Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: SecondBrain Note

Test Model: GSA011

Environmental Conditions

Temperature:	24.2°C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

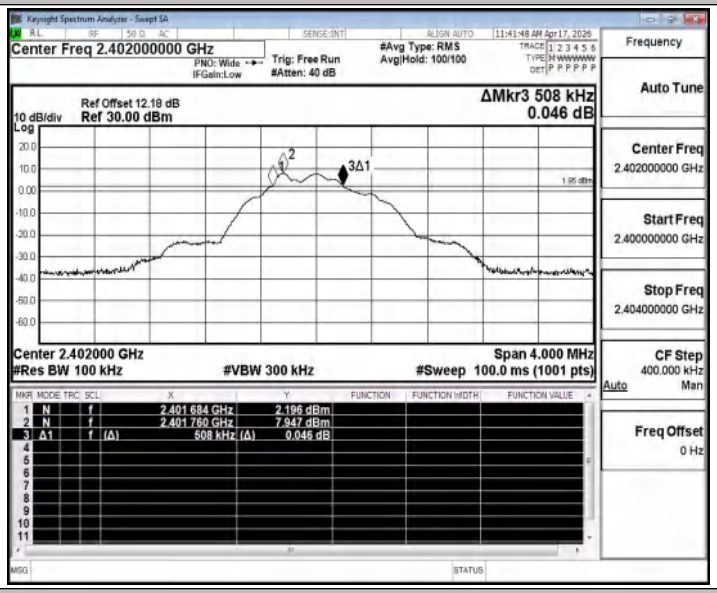
B.1 DTS Bandwidth

Test Result

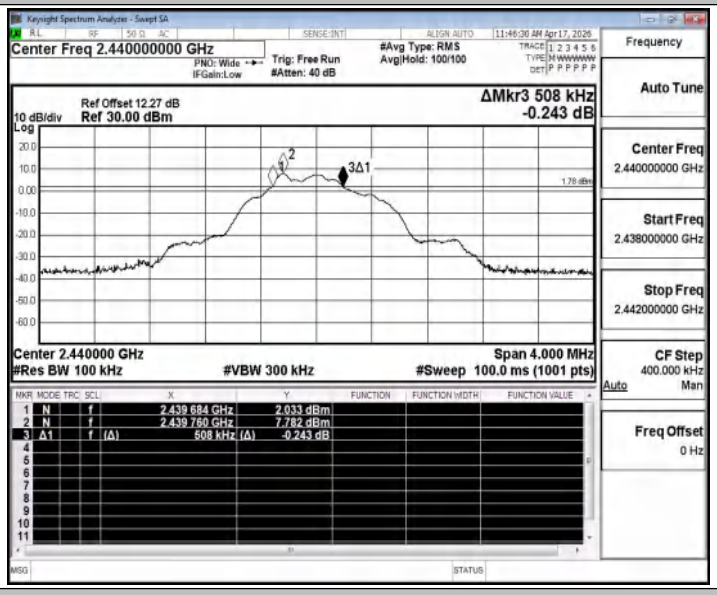
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.508	2401.684	2402.192	0.5	PASS
		2440	0.508	2439.684	2440.192	0.5	PASS
		2480	0.504	2479.680	2480.184	0.5	PASS
BLE_2M	Ant1	2402	0.868	2401.420	2402.288	0.5	PASS
		2440	0.868	2439.416	2440.284	0.5	PASS
		2480	0.856	2479.420	2480.276	0.5	PASS

Test Graphs

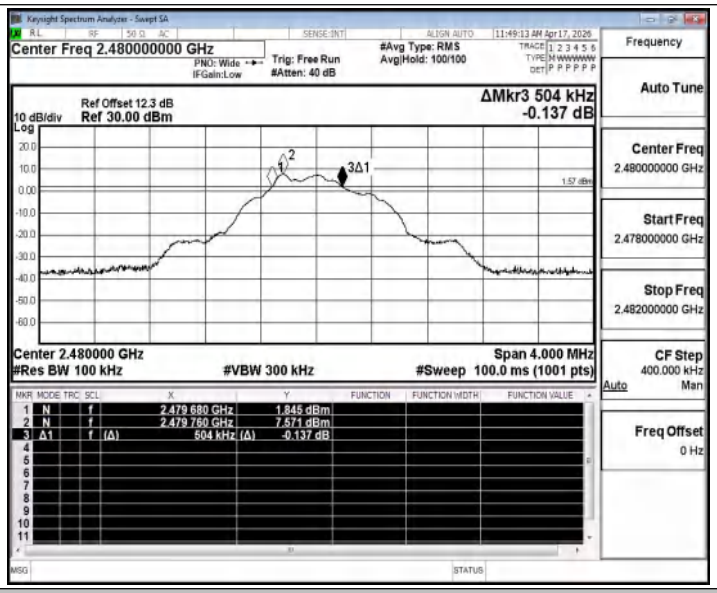
BLE_1M_Ant1_2402



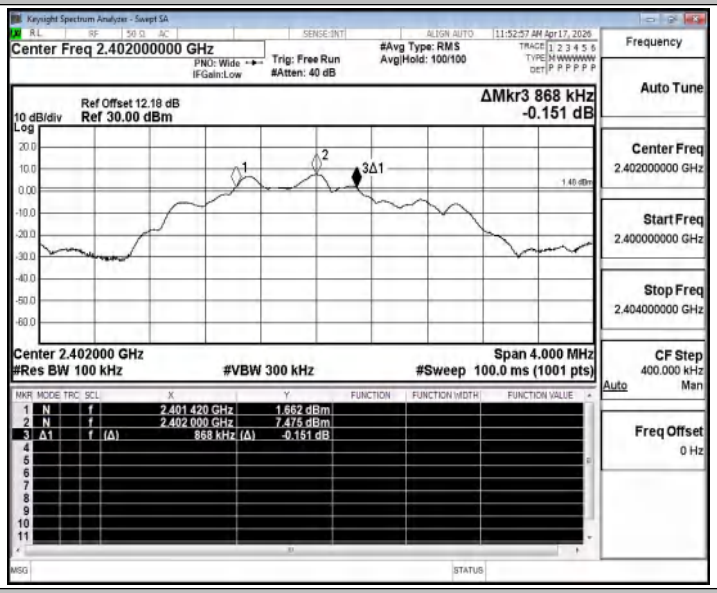
BLE_1M_Ant1_2440



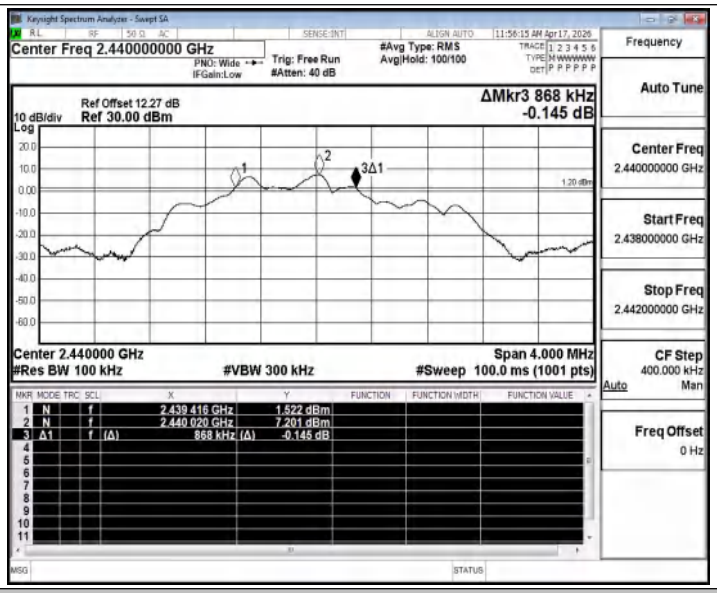
BLE_1M_Ant1_2480



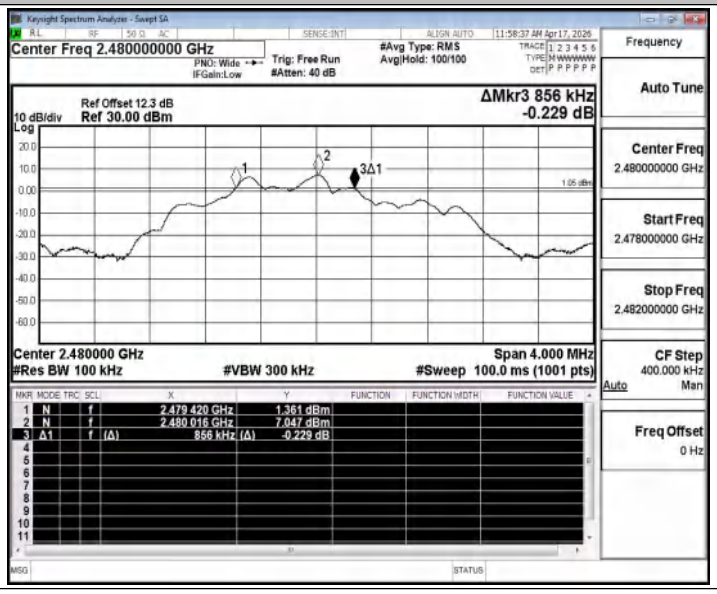
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



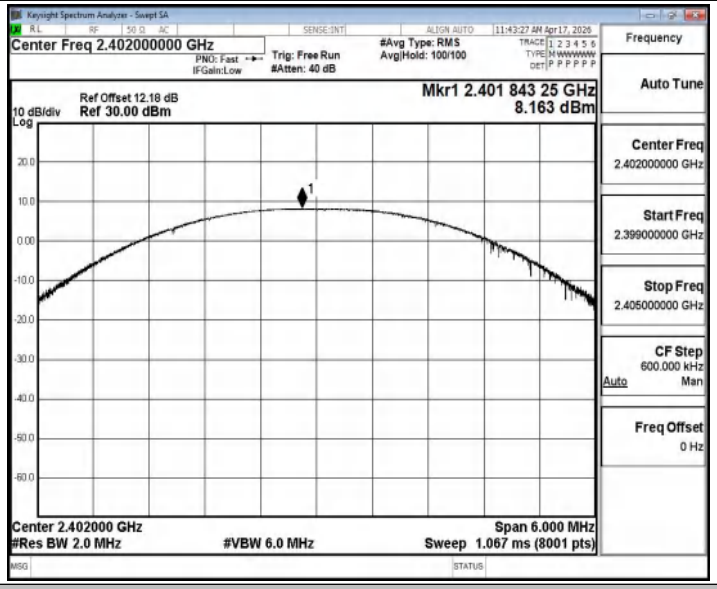
B.2 Maximum Peak Conducted Output Power

Test Result Peak

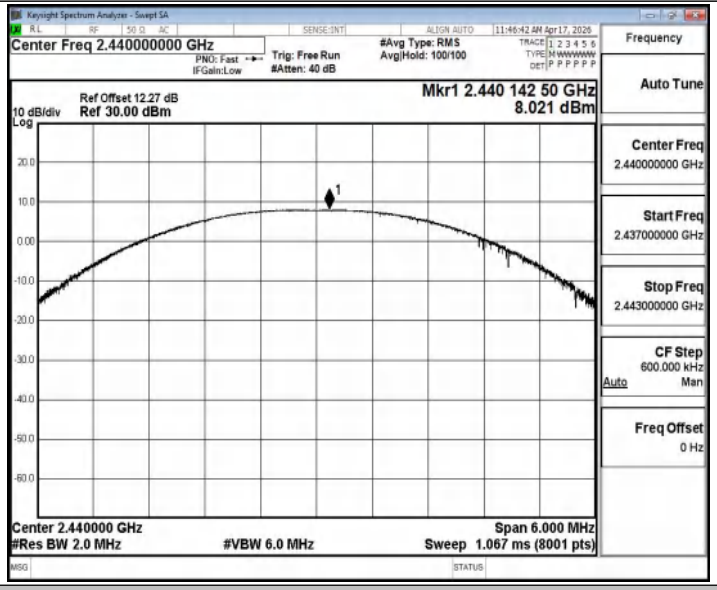
TestMode	Antenna	Freq(MHz)	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	8.16	≤30	PASS
		2440	8.02	≤30	PASS
		2480	7.82	≤30	PASS
BLE_2M	Ant1	2402	8.13	≤30	PASS
		2440	7.91	≤30	PASS
		2480	7.66	≤30	PASS

Test Graphs Peak

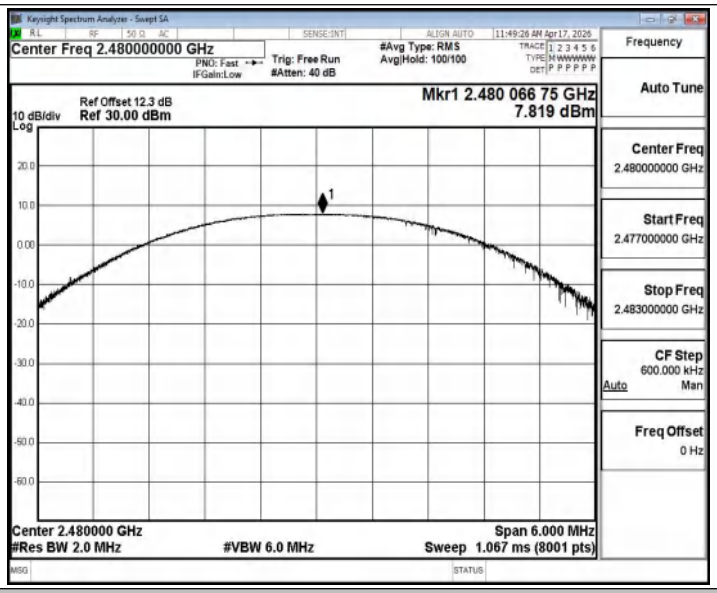
BLE_1M_Ant1_2402



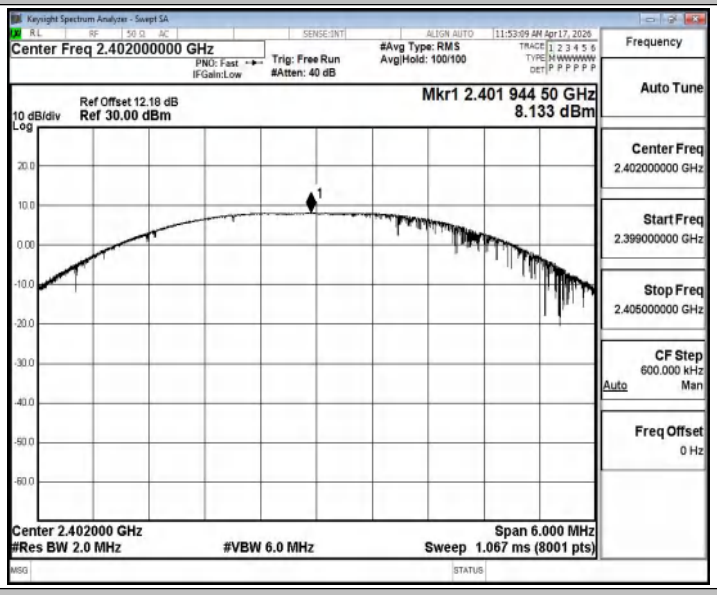
BLE_1M_Ant1_2440



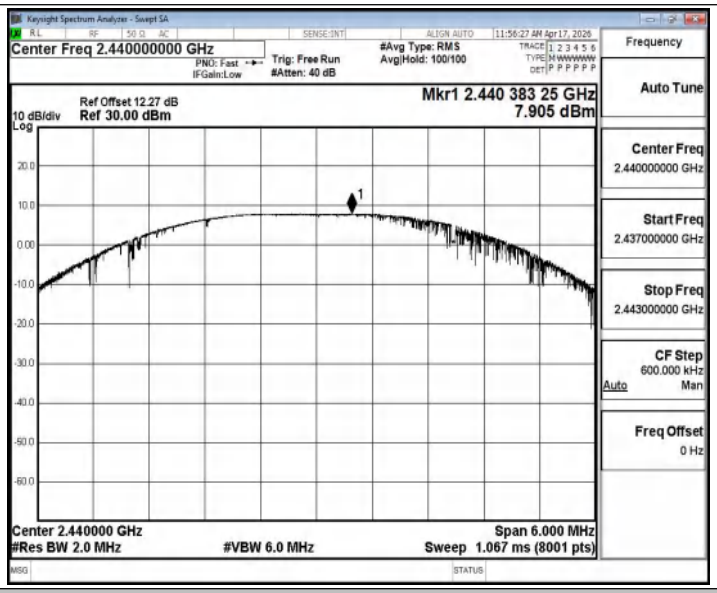
BLE_1M_Ant1_2480



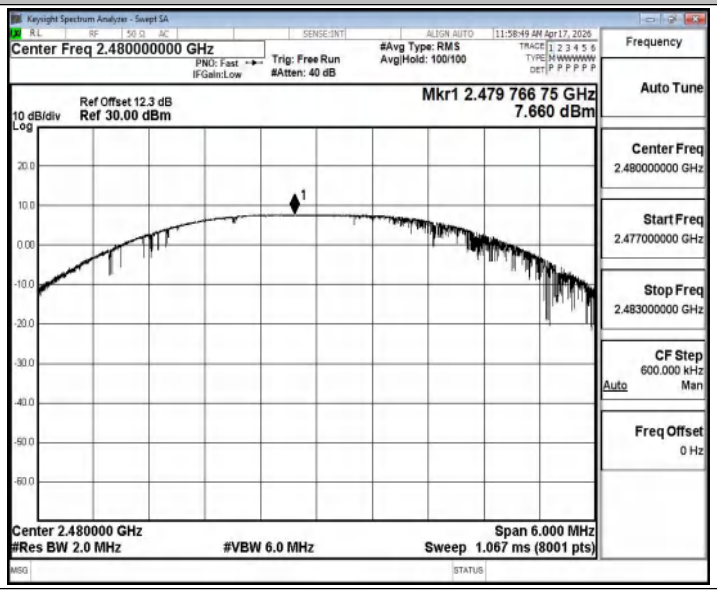
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



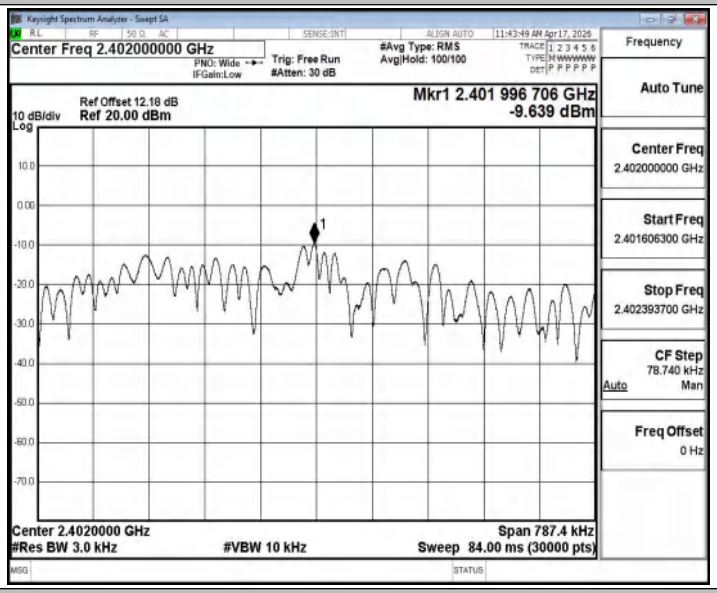
B.3 Maximum power spectral density

Test Result

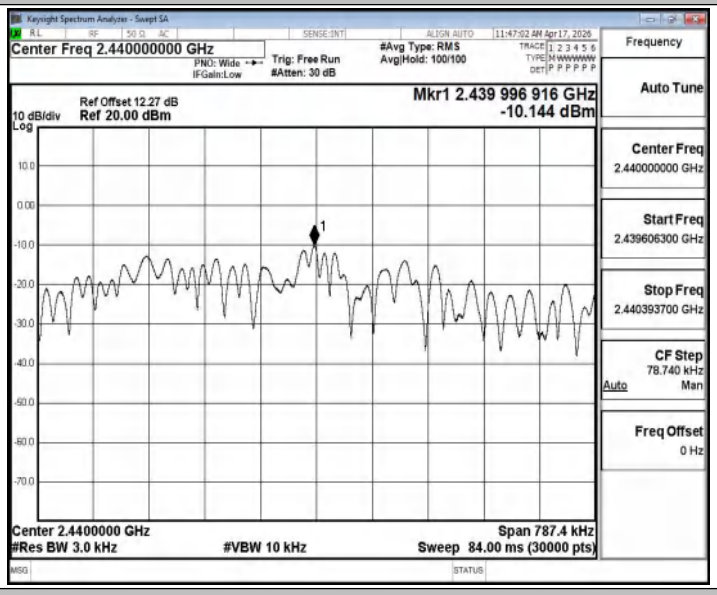
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.64	≤8.00	PASS
		2440	-10.14	≤8.00	PASS
		2480	-10.65	≤8.00	PASS
BLE_2M	Ant1	2402	-12.55	≤8.00	PASS
		2440	-13.23	≤8.00	PASS
		2480	-13.37	≤8.00	PASS

Test Graphs

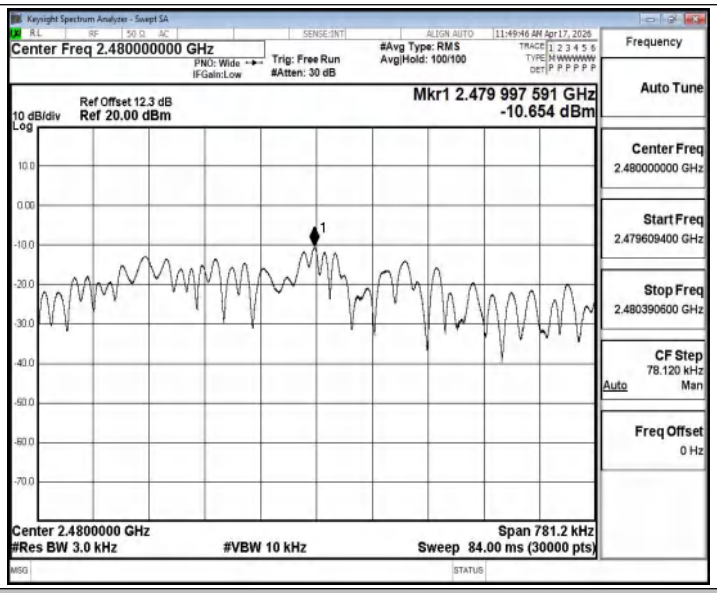
BLE_1M_Ant1_2402



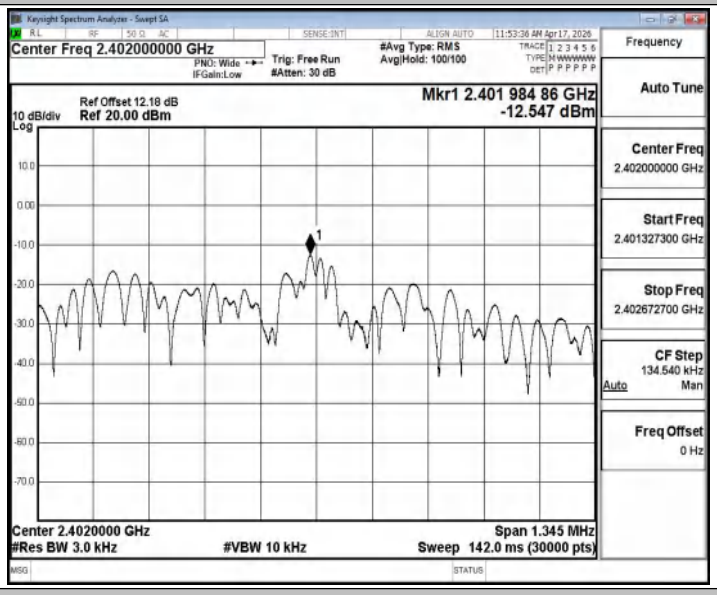
BLE_1M_Ant1_2440



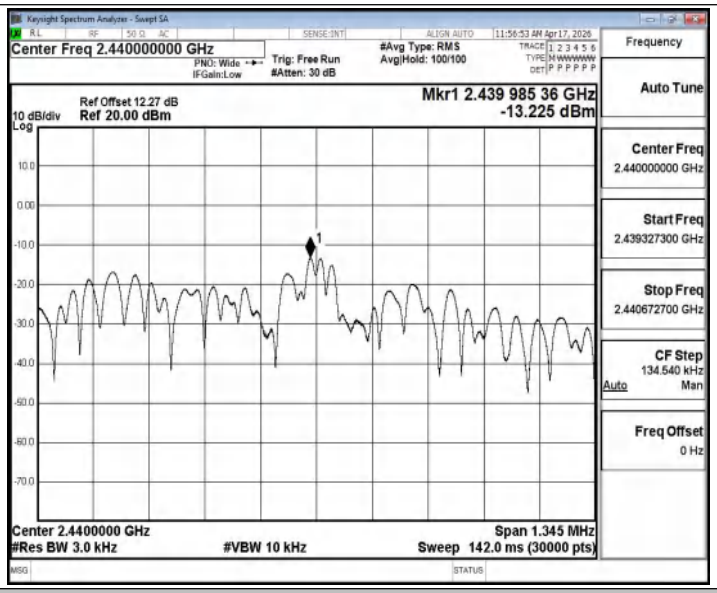
BLE_1M_Ant1_2480



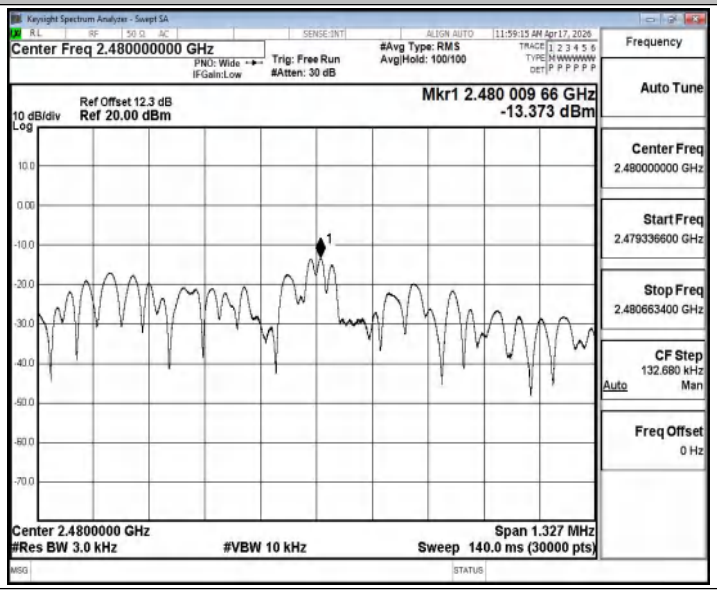
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

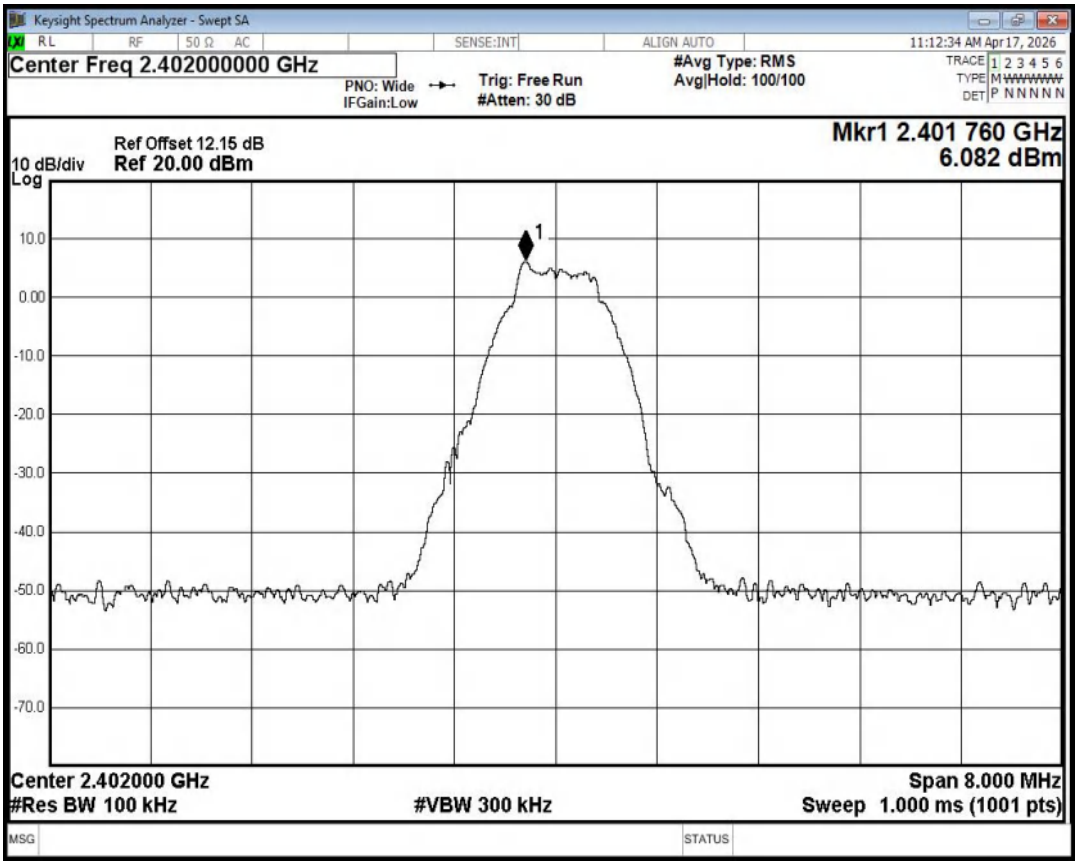


B.4 Band edge measurements

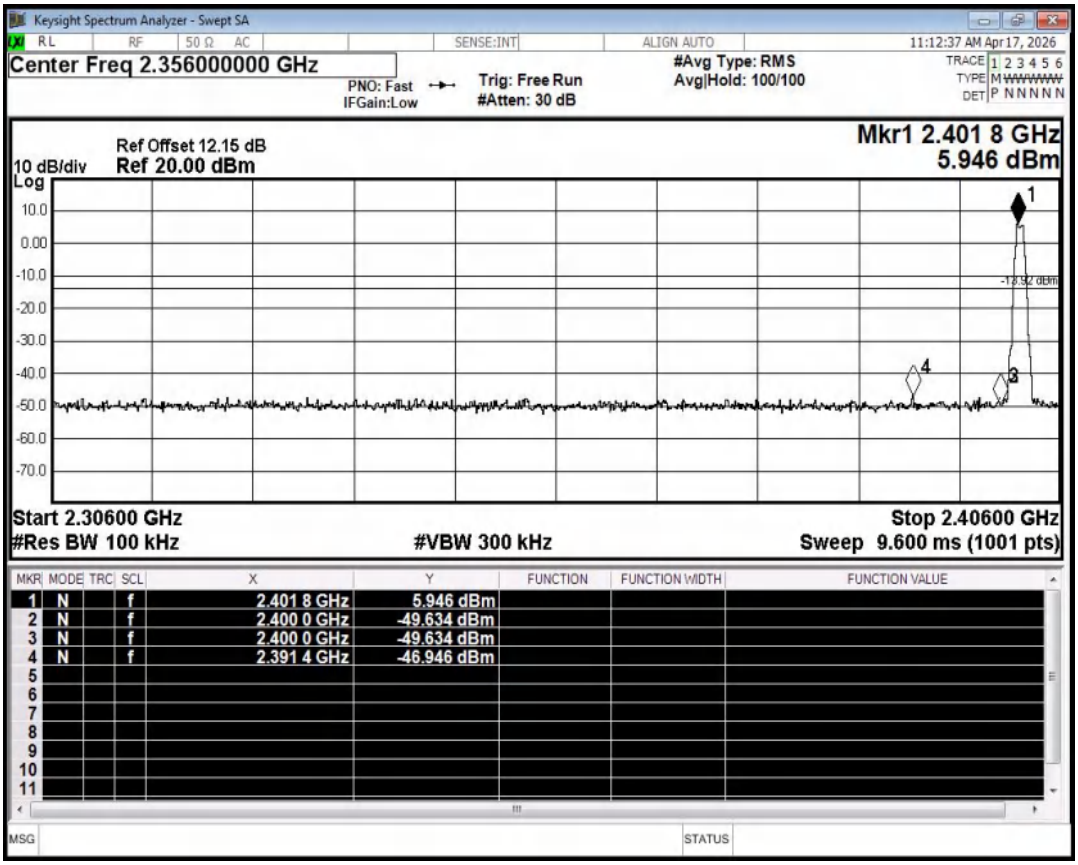
Test Result

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-53.02	-20	Pass
NVNT	BLE 1M	2480	Ant1	-52.01	-20	Pass
NVNT	BLE 2M	2402	Ant1	-44.04	-20	Pass
NVNT	BLE 2M	2480	Ant1	-51.87	-20	Pass

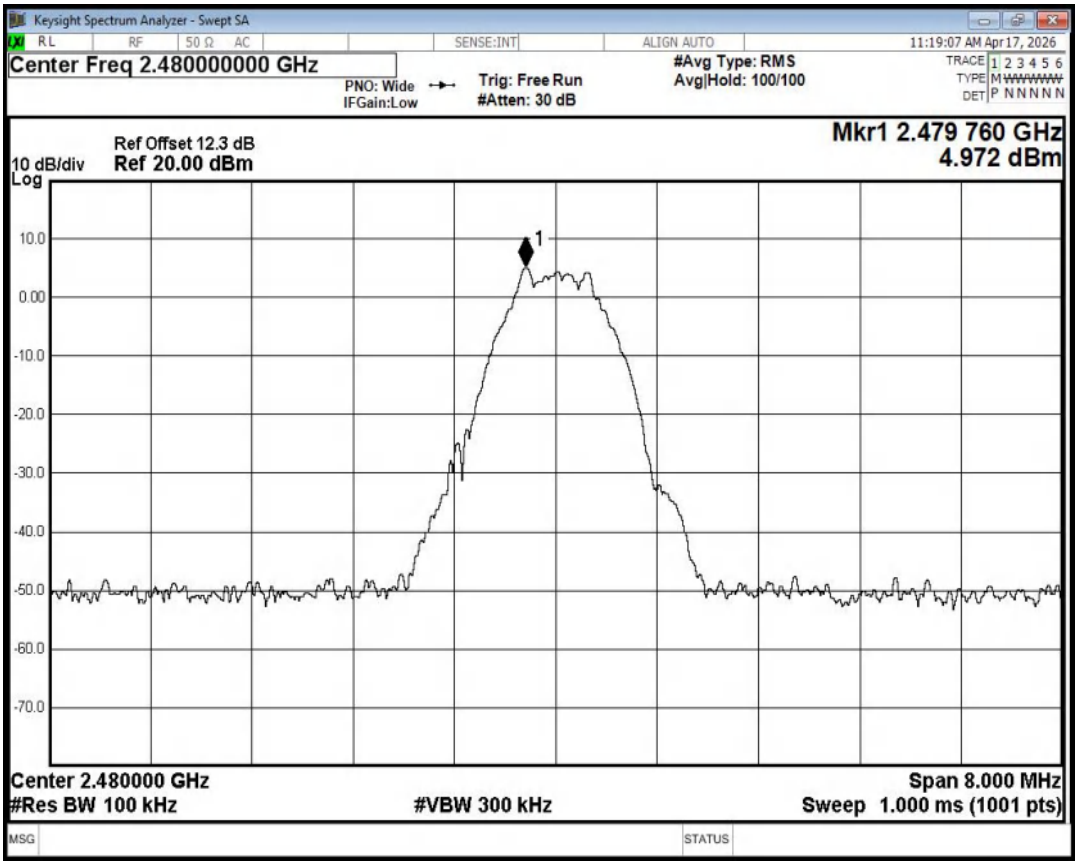
Test Graphs



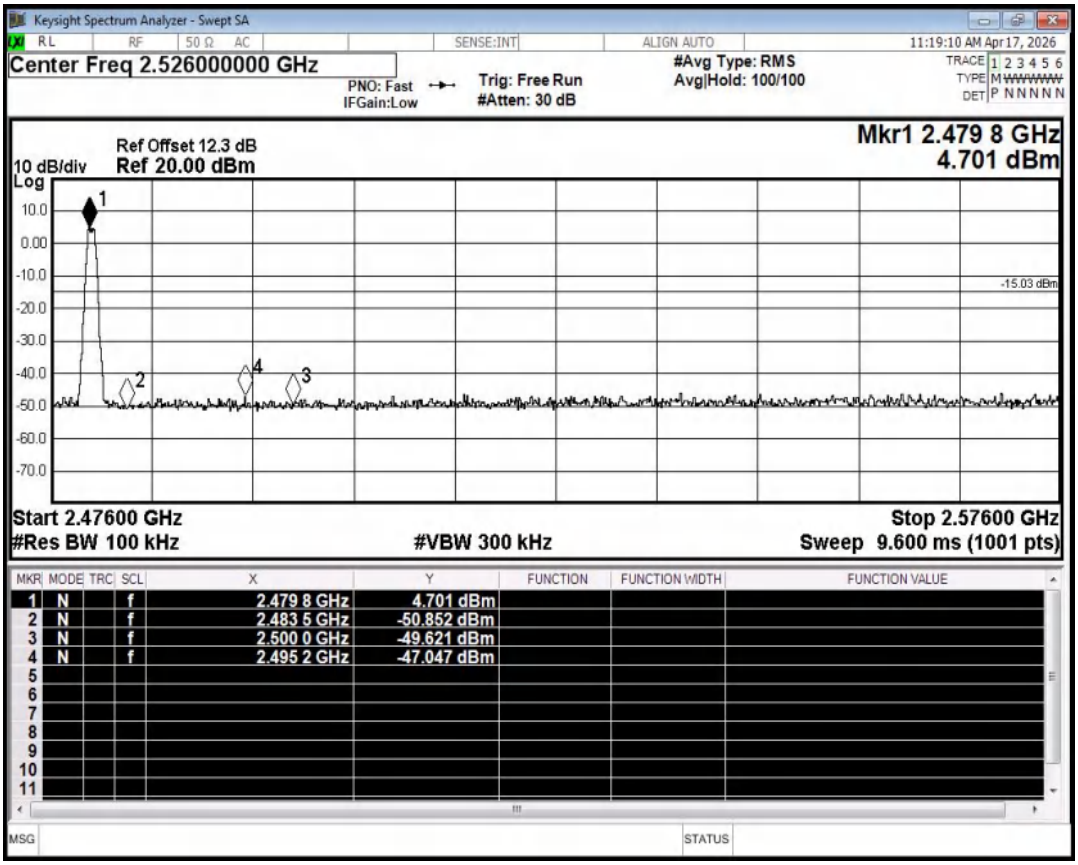
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



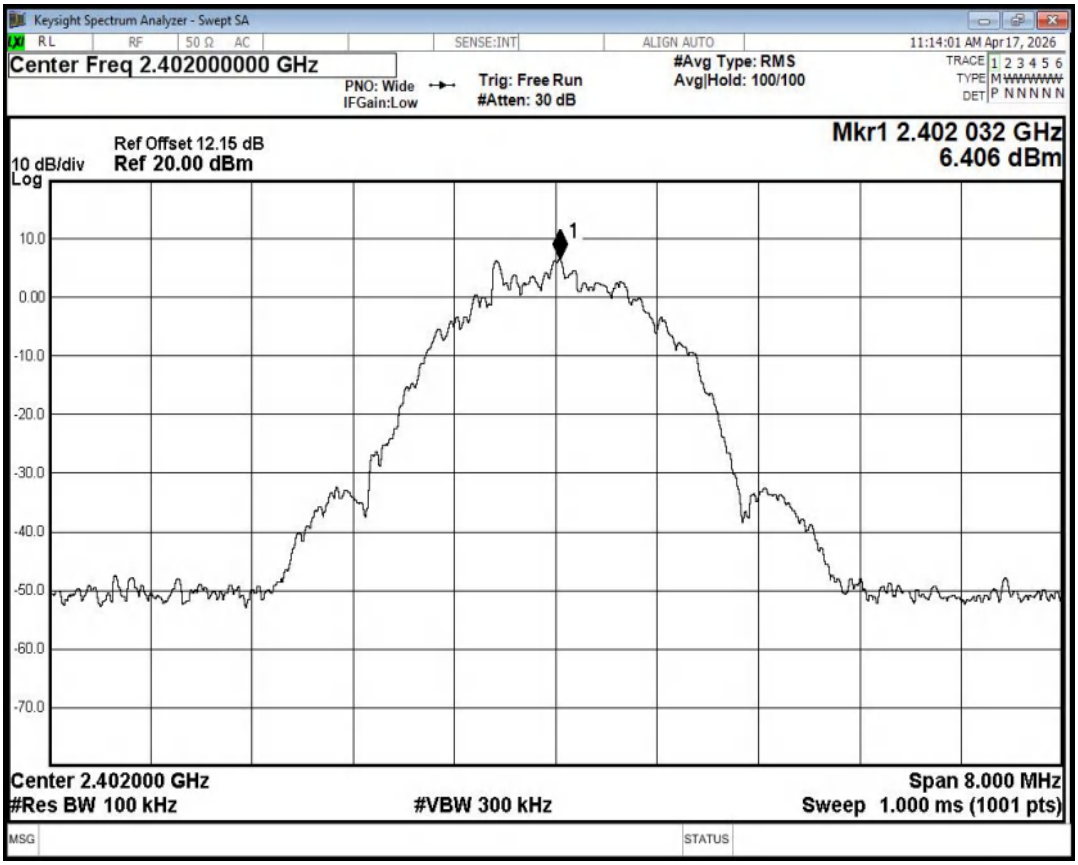
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



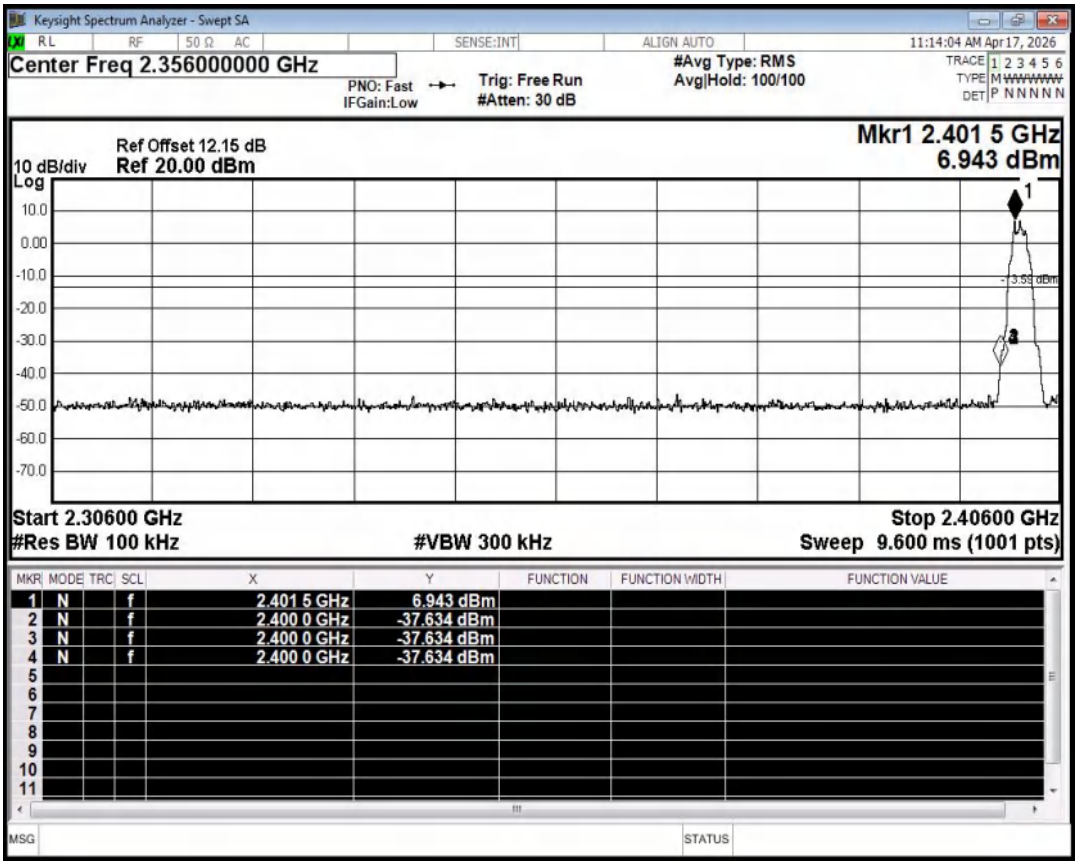
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



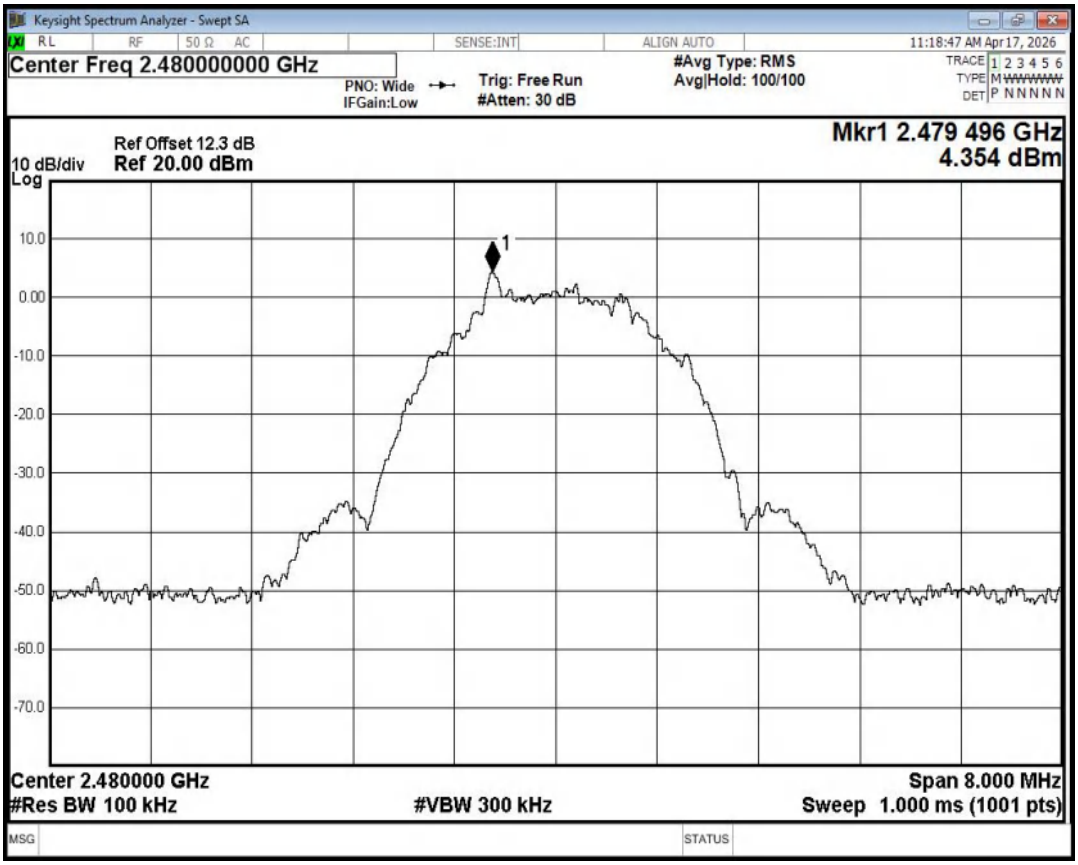
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



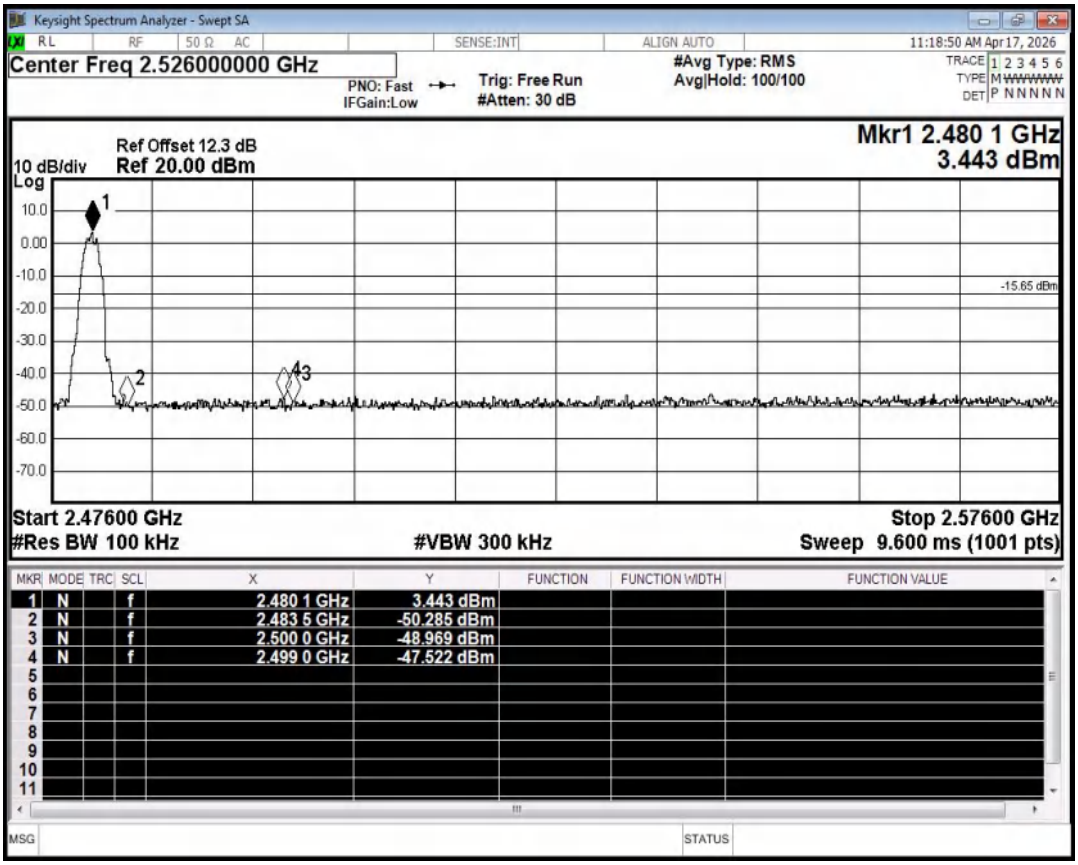
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



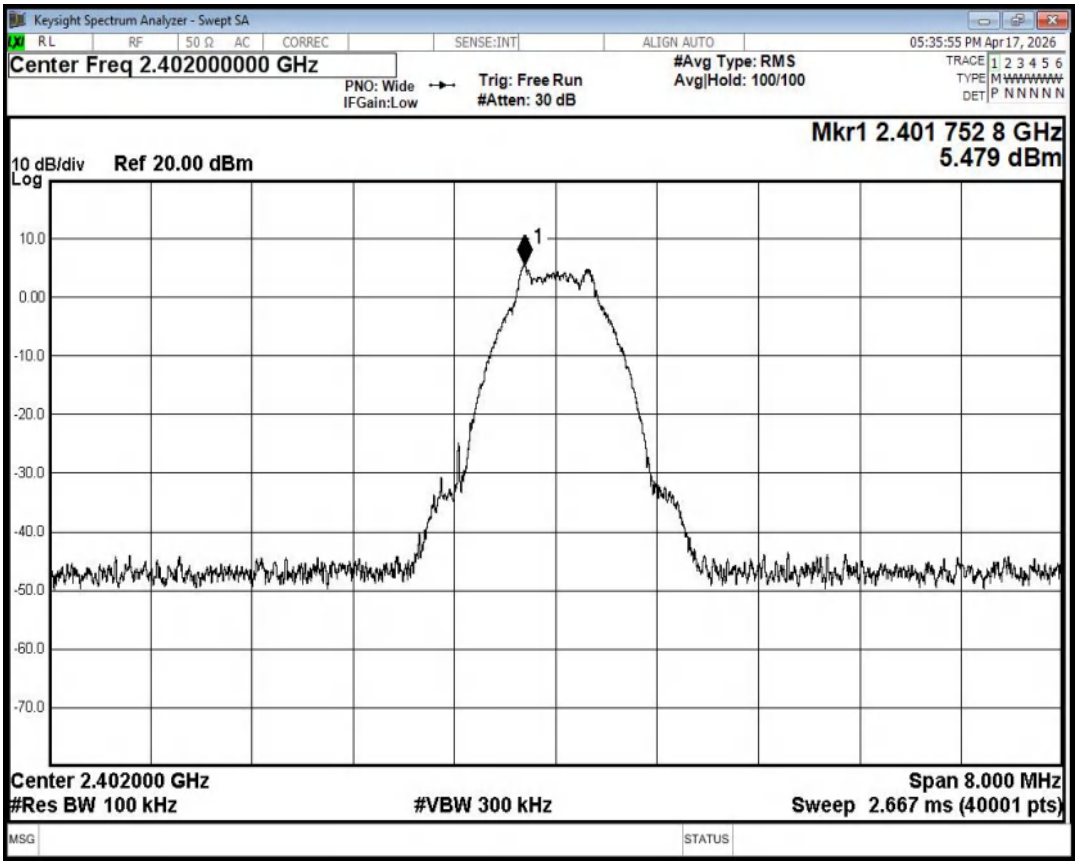
Band Edge NVNT BLE 2M 2480MHz Ant1 Emission

B.5 Conducted Spurious Emission

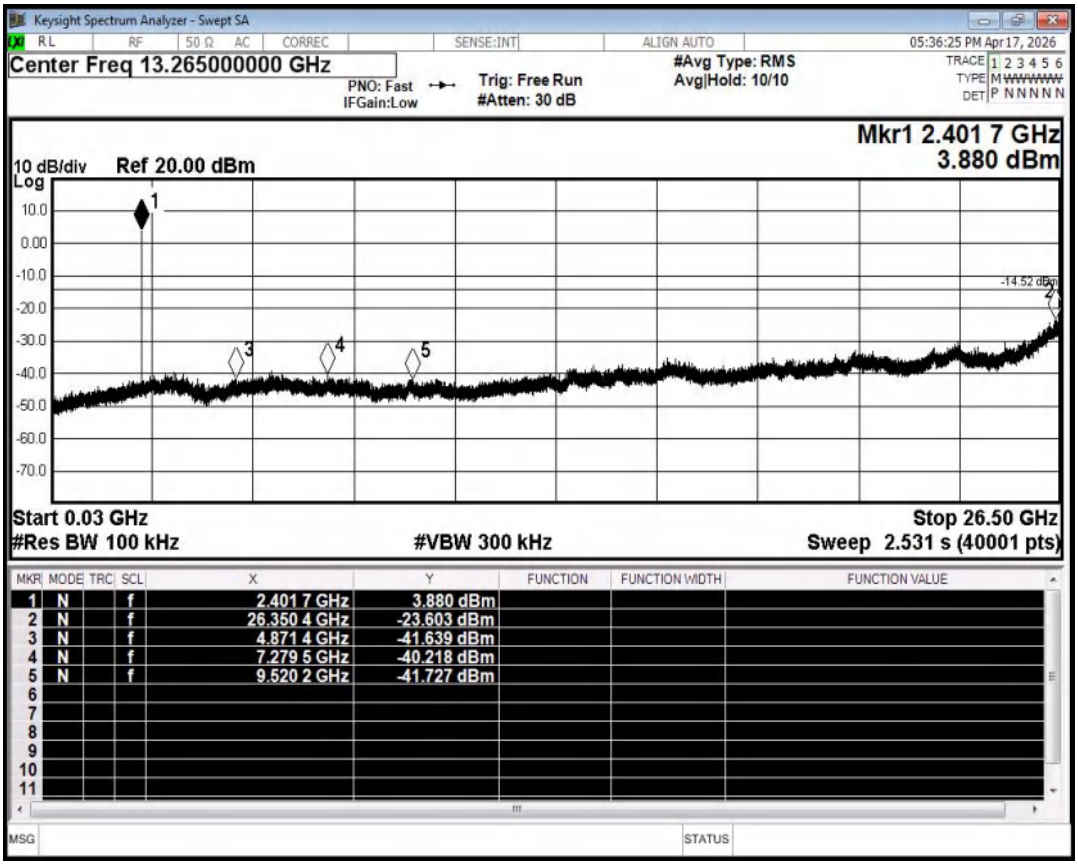
Test Result

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-29.08	-20	Pass
NVNT	BLE 1M	2440	Ant1	-40.22	-20	Pass
NVNT	BLE 1M	2480	Ant1	-41.23	-20	Pass
NVNT	BLE 2M	2402	Ant1	-37.47	-20	Pass
NVNT	BLE 2M	2440	Ant1	-50.55	-20	Pass
NVNT	BLE 2M	2480	Ant1	-48.9	-20	Pass

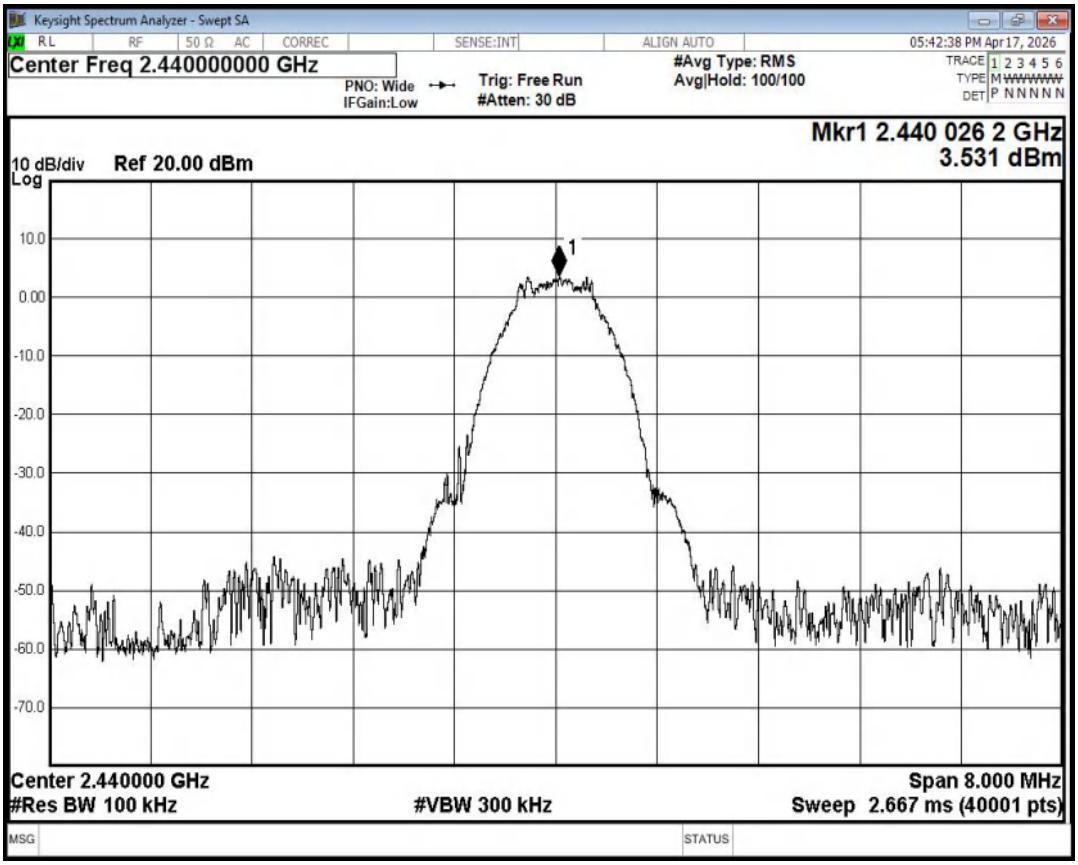
Test Graphs



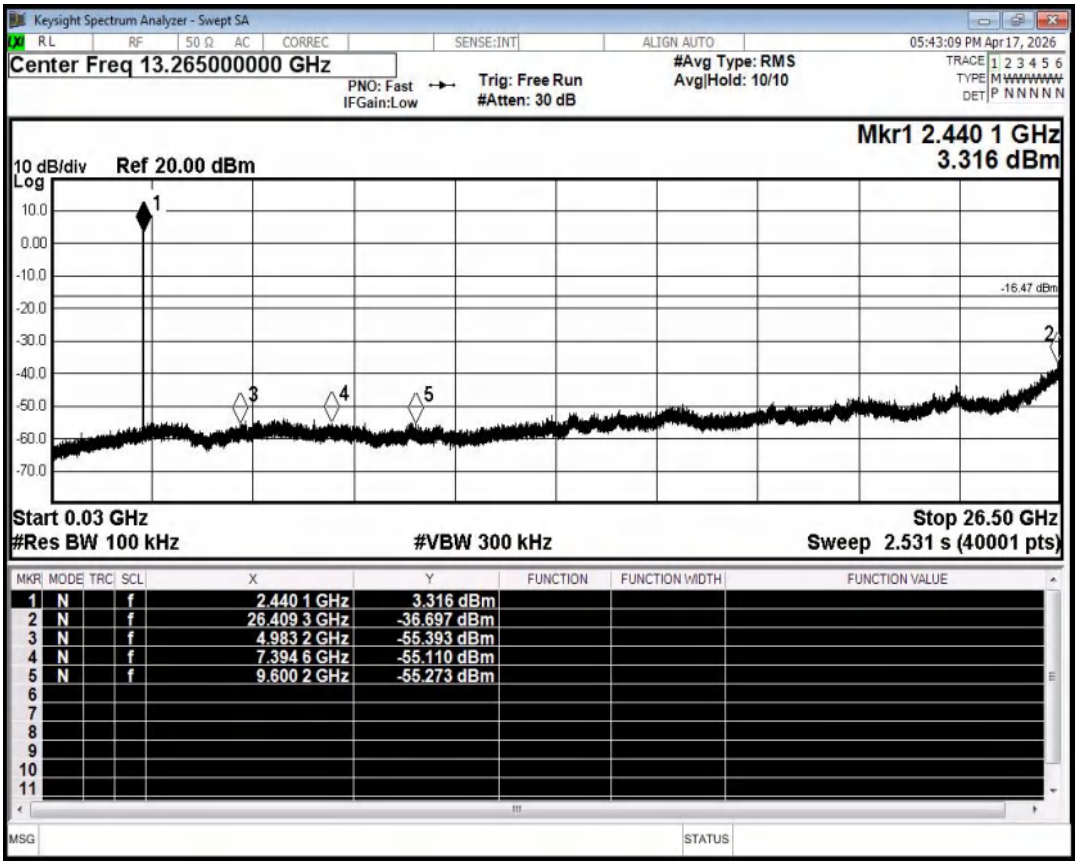
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



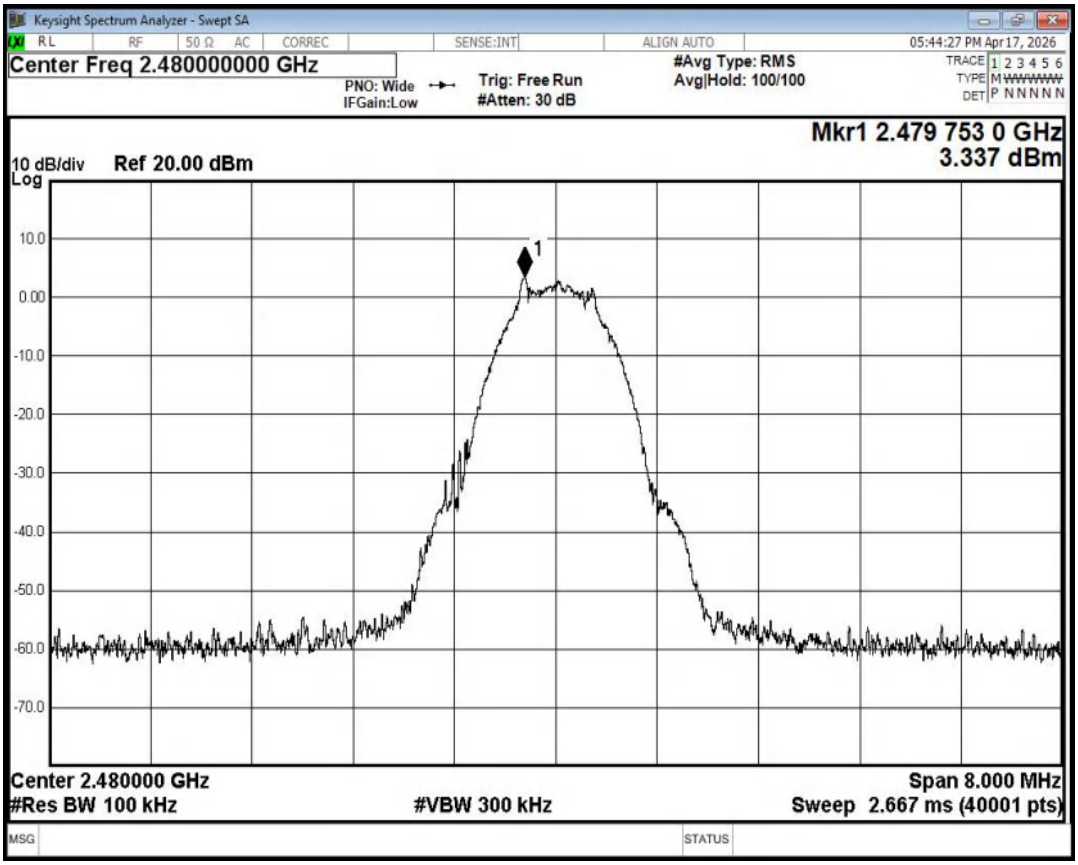
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



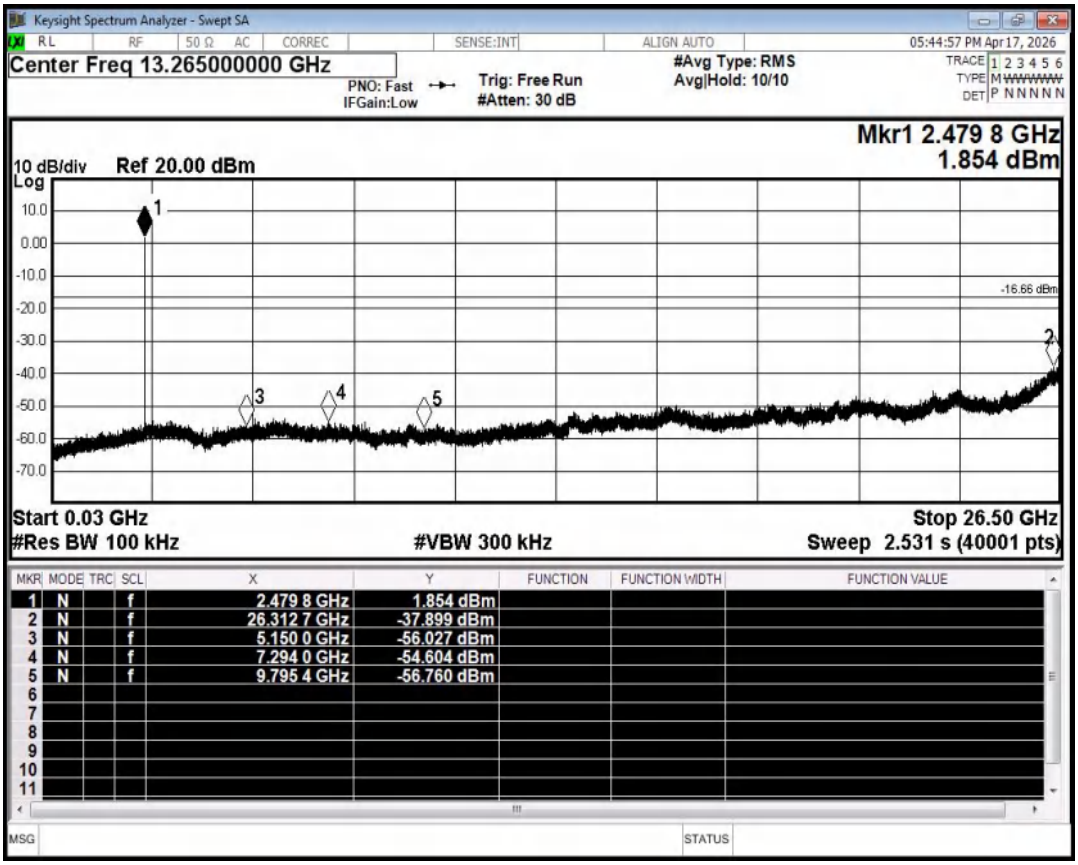
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



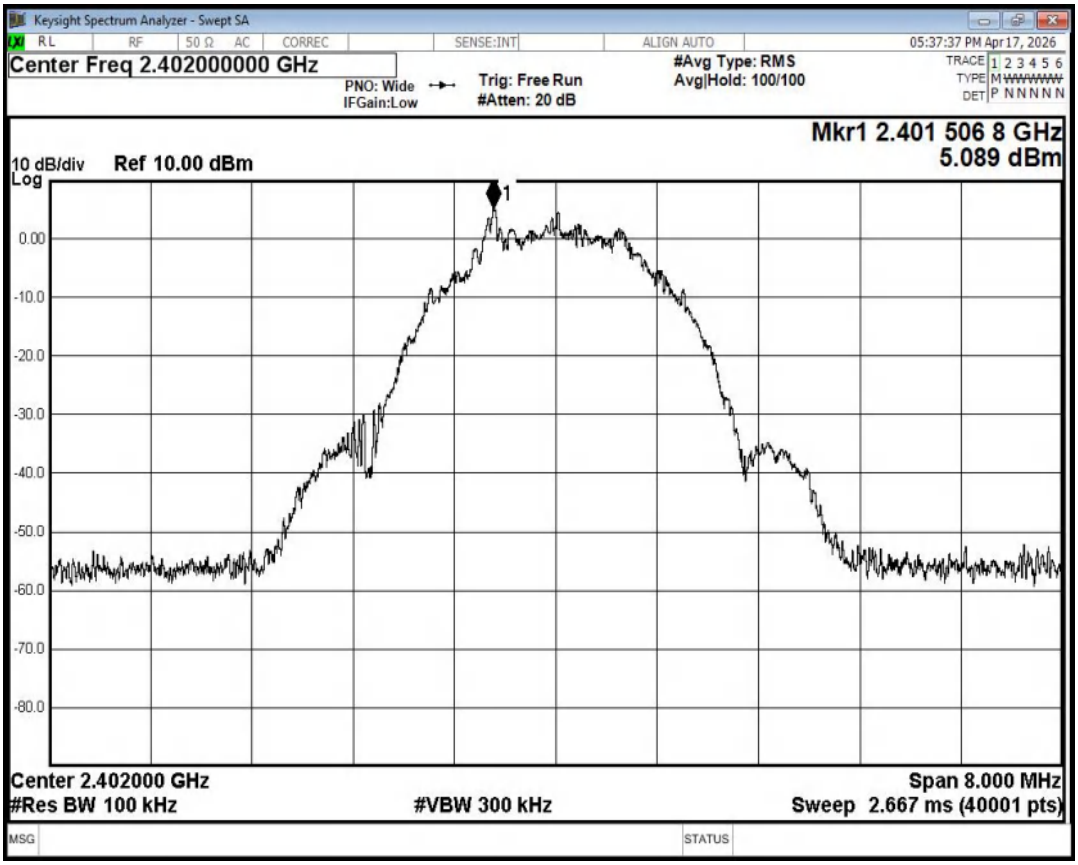
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



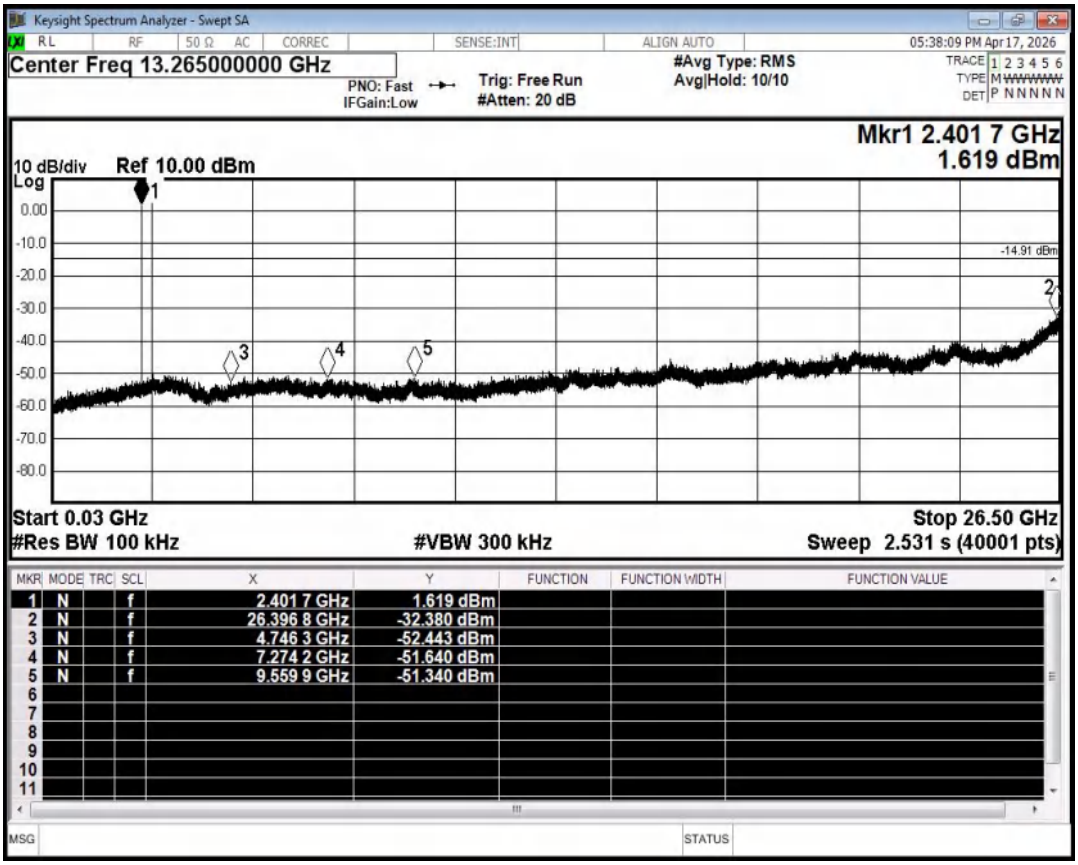
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



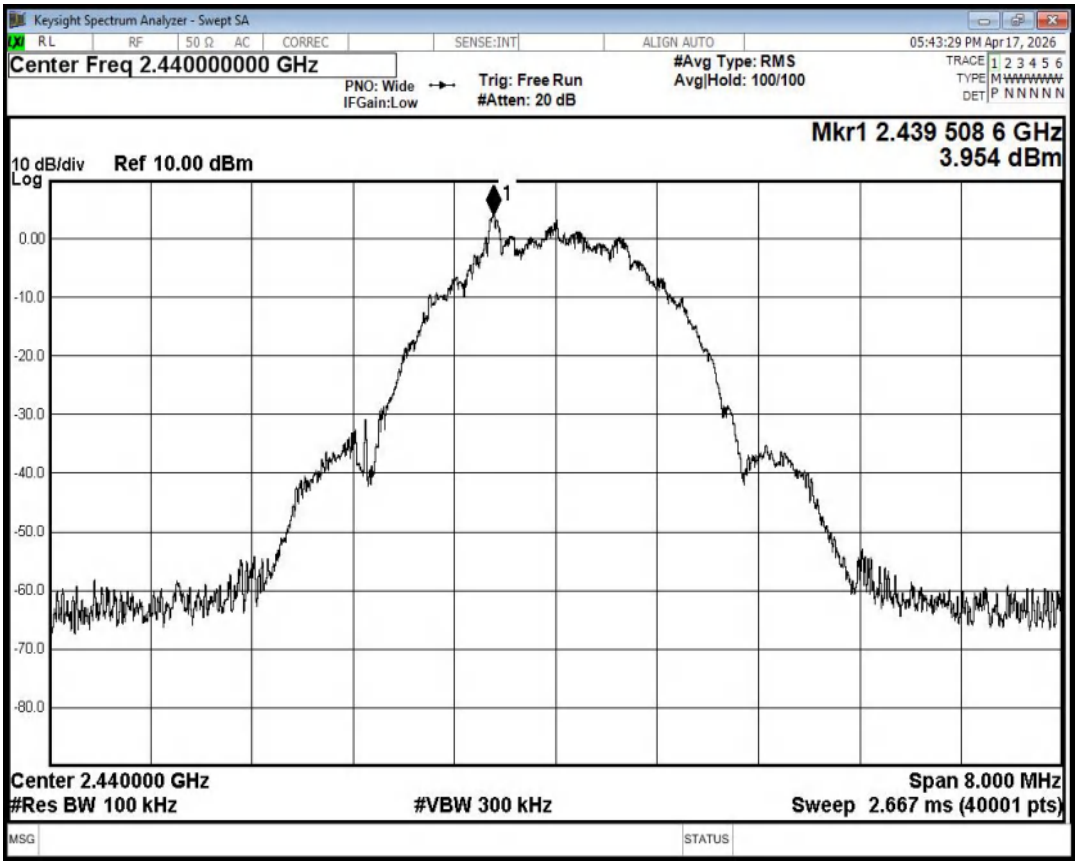
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



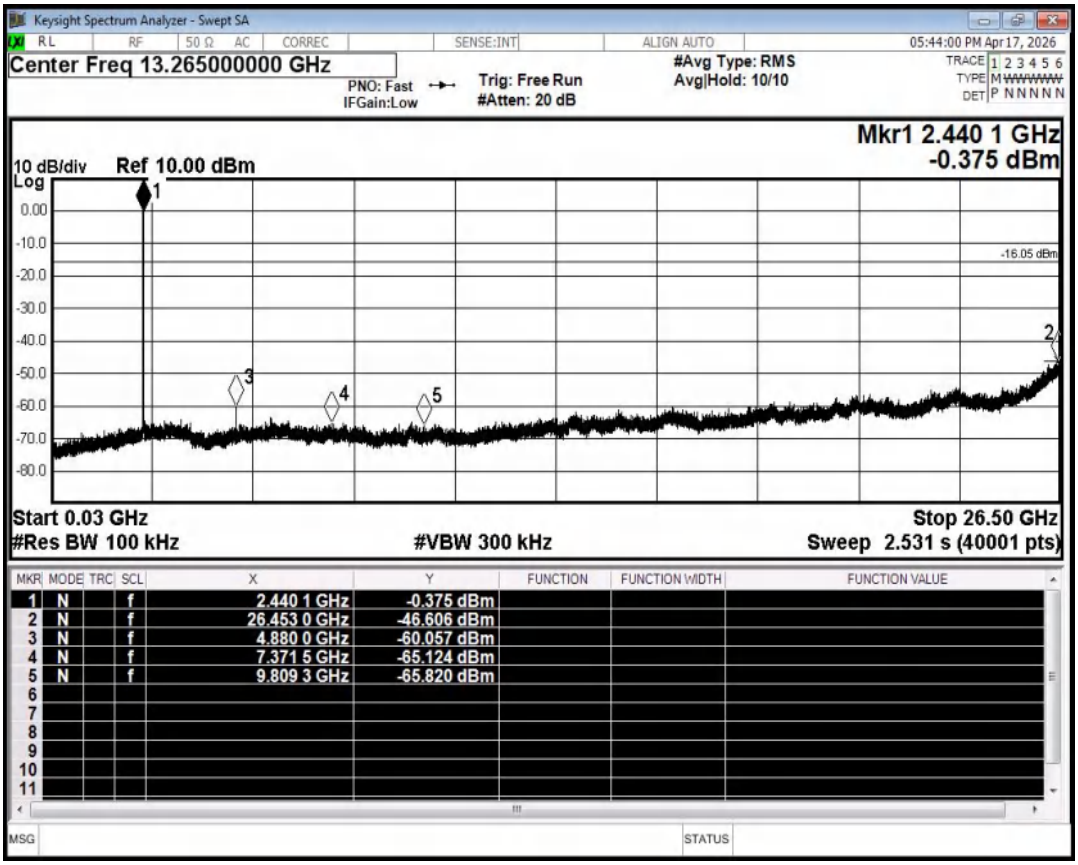
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



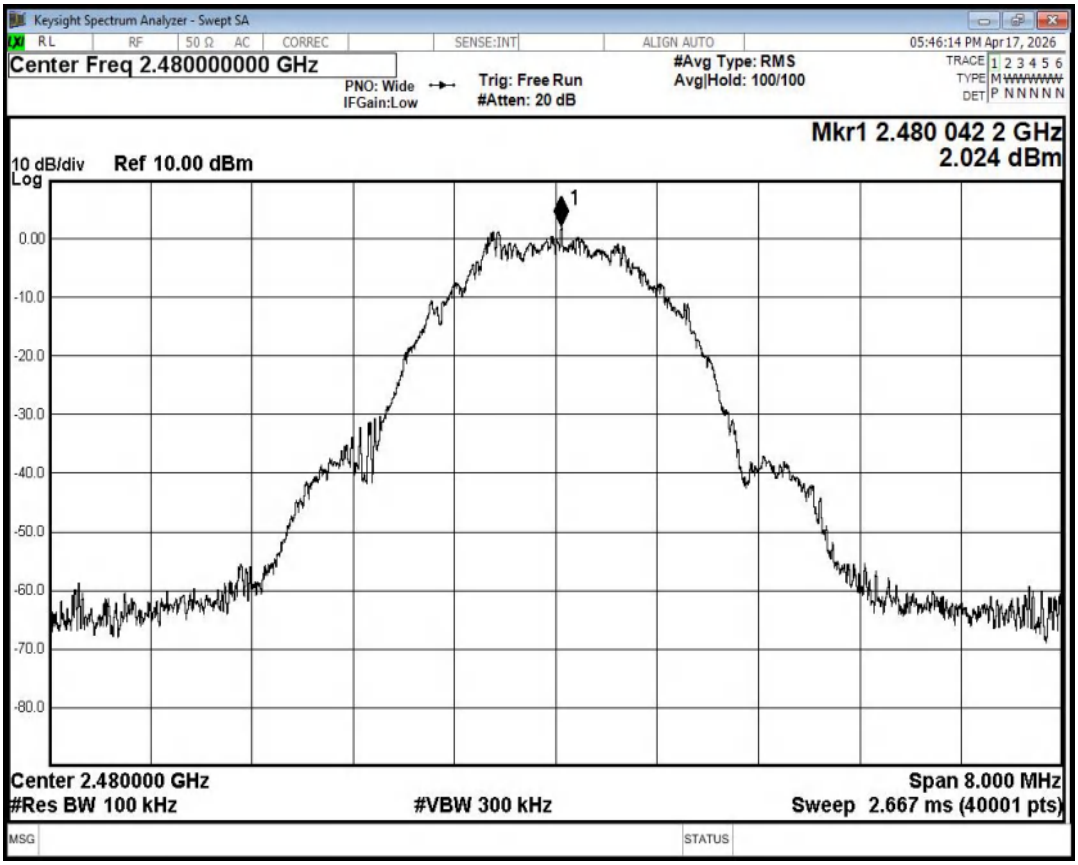
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



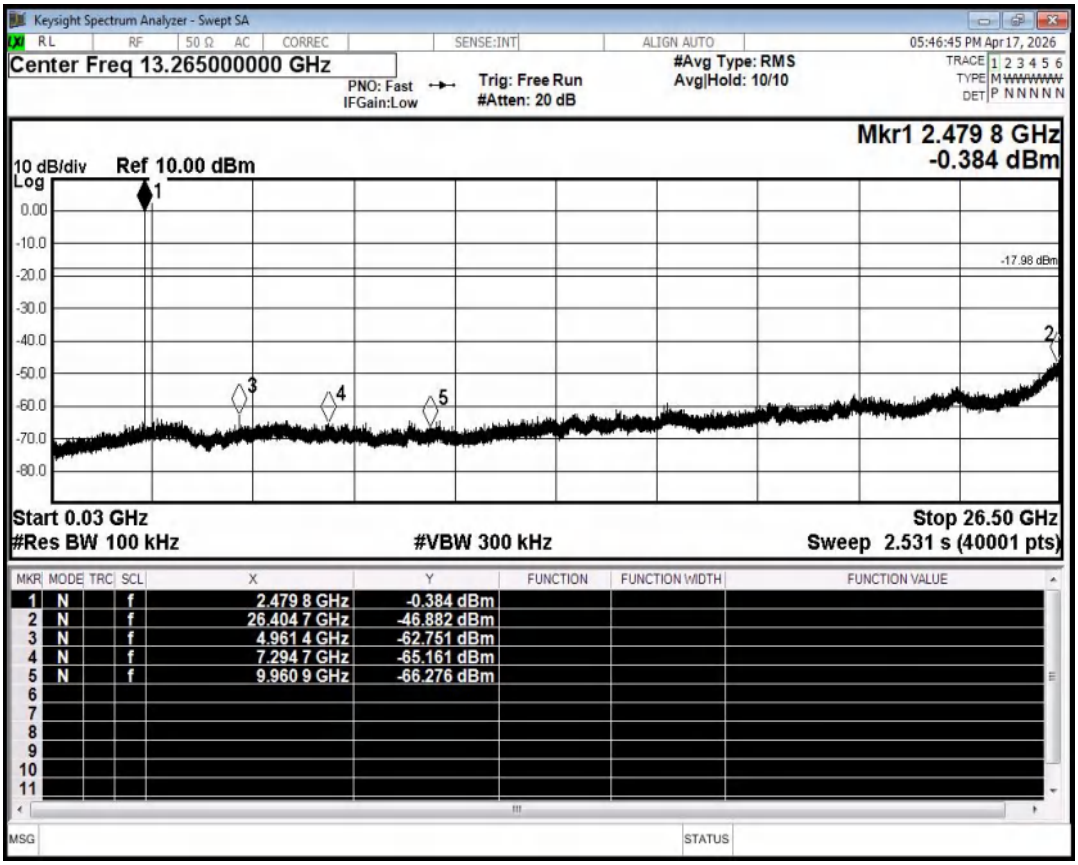
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission

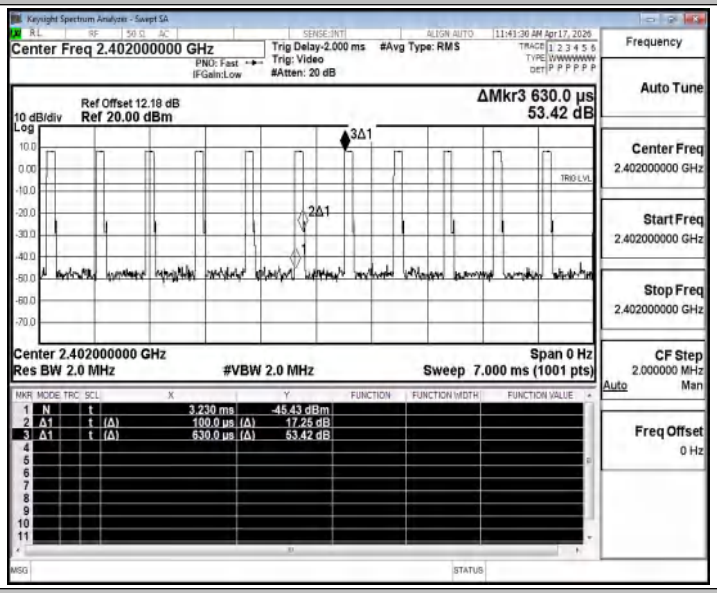
B.6 Duty Cycle

Test Result

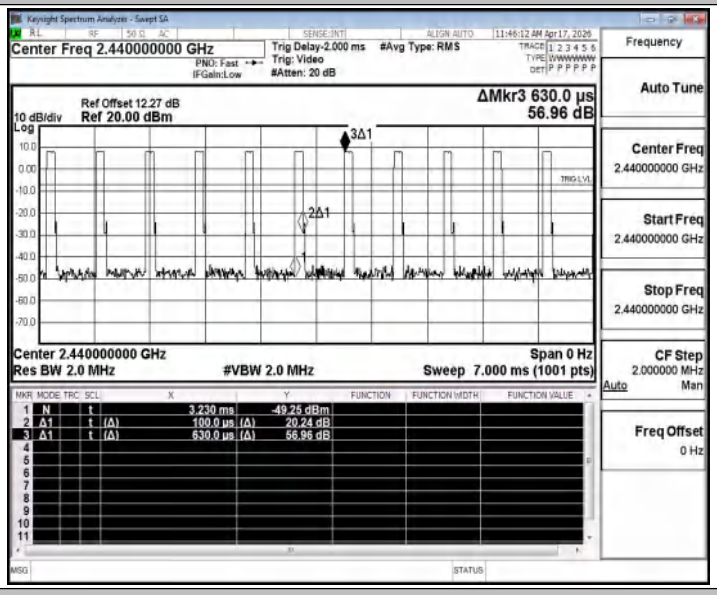
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.10	0.63	0.1587	15.87	7.99	---	---
		2440	0.10	0.63	0.1587	15.87	7.99	---	---
		2480	0.10	0.63	0.1587	15.87	7.99	---	---
BLE_2M	Ant1	2402	0.05	0.62	0.0806	8.06	10.94	---	---
		2440	0.06	0.63	0.0952	9.52	10.21	---	---
		2480	0.06	0.62	0.0968	9.68	10.14	---	---

Test Graphs

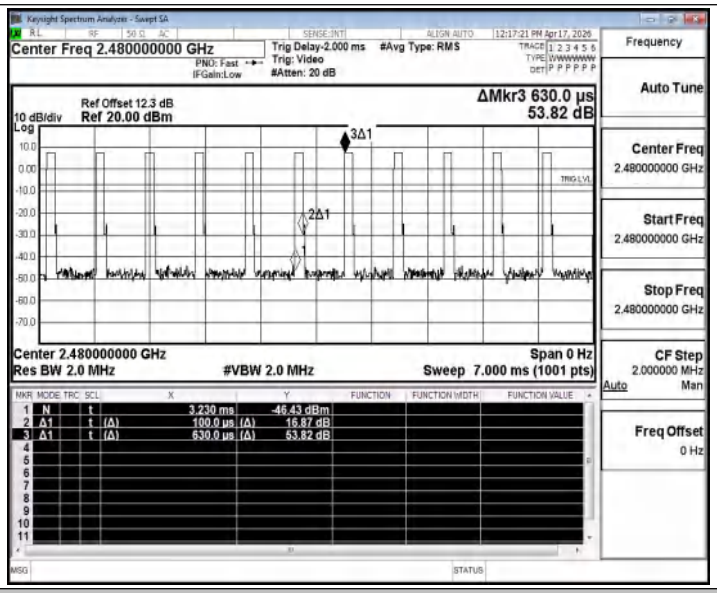
BLE_1M_Ant1_2402



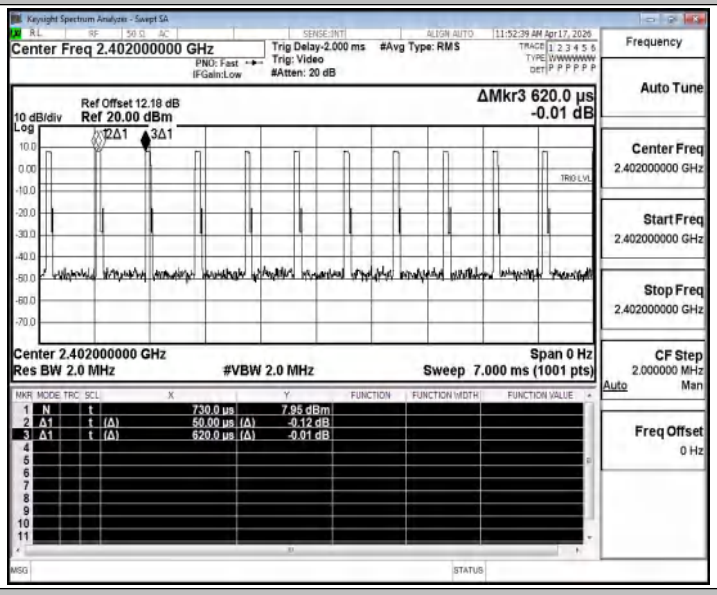
BLE_1M_Ant1_2440



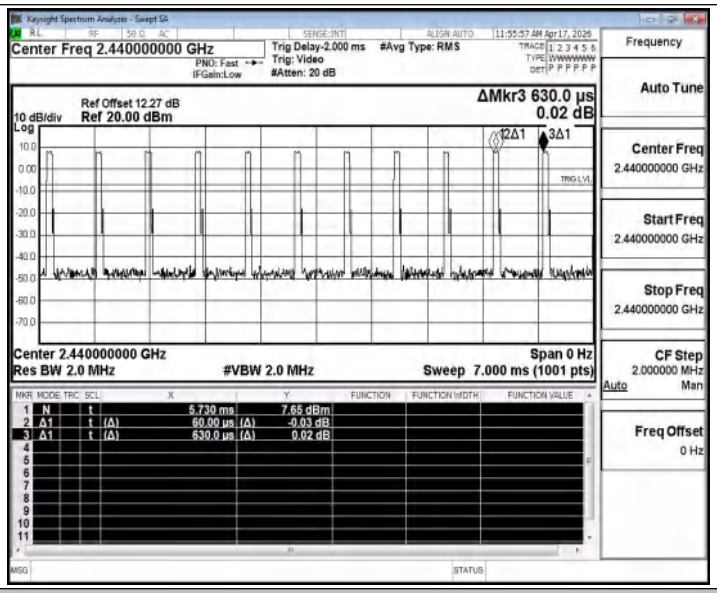
BLE_1M_Ant1_2480



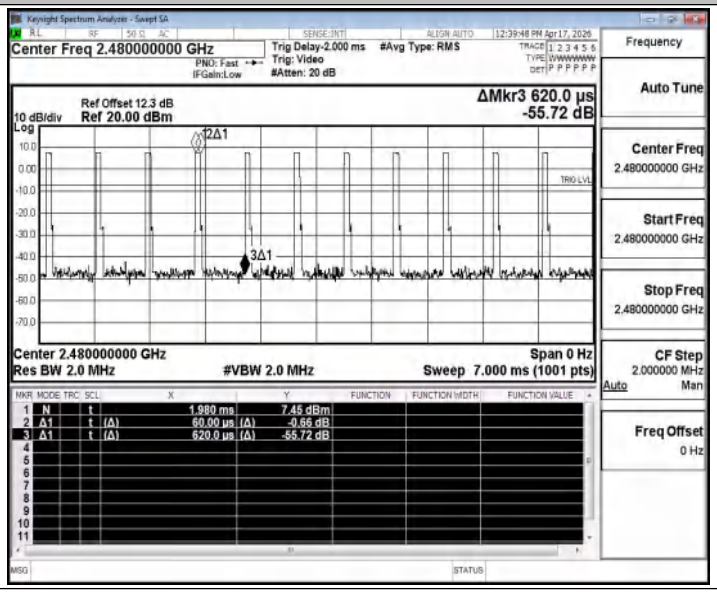
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



B.7 Emissions in Restricted Bands

Test Result

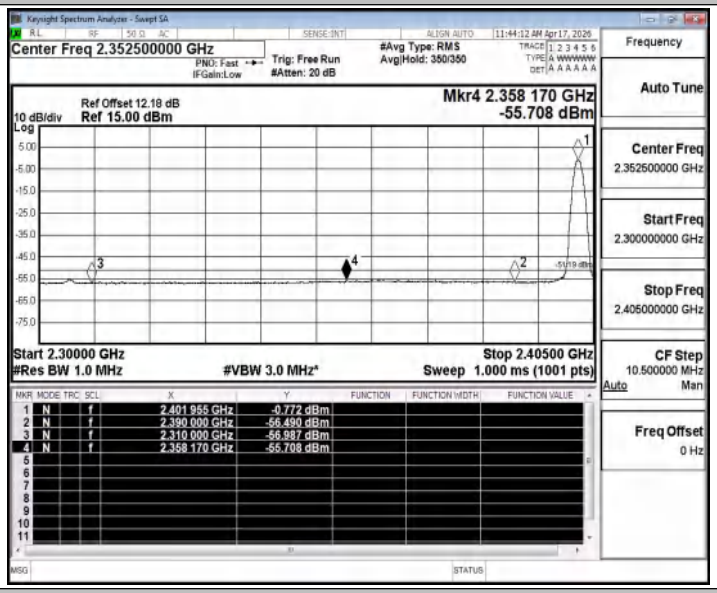
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.99	≤-51.19	2.00	7.99	48.20	≤54	PASS
				AV	2358.170	-55.71	≤-51.19	2.00	7.99	49.48	≤54	PASS
				AV	2390.000	-56.49	≤-51.19	2.00	7.99	48.70	≤54	PASS
				Peak	2310.000	-48.27	≤-23.20	2.00	0.00	48.93	≤74	PASS
				Peak	2366.045	-42.96	≤-23.20	2.00	0.00	54.24	≤74	PASS
				Peak	2390.000	-46.07	≤-23.20	2.00	0.00	51.13	≤74	PASS
		High	2480	AV	2483.500	-55.47	≤-51.19	2.00	7.99	49.72	≤54	PASS
				AV	2483.520	-55.47	≤-51.19	2.00	7.99	49.72	≤54	PASS
				AV	2500.000	-56.26	≤-51.19	2.00	7.99	48.93	≤54	PASS
				Peak	2483.500	-44.02	≤-23.20	2.00	0.00	53.18	≤74	PASS
				Peak	2485.680	-41.58	≤-23.20	2.00	0.00	55.62	≤74	PASS
				Peak	2500.000	-47.13	≤-23.20	2.00	0.00	50.07	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.1	≤-54.14	2.00	10.94	51.04	≤54	PASS
				AV	2375.285	-56.19	≤-54.14	2.00	10.94	51.95	≤54	PASS
				AV	2390.000	-56.68	≤-54.14	2.00	10.94	51.46	≤54	PASS
				Peak	2310.000	-47.54	≤-23.20	2.00	0.00	49.66	≤74	PASS
				Peak	2361.110	-41.98	≤-23.20	2.00	0.00	55.22	≤74	PASS
				Peak	2390.000	-47.51	≤-23.20	2.00	0.00	49.69	≤74	PASS
		High	2480	AV	2483.500	-58.23	≤-53.34	2.00	10.14	49.11	≤54	PASS
				AV	2485.120	-54.01	≤-53.34	2.00	10.14	53.33	≤54	PASS
				AV	2500.000	-64.27	≤-53.34	2.00	10.14	43.07	≤54	PASS
				Peak	2483.500	-38.99	≤-23.20	2.00	0.00	58.21	≤74	PASS
				Peak	2485.440	-29.66	≤-23.20	2.00	0.00	67.54	≤74	PASS
				Peak	2500.000	-50.34	≤-23.20	2.00	0.00	46.86	≤74	PASS

Note：

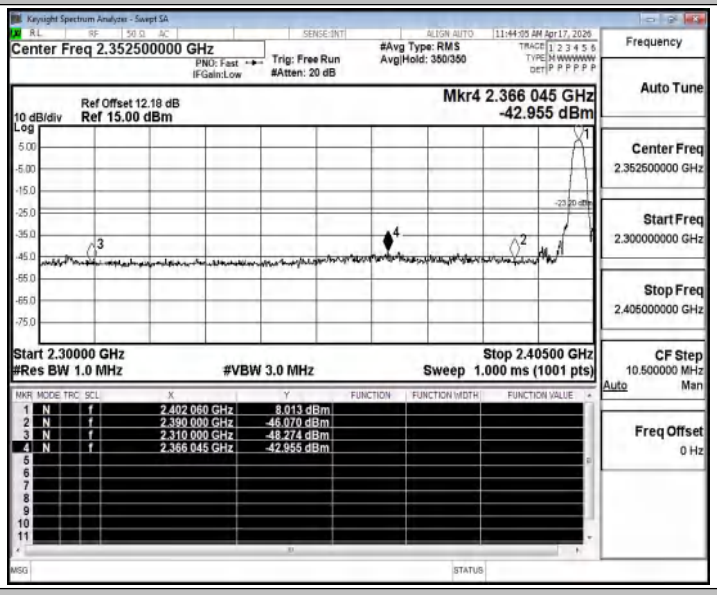
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

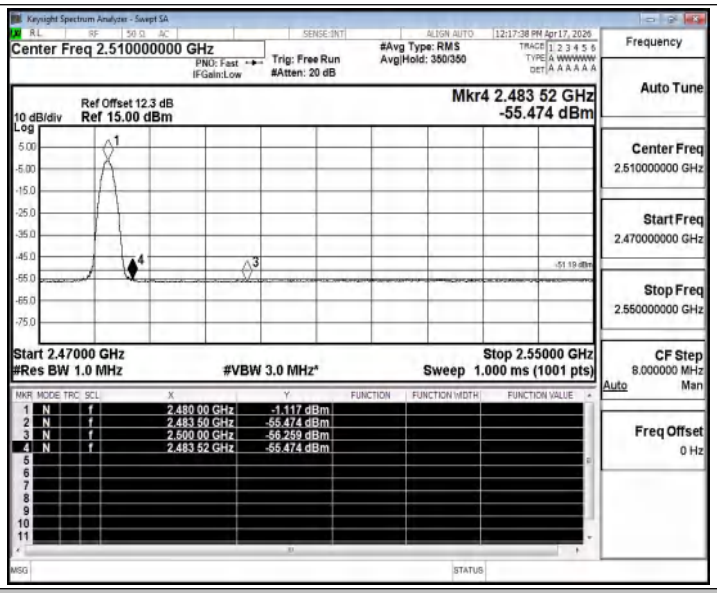
BLE_1M_Ant1_Low_2402_AV



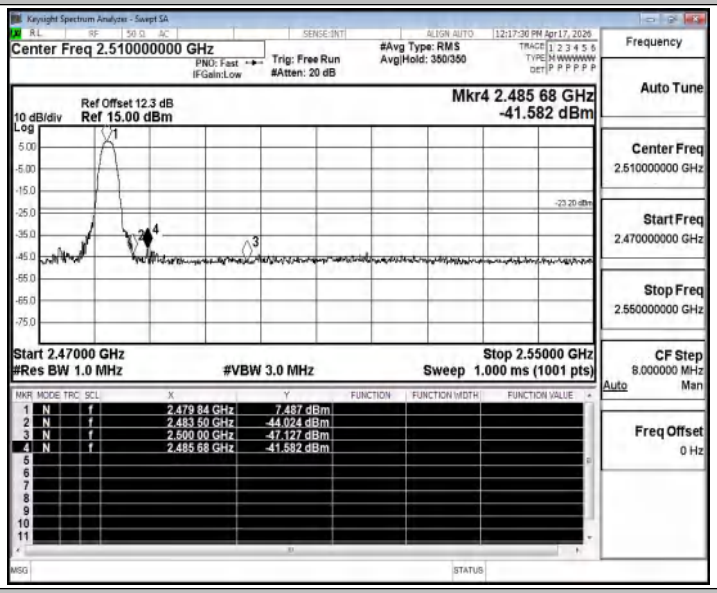
BLE_1M_Ant1_Low_2402_Peak



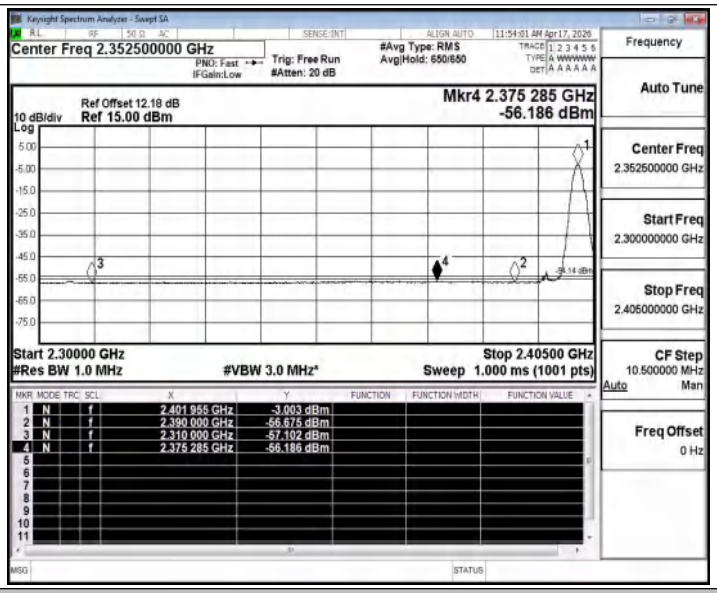
BLE_1M_Ant1_High_2480_AV



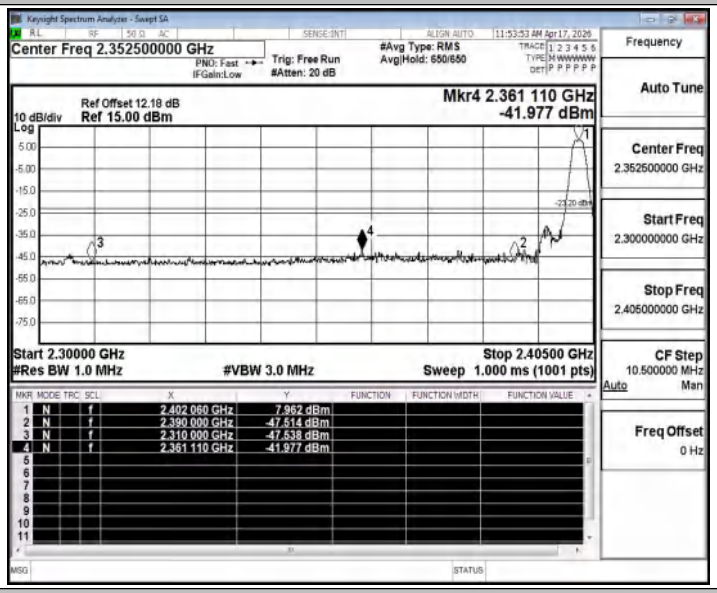
BLE_1M_Ant1_High_2480_Peak



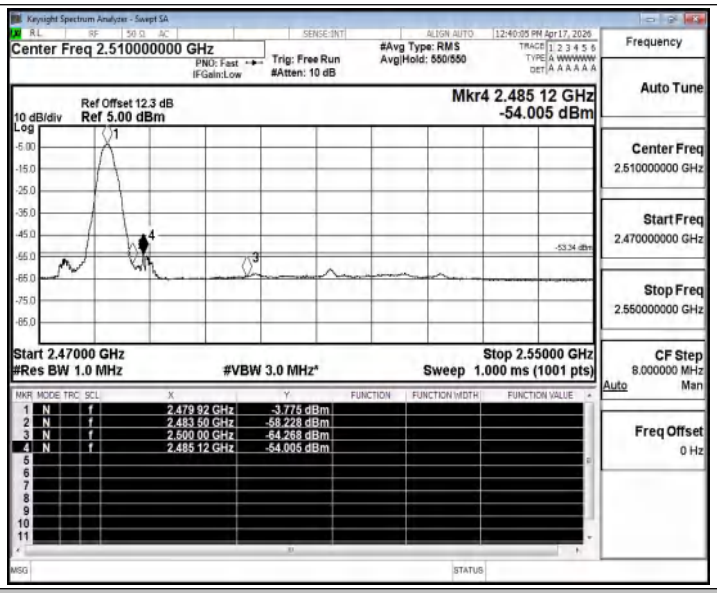
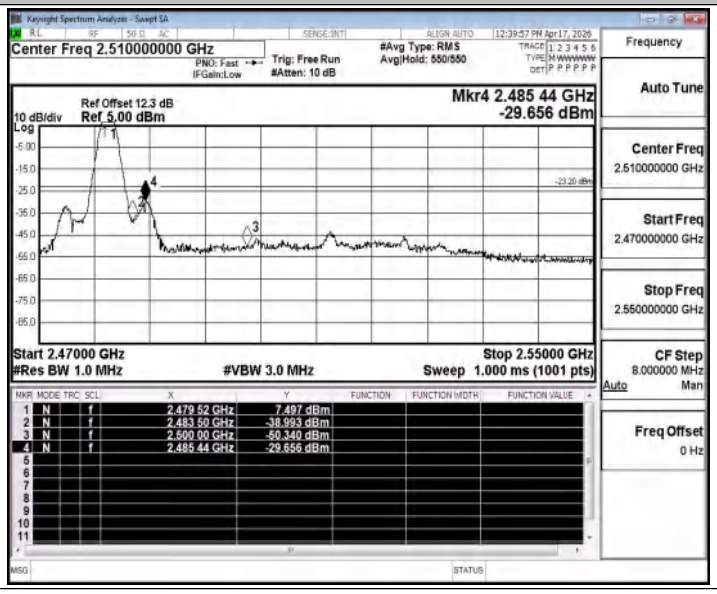
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak