



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Smart lamp module

Test Model: SM-030

Environmental Conditions

Temperature:	21.1° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan



A.1 6dB Bandwidth

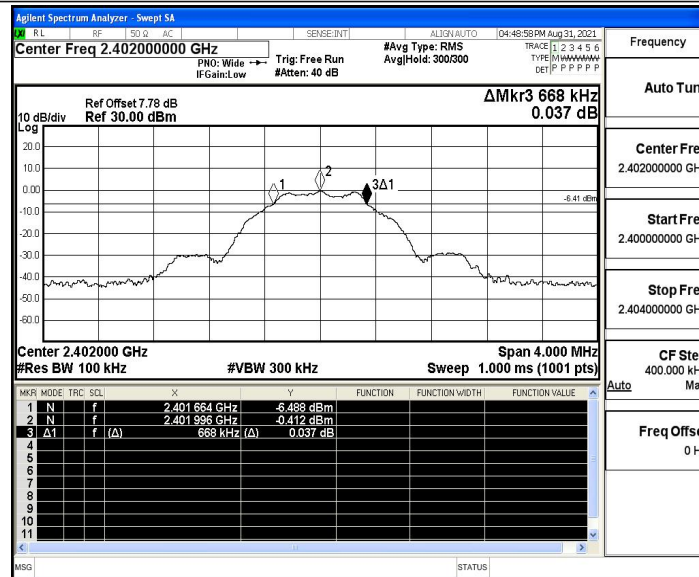
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.668	2401.664	2402.332	≥ 0.5	PASS
		2440	0.676	2439.660	2440.336	≥ 0.5	PASS
		2480	0.688	2479.656	2480.344	≥ 0.5	PASS

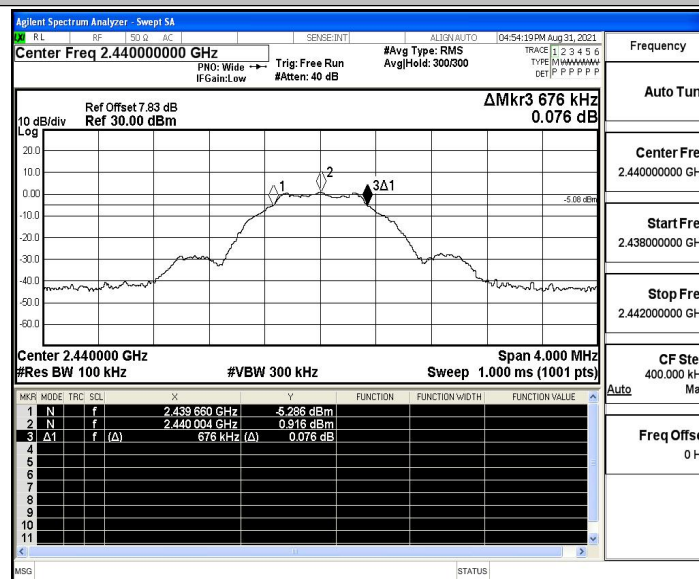


Test Graphs

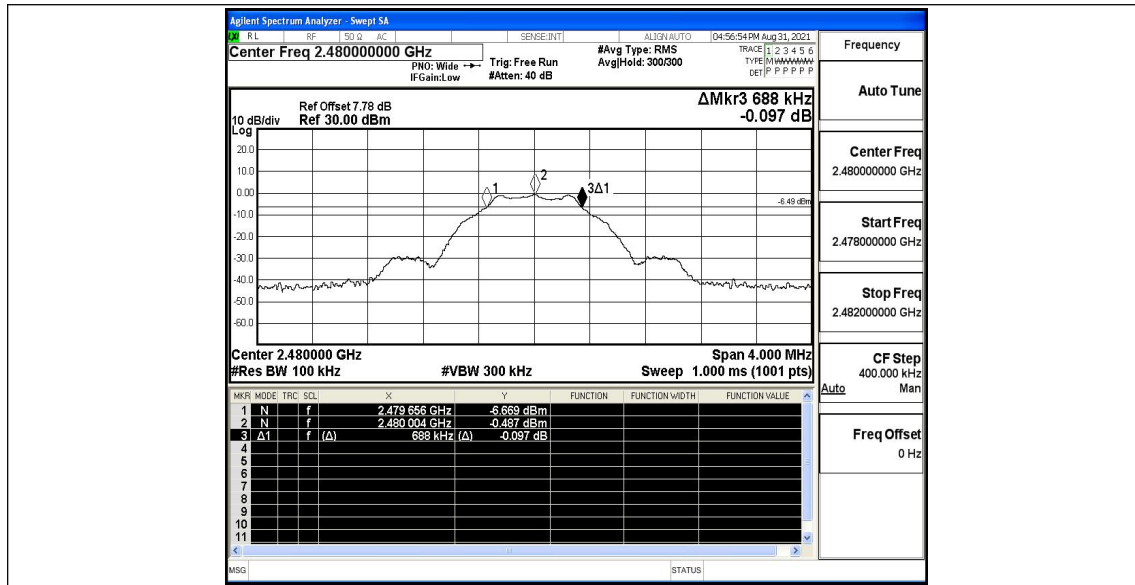
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





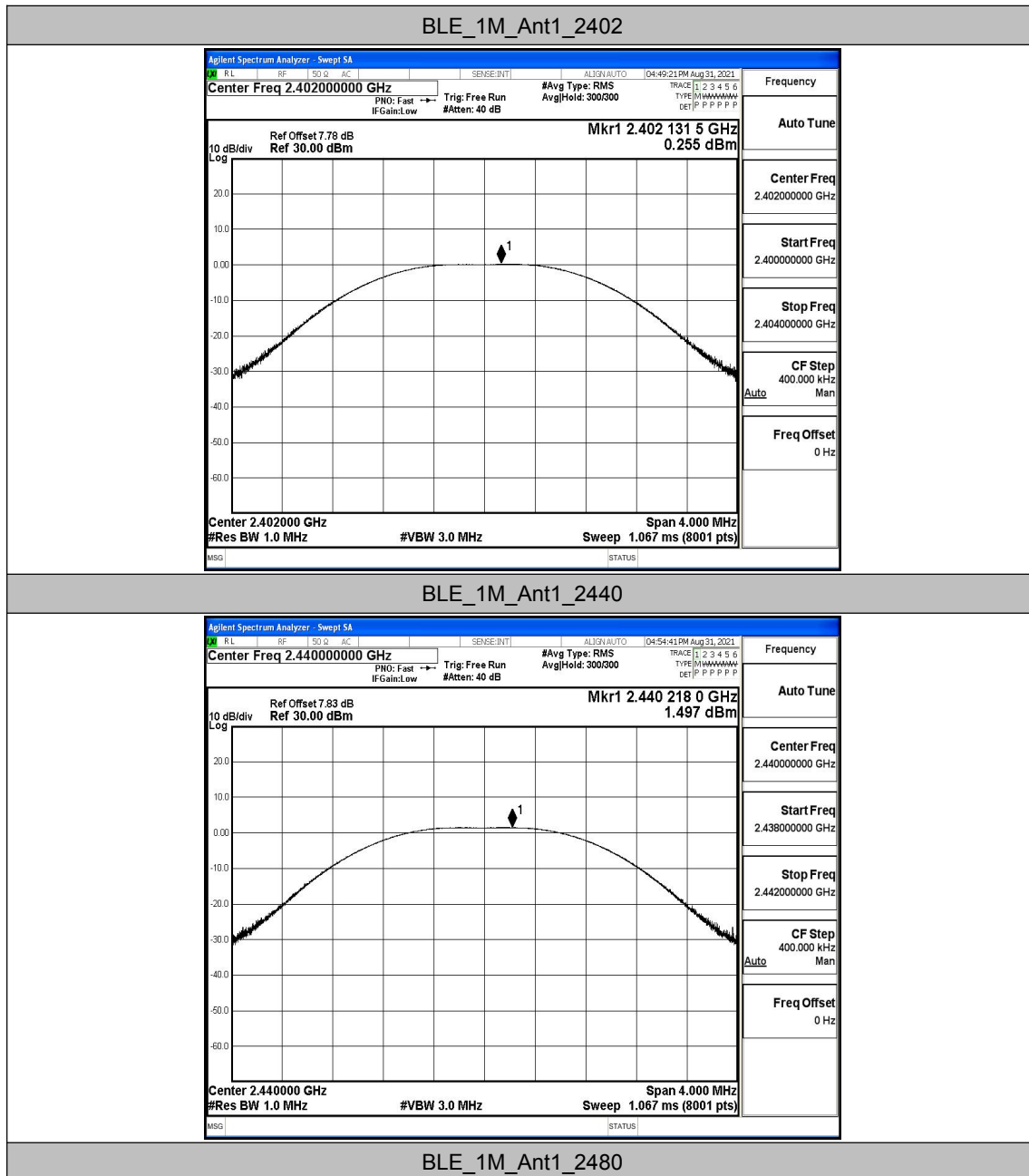
A.2 Maximum conducted output power

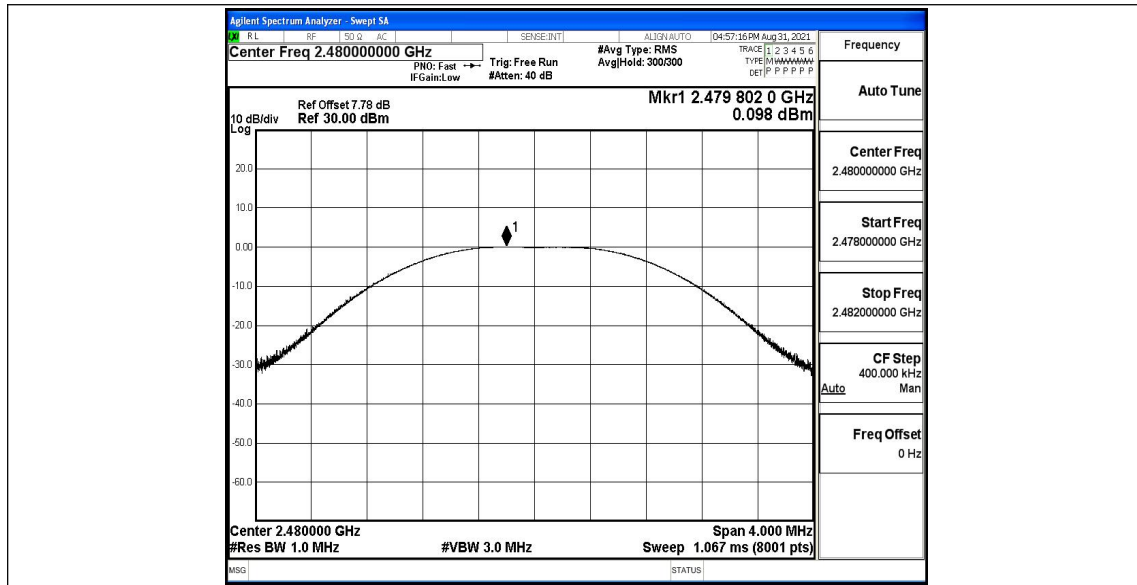
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.26	≤30	PASS
		2440	1.5	≤30	PASS
		2480	0.1	≤30	PASS



Test Graphs







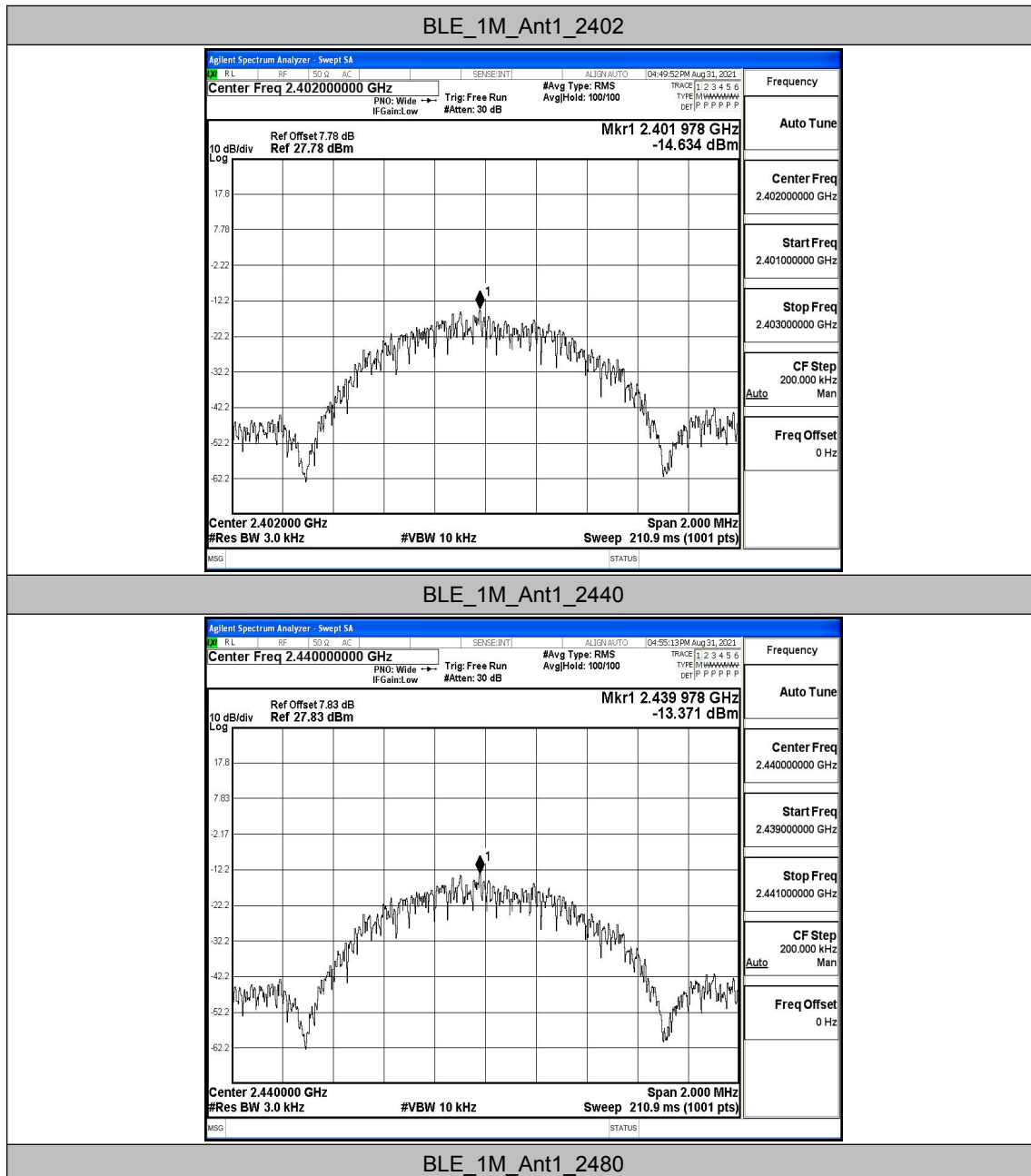
A.3 Maximum power spectral density

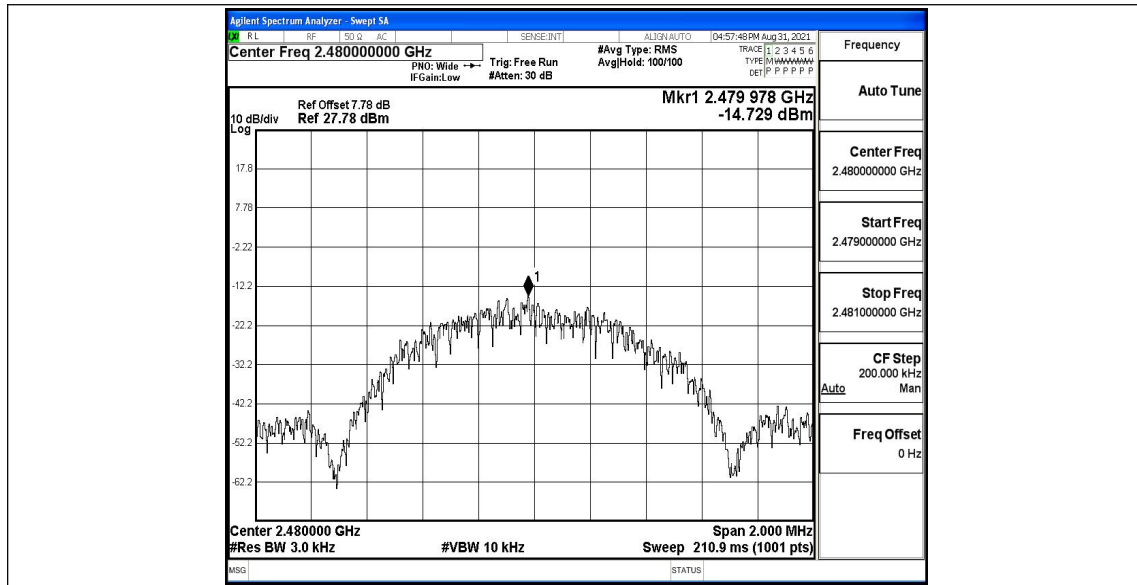
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.63	≤8	PASS
		2440	-13.37	≤8	PASS
		2480	-14.73	≤8	PASS



Test Graphs







A.4 Band edge measurements

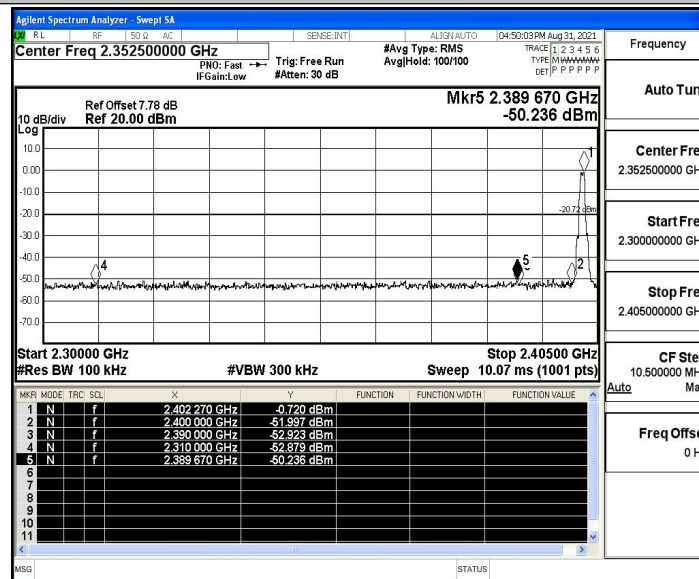
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.72	-50.24	≤ -20.72	PASS
		High	2480	-0.73	-49.25	≤ -20.73	PASS

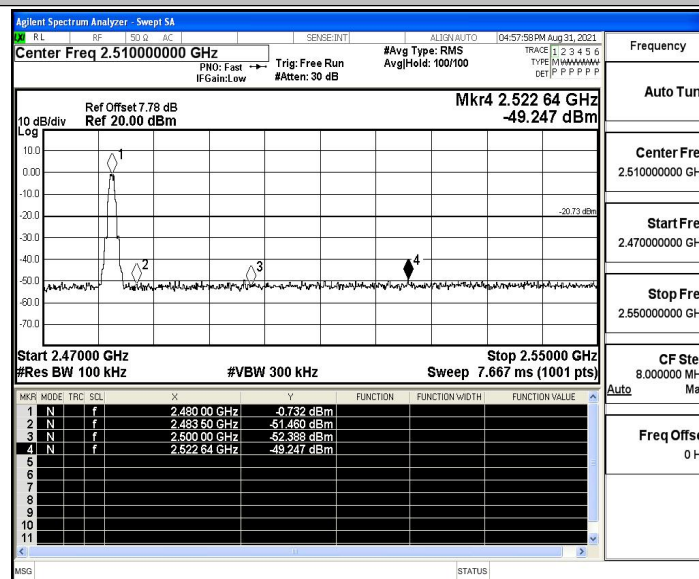


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480





A.5 Conducted Spurious Emission

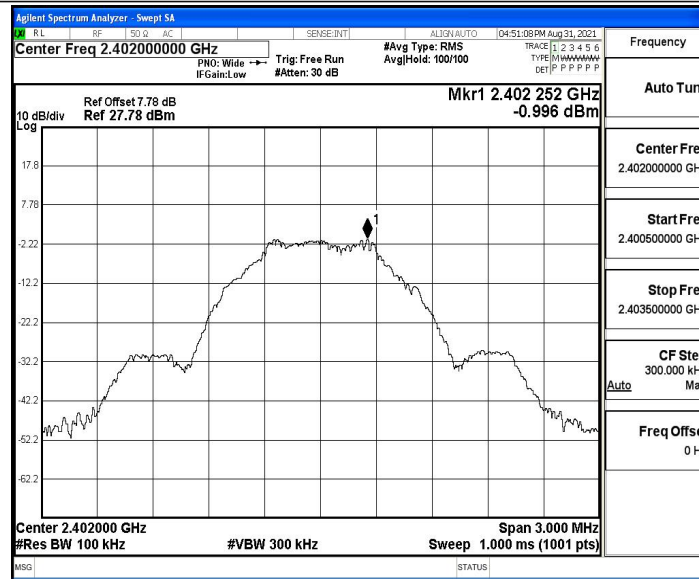
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.00	-1.00	---	PASS
			30~1000	-1.00	-61.32	≤-21	PASS
			1000~26500	-1.00	-47.13	≤-21	PASS
		2440	Reference	0.44	0.44	---	PASS
			30~1000	0.44	-60.69	≤-19.56	PASS
			1000~26500	0.44	-47.13	≤-19.56	PASS
		2480	Reference	-0.61	-0.61	---	PASS
			30~1000	-0.61	-61.61	≤-20.61	PASS
			1000~26500	-0.61	-47.9	≤-20.61	PASS

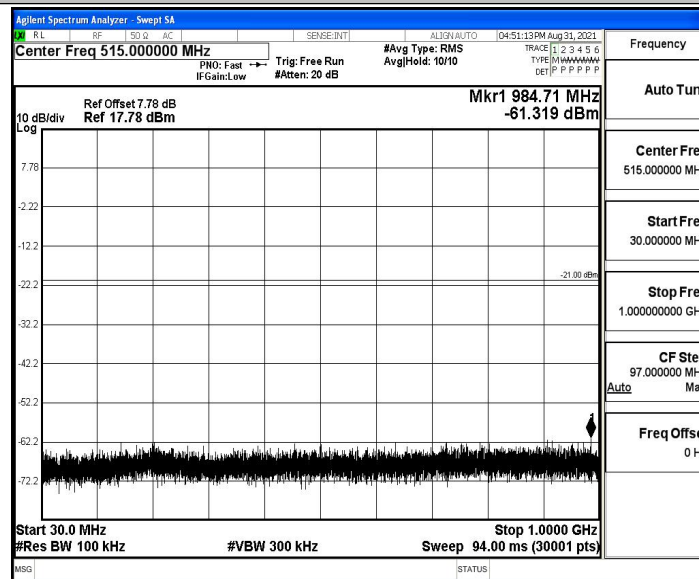


Test Graphs

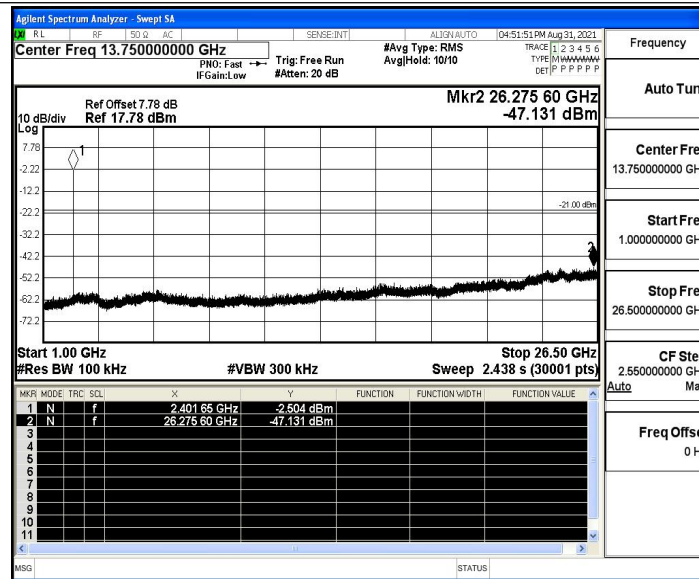
BLE_1M_Ant1_2402_0~Reference



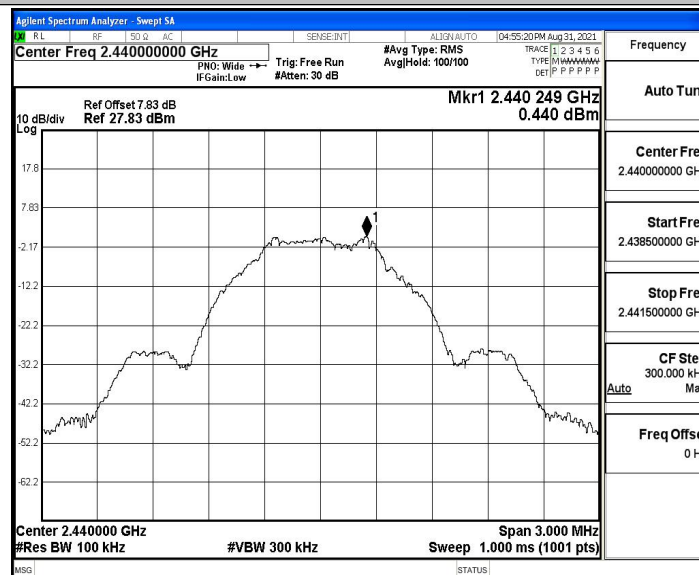
BLE_1M_Ant1_2402_30~1000



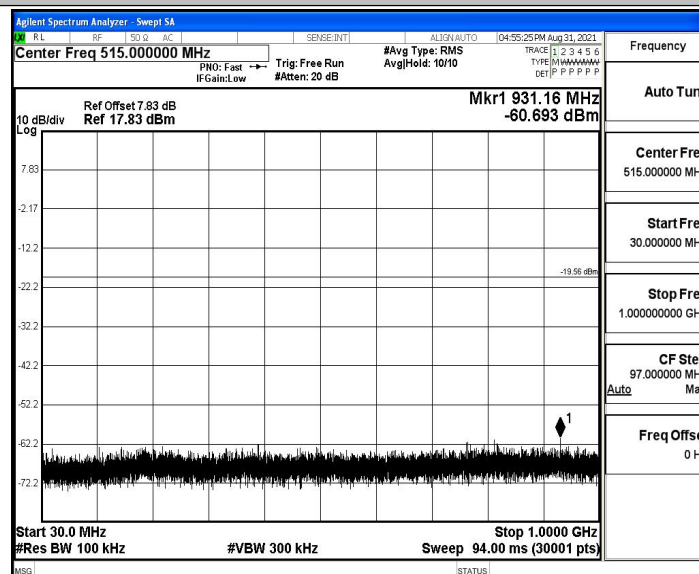
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference

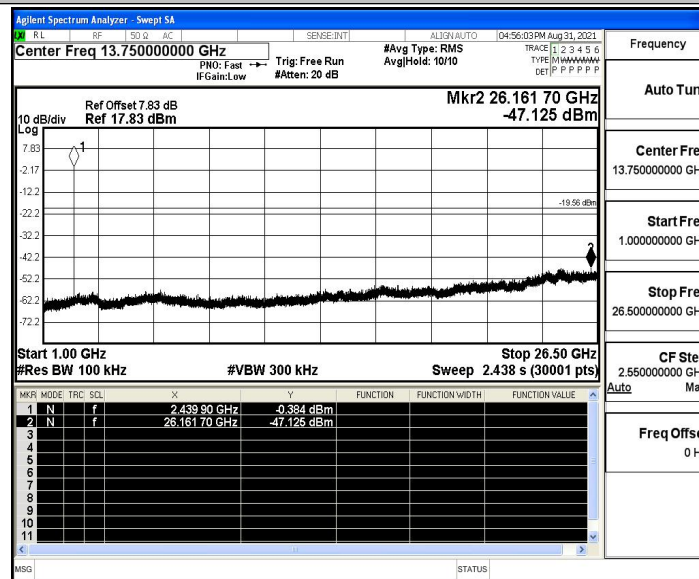


BLE_1M_Ant1_2440_30~1000

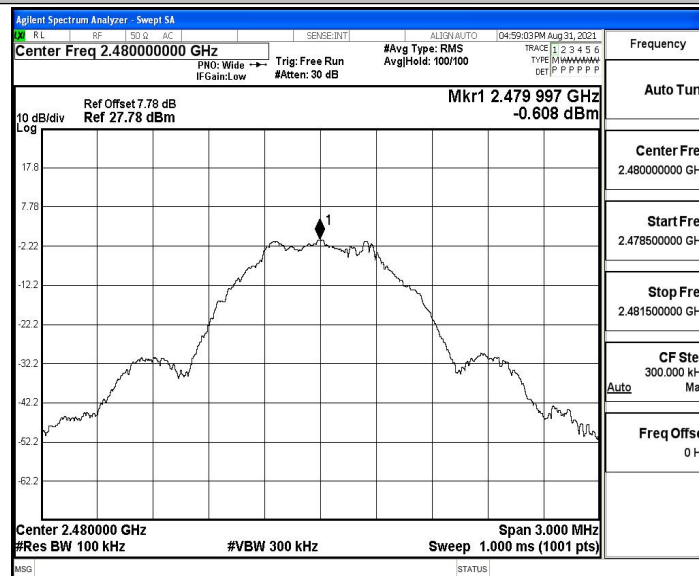




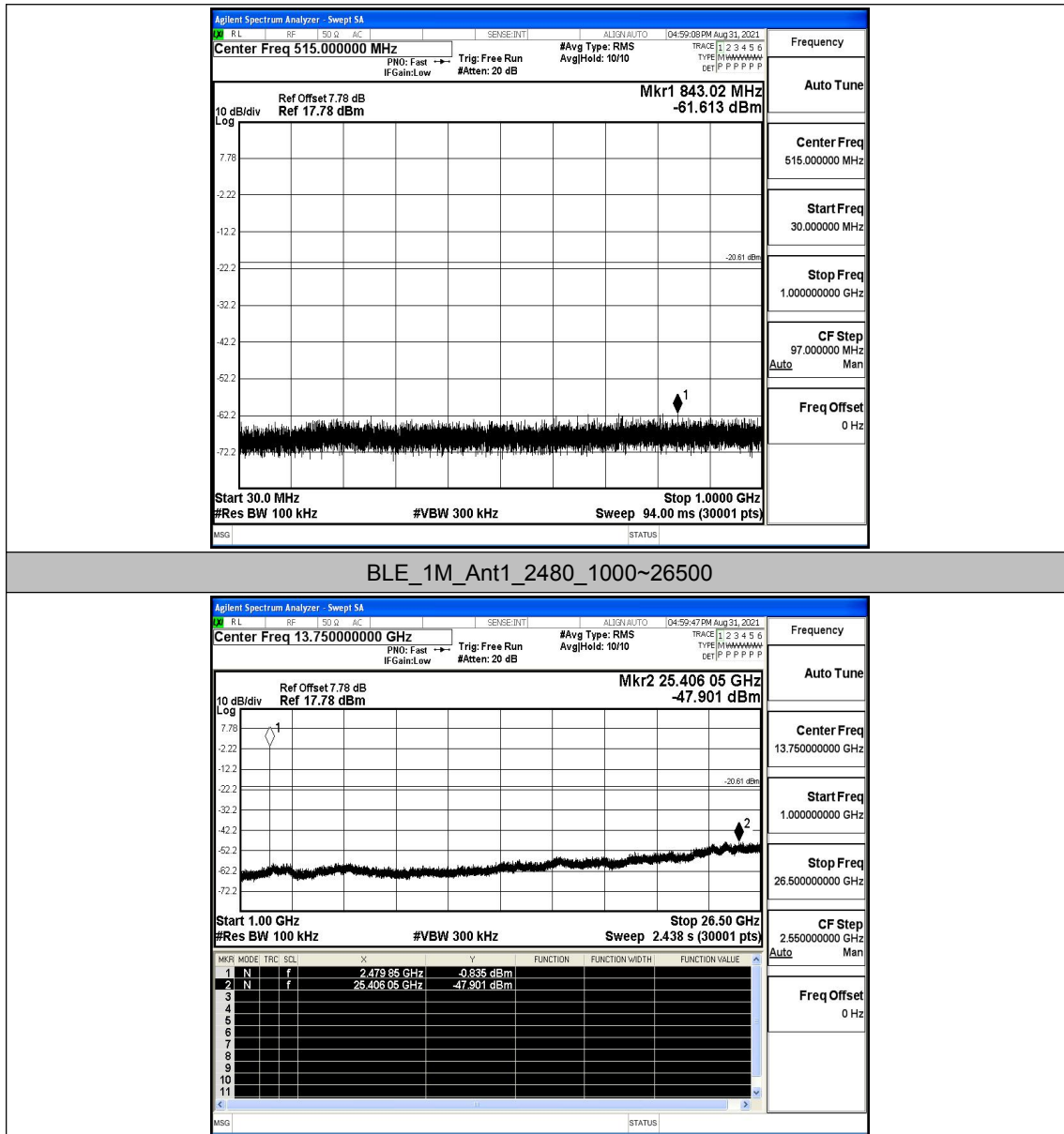
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000





A.6 Duty Cycle

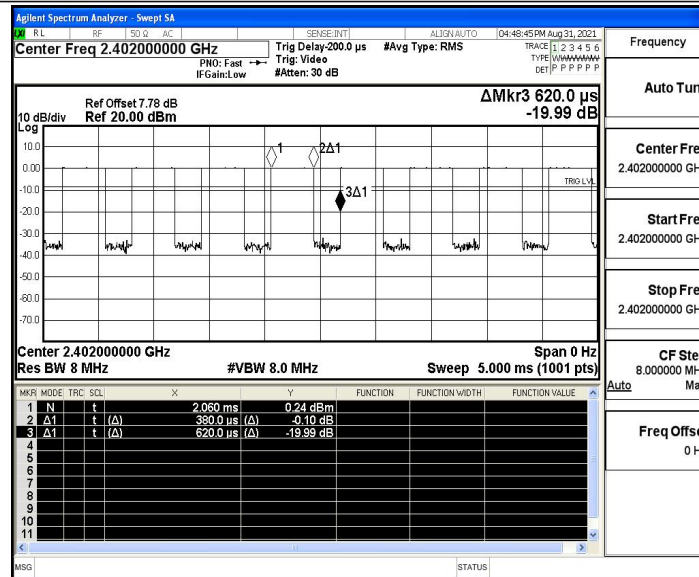
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	---	PASS
		2440	0.38	0.63	0.6032	60.32	2.20	---	PASS
		2480	0.38	0.62	0.6129	61.29	2.13	---	PASS

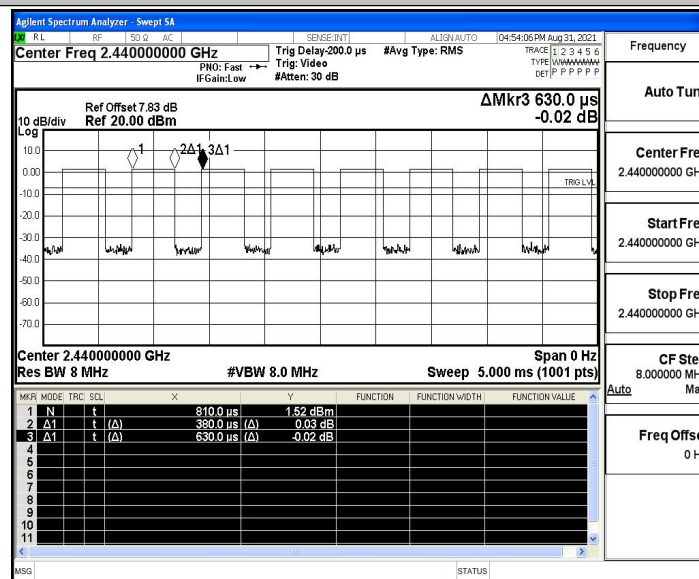


Test Graphs

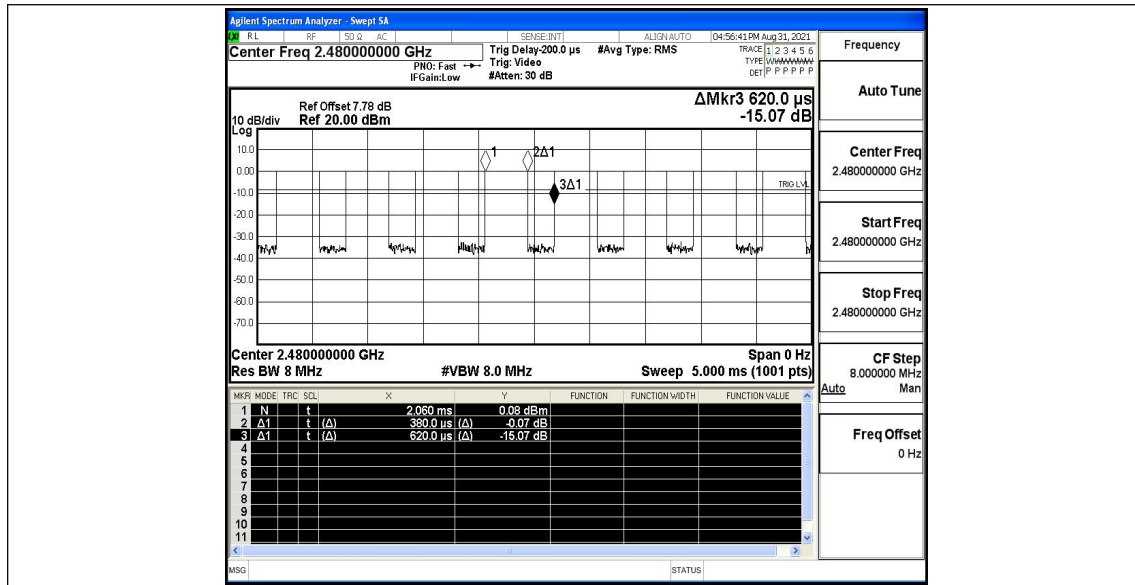
BLE_1M_Ant1_2402



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	-48.36	≤-41.20	46.84	≤54	PASS
				AV	2387.465	-47.52	≤-41.20	47.68	≤54	PASS
				AV	2390.000	-48.02	≤-41.20	47.18	≤54	PASS
				Peak	2310.000	-42.13	≤-21.20	53.07	≤74	PASS
				Peak	2381.480	-38.16	≤-21.20	57.04	≤74	PASS
				Peak	2390.000	-40.8	≤-21.20	54.40	≤74	PASS
		High	2480	AV	2483.500	-47.17	≤-41.20	48.03	≤54	PASS
				AV	2483.680	-46.95	≤-41.20	48.25	≤54	PASS
				AV	2500.000	-47.31	≤-41.20	47.89	≤54	PASS
				Peak	2483.500	-38.94	≤-21.20	56.26	≤74	PASS
				Peak	2489.600	-37.84	≤-21.20	57.36	≤74	PASS
				Peak	2500.000	-39.88	≤-21.20	55.32	≤74	PASS

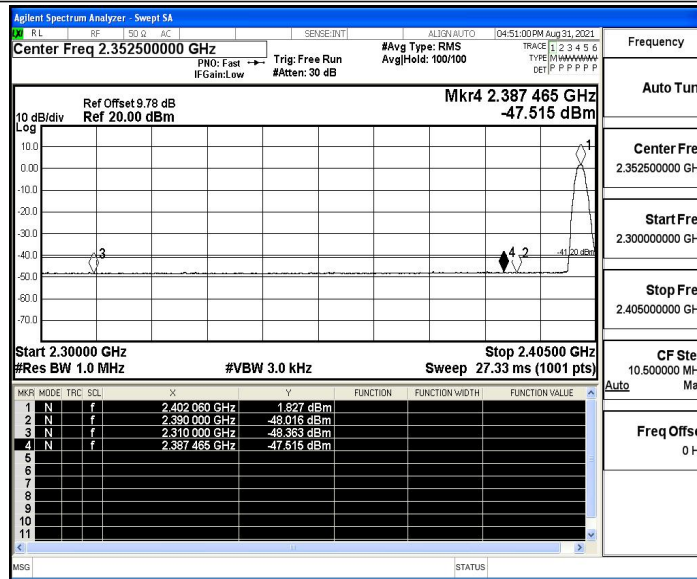
Note:

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.

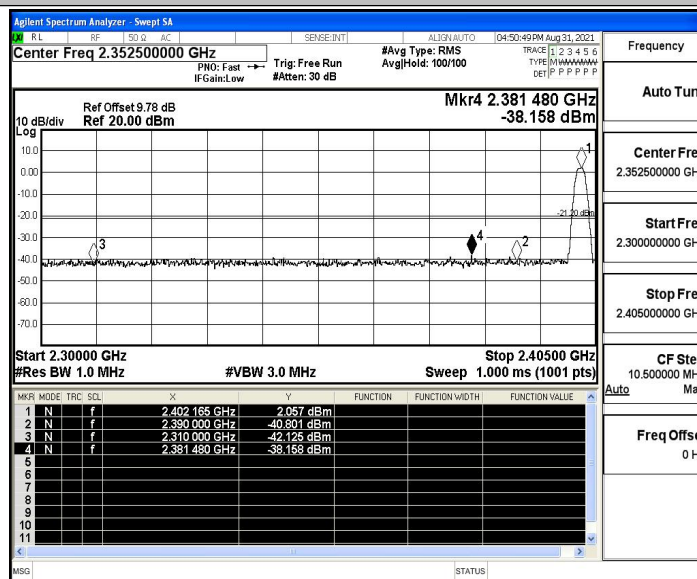


Test Graphs

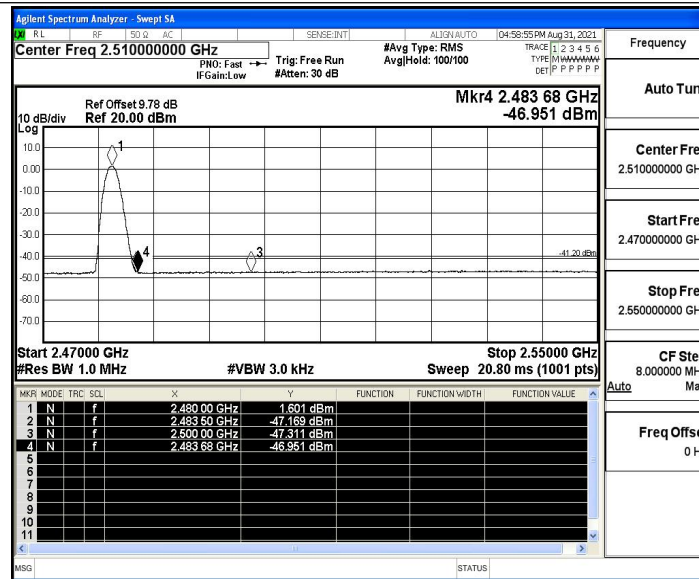
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

