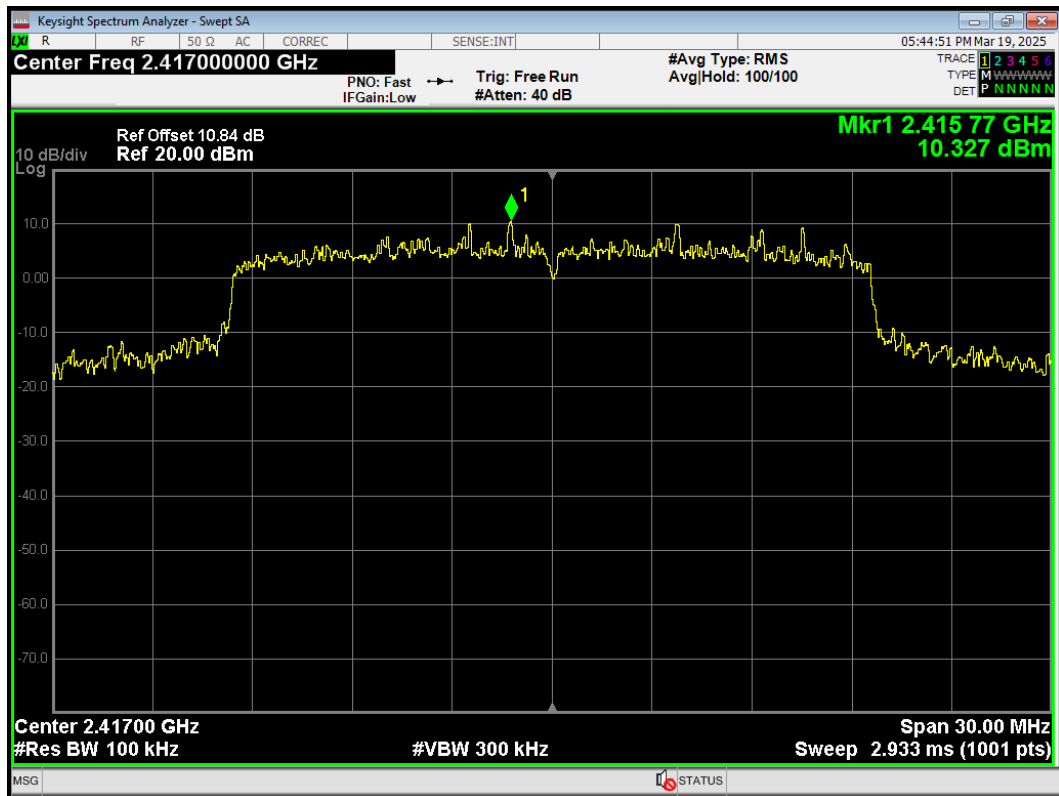
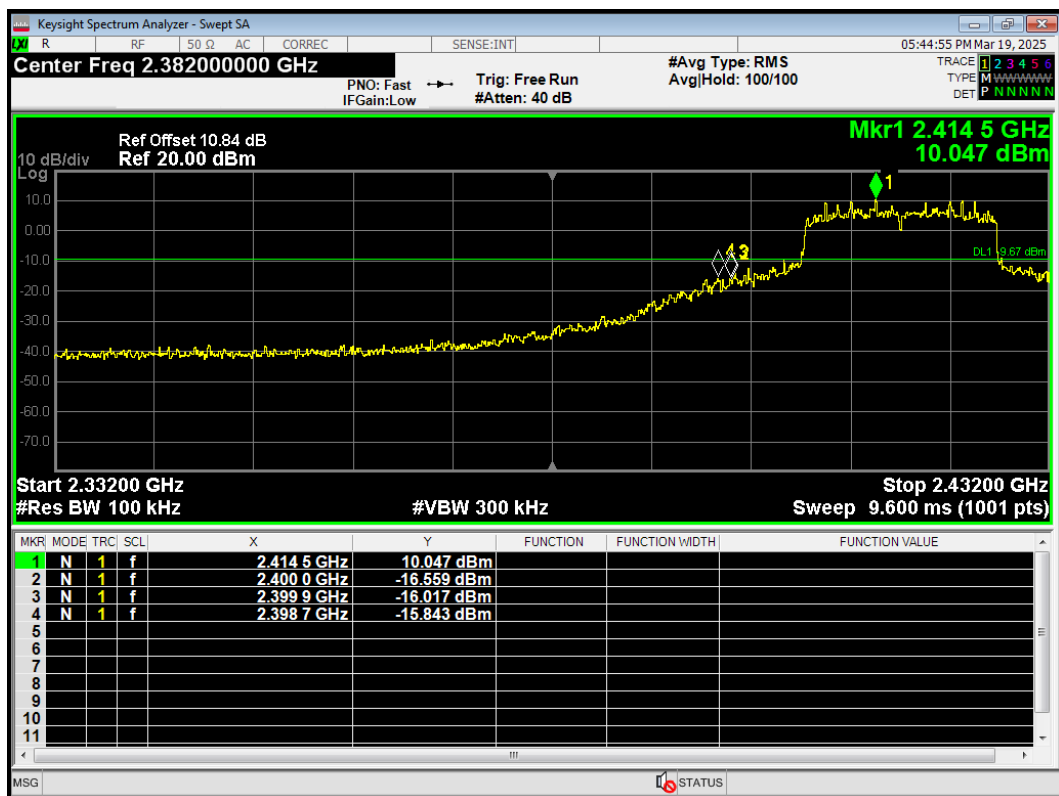


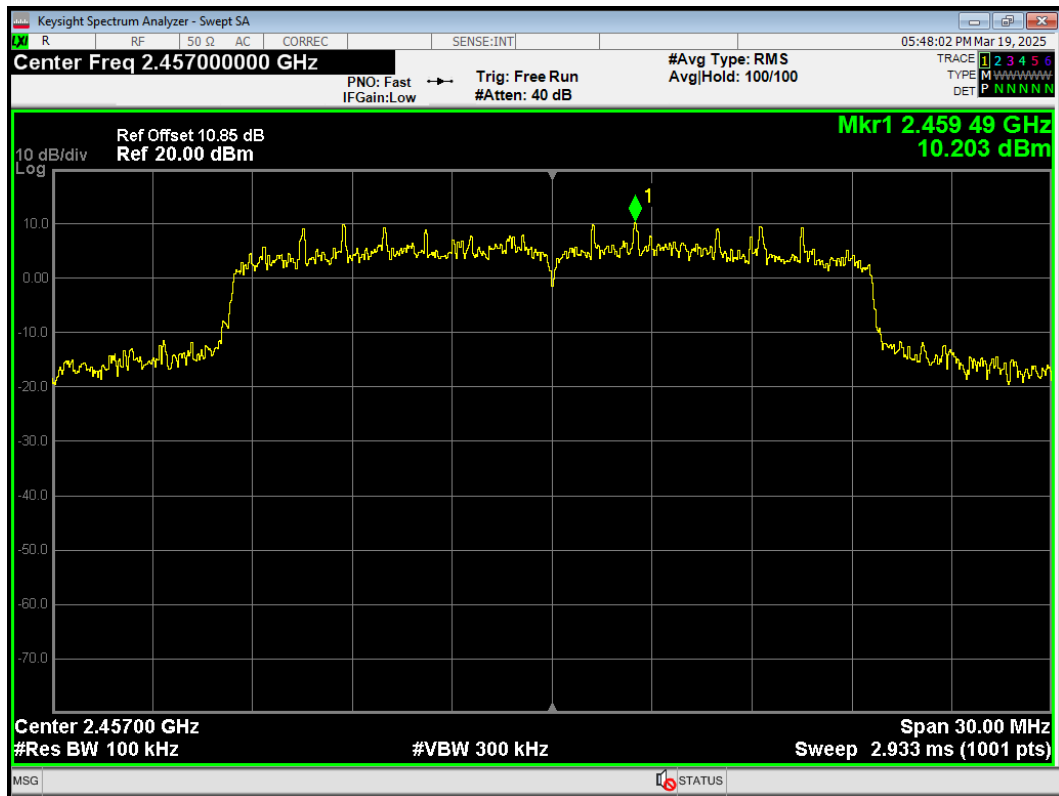
Band Edge 802.11ax(HE20) 2417MHz Ref



Band Edge 802.11ax(HE20) 2417MHz Emission



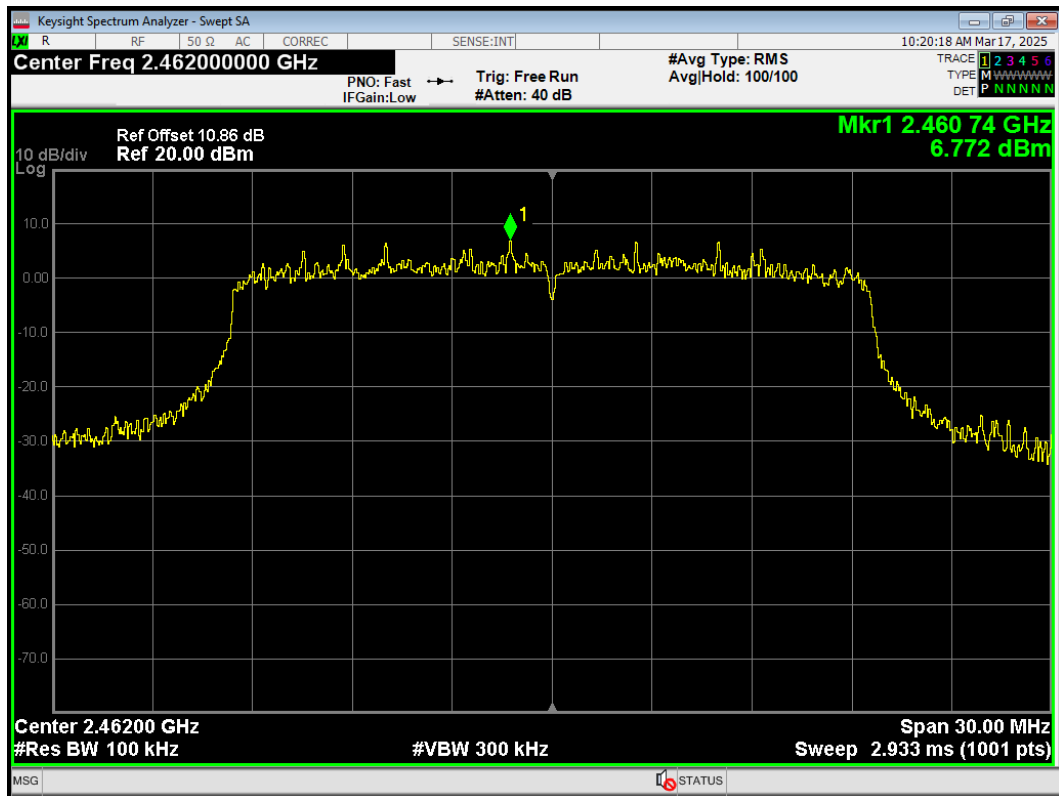
Band Edge 802.11ax(HE20) 2457MHz Ref



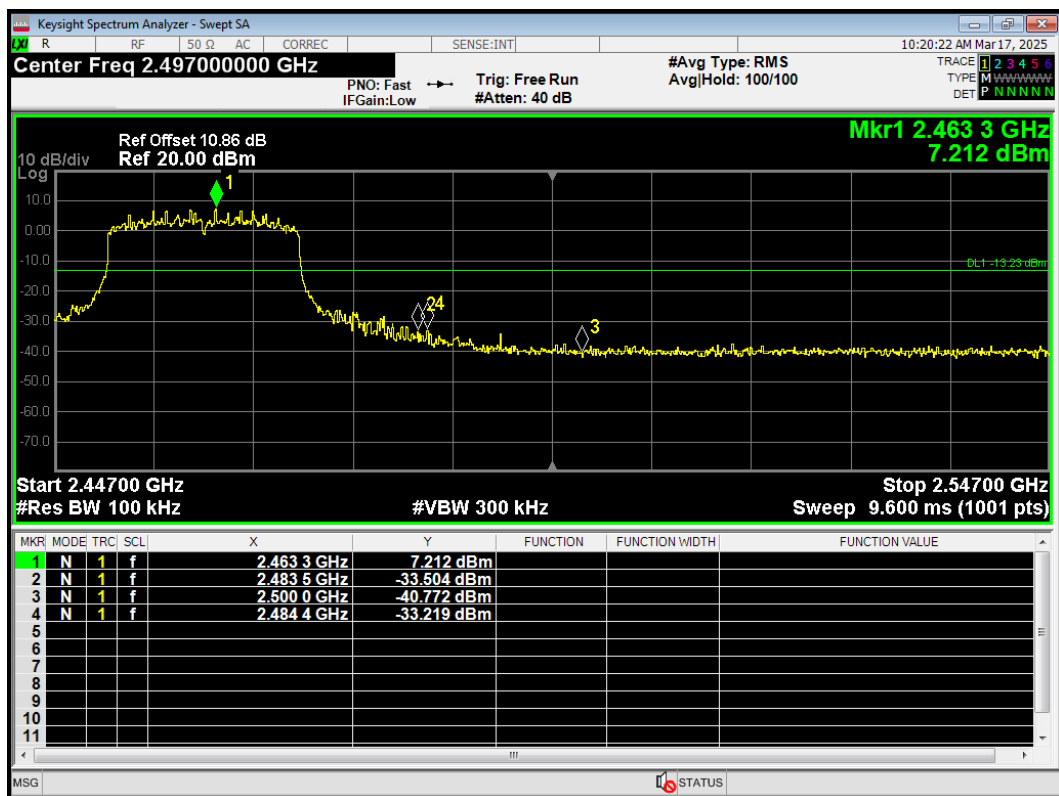
Band Edge 802.11ax(HE20) 2457MHz Emission



Band Edge 802.11ax(HE20) 2462MHz Ref

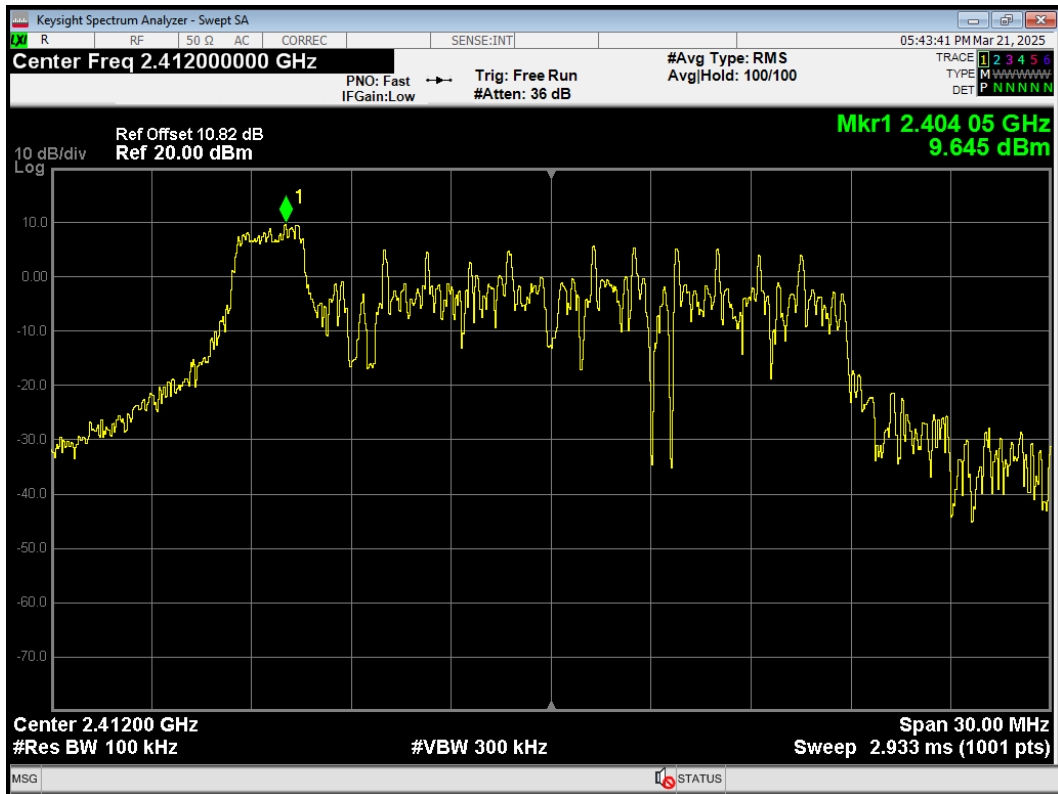


Band Edge 802.11ax(HE20) 2462MHz Emission

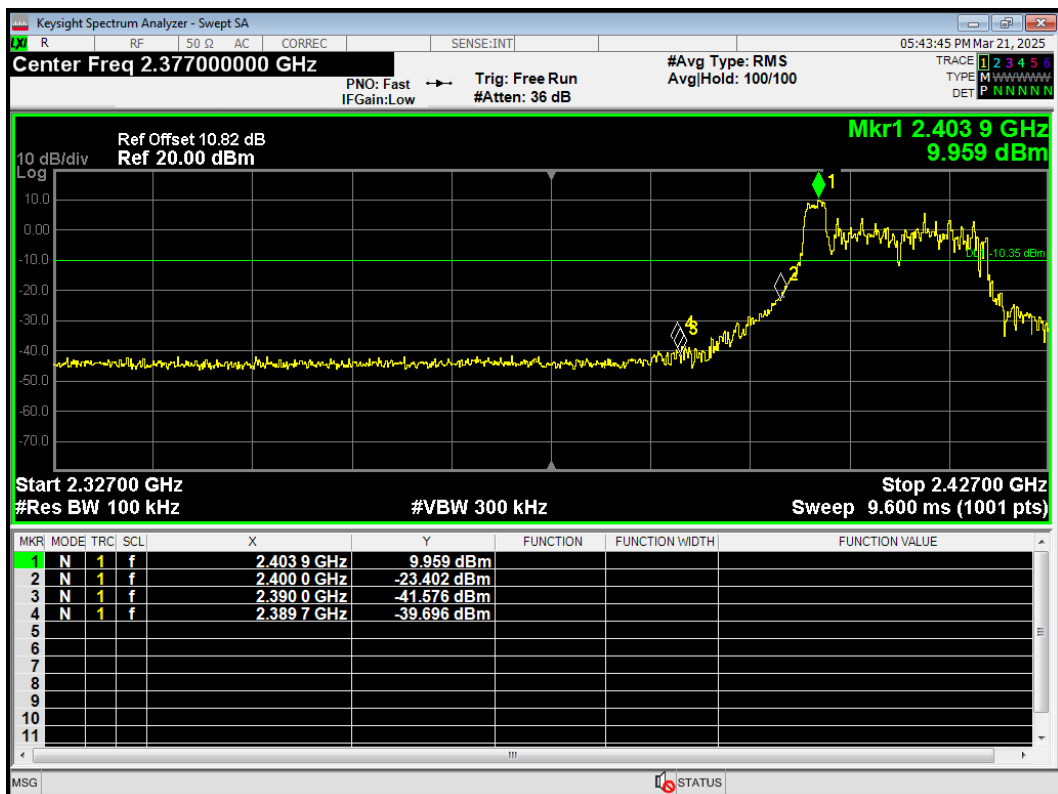


RU Mode

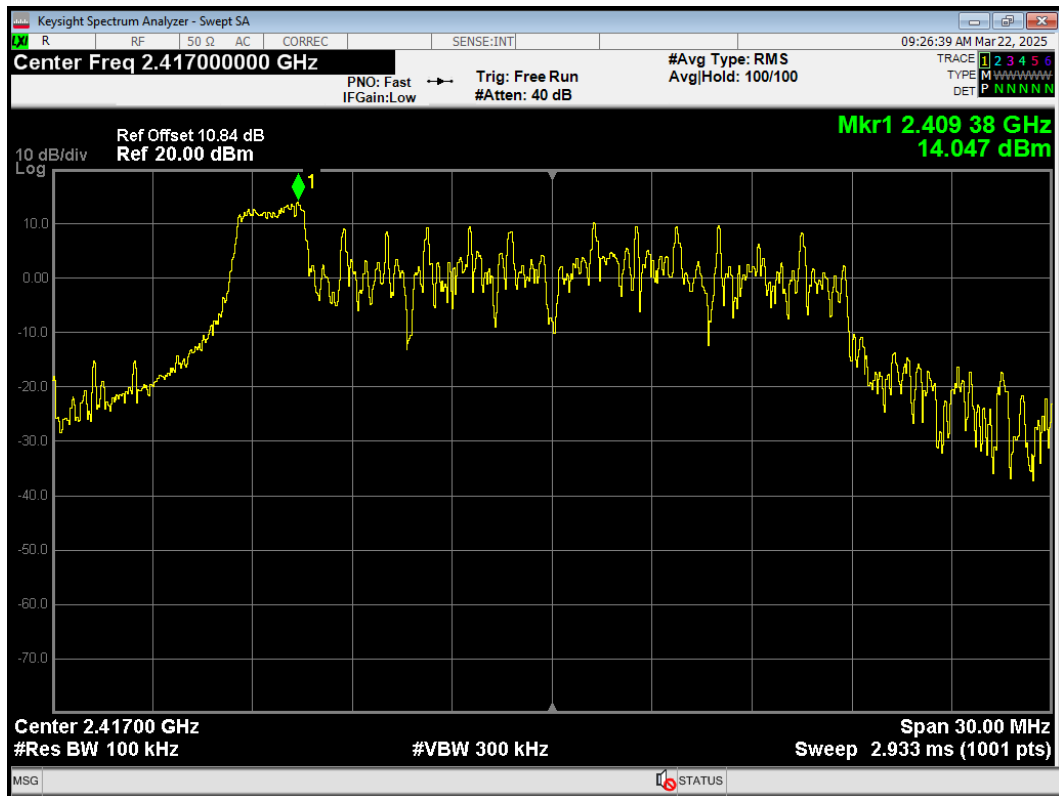
Band Edge 802.11ax(HE20) 26T 2412MHz Ref



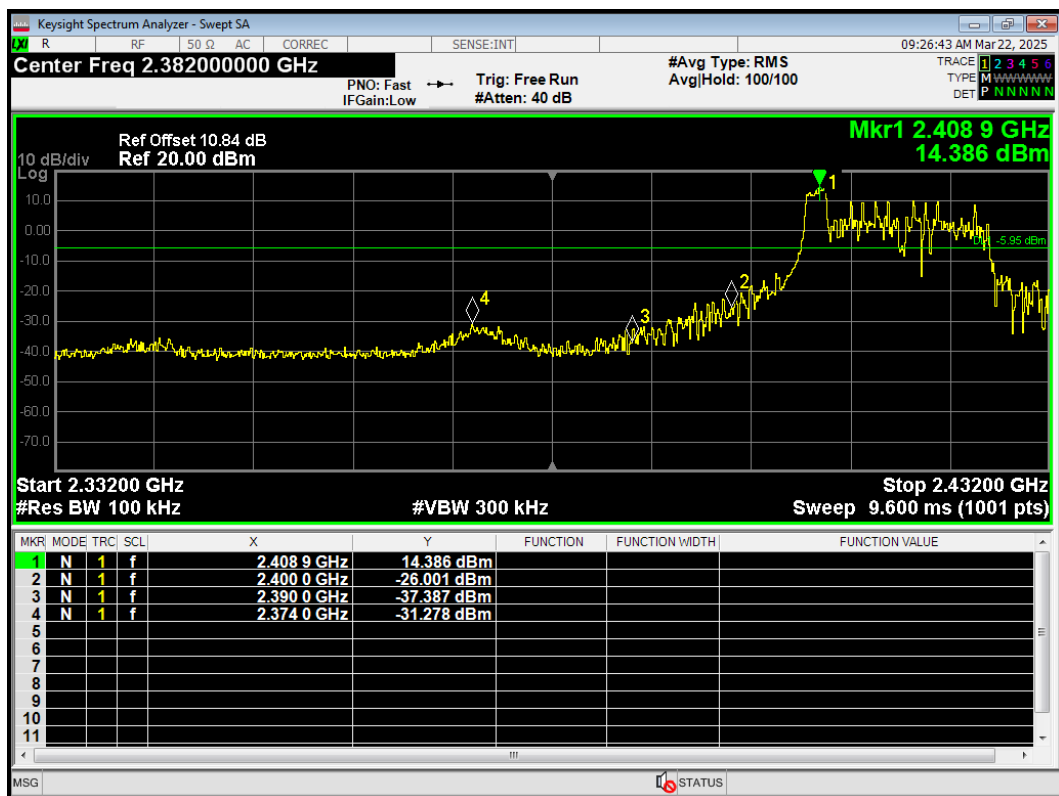
Band Edge 802.11ax(HE20) 26T 2412MHz Emission



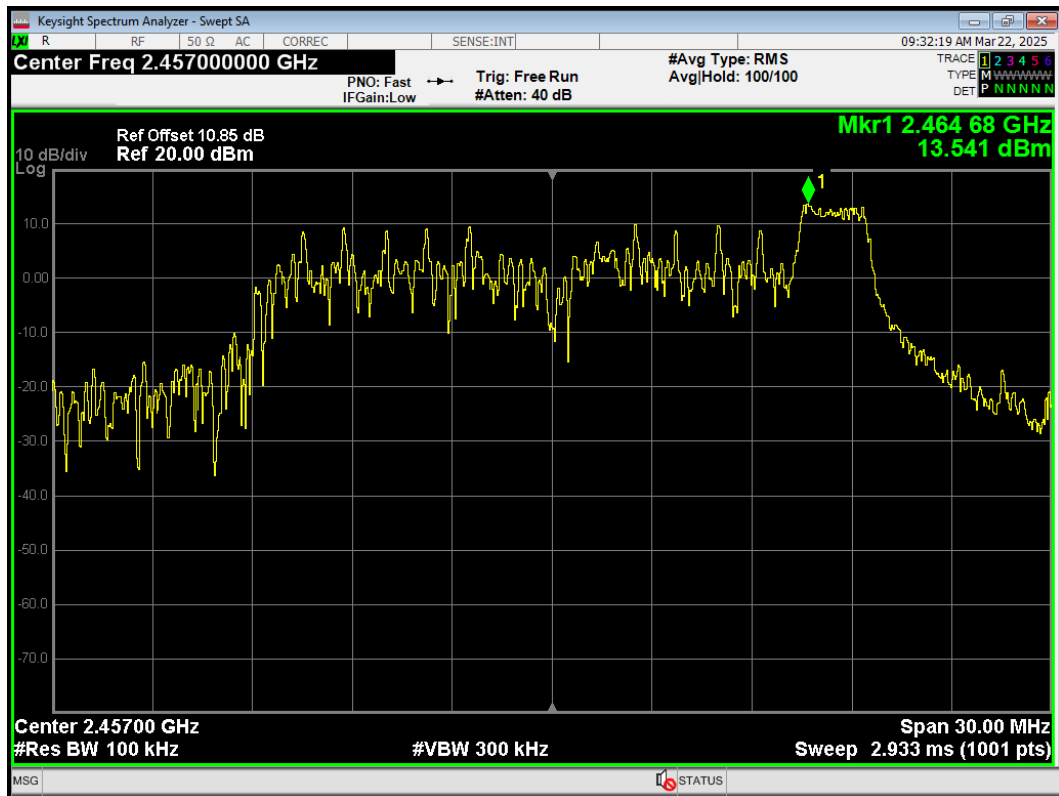
Band Edge 802.11ax(HE20) 26T 2417MHz Ref



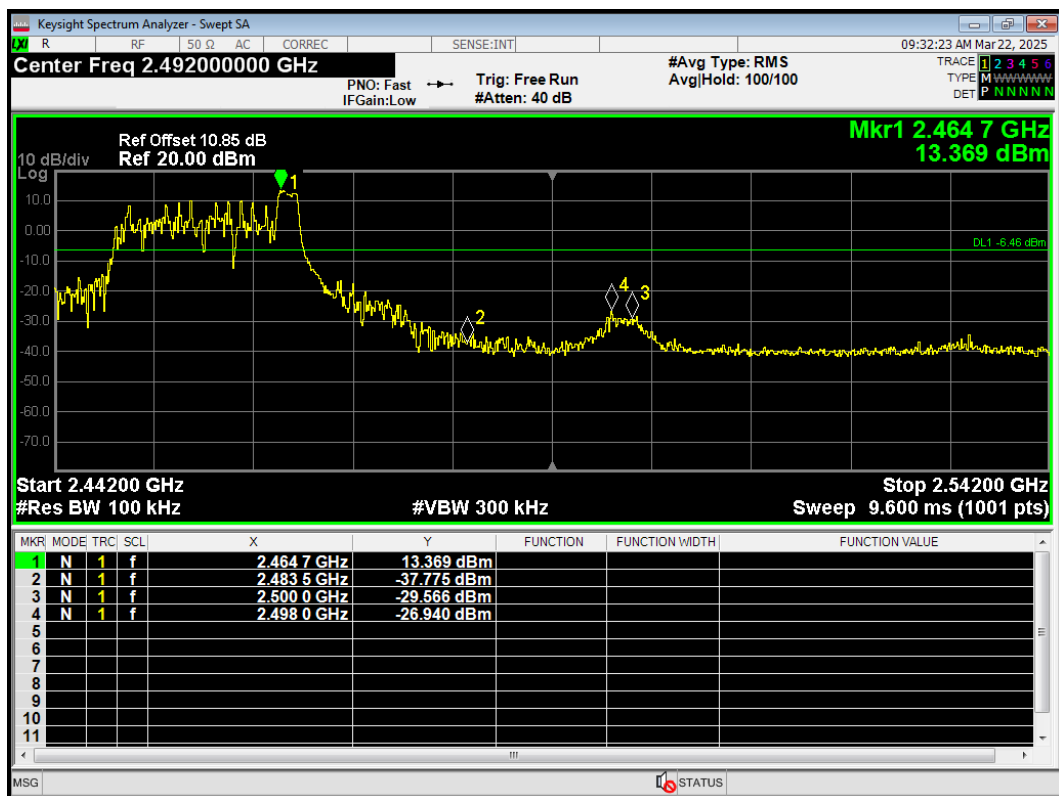
Band Edge 802.11ax(HE20) 26T 2417MHz Emission



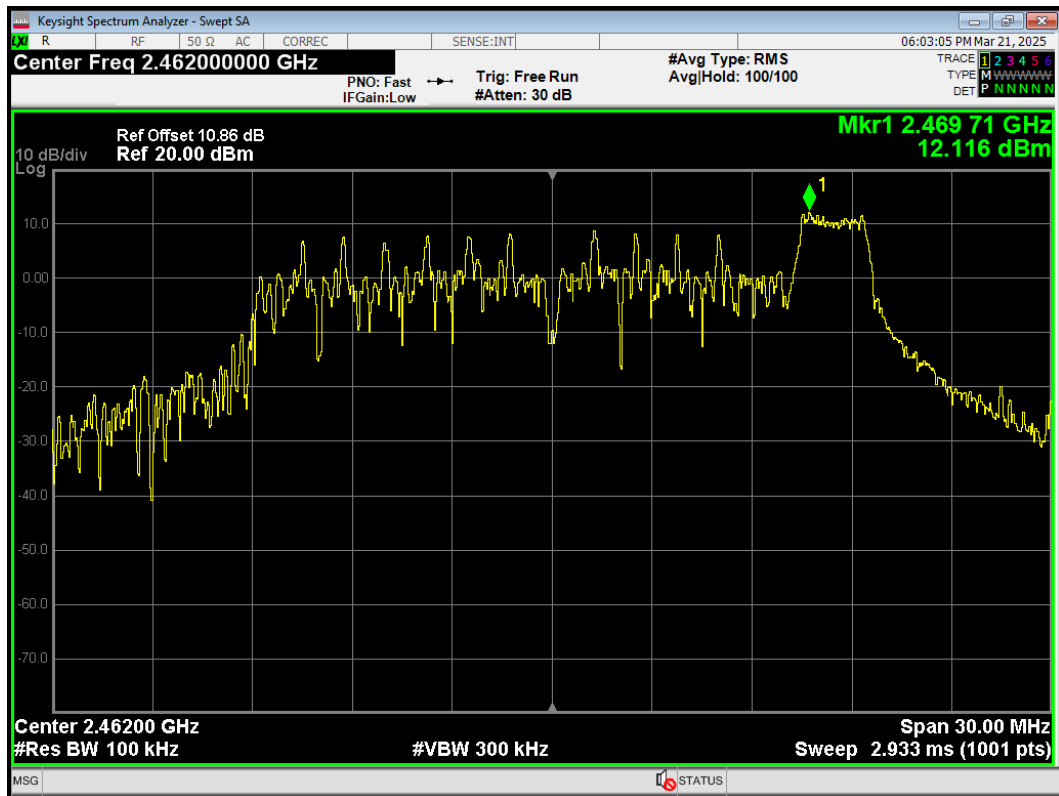
Band Edge 802.11ax(HE20) 26T 2457MHz Ref



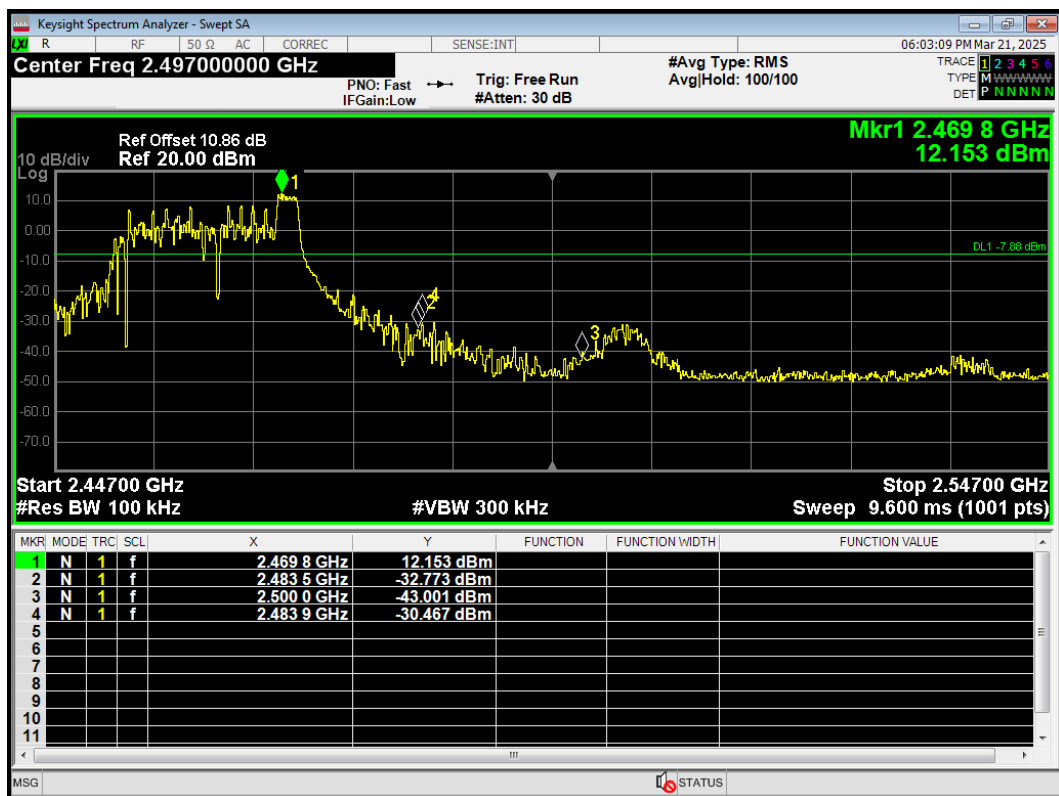
Band Edge 802.11ax(HE20) 26T 2457MHz Emission



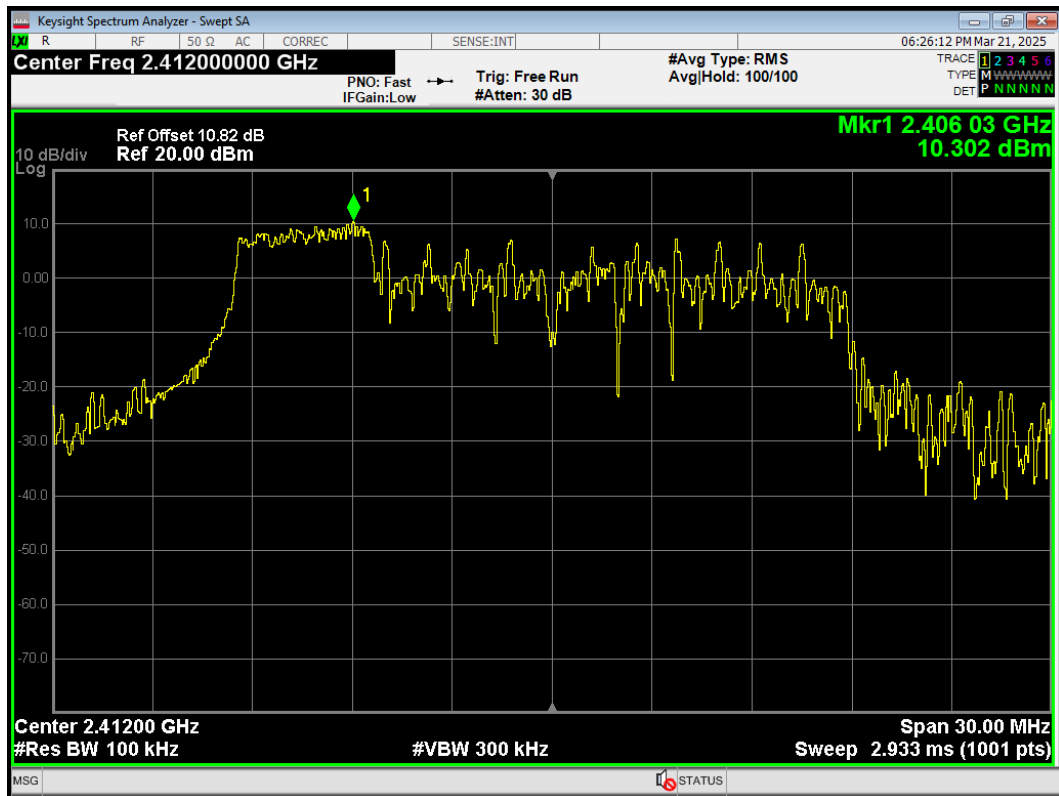
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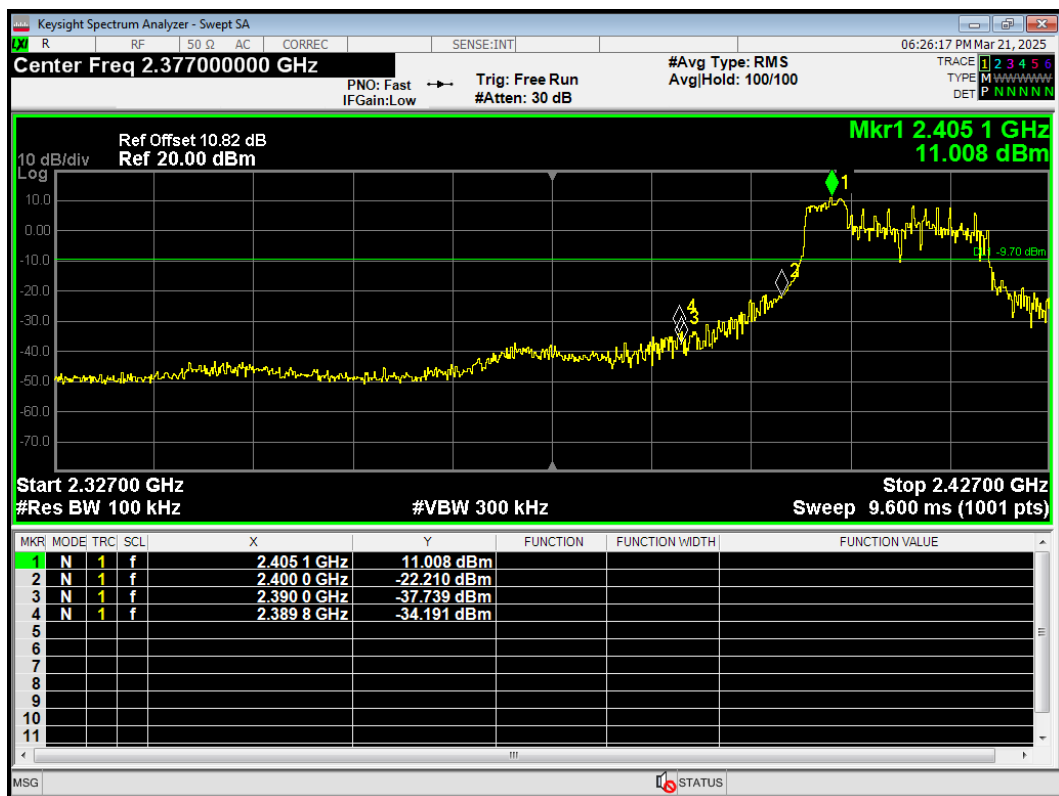
Band Edge 802.11ax(HE20) 26T 2462MHz Emission



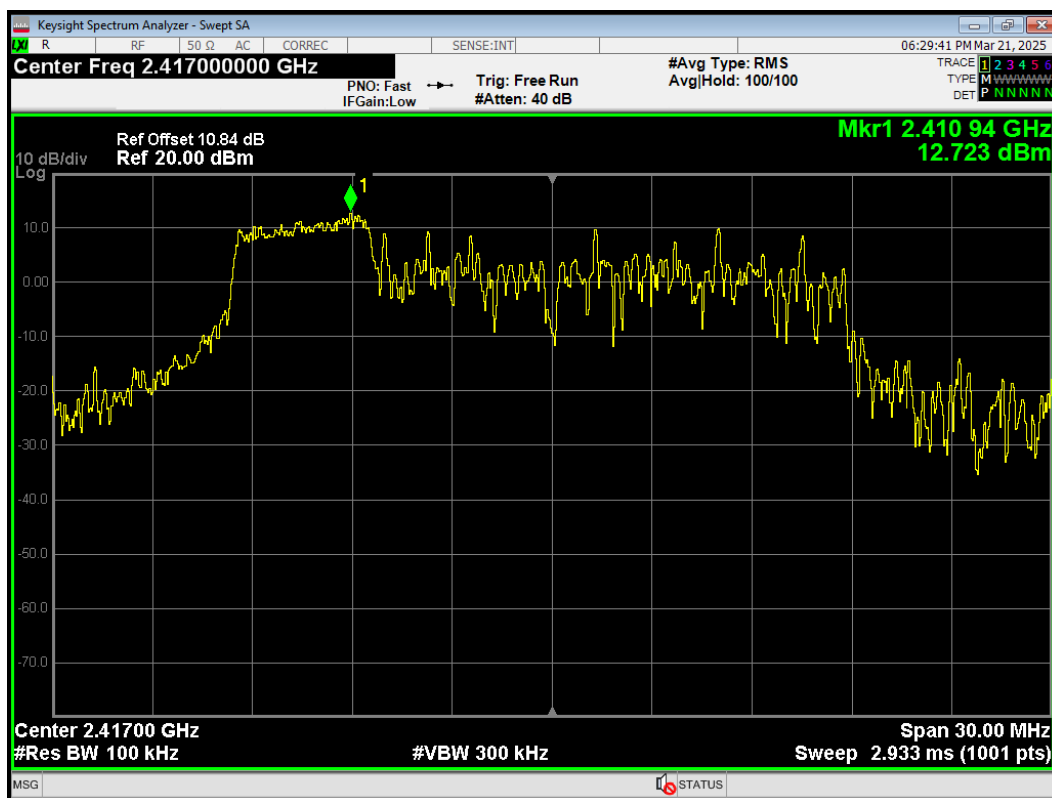
Band Edge 802.11ax(HE20) 52T 2412MHz Ref



Band Edge 802.11ax(HE20) 52T 2412MHz Emission



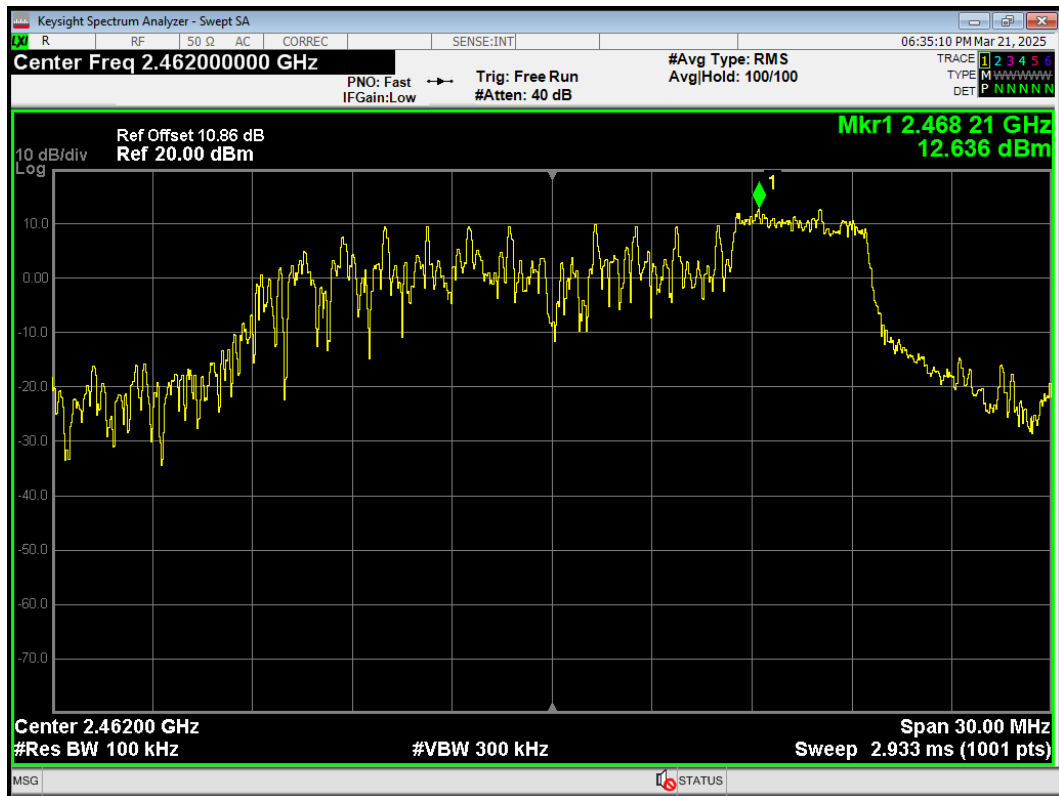
Band Edge 802.11ax(HE20) 52T 2417MHz Ref



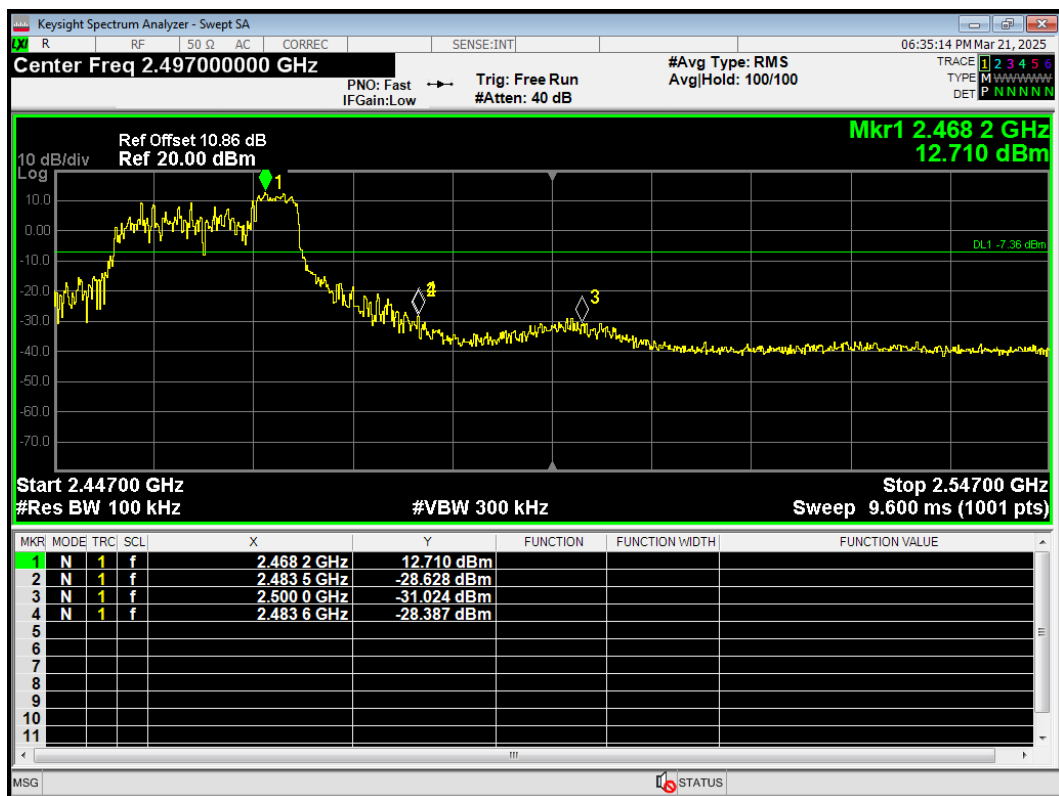
Band Edge 802.11ax(HE20) 52T 2417MHz Emission



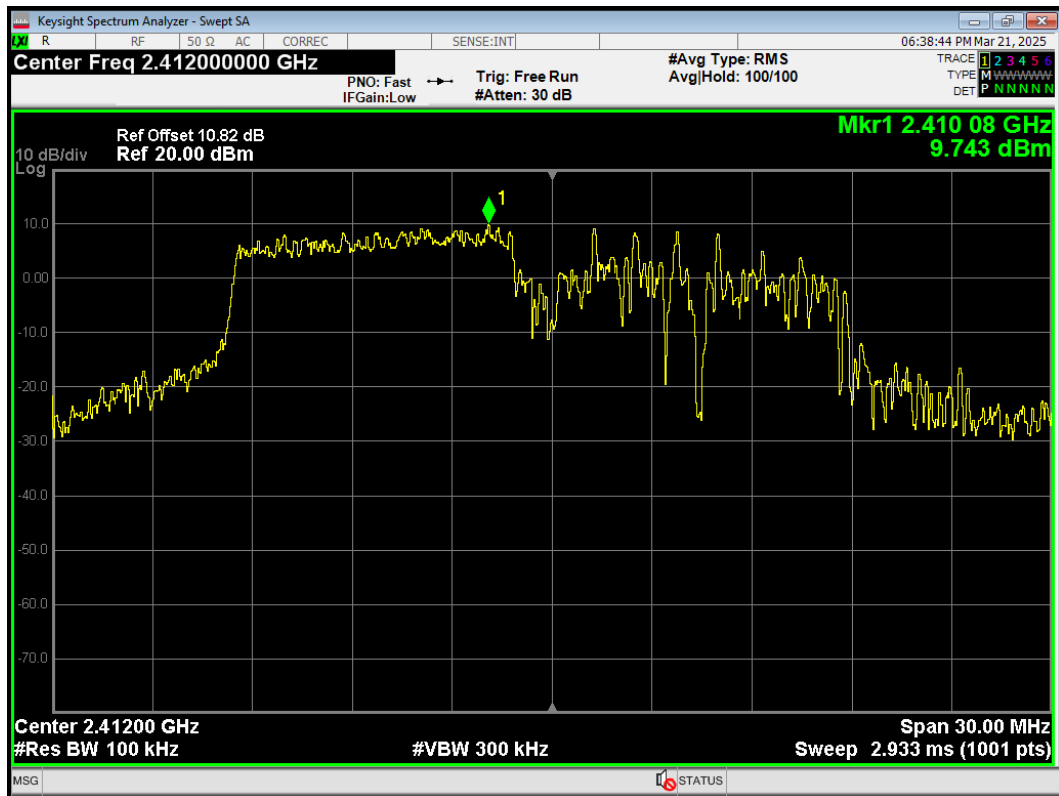
Band Edge 802.11ax(HE20) 52T 2462MHz Ref



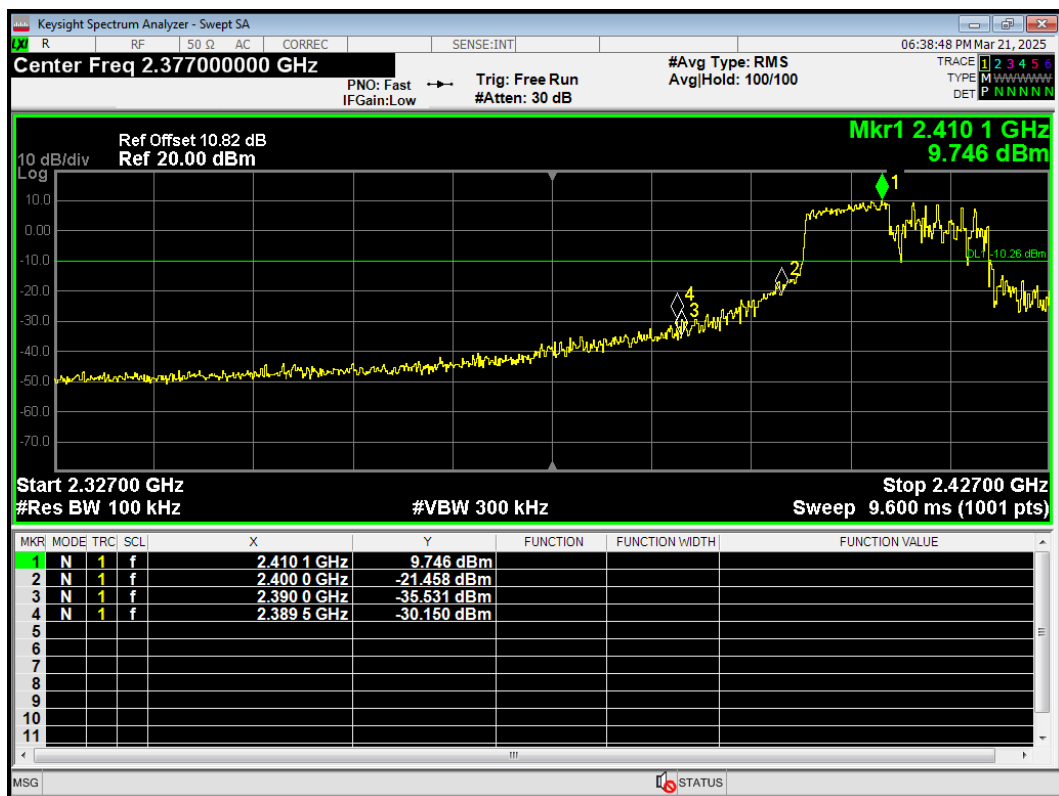
Band Edge 802.11ax(HE20) 52T 2462MHz Emission



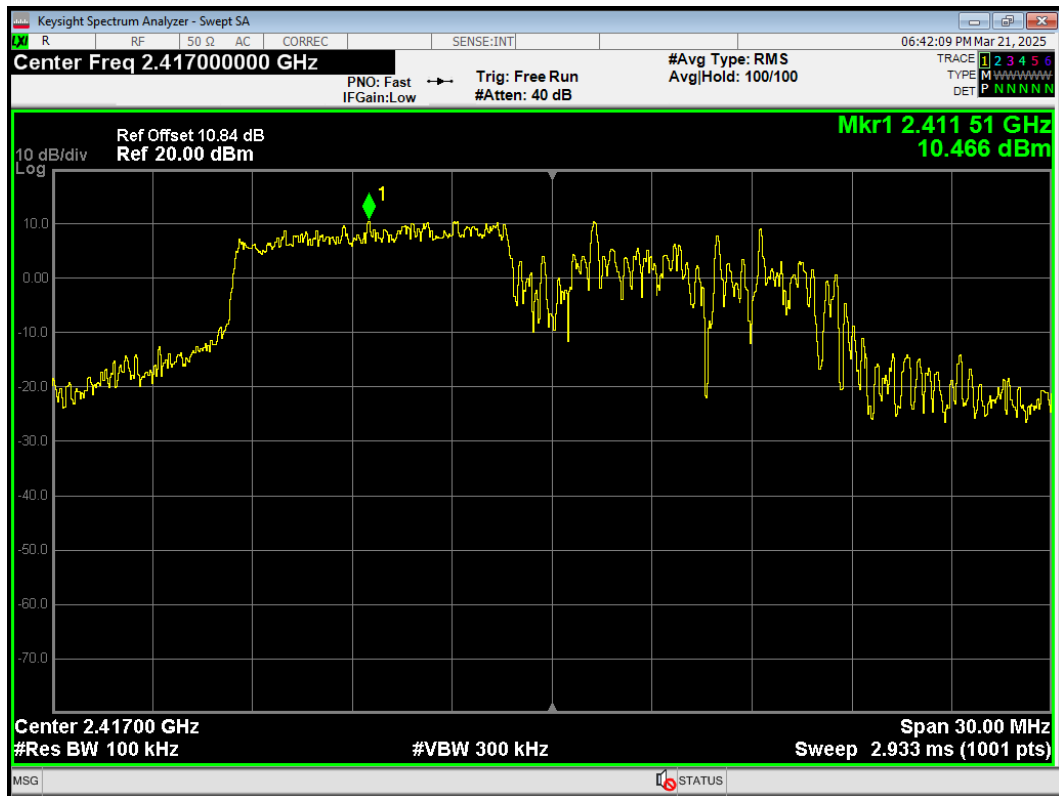
Band Edge 802.11ax(HE20) 106T 2412MHz Ref



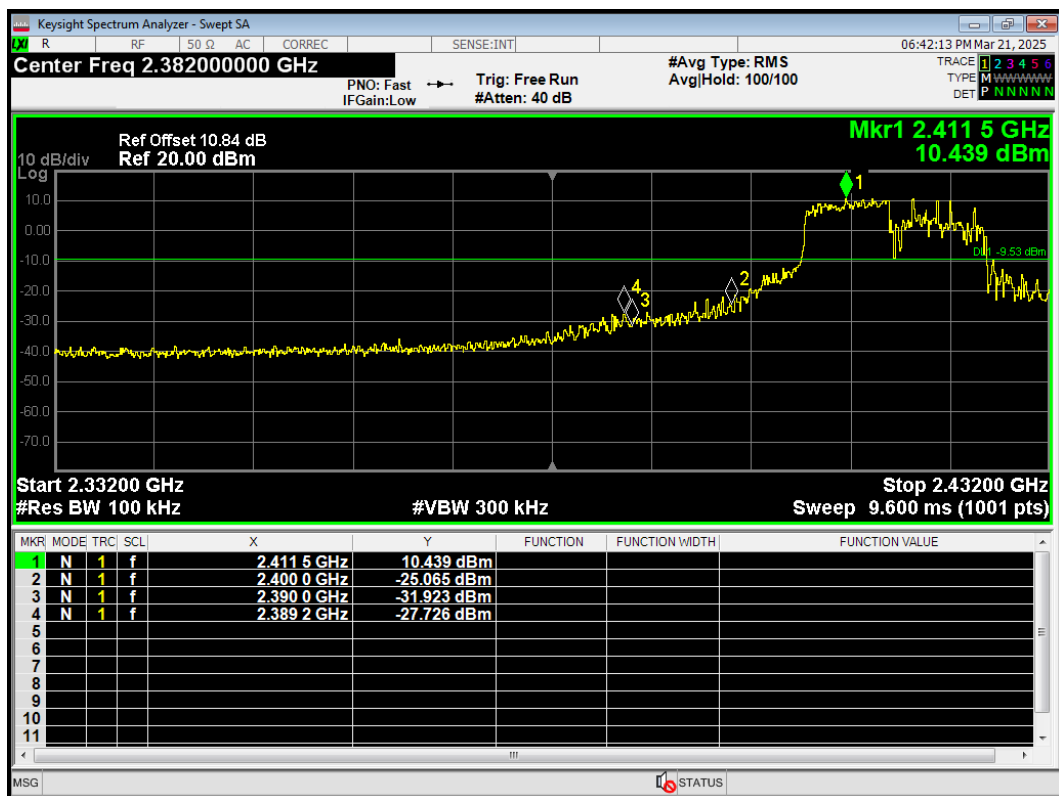
Band Edge 802.11ax(HE20) 106T 2412MHz Emission



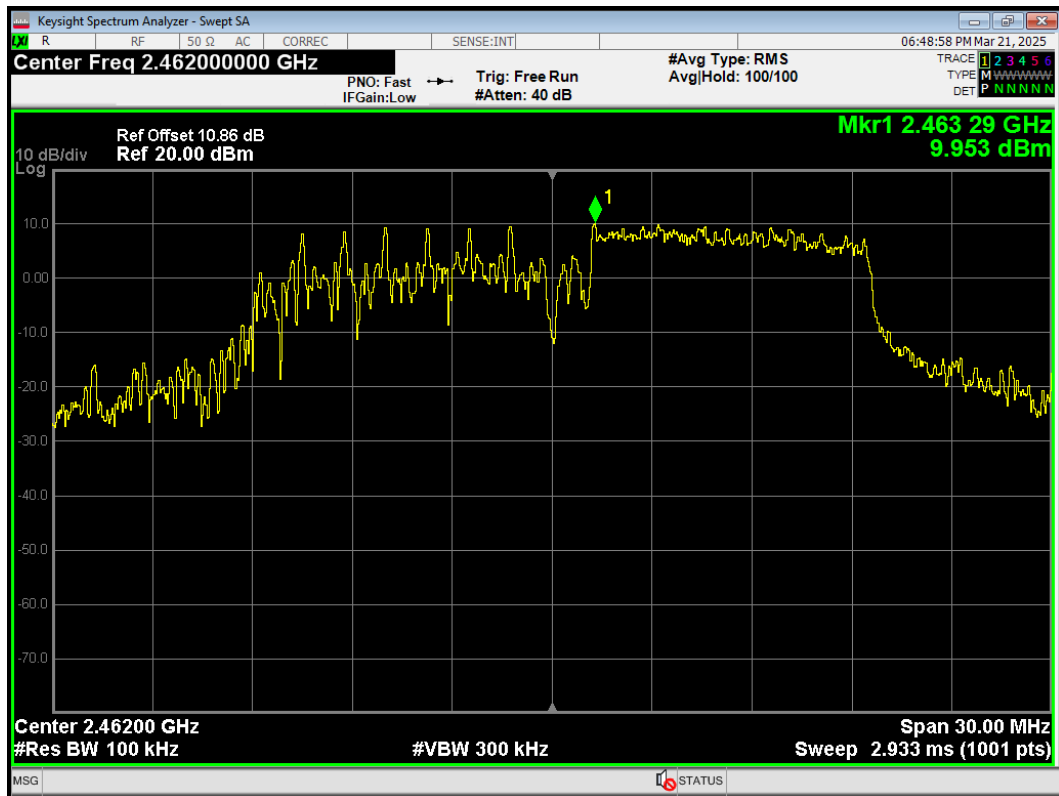
Band Edge 802.11ax(HE20) 106T 2417MHz Ref



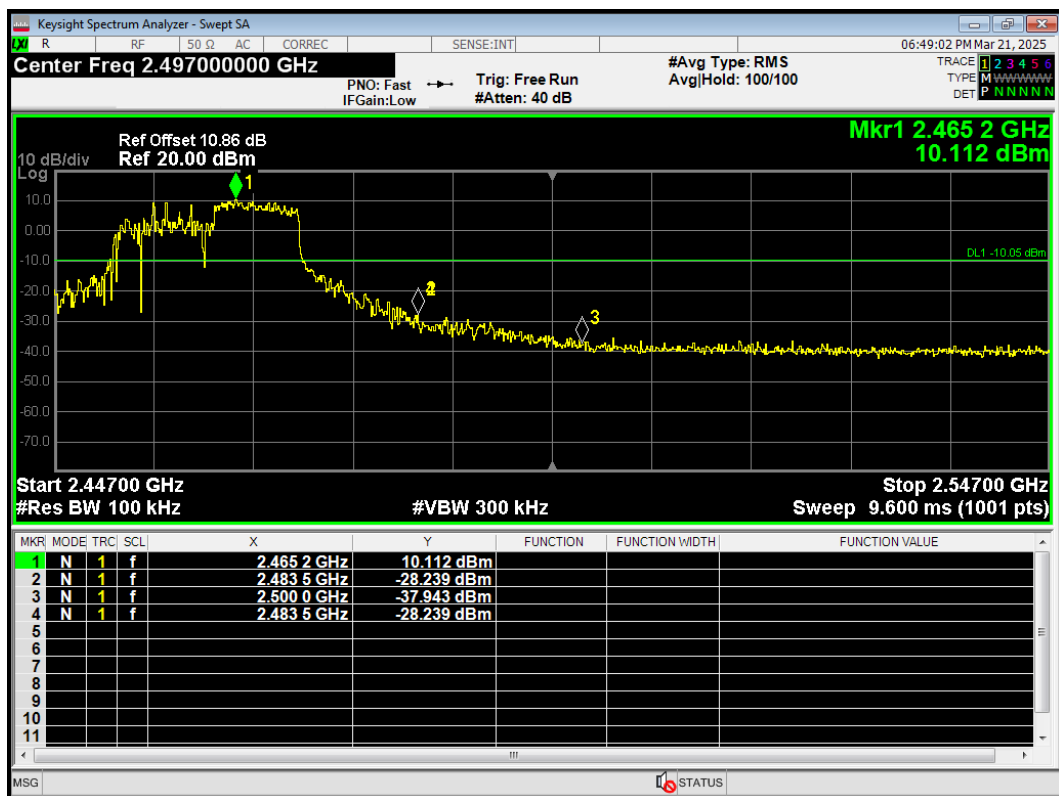
Band Edge 802.11ax(HE20) 106T 2417MHz Emission



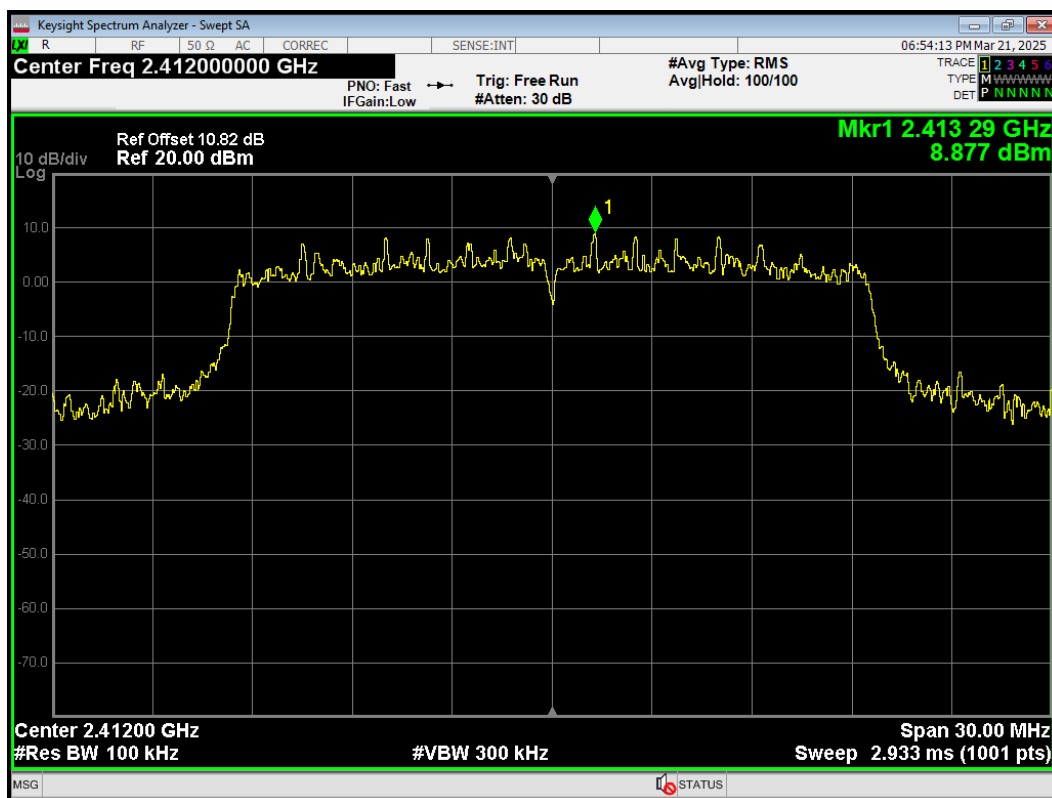
Band Edge 802.11ax(HE20) 106T 2462MHz Ref



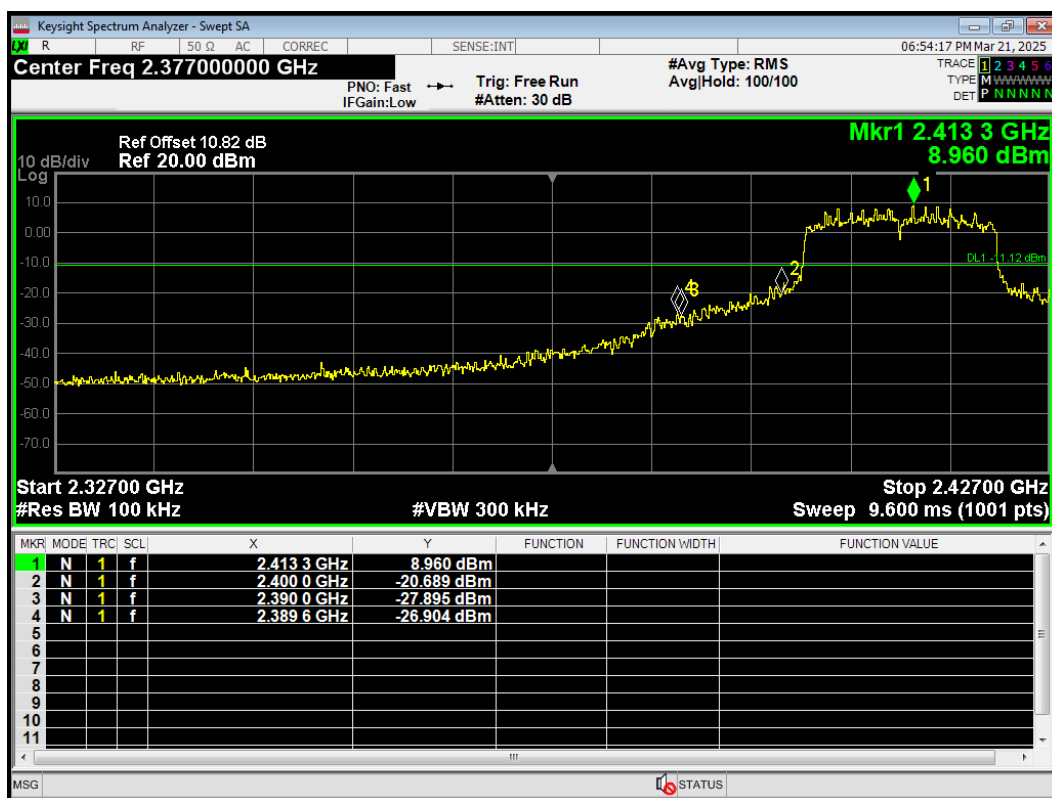
Band Edge 802.11ax(HE20) 106T 2462MHz Emission



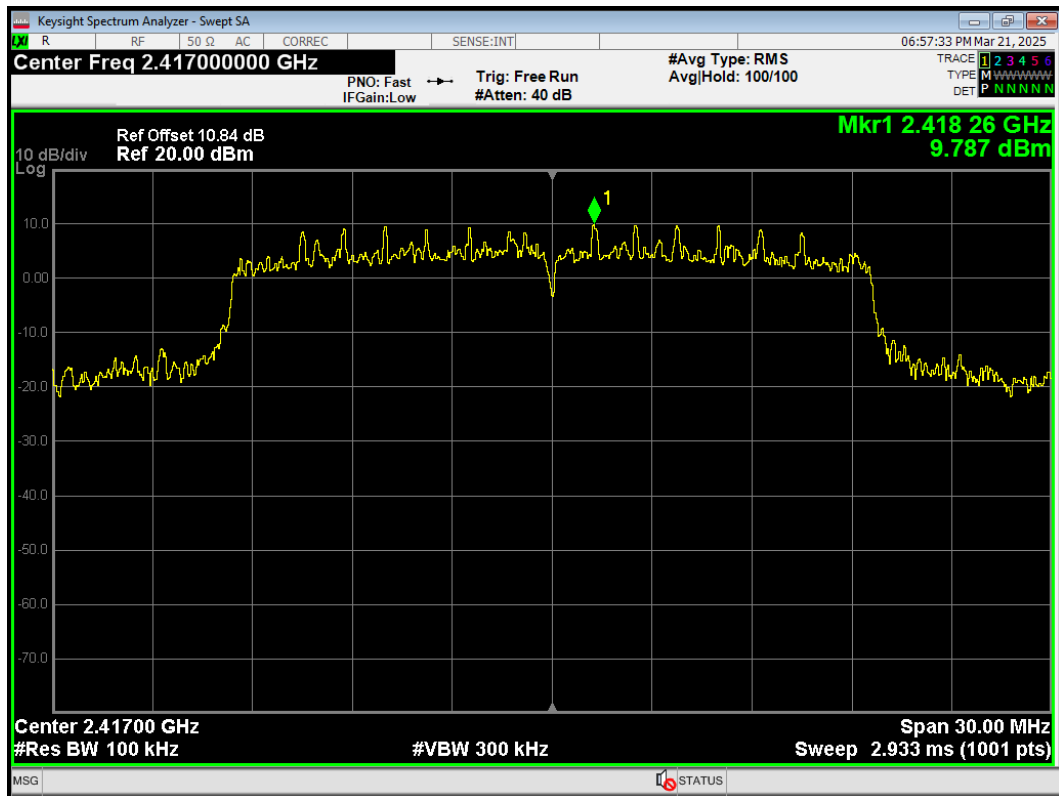
Band Edge 802.11ax(HE20) 242T 2412MHz Ref



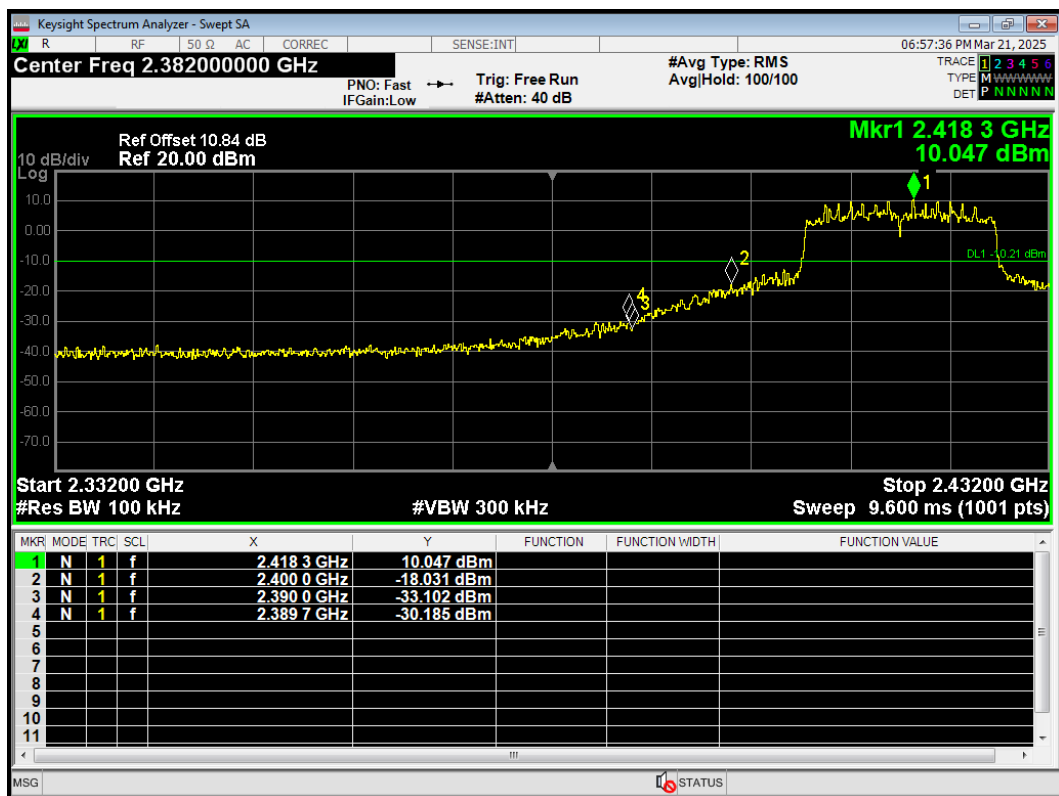
Band Edge 802.11ax(HE20) 242T 2412MHz Emission



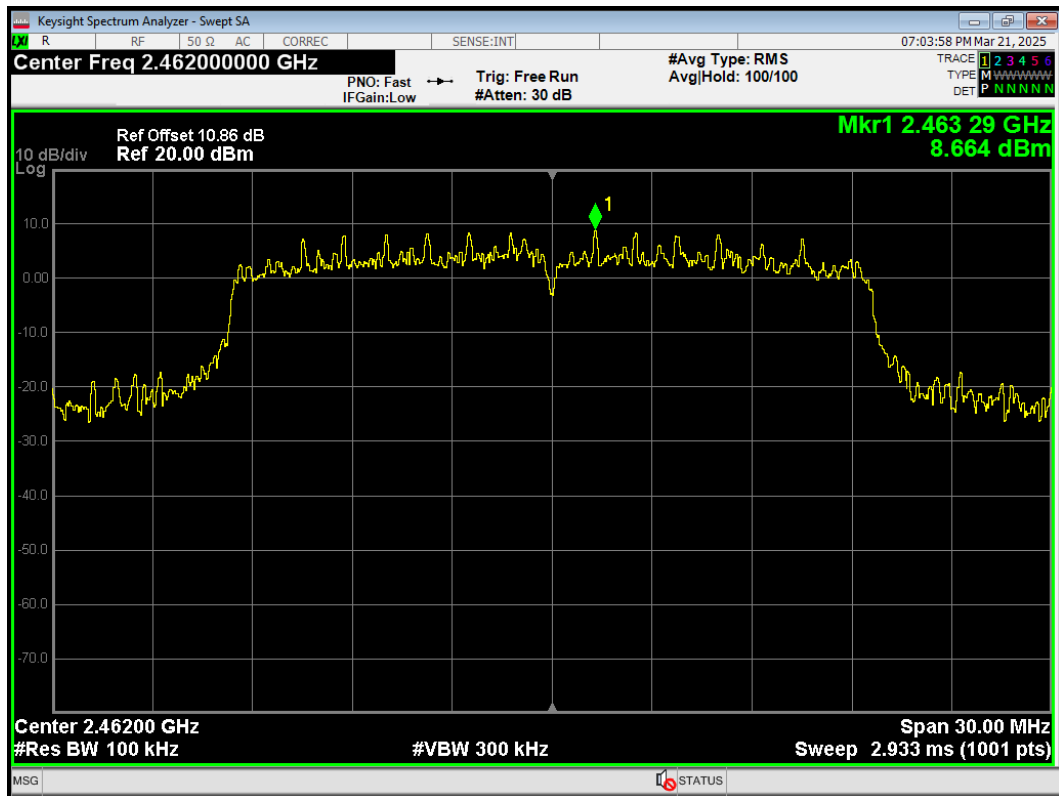
Band Edge 802.11ax(HE20) 242T 2417MHz Ref



Band Edge 802.11ax(HE20) 242T 2417MHz Emission



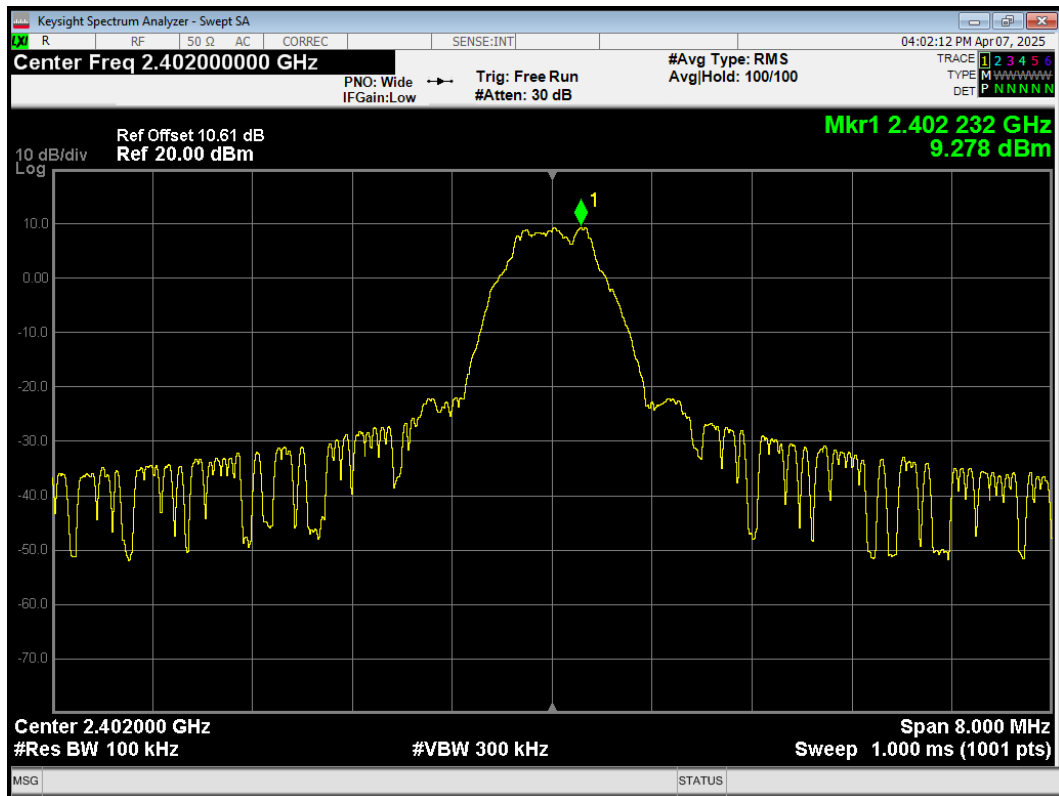
Band Edge 802.11ax(HE20) 242T 2462MHz Ref



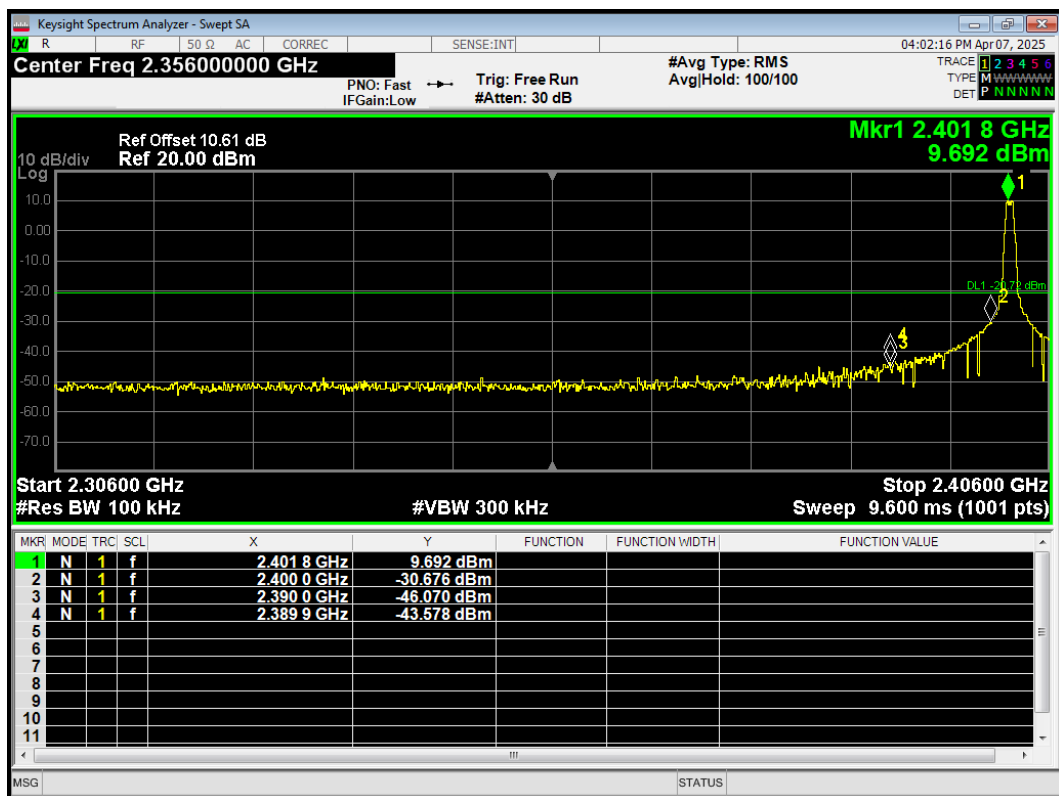
Band Edge 802.11ax(HE20) 242T 2462MHz Emission



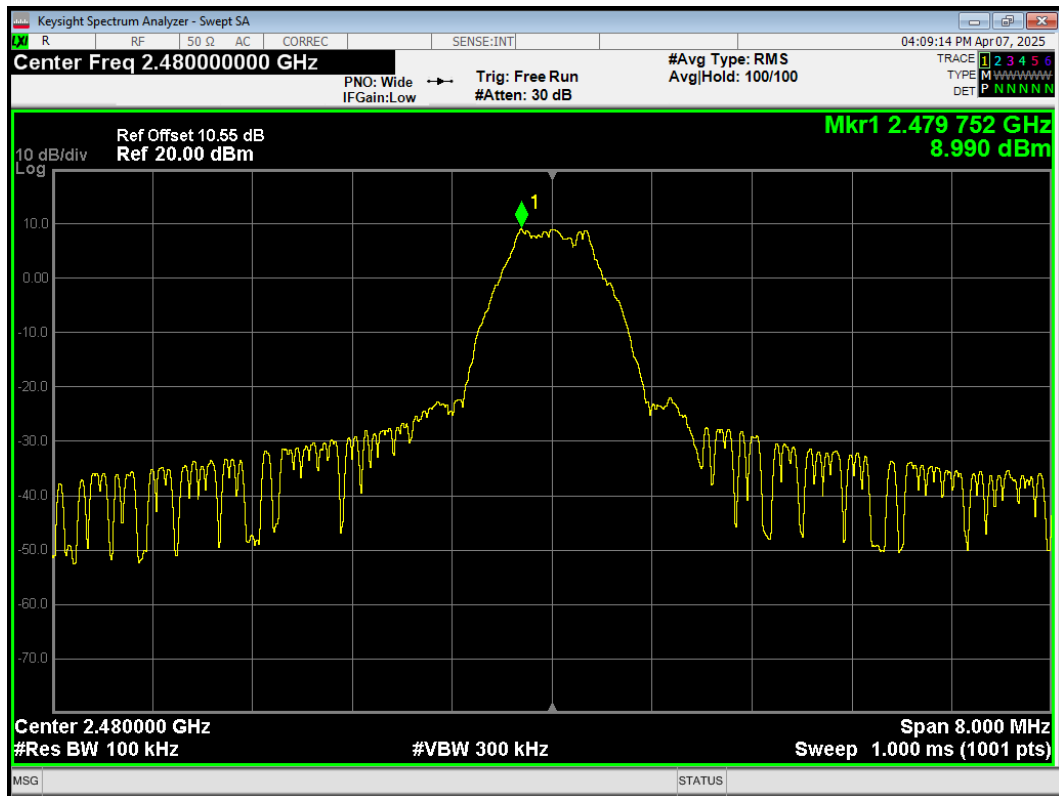
Band Edge Bluetooth LE (1M) 2402MHz Ref



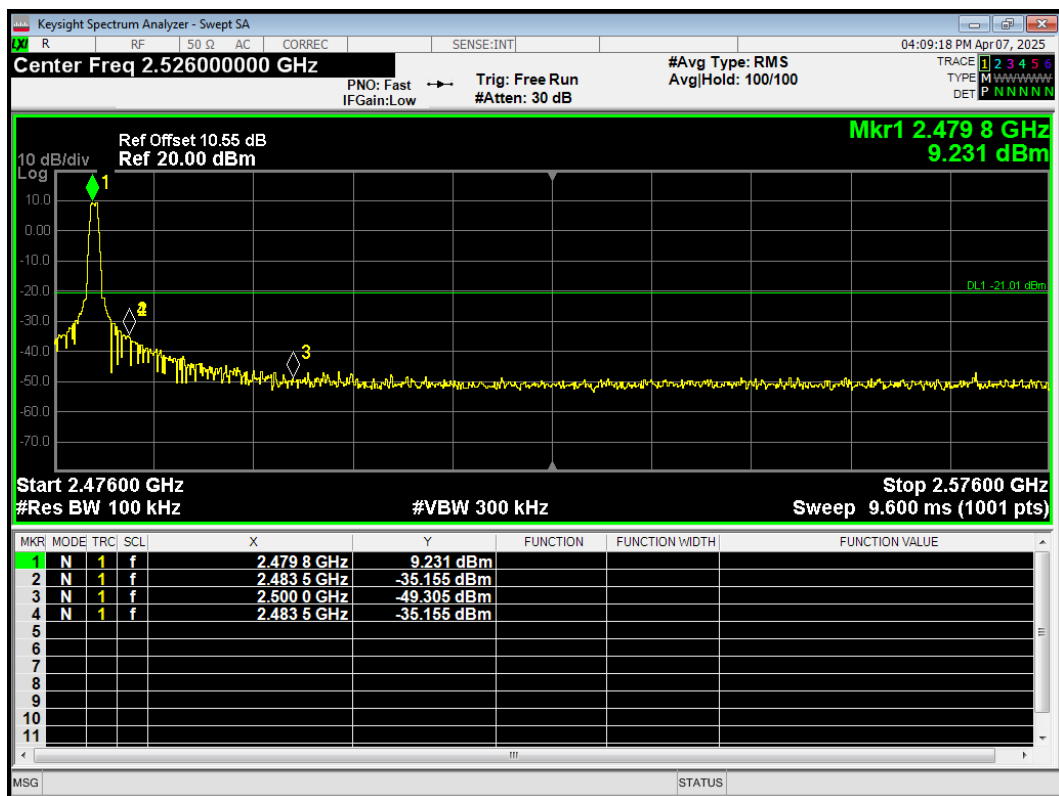
Band Edge Bluetooth LE (1M) 2402MHz Emission



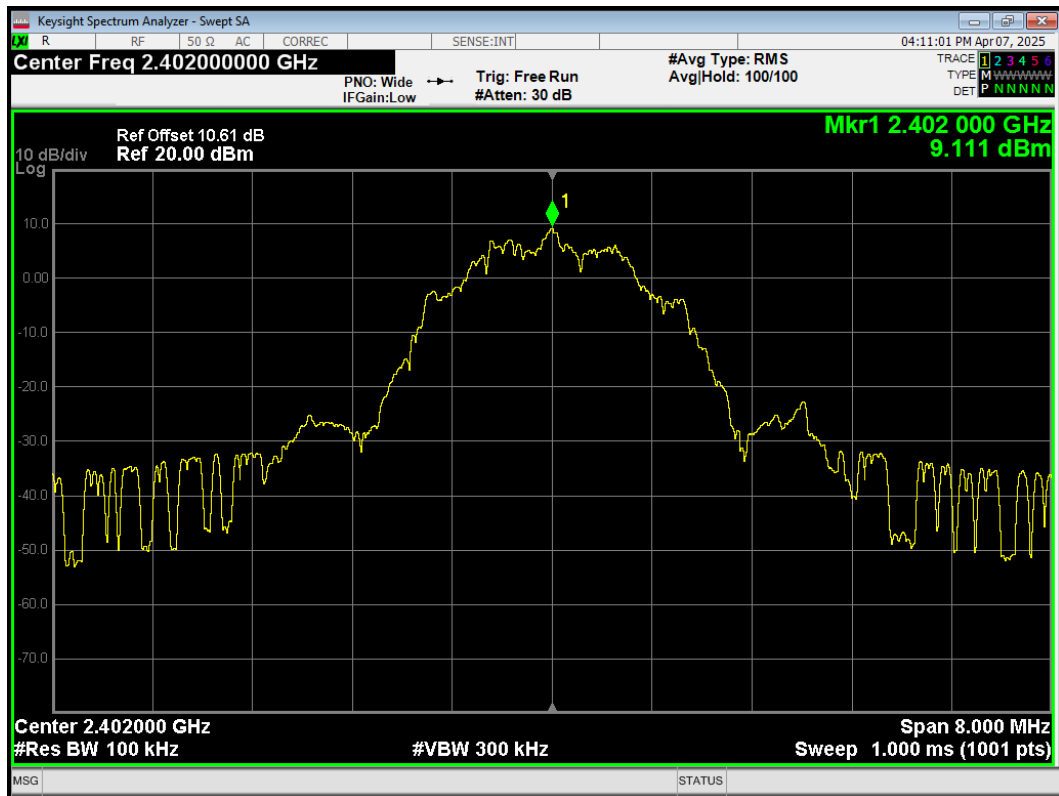
Band Edge Bluetooth LE (1M) 2480MHz Ref



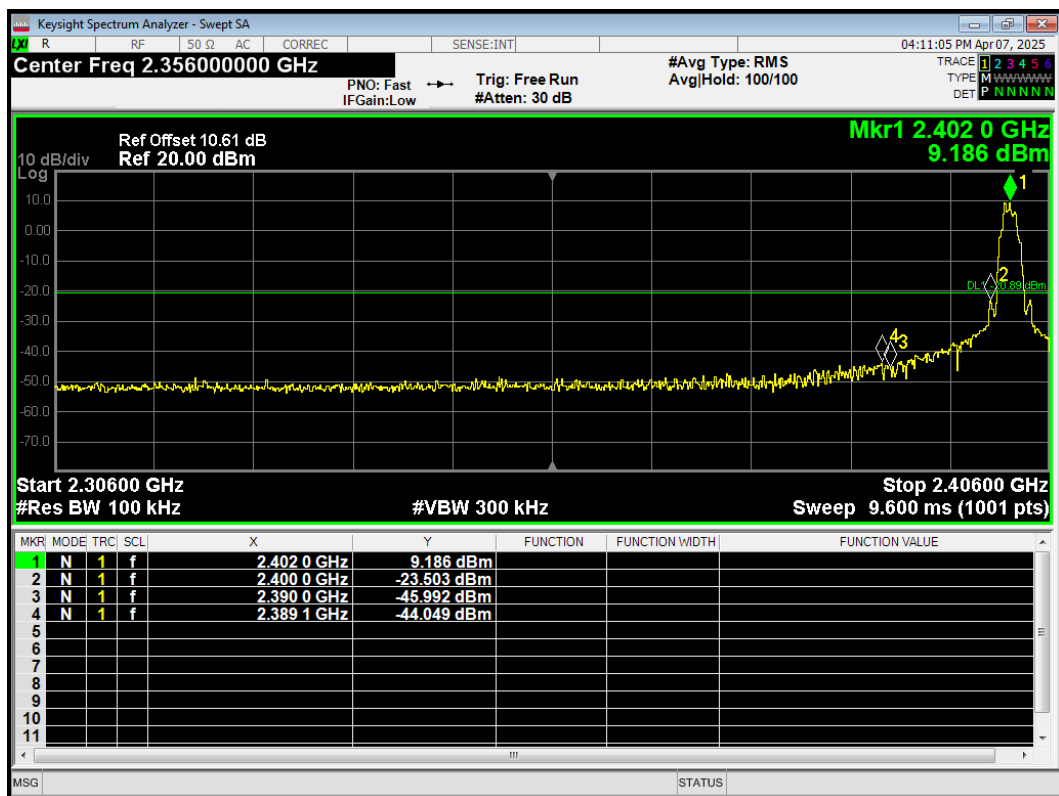
Band Edge Bluetooth LE (1M) 2480MHz Emission



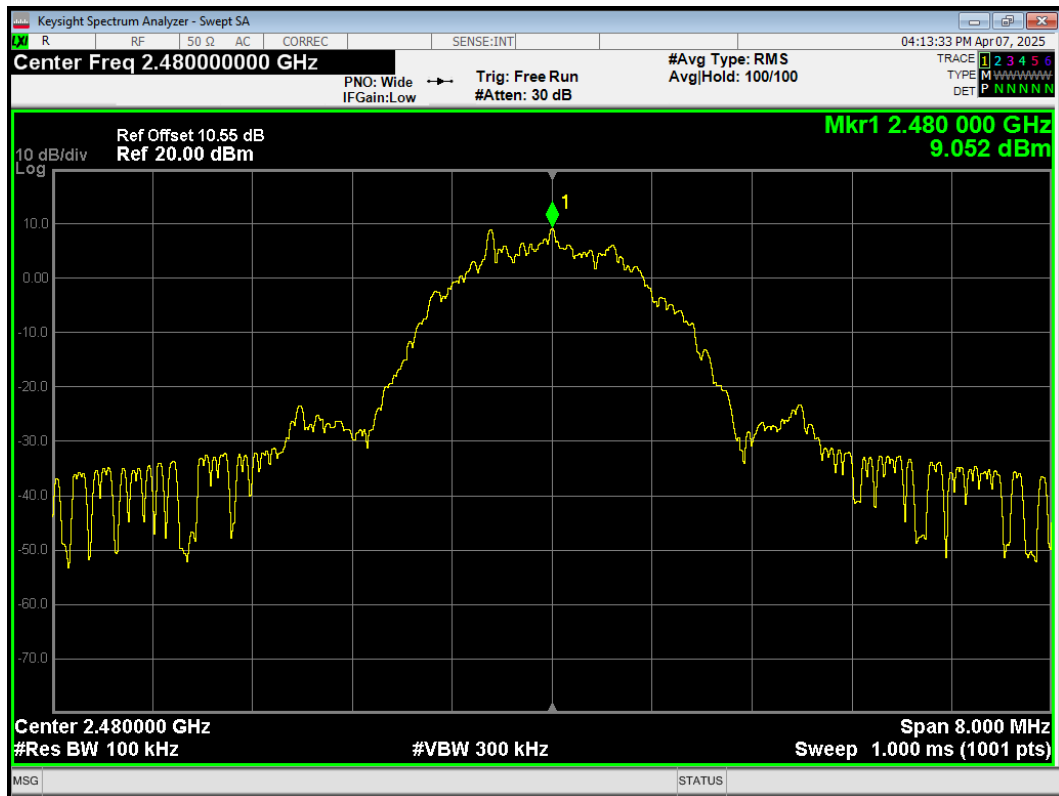
Band Edge Bluetooth LE (2M) 2402MHz Ref



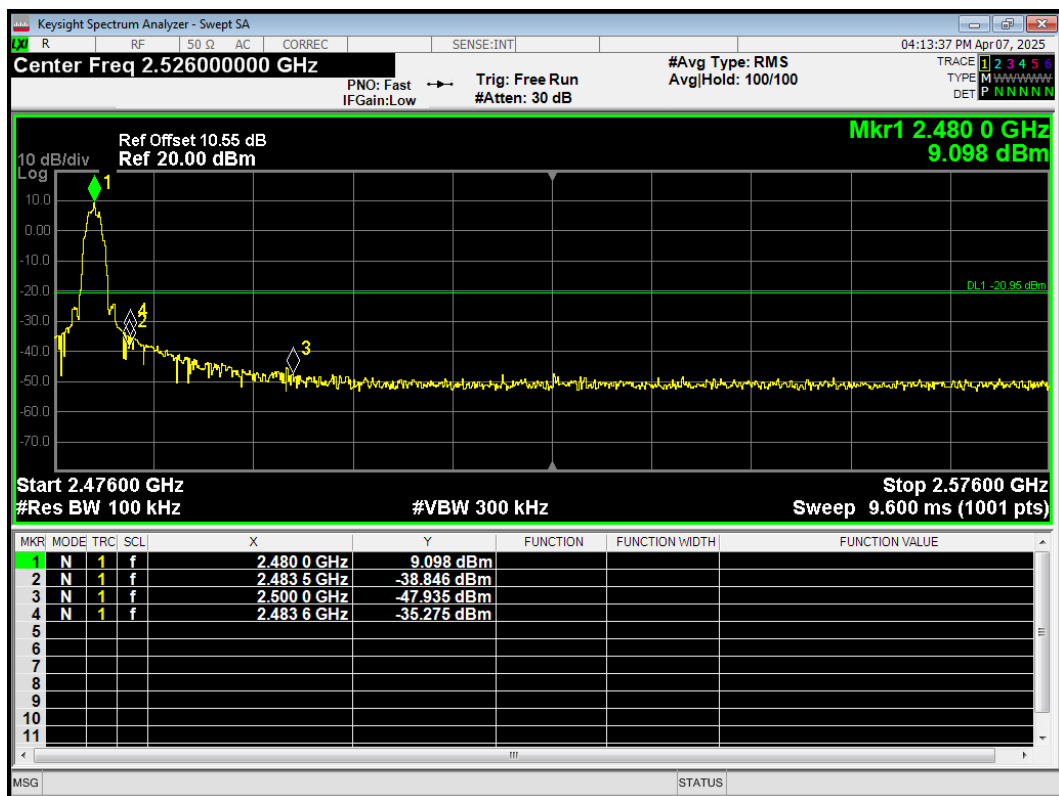
Band Edge Bluetooth LE (2M) 2402MHz Emission



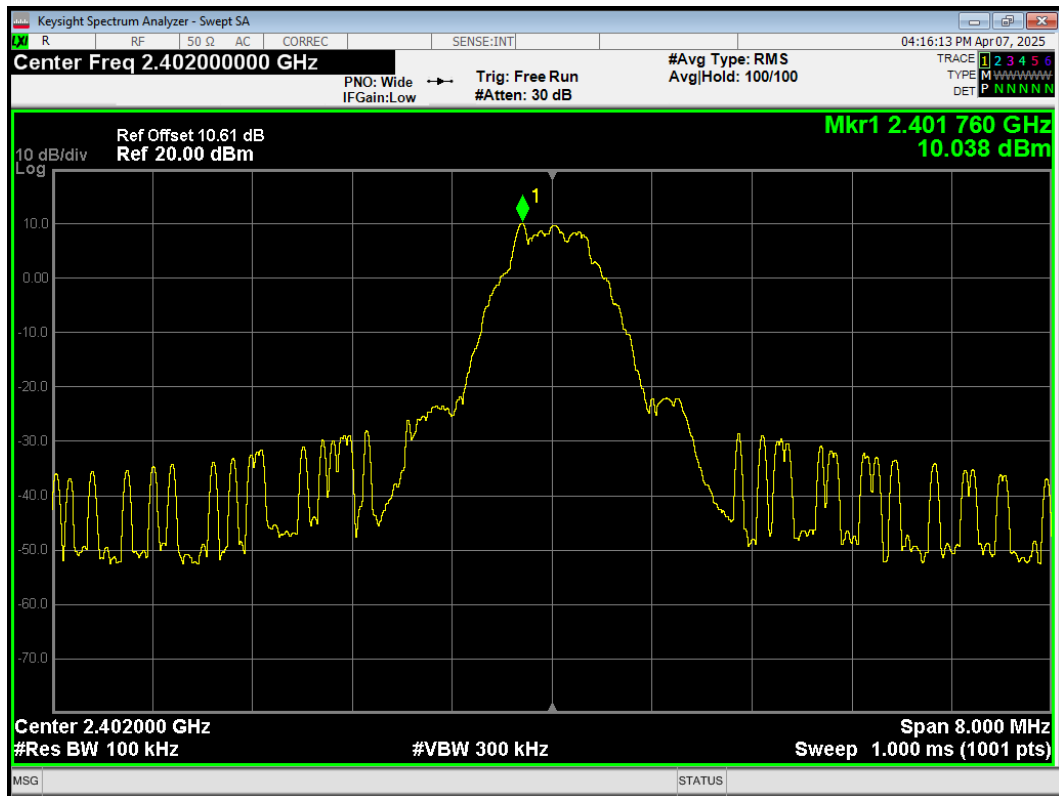
Band Edge Bluetooth LE (2M) 2480MHz Ref



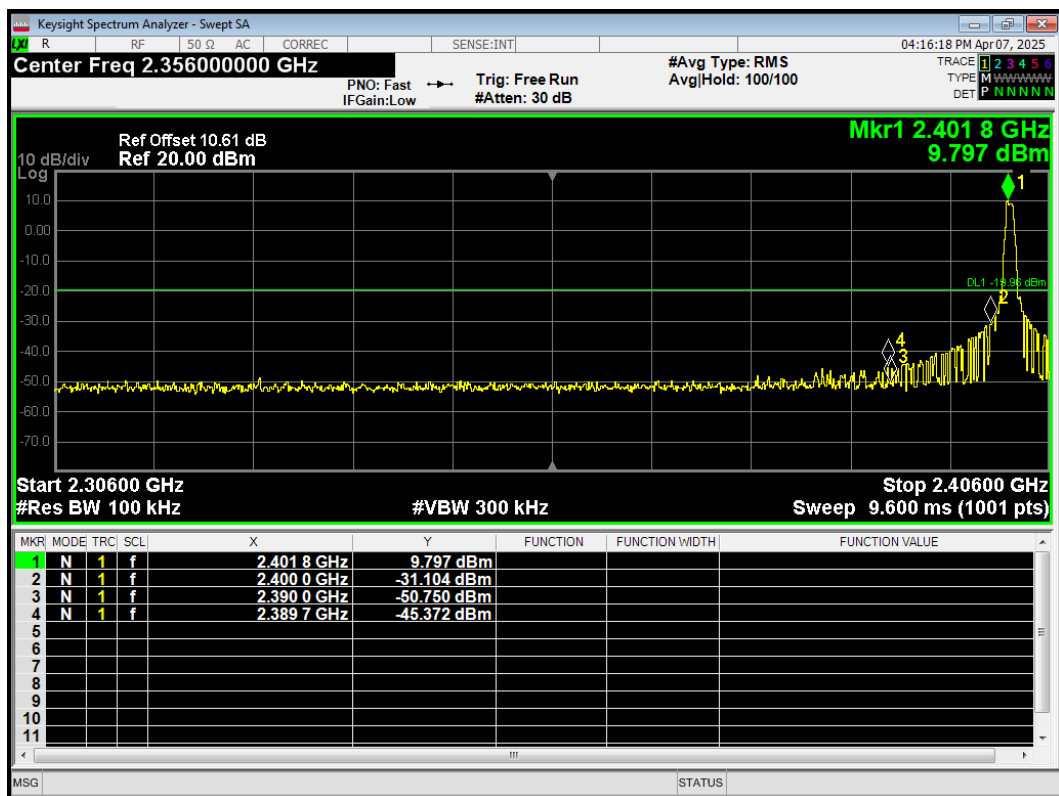
Band Edge Bluetooth LE (2M) 2480MHz Emission



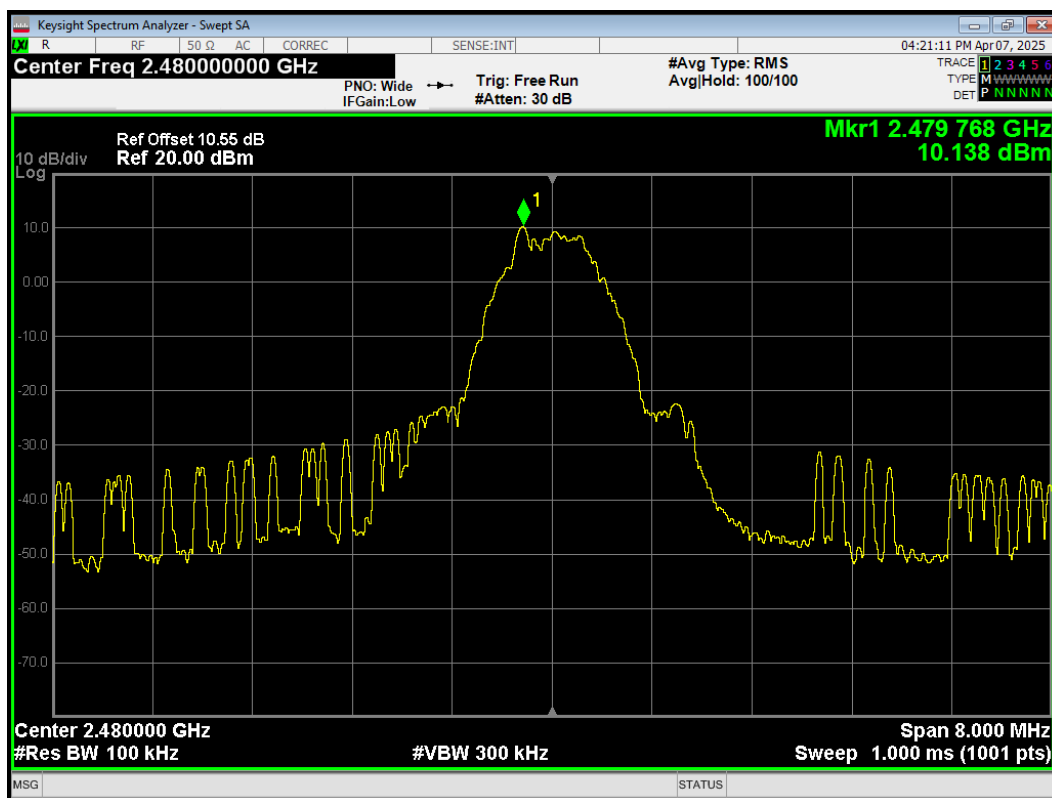
Band Edge Bluetooth LE (S=2) 2402MHz Ref



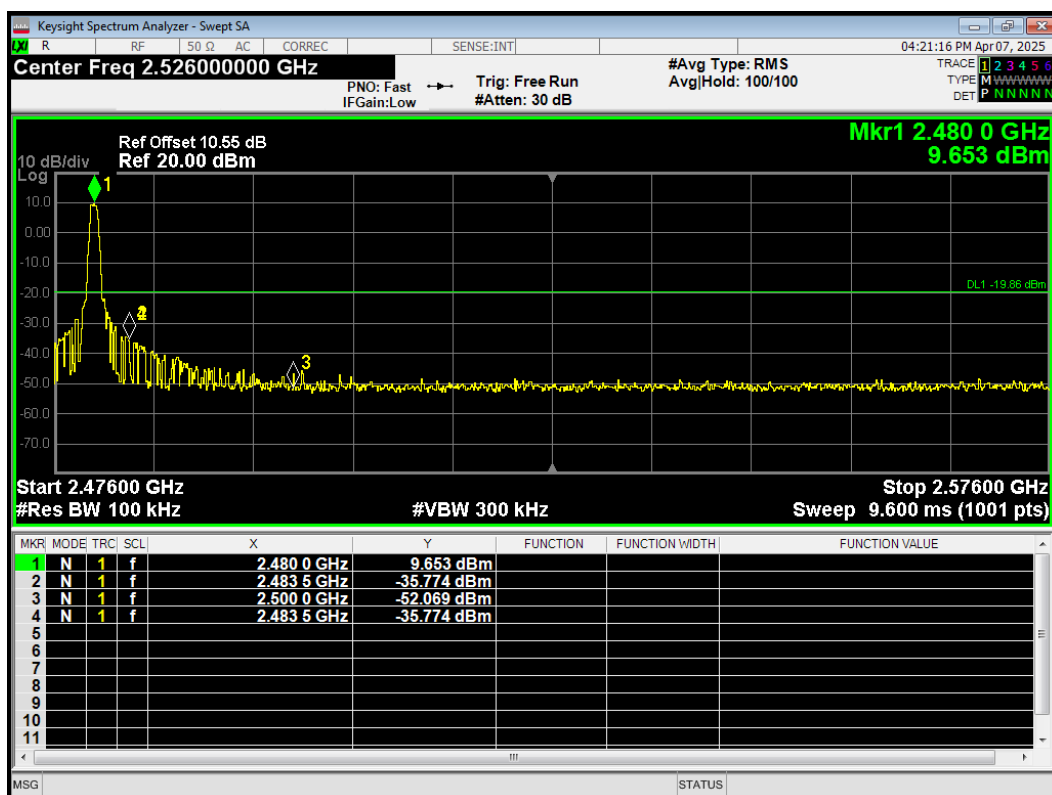
Band Edge Bluetooth LE (S=2) 2402MHz Emission



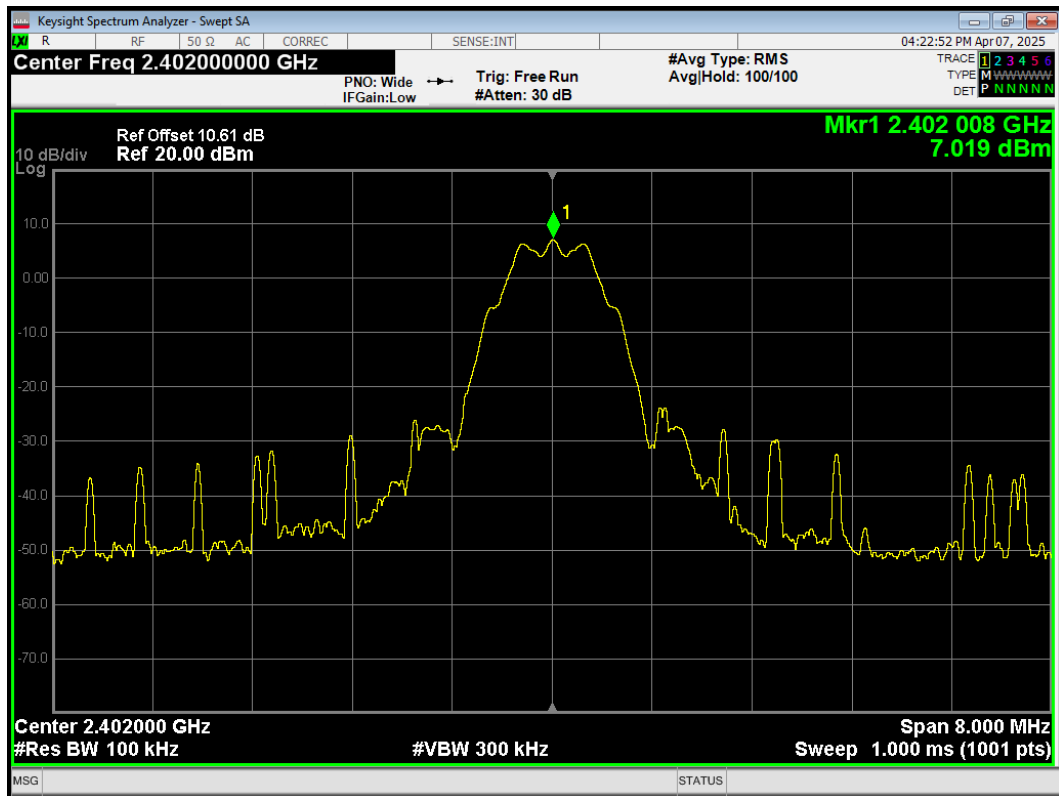
Band Edge Bluetooth LE (S=2) 2480MHz Ref



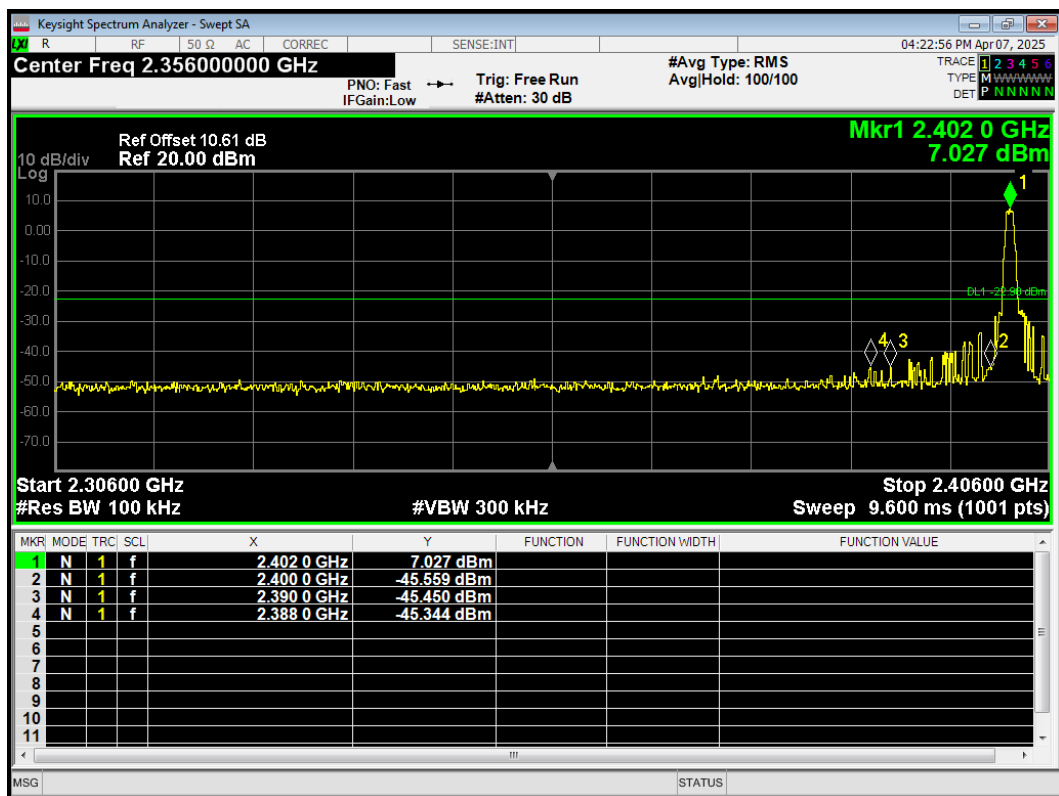
Band Edge Bluetooth LE (S=2) 2480MHz Emission



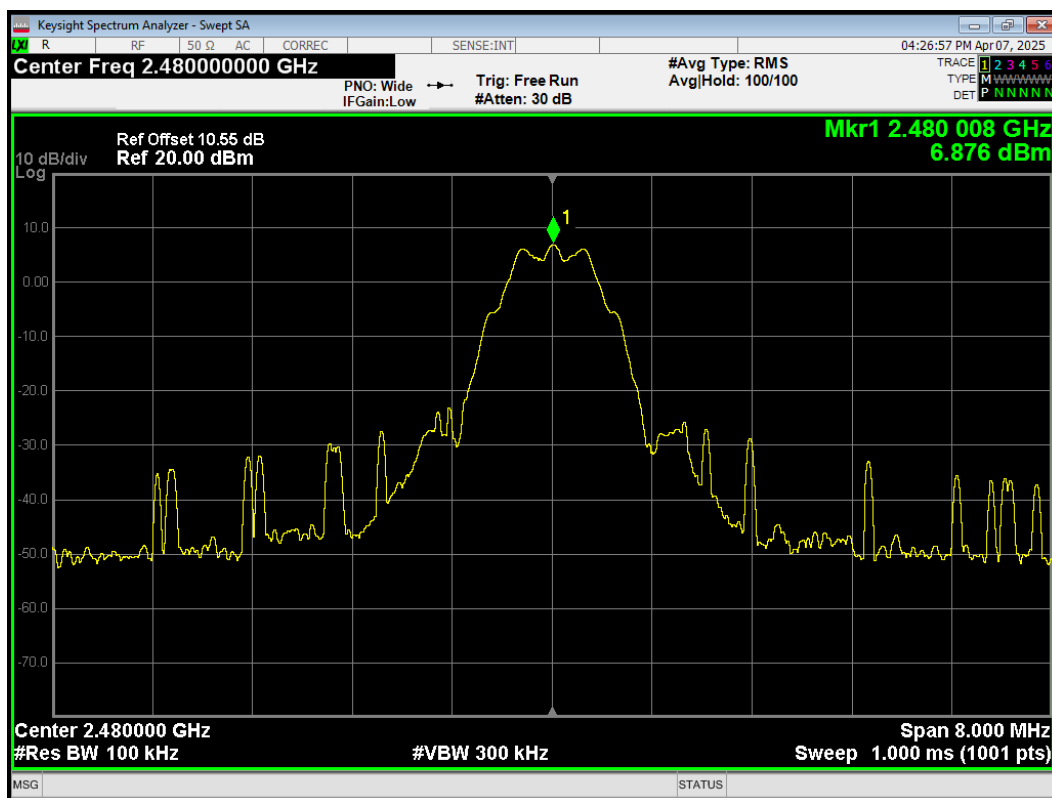
Band Edge Bluetooth LE (S=8) 2402MHz Ref



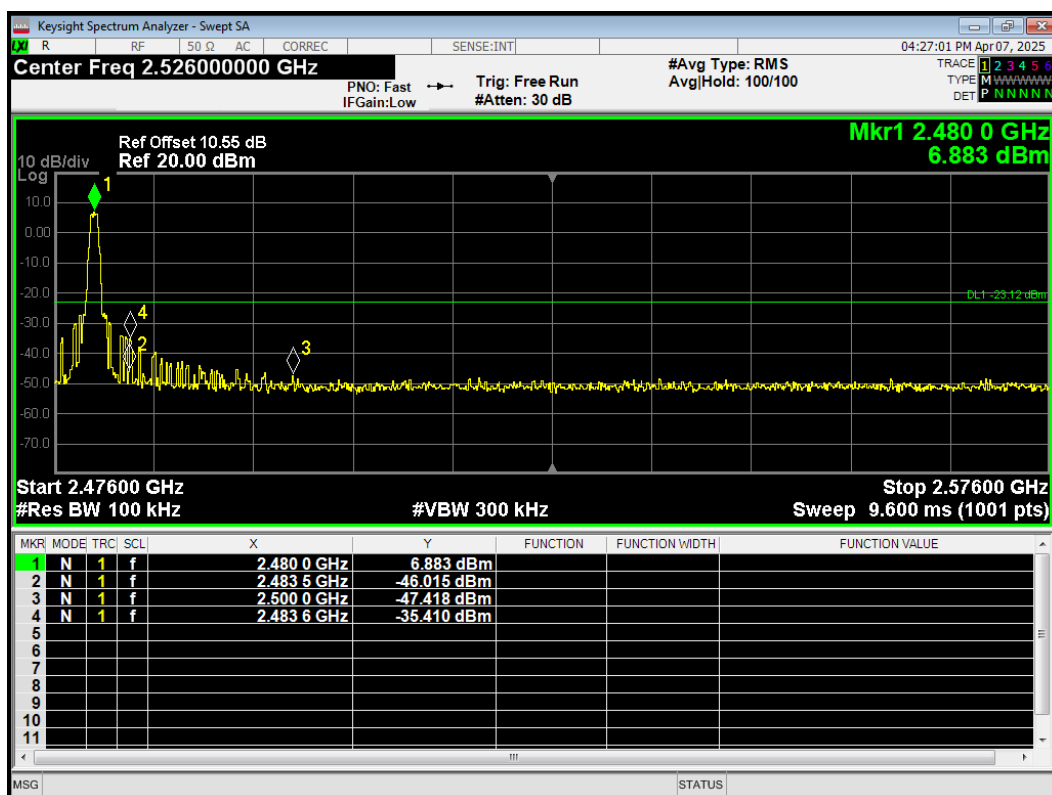
Band Edge Bluetooth LE (S=8) 2402MHz Emission



Band Edge Bluetooth LE (S=8) 2480MHz Ref



Band Edge Bluetooth LE (S=8) 2480MHz Emission



5.4. Power Spectral Density

Ambient Condition

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

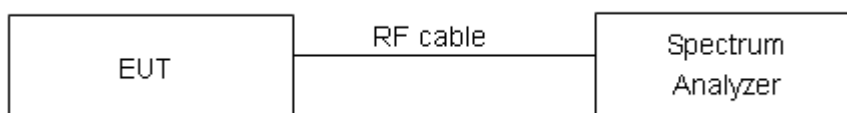
Method of Measurement

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss. The EUT is max power transmission with proper modulation.

Method AVGPSD-2 was used for this test.

- Measure the duty cycle (D) of the transmitter output signal as described in 11.6
- Set instrument center frequency to DTS channel center frequency
- Set span to at least 1.5 times the OBW
- Set RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{kHz}$
- Set VBW $\geq [3 \times \text{RBW}]$
- Detector = power averaging (rms) or sample detector (when rms not available)
- Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / \text{RBW}]$
- Sweep time = auto couple
- Do not use sweep triggering; allow sweep to "free run"
- Employ trace averaging (rms) mode over a minimum of 100 traces
- Use the peak marker function to determine the maximum amplitude level
- Add $[10 \log(1/D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time
- If measured value exceeds requirement specified by regulatory agency then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced)

Test setup



Limits

Rule Part 15.247(e) specifies that "For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission."

Limits	$\leq 8 \text{ dBm} / 3\text{kHz}$
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

Test Results:

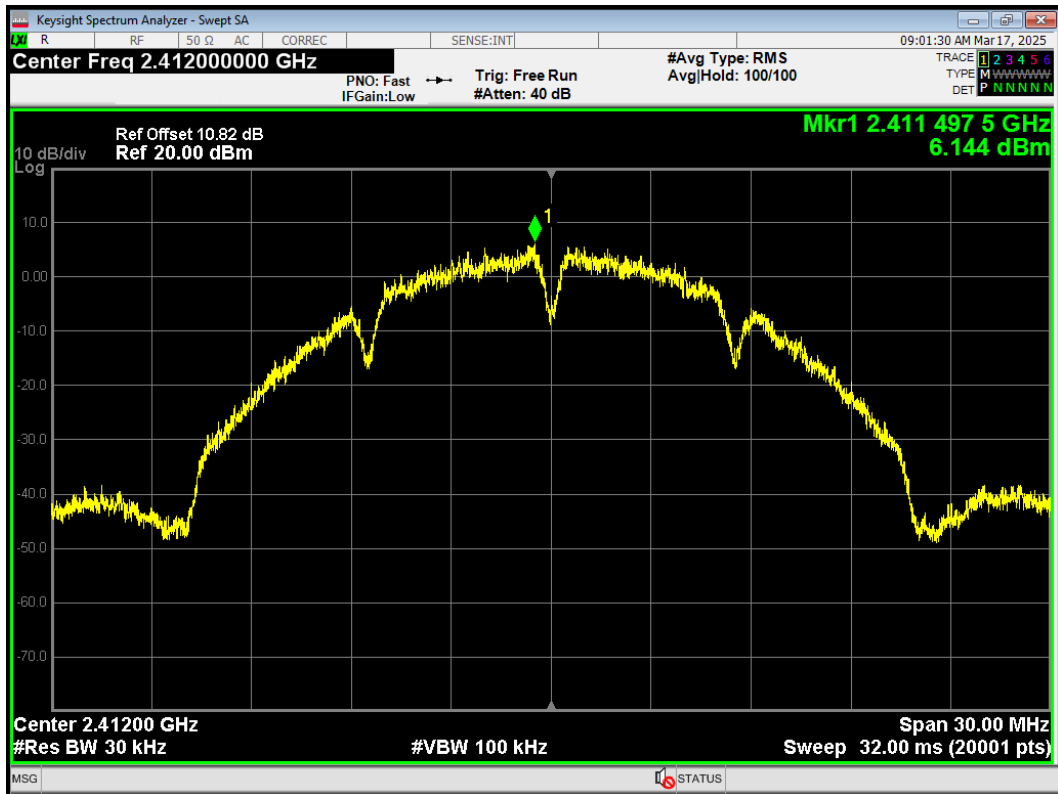
Test Mode	Carrier frequency (MHz) / Channel	Read Value (dBm / 30kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11b	2412/CH 1	6.14	-3.86	8	PASS
	2417/CH 2	7.36	-2.64	8	PASS
	2437/CH 6	7.84	-2.16	8	PASS
	2457/CH 10	7.84	-2.16	8	PASS
	2462/CH11	6.63	-3.37	8	PASS
802.11g	2412/CH 1	2.82	-7.18	8	PASS
	2417/CH 2	4.73	-5.27	8	PASS
	2437/CH 6	4.9	-5.10	8	PASS
	2457/CH 10	4.67	-5.33	8	PASS
	2462/CH11	2.68	-7.32	8	PASS
802.11n HT20	2412/CH 1	2.83	-7.17	8	PASS
	2417/CH 2	5.76	-4.24	8	PASS
	2437/CH 6	5.41	-4.59	8	PASS
	2457/CH 10	5.76	-4.24	8	PASS
	2462/CH11	2.63	-7.37	8	PASS
802.11ax HE20	2412/CH 1	1.45	-8.55	8	PASS
	2417/CH 2	4.98	-5.02	8	PASS
	2437/CH 6	4.86	-5.14	8	PASS
	2457/CH 10	4.47	-5.53	8	PASS
	2462/CH11	1.35	-8.65	8	PASS
Note: Power Spectral Density (dBm/3kHz) =Read Value + 10*log10(3/30)					

RU Mode

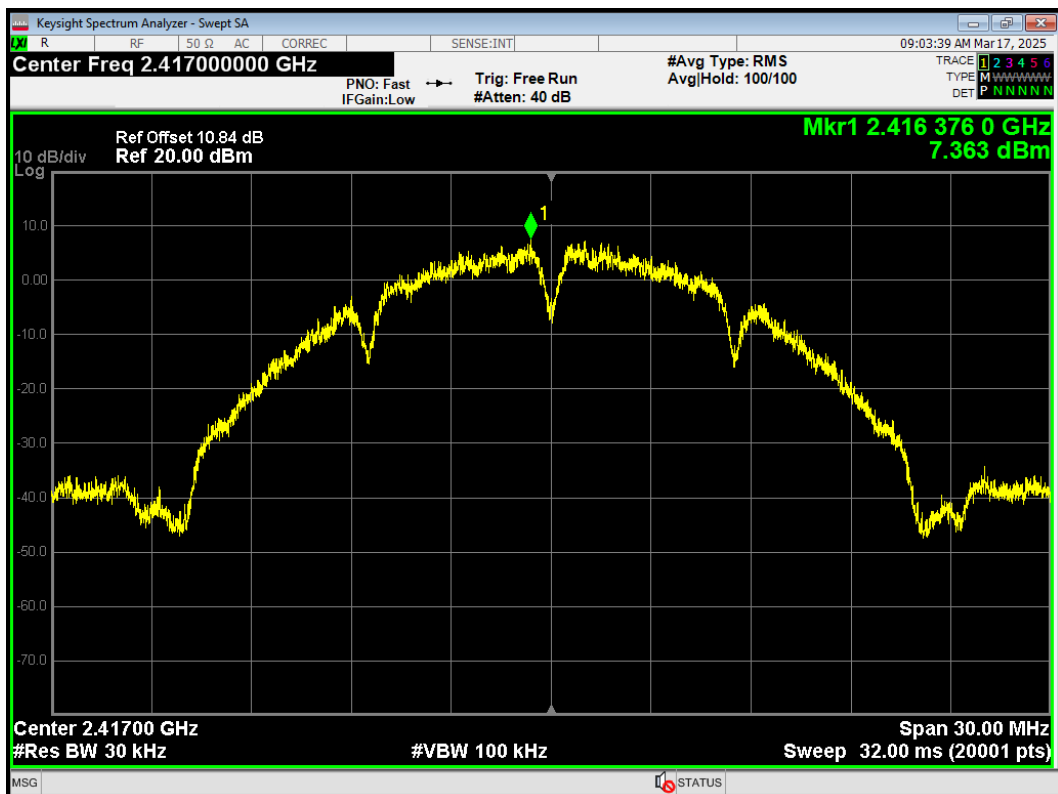
Test Mode	Carrier frequency (MHz) / Channel	Read Value (dBm / 30kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11ax HE20 26Tone	2412/CH 1	4.20	-5.80	8	PASS
	2417/CH 2	8.80	-1.20	8	PASS
	2437/CH 6	10.5	0.50	8	PASS
	2457/CH 10	9.04	-0.96	8	PASS
	2462/CH11	7.22	-2.78	8	PASS
802.11ax HE20 52Tone	2412/CH 1	4.99	-5.01	8	PASS
	2417/CH 2	7.17	-2.83	8	PASS
	2437/CH 6	7.96	-3.56	8	PASS
	2462/CH11	6.44	-3.56	8	PASS
802.11ax HE20 106Tone	2412/CH 1	4.35	-5.65	8	PASS
	2417/CH 2	5.52	-4.48	8	PASS
	2437/CH 6	5.55	-4.45	8	PASS
	2462/CH11	5.33	-4.67	8	PASS
802.11ax HE20 242Tone	2412/CH 1	4.23	-5.77	8	PASS
	2417/CH 2	5.46	-4.54	8	PASS
	2437/CH 6	5.27	-4.73	8	PASS
	2462/CH11	4.37	-5.63	8	PASS
Note: Power Spectral Density (dBm/3kHz) =Read Value + 10*log10(3/30)					

Test Mode	Carrier frequency (MHz) / Channel	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
Bluetooth (Low Energy) (1M)	2402/CH0	-9.75	-7.83	8	PASS
	2440/CH19	-10.04	-8.12	8	PASS
	2480/CH39	-9.83	-7.91	8	PASS
Bluetooth (Low Energy) (2M)	2402/CH0	-13.76	-9.02	8	PASS
	2440/CH19	-13.53	-8.79	8	PASS
	2480/CH39	-13.25	-8.51	8	PASS
Bluetooth (Low Energy) (S=2)	2402/CH0	-0.36	-2.80	8	PASS
	2440/CH19	-1.79	-4.23	8	PASS
	2480/CH39	-2.25	-4.69	8	PASS
Bluetooth (Low Energy) (S=8)	2402/CH0	1.48	2.30	8	PASS
	2440/CH19	1.48	2.30	8	PASS
	2480/CH39	1.42	2.24	8	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

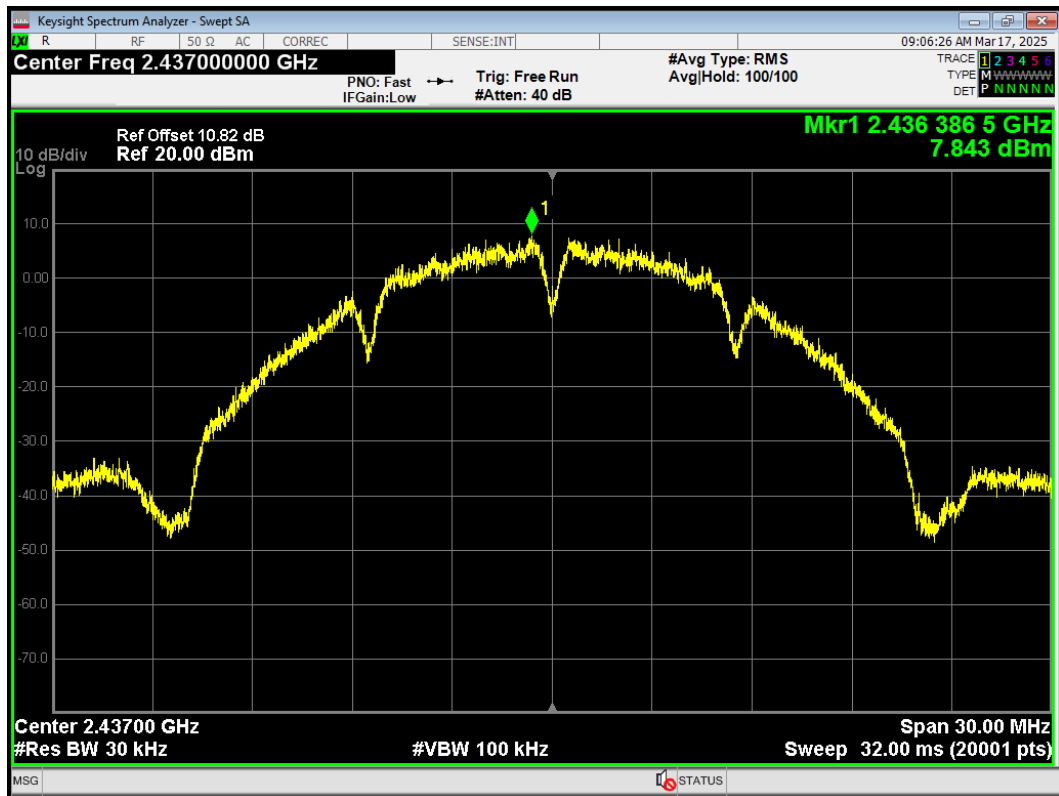
PSD 802.11b 2412MHz



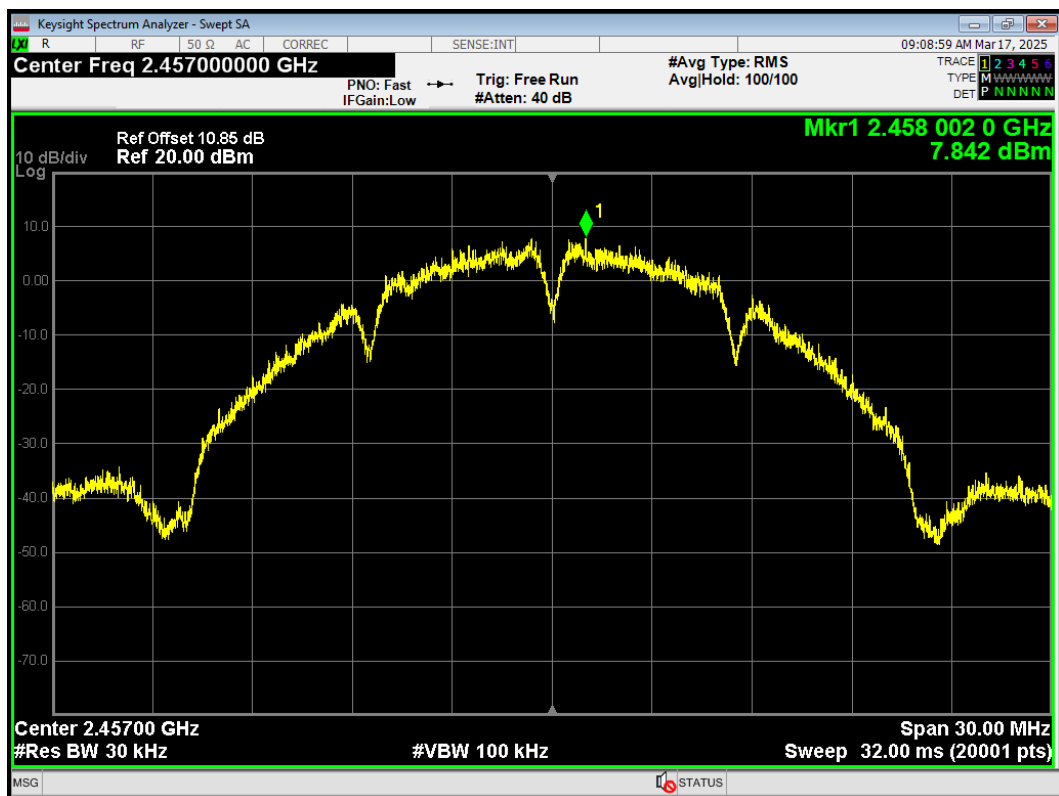
PSD 802.11b 2417MHz



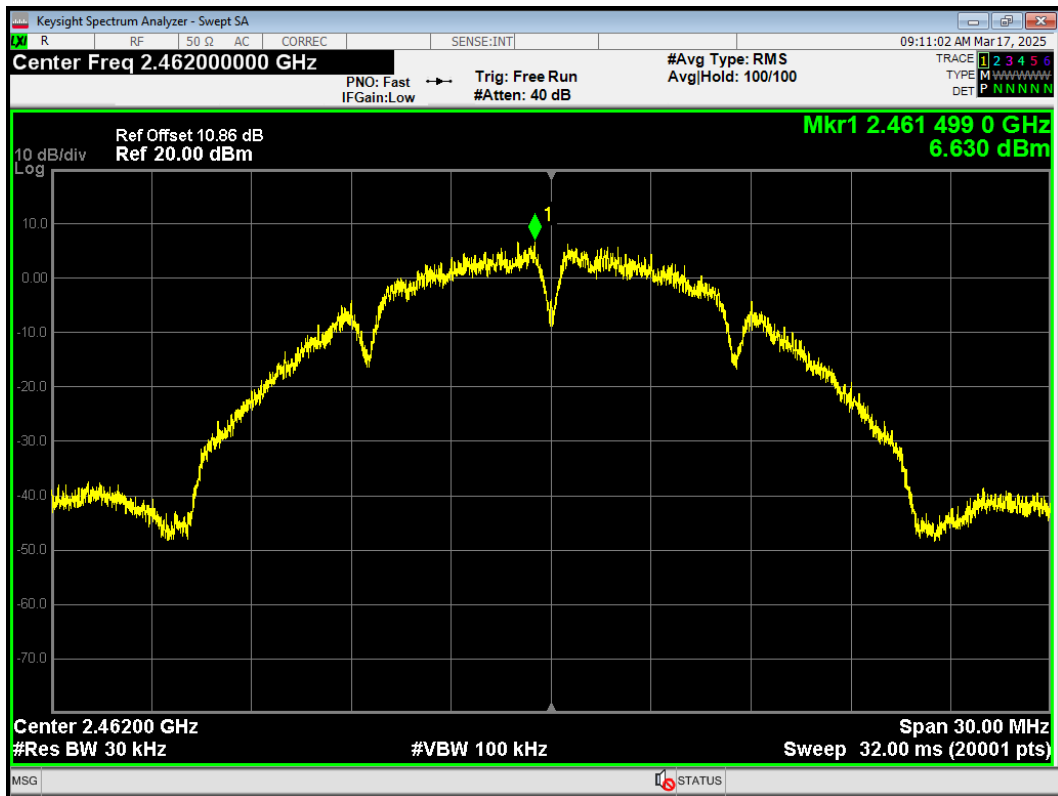
PSD 802.11b 2437MHz



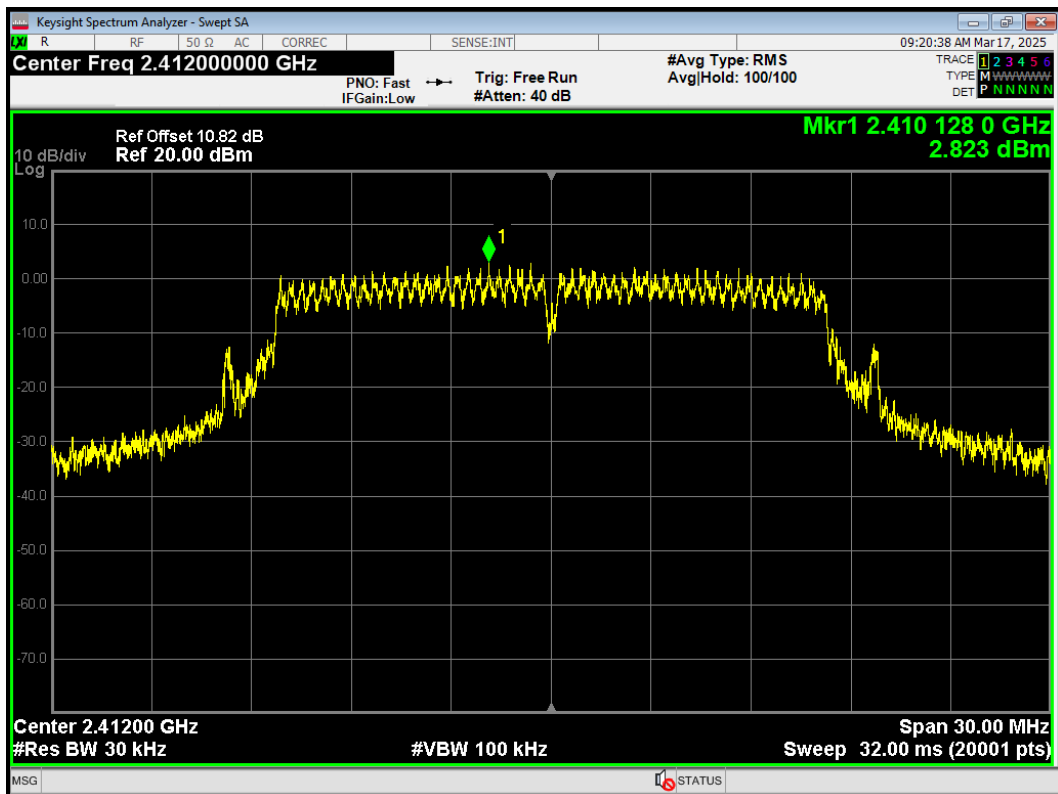
PSD 802.11b 2457MHz



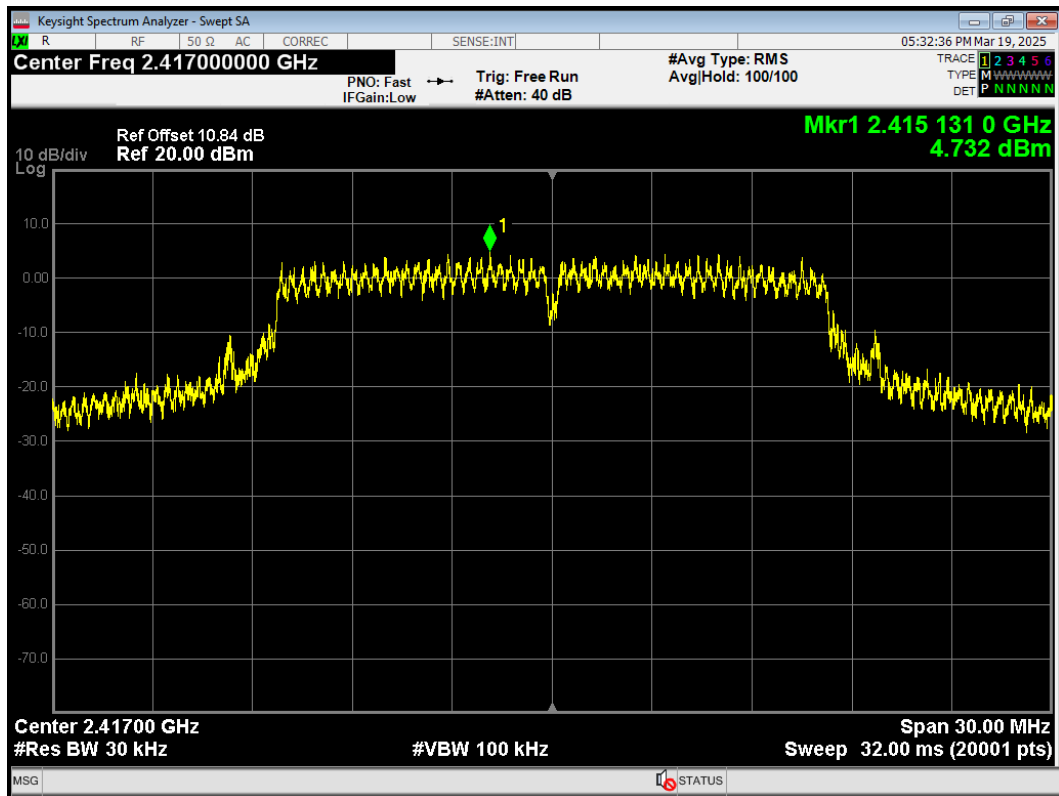
PSD 802.11b 2462MHz



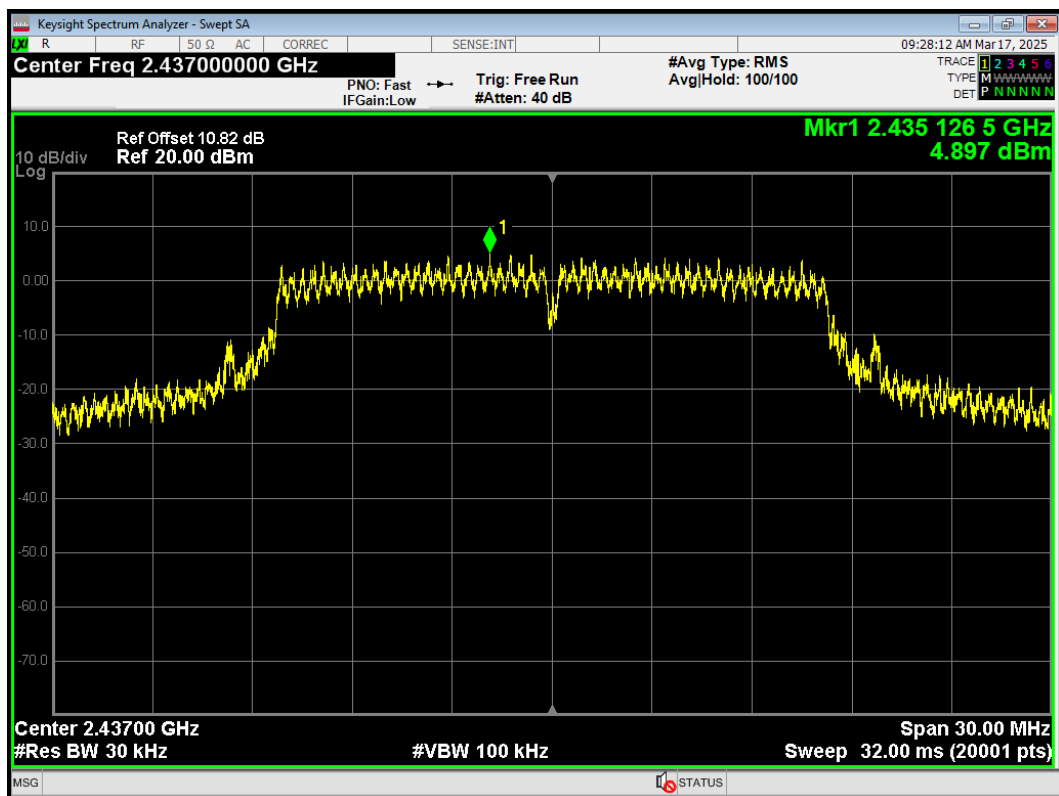
PSD 802.11g 2412MHz



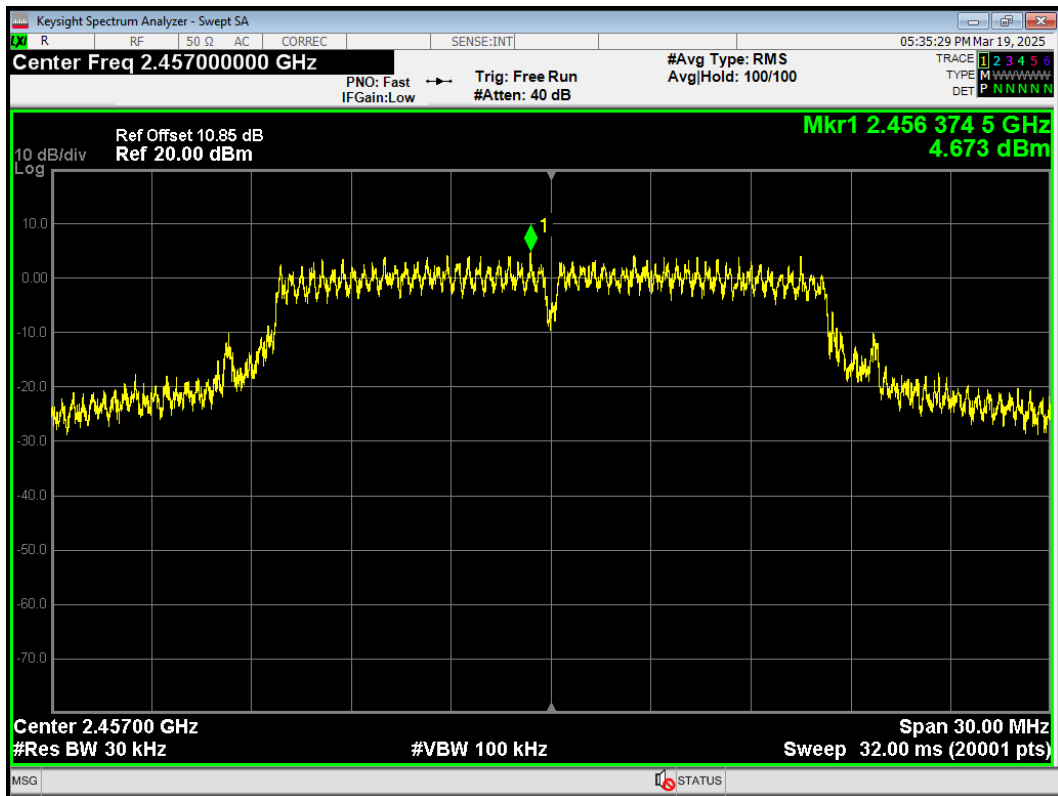
PSD 802.11g 2417MHz



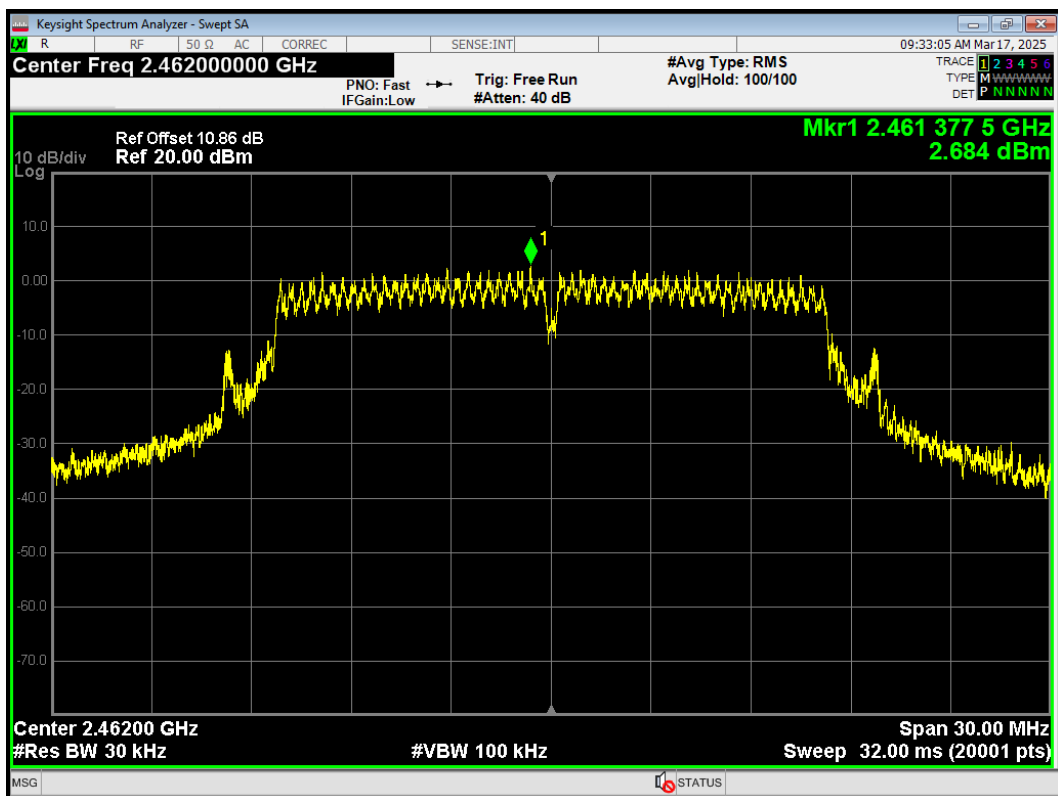
PSD 802.11g 2437MHz



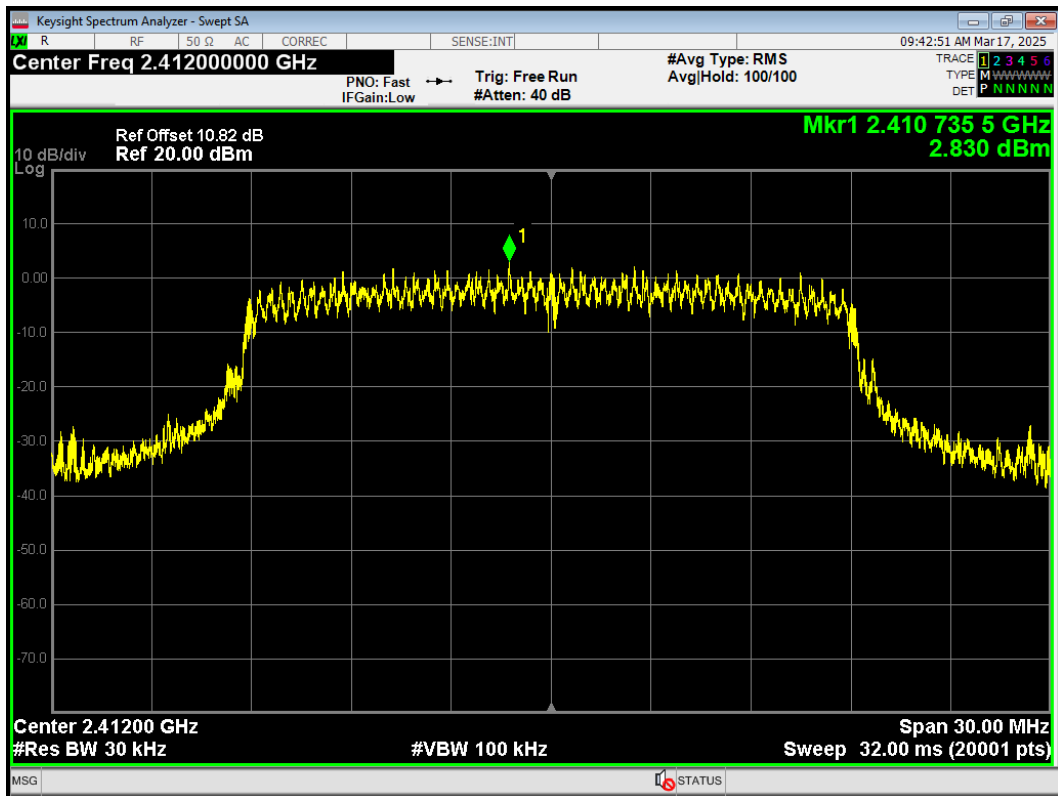
PSD 802.11g 2457MHz



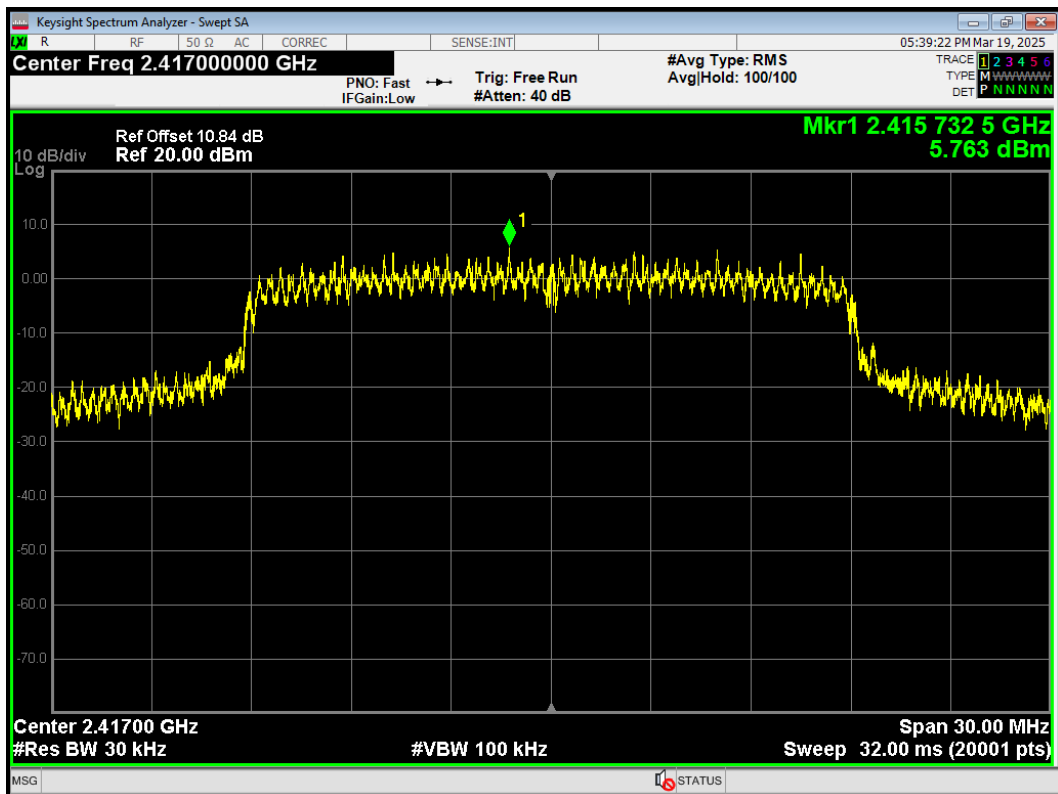
PSD 802.11g 2462MHz



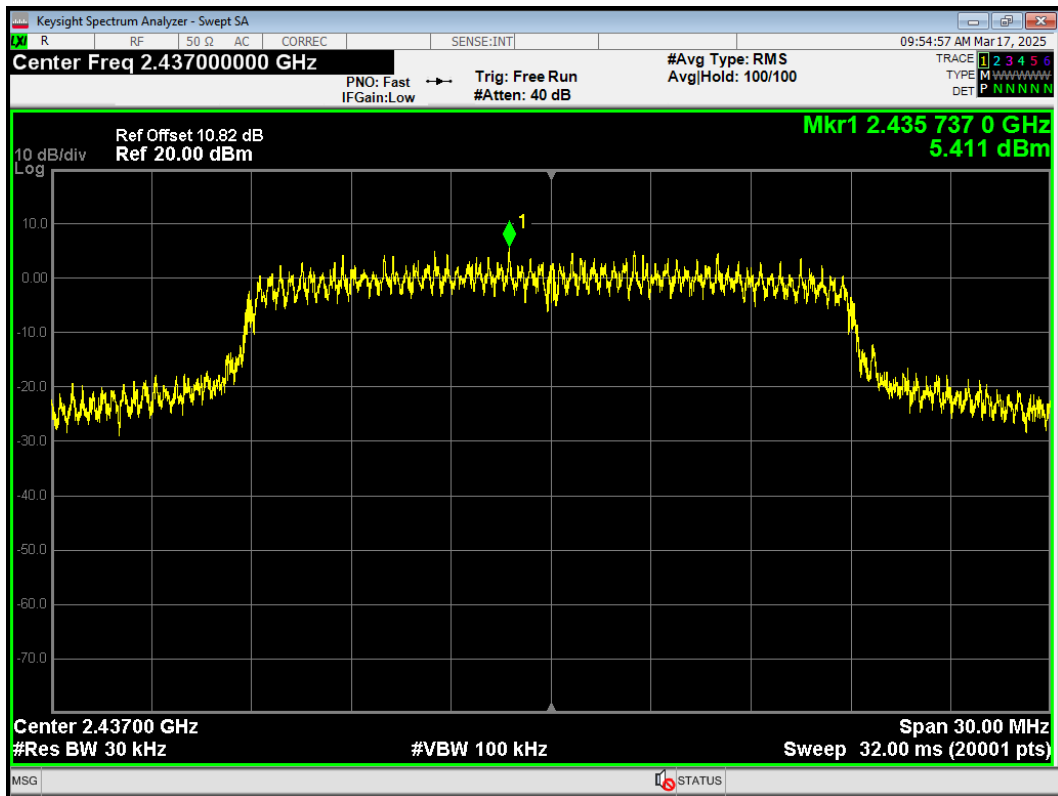
PSD 802.11n(HT20) 2412MHz



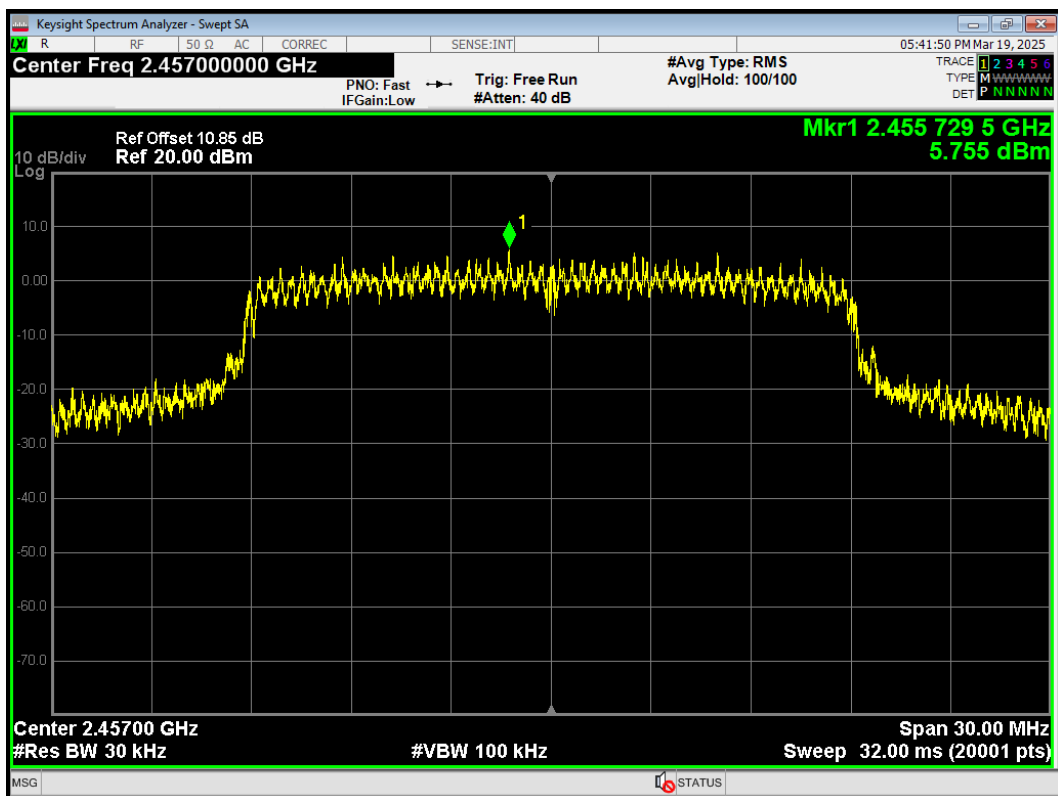
PSD 802.11n(HT20) 2417MHz



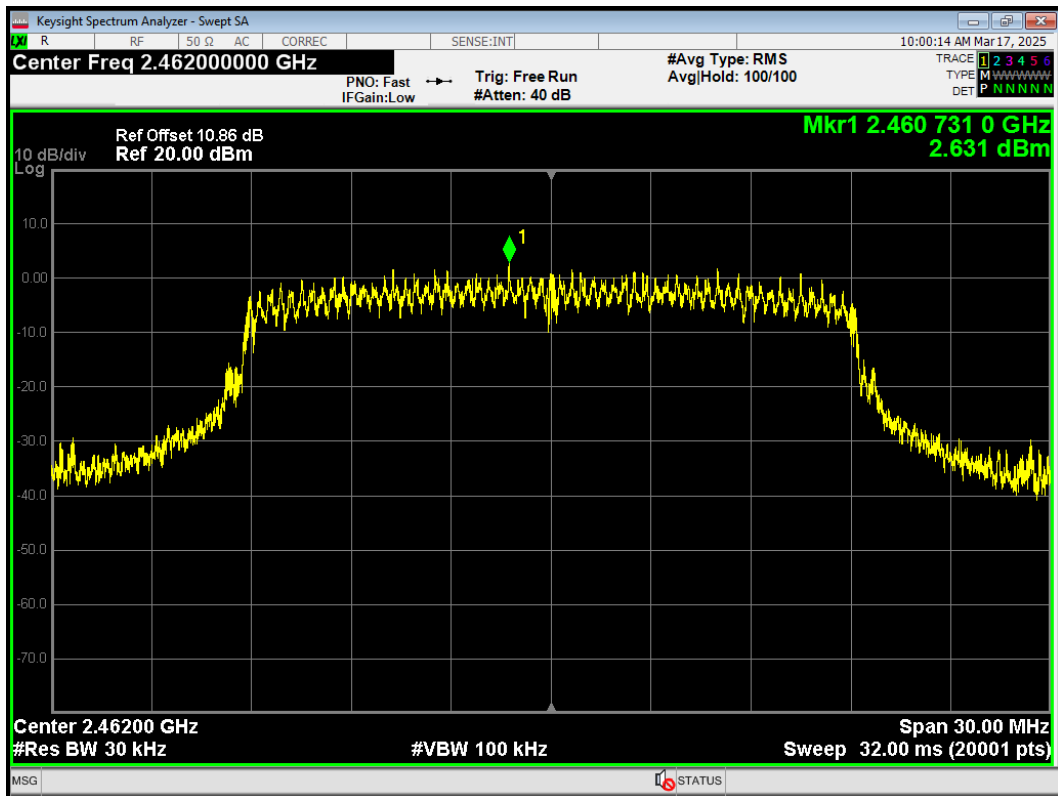
PSD 802.11n(HT20) 2437MHz



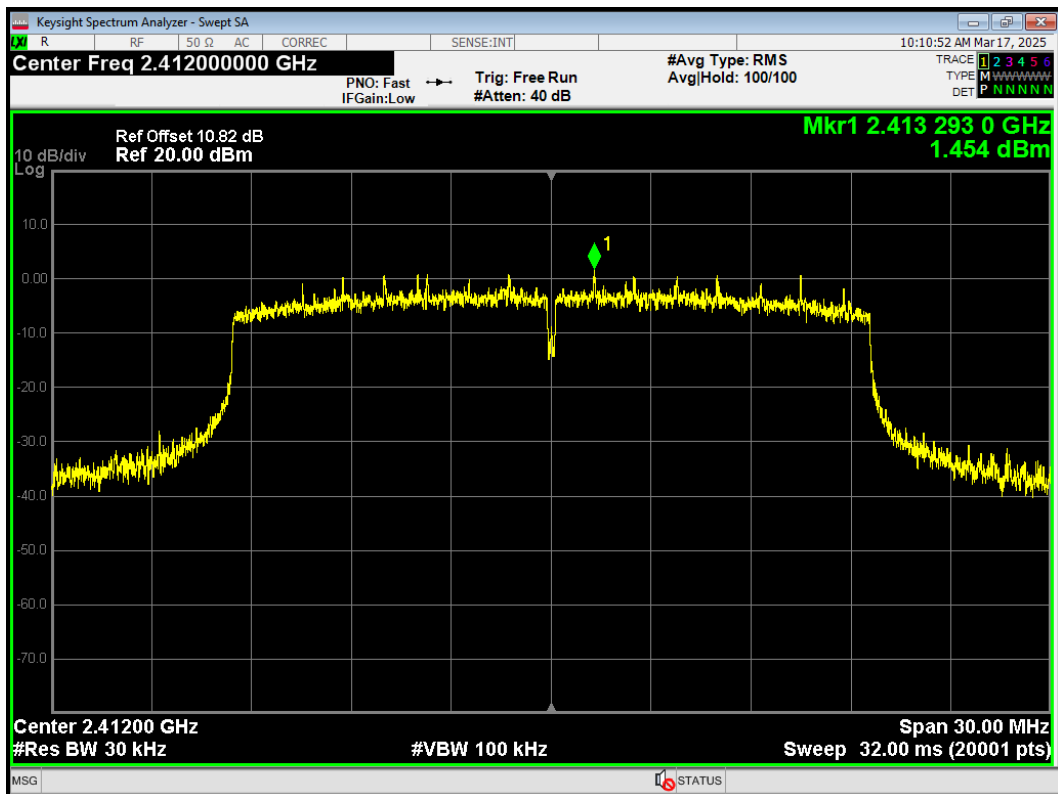
PSD 802.11n(HT20) 2457MHz



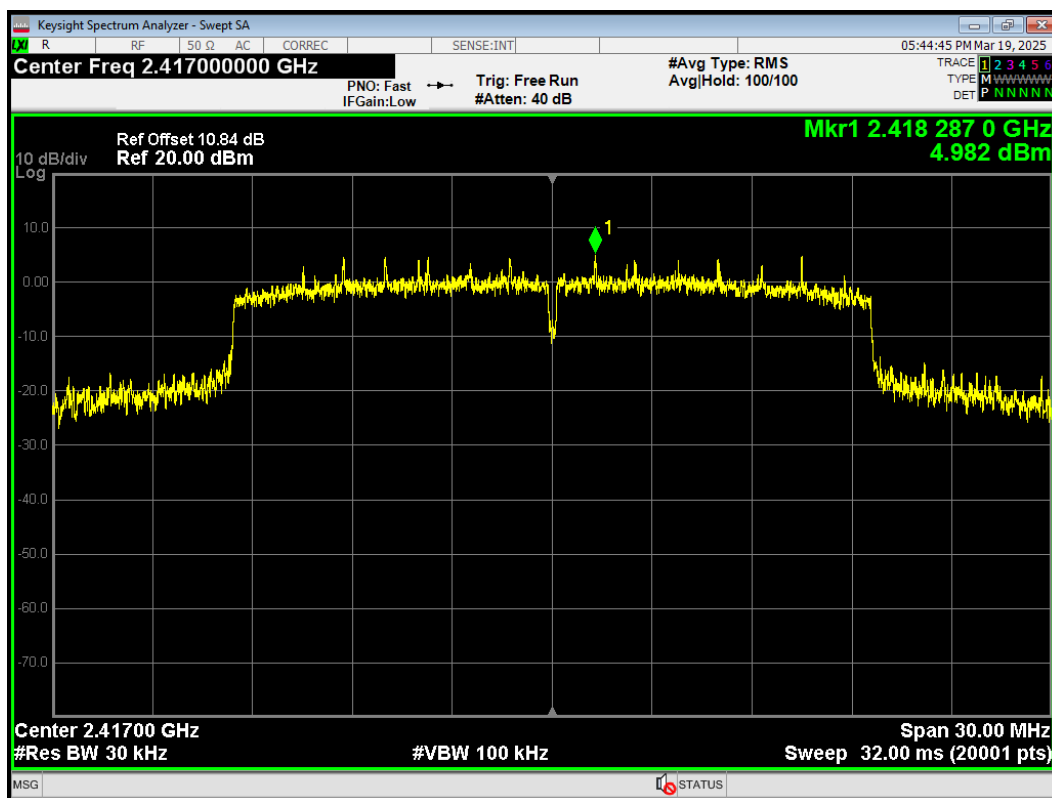
PSD 802.11n(HT20) 2462MHz



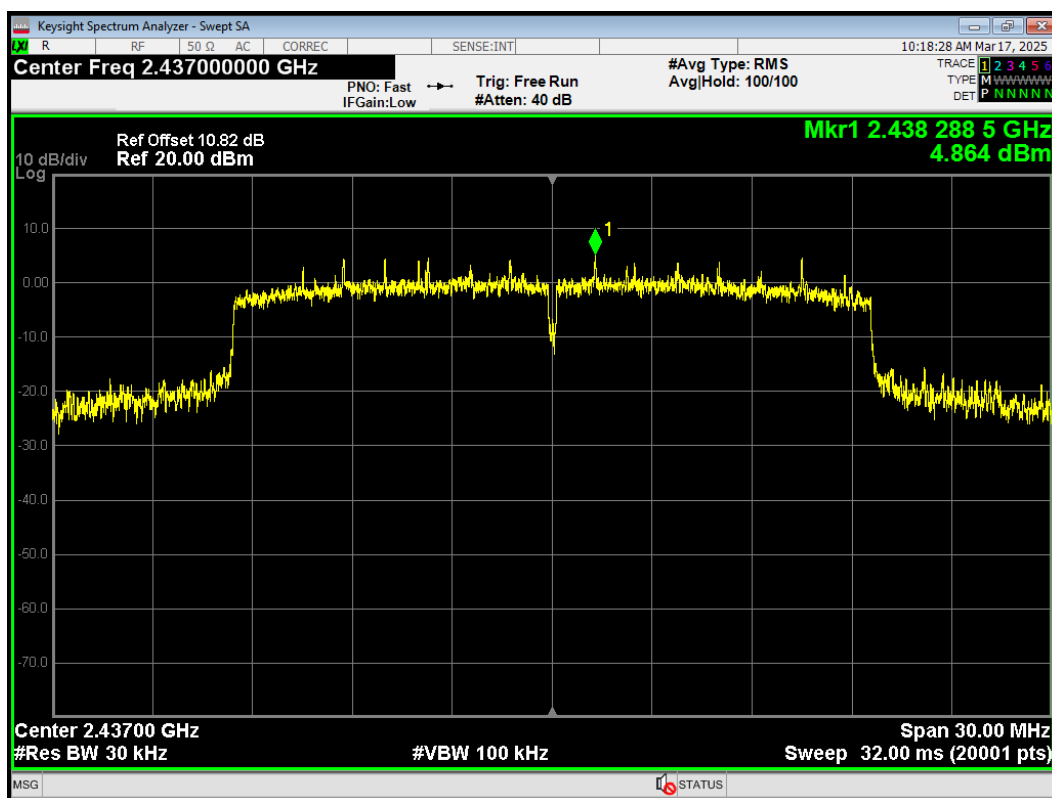
PSD 802.11ax(HE20) 2412MHz



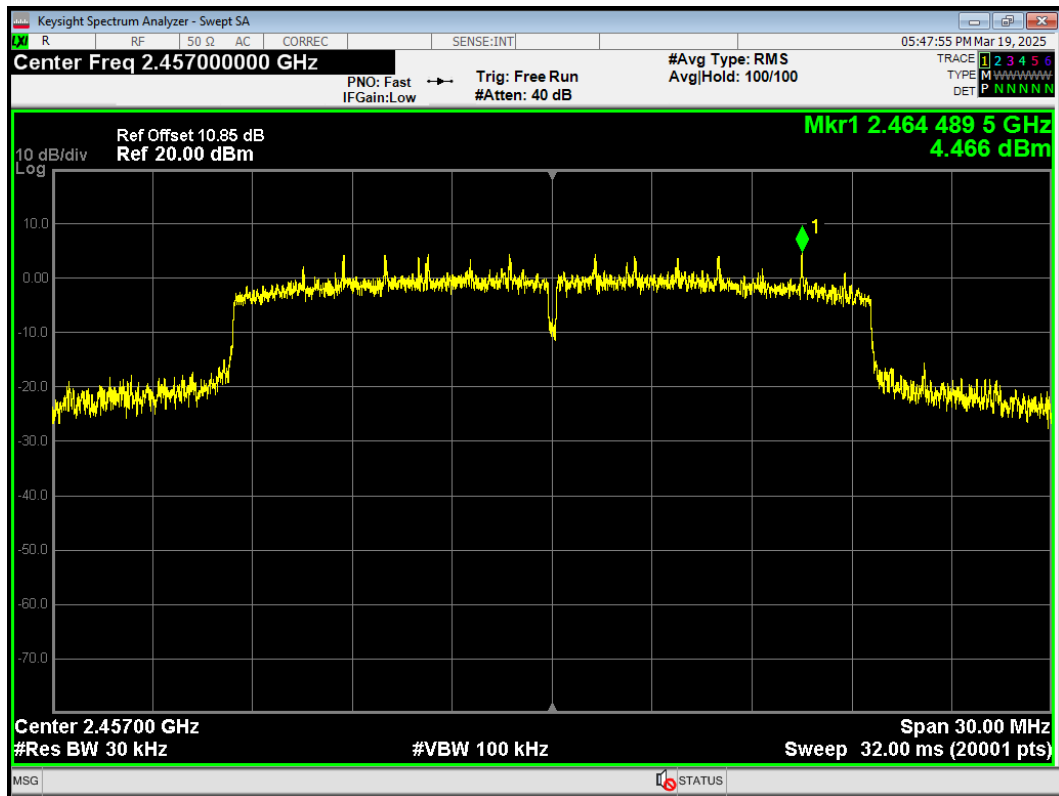
PSD 802.11ax(HE20) 2417MHz



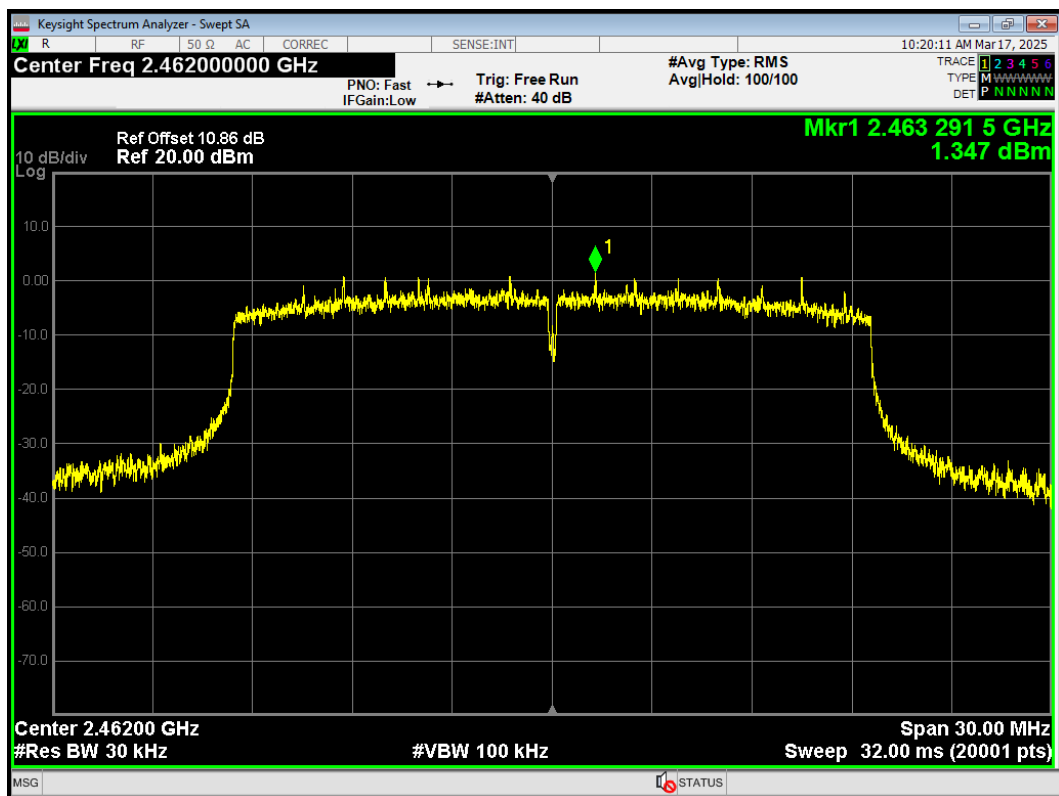
PSD 802.11ax(HE20) 2437MHz



PSD 802.11ax(HE20) 2457MHz

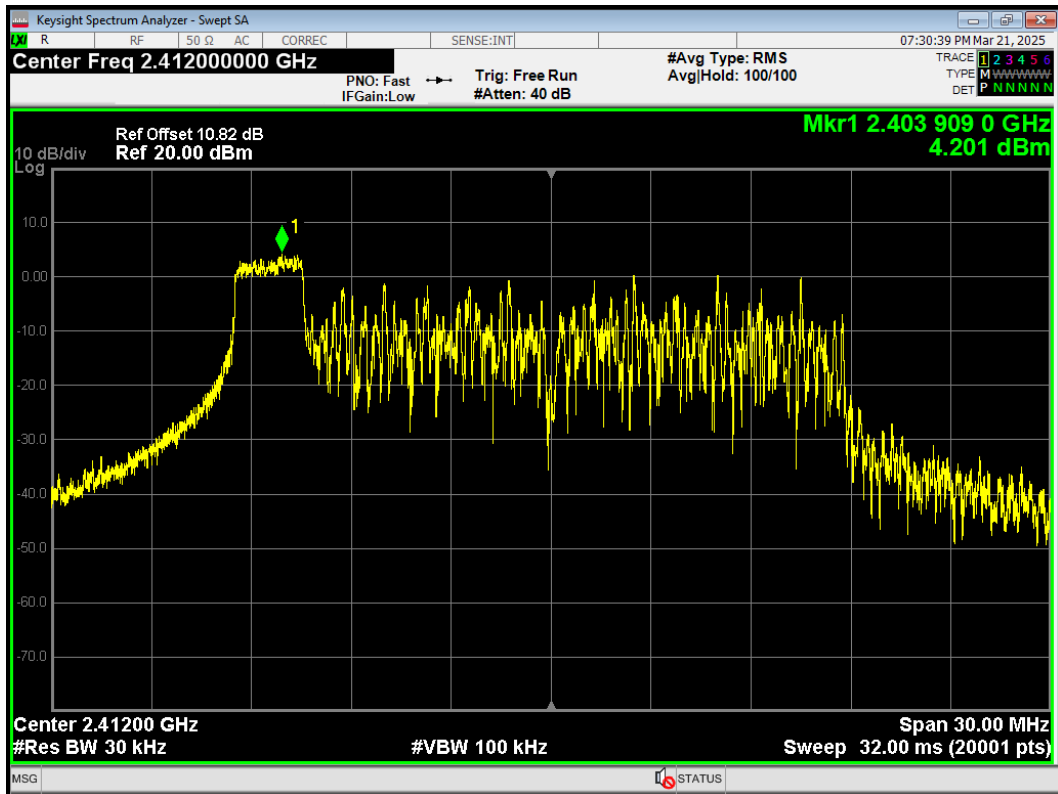


PSD 802.11ax(HE20) 2462MHz

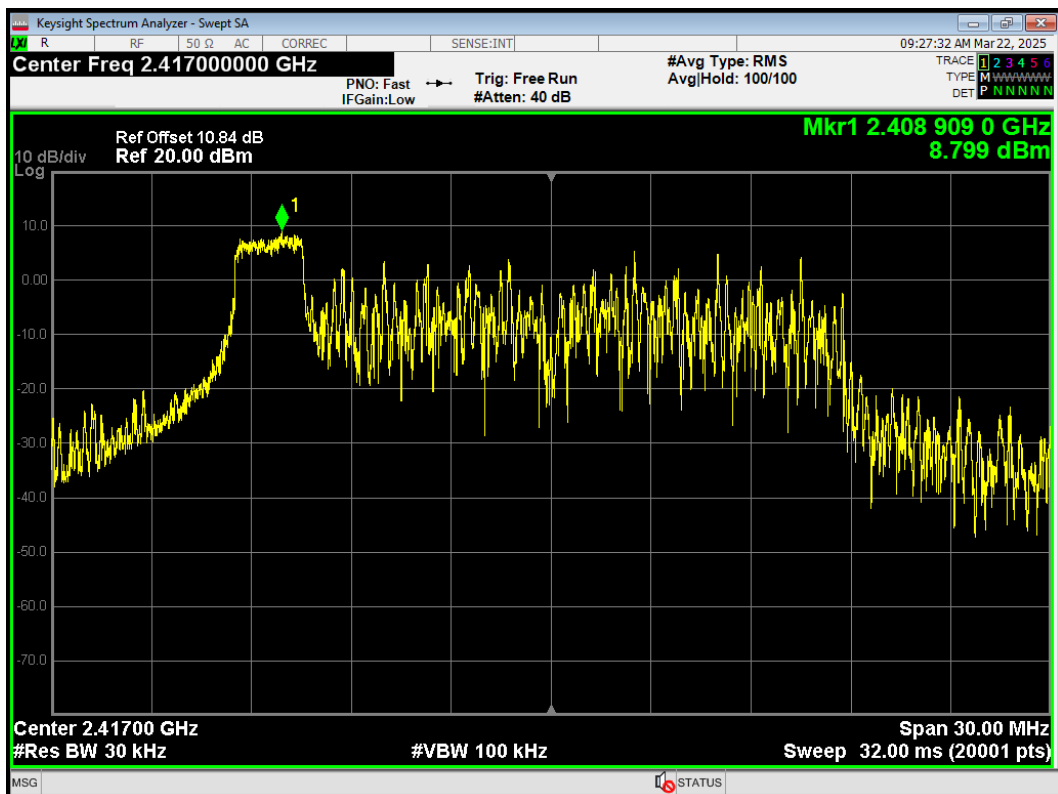


RU Mode

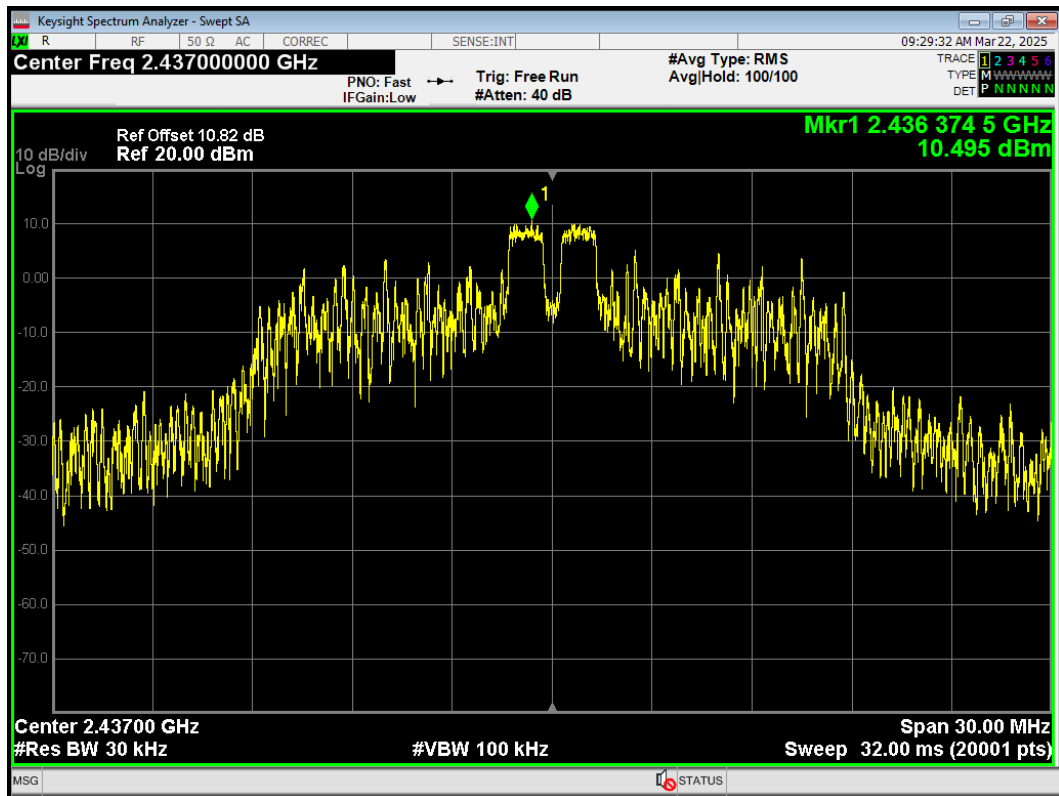
PSD 802.11ax(HE20) 26T 2412MHz



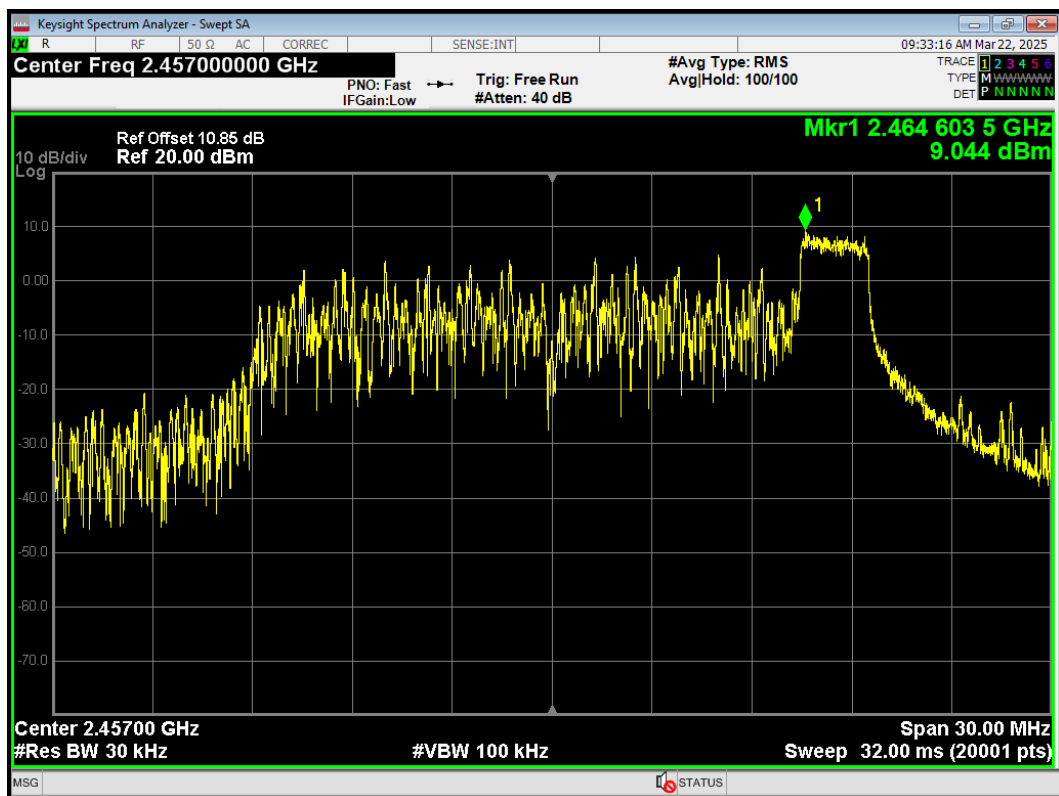
PSD 802.11ax(HE20) 26T 2417MHz



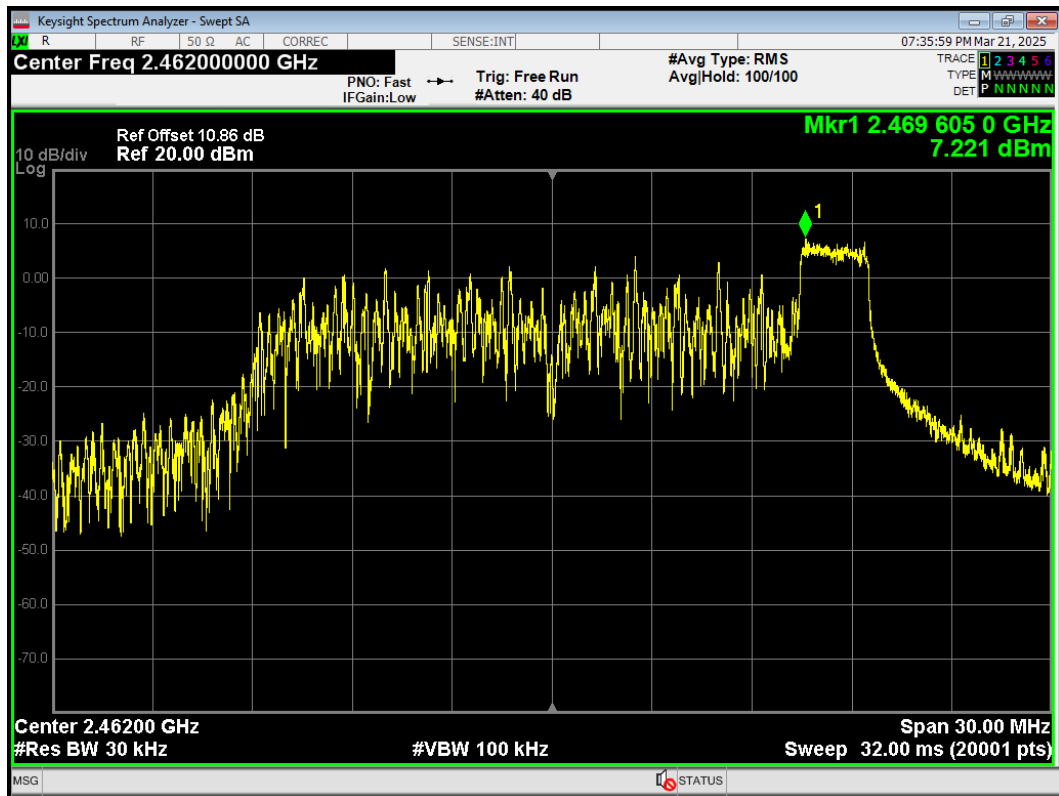
PSD 802.11ax(HE20) 26T 2437MHz



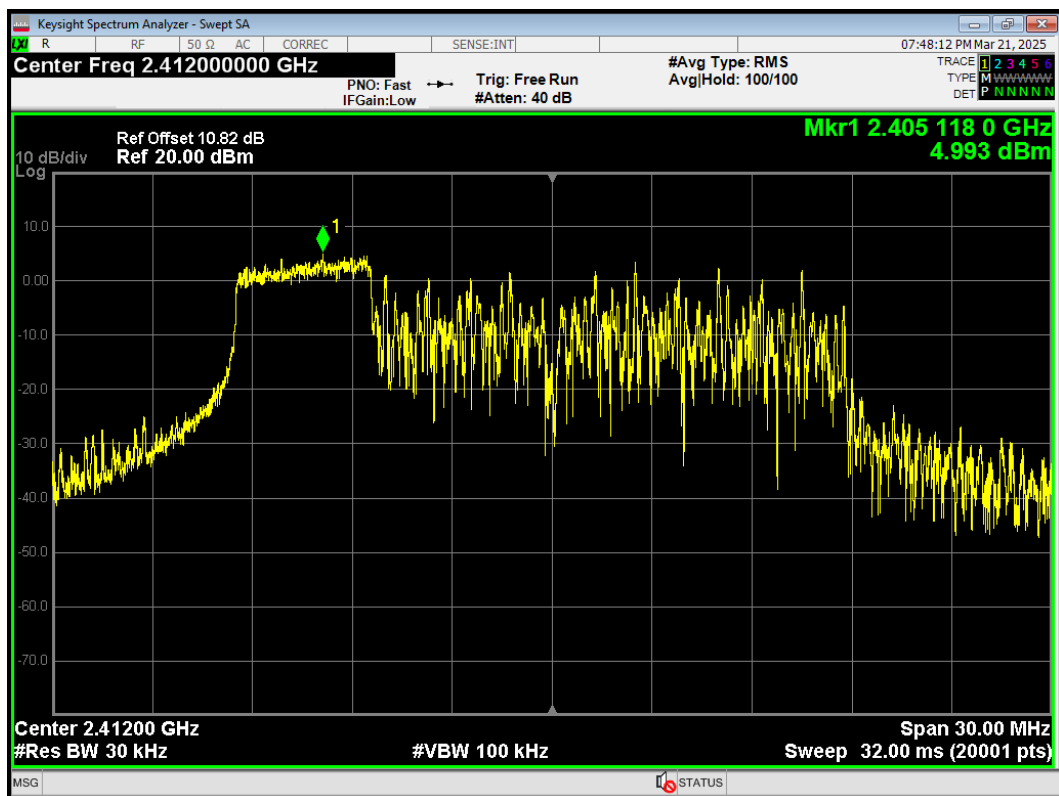
PSD 802.11ax(HE20) 26T 2457MHz



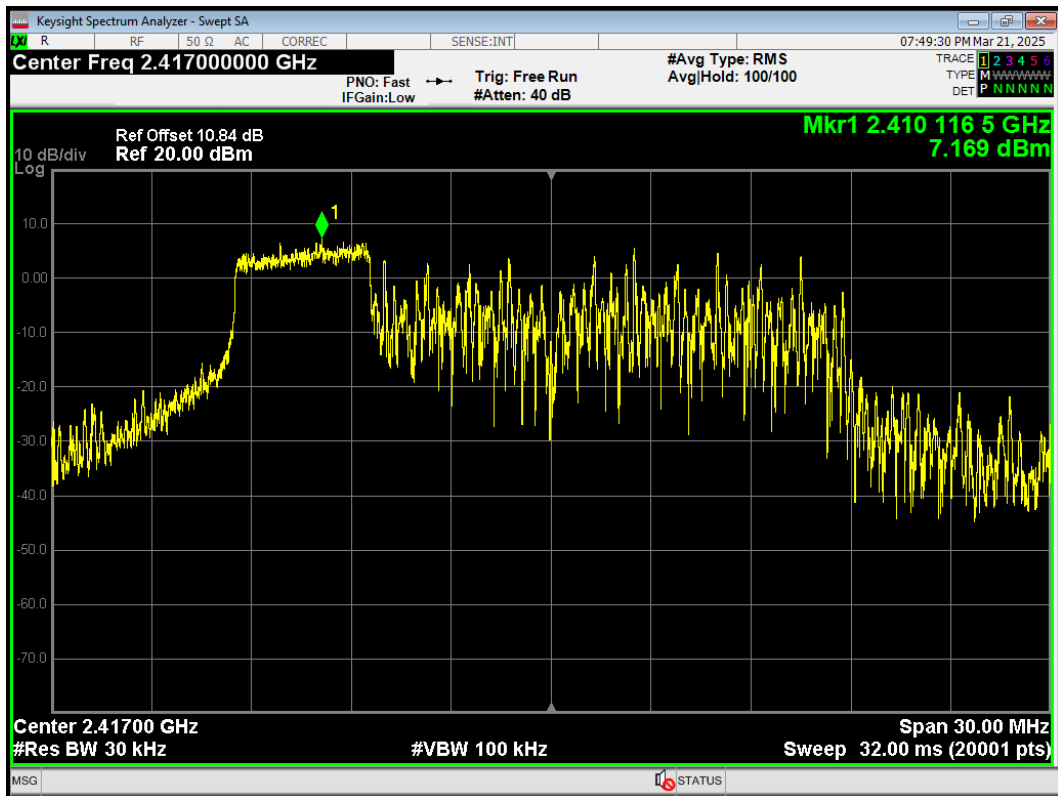
PSD 802.11ax(HE20) 26T 2462MHz



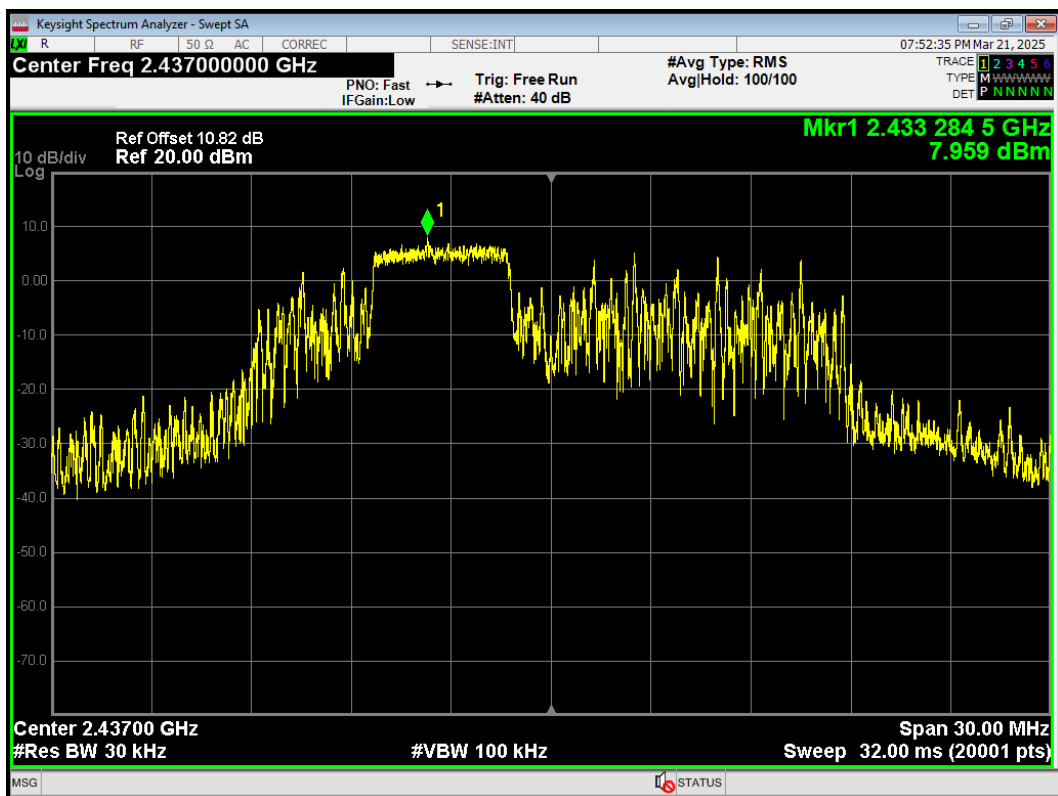
PSD 802.11ax(HE20) 52T 2412MHz



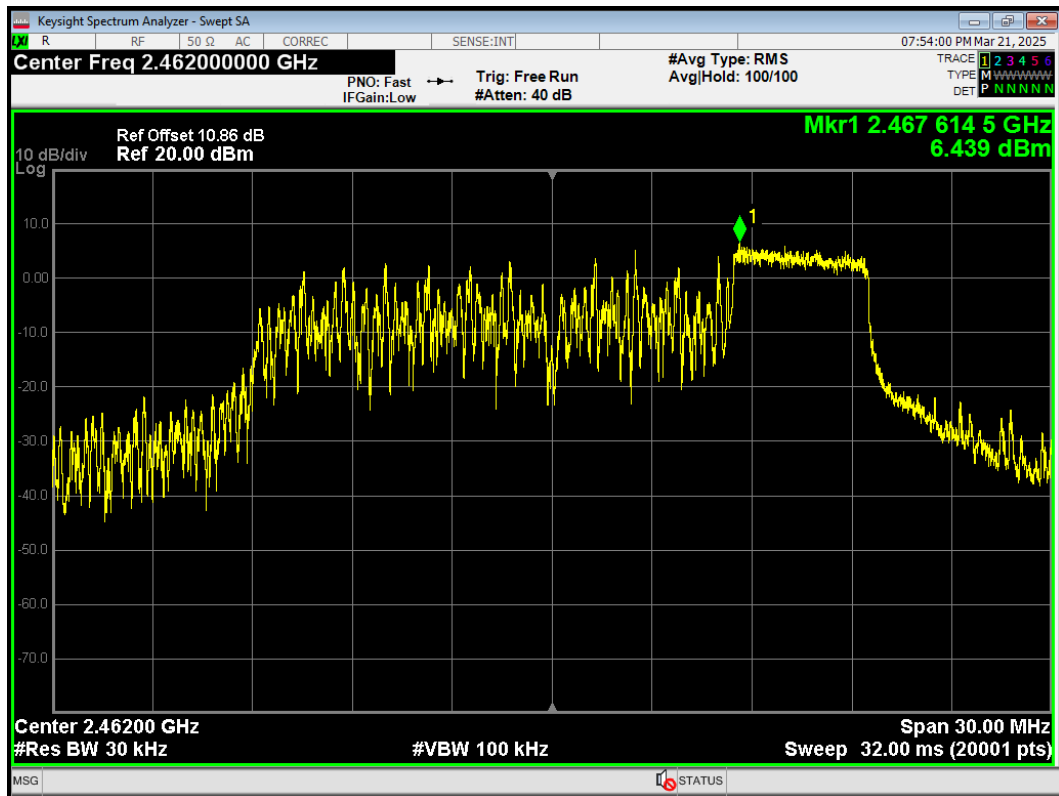
PSD 802.11ax(HE20) 52T 2417MHz



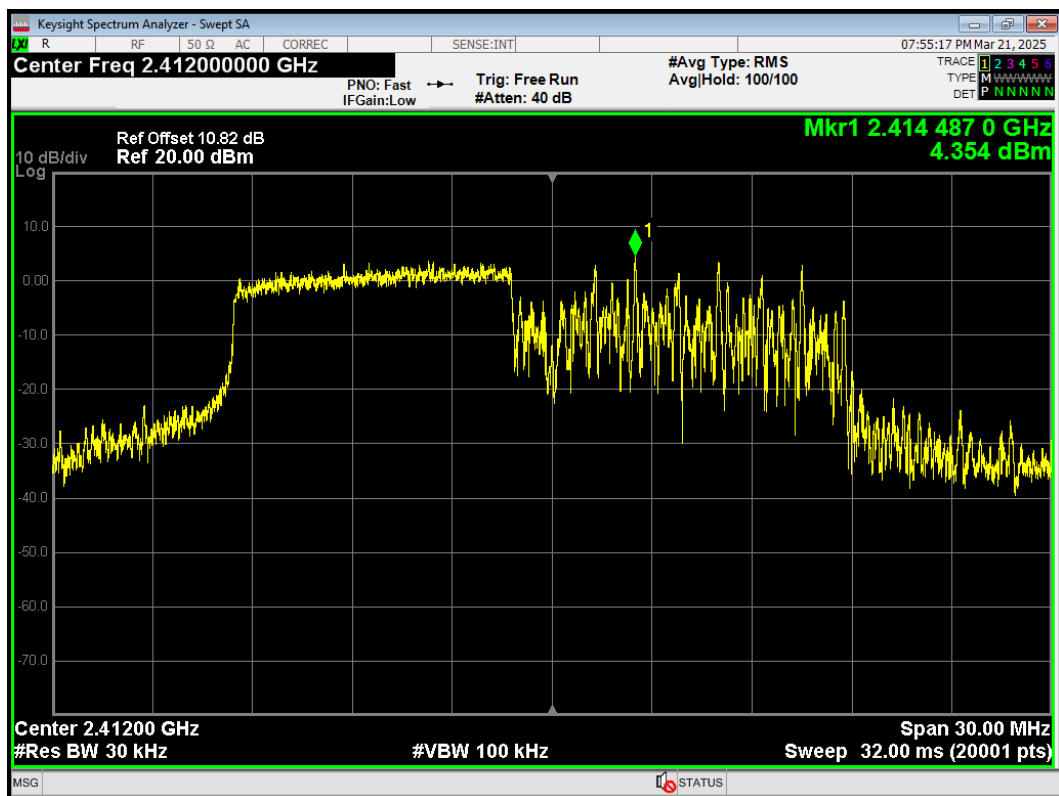
PSD 802.11ax(HE20) 52T 2437MHz



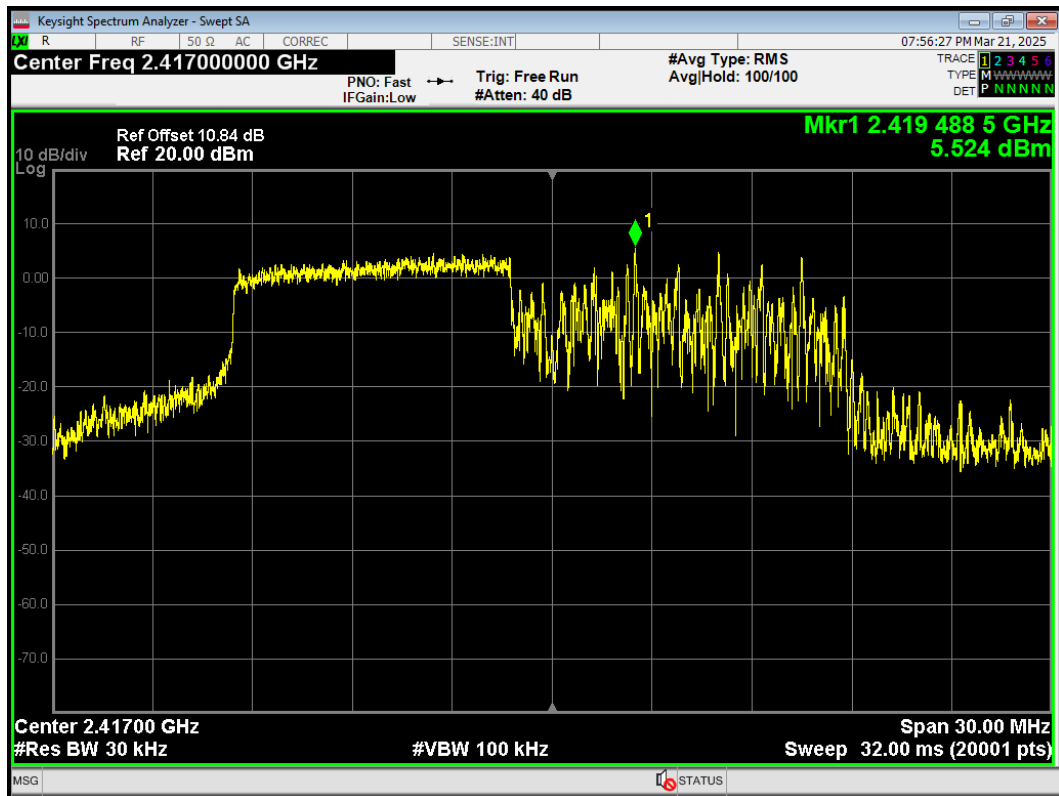
PSD 802.11ax(HE20) 52T 2462MHz



PSD 802.11ax(HE20) 106T 2412MHz



PSD 802.11ax(HE20) 106T 2417MHz



PSD 802.11ax(HE20) 106T 2437MHz

