



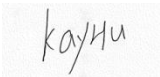
Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: digital lock

Test Model: HFAM10B-L-NB

Environmental Conditions

Temperature:	23.8℃
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	 Kay Hu
Supervised by:	 Li Huan



A.1 DTS Bandwidth

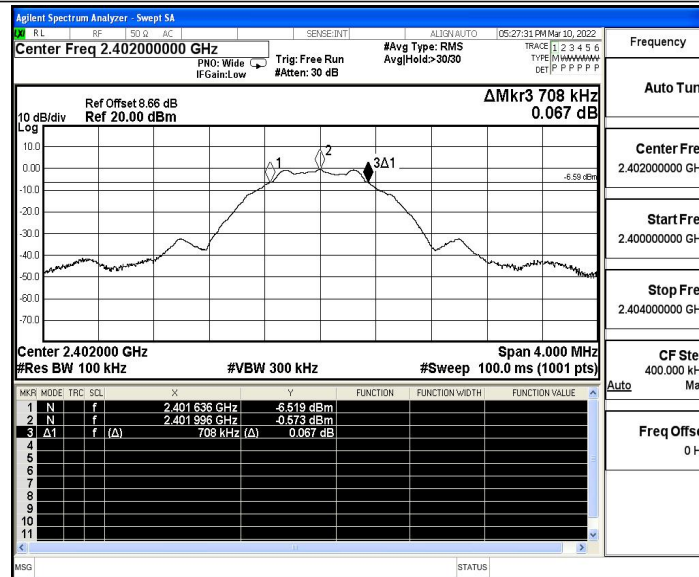
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.708	2401.636	2402.344	0.5	PASS
		2440	0.708	2439.640	2440.348	0.5	PASS
		2480	0.712	2479.636	2480.348	0.5	PASS

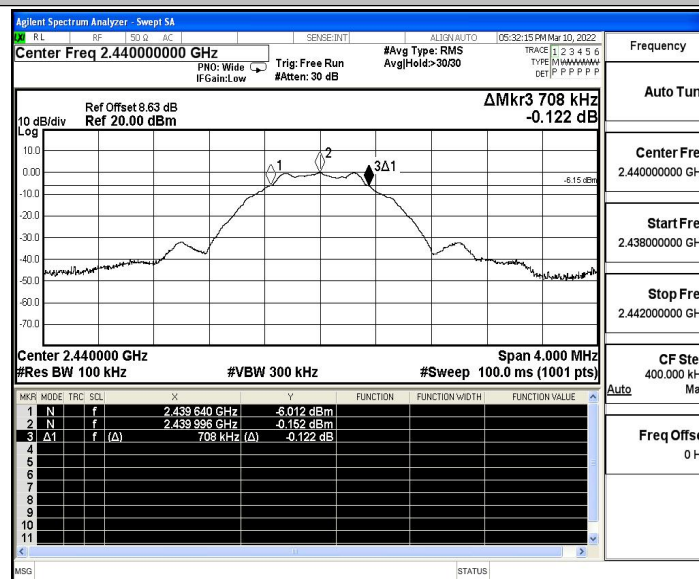


Test Graphs

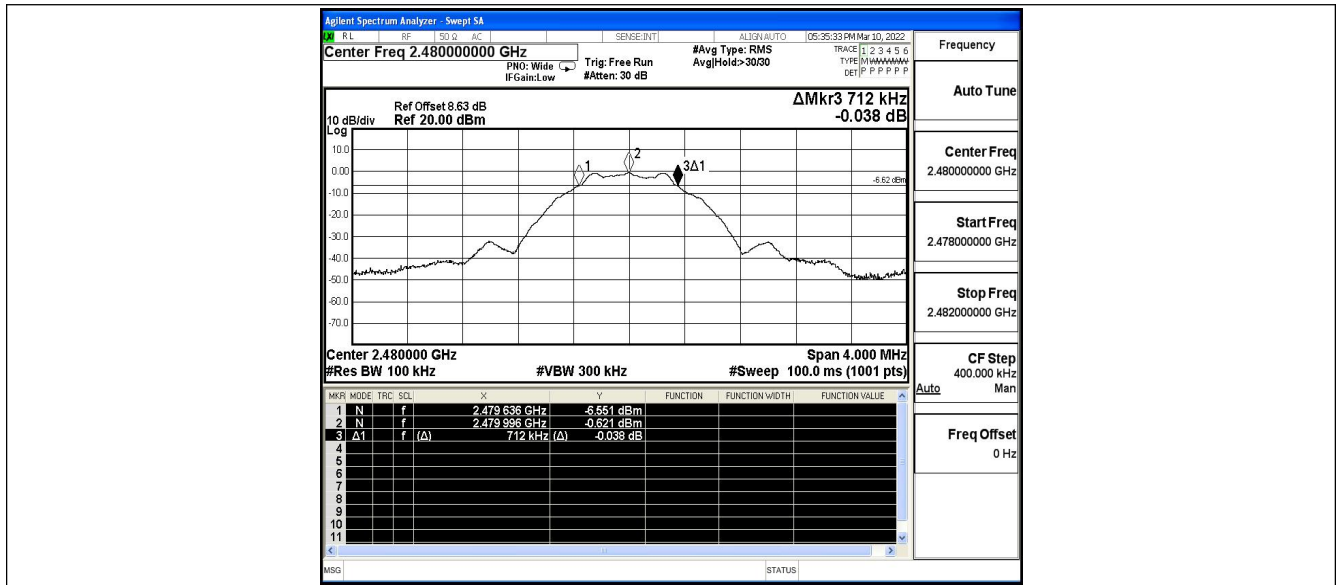
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





A.2 Maximum peak conducted output power

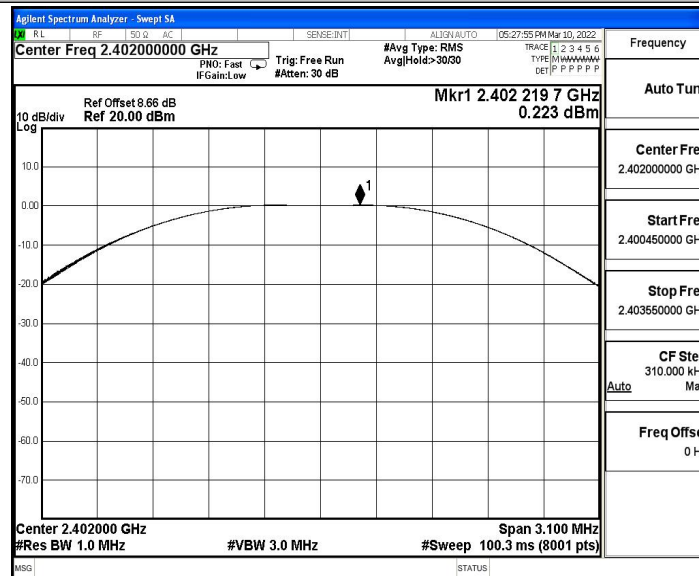
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.22	≤ 30	PASS
		2440	0.65	≤ 30	PASS
		2480	0.17	≤ 30	PASS

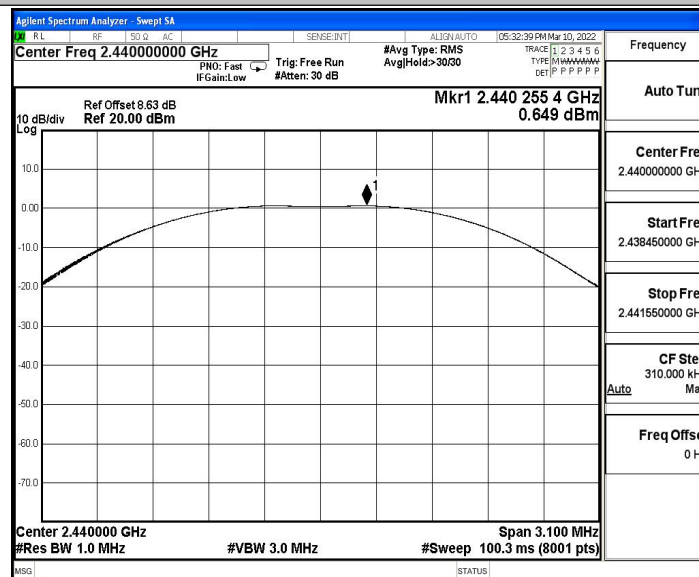


Test Graphs

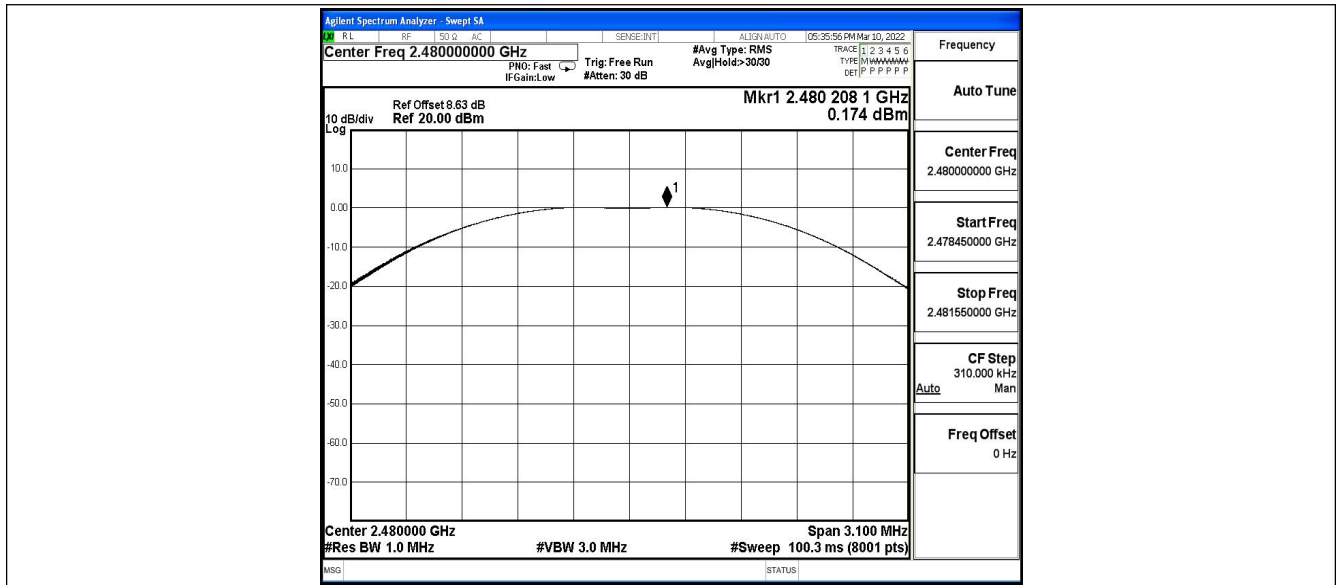
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





A.3 Maximum power spectral density

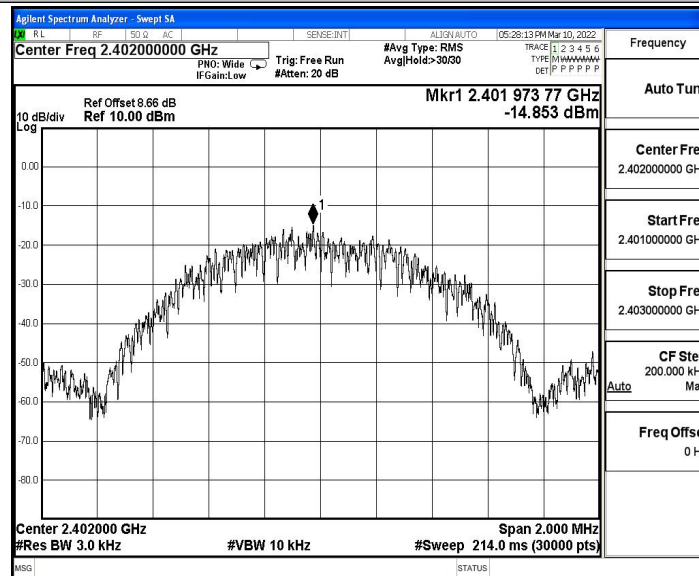
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.86	≤8.00	PASS
		2440	-14.41	≤8.00	PASS
		2480	-14.79	≤8.00	PASS

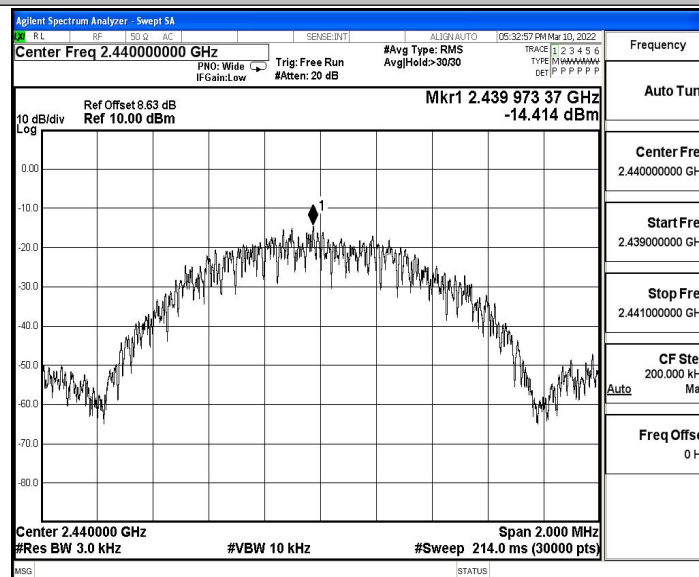


Test Graphs

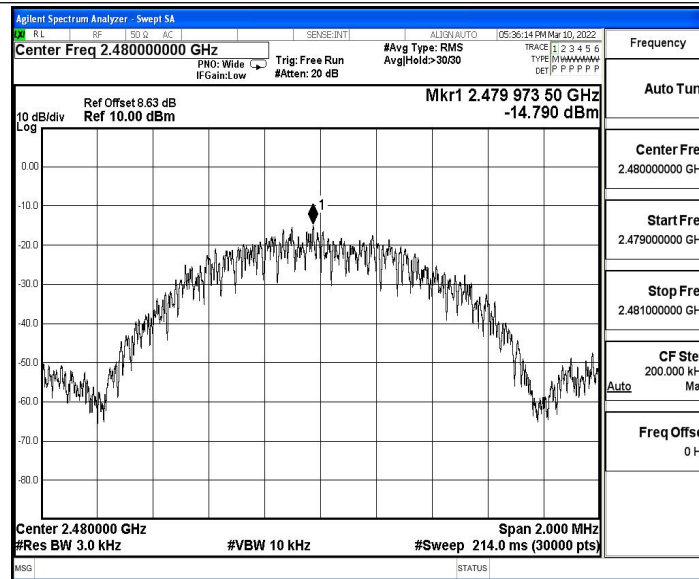
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





A.4 Band edge measurements

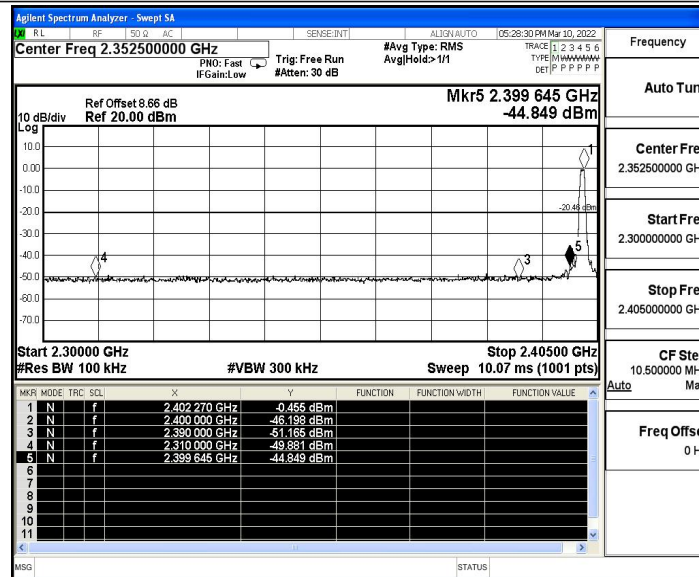
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.46	-44.85	≤ -20.46	PASS
		High	2480	-0.54	-47.76	≤ -20.54	PASS

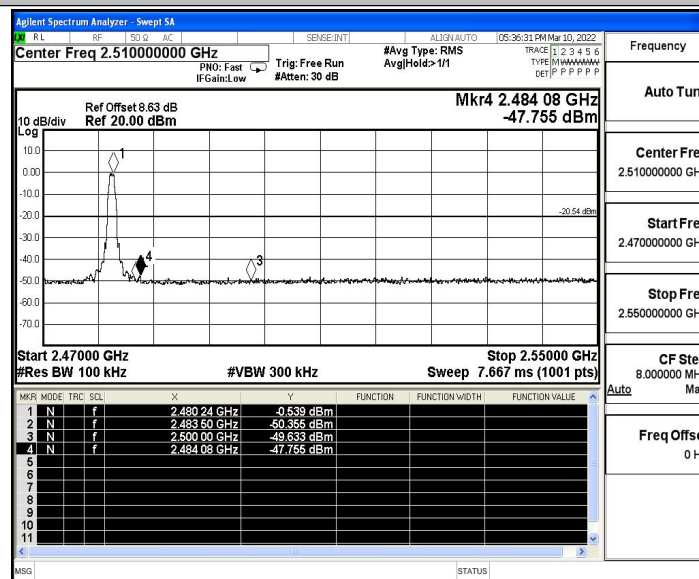


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480





A.5 Conducted Spurious Emission

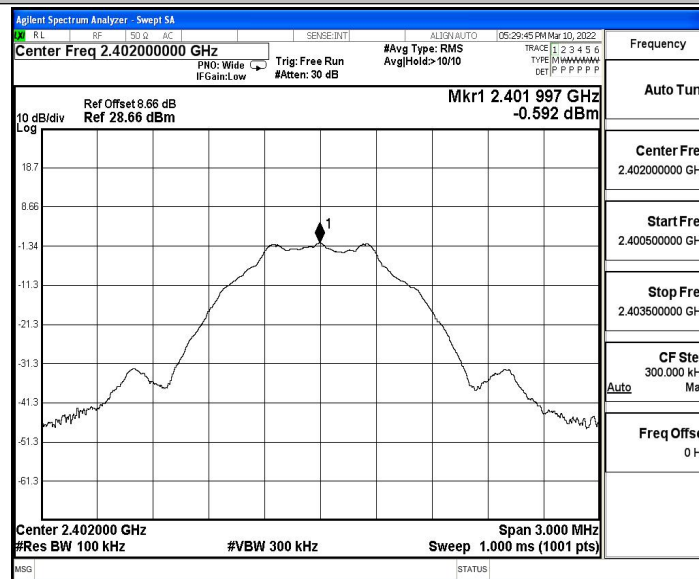
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.59	-0.59	---	PASS
			30~1000	-0.59	-58.74	≤ -20.59	PASS
			1000~26500	-0.59	-46.22	≤ -20.59	PASS
		2440	Reference	-0.17	-0.17	---	PASS
			30~1000	-0.17	-58.78	≤ -20.17	PASS
			1000~26500	-0.17	-46.37	≤ -20.17	PASS
		2480	Reference	-0.65	-0.65	---	PASS
			30~1000	-0.65	-59.56	≤ -20.65	PASS
			1000~26500	-0.65	-39.73	≤ -20.65	PASS

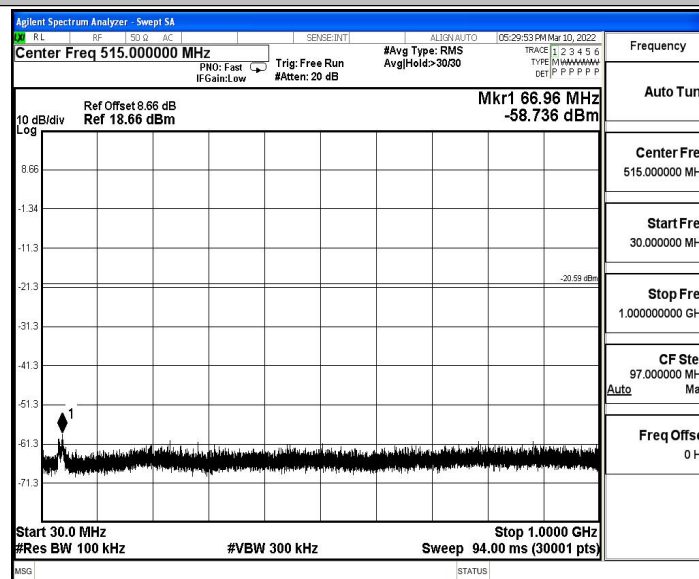


Test Graphs

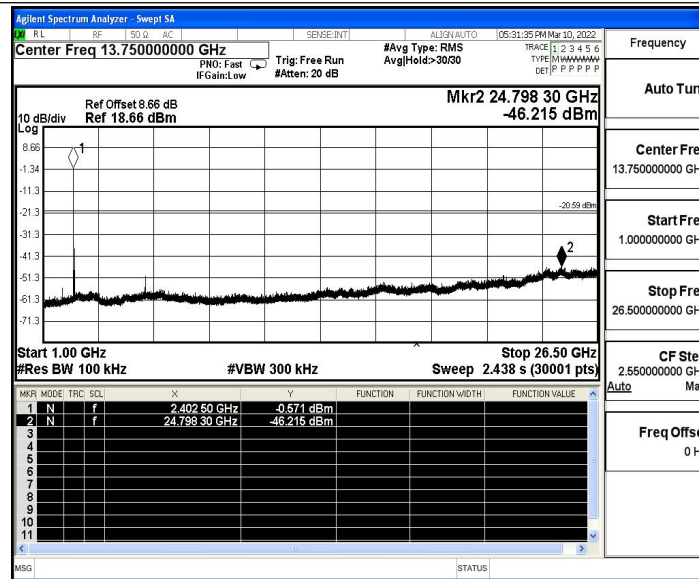
BLE_1M_Ant1_2402_0~Reference



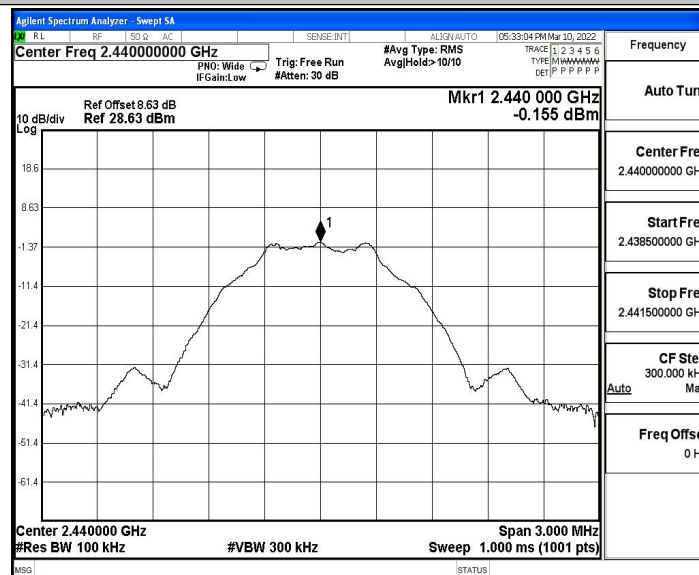
BLE_1M_Ant1_2402_30~1000



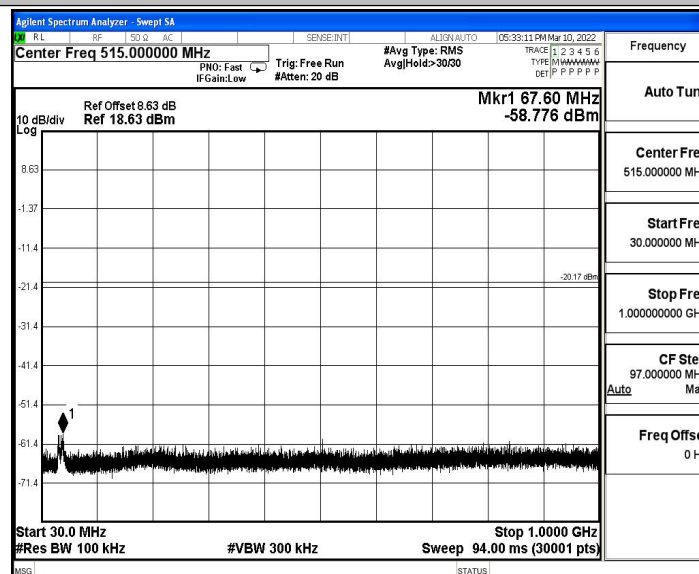
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference

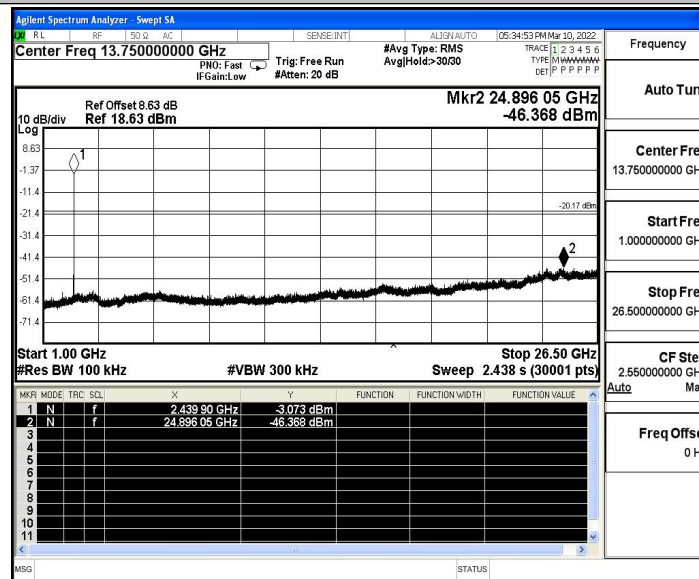


BLE_1M_Ant1_2440_30~1000

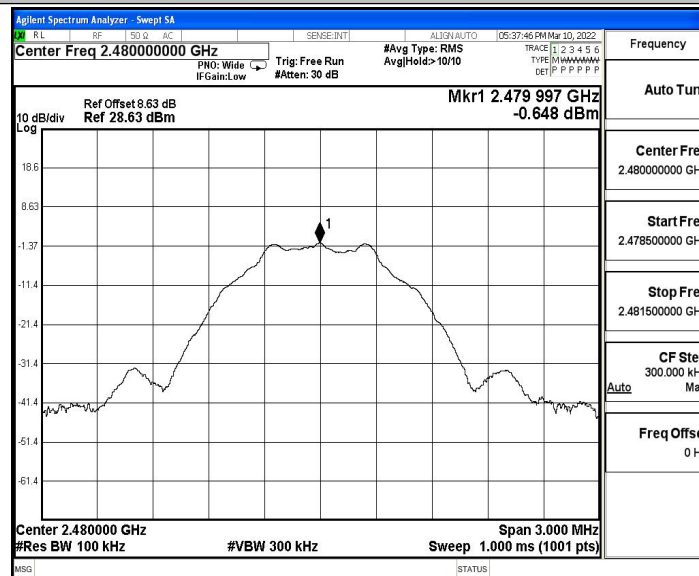




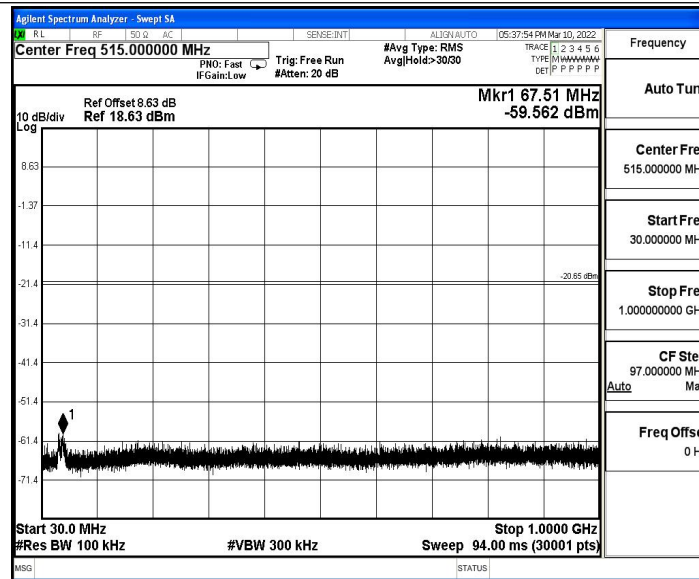
BLE_1M_Ant1_2440_1000~26500



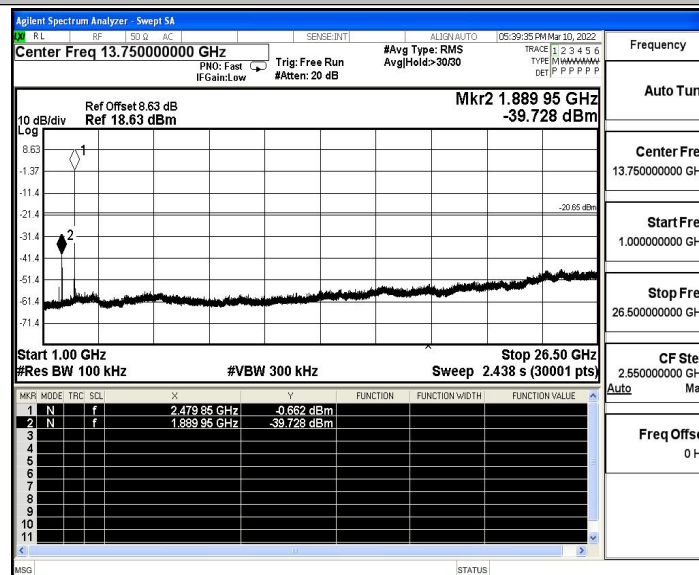
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500





A.6 Duty Cycle

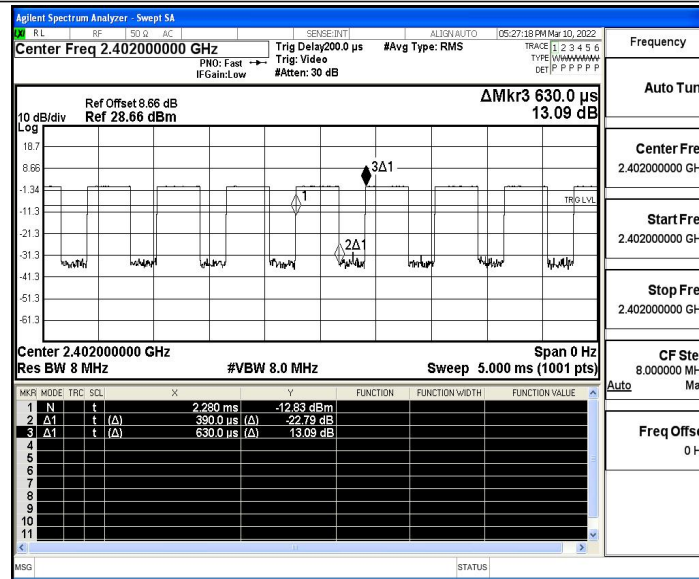
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T[kHz]
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	2.56
		2440	0.39	0.62	0.6290	62.90	2.01	2.56
		2480	0.39	0.63	0.6190	61.90	2.08	2.56

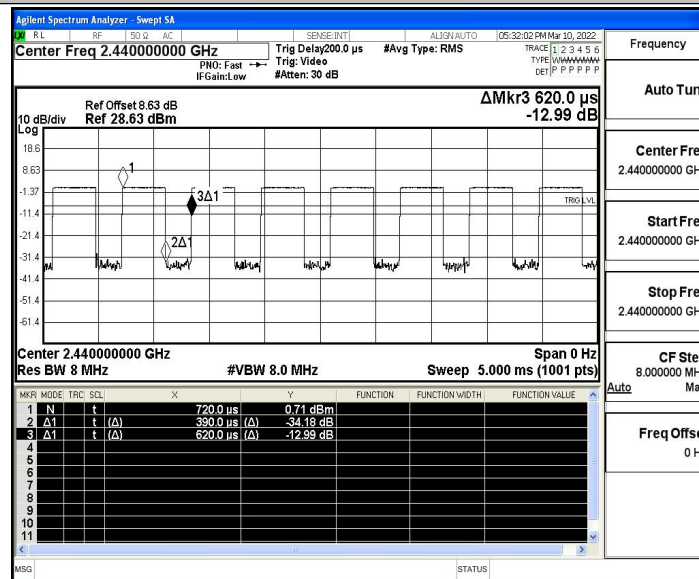


Test Graphs

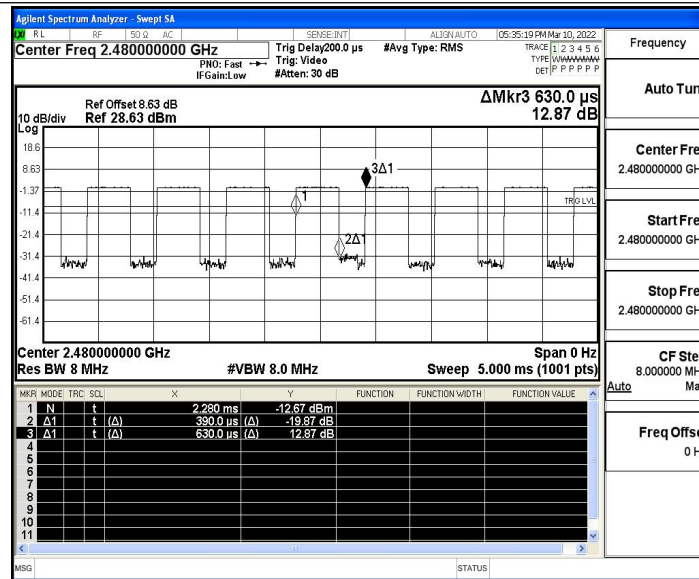
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-47.49	≤-41.20	47.71	≤54	PASS
				AV	2379.590	-46.65	≤-41.20	48.55	≤54	PASS
				AV	2390.000	-47.13	≤-41.20	48.07	≤54	PASS
				Peak	2310.000	-38.86	≤-21.20	56.34	≤74	PASS
				Peak	2347.880	-36.97	≤-21.20	58.23	≤74	PASS
				Peak	2390.000	-37.22	≤-21.20	57.98	≤74	PASS
		High	2480	AV	2483.500	-45.9	≤-41.20	49.30	≤54	PASS
				AV	2483.600	-45.51	≤-41.20	49.69	≤54	PASS
				AV	2500.000	-46.55	≤-41.20	48.65	≤54	PASS
				Peak	2483.500	-32.24	≤-21.20	62.96	≤74	PASS
				Peak	2483.520	-32.24	≤-21.20	62.96	≤74	PASS
				Peak	2500.000	-37.78	≤-21.20	57.42	≤74	PASS

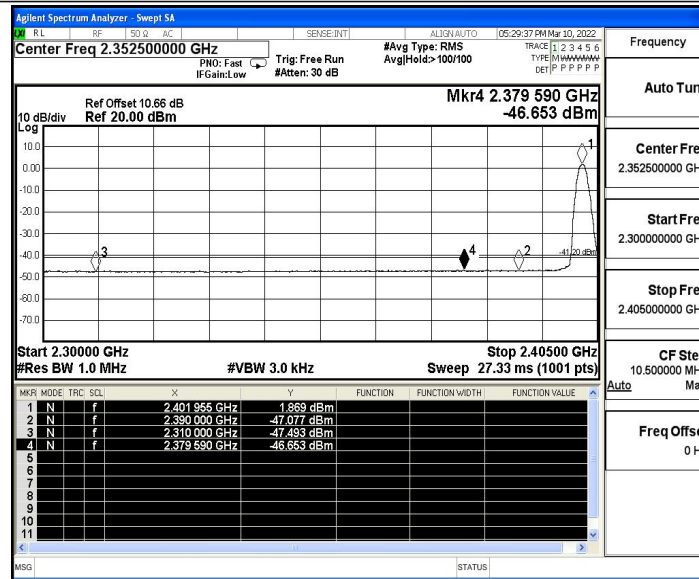
Note:

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.

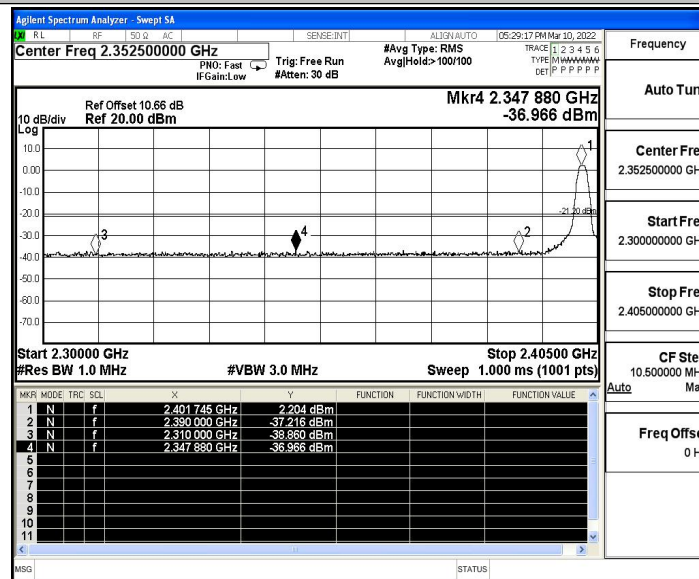


Test Graphs

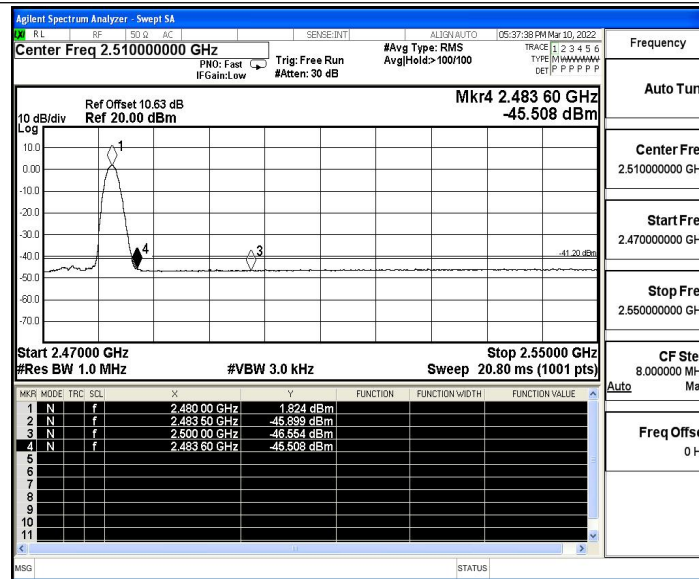
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

