

MAXIMUM CONDUCTED OUTPUT POWER



XMIT 2017.02.08

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.	Cal. Due
Cable	Fairview Microwave	SCK0963-60	TXF	11/18/2016	11/18/2017
Attenuator	Fairview Microwave	SA4018-20	TYE	10/24/2016	10/24/2017
Block - DC	Fairview Microwave	SD3379	AMT	10/24/2016	10/24/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	3/14/2017	3/14/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

Prior to measuring maximum transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

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

The spectrum analyzer settings were set per the guidance as well as the following specifics:

-RMS Detector

-Trace average 100 traces in power averaging mode.

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

MAXIMUM CONDUCTED OUTPUT POWER



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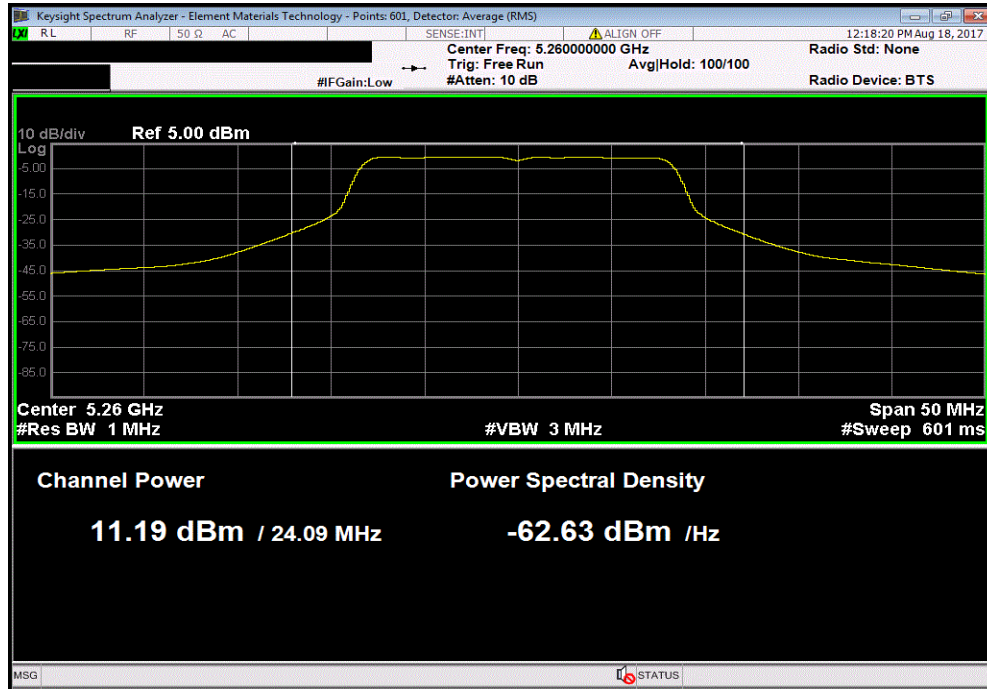
EUT:	Dual Band Wireless-AC 3160 Module			Work Order: APPR0050		
Serial Number:	None			Date: 08/18/17		
Customer:	American Portwell Technology Inc.			Temperature: 22.9 °C		
Attendees:	None			Humidity: 55.4% RH		
Project:	None			Barometric Pres.: 1020 mbar		
Tested by:	Jonathan Kiefer		Power:	110VAC/60Hz		
TEST SPECIFICATIONS			Test Method			
FCC 15.407:2017			ANSI C63.10:2013			
COMMENTS						
See Power Table for output power settings used.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature 				
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
Chain A						
5250 - 5350 MHz Band						
20 MHz BW						
802.11(a) 6 Mbps						
Low Channel, Ch 52 - 5260 MHz		11.19	0.1	11.2	24	Pass
High Channel, Ch 64 - 5320 MHz		10.576	0.1	10.6	24	Pass
802.11(n) MCS0						
Low Channel, Ch 52 - 5260 MHz		12.134	0.1	12.2	24	Pass
High Channel, Ch 64 - 5320 MHz		10.913	0.1	11	24	Pass
40 MHz BW						
802.11(n) MCS0						
Low Channel, Ch 52/56 - 5270 MHz		7.491	0.2	7.6	24	Pass
High Channel, Ch 60/64 - 5310 MHz		8.072	0.2	8.2	24	Pass
80 MHz BW						
802.11(n) MCS0						
Low Channel, Ch 52-64 - 5290 MHz		8.125	0.3	8.4	24	Pass
5470 - 5725 MHz Band						
20 MHz BW						
802.11(a) 6 Mbps						
Low Channel, Ch 100 - 5500 MHz		11.215	0.1	11.3	24	Pass
Mid Channel, Ch 116 - 5580 MHz		12.172	0.1	12.2	24	Pass
High Channel, Ch 140 - 5700 MHz		11.196	0.1	11.3	24	Pass
802.11(n) MCS0						
Low Channel, Ch 100 - 5500 MHz		11.245	0.1	11.3	24	Pass
Mid Channel, Ch 116 - 5580 MHz		11.756	0.1	11.8	24	Pass
High Channel, Ch 140 - 5700 MHz		11.152	0.1	11.2	24	Pass
40 MHz BW						
802.11(n) MCS0						
Low Channel, Ch 100/104 - 5510 MHz		8.278	0.2	8.4	24	Pass
Mid Channel, Ch 116/120 - 5590 MHz		12.112	0.2	12.3	24	Pass
High Channel, Ch 132/136 - 5670 MHz		12.248	0.1	12.4	24	Pass
80 MHz BW						
802.11(n) MCS0						
Low Channel, Ch 100-112 - 5530 MHz		6.815	0.3	7.1	24	Pass
Low Channel, Ch 116-128 - 5610 MHz		11.619	0.3	11.9	24	Pass

MAXIMUM CONDUCTED OUTPUT POWER

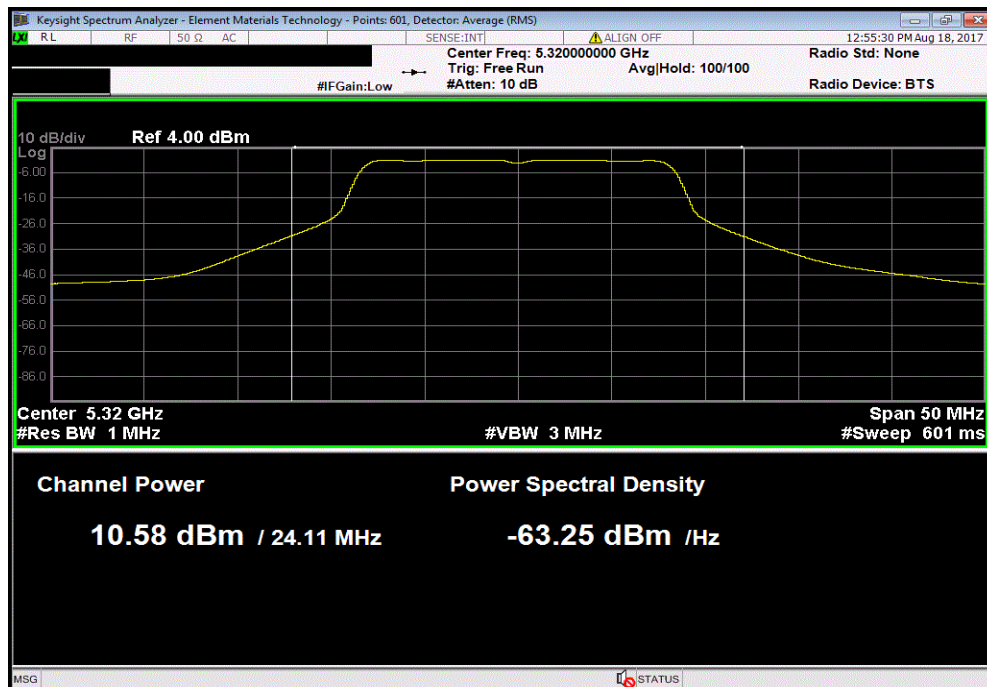


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Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 52 - 5260 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.19	0.1	11.2	24	Pass	



Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 64 - 5320 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	10.576	0.1	10.6	24	Pass	

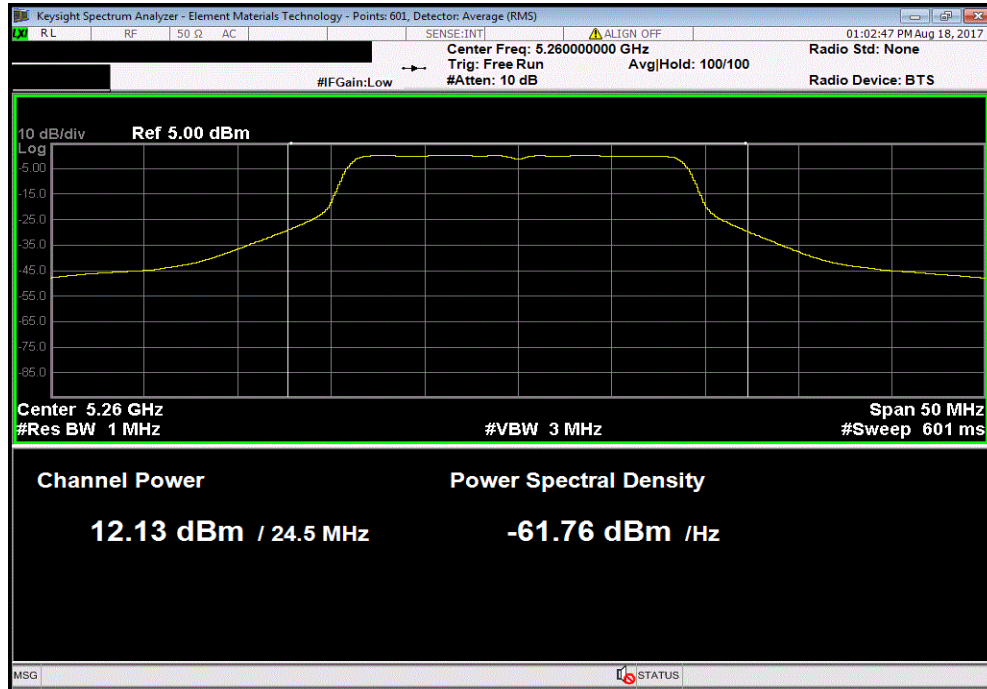


MAXIMUM CONDUCTED OUTPUT POWER

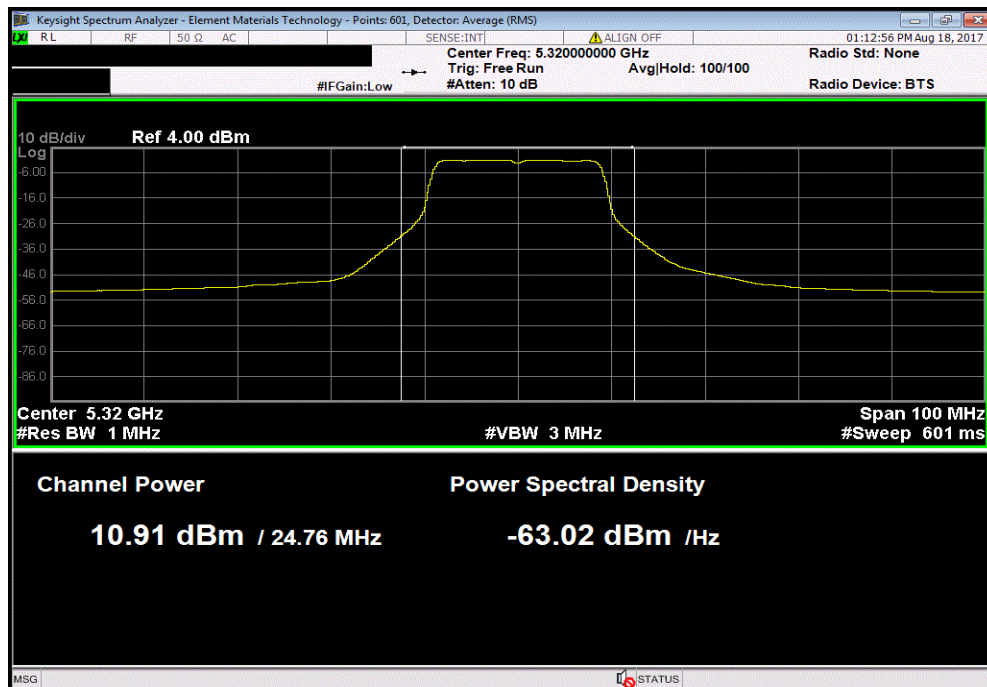


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Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52 - 5260 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	12.134	0.1	12.2	24	Pass	



Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 64 - 5320 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	10.913	0.1	11	24	Pass	

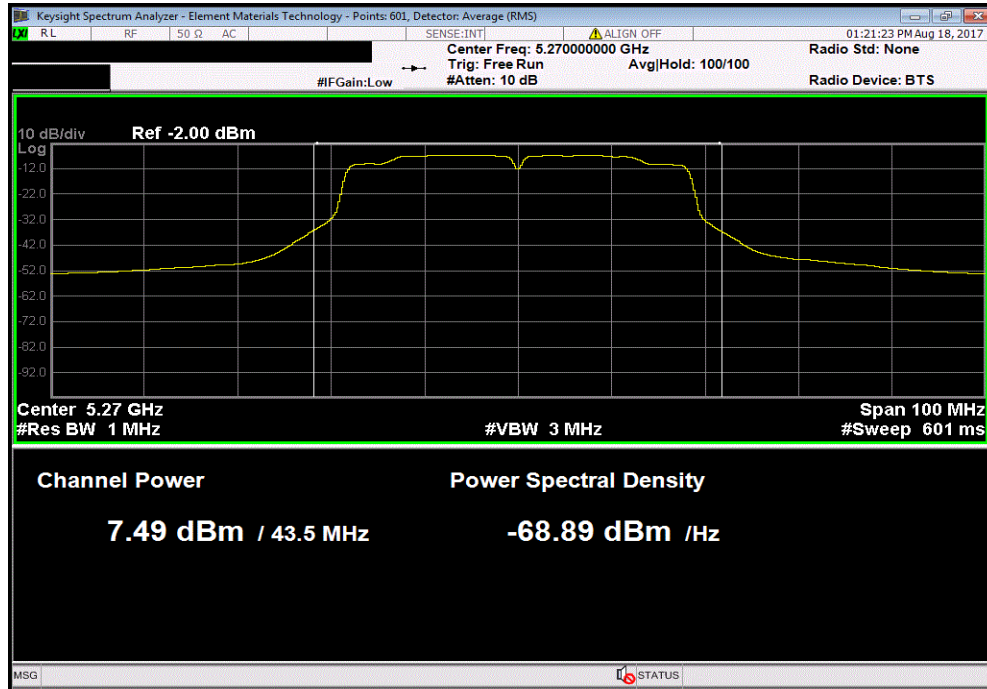


MAXIMUM CONDUCTED OUTPUT POWER

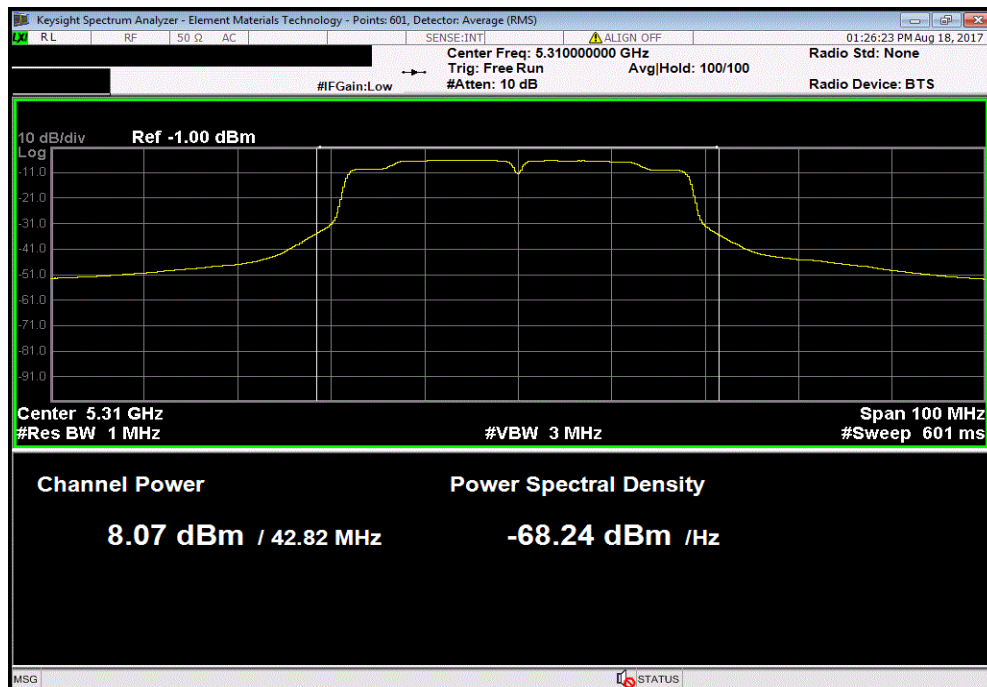


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Chain A, 5250 - 5350 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52/56 - 5270 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	7.491	0.2	7.6	24	Pass	



Chain A, 5250 - 5350 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 60/64 - 5310 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	8.072	0.2	8.2	24	Pass	

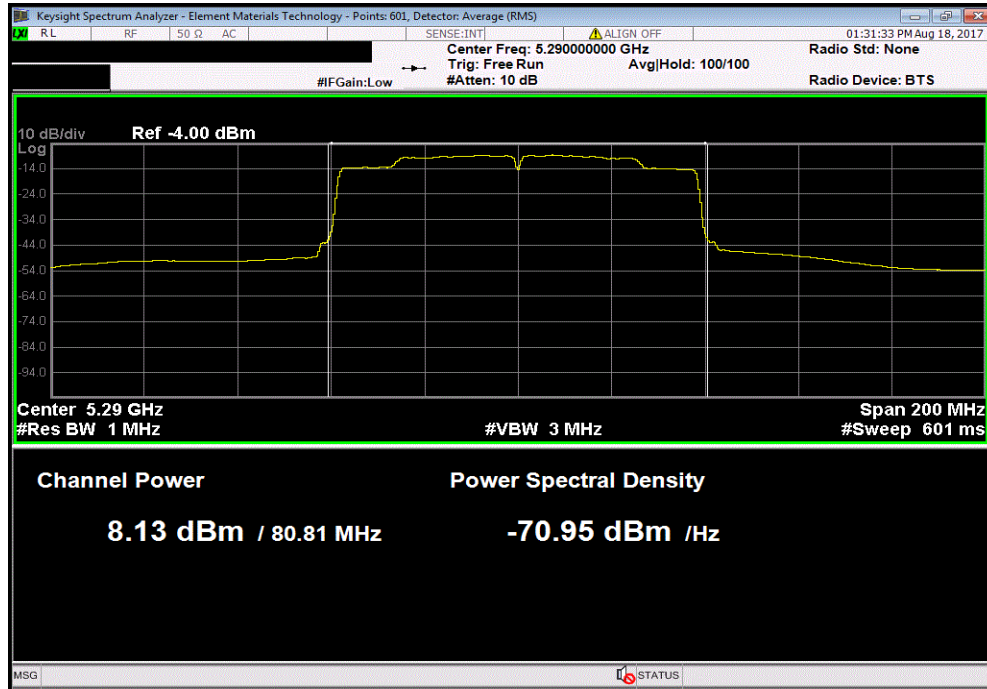


MAXIMUM CONDUCTED OUTPUT POWER

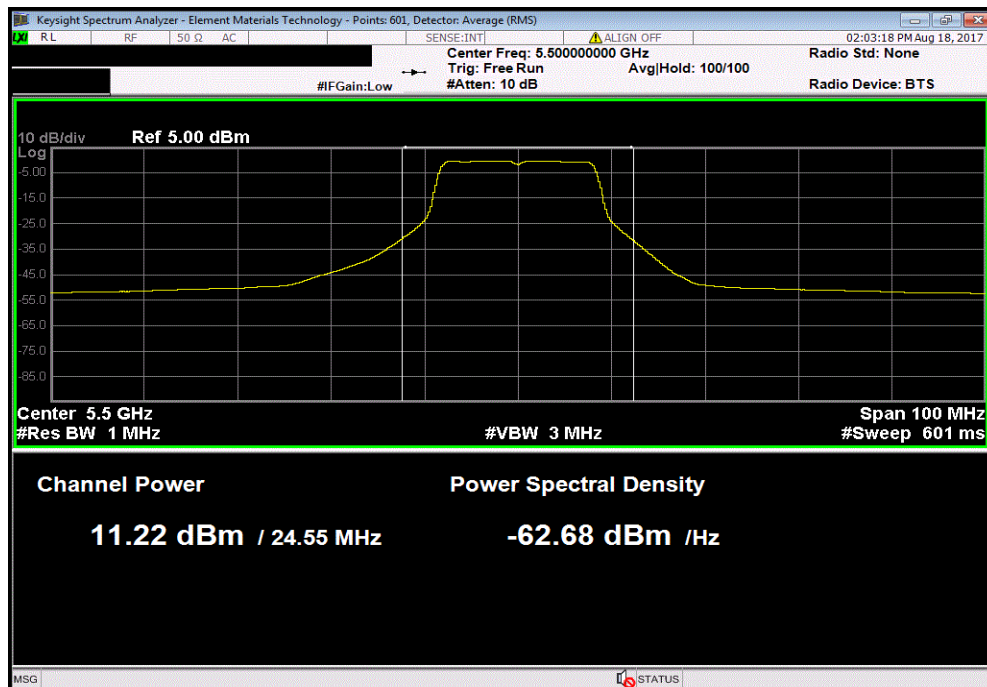


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Chain A, 5250 - 5350 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52-64 - 5290 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	8.125	0.3	8.4	24	Pass	



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 100 - 5500 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.215	0.1	11.3	24	Pass	

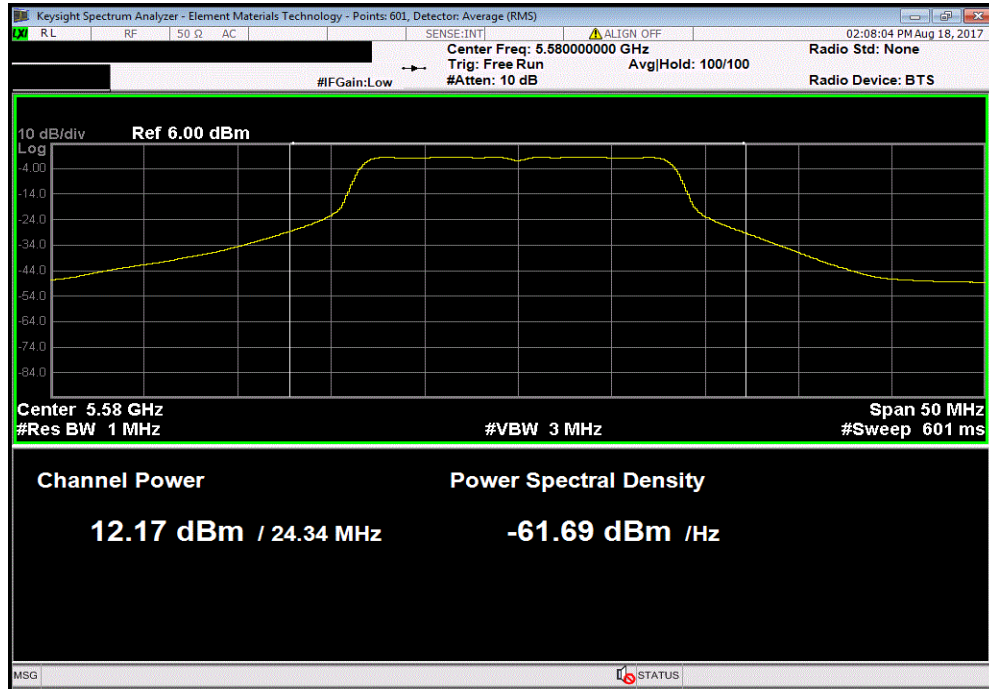


MAXIMUM CONDUCTED OUTPUT POWER

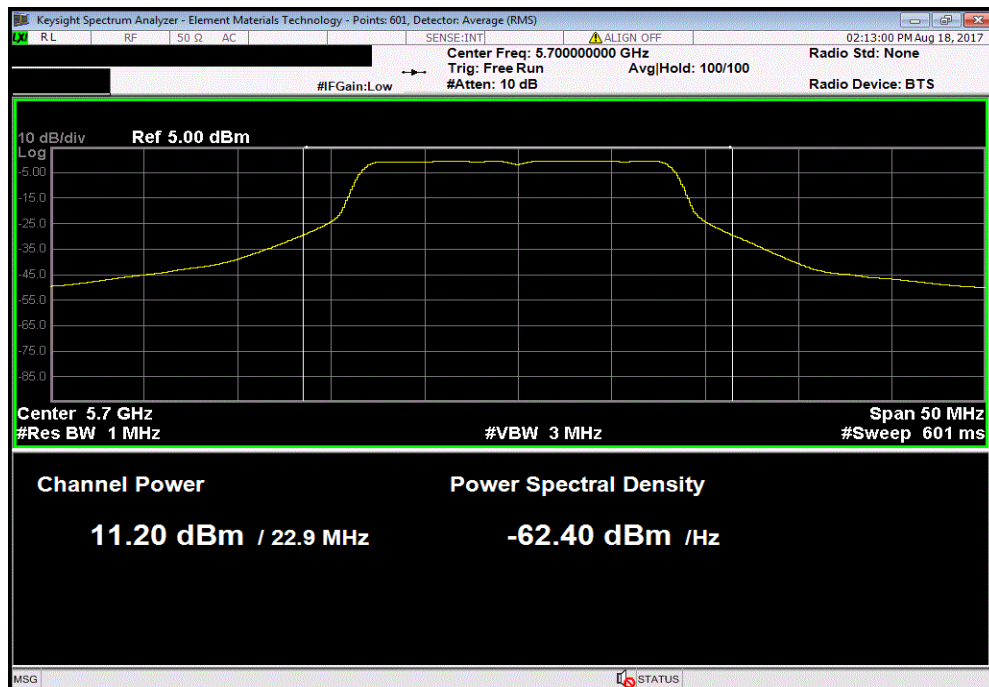


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Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Mid Channel, Ch 116 - 5580 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	12.172	0.1	12.2	24	Pass	



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 140 - 5700 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.196	0.1	11.3	24	Pass	

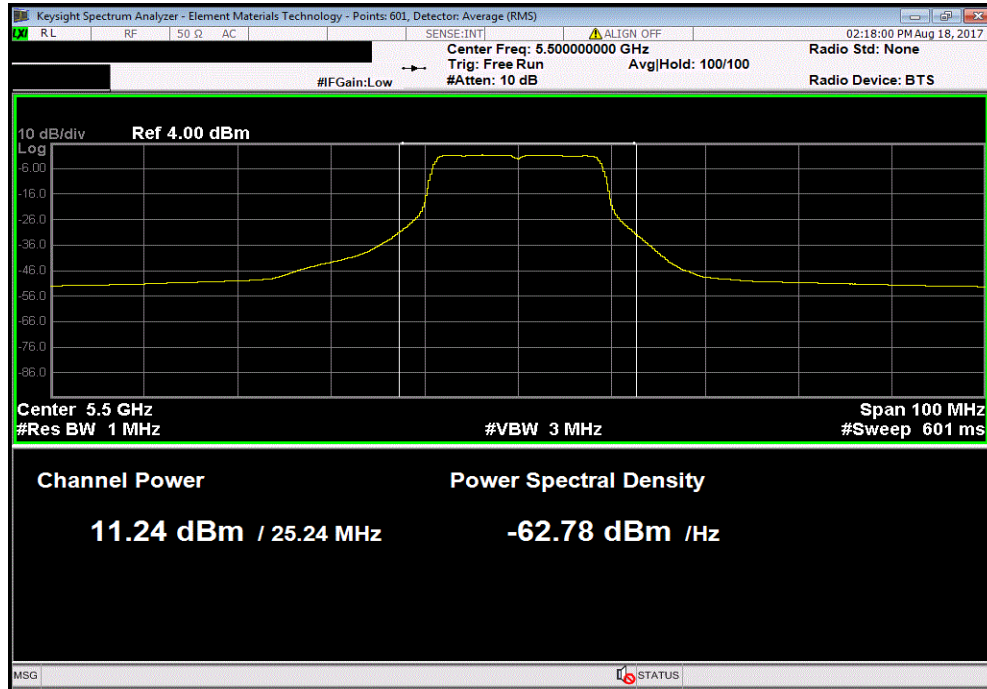


MAXIMUM CONDUCTED OUTPUT POWER

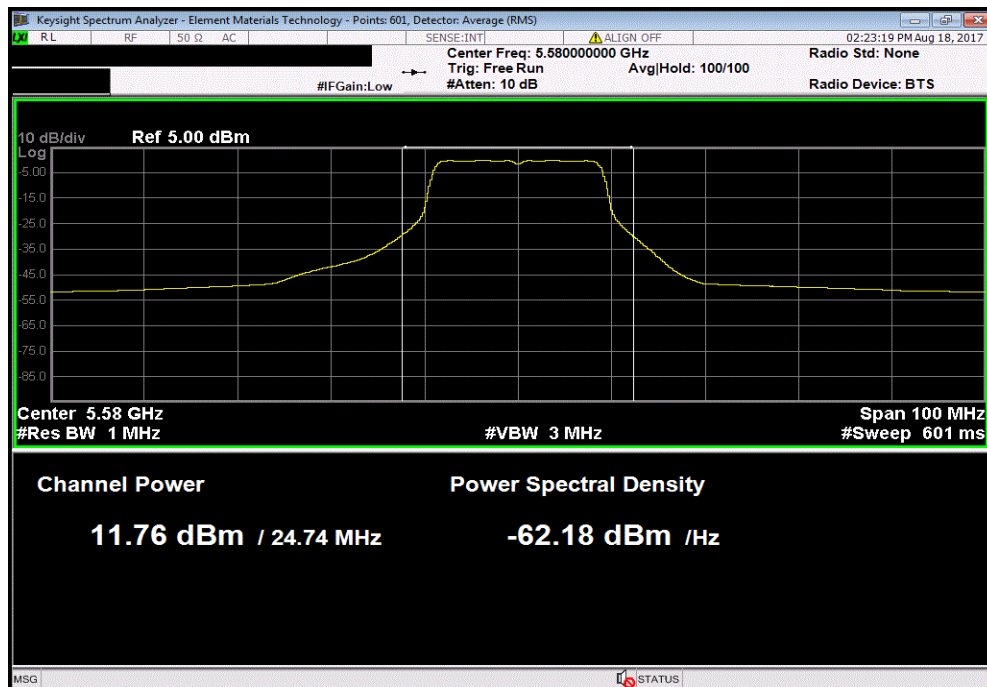


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Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100 - 5500 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.245	0.1	11.3	24	Pass	



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, Mid Channel, Ch 116 - 5580 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.756	0.1	11.8	24	Pass	

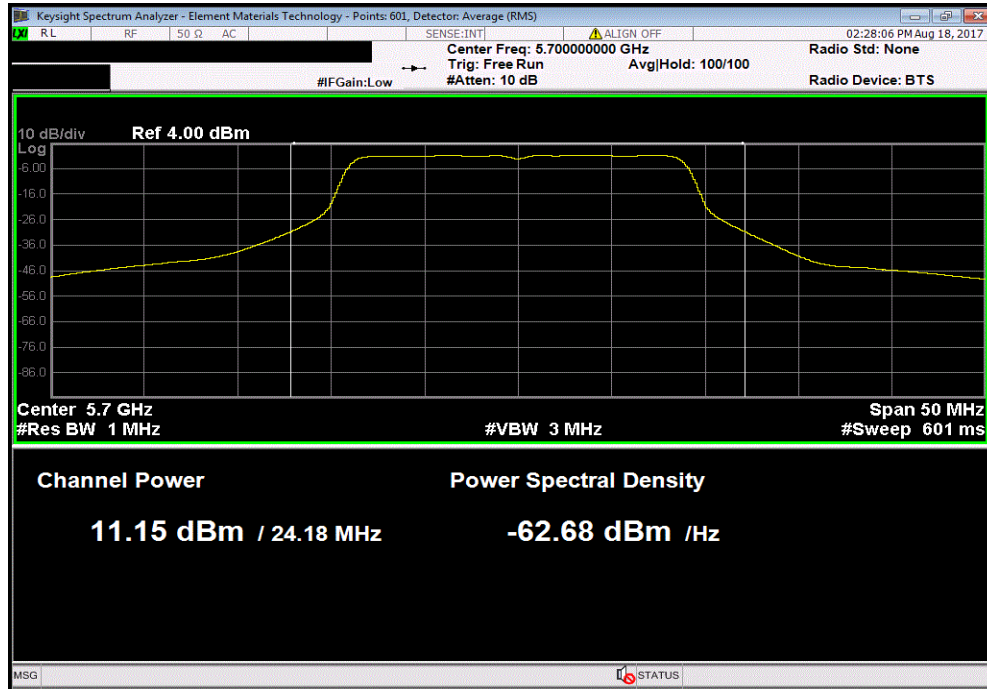


MAXIMUM CONDUCTED OUTPUT POWER

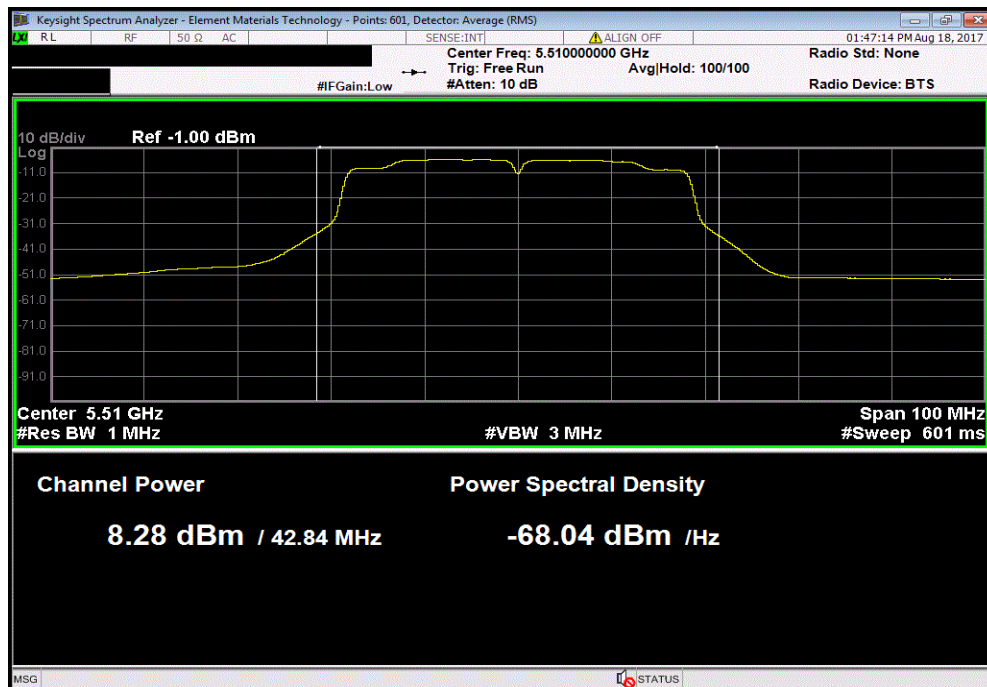


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Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 140 - 5700 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.152	0.1	11.2	24	Pass	



Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100/104 - 5510 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	8.278	0.2	8.4	24	Pass	

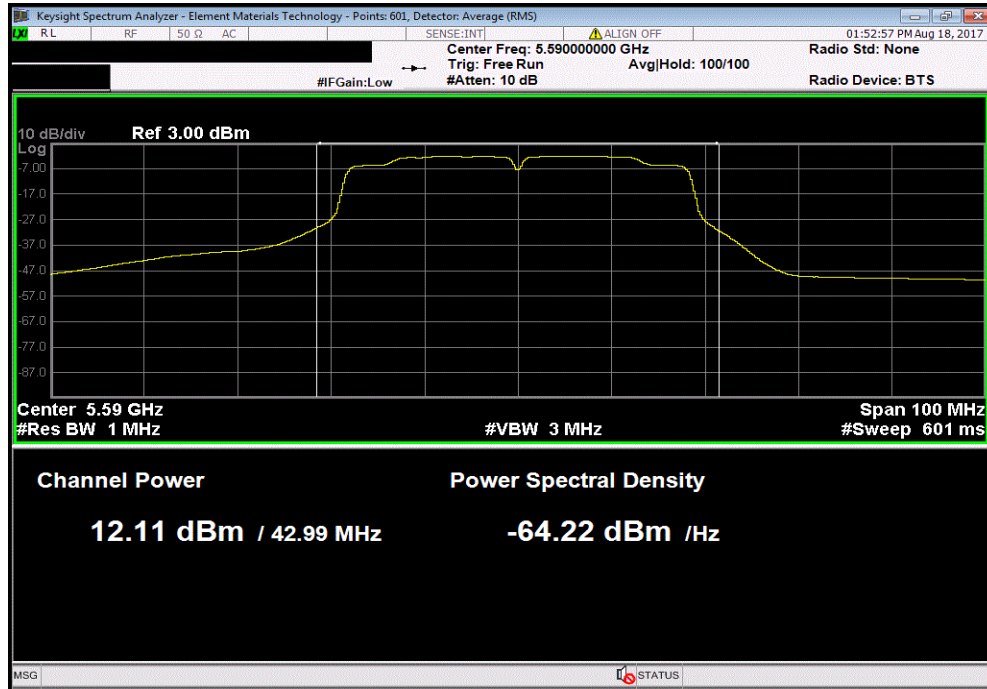


MAXIMUM CONDUCTED OUTPUT POWER

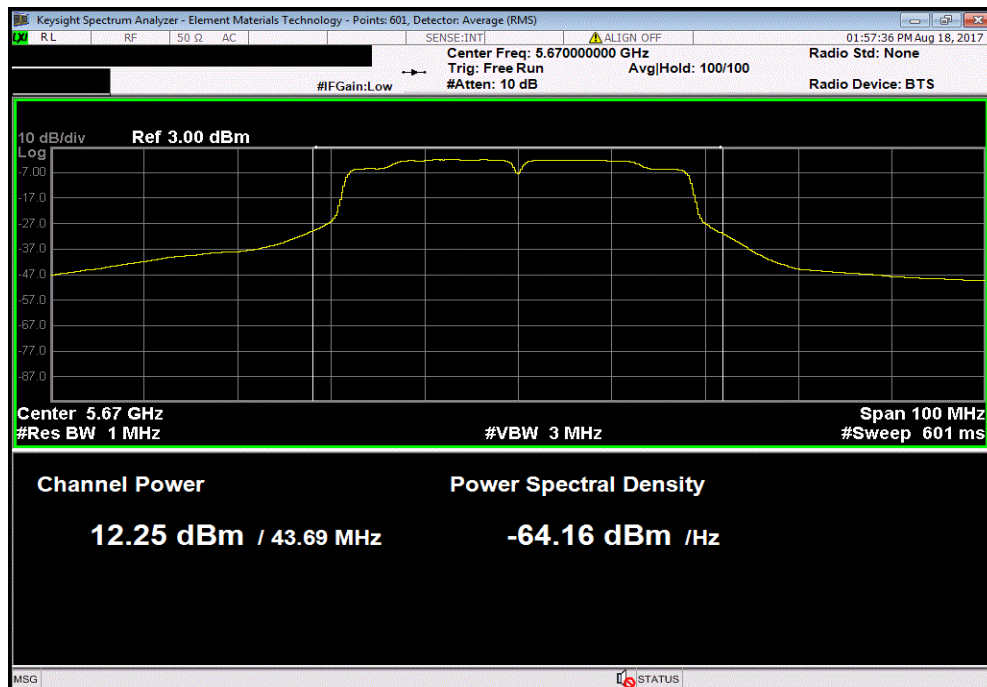


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Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, Mid Channel, Ch 116/120 - 5590 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
12.112	0.2	12.3	24	Pass		



Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 132/136 - 5670 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
12.248	0.1	12.4	24	Pass		

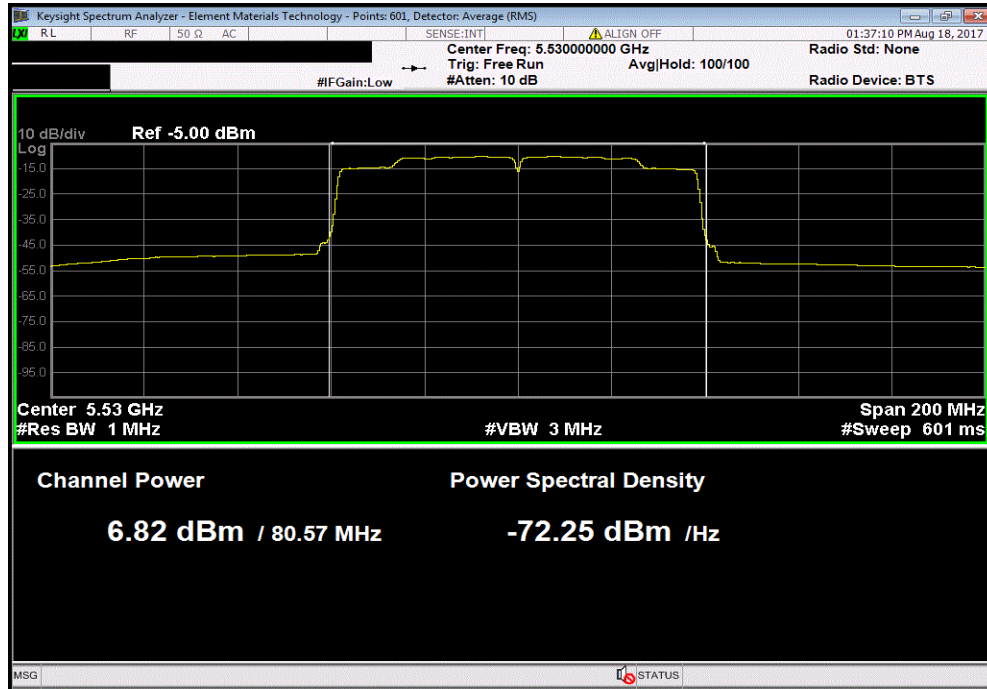


MAXIMUM CONDUCTED OUTPUT POWER

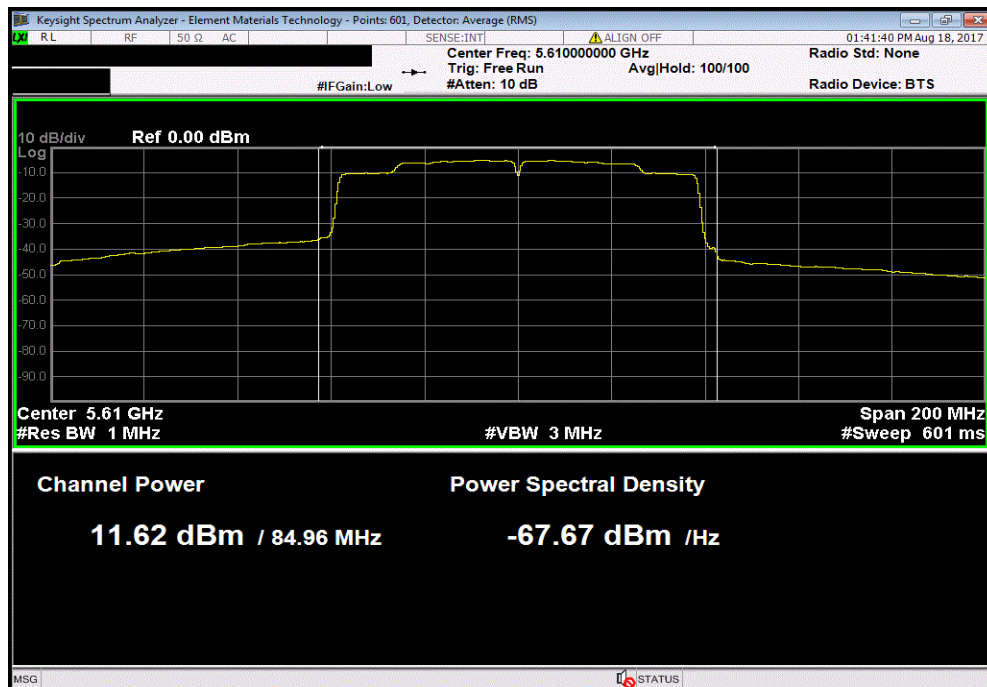


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Chain A, 5470 - 5725 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100-112 - 5530 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	6.815	0.3	7.1	24	Pass	



Chain A, 5470 - 5725 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 116-128 - 5610 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	11.619	0.3	11.9	24	Pass	



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMIT 2017.02.08

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.	Cal. Due
Attenuator	Fairview Microwave	SA4018-20	TYE	10/24/2016	10/24/2017
Block - DC	Fairview Microwave	SD3379	AMT	10/24/2016	10/24/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	3/14/2017	3/14/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

Prior to measuring maximum transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

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

The spectrum analyzer settings were set per the guidance as well as the following specifics:

-RMS Detector

-Trace average 100 traces in power averaging mode.

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

A duty cycle correction factor was added to the measurement using the results of the formula of $10 \cdot \log(1/D)$ where D is the duty cycle.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TbTx 2017.01.27 XMt 2017.02.08

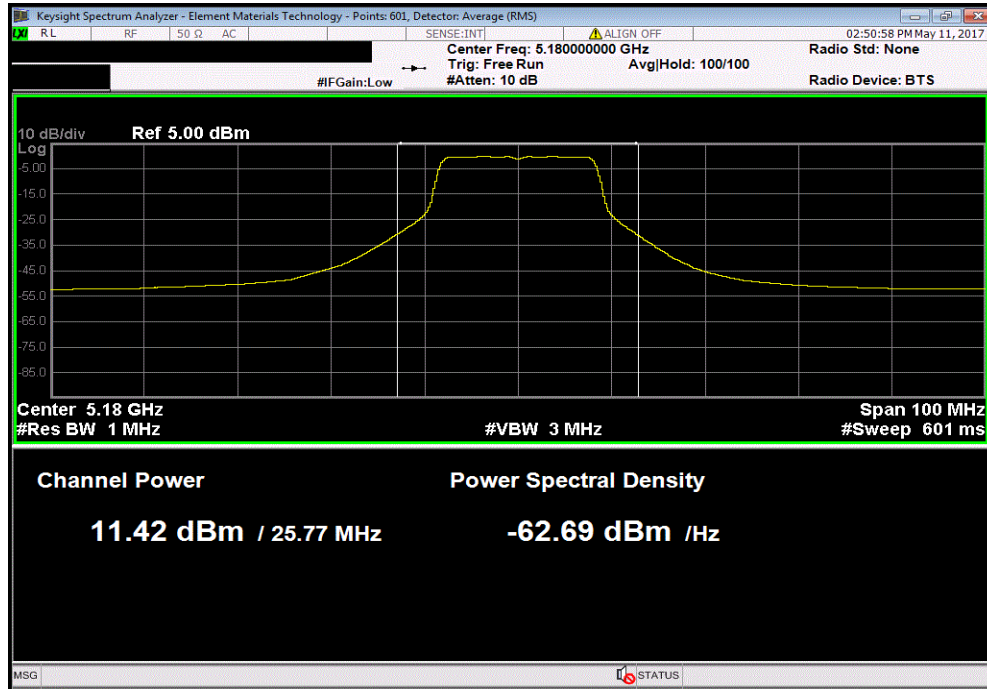
EUT: Dual Band Wireless-AC 3160 Module		Work Order: APPR0043	
Serial Number: None		Date: 05/11/17	
Customer: American Portwell Technology Inc.		Temperature: 23 °C	
Attendees: None		Humidity: 47.9% RH	
Project: None		Barometric Pres.: 1014 mbar	
Tested by: Jonathan Kiefer		Job Site: TX09	
Power: 110VAC/60Hz		Test Method	
TEST SPECIFICATIONS		FCC 15.407:2017	
ANSI C63.10:2013			
COMMENTS			
See Power Table for output power settings used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Jonathan Kiefer</i>	
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)
		Out Pwr (dBm)	Antenna Gain (dBi)
		EIRP (dBm)	EIRP Limit (dBm)
			Result
Chain A			
5150 - 5250 MHz Band			
20 MHz BW			
802.11(a) 6 Mbps			
Low Channel, Ch 36 - 5180 MHz		11.423	0.1
High Channel, Ch 48 - 5240 MHz		12.656	0.1
802.11(n) MCS0			
Low Channel, Ch 36 - 5180 MHz		11.212	0.1
High Channel, Ch 48 - 5240 MHz		12.92	0.1
40 MHz BW			
802.11(n) MCS0			
Low Channel, Ch 36/40 - 5190 MHz		8.052	0.1
High Channel, Ch 44/48 - 5230 MHz		13.552	0.2
80 MHz BW			
802.11(n) MCS0			
Low Channel, Ch 36-48 - 5210 MHz		7.134	0.3
5725 - 5785 MHz Band			
20 MHz BW			
802.11(a) 6 Mbps			
Low Channel, Ch 149 - 5745 MHz		13.487	0.1
Mid Channel, Ch 157 - 5785 MHz		14.3	0.1
High Channel, Ch 165 - 5825 MHz		14.172	0.1
802.11(n) MCS0			
Low Channel, Ch 149 - 5745 MHz		14.443	0.1
Mid Channel, Ch 157 - 5785 MHz		14.569	0.1
High Channel, Ch 165 - 5825 MHz		14.317	0.1
40 MHz BW			
802.11(n) MCS0			
Low Channel, Ch 149/153 - 5755 MHz		14.321	0.2
High Channel, Ch 157/161 - 5795 MHz		14.301	0.2
80 MHz BW			
802.11(n) MCS0			
Low Channel, Ch 149-161 - 5775 MHz		13.656	0.3

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

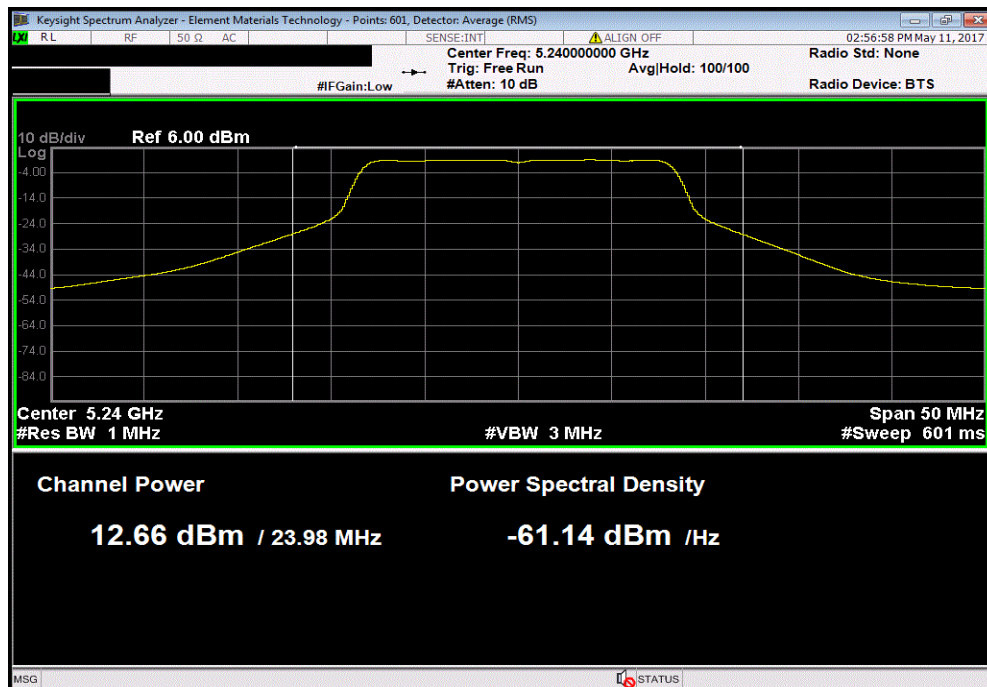


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Chain A, 5150 - 5250 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 36 - 5180 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.423	0.1	11.5	4.5	16	30	Pass



Chain A, 5150 - 5250 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 48 - 5240 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.656	0.1	12.7	4.5	17.2	30	Pass

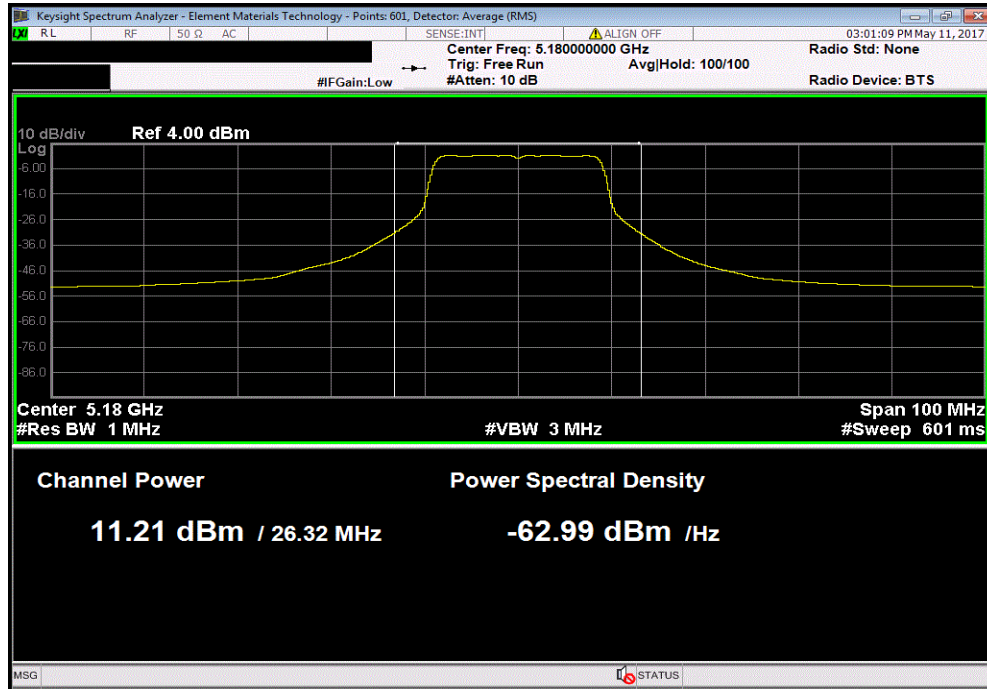


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

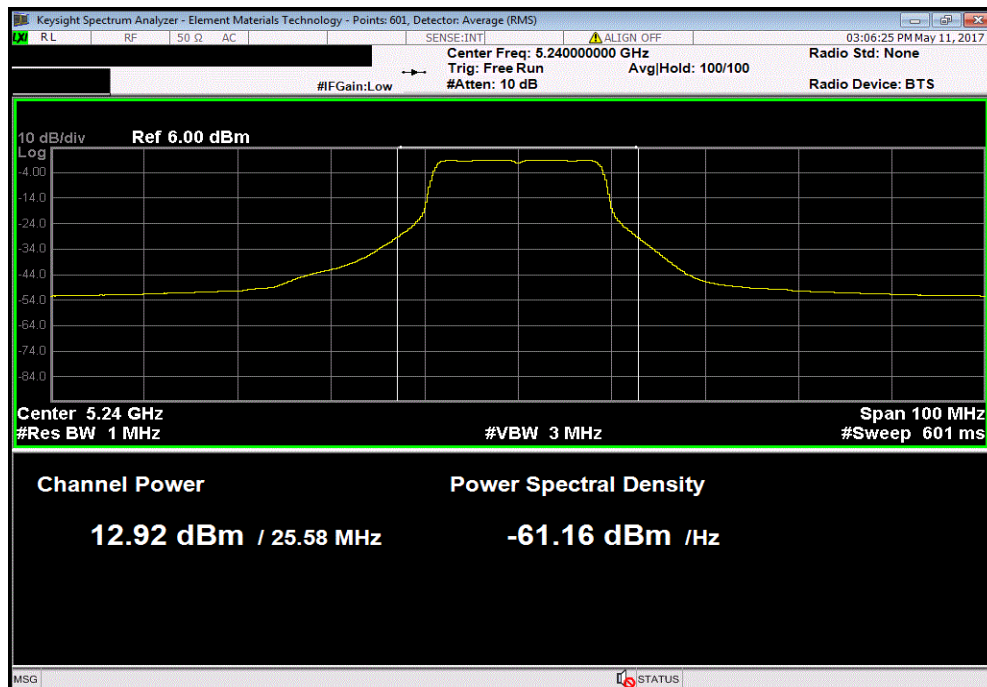


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Chain A, 5150 - 5250 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 36 - 5180 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.212	0.1	11.3	4.5	15.8	30	Pass



Chain A, 5150 - 5250 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 48 - 5240 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.92	0.1	13	4.5	17.5	30	Pass

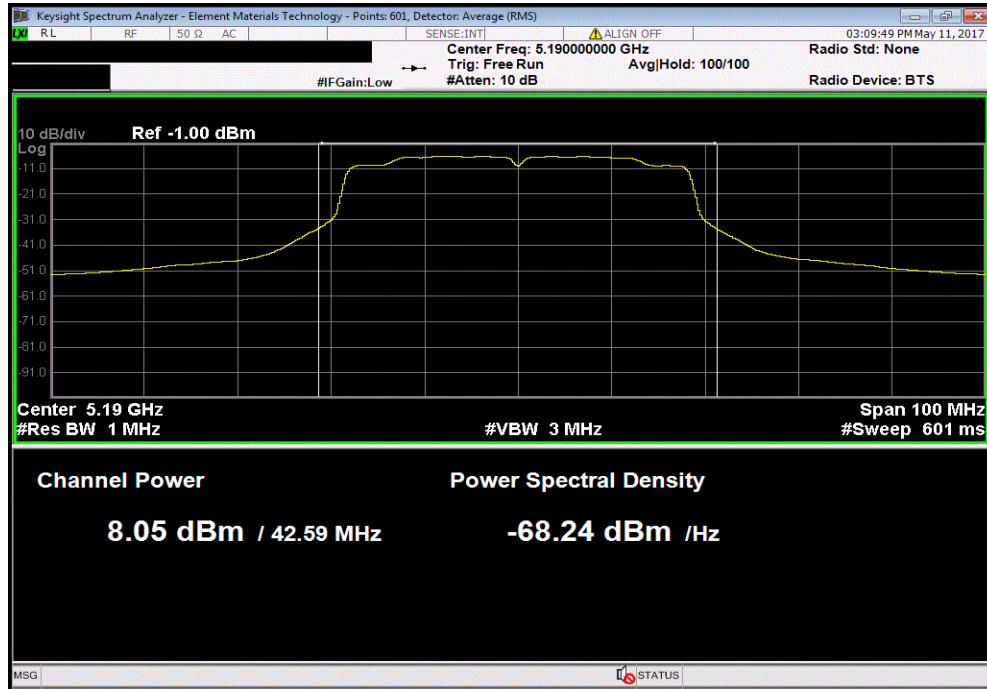


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

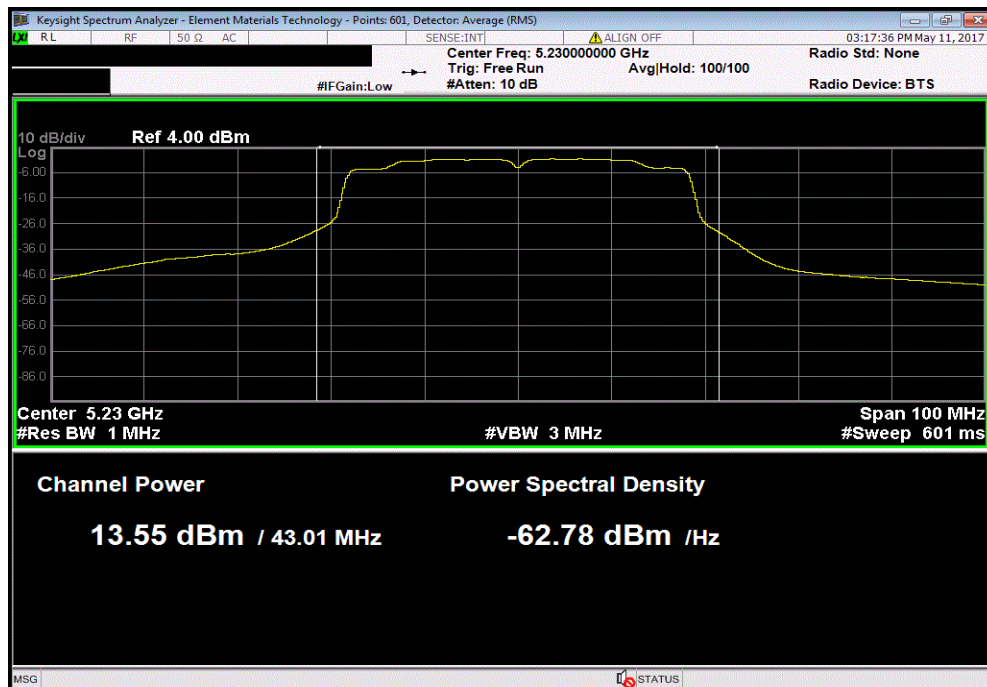


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Chain A, 5150 - 5250 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 36/40 - 5190 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
8.052	0.1	8.2	4.5	12.7	30	Pass



Chain A, 5150 - 5250 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 44/48 - 5230 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.552	0.2	13.7	4.5	18.2	30	Pass

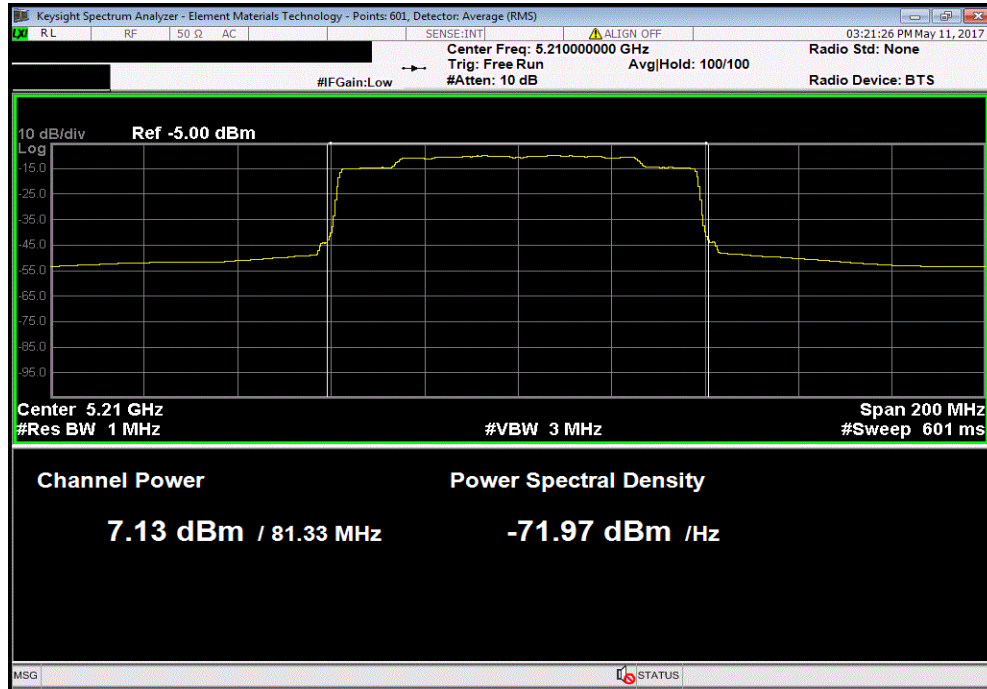


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

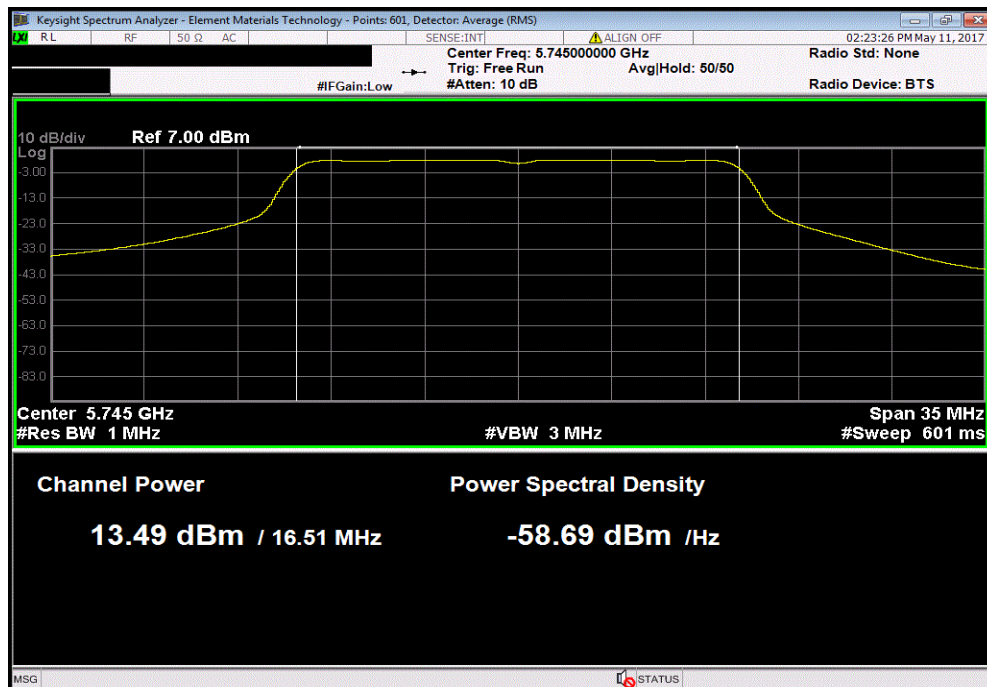


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 5150 - 5250 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 36-48 - 5210 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
7.134	0.3	7.4	4.5	11.9	30	Pass



Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 149 - 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.487	0.1	13.5	4.5	18	36	Pass

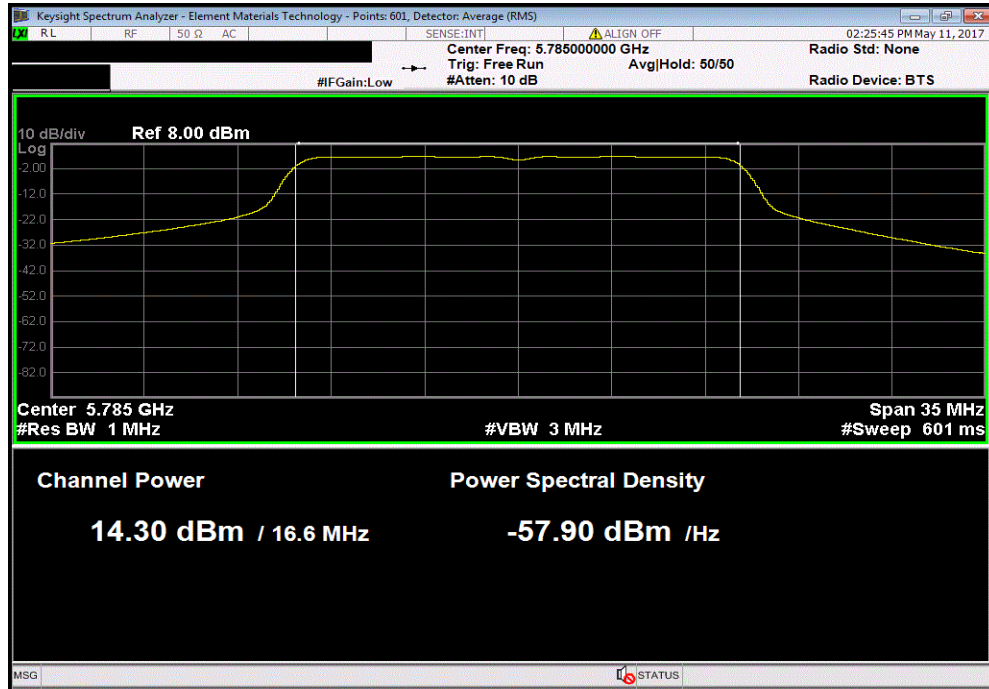


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

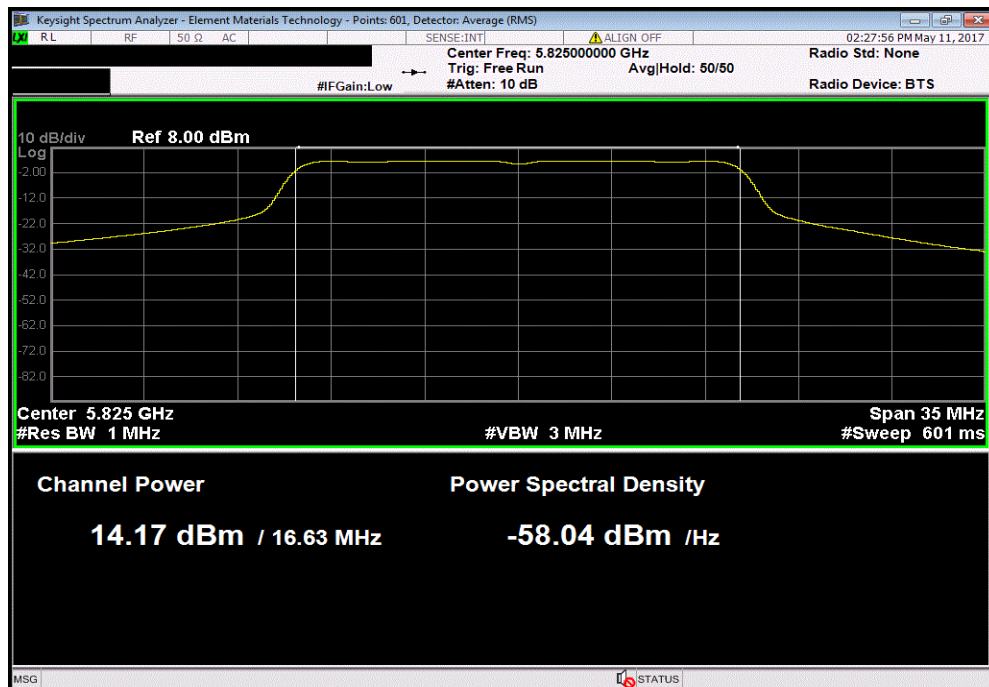


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Mid Channel, Ch 157 - 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.3	0.1	14.4	4.5	18.9	36	Pass



Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 165 - 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.172	0.1	14.2	4.5	18.7	36	Pass

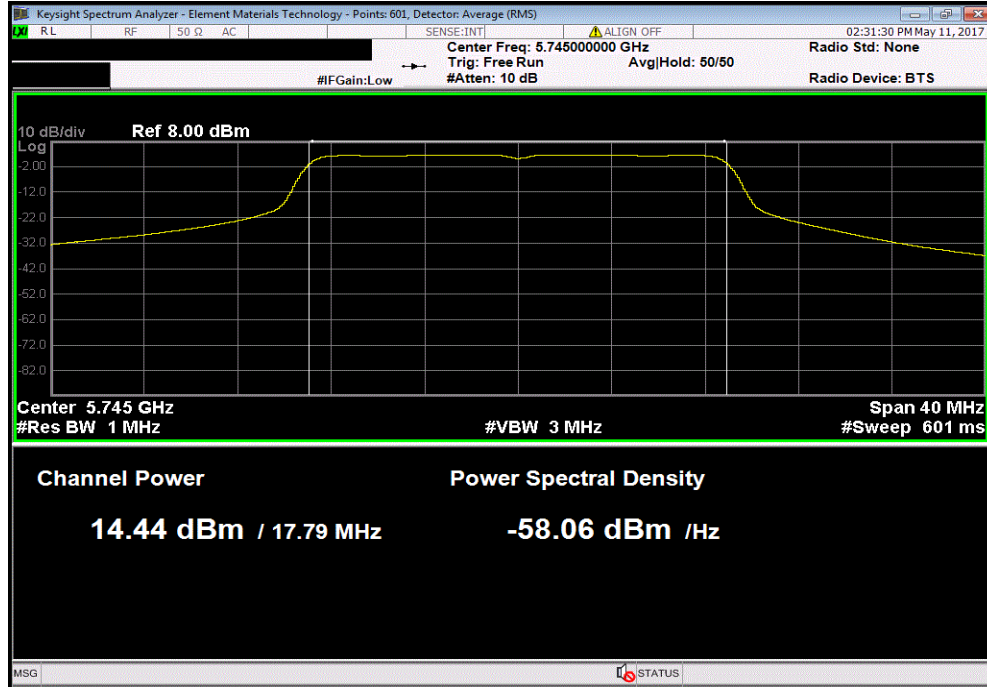


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

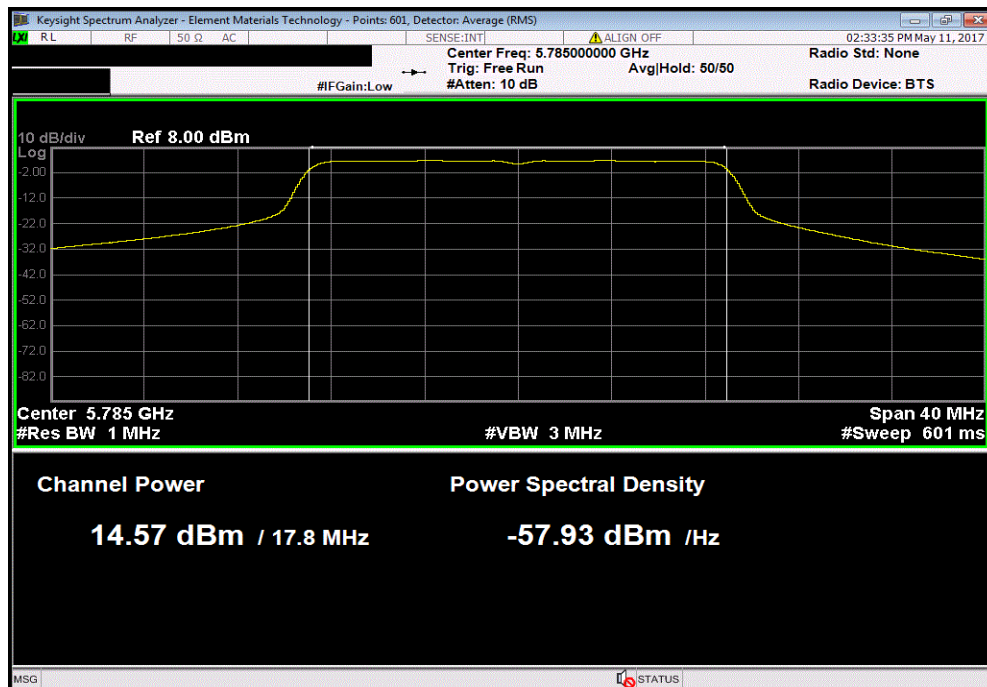


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 149 - 5745 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.443	0.1	14.5	4.5	19	36	Pass



Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(n) MCS0, Mid Channel, Ch 157 - 5785 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.569	0.1	14.6	4.5	19.1	36	Pass

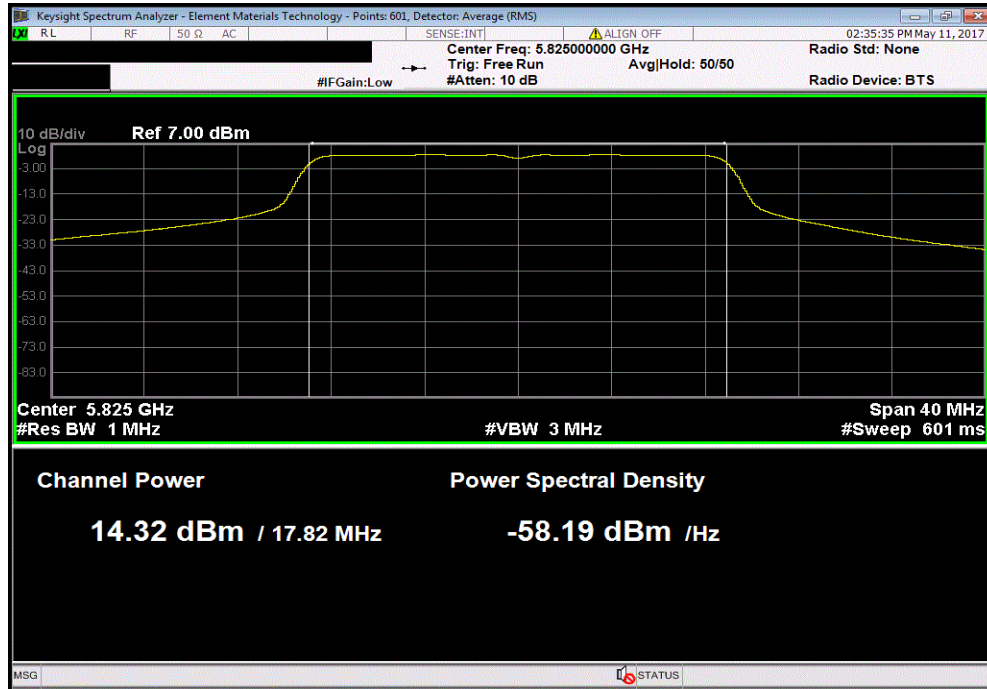


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

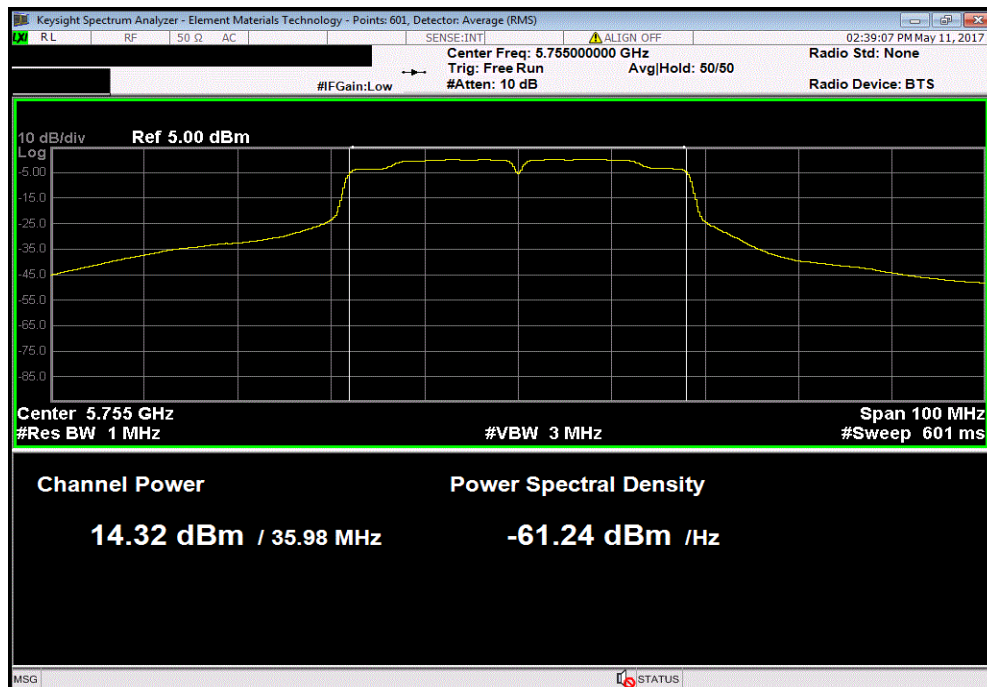


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 5725 - 5785 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 165 - 5825 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.317	0.1	14.4	4.5	18.9	36	Pass



Chain A, 5725 - 5785 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 149/153 - 5755 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.321	0.2	14.5	4.5	19	36	Pass

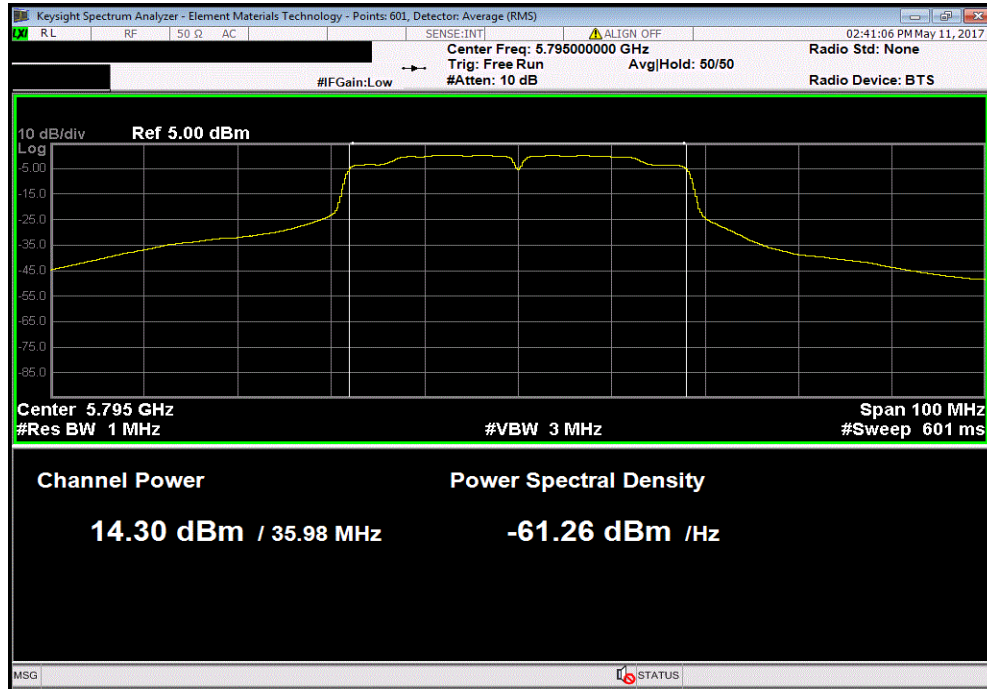


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

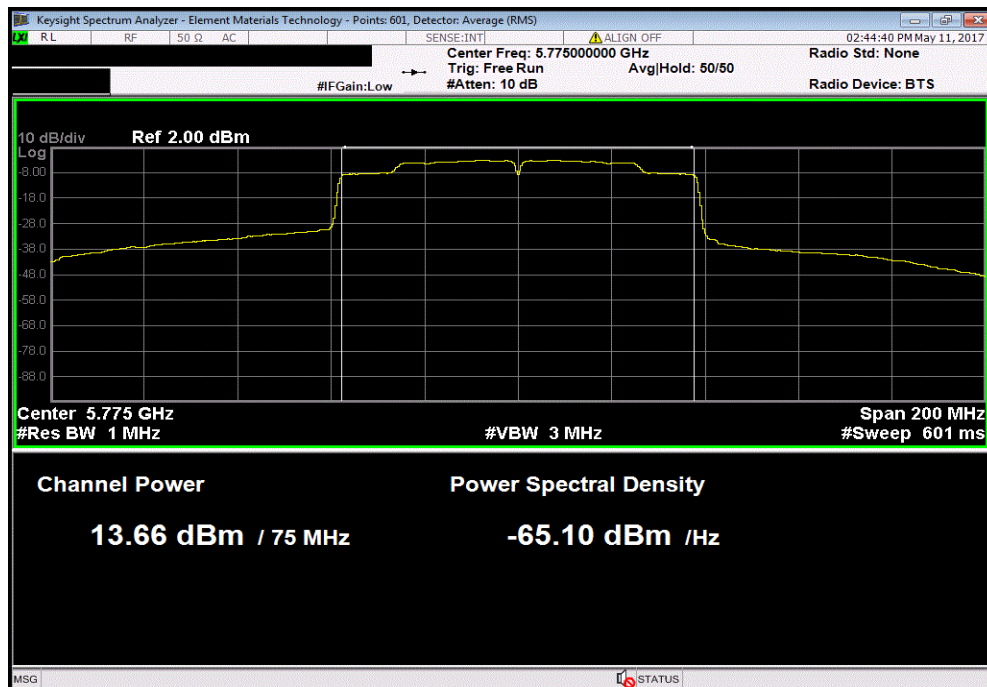


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 5725 - 5785 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 157/161 - 5795 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.301	0.2	14.5	4.5	19	36	Pass



Chain A, 5725 - 5785 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 149-161 - 5775 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.656	0.3	13.9	4.5	18.4	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMIT 2017.02.08

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.	Cal. Due
Cable	Fairview Microwave	SCK0963-60	TXF	11/18/2016	11/18/2017
Attenuator	Fairview Microwave	SA4018-20	TYE	10/24/2016	10/24/2017
Block - DC	Fairview Microwave	SD3379	AMT	10/24/2016	10/24/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	3/14/2017	3/14/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

Prior to measuring maximum transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

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

The spectrum analyzer settings were set per the guidance as well as the following specifics:

-RMS Detector

-Trace average 100 traces in power averaging mode.

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

A duty cycle correction factor was added to the measurement using the results of the formula of $10 \cdot \log(1/D)$ where D is the

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TB17X 2017.07.11 XM17 2017.02.08

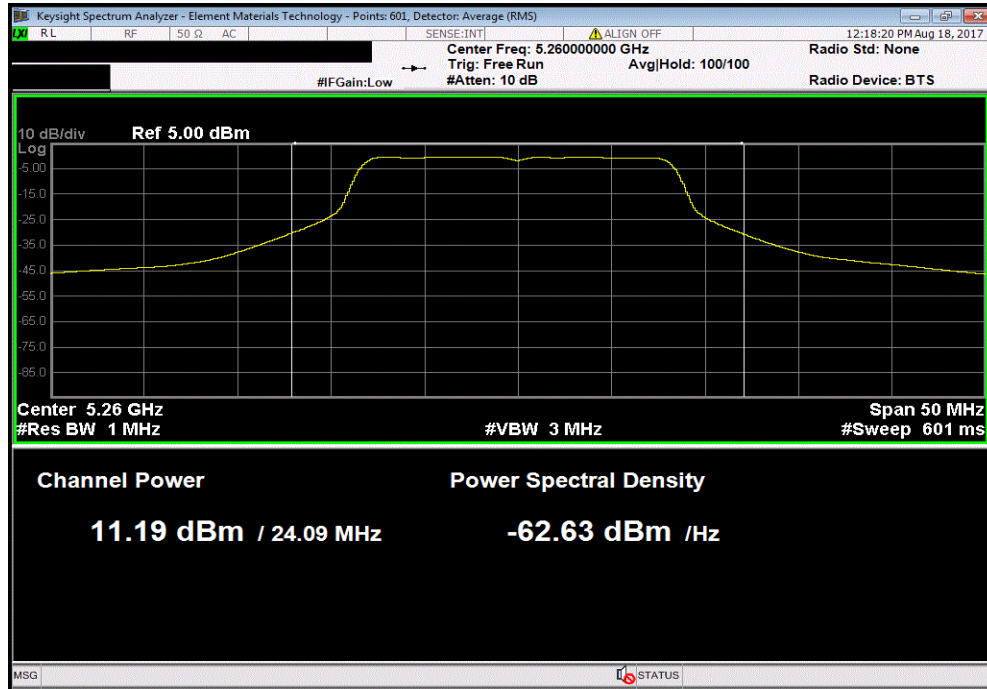
EUT: Dual Band Wireless-AC 3160 Module				Work Order: APPR0050					
Serial Number: None				Date: 08/18/17					
Customer: American Portwell Technology Inc.				Temperature: 22.5 °C					
Attendees: None				Humidity: 55.8% RH					
Project: None				Barometric Pres.: 1020 mbar					
Tested by: Jonathan Kiefer			Power: 110VAC/60Hz	Job Site: TX02					
TEST SPECIFICATIONS				Test Method					
FCC 15.407:2017			ANSI C63.10:2013						
COMMENTS									
See Power Table for output power settings used.									
DEVIATIONS FROM TEST STANDARD									
None									
Configuration #	1	Signature 							
			Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
Chain A									
5250 - 5350 MHz Band									
20 MHz BW									
802.11(a) 6 Mbps									
Low Channel, Ch 52 - 5260 MHz			11.19	0.1	11.2	3.41	14.7	30	Pass
High Channel, Ch 64 - 5320 MHz			10.576	0.1	10.6	3.41	14	30	Pass
802.11(n) MCS0									
Low Channel, Ch 52 - 5260 MHz			12.134	0.1	12.2	3.41	15.6	30	Pass
High Channel, Ch 64 - 5320 MHz			10.913	0.1	11	3.41	14.4	30	Pass
40 MHz BW									
802.11(n) MCS0									
Low Channel, Ch 52/56 - 5270 MHz			7.491	0.2	7.6	3.41	11.1	30	Pass
High Channel, Ch 60/64 - 5310 MHz			8.072	0.2	8.2	3.41	11.6	30	Pass
80 MHz BW									
802.11(n) MCS0									
Low Channel, Ch 52-64 - 5290 MHz			8.125	0.3	8.4	3.41	11.9	30	Pass
5470 - 5725 MHz Band									
20 MHz BW									
802.11(a) 6 Mbps									
Low Channel, Ch 100 - 5500 MHz			11.215	0.1	11.3	3.41	14.7	30	Pass
Mid Channel, Ch 116 - 5580 MHz			12.172	0.1	12.2	3.41	15.6	30	Pass
High Channel, Ch 140 - 5700 MHz			11.196	0.1	11.3	3.41	14.7	30	Pass
802.11(n) MCS0									
Low Channel, Ch 100 - 5500 MHz			11.245	0.1	11.3	3.41	14.7	30	Pass
Mid Channel, Ch 116 - 5580 MHz			11.756	0.1	11.8	3.41	15.2	30	Pass
High Channel, Ch 140 - 5700 MHz			11.152	0.1	11.2	3.41	14.6	30	Pass
40 MHz BW									
802.11(n) MCS0									
Low Channel, Ch 100/104 - 5510 MHz			8.278	0.2	8.4	3.41	11.8	30	Pass
Mid Channel, Ch 116/120 - 5590 MHz			12.112	0.2	12.3	3.41	15.7	30	Pass
High Channel, Ch 132/136 - 5670 MHz			12.248	0.1	12.4	3.41	15.8	30	Pass
80 MHz BW									
802.11(n) MCS0									
Low Channel, Ch 100-112 - 5530 MHz			6.815	0.3	7.1	3.41	10.5	30	Pass
Low Channel, Ch 116-128 - 5610 MHz			11.619	0.3	11.9	3.41	15.4	30	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

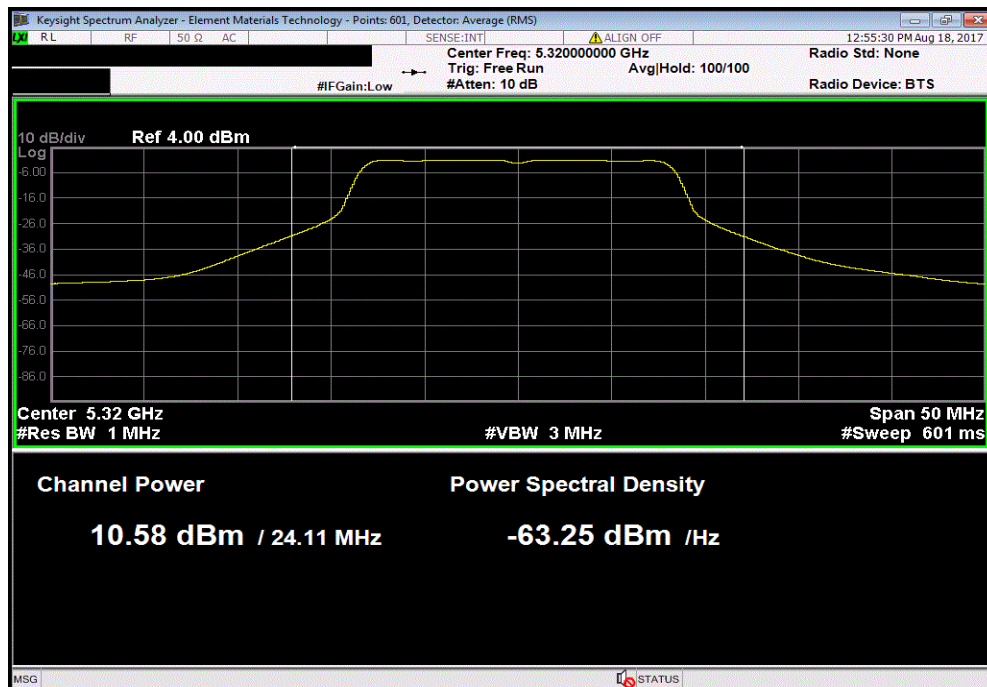


TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 52 - 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.19	0.1	11.2	3.41	14.7	30	Pass



Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 64 - 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
10.576	0.1	10.6	3.41	14	30	Pass

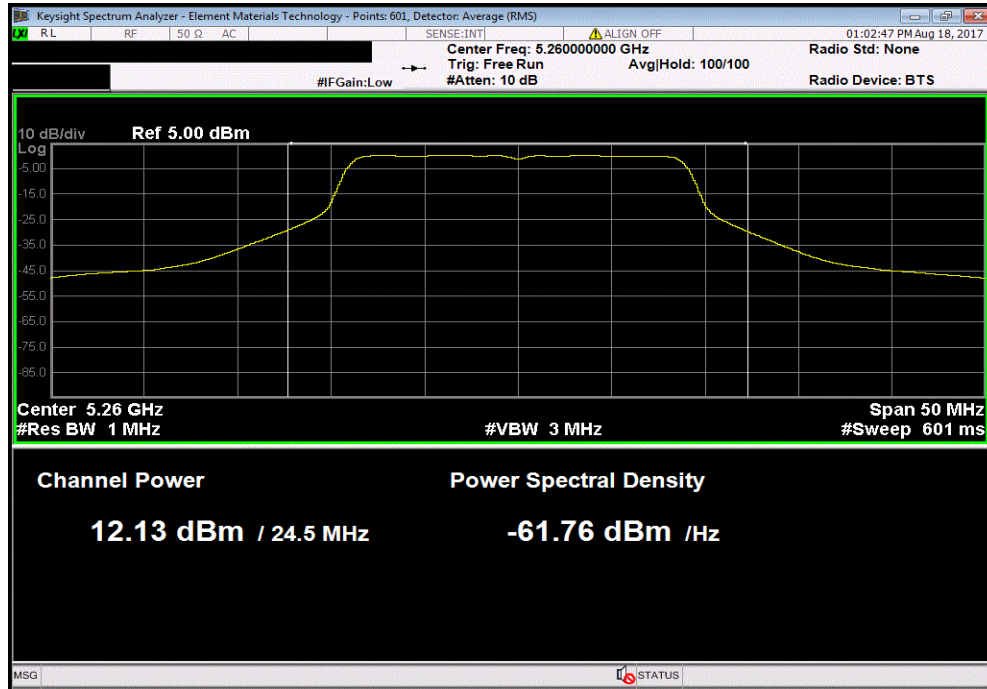


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

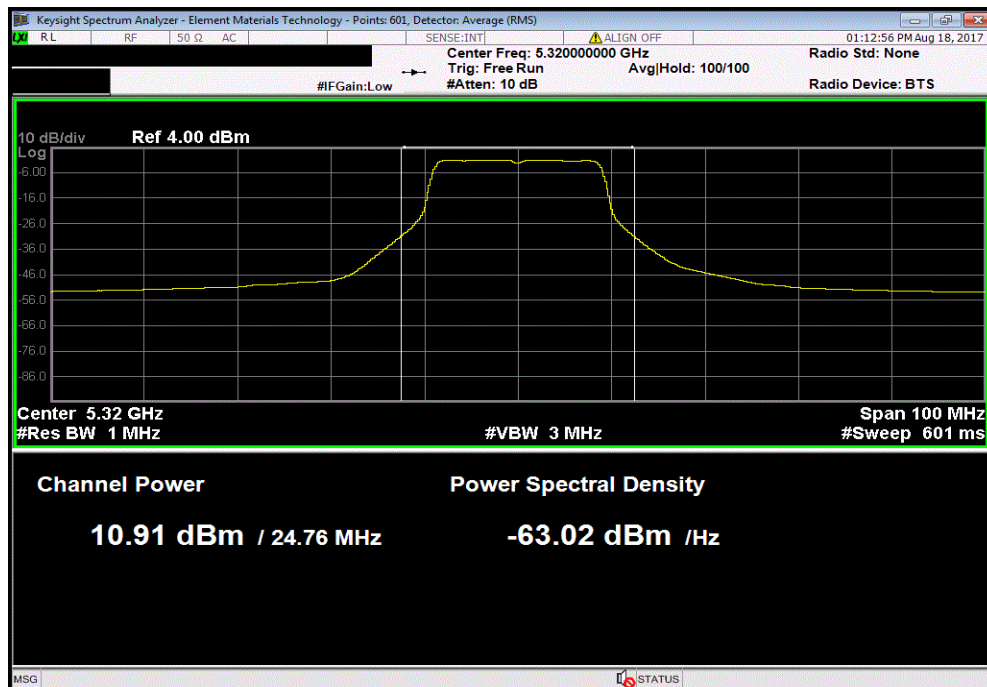


TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52 - 5260 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.134	0.1	12.2	3.41	15.6	30	Pass



Chain A, 5250 - 5350 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 64 - 5320 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
10.913	0.1	11	3.41	14.4	30	Pass

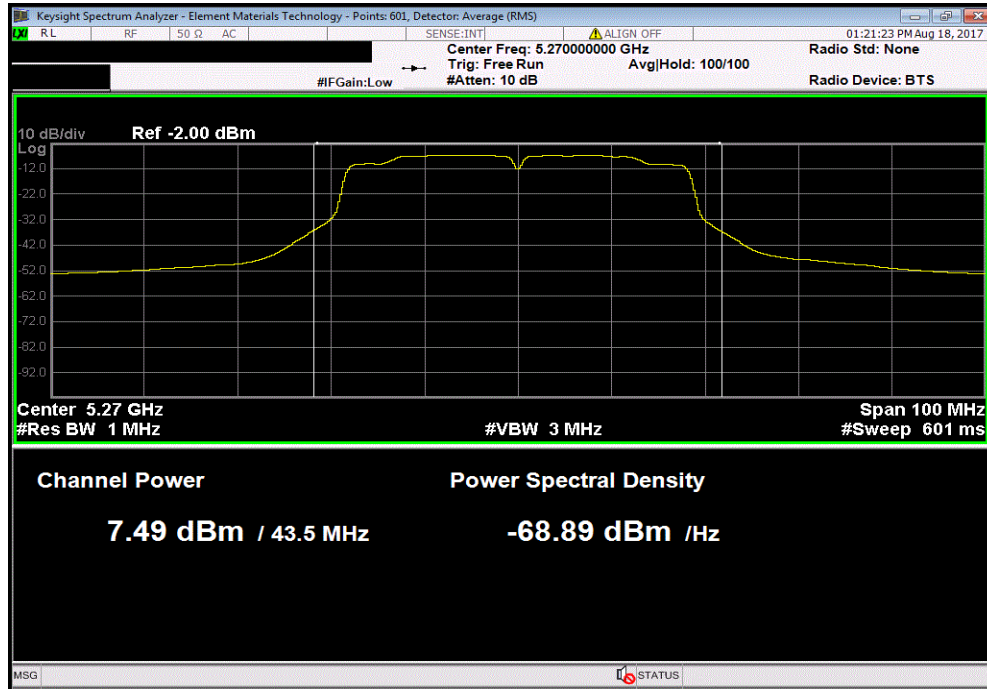


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

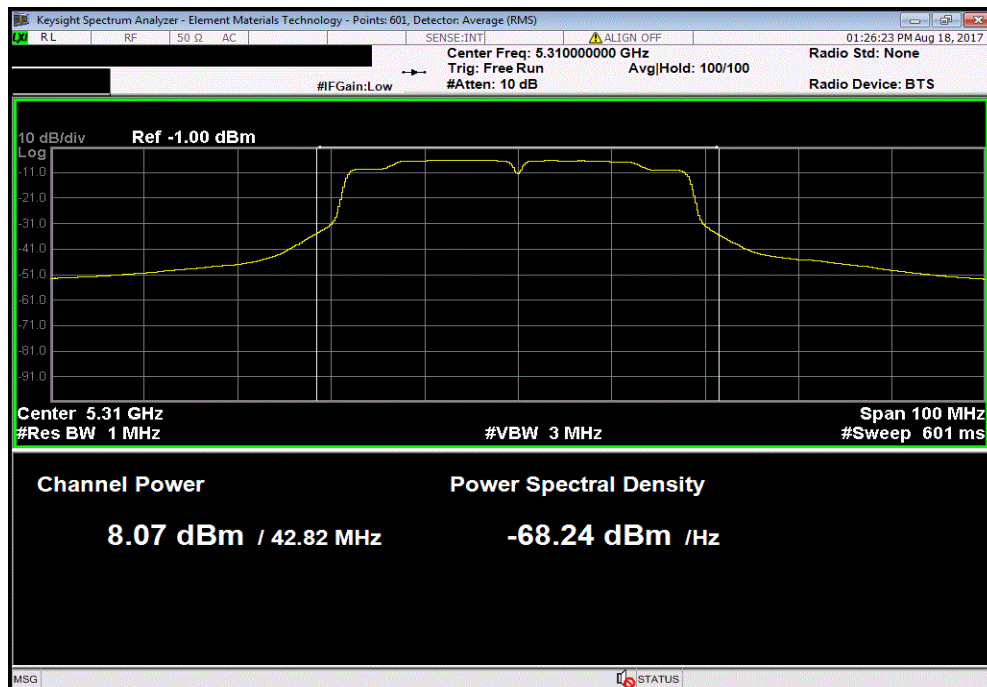


TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5250 - 5350 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52/56 - 5270 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
7.491	0.2	7.6	3.41	11.1	30	Pass



Chain A, 5250 - 5350 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 60/64 - 5310 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
8.072	0.2	8.2	3.41	11.6	30	Pass

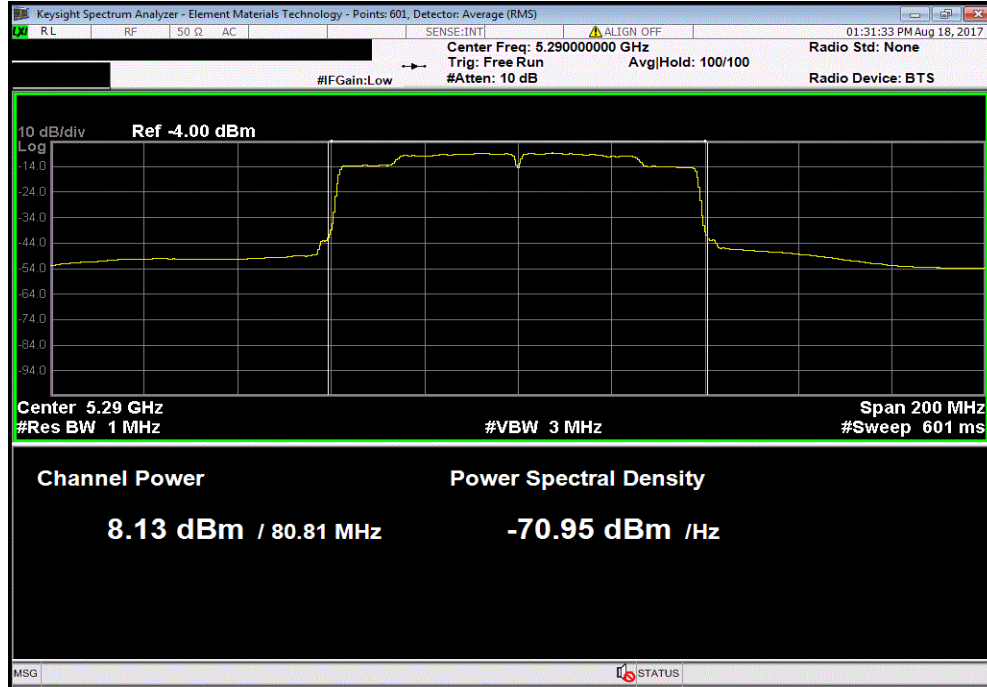


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

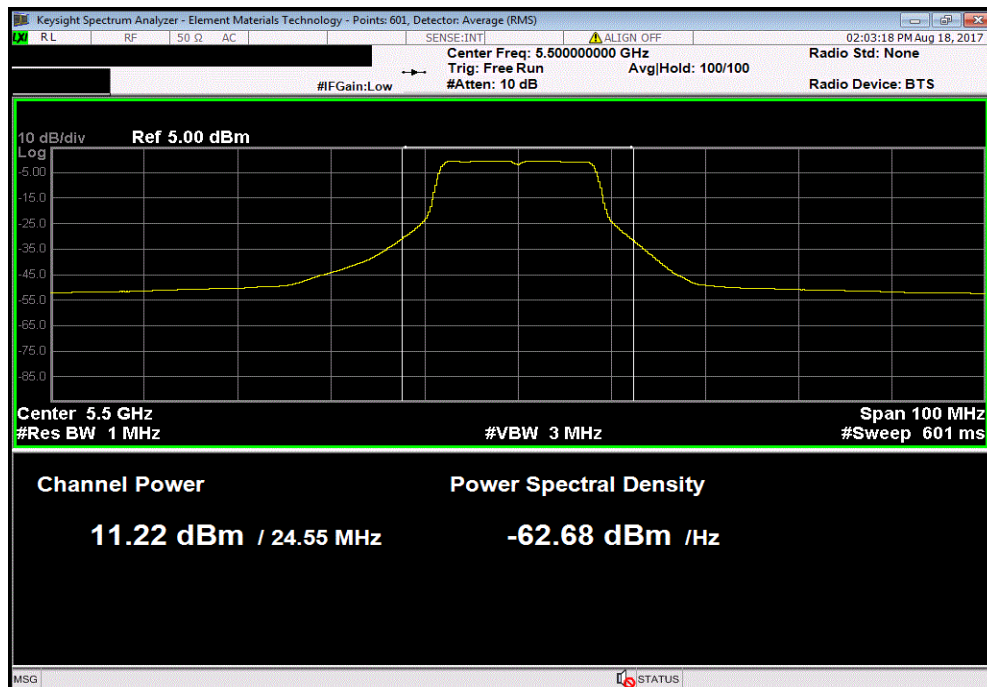


TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5250 - 5350 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 52-64 - 5290 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
8.125	0.3	8.4	3.41	11.9	30	Pass



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Low Channel, Ch 100 - 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.215	0.1	11.3	3.41	14.7	30	Pass

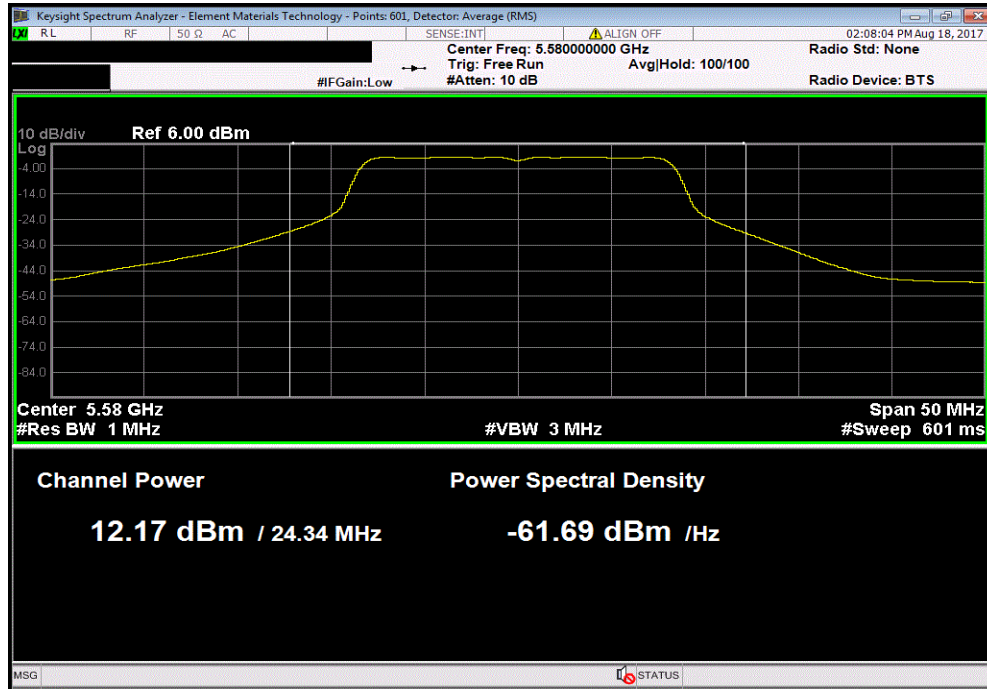


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

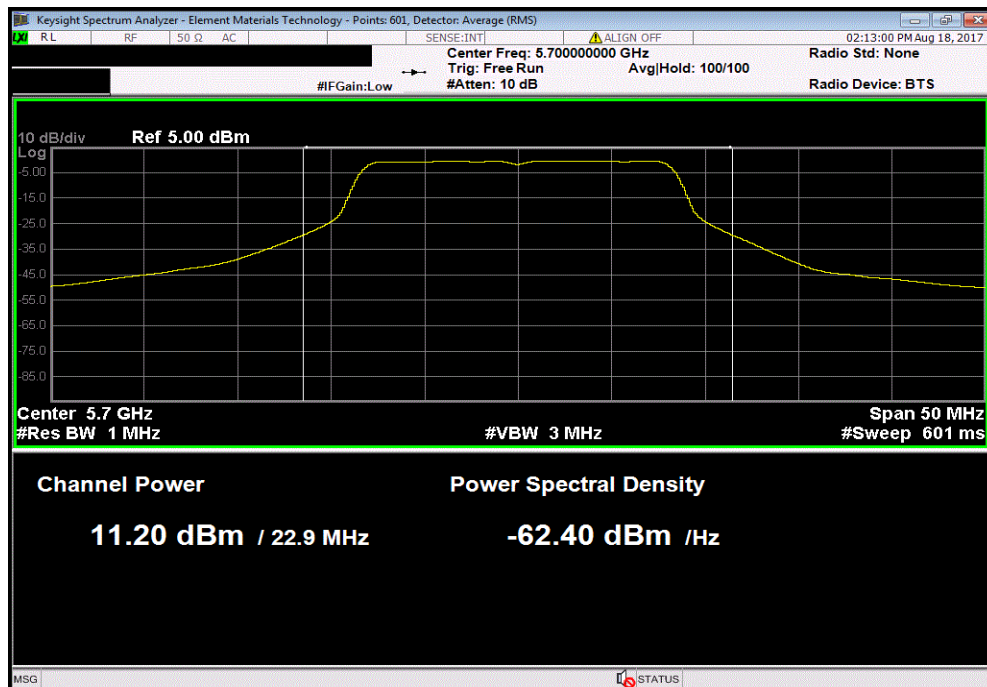


TMTx 2017.07.11 XMM 2017.02.08

Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, Mid Channel, Ch 116 - 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.172	0.1	12.2	3.41	15.6	30	Pass



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(a) 6 Mbps, High Channel, Ch 140 - 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.196	0.1	11.3	3.41	14.7	30	Pass

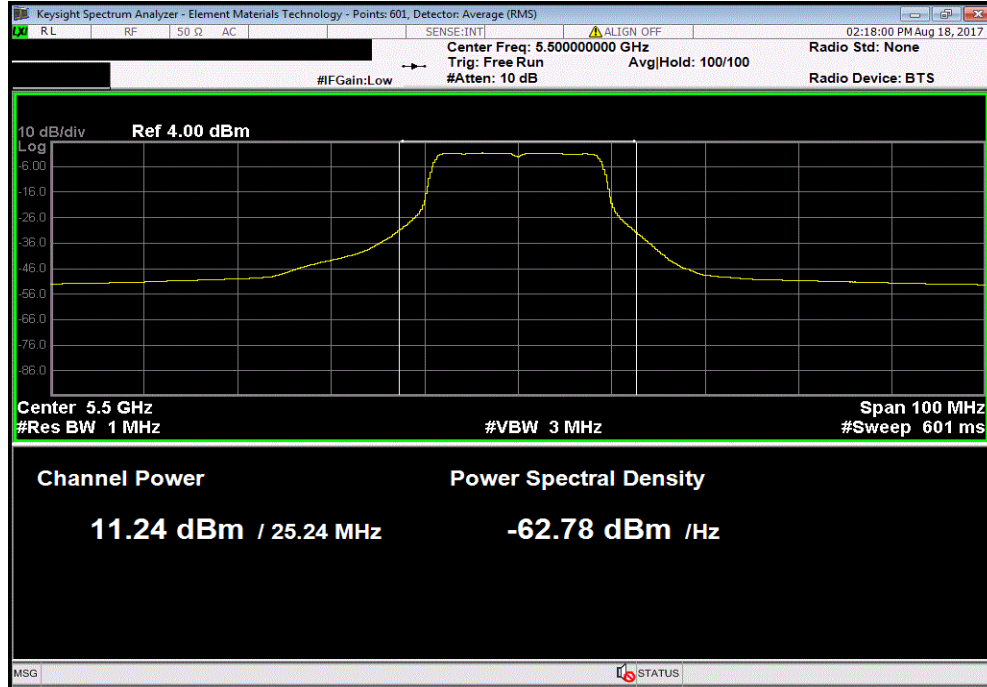


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

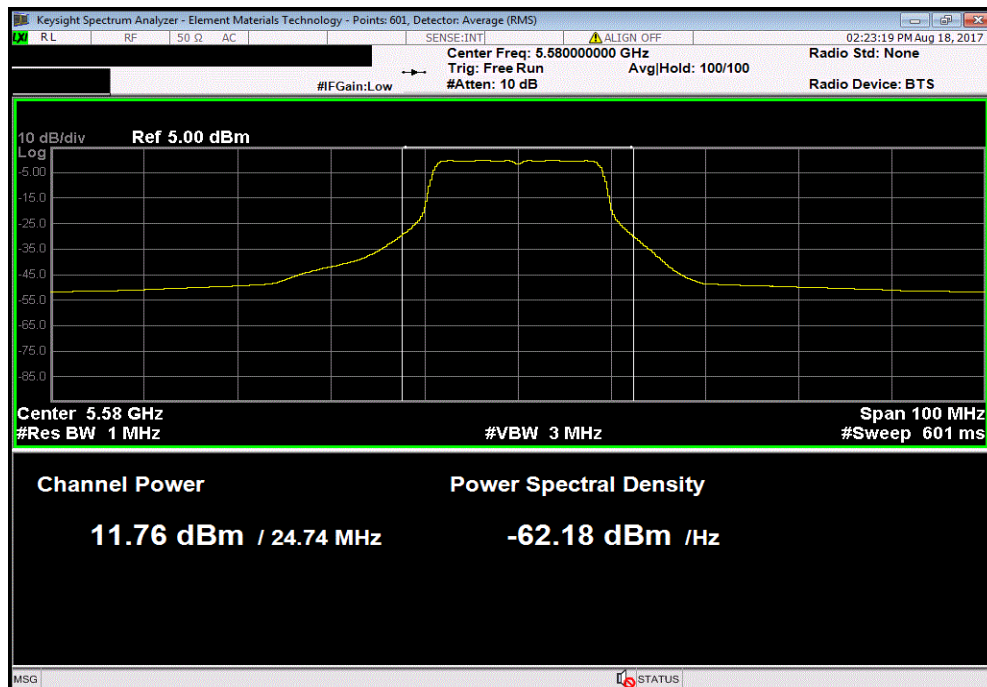


TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100 - 5500 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.245	0.1	11.3	3.41	14.7	30	Pass



Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, Mid Channel, Ch 116 - 5580 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.756	0.1	11.8	3.41	15.2	30	Pass

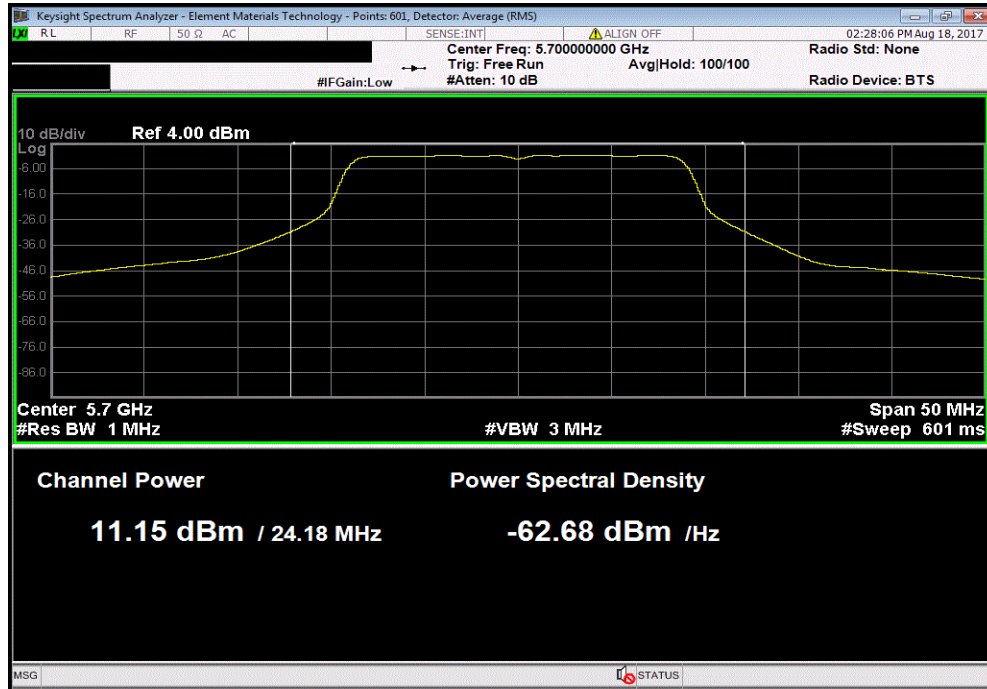


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

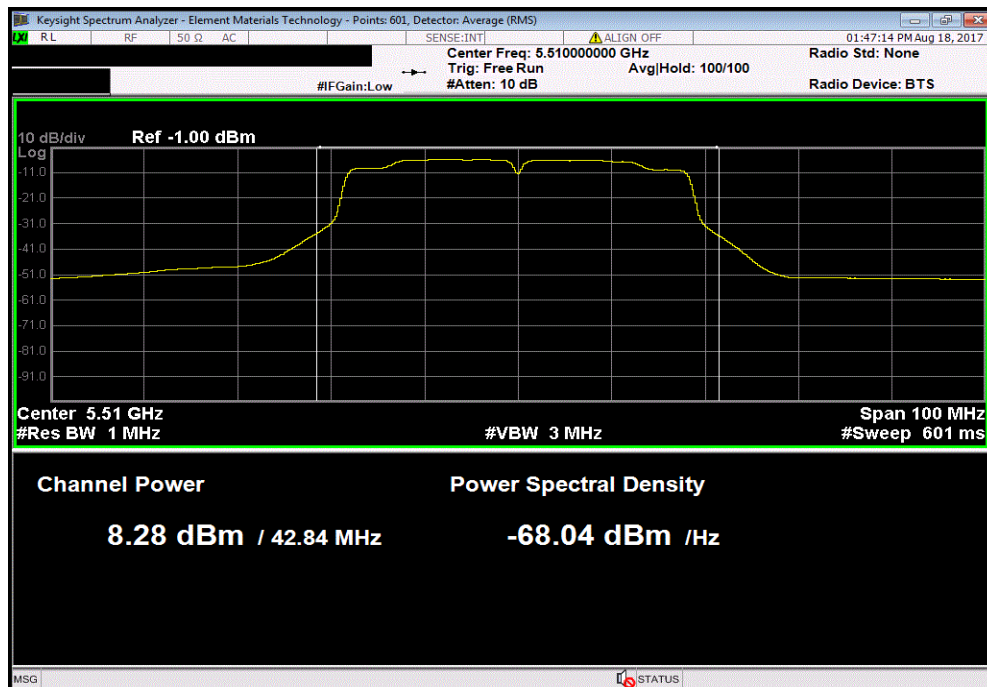


TMTx 2017.07.11 XMM 2017.02.08

Chain A, 5470 - 5725 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel, Ch 140 - 5700 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.152	0.1	11.2	3.41	14.6	30	Pass



Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100/104 - 5510 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
8.278	0.2	8.4	3.41	11.8	30	Pass

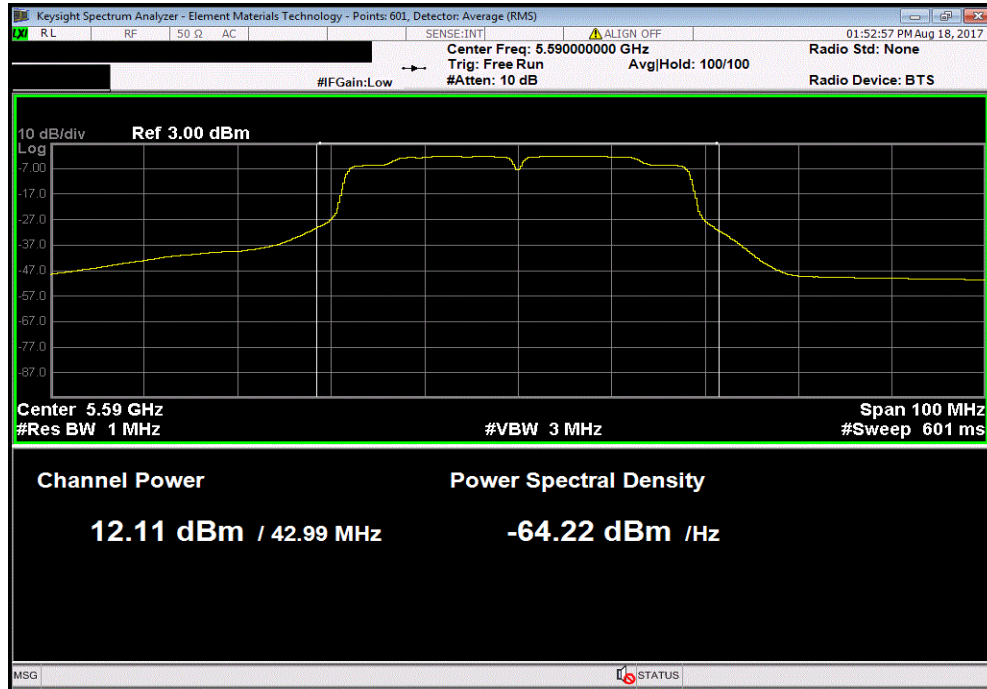


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

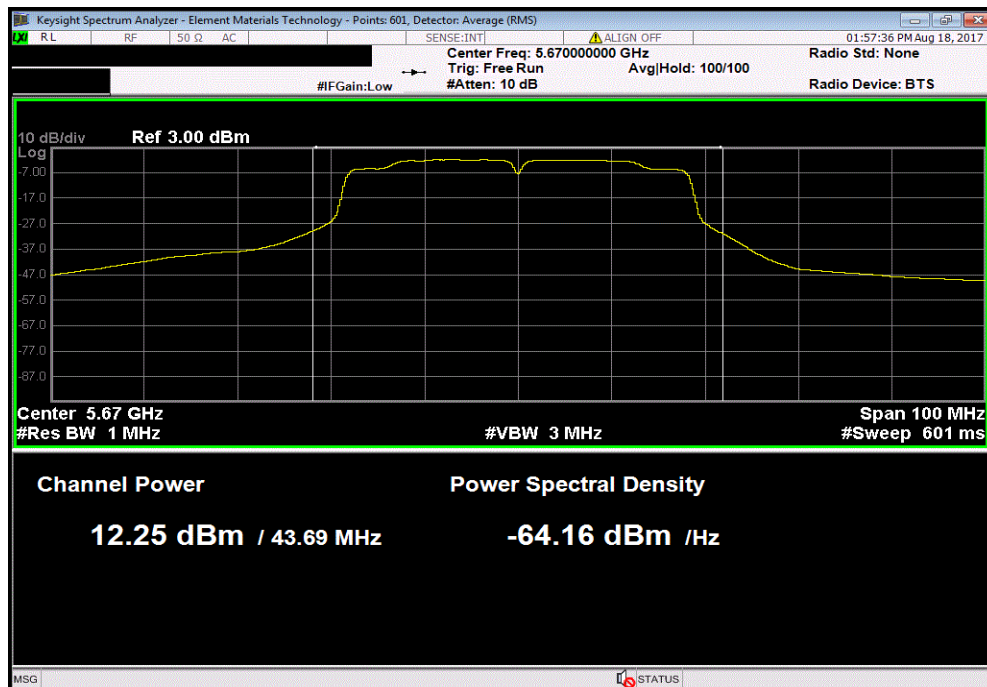


TMTx 2017.07.11 XMM 2017.02.08

Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, Mid Channel, Ch 116/120 - 5590 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.112	0.2	12.3	3.41	15.7	30	Pass



Chain A, 5470 - 5725 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel, Ch 132/136 - 5670 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.248	0.1	12.4	3.41	15.8	30	Pass

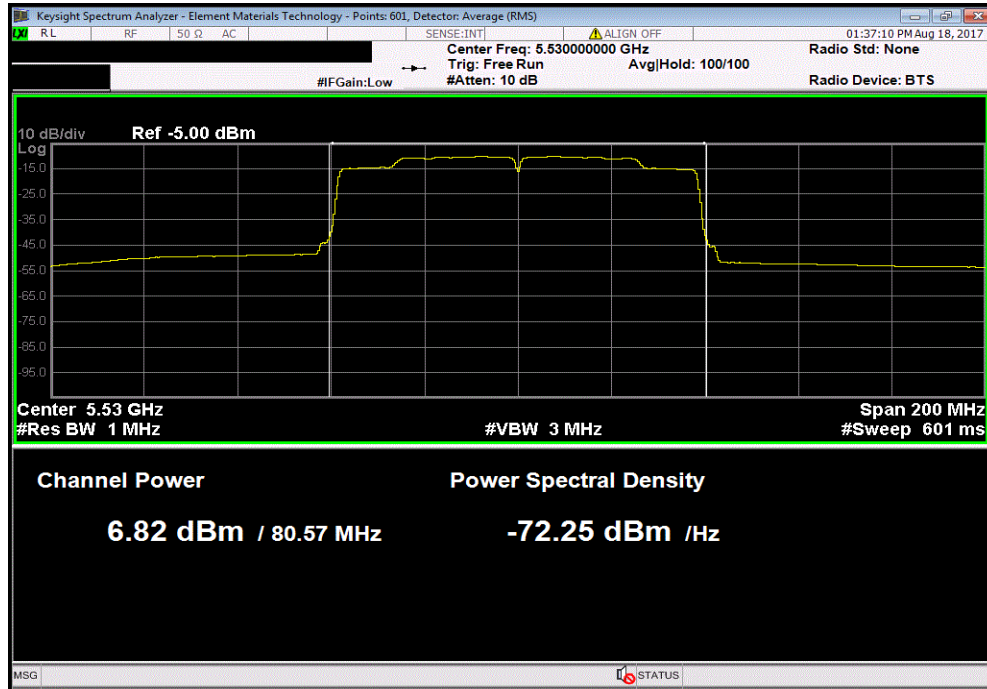


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TMTx 2017.07.11 XMI 2017.02.08

Chain A, 5470 - 5725 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 100-112 - 5530 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
6.815	0.3	7.1	3.41	10.5	30	Pass



Chain A, 5470 - 5725 MHz Band, 80 MHz BW, 802.11(n) MCS0, Low Channel, Ch 116-128 - 5610 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.619	0.3	11.9	3.41	15.4	30	Pass

