

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: wireless mouse

Test Model: A29

Environmental Conditions

Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang Hai
Supervised by:	Fengliu Tang

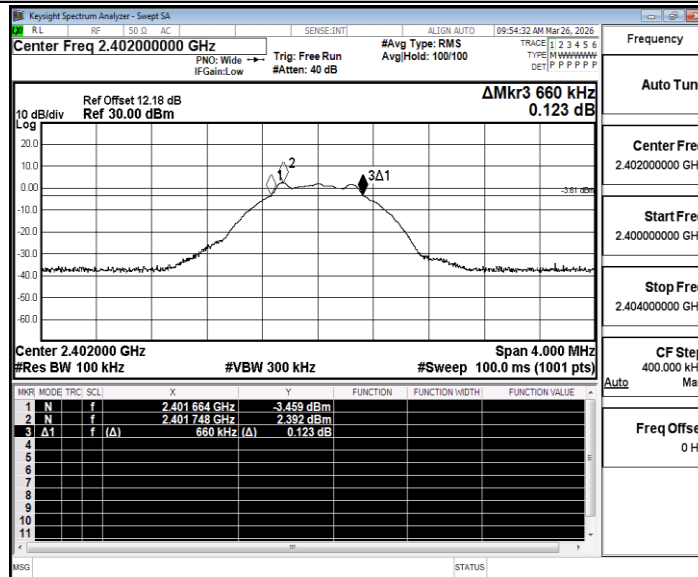
A.1 DTS Bandwidth

Test Result

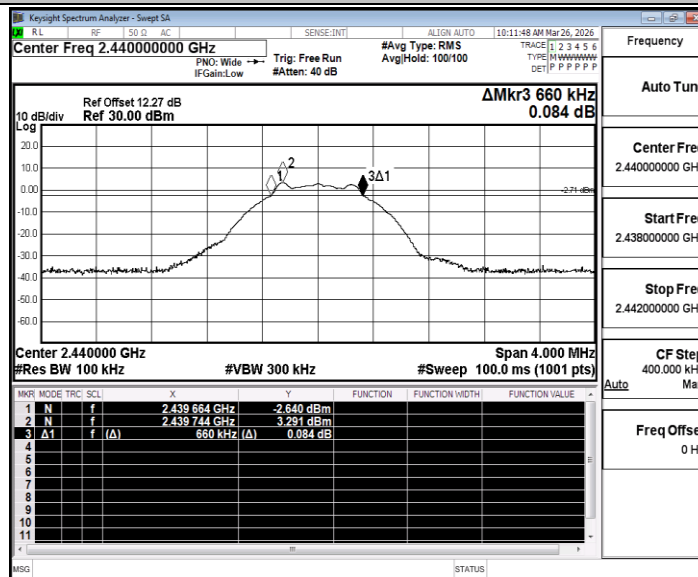
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.660	2401.664	2402.324	0.5	PASS
		2440	0.660	2439.664	2440.324	0.5	PASS
		2480	0.664	2479.660	2480.324	0.5	PASS
BLE_2M	Ant1	2402	1.152	2401.408	2402.560	0.5	PASS
		2440	1.152	2439.408	2440.560	0.5	PASS
		2480	1.152	2479.408	2480.560	0.5	PASS

Test Graphs

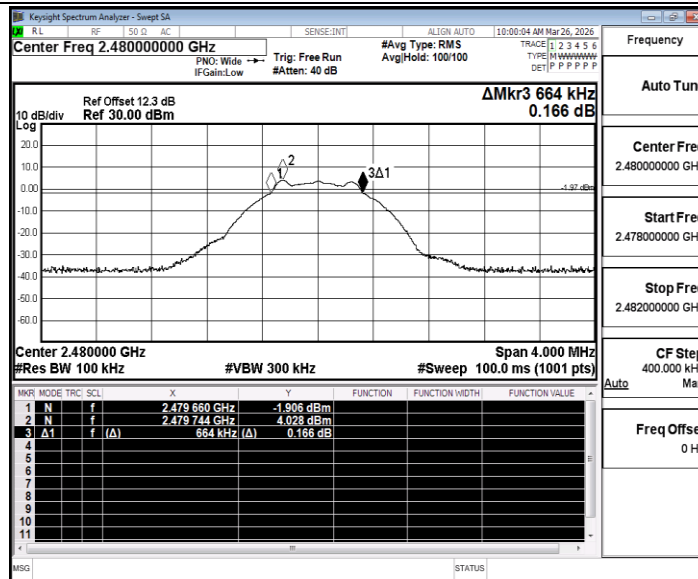
BLE_1M_Ant1_2402



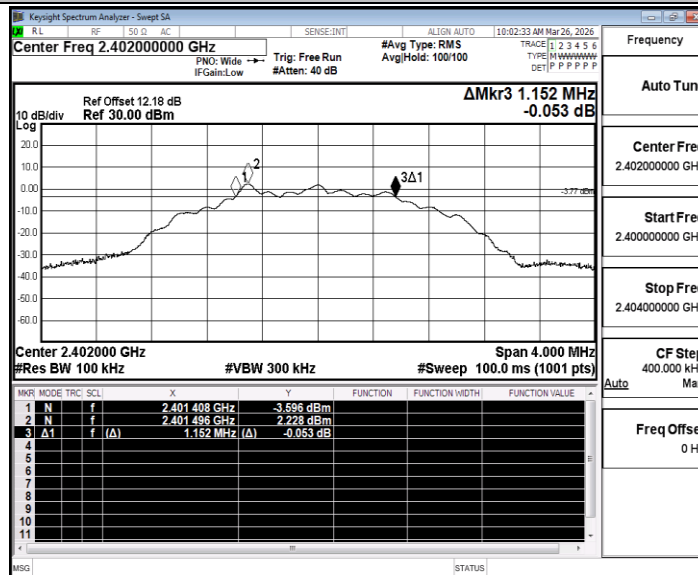
BLE_1M_Ant1_2440



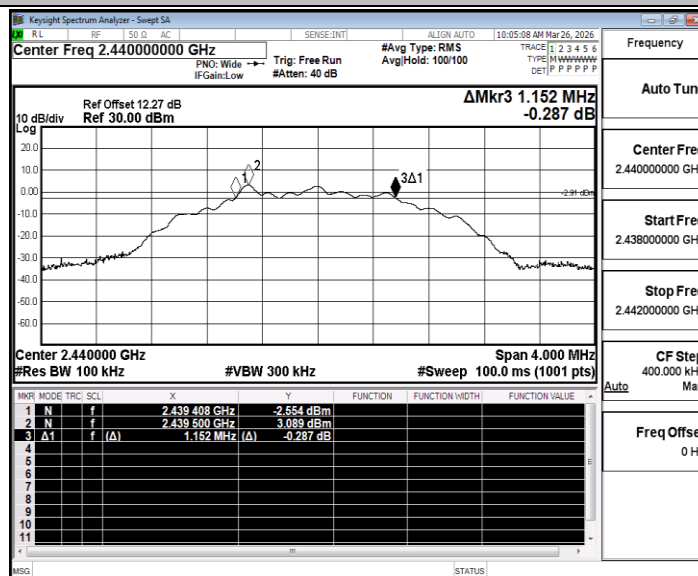
BLE_1M_Ant1_2480



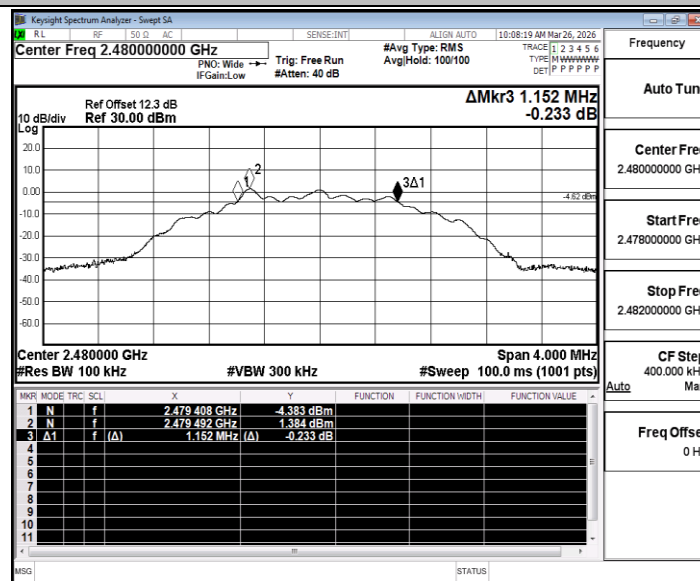
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



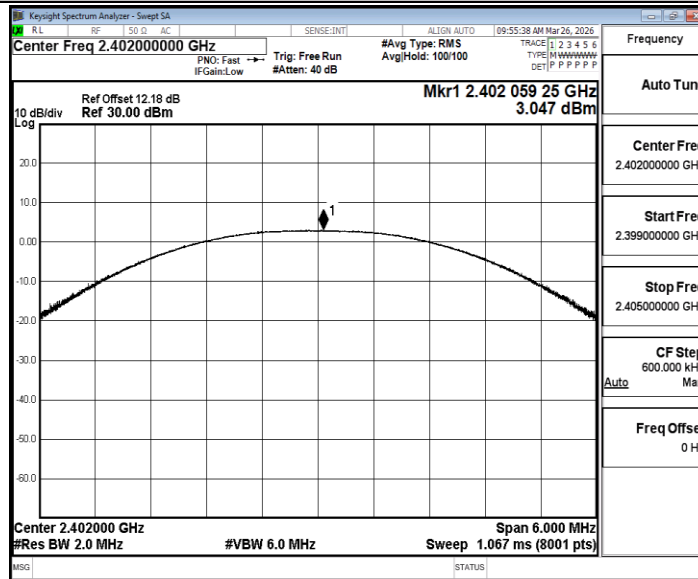
A.2 Maximum Peak conducted output power

Test Result Peak

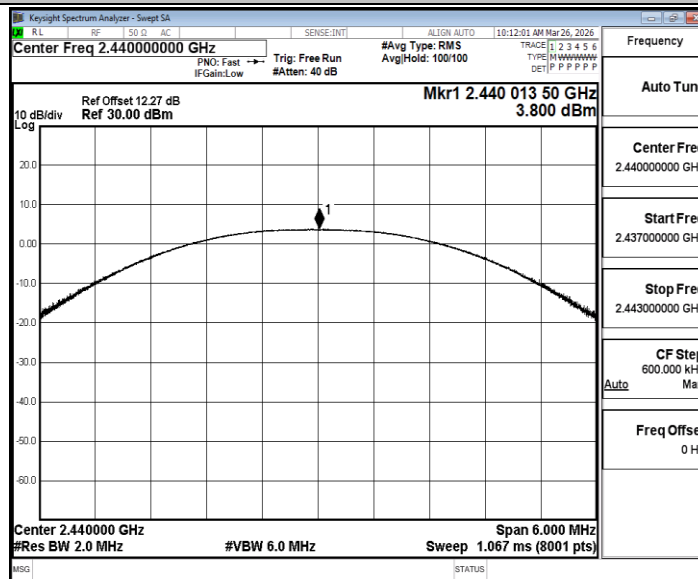
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	3.05	≤30	PASS
		2440	3.80	≤30	PASS
		2480	4.53	≤30	PASS
BLE_2M	Ant1	2402	2.85	≤30	PASS
		2440	3.71	≤30	PASS
		2480	2.06	≤30	PASS

Test Graphs Peak

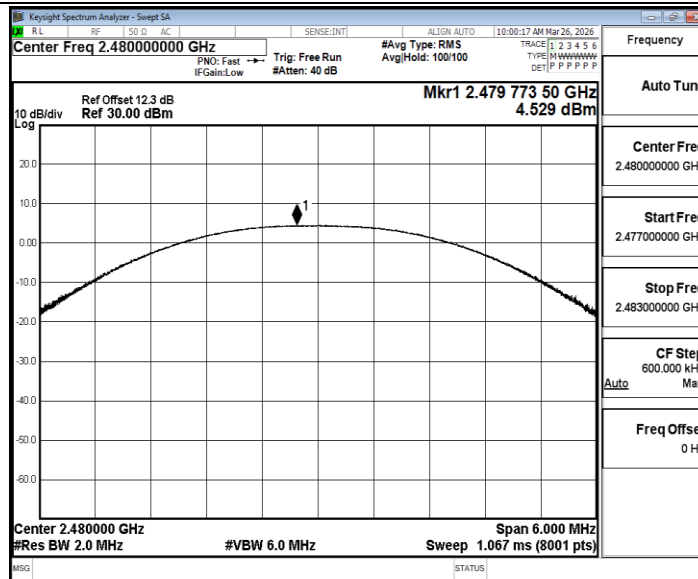
BLE_1M_Ant1_2402



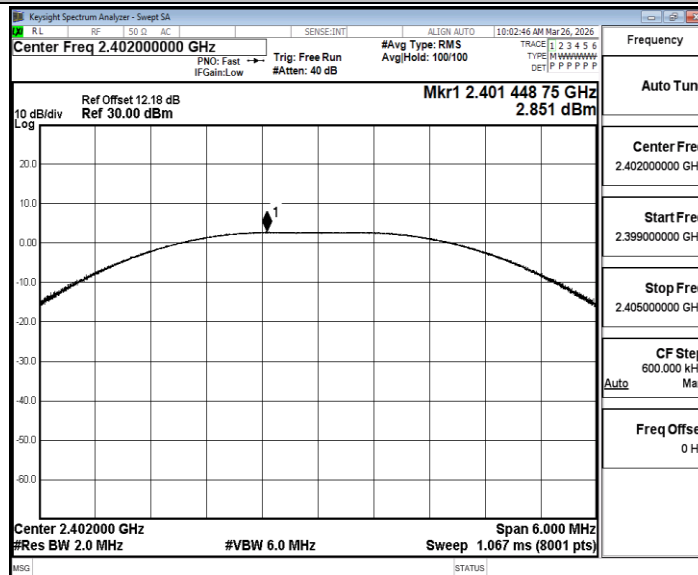
BLE_1M_Ant1_2440



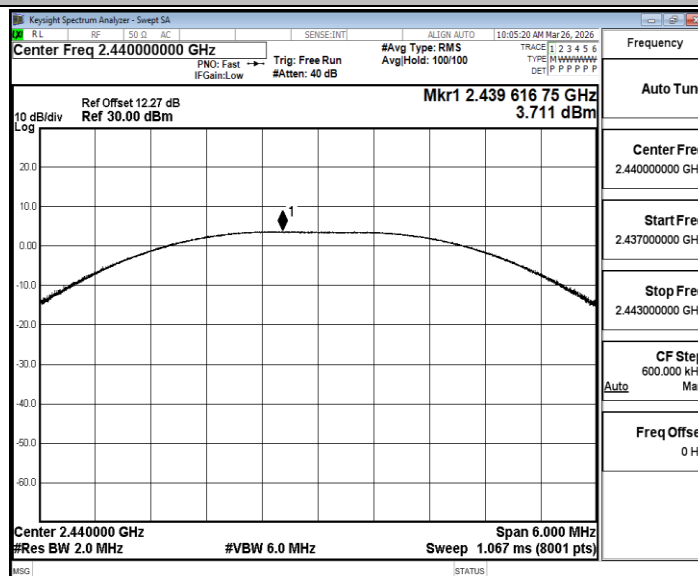
BLE_1M_Ant1_2480



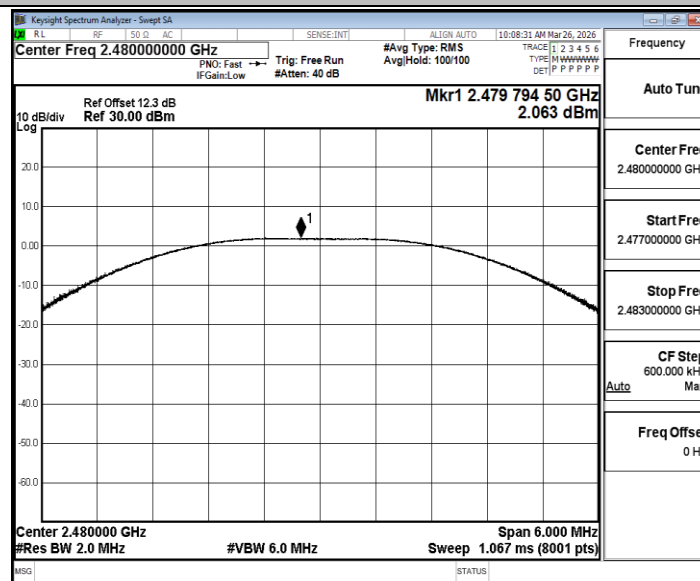
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



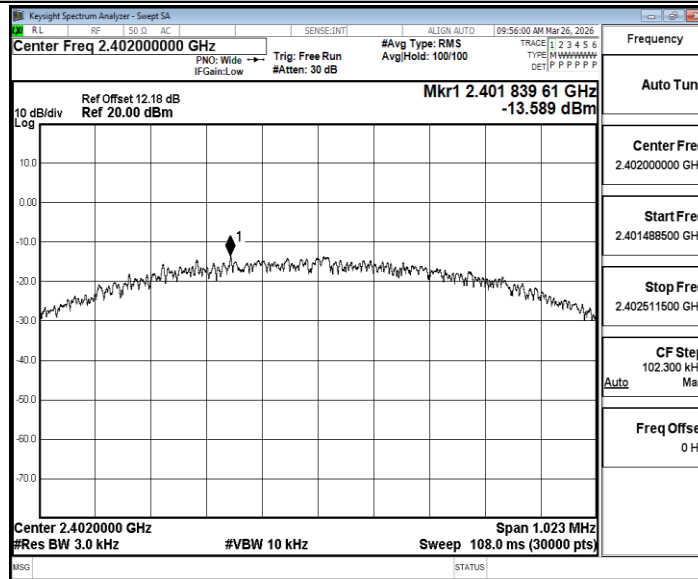
A.3 Maximum power spectral density

Test Result

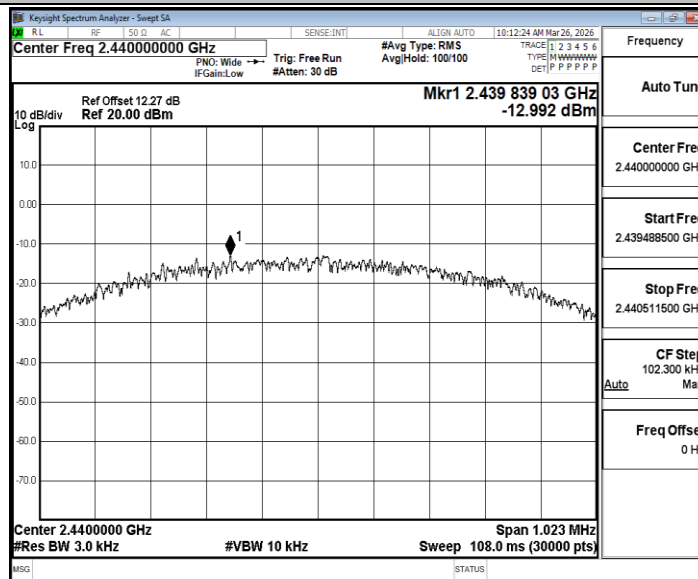
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.59	≤8.00	PASS
		2440	-12.99	≤8.00	PASS
		2480	-12.08	≤8.00	PASS
BLE_2M	Ant1	2402	-16.96	≤8.00	PASS
		2440	-16.13	≤8.00	PASS
		2480	-17.89	≤8.00	PASS

Test Graphs

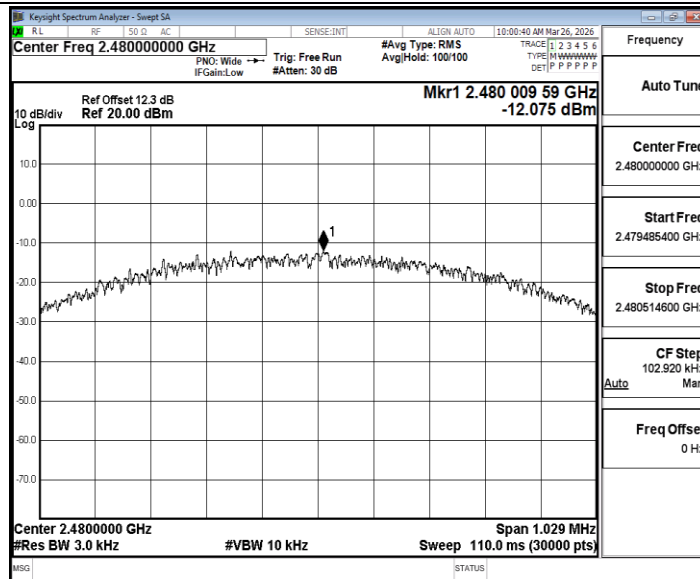
BLE_1M_Ant1_2402



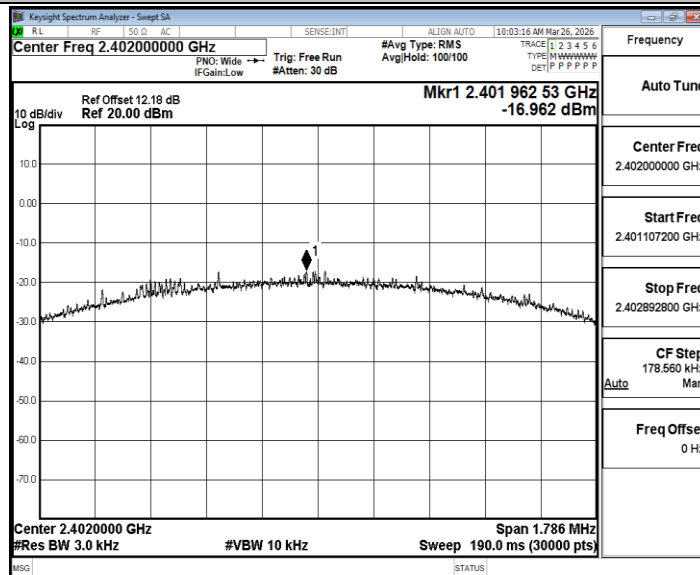
BLE_1M_Ant1_2440



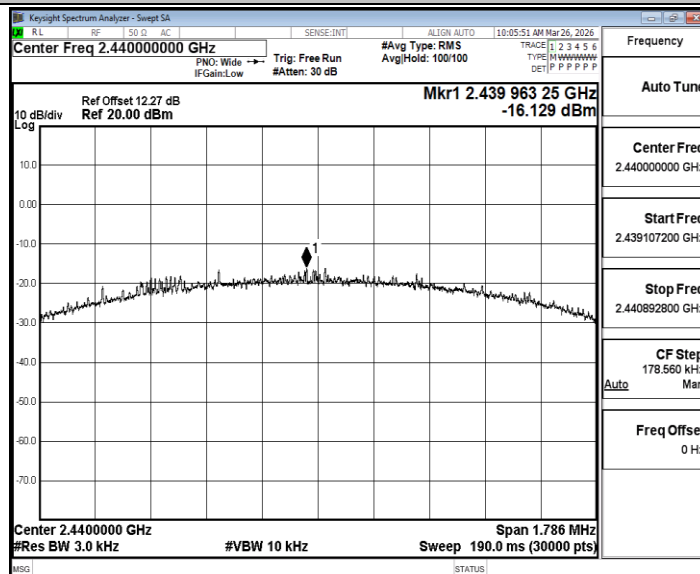
BLE_1M_Ant1_2480



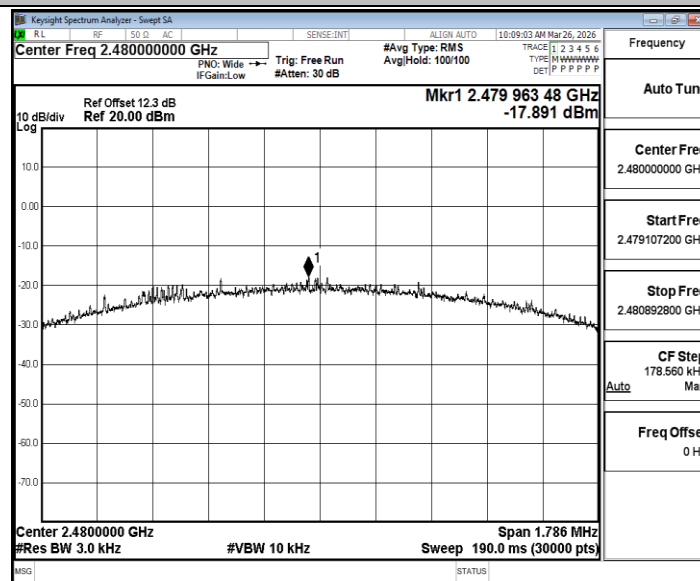
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



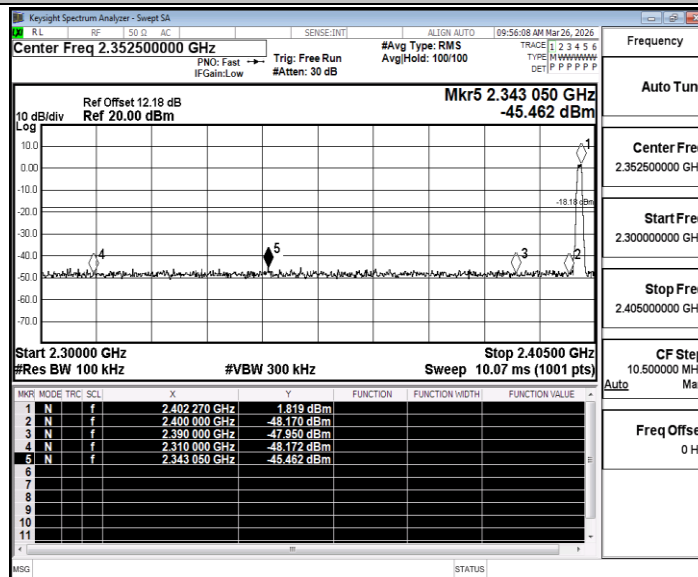
A.4 Band edge measurements

Test Result

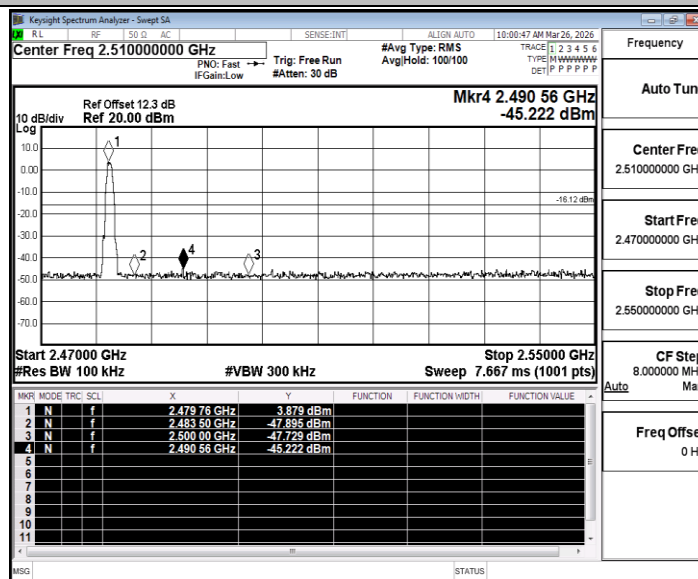
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	1.82	-45.46	≤-18.18	PASS
		High	2480	3.88	-45.22	≤-16.12	PASS
BLE_2M	Ant1	Low	2402	-0.03	-41.63	≤-20.03	PASS
		High	2480	0.07	-44.08	≤-19.94	PASS

Test Graphs

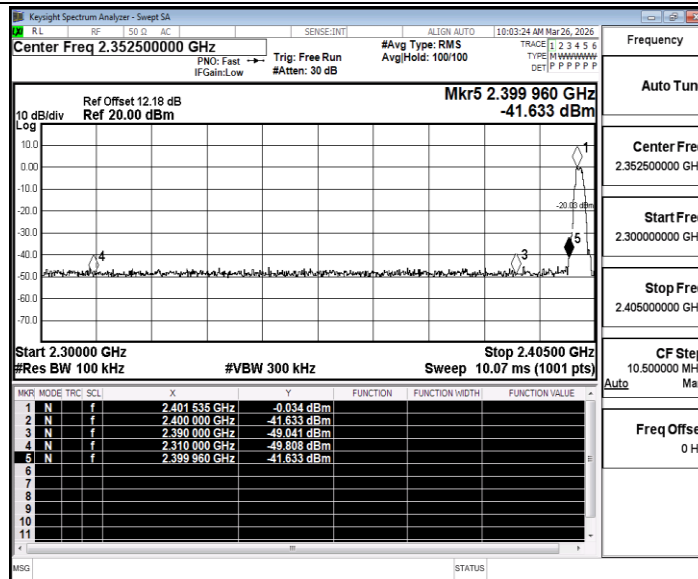
BLE_1M_Ant1_Low_2402



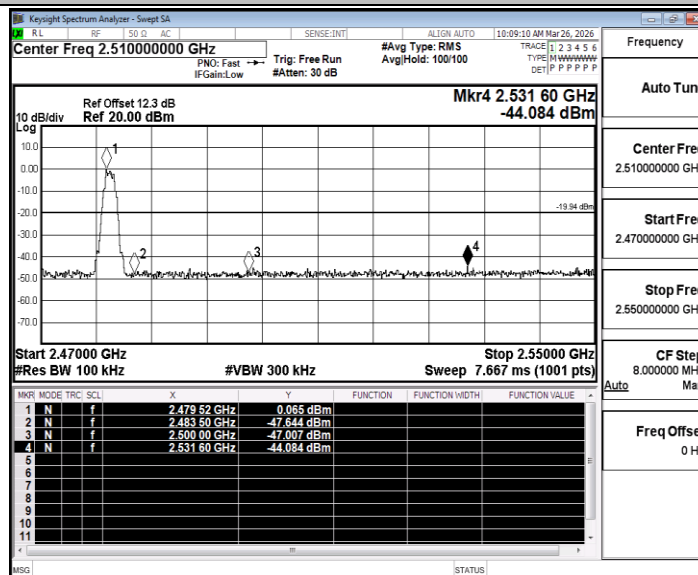
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



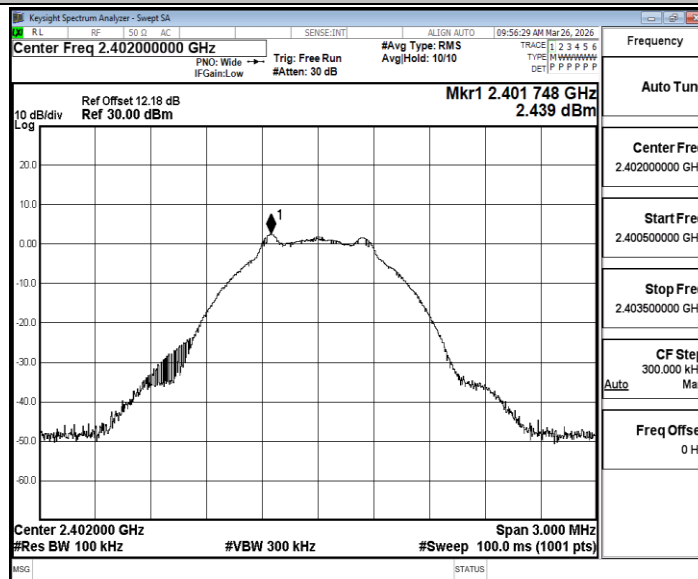
A.5 Conducted Spurious Emission

Test Result

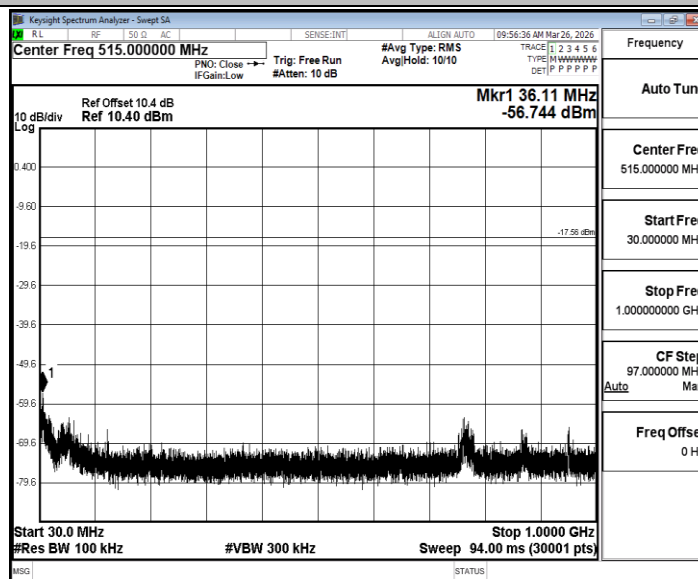
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	2.44	2.44	---	PASS
			30~1000	2.44	-56.74	≤-17.56	PASS
			1000~26500	2.44	-43.31	≤-17.56	PASS
		2440	Reference	3.19	3.19	---	PASS
			30~1000	3.19	-49.29	≤-16.81	PASS
			1000~26500	3.19	-43.61	≤-16.81	PASS
		2480	Reference	3.96	3.96	---	PASS
			30~1000	3.96	-59.68	≤-16.04	PASS
			1000~26500	3.96	-42.98	≤-16.04	PASS
BLE_2M	Ant1	2402	Reference	0.45	0.45	---	PASS
			30~1000	0.45	-60.28	≤-19.55	PASS
			1000~26500	0.45	-42.39	≤-19.55	PASS
		2440	Reference	2.99	2.99	---	PASS
			30~1000	2.99	-34.39	≤-17.01	PASS
			1000~26500	2.99	-42.77	≤-17.01	PASS
		2480	Reference	1.33	1.33	---	PASS
			30~1000	1.33	-51.44	≤-18.67	PASS
			1000~26500	1.33	-42.56	≤-18.67	PASS

Test Graphs

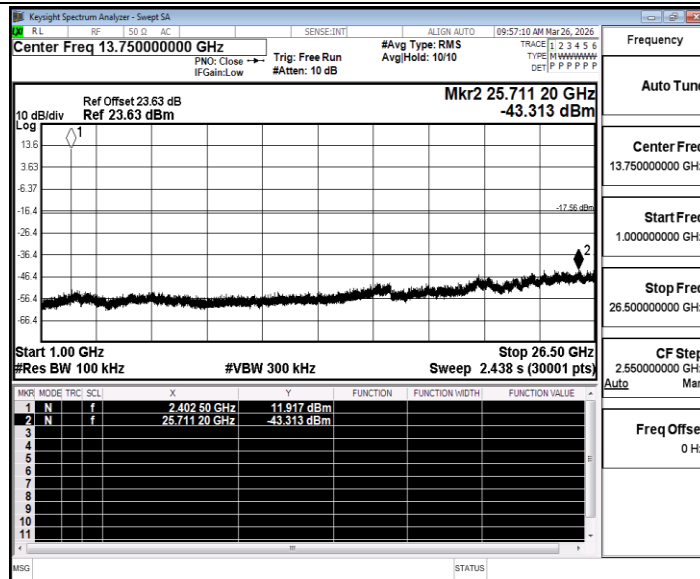
BLE_1M_Ant1_2402_0~Reference



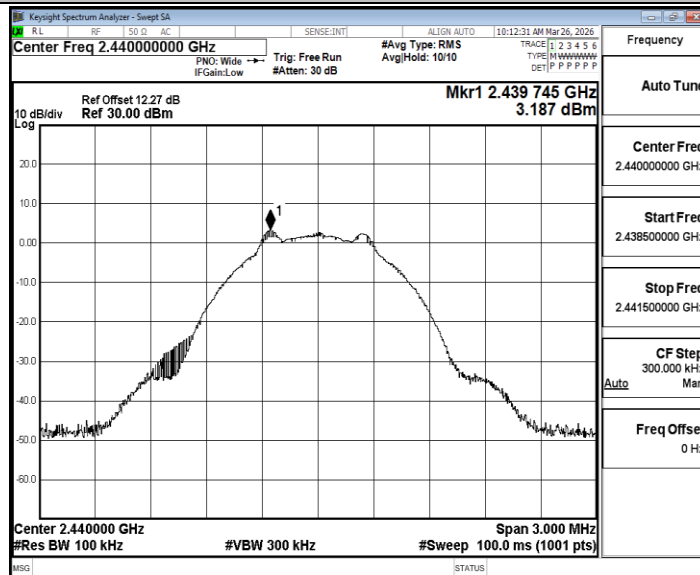
BLE_1M_Ant1_2402_30~1000



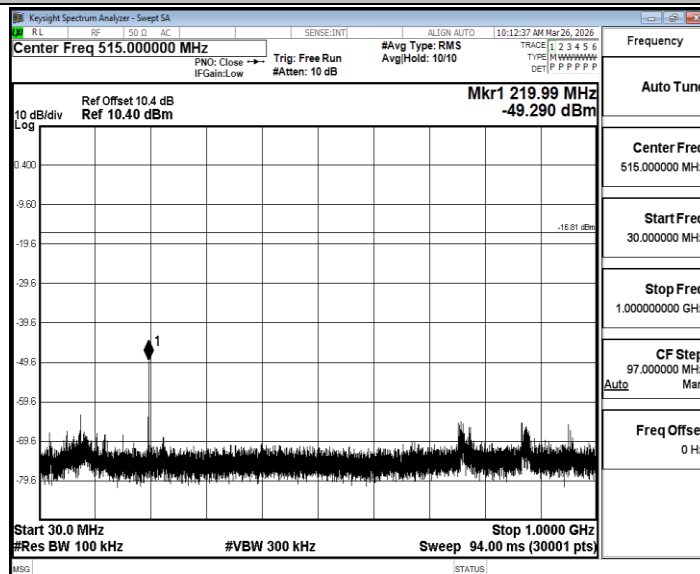
BLE_1M_Ant1_2402_1000~26500



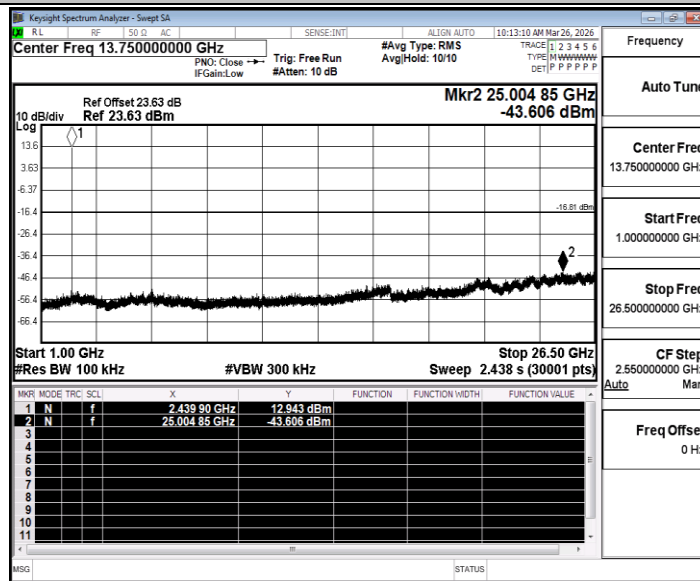
BLE_1M_Ant1_2440_0~Reference



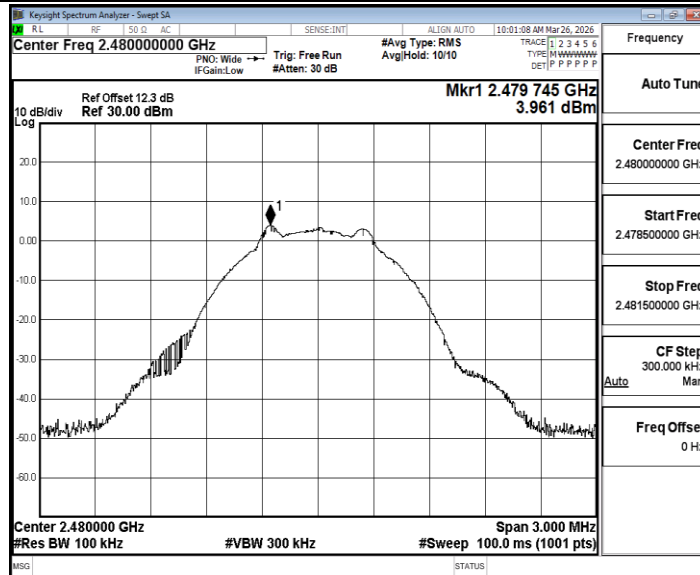
BLE_1M_Ant1_2440_30~1000



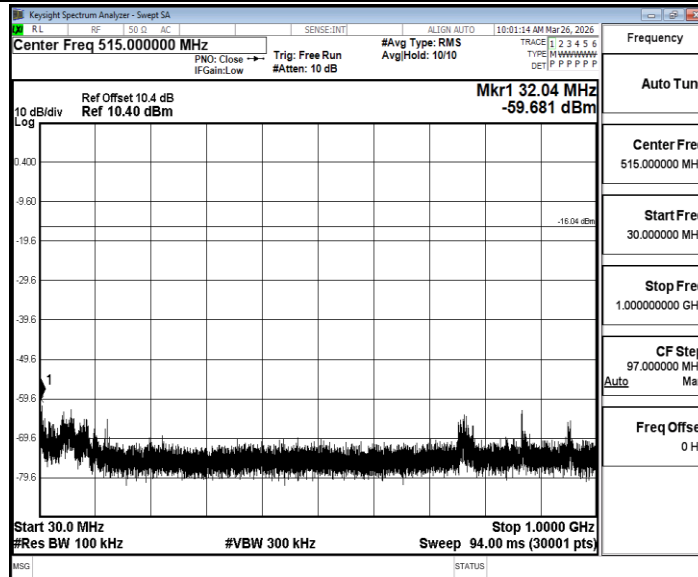
BLE_1M_Ant1_2440_1000~26500



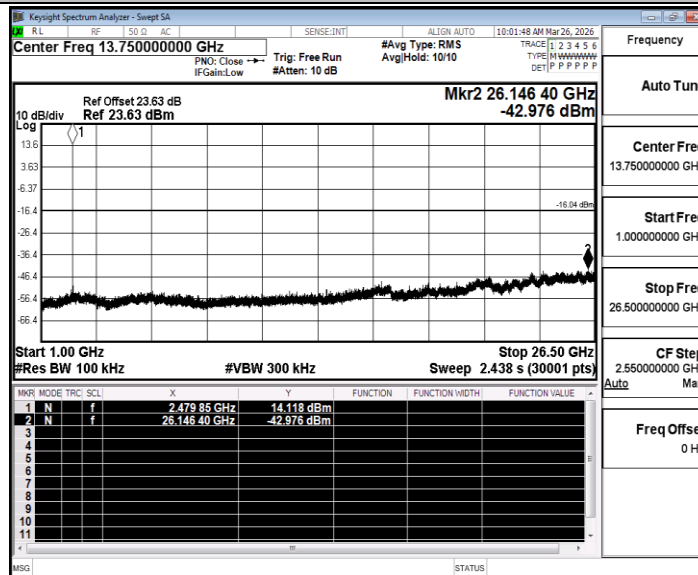
BLE_1M_Ant1_2480_0~Reference



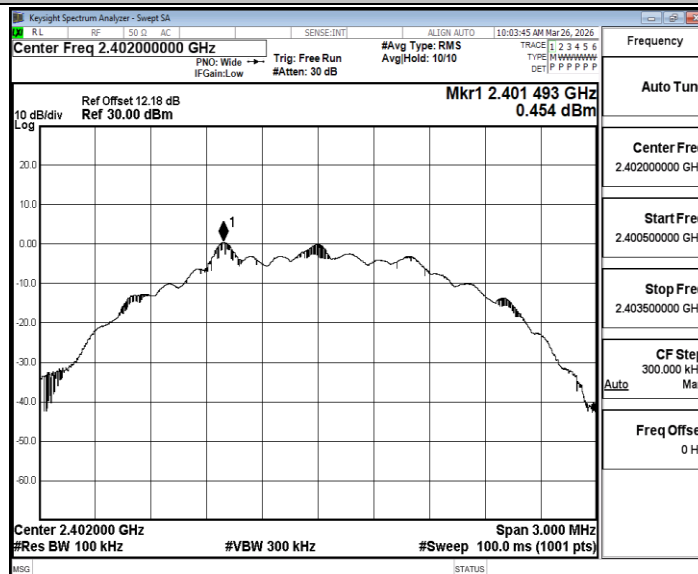
BLE_1M_Ant1_2480_30~1000



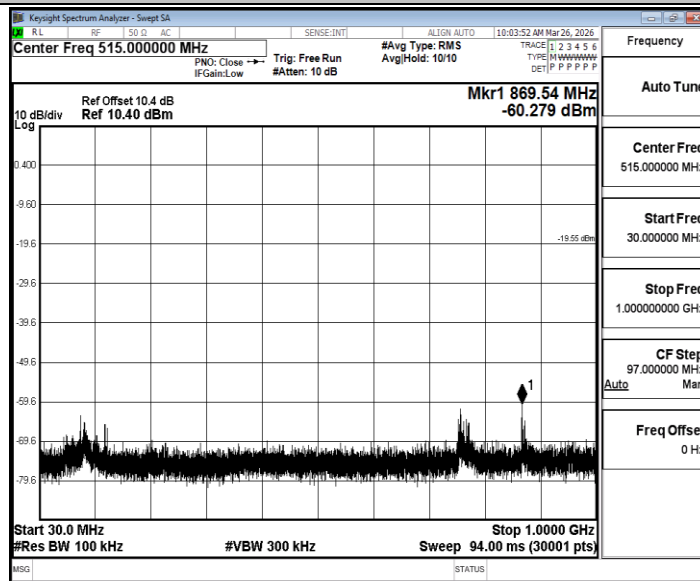
BLE_1M_Ant1_2480_1000~26500



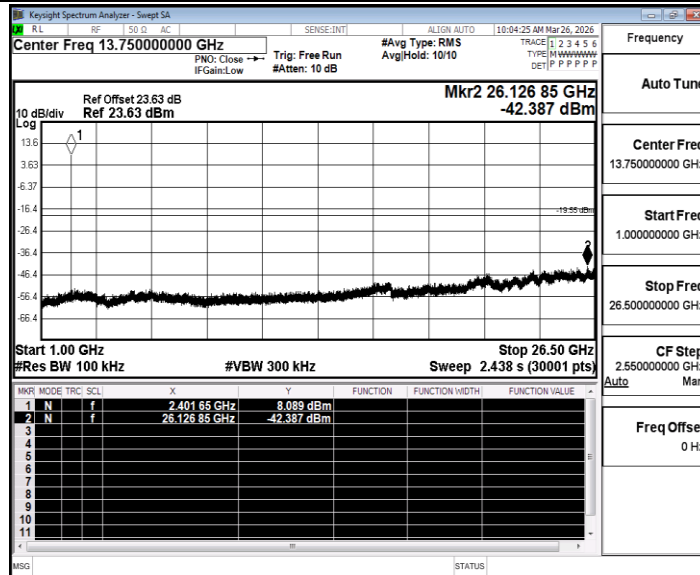
BLE_2M_Ant1_2402_0~Reference



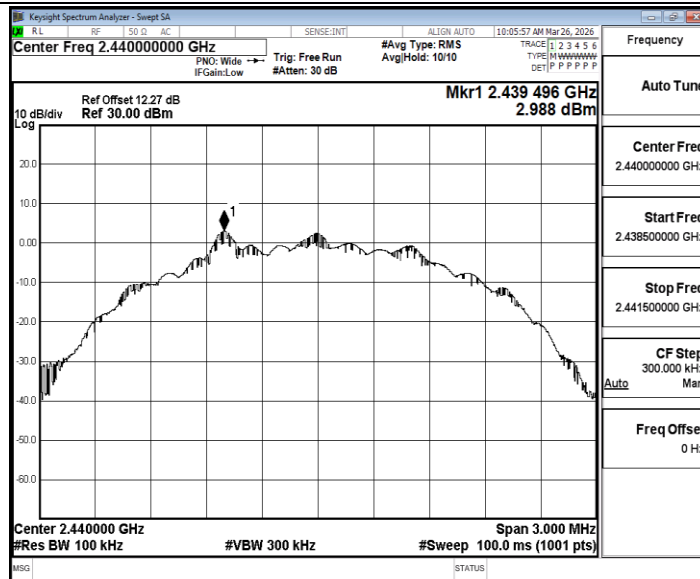
BLE_2M_Ant1_2402_30~1000



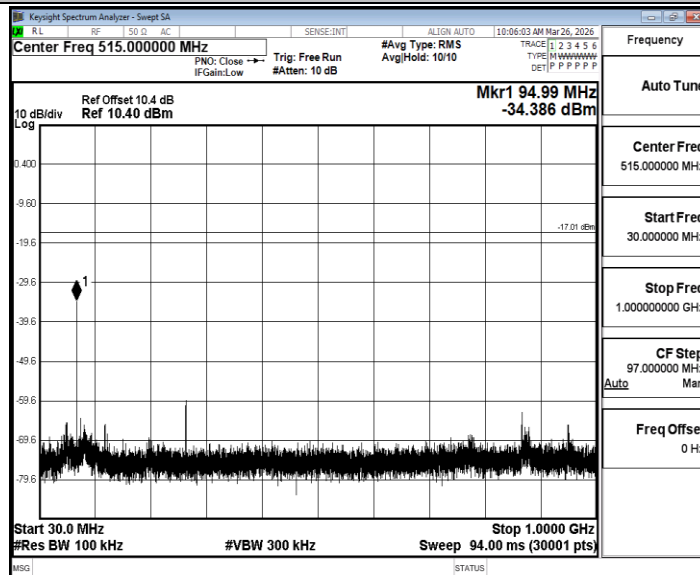
BLE_2M_Ant1_2402_1000~26500



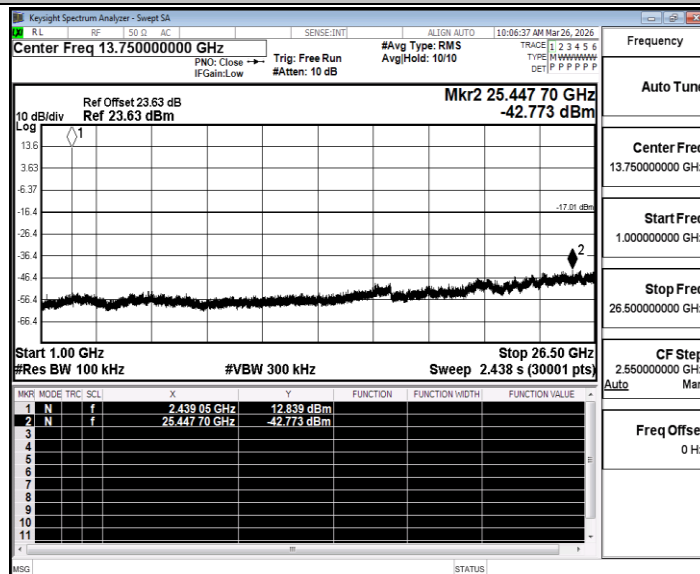
BLE_2M_Ant1_2440_0~Reference



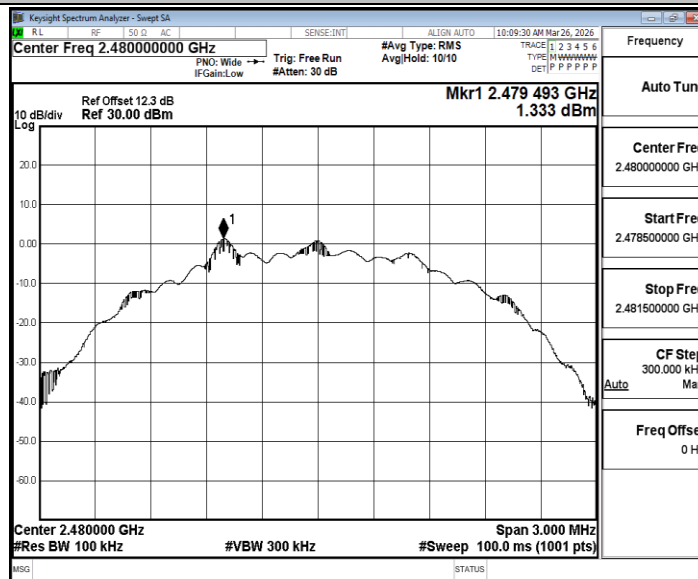
BLE_2M_Ant1_2440_30~1000



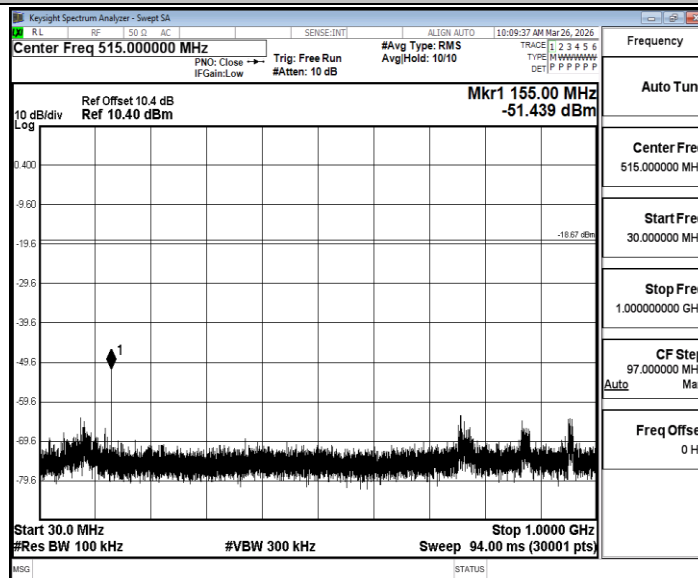
BLE_2M_Ant1_2440_1000~26500



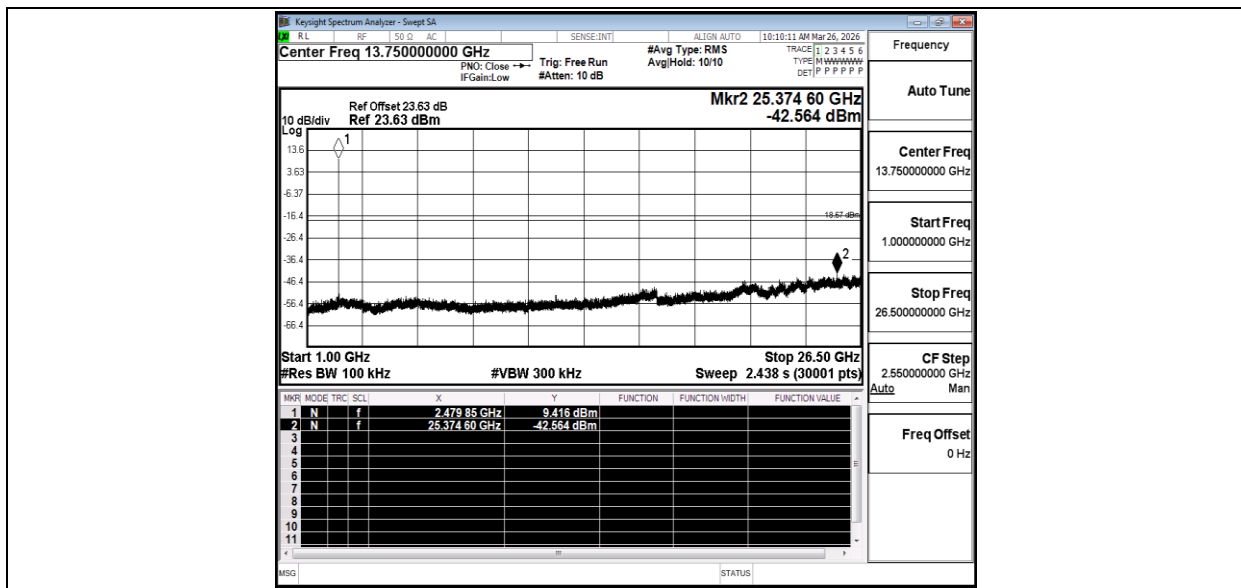
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



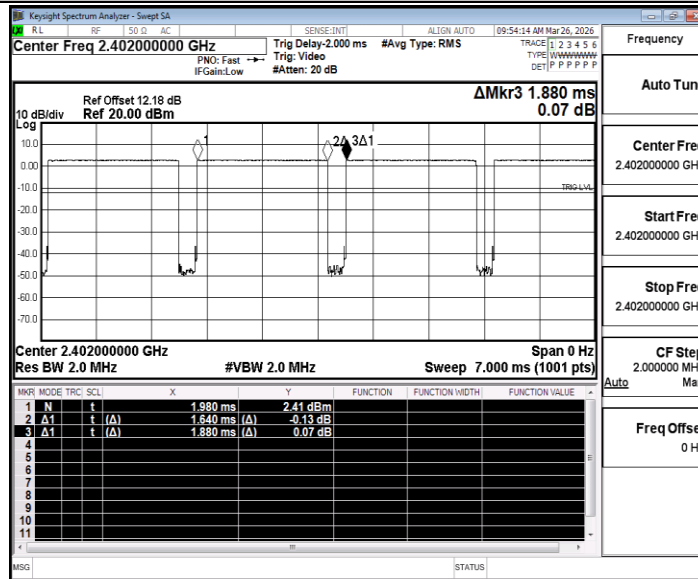
A.6 Duty Cycle

Test Result

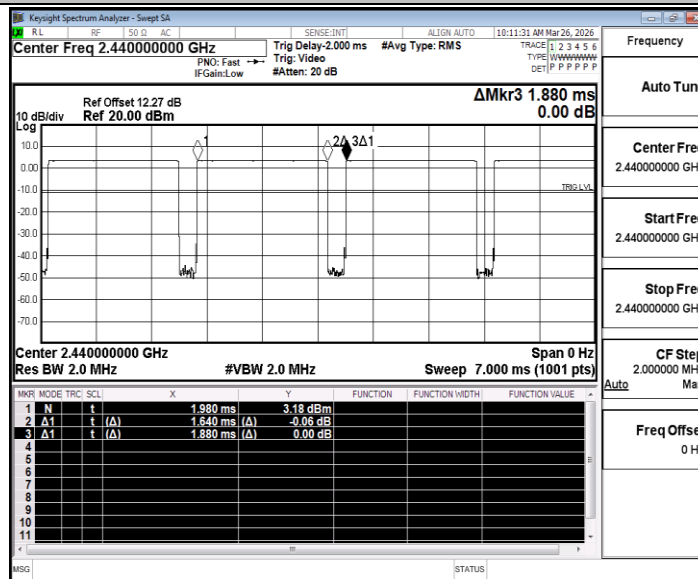
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.88	0.8723	87.23	0.59	---	---
		2440	1.64	1.88	0.8723	87.23	0.59	---	---
		2480	1.63	1.87	0.8717	87.17	0.60	---	---
BLE_2M	Ant1	2402	0.83	1.26	0.6587	65.87	1.81	---	---
		2440	0.82	1.25	0.6560	65.60	1.83	---	---
		2480	0.82	1.25	0.6560	65.60	1.83	---	---

Test Graphs

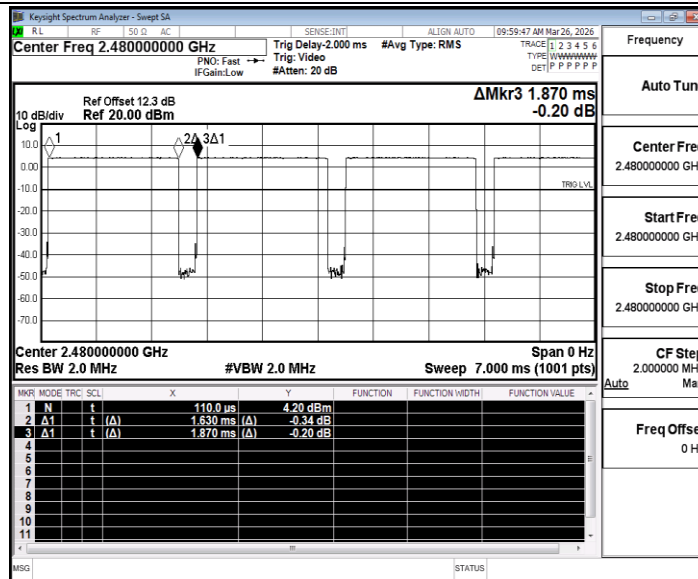
BLE_1M_Ant1_2402



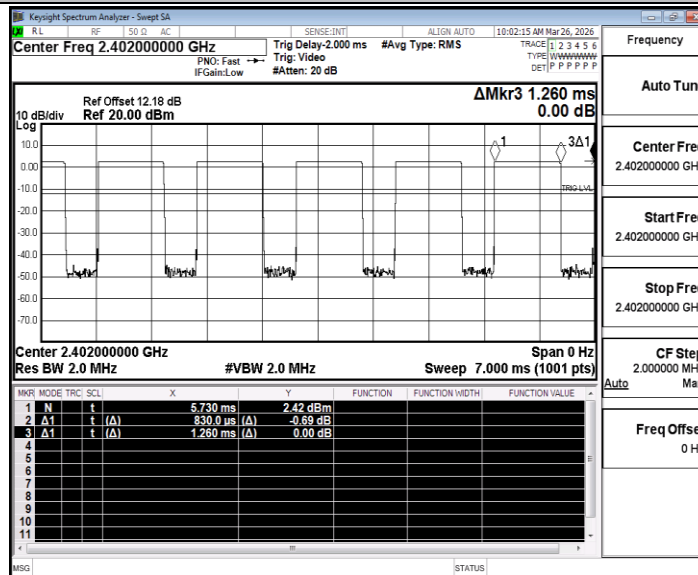
BLE_1M_Ant1_2440



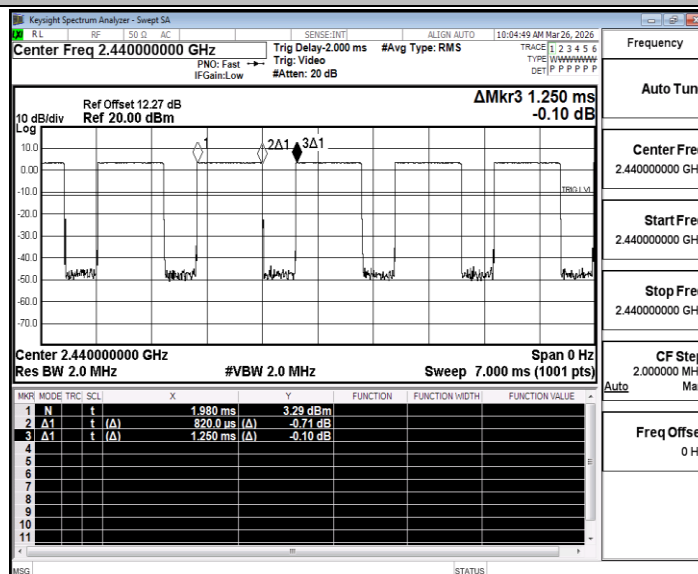
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



A.7 Emissions in Restricted Bands

Test Result

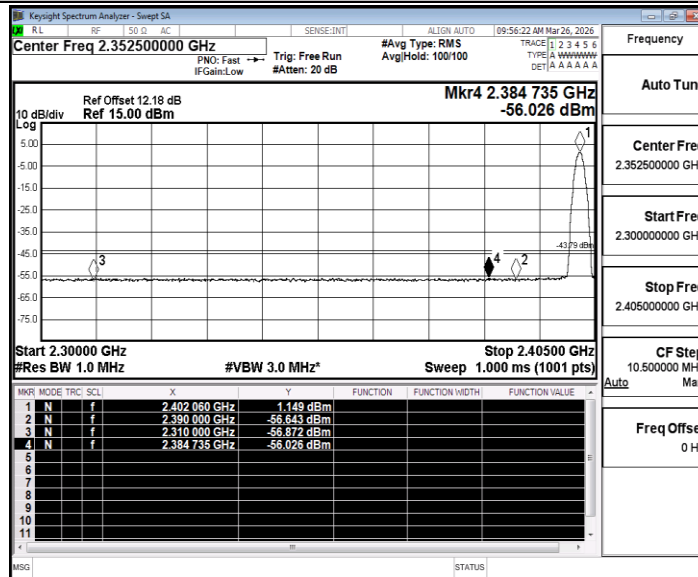
Test Mode	Antenna	Channel Name	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.87	≤-43.79	2.00	0.59	40.92	≤54	PASS
				AV	2384.735	-56.03	≤-43.79	2.00	0.59	41.76	≤54	PASS
				AV	2390.000	-56.64	≤-43.79	2.00	0.59	41.15	≤54	PASS
				Peak	2310.000	-48.33	≤-23.20	2.00	0.00	48.87	≤74	PASS
				Peak	2338.850	-45.56	≤-23.20	2.00	0.00	51.64	≤74	PASS
				Peak	2390.000	-50.25	≤-23.20	2.00	0.00	46.95	≤74	PASS
		High	2480	AV	2483.500	-55.57	≤-43.80	2.00	0.60	42.23	≤54	PASS
				AV	2483.600	-55.18	≤-43.80	2.00	0.60	42.62	≤54	PASS
				AV	2500.000	-56.79	≤-43.80	2.00	0.60	41.01	≤54	PASS
				Peak	2483.500	-48.5	≤-23.20	2.00	0.00	48.70	≤74	PASS
				Peak	2484.560	-42.24	≤-23.20	2.00	0.00	54.96	≤74	PASS
				Peak	2500.000	-47.03	≤-23.20	2.00	0.00	50.17	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-56.94	≤-45.01	2.00	1.81	42.07	≤54	PASS
				AV	2350.610	-56.01	≤-45.01	2.00	1.81	43.00	≤54	PASS
				AV	2390.000	-57.45	≤-45.01	2.00	1.81	41.56	≤54	PASS
				Peak	2310.000	-49.21	≤-23.20	2.00	0.00	47.99	≤74	PASS
				Peak	2327.195	-44.79	≤-23.20	2.00	0.00	52.41	≤74	PASS
				Peak	2390.000	-48.47	≤-23.20	2.00	0.00	48.73	≤74	PASS
		High	2480	AV	2483.500	-55.9	≤-45.03	2.00	1.83	43.13	≤54	PASS
				AV	2489.680	-55.54	≤-45.03	2.00	1.83	43.49	≤54	PASS
				AV	2500.000	-56.94	≤-45.03	2.00	1.83	42.09	≤54	PASS
				Peak	2483.500	-46.15	≤-23.20	2.00	0.00	51.05	≤74	PASS
				Peak	2484.800	-43.75	≤-23.20	2.00	0.00	53.45	≤74	PASS
				Peak	2500.000	-48.53	≤-23.20	2.00	0.00	48.67	≤74	PASS

Note:

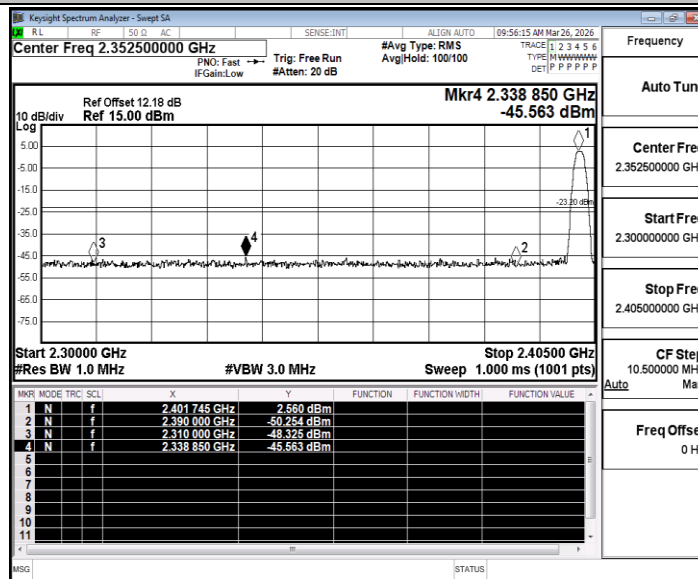
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

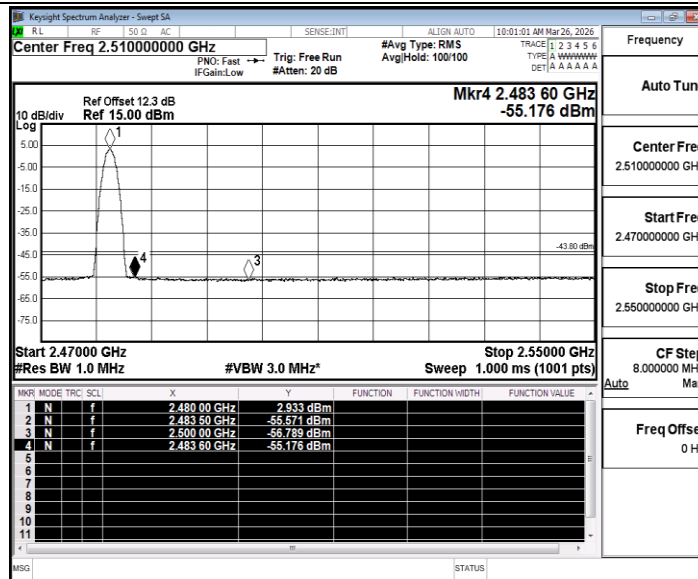
BLE_1M_Ant1_Low_2402_AV



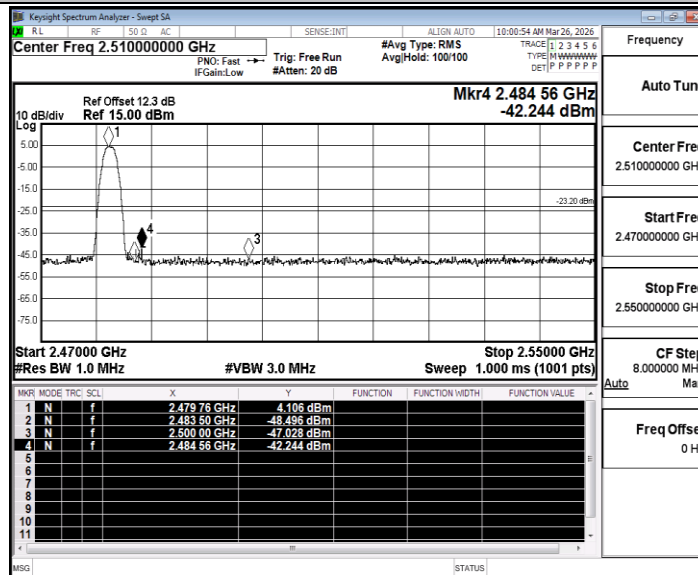
BLE_1M_Ant1_Low_2402_Peak



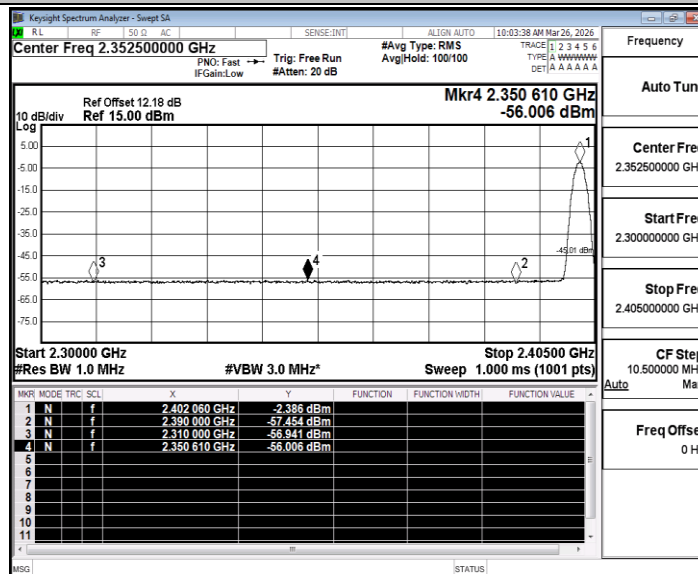
BLE_1M_Ant1_High_2480_AV



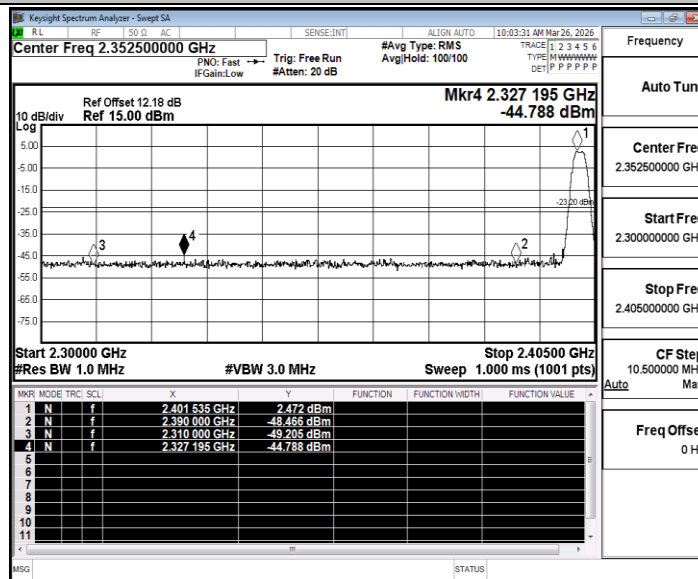
BLE_1M_Ant1_High_2480_Peak



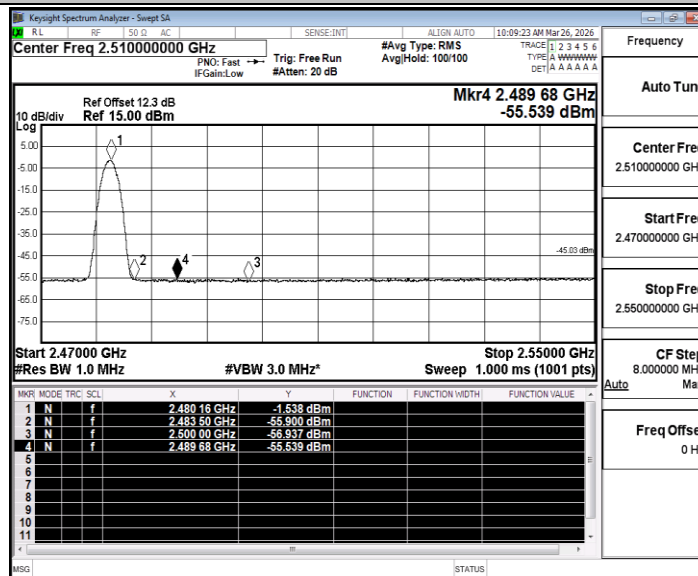
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

