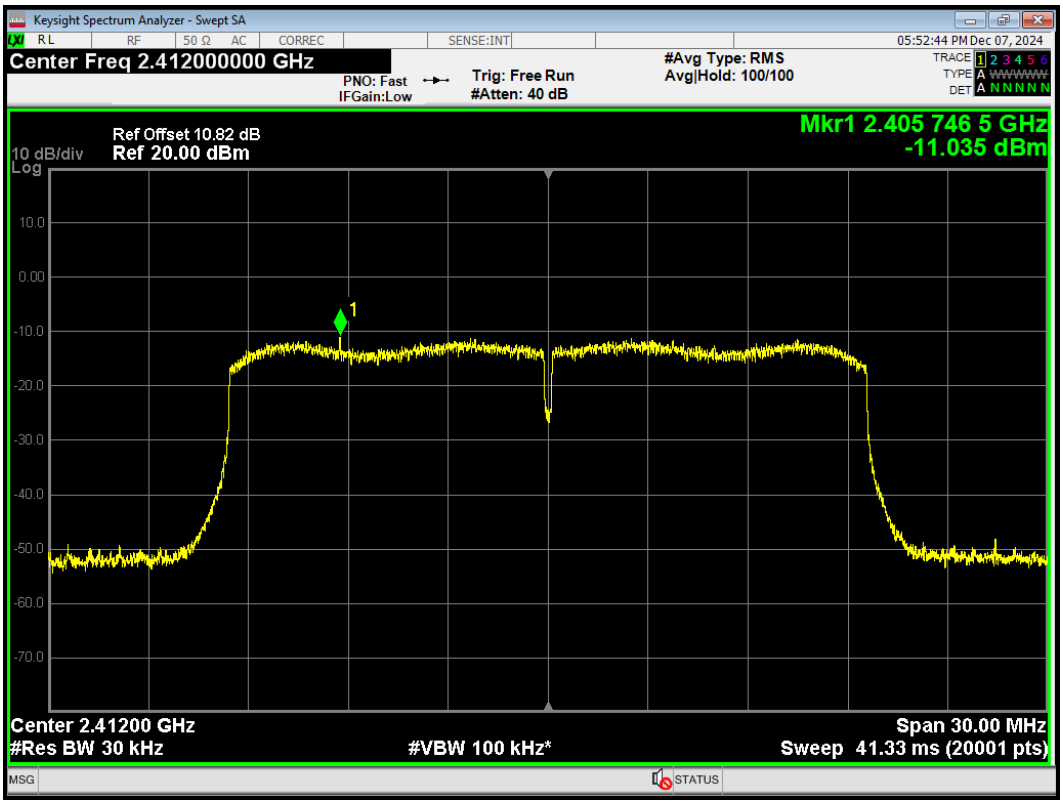
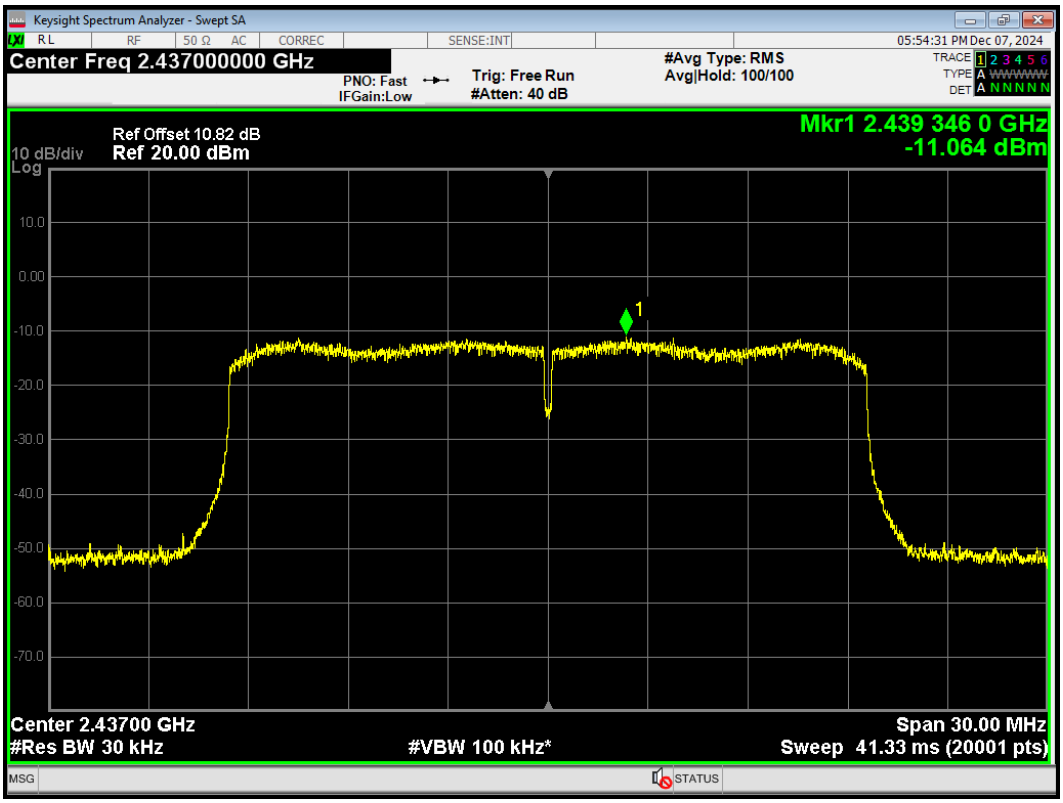
ERSU Mode

PSD 802.11ax(HE20) 242T 2412MHz



PSD 802.11ax(HE20) 242T 2437MHz



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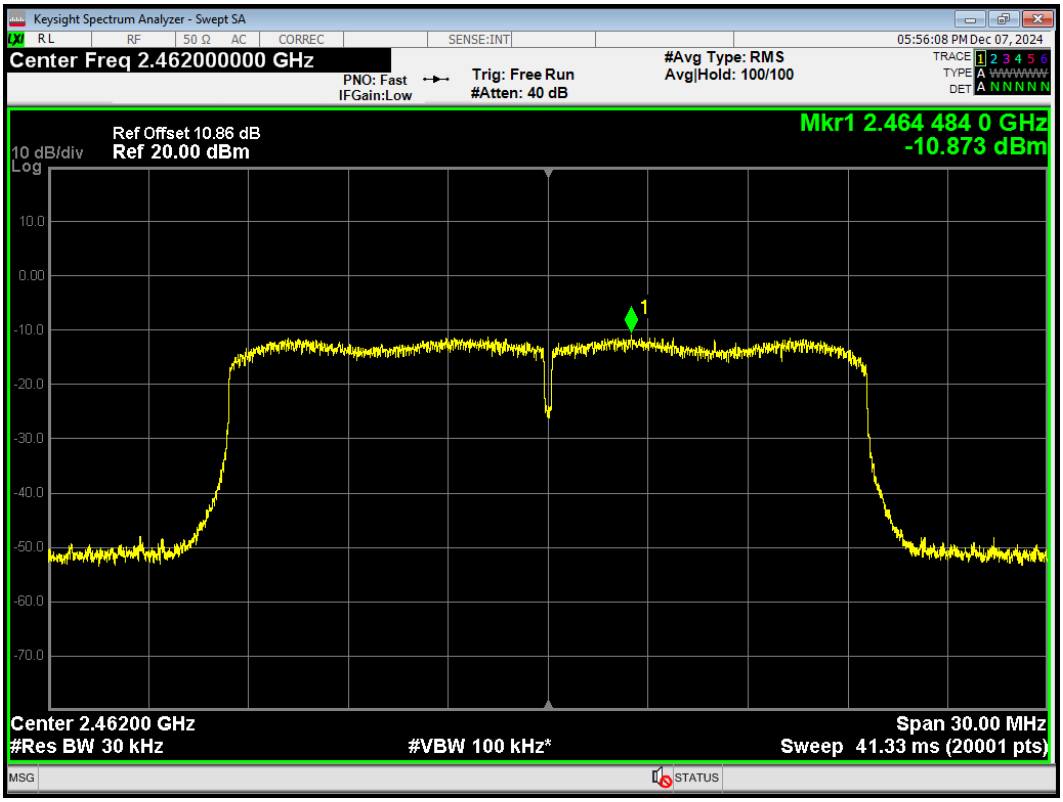
PSD 802.11ax(HE20) 242T 2462MHz



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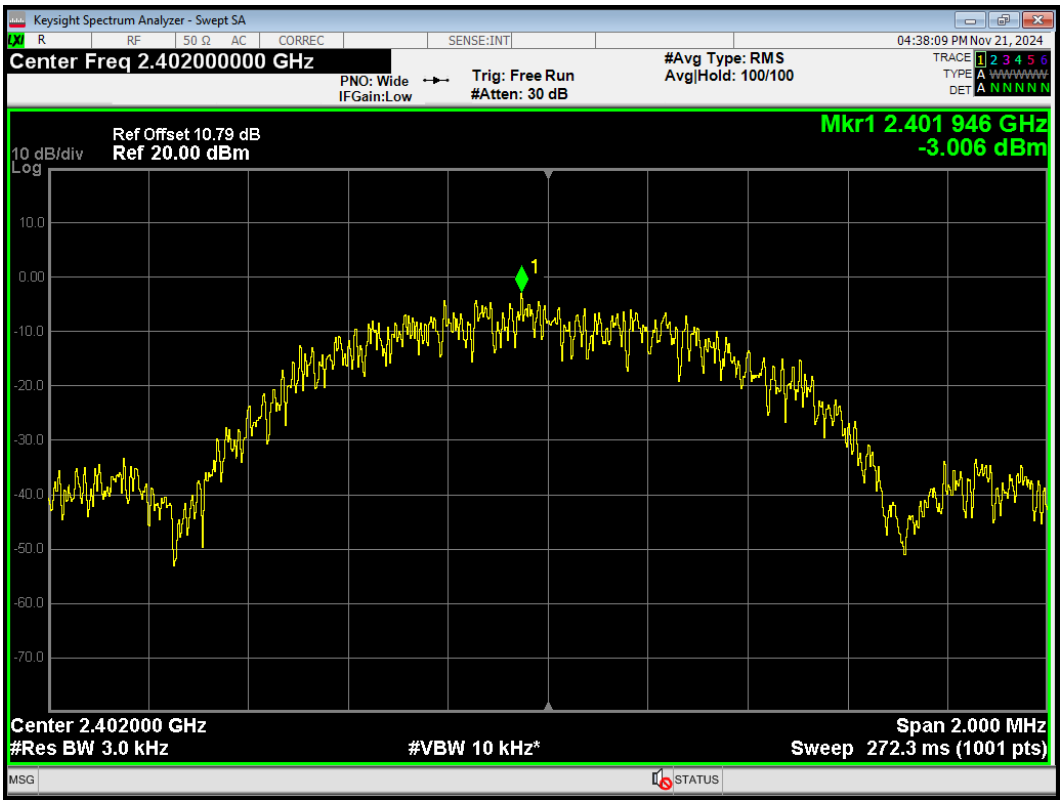
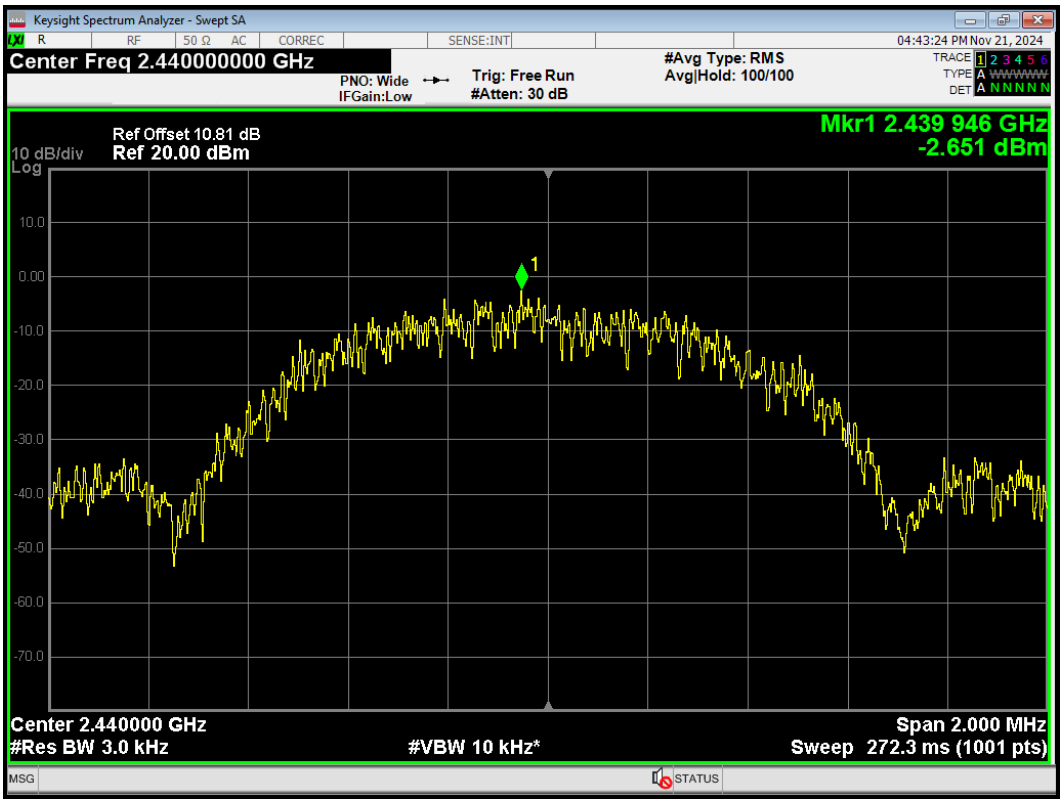
Bluetooth LE

PSD Bluetooth LE (1M) 2402MHz



PSD Bluetooth LE (1M) 2440MHz



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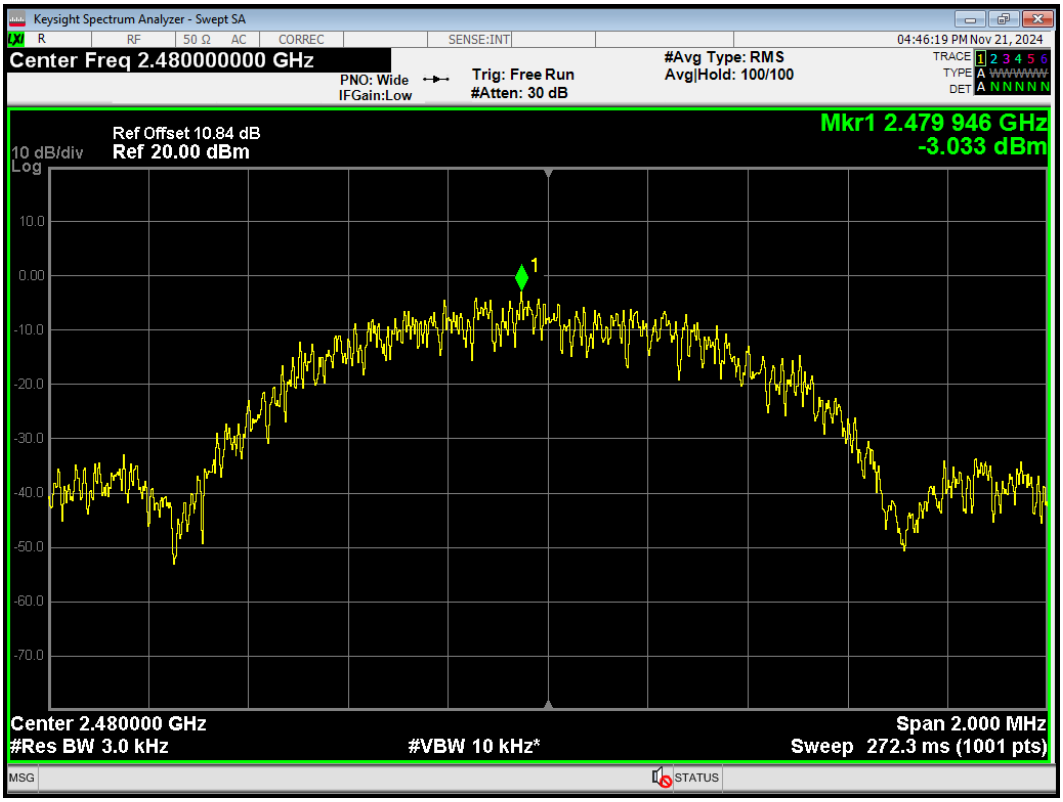
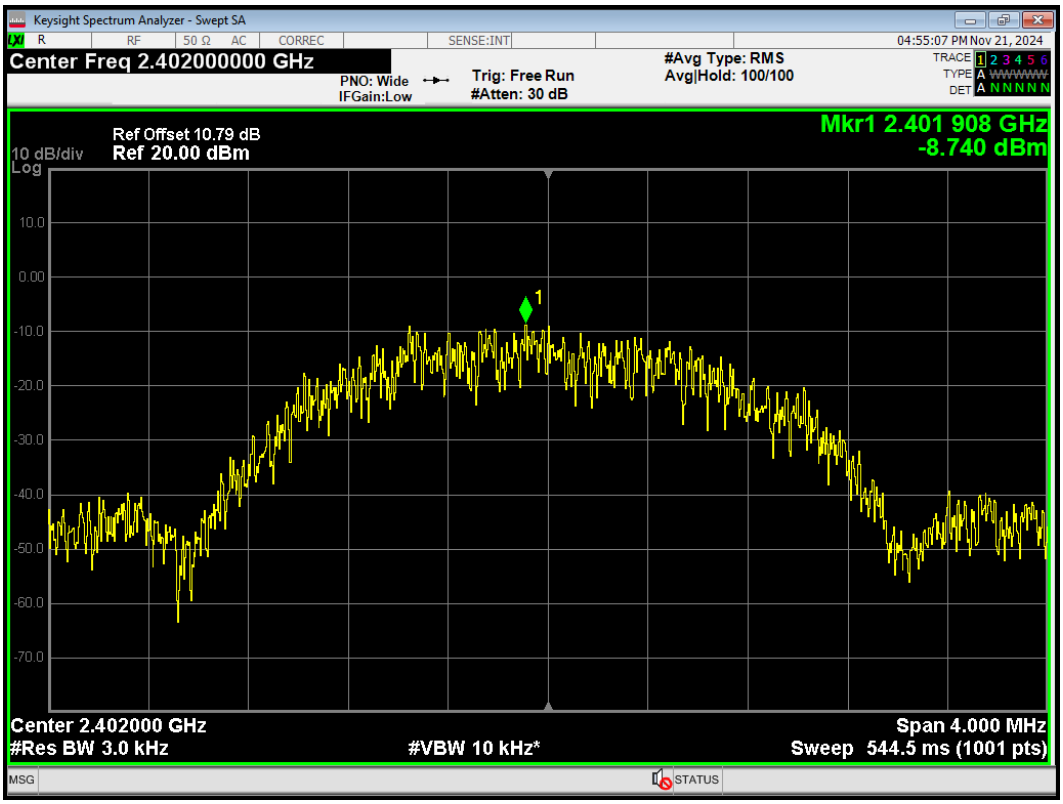
PSD Bluetooth LE (1M) 2480MHz



PSD Bluetooth LE (2M) 2402MHz



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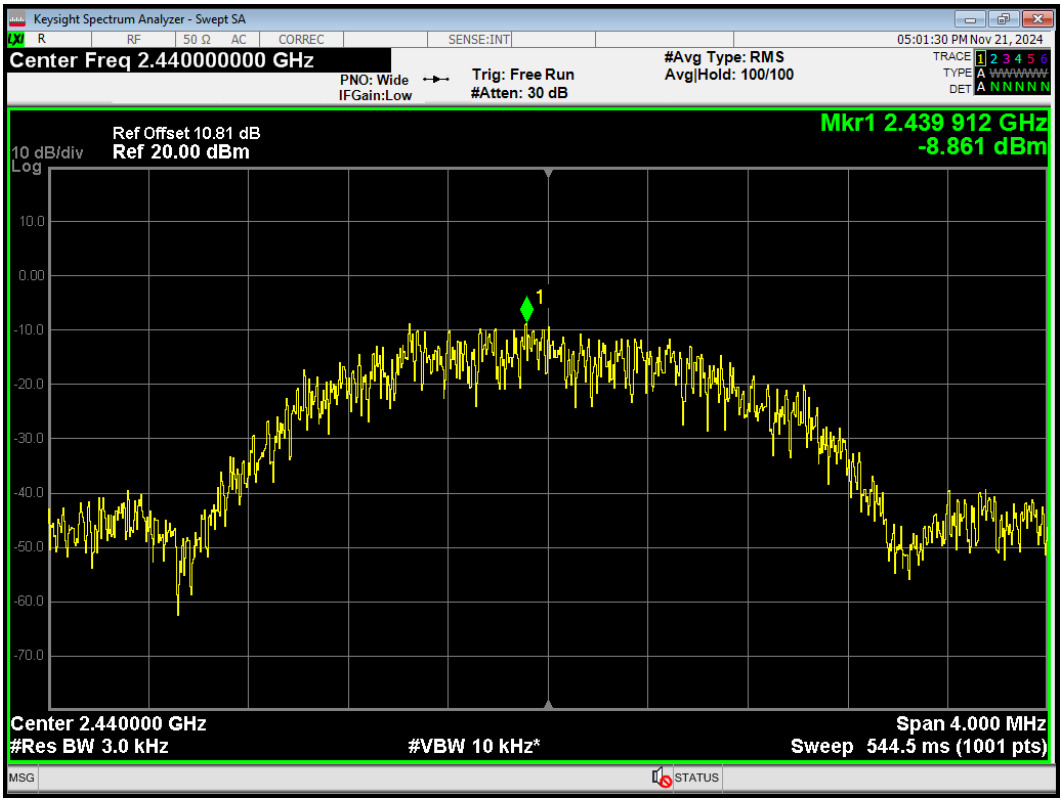
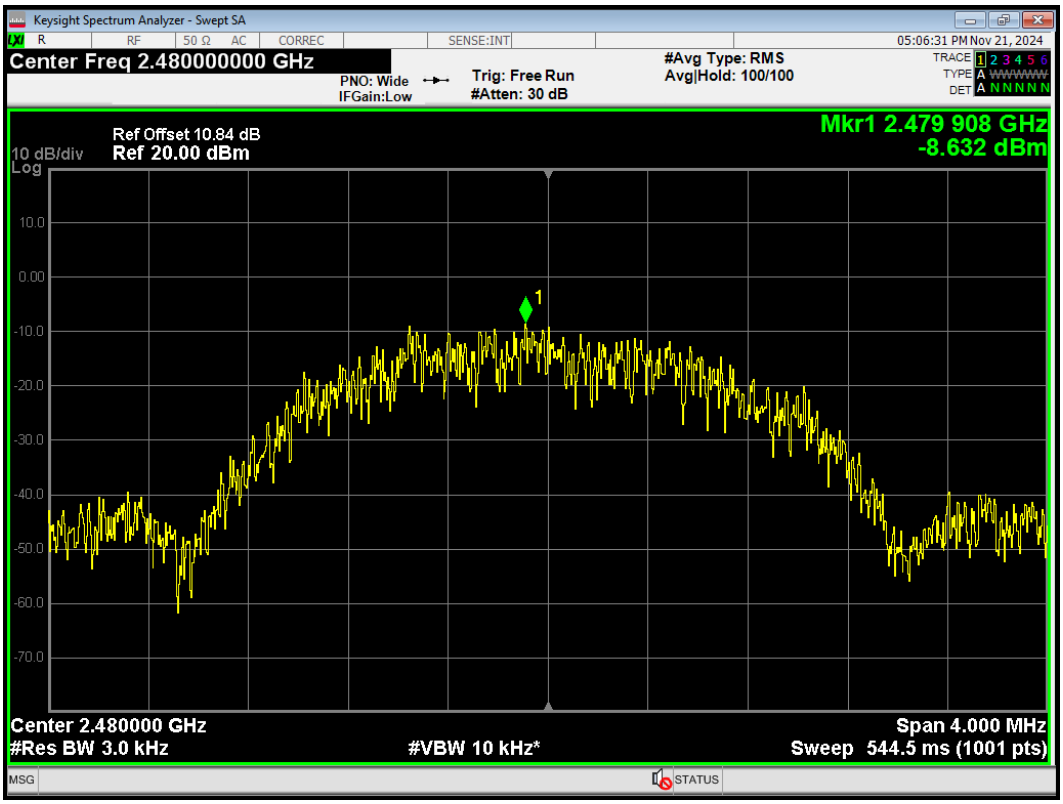
PSD Bluetooth LE (2M) 2440MHz



PSD Bluetooth LE (2M) 2480MHz



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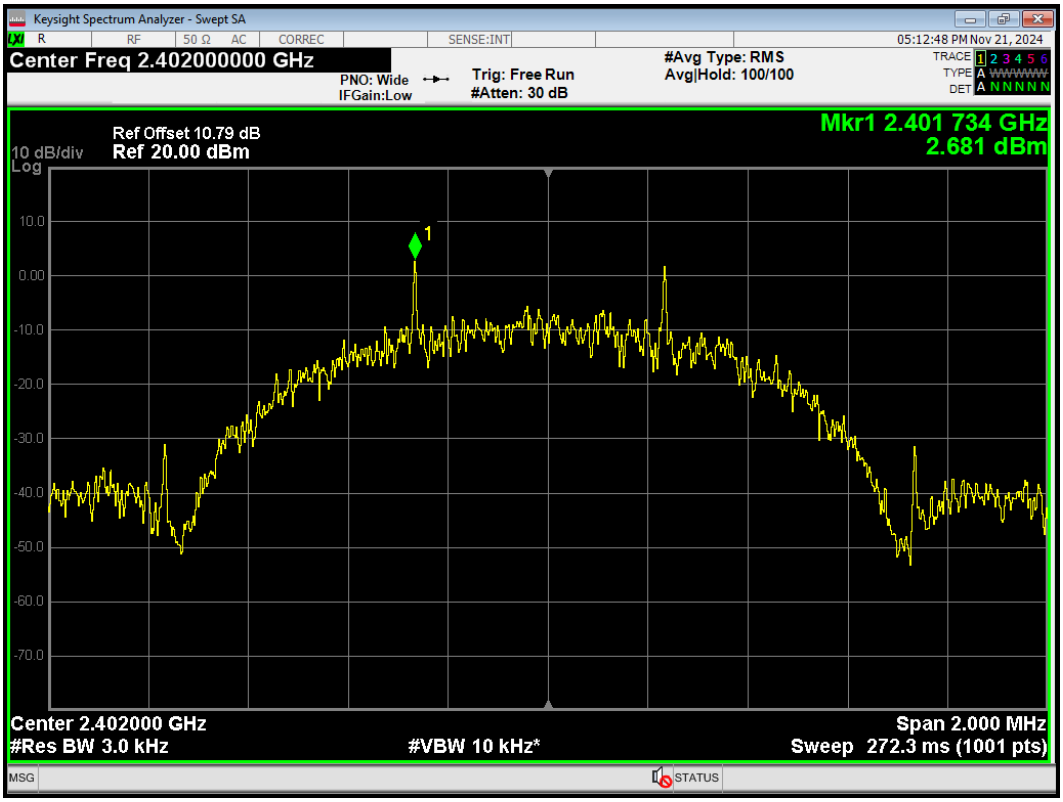
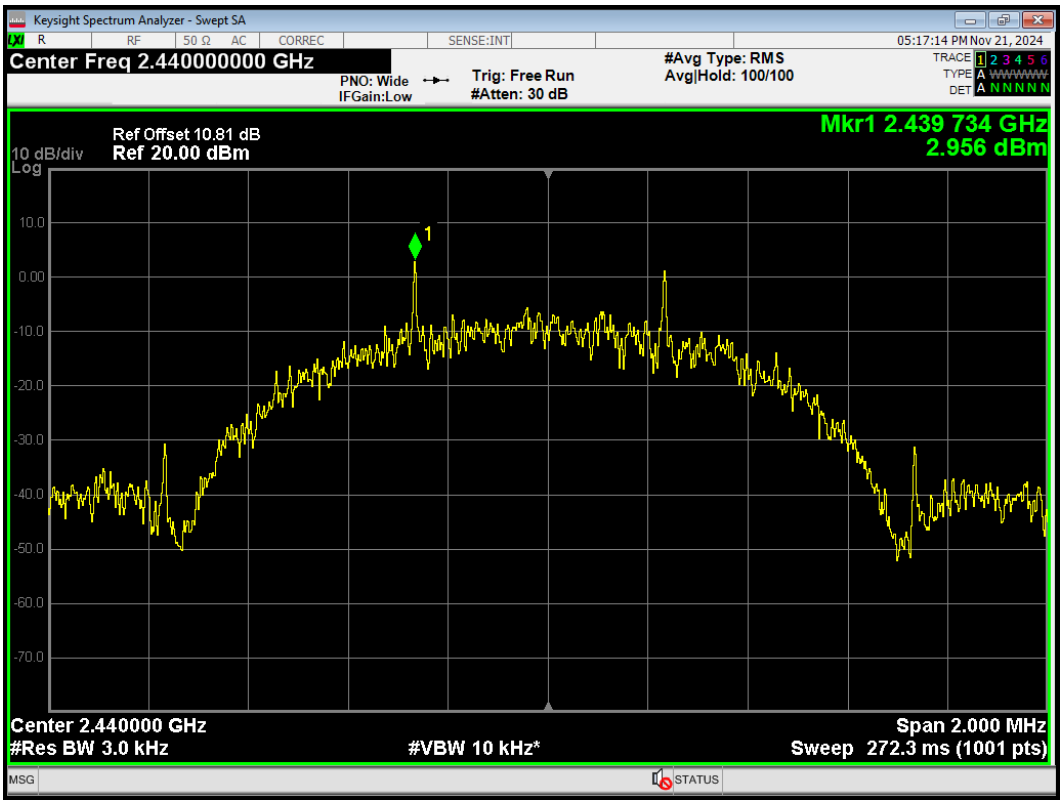
PSD Bluetooth LE (S=2) 2402MHz



PSD Bluetooth LE (S=2) 2440MHz



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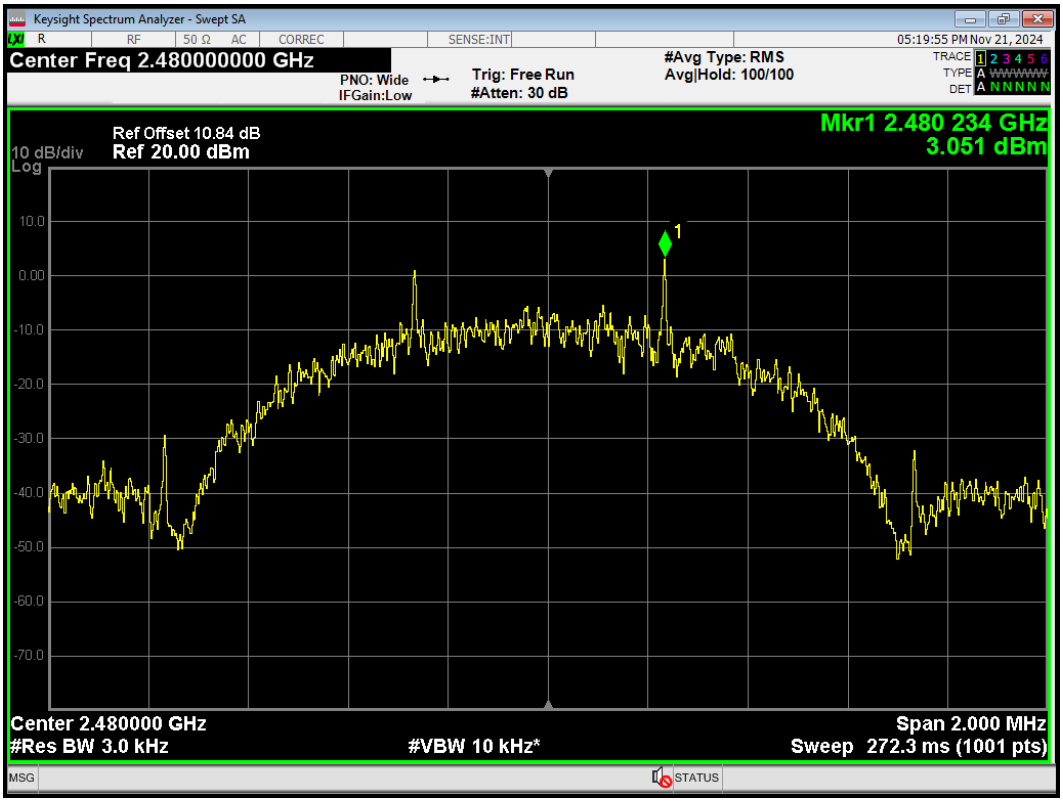
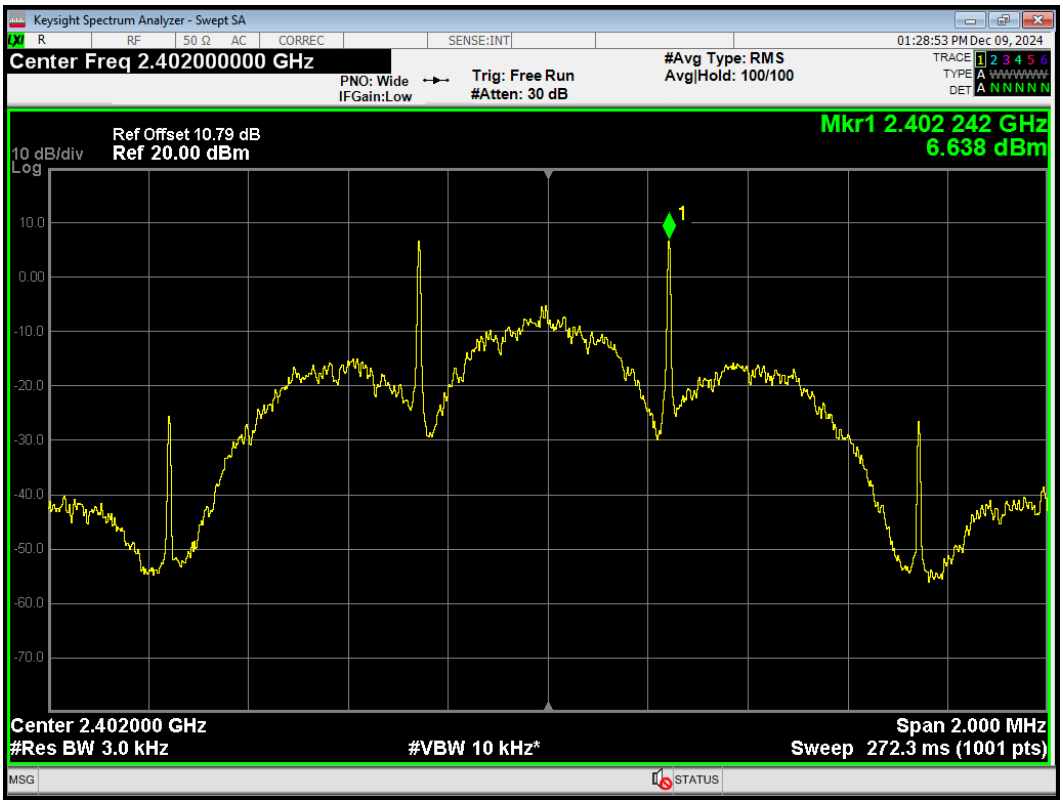
PSD Bluetooth LE (S=2) 2480MHz



PSD Bluetooth LE (S=8) 2402MHz



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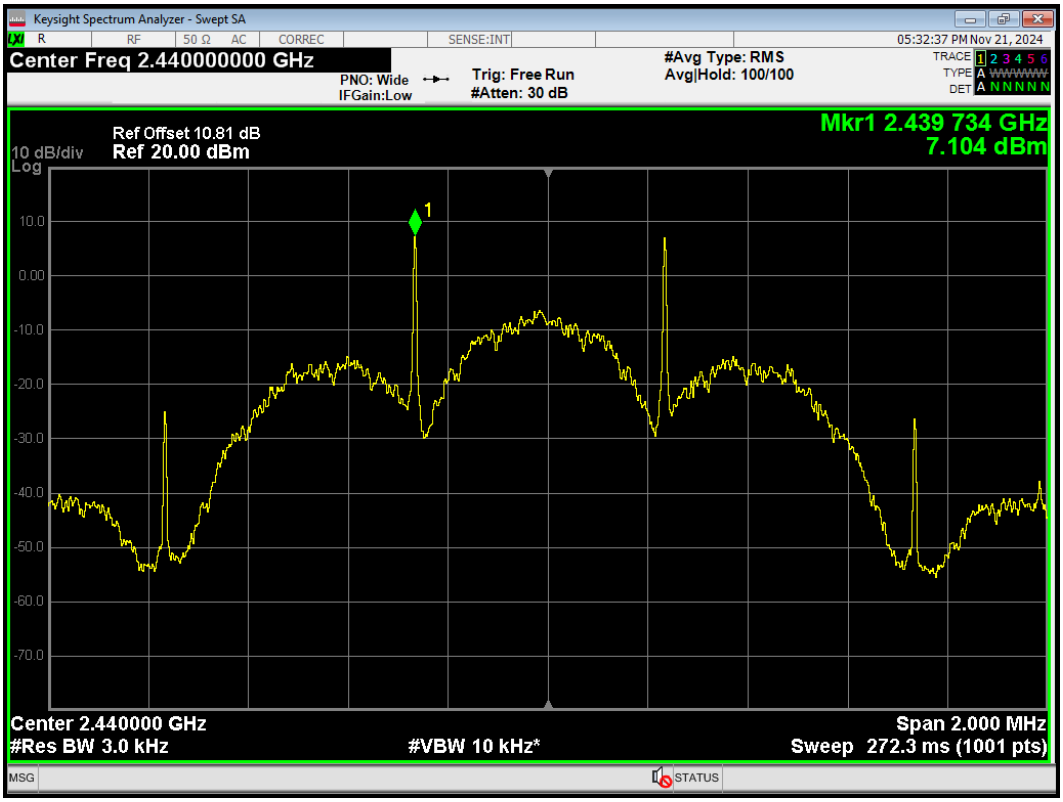
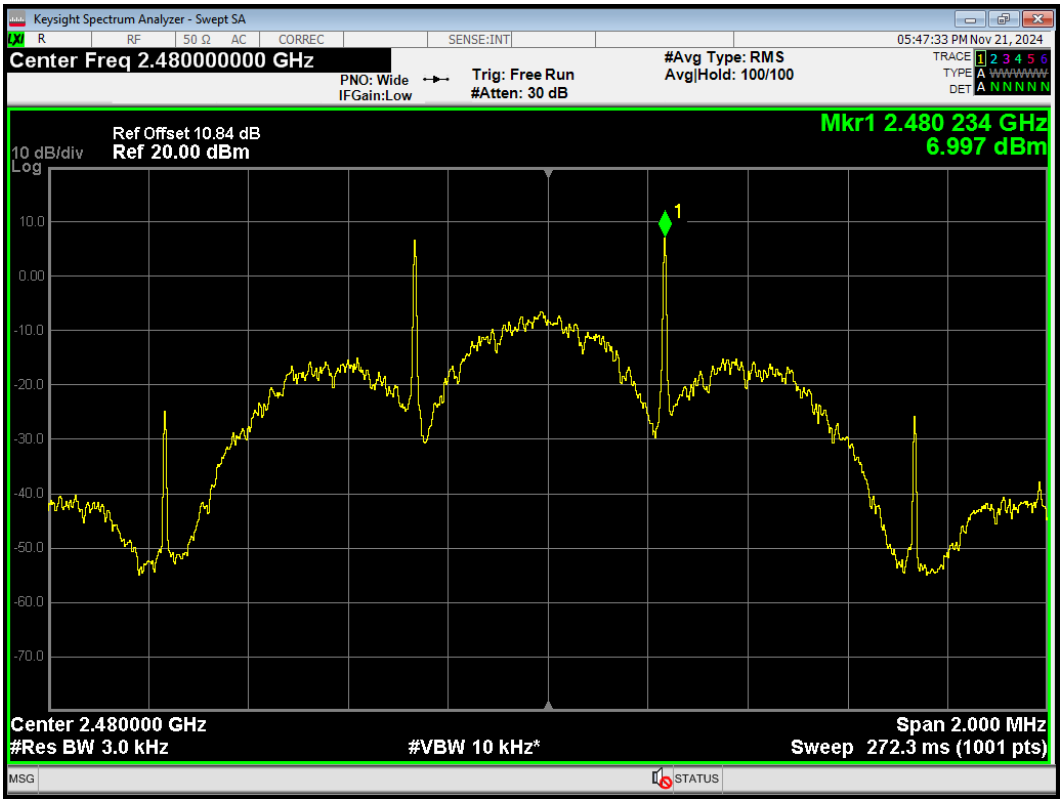
PSD Bluetooth LE (S=8) 2440MHz



PSD Bluetooth LE (S=8) 2480MHz



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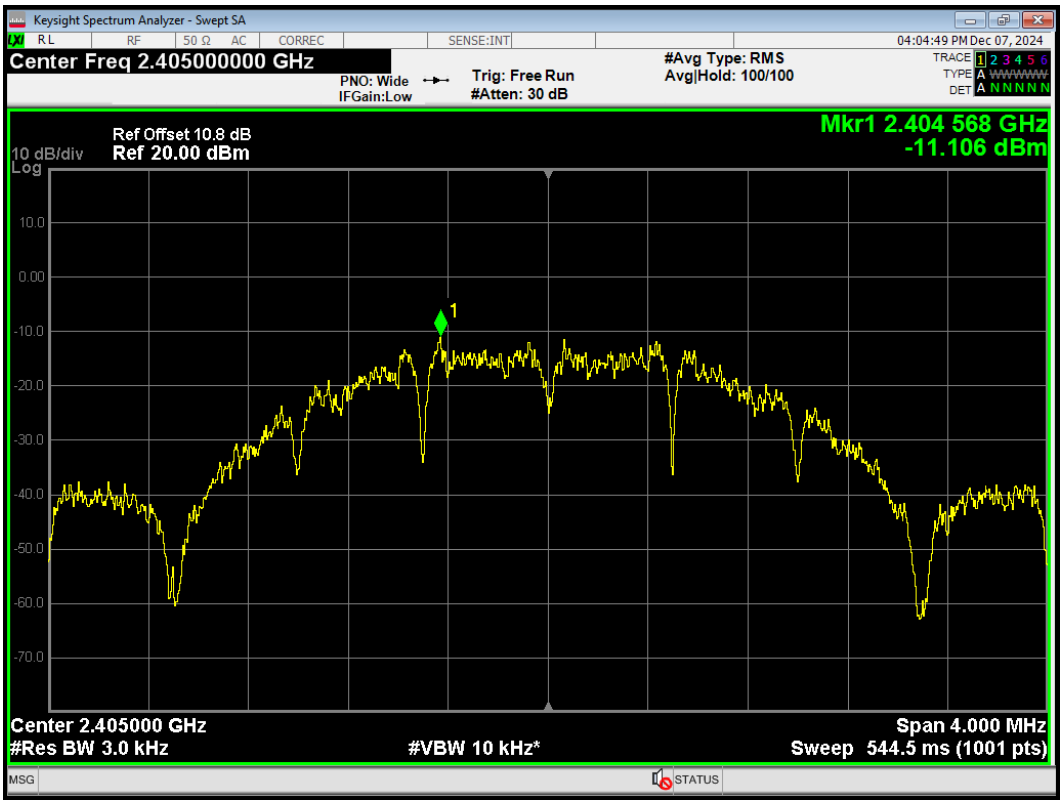
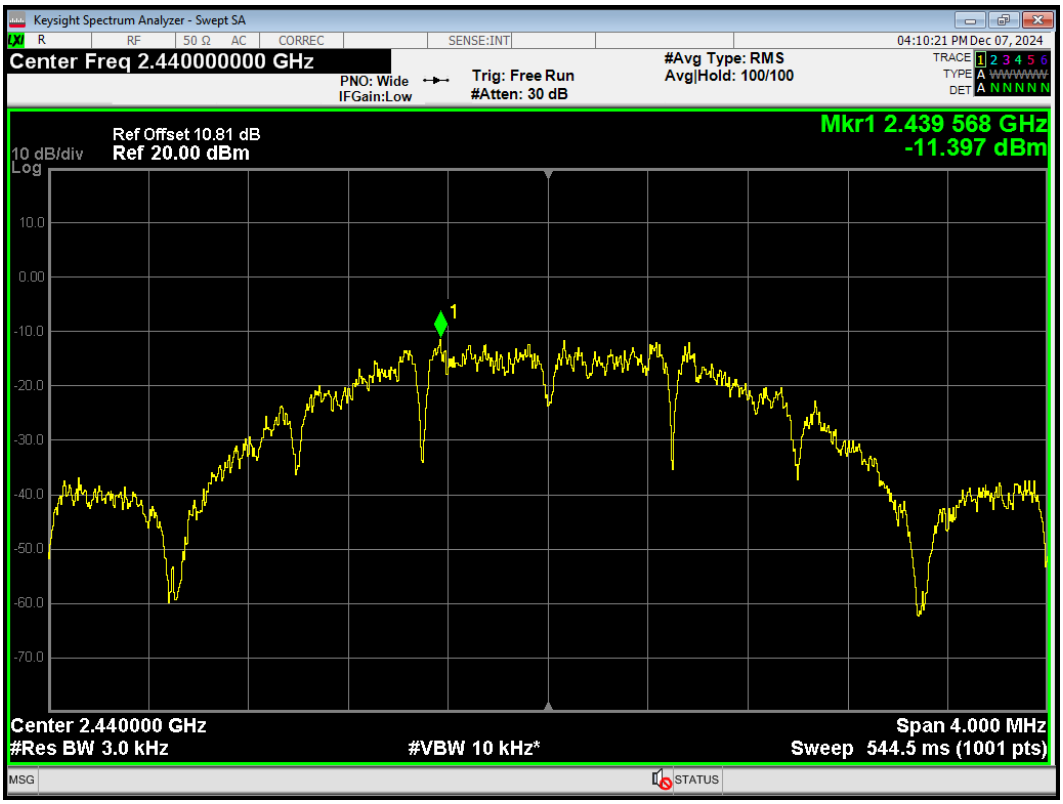
Thread

PSD Thread 2405MHz



PSD Thread 2440MHz



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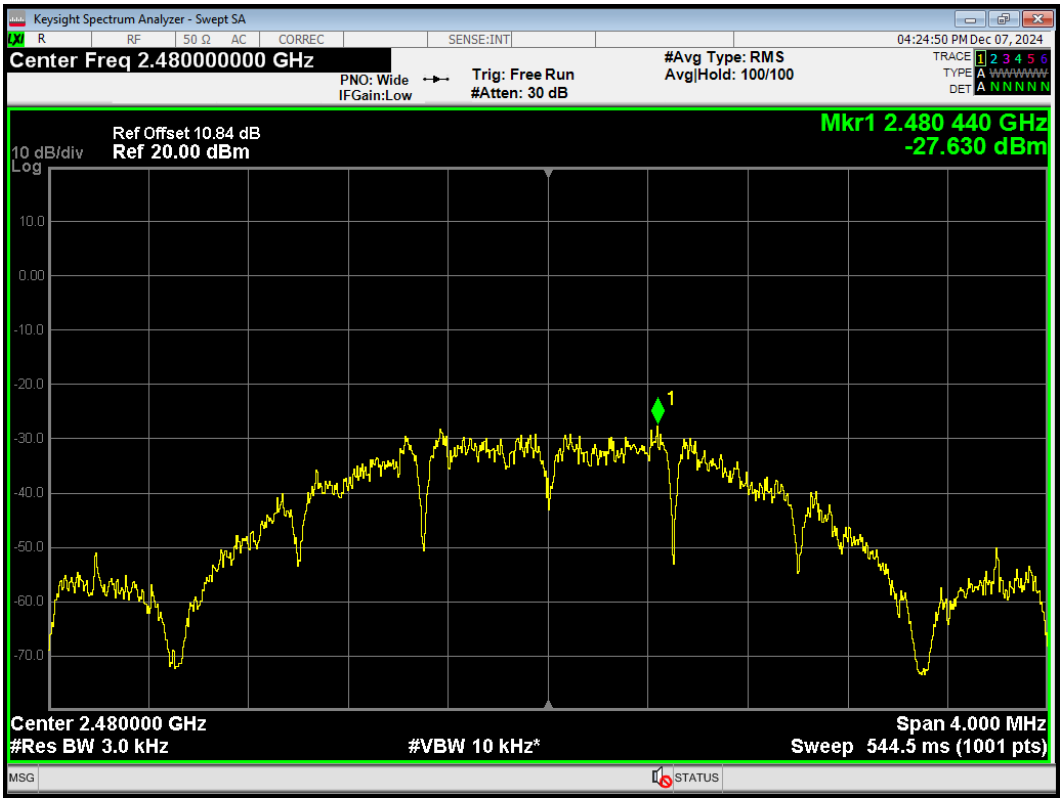
PSD Thread 2480MHz



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5.5. Spurious RF Conducted Emissions

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW to 100 kHz and VBW to 300 kHz, Sweep is set to AUTO.
The test is in transmitting mode.

Test Setup

Limits

Rule Part 15.247(d) pacifies that "In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. "

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
802.11b	2412	6.29	-23.71
	2437	6.37	-23.63
	2462	6.95	-23.05
802.11g	2412	6.21	-23.79
	2437	6.78	-23.22
	2462	6.85	-23.15
802.11n HT20	2412	3.16	-26.84
	2437	3.37	-26.63
	2462	4.34	-25.66
802.11n HT40	2422	0.52	-29.48
	2437	0.85	-29.15
	2452	0.94	-29.06

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802.11ax HE20	2412	3.55	-26.45
	2437	3.62	-26.38
	2462	4.02	-25.98
802.11ax HE40	2422	0.65	-29.35
	2437	0.80	-29.2
	2452	0.94	-29.06

TB Mode

Network Standards	Carrier frequency (MHz)	RU Index	Reference value (dBm)	Limit
802.11ax HE20 26-Tones	2412	0	9.43	-20.57
	2437	4	9.42	-20.58
	2462	8	10.42	-19.58
802.11ax HE20 52-Tones	2412	37	7.67	-22.33
	2437	38	7.62	-22.38
	2462	40	7.86	-22.14
802.11ax HE20 106-Tones	2412	53	4.43	-25.57
	2437	53	5.22	-24.78
	2462	54	5.02	-24.98
802.11ax HE20 242-Tones	2412	61	3.27	-26.73
	2462	61	3.76	-26.24
802.11ax HE40 26-Tones	2422	0	11.35	-18.65
	2452	17	10.09	-19.91
802.11ax HE40 484-Tones	2422	65	0.44	-29.56
	2452	65	0.56	-29.44

ERSU Mode

Network Standards	Carrier frequency (MHz)	RU Index	Read Value (dBm / 30kHz)	Power Spectral Density (dBm / 3kHz)
802.11ax HE20 242-Tones	2412	61	2.75	-27.25
	2437	61	2.90	-27.10
	2462	61	2.89	-27.11

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Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
Bluetooth (Low Energy) (1M)	2402	16.31	-13.69
	2440	16.58	-13.42
	2480	16.53	-13.47
Bluetooth (Low Energy) (2M)	2402	16.58	-13.42
	2440	16.34	-13.66
	2480	16.68	-13.32
Bluetooth (Low Energy) (S=2)	2402	14.29	-15.71
	2440	14.85	-15.15
	2480	14.72	-15.28
Bluetooth (Low Energy) (S=8)	2402	12.32	-17.68
	2440	12.48	-17.52
	2480	11.75	-18.25
Thread	2405	16.07	-13.93
	2440	15.77	-14.23
	2480	-3.85	-33.85

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

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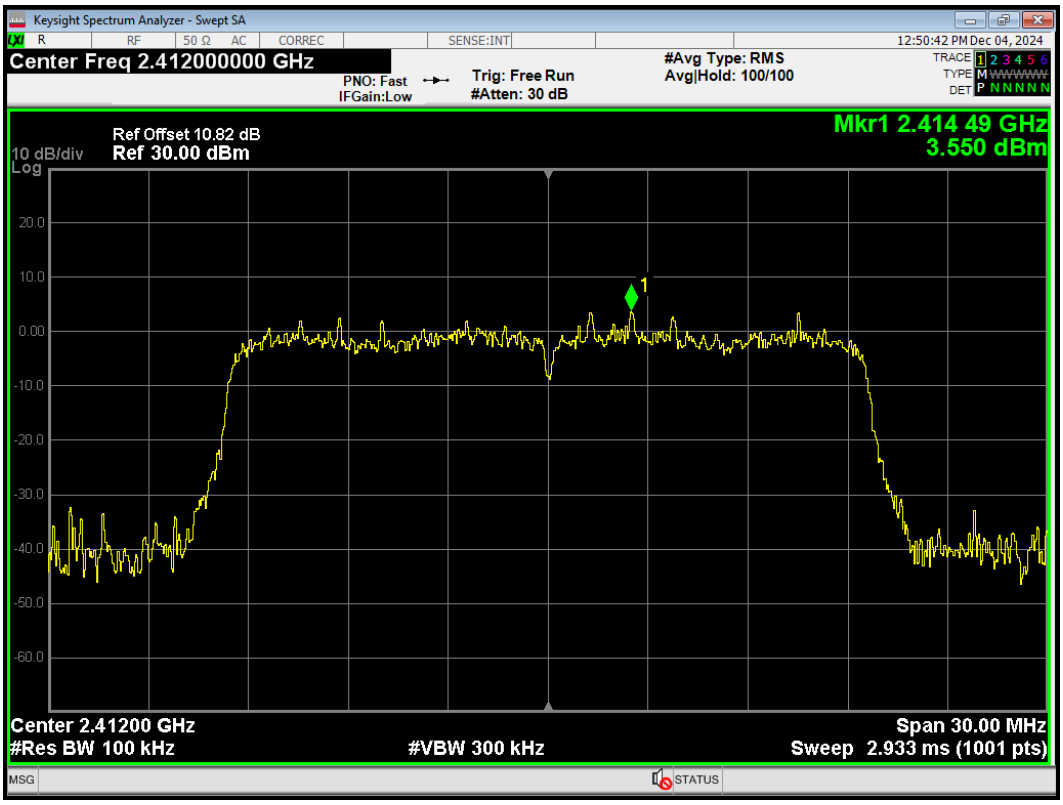
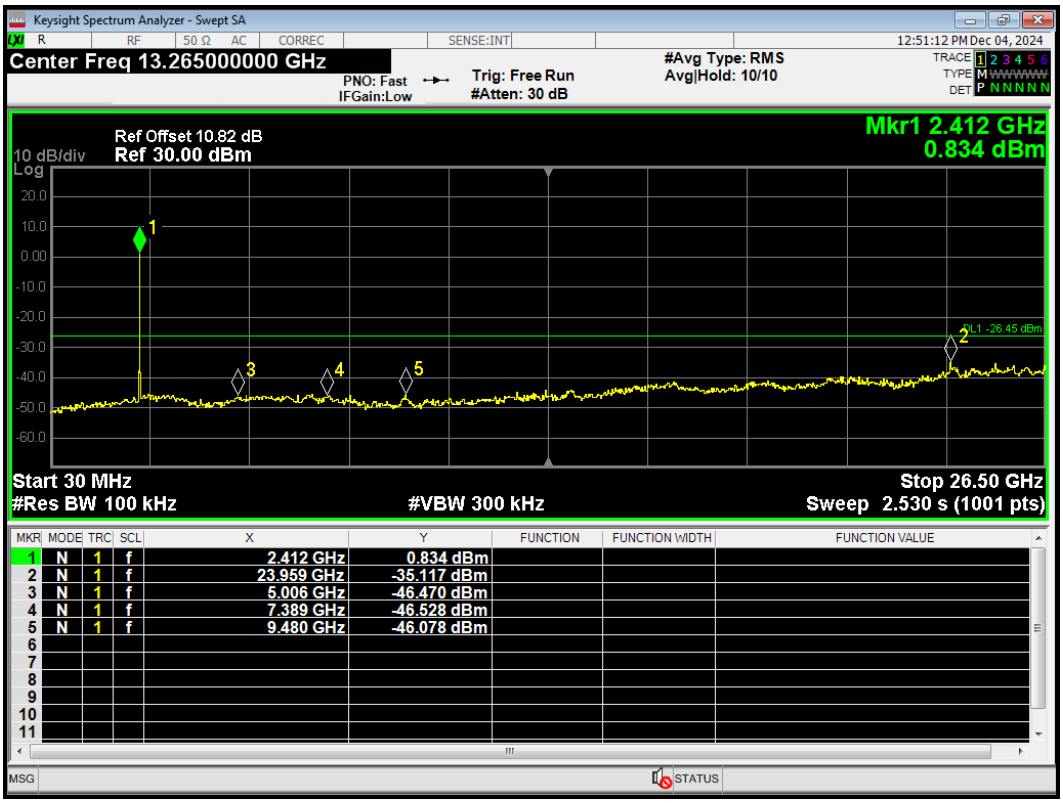
Test Results:

Tx. Spurious 802.11ax(HE20) 2412MHz Ref



Tx. Spurious 802.11ax(HE20) 2412MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 GHz	0.834 dBm			
2	N	1	f	23.959 GHz	-35.117 dBm			
3	N	1	f	5.006 GHz	-46.470 dBm			
4	N	1	f	7.389 GHz	-46.528 dBm			
5	N	1	f	9.480 GHz	-46.078 dBm			
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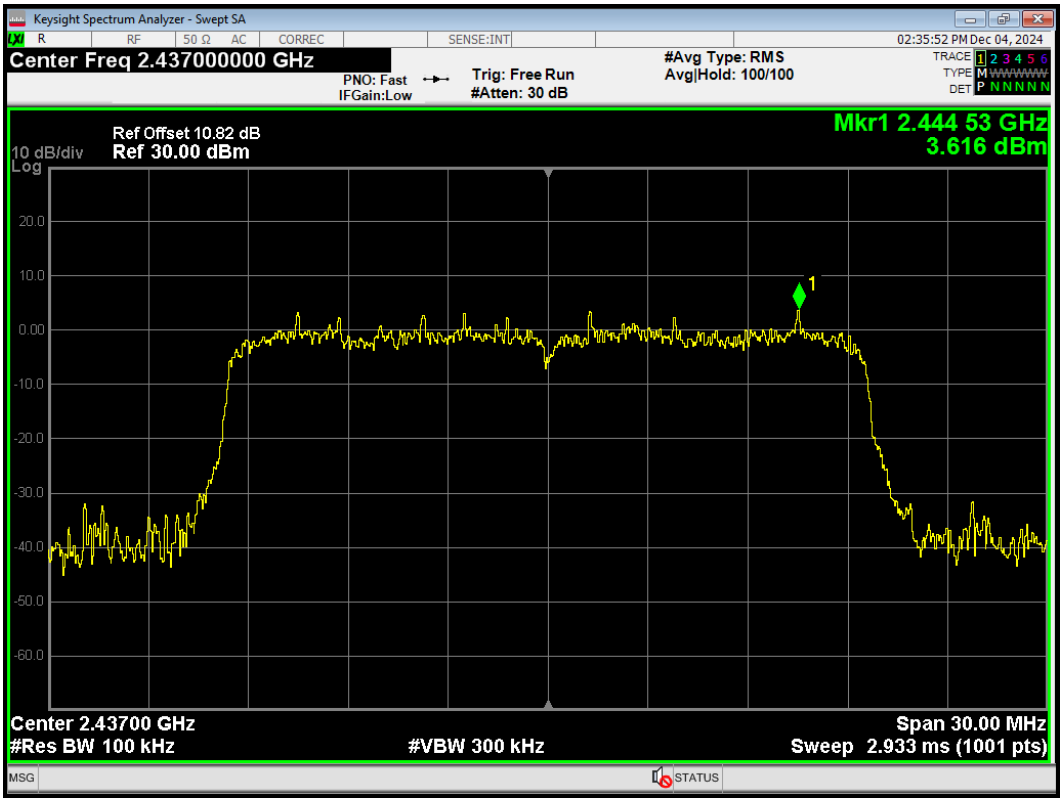
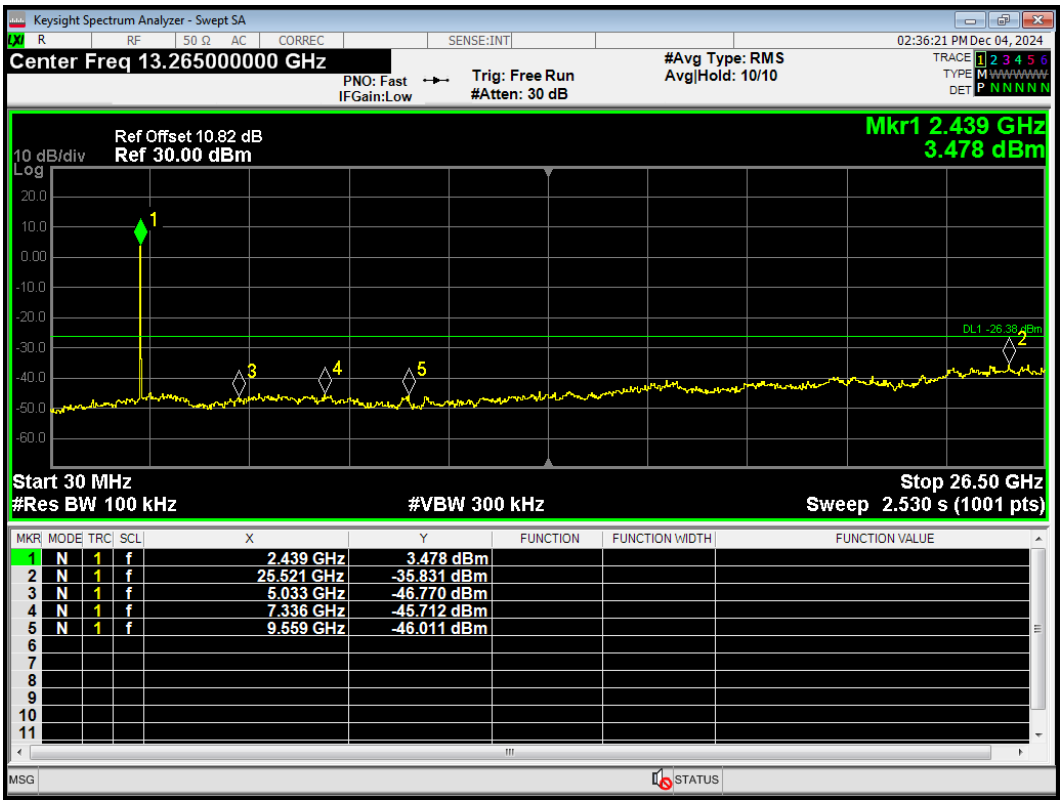
Tx. Spurious 802.11ax(HE20) 2437MHz Ref



Tx. Spurious 802.11ax(HE20) 2437MHz Emission



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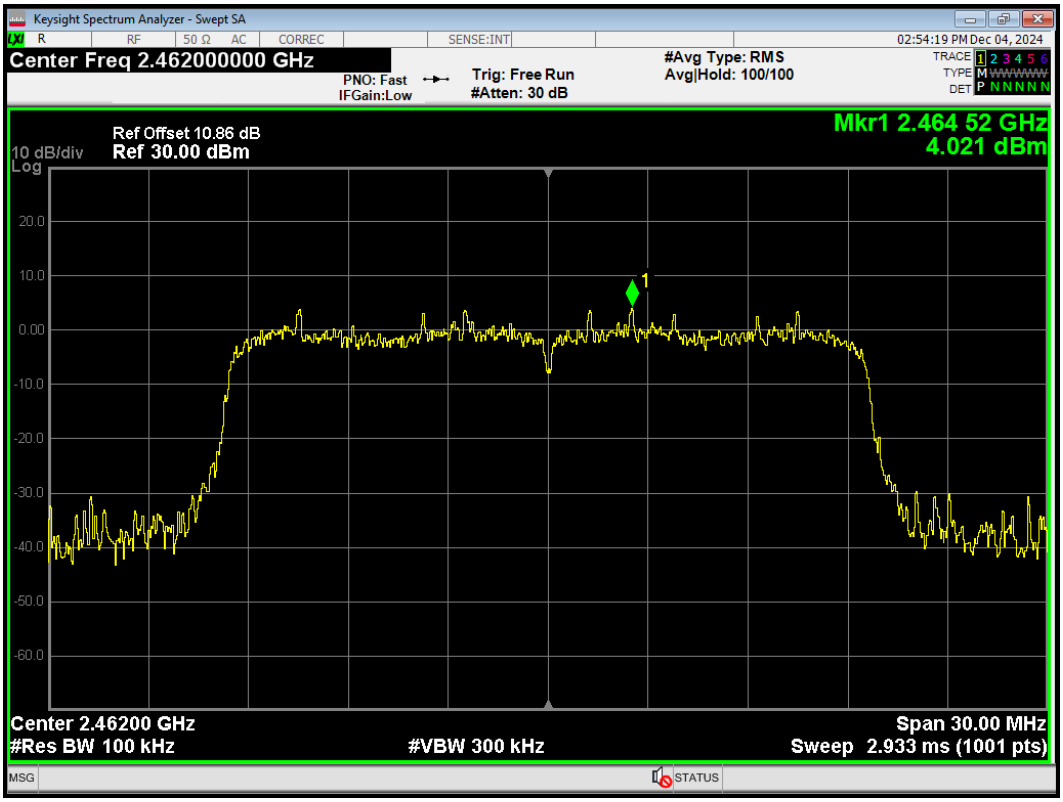
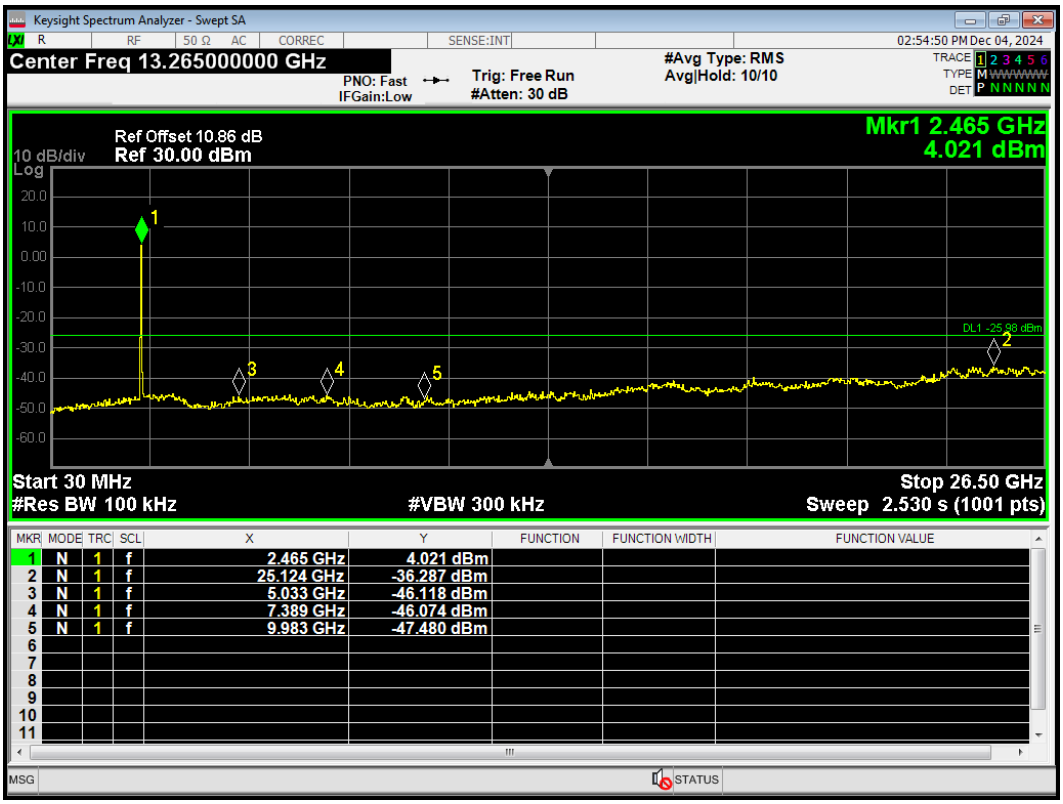
Tx. Spurious 802.11ax(HE20) 2462MHz Ref



Tx. Spurious 802.11ax(HE20) 2462MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.465 GHz	4.021 dBm			
2	N	1	f	25.124 GHz	-36.287 dBm			
3	N	1	f	5.033 GHz	-46.118 dBm			
4	N	1	f	7.389 GHz	-46.074 dBm			
5	N	1	f	9.983 GHz	-47.480 dBm			
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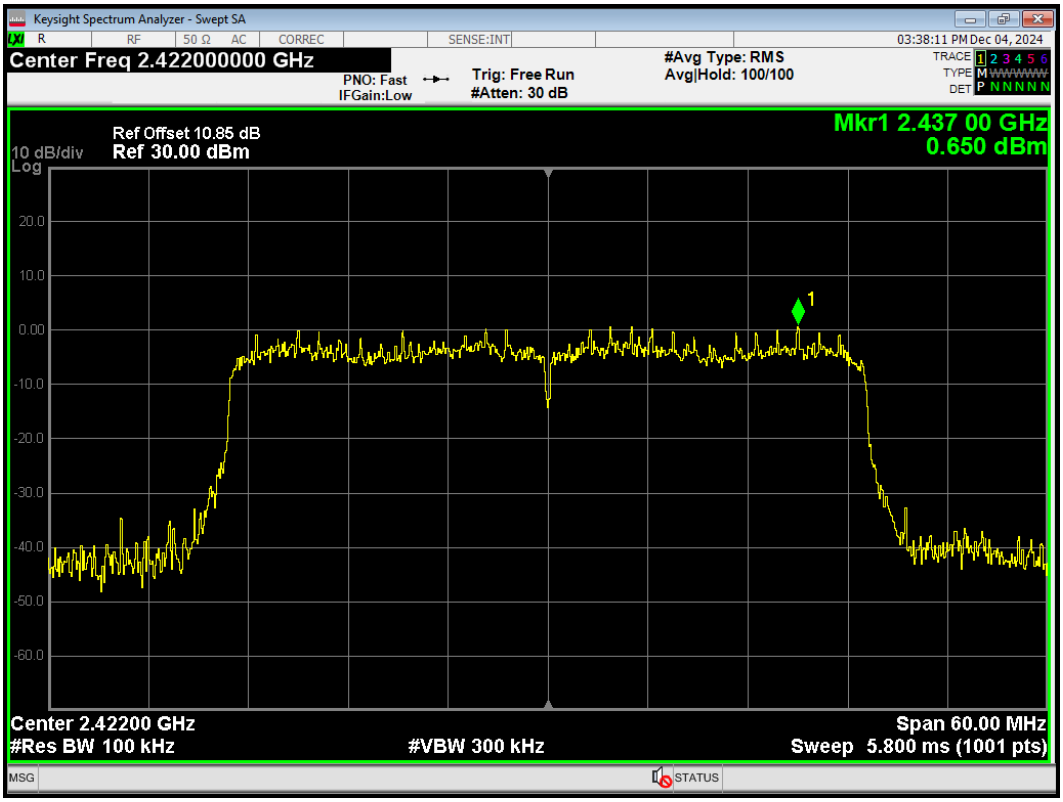
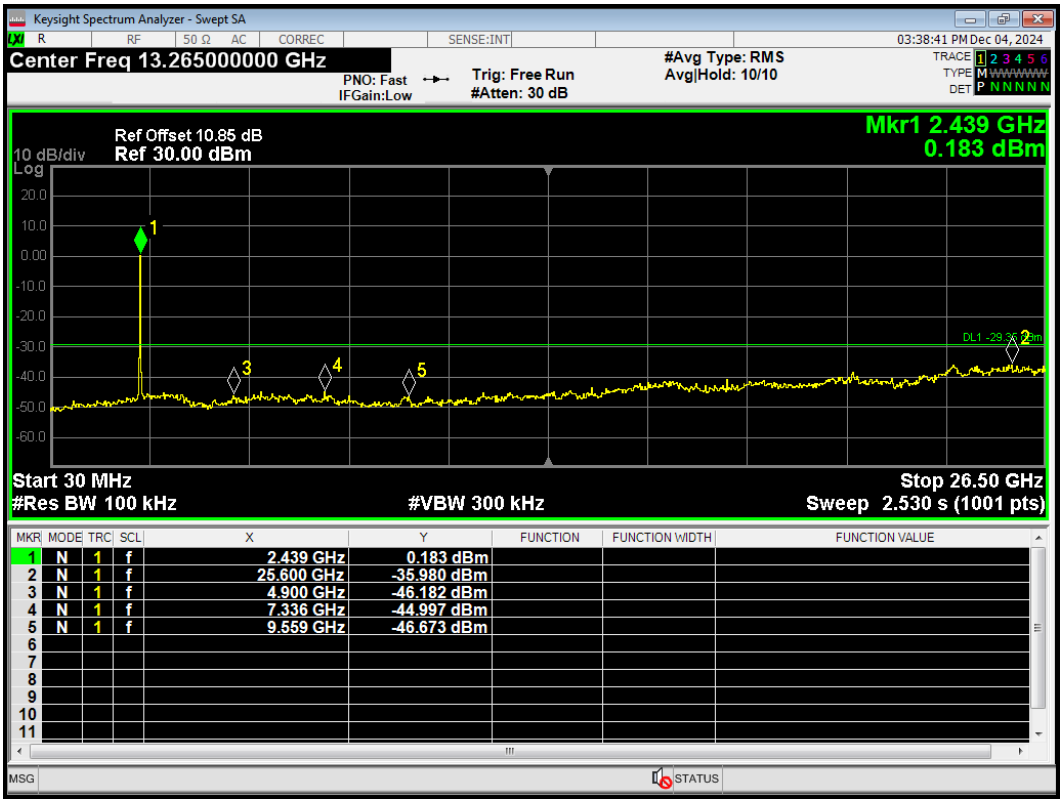
Tx. Spurious 802.11ax(HE40) 2422MHz Ref



Tx. Spurious 802.11ax(HE40) 2422MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439 GHz	0.183 dBm			
2	N	1	f	25.600 GHz	-35.980 dBm			
3	N	1	f	4.900 GHz	-46.182 dBm			
4	N	1	f	7.336 GHz	-44.997 dBm			
5	N	1	f	9.559 GHz	-46.673 dBm			
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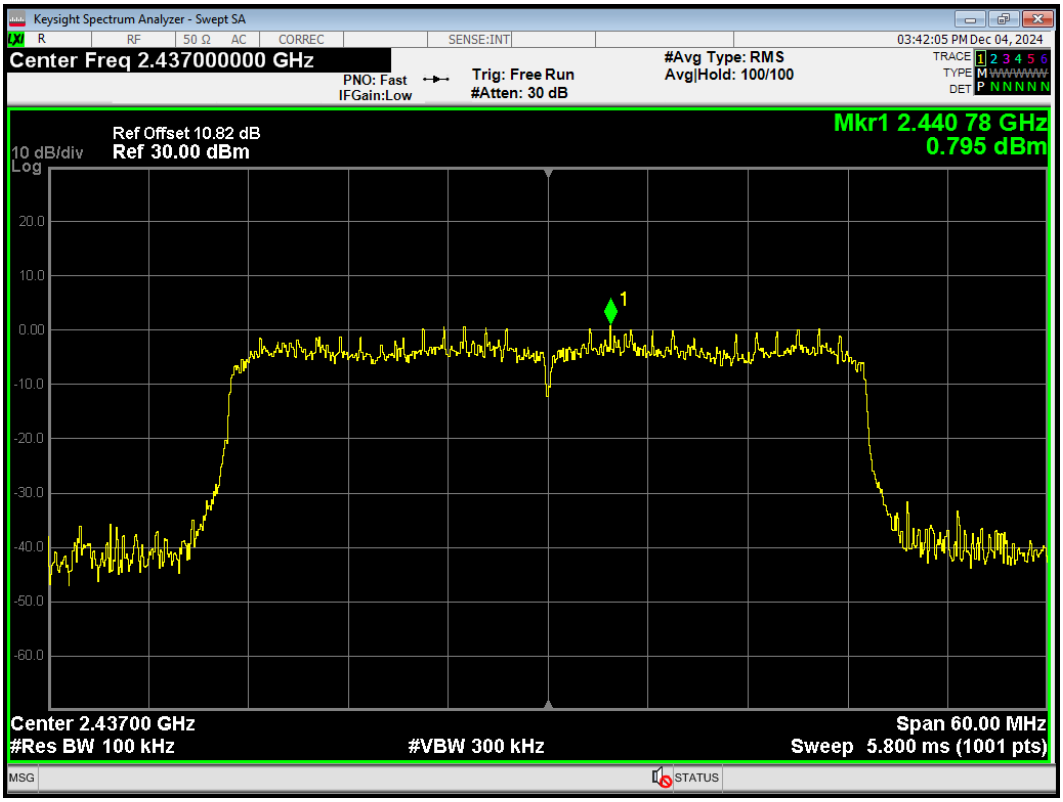
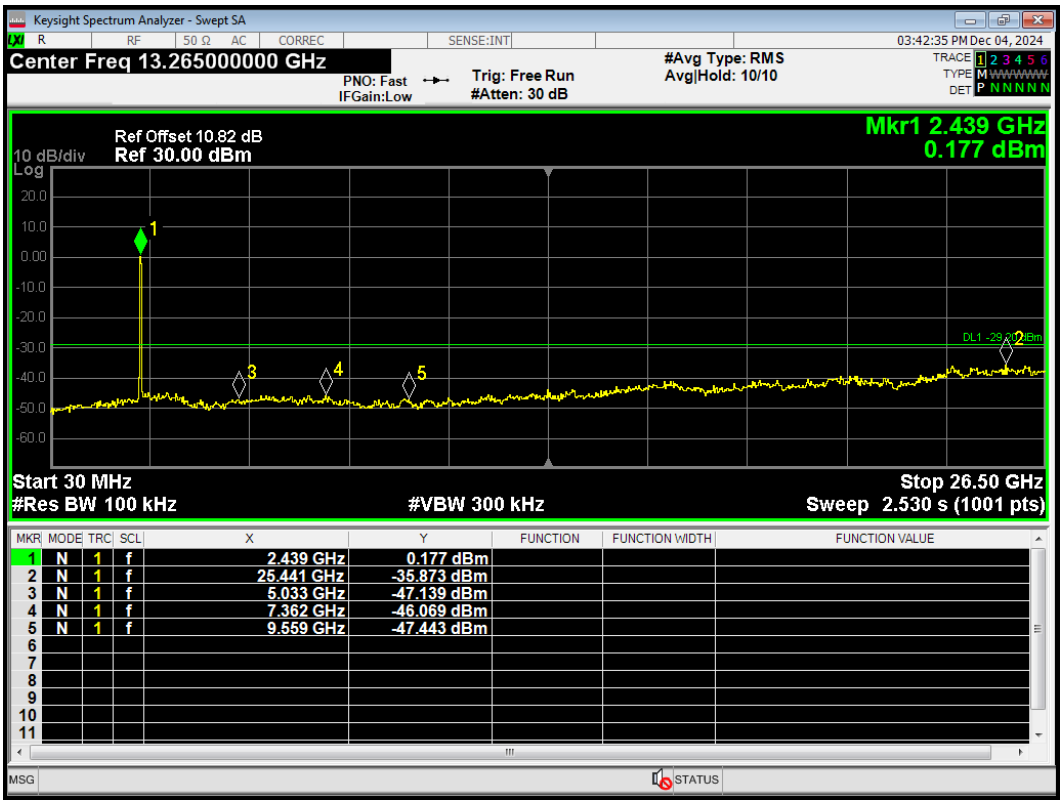
Tx. Spurious 802.11ax(HE40) 2437MHz Ref



Tx. Spurious 802.11ax(HE40) 2437MHz Emission



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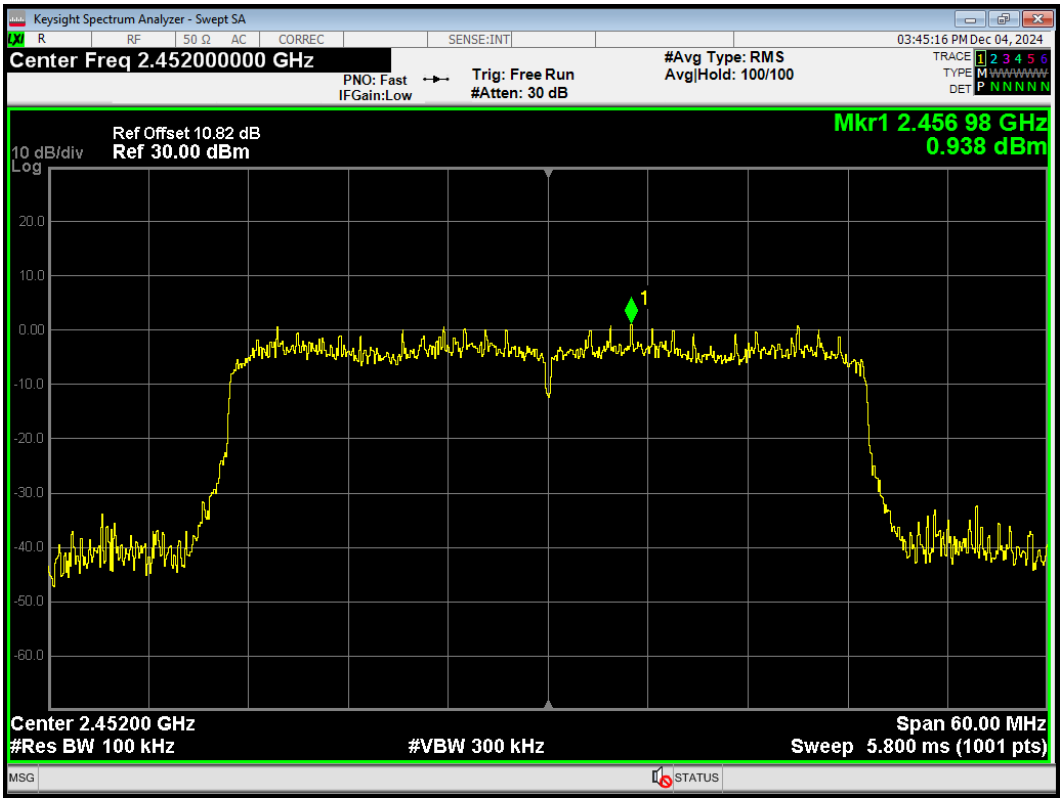
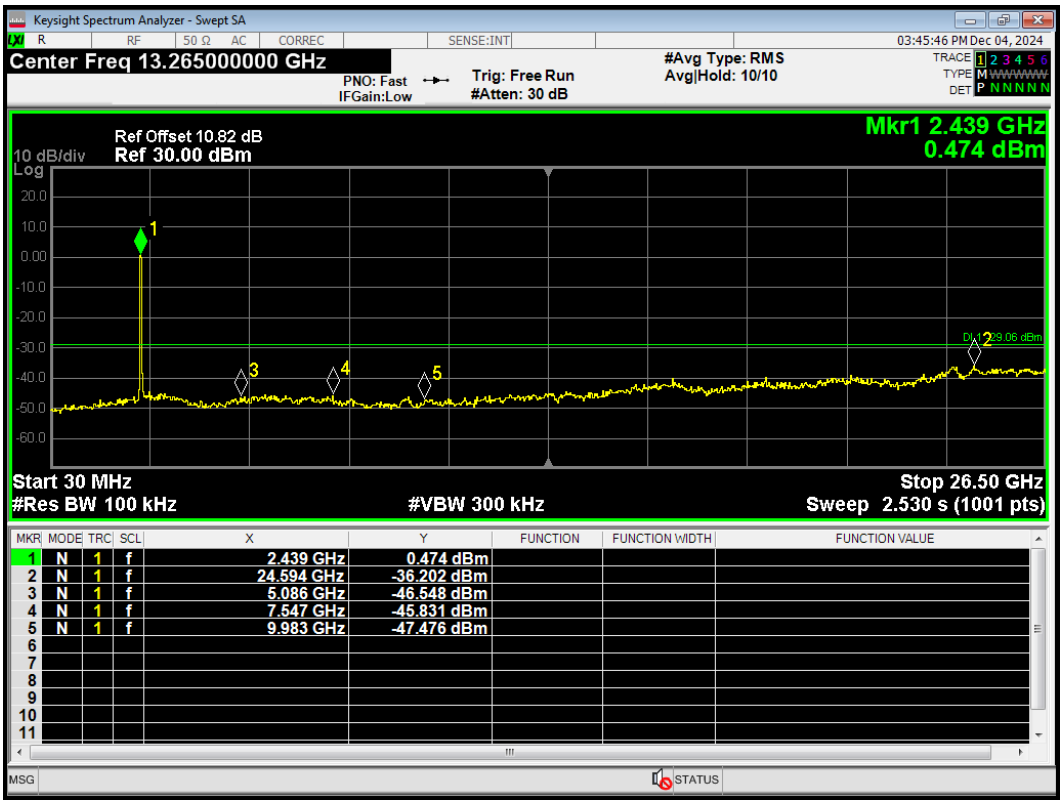
Tx. Spurious 802.11ax(HE40) 2452MHz Ref



Tx. Spurious 802.11ax(HE40) 2452MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439 GHz	0.474 dBm			
2	N	1	f	24.594 GHz	-36.202 dBm			
3	N	1	f	5.086 GHz	-46.548 dBm			
4	N	1	f	7.547 GHz	-45.831 dBm			
5	N	1	f	9.983 GHz	-47.476 dBm			
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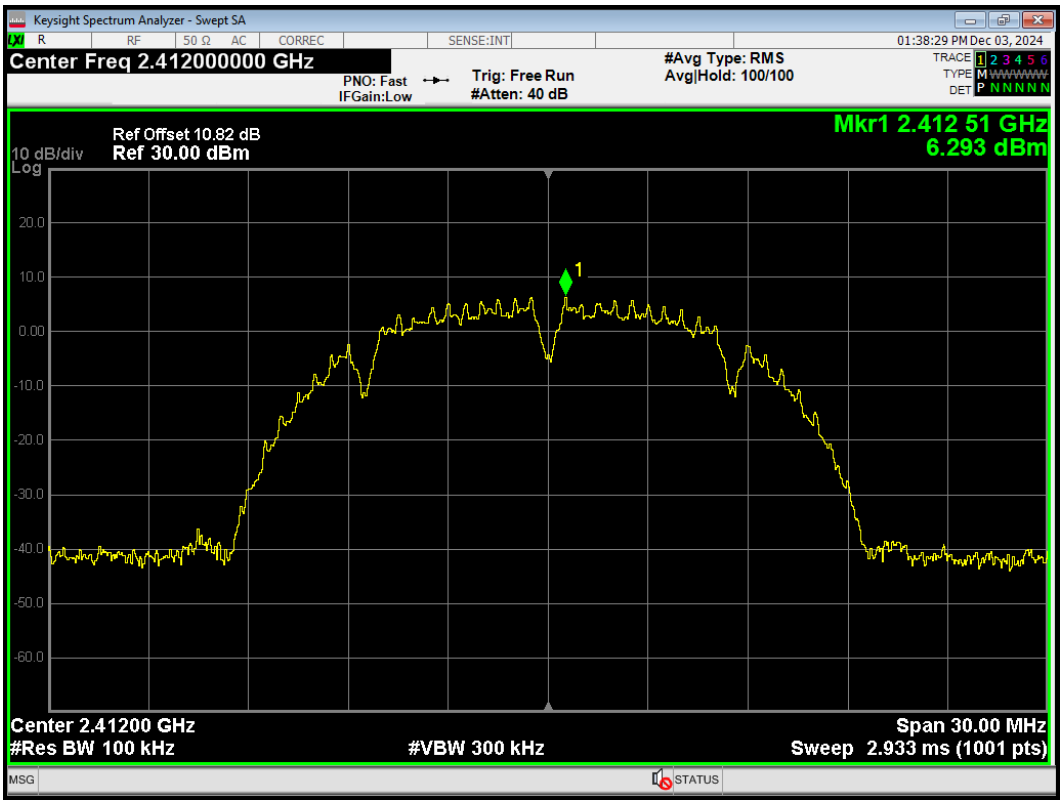
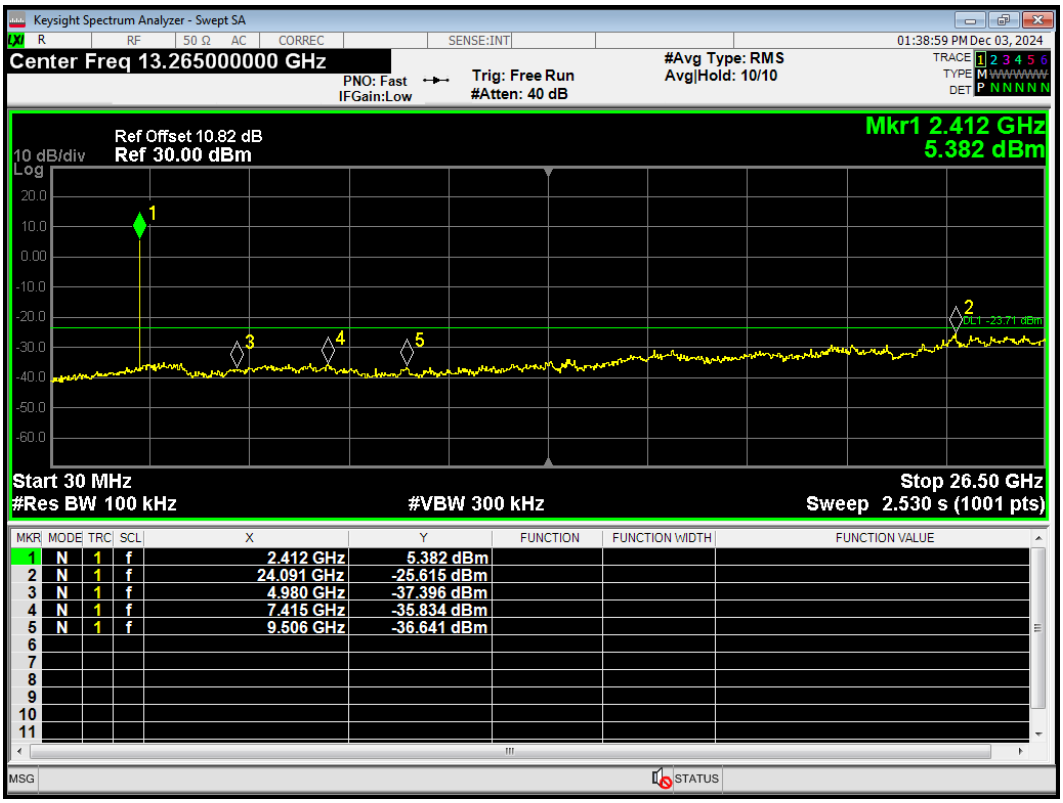
Tx. Spurious 802.11b 2412MHz Ref



Tx. Spurious 802.11b 2412MHz Emission



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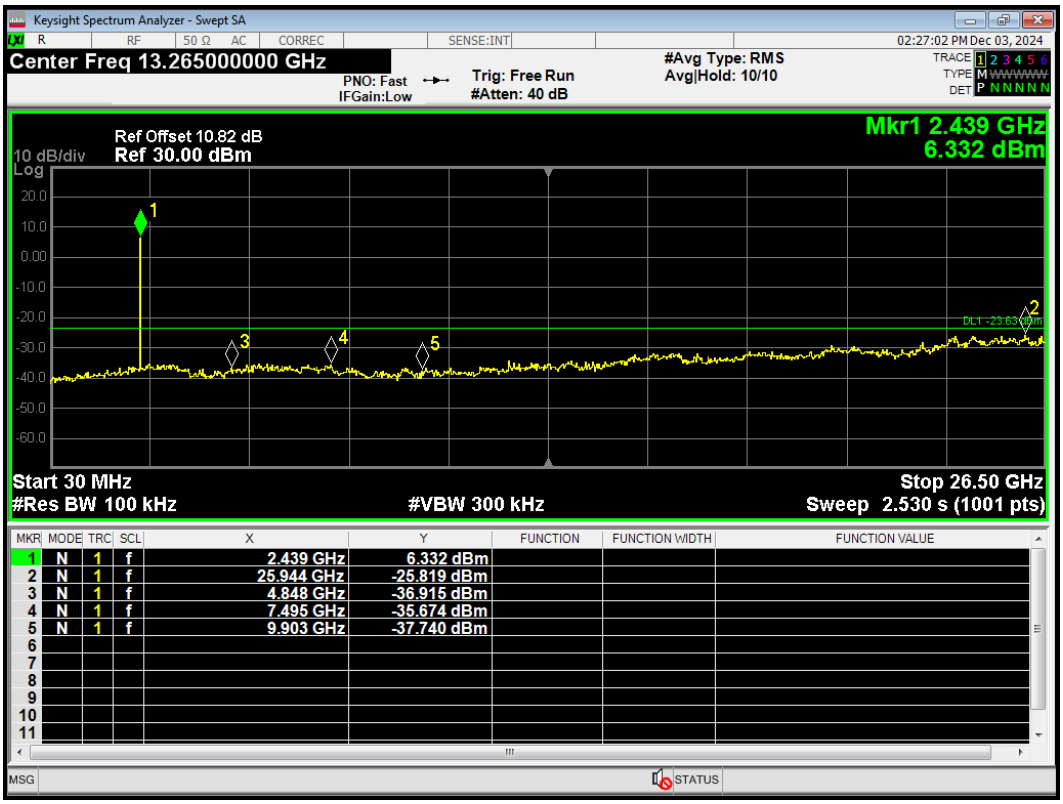
Tx. Spurious 802.11b 2437MHz Ref

Tx. Spurious 802.11b 2437MHz Emission



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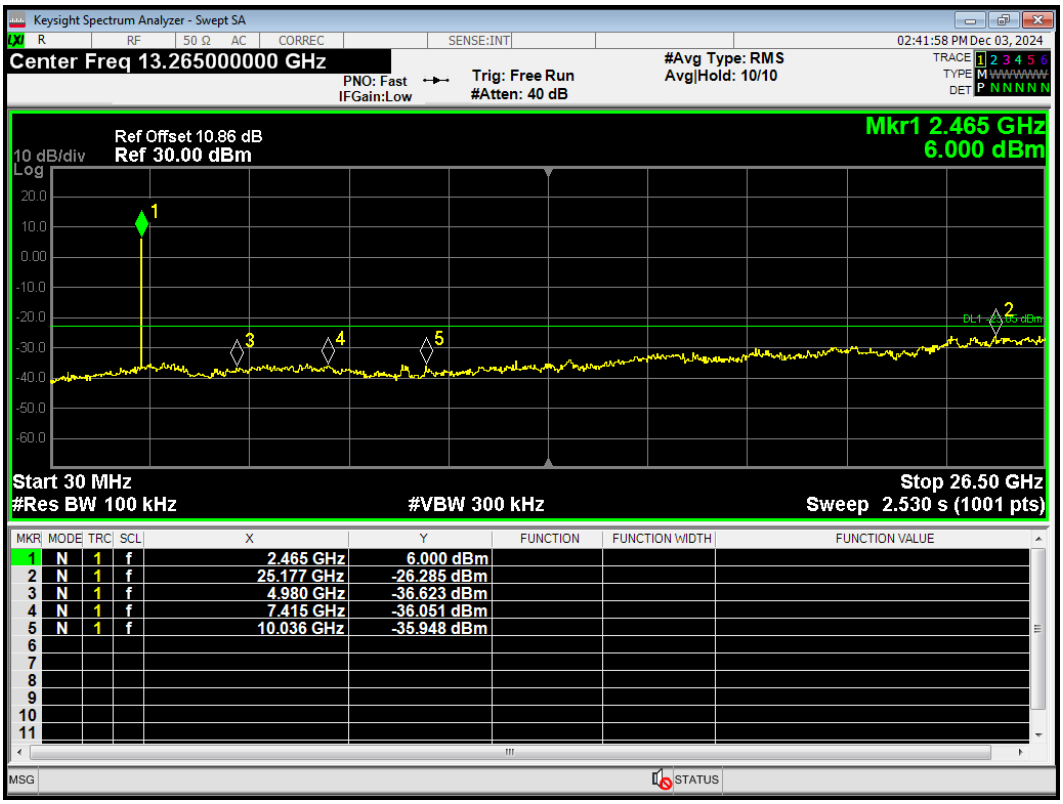
Tx. Spurious 802.11b 2462MHz Ref

Tx. Spurious 802.11b 2462MHz Emission



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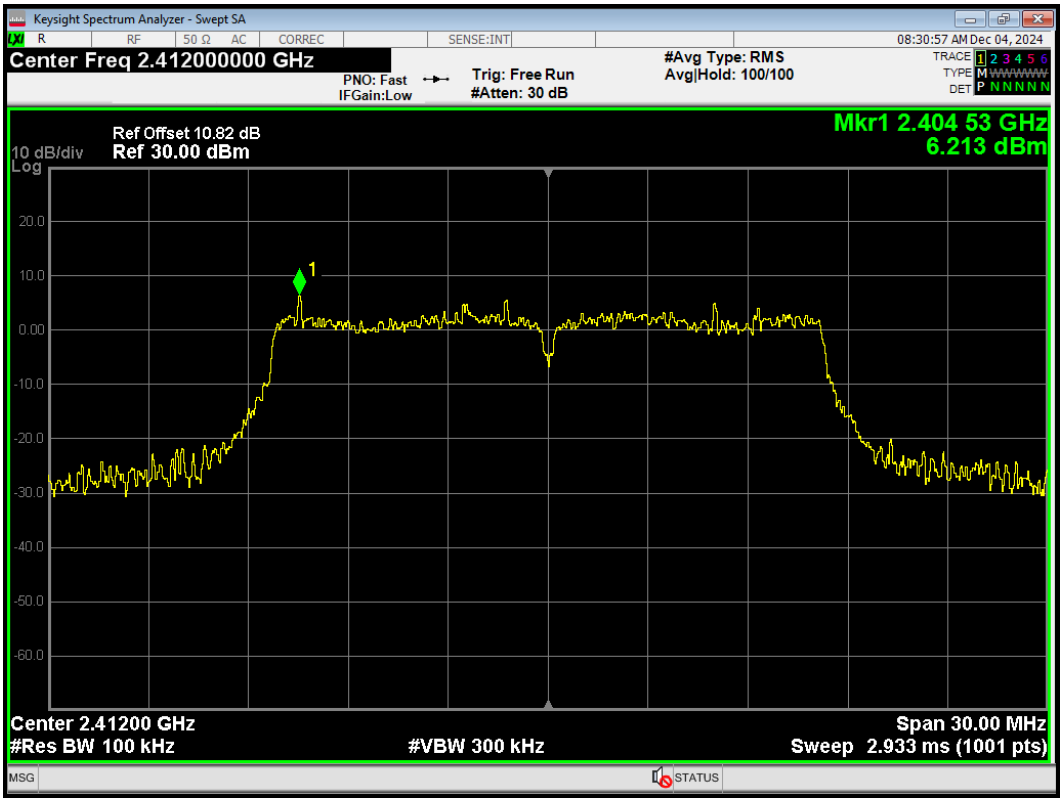
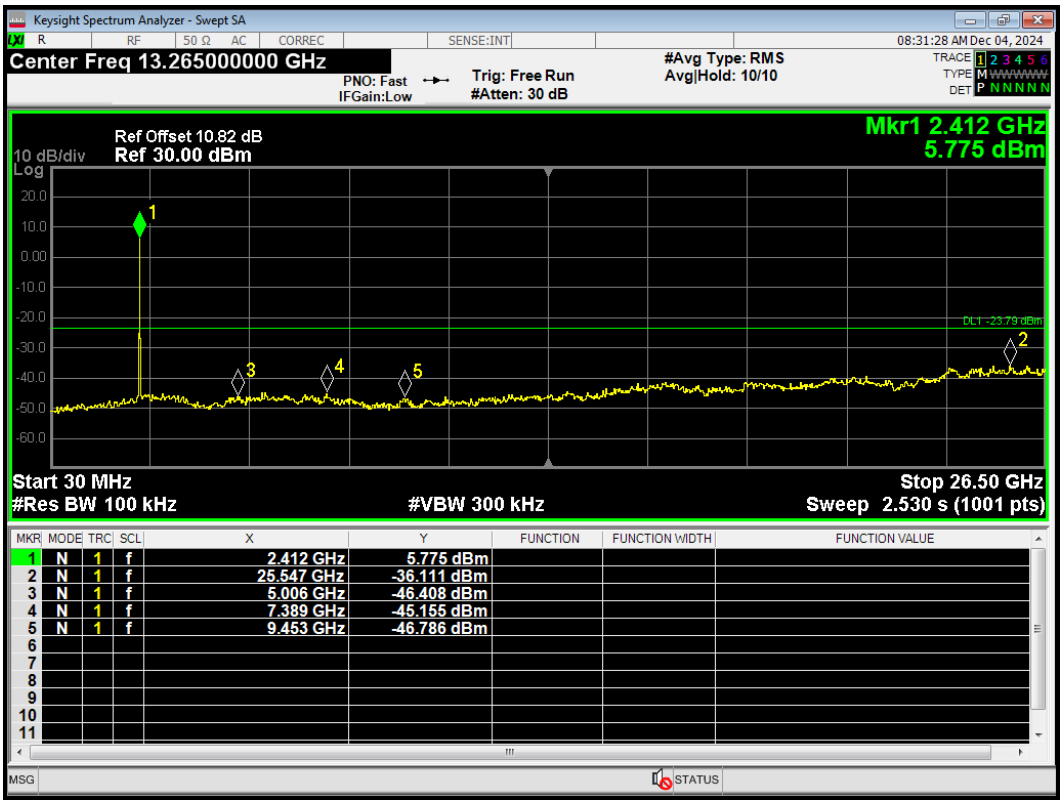
Tx. Spurious 802.11g 2412MHz Ref



Tx. Spurious 802.11g 2412MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 GHz	5.775 dBm			
2	N	1	f	25.547 GHz	-36.111 dBm			
3	N	1	f	5.006 GHz	-46.408 dBm			
4	N	1	f	7.389 GHz	-45.155 dBm			
5	N	1	f	9.453 GHz	-46.786 dBm			
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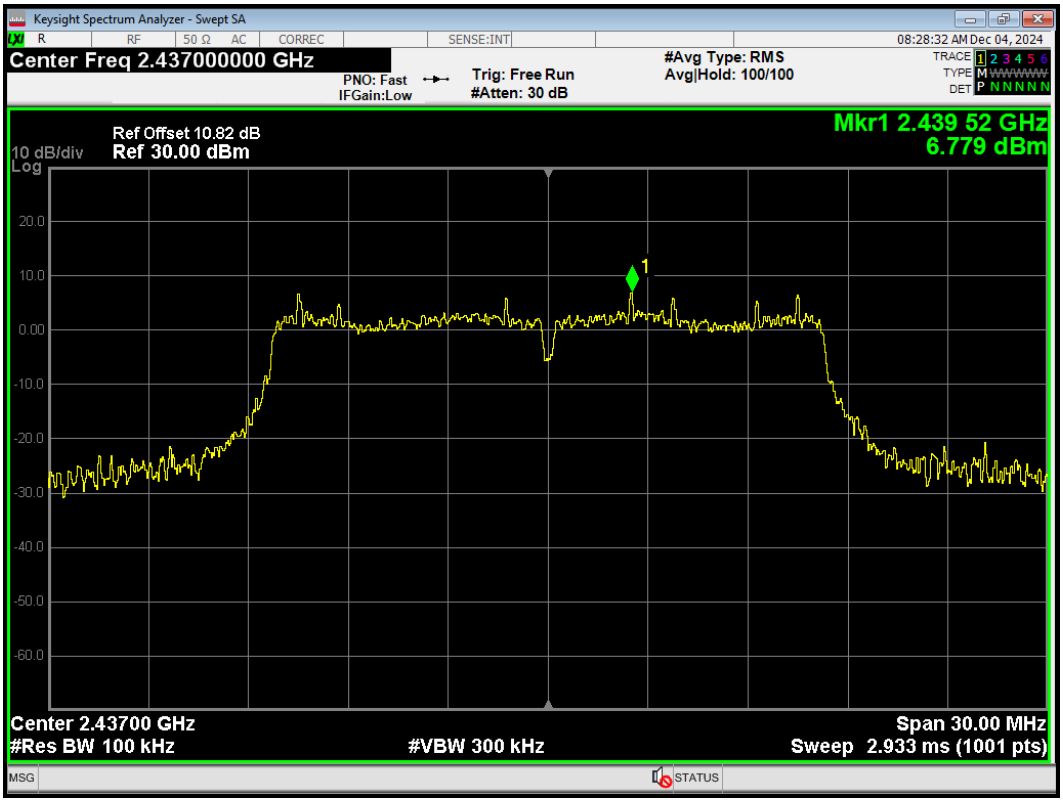
Tx. Spurious 802.11g 2437MHz Ref



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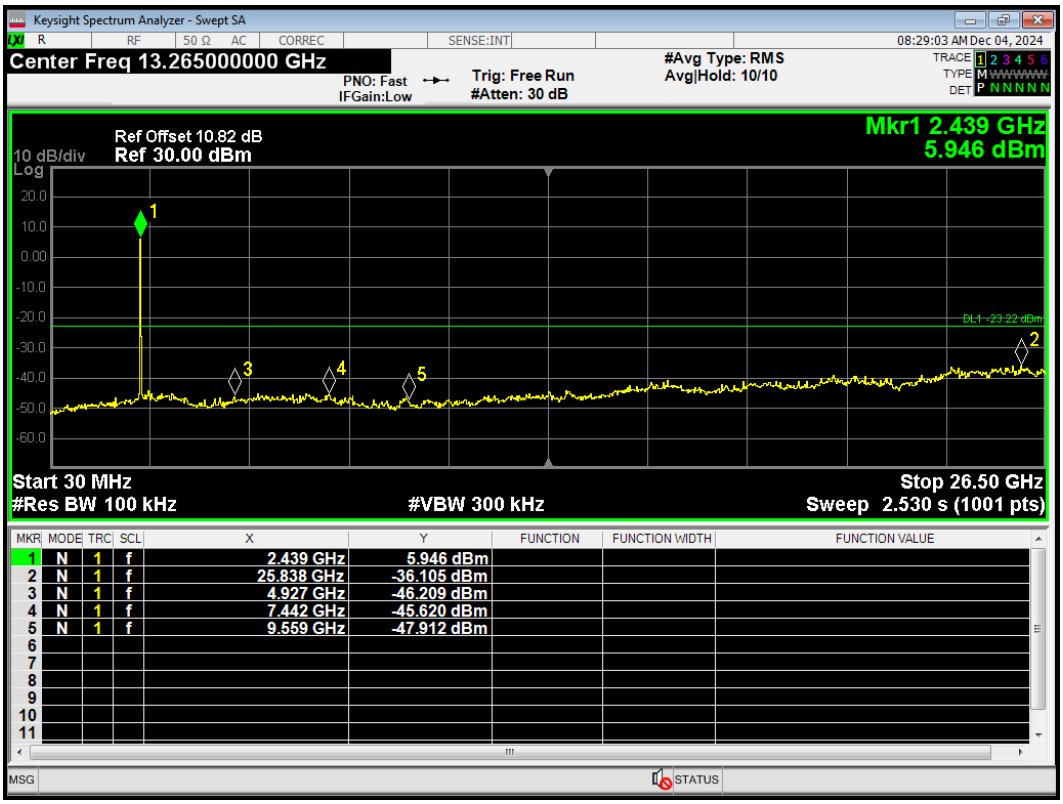

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439 GHz	5.946 dBm			
2	N	1	f	25.838 GHz	-36.105 dBm			
3	N	1	f	4.927 GHz	-46.209 dBm			
4	N	1	f	7.442 GHz	-45.620 dBm			
5	N	1	f	9.559 GHz	-47.912 dBm			
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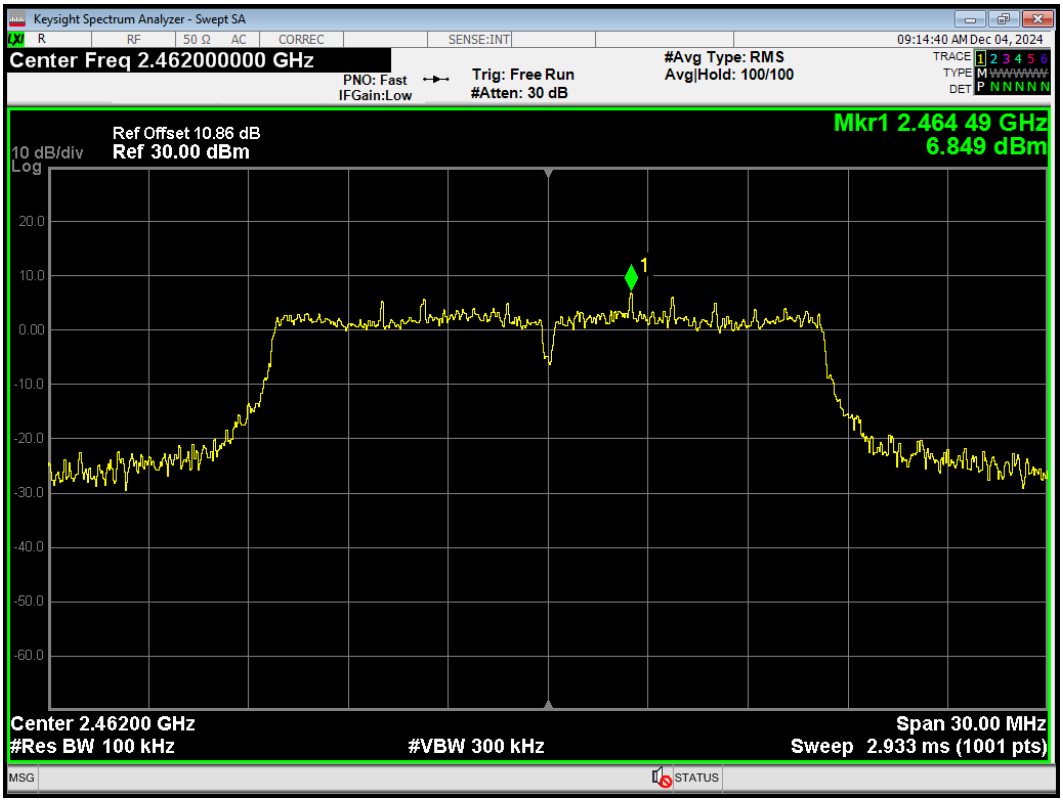
Tx. Spurious 802.11g 2462MHz Ref



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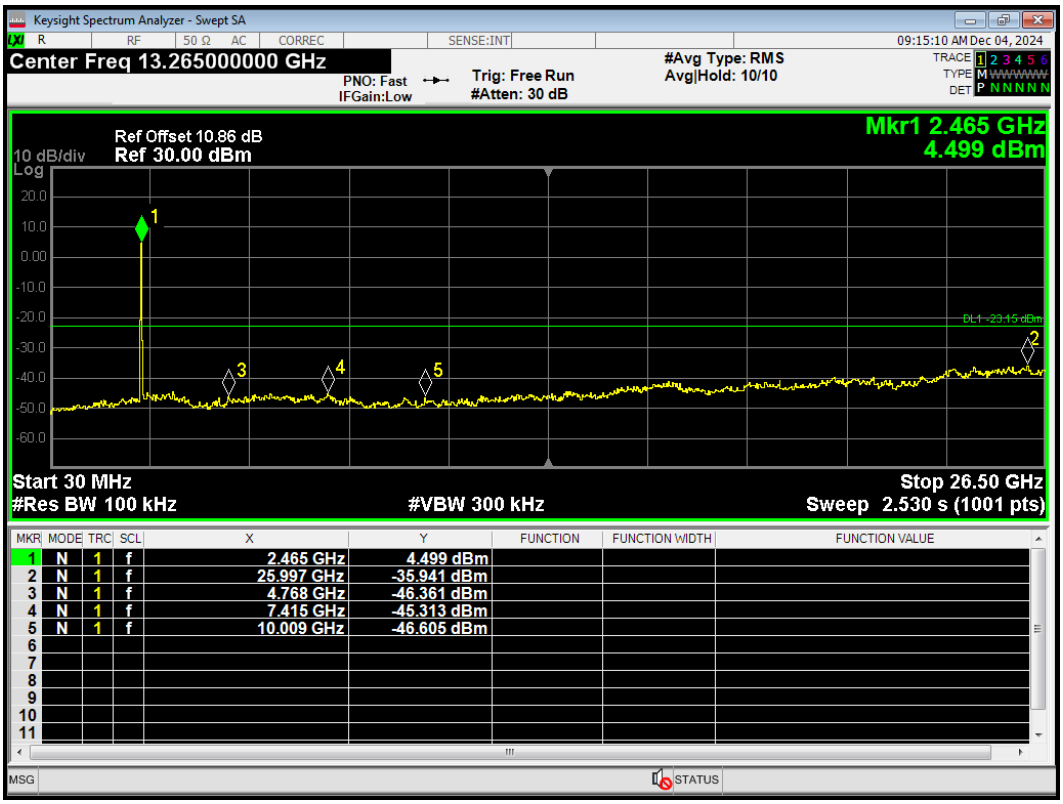

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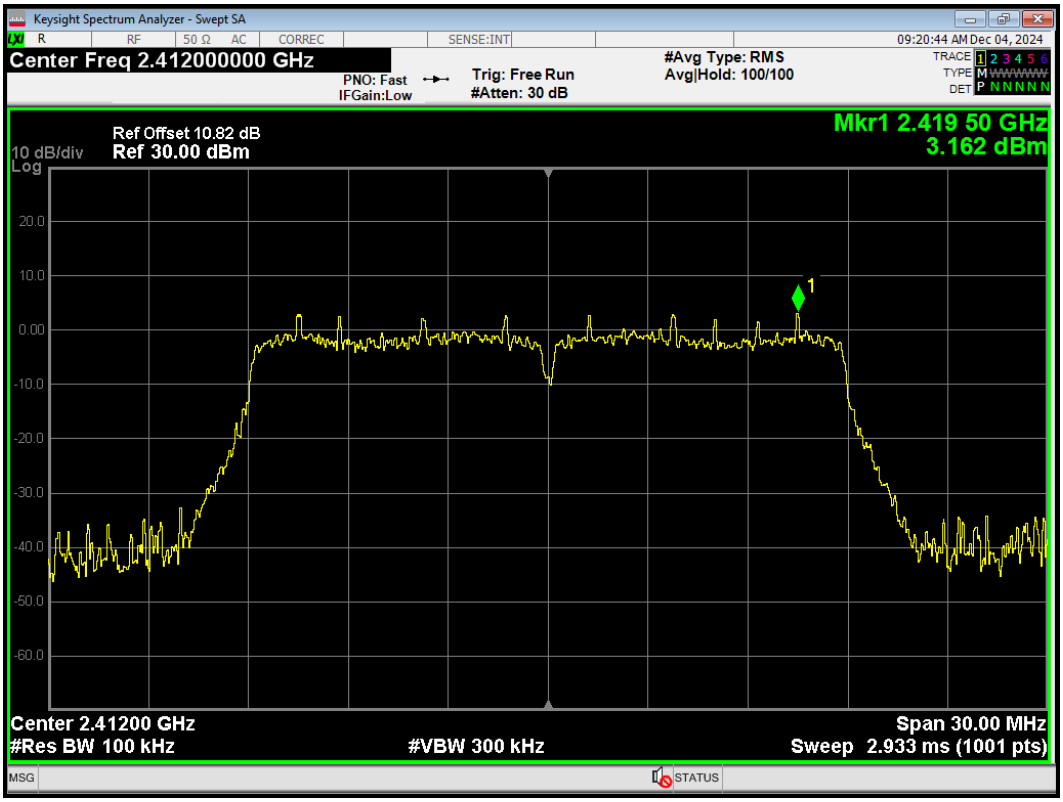
Tx. Spurious 802.11n(HT20) 2412MHz Ref



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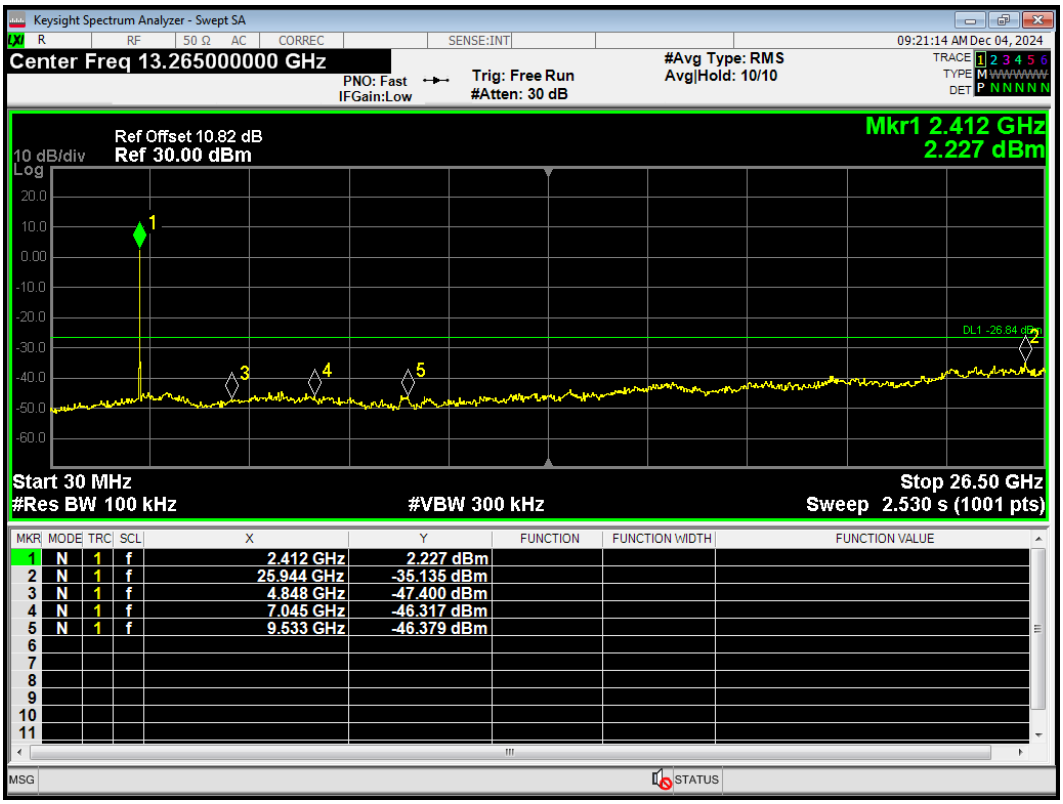

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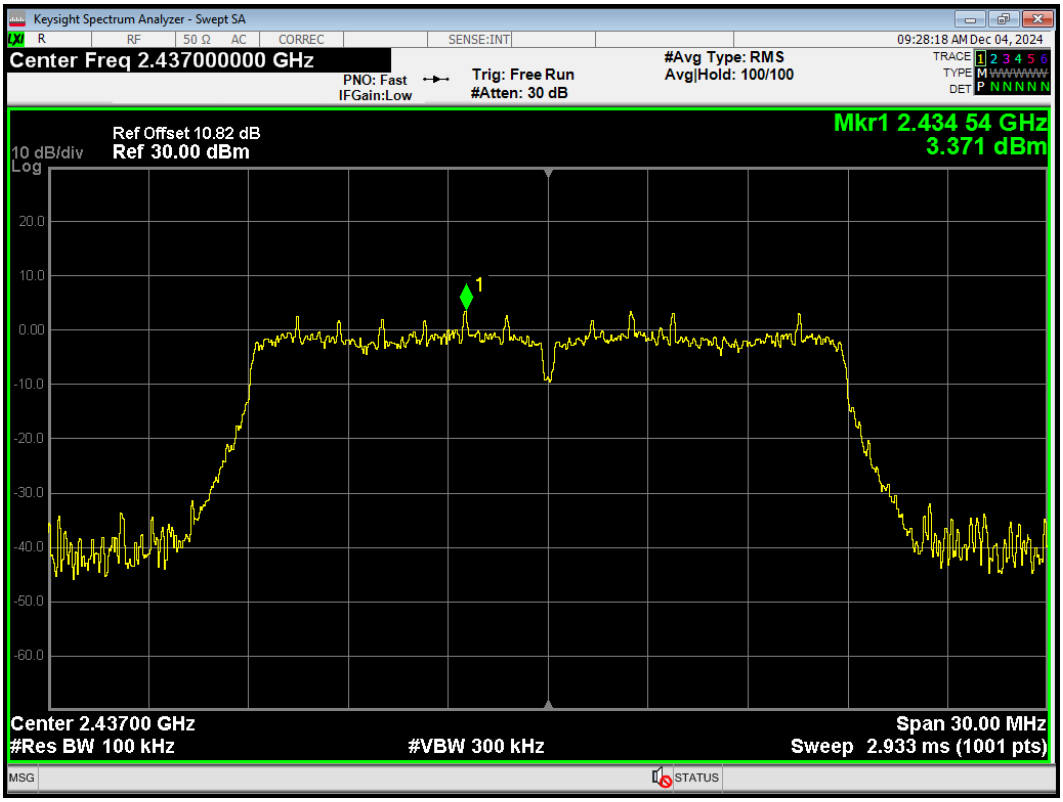

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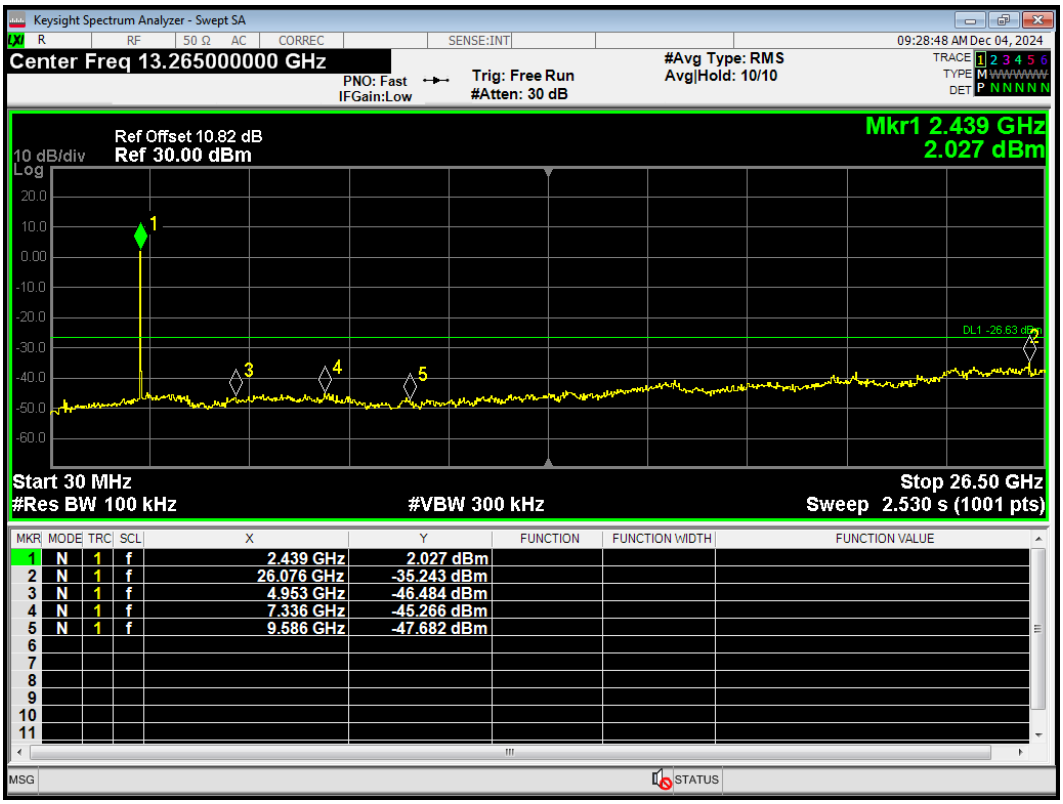

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439 GHz	2.027 dBm			
2	N	1	f	26.076 GHz	-35.243 dBm			
3	N	1	f	4.953 GHz	-46.484 dBm			
4	N	1	f	7.336 GHz	-45.266 dBm			
5	N	1	f	9.586 GHz	-47.682 dBm			
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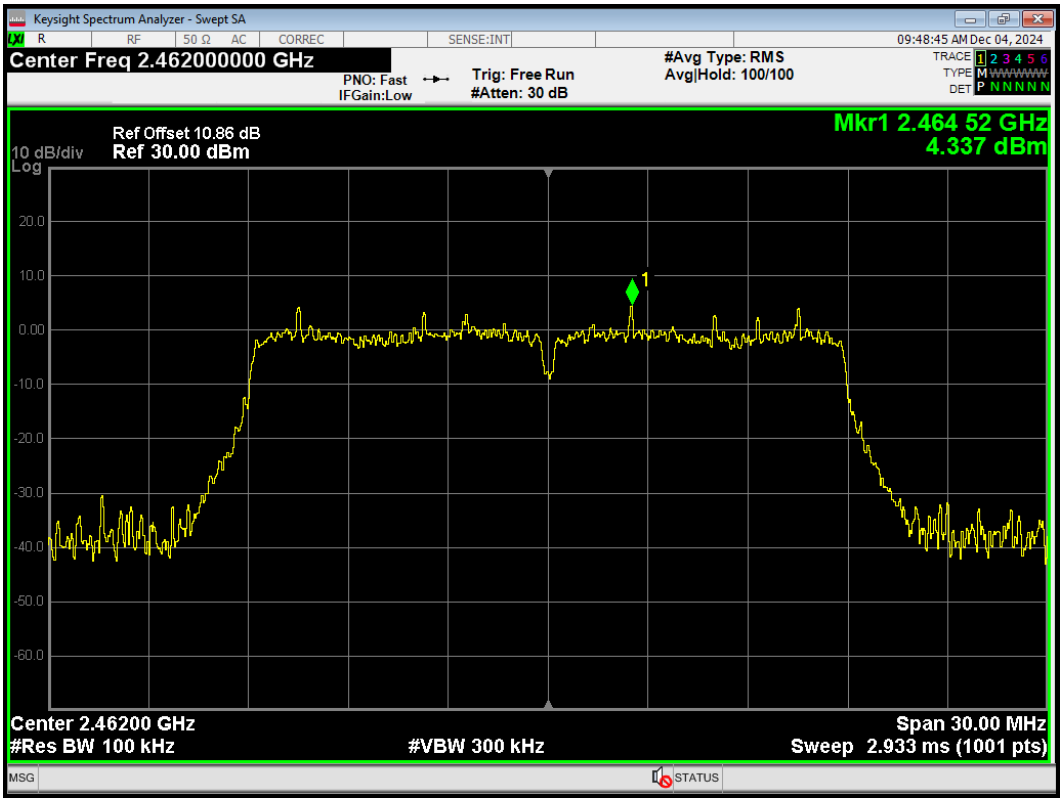
Tx. Spurious 802.11n(HT20) 2462MHz Ref



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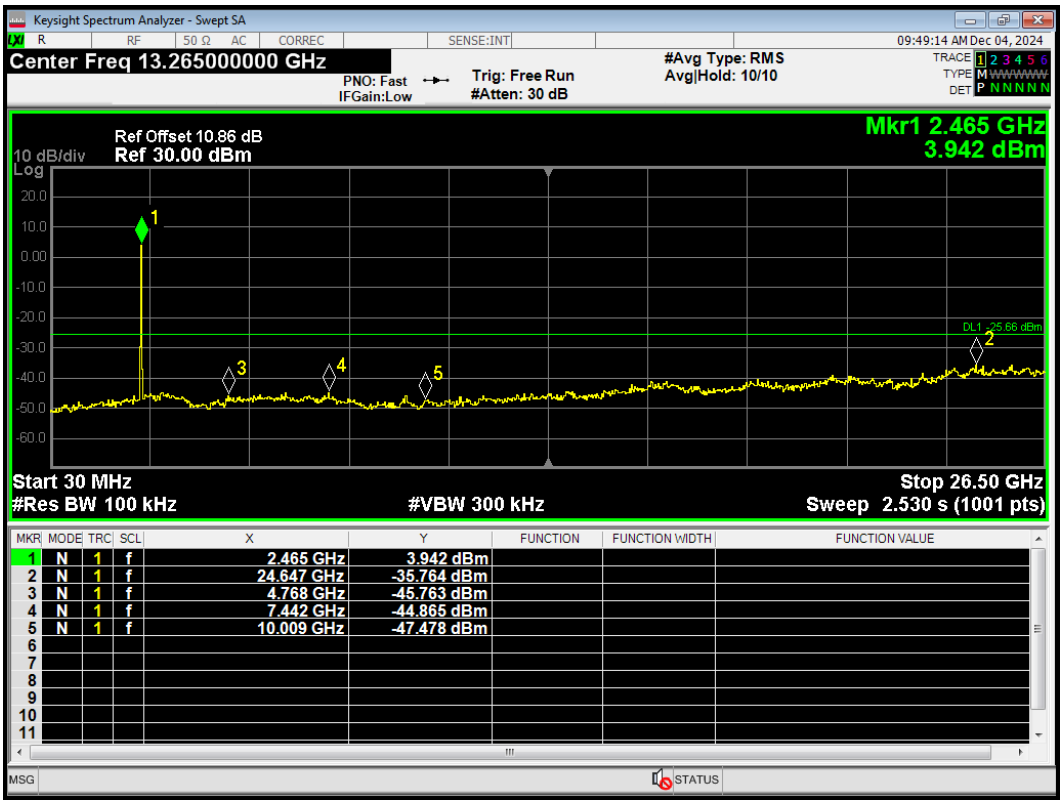

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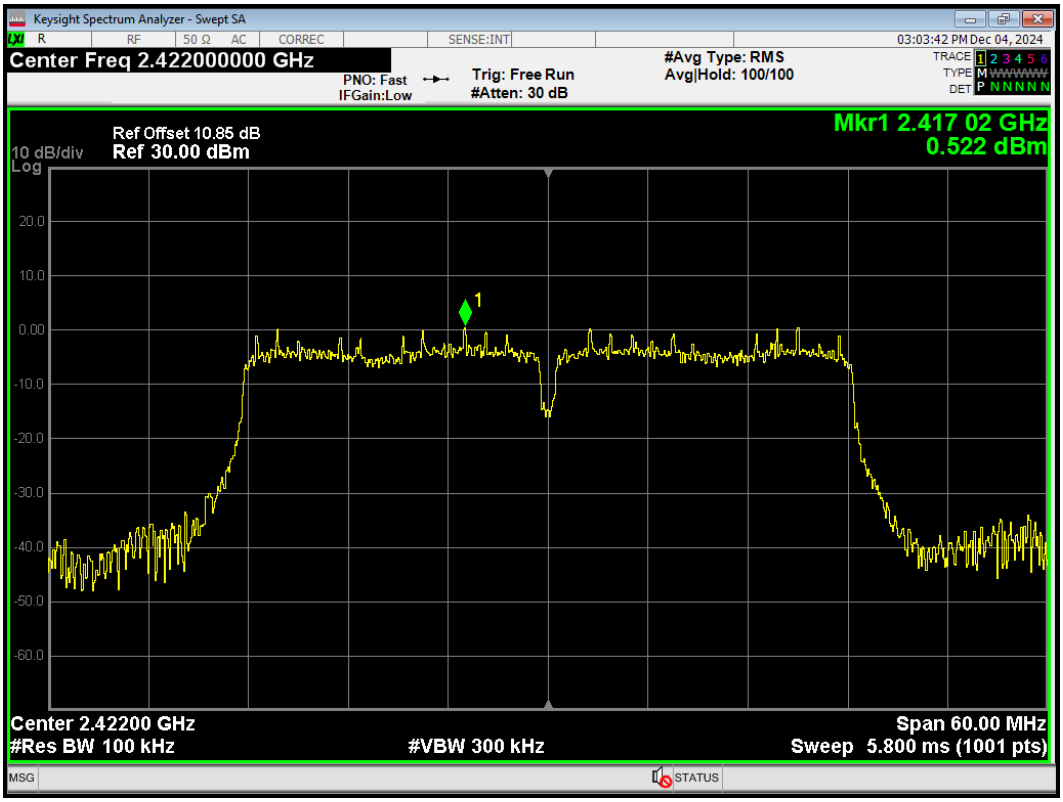
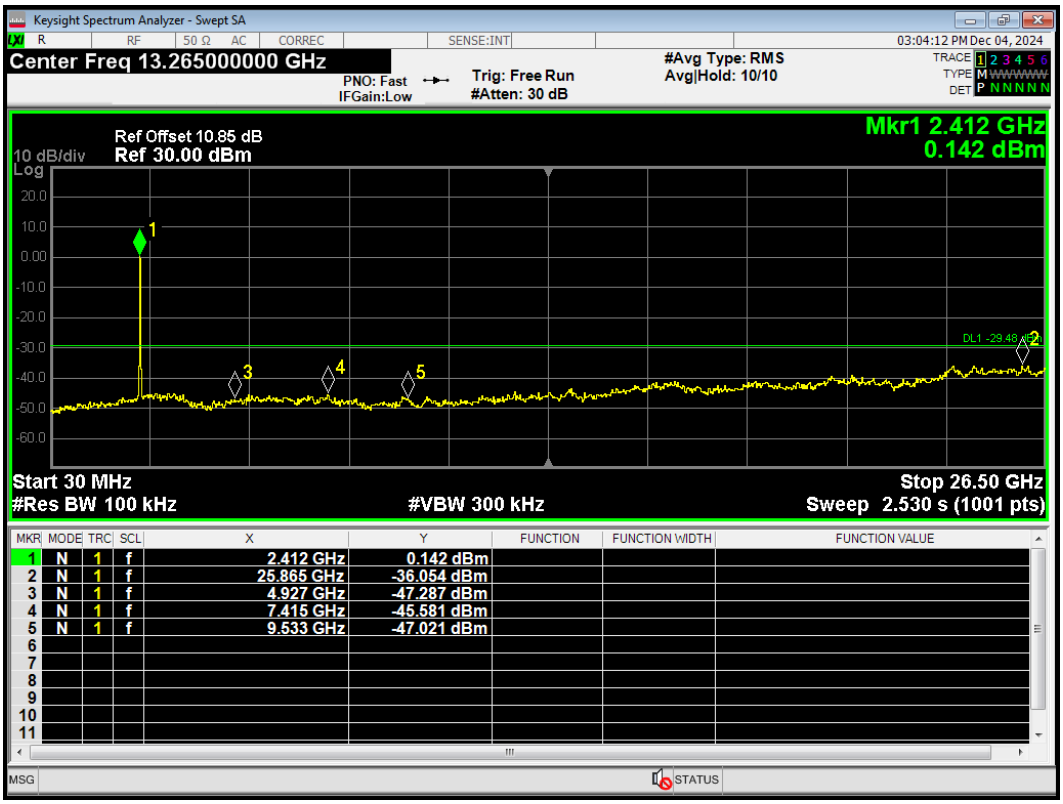
Tx. Spurious 802.11n(HT40) 2422MHz Ref



Tx. Spurious 802.11n(HT40) 2422MHz Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.412 GHz	0.142 dBm			
2	N	1	f	25.865 GHz	-36.054 dBm			
3	N	1	f	4.927 GHz	-47.287 dBm			
4	N	1	f	7.415 GHz	-45.581 dBm			
5	N	1	f	9.533 GHz	-47.021 dBm			
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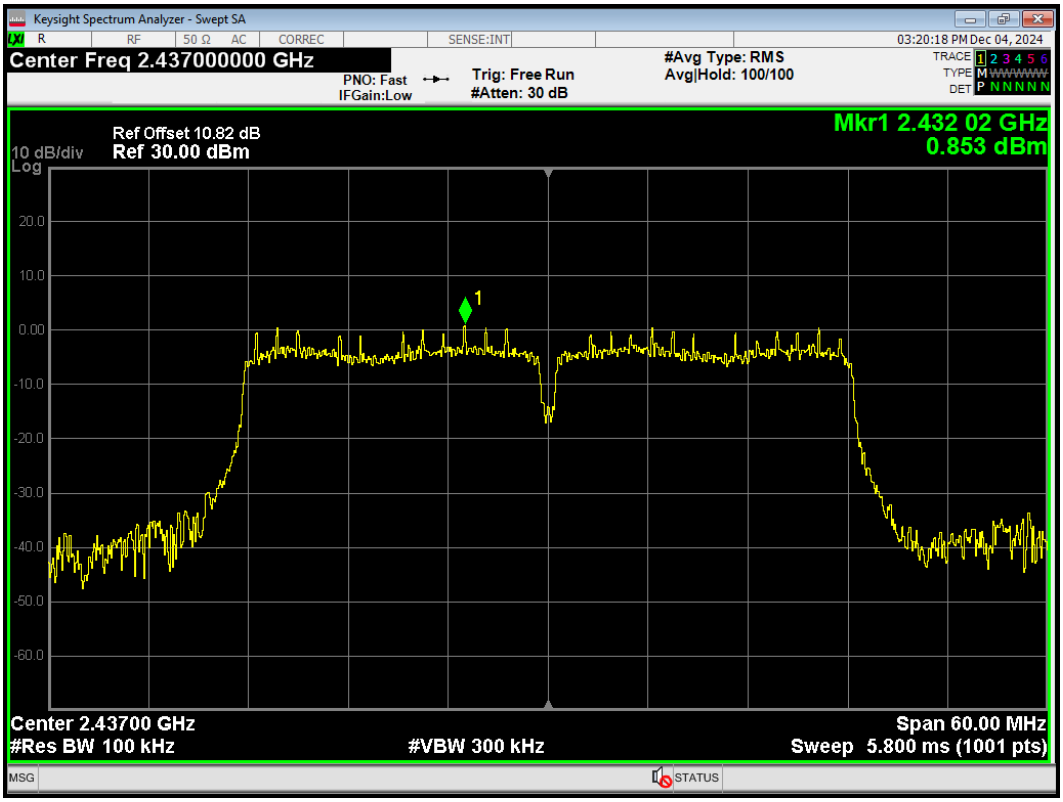
Tx. Spurious 802.11n(HT40) 2437MHz Ref



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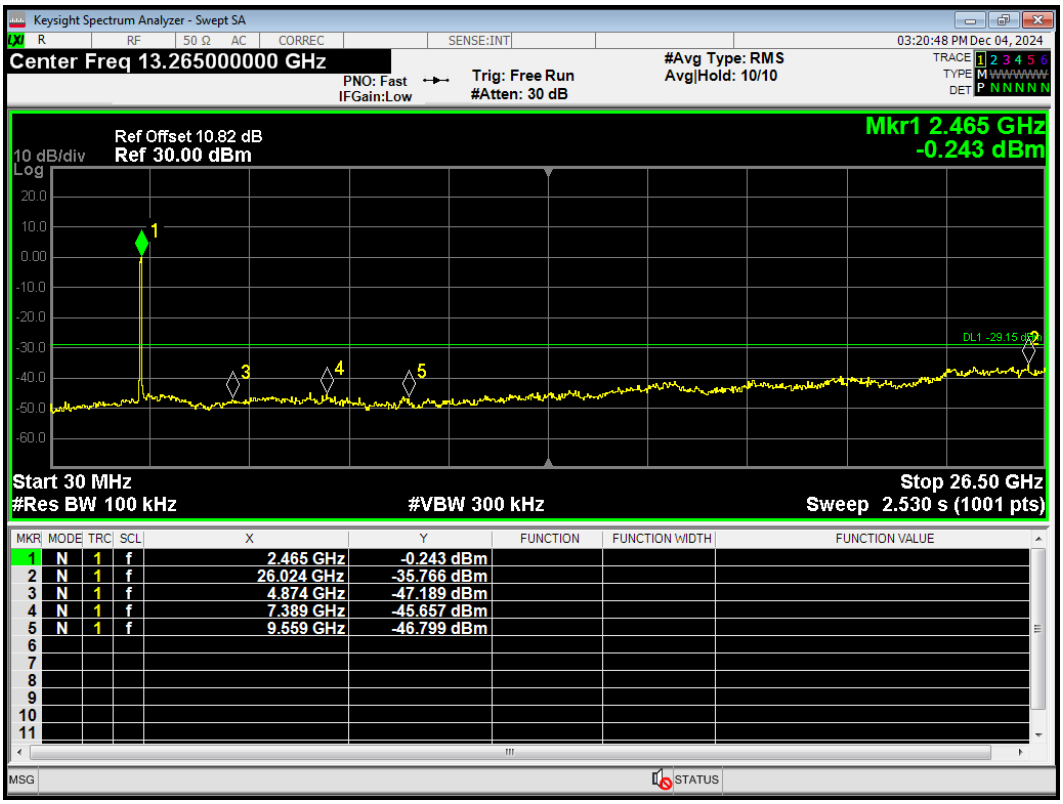

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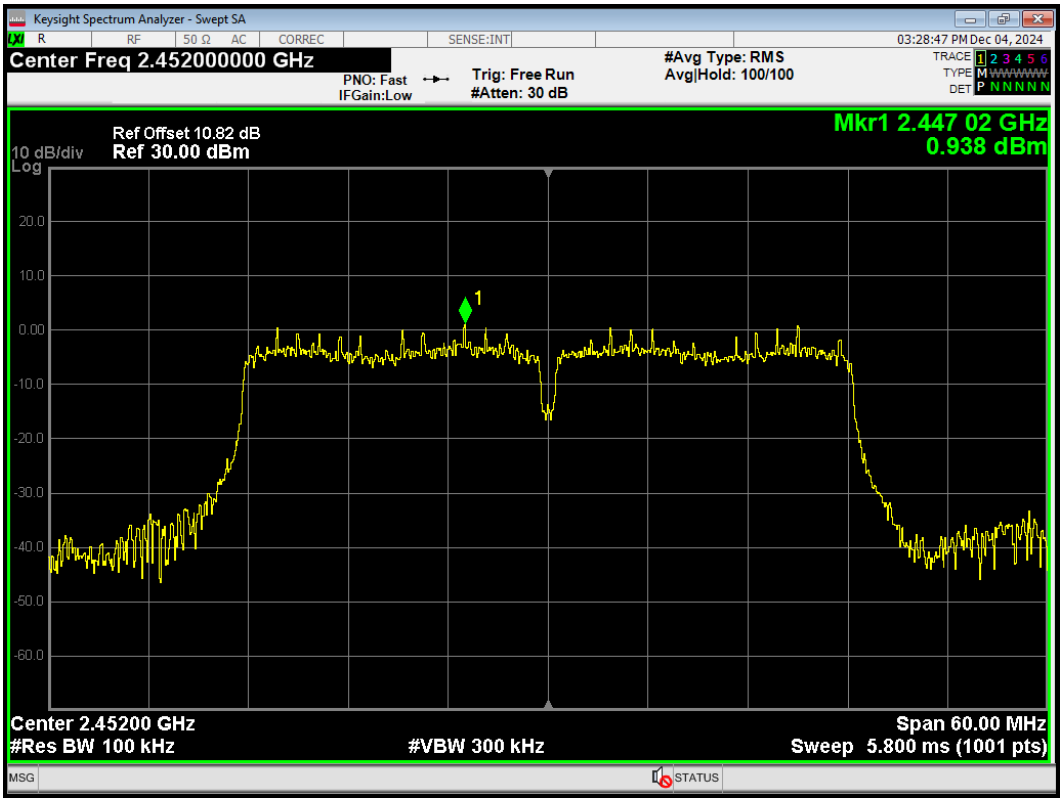
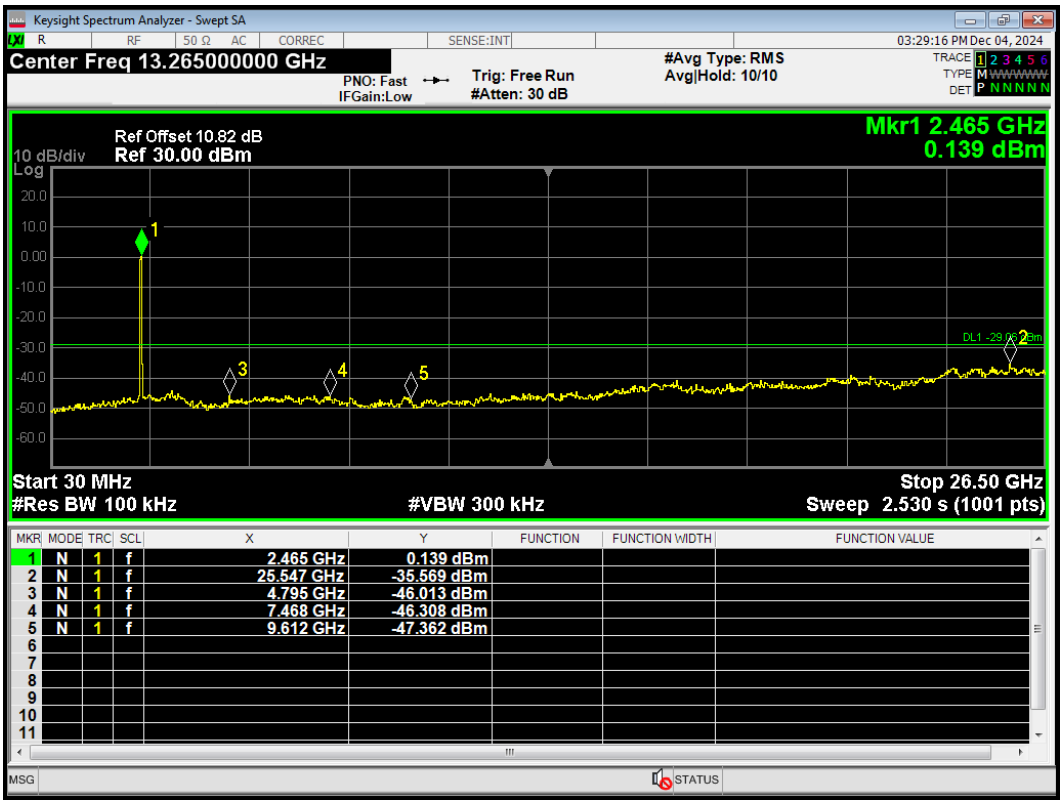
Tx. Spurious 802.11n(HT40) 2452MHz Ref



Tx. Spurious 802.11n(HT40) 2452MHz Emission



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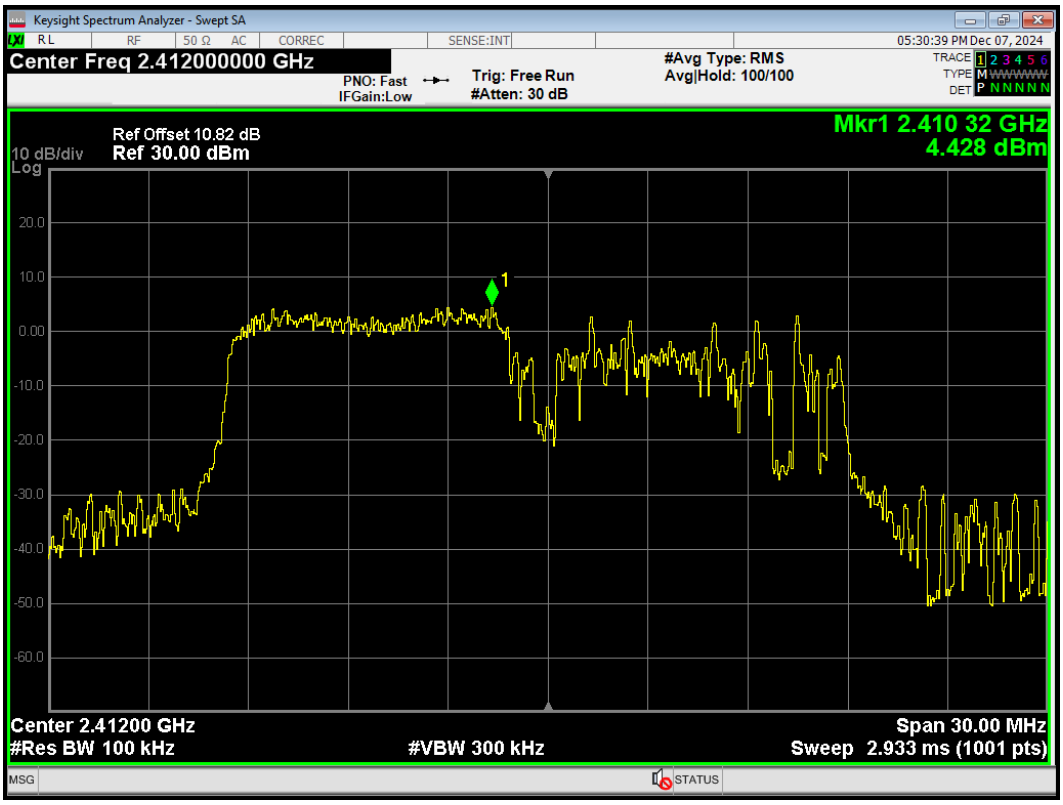
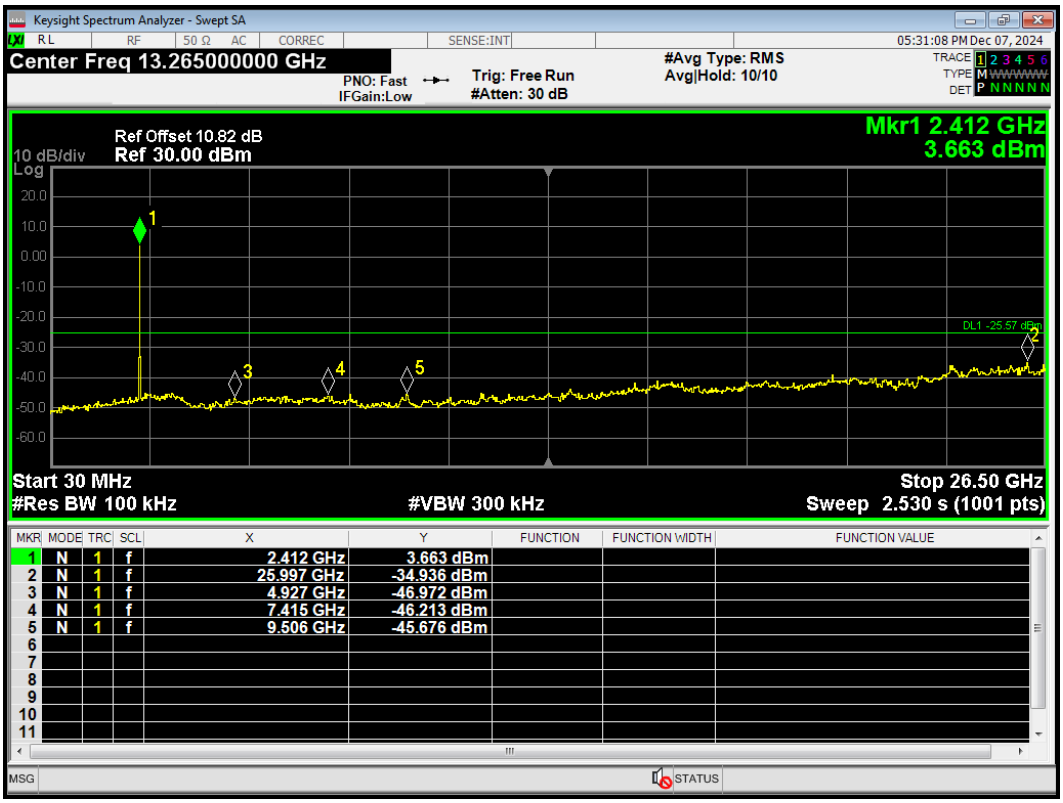
TB Mode

Tx. Spurious 802.11ax(HE20) 106T 2412MHz Ref



Tx. Spurious 802.11ax(HE20) 106T 2412MHz Emission



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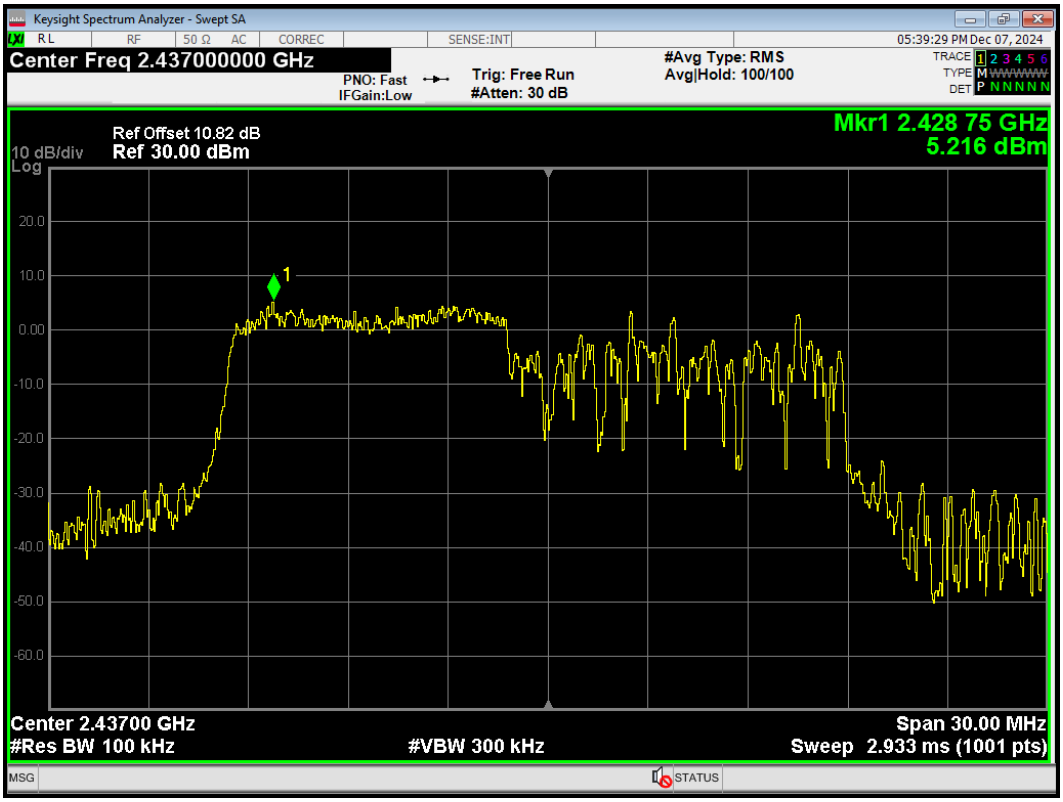
Tx. Spurious 802.11ax(HE20) 106T 2437MHz Ref



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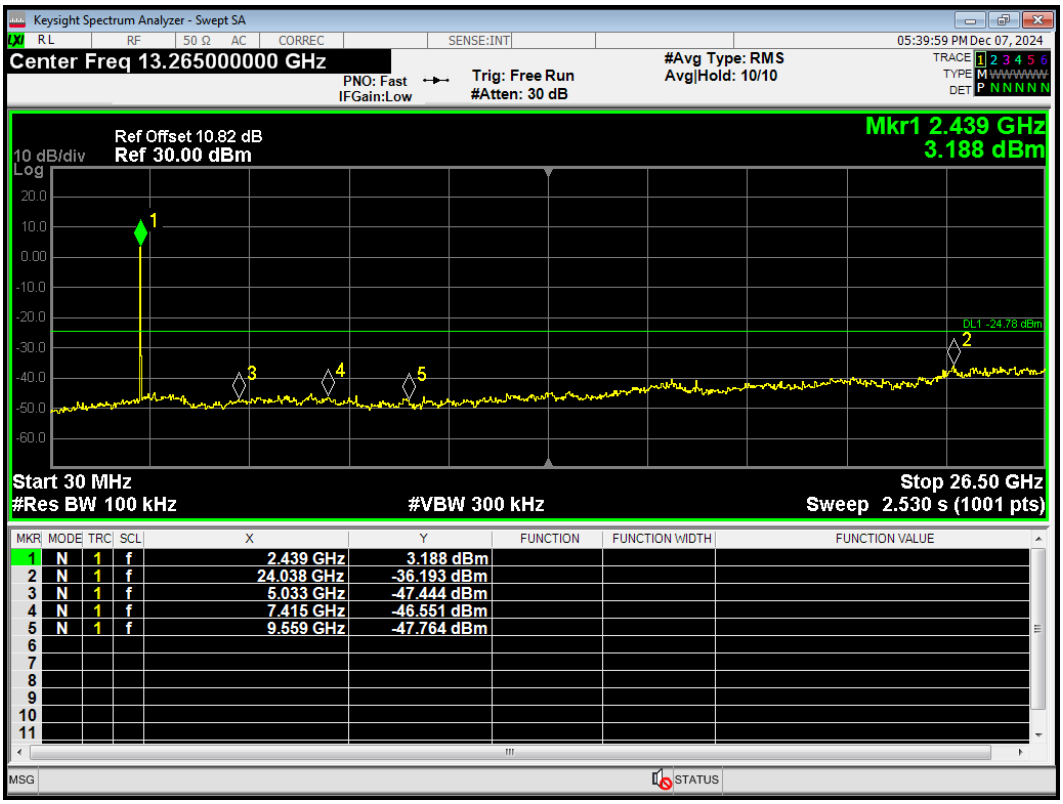

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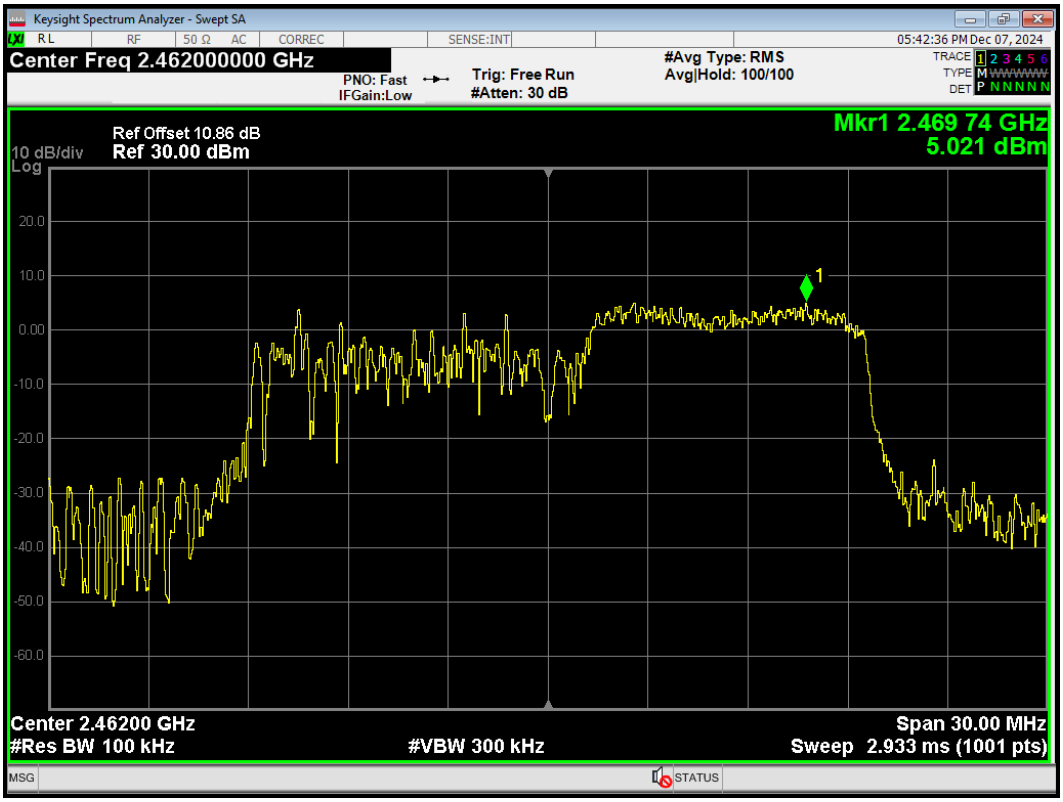
Tx. Spurious 802.11ax(HE20) 106T 2462MHz Ref



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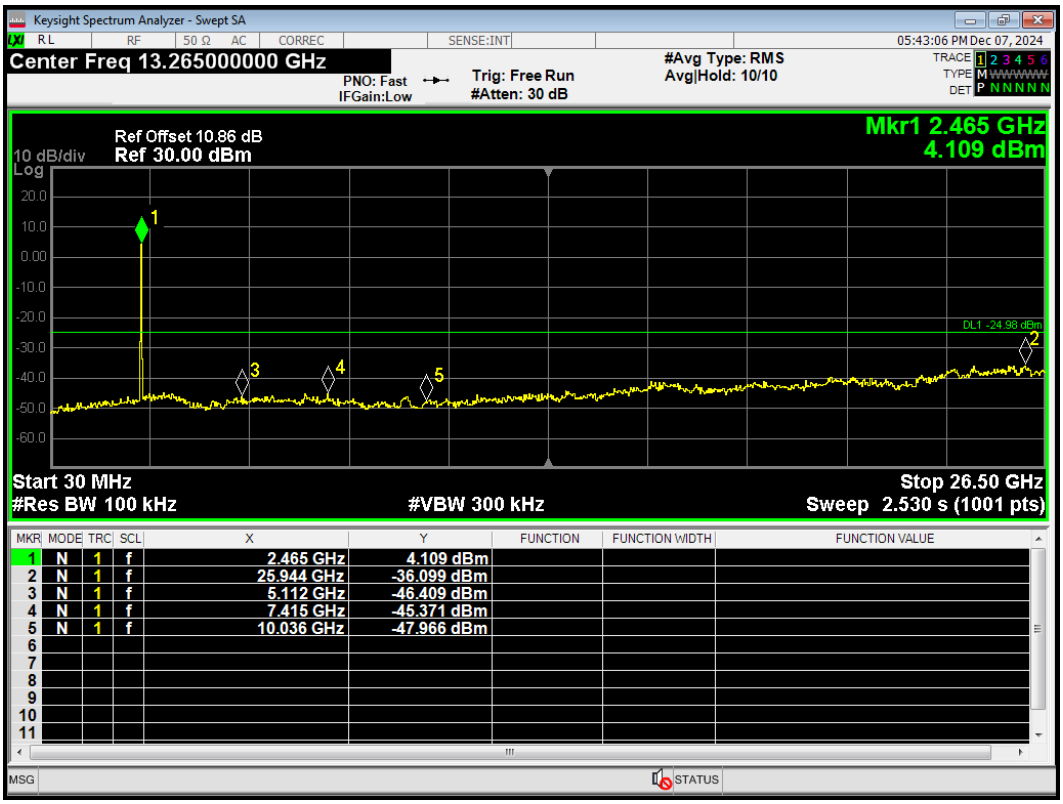

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.465 GHz	4.109 dBm			
2	N	1	f	25.944 GHz	-36.099 dBm			
3	N	1	f	5.112 GHz	-46.409 dBm			
4	N	1	f	7.415 GHz	-45.371 dBm			
5	N	1	f	10.036 GHz	-47.966 dBm			
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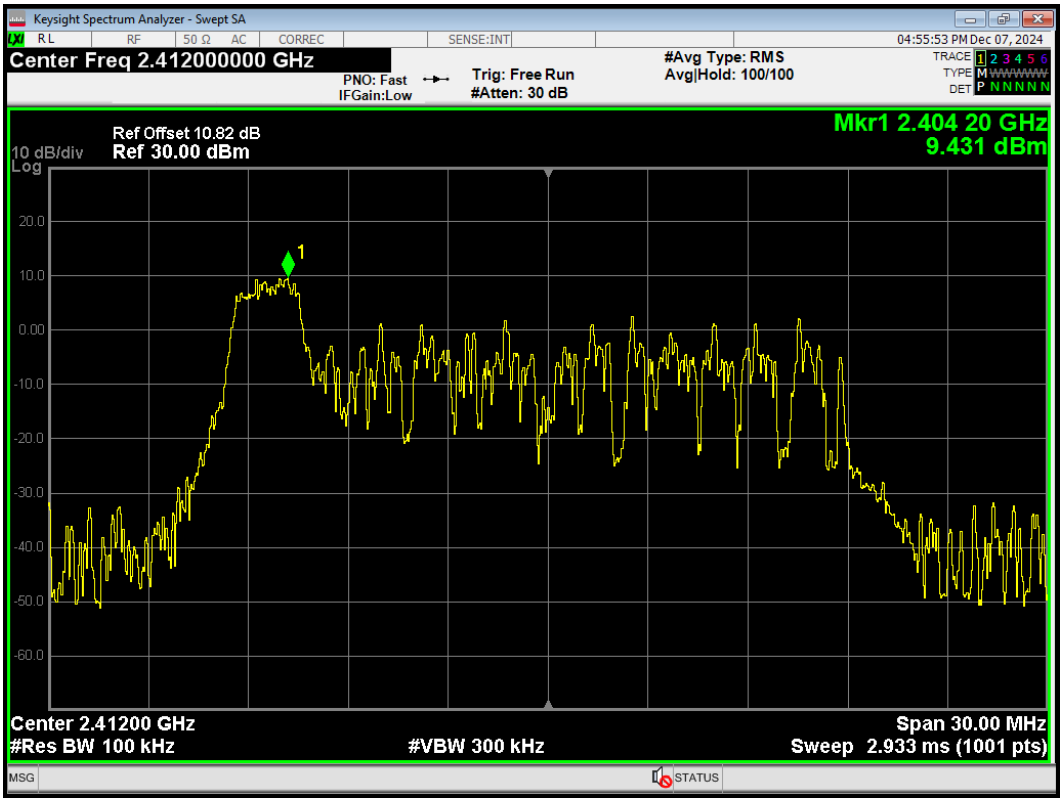
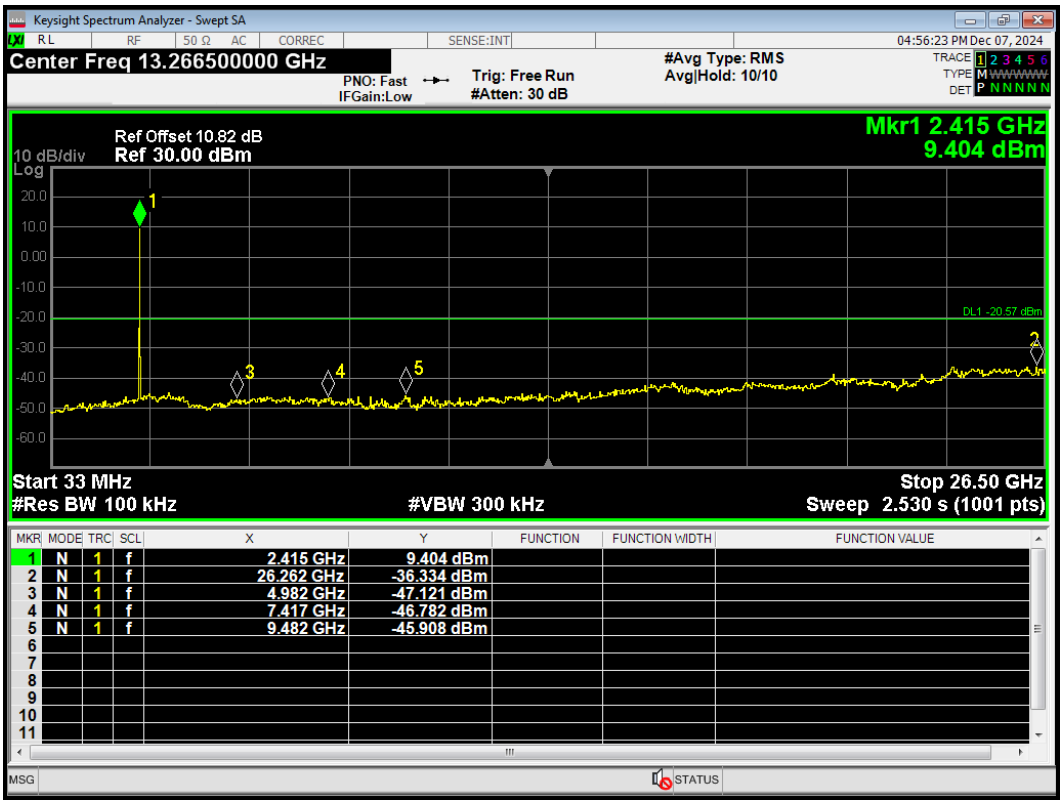
Tx. Spurious 802.11ax(HE20) 26T 2412MHz Ref



Tx. Spurious 802.11ax(HE20) 26T 2412MHz Emission



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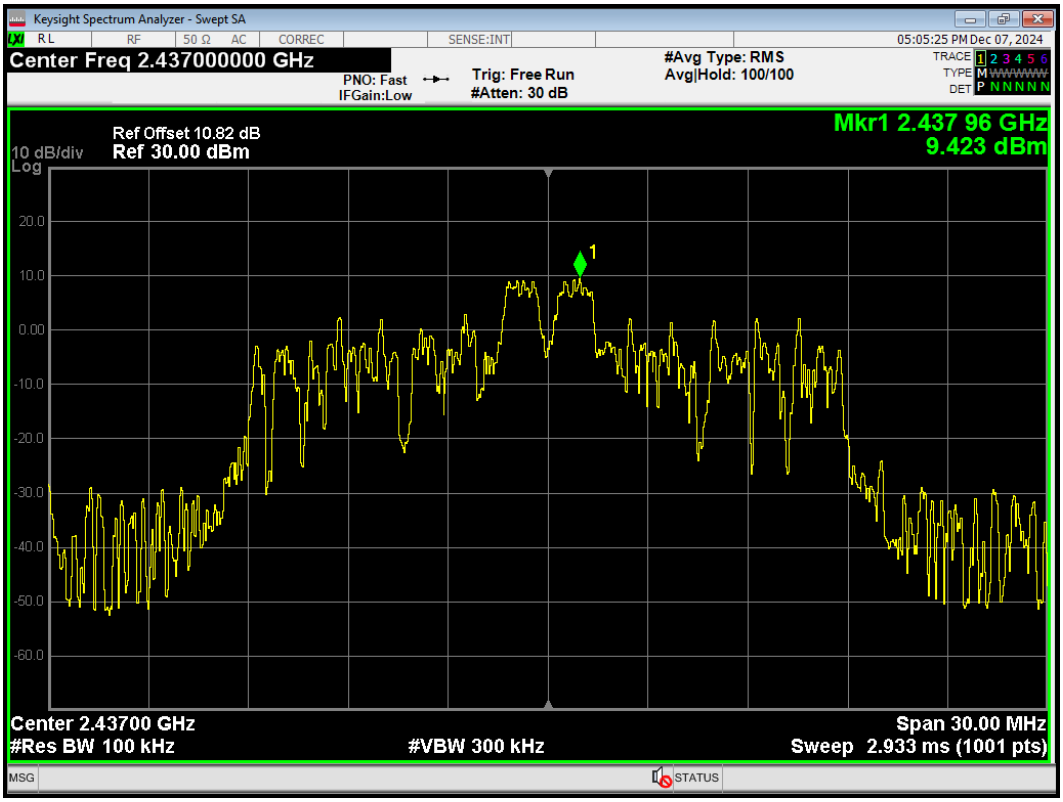
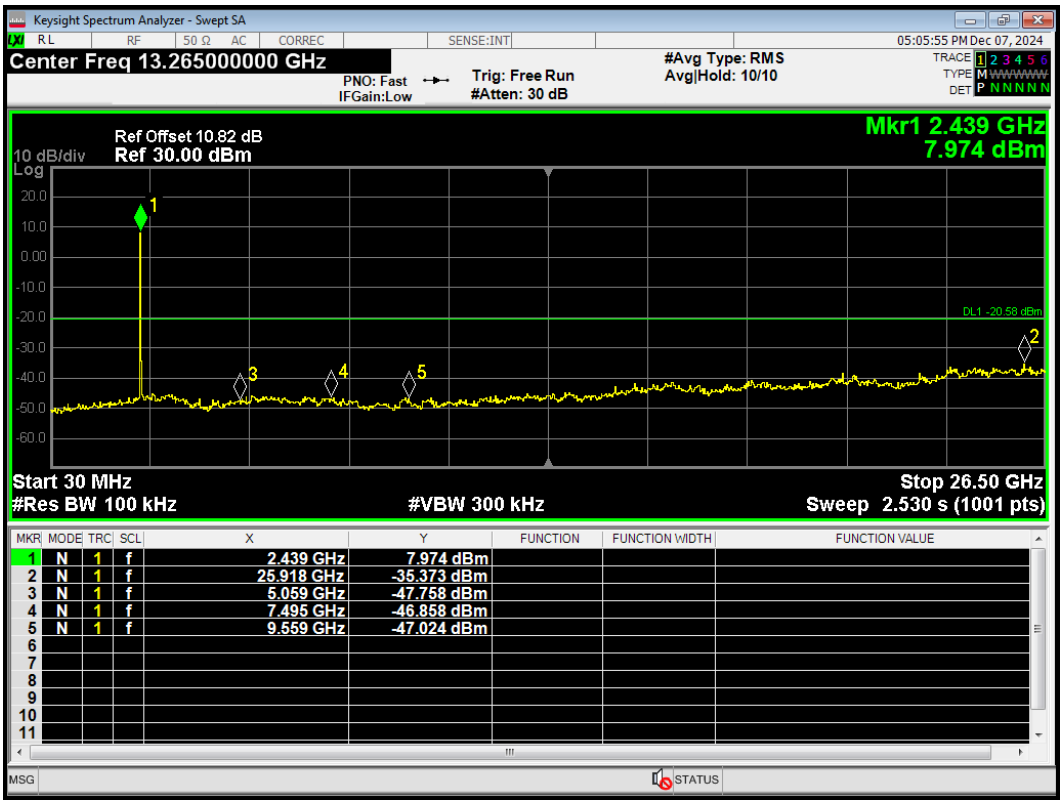
Tx. Spurious 802.11ax(HE20) 26T 2437MHz Ref



Tx. Spurious 802.11ax(HE20) 26T 2437MHz Emission



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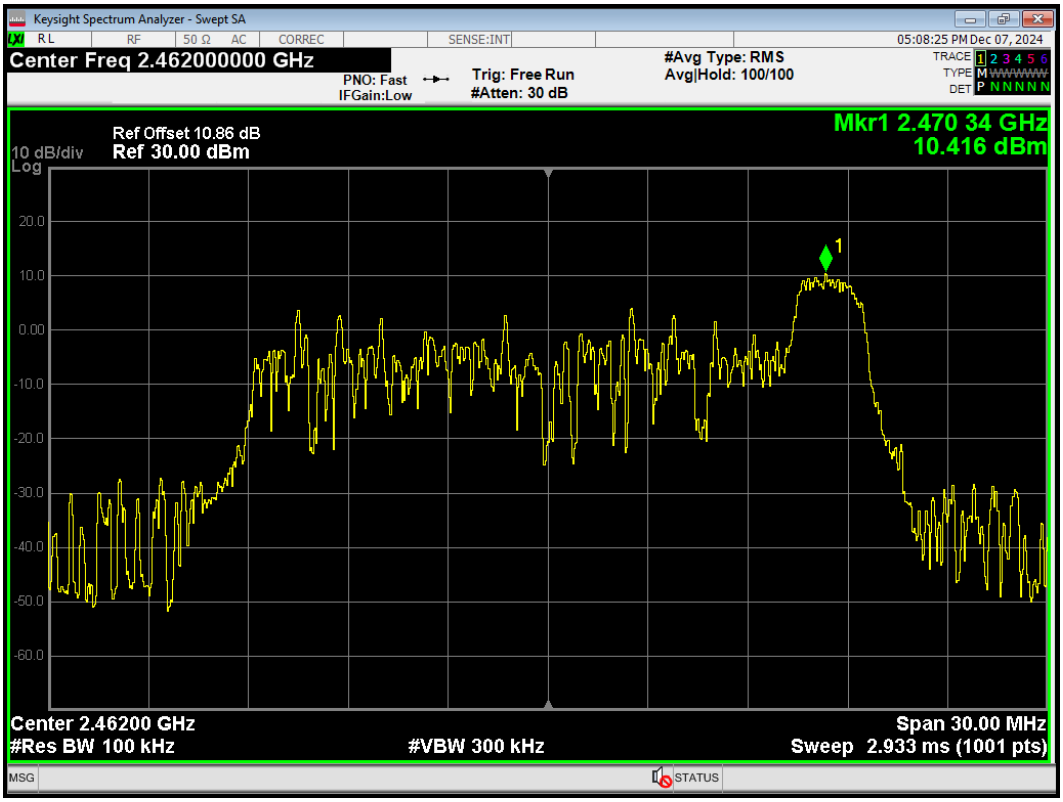

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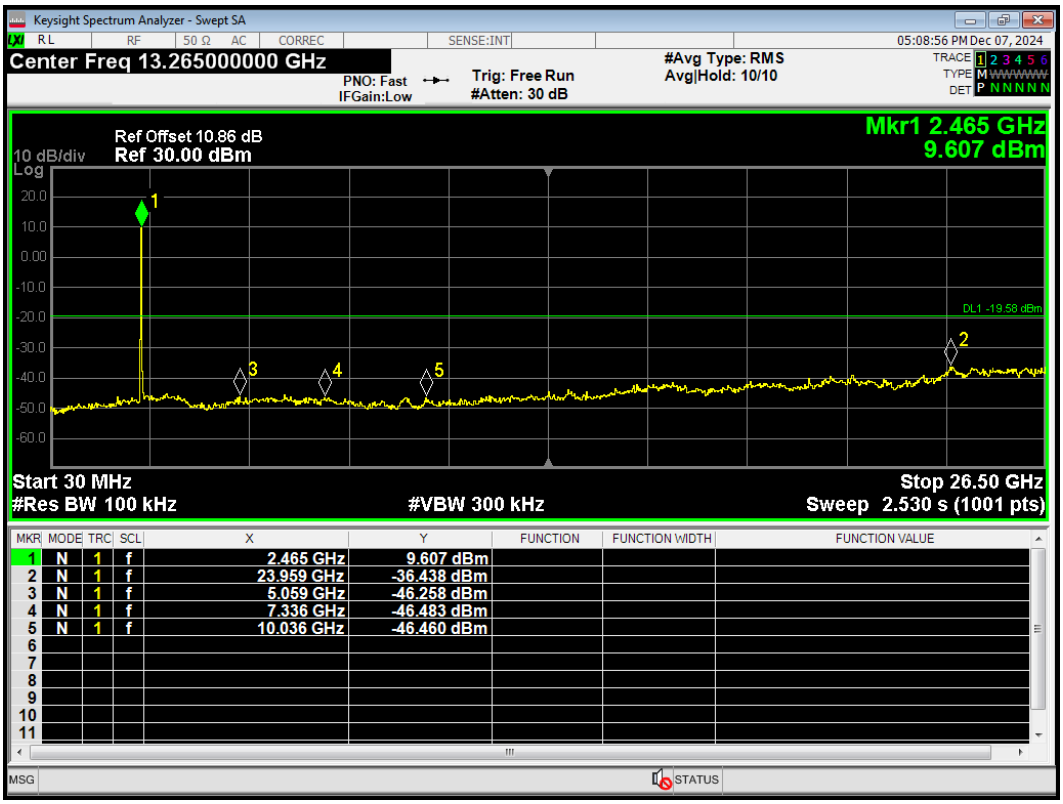

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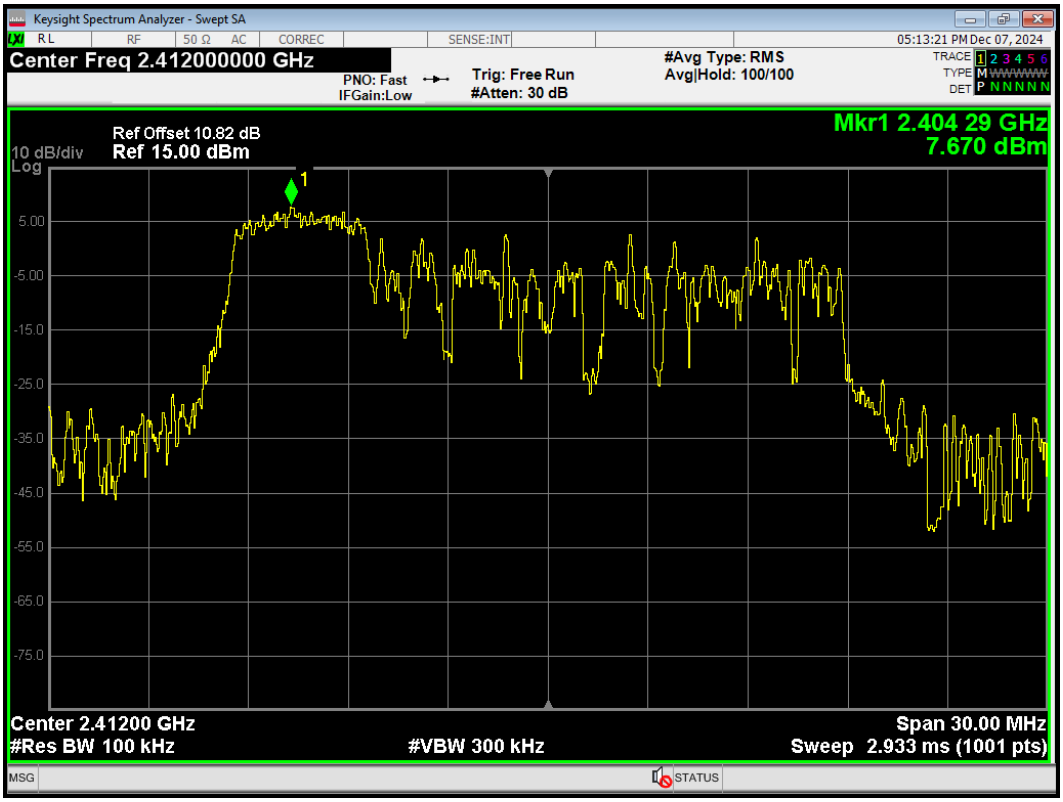

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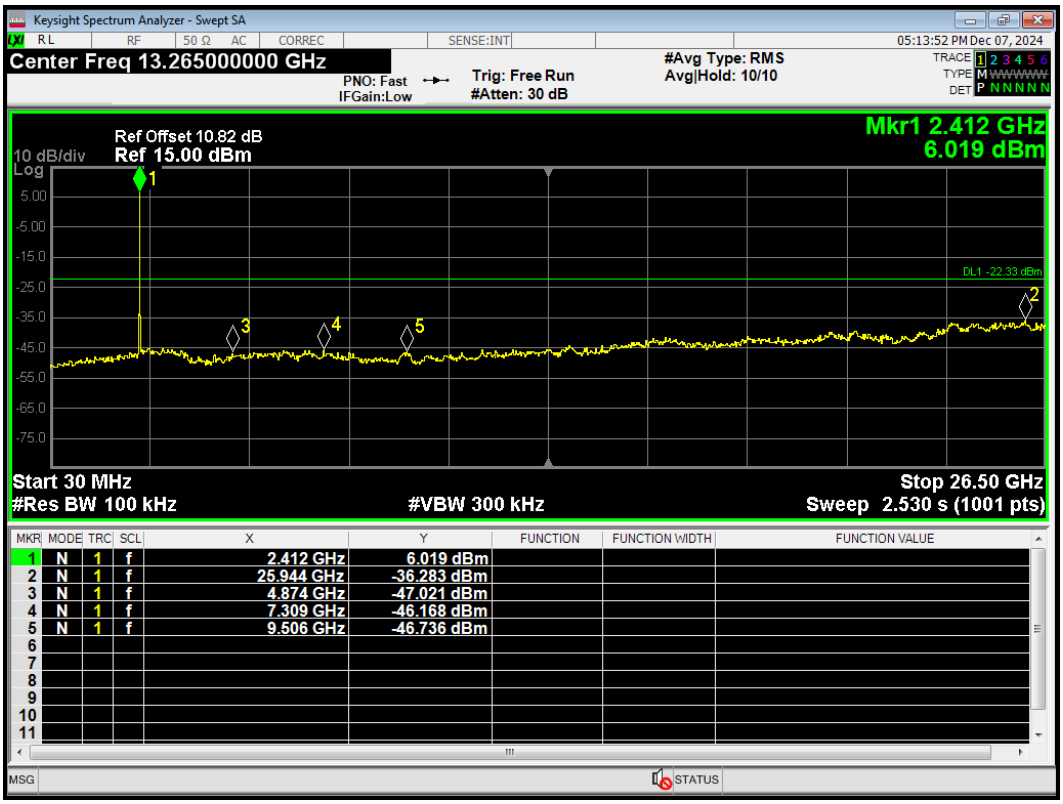

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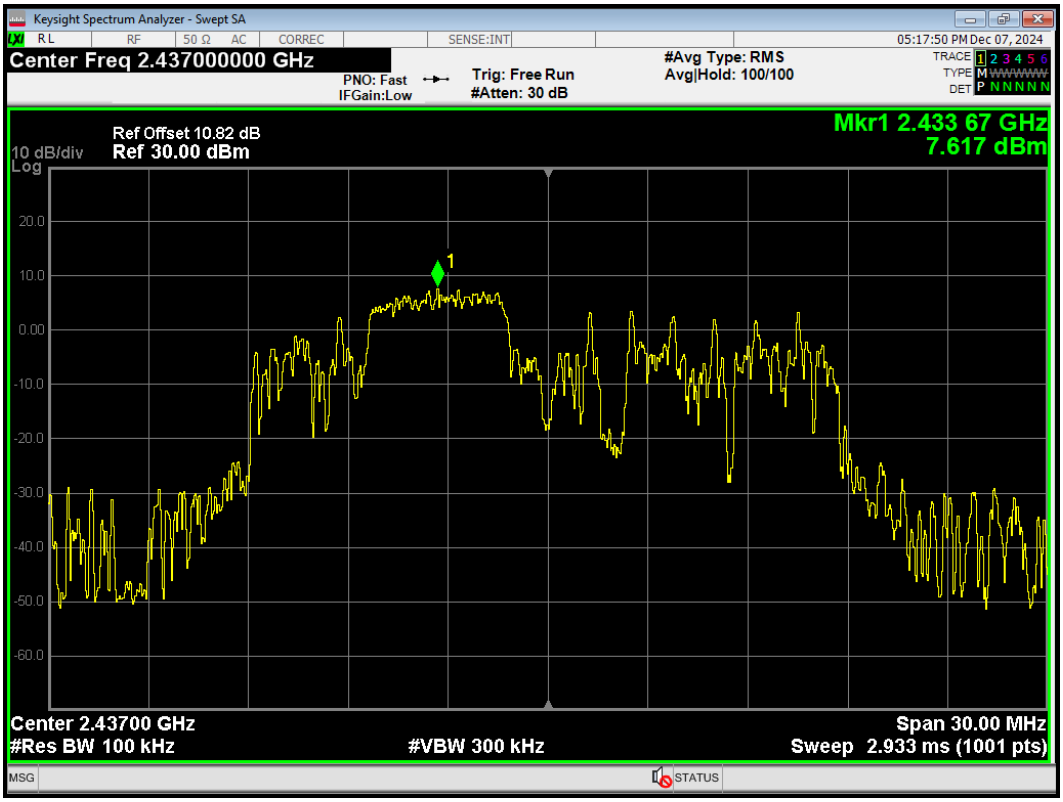

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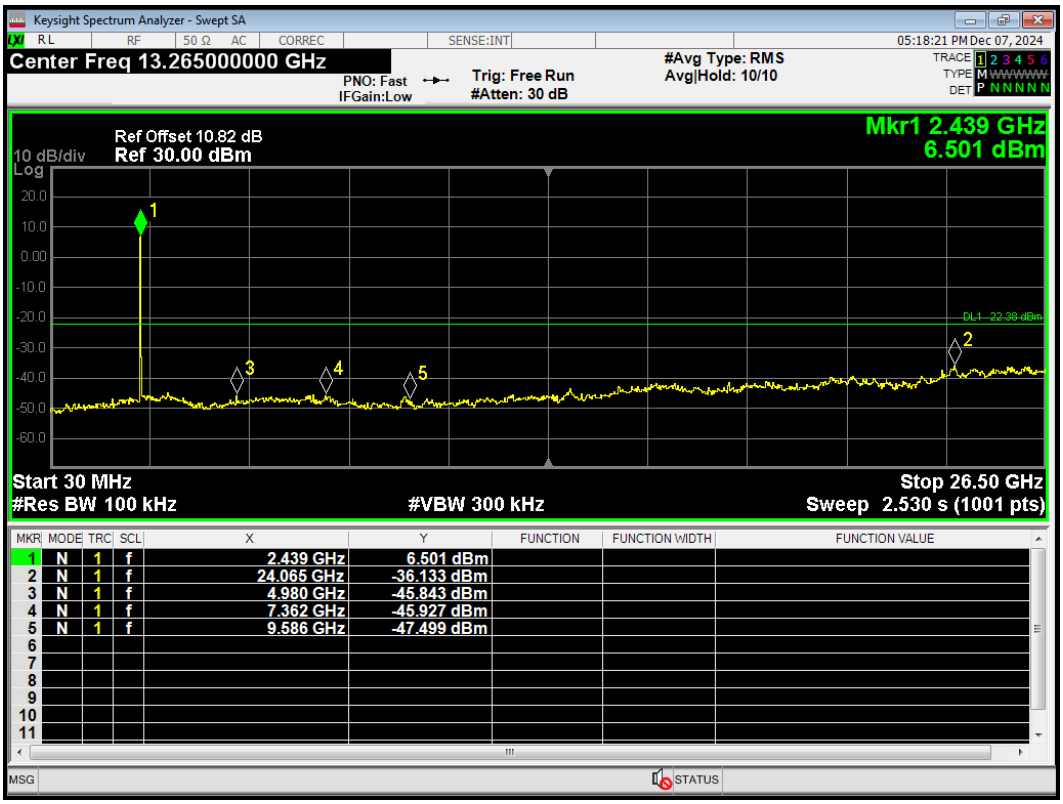

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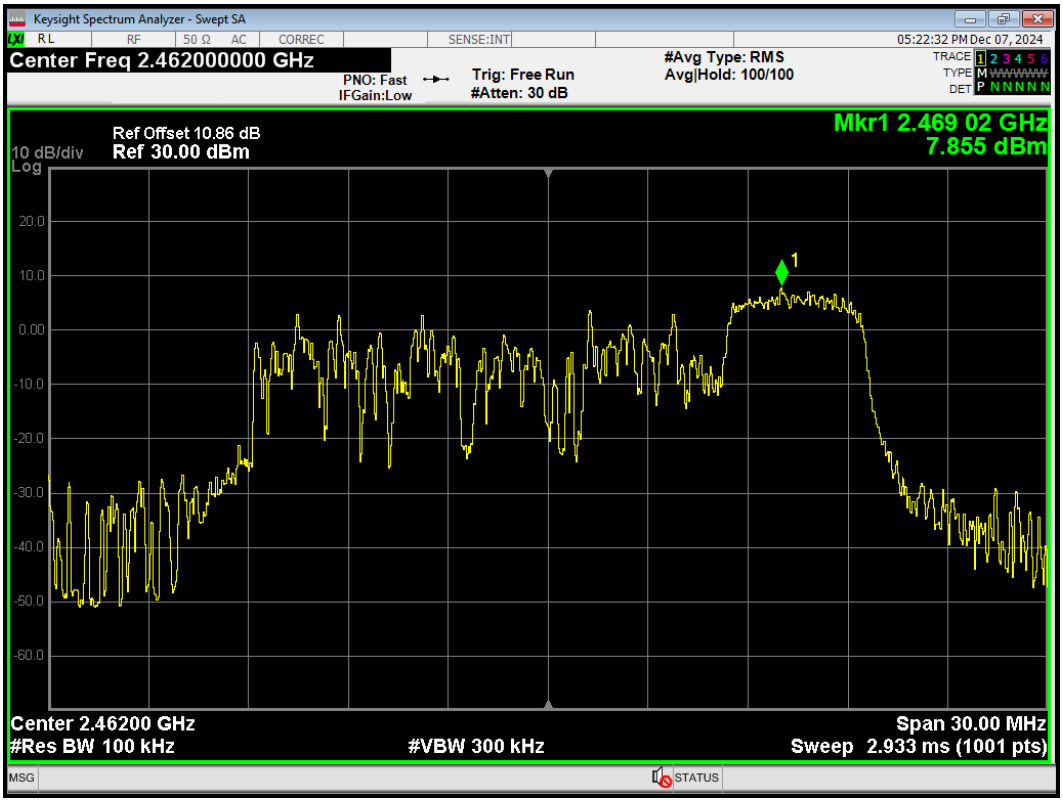
Tx. Spurious 802.11ax(HE20) 52T 2462MHz Ref



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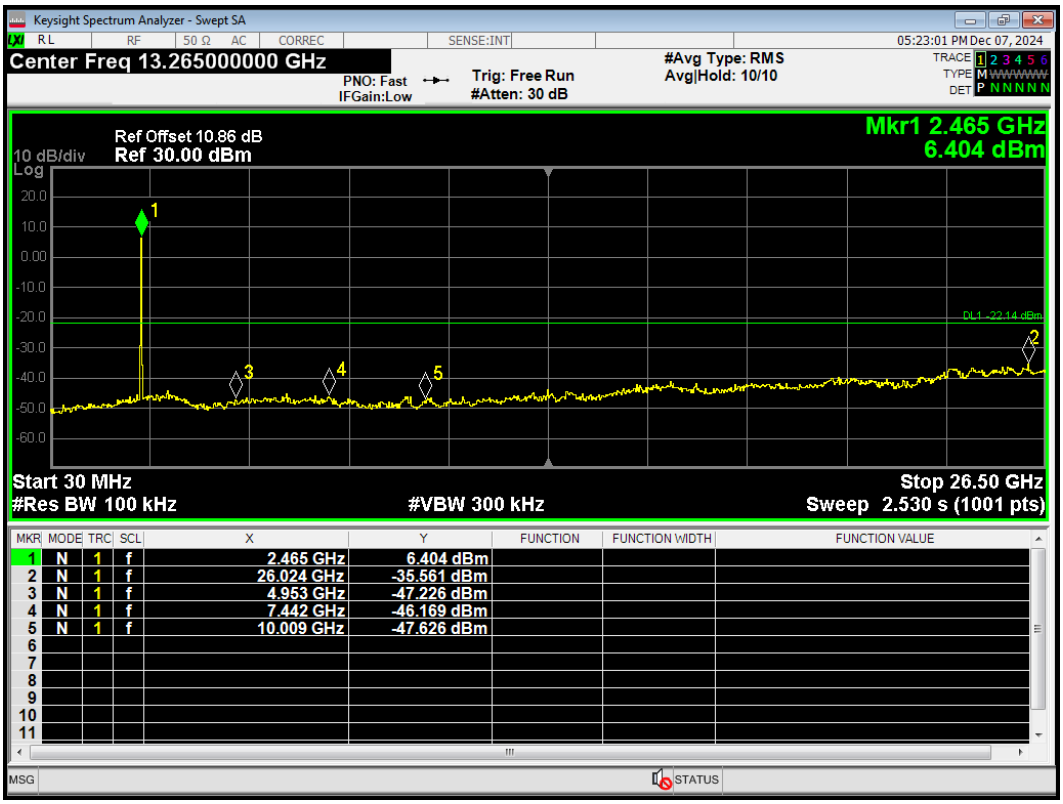

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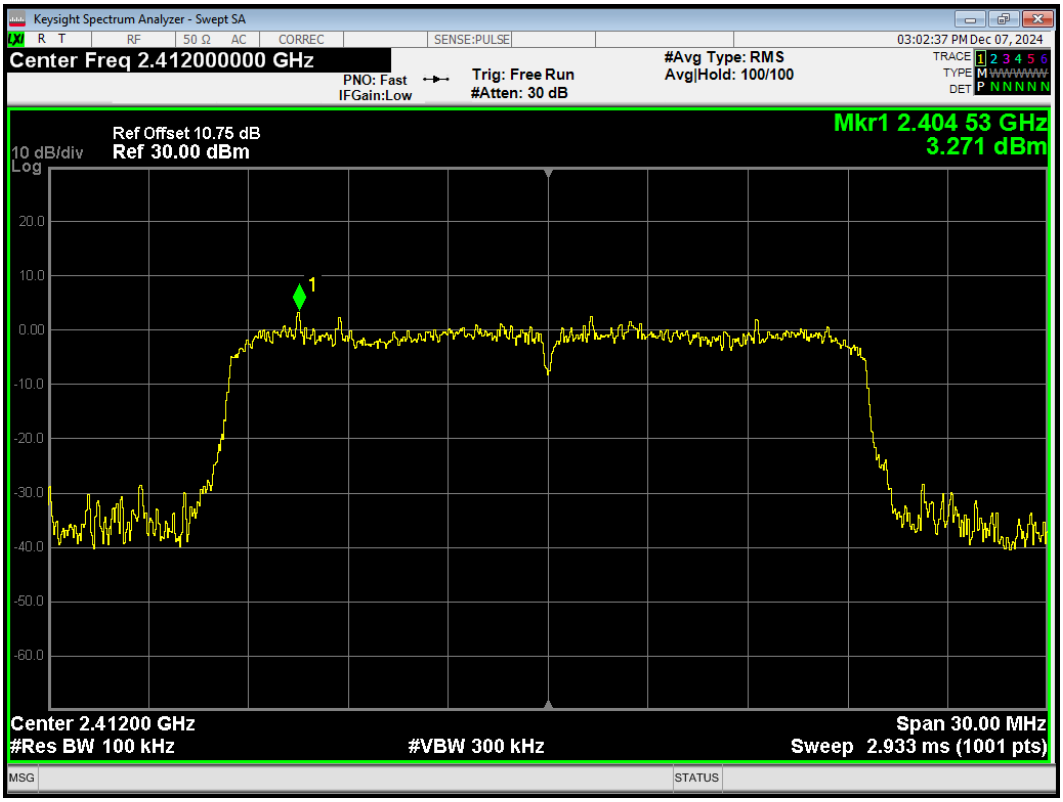
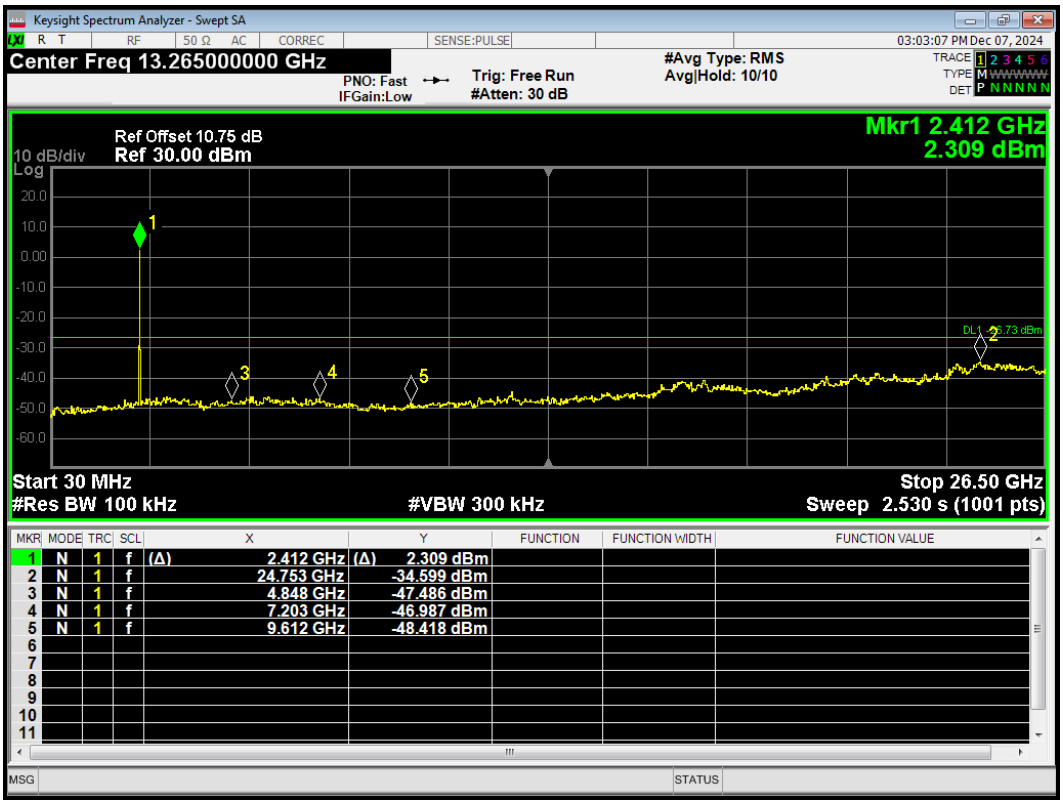
Tx. Spurious 802.11ax(HE20) 242T 2412MHz Ref



Tx. Spurious 802.11ax(HE20) 242T 2412MHz Emission



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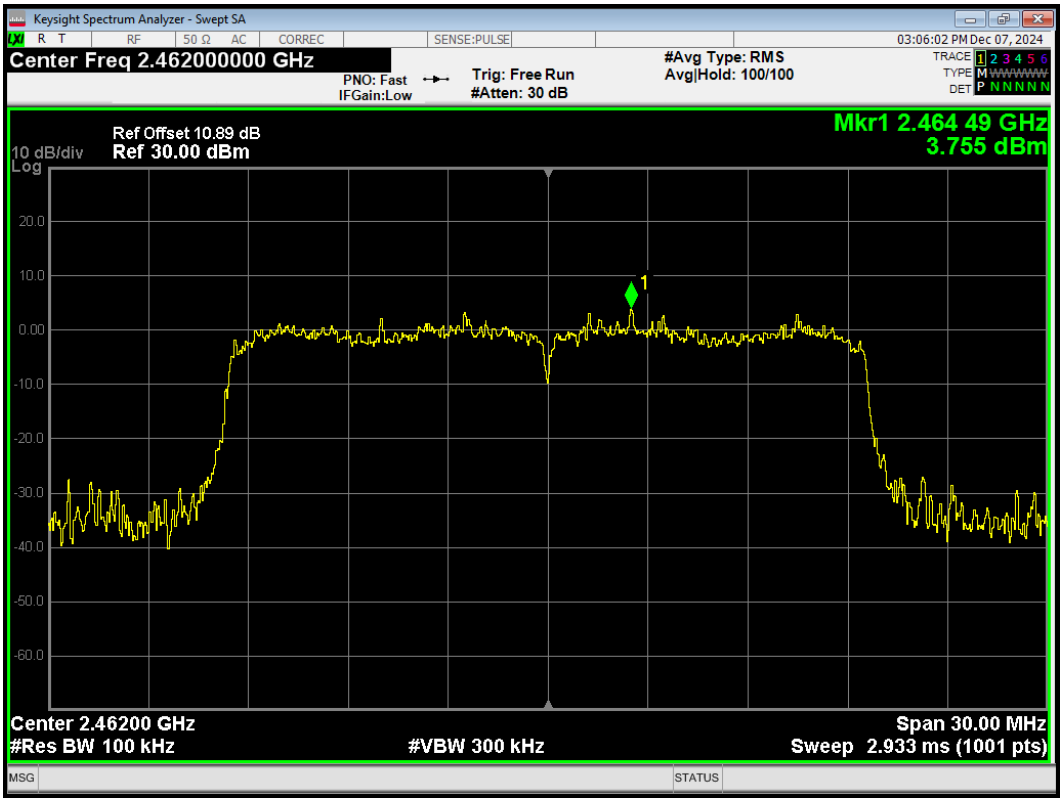
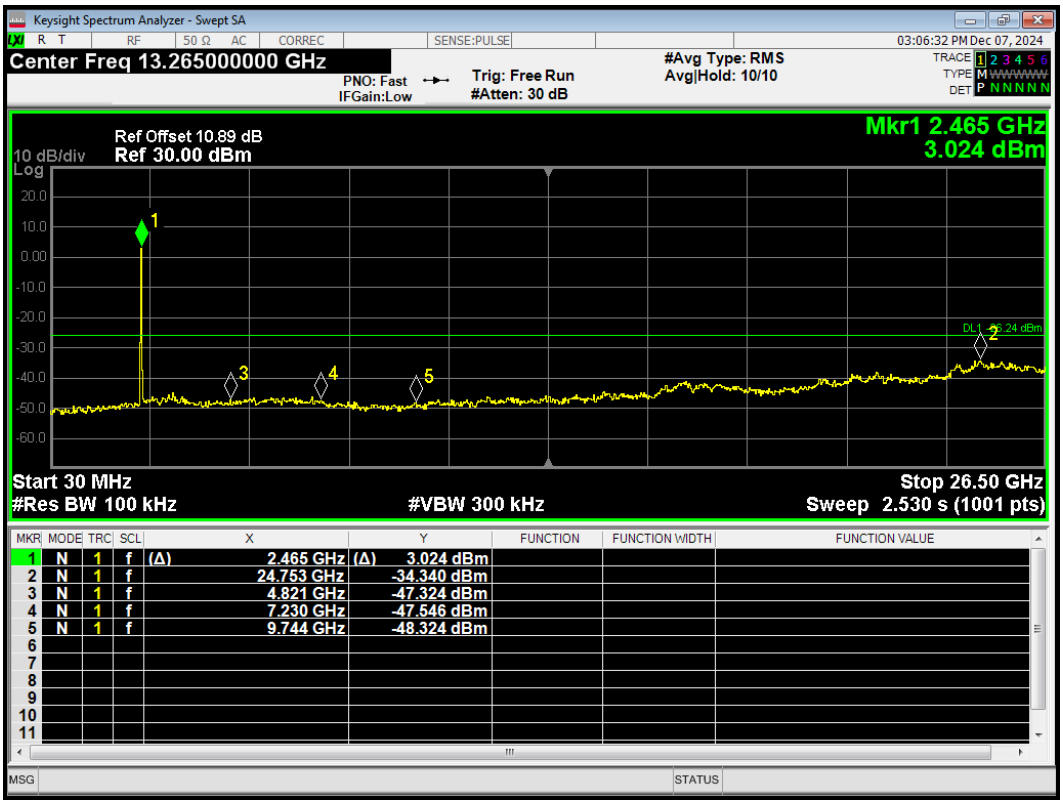


Tx. Spurious 802.11ax(HE20) 242T 2462MHz Emission



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