

Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Open Ear Clip-On Earbuds

Test Model: S1000

Environmental Conditions

Temperature:	23.8°C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhao Xing Hai
Supervised by:	Fengliu Tang

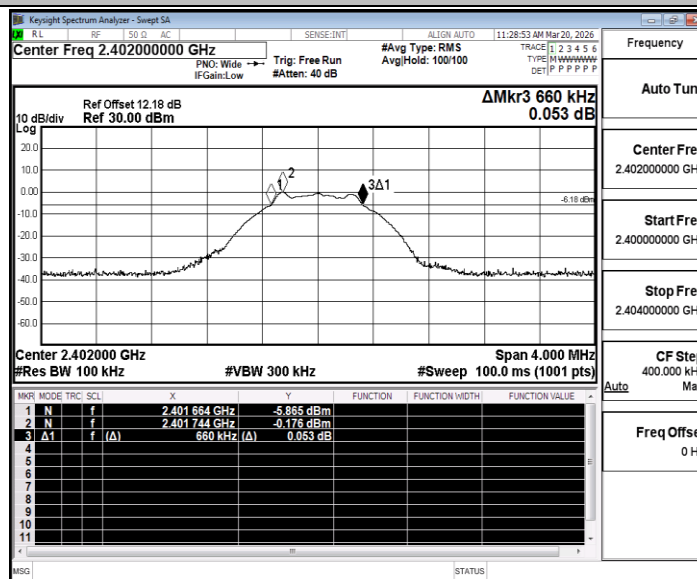
A.1 DTS Bandwidth

Right ear:

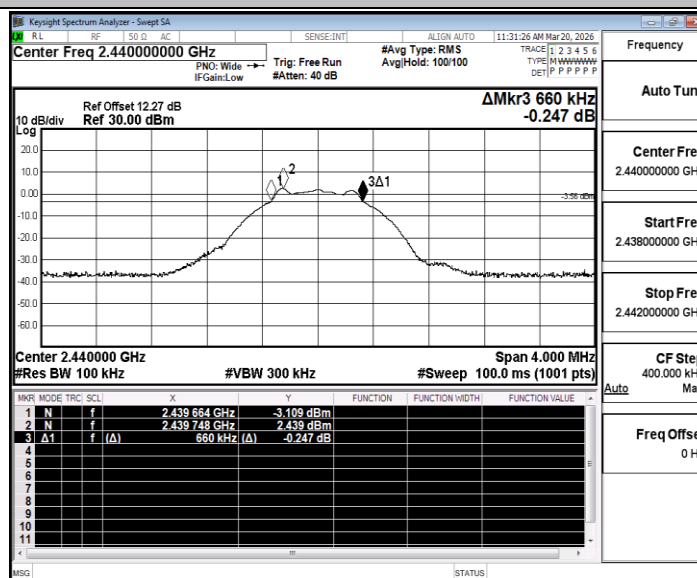
TestMode	Antenna	Freq (MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.660	2401.664	2402.324	0.5	PASS
		2440	0.660	2439.664	2440.324	0.5	PASS
		2480	0.660	2479.664	2480.324	0.5	PASS
BLE_2M	Ant1	2402	1.152	2401.408	2402.560	0.5	PASS
		2440	1.156	2439.404	2440.560	0.5	PASS
		2480	1.148	2479.408	2480.556	0.5	PASS

Test Graphs

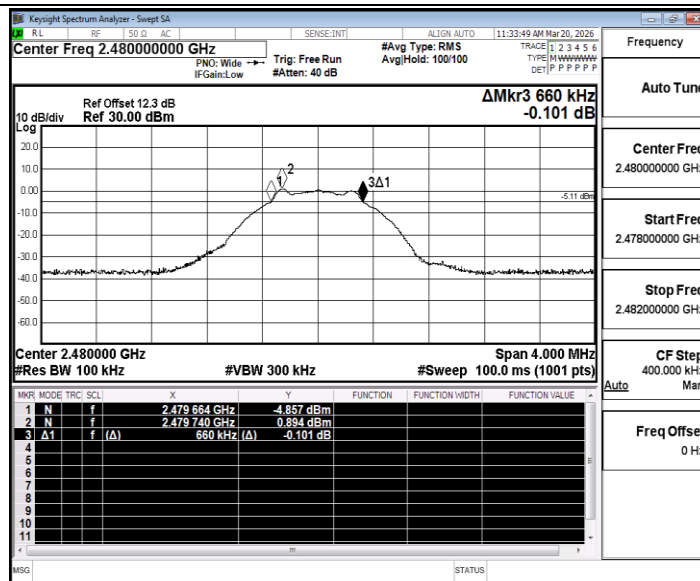
BLE_1M_Ant1_2402



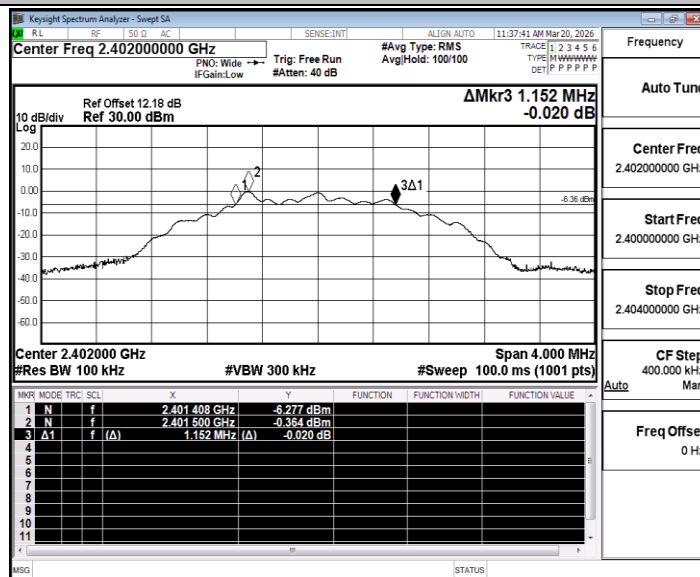
BLE_1M_Ant1_2440



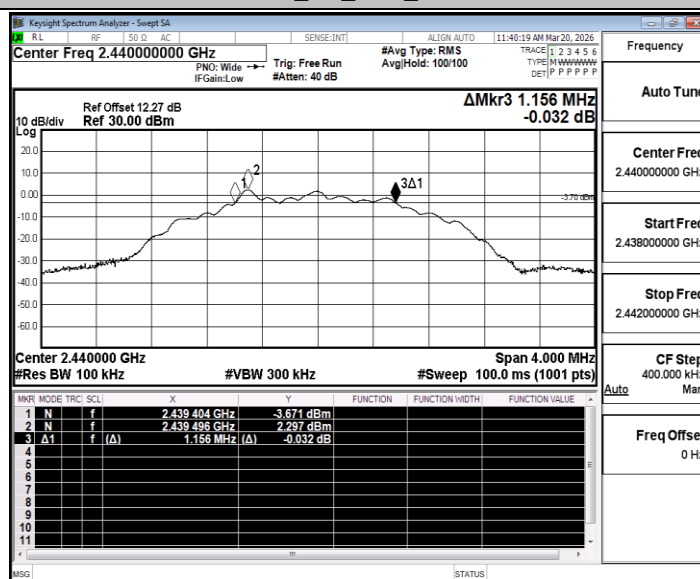
BLE_1M_Ant1_2480



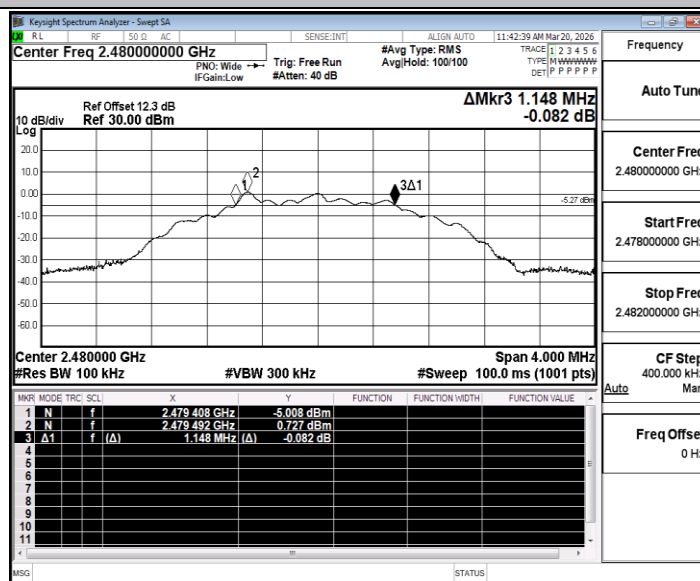
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



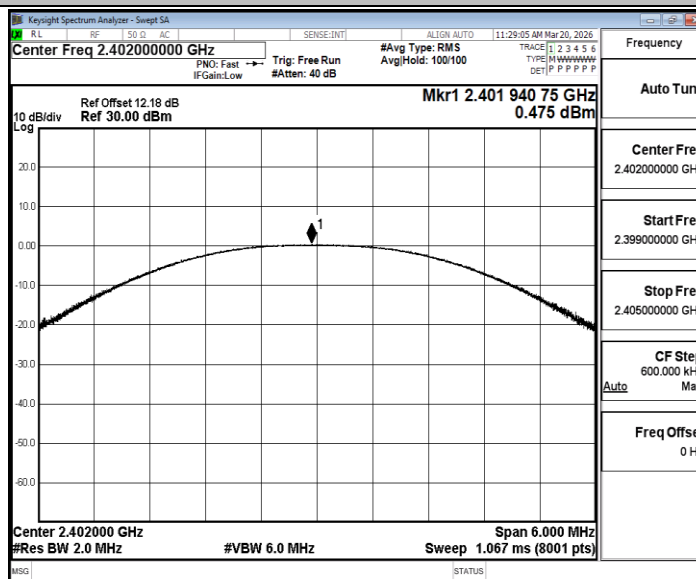
A.2 Maximum peak conducted output power

Right ear: Peak

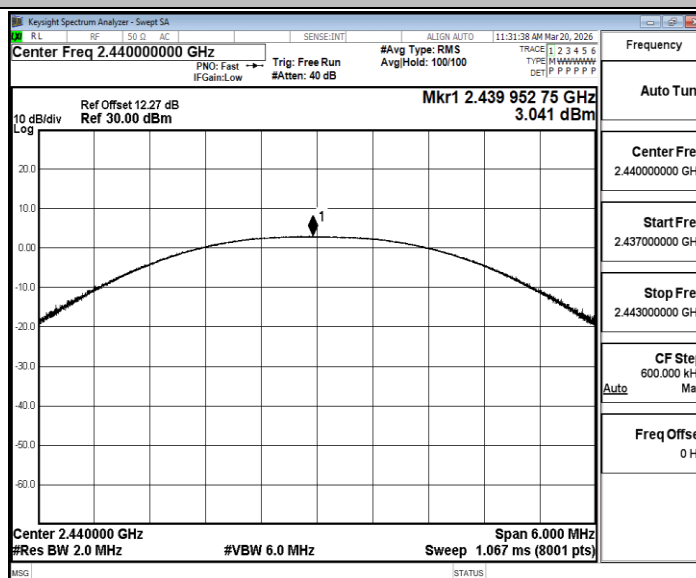
TestMode	Antenna	Freq (MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.48	≤30	PASS
		2440	3.04	≤30	PASS
		2480	1.48	≤30	PASS
BLE_2M	Ant1	2402	0.33	≤30	PASS
		2440	2.91	≤30	PASS
		2480	1.44	≤30	PASS

Test Graphs Peak

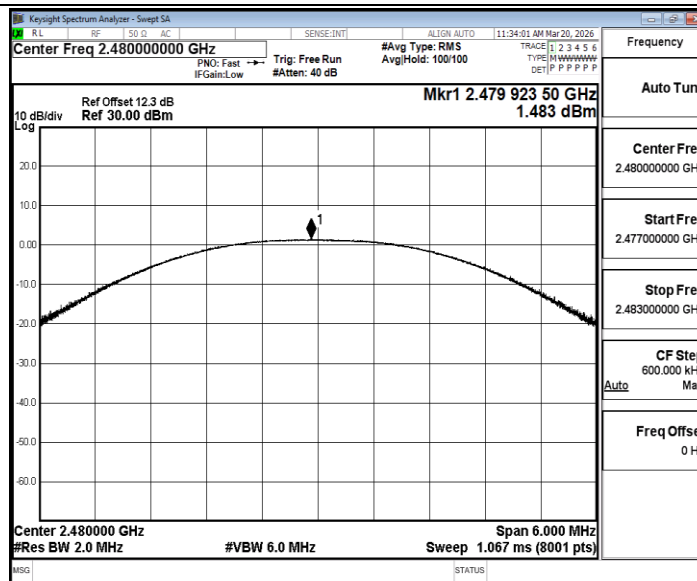
BLE_1M_Ant1_2402



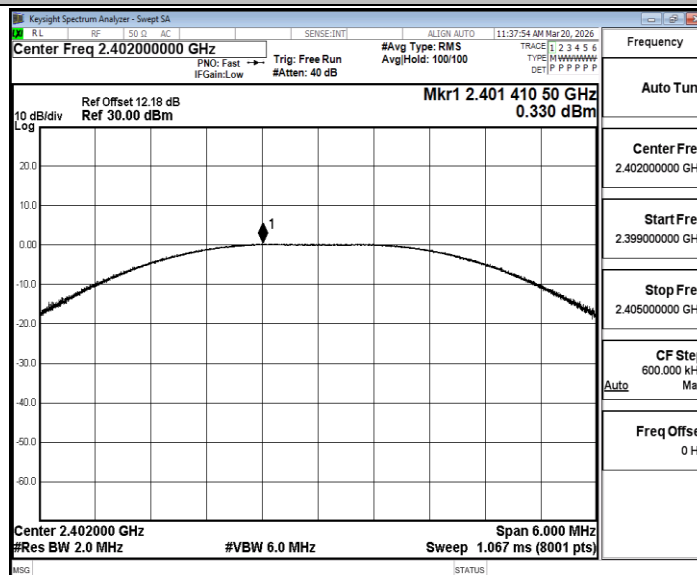
BLE_1M_Ant1_2440



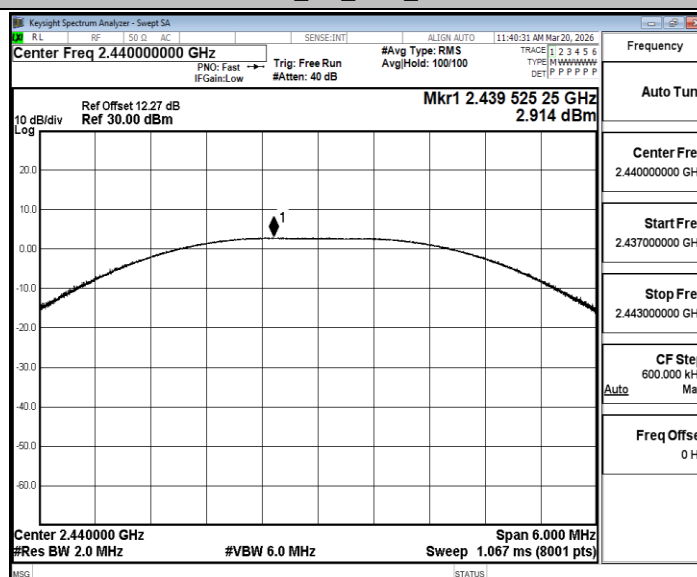
BLE_1M_Ant1_2480

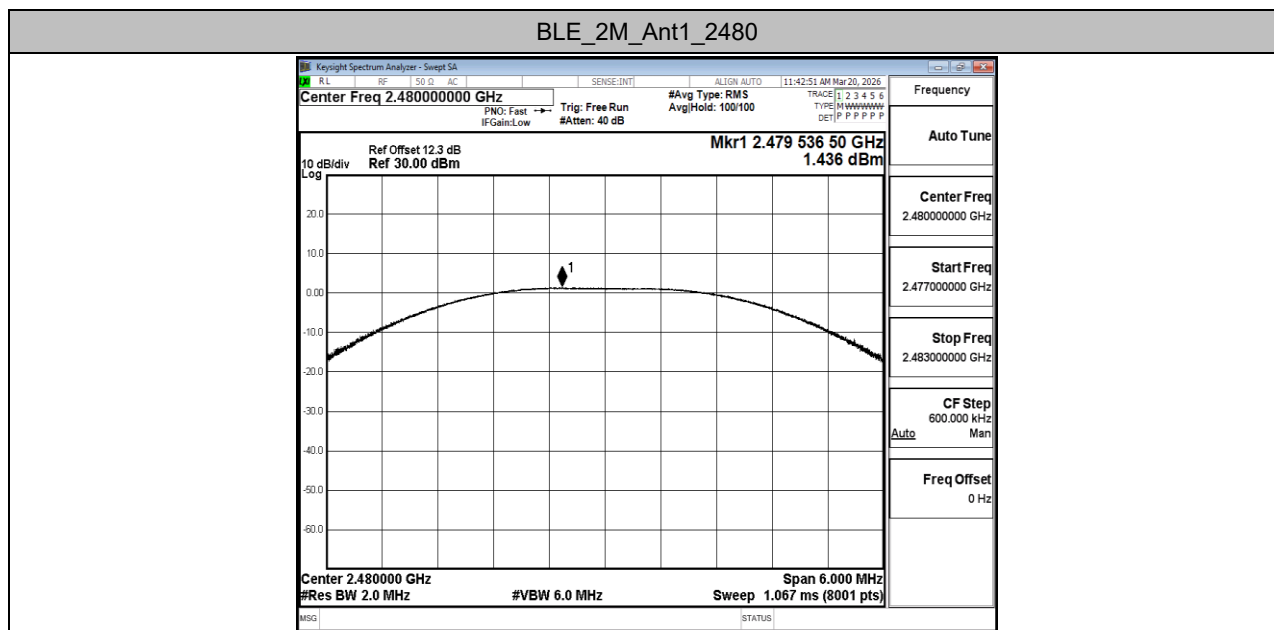


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440





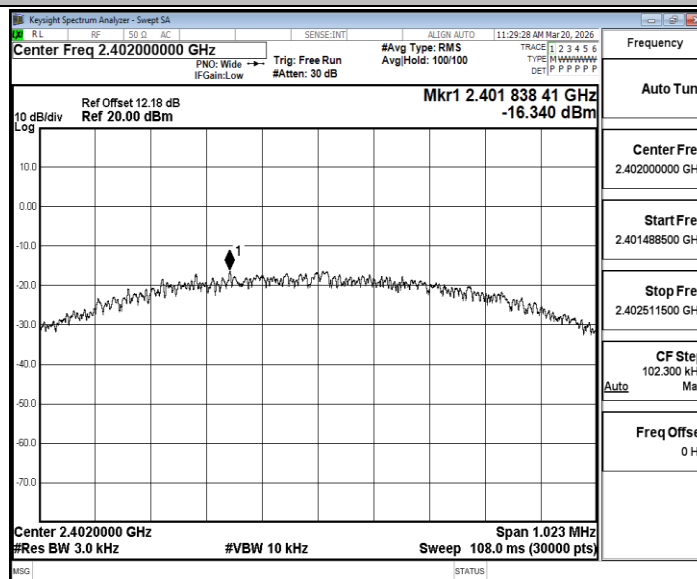
A.3 Maximum power spectral density

Right ear:

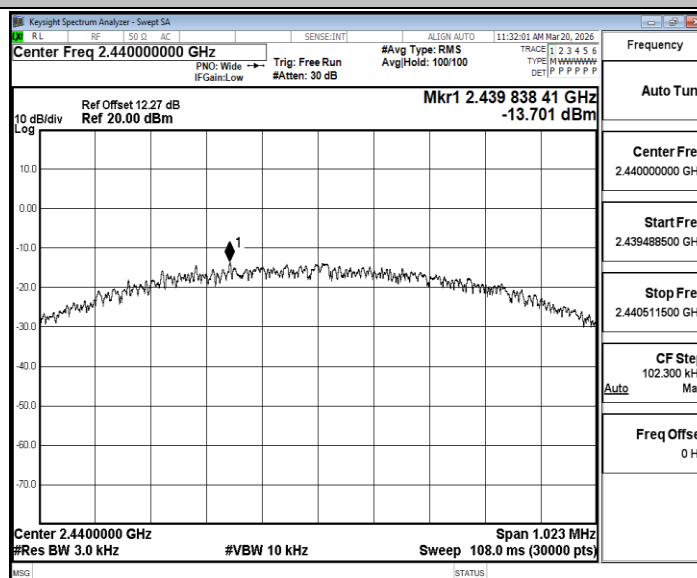
TestMode	Antenna	Freq (MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.34	≤8.00	PASS
		2440	-13.70	≤8.00	PASS
		2480	-15.15	≤8.00	PASS
BLE_2M	Ant1	2402	-19.59	≤8.00	PASS
		2440	-16.96	≤8.00	PASS
		2480	-18.58	≤8.00	PASS

Test Graphs

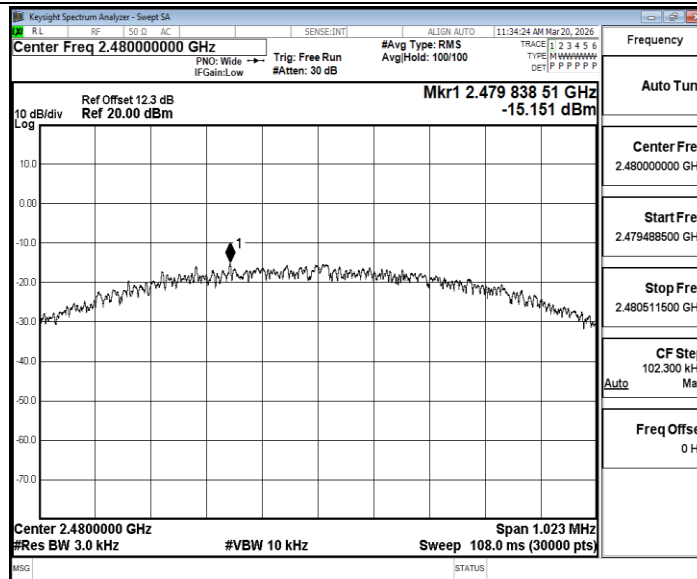
BLE_1M_Ant1_2402



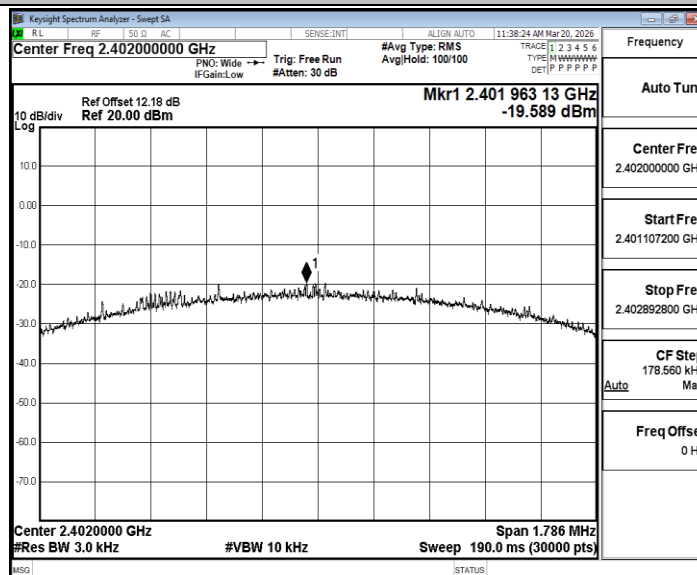
BLE_1M_Ant1_2440



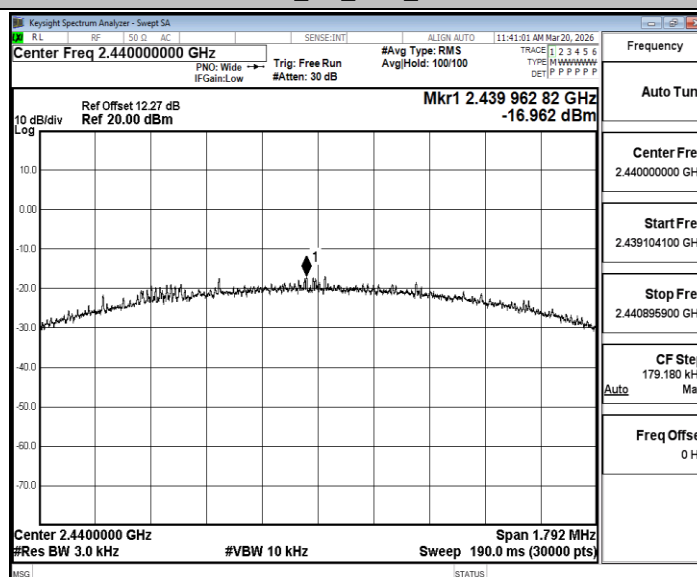
BLE_1M_Ant1_2480



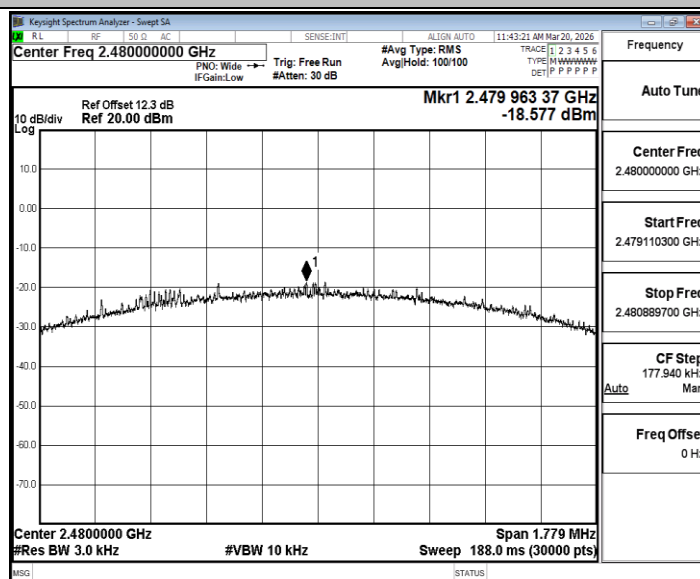
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

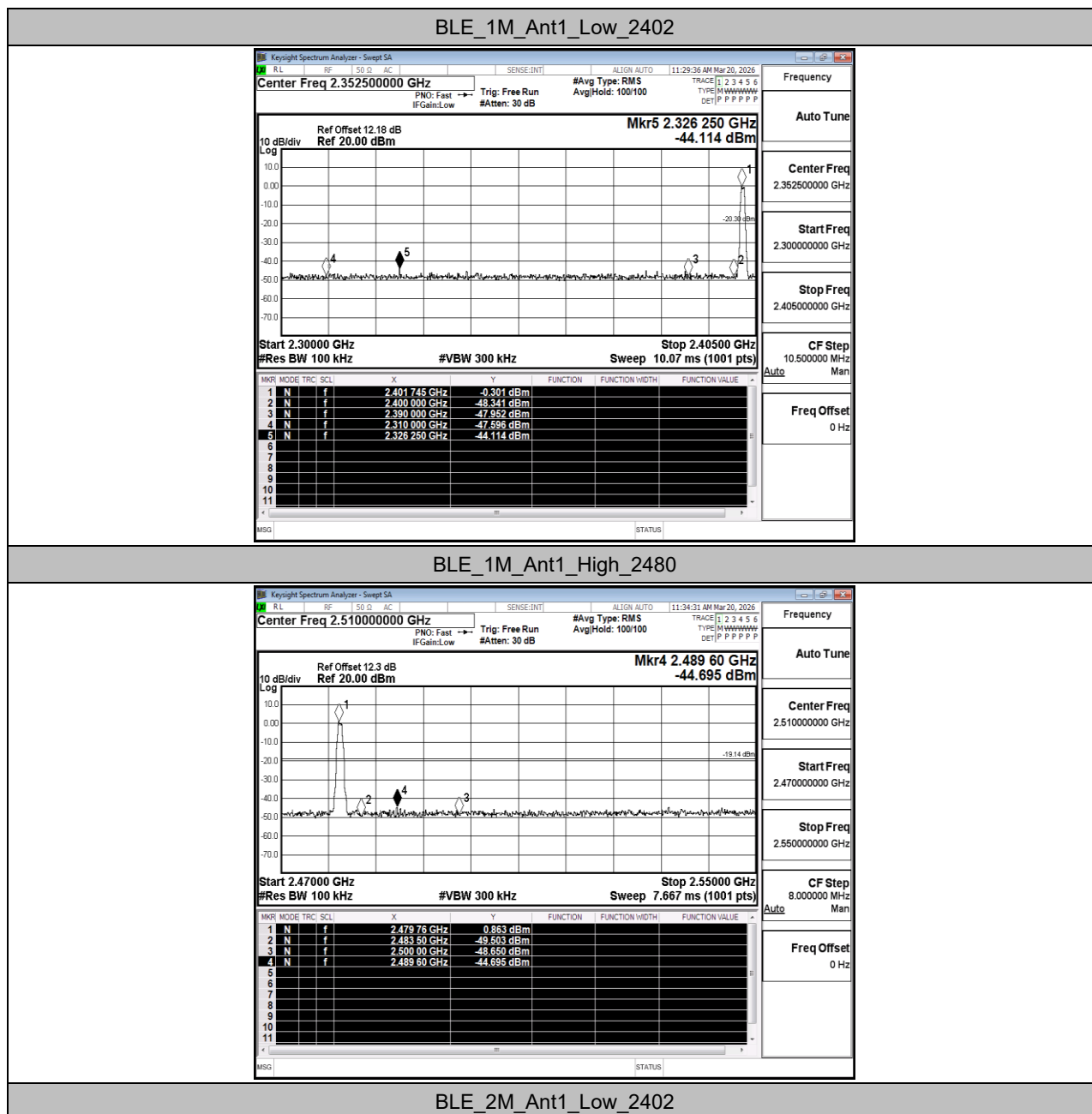


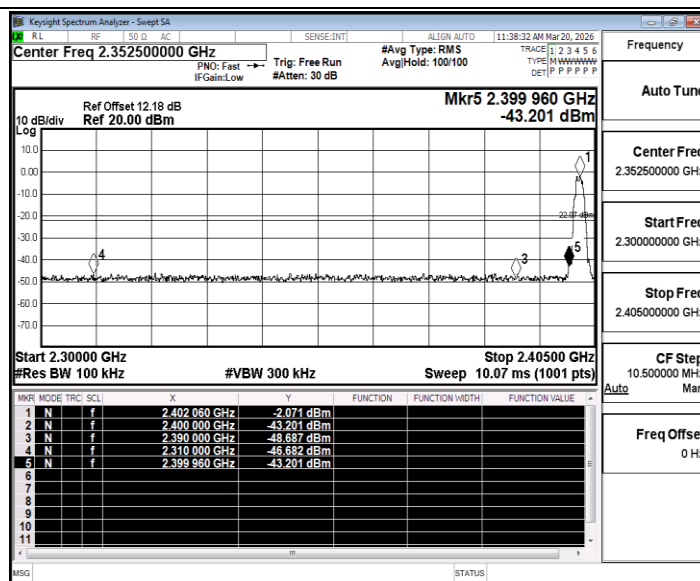
A.4 Band edge measurements

Right ear:

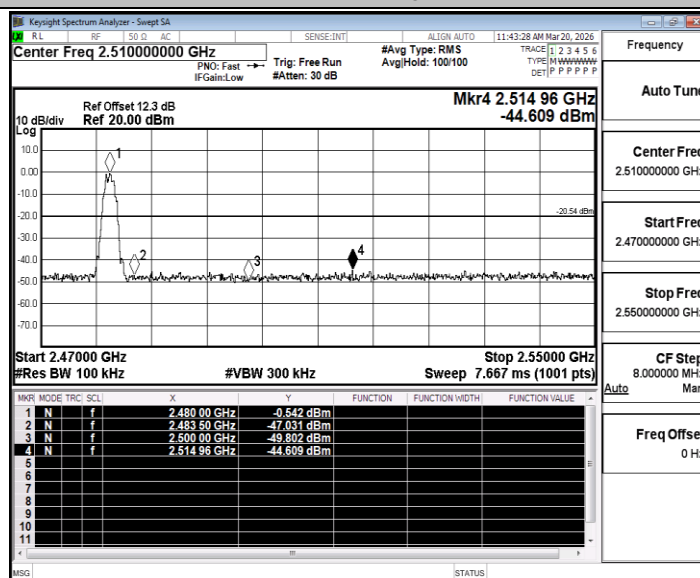
TestMode	Antenna	ChName	Freq (MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.30	-44.11	≤-20.3	PASS
		High	2480	0.86	-44.7	≤-19.14	PASS
BLE_2M	Ant1	Low	2402	-2.07	-43.2	≤-22.07	PASS
		High	2480	-0.54	-44.61	≤-20.54	PASS

Test Graphs





BLE_2M_Ant1_High_2480



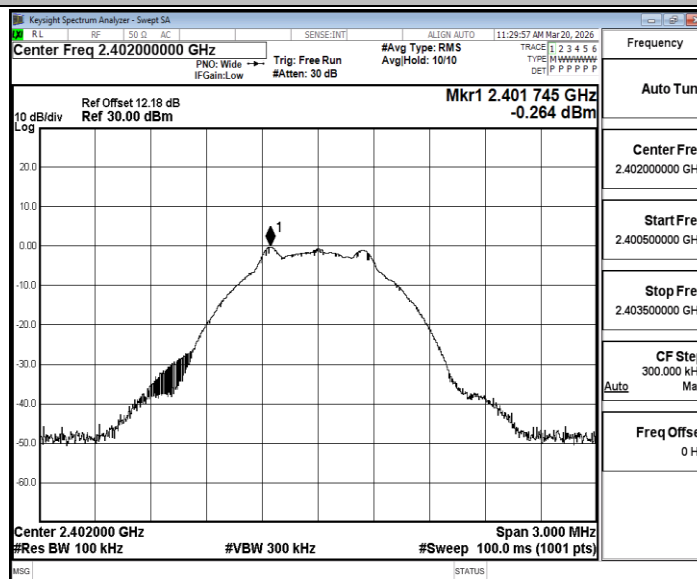
A.5 Conducted Spurious Emission

Right ear:

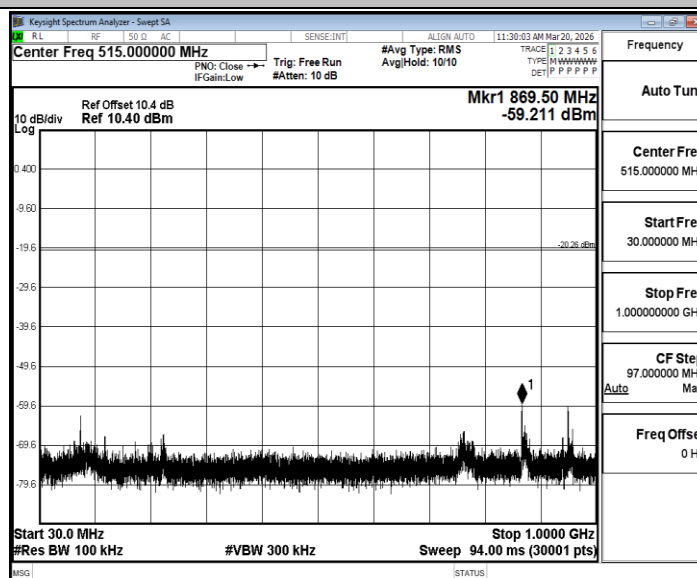
TestMode	Antenna	Freq (MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.26	-0.26	---	PASS
			30~1000	-0.26	-59.21	≤-20.26	PASS
			1000~26500	-0.26	-43.02	≤-20.26	PASS
		2440	Reference	2.36	2.36	---	PASS
			30~1000	2.36	-59.48	≤-17.64	PASS
			1000~26500	2.36	-42.94	≤-17.64	PASS
		2480	Reference	0.85	0.85	---	PASS
			30~1000	0.85	-59.75	≤-19.15	PASS
			1000~26500	0.85	-43.35	≤-19.15	PASS
BLE_2M	Ant1	2402	Reference	-0.43	-0.43	---	PASS
			30~1000	-0.43	-57.83	≤-20.43	PASS
			1000~26500	-0.43	-42.63	≤-20.43	PASS
		2440	Reference	2.19	2.19	---	PASS
			30~1000	2.19	-59.8	≤-17.81	PASS
			1000~26500	2.19	-43.42	≤-17.81	PASS
		2480	Reference	0.65	0.65	---	PASS
			30~1000	0.65	-59.86	≤-19.35	PASS
			1000~26500	0.65	-43.19	≤-19.35	PASS

Test Graphs

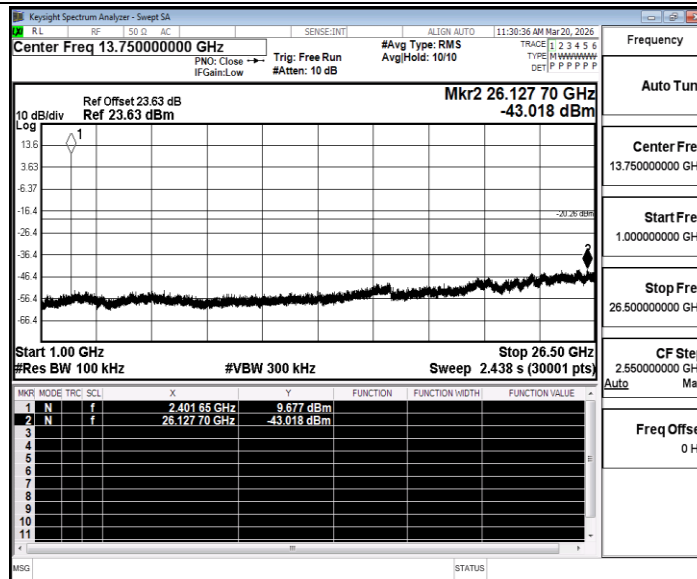
BLE_1M_Ant1_2402_0~Reference



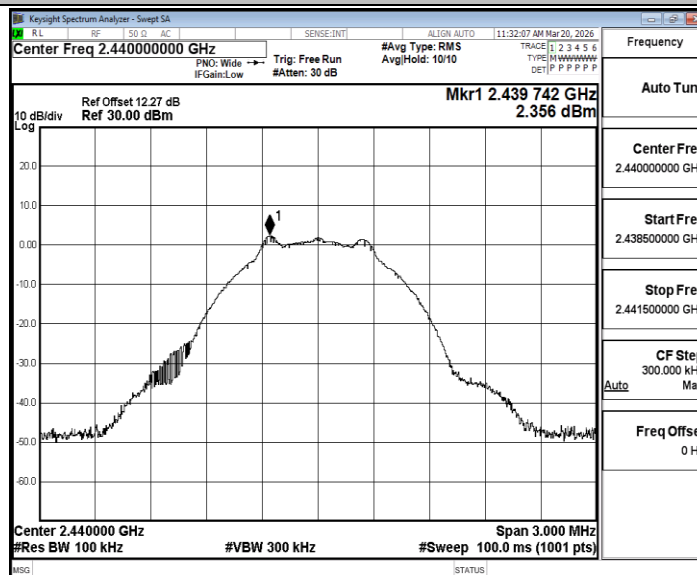
BLE_1M_Ant1_2402_30~1000



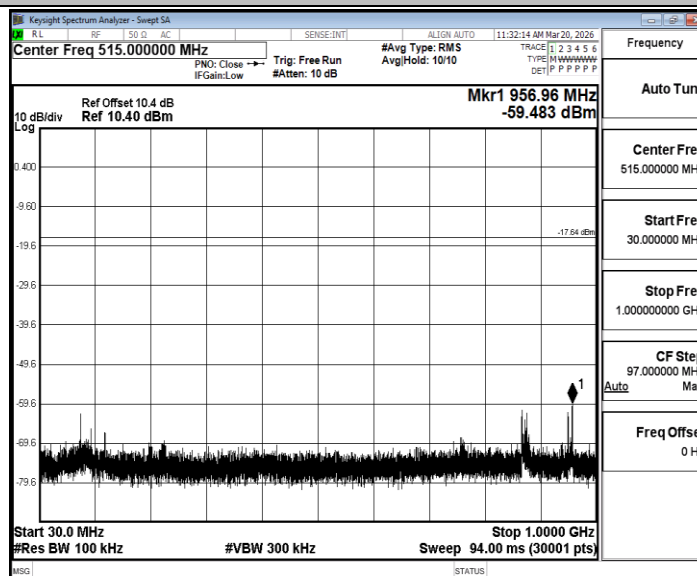
BLE_1M_Ant1_2402_1000~26500

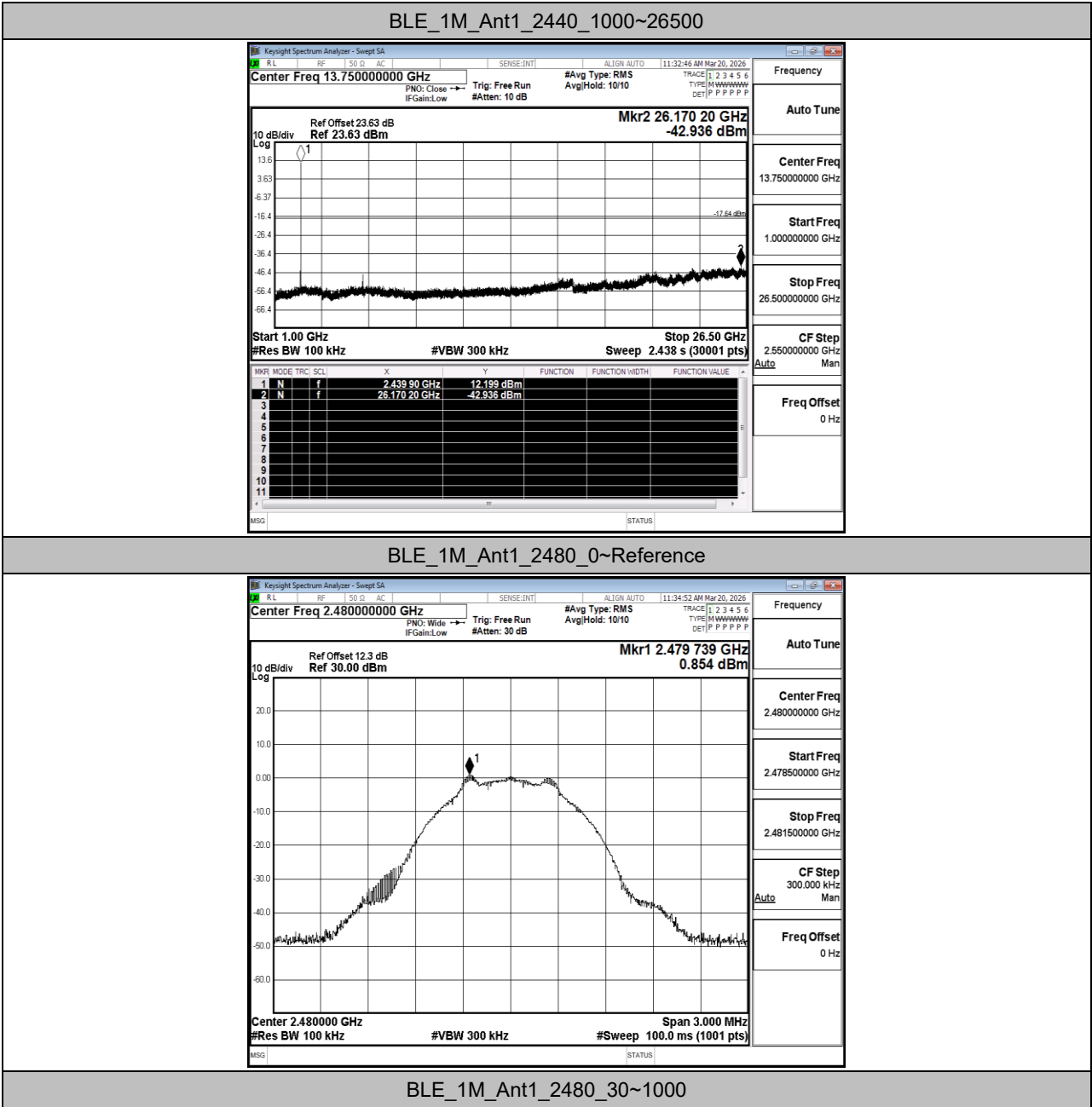


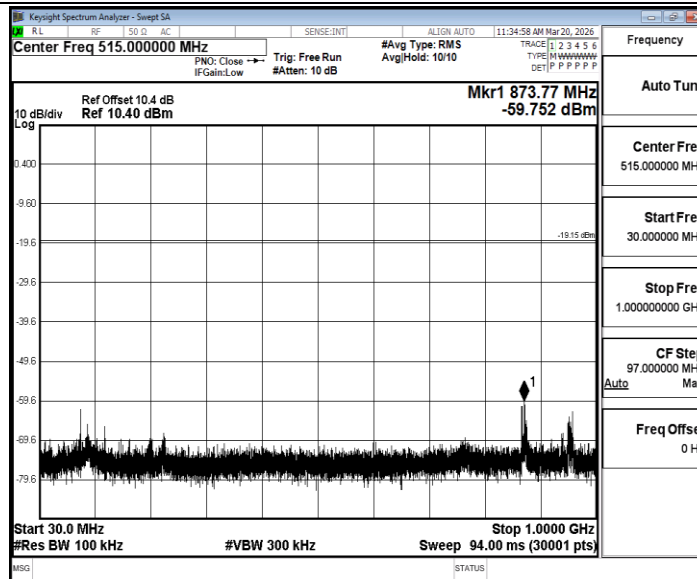
BLE_1M_Ant1_2440_0~Reference



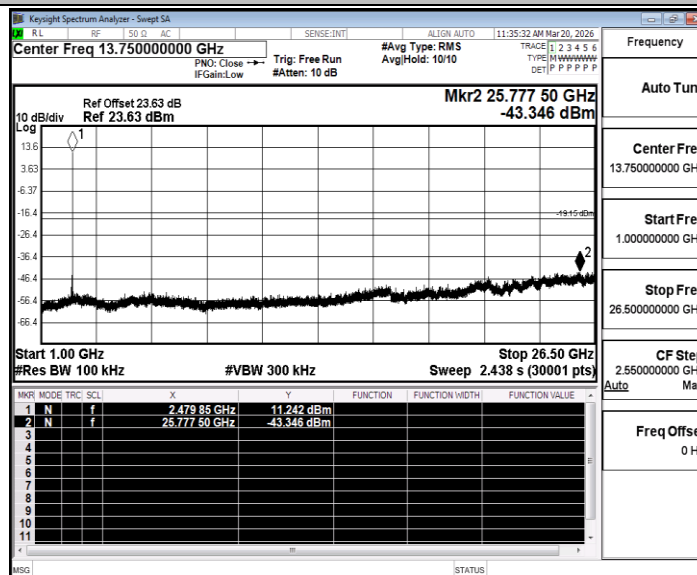
BLE_1M_Ant1_2440_30~1000



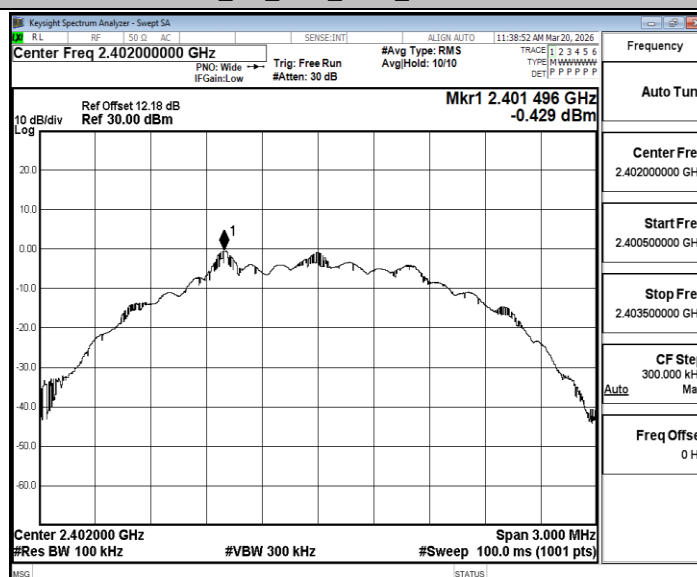


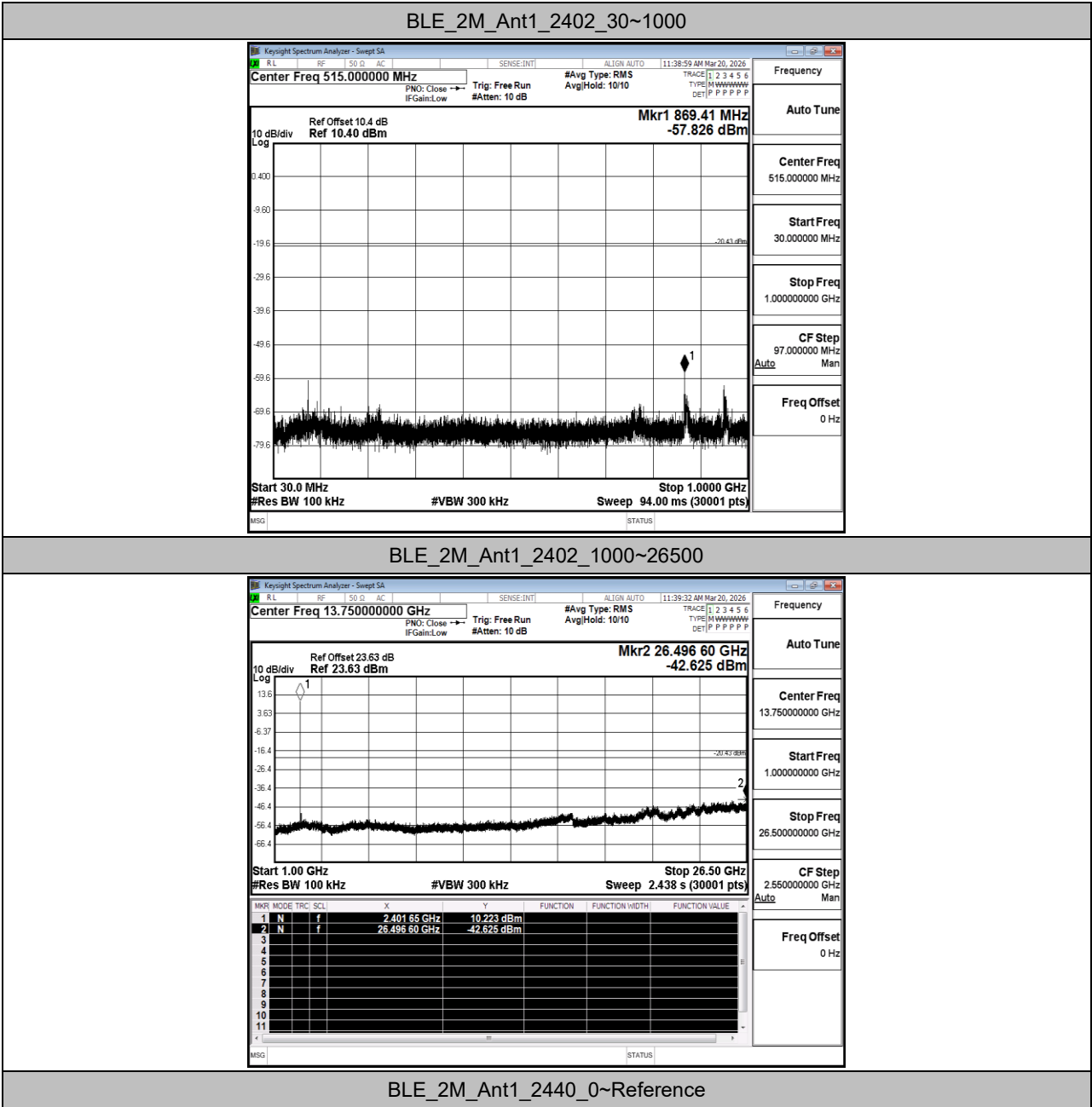


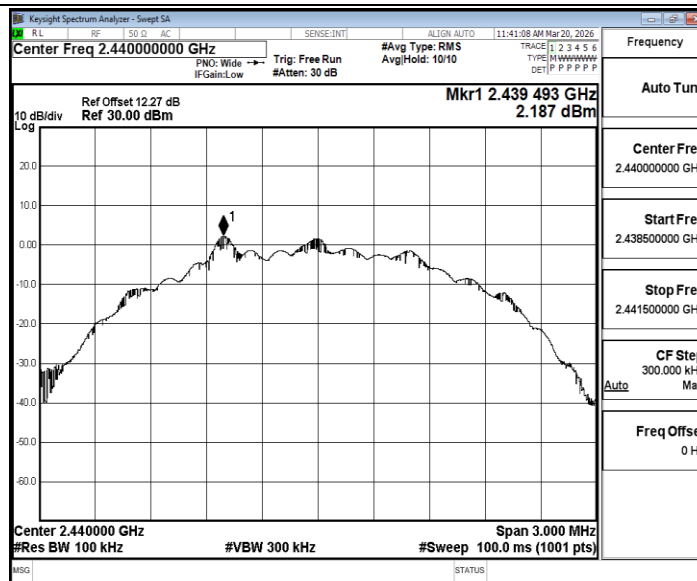
BLE_1M_Ant1_2480_1000~26500



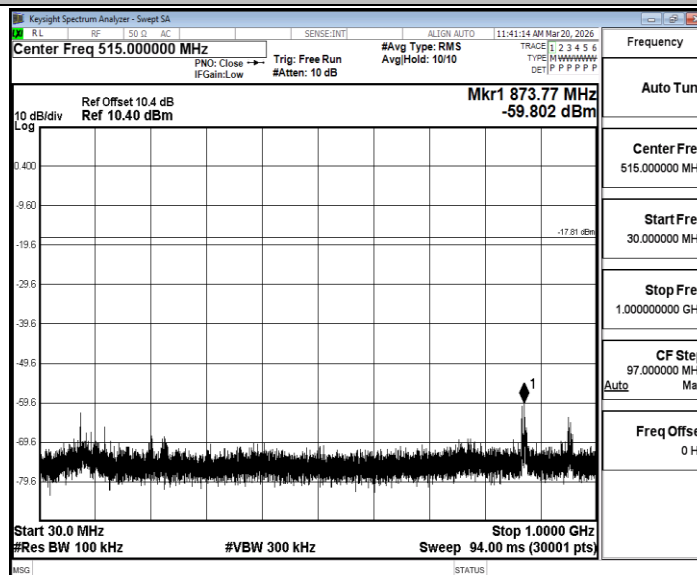
BLE_2M_Ant1_2402_0~Reference



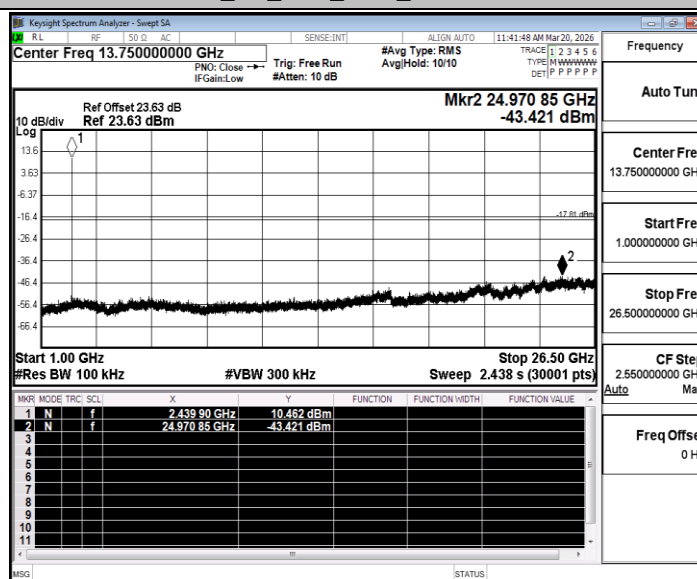




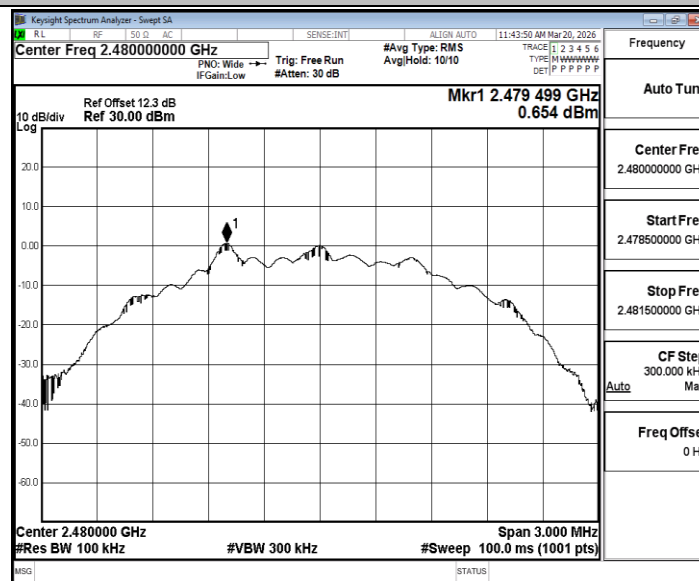
BLE_2M_Ant1_2440_30~1000



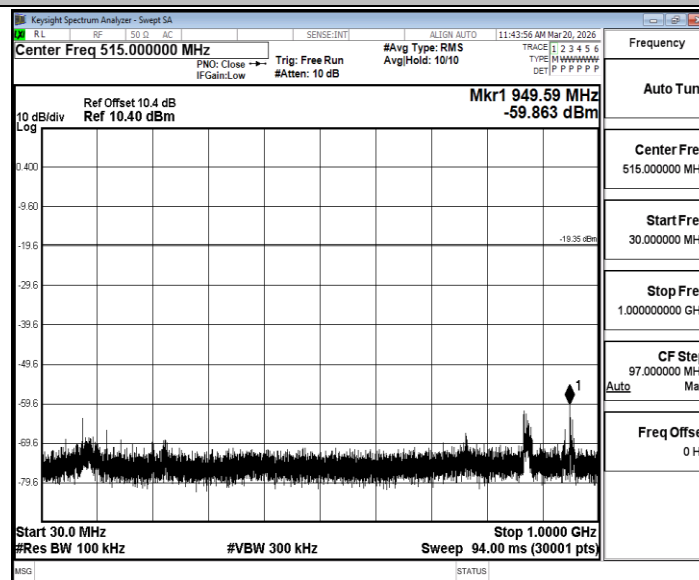
BLE_2M_Ant1_2440_1000~26500



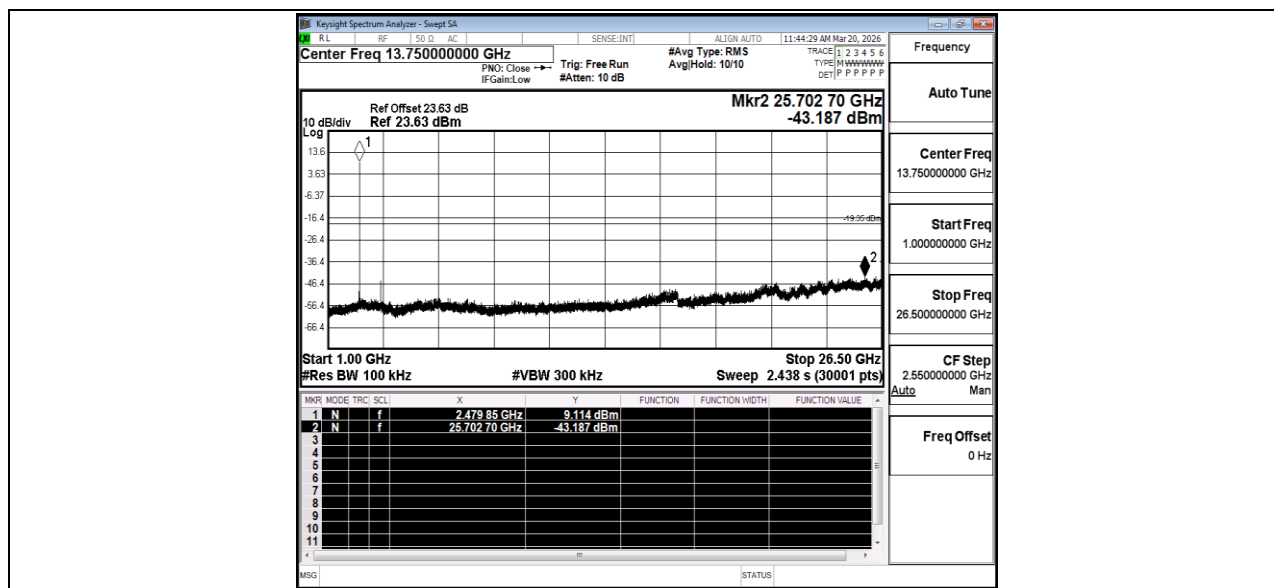
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



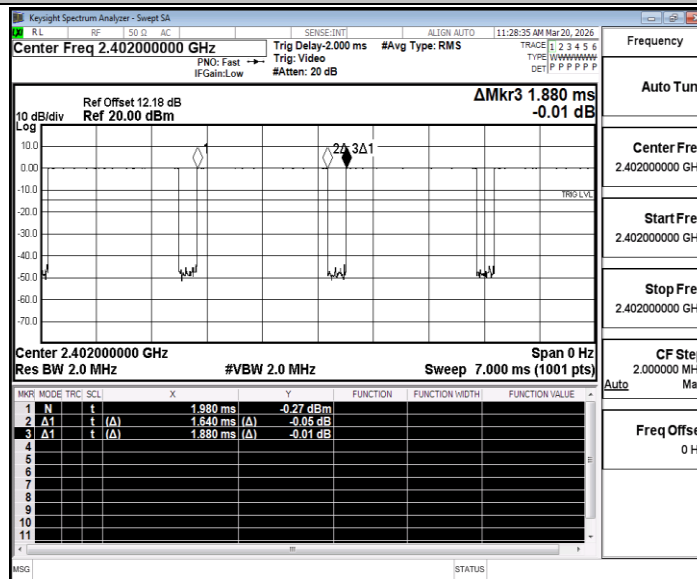
A.6 Duty Cycle

Right ear:

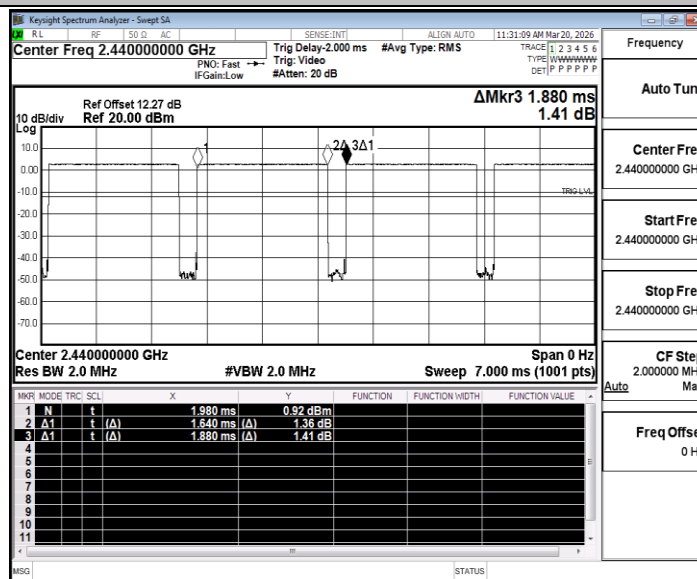
TestMode	Antenna	Freq (MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.88	0.8723	87.23	0.59	---	---
		2440	1.64	1.88	0.8723	87.23	0.59	---	---
		2480	1.64	1.88	0.8723	87.23	0.59	---	---
BLE_2M	Ant1	2402	0.82	1.24	0.6613	66.13	1.80	---	---
		2440	0.81	1.24	0.6532	65.32	1.85	---	---
		2480	0.81	1.24	0.6532	65.32	1.85	---	---

Test Graphs

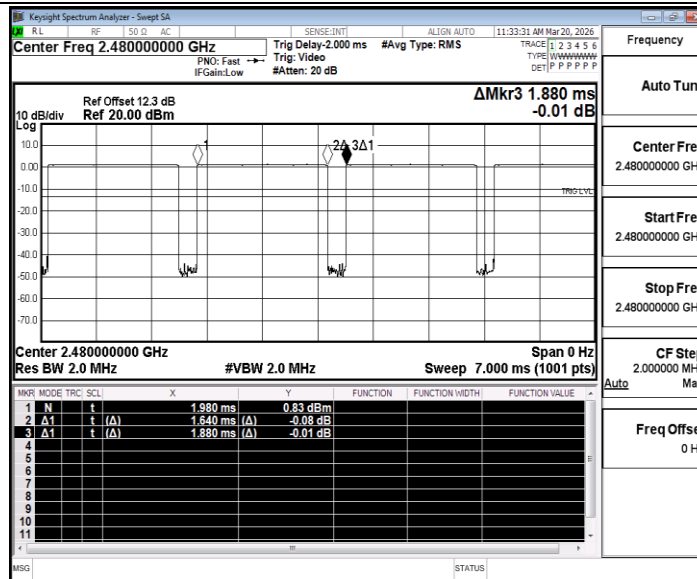
BLE_1M_Ant1_2402



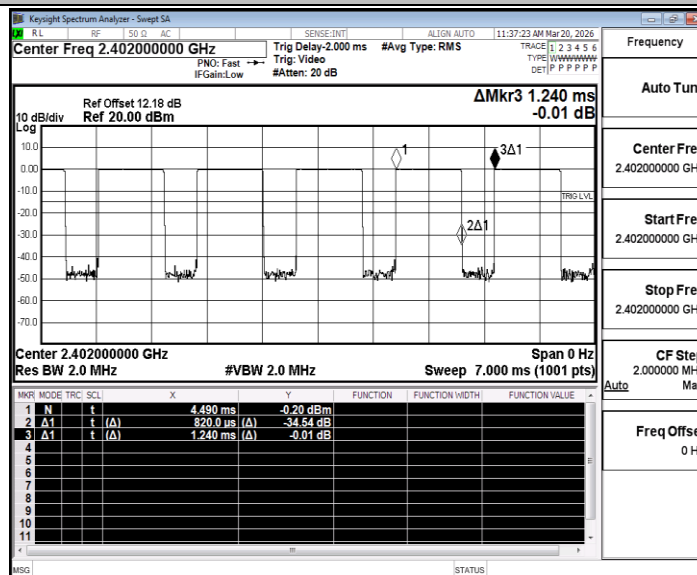
BLE_1M_Ant1_2440



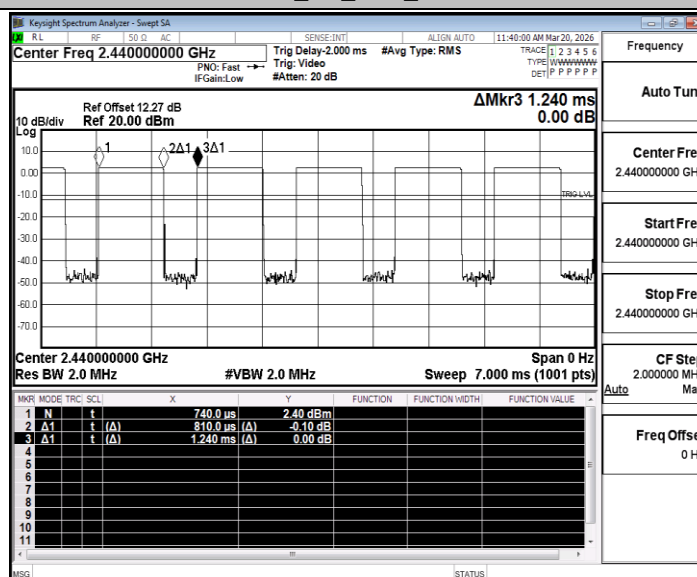
BLE_1M_Ant1_2480



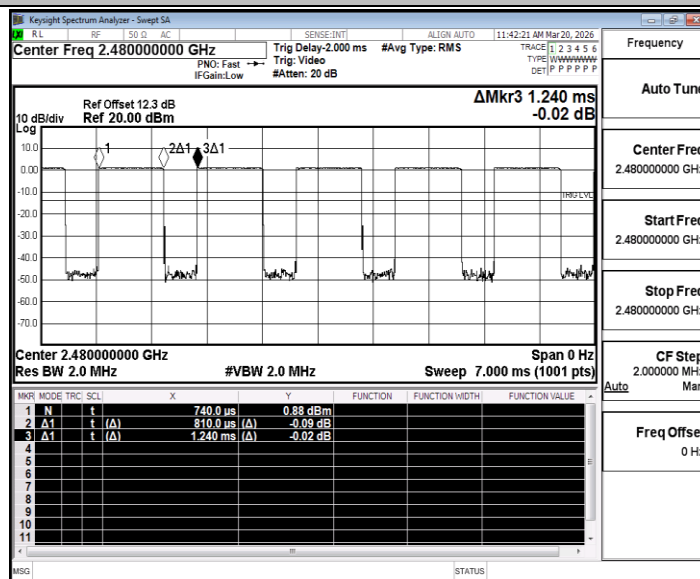
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



A.7 Emissions in Restricted Bands

Right ear:

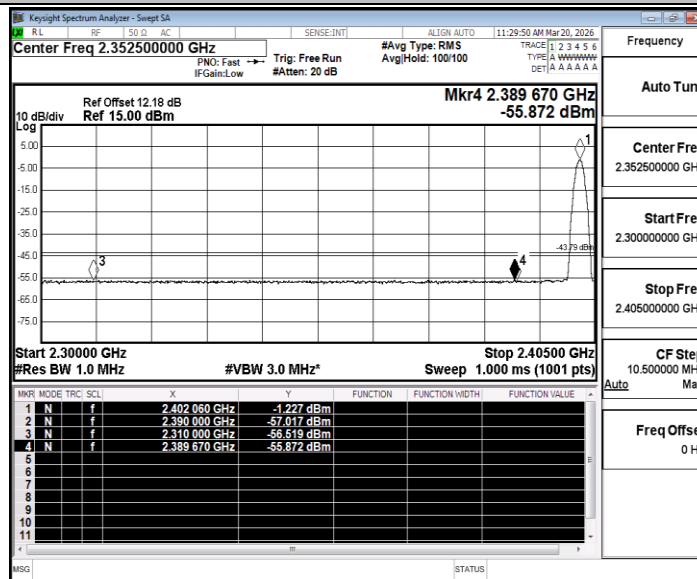
Test Mode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.52	≤-43.79	2.00	0.59	41.27	≤54	PASS
				AV	2389.670	-55.87	≤-43.79	2.00	0.59	41.92	≤54	PASS
				AV	2390.000	-57.02	≤-43.79	2.00	0.59	40.77	≤54	PASS
				Peak	2310.000	-48.92	≤-23.20	2.00	0.00	48.28	≤74	PASS
				Peak	2386.310	-45.64	≤-23.20	2.00	0.00	51.56	≤74	PASS
				Peak	2390.000	-47.68	≤-23.20	2.00	0.00	49.52	≤74	PASS
		High	2480	AV	2483.500	-55.6	≤-43.79	2.00	0.59	42.19	≤54	PASS
				AV	2483.520	-55.6	≤-43.79	2.00	0.59	42.19	≤54	PASS
				AV	2500.000	-56.53	≤-43.79	2.00	0.59	41.26	≤54	PASS
				Peak	2483.500	-46.84	≤-23.20	2.00	0.00	50.36	≤74	PASS
				Peak	2490.720	-46.08	≤-23.20	2.00	0.00	51.12	≤74	PASS
				Peak	2500.000	-49.27	≤-23.20	2.00	0.00	47.93	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.13	≤-45.00	2.00	1.80	41.87	≤54	PASS
				AV	2387.360	-56.12	≤-45.00	2.00	1.80	42.88	≤54	PASS
				AV	2390.000	-56.88	≤-45.00	2.00	1.80	42.12	≤54	PASS
				Peak	2310.000	-50.15	≤-23.20	2.00	0.00	47.05	≤74	PASS
				Peak	2325.410	-45.66	≤-23.20	2.00	0.00	51.54	≤74	PASS
				Peak	2390.000	-48.37	≤-23.20	2.00	0.00	48.83	≤74	PASS
		High	2480	AV	2483.500	-56.23	≤-45.05	2.00	1.85	42.82	≤54	PASS
				AV	2498.480	-55.66	≤-45.05	2.00	1.85	43.39	≤54	PASS
				AV	2500.000	-56.58	≤-45.05	2.00	1.85	42.47	≤54	PASS
				Peak	2483.500	-48.22	≤-23.20	2.00	0.00	48.98	≤74	PASS
				Peak	2485.440	-43.55	≤-23.20	2.00	0.00	53.65	≤74	PASS
				Peak	2500.000	-47.79	≤-23.20	2.00	0.00	49.41	≤74	PASS

Note:

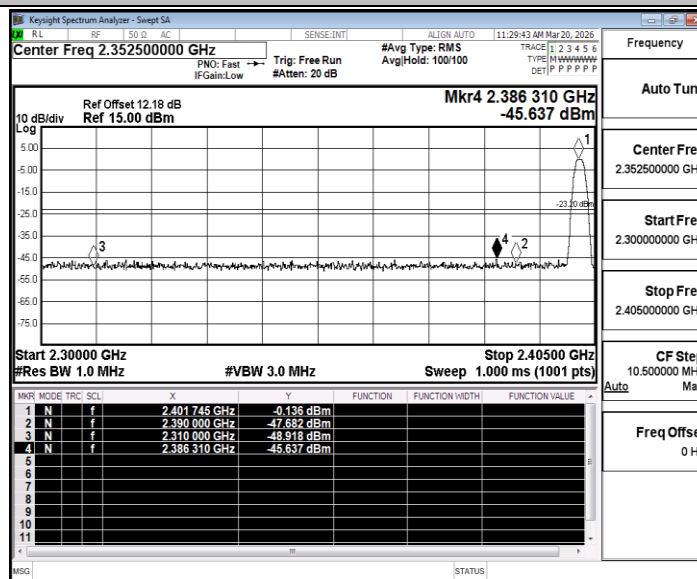
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

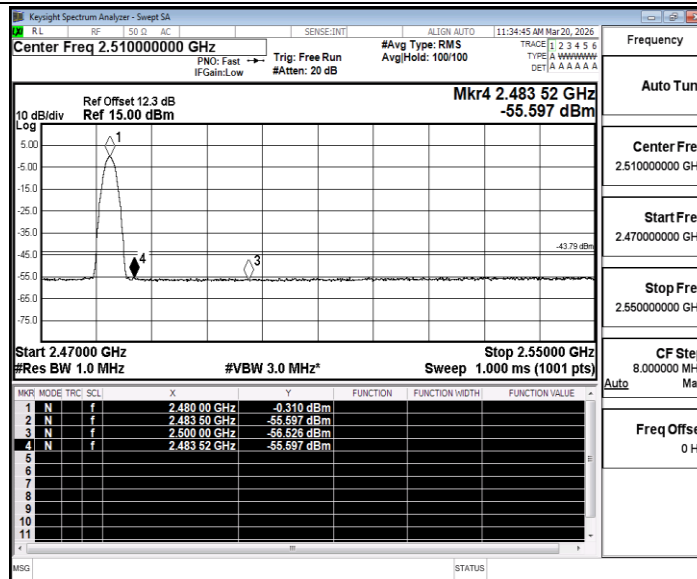
BLE_1M_Ant1_Low_2402_AV



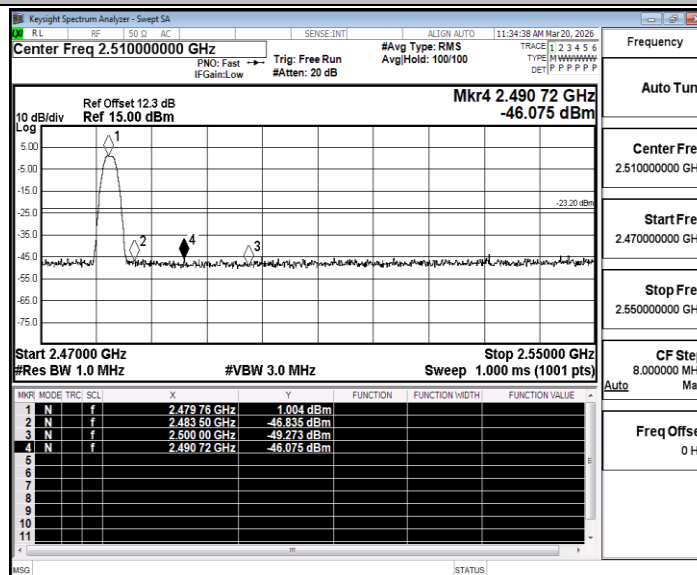
BLE_1M_Ant1_Low_2402_Peak



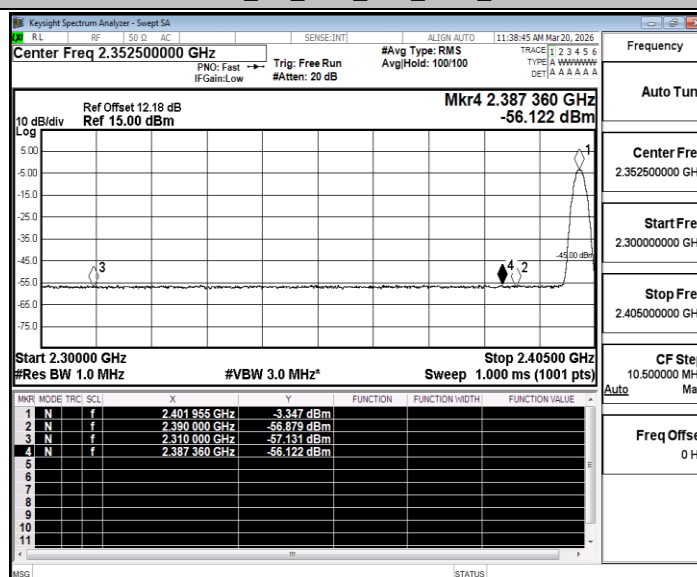
BLE_1M_Ant1_High_2480_AV



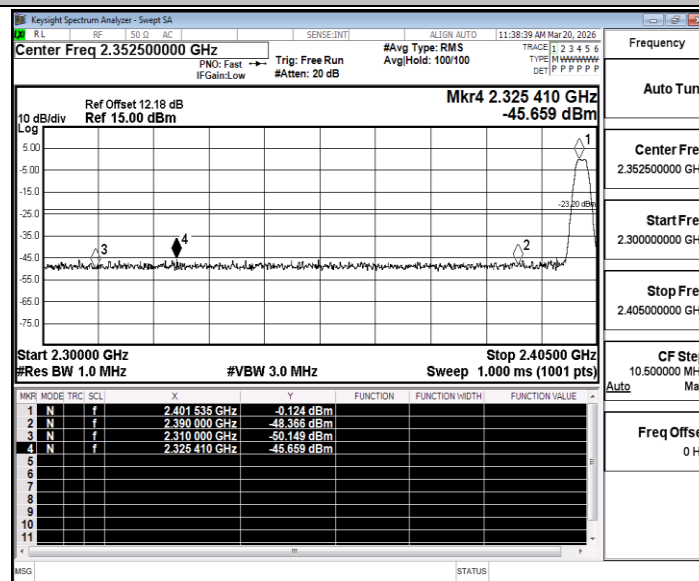
BLE_1M_Ant1_High_2480_Peak



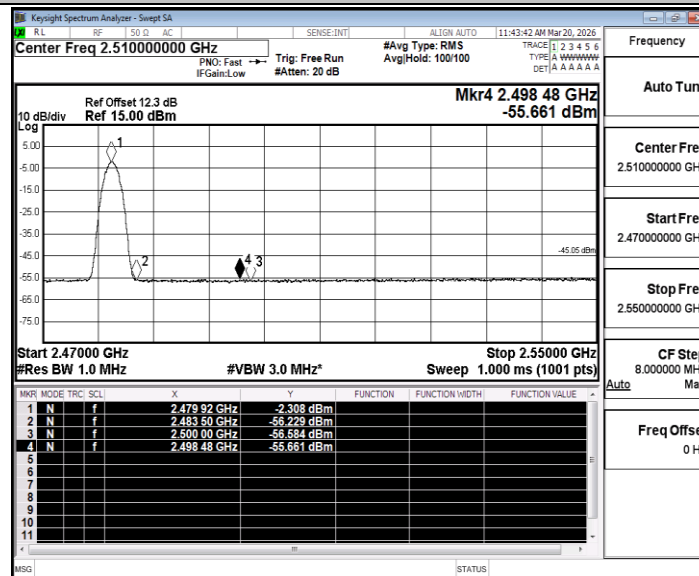
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

