

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 (mos)
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. 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.

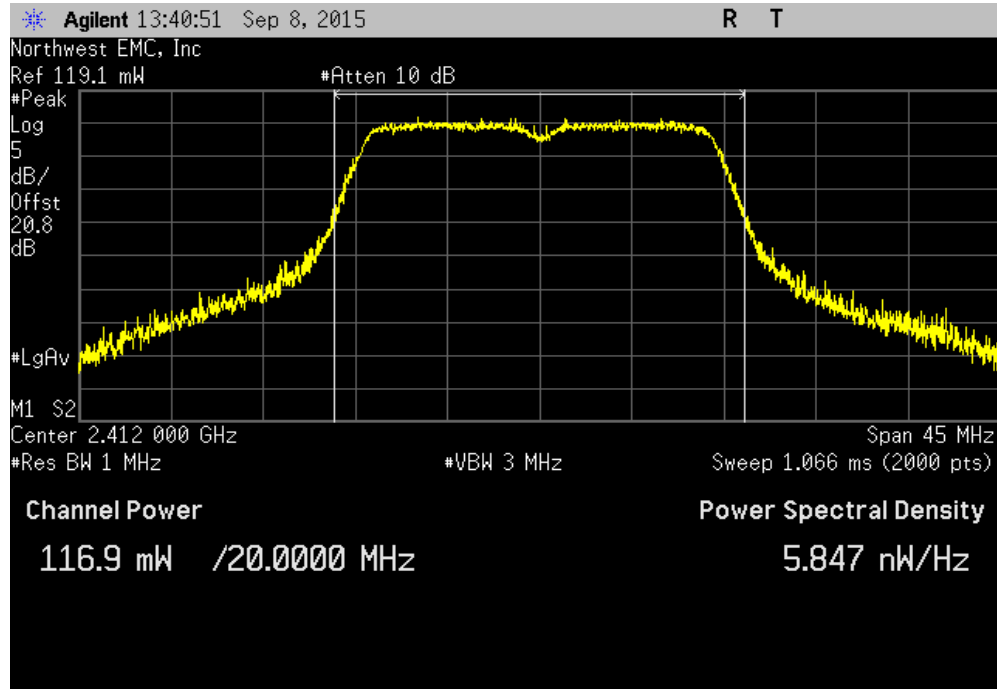
OUTPUT POWER

EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009	
Serial Number: 70AF02717-B385		Date: 09/08/15	
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C	
Attendees: None		Humidity: 44%	
Project: None		Barometric Pres.: 1015 mbar	
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz	Job Site: TX09
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2013	
COMMENTS			
2x2 MIMO mode, Chain BC (Chains 1 and 2).			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature <i>Jonathan Kiefer</i>	
		Value	Limit (<)
			Result
Chain B			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
Low Channel 1, 2412 MHz		116.941 mW	1 W
Mid Channel 6, 2437 MHz		106.459 mW	1 W
High Channel 11, 2462 MHz		86.474 mW	1 W
802.11(n) MCS15			
Low Channel 1, 2412 MHz		44.414 mW	1 W
Mid Channel 6, 2437 MHz		36.318 mW	1 W
High Channel 11, 2462 MHz		32.57 mW	1 W
Chain C			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
Low Channel 1, 2412 MHz		107.96 mW	1 W
Mid Channel 6, 2437 MHz		102.908 mW	1 W
High Channel 11, 2462 MHz		96.793 mW	1 W
802.11(n) MCS15			
Low Channel 1, 2412 MHz		35.919 mW	1 W
Mid Channel 6, 2437 MHz		38.903 mW	1 W
High Channel 11, 2462 MHz		32.309 mW	1 W
Power Summing, Chain BC			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8		Chain B (mW)	Chain C (mW)
Low Channel 1, 2412 MHz		116.941	107.96
Mid Channel 6, 2437 MHz		106.459	102.908
High Channel 11, 2462 MHz		86.474	96.793
802.11(n) MCS15			
Low Channel 1, 2412 MHz		44.414	35.919
Mid Channel 6, 2437 MHz		36.318	38.903
High Channel 11, 2462 MHz		32.57	32.309
			Summed Power (dBm)
			23.51991386
			23.2090823
			22.63084271
			Limit (dBm)
			30
			30
			30
			Result
			Pass
			Pass
			Pass

OUTPUT POWER

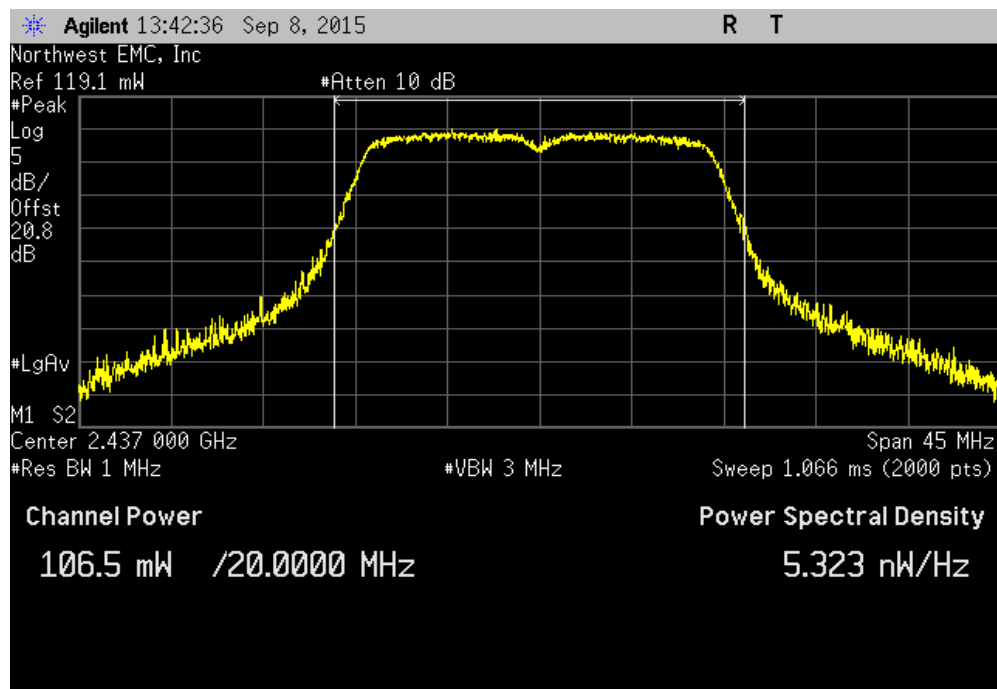
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	116.941 mW	1 W	Pass



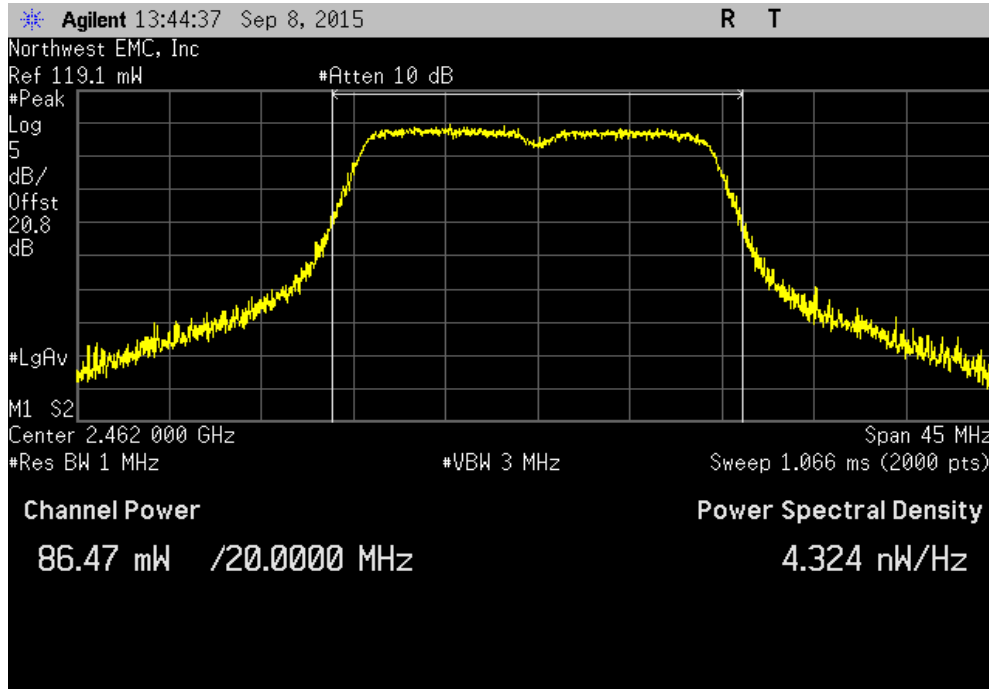
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	106.459 mW	1 W	Pass

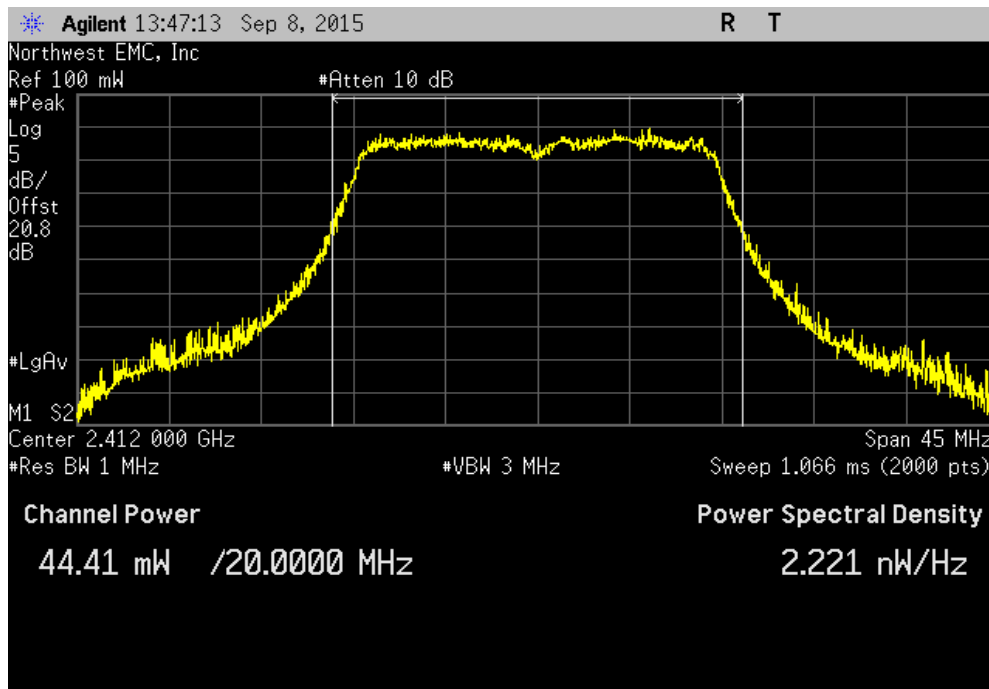


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Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				86.474 mW	1 W	Pass



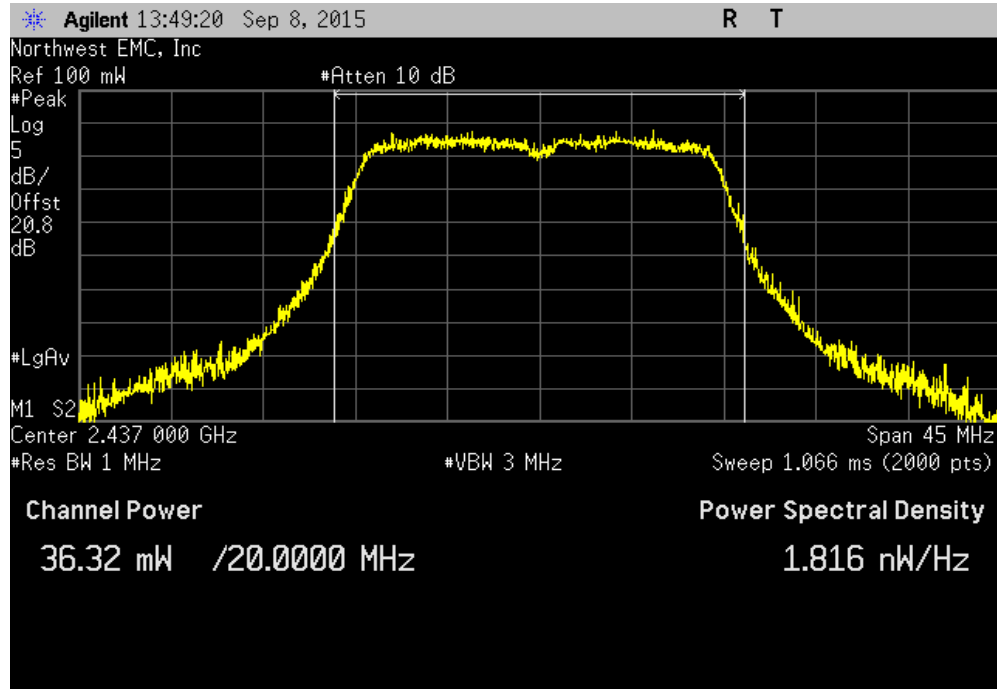
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				44.414 mW	1 W	Pass



OUTPUT POWER

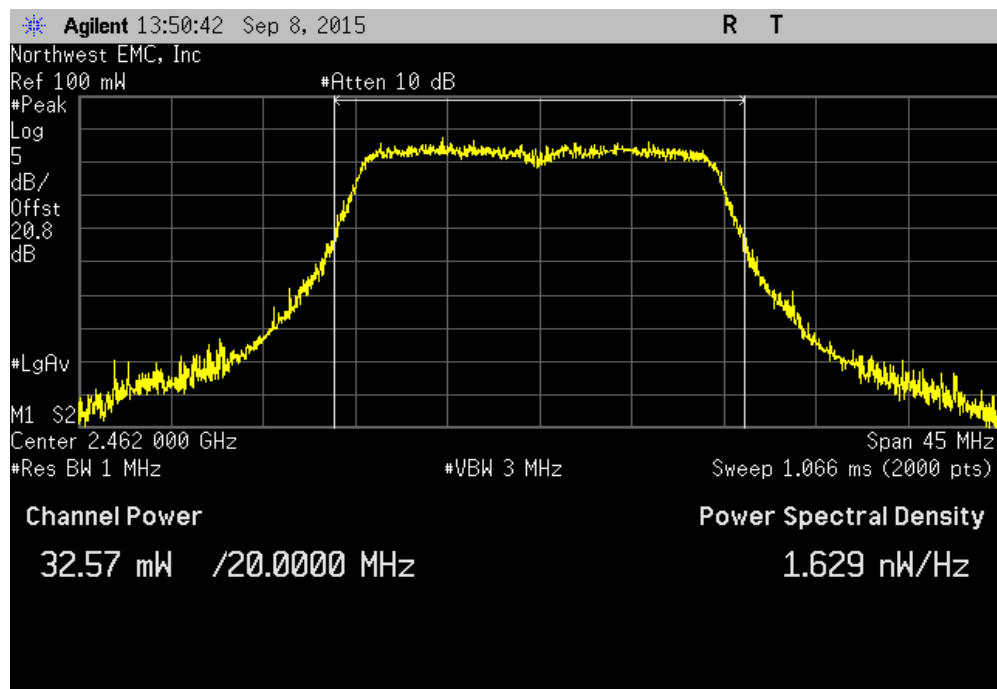
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	36.318 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz

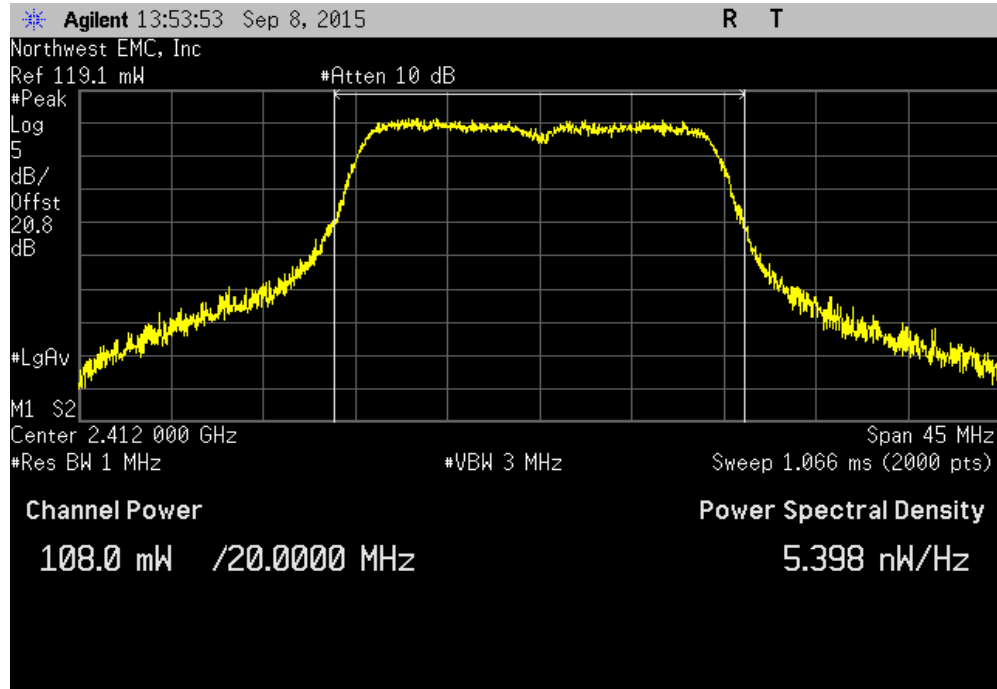
	Value	Limit (<)	Result
	32.57 mW	1 W	Pass



OUTPUT POWER

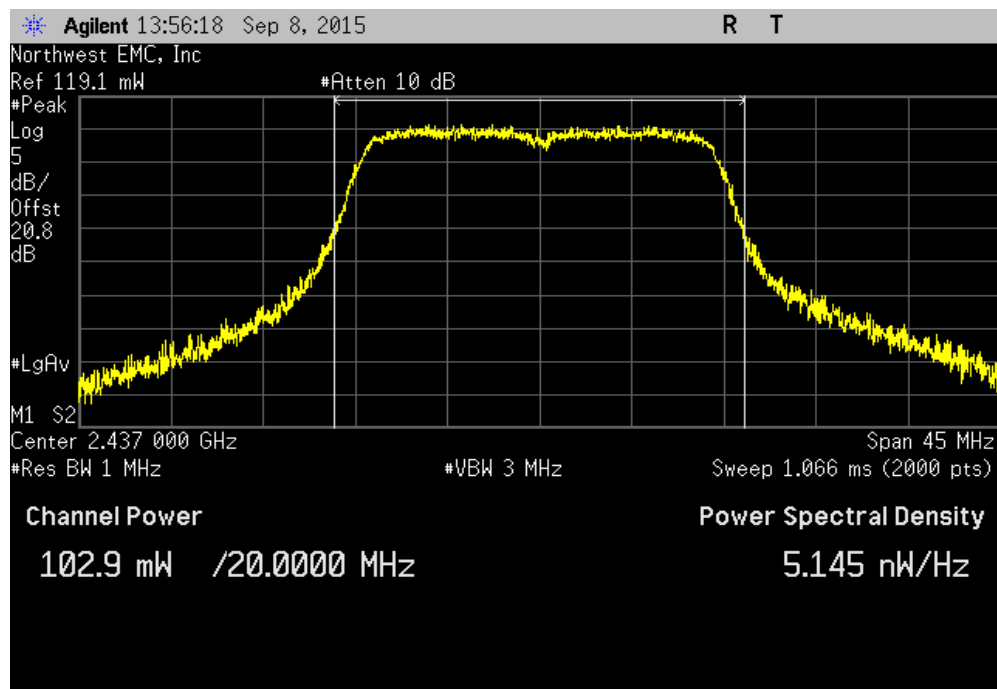
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz

				Value	Limit	Result
				(<)		
				107.96 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz

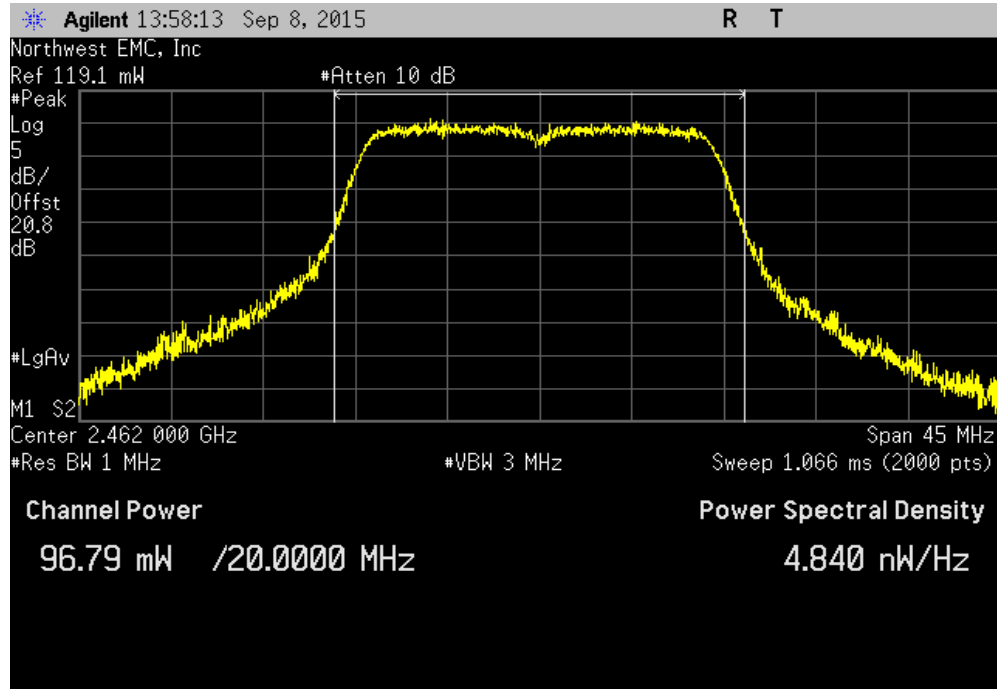
				Value	Limit	Result
				(<)		
				102.908 mW	1 W	Pass



OUTPUT POWER

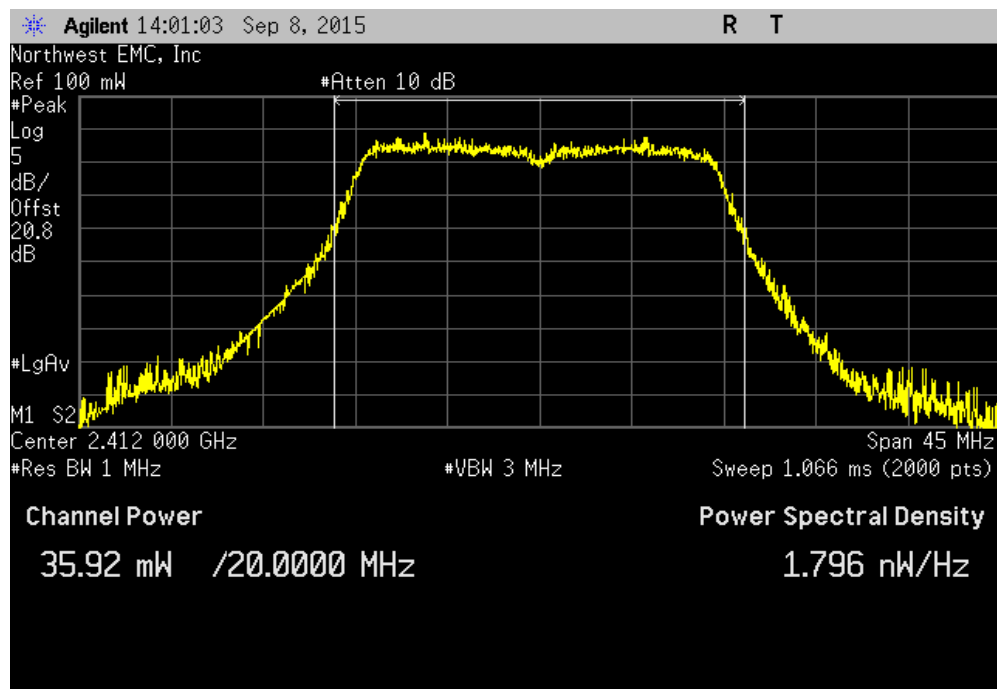
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz

	Value	Limit	Result
	96.793 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz

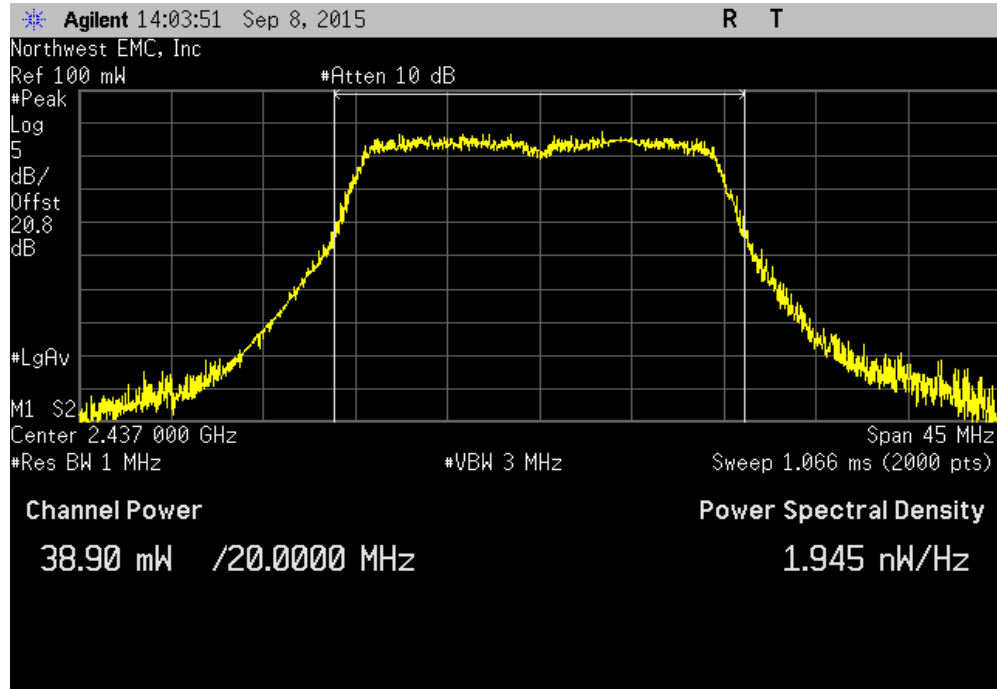
	Value	Limit	Result
	35.919 mW	1 W	Pass



OUTPUT POWER

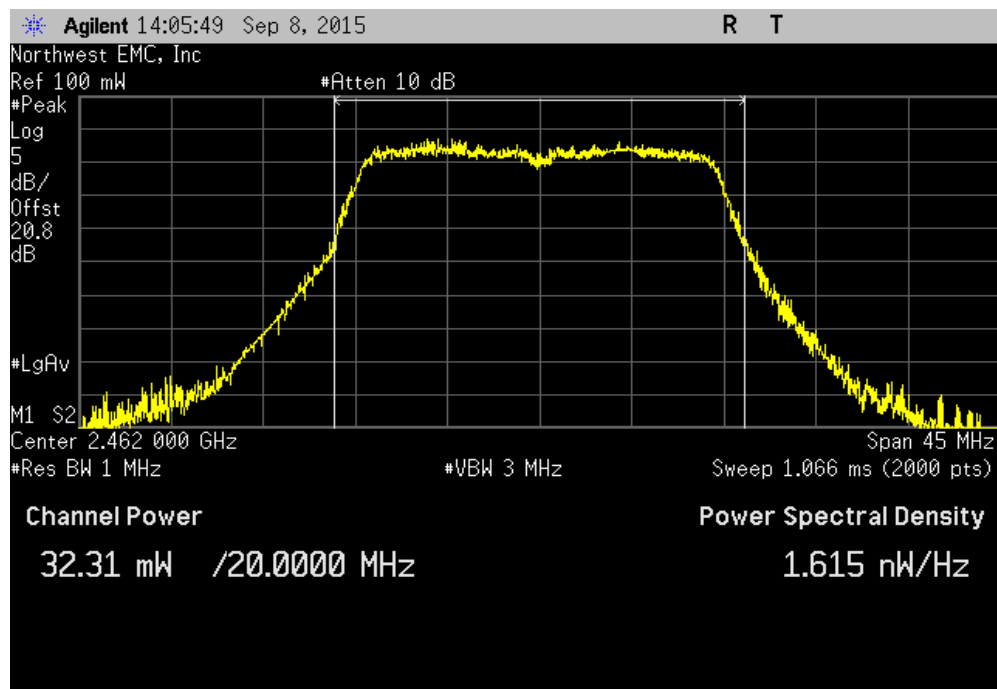
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				(<)		
				38.903 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz

				Value	Limit	Result
				(<)		
				32.309 mW	1 W	Pass



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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 (mos)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. 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.

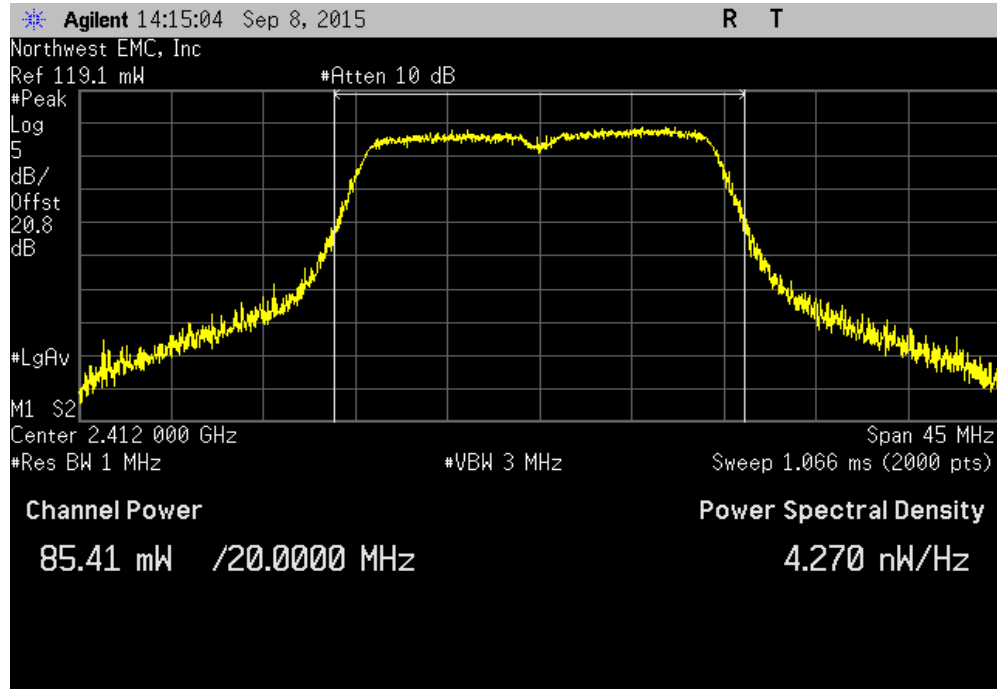
OUTPUT POWER

EUT:	Firebox T50-W (BS5AE7W)		Work Order:		VDEI0009		
Serial Number:	70AF02717-B385		Date:		09/08/15		
Customer:	WatchGuard Technologies, Inc.		Temperature:		24.2°C		
Attendees:	None		Humidity:		44%		
Project:	None		Barometric Pres.:		1015 mbar		
Tested by:	Jonathan Kiefer	Power:	110VAC/60Hz	Job Site:	TX09		
TEST SPECIFICATIONS			Test Method				
FCC 15.247:2015			ANSI C63.10:2013				
COMMENTS							
3x3 MIMO mode, Chain ABC (Chains 0, 1, and 2).							
DEVIATIONS FROM TEST STANDARD							
None							
Configuration #	5	Signature <i>Jonathan Kiefer</i>					
			Value	Limit (<)	Result		
Chain A							
20 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(n) MCS16							
Low Channel 1, 2412 MHz			85.406 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			83.04 mW	1 W	Pass		
High Channel 11, 2462 MHz			86.485 mW	1 W	Pass		
802.11(n) MCS23							
Low Channel 1, 2412 MHz			24.86 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			27.416 mW	1 W	Pass		
High Channel 11, 2462 MHz			29.131 mW	1 W	Pass		
Chain B							
20 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(n) MCS16							
Low Channel 1, 2412 MHz			130.82 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			96.045 mW	1 W	Pass		
High Channel 11, 2462 MHz			98.419 mW	1 W	Pass		
802.11(n) MCS23							
Low Channel 1, 2412 MHz			38.474 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			35.914 mW	1 W	Pass		
High Channel 11, 2462 MHz			29.451 mW	1 W	Pass		
Chain C							
20 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(n) MCS16							
Low Channel 1, 2412 MHz			105.991 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			90.617 mW	1 W	Pass		
High Channel 11, 2462 MHz			100.997 mW	1 W	Pass		
802.11(n) MCS23							
Low Channel 1, 2412 MHz			27.973 mW	1 W	Pass		
Mid Channel 6, 2437 MHz			30.734 mW	1 W	Pass		
High Channel 11, 2462 MHz			31.053 mW	1 W	Pass		
Power Summing, Chain ABC							
20 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(n) MCS16		Chain A (mW)	Chain B (mW)	Chain C (mW)	Summed Power (dBm)	Limit (dBm)	Result
		85.406	130.82	105.991	25.0814845	30	Pass
		93.04	96.045	90.617	24.46695572	30	Pass
		86.485	98.419	100.997	24.56215674	30	Pass
802.11(n) MCS23							
		24.86	38.474	27.973	19.60504074	30	Pass
		27.416	35.914	30.734	19.73423443	30	Pass
		29.131	29.451	31.053	19.52477623	30	Pass

OUTPUT POWER

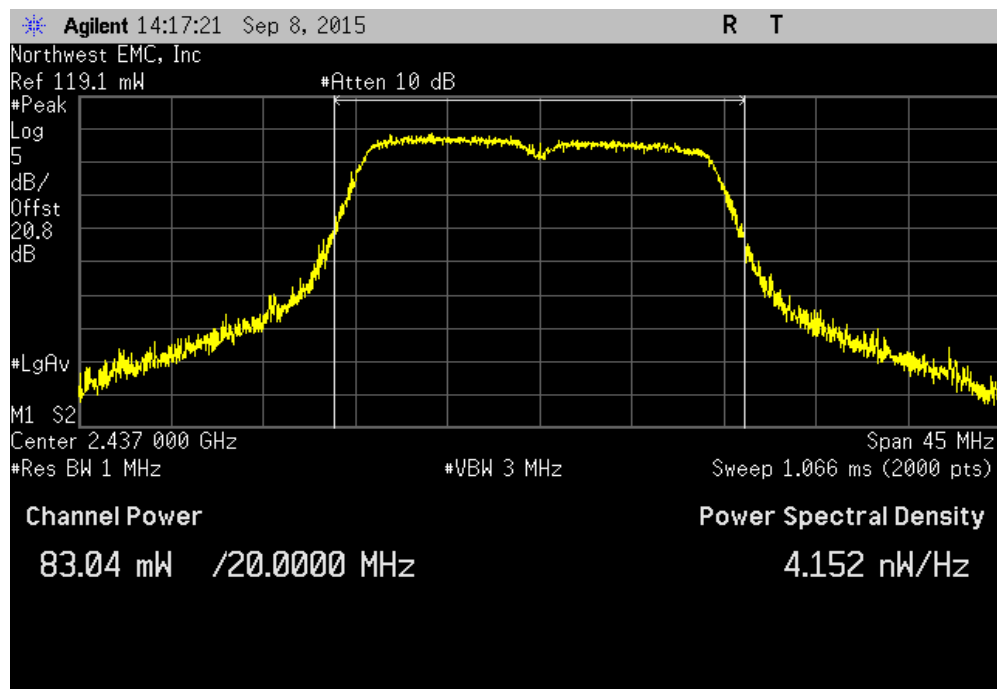
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	85.406 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz

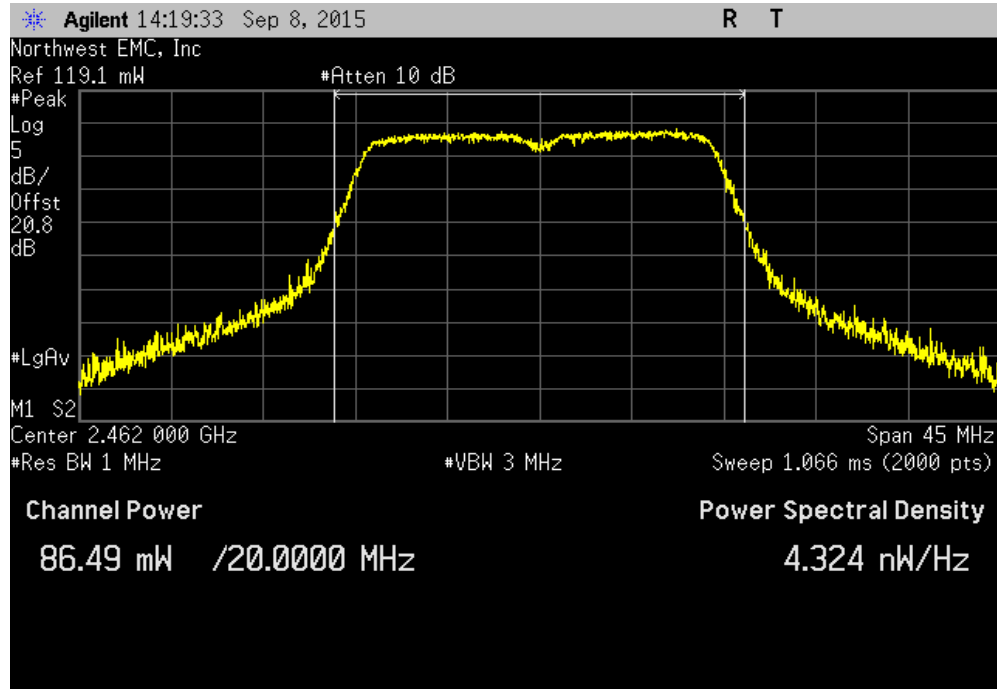
	Value	Limit (<)	Result
	83.04 mW	1 W	Pass



OUTPUT POWER

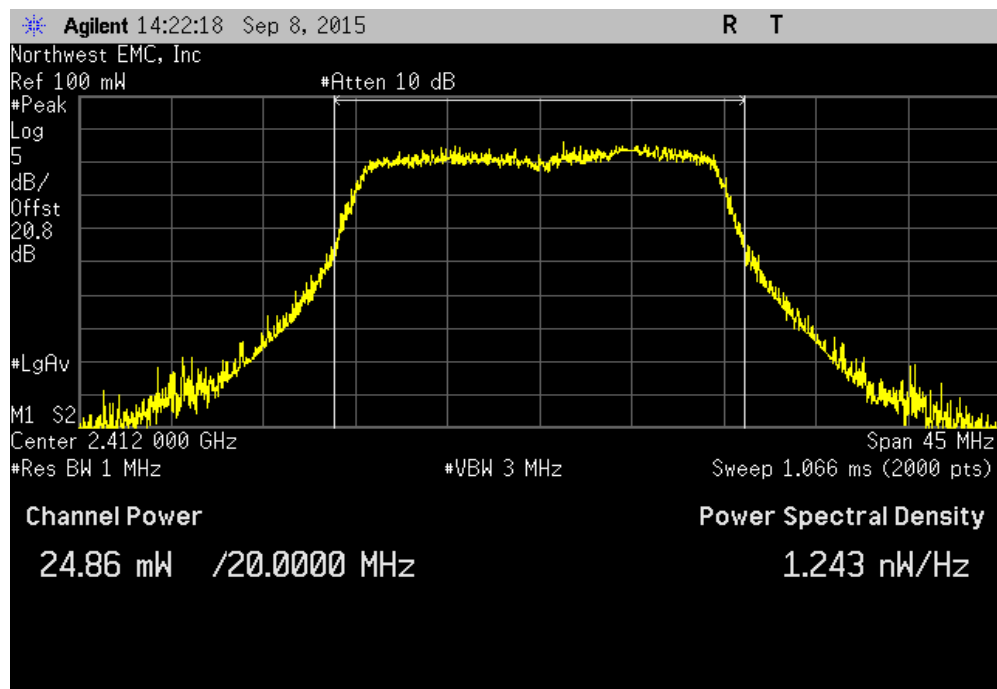
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz

	Value	Limit	Result
	86.485 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz

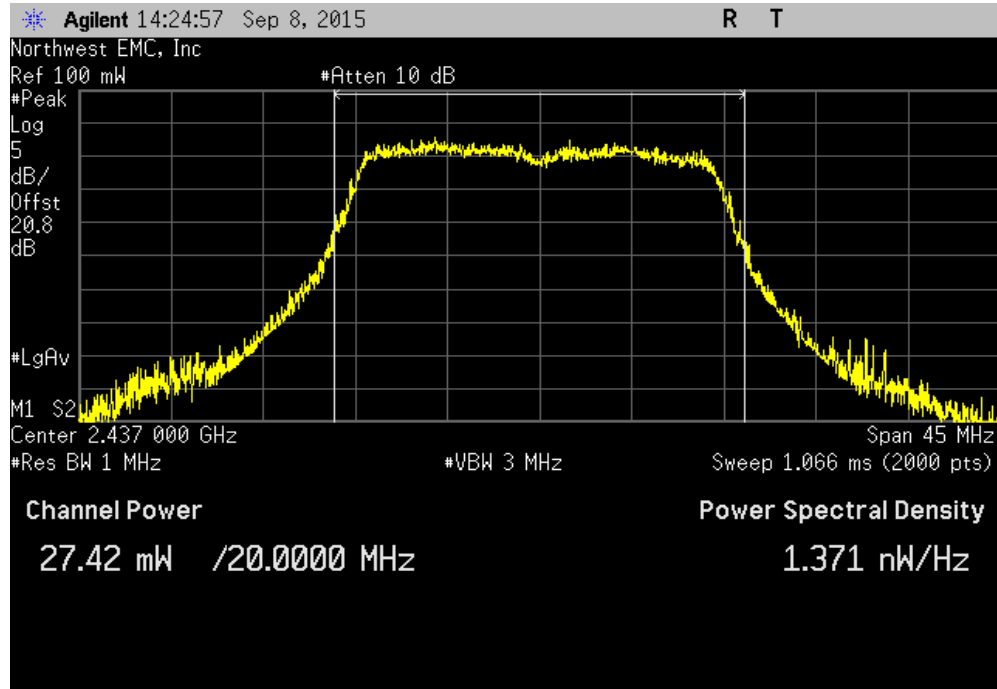
	Value	Limit	Result
	24.86 mW	1 W	Pass



OUTPUT POWER

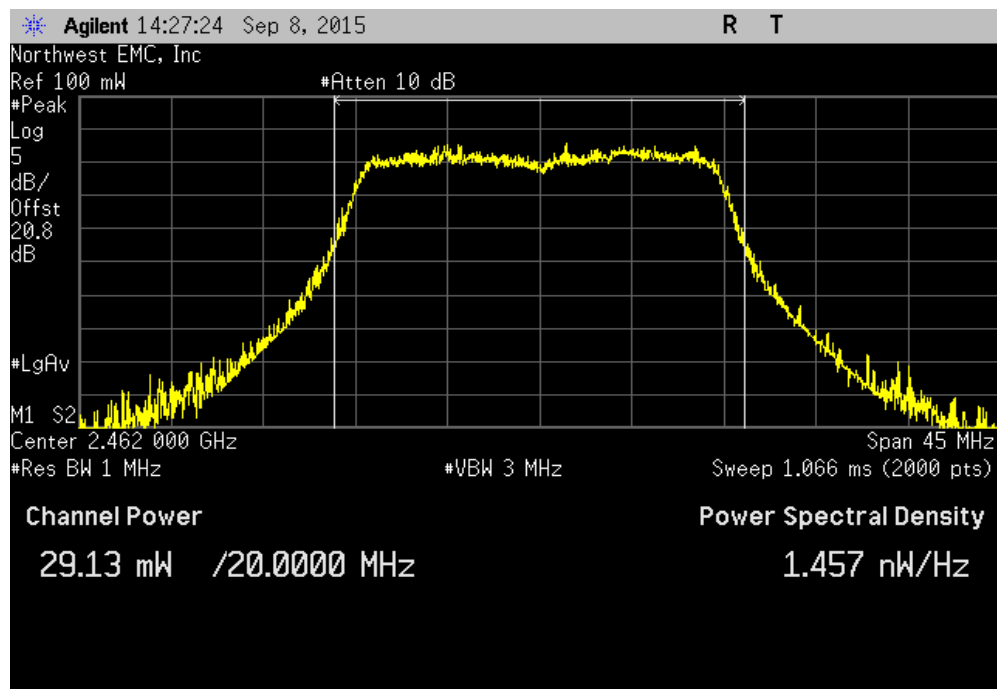
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
27.416 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz

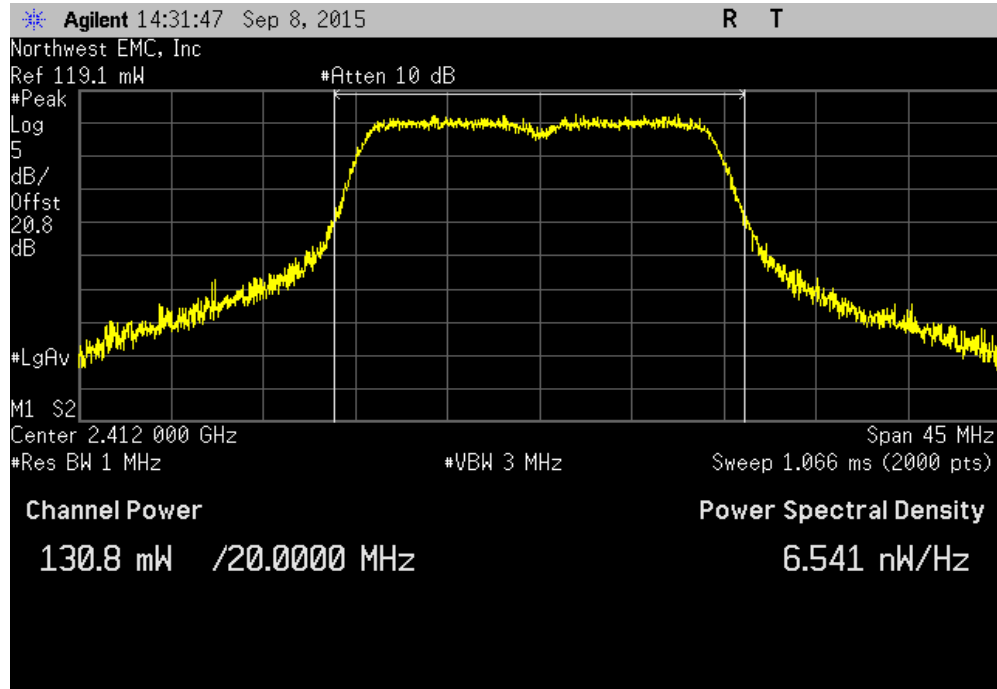
Value	Limit (<)	Result
29.131 mW	1 W	Pass



OUTPUT POWER

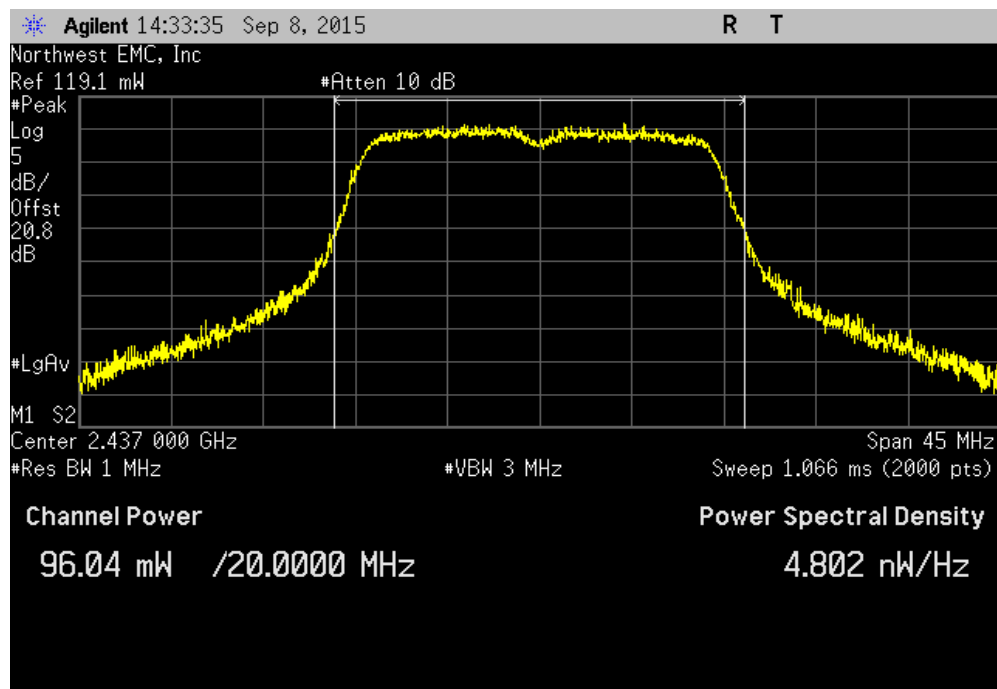
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	130.82 mW	1 W	Pass



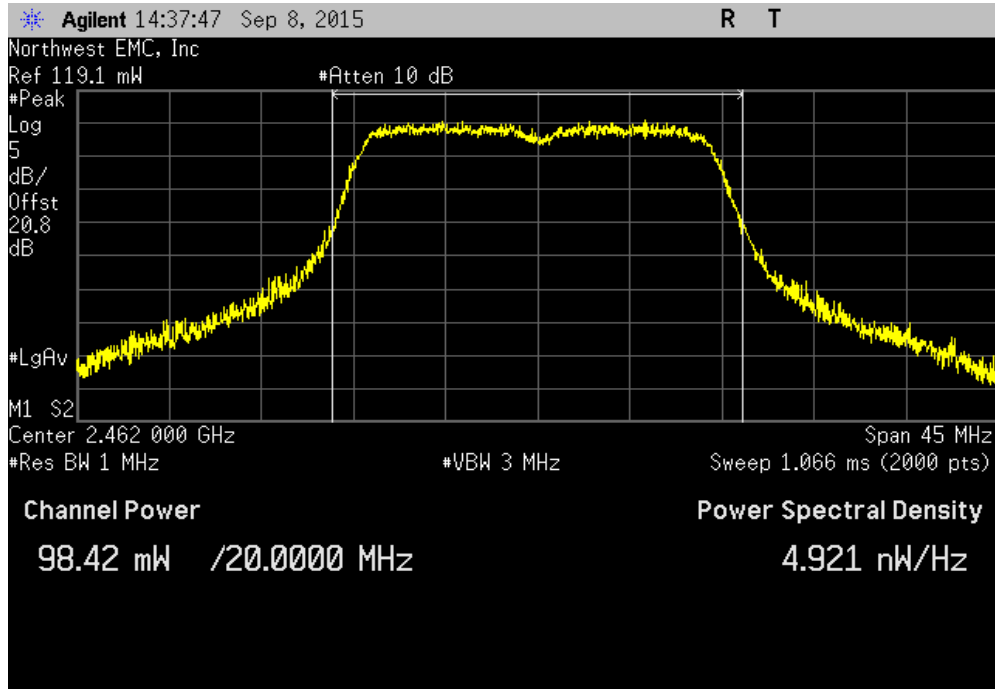
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	96.045 mW	1 W	Pass

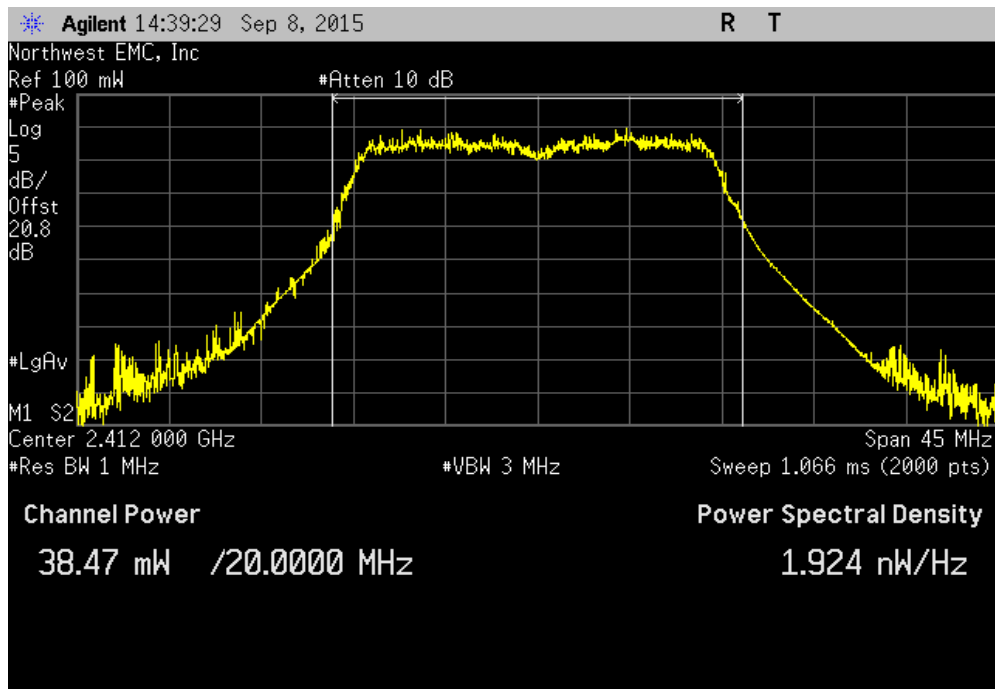


OUTPUT POWER

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				98.419 mW	1 W	Pass



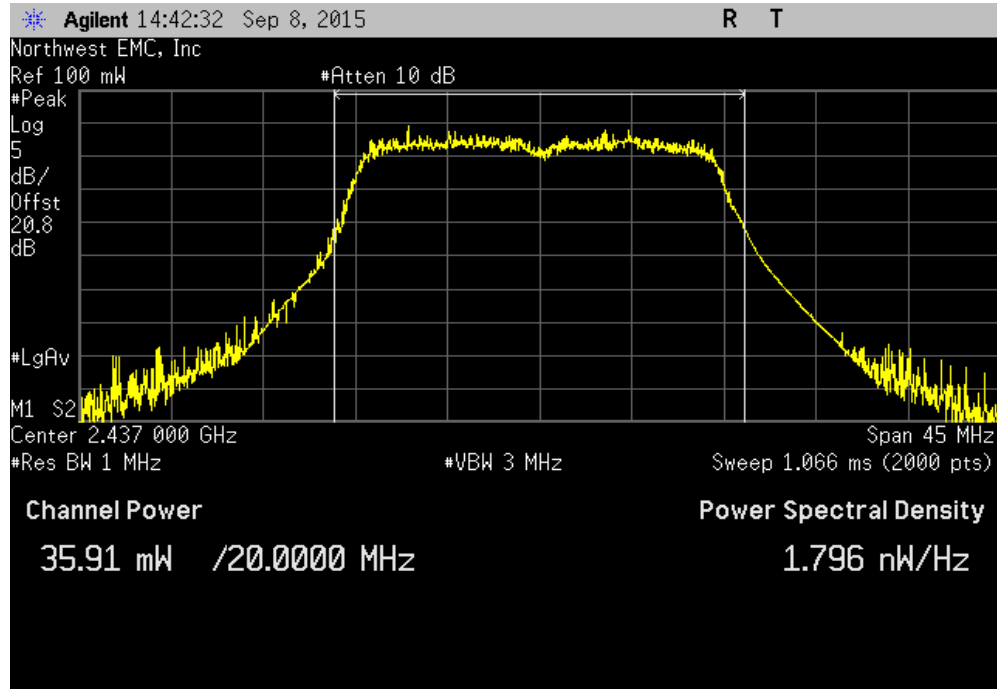
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				38.474 mW	1 W	Pass



OUTPUT POWER

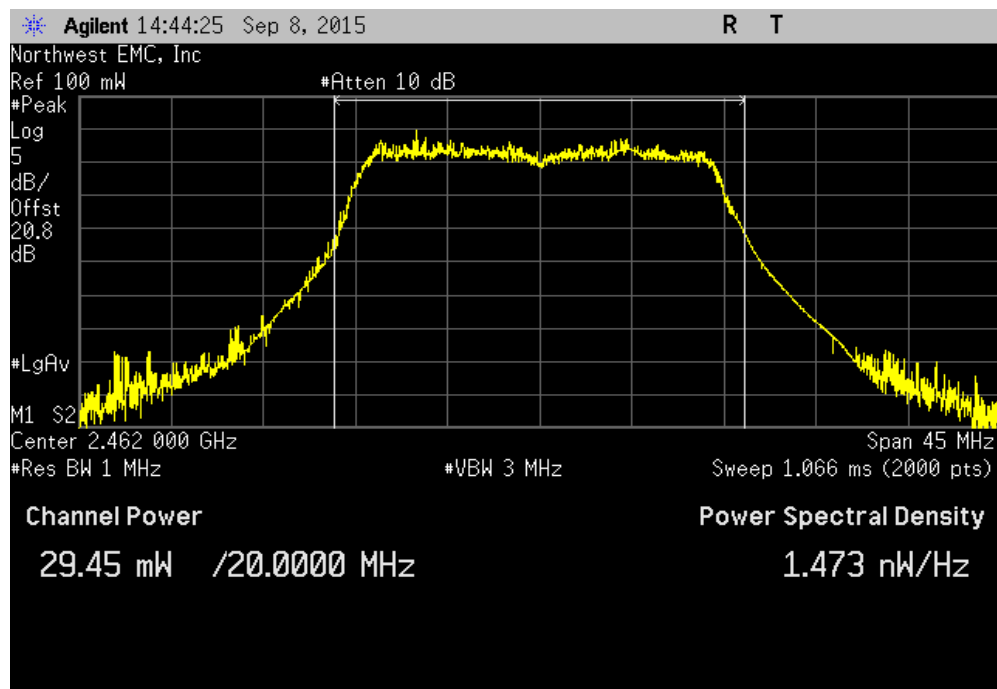
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz

				Value	Limit	Result
				(<)		
				35.914 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz

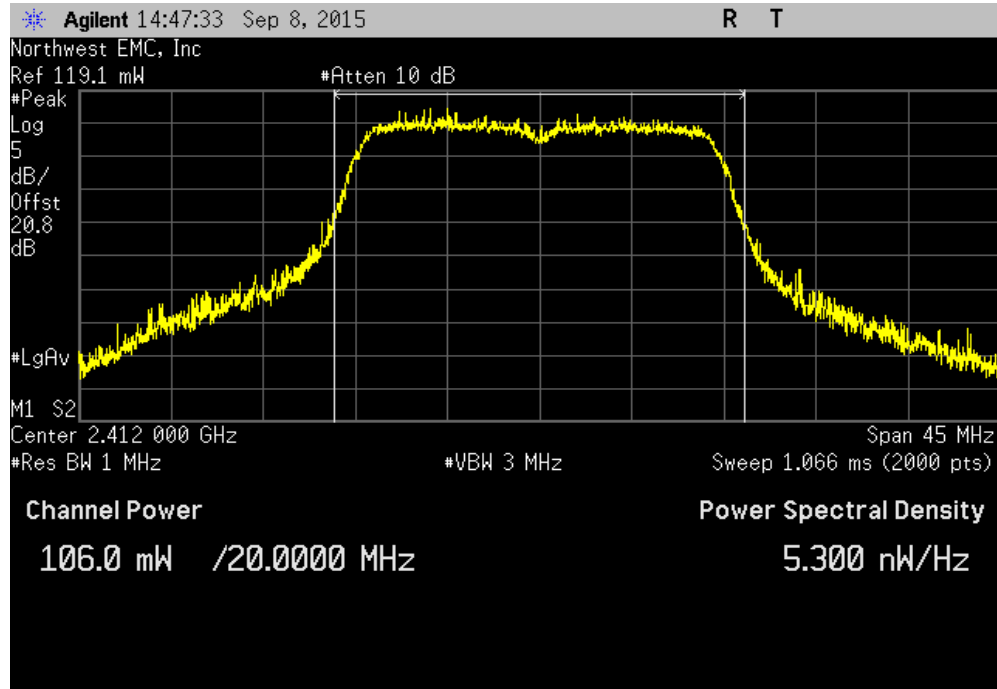
				Value	Limit	Result
				(<)		
				29.451 mW	1 W	Pass



OUTPUT POWER

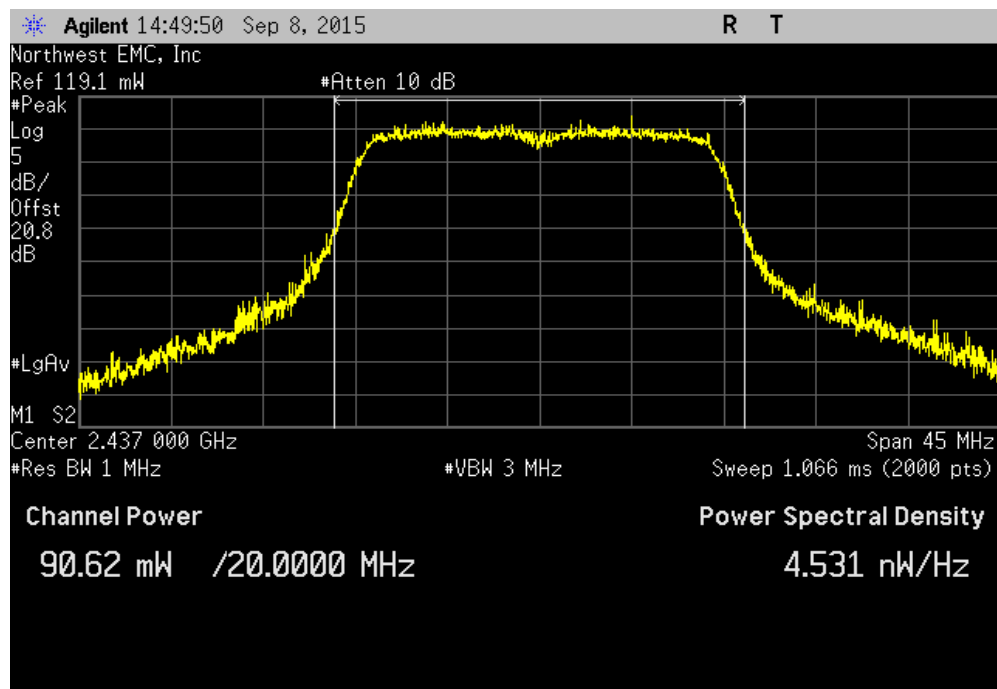
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	105.991 mW	1 W	Pass



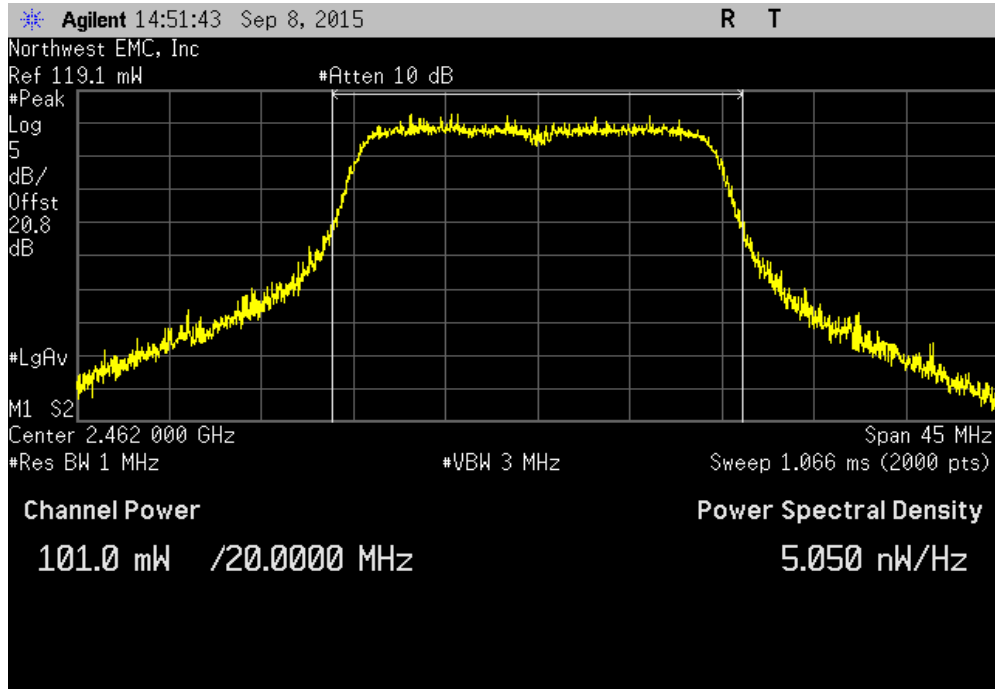
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	90.617 mW	1 W	Pass

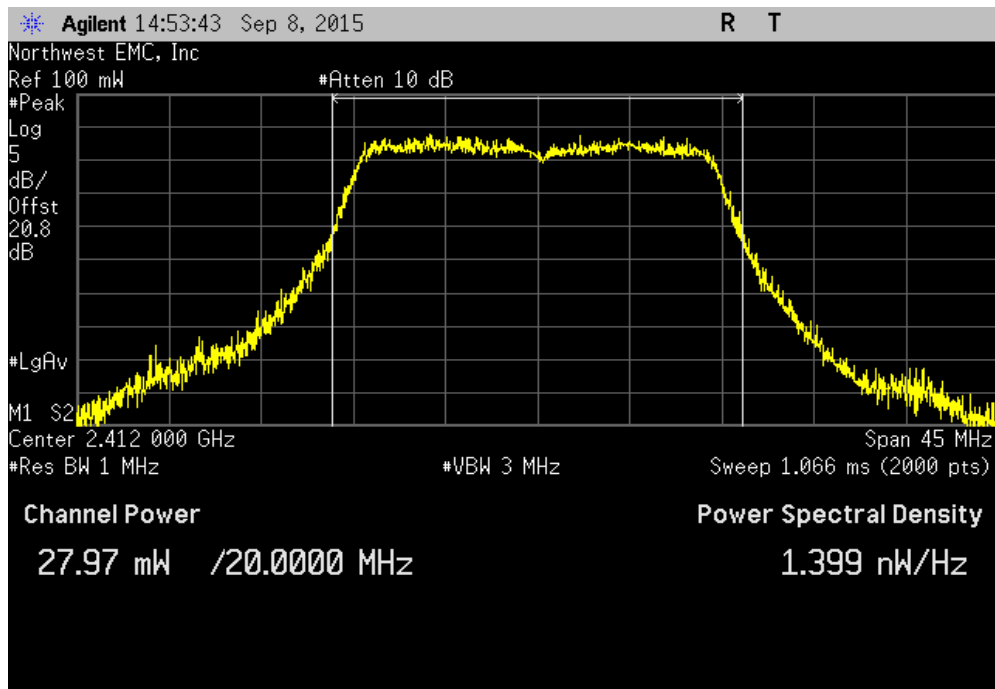


OUTPUT POWER

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				100.997 mW	1 W	Pass



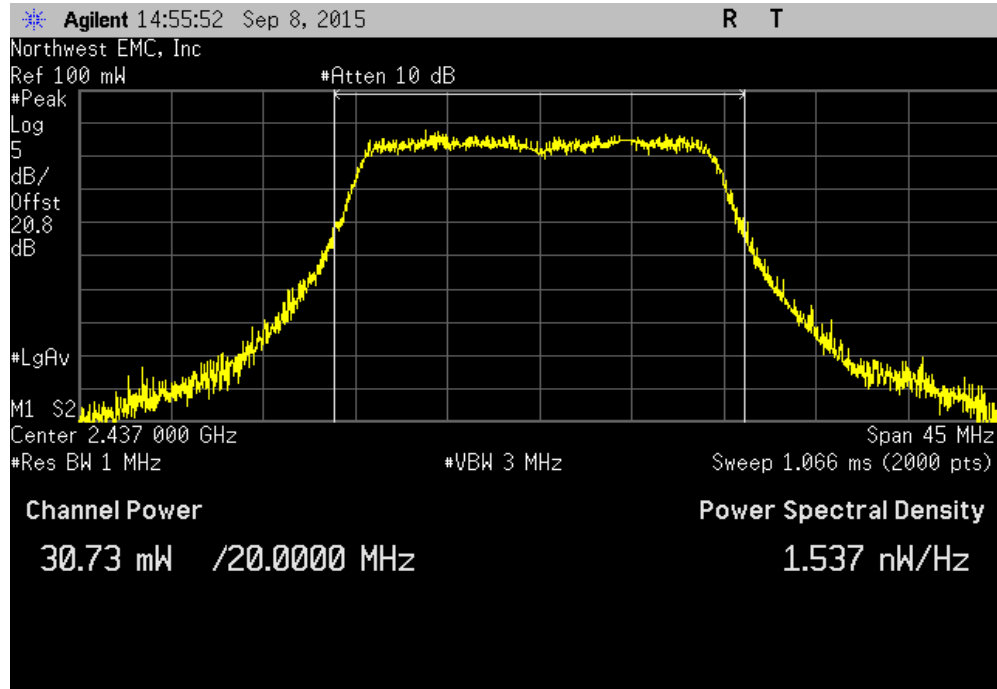
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				27.973 mW	1 W	Pass



OUTPUT POWER

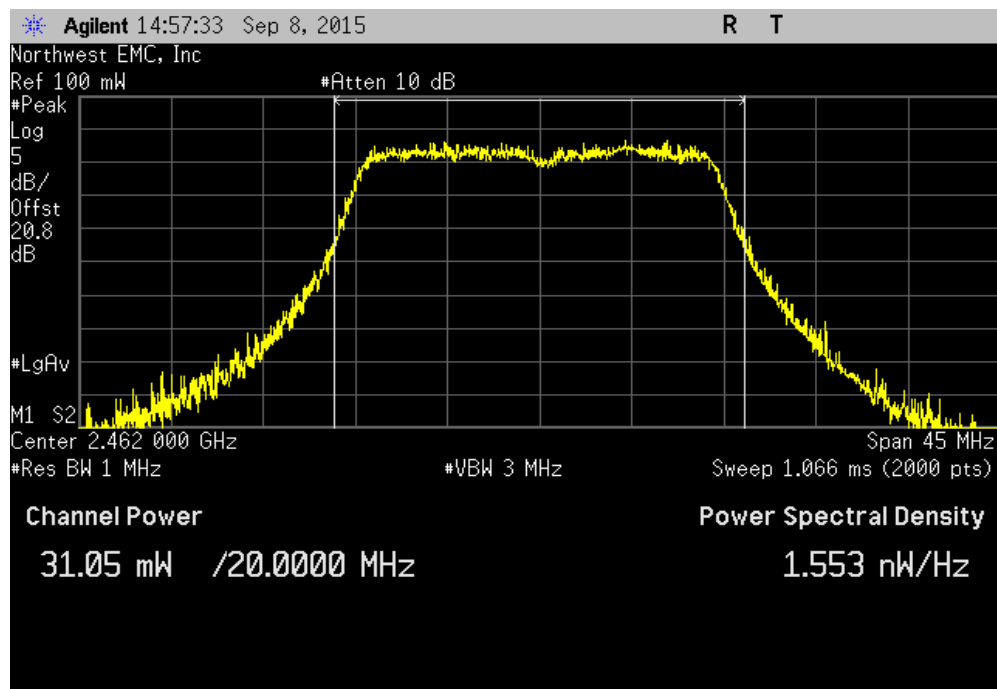
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz

Value	Limit (<)	Result
30.734 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz

Value	Limit (<)	Result
31.053 mW	1 W	Pass



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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 (mos)
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to a value specified in the RF power table. 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



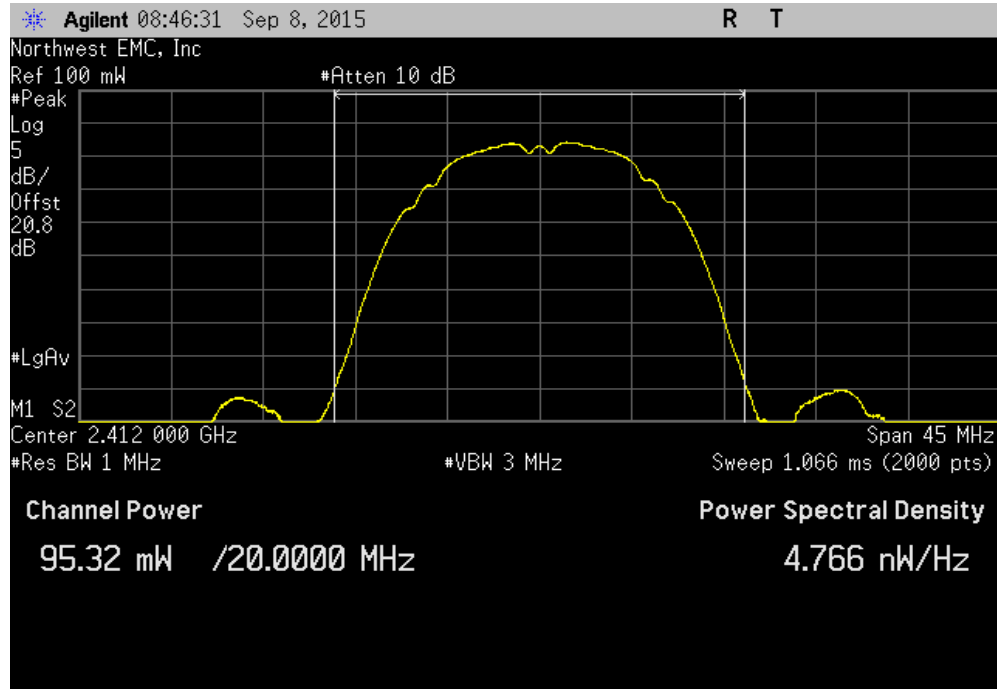
XMit 2015.01.14

EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009
Serial Number: 70AF02717-B385		Date: 09/08/15
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C
Attendees: None		Humidity: 44%
Project: None		Barometric Pres.: 1015 mbar
Tested by: Jonathan Kiefer	Power: 110VAC/60Hz	Job Site: TX09
TEST SPECIFICATIONS		Test Method
FCC 15.247:2015		ANSI C63.10:2013
COMMENTS		
Reference RF power table for channel power setting. Chains A, B, and C correspond to Chain 0, 1, and 2 respectively.		
DEVIATIONS FROM TEST STANDARD		
None		
Configuration #	5	Signature <i>Jonathan Kiefer</i>
		Value Limit (<) Result
Chain A		
20 MHz		
2400 MHz - 2483.5 MHz Band		
802.11(b) 1 Mbps		
Low Channel 1, 2412 MHz		95.317 mW 1 W Pass
Mid Channel 6, 2437 MHz		96.019 mW 1 W Pass
High Channel 11, 2462 MHz		98.456 mW 1 W Pass
802.11(b) 11 Mbps		
Low Channel 1, 2412 MHz		79.388 mW 1 W Pass
Mid Channel 6, 2437 MHz		91.698 mW 1 W Pass
High Channel 11, 2462 MHz		89.169 mW 1 W Pass
802.11(g) 6 Mbps		
Low Channel 1, 2412 MHz		91.989 mW 1 W Pass
Mid Channel 6, 2437 MHz		80.118 mW 1 W Pass
High Channel 11, 2462 MHz		87.044 mW 1 W Pass
802.11(g) 36 Mbps		
Low Channel 1, 2412 MHz		79.796 mW 1 W Pass
Mid Channel 6, 2437 MHz		78.215 mW 1 W Pass
High Channel 11, 2462 MHz		75.581 mW 1 W Pass
802.11(g) 54 Mbps		
Low Channel 1, 2412 MHz		40.755 mW 1 W Pass
Mid Channel 6, 2437 MHz		45.718 mW 1 W Pass
High Channel 11, 2462 MHz		39.716 mW 1 W Pass
802.11(n) MCS0		
Low Channel 1, 2412 MHz		91.729 mW 1 W Pass
Mid Channel 6, 2437 MHz		78.918 mW 1 W Pass
High Channel 11, 2462 MHz		92.166 mW 1 W Pass
802.11(n) MCS7		
Low Channel 1, 2412 MHz		41.89 mW 1 W Pass
Mid Channel 6, 2437 MHz		43.217 mW 1 W Pass
High Channel 11, 2462 MHz		43.143 mW 1 W Pass
Chain B		
20 MHz		
2400 MHz - 2483.5 MHz Band		
802.11(b) 1 Mbps		
Low Channel 1, 2412 MHz		144.249 mW 1 W Pass
Mid Channel 6, 2437 MHz		124.659 mW 1 W Pass
High Channel 11, 2462 MHz		114.381 mW 1 W Pass
802.11(b) 11 Mbps		
Low Channel 1, 2412 MHz		140.409 mW 1 W Pass
Mid Channel 6, 2437 MHz		118.789 mW 1 W Pass
High Channel 11, 2462 MHz		96.502 mW 1 W Pass
802.11(g) 6 Mbps		
Low Channel 1, 2412 MHz		136.14 mW 1 W Pass
Mid Channel 6, 2437 MHz		108.428 mW 1 W Pass
High Channel 11, 2462 MHz		71.25 mW 1 W Pass
802.11(g) 36 Mbps		
Low Channel 1, 2412 MHz		96.58 mW 1 W Pass
Mid Channel 6, 2437 MHz		92.617 mW 1 W Pass
High Channel 11, 2462 MHz		85.372 mW 1 W Pass
802.11(g) 54 Mbps		
Low Channel 1, 2412 MHz		67.651 mW 1 W Pass
Mid Channel 6, 2437 MHz		56.533 mW 1 W Pass
High Channel 11, 2462 MHz		52.528 mW 1 W Pass
802.11(n) MCS0		
Low Channel 1, 2412 MHz		118.936 mW 1 W Pass
Mid Channel 6, 2437 MHz		104.49 mW 1 W Pass
High Channel 11, 2462 MHz		99.717 mW 1 W Pass
802.11(n) MCS7		
Low Channel 1, 2412 MHz		65.925 mW 1 W Pass
Mid Channel 6, 2437 MHz		57.027 mW 1 W Pass
High Channel 11, 2462 MHz		46.748 mW 1 W Pass
Chain C		
20 MHz		
2400 MHz - 2483.5 MHz Band		
802.11(b) 1 Mbps		
Low Channel 1, 2412 MHz		104.598 mW 1 W Pass
Mid Channel 6, 2437 MHz		121.775 mW 1 W Pass
High Channel 11, 2462 MHz		112.018 mW 1 W Pass
802.11(b) 11 Mbps		
Low Channel 1, 2412 MHz		115.24 mW 1 W Pass
Mid Channel 6, 2437 MHz		93.465 mW 1 W Pass
High Channel 11, 2462 MHz		83.43 mW 1 W Pass
802.11(g) 6 Mbps		
Low Channel 1, 2412 MHz		110.678 mW 1 W Pass
Mid Channel 6, 2437 MHz		117.94 mW 1 W Pass
High Channel 11, 2462 MHz		103.908 mW 1 W Pass
802.11(g) 36 Mbps		
Low Channel 1, 2412 MHz		97.115 mW 1 W Pass
Mid Channel 6, 2437 MHz		99.655 mW 1 W Pass
High Channel 11, 2462 MHz		76.816 mW 1 W Pass
802.11(g) 54 Mbps		
Low Channel 1, 2412 MHz		57.019 mW 1 W Pass
Mid Channel 6, 2437 MHz		57.832 mW 1 W Pass
High Channel 11, 2462 MHz		50.227 mW 1 W Pass
802.11(n) MCS0		
Low Channel 1, 2412 MHz		116.377 mW 1 W Pass
Mid Channel 6, 2437 MHz		103.516 mW 1 W Pass
High Channel 11, 2462 MHz		88.94 mW 1 W Pass
802.11(n) MCS7		
Low Channel 1, 2412 MHz		54.615 mW 1 W Pass
Mid Channel 6, 2437 MHz		55.973 mW 1 W Pass
High Channel 11, 2462 MHz		49.218 mW 1 W Pass

OUTPUT POWER

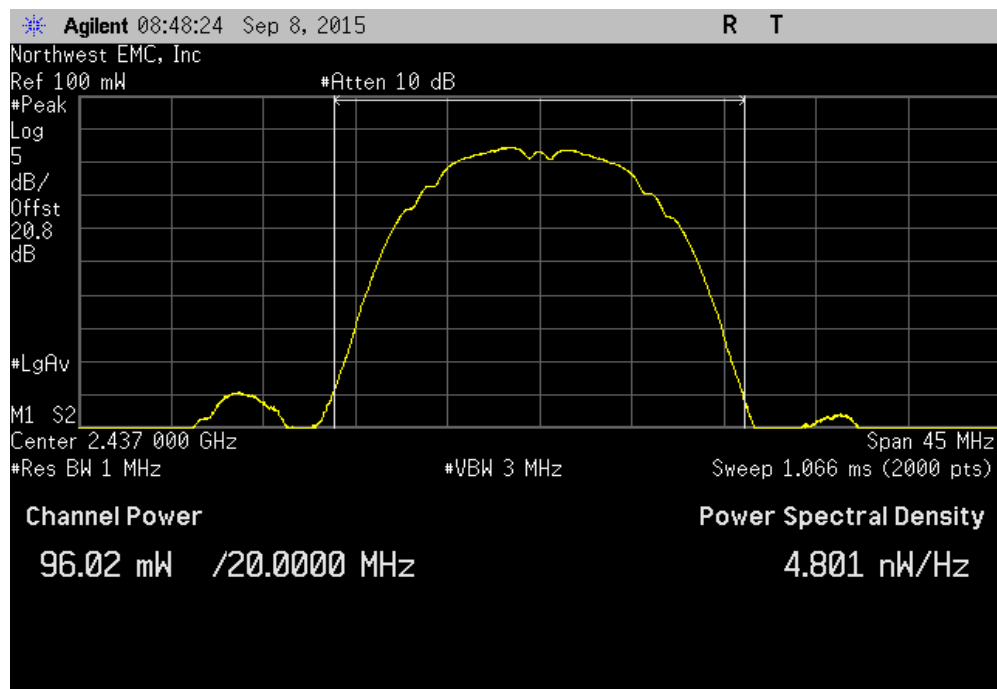
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	95.317 mW	1 W	Pass



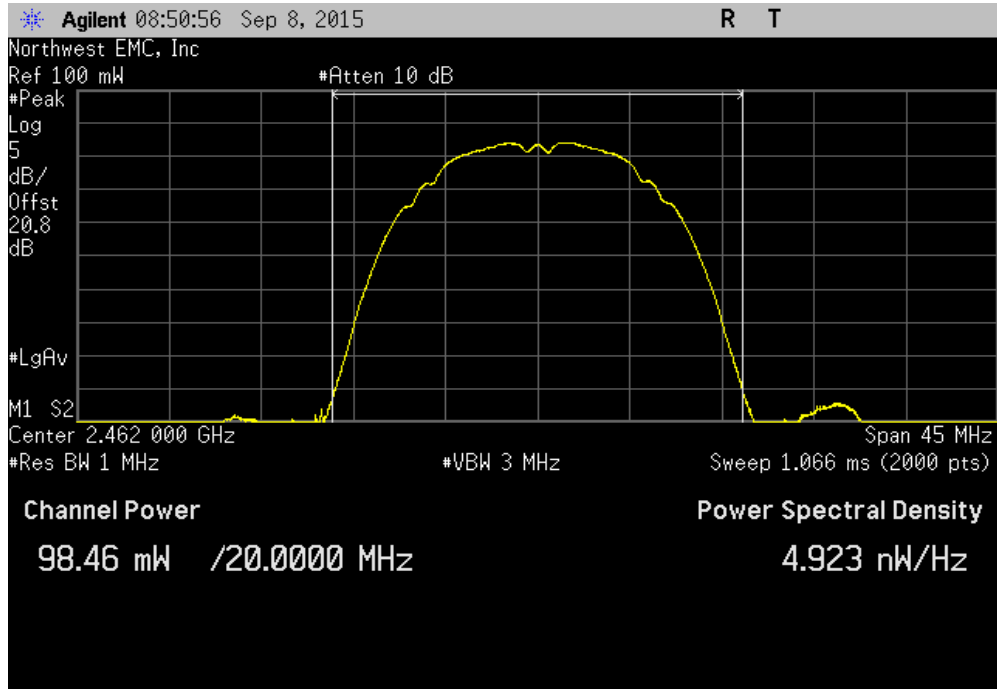
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	96.019 mW	1 W	Pass

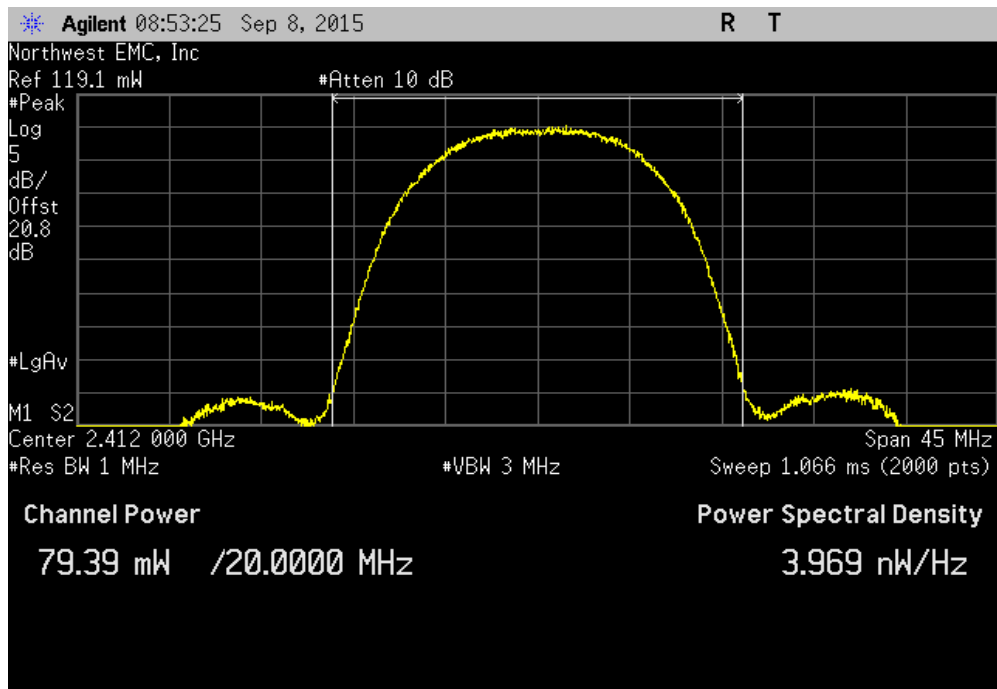


OUTPUT POWER

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				98.456 mW	1 W	Pass



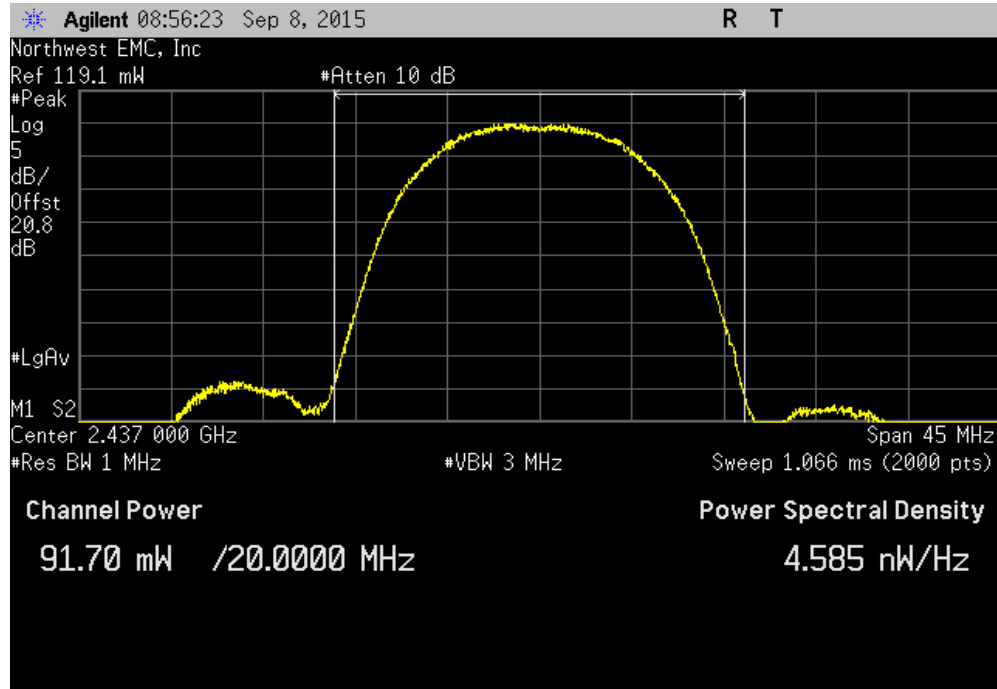
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				79.388 mW	1 W	Pass



OUTPUT POWER

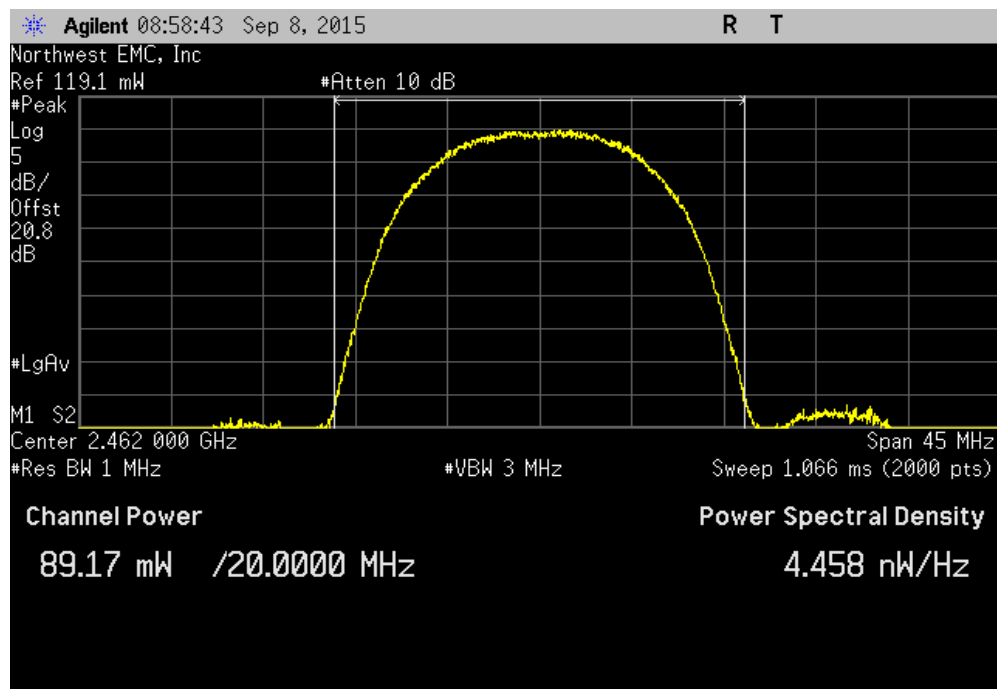
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	91.698 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

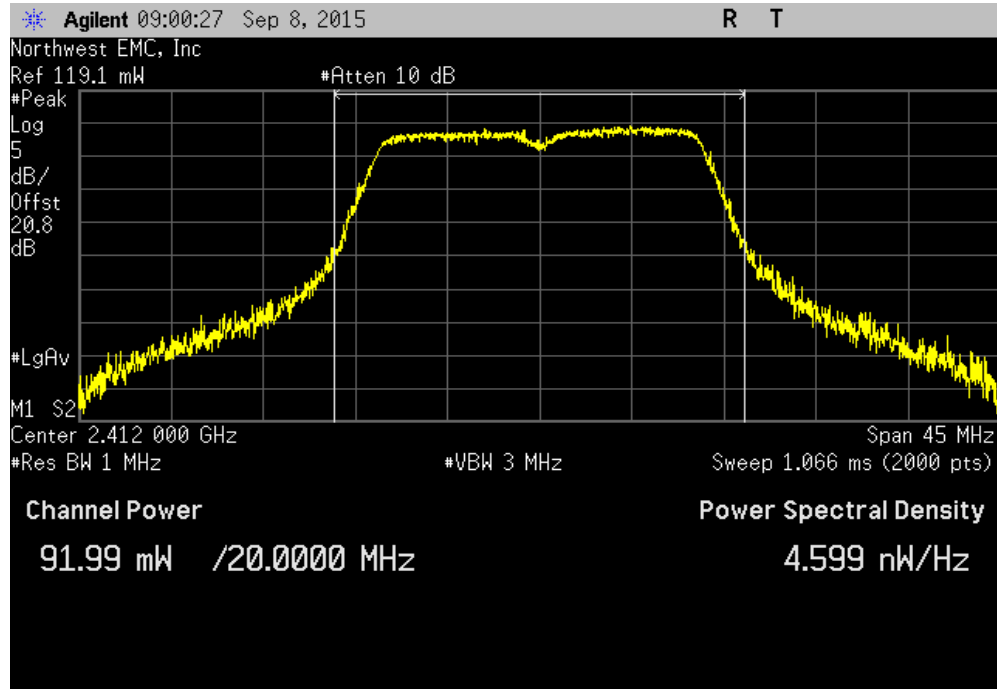
	Value	Limit	Result
	89.169 mW	1 W	Pass



OUTPUT POWER

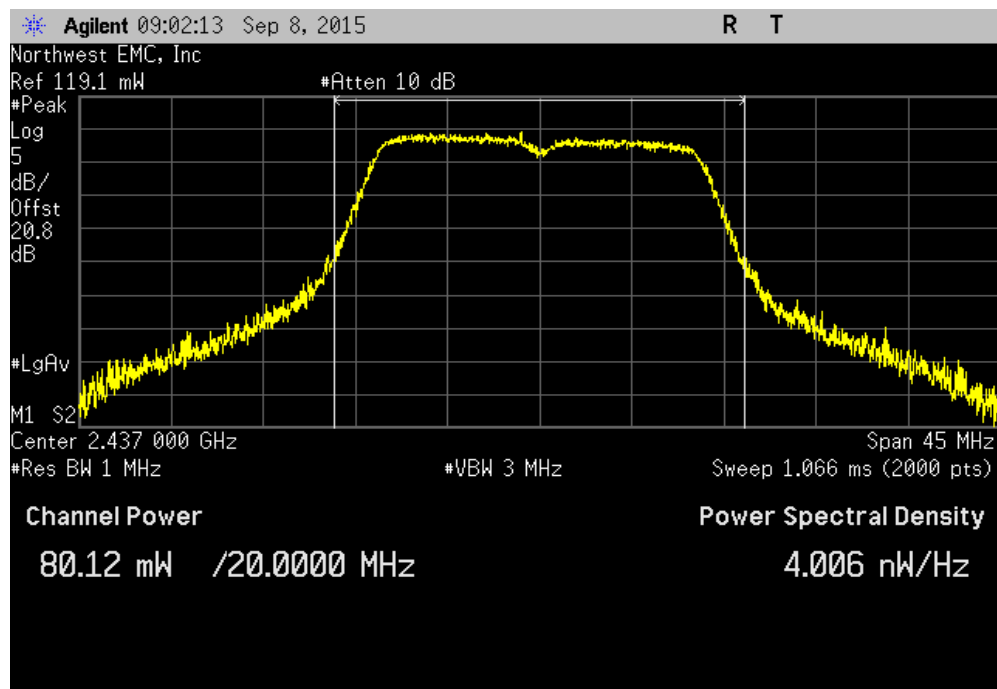
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	91.989 mW	1 W	Pass



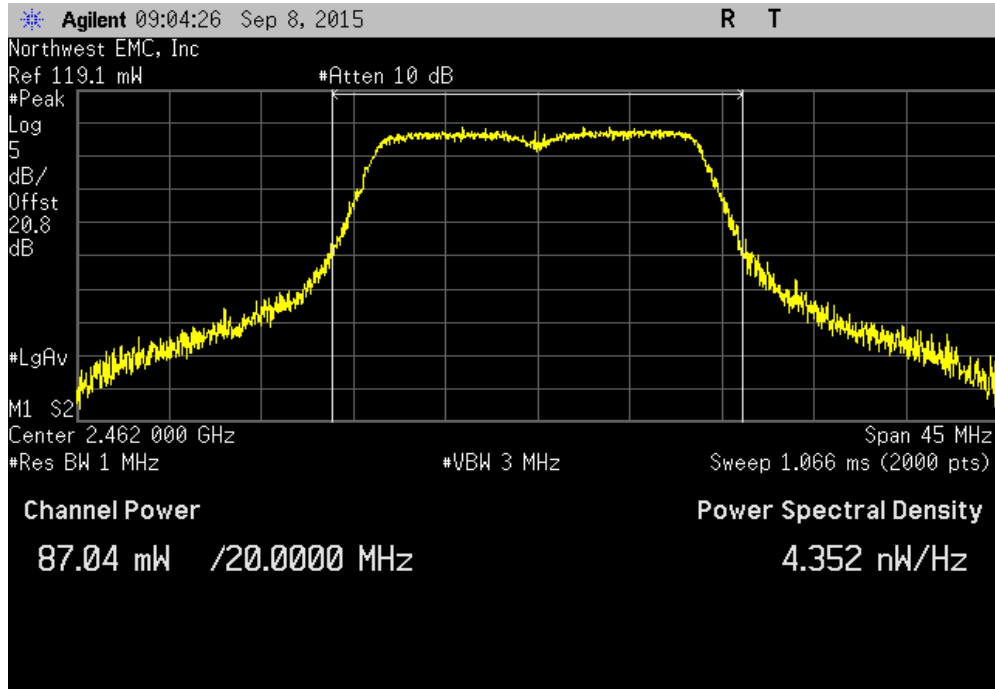
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	80.118 mW	1 W	Pass

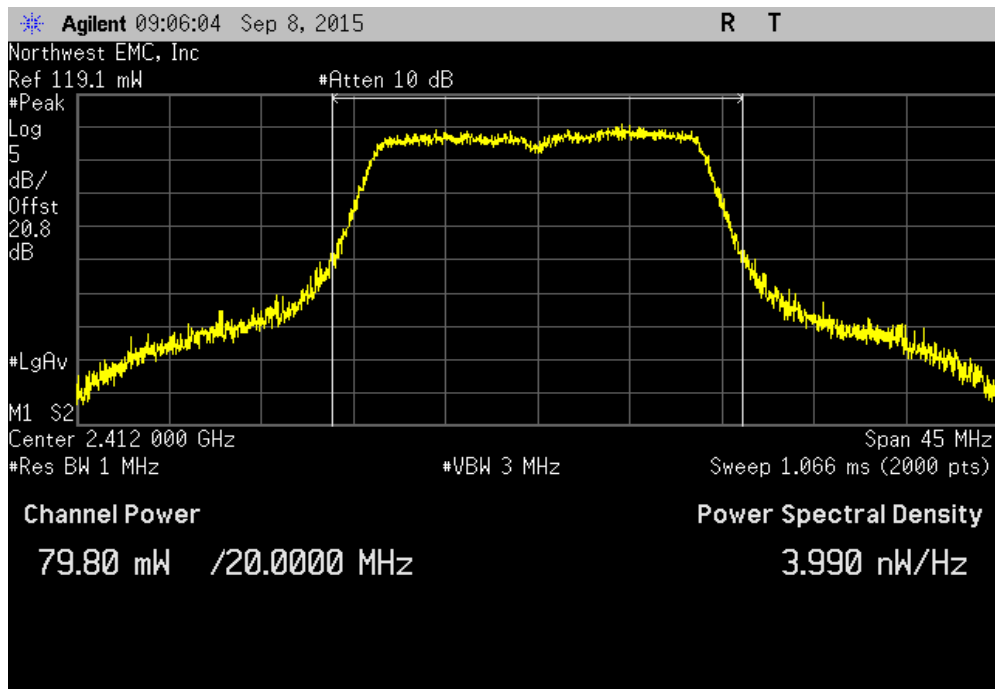


OUTPUT POWER

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				87.044 mW	1 W	Pass



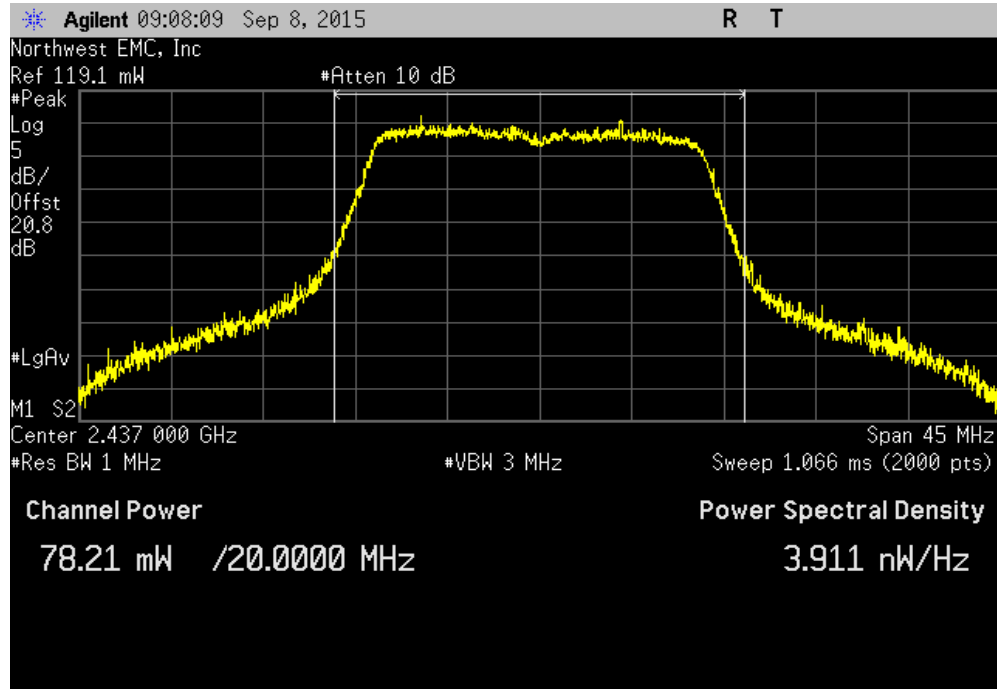
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (<)	Result
				79.796 mW	1 W	Pass



OUTPUT POWER

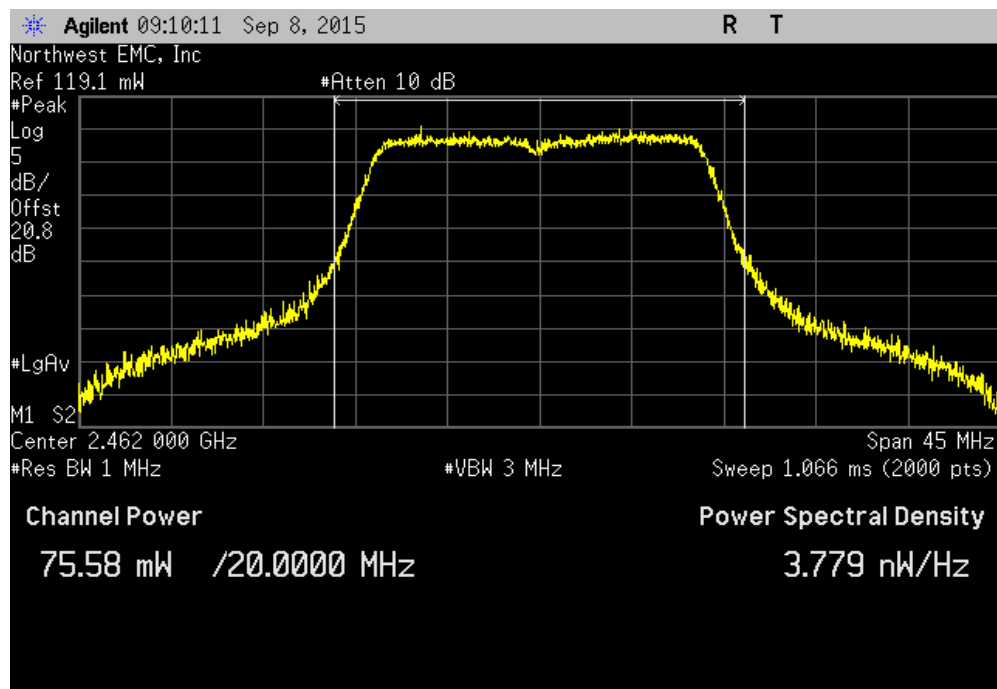
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	78.215 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

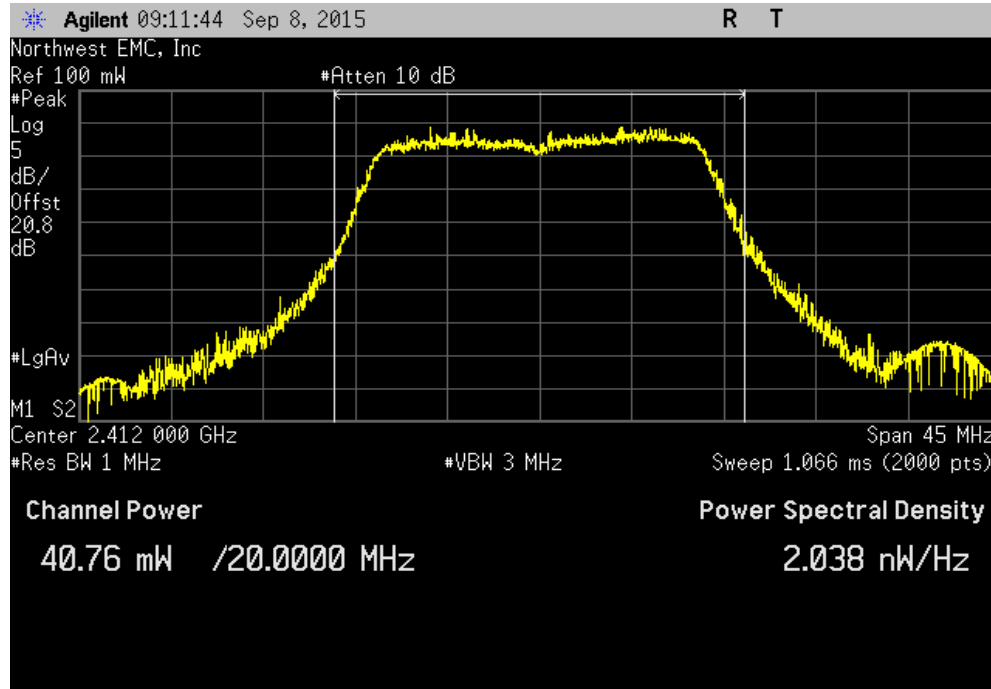
	Value	Limit	Result
	75.581 mW	1 W	Pass



OUTPUT POWER

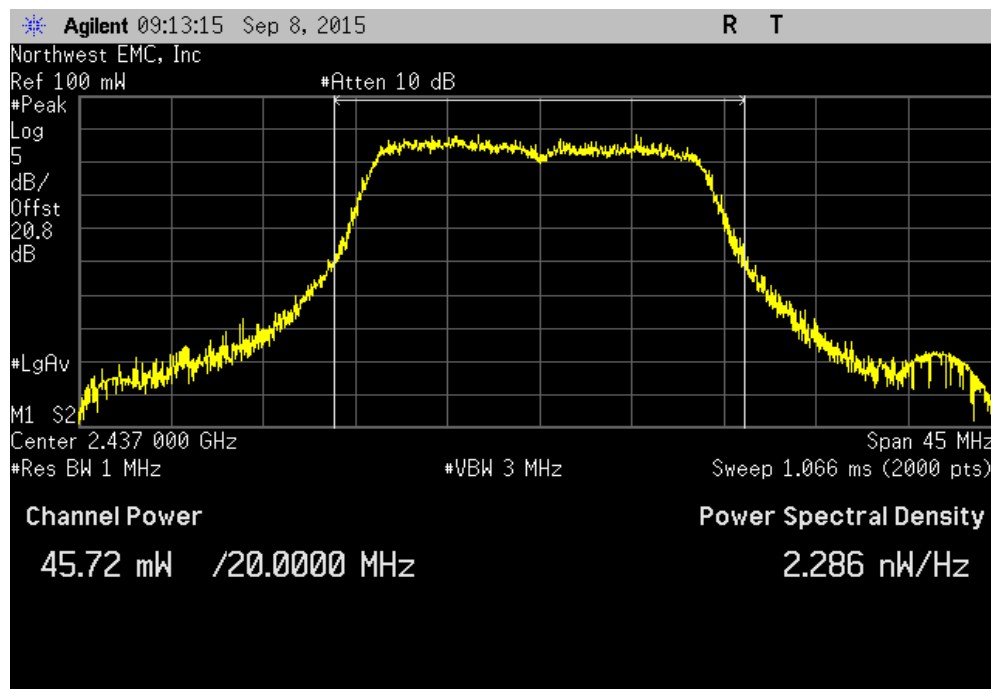
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	40.755 mW	1 W	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

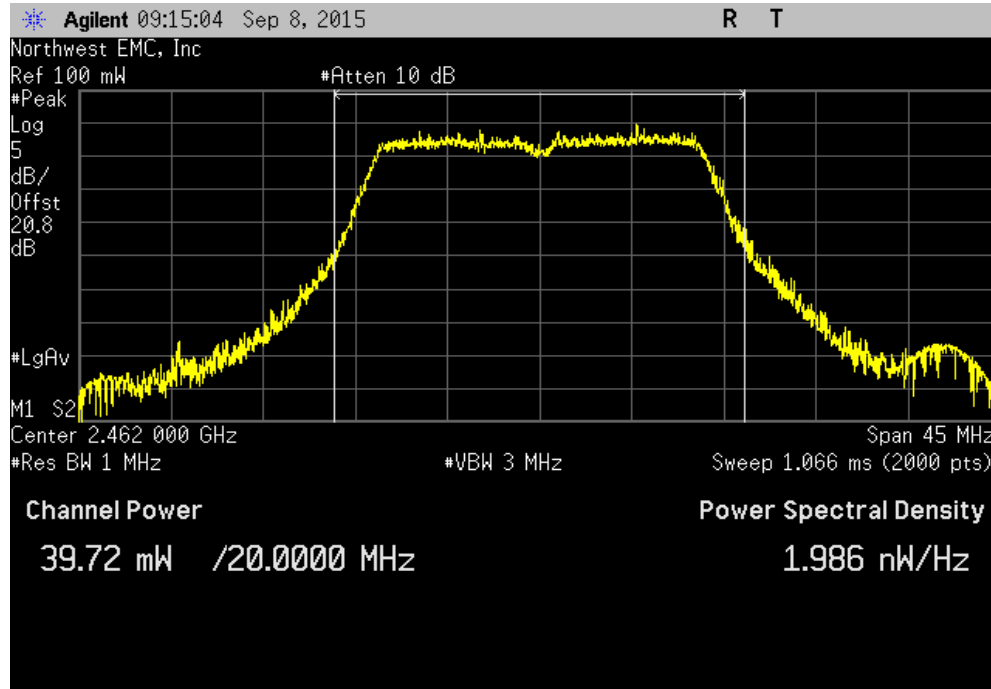
	Value	Limit	Result
	45.718 mW	1 W	Pass



OUTPUT POWER

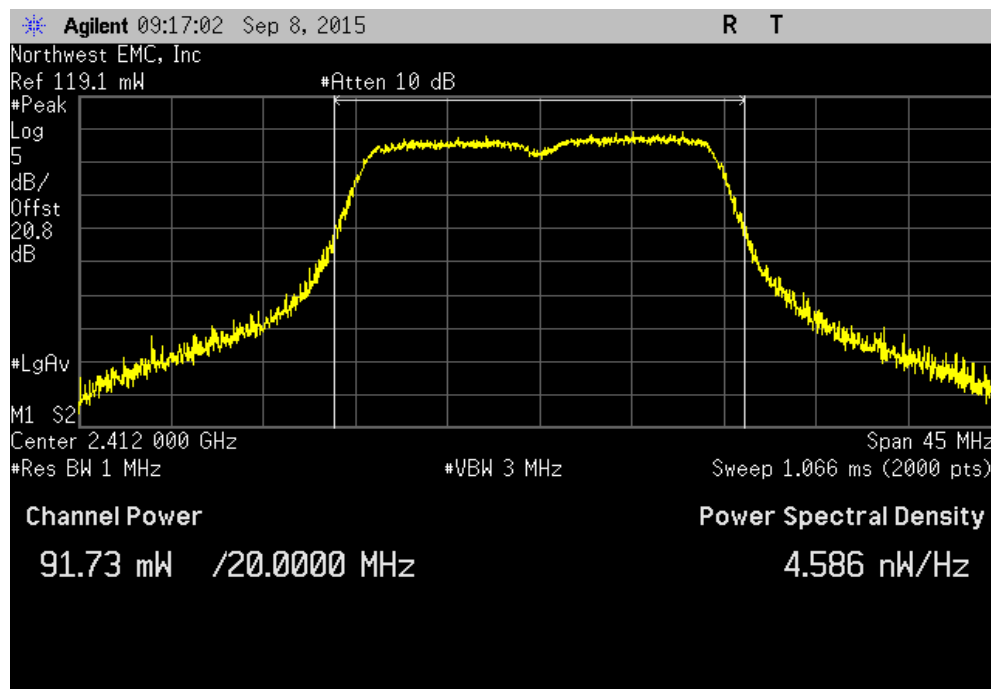
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz

	Value	Limit	Result
	39.716 mW	1 W	Pass



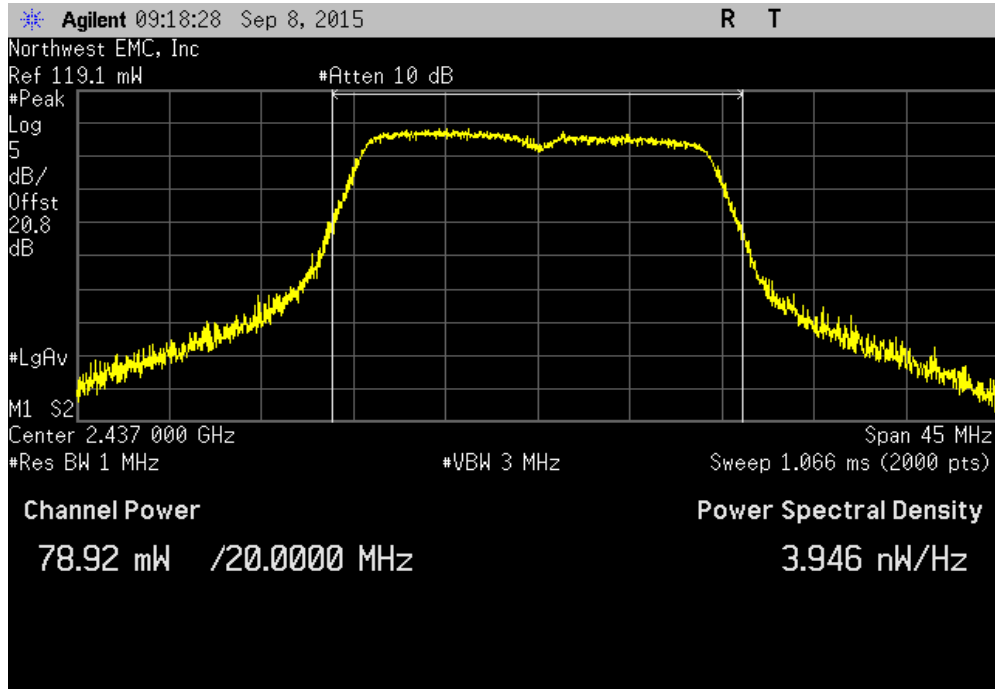
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz

	Value	Limit	Result
	91.729 mW	1 W	Pass

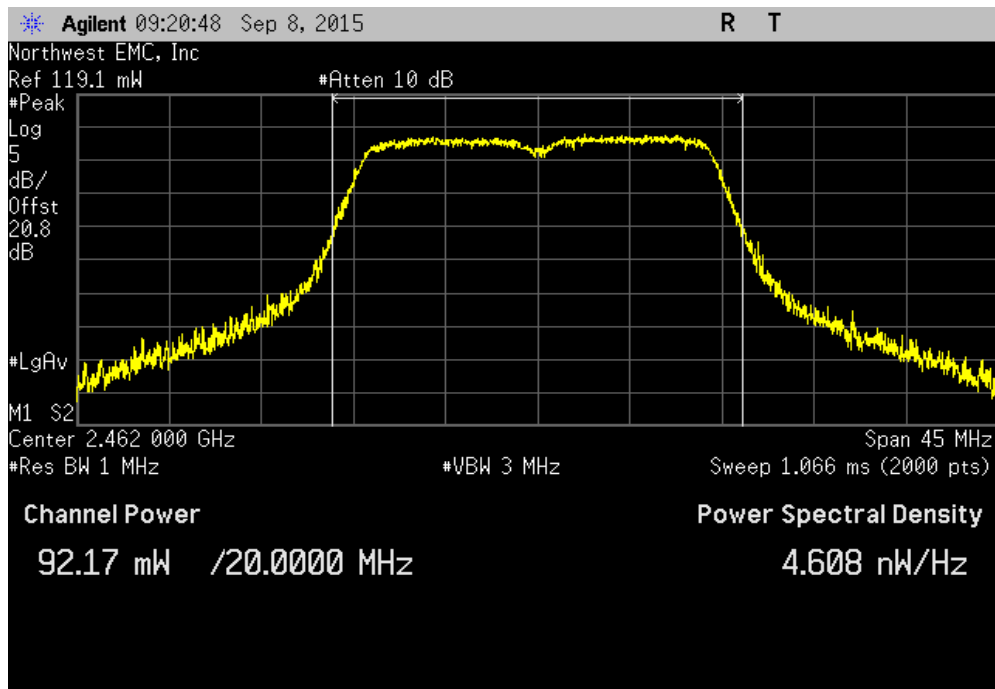


OUTPUT POWER

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				78.918 mW	1 W	Pass

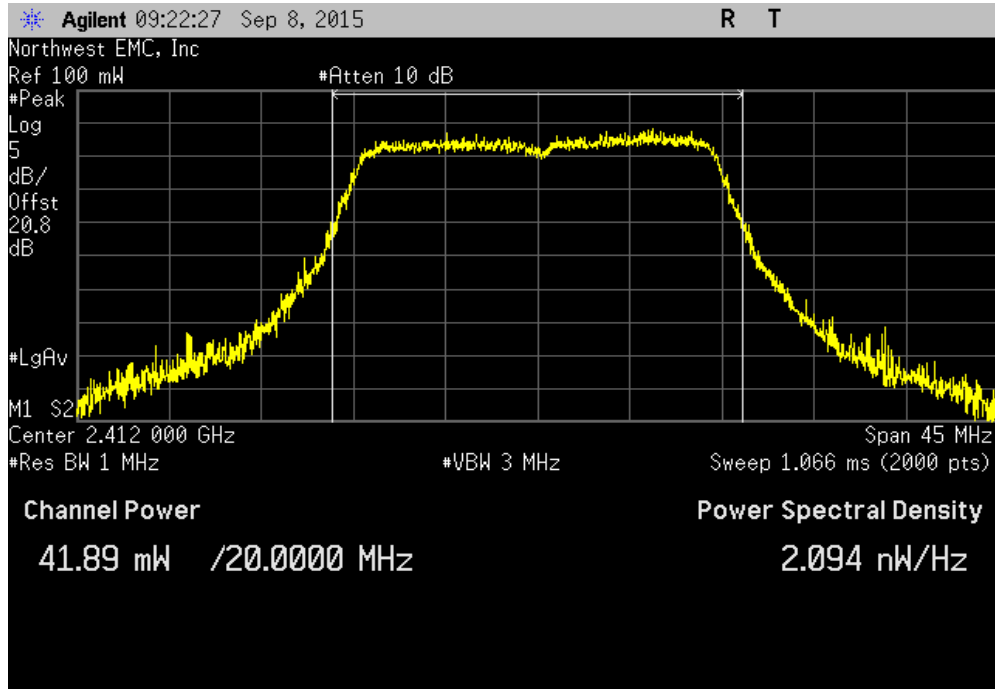


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				92.166 mW	1 W	Pass

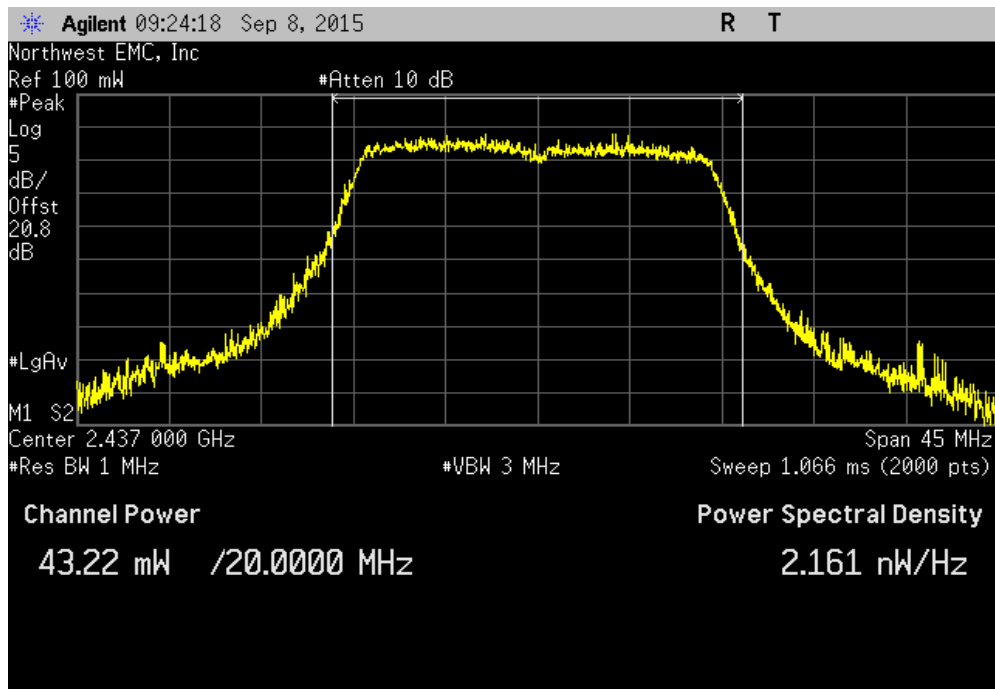


OUTPUT POWER

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				41.89 mW	1 W	Pass



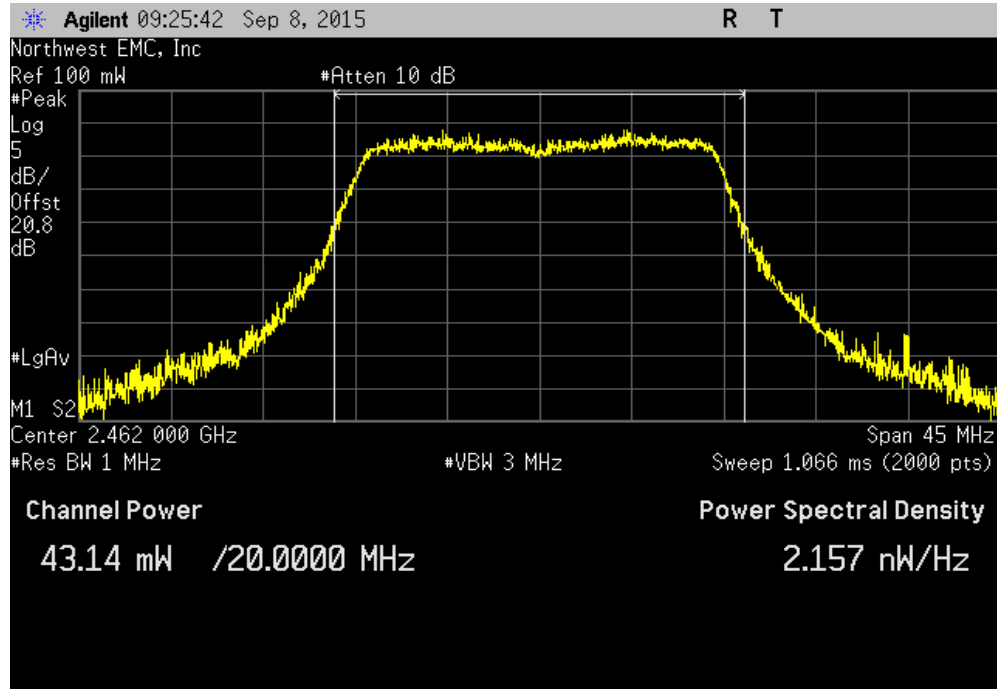
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				43.217 mW	1 W	Pass



OUTPUT POWER

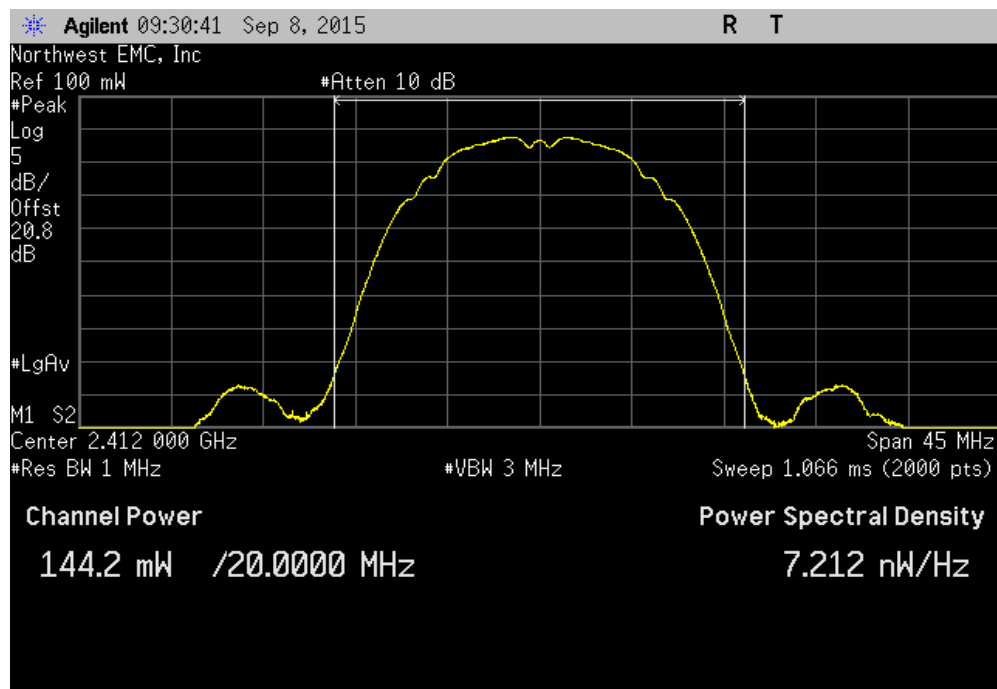
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz

	Value	Limit (<)	Result
	43.143 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

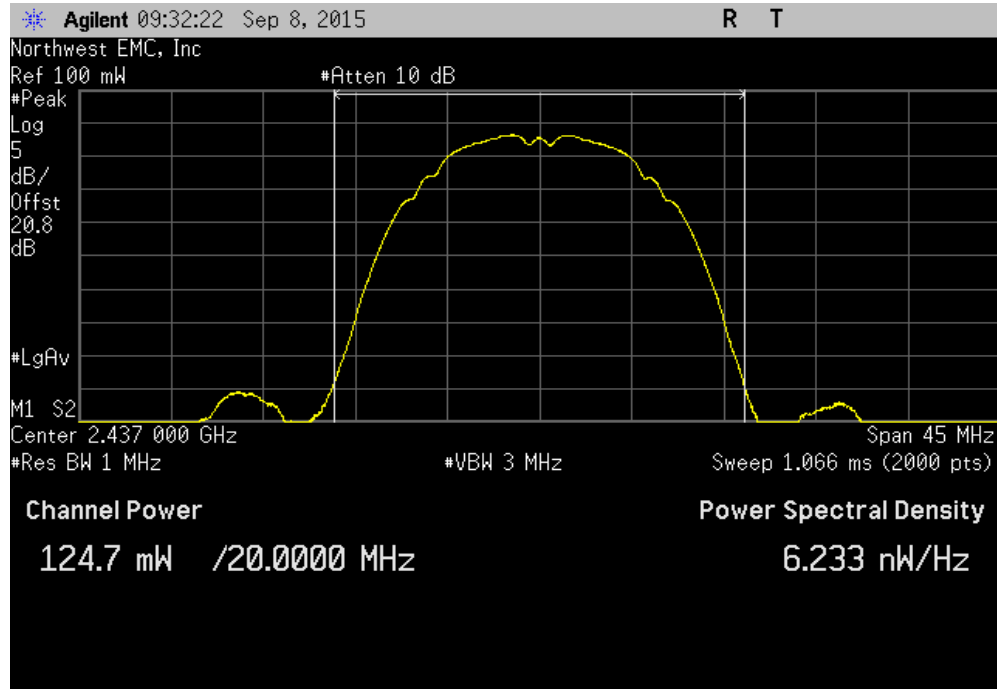
	Value	Limit (<)	Result
	144.249 mW	1 W	Pass



OUTPUT POWER

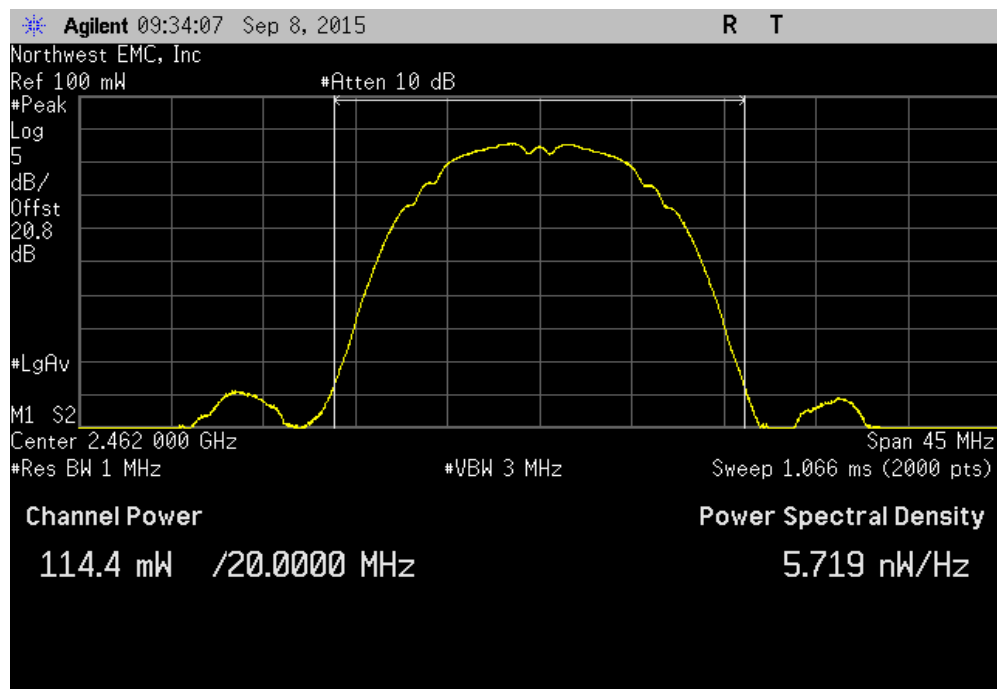
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

Value	Limit ($\leq$)	Result
124.659 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

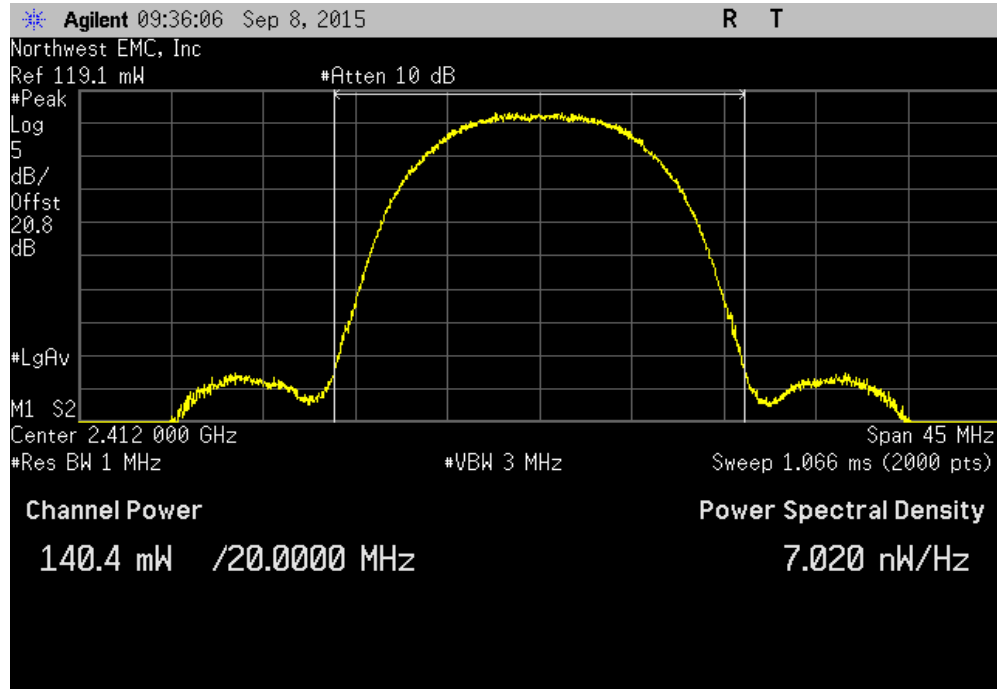
Value	Limit ($\leq$)	Result
114.381 mW	1 W	Pass



OUTPUT POWER

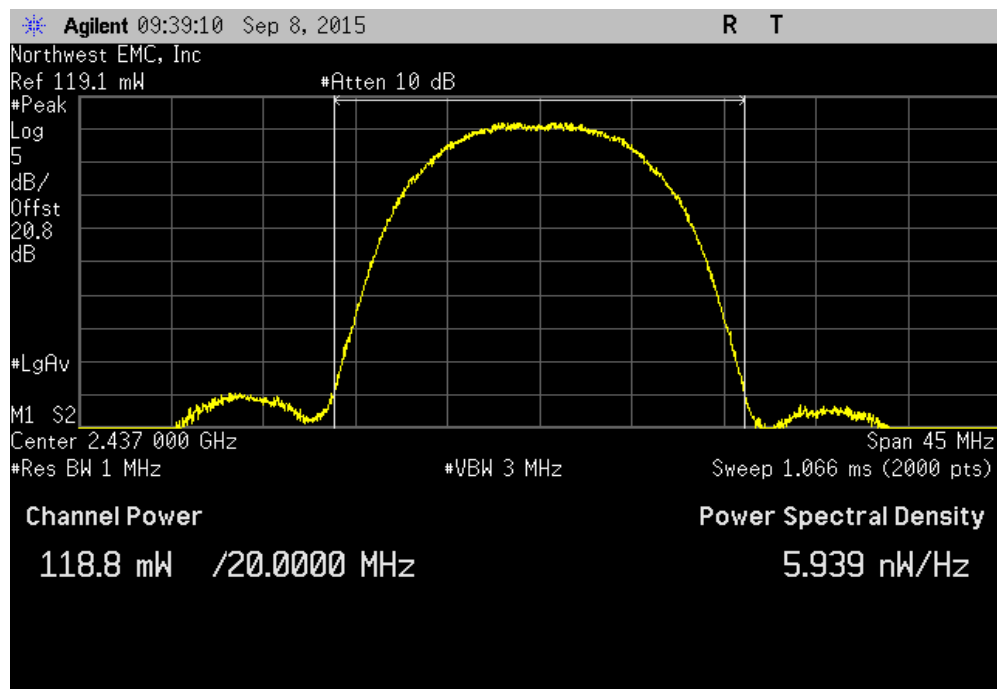
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	140.409 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

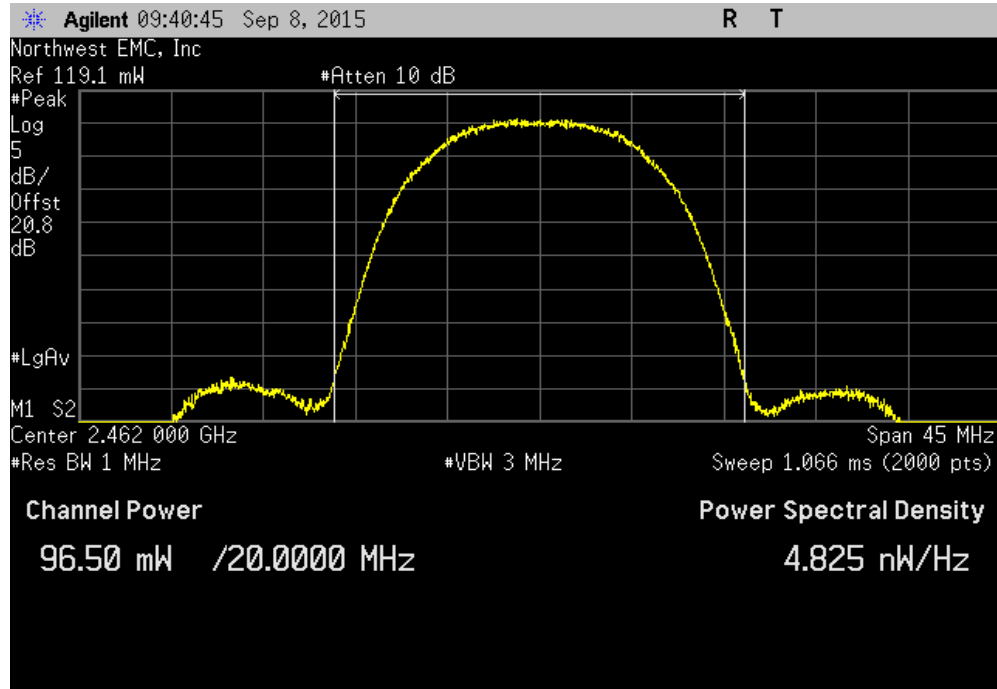
	Value	Limit	Result
	118.789 mW	1 W	Pass



OUTPUT POWER

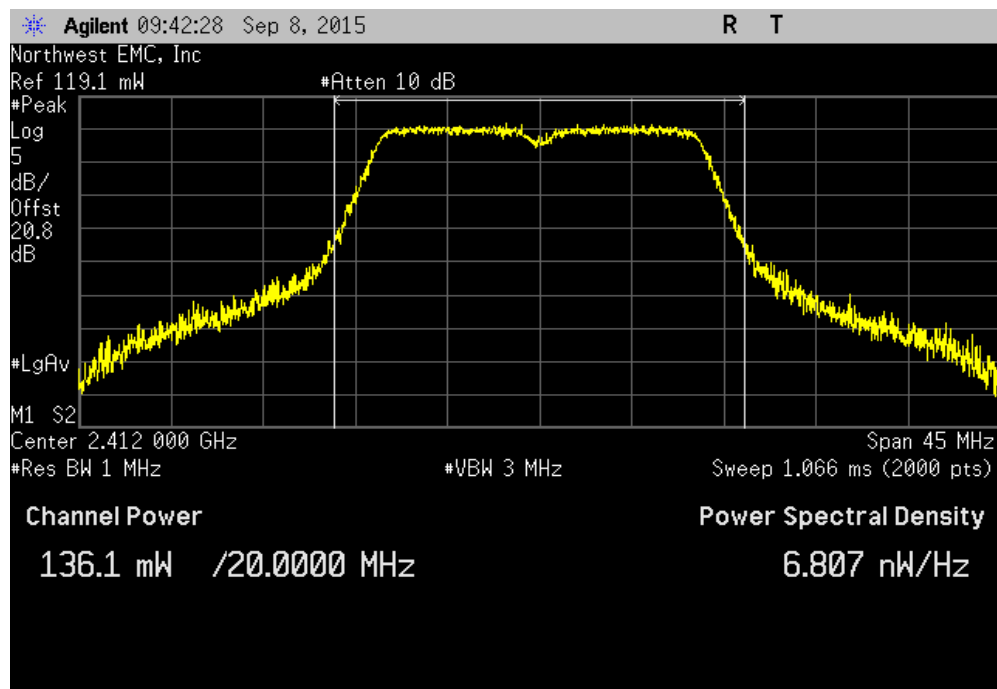
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

	Value	Limit	Result
	96.502 mW	1 W	Pass



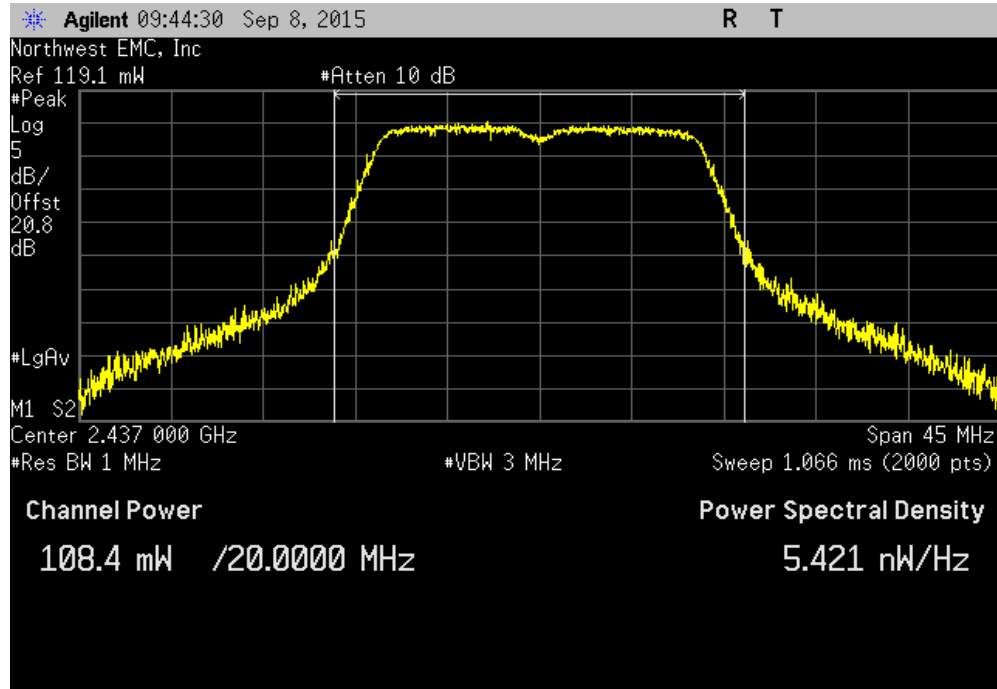
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	136.14 mW	1 W	Pass

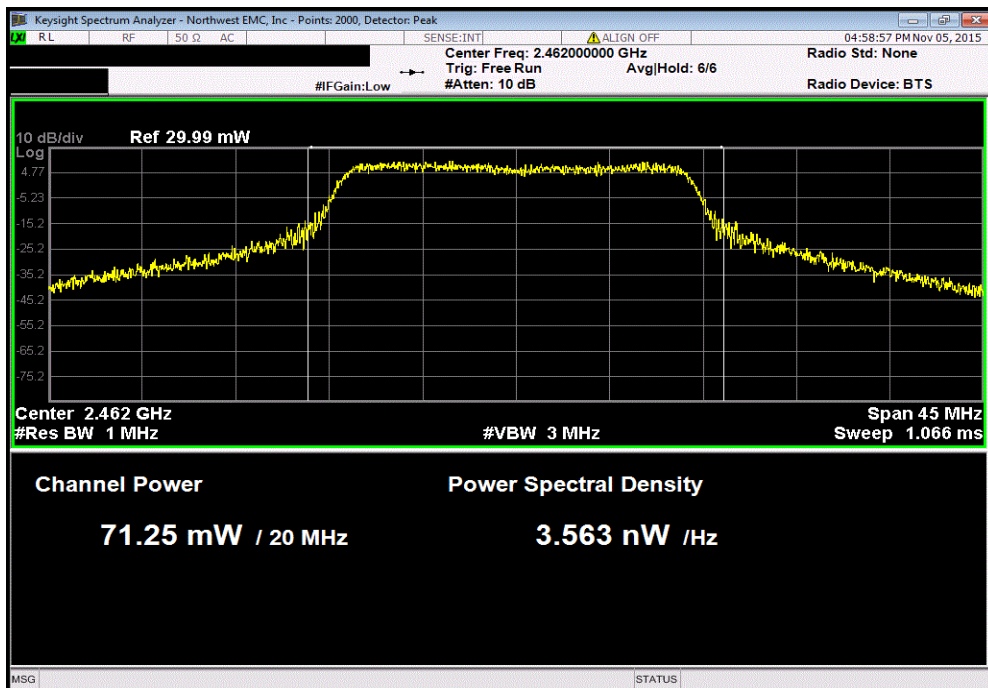


OUTPUT POWER

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				108.428 mW	1 W	Pass



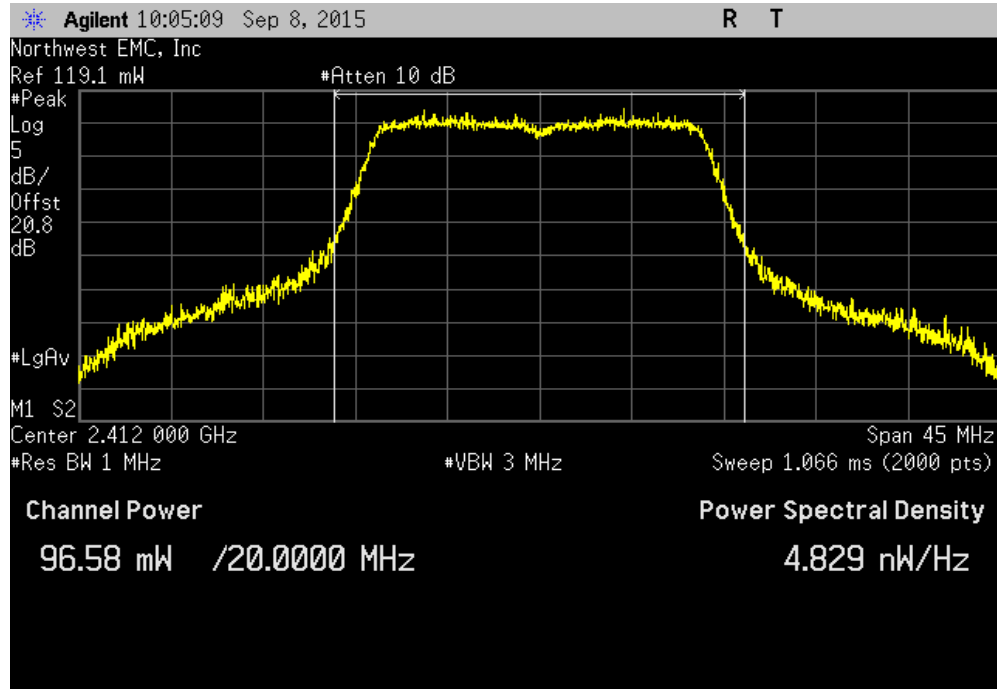
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				71.25 mW	1 W	Pass



OUTPUT POWER

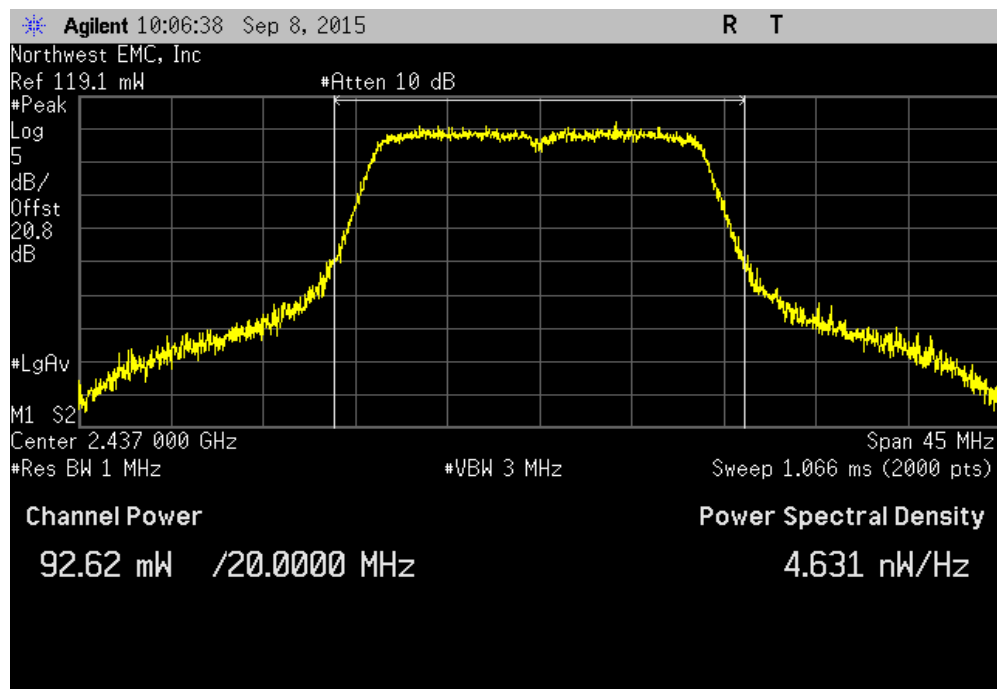
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Result
	96.58 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

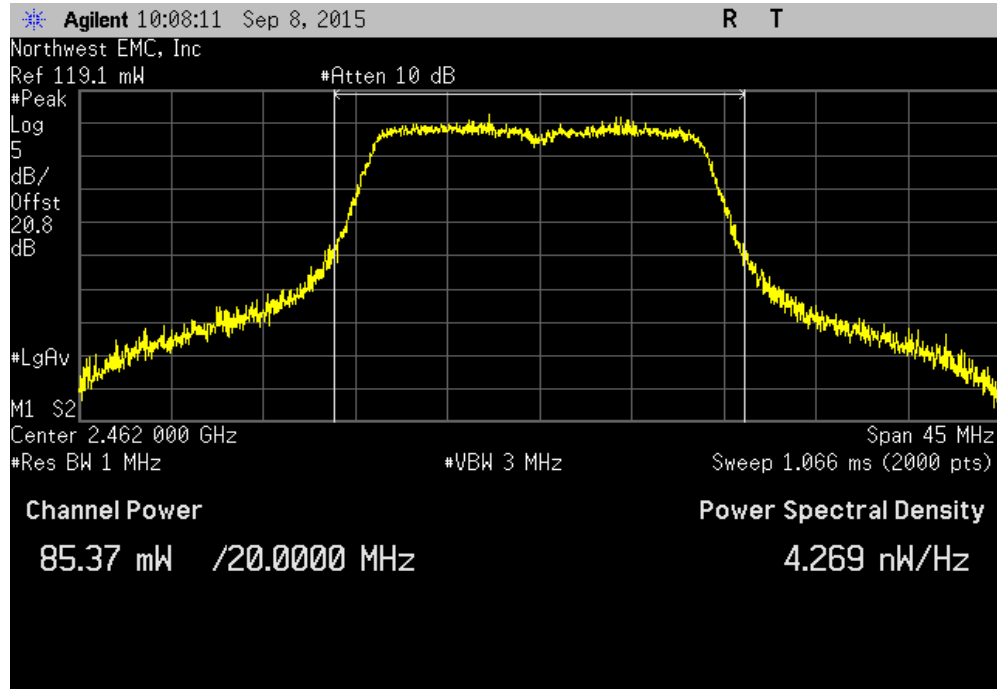
	Value	Limit	Result
	92.617 mW	1 W	Pass



OUTPUT POWER

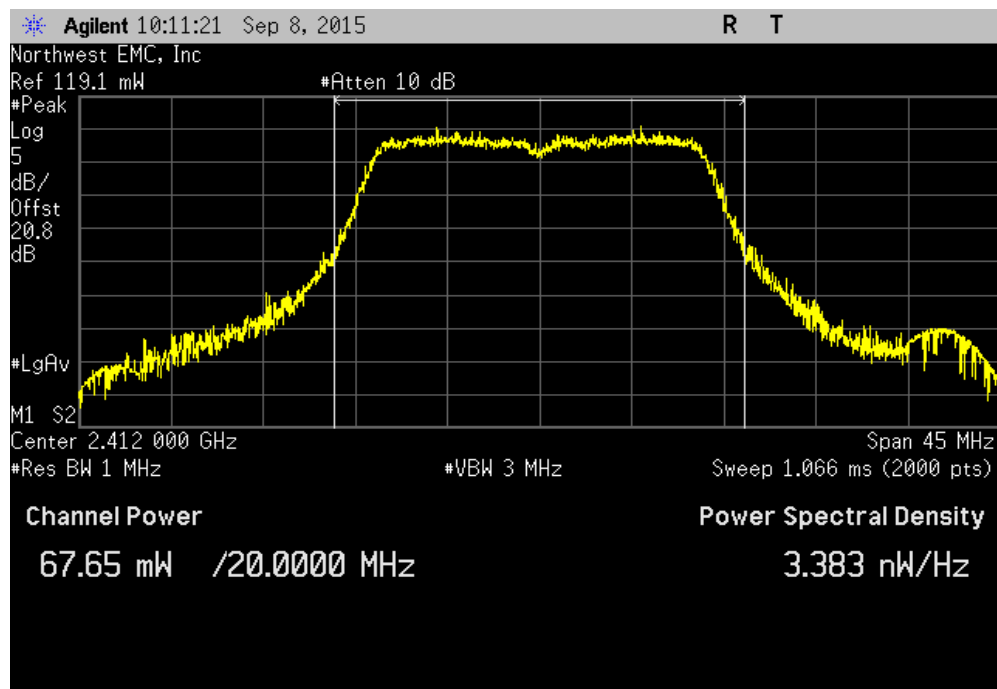
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

	Value	Limit	Result
	85.372 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

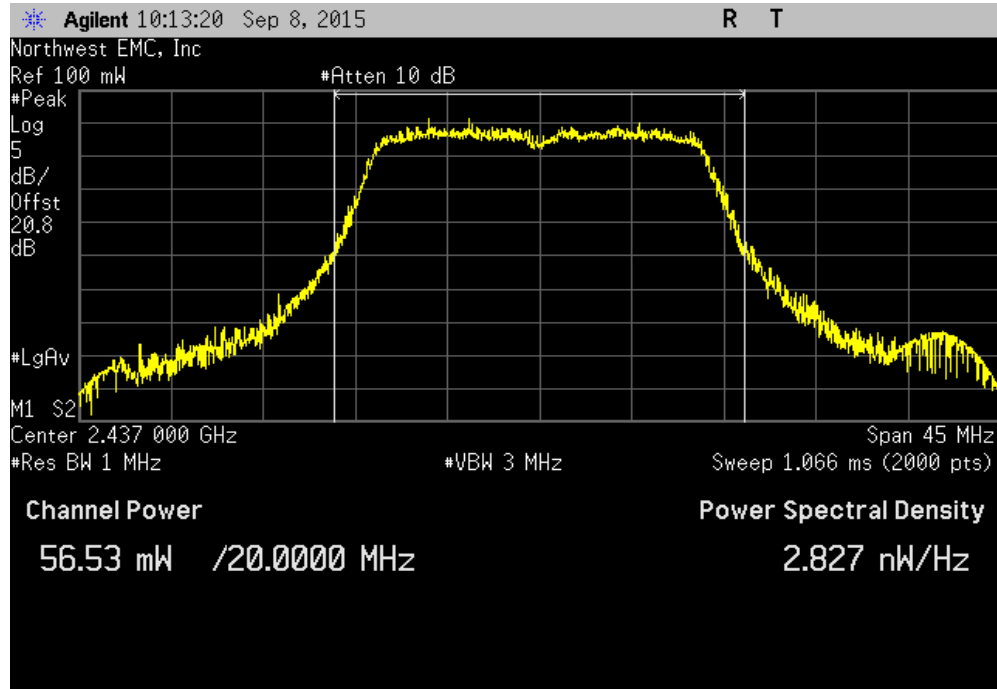
	Value	Limit	Result
	67.651 mW	1 W	Pass



OUTPUT POWER

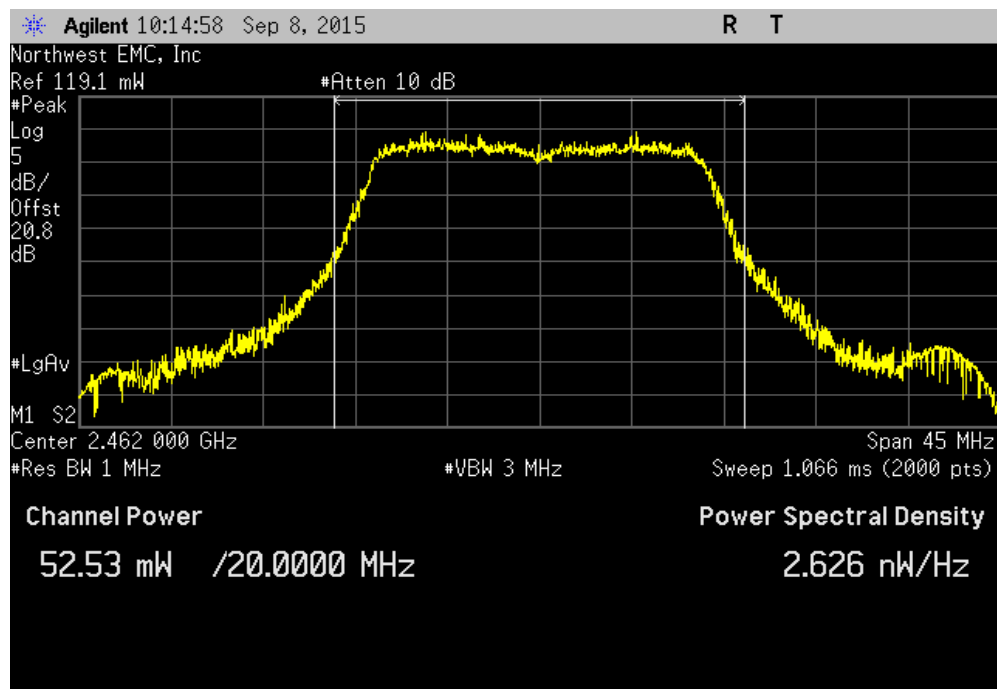
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	56.533 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz

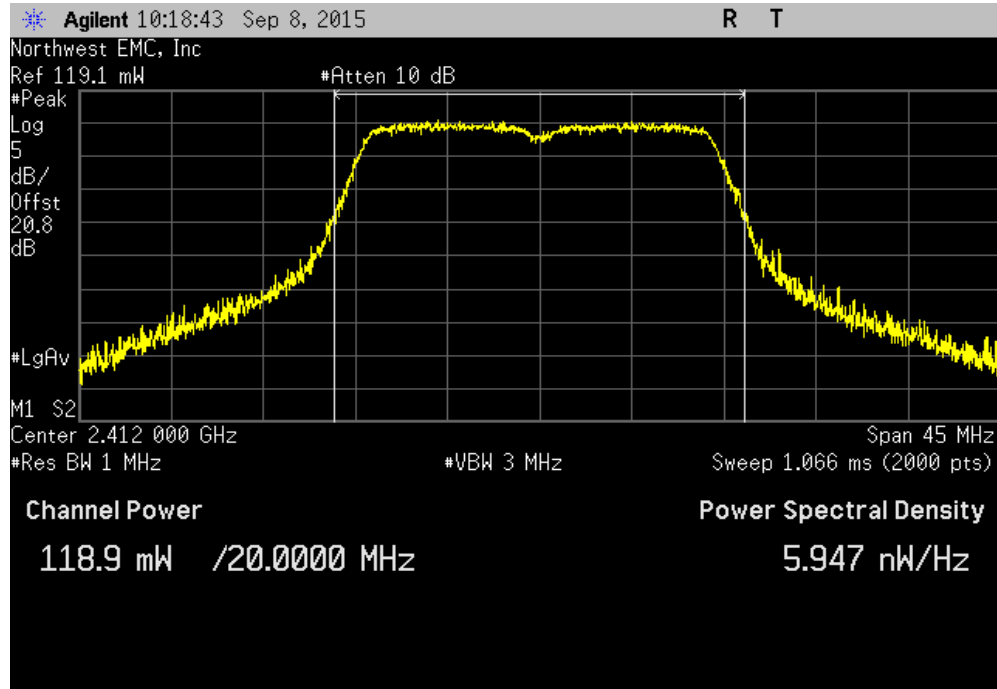
	Value	Limit	Result
	52.528 mW	1 W	Pass



OUTPUT POWER

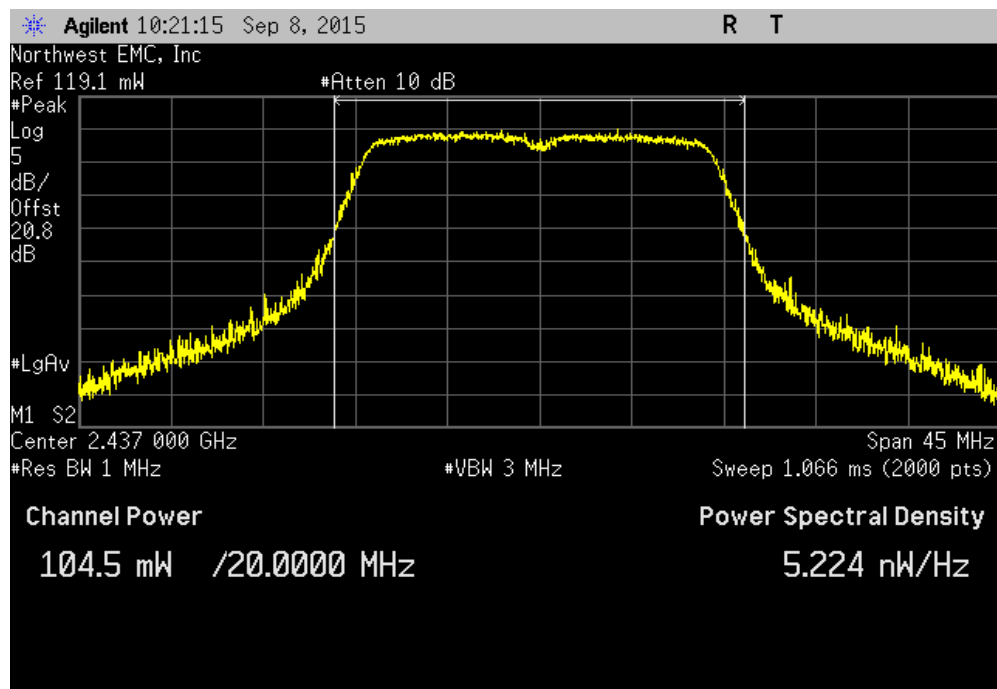
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	118.936 mW	1 W	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz

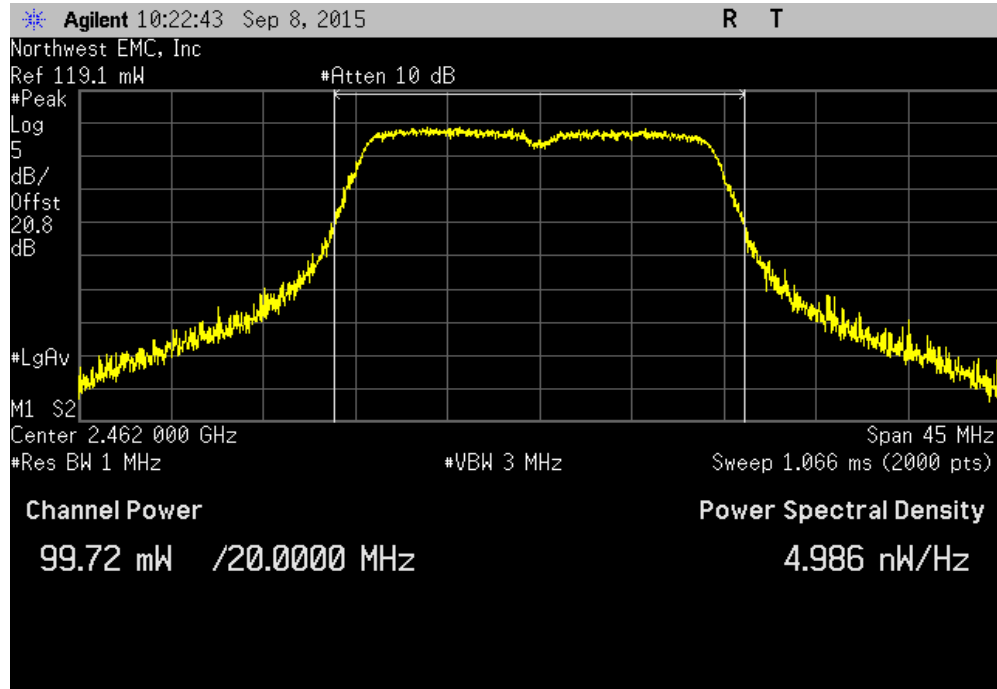
	Value	Limit (<)	Result
	104.49 mW	1 W	Pass



OUTPUT POWER

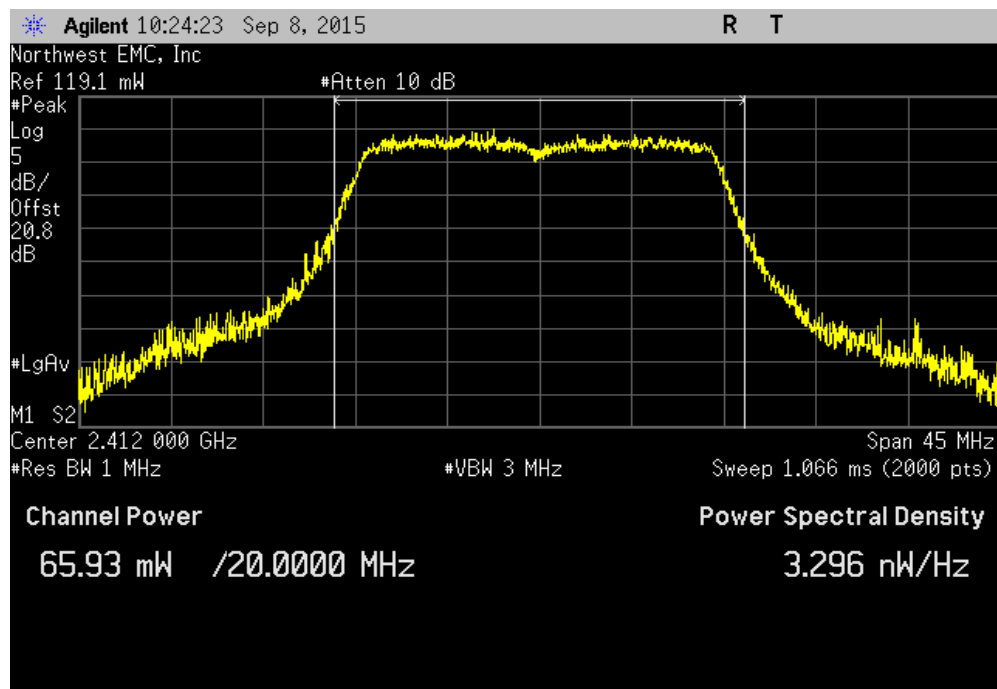
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz

	Value	Limit	Result
	99.717 mW	1 W	Pass



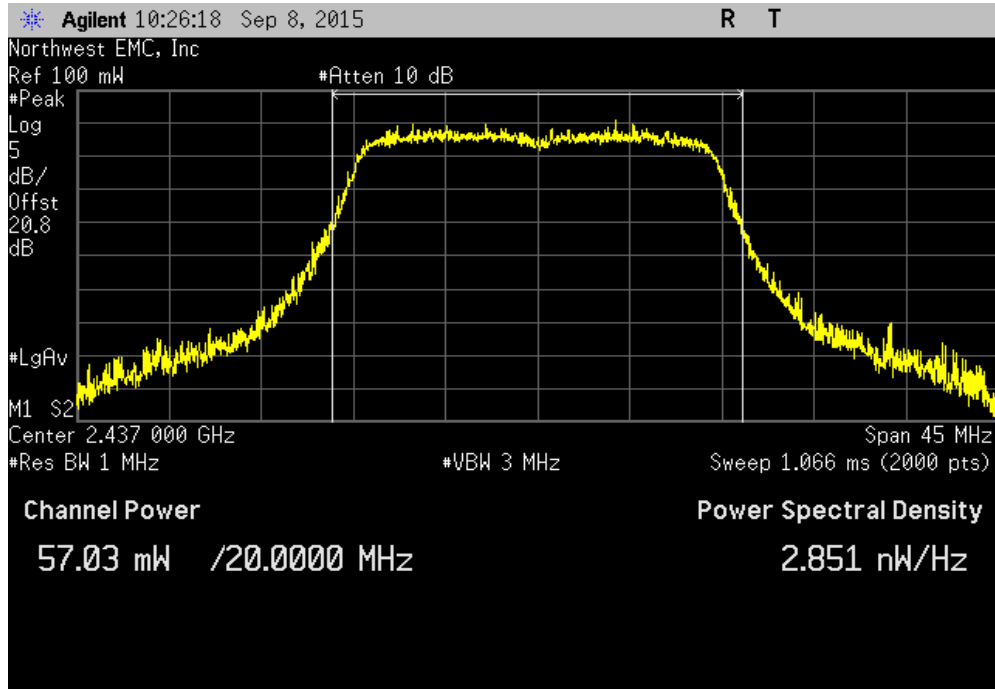
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

	Value	Limit	Result
	65.925 mW	1 W	Pass

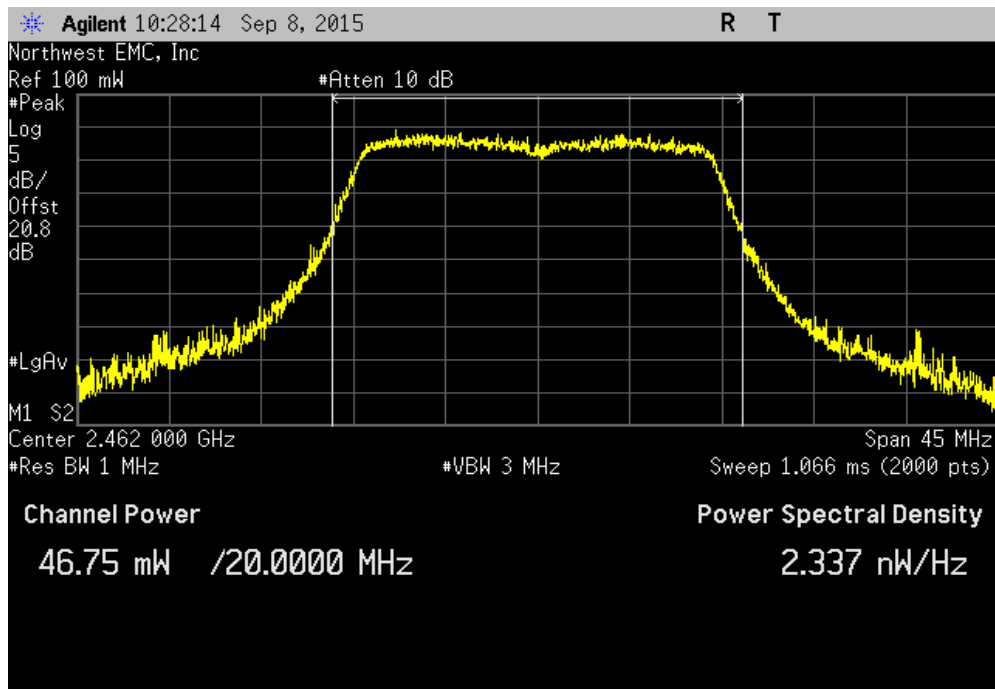


OUTPUT POWER

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				(<)		
				57.027 mW	1 W	Pass



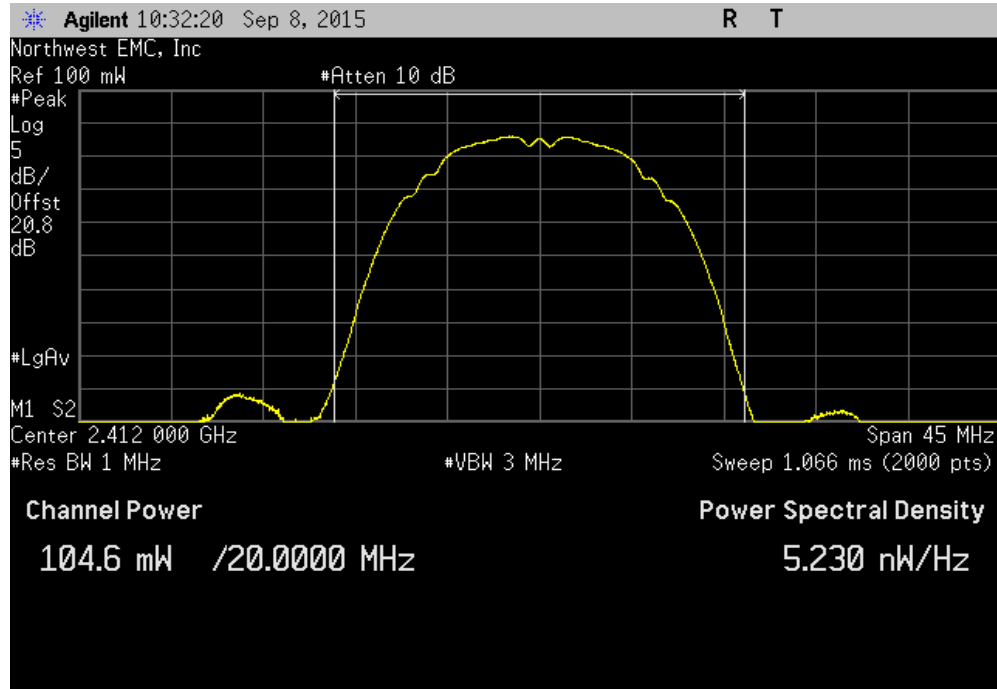
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit	Result
				(<)		
				46.748 mW	1 W	Pass



OUTPUT POWER

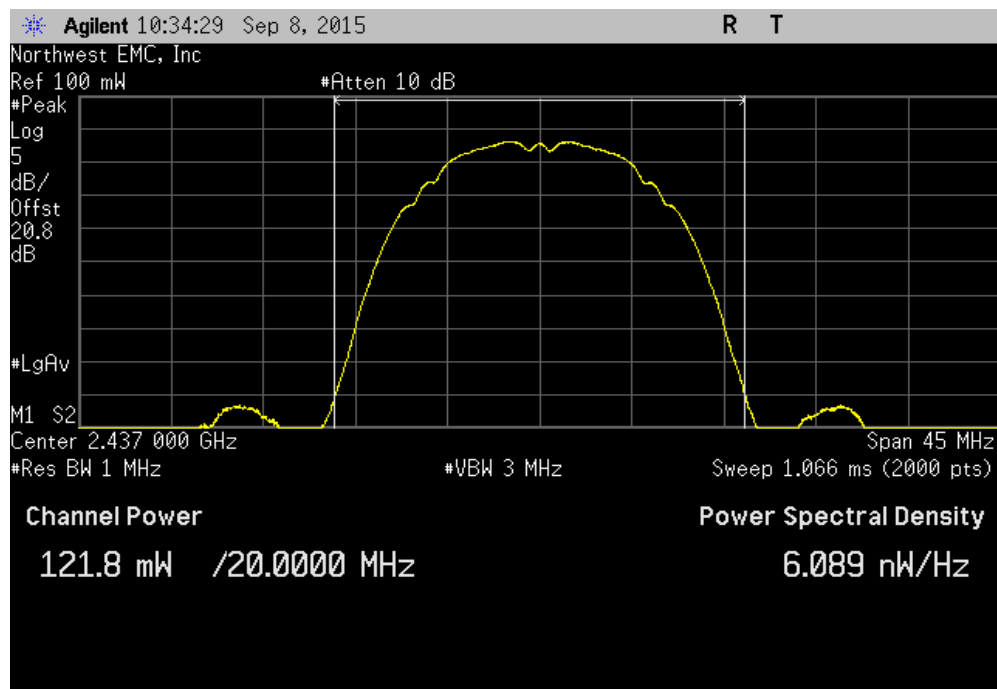
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Value	Limit (<)	Result
104.598 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz

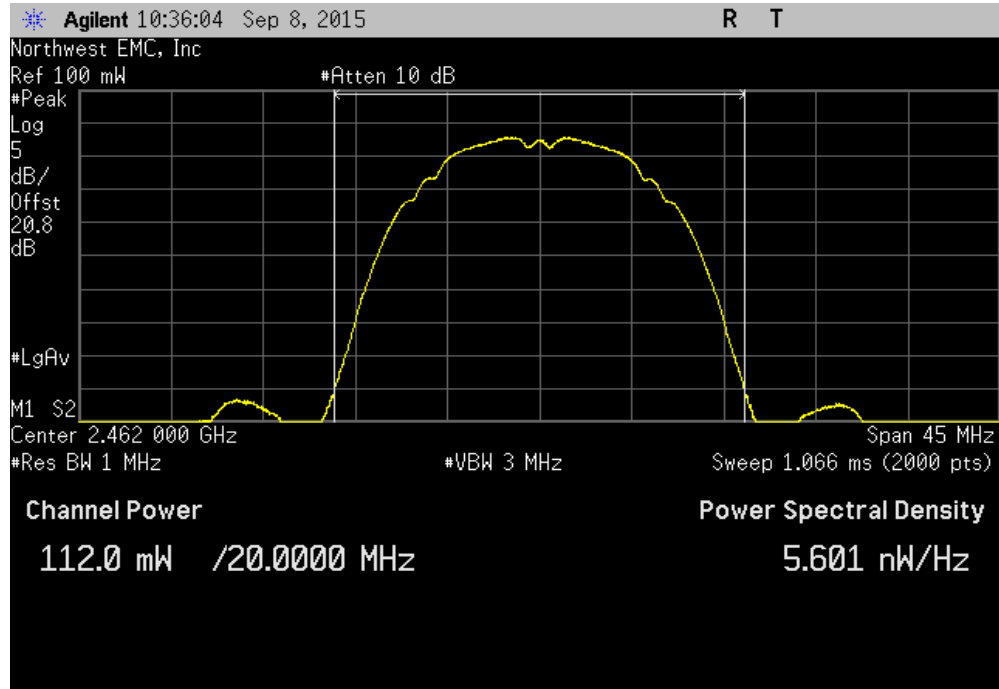
Value	Limit (<)	Result
121.775 mW	1 W	Pass



OUTPUT POWER

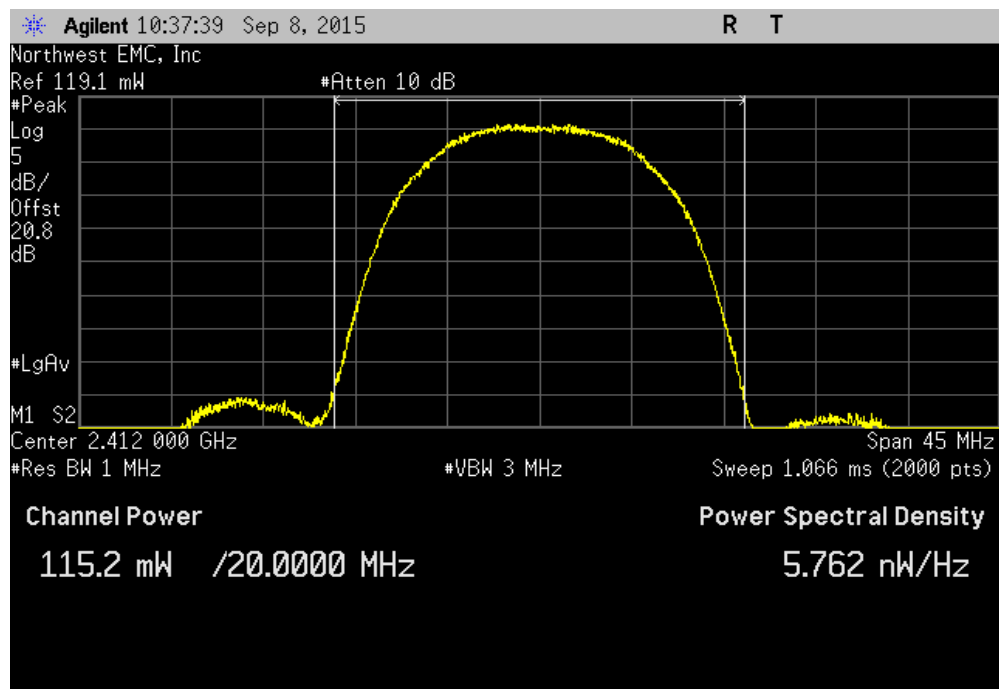
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz

	Value	Limit	Result
	112.018 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz

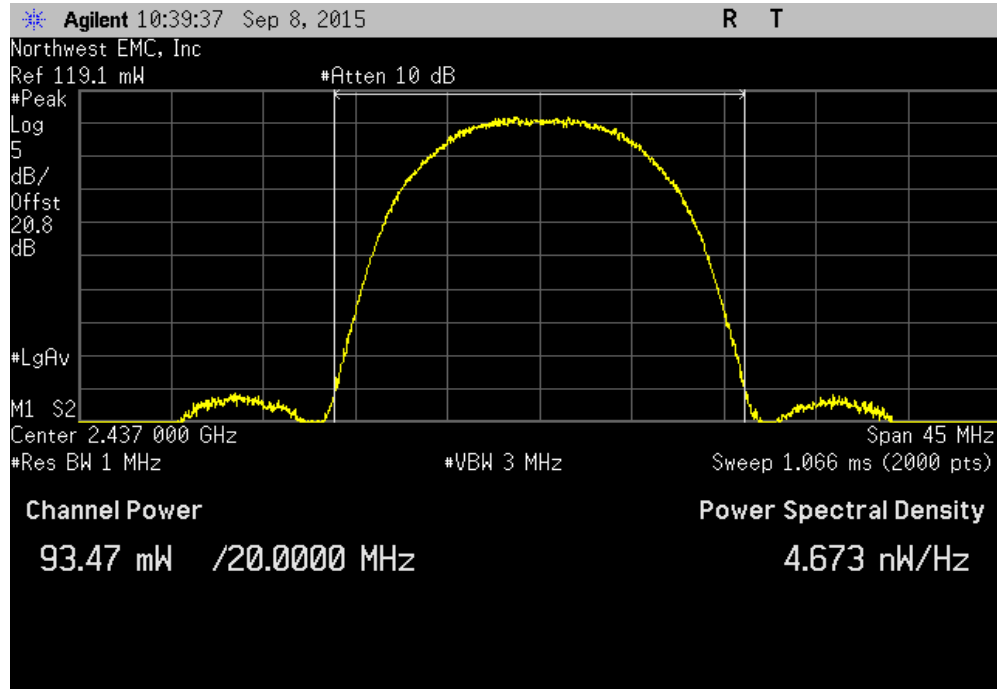
	Value	Limit	Result
	115.24 mW	1 W	Pass



OUTPUT POWER

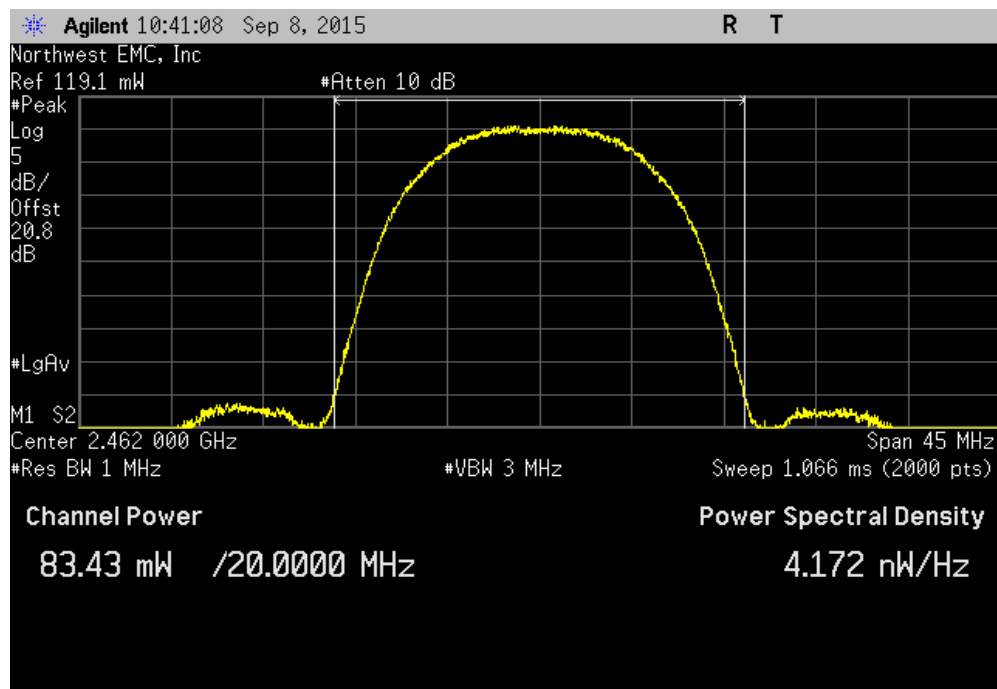
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	93.465 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz

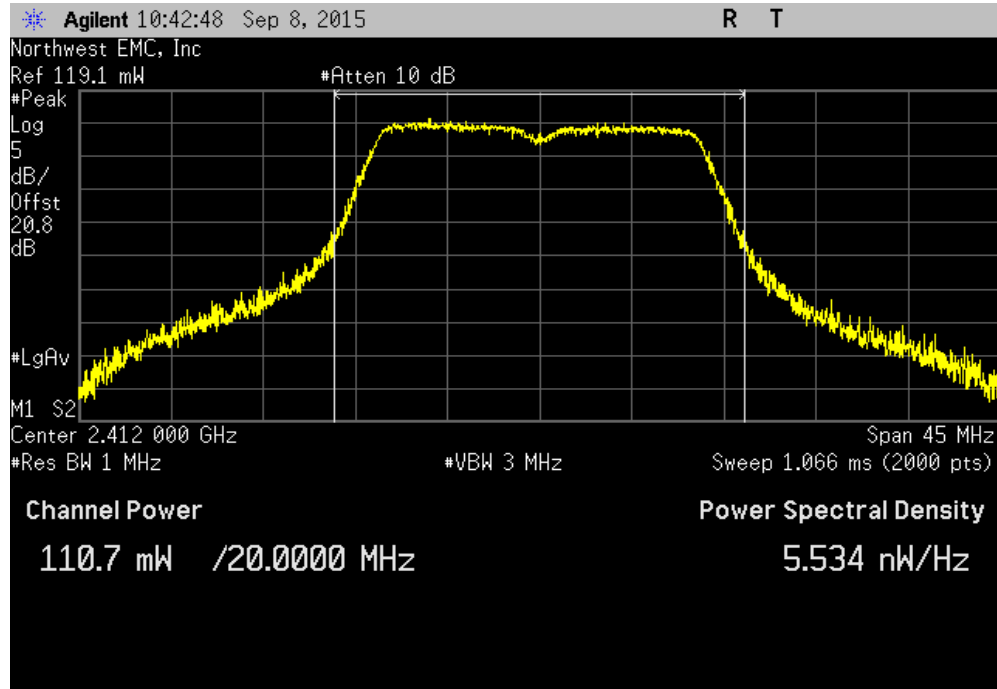
	Value	Limit	Result
	83.43 mW	1 W	Pass



OUTPUT POWER

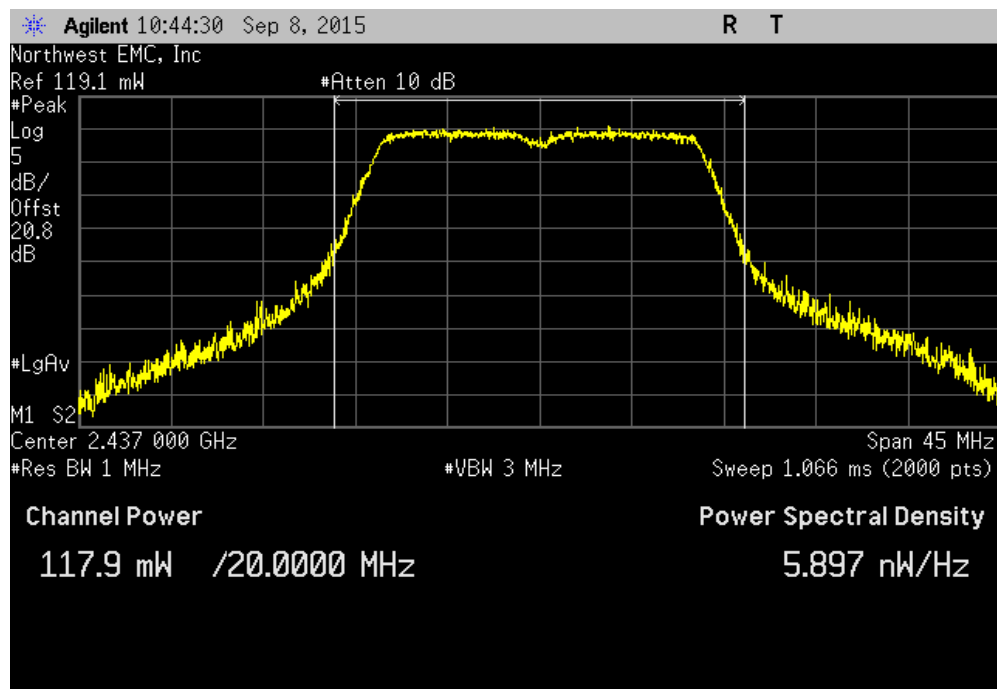
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	110.678 mW	1 W	Pass



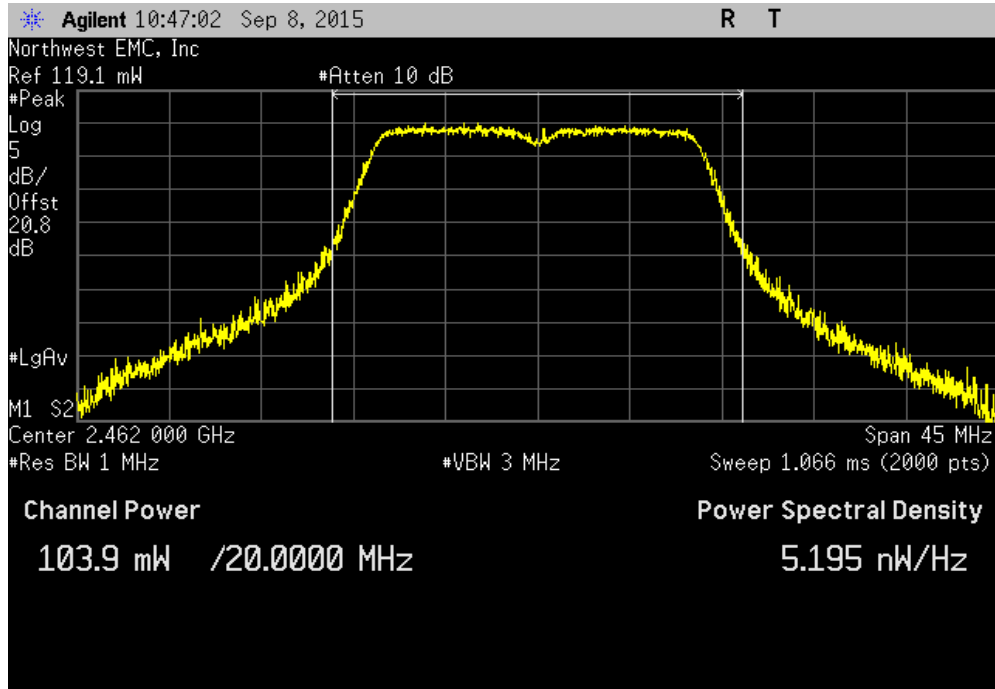
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit (<)	Result
	117.94 mW	1 W	Pass

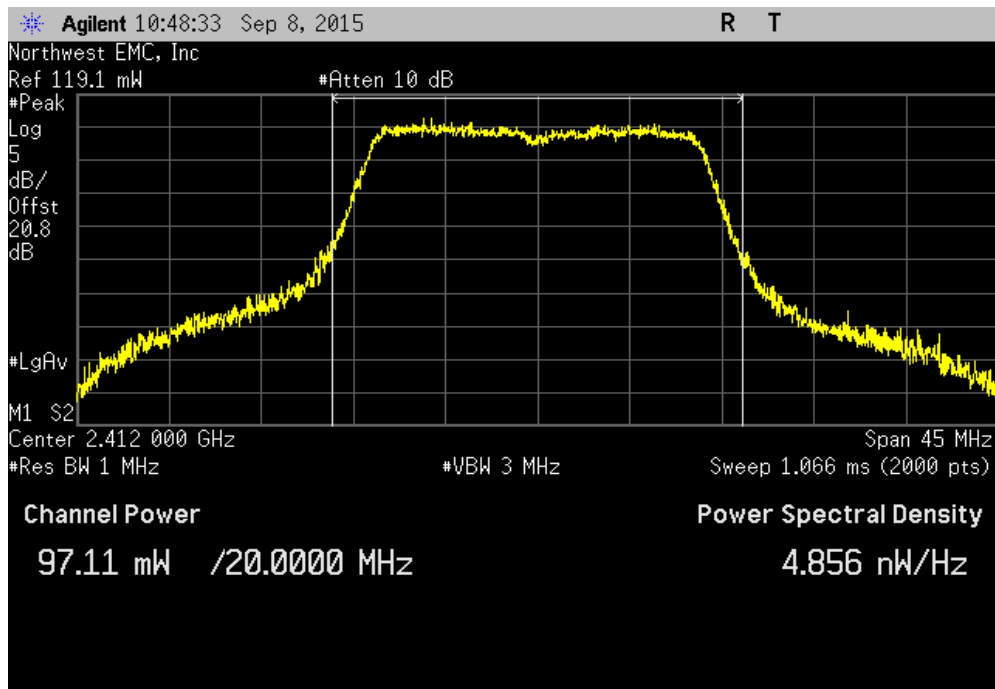


OUTPUT POWER

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				103.908 mW	1 W	Pass



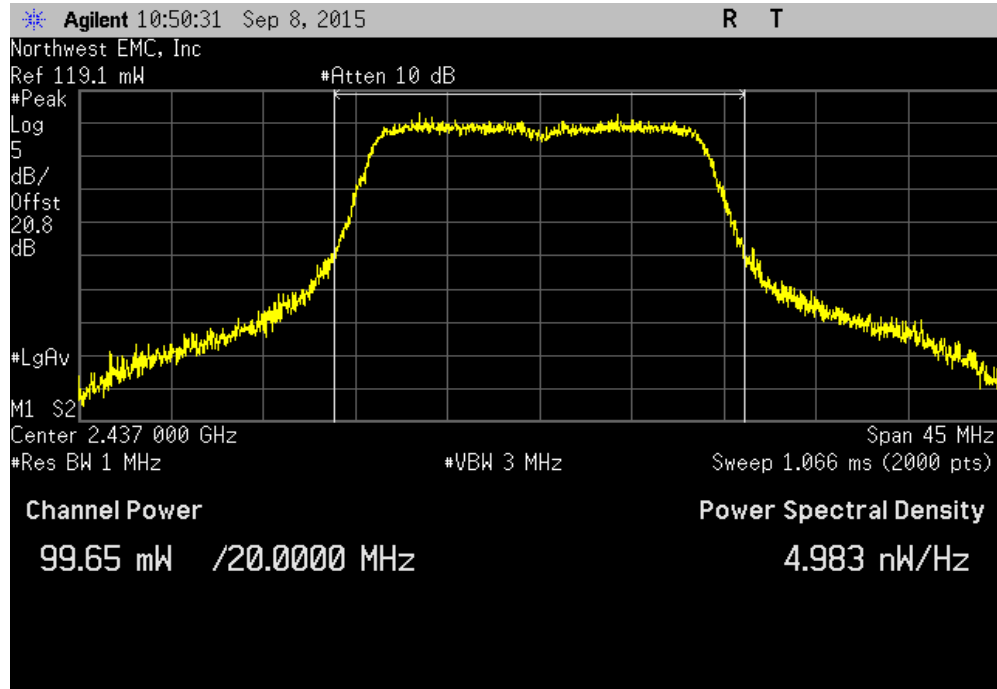
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				97.115 mW	1 W	Pass



OUTPUT POWER

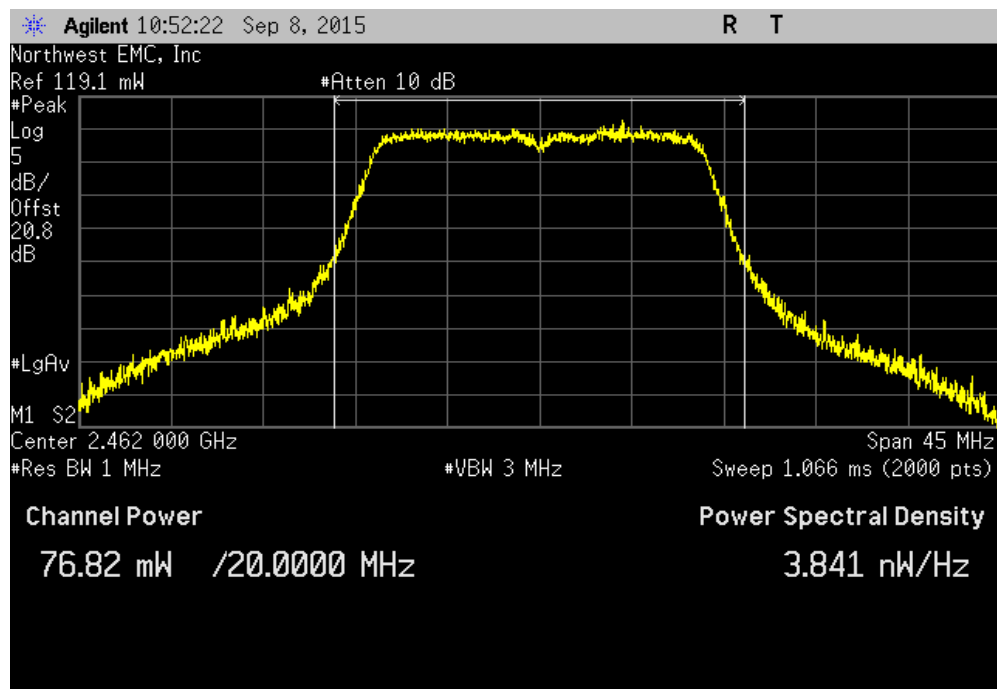
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz

	Value	Limit	Result
	99.655 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz

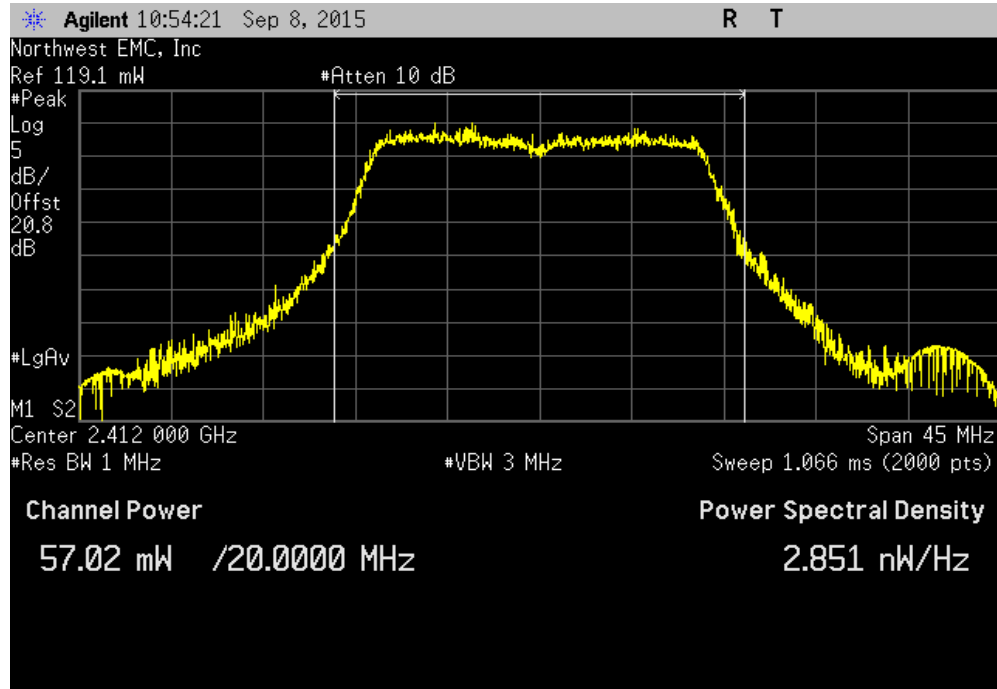
	Value	Limit	Result
	76.816 mW	1 W	Pass



OUTPUT POWER

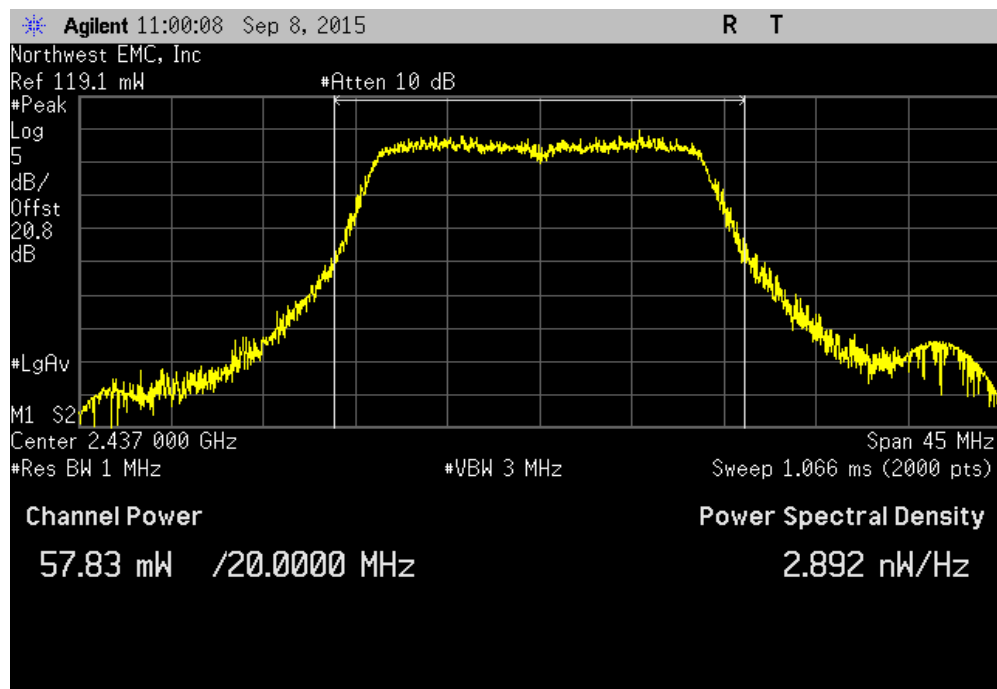
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	57.019 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz

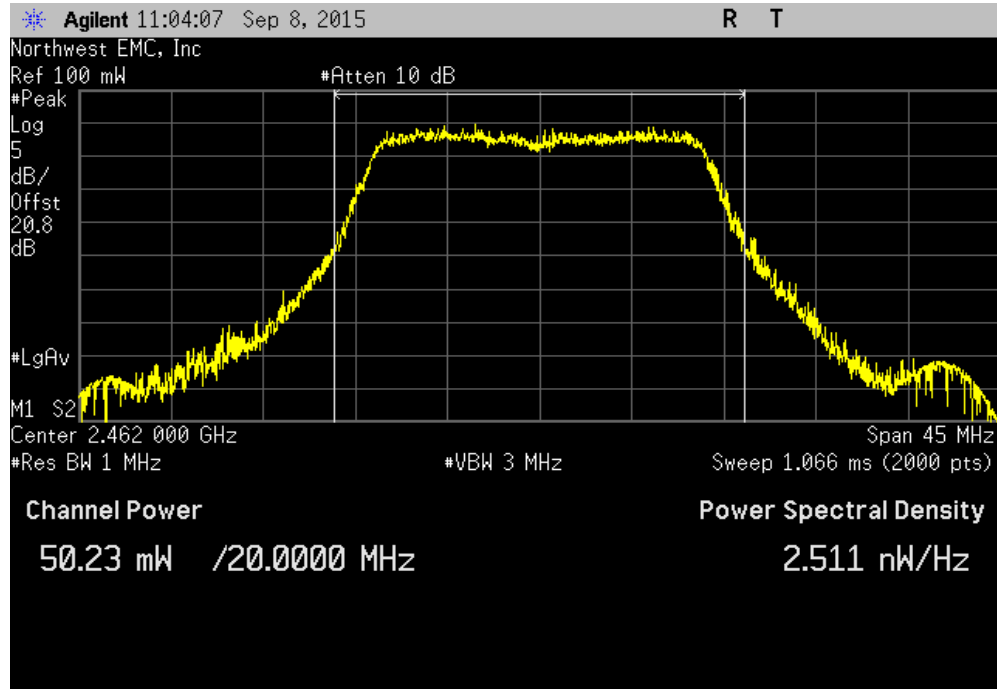
	Value	Limit (<)	Result
	57.832 mW	1 W	Pass



OUTPUT POWER

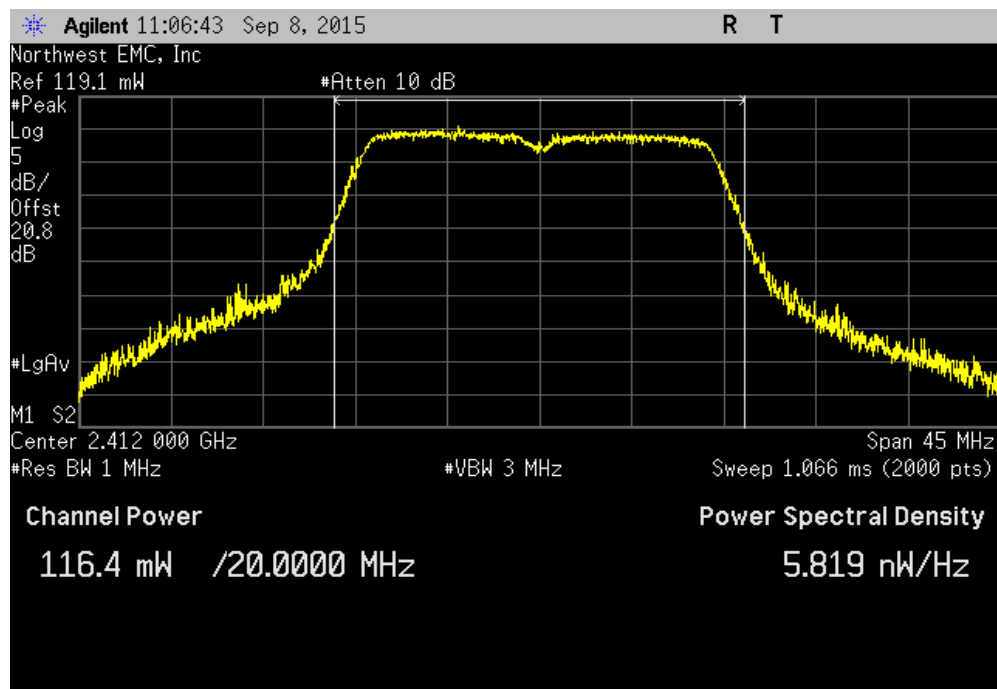
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz

	Value	Limit (<)	Result
	50.227 mW	1 W	Pass



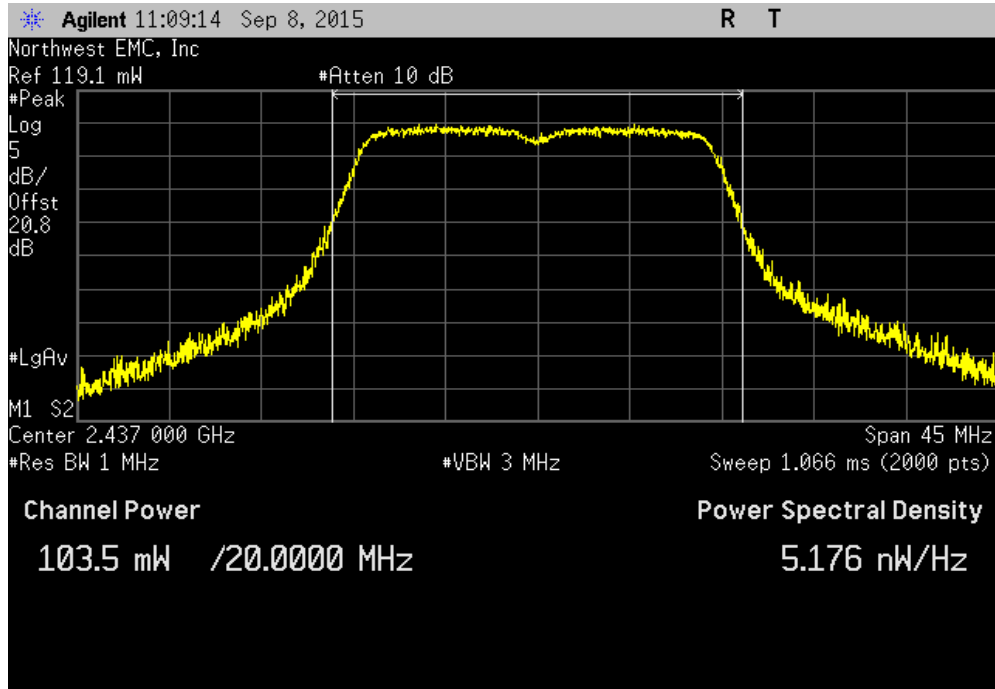
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz

	Value	Limit (<)	Result
	116.377 mW	1 W	Pass

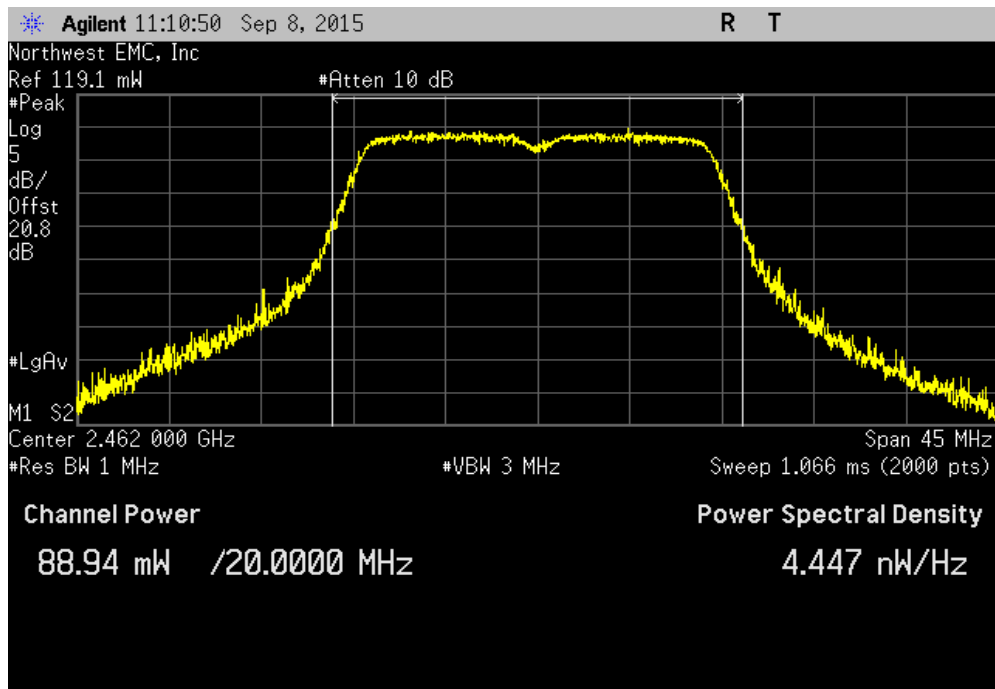


OUTPUT POWER

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (<)	Result
				103.516 mW	1 W	Pass



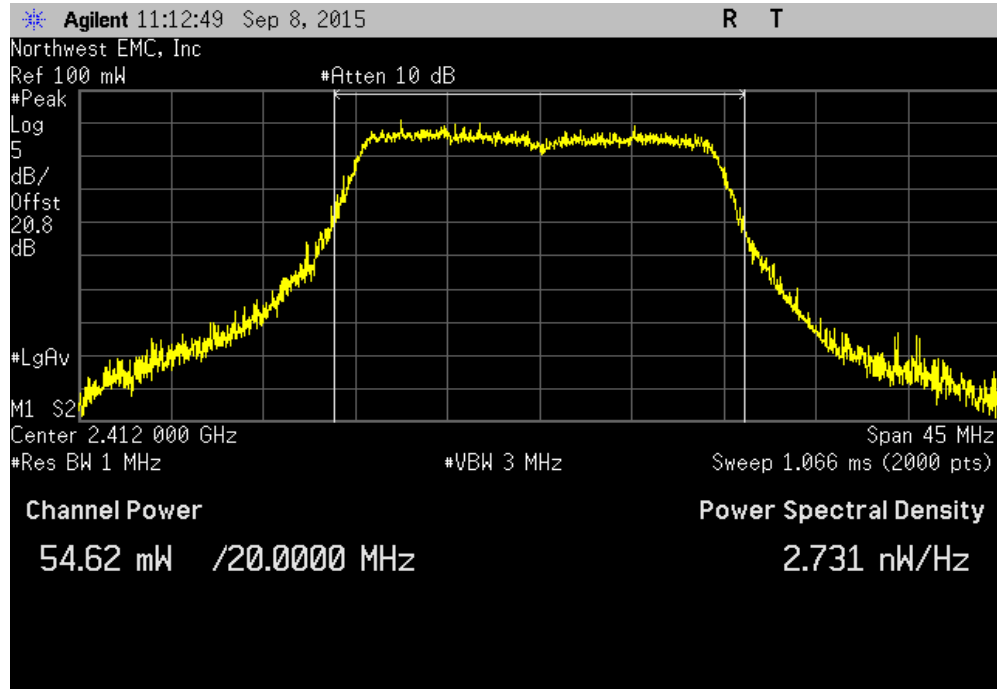
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (<)	Result
				88.94 mW	1 W	Pass



OUTPUT POWER

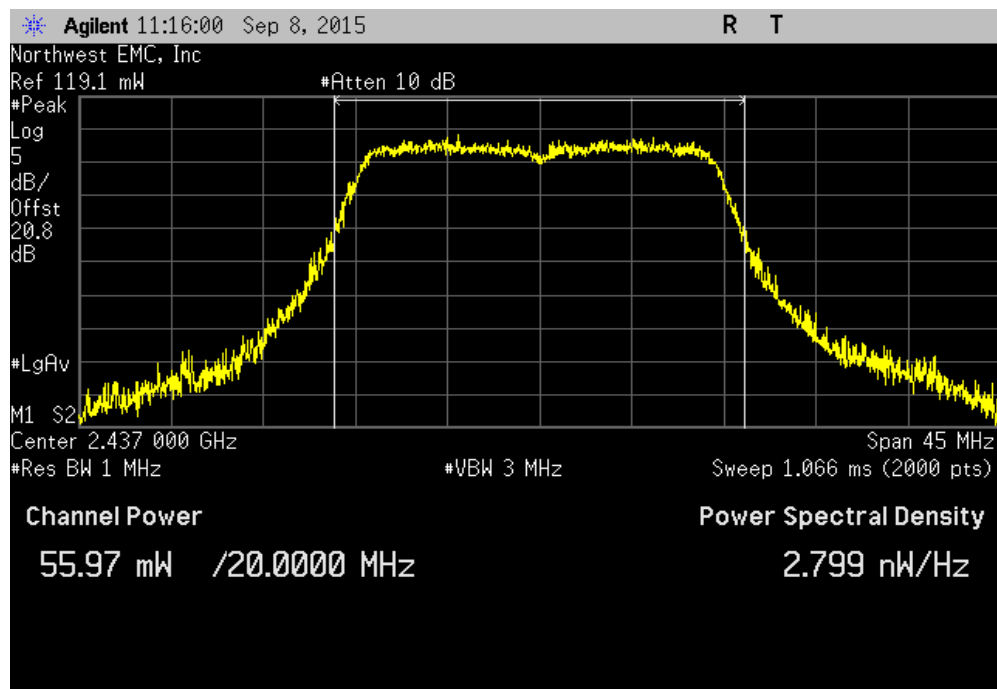
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz

Value	Limit (<)	Result
54.615 mW	1 W	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz

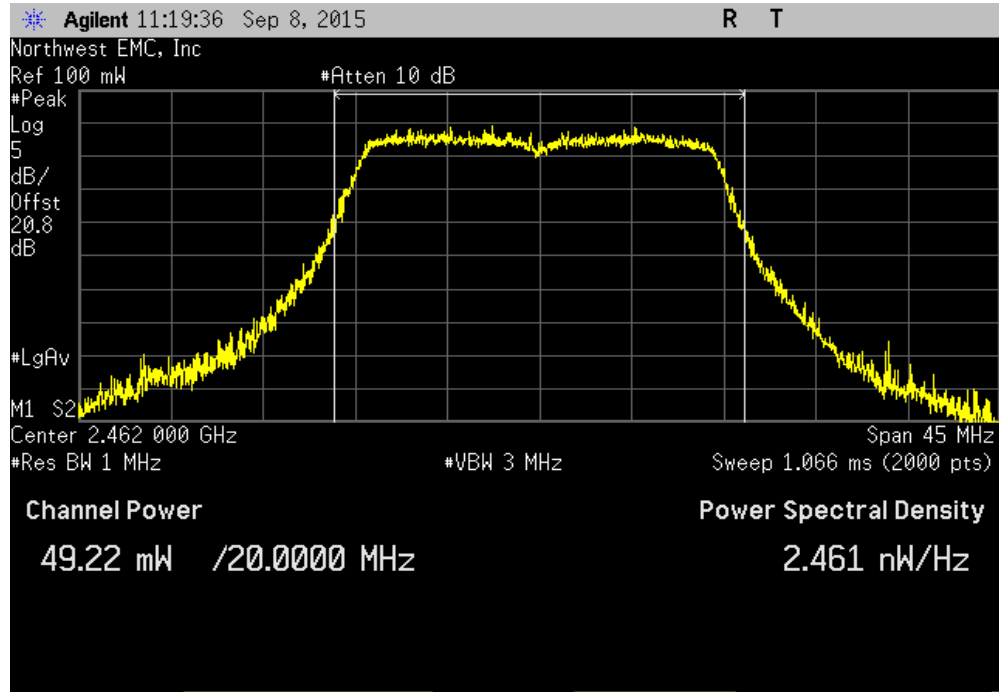
Value	Limit (<)	Result
55.973 mW	1 W	Pass



OUTPUT POWER

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz

Value	Limit	Result
49.218 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 (mos)
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36

TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

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

Per the procedure outlined in ANSI C63.10:2013 Section 11.10.2, the peak power spectral density was measured in a 100 kHz RBW.

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

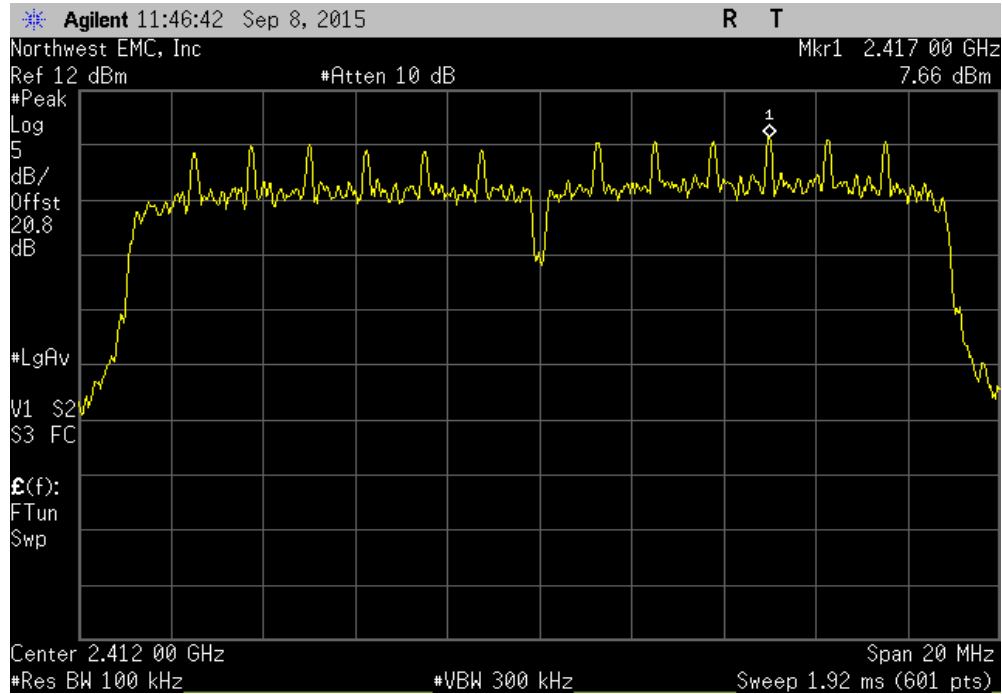
$$\text{BWCF} = 10 \cdot \text{LOG} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

POWER SPECTRAL DENSITY

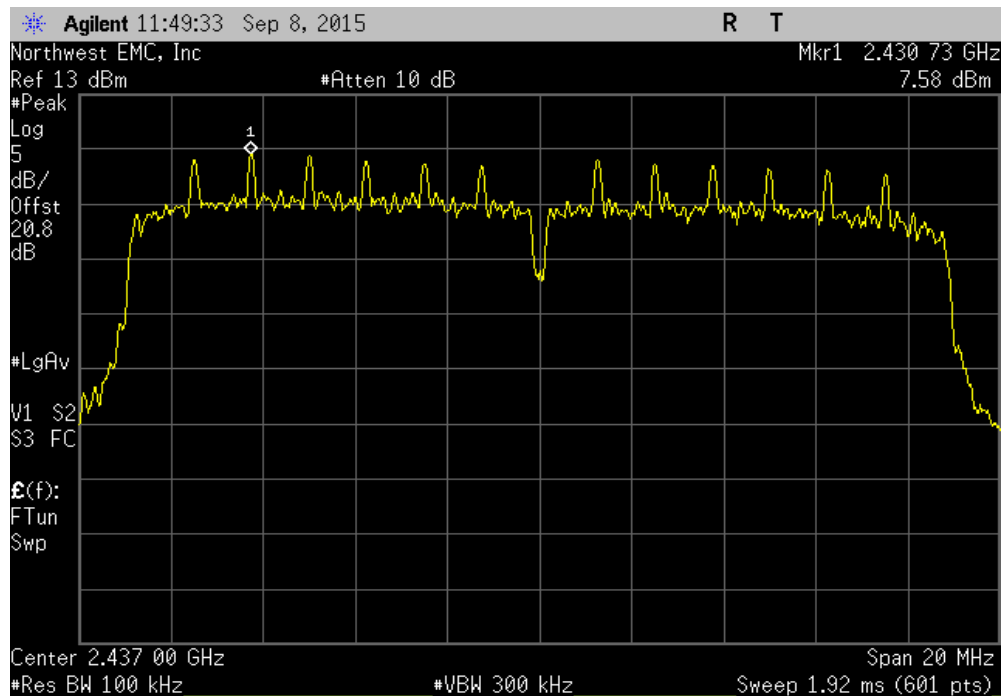
EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009								
Serial Number: 70AF02717-B385		Date: 09/08/15								
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C								
Attendees: None		Humidity: 44%								
Project: None		Barometric Pres.: 1015 mbar								
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz								
Job Site: TX09										
TEST SPECIFICATIONS		Test Method								
FCC 15.247:2015		ANSI C63.10:2013								
COMMENTS										
2x2 MIMO mode, Chain AB (Chains 0 and 1).										
DEVIATIONS FROM TEST STANDARD										
None										
Configuration #	5	Signature Jonathan Kiefa								
		Value	dBm/100kHz	dBm/100kHz	To dBm/3kHz	Value	dBm/3kHz	Limit	dBm/3kHz	Results
Chain A										
20 MHz										
2400 MHz - 2483.5 MHz Band										
802.11(n) MCS8										
		Low Channel 1, 2412 MHz	7.657	-15.2	-7.543	8	Pass			
		Mid Channel 6, 2437 MHz	7.581	-15.2	-7.619	8	Pass			
		High Channel 11, 2462 MHz	7.483	-15.2	-7.717	8	Pass			
802.11(n) MCS15										
		Low Channel 1, 2412 MHz	4.321	-15.2	-10.879	8	Pass			
		Mid Channel 6, 2437 MHz	4.177	-15.2	-11.023	8	Pass			
		High Channel 11, 2462 MHz	4.091	-15.2	-11.109	8	Pass			
Chain B										
20 MHz										
2400 MHz - 2483.5 MHz Band										
802.11(n) MCS8										
		Low Channel 1, 2412 MHz	9.293	-15.2	-5.907	8	Pass			
		Mid Channel 6, 2437 MHz	8.325	-15.2	-6.875	8	Pass			
		High Channel 11, 2462 MHz	8.267	-15.2	-6.933	8	Pass			
802.11(n) MCS15										
		Low Channel 1, 2412 MHz	6.151	-15.2	-9.049	8	Pass			
		Mid Channel 6, 2437 MHz	5.054	-15.2	-10.146	8	Pass			
		High Channel 11, 2462 MHz	5.066	-15.2	-10.134	8	Pass			
Chain A										
20 MHz										
2400 MHz - 2483.5 MHz Band										
		Value	Summing Factor	Summed Value	Limit					
		(dBm/3kHz)	(dBm)	(dBm/3kHz)	(dBm/3kHz)	Result				
		802.11(n) MCS8								
		Low Channel 1, 2412 MHz	-7.543	3	-4.543	8	Pass			
		Mid Channel 6, 2437 MHz	-7.619	3	-4.619	8	Pass			
		High Channel 11, 2462 MHz	-7.717	3	-4.717	8	Pass			
802.11(n) MCS15										
		Low Channel 1, 2412 MHz	-10.879	3	-7.879	8	Pass			
		Mid Channel 6, 2437 MHz	-11.023	3	-8.023	8	Pass			
		High Channel 11, 2462 MHz	-11.109	3	-8.109	8	Pass			
Chain B										
20 MHz										
2400 MHz - 2483.5 MHz Band										
802.11(n) MCS8										
		Low Channel 1, 2412 MHz	-5.907	3	-2.907	8	Pass			
		Mid Channel 6, 2437 MHz	-6.875	3	-3.875	8	Pass			
		High Channel 11, 2462 MHz	-6.933	3	-3.933	8	Pass			
802.11(n) MCS15										
		Low Channel 1, 2412 MHz	-9.049	3	-6.049	8	Pass			
		Mid Channel 6, 2437 MHz	-10.146	3	-7.146	8	Pass			
		High Channel 11, 2462 MHz	-10.134	3	-7.134	8	Pass			

POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.657	-15.2	-7.543	8	Pass	

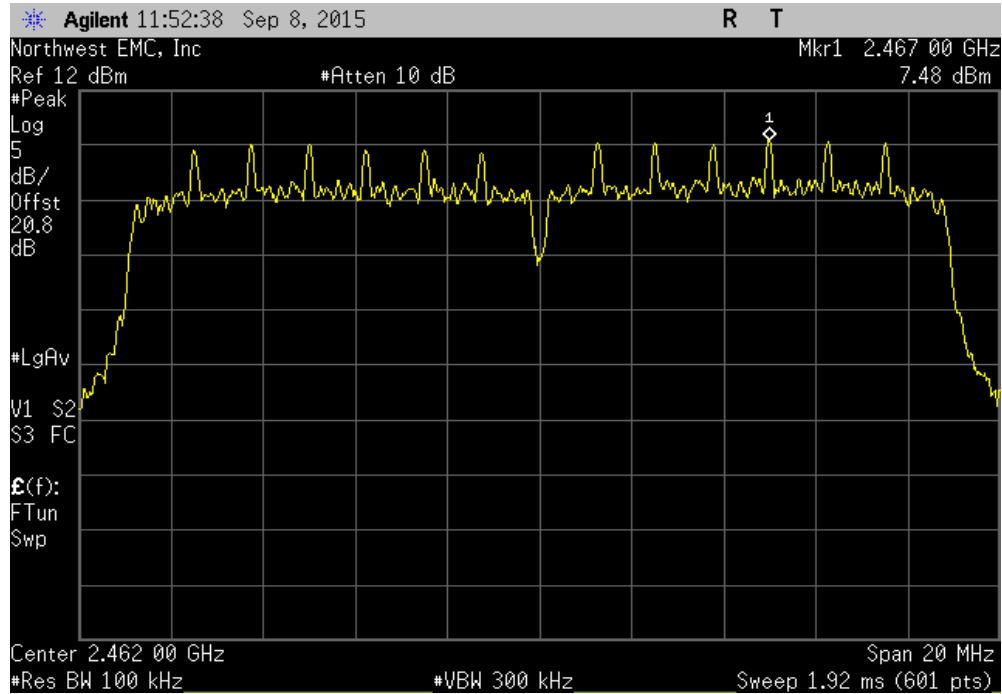


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.581	-15.2	-7.619	8	Pass	

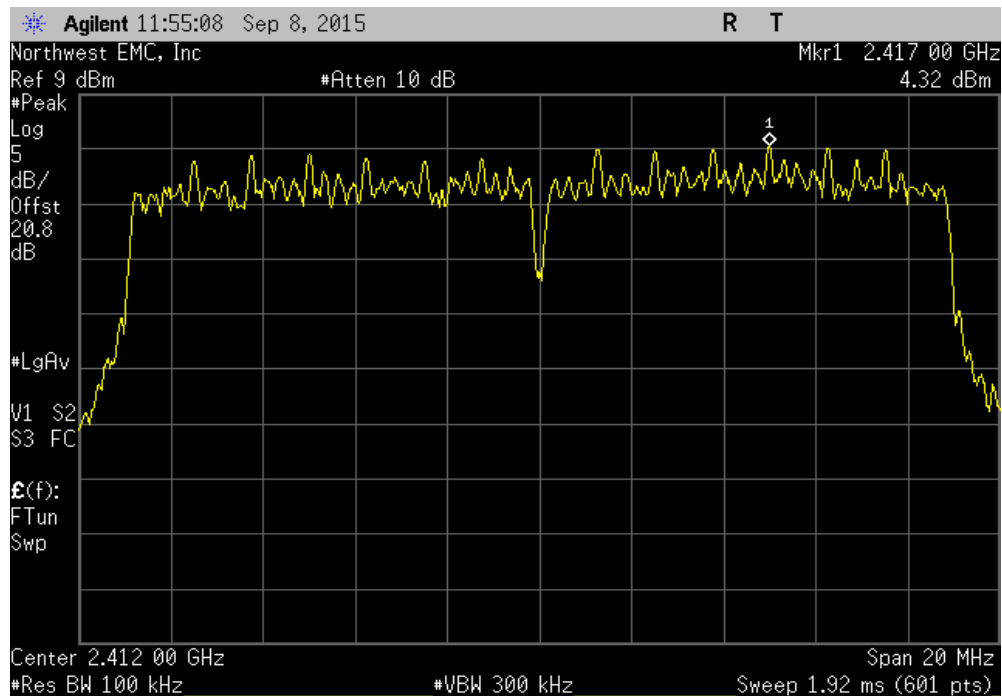


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.483	-15.2	-7.717	8	Pass

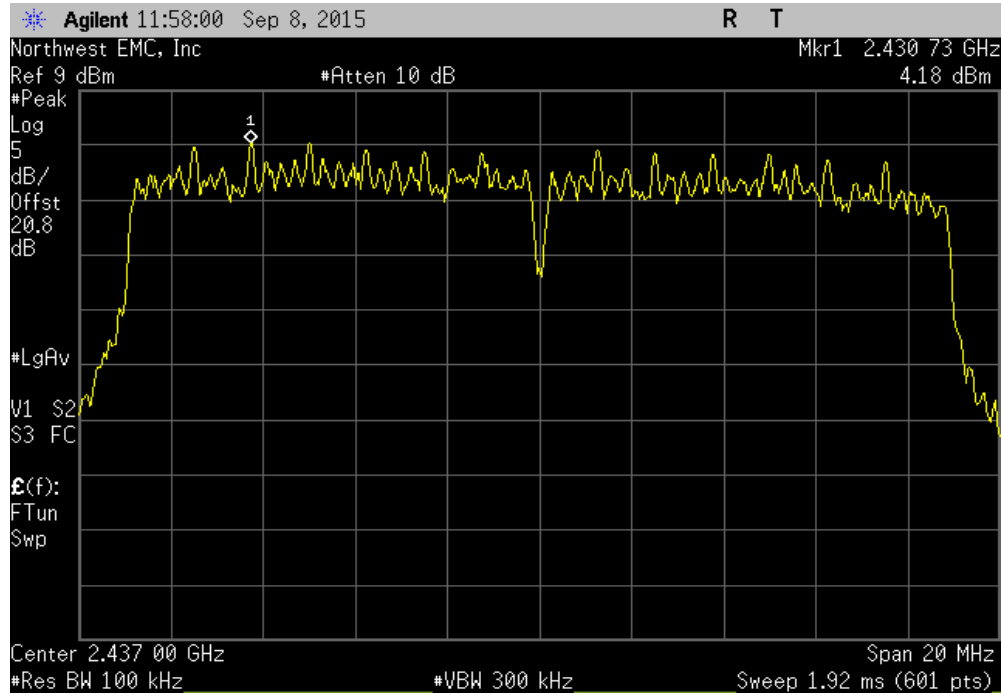


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	4.321	-15.2	-10.879	8	Pass

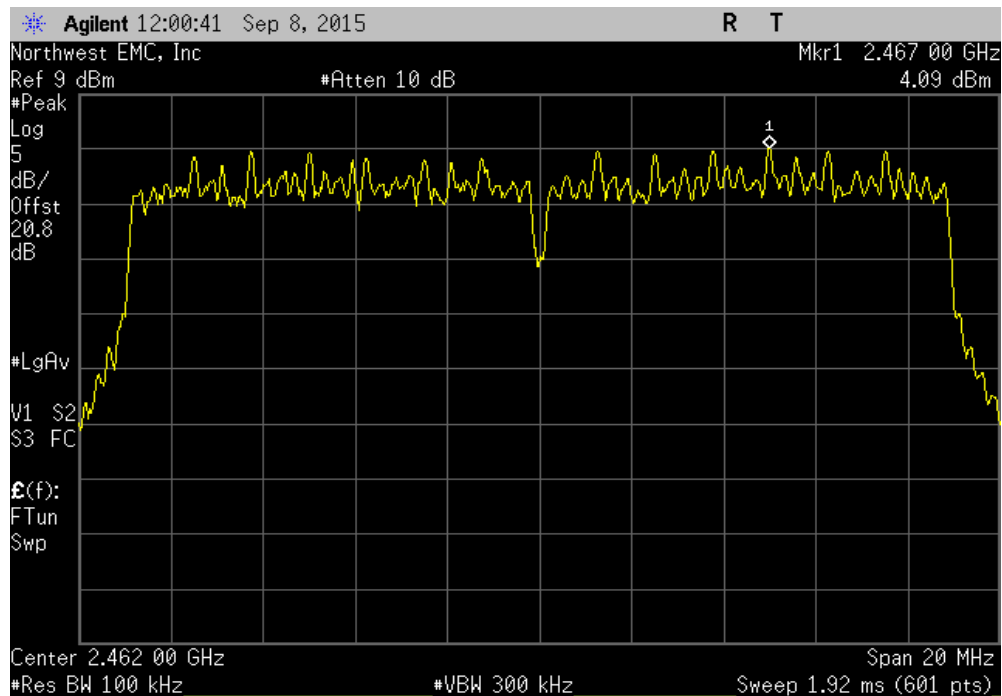


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.177	-15.2	-11.023	8	Pass	

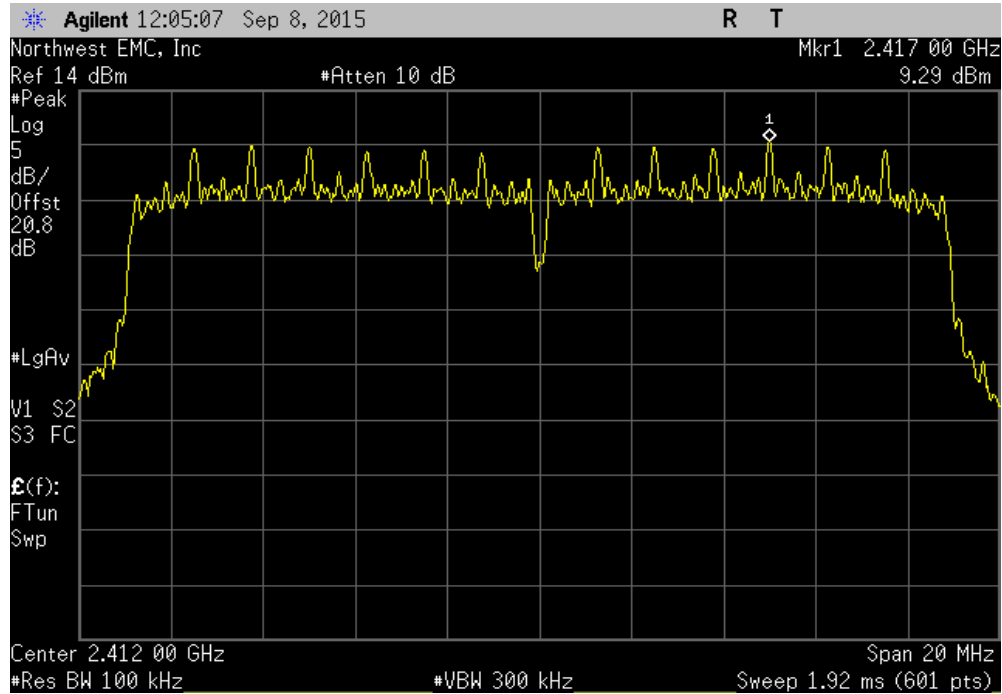


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.091	-15.2	-11.109	8	Pass	

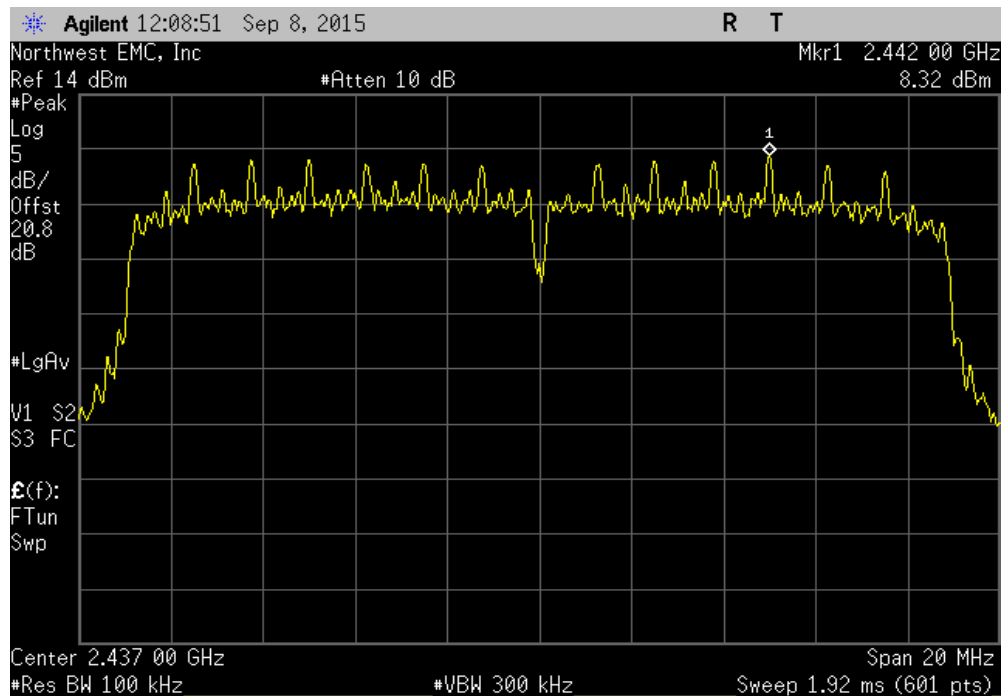


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	9.293	-15.2	-5.907	8	Pass	

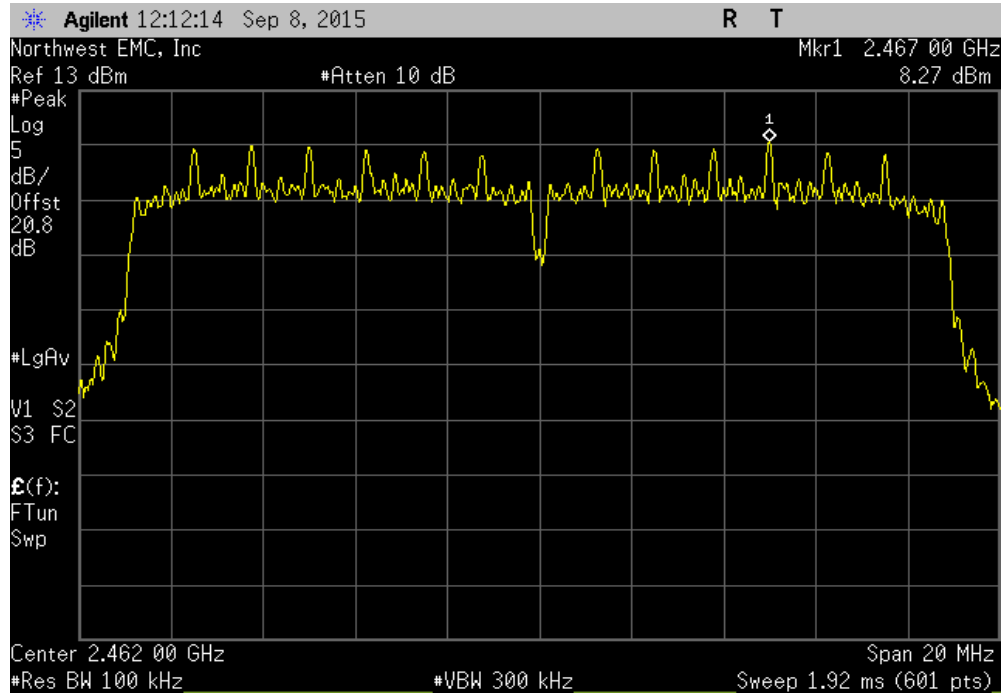


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.325	-15.2	-6.875	8	Pass	

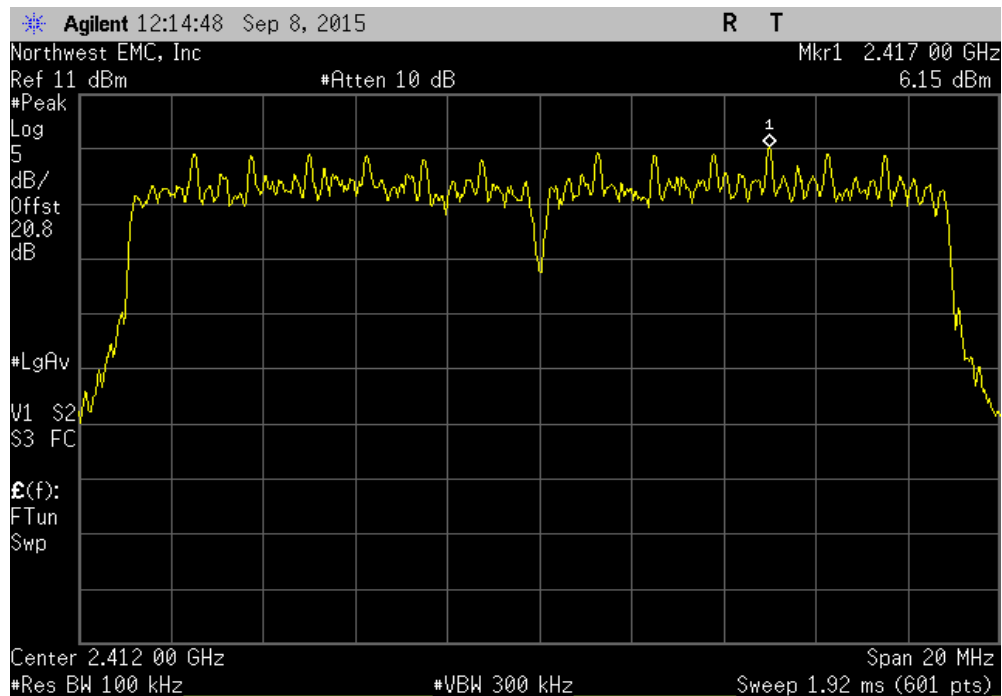


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.267	-15.2	-6.933	8	Pass	

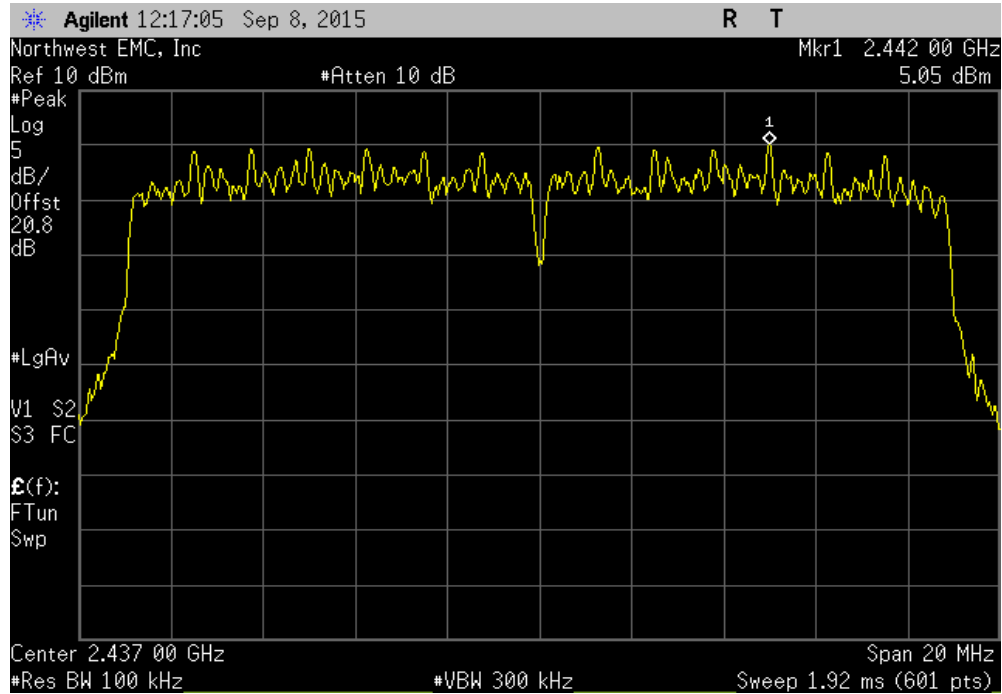


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.151	-15.2	-9.049	8	Pass	

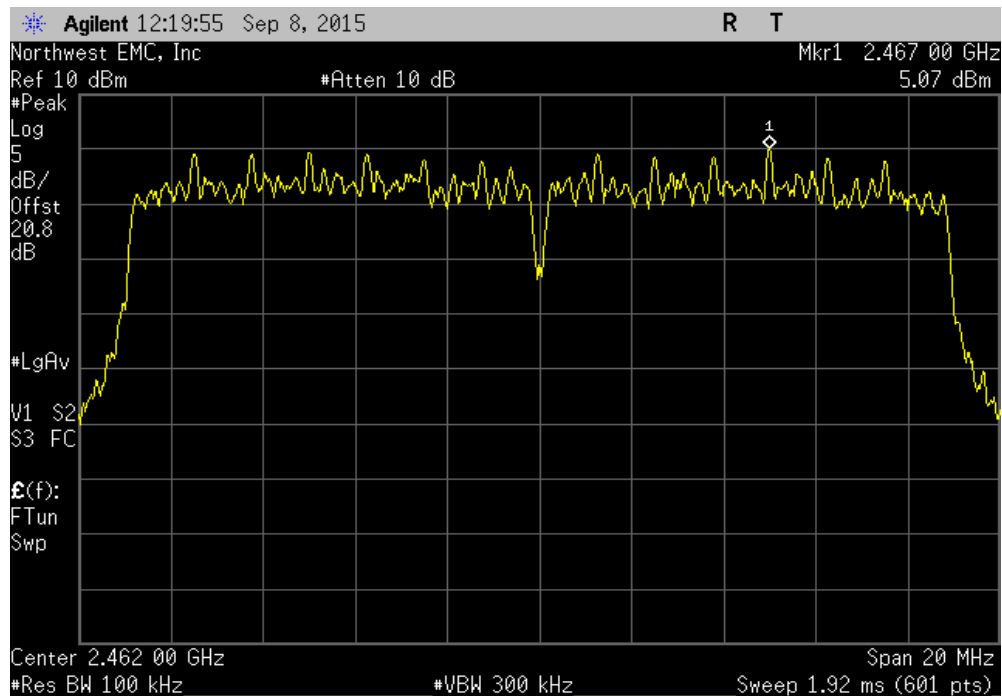


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.054	-15.2	-10.146	8	Pass



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.066	-15.2	-10.134	8	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 (mos)
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36

TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

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

Per the procedure outlined in ANSI C63.10:2013 Section 11.10.2, the peak power spectral density was measured in a 100 kHz RBW.

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

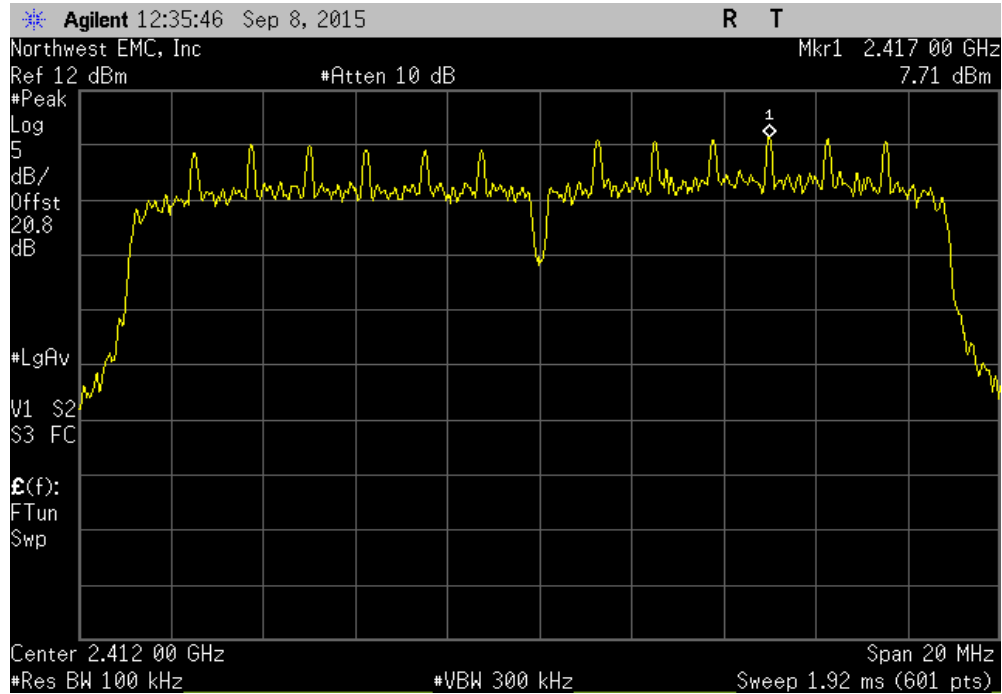
$$\text{BWCF} = 10 \cdot \text{LOG} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

POWER SPECTRAL DENSITY

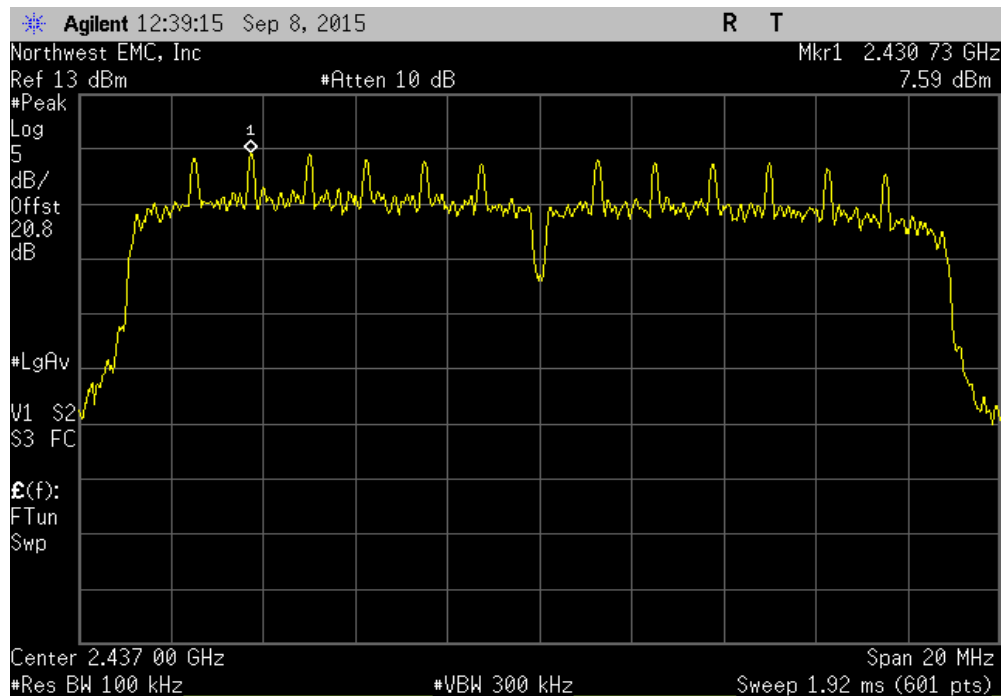
EUT: Firebox T50-W (BSSAE7W)		Work Order: VDEI0009				
Serial Number: 70AF02717-B385		Date: 09/08/15				
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C				
Attendees: None		Humidity: 44%				
Project: None		Barometric Pres.: 1015 mbar				
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz				
Job Site: TX09						
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2015		ANSI C63.10:2013				
COMMENTS						
2x2 MIMO mode, Chain AC (Chains 0 and 2).						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	5	Signature <i>Jonathan Kiefer</i>				
		Value	dBm/100kHz	Value	Limit	
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Results
Chain A						
20 MHz						
2400 MHz - 2483.5 MHz Band						
802.11(n) MCS8						
		Low Channel 1, 2412 MHz	7.711	-15.2	-7.489	8 Pass
		Mid Channel 6, 2437 MHz	7.586	-15.2	-7.614	8 Pass
		High Channel 11, 2462 MHz	7.638	-15.2	-7.562	8 Pass
802.11(n) MCS15						
		Low Channel 1, 2412 MHz	4.375	-15.2	-10.825	8 Pass
		Mid Channel 6, 2437 MHz	4.268	-15.2	-10.932	8 Pass
		High Channel 11, 2462 MHz	4.114	-15.2	-11.086	8 Pass
Chain C						
20 MHz						
2400 MHz - 2483.5 MHz Band						
802.11(n) MCS8						
		Low Channel 1, 2412 MHz	8.544	-15.2	-6.656	8 Pass
		Mid Channel 6, 2437 MHz	8.744	-15.2	-6.456	8 Pass
		High Channel 11, 2462 MHz	8.365	-15.2	-6.835	8 Pass
802.11(n) MCS15						
		Low Channel 1, 2412 MHz	5.238	-15.2	-9.962	8 Pass
		Mid Channel 6, 2437 MHz	5.306	-15.2	-9.894	8 Pass
		High Channel 11, 2462 MHz	4.86	-15.2	-10.34	8 Pass
Chain A						
20 MHz						
2400 MHz - 2483.5 MHz Band						
		802.11(n) MCS8	Value	Summing Factor	Summed Value	Limit
			(dBm/3kHz)	(dBm)	(dBm/3kHz)	(dBm/3kHz)
		Low Channel 1, 2412 MHz	-7.489	3	-4.489	8 Pass
		Mid Channel 6, 2437 MHz	-7.614	3	-4.614	8 Pass
		High Channel 11, 2462 MHz	-7.562	3	-4.562	8 Pass
802.11(n) MCS15						
		Low Channel 1, 2412 MHz	-10.825	3	-7.825	8 Pass
		Mid Channel 6, 2437 MHz	-10.932	3	-7.932	8 Pass
		High Channel 11, 2462 MHz	-11.086	3	-8.086	8 Pass
Chain C						
20 MHz						
2400 MHz - 2483.5 MHz Band						
		802.11(n) MCS8	Value	Summing Factor	Summed Value	Limit
			(dBm/3kHz)	(dBm)	(dBm/3kHz)	(dBm/3kHz)
		Low Channel 1, 2412 MHz	-6.656	3	-3.656	8 Pass
		Mid Channel 6, 2437 MHz	-6.456	3	-3.456	8 Pass
		High Channel 11, 2462 MHz	-6.835	3	-3.835	8 Pass
802.11(n) MCS15						
		Low Channel 1, 2412 MHz	-9.962	3	-6.962	8 Pass
		Mid Channel 6, 2437 MHz	-9.894	3	-6.894	8 Pass
		High Channel 11, 2462 MHz	-10.34	3	-7.34	8 Pass

POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.711	-15.2	-7.489	8	Pass

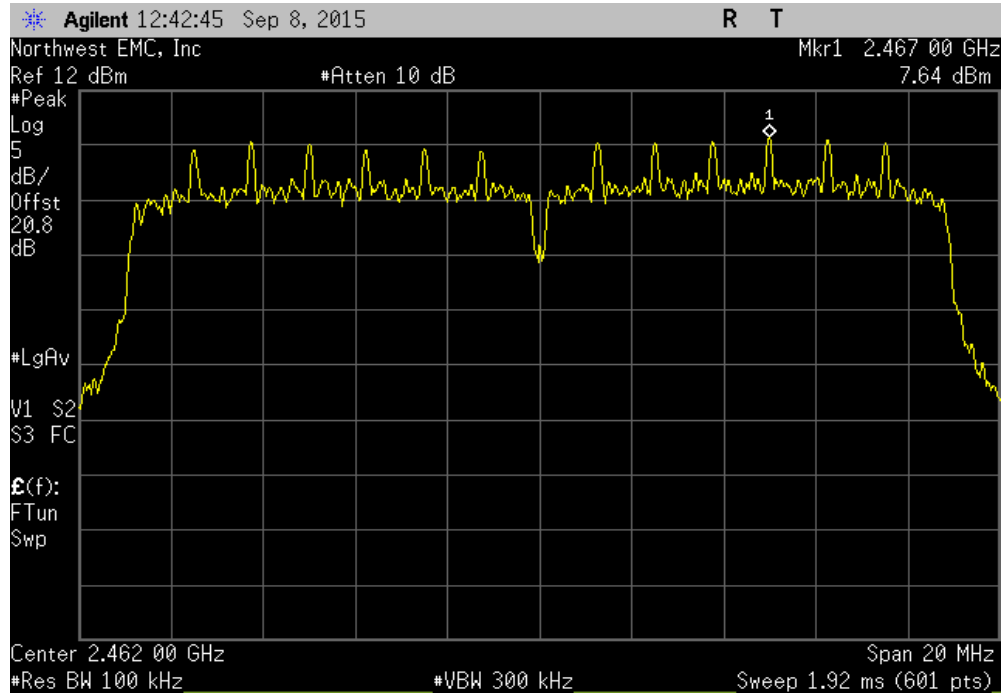


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.586	-15.2	-7.614	8	Pass

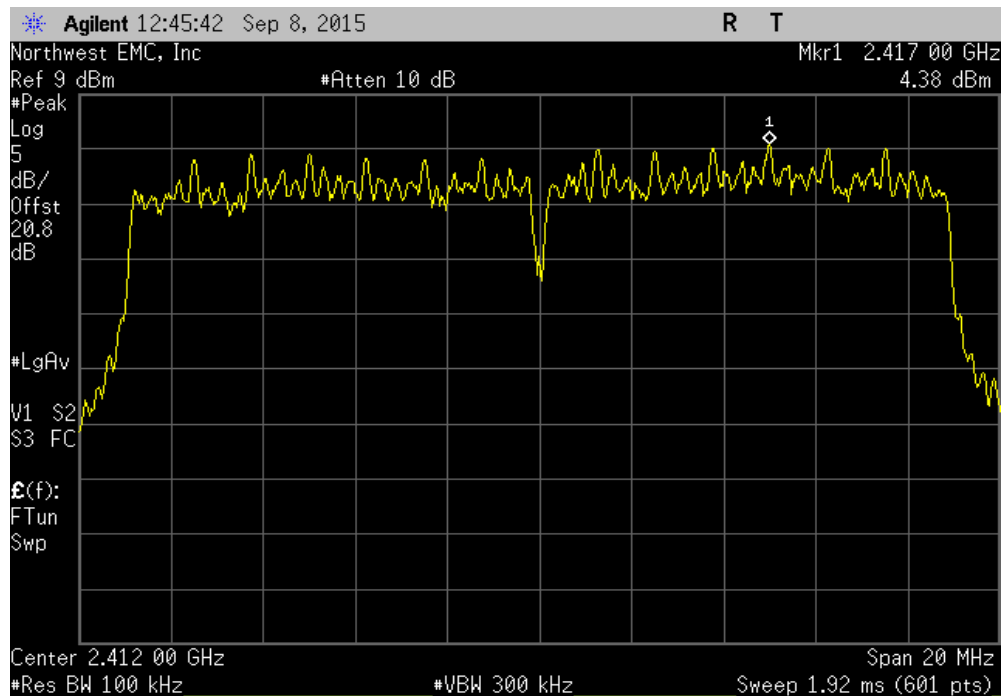


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.638	-15.2	-7.562	8	Pass

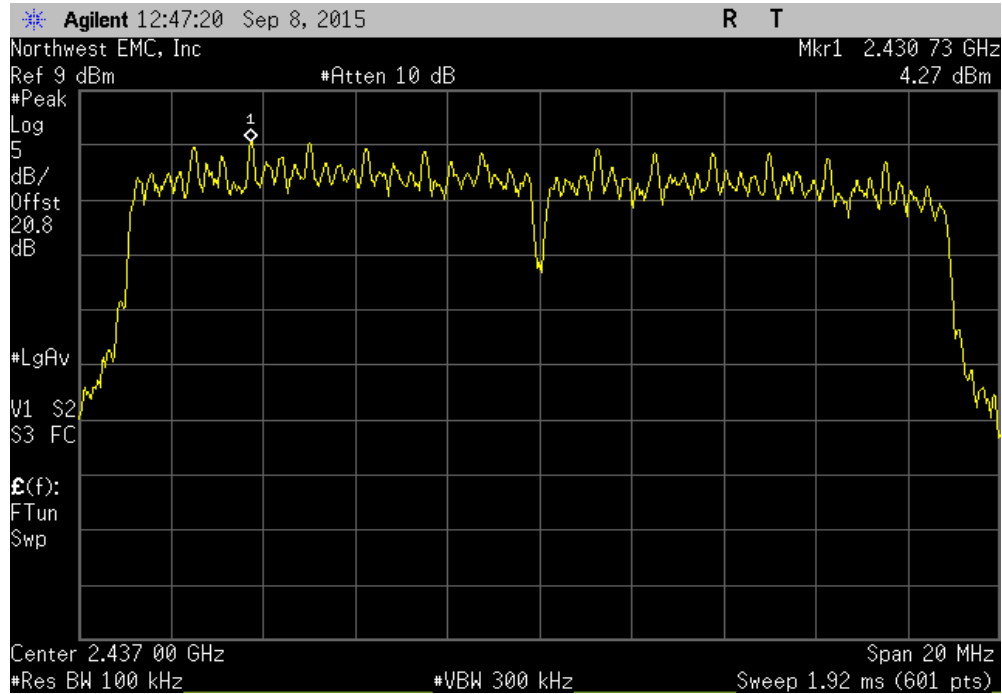


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	4.375	-15.2	-10.825	8	Pass

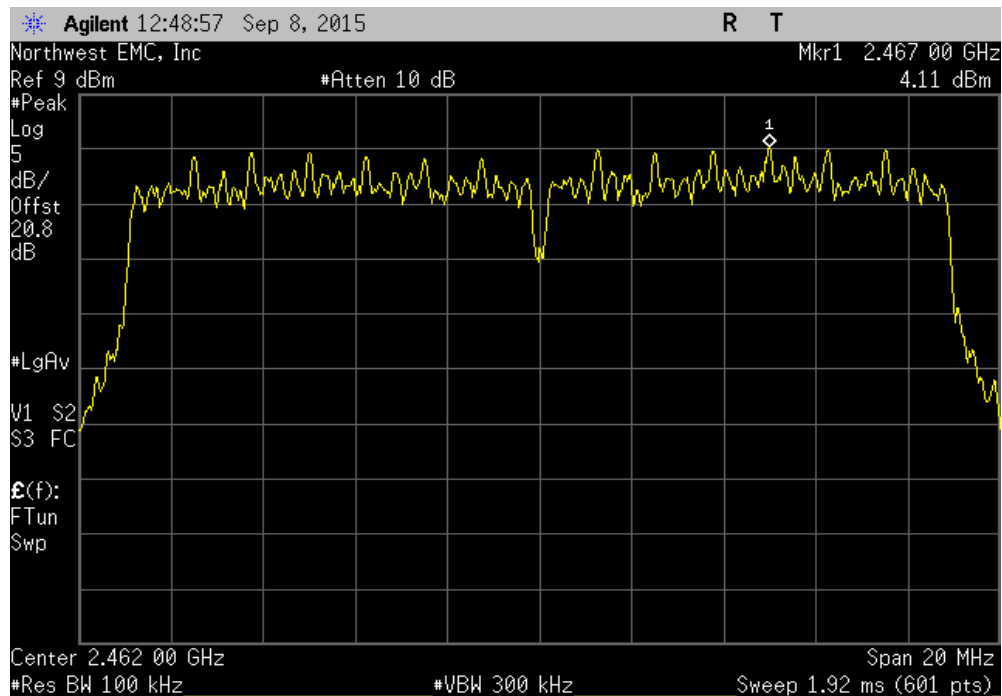


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.268	-15.2	-10.932	8	Pass	

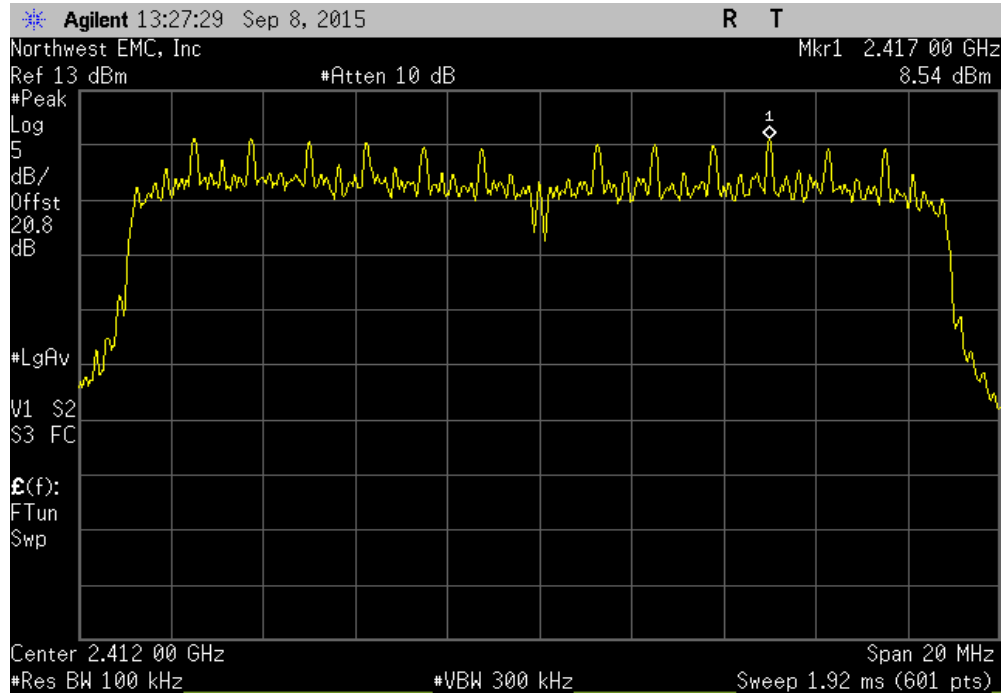


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.114	-15.2	-11.086	8	Pass	

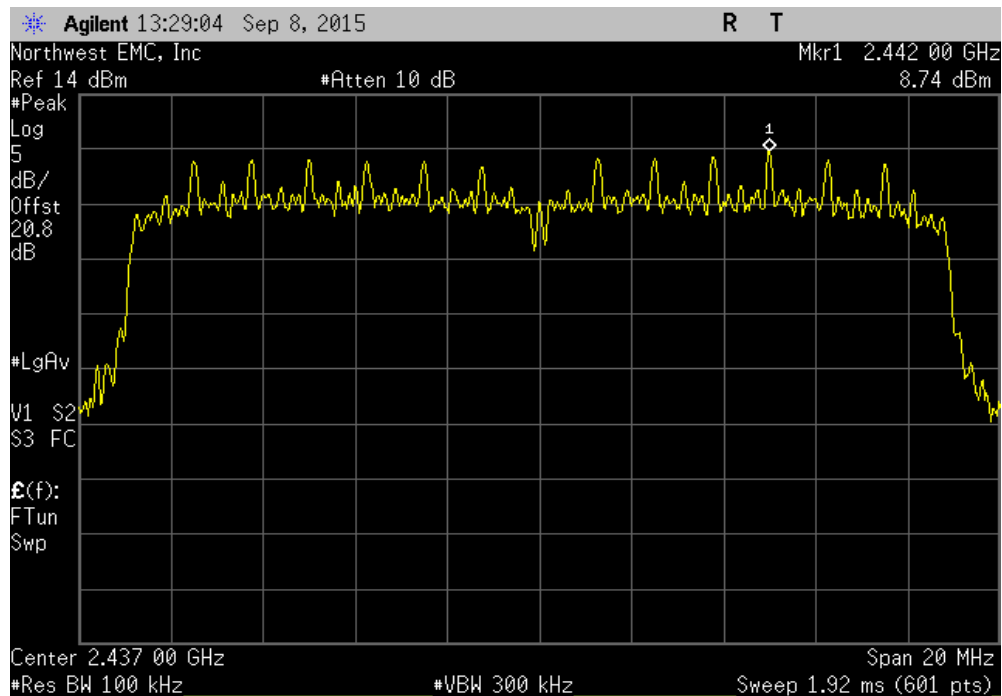


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.544	-15.2	-6.656	8	Pass	

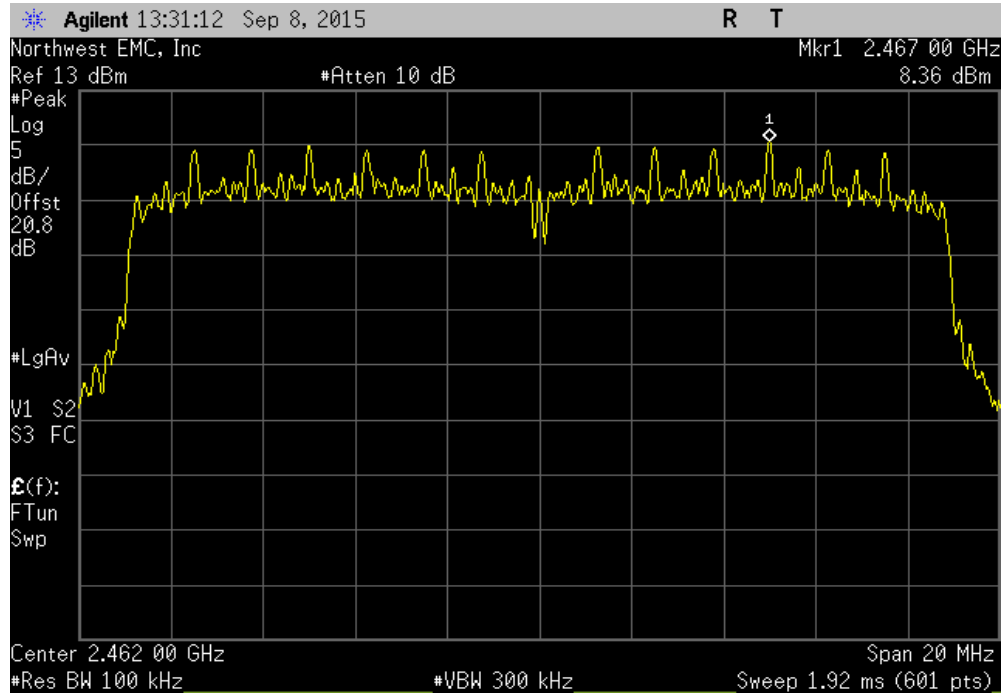


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.744	-15.2	-6.456	8	Pass	

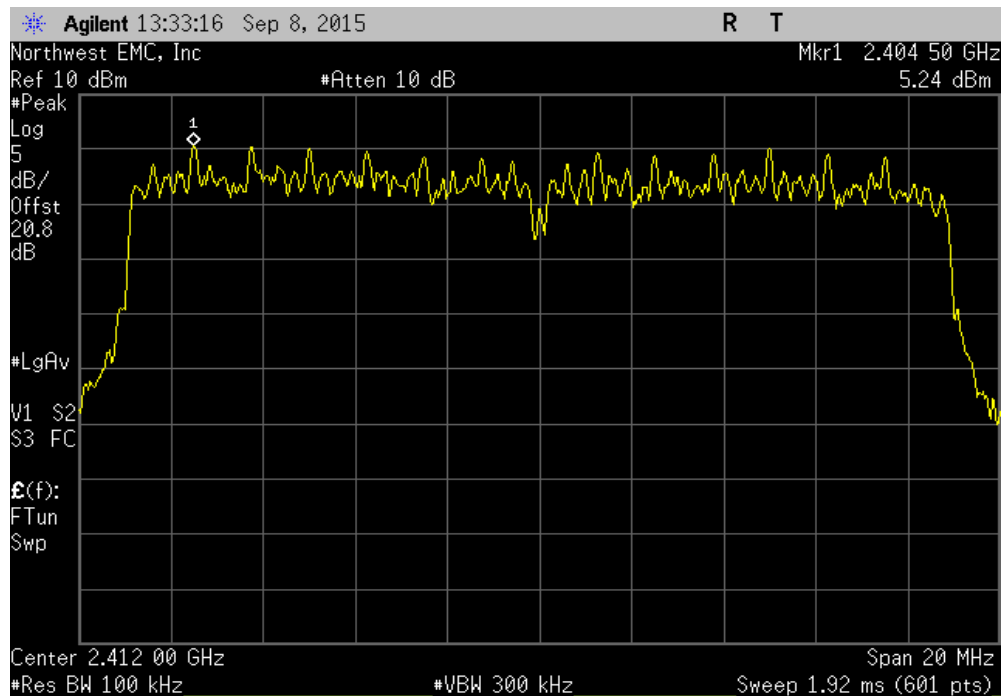


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.365	-15.2	-6.835	8	Pass	



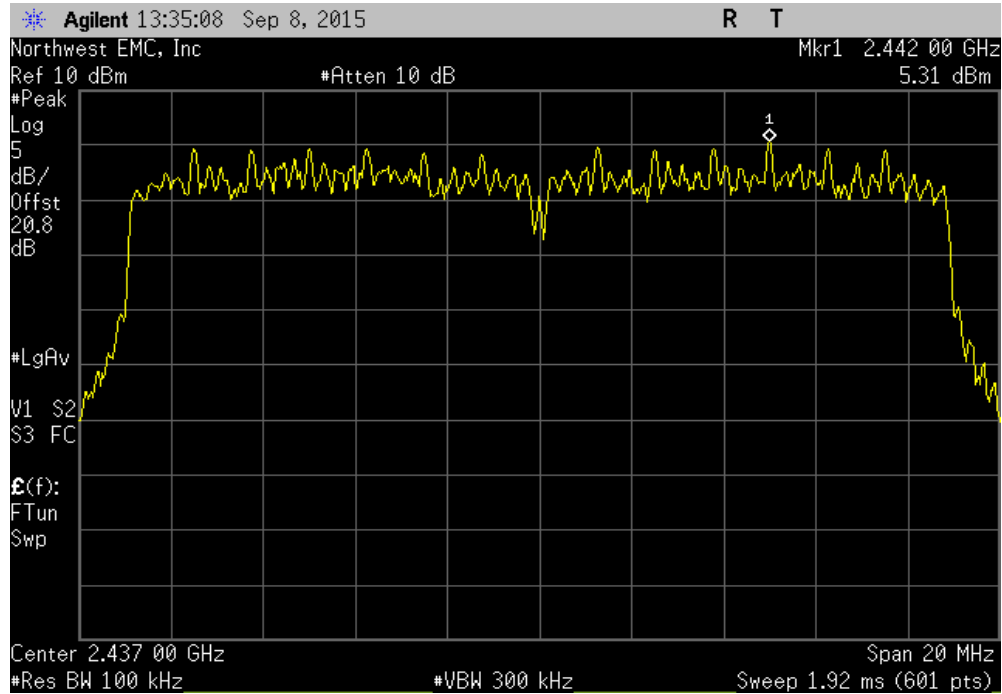
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.238	-15.2	-9.962	8	Pass	



POWER SPECTRAL DENSITY

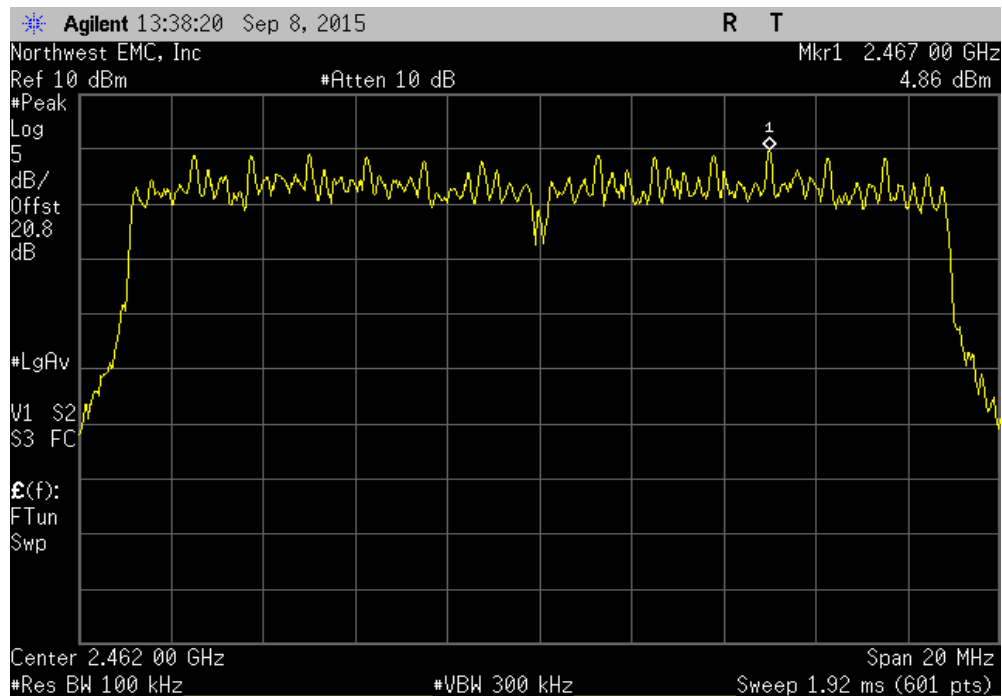
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
5.306	-15.2	-9.894	8	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
4.86	-15.2	-10.34	8	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 (mos)
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12

TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

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

Per the procedure outlined in ANSI C63.10:2013 Section 11.10.2, the peak power spectral density was measured in a 100 kHz RBW.

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

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

POWER SPECTRAL DENSITY

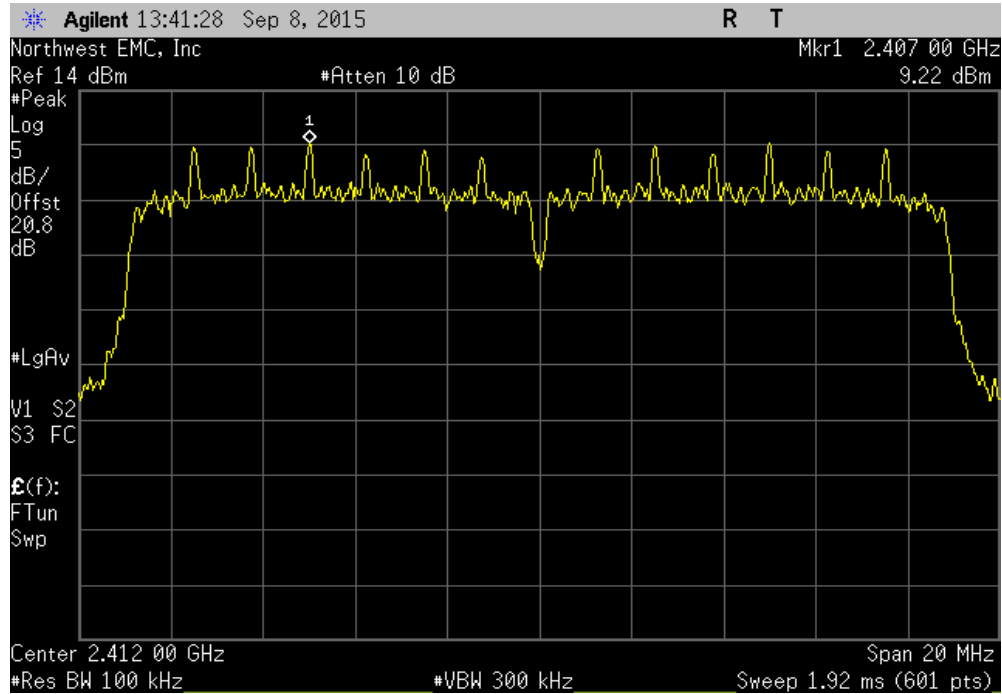


XMit 2015.01.14

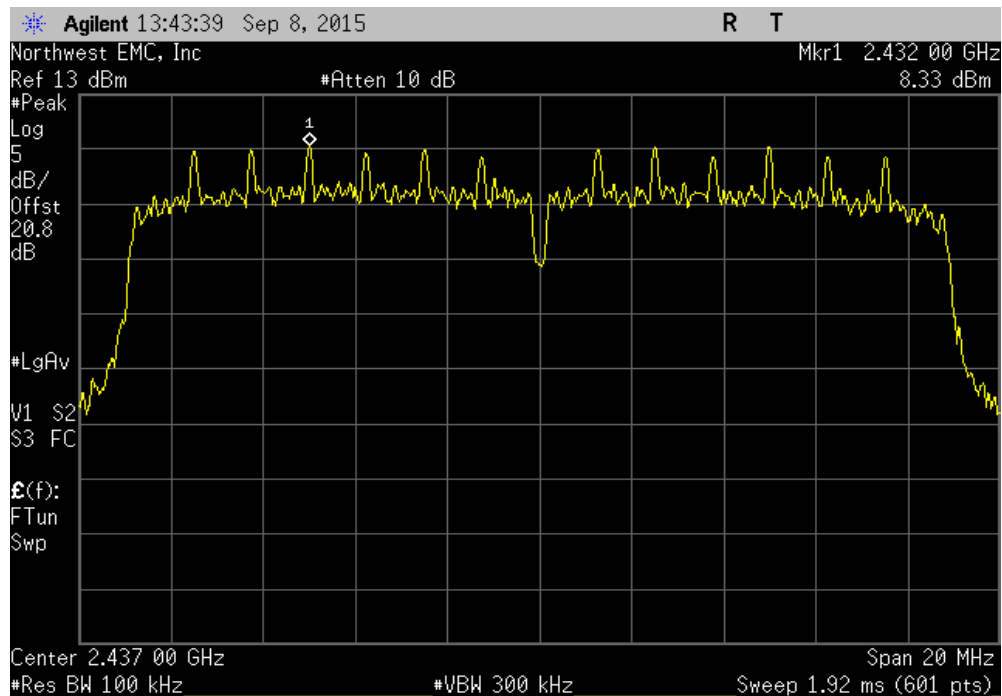
EUT: Firebox T50-W (BSSAE7W)		Work Order: VDEI0009				
Serial Number: 70AF02717-B385		Date: 09/08/15				
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C				
Attendees: None		Humidity: 44%				
Project: None		Barometric Pres.: 1015 mbar				
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz				
Job Site: TX09						
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2015		ANSI C63.10:2013				
COMMENTS						
2x2 MIMO mode, Chain BC (Chains 1 and 2).						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	5	Signature <i>Jonathan Kiefer</i>				
		Value	dBm/100kHz	Value	Limit	
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Results
Chain B						
20 MHz						
2400 MHz - 2483.5 MHz Band						
802.11(n) MCS8						
Low Channel 1, 2412 MHz		9.218	-15.2	-5.982	8	Pass
Mid Channel 6, 2437 MHz		8.326	-15.2	-6.874	8	Pass
High Channel 11, 2462 MHz		8.153	-15.2	-7.047	8	Pass
802.11(n) MCS15						
Low Channel 1, 2412 MHz		6.018	-15.2	-9.182	8	Pass
Mid Channel 6, 2437 MHz		5.187	-15.2	-10.013	8	Pass
High Channel 11, 2462 MHz		5.152	-15.2	-10.048	8	Pass
Chain C						
20 MHz						
2400 MHz - 2483.5 MHz Band						
802.11(n) MCS8						
Low Channel 1, 2412 MHz		8.718	-15.2	-6.482	8	Pass
Mid Channel 6, 2437 MHz		8.718	-15.2	-6.482	8	Pass
High Channel 11, 2462 MHz		8.174	-15.2	-7.026	8	Pass
802.11(n) MCS15						
Low Channel 1, 2412 MHz		5.354	-15.2	-9.846	8	Pass
Mid Channel 6, 2437 MHz		5.289	-15.2	-9.911	8	Pass
High Channel 11, 2462 MHz		4.957	-15.2	-10.243	8	Pass
Chain B						
20 MHz						
2400 MHz - 2483.5 MHz Band		Value	Summing Factor	Summed Value	Limit	
802.11(n) MCS8		(dBm/3kHz)	(dBm)	(dBm/3kHz)	(dBm/3kHz)	Result
Low Channel 1, 2412 MHz		-5.982	3	-2.982	8	Pass
Mid Channel 6, 2437 MHz		-6.874	3	-3.874	8	Pass
High Channel 11, 2462 MHz		-7.047	3	-4.047	8	Pass
802.11(n) MCS15						
Low Channel 1, 2412 MHz		-9.182	3	-6.182	8	Pass
Mid Channel 6, 2437 MHz		-10.013	3	-7.013	8	Pass
High Channel 11, 2462 MHz		-10.048	3	-7.048	8	Pass
Chain C						
20 MHz						
2400 MHz - 2483.5 MHz Band						
802.11(n) MCS8						
Low Channel 1, 2412 MHz		-6.482	3	-3.482	8	Pass
Mid Channel 6, 2437 MHz		-6.482	3	-3.482	8	Pass
High Channel 11, 2462 MHz		-7.026	3	-4.026	8	Pass
802.11(n) MCS15						
Low Channel 1, 2412 MHz		-9.846	3	-6.846	8	Pass
Mid Channel 6, 2437 MHz		-9.911	3	-6.911	8	Pass
High Channel 11, 2462 MHz		-10.243	3	-7.243	8	Pass

POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	9.218	-15.2	-5.982	8	Pass	

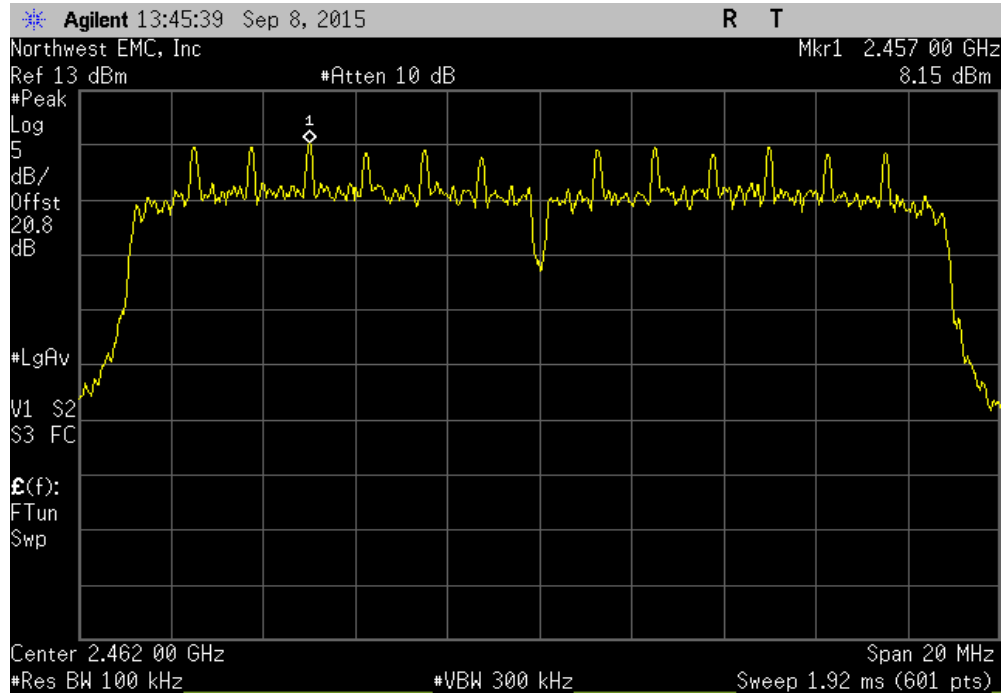


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.326	-15.2	-6.874	8	Pass	

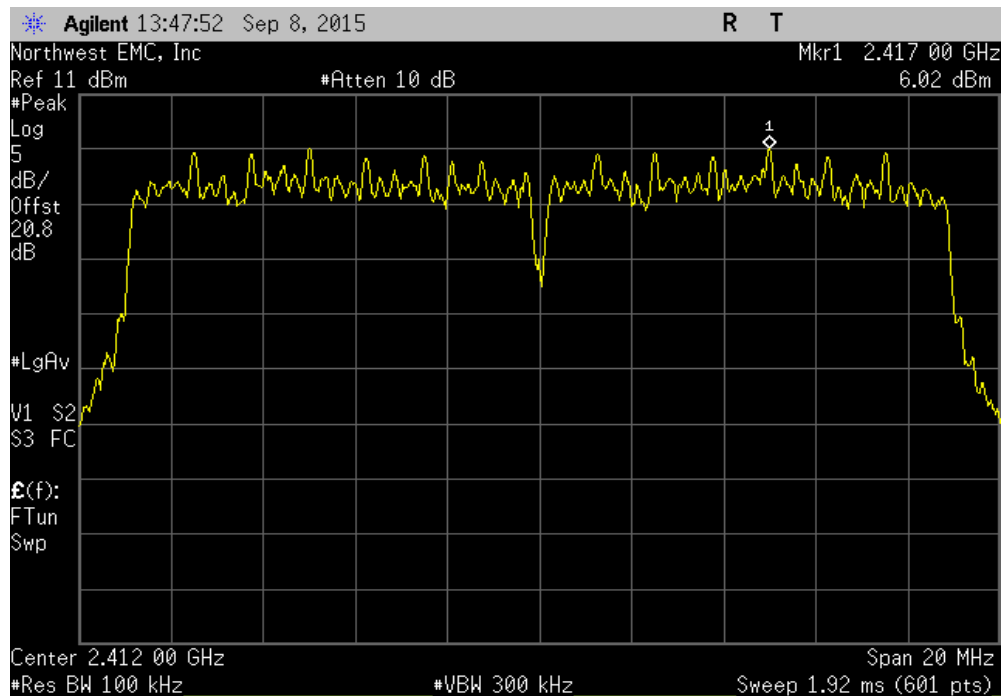


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.153	-15.2	-7.047	8	Pass	



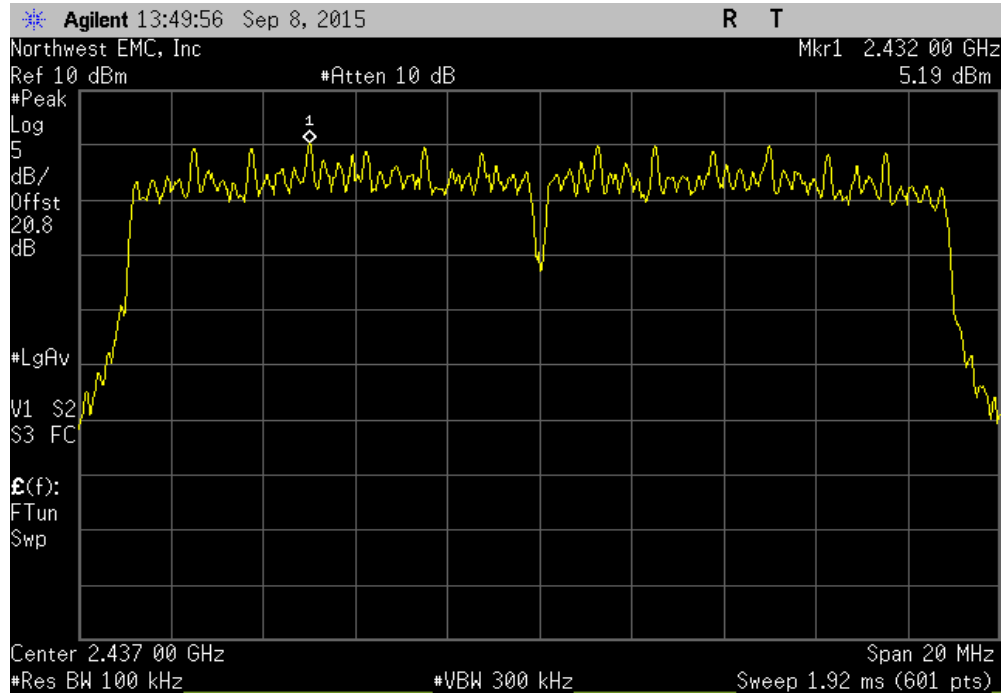
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.018	-15.2	-9.182	8	Pass	



POWER SPECTRAL DENSITY

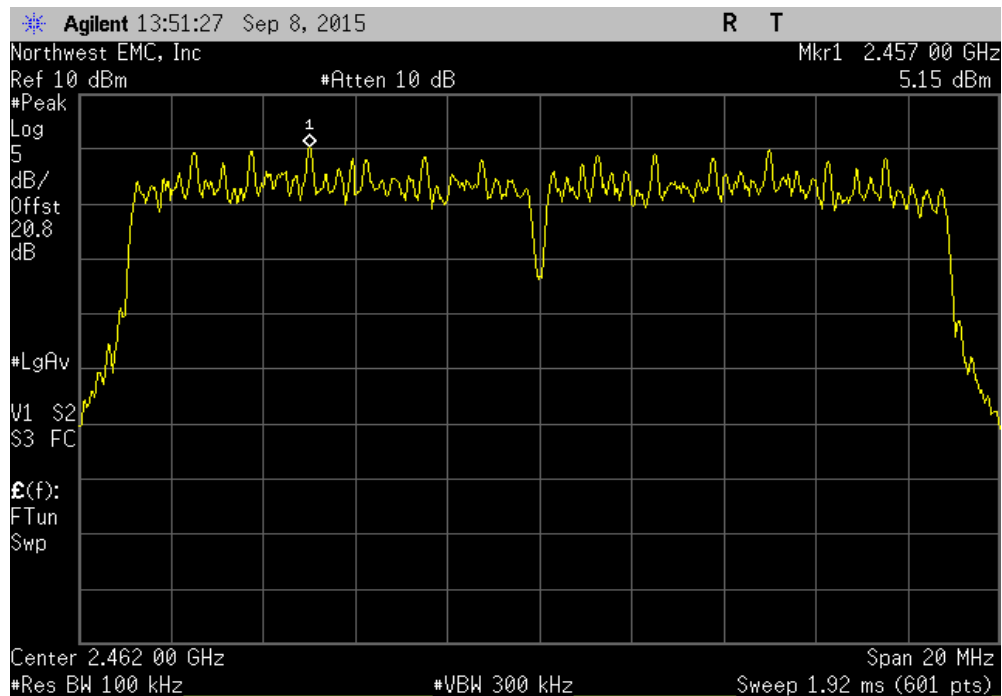
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
5.187	-15.2	-10.013	8	Pass



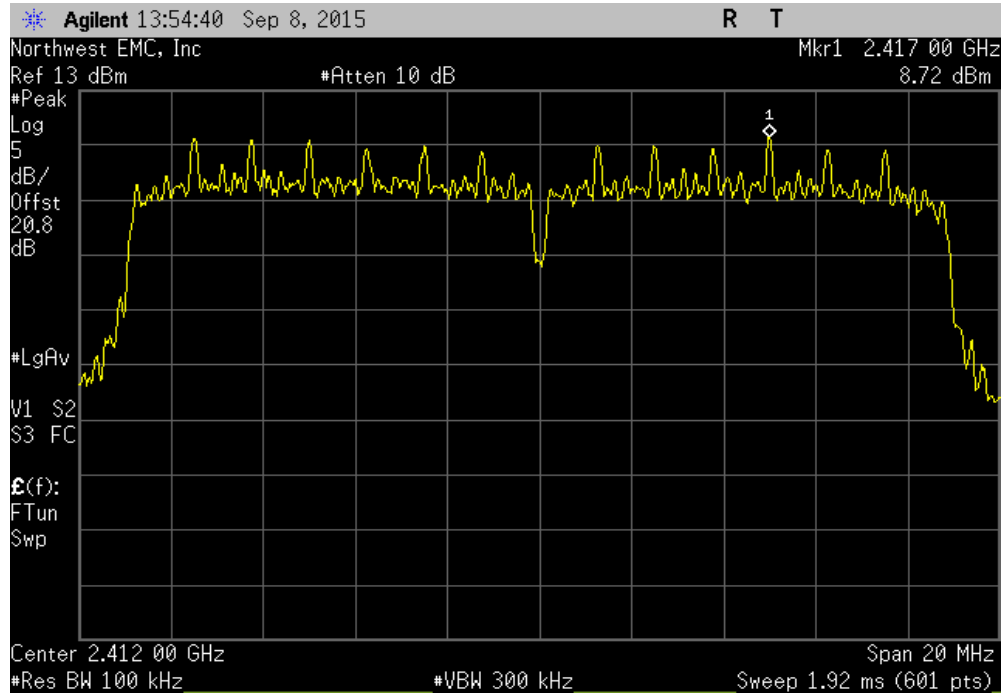
Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz

Value	dBm/100kHz	Value	Limit	Results
dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
5.152	-15.2	-10.048	8	Pass

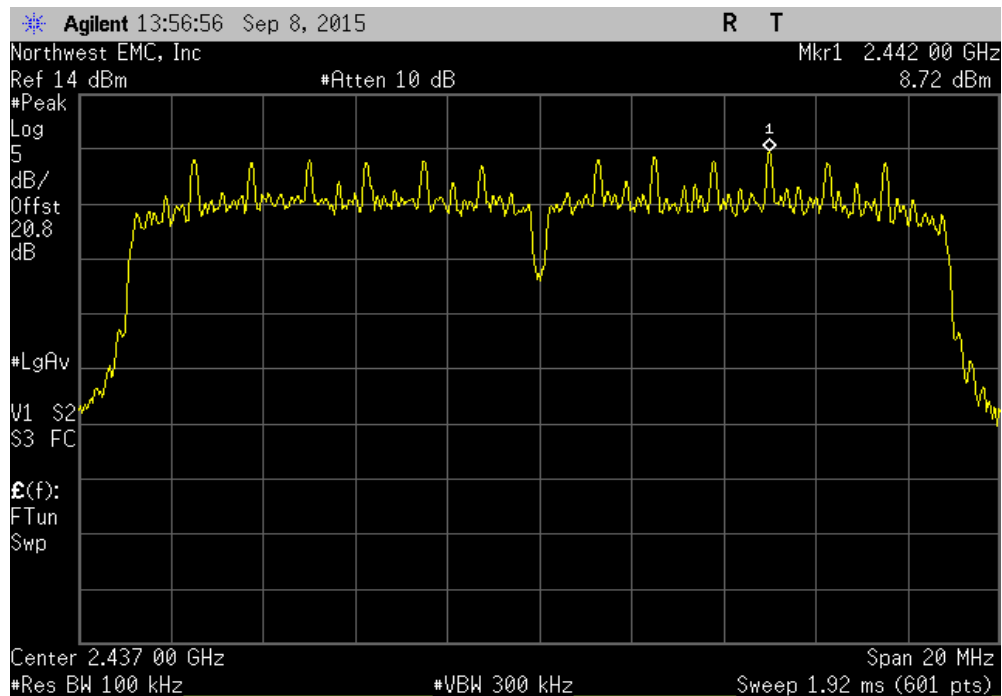


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.718	-15.2	-6.482	8	Pass	

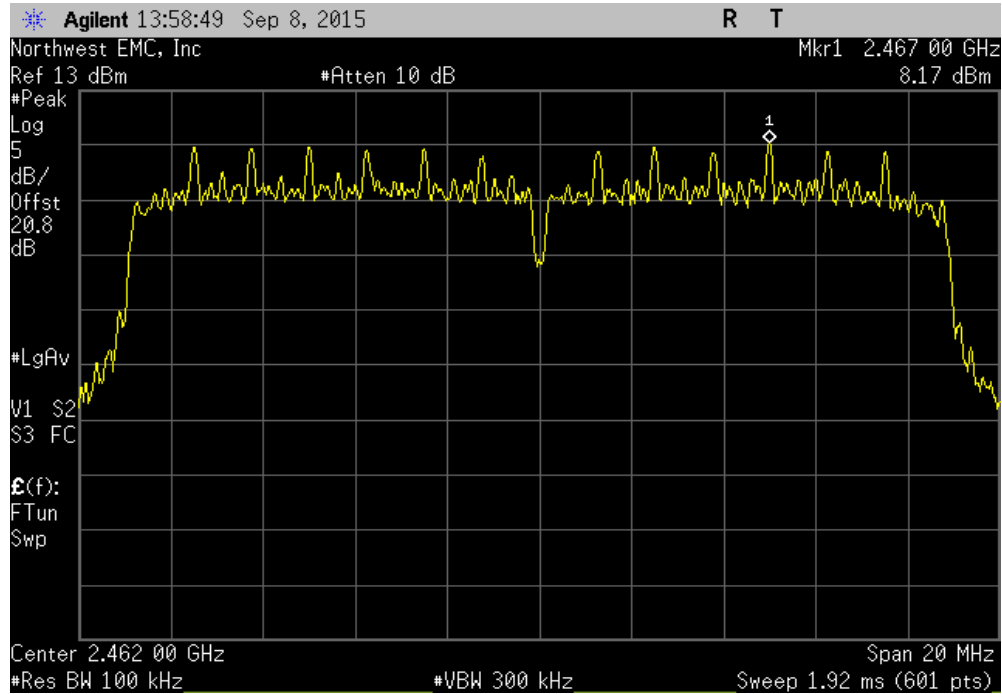


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.718	-15.2	-6.482	8	Pass	

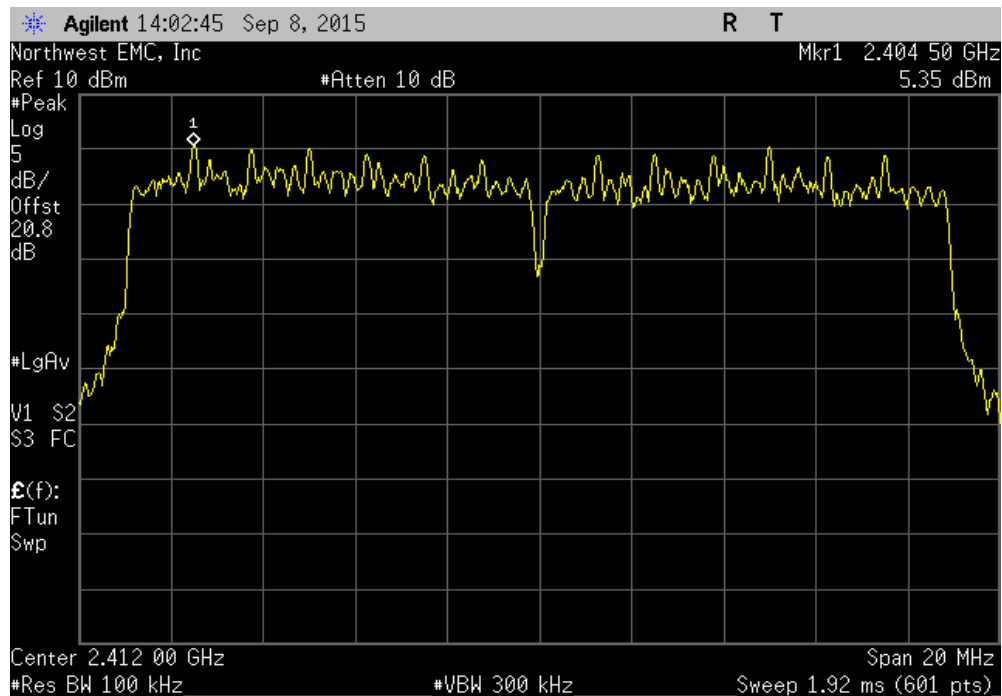


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	8.174	-15.2	-7.026	8	Pass



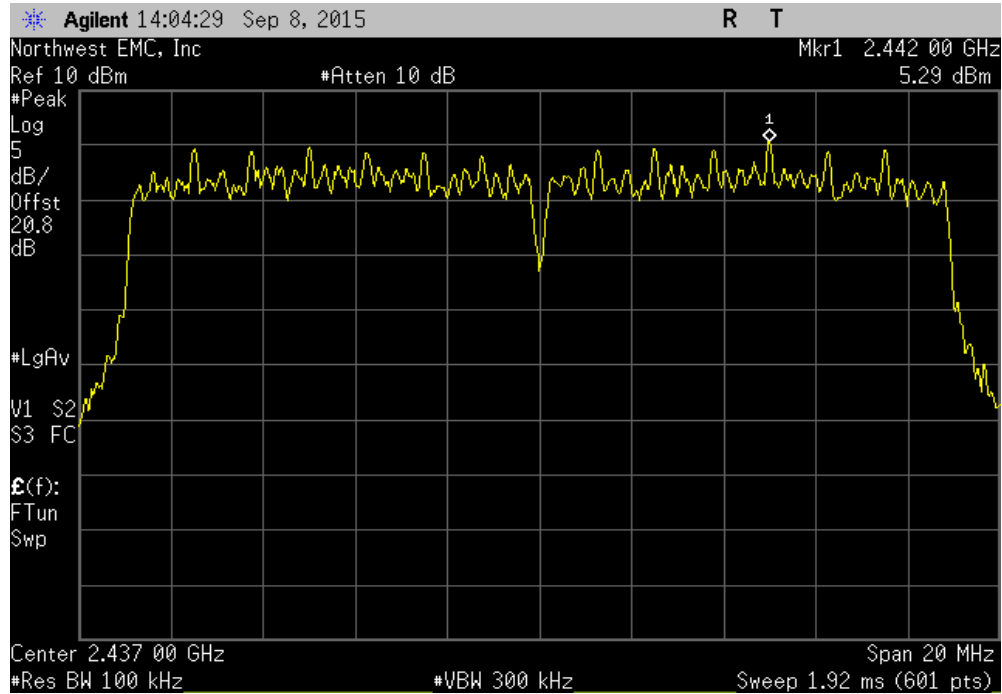
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	5.354	-15.2	-9.846	8	Pass



POWER SPECTRAL DENSITY

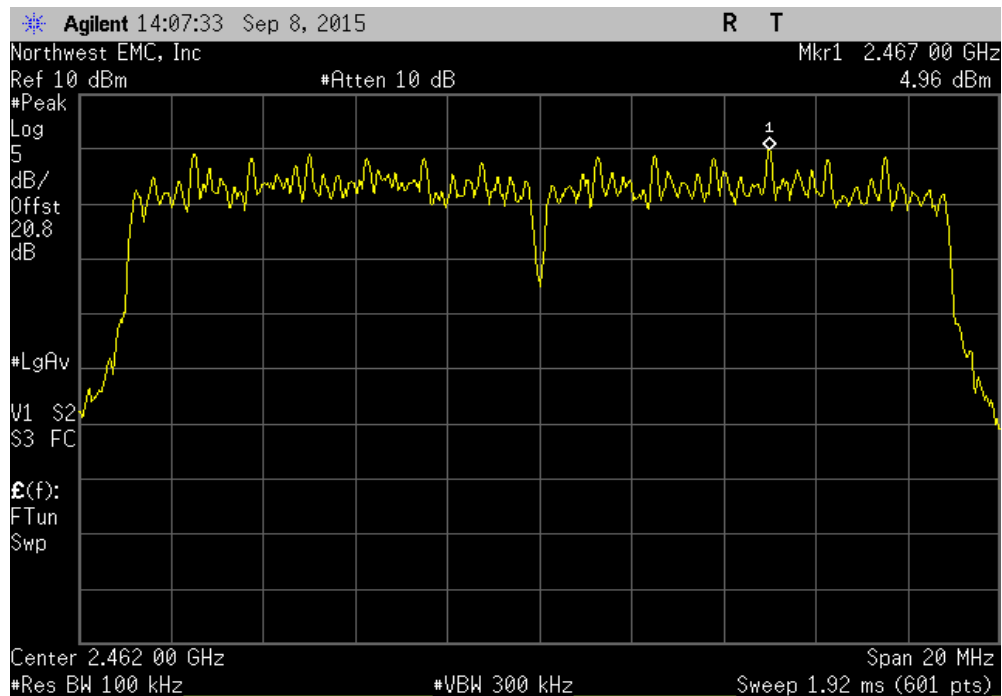
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, Mid Channel 6, 2437 MHz

	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Results
	5.289	-15.2	-9.911	8	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS15, High Channel 11, 2462 MHz

	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Results
	4.957	-15.2	-10.243	8	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 (mos)
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36

TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

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

Per the procedure outlined in ANSI C63.10:2013 Section 11.10.2, the peak power spectral density was measured in a 100 kHz RBW.

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

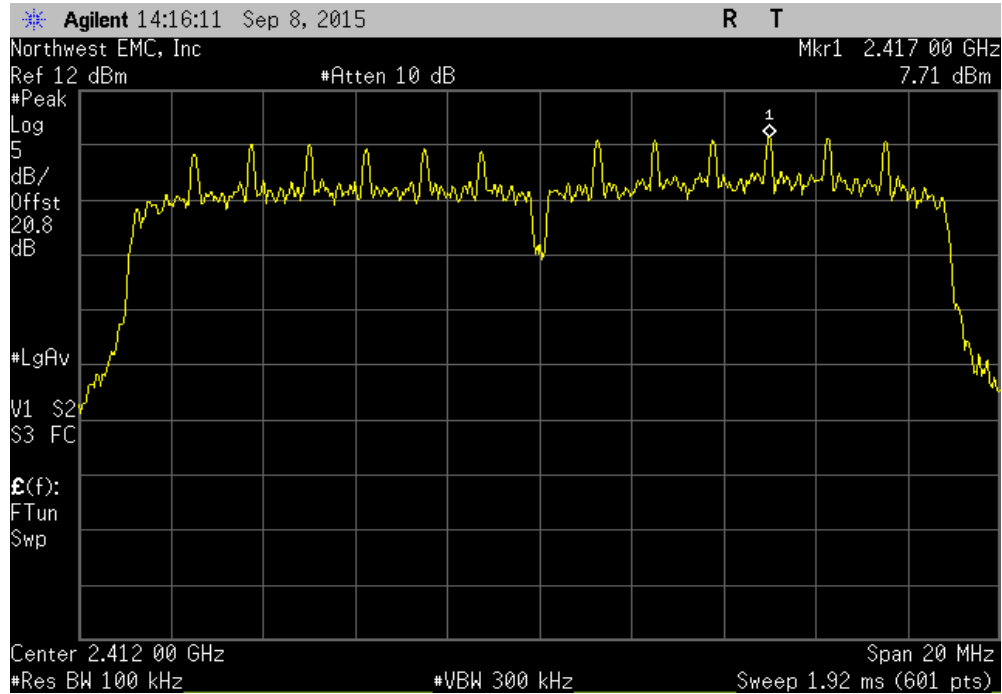
$$\text{BWCF} = 10 \cdot \text{LOG} (3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

POWER SPECTRAL DENSITY

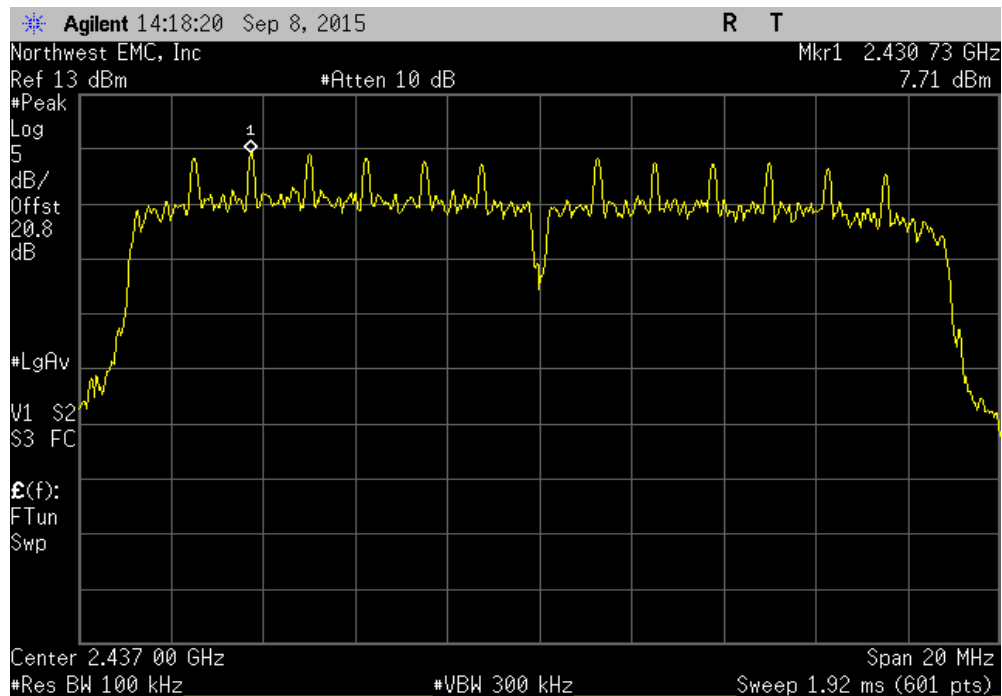
EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009				
Serial Number: 70AF02717-B385		Date: 09/08/15				
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C				
Attendees: None		Humidity: 44%				
Project: None		Barometric Pres.: 1015 mbar				
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz	Job Site: TX09			
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2015		ANSI C63.10:2013				
COMMENTS						
3x3 MIMO mode, Chain ABC (Chains 0, 1, and 2).						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	5	Signature <i>Jonathan Kiefer</i>				
		Value	dBm/100kHz	Value	Limit	
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	Results
Chain A						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16					
	Low Channel 1, 2412 MHz	7.711	-15.2	-7.489	8	Pass
	Mid Channel 6, 2437 MHz	7.712	-15.2	-7.488	8	Pass
	High Channel 11, 2462 MHz	7.696	-15.2	-7.504	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	4.443	-15.2	-10.757	8	Pass
	Mid Channel 6, 2437 MHz	4.34	-15.2	-10.86	8	Pass
	High Channel 11, 2462 MHz	4.092	-15.2	-11.108	8	Pass
Chain B						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16					
	Low Channel 1, 2412 MHz	9.24	-15.2	-5.96	8	Pass
	Mid Channel 6, 2437 MHz	8.162	-15.2	-7.038	8	Pass
	High Channel 11, 2462 MHz	7.952	-15.2	-7.248	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	5.82	-15.2	-9.38	8	Pass
	Mid Channel 6, 2437 MHz	4.974	-15.2	-10.226	8	Pass
	High Channel 11, 2462 MHz	4.792	-15.2	-10.408	8	Pass
Chain C						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16					
	Low Channel 1, 2412 MHz	8.773	-15.2	-6.427	8	Pass
	Mid Channel 6, 2437 MHz	8.737	-15.2	-6.463	8	Pass
	High Channel 11, 2462 MHz	8.481	-15.2	-6.719	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	5.316	-15.2	-9.884	8	Pass
	Mid Channel 6, 2437 MHz	5.314	-15.2	-9.886	8	Pass
	High Channel 11, 2462 MHz	5.012	-15.2	-10.188	8	Pass
Power Summing Chain A						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16	Value	Summing Factor	Summed Value	Limit	
		(dBm/3kHz)	(dBm)	(dBm/3kHz)	(dBm/3kHz)	Result
	Low Channel 1, 2412 MHz	-7.489	4.77	-2.719	8	Pass
	Mid Channel 6, 2437 MHz	-7.488	4.77	-2.718	8	Pass
	High Channel 11, 2462 MHz	-7.504	4.77	-2.734	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	-10.757	4.77	-5.987	8	Pass
	Mid Channel 6, 2437 MHz	-10.86	4.77	-6.09	8	Pass
	High Channel 11, 2462 MHz	-11.108	4.77	-6.338	8	Pass
Power Summing Chain B						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16					
	Low Channel 1, 2412 MHz	-5.96	4.77	-1.19	8	Pass
	Mid Channel 6, 2437 MHz	-7.038	4.77	-2.268	8	Pass
	High Channel 11, 2462 MHz	-7.248	4.77	-2.478	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	-9.38	4.77	-4.61	8	Pass
	Mid Channel 6, 2437 MHz	-10.226	4.77	-5.456	8	Pass
	High Channel 11, 2462 MHz	-10.408	4.77	-5.638	8	Pass
Power Summing Chain C						
	20 MHz					
	2400 MHz - 2483.5 MHz Band					
	802.11(n) MCS16					
	Low Channel 1, 2412 MHz	-6.427	4.77	-1.657	8	Pass
	Mid Channel 6, 2437 MHz	-6.463	4.77	-1.693	8	Pass
	High Channel 11, 2462 MHz	-6.719	4.77	-1.949	8	Pass
	802.11(n) MCS23					
	Low Channel 1, 2412 MHz	-9.884	4.77	-5.114	8	Pass
	Mid Channel 6, 2437 MHz	-9.886	4.77	-5.116	8	Pass
	High Channel 11, 2462 MHz	-10.188	4.77	-5.418	8	Pass

POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.711	-15.2	-7.489	8	Pass

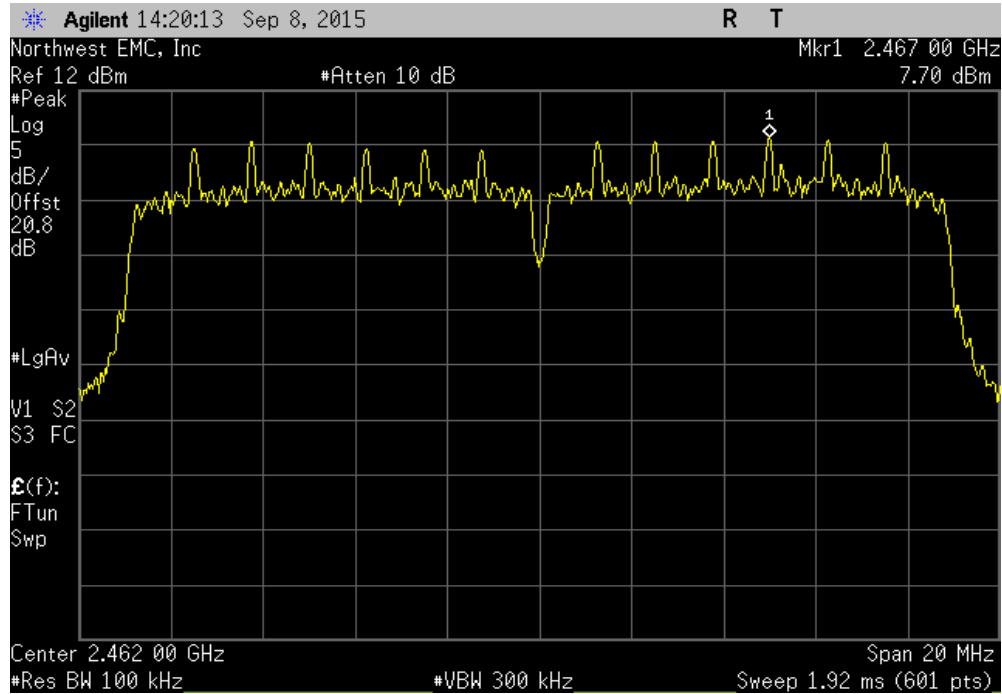


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.712	-15.2	-7.488	8	Pass

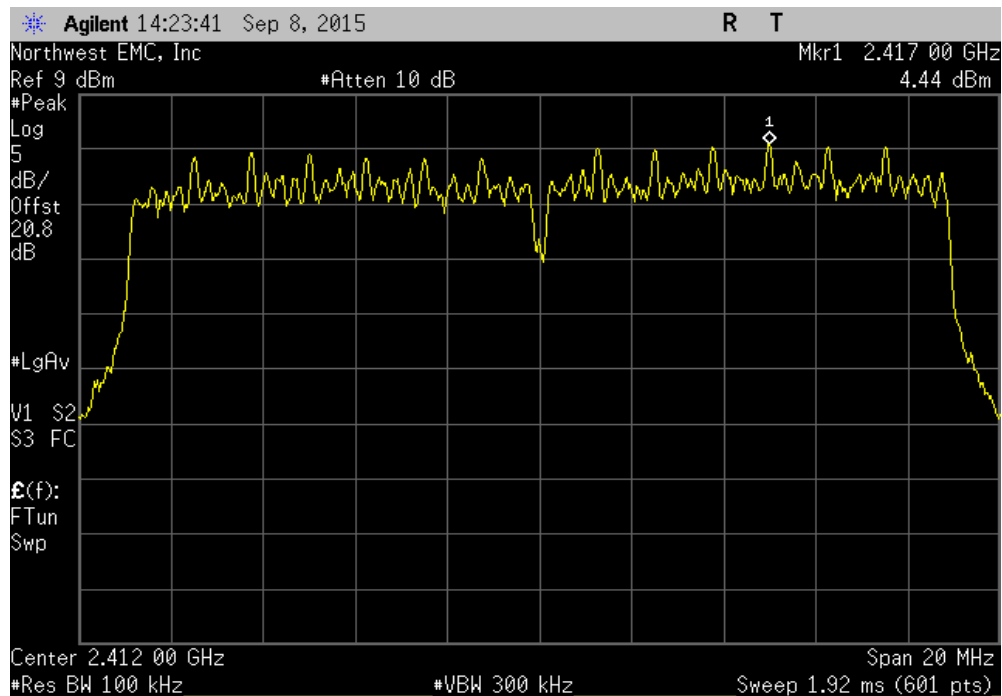


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.696	-15.2	-7.504	8	Pass	

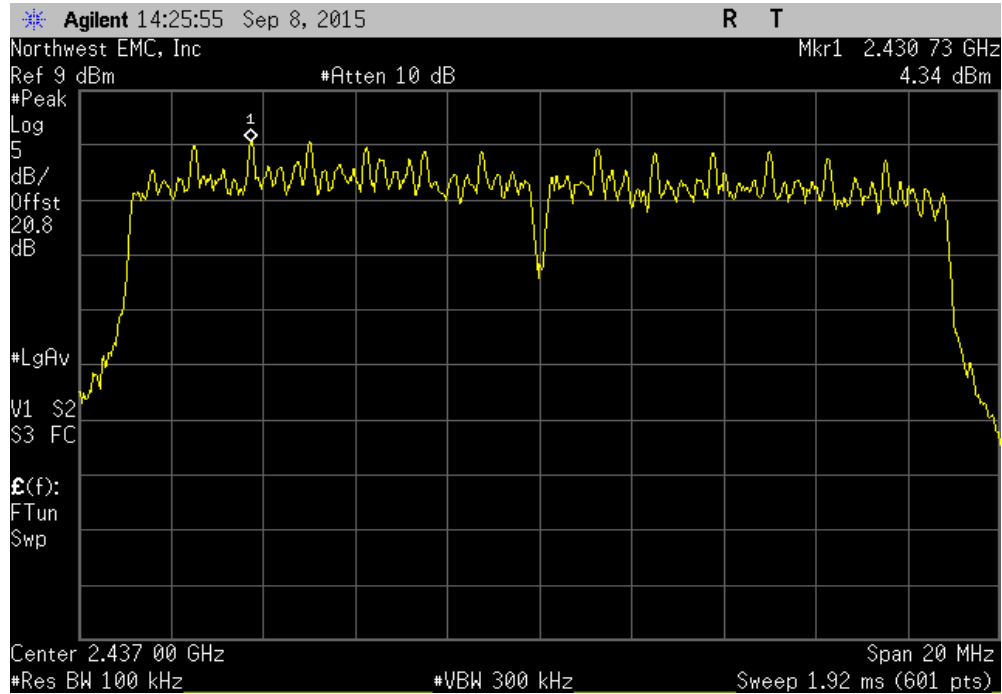


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.443	-15.2	-10.757	8	Pass	

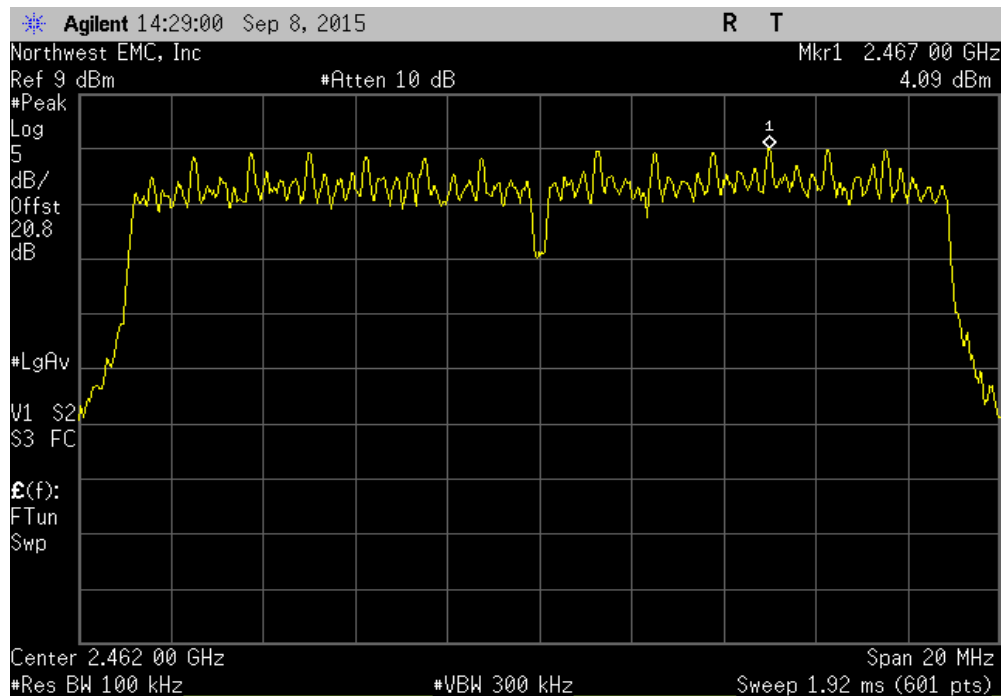


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.34	-15.2	-10.86	8	Pass	

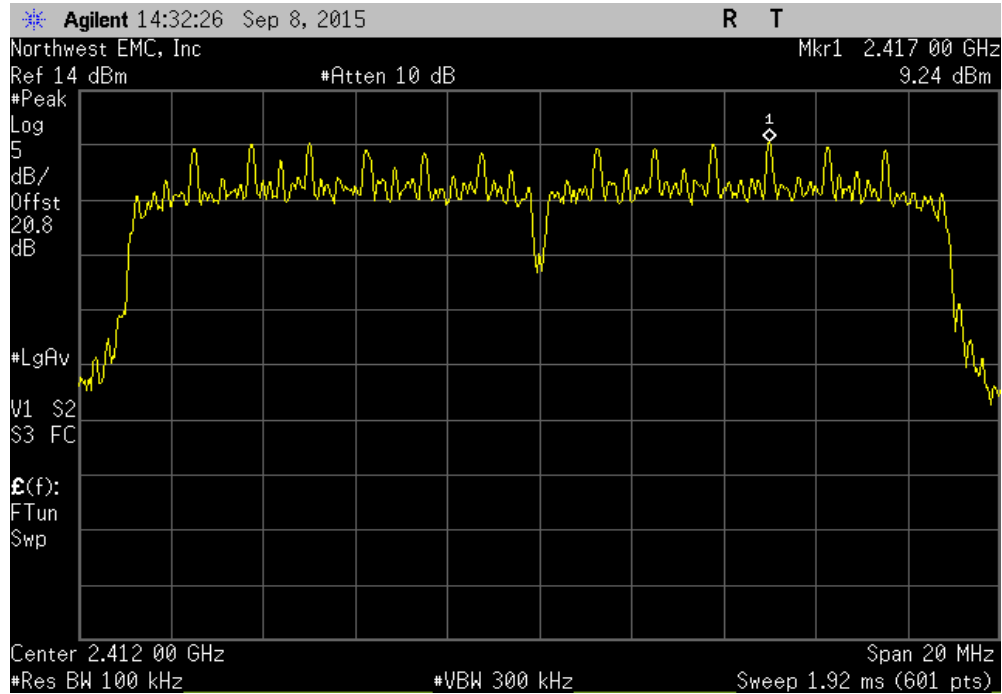


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	4.092	-15.2	-11.108	8	Pass	

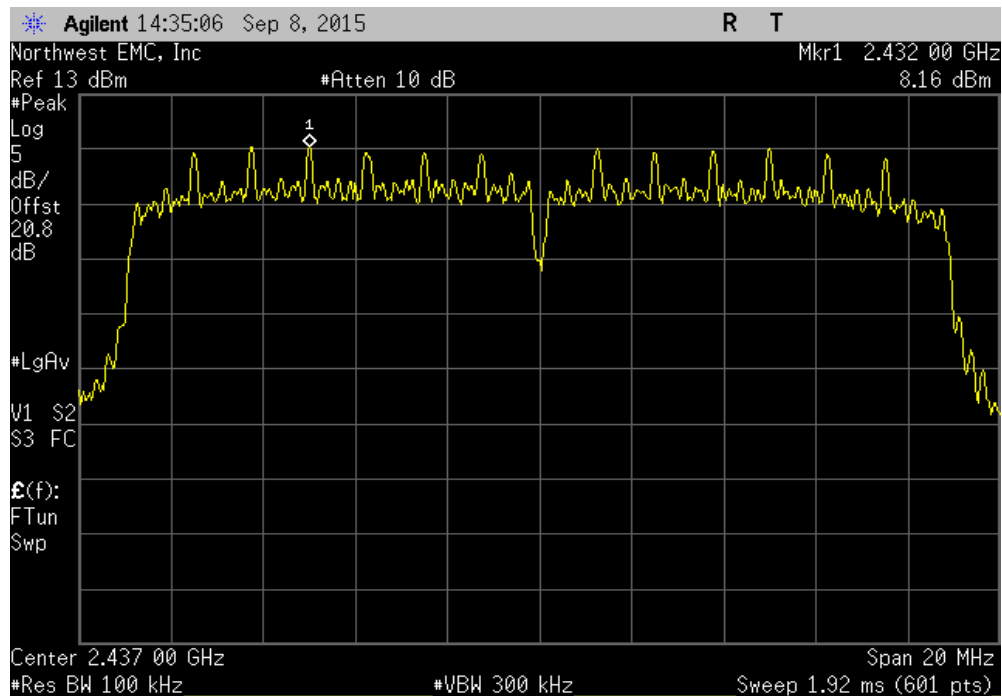


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	9.24	-15.2	-5.96	8	Pass	

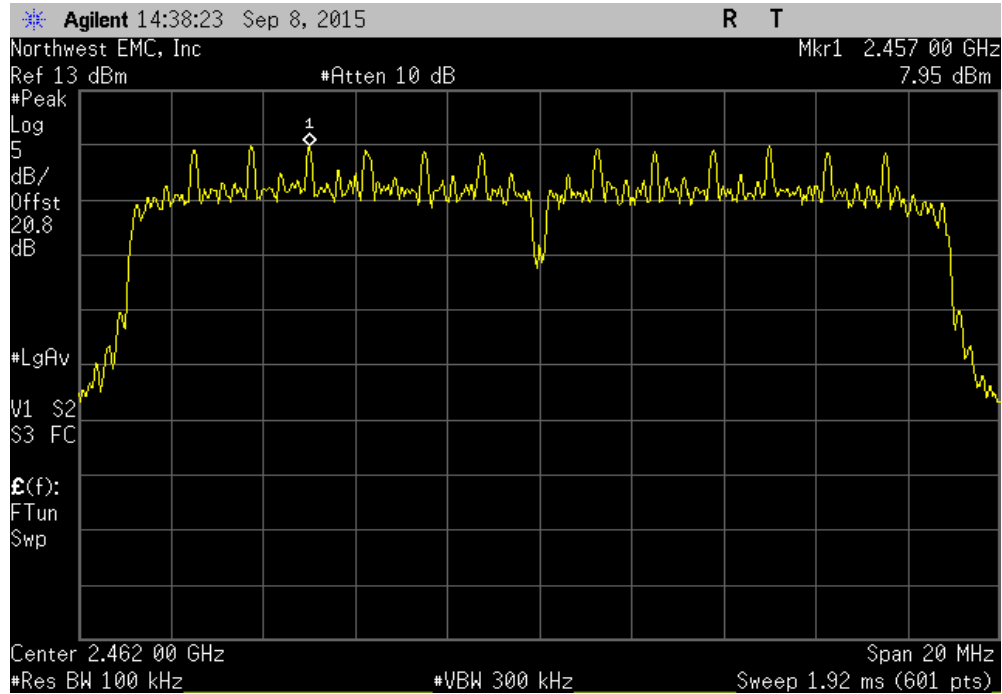


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.162	-15.2	-7.038	8	Pass	

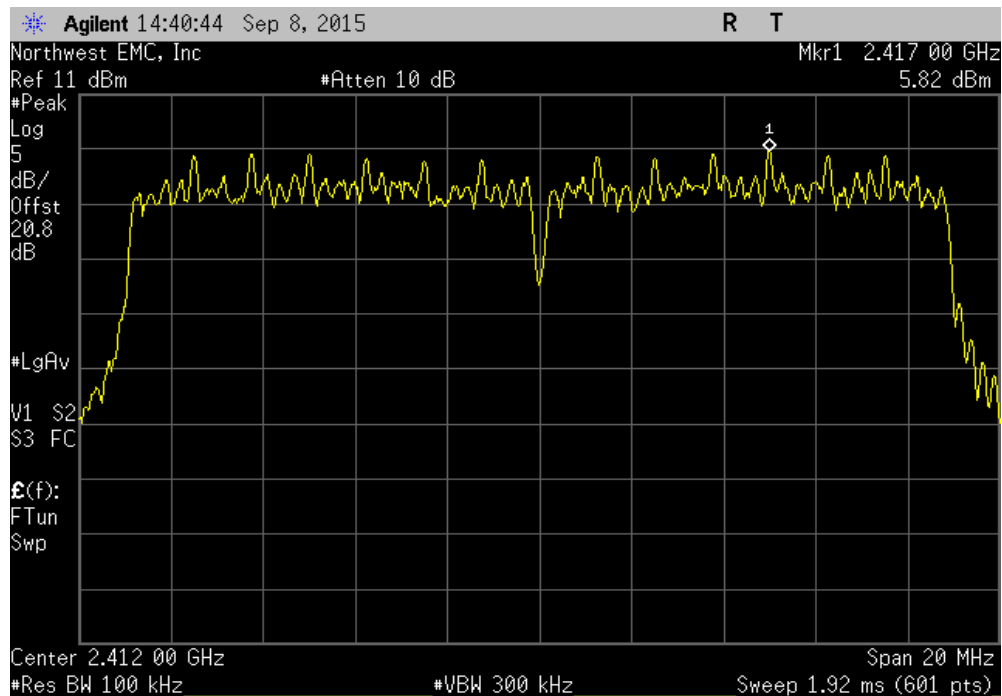


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	7.952	-15.2	-7.248	8	Pass	

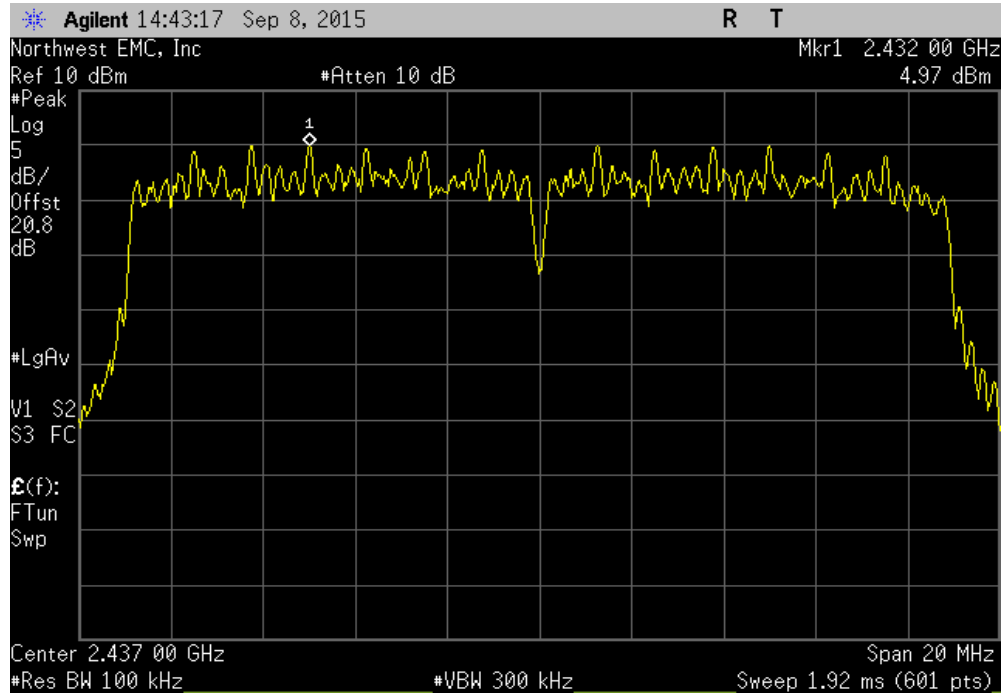


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	5.82	-15.2	-9.38	8	Pass	

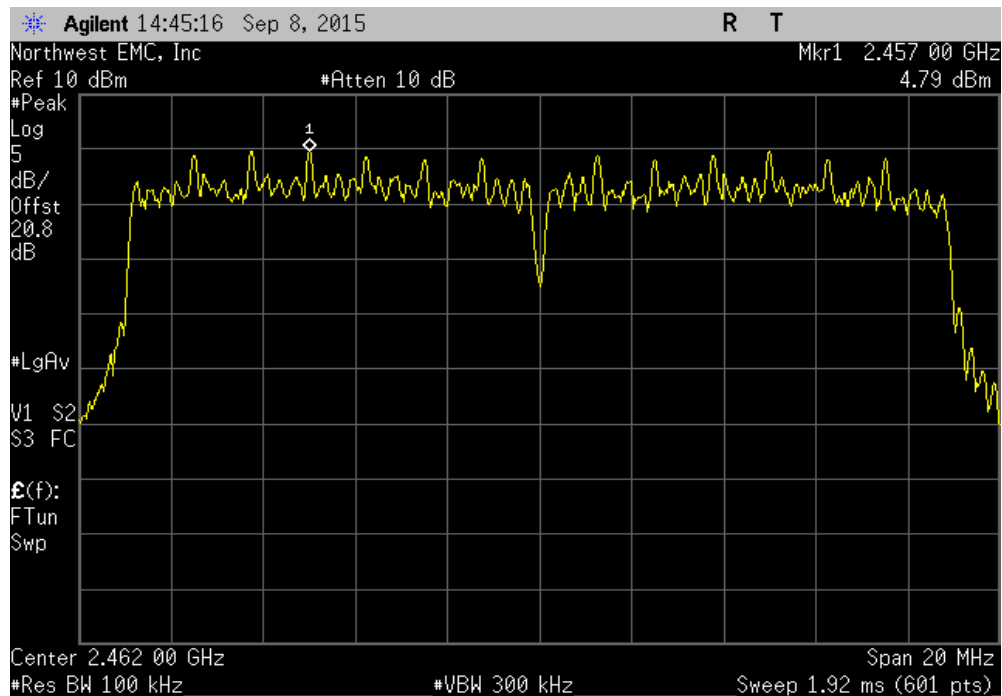


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.974	-15.2	-10.226	8	Pass	

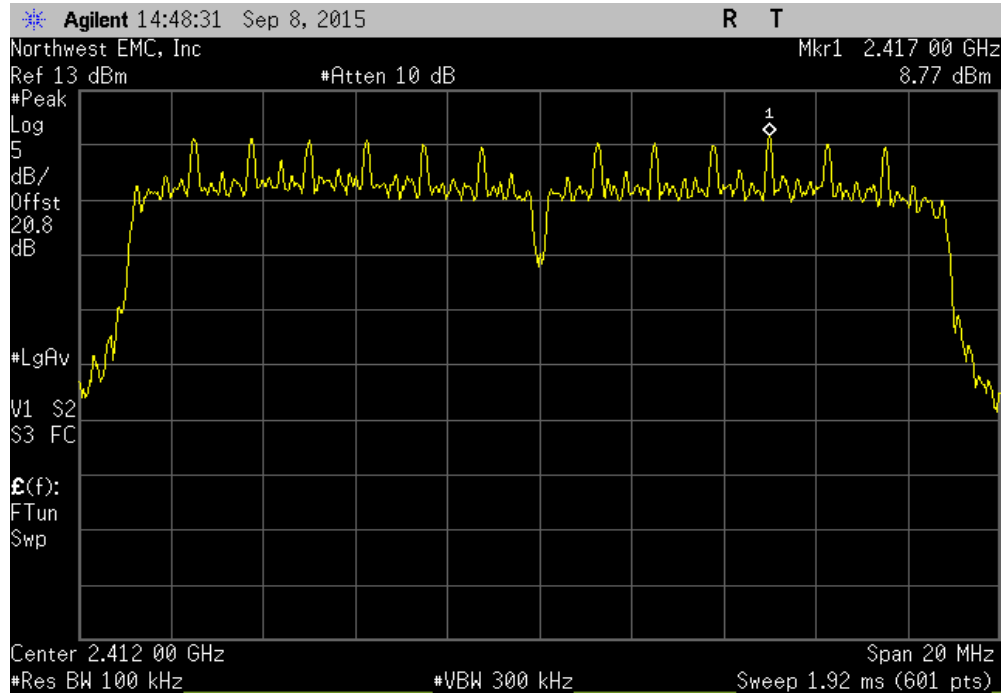


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	4.792	-15.2	-10.408	8	Pass	

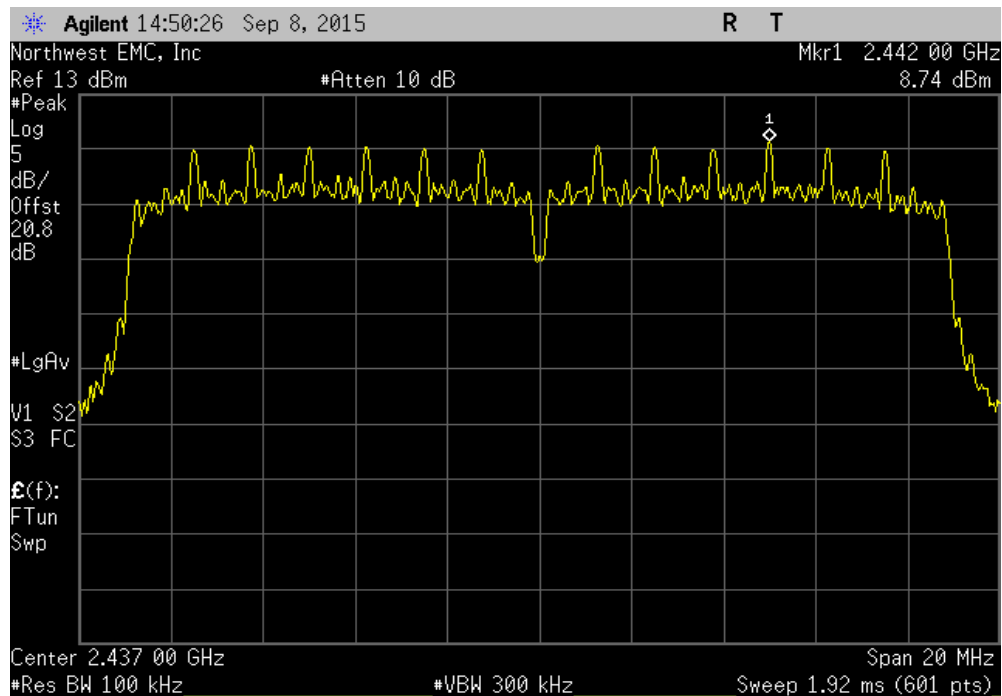


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	8.773	-15.2	-6.427	8	Pass

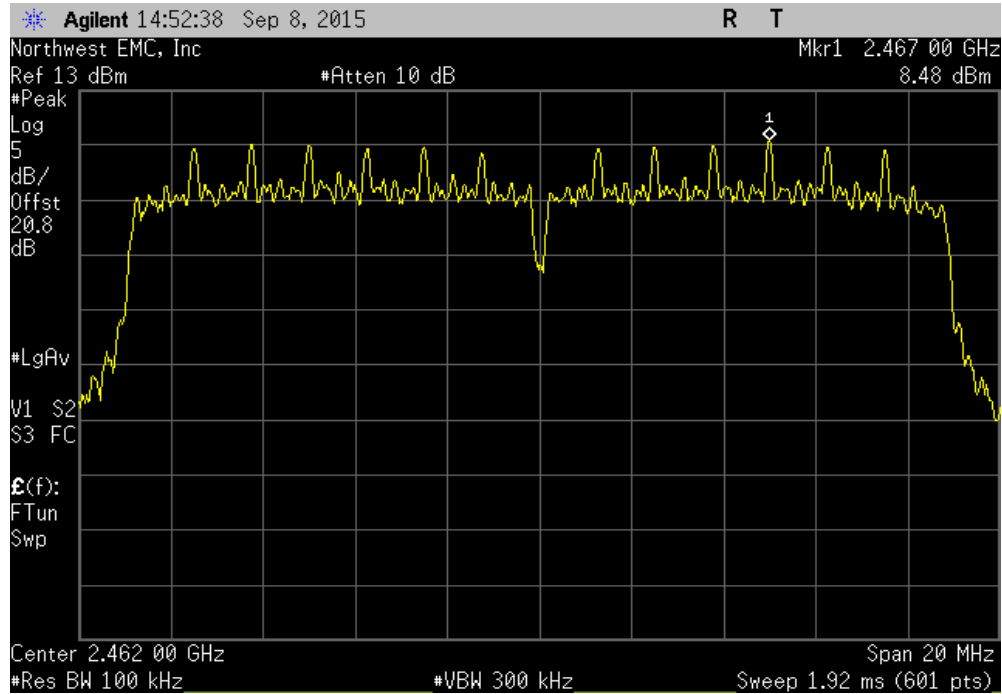


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	8.737	-15.2	-6.463	8	Pass

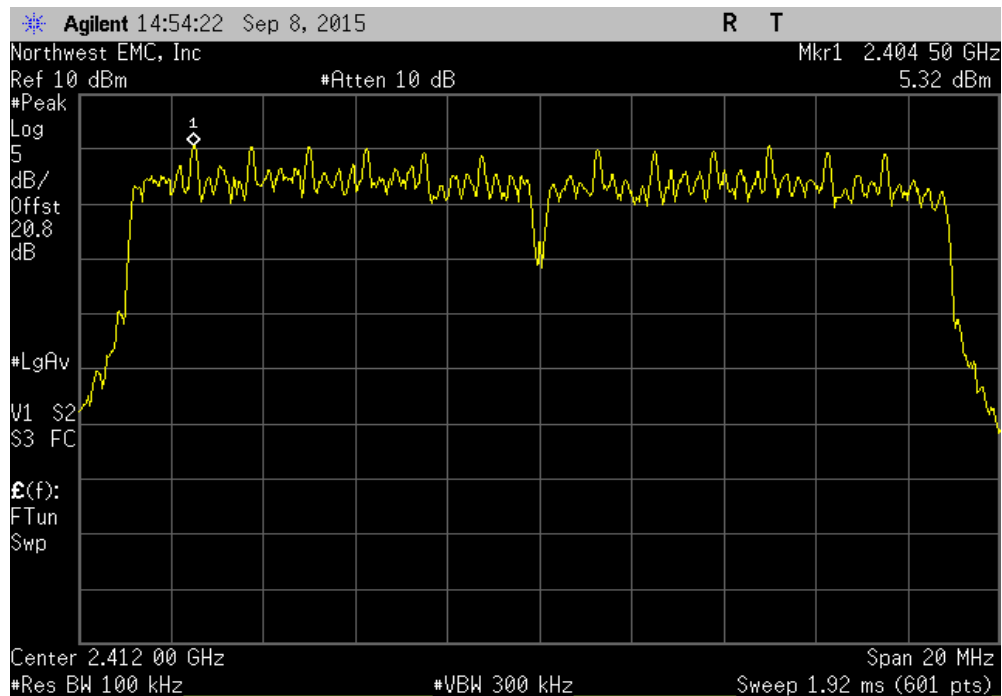


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS16, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.481	-15.2	-6.719	8	Pass	



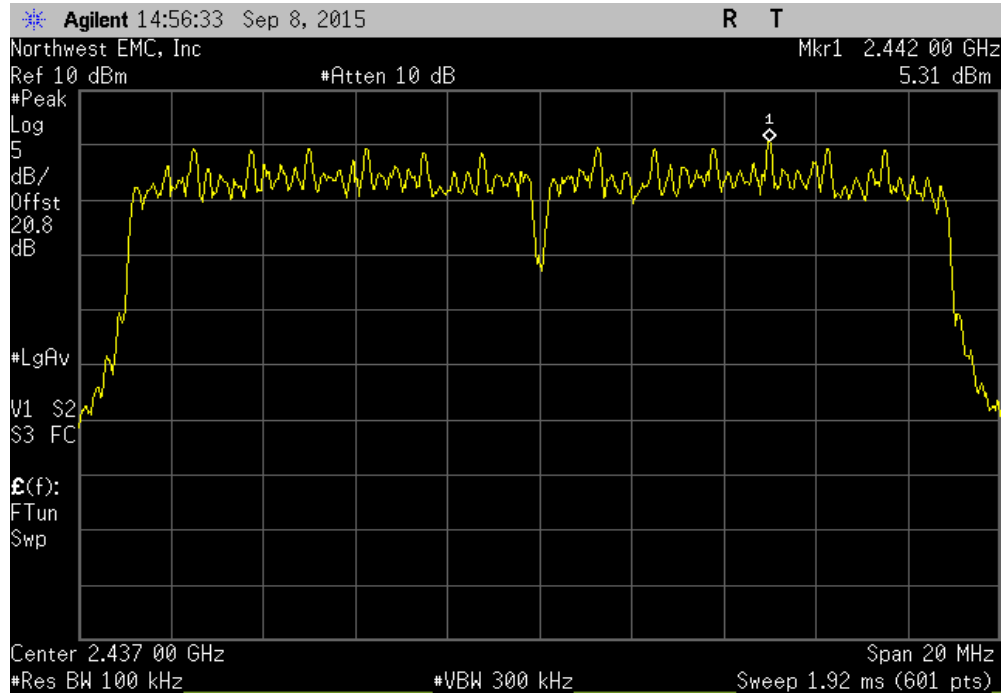
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.316	-15.2	-9.884	8	Pass	



POWER SPECTRAL DENSITY

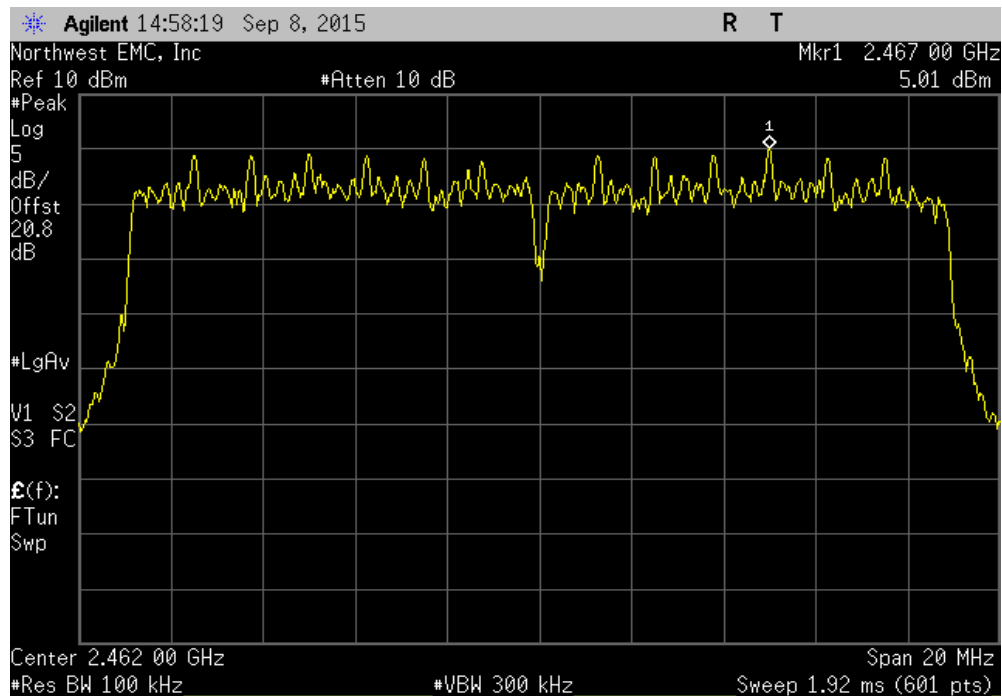
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, Mid Channel 6, 2437 MHz

	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	5.314	-15.2	-9.886	8	Pass



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS23, High Channel 11, 2462 MHz

	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	5.012	-15.2	-10.188	8	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 (mos)
Block - DC	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Generator - Signal	Agilent	N5173B	TIW	7/15/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	7/23/2015	12

TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

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

Per the procedure outlined in ANSI C63.10:2013 Section 11.10.2, the peak power spectral density was measured in a 100 kHz RBW.

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

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

POWER SPECTRAL DENSITY

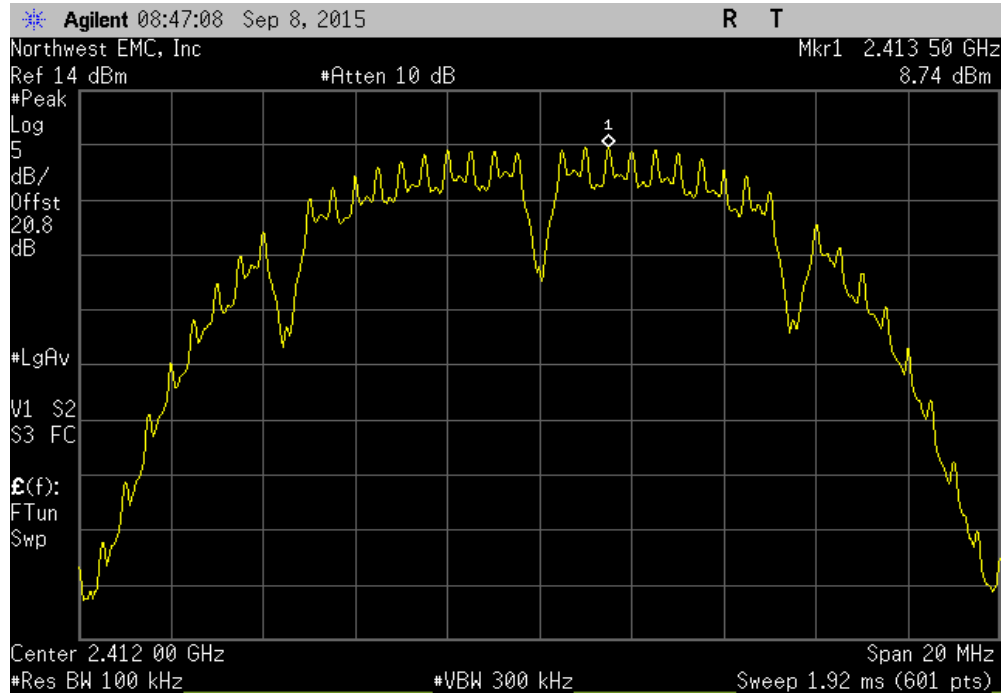


XMR 2015.01.14

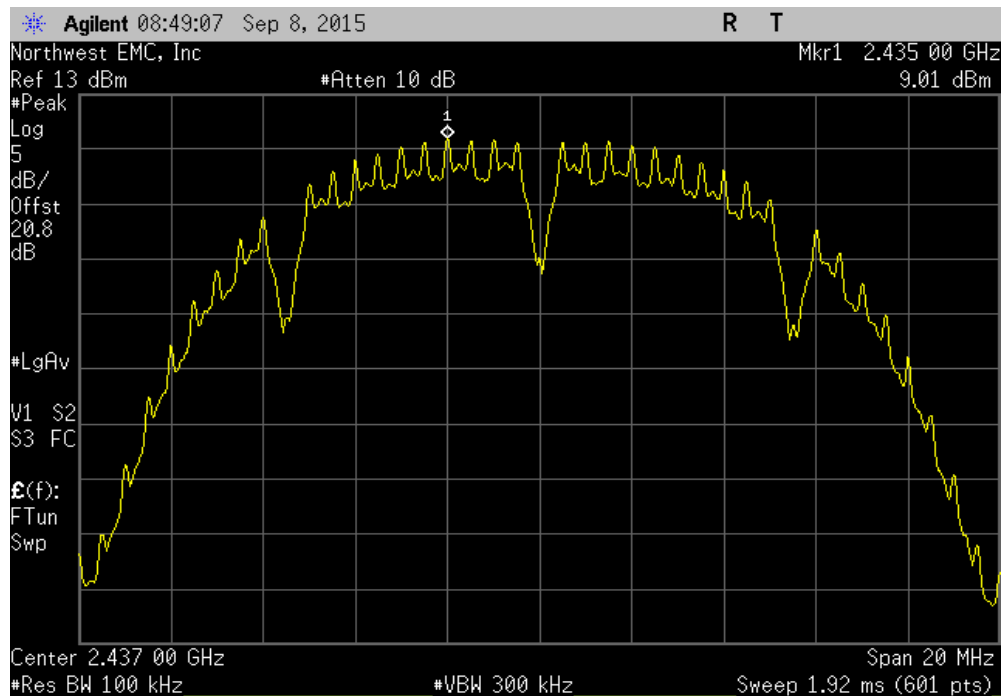
EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009	
Serial Number: 70AF02717-B3B5		Date: 09/08/15	
Customer: WatchGuard Technologies, Inc.		Temperature: 24.2°C	
Attendees: None		Humidity: 44%	
Project: None		Barometric Pres.: 1015 mbar	
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz	
Job Site: TX09			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2013	
COMMENTS			
Reference RF power table for channel power setting. Chains A, B, and C correspond to Chain 0, 1, and 2 respectively.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	5	Signature <i>Jonathan Kiefer</i>	
		Value	Limit
		dBm/100kHz	dBm/3kHz
		To dBm/3kHz	dBm/3kHz
		dBm/3kHz	Results
Chain A			
20 MHz		2400 MHz - 2483.5 MHz Band	
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		8.74	-15.2
Mid Channel 6, 2437 MHz		9.006	-15.2
High Channel 11, 2462 MHz		8.884	-15.2
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		9.283	-15.2
Mid Channel 6, 2437 MHz		9.18	-15.2
High Channel 11, 2462 MHz		9.145	-15.2
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		7.564	-15.2
Mid Channel 6, 2437 MHz		7.694	-15.2
High Channel 11, 2462 MHz		7.424	-15.2
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		7.552	-15.2
Mid Channel 6, 2437 MHz		7.498	-15.2
High Channel 11, 2462 MHz		7.189	-15.2
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		5.253	-15.2
Mid Channel 6, 2437 MHz		5.187	-15.2
High Channel 11, 2462 MHz		5.007	-15.2
802.11(n) MCS0			
Low Channel 1, 2412 MHz		7.501	-15.2
Mid Channel 6, 2437 MHz		7.522	-15.2
High Channel 11, 2462 MHz		7.409	-15.2
802.11(n) MCS7			
Low Channel 1, 2412 MHz		5.278	-15.2
Mid Channel 6, 2437 MHz		5.214	-15.2
High Channel 11, 2462 MHz		5.001	-15.2
Chain B			
20 MHz		2400 MHz - 2483.5 MHz Band	
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		10.46	-15.2
Mid Channel 6, 2437 MHz		10.007	-15.2
High Channel 11, 2462 MHz		9.516	-15.2
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		10.524	-15.2
Mid Channel 6, 2437 MHz		10.207	-15.2
High Channel 11, 2462 MHz		9.839	-15.2
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		8.984	-15.2
Mid Channel 6, 2437 MHz		7.944	-15.2
High Channel 11, 2462 MHz		6.24	-15.2
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		8.812	-15.2
Mid Channel 6, 2437 MHz		7.795	-15.2
High Channel 11, 2462 MHz		7.978	-15.2
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		6.673	-15.2
Mid Channel 6, 2437 MHz		5.93	-15.2
High Channel 11, 2462 MHz		5.787	-15.2
802.11(n) MCS0			
Low Channel 1, 2412 MHz		8.8	-15.2
Mid Channel 6, 2437 MHz		7.903	-15.2
High Channel 11, 2462 MHz		7.946	-15.2
802.11(n) MCS7			
Low Channel 1, 2412 MHz		6.672	-15.2
Mid Channel 6, 2437 MHz		5.908	-15.2
High Channel 11, 2462 MHz		5.809	-15.2
Chain C			
20 MHz		2400 MHz - 2483.5 MHz Band	
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		9.8	-15.2
Mid Channel 6, 2437 MHz		9.832	-15.2
High Channel 11, 2462 MHz		9.439	-15.2
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		9.853	-15.2
Mid Channel 6, 2437 MHz		9.737	-15.2
High Channel 11, 2462 MHz		9.892	-15.2
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		8.568	-15.2
Mid Channel 6, 2437 MHz		8.162	-15.2
High Channel 11, 2462 MHz		7.951	-15.2
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		8.497	-15.2
Mid Channel 6, 2437 MHz		8.008	-15.2
High Channel 11, 2462 MHz		7.822	-15.2
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		6.172	-15.2
Mid Channel 6, 2437 MHz		5.658	-15.2
High Channel 11, 2462 MHz		5.486	-15.2
802.11(n) MCS0			
Low Channel 1, 2412 MHz		8.517	-15.2
Mid Channel 6, 2437 MHz		8.111	-15.2
High Channel 11, 2462 MHz		7.888	-15.2
802.11(n) MCS7			
Low Channel 1, 2412 MHz		6.121	-15.2
Mid Channel 6, 2437 MHz		5.716	-15.2
High Channel 11, 2462 MHz		5.579	-15.2

POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	8.74	-15.2	-6.46	8	Pass



Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	9.006	-15.2	-6.194	8	Pass



**NORTHWEST
EMC**

XMit 2015.01.14

Agilent 08:51:56 Sep 8, 2015 R T

Northwest EMC, Inc Mkr1 2.463 00 GHz
Ref 13 dBm #Atten 10 dB 8.88 dBm

#Peak
Log
5
dB/
Offst
20.8
dB

#LgAv

V1 S2
S3 FC

$E(f)$:
FTun
Swp

Center 2.462 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

Agilent 08:55:27 Sep 8, 2015 R T

Northwest EMC, Inc Mkr1 2.411 67 GHz
Ref 15 dBm #Atten 10 dB 9.28 dBm

#Peak
Log
5
dB/
Offst
20.8
dB

#LgAv

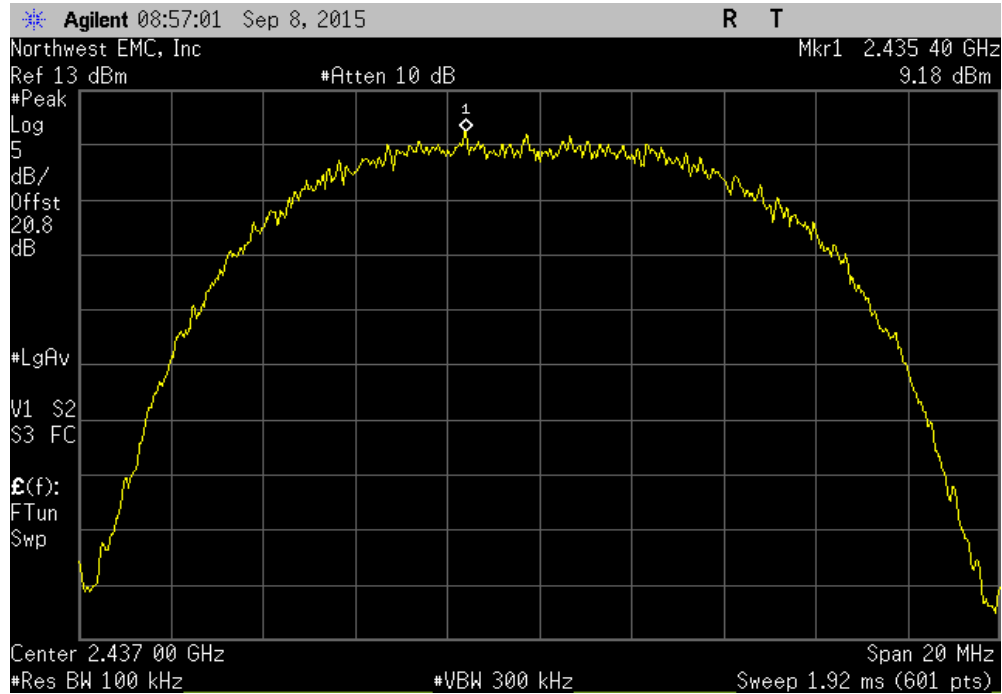
V1 S2
S3 FC

$E(f)$:
FTun
Swp

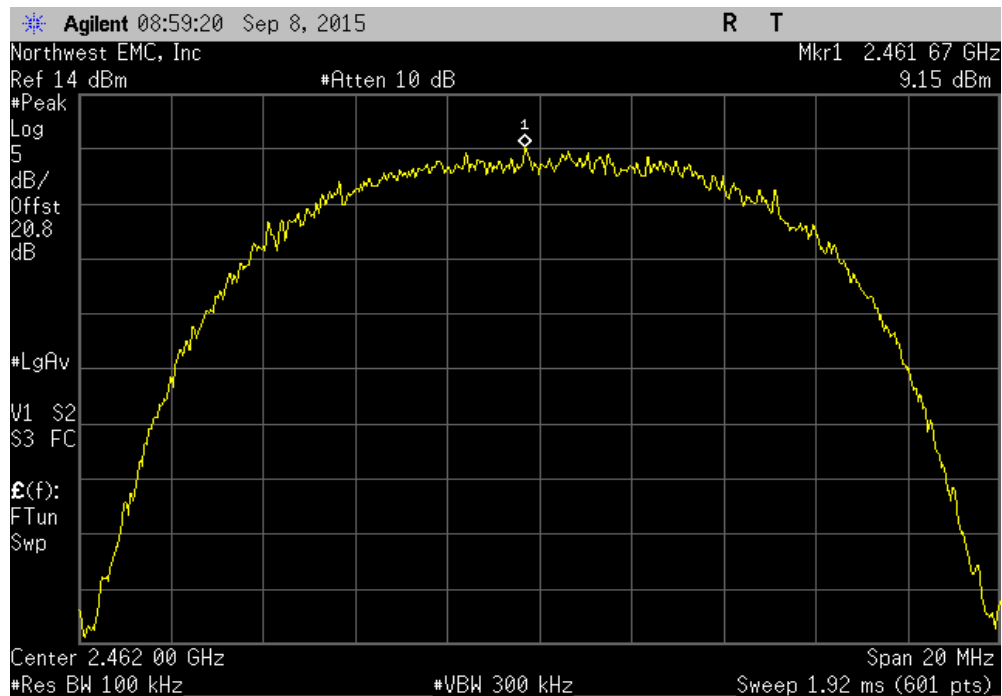
Center 2.412 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	9.18	-15.2	-6.02	8	Pass

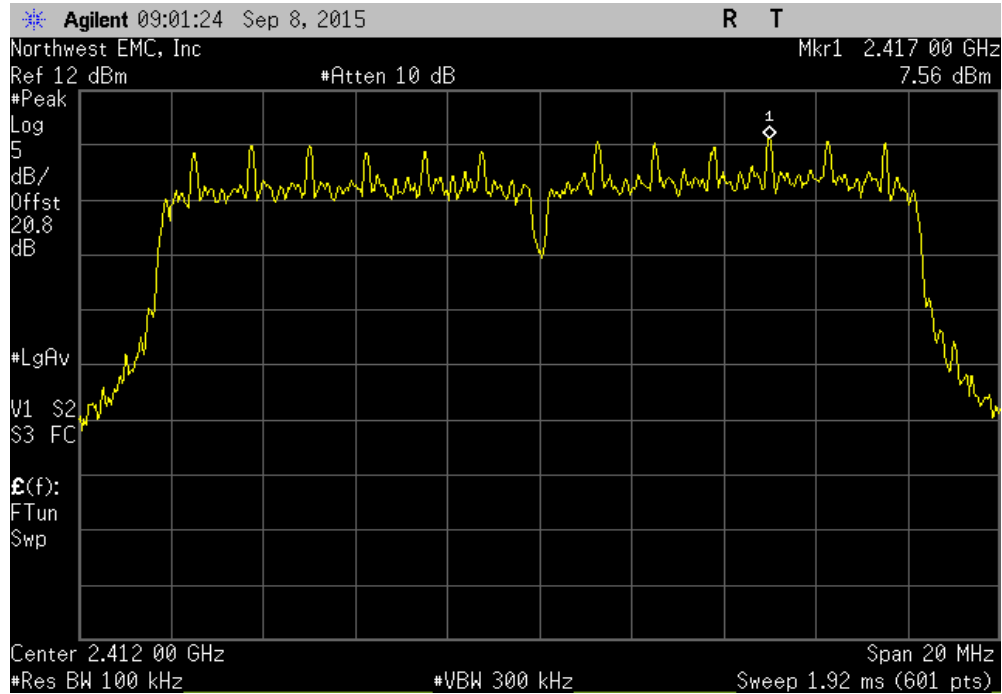


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	9.145	-15.2	-6.055	8	Pass

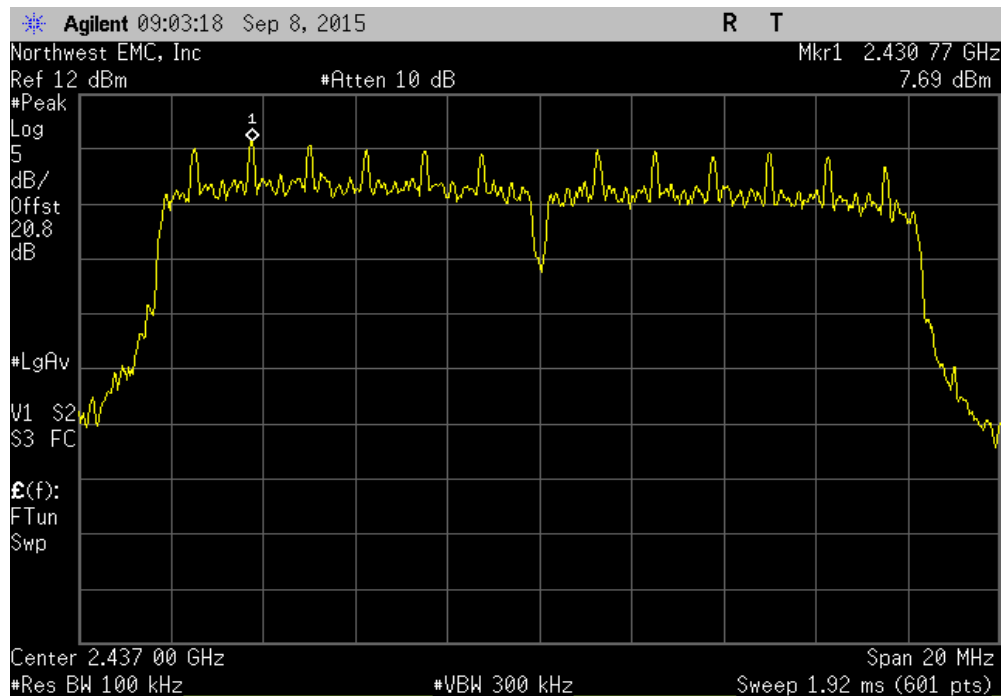


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.564	-15.2	-7.636	8	Pass

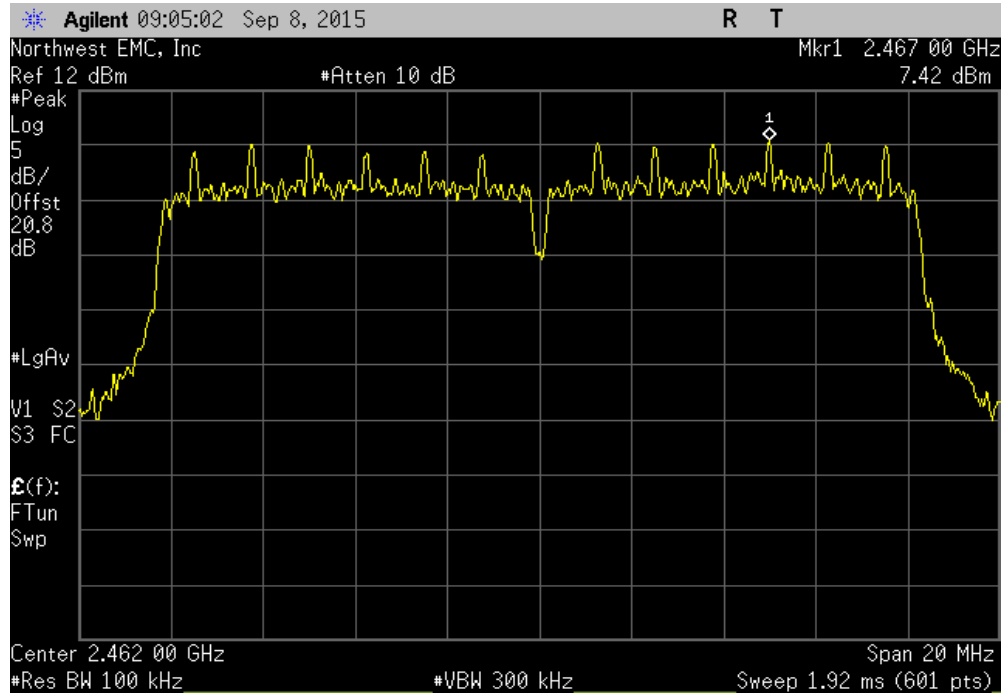


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.694	-15.2	-7.506	8	Pass

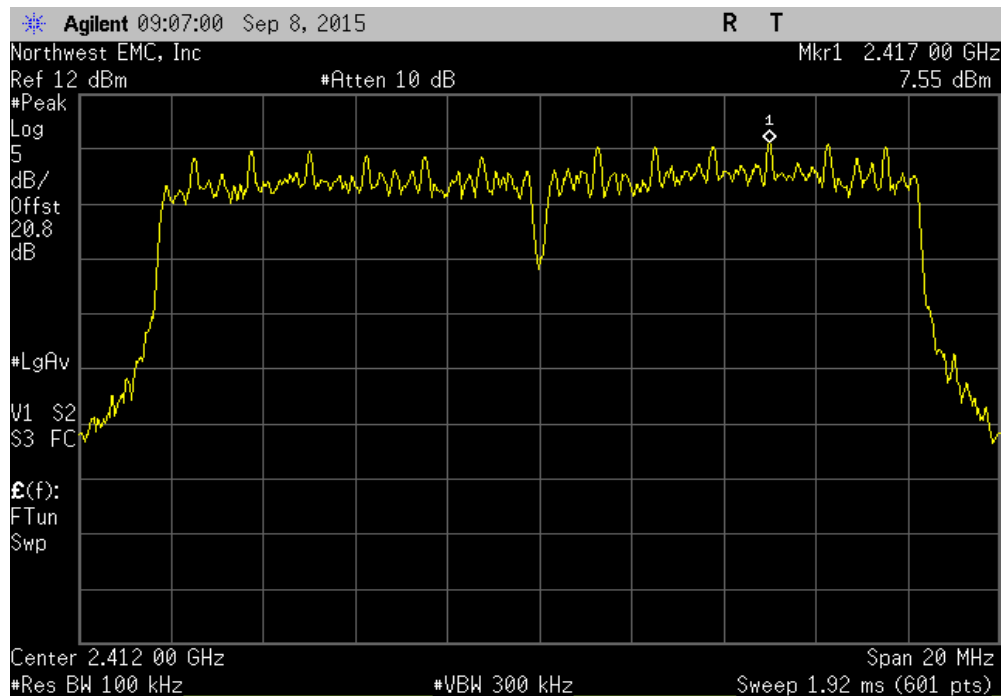


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.424	-15.2	-7.776	8	Pass

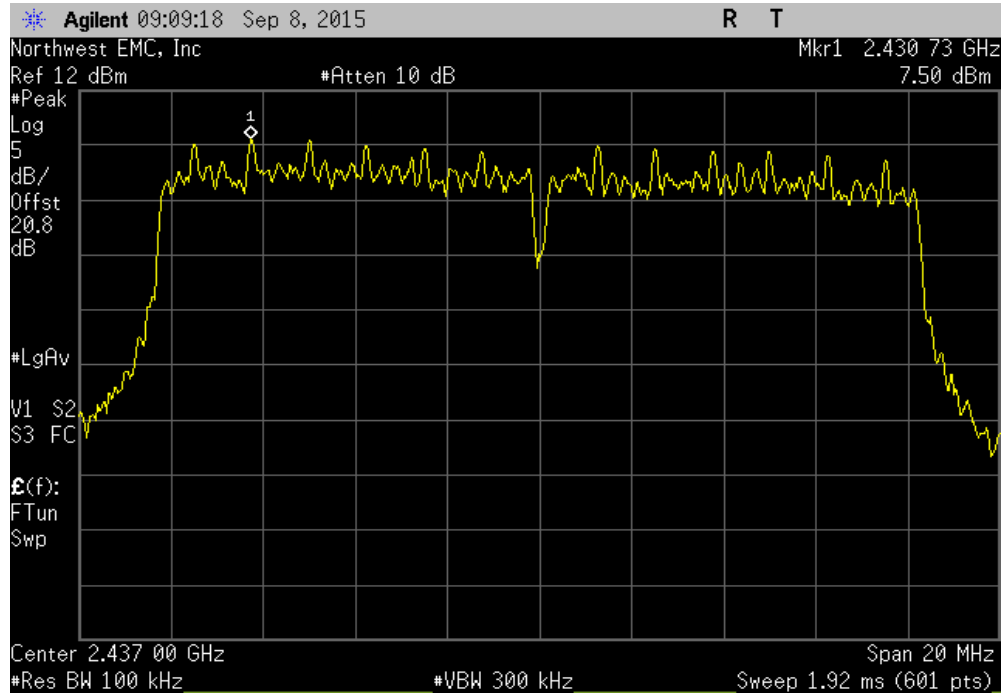


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	7.552	-15.2	-7.648	8	Pass

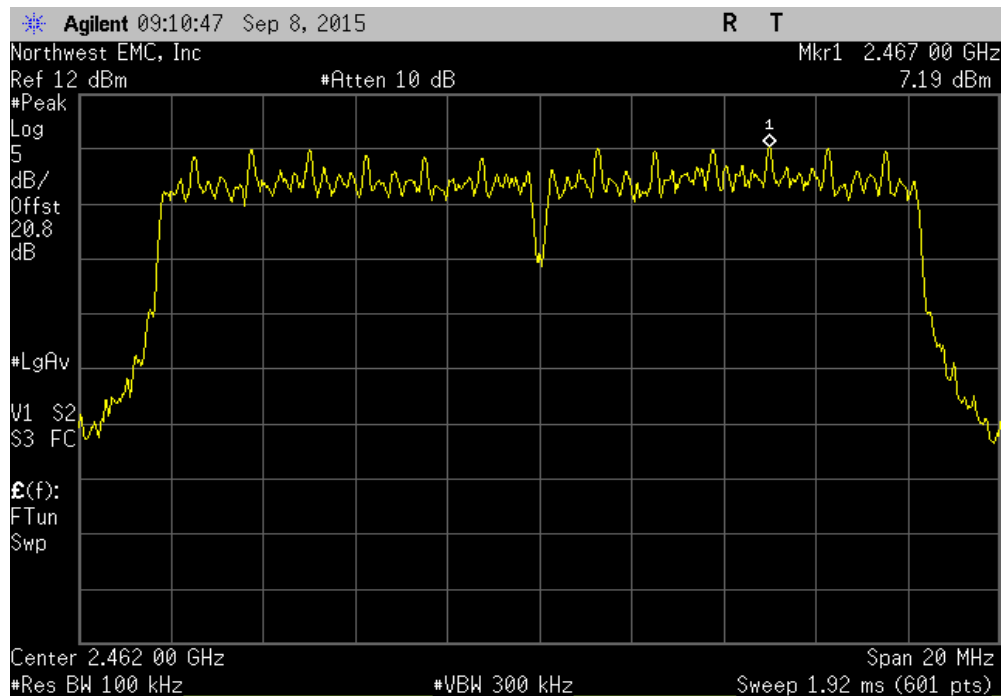


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 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				
	7.498	-15.2	-7.702	8	Pass	

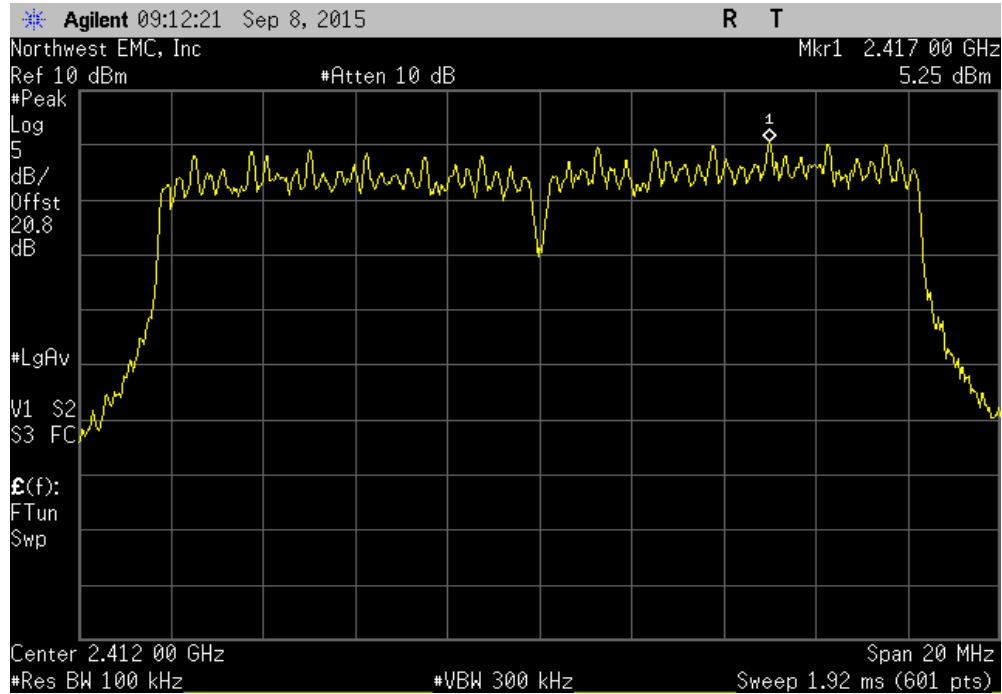


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	7.189	-15.2	-8.011	8	Pass	

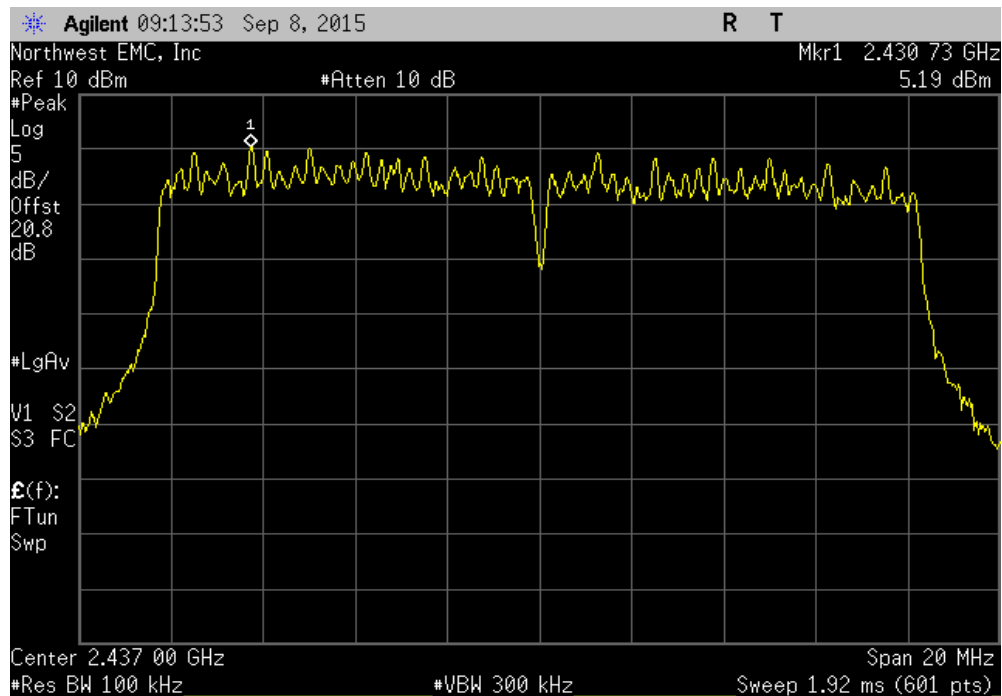


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 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			
	5.253	-15.2	-9.947	8	Pass

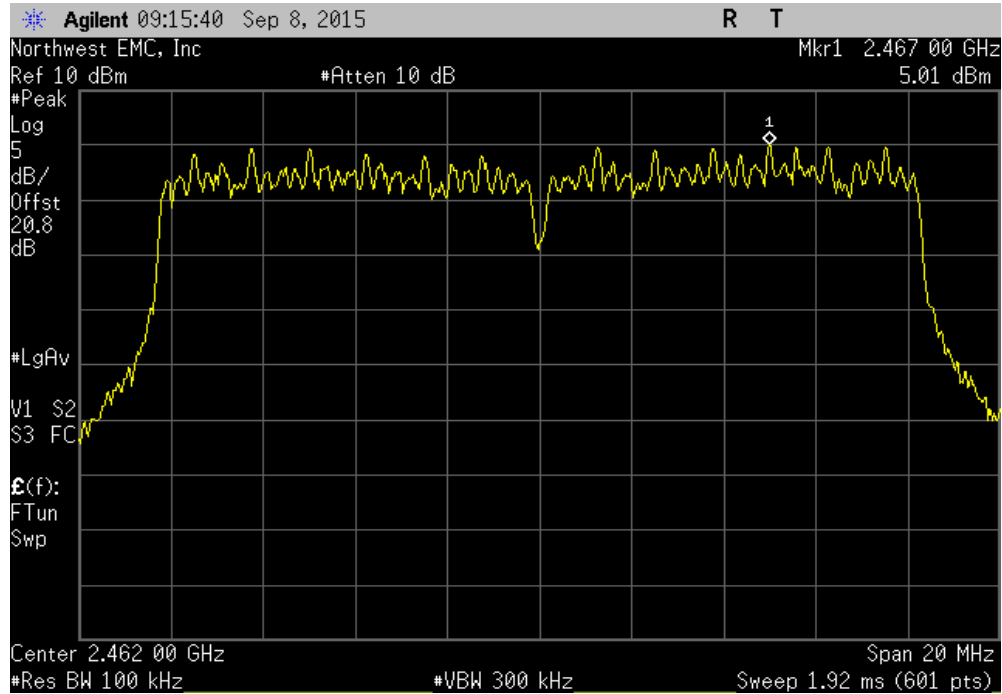


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.187	-15.2	-10.013	8	Pass

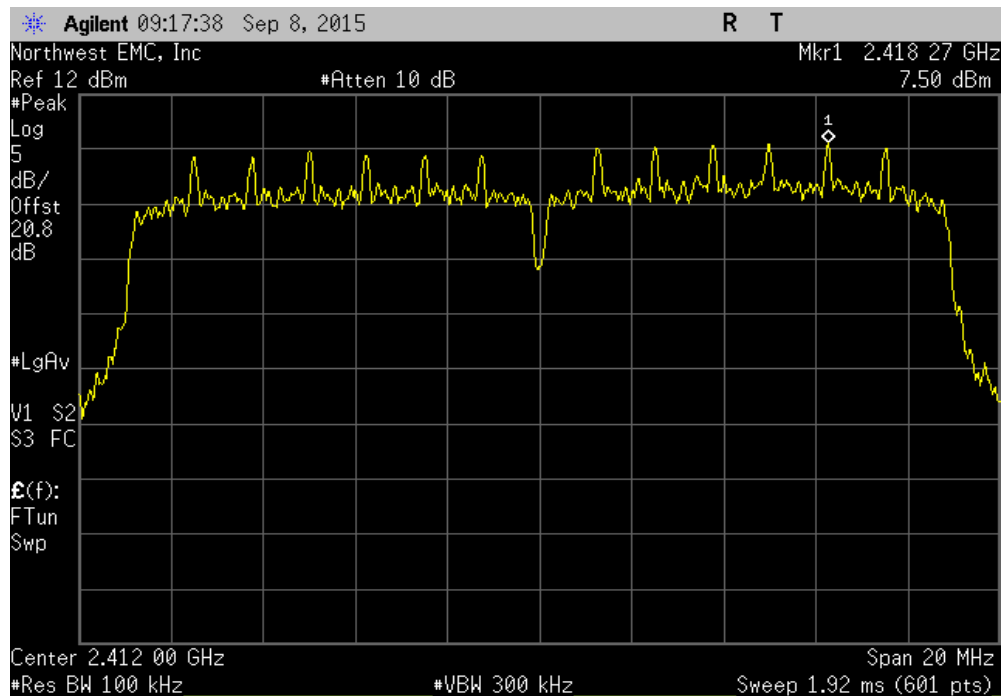


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 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			
	5.007	-15.2	-10.193	8	Pass

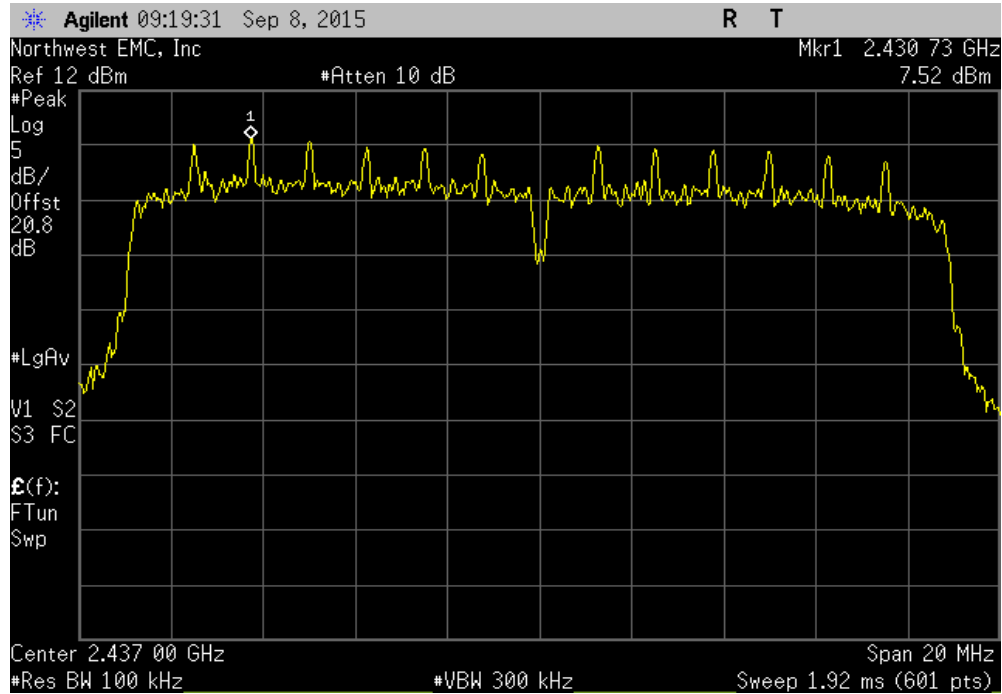


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.501	-15.2	-7.699	8	Pass

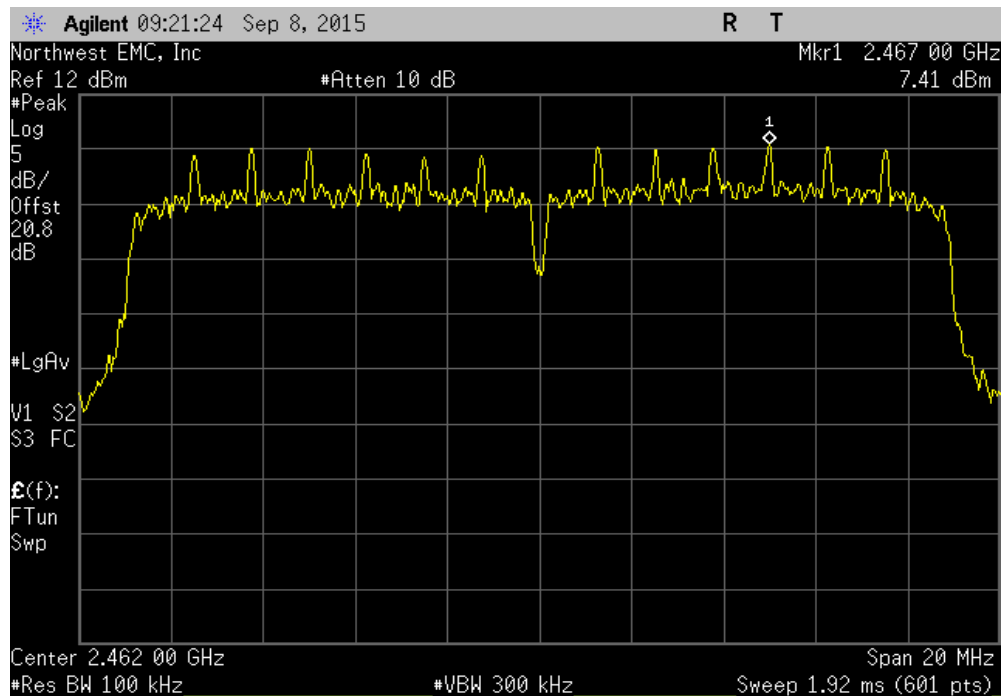


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 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		
	7.522	-15.2	-7.678	8	Pass	

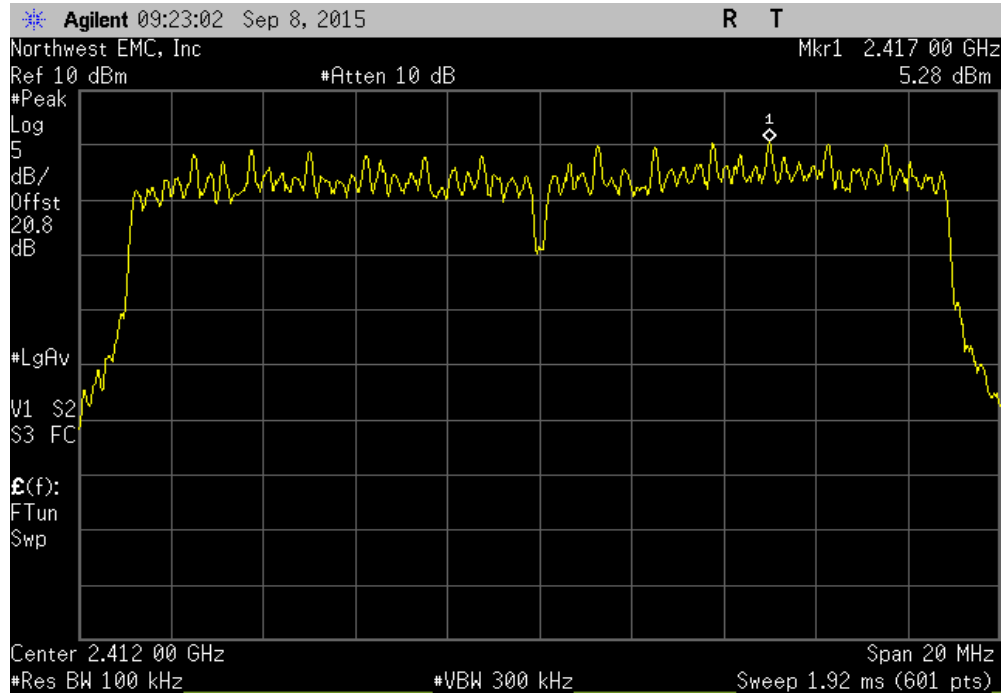


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.409	-15.2	-7.791	8	Pass	

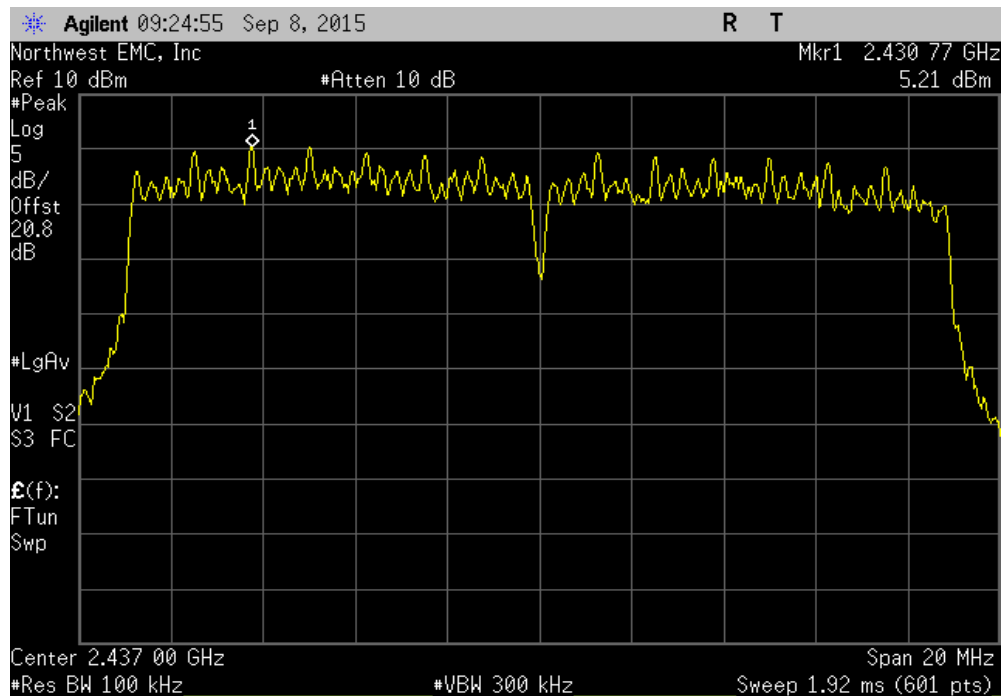


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 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		
	5.278	-15.2	-9.922	8	Pass	

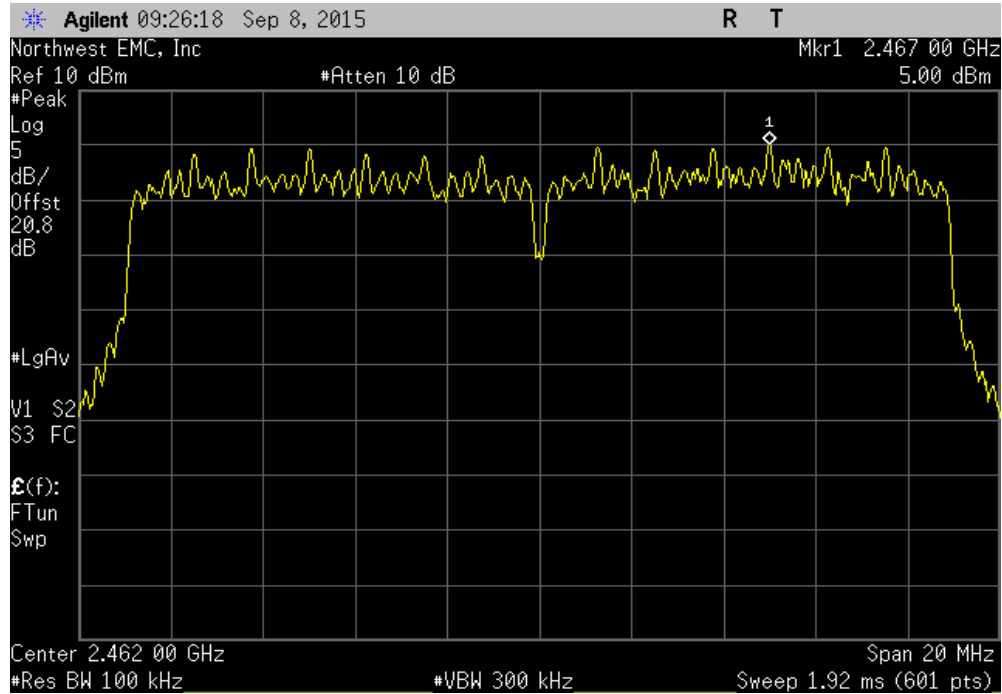


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.214	-15.2	-9.986	8	Pass	

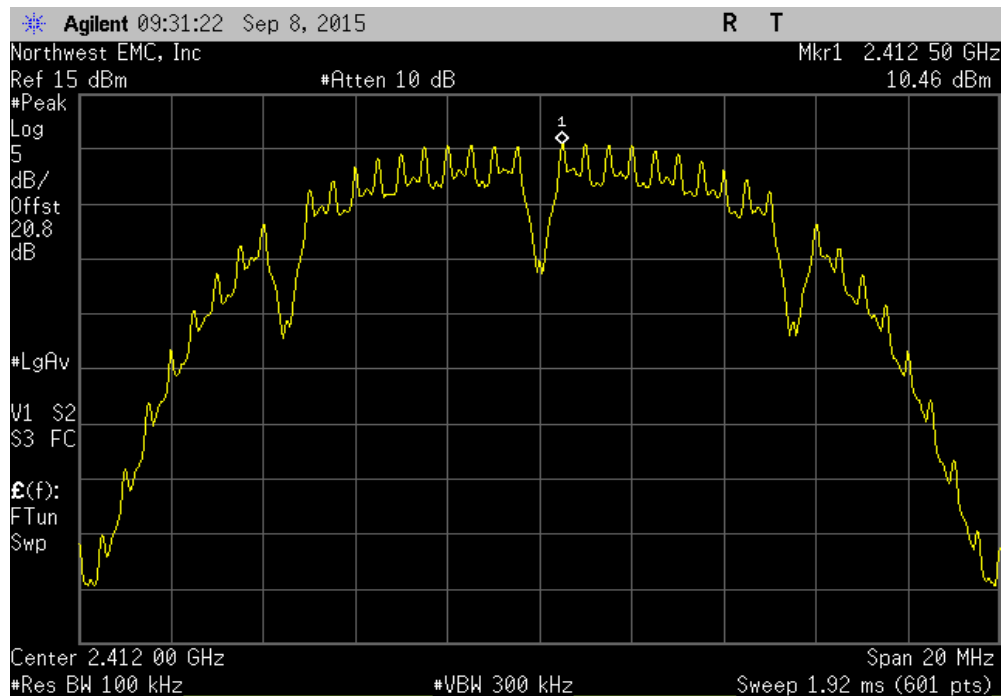


POWER SPECTRAL DENSITY

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.001	-15.2	-10.199	8	Pass	

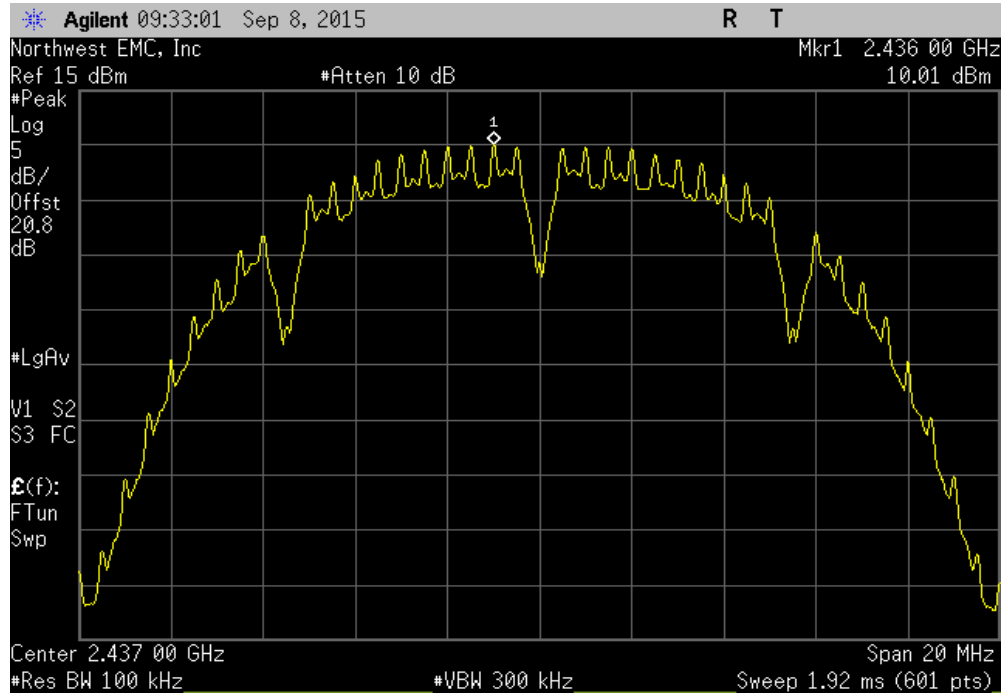


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	10.46	-15.2	-4.74	8	Pass	

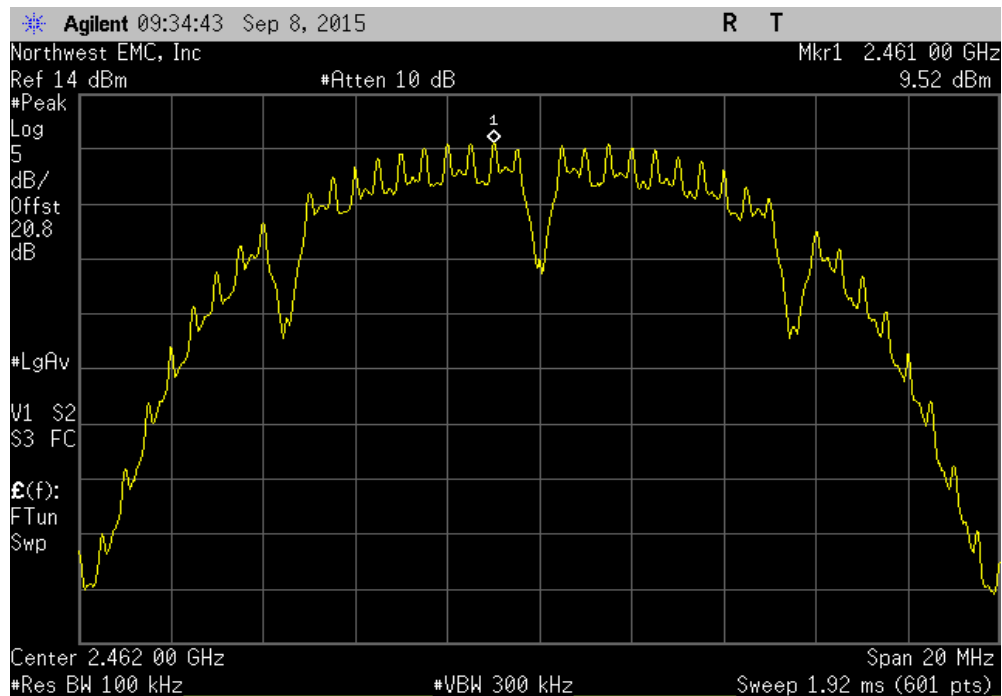


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	10.007	-15.2	-5.193	8	Pass	

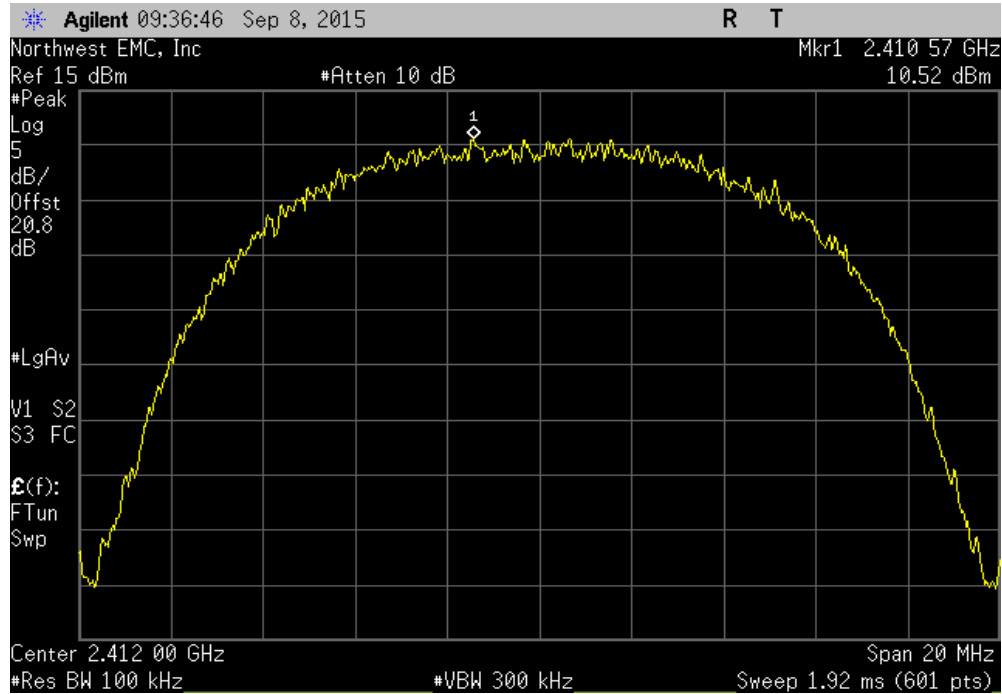


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	9.516	-15.2	-5.684	8	Pass	

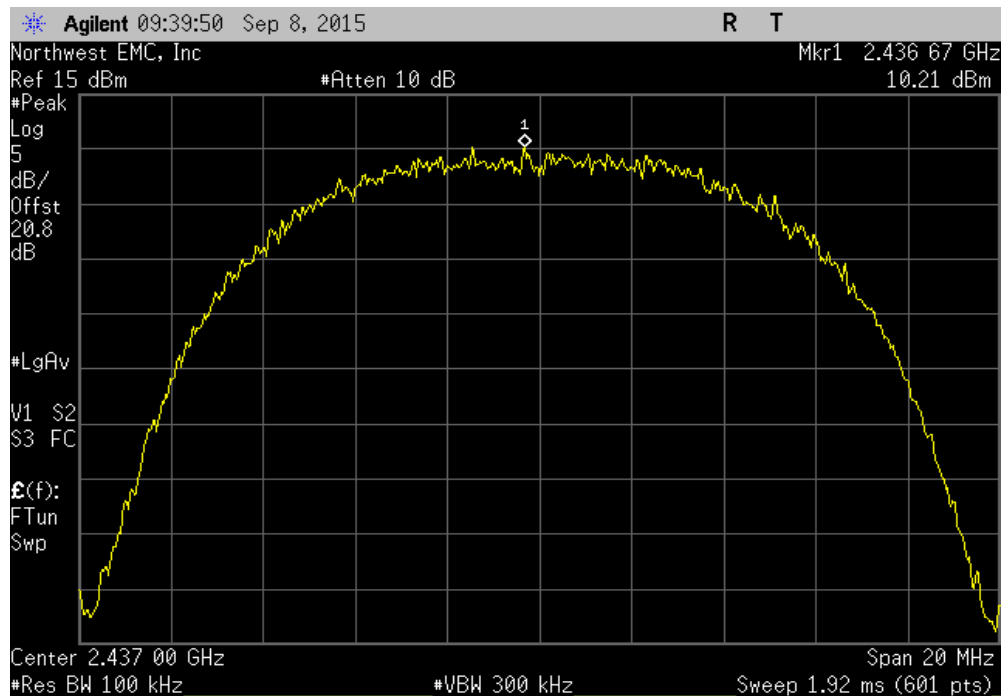


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 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		
	10.524	-15.2	-4.676	8	Pass	

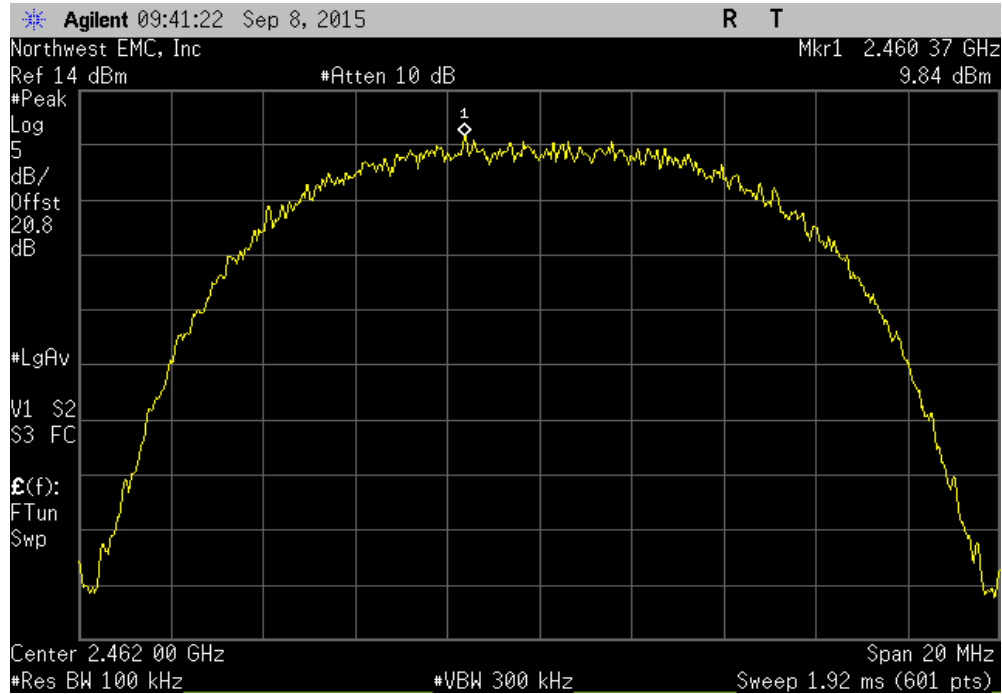


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	10.207	-15.2	-4.993	8	Pass	

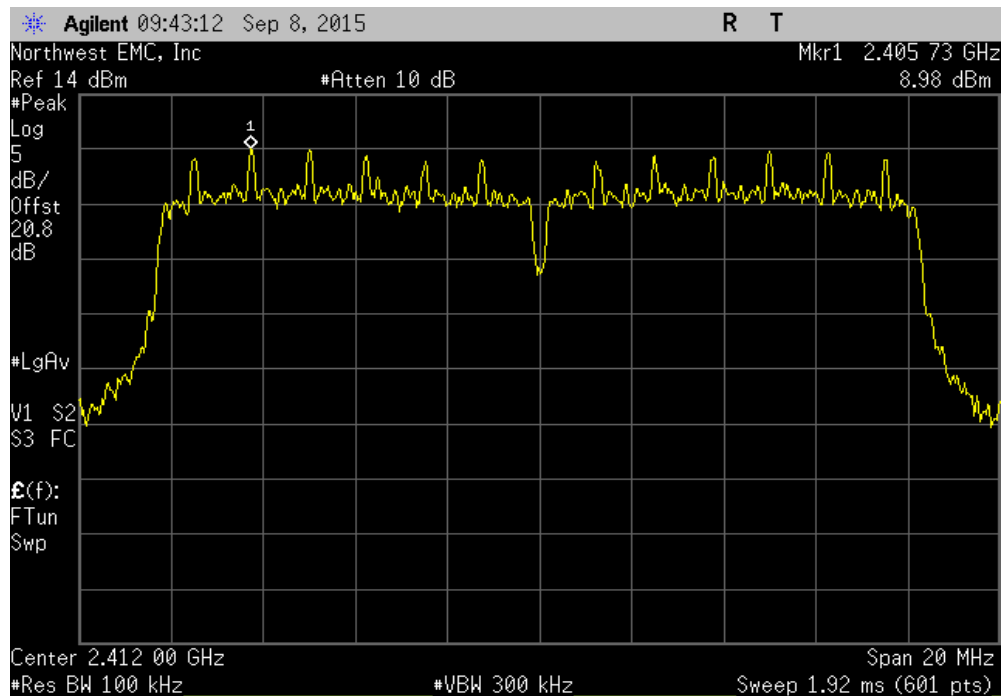


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	9.839	-15.2	-5.361	8	Pass	

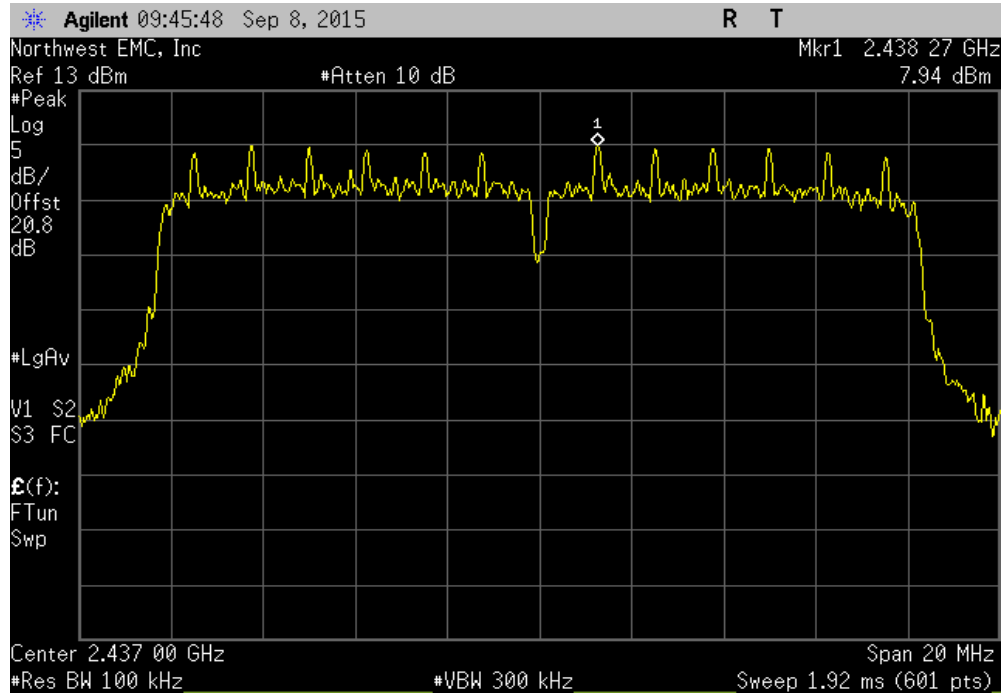


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.984	-15.2	-6.216	8	Pass	

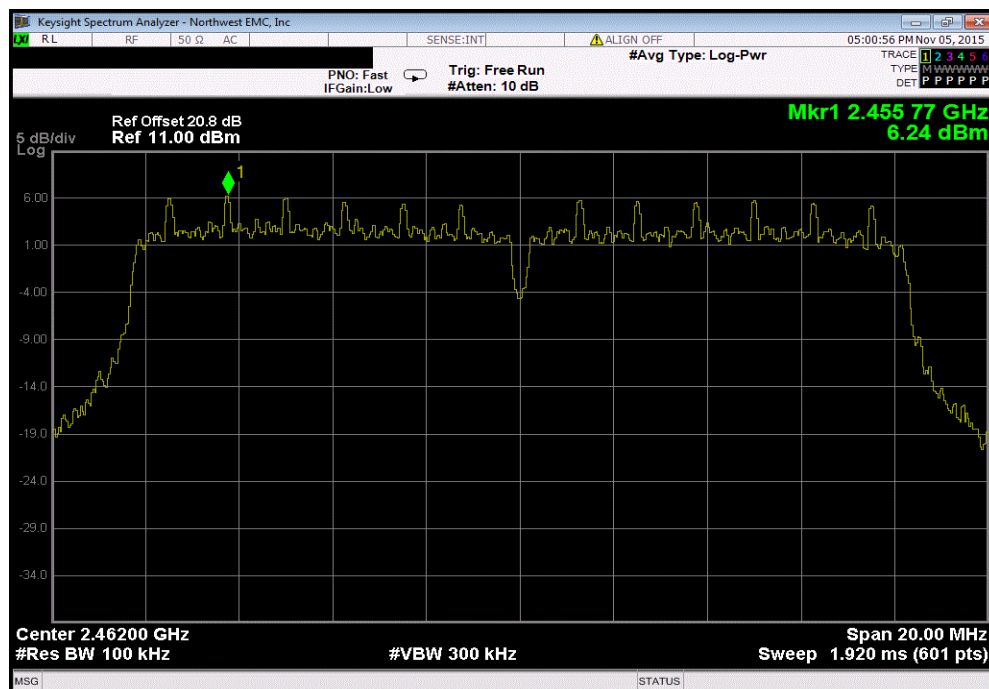


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.944	-15.2	-7.256	8	Pass	

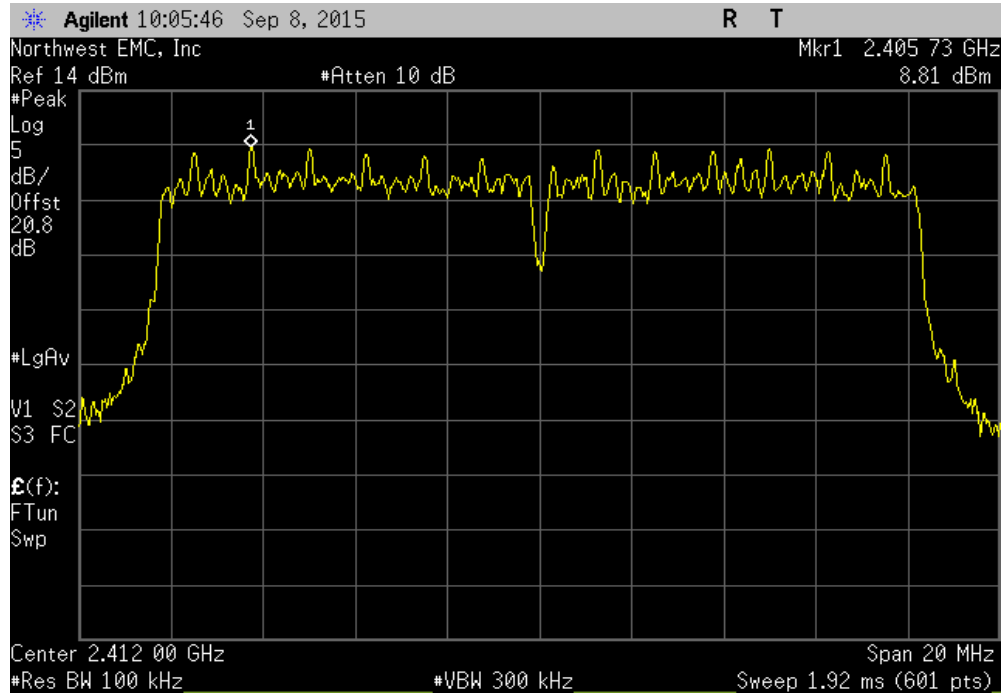


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	6.24	-15.2	-8.96	8	Pass	

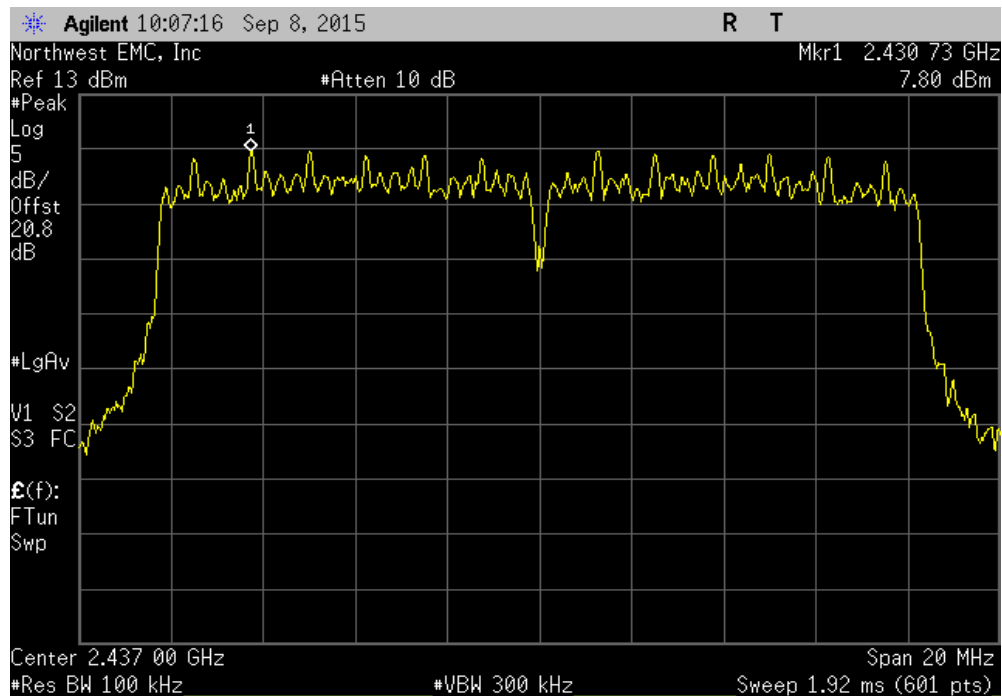


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.812	-15.2	-6.388	8	Pass	

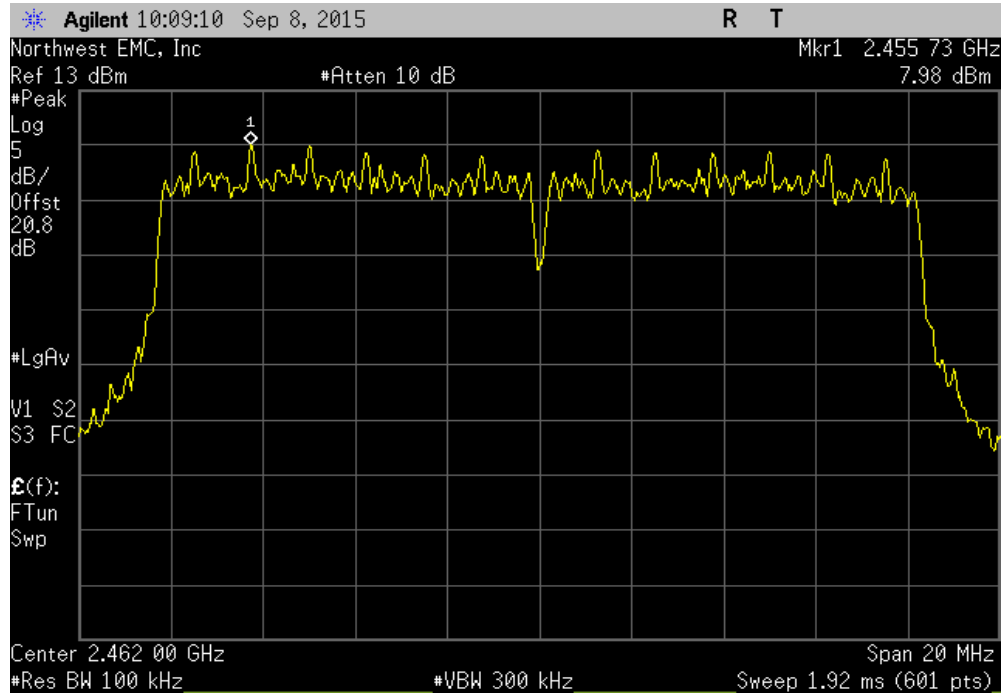


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	7.795	-15.2	-7.405	8	Pass	

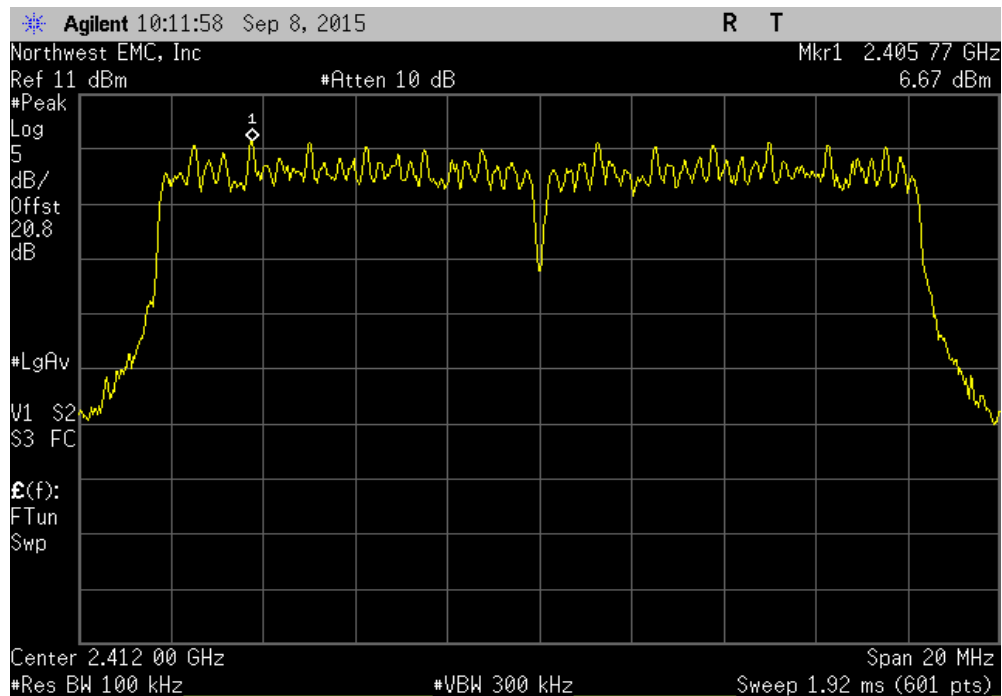


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 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				
	7.978	-15.2	-7.222	8	Pass	

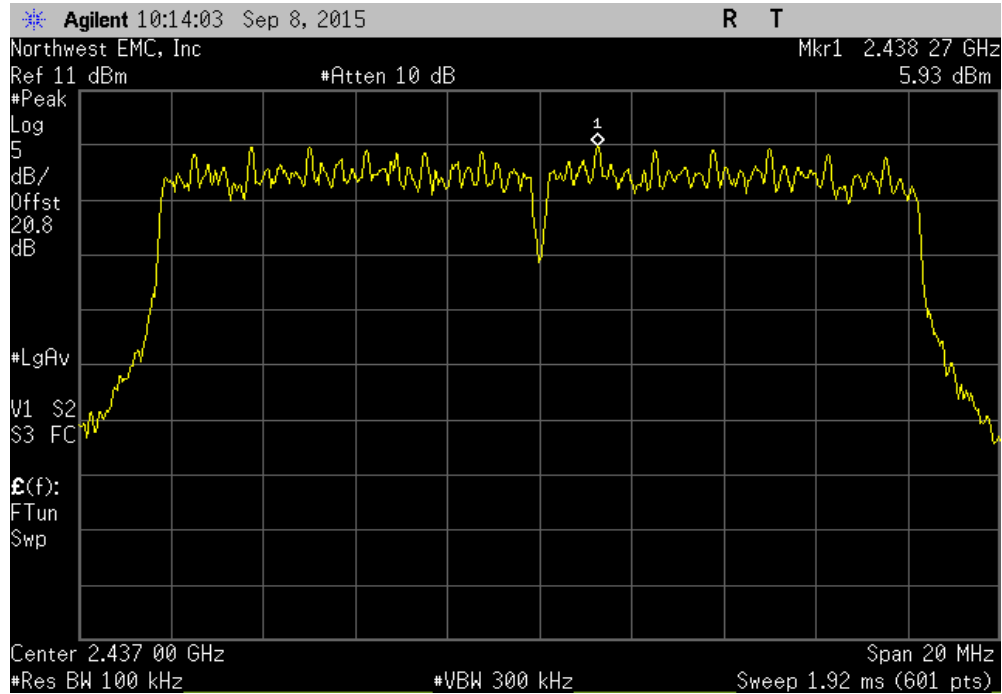


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	6.673	-15.2	-8.527	8	Pass	

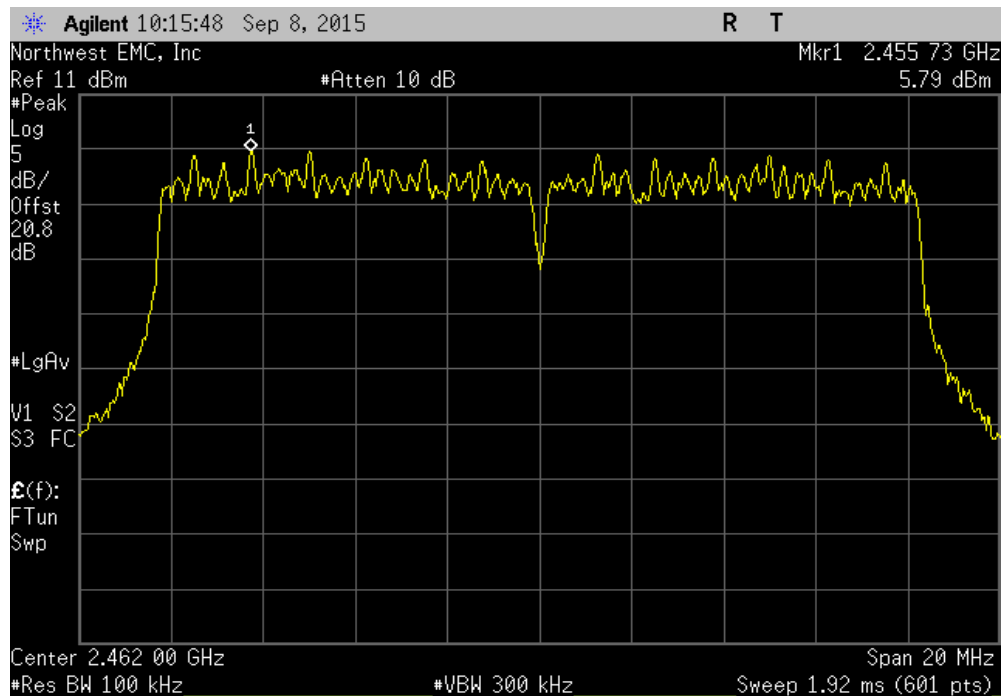


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 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			
	5.93	-15.2	-9.27	8	Pass

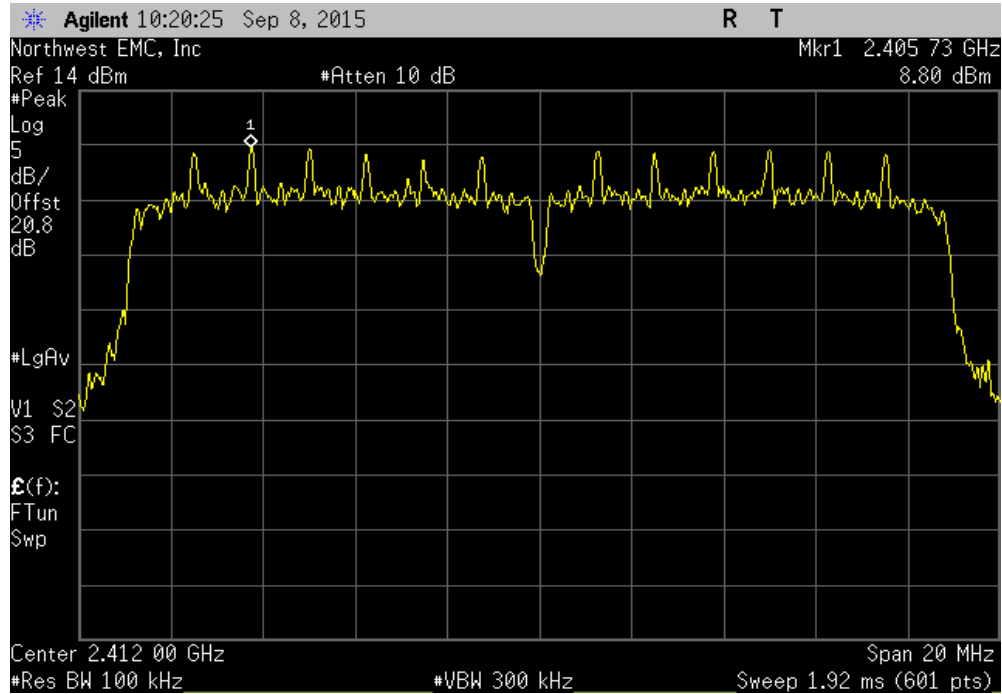


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.787	-15.2	-9.413	8	Pass

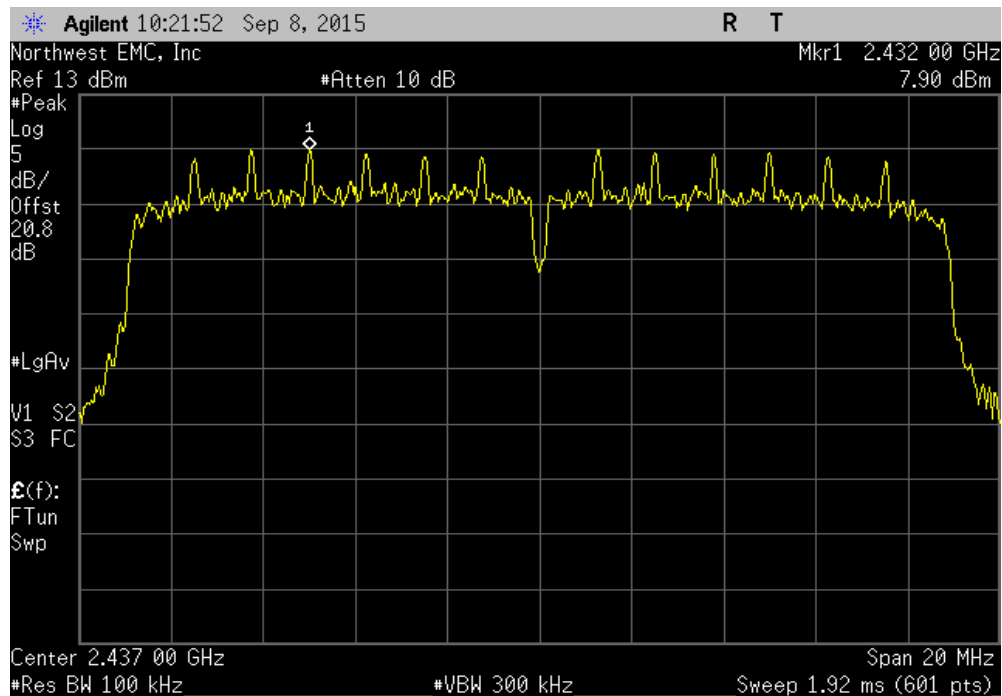


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.8	-15.2	-6.4	8	Pass	

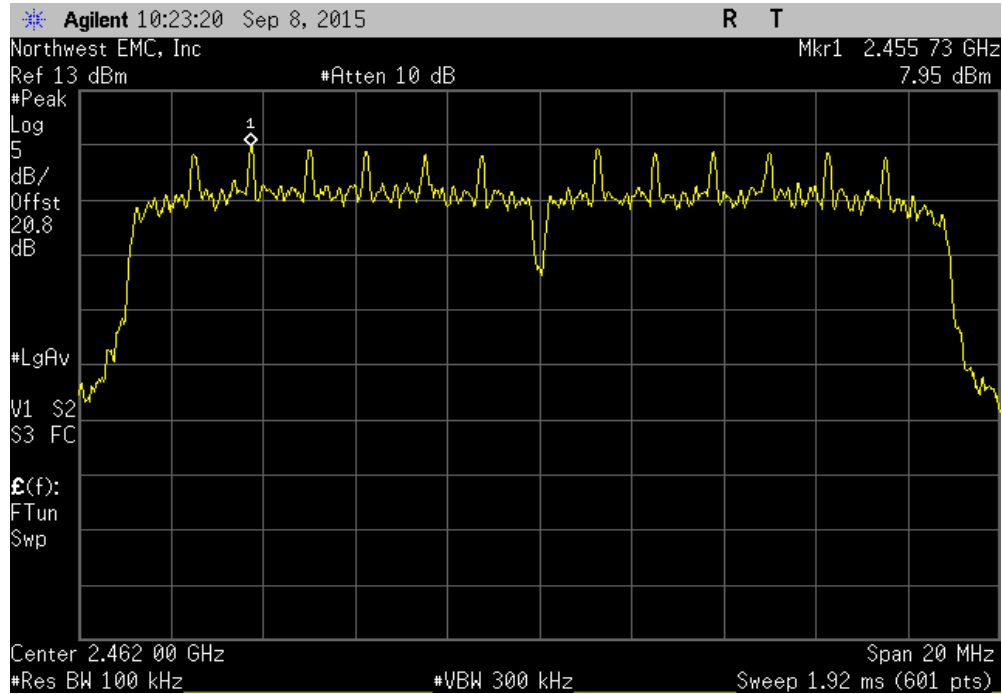


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	7.903	-15.2	-7.297	8	Pass	

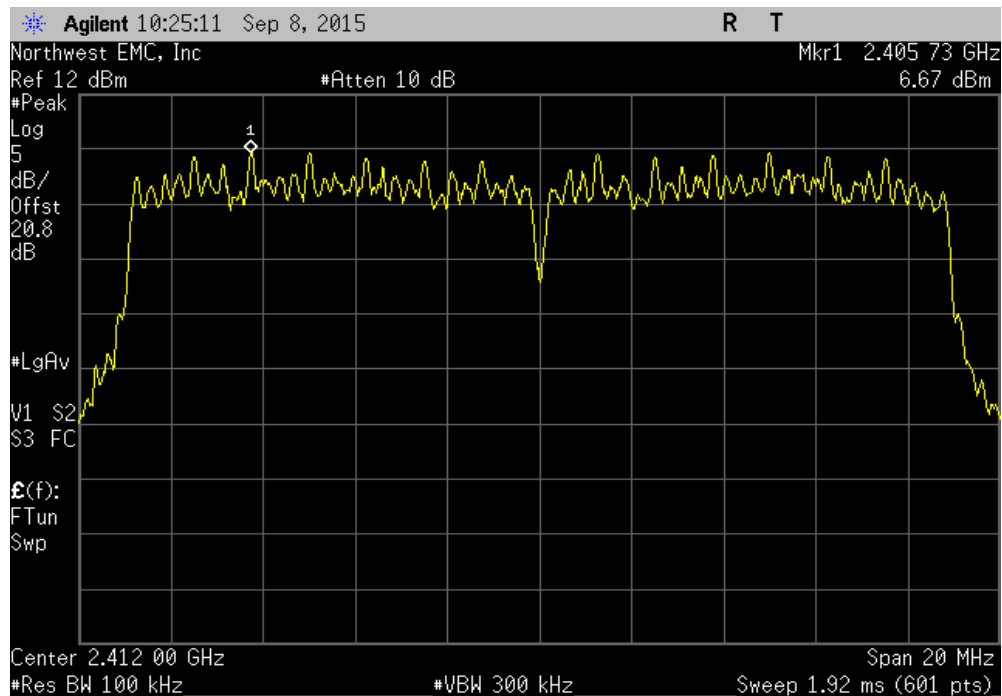


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.946	-15.2	-7.254	8	Pass

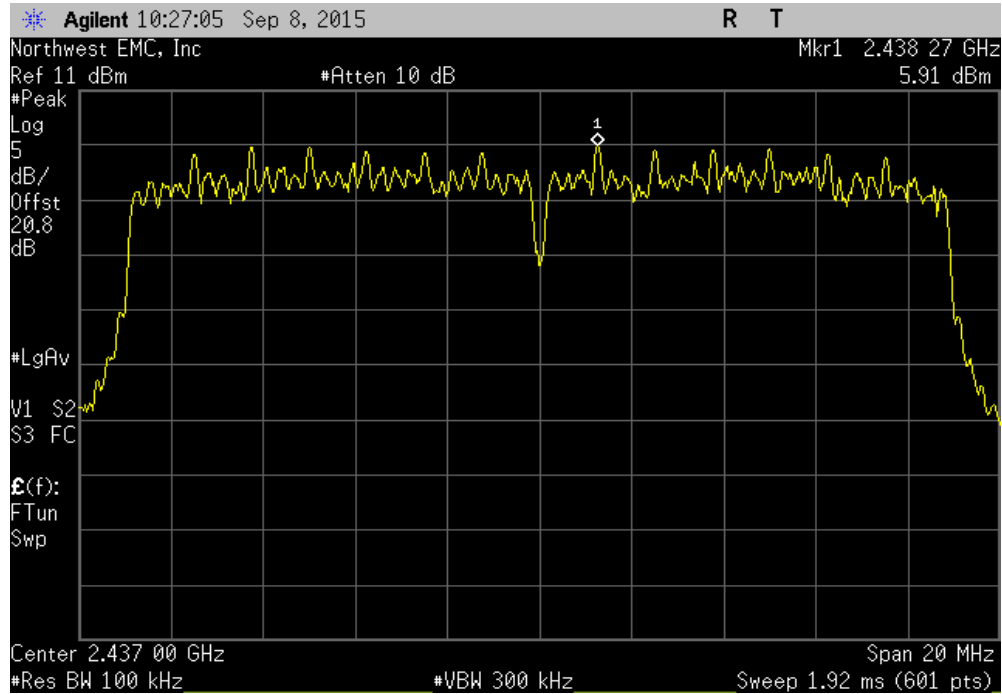


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	6.672	-15.2	-8.528	8	Pass

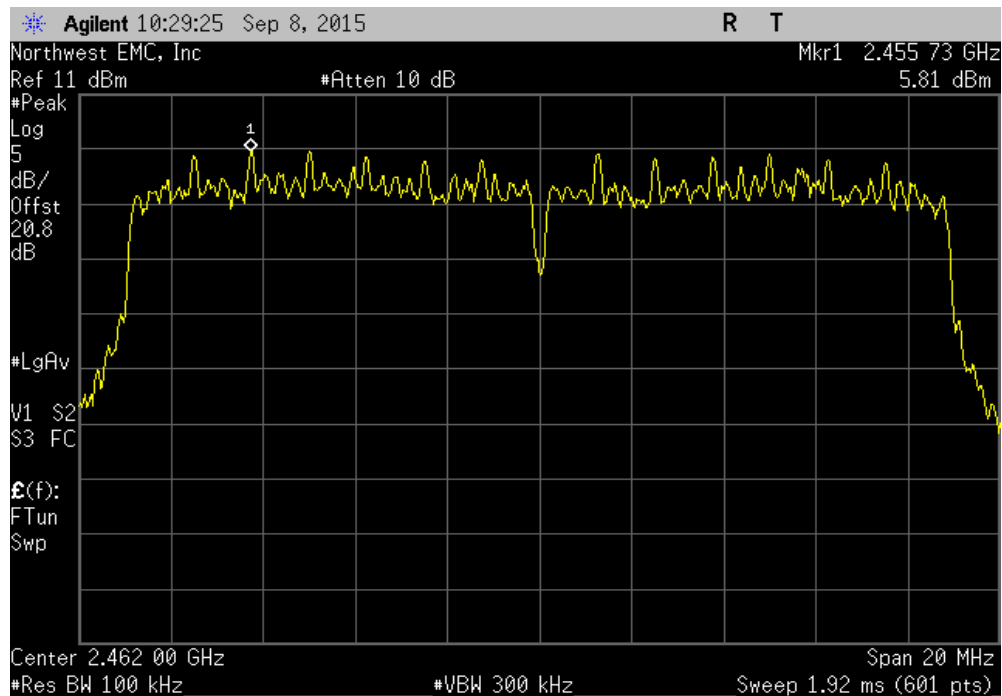


POWER SPECTRAL DENSITY

Chain B, 20 MHz, 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		
	5.908	-15.2	-9.292	8	Pass	

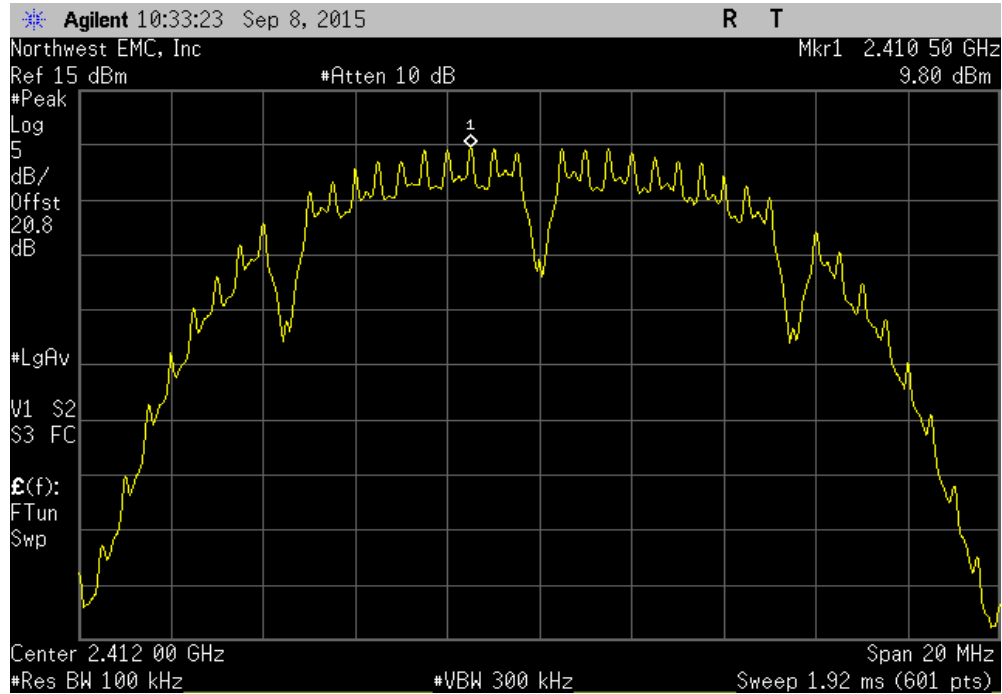


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	5.809	-15.2	-9.391	8	Pass	

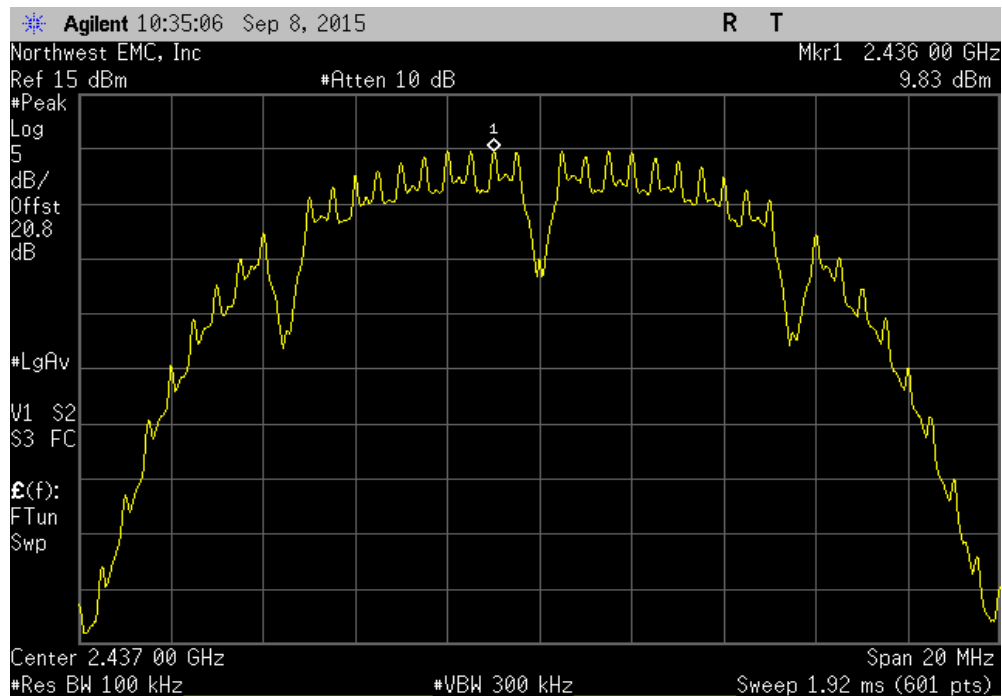


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	9.8	-15.2	-5.4	8	Pass

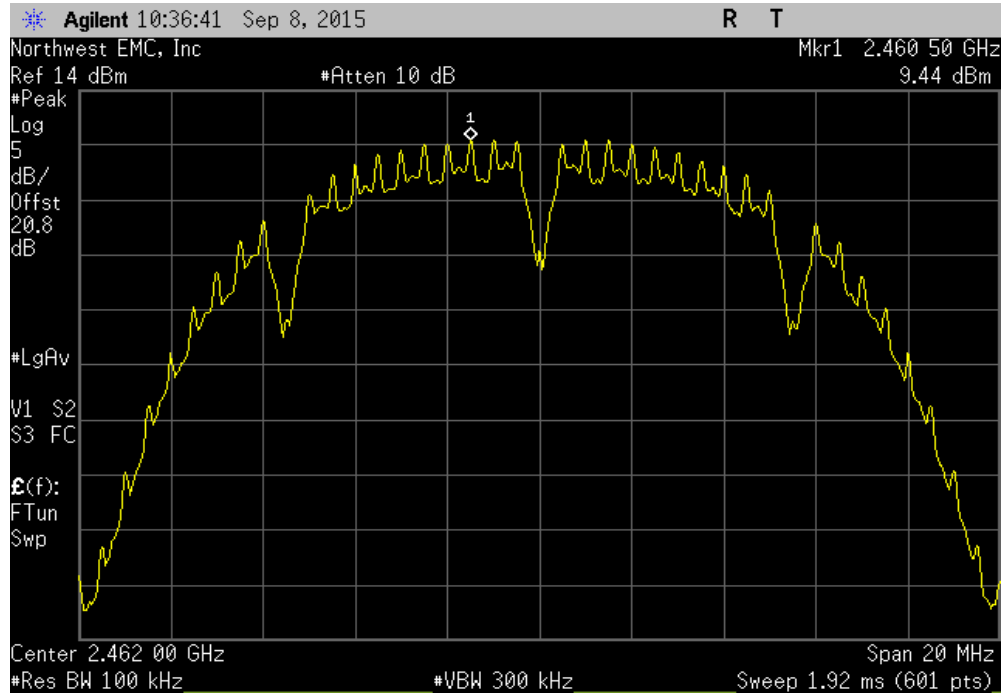


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
	9.832	-15.2	-5.368	8	Pass

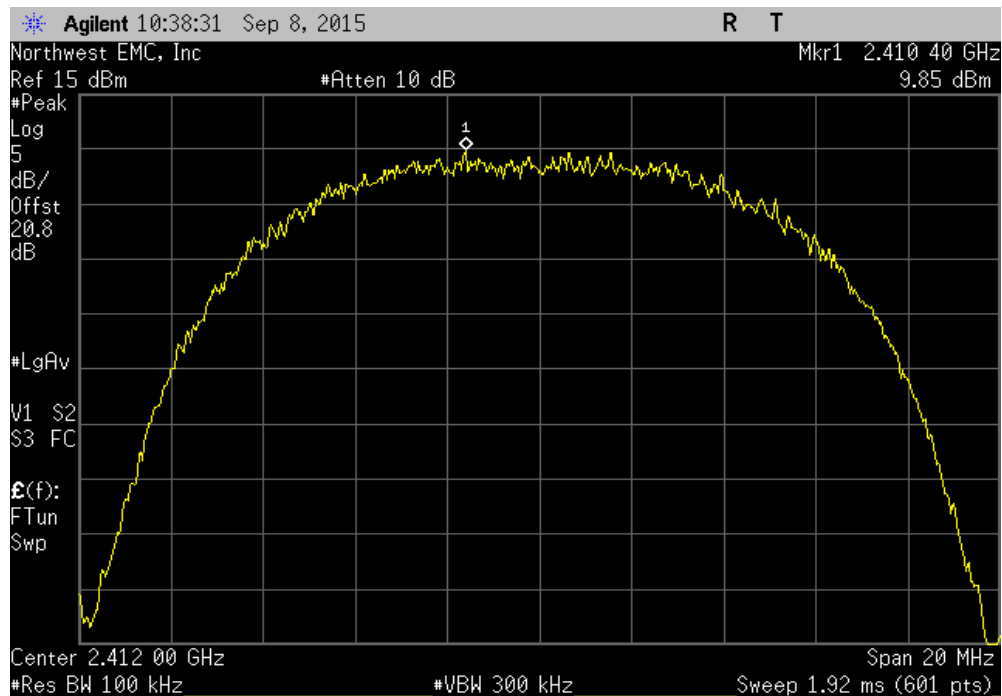


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	9.439	-15.2	-5.761	8	Pass	



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	9.853	-15.2	-5.347	8	Pass	



**NORTHWEST
EMC**

XMit 2015.01.14

Agilent 10:40:20 Sep 8, 2015 R T

Northwest EMC, Inc Mkr1 2.435 40 GHz
Ref 15 dBm #Atten 10 dB 9.74 dBm

#Peak
Log
5
dB/
Offst
20.8
dB

#LgAv

V1 S2
S3 FC

$E(f)$:
FTun
Swp

Center 2.437 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

Agilent 10:41:46 Sep 8, 2015 R T

Northwest EMC, Inc Mkr1 2.461 67 GHz
Ref 14 dBm #Atten 10 dB 9.89 dBm

#Peak
Log
5
dB/
Offst
20.8
dB

#LgAv

V1 S2
S3 FC

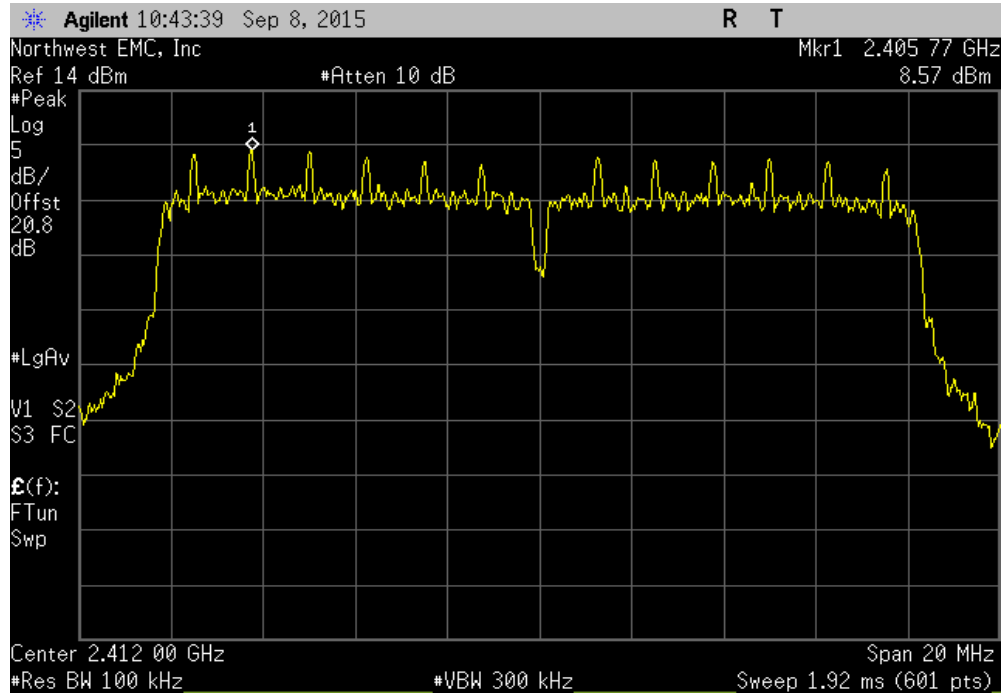
E(f):
FTun
Swp

Center 2.462 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

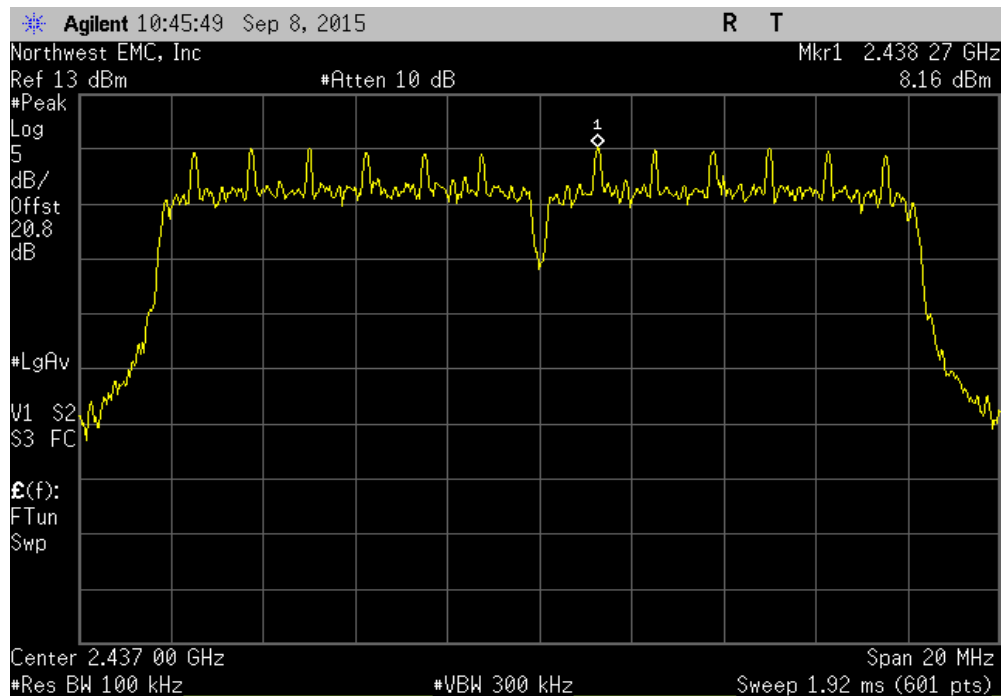
The image shows a spectrum plot from a software interface. The plot area is a grid with a yellow line representing the signal. A peak is marked with a white diamond and the number '1'. The peak is located at a frequency of 2.46167 GHz, as indicated by the 'Mkr1' label. The signal level at the peak is 9.89 dBm. The plot has a center frequency of 2.462 GHz and a span of 20 MHz. The resolution bandwidth (Res BW) is 100 kHz, and the video bandwidth (VBW) is 300 kHz. The sweep time is 1.92 ms. The plot is titled 'Northwest EMC, Inc' and 'Agilent 10:41:46 Sep 8, 2015'. The interface also shows various settings like '#Peak Log 5 dB/Offst 20.8 dB', '#LgAv', and 'E(f): FTun Swp'.

POWER SPECTRAL DENSITY

Chain C, 20 MHz, 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				
	8.568	-15.2	-6.632	8	Pass	

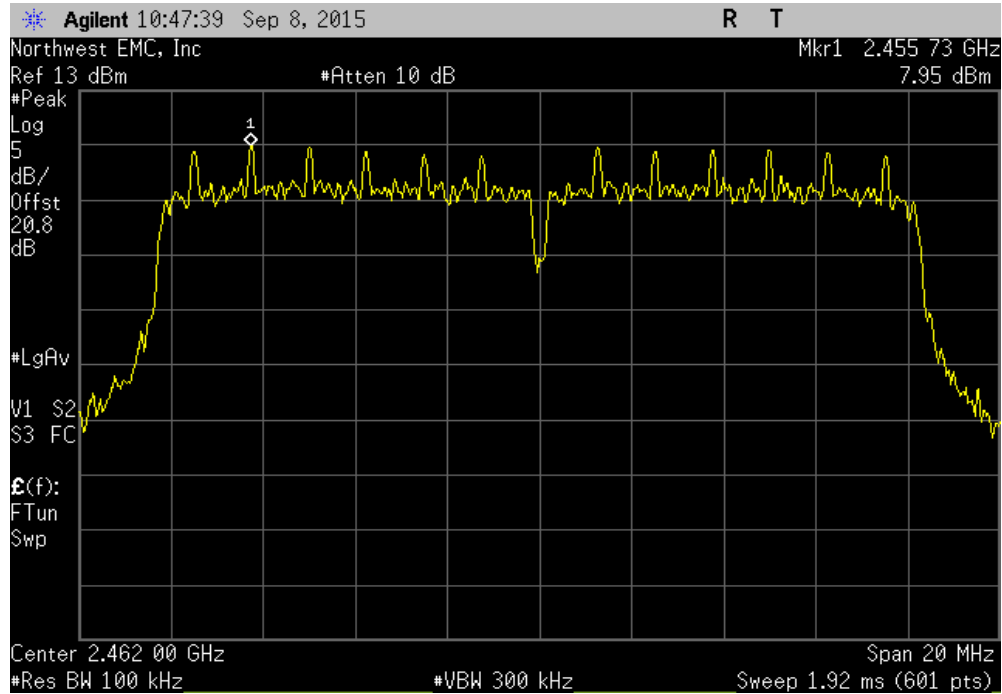


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.162	-15.2	-7.038	8	Pass	

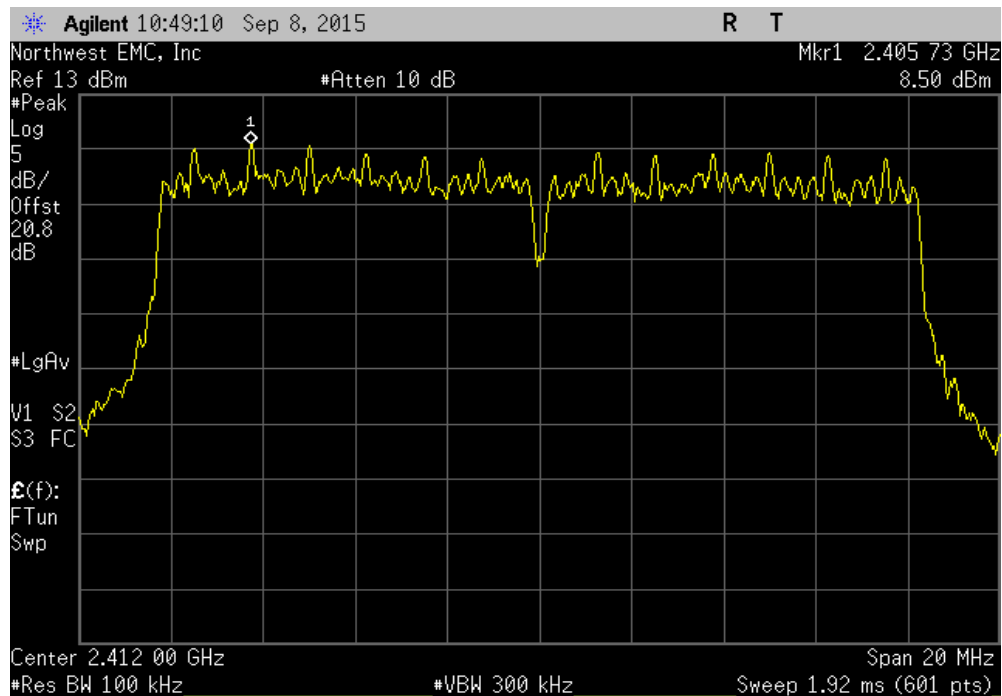


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	7.951	-15.2	-7.249	8	Pass	

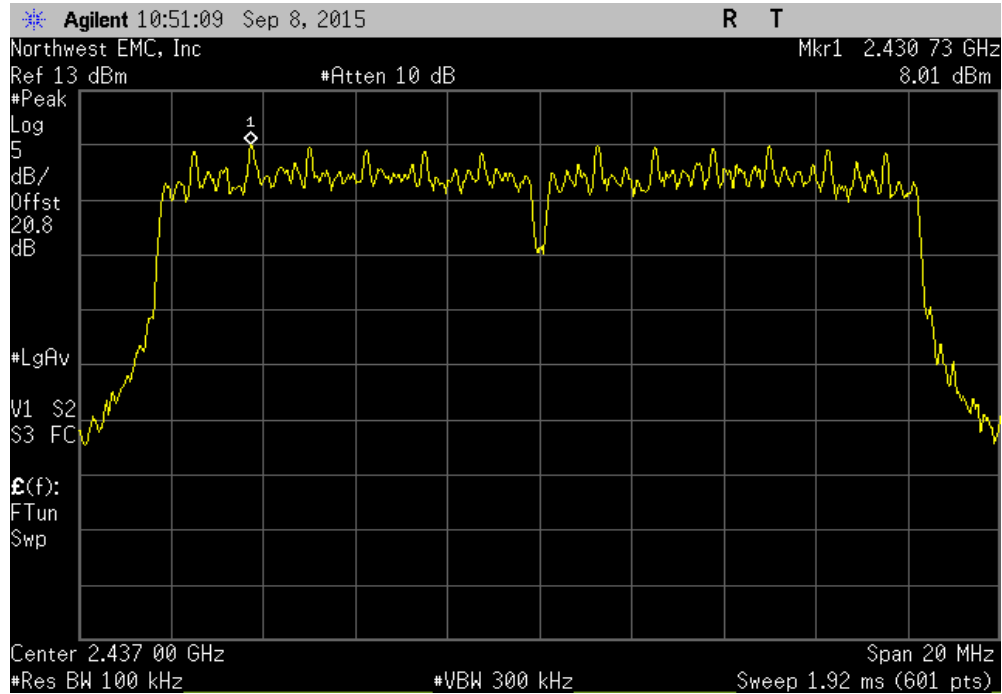


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
	8.497	-15.2	-6.703	8	Pass	

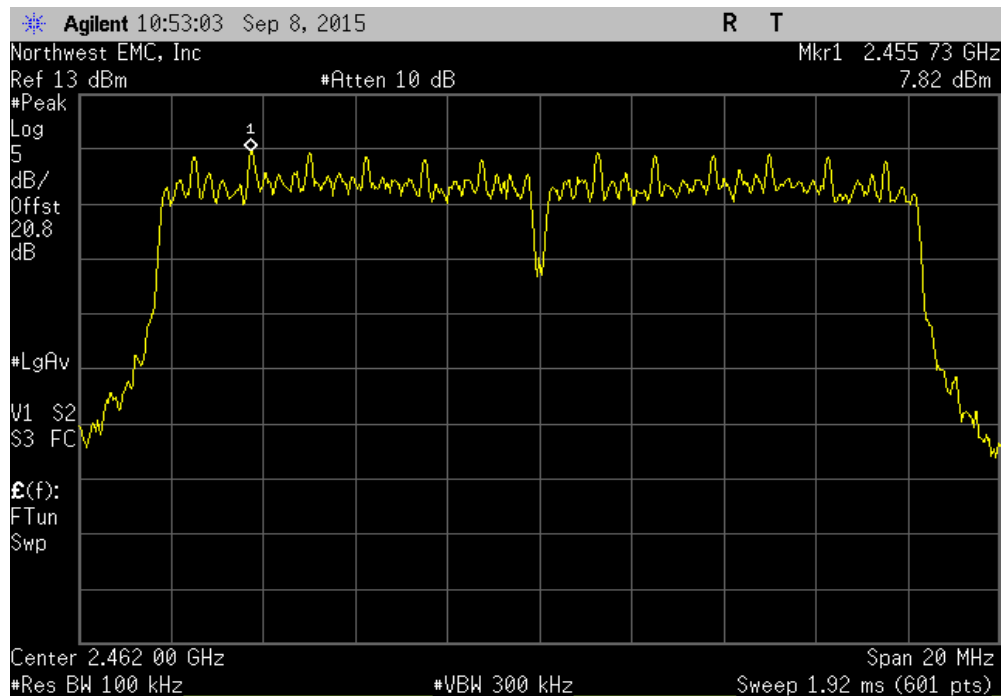


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 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				
	8.008	-15.2	-7.192	8	Pass	

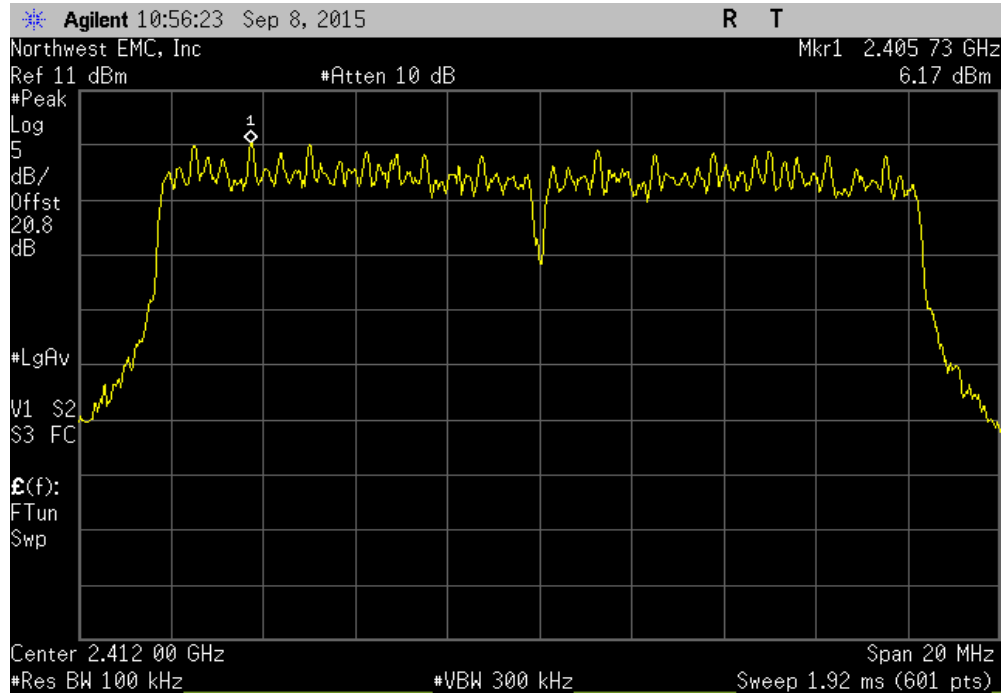


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	7.822	-15.2	-7.378	8	Pass	

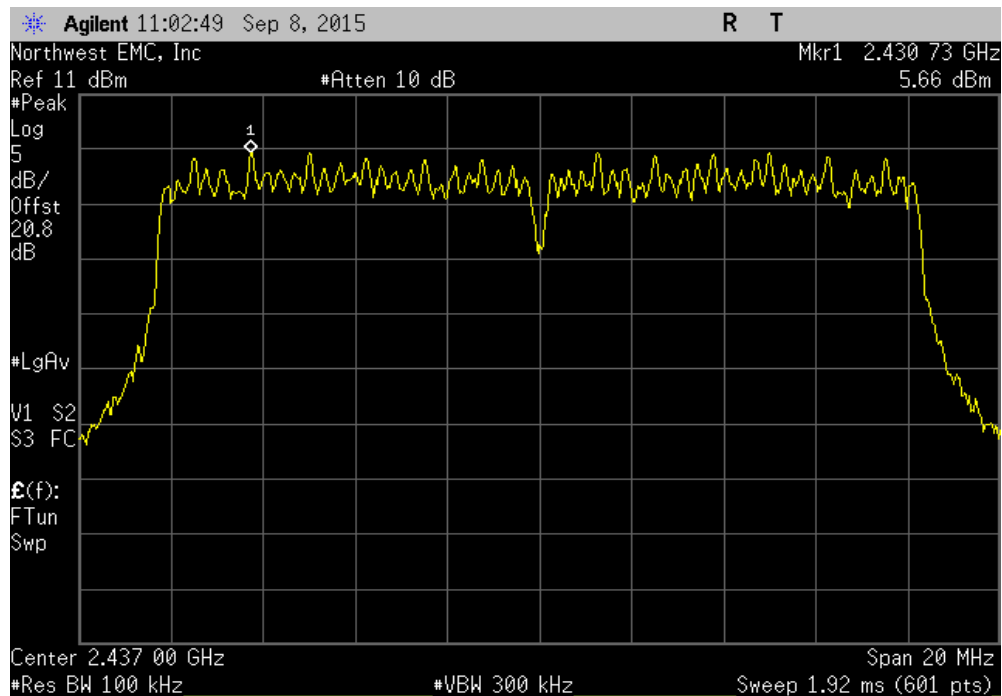


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 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			
	6.172	-15.2	-9.028	8	Pass

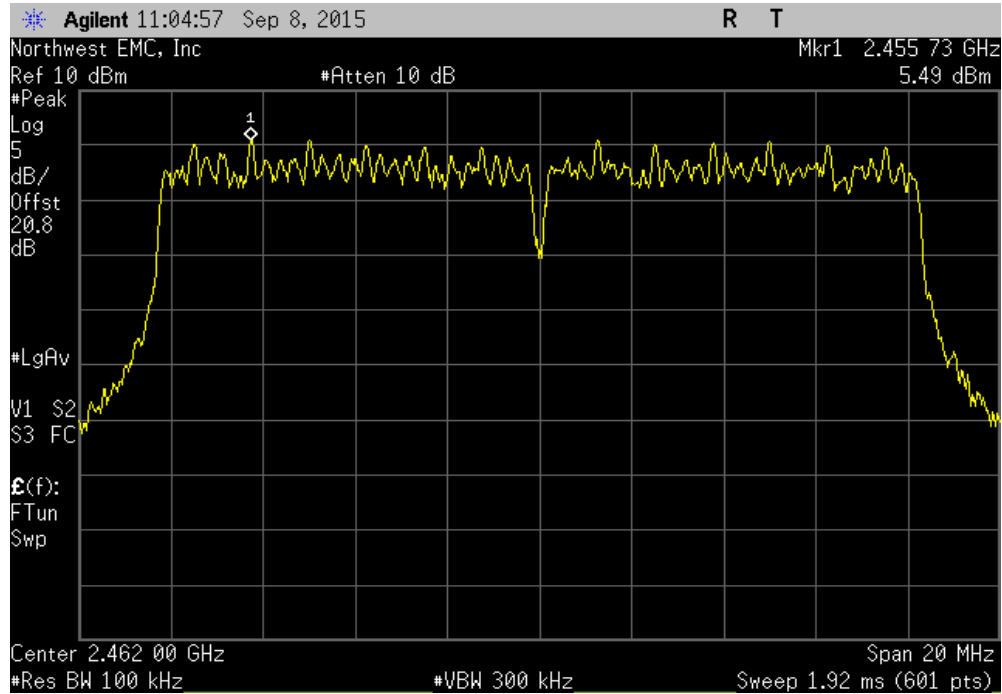


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	5.658	-15.2	-9.542	8	Pass

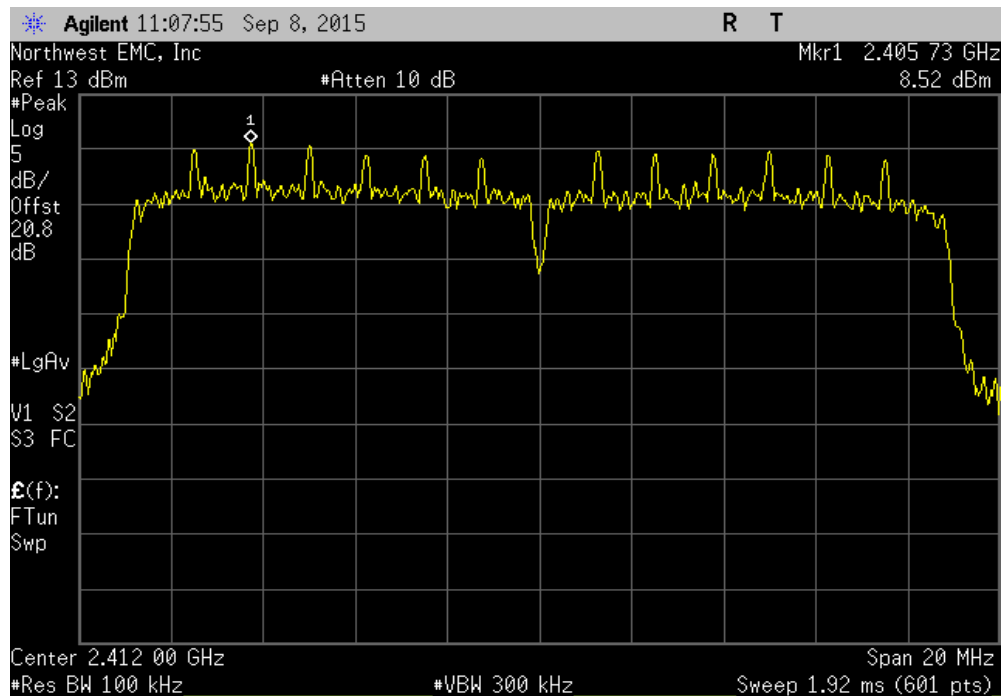


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 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				
	5.486	-15.2	-9.714	8	Pass	

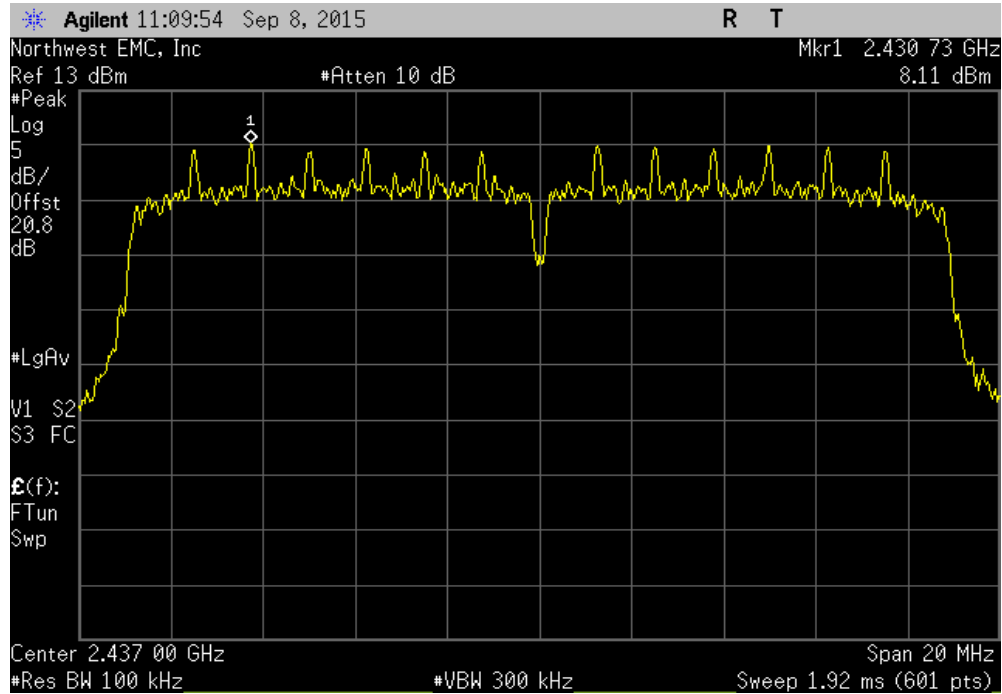


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	8.517	-15.2	-6.683	8	Pass	

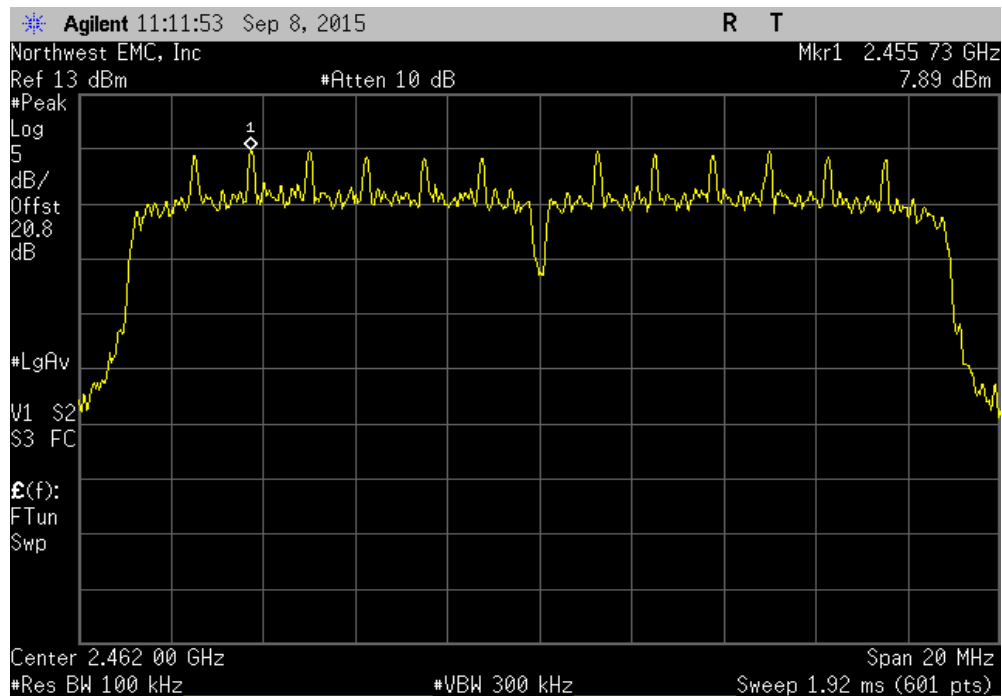


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	8.111	-15.2	-7.089	8	Pass

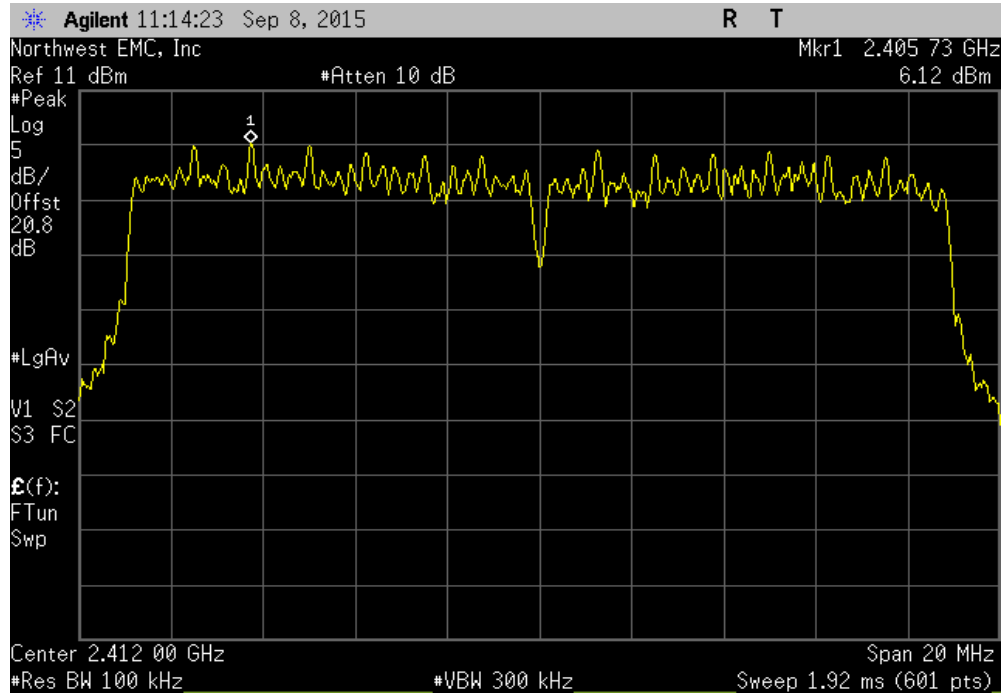


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz					
	Value	dBm/100kHz	Value	Limit	Results
		To dBm/3kHz			
	7.888	-15.2	-7.312	8	Pass

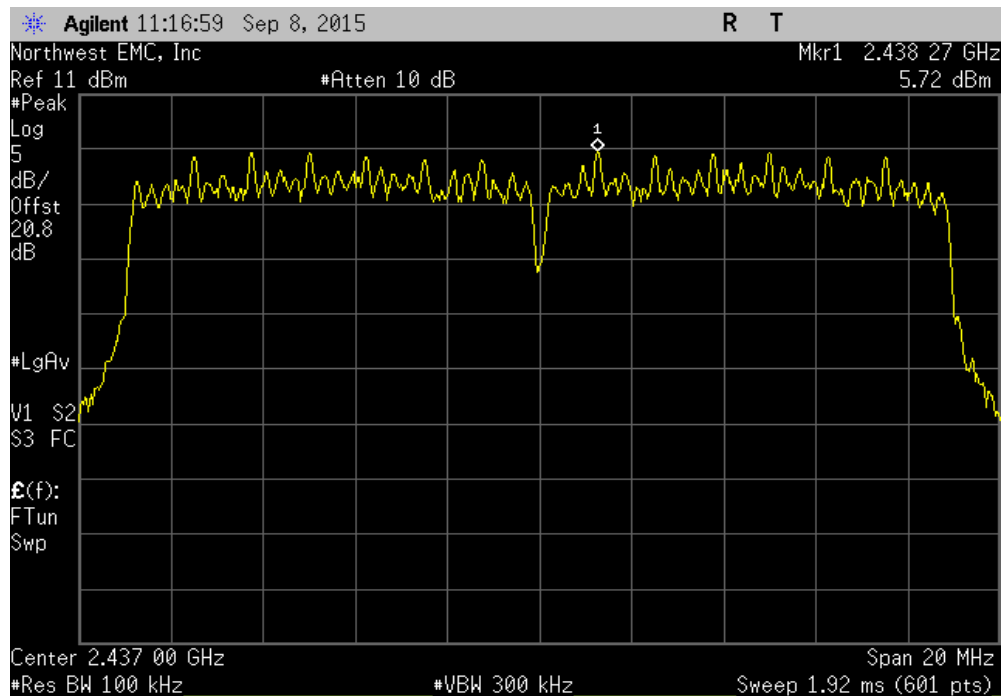


POWER SPECTRAL DENSITY

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	6.121	-15.2	-9.079	8	Pass	



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Value	dBm/100kHz	Value	Limit	Results	
		To dBm/3kHz				
	5.716	-15.2	-9.484	8	Pass	



**NORTHWEST
EMC**

XMit 2015.01.14

Agilent 11:20:39 Sep 8, 2015 R T

Northwest EMC, Inc Mkr1 2.455 73 GHz
Ref 10 dBm #Atten 10 dB 5.58 dBm

#Peak
Log
5
dB/
Offst
20.8
dB

#LgAv

V1 S2
S3 FC

E(f):
FTun
Swp

Center 2.462 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 1.92 ms (601 pts)

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 (mos)
Spectrum Analyzer	Agilent	N9010A	AFL	9/20/2014	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator, 20dB, 40 GHz	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Signal Generator, 40 GHz	Agilent	N5173B	TIW	7/15/2014	36

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 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.

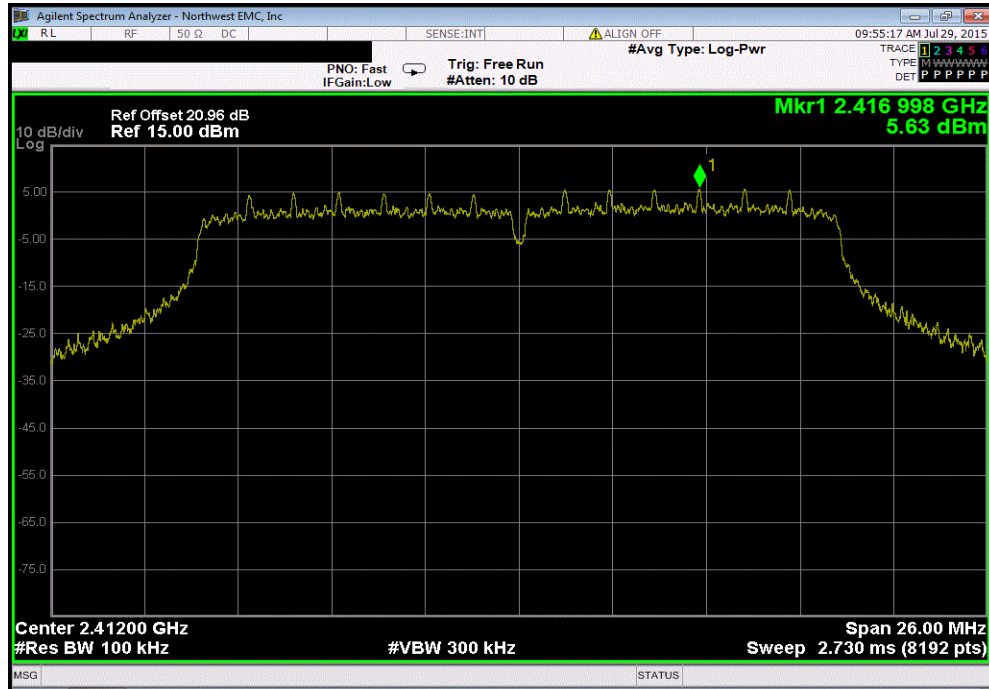
The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

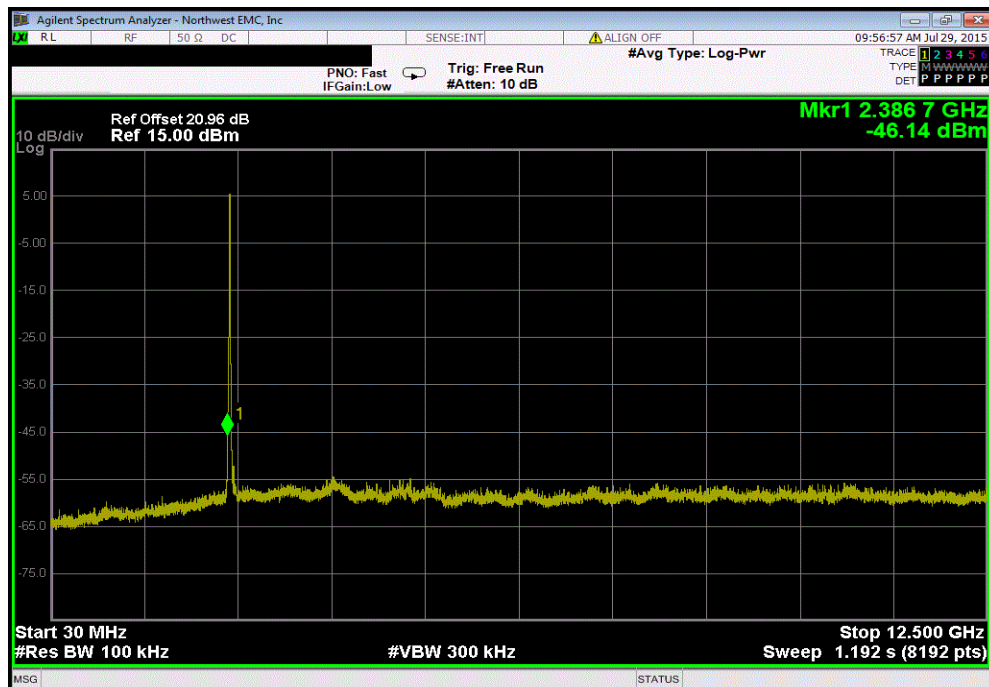
EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009	
Serial Number: 70AF00069-3EB6		Date: 07/29/15	
Customer: WatchGuard Technologies, Inc.		Temperature: 24.9°C	
Attendees: None		Humidity: 47%	
Project: None		Barometric Pres.: 1014 mbar	
Tested by: Jonathan Kiefer		Power: 110VAC/60Hz	
		Job Site: TX09	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2013	
COMMENTS			
2x2 MIMO mode, Chain AB (Chains 0 and 1). Tested the modulation that produced the highest conducted output power.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Jonathan Kiefer</i>	
		Frequency Range	Max Value (dBc) Limit ≤ (dBc) Result
Chain A			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
	Low Channel 1, 2412 MHz	Fundamental	N/A N/A N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-51.77 -20 Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-57.98 -20 Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A N/A N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-60.2 -20 Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-57.09 -20 Pass
	High Channel 11, 2462 MHz	Fundamental	N/A N/A N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-60.15 -20 Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-56.4 -20 Pass
Chain B			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
	Low Channel 1, 2412 MHz	Fundamental	N/A N/A N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-52.65 -20 Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-57.82 -20 Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A N/A N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-59.45 -20 Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-57.38 -20 Pass
	High Channel 11, 2462 MHz	Fundamental	N/A N/A N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-59.22 -20 Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-57.55 -20 Pass

SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
Fundamental		N/A		N/A		N/A

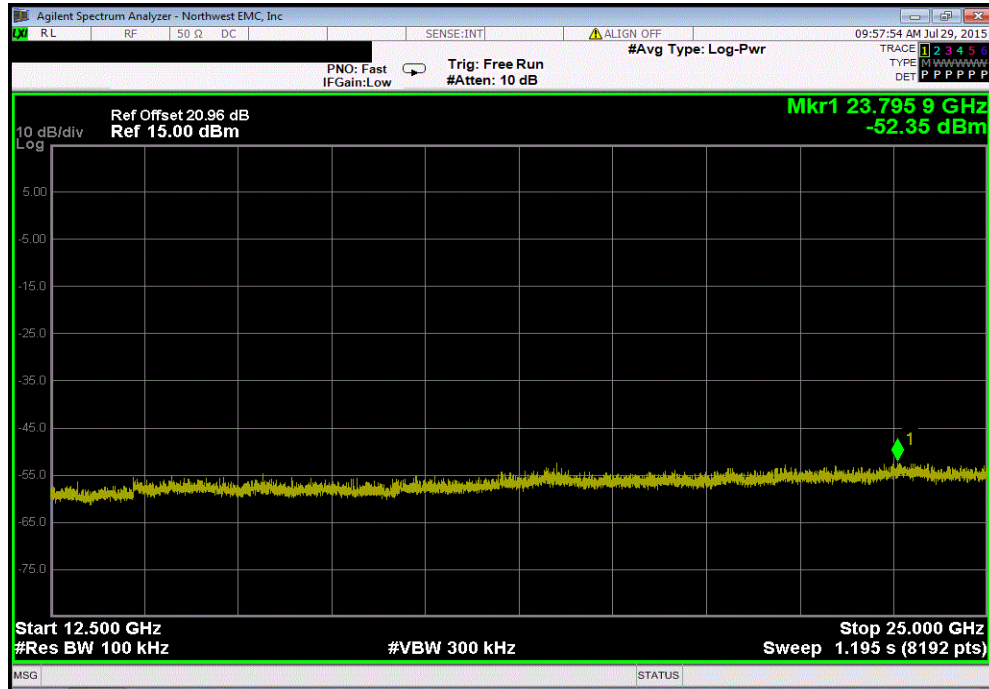


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
30 MHz - 12.5 GHz		-51.77		-20		Pass

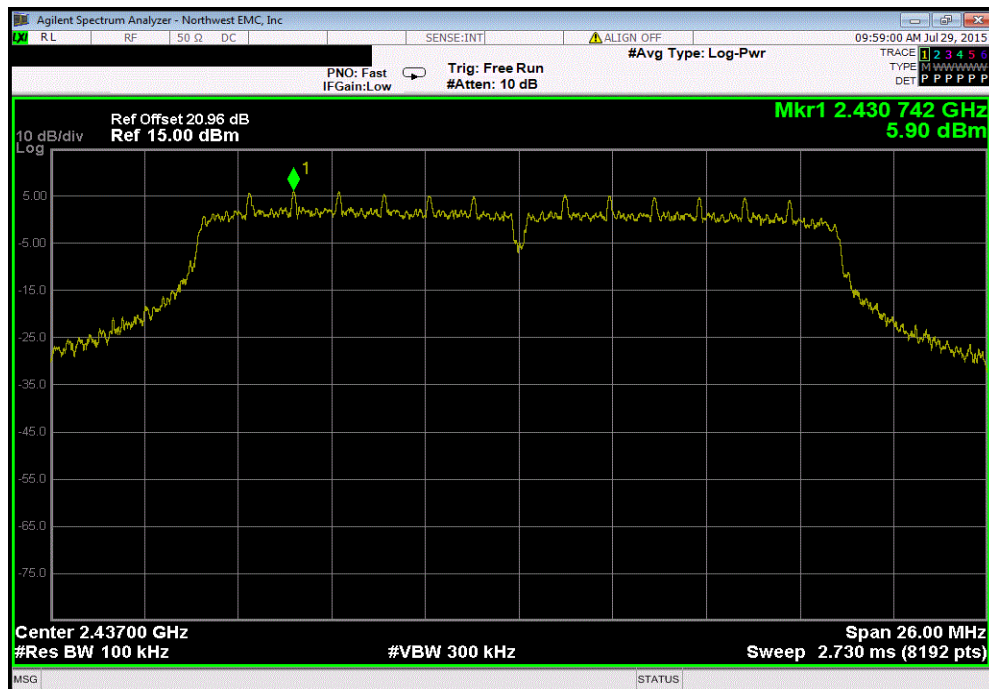


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.98	-20	Pass	

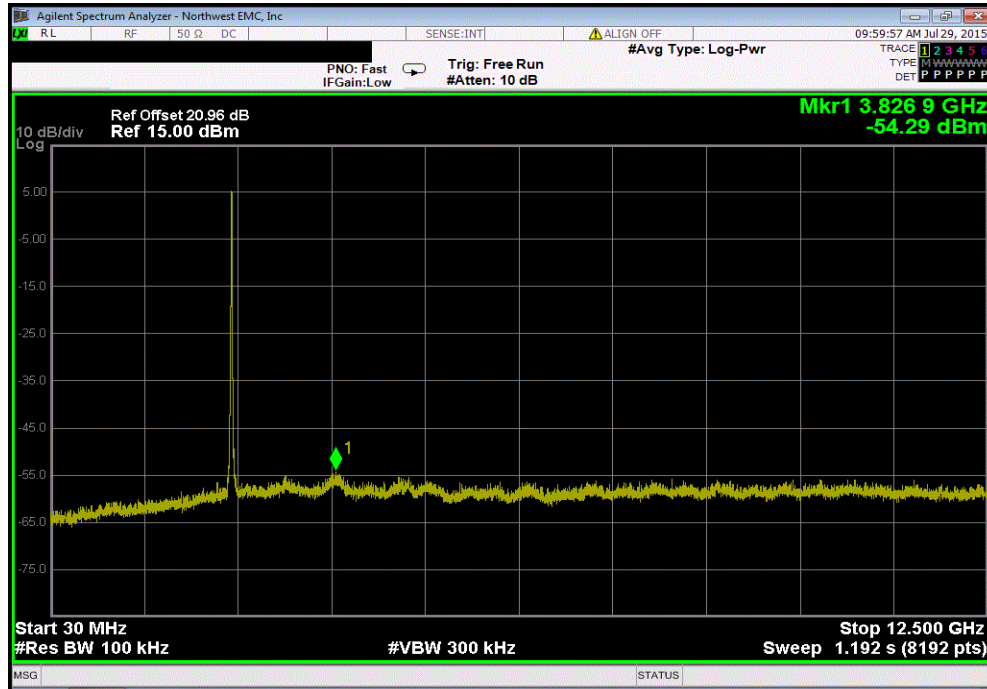


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

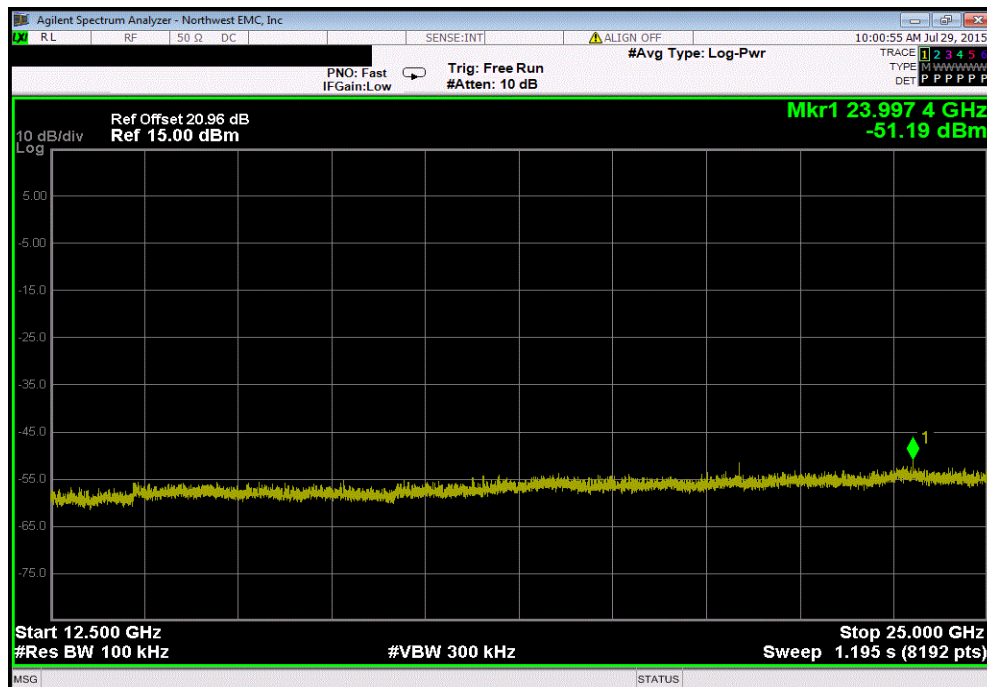


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-60.2	-20	Pass	

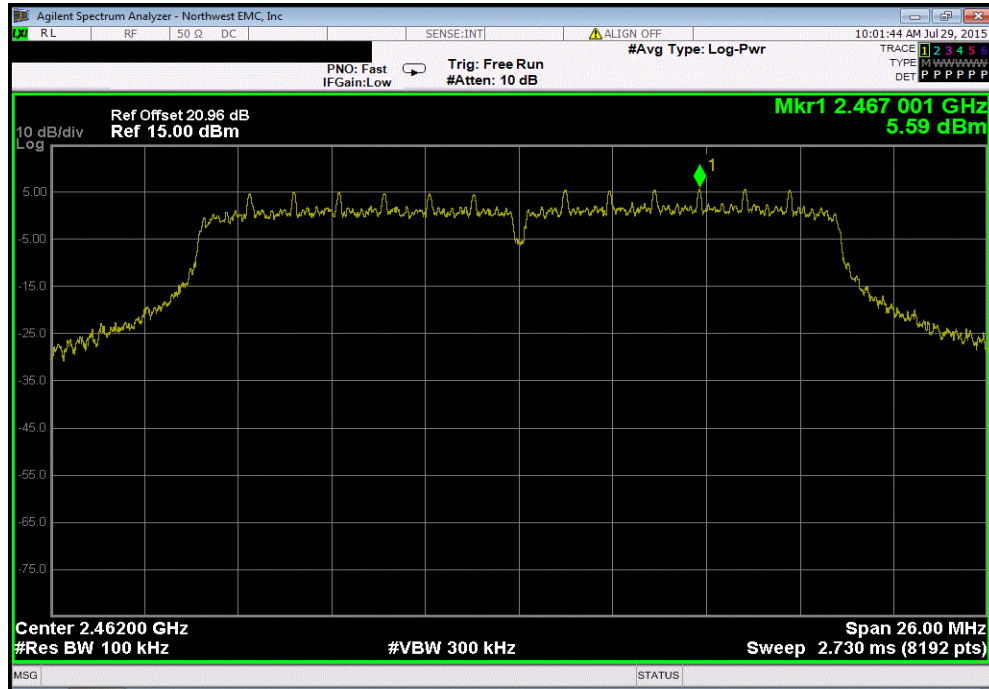


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.09	-20	Pass	

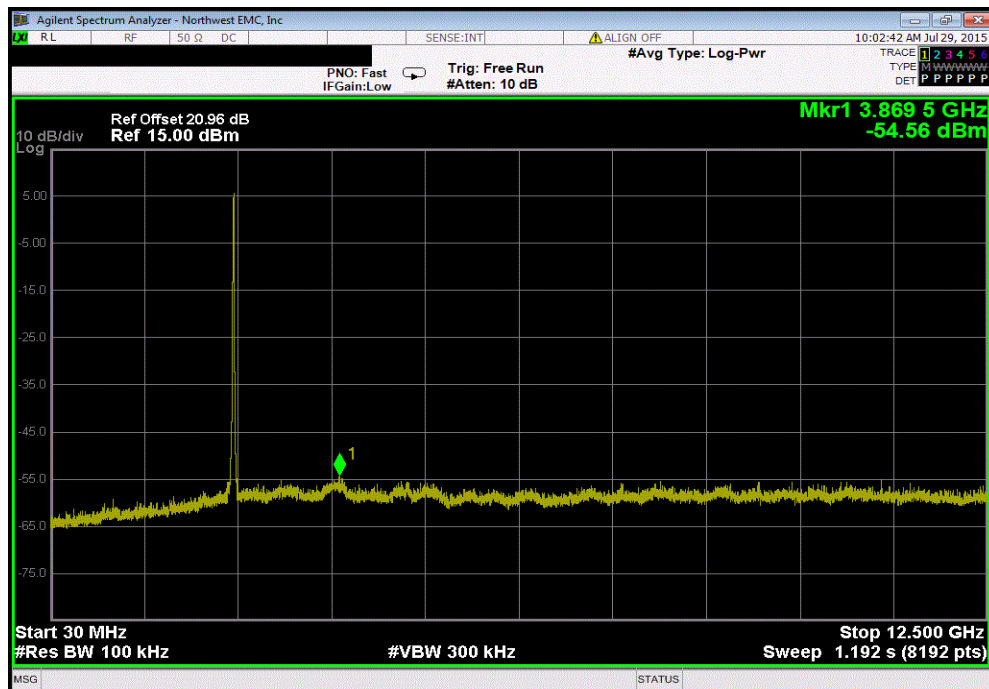


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
Fundamental		N/A		N/A		N/A

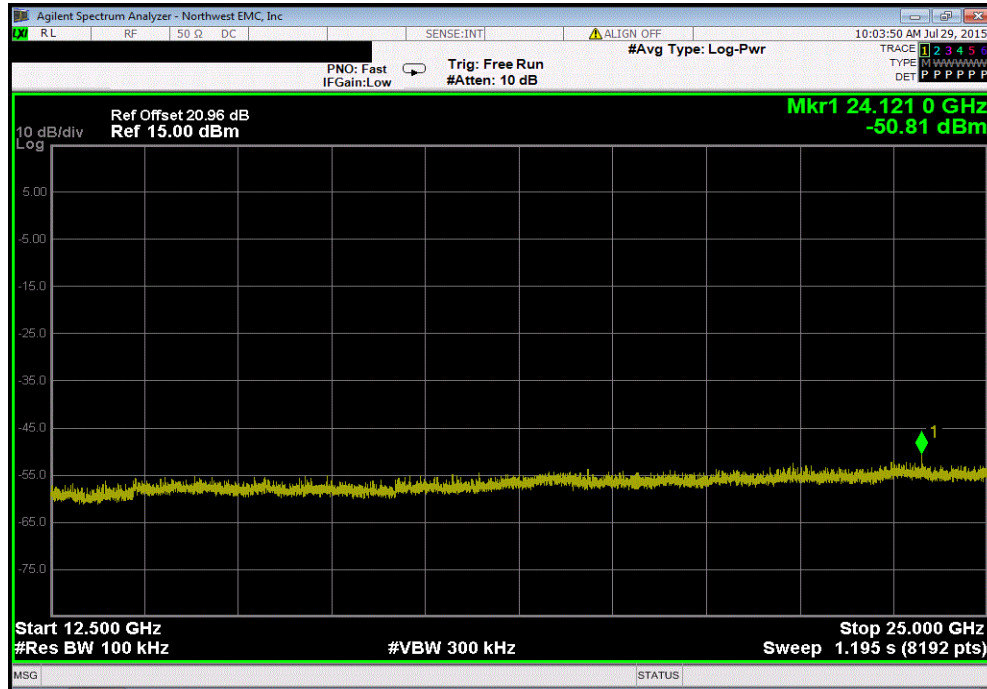


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
30 MHz - 12.5 GHz		-60.15		-20		Pass

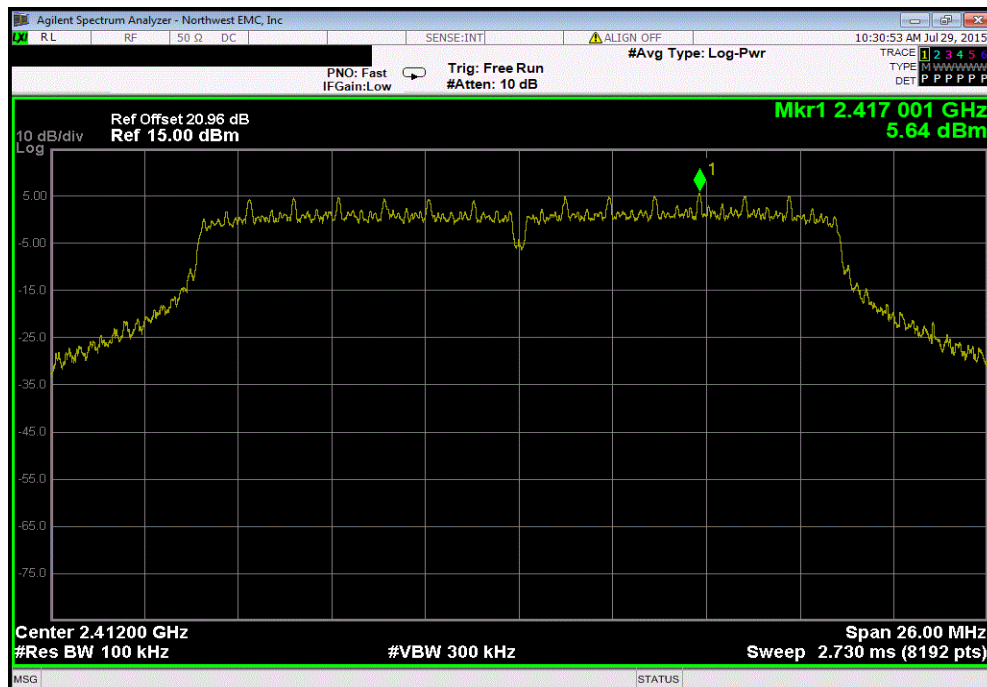


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.4	-20	Pass	

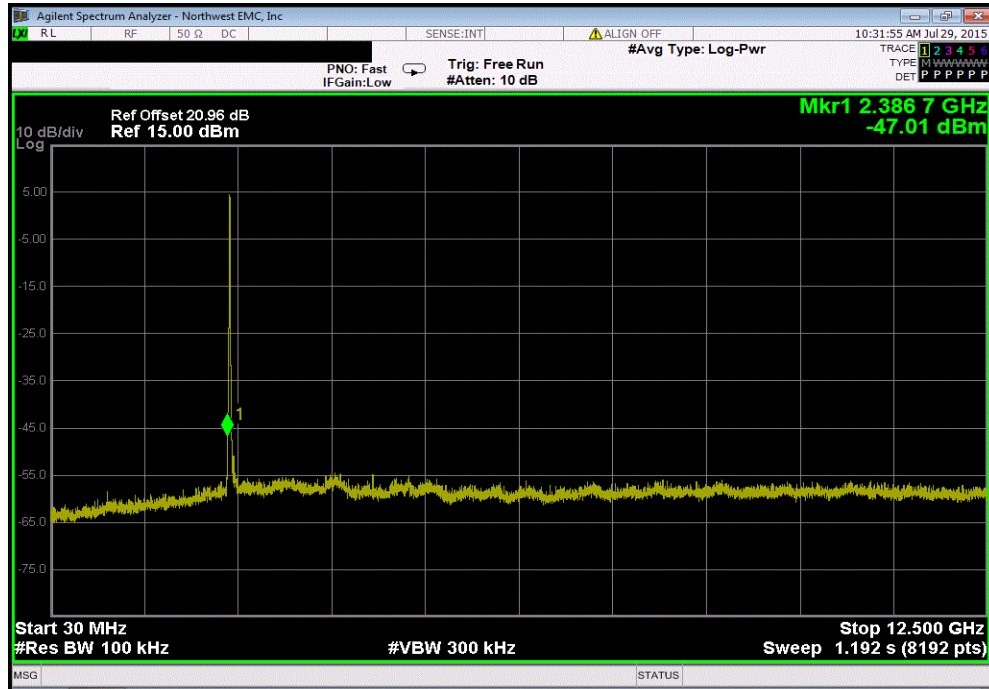


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

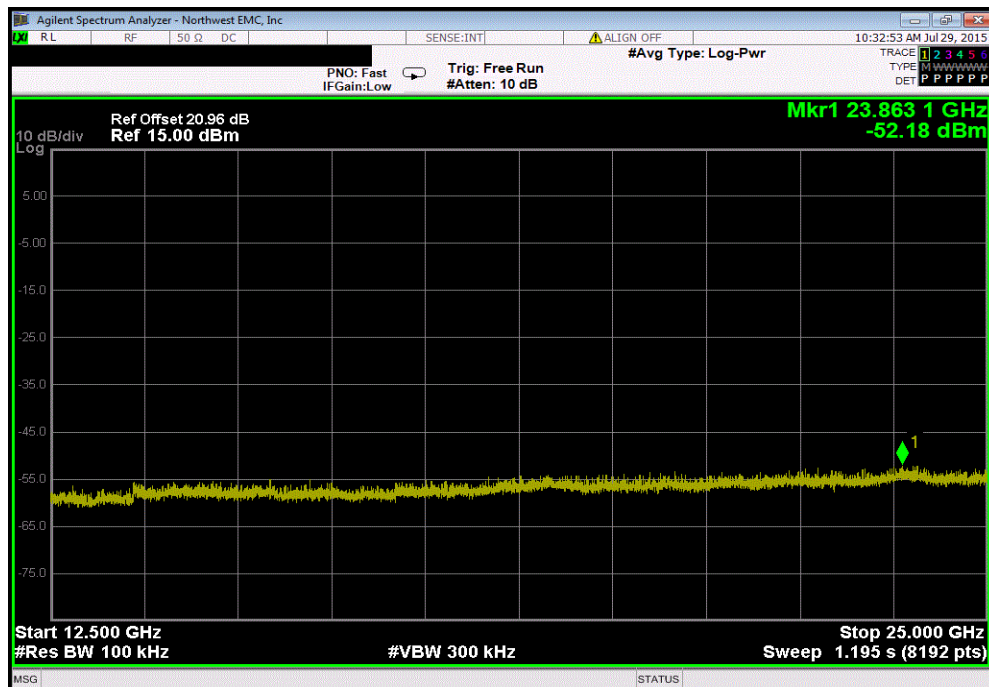


SPURIOUS CONDUCTED EMISSIONS

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-52.65	-20	Pass	

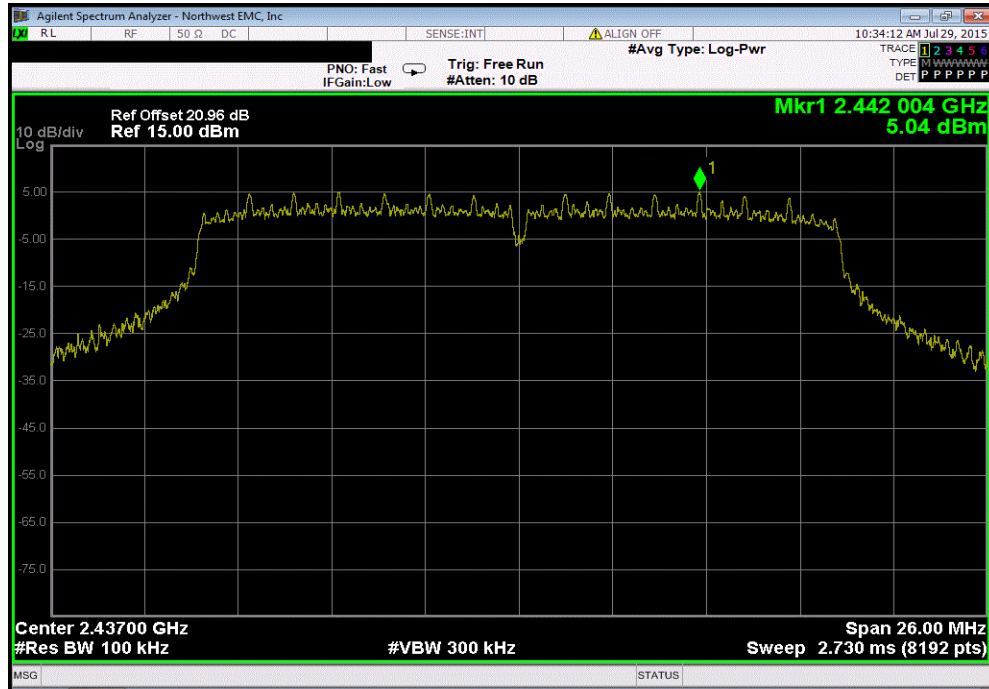


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.82	-20	Pass	

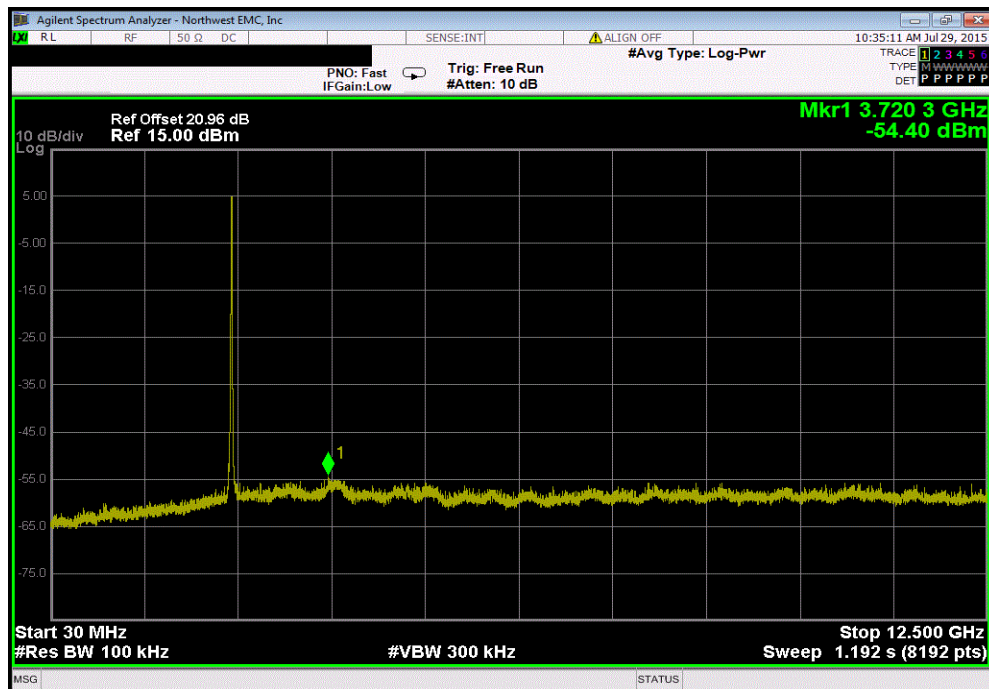


SPURIOUS CONDUCTED EMISSIONS

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
Fundamental		N/A		N/A	N/A	

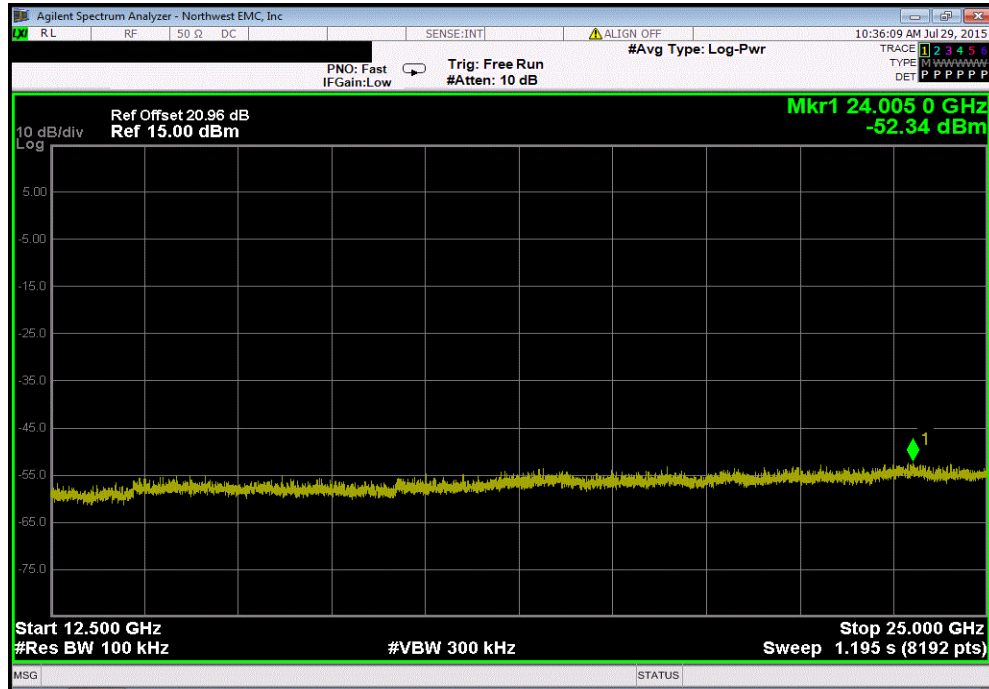


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-59.45		-20	Pass	

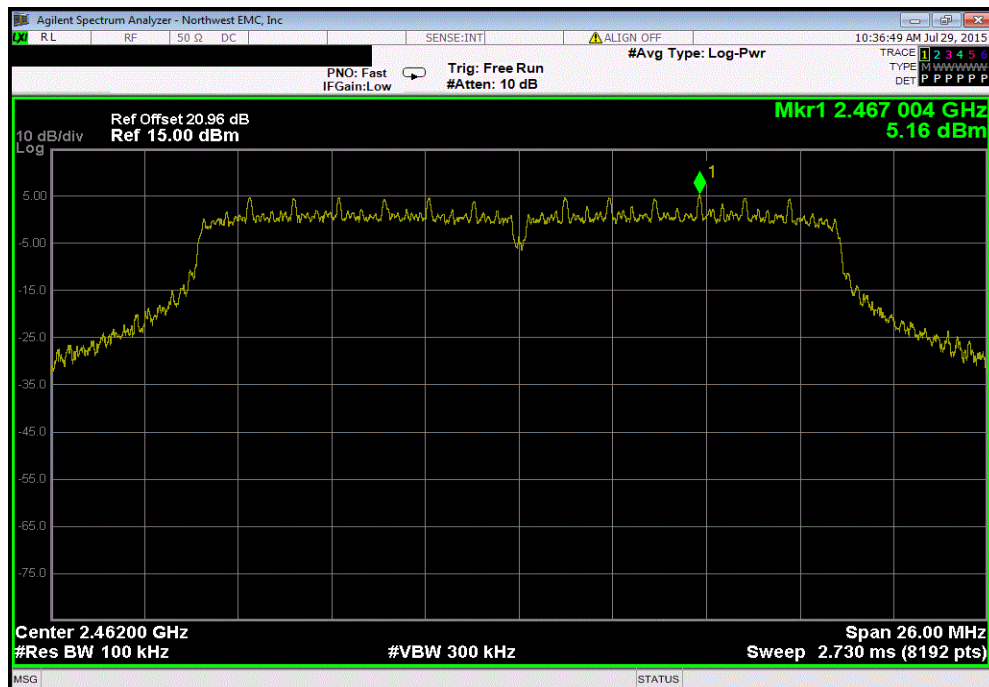


SPURIOUS CONDUCTED EMISSIONS

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.38	-20	Pass	

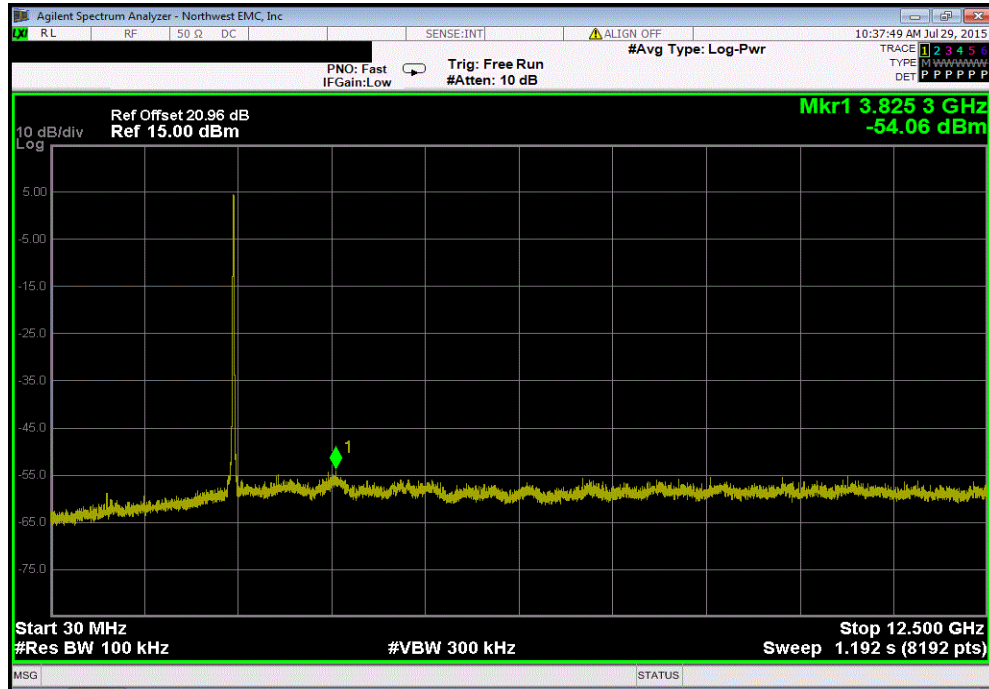


Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

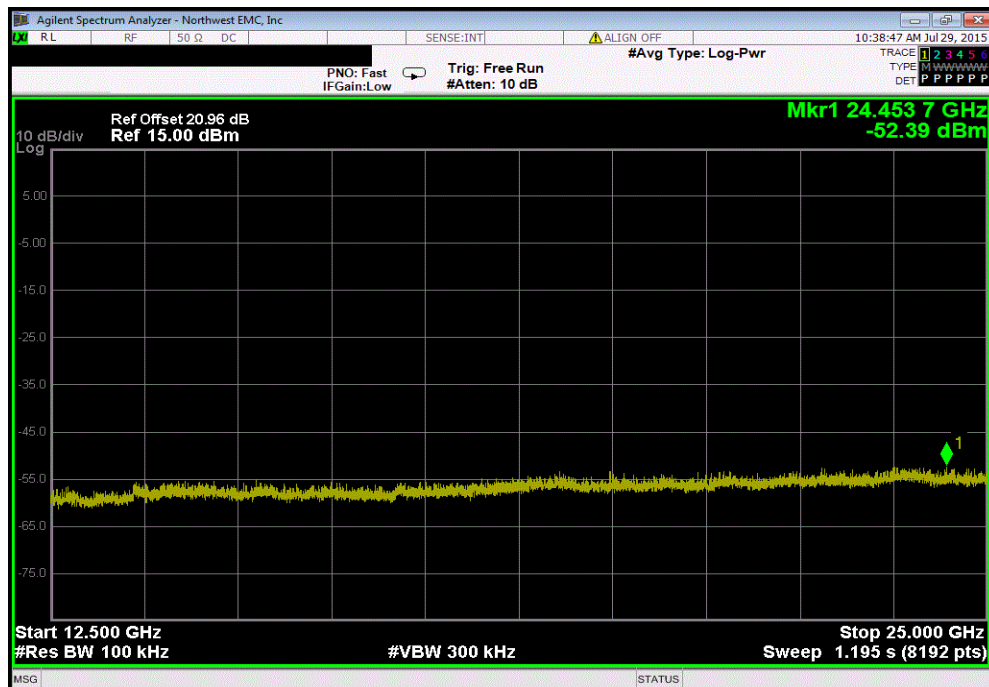


SPURIOUS CONDUCTED EMISSIONS

Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-59.22	-20	Pass	



Chain B, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.55	-20	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 (mos)
Spectrum Analyzer	Agilent	N9010A	AFL	9/20/2014	12
DC Block, 40 GHz	Fairview Microwave	SD3379	AMM	2/27/2015	12
Attenuator, 20dB, 40 GHz	Fairview Microwave	SA4018-20	TQY	2/27/2015	12
Signal Generator, 40 GHz	Agilent	N5173B	TIW	7/15/2014	36

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 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.

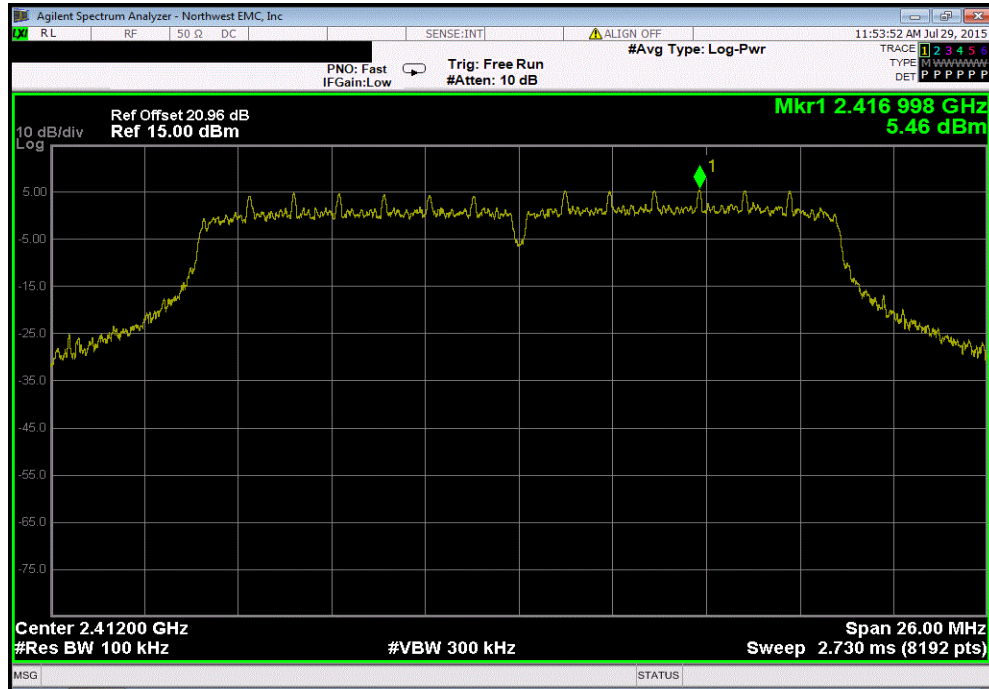
The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

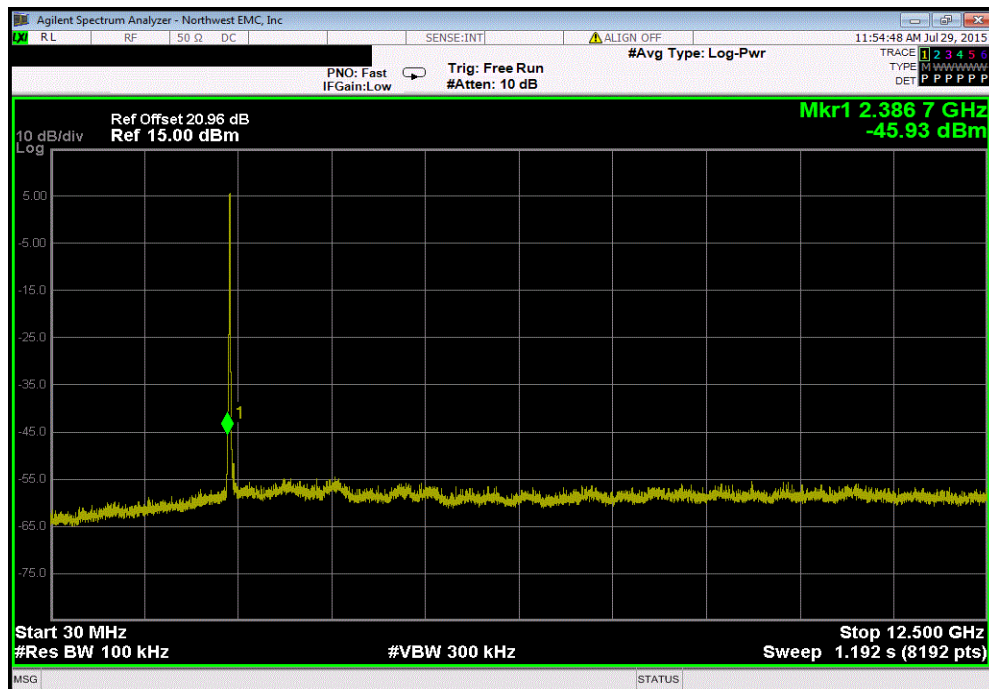
EUT: Firebox T50-W (BS5AE7W)		Work Order: VDEI0009	
Serial Number: 70AF00069-3EB6		Date: 07/29/15	
Customer: WatchGuard Technologies, Inc.		Temperature: 24.9°C	
Attendees: None		Humidity: 47%	
Project: None		Barometric Pres.: 1014 mbar	
Tested by: Jonathan Kiefer		Job Site: TX09	
Power: 110VAC/60Hz			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2013	
COMMENTS			
2x2 MIMO mode, Chain AC (Chains 0 and 2). Tested the modulation that produced the highest conducted output power.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Jonathan Kiefer</i>	
		Frequency Range	Max Value (dBc) Limit ≤ (dBc) Result
Chain A			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
	Low Channel 1, 2412 MHz	Fundamental	N/A N/A N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-51.39 -20 Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-56.9 -20 Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A N/A N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-59.64 -20 Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-57.29 -20 Pass
	High Channel 11, 2462 MHz	Fundamental	N/A N/A N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-60.37 -20 Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-57.43 -20 Pass
Chain C			
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS8			
	Low Channel 1, 2412 MHz	Fundamental	N/A N/A N/A
	Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	-49.26 -20 Pass
	Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	-57.18 -20 Pass
	Mid Channel 6, 2437 MHz	Fundamental	N/A N/A N/A
	Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	-58.64 -20 Pass
	Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	-55.81 -20 Pass
	High Channel 11, 2462 MHz	Fundamental	N/A N/A N/A
	High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	-58.88 -20 Pass
	High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	-56.65 -20 Pass

SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
Fundamental		N/A		N/A	N/A	

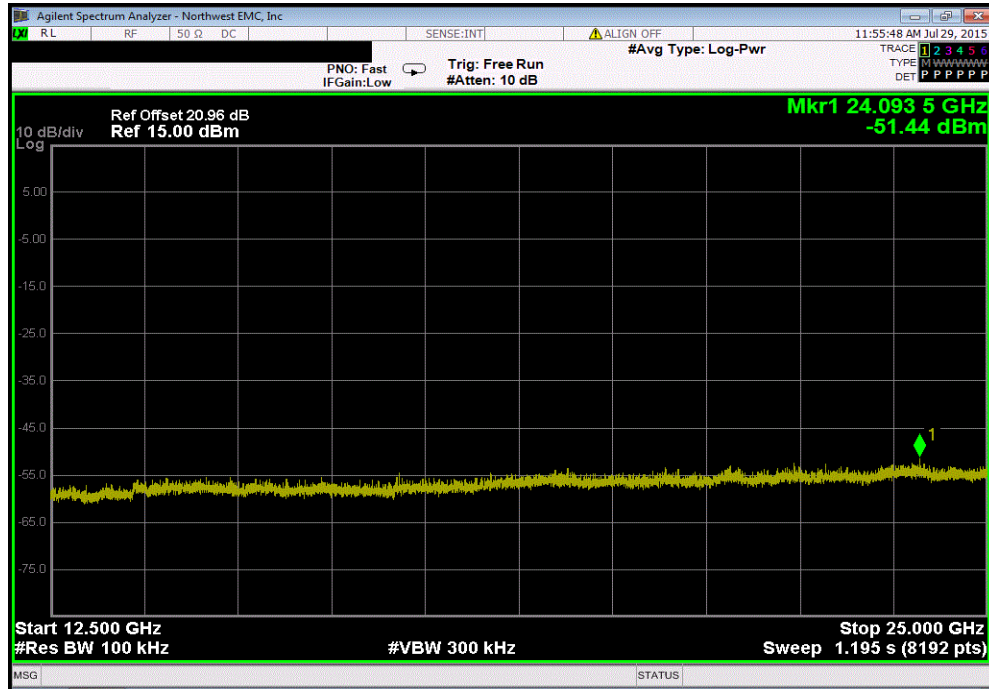


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-51.39		-20	Pass	

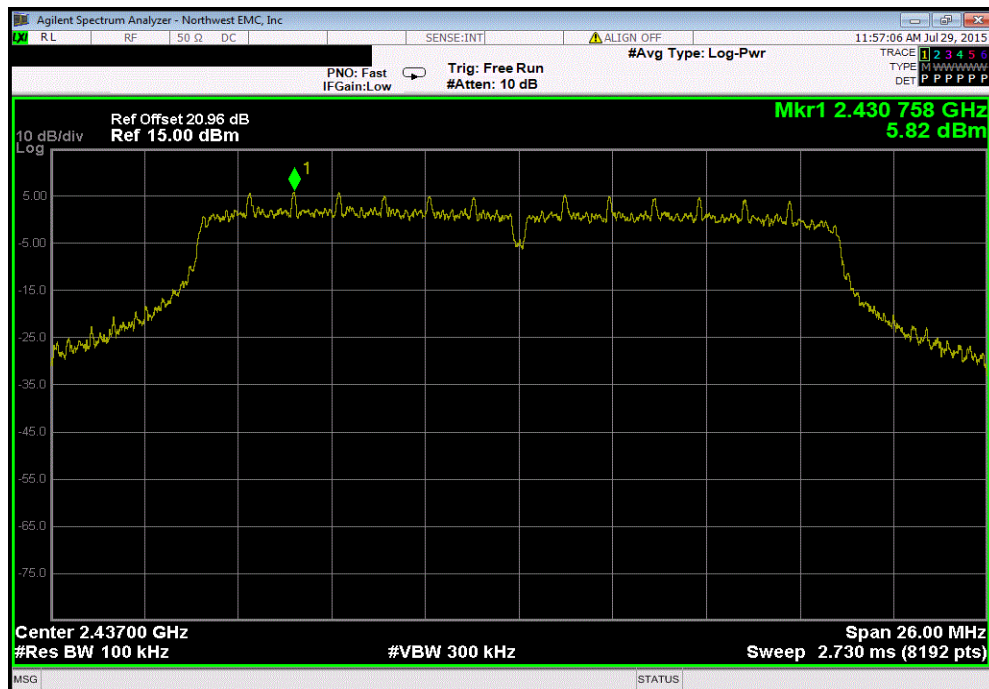


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.9	-20	Pass	

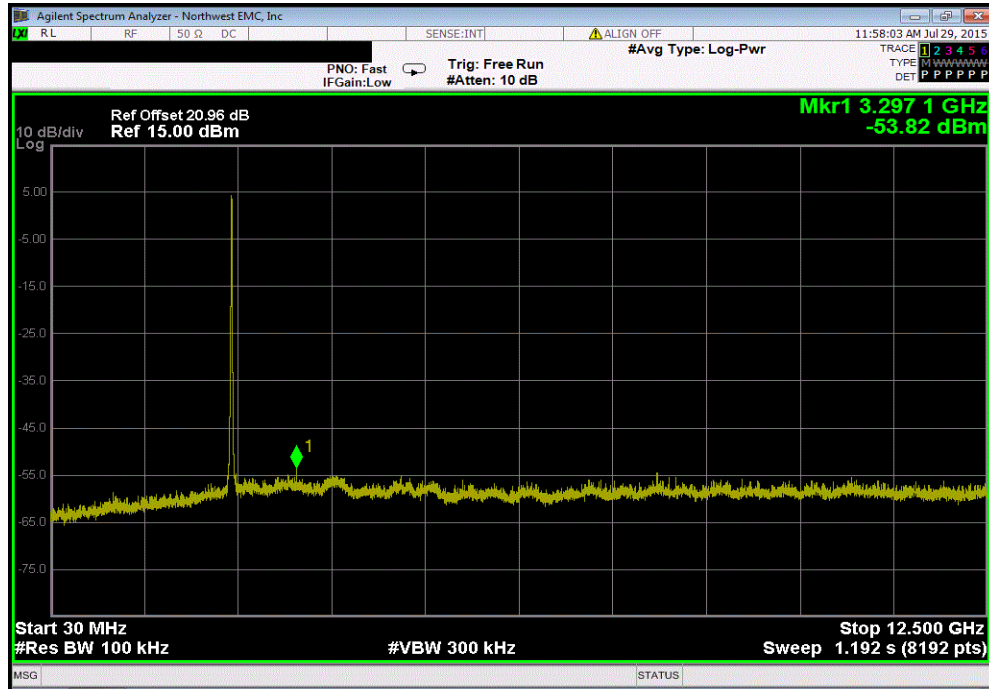


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

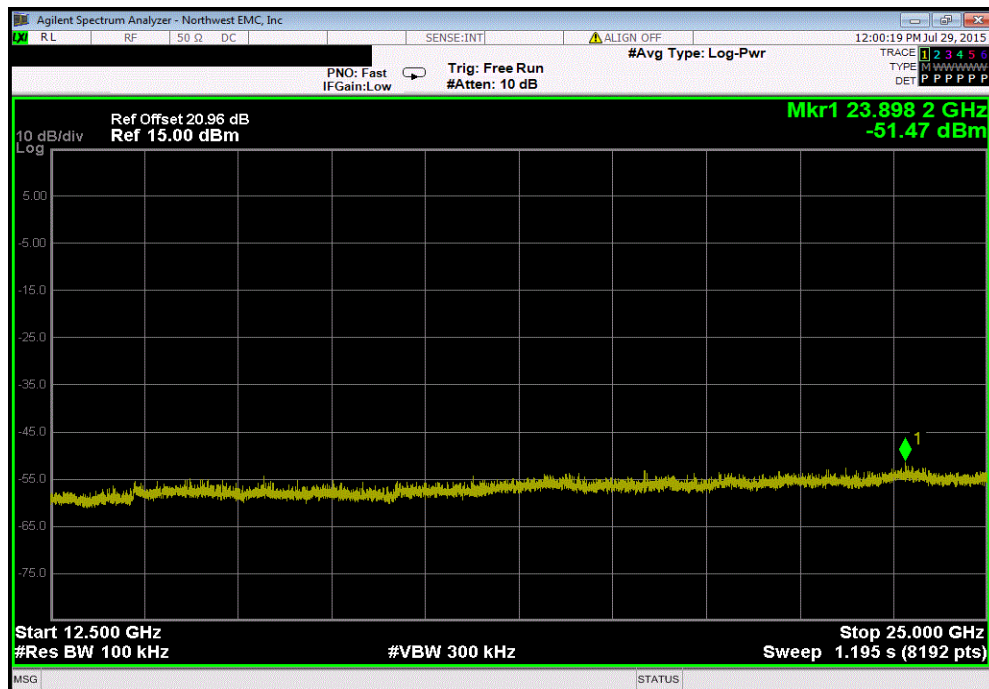


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-59.64	-20	Pass	

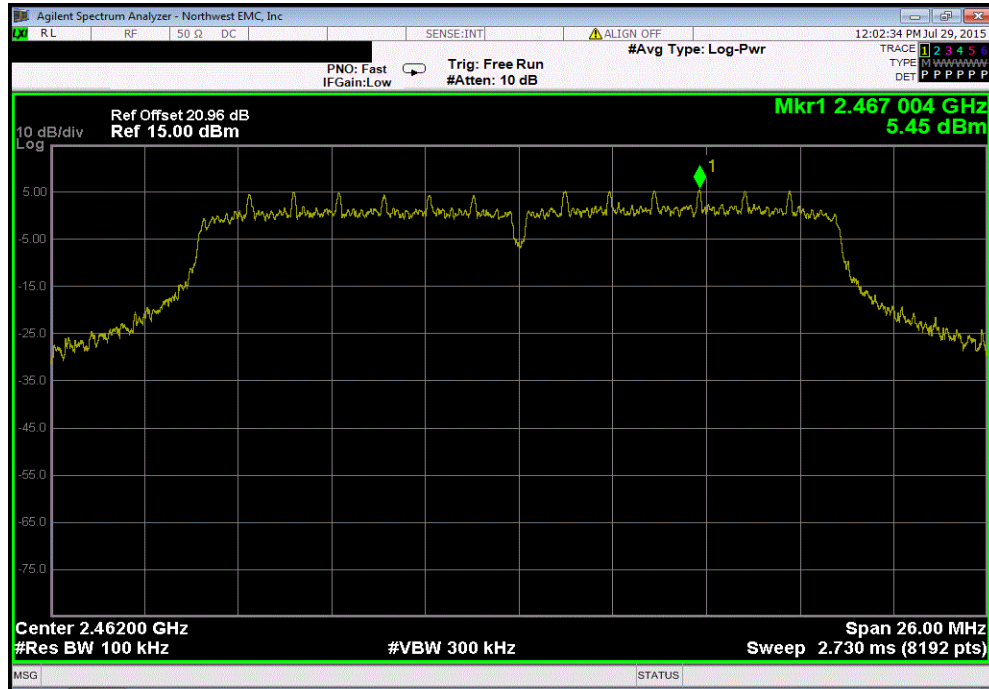


Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.29	-20	Pass	

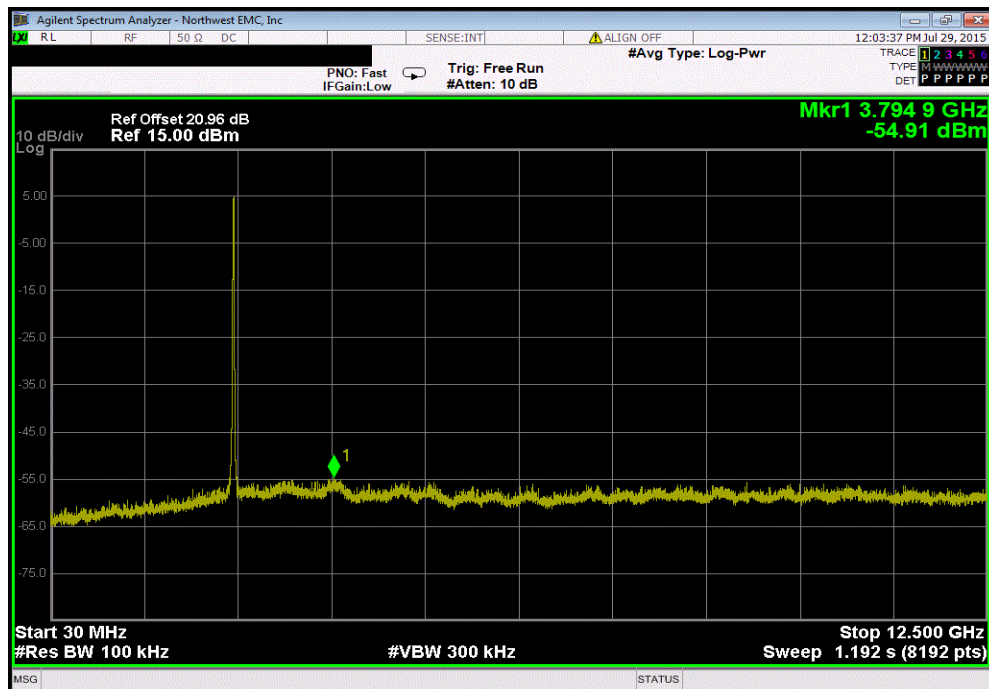


SPURIOUS CONDUCTED EMISSIONS

Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
Fundamental		N/A		N/A		N/A



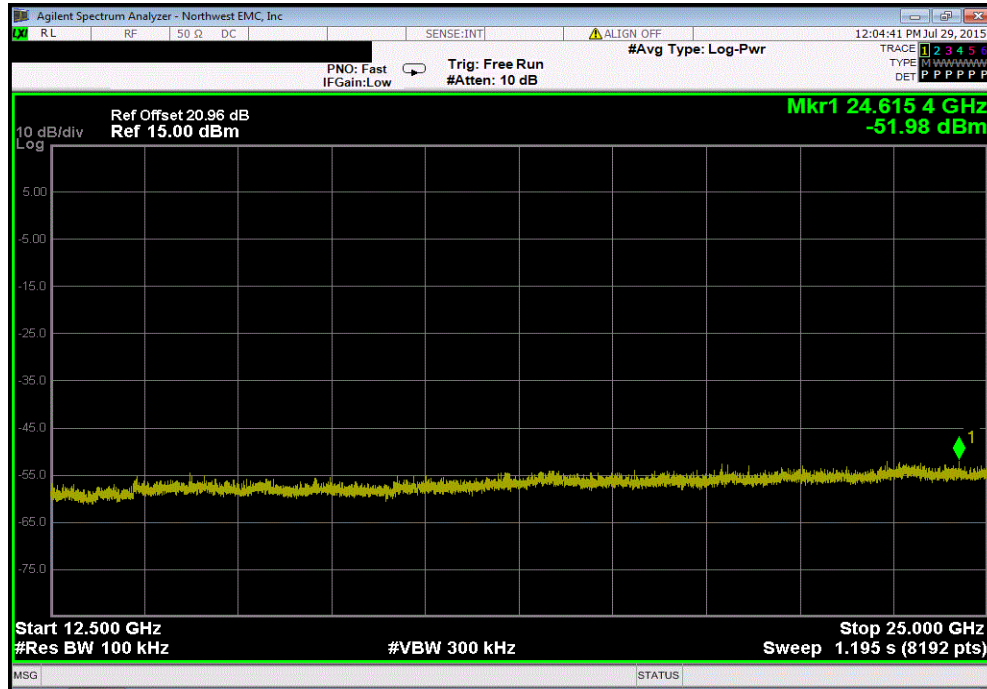
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)		Result
30 MHz - 12.5 GHz		-60.37		-20		Pass



SPURIOUS CONDUCTED EMISSIONS

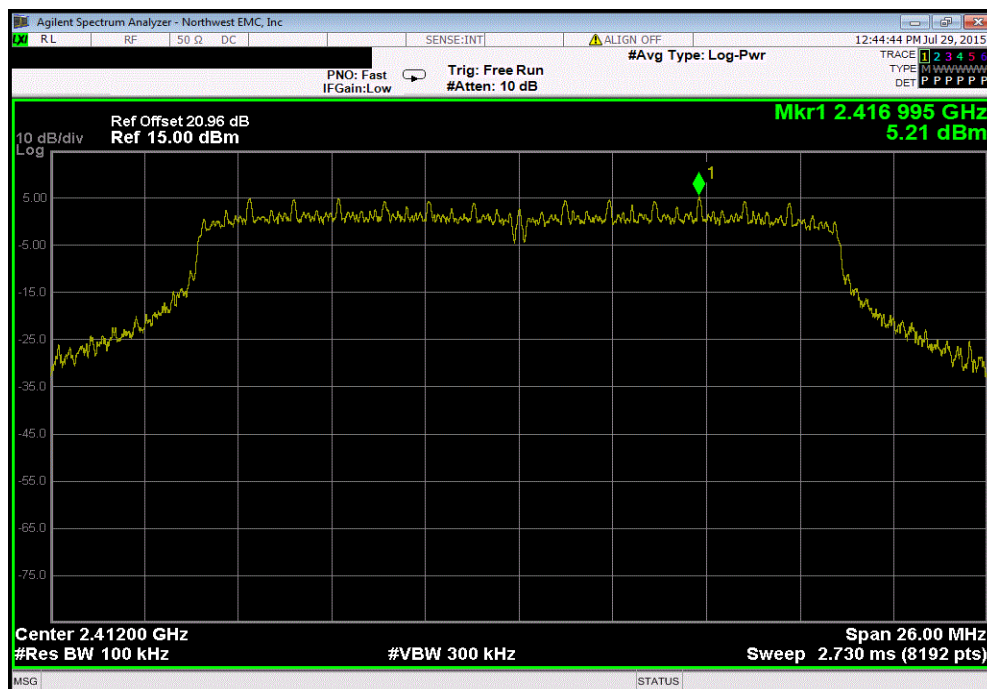
Chain A, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz

Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	-57.43	-20	Pass



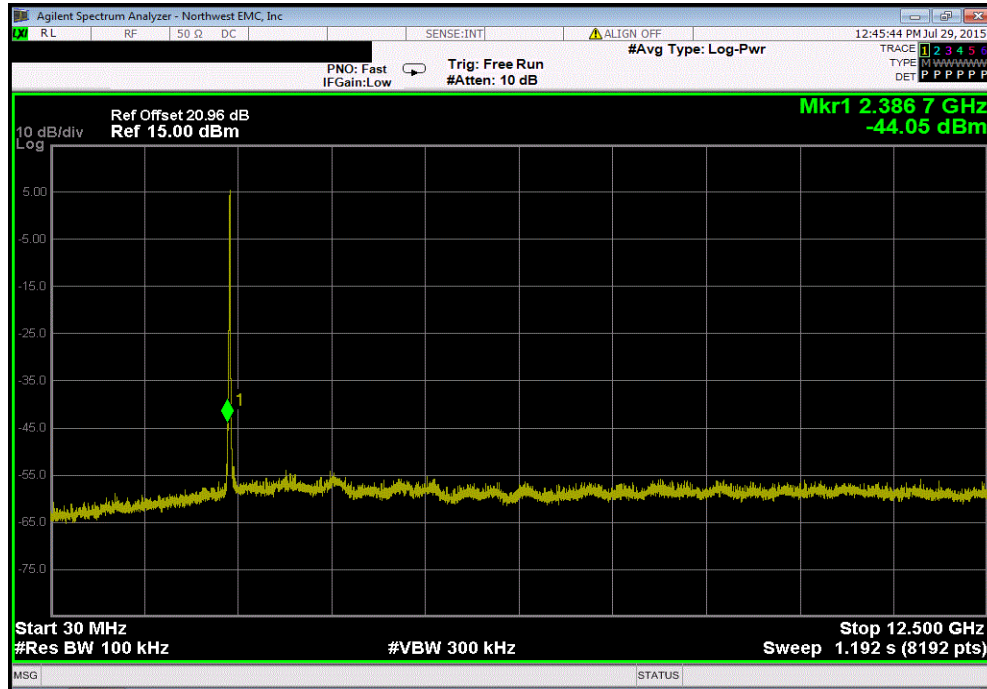
Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz

Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental	N/A	N/A	N/A

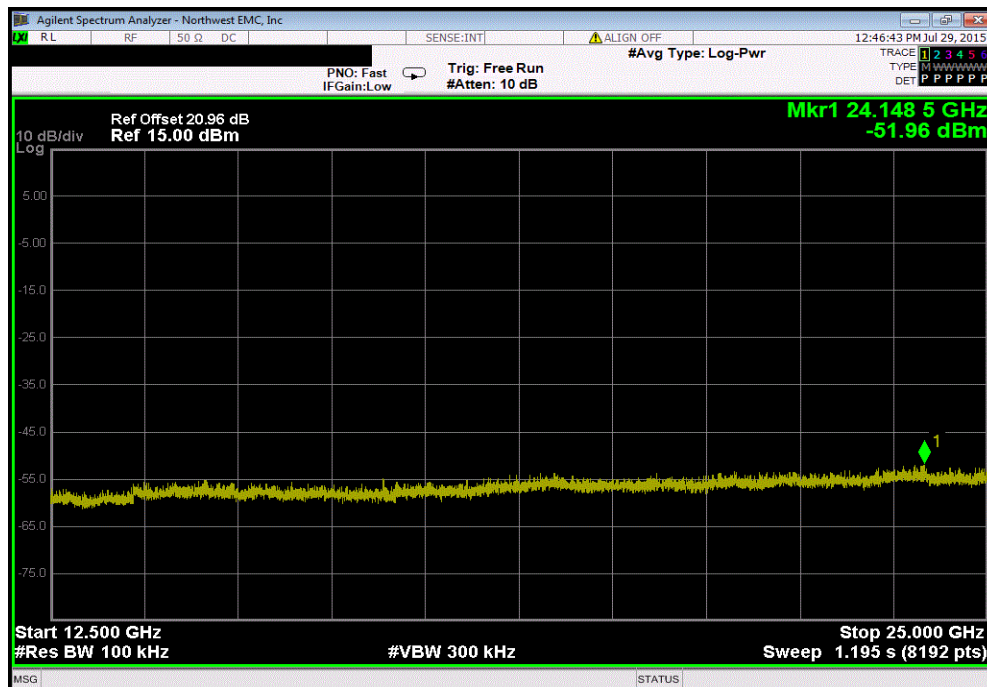


SPURIOUS CONDUCTED EMISSIONS

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-49.26	-20	Pass	

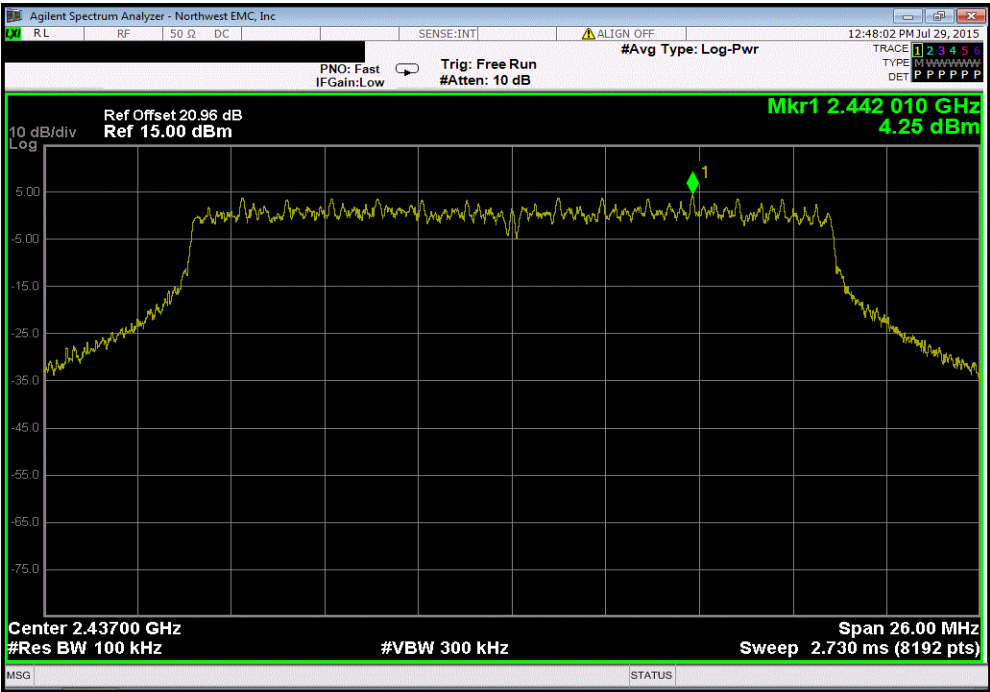


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Low Channel 1, 2412 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-57.18	-20	Pass	

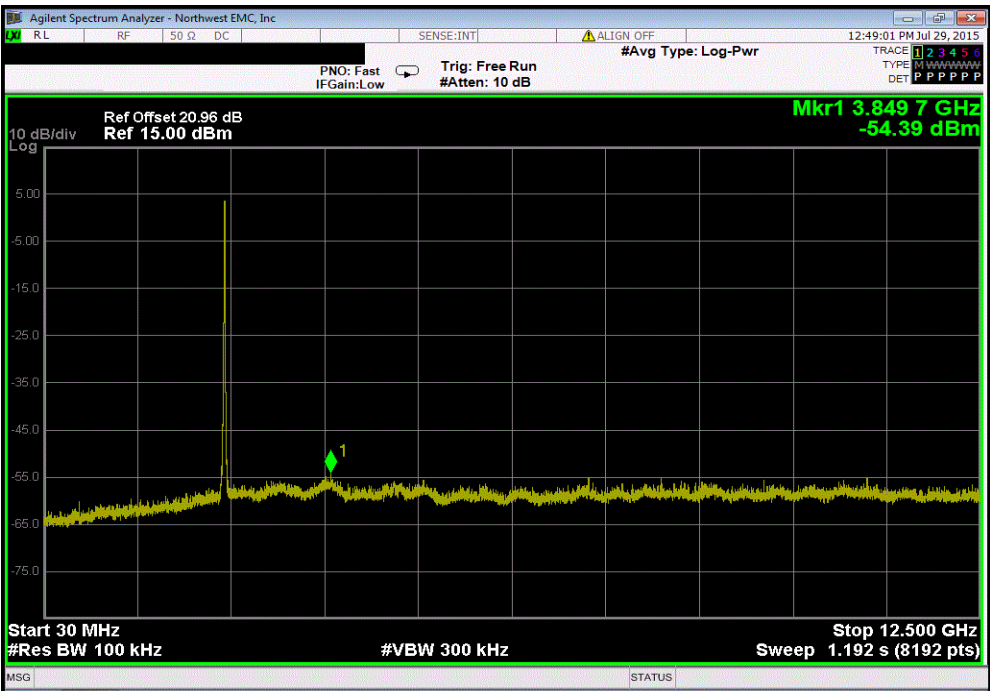


SPURIOUS CONDUCTED EMISSIONS

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
Fundamental		N/A		N/A	N/A	

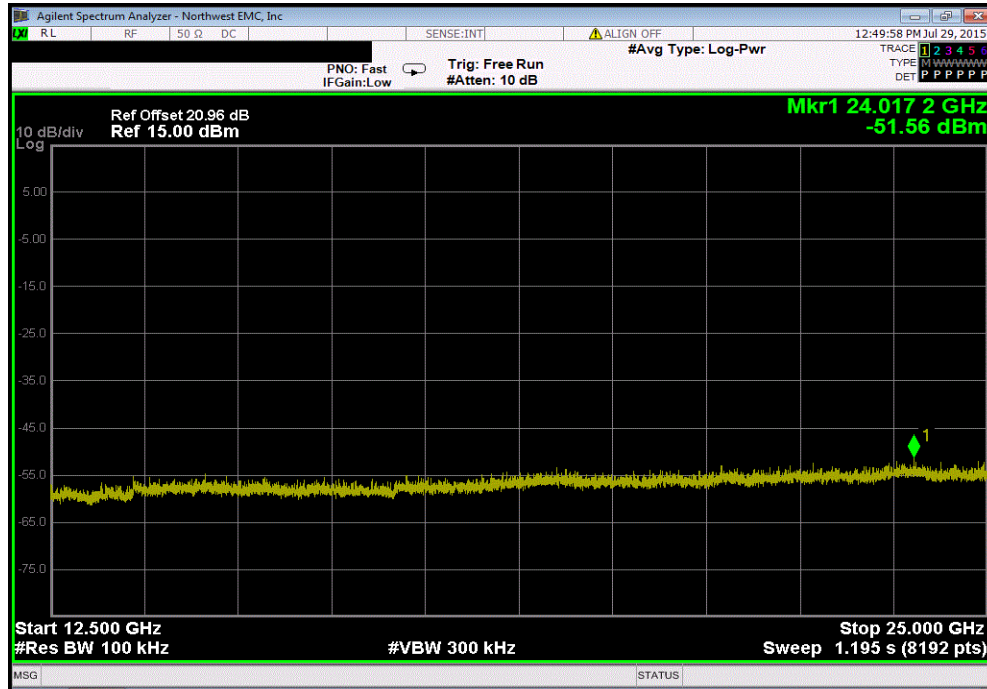


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz						
Frequency Range		Max Value (dBc)		Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-58.64		-20	Pass	

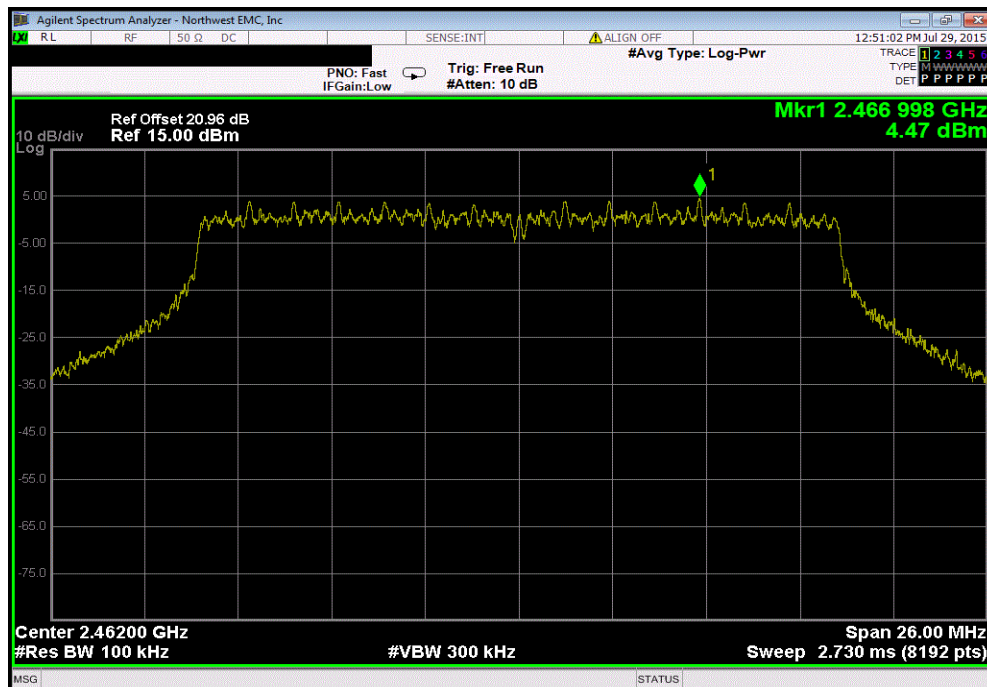


SPURIOUS CONDUCTED EMISSIONS

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, Mid Channel 6, 2437 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55.81	-20	Pass	

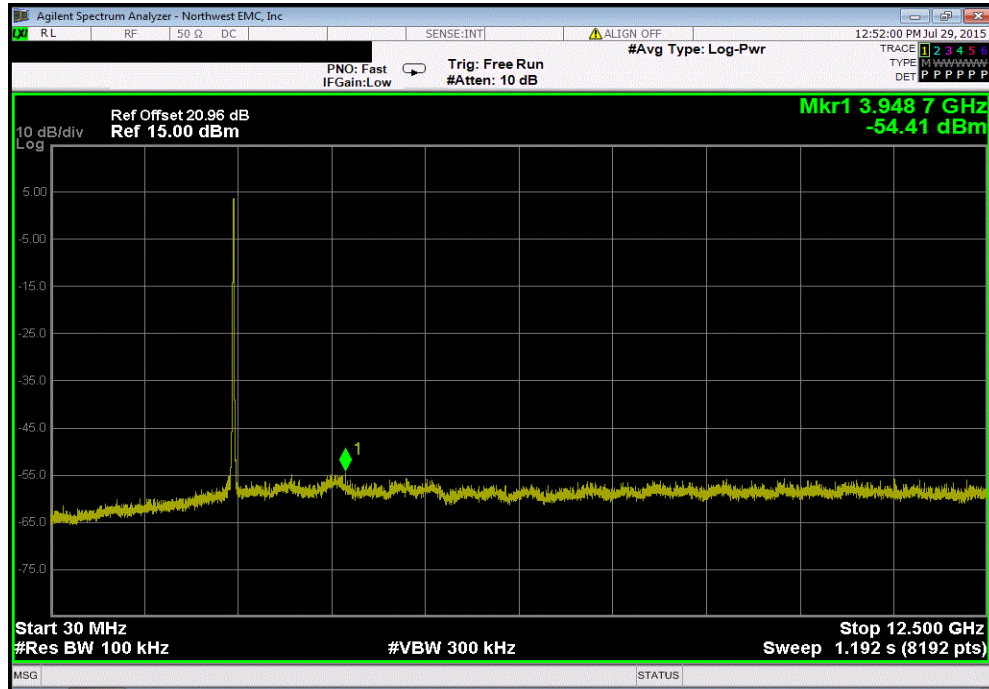


Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	



SPURIOUS CONDUCTED EMISSIONS

Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-58.88	-20	Pass	



Chain C, 20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS8, High Channel 11, 2462 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.65	-20	Pass	

