Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Health Ring SR-H

Test Model: JZ-20

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mening Su
Supervised by:	Ling Zhu

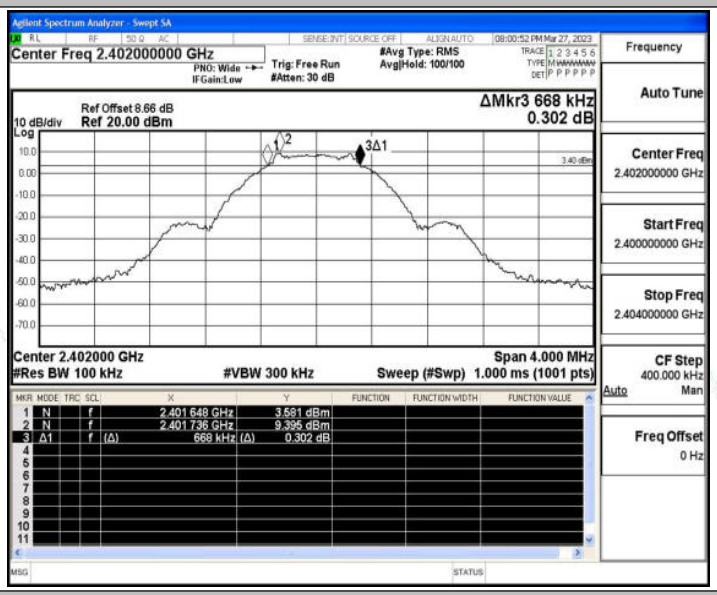
A.1 DTS Bandwidth

Test Result

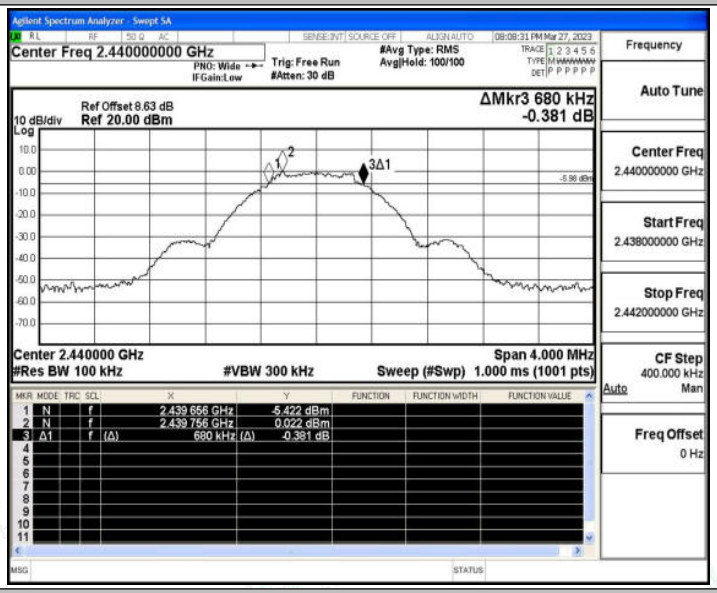
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.668	2401.648	2402.316	0.5	PASS
		2440	0.680	2439.656	2440.336	0.5	PASS
		2480	0.672	2479.648	2480.320	0.5	PASS
BLE_2M	Ant1	2402	1.224	2401.396	2402.620	0.5	PASS
		2440	1.340	2439.320	2440.660	0.5	PASS
		2480	1.260	2479.392	2480.652	0.5	PASS

Test Graphs

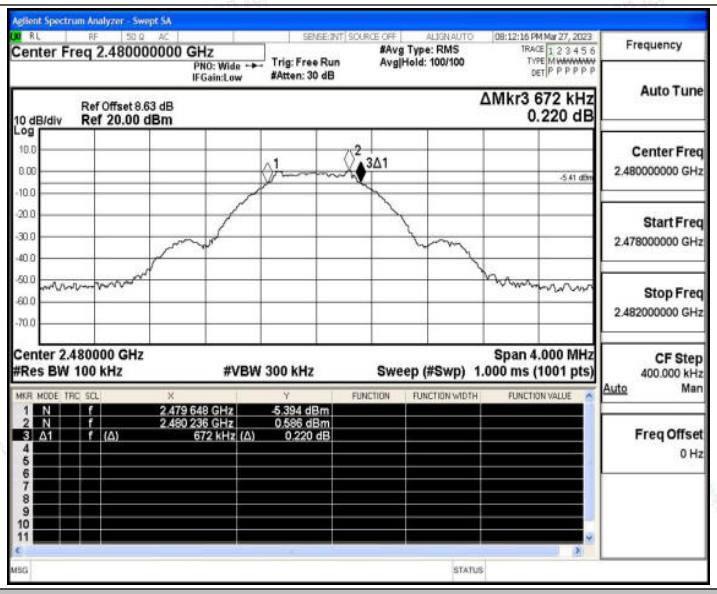
BLE_1M_Ant1_2402



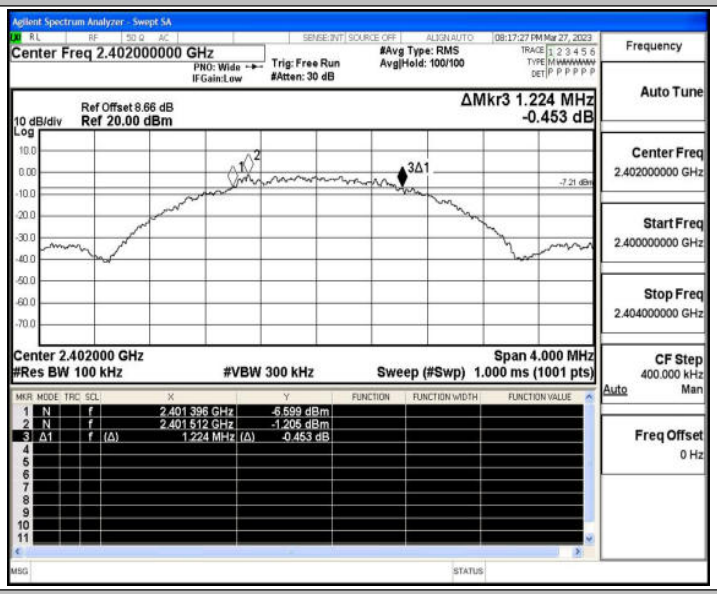
BLE_1M_Ant1_2440



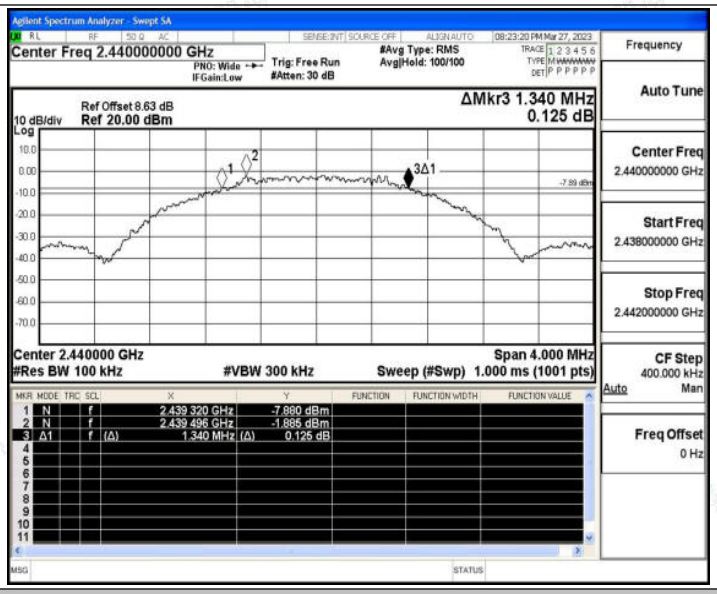
BLE_1M_Ant1_2480



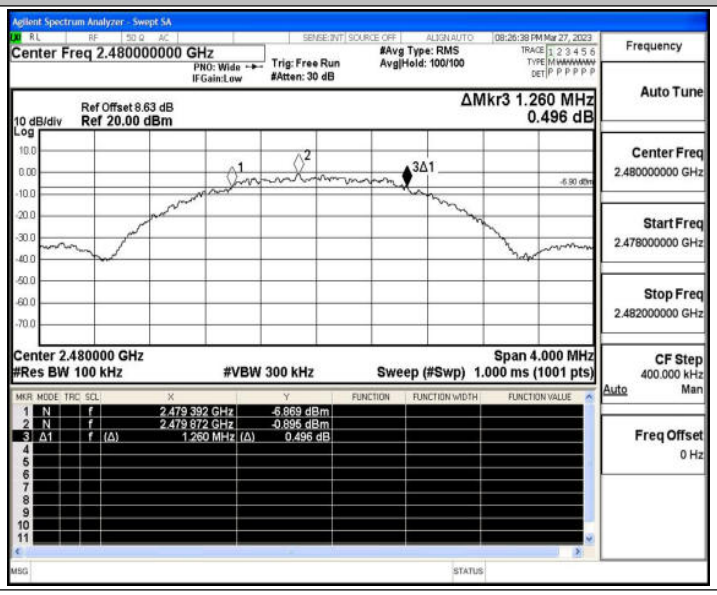
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



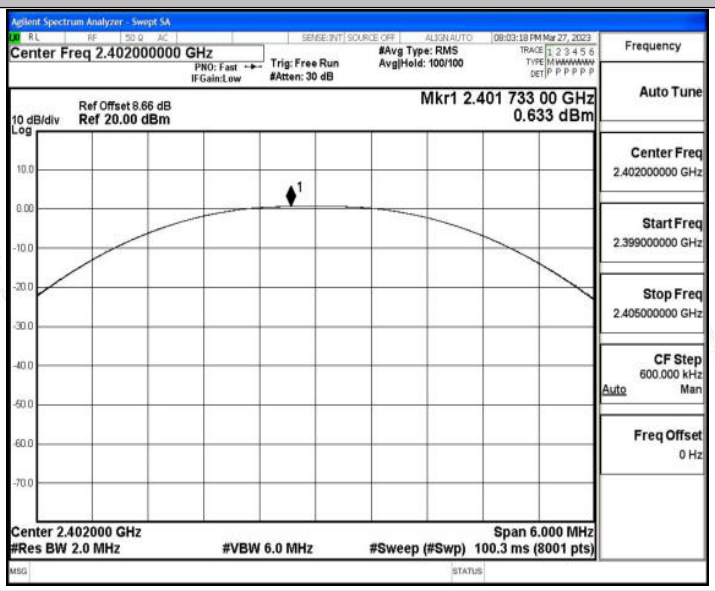
A.2 Maximum conducted output power

Test Result

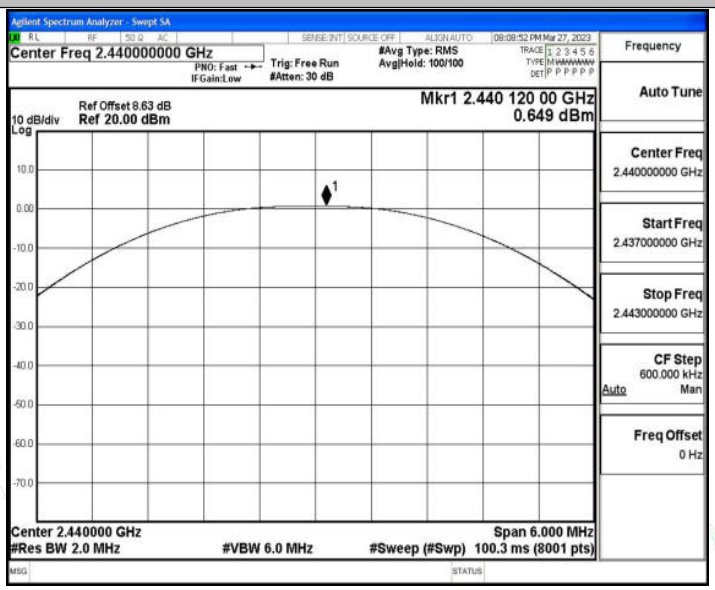
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.63	≤30	PASS
		2440	0.65	≤30	PASS
		2480	0.79	≤30	PASS
BLE_2M	Ant1	2402	0.74	≤30	PASS
		2440	0.77	≤30	PASS
		2480	0.89	≤30	PASS

Test Graphs

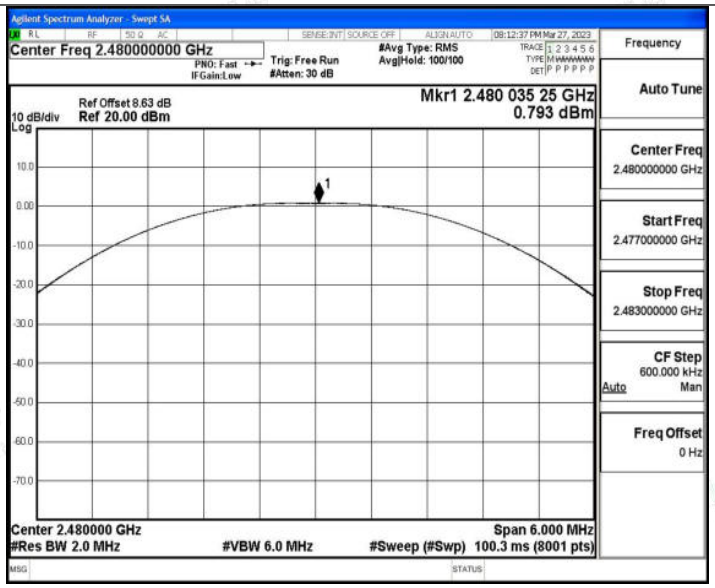
BLE_1M_Ant1_2402



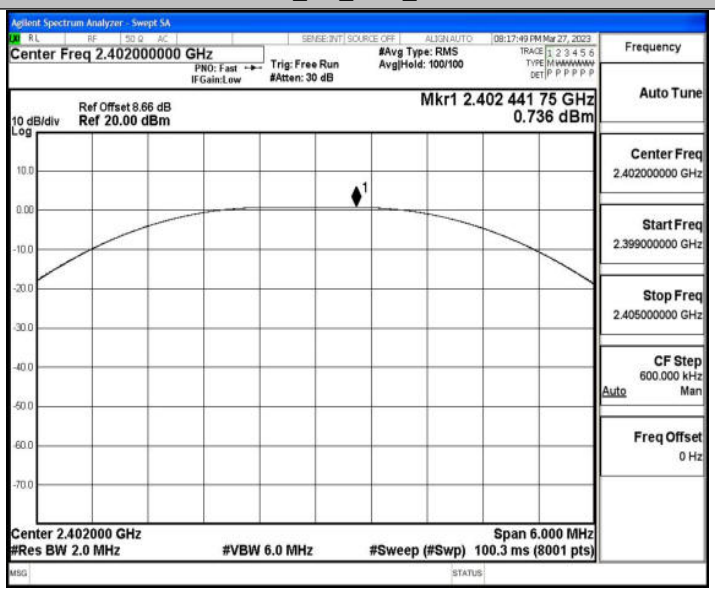
BLE_1M_Ant1_2440



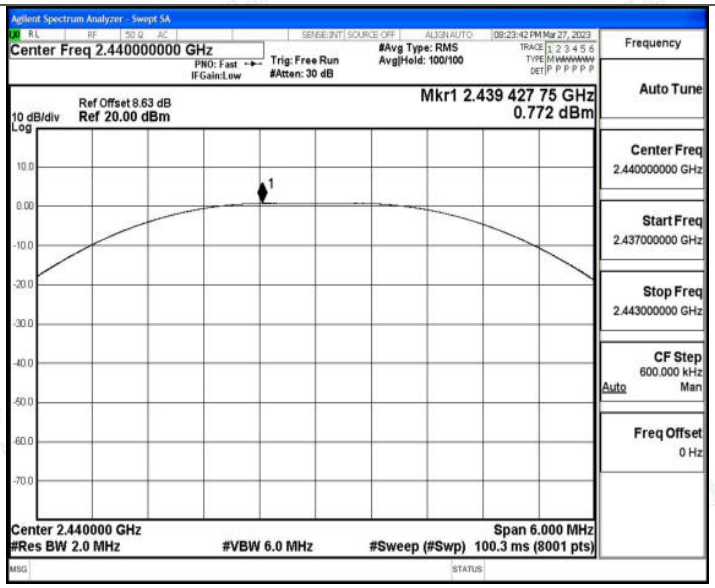
BLE_1M_Ant1_2480



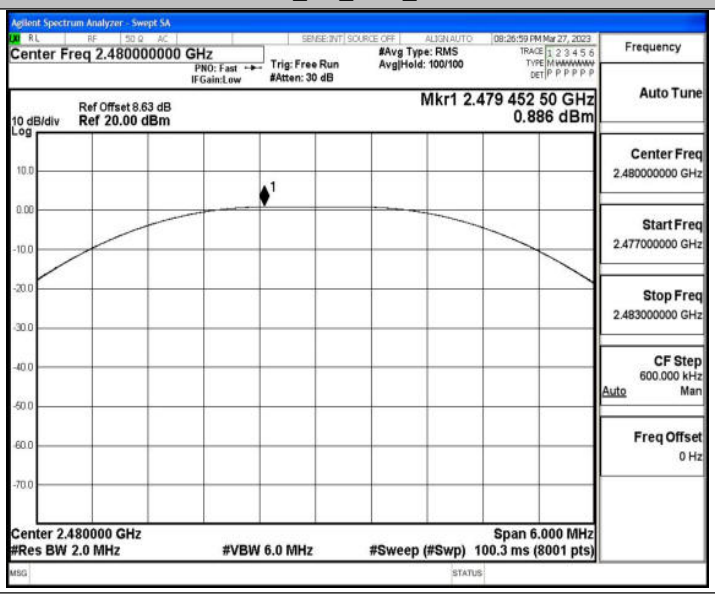
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



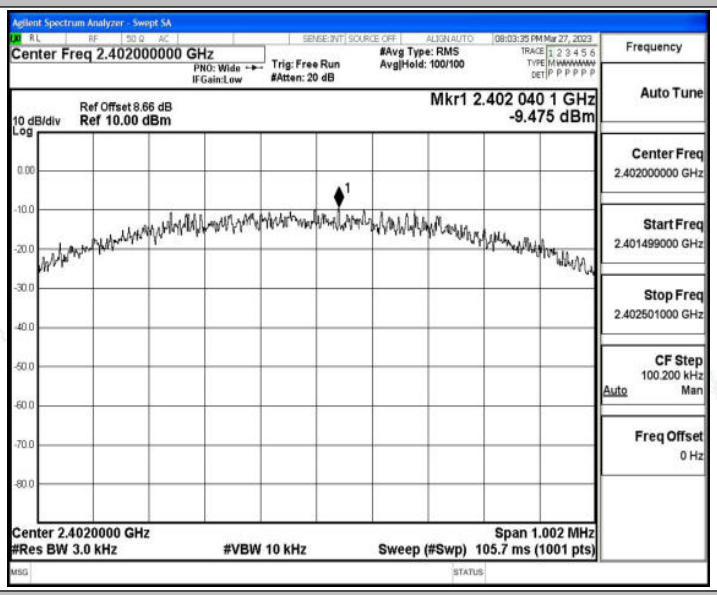
A.3 Maximum power spectral density

Test Result

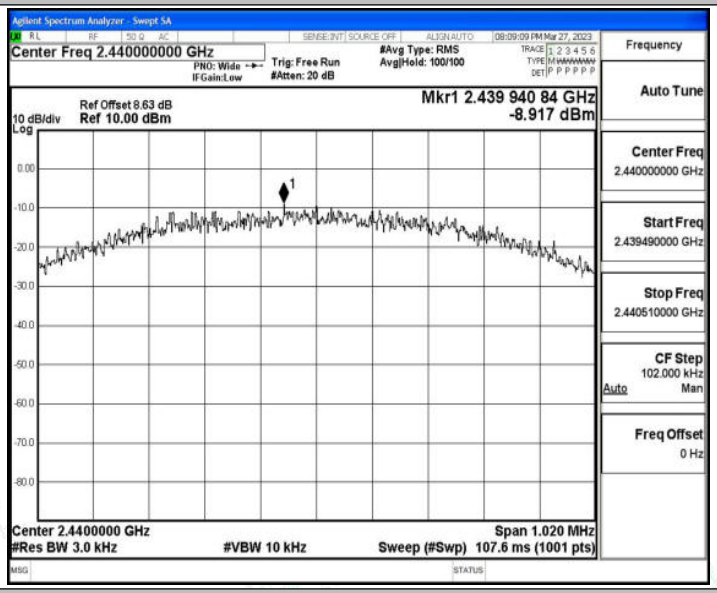
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.48	≤8.00	PASS
		2440	-8.92	≤8.00	PASS
		2480	-9.2	≤8.00	PASS
BLE_2M	Ant1	2402	-12.61	≤8.00	PASS
		2440	-10.34	≤8.00	PASS
		2480	-11.73	≤8.00	PASS

Test Graphs

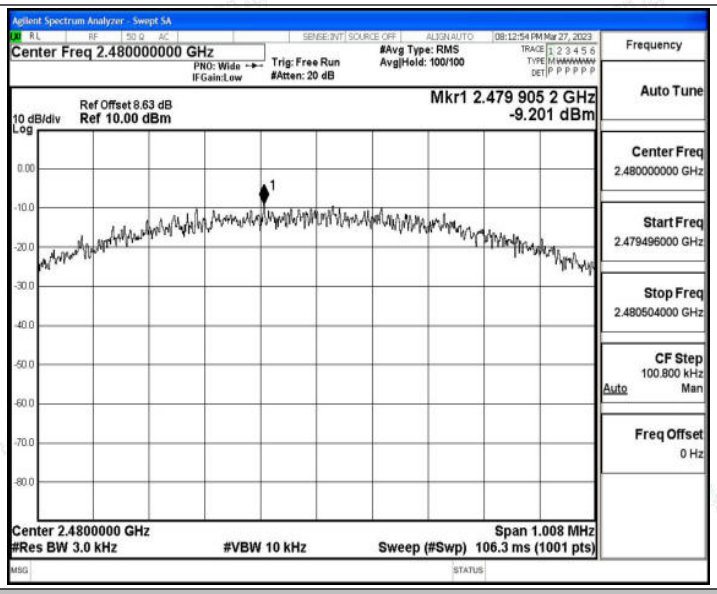
BLE_1M_Ant1_2402



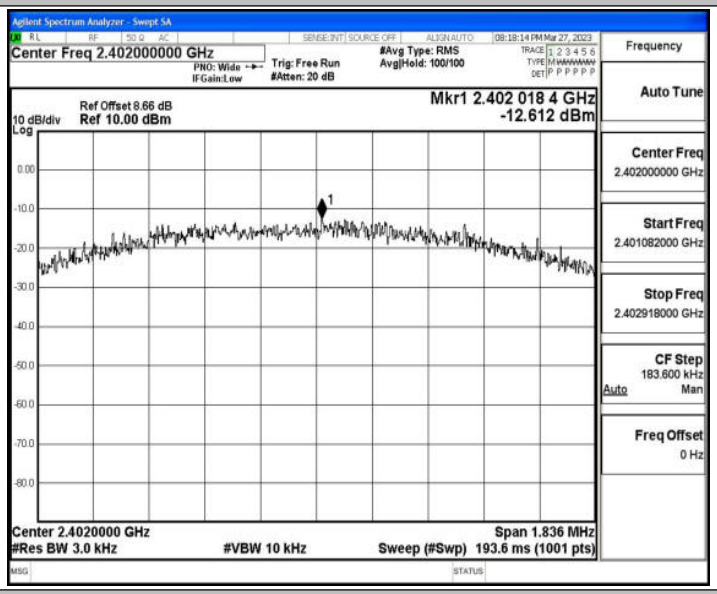
BLE_1M_Ant1_2440



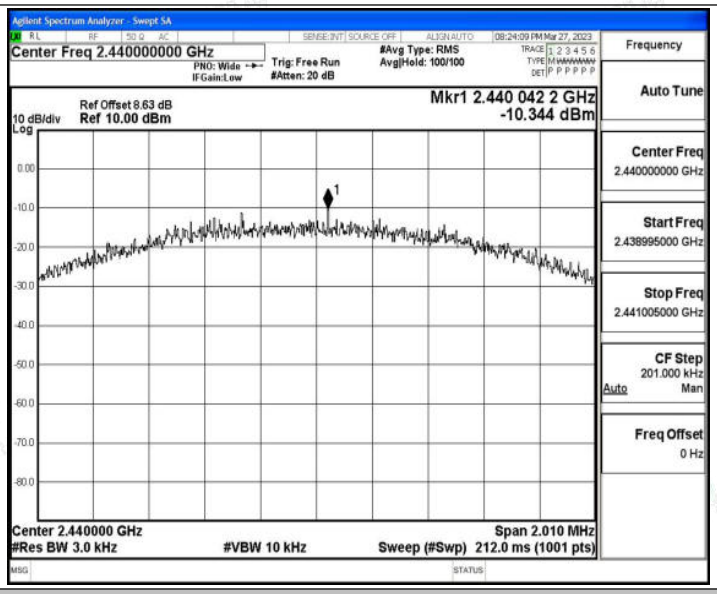
BLE_1M_Ant1_2480



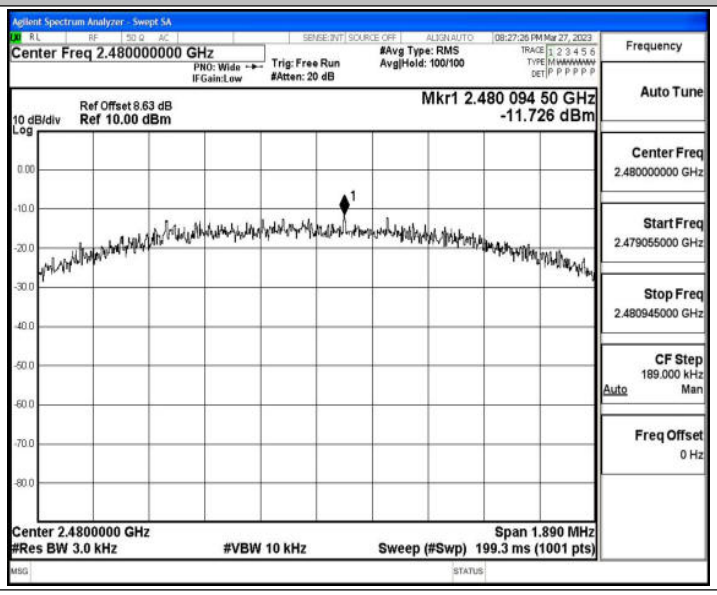
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



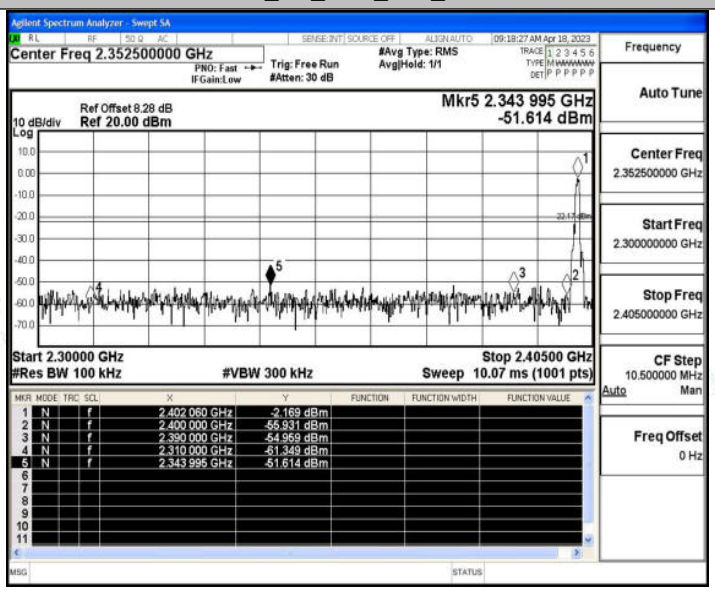
A.4 Band edge measurements

Test Result

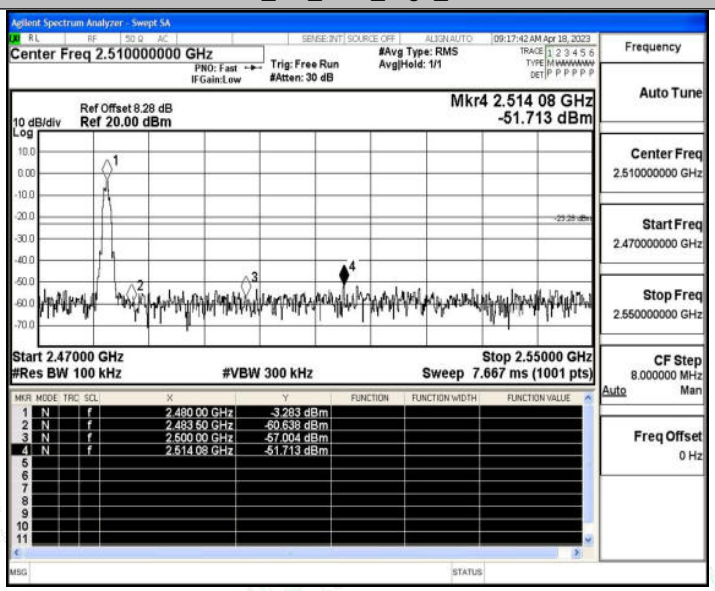
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-2.17	-51.61	≤-22.17	PASS
		High	2480	-3.28	-51.71	≤-23.28	PASS
BLE_2M	Ant1	Low	2402	-5.41	-39.11	≤-25.41	PASS
		High	2480	-4.18	-51.08	≤-24.18	PASS

Test Graphs

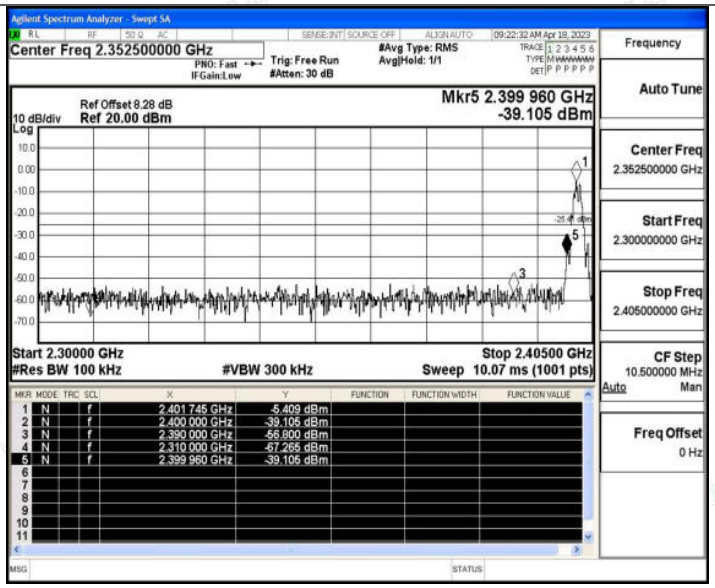
BLE_1M_Ant1_Low_2402



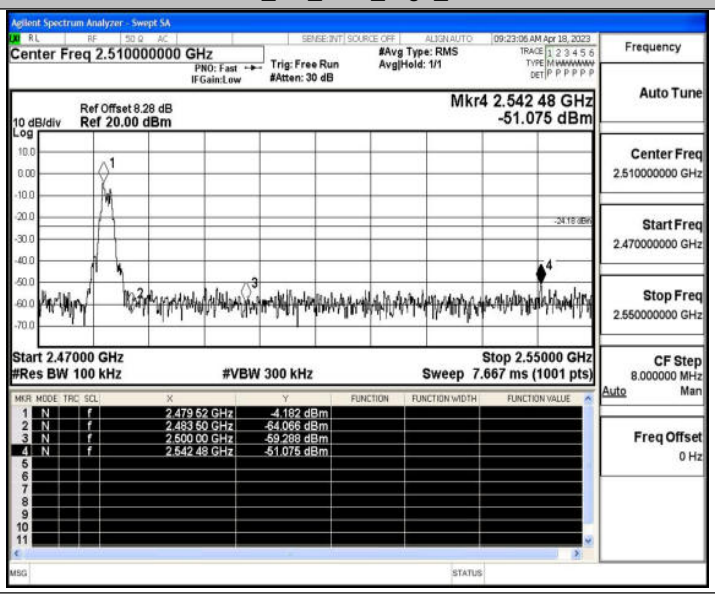
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



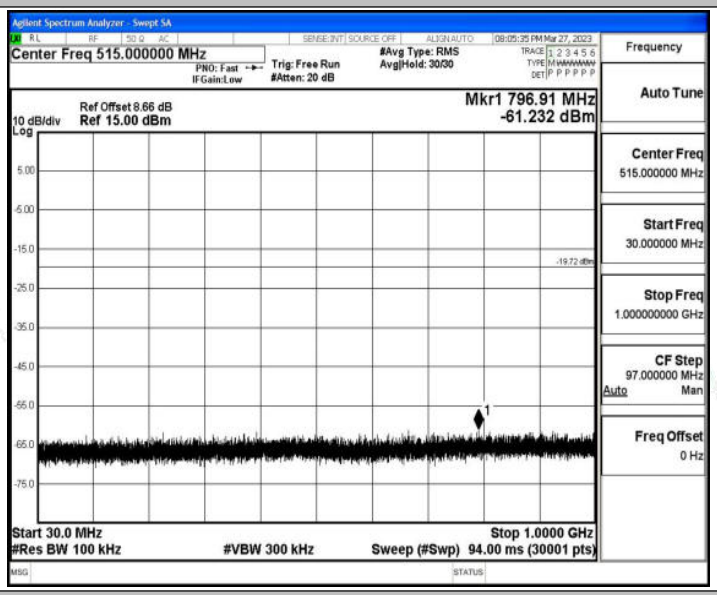
A.5 Conducted Spurious Emission

Test Result

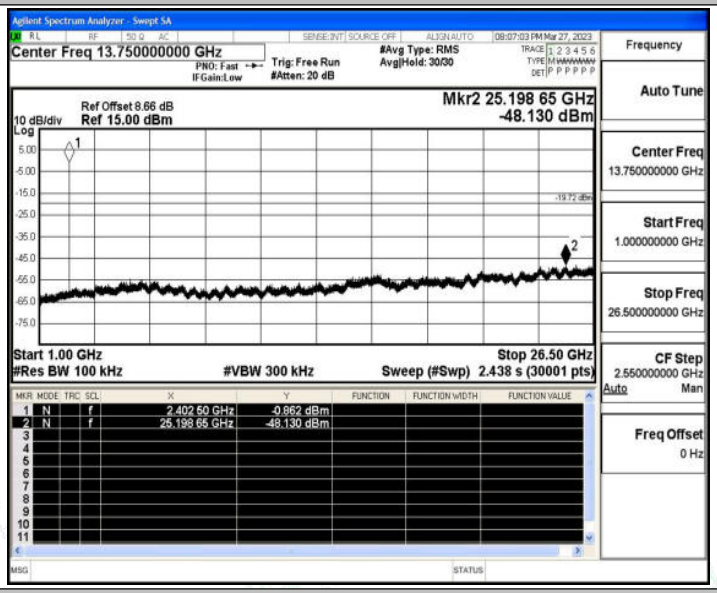
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~1000	0.28	-61.23	≤-19.72	PASS
			1000~26500	0.28	-48.13	≤-19.72	PASS
		2440	30~1000	0.25	-60.56	≤-19.75	PASS
			1000~26500	0.25	-48.04	≤-19.75	PASS
		2480	30~1000	0.32	-60.67	≤-19.68	PASS
			1000~26500	0.32	-48.41	≤-19.68	PASS
BLE_2M	Ant1	2402	30~1000	-1.32	-60.52	≤-21.32	PASS
			1000~26500	-1.32	-48.22	≤-21.32	PASS
		2440	30~1000	-1.18	-60.4	≤-21.18	PASS
			1000~26500	-1.18	-48.63	≤-21.18	PASS
		2480	30~1000	-1.82	-61.23	≤-21.82	PASS
			1000~26500	-1.82	-48.47	≤-21.82	PASS

Test Graphs

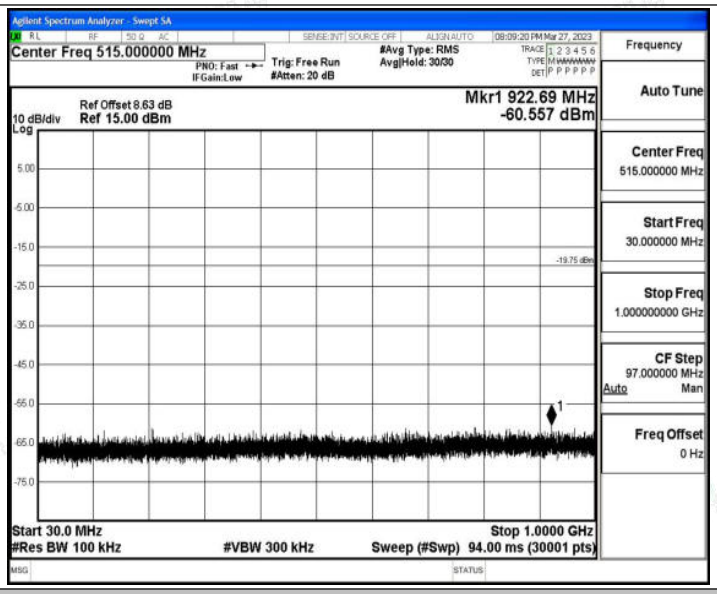
BLE_1M_Ant1_2402_30~1000



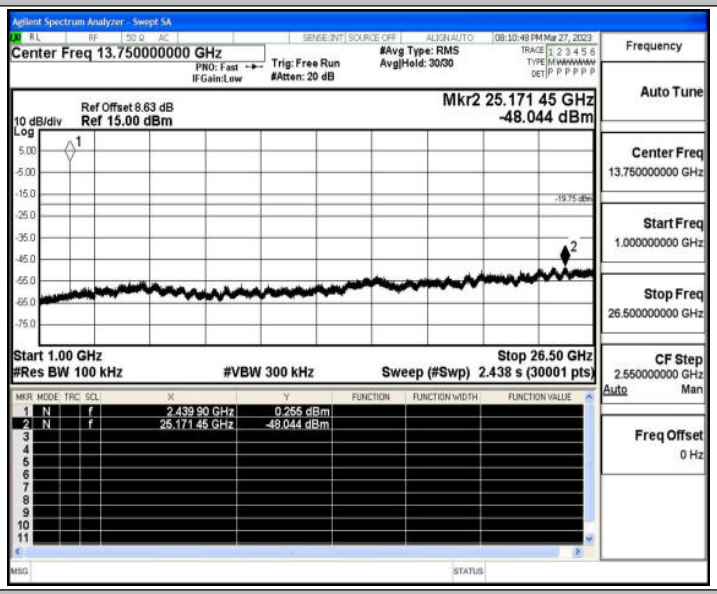
BLE_1M_Ant1_2402_1000~26500



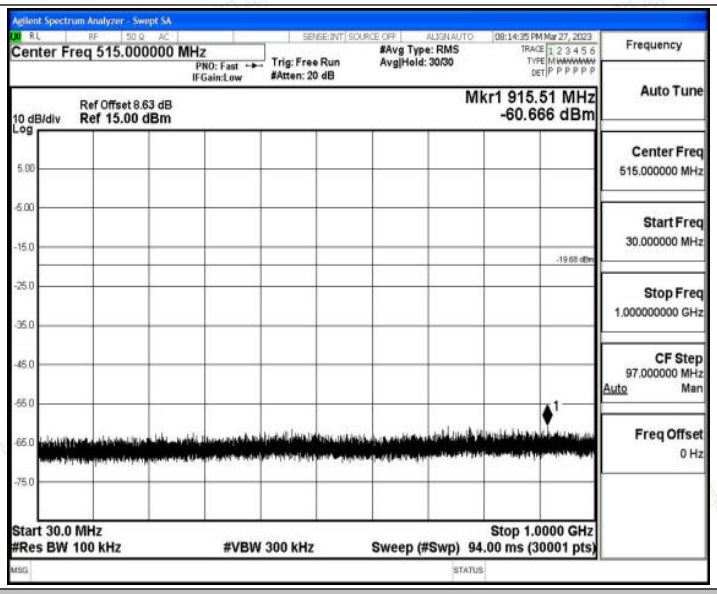
BLE_1M_Ant1_2440_30~1000



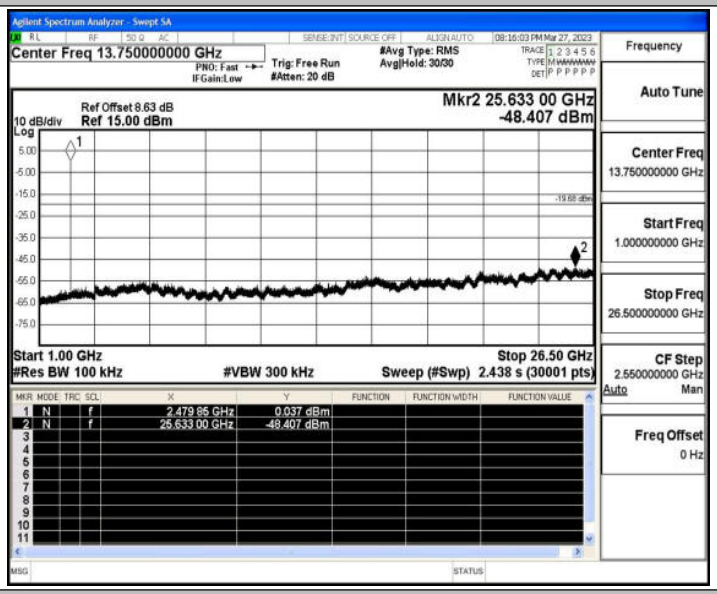
BLE_1M_Ant1_2440_1000~26500



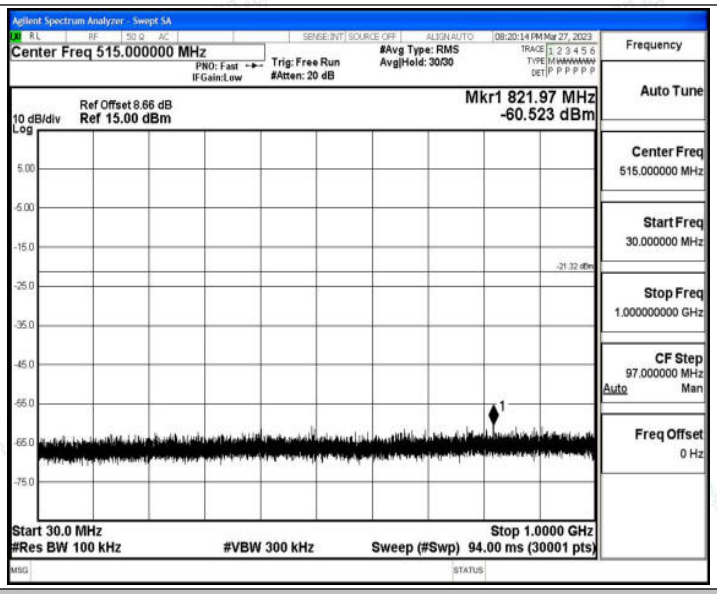
BLE_1M_Ant1_2480_30~1000



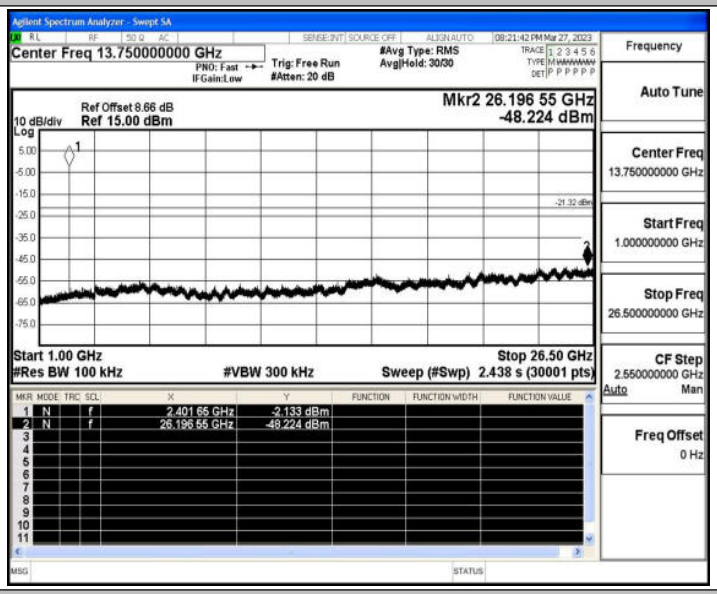
BLE_1M_Ant1_2480_1000~26500



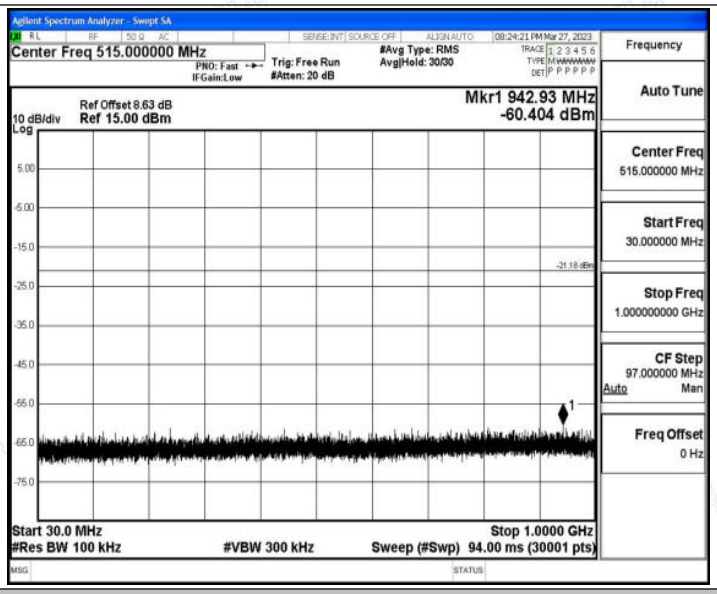
BLE_2M_Ant1_2402_30~1000



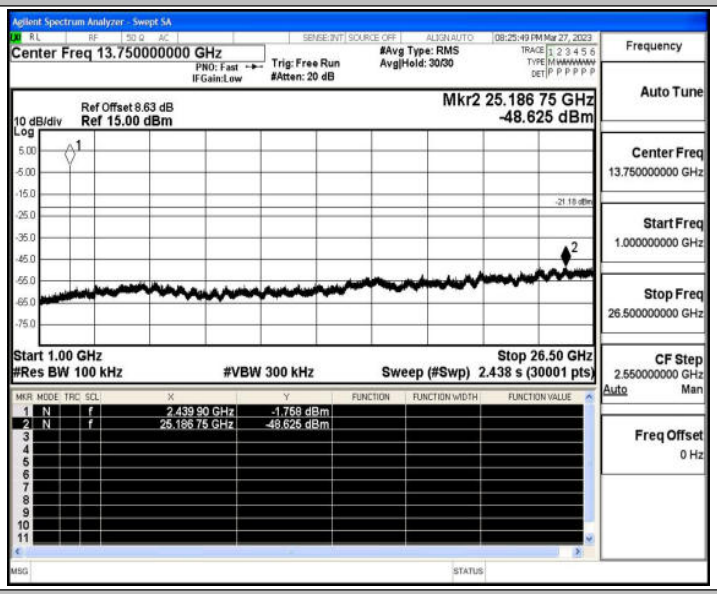
BLE_2M_Ant1_2402_1000~26500



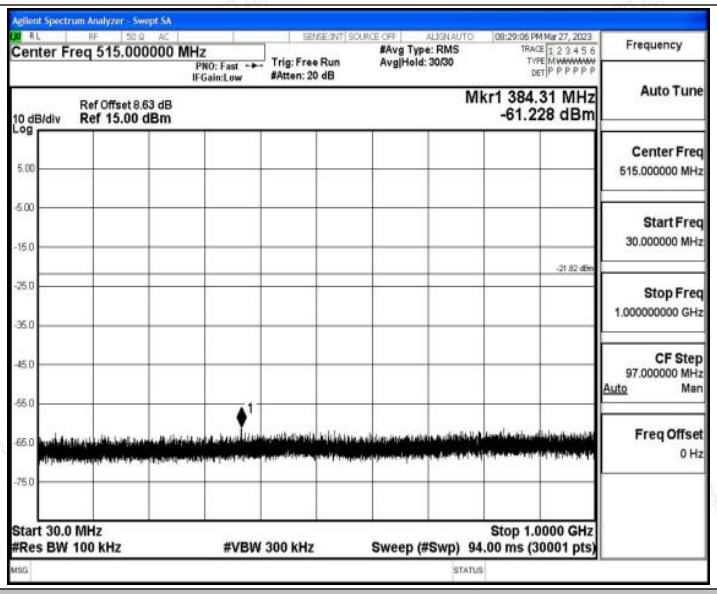
BLE_2M_Ant1_2440_30~1000



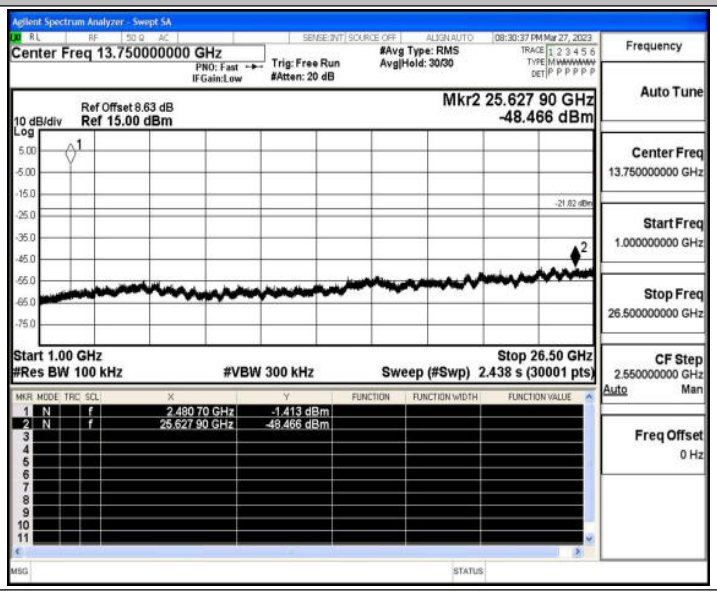
BLE_2M_Ant1_2440_1000~26500



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



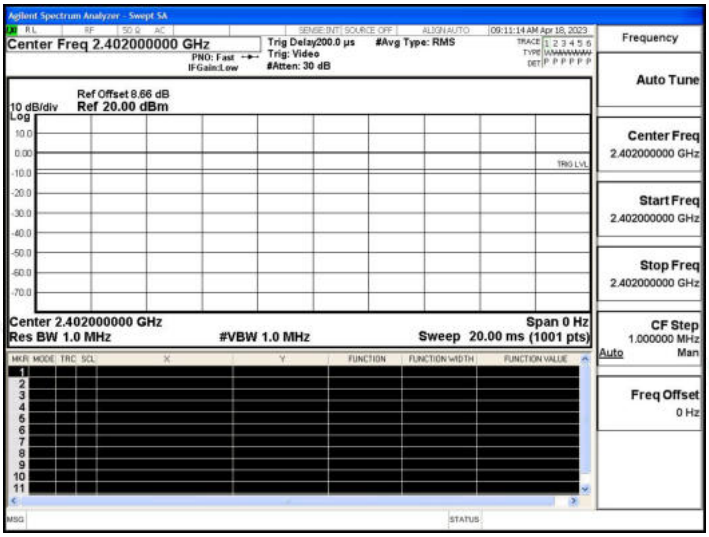
A.6 Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	1/T [kHz]
BLE_1M	Ant1	2402	20.00	20.00	100.00	0.01
		2440	20.00	20.00	100.00	0.01
		2480	20.00	20.00	100.00	0.01
BLE_2M	Ant1	2402	20.00	20.00	100.00	0.01
		2440	20.00	20.00	100.00	0.01
		2480	20.00	20.00	100.00	0.01

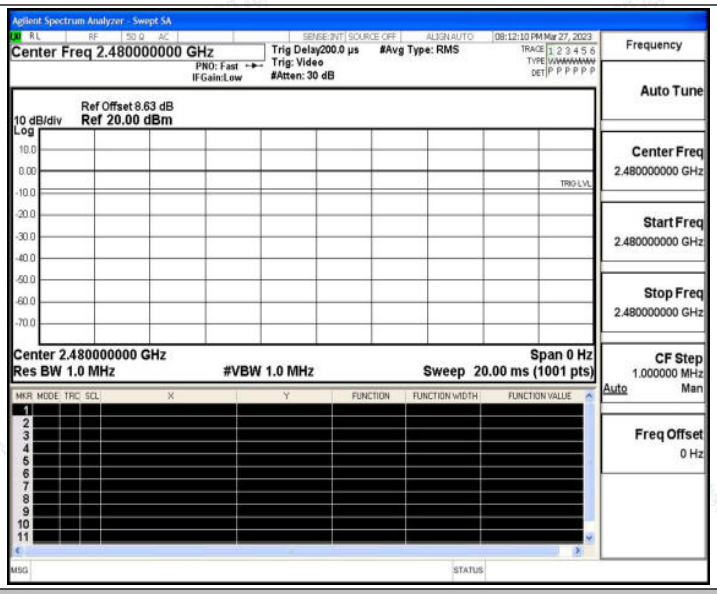
Test Graphs

BLE_1M_Ant1_2402

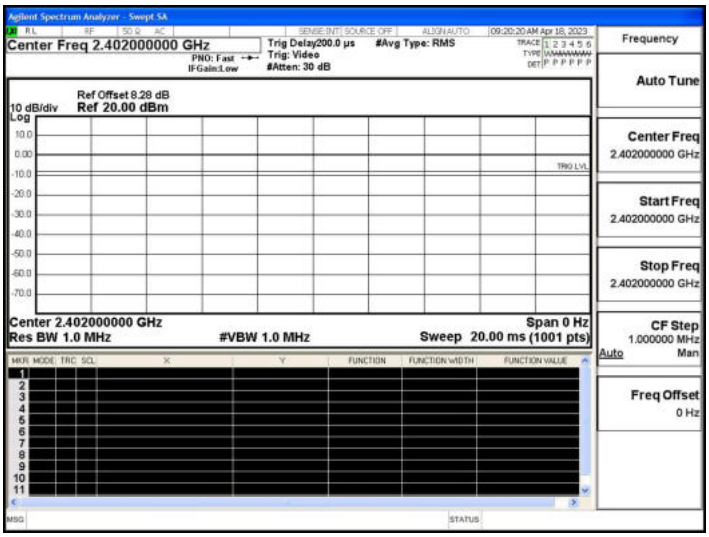


BLE_1M_Ant1_2440

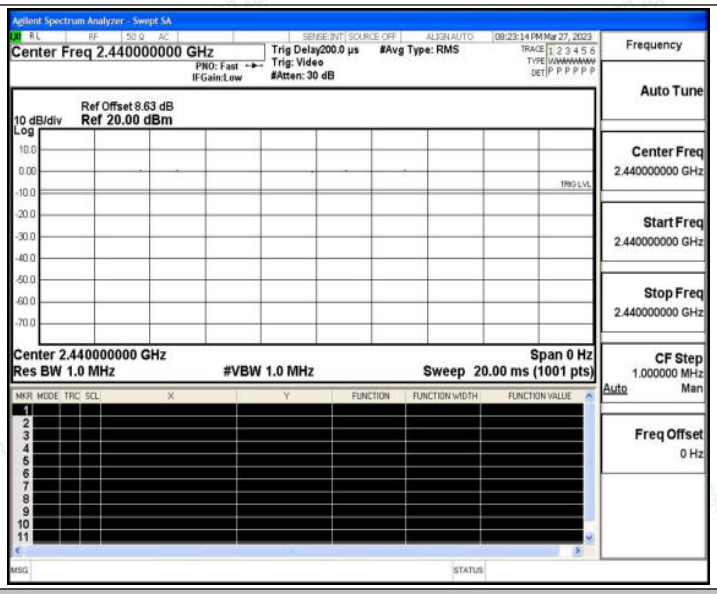
BLE_1M_Ant1_2480



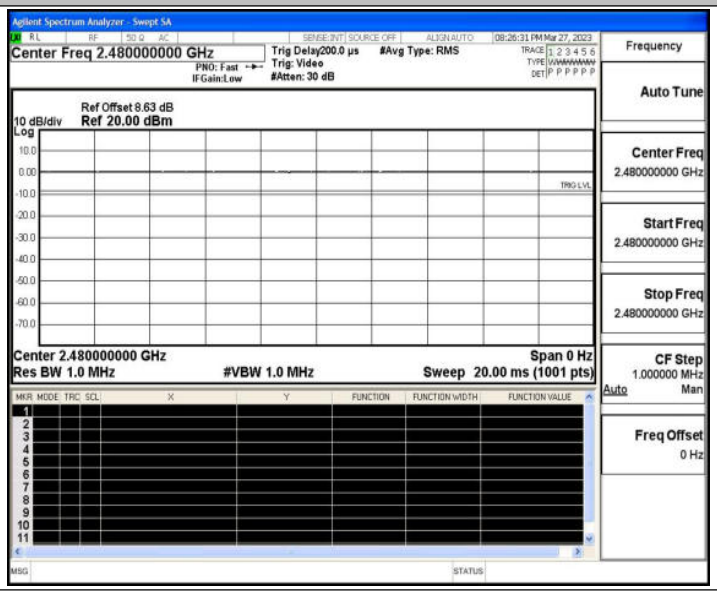
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



A.7 Emissions in Restricted Bands

Test Result

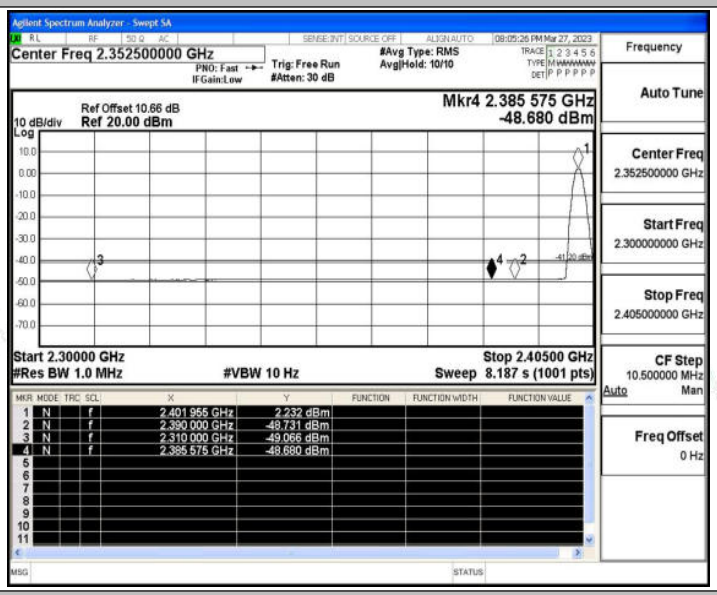
TestMode	Antenna	ChName	Frequency[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.07	≤-41.20	46.13	≤54	PASS
				AV	2385.575	-48.68	≤-41.20	46.52	≤54	PASS
				AV	2390.000	-48.73	≤-41.20	46.47	≤54	PASS
				Peak	2310.000	-44.79	≤-21.20	50.41	≤74	PASS
				Peak	2355.335	-37.83	≤-21.20	57.37	≤74	PASS
				Peak	2390.000	-44.09	≤-21.20	51.11	≤74	PASS
		High	2480	AV	2483.500	-48.09	≤-41.20	47.11	≤54	PASS
				AV	2483.520	-48.09	≤-41.20	47.11	≤54	PASS
				AV	2500.000	-48.56	≤-41.20	46.64	≤54	PASS
				Peak	2483.500	-43.36	≤-21.20	51.84	≤74	PASS
				Peak	2496.160	-39.18	≤-21.20	56.02	≤74	PASS
				Peak	2500.000	-41.59	≤-21.20	53.61	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-49.03	≤-41.20	46.17	≤54	PASS
				AV	2382.740	-48.66	≤-41.20	46.54	≤54	PASS
				AV	2390.000	-48.71	≤-41.20	46.49	≤54	PASS
				Peak	2310.000	-45.56	≤-21.20	49.64	≤74	PASS
				Peak	2346.095	-39.04	≤-21.20	56.16	≤74	PASS
				Peak	2390.000	-41.62	≤-21.20	53.58	≤74	PASS
		High	2480	AV	2483.500	-45.65	≤-41.20	49.55	≤54	PASS
				AV	2483.520	-45.65	≤-41.20	49.55	≤54	PASS
				AV	2500.000	-48.63	≤-41.20	46.57	≤54	PASS
				Peak	2483.500	-42.7	≤-21.20	52.50	≤74	PASS
				Peak	2492.880	-39.47	≤-21.20	55.73	≤74	PASS
				Peak	2500.000	-41.58	≤-21.20	53.62	≤74	PASS

Note:

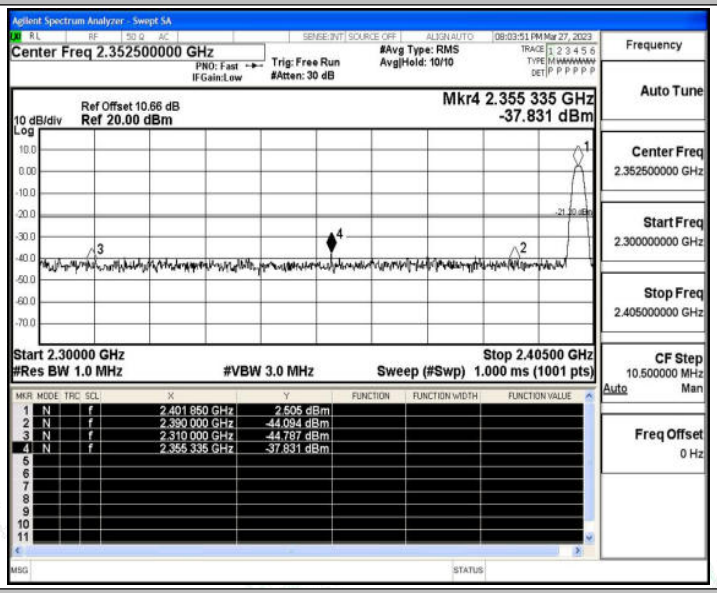
1. The Antenna Gain is compensated in the graph, The gains of antenna is 2.2dBi.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

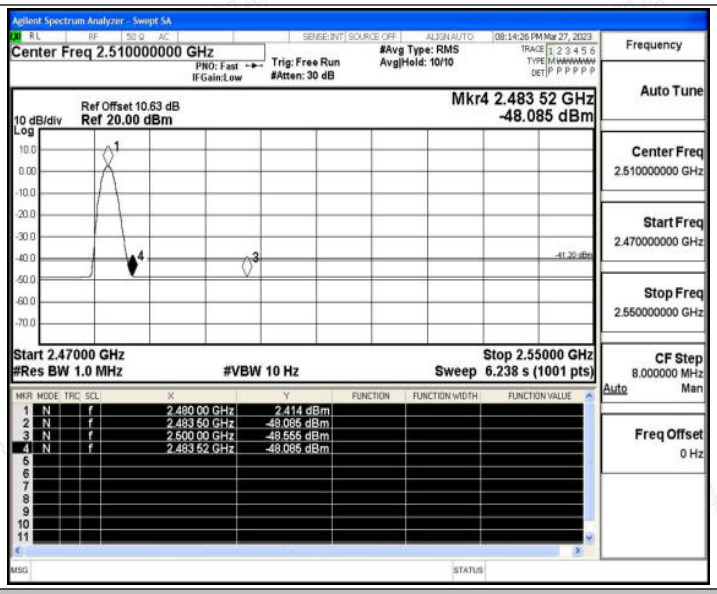
BLE_1M_Ant1_Low_2402_AV



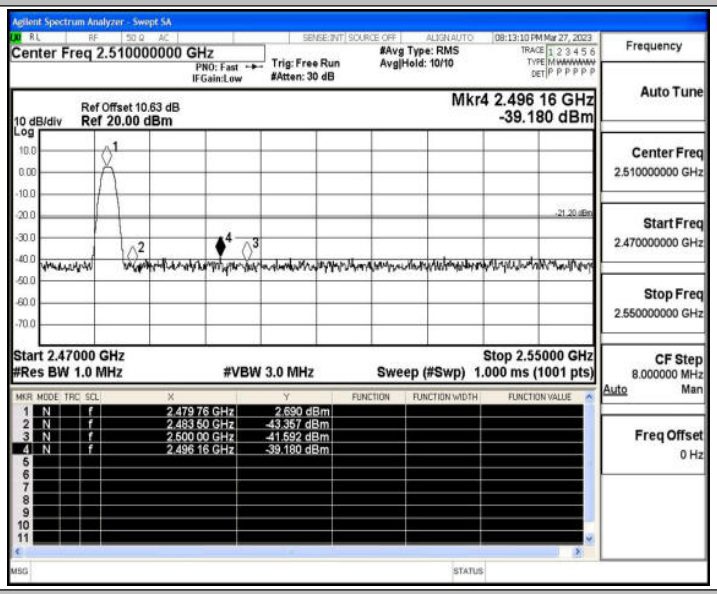
BLE_1M_Ant1_Low_2402_Peak



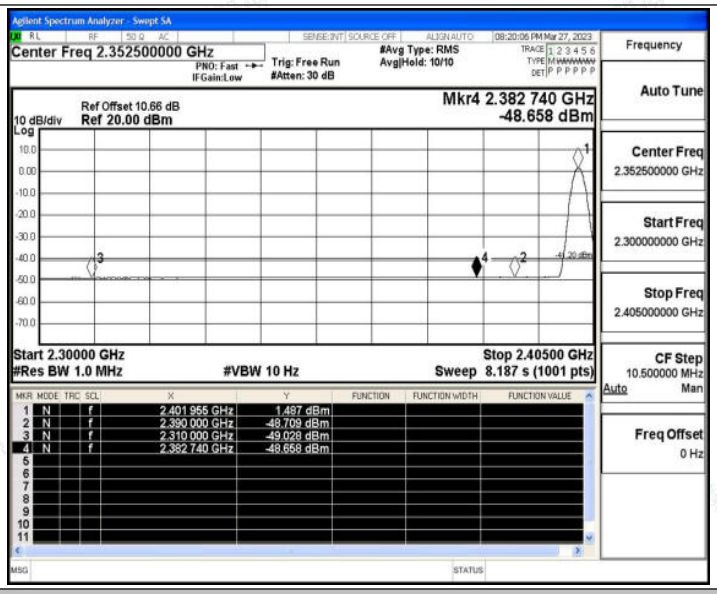
BLE_1M_Ant1_High_2480_AV



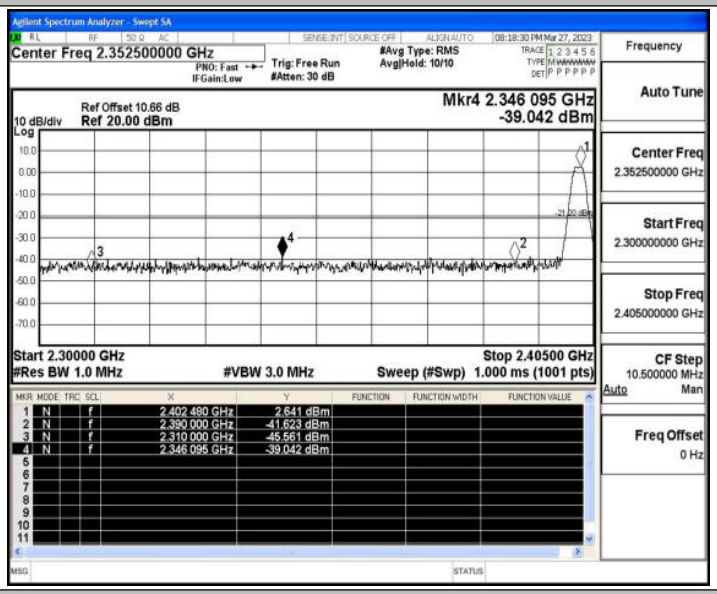
BLE_1M_Ant1_High_2480_Peak



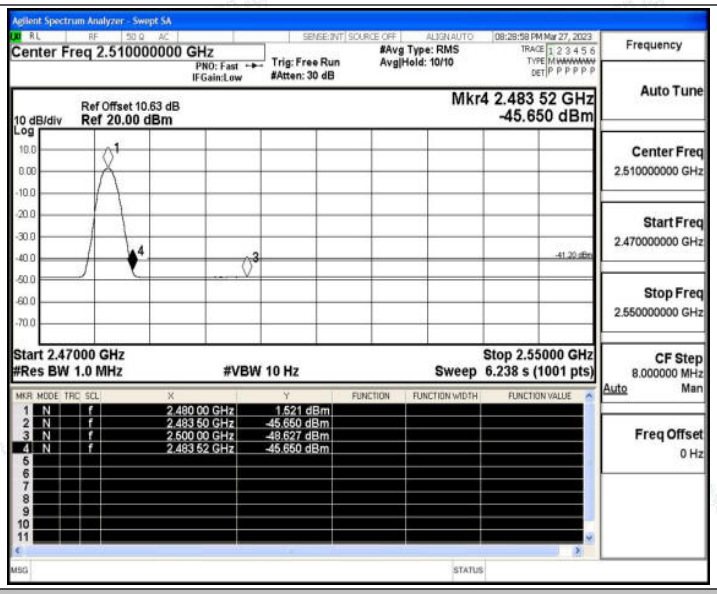
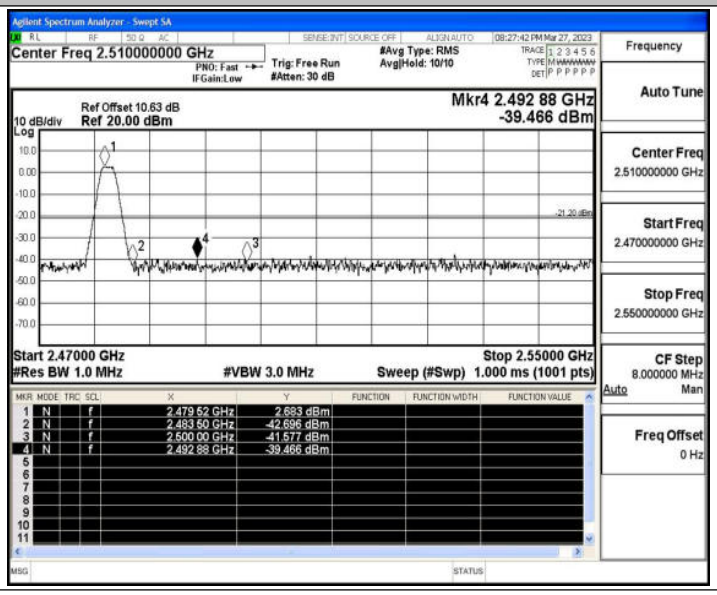
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak