



Appendix B

RF Test Data for BLE V4.2(DTS) (Conducted Measurement)

Product Name: Laser Engraver

Trade Mark: N/A

Test Model: ZBT_3737O

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Wunder Wu
Supervised by:	Li Huan



B.1 DTS Bandwidth

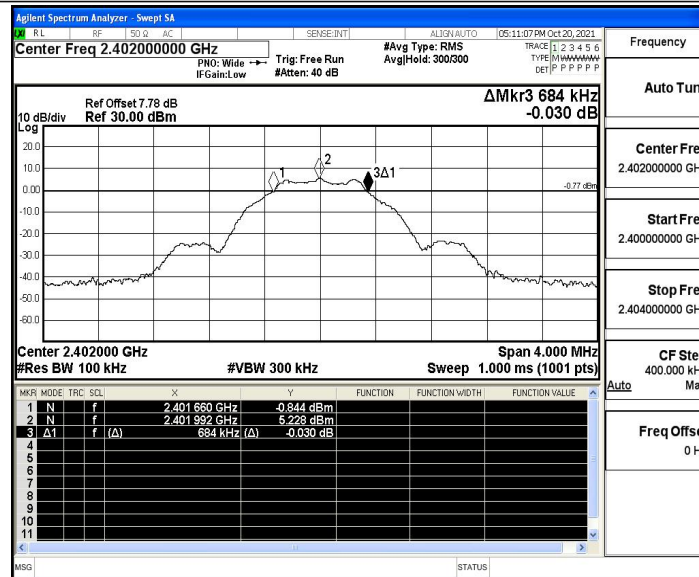
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.684	2401.660	2402.344	≥0.5	PASS
		2440	0.680	2439.656	2440.336	≥0.5	PASS
		2480	0.680	2479.660	2480.340	≥0.5	PASS

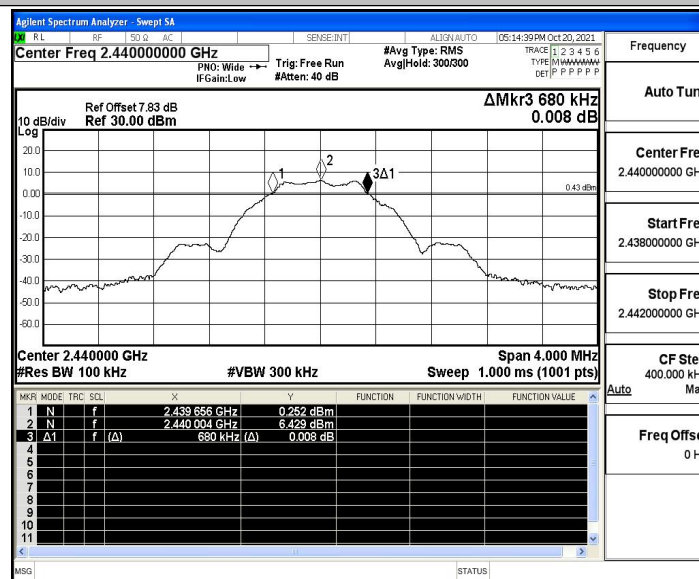


Test Graphs

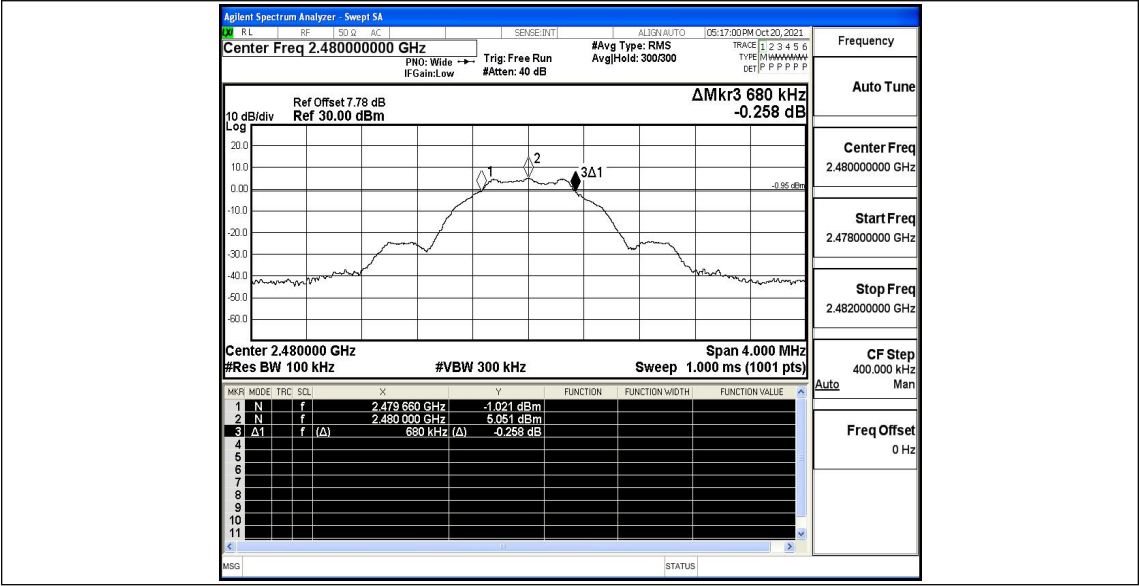
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





B.2 Maximum conducted output power

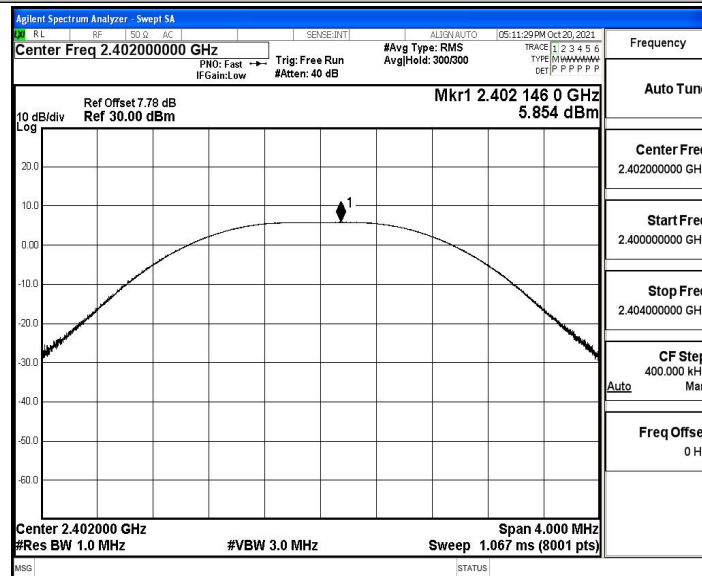
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.85	≤30	PASS
		2440	6.99	≤30	PASS
		2480	5.57	≤30	PASS

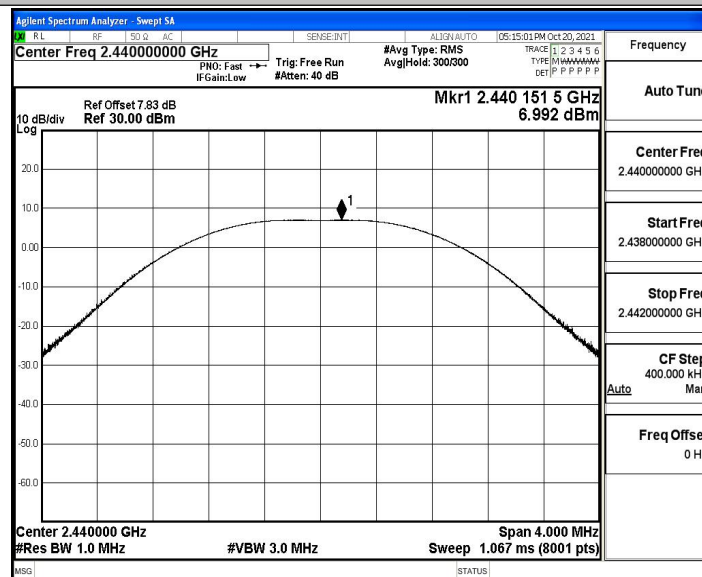


Test Graphs

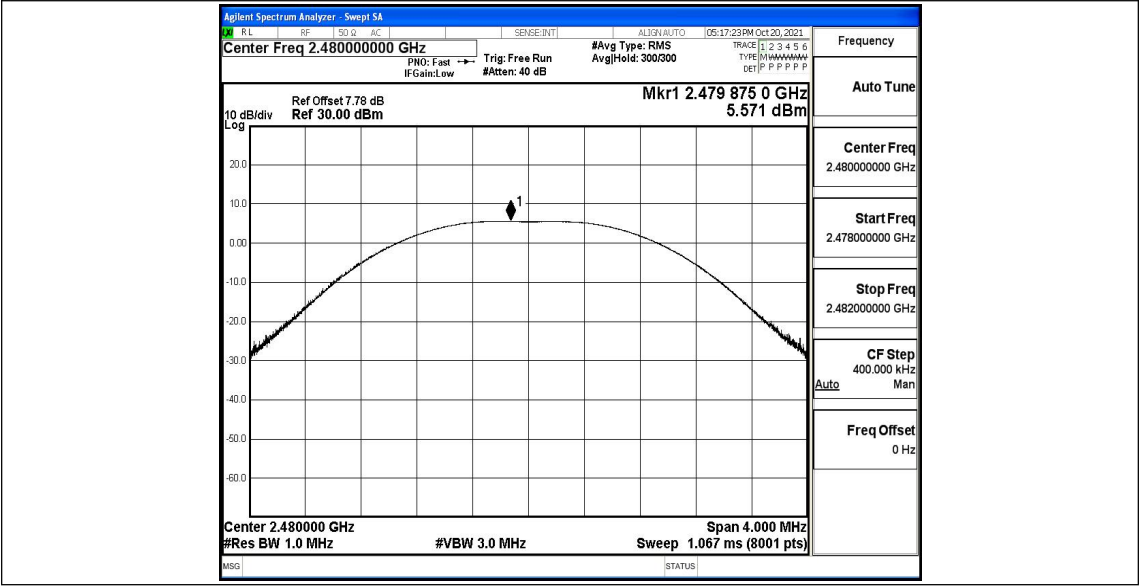
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





B.3 Maximum power spectral density

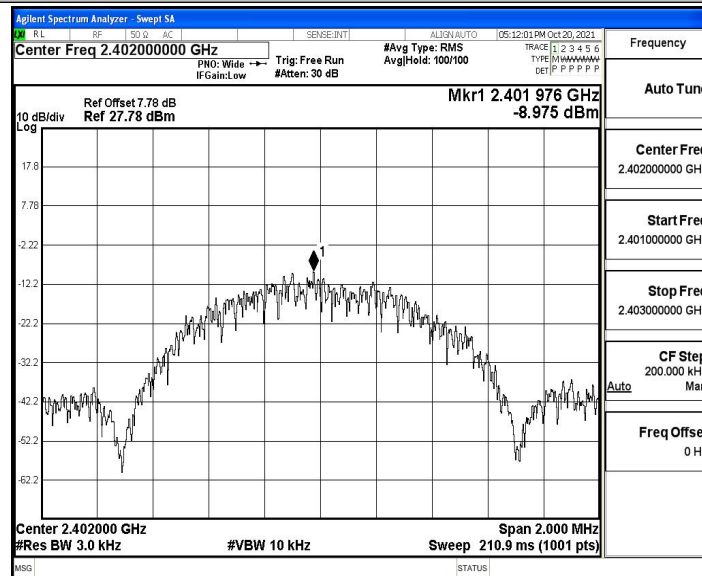
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.98	≤8	PASS
		2440	-7.78	≤8	PASS
		2480	-9.15	≤8	PASS

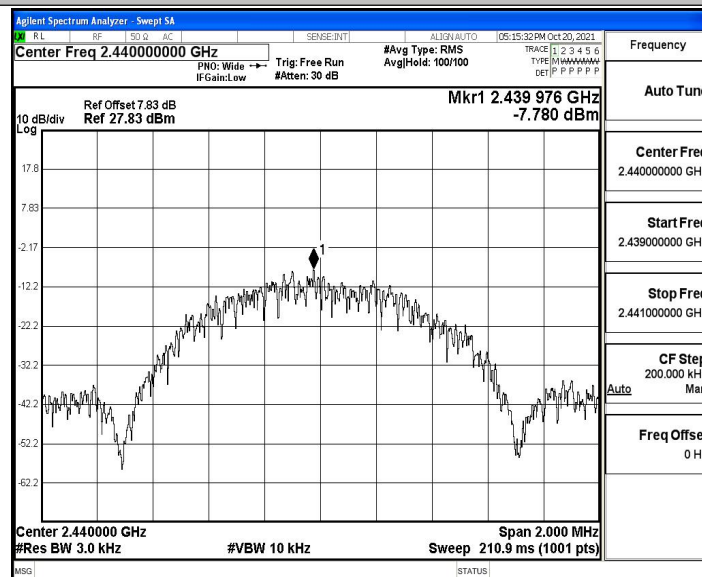


Test Graphs

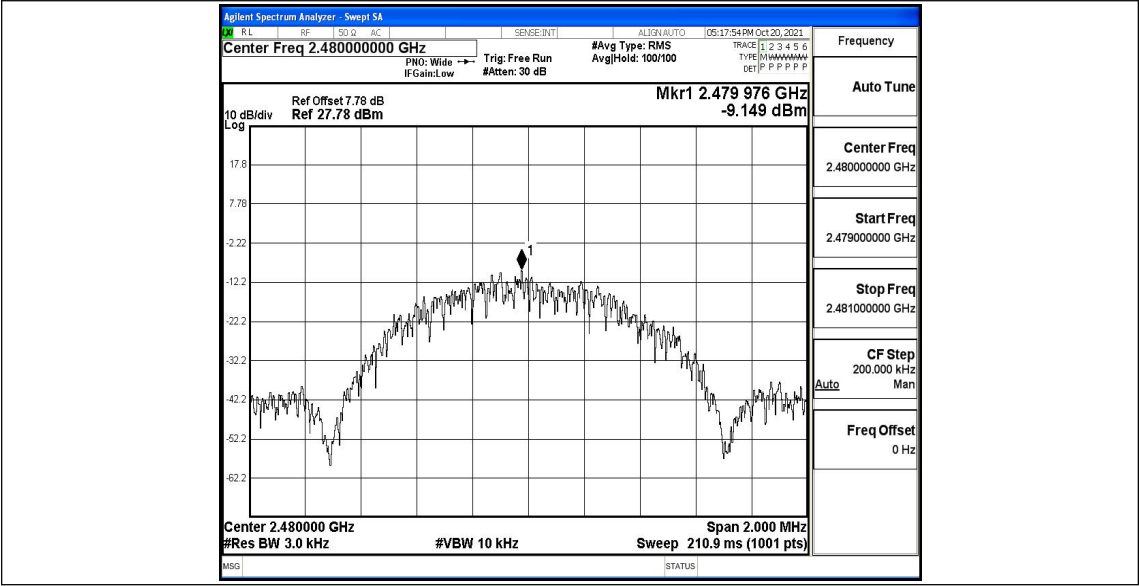
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





B.4 Band edge measurements

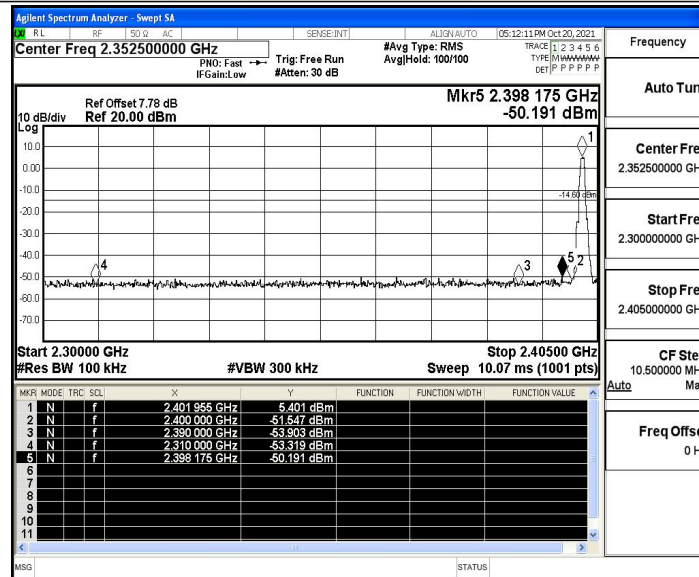
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.40	-50.19	≤-14.6	PASS
		High	2480	5.15	-48.74	≤-14.85	PASS

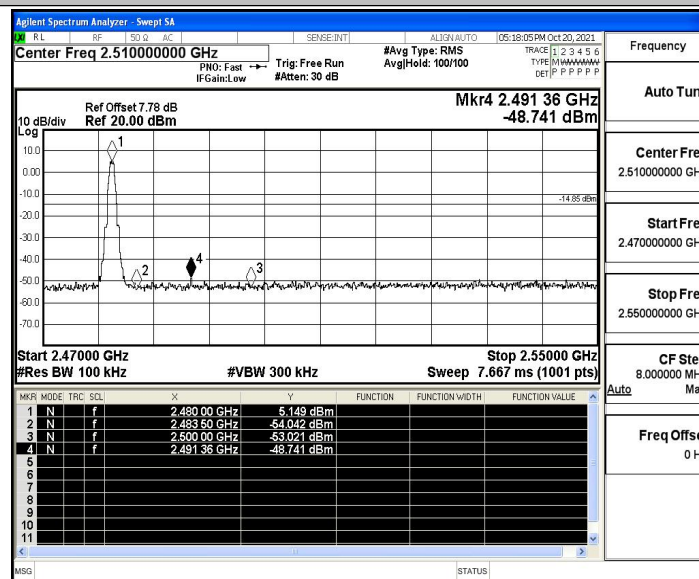


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480





B.5 Conducted Spurious Emission

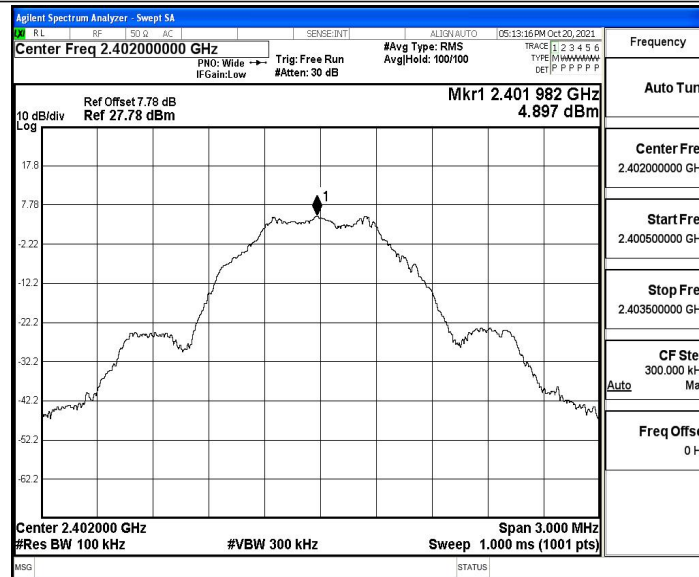
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	4.90	4.90	---	PASS
			30~1000	4.90	-61.44	≤ -15.1	PASS
			1000~26500	4.90	-47.28	≤ -15.1	PASS
		2440	Reference	6.03	6.03	---	PASS
			30~1000	6.03	-61.5	≤ -13.98	PASS
			1000~26500	6.03	-47.27	≤ -13.98	PASS
		2480	Reference	4.94	4.94	---	PASS
			30~1000	4.94	-61.06	≤ -15.06	PASS
			1000~26500	4.94	-47.2	≤ -15.06	PASS

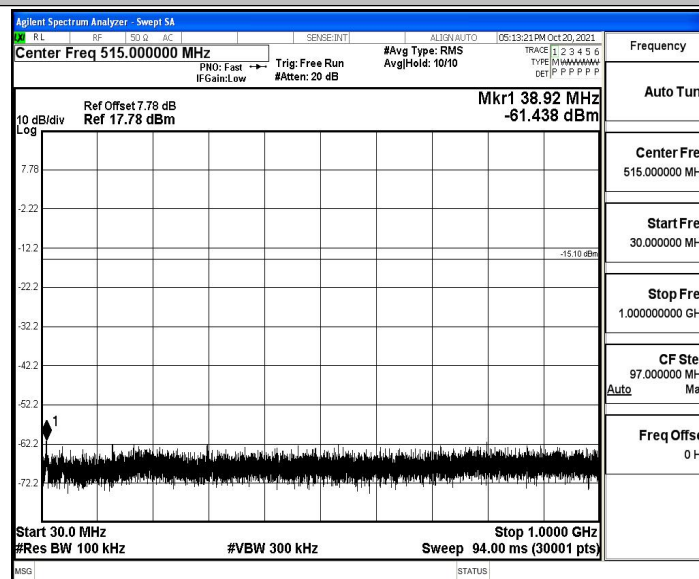


Test Graphs

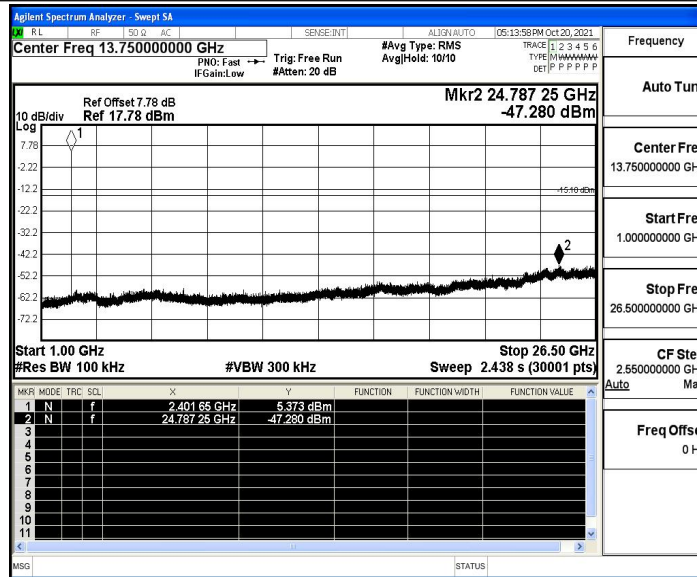
BLE_1M_Ant1_2402_0~Reference



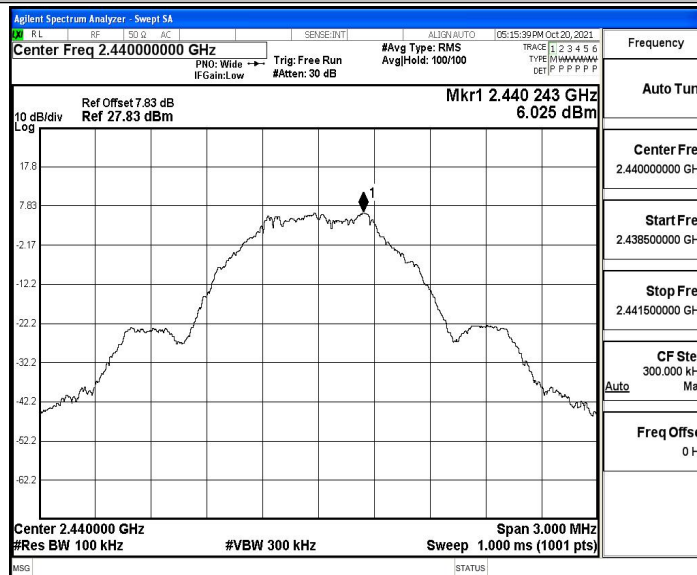
BLE_1M_Ant1_2402_30~1000



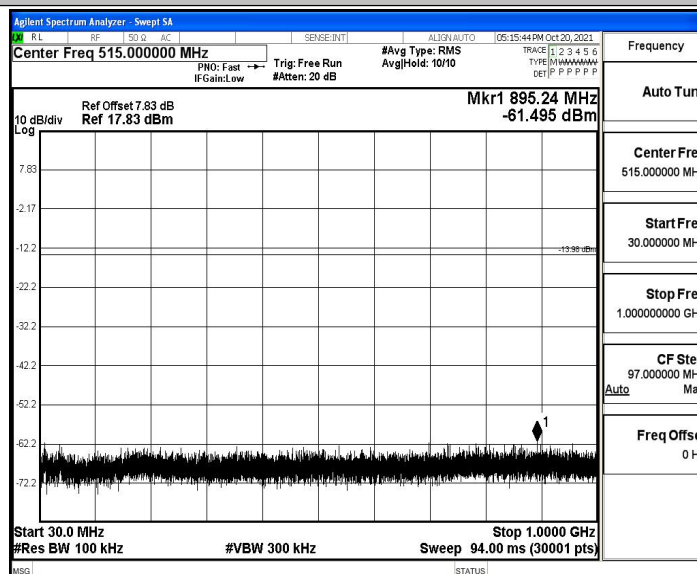
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference

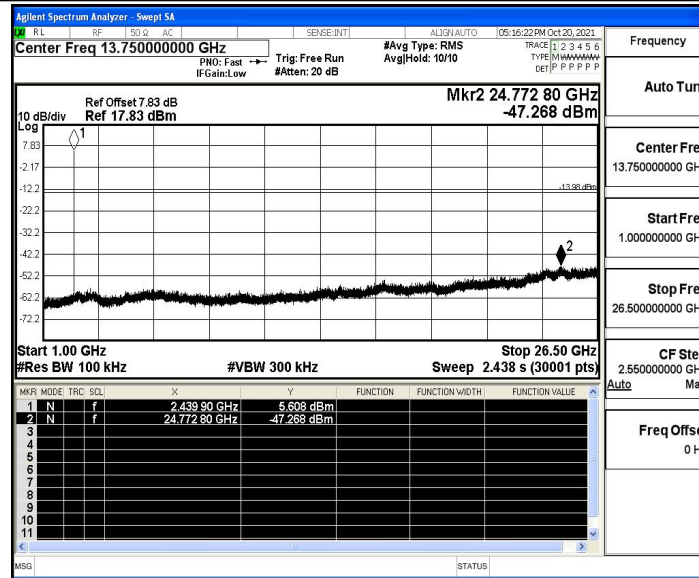


BLE_1M_Ant1_2440_30~1000

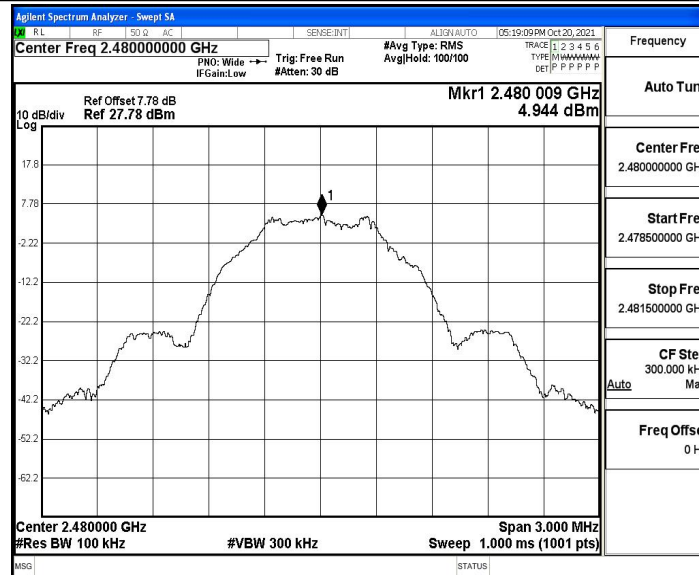




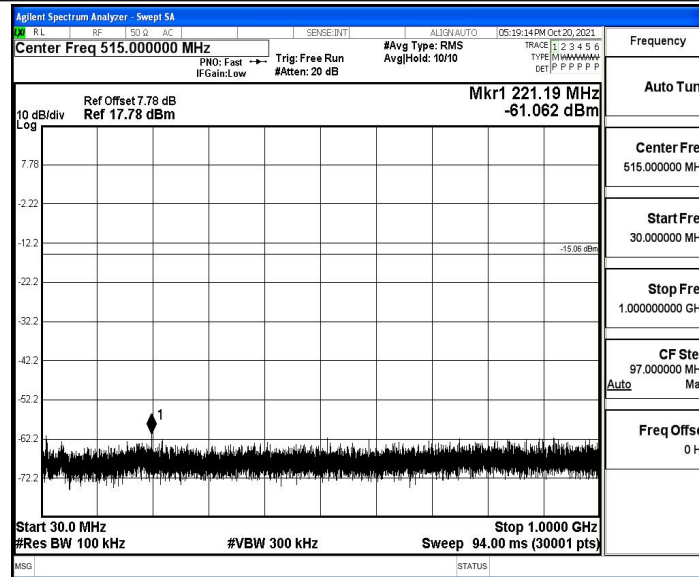
BLE_1M_Ant1_2440_1000~26500



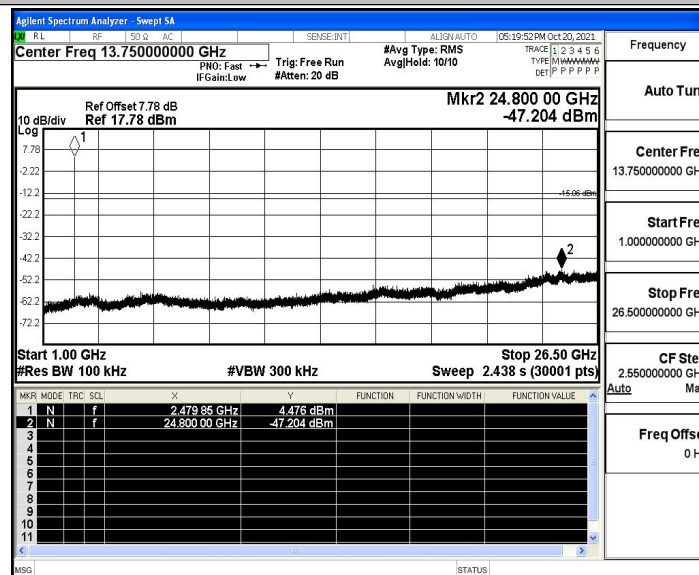
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500





B.6 Duty Cycle

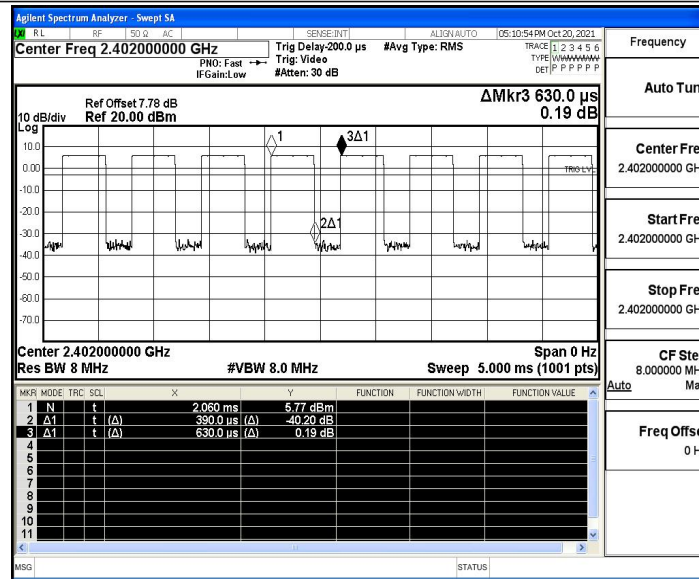
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2440	0.38	0.63	0.6032	60.32	2.20	---	PASS
		2480	0.39	0.63	0.6190	61.90	2.08	---	PASS

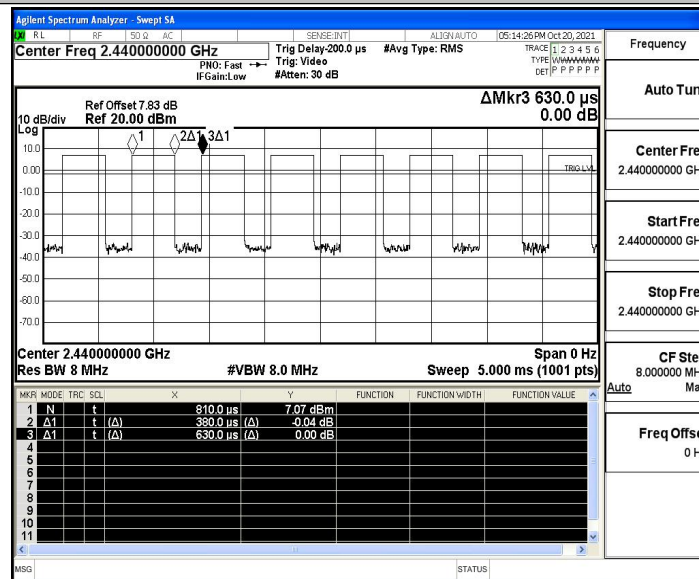


Test Graphs

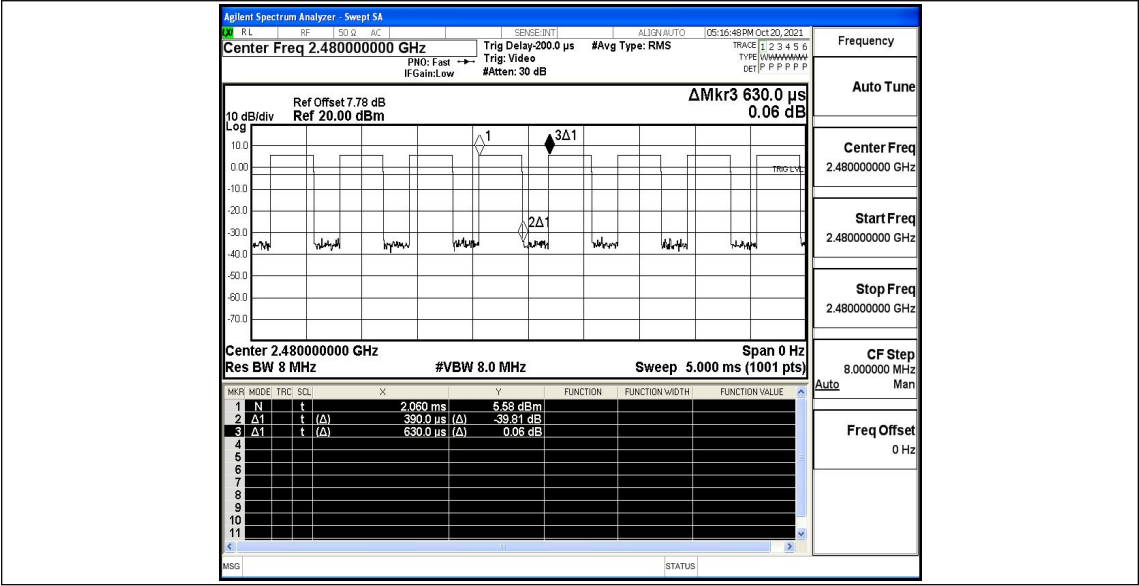
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





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]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.64	≤-41.20	46.56	≤54	PASS
				AV	2389.565	-47.59	≤-41.20	47.61	≤54	PASS
				AV	2390.000	-48.12	≤-41.20	47.08	≤54	PASS
				Peak	2310.000	-41.53	≤-21.20	53.67	≤74	PASS
				Peak	2314.280	-38.86	≤-21.20	56.34	≤74	PASS
				Peak	2390.000	-41.23	≤-21.20	53.97	≤74	PASS
		High	2480	AV	2483.500	-45.9	≤-41.20	49.30	≤54	PASS
				AV	2483.520	-45.9	≤-41.20	49.30	≤54	PASS
				AV	2500.000	-47.56	≤-41.20	47.64	≤54	PASS
				Peak	2483.500	-40.9	≤-21.20	54.30	≤74	PASS
				Peak	2497.760	-37.13	≤-21.20	58.07	≤74	PASS
				Peak	2500.000	-40.82	≤-21.20	54.38	≤74	PASS

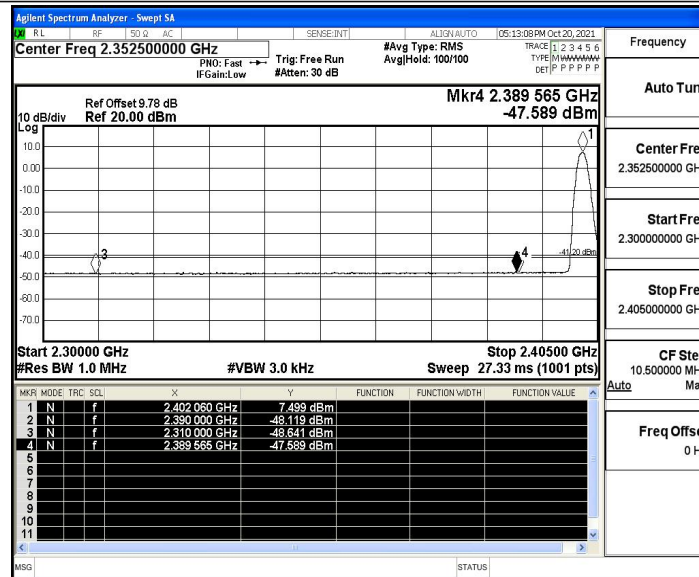
Note:

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.

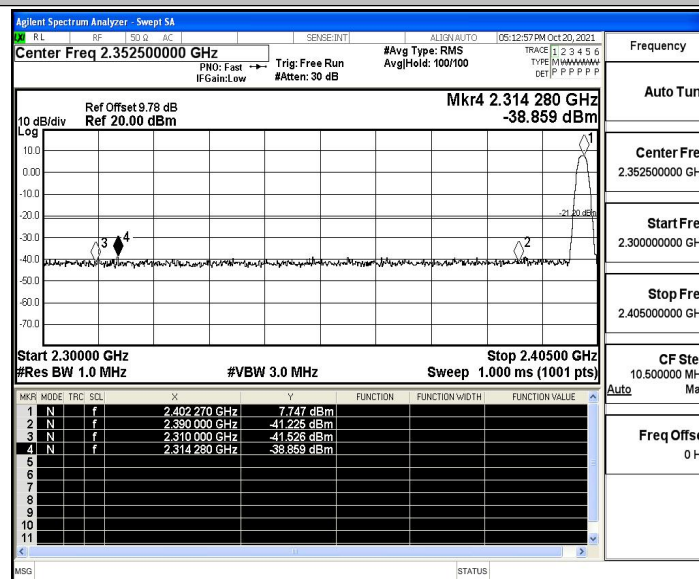


Test Graphs

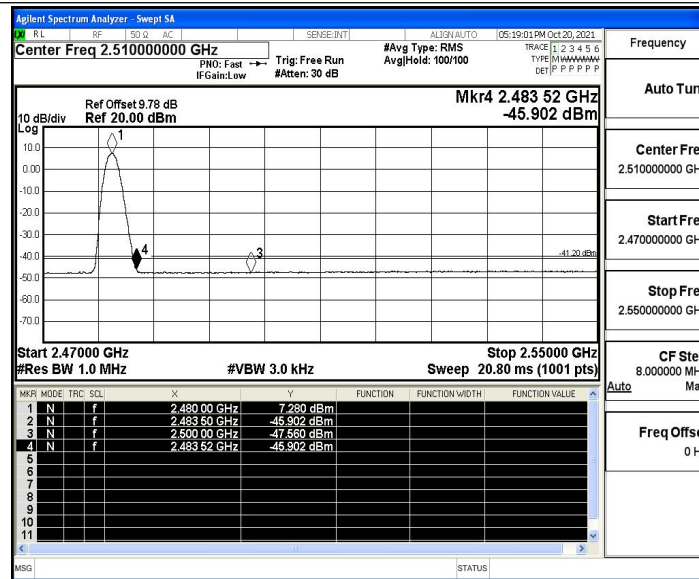
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

