

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Refrigerator

Test Model: TY-01N

Environmental Conditions

Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

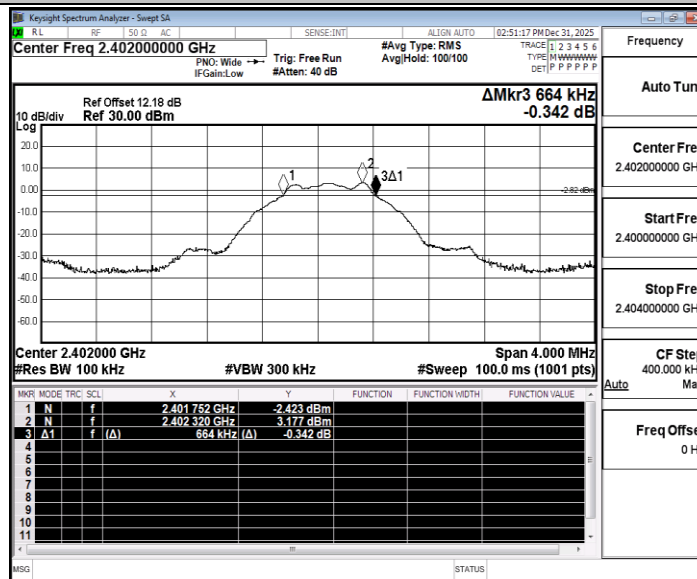
A.1 DTS Bandwidth

Test Result

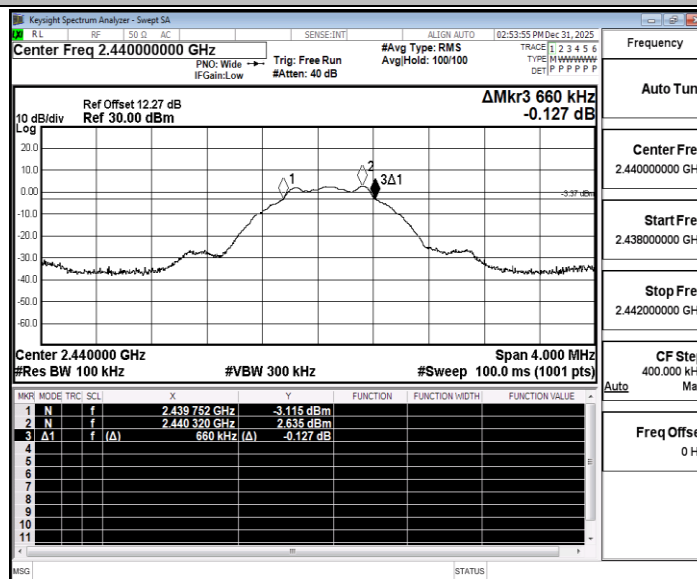
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.752	2402.416	0.5	PASS
		2440	0.660	2439.752	2440.412	0.5	PASS
		2480	0.700	2479.728	2480.428	0.5	PASS
BLE_2M	Ant1	2402	1.120	2401.512	2402.632	0.5	PASS
		2440	1.128	2439.508	2440.636	0.5	PASS
		2480	1.148	2479.492	2480.640	0.5	PASS

Test Graphs

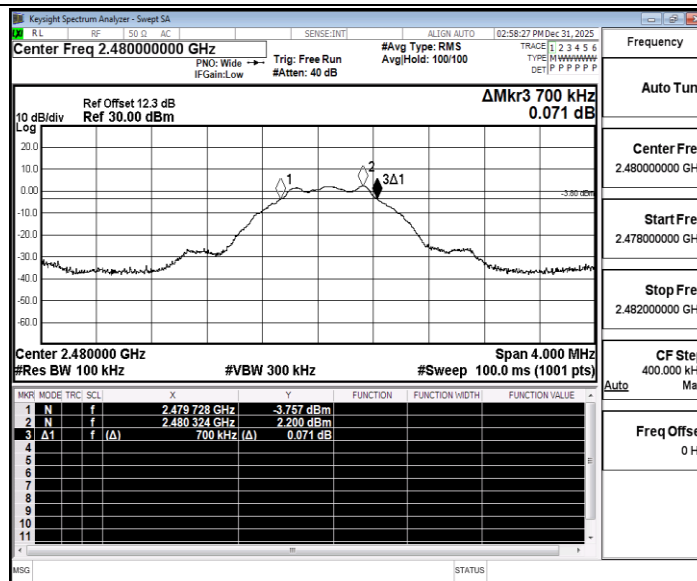
BLE_1M_Ant1_2402



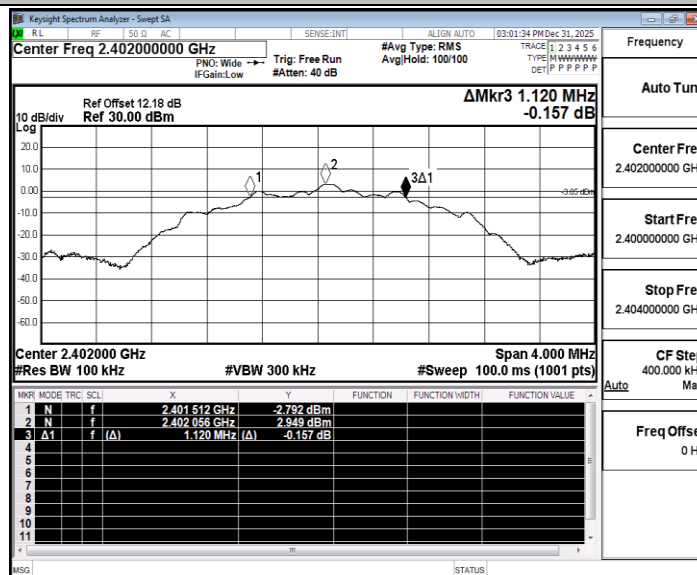
BLE_1M_Ant1_2440



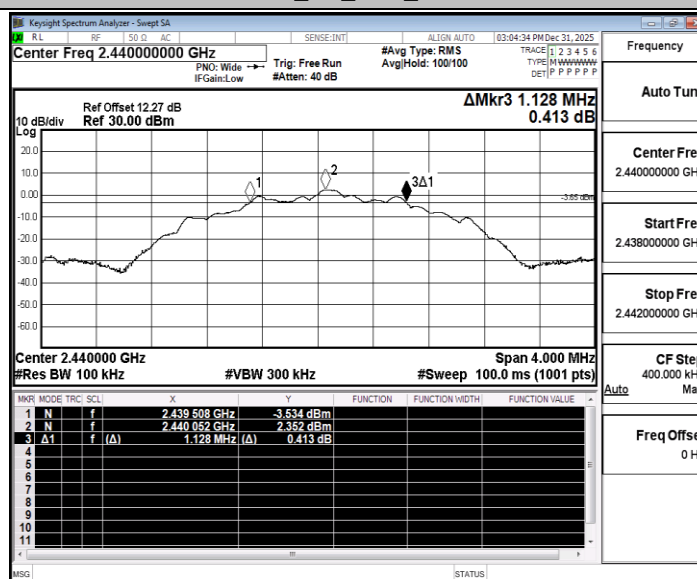
BLE_1M_Ant1_2480



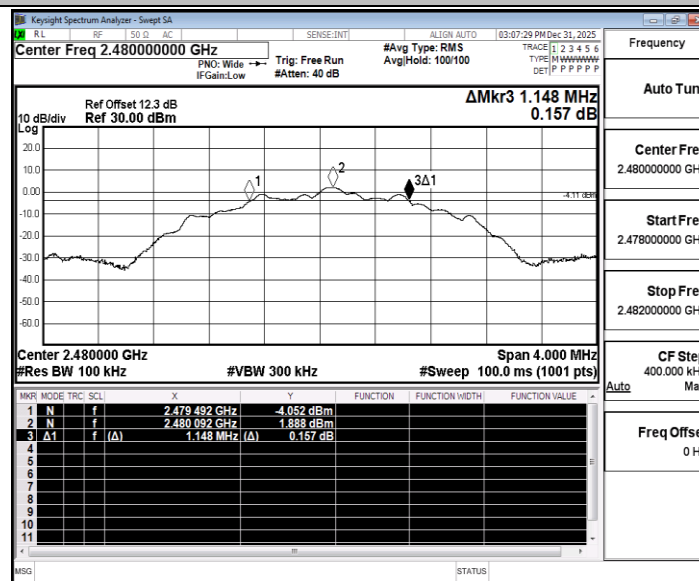
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



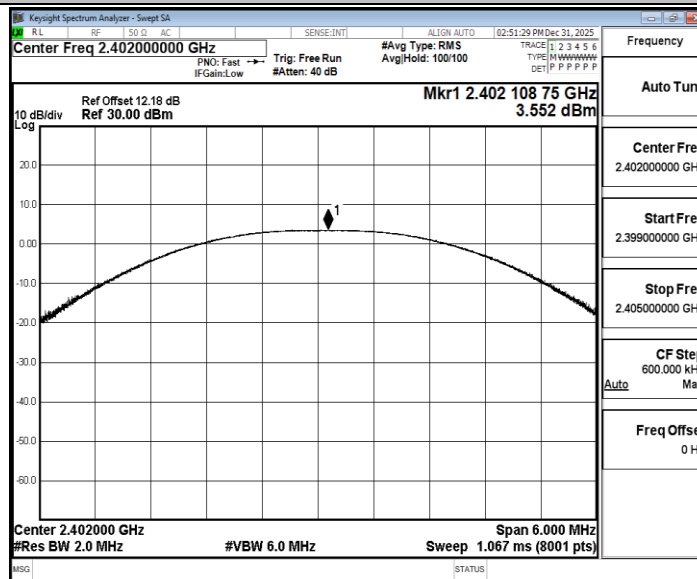
A.2 Maximum Peak conducted output power

Test Result Peak

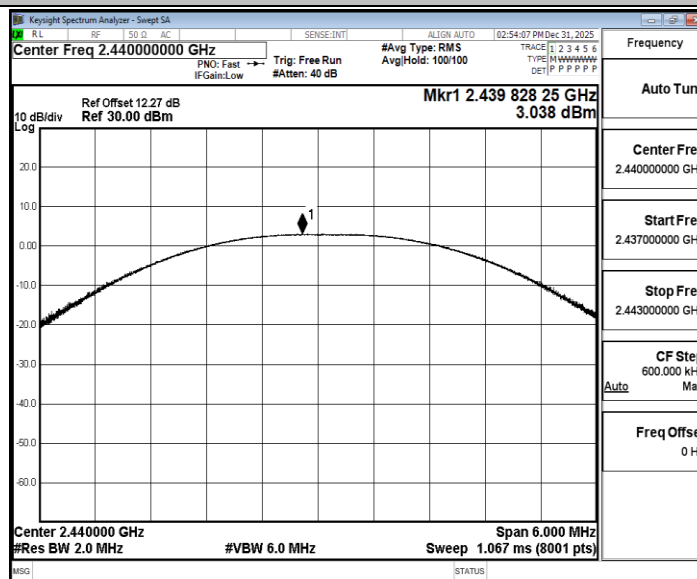
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	3.55	≤30	PASS
		2440	3.04	≤30	PASS
		2480	2.59	≤30	PASS
BLE_2M	Ant1	2402	3.58	≤30	PASS
		2440	3.08	≤30	PASS
		2480	2.57	≤30	PASS

Test Graphs Peak

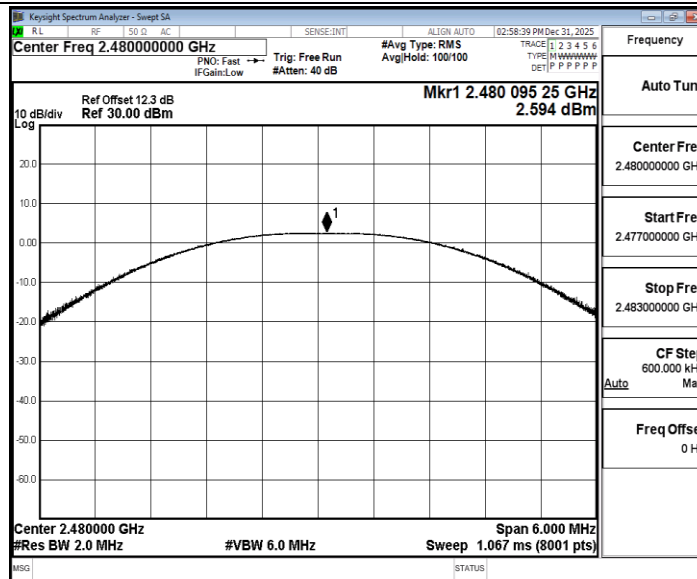
BLE_1M_Ant1_2402



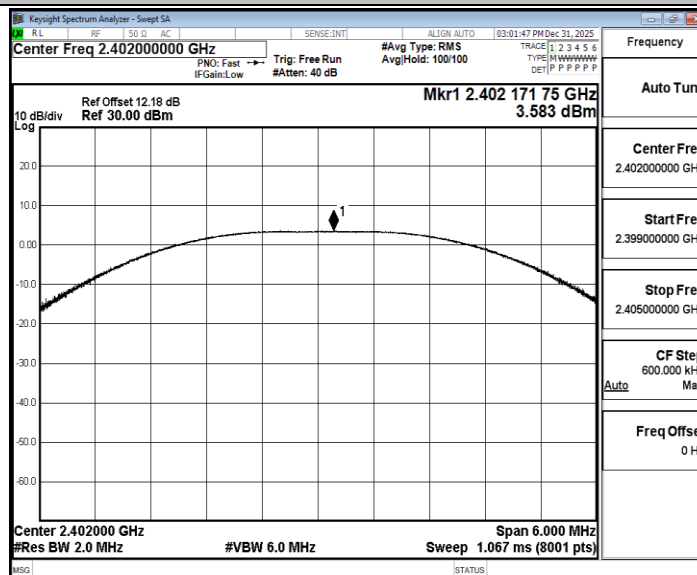
BLE_1M_Ant1_2440



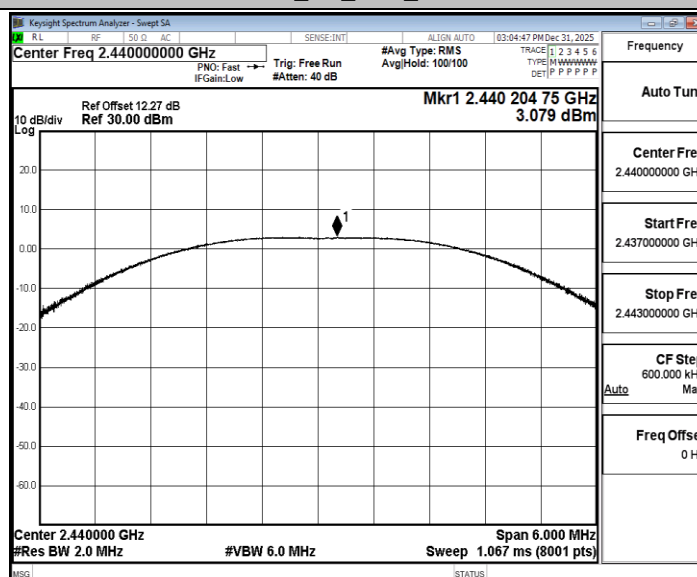
BLE_1M_Ant1_2480



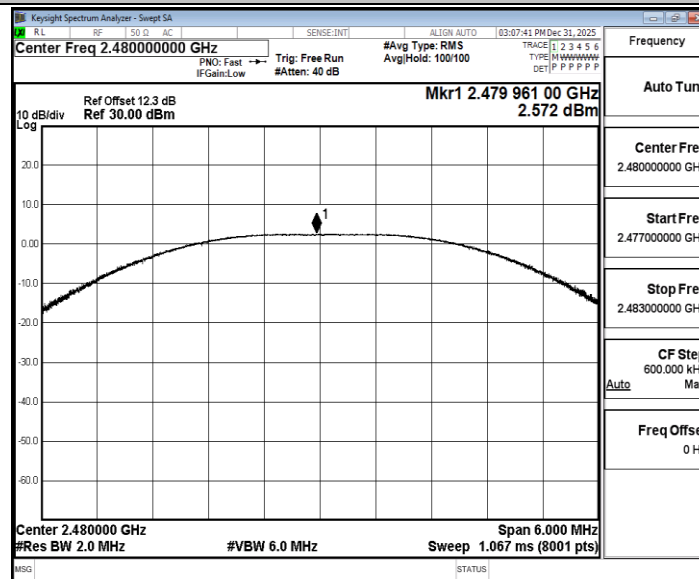
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



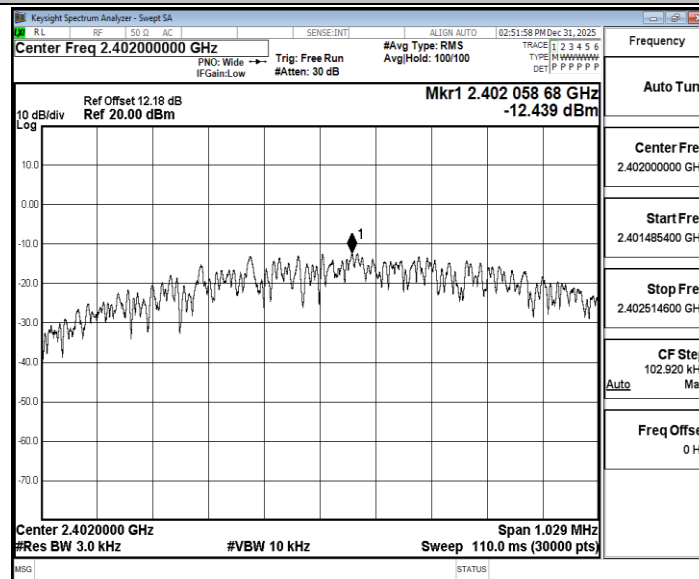
A.3 Maximum power spectral density

Test Result

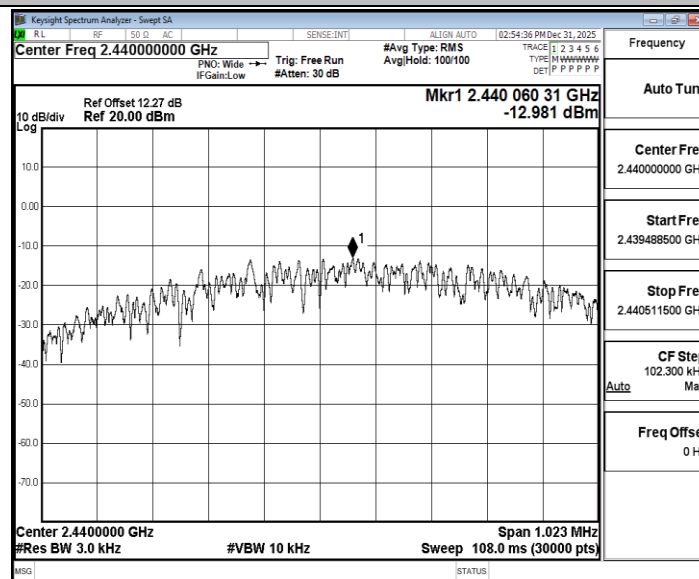
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-12.44	≤8.00	PASS
		2440	-12.98	≤8.00	PASS
		2480	-13.49	≤8.00	PASS
BLE_2M	Ant1	2402	-12.92	≤8.00	PASS
		2440	-13.69	≤8.00	PASS
		2480	-13.90	≤8.00	PASS

Test Graphs

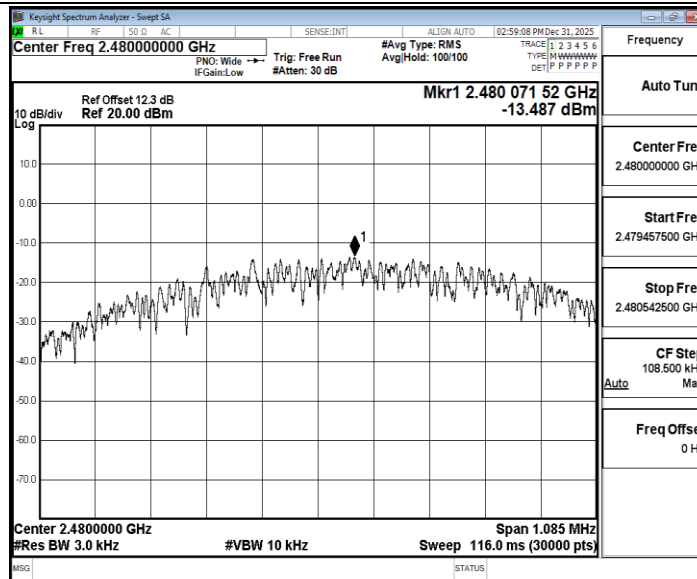
BLE_1M_Ant1_2402



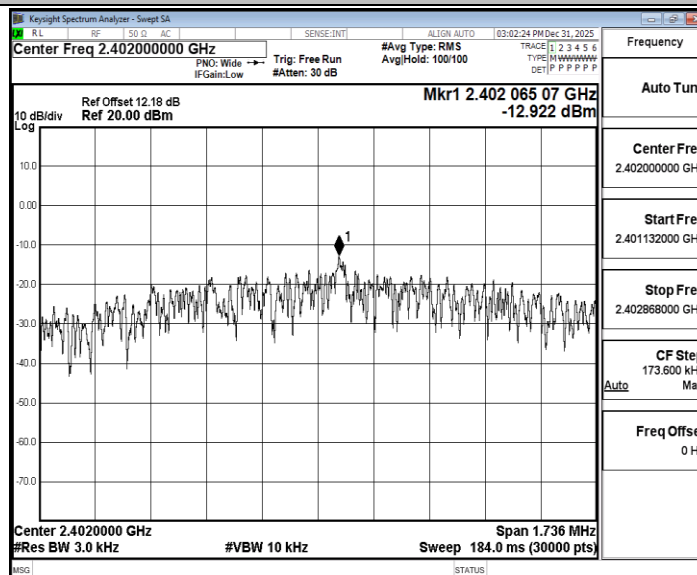
BLE_1M_Ant1_2440



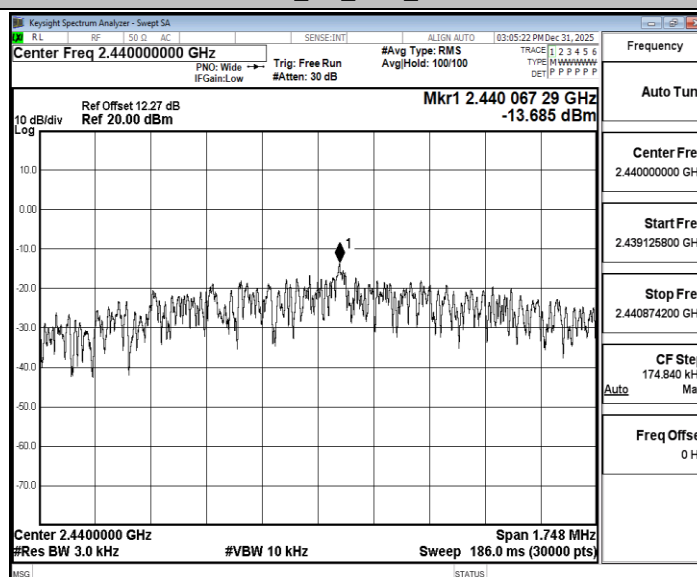
BLE_1M_Ant1_2480



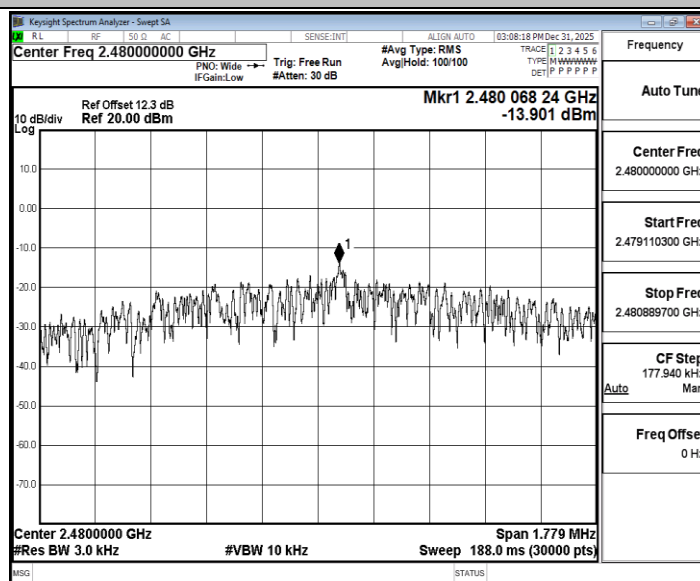
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



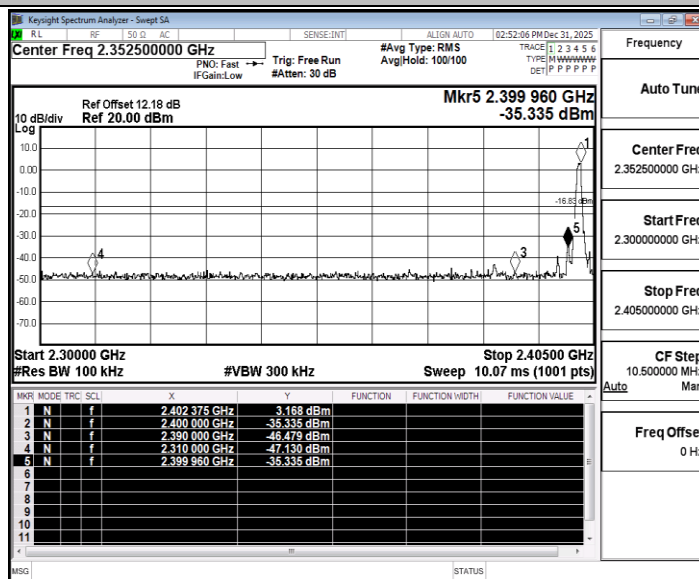
A.4 Band edge measurements

Test Result

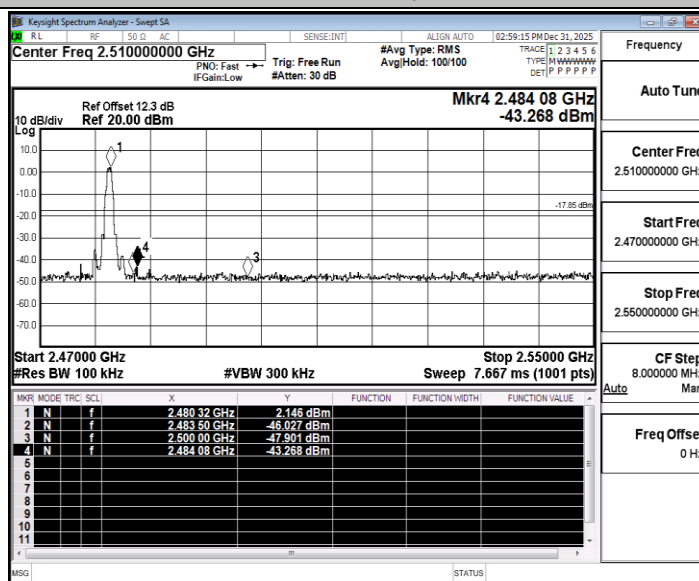
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	3.17	-35.34	≤-16.83	PASS
		High	2480	2.15	-43.27	≤-17.85	PASS
BLE_2M	Ant1	Low	2402	3.05	-32.81	≤-16.95	PASS
		High	2480	1.97	-42.41	≤-18.03	PASS

Test Graphs

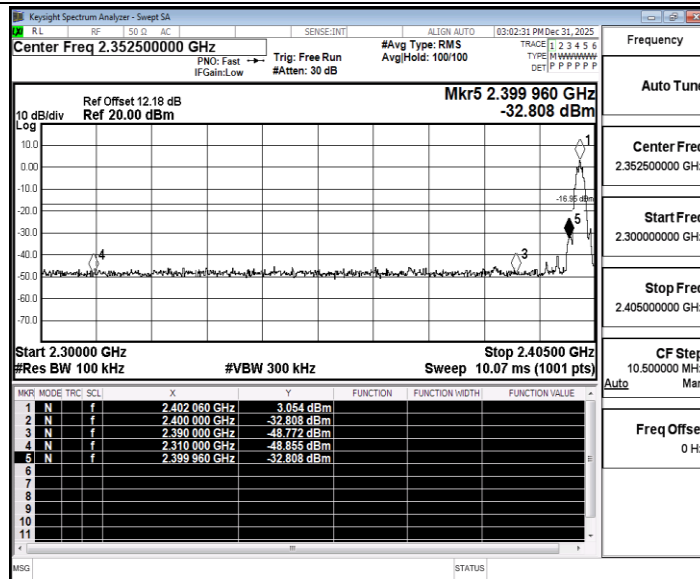
BLE_1M_Ant1_Low_2402



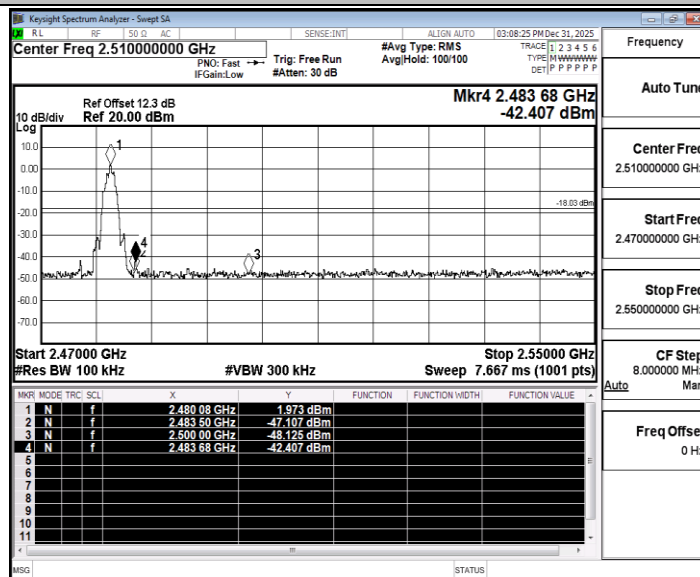
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



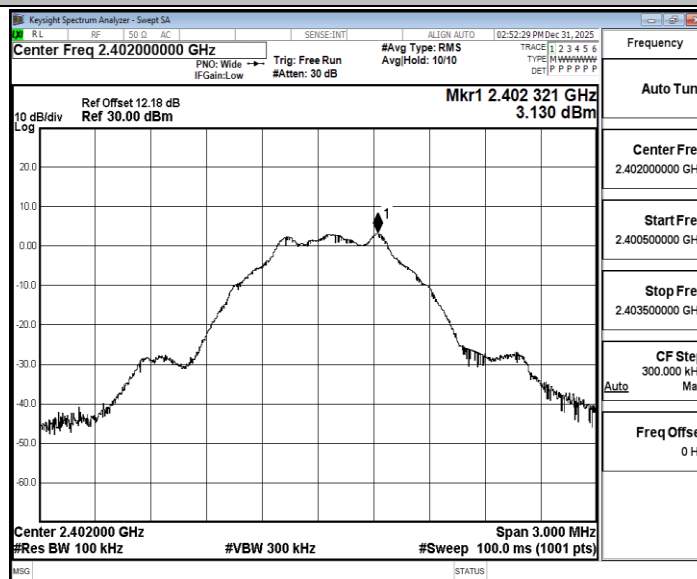
A.5 Conducted Spurious Emission

Test Result

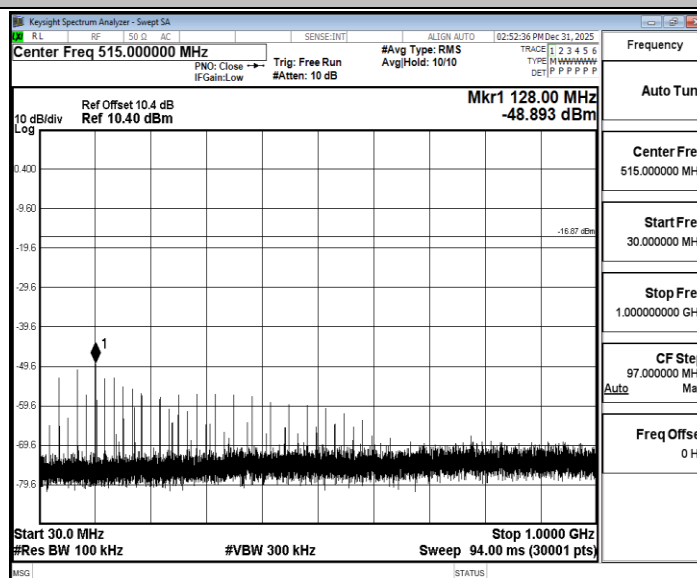
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	3.13	3.13	---	PASS
			30~1000	3.13	-48.89	≤-16.87	PASS
			1000~26500	3.13	-26.68	≤-16.87	PASS
		2440	Reference	2.53	2.53	---	PASS
			30~1000	2.53	-49.3	≤-17.47	PASS
			1000~26500	2.53	-28.78	≤-17.47	PASS
		2480	Reference	2.13	2.13	---	PASS
			30~1000	2.13	-49.1	≤-17.87	PASS
			1000~26500	2.13	-31.56	≤-17.87	PASS
BLE_2M	Ant1	2402	Reference	2.82	2.82	---	PASS
			30~1000	2.82	-48.96	≤-17.18	PASS
			1000~26500	2.82	-27.28	≤-17.18	PASS
		2440	Reference	2.27	2.27	---	PASS
			30~1000	2.27	-48.87	≤-17.73	PASS
			1000~26500	2.27	-30.71	≤-17.73	PASS
		2480	Reference	1.82	1.82	---	PASS
			30~1000	1.82	-49.02	≤-18.18	PASS
			1000~26500	1.82	-34.66	≤-18.18	PASS

Test Graphs

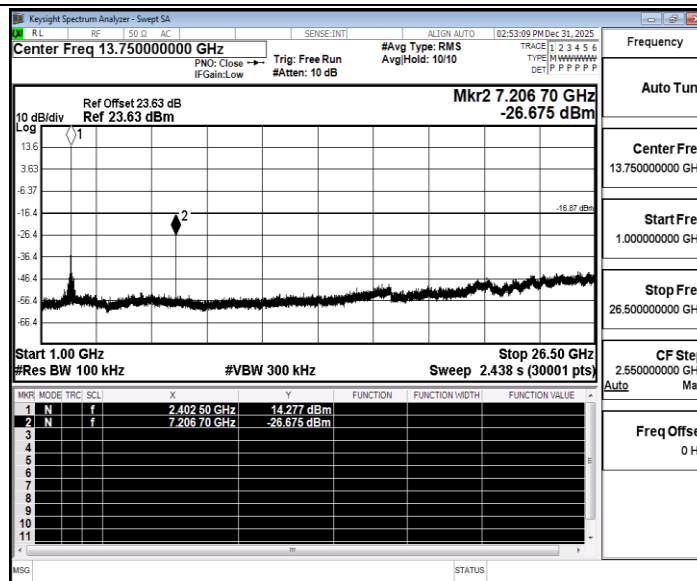
BLE_1M_Ant1_2402_0~Reference



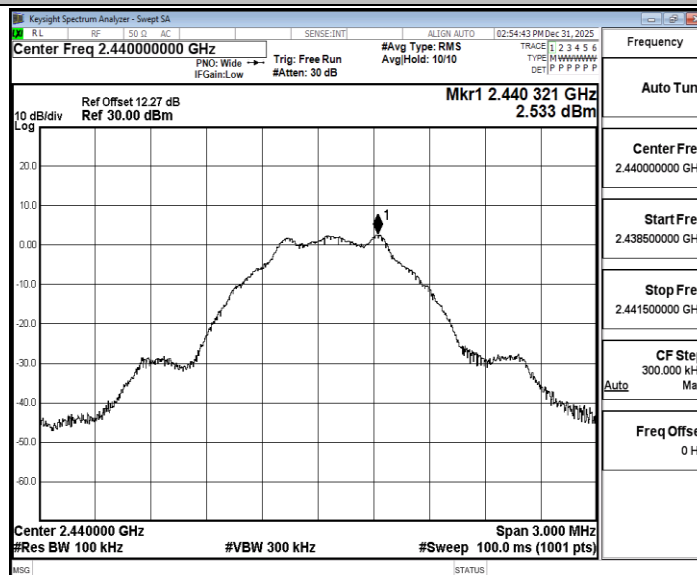
BLE_1M_Ant1_2402_30~1000



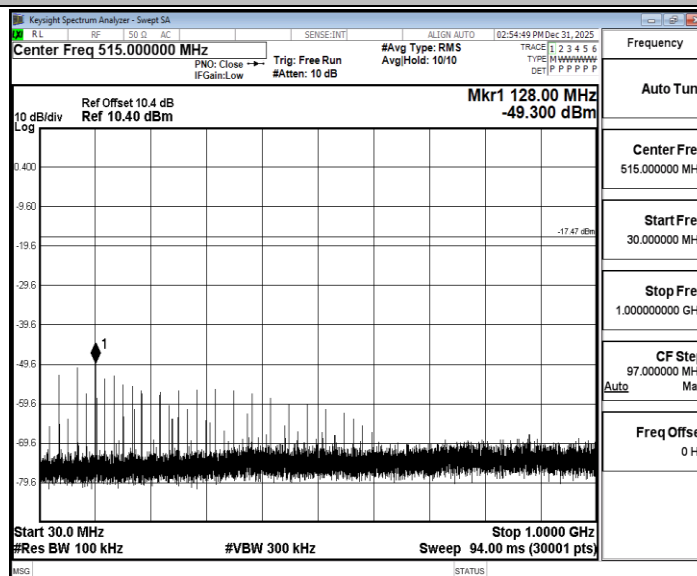
BLE_1M_Ant1_2402_1000~26500

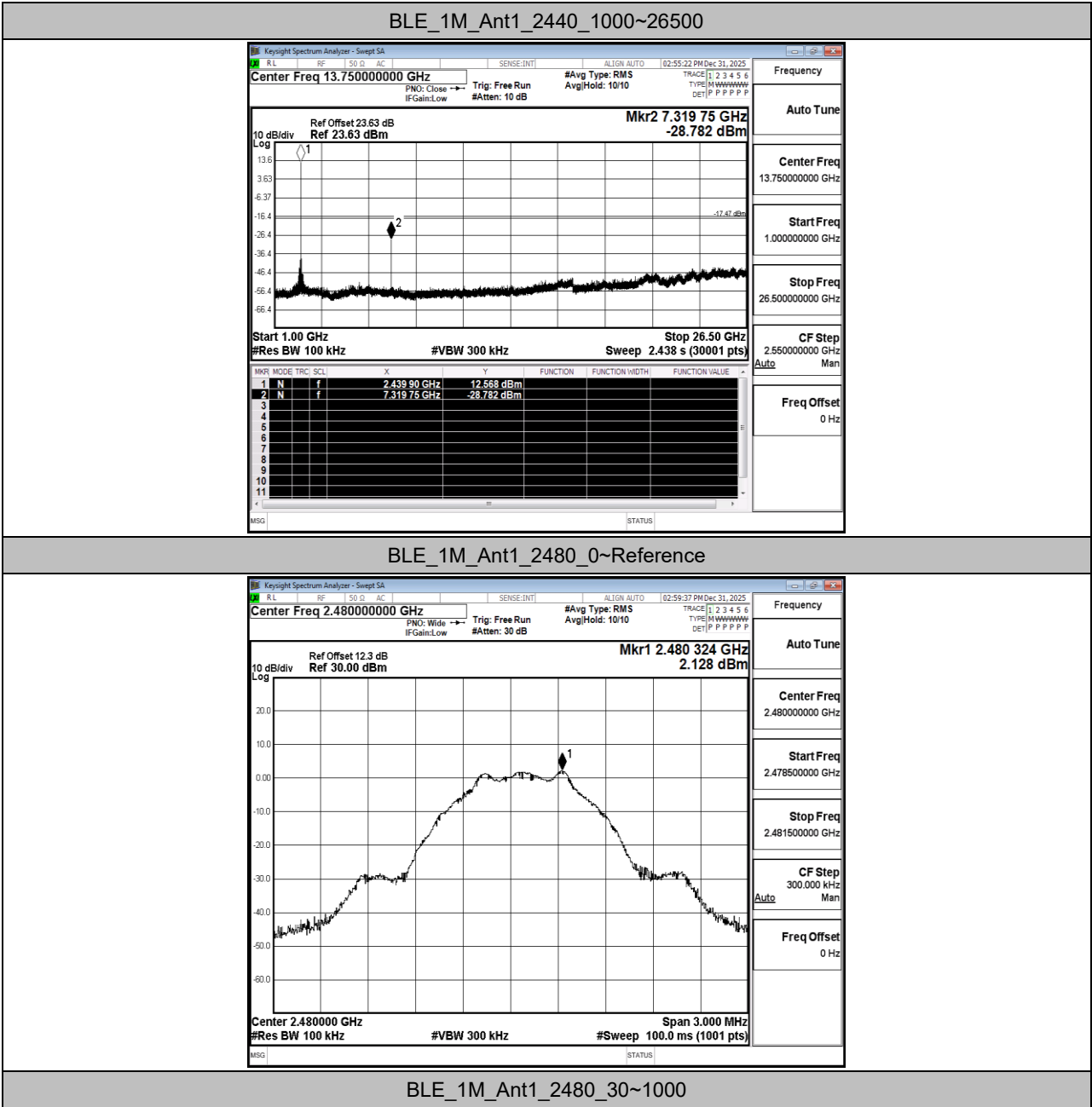


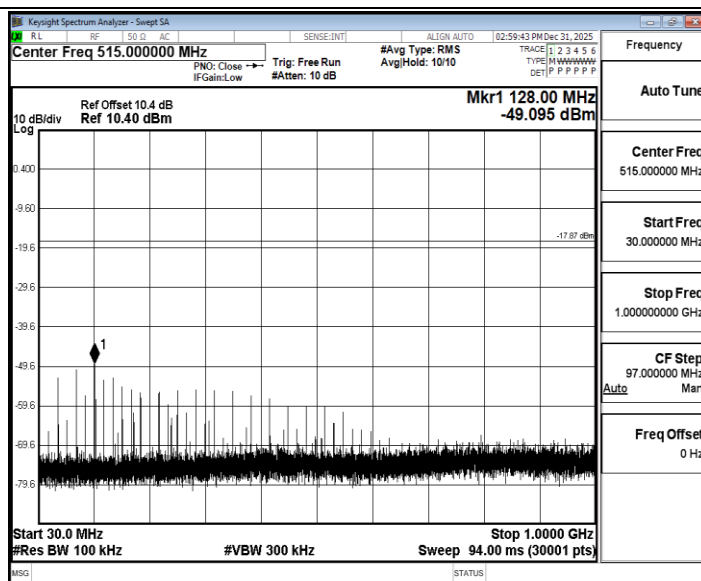
BLE_1M_Ant1_2440_0~Reference



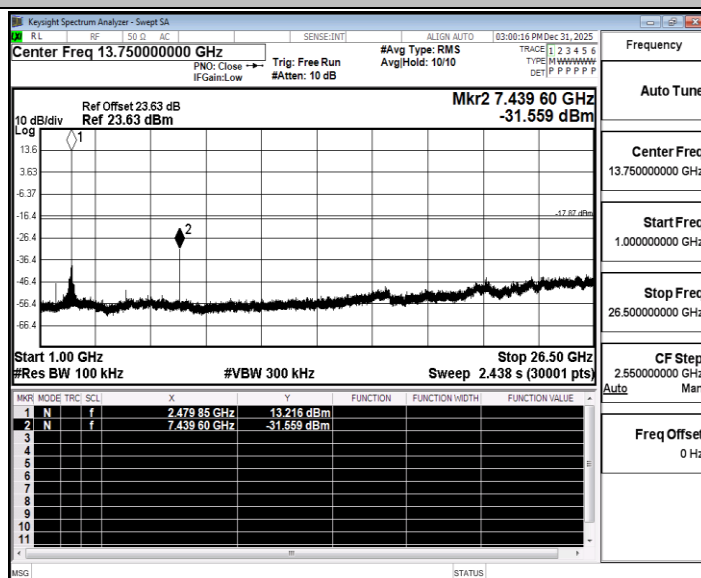
BLE_1M_Ant1_2440_30~1000



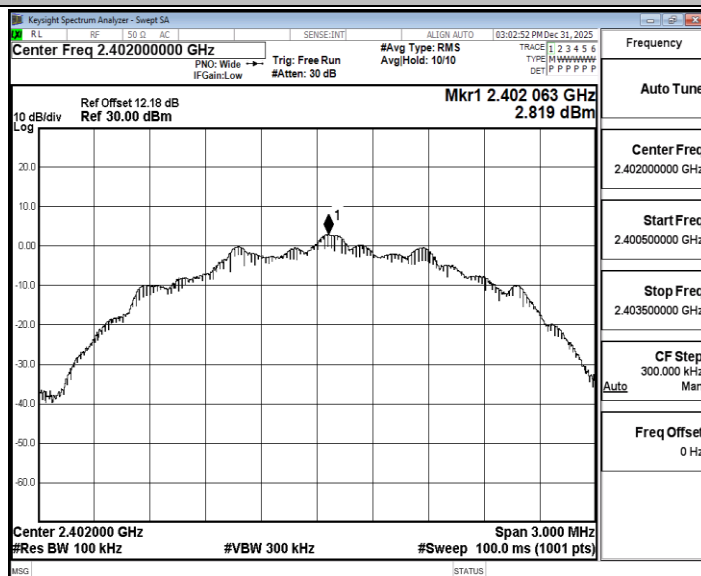


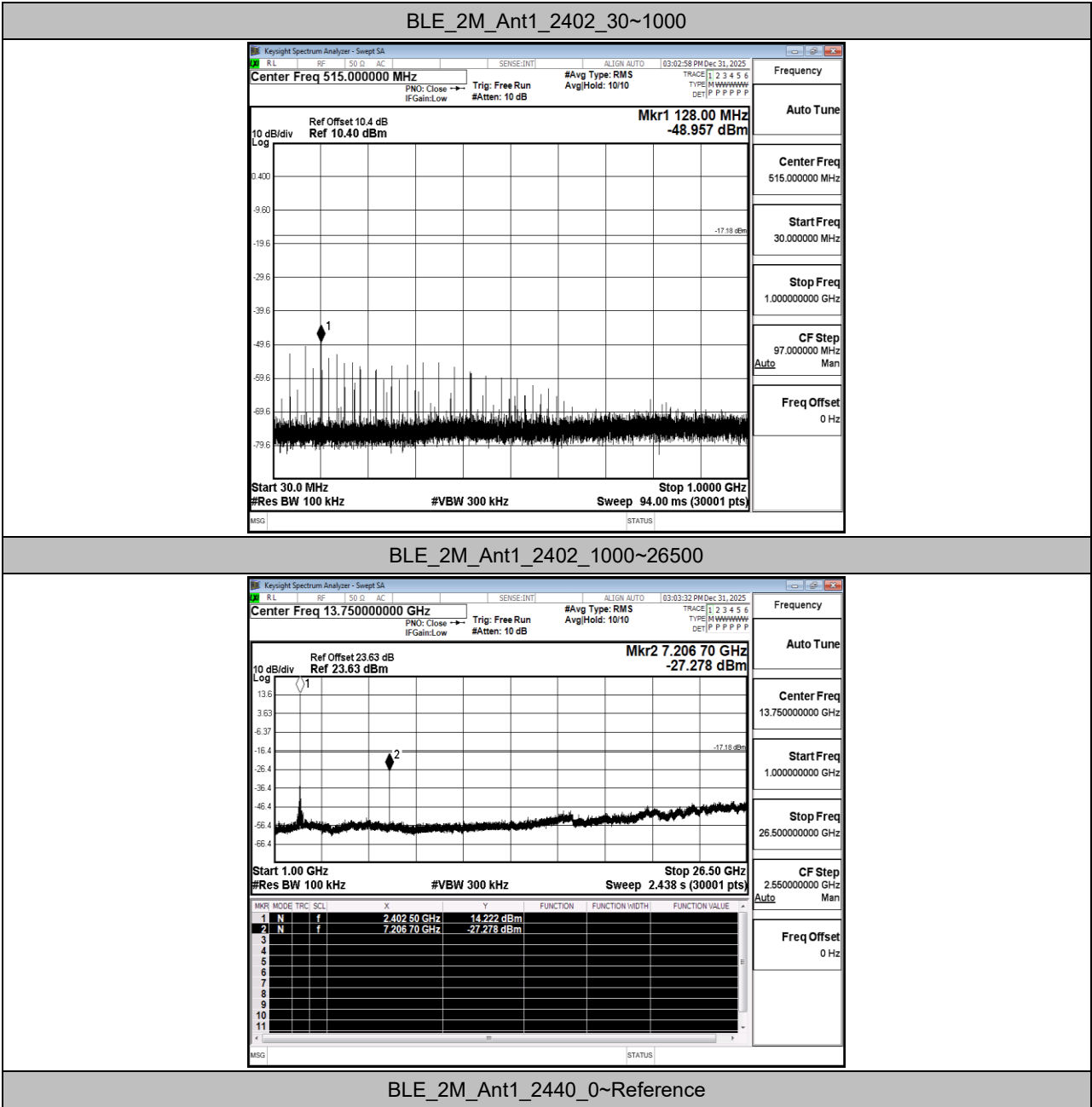


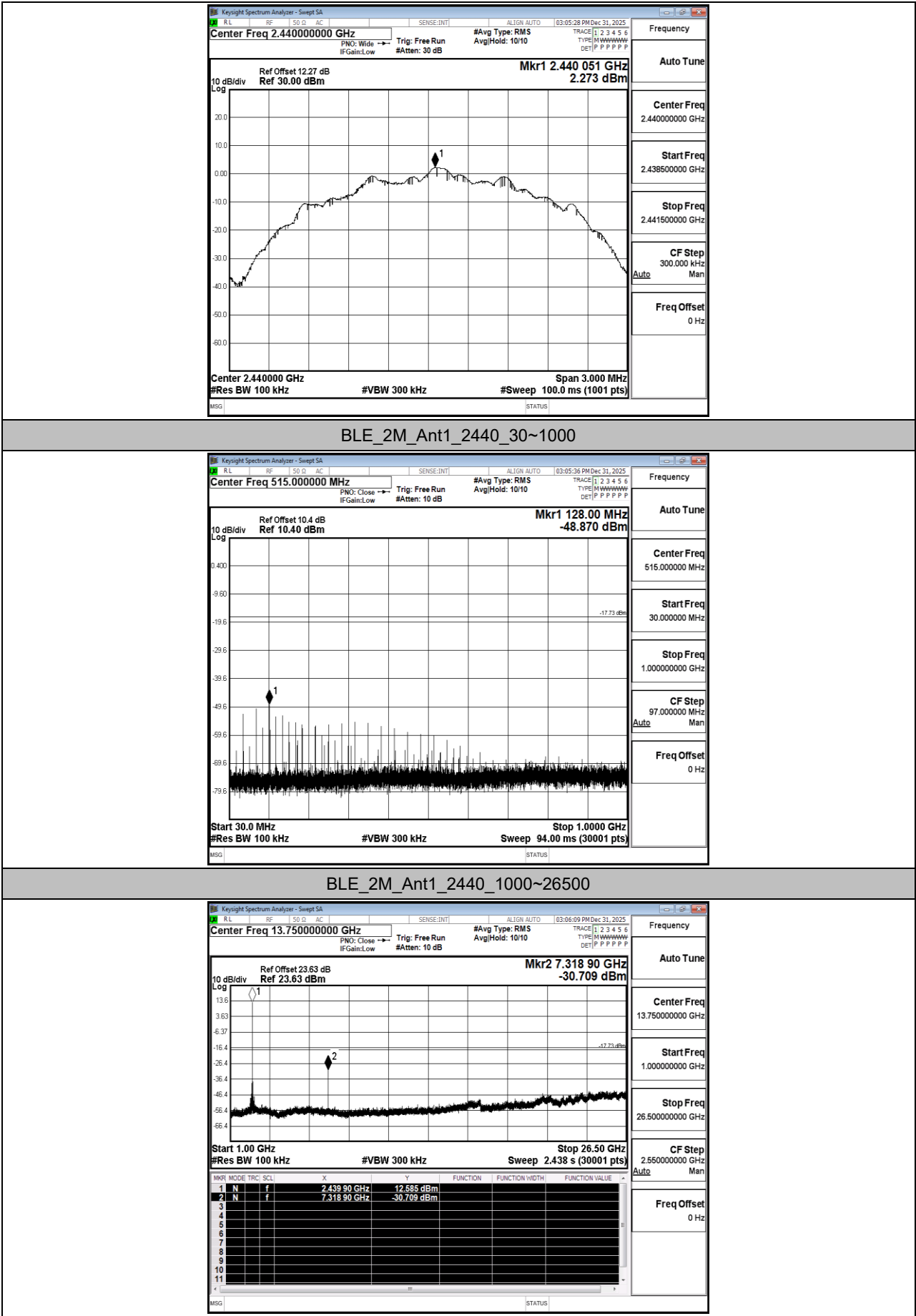
BLE_1M_Ant1_2480_1000~26500



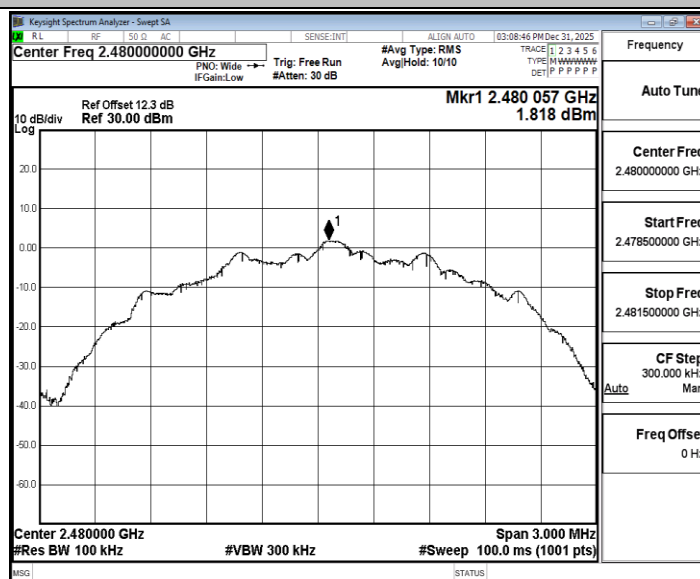
BLE_2M_Ant1_2402_0~Reference



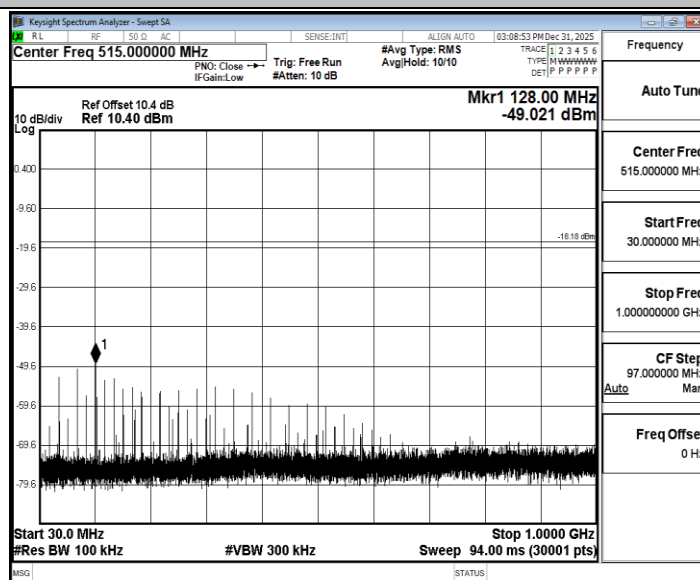




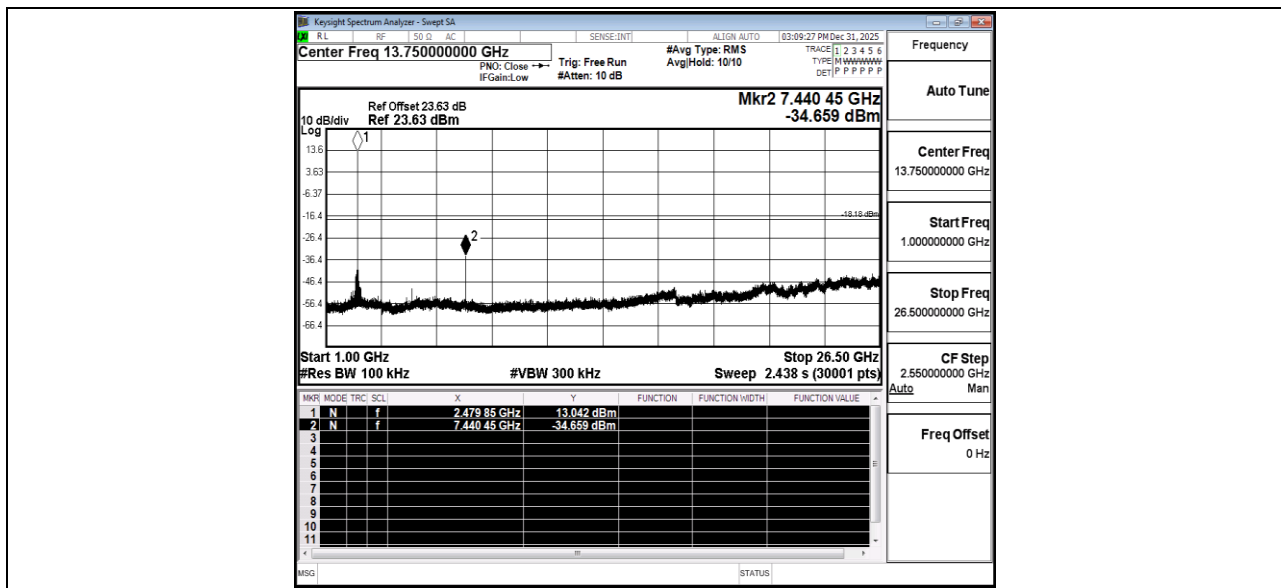
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



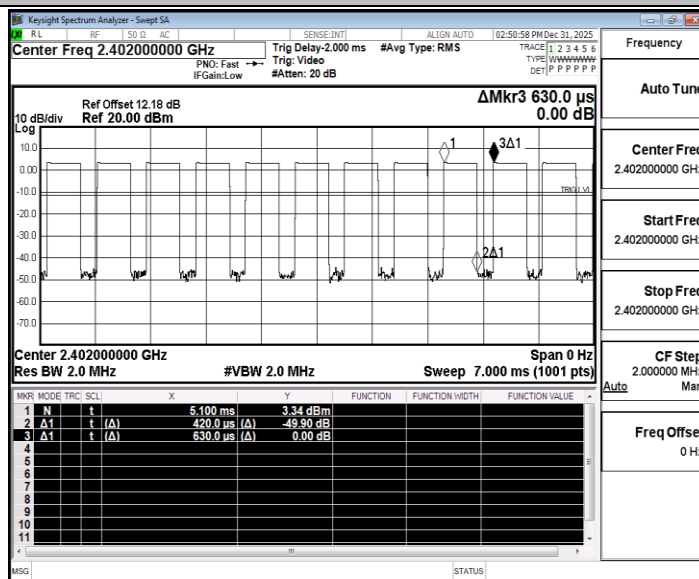
A.6 Duty Cycle

Test Result

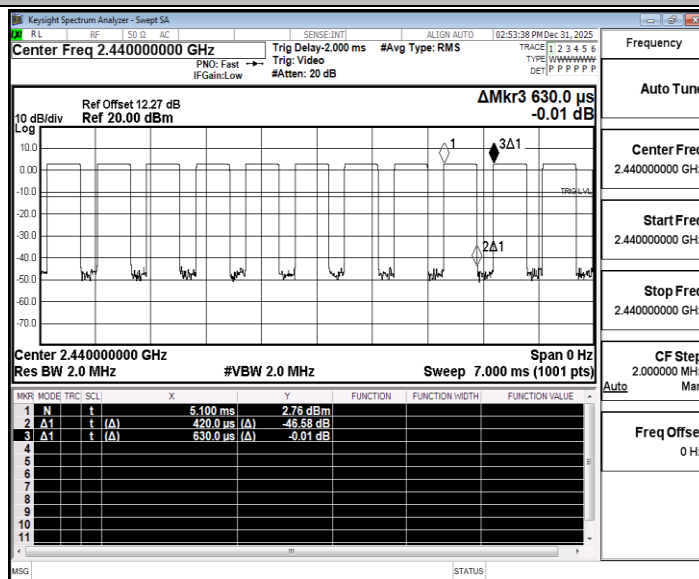
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.42	0.63	0.6667	66.67	1.76	---	---
		2440	0.42	0.63	0.6667	66.67	1.76	---	---
		2480	0.41	0.63	0.6508	65.08	1.87	---	---
BLE_2M	Ant1	2402	0.22	0.63	0.3492	34.92	4.57	---	---
		2440	0.22	0.63	0.3492	34.92	4.57	---	---
		2480	0.22	0.63	0.3492	34.92	4.57	---	---

Test Graphs

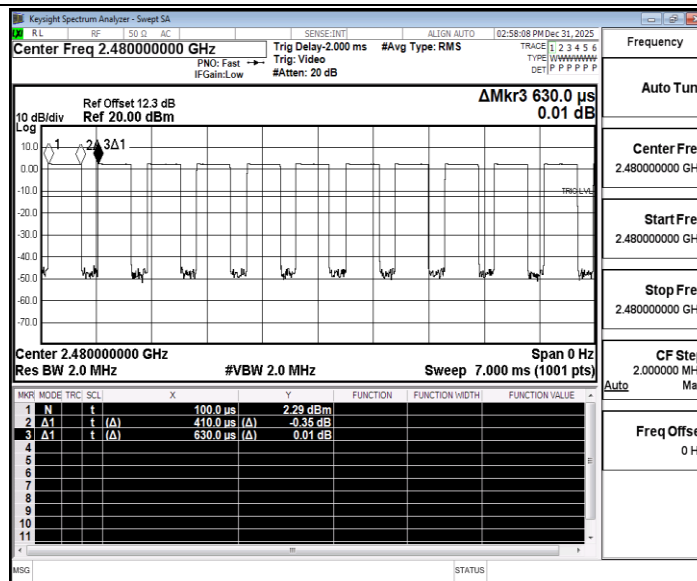
BLE_1M_Ant1_2402



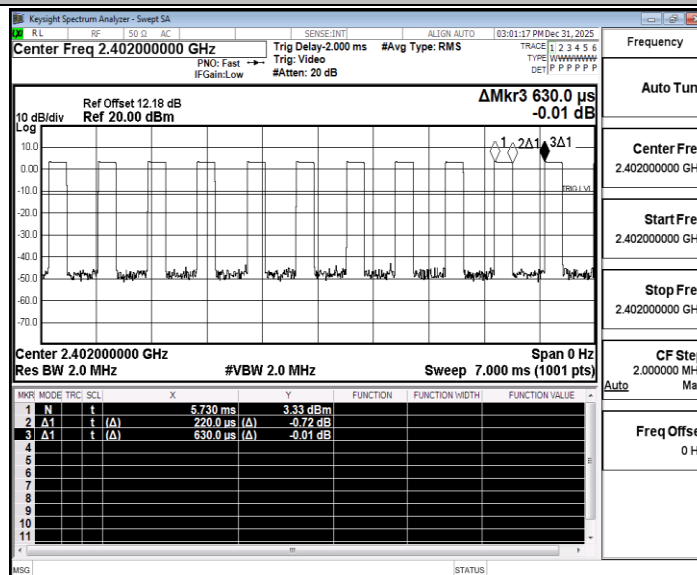
BLE_1M_Ant1_2440



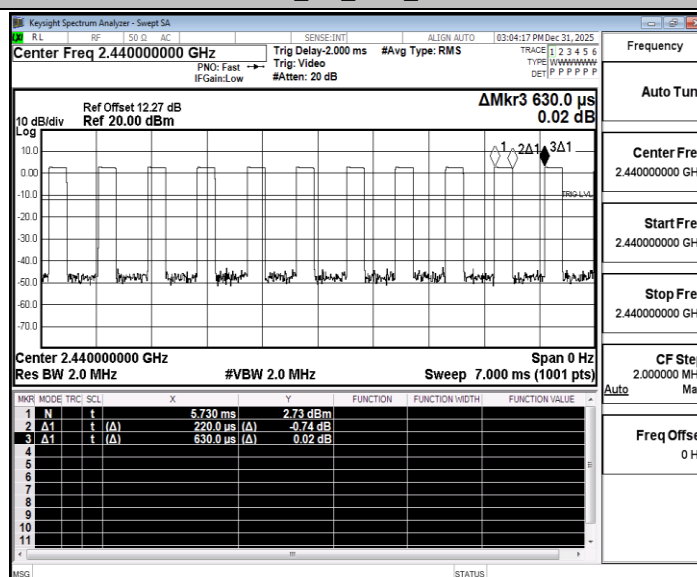
BLE_1M_Ant1_2480

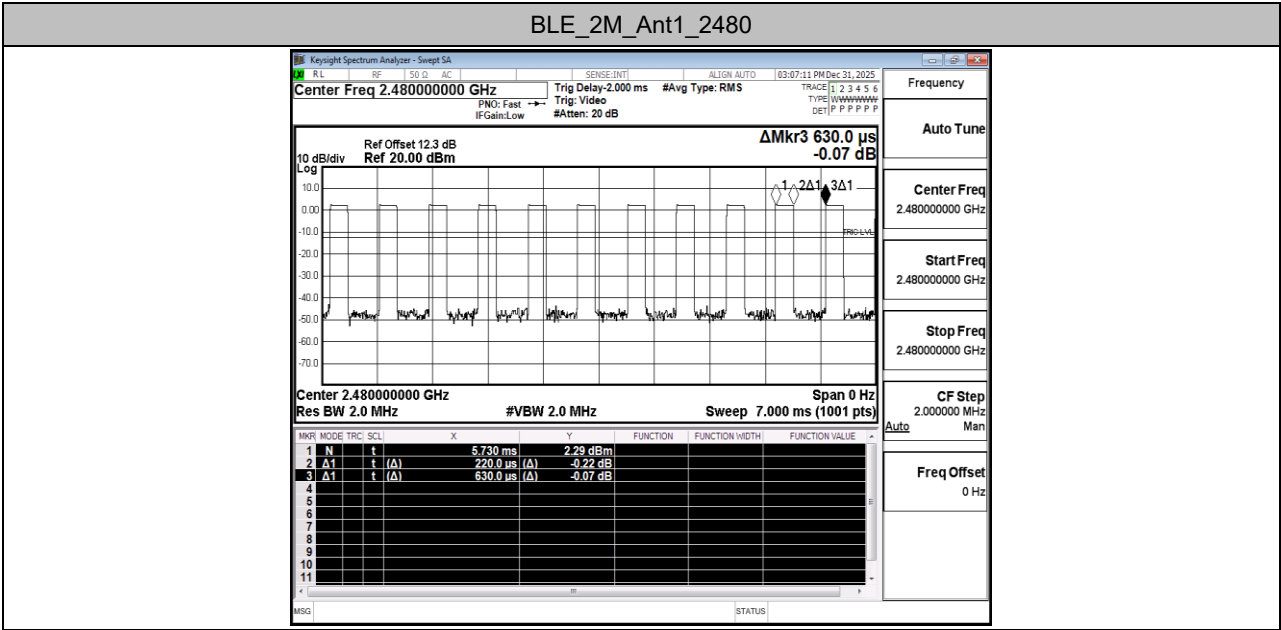


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440





A.7 Emissions in Restricted Bands

Test Result

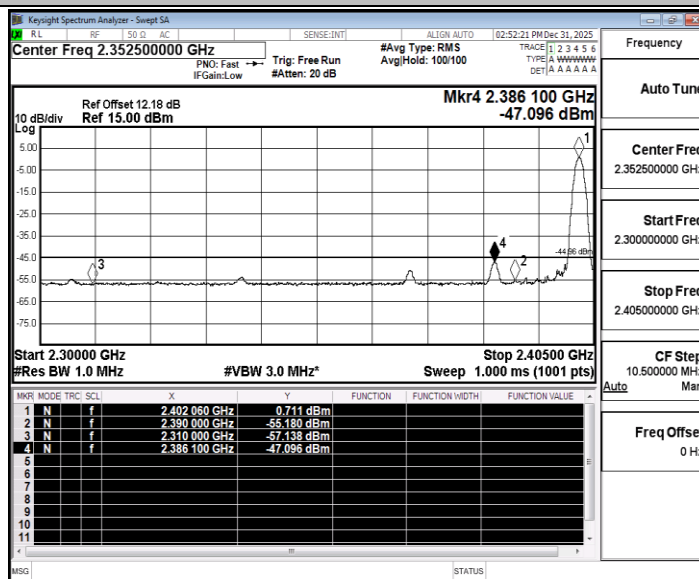
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-57.14	≤-44.96	2.00	1.76	41.82	≤54	PASS
				AV	2386.100	-47.1	≤-44.96	2.00	1.76	51.86	≤54	PASS
				AV	2390.000	-55.18	≤-44.96	2.00	1.76	43.78	≤54	PASS
				Peak	2310.000	-49.02	≤-23.20	2.00	0.00	48.18	≤74	PASS
				Peak	2385.890	-38.07	≤-23.20	2.00	0.00	59.13	≤74	PASS
				Peak	2390.000	-41.44	≤-23.20	2.00	0.00	55.76	≤74	PASS
		High	2480	AV	2483.500	-52.39	≤-45.07	2.00	1.87	46.68	≤54	PASS
				AV	2495.920	-51	≤-45.07	2.00	1.87	48.07	≤54	PASS
				AV	2500.000	-56.51	≤-45.07	2.00	1.87	42.56	≤54	PASS
				Peak	2483.500	-34.78	≤-23.20	2.00	0.00	62.42	≤74	PASS
				Peak	2483.840	-33.86	≤-23.20	2.00	0.00	63.34	≤74	PASS
				Peak	2500.000	-48.09	≤-23.20	2.00	0.00	49.11	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-56.98	≤-47.77	2.00	4.57	44.79	≤54	PASS
				AV	2386.415	-51.1	≤-47.77	2.00	4.57	50.67	≤54	PASS
				AV	2390.000	-56.67	≤-47.77	2.00	4.57	45.10	≤54	PASS
				Peak	2310.000	-49.05	≤-23.20	2.00	0.00	48.15	≤74	PASS
				Peak	2386.100	-39.35	≤-23.20	2.00	0.00	57.85	≤74	PASS
				Peak	2390.000	-48.92	≤-23.20	2.00	0.00	48.28	≤74	PASS
		High	2480	AV	2483.500	-54.12	≤-47.77	2.00	4.57	47.65	≤54	PASS
				AV	2484.000	-53.02	≤-47.77	2.00	4.57	48.75	≤54	PASS
				AV	2500.000	-56.05	≤-47.77	2.00	4.57	45.72	≤54	PASS
				Peak	2483.500	-39.79	≤-23.20	2.00	0.00	57.41	≤74	PASS
				Peak	2483.760	-34.39	≤-23.20	2.00	0.00	62.81	≤74	PASS
				Peak	2500.000	-47.47	≤-23.20	2.00	0.00	49.73	≤74	PASS

Note:

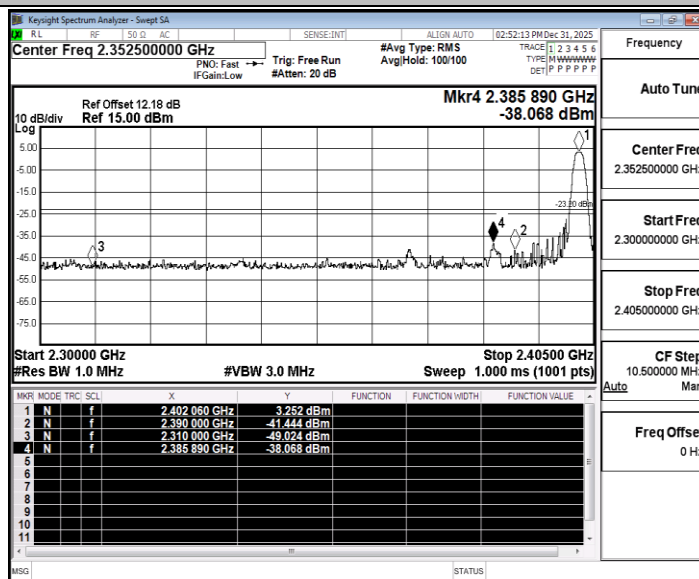
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

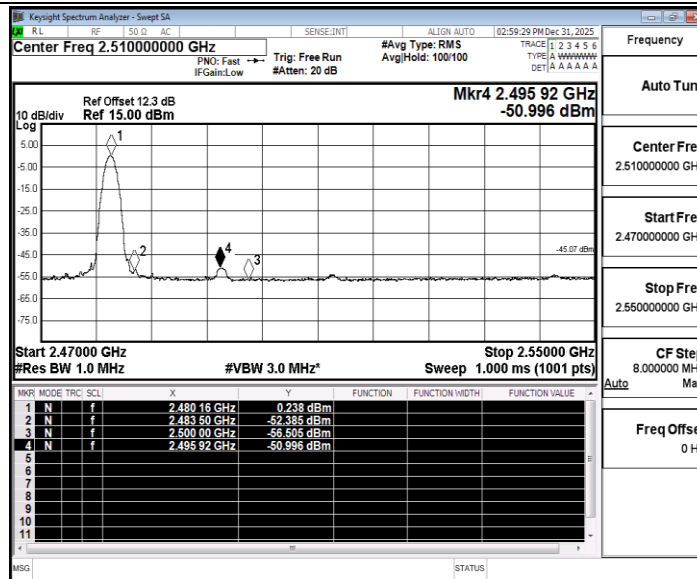
BLE_1M_Ant1_Low_2402_AV



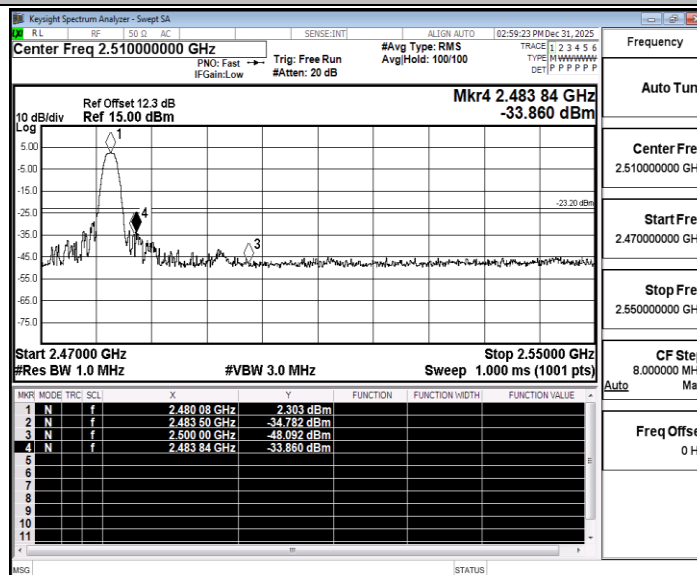
BLE_1M_Ant1_Low_2402_Peak



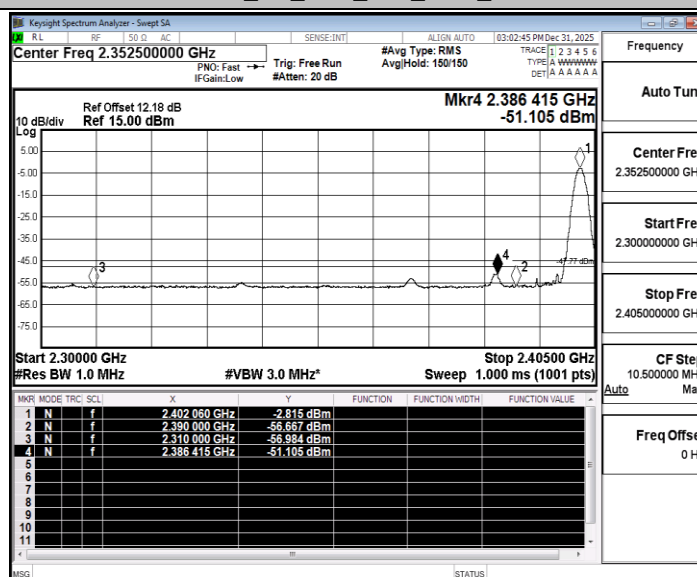
BLE_1M_Ant1_High_2480_AV



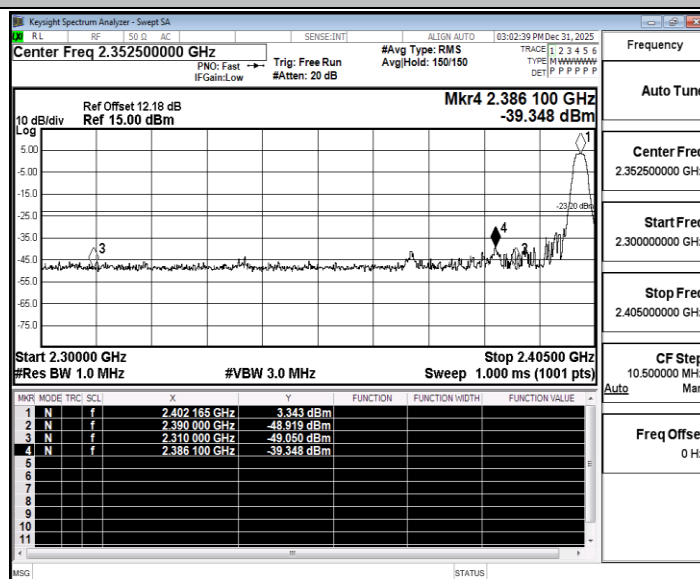
BLE_1M_Ant1_High_2480_Peak



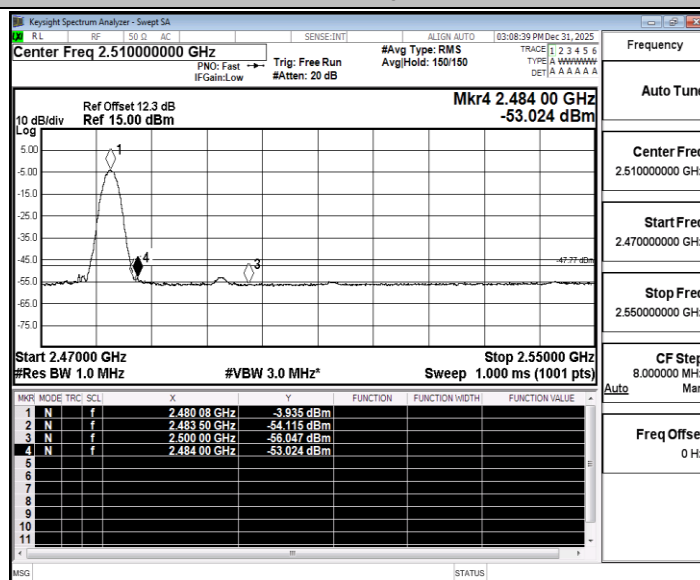
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

