



OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFX	28-Apr-20	28-Apr-23
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20
Attenuator	S.M. Electronics	SA26B-20	RFW	10-Feb-20	10-Feb-21
Block - DC	Fairview Microwave	SD3379	AMI	5-Aug-20	5-Aug-21
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	21-Dec-19	21-Dec-20

TEST DESCRIPTION

The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

OCCUPIED BANDWIDTH



Tel: 2019.08.30.0 XMI: 2020.03.25.0

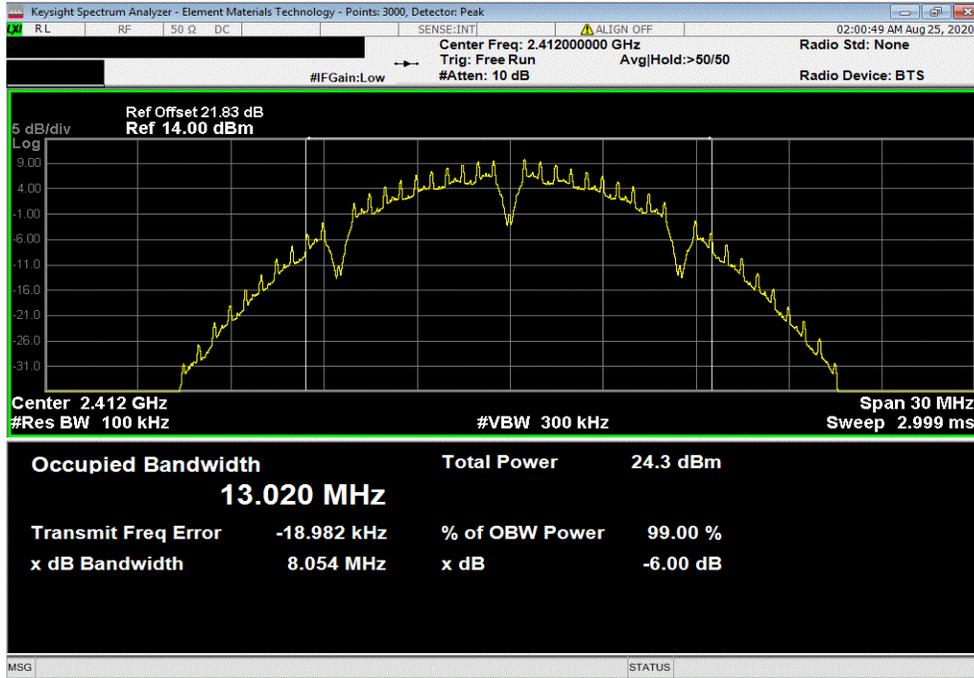
EUT: USB to WiFi Adapter		Work Order: TRNE0022		
Serial Number: 0022A301FF5D		Date: 24-Aug-20		
Customer: Trane		Temperature: 21.9 °C		
Attendees: Chris Vanderkoy		Humidity: 57% RH		
Project: None		Barometric Pres.: 1017 mbar		
Tested by: Dustin Sparks		Power: 5VDC via USB		
		Job Site: MN08		
TEST SPECIFICATIONS				
FCC 15.247:2020		ANSI C63.10:2013		
TEST METHOD				
COMMENTS				
Measurement cable, DC block, and 20 dB attenuator included in reference level offset.				
DEVIATIONS FROM TEST STANDARD				
None				
Configuration #	3	Signature <i>Dustin Sparks</i>		
2400 MHz - 2483.5 MHz Band				
802.11(b) 1 Mbps				
Low Channel 1, 2412 MHz		8.054 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		8.057 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		8.051 MHz	500 kHz	Pass
802.11(b) 11 Mbps				
Low Channel 1, 2412 MHz		8.177 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		8.656 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		7.869 MHz	500 kHz	Pass
802.11(g) 6 Mbps				
Low Channel 1, 2412 MHz		15.139 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		15.134 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		15.124 MHz	500 kHz	Pass
802.11(g) 36 Mbps				
Low Channel 1, 2412 MHz		16.467 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		16.493 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		16.497 MHz	500 kHz	Pass
802.11(g) 54 Mbps				
Low Channel 1, 2412 MHz		16.5 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		16.501 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		16.499 MHz	500 kHz	Pass
802.11(n) MCS0				
Low Channel 1, 2412 MHz		15.111 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		15.143 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		15.142 MHz	500 kHz	Pass
802.11(n) MCS7				
Low Channel 1, 2412 MHz		17.728 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz		17.679 MHz	500 kHz	Pass
High Channel 11, 2462 MHz		17.723 MHz	500 kHz	Pass

OCCUPIED BANDWIDTH

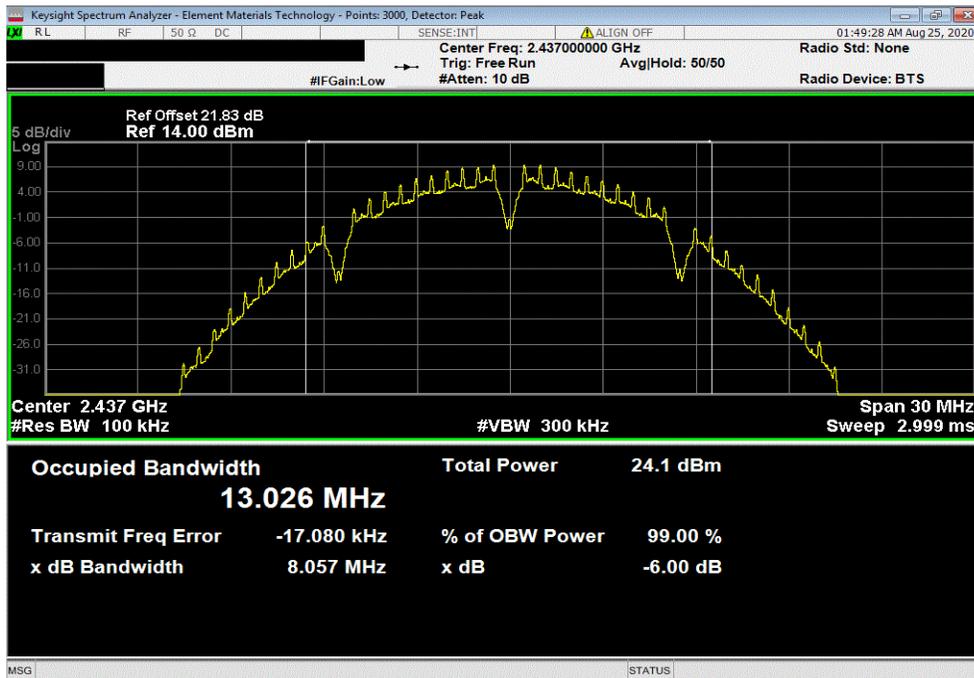


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				8.054 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				8.057 MHz	500 kHz	Pass

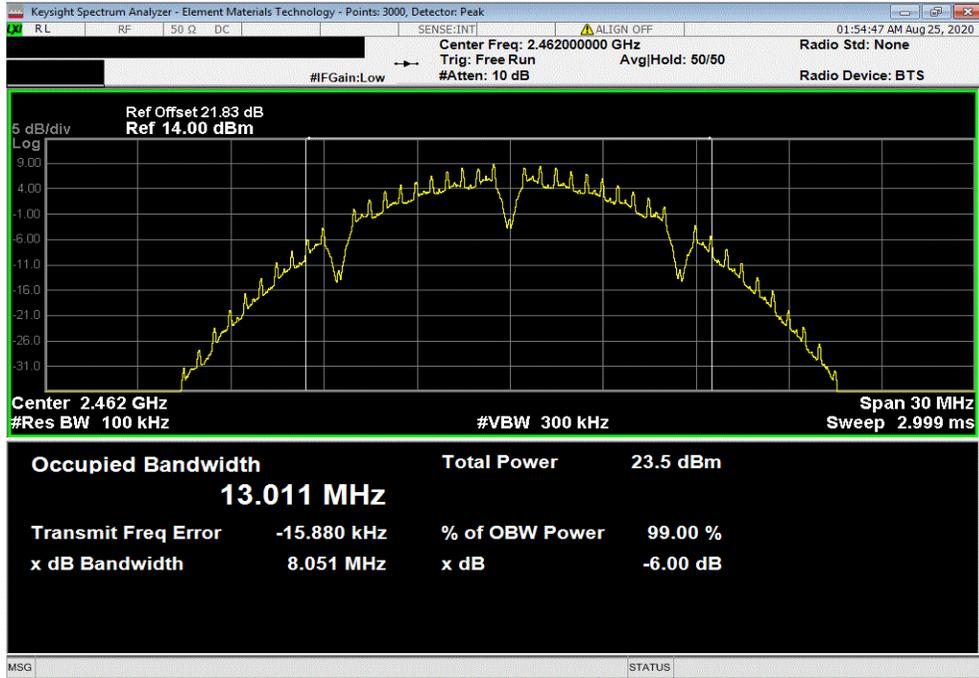


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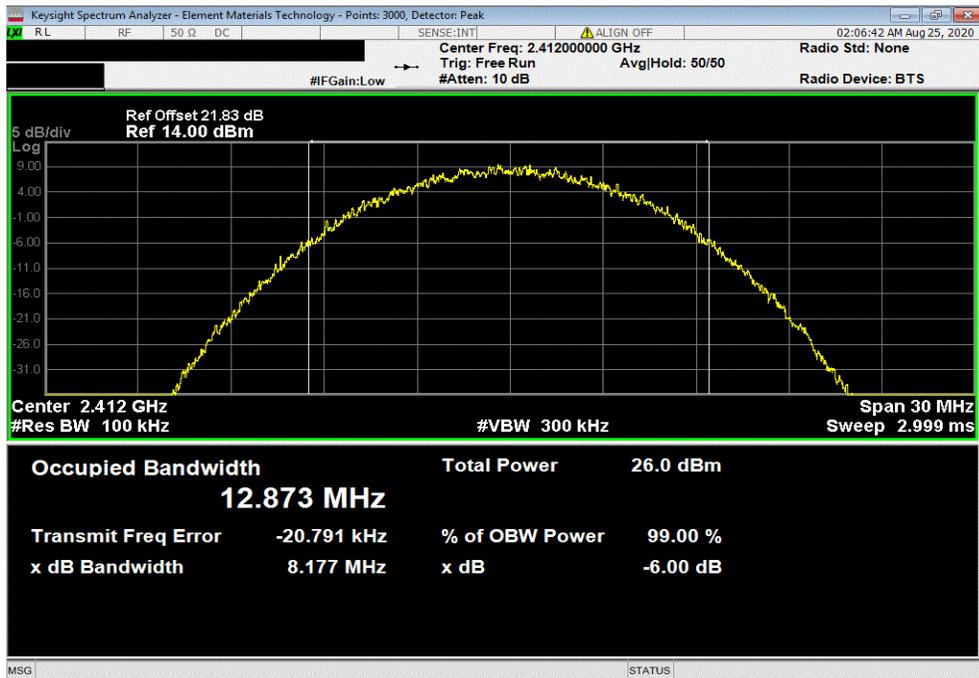


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				8.051 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				8.177 MHz	500 kHz	Pass

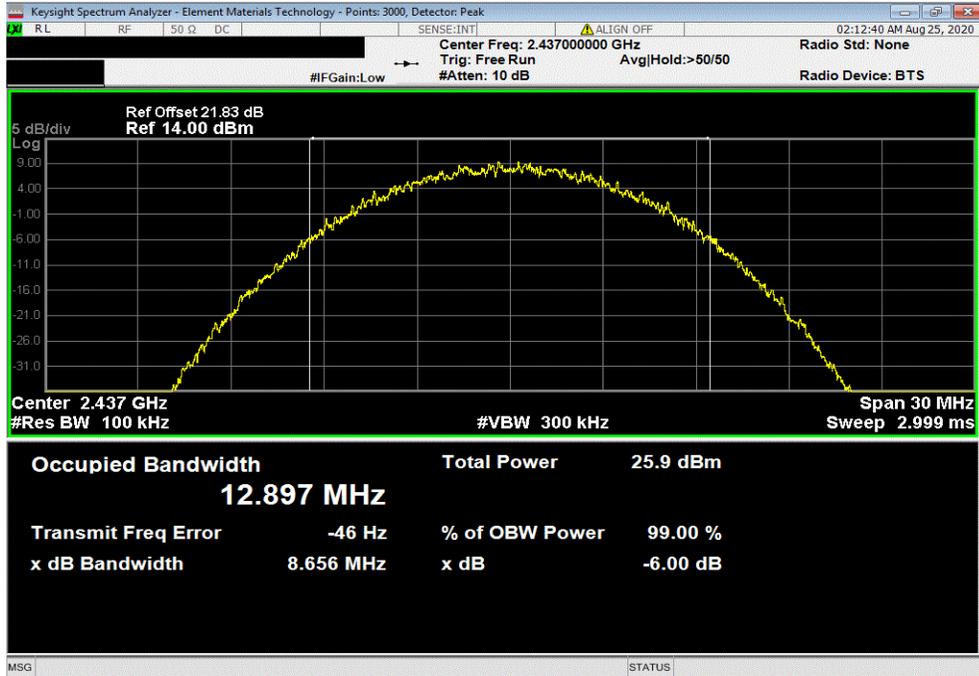


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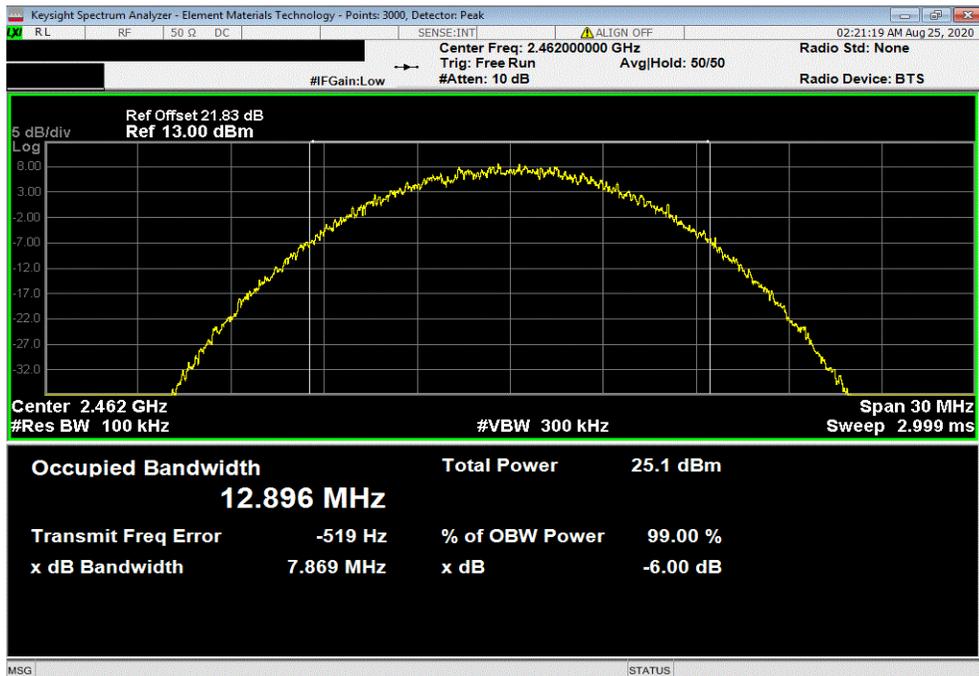


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				8.656 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				7.869 MHz	500 kHz	Pass

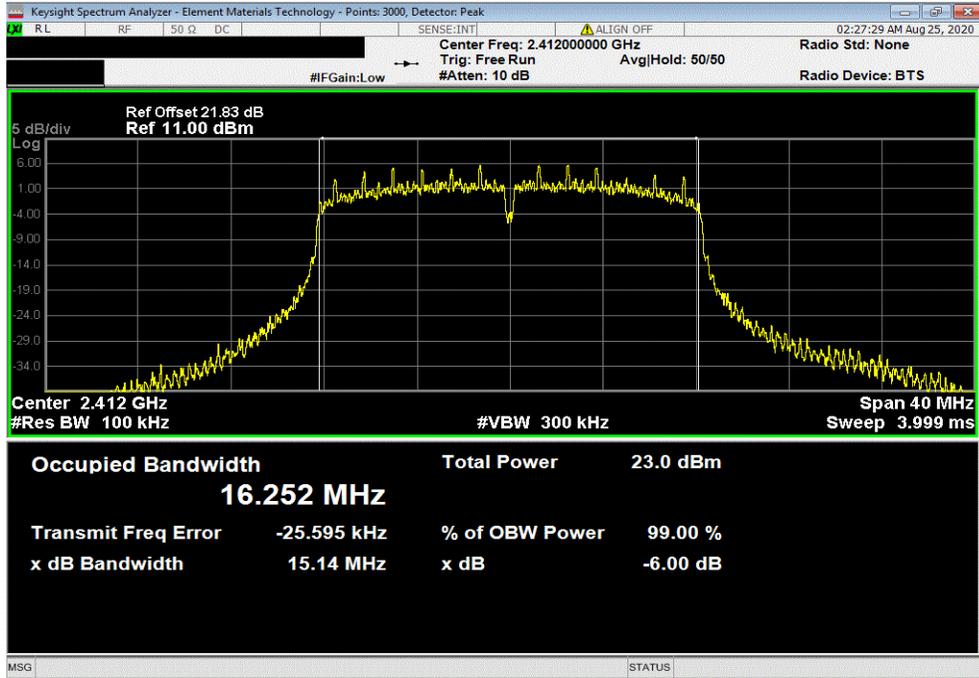


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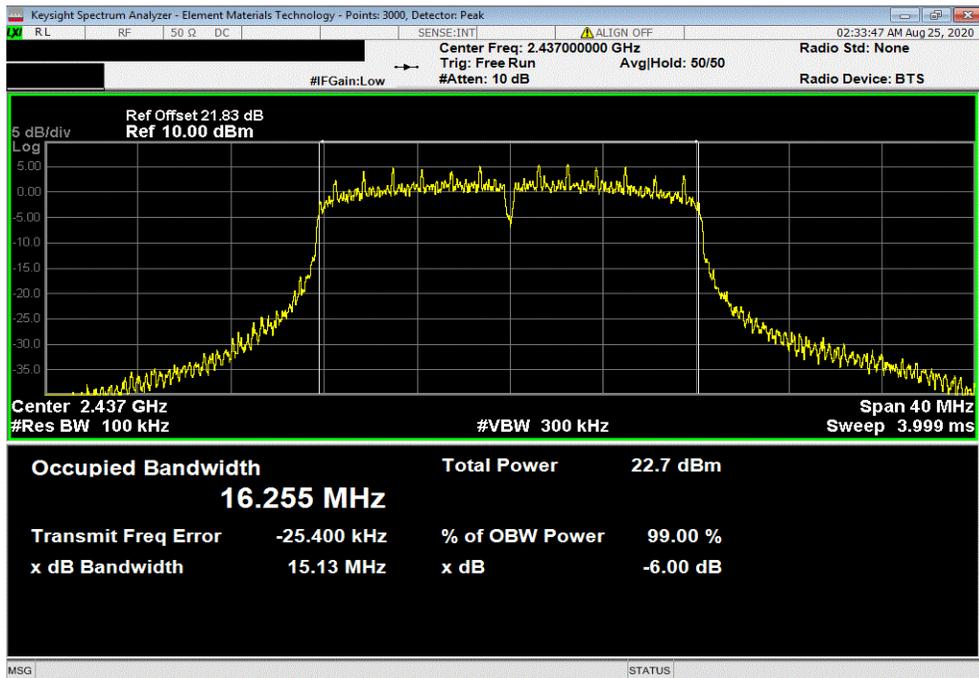


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				15.139 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				15.134 MHz	500 kHz	Pass

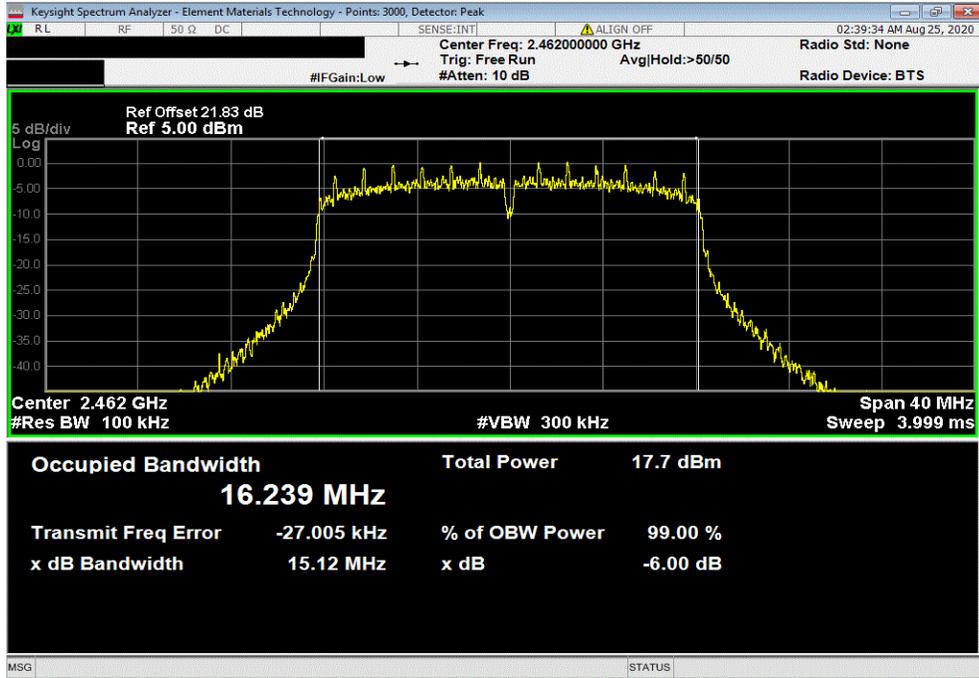


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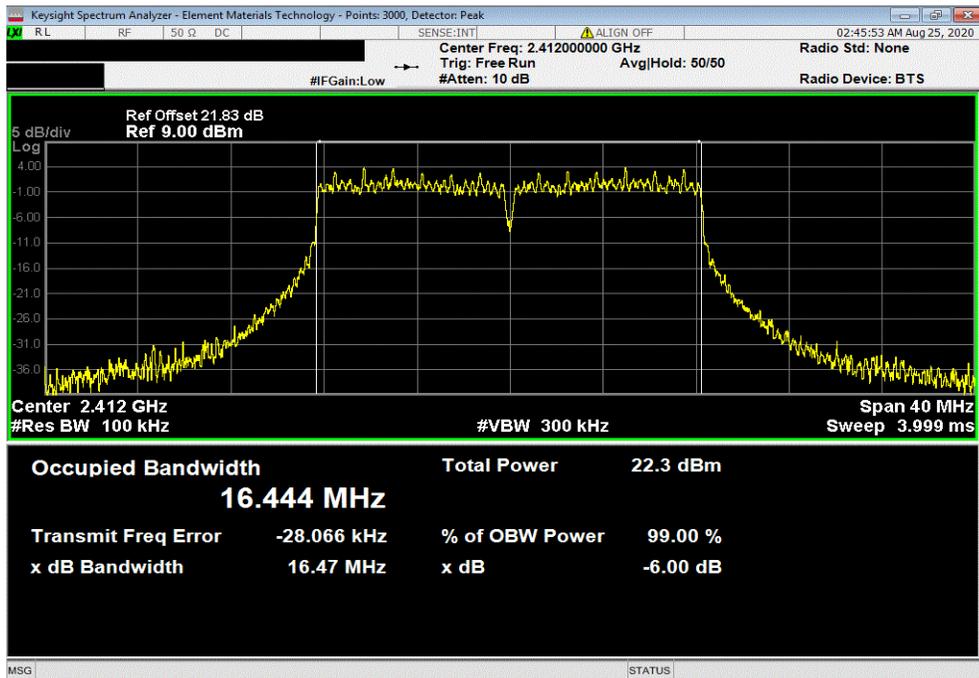


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
			Value	Limit	Result	
				(>)		
			15.124 MHz	500 kHz	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
			Value	Limit	Result	
				(>)		
			16.467 MHz	500 kHz	Pass	

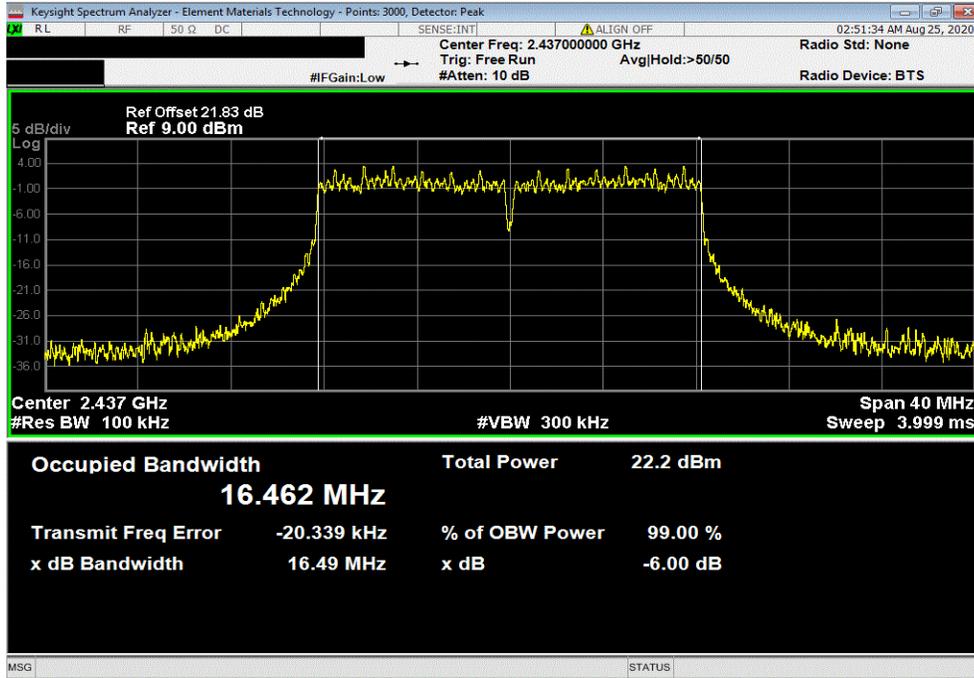


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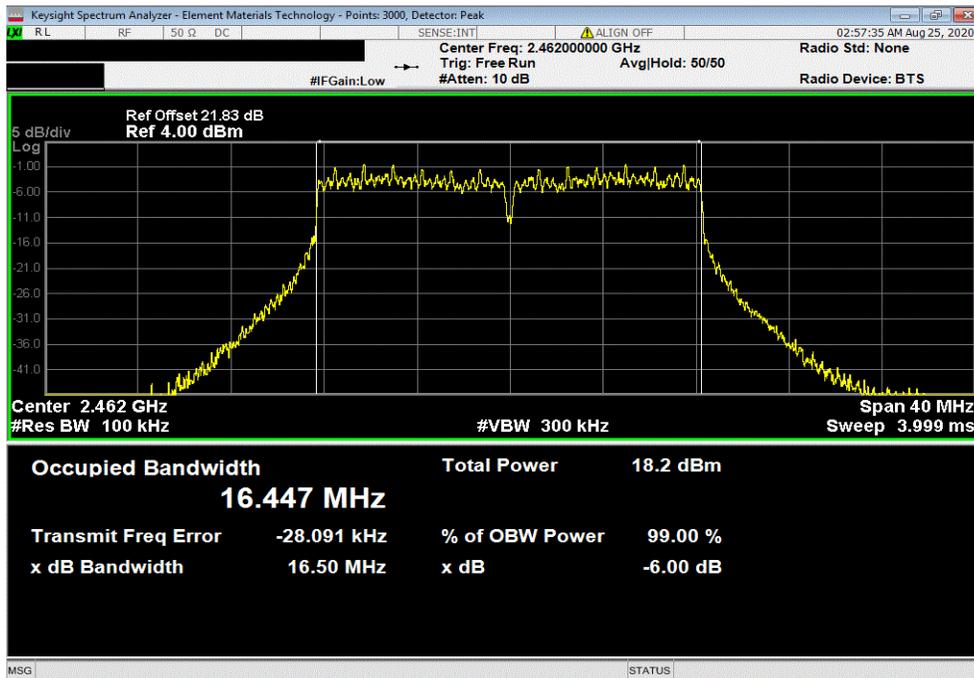


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				16.493 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit	Result
				16.497 MHz	500 kHz	Pass

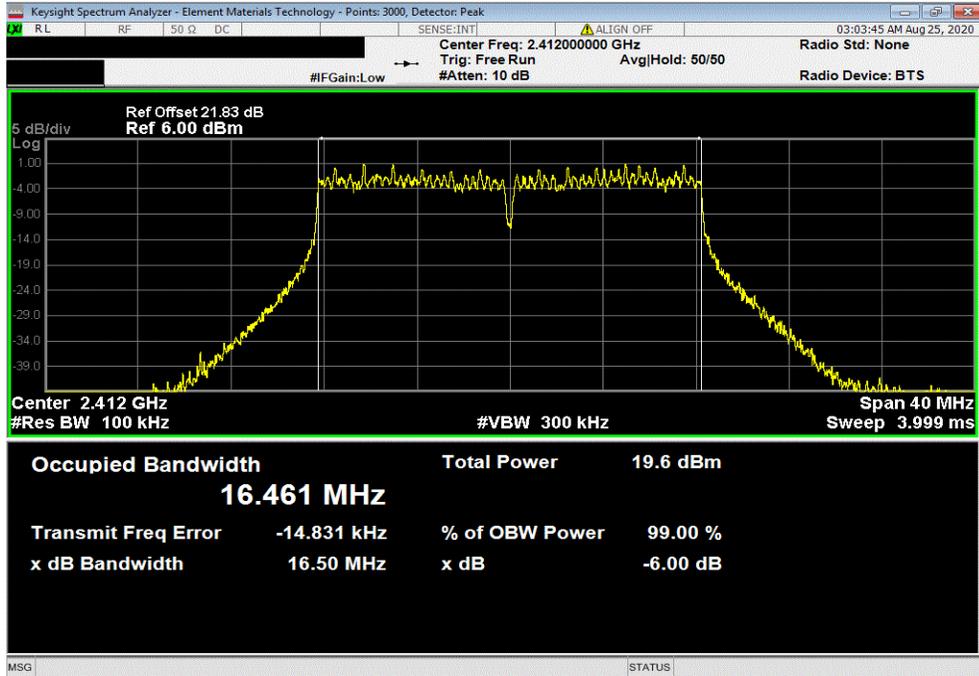


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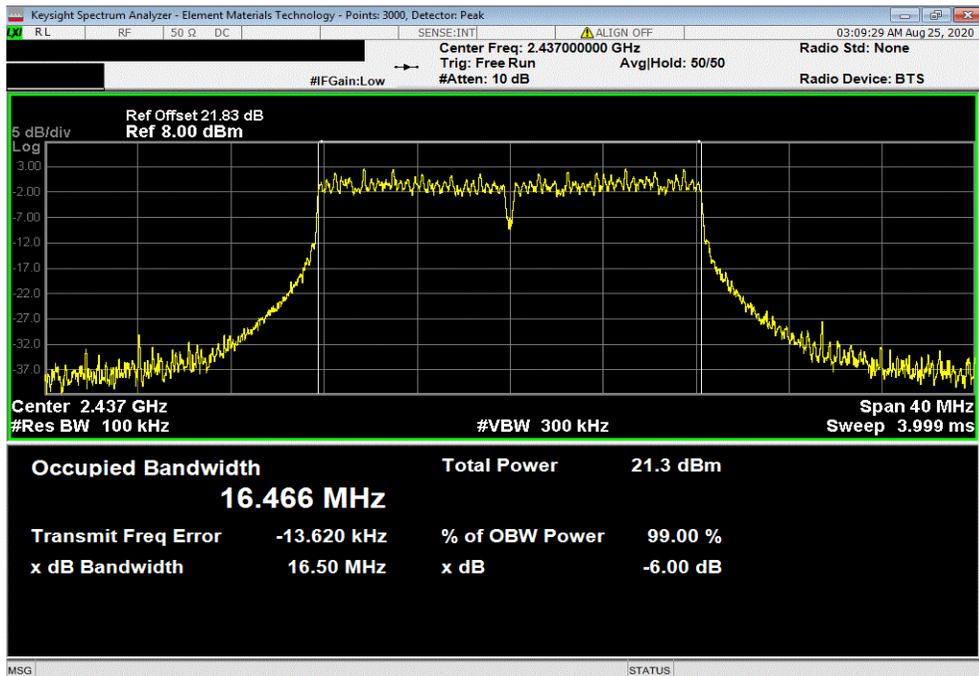


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				16.5 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				16.501 MHz	500 kHz	Pass

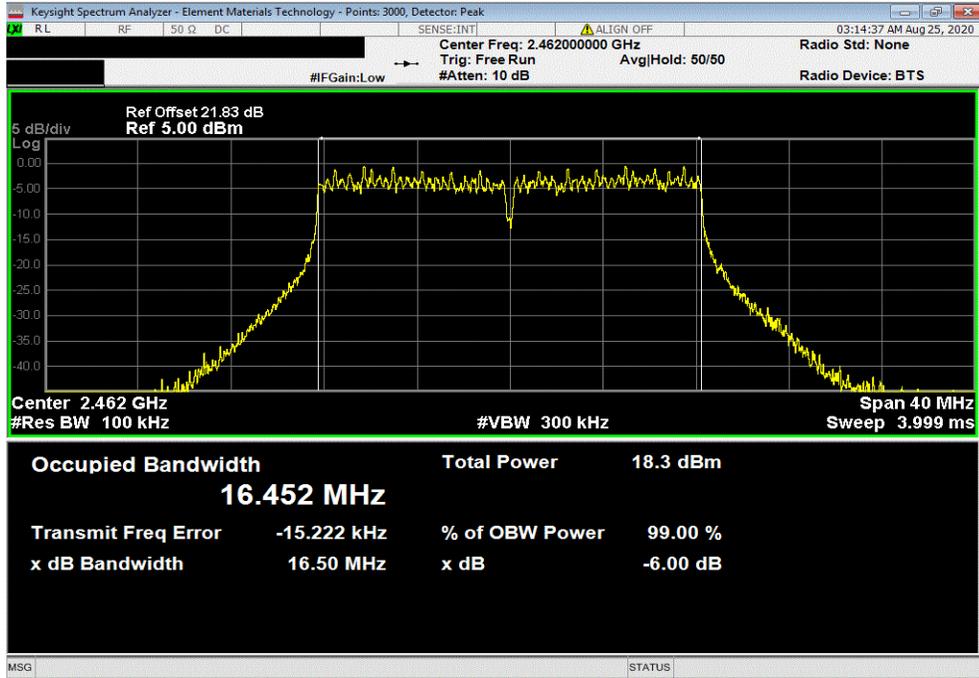


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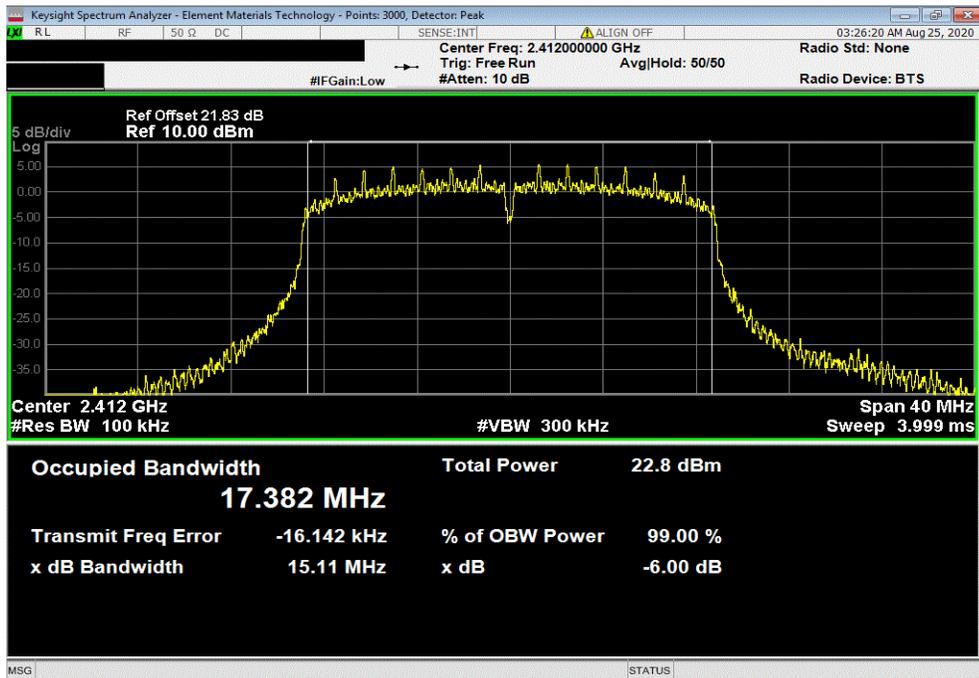


TbTx 2019.08.30.0 XMI 2020.03.25.0

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



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

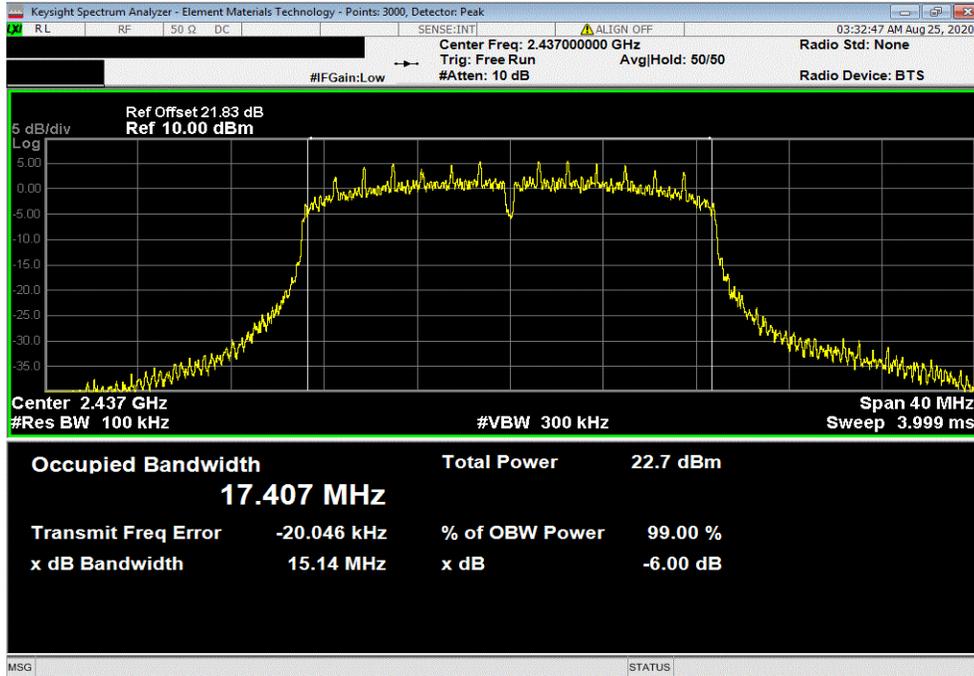


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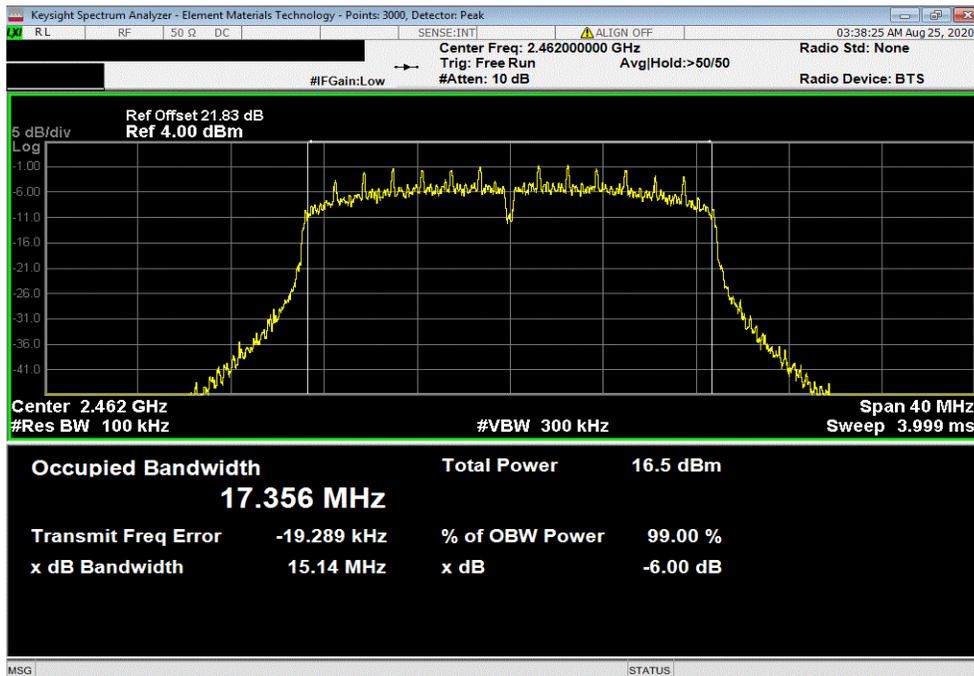


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				15.143 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit	Result
				15.142 MHz	500 kHz	Pass

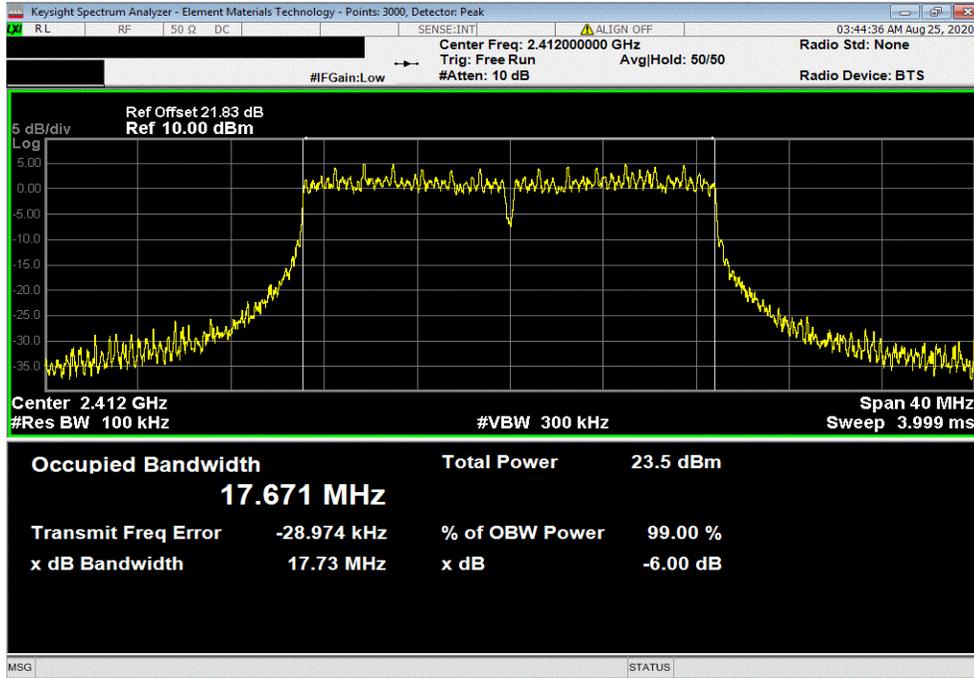


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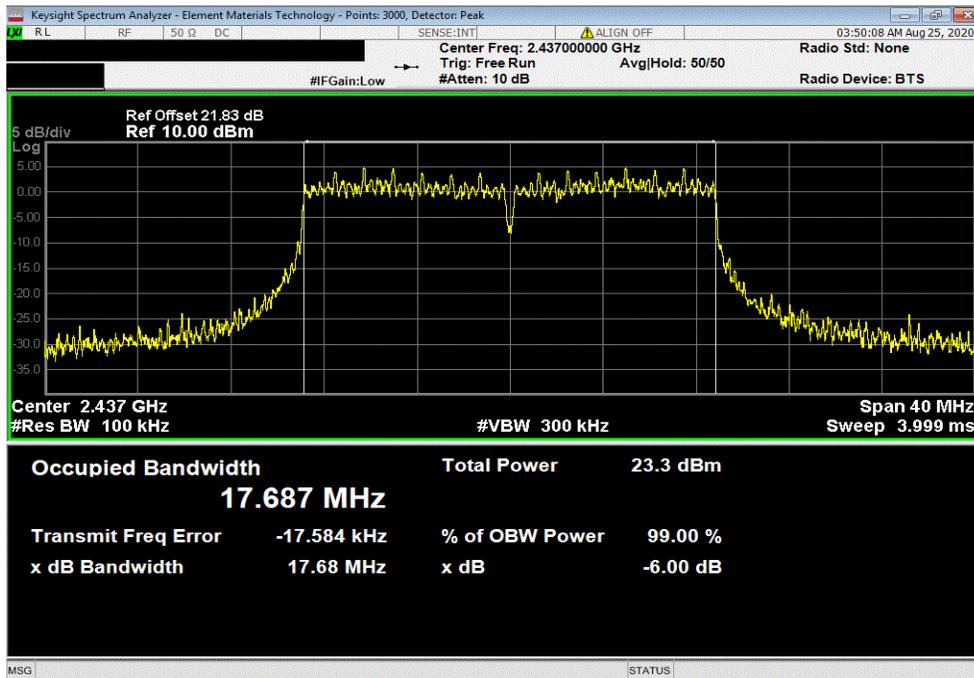


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit	Result
				17.728 MHz	500 kHz	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit	Result
				17.679 MHz	500 kHz	Pass

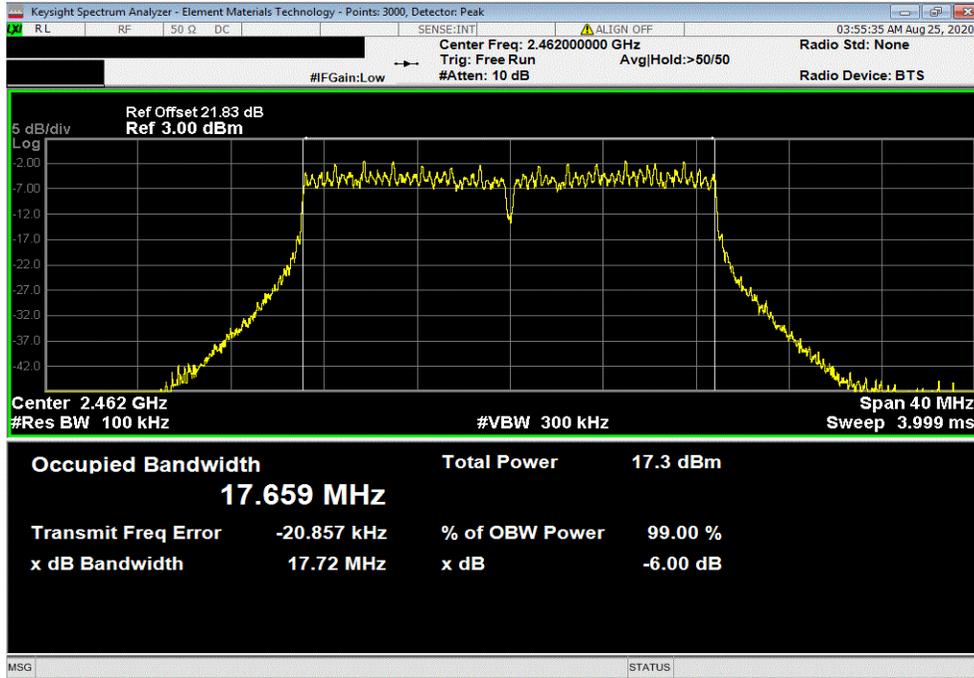


OCCUPIED BANDWIDTH



TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz		
Value	Limit	Result
17.723 MHz	(>) 500 kHz	Pass





OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFX	28-Apr-20	28-Apr-23
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20
Attenuator	S.M. Electronics	SA26B-20	RFW	10-Feb-20	10-Feb-21
Block - DC	Fairview Microwave	SD3379	AMI	5-Aug-20	5-Aug-21
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	21-Dec-19	21-Dec-20

TEST DESCRIPTION

The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output 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 method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

OUTPUT POWER



TelTx 2019.08.30.0 XMI 2020.03.25.0

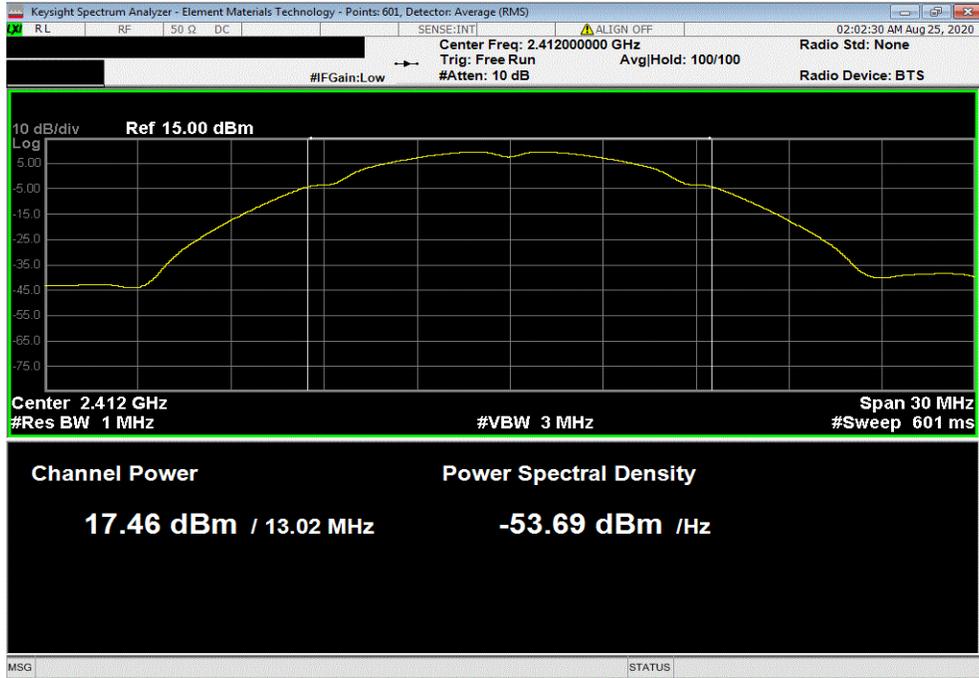
EUT: USB to WiFi Adapter		Work Order: TRNE0022				
Serial Number: 0022A301FF5D		Date: 24-Aug-20				
Customer: Trane		Temperature: 21.9 °C				
Attendees: Chris Vanderkoy		Humidity: 57.4% RH				
Project: None		Barometric Pres.: 1017 mbar				
Tested by: Dustin Sparks		Power: 5VDC via USB				
Job Site: MN08						
TEST SPECIFICATIONS						
FCC 15.247:2020		ANSI C63.10:2013				
TEST METHOD						
COMMENTS						
Measurement cable, DC block, and 20 dB attenuator included in reference level offset.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	3	Signature <i>Dustin Sparks</i>				
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
2400 MHz - 2483.5 MHz Band						
802.11(b) 1 Mbps						
	Low Channel 1, 2412 MHz	17.459	0	17.5	30	Pass
	Mid Channel 6, 2437 MHz	17.259	0	17.3	30	Pass
	High Channel 11, 2462 MHz	16.582	0	16.6	30	Pass
802.11(b) 11 Mbps						
	Low Channel 1, 2412 MHz	17.229	0.3	17.5	30	Pass
	Mid Channel 6, 2437 MHz	17.044	0.3	17.4	30	Pass
	High Channel 11, 2462 MHz	16.367	0.3	16.7	30	Pass
802.11(g) 6 Mbps						
	Low Channel 1, 2412 MHz	15.903	0.2	16.1	30	Pass
	Mid Channel 6, 2437 MHz	15.687	0.2	15.9	30	Pass
	High Channel 11, 2462 MHz	10.681	0.2	10.9	30	Pass
802.11(g) 36 Mbps						
	Low Channel 1, 2412 MHz	13.786	1.2	15	30	Pass
	Mid Channel 6, 2437 MHz	13.627	1	14.7	30	Pass
	High Channel 11, 2462 MHz	9.731	1	10.7	30	Pass
802.11(g) 54 Mbps						
	Low Channel 1, 2412 MHz	10.525	1.4	11.9	30	Pass
	Mid Channel 6, 2437 MHz	12.265	1.4	13.7	30	Pass
	High Channel 11, 2462 MHz	9.344	1.4	10.7	30	Pass
802.11(n) MCS0						
	Low Channel 1, 2412 MHz	15.64	0.2	15.9	30	Pass
	Mid Channel 6, 2437 MHz	15.478	0.2	15.7	30	Pass
	High Channel 11, 2462 MHz	9.336	0.2	9.5	30	Pass
802.11(n) MCS7						
	Low Channel 1, 2412 MHz	12.475	1.5	14	30	Pass
	Mid Channel 6, 2437 MHz	12.128	1.5	13.7	30	Pass
	High Channel 11, 2462 MHz	8.246	1.5	9.7	30	Pass

OUTPUT POWER

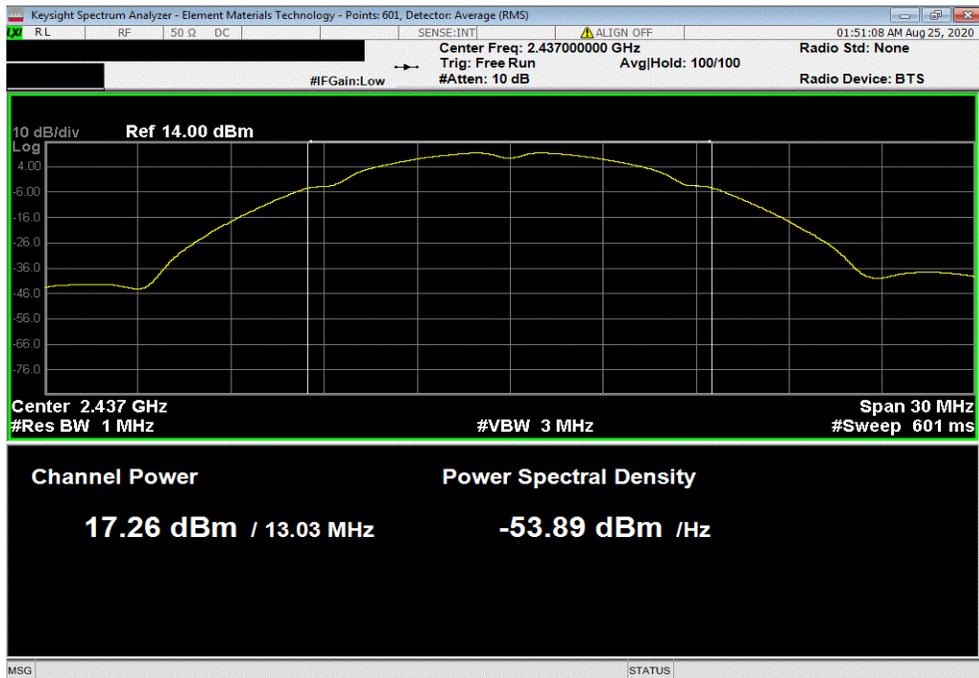


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
17.459	0	17.5	30	Pass		



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
17.259	0	17.3	30	Pass		

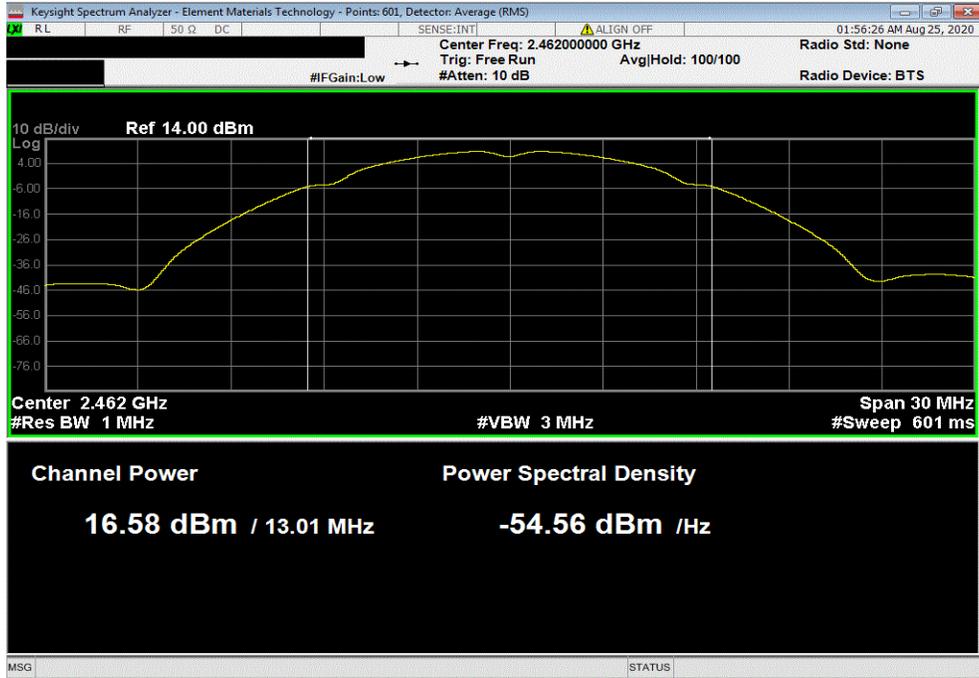


OUTPUT POWER

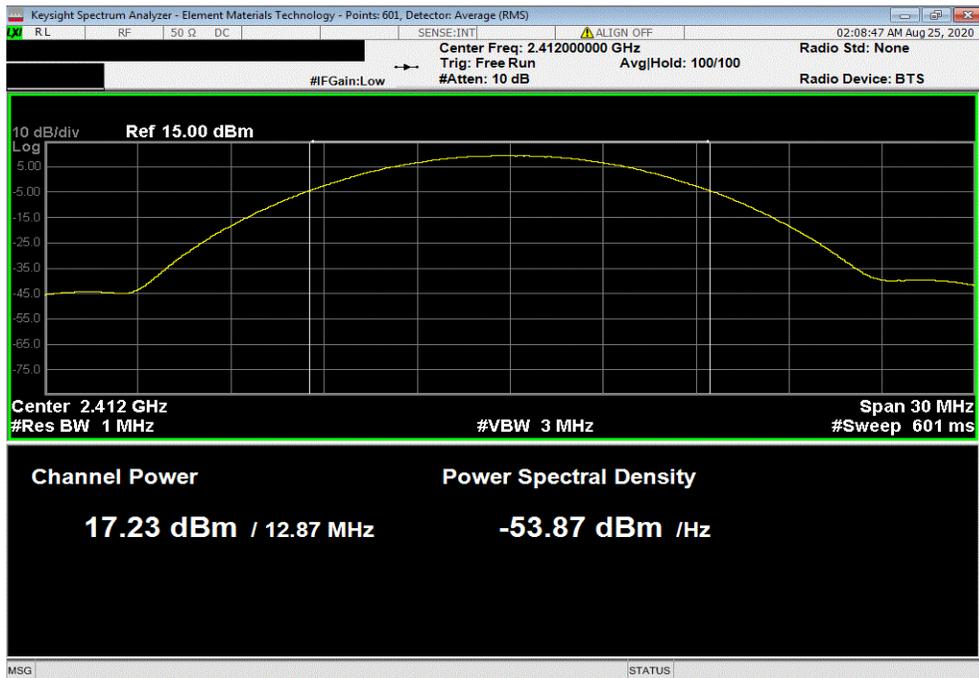


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	16.582	0	16.6	30	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	17.229	0.3	17.5	30	Pass	

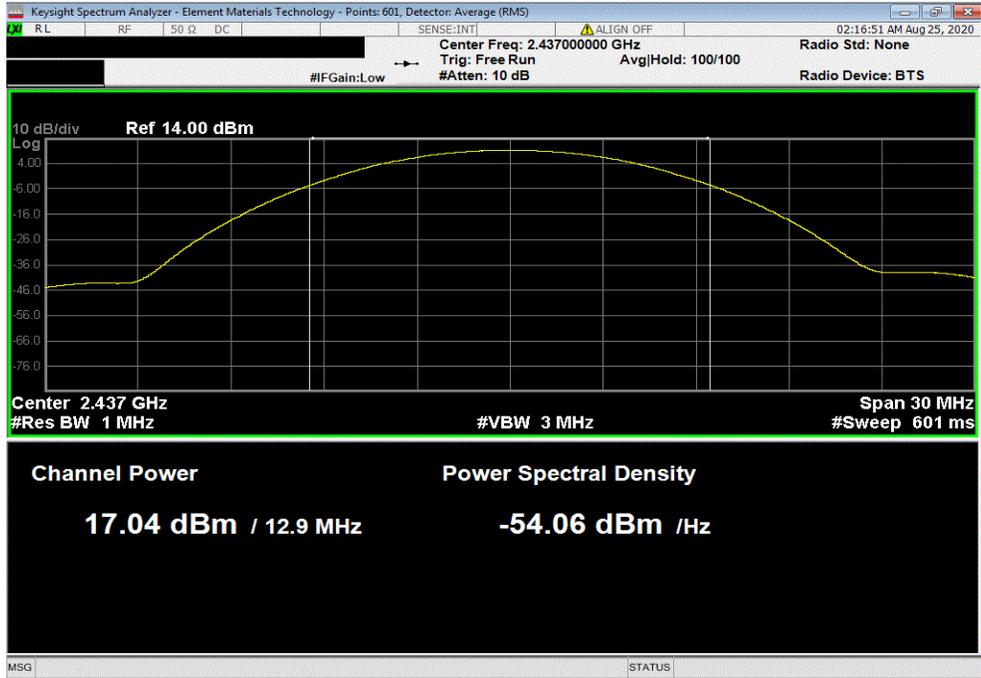


OUTPUT POWER

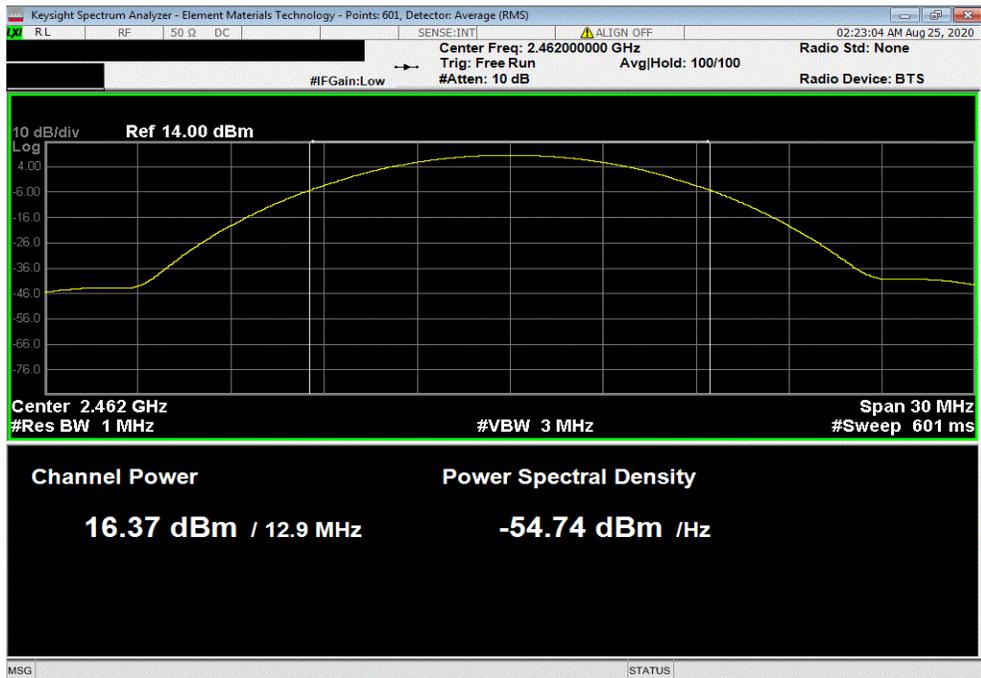


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	17.044	0.3	17.4	30	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	16.367	0.3	16.7	30	Pass	

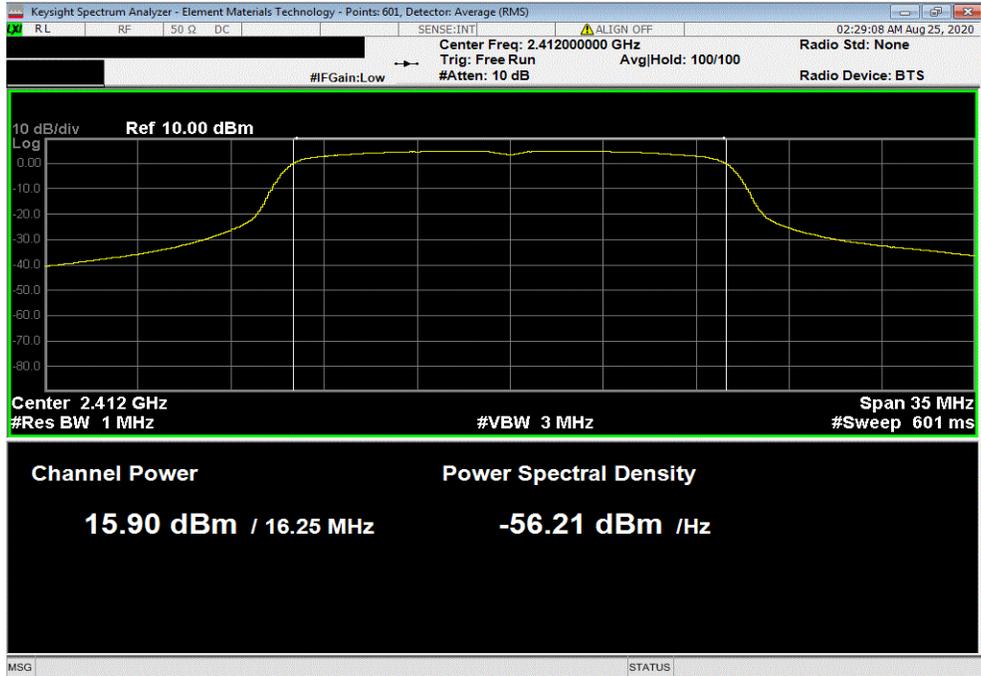


OUTPUT POWER

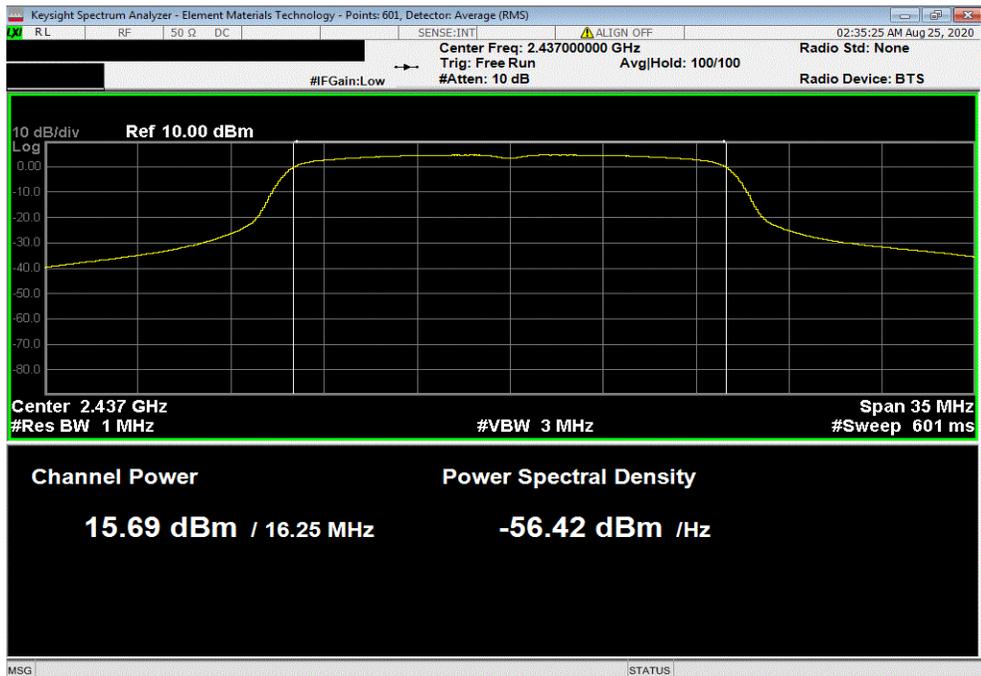


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
15.903	0.2	16.1	30	Pass		



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
15.687	0.2	15.9	30	Pass		

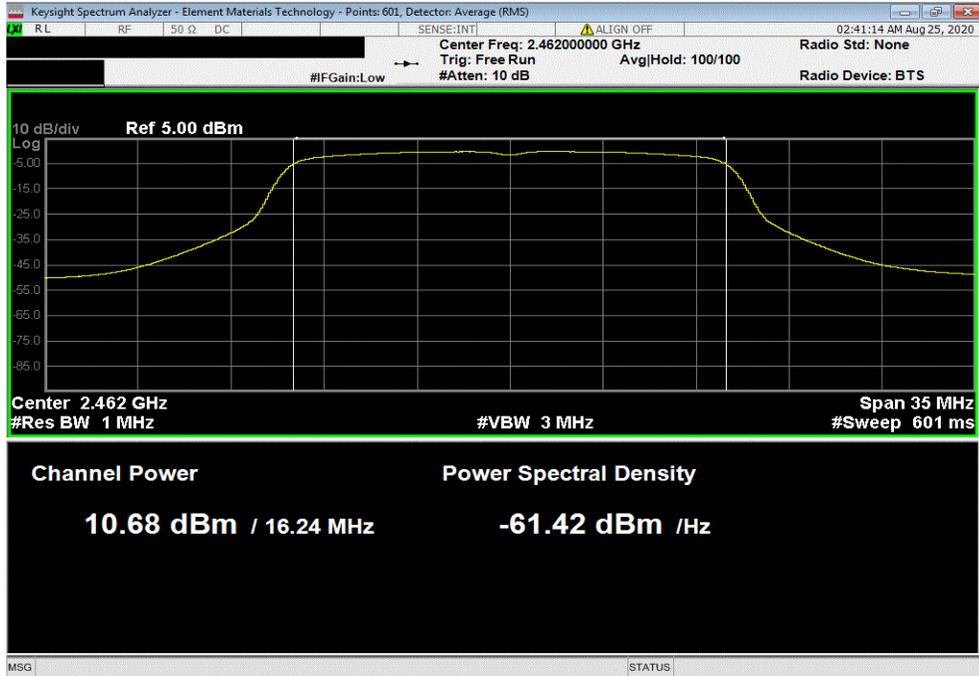


OUTPUT POWER

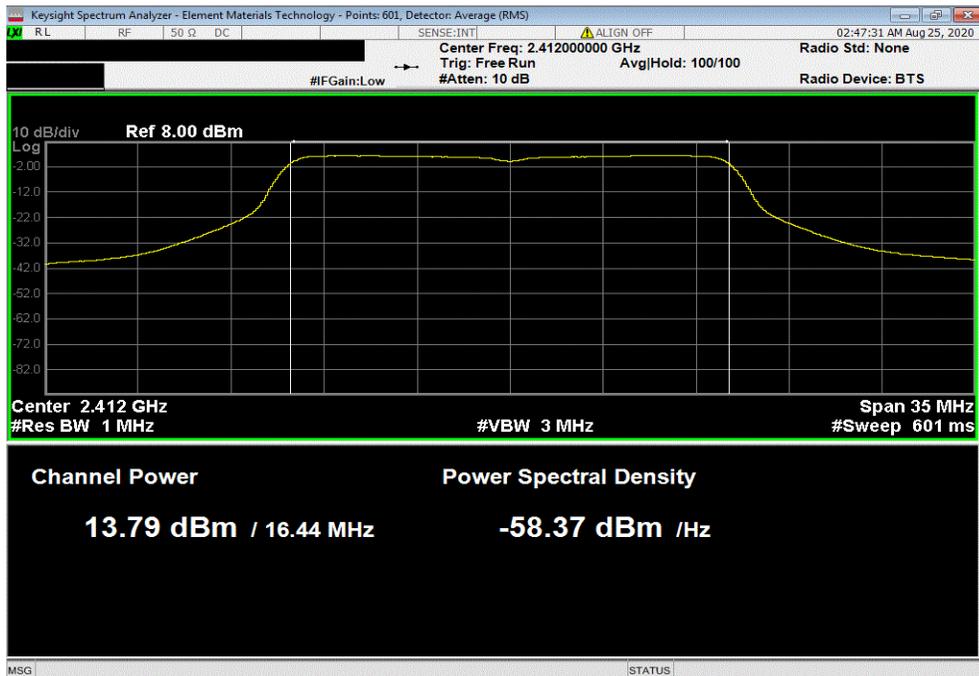


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	10.681	0.2	10.9	30	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	13.786	1.2	15	30	Pass	

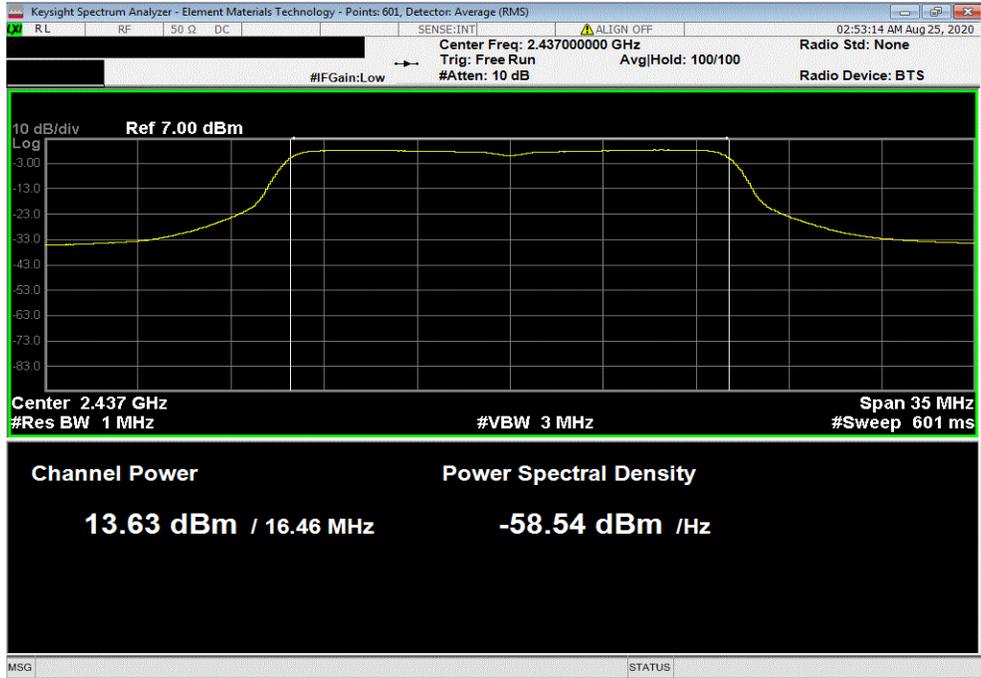


OUTPUT POWER

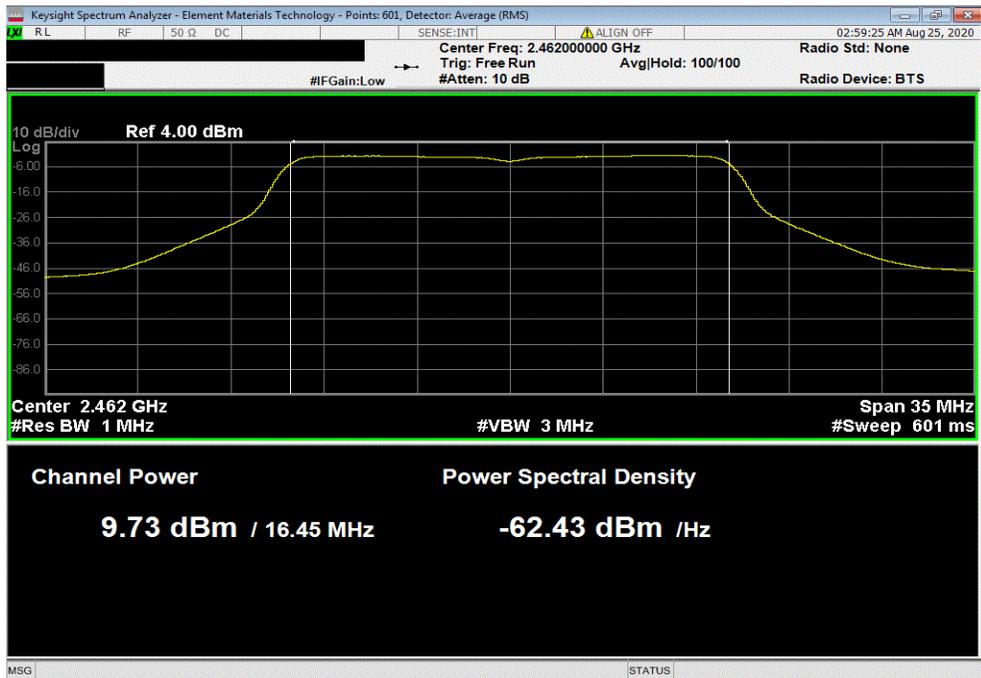


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	13.627	1	14.7	30	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	9.731	1	10.7	30	Pass	

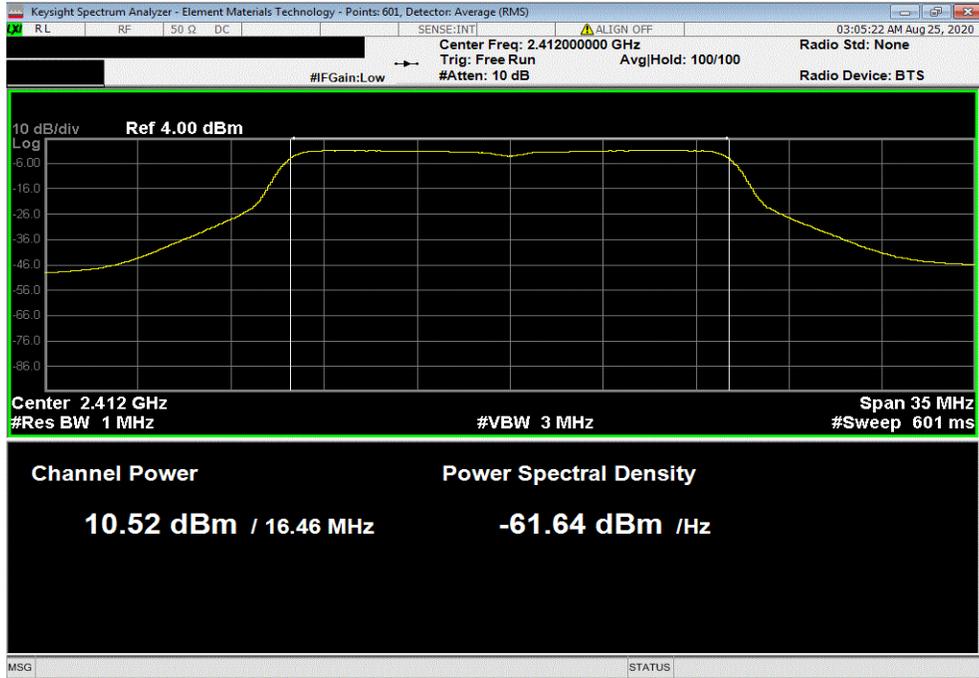


OUTPUT POWER

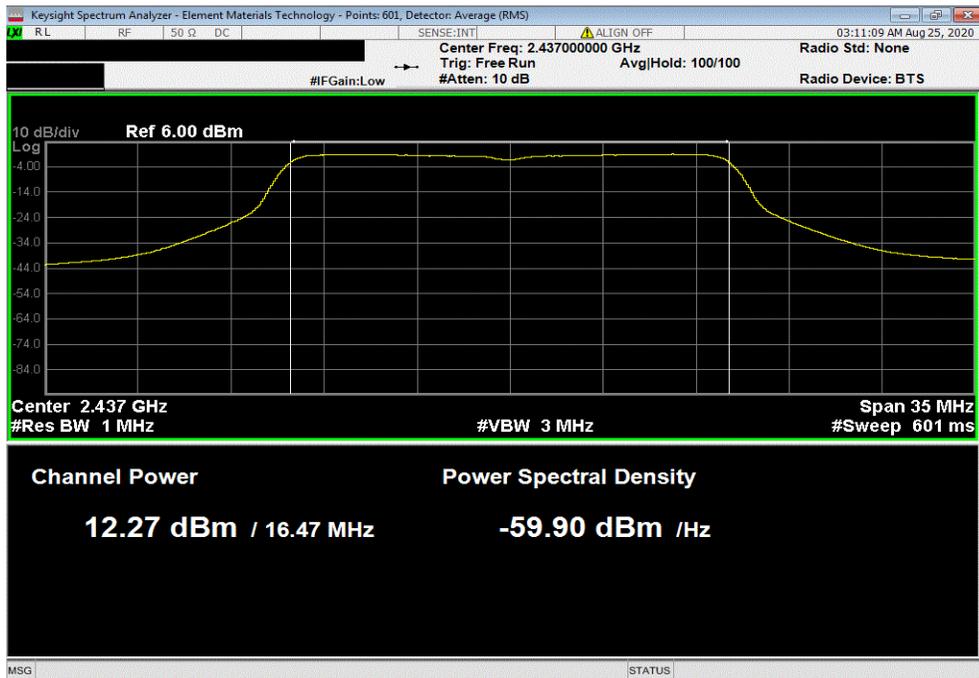


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
10.525	1.4	11.9	30	Pass		



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
12.265	1.4	13.7	30	Pass		

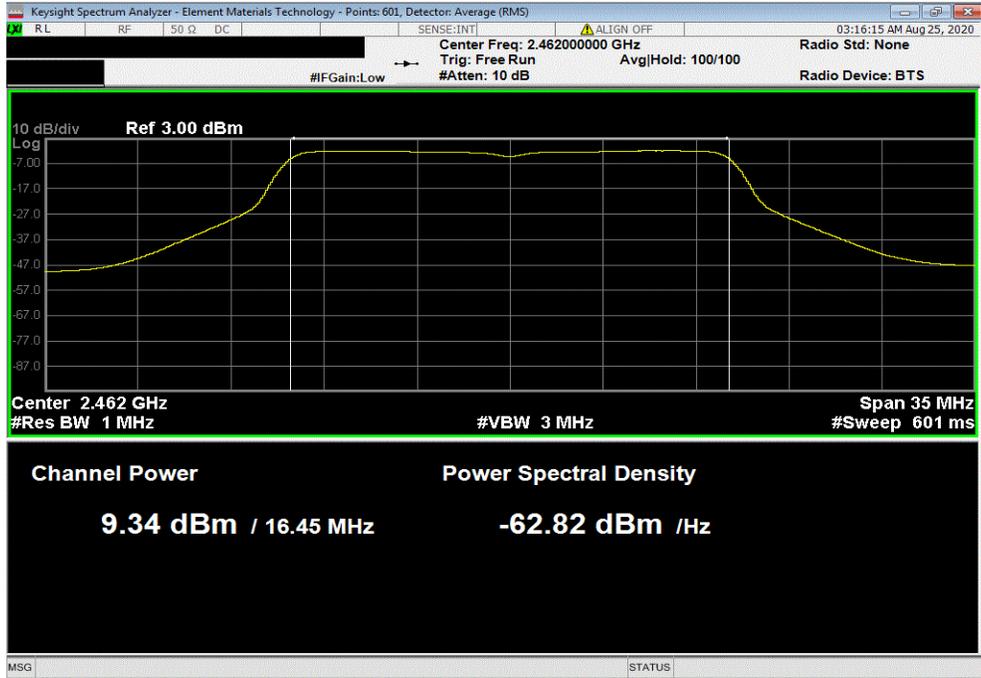


OUTPUT POWER

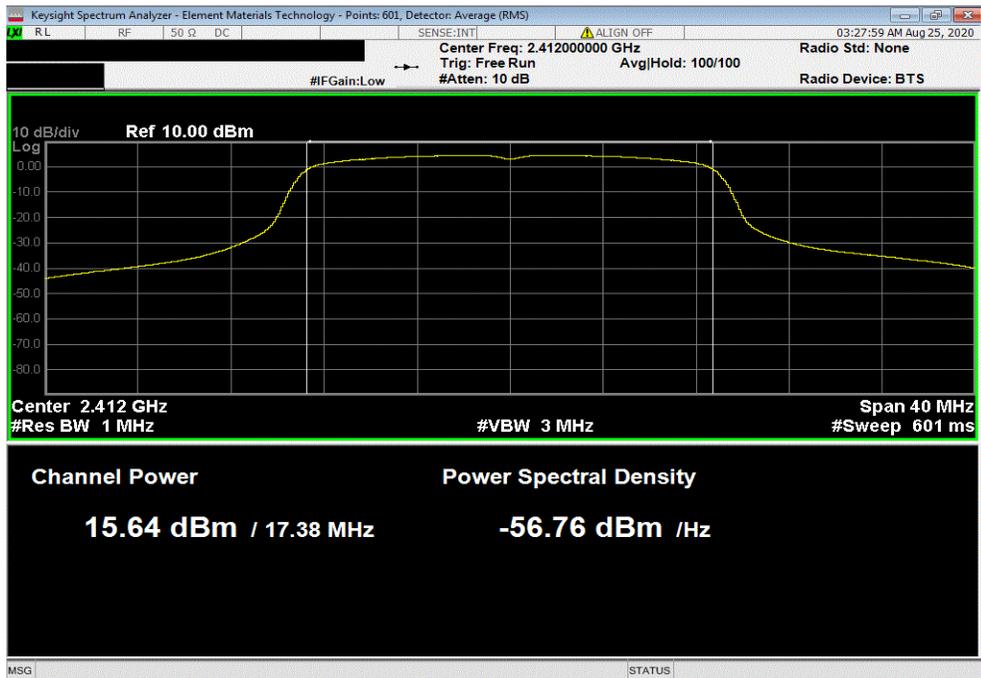


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
9.344	1.4	10.7	30	Pass		



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
15.64	0.2	15.9	30	Pass		

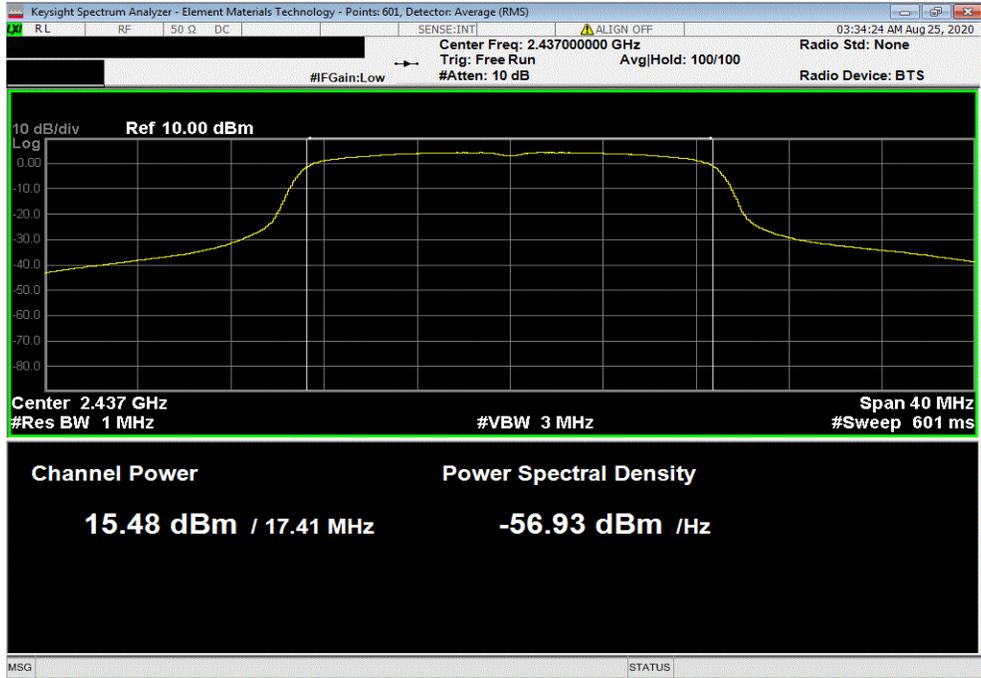


OUTPUT POWER

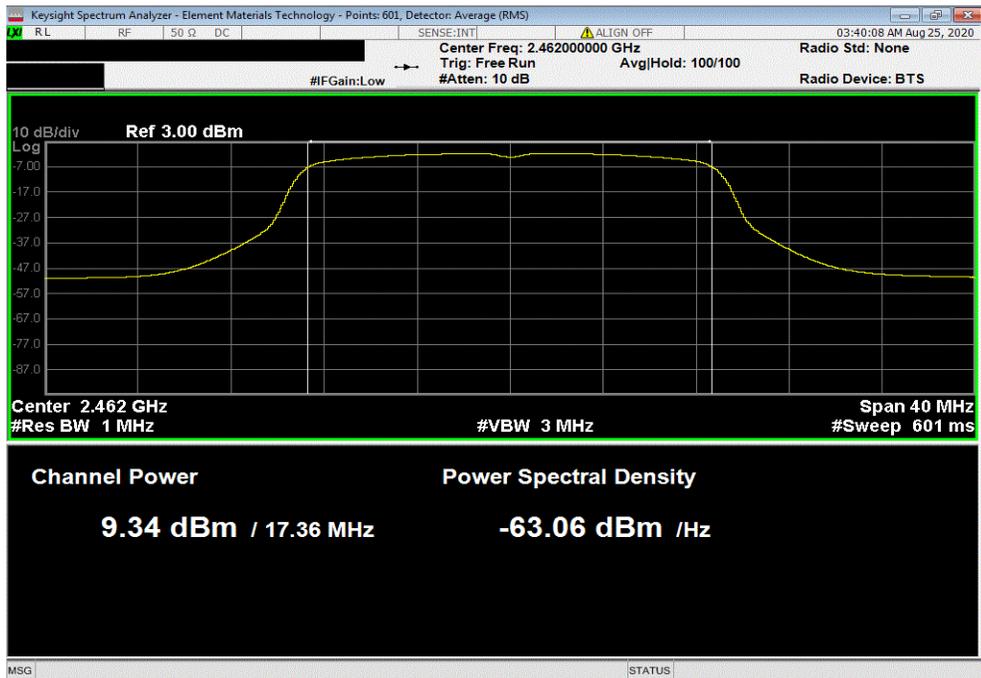


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	15.478	0.2	15.7	30	Pass	



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
	9.336	0.2	9.5	30	Pass	

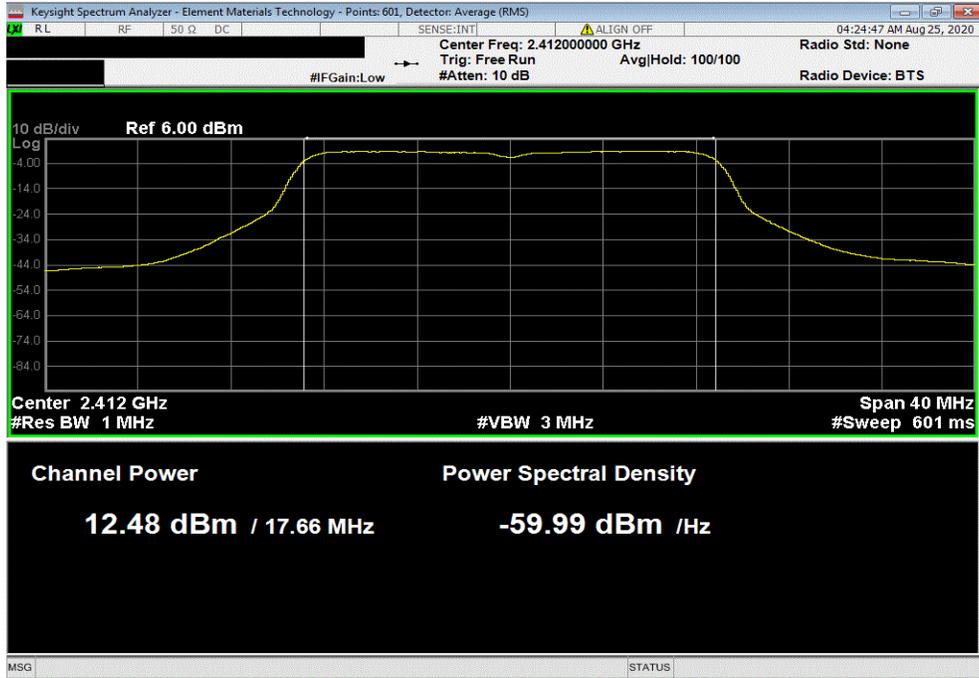


OUTPUT POWER

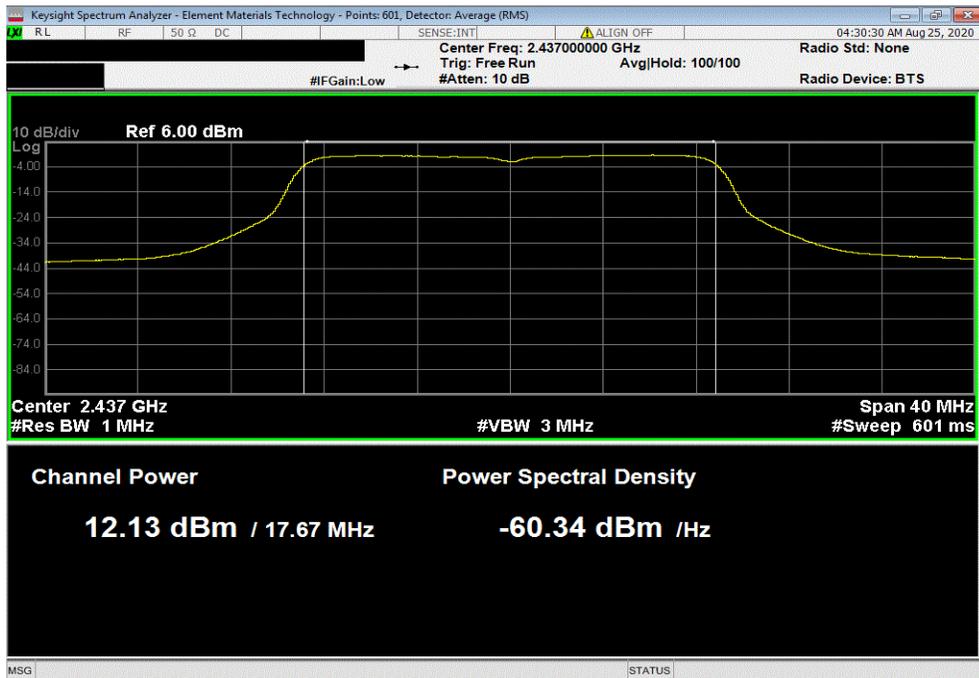


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
12.475	1.5	14	30	Pass		



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result		
12.128	1.5	13.7	30	Pass		

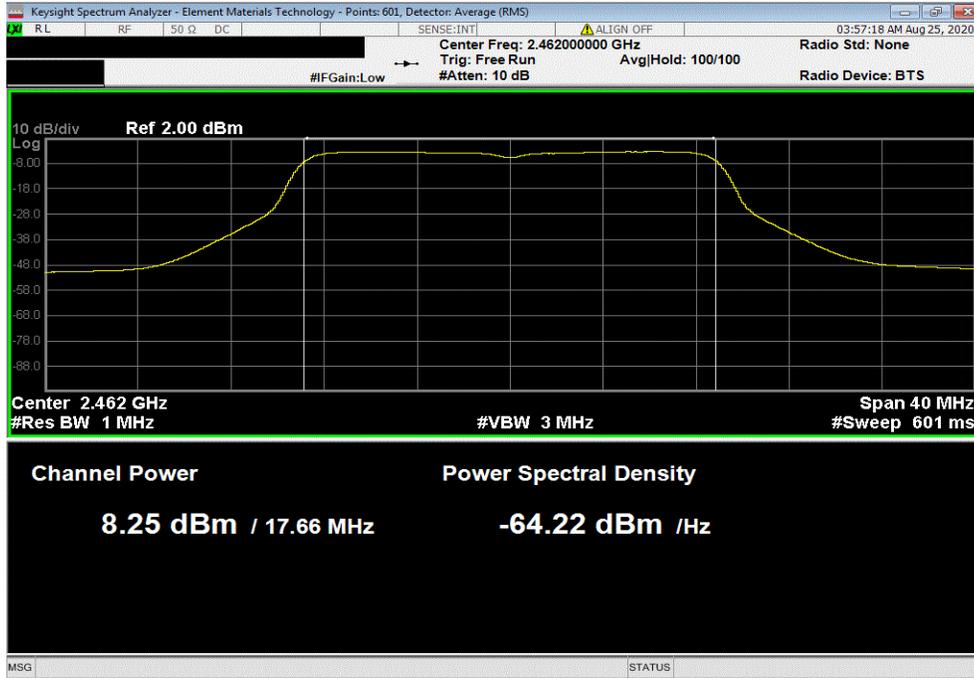


OUTPUT POWER



TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result	
8.246	1.5	9.7	30	Pass	



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



element

XMit 2020.03.25.0

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
Generator - Signal	Keysight	N5182B	TFX	28-Apr-20	28-Apr-23
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20
Attenuator	S.M. Electronics	SA26B-20	RFW	10-Feb-20	10-Feb-21
Block - DC	Fairview Microwave	SD3379	AMI	5-Aug-20	5-Aug-21
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	21-Dec-19	21-Dec-20

TEST DESCRIPTION

The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output 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 method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TotTx 2019.08.30.0 XMI 2020.03.25.0

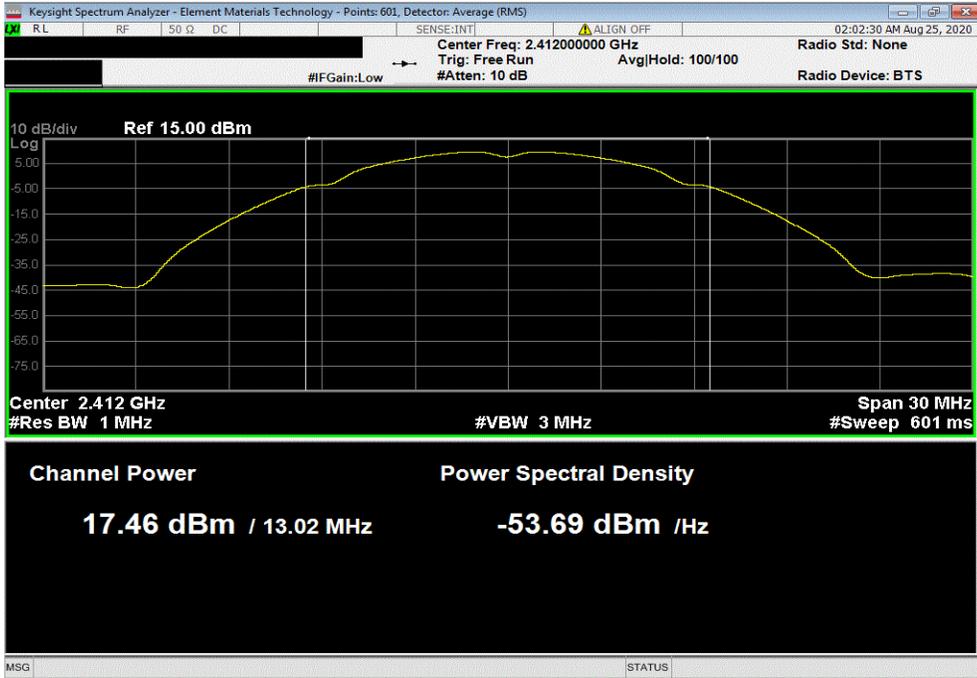
EUT: USB to WiFi Adapter		Work Order: TRNE0022						
Serial Number: 0022A301FF5D		Date: 24-Aug-20						
Customer: Trane		Temperature: 21.9 °C						
Attendees: Chris Vanderkoy		Humidity: 57.3% RH						
Project: None		Barometric Pres.: 1017 mbar						
Tested by: Dustin Sparks		Power: 5VDC via USB						
Job Site: MN08		Test Method						
TEST SPECIFICATIONS		ANSI C63.10:2013						
FCC 15.247:2020								
COMMENTS								
Measurement cable, DC block, and 20 dB attenuator included in reference level offset.								
DEVIATIONS FROM TEST STANDARD								
None								
Configuration #	3	Signature <i>Dustin Sparks</i>						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
2400 MHz - 2483.5 MHz Band								
802.11(b) 1 Mbps								
	Low Channel 1, 2412 MHz	17.459	0	17.5	3	20.5	36	Pass
	Mid Channel 6, 2437 MHz	17.259	0	17.3	3	20.3	36	Pass
	High Channel 11, 2462 MHz	16.582	0	16.6	3	19.6	36	Pass
802.11(b) 11 Mbps								
	Low Channel 1, 2412 MHz	17.229	0.3	17.5	3	20.5	36	Pass
	Mid Channel 6, 2437 MHz	17.044	0.3	17.4	3	20.4	36	Pass
	High Channel 11, 2462 MHz	16.367	0.3	16.7	3	19.7	36	Pass
802.11(g) 6 Mbps								
	Low Channel 1, 2412 MHz	15.903	0.2	16.1	3	19.1	36	Pass
	Mid Channel 6, 2437 MHz	15.687	0.2	15.9	3	18.9	36	Pass
	High Channel 11, 2462 MHz	10.681	0.2	10.9	3	13.9	36	Pass
802.11(g) 36 Mbps								
	Low Channel 1, 2412 MHz	13.786	1.2	15	3	18	36	Pass
	Mid Channel 6, 2437 MHz	13.627	1	14.7	3	17.7	36	Pass
	High Channel 11, 2462 MHz	9.731	1	10.7	3	13.7	36	Pass
802.11(g) 54 Mbps								
	Low Channel 1, 2412 MHz	10.525	1.4	11.9	3	14.9	36	Pass
	Mid Channel 6, 2437 MHz	12.265	1.4	13.7	3	16.7	36	Pass
	High Channel 11, 2462 MHz	9.344	1.4	10.7	3	13.7	36	Pass
802.11(n) MCS0								
	Low Channel 1, 2412 MHz	15.64	0.2	15.9	3	18.9	36	Pass
	Mid Channel 6, 2437 MHz	15.478	0.2	15.7	3	18.7	36	Pass
	High Channel 11, 2462 MHz	9.336	0.2	9.5	3	12.5	36	Pass
802.11(n) MCS7								
	Low Channel 1, 2412 MHz	12.475	1.5	14	3	17	36	Pass
	Mid Channel 6, 2437 MHz	12.128	1.5	13.7	3	16.7	36	Pass
	High Channel 11, 2462 MHz	8.246	1.5	9.7	3	12.7	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

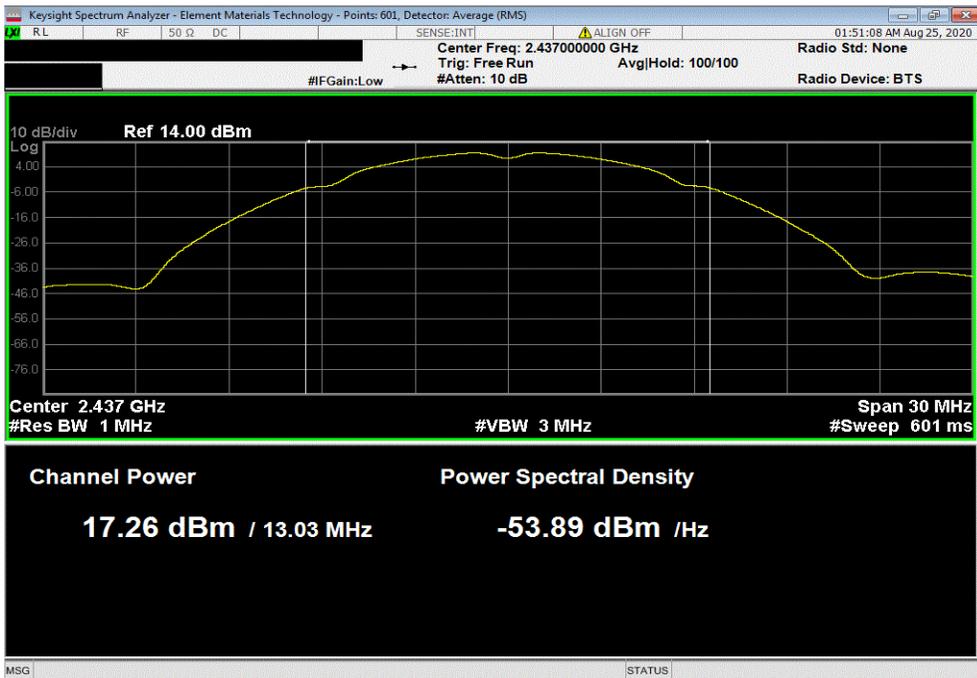


Tel: 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.459	0	17.5	3	20.5	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.259	0	17.3	3	20.3	36	Pass

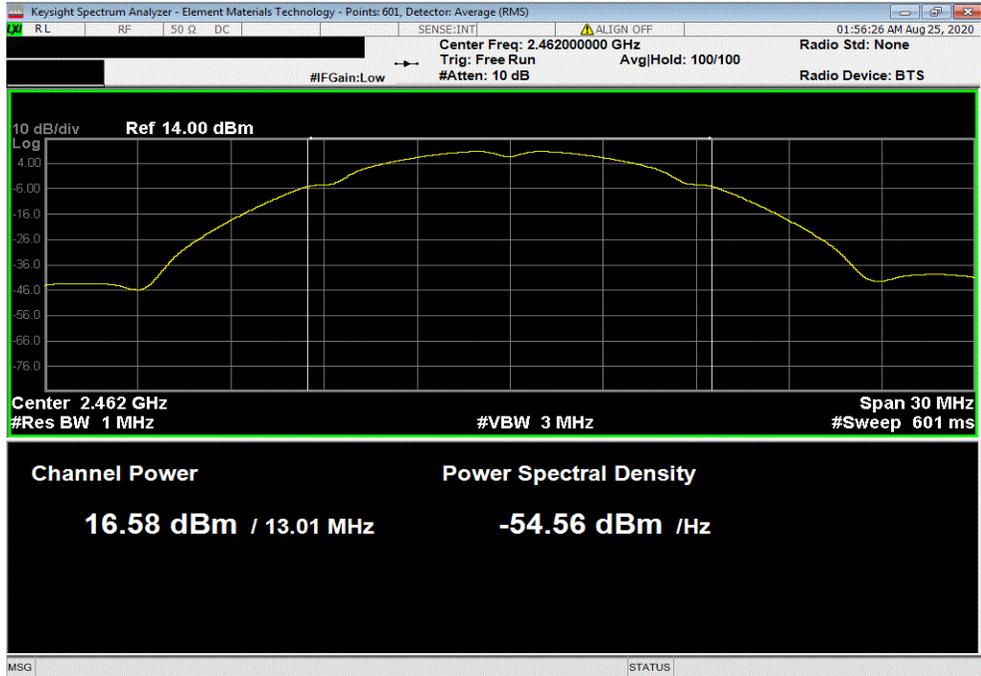


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

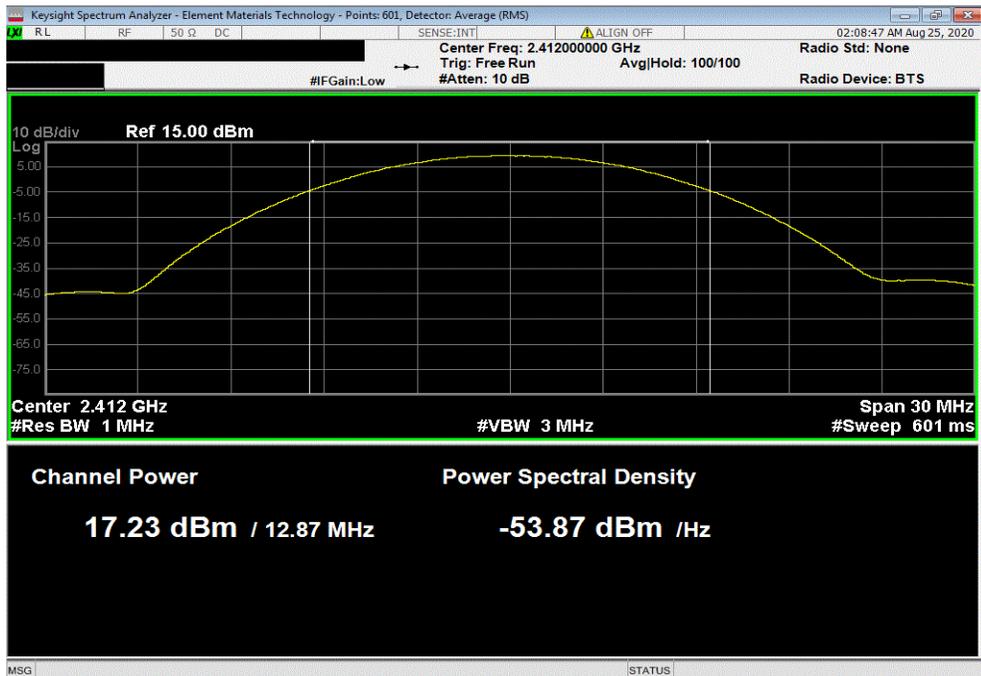


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.582	0	16.6	3	19.6	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.229	0.3	17.5	3	20.5	36	Pass

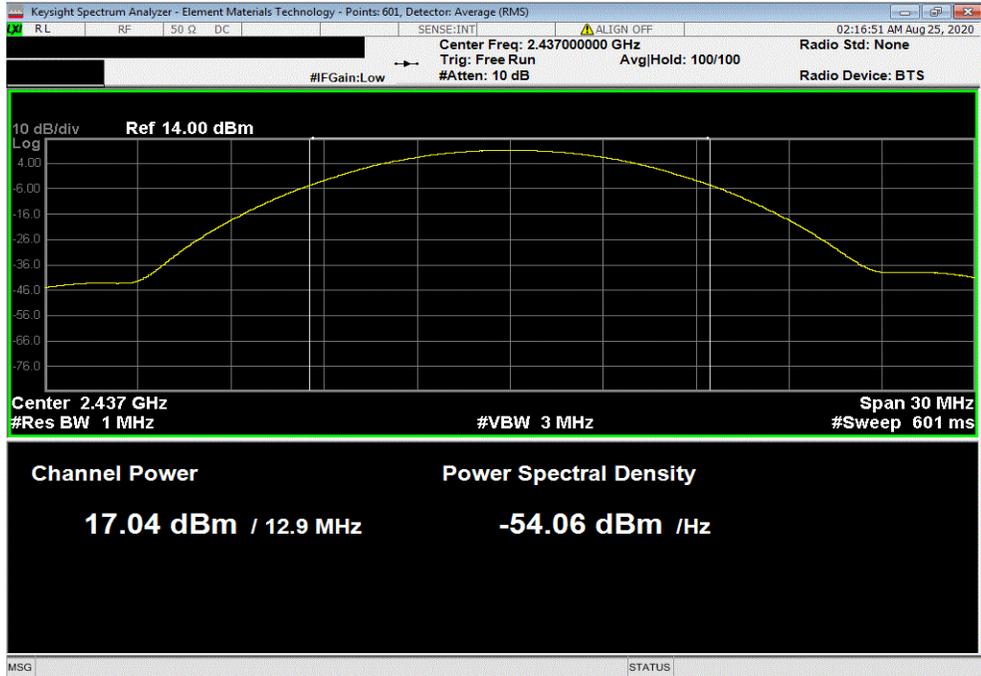


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

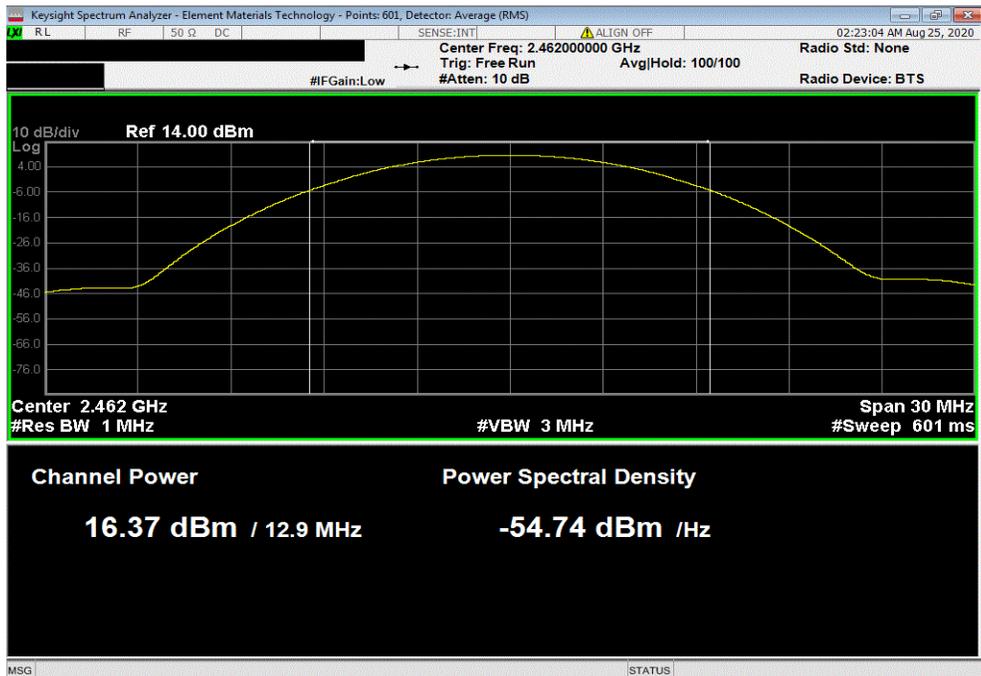


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.044	0.3	17.4	3	20.4	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.367	0.3	16.7	3	19.7	36	Pass

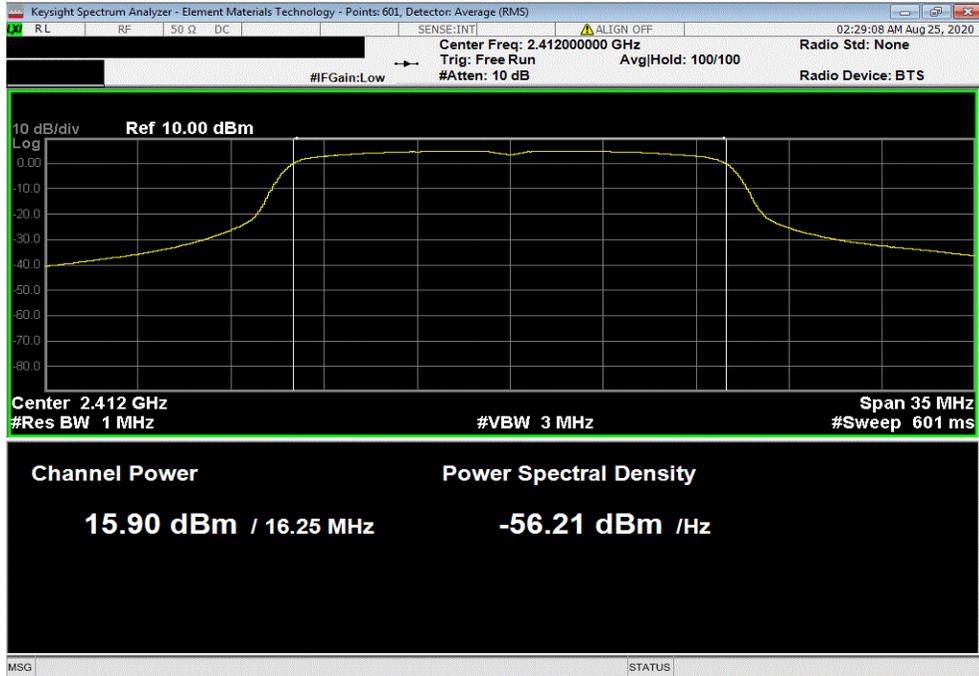


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

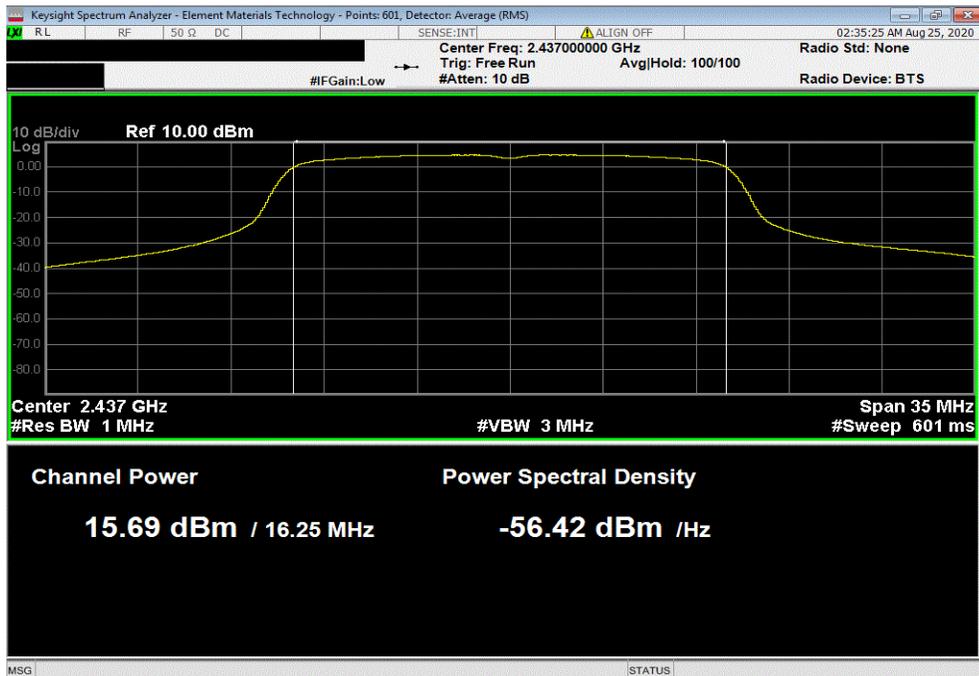


Tel: 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.903	0.2	16.1	3	19.1	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.687	0.2	15.9	3	18.9	36	Pass

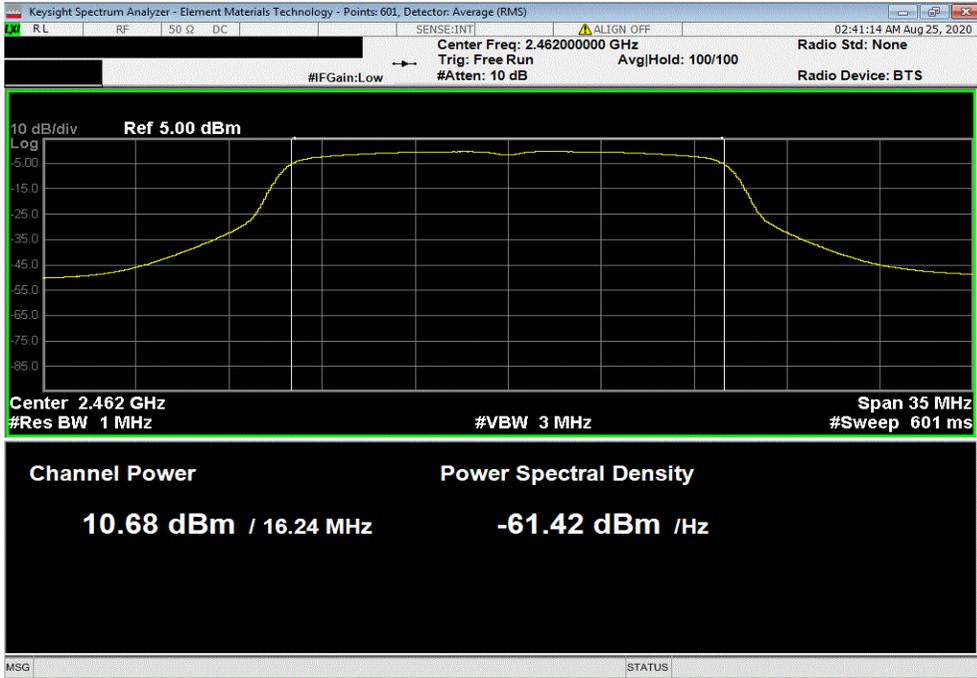


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

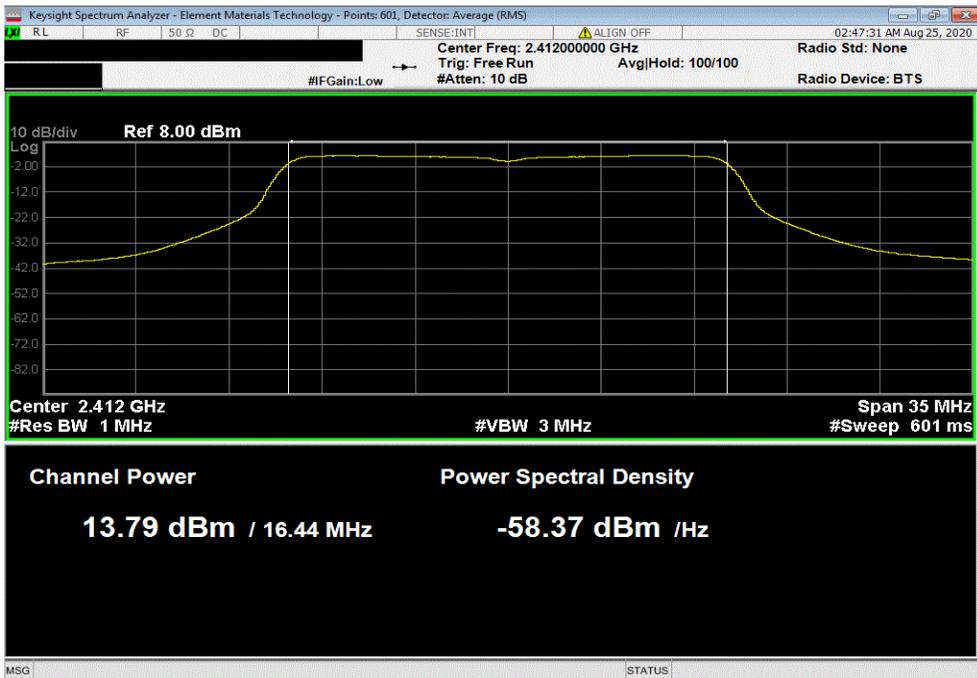


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
10.681	0.2	10.9	3	13.9	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.786	1.2	15	3	18	36	Pass

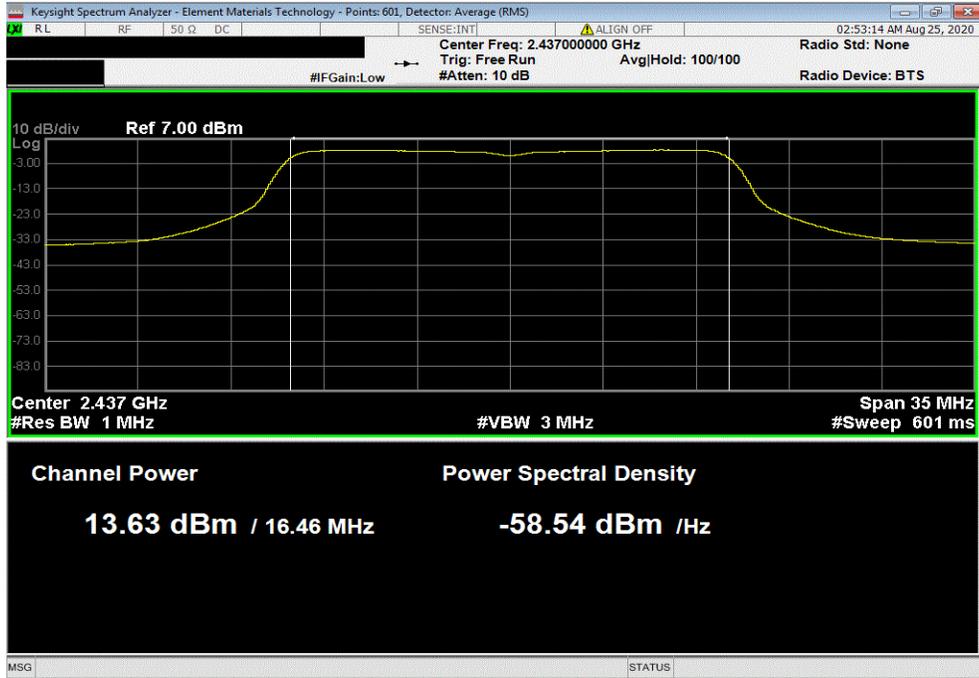


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

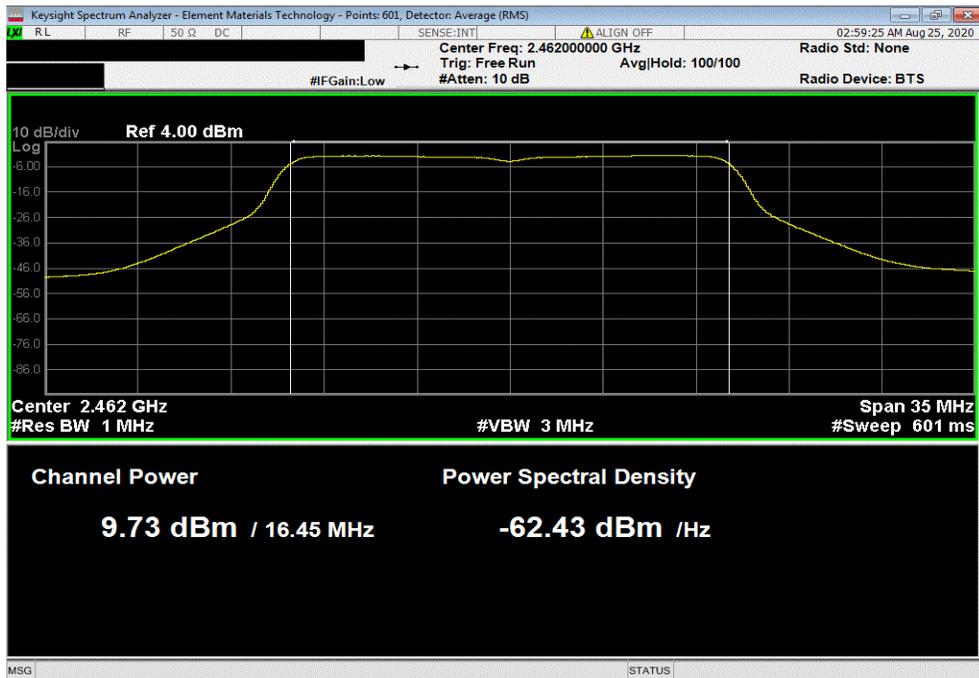


Tel: 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.627	1	14.7	3	17.7	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
9.731	1	10.7	3	13.7	36	Pass

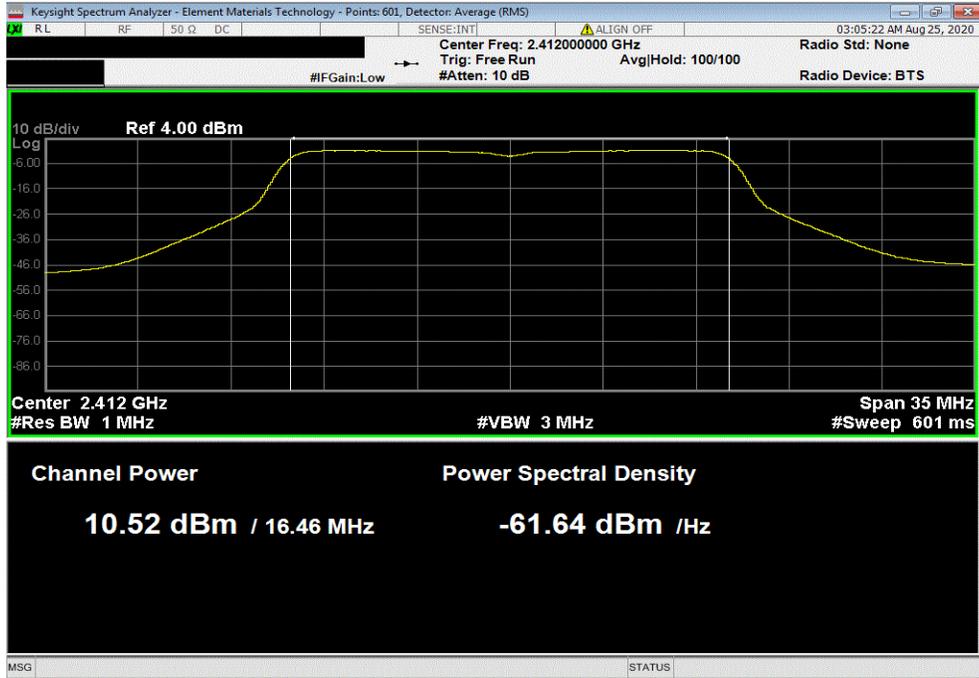


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

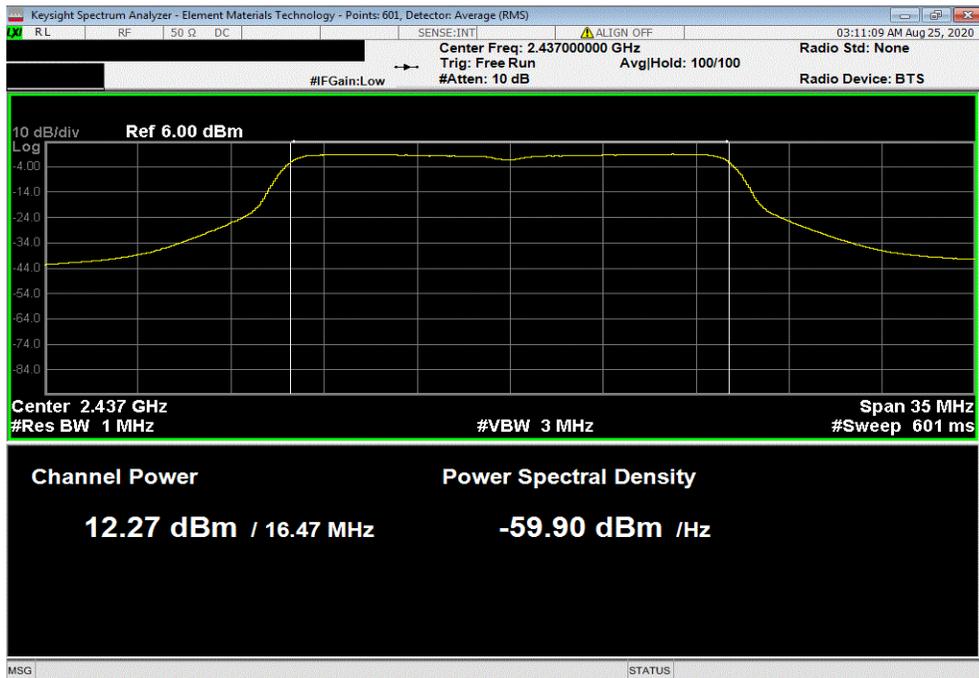


Tel: 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
10.525	1.4	11.9	3	14.9	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.265	1.4	13.7	3	16.7	36	Pass

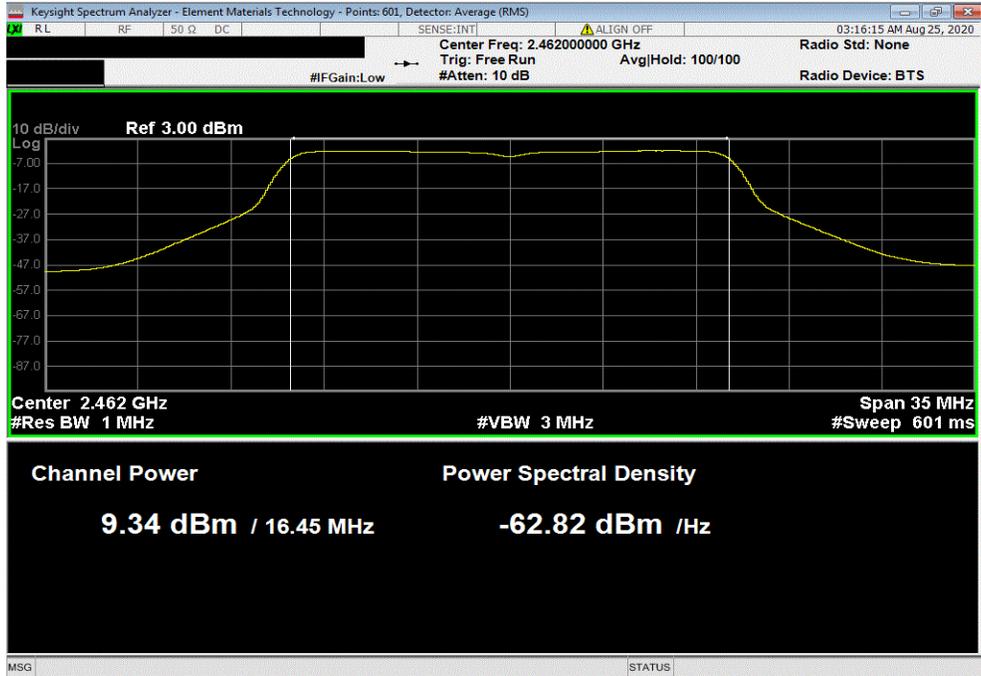


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

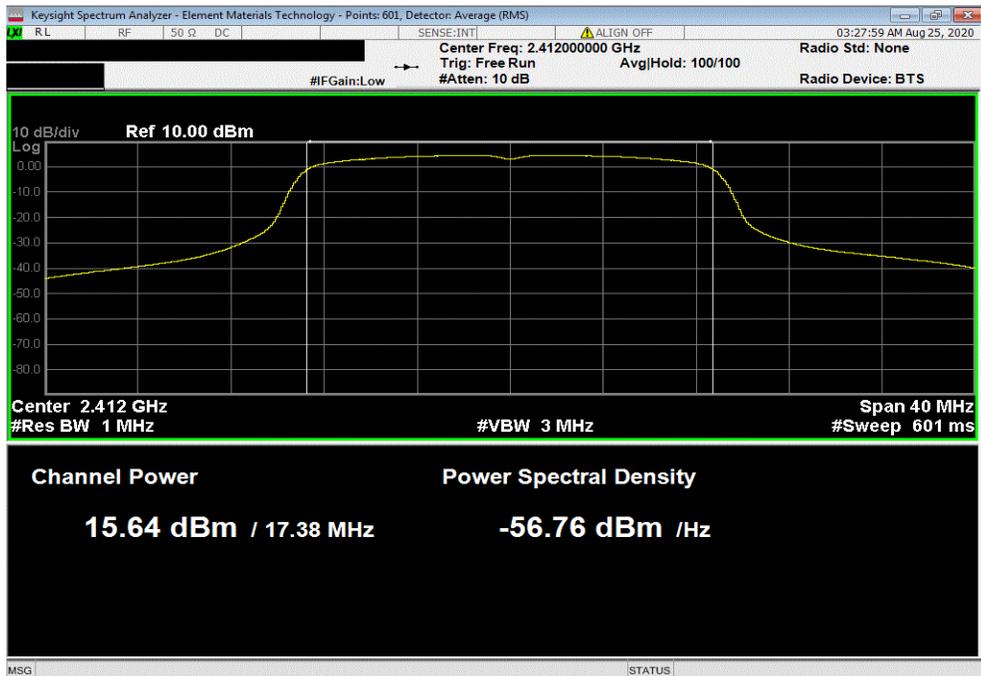


TbTx 2019.08.30.0 XMi 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
9.344	1.4	10.7	3	13.7	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.64	0.2	15.9	3	18.9	36	Pass

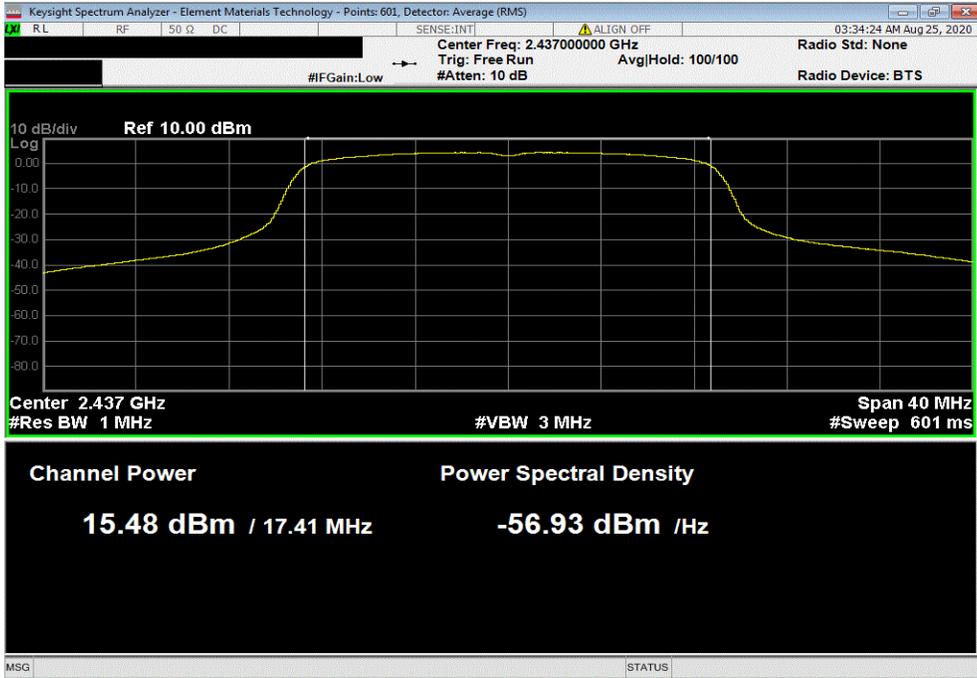


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

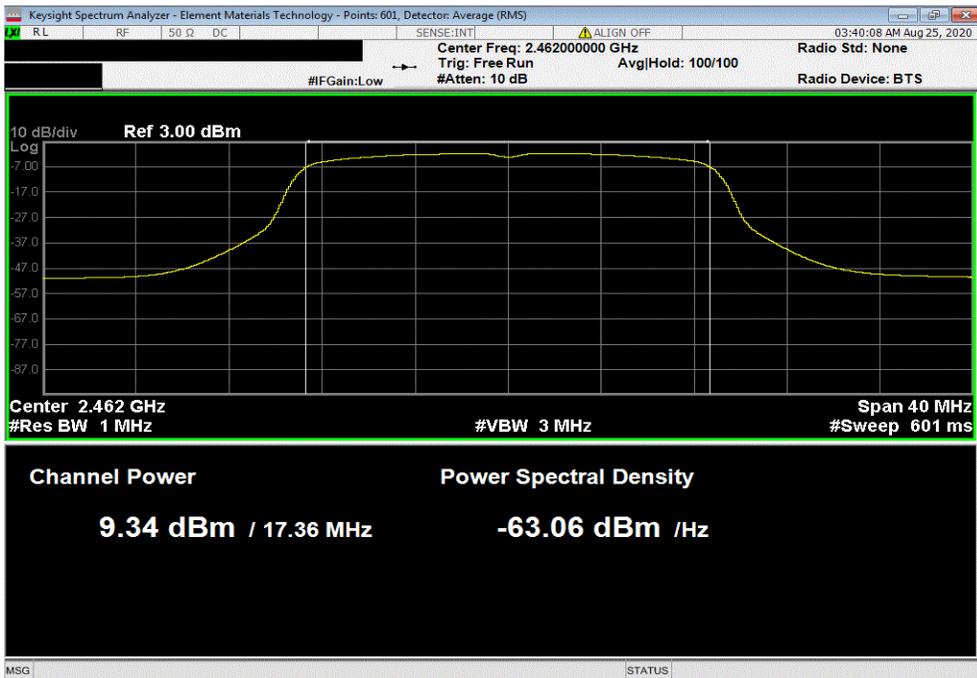


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.478	0.2	15.7	3	18.7	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
9.336	0.2	9.5	3	12.5	36	Pass

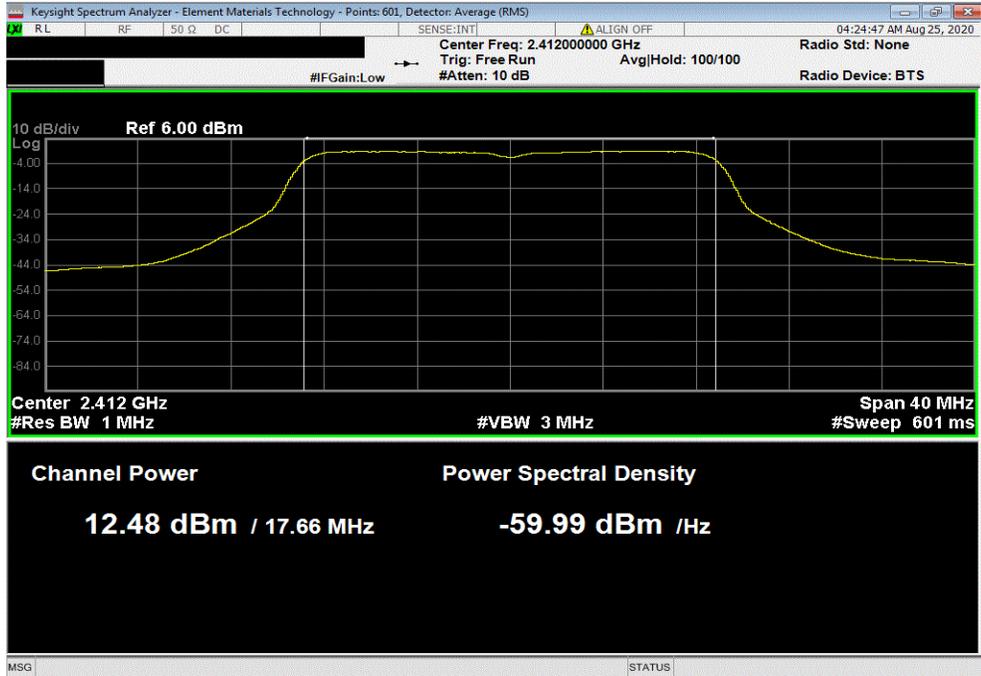


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

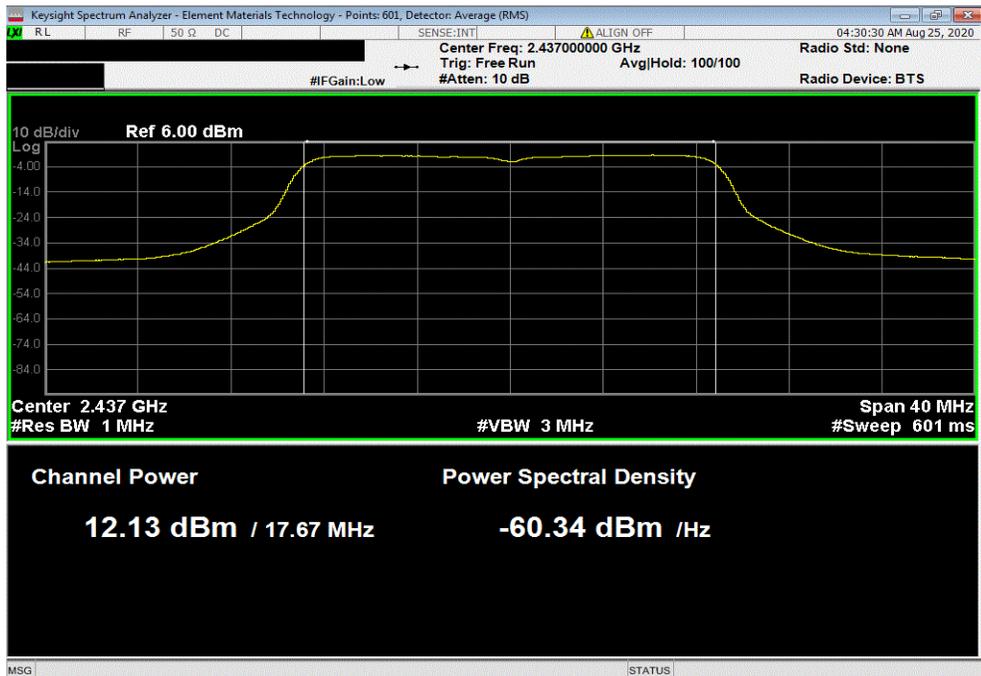


TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.475	1.5	14	3	17	36	Pass



2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.128	1.5	13.7	3	16.7	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TbTx 2019.08.30.0 XMI 2020.03.25.0

2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
8.246	1.5	9.7	3	12.7	36	Pass

