

Appendix A

RF Test Data for BT LE(Conducted Measurement)

Product Name: Shooting Chronograph

Test Model: SC9

Environmental Conditions

Temperature:	23.6°C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang Hai
Supervised by:	Fengliu Tang

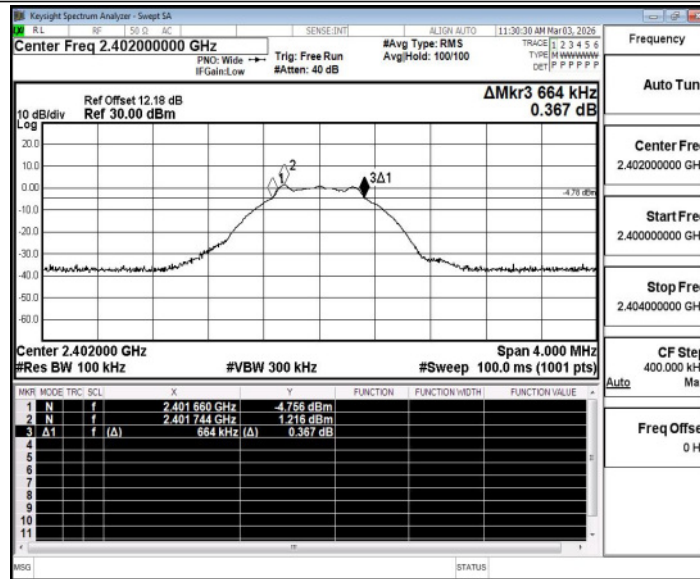
A.1 DTS Bandwidth

Test Result

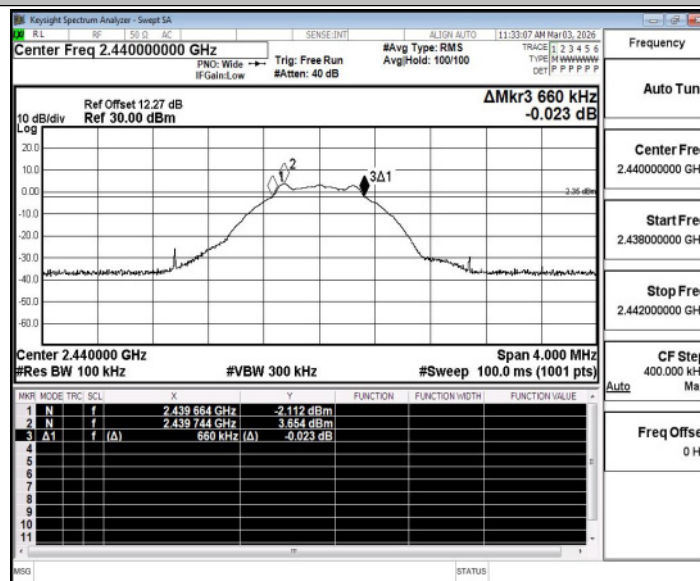
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant	2402	0.664	2401.660	2402.324	0.5	PASS
		2440	0.660	2439.664	2440.324	0.5	PASS
		2480	0.660	2479.664	2480.324	0.5	PASS
BLE_2M	Ant	2402	1.152	2401.408	2402.560	0.5	PASS
		2440	1.152	2439.404	2440.556	0.5	PASS
		2480	1.152	2479.404	2480.556	0.5	PASS

Test Graphs

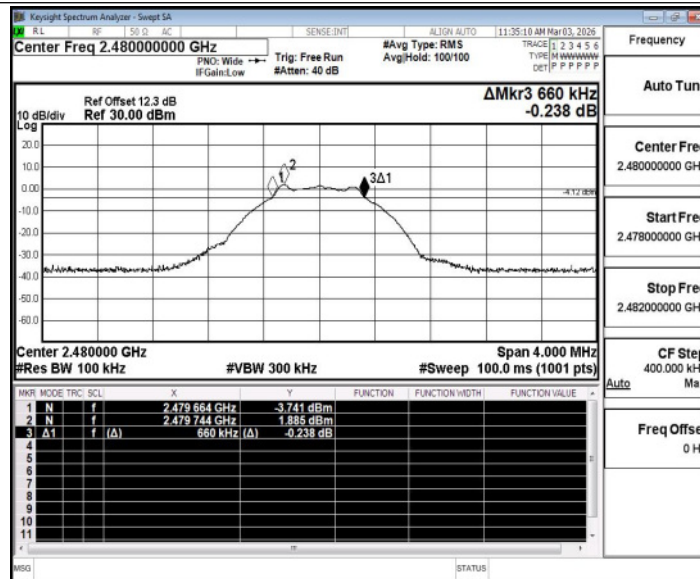
BLE_1M_Ant_2402



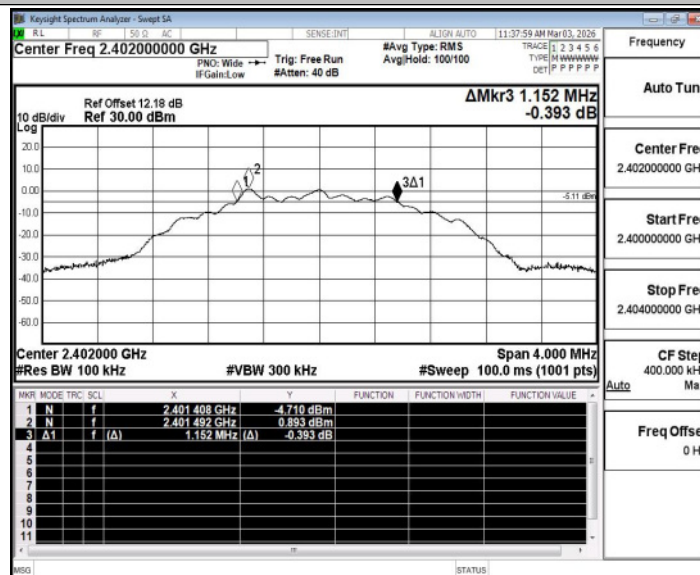
BLE_1M_Ant_2440



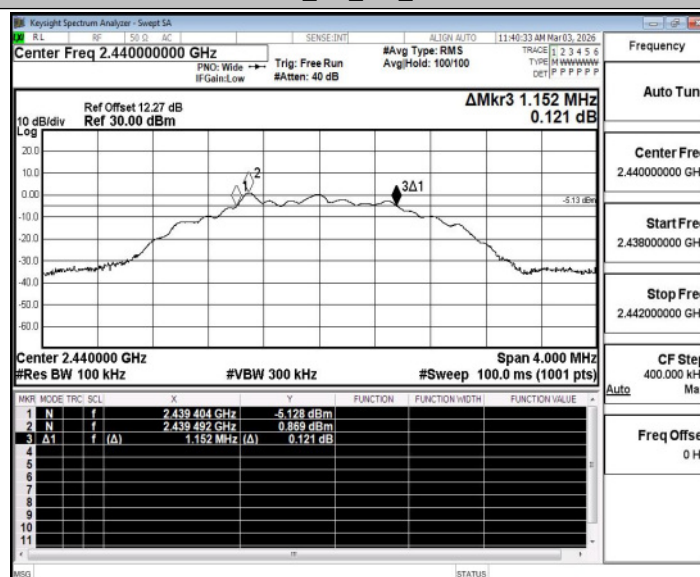
BLE_1M_Ant_2480



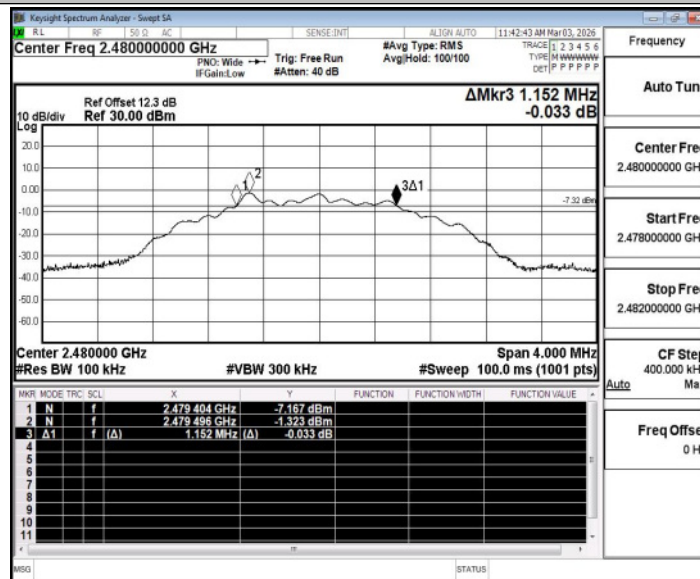
BLE_2M_Ant_2402



BLE_2M_Ant_2440



BLE_2M_Ant_2480



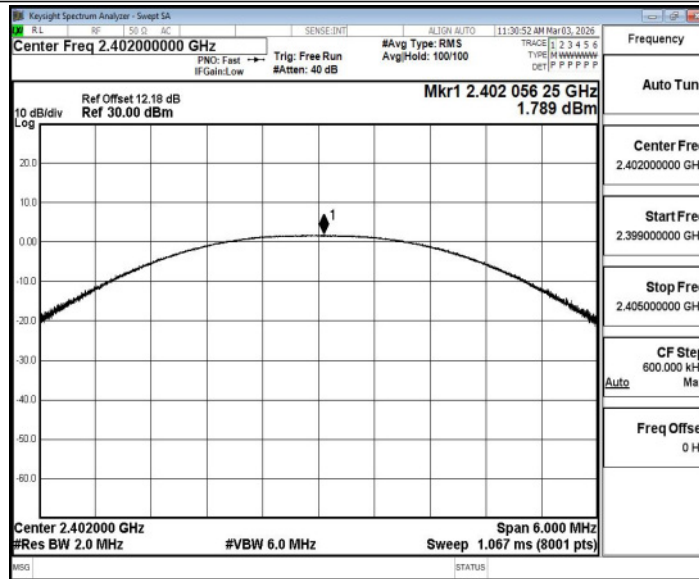
A.2 Maximum conducted output power

Test Result Peak

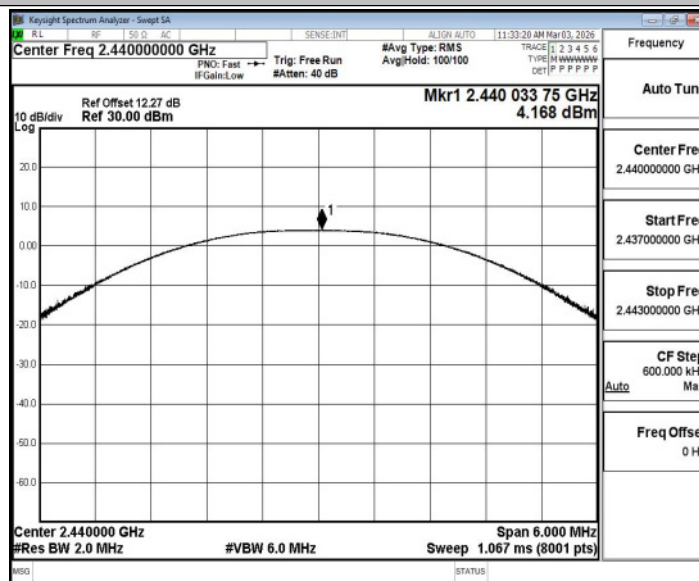
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant	2402	1.79	≤30	PASS
		2440	4.17	≤30	PASS
		2480	2.51	≤30	PASS
BLE_2M	Ant	2402	1.59	≤30	PASS
		2440	1.53	≤30	PASS
		2480	-0.54	≤30	PASS

Test Graphs Peak

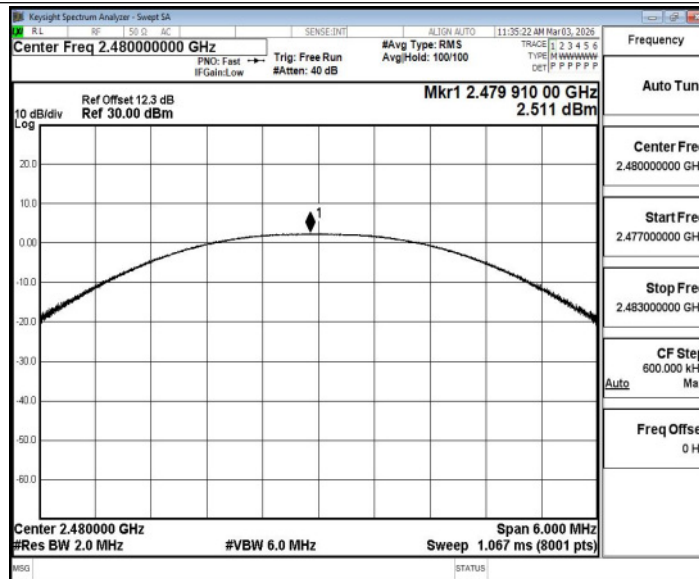
BLE_1M_Ant_2402



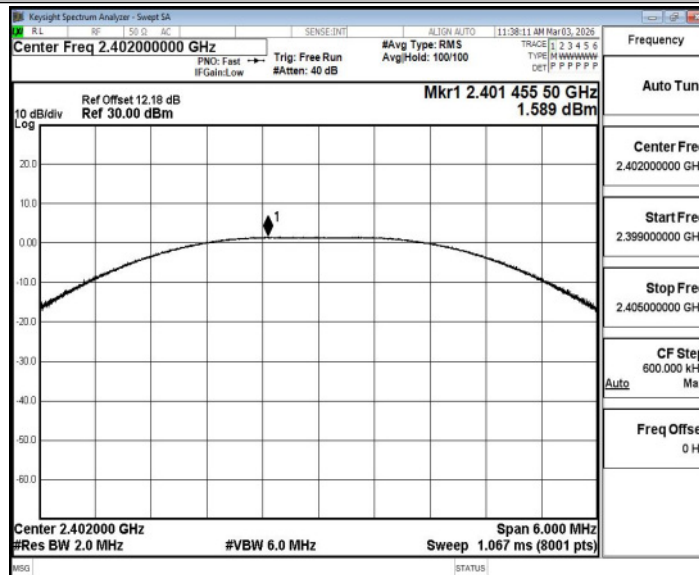
BLE_1M_Ant_2440



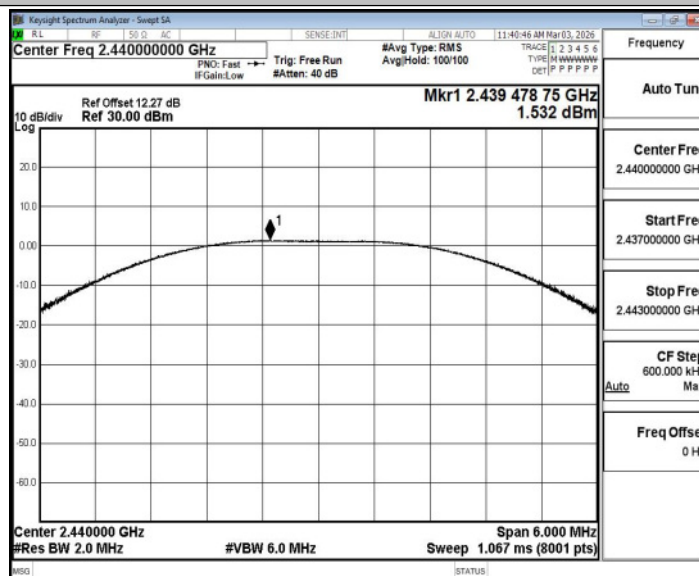
BLE_1M_Ant_2480

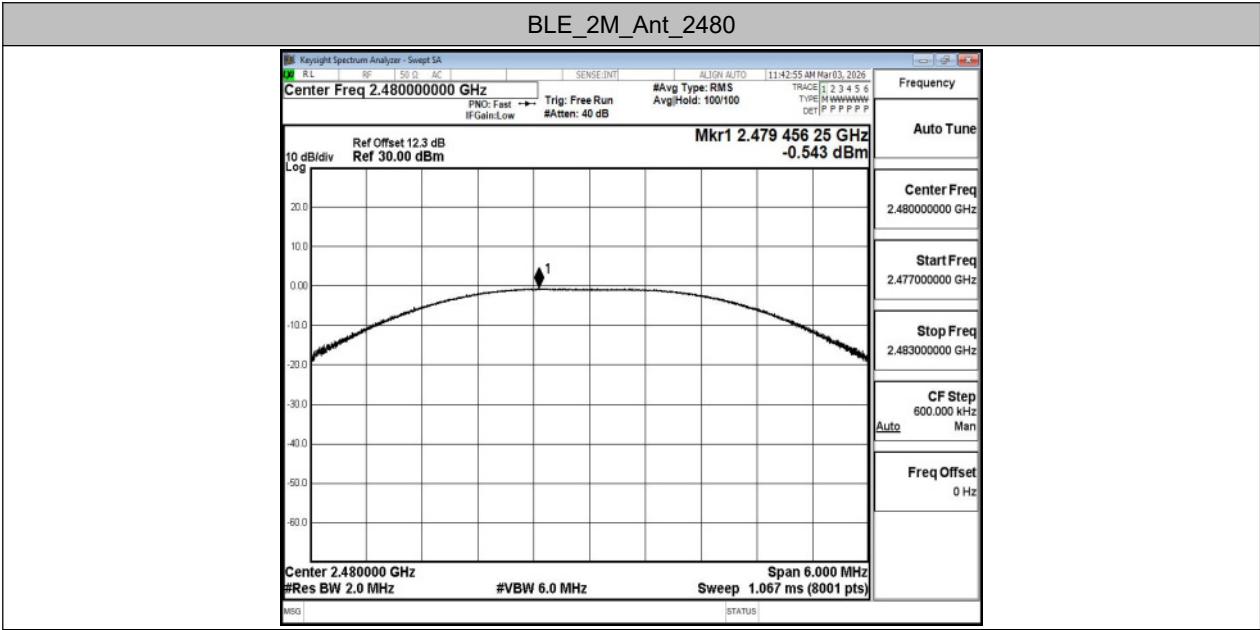


BLE_2M_Ant_2402



BLE_2M_Ant_2440





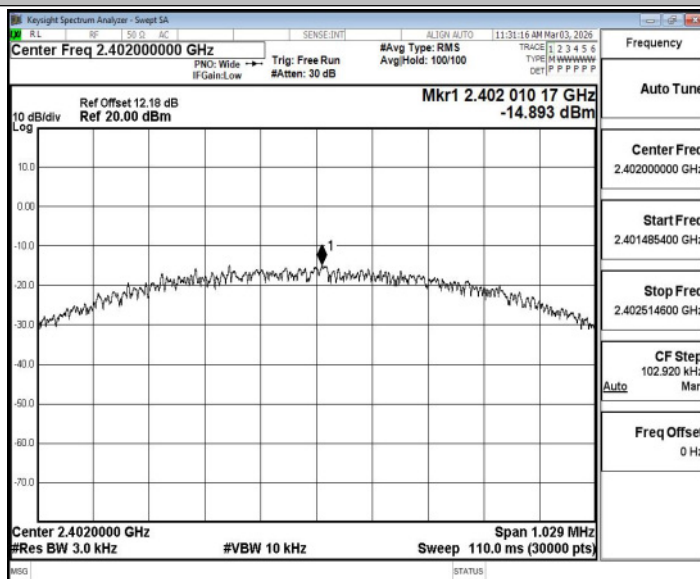
A.3 Maximum power spectral density

Test Result

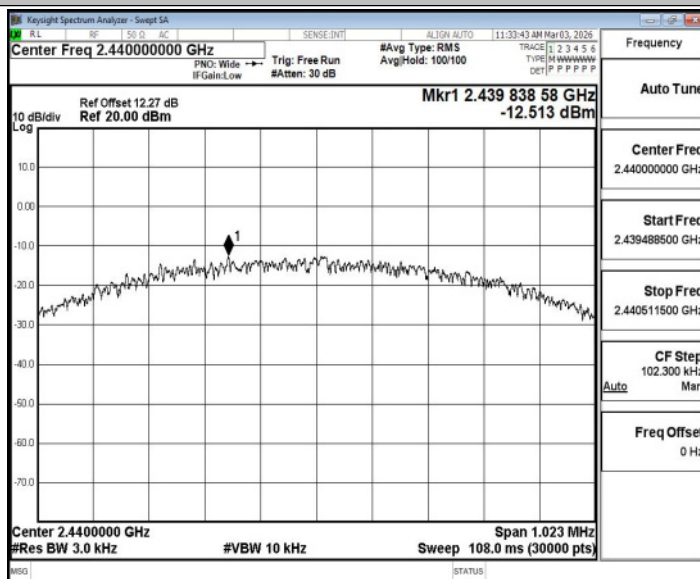
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant	2402	-14.89	≤8.00	PASS
		2440	-12.51	≤8.00	PASS
		2480	-14.26	≤8.00	PASS
BLE_2M	Ant	2402	-18.29	≤8.00	PASS
		2440	-18.39	≤8.00	PASS
		2480	-20.52	≤8.00	PASS

Test Graphs

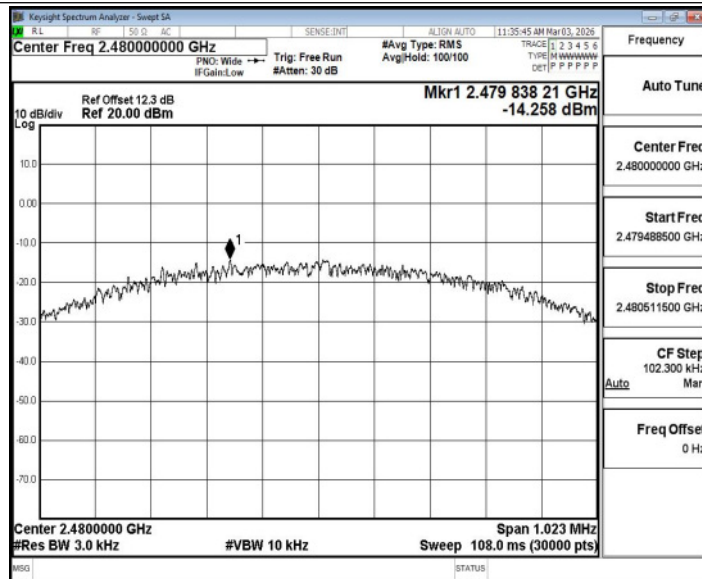
BLE_1M_Ant_2402



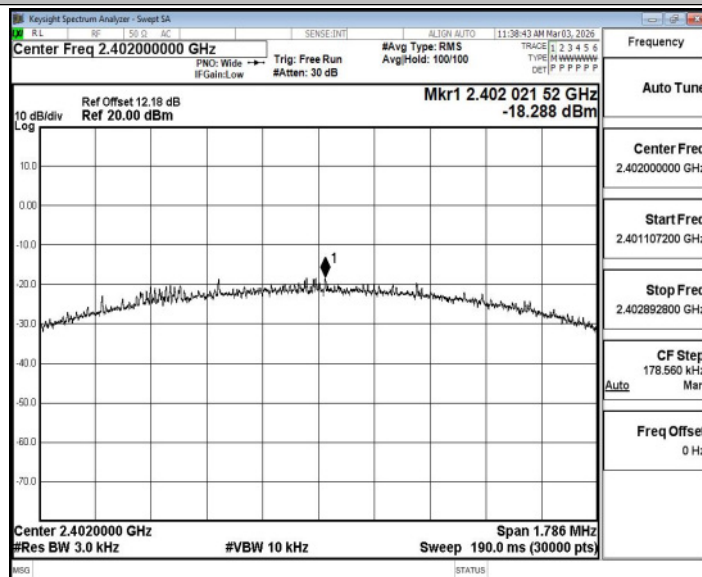
BLE_1M_Ant_2440



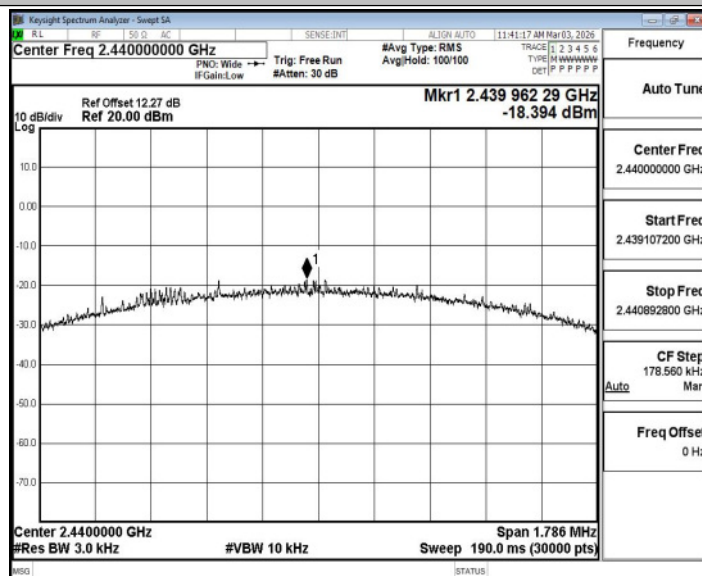
BLE_1M_Ant_2480



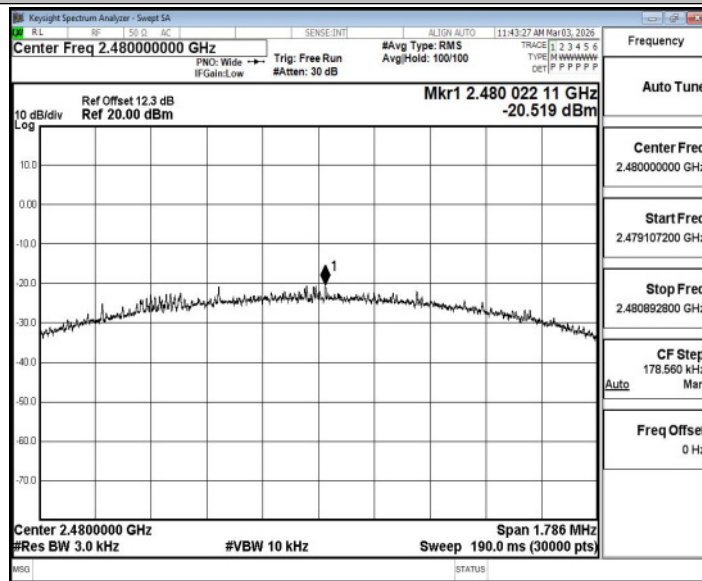
BLE_2M_Ant_2402



BLE_2M_Ant_2440



BLE_2M_Ant_2480



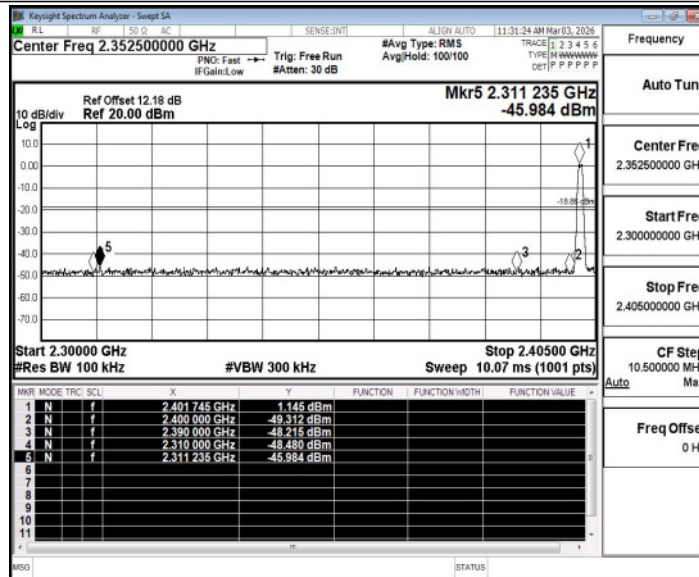
A.4 Band edge measurements

Test Result

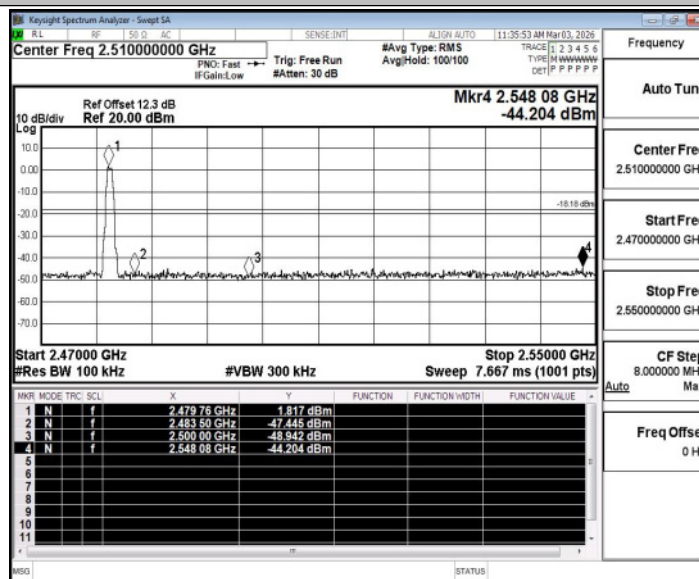
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	Low	2402	1.15	-45.98	≤-18.86	PASS
		High	2480	1.82	-44.2	≤-18.18	PASS
BLE_2M	Ant	Low	2402	0.99	-44.15	≤-19.01	PASS
		High	2480	-2.79	-44.9	≤-22.79	PASS

Test Graphs

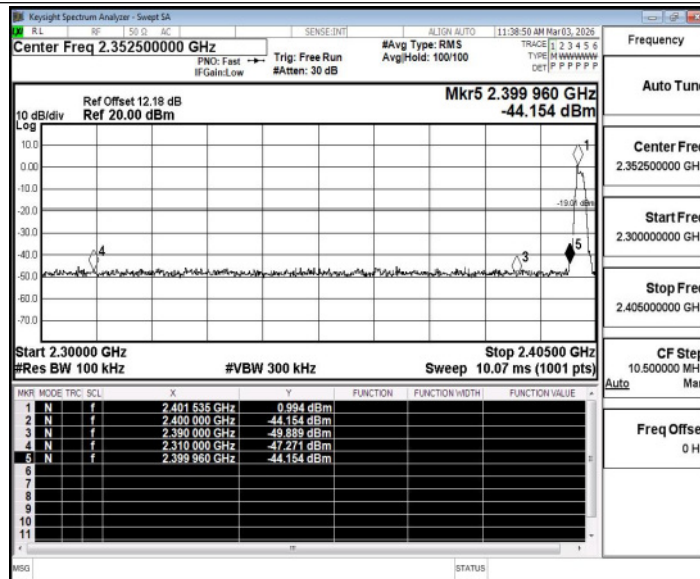
BLE_1M_Ant_Low_2402



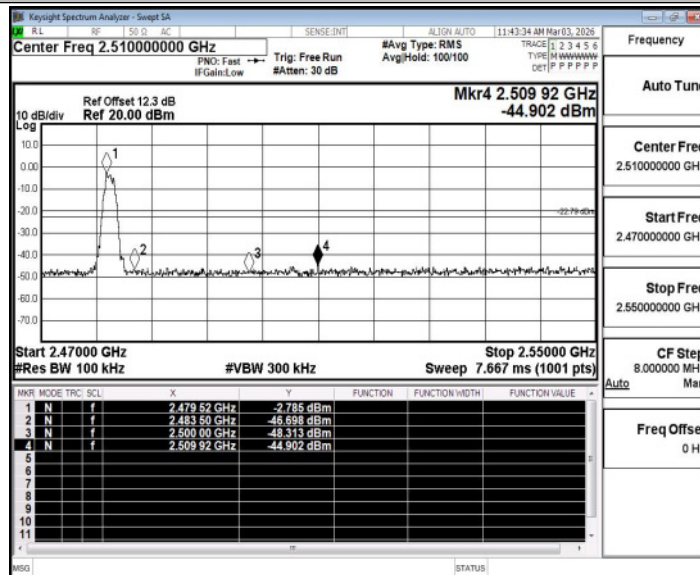
BLE_1M_Ant_High_2480



BLE_2M_Ant_Low_2402



BLE_2M_Ant_High_2480



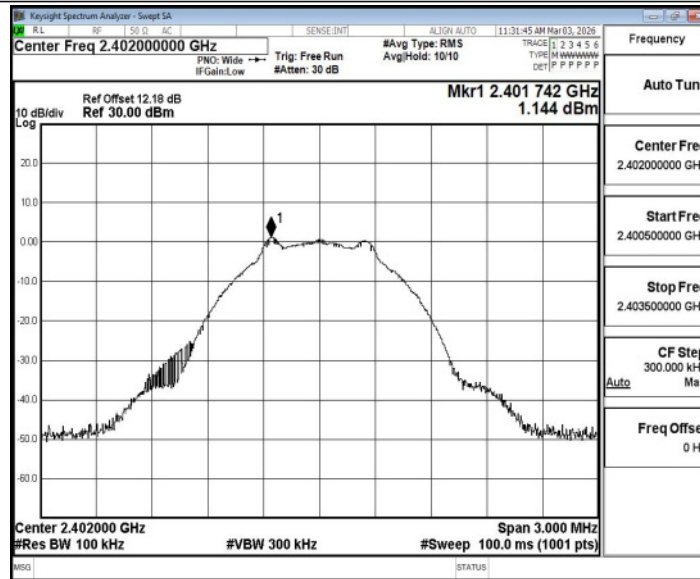
A.5 Conducted Spurious Emission

Test Result

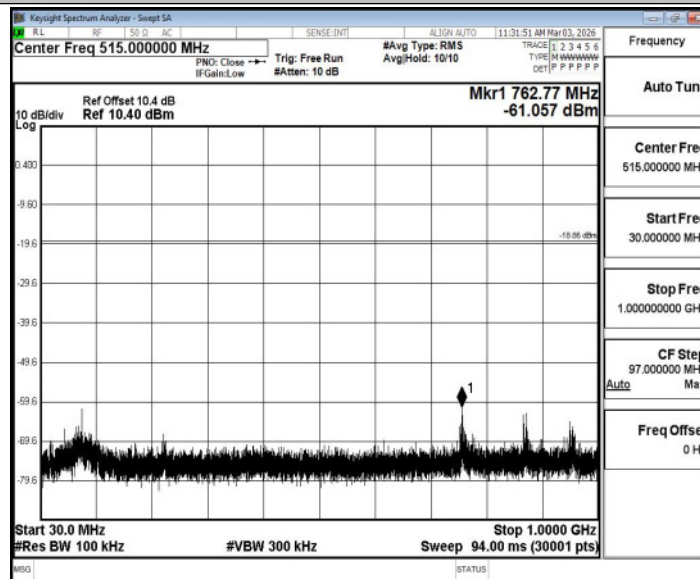
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	2402	Reference	1.14	1.14	---	PASS
			30~1000	1.14	-61.06	≤-18.86	PASS
			1000~26500	1.14	-42.37	≤-18.86	PASS
		2440	Reference	3.52	3.52	---	PASS
			30~1000	3.52	-61.39	≤-16.48	PASS
			1000~26500	3.52	-42.95	≤-16.48	PASS
		2480	Reference	1.84	1.84	---	PASS
			30~1000	1.84	-59.43	≤-18.16	PASS
			1000~26500	1.84	-42.47	≤-18.16	PASS
BLE_2M	Ant	2402	Reference	-1.43	-1.43	---	PASS
			30~1000	-1.43	-60.7	≤-21.43	PASS
			1000~26500	-1.43	-43.21	≤-21.43	PASS
		2440	Reference	0.74	0.74	---	PASS
			30~1000	0.74	-60.74	≤-19.26	PASS
			1000~26500	0.74	-42.7	≤-19.26	PASS
		2480	Reference	-1.37	-1.37	---	PASS
			30~1000	-1.37	-60.79	≤-21.37	PASS
			1000~26500	-1.37	-43.04	≤-21.37	PASS

Test Graphs

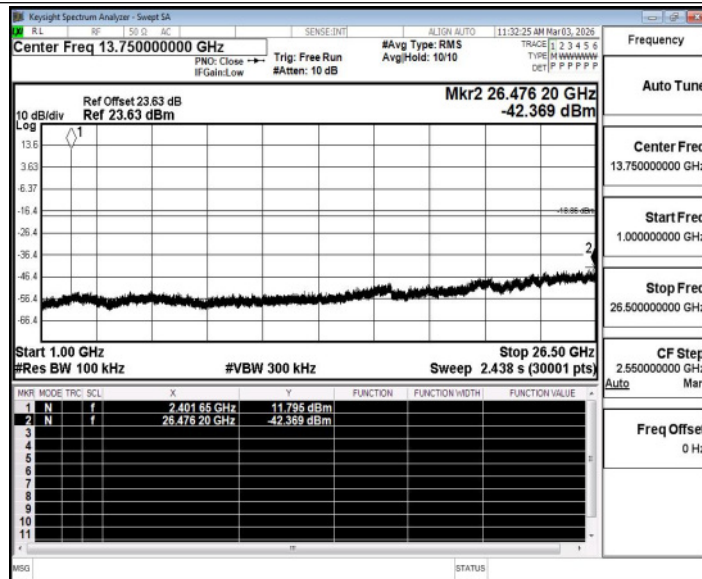
BLE_1M_Ant_2402_0~Reference



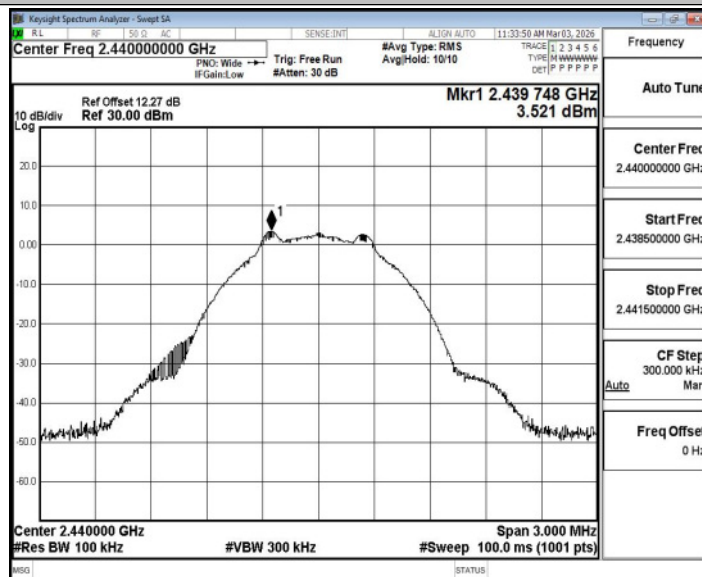
BLE_1M_Ant_2402_30~1000



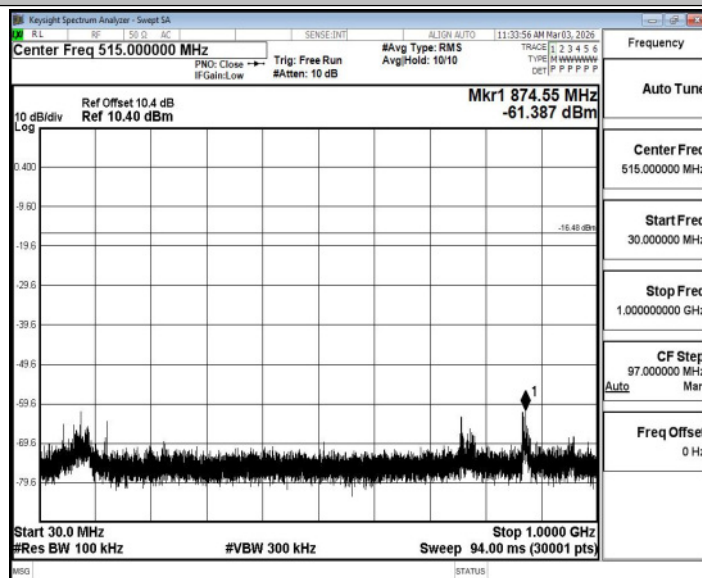
BLE_1M_Ant_2402_1000~26500



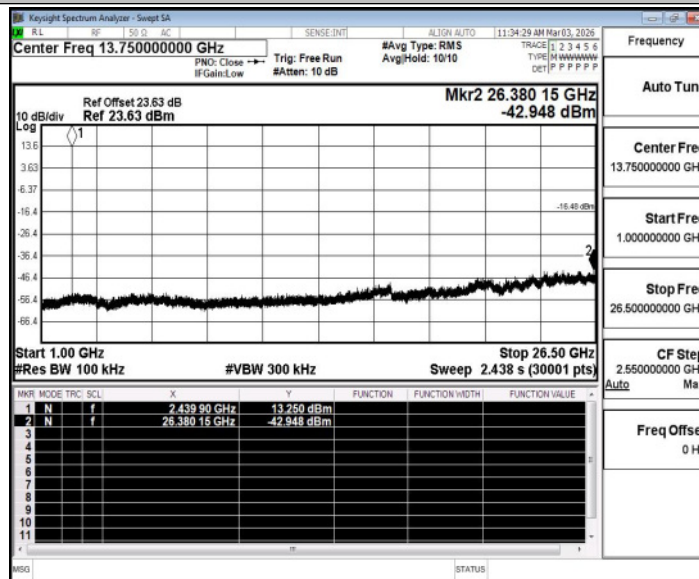
BLE_1M_Ant_2440_0~Reference



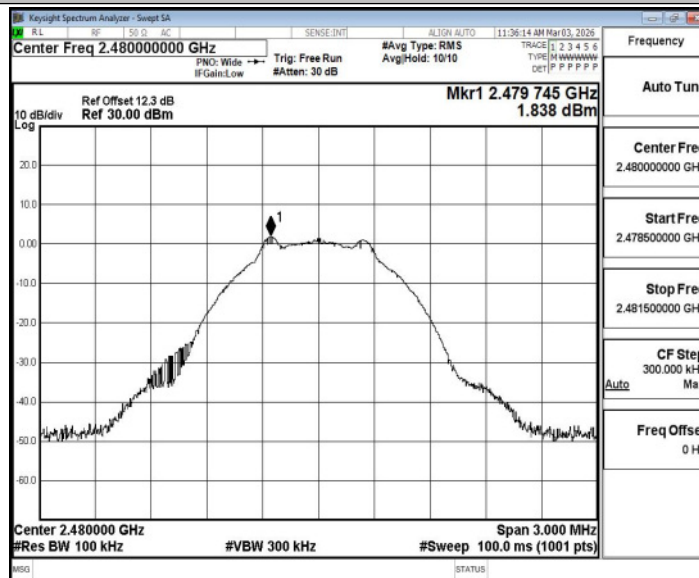
BLE_1M_Ant_2440_30~1000



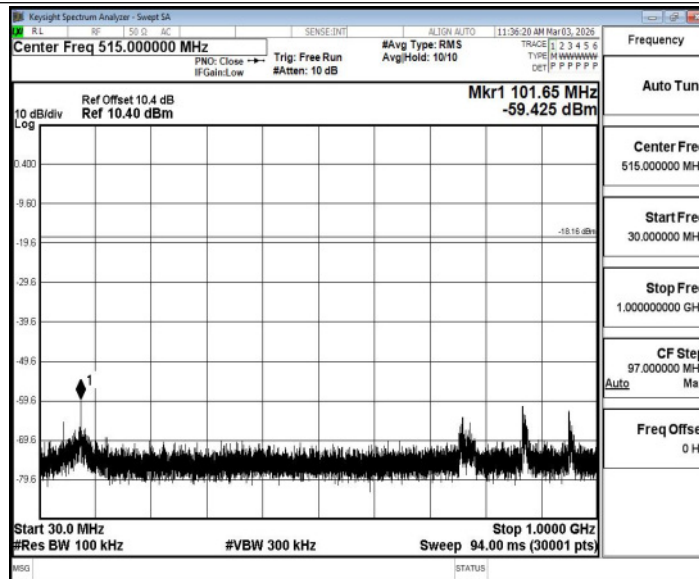
BLE_1M_Ant_2440_1000~26500



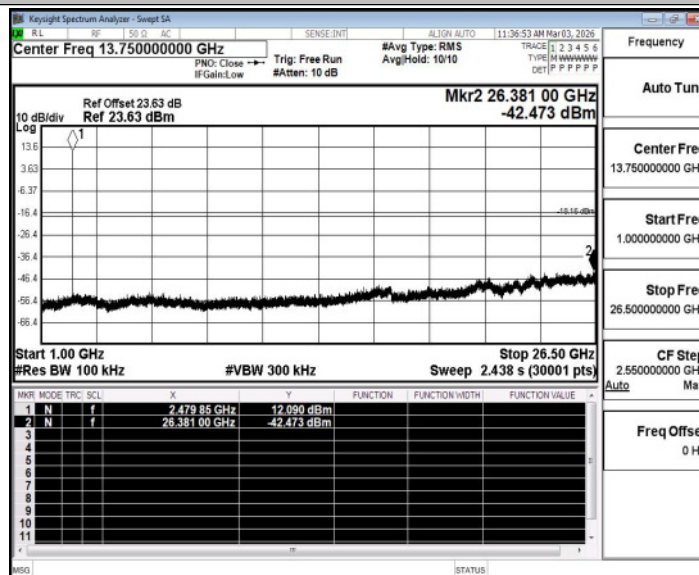
BLE_1M_Ant_2480_0~Reference



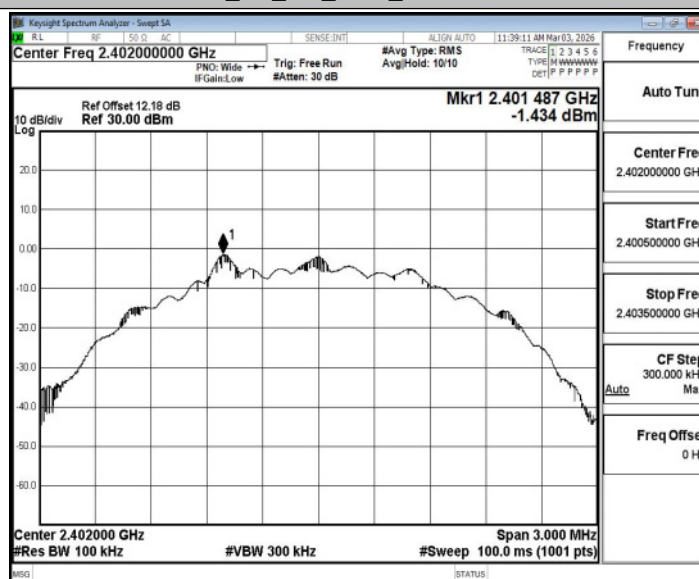
BLE_1M_Ant_2480_30~1000



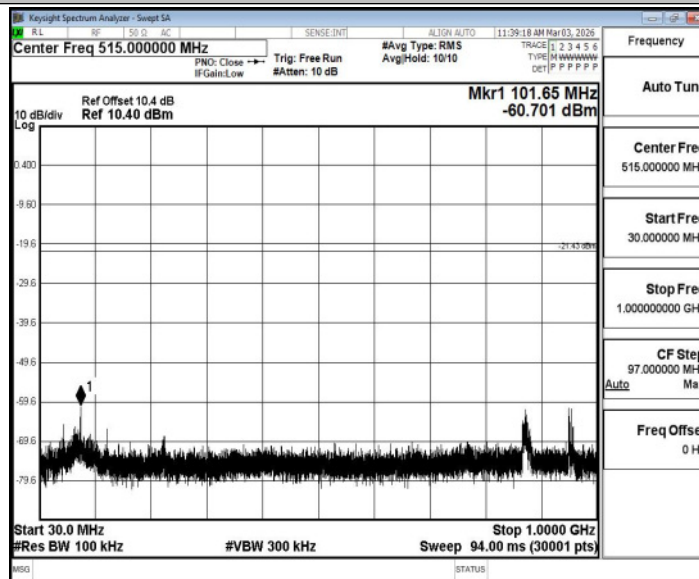
BLE_1M_Ant_2480_1000~26500



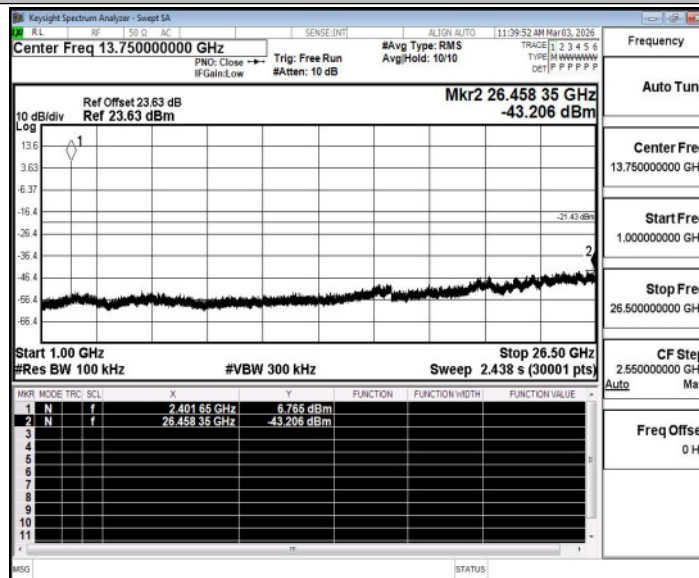
BLE_2M_Ant_2402_0~Reference



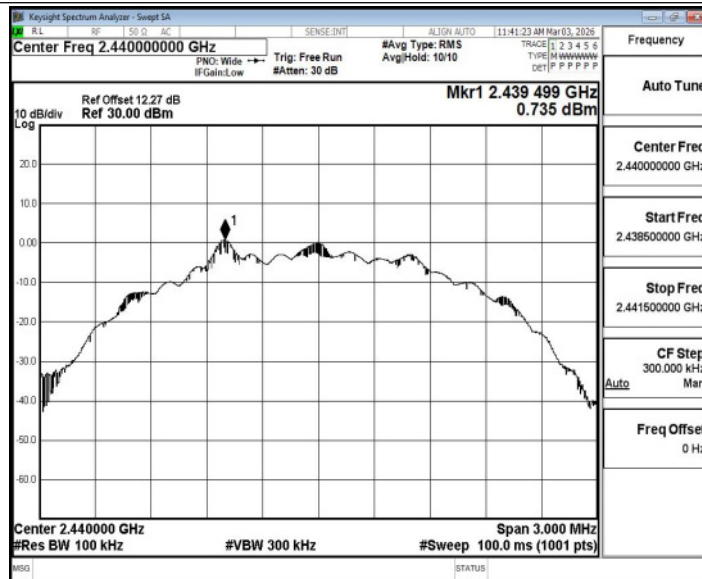
BLE_2M_Ant_2402_30~1000



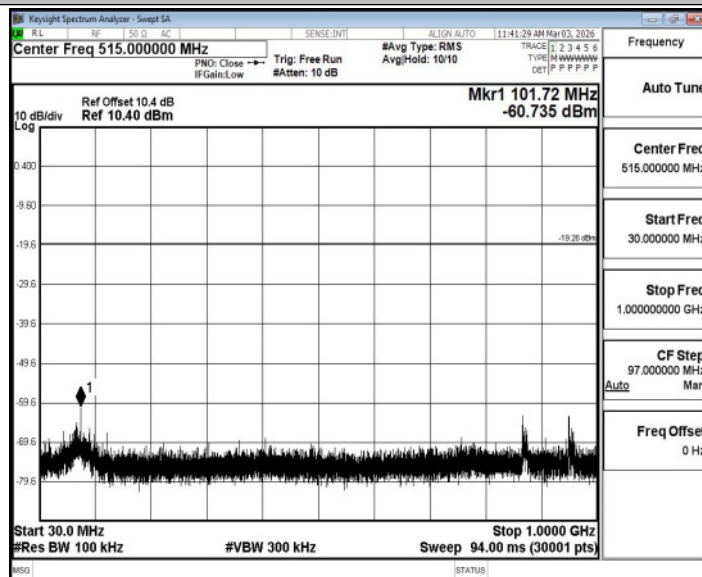
BLE_2M_Ant_2402_1000~26500



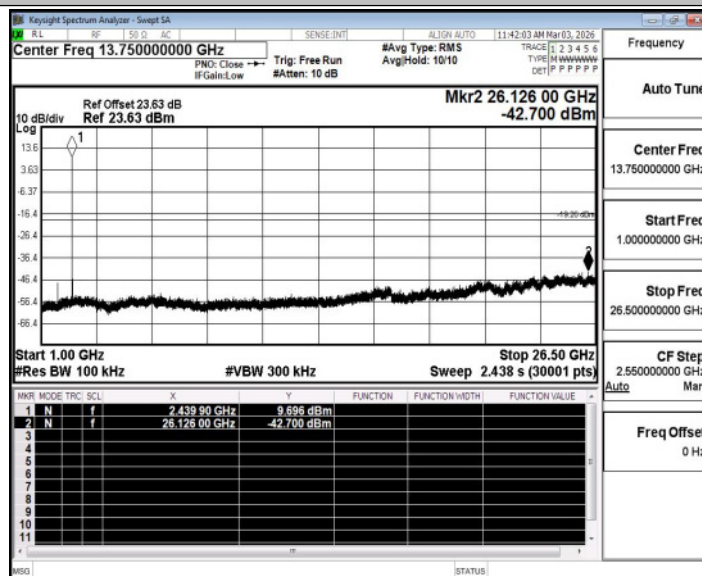
BLE_2M_Ant_2440_0~Reference



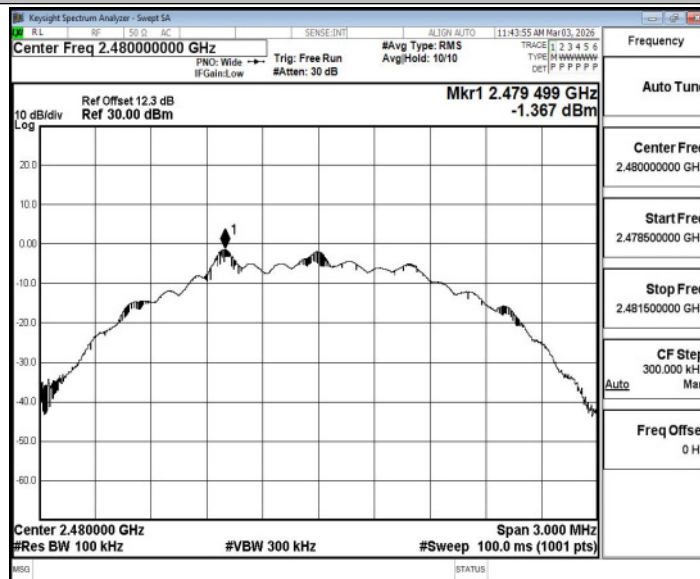
BLE_2M_Ant_2440_30~1000



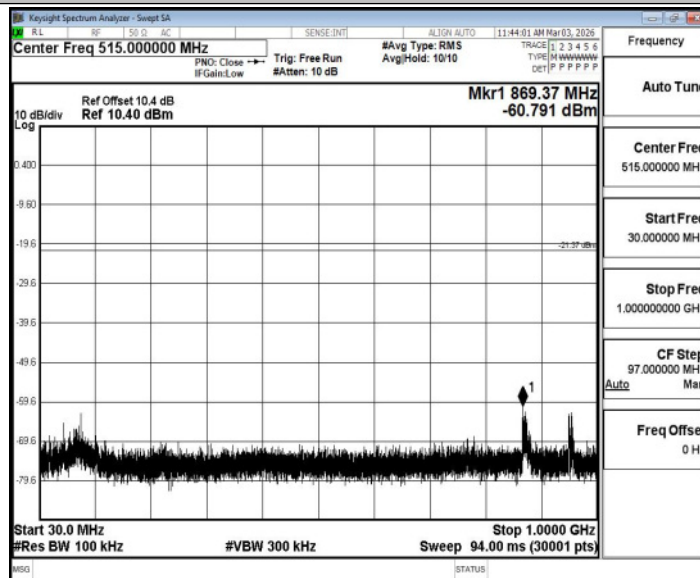
BLE_2M_Ant_2440_1000~26500



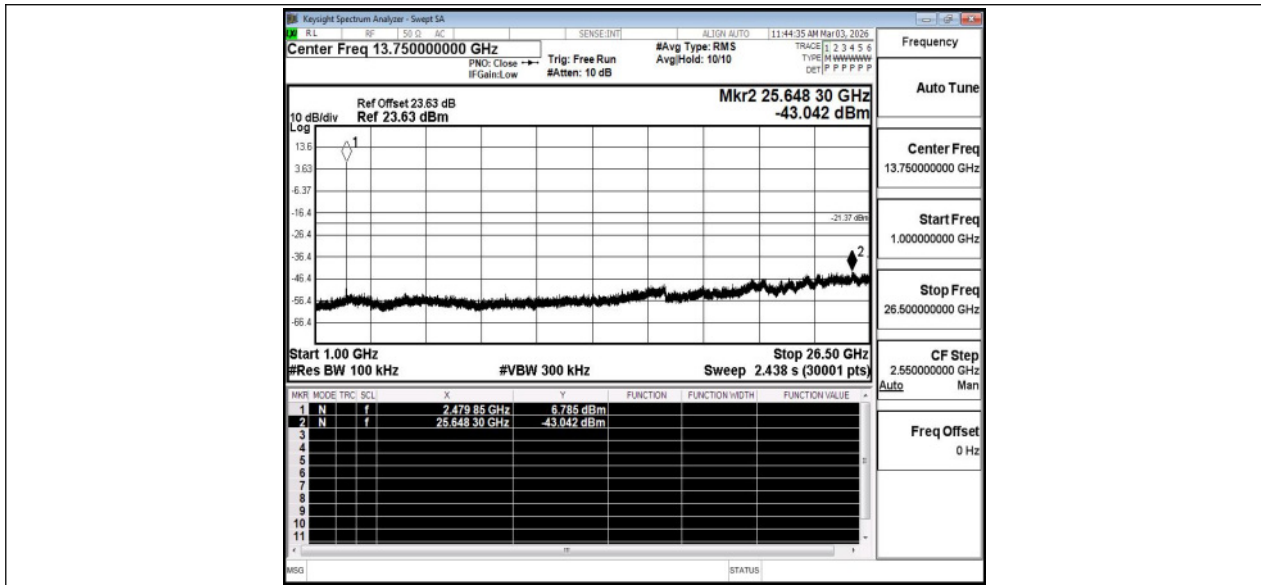
BLE_2M_Ant_2480_0~Reference



BLE_2M_Ant_2480_30~1000



BLE_2M_Ant_2480_1000~26500



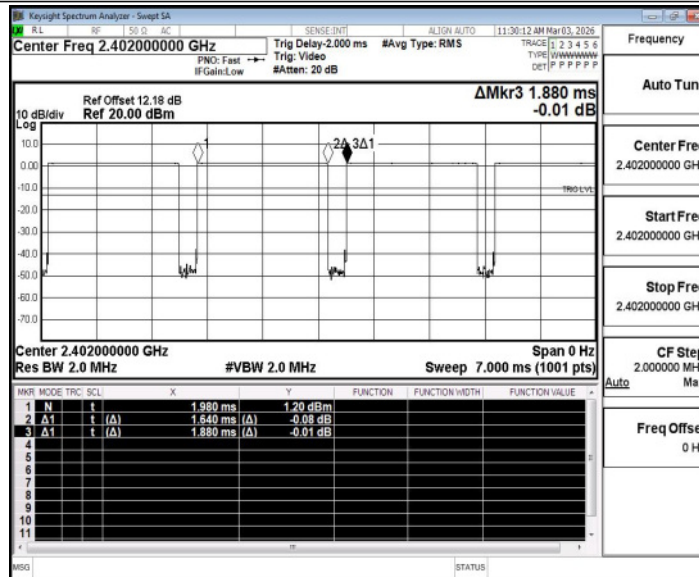
A.6 Duty Cycle

Test Result

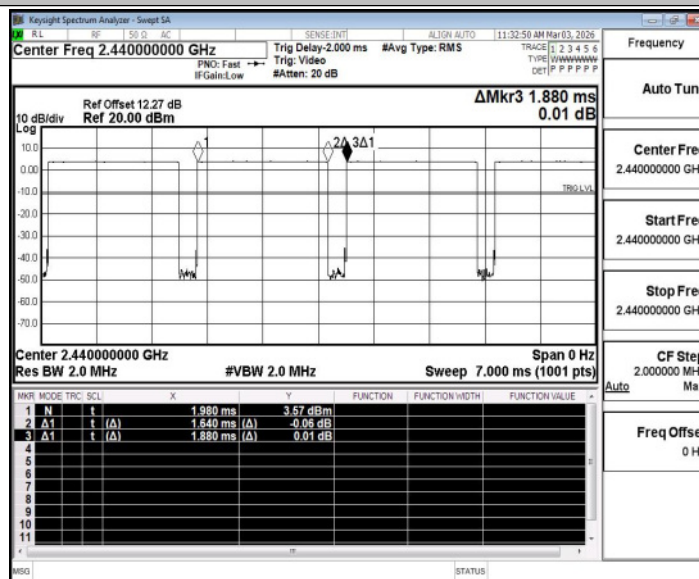
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant	2402	1.64	1.88	0.8723	87.23	0.59	---	---
		2440	1.64	1.88	0.8723	87.23	0.59	---	---
		2480	1.64	1.88	0.8723	87.23	0.59	---	---
BLE_2M	Ant	2402	0.81	1.24	0.6532	65.32	1.85	---	---
		2440	0.82	1.25	0.6560	65.60	1.83	---	---
		2480	0.82	1.25	0.6560	65.60	1.83	---	---

Test Graphs

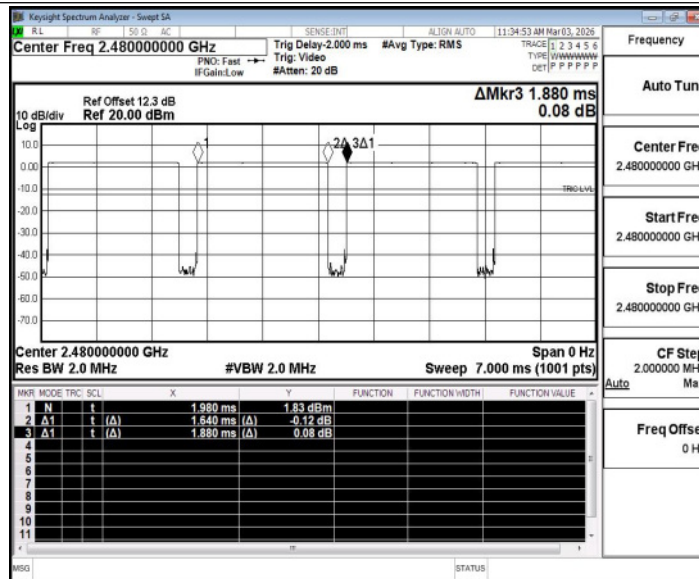
BLE_1M_Ant_2402



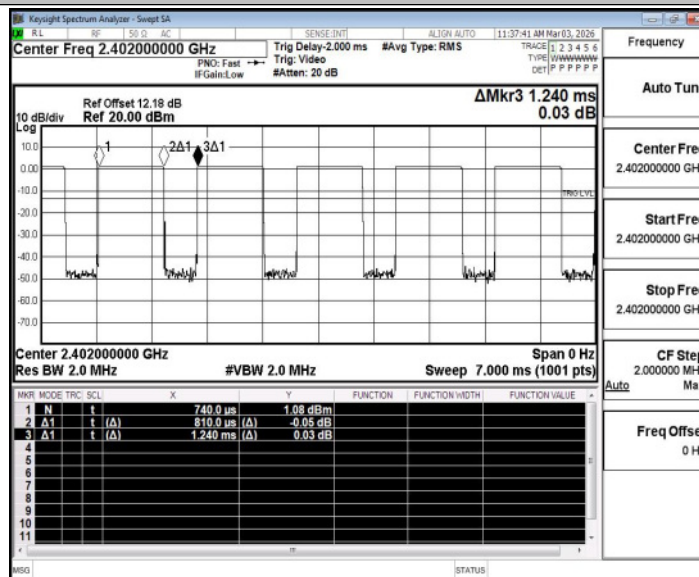
BLE_1M_Ant_2440



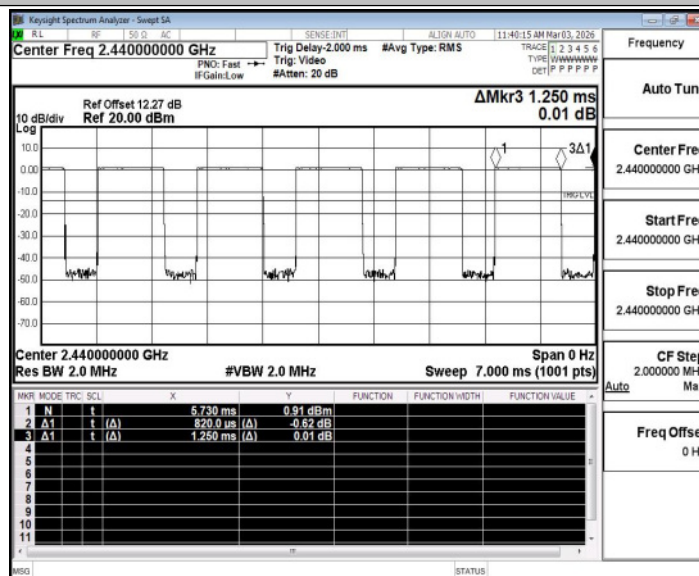
BLE_1M_Ant_2480

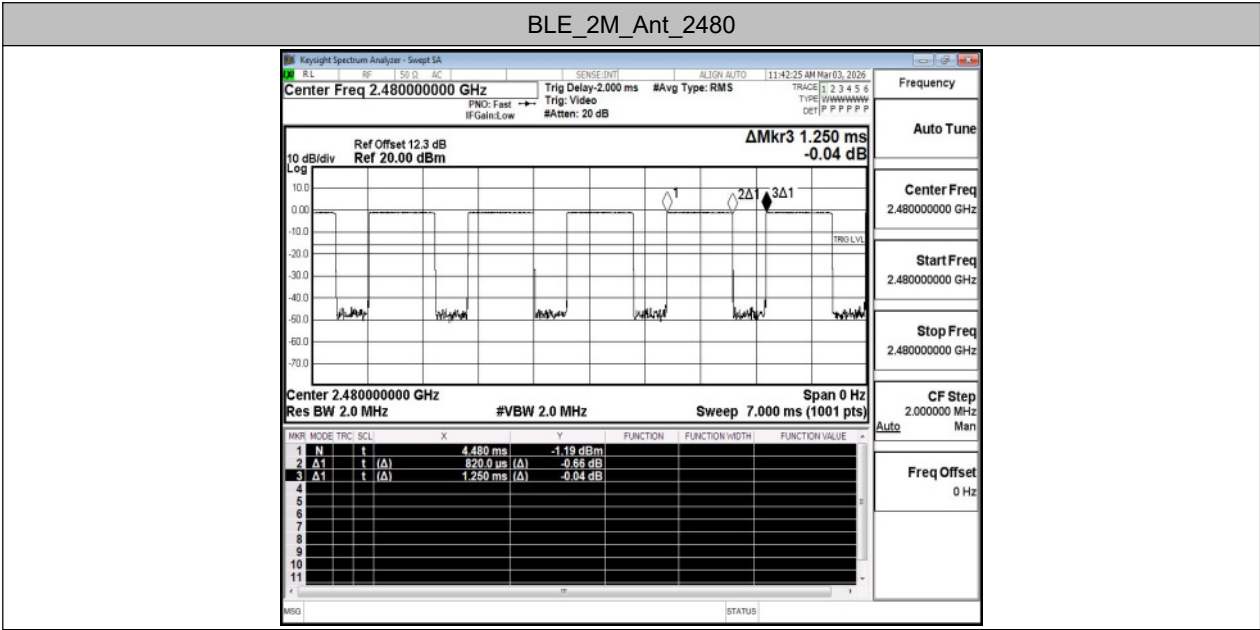


BLE_2M_Ant_2402



BLE_2M_Ant_2440





A.7 Emissions in Restricted Bands

Test Result

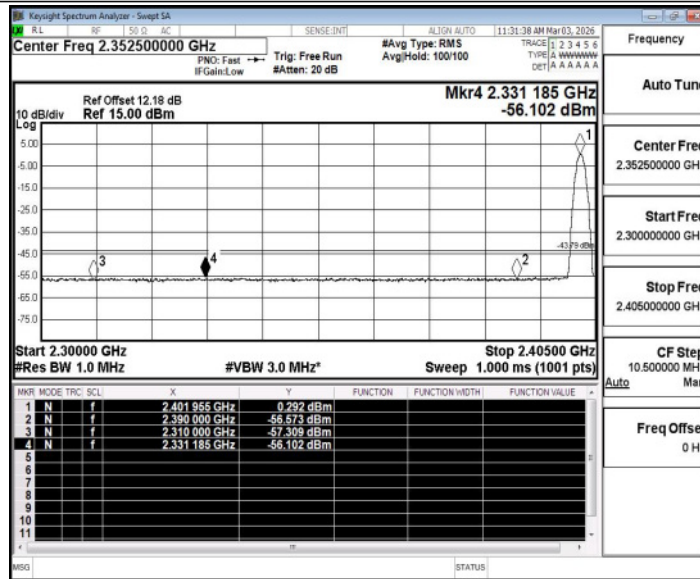
Test Mode	Antenna	Channel Name	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant	Low	2402	AV	2310.000	-57.31	≤-43.79	2.00	0.59	40.48	≤54	PASS
				AV	2331.185	-56.1	≤-43.79	2.00	0.59	41.69	≤54	PASS
				AV	2390.000	-56.57	≤-43.79	2.00	0.59	41.22	≤54	PASS
				Peak	2310.000	-47.97	≤-23.20	2.00	0.00	49.23	≤74	PASS
				Peak	2361.740	-45.9	≤-23.20	2.00	0.00	51.30	≤74	PASS
				Peak	2390.000	-49.4	≤-23.20	2.00	0.00	47.80	≤74	PASS
		High	2480	AV	2483.500	-56.11	≤-43.79	2.00	0.59	41.68	≤54	PASS
				AV	2484.640	-55.71	≤-43.79	2.00	0.59	42.08	≤54	PASS
				AV	2500.000	-56.55	≤-43.79	2.00	0.59	41.24	≤54	PASS
				Peak	2483.500	-49.01	≤-23.20	2.00	0.00	48.19	≤74	PASS
				Peak	2484.400	-44.23	≤-23.20	2.00	0.00	52.97	≤74	PASS
				Peak	2500.000	-48.28	≤-23.20	2.00	0.00	48.92	≤74	PASS
BLE_2M	Ant	Low	2402	AV	2310.000	-56.55	≤-45.05	2.00	1.85	42.50	≤54	PASS
				AV	2345.255	-56.01	≤-45.05	2.00	1.85	43.04	≤54	PASS
				AV	2390.000	-56.93	≤-45.05	2.00	1.85	42.12	≤54	PASS
				Peak	2310.000	-49.21	≤-23.20	2.00	0.00	47.99	≤74	PASS
				Peak	2321.630	-45.79	≤-23.20	2.00	0.00	51.41	≤74	PASS
				Peak	2390.000	-49.97	≤-23.20	2.00	0.00	47.23	≤74	PASS
		High	2480	AV	2483.500	-56.58	≤-45.03	2.00	1.83	42.45	≤54	PASS
				AV	2486.000	-55.53	≤-45.03	2.00	1.83	43.50	≤54	PASS
				AV	2500.000	-56.5	≤-45.03	2.00	1.83	42.53	≤54	PASS
				Peak	2483.500	-47.83	≤-23.20	2.00	0.00	49.37	≤74	PASS
				Peak	2487.200	-46.34	≤-23.20	2.00	0.00	50.86	≤74	PASS
				Peak	2500.000	-48.29	≤-23.20	2.00	0.00	48.91	≤74	PASS

Note:

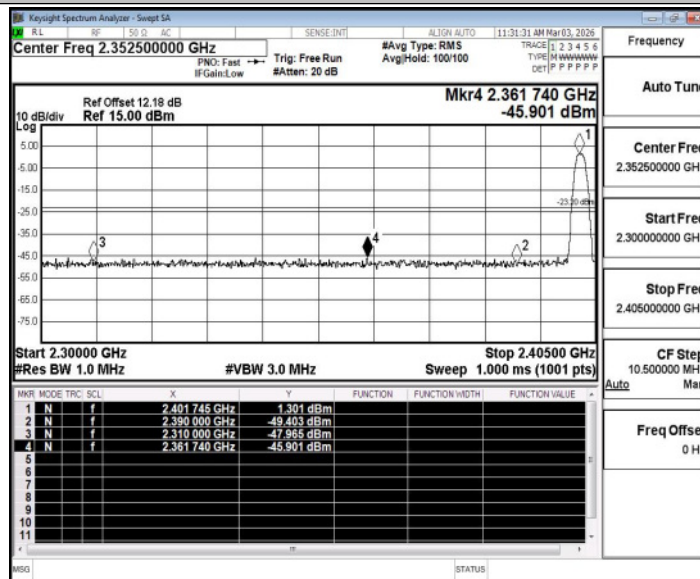
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

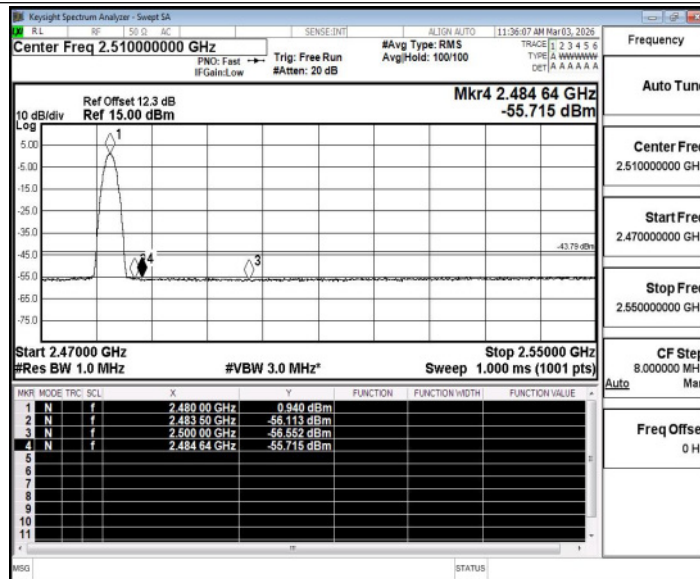
BLE_1M_Ant_Low_2402_AV



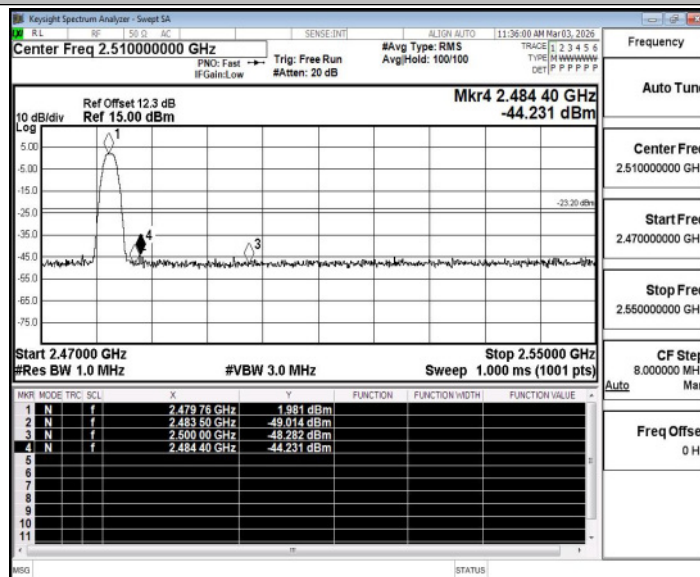
BLE_1M_Ant_Low_2402_Peak



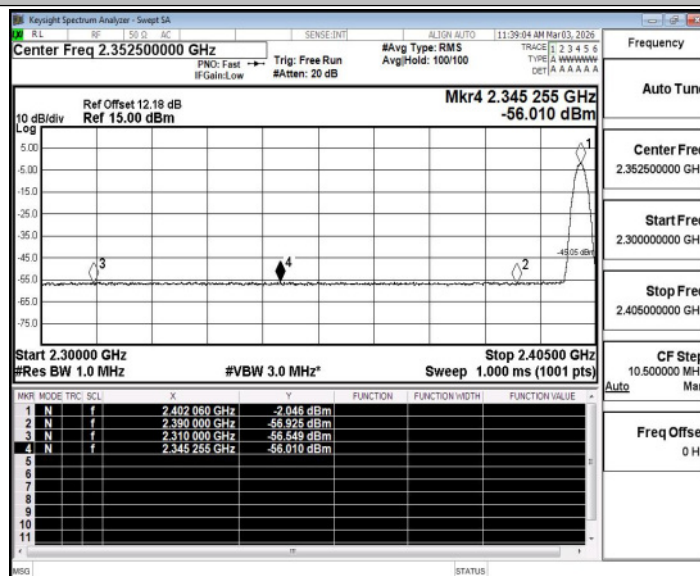
BLE_1M_Ant_High_2480_AV



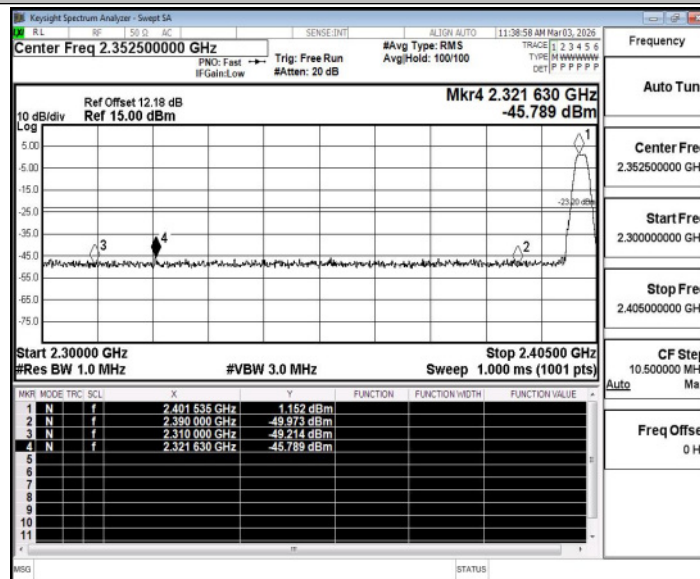
BLE_1M_Ant_High_2480_Peak



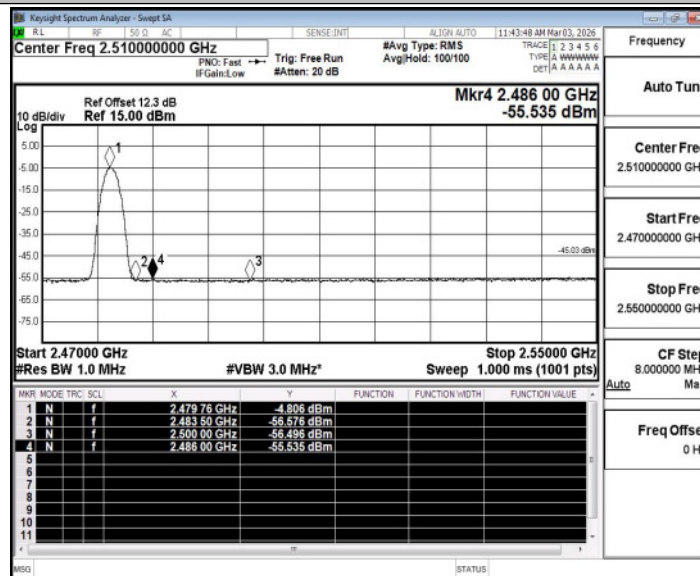
BLE_2M_Ant_Low_2402_AV



BLE_2M_Ant_Low_2402_Peak



BLE_2M_Ant_High_2480_AV



BLE_2M_Ant_High_2480_Peak

