

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

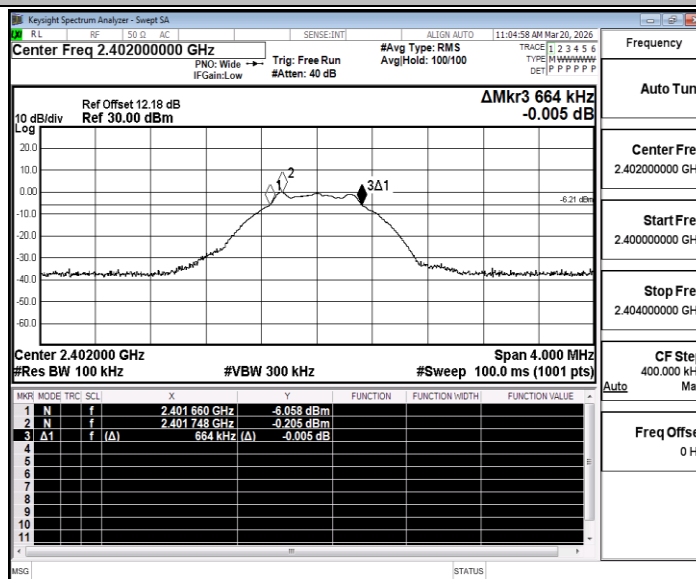
A.1 DTS Bandwidth

Left ear:

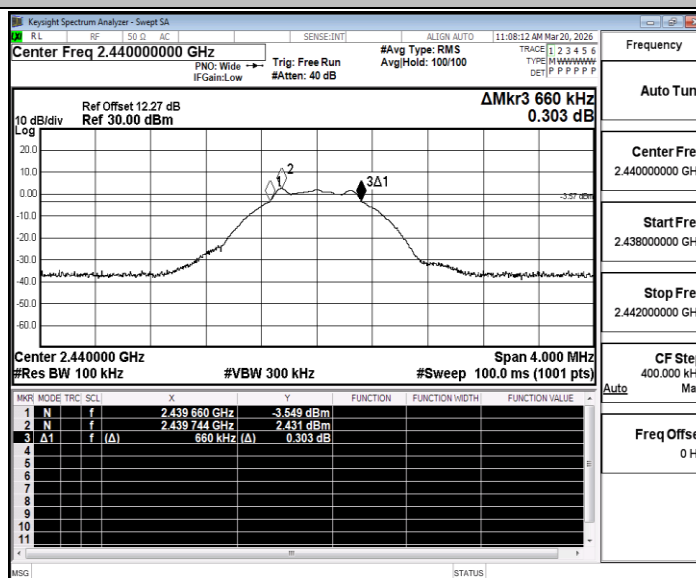
TestMode	Antenna	Freq (MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.660	2402.324	0.5	PASS
		2440	0.660	2439.660	2440.320	0.5	PASS
		2480	0.660	2479.664	2480.324	0.5	PASS
BLE_2M	Ant1	2402	1.156	2401.404	2402.560	0.5	PASS
		2440	1.148	2439.408	2440.556	0.5	PASS
		2480	1.156	2479.404	2480.560	0.5	PASS

Test Graphs

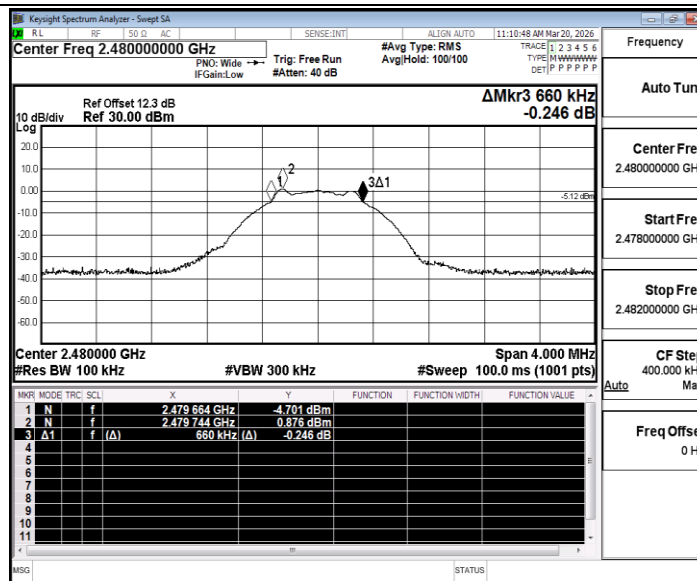
BLE_1M_Ant1_2402



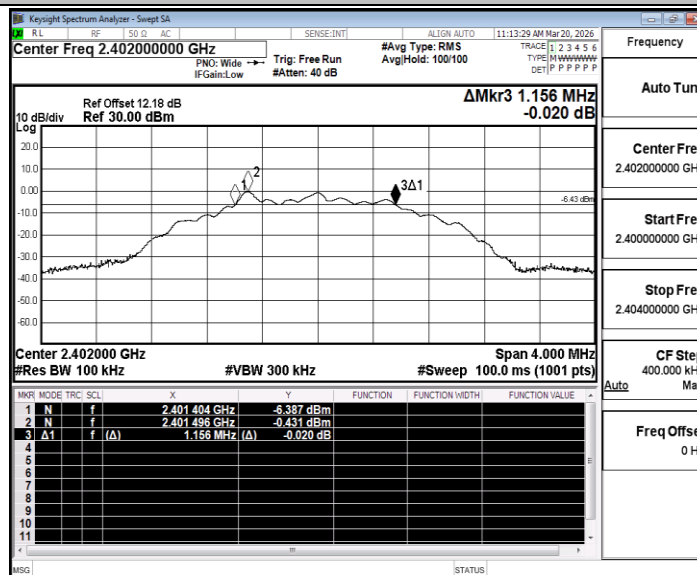
BLE_1M_Ant1_2440



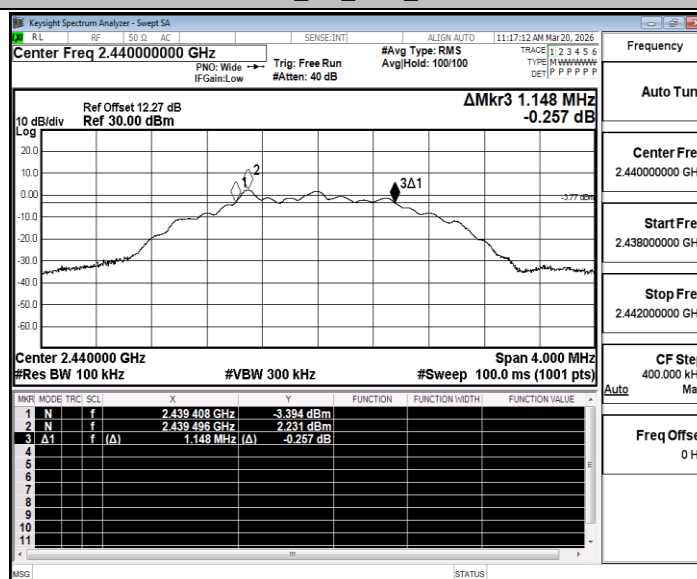
BLE_1M_Ant1_2480

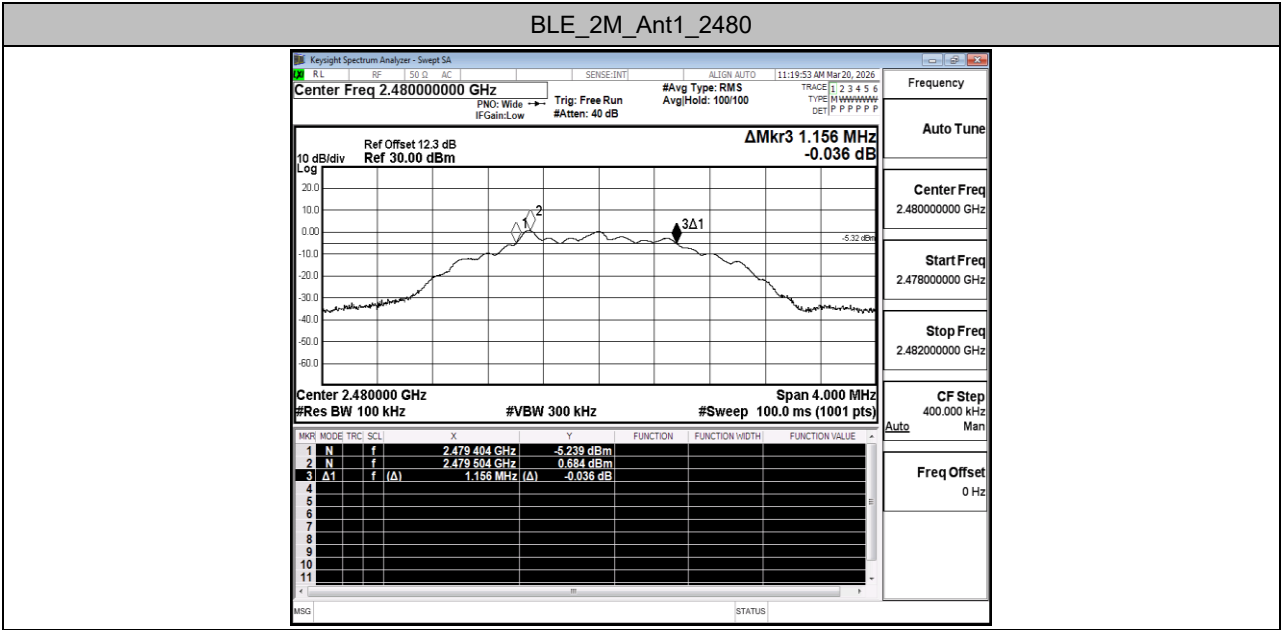


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440





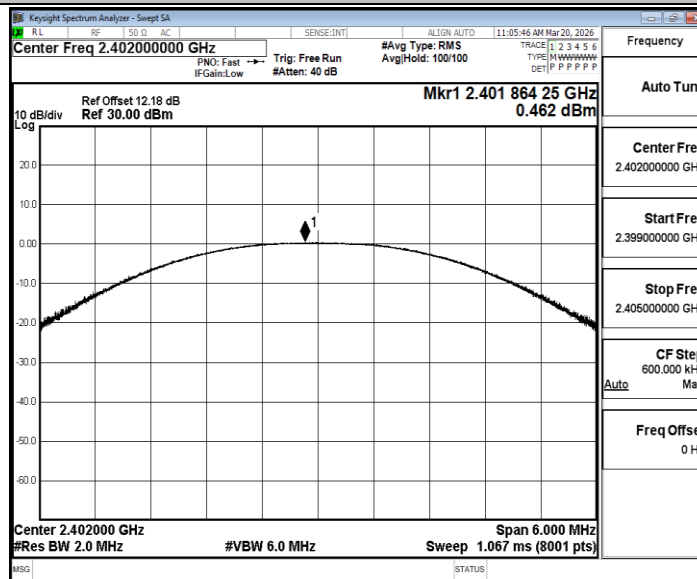
A.2 Maximum peak conducted output power

Left ear: Peak

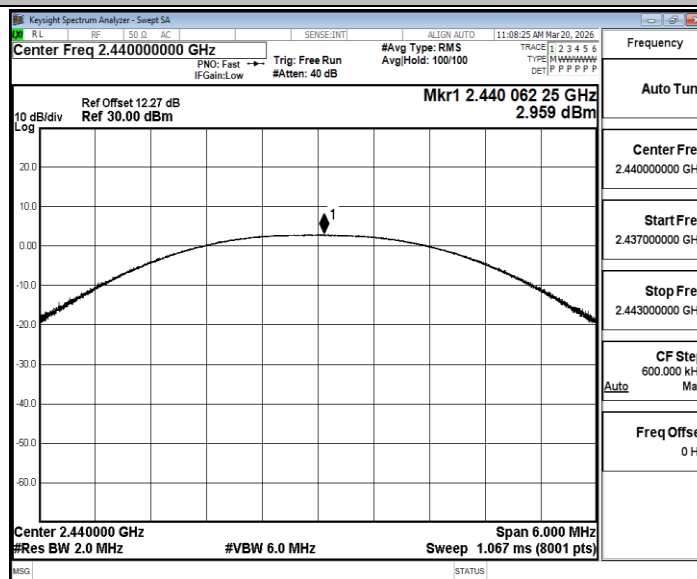
TestMode	Antenna	Freq (MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.46	≤30	PASS
		2440	2.96	≤30	PASS
		2480	1.54	≤30	PASS
BLE_2M	Ant1	2402	0.33	≤30	PASS
		2440	2.83	≤30	PASS
		2480	1.40	≤30	PASS

Test Graphs Peak

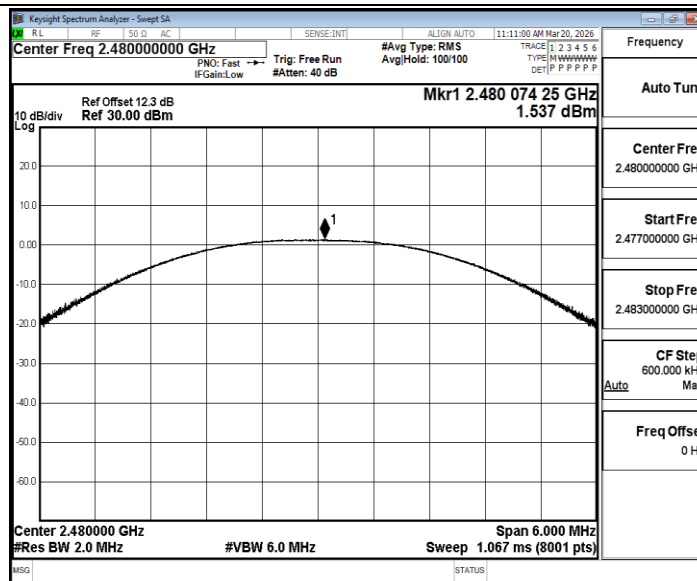
BLE_1M_Ant1_2402



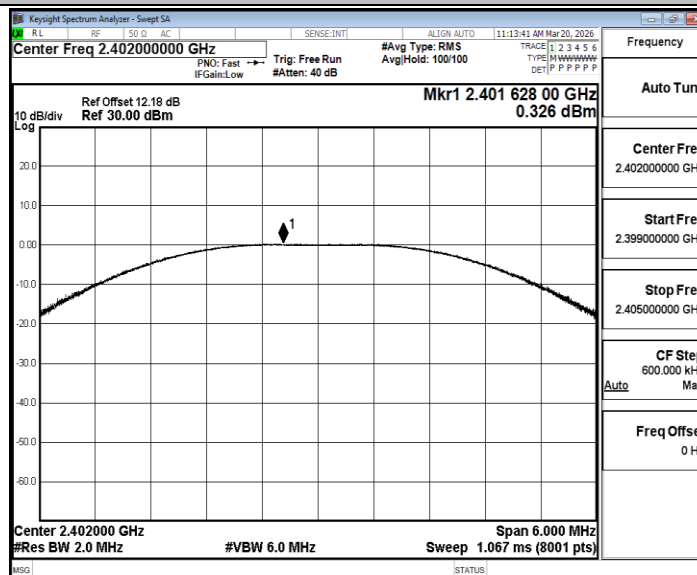
BLE_1M_Ant1_2440



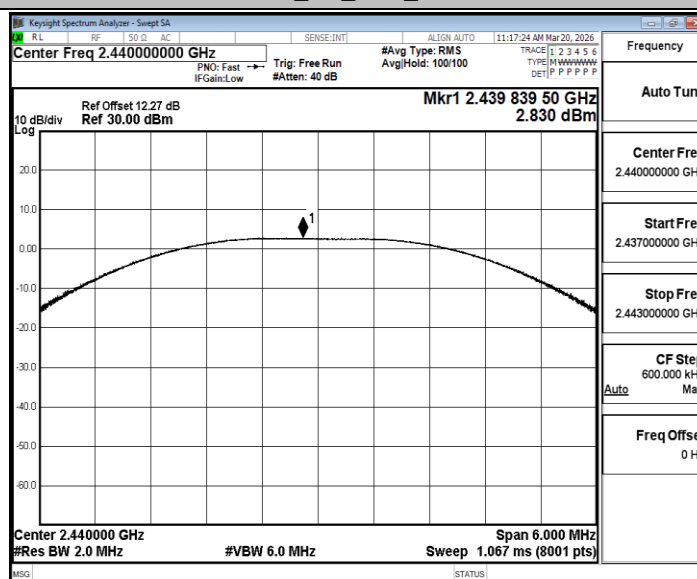
BLE_1M_Ant1_2480

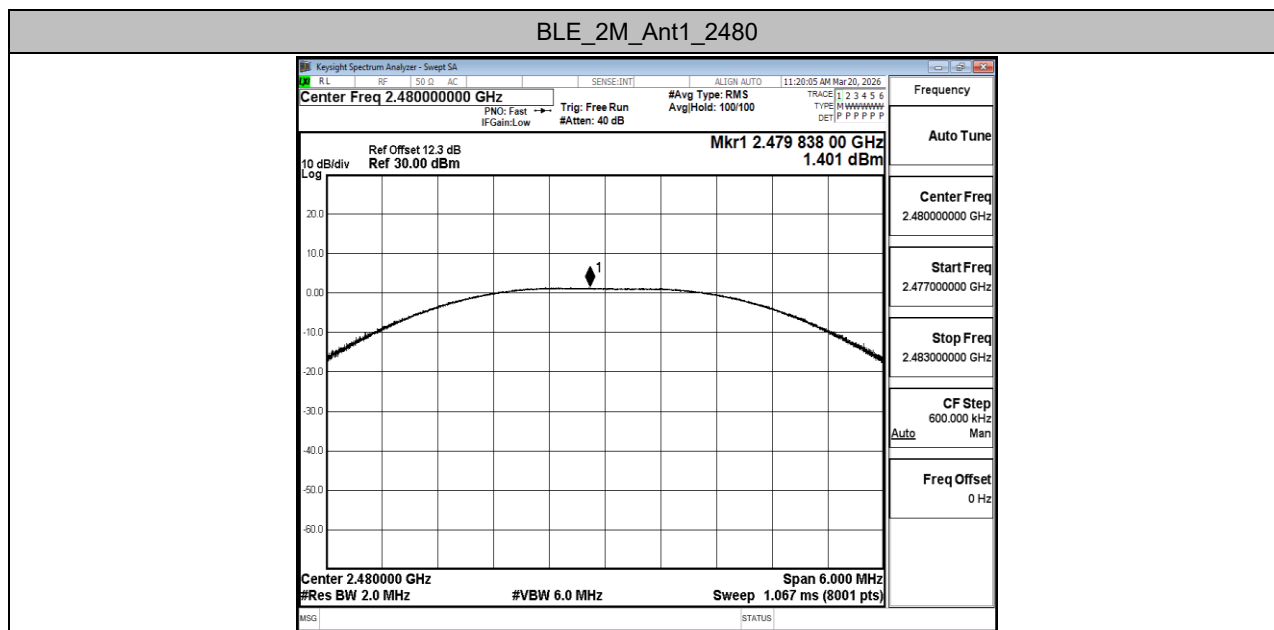


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



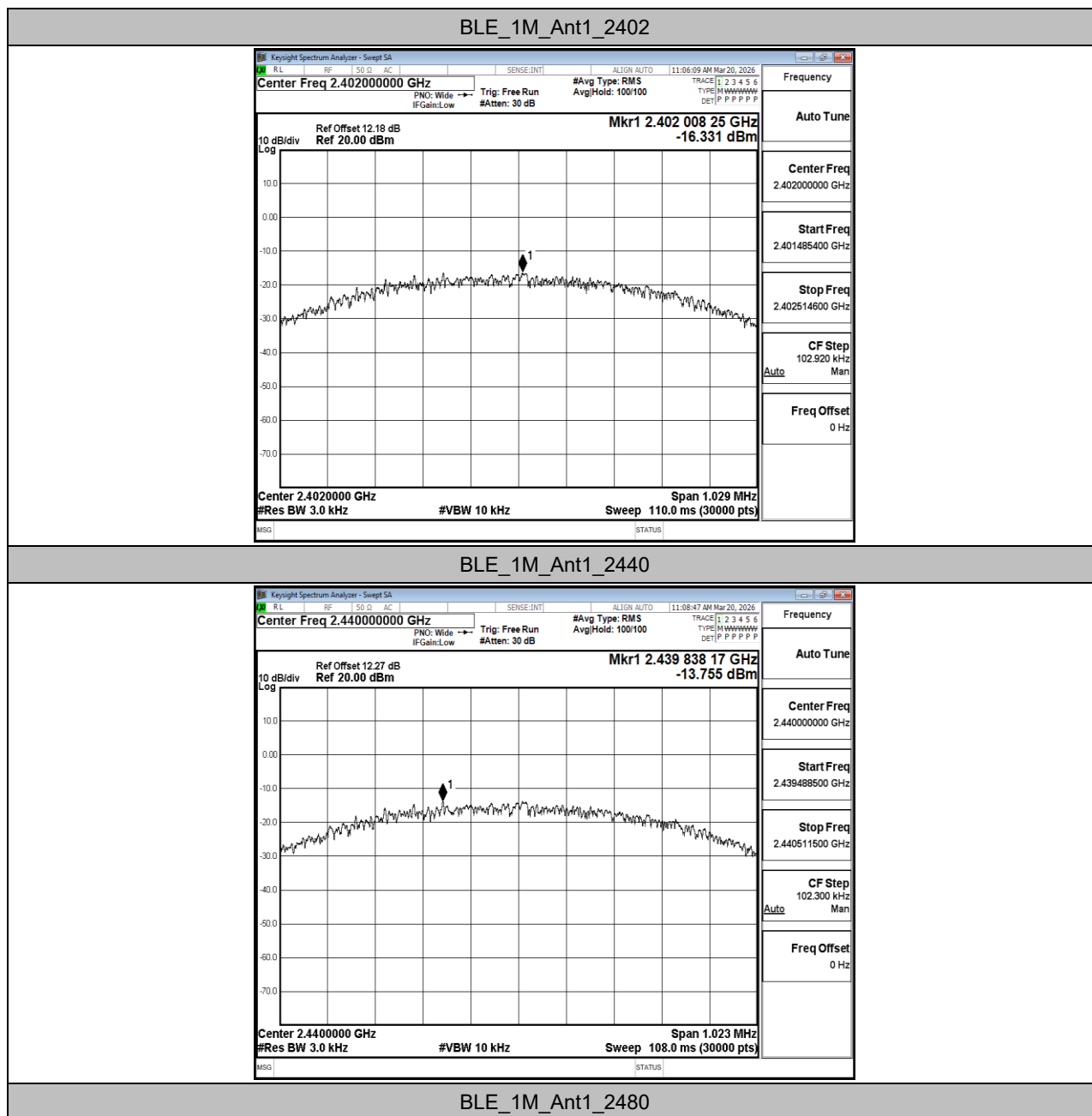


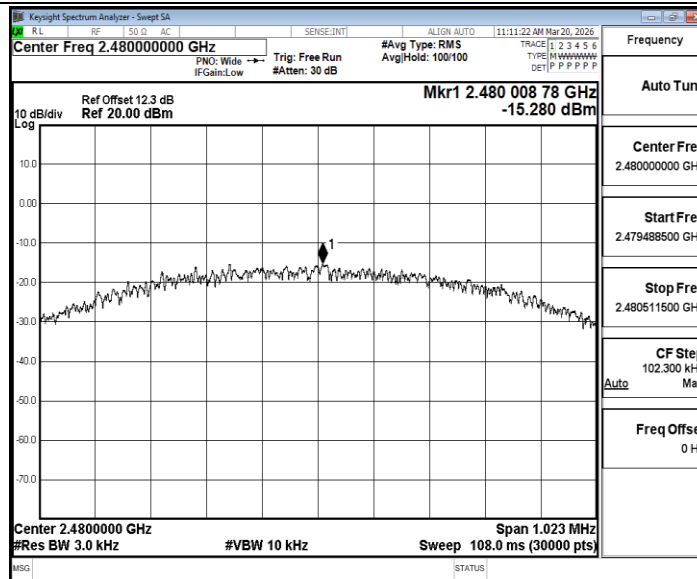
A.3 Maximum power spectral density

Left ear:

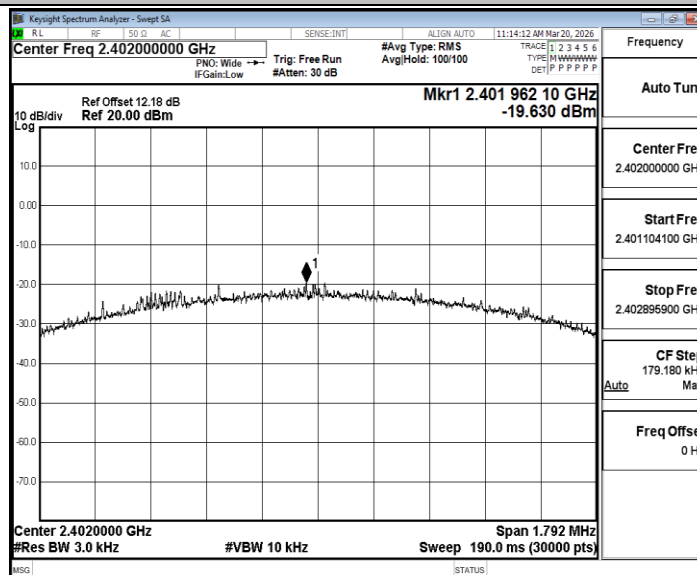
TestMode	Antenna	Freq (MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.33	≤8.00	PASS
		2440	-13.76	≤8.00	PASS
		2480	-15.28	≤8.00	PASS
BLE_2M	Ant1	2402	-19.63	≤8.00	PASS
		2440	-17.10	≤8.00	PASS
		2480	-18.55	≤8.00	PASS

Test Graphs

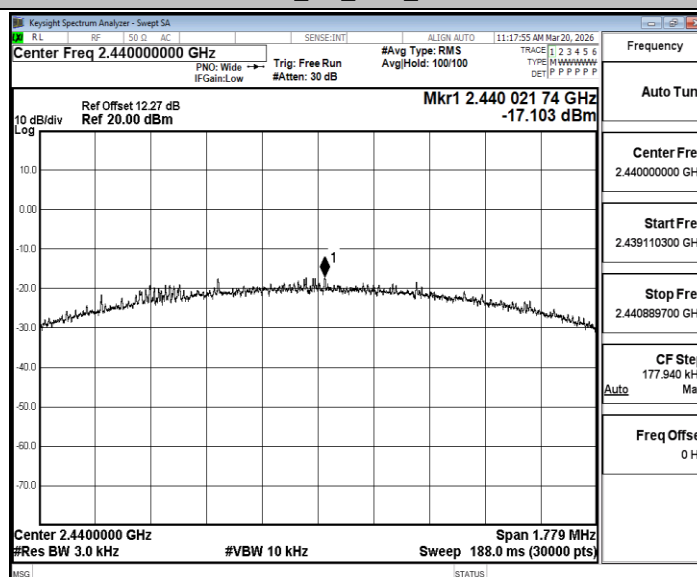




BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



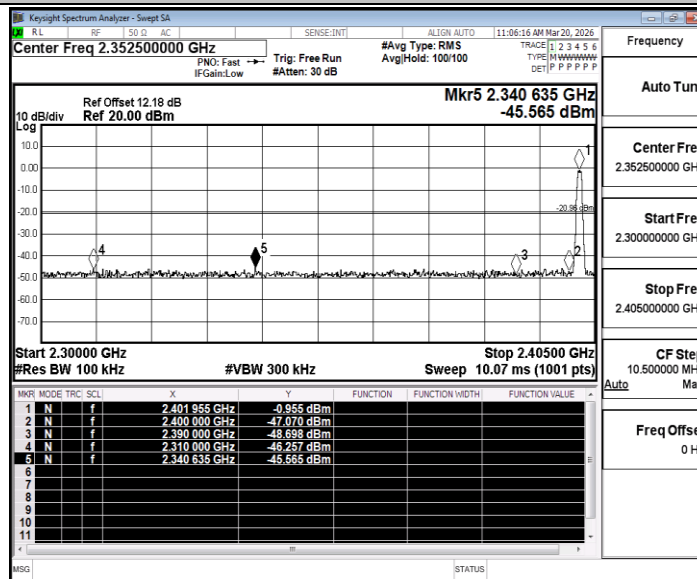
A.4 Band edge measurements

Left ear:

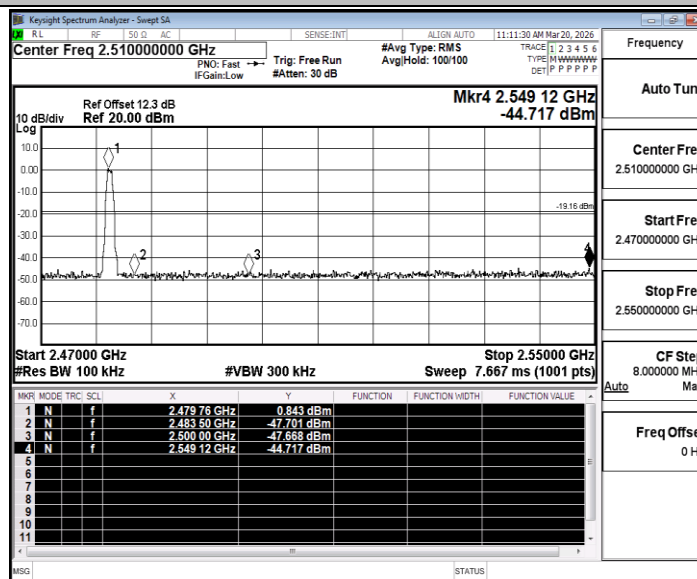
TestMode	Antenna	ChName	Freq (MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.96	-45.57	≤-20.96	PASS
		High	2480	0.84	-44.72	≤-19.16	PASS
BLE_2M	Ant1	Low	2402	-1.32	-44.6	≤-21.32	PASS
		High	2480	-0.26	-45.33	≤-20.26	PASS

Test Graphs

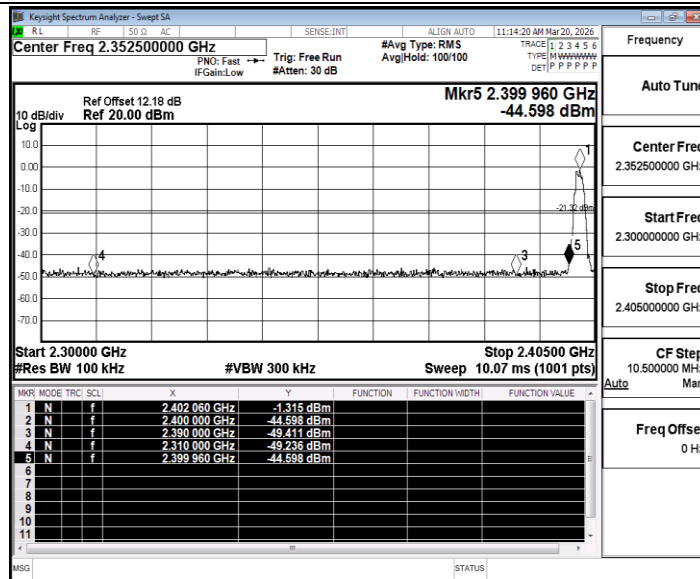
BLE_1M_Ant1_Low_2402



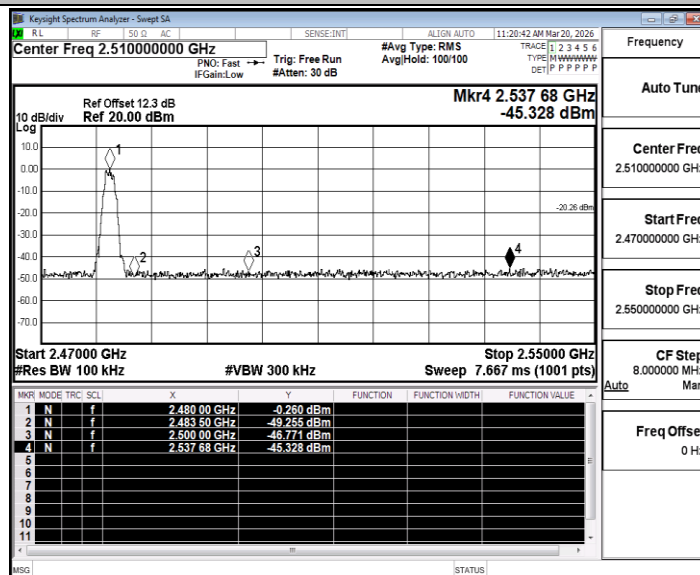
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



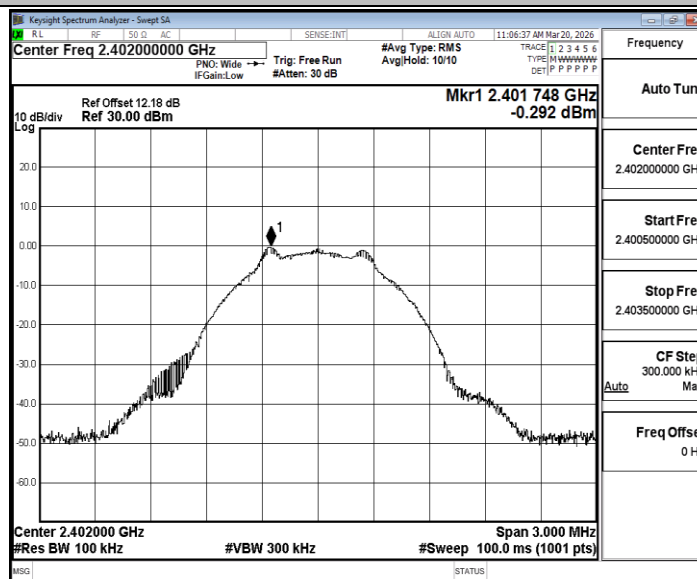
A.5 Conducted Spurious Emission

Left ear:

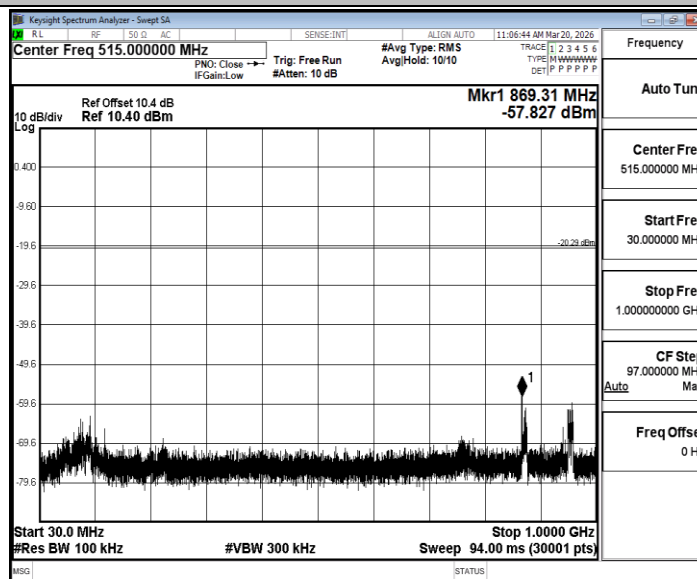
TestMode	Antenna	Freq (MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.29	-0.29	---	PASS
			30~1000	-0.29	-57.83	≤-20.29	PASS
			1000~26500	-0.29	-42.28	≤-20.29	PASS
		2440	Reference	2.34	2.34	---	PASS
			30~1000	2.34	-57.9	≤-17.66	PASS
			1000~26500	2.34	-42.9	≤-17.66	PASS
		2480	Reference	0.80	0.80	---	PASS
			30~1000	0.80	-60.15	≤-19.2	PASS
			1000~26500	0.80	-42.64	≤-19.2	PASS
BLE_2M	Ant1	2402	Reference	-0.52	-0.52	---	PASS
			30~1000	-0.52	-61.65	≤-20.52	PASS
			1000~26500	-0.52	-43.47	≤-20.52	PASS
		2440	Reference	2.11	2.11	---	PASS
			30~1000	2.11	-60.15	≤-17.89	PASS
			1000~26500	2.11	-36.4	≤-17.89	PASS
		2480	Reference	0.64	0.64	---	PASS
			30~1000	0.64	-62.71	≤-19.36	PASS
			1000~26500	0.64	-43.31	≤-19.36	PASS

Test Graphs

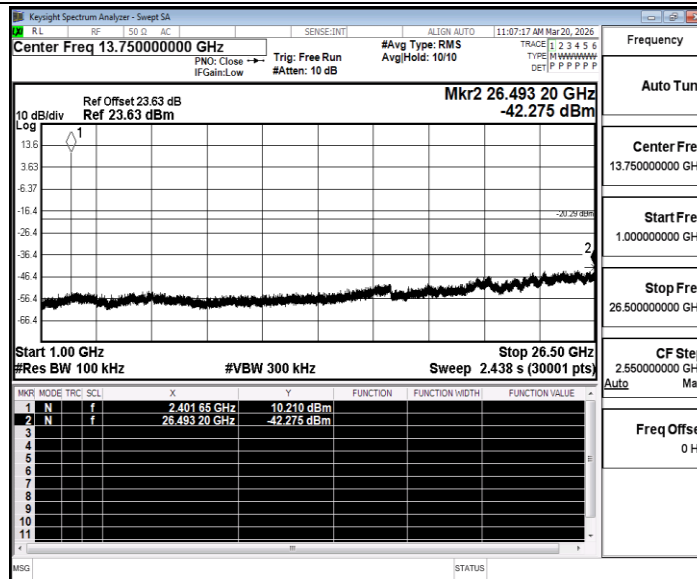
BLE_1M_Ant1_2402_0~Reference



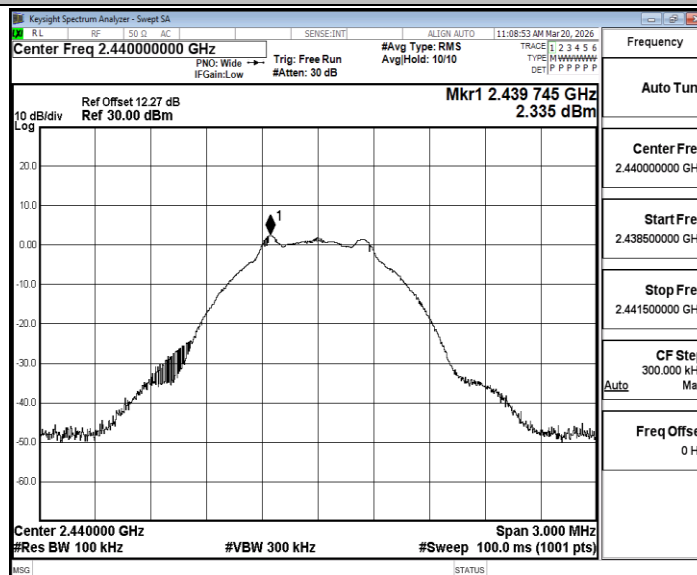
BLE_1M_Ant1_2402_30~1000



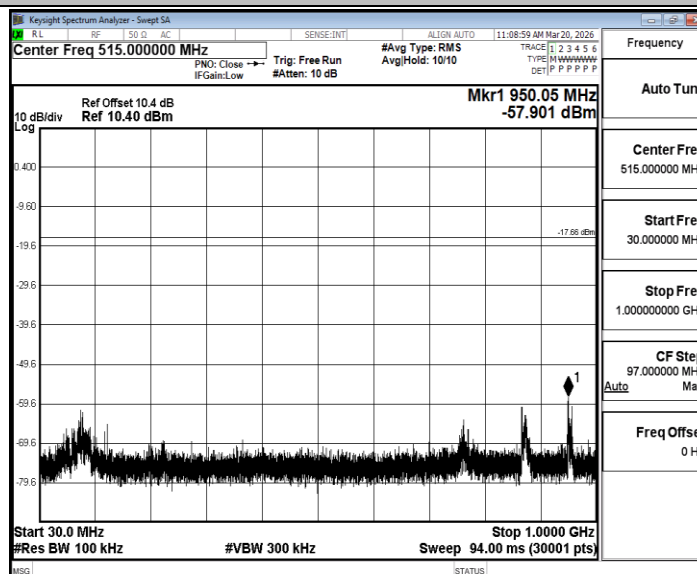
BLE_1M_Ant1_2402_1000~26500



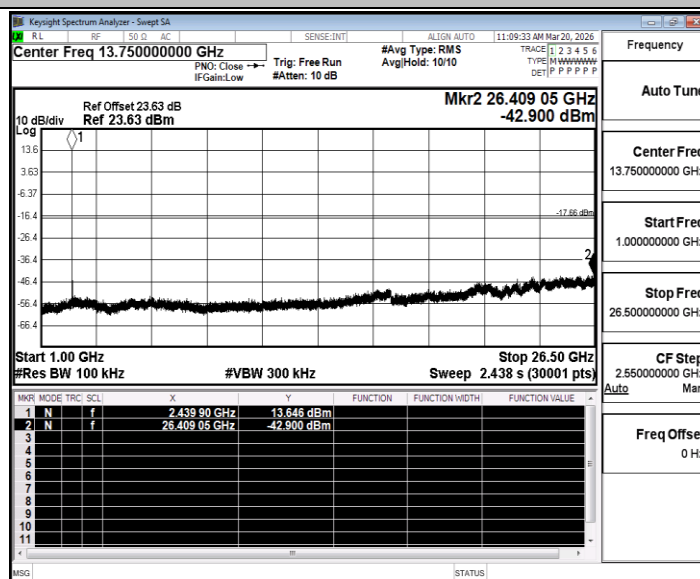
BLE_1M_Ant1_2440_0~Reference



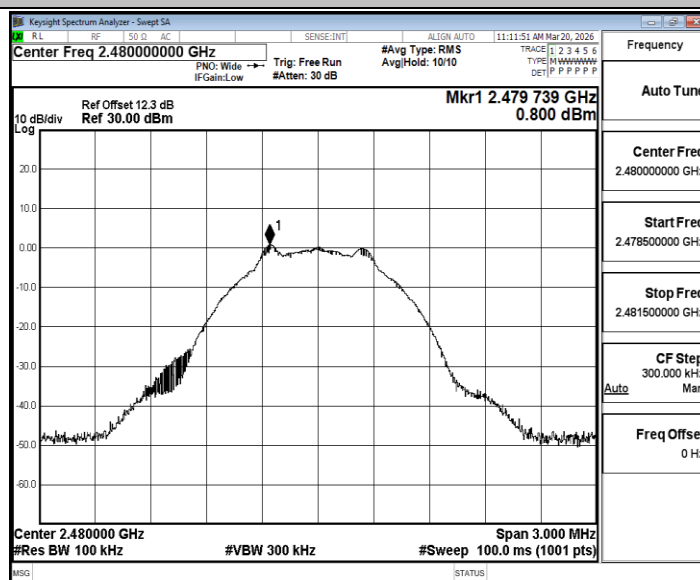
BLE_1M_Ant1_2440_30~1000



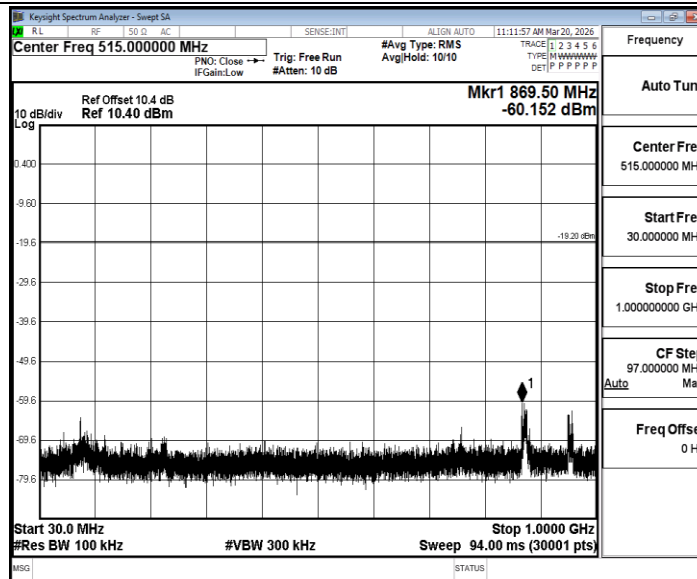
BLE_1M_Ant1_2440_1000~26500



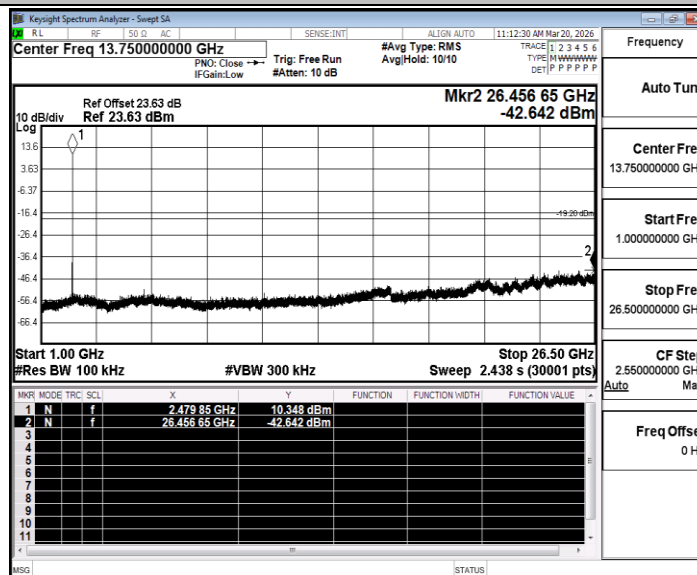
BLE_1M_Ant1_2480_0~Reference



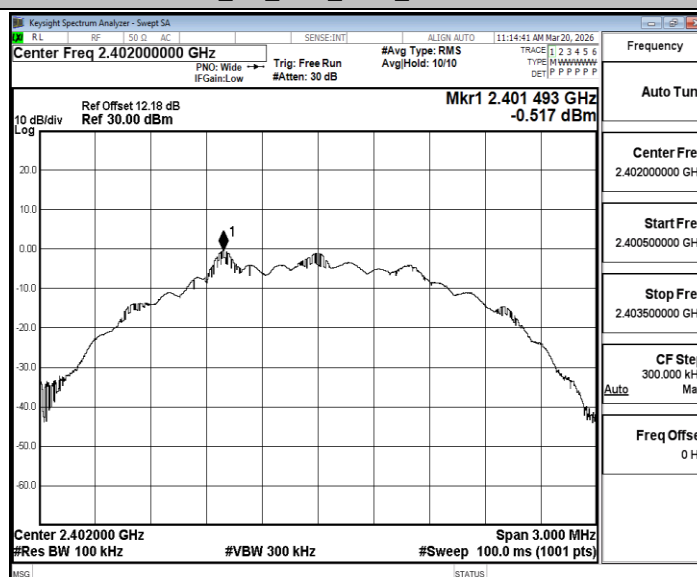
BLE_1M_Ant1_2480_30~1000

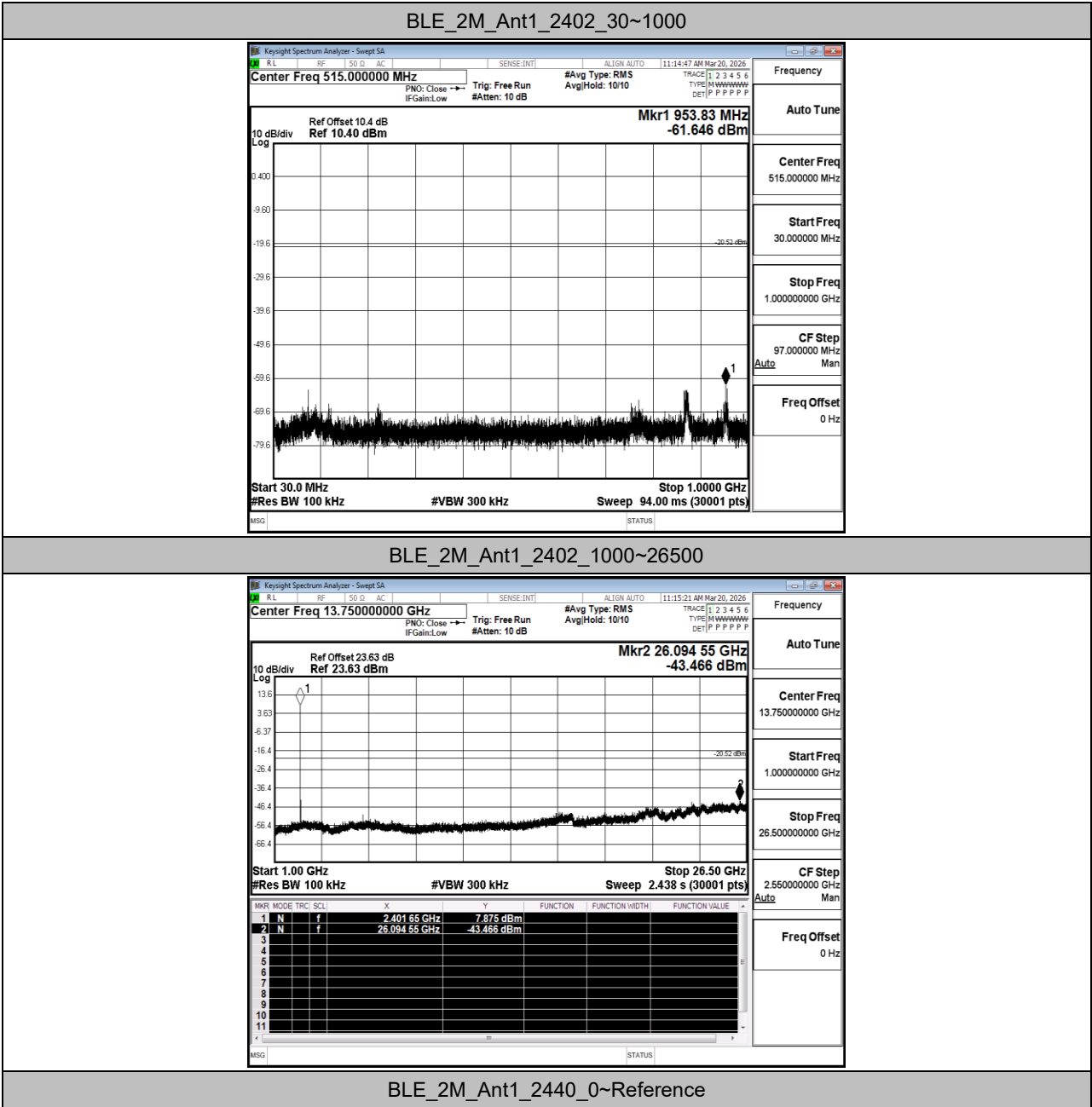


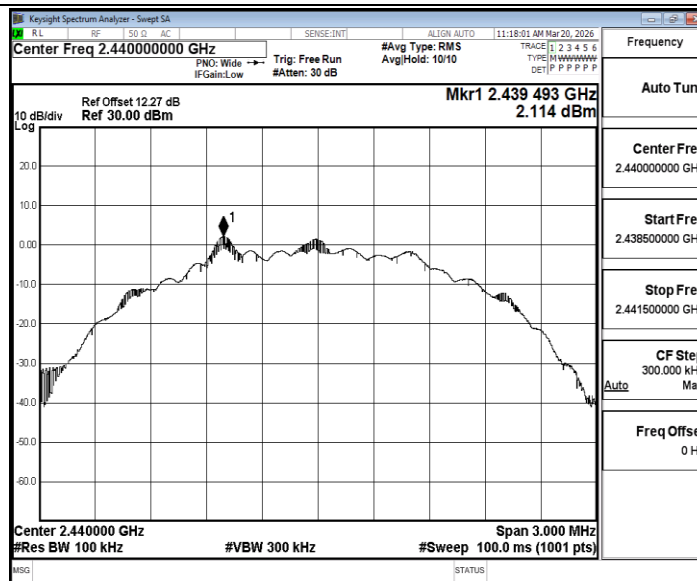
BLE_1M_Ant1_2480_1000~26500



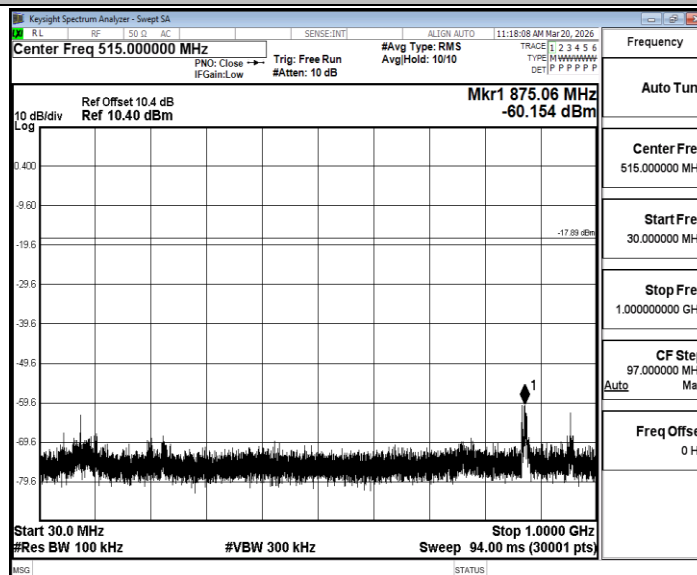
BLE_2M_Ant1_2402_0~Reference



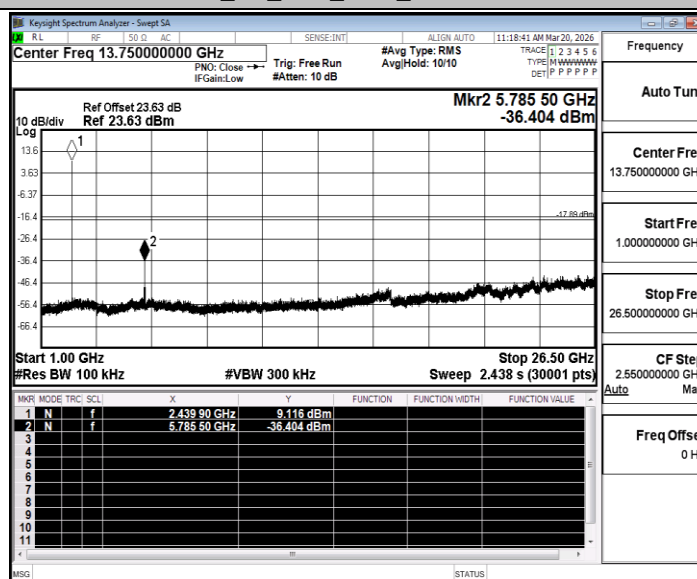




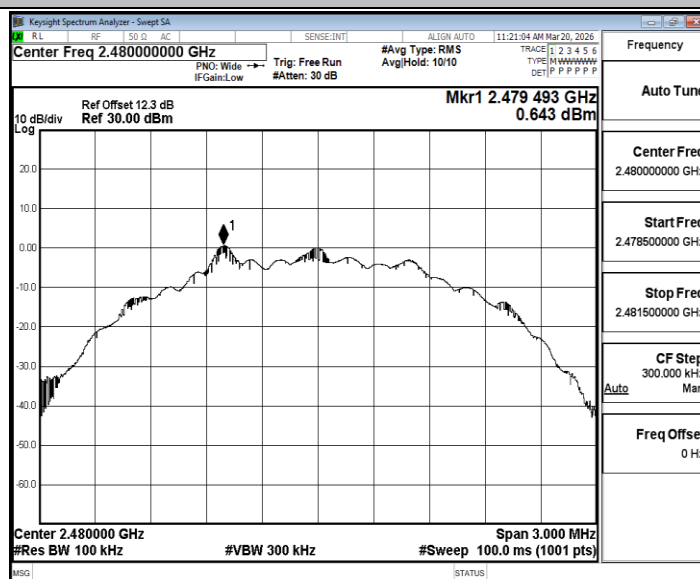
BLE_2M_Ant1_2440_30~1000



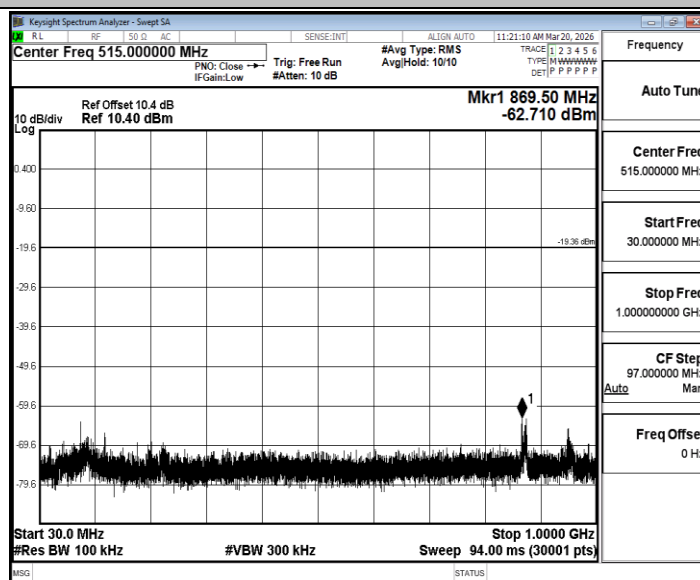
BLE_2M_Ant1_2440_1000~26500



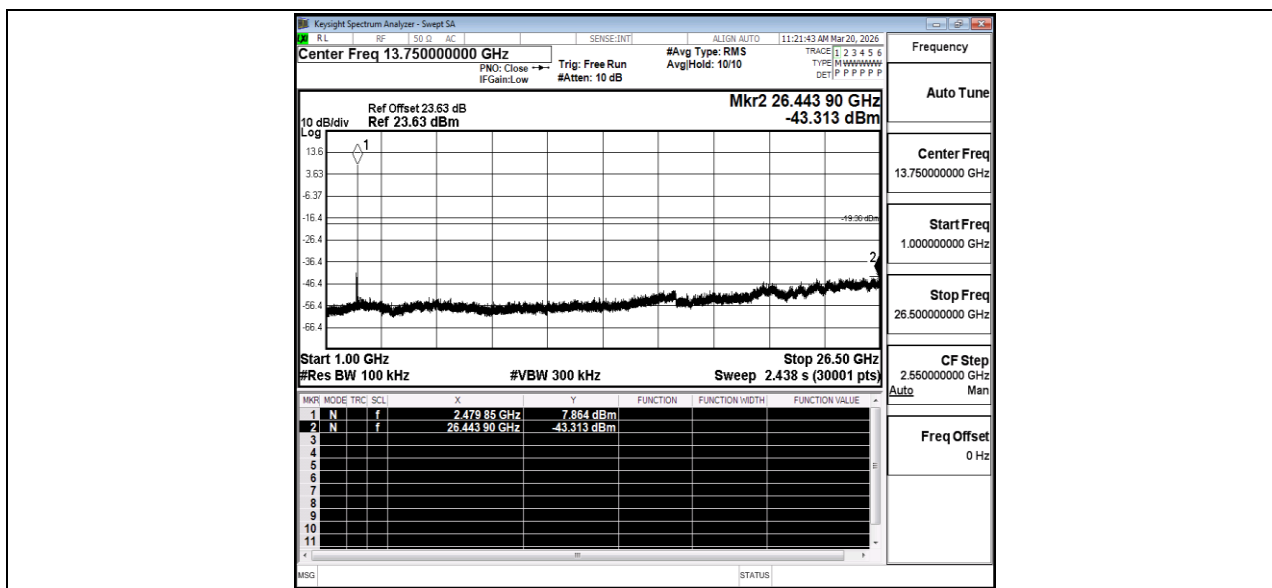
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



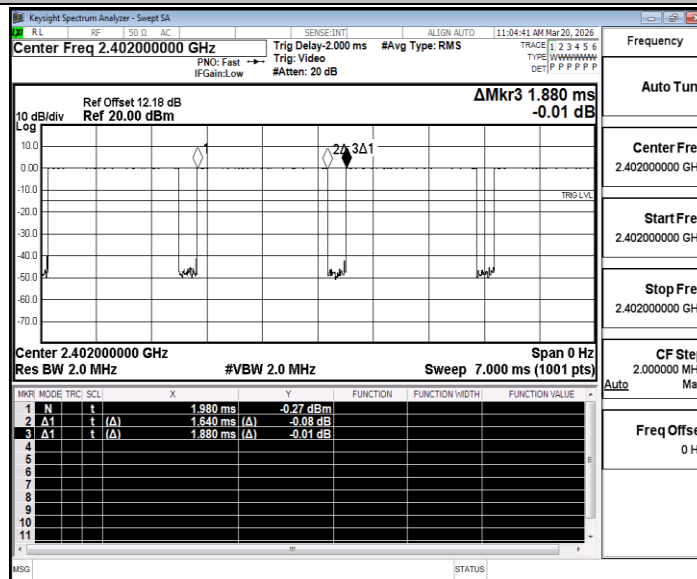
A.6 Duty Cycle

Left ear:

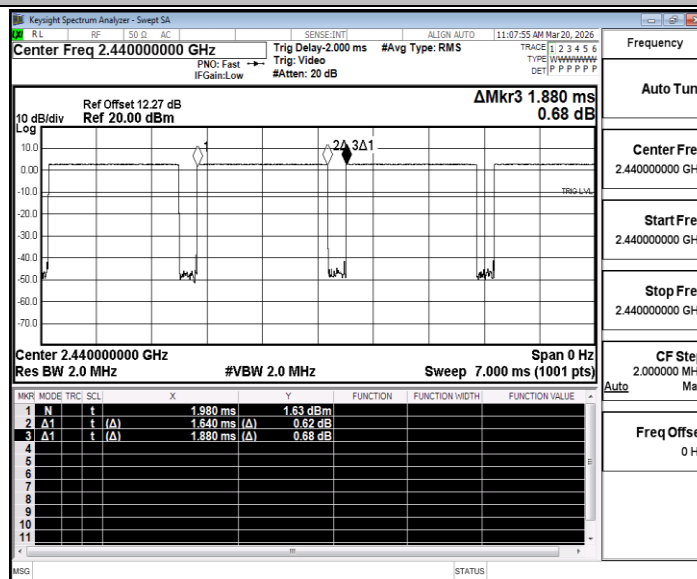
TestMode	Antenna	Freq (MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.88	0.8723	87.23	0.59	---	---
		2440	1.64	1.88	0.8723	87.23	0.59	---	---
		2480	1.64	1.88	0.8723	87.23	0.59	---	---
BLE_2M	Ant1	2402	0.81	1.24	0.6532	65.32	1.85	---	---
		2440	0.82	1.25	0.6560	65.60	1.83	---	---
		2480	0.82	1.25	0.6560	65.60	1.83	---	---

Test Graphs

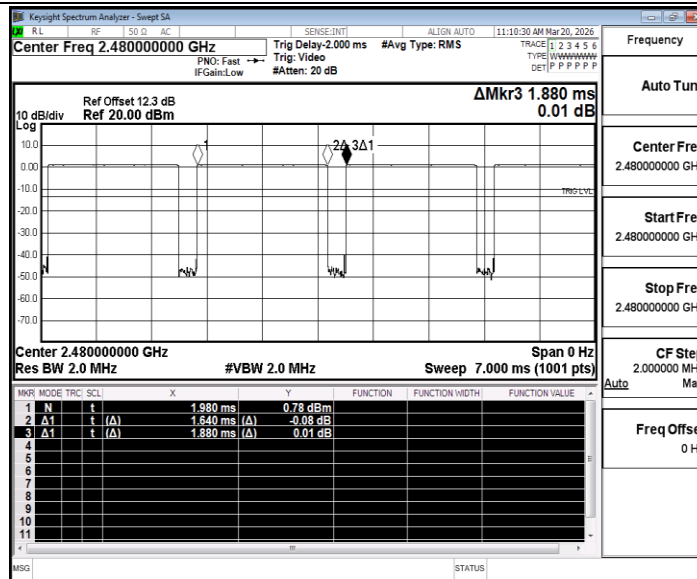
BLE_1M_Ant1_2402



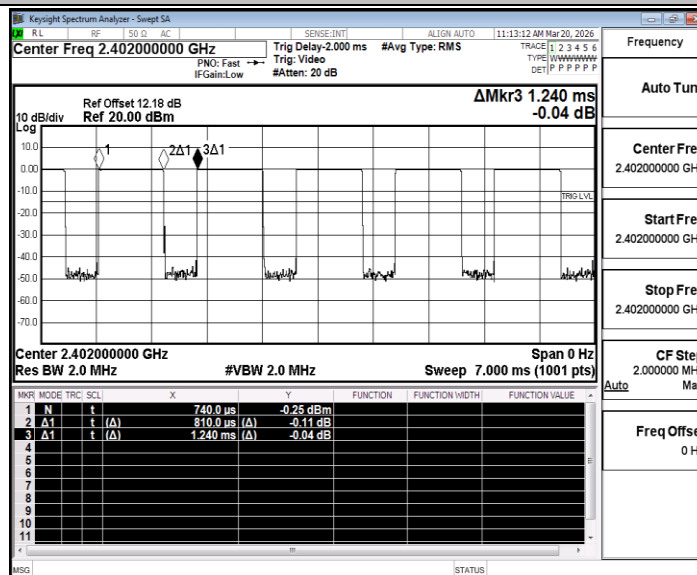
BLE_1M_Ant1_2440



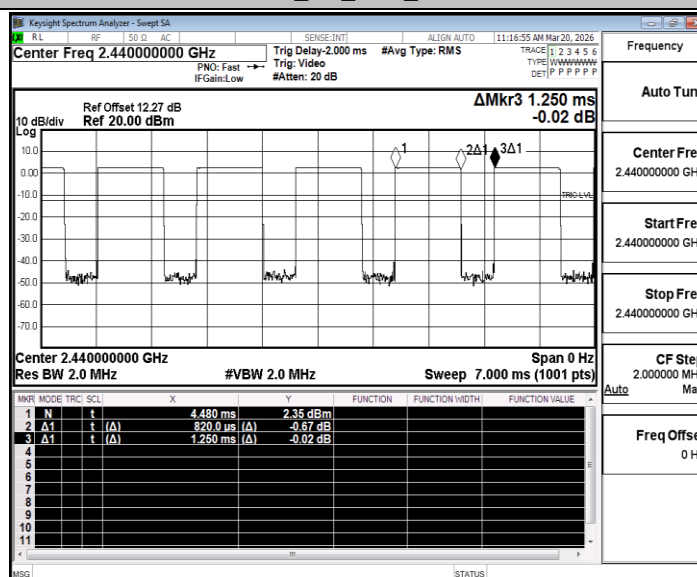
BLE_1M_Ant1_2480

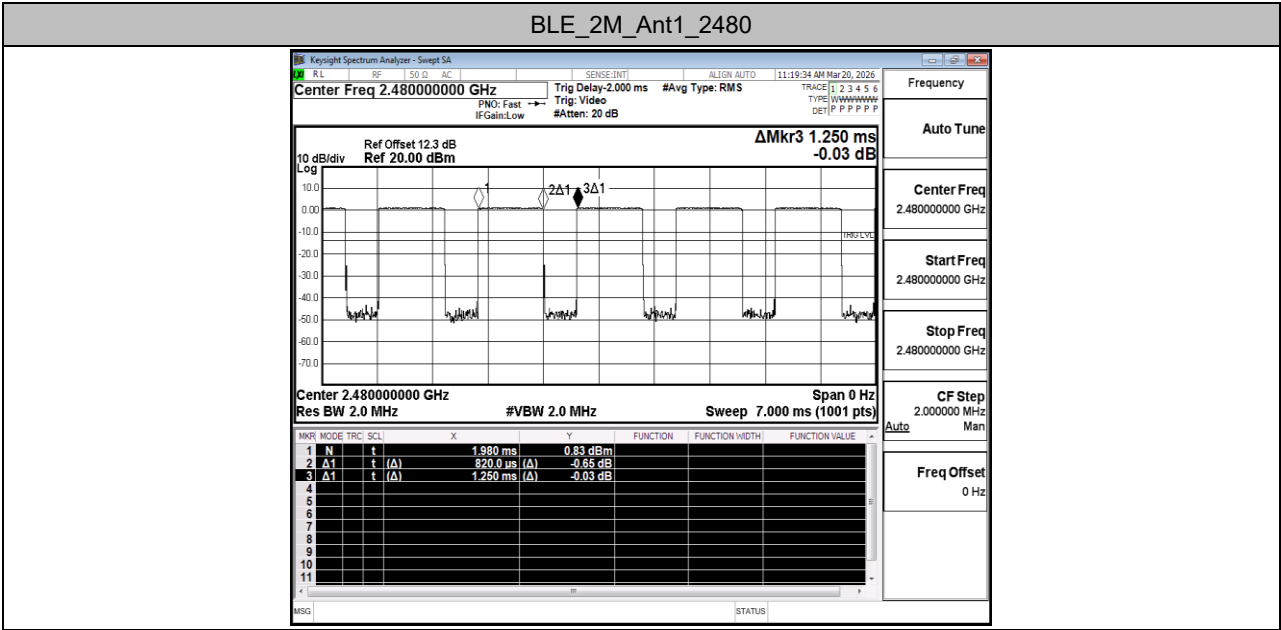


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440





A.7 Emissions in Restricted Bands

Left ear:

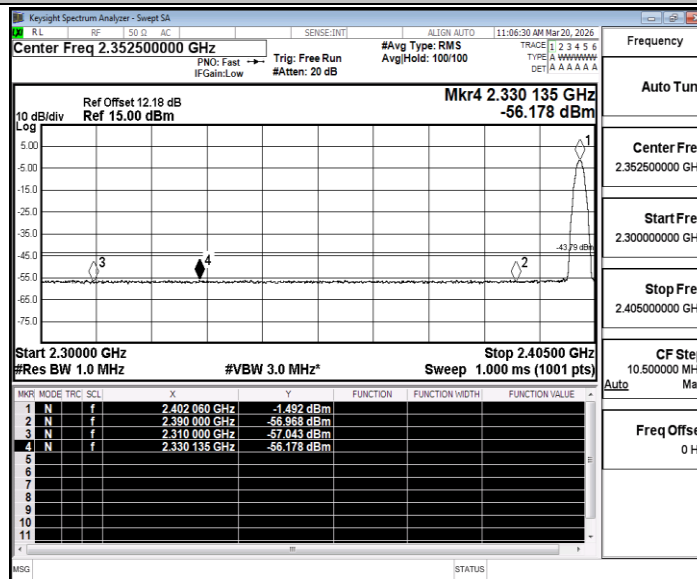
Test Mode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-57.04	≤-43.79	2.00	0.59	40.75	≤54	PASS
				AV	2330.135	-56.18	≤-43.79	2.00	0.59	41.61	≤54	PASS
				AV	2390.000	-56.97	≤-43.79	2.00	0.59	40.82	≤54	PASS
				Peak	2310.000	-49.79	≤-23.20	2.00	0.00	47.41	≤74	PASS
				Peak	2373.080	-46.02	≤-23.20	2.00	0.00	51.18	≤74	PASS
				Peak	2390.000	-47.84	≤-23.20	2.00	0.00	49.36	≤74	PASS
		High	2480	AV	2483.500	-56.08	≤-43.79	2.00	0.59	41.71	≤54	PASS
				AV	2494.240	-55.71	≤-43.79	2.00	0.59	42.08	≤54	PASS
				AV	2500.000	-56.17	≤-43.79	2.00	0.59	41.62	≤54	PASS
				Peak	2483.500	-48.54	≤-23.20	2.00	0.00	48.66	≤74	PASS
				Peak	2486.480	-45.79	≤-23.20	2.00	0.00	51.41	≤74	PASS
				Peak	2500.000	-49.04	≤-23.20	2.00	0.00	48.16	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.38	≤-45.05	2.00	1.85	41.67	≤54	PASS
				AV	2330.450	-56.1	≤-45.05	2.00	1.85	42.95	≤54	PASS
				AV	2390.000	-56.49	≤-45.05	2.00	1.85	42.56	≤54	PASS
				Peak	2310.000	-46.97	≤-23.20	2.00	0.00	50.23	≤74	PASS
				Peak	2360.585	-45.52	≤-23.20	2.00	0.00	51.68	≤74	PASS
				Peak	2390.000	-49.07	≤-23.20	2.00	0.00	48.13	≤74	PASS
		High	2480	AV	2483.500	-56.12	≤-45.03	2.00	1.83	42.91	≤54	PASS
				AV	2496.080	-55.59	≤-45.03	2.00	1.83	43.44	≤54	PASS
				AV	2500.000	-56.4	≤-45.03	2.00	1.83	42.63	≤54	PASS
				Peak	2483.500	-47.06	≤-23.20	2.00	0.00	50.14	≤74	PASS
				Peak	2484.400	-45.29	≤-23.20	2.00	0.00	51.91	≤74	PASS
				Peak	2500.000	-47.02	≤-23.20	2.00	0.00	50.18	≤74	PASS

Note:

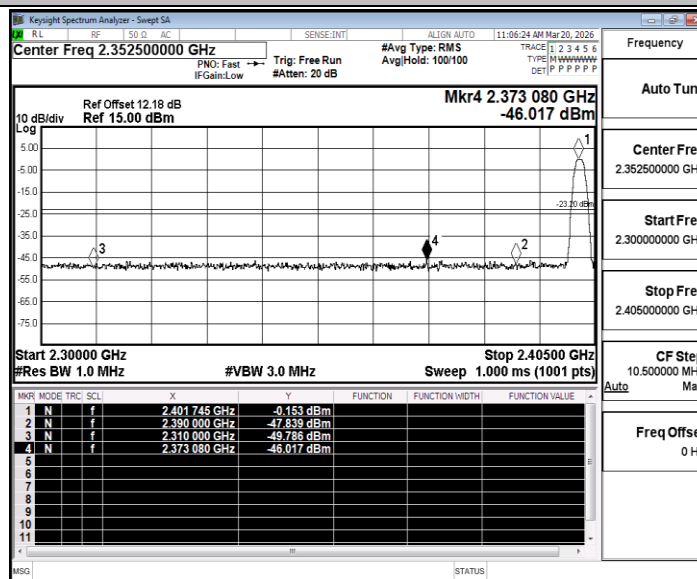
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

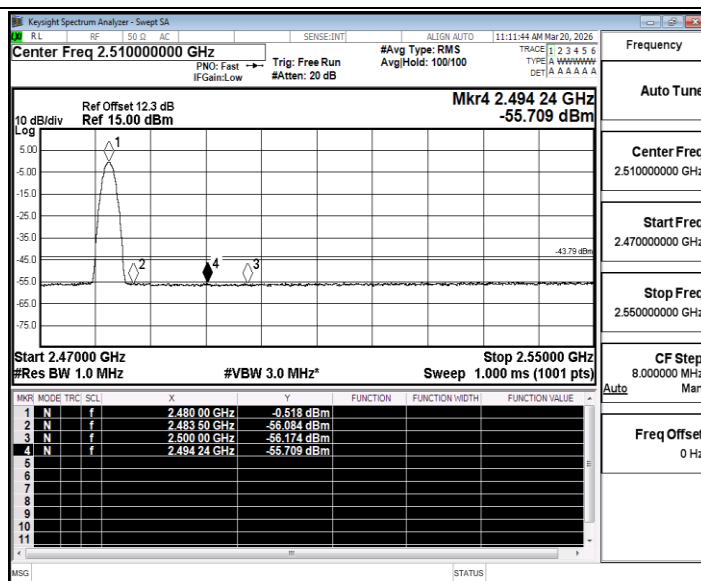
BLE_1M_Ant1_Low_2402_AV



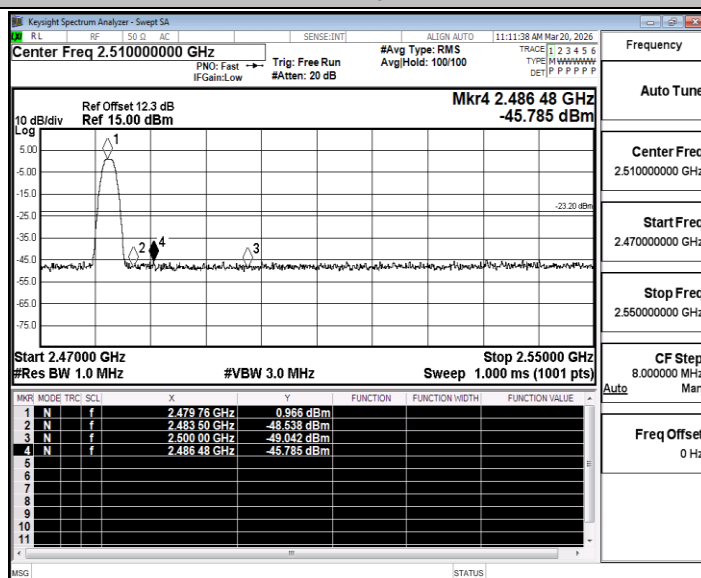
BLE_1M_Ant1_Low_2402_Peak



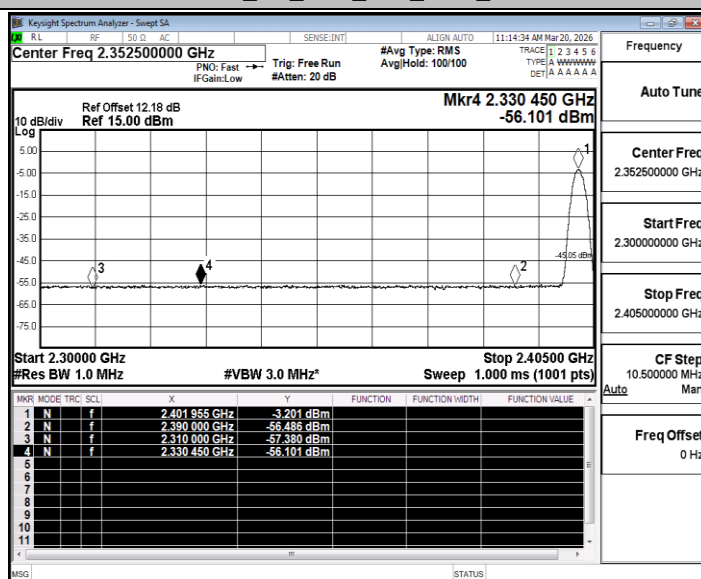
BLE_1M_Ant1_High_2480_AV



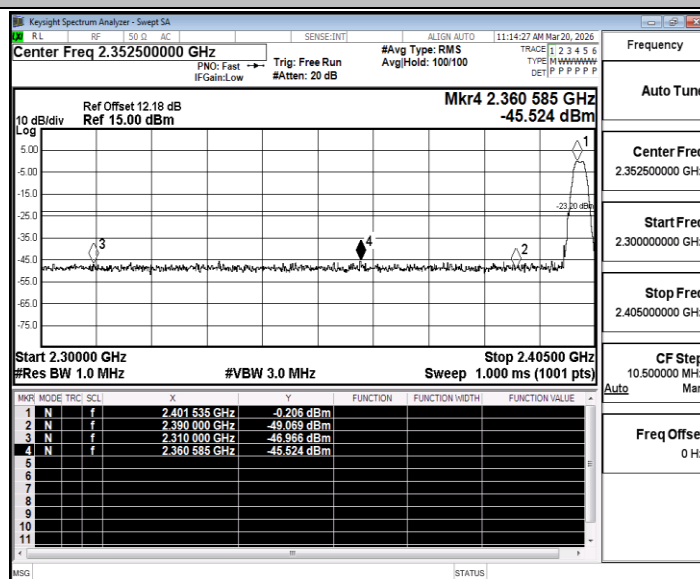
BLE_1M_Ant1_High_2480_Peak



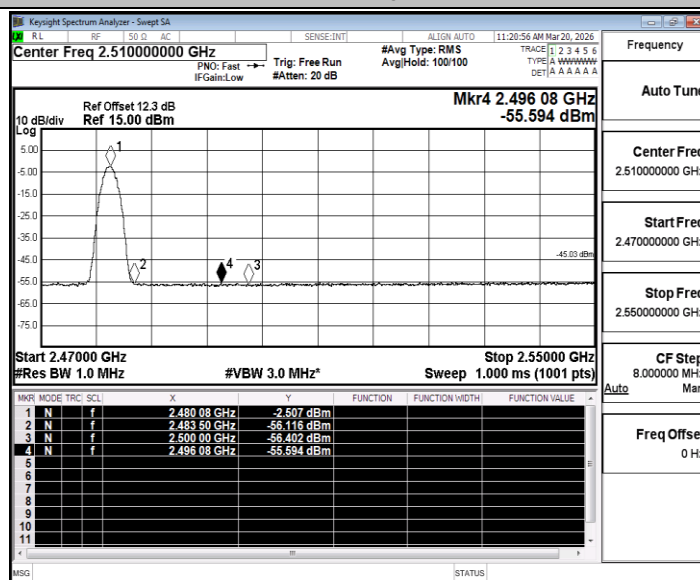
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

