



# 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

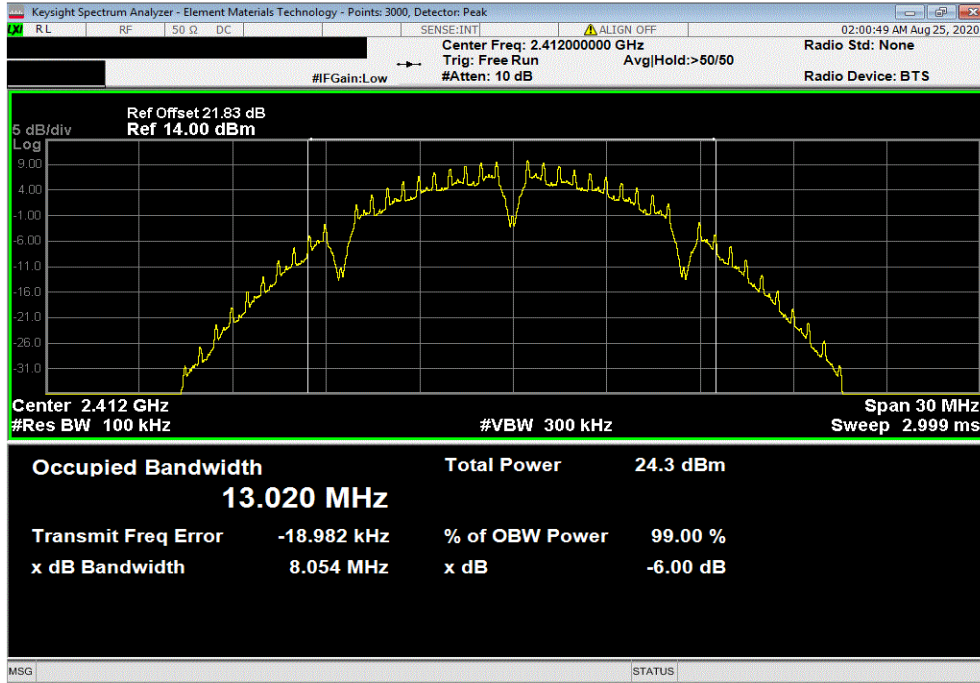
EUT: USB to WiFi Adapter		Work Order: TRNE0022	
Serial Number: 0022A301FF5D		Date: 24-Aug-20	
Customer: Trane		Temperature: 21.9 °C	
Attendees: Chris Vanderkoy		Humidity: 57% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Dustin Sparks		Power: 5VDC via USB	
		Job Site: MN08	
TEST SPECIFICATIONS			
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>	
		Value	Limit (>)
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		8.054 MHz	500 kHz
Mid Channel 6, 2437 MHz		8.057 MHz	500 kHz
High Channel 11, 2462 MHz		8.051 MHz	500 kHz
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		8.177 MHz	500 kHz
Mid Channel 6, 2437 MHz		8.656 MHz	500 kHz
High Channel 11, 2462 MHz		7.869 MHz	500 kHz
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		15.139 MHz	500 kHz
Mid Channel 6, 2437 MHz		15.134 MHz	500 kHz
High Channel 11, 2462 MHz		15.124 MHz	500 kHz
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		16.467 MHz	500 kHz
Mid Channel 6, 2437 MHz		16.493 MHz	500 kHz
High Channel 11, 2462 MHz		16.497 MHz	500 kHz
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		16.5 MHz	500 kHz
Mid Channel 6, 2437 MHz		16.501 MHz	500 kHz
High Channel 11, 2462 MHz		16.499 MHz	500 kHz
802.11(n) MCS0			
Low Channel 1, 2412 MHz		15.111 MHz	500 kHz
Mid Channel 6, 2437 MHz		15.143 MHz	500 kHz
High Channel 11, 2462 MHz		15.142 MHz	500 kHz
802.11(n) MCS7			
Low Channel 1, 2412 MHz		17.728 MHz	500 kHz
Mid Channel 6, 2437 MHz		17.679 MHz	500 kHz
High Channel 11, 2462 MHz		17.723 MHz	500 kHz

# OCCUPIED BANDWIDTH

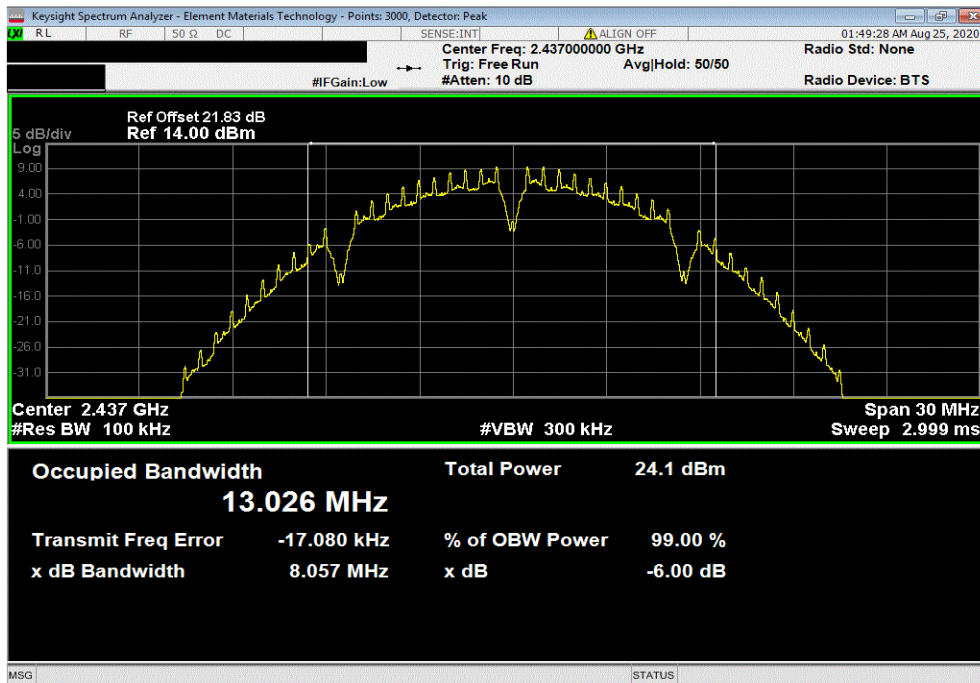


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

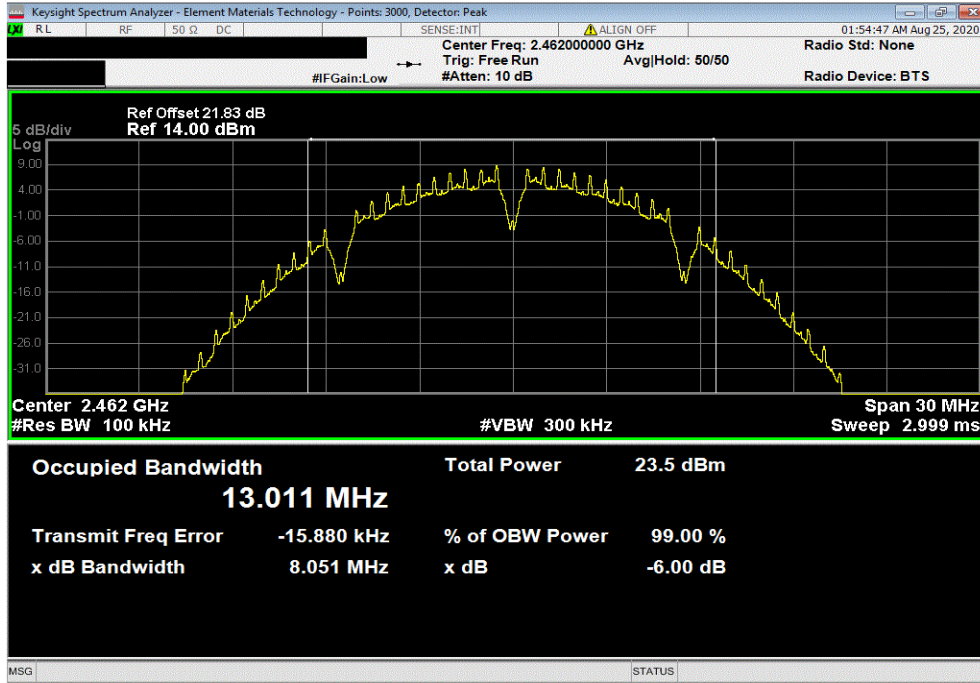


# OCCUPIED BANDWIDTH

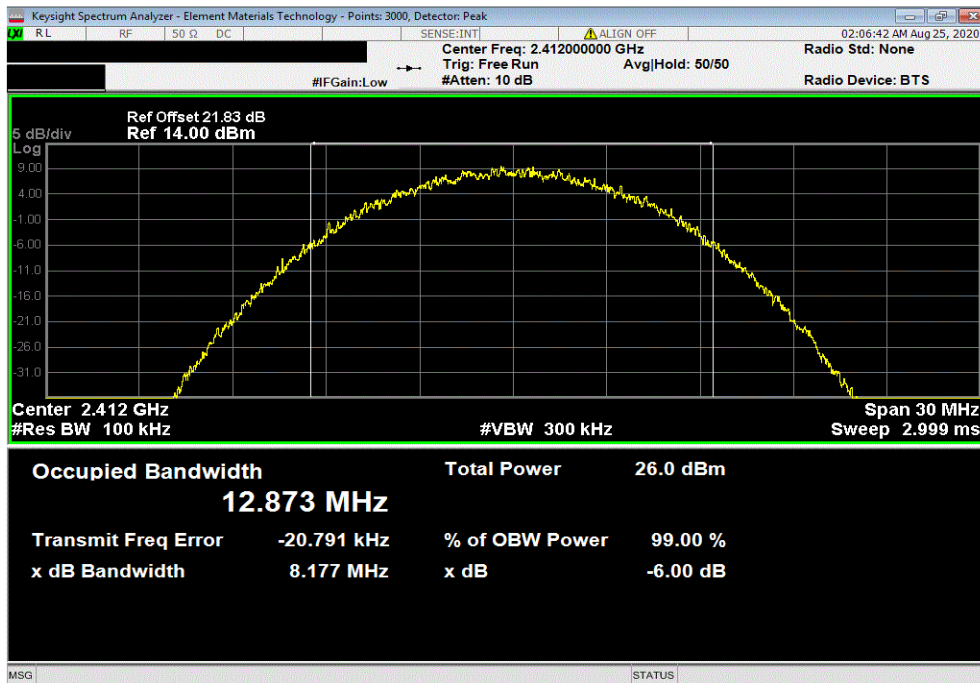


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

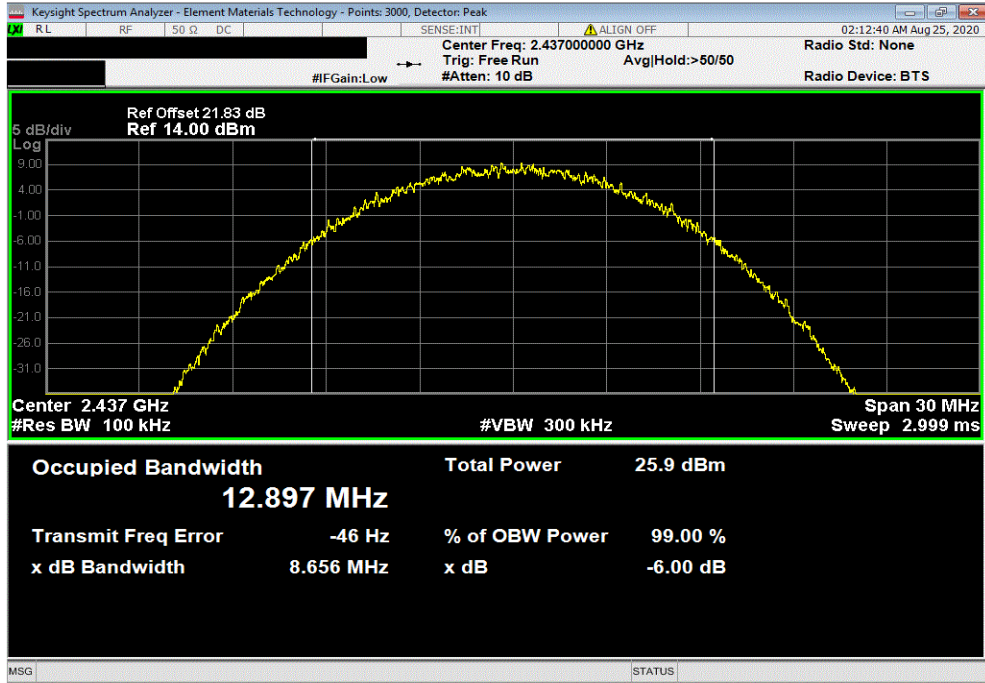


# OCCUPIED BANDWIDTH

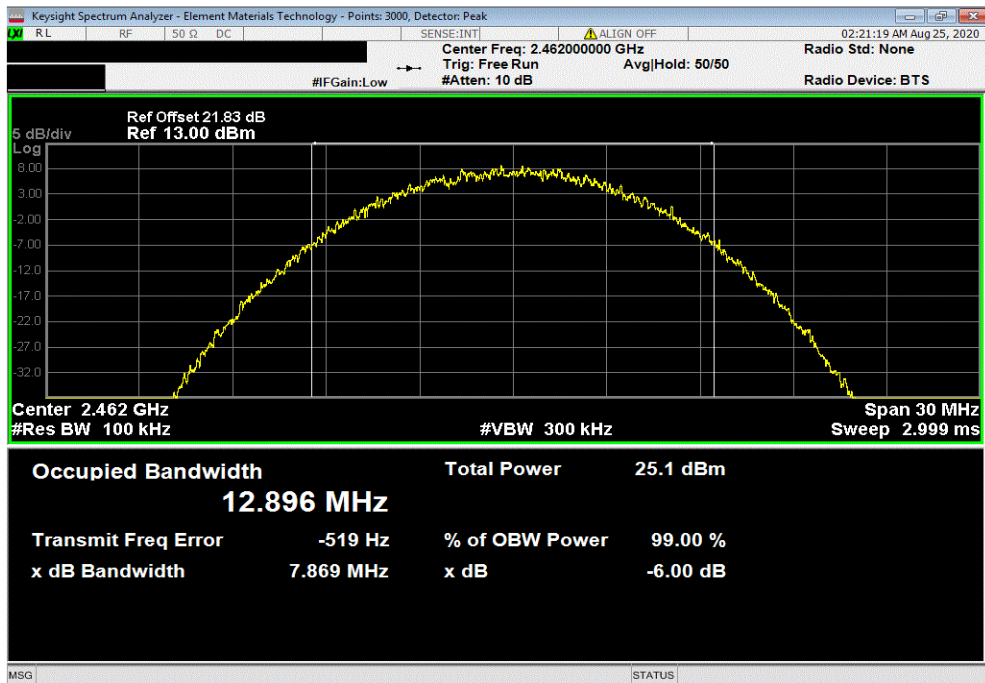


TbTx 2019.08.30.0 XMI 2020.03.25.0

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			

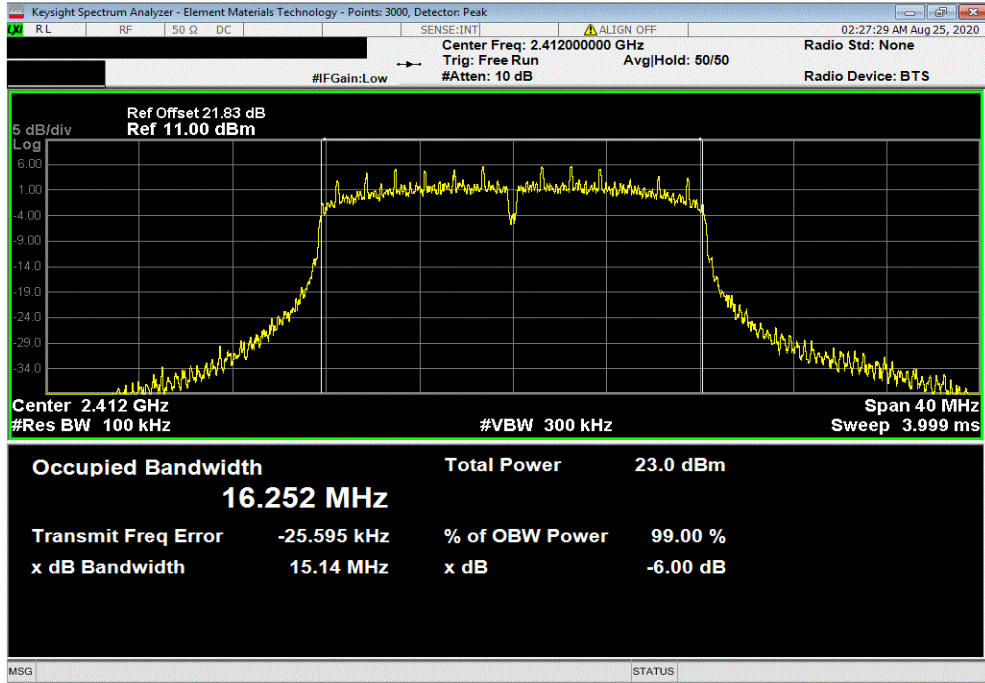


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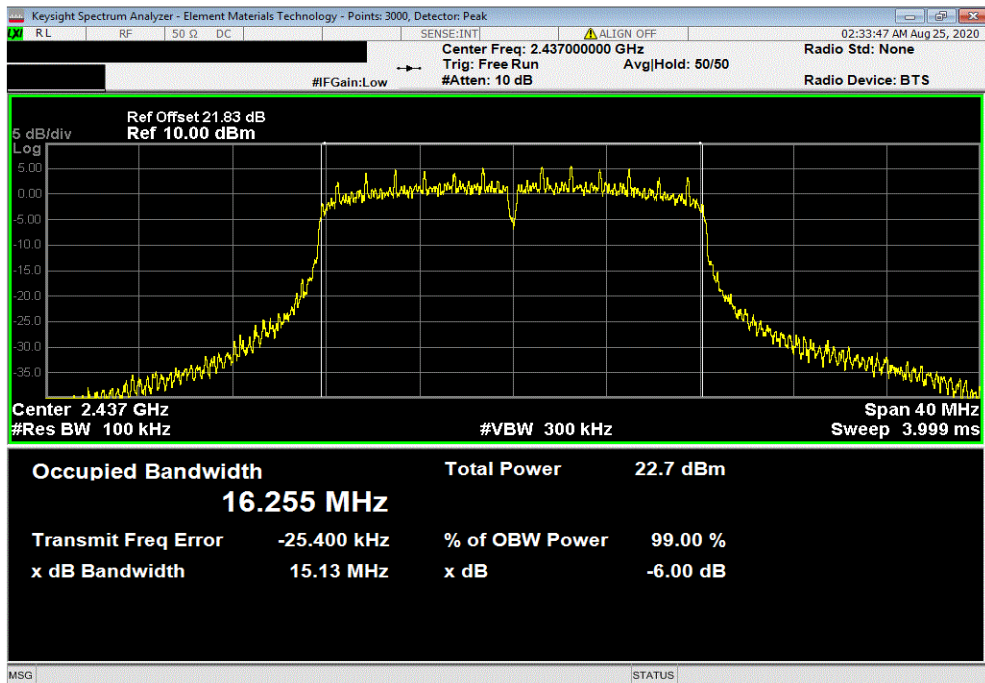


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

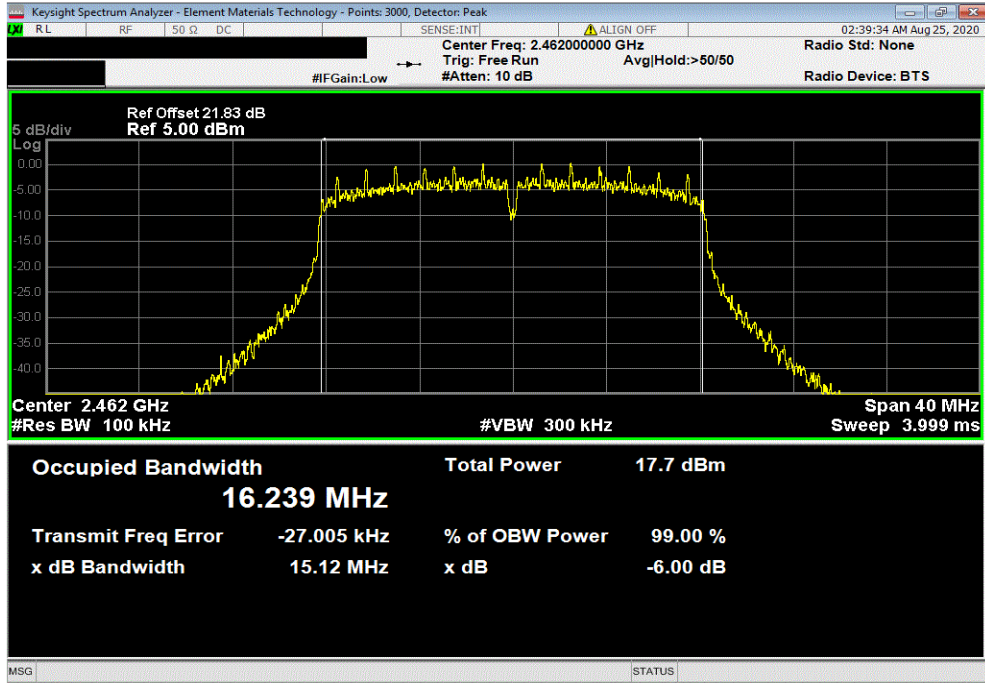


# OCCUPIED BANDWIDTH

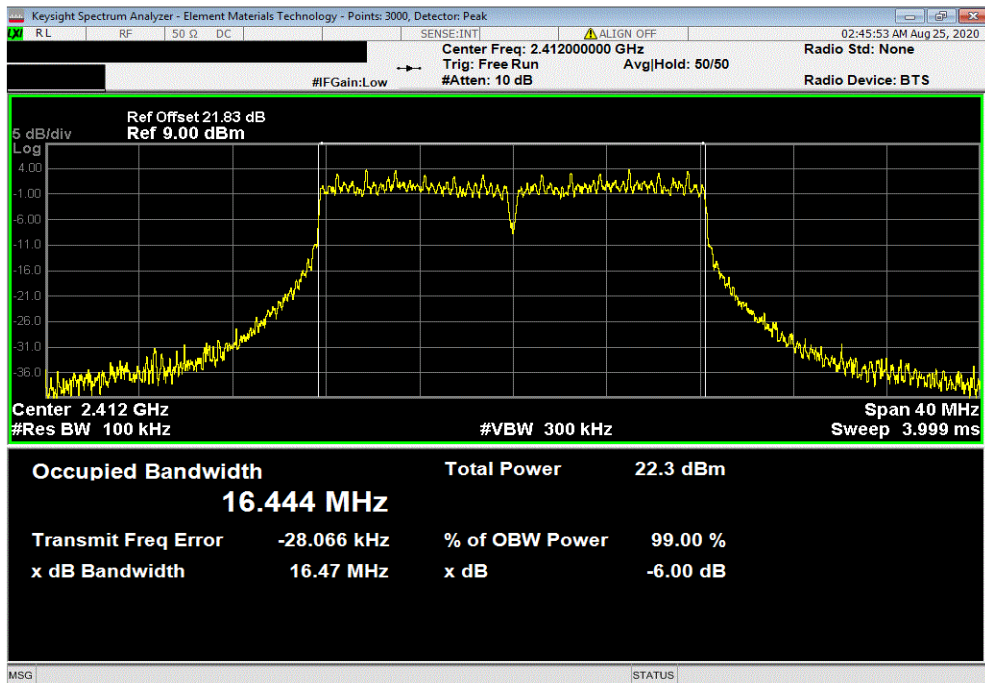


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

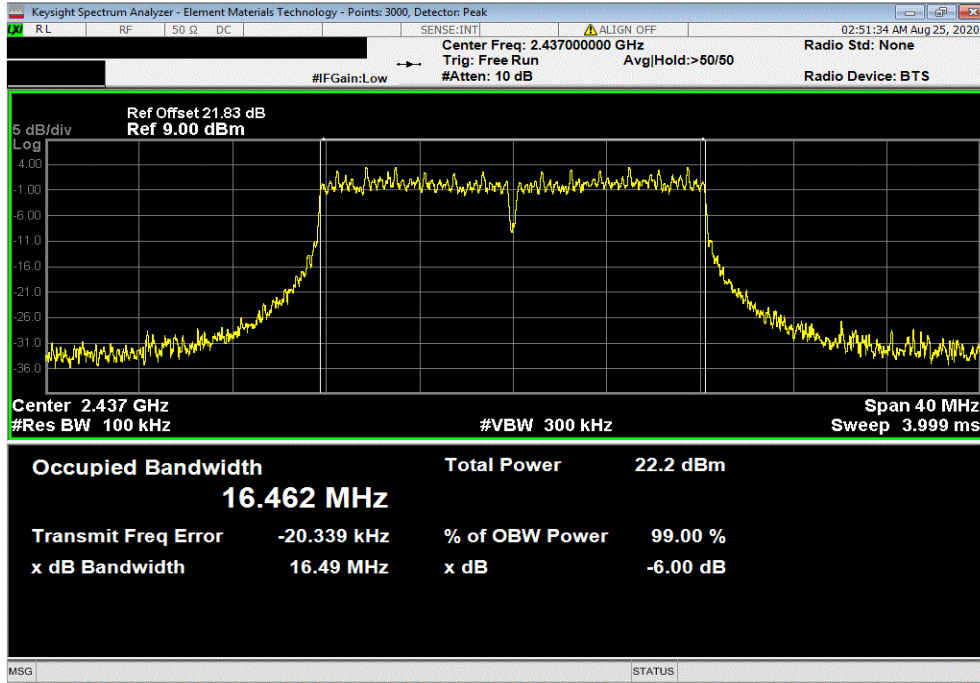


# OCCUPIED BANDWIDTH

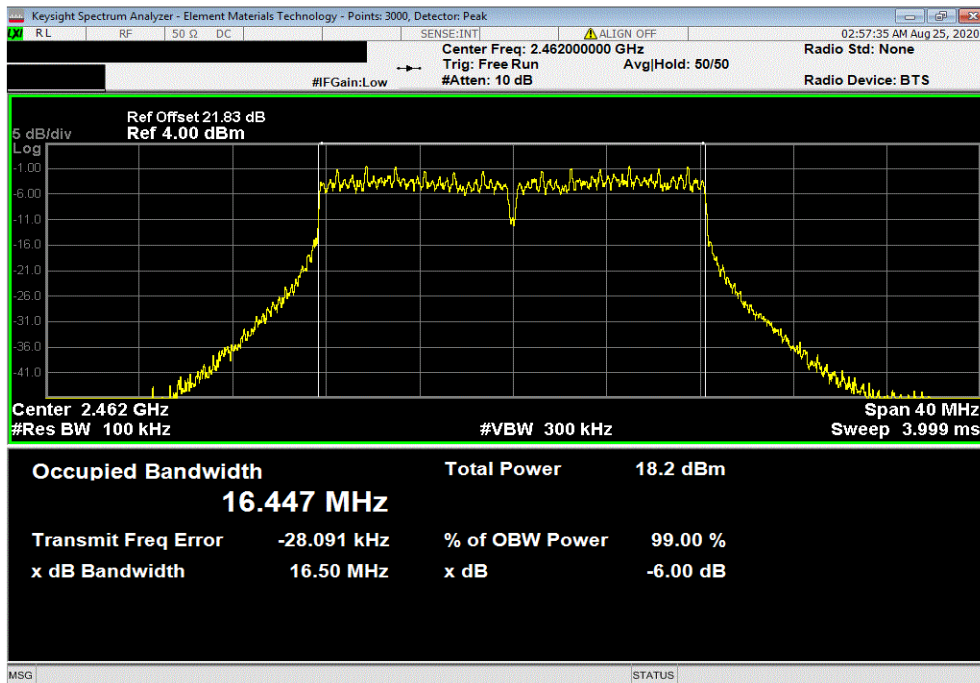


TbTx 2019.08.30.0 XMI 2020.03.25.0

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



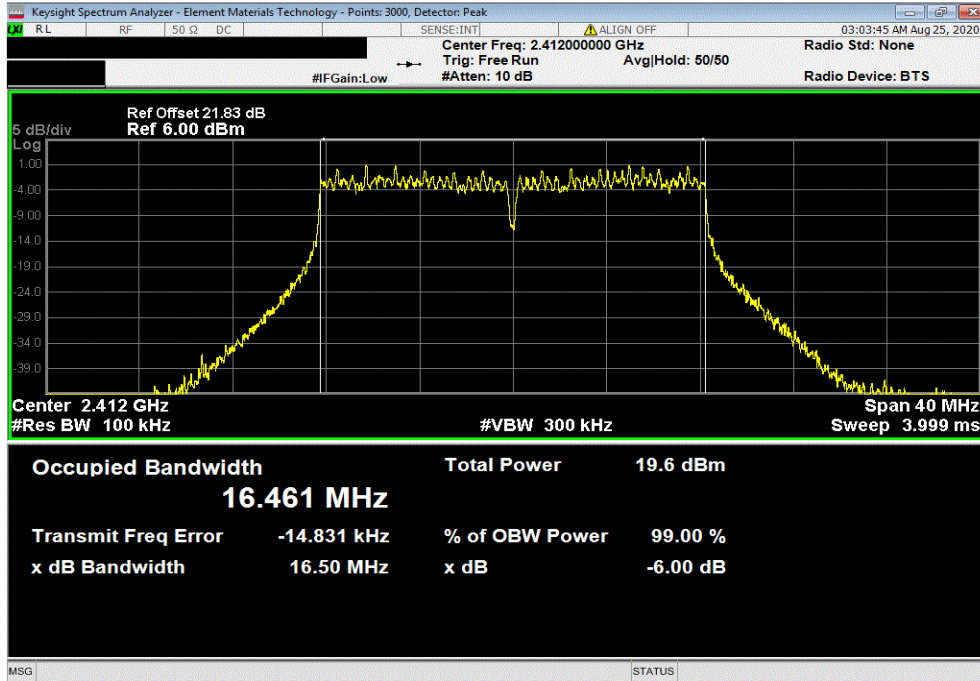


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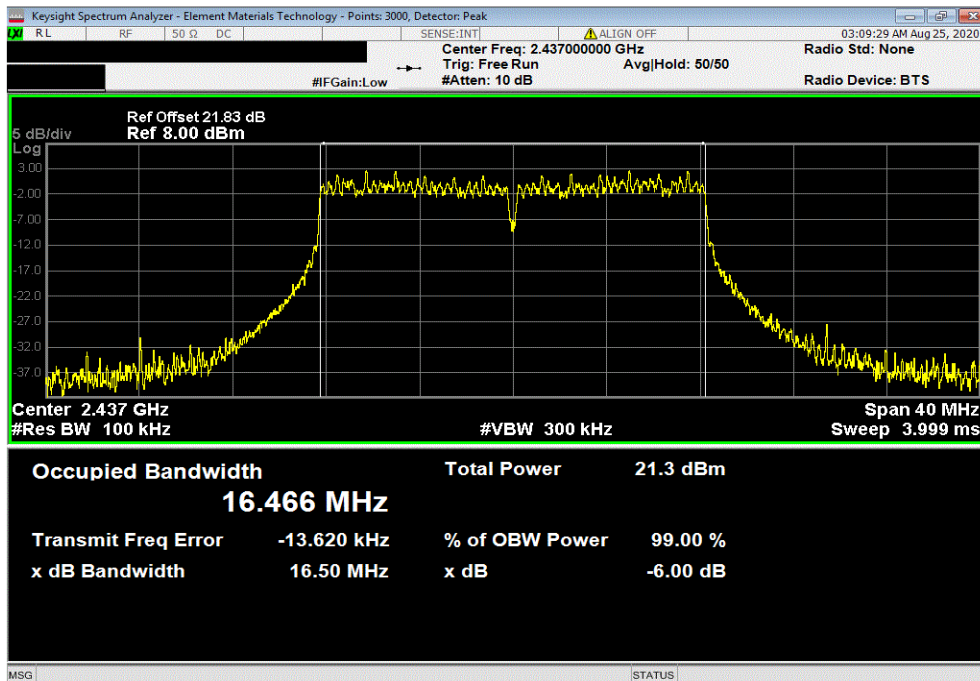


TbTx 2019.08.30.0 XMi 2020.03.25.0

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	

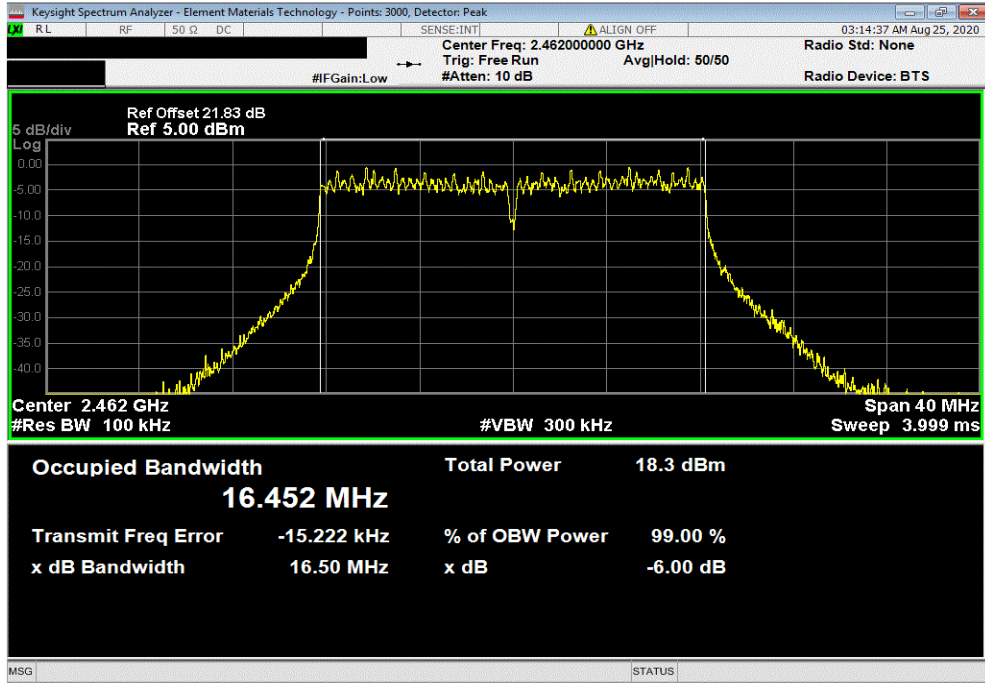


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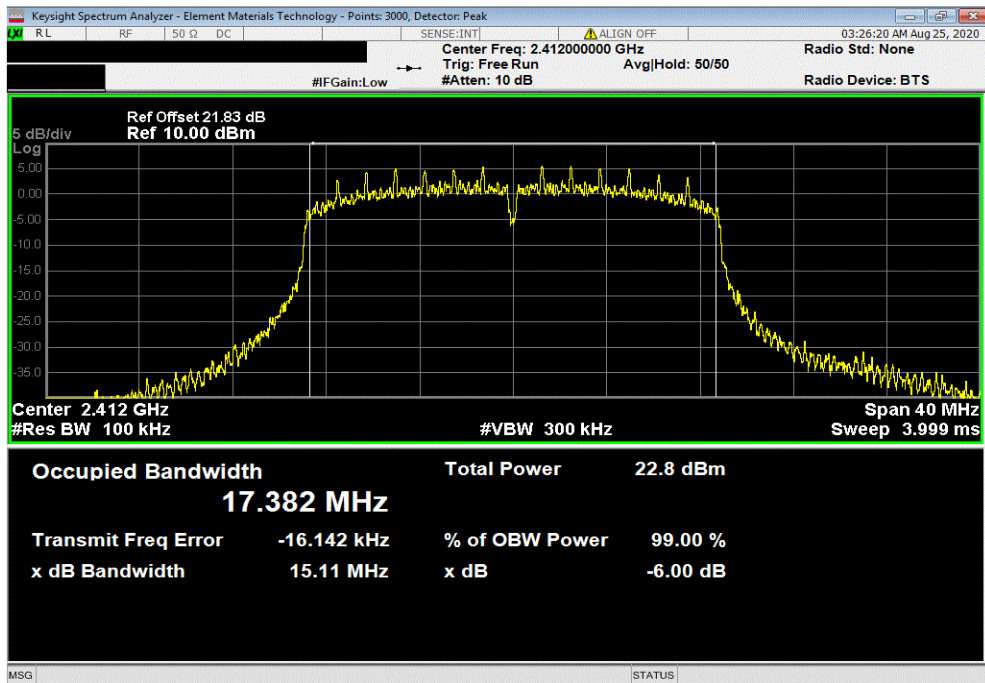


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

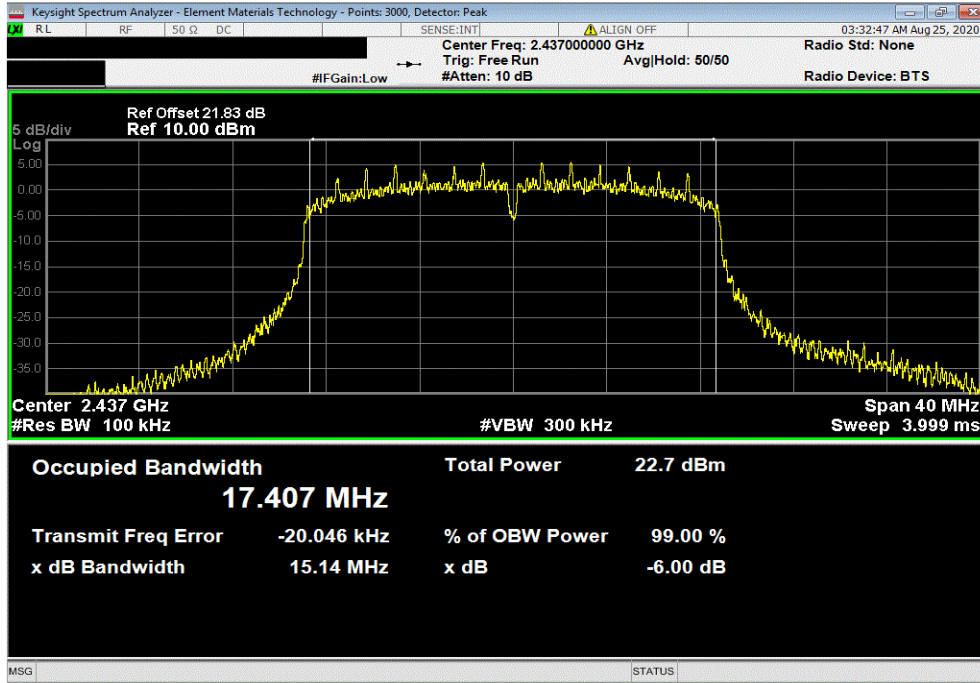


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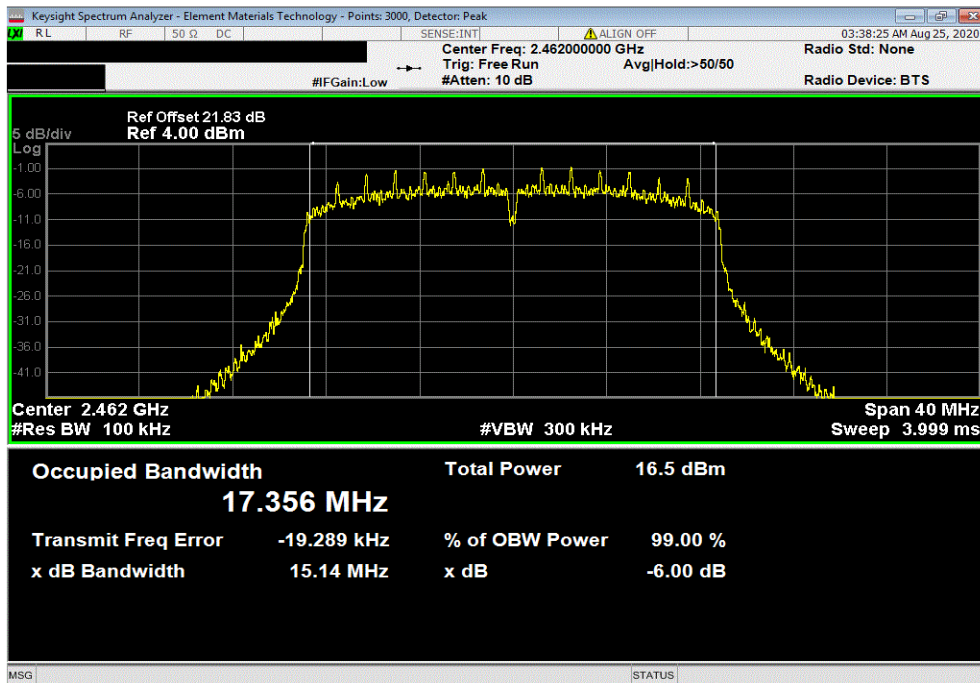


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

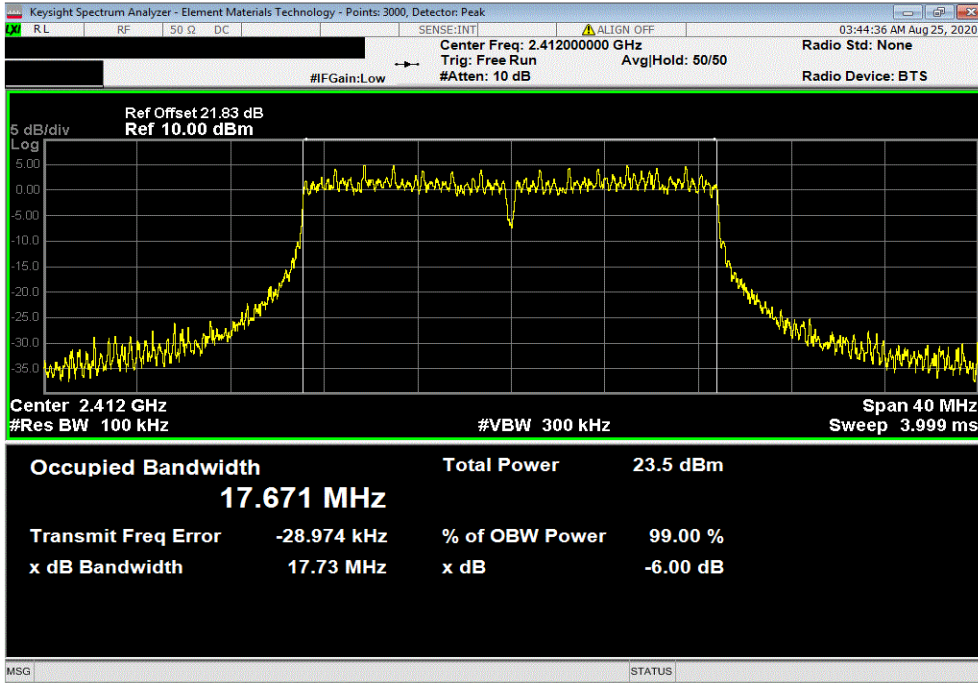


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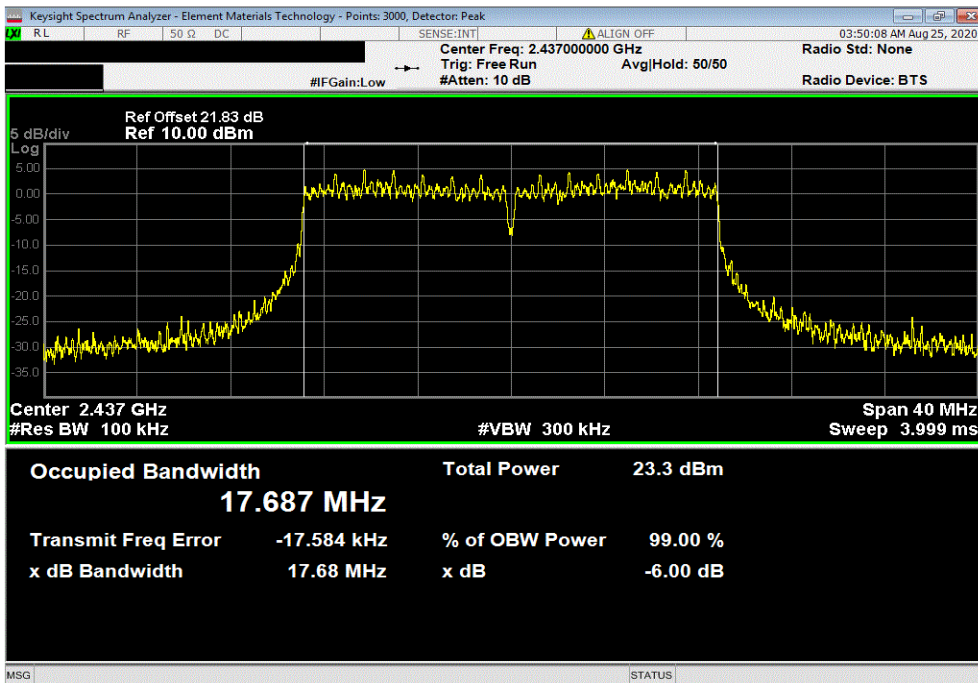


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

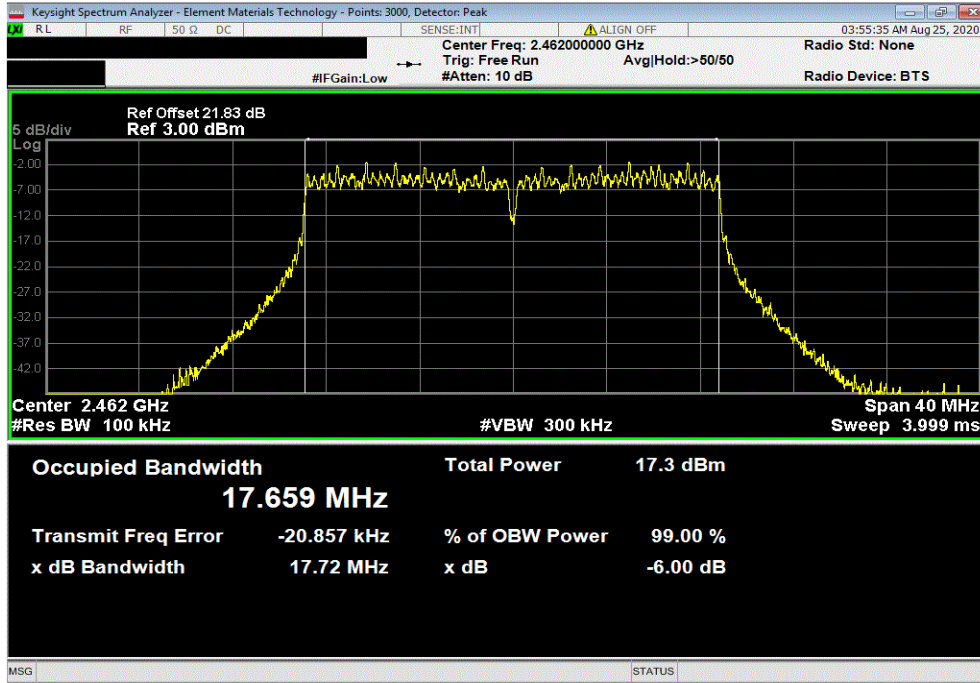


# OCCUPIED BANDWIDTH



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

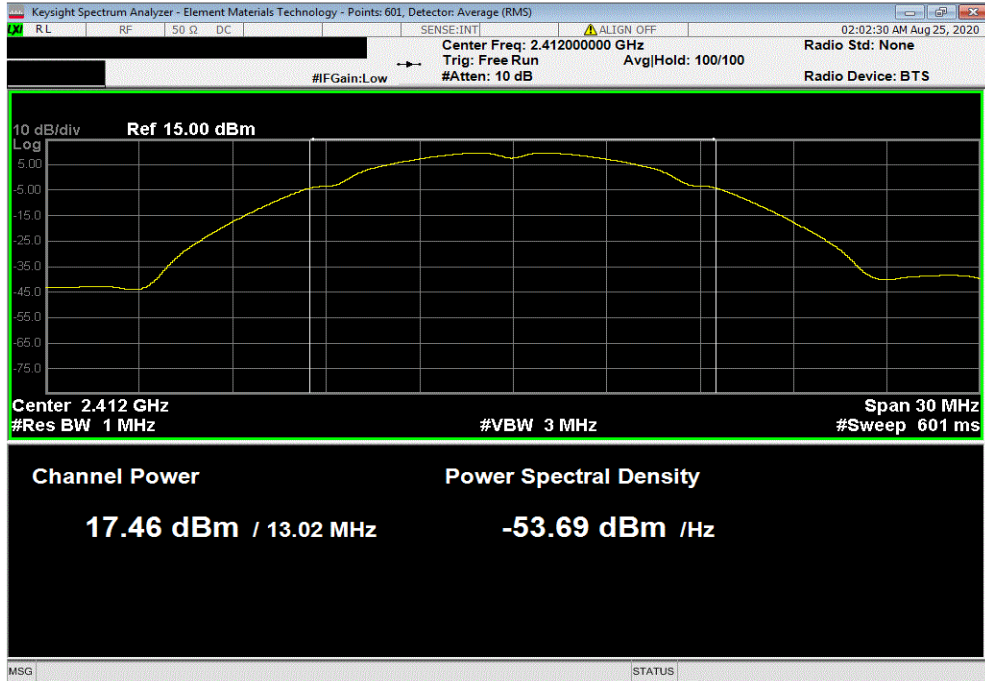
EUT: USB to WiFi Adapter		Work Order: TRNE0022				
Serial Number: 0022A301FF5D		Date: 24-Aug-20				
Customer: Trane		Temperature: 21.9 °C				
Attendees: Chris Vanderkoy		Humidity: 57.4% RH				
Project: None		Barometric Pres.: 1017 mbar				
Tested by: Dustin Sparks		Power: 5VDC via USB				
Job Site: MN08						
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

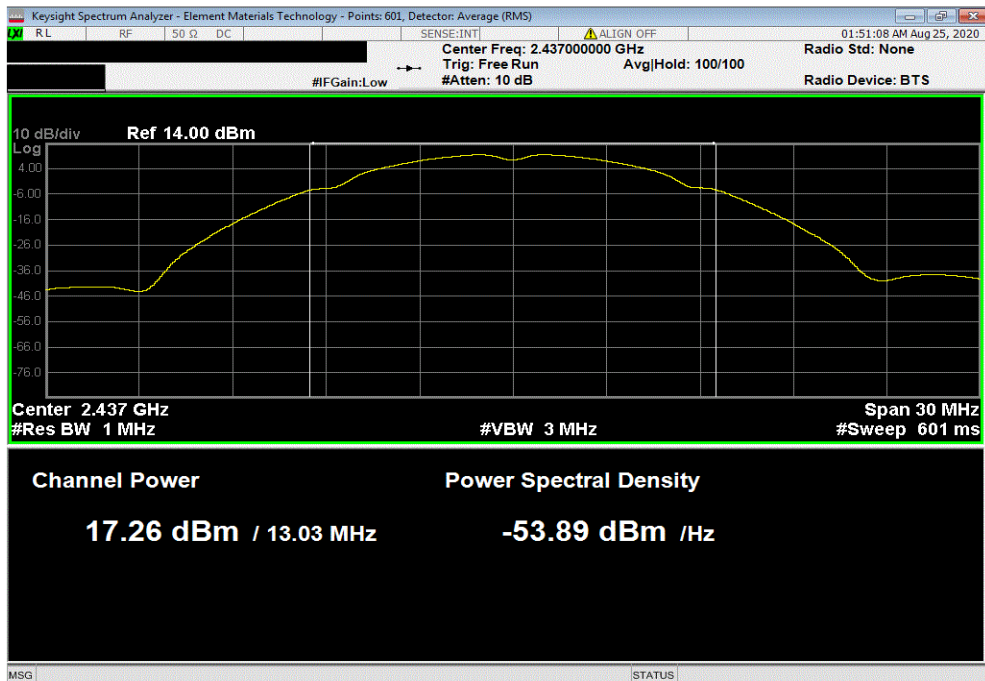


TbTx 2019.08.30.0 XMI 2020.03.25.0

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		



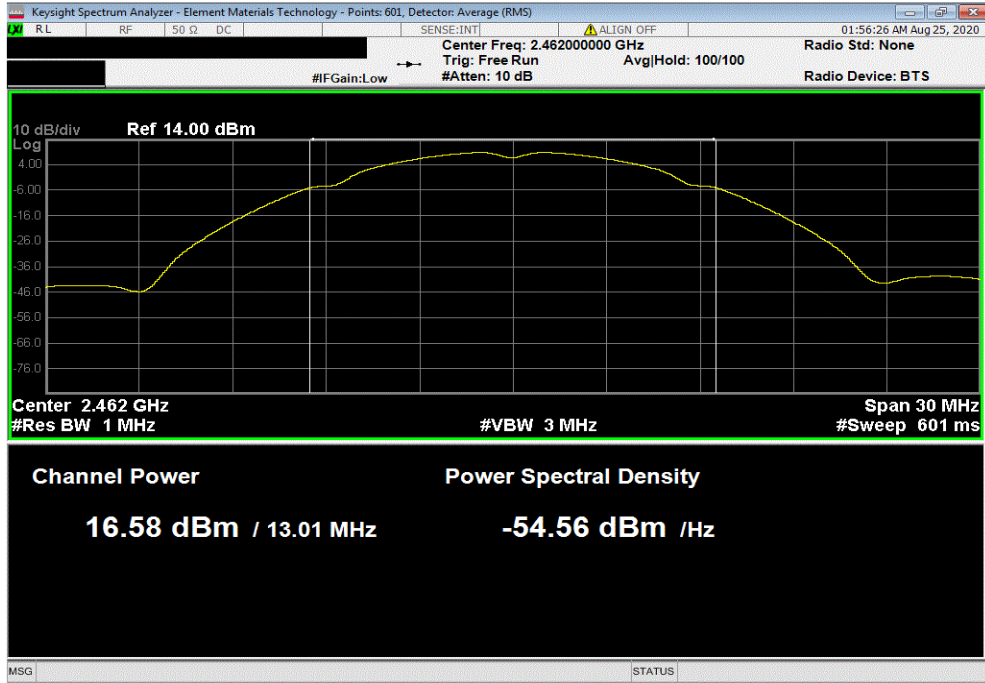


# OUTPUT POWER

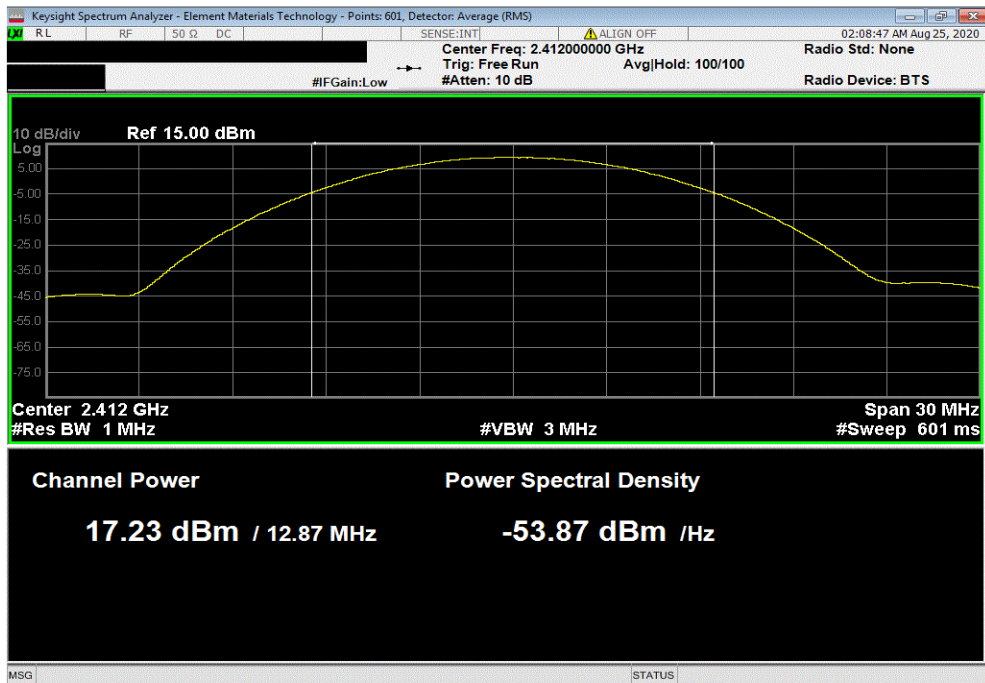


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

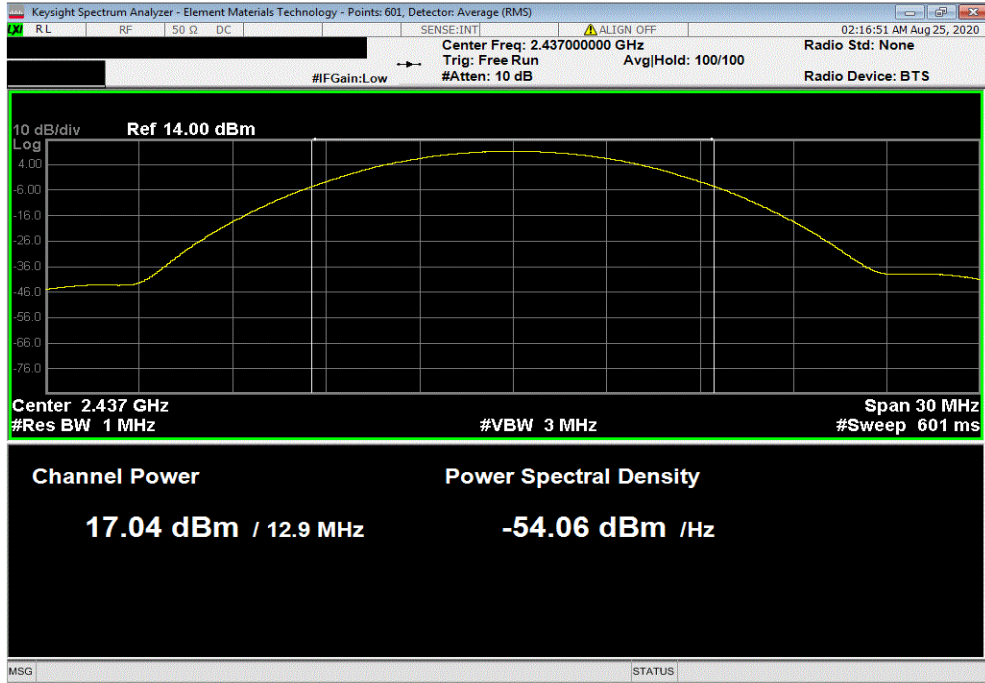


# OUTPUT POWER

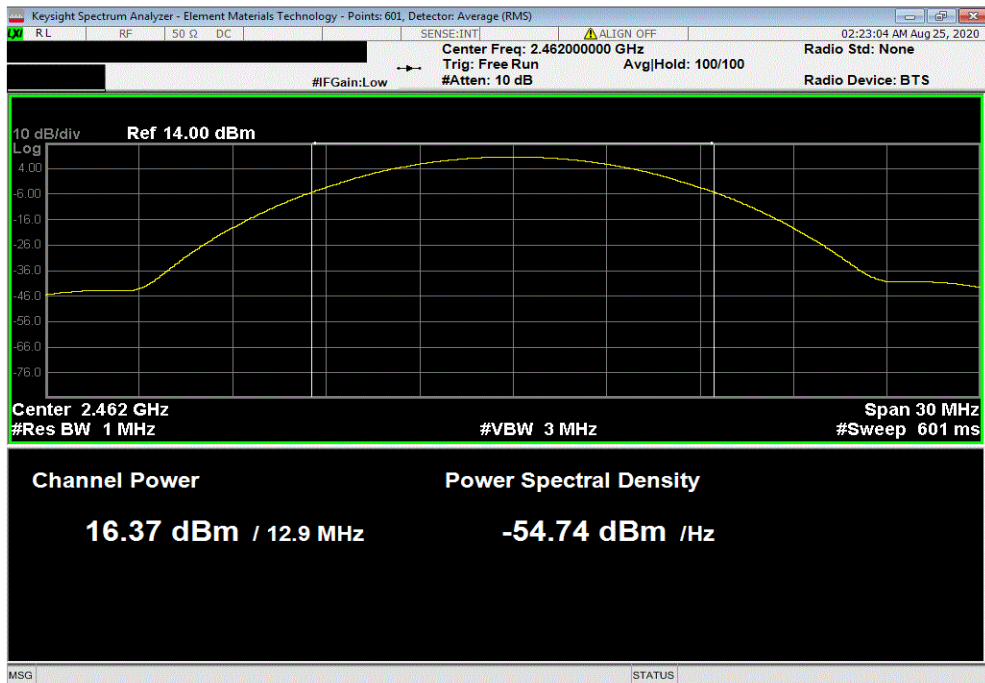


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

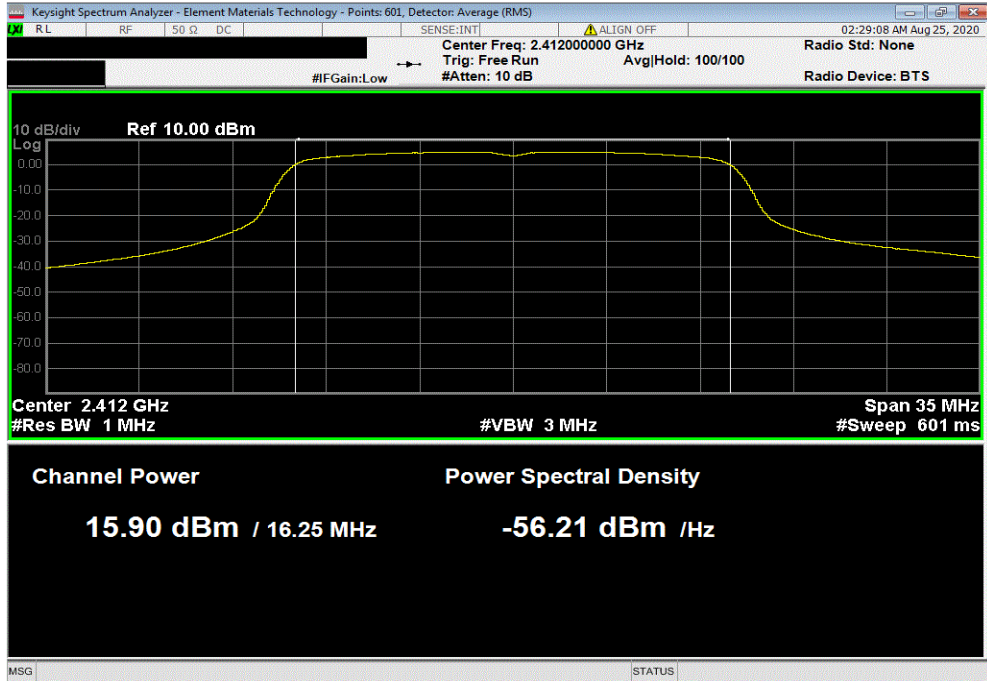


# OUTPUT POWER

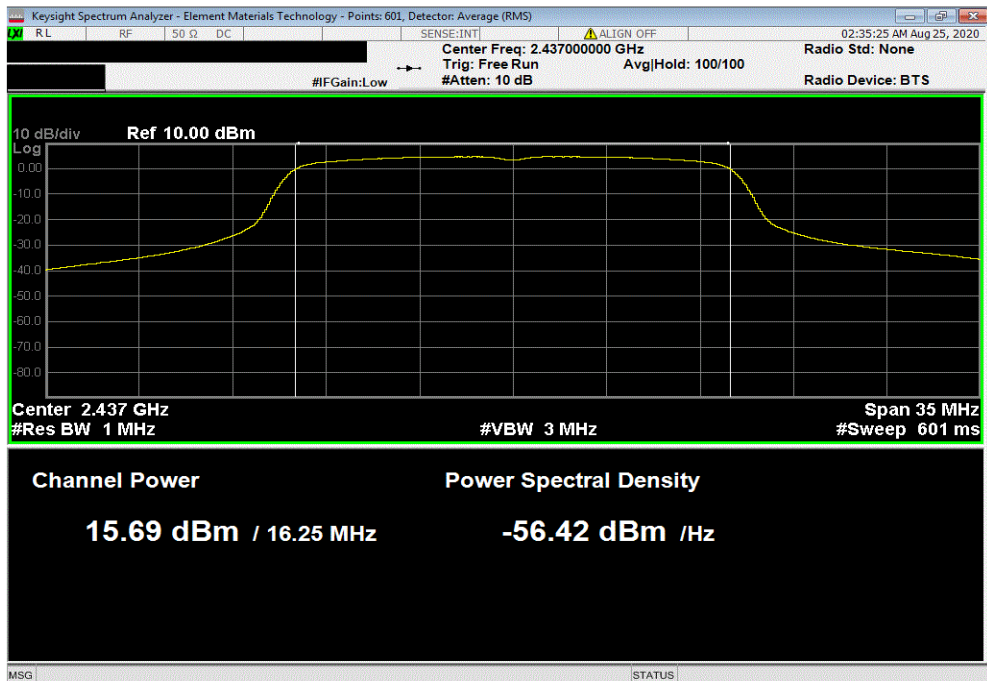


TbTx 2019.08.30.0 XMI 2020.03.25.0

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		

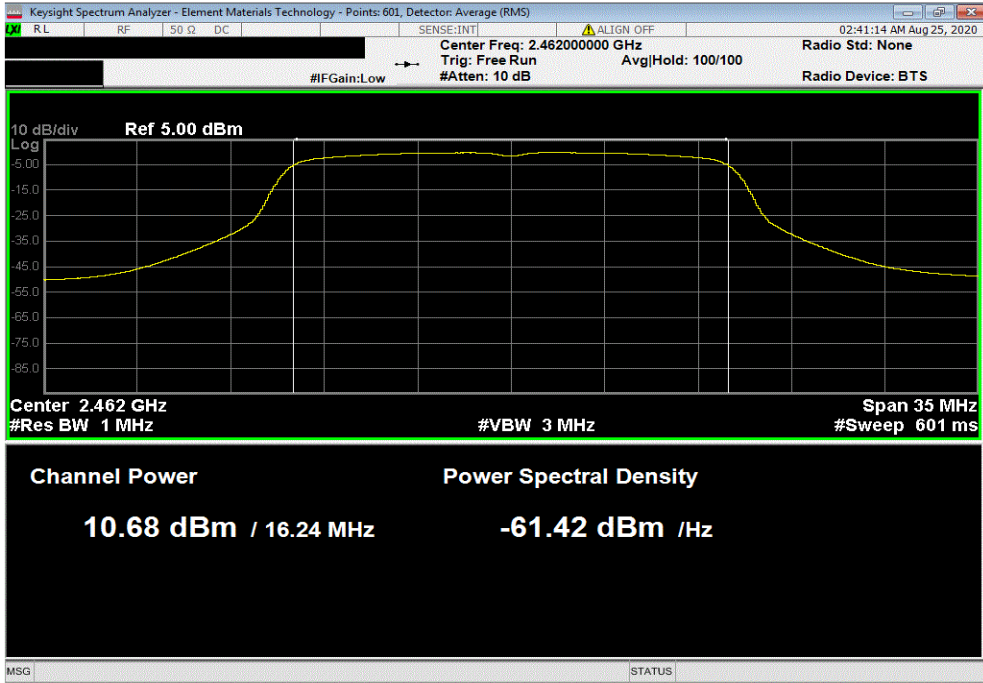


# OUTPUT POWER

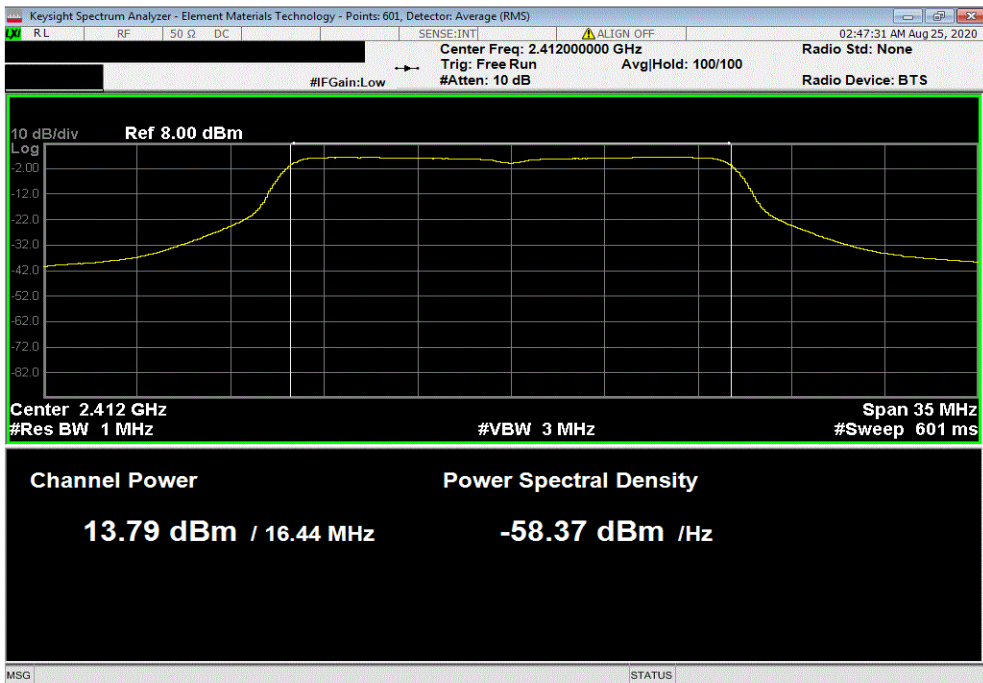


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

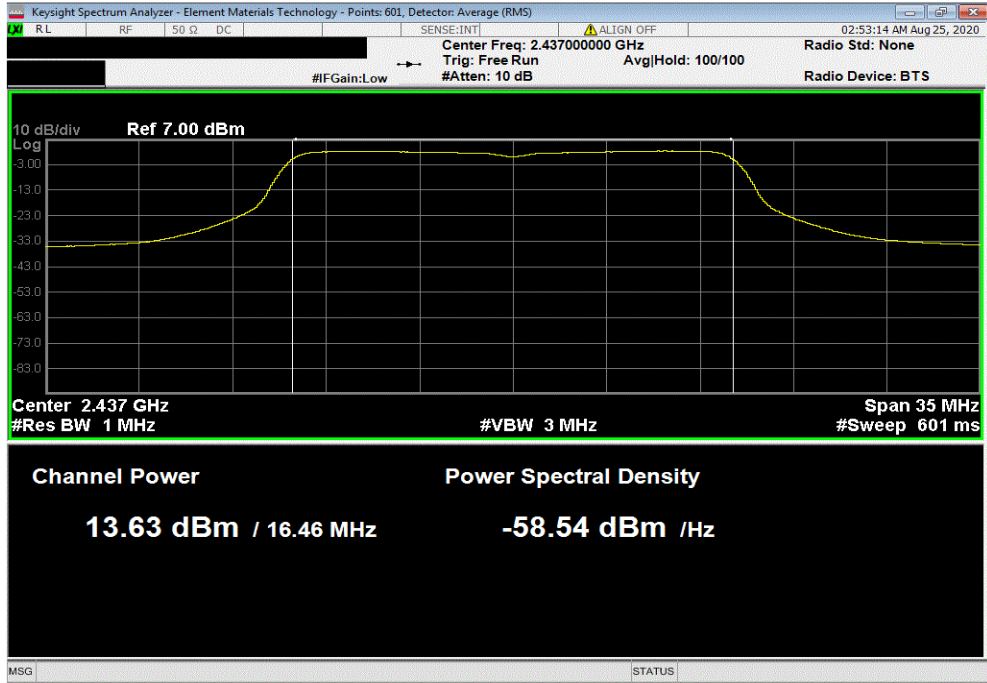


# OUTPUT POWER

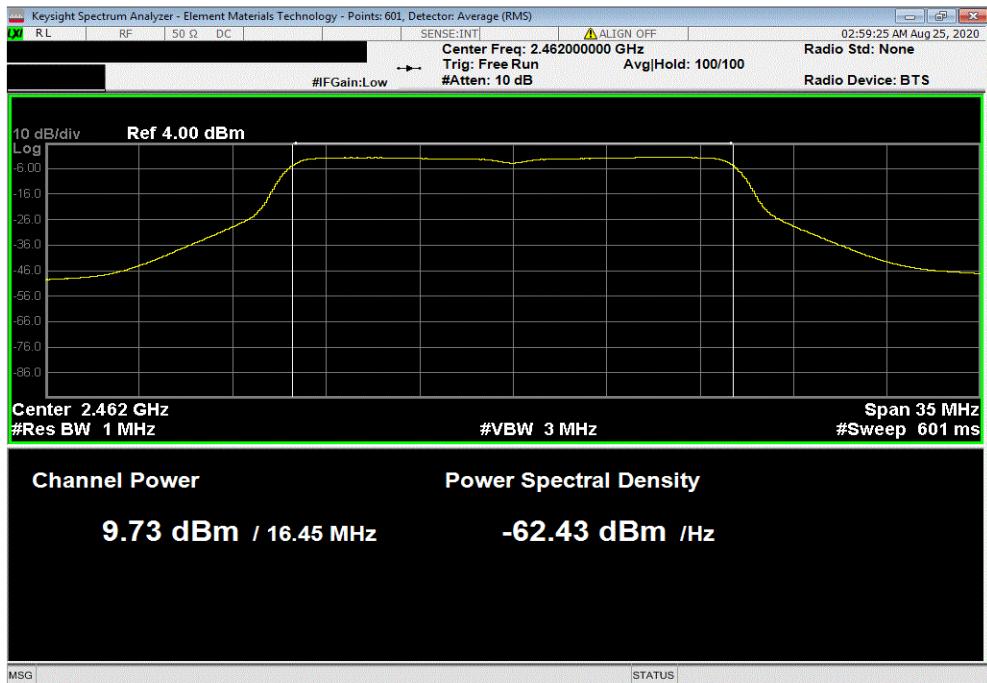


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

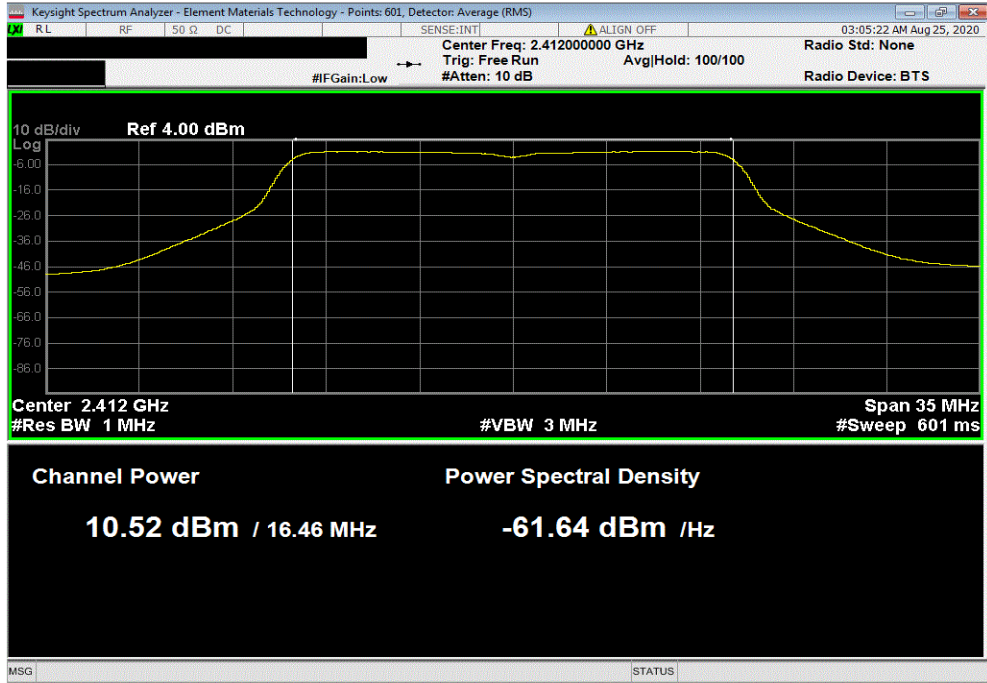


# OUTPUT POWER

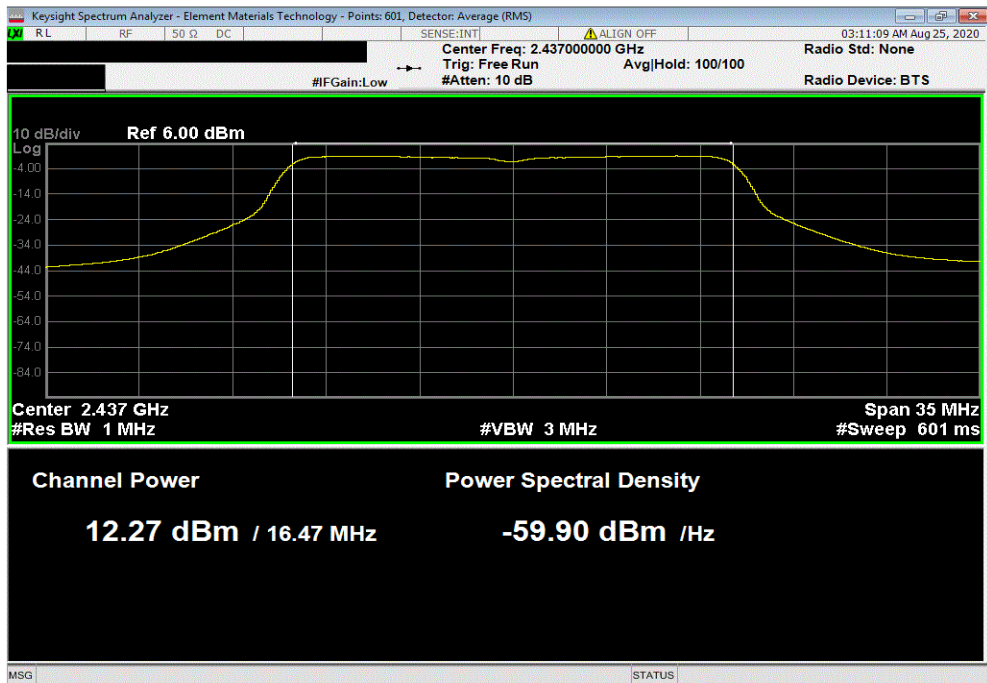


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	

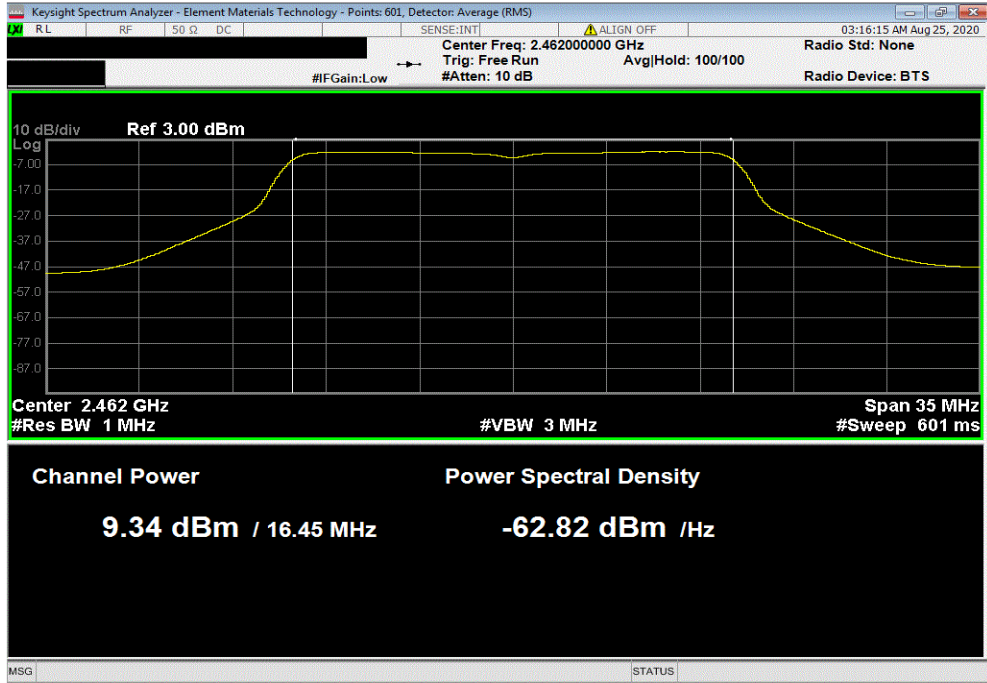


# OUTPUT POWER

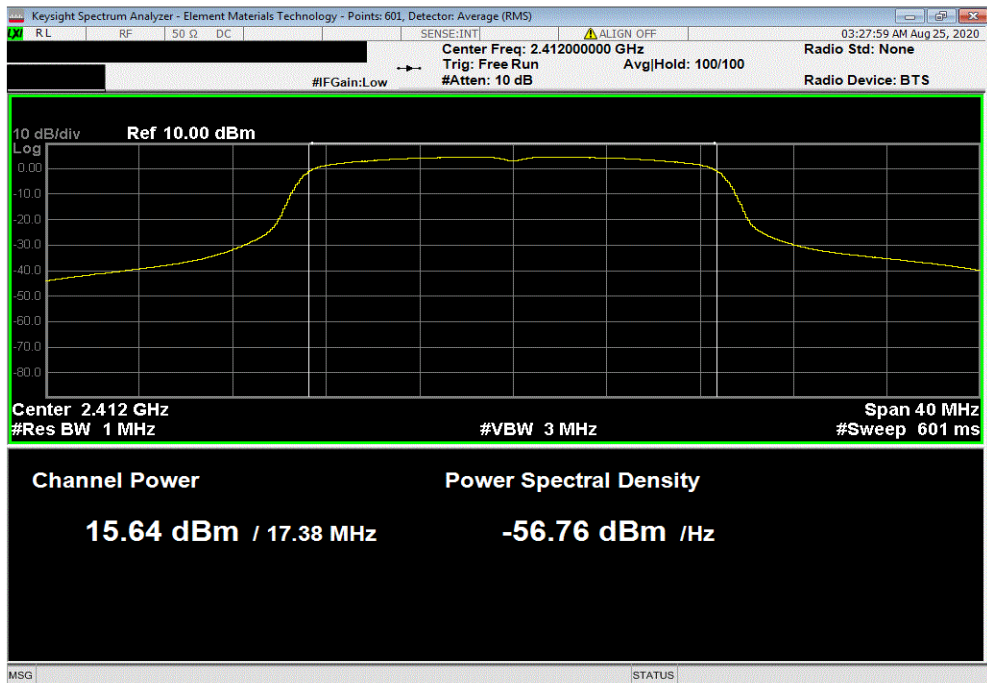


TbTx 2019.08.30.0 XMI 2020.03.25.0

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		

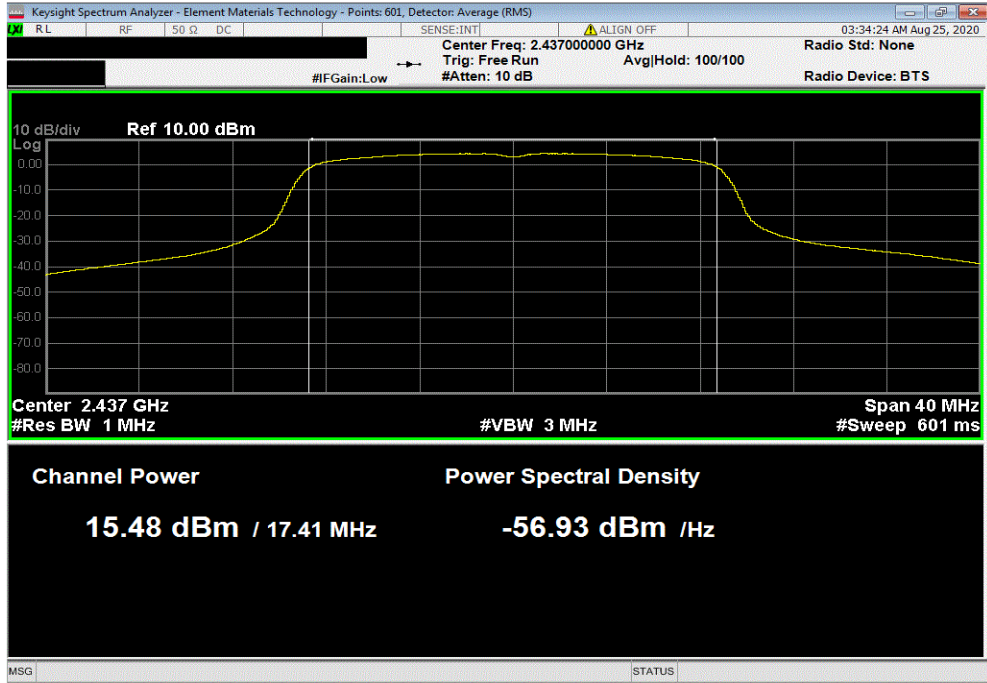


# OUTPUT POWER

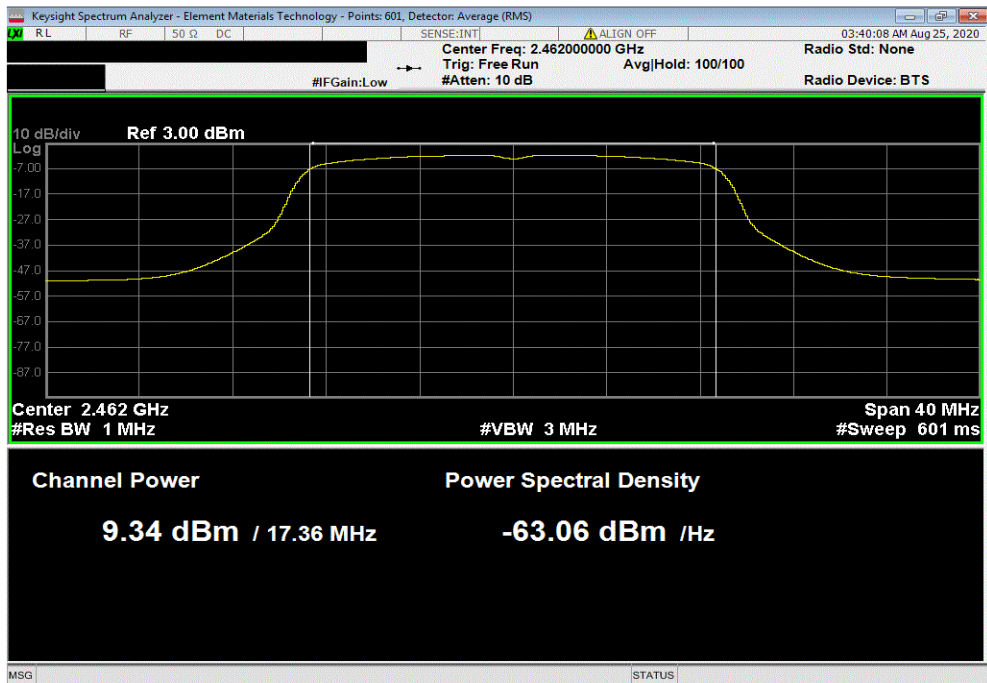


TbTx 2019.08.30.0 XMI 2020.03.25.0

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	



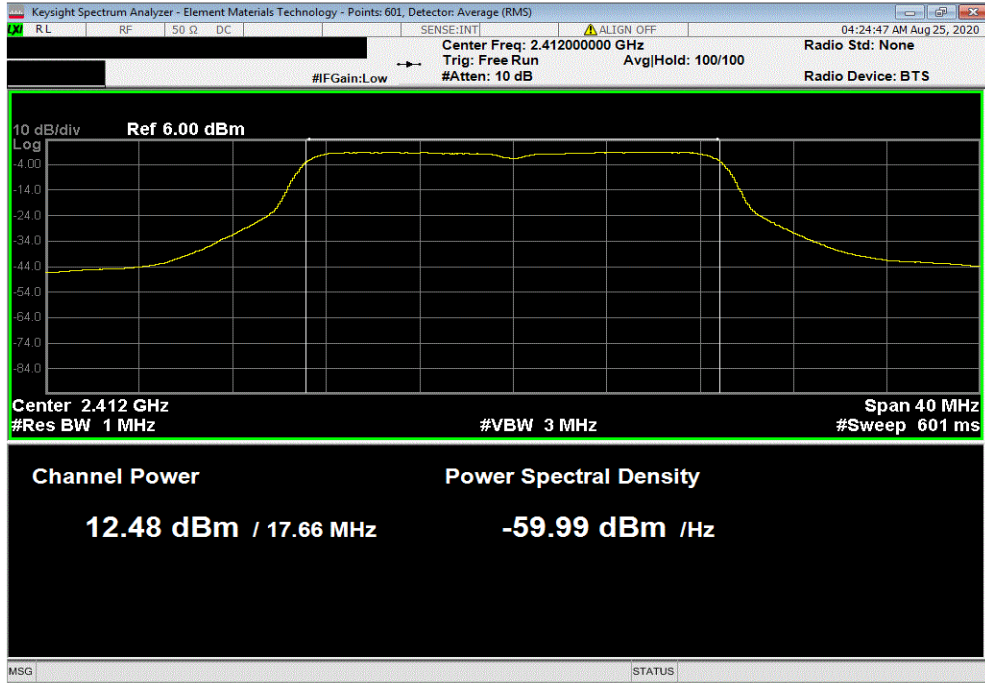


# OUTPUT POWER

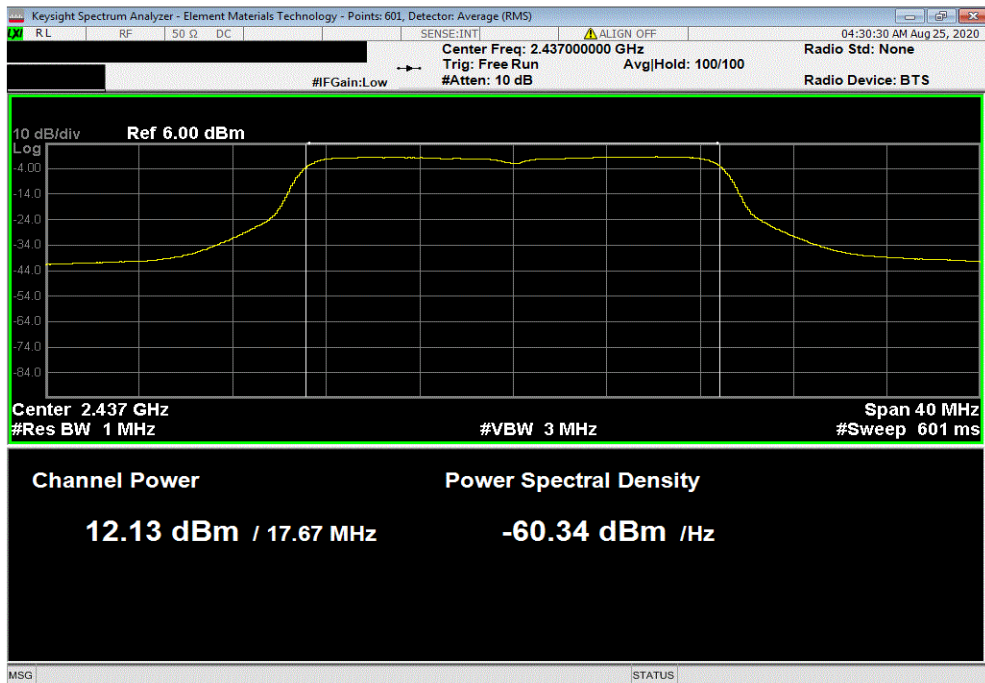


TbTx 2019.08.30.0 XMI 2020.03.25.0

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		

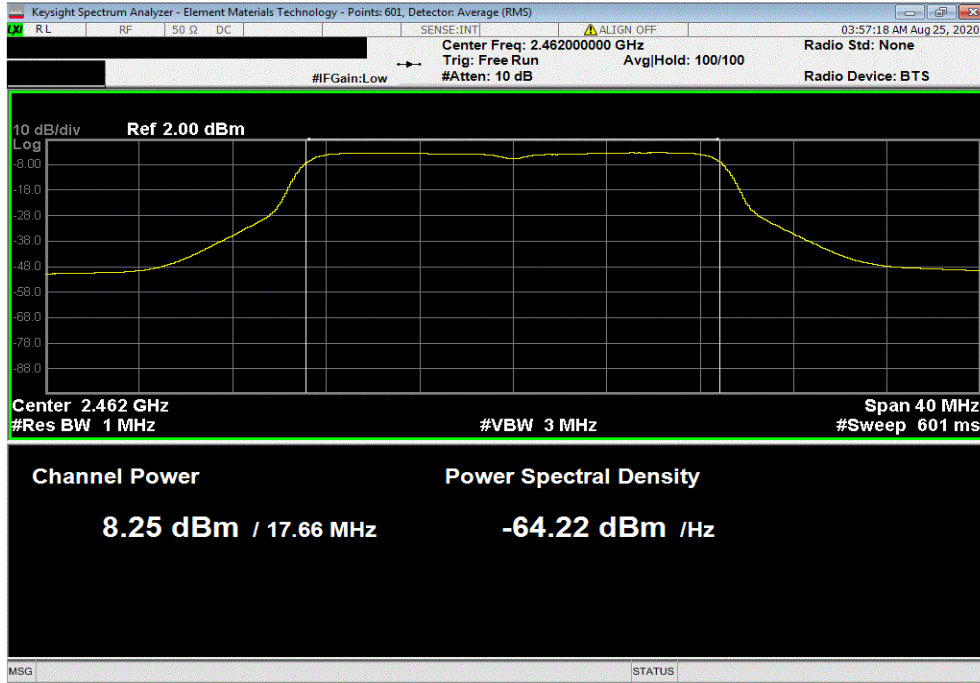


# OUTPUT POWER



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)



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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.	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

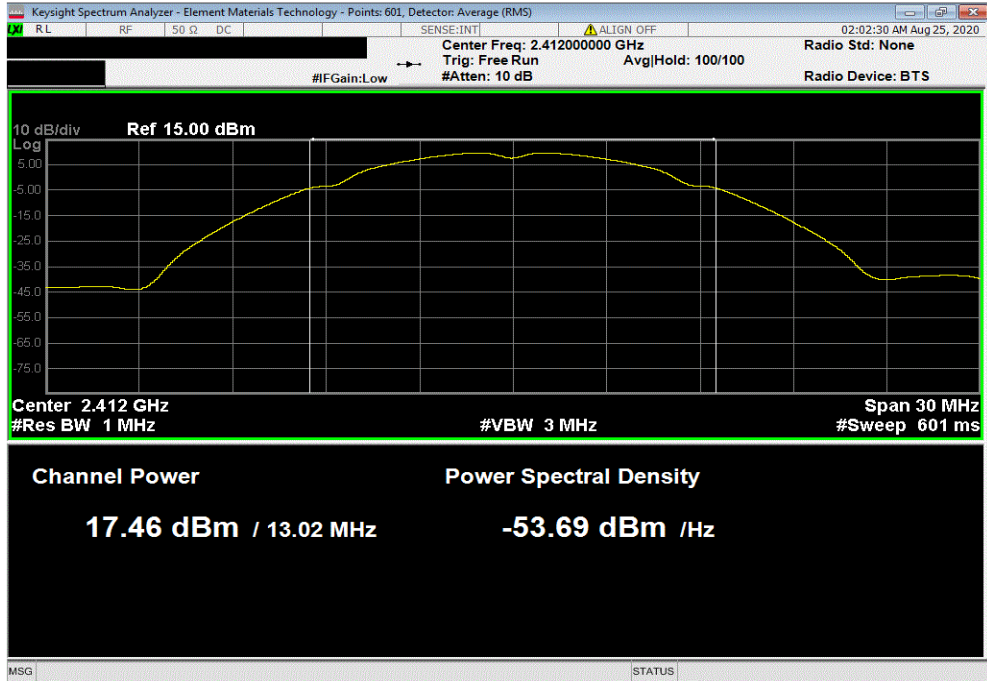
EUT: USB to WiFi Adapter		Work Order: TRNE0022	
Serial Number: 0022A301FF5D		Date: 24-Aug-20	
Customer: Trane		Temperature: 21.9 °C	
Attendees: Chris Vanderkoy		Humidity: 57.3% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Dustin Sparks		Power: 5VDC via USB	
Job Site: MN08		Test Method	
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
	Mid Channel 6, 2437 MHz	17.259	0
	High Channel 11, 2462 MHz	16.582	0
802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	17.229	0.3
	Mid Channel 6, 2437 MHz	17.044	0.3
	High Channel 11, 2462 MHz	16.367	0.3
802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	15.903	0.2
	Mid Channel 6, 2437 MHz	15.687	0.2
	High Channel 11, 2462 MHz	10.681	0.2
802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	13.786	1.2
	Mid Channel 6, 2437 MHz	13.627	1
	High Channel 11, 2462 MHz	9.731	1
802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	10.525	1.4
	Mid Channel 6, 2437 MHz	12.265	1.4
	High Channel 11, 2462 MHz	9.344	1.4
802.11(n) MCS0			
	Low Channel 1, 2412 MHz	15.64	0.2
	Mid Channel 6, 2437 MHz	15.478	0.2
	High Channel 11, 2462 MHz	9.336	0.2
802.11(n) MCS7			
	Low Channel 1, 2412 MHz	12.475	1.5
	Mid Channel 6, 2437 MHz	12.128	1.5
	High Channel 11, 2462 MHz	8.246	1.5

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

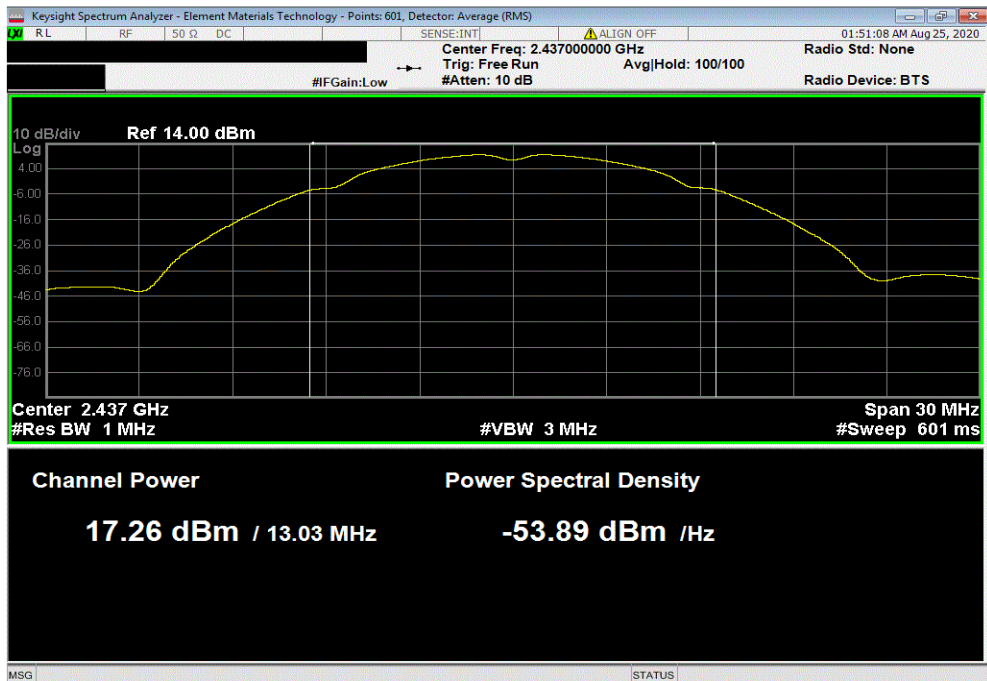


Tel: 2019.08.30.0 XMI 2020.03.25.0

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

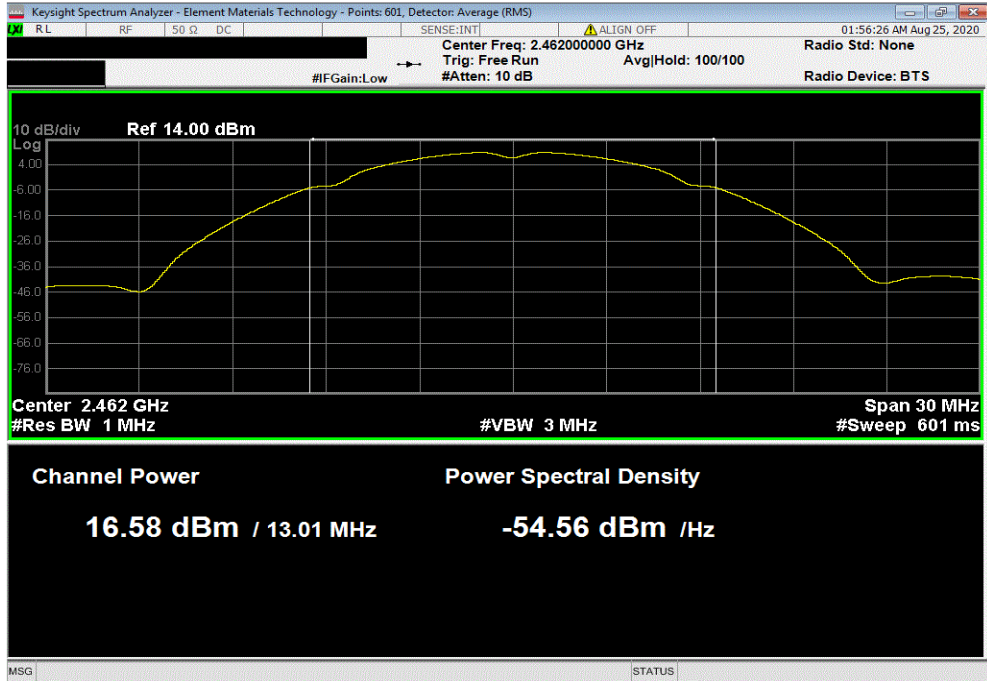


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

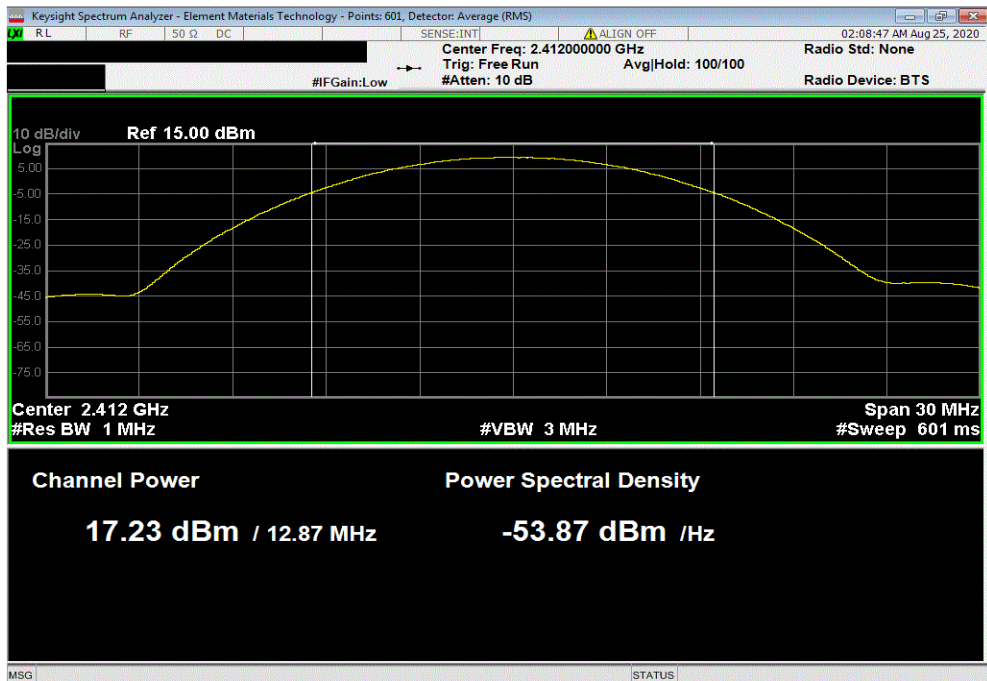


Tel: 2019.08.30.0 XMI 2020.03.25.0

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

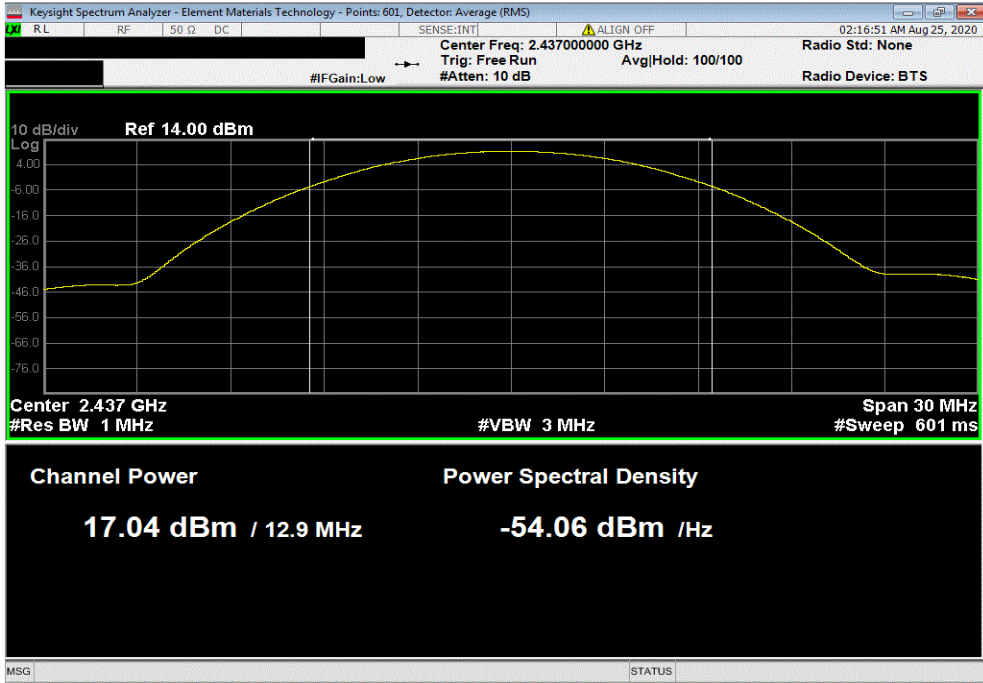


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

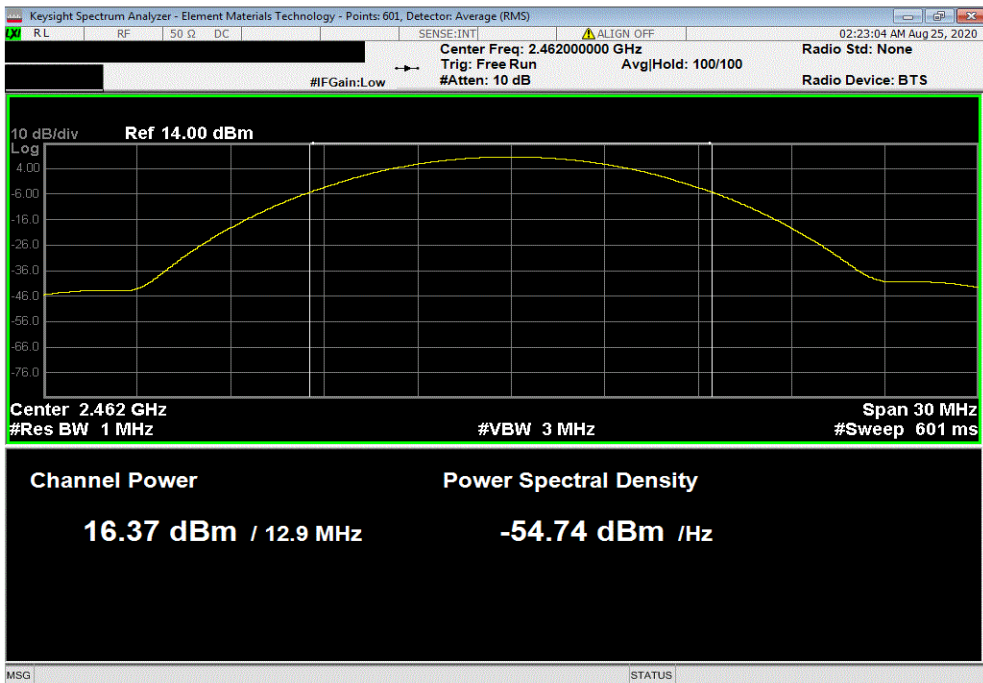


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

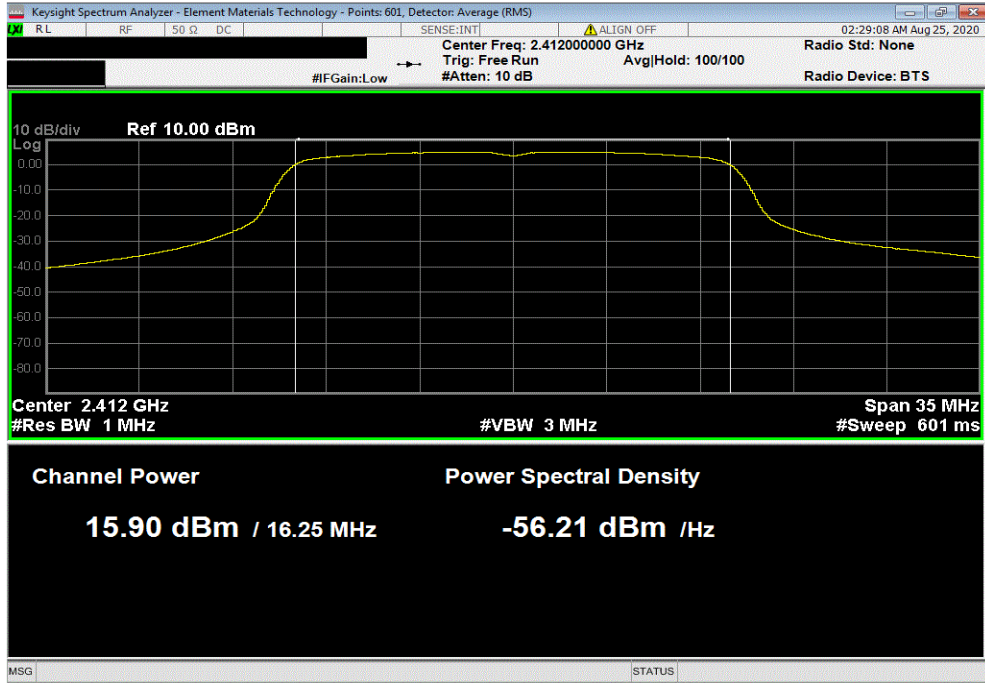


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

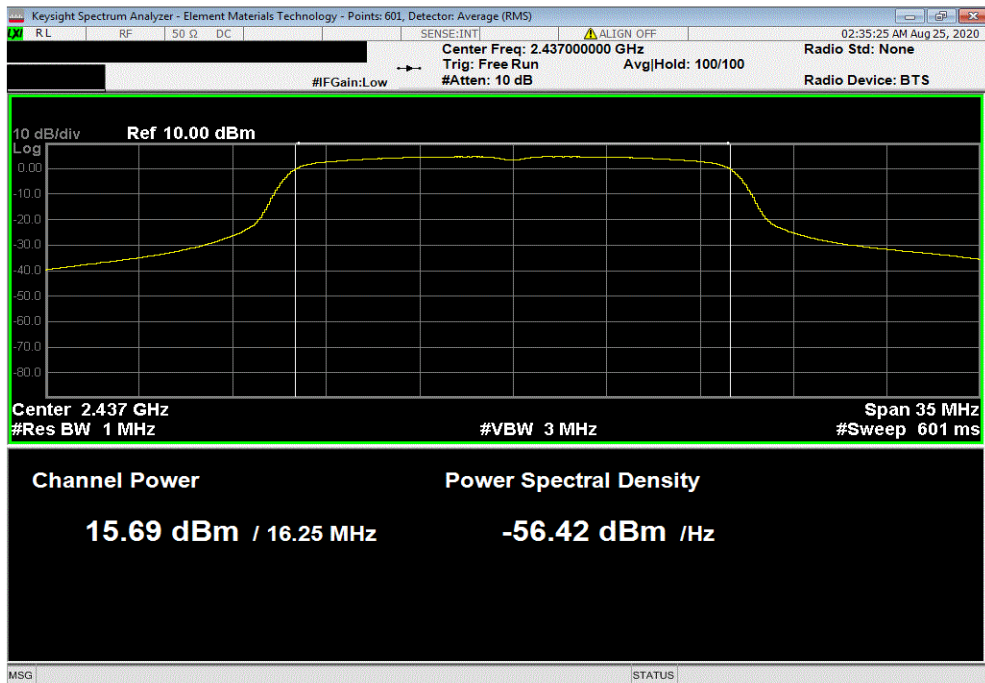


Tel: 2019.08.30.0 XMI 2020.03.25.0

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



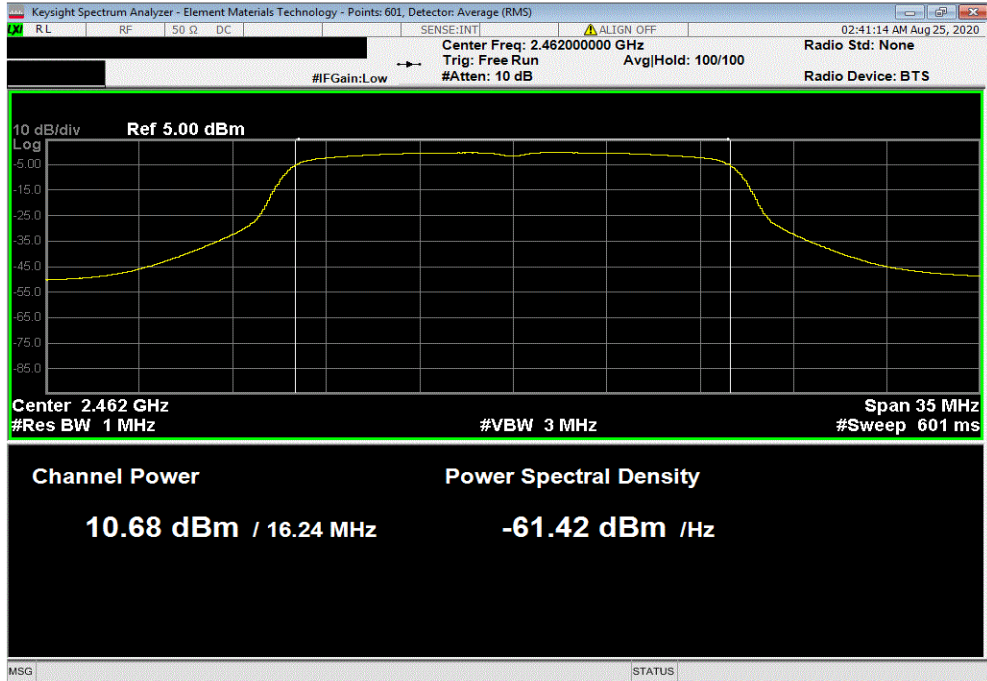


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

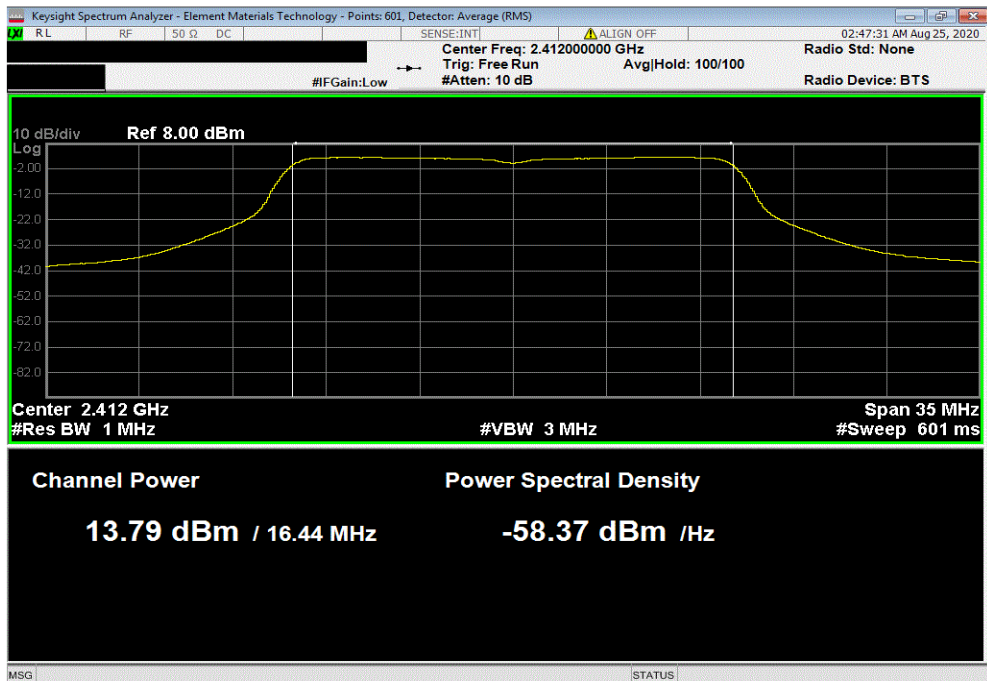


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

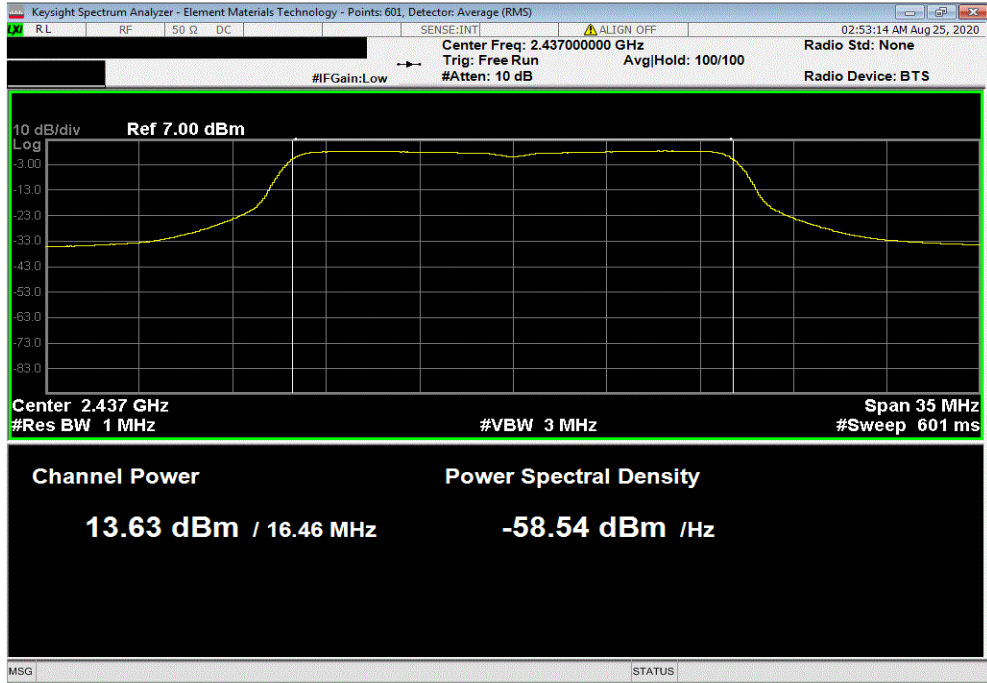


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

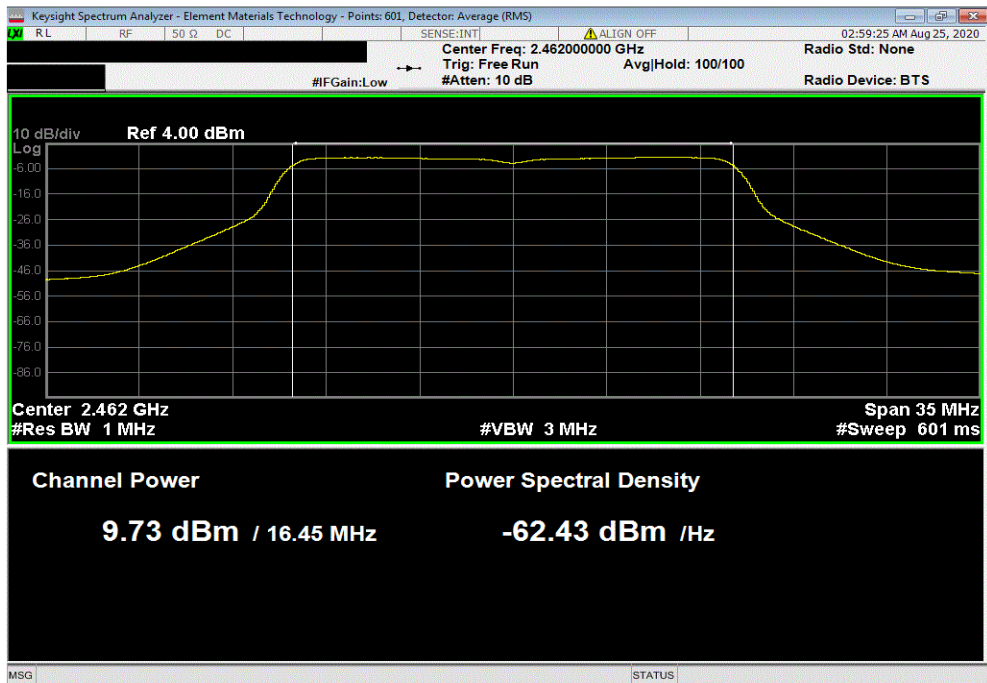


Tel: 2019.08.30.0 XMI 2020.03.25.0

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

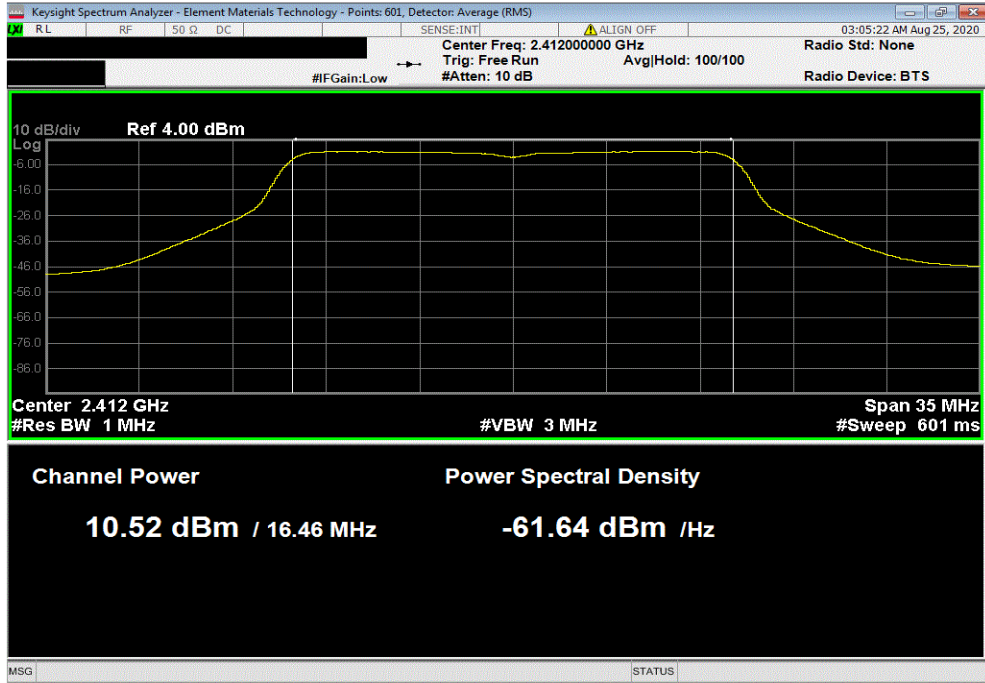


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

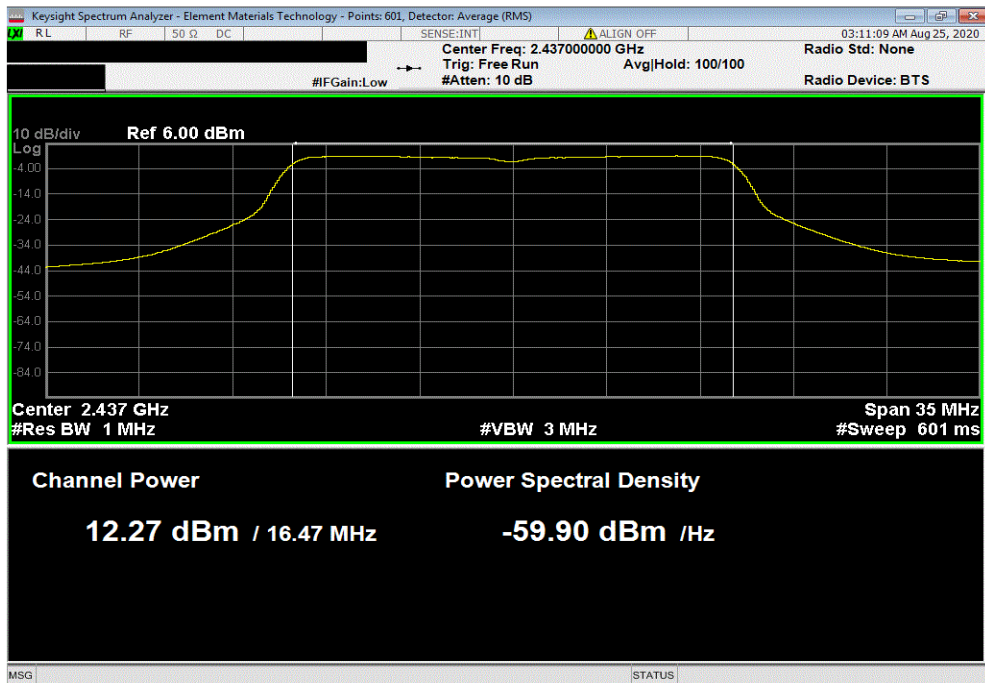


TbTx 2019.08.30.0 XMI 2020.03.25.0

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)	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

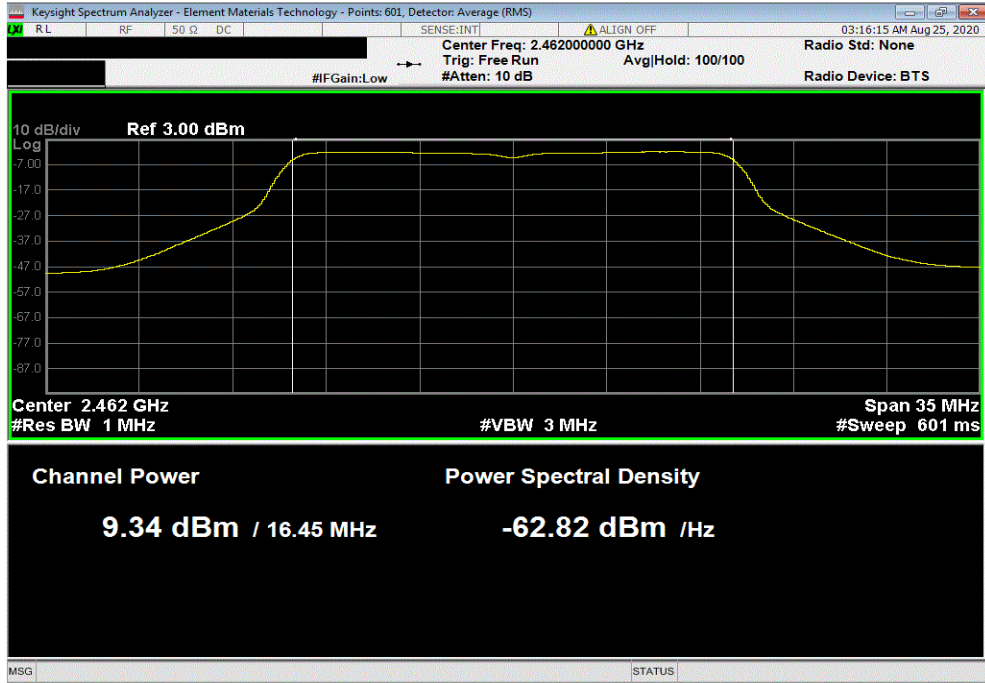


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

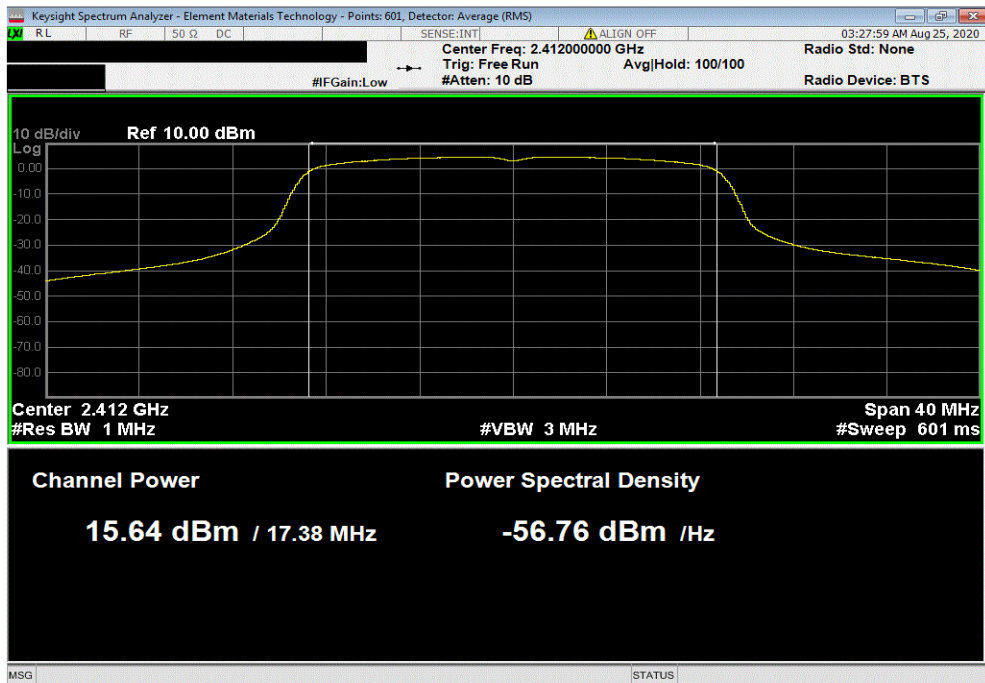


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

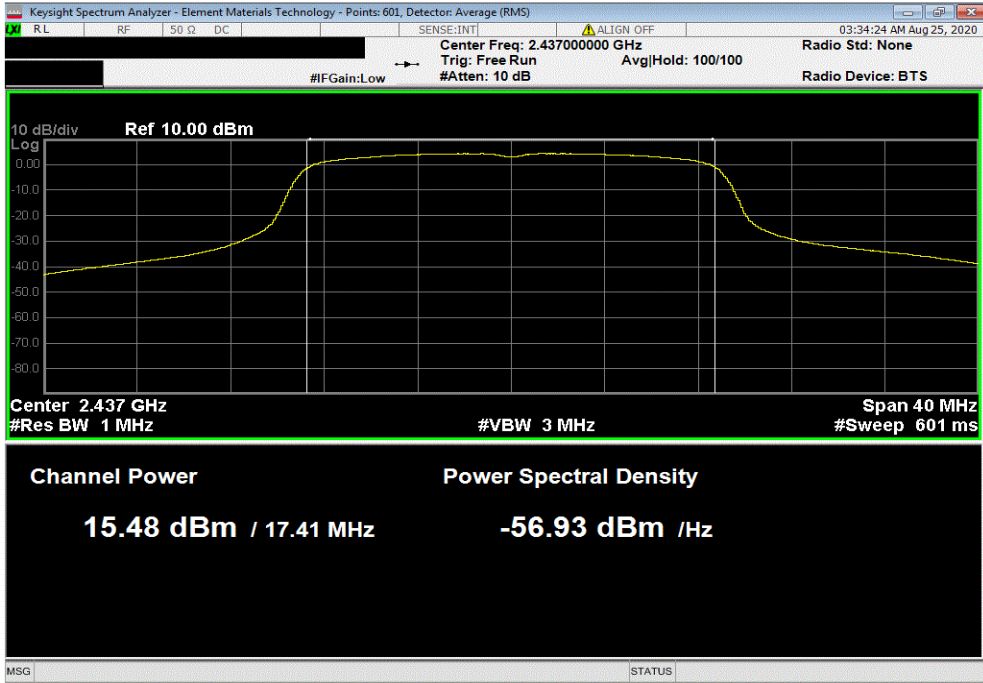


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

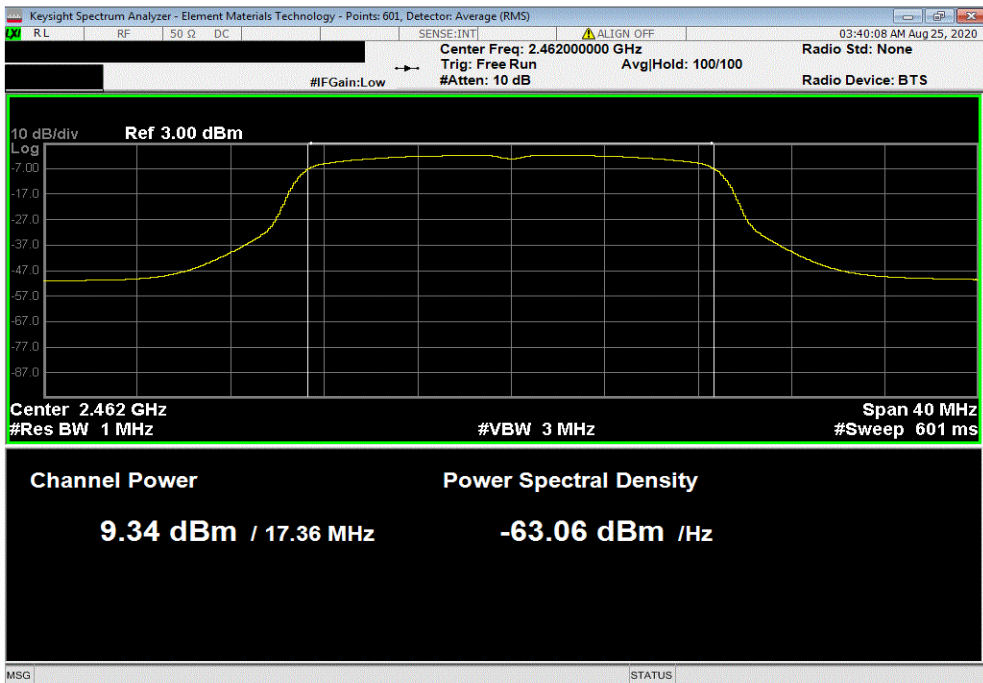


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

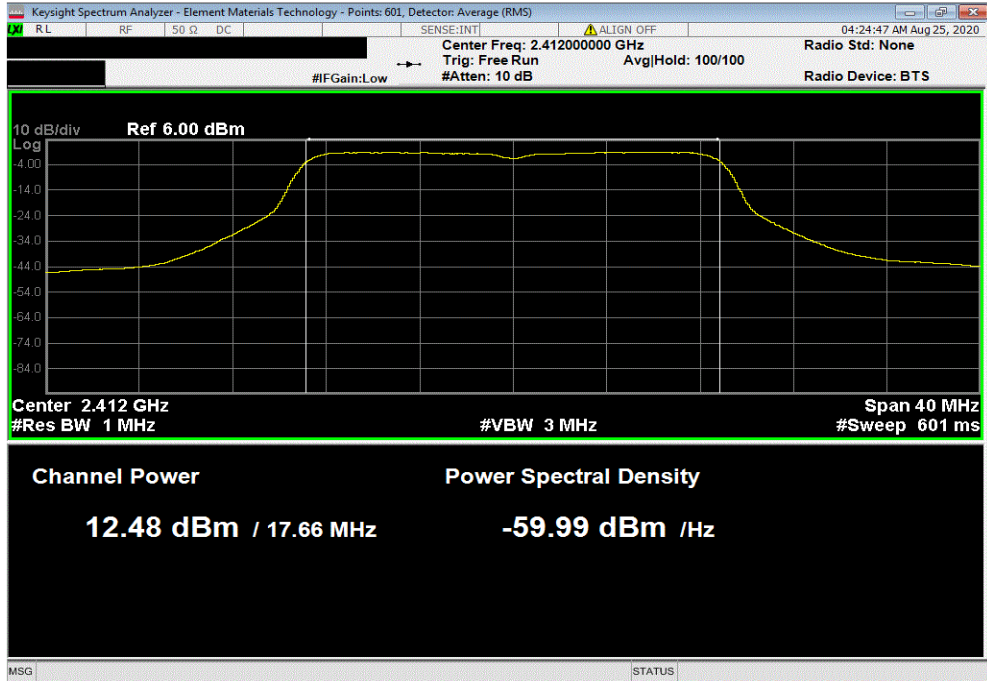


# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

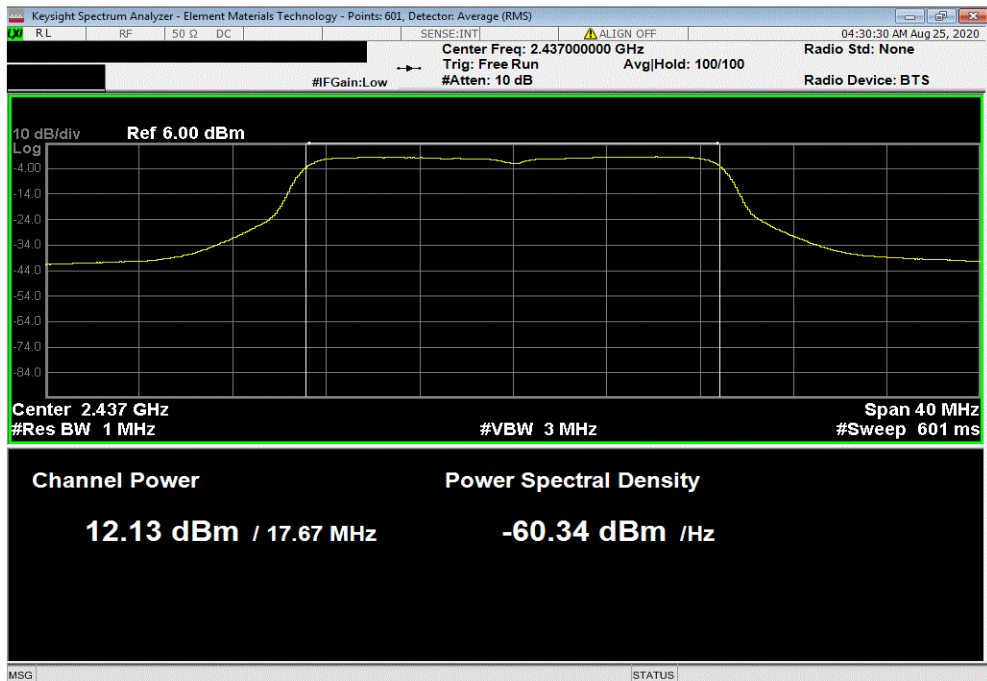


TbTx 2019.08.30.0 XMI 2020.03.25.0

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

