

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: String light

Test Model: HCL-001

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Jone.Lee
Supervised by:	Yan Chen

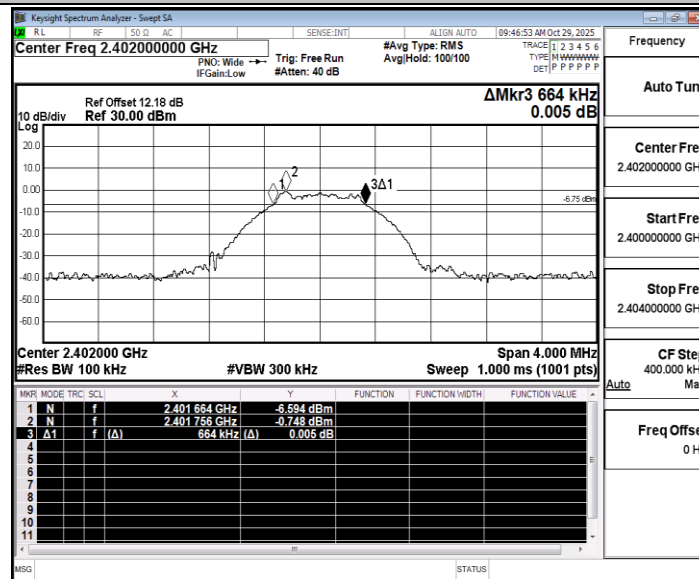
A.1 DTS Bandwidth

Test Result

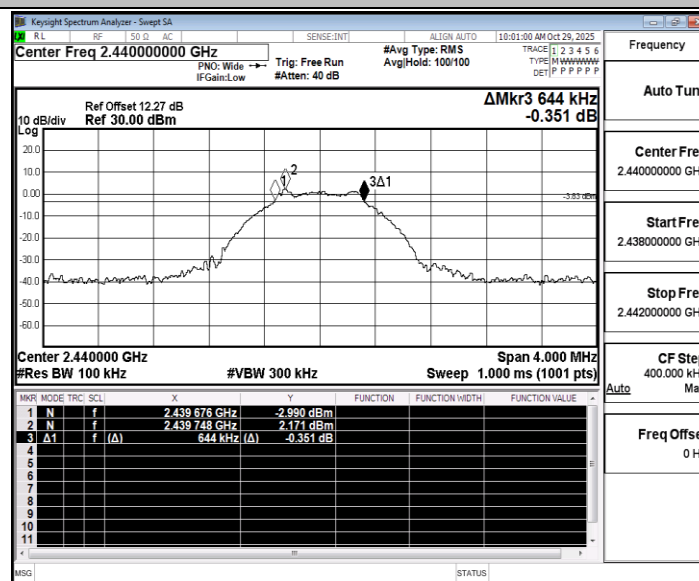
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.664	2402.328	0.5	PASS
		2440	0.644	2439.676	2440.320	0.5	PASS
		2480	0.676	2479.664	2480.340	0.5	PASS

Test Graphs

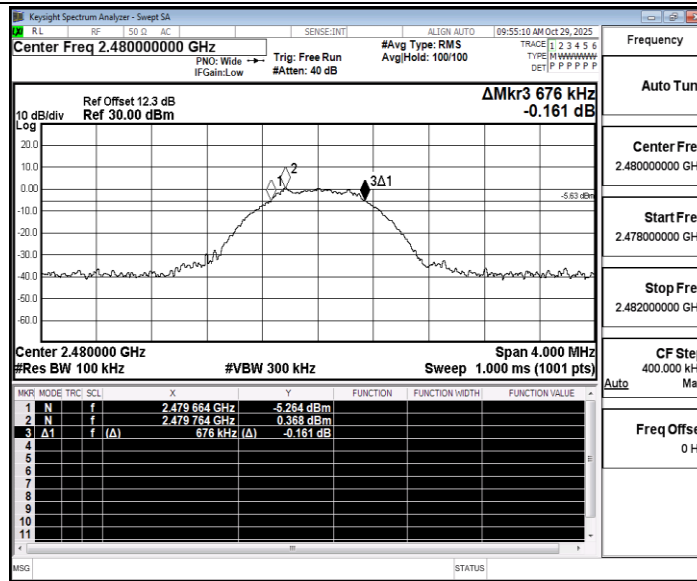
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

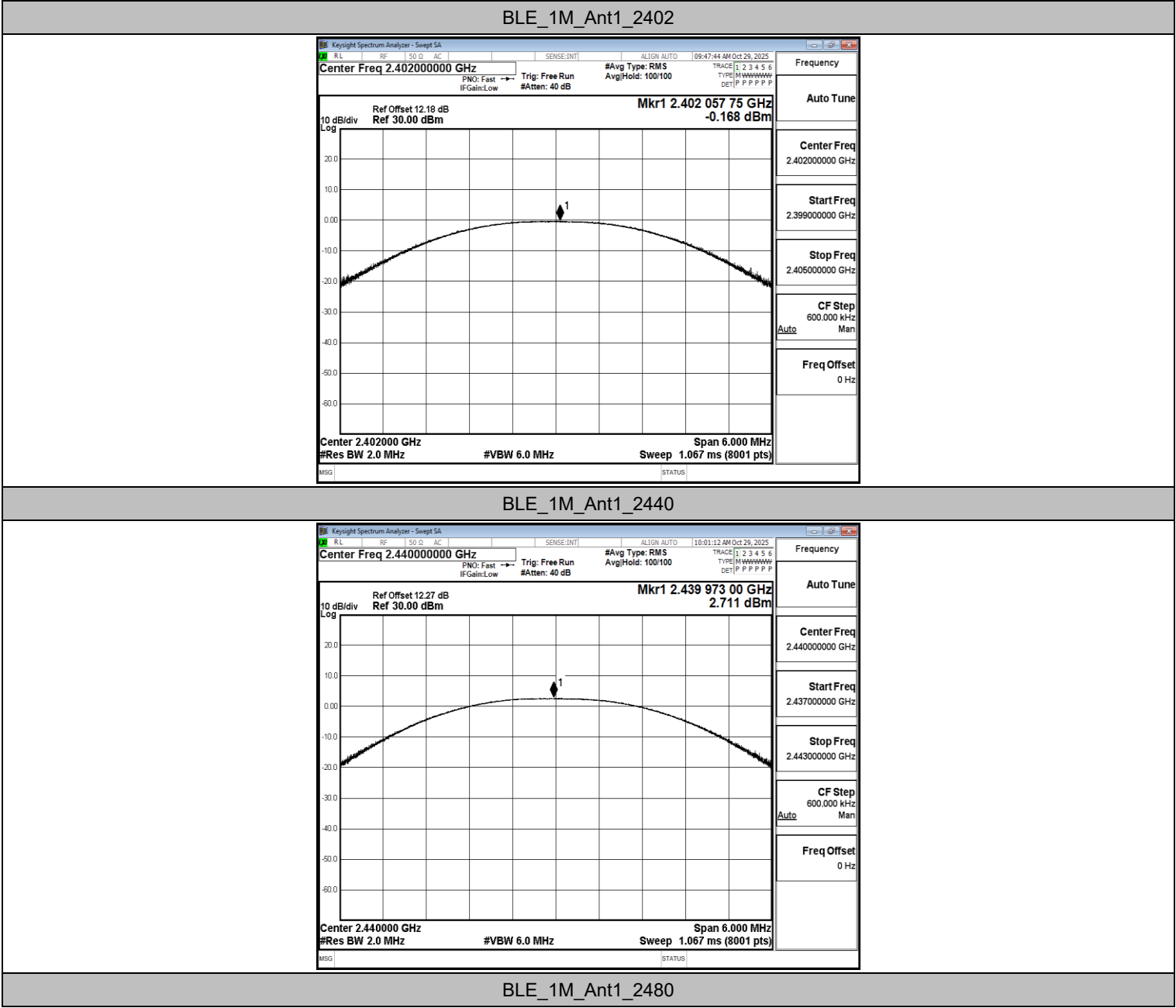


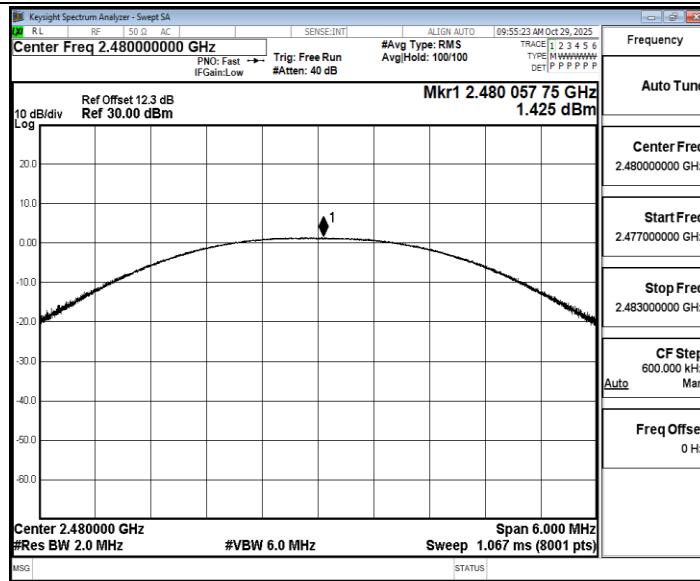
A.2 Maximum peak conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.17	≤30	PASS
		2440	2.71	≤30	PASS
		2480	1.43	≤30	PASS

Test Graphs Peak





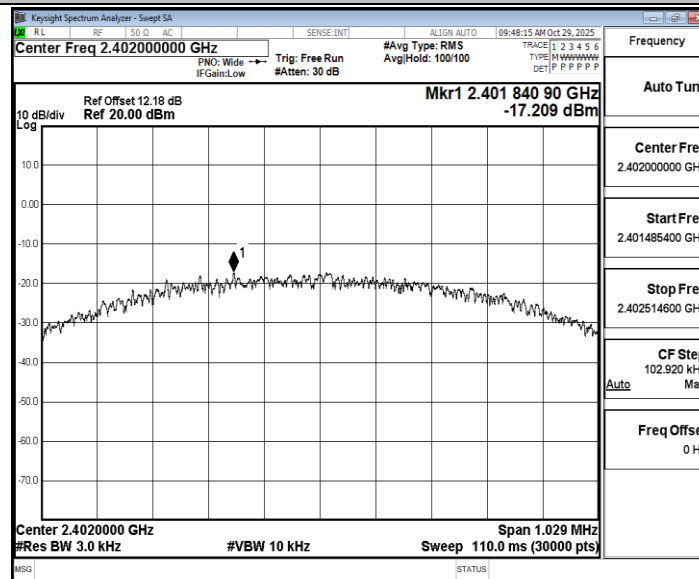
A.3 Maximum power spectral density

Test Result

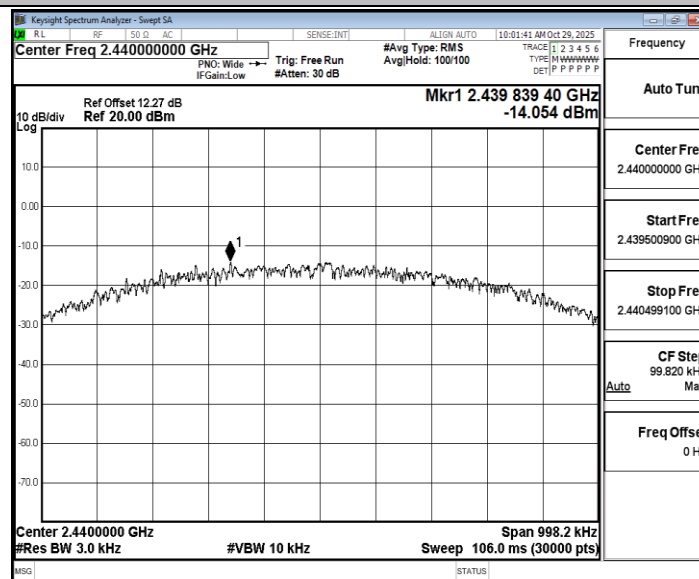
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.21	≤8.00	PASS
		2440	-14.05	≤8.00	PASS
		2480	-15.34	≤8.00	PASS

Test Graphs

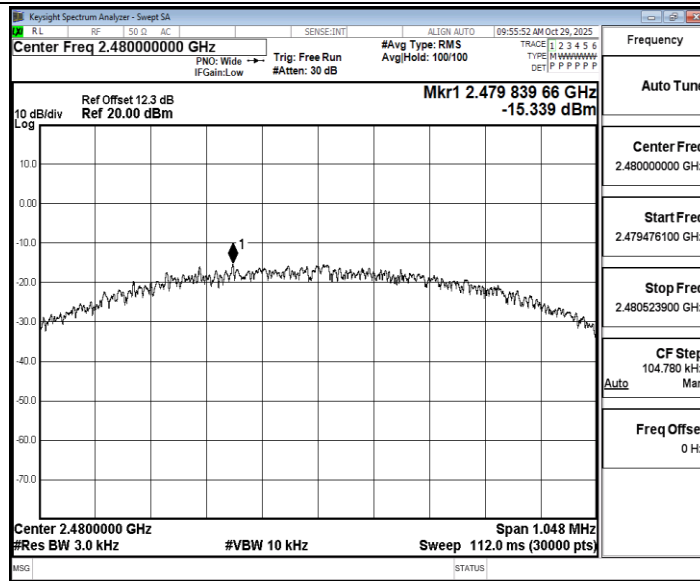
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



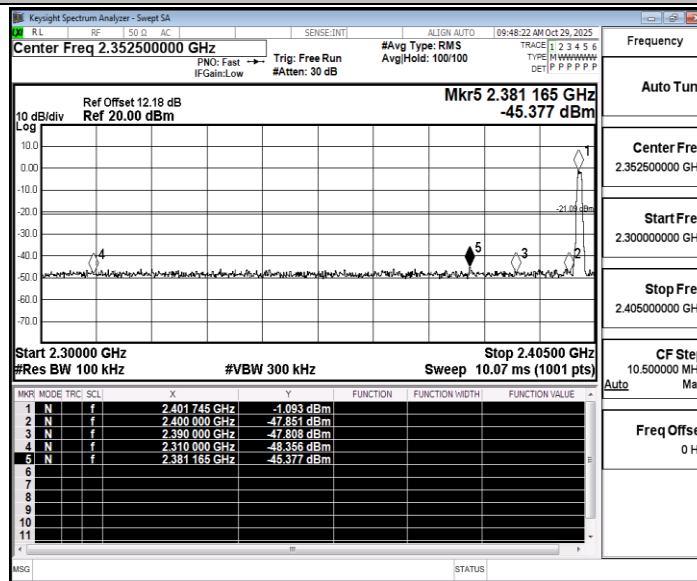
A.4 Band edge measurements

Test Result

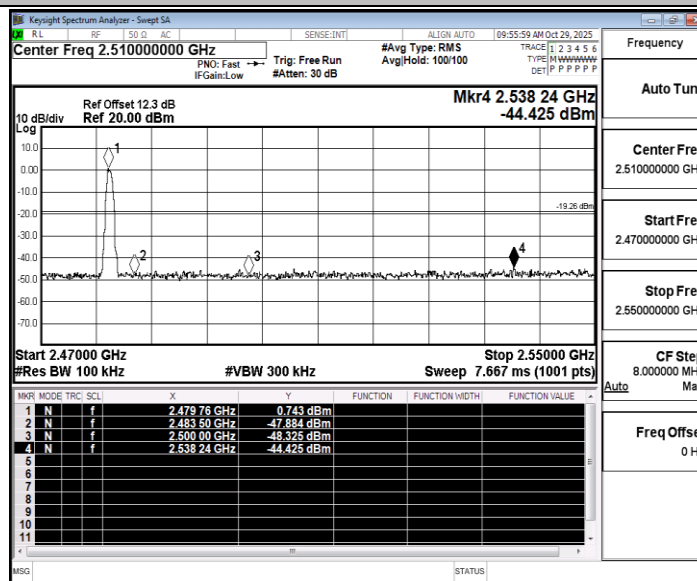
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.09	-45.38	≤-21.09	PASS
		High	2480	0.74	-44.43	≤-19.26	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



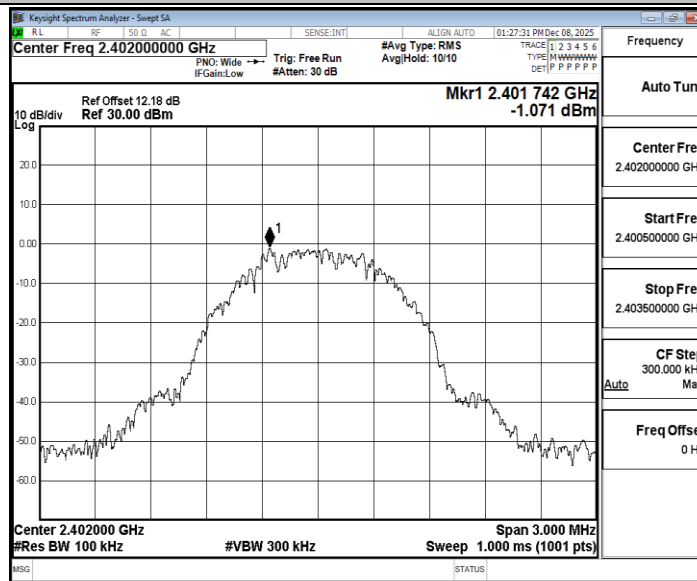
A.5 Conducted Spurious Emission

Test Result

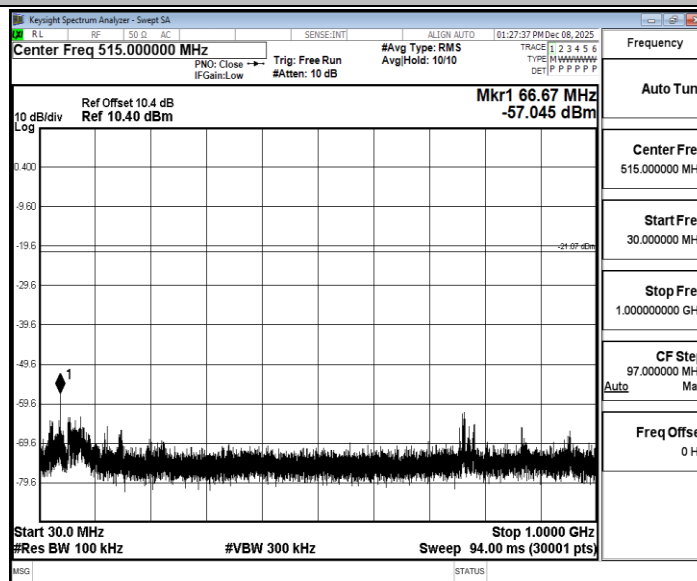
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.07	-1.07	---	PASS
			30~1000	-1.07	-57.05	≤-21.07	PASS
			1000~26500	-1.07	-43.04	≤-21.07	PASS
		2440	Reference	1.43	1.43	---	PASS
			30~1000	1.43	-51.99	≤-18.57	PASS
			1000~26500	1.43	-42.72	≤-18.57	PASS
		2480	Reference	-0.28	-0.28	---	PASS
			30~1000	-0.28	-39.2	≤-20.28	PASS
			1000~26500	-0.28	-43.22	≤-20.28	PASS

Test Graphs

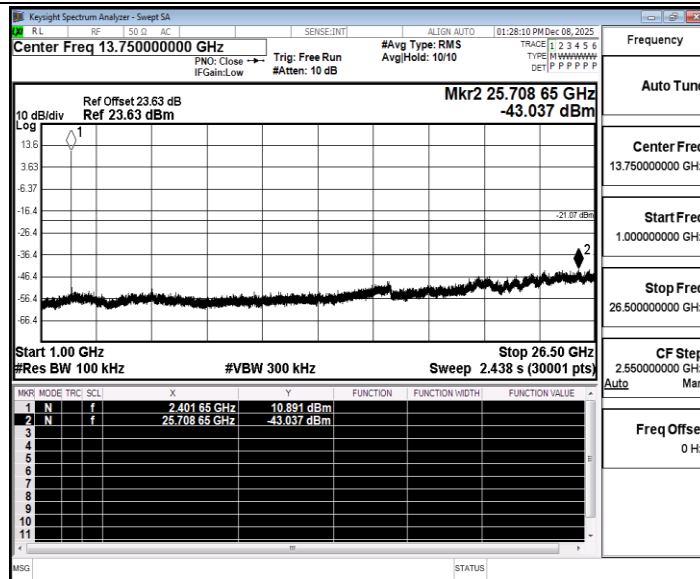
BLE_1M_Ant1_2402_0~Reference



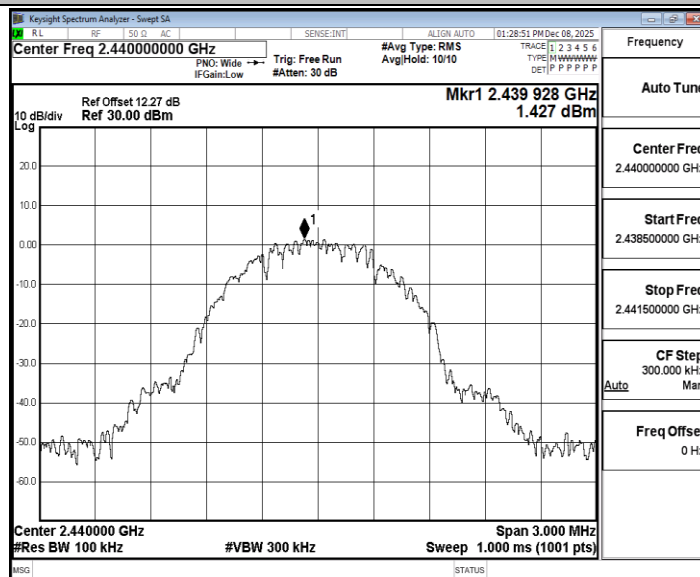
BLE_1M_Ant1_2402_30~1000



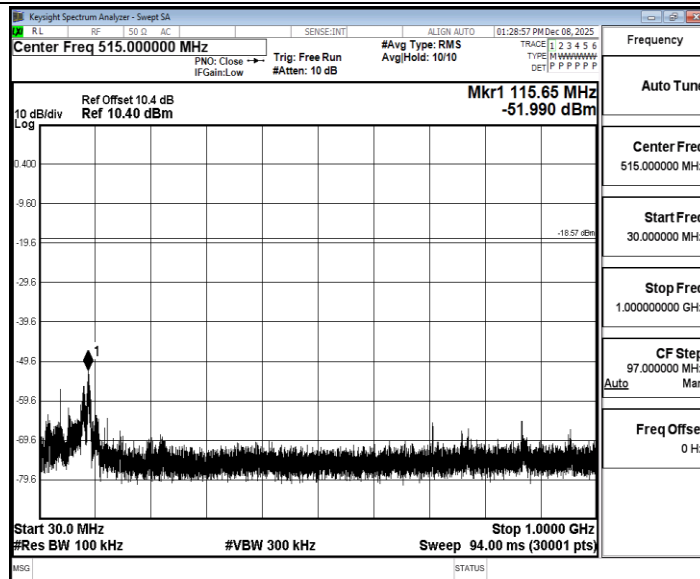
BLE_1M_Ant1_2402_1000~26500



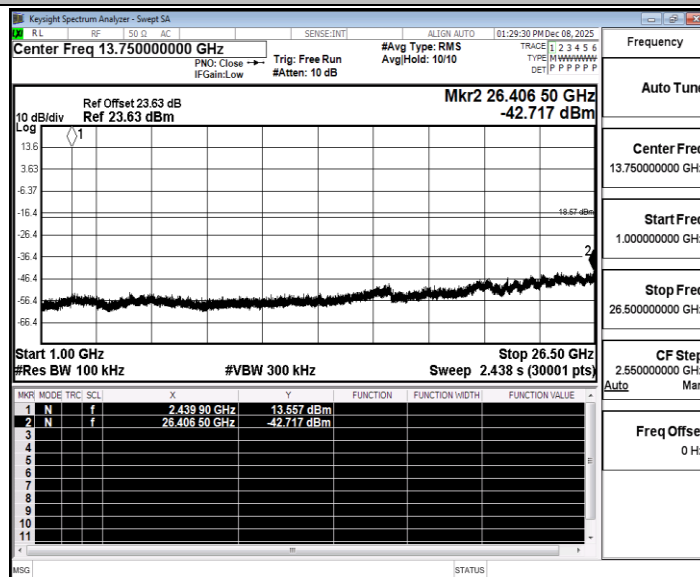
BLE_1M_Ant1_2440_0~Reference



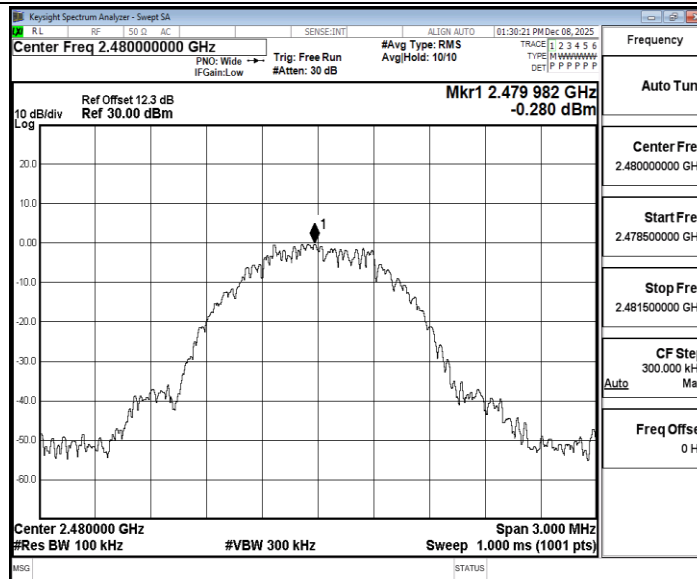
BLE_1M_Ant1_2440_30~1000



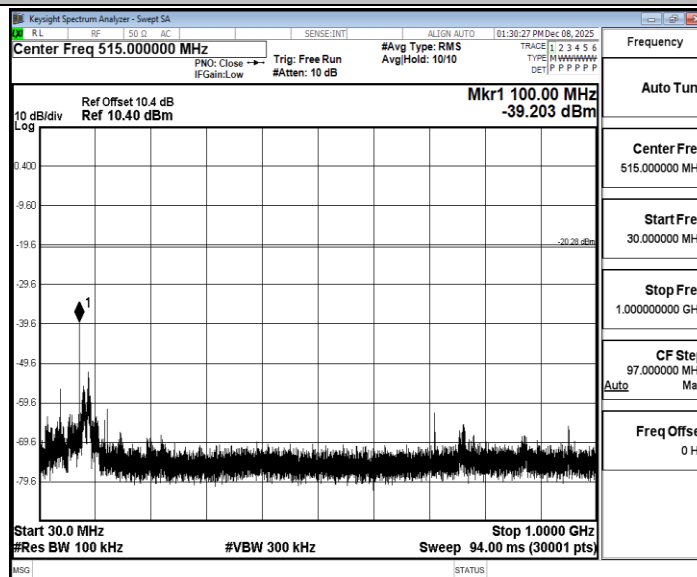
BLE_1M_Ant1_2440_1000~26500



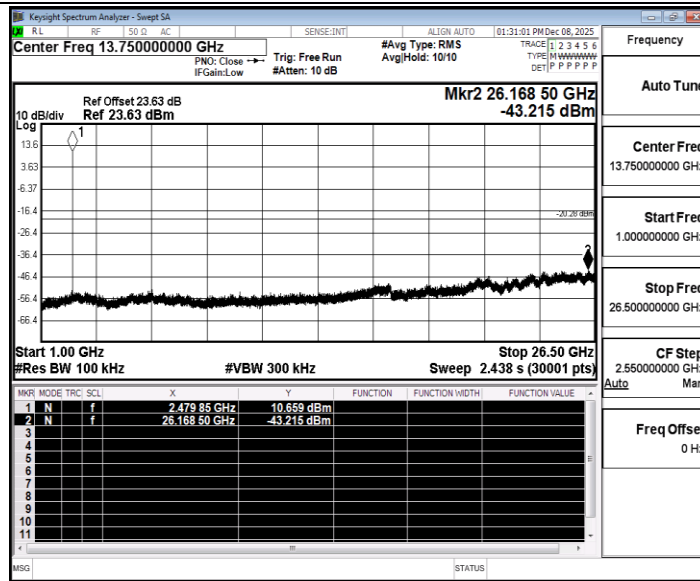
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



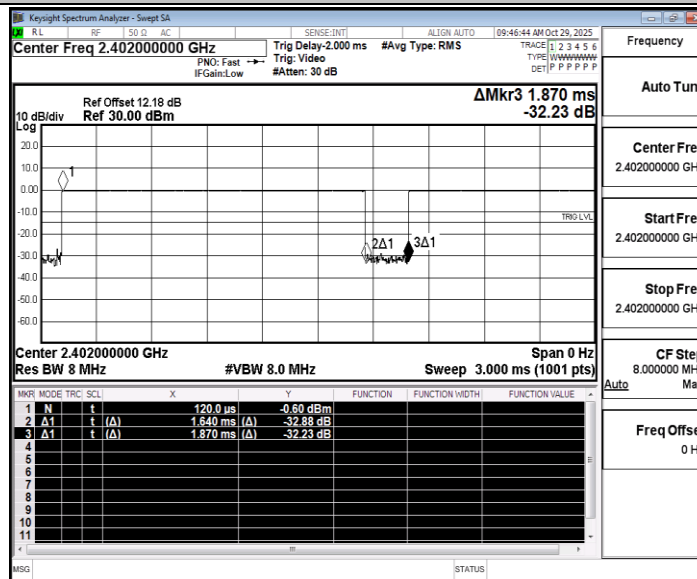
A.6 Duty Cycle

Test Result

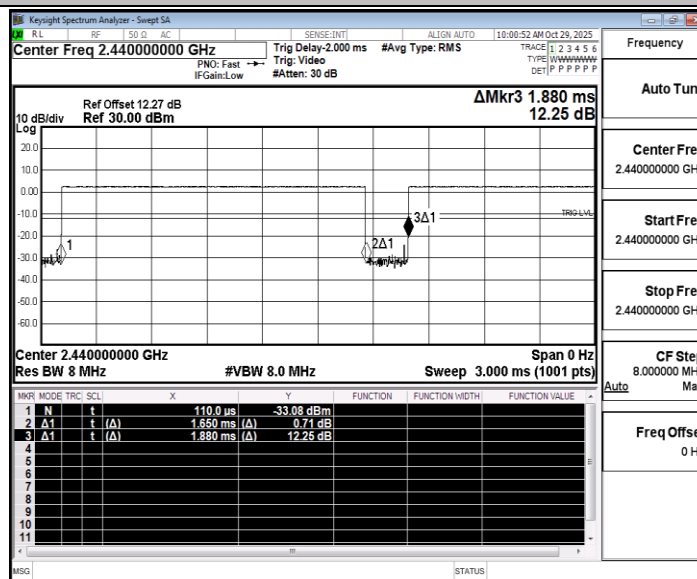
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.87	0.8770	87.70	0.57	---	---
		2440	1.65	1.88	0.8777	87.77	0.57	---	---
		2480	1.64	1.87	0.8770	87.70	0.57	---	---

Test Graphs

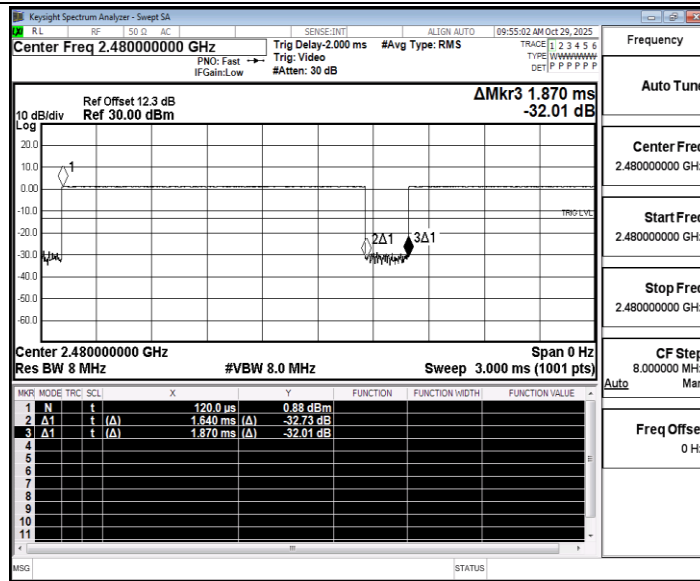
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



A.7 Emissions in Restricted Bands

Test Result

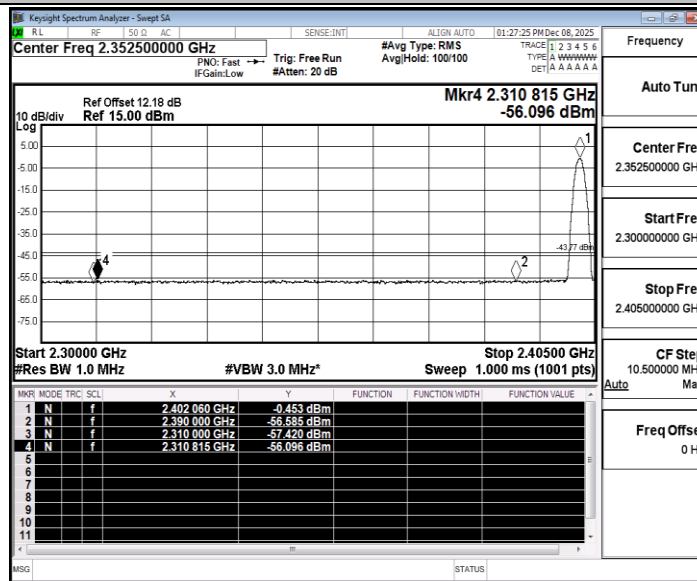
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-57.42	≤-43.77	2.00	0.57	40.35	≤54	PASS
				AV	2310.815	-56.1	≤-43.77	2.00	0.57	41.67	≤54	PASS
				AV	2390.000	-56.59	≤-43.77	2.00	0.57	41.18	≤54	PASS
				Peak	2310.000	-48.76	≤-23.20	2.00	0.00	48.44	≤74	PASS
				Peak	2369.510	-45.34	≤-23.20	2.00	0.00	51.86	≤74	PASS
				Peak	2390.000	-48.68	≤-23.20	2.00	0.00	48.52	≤74	PASS
		High	2480	AV	2483.500	-56.18	≤-43.77	2.00	0.57	41.59	≤54	PASS
				AV	2484.080	-55.48	≤-43.77	2.00	0.57	42.29	≤54	PASS
				AV	2500.000	-56.45	≤-43.77	2.00	0.57	41.32	≤54	PASS
				Peak	2483.500	-48.2	≤-23.20	2.00	0.00	49.00	≤74	PASS
				Peak	2486.080	-44.6	≤-23.20	2.00	0.00	52.60	≤74	PASS
				Peak	2500.000	-49.73	≤-23.20	2.00	0.00	47.47	≤74	PASS

Note:

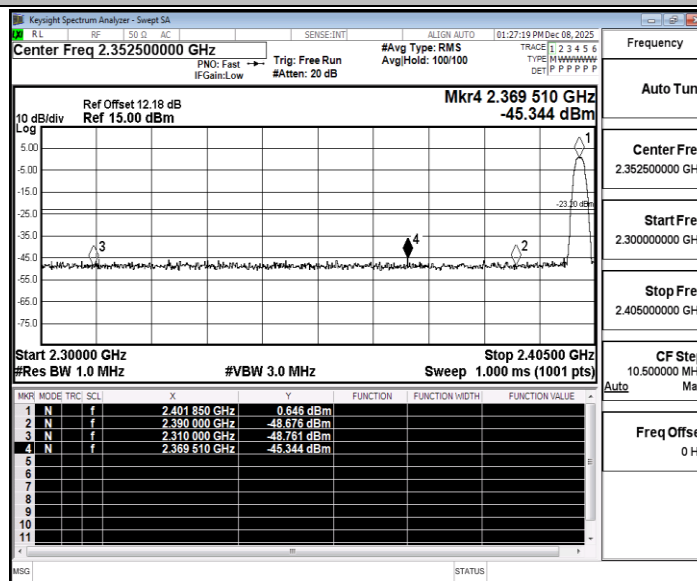
- The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

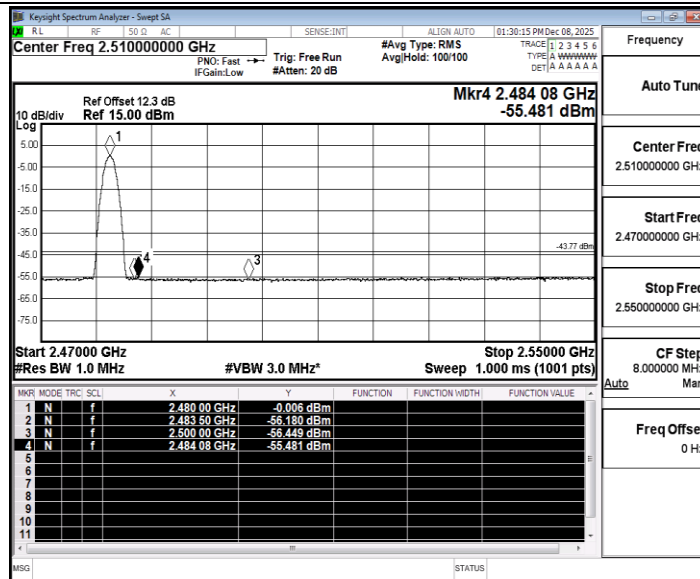
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

