



OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	14
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time.

The EUT was 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.



OCCUPIED BANDWIDTH

XMit 2014.02.07
NweTx 2014.09.23

EUT: ConnectCore i.MX6 WiFi/Bluetooth	Work Order: ETHE0009
Serial Number: 00409D 7C03B4	Date: 09/29/14
Customer: Etherios Design Solutions	Temperature: 22.7°C
Attendees: None	Humidity: 47%
Project: None	Barometric Pres.: 1023.7
Tested by: Trevor Buls	Power: 5VDC
	Job Site: MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS
None

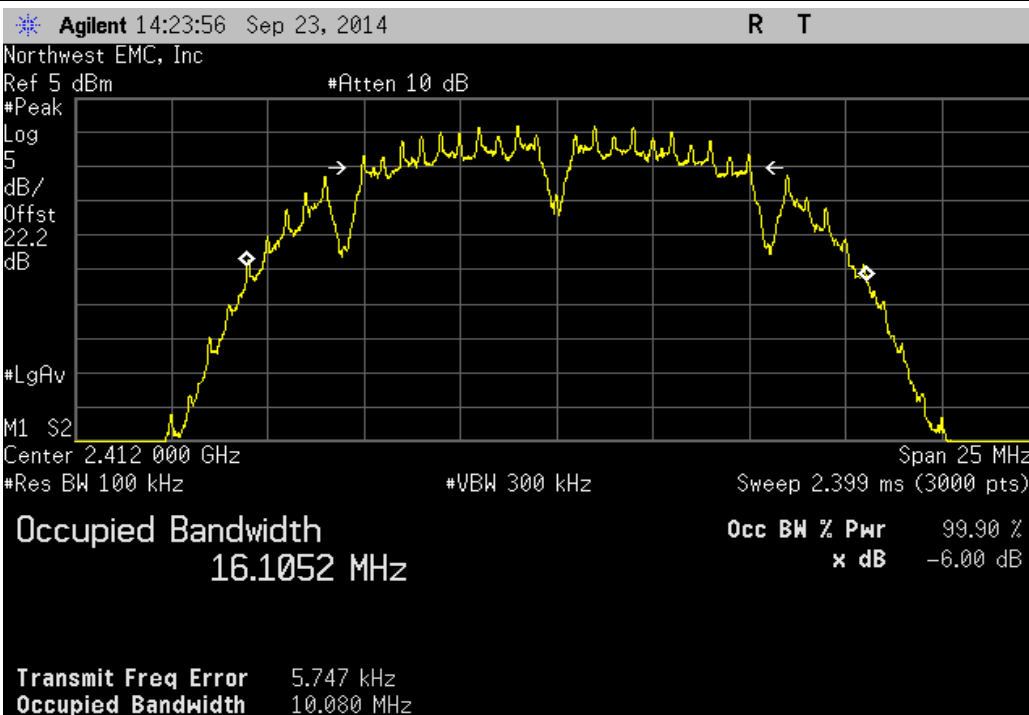
DEVIATIONS FROM TEST STANDARD
None

Configuration #	1	Signature <i>Trevor Buls</i>
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	Value	Limit (>)	Result
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	10.08 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	10.077 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	10.078 MHz	500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	10.038 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	10.384 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	10.27 MHz	500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	16.506 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.562 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.548 MHz	500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	16.512 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.503 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.529 MHz	500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	16.498 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.482 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.508 MHz	500 kHz	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	17.676 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	17.725 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	17.74 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	17.733 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	17.767 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	17.766 MHz	500 kHz	Pass
5725 MHz - 5850 MHz Band			
802.11(a) 6 Mbps			
Low Channel 149, 5745 MHz	16.422 MHz	500 kHz	Pass
Mid Channel 157, 5785 MHz	16.446 MHz	500 kHz	Pass
High Channel 165, 5825 MHz	16.412 MHz	500 kHz	Pass
802.11(a) 36 Mbps			
Low Channel 149, 5745 MHz	16.428 MHz	500 kHz	Pass
Mid Channel 157, 5785 MHz	16.423 MHz	500 kHz	Pass
High Channel 165, 5825 MHz	16.428 MHz	500 kHz	Pass
802.11(a) 54 Mbps			
Low Channel 149, 5745 MHz	16.457 MHz	500 kHz	Pass
Mid Channel 157, 5785 MHz	16.453 MHz	500 kHz	Pass
High Channel 165, 5825 MHz	16.432 MHz	500 kHz	Pass
802.11(n) MCS0 - UNII			
Low Channel 149, 5745 MHz	17.636 MHz	500 kHz	Pass
Mid Channel 157, 5785 MHz	17.619 MHz	500 kHz	Pass
High Channel 165, 5825 MHz	17.587 MHz	500 kHz	Pass
802.11(n) MCS7 - UNII			
Low Channel 149, 5745 MHz	17.662 MHz	500 kHz	Pass
Mid Channel 157, 5785 MHz	17.61 MHz	500 kHz	Pass
High Channel 165, 5825 MHz	17.657 MHz	500 kHz	Pass

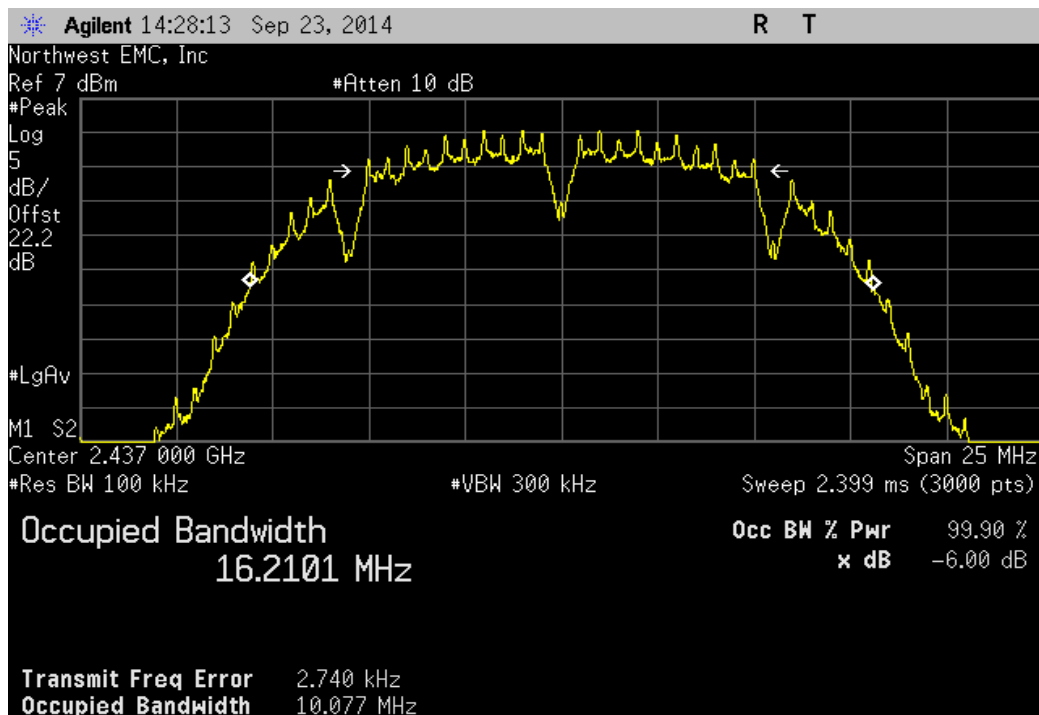
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (>)	Result
	10.08 MHz	500 kHz	Pass



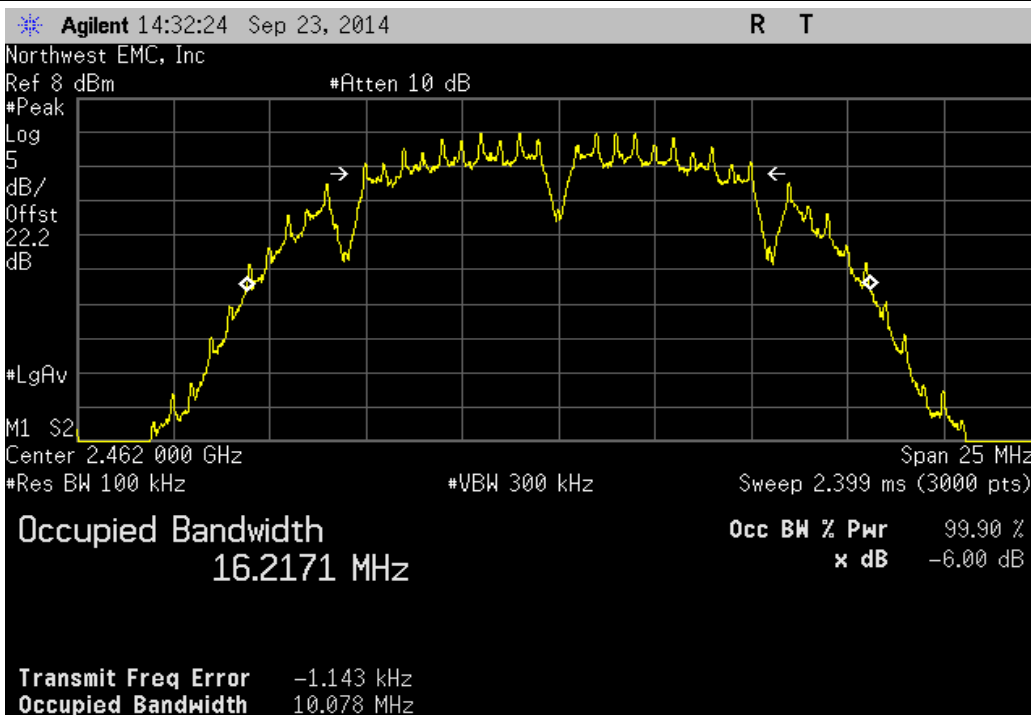
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (>)	Result
	10.077 MHz	500 kHz	Pass



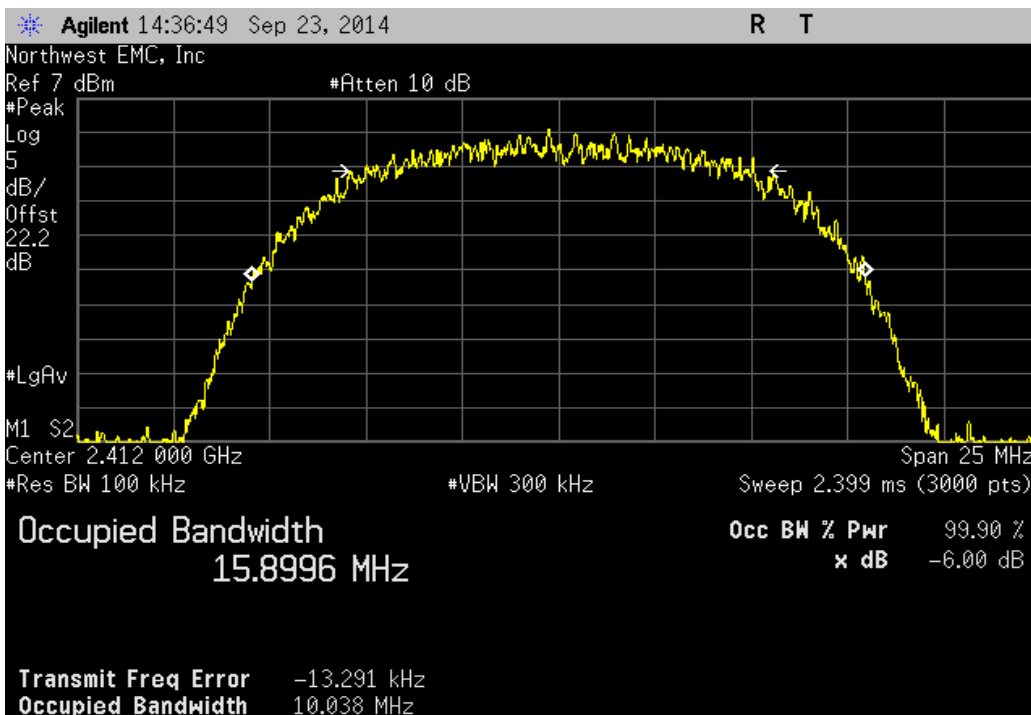
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

	Value	Limit (>)	Result
	10.078 MHz	500 kHz	Pass



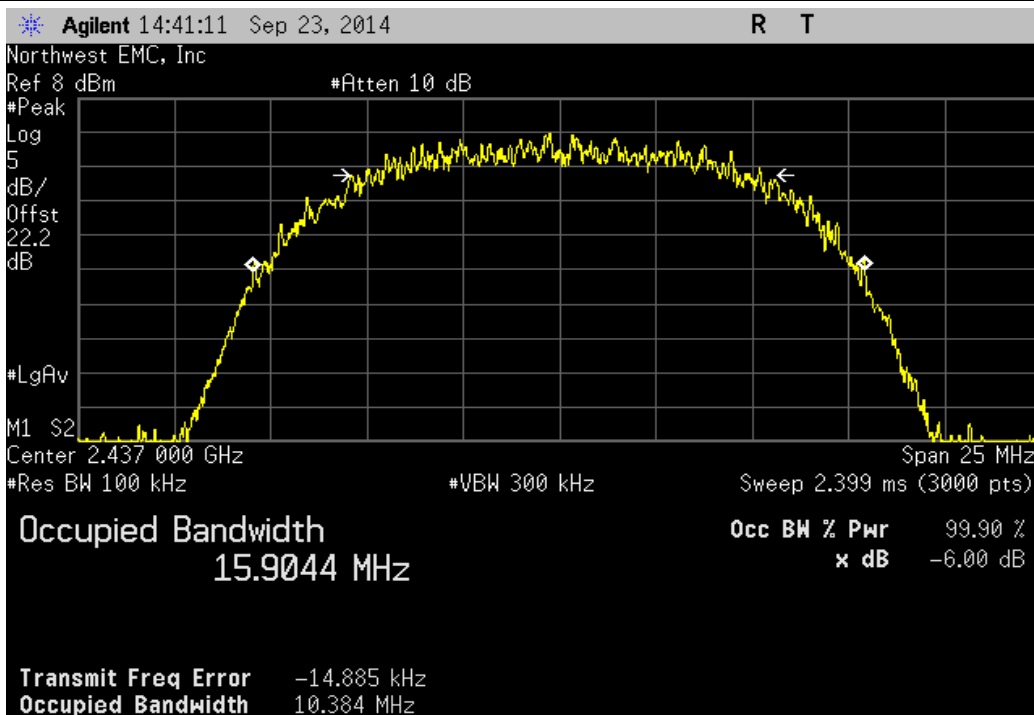
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (>)	Result
	10.038 MHz	500 kHz	Pass



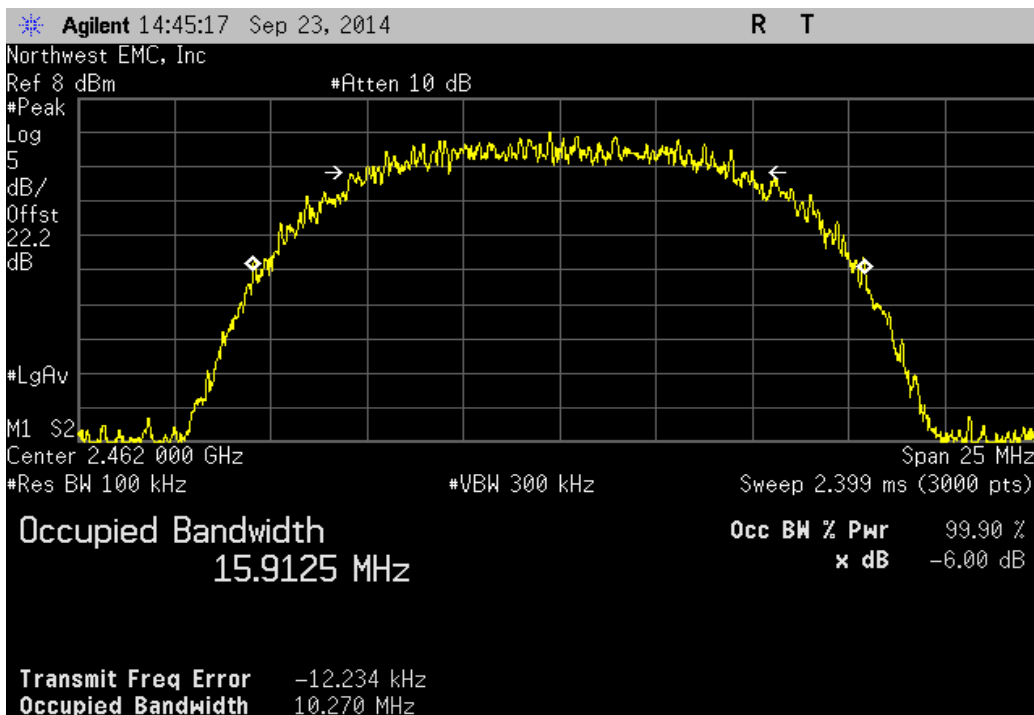
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (>)	Result
	10.384 MHz	500 kHz	Pass



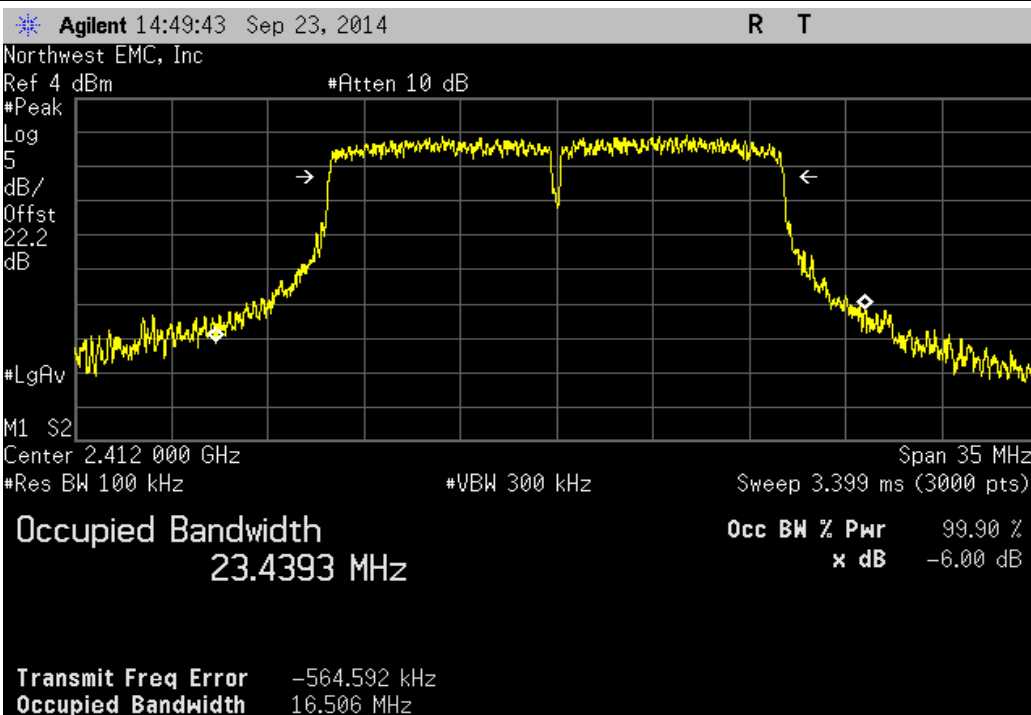
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

	Value	Limit (>)	Result
	10.27 MHz	500 kHz	Pass



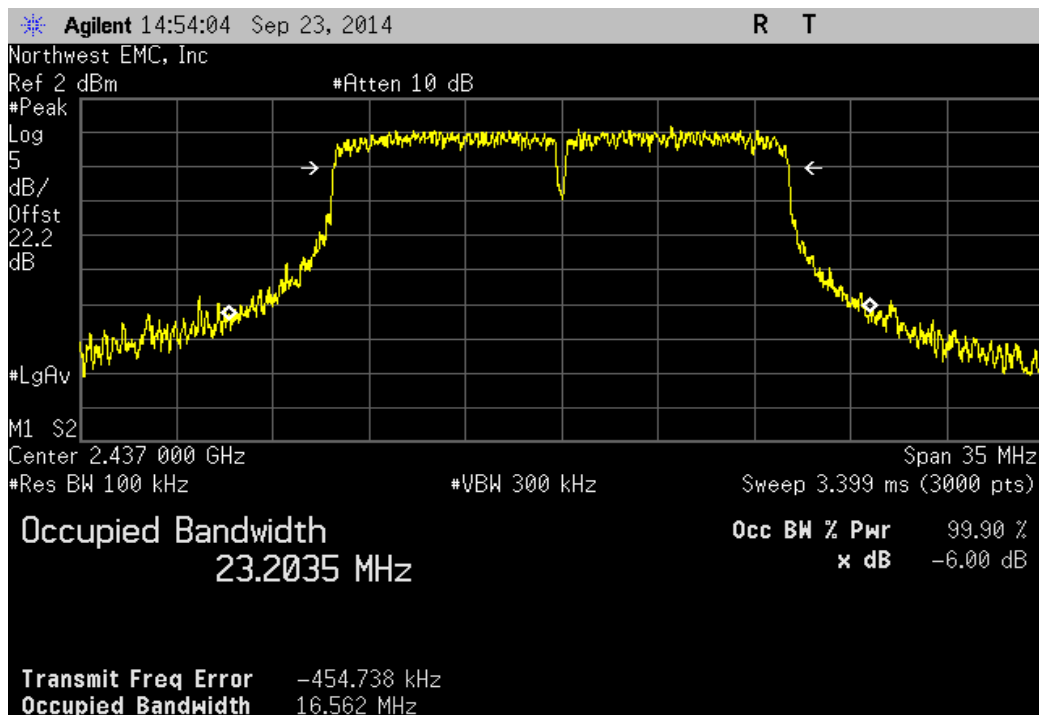
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (>)	Result
	16.506 MHz	500 kHz	Pass



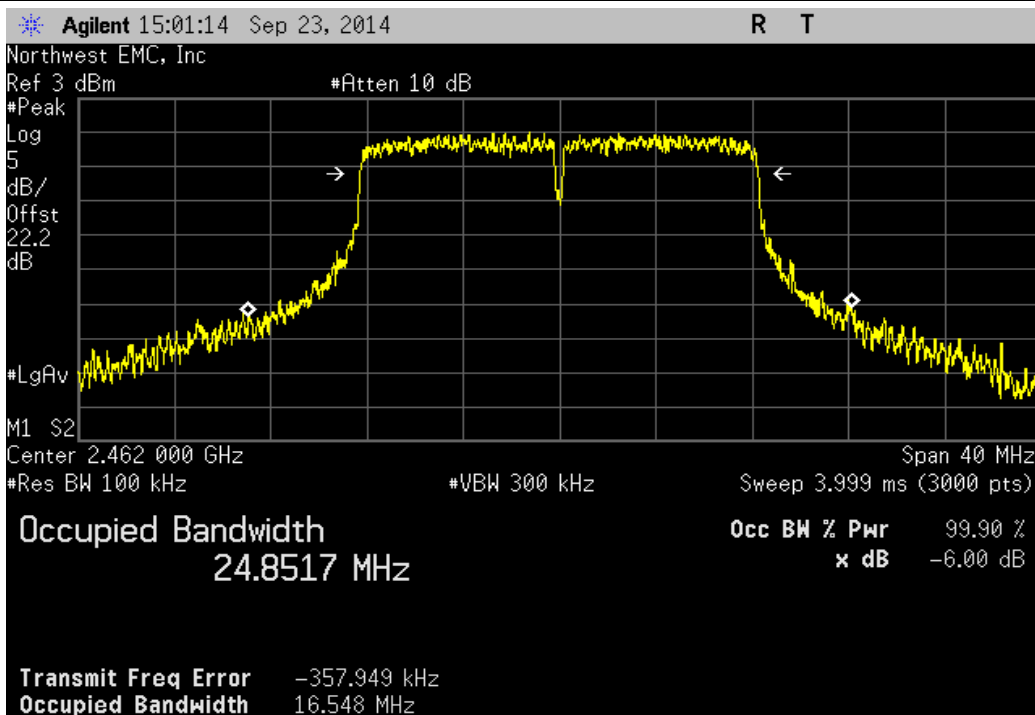
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (>)	Result
	16.562 MHz	500 kHz	Pass



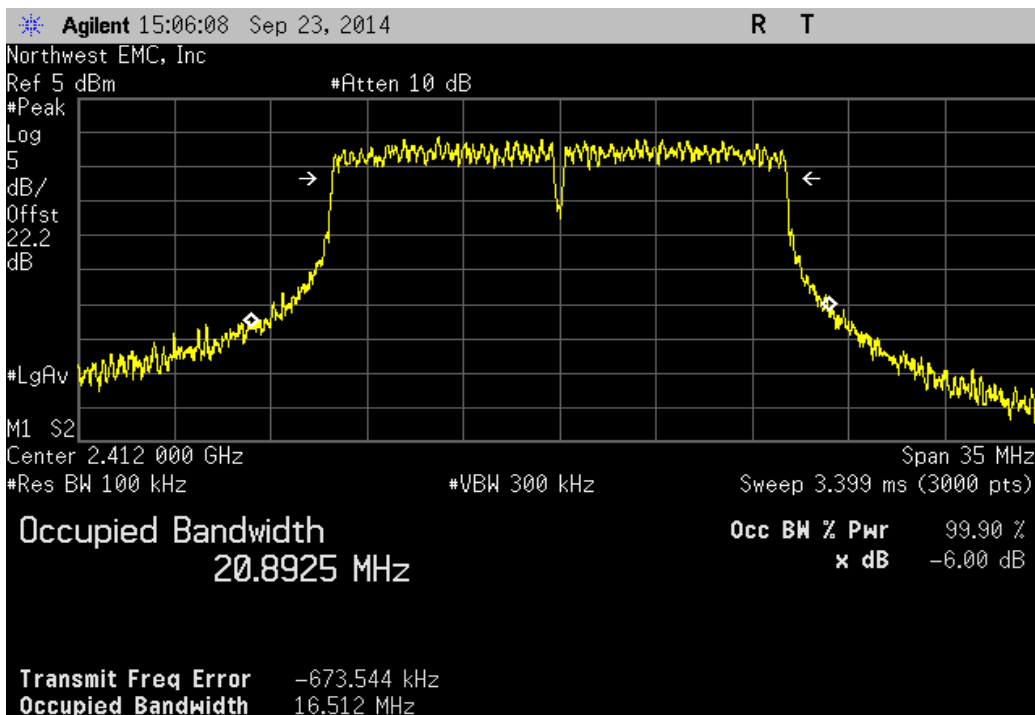
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

	Value	Limit (>)	Result
	16.548 MHz	500 kHz	Pass



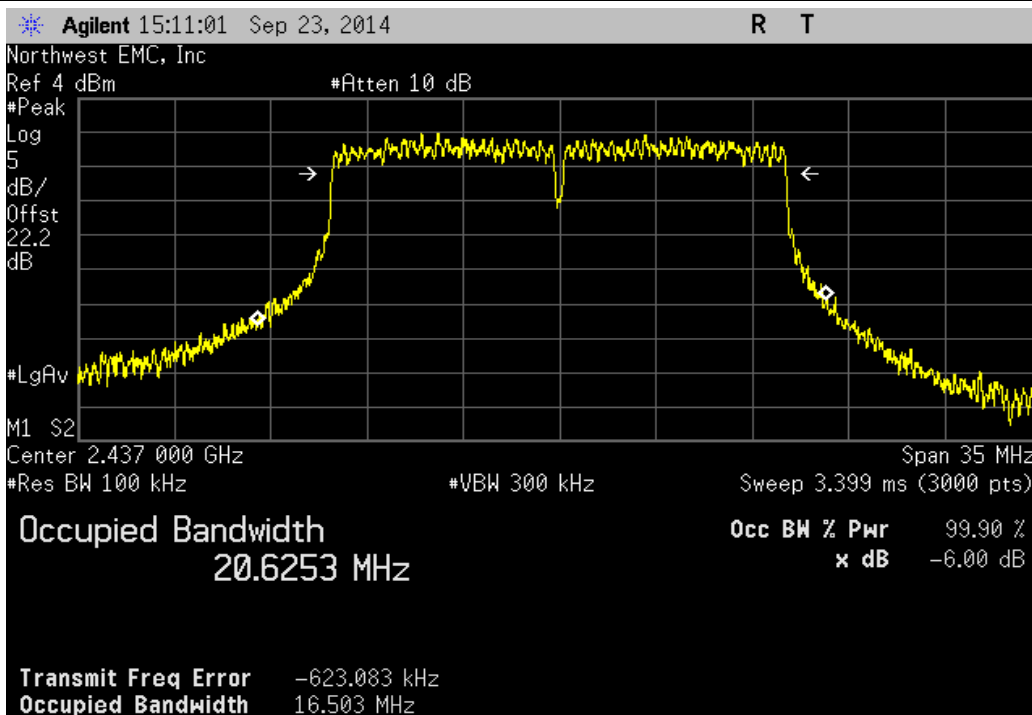
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (>)	Result
	16.512 MHz	500 kHz	Pass



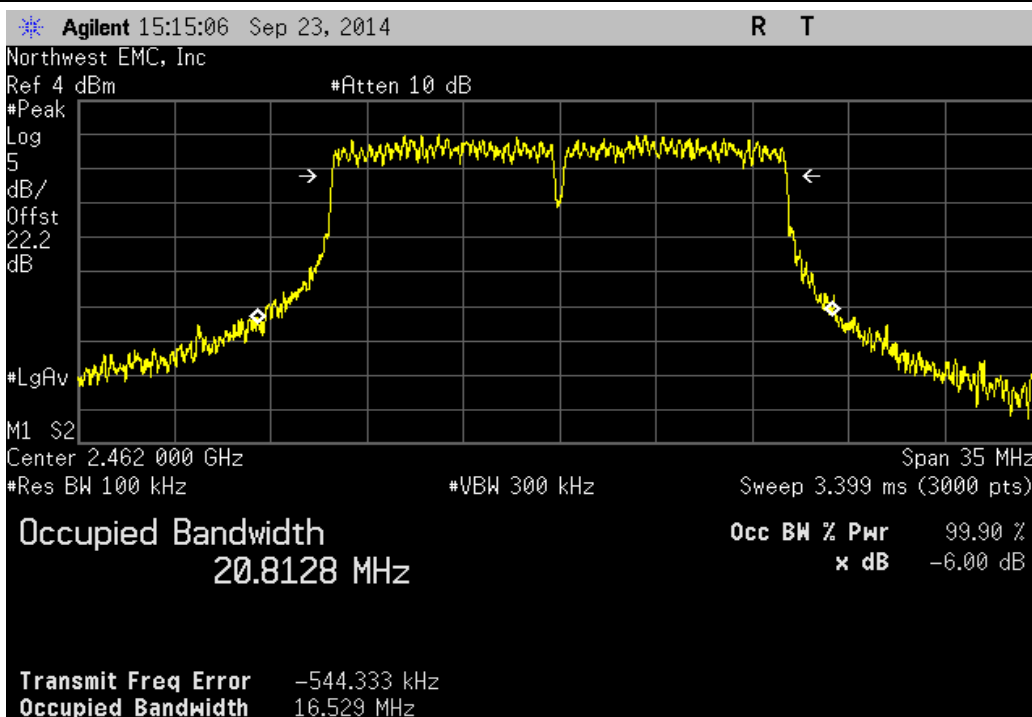
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (>)	Result
	16.503 MHz	500 kHz	Pass



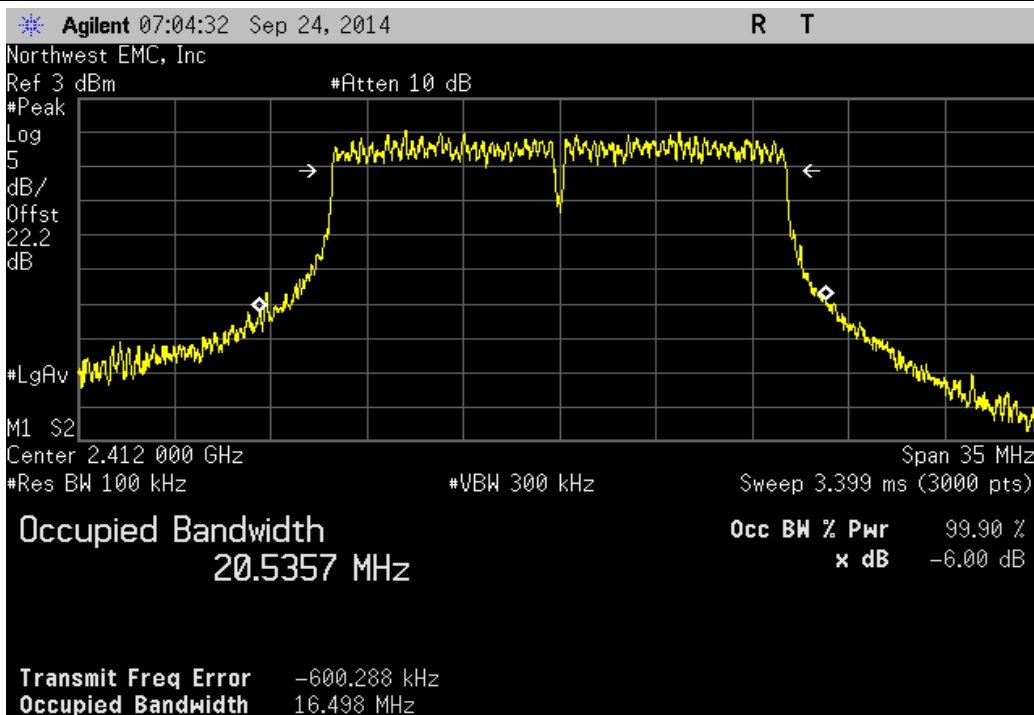
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

	Value	Limit (>)	Result
	16.529 MHz	500 kHz	Pass



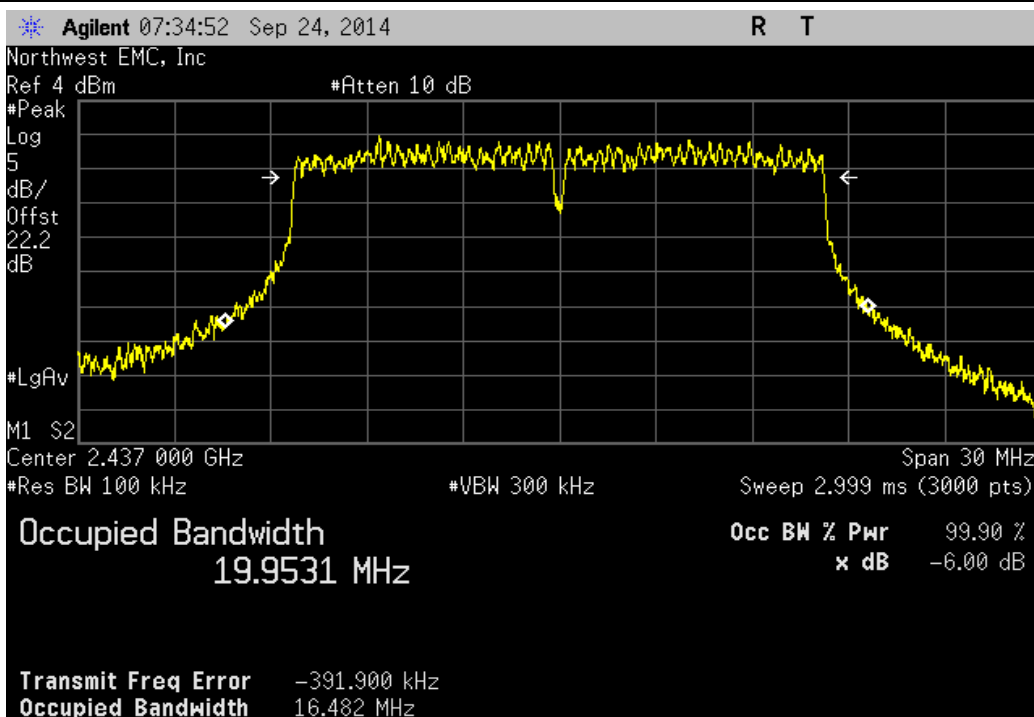
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (>)	Result
	16.498 MHz	500 kHz	Pass

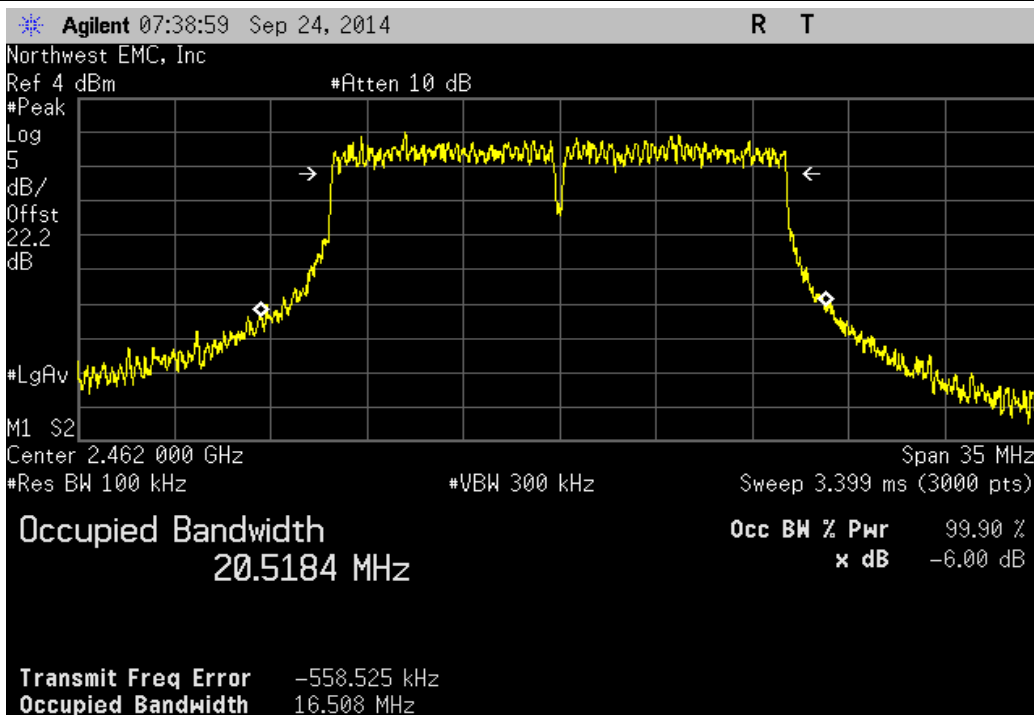


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

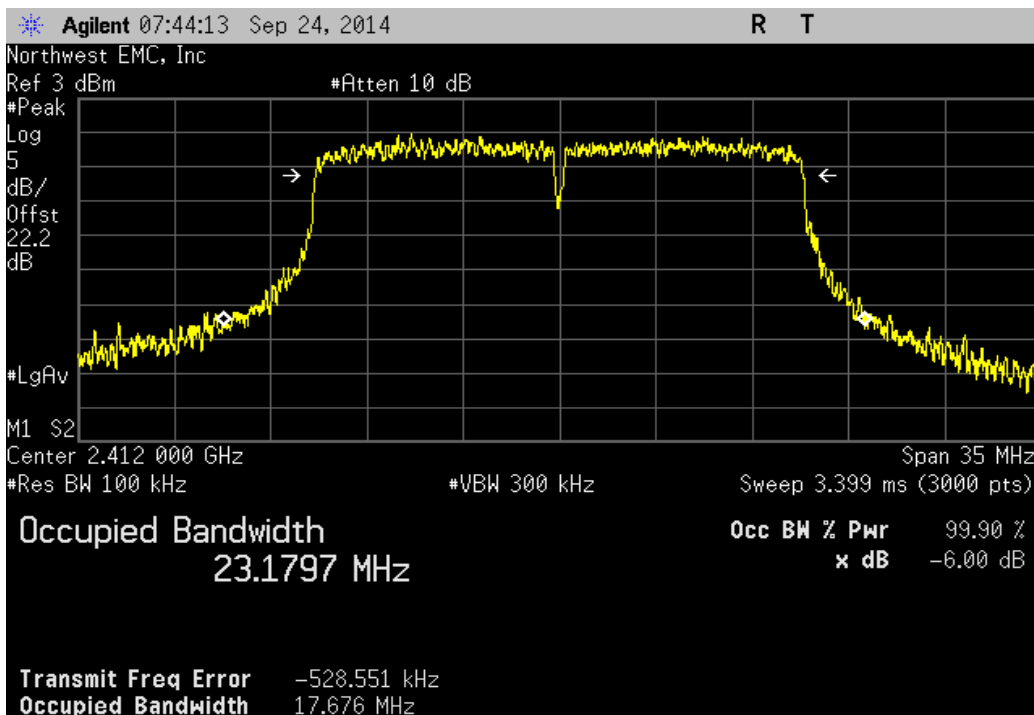
	Value	Limit (>)	Result
	16.482 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.508 MHz	500 kHz	Pass

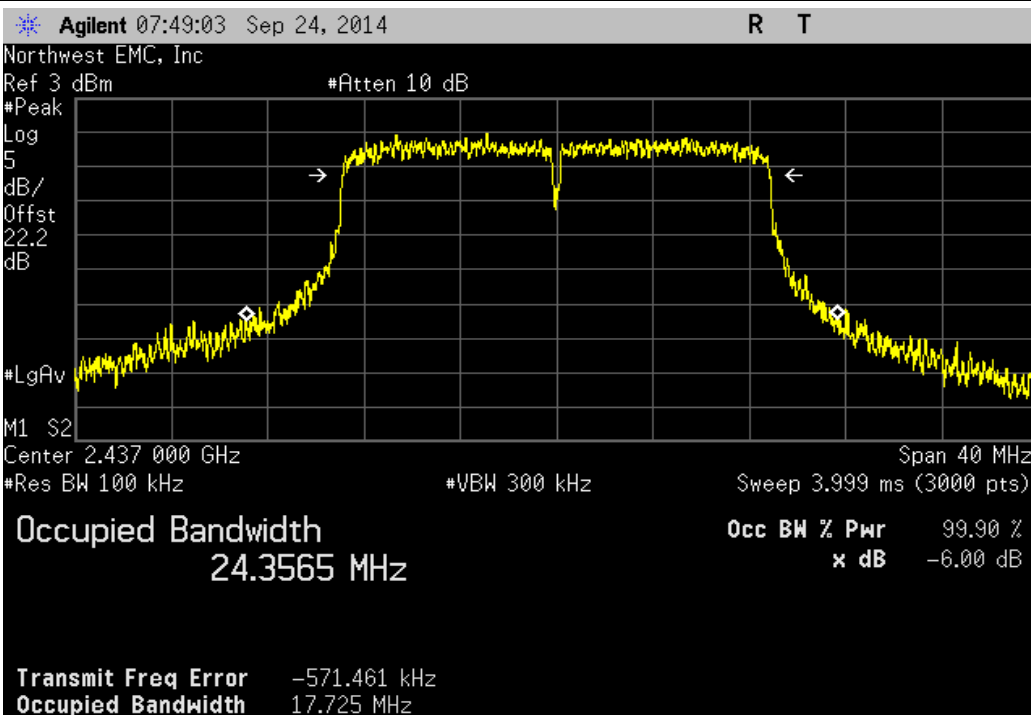


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				17.676 MHz	500 kHz	Pass



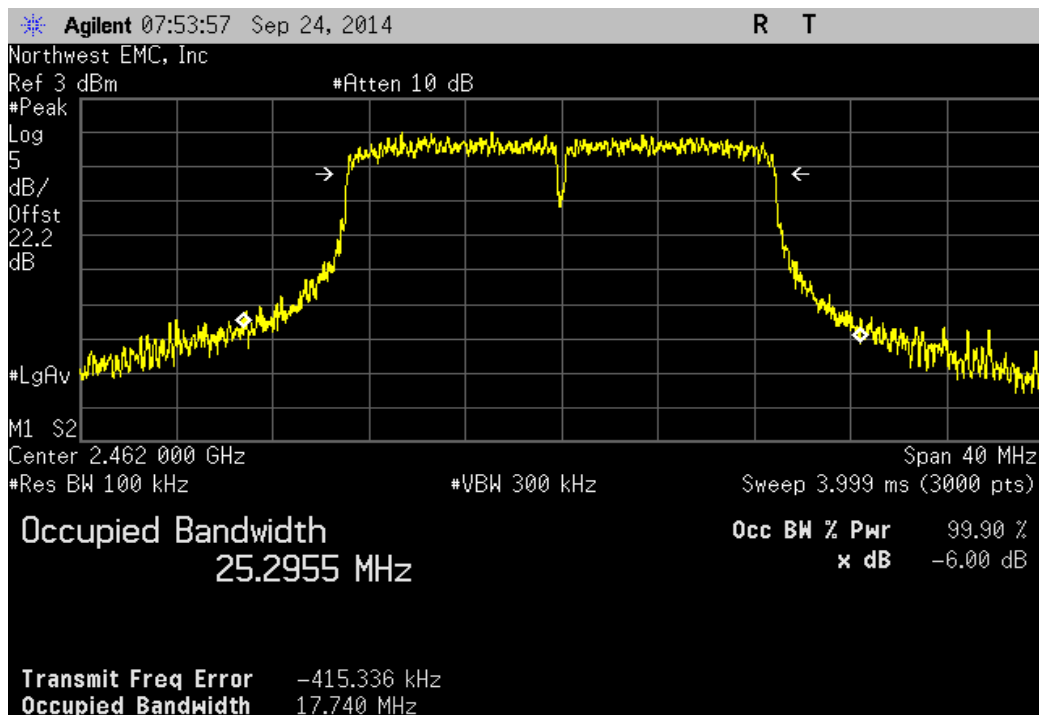
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz

Value	Limit (>)	Result
17.725 MHz	500 kHz	Pass



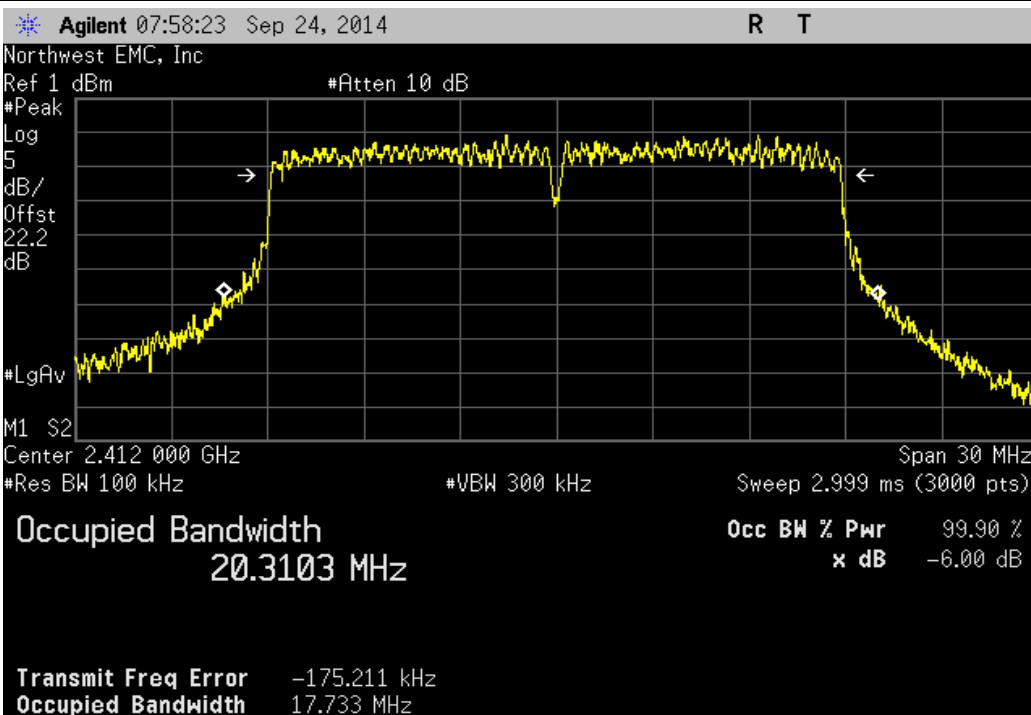
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

Value	Limit (>)	Result
17.74 MHz	500 kHz	Pass



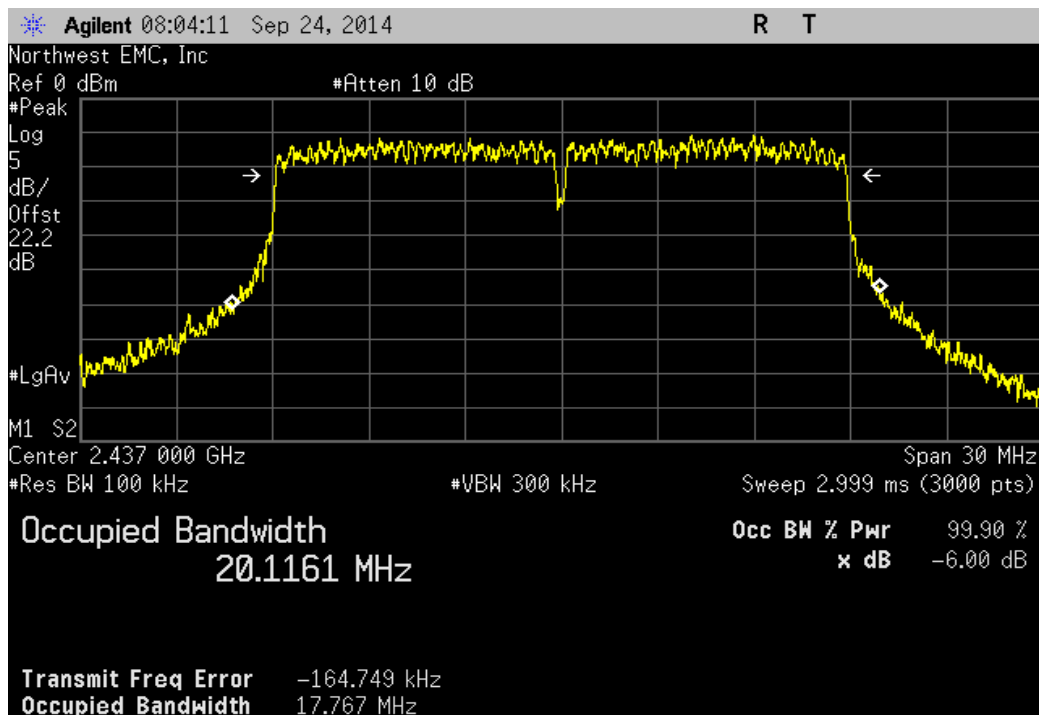
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

Value	Limit (>)	Result
17.733 MHz	500 kHz	Pass



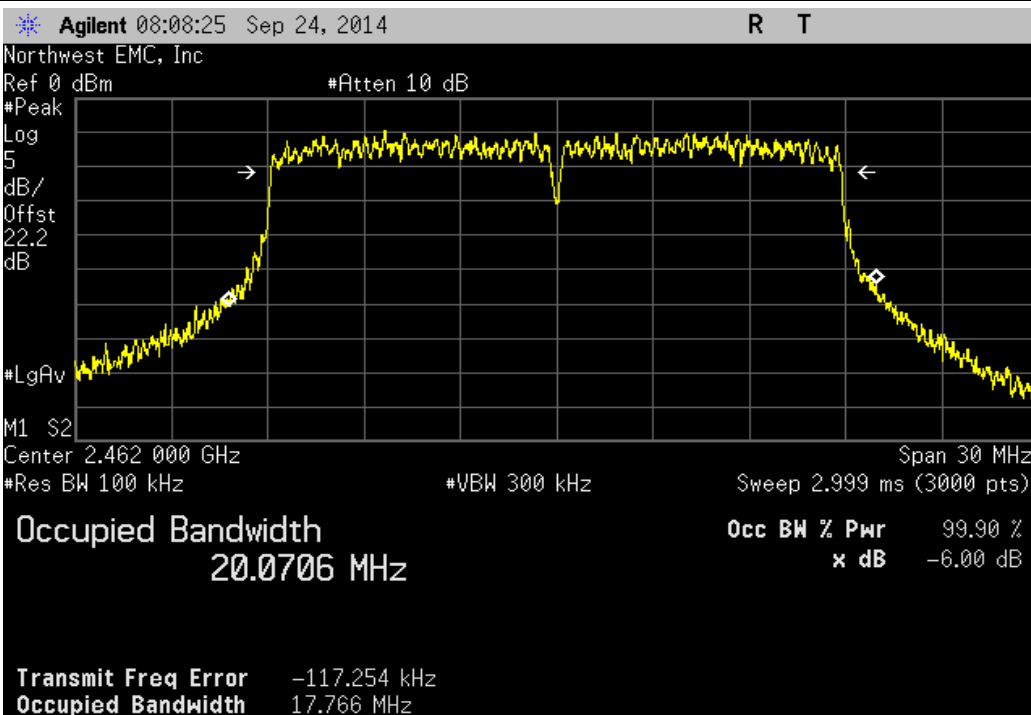
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz

Value	Limit (>)	Result
17.767 MHz	500 kHz	Pass



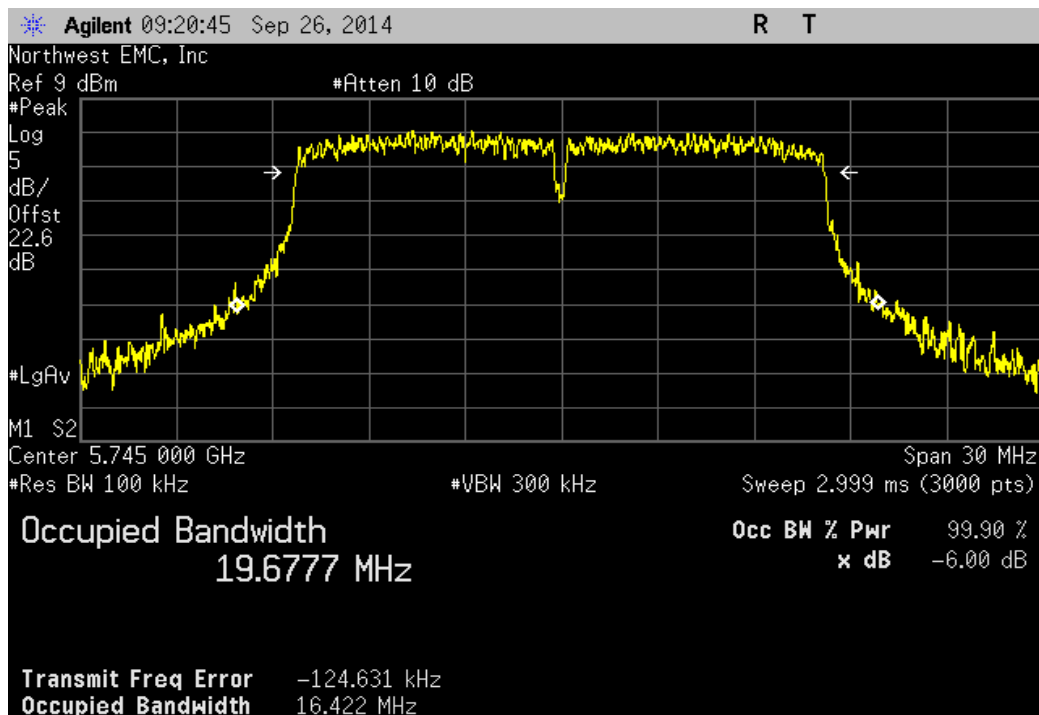
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz

Value	Limit (>)	Result
17.766 MHz	500 kHz	Pass



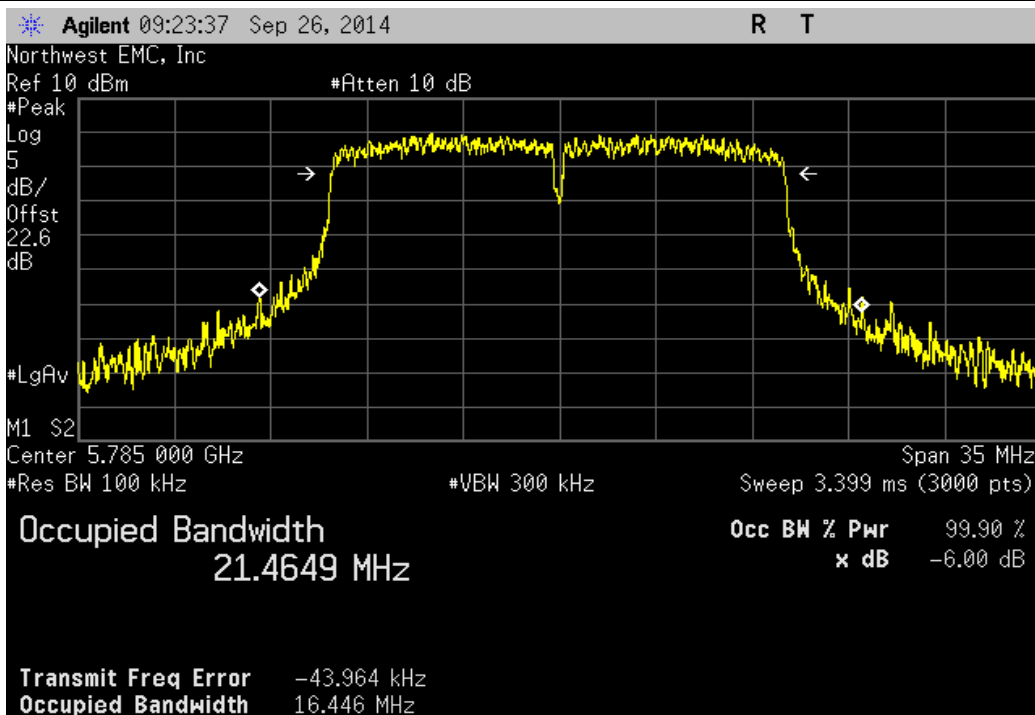
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz

Value	Limit (>)	Result
16.422 MHz	500 kHz	Pass



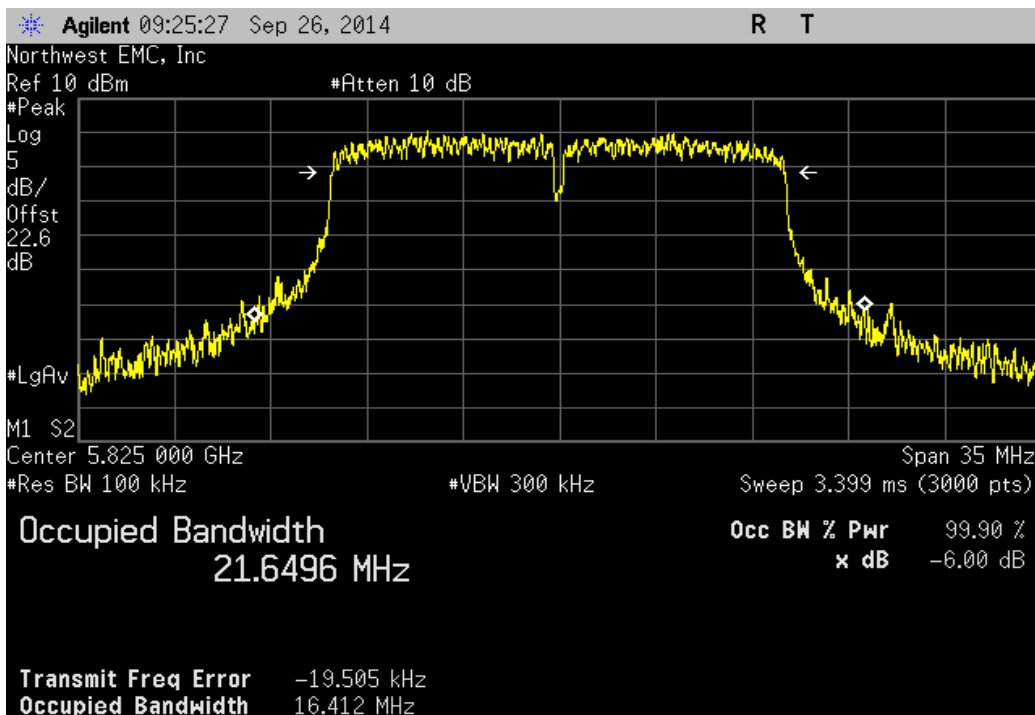
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz

	Value	Limit (>)	Result
	16.446 MHz	500 kHz	Pass



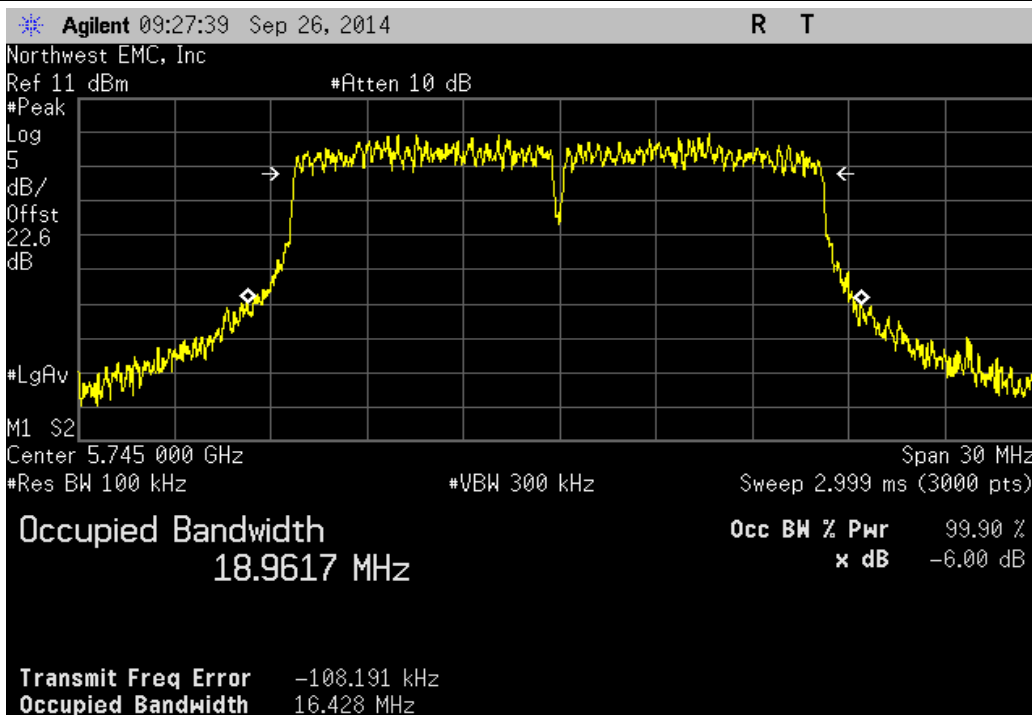
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz

	Value	Limit (>)	Result
	16.412 MHz	500 kHz	Pass



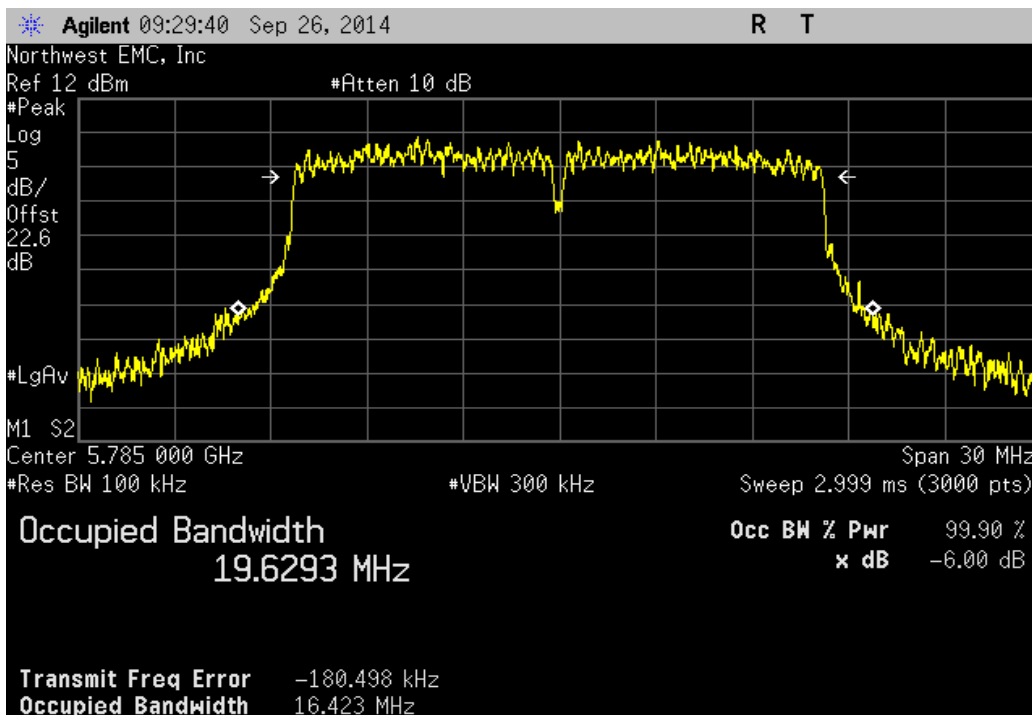
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz

	Value	Limit (>)	Result
	16.428 MHz	500 kHz	Pass

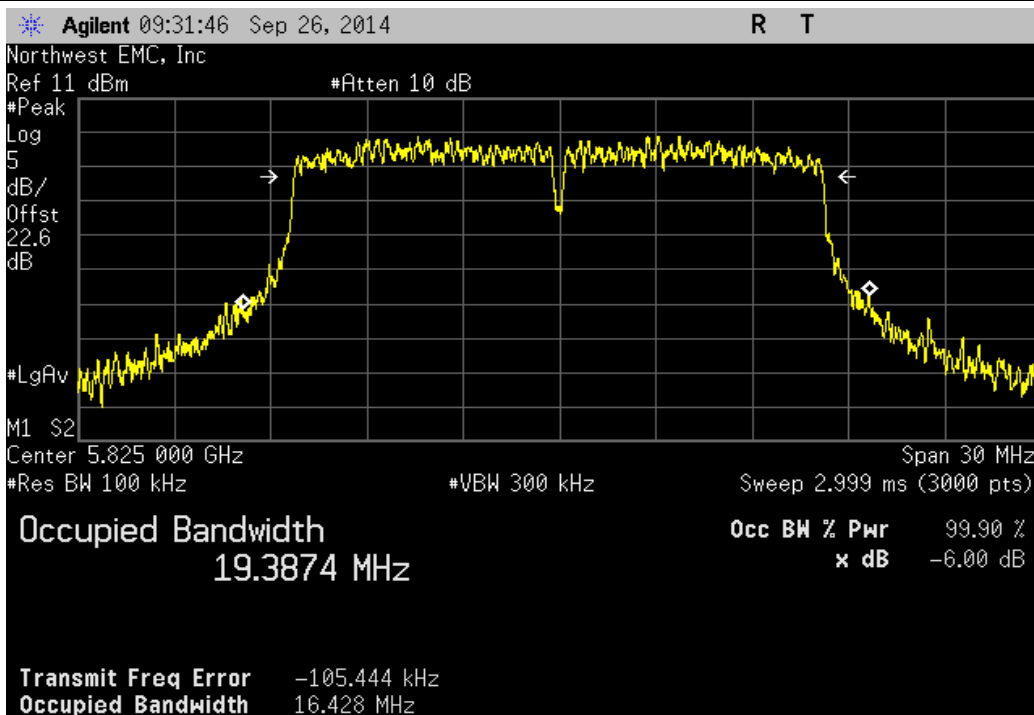


5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz

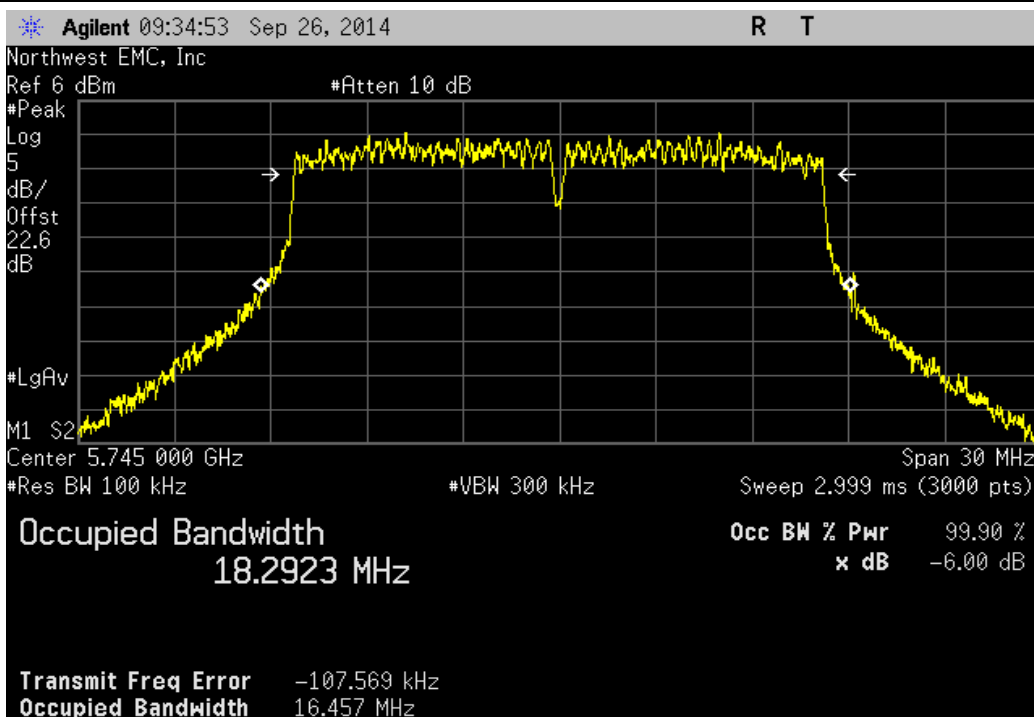
	Value	Limit (>)	Result
	16.423 MHz	500 kHz	Pass



5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz						
				Value	Limit (>)	Result
				16.428 MHz	500 kHz	Pass

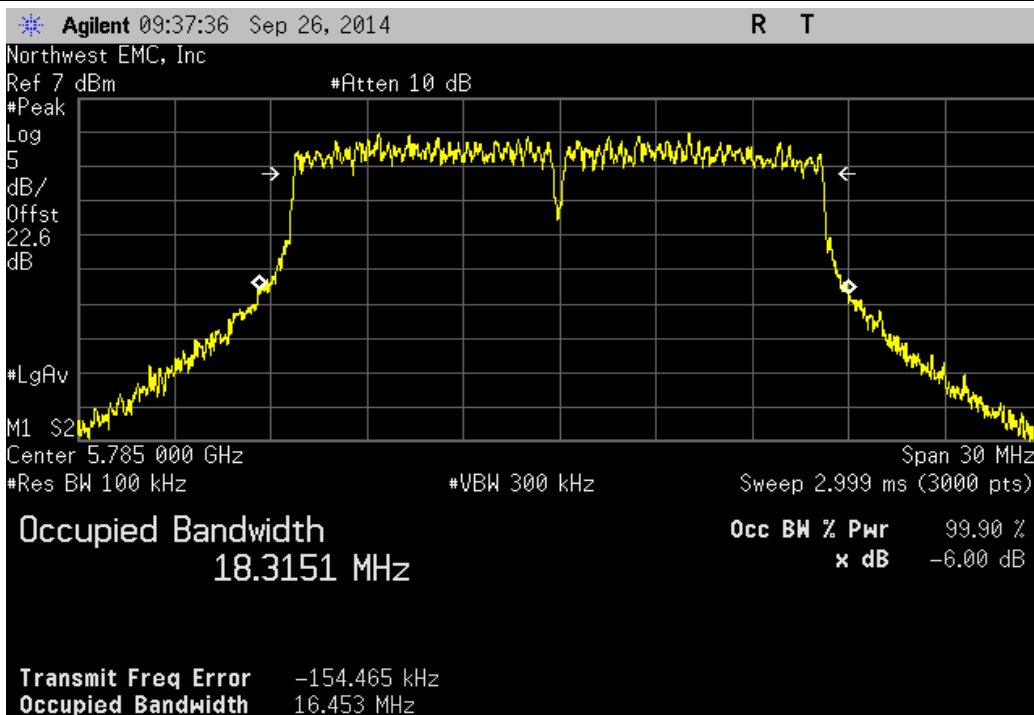


5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Low Channel 149, 5745 MHz						
				Value	Limit (>)	Result
				16.457 MHz	500 kHz	Pass



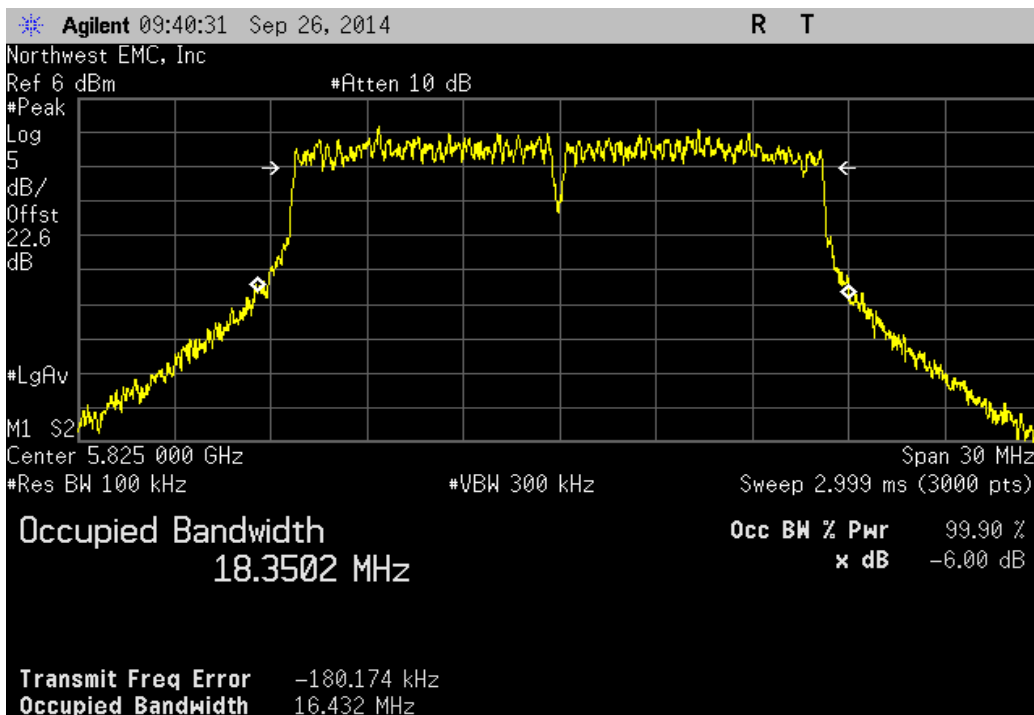
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Mid Channel 157, 5785 MHz

	Value	Limit (>)	Result
	16.453 MHz	500 kHz	Pass



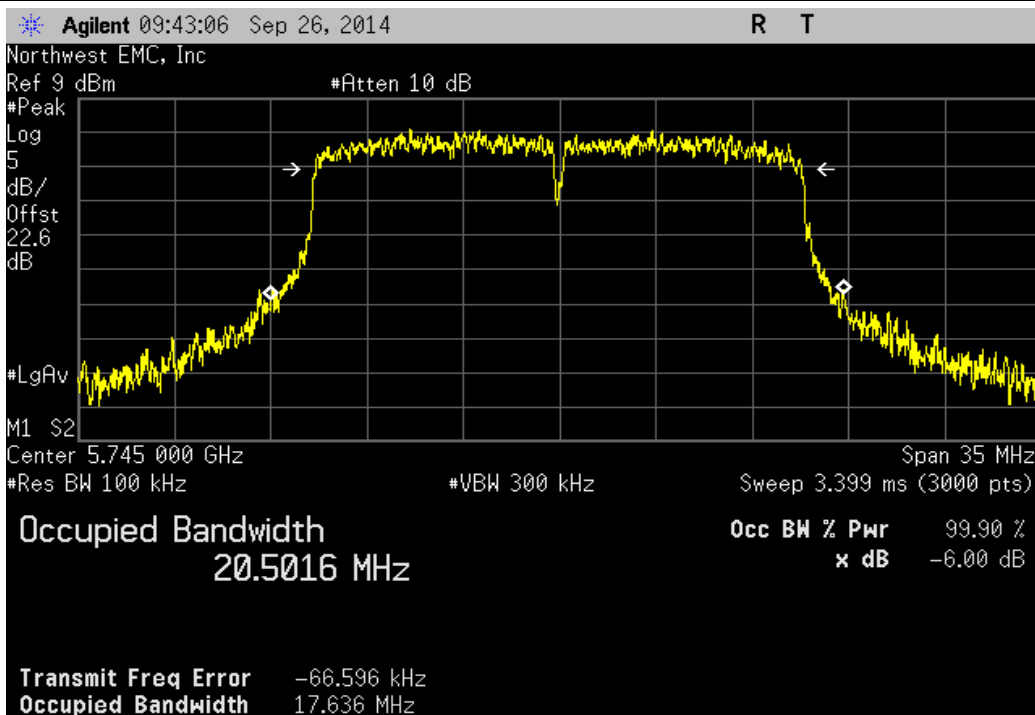
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, High Channel 165, 5825 MHz

	Value	Limit (>)	Result
	16.432 MHz	500 kHz	Pass



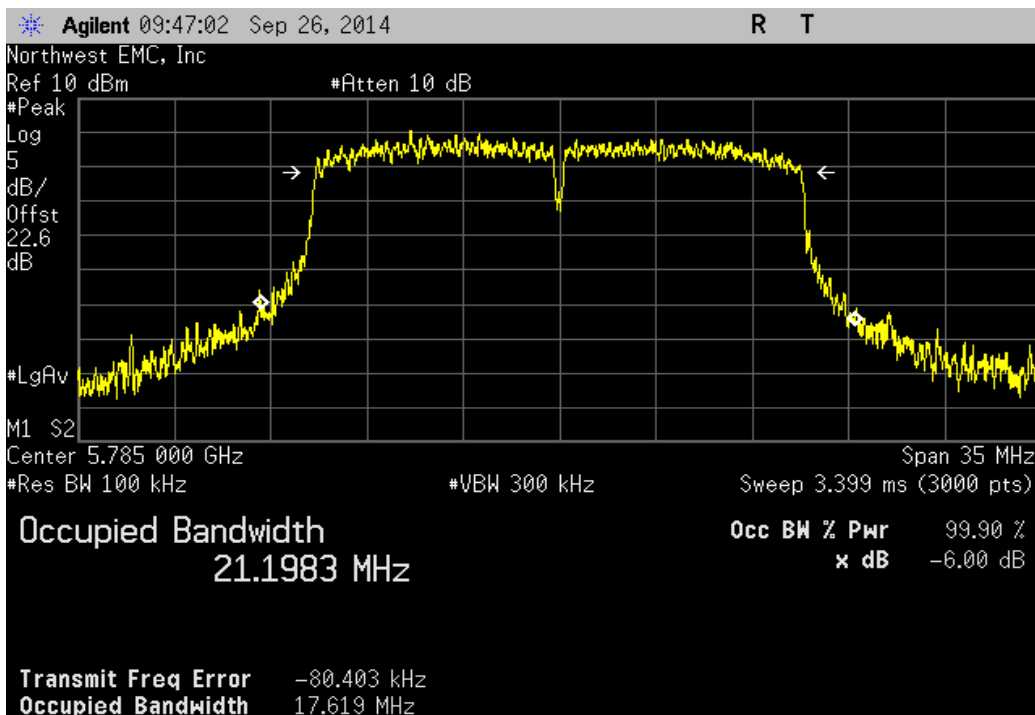
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Low Channel 149, 5745 MHz

	Value	Limit (>)	Result
	17.636 MHz	500 kHz	Pass



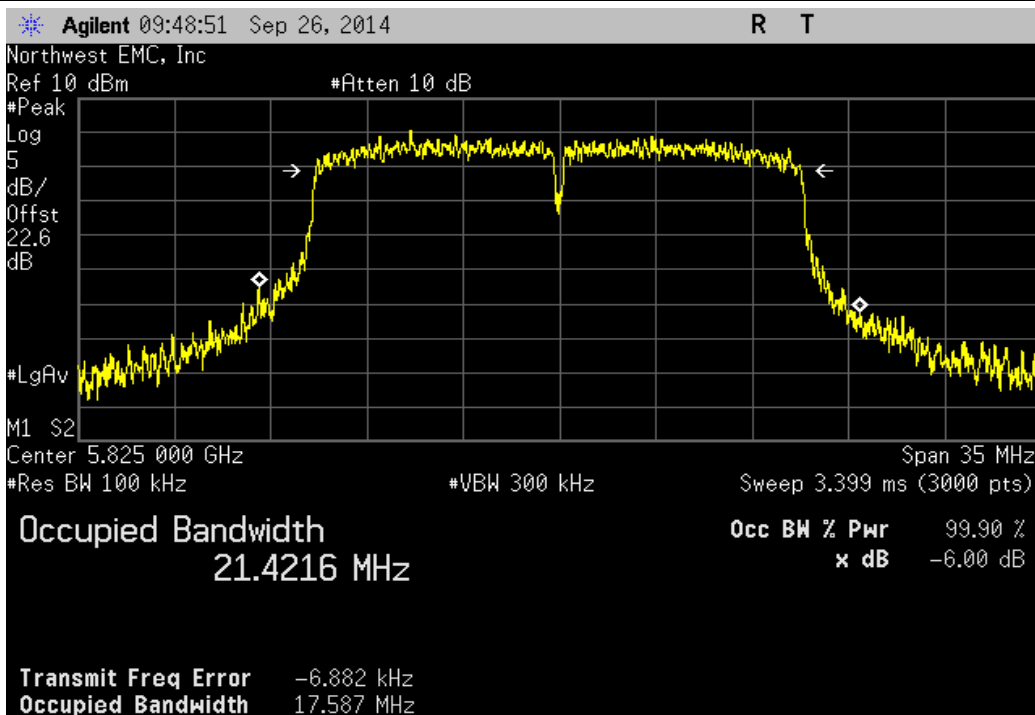
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Mid Channel 157, 5785 MHz

	Value	Limit (>)	Result
	17.619 MHz	500 kHz	Pass



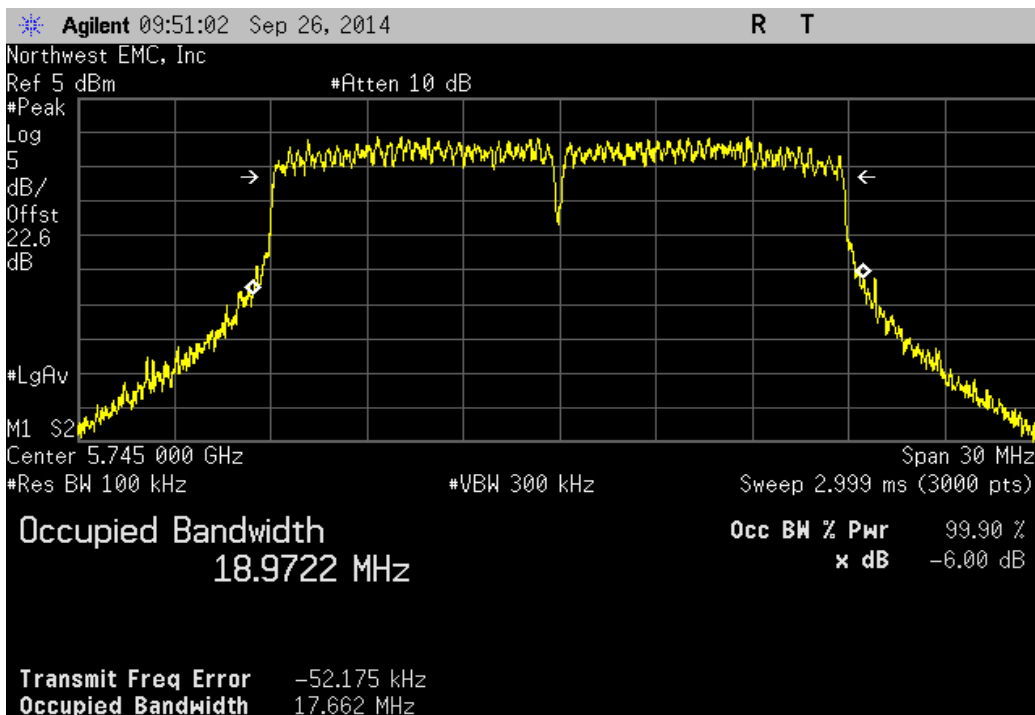
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, High Channel 165, 5825 MHz

	Value	Limit (>)	Result
	17.587 MHz	500 kHz	Pass



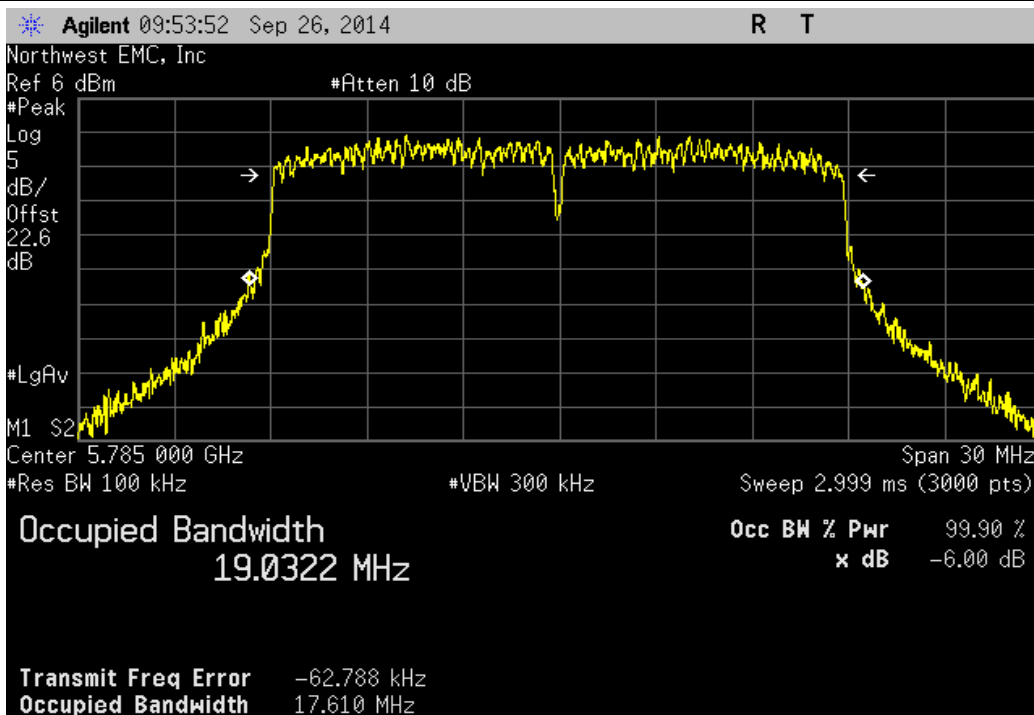
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Low Channel 149, 5745 MHz

	Value	Limit (>)	Result
	17.662 MHz	500 kHz	Pass



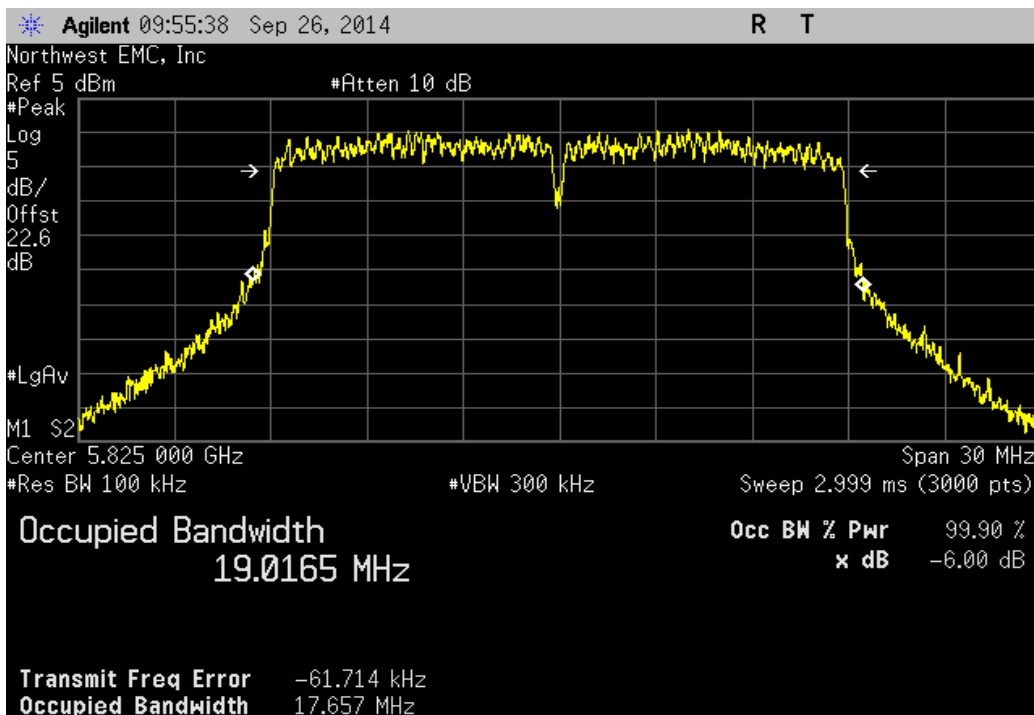
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Mid Channel 157, 5785 MHz

	Value	Limit (>)	Result
	17.61 MHz	500 kHz	Pass



5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, High Channel 165, 5825 MHz

	Value	Limit (>)	Result
	17.657 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 (mo)
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	14
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

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.

The channel power integration method found in KDB 558074 DTS D01 Measurement Section 9.1.2 was used because the DTS Bandwidth of the radio was greater than the RBW on the analyzer.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36 dBm.



OUTPUT POWER

XMit 2014.02.07
NweTx 2014.09.23

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0009		
Serial Number: 00409D 7C03B4		Date: 09/29/14		
Customer: Etherios Design Solutions		Temperature: 22.7°C		
Attendees: None		Humidity: 47%		
Project: None		Barometric Pres.: 1023.7		
Tested by: Trevor Buls		Power: 5VDC		
Job Site: MN08		Test Method		
FCC 15.247:2014		ANSI C63.10:2009		
COMMENTS				
None				
DEVIATIONS FROM TEST STANDARD				
None				
Configuration #	1	Signature <i>Trevor Buls</i>		
		Value	Limit ($\leq$)	Result
2400 MHz - 2483.5 MHz Band				
802.11(b) 1 Mbps				
Low Channel 1, 2412 MHz		19.426 mW	1 W	Pass
Mid Channel 6, 2437 MHz		20.086 mW	1 W	Pass
High Channel 11, 2462 MHz		22.517 mW	1 W	Pass
802.11(b) 11 Mbps				
Low Channel 1, 2412 MHz		18.678 mW	1 W	Pass
Mid Channel 6, 2437 MHz		20.857 mW	1 W	Pass
High Channel 11, 2462 MHz		22.205 mW	1 W	Pass
802.11(g) 6 Mbps				
Low Channel 1, 2412 MHz		24.809 mW	1 W	Pass
Mid Channel 6, 2437 MHz		22.83 mW	1 W	Pass
High Channel 11, 2462 MHz		24.337 mW	1 W	Pass
802.11(g) 36 Mbps				
Low Channel 1, 2412 MHz		25.011 mW	1 W	Pass
Mid Channel 6, 2437 MHz		21.955 mW	1 W	Pass
High Channel 11, 2462 MHz		23.29 mW	1 W	Pass
802.11(g) 54 Mbps				
Low Channel 1, 2412 MHz		20.653 mW	1 W	Pass
Mid Channel 6, 2437 MHz		18.142 mW	1 W	Pass
High Channel 11, 2462 MHz		19.554 mW	1 W	Pass
802.11(n) MCS0				
Low Channel 1, 2412 MHz		21.959 mW	1 W	Pass
Mid Channel 6, 2437 MHz		22.286 mW	1 W	Pass
High Channel 11, 2462 MHz		23.591 mW	1 W	Pass
802.11(n) MCS7				
Low Channel 1, 2412 MHz		10.225 mW	1 W	Pass
Mid Channel 6, 2437 MHz		8.917 mW	1 W	Pass
High Channel 11, 2462 MHz		9.654 mW	1 W	Pass
5725 MHz - 5850 MHz Band				
802.11(a) 6 Mbps				
Low Channel 149, 5745 MHz		101.531 mW	1 W	Pass
Mid Channel 157, 5785 MHz		117.323 mW	1 W	Pass
High Channel 165, 5825 MHz		117.409 mW	1 W	Pass
802.11(a) 36 Mbps				
Low Channel 149, 5745 MHz		100.653 mW	1 W	Pass
Mid Channel 157, 5785 MHz		115.195 mW	1 W	Pass
High Channel 165, 5825 MHz		105.623 mW	1 W	Pass
802.11(a) 54 Mbps				
Low Channel 149, 5745 MHz		37.176 mW	1 W	Pass
Mid Channel 157, 5785 MHz		41.592 mW	1 W	Pass
High Channel 165, 5825 MHz		38.055 mW	1 W	Pass
802.11(n) MCS0 - UNII				
Low Channel 149, 5745 MHz		102.463 mW	1 W	Pass
Mid Channel 157, 5785 MHz		112.595 mW	1 W	Pass
High Channel 165, 5825 MHz		112.652 mW	1 W	Pass
802.11(n) MCS7 - UNII				
Low Channel 149, 5745 MHz		29.201 mW	1 W	Pass
Mid Channel 157, 5785 MHz		35.438 mW	1 W	Pass
High Channel 165, 5825 MHz		35.675 mW	1 W	Pass

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Value	Limit (<)	Result
19.426 mW	1 W	Pass

Agilent 14:24:30 Sep 23, 2014

R T

Northwest EMC, Inc

Ref 15 mW

#Atten 10 dB

#Peak

Log

5

dB/

Offst

22.2

dB

#LgAv

M1 S2

Center 2.412 000 GHz

Span 20 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1.066 ms (2000 pts)

Channel Power

Power Spectral Density

19.43 mW /10.0799 MHz

1.927 nW/Hz

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
20.086 mW	1 W	Pass

Agilent 14:28:48 Sep 23, 2014

R T

Northwest EMC, Inc

Ref 15 mW

#Atten 10 dB

#Peak

Log

5

dB/

Offst

22.2

dB

#LgAv

M1 S2

Center 2.437 000 GHz

Span 20 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1.066 ms (2000 pts)

Channel Power

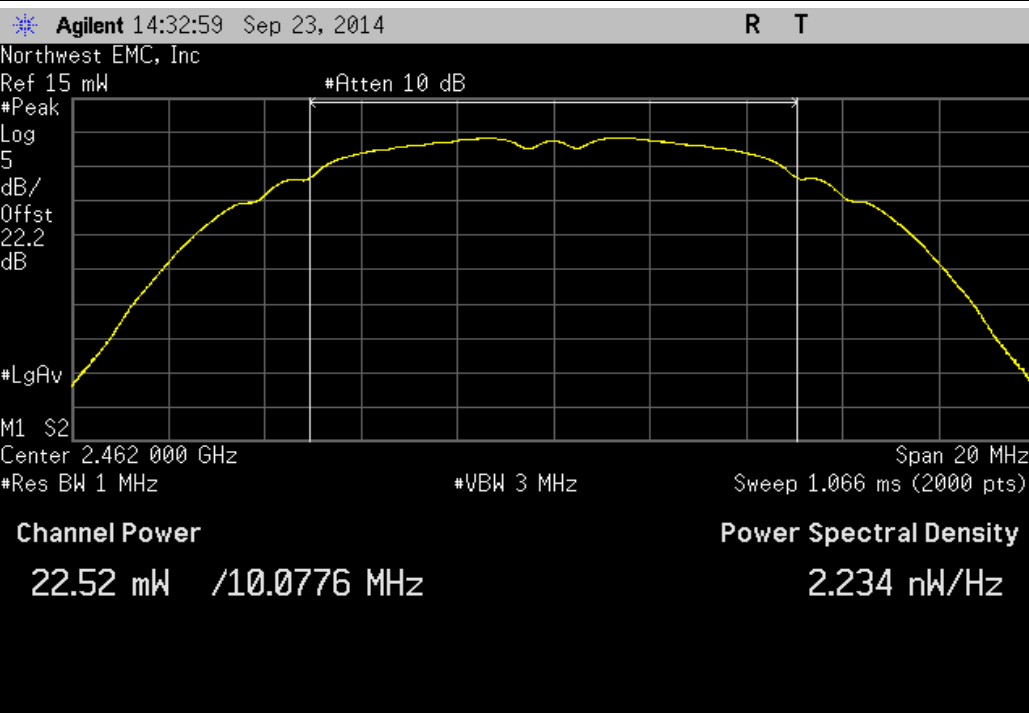
Power Spectral Density

20.09 mW /10.0767 MHz

1.993 nW/Hz

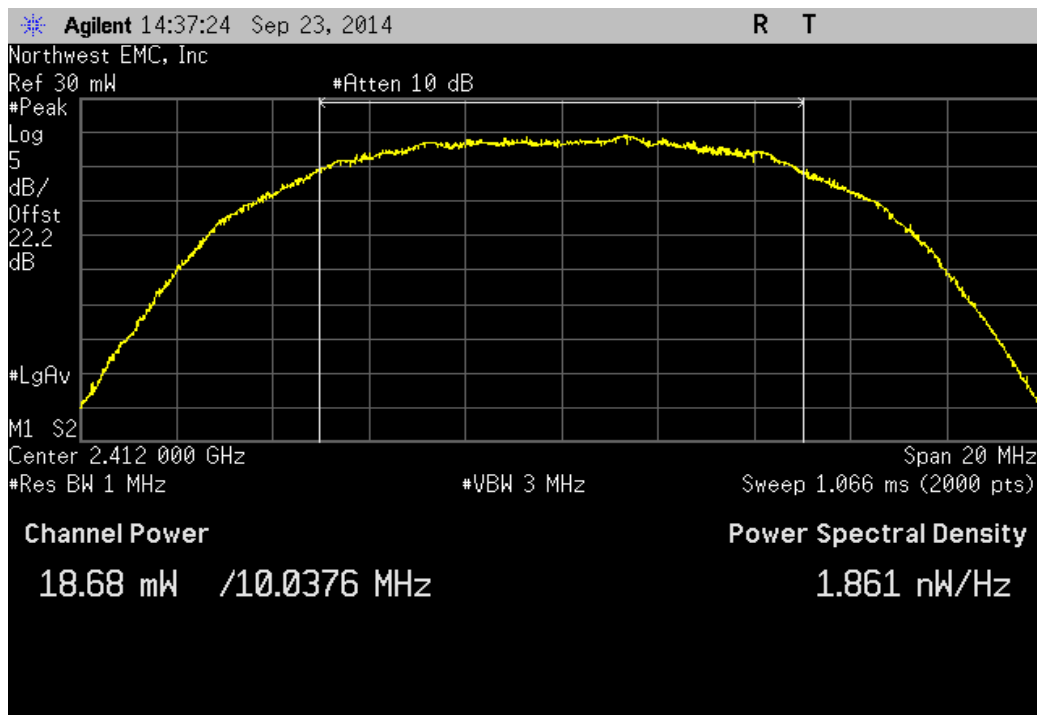
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

Value	Limit (<)	Result
22.517 mW	1 W	Pass



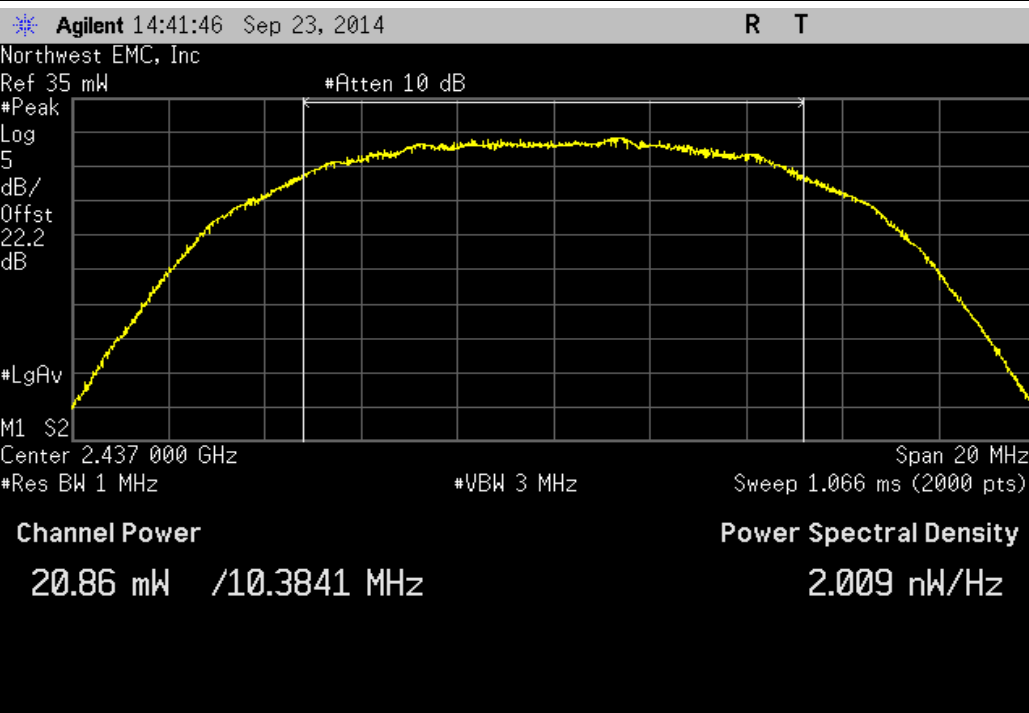
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

Value	Limit (<)	Result
18.678 mW	1 W	Pass



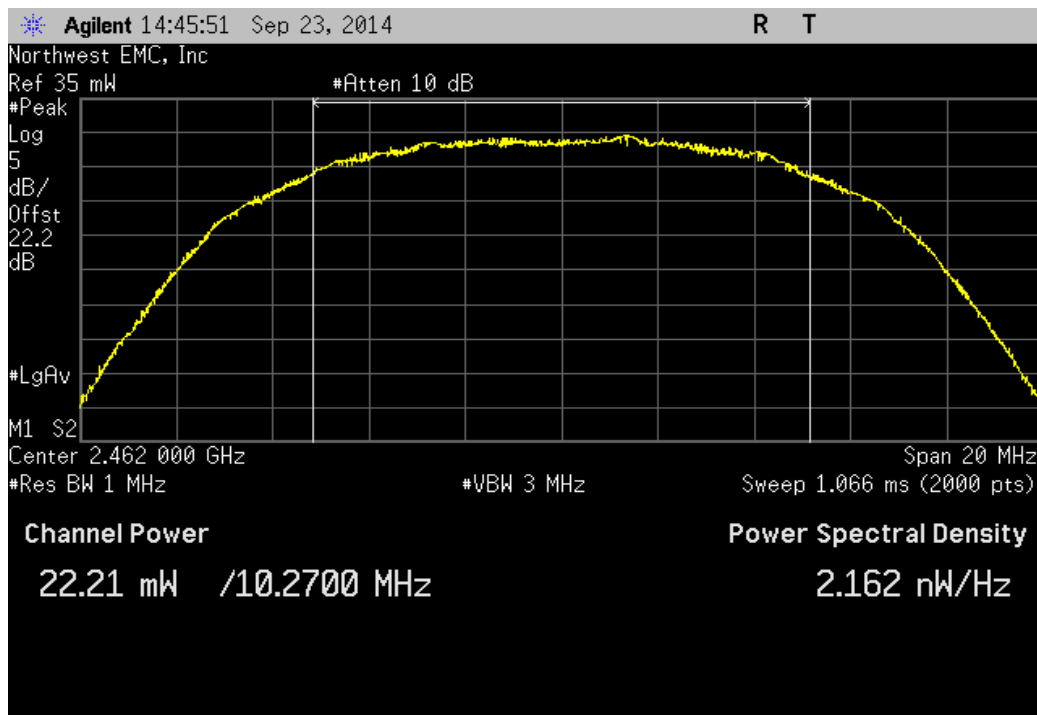
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
20.857 mW	1 W	Pass



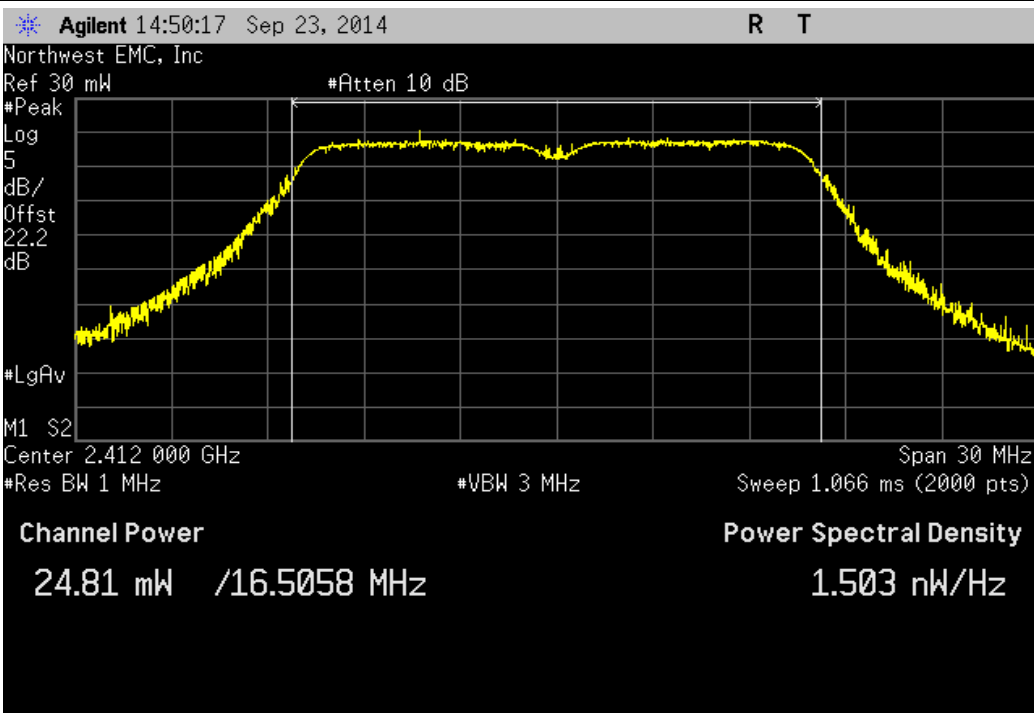
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

Value	Limit (<)	Result
22.205 mW	1 W	Pass



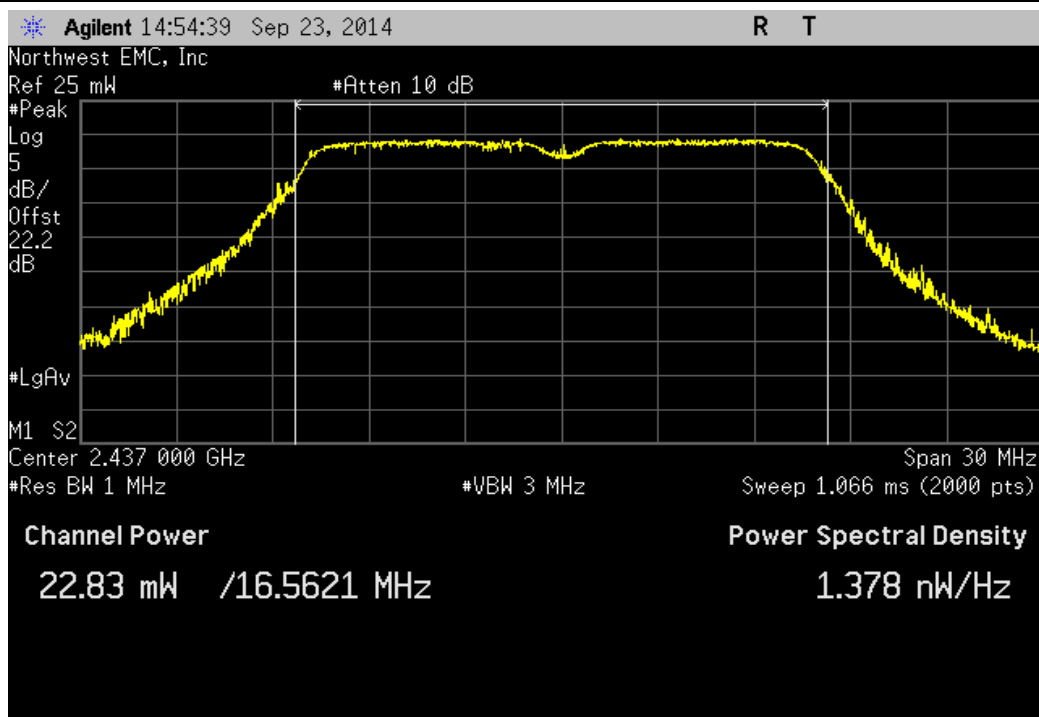
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	24.809 mW	1 W	Pass



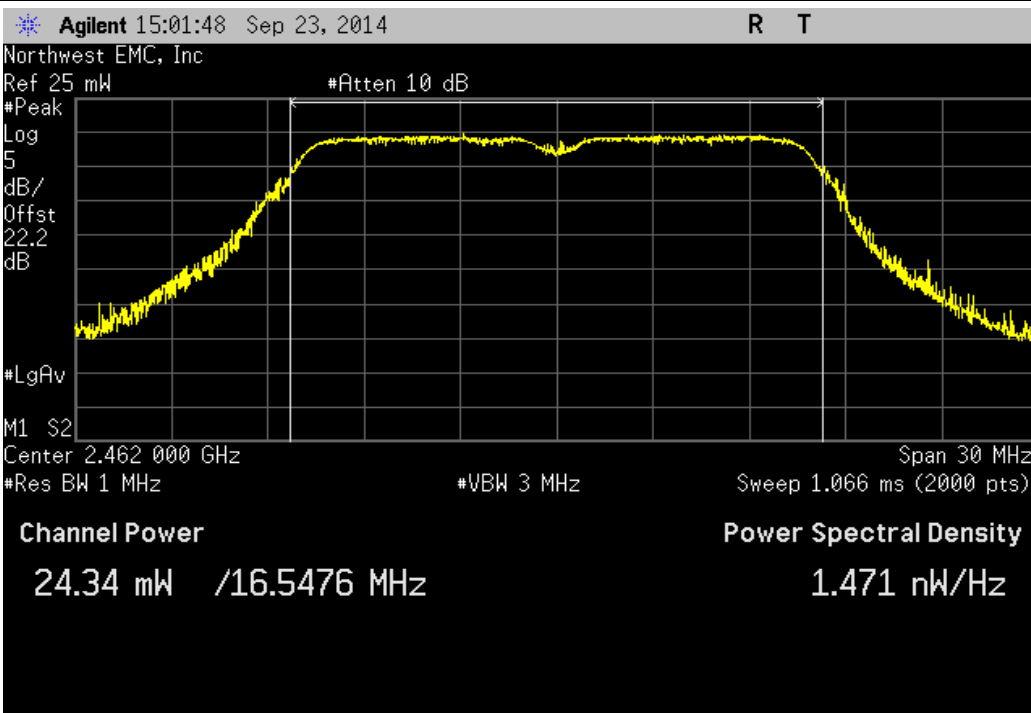
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	22.83 mW	1 W	Pass



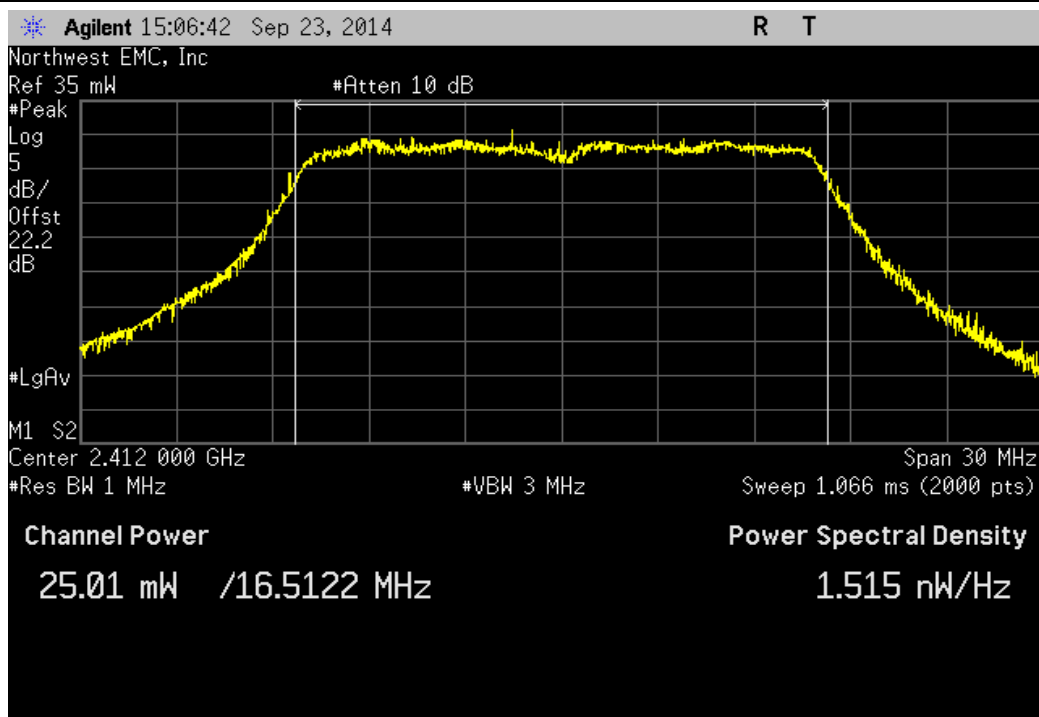
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz

	Value	Limit (<)	Result
	24.337 mW	1 W	Pass



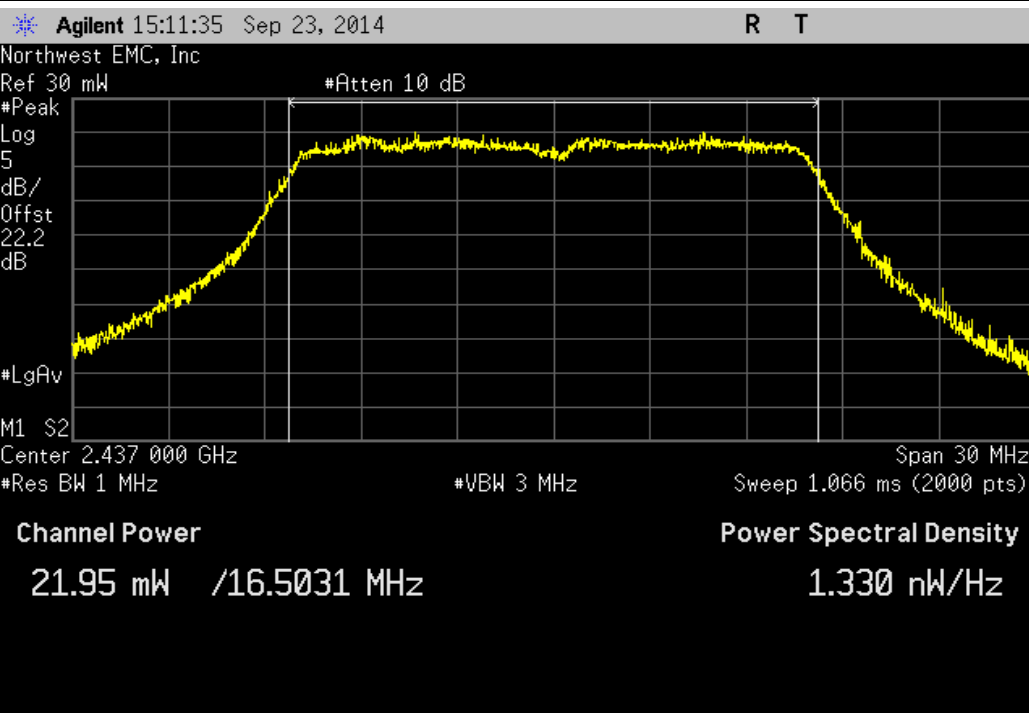
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	25.011 mW	1 W	Pass



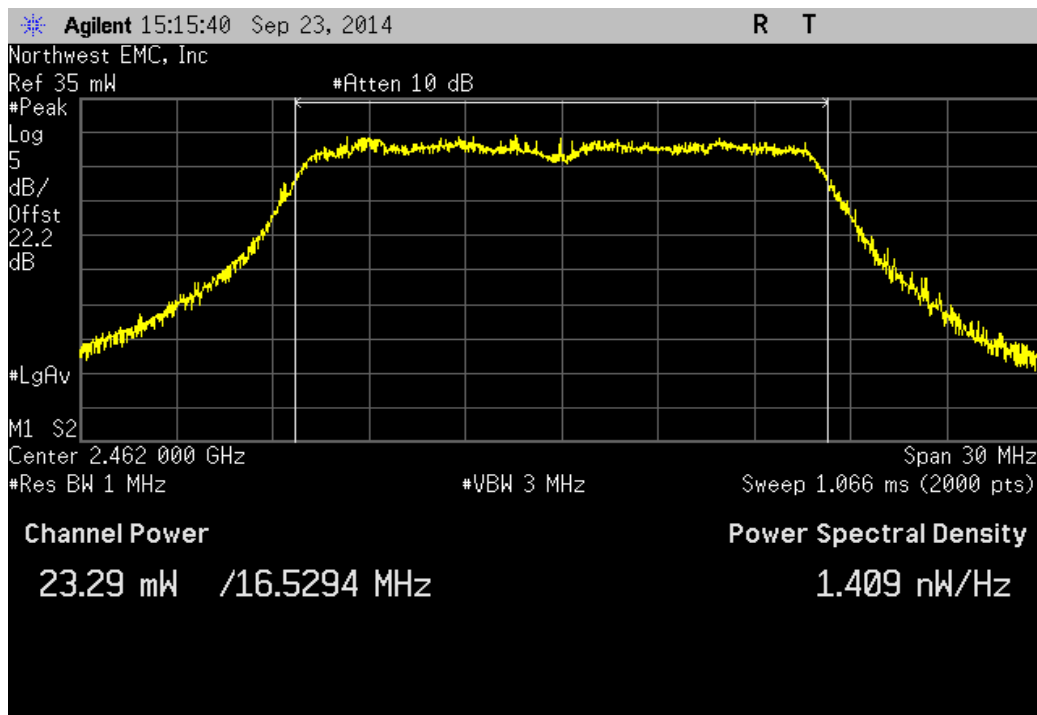
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
21.955 mW	1 W	Pass



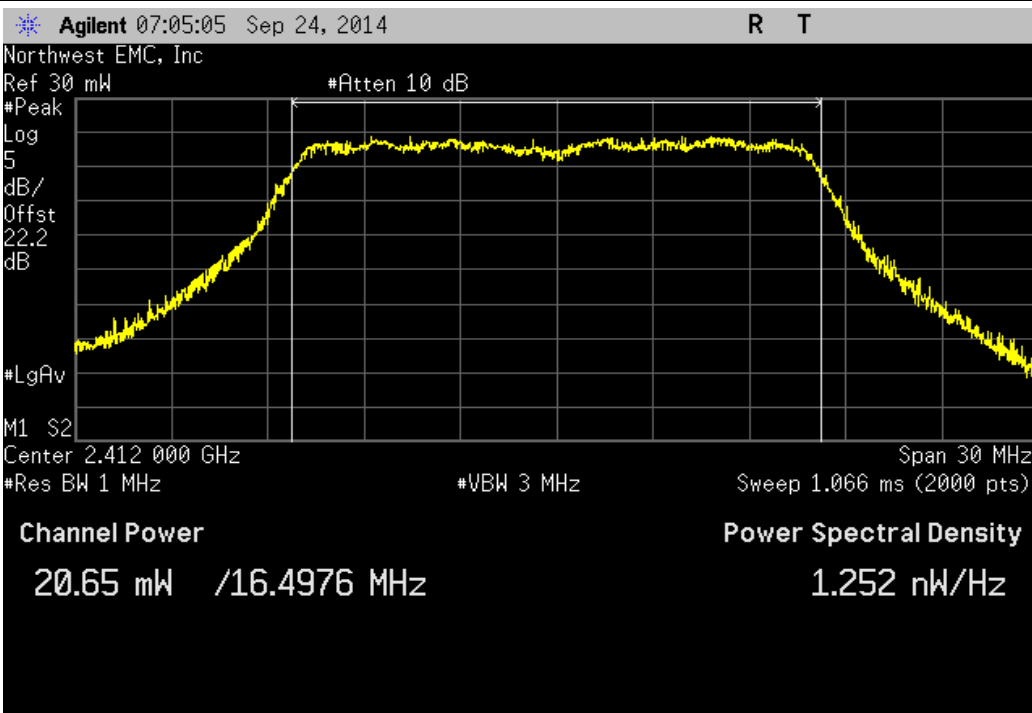
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

Value	Limit (<)	Result
23.29 mW	1 W	Pass



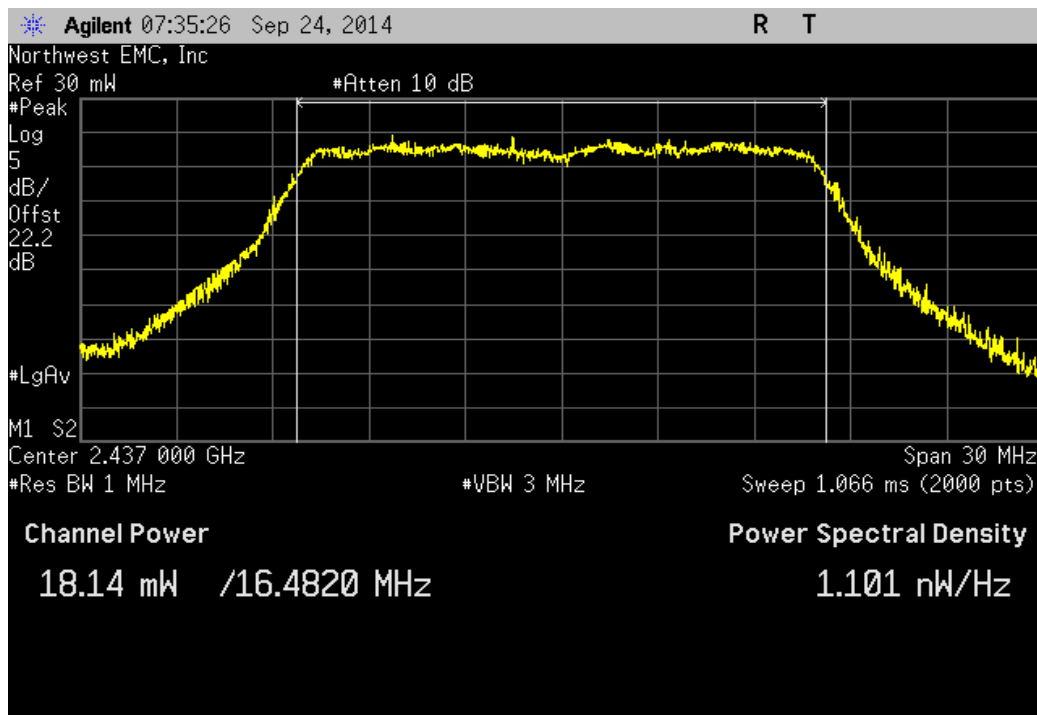
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	20.653 mW	1 W	Pass

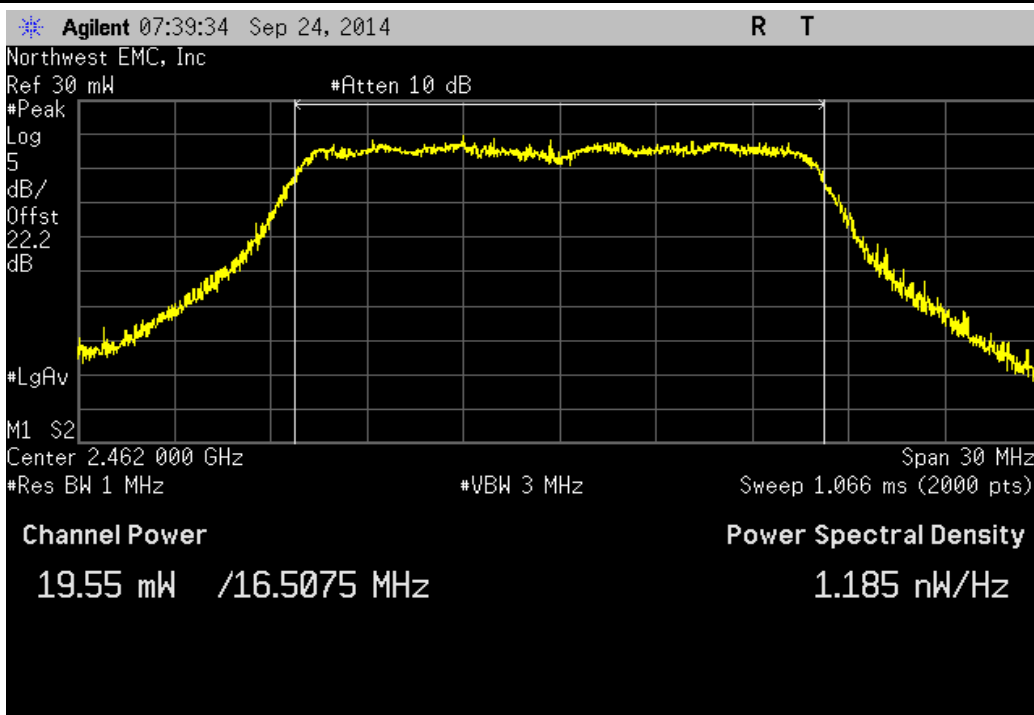


2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

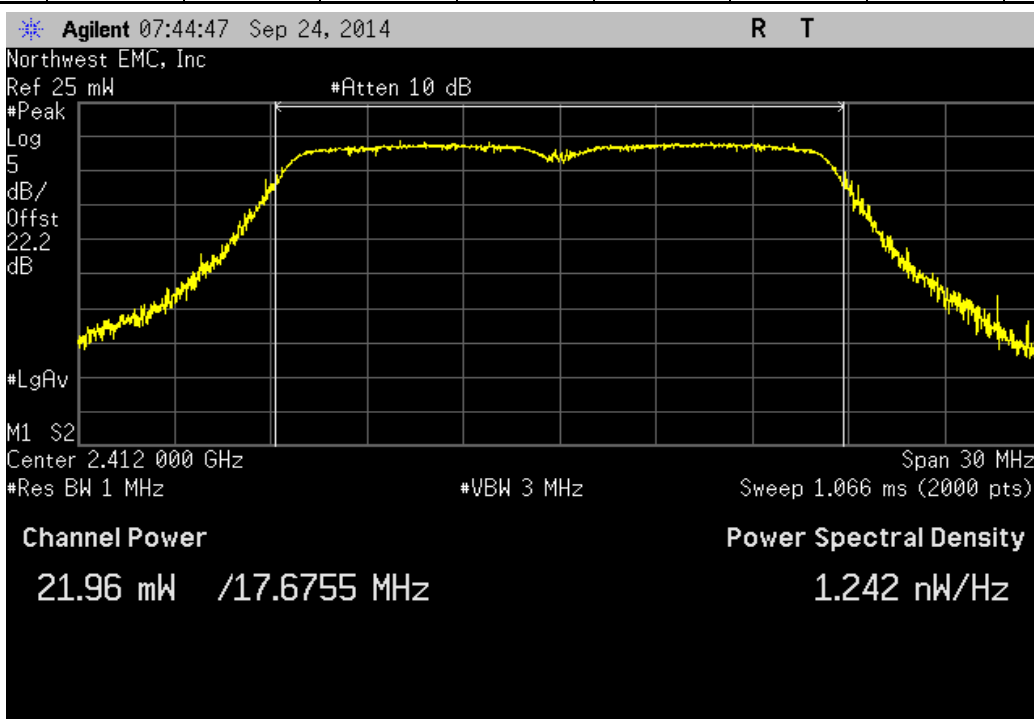
	Value	Limit (<)	Result
	18.142 mW	1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				19.554 mW	1 W	Pass

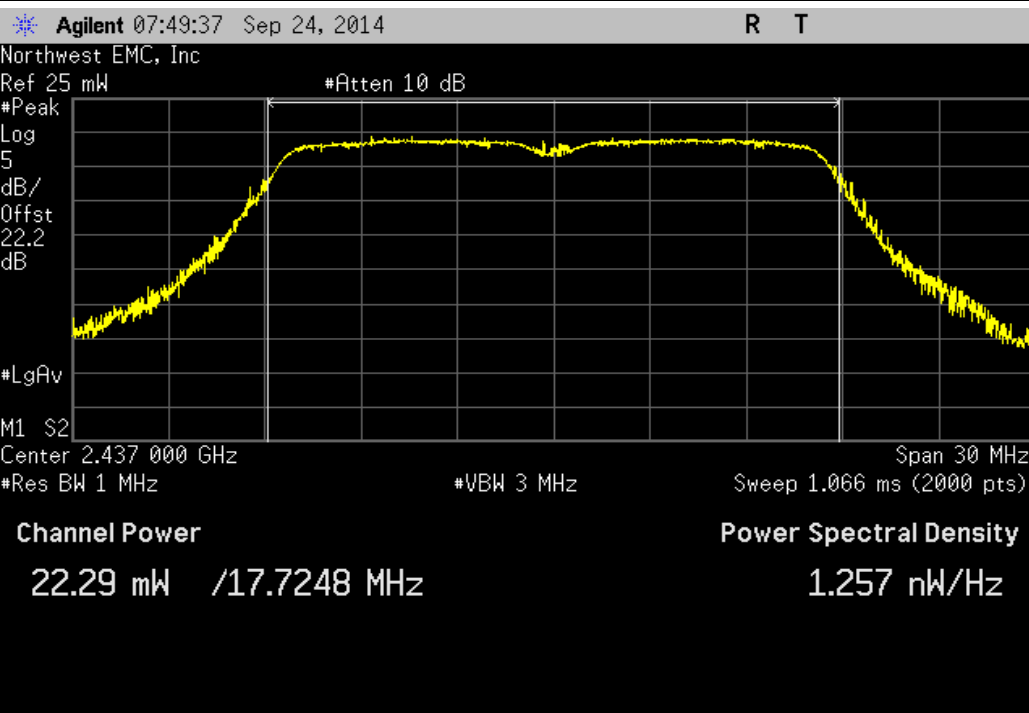


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				21.959 mW	1 W	Pass



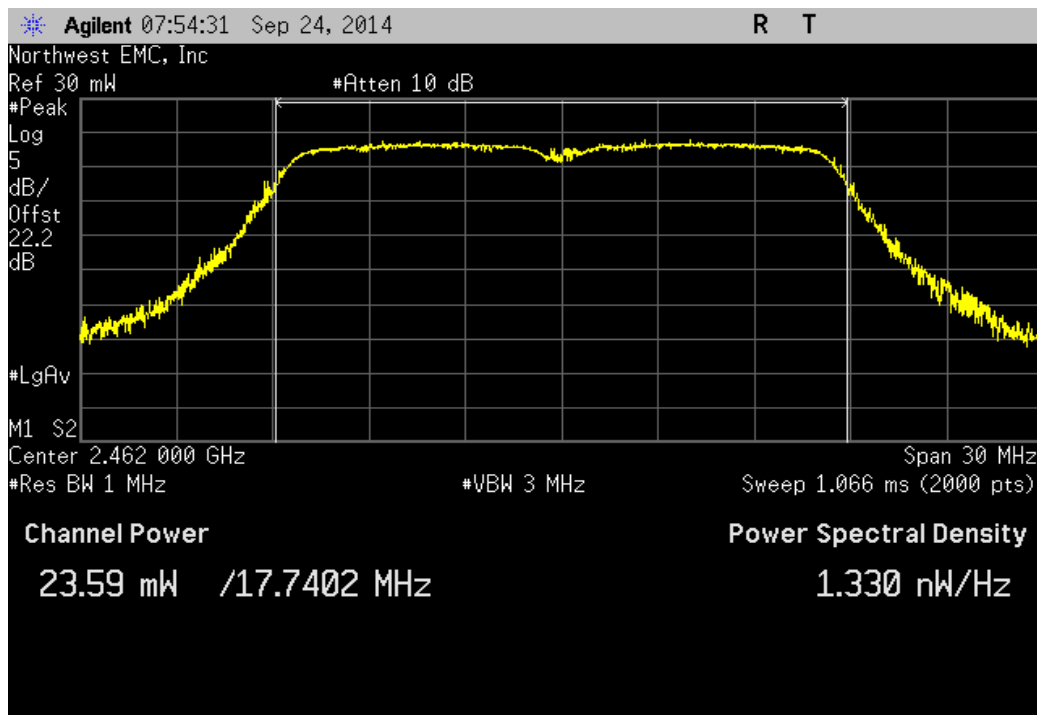
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
22.286 mW	1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

Value	Limit (<)	Result
23.591 mW	1 W	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

Value	Limit (<)	Result
10.225 mW	1 W	Pass

Agilent 07:58:57 Sep 24, 2014

R T

Northwest EMC, Inc

Ref 15 mW

#Atten 10 dB

#Peak

Log

5

dB/

Offst

22.2

dB

#LgAv

M1 S2

Center 2.412 000 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 30 MHz

Sweep 1.066 ms (2000 pts)

Channel Power

10.22 mW /17.7333 MHz

Power Spectral Density

576.6 pW/Hz

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
8.917 mW	1 W	Pass

Agilent 08:04:46 Sep 24, 2014

R T

Northwest EMC, Inc

Ref 15 mW

#Atten 10 dB

#Peak

Log

5

dB/

Offst

22.2

dB

#LgAv

M1 S2

Center 2.437 000 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 30 MHz

Sweep 1.066 ms (2000 pts)

Channel Power

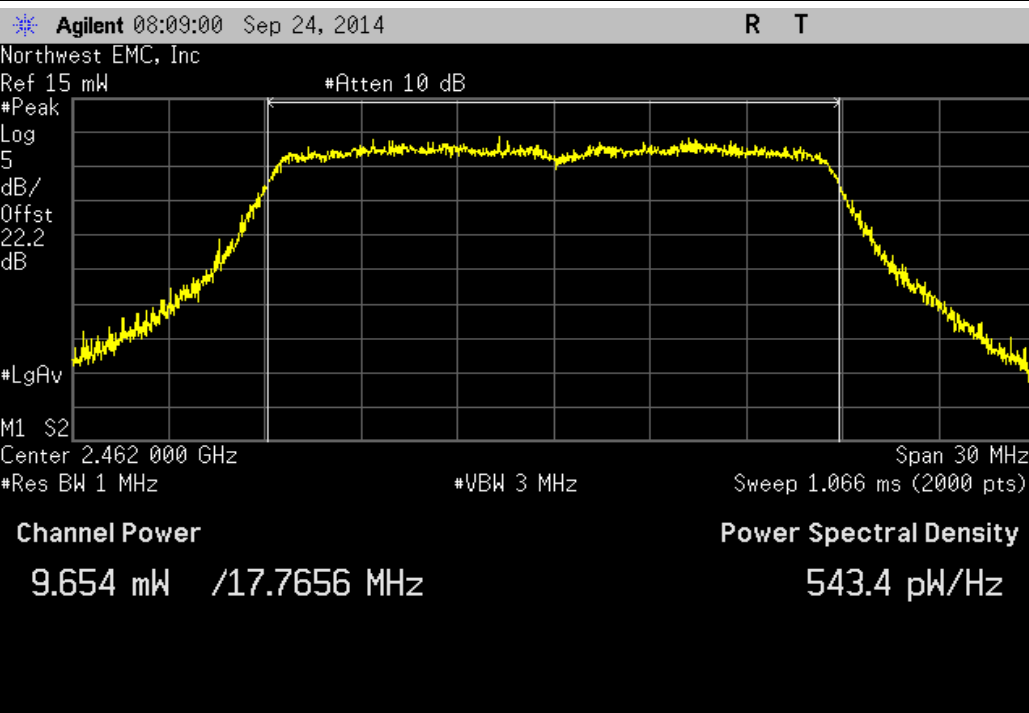
8.917 mW /17.7665 MHz

Power Spectral Density

501.9 pW/Hz

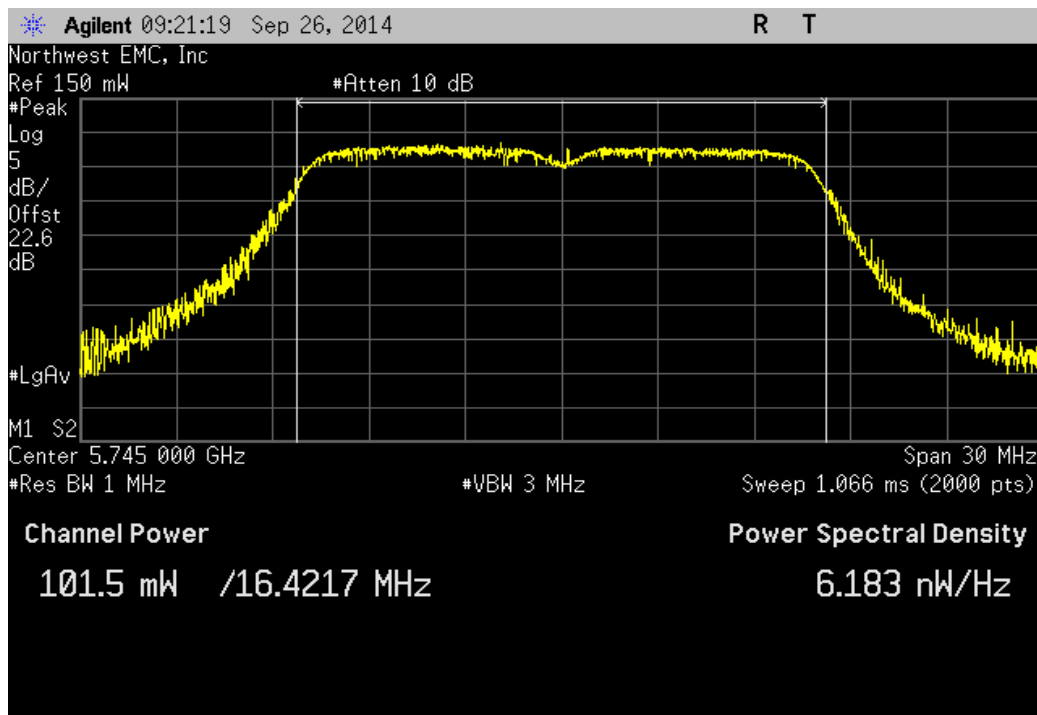
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz

Value	Limit (<)	Result
9.654 mW	1 W	Pass



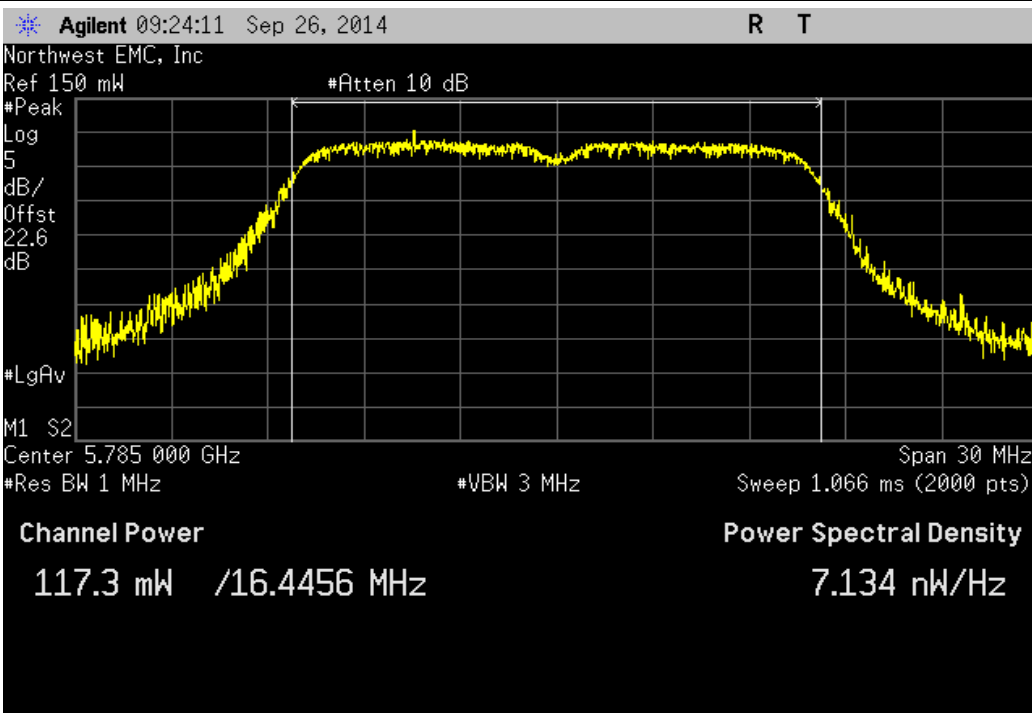
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz

Value	Limit (<)	Result
101.531 mW	1 W	Pass



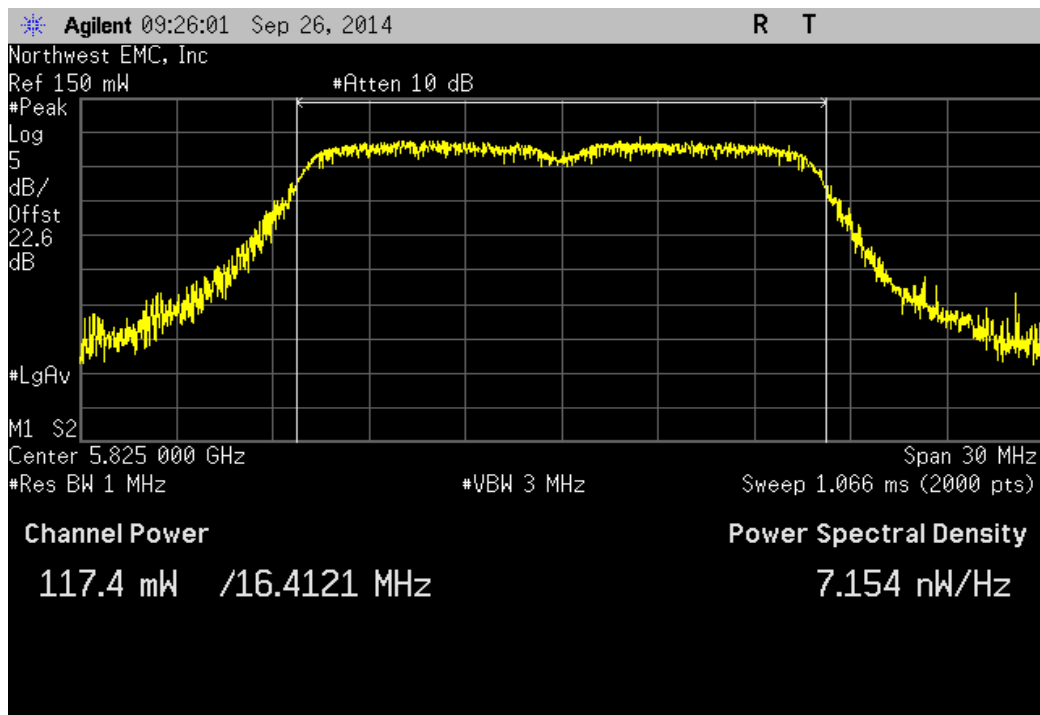
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz

Value	Limit (<)	Result
117.323 mW	1 W	Pass



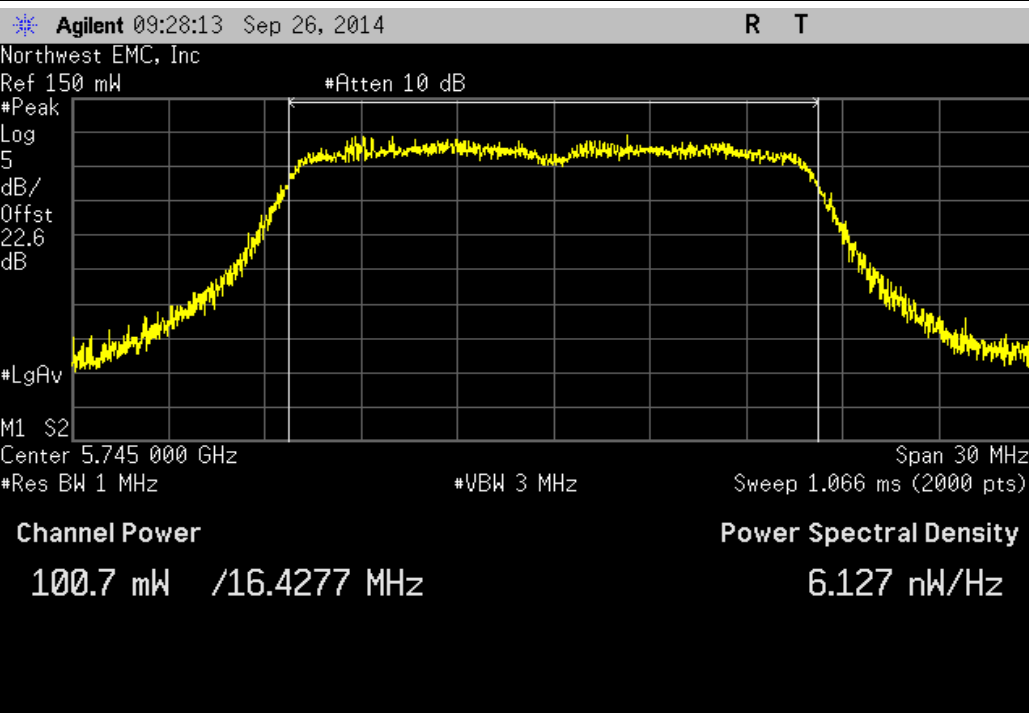
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz

Value	Limit (<)	Result
117.409 mW	1 W	Pass



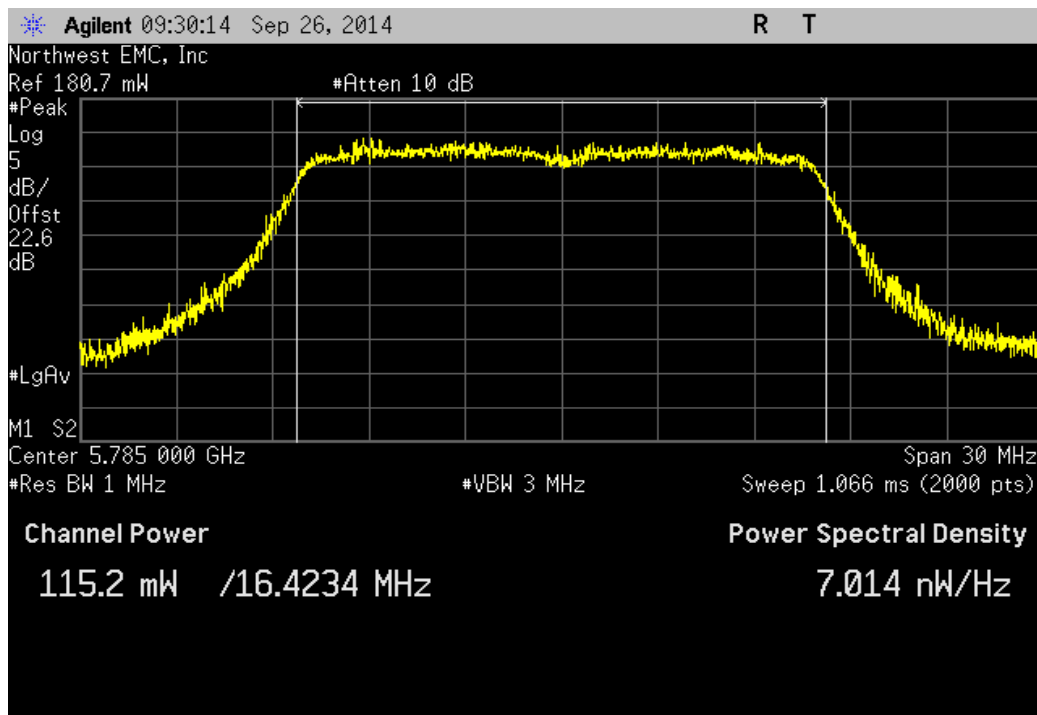
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz

Value	Limit (<)	Result
100.653 mW	1 W	Pass



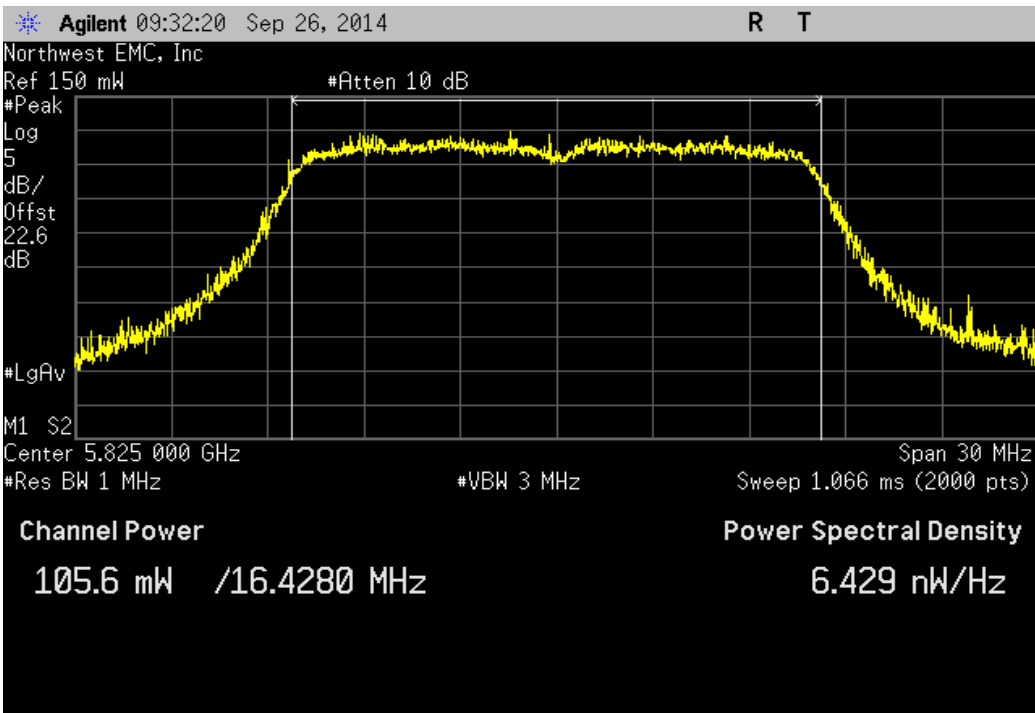
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz

Value	Limit (<)	Result
115.195 mW	1 W	Pass



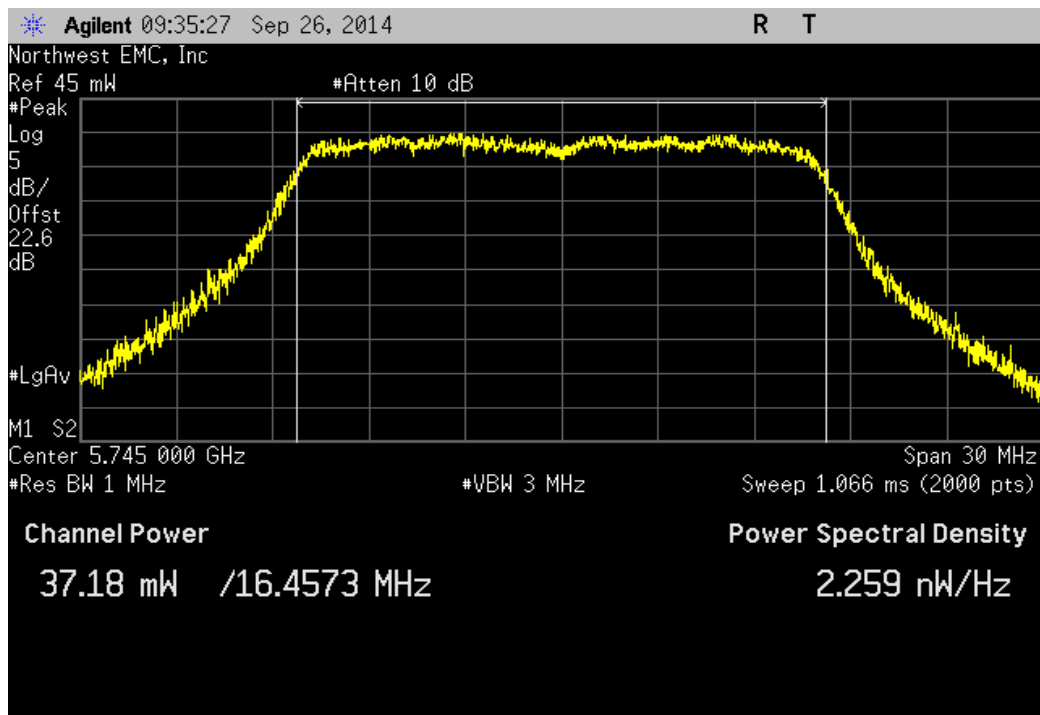
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz

Value	Limit (<)	Result
105.623 mW	1 W	Pass



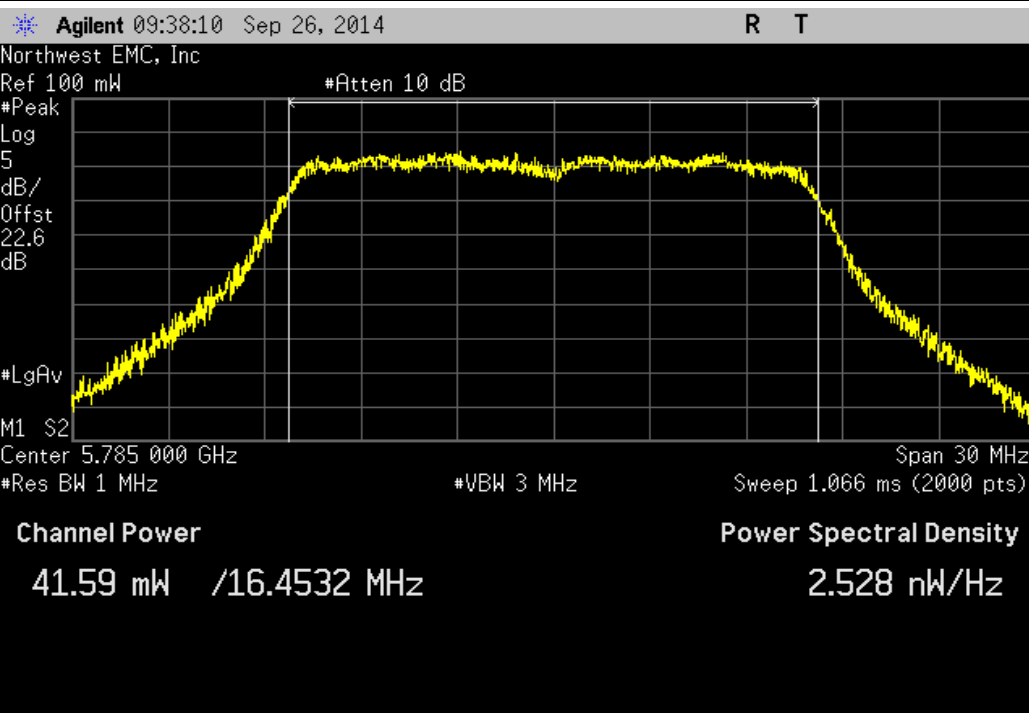
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Low Channel 149, 5745 MHz

Value	Limit (<)	Result
37.176 mW	1 W	Pass



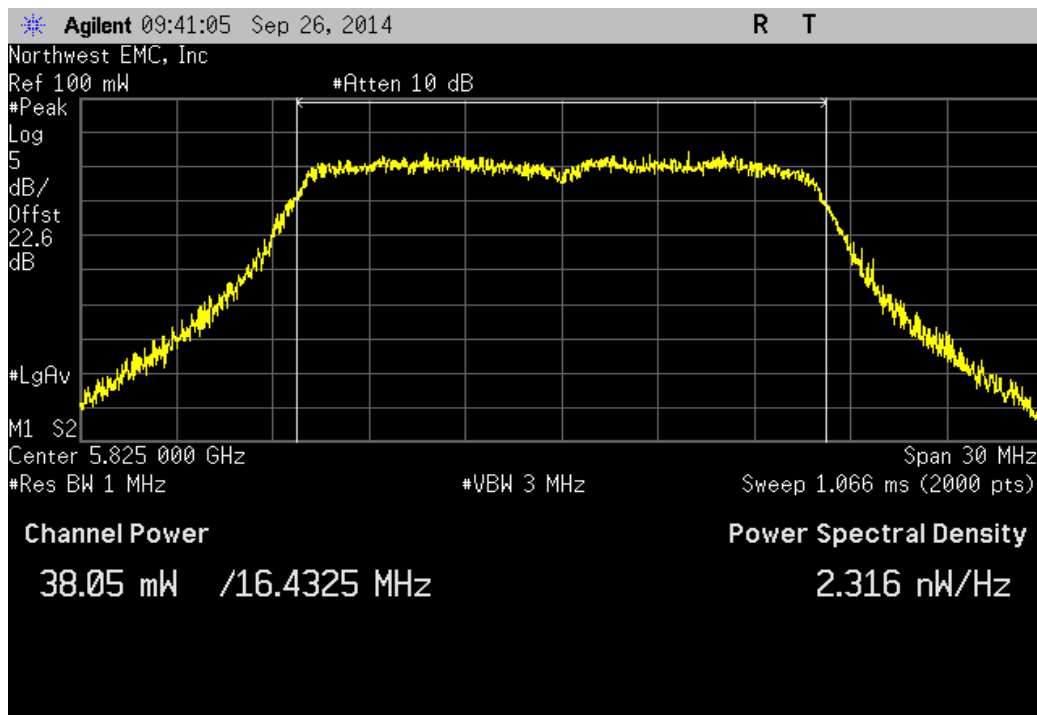
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Mid Channel 157, 5785 MHz

	Value	Limit (<)	Result
	41.592 mW	1 W	Pass



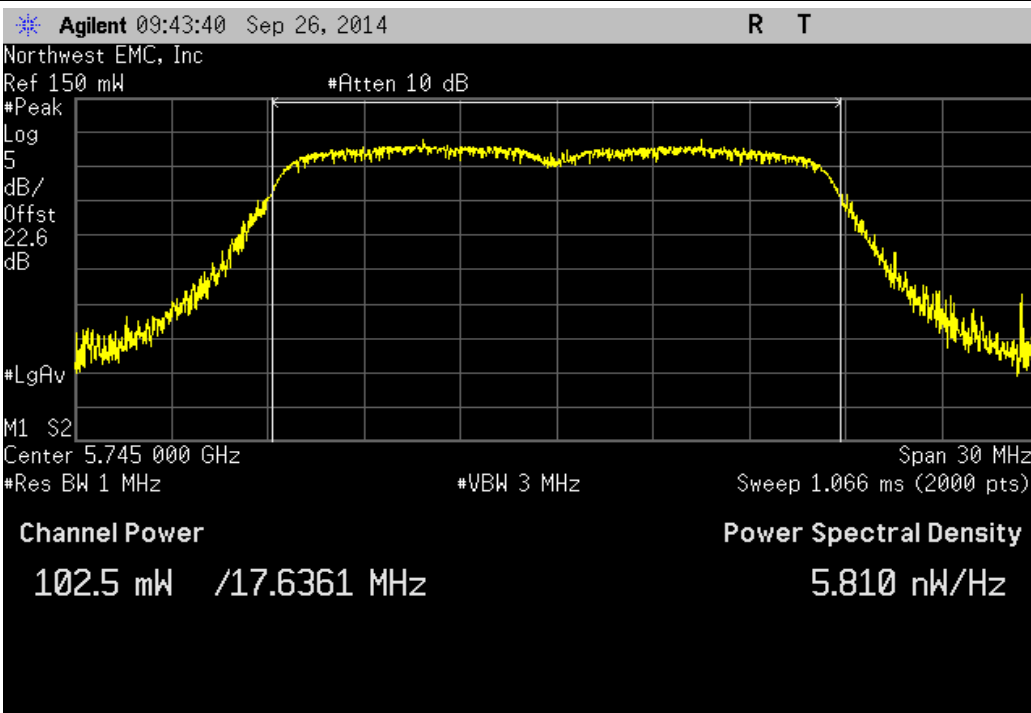
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, High Channel 165, 5825 MHz

	Value	Limit (<)	Result
	38.055 mW	1 W	Pass



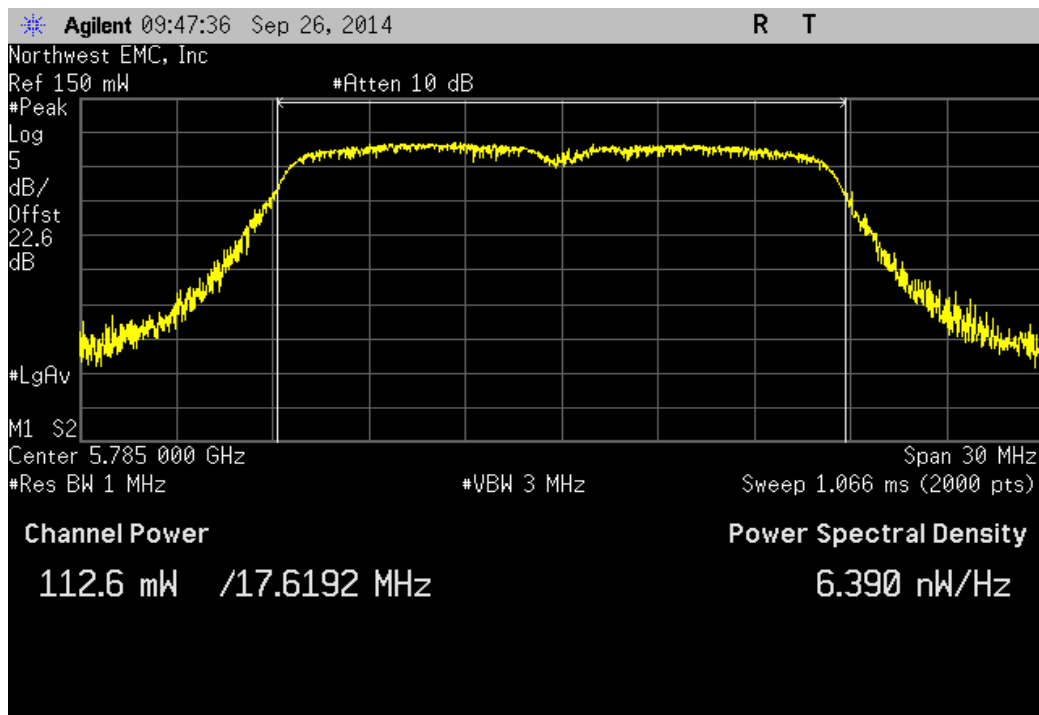
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Low Channel 149, 5745 MHz

	Value	Limit (<)	Result
	102.463 mW	1 W	Pass



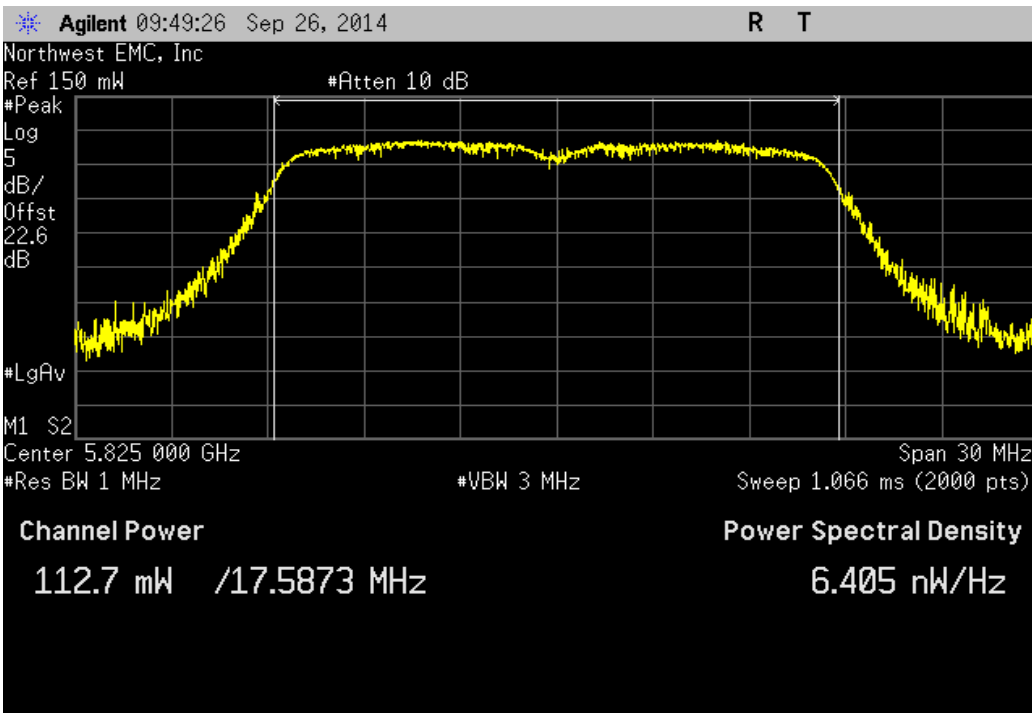
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Mid Channel 157, 5785 MHz

	Value	Limit (<)	Result
	112.595 mW	1 W	Pass



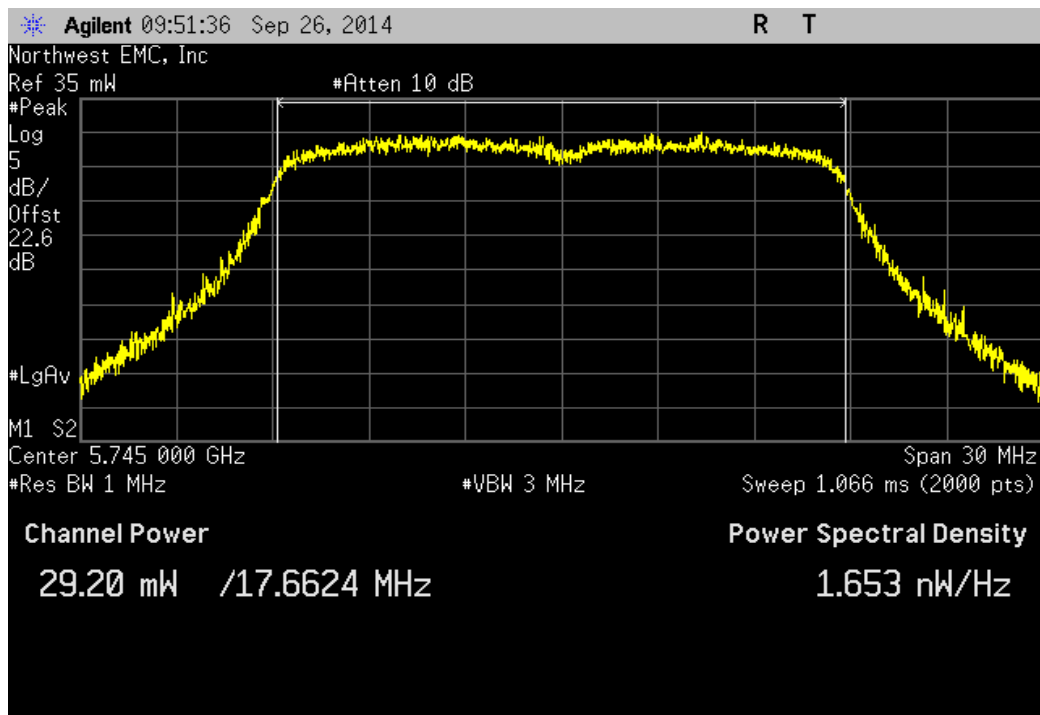
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, High Channel 165, 5825 MHz

Value	Limit (<)	Result
112.652 mW	1 W	Pass



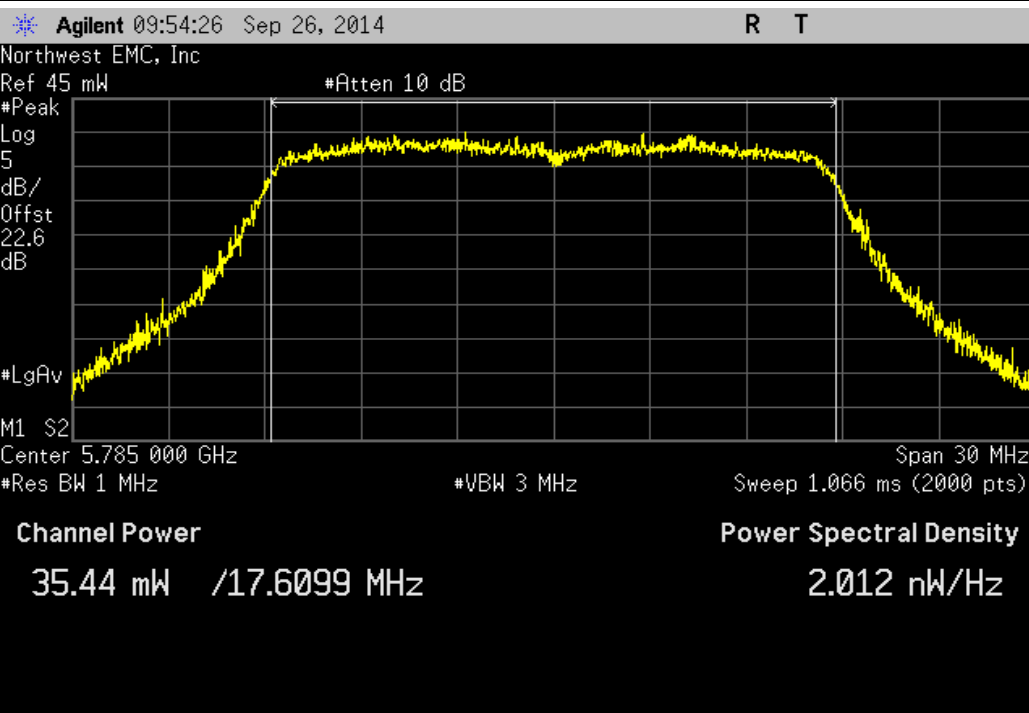
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Low Channel 149, 5745 MHz

Value	Limit (<)	Result
29.201 mW	1 W	Pass



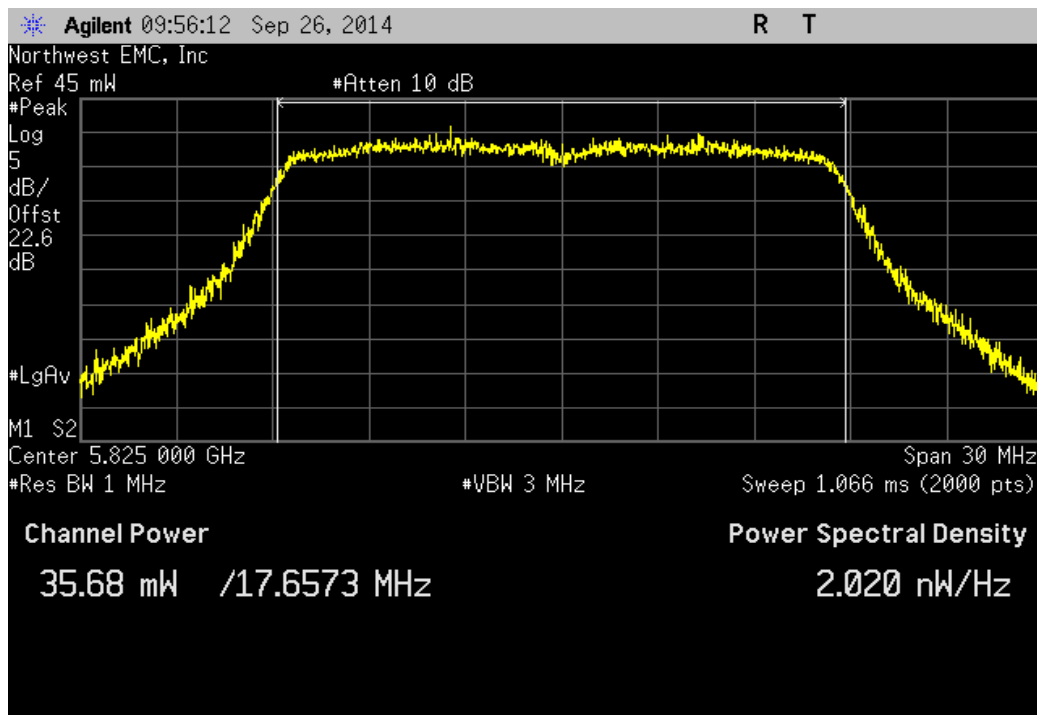
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Mid Channel 157, 5785 MHz

Value	Limit (<)	Result
35.438 mW	1 W	Pass



5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, High Channel 165, 5825 MHz

Value	Limit (<)	Result
35.675 mW	1 W	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 (mo)
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	14
Spectrum Analyzer	Agilent	E4440A	AAX	4/28/2014	12

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:

$$BWCF = 10 \cdot \log(3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

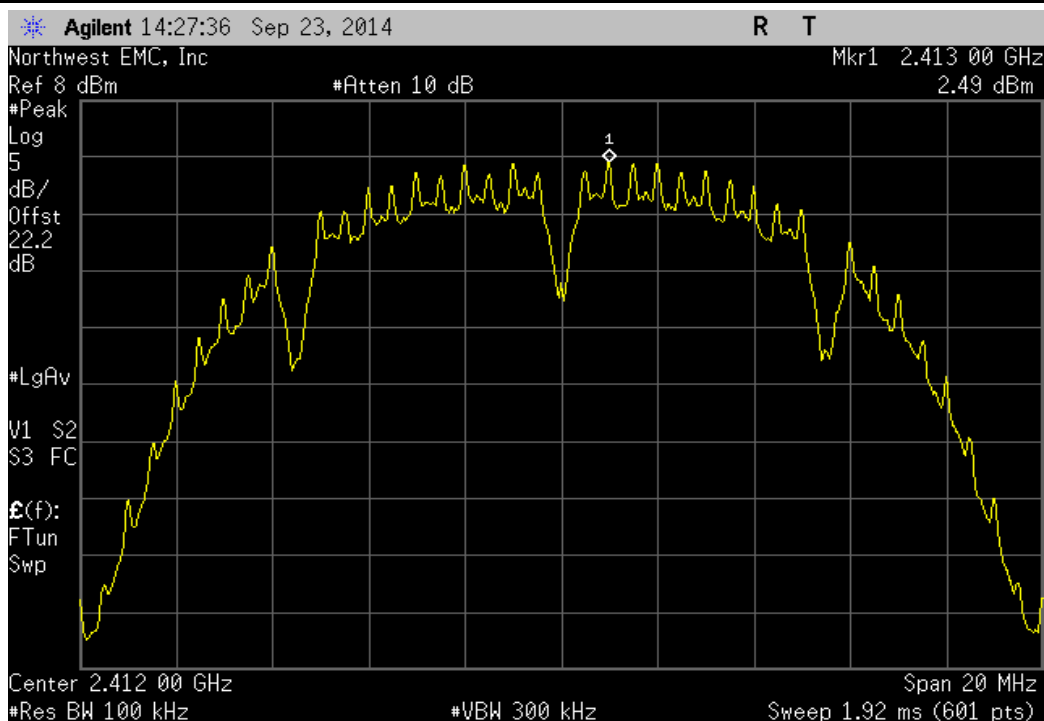


POWER SPECTRAL DENSITY

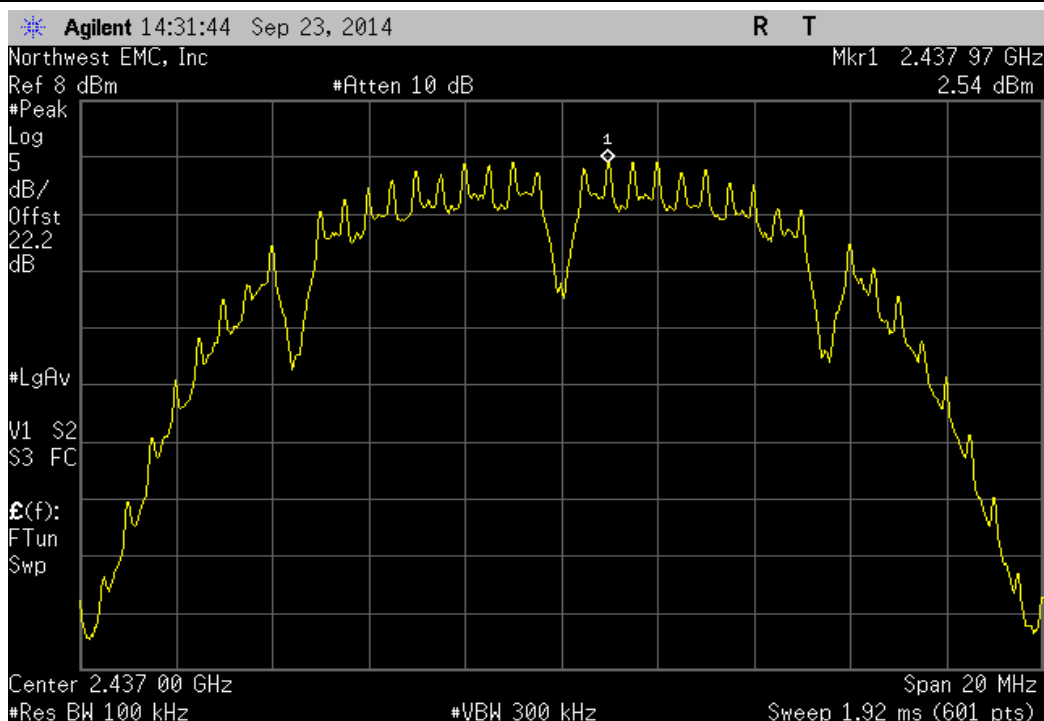
XMit 2014.02.07
NweTx 2014.09.23

EUT: ConnectCore i.MX6 WiFi/Bluetooth		Work Order: ETHE0009				
Serial Number: 00409D 7C03B4		Date: 09/29/14				
Customer: Etherios Design Solutions		Temperature: 22.7°C				
Attendees: None		Humidity: 47%				
Project: None		Barometric Pres.: 1023.7				
Tested by: Trevor Buls		Power: 5VDC	Job Site: MN08			
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2014		ANSI C63.10:2009				
COMMENTS						
None						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature <i>Trevor Buls</i>				
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Results
2400 MHz - 2483.5 MHz Band						
802.11(b) 1 Mbps						
Low Channel 1, 2412 MHz		2.49	-15.2	-12.71	8	Pass
Mid Channel 6, 2437 MHz		2.537	-15.2	-12.663	8	Pass
High Channel 11, 2462 MHz		2.708	-15.2	-12.492	8	Pass
802.11(b) 11 Mbps						
Low Channel 1, 2412 MHz		2.773	-15.2	-12.427	8	Pass
Mid Channel 6, 2437 MHz		3.123	-15.2	-12.077	8	Pass
High Channel 11, 2462 MHz		4.025	-15.2	-11.175	8	Pass
802.11(g) 6 Mbps						
Low Channel 1, 2412 MHz		-1.336	-15.2	-16.536	8	Pass
Mid Channel 6, 2437 MHz		-1.934	-15.2	-17.134	8	Pass
High Channel 11, 2462 MHz		-1.547	-15.2	-16.747	8	Pass
802.11(g) 36 Mbps						
Low Channel 1, 2412 MHz		-0.199	-15.2	-15.399	8	Pass
Mid Channel 6, 2437 MHz		-0.95	-15.2	-16.15	8	Pass
High Channel 11, 2462 MHz		-0.66	-15.2	-15.86	8	Pass
802.11(g) 54 Mbps						
Low Channel 1, 2412 MHz		-0.439	-15.2	-15.639	8	Pass
Mid Channel 6, 2437 MHz		-1.132	-15.2	-16.332	8	Pass
High Channel 11, 2462 MHz		-0.349	-15.2	-15.549	8	Pass
802.11(n) MCS0						
Low Channel 1, 2412 MHz		-1.96	-15.2	-17.16	8	Pass
Mid Channel 6, 2437 MHz		-0.153	-15.2	-15.353	8	Pass
High Channel 11, 2462 MHz		-1.576	-15.2	-16.776	8	Pass
802.11(n) MCS7						
Low Channel 1, 2412 MHz		-4.156	-15.2	-19.356	8	Pass
Mid Channel 6, 2437 MHz		-4.619	-15.2	-19.819	8	Pass
High Channel 11, 2462 MHz		-4.355	-15.2	-19.555	8	Pass
5725 MHz - 5850 MHz Band						
802.11(a) 6 Mbps						
Low Channel 149, 5745 MHz		4.608	-15.2	-10.592	8	Pass
Mid Channel 157, 5785 MHz		5.237	-15.2	-9.963	8	Pass
High Channel 165, 5825 MHz		5.065	-15.2	-10.135	8	Pass
802.11(a) 36 Mbps						
Low Channel 149, 5745 MHz		5.807	-15.2	-9.393	8	Pass
Mid Channel 157, 5785 MHz		6.2	-15.2	-9	8	Pass
High Channel 165, 5825 MHz		5.762	-15.2	-9.438	8	Pass
802.11(a) 54 Mbps						
Low Channel 149, 5745 MHz		1.888	-15.2	-13.312	8	Pass
Mid Channel 157, 5785 MHz		2.547	-15.2	-12.653	8	Pass
High Channel 165, 5825 MHz		1.867	-15.2	-13.333	8	Pass
802.11(n) MCS0 - UNII						
Low Channel 149, 5745 MHz		4.548	-15.2	-10.652	8	Pass
Mid Channel 157, 5785 MHz		4.823	-15.2	-10.377	8	Pass
High Channel 165, 5825 MHz		5.116	-15.2	-10.084	8	Pass
802.11(n) MCS7 - UNII						
Low Channel 149, 5745 MHz		0.308	-15.2	-14.892	8	Pass
Mid Channel 157, 5785 MHz		1.182	-15.2	-14.018	8	Pass
High Channel 165, 5825 MHz		1.012	-15.2	-14.188	8	Pass

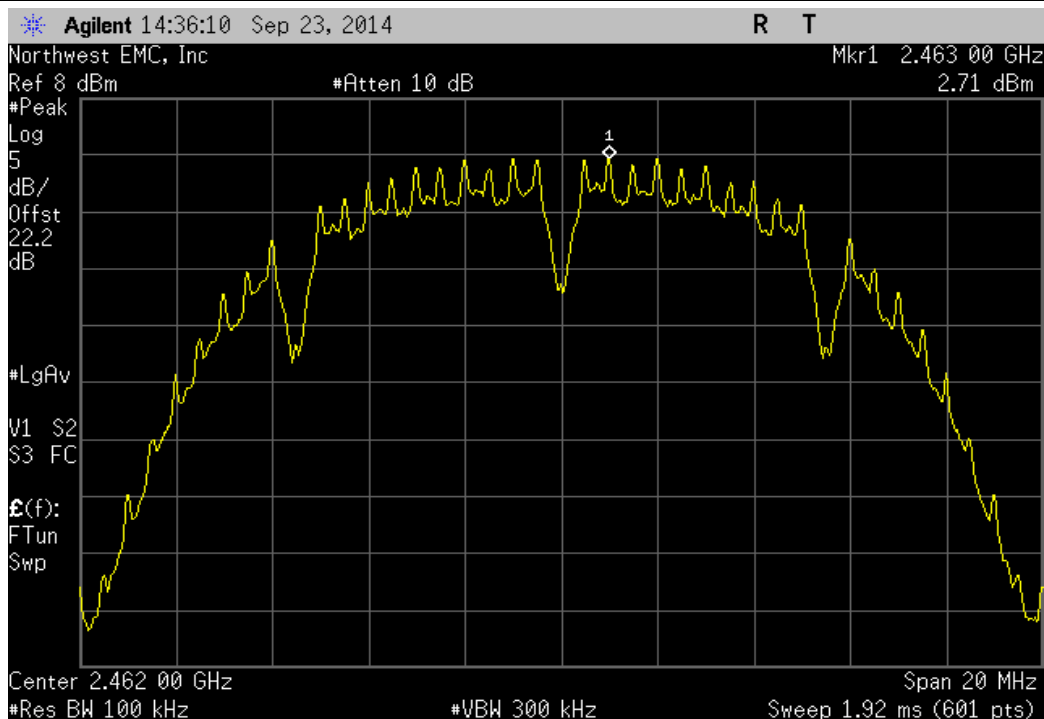
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Value		dBm/100kHz	Value		Limit	Results
		dBm/100kHz			dBm/3kHz	
		2.49	-15.2	-12.71	8	Pass



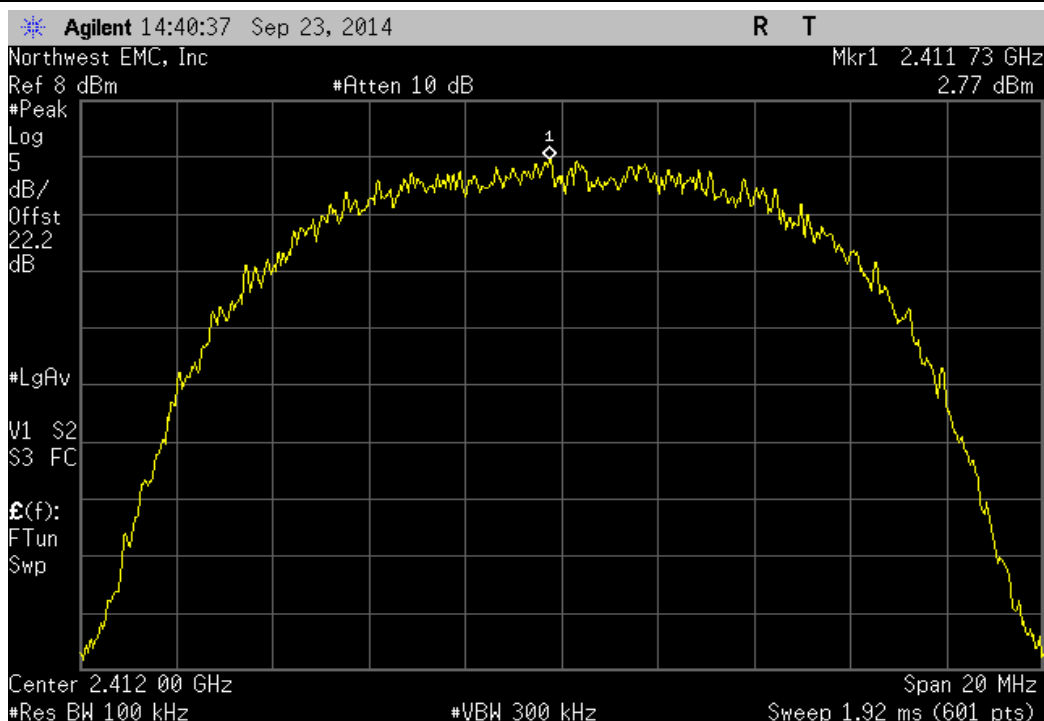
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
		Value	dBm/100kHz	Value	Limit	
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Results
		2.537	-15.2	-12.663	8	Pass



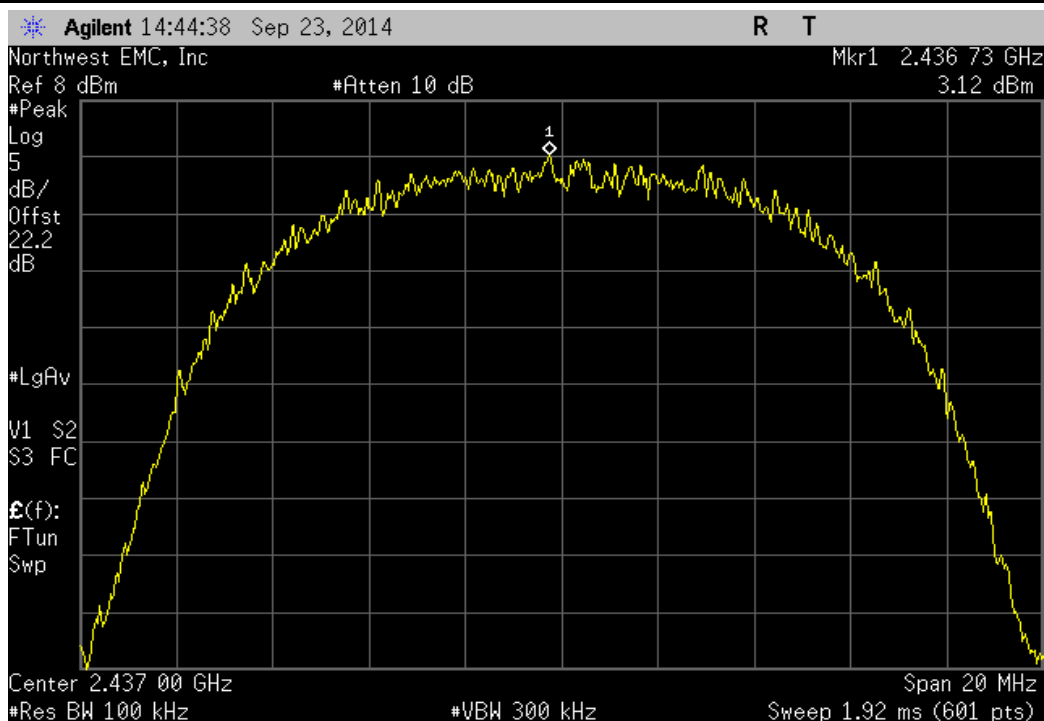
2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	2.708	-15.2	-12.492	8	Pass



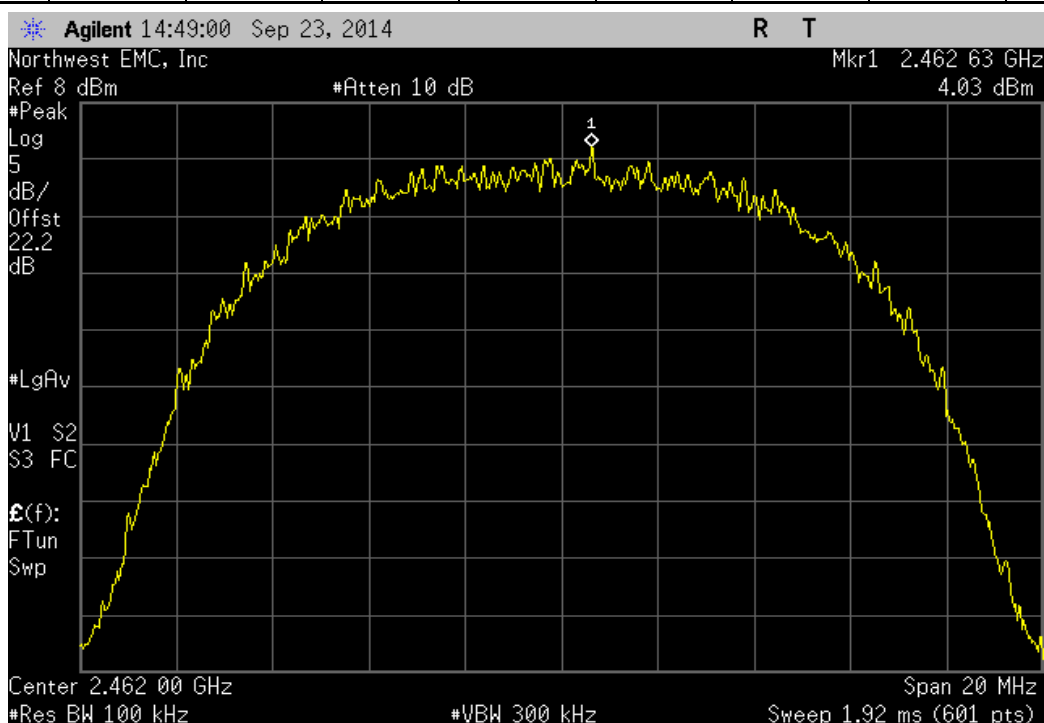
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	2.773	-15.2	-12.427	8	Pass



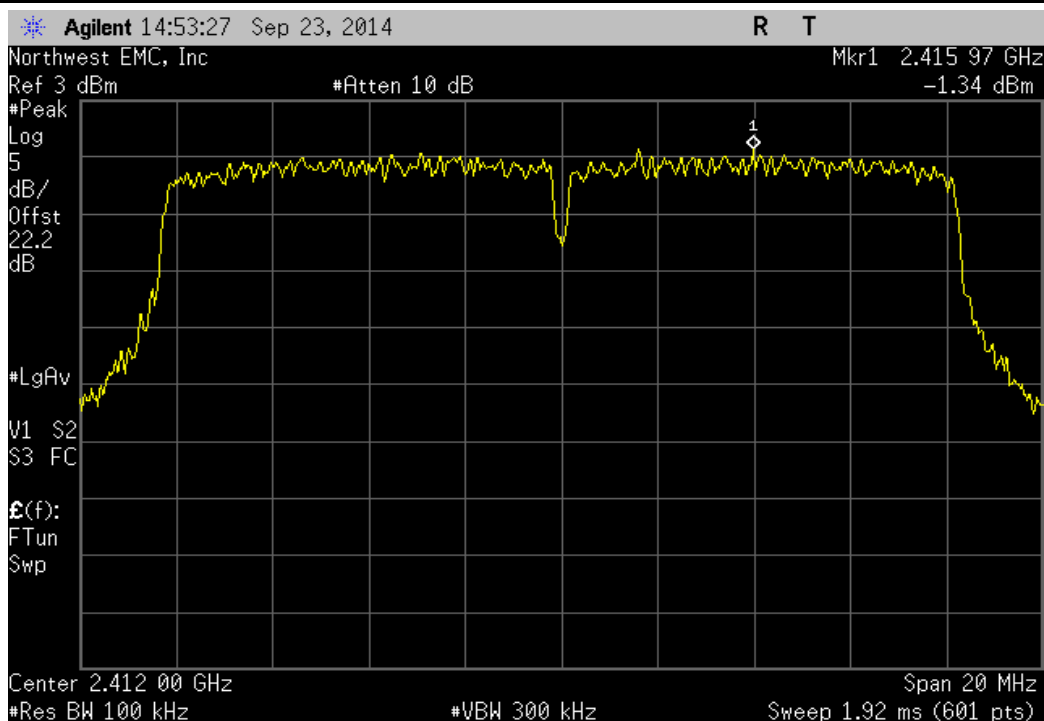
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	3.123	-15.2	-12.077	8	Pass



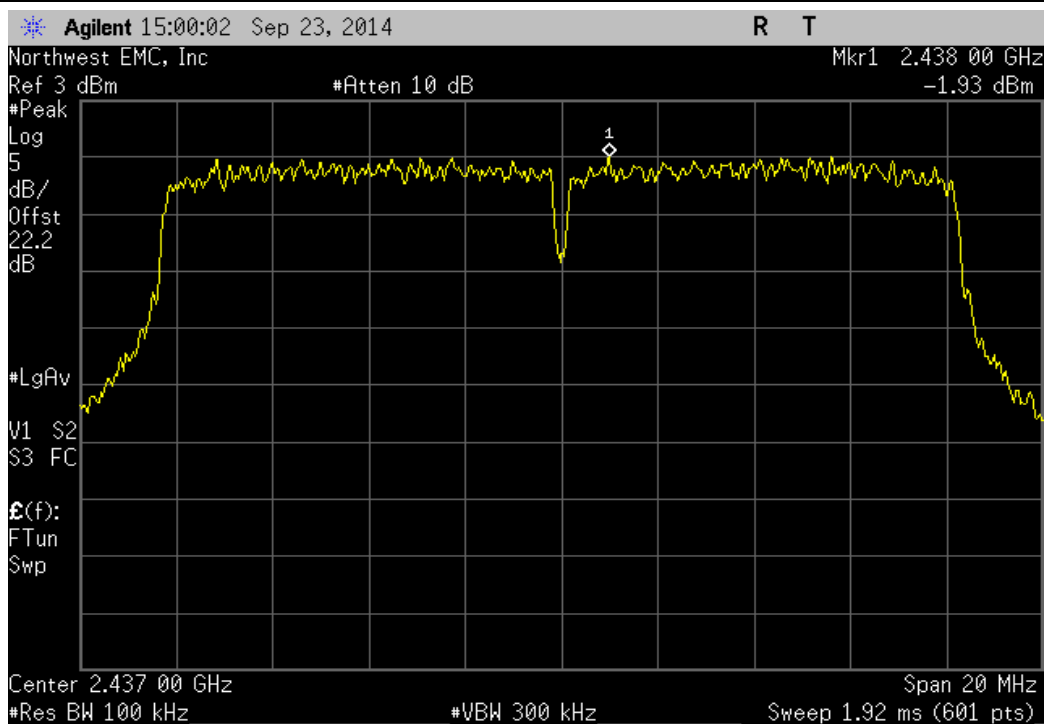
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	4.025	-15.2	-11.175	8	Pass



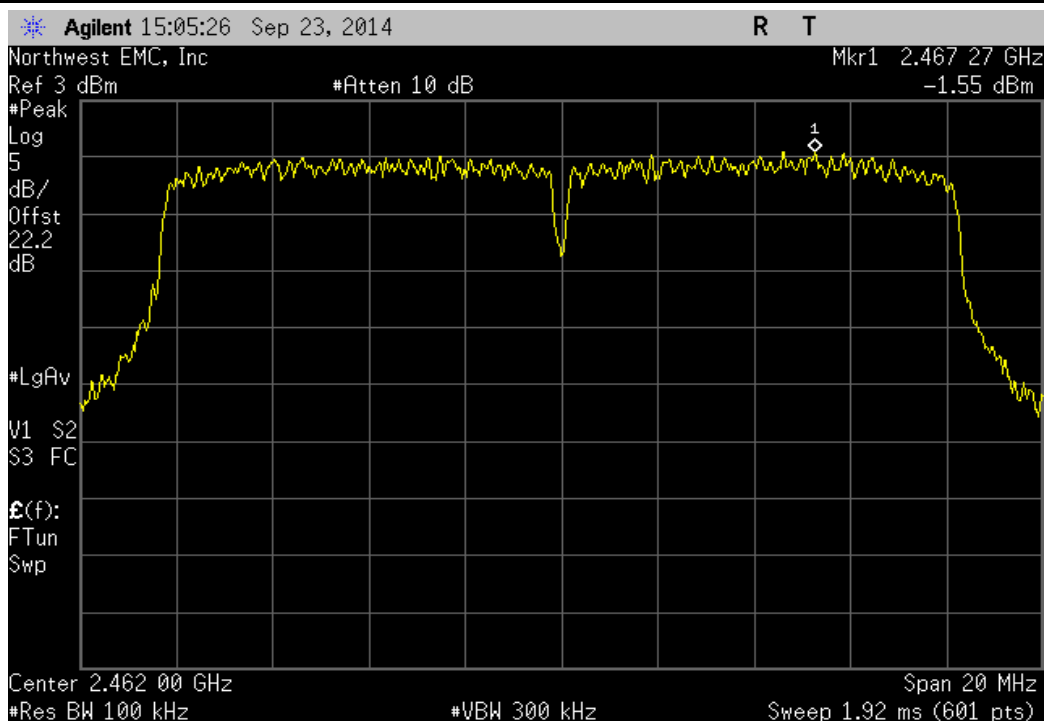
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Value		dBm/100kHz	Value		Limit	Results
		To dBm/3kHz	dBm/3kHz		dBm/3kHz	
		-1.336	-15.2	-16.536	8	Pass



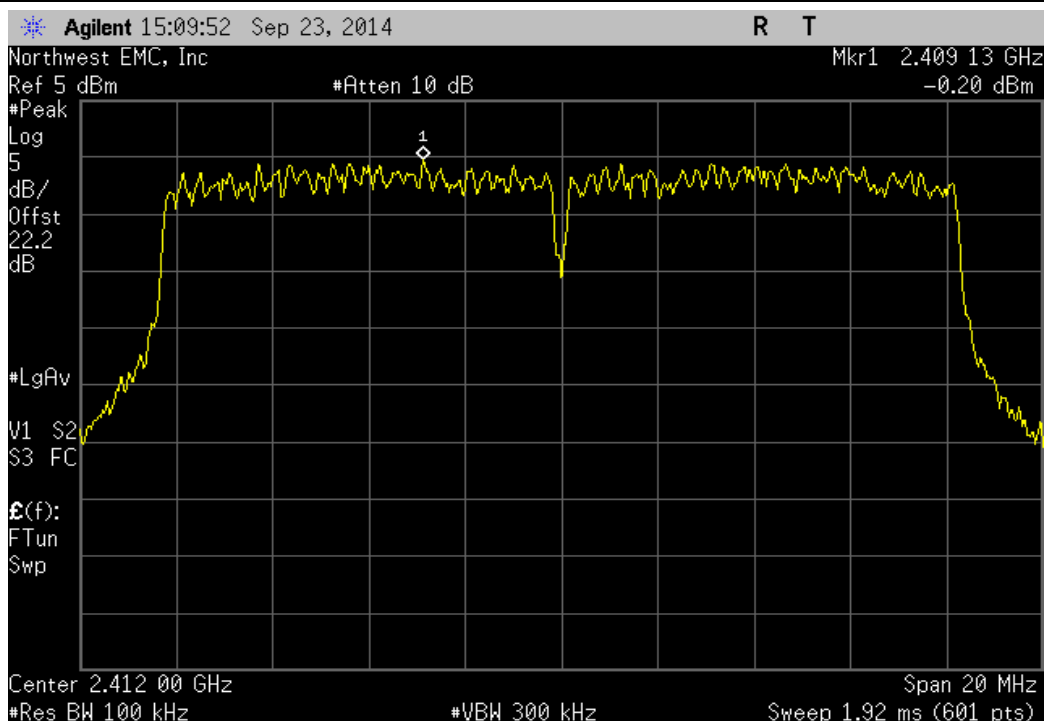
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Value		dBm/100kHz	Value		Limit	Results
		To dBm/3kHz	dBm/3kHz	dBm/3kHz		
		-1.934	-15.2	-17.134	8	Pass



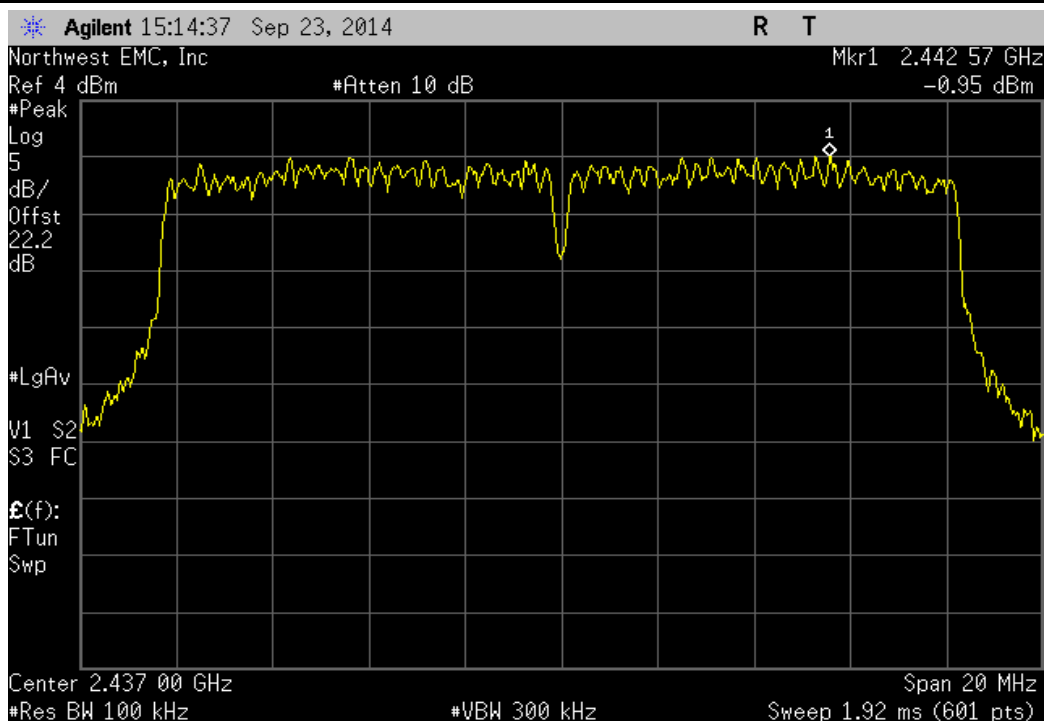
2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Value		dBm/100kHz	Value		Limit	Results
		To dBm/3kHz	dBm/3kHz		dBm/3kHz	
		-1.547	-15.2	-16.747	8	Pass



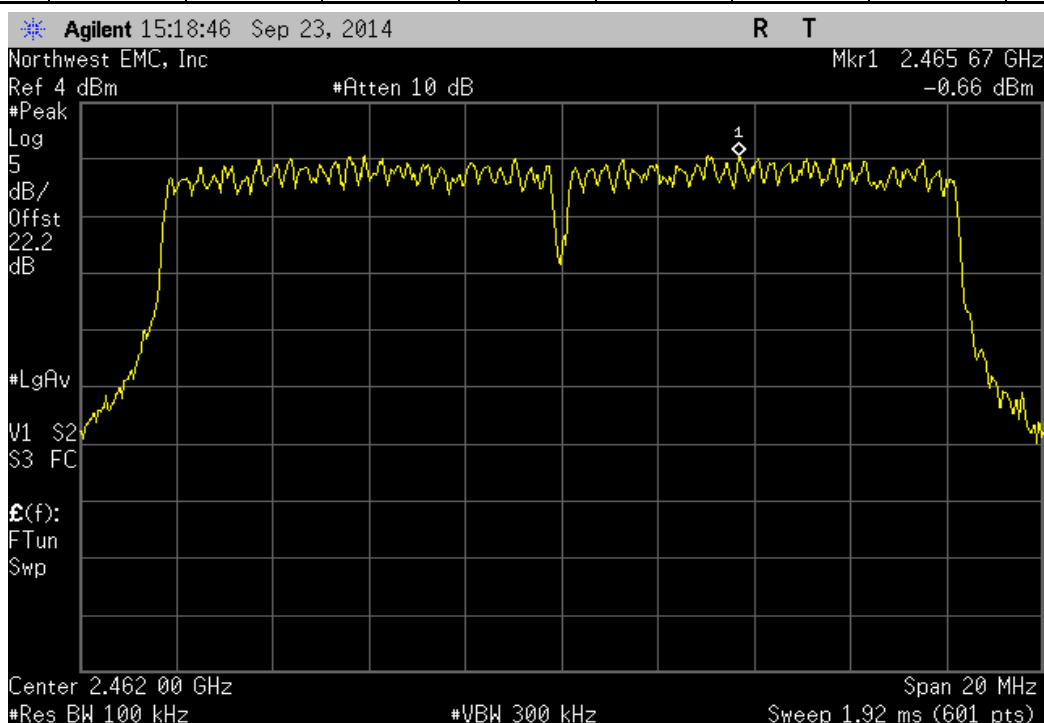
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
Value		dBm/100kHz	Value		Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	-0.199	-15.2	-15.399	8	Pass	



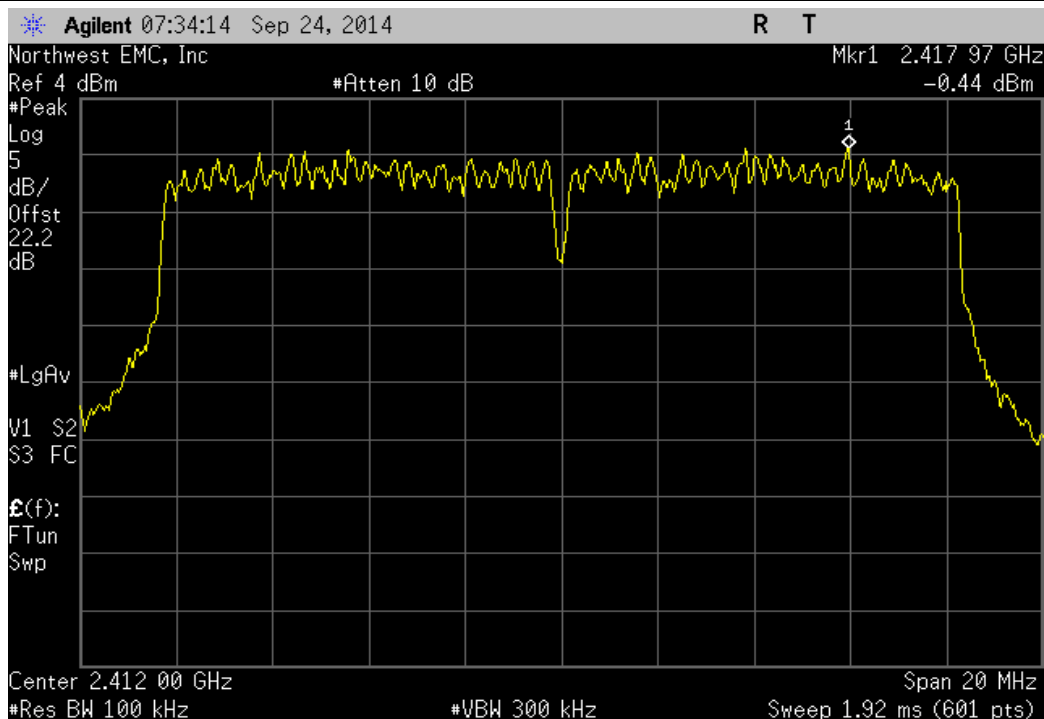
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	-0.95	-15.2	-16.15	8	Pass



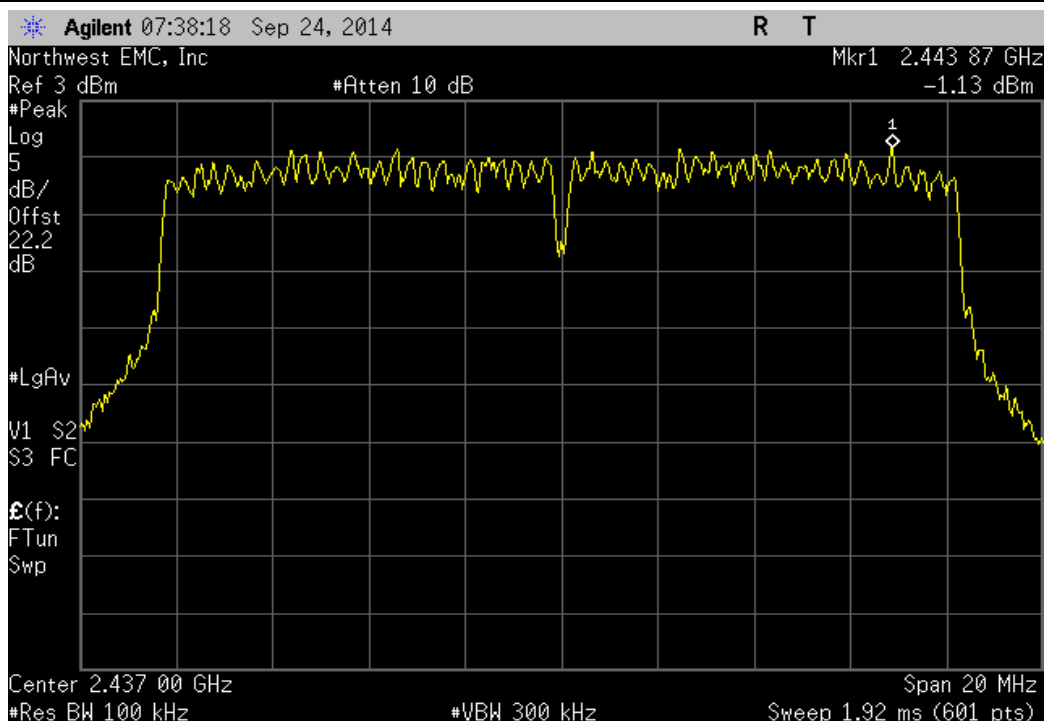
2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	-0.66	-15.2	-15.86	8	Pass



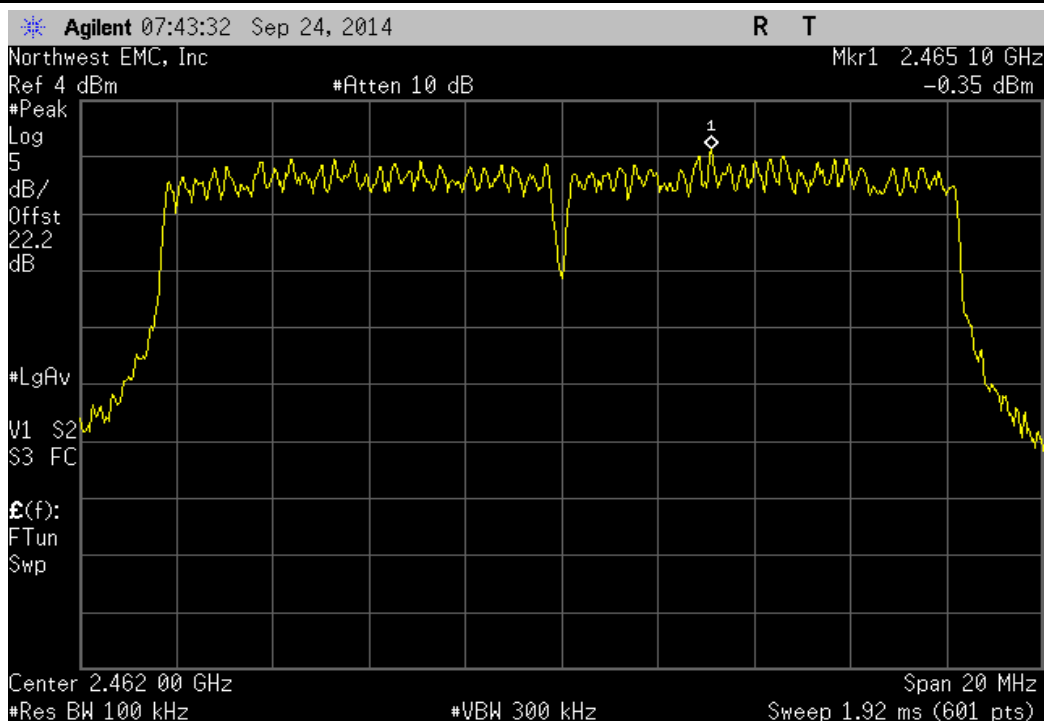
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	-0.439	-15.2	-15.639	8	Pass



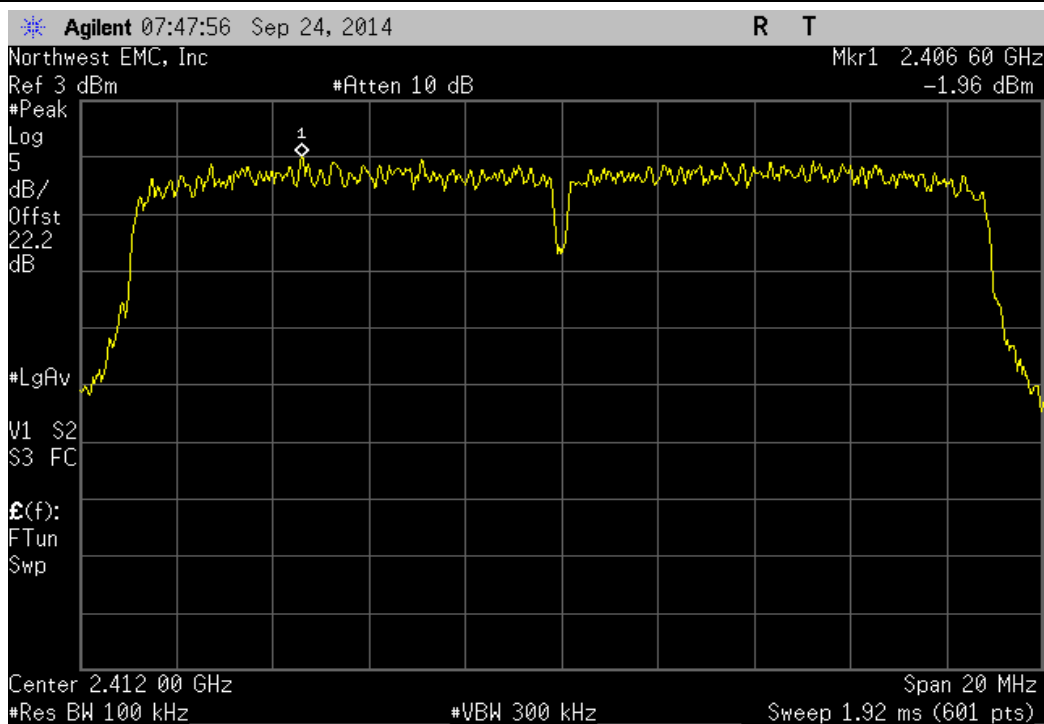
2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	-1.132	-15.2	-16.332	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Value		dBm/100kHz	Value		Limit	Results
		To dBm/3kHz	dBm/3kHz		dBm/3kHz	
		-0.349	-15.2	-15.549	8	Pass

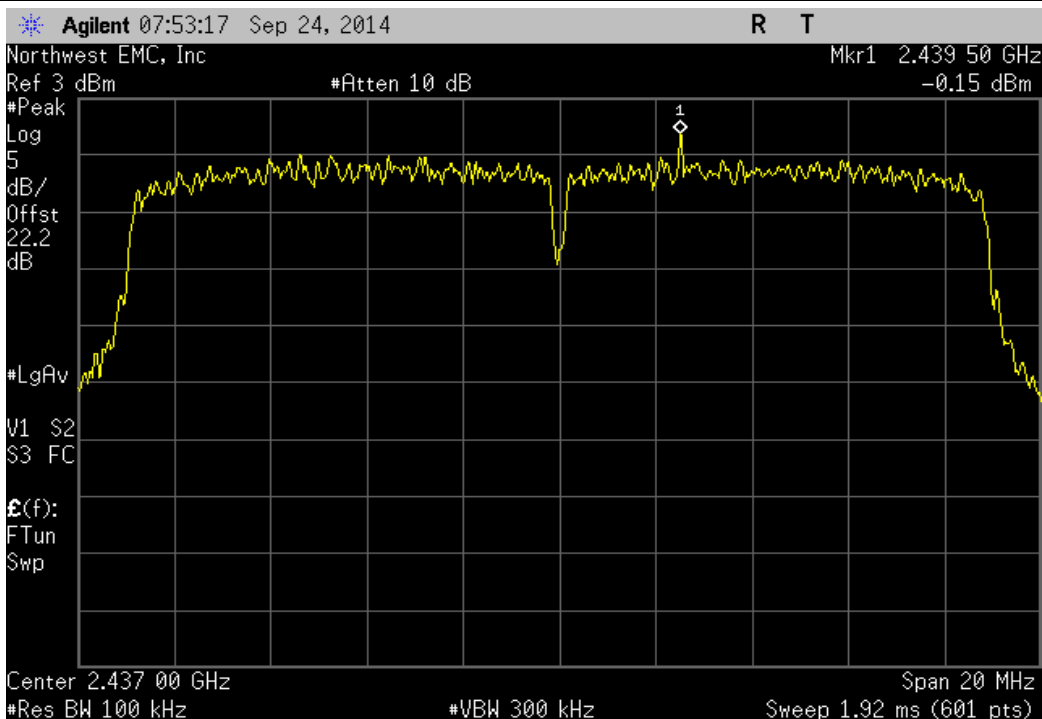


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz					
Value		dBm/100kHz		Limit	
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz
		-1.96	-15.2	-17.16	8
					Pass



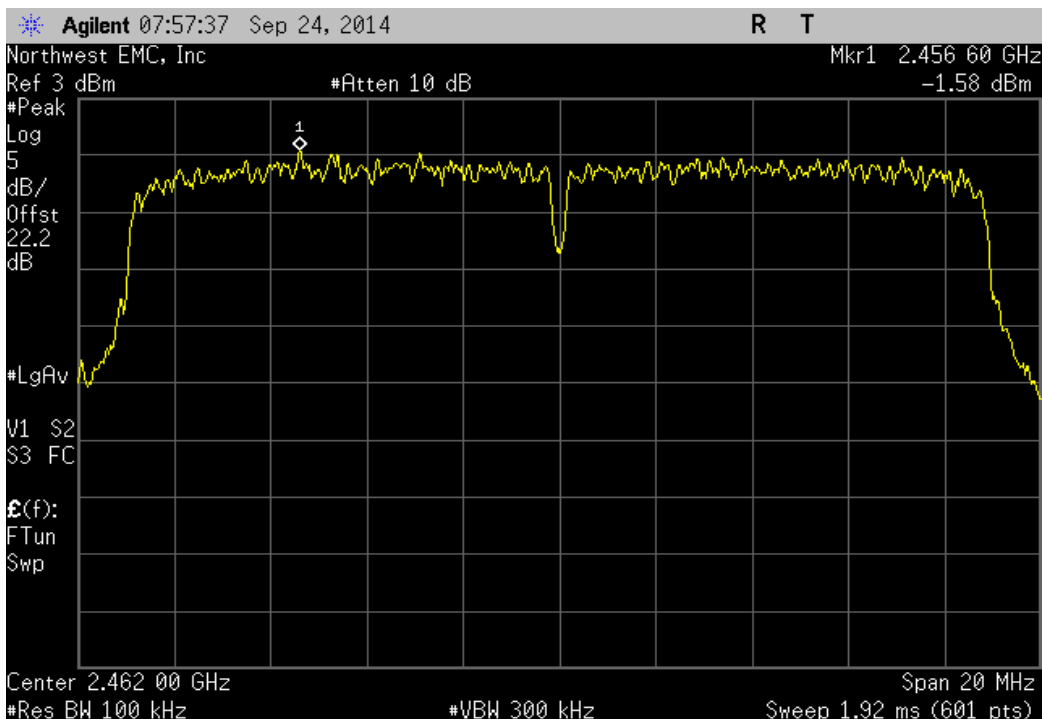
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
-0.153	-15.2	-15.353	8	Pass



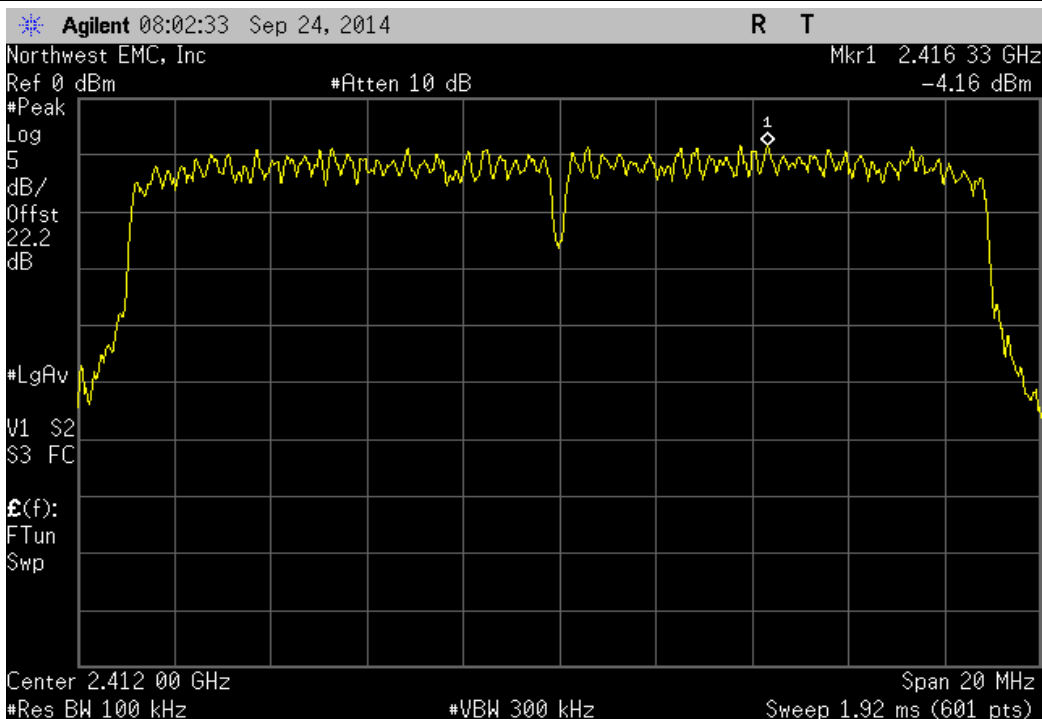
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
-1.576	-15.2	-16.776	8	Pass



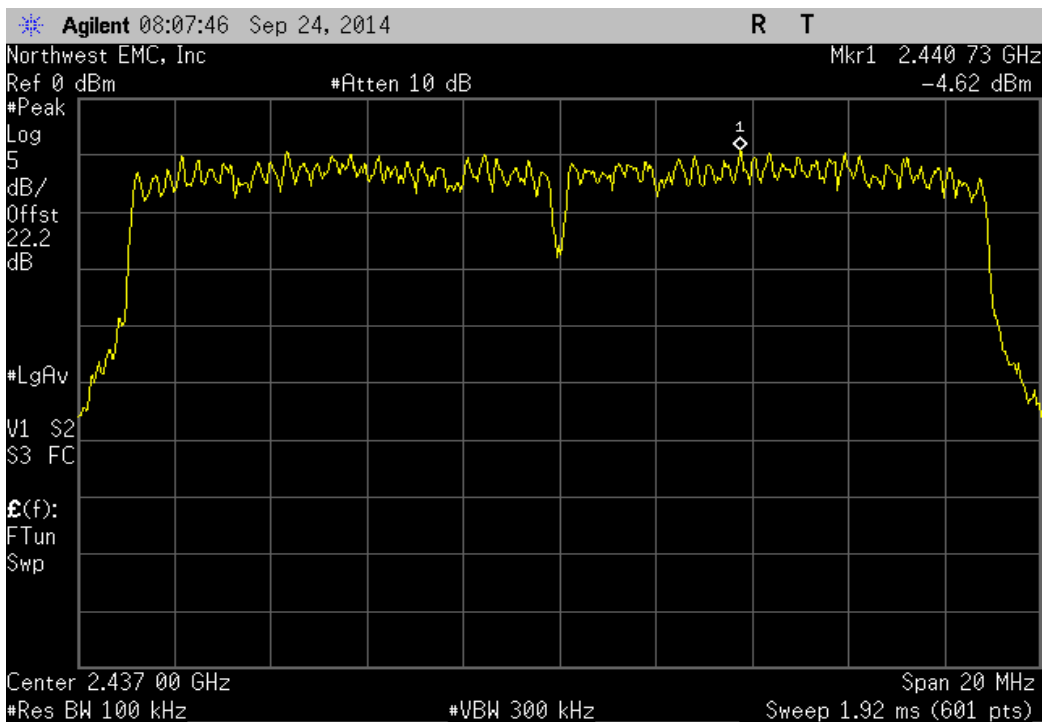
2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
-4.156	-15.2	-19.356	8	Pass

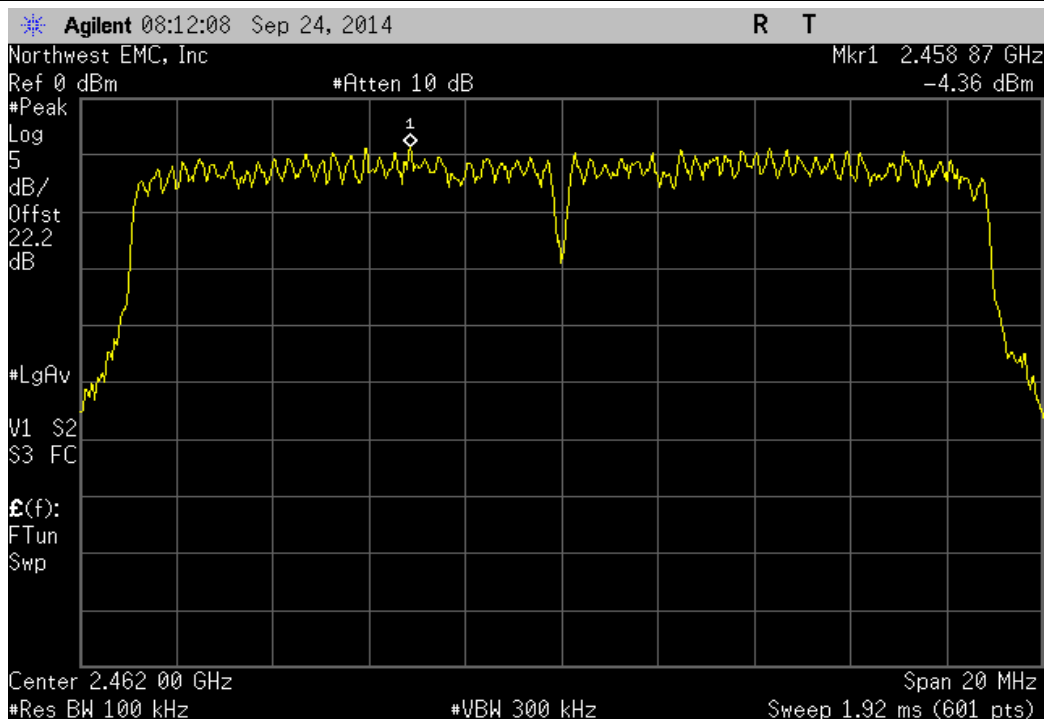


2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz

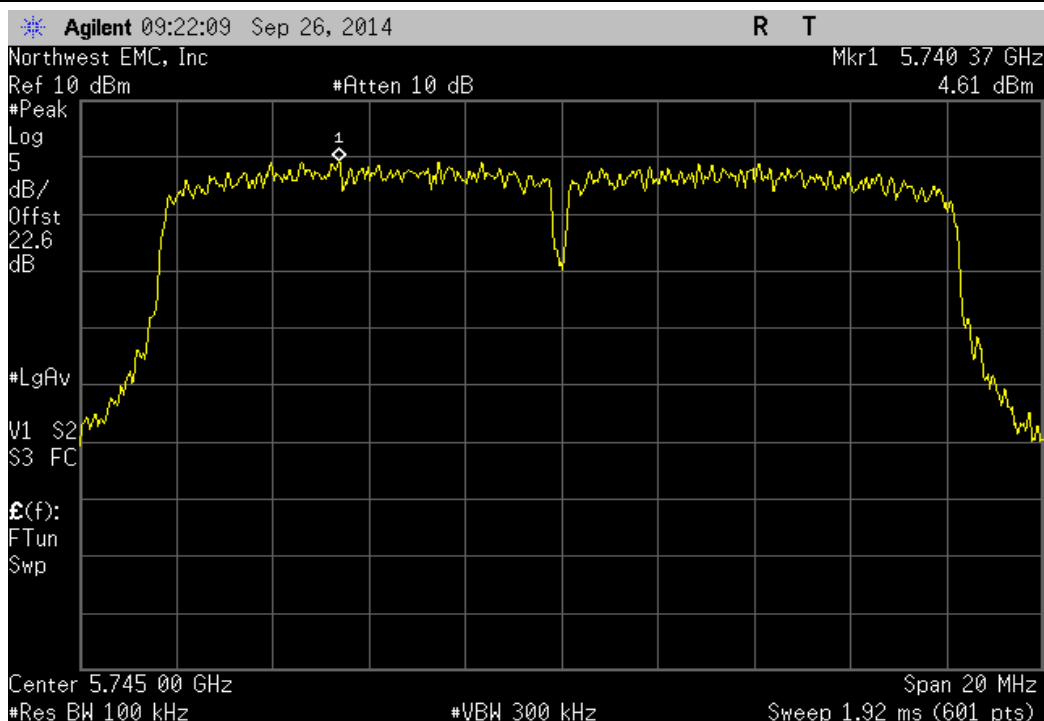
Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
-4.619	-15.2	-19.819	8	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	-4.355	-15.2	-19.555	8	Pass

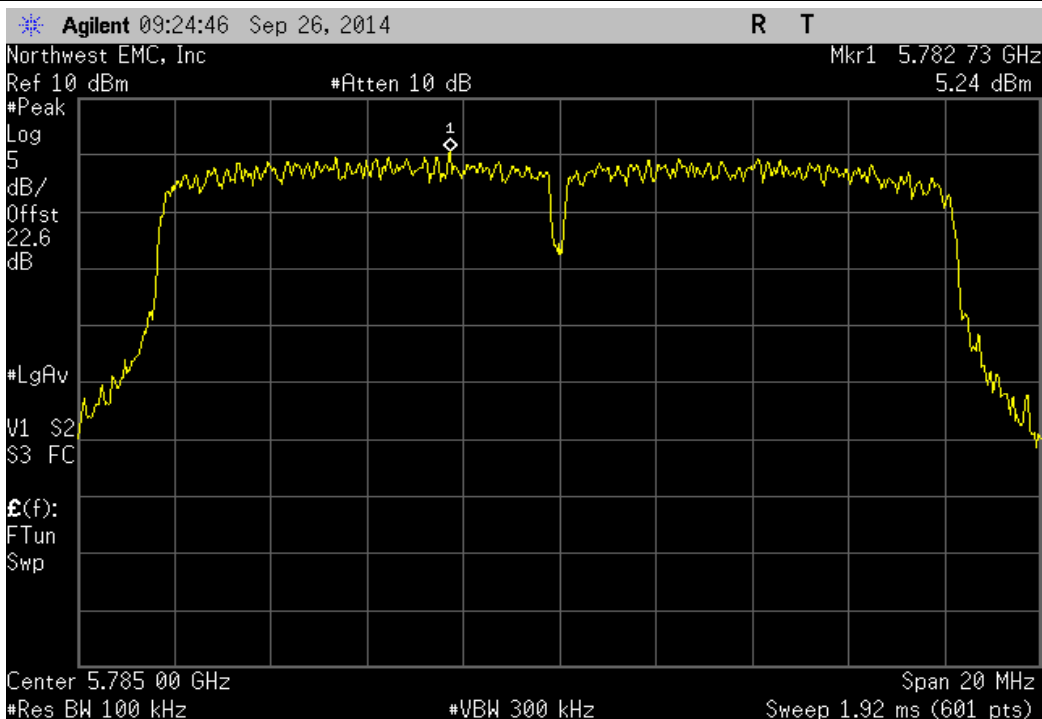


5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Low Channel 149, 5745 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	4.608	-15.2	-10.592	8	Pass



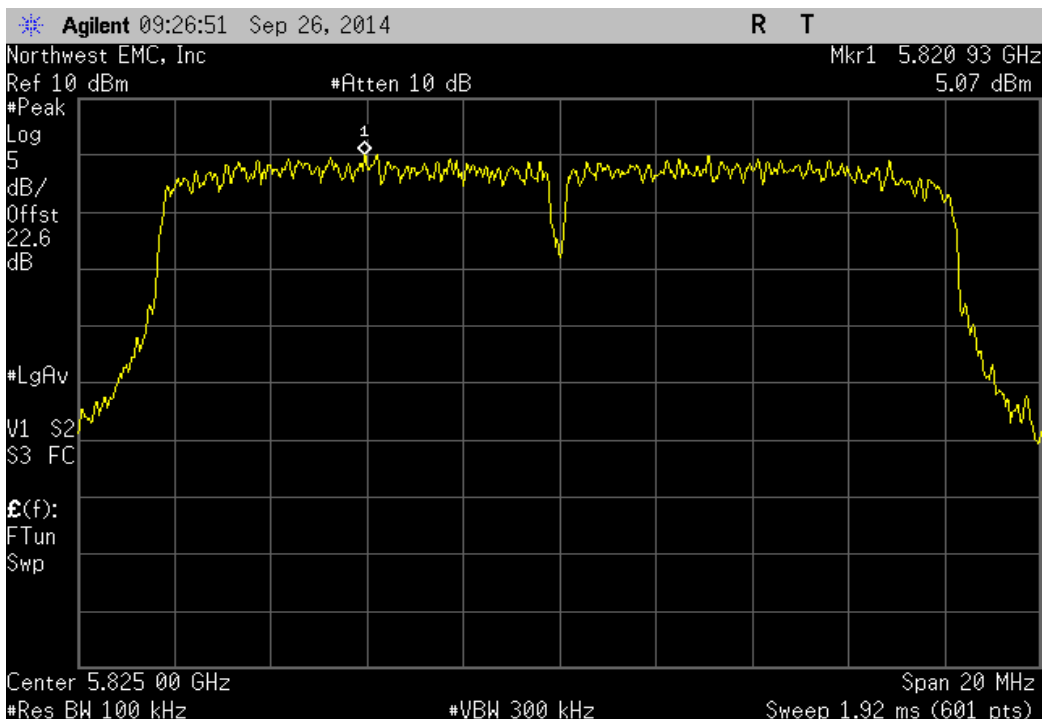
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, Mid Channel 157, 5785 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
5.237	-15.2	-9.963	8	Pass



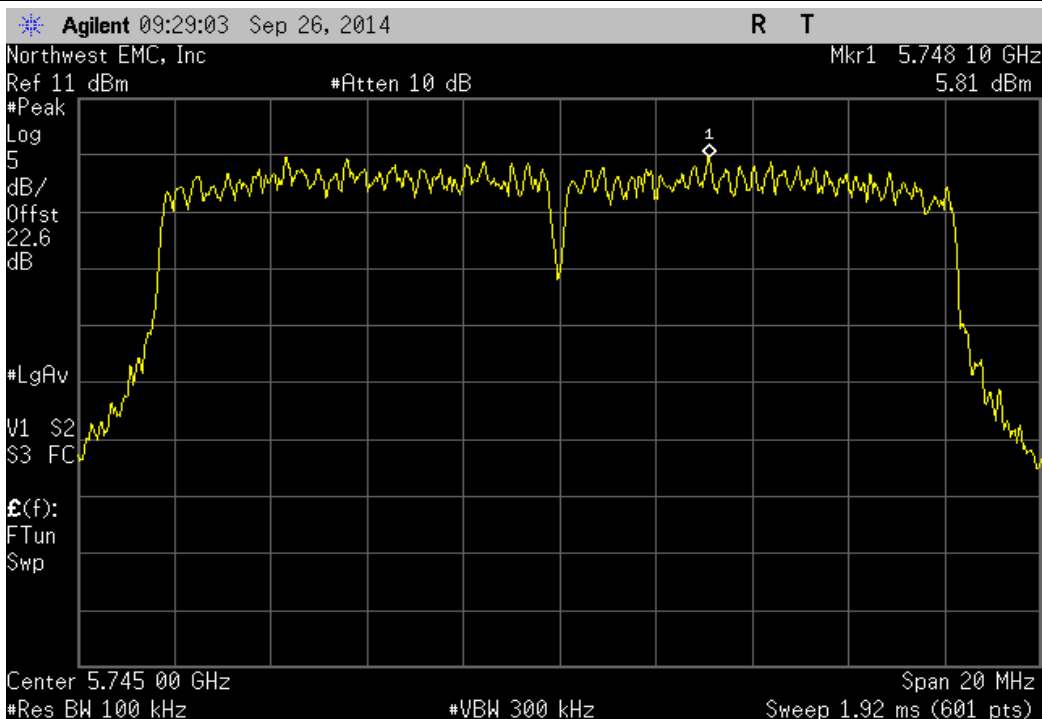
5725 MHz - 5850 MHz Band, 802.11(a) 6 Mbps, High Channel 165, 5825 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
5.065	-15.2	-10.135	8	Pass



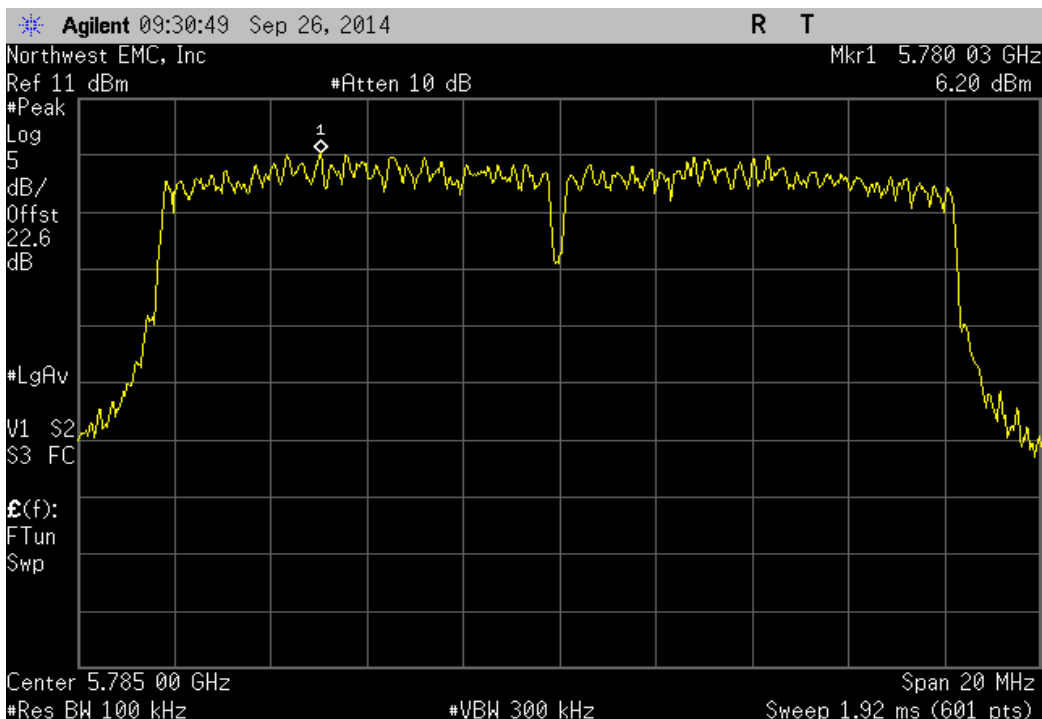
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Low Channel 149, 5745 MHz

	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.807	-15.2	-9.393	8	Pass

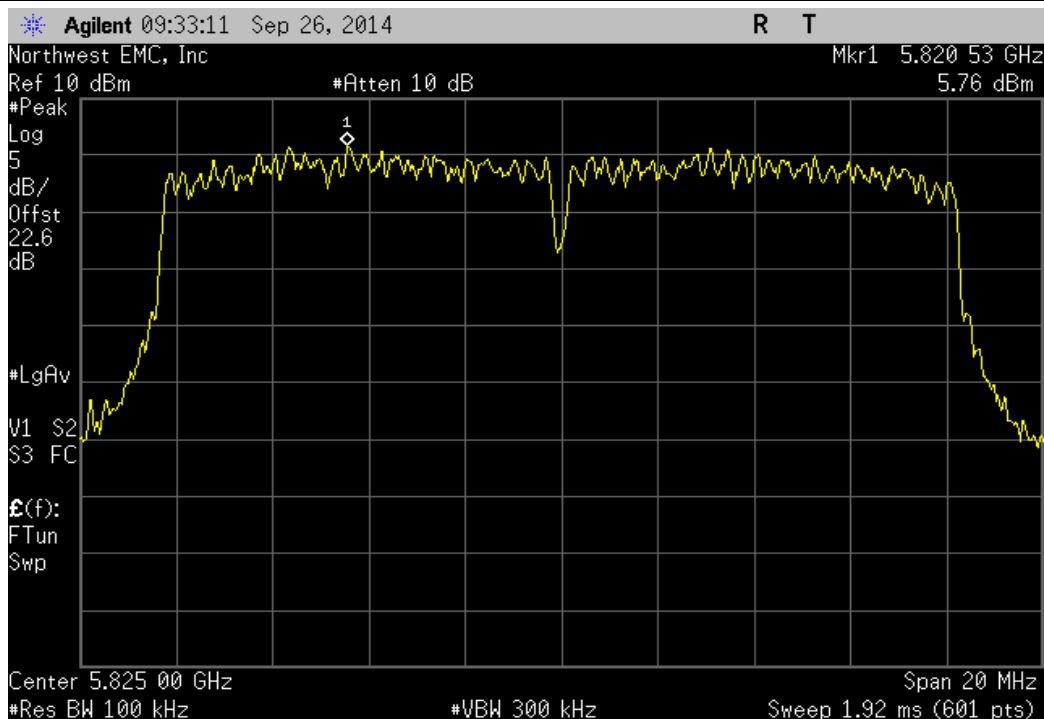


5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, Mid Channel 157, 5785 MHz

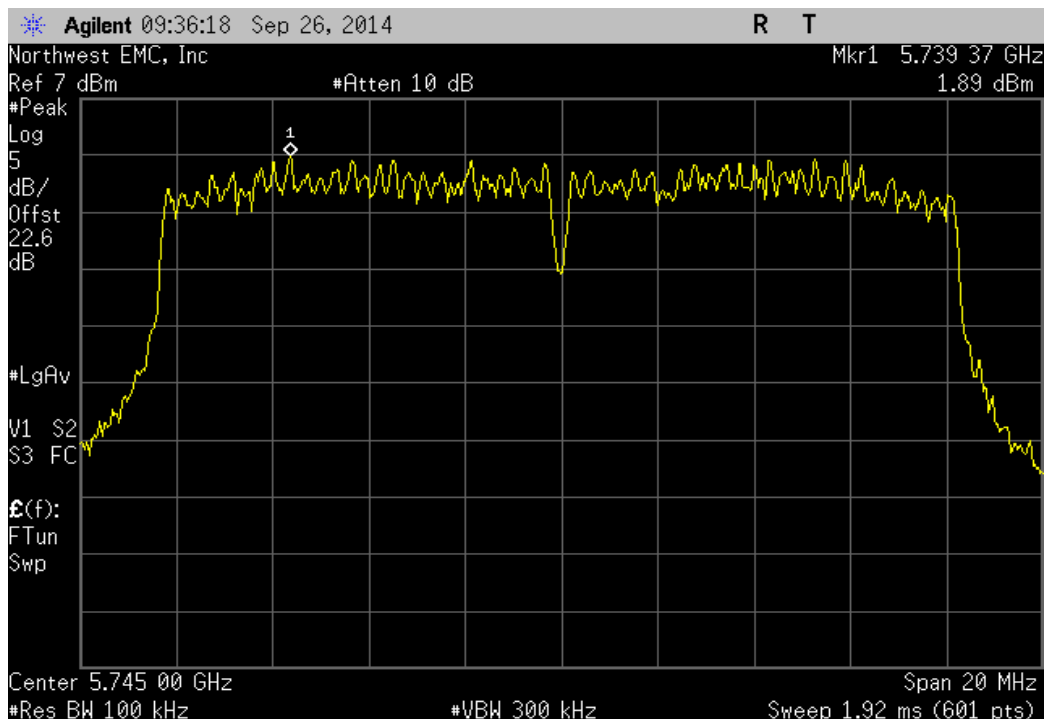
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	6.2	-15.2	-9	8	Pass



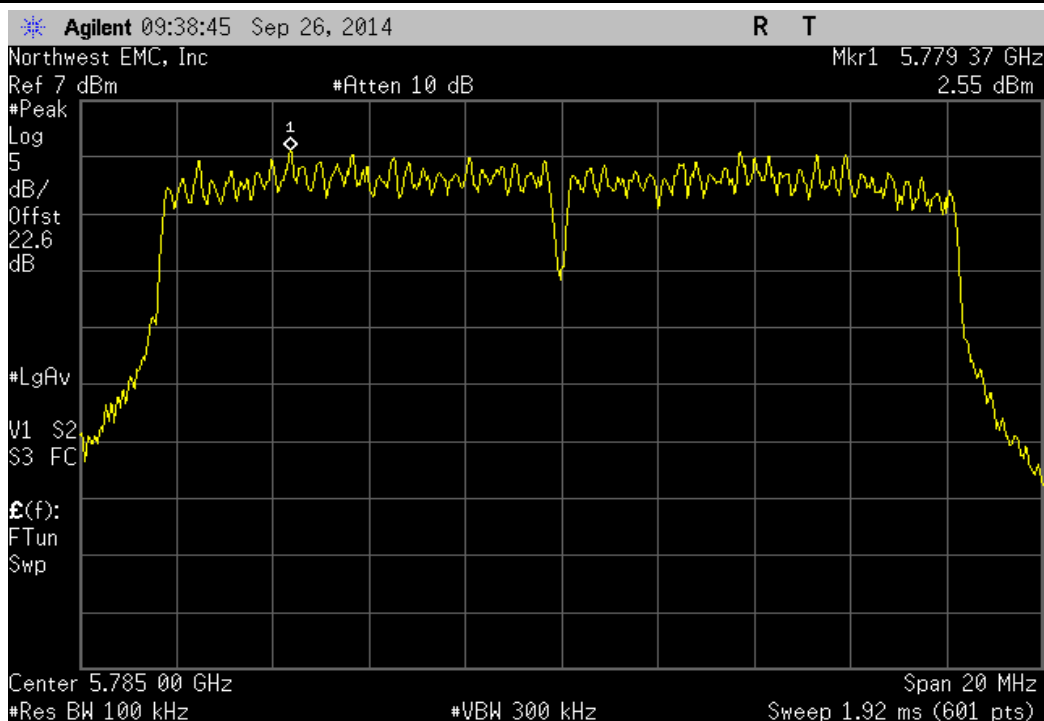
5725 MHz - 5850 MHz Band, 802.11(a) 36 Mbps, High Channel 165, 5825 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	5.762	-15.2	-9.438	8	Pass



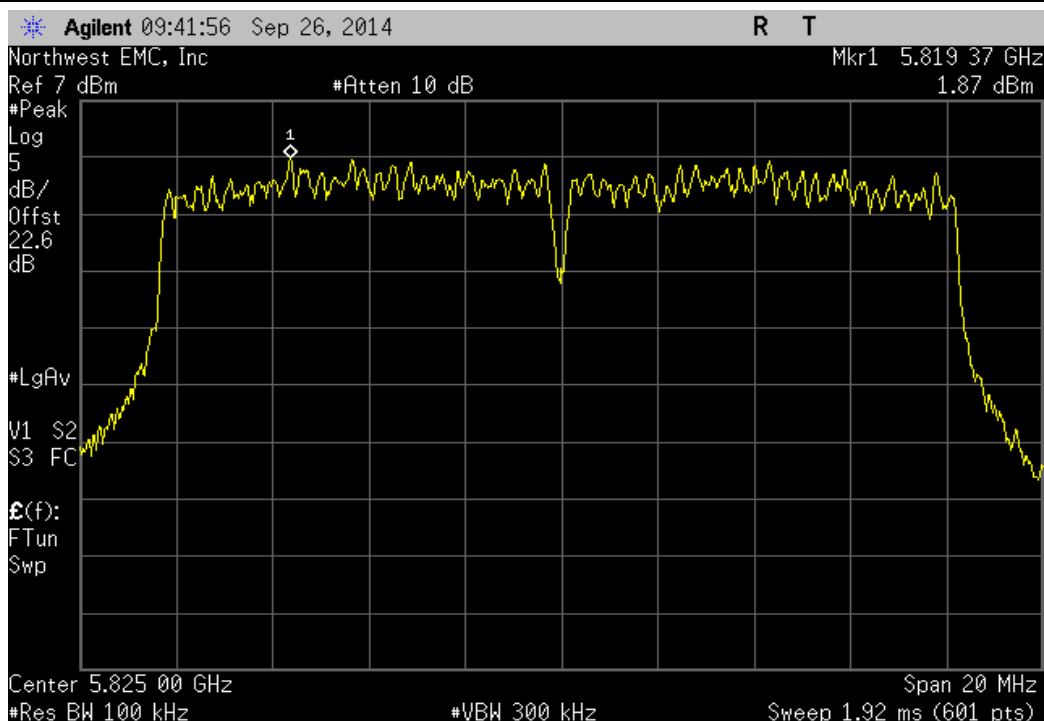
5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Low Channel 149, 5745 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	1.888	-15.2	-13.312	8	Pass



5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, Mid Channel 157, 5785 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	2.547	-15.2	-12.653	8	Pass

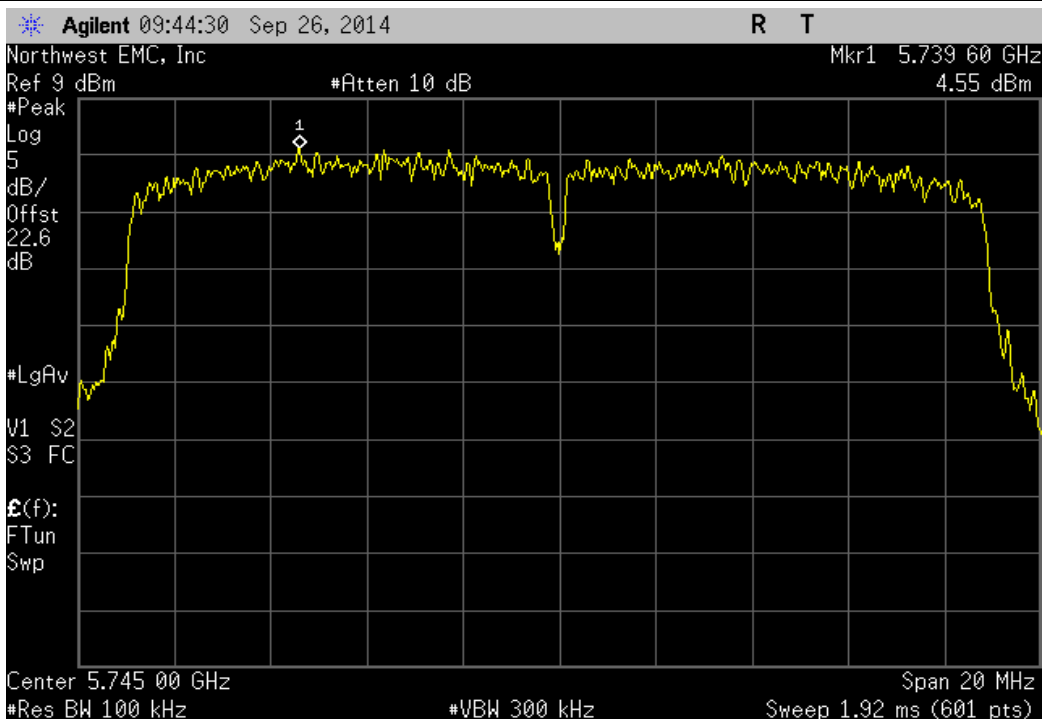


5725 MHz - 5850 MHz Band, 802.11(a) 54 Mbps, High Channel 165, 5825 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz	dBm/3kHz		
	1.867	-15.2	-13.333	8	Pass



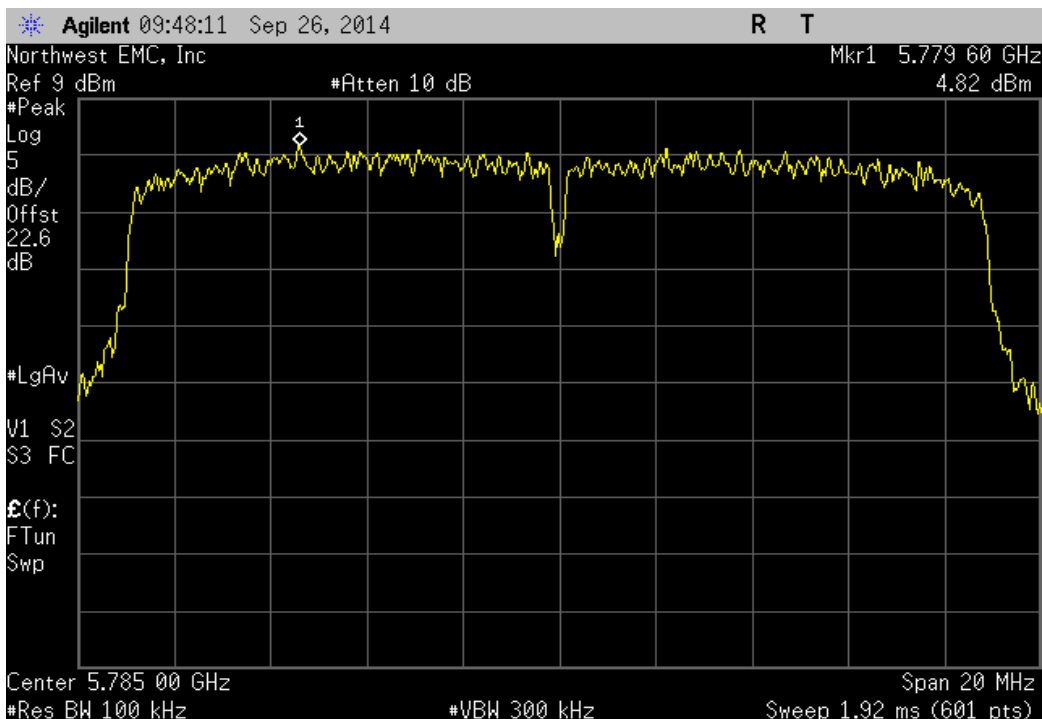
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Low Channel 149, 5745 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
4.548	-15.2	-10.652	8	Pass



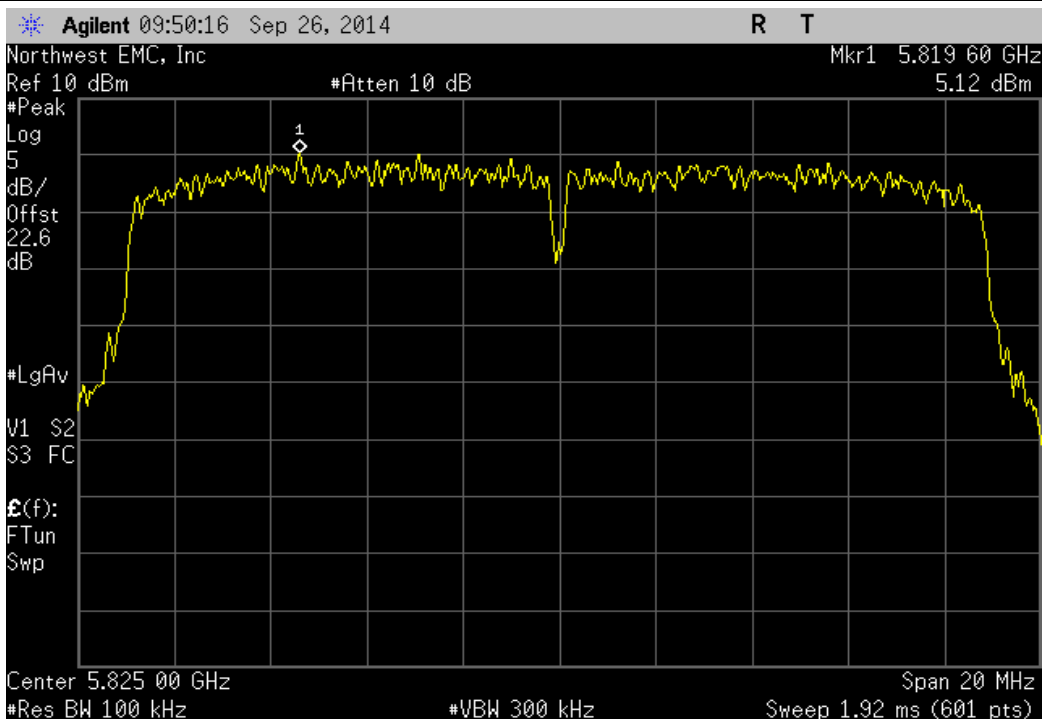
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, Mid Channel 157, 5785 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
4.823	-15.2	-10.377	8	Pass



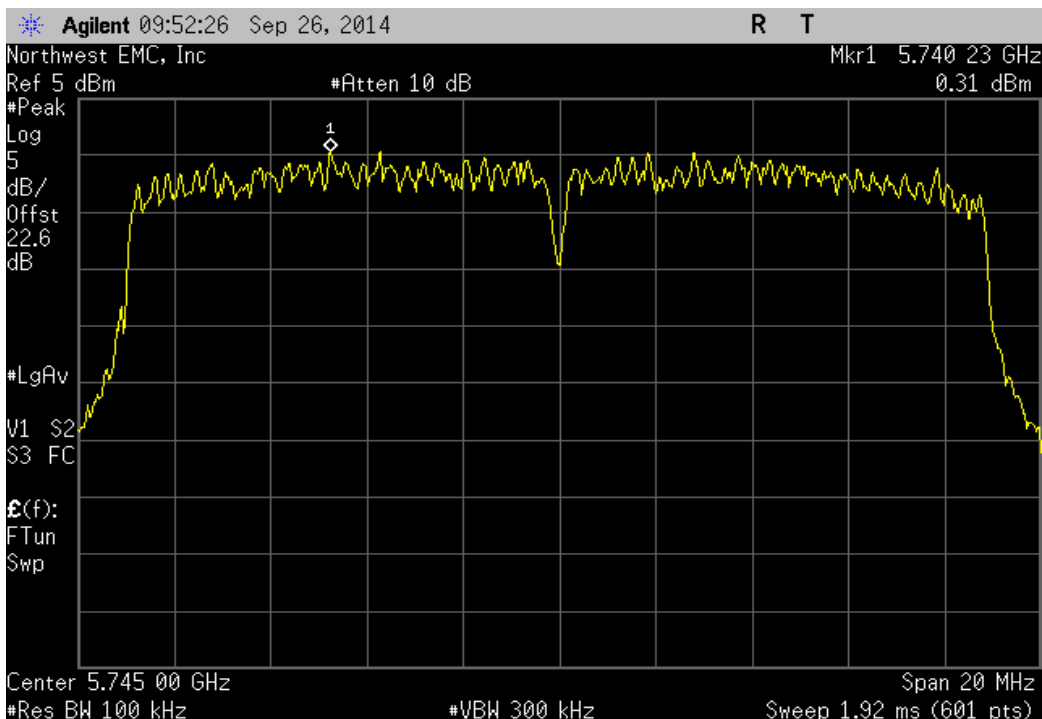
5725 MHz - 5850 MHz Band, 802.11(n) MCS0 - UNII, High Channel 165, 5825 MHz

	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	5.116	-15.2	-10.084	8	Pass



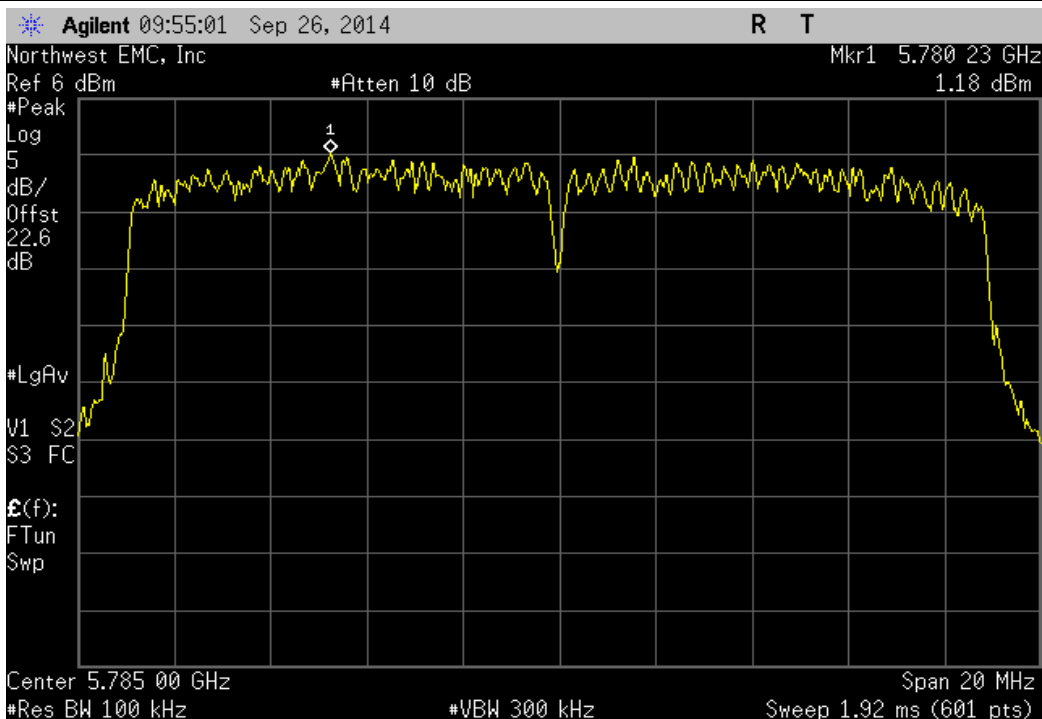
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Low Channel 149, 5745 MHz

	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	0.308	-15.2	-14.892	8	Pass



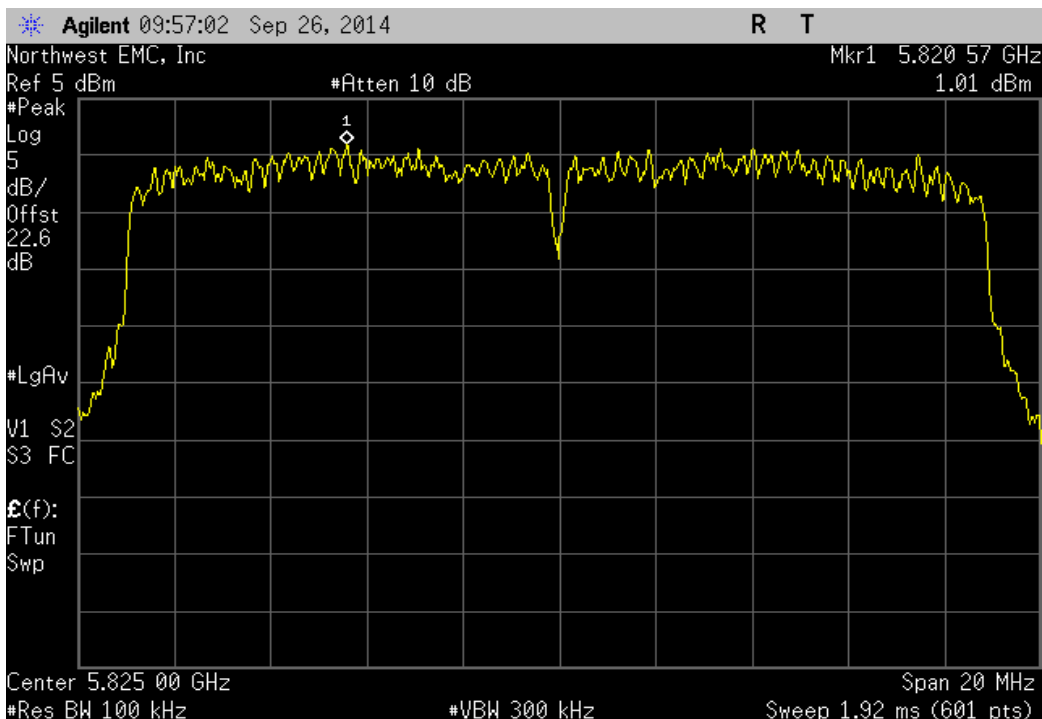
5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, Mid Channel 157, 5785 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
1.182	-15.2	-14.018	8	Pass



5725 MHz - 5850 MHz Band, 802.11(n) MCS7 - UNII, High Channel 165, 5825 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
1.012	-15.2	-14.188	8	Pass





DUTY CYCLE

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

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

The EUT operates at 100% Duty Cycle.