

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMIT 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. 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.

The antenna gain was added to the conducted average output power to calculate the EIRP.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TMTx 2019.08.30.0 XMM 2019.09.05

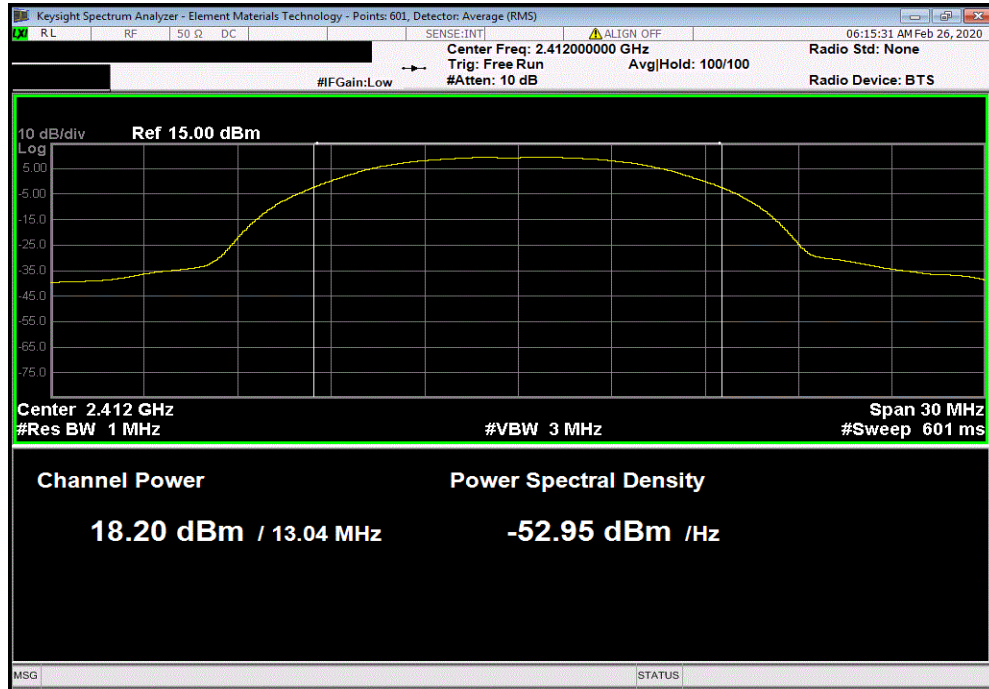
EUT: C2-03CPU				Work Order: KOYO0001				
Serial Number: N/A				Date: 25-Feb-20				
Customer: Koyo Electronics Industries Co., LTD				Temperature: 22.7 °C				
Attendees: None				Humidity: 26.6% RH				
Project: None				Barometric Pres.: 1028 mbar				
Tested by: Andrew Rogstad		Power: 24VDC		Job Site: MN08				
TEST SPECIFICATIONS				Test Method				
FCC 15.247:2020				ANSI C63.10:2013				
COMMENTS								
Reference level offset includes measurement cable, DC block, and 20 dB attenuator. Data shown with highest gain antenna variant.								
DEVIATIONS FROM TEST STANDARD								
None								
Configuration #	17	Signature 						
		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								
20 MHz Bandwidth								
802.11(b) 1 Mbps								
	Low Channel 1, 2412 MHz	18.202	0	18.2	1.8	20	36	Pass
	Mid Channel 6, 2437 MHz	17.581	0	17.6	1.8	19.4	36	Pass
	High Channel 11, 2462 MHz	17.661	0	17.7	1.8	19.5	36	Pass
802.11(b) 11 Mbps								
	Low Channel 1, 2412 MHz	17.945	0	17.9	1.8	19.7	36	Pass
	Mid Channel 6, 2437 MHz	17.503	0	17.5	1.8	19.3	36	Pass
	High Channel 11, 2462 MHz	17.606	0	17.6	1.8	19.4	36	Pass
802.11(g) 6 Mbps								
	Low Channel 1, 2412 MHz	15.689	0	15.7	1.8	17.5	36	Pass
	Mid Channel 6, 2437 MHz	16.628	0	16.6	1.8	18.4	36	Pass
	High Channel 11, 2462 MHz	15.649	0	15.6	1.8	17.4	36	Pass
802.11(g) 36 Mbps								
	Low Channel 1, 2412 MHz	14.768	0	14.8	1.8	16.6	36	Pass
	Mid Channel 6, 2437 MHz	14.381	0	14.4	1.8	16.2	36	Pass
	High Channel 11, 2462 MHz	14.453	0	14.5	1.8	16.3	36	Pass
802.11(g) 54 Mbps								
	Low Channel 1, 2412 MHz	12.839	0	12.8	1.8	14.6	36	Pass
	Mid Channel 6, 2437 MHz	12.472	0	12.5	1.8	14.3	36	Pass
	High Channel 11, 2462 MHz	12.559	0	12.6	1.8	14.4	36	Pass
802.11(n) MCS0								
	Low Channel 1, 2412 MHz	15.428	0	15.4	1.8	17.2	36	Pass
	Mid Channel 6, 2437 MHz	16.565	0	16.6	1.8	18.4	36	Pass
	High Channel 11, 2462 MHz	15.545	0	15.5	1.8	17.3	36	Pass
802.11(n) MCS7								
	Low Channel 1, 2412 MHz	11.815	0	11.8	1.8	13.6	36	Pass
	Mid Channel 6, 2437 MHz	11.477	0	11.5	1.8	13.3	36	Pass
	High Channel 11, 2462 MHz	11.606	0	11.6	1.8	13.4	36	Pass
40 MHz Bandwidth								
802.11(n) MCS0								
	Low Channel 1/5, 2422 MHz	15.416	0	15.4	1.8	17.2	36	Pass
	Mid Channel 4/8, 2437 MHz	16.771	0	16.8	1.8	18.6	36	Pass
	High Channel 7/11, 2452 MHz	15.144	0	15.1	1.8	16.9	36	Pass
802.11(n) MCS7								
	Low Channel 1/5, 2422 MHz	11.879	0	11.9	1.8	13.7	36	Pass
	Mid Channel 4/8, 2437 MHz	11.533	0	11.5	1.8	13.3	36	Pass
	High Channel 7/11, 2452 MHz	11.713	0	11.7	1.8	13.5	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

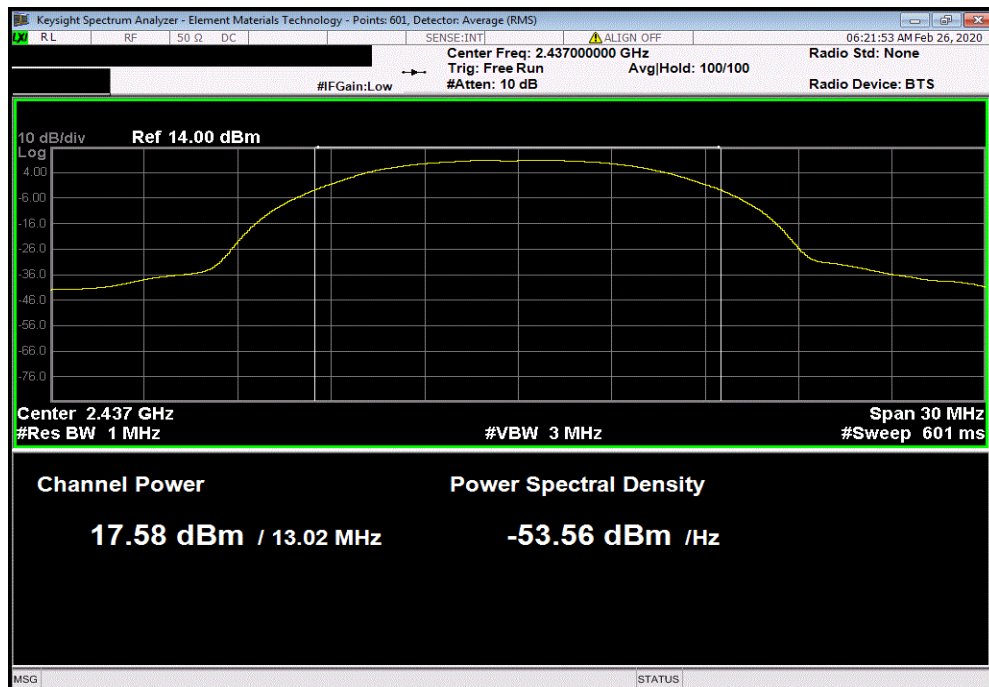


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
18.202	0	18.2	1.8	20	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
17.581	0	17.6	1.8	19.4	36	Pass

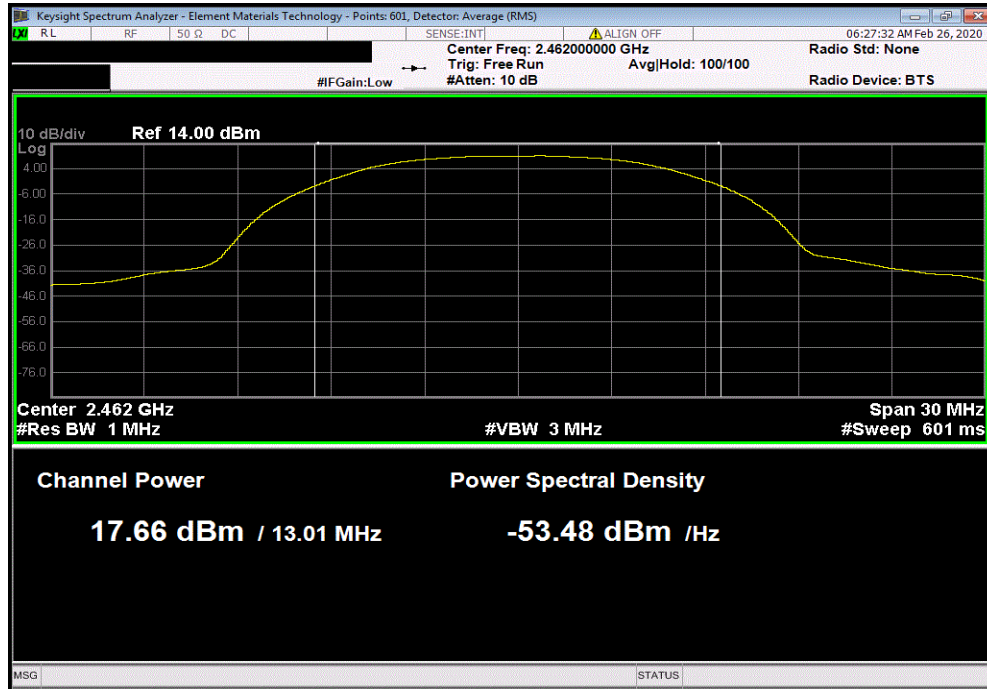


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

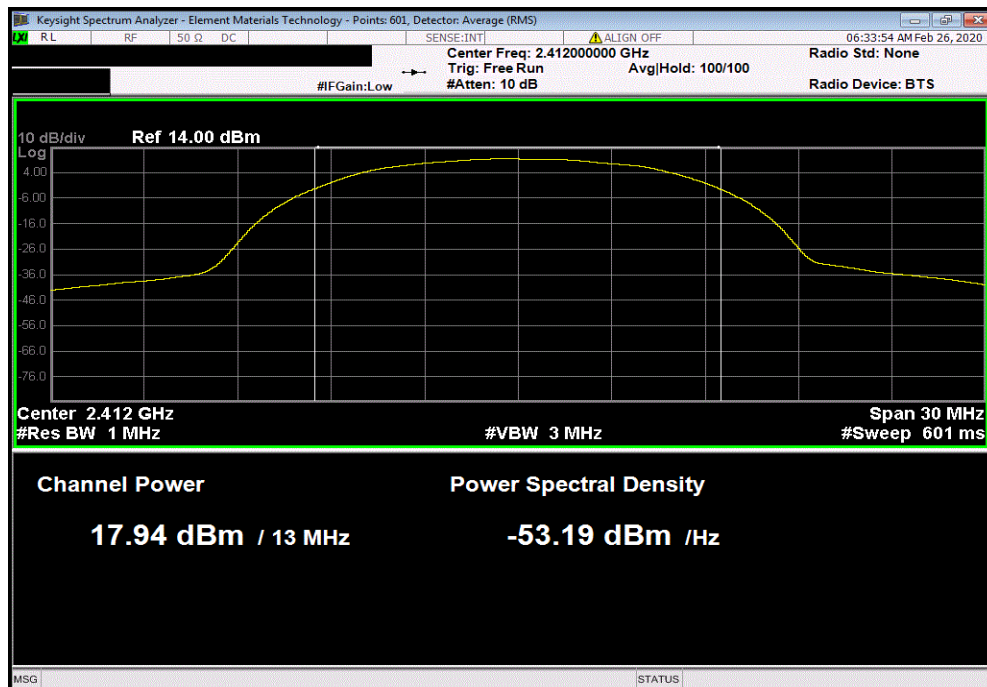


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.661	0	17.7	1.8	19.5	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
17.945	0	17.9	1.8	19.7	36	Pass

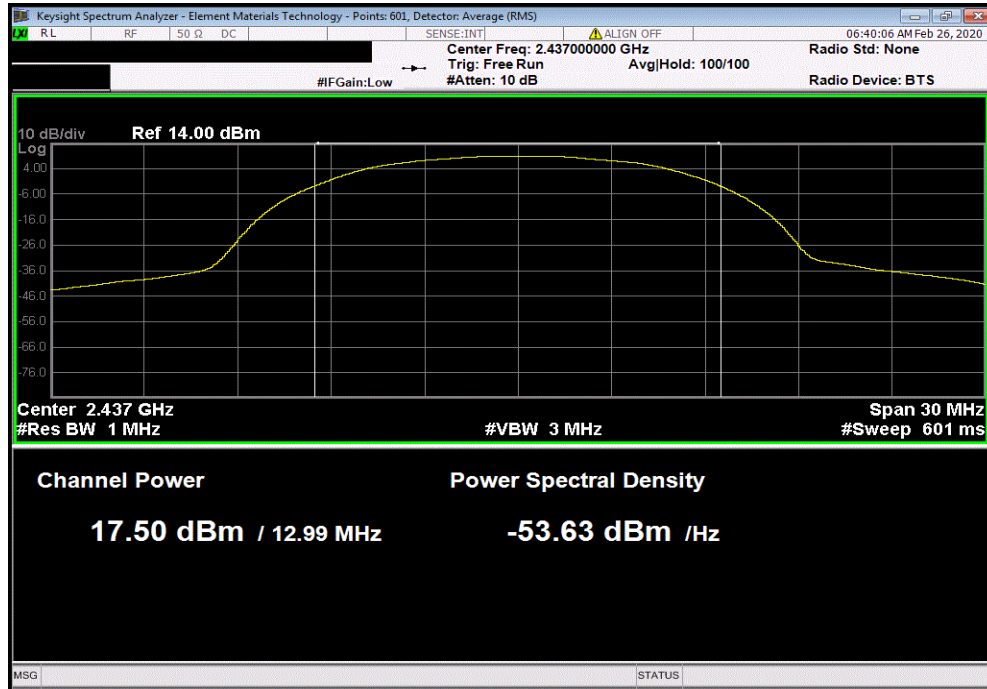


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

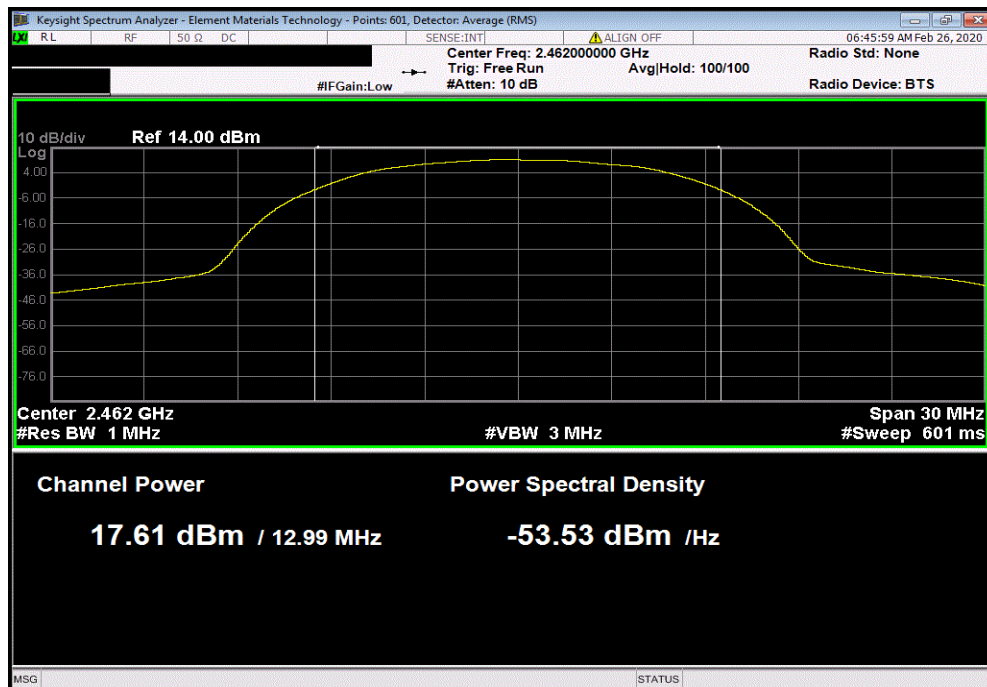


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
17.503	0	17.5	1.8	19.3	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
17.606	0	17.6	1.8	19.4	36	Pass

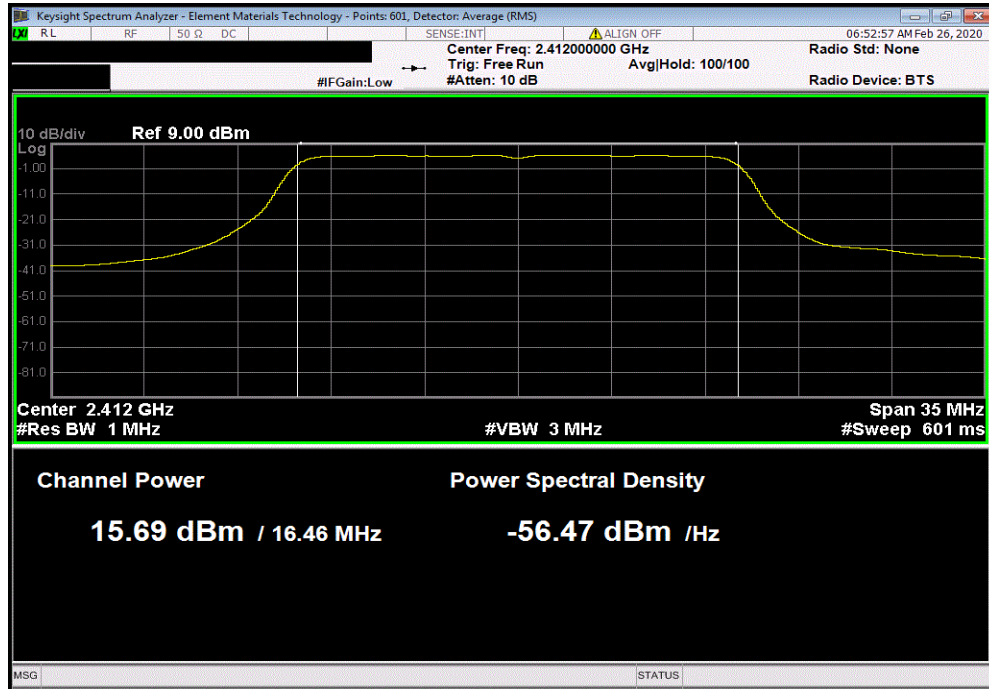


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

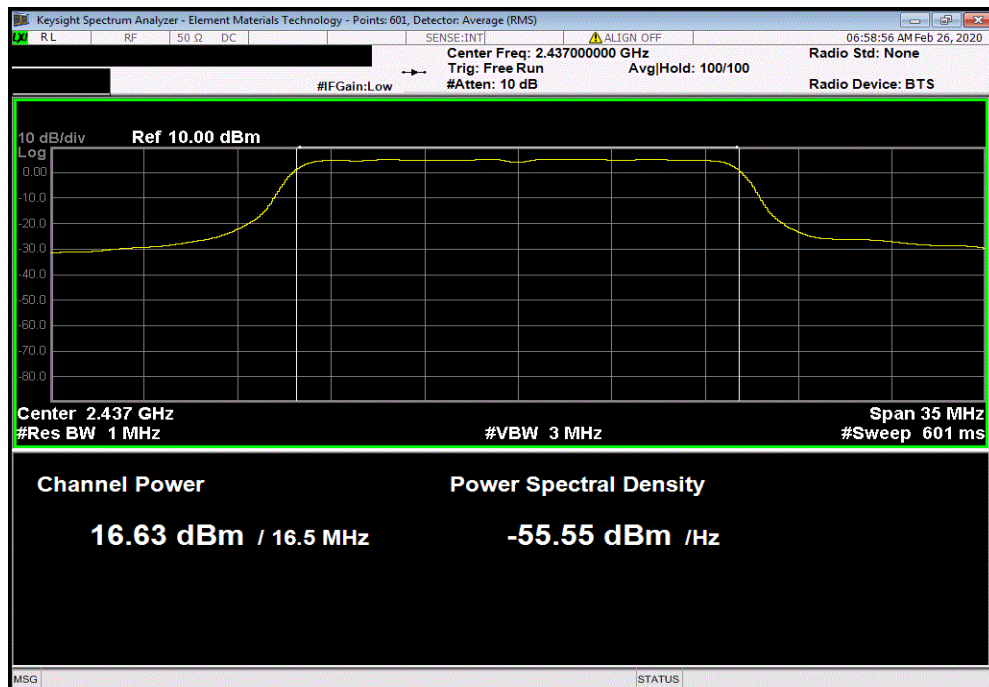


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.689	0	15.7	1.8	17.5	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
16.628	0	16.6	1.8	18.4	36	Pass

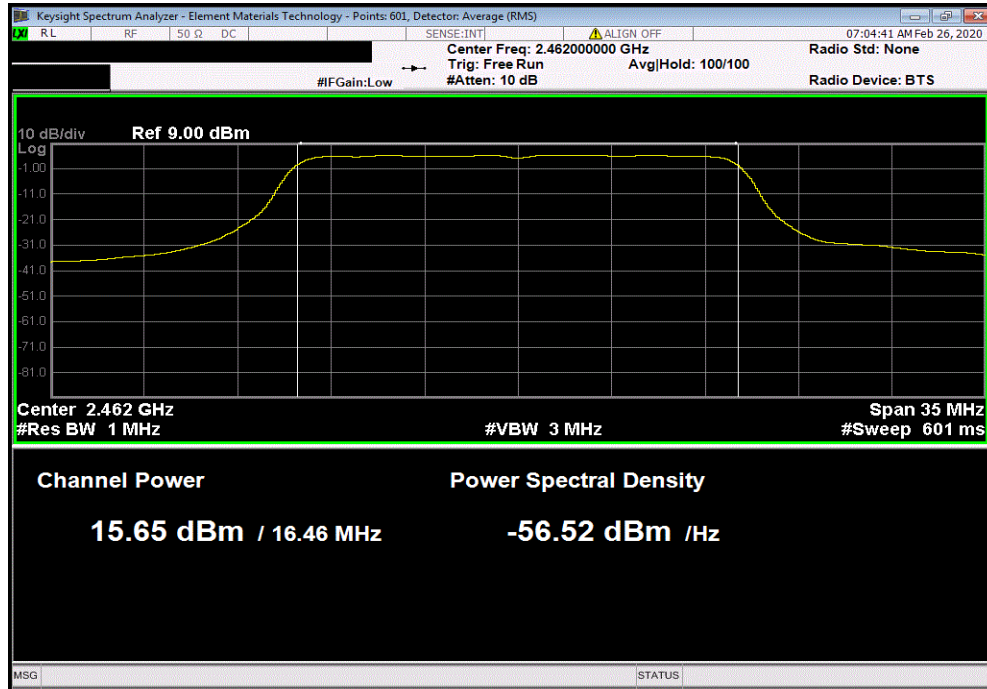


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

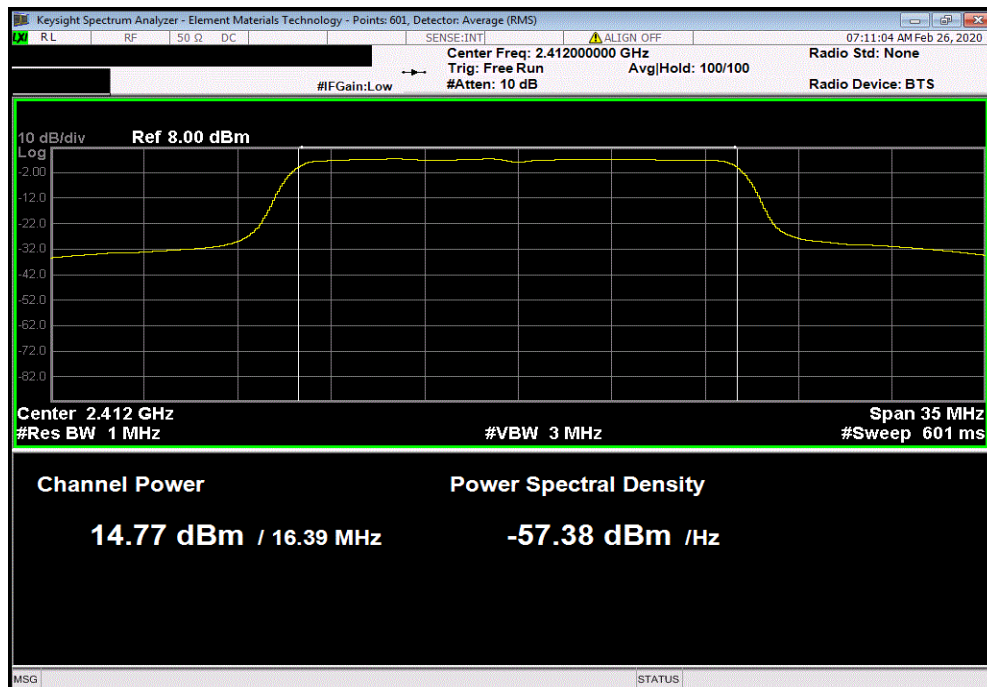


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.649	0	15.6	1.8	17.4	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
14.768	0	14.8	1.8	16.6	36	Pass

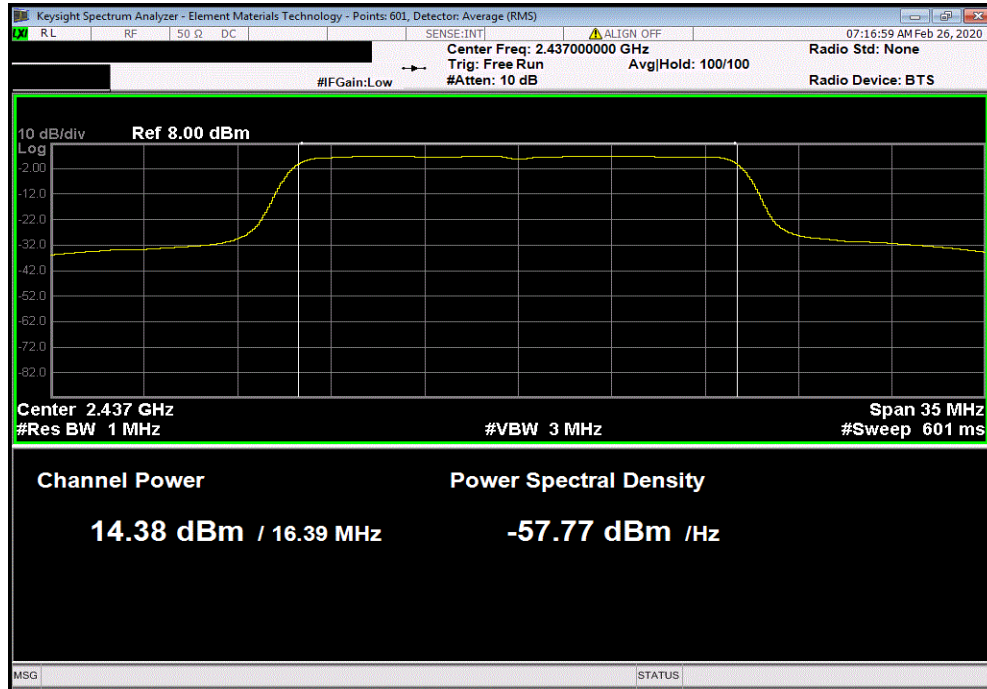


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

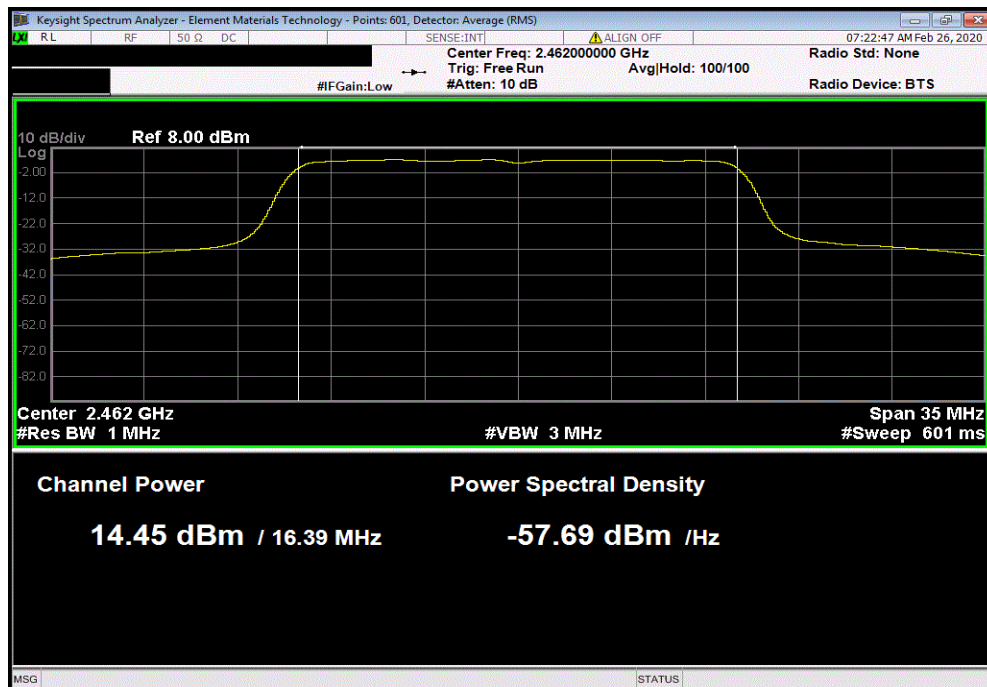


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.381	0	14.4	1.8	16.2	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
14.453	0	14.5	1.8	16.3	36	Pass

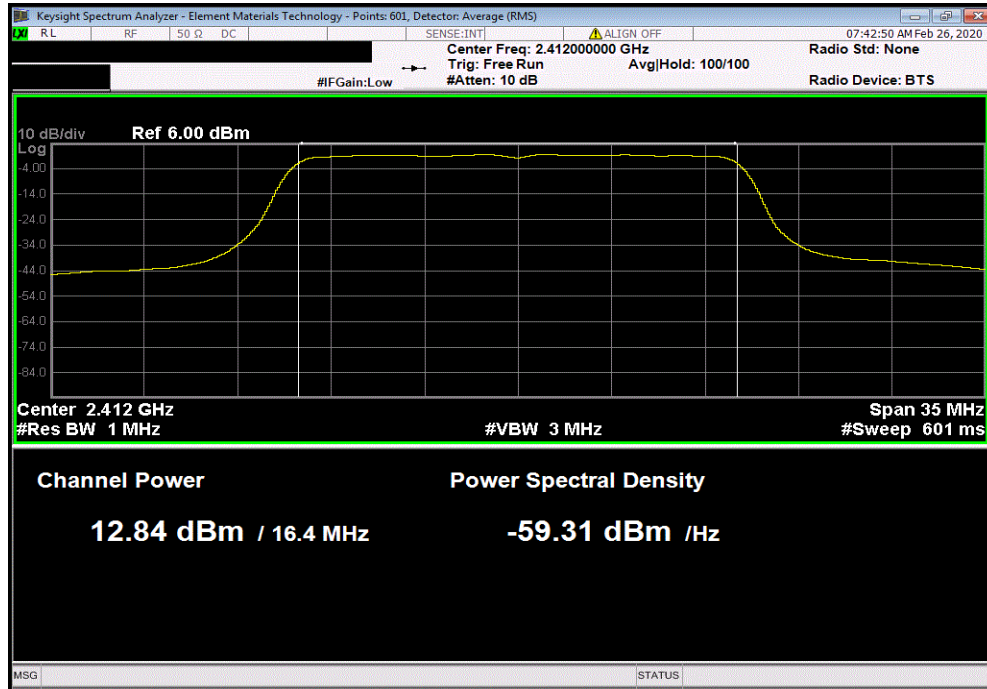


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

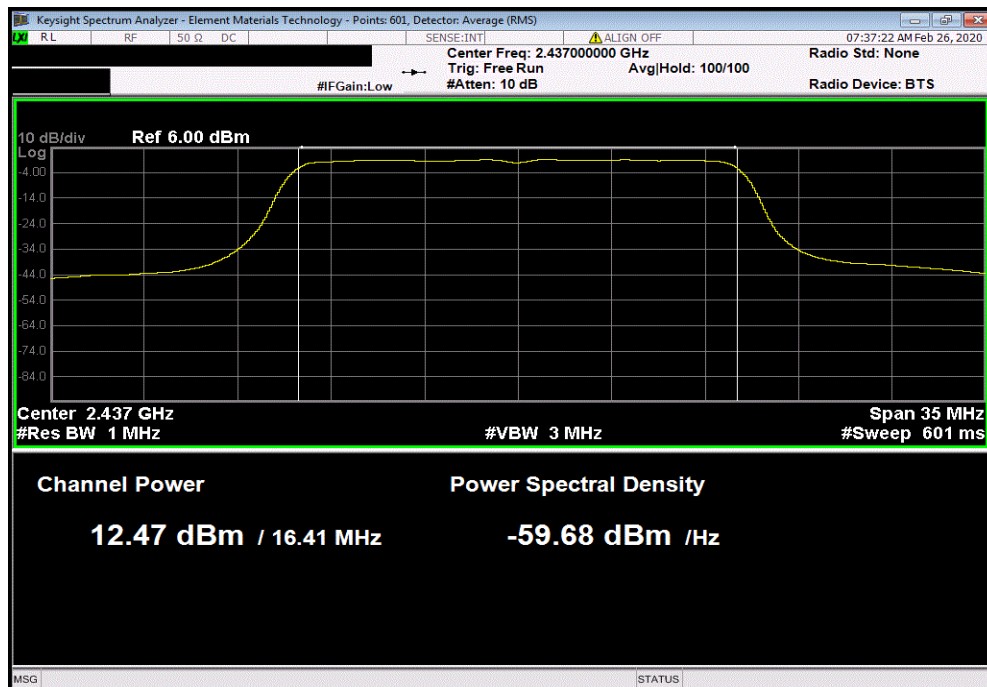


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.839	0	12.8	1.8	14.6	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
12.472	0	12.5	1.8	14.3	36	Pass

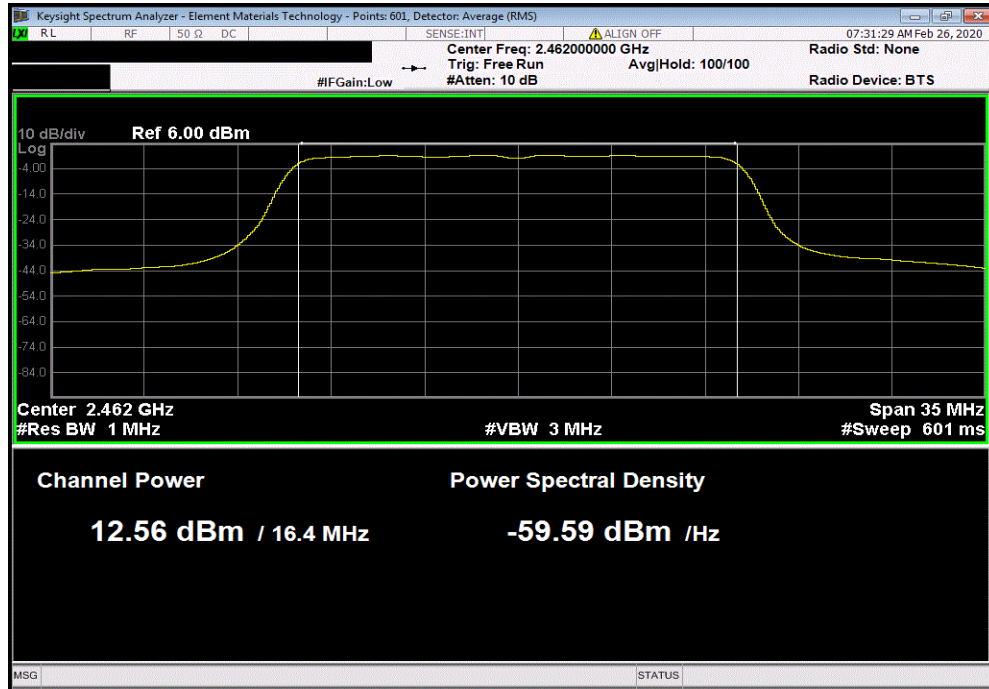


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

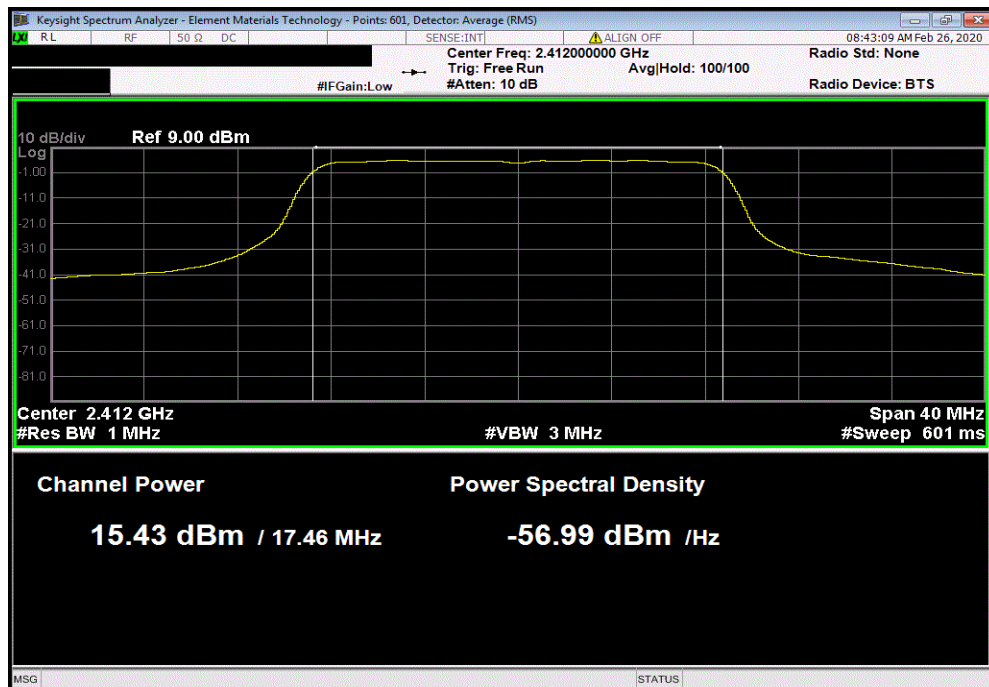


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.559	0	12.6	1.8	14.4	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
15.428	0	15.4	1.8	17.2	36	Pass

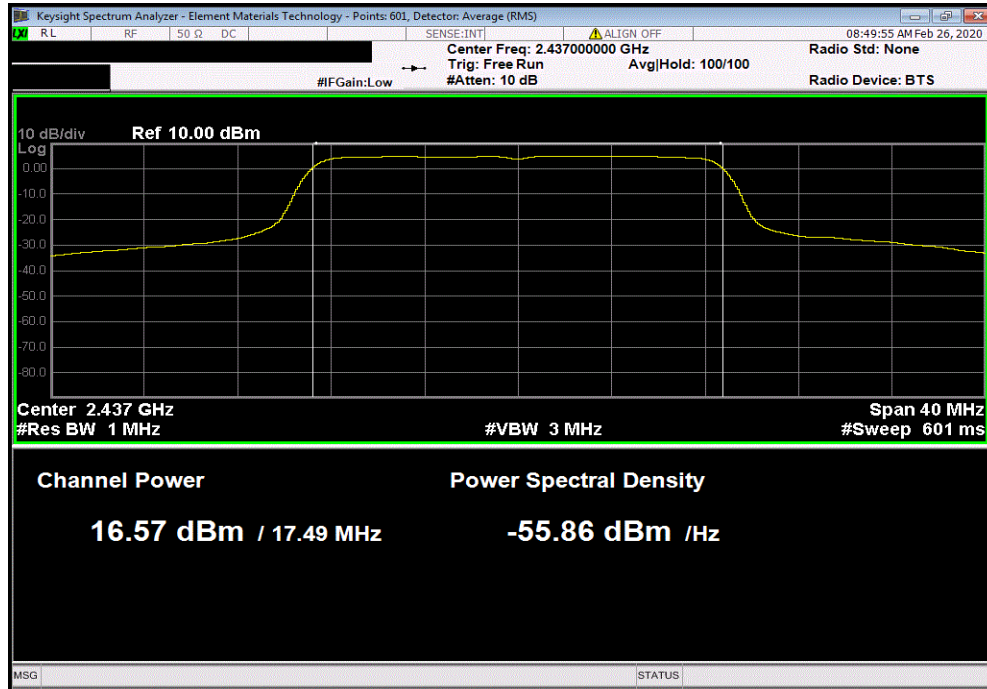


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

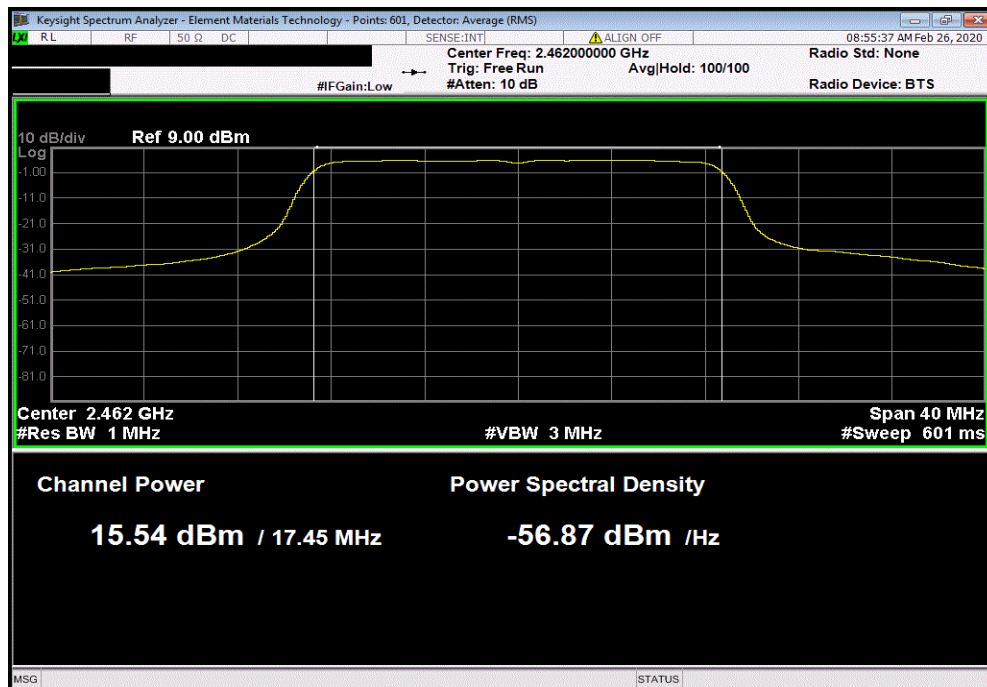


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.565	0	16.6	1.8	18.4	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
15.545	0	15.5	1.8	17.3	36	Pass

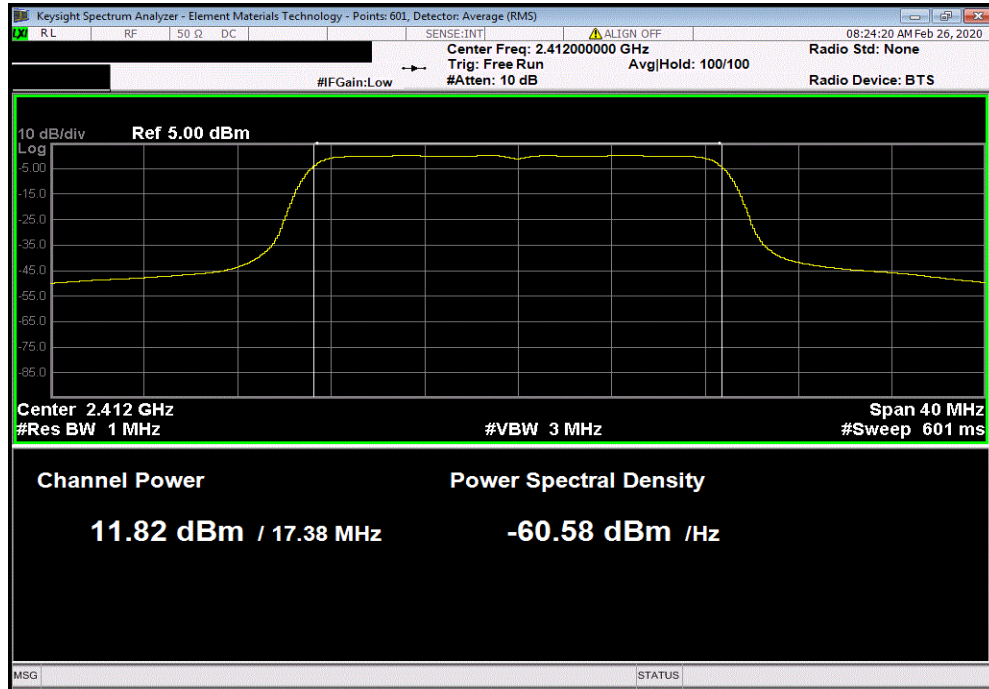


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

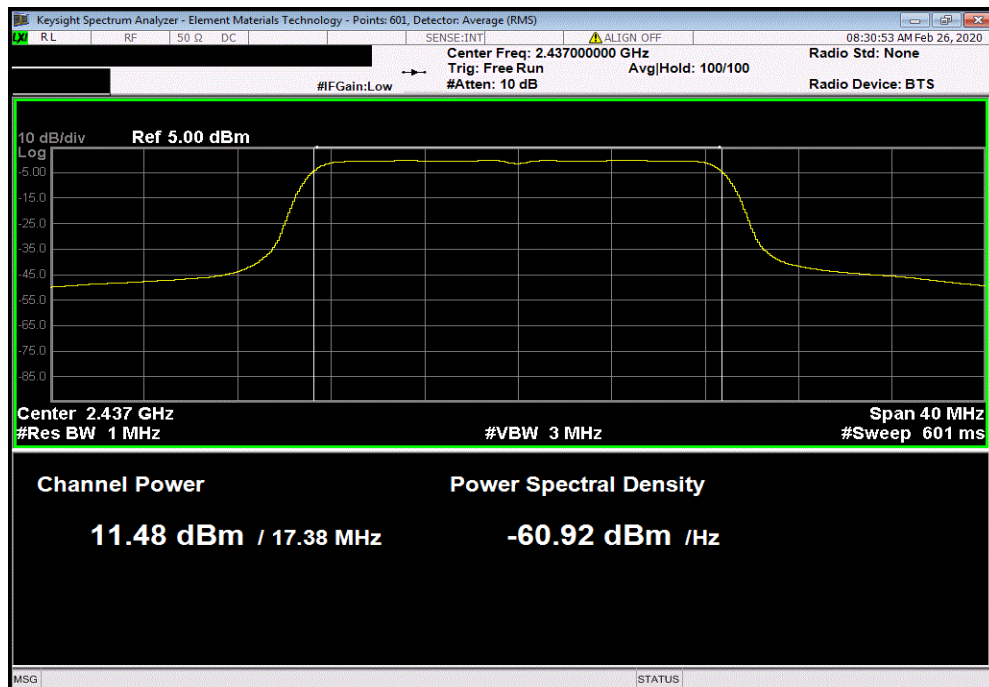


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
11.815	0	11.8	1.8	13.6	36	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 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
11.477	0	11.5	1.8	13.3	36	Pass

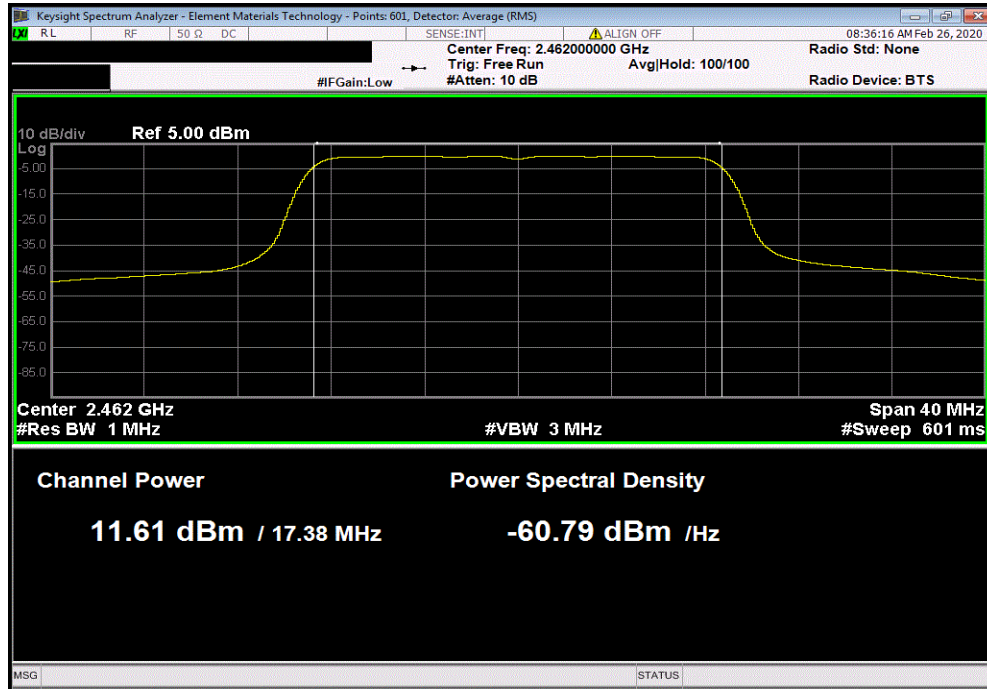


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

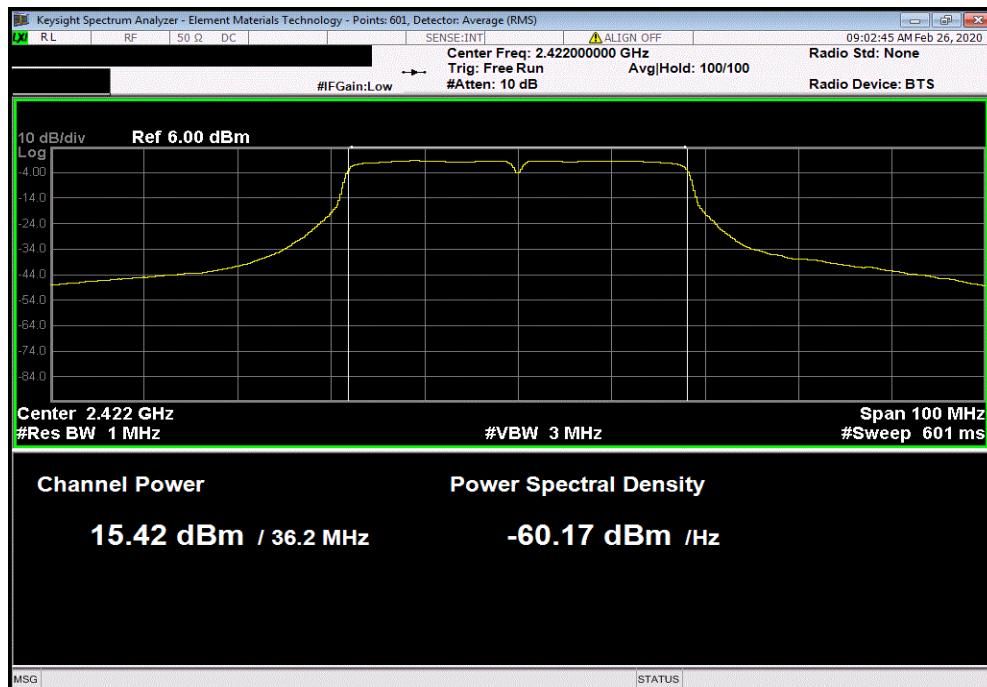


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2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.606	0	11.6	1.8	13.4	36	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.416	0	15.4	1.8	17.2	36	Pass

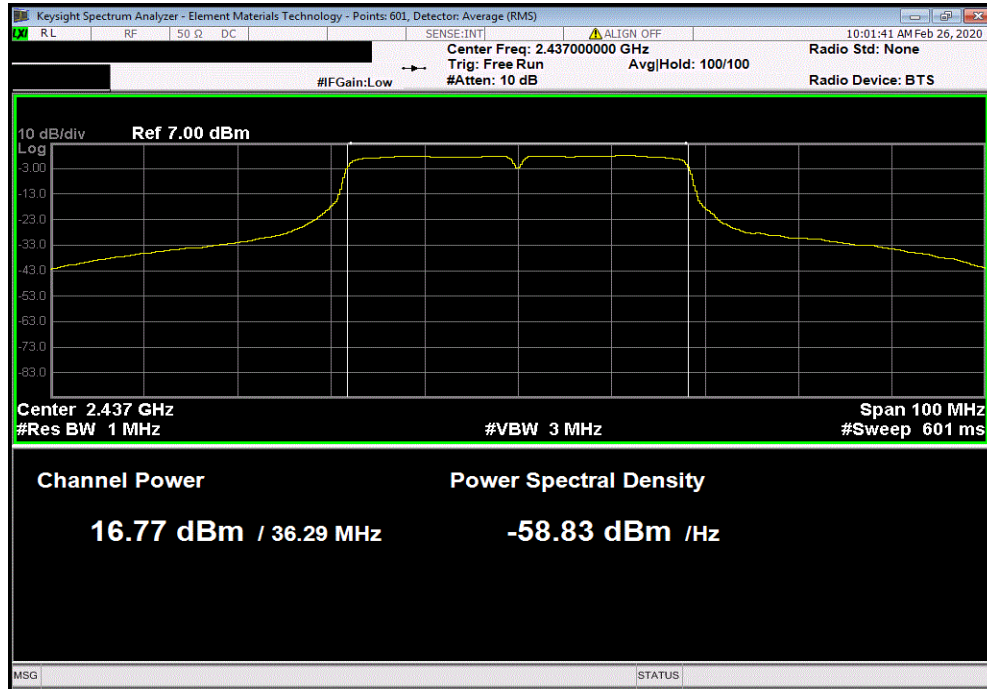


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

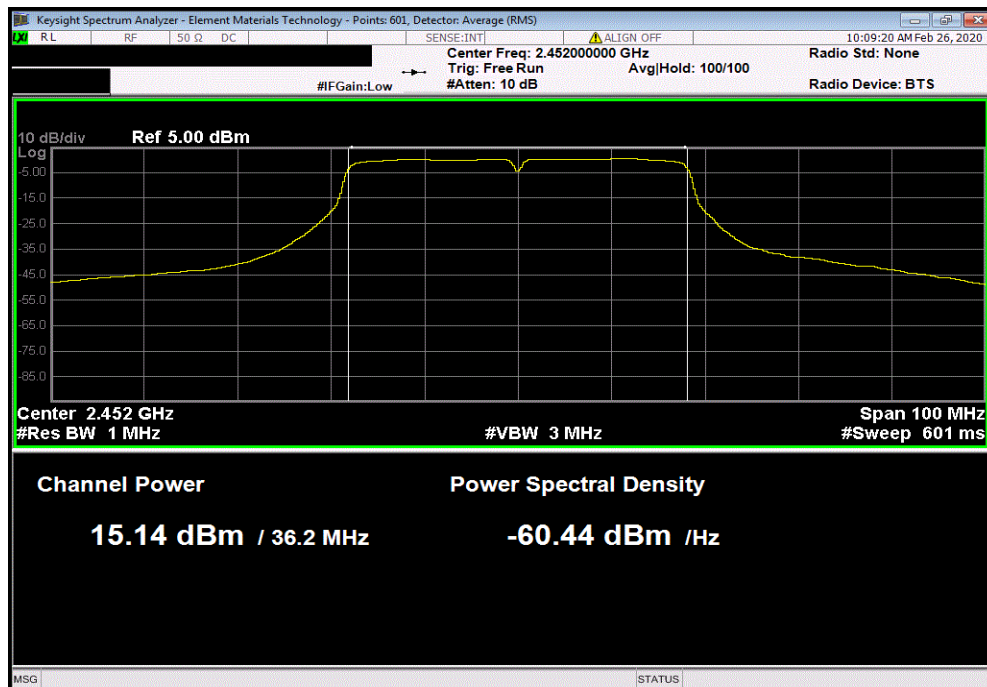


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2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.771	0	16.8	1.8	18.6	36	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
15.144	0	15.1	1.8	16.9	36	Pass

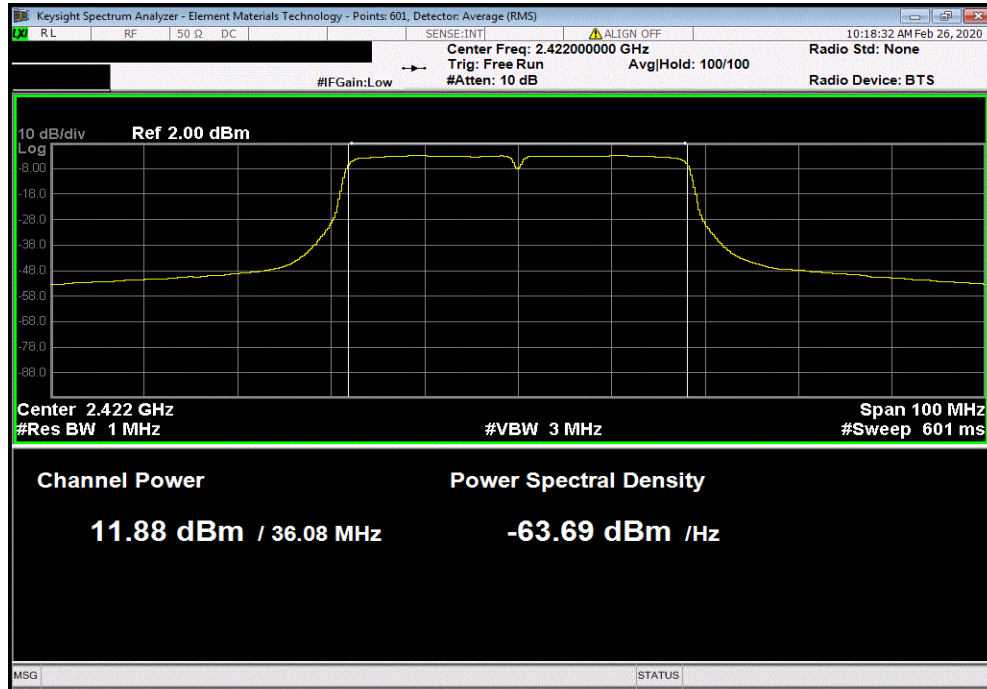


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

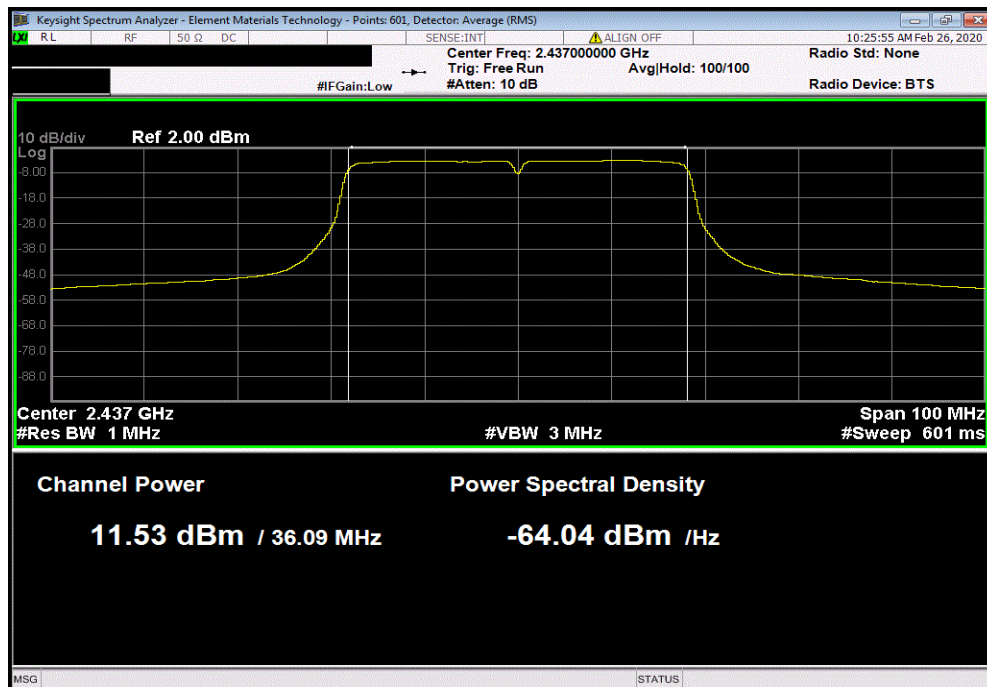


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2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.879	0	11.9	1.8	13.7	36	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.533	0	11.5	1.8	13.3	36	Pass

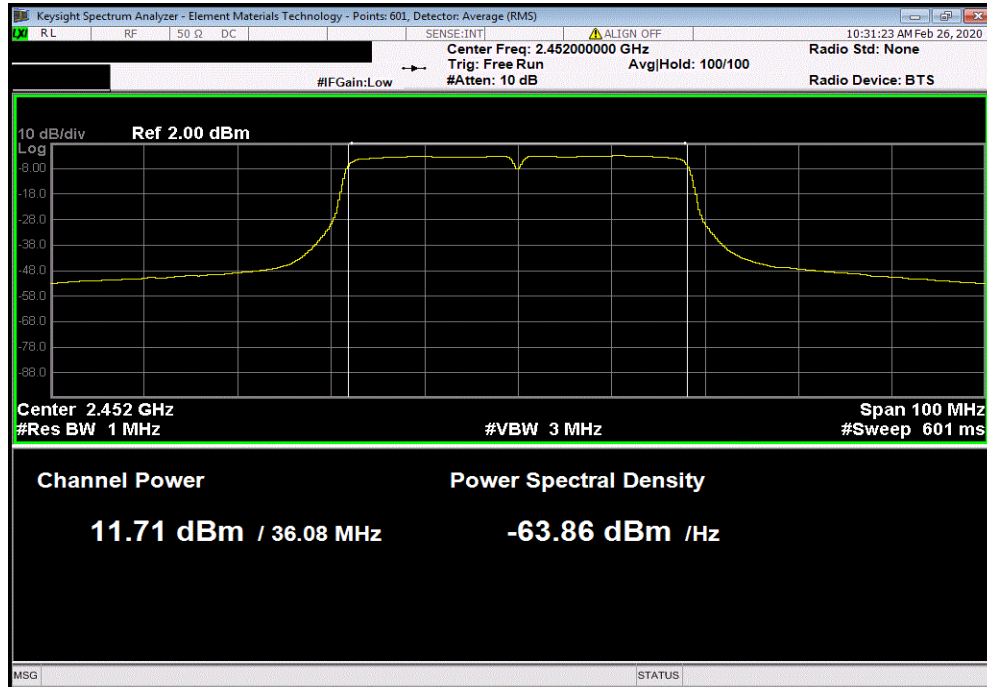


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.713	0	11.7	1.8	13.5	36	Pass



POWER SPECTRAL DENSITY



XMIT 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

POWER SPECTRAL DENSITY



TMTx 2019.08.30.0 XMI 2019.09.05

EUT: C2-03CPU		Work Order: KOYO0001		
Serial Number: N/A		Date: 25-Feb-20		
Customer: Koyo Electronics Industries Co., LTD		Temperature: 22.5 °C		
Attendees: None		Humidity: 26.7% RH		
Project: None		Barometric Pres.: 1028 mbar		
Tested by: Andrew Rogstad		Power: 24VDC	Job Site: MN08	
TEST SPECIFICATIONS		Test Method		
FCC 15.247:2020		ANSI C63.10:2013		
COMMENTS				
Reference level offset includes measurement cable, DC block, and 20 dB attenuator.				
DEVIATIONS FROM TEST STANDARD				
None				
Configuration #	17	Signature 		
		Value	Limit	
		dBm/3kHz	< dBm/3kHz	
			Results	
2400 MHz - 2483.5 MHz Band				
20 MHz Bandwidth				
802.11(b) 1 Mbps				
Low Channel 1, 2412 MHz		-5.474	8	Pass
Mid Channel 6, 2437 MHz		-5.877	8	Pass
High Channel 11, 2462 MHz		-5.837	8	Pass
802.11(b) 11 Mbps				
Low Channel 1, 2412 MHz		-5.887	8	Pass
Mid Channel 6, 2437 MHz		-6.248	8	Pass
High Channel 11, 2462 MHz		-6.289	8	Pass
802.11(g) 6 Mbps				
Low Channel 1, 2412 MHz		-12.08	8	Pass
Mid Channel 6, 2437 MHz		-11.119	8	Pass
High Channel 11, 2462 MHz		-12.086	8	Pass
802.11(g) 36 Mbps				
Low Channel 1, 2412 MHz		-11.031	8	Pass
Mid Channel 6, 2437 MHz		-11.469	8	Pass
High Channel 11, 2462 MHz		-11.344	8	Pass
802.11(g) 54 Mbps				
Low Channel 1, 2412 MHz		-13.392	8	Pass
Mid Channel 6, 2437 MHz		-13.718	8	Pass
High Channel 11, 2462 MHz		-13.692	8	Pass
802.11(n) MCS0				
Low Channel 1, 2412 MHz		-12.268	8	Pass
Mid Channel 6, 2437 MHz		-11.083	8	Pass
High Channel 11, 2462 MHz		-12.229	8	Pass
802.11(n) MCS7				
Low Channel 1, 2412 MHz		-15.104	8	Pass
Mid Channel 6, 2437 MHz		-15.142	8	Pass
High Channel 11, 2462 MHz		-14.921	8	Pass
40 MHz Bandwidth				
802.11(n) MCS0				
Low Channel 1/5, 2422 MHz		-15.135	8	Pass
Mid Channel 4/8, 2437 MHz		-13.86	8	Pass
High Channel 7/11, 2452 MHz		-13.941	8	Pass
802.11(n) MCS7				
Low Channel 1/5, 2422 MHz		-17.598	8	Pass
Mid Channel 4/8, 2437 MHz		-17.08	8	Pass
High Channel 7/11, 2452 MHz		-17.034	8	Pass

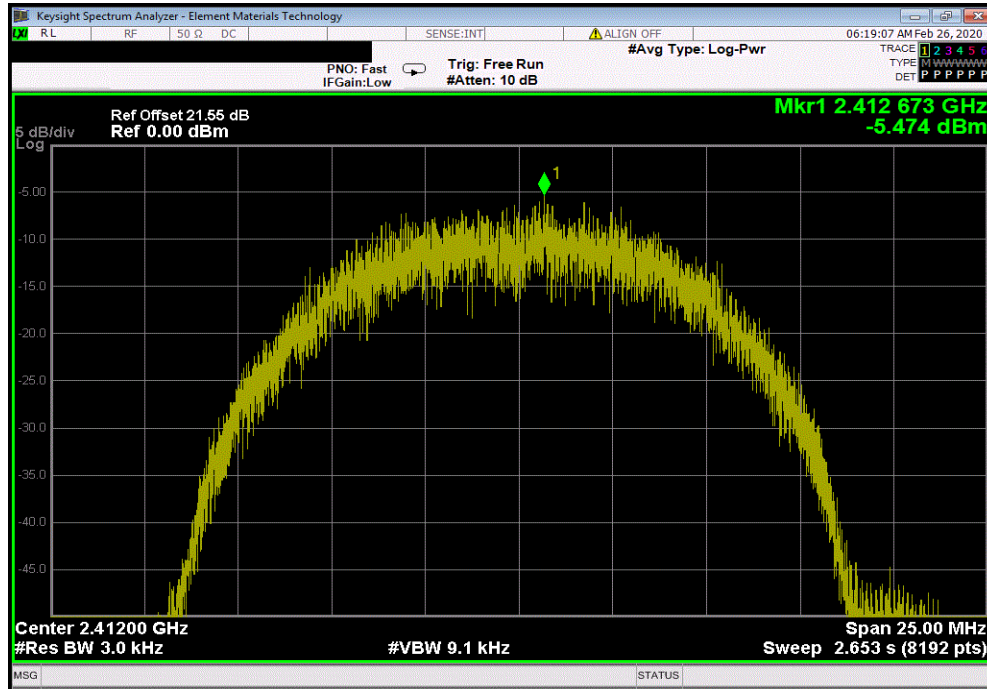
POWER SPECTRAL DENSITY



TbTtx 2019.08.30.0 XMI 2019.09.05

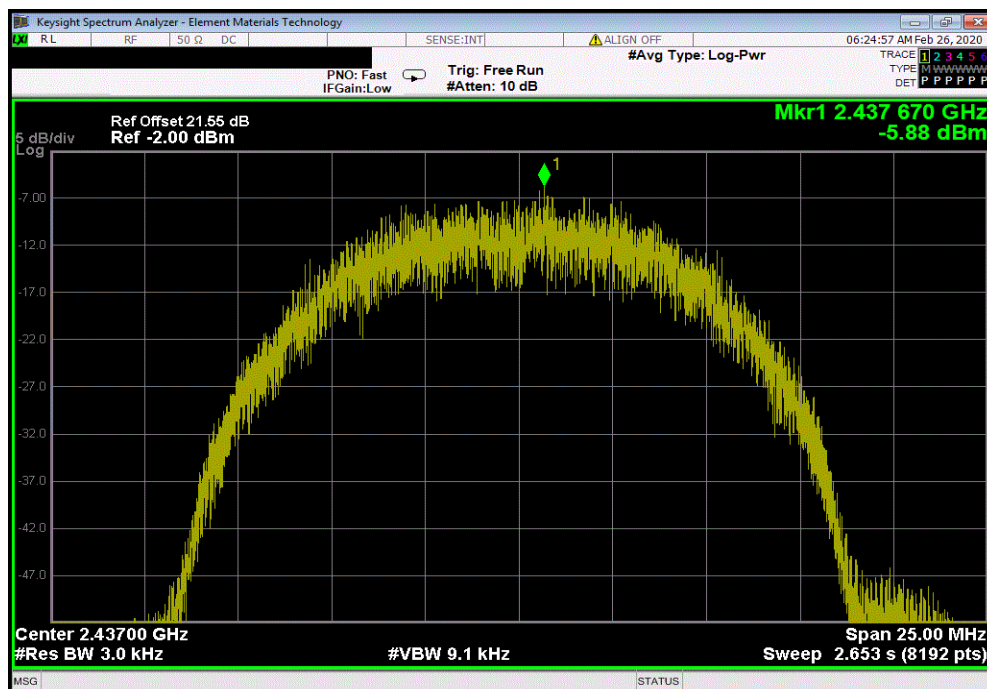
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-5.474	8	Pass



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

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-5.877	8	Pass

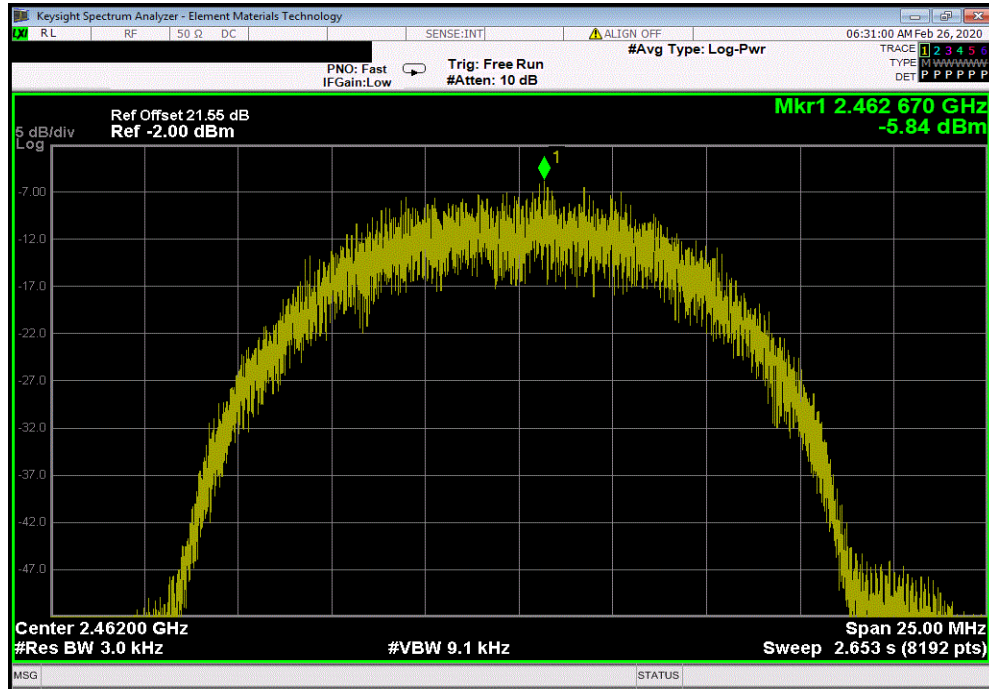


POWER SPECTRAL DENSITY

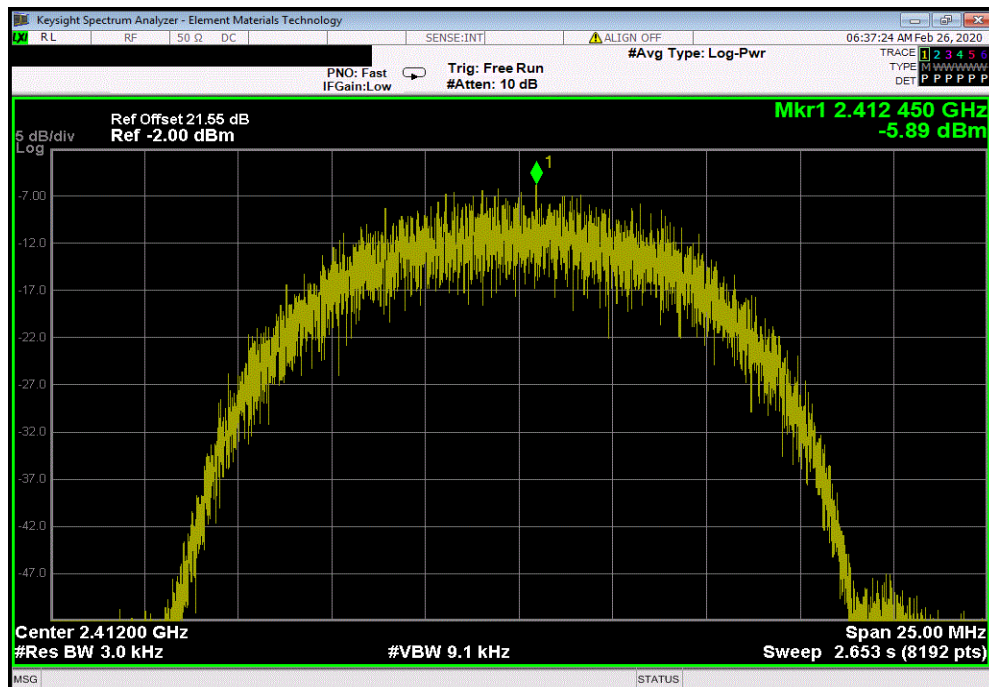


TbTtX 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-5.837	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-5.887	8	Pass			



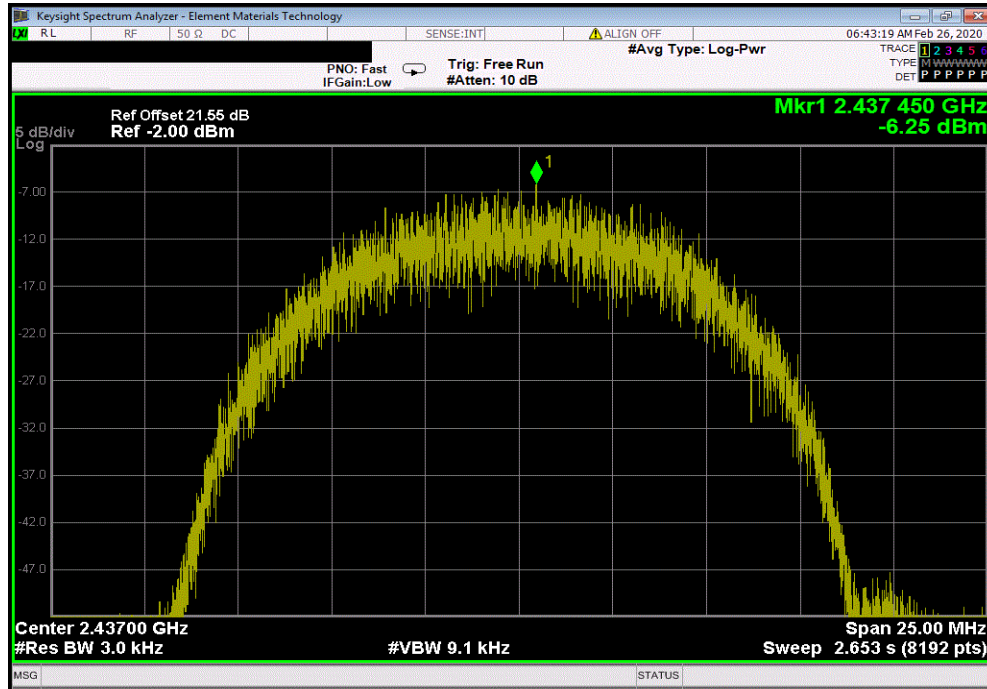
POWER SPECTRAL DENSITY



TbTx 2019.08.30.0 XMI 2019.09.05

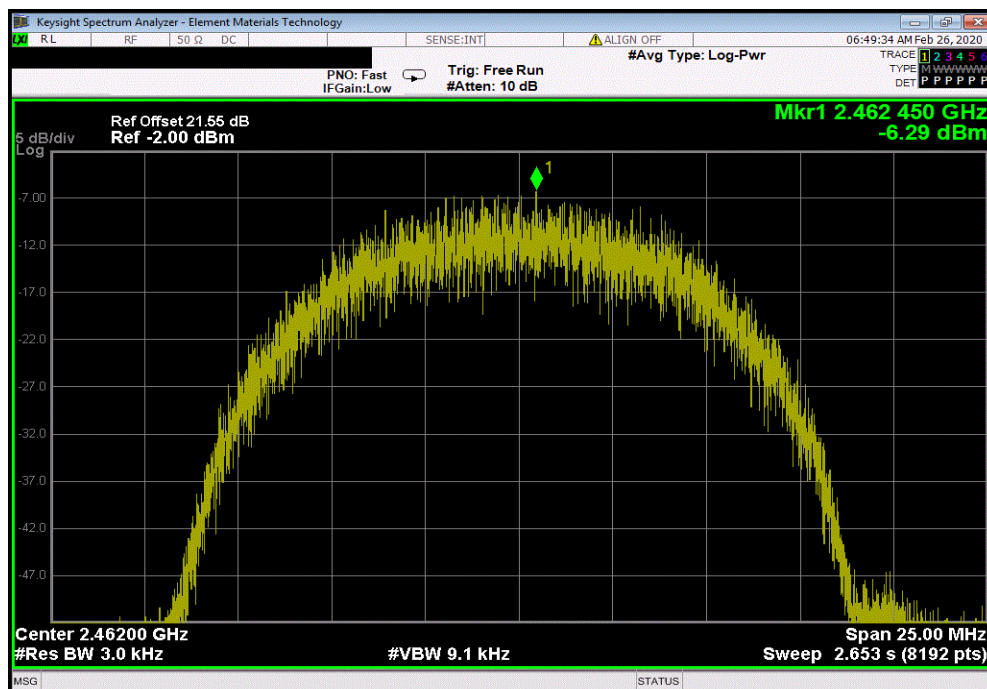
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

Value	Limit	Results
dBm/3kHz	< dBm/3kHz	
-6.248	8	Pass



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

Value	Limit	Results
dBm/3kHz	< dBm/3kHz	
-6.289	8	Pass



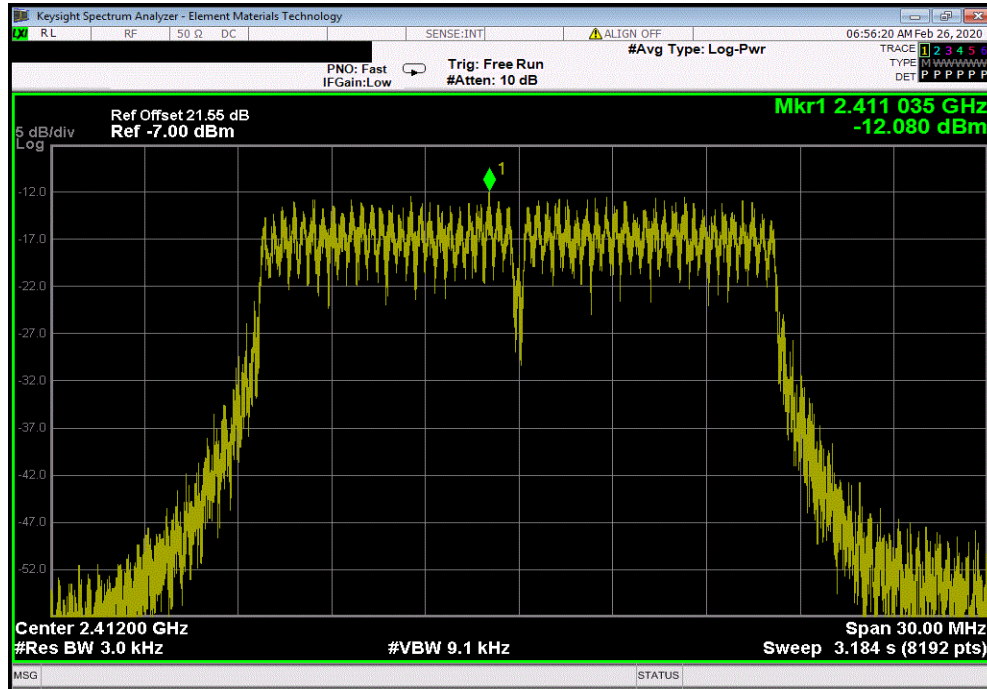
POWER SPECTRAL DENSITY



TbTtx 2019.08.30.0 XMI 2019.09.05

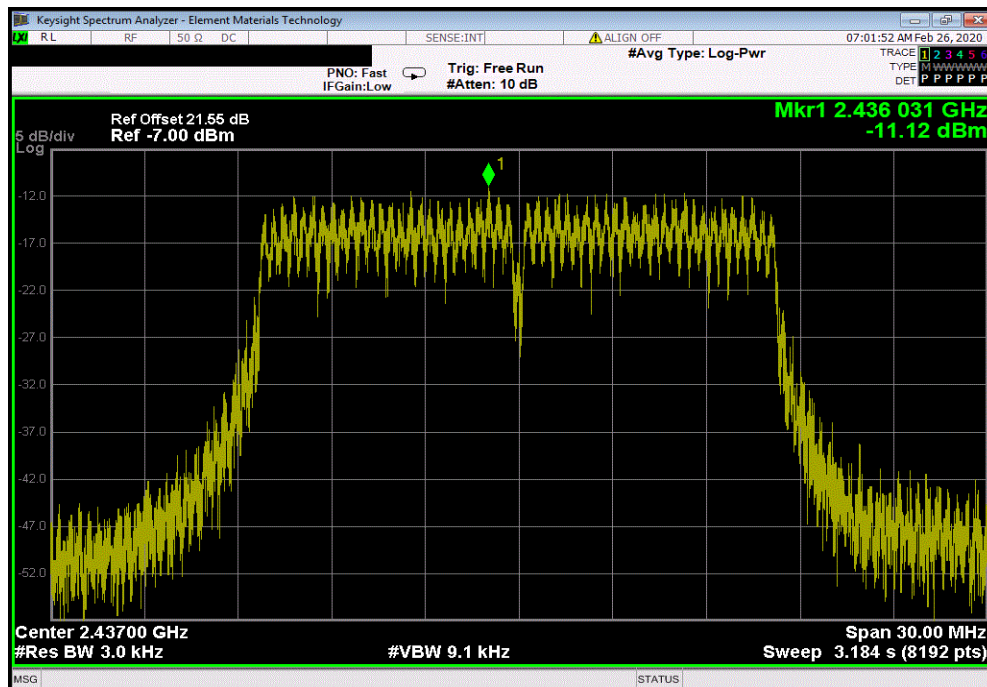
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-12.08	8	Pass



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

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-11.119	8	Pass

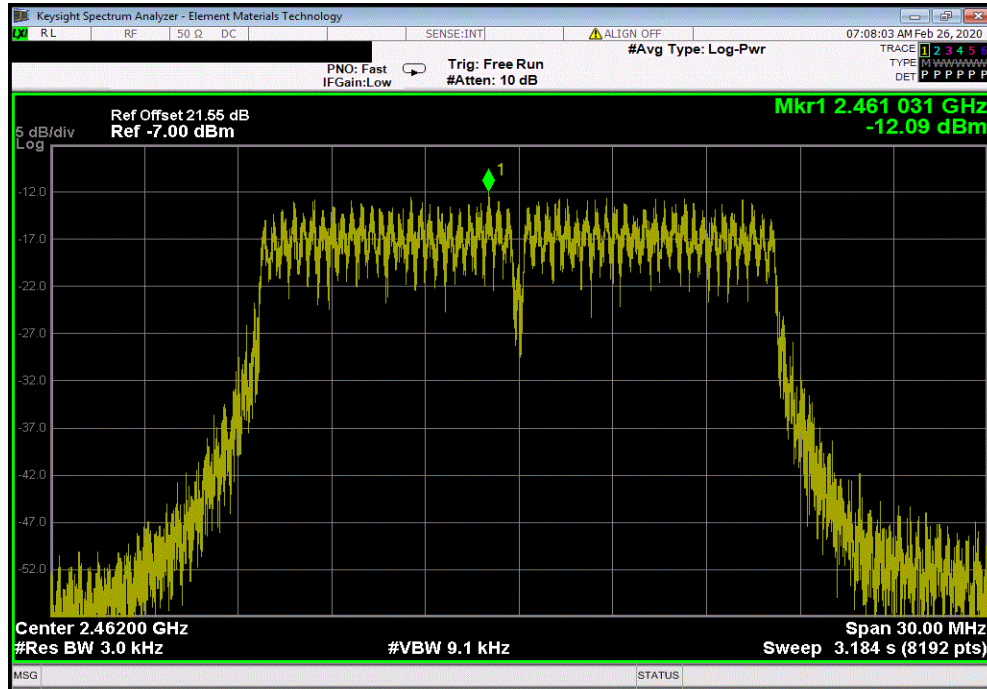


POWER SPECTRAL DENSITY

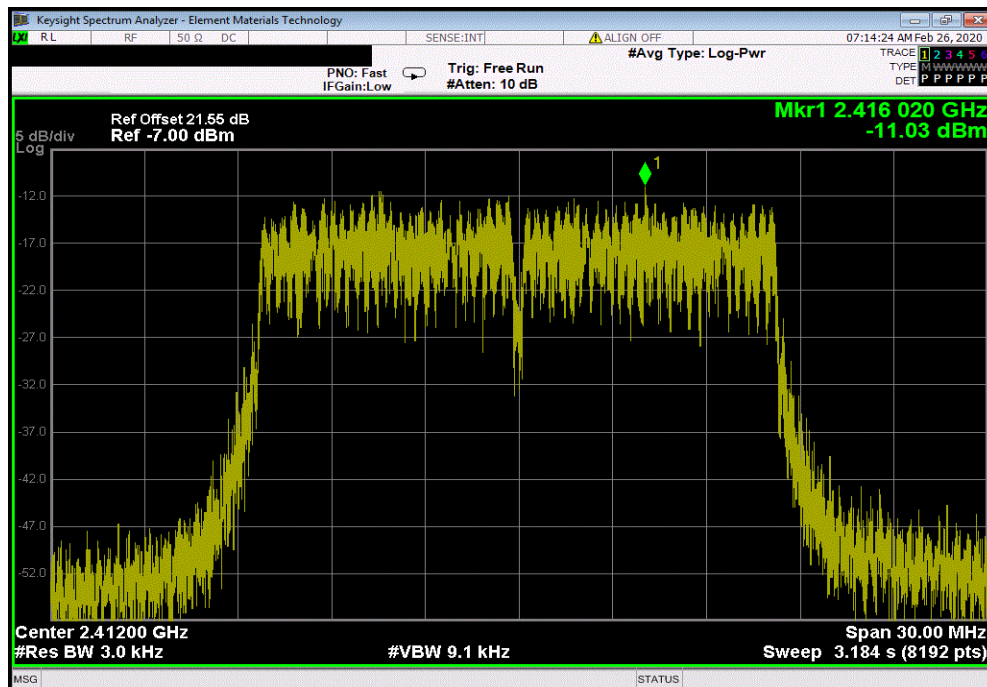


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-12.086	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-11.031	8	Pass			

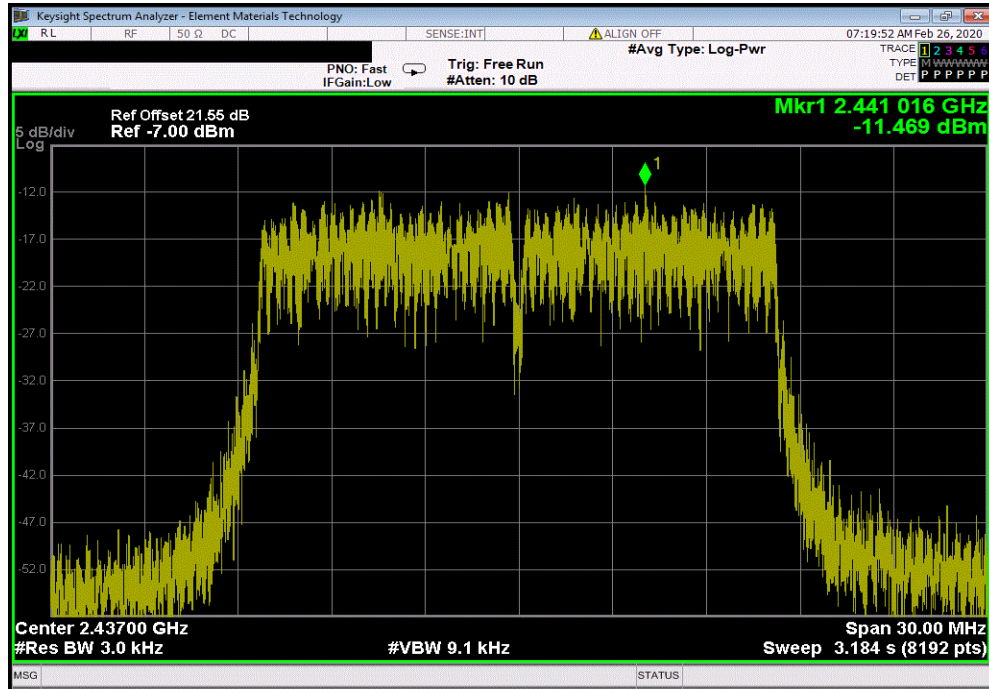


POWER SPECTRAL DENSITY

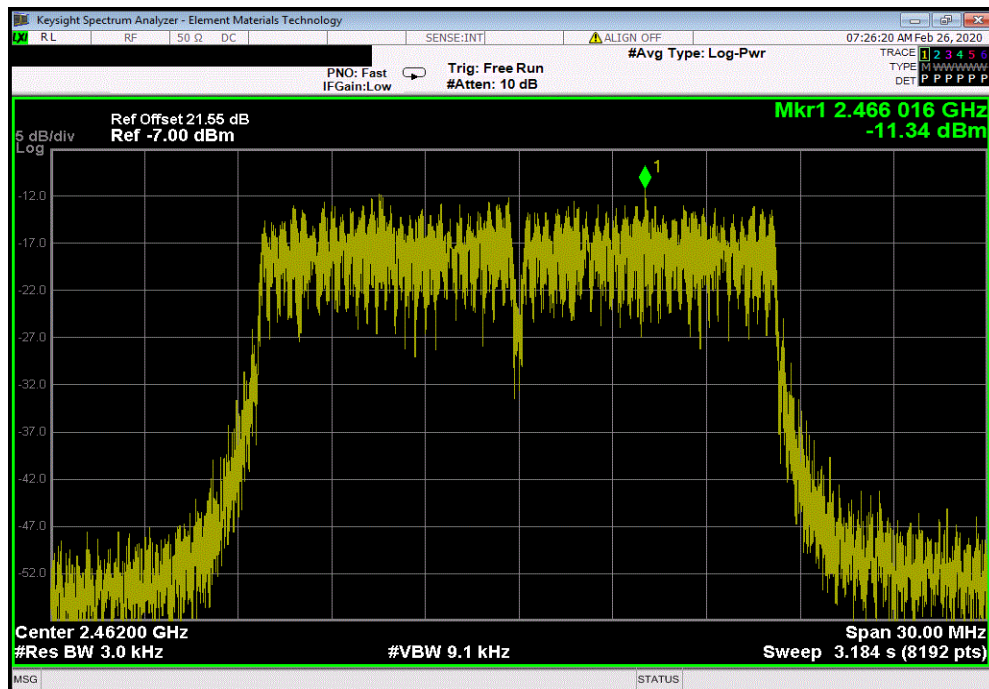


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-11.469	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-11.344	8	Pass			

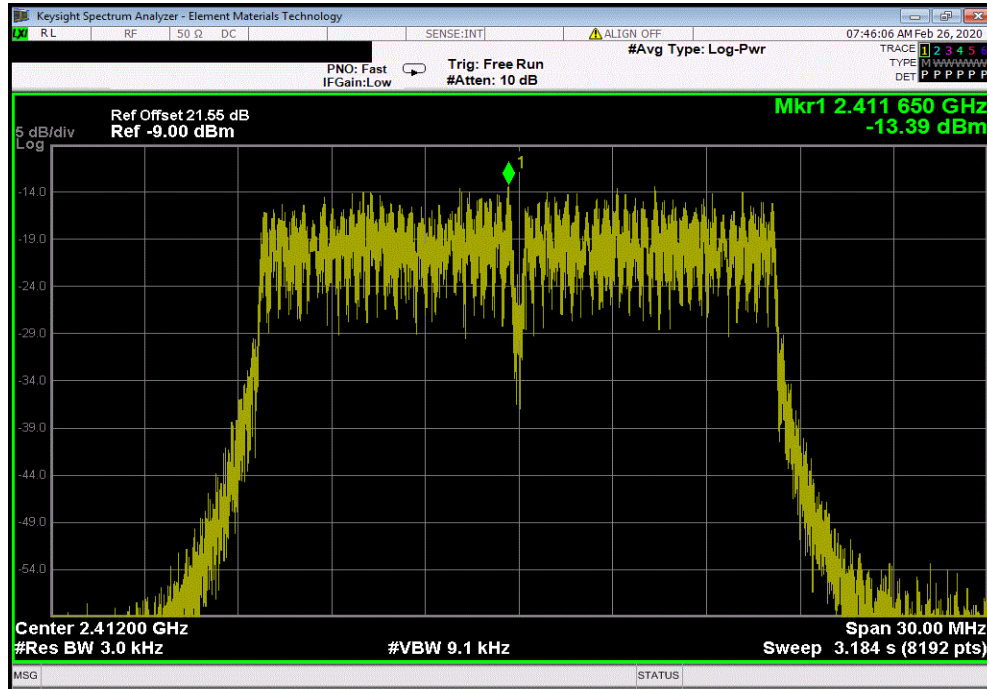


POWER SPECTRAL DENSITY

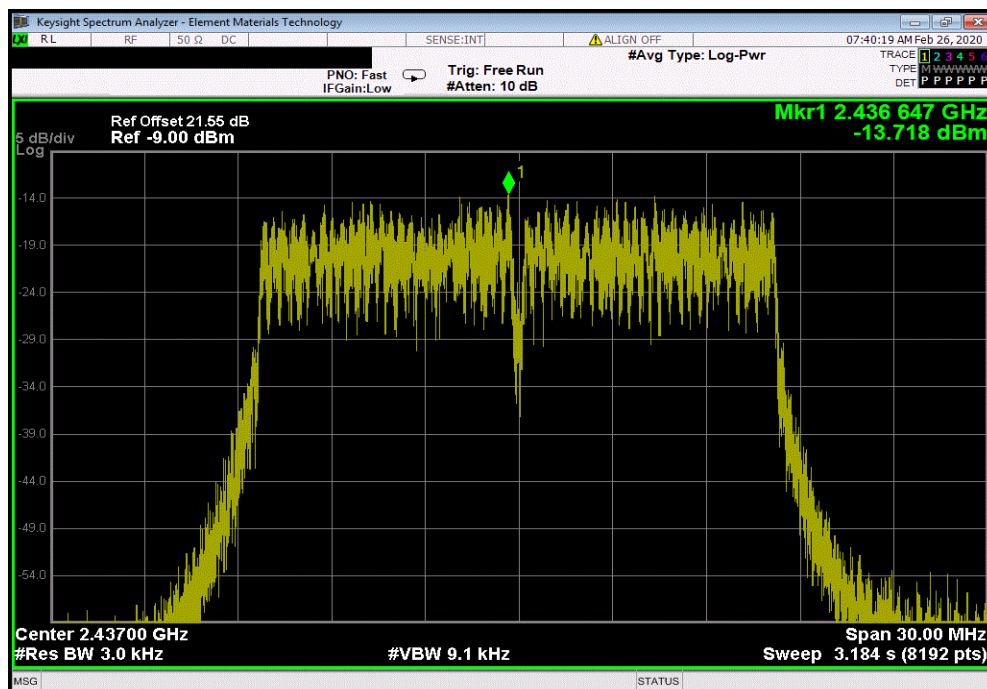


TbTtX 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-13.392	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-13.718	8	Pass			

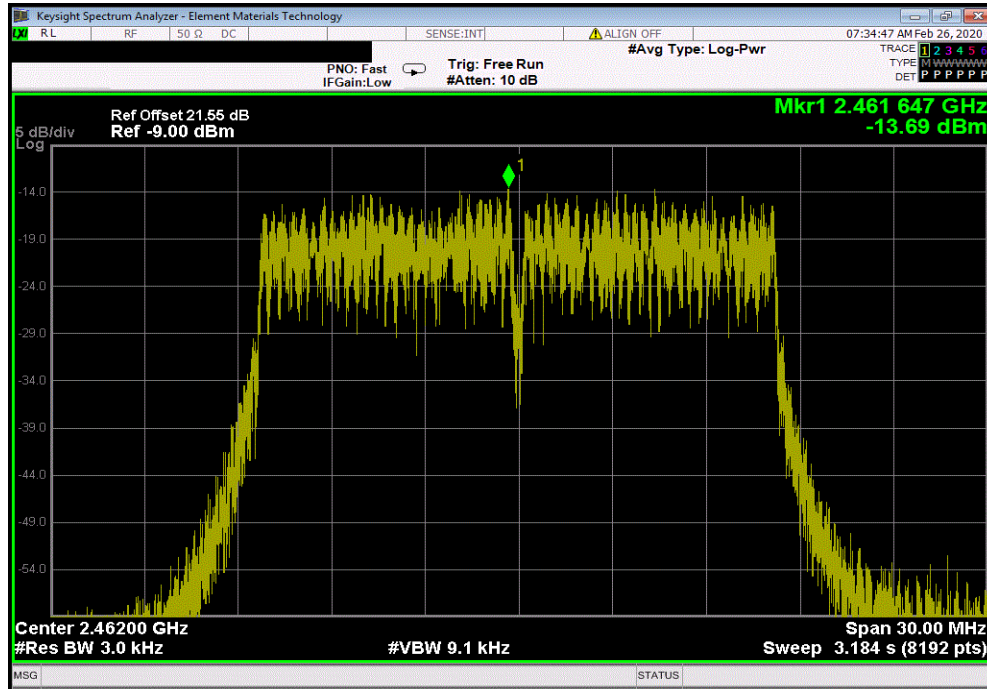


POWER SPECTRAL DENSITY

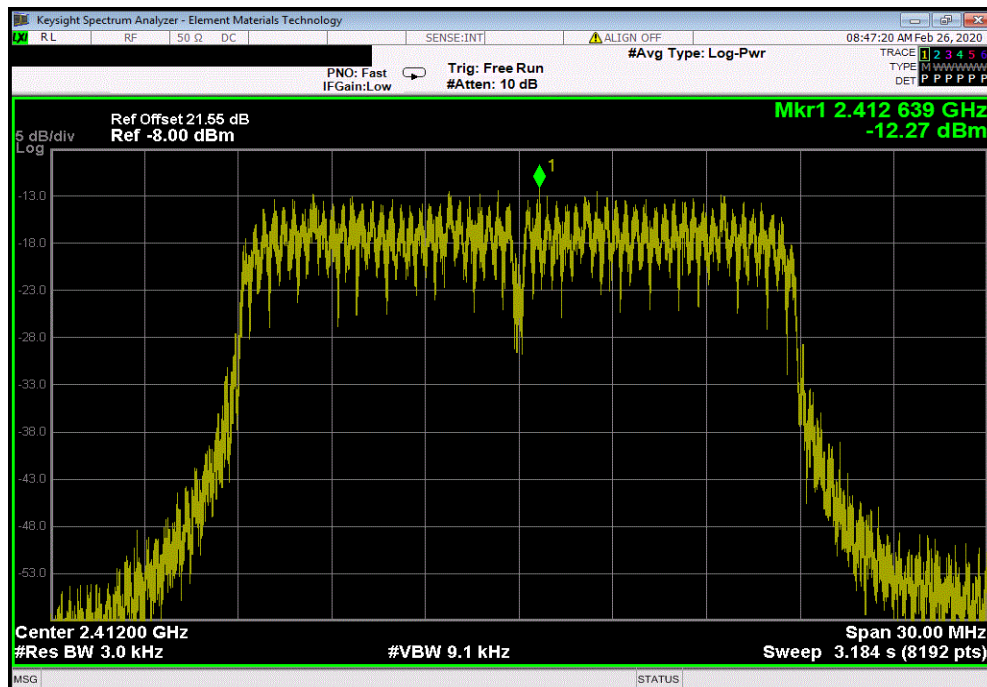


TbTtx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-13.692	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-12.268	8	Pass			

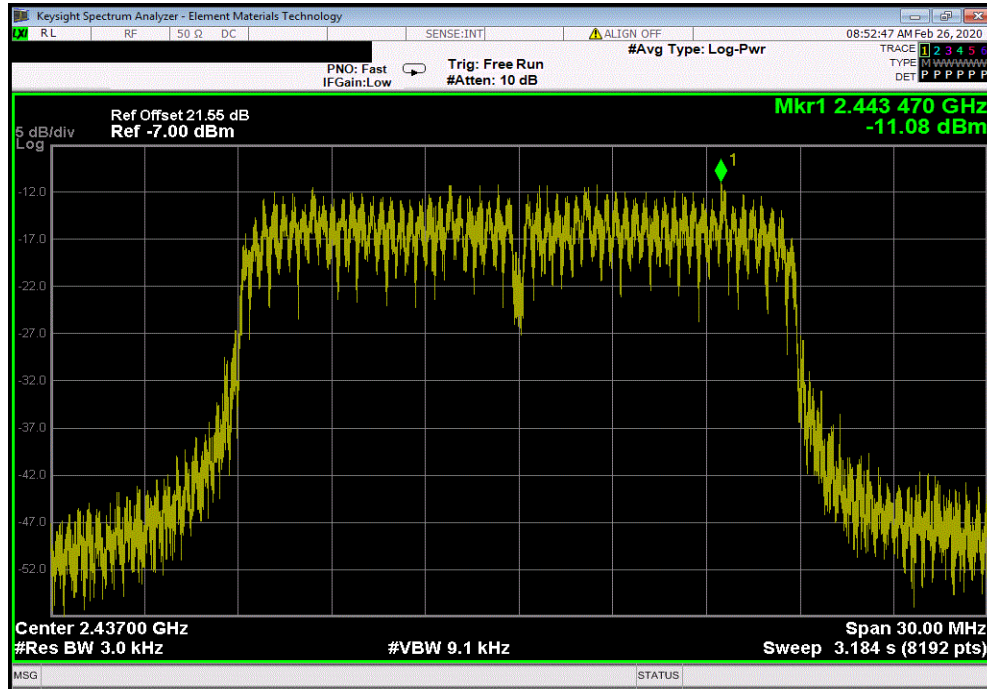


POWER SPECTRAL DENSITY

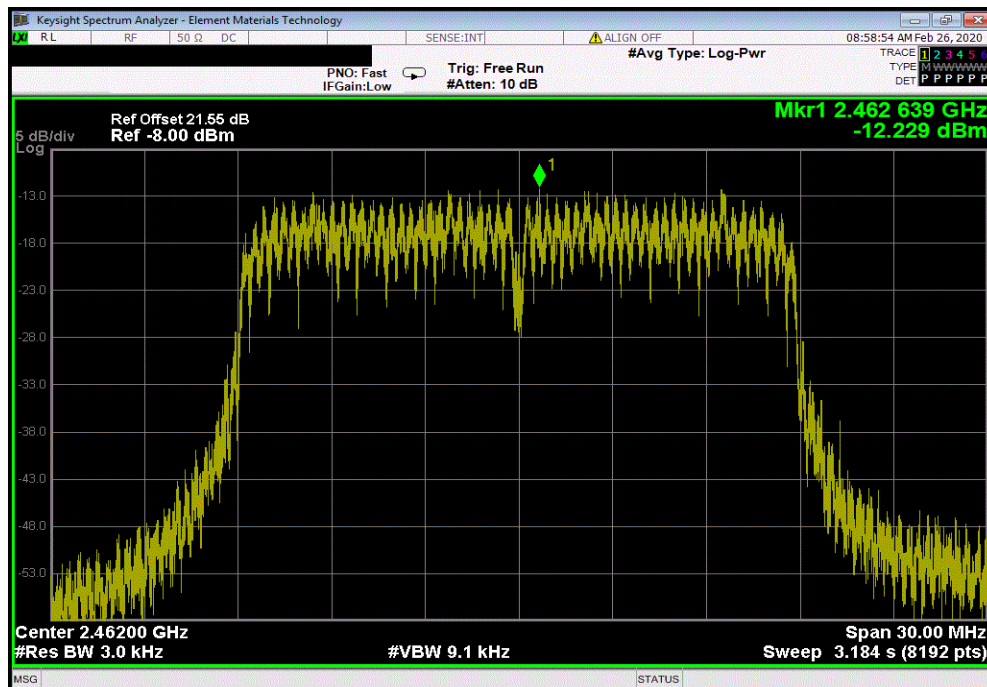


TbTtX 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-11.083	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-12.229	8	Pass			

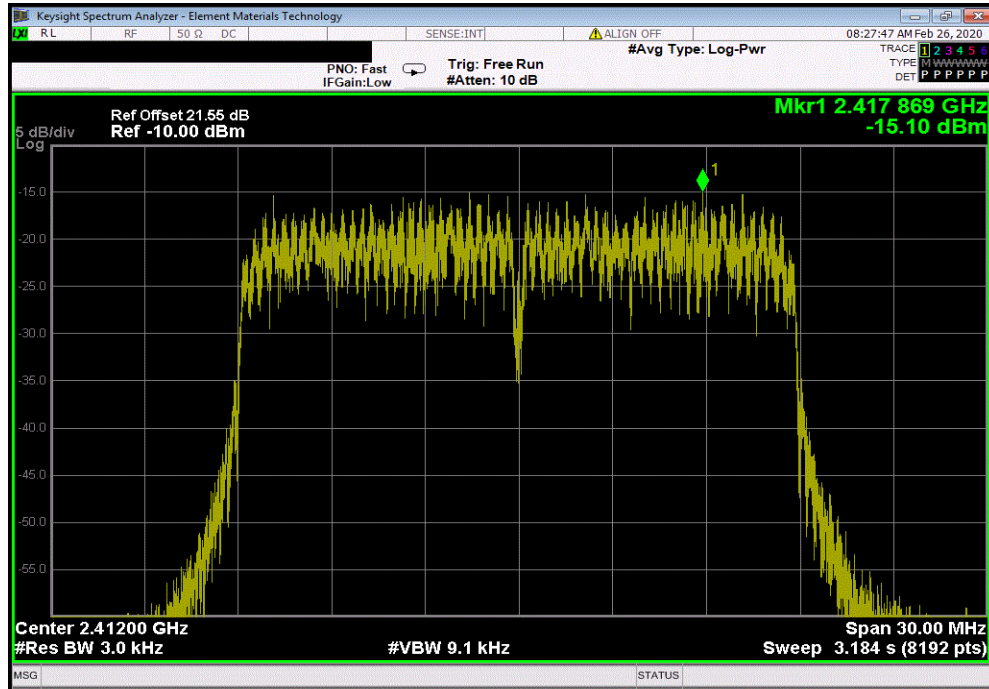


POWER SPECTRAL DENSITY

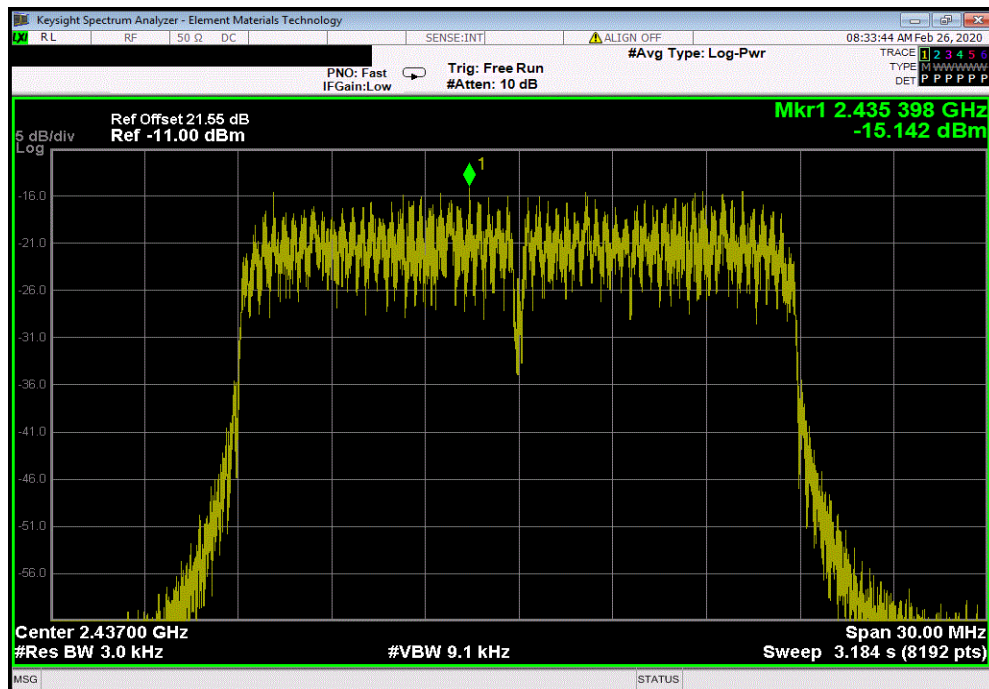


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-15.104	8	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-15.142	8	Pass			



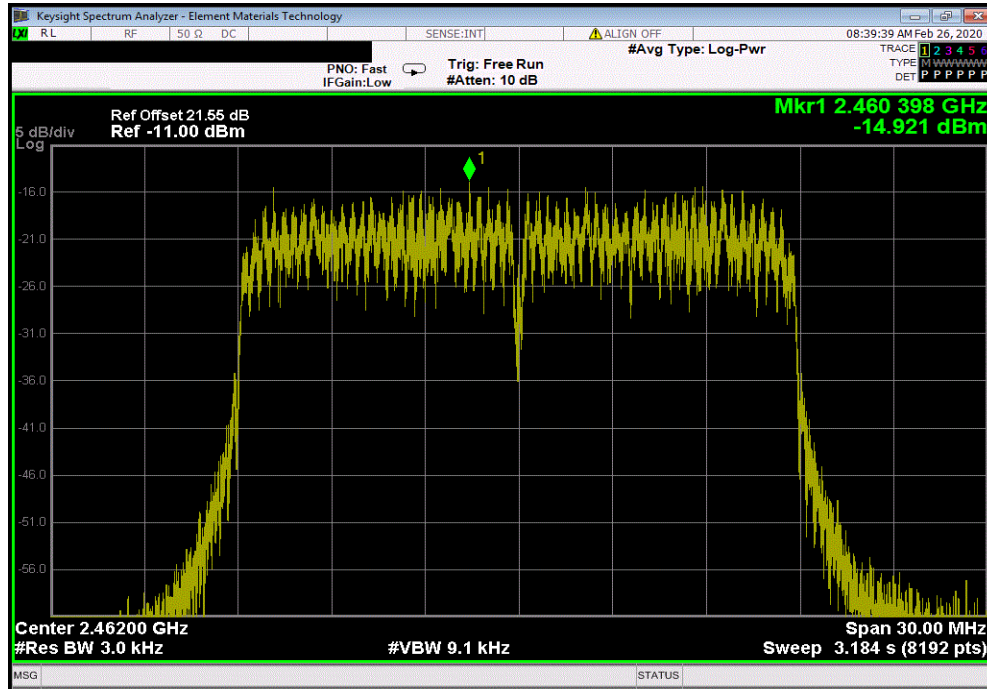
POWER SPECTRAL DENSITY



TbTx 2019.08.30.0 XMI 2019.09.05

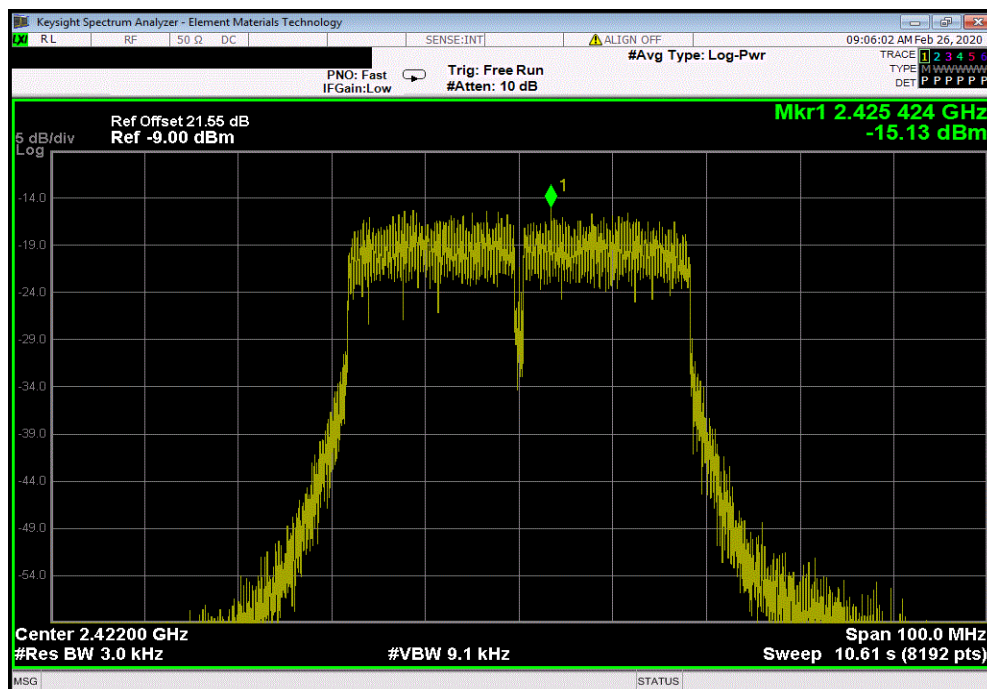
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, High Channel 11, 2462 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-14.921	8	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-15.135	8	Pass



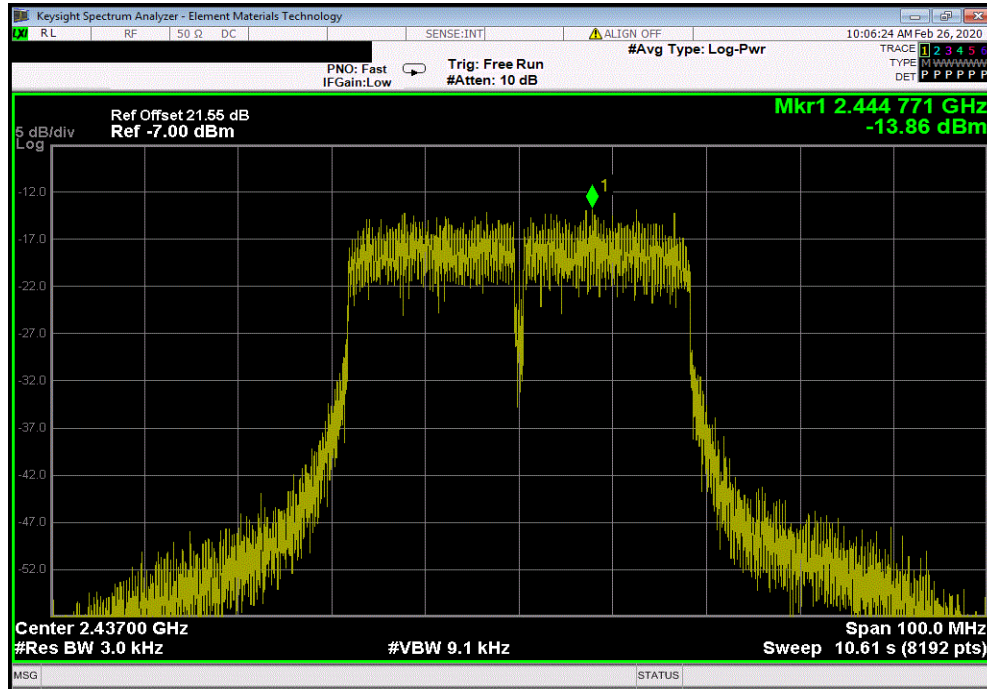
POWER SPECTRAL DENSITY



TbTx 2019.08.30.0 XMI 2019.09.05

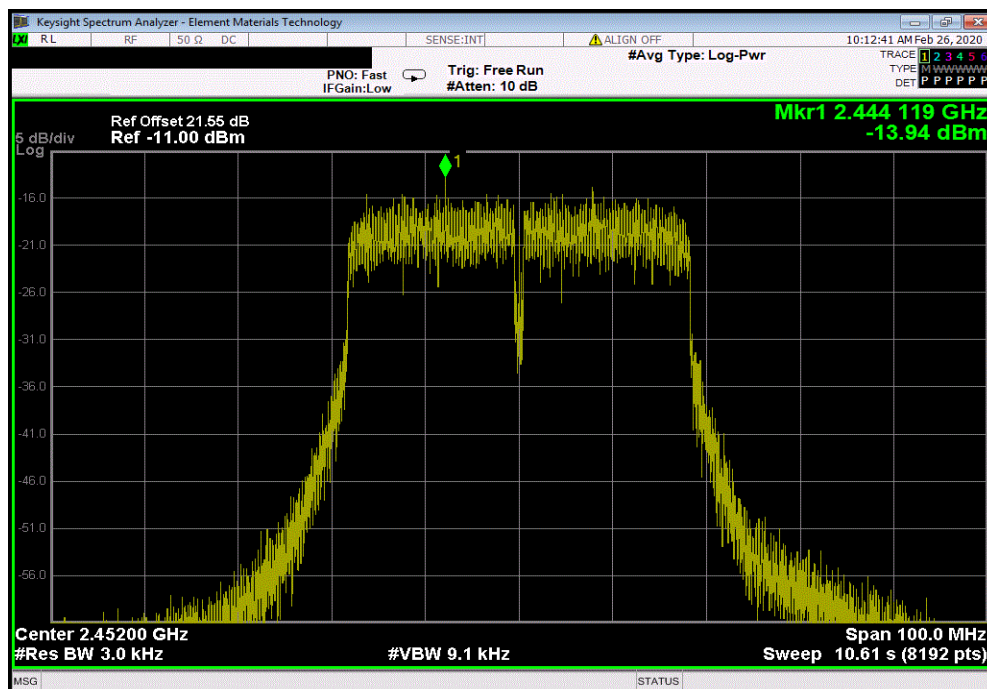
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-13.86	8	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, High Channel 7/11, 2452 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-13.941	8	Pass



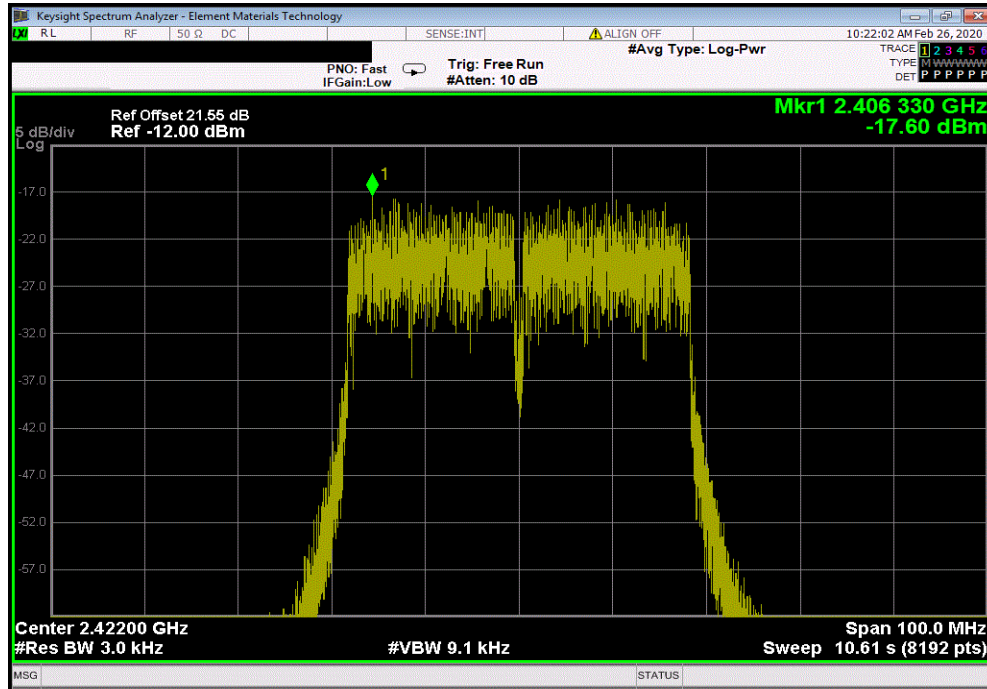
POWER SPECTRAL DENSITY



TbTx 2019.08.30.0 XMI 2019.09.05

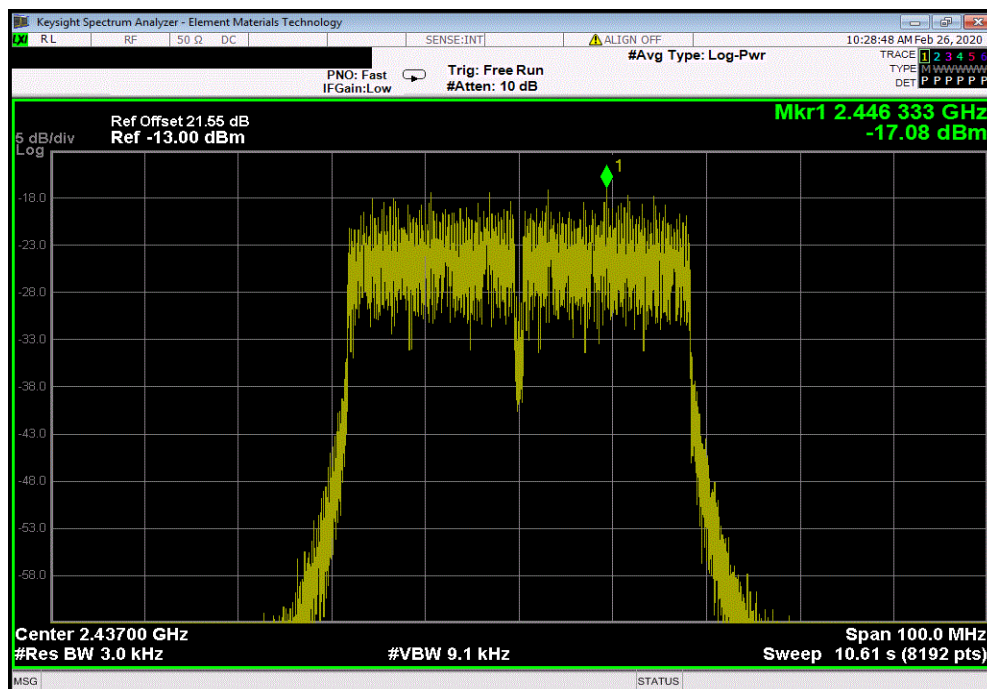
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-17.598	8	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz

	Value	Limit	Results
	dBm/3kHz	< dBm/3kHz	
	-17.08	8	Pass

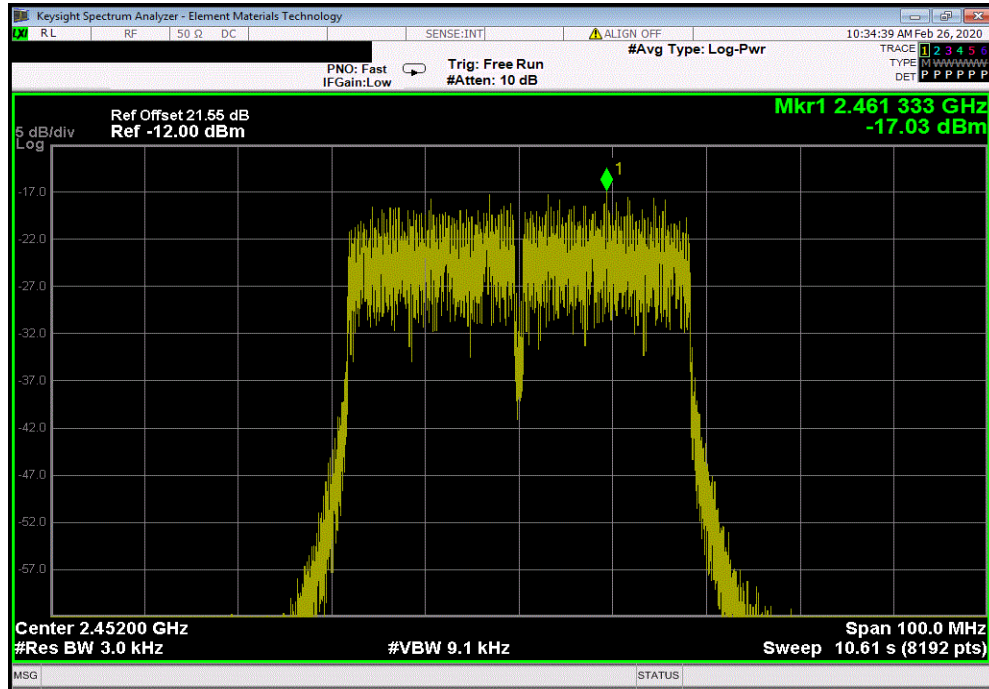


POWER SPECTRAL DENSITY



TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
Value			Limit		Results	
dBm/3kHz			< dBm/3kHz			
-17.034			8		Pass	



BAND EDGE COMPLIANCE



XMIT 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

An RMS detector was used to match the method called out for Output Power. Because the reference level was taken with an RMS detector, the attenuation requirement is -30 dBc.

BAND EDGE COMPLIANCE



TMTx 2019.08.30.0 XMI 2019.09.05

EUT: C2-03CPU		Work Order: KOYO0001	
Serial Number: N/A		Date: 25-Feb-20	
Customer: Koyo Electronics Industries Co., LTD		Temperature: 22.6 °C	
Attendees: None		Humidity: 25.5% RH	
Project: None		Barometric Pres.: 1028 mbar	
Tested by: Andrew Rogstad		Power: 24VDC	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2020		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes measurement cable, DC block, and 20 dB attenuator.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	17	Signature <i>Andrew Rogstad</i>	
		Value (dBc)	Limit ≤ (dBc) Result
2400 MHz - 2483.5 MHz Band			
20 MHz Bandwidth			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz		-47.12	-30 Pass
High Channel 11, 2462 MHz		-58.63	-30 Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz		-48.55	-30 Pass
High Channel 11, 2462 MHz		-58.86	-30 Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz		-38.07	-30 Pass
High Channel 11, 2462 MHz		-47.19	-30 Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz		-36	-30 Pass
High Channel 11, 2462 MHz		-45.47	-30 Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz		-43.47	-30 Pass
High Channel 11, 2462 MHz		-50.08	-30 Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz		-38.83	-30 Pass
High Channel 11, 2462 MHz		-45.67	-30 Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz		-45.09	-30 Pass
High Channel 11, 2462 MHz		-50.23	-30 Pass
40 MHz Bandwidth			
802.11(n) MCS0			
Low Channel 1/5, 2422 MHz		-42.7	-30 Pass
High Channel 7/11, 2452 MHz		-39.24	-30 Pass
802.11(n) MCS7			
Low Channel 1/5, 2422 MHz		-37.01	-30 Pass
High Channel 7/11, 2452 MHz		-44.54	-30 Pass

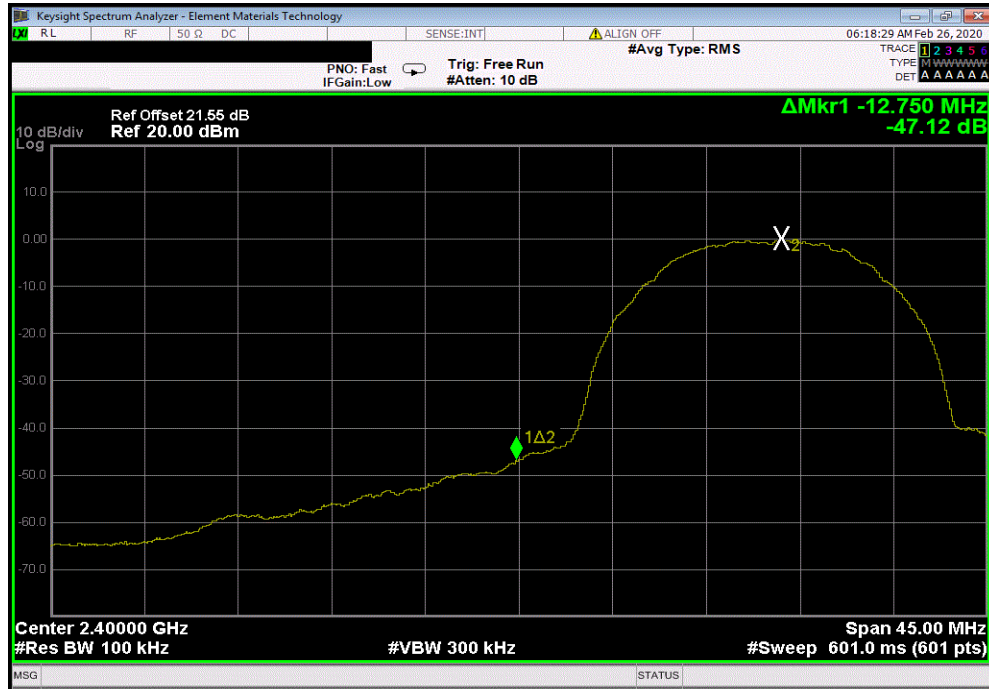
BAND EDGE COMPLIANCE



TbTtx 2019.08.30.0 XMI 2019.09.05

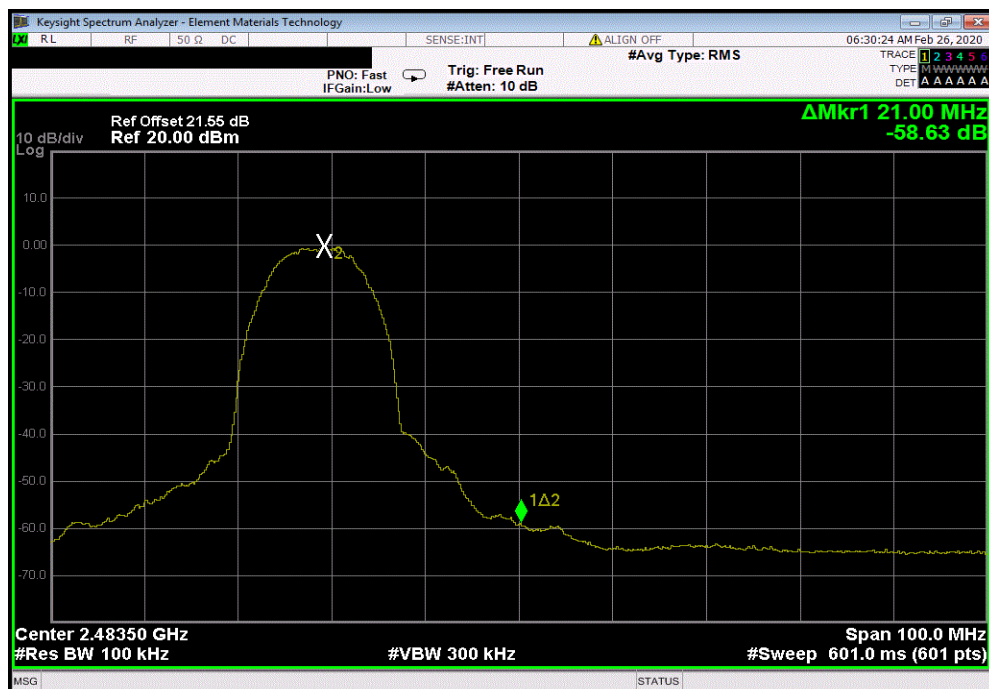
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz

Value (dBc)	Limit ≤ (dBc)	Result
-47.12	-30	Pass



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

Value (dBc)	Limit ≤ (dBc)	Result
-58.63	-30	Pass

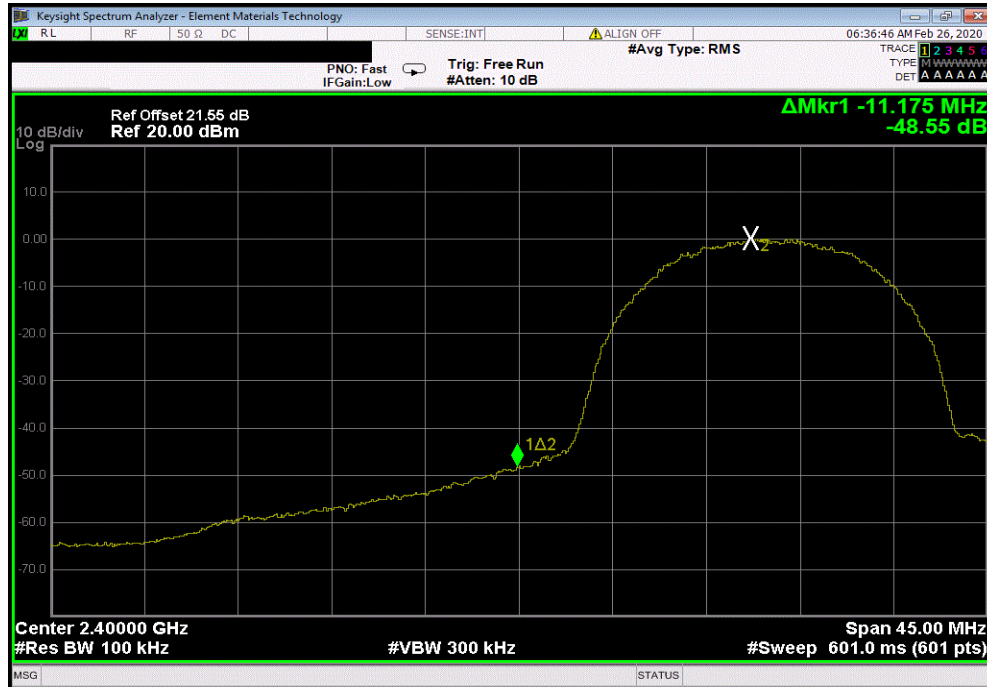


BAND EDGE COMPLIANCE

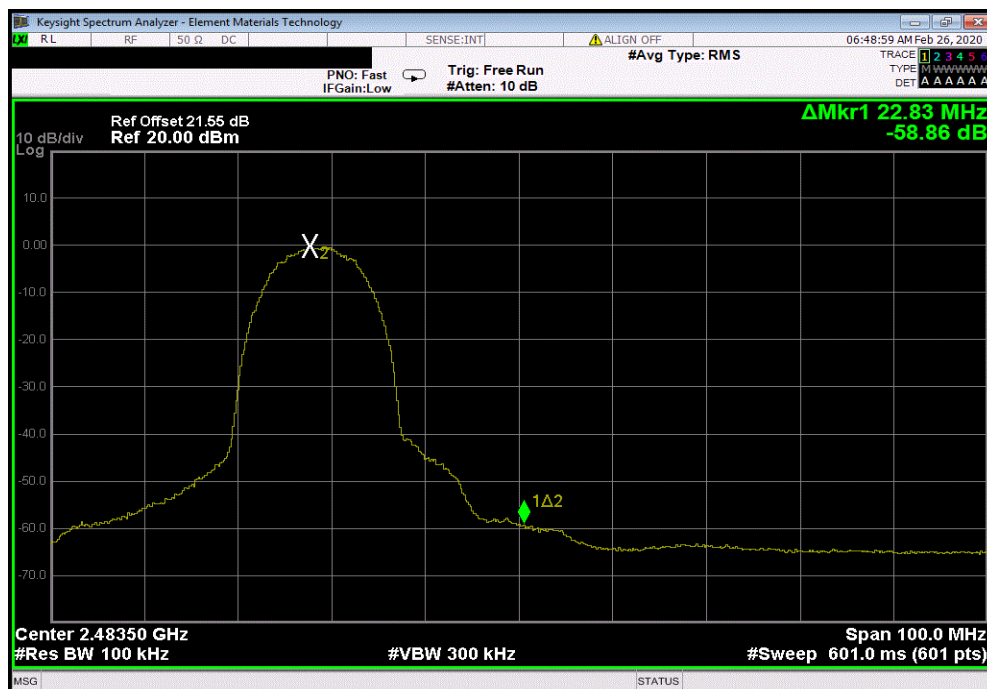


TbTtx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-48.55	-30	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-58.86	-30	Pass			

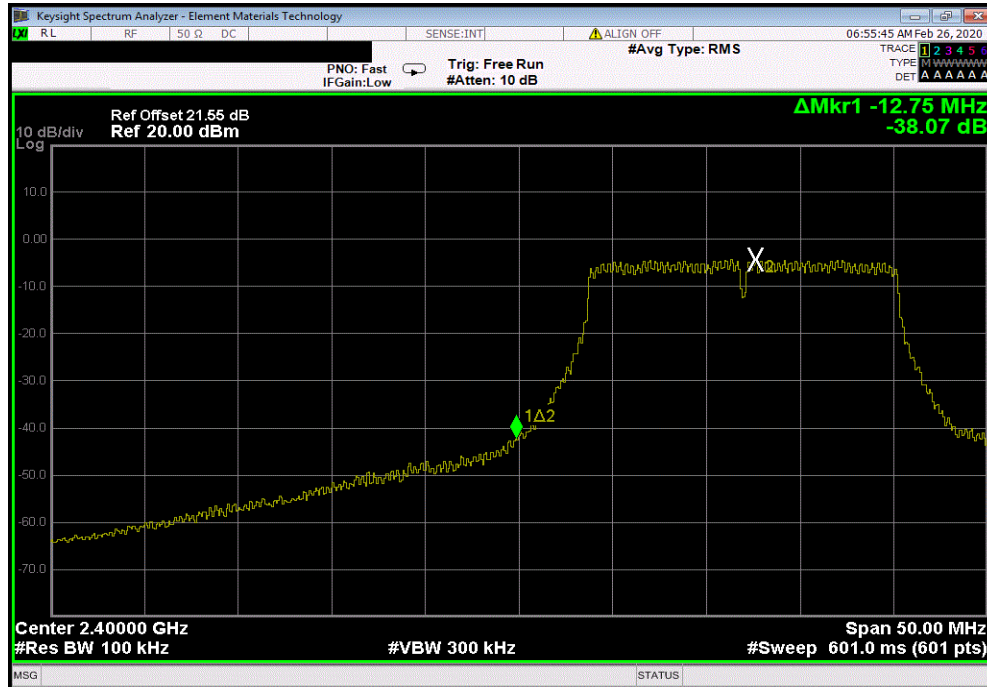


BAND EDGE COMPLIANCE

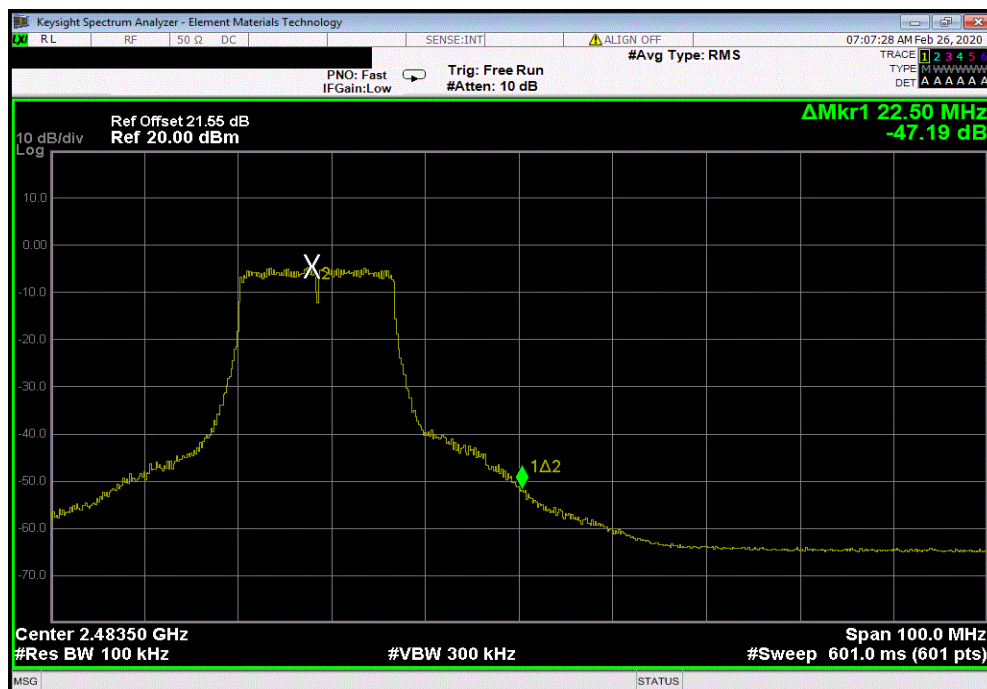


TMTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-38.07	-30	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-47.19	-30	Pass			

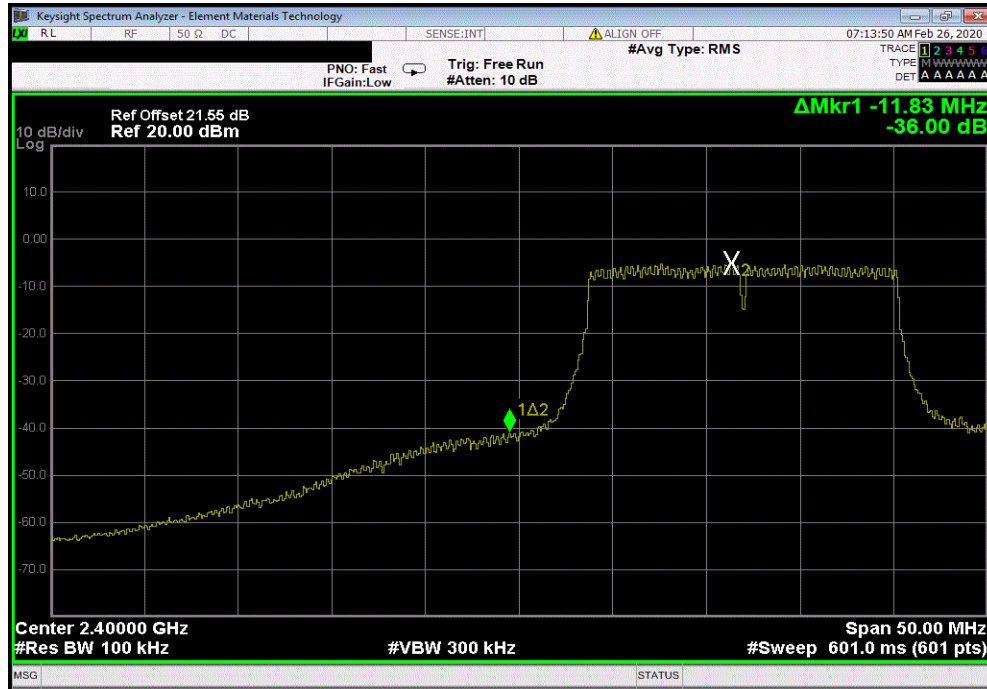


BAND EDGE COMPLIANCE

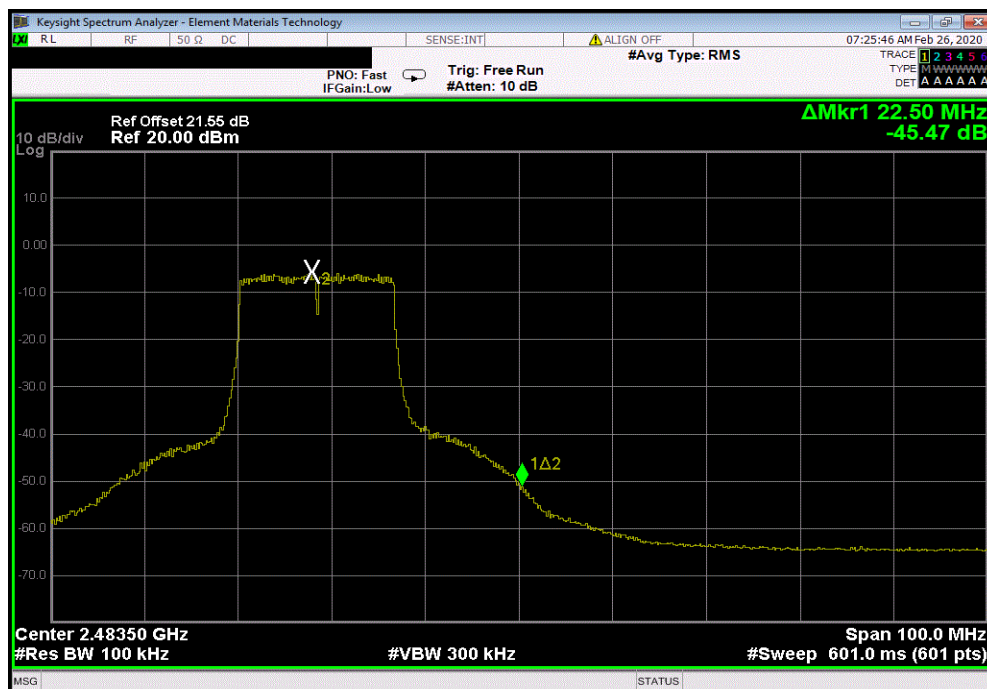


TbTtx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-36	-30	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-45.47	-30	Pass			

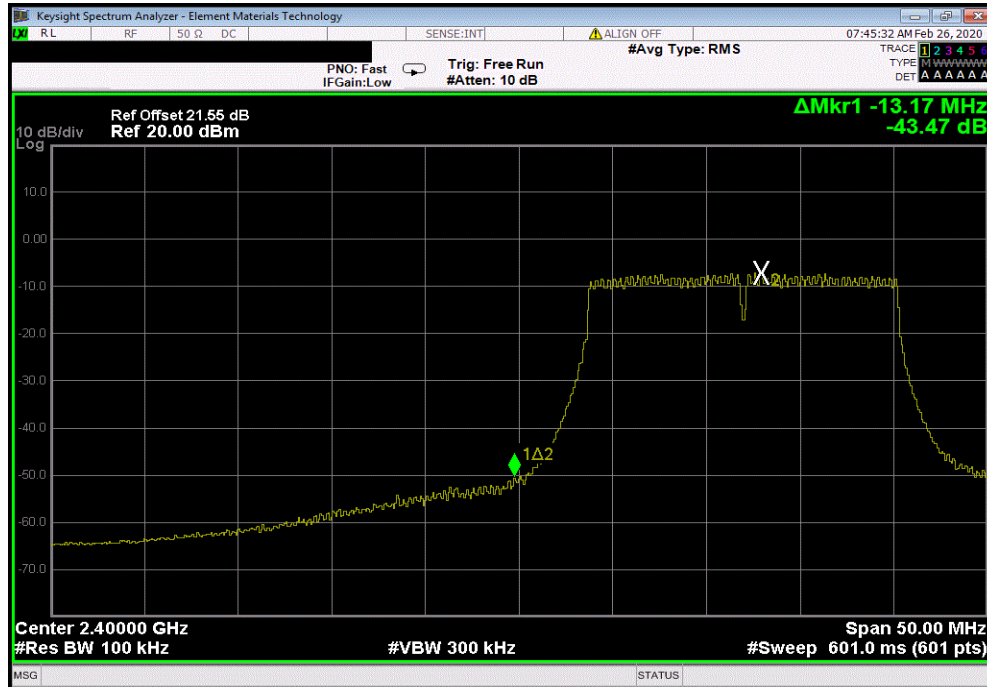


BAND EDGE COMPLIANCE

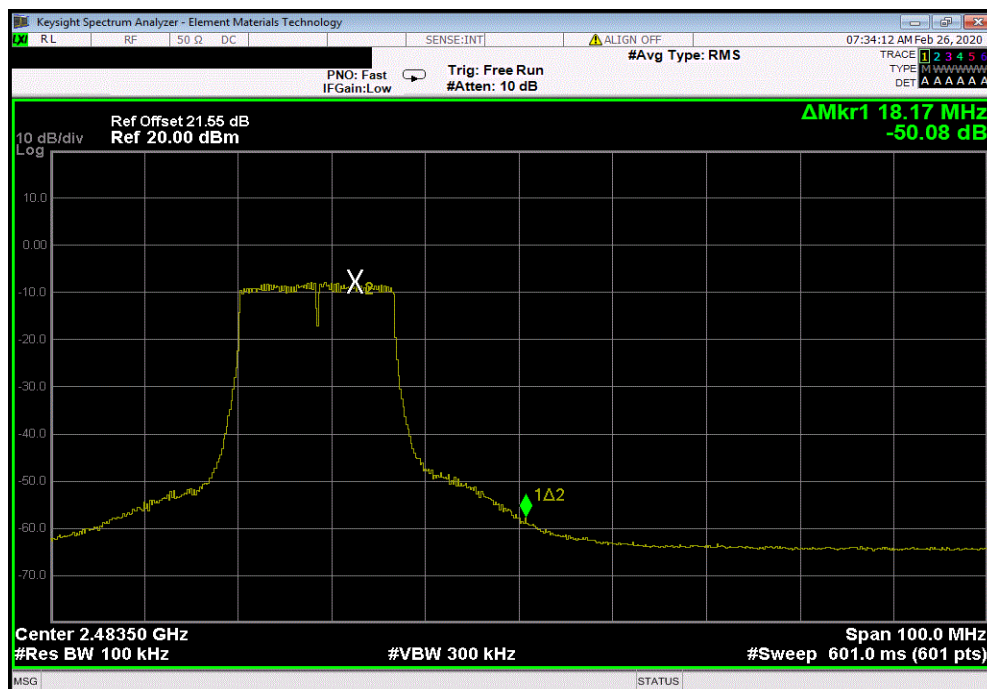


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-43.47	-30	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-50.08	-30	Pass			

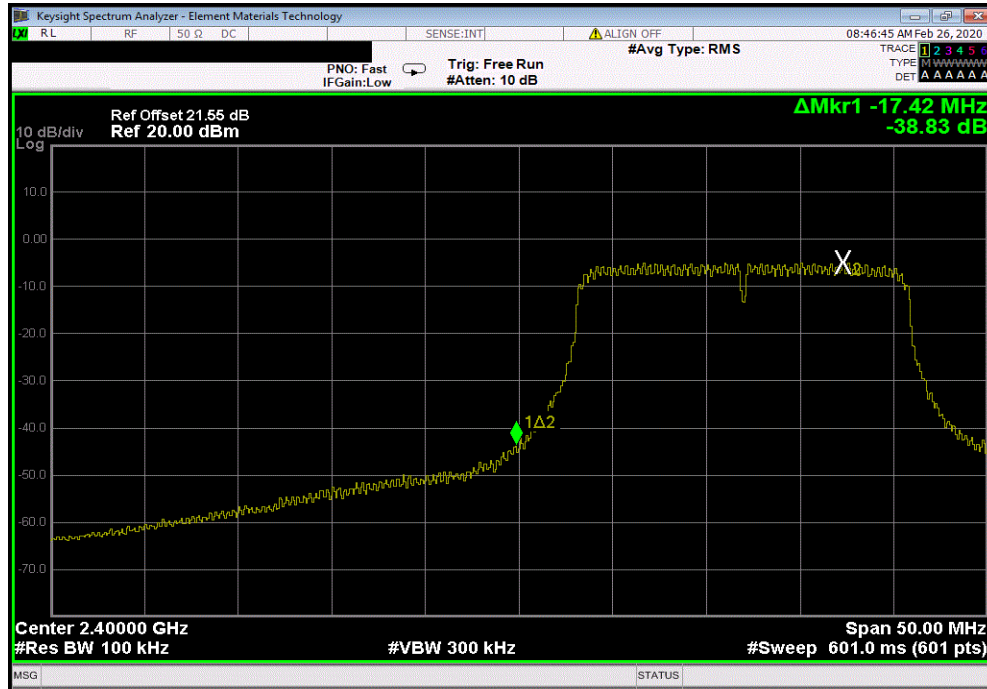


BAND EDGE COMPLIANCE

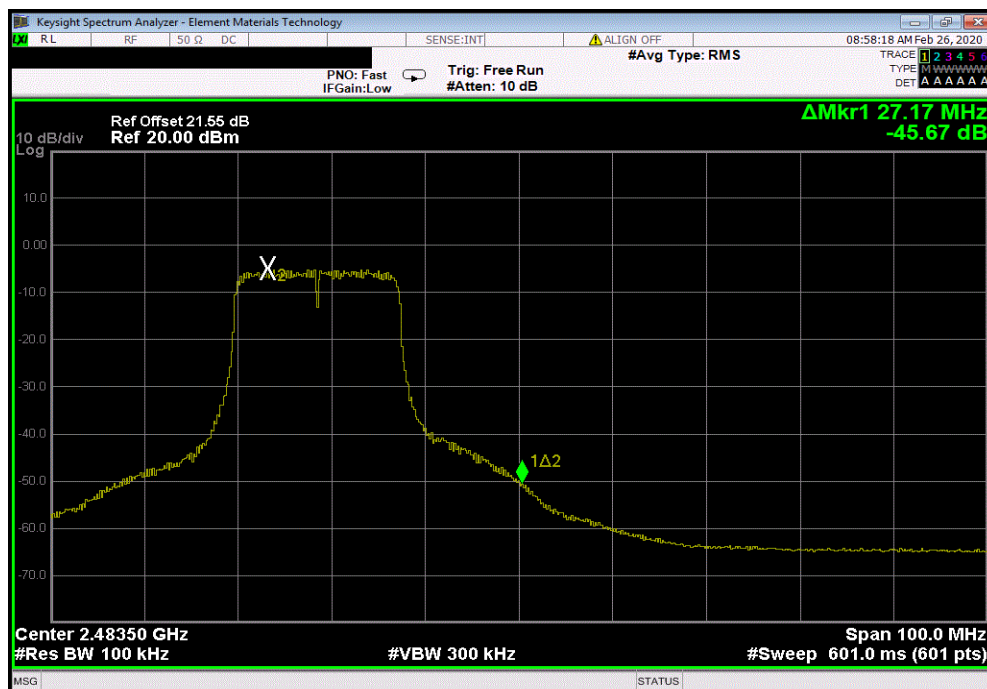


TMTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-38.83	-30	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-45.67	-30	Pass

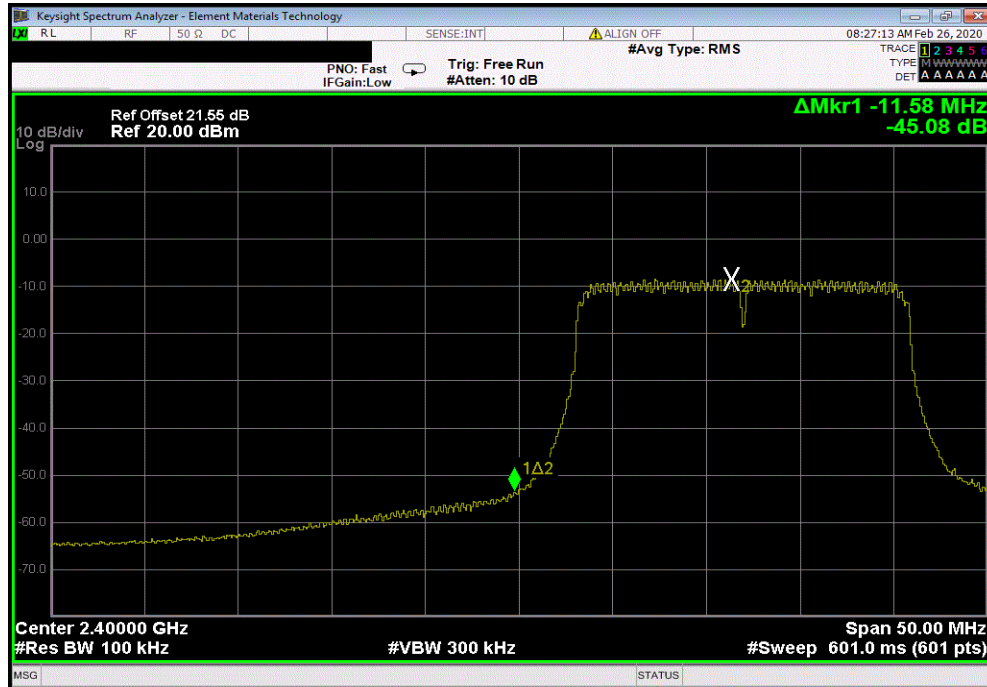


BAND EDGE COMPLIANCE

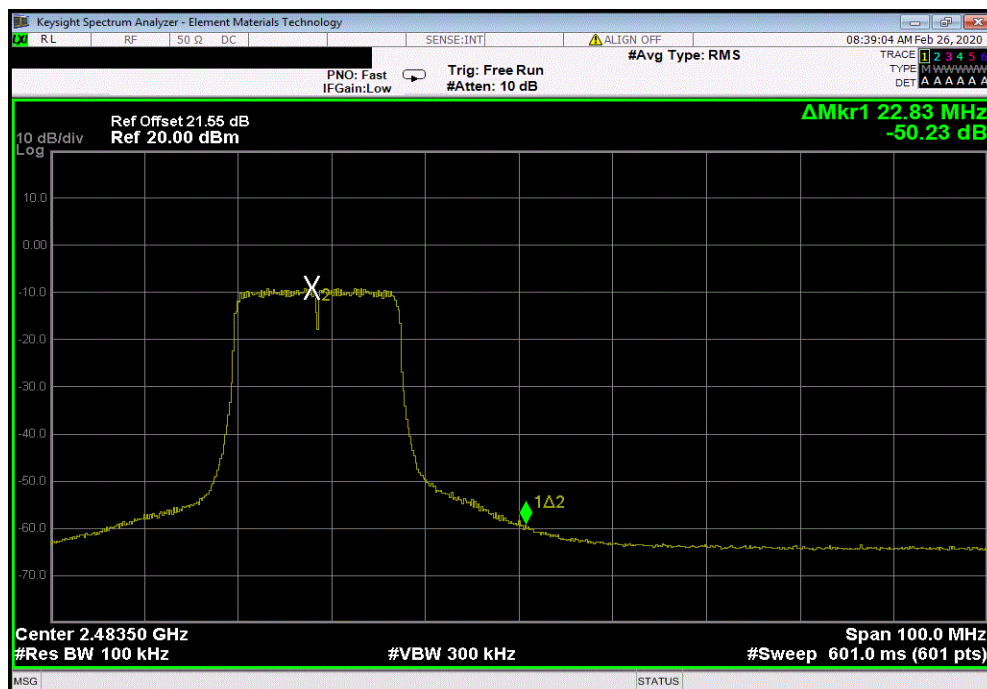


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-45.09	-30	Pass			



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-50.23	-30	Pass			

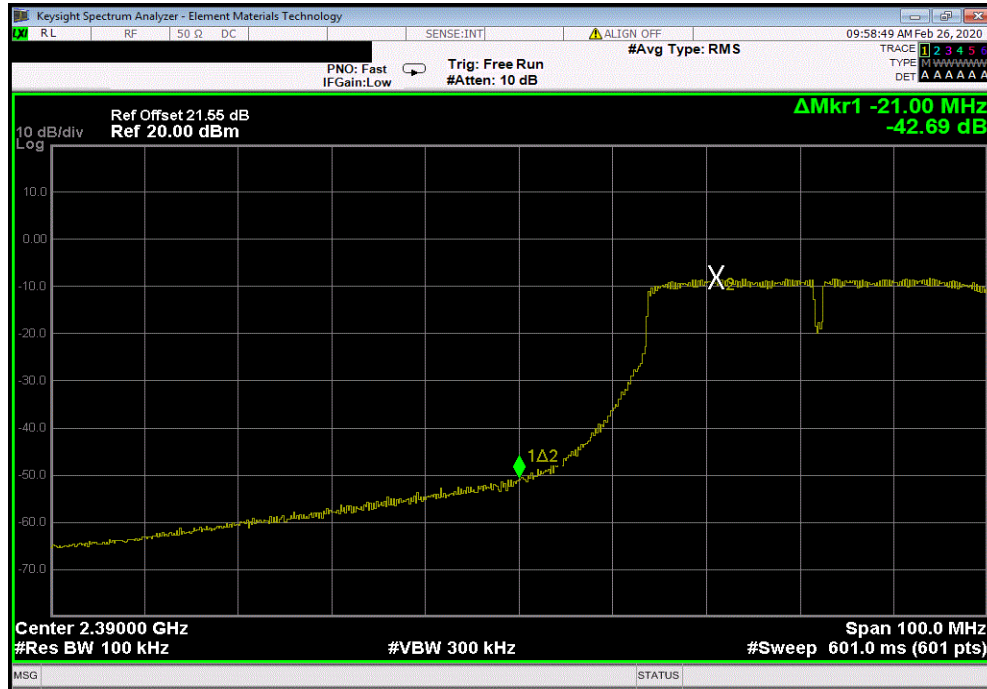


BAND EDGE COMPLIANCE

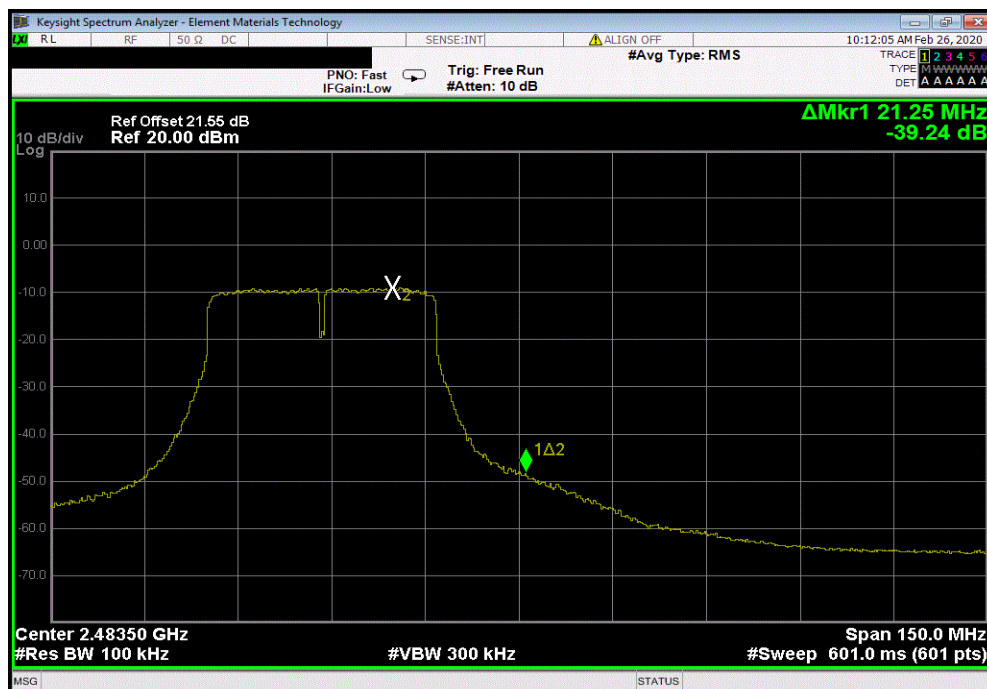


TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-42.7	-30	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-39.24	-30	Pass

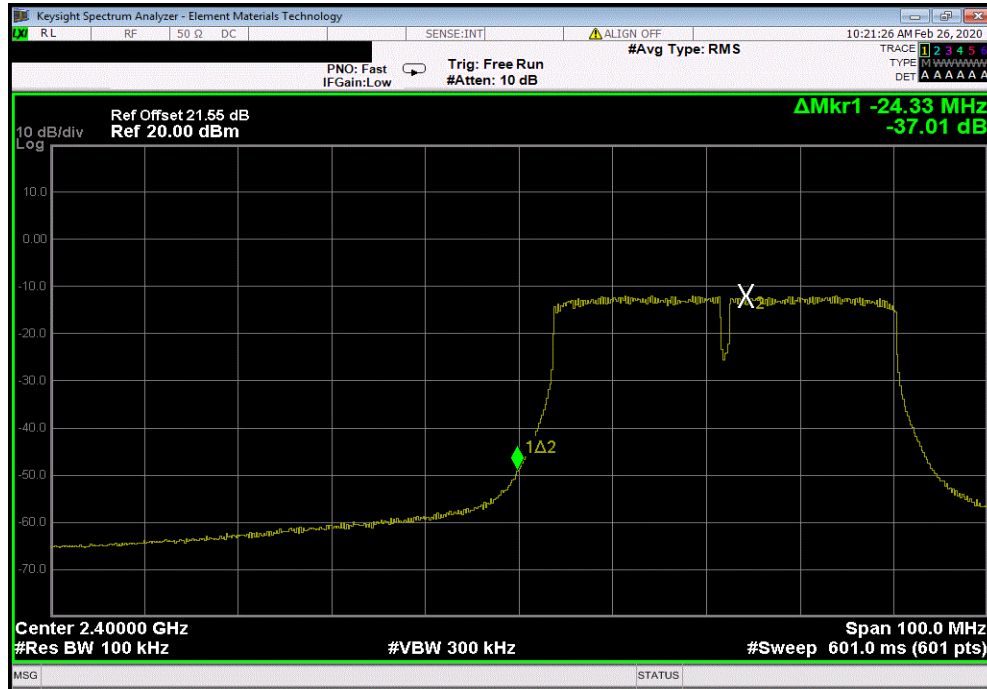


BAND EDGE COMPLIANCE



TbTx 2019.08.30.0 XMI 2019.09.05

2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-37.01	-30	Pass			



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-44.54	-30	Pass			

