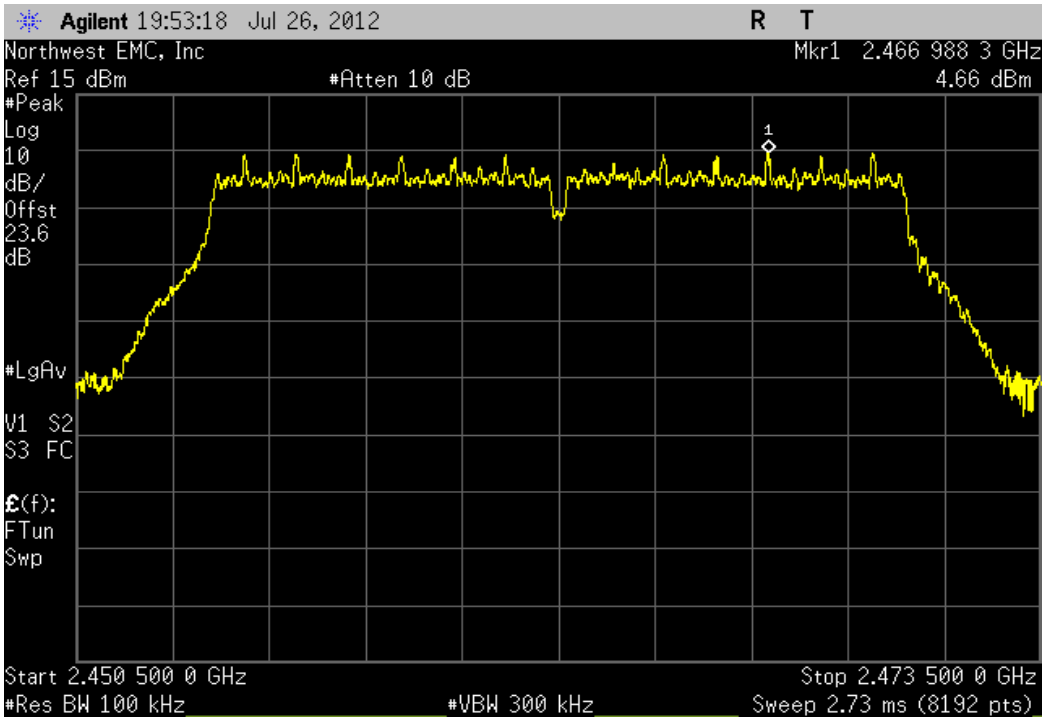
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-54.03 dBc	≤ -20 dBc	Pass



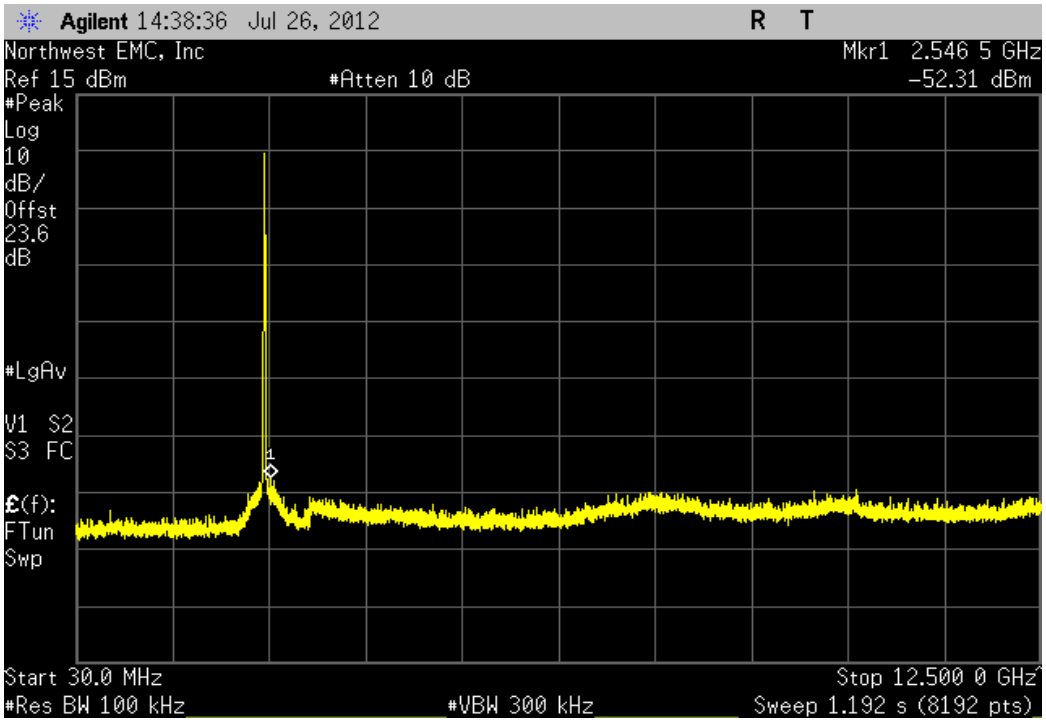
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-50.89 dBc	≤ -20 dBc	Pass



20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A

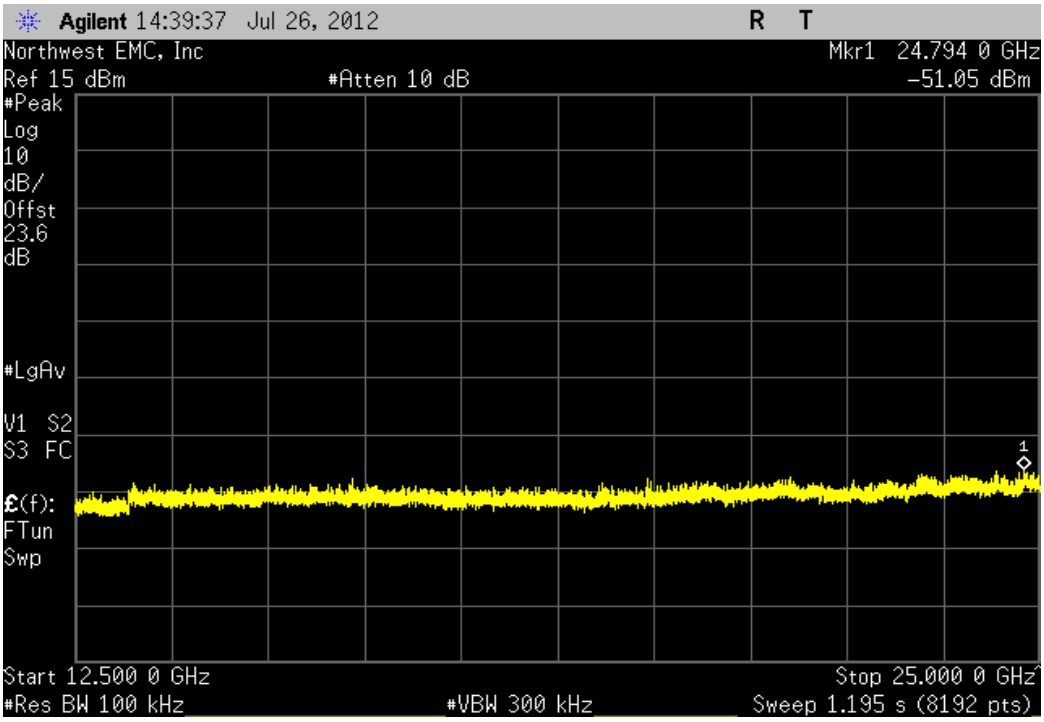


20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B					
	Frequency Range		Value	Limit	Result
	30 MHz - 12.5 GHz		-52.74 dBc	≤ -20 dBc	Pass

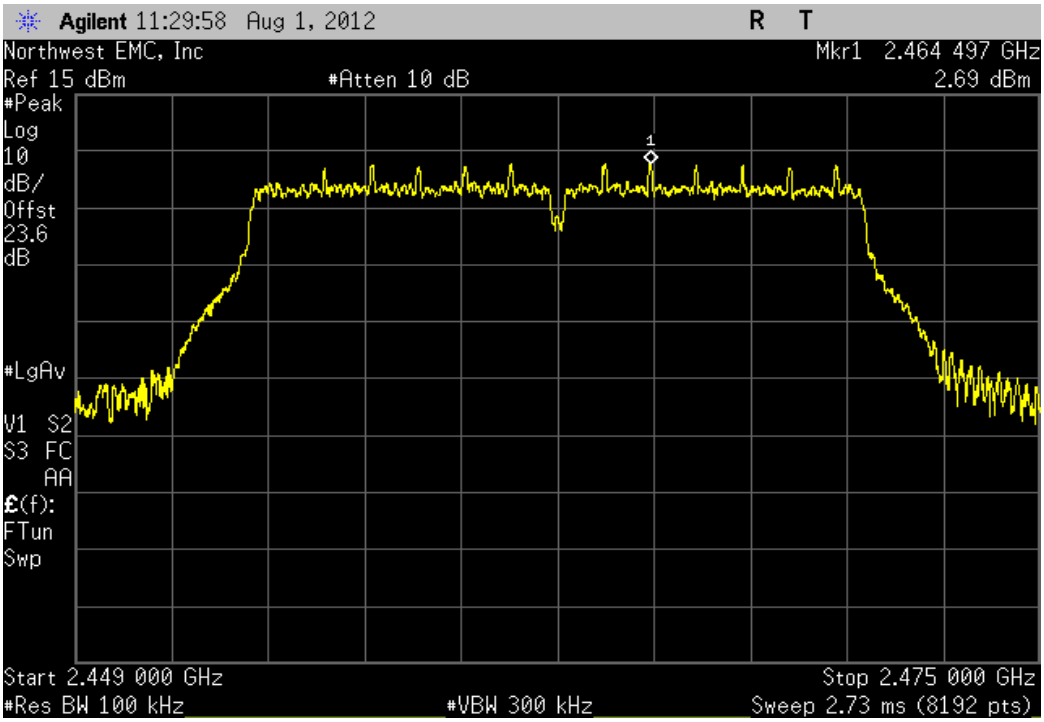


Spurious Conducted Emissions

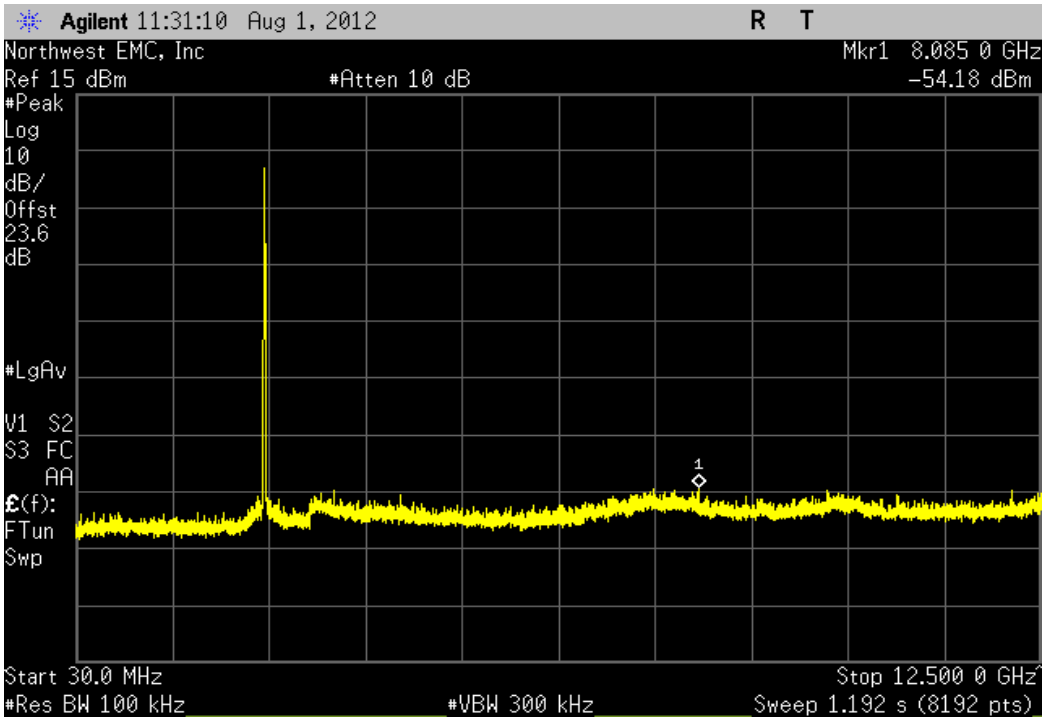
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.48 dBc	≤ -20 dBc	Pass



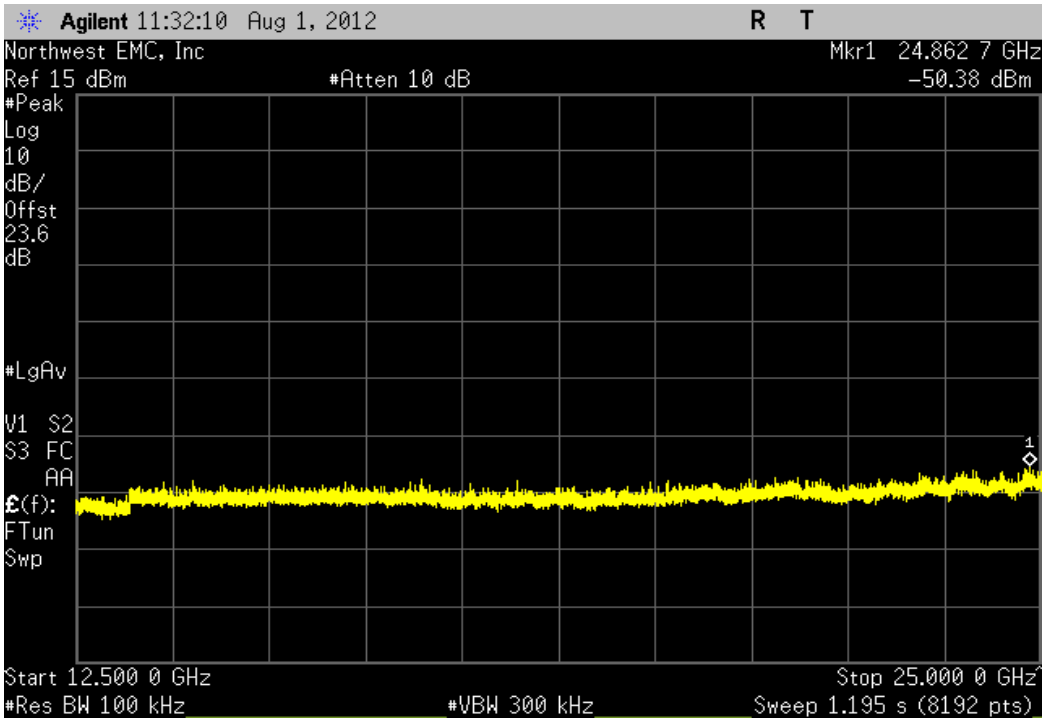
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-56.87 dBc	≤ -20 dBc	Pass

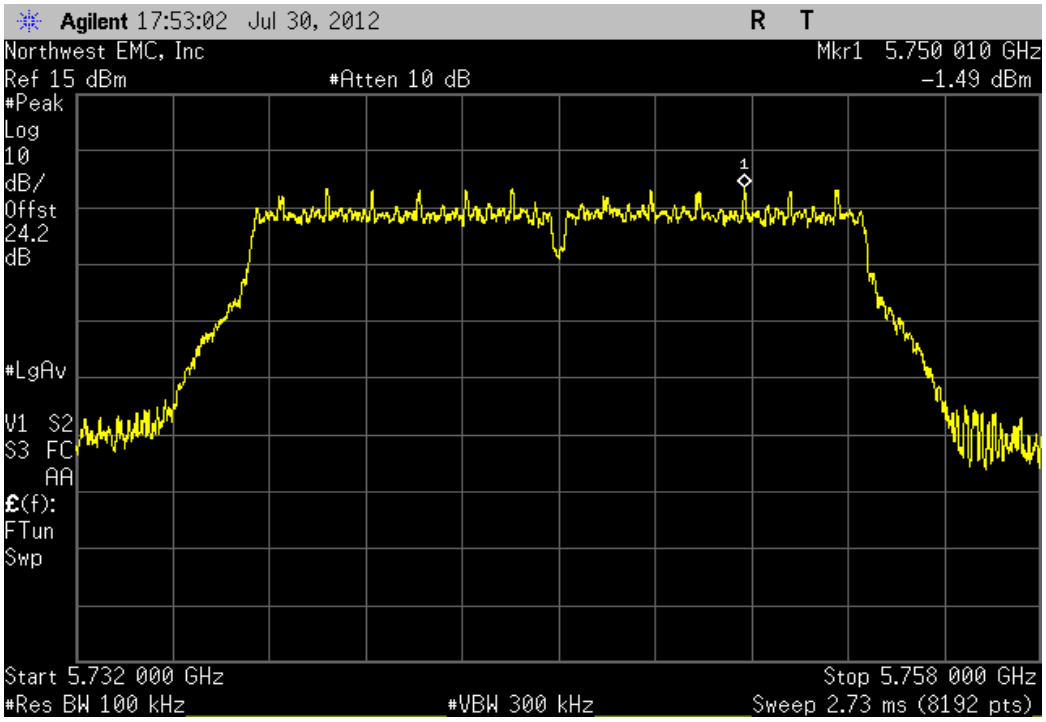


20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-53.07 dBc	≤ -20 dBc	Pass

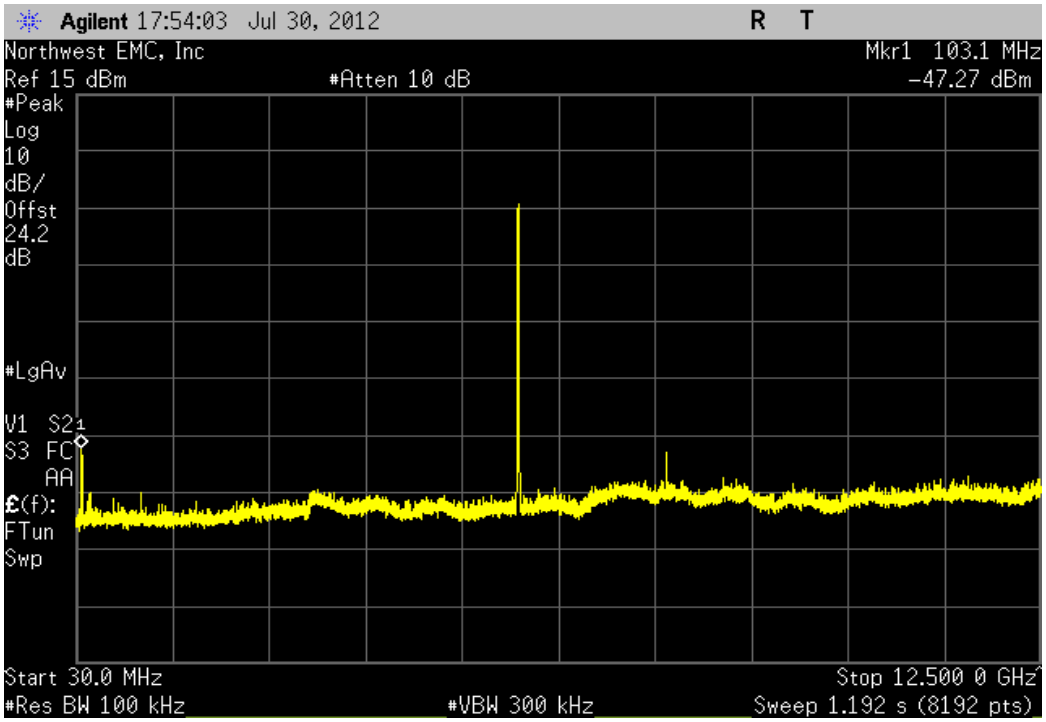


Spurious Conducted Emissions

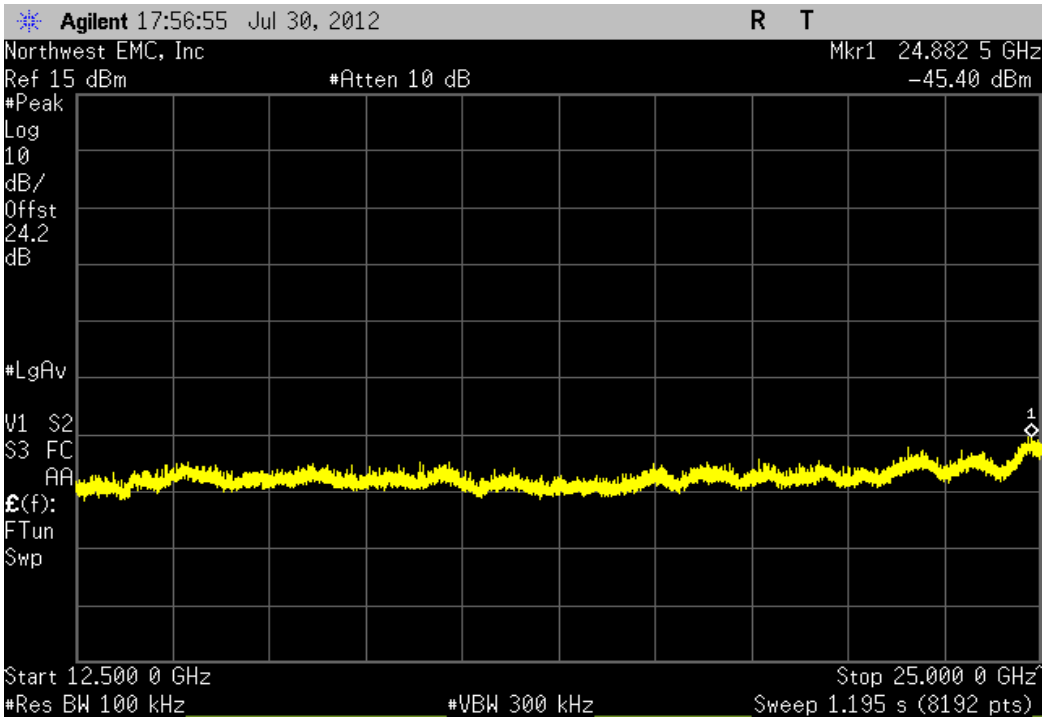
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



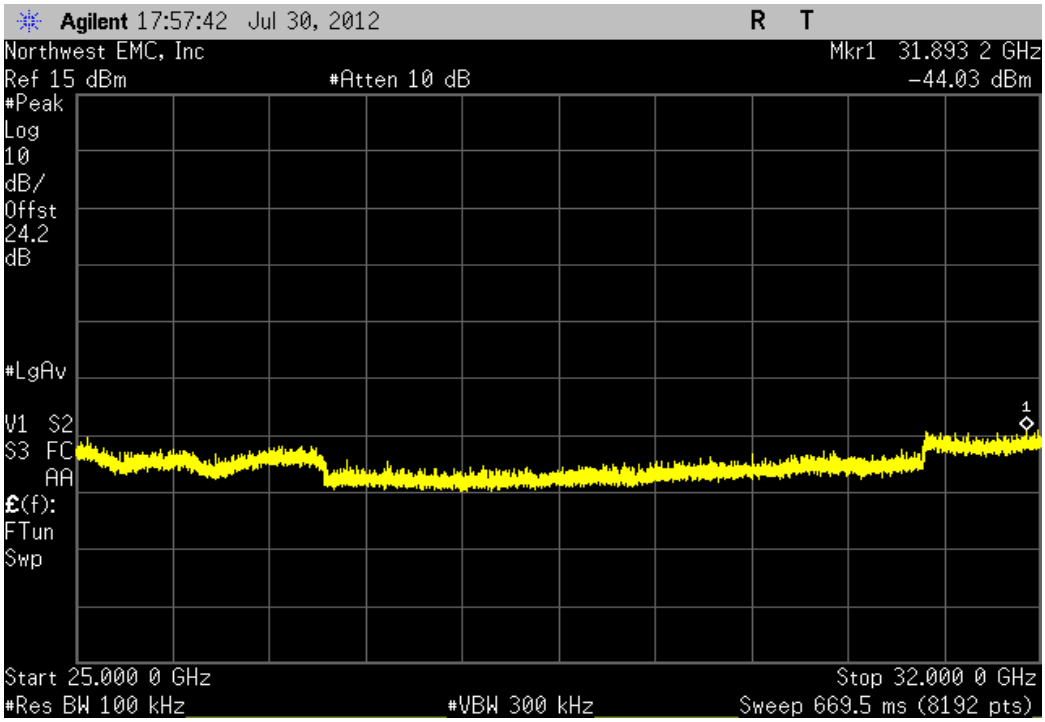
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-45.79 dBc	≤ -20 dBc	Pass



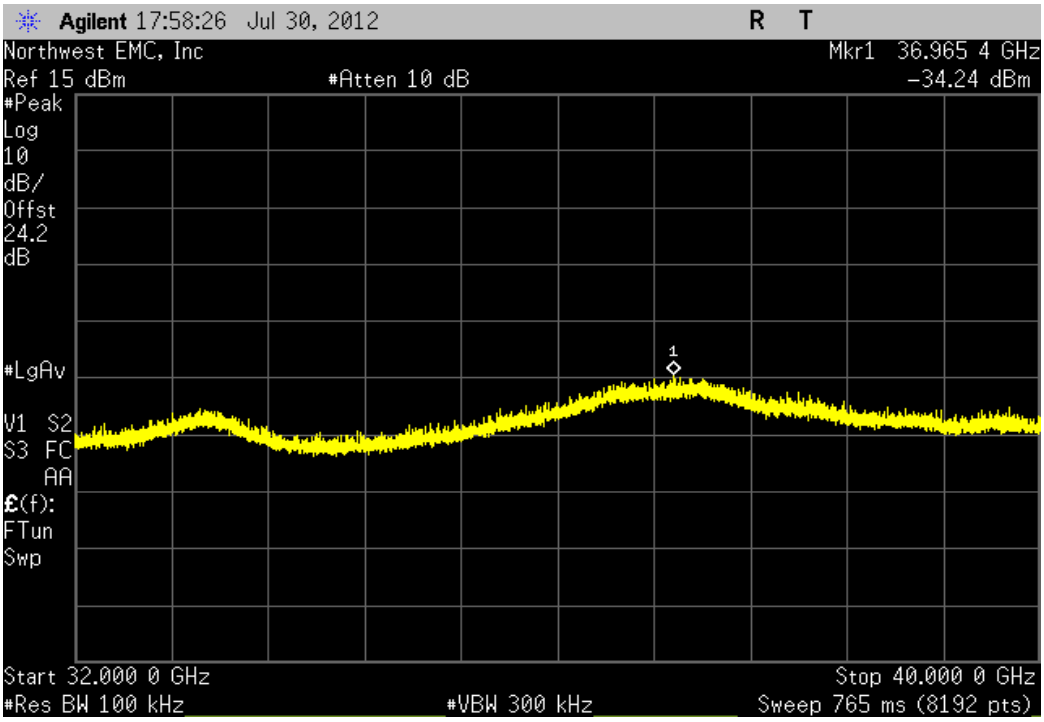
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-43.92 dBc	≤ -20 dBc	Pass



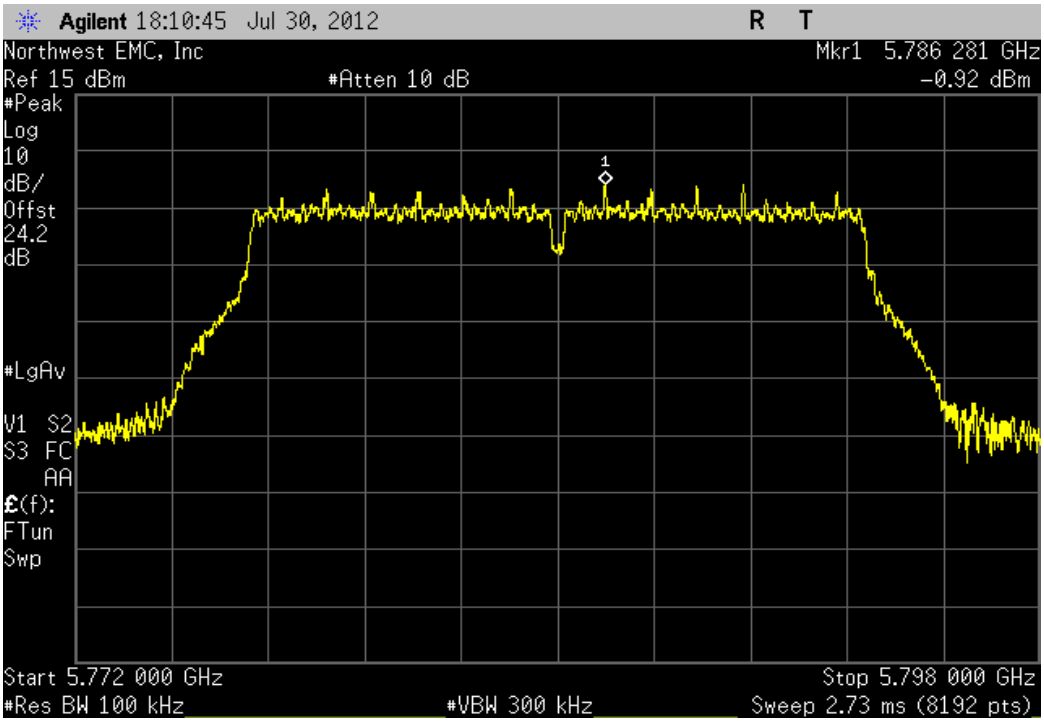
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-42.55 dBc	≤ -20 dBc	Pass



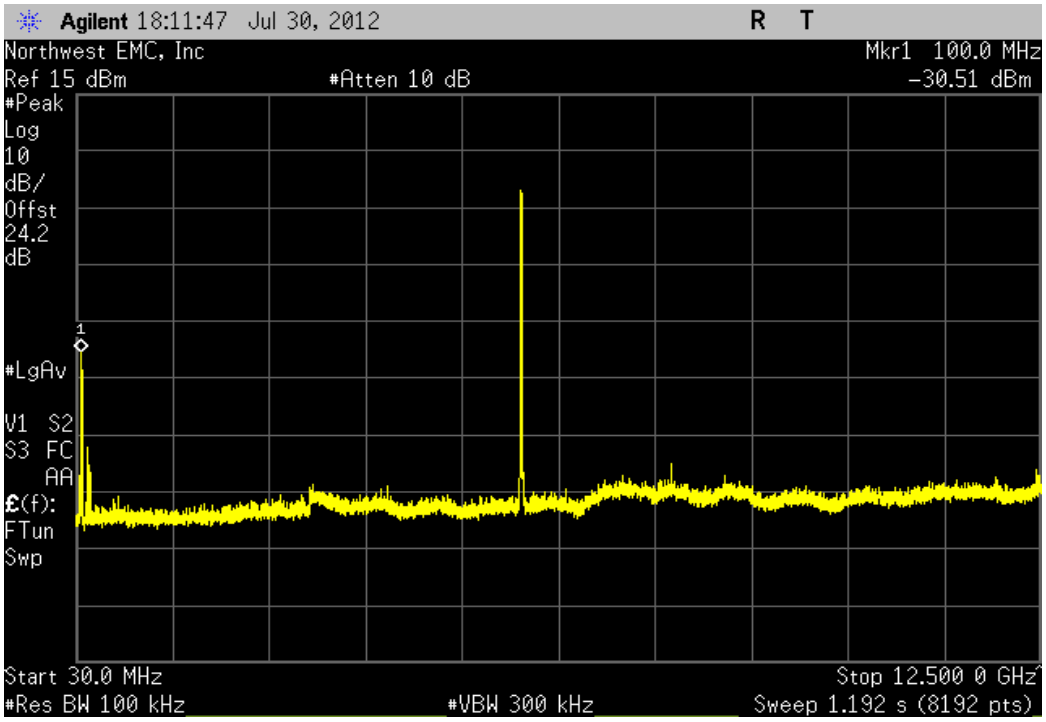
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B				
Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-32.76 dBc	≤ -20 dBc	Pass



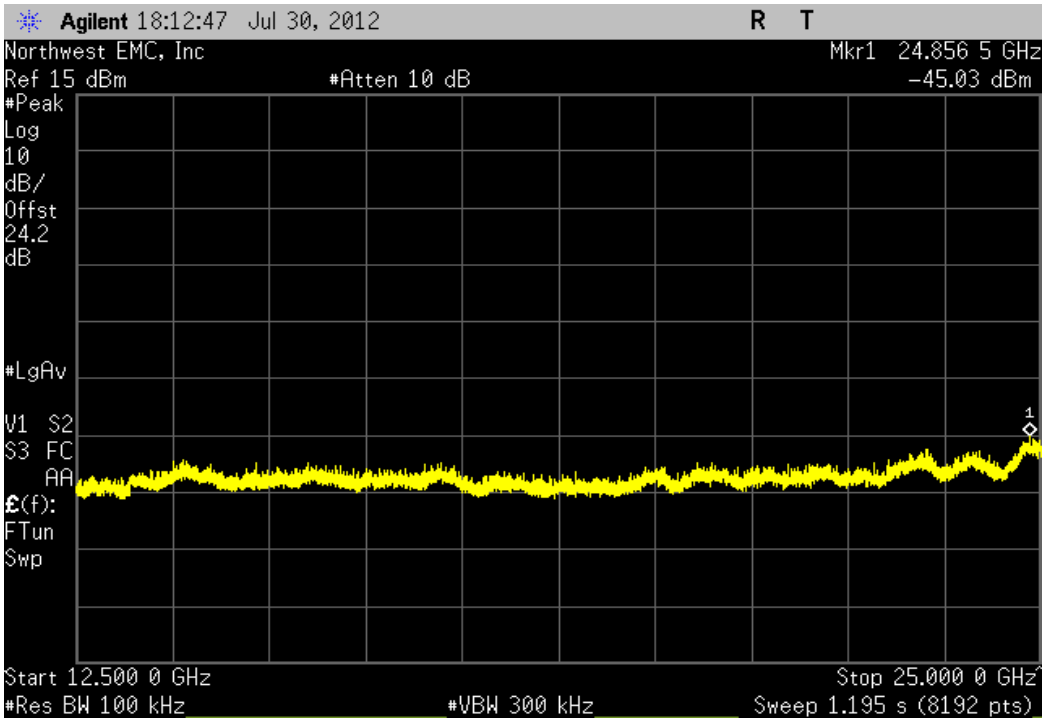
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



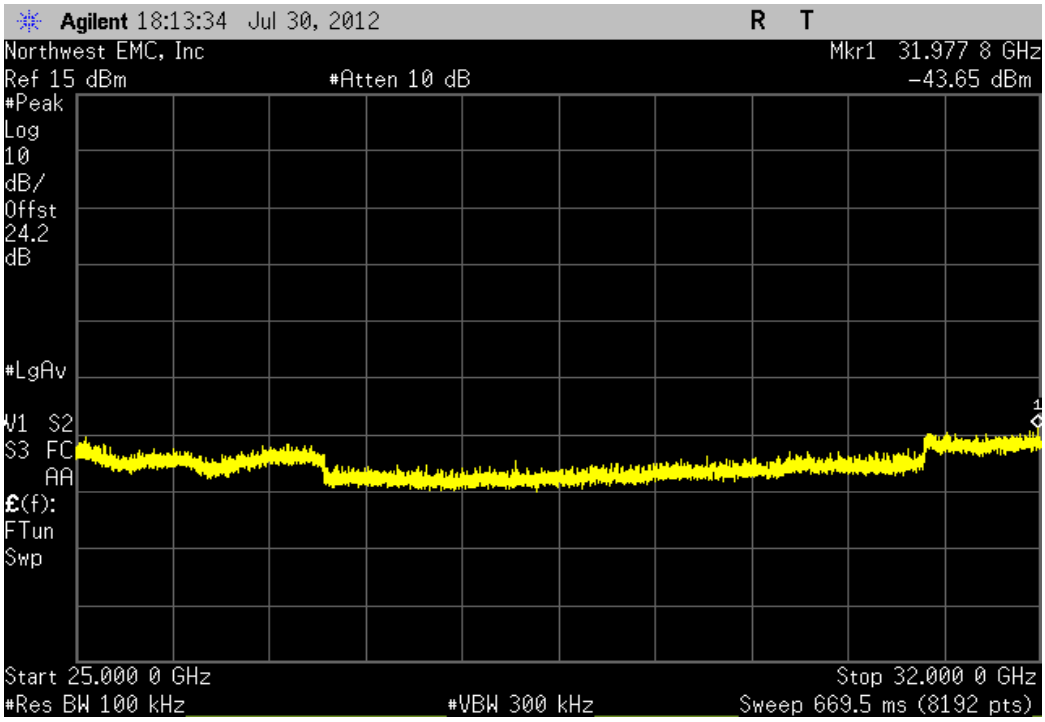
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-29.59 dBc	≤ -20 dBc	Pass



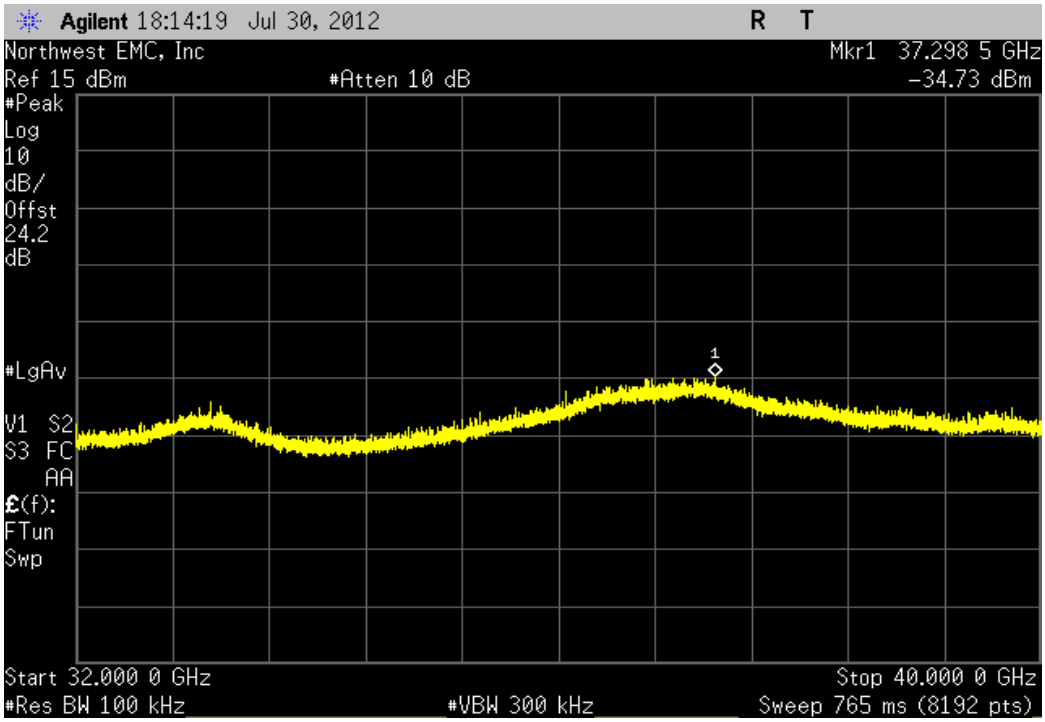
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-44.11 dBc	≤ -20 dBc	Pass



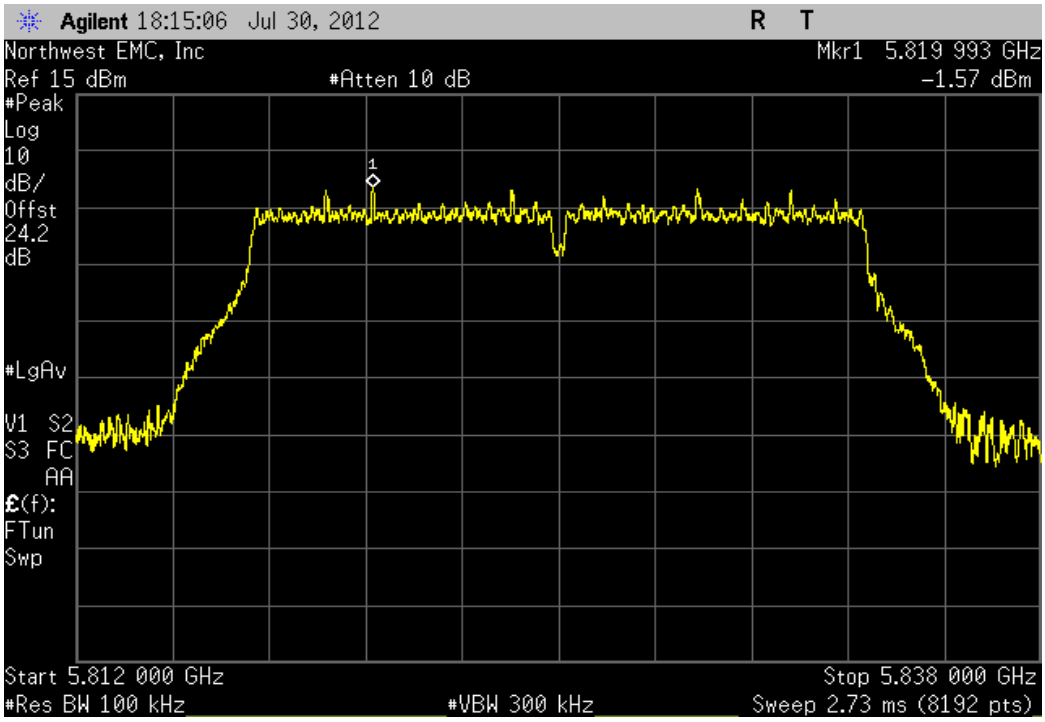
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-42.73 dBc	≤ -20 dBc	Pass



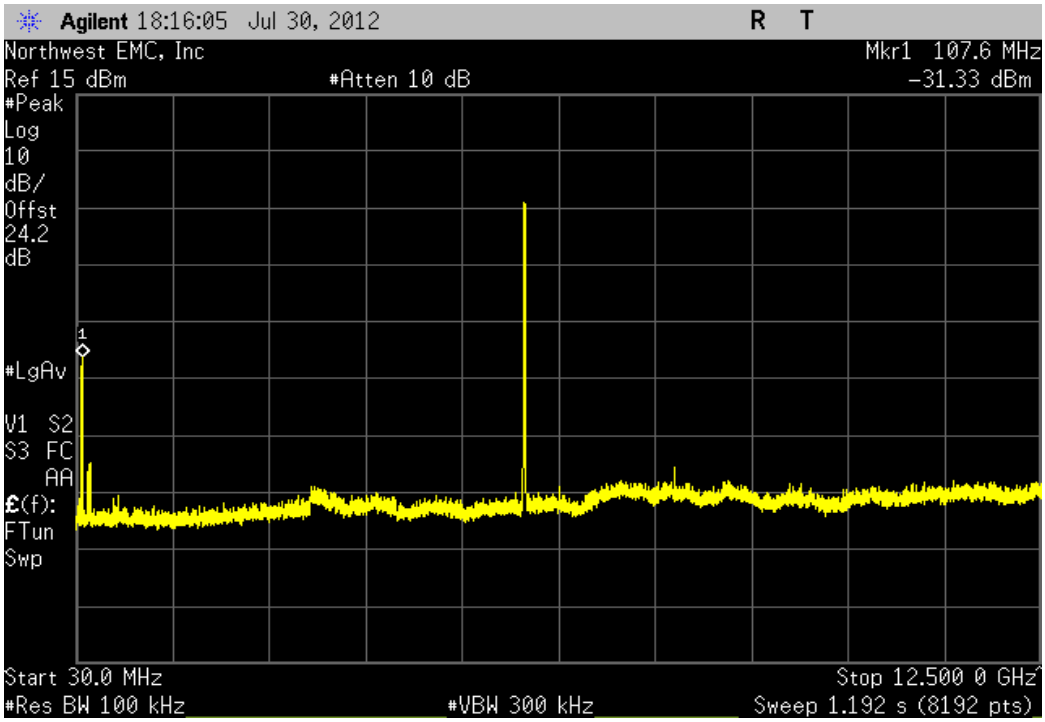
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-33.81 dBc	≤ -20 dBc	Pass



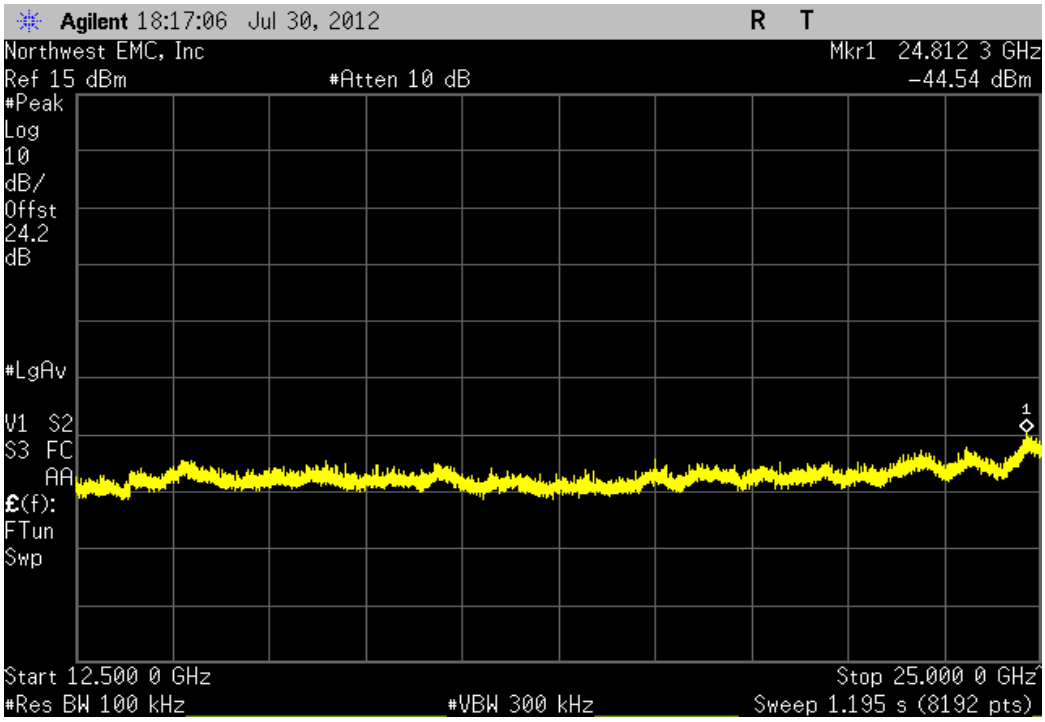
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



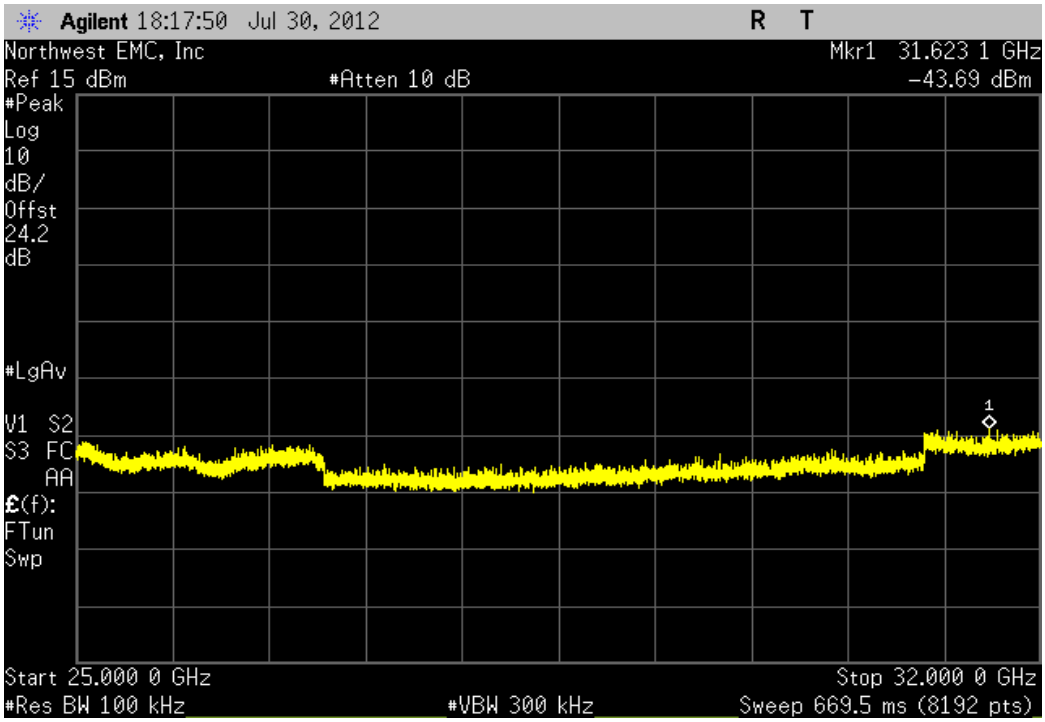
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B					
	Frequency Range		Value	Limit	Result
	30 MHz - 12.5 GHz		-29.76 dBc	≤ -20 dBc	Pass



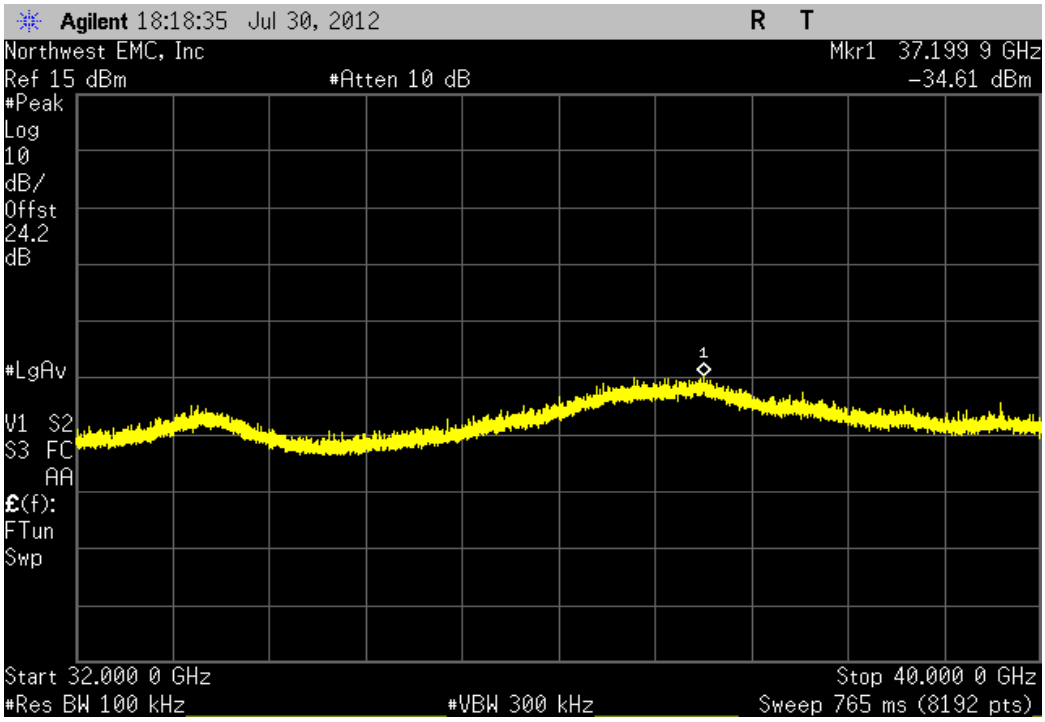
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-42.97 dBc	≤ -20 dBc	Pass



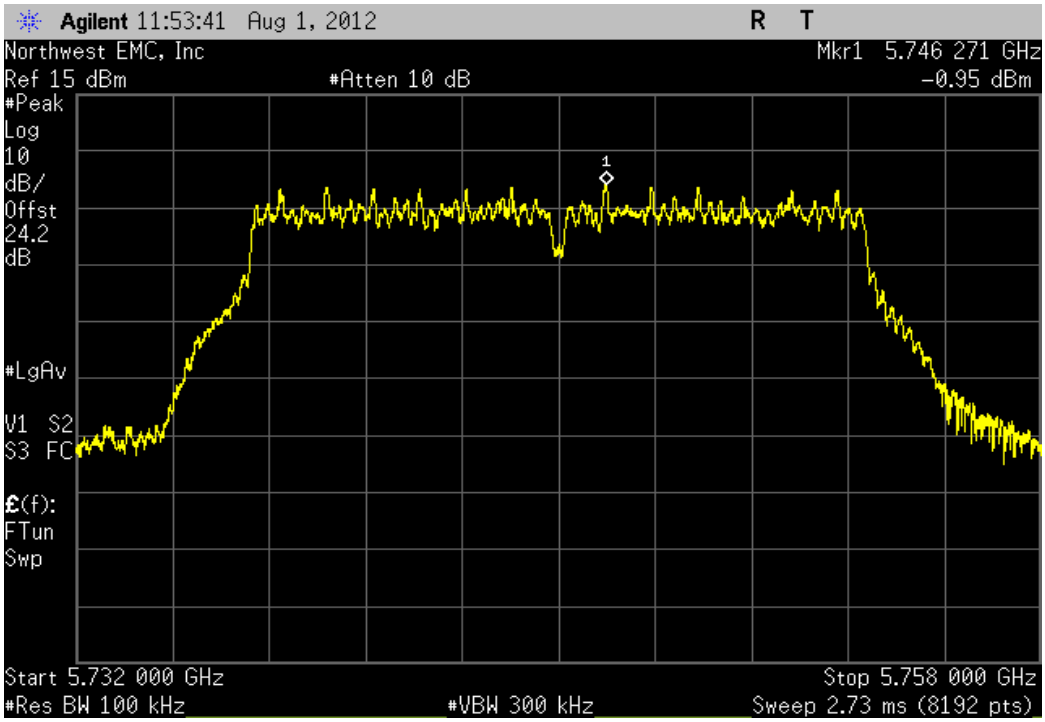
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-42.12 dBc	≤ -20 dBc	Pass



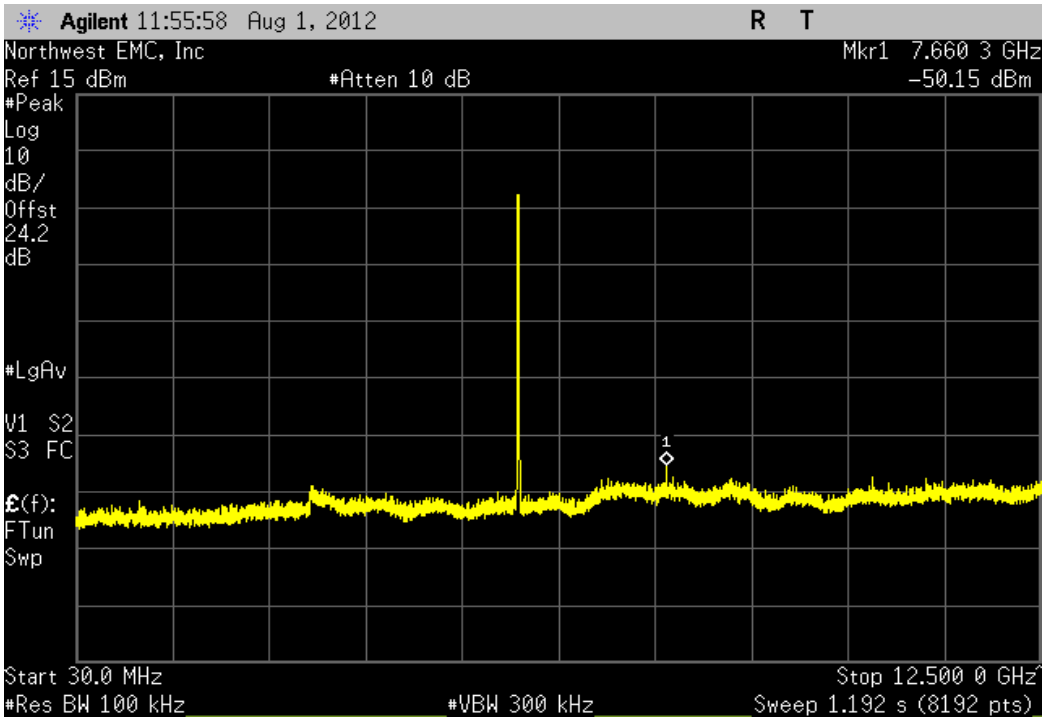
20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-33.04 dBc	≤ -20 dBc	Pass



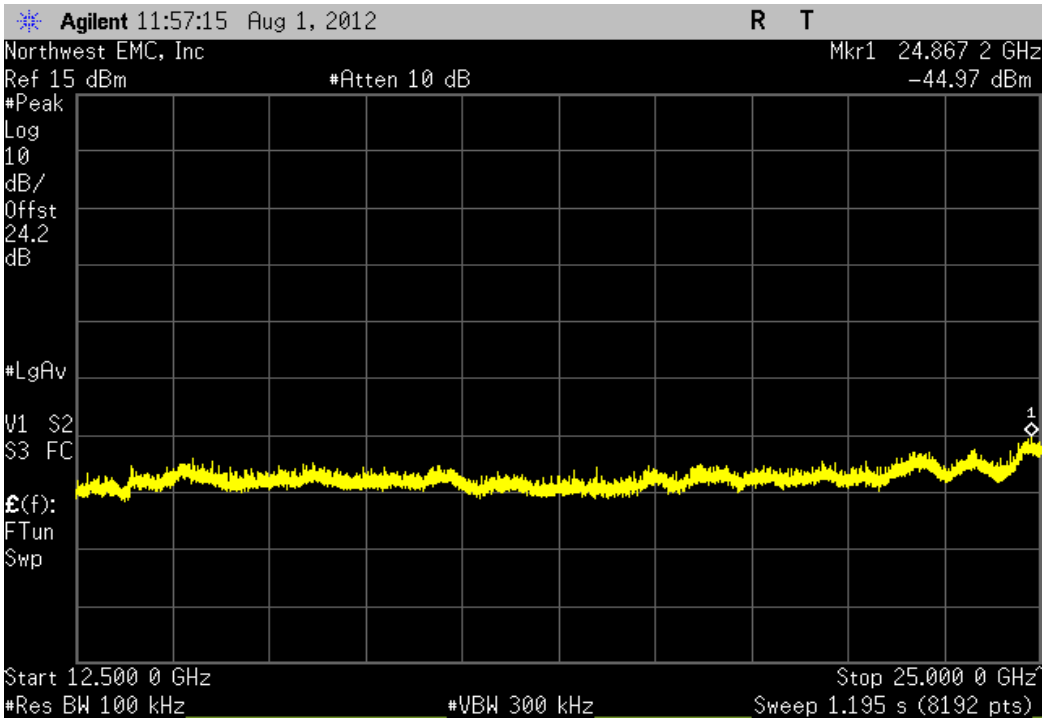
20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



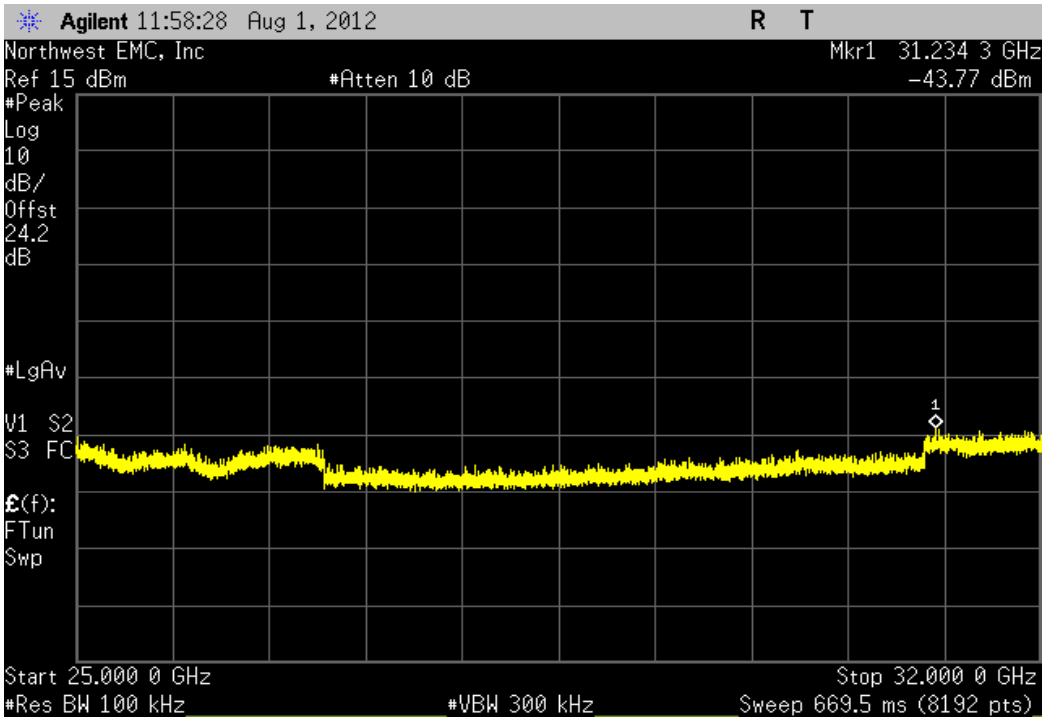
20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-49.2 dBc	≤ -20 dBc	Pass



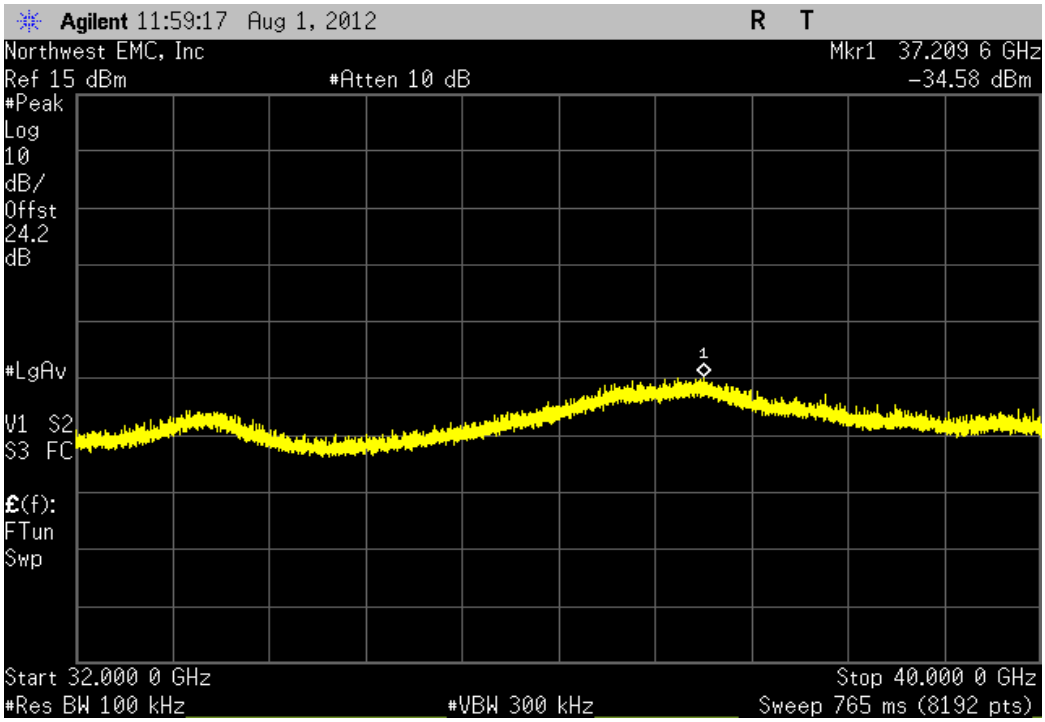
20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-44.02 dBc	≤ -20 dBc	Pass



20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-42.82 dBc	≤ -20 dBc	Pass

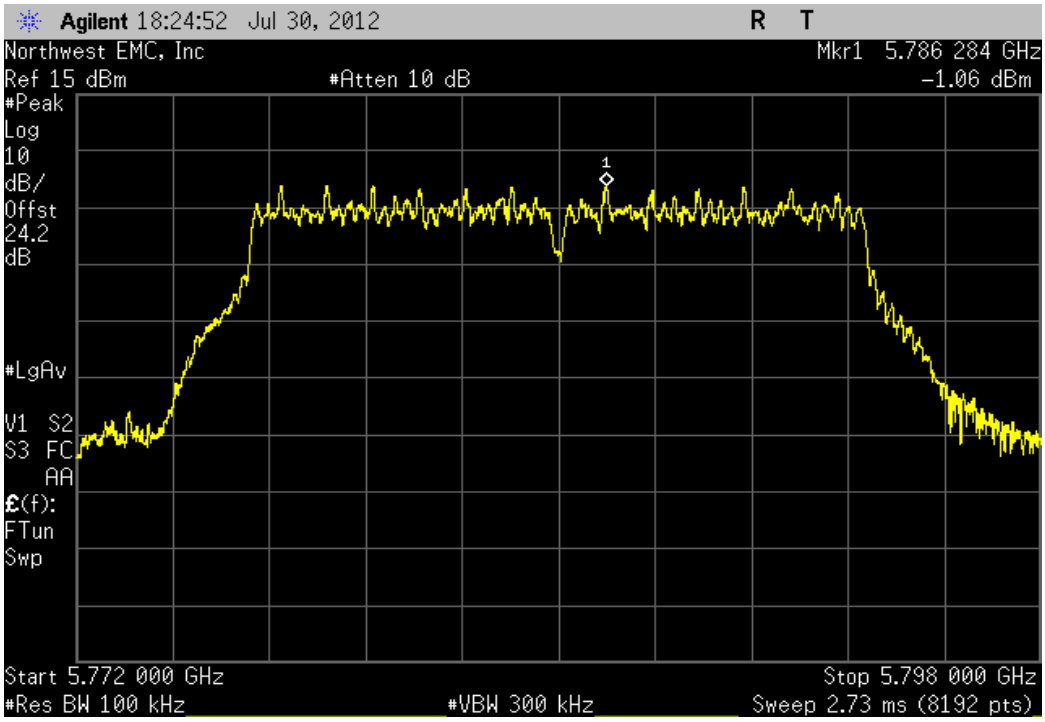


20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-33.63 dBc	≤ -20 dBc	Pass

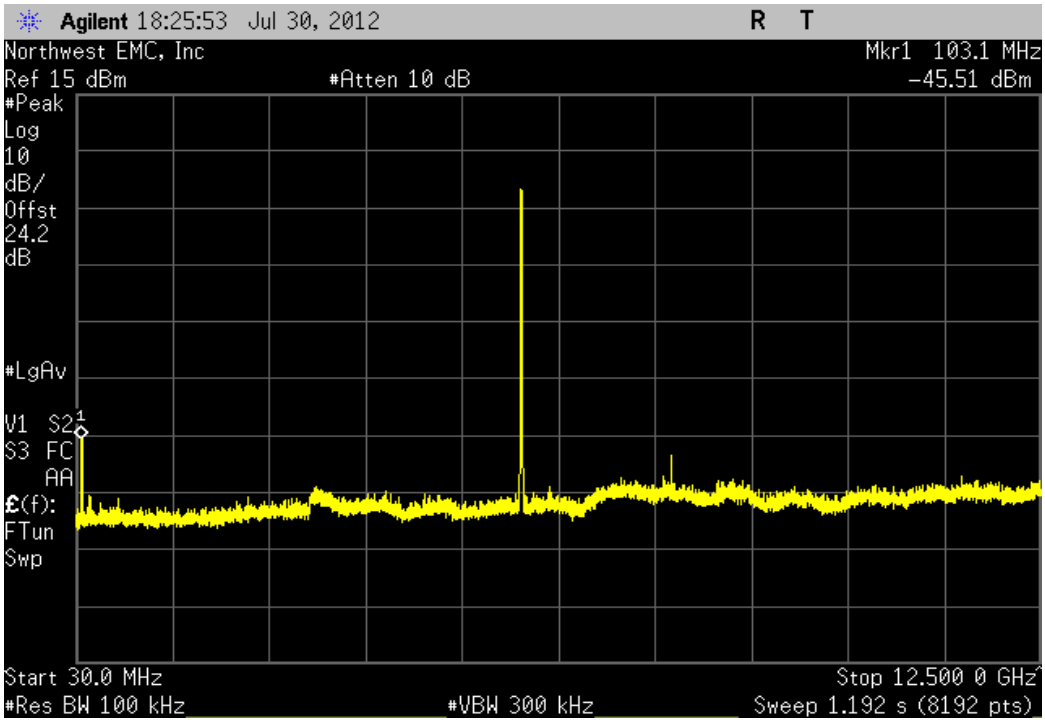


Spurious Conducted Emissions

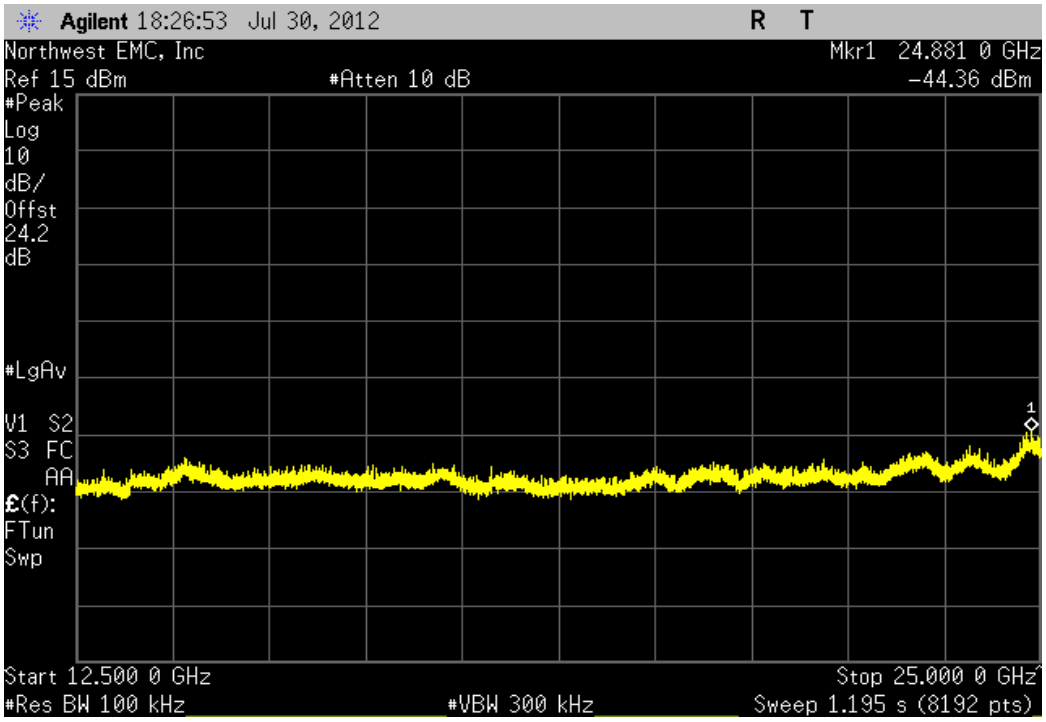
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



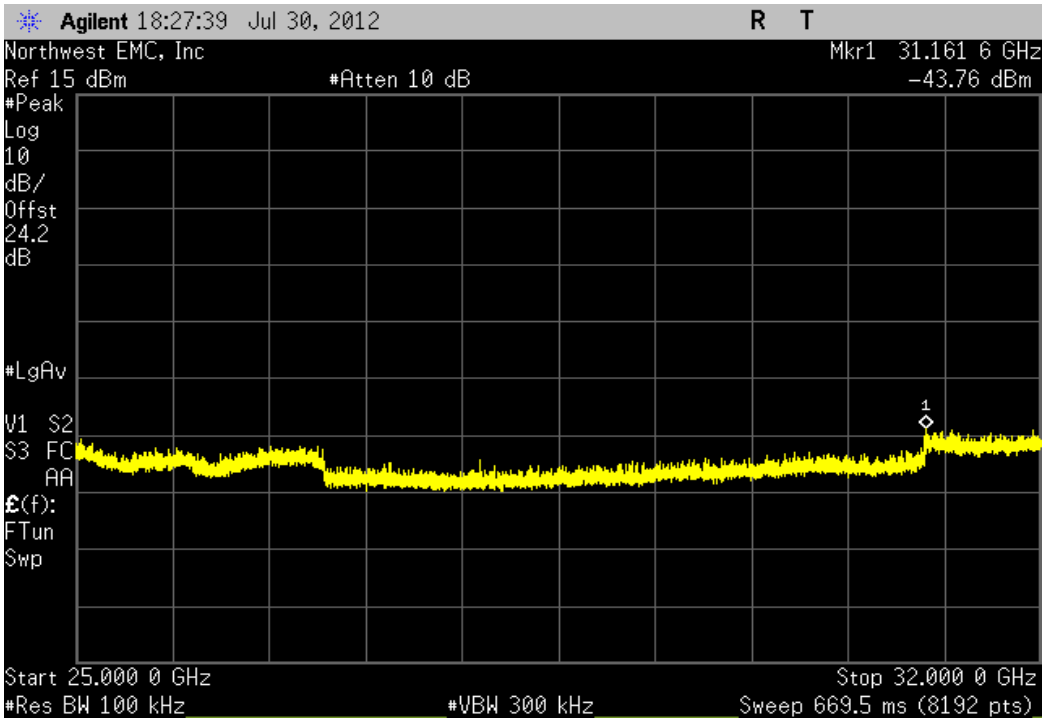
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A					
Frequency Range			Value	Limit	Result
30 MHz - 12.5 GHz			-44.45 dBc	≤ -20 dBc	Pass



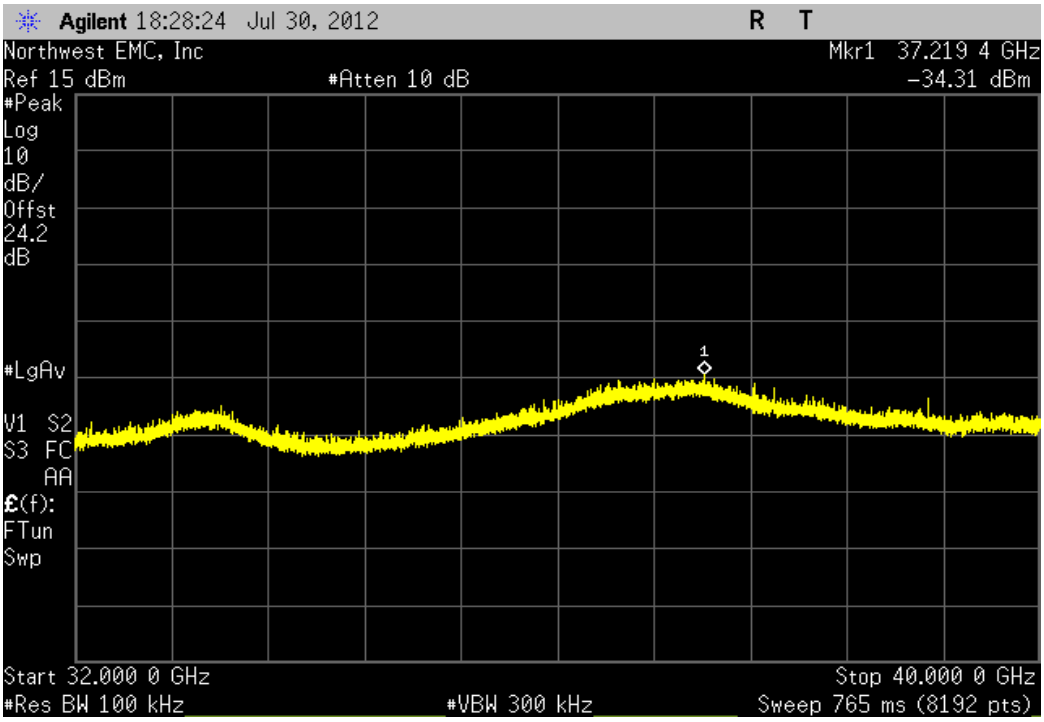
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-43.3 dBc	≤ -20 dBc	Pass



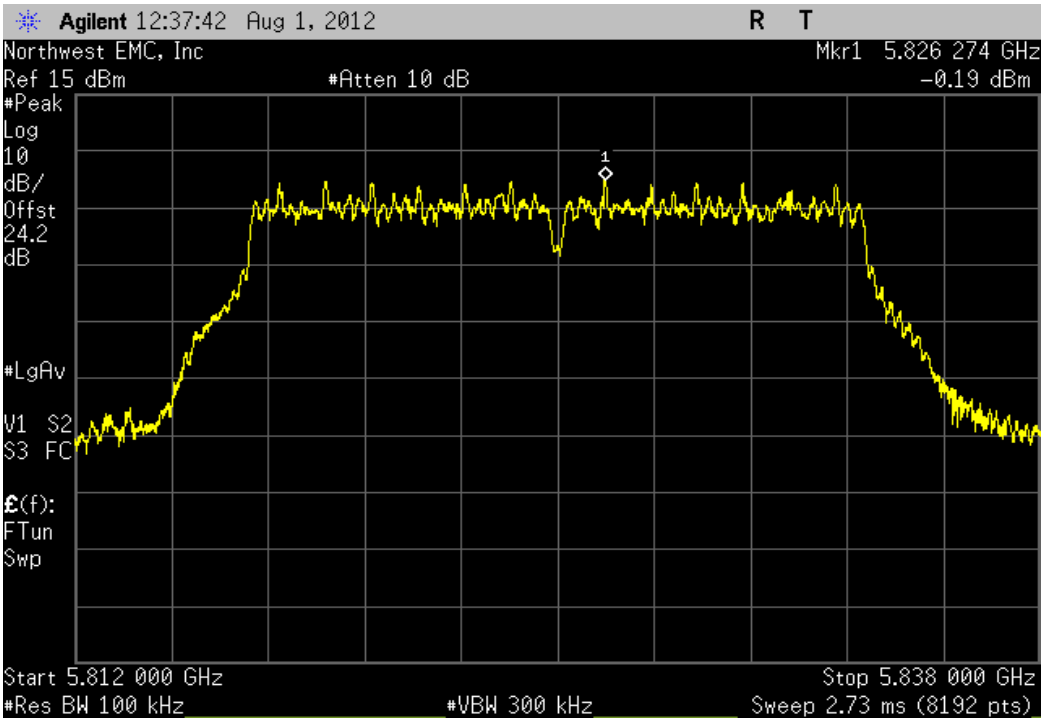
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-42.7 dBc	≤ -20 dBc	Pass



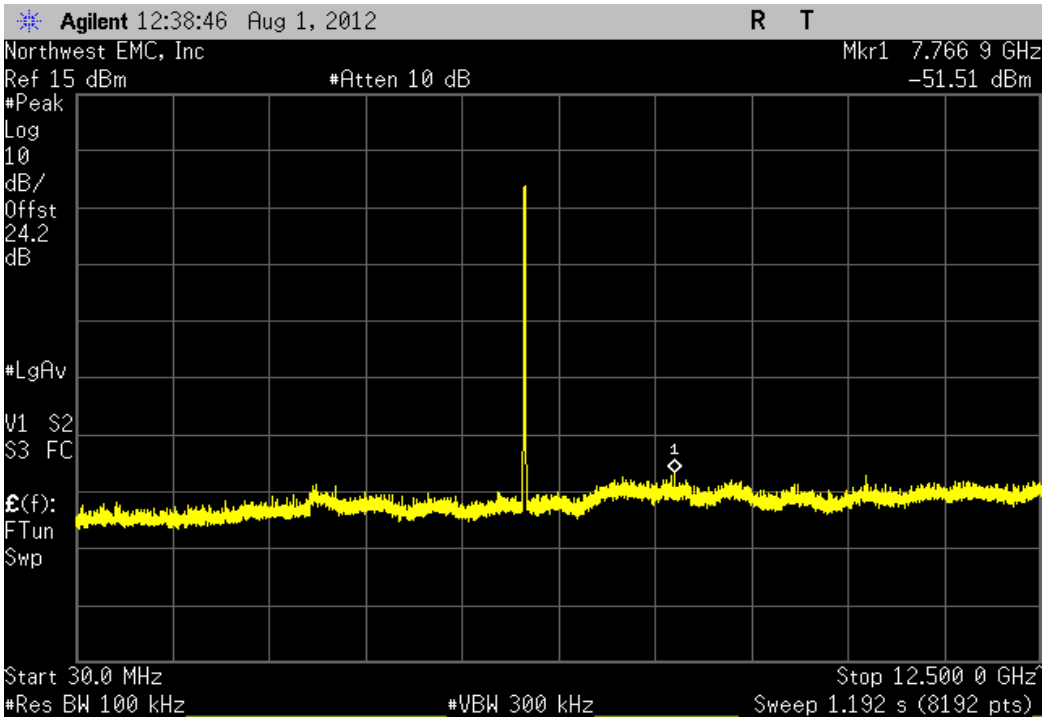
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-33.25 dBc	≤ -20 dBc	Pass



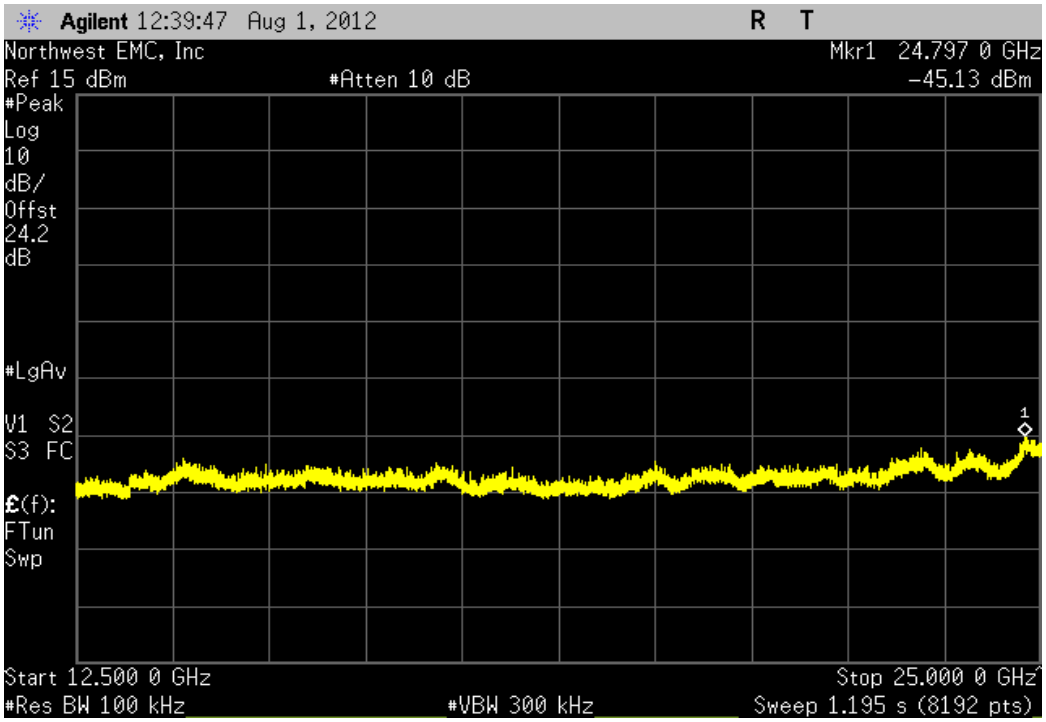
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A						
	Frequency Range			**Value**	**Limit**	**Result**
	Fundamental			N/A	N/A	N/A



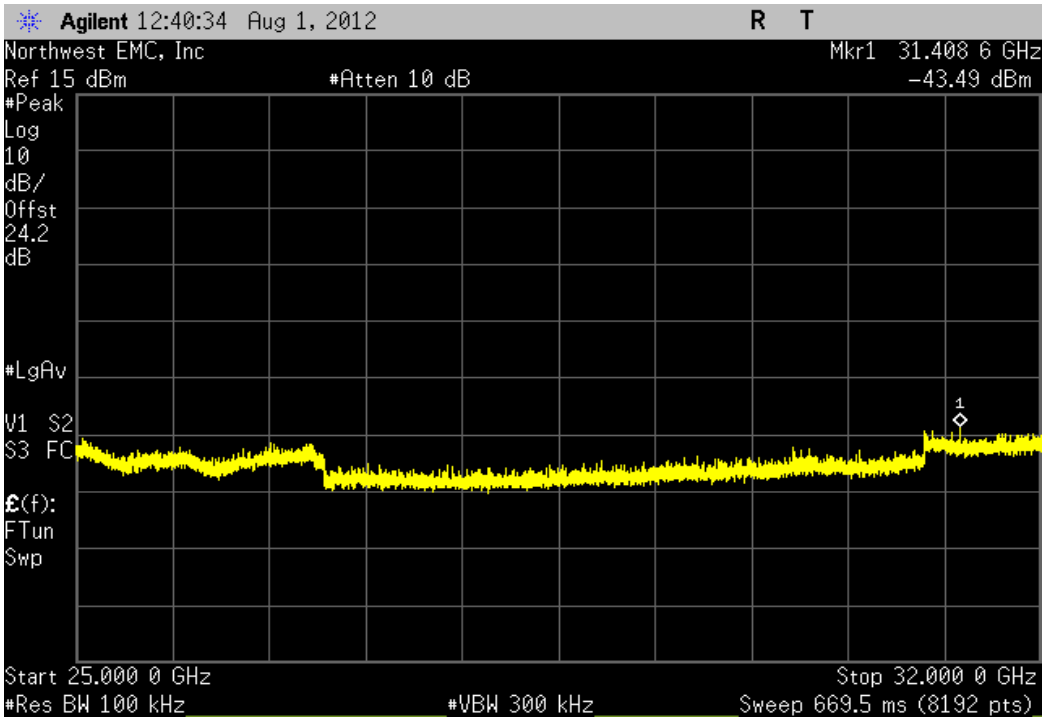
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-51.32 dBc	≤ -20 dBc	Pass



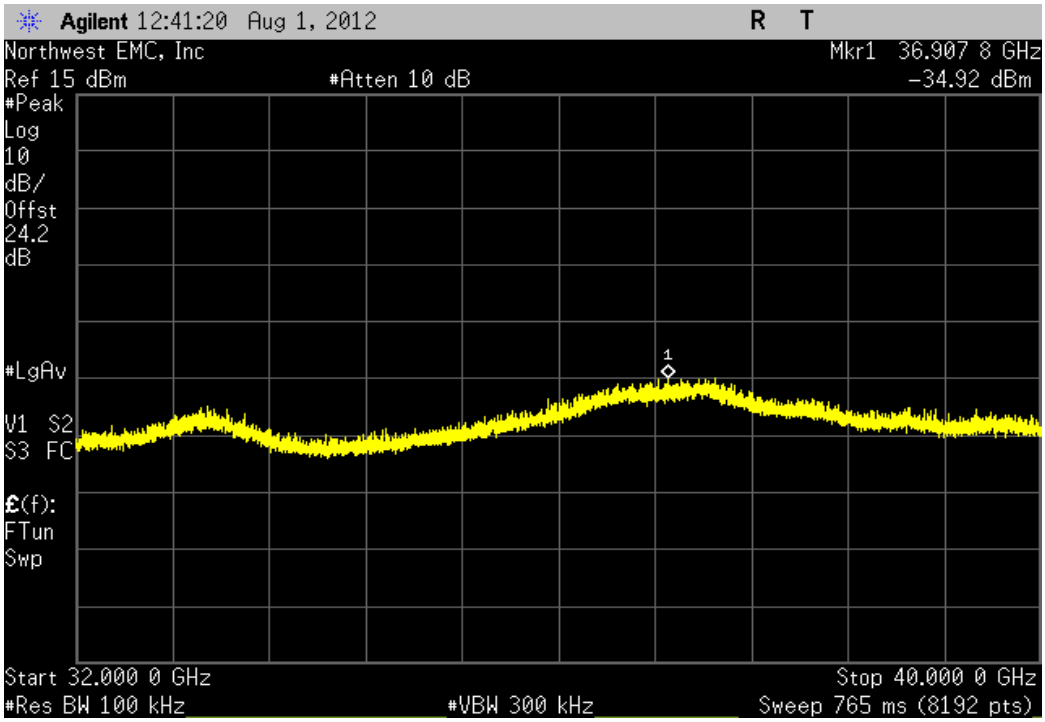
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-44.94 dBc	≤ -20 dBc	Pass



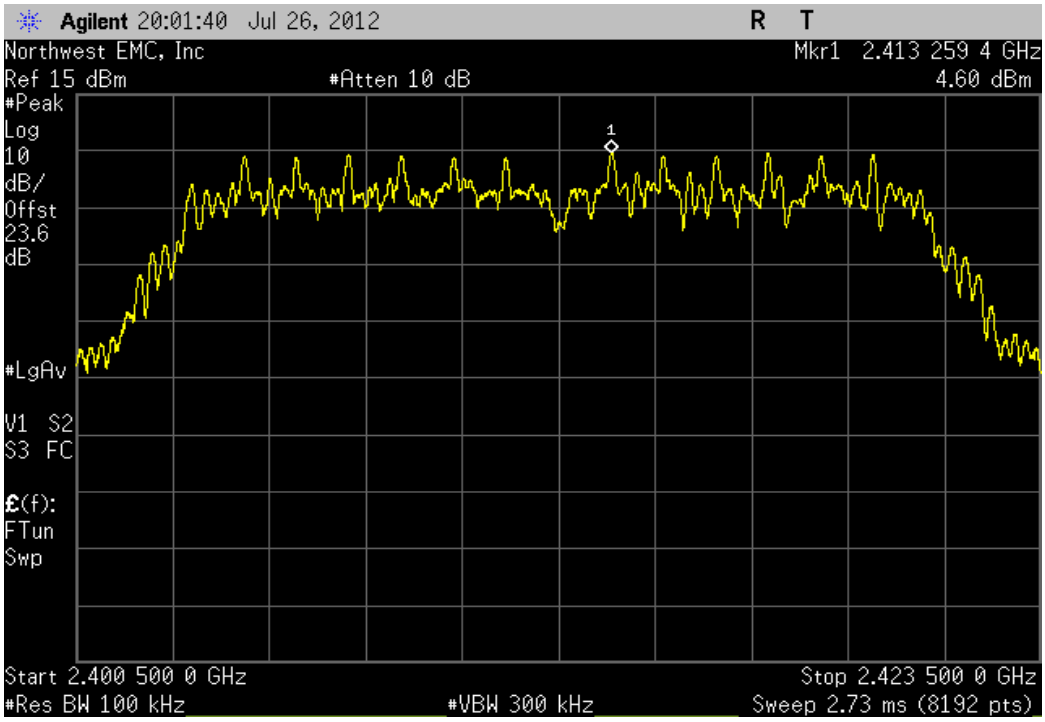
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-43.31 dBc	≤ -20 dBc	Pass



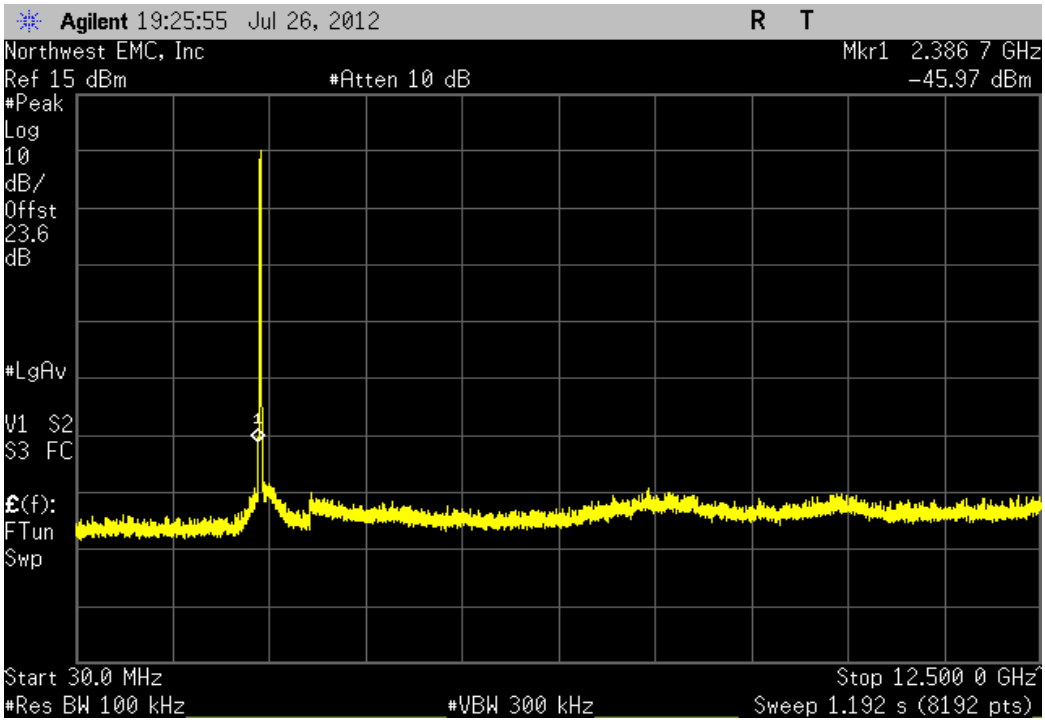
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-34.73 dBc	≤ -20 dBc	Pass



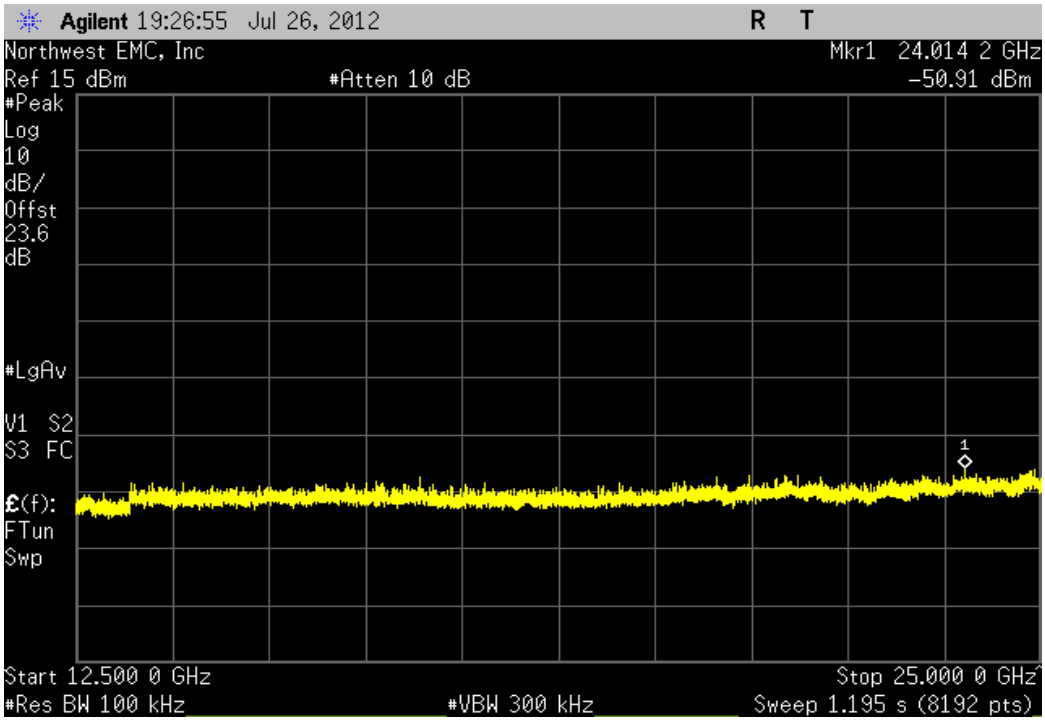
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



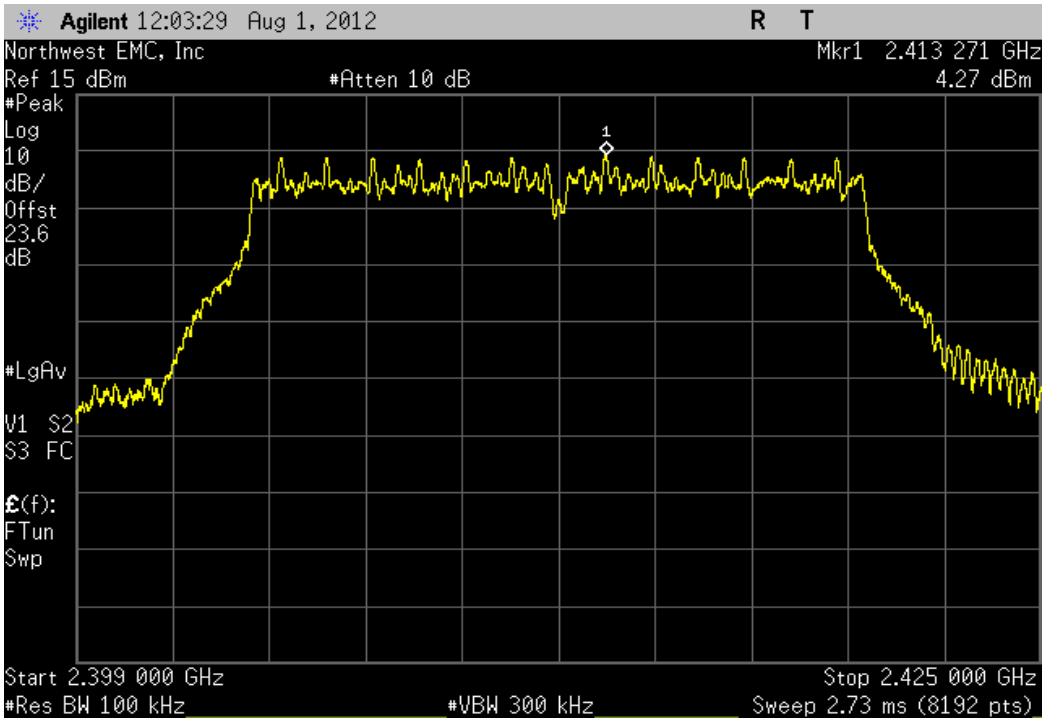
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B					
	Frequency Range		Value	Limit	Result
	30 MHz - 12.5 GHz		-51.05 dBc	≤ -20 dBc	Pass



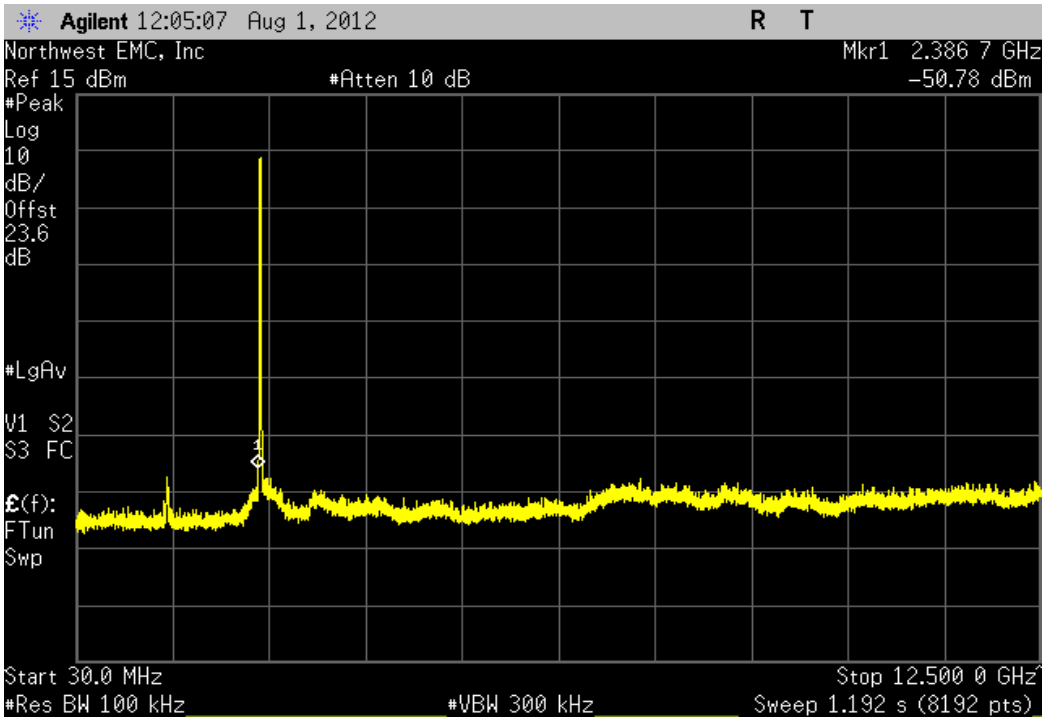
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-55.99 dBc	≤ -20 dBc	Pass



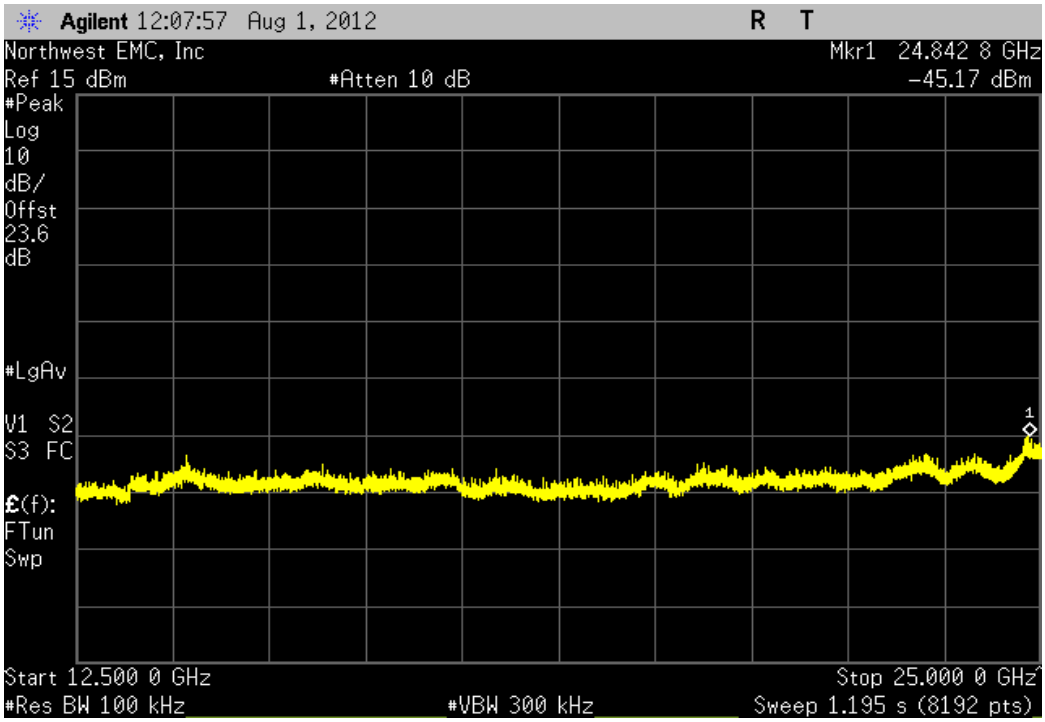
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



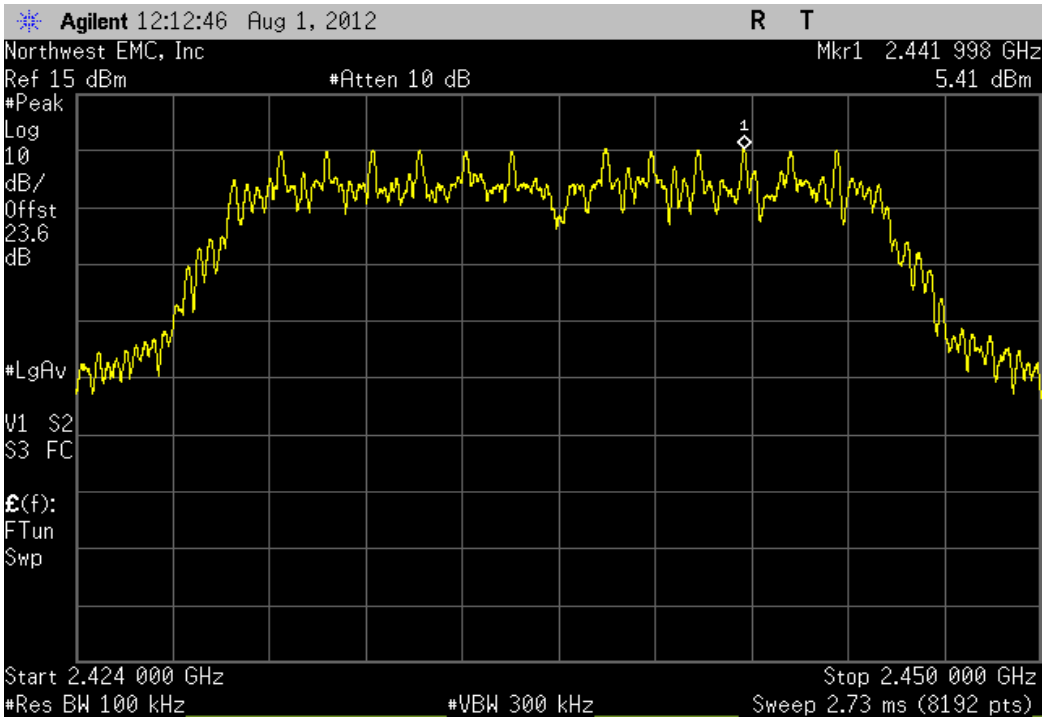
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-55.05 dBc	≤ -20 dBc	Pass



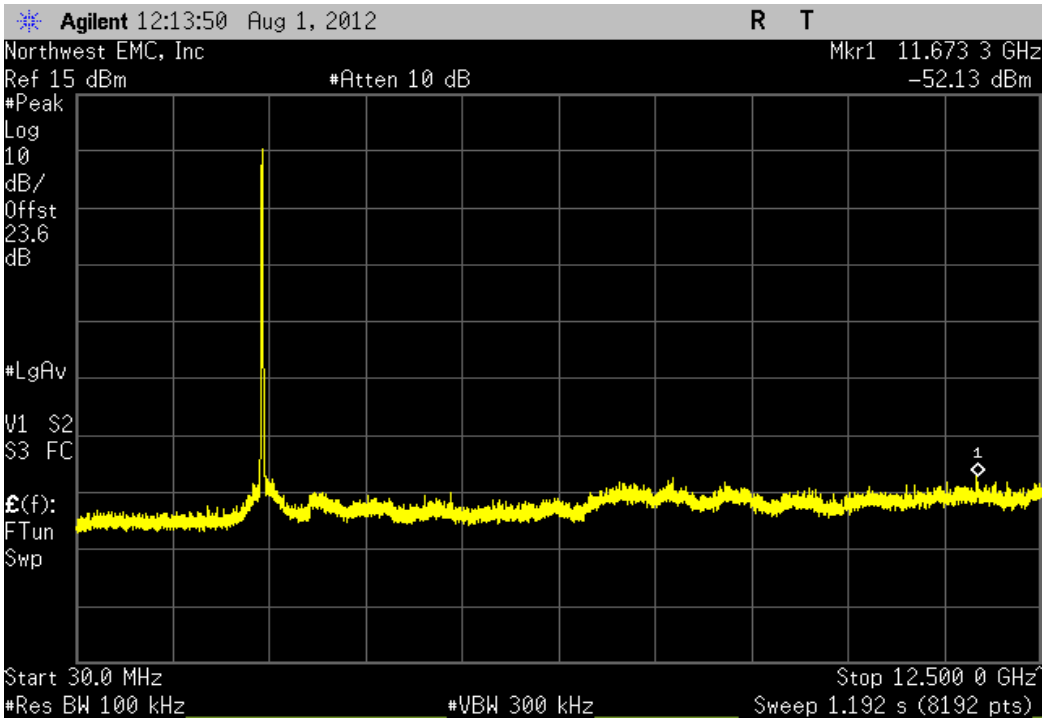
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-49.44 dBc	≤ -20 dBc	Pass



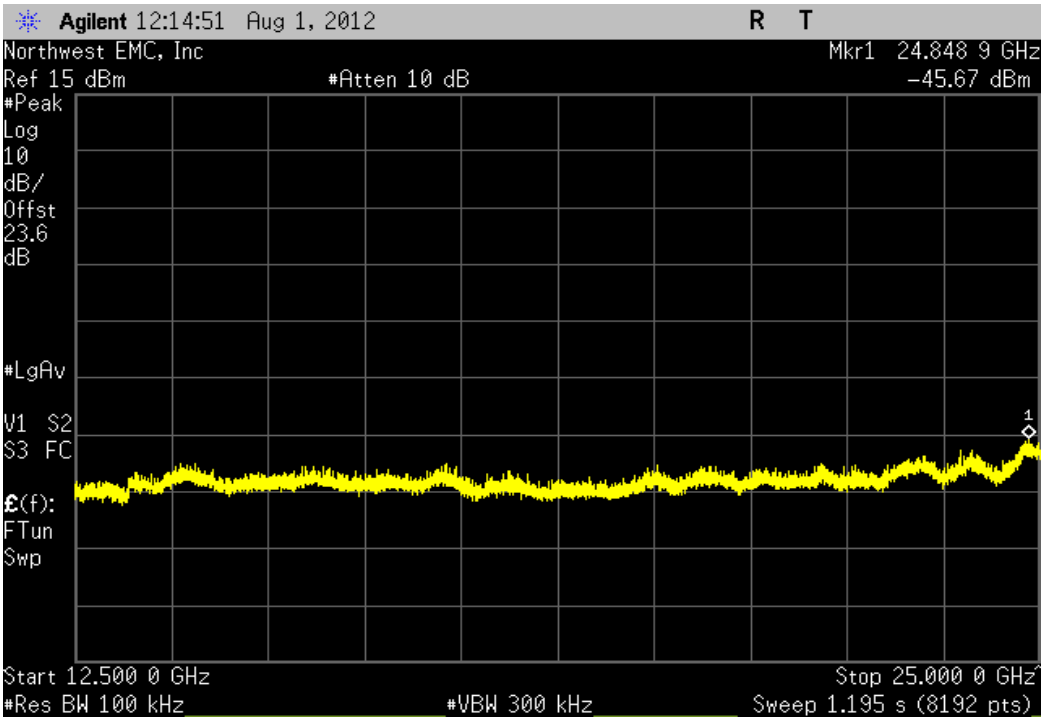
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



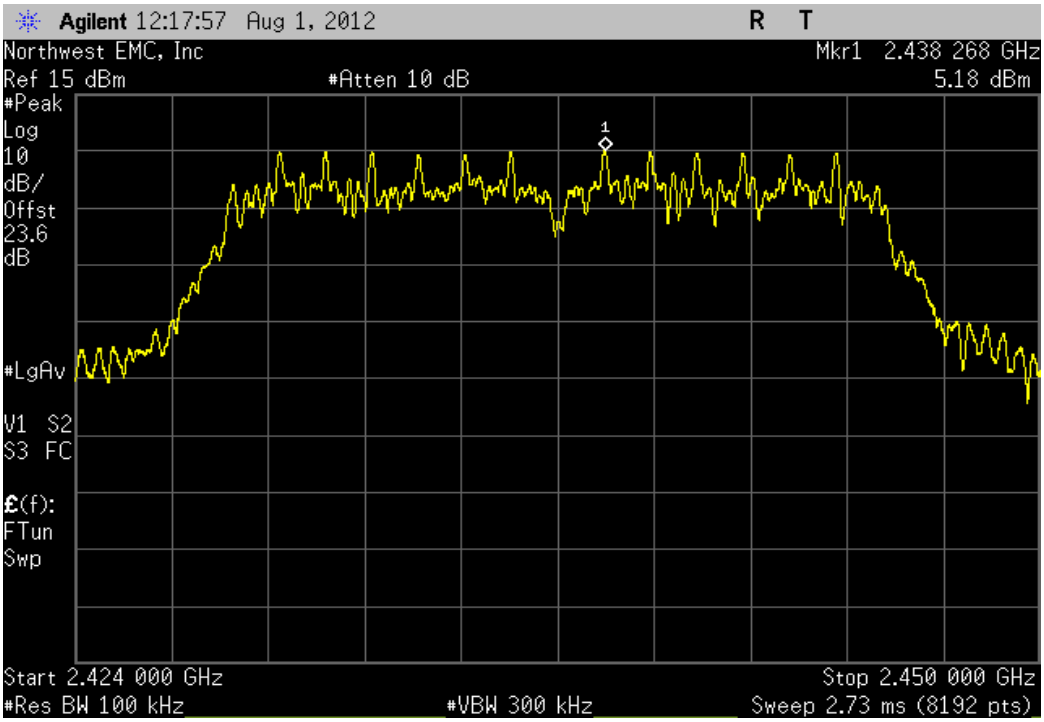
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B					
Frequency Range		Value	Limit	Result	
30 MHz - 12.5 GHz		-57.54 dBc	≤ -20 dBc	Pass	



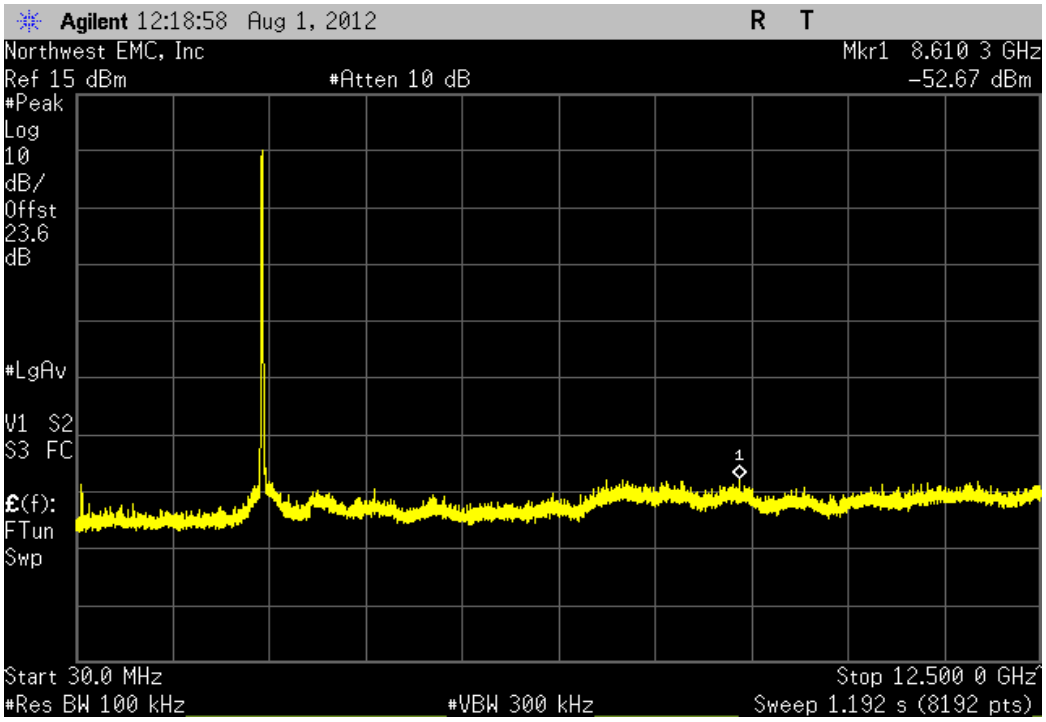
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.08 dBc	≤ -20 dBc	Pass



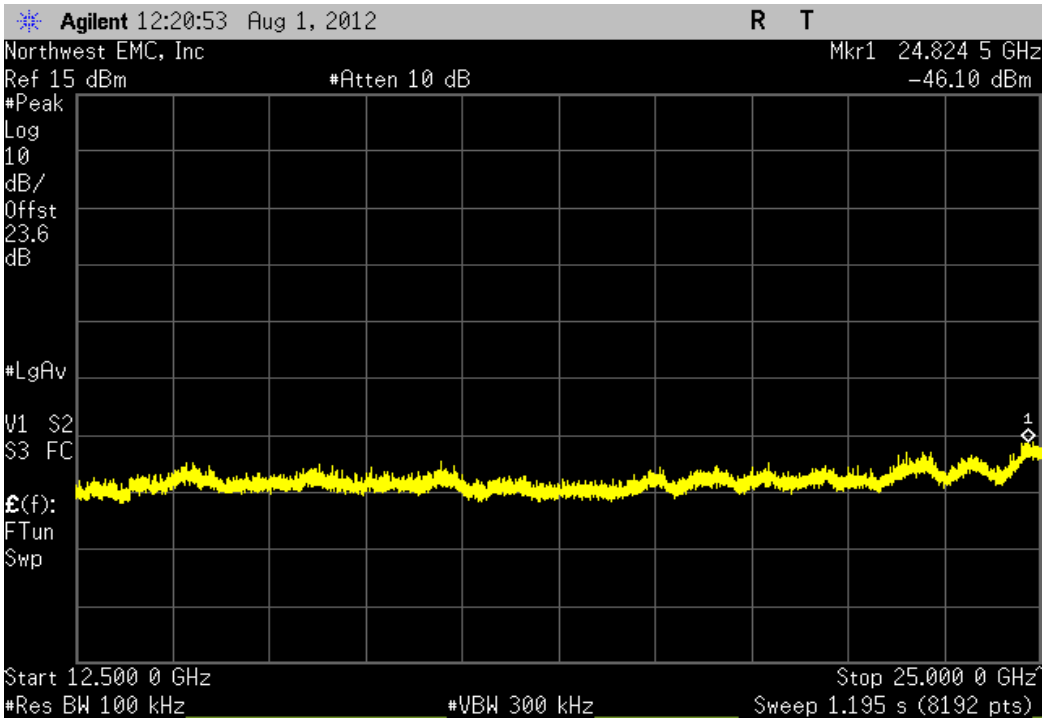
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



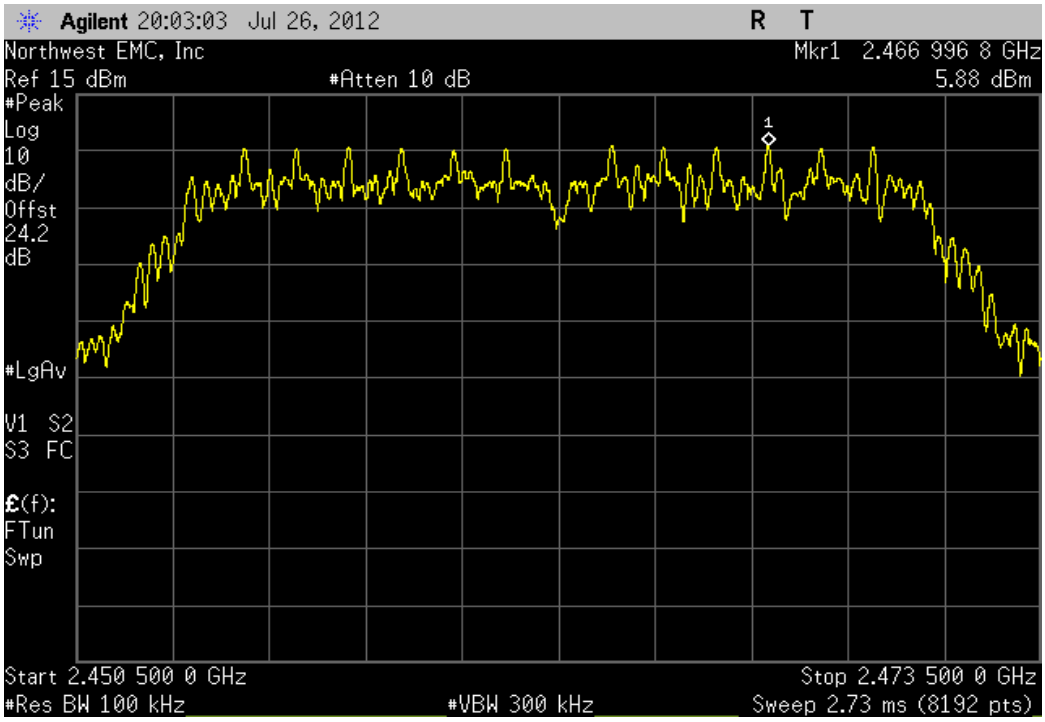
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-57.85 dBc	≤ -20 dBc	Pass



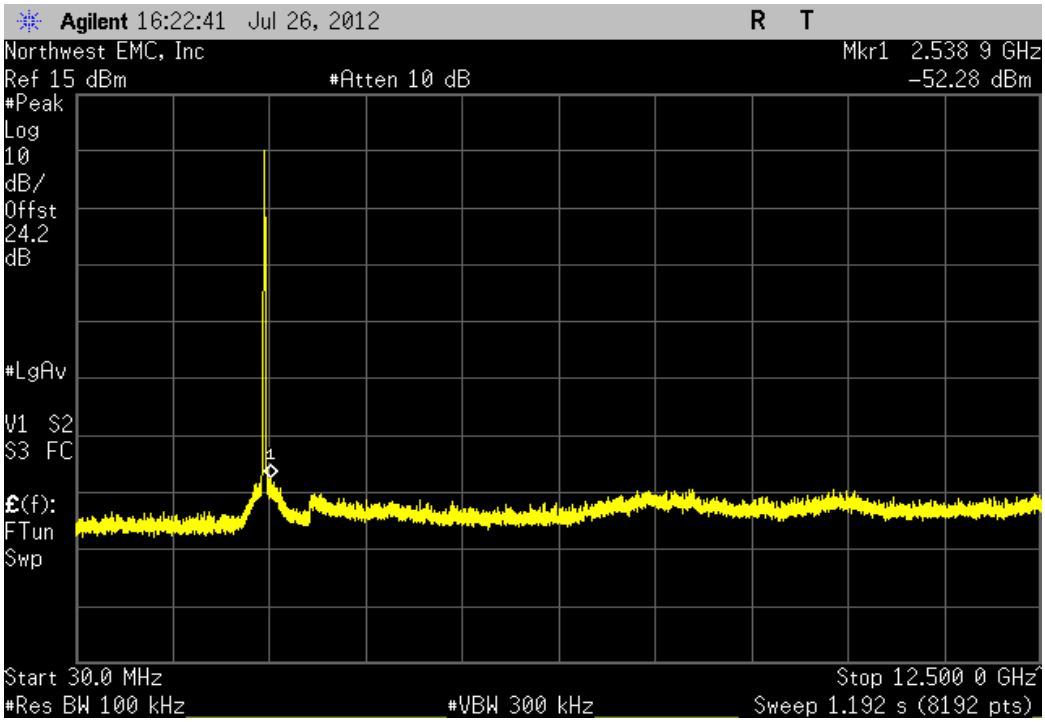
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-51.28 dBc	≤ -20 dBc	Pass



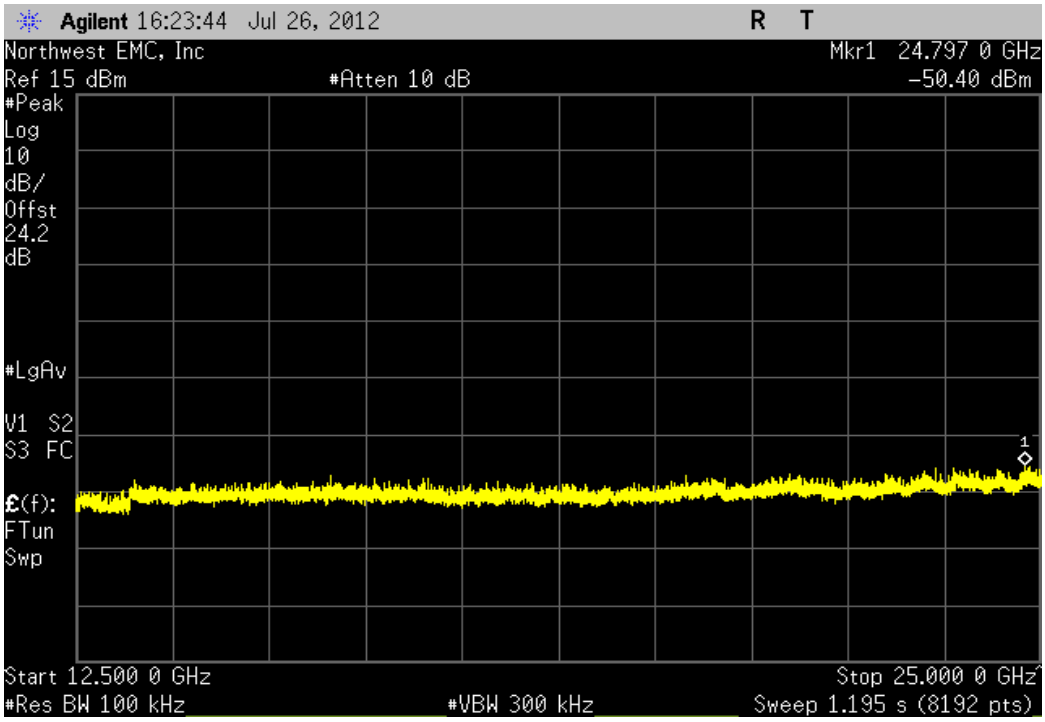
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



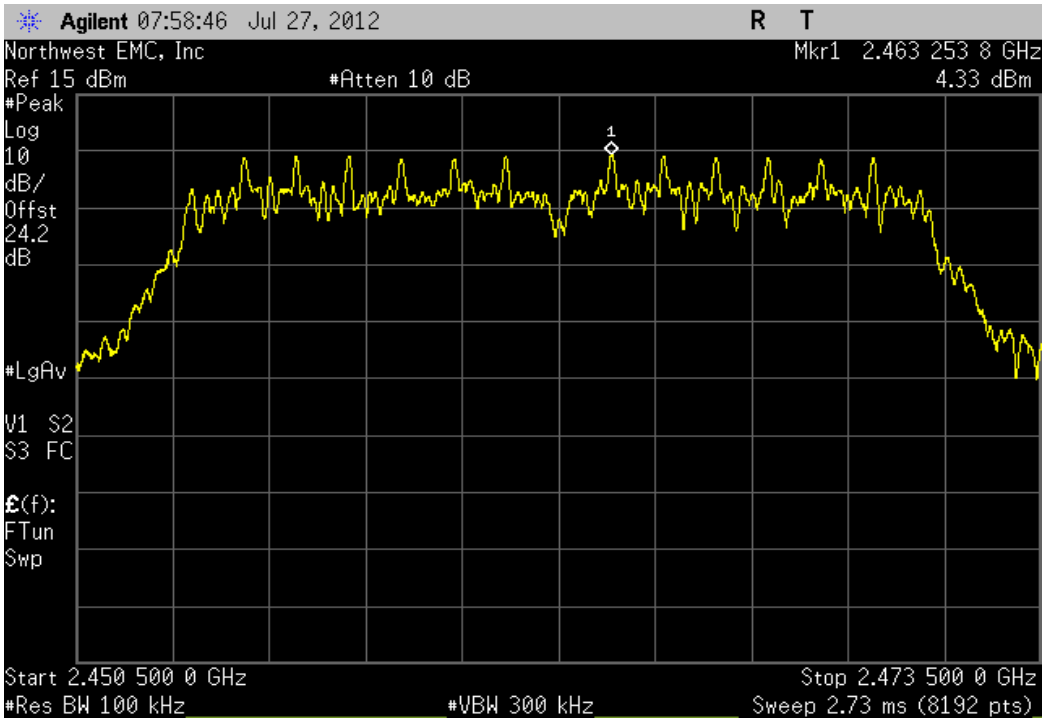
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B					
	Frequency Range		Value	Limit	Result
	30 MHz - 12.5 GHz		-52.11 dBc	≤ -20 dBc	Pass



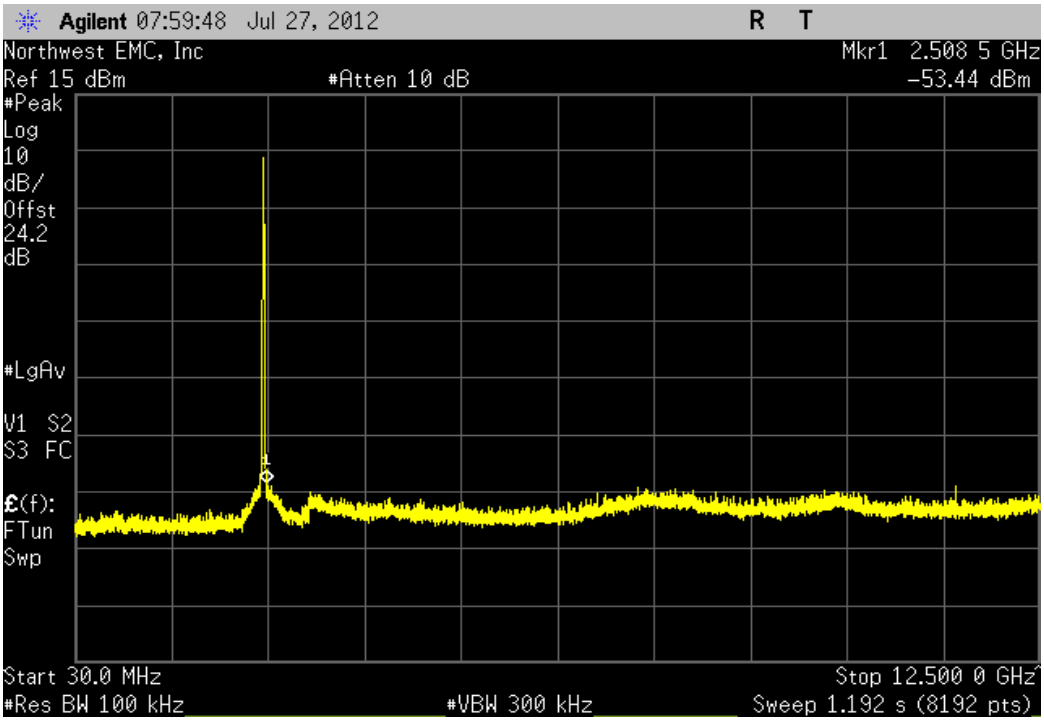
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-50.23 dBc	≤ -20 dBc	Pass



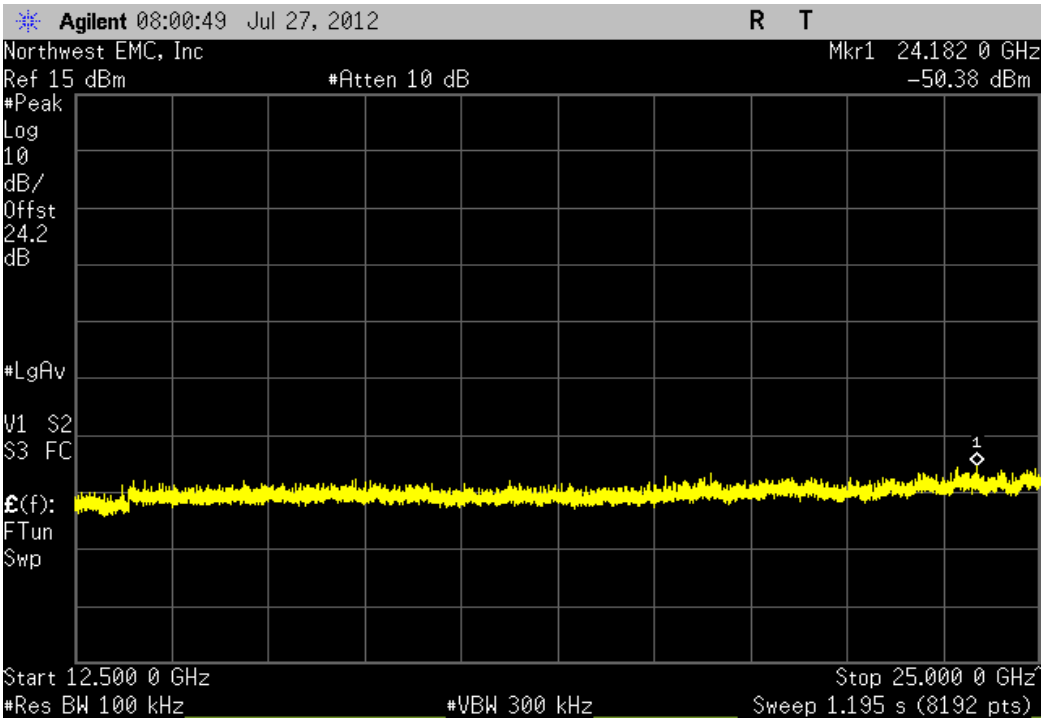
20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A						
	Frequency Range			Value	Limit	Result
	Fundamental			N/A	N/A	N/A



20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-57.77 dBc	≤ -20 dBc	Pass



20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-54.71 dBc	≤ -20 dBc	Pass



Power Spectral Density

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12
40GHz DC Block	Miteq	DCB4000	AMD	6/25/2012	12
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	3/21/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	12
Spectrum Analyzer	Agilent	E4440	AFE	1/23/2012	12

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

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

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

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

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

BWCF = 10*LOG (3 kHz / 100 kHz) = -15.2 dB

The power levels used while under test were 11dBm for 5GHz frequencies with a 40MHz bandwidth, 12dBm for 5GHz frequencies with a 20MHz bandwidth, 16dBm for 2.4GHz frequencies with a 20MHz bandwidth and 11dBm for 2.4GHz frequencies with a 40MHz bandwidth.

This testing was only done on the worst case output power modes / antenna ports as noted elsewhere in this report.

The guidance for testing multiple outputs as defined in KDB662911 D01 v01r01 item (2) was followed: *Measure and add 10 log (N) dB* , where *N* is the numer of outputs.

Power Spectral Density

EUT:	1516			**Work Order:**	MCSO1601
Serial Number:	000309122652			**Date:**	08/01/12
Customer:	Microsoft Corporation			**Temperature:**	24°C
Attendees:	None			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1021
Tested by:	Brandon Hobbs	**Power:**	12VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

EUT was set to 100% duty cycle for all the points listed.

DEVIATIONS FROM TEST STANDARD

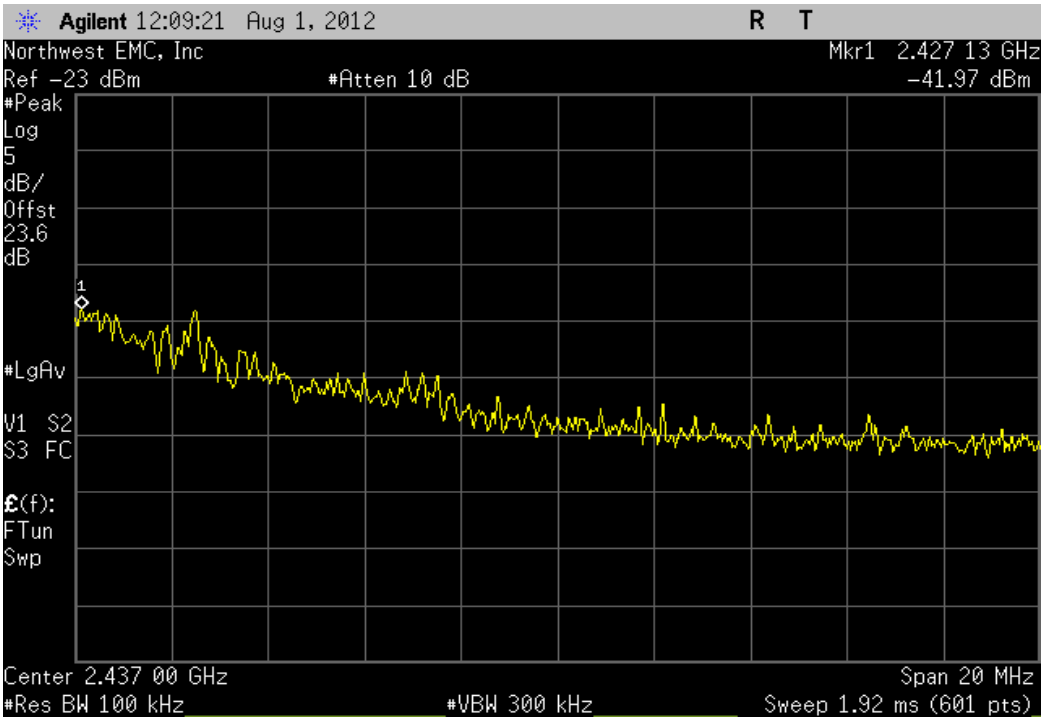
None

Configuration #	2	Signature

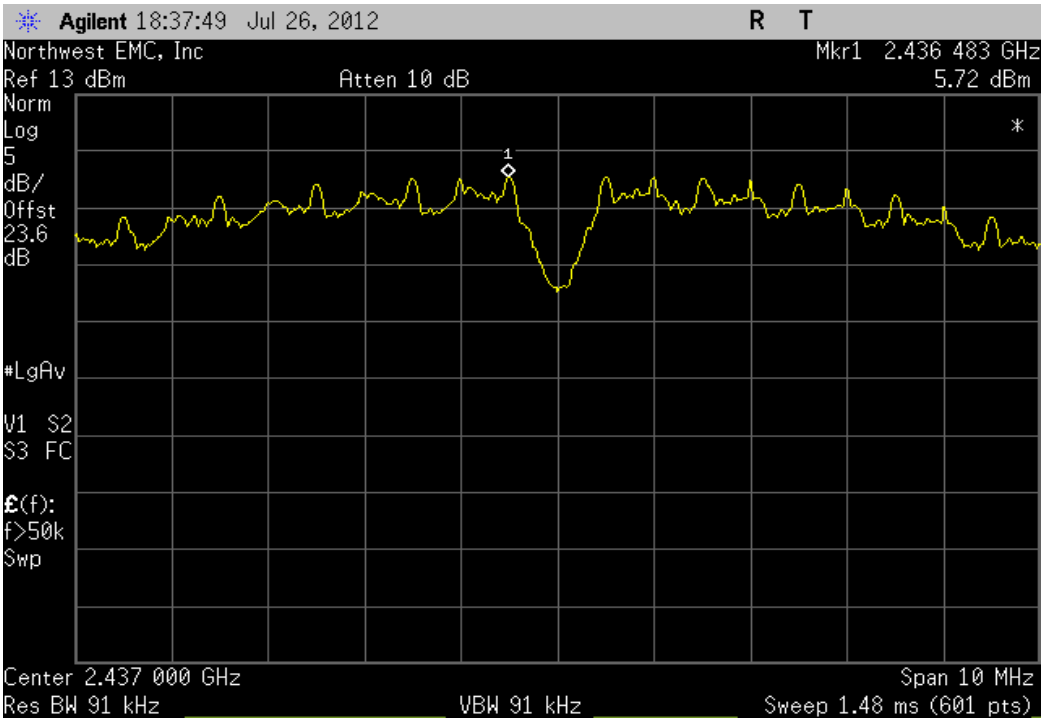
	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
20MHz					
802.11(b) 1 Mbps					
Low Channel 1, 2412 MHz					
Antenna B	-41.97	-15.2	-57.17	8	Pass
Mid Channel 6, 2437 MHz					
Antenna B	5.718	-15.2	-9.482	8	Pass
High Channel 11, 2462 MHz					
Antenna B	5.644	-15.2	-9.556	8	Pass
802.11(b) 11 Mbps					
Low Channel 1, 2412 MHz					
Antenna A	8.319	-15.2	-6.881	8	Pass
Mid Channel 6, 2437 MHz					
Antenna A	7.388	-15.2	-7.812	8	Pass
High Channel 11, 2462 MHz					
Antenna A	6.881	-15.2	-8.319	8	Pass
802.11(g) 6 Mbps					
Low Channel 1, 2412 MHz					
Antenna B	4.796	-15.2	-10.404	8	Pass
Antenna A	4.452	-15.2	-10.748	8	Pass
Mid Channel 6, 2437 MHz					
Antenna B	5.205	-15.2	-9.995	8	Pass
Antenna A	5.046	-15.2	-10.154	8	Pass
High Channel 11, 2462 MHz					
Antenna B	5.213	-15.2	-9.987	8	Pass
Antenna A	3.104	-15.2	-12.096	8	Pass
802.11(a) 6 Mbps					
Low Channel 149, 5745 MHz					
Antenna B	-0.324	-15.2	-15.524	8	Pass
Mid Channel 157, 5785 MHz					
Antenna B	-0.91	-15.2	-16.11	8	Pass
High Channel 165, 5825 MHz					
Antenna B	-1.404	-15.2	-16.604	8	Pass
802.11(a) 36 Mbps					
Low Channel 149, 5745 MHz					
Antenna A	-0.809	-15.2	-16.009	8	Pass
Mid Channel 157, 5785 MHz					
Antenna A	0.051	-15.2	-15.149	8	Pass
High Channel 165, 5825 MHz					
Antenna A					
802.11(n) MCS15					
Low Channel 1, 2412 MHz					
Antenna B	5.278	-15.2	-9.922	8	Pass
Antenna A	4.41	-15.2	-10.79	8	Pass
Mid Channel 6, 2437 MHz					
Antenna B	5.61	-15.2	-9.59	8	Pass
Antenna A	5.269	-15.2	-9.931	8	Pass
High Channel 11, 2462 MHz					
Antenna B	6.039	-15.2	-9.161	8	Pass
Antenna A	4.821	-15.2	-10.379	8	Pass
Power Summing Antenna Chain AB	Measured		Summed		
802.11(n) MCS15	Value	Sum Factor	Value		
Low Channel 1, 2412 MHz	dBm/3kHz	(dB)	dBm/3kHz		
Antenna B	-9.922	3	-6.922	8	Pass
Antenna A	-10.79	3	-7.79	8	Pass
Mid Channel 6, 2437 MHz					
Antenna B	-9.59	3	-6.59	8	Pass
Antenna A	-9.931	3	-6.931	8	Pass
High Channel 11, 2462 MHz					
Antenna B	-9.161	3	-6.161	8	Pass
Antenna A	-10.379	3	-7.379	8	Pass

Power Spectral Density

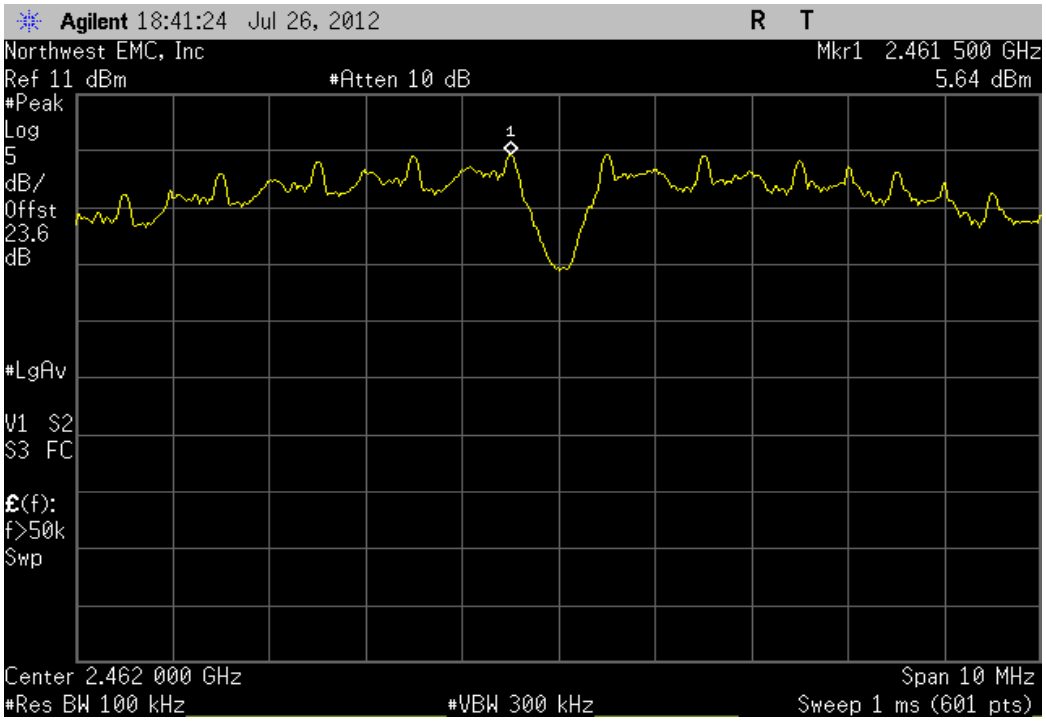
20MHz, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-41.97	-15.2	-57.17	8	Pass



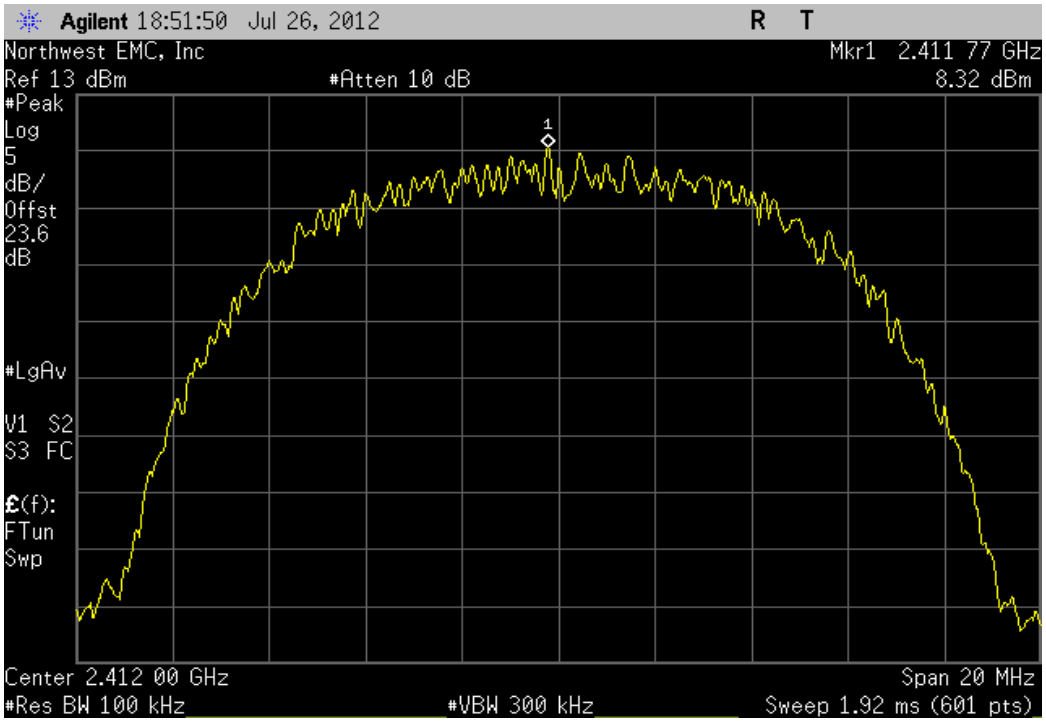
20MHz, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.718	-15.2	-9.482	8	Pass



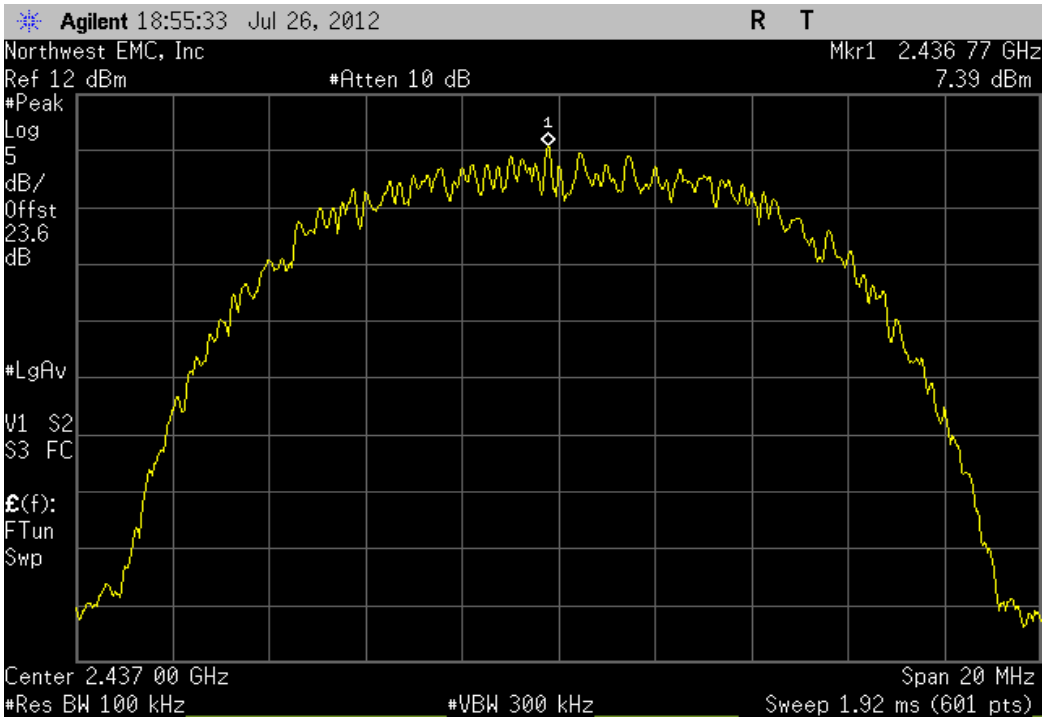
20MHz, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.644	-15.2	-9.556	8	Pass



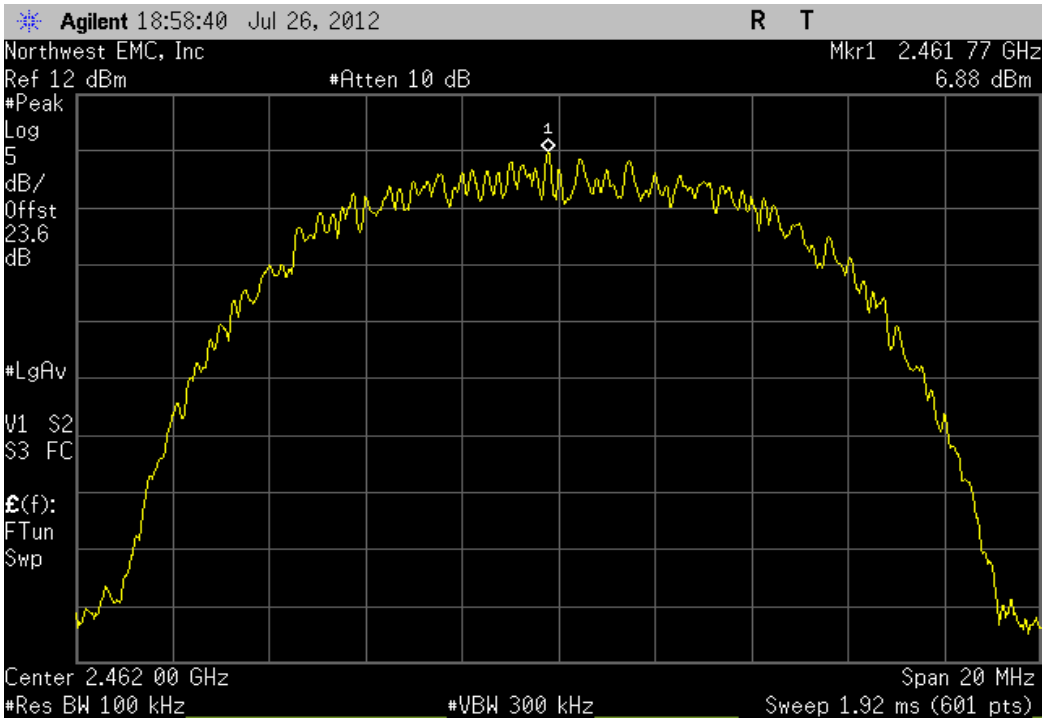
20MHz, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		8.319	-15.2	-6.881	8	Pass



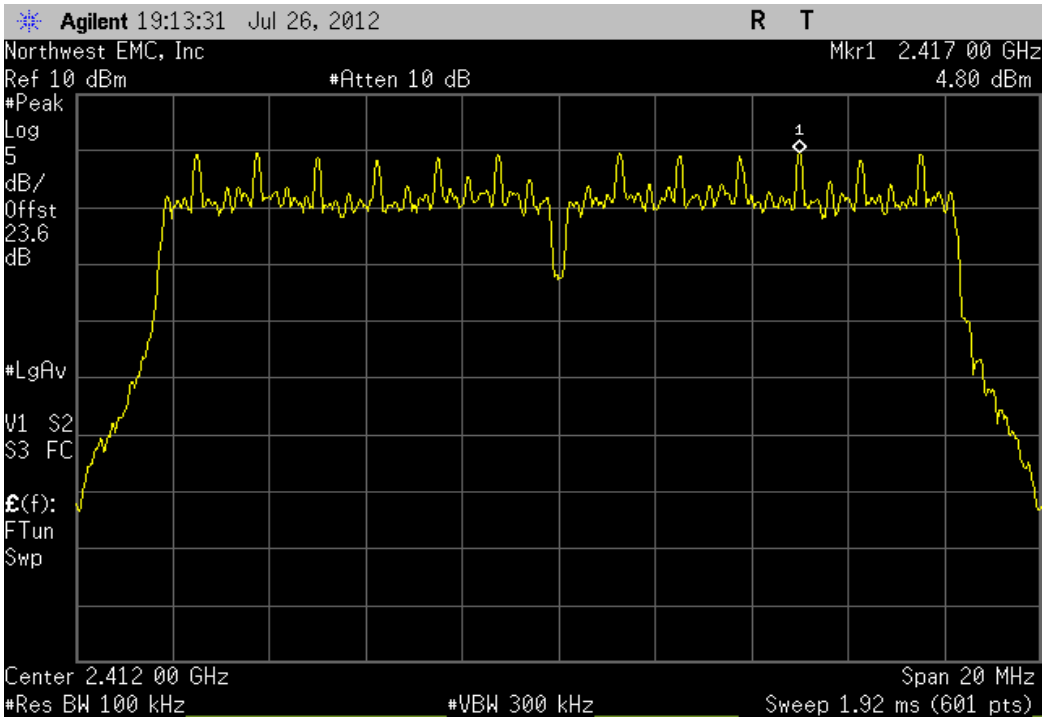
20MHz, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		7.388	-15.2	-7.812	8	Pass



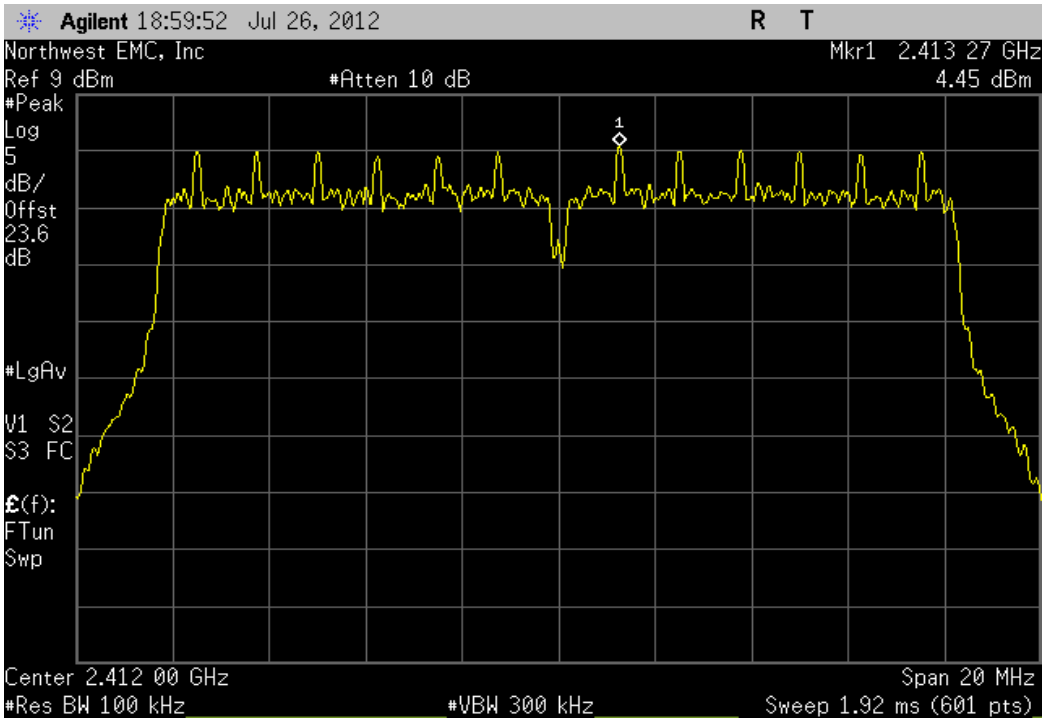
20MHz, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		6.881	-15.2	-8.319	8	Pass



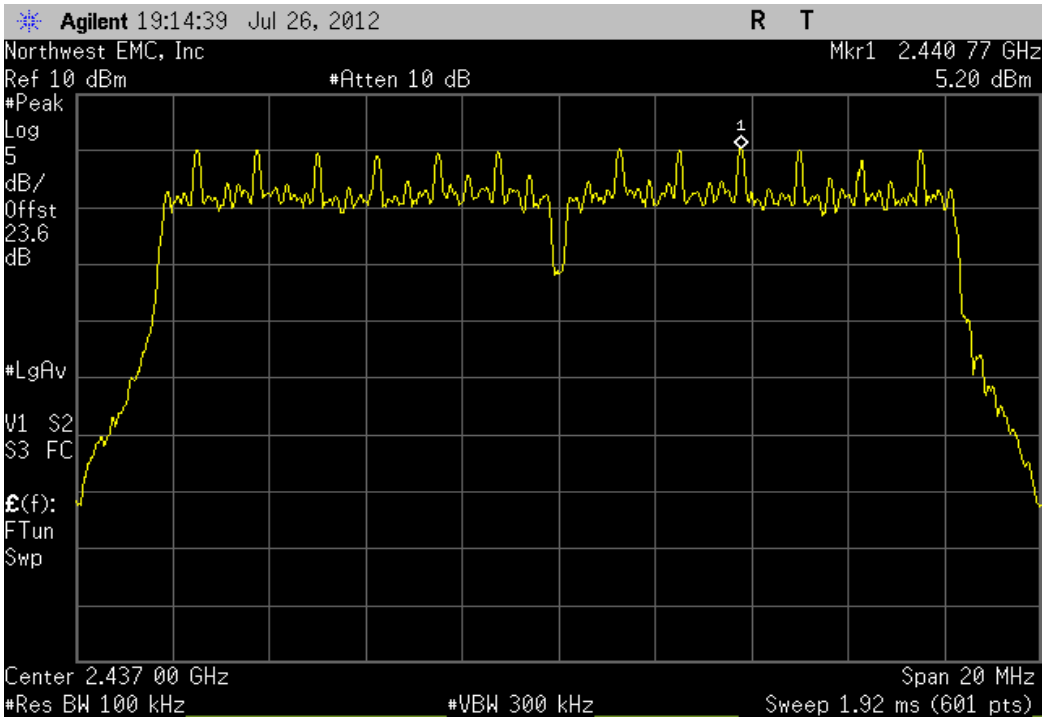
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.796	-15.2	-10.404	8	Pass



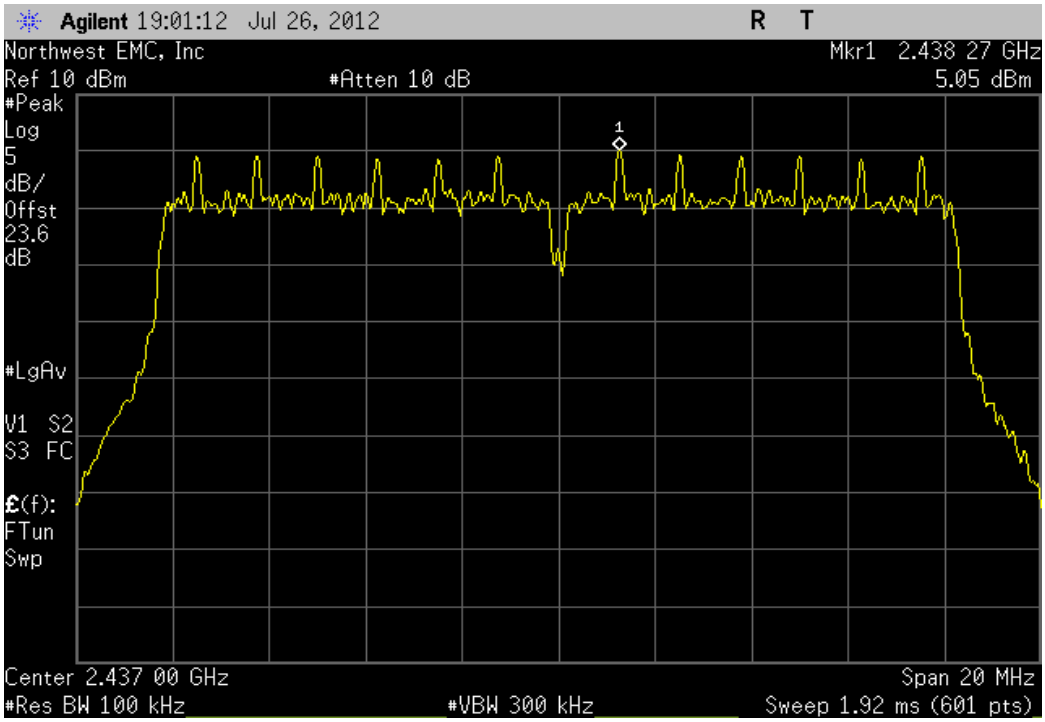
20MHz, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.452	-15.2	-10.748	8	Pass



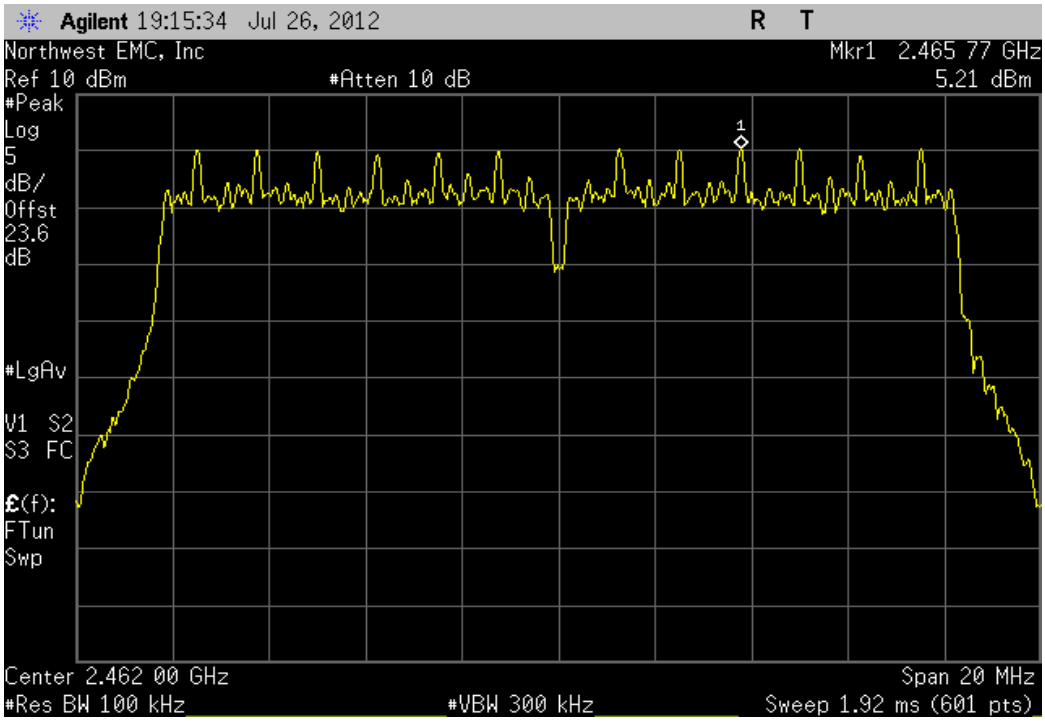
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.205	-15.2	-9.995	8	Pass



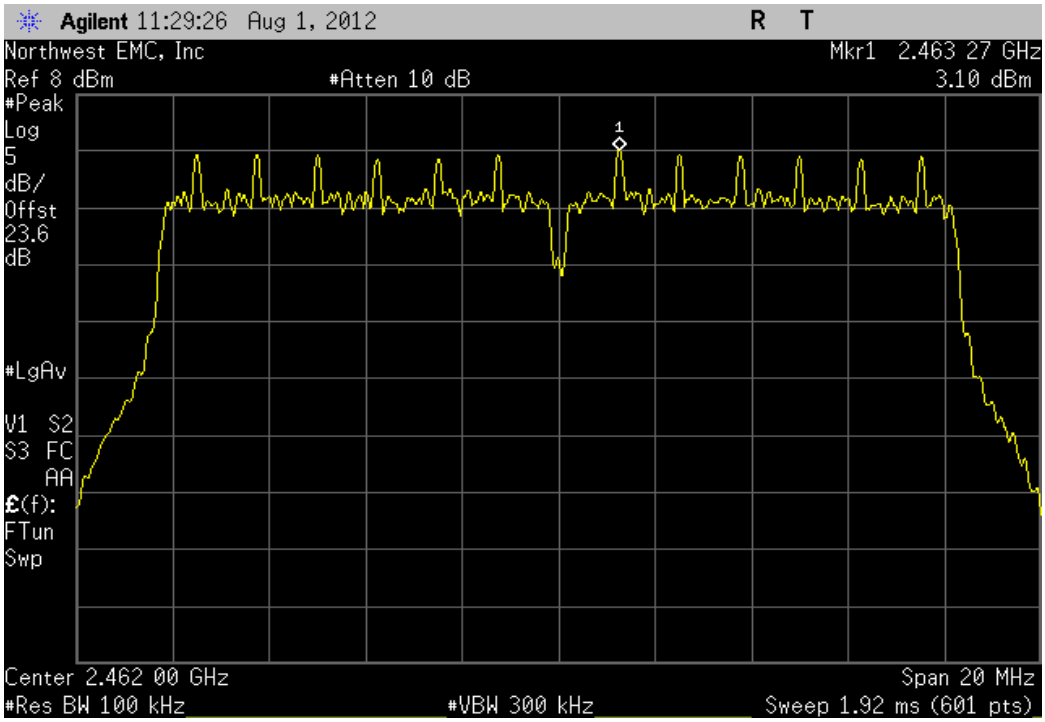
20MHz, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.046	-15.2	-10.154	8	Pass



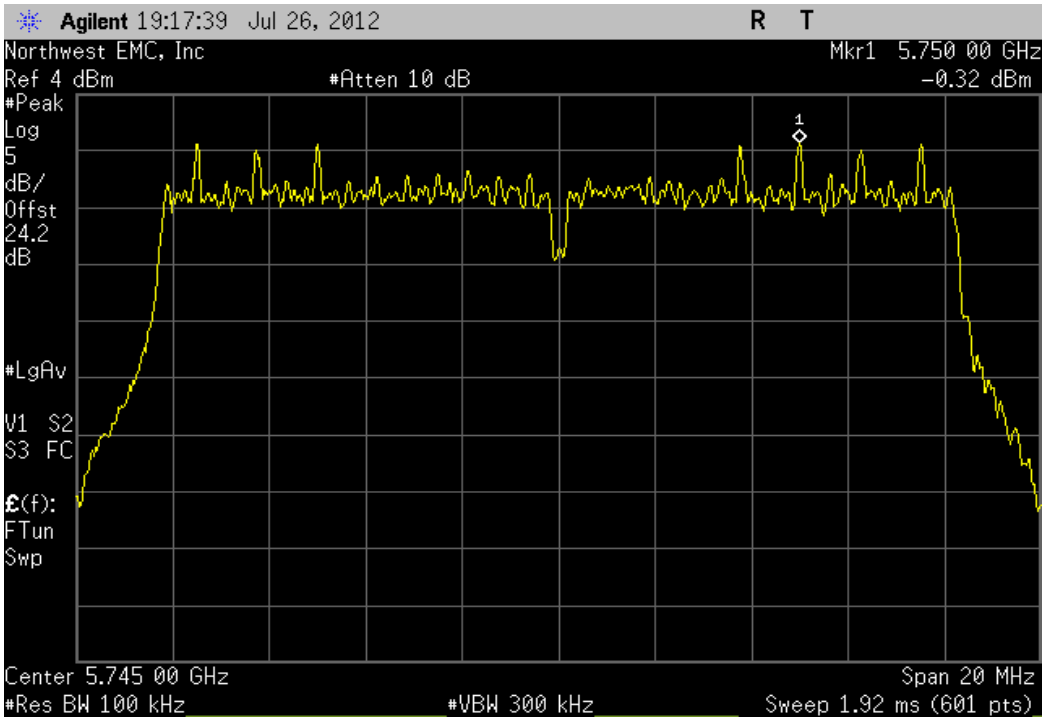
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.213	-15.2	-9.987	8	Pass



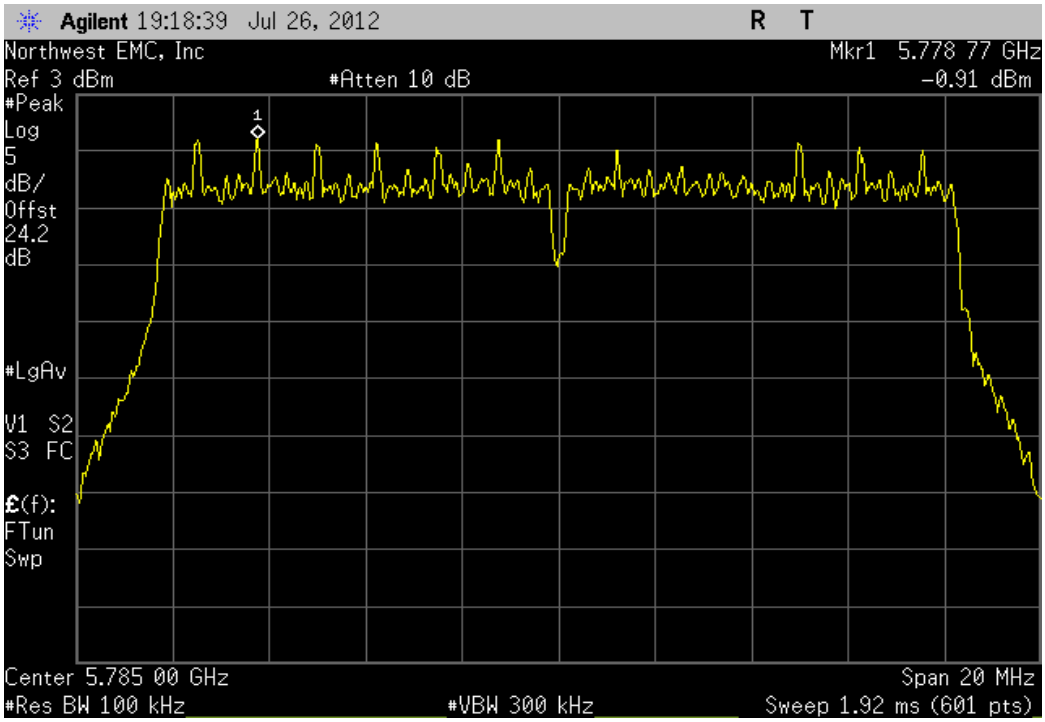
20MHz, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		3.104	-15.2	-12.096	8	Pass



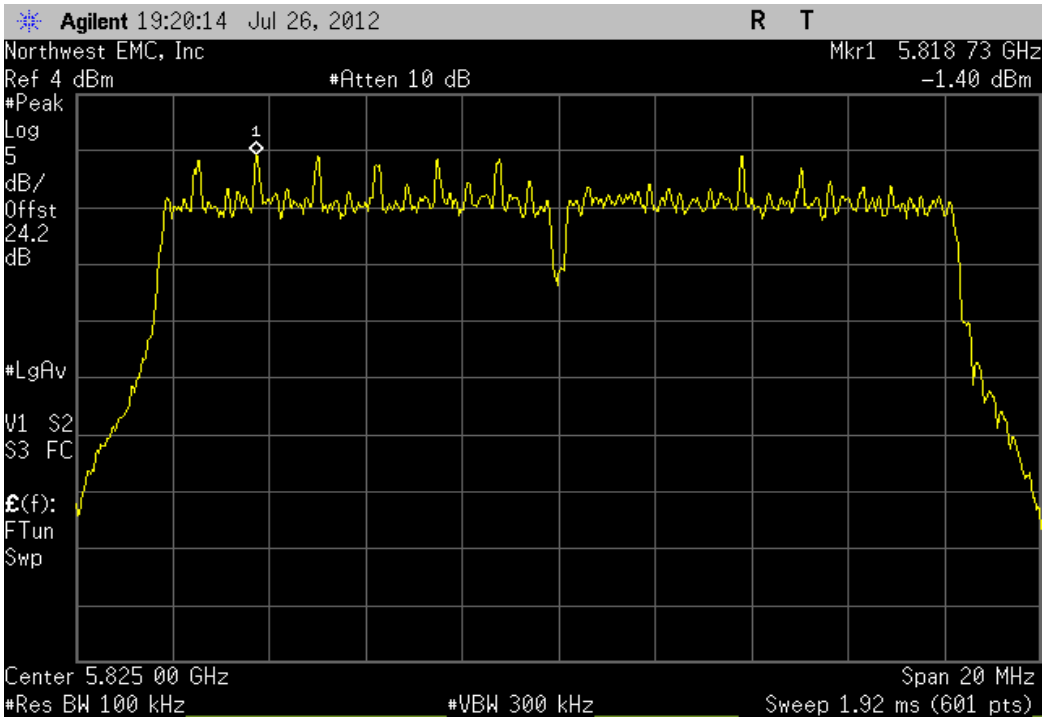
20MHz, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-0.324	-15.2	-15.524	8	Pass



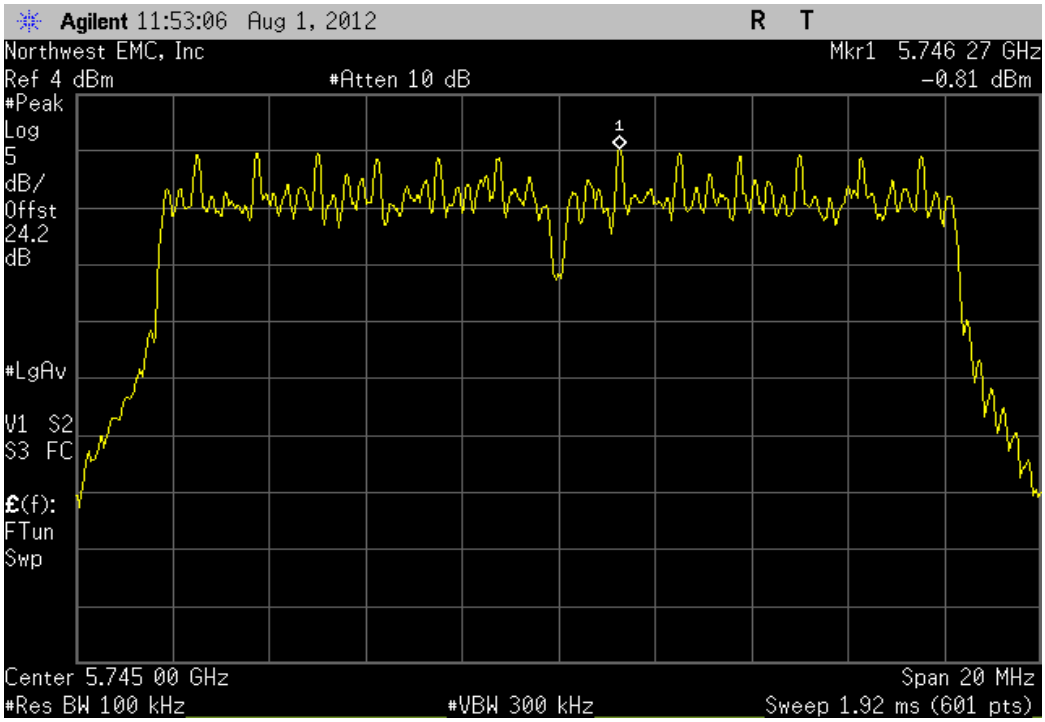
20MHz, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-0.91	-15.2	-16.11	8	Pass



20MHz, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-1.404	-15.2	-16.604	8	Pass

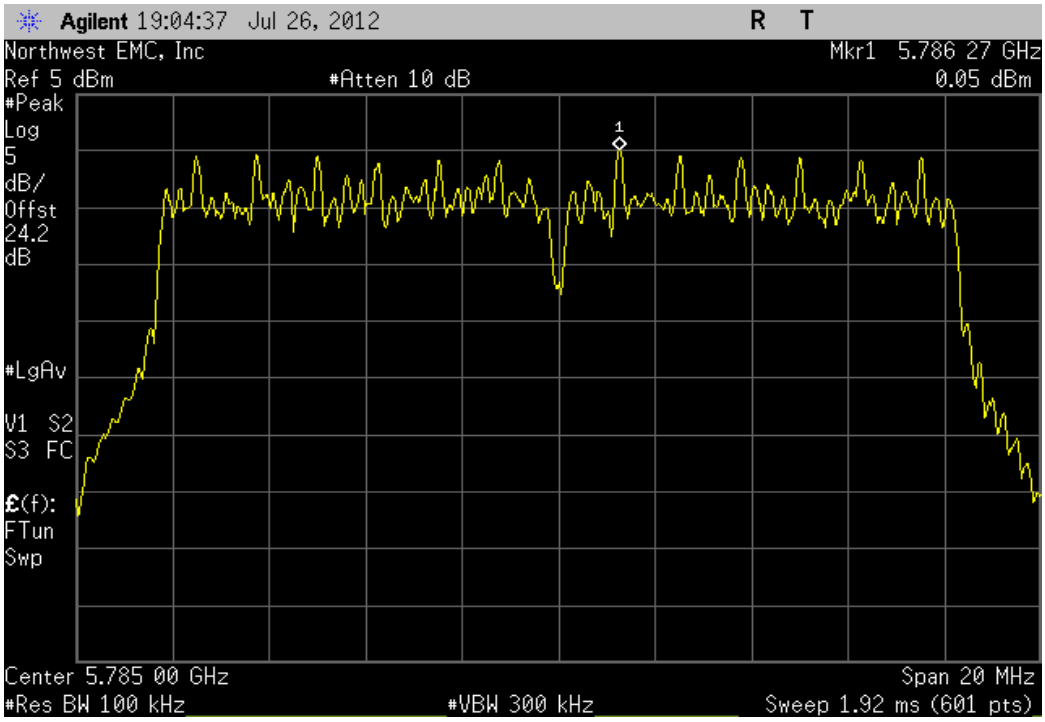


20MHz, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		-0.809	-15.2	-16.009	8	Pass



Power Spectral Density

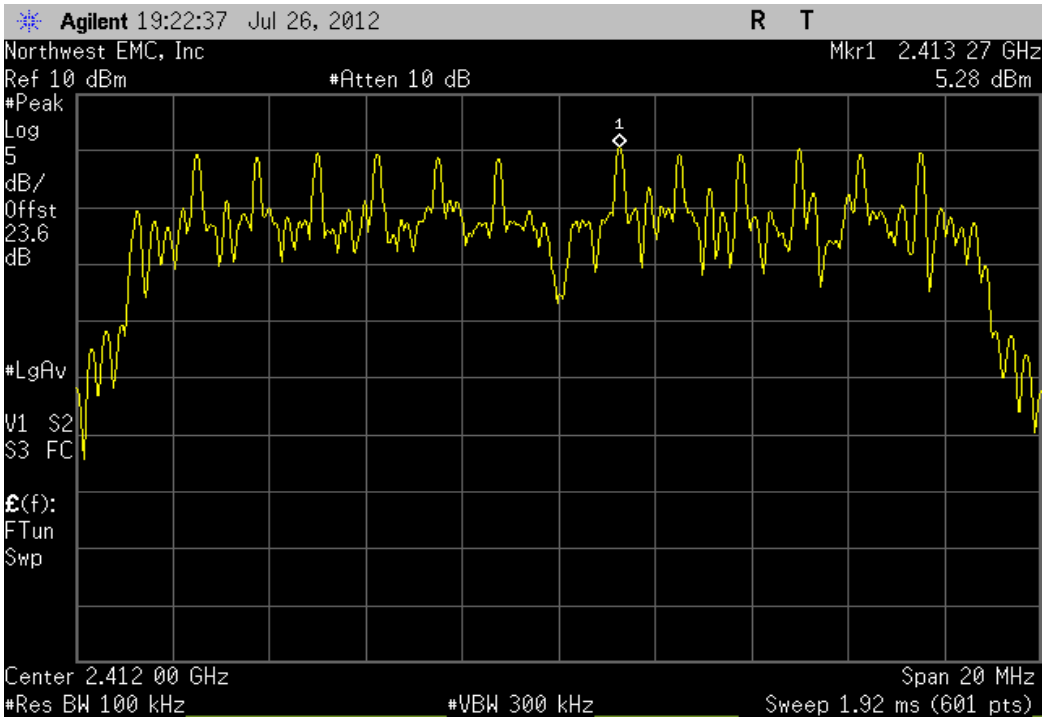
20MHz, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		0.051	-15.2	-15.149	8	Pass



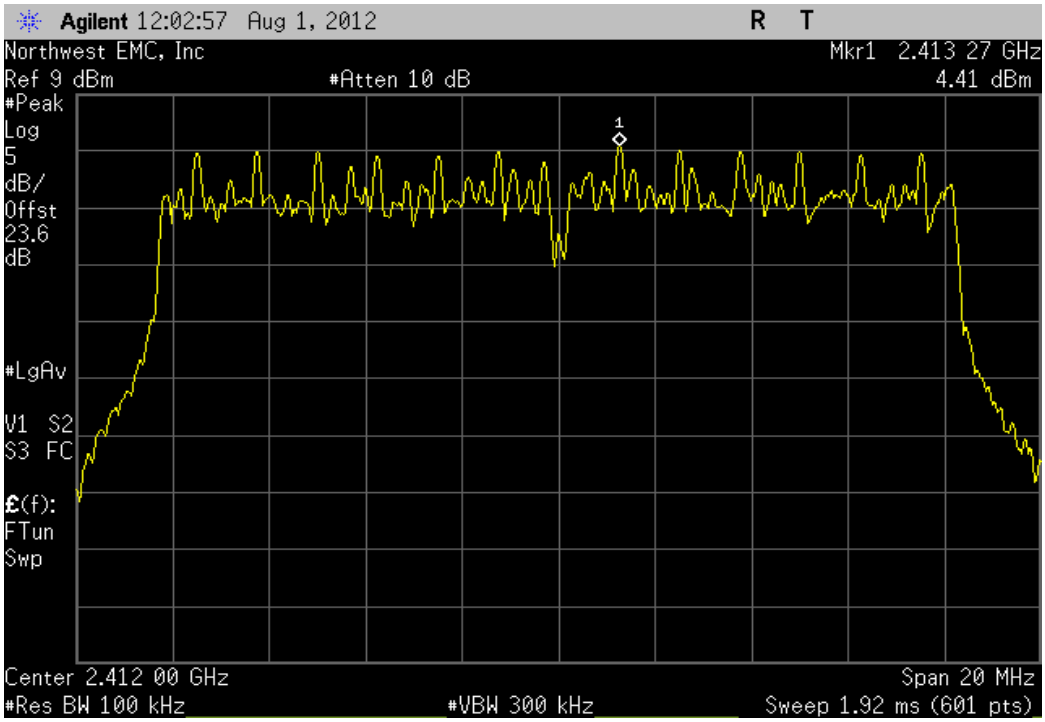
20MHz, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result

No Image Taken

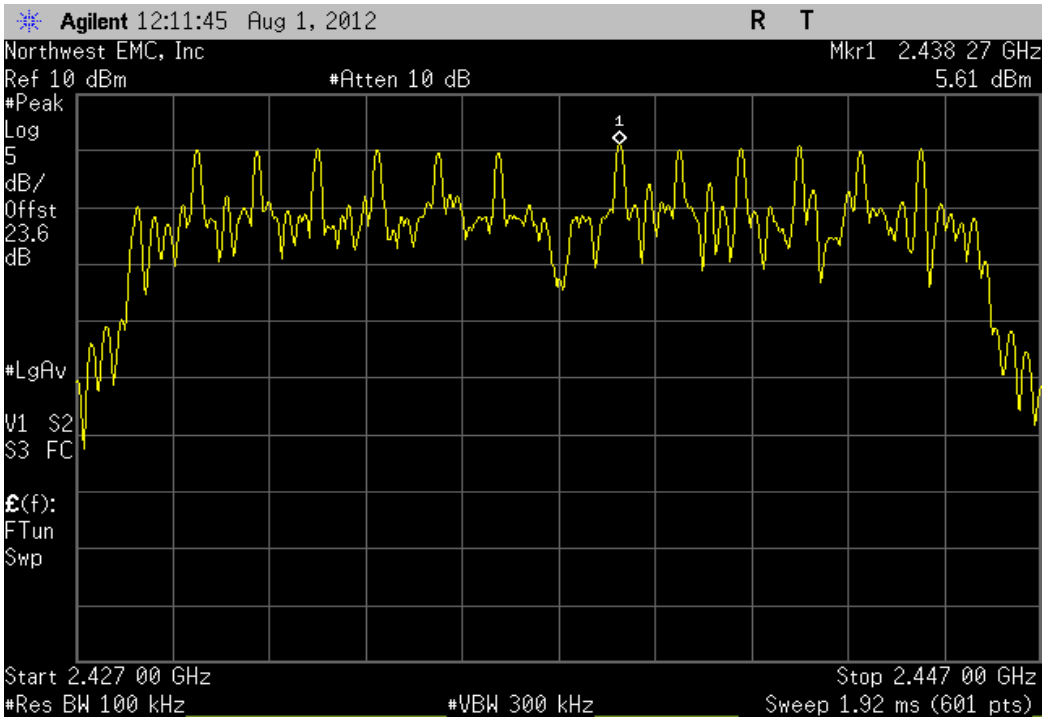
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.278	-15.2	-9.922	8	Pass



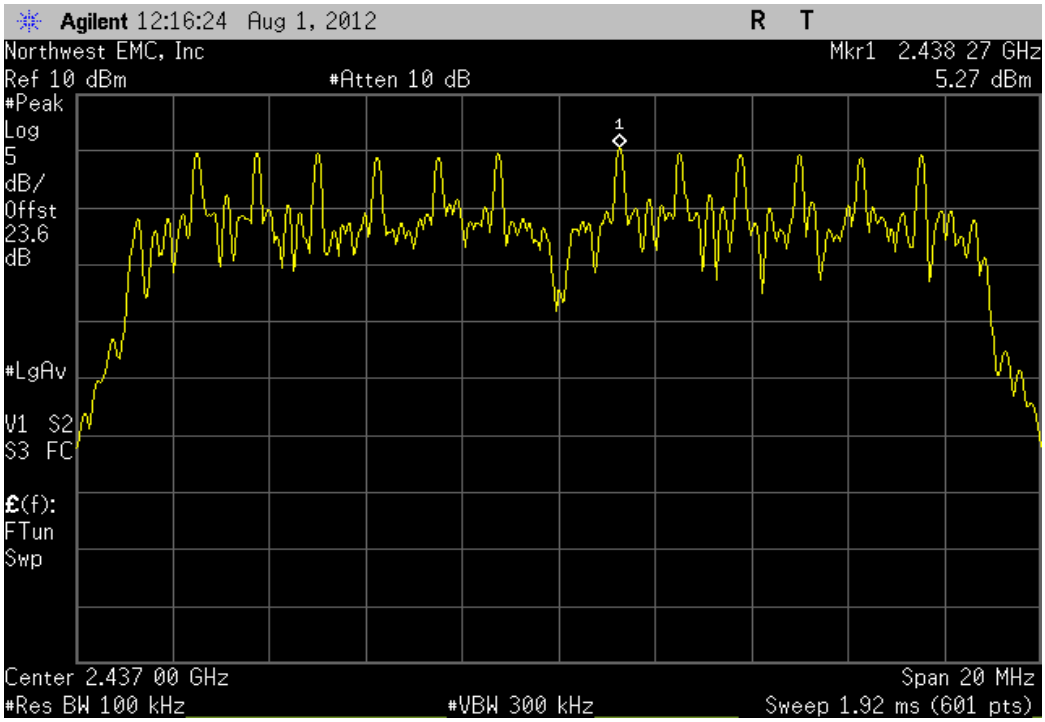
20MHz, 802.11(n) MCS15, Low Channel 1, 2412 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.41	-15.2	-10.79	8	Pass



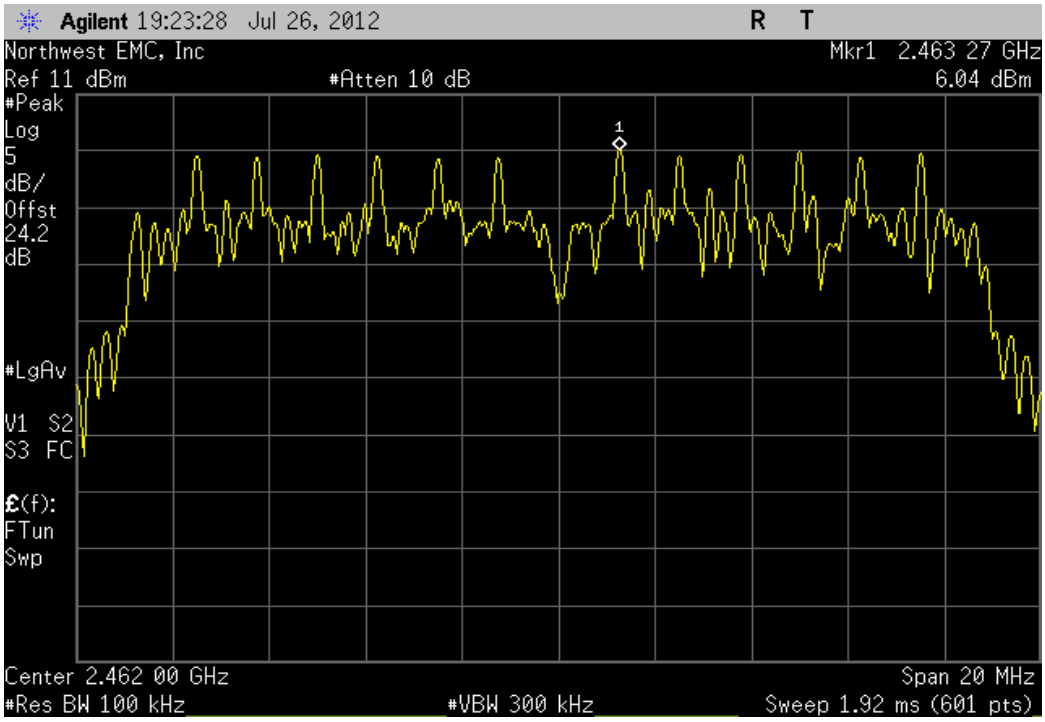
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.61	-15.2	-9.59	8	Pass



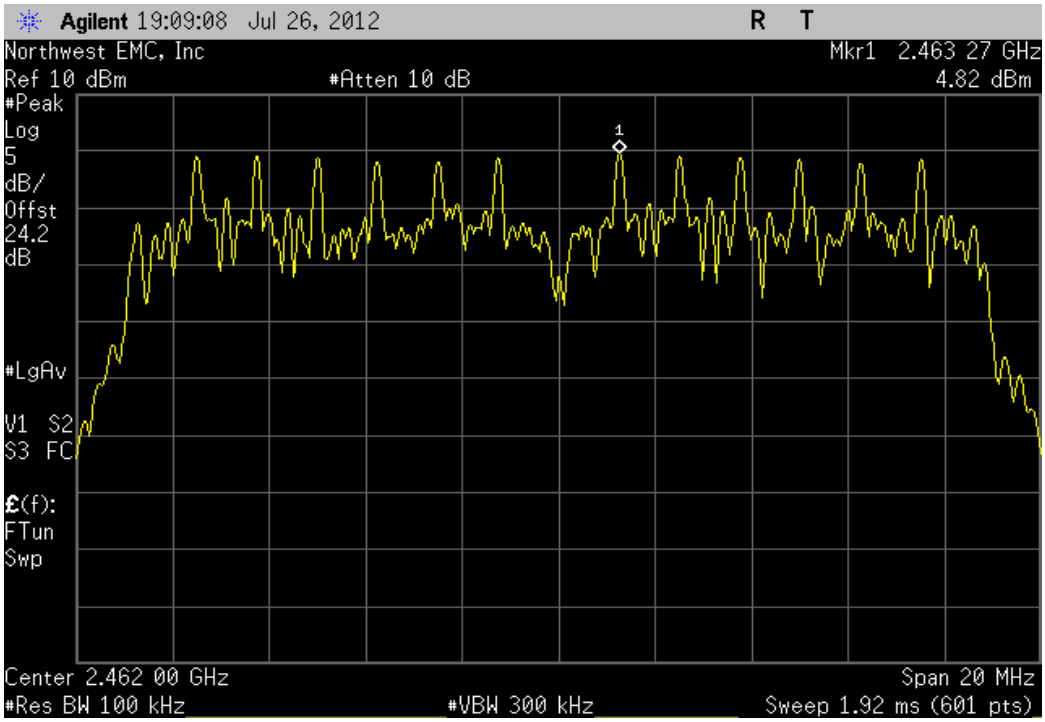
20MHz, 802.11(n) MCS15, Mid Channel 6, 2437 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		5.269	-15.2	-9.931	8	Pass



20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna B						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		6.039	-15.2	-9.161	8	Pass



20MHz, 802.11(n) MCS15, High Channel 11, 2462 MHz, Antenna A						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		4.821	-15.2	-10.379	8	Pass



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, 2.4 GHz Band
802.11(b), 1 Mbps
802.11(b), 11 Mbps
802.11(g), 6 Mbps
802.11(g), 36 Mbps
802.11(g), 54 Mbps
802.11(N), MCS0
802.11(N), MCS7
802.11(N), MCS8
802.11(N), MCS15

CHANNELS TESTED, 2.4 GHz Band, 20MHz CHANNEL BANDWIDTH
Low Channel 1, 2412 MHz
Mid Channel 6, 2437 MHz
High Channel 11, 2462 MHz

CHANNELS TESTED, 2.4 GHz Band, 40MHz CHANNEL BANDWIDTH
Low Channel 1/5, 2412/2432 MHz
Mid Channel 4/8, 2427/2447 MHz
High Channel 7/11, 2442/2462 MHz

MODES OF OPERATION, 5.8 GHz Band
802.11(a), 6 Mbps
802.11(a), 36 Mbps
802.11(a), 54 Mbps
802.11(N), MCS0
802.11(N), MCS7
802.11(N), MCS8
802.11(N), MCS15

CHANNELS TESTED, 5.8 GHz Band, 20MHz CHANNEL BANDWIDTH
Channel 149, 5745 MHz
Channel 157, 5785 MHz
Channel 165, 5825 MHz

CHANNELS TESTED, 5.8 GHz Band, 40MHz CHANNEL BANDWIDTH
Channel 149/153, 5745/5765 MHz
Channel 157/161, 5785/5805 MHz

ANTENNA CHAINS TESTED
Antenna Chain A
Antenna Chain B
Antenna Chain AB

POWER SETTINGS INVESTIGATED
120VAC/60Hz

CONFIGURATIONS INVESTIGATED
MCSO1608 - 1

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	40 GHz

TEST DESCRIPTION

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

The power levels used while under test for 2.4 GHz band 20MHz bandwidth were 16 dBm and for 2.4 GHz band 40MHz bandwidth were 11 dBm. The power levels used while under test for 5.8 GHz band 20MHz bandwidth were 12 dBm and for 5.8 GHz band with a 40MHz bandwidth were 11 dBm. The EUT was operated at a 100% duty cycle.

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.

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
Cable	ESM Cable Corp.	KMKM-72	EVY	9/12/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/12/2011	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	2/28/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2/28/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	2/28/2012	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/27/2012	12 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	24 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/26/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/26/2012	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	12 mo
High Pass Filter	Micro-Tronics	HPM50111	HFO	7/6/2012	24 mo
5.725-5.875 Notch Filter	Micro-Tronics	BRC50705	HGJ	3/21/2012	24 mo
High Pass Filter	Micro-Tronics	HPM50112	HGA	10/8/2010	24 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

MEASUREMENT UNCERTAINTY

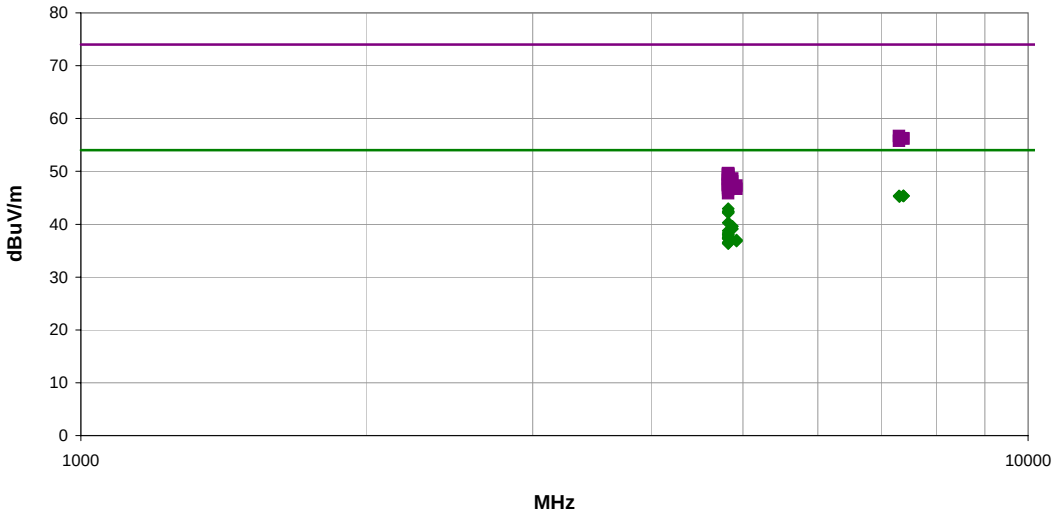
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/17/12		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	EV01	**Humidity:**	47.6% RH		
Serial Number:	364122652	**Barometric Pres.:**	1010.5 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n				
Deviations:	None				
Comments:	See comments below for EUT Orientation, Channel, Data Rate, and Antenna.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	26	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance ()	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Comments
7386.517	26.1	19.3	1.0	6.0	3.0	0.0	Horz	AV	0.0	45.4	54.0	-8.6	EUT On Side, High channel, 1Mbps, Ant. A
7385.917	26.1	19.3	1.0	0.0	3.0	0.0	Vert	AV	0.0	45.4	54.0	-8.6	EUT Vert, High channel, 1Mbps, Ant. A
7310.817	26.4	19.0	1.0	0.0	3.0	0.0	Vert	AV	0.0	45.4	54.0	-8.6	EUT Vert, Mid channel, 1Mbps, Ant. A
7312.325	26.3	19.0	1.4	4.0	3.0	0.0	Horz	AV	0.0	45.3	54.0	-8.7	EUT On Side, Mid channel, 1Mbps, Ant. A
4823.992	32.7	10.2	1.0	339.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	EUT Vert, Low channel, 1Mbps, Ant. A
4824.033	32.2	10.2	1.4	5.0	3.0	0.0	Horz	AV	0.0	42.4	54.0	-11.6	EUT On Side, Low channel, 1Mbps, Ant. A
4824.008	32.1	10.2	2.1	335.0	3.0	0.0	Vert	AV	0.0	42.3	54.0	-11.7	EUT Hori, Low channel, 1Mbps, Ant. A
4824.013	31.9	10.2	1.0	334.0	3.0	0.0	Vert	AV	0.0	42.1	54.0	-11.9	EUT Vert, Low channel, 1Mbps, Ant. A
4823.910	30.0	10.2	1.0	324.0	3.0	0.0	Vert	AV	0.0	40.2	54.0	-13.8	EUT Vert, Low channel, 11Mbps, Ant. A
4873.967	29.2	10.4	1.4	6.0	3.0	0.0	Horz	AV	0.0	39.6	54.0	-14.4	EUT On Side, Mid channel, 1Mbps, Ant. A
4874.008	28.7	10.4	1.1	213.0	3.0	0.0	Vert	AV	0.0	39.1	54.0	-14.9	EUT Vert, Mid channel, 1Mbps, Ant. A
4824.093	28.5	10.2	1.0	334.0	3.0	0.0	Vert	AV	0.0	38.7	54.0	-15.3	EUT Vert, Low channel, 11Mbps, Ant. A
4824.000	28.1	10.2	1.7	204.0	3.0	0.0	Horz	AV	0.0	38.3	54.0	-15.7	EUT Vert, Low channel, 1Mbps, Ant. A
4824.058	27.8	10.2	1.9	312.0	3.0	0.0	Horz	AV	0.0	38.0	54.0	-16.0	EUT Hori, Low channel, 1Mbps, Ant. A
4824.183	27.7	10.2	1.0	330.0	3.0	0.0	Vert	AV	0.0	37.9	54.0	-16.1	EUT Vert, Low channel, 54Mbps, Ant. A
4828.630	27.3	10.3	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.6	54.0	-16.4	EUT Vert, Low channel, MCS7, Ant. A
4828.600	27.3	10.3	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.6	54.0	-16.4	EUT Vert, Low channel, MCS15, Ant. AB
4828.330	27.3	10.3	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.6	54.0	-16.4	EUT Vert, Low channel, MCS0, Ant. A
4828.730	27.2	10.3	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.5	54.0	-16.5	EUT Vert, Low channel, MCS8, Ant. AB
4824.480	27.2	10.3	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.5	54.0	-16.5	EUT Vert, Low channel, 54Mbps, Ant. A
4824.027	27.2	10.2	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.4	54.0	-16.6	EUT Vert, Low channel, 6Mbps, Ant. A
4823.127	27.2	10.2	1.0	334.0	3.0	0.0	Vert	AV	0.0	37.4	54.0	-16.6	EUT Vert, Low channel, 36Mbps, Ant. A
4823.992	27.1	10.2	1.6	108.0	3.0	0.0	Vert	AV	0.0	37.3	54.0	-16.7	EUT On Side, Low channel, 1Mbps, Ant. A
4824.199	27.0	10.2	1.0	145.0	3.0	0.0	Vert	AV	0.0	37.2	54.0	-16.8	EUT Vert, Low channel, 11Mbps, Ant. B
4923.967	26.4	10.6	1.1	216.0	3.0	0.0	Vert	AV	0.0	37.0	54.0	-17.0	EUT Vert, High channel, 1Mbps, Ant. A
4924.058	26.2	10.6	1.4	6.0	3.0	0.0	Horz	AV	0.0	36.8	54.0	-17.2	EUT On Side, High channel, 1Mbps, Ant. A
7310.725	37.7	19.0	1.0	0.0	3.0	0.0	Vert	PK	0.0	56.7	74.0	-17.3	EUT Vert, Mid channel, 1Mbps, Ant. A
4823.832	26.3	10.2	1.0	286.0	3.0	0.0	Vert	AV	0.0	36.5	54.0	-17.5	EUT Vert, Low channel, MCS15, Ant. AB
4822.579	26.2	10.2	1.0	315.0	3.0	0.0	Vert	AV	0.0	36.4	54.0	-17.6	EUT Vert, Low channel, MCS7, Ant. B
4824.783	26.1	10.3	1.0	325.0	3.0	0.0	Vert	AV	0.0	36.4	54.0	-17.6	EUT Vert, Low channel, 54Mbps, Ant. B
7385.292	37.0	19.3	1.0	0.0	3.0	0.0	Vert	PK	0.0	56.3	74.0	-17.7	EUT Vert, High channel, 1Mbps, Ant. A
7386.883	36.9	19.3	1.0	6.0	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	EUT On Side, High channel, 1Mbps, Ant. A
7310.275	36.8	19.0	1.4	4.0	3.0	0.0	Horz	PK	0.0	55.8	74.0	-18.2	EUT On Side, Mid channel, 1Mbps, Ant. A
4824.045	39.4	10.2	1.0	324.0	3.0	0.0	Vert	PK	0.0	49.6	74.0	-24.4	EUT Vert, Low channel, 11Mbps, Ant. A

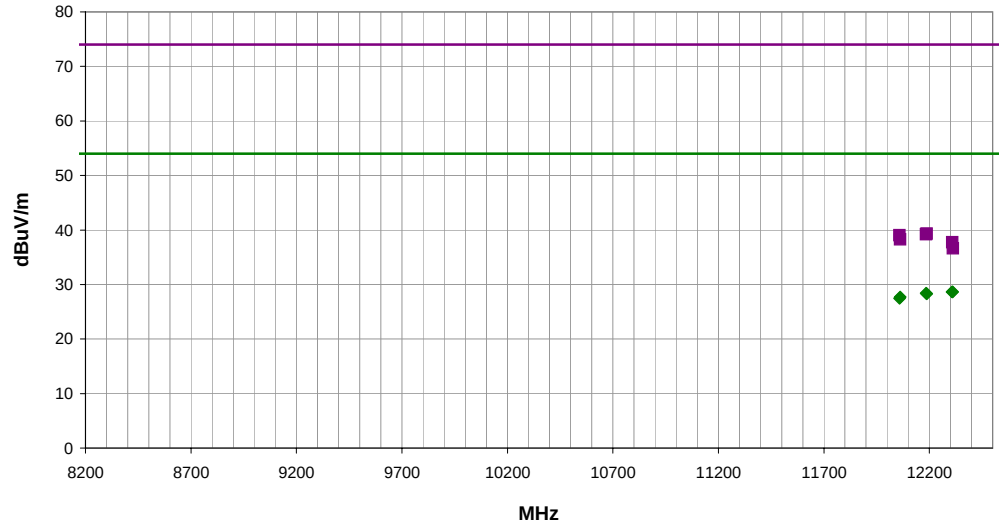
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance ()	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Comments
4823.942	39.3	10.2	2.1	335.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	EUT Hori, Low channel, 1Mbps, Ant. A
4823.727	39.3	10.2	1.0	334.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	EUT Vert, Low channel, 1Mbps, Ant. A
4824.175	39.1	10.2	1.0	339.0	3.0	0.0	Vert	PK	0.0	49.3	74.0	-24.7	EUT Vert, Low channel, 1Mbps, Ant. A
4823.933	39.1	10.2	1.4	5.0	3.0	0.0	Horz	PK	0.0	49.3	74.0	-24.7	EUT On Side, Low channel, 1Mbps, Ant. A
4828.500	38.6	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	EUT Vert, Low channel, MCS15, Ant. AB
4822.640	38.4	10.2	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Low channel, 11Mbps, Ant. A
4874.042	38.2	10.4	1.1	213.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Mid channel, 1Mbps, Ant. A
4828.830	38.3	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Low channel, MCS8, Ant. AB
4827.830	38.3	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Low channel, MCS7, Ant. A
4825.720	38.3	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Low channel, 6Mbps, Ant. A
4825.813	38.0	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	EUT Vert, Low channel, 54Mbps, Ant. A
4823.293	38.0	10.2	1.0	334.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	EUT Vert, Low channel, 36Mbps, Ant. A
4873.608	37.7	10.4	1.4	6.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	EUT On Side, Mid channel, 1Mbps, Ant. A
4828.330	37.5	10.3	1.0	334.0	3.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	EUT Vert, Low channel, MCS0, Ant. A
4823.800	37.5	10.2	1.0	330.0	3.0	0.0	Vert	PK	0.0	47.7	74.0	-26.3	EUT Vert, Low channel, 54Mbps, Ant. A
4825.770	37.2	10.3	1.0	325.0	3.0	0.0	Vert	PK	0.0	47.5	74.0	-26.5	EUT Vert, Low channel, 54Mbps, Ant. B
4823.900	37.2	10.2	1.9	312.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	EUT Hori, Low channel, 1Mbps, Ant. A
4823.842	37.2	10.2	1.7	204.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	EUT Vert, Low channel, 1Mbps, Ant. A
4924.017	36.7	10.6	1.4	6.0	3.0	0.0	Horz	PK	0.0	47.3	74.0	-26.7	EUT On Side, High channel, 1Mbps, Ant. A
4825.052	37.0	10.3	1.0	286.0	3.0	0.0	Vert	PK	0.0	47.3	74.0	-26.7	EUT Vert, Low channel, MCS15, Ant. AB
4824.079	36.6	10.2	1.0	145.0	3.0	0.0	Vert	PK	0.0	46.8	74.0	-27.2	EUT Vert, Low channel, 11Mbps, Ant. B
4923.600	36.1	10.6	1.1	216.0	3.0	0.0	Vert	PK	0.0	46.7	74.0	-27.3	EUT Vert, High channel, 1Mbps, Ant. A
4823.708	36.3	10.2	1.6	108.0	3.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	EUT On Side, Low channel, 1Mbps, Ant. A
4823.139	35.6	10.2	1.0	315.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	EUT Vert, Low channel, MCS7, Ant. B

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/17/12		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	EV01	**Humidity:**	47.6% RH		
Serial Number:	364122652	**Barometric Pres.:**	1010.5 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n				
Deviations:	None				
Comments:	See comments below for EUT Orientation, Channel, Data Rate, and Antenna.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	27	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



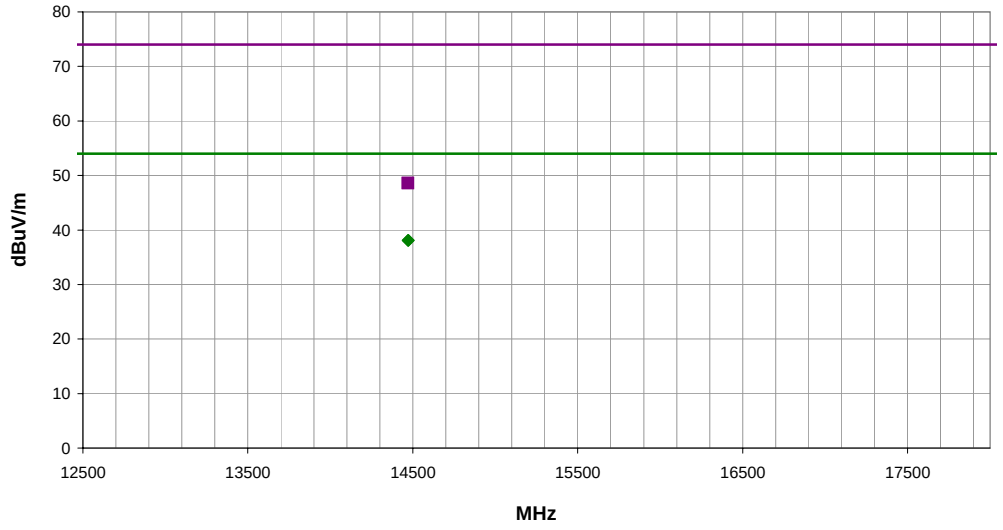
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
12309.720	32.1	-3.5	1.0	1.0	3.0	0.0	Horz	AV	0.0	28.6	54.0	-25.4	EUT On Side, High channel, 1Mbps, Ant. A
12308.070	32.1	-3.5	1.0	1.0	3.0	0.0	Vert	AV	0.0	28.6	54.0	-25.4	EUT Vert, High channel, 1Mbps, Ant. A
12184.080	32.7	-4.3	1.0	0.0	3.0	0.0	Vert	AV	0.0	28.4	54.0	-25.6	EUT Vert, Mid channel, 1Mbps, Ant. A
12187.180	32.6	-4.3	1.0	0.0	3.0	0.0	Horz	AV	0.0	28.3	54.0	-25.7	EUT On Side, Mid channel, 1Mbps, Ant. A
12061.420	32.8	-5.1	1.0	0.0	3.0	0.0	Vert	AV	0.0	27.7	54.0	-26.3	EUT Vert, Low channel, 1Mbps, Ant. A
12058.630	32.6	-5.1	1.0	1.0	3.0	0.0	Horz	AV	0.0	27.5	54.0	-26.5	EUT On Side, Low channel, 1Mbps, Ant. A
12187.080	43.6	-4.3	1.0	0.0	3.0	0.0	Horz	PK	0.0	39.3	74.0	-34.7	EUT On Side, 1Mbps, Ant. A
12184.050	43.5	-4.3	1.0	0.0	3.0	0.0	Vert	PK	0.0	39.2	74.0	-34.8	EUT Vert, Mid channel, 1Mbps, Ant. A
12058.270	44.2	-5.1	1.0	0.0	3.0	0.0	Vert	PK	0.0	39.1	74.0	-34.9	EUT Vert, Low channel, 1Mbps, Ant. A
12060.980	43.4	-5.1	1.0	1.0	3.0	0.0	Horz	PK	0.0	38.3	74.0	-35.7	EUT On Side, Low channel, 1Mbps, Ant. A
12309.170	41.2	-3.5	1.0	1.0	3.0	0.0	Horz	PK	0.0	37.7	74.0	-36.3	EUT On Side, High channel, 1Mbps, Ant. A
12311.850	40.1	-3.5	1.0	1.0	3.0	0.0	Vert	PK	0.0	36.6	74.0	-37.4	EUT Vert, High channel, 1Mbps, Ant. A

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/17/12		
Project:	None	**Temperature:**	23.9 °C		
Job Site:	EV01	**Humidity:**	47.6% RH		
Serial Number:	364122652	**Barometric Pres.:**	1010.5 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n				
Deviations:	None				
Comments:	See comments below for EUT Orientation, Channel, Data Rate, and Antenna.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	28	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



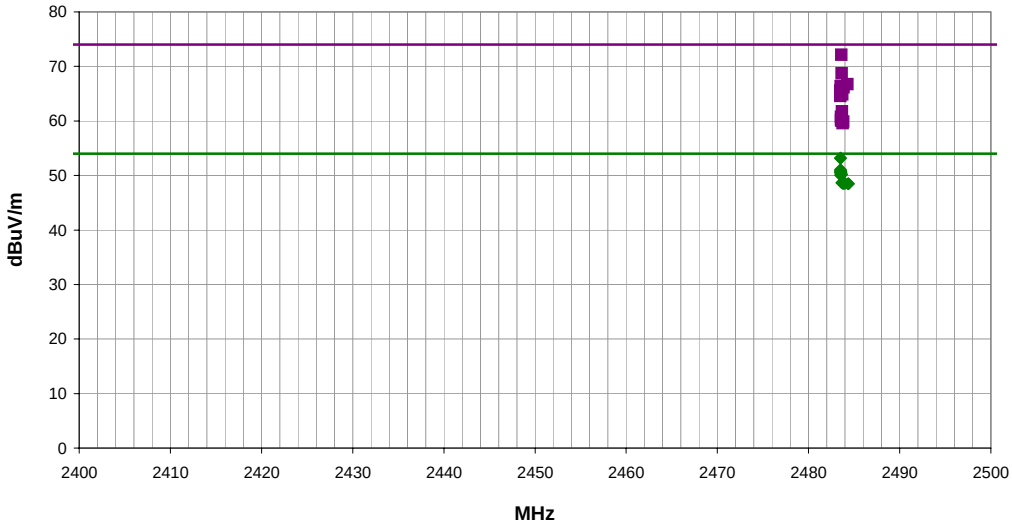
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
14473.140	28.3	9.8	1.0	106.0	3.0	0.0	Horz	AV	0.0	38.1	54.0	-15.9	EUT On Side, Low channel, 1Mbps, Ant. A
14470.120	28.3	9.8	1.0	193.0	3.0	0.0	Vert	AV	0.0	38.1	54.0	-15.9	EUT Vert, Low channel, 1Mbps, Ant. A
14471.850	38.8	9.8	1.0	106.0	3.0	0.0	Horz	PK	0.0	48.6	74.0	-25.4	EUT On Side, Low channel, 1Mbps, Ant. A
14471.280	38.8	9.8	1.0	193.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	EUT Vert, Low channel, 1Mbps, Ant. A

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/18/12		
Project:	None	**Temperature:**	23.3 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	364122652	**Barometric Pres.:**	1016.3 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b, High channel (CH 11) 2462 MHz				
Deviations:	None				
Comments:	See comments below for EUT orientation, data rates, and Antenna Chain.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	31	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



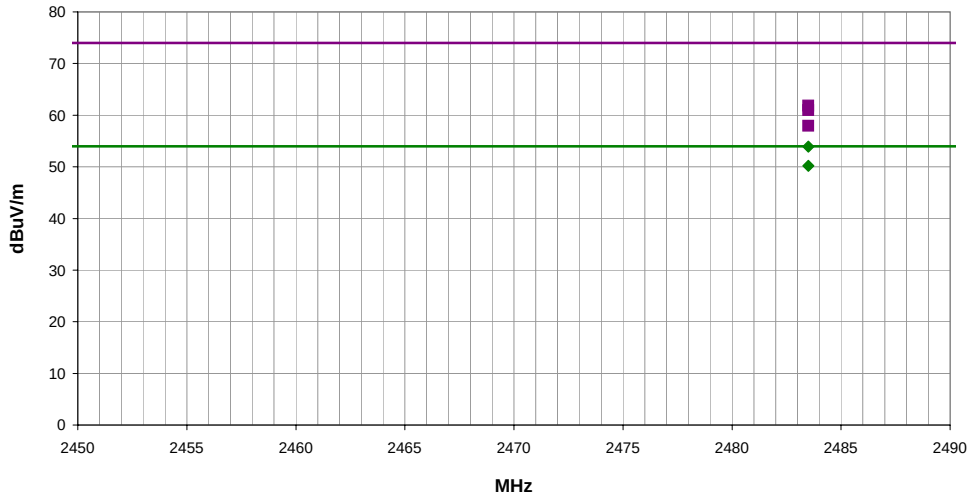
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.507	31.3	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	53.2	54.0	-0.8	802n, Chain B, EUT On Side, MCS7
2483.498	31.3	1.9	1.0	117.0	3.0	20.0	Horz	AV	0.0	53.2	54.0	-0.8	802n, Chain B, EUT On Side, MCS0
2483.603	50.3	1.9	1.5	143.0	3.0	20.0	Horz	PK	0.0	72.2	74.0	-1.8	802n, Chain AB, EUT On Side, MCS15
2483.512	29.2	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	51.1	54.0	-2.9	802g, Chain A, EUT On Side, 54Mbps
2483.535	29.0	1.9	1.0	188.0	3.0	20.0	Vert	AV	0.0	50.9	54.0	-3.1	Chain A, EUT Vert, 6Mbps
2483.512	29.0	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	50.9	54.0	-3.1	Chain A, EUT On Side, 6Mbps
2483.501	28.8	1.9	1.0	142.0	3.0	20.0	Horz	AV	0.0	50.7	54.0	-3.3	802n, Chain A, EUT On Side, MCS0
2483.590	28.7	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	50.6	54.0	-3.4	Chain A, EUT On Side, 36Mbps
2483.500	28.6	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	50.5	54.0	-3.5	Chain A, EUT On Side, 54Mbps
2483.635	28.3	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	50.2	54.0	-3.8	802g, Chain B, EUT On Side, 54Mbps
2483.505	28.2	1.9	1.3	17.0	3.0	20.0	Vert	AV	0.0	50.1	54.0	-3.9	Chain A, EUT Hori, 6Mbps
2483.640	46.9	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	68.8	74.0	-5.2	802n, Chain A, EUT On Side, MCS7
2483.648	26.8	1.9	2.2	344.0	3.0	20.0	Horz	AV	0.0	48.7	54.0	-5.3	Chain A, EUT Hori, 6Mbps
2484.003	26.7	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	Chain A, EUT On Side, 1Mbps
2483.813	26.7	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	Chain A, EUT On Side, 11Mbps
2483.785	26.7	1.9	1.5	205.0	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	Chain A, EUT Vert, 6Mbps
2484.387	26.6	1.9	1.5	197.0	3.0	20.0	Horz	AV	0.0	48.5	54.0	-5.5	Chain B, EUT On Side, 11Mbps
2484.328	26.6	1.9	1.3	319.0	3.0	20.0	Vert	AV	0.0	48.5	54.0	-5.5	Chain A, EUT On Side, 6Mbps
2484.262	44.9	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	66.8	74.0	-7.2	802n, Chain B, EUT On Side, MCS7
2483.535	44.5	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	66.4	74.0	-7.6	Chain A, EUT On Side, 6Mbps
2483.857	44.3	1.9	1.0	188.0	3.0	20.0	Vert	PK	0.0	66.2	74.0	-7.8	Chain A, EUT Vert, 6Mbps
2483.502	43.7	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	65.6	74.0	-8.4	802g, Chain A, EUT On Side, 54Mbps
2483.520	43.5	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	65.4	74.0	-8.6	802g, Chain B, EUT On Side, 54Mbps
2483.501	43.4	1.9	1.0	142.0	3.0	20.0	Horz	PK	0.0	65.3	74.0	-8.7	802n, Chain A, EUT On Side, MCS0
2483.500	43.2	1.9	1.0	117.0	3.0	20.0	Horz	PK	0.0	65.1	74.0	-8.9	802n, Chain B, EUT On Side, MCS0
2483.560	43.1	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	65.0	74.0	-9.0	Chain A, EUT On Side, 54Mbps
2483.707	43.0	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	64.9	74.0	-9.1	Chain A, EUT On Side, 36Mbps
2483.505	42.7	1.9	1.3	17.0	3.0	20.0	Vert	PK	0.0	64.6	74.0	-9.4	Chain A, EUT Hori, 6Mbps
2483.668	39.9	1.9	2.2	344.0	3.0	20.0	Horz	PK	0.0	61.8	74.0	-12.2	Chain A, EUT Hori, 6Mbps
2483.573	38.9	1.9	1.3	319.0	3.0	20.0	Vert	PK	0.0	60.8	74.0	-13.2	Chain A, EUT On Side, 6Mbps
2483.587	38.3	1.9	1.5	205.0	3.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	Chain A, EUT Vert, 6Mbps
2483.602	38.2	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	60.1	74.0	-13.9	Chain A, EUT On Side, 11Mbps
2483.823	38.0	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	59.9	74.0	-14.1	Chain B, EUT On Side, 11Mbps
2483.765	37.7	1.9	1.5	197.0	3.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	Chain A, EUT On Side, 1Mbps

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/18/12		
Project:	None	**Temperature:**	23.3 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	364122652	**Barometric Pres.:**	1016.3 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n, High channel (CH 11) 2462 MHz				
Deviations:	None				
Comments:	See comments below for EUT orientation, data rates, and Antenna Chain.				

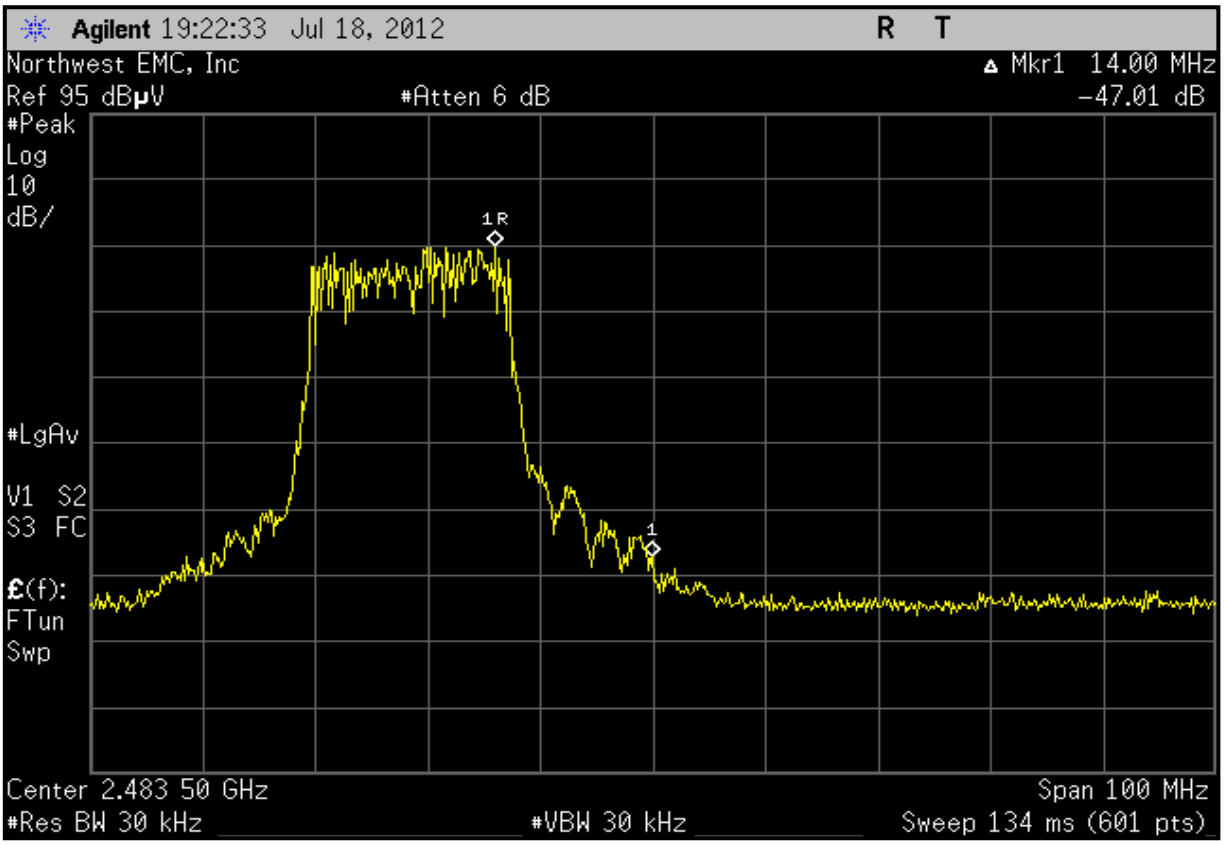
Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	32	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



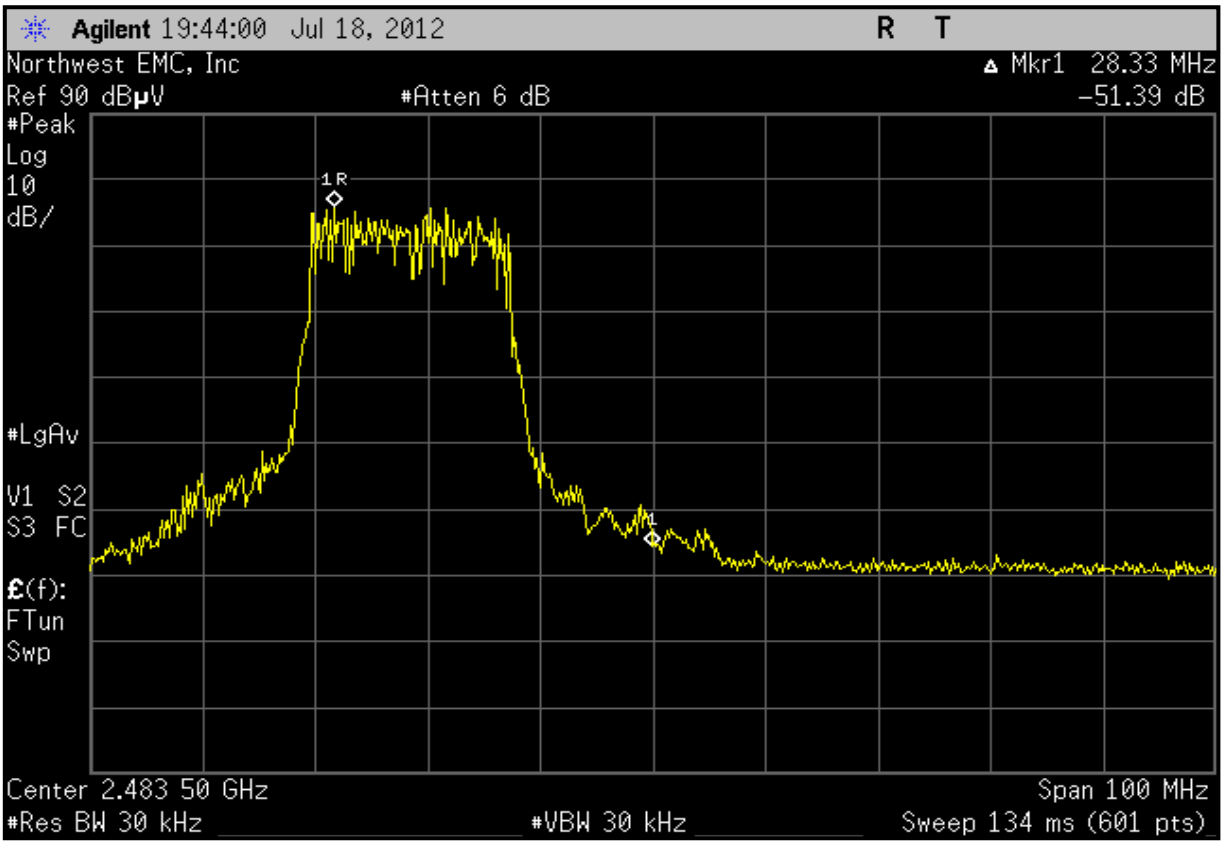
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2463.370	79.1	1.8	1.5	197.0	3.0	20.0	Horz	AV	0.0	100.9			Fundamental, 802n, Chain A, EUT On Side, MCS7
2483.50			1.5	197.0	3.0	20.0	Horz	AV	0.0	53.9	54.0	-0.1	Marker Delta Method: AVE 100.9 + -47.01dBc = 53.89
2454.930	79.9	1.7	1.1	154.0	3.0	20.0	Horz	AV	0.0	101.6			Fundamental, 802n, Chain B, EUT On Side, MCS7
2483.50			1.1	154.0	3.0	20.0	Horz	AV	0.0	50.2	54.0	-3.8	Marker Delta Method: AVE 101.6 + -51.39dBc = 50.21
2464.530	91.1	1.8	1.2	141.0	3.0	20.0	Horz	PK	0.0	112.9			Fundamental, 802n, Chain AB, EUT On Side, MCS15
2483.50			1.2	141.0	3.0	20.0	Horz	PK	0.0	61.9	74.0	-12.2	Marker Delta Method: Peak 112.9 + -51.05dBc = 61.85
2464.700	86.2	1.8	1.5	197.0	3.0	20.0	Horz	PK	0.0	108.0			Fundamental, 802n, Chain A, EUT On Side, MCS7
2483.50			1.5	197.0	3.0	20.0	Horz	PK	0.0	61.0	74.0	-13.0	Marker Delta Method: Peak 108.0 + -47.01dBc = 60.99
2456.830	87.5	1.8	1.1	154.0	3.0	20.0	Horz	PK	0.0	109.3			Fundamental, 802n, Chain B, EUT On Side, MCS7
2483.50			1.1	154.0	3.0	20.0	Horz	PK	0.0	57.9	74.0	-16.1	Marker Delta Method: Peak 109.3 + -51.39dBc = 57.91

SPURIOUS RADIATED EMISSIONS



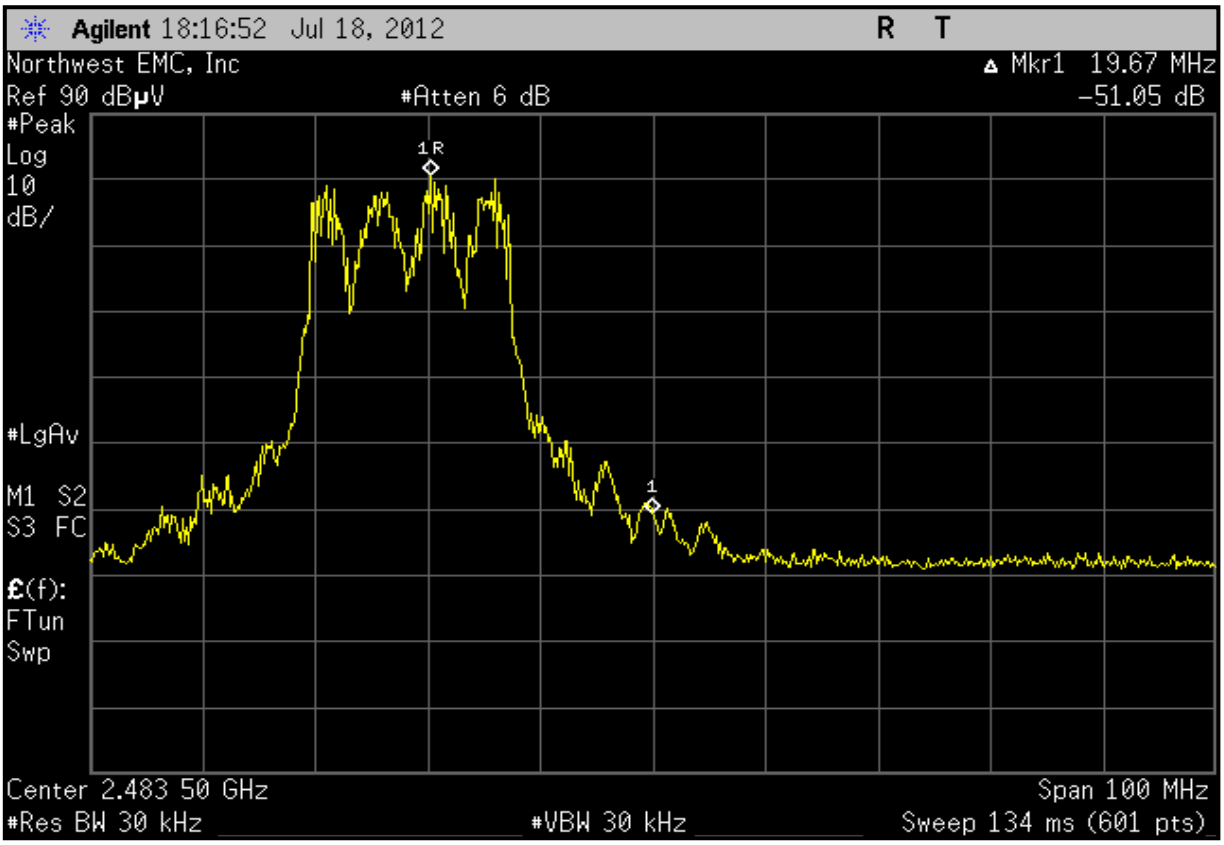
802n, Chain A, EUT On Side, MCS7

SPURIOUS RADIATED EMISSIONS



802n, Chain B, EUT On Side, MCS7

SPURIOUS RADIATED EMISSIONS



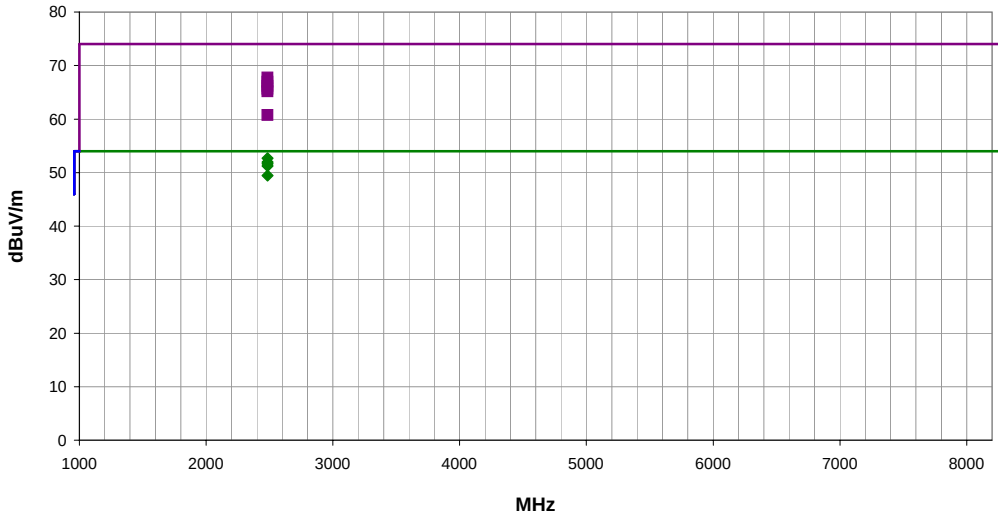
802n, Chain AB, EUT On Side, MCS15

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/19/12		
Project:	None	**Temperature:**	23.5 °C		
Job Site:	EV01	**Humidity:**	46% RH		
Serial Number:	364122652	**Barometric Pres.:**	1016.2 mbar	**Tested by:**	Carl Engholm
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n				
Deviations:	None				
Comments:	See comments below for EUT orientation, Channel(s), data rates, and Antenna Chain.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	33	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



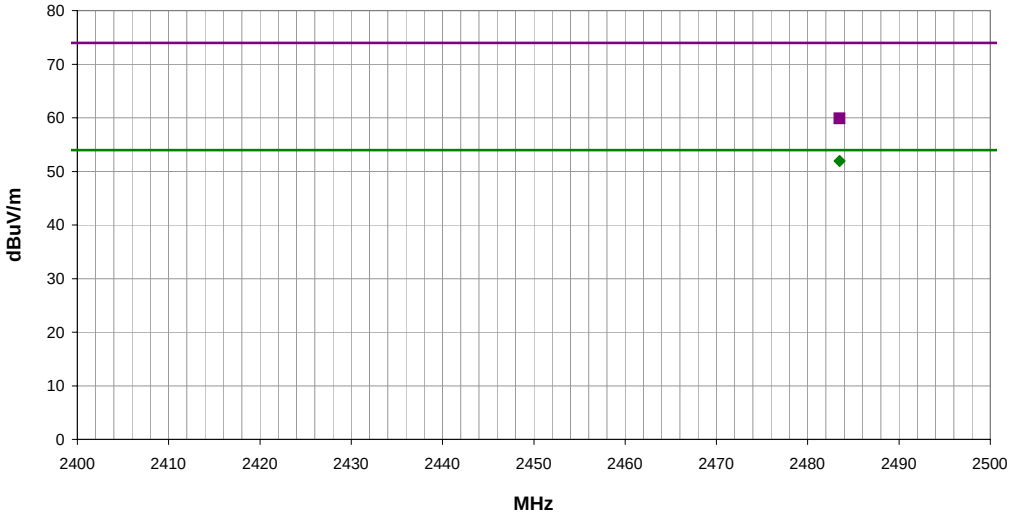
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.977	30.8	1.9	1.2	67.0	3.0	20.0	Horz	AV	0.0	52.7	54.0	-1.3	Pwr 11dBm, CH7/11, Chain A, EUT On Side, MCS7
2485.290	30.1	1.9	1.5	191.0	3.0	20.0	Horz	AV	0.0	52.0	54.0	-2.0	CH 11, Chain AB, EUT On Side, MCS15
2483.523	29.8	1.9	1.5	191.0	3.0	20.0	Horz	AV	0.0	51.7	54.0	-2.3	CH 11, Chain A, EUT On Side, MCS7
2483.527	29.4	1.9	1.2	70.0	3.0	20.0	Horz	AV	0.0	51.3	54.0	-2.7	Pwr 11dBm, CH 7/11, Chain AB, EUT On Side, MCS8
2483.615	27.6	1.9	1.2	73.0	3.0	20.0	Horz	AV	0.0	49.5	54.0	-4.5	Pwr 11dBm, CH7/11, Chain A, EUT On Side, MCS0
2483.850	45.9	1.9	1.2	69.0	3.0	20.0	Horz	PK	0.0	67.8	74.0	-6.2	Pwr 11dBm, CH 7/11, Chain AB, EUT On Side, MCS15
2485.237	45.1	1.9	1.5	191.0	3.0	20.0	Horz	PK	0.0	67.0	74.0	-7.0	CH 11, Chain AB, EUT On Side, MCS15
2484.140	44.3	1.9	1.2	67.0	3.0	20.0	Horz	PK	0.0	66.2	74.0	-7.8	Pwr 11dBm, CH7/11, Chain A, EUT On Side, MCS7
2483.605	43.8	1.9	1.2	70.0	3.0	20.0	Horz	PK	0.0	65.7	74.0	-8.3	Pwr 11dBm, CH 7/11, Chain AB, EUT On Side, MCS8
2483.513	43.3	1.9	1.5	191.0	3.0	20.0	Horz	PK	0.0	65.2	74.0	-8.8	CH 11, Chain A, EUT On Side, MCS7
2483.602	38.9	1.9	1.2	73.0	3.0	20.0	Horz	PK	0.0	60.8	74.0	-13.2	Pwr 11dBm, CH7/11, Chain A, EUT On Side, MCS0

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/19/12		
Project:	None	**Temperature:**	23.5 °C		
Job Site:	EV01	**Humidity:**	46% RH		
Serial Number:	364122652	**Barometric Pres.:**	1016.2 mbar	**Tested by:**	Carl Engholm
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n				
Deviations:	None				
Comments:	See comments below for EUT orientation, data rates, and Antenna Chain.				

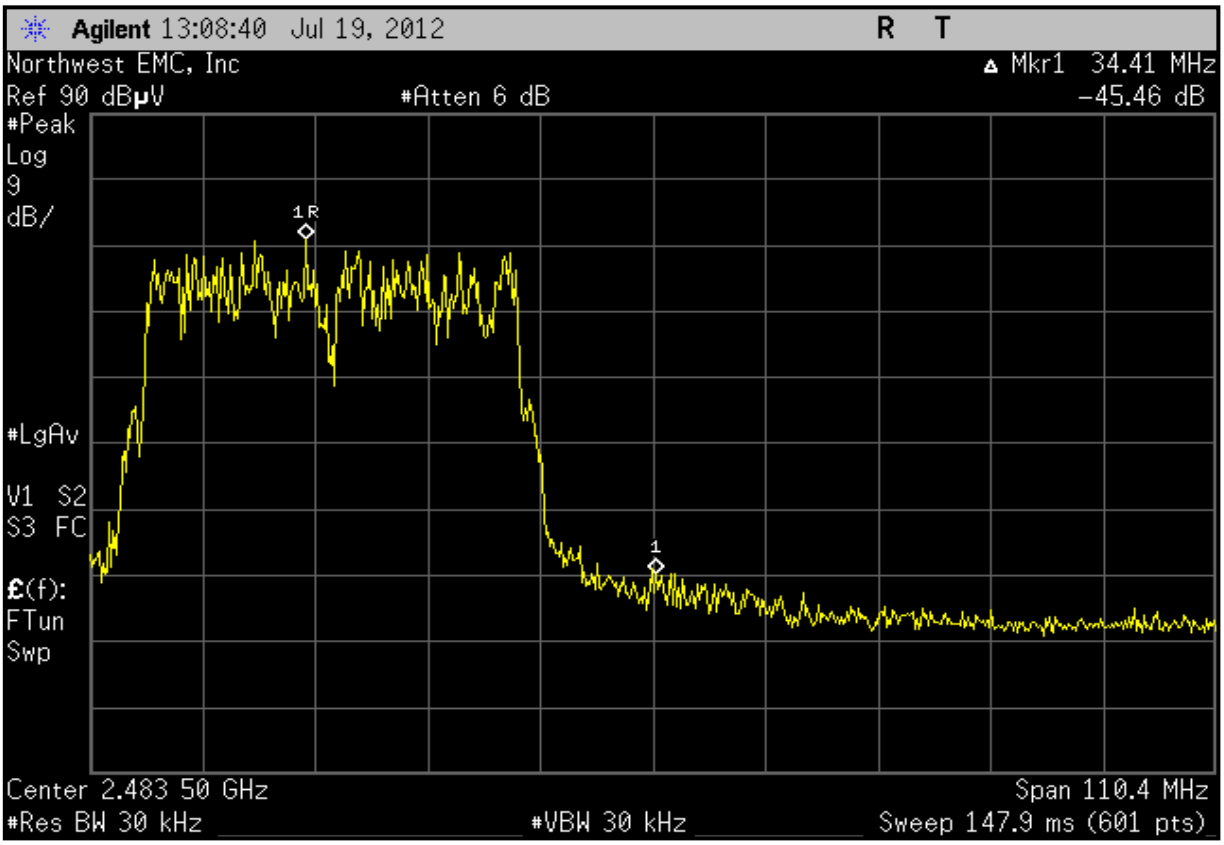
Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	35	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**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
2444.800	75.7	1.7	1.2	162.0	3.0	20.0	Horz	AV	0.0	97.4			Fundemental, CH 7/11 MCS15@11dBm, Ant Chain AB EUT On Side, Marker Delta Method:
2483.500				162.0	3.0	20.0	Horz	AV	0.0	51.9	54.0	-2.1	AV 97.4 + -45.5 dBc = 51.9
2444.400	83.7	1.7	1.2	162.0	3.0	20.0	Horz	PK	0.0	105.4			Fundemental, CH 7/11 MCS15@11dBm, Ant Chain AB EUT On Side, Marker Delta Method:
2483.500				162.0	3.0	20.0	Horz	PK	0.0	59.9	74.0	-14.10	PK 105.4 + -45.5 dBc = 59.9

SPURIOUS RADIATED EMISSIONS



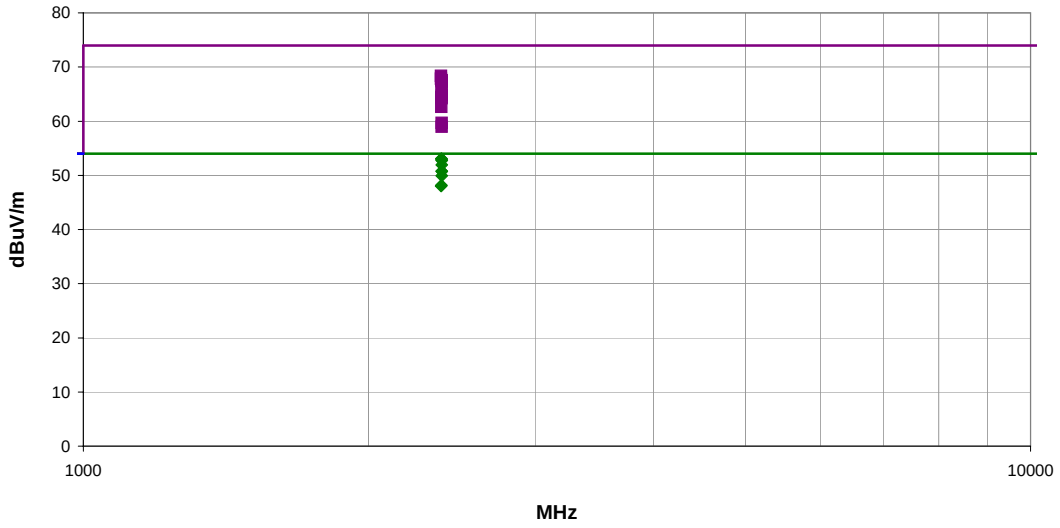
CH 7/11 MCS15@11dBm, Ant Chain AB

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/20/12		
Project:	None	**Temperature:**	23.7 °C		
Job Site:	EV01	**Humidity:**	48.1% RH		
Serial Number:	364122652	**Barometric Pres.:**	1020.8 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher, Steve Stegner				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11b/g/n, Low channel				
Deviations:	None				
Comments:	See comments below for EUT orientation, data rates, and Antenna Chain.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	41	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



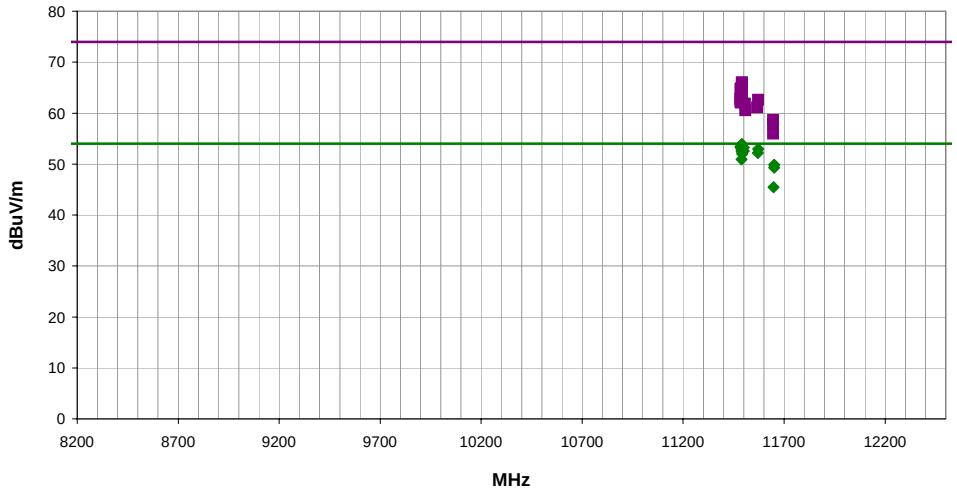
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2387.573	31.5	1.6	1.2	135.0	3.0	20.0	Horz	AV	0.0	53.1	54.0	-0.9	15dBm, On Side, MCS8, Ch. 1
2387.767	31.5	1.6	1.2	135.0	3.0	20.0	Horz	AV	0.0	53.1	54.0	-0.9	15dBm, On Side, MCS15, Ch. 1
2389.933	31.3	1.5	1.2	135.0	3.0	20.0	Horz	AV	0.0	52.8	54.0	-1.2	16dBm, On Side, MCS0, Ch. 1, Ant A
2389.993	31.2	1.5	1.6	138.0	3.0	20.0	Horz	AV	0.0	52.7	54.0	-1.3	16dBm, On Side, MCS0, Ch. 1, Ant A
2389.993	30.4	1.5	1.2	135.0	3.0	20.0	Horz	AV	0.0	51.9	54.0	-2.1	16dBm, On Side, MCS7, Ch. 1, Ant A
2389.987	29.2	1.5	1.2	137.0	3.0	20.0	Horz	AV	0.0	50.7	54.0	-3.3	16dBm, On Side, 6Mbps, Ch. 1, Ant A
2389.987	29.2	1.5	1.2	137.0	3.0	20.0	Horz	AV	0.0	50.7	54.0	-3.3	16dBm, On Side, 54Mbps, Ch. 1, Ant A
2389.993	28.4	1.5	1.2	137.0	3.0	20.0	Horz	AV	0.0	49.9	54.0	-4.1	16dBm, On Side, 36Mbps, Ch. 1, Ant A
2386.613	46.8	1.6	1.2	135.0	3.0	20.0	Horz	PK	0.0	68.4	74.0	-5.6	15dBm, On Side, MCS8, Ch. 1
2388.373	26.6	1.6	1.2	137.0	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	16dBm, On Side, 1Mbps, Ch. 1, Ant A
2387.060	26.5	1.6	1.2	137.0	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	16dBm, On Side, 11Mbps, Ch. 1, Ant A
2386.700	46.3	1.6	1.2	135.0	3.0	20.0	Horz	PK	0.0	67.9	74.0	-6.1	15dBm, On Side, MCS15, Ch. 1
2387.193	46.0	1.6	1.2	135.0	3.0	20.0	Horz	PK	0.0	67.6	74.0	-6.4	10dBm, On Side, MCS8, Ch. 1/5
2390.000	46.0	1.5	1.2	135.0	3.0	20.0	Horz	PK	0.0	67.5	74.0	-6.5	16dBm, On Side, MCS0, Ch. 1, Ant A
2389.653	45.6	1.5	1.6	138.0	3.0	20.0	Horz	PK	0.0	67.1	74.0	-6.9	16dBm, On Side, MCS0, Ch. 1, Ant A
2389.413	44.7	1.5	1.2	135.0	3.0	20.0	Horz	PK	0.0	66.2	74.0	-7.8	16dBm, On Side, MCS7, Ch. 1, Ant A
2388.973	43.3	1.5	1.2	137.0	3.0	20.0	Horz	PK	0.0	64.8	74.0	-9.2	16dBm, On Side, 6Mbps, Ch. 1, Ant A
2388.233	42.9	1.6	1.2	135.0	3.0	20.0	Horz	PK	0.0	64.5	74.0	-9.5	4.5dBm, On Side, MCS15, Ch. 1/5
2389.753	42.7	1.5	1.2	137.0	3.0	20.0	Horz	PK	0.0	64.2	74.0	-9.8	16dBm, On Side, 54Mbps, Ch. 1, Ant A
2387.447	41.1	1.6	1.2	137.0	3.0	20.0	Horz	PK	0.0	62.7	74.0	-11.3	16dBm, On Side, 36Mbps, Ch. 1, Ant A
2389.647	38.1	1.5	1.2	137.0	3.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	16dBm, On Side, 11Mbps, Ch. 1, Ant A
2389.173	37.4	1.5	1.2	137.0	3.0	20.0	Horz	PK	0.0	58.9	74.0	-15.1	16dBm, On Side, 1Mbps, Ch. 1, Ant A

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/26/12		
Project:	None	**Temperature:**	23.8 °C		
Job Site:	EV01	**Humidity:**	48% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.2 mbar	**Tested by:**	Dan Haas
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11a				
Deviations:	No deviations.				
Comments:	See comments below for power level, channel, data rate, antenna chain, and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	99	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**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
11490.460	60.6	-6.7	3.9	101.0	3.0	0.0	Horz	AV	0.0	53.9	54.0	-0.1	12dBm, Ch 149, 54Mbps, Ant B, EUT Horz
11490.060	60.6	-6.7	3.2	102.0	3.0	0.0	Horz	AV	0.0	53.9	54.0	-0.1	12dBm, Ch 149, 6Mbps, Ant A, EUT Horz
11490.060	60.5	-6.7	3.9	101.0	3.0	0.0	Horz	AV	0.0	53.8	54.0	-0.2	12dBm, Ch 149, 6Mbps, Ant B, EUT Horz
11488.390	60.5	-6.7	2.1	52.0	3.0	0.0	Vert	AV	0.0	53.8	54.0	-0.2	RBAVG2, 11dBm, Ch 149, 6Mbps, Ant A, EUT Horz
11490.520	60.4	-6.7	3.2	102.0	3.0	0.0	Horz	AV	0.0	53.7	54.0	-0.3	12dBm, Ch 149, 54Mbps, Ant A, EUT Horz
11484.790	60.2	-6.8	3.2	102.0	3.0	0.0	Horz	AV	0.0	53.4	54.0	-0.6	12dBm, Ch 149, MCS0, Ant A, EUT Horz
11488.390	60.1	-6.7	2.1	347.0	3.0	0.0	Vert	AV	0.0	53.4	54.0	-0.6	RBAVG2, 11dBm, Ch 149, 54Mbps, Ant B, EUT Horz
11484.790	60.1	-6.8	3.2	102.0	3.0	0.0	Horz	AV	0.0	53.3	54.0	-0.7	12dBm, Ch 149, MCS7, Ant A, EUT Horz
11500.000	59.9	-6.7	2.1	318.0	3.0	0.0	Vert	AV	0.0	53.2	54.0	-0.8	RBAVG2, 12dBm, Ch 149/153, MCS8, Ant AB, EUT Horz
11488.390	59.9	-6.7	2.1	347.0	3.0	0.0	Vert	AV	0.0	53.2	54.0	-0.8	RBAVG2, 10dBm, Ch 149, 6Mbps, Ant B, EUT Horz Re-maxed
11488.390	59.7	-6.7	2.1	52.0	3.0	0.0	Vert	AV	0.0	53.0	54.0	-1.0	RBAVG2, 11dBm, Ch 149, 54Mbps, Ant A, EUT Horz
11571.670	59.4	-6.5	2.1	318.0	3.0	0.0	Vert	AV	0.0	52.9	54.0	-1.1	12dBm, Ch 157, MCS8, Ant AB, EUT Horz
11492.590	59.4	-6.7	3.9	101.0	3.0	0.0	Horz	AV	0.0	52.7	54.0	-1.3	RBAVG2, 12dBm, Ch 149, 36Mbps, Ant B, EUT Horz
11488.390	59.3	-6.7	2.1	52.0	3.0	0.0	Vert	AV	0.0	52.6	54.0	-1.4	RBAVG2, 10dBm, Ch 149, 36Mbps, Ant A, EUT Horz
11500.000	59.2	-6.7	2.1	342.0	3.0	0.0	Vert	AV	0.0	52.5	54.0	-1.5	RBAVG2, 12dBm, Ch 149/153, MCS15, Ant AB, EUT Horz
11492.590	59.2	-6.7	3.2	102.0	3.0	0.0	Horz	AV	0.0	52.5	54.0	-1.5	RBAVG2, 12dBm, Ch 149, 36Mbps, Ant A, EUT Horz
11492.590	59.1	-6.7	3.9	101.0	3.0	0.0	Horz	AV	0.0	52.4	54.0	-1.6	RBAVG2, 12dBm, Ch 149, MCS7, Ant B, EUT Horz
11570.270	58.7	-6.5	2.1	58.0	3.0	0.0	Vert	AV	0.0	52.2	54.0	-1.8	12dBm, Ch 157, 6Mbps, Ant A, EUT Horz
11492.590	58.7	-6.7	3.9	101.0	3.0	0.0	Horz	AV	0.0	52.0	54.0	-2.0	RBAVG2, 12dBm, Ch 149, MCS0, Ant B, EUT Horz
11488.390	57.7	-6.7	2.1	347.0	3.0	0.0	Vert	AV	0.0	51.0	54.0	-3.0	RBAVG2, 9dBm, Ch 149, 36Mbps, Ant B, EUT Horz
11651.530	56.2	-6.3	2.1	334.0	3.0	0.0	Vert	AV	0.0	49.9	54.0	-4.1	12dBm, Ch 165, MCS8, Ant AB, EUT Horz
11651.470	55.6	-6.3	2.1	334.0	3.0	0.0	Vert	AV	0.0	49.3	54.0	-4.7	12dBm, Ch 165, MCS15, Ant AB, EUT Horz
11491.660	72.7	-6.7	2.1	347.0	3.0	0.0	Vert	PK	0.0	66.0	74.0	-8.0	11dBm, Ch 149, 6Mbps, Ant B, EUT Horz Re-maxed
11491.340	72.7	-6.7	2.1	338.0	3.0	0.0	Vert	PK	0.0	66.0	74.0	-8.0	12dBm, Ch 149, 6Mbps, Ant B, EUT Horz
11647.470	51.8	-6.3	2.1	51.0	3.0	0.0	Vert	AV	0.0	45.5	54.0	-8.5	12dBm, Ch 165, 6Mbps, Ant A, EUT Horz
11489.060	71.7	-6.7	2.1	52.0	3.0	0.0	Vert	PK	0.0	65.0	74.0	-9.0	11dBm, Ch 149, 36Mbps, Ant A, EUT Horz
11487.790	71.5	-6.8	2.0	47.0	3.0	0.0	Vert	PK	0.0	64.7	74.0	-9.3	12dBm, Ch 149, 6Mbps, Ant A, EUT Horz
11484.660	71.5	-6.8	2.1	52.0	3.0	0.0	Vert	PK	0.0	64.7	74.0	-9.3	11dBm, Ch 149, 54Mbps, Ant A, EUT Horz
11491.520	71.2	-6.7	3.2	102.0	3.0	0.0	Horz	PK	0.0	64.5	74.0	-9.5	12dBm, Ch 149, 6Mbps, Ant A, EUT Horz
11486.590	71.1	-6.8	2.1	347.0	3.0	0.0	Vert	PK	0.0	64.3	74.0	-9.7	11dBm, Ch 149, 54Mbps, Ant B, EUT Horz
11491.320	71.0	-6.7	3.9	101.0	3.0	0.0	Horz	PK	0.0	64.3	74.0	-9.7	12dBm, Ch 149, 6Mbps, Ant B, EUT Horz
11488.990	70.4	-6.7	2.1	347.0	3.0	0.0	Vert	PK	0.0	63.7	74.0	-10.3	10dBm, Ch 149, 36Mbps, Ant B, EUT Horz
11491.390	70.2	-6.7	3.9	101.0	3.0	0.0	Horz	PK	0.0	63.5	74.0	-10.5	12dBm, Ch 149, 36Mbps, Ant B, EUT Horz
11488.990	69.9	-6.7	2.1	52.0	3.0	0.0	Vert	PK	0.0	63.2	74.0	-10.8	10dBm, Ch 149, 36Mbps, Ant A, EUT Horz
11491.590	69.5	-6.7	3.2	102.0	3.0	0.0	Horz	PK	0.0	62.8	74.0	-11.2	12dBm, Ch 149, 36Mbps, Ant A, EUT Horz
11484.720	69.5	-6.8	3.2	102.0	3.0	0.0	Horz	PK	0.0	62.7	74.0	-11.3	12dBm, Ch 149, 54Mbps, Ant A, EUT Horz
11484.720	69.5	-6.8	3.9	101.0	3.0	0.0	Horz	PK	0.0	62.7	74.0	-11.3	12dBm, Ch 149, 54Mbps, Ant B, EUT Horz
11571.270	69.1	-6.5	2.1	58.0	3.0	0.0	Vert	PK	0.0	62.6	74.0	-11.4	12dBm, Ch 157, 6Mbps, Ant A, EUT Horz
11486.460	69.0	-6.8	3.9	101.0	3.0	0.0	Horz	PK	0.0	62.2	74.0	-11.8	12dBm, Ch 149, MCS0, Ant B, EUT Horz
11486.590	68.9	-6.8	3.2	102.0	3.0	0.0	Horz	PK	0.0	62.1	74.0	-11.9	12dBm, Ch 149, MCS7, Ant A, EUT Horz

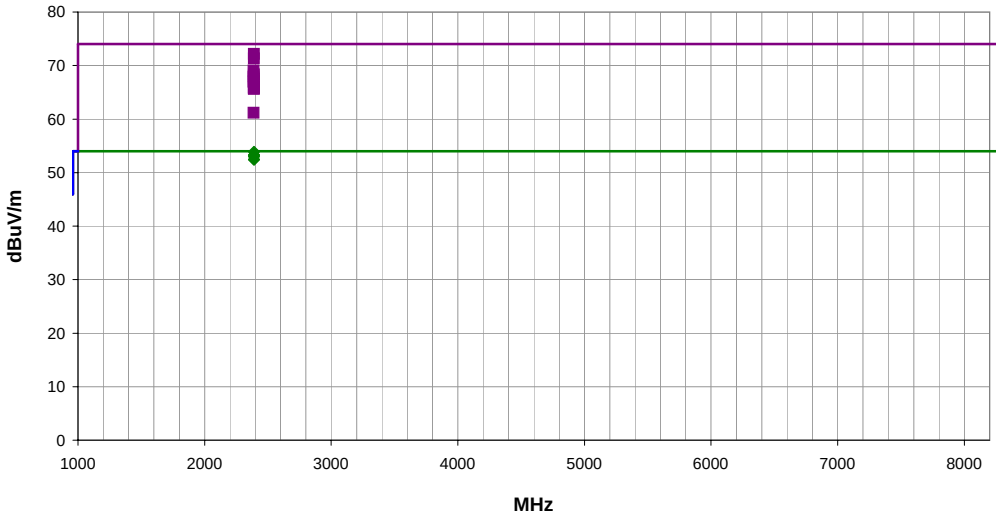
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
11486.520	68.9	-6.8	3.9	101.0	3.0	0.0	Horz	PK	0.0	62.1	74.0	-11.9	12dBm, Ch 149, MCS7, Ant B, EUT Horz
11486.520	68.8	-6.8	3.2	102.0	3.0	0.0	Horz	PK	0.0	62.0	74.0	-12.0	12dBm, Ch 149, MCS0, Ant A, EUT Horz
11506.290	68.5	-6.6	2.1	318.0	3.0	0.0	Vert	PK	0.0	61.9	74.0	-12.1	12dBm, Ch 149/153, MCS8, Ant AB, EUT Horz
11566.470	67.6	-6.5	2.1	318.0	3.0	0.0	Vert	PK	0.0	61.1	74.0	-12.9	12dBm, Ch 157, MCS8, Ant AB, EUT Horz
11507.400	67.2	-6.6	2.1	342.0	3.0	0.0	Vert	PK	0.0	60.6	74.0	-13.4	12dBm, Ch 149/153, MCS15, Ant AB, EUT Horz
11646.600	65.0	-6.3	2.1	334.0	3.0	0.0	Vert	PK	0.0	58.7	74.0	-15.3	12dBm, Ch 165, MCS8, Ant AB, EUT Horz
11646.470	64.2	-6.3	2.1	334.0	3.0	0.0	Vert	PK	0.0	57.9	74.0	-16.1	12dBm, Ch 165, MCS15, Ant AB, EUT Horz
11646.470	62.3	-6.3	2.1	51.0	3.0	0.0	Vert	PK	0.0	56.0	74.0	-18.0	12dBm, Ch 165, 6Mbps, Ant A, EUT Horz

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/27/12		
Project:	None	**Temperature:**	23.8 °C		
Job Site:	EV01	**Humidity:**	47% RH		
Serial Number:	215622952	**Barometric Pres.:**	1017.7 mbar	**Tested by:**	Carl Engholm
EUT:	1516				
Configuration:	2				
Customer:	Microsoft Corporation				
Attendees:	Mike Boucher				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11n				
Deviations:	No deviations.				
Comments:	See comments below for power level, channel, data rate, antenna chain, and EUT orientation.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	100	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



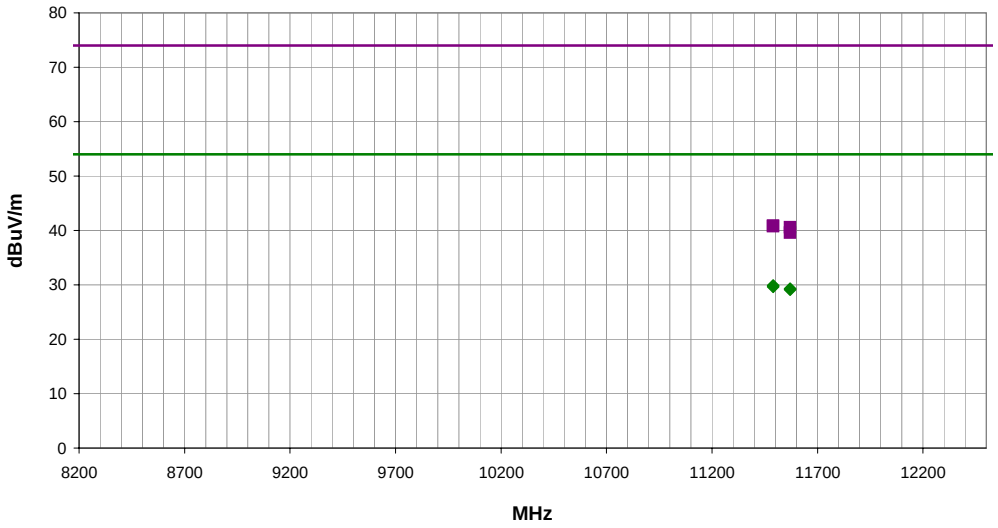
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2389.000	32.3	1.5	1.2	150.0	3.0	20.0	Horz	AV	0.0	53.8	54.0	-0.2	14dBm, Ch 1/5, MCS0, Ant A, EUT On Side
2389.000	31.7	1.5	1.2	54.0	3.0	20.0	Horz	AV	0.0	53.2	54.0	-0.8	RBAVG2, 8dBm, Ch 1/5, MCS8, Ant AB, EUT On Side
2389.000	31.7	1.5	1.2	56.0	3.0	20.0	Horz	AV	0.0	53.2	54.0	-0.8	RBAVG2, 10dBm, Ch 1/5, MCS7, Ant B, EUT On Side
2389.000	31.4	1.5	1.2	57.0	3.0	20.0	Horz	AV	0.0	52.9	54.0	-1.1	RBAVG2, 12dBm, Ch 1/5, MCS0, Ant B, EUT On Side
2389.000	30.9	1.5	1.2	54.0	3.0	20.0	Horz	AV	0.0	52.4	54.0	-1.6	RBAVG2, 9dBm, Ch 1/5, MCS15, Ant AB, EUT On Side
2389.000	30.9	1.5	1.2	153.0	3.0	20.0	Horz	AV	0.0	52.4	54.0	-1.6	RBAVG2, 12dBm, Ch 1/5, MCS7, Ant A, EUT On Side
2389.950	50.6	1.5	1.2	153.0	3.0	20.0	Horz	PK	0.0	72.1	74.0	-1.9	15dBm, Ch 1/5, MCS7, Ant A, EUT On Side
2389.790	49.8	1.5	1.2	150.0	3.0	20.0	Horz	PK	0.0	71.3	74.0	-2.7	16dBm, Ch 1/5, MCS0, Ant A, EUT On Side
2388.000	47.5	1.6	1.2	56.0	3.0	20.0	Horz	PK	0.0	69.1	74.0	-4.9	12dBm, Ch 1/5, MCS7, Ant B, EUT On Side
2389.987	46.8	1.5	1.2	153.0	3.0	20.0	Horz	PK	0.0	68.3	74.0	-5.7	13dBm, Ch 1/5, MCS7, Ant A, EUT On Side
2388.287	46.4	1.6	1.2	56.0	3.0	20.0	Horz	PK	0.0	68.0	74.0	-6.0	10dBm, Ch 1/5, MCS7, Ant B, EUT On Side
2389.380	46.0	1.5	1.2	57.0	3.0	20.0	Horz	PK	0.0	67.5	74.0	-6.5	13dBm, Ch 1/5, MCS0, Ant B, EUT On Side
2388.010	45.4	1.6	1.2	56.0	3.0	20.0	Horz	PK	0.0	67.0	74.0	-7.0	10dBm, Ch 1/5, MCS15, Ant AB, EUT On Side
2389.327	45.4	1.5	1.2	57.0	3.0	20.0	Horz	PK	0.0	66.9	74.0	-7.1	12dBm, Ch 1/5, MCS0, Ant B, EUT On Side
2389.613	44.4	1.5	1.2	150.0	3.0	20.0	Horz	PK	0.0	65.9	74.0	-8.1	14dBm, Ch 1/5, MCS0, Ant A, EUT On Side
2389.710	44.2	1.5	1.2	54.0	3.0	20.0	Horz	PK	0.0	65.7	74.0	-8.3	9dBm, Ch 1/5, MCS15, Ant AB, EUT On Side
2389.740	44.1	1.5	1.2	150.0	3.0	20.0	Horz	PK	0.0	65.6	74.0	-8.4	13dBm, Ch 1/5, MCS0, Ant A, EUT On Side
2389.817	44.1	1.5	1.2	153.0	3.0	20.0	Horz	PK	0.0	65.6	74.0	-8.4	12dBm, Ch 1/5, MCS7, Ant A, EUT On Side
2388.080	39.6	1.6	1.2	57.0	3.0	20.0	Horz	PK	0.0	61.2	74.0	-12.8	8dBm, Ch 1/5, MCS8, Ant AB, EUT On Side

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/31/12		
Project:	None	**Temperature:**	23.8 °C		
Job Site:	EV01	**Humidity:**	47% RH		
Serial Number:	215622952	**Barometric Pres.:**	1017.7 mbar	**Tested by:**	Mark Baytan
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11a				
Deviations:	No deviations.				
Comments:	See Comments below for Channel, EUT Orientation, Data rate, Power level, and Antenna chain.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	109	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



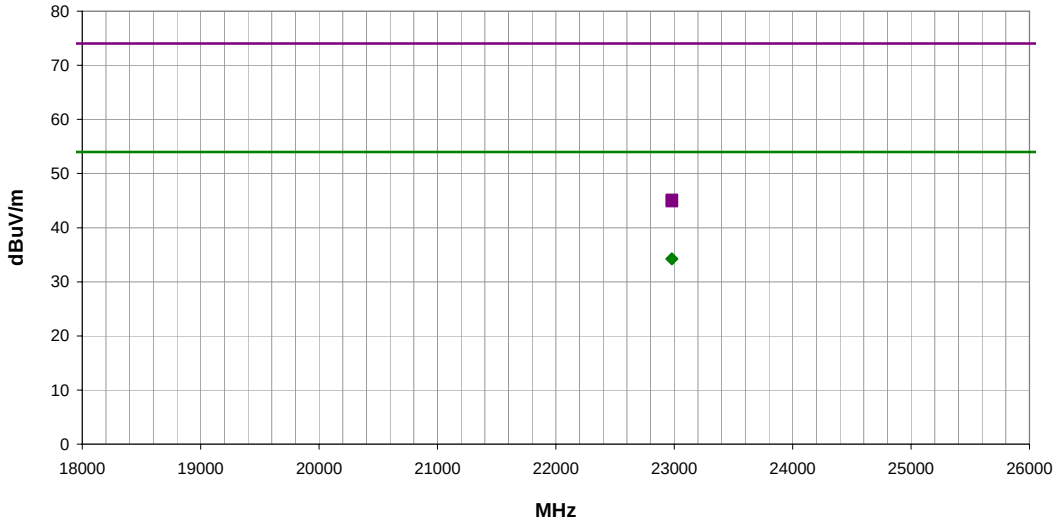
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
11489.550	36.6	-6.7	3.4	258.0	3.0	0.0	Vert	AV	0.0	29.9	54.0	-24.1	13dBm Pwr, CH149/153, MCS0, Ant A, EUT Horz
11489.740	36.4	-6.7	1.0	278.0	3.0	0.0	Horz	AV	0.0	29.7	54.0	-24.3	13dBm Pwr, CH149/153, MCS0, Ant A, EUT Horz
11569.880	35.8	-6.5	2.7	87.0	3.0	0.0	Horz	AV	0.0	29.3	54.0	-24.7	13dBm Pwr, CH157/161, MCS0, Ant A, EUT Horz
11569.610	35.6	-6.5	1.0	269.0	3.0	0.0	Vert	AV	0.0	29.1	54.0	-24.9	13dBm Pwr, CH157/161, MCS0, Ant A, EUT Horz
11489.780	47.6	-6.7	3.4	258.0	3.0	0.0	Vert	PK	0.0	40.9	74.0	-33.1	13dBm Pwr, CH149/153, MCS0, Ant A, EUT Horz
11490.290	47.5	-6.7	1.0	278.0	3.0	0.0	Horz	PK	0.0	40.8	74.0	-33.2	13dBm Pwr, CH149/153, MCS0, Ant A, EUT Horz
11569.920	47.1	-6.5	2.7	87.0	3.0	0.0	Horz	PK	0.0	40.6	74.0	-33.4	13dBm Pwr, CH157/161, MCS0, Ant A, EUT Horz
11569.550	46.1	-6.5	1.0	269.0	3.0	0.0	Vert	PK	0.0	39.6	74.0	-34.4	13dBm Pwr, CH157/161, MCS0, Ant A, EUT Horz

SPURIOUS RADIATED EMISSIONS

Work Order:	MCSO1608	**Date:**	07/31/12		
Project:	None	**Temperature:**	23.8 °C		
Job Site:	EV01	**Humidity:**	47% RH		
Serial Number:	215622952	**Barometric Pres.:**	1017.7 mbar	**Tested by:**	Mark Baytan
EUT:	1516				
Configuration:	1				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting at 100% duty cycle, 802.11a				
Deviations:	No deviations.				
Comments:	See Comments below for Channel, EUT Orientation, Data rate, Power level, and Antenna chain.				

Test Specifications	**Test Method**
FCC 15.247:2012	ANSI C63.10:2009

Run #	112	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**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
22980.290	40.9	-6.7	2.7	91.0	3.0	0.0	Vert	AV	0.0	34.2	54.0	-19.8	13dBm Pwr, CH149, 6Mbps, Ant A, EUT Horz
22979.640	40.9	-6.7	2.7	99.0	3.0	0.0	Horz	AV	0.0	34.2	54.0	-19.8	13dBm Pwr, CH149, 6Mbps, Ant A, EUT Horz
22979.820	51.8	-6.7	2.7	99.0	3.0	0.0	Horz	PK	0.0	45.1	74.0	-28.9	13dBm Pwr, CH149, 6Mbps, Ant A, EUT Horz
22980.330	51.6	-6.7	2.7	91.0	3.0	0.0	Vert	PK	0.0	44.9	74.0	-29.1	13dBm Pwr, CH149, 6Mbps, Ant A, EUT Horz

AC POWERLINE CONDUCTED EMISSIONS

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

MODES OF OPERATION

Transmitting 802.11(a), 6 Mbps, High channel 165
Transmitting 802.11(a), 6 Mbps, Mid channel 157
Transmitting 802.11(a), 6 Mbps, Low channel 149
Transmitting 802.11(b), 1 Mbps, High channel 11
Transmitting 802.11(b), 1 Mbps, Mid channel 6
Transmitting 802.11(b), 1 Mbps, low channel 1

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MCSO1608 - 3

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	3/29/2012	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HHD	2/1/2012	24 mo
Attenuator	Coaxicom	66702 2910-20	RBR	8/7/2012	12 mo
LISN	Solar	9252-50-R-24-BNC	LIP	4/16/2012	12 mo
LISN	Solar	9252-50-R-24-BNC	LIR	11/4/2011	12 mo
EV07 Cables	N/A	Conducted Cables	EVG	4/27/2012	12 mo

MEASUREMENT BANDWIDTHS

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

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its worst case data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

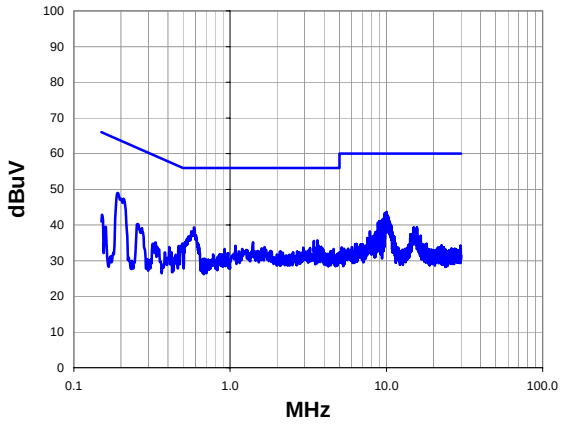
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, low channel				
Deviations:	No deviations.				
Comments:	None				

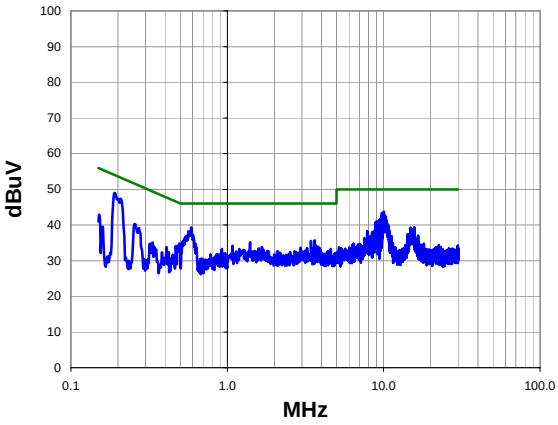
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	23	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	28.6	20.4	49.0	64.0	-15.1
10.030	22.7	21.0	43.7	60.0	-16.3
0.589	19.0	20.3	39.3	56.0	-16.7
9.970	22.3	21.0	43.3	60.0	-16.7
9.750	22.3	21.0	43.3	60.0	-16.7
10.200	21.6	21.0	42.6	60.0	-17.4
9.680	21.5	21.0	42.5	60.0	-17.5
10.070	21.4	21.0	42.4	60.0	-17.6
9.830	21.2	21.0	42.2	60.0	-17.8
9.500	20.7	21.0	41.7	60.0	-18.3
9.370	20.4	21.0	41.4	60.0	-18.6
9.560	20.1	21.0	41.1	60.0	-18.9
9.300	20.1	21.0	41.1	60.0	-18.9
8.980	20.1	20.9	41.0	60.0	-19.0
8.830	19.7	20.9	40.6	60.0	-19.4
9.640	19.6	21.0	40.6	60.0	-19.4
9.100	19.6	20.9	40.5	60.0	-19.5
9.030	18.9	20.9	39.8	60.0	-20.2
10.730	18.8	21.0	39.8	60.0	-20.2
3.624	15.1	20.6	35.7	56.0	-20.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	28.6	20.4	49.0	54.0	-5.1
10.030	22.7	21.0	43.7	50.0	-6.3
0.589	19.0	20.3	39.3	46.0	-6.7
9.970	22.3	21.0	43.3	50.0	-6.7
9.750	22.3	21.0	43.3	50.0	-6.7
10.200	21.6	21.0	42.6	50.0	-7.4
9.680	21.5	21.0	42.5	50.0	-7.5
10.070	21.4	21.0	42.4	50.0	-7.6
9.830	21.2	21.0	42.2	50.0	-7.8
9.500	20.7	21.0	41.7	50.0	-8.3
9.370	20.4	21.0	41.4	50.0	-8.6
9.560	20.1	21.0	41.1	50.0	-8.9
9.300	20.1	21.0	41.1	50.0	-8.9
8.980	20.1	20.9	41.0	50.0	-9.0
8.830	19.7	20.9	40.6	50.0	-9.4
9.640	19.6	21.0	40.6	50.0	-9.4
9.100	19.6	20.9	40.5	50.0	-9.5
9.030	18.9	20.9	39.8	50.0	-10.2
10.730	18.8	21.0	39.8	50.0	-10.2
3.624	15.1	20.6	35.7	46.0	-10.3

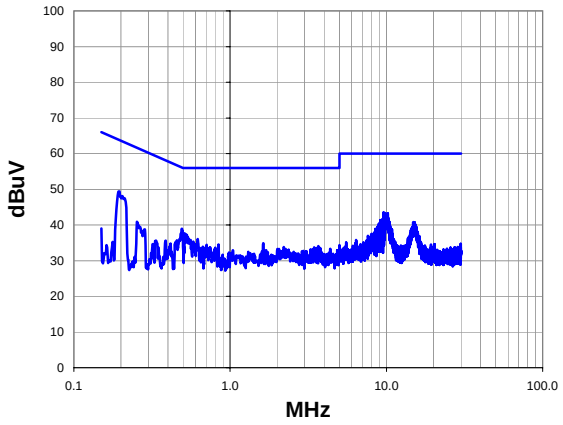
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, low channel				
Deviations:	No deviations.				
Comments:	None				

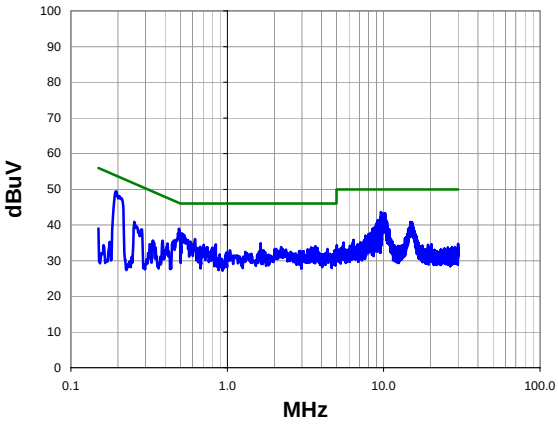
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	24	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	29.1	20.4	49.5	63.9	-14.4
9.620	22.6	21.0	43.6	60.0	-16.4
9.830	22.3	21.0	43.3	60.0	-16.7
10.220	22.2	21.0	43.2	60.0	-16.8
9.750	21.8	21.0	42.8	60.0	-17.2
9.700	21.8	21.0	42.8	60.0	-17.2
0.492	18.6	20.3	38.9	56.1	-17.2
9.880	21.4	21.0	42.4	60.0	-17.6
9.550	21.2	21.0	42.2	60.0	-17.8
0.512	17.4	20.3	37.7	56.0	-18.3
9.510	20.6	21.0	41.6	60.0	-18.4
9.420	20.6	21.0	41.6	60.0	-18.4
9.160	20.4	20.9	41.3	60.0	-18.7
10.350	20.3	21.0	41.3	60.0	-18.7
14.850	19.6	21.3	40.9	60.0	-19.1
9.100	19.9	20.9	40.8	60.0	-19.2
15.180	19.5	21.3	40.8	60.0	-19.2
10.510	19.7	21.0	40.7	60.0	-19.3
9.360	19.7	21.0	40.7	60.0	-19.3
8.940	19.4	20.9	40.3	60.0	-19.7

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	29.1	20.4	49.5	53.9	-4.4
9.620	22.6	21.0	43.6	50.0	-6.4
9.830	22.3	21.0	43.3	50.0	-6.7
10.220	22.2	21.0	43.2	50.0	-6.8
9.750	21.8	21.0	42.8	50.0	-7.2
9.700	21.8	21.0	42.8	50.0	-7.2
0.492	18.6	20.3	38.9	46.1	-7.2
9.880	21.4	21.0	42.4	50.0	-7.6
9.550	21.2	21.0	42.2	50.0	-7.8
0.512	17.4	20.3	37.7	46.0	-8.3
9.510	20.6	21.0	41.6	50.0	-8.4
9.420	20.6	21.0	41.6	50.0	-8.4
9.160	20.4	20.9	41.3	50.0	-8.7
10.350	20.3	21.0	41.3	50.0	-8.7
14.850	19.6	21.3	40.9	50.0	-9.1
9.100	19.9	20.9	40.8	50.0	-9.2
15.180	19.5	21.3	40.8	50.0	-9.2
10.510	19.7	21.0	40.7	50.0	-9.3
9.360	19.7	21.0	40.7	50.0	-9.3
8.940	19.4	20.9	40.3	50.0	-9.7

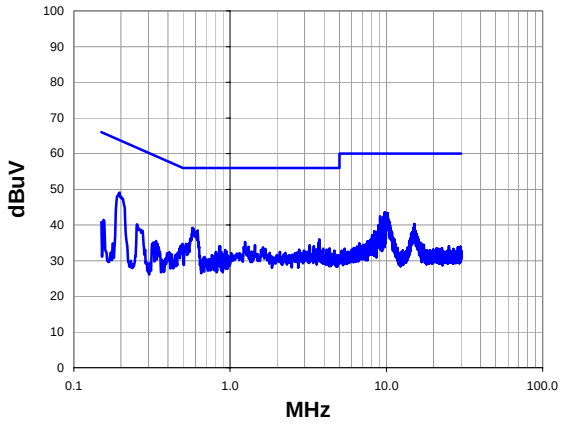
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, Mid channel				
Deviations:	No deviations.				
Comments:	None				

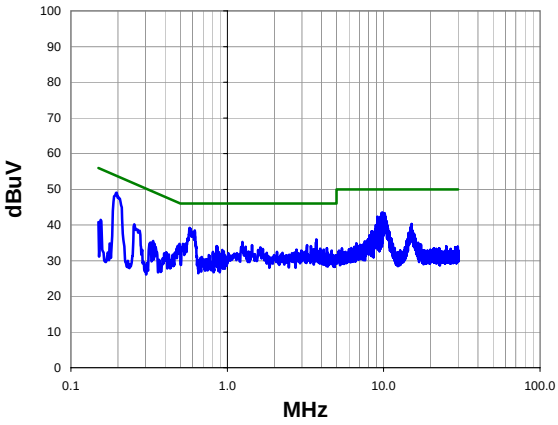
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	25	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	28.7	20.4	49.1	63.8	-14.7
9.830	22.5	21.0	43.5	60.0	-16.5
9.690	22.4	21.0	43.4	60.0	-16.6
10.150	22.3	21.0	43.3	60.0	-16.7
0.573	18.9	20.3	39.2	56.0	-16.8
9.900	22.2	21.0	43.2	60.0	-16.8
10.020	21.7	21.0	42.7	60.0	-17.3
9.970	21.5	21.0	42.5	60.0	-17.5
9.760	21.5	21.0	42.5	60.0	-17.5
10.210	21.4	21.0	42.4	60.0	-17.6
9.570	21.4	21.0	42.4	60.0	-17.6
9.110	21.4	20.9	42.3	60.0	-17.7
9.630	21.1	21.0	42.1	60.0	-17.9
9.370	20.4	21.0	41.4	60.0	-18.6
9.500	20.0	21.0	41.0	60.0	-19.0
10.470	19.9	21.0	40.9	60.0	-19.1
9.300	19.7	21.0	40.7	60.0	-19.3
9.170	19.7	20.9	40.6	60.0	-19.4
15.120	19.0	21.3	40.3	60.0	-19.7
9.430	19.2	21.0	40.2	60.0	-19.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	28.7	20.4	49.1	53.8	-4.7
9.830	22.5	21.0	43.5	50.0	-6.5
9.690	22.4	21.0	43.4	50.0	-6.6
10.150	22.3	21.0	43.3	50.0	-6.7
0.573	18.9	20.3	39.2	46.0	-6.8
9.900	22.2	21.0	43.2	50.0	-6.8
10.020	21.7	21.0	42.7	50.0	-7.3
9.970	21.5	21.0	42.5	50.0	-7.5
9.760	21.5	21.0	42.5	50.0	-7.5
10.210	21.4	21.0	42.4	50.0	-7.6
9.570	21.4	21.0	42.4	50.0	-7.6
9.110	21.4	20.9	42.3	50.0	-7.7
9.630	21.1	21.0	42.1	50.0	-7.9
9.370	20.4	21.0	41.4	50.0	-8.6
9.500	20.0	21.0	41.0	50.0	-9.0
10.470	19.9	21.0	40.9	50.0	-9.1
9.300	19.7	21.0	40.7	50.0	-9.3
9.170	19.7	20.9	40.6	50.0	-9.4
15.120	19.0	21.3	40.3	50.0	-9.7
9.430	19.2	21.0	40.2	50.0	-9.8

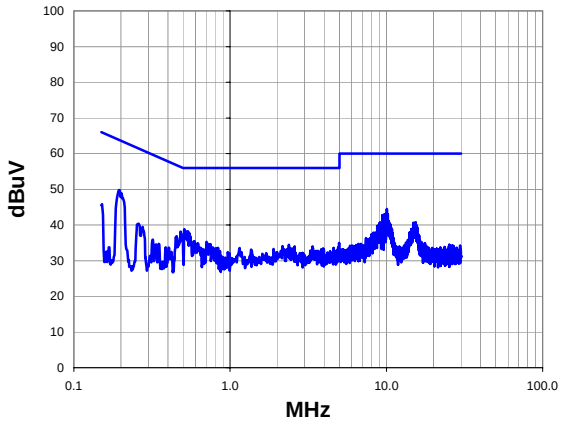
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, Mid channel				
Deviations:	No deviations.				
Comments:	None				

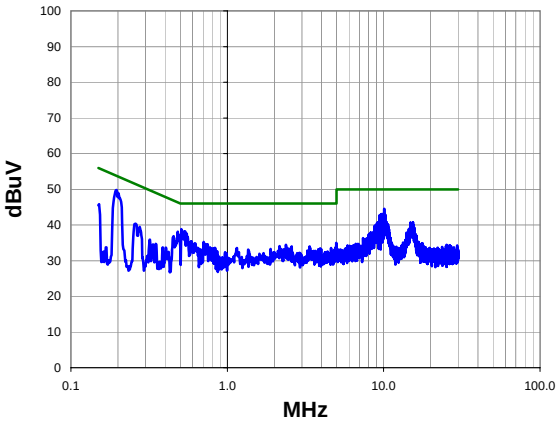
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	26	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	29.4	20.4	49.8	63.8	-14.0
10.080	23.5	21.0	44.5	60.0	-15.5
9.880	22.1	21.0	43.1	60.0	-16.9
9.760	22.1	21.0	43.1	60.0	-16.9
10.210	21.9	21.0	42.9	60.0	-17.1
10.160	21.9	21.0	42.9	60.0	-17.1
9.580	21.9	21.0	42.9	60.0	-17.1
0.509	18.5	20.3	38.8	56.0	-17.2
9.430	21.7	21.0	42.7	60.0	-17.3
9.940	21.5	21.0	42.5	60.0	-17.5
9.680	21.3	21.0	42.3	60.0	-17.7
10.030	21.0	21.0	42.0	60.0	-18.0
0.482	17.8	20.3	38.1	56.3	-18.2
0.551	17.3	20.3	37.6	56.0	-18.4
9.480	20.1	21.0	41.1	60.0	-18.9
10.340	20.0	21.0	41.0	60.0	-19.0
9.630	19.9	21.0	40.9	60.0	-19.1
9.270	19.8	20.9	40.7	60.0	-19.3
15.380	19.4	21.3	40.7	60.0	-19.3
14.850	19.4	21.3	40.7	60.0	-19.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	29.4	20.4	49.8	53.8	-4.0
10.080	23.5	21.0	44.5	50.0	-5.5
9.880	22.1	21.0	43.1	50.0	-6.9
9.760	22.1	21.0	43.1	50.0	-6.9
10.210	21.9	21.0	42.9	50.0	-7.1
10.160	21.9	21.0	42.9	50.0	-7.1
9.580	21.9	21.0	42.9	50.0	-7.1
0.509	18.5	20.3	38.8	46.0	-7.2
9.430	21.7	21.0	42.7	50.0	-7.3
9.940	21.5	21.0	42.5	50.0	-7.5
9.680	21.3	21.0	42.3	50.0	-7.7
10.030	21.0	21.0	42.0	50.0	-8.0
0.482	17.8	20.3	38.1	46.3	-8.2
0.551	17.3	20.3	37.6	46.0	-8.4
9.480	20.1	21.0	41.1	50.0	-8.9
10.340	20.0	21.0	41.0	50.0	-9.0
9.630	19.9	21.0	40.9	50.0	-9.1
9.270	19.8	20.9	40.7	50.0	-9.3
15.380	19.4	21.3	40.7	50.0	-9.3
14.850	19.4	21.3	40.7	50.0	-9.3

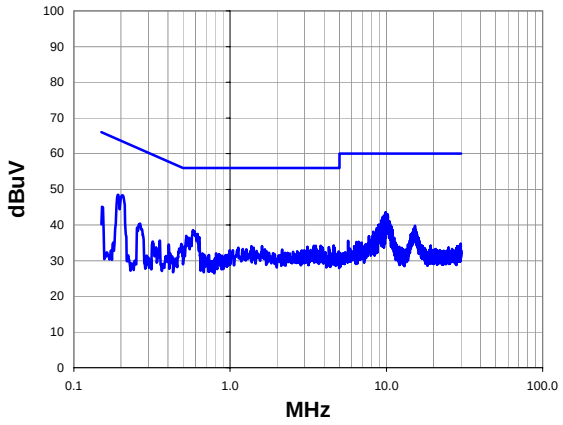
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, High channel				
Deviations:	No deviations.				
Comments:	None				

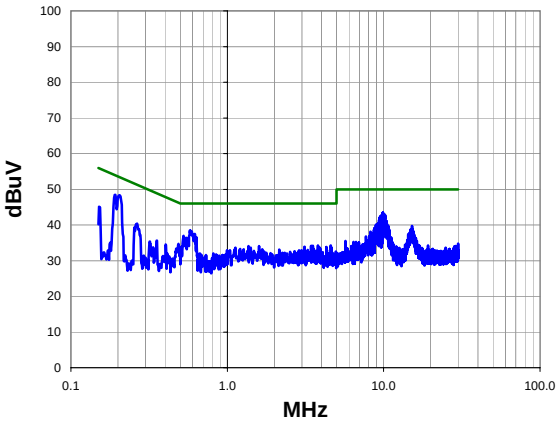
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	27	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.204	28.0	20.4	48.4	63.4	-15.1
0.193	28.1	20.4	48.5	63.9	-15.5
9.870	22.5	21.0	43.5	60.0	-16.5
10.150	22.0	21.0	43.0	60.0	-17.0
9.940	21.9	21.0	42.9	60.0	-17.1
10.200	21.8	21.0	42.8	60.0	-17.2
9.750	21.8	21.0	42.8	60.0	-17.2
9.810	21.6	21.0	42.6	60.0	-17.4
0.577	18.2	20.3	38.5	56.0	-17.5
9.580	21.5	21.0	42.5	60.0	-17.5
10.010	21.4	21.0	42.4	60.0	-17.6
9.410	21.1	21.0	42.1	60.0	-17.9
9.640	20.8	21.0	41.8	60.0	-18.2
9.340	20.4	21.0	41.4	60.0	-18.6
10.430	20.1	21.0	41.1	60.0	-18.9
10.350	20.0	21.0	41.0	60.0	-19.0
0.524	16.7	20.3	37.0	56.0	-19.0
9.300	19.7	21.0	40.7	60.0	-19.3
0.635	16.3	20.3	36.6	56.0	-19.4
10.540	19.3	21.0	40.3	60.0	-19.7

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.204	28.0	20.4	48.4	53.4	-5.1
0.193	28.1	20.4	48.5	53.9	-5.5
9.870	22.5	21.0	43.5	50.0	-6.5
10.150	22.0	21.0	43.0	50.0	-7.0
9.940	21.9	21.0	42.9	50.0	-7.1
10.200	21.8	21.0	42.8	50.0	-7.2
9.750	21.8	21.0	42.8	50.0	-7.2
9.810	21.6	21.0	42.6	50.0	-7.4
0.577	18.2	20.3	38.5	46.0	-7.5
9.580	21.5	21.0	42.5	50.0	-7.5
10.010	21.4	21.0	42.4	50.0	-7.6
9.410	21.1	21.0	42.1	50.0	-7.9
9.640	20.8	21.0	41.8	50.0	-8.2
9.340	20.4	21.0	41.4	50.0	-8.6
10.430	20.1	21.0	41.1	50.0	-8.9
10.350	20.0	21.0	41.0	50.0	-9.0
0.524	16.7	20.3	37.0	46.0	-9.0
9.300	19.7	21.0	40.7	50.0	-9.3
0.635	16.3	20.3	36.6	46.0	-9.4
10.540	19.3	21.0	40.3	50.0	-9.7

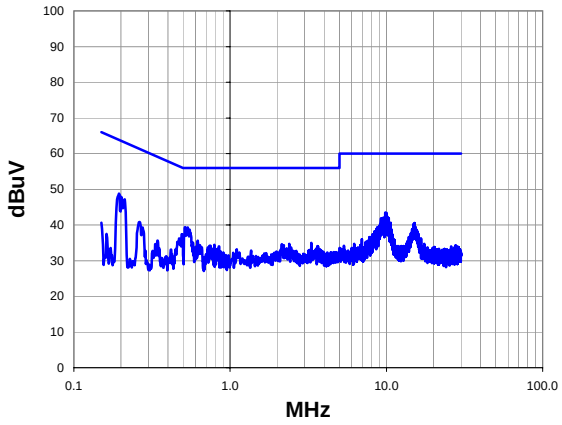
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(b), 1 Mbps, High channel				
Deviations:	No deviations.				
Comments:	None				

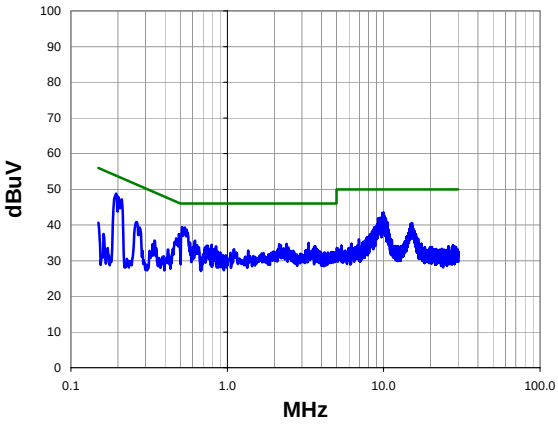
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	28	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.4	20.4	48.8	63.9	-15.1
0.201	27.5	20.4	47.9	63.6	-15.7
0.516	19.1	20.3	39.4	56.0	-16.6
10.000	22.4	21.0	43.4	60.0	-16.6
9.820	22.4	21.0	43.4	60.0	-16.6
10.130	21.4	21.0	42.4	60.0	-17.6
10.060	21.3	21.0	42.3	60.0	-17.7
9.760	21.3	21.0	42.3	60.0	-17.7
9.450	21.0	21.0	42.0	60.0	-18.0
10.340	20.9	21.0	41.9	60.0	-18.1
9.230	20.9	20.9	41.8	60.0	-18.2
9.600	20.7	21.0	41.7	60.0	-18.3
9.530	20.6	21.0	41.6	60.0	-18.4
0.492	17.1	20.3	37.4	56.1	-18.7
9.340	19.8	21.0	40.8	60.0	-19.2
10.630	19.6	21.0	40.6	60.0	-19.4
15.180	19.3	21.3	40.6	60.0	-19.4
10.470	19.3	21.0	40.3	60.0	-19.7
9.100	19.3	20.9	40.2	60.0	-19.8
9.070	18.8	20.9	39.7	60.0	-20.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.4	20.4	48.8	53.9	-5.1
0.201	27.5	20.4	47.9	53.6	-5.7
0.516	19.1	20.3	39.4	46.0	-6.6
10.000	22.4	21.0	43.4	50.0	-6.6
9.820	22.4	21.0	43.4	50.0	-6.6
10.130	21.4	21.0	42.4	50.0	-7.6
10.060	21.3	21.0	42.3	50.0	-7.7
9.760	21.3	21.0	42.3	50.0	-7.7
9.450	21.0	21.0	42.0	50.0	-8.0
10.340	20.9	21.0	41.9	50.0	-8.1
9.230	20.9	20.9	41.8	50.0	-8.2
9.600	20.7	21.0	41.7	50.0	-8.3
9.530	20.6	21.0	41.6	50.0	-8.4
0.492	17.1	20.3	37.4	46.1	-8.7
9.340	19.8	21.0	40.8	50.0	-9.2
10.630	19.6	21.0	40.6	50.0	-9.4
15.180	19.3	21.3	40.6	50.0	-9.4
10.470	19.3	21.0	40.3	50.0	-9.7
9.100	19.3	20.9	40.2	50.0	-9.8
9.070	18.8	20.9	39.7	50.0	-10.3

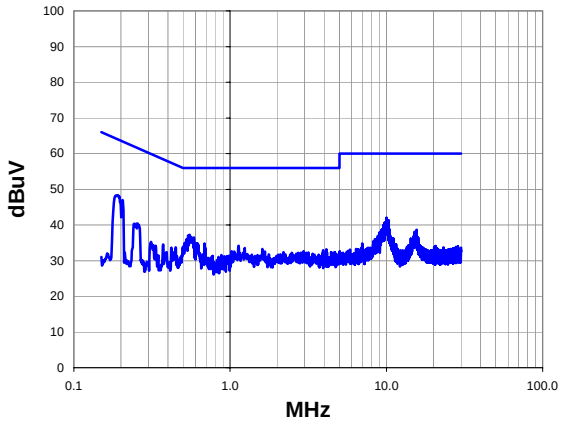
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, Low channel 149				
Deviations:	No deviations.				
Comments:	None				

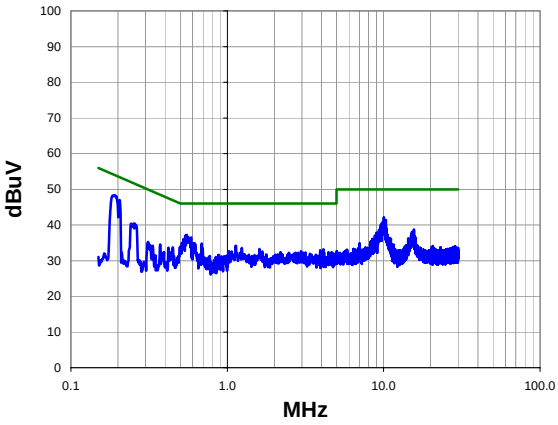
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	29	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	28.0	20.4	48.4	64.0	-15.7
0.204	26.6	20.4	47.0	63.4	-16.5
10.030	21.1	21.0	42.1	60.0	-17.9
10.330	20.3	21.0	41.3	60.0	-18.7
0.551	16.9	20.3	37.2	56.0	-18.8
9.880	19.6	21.0	40.6	60.0	-19.4
10.200	19.3	21.0	40.3	60.0	-19.7
0.526	15.8	20.3	36.1	56.0	-19.9
9.700	19.0	21.0	40.0	60.0	-20.0
9.600	19.0	21.0	40.0	60.0	-20.0
0.607	14.6	20.3	34.9	56.0	-21.1
10.420	17.9	21.0	38.9	60.0	-21.1
0.686	14.5	20.3	34.8	56.0	-21.2
15.630	17.4	21.3	38.7	60.0	-21.3
9.330	17.7	21.0	38.7	60.0	-21.3
0.595	14.3	20.3	34.6	56.0	-21.4
0.243	20.0	20.3	40.3	62.0	-21.6
1.136	13.8	20.4	34.2	56.0	-21.8
15.180	16.8	21.3	38.1	60.0	-21.9
9.020	16.9	20.9	37.8	60.0	-22.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	28.0	20.4	48.4	54.0	-5.7
0.204	26.6	20.4	47.0	53.4	-6.5
10.030	21.1	21.0	42.1	50.0	-7.9
10.330	20.3	21.0	41.3	50.0	-8.7
0.551	16.9	20.3	37.2	46.0	-8.8
9.880	19.6	21.0	40.6	50.0	-9.4
10.200	19.3	21.0	40.3	50.0	-9.7
0.526	15.8	20.3	36.1	46.0	-9.9
9.700	19.0	21.0	40.0	50.0	-10.0
9.600	19.0	21.0	40.0	50.0	-10.0
0.607	14.6	20.3	34.9	46.0	-11.1
10.420	17.9	21.0	38.9	50.0	-11.1
0.686	14.5	20.3	34.8	46.0	-11.2
15.630	17.4	21.3	38.7	50.0	-11.3
9.330	17.7	21.0	38.7	50.0	-11.3
0.595	14.3	20.3	34.6	46.0	-11.4
0.243	20.0	20.3	40.3	52.0	-11.6
1.136	13.8	20.4	34.2	46.0	-11.8
15.180	16.8	21.3	38.1	50.0	-11.9
9.020	16.9	20.9	37.8	50.0	-12.2

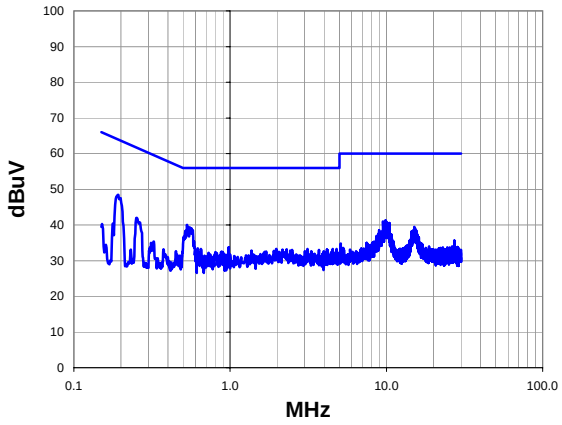
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, Low channel 149				
Deviations:	No deviations.				
Comments:	None				

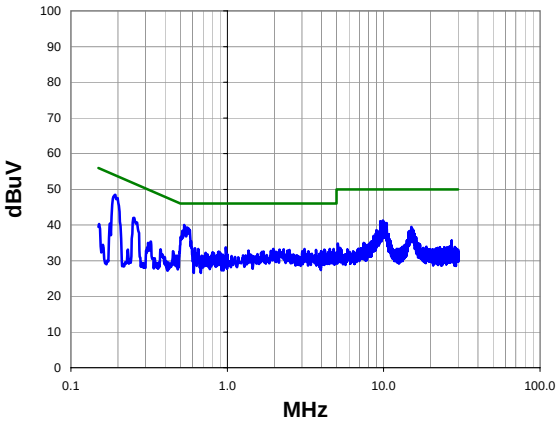
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	30	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.193	28.1	20.4	48.5	63.9	-15.5
0.531	19.7	20.3	40.0	56.0	-16.0
9.870	20.3	21.0	41.3	60.0	-18.7
9.530	20.0	21.0	41.0	60.0	-19.0
10.000	19.9	21.0	40.9	60.0	-19.1
9.820	19.7	21.0	40.7	60.0	-19.3
10.450	19.5	21.0	40.5	60.0	-19.5
10.220	19.5	21.0	40.5	60.0	-19.5
0.250	21.6	20.3	41.9	61.7	-19.8
9.710	18.8	21.0	39.8	60.0	-20.2
15.070	18.2	21.3	39.5	60.0	-20.5
10.490	17.8	21.0	38.8	60.0	-21.2
8.990	17.6	20.9	38.5	60.0	-21.5
15.550	17.1	21.3	38.4	60.0	-21.6
14.480	16.9	21.2	38.1	60.0	-21.9
9.310	17.1	21.0	38.1	60.0	-21.9
0.980	13.3	20.4	33.7	56.0	-22.3
9.270	16.7	20.9	37.6	60.0	-22.4
8.920	16.7	20.9	37.6	60.0	-22.4
10.770	16.4	21.0	37.4	60.0	-22.6

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.193	28.1	20.4	48.5	53.9	-5.5
0.531	19.7	20.3	40.0	46.0	-6.0
9.870	20.3	21.0	41.3	50.0	-8.7
9.530	20.0	21.0	41.0	50.0	-9.0
10.000	19.9	21.0	40.9	50.0	-9.1
9.820	19.7	21.0	40.7	50.0	-9.3
10.450	19.5	21.0	40.5	50.0	-9.5
10.220	19.5	21.0	40.5	50.0	-9.5
0.250	21.6	20.3	41.9	51.7	-9.8
9.710	18.8	21.0	39.8	50.0	-10.2
15.070	18.2	21.3	39.5	50.0	-10.5
10.490	17.8	21.0	38.8	50.0	-11.2
8.990	17.6	20.9	38.5	50.0	-11.5
15.550	17.1	21.3	38.4	50.0	-11.6
14.480	16.9	21.2	38.1	50.0	-11.9
9.310	17.1	21.0	38.1	50.0	-11.9
0.980	13.3	20.4	33.7	46.0	-12.3
9.270	16.7	20.9	37.6	50.0	-12.4
8.920	16.7	20.9	37.6	50.0	-12.4
10.770	16.4	21.0	37.4	50.0	-12.6

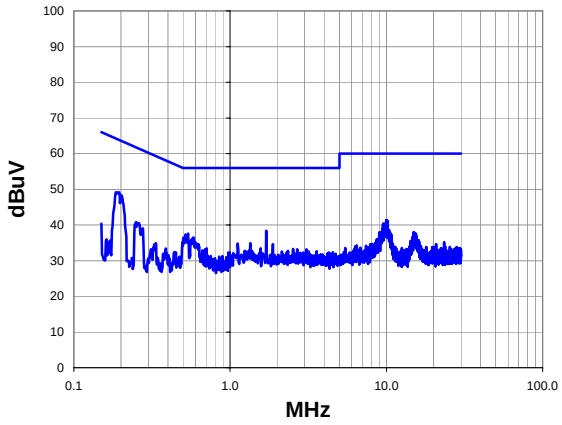
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, Mid channel 157				
Deviations:	No deviations.				
Comments:	None				

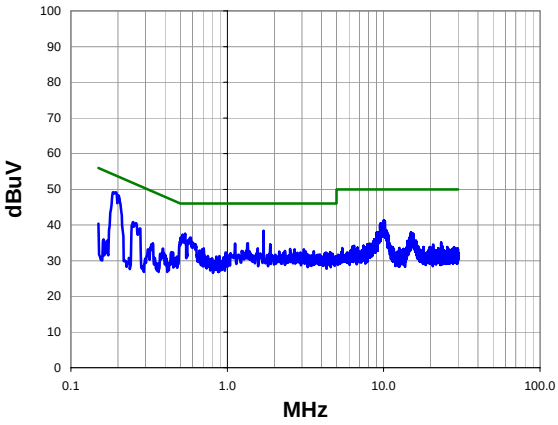
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	31	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.8	20.4	49.2	63.9	-14.7
1.704	17.9	20.4	38.3	56.0	-17.7
0.538	17.3	20.3	37.6	56.0	-18.4
10.070	20.3	21.0	41.3	60.0	-18.7
9.970	20.3	21.0	41.3	60.0	-18.7
10.190	20.1	21.0	41.1	60.0	-18.9
9.580	19.5	21.0	40.5	60.0	-19.5
0.585	16.1	20.3	36.4	56.0	-19.6
10.130	19.3	21.0	40.3	60.0	-19.7
9.500	19.1	21.0	40.1	60.0	-19.9
0.250	20.5	20.3	40.8	61.7	-20.9
1.352	14.5	20.4	34.9	56.0	-21.1
1.120	14.4	20.4	34.8	56.0	-21.2
1.880	14.2	20.5	34.7	56.0	-21.3
14.960	16.7	21.3	38.0	60.0	-22.0
9.280	17.0	20.9	37.9	60.0	-22.1
9.060	17.0	20.9	37.9	60.0	-22.1
9.040	16.9	20.9	37.8	60.0	-22.2
15.030	16.5	21.3	37.8	60.0	-22.2
15.230	16.4	21.3	37.7	60.0	-22.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.8	20.4	49.2	53.9	-4.7
1.704	17.9	20.4	38.3	46.0	-7.7
0.538	17.3	20.3	37.6	46.0	-8.4
10.070	20.3	21.0	41.3	50.0	-8.7
9.970	20.3	21.0	41.3	50.0	-8.7
10.190	20.1	21.0	41.1	50.0	-8.9
9.580	19.5	21.0	40.5	50.0	-9.5
0.585	16.1	20.3	36.4	46.0	-9.6
10.130	19.3	21.0	40.3	50.0	-9.7
9.500	19.1	21.0	40.1	50.0	-9.9
0.250	20.5	20.3	40.8	51.7	-10.9
1.352	14.5	20.4	34.9	46.0	-11.1
1.120	14.4	20.4	34.8	46.0	-11.2
1.880	14.2	20.5	34.7	46.0	-11.3
14.960	16.7	21.3	38.0	50.0	-12.0
9.280	17.0	20.9	37.9	50.0	-12.1
9.060	17.0	20.9	37.9	50.0	-12.1
9.040	16.9	20.9	37.8	50.0	-12.2
15.030	16.5	21.3	37.8	50.0	-12.2
15.230	16.4	21.3	37.7	50.0	-12.3

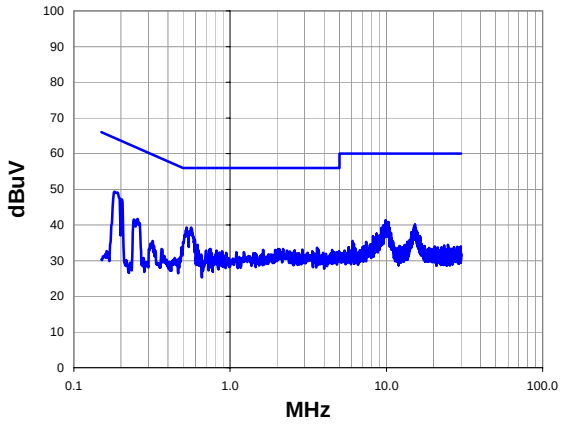
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, Mid channel 157				
Deviations:	No deviations.				
Comments:	None				

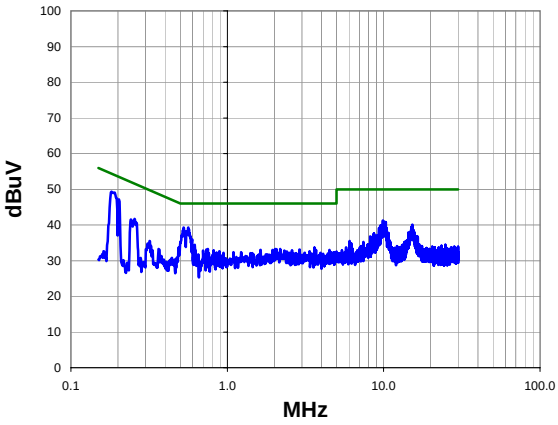
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	32	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.182	29.0	20.3	49.3	64.4	-15.0
0.203	26.8	20.4	47.2	63.5	-16.3
0.563	19.0	20.3	39.3	56.0	-16.7
0.526	19.0	20.3	39.3	56.0	-16.7
9.870	20.3	21.0	41.3	60.0	-18.7
10.030	19.9	21.0	40.9	60.0	-19.1
10.330	19.8	21.0	40.8	60.0	-19.2
0.255	21.4	20.3	41.7	61.6	-19.8
15.230	18.8	21.3	40.1	60.0	-19.9
0.595	15.7	20.3	36.0	56.0	-20.0
9.590	18.9	21.0	39.9	60.0	-20.1
15.010	18.2	21.3	39.5	60.0	-20.5
9.330	18.2	21.0	39.2	60.0	-20.8
0.619	14.1	20.3	34.4	56.0	-21.6
9.400	17.4	21.0	38.4	60.0	-21.6
9.520	17.1	21.0	38.1	60.0	-21.9
14.450	16.7	21.2	37.9	60.0	-22.1
15.740	16.6	21.3	37.9	60.0	-22.1
10.710	16.7	21.0	37.7	60.0	-22.3
3.608	13.1	20.6	33.7	56.0	-22.3

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.182	29.0	20.3	49.3	54.4	-5.0
0.203	26.8	20.4	47.2	53.5	-6.3
0.563	19.0	20.3	39.3	46.0	-6.7
0.526	19.0	20.3	39.3	46.0	-6.7
9.870	20.3	21.0	41.3	50.0	-8.7
10.030	19.9	21.0	40.9	50.0	-9.1
10.330	19.8	21.0	40.8	50.0	-9.2
0.255	21.4	20.3	41.7	51.6	-9.8
15.230	18.8	21.3	40.1	50.0	-9.9
0.595	15.7	20.3	36.0	46.0	-10.0
9.590	18.9	21.0	39.9	50.0	-10.1
15.010	18.2	21.3	39.5	50.0	-10.5
9.330	18.2	21.0	39.2	50.0	-10.8
0.619	14.1	20.3	34.4	46.0	-11.6
9.400	17.4	21.0	38.4	50.0	-11.6
9.520	17.1	21.0	38.1	50.0	-11.9
14.450	16.7	21.2	37.9	50.0	-12.1
15.740	16.6	21.3	37.9	50.0	-12.1
10.710	16.7	21.0	37.7	50.0	-12.3
3.608	13.1	20.6	33.7	46.0	-12.3

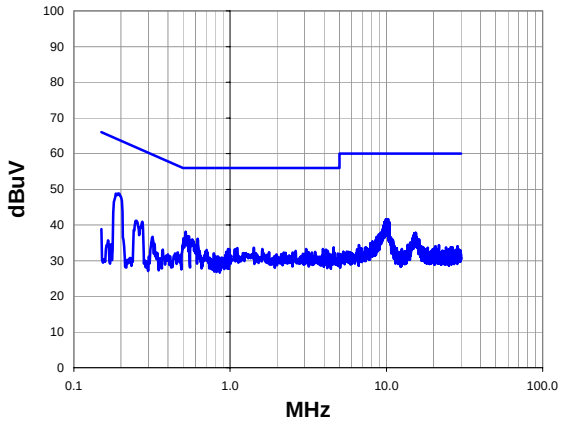
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, High channel 165				
Deviations:	No deviations.				
Comments:	None				

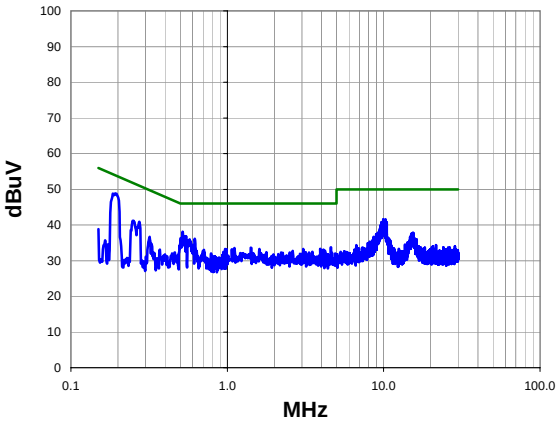
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	33	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.4	20.4	48.8	63.9	-15.1
0.519	17.8	20.3	38.1	56.0	-17.9
10.250	20.6	21.0	41.6	60.0	-18.4
9.930	20.5	21.0	41.5	60.0	-18.5
0.544	16.6	20.3	36.9	56.0	-19.1
9.680	19.8	21.0	40.8	60.0	-19.2
10.460	19.7	21.0	40.7	60.0	-19.3
10.100	19.7	21.0	40.7	60.0	-19.3
10.340	19.3	21.0	40.3	60.0	-19.7
0.619	15.8	20.3	36.1	56.0	-19.9
0.573	15.7	20.3	36.0	56.0	-20.0
9.770	19.0	21.0	40.0	60.0	-20.0
0.274	20.6	20.3	40.9	61.0	-20.1
0.249	20.8	20.3	41.1	61.8	-20.7
15.470	16.5	21.3	37.8	60.0	-22.2
15.310	16.5	21.3	37.8	60.0	-22.2
9.170	16.8	20.9	37.7	60.0	-22.3
4.600	13.0	20.7	33.7	56.0	-22.3
1.416	13.2	20.4	33.6	56.0	-22.4
1.112	13.1	20.4	33.5	56.0	-22.5

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.194	28.4	20.4	48.8	53.9	-5.1
0.519	17.8	20.3	38.1	46.0	-7.9
10.250	20.6	21.0	41.6	50.0	-8.4
9.930	20.5	21.0	41.5	50.0	-8.5
0.544	16.6	20.3	36.9	46.0	-9.1
9.680	19.8	21.0	40.8	50.0	-9.2
10.460	19.7	21.0	40.7	50.0	-9.3
10.100	19.7	21.0	40.7	50.0	-9.3
10.340	19.3	21.0	40.3	50.0	-9.7
0.619	15.8	20.3	36.1	46.0	-9.9
0.573	15.7	20.3	36.0	46.0	-10.0
9.770	19.0	21.0	40.0	50.0	-10.0
0.274	20.6	20.3	40.9	51.0	-10.1
0.249	20.8	20.3	41.1	51.8	-10.7
15.470	16.5	21.3	37.8	50.0	-12.2
15.310	16.5	21.3	37.8	50.0	-12.2
9.170	16.8	20.9	37.7	50.0	-12.3
4.600	13.0	20.7	33.7	46.0	-12.3
1.416	13.2	20.4	33.6	46.0	-12.4
1.112	13.1	20.4	33.5	46.0	-12.5

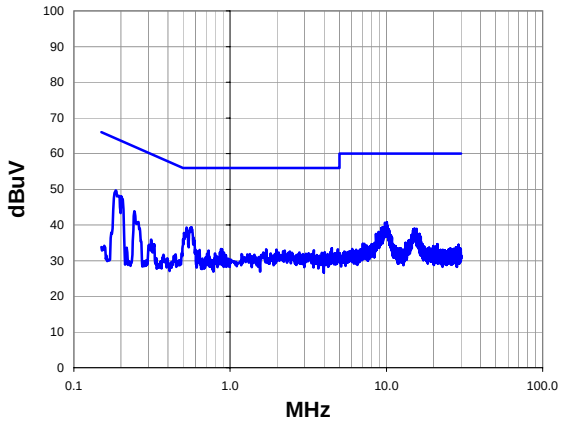
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MCSO1608	**Date:**	08/08/12		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	45% RH		
Serial Number:	215622952	**Barometric Pres.:**	1015.5 mbar	**Tested by:**	Rod Peloquin
EUT:	1516				
Configuration:	3				
Customer:	Microsoft Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a), 6 Mbps, High channel 165				
Deviations:	No deviations.				
Comments:	None				

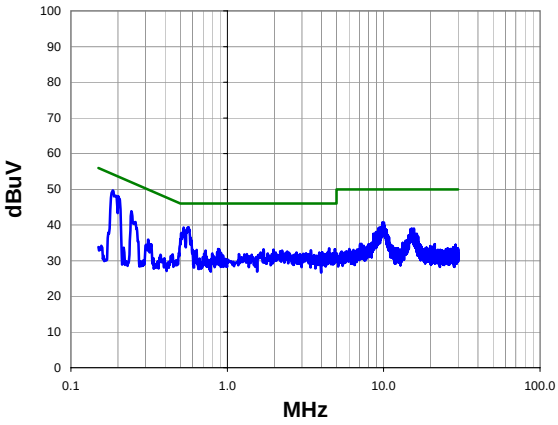
Test Specifications	**Test Method**
FCC 15.207:2012	ANSI C63.10:2009

Run #	34	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.186	29.3	20.3	49.6	64.2	-14.6
0.201	27.7	20.4	48.1	63.6	-15.5
0.567	19.1	20.3	39.4	56.0	-16.6
0.526	19.0	20.3	39.3	56.0	-16.7
0.243	23.5	20.3	43.8	62.0	-18.1
10.050	19.7	21.0	40.7	60.0	-19.3
9.800	19.6	21.0	40.6	60.0	-19.4
9.950	19.2	21.0	40.2	60.0	-19.8
9.570	18.4	21.0	39.4	60.0	-20.6
9.320	18.2	21.0	39.2	60.0	-20.8
9.420	18.1	21.0	39.1	60.0	-20.9
15.090	17.7	21.3	39.0	60.0	-21.0
15.630	17.6	21.3	38.9	60.0	-21.1
15.370	17.6	21.3	38.9	60.0	-21.1
14.900	17.6	21.3	38.9	60.0	-21.1
10.420	17.6	21.0	38.6	60.0	-21.4
14.800	17.2	21.2	38.4	60.0	-21.6
8.950	17.1	20.9	38.0	60.0	-22.0
10.470	16.9	21.0	37.9	60.0	-22.1
8.930	17.0	20.9	37.9	60.0	-22.1

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.186	29.3	20.3	49.6	54.2	-4.6
0.201	27.7	20.4	48.1	53.6	-5.5
0.567	19.1	20.3	39.4	46.0	-6.6
0.526	19.0	20.3	39.3	46.0	-6.7
0.243	23.5	20.3	43.8	52.0	-8.1
10.050	19.7	21.0	40.7	50.0	-9.3
9.800	19.6	21.0	40.6	50.0	-9.4
9.950	19.2	21.0	40.2	50.0	-9.8
9.570	18.4	21.0	39.4	50.0	-10.6
9.320	18.2	21.0	39.2	50.0	-10.8
9.420	18.1	21.0	39.1	50.0	-10.9
15.090	17.7	21.3	39.0	50.0	-11.0
15.630	17.6	21.3	38.9	50.0	-11.1
15.370	17.6	21.3	38.9	50.0	-11.1
14.900	17.6	21.3	38.9	50.0	-11.1
10.420	17.6	21.0	38.6	50.0	-11.4
14.800	17.2	21.2	38.4	50.0	-11.6
8.950	17.1	20.9	38.0	50.0	-12.0
10.470	16.9	21.0	37.9	50.0	-12.1
8.930	17.0	20.9	37.9	50.0	-12.1