Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: SPEAKER

Test Model: RA 1215

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker Hu
Supervised by:	Ling Zhu

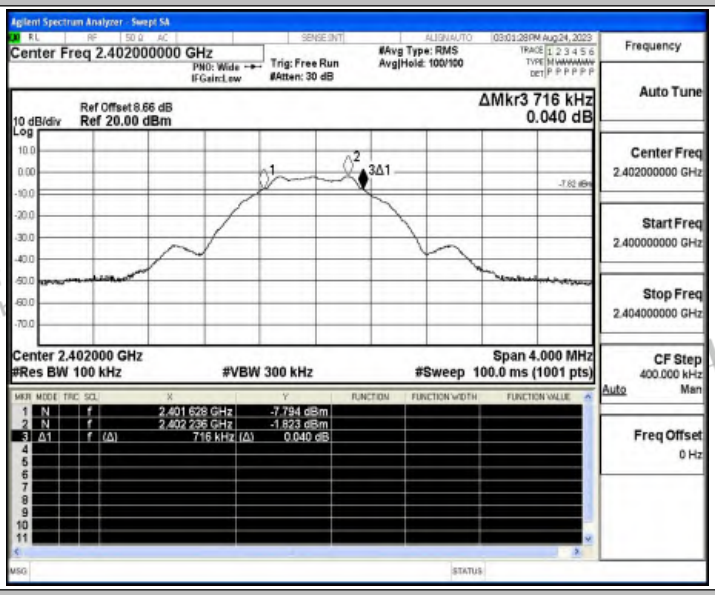
B.1 DTS Bandwidth

Test Result

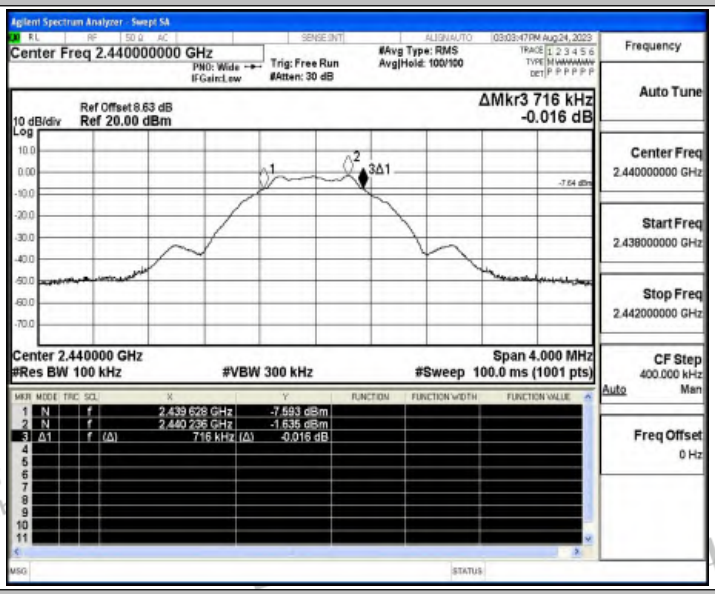
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.716	2401.628	2402.344	0.5	PASS
		2440	0.716	2439.628	2440.344	0.5	PASS
		2480	0.712	2479.632	2480.344	0.5	PASS
BLE_2M	Ant1	2402	1.148	2401.424	2402.572	0.5	PASS
		2440	1.144	2439.424	2440.568	0.5	PASS
		2480	1.144	2479.428	2480.572	0.5	PASS

Test Graphs

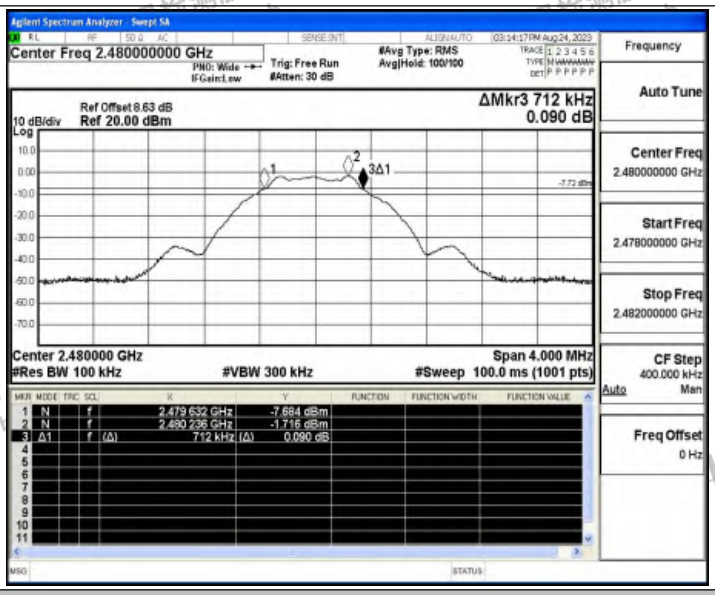
BLE_1M_Ant1_2402



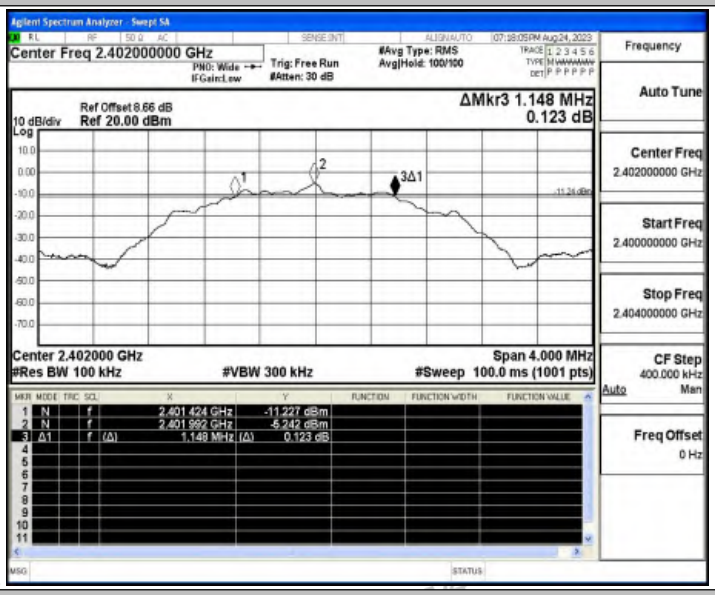
BLE_1M_Ant1_2440



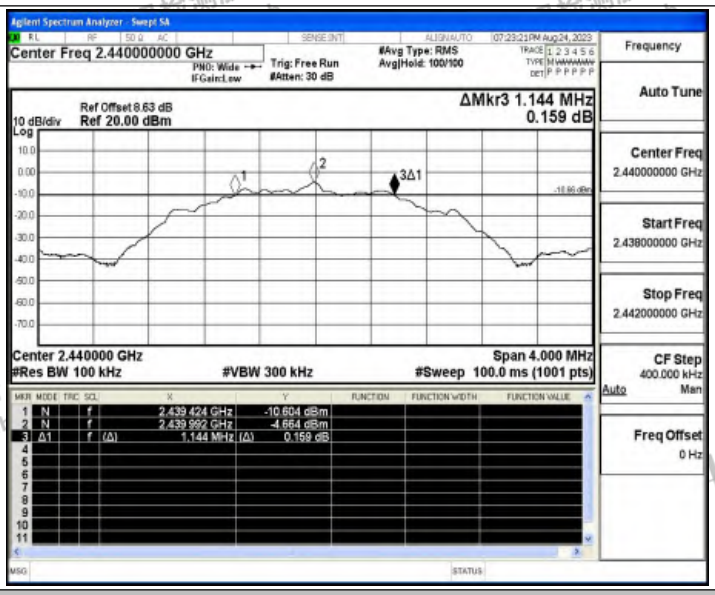
BLE_1M_Ant1_2480



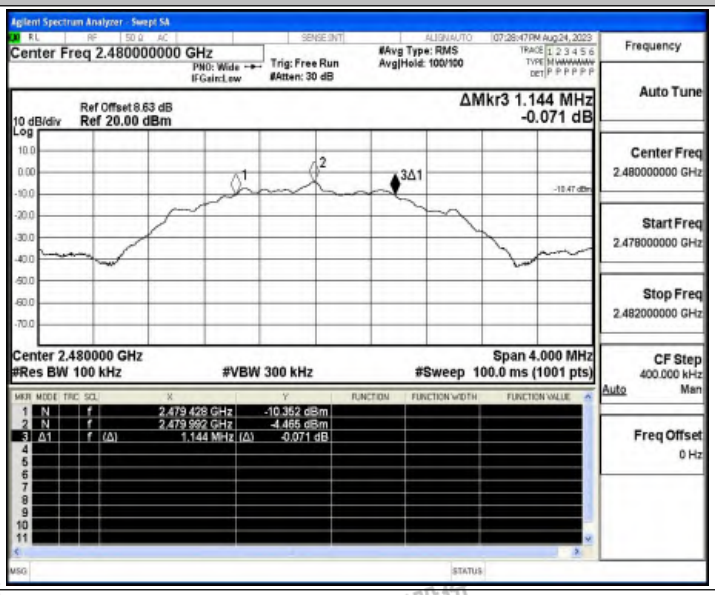
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



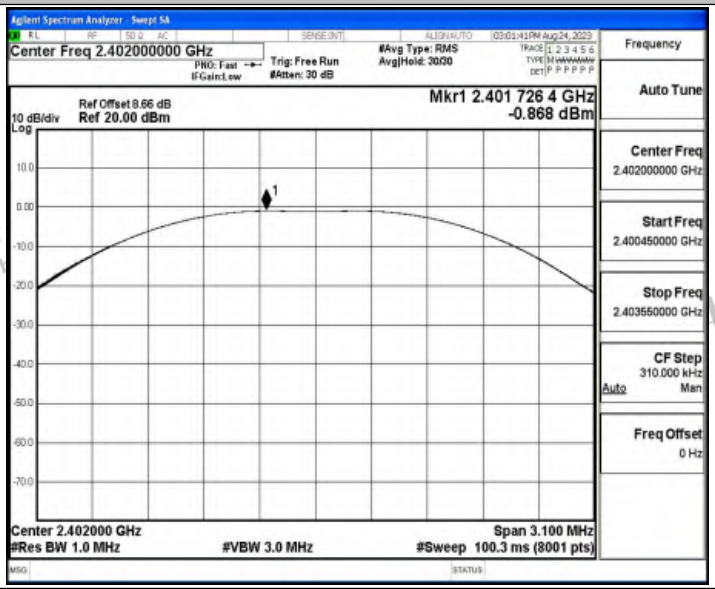
B.2 Maximum conducted output power

Test Result

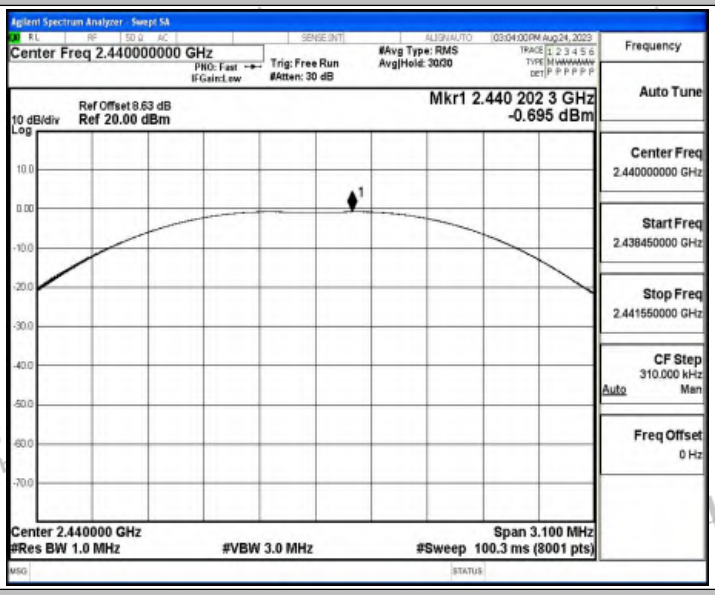
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.87	≤30	PASS
		2440	-0.7	≤30	PASS
		2480	-0.74	≤30	PASS
BLE_2M	Ant1	2402	-4.5	≤30	PASS
		2440	-3.93	≤30	PASS
		2480	-3.74	≤30	PASS

Test Graphs

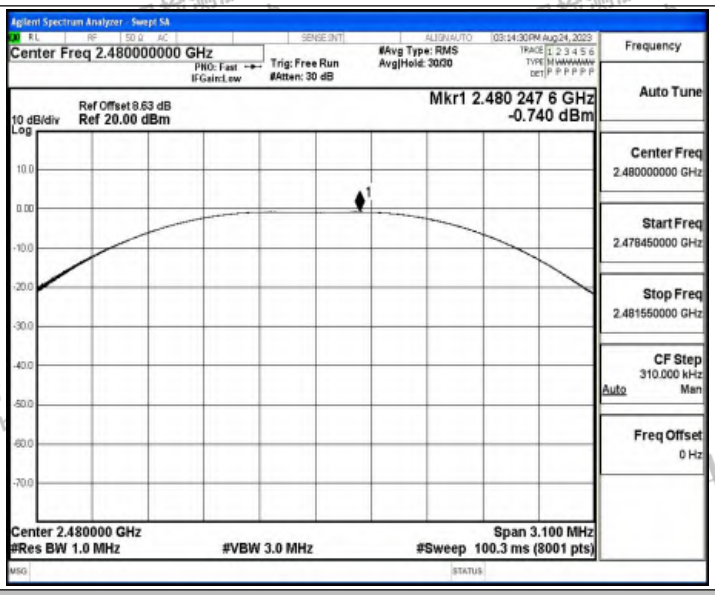
BLE_1M_Ant1_2402



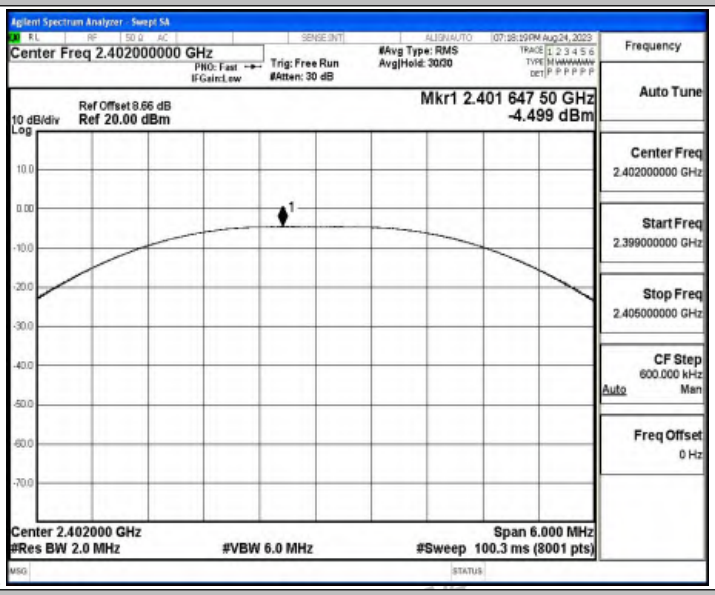
BLE_1M_Ant1_2440



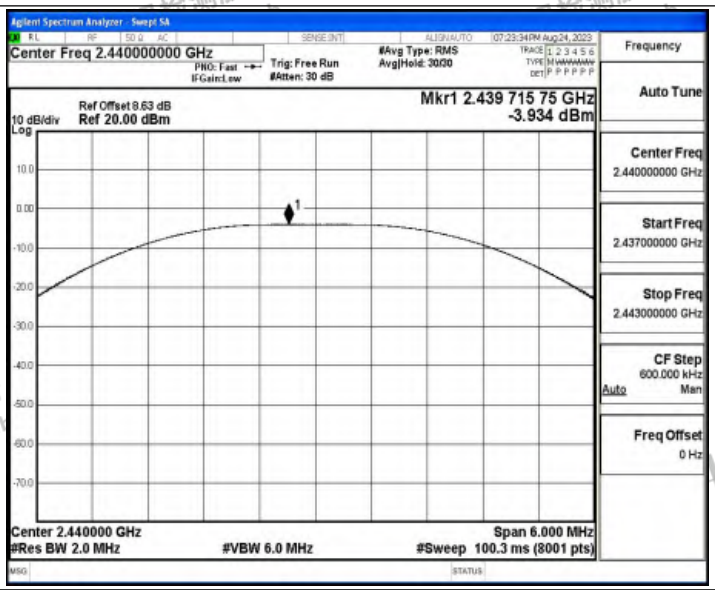
BLE_1M_Ant1_2480



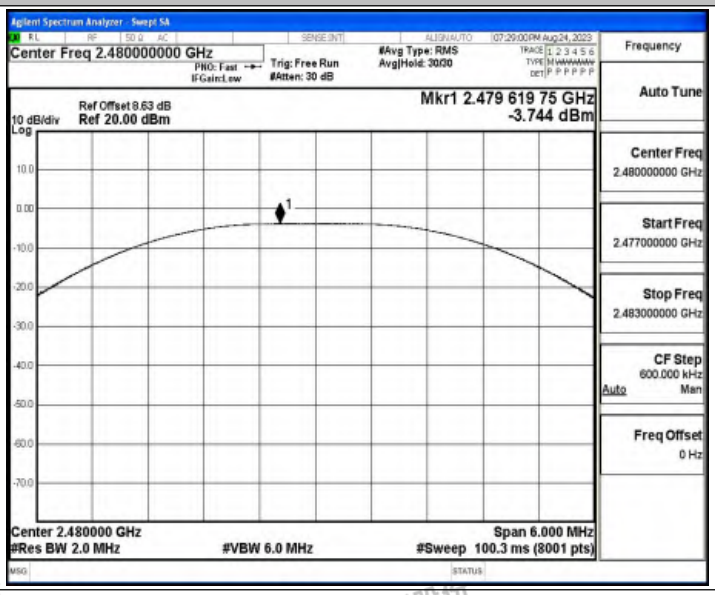
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



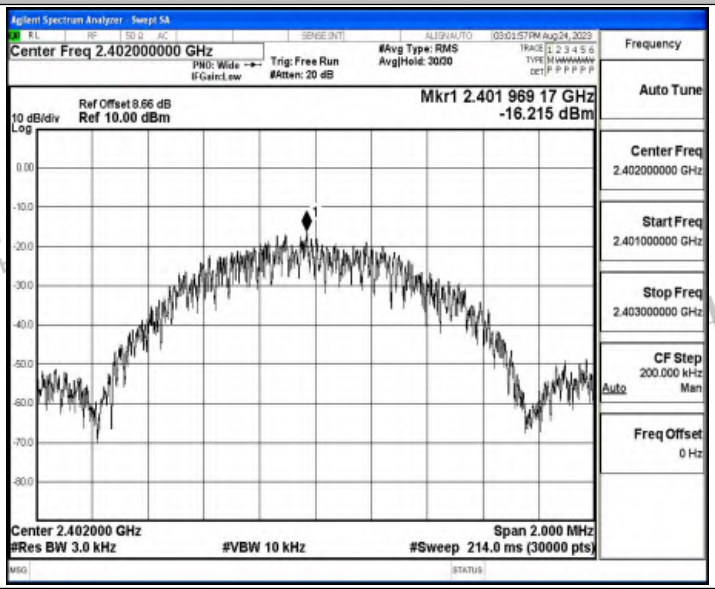
B.3 Maximum power spectral density

Test Result

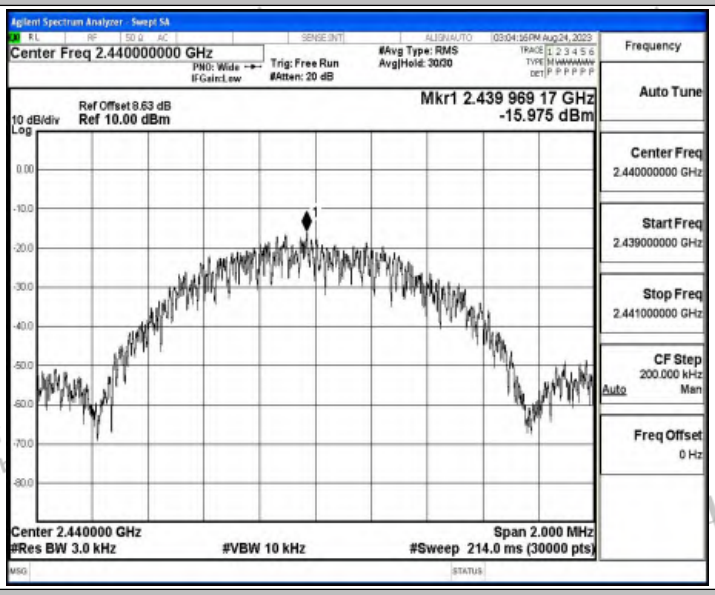
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.22	≤8.00	PASS
		2440	-15.98	≤8.00	PASS
		2480	-16.07	≤8.00	PASS
BLE_2M	Ant1	2402	-21.93	≤8.00	PASS
		2440	-21.23	≤8.00	PASS
		2480	-21.1	≤8.00	PASS

Test Graphs

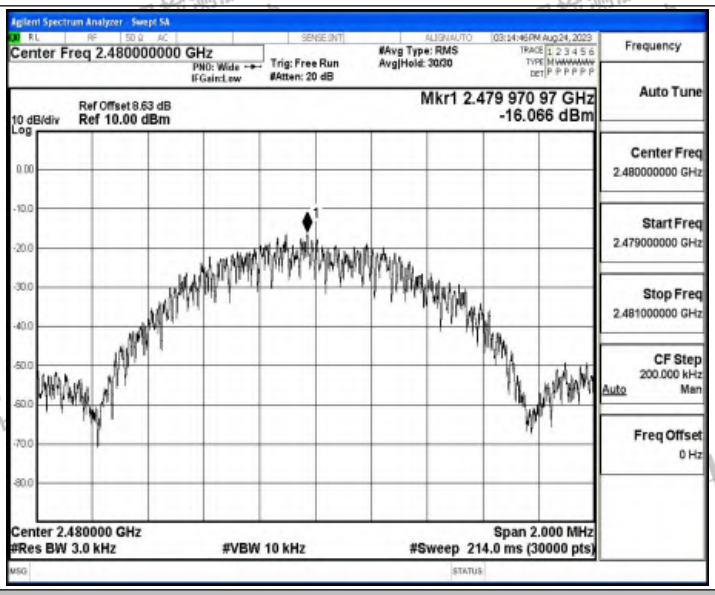
BLE_1M_Ant1_2402



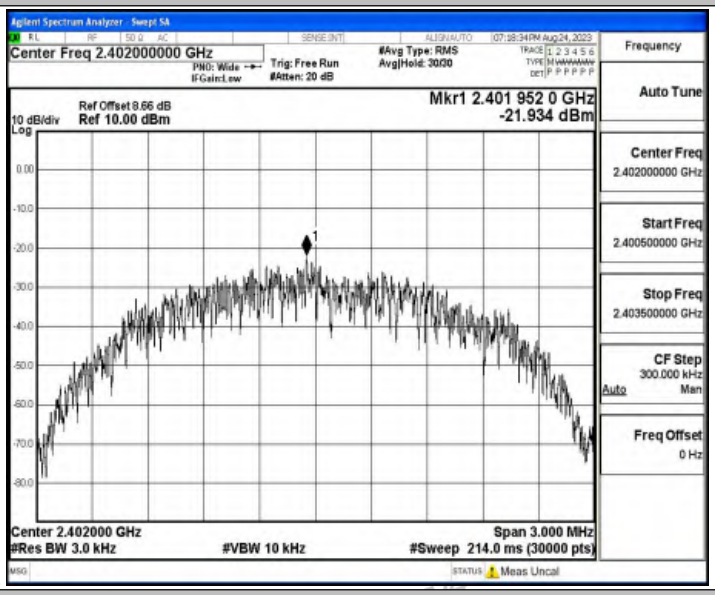
BLE_1M_Ant1_2440



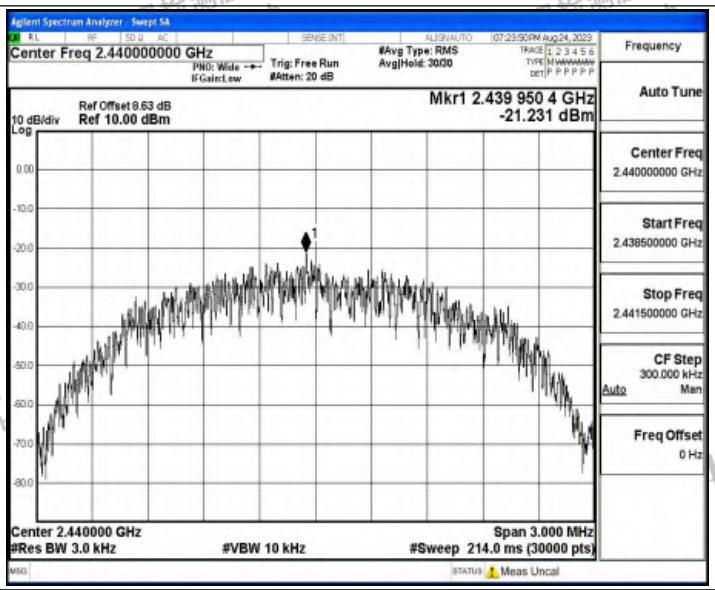
BLE_1M_Ant1_2480



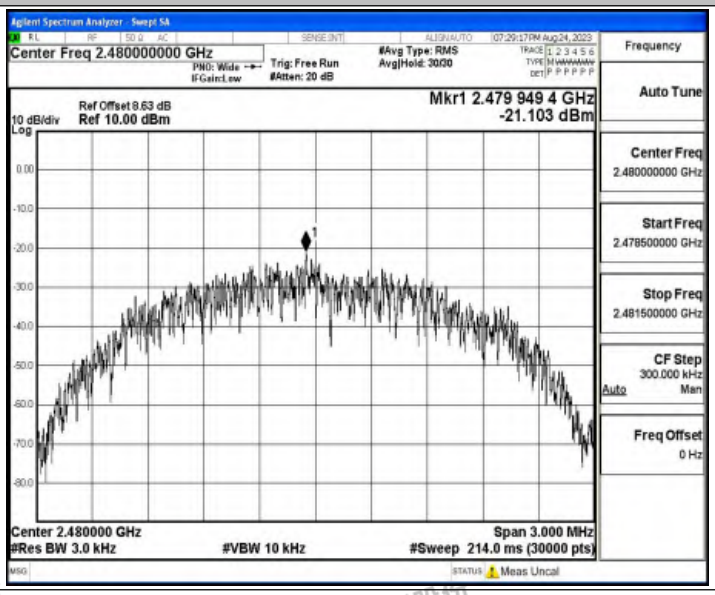
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



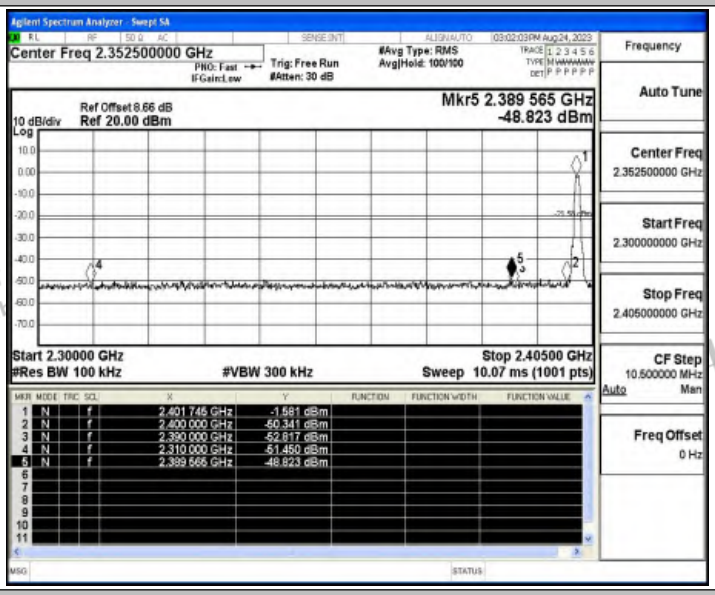
B.4 Band edge measurements

Test Result

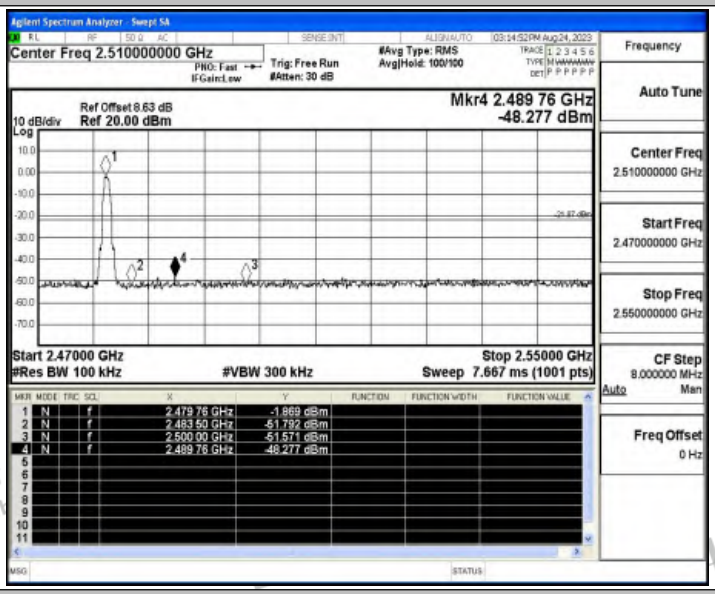
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.58	-48.82	≤-21.58	PASS
		High	2480	-1.87	-48.28	≤-21.87	PASS
BLE_2M	Ant1	Low	2402	-5.17	-38.67	≤-25.17	PASS
		High	2480	-4.38	-48.47	≤-24.38	PASS

Test Graphs

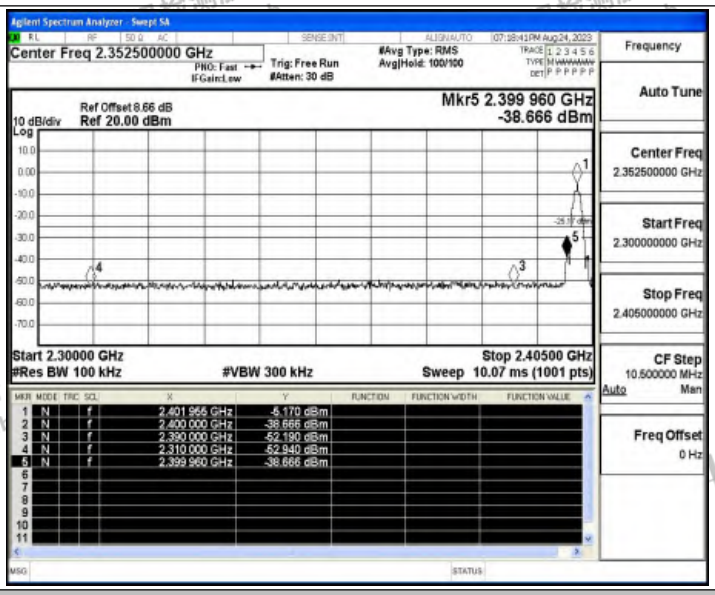
BLE_1M_Ant1_Low_2402



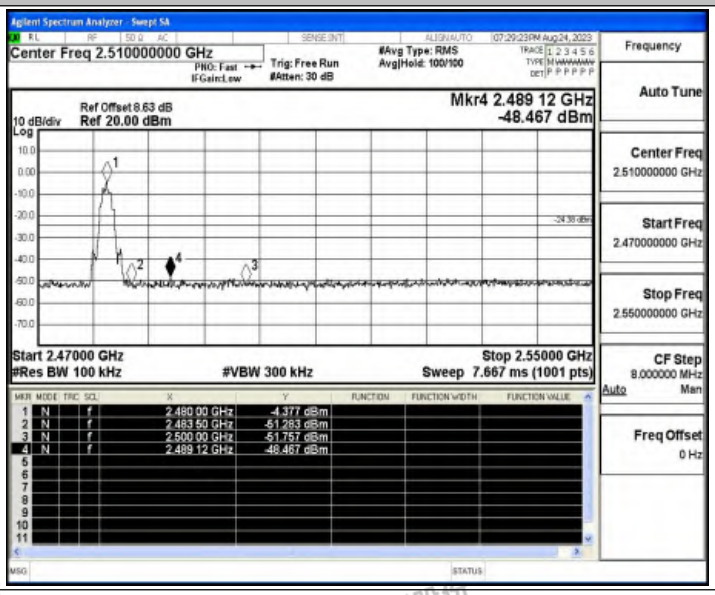
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



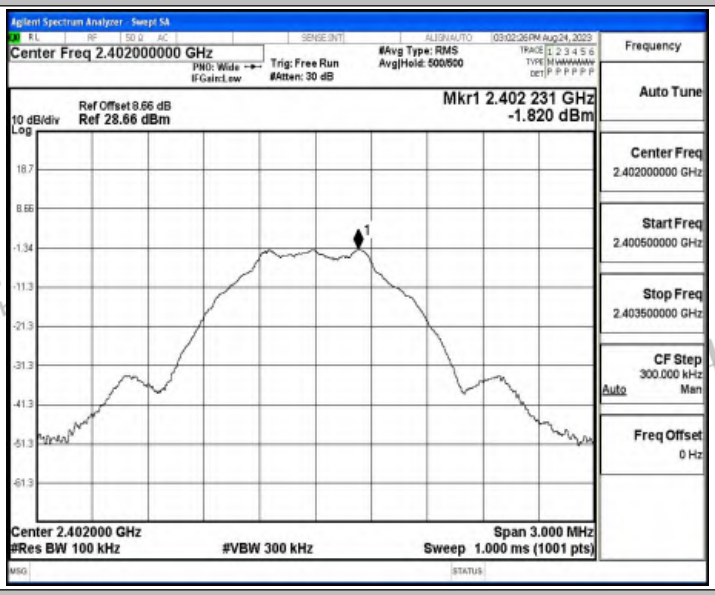
B.5 Conducted Spurious Emission

Test Result

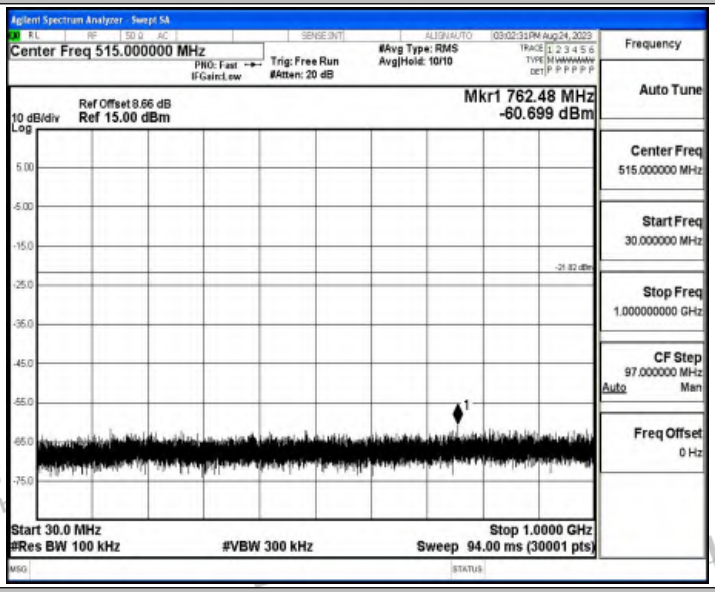
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.82	-1.82	---	PASS
			30~1000	-1.82	-60.7	≤-21.82	PASS
			1000~26500	-1.82	-47.07	≤-21.82	PASS
		2440	Reference	-1.62	-1.62	---	PASS
			30~1000	-1.62	-61.5	≤-21.62	PASS
			1000~26500	-1.62	-46.5	≤-21.62	PASS
		2480	Reference	-1.70	-1.70	---	PASS
			30~1000	-1.70	-60.98	≤-21.7	PASS
			1000~26500	-1.70	-46.79	≤-21.7	PASS
BLE_2M	Ant1	2402	Reference	-5.38	-5.38	---	PASS
			30~1000	-5.38	-61.16	≤-25.38	PASS
			1000~26500	-5.38	-46.45	≤-25.38	PASS
		2440	Reference	-4.72	-4.72	---	PASS
			30~1000	-4.72	-61.56	≤-24.72	PASS
			1000~26500	-4.72	-46.46	≤-24.72	PASS
		2480	Reference	-4.49	-4.49	---	PASS
			30~1000	-4.49	-60.74	≤-24.49	PASS
			1000~26500	-4.49	-46.53	≤-24.49	PASS

Test Graphs

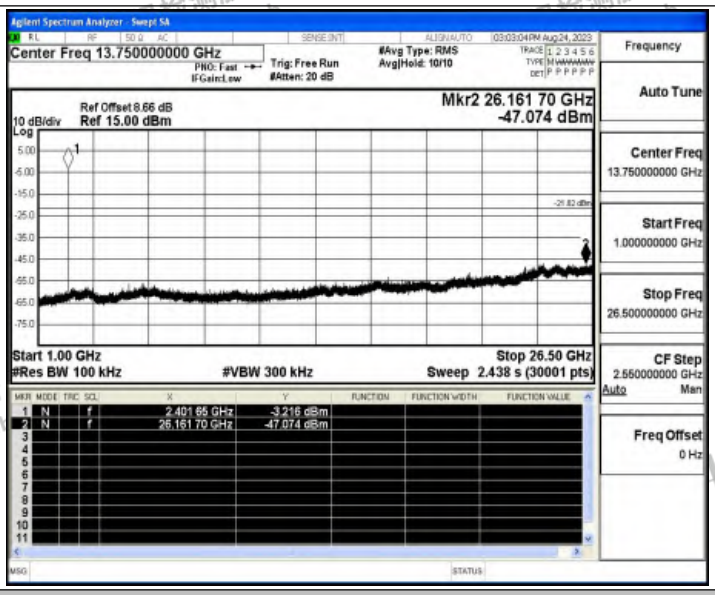
BLE_1M_Ant1_2402_0~Reference



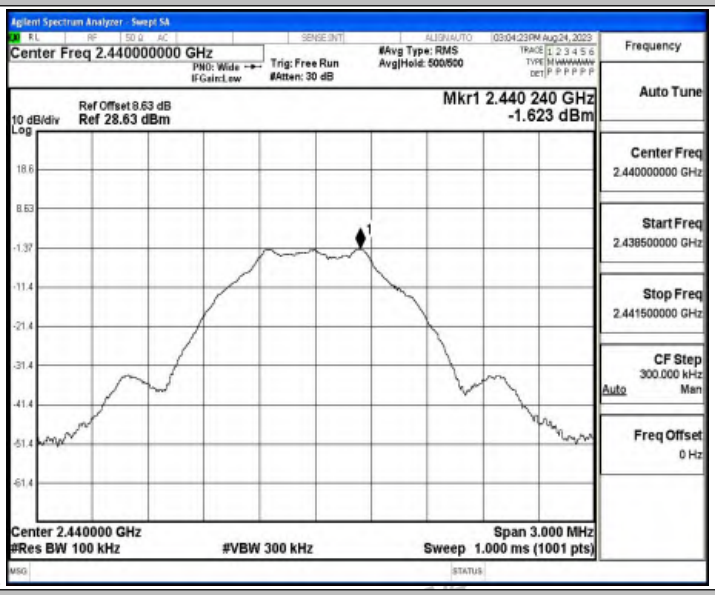
BLE_1M_Ant1_2402_30~1000



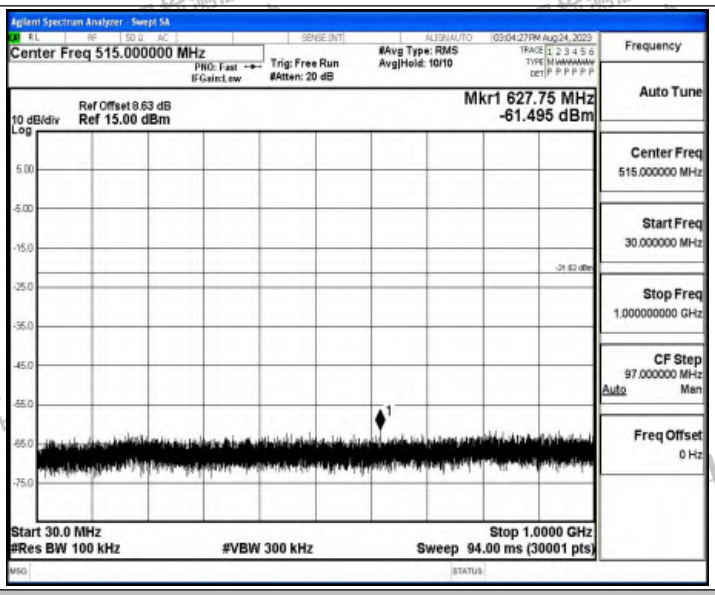
BLE_1M_Ant1_2402_1000~26500



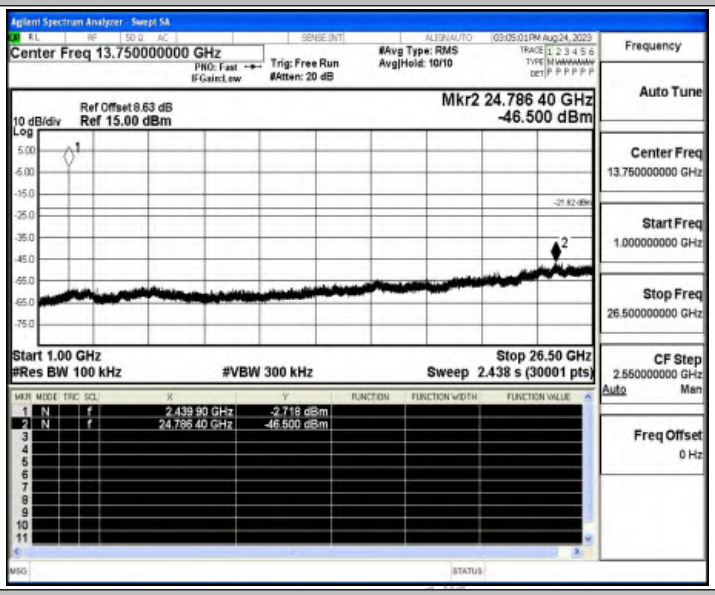
BLE_1M_Ant1_2440_0~Reference



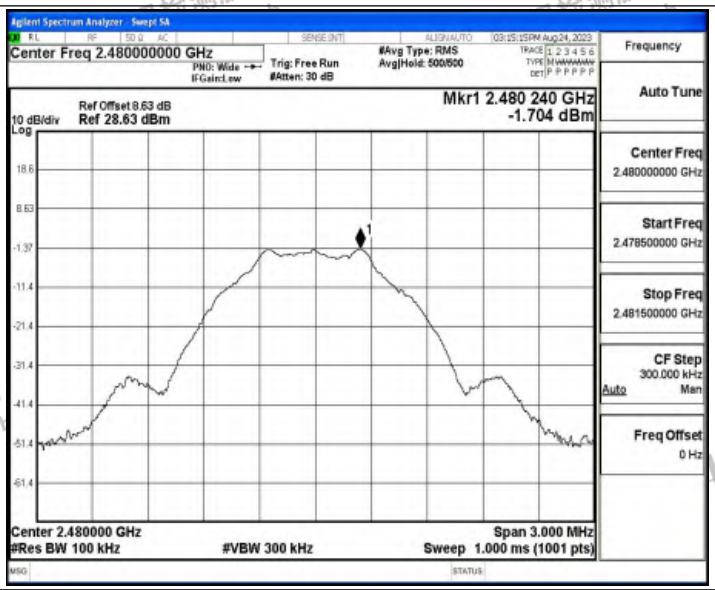
BLE_1M_Ant1_2440_30~1000



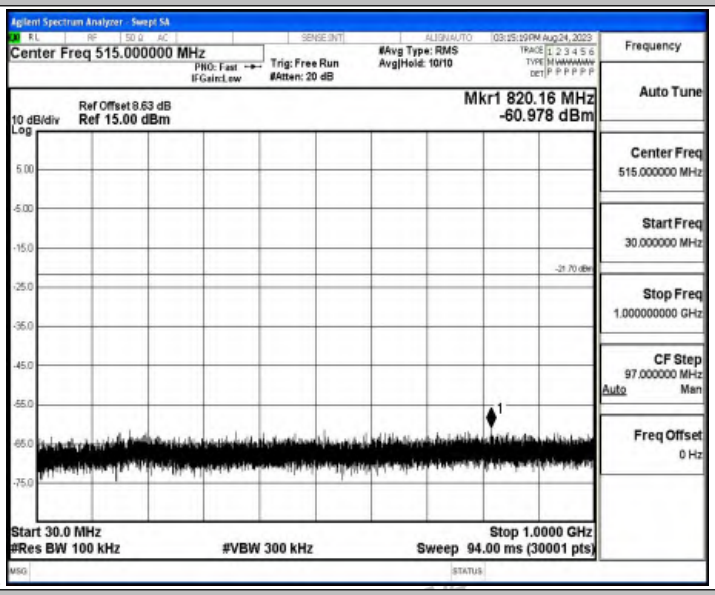
BLE_1M_Ant1_2440_1000~26500



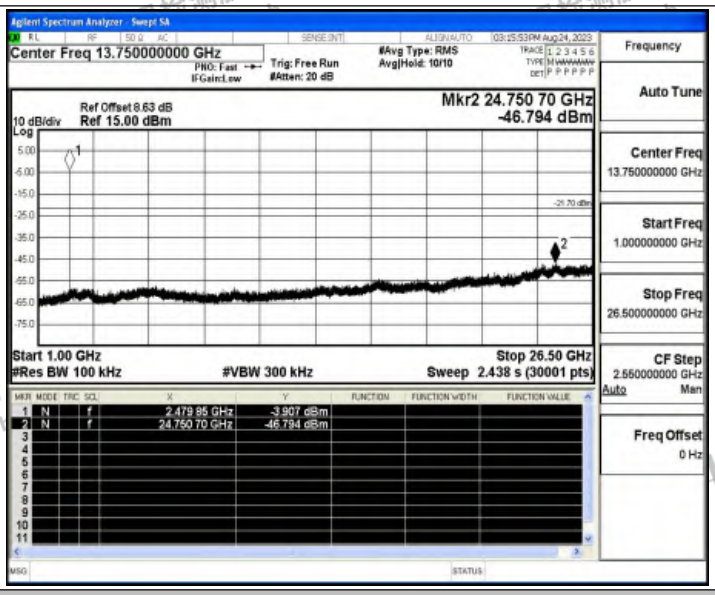
BLE_1M_Ant1_2480_0~Reference



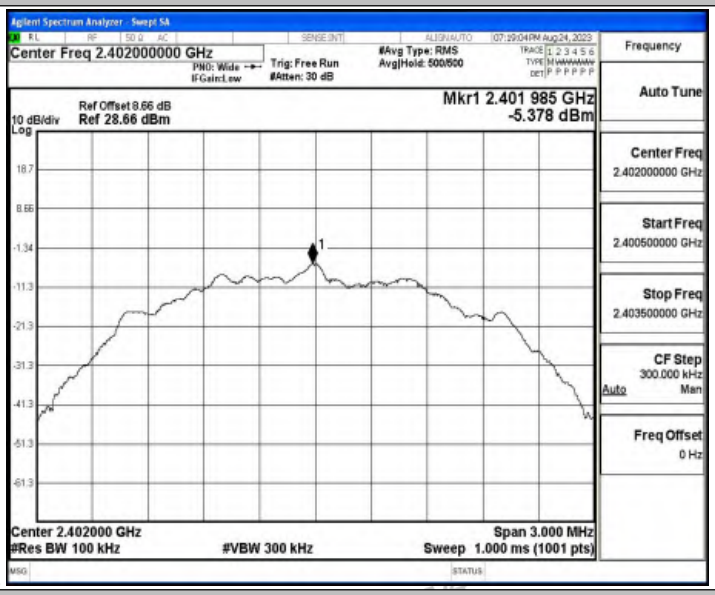
BLE_1M_Ant1_2480_30~1000



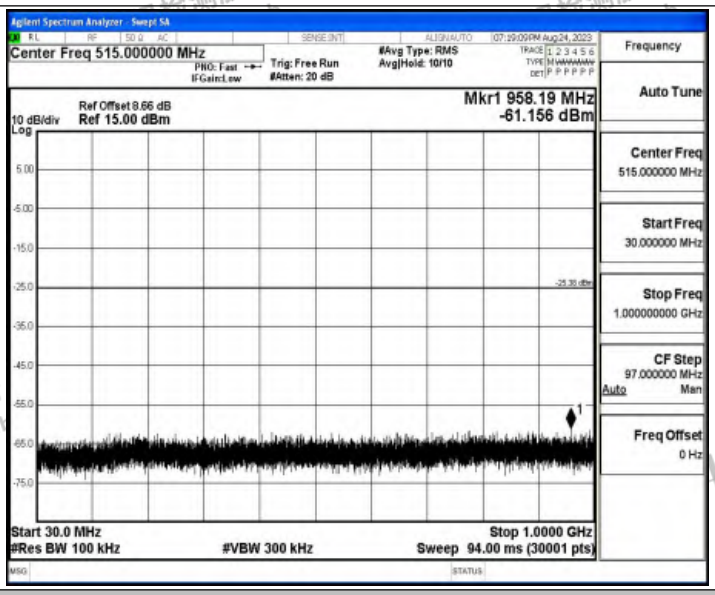
BLE_1M_Ant1_2480_1000~26500



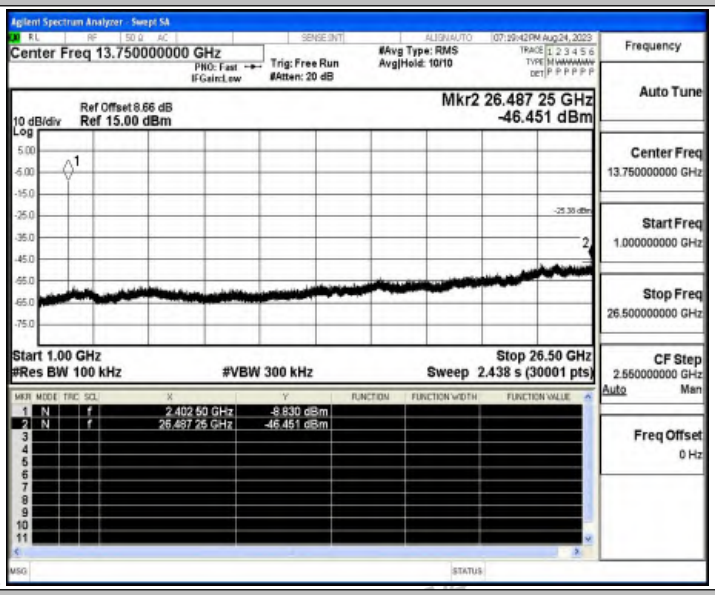
BLE_2M_Ant1_2402_0~Reference



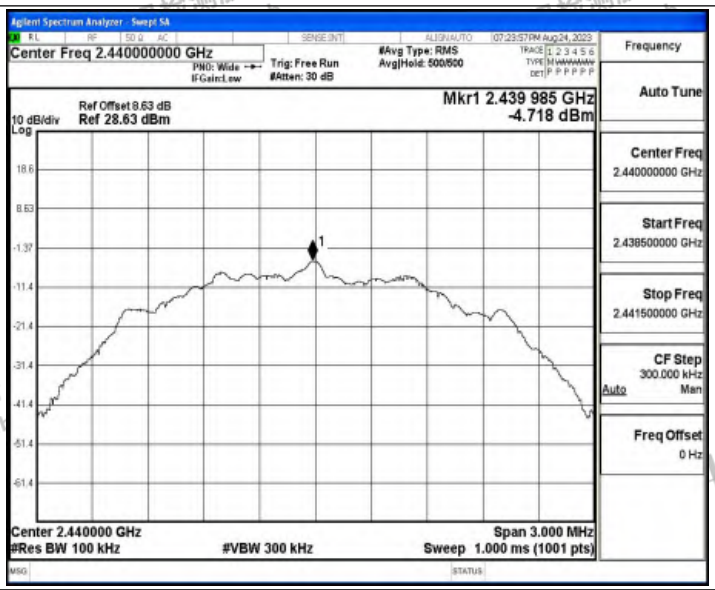
BLE_2M_Ant1_2402_30~1000



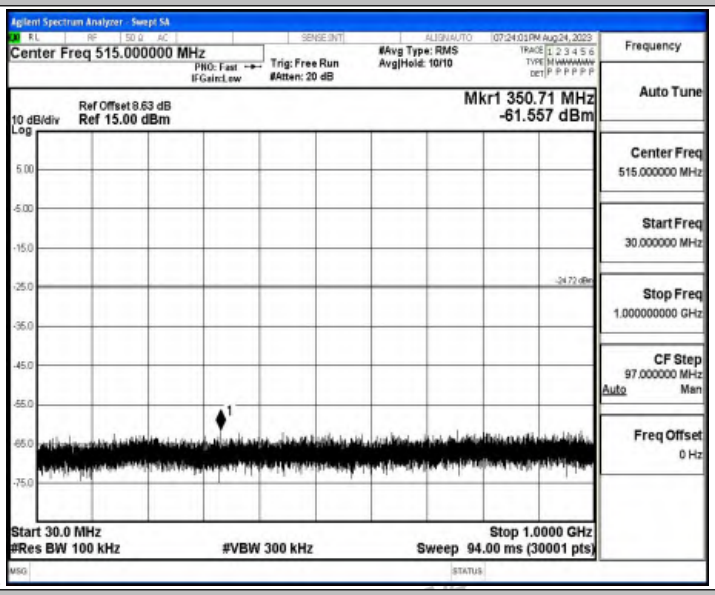
BLE_2M_Ant1_2402_1000~26500



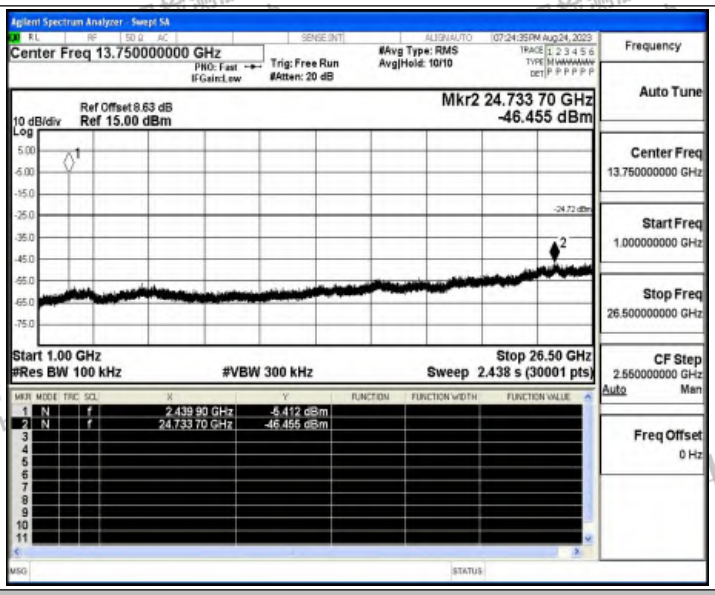
BLE_2M_Ant1_2440_0~Reference



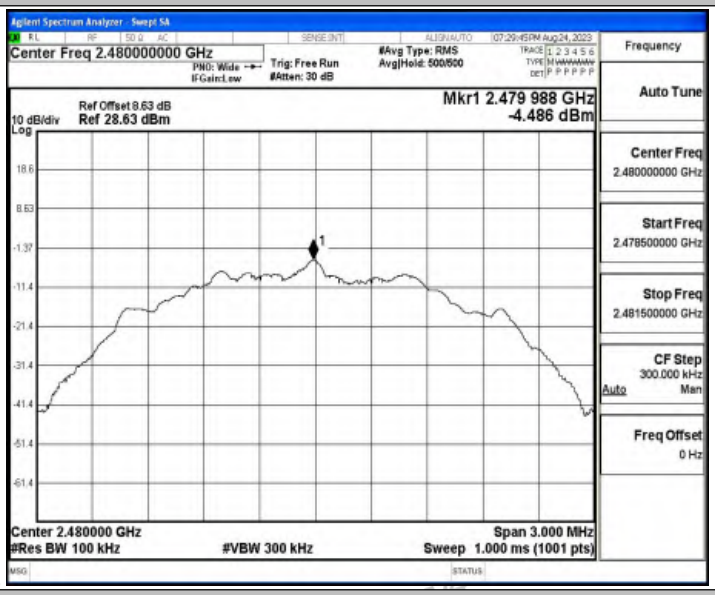
BLE_2M_Ant1_2440_30~1000



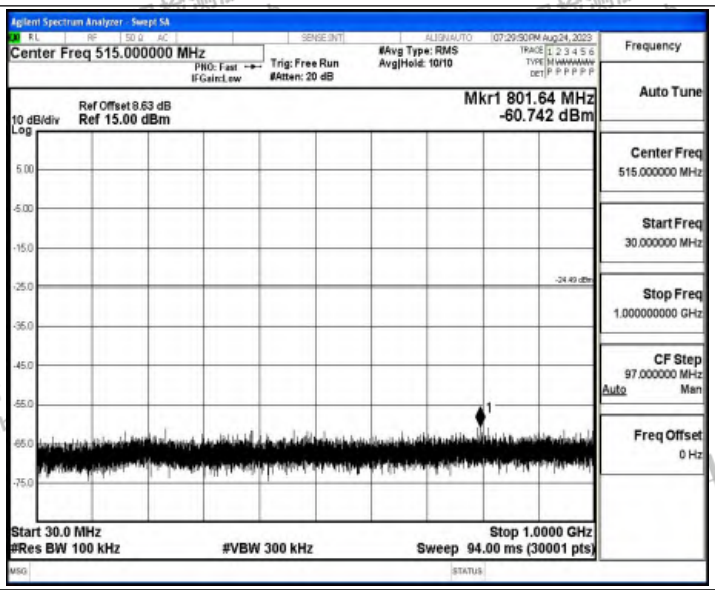
BLE_2M_Ant1_2440_1000~26500



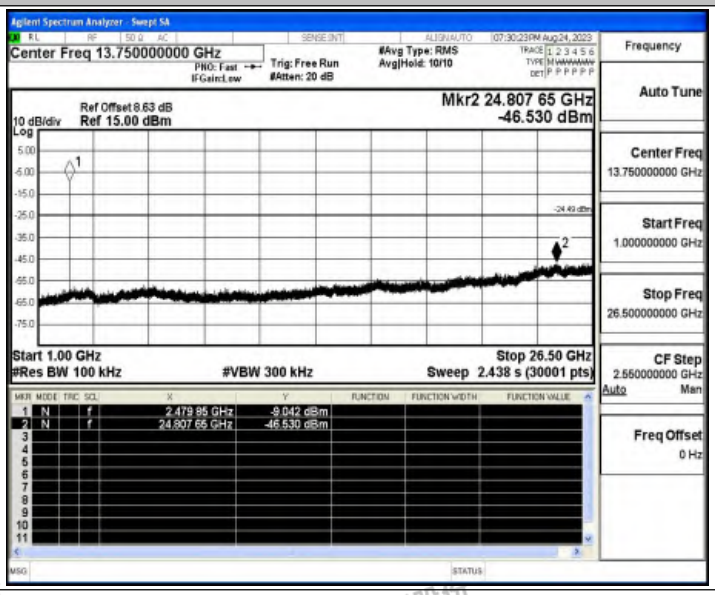
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



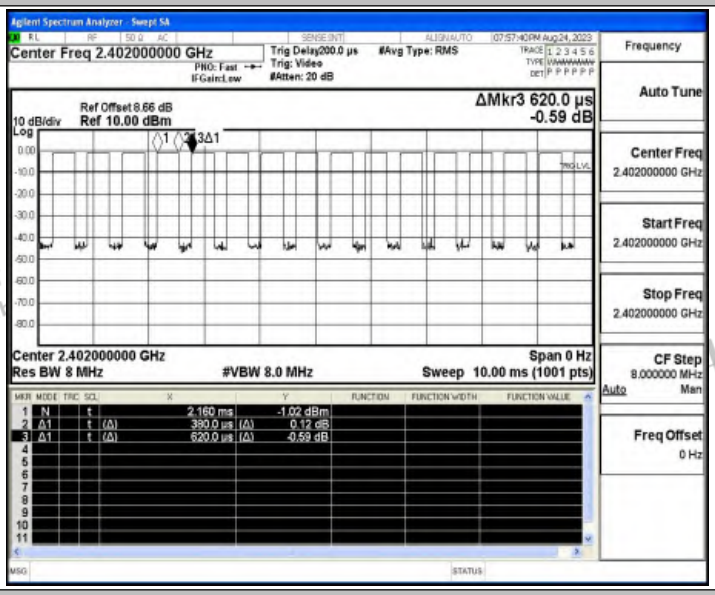
B.6 Duty Cycle

Test Result

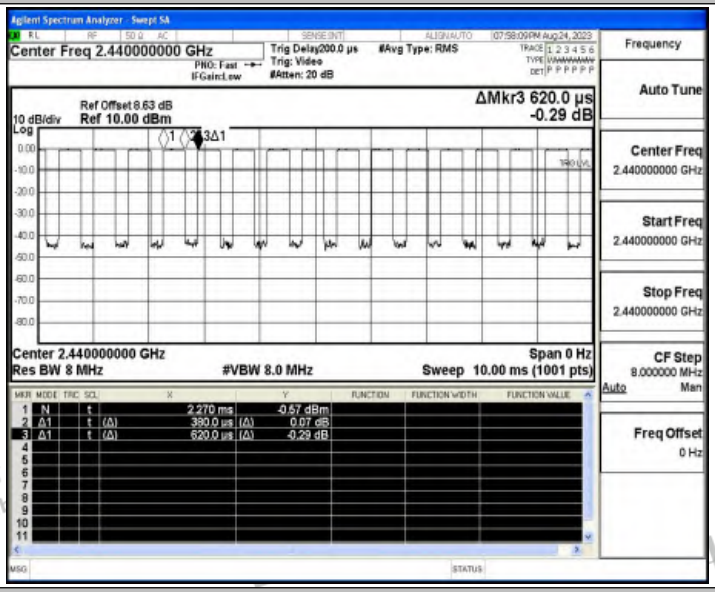
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2440	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2480	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
BLE_2M	Ant1	2402	0.20	0.62	0.3226	32.26	4.91	5.00	---	---
		2440	0.20	0.62	0.3226	32.26	4.91	5.00	---	---
		2480	0.20	0.62	0.3226	32.26	4.91	5.00	---	---

Test Graphs

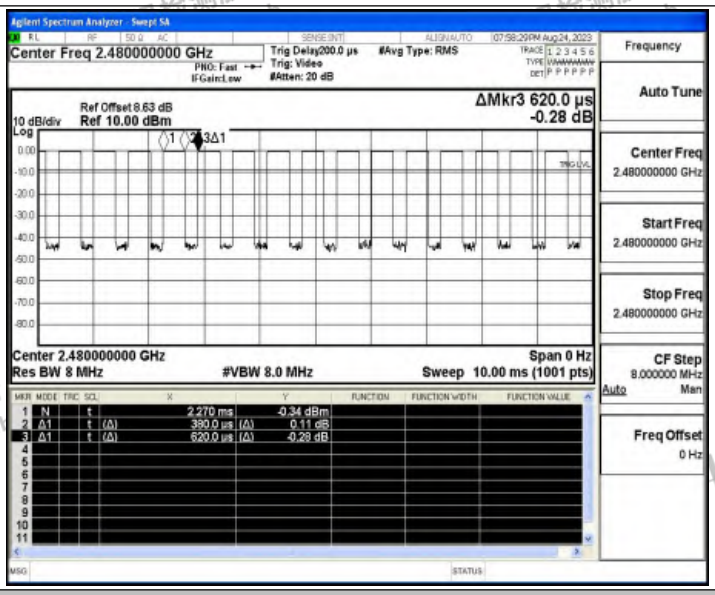
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



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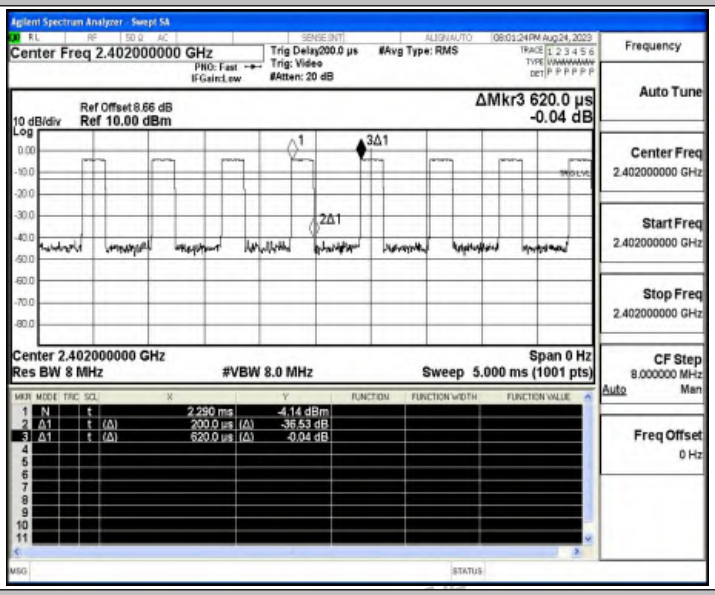
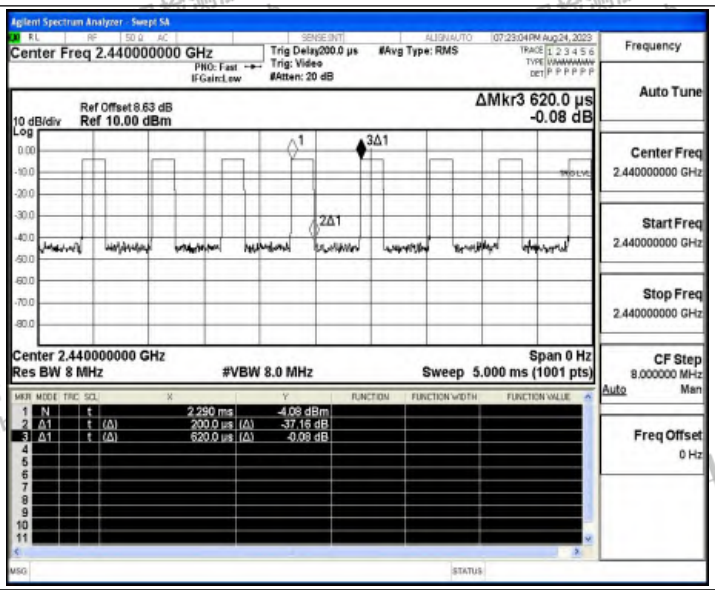


BLE_2M_Ant1_2440



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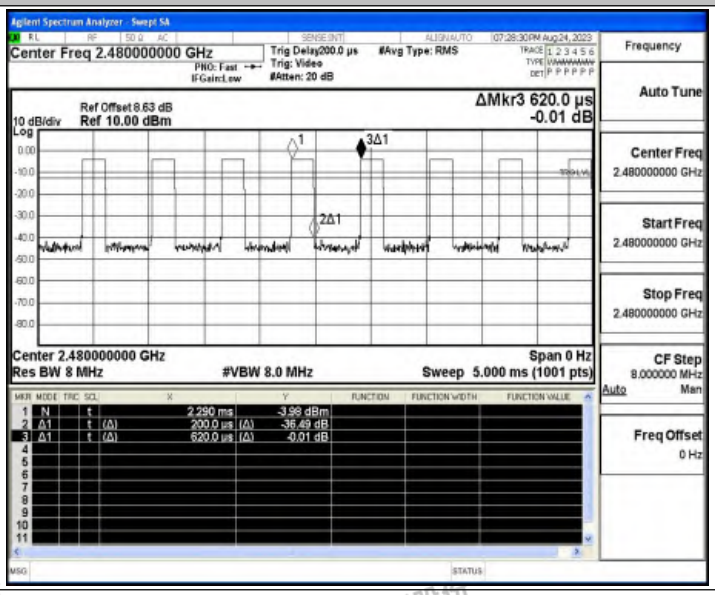


B.7 Emissions in Restricted Bands

Test Result

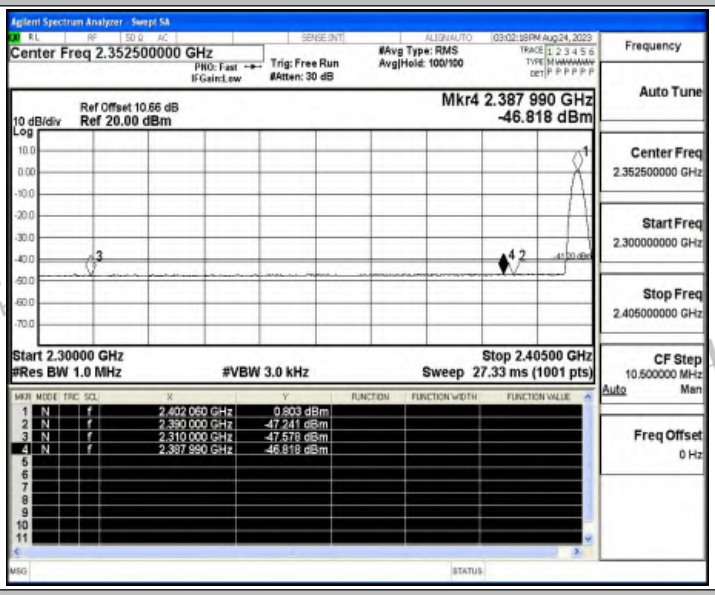
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdic
BLE_1M	Ant1	Low	2402	AV	2310.000	-47.58	≤-41.20	47.62	≤54	PASS
				AV	2387.990	-46.82	≤-41.20	48.38	≤54	PASS
				AV	2390.000	-47.24	≤-41.20	47.96	≤54	PASS
				Peak	2310.000	-41.76	≤-21.20	53.44	≤74	PASS
				Peak	2375.390	-37.73	≤-21.20	57.47	≤74	PASS
				Peak	2390.000	-39.99	≤-21.20	55.21	≤74	PASS
		High	2480	AV	2483.500	-46.45	≤-41.20	48.75	≤54	PASS
				AV	2496.640	-46.22	≤-41.20	48.98	≤54	PASS
				AV	2500.000	-46.34	≤-41.20	48.86	≤54	PASS
				Peak	2483.500	-41	≤-21.20	54.20	≤74	PASS
				Peak	2483.920	-38.07	≤-21.20	57.13	≤74	PASS
				Peak	2500.000	-40.89	≤-21.20	54.31	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-46.96	≤-41.20	48.24	≤54	PASS
				AV	2358.695	-45.68	≤-41.20	49.52	≤54	PASS
				AV	2390.000	-46.75	≤-41.20	48.45	≤54	PASS
				Peak	2310.000	-38.09	≤-21.20	57.11	≤74	PASS
				Peak	2356.070	-37.73	≤-21.20	57.47	≤74	PASS
				Peak	2390.000	-39.22	≤-21.20	55.98	≤74	PASS
		High	2480	AV	2483.500	-45.88	≤-41.20	49.32	≤54	PASS
				AV	2499.360	-45.56	≤-41.20	49.64	≤54	PASS
				AV	2500.000	-46.16	≤-41.20	49.04	≤54	PASS
				Peak	2483.500	-38.81	≤-21.20	56.39	≤74	PASS
				Peak	2486.480	-37.5	≤-21.20	57.70	≤74	PASS
				Peak	2500.000	-40.06	≤-21.20	55.14	≤74	PASS

Note:

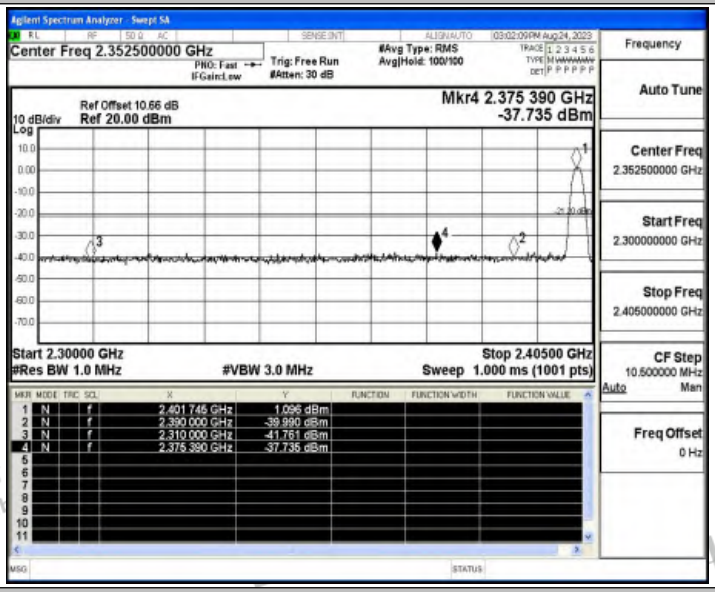
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

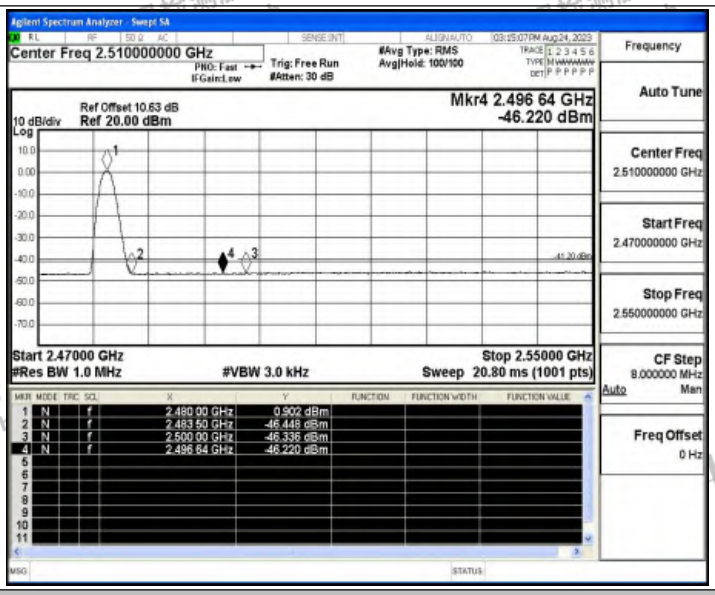
BLE_1M_Ant1_Low_2402_AV



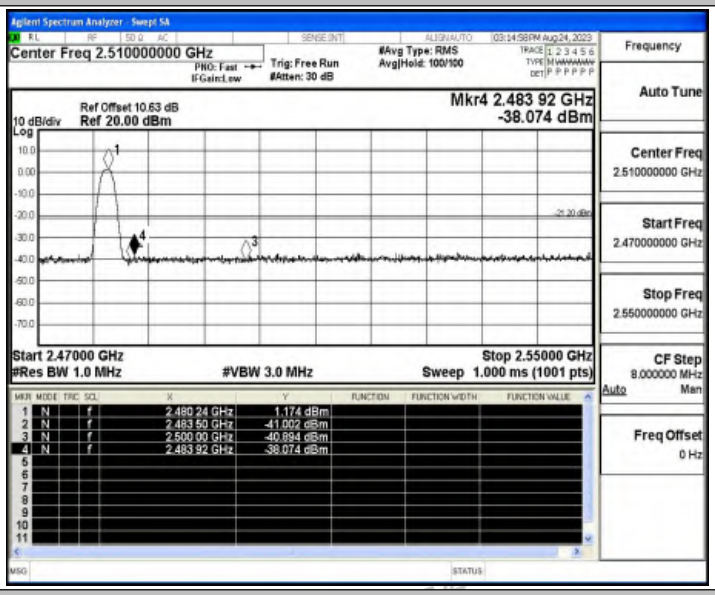
BLE_1M_Ant1_Low_2402_Peak



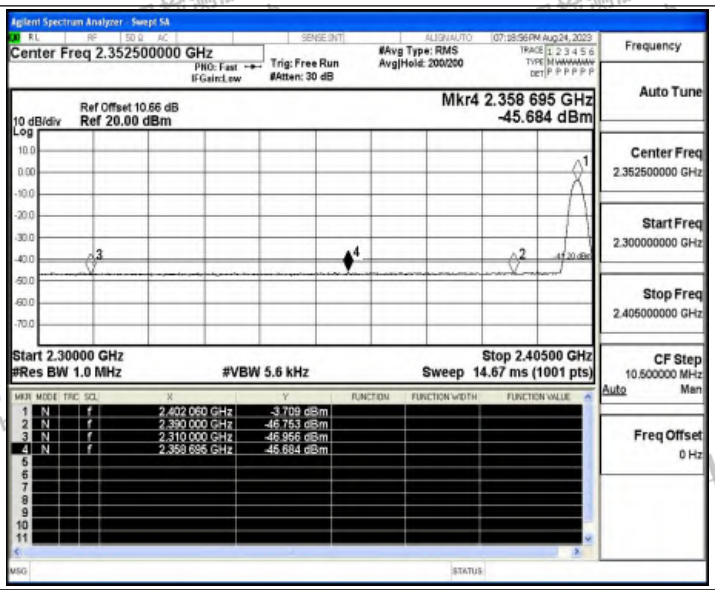
BLE_1M_Ant1_High_2480_AV



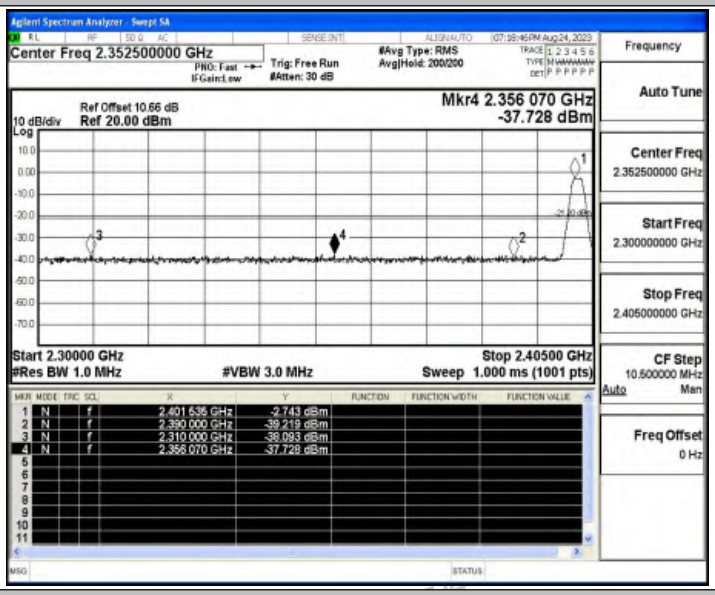
BLE_1M_Ant1_High_2480_Peak



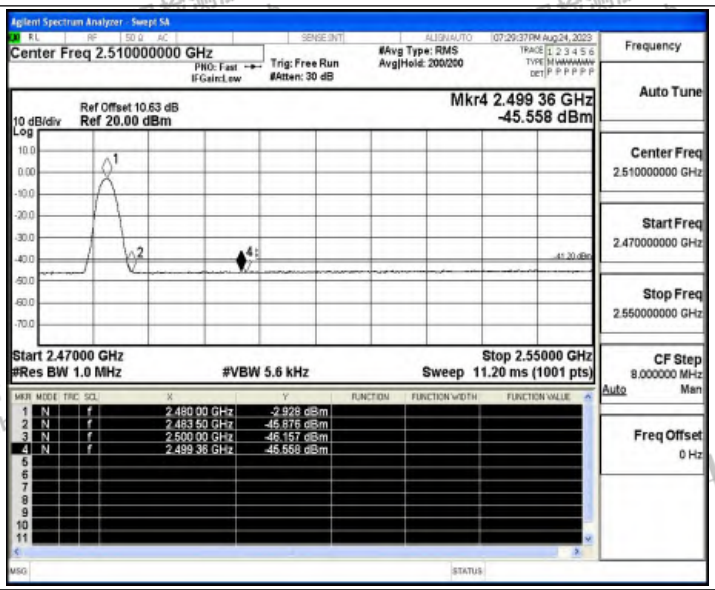
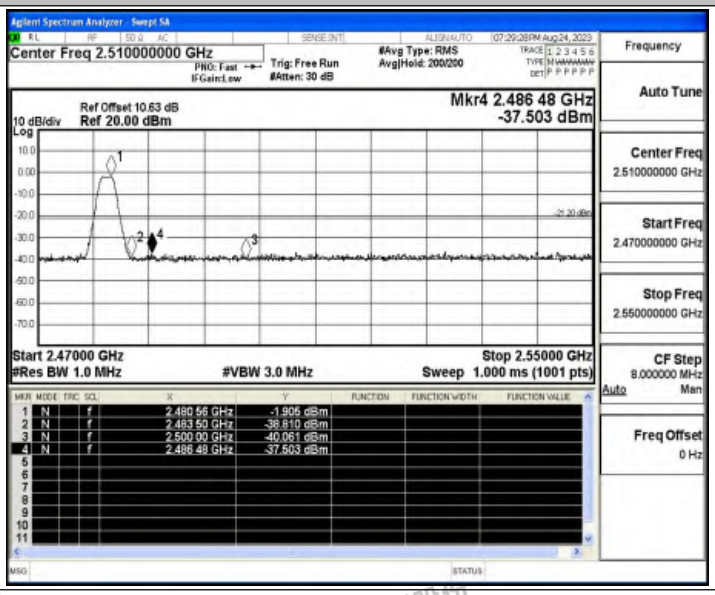
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak