



Appendix A

RF Test Data for 2.4G BLE (Conducted Measurement)

Product Name: smart creative light panel

Test Model: FWWPCB-33-12

Environmental Conditions

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

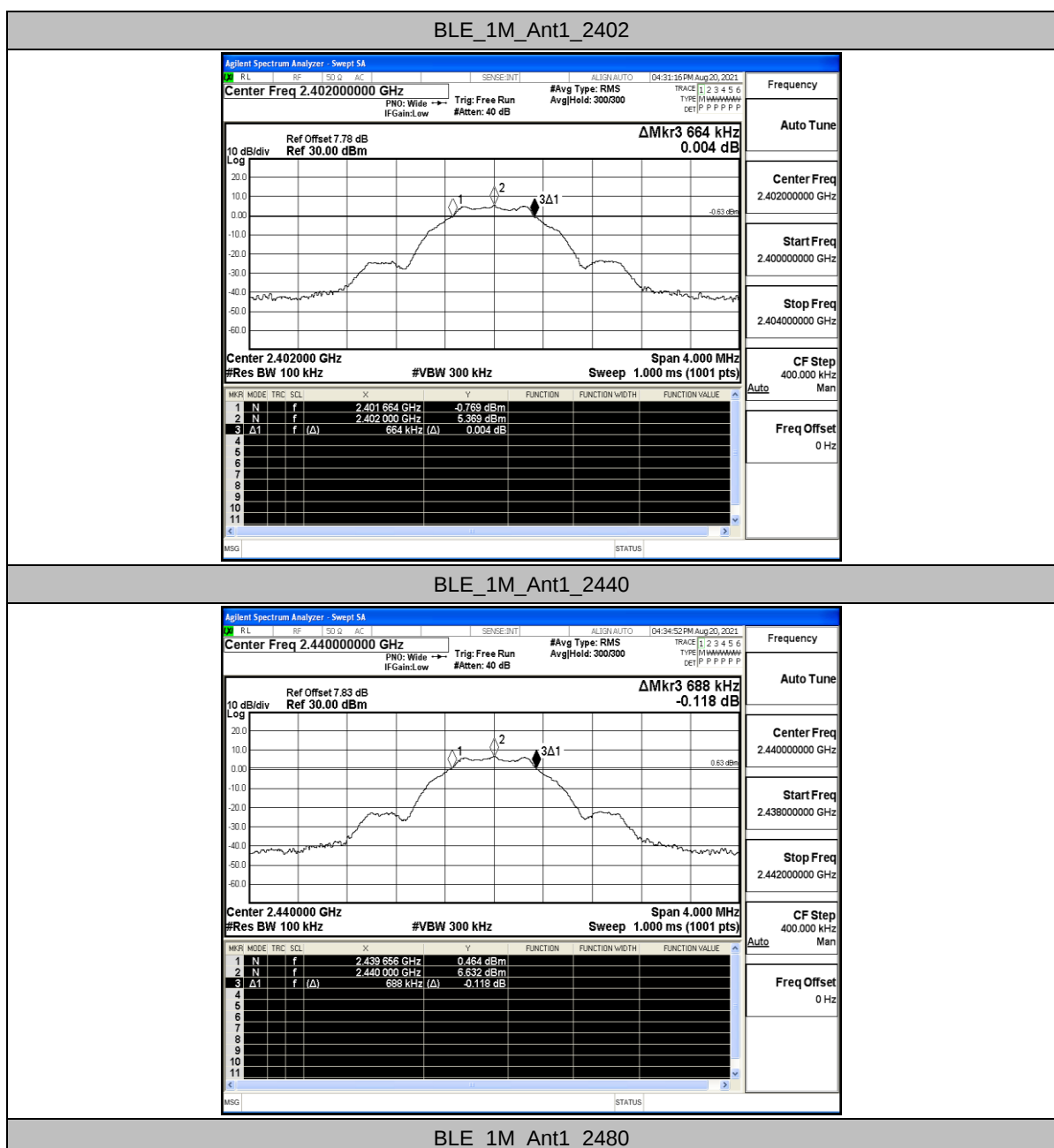


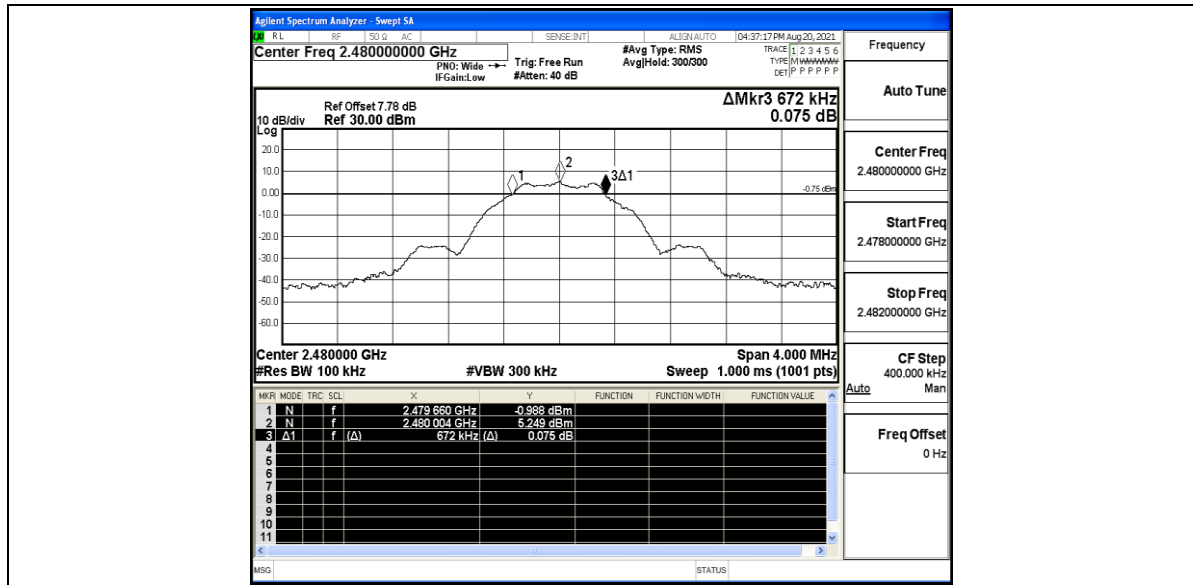
A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.664	2402.328	≥0.5	PASS
		2440	0.688	2439.656	2440.344	≥0.5	PASS
		2480	0.672	2479.660	2480.332	≥0.5	PASS

Test Graphs





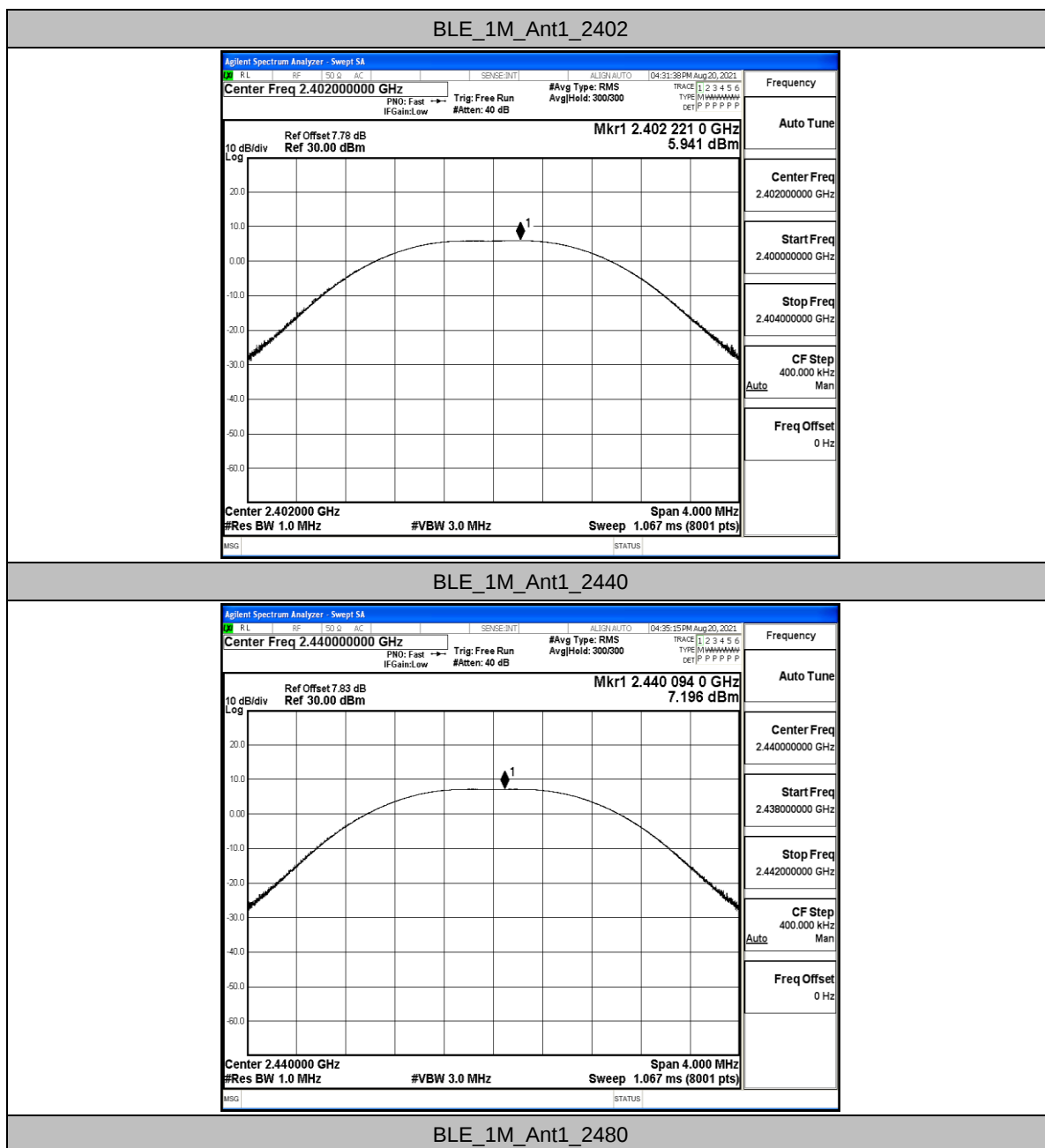


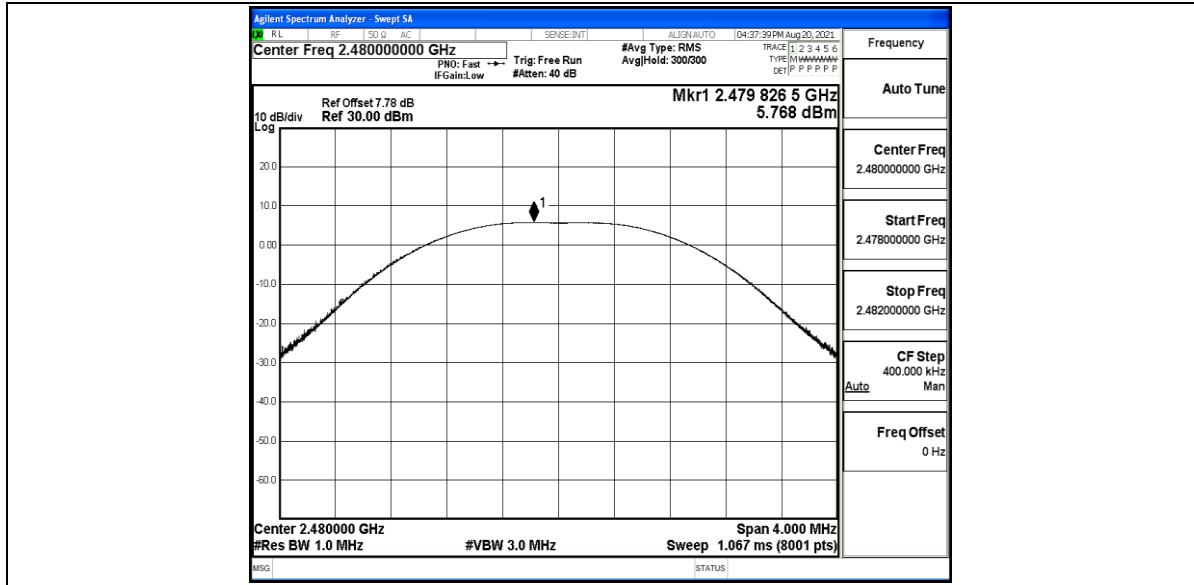
A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.94	≤30	PASS
		2440	7.20	≤30	PASS
		2480	5.77	≤30	PASS

Test Graphs





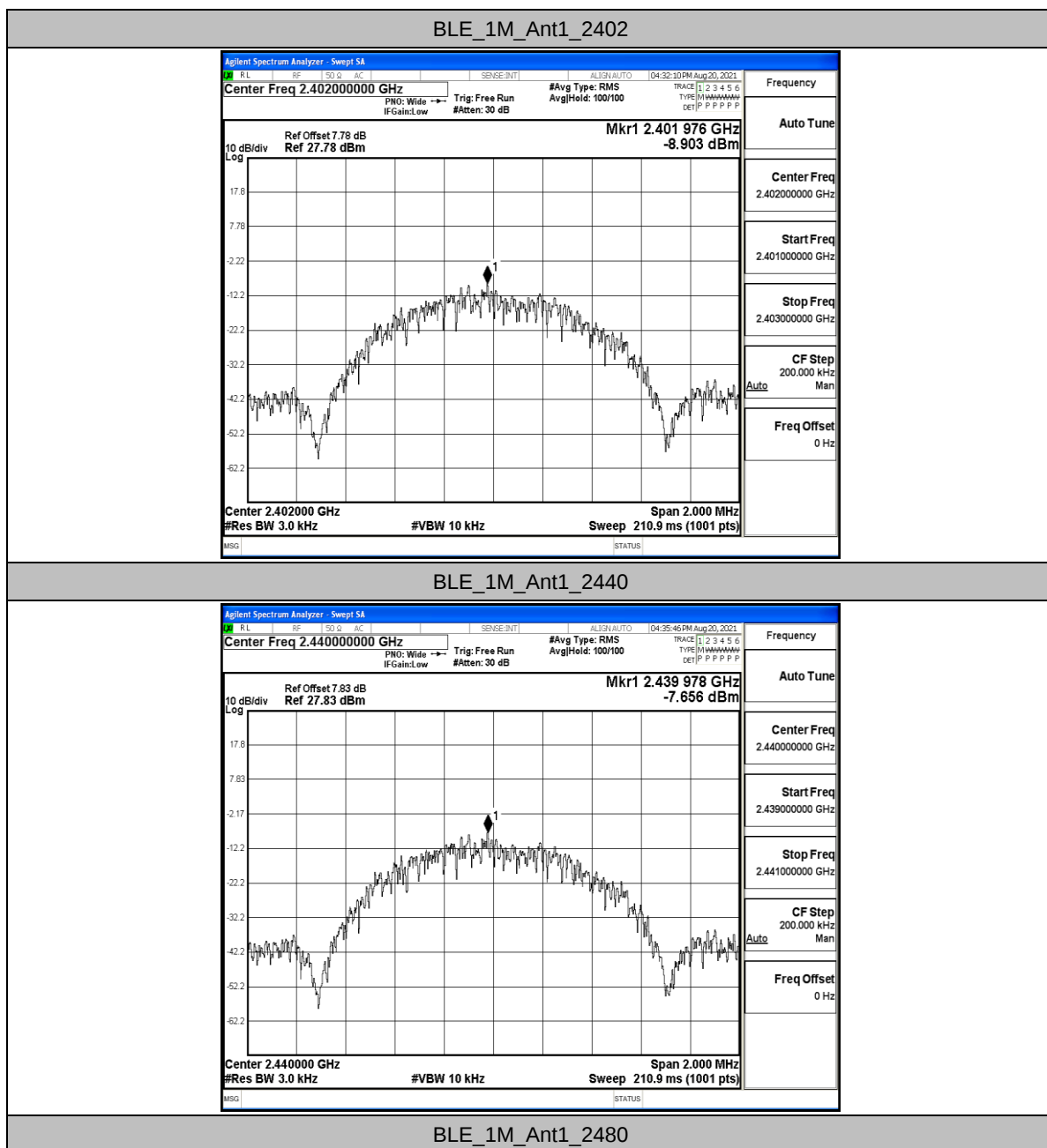


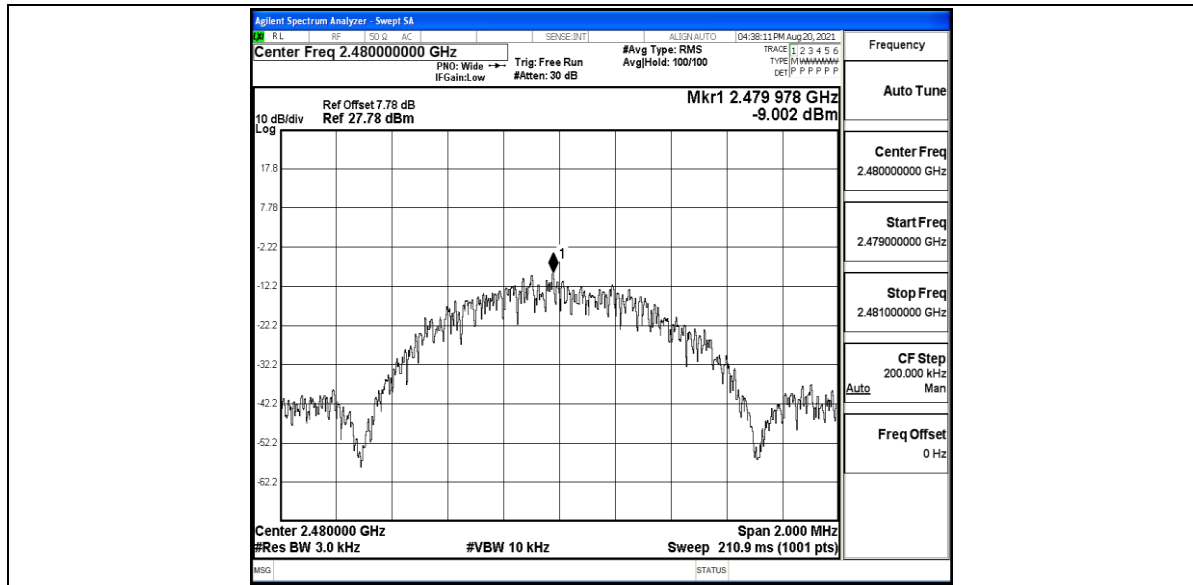
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.9	≤8	PASS
		2440	-7.66	≤8	PASS
		2480	-9	≤8	PASS

Test Graphs





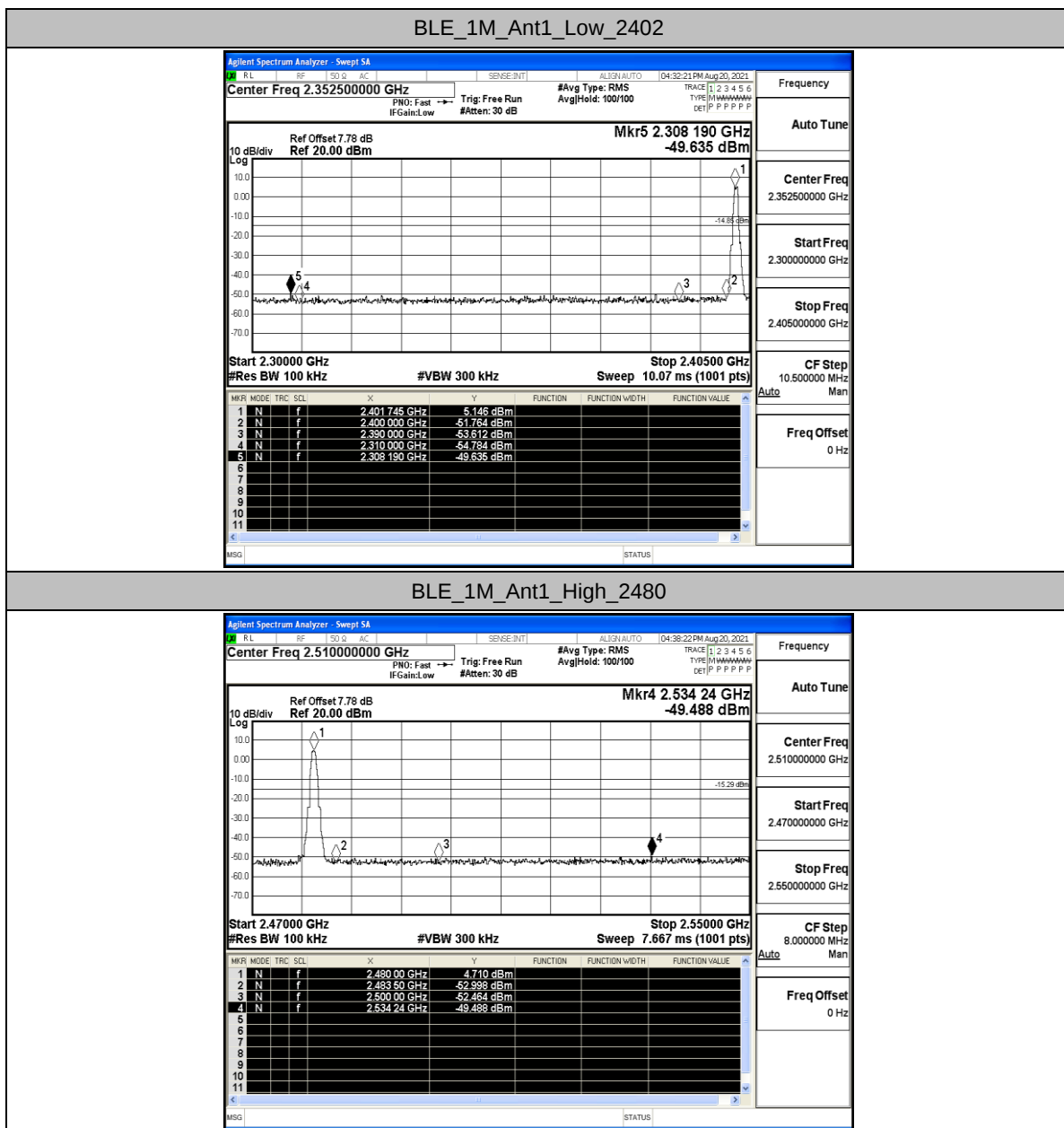


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.15	-49.64	≤-14.85	PASS
		High	2480	4.71	-49.49	≤-15.29	PASS

Test Graphs



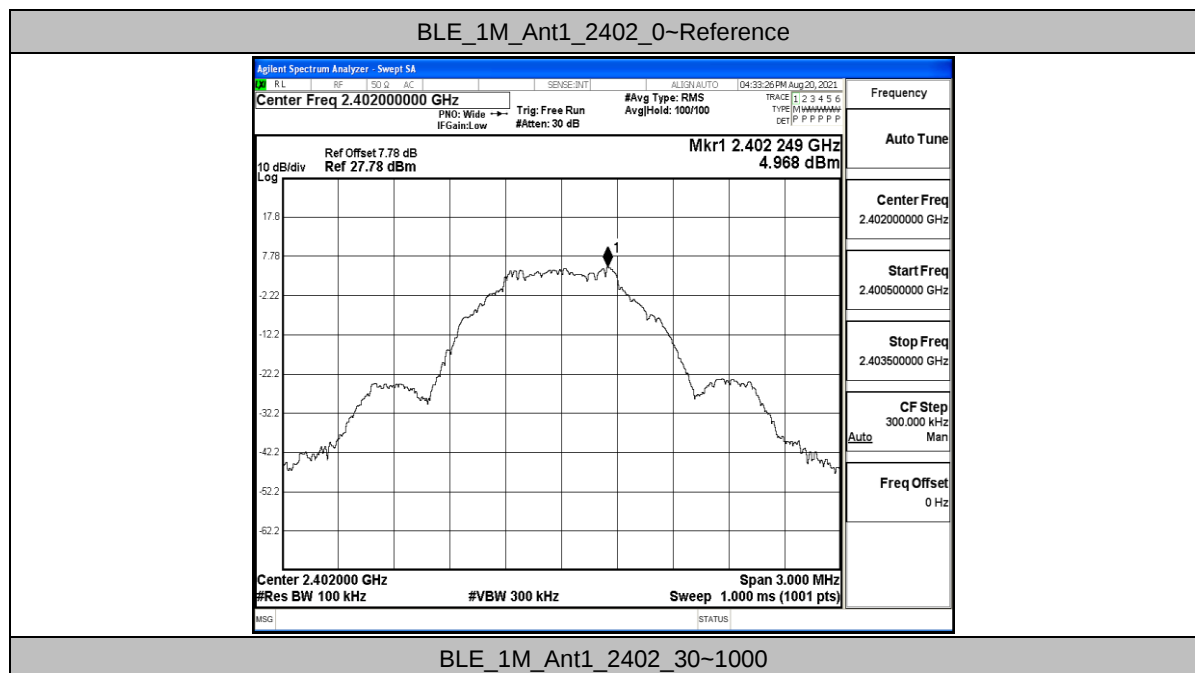


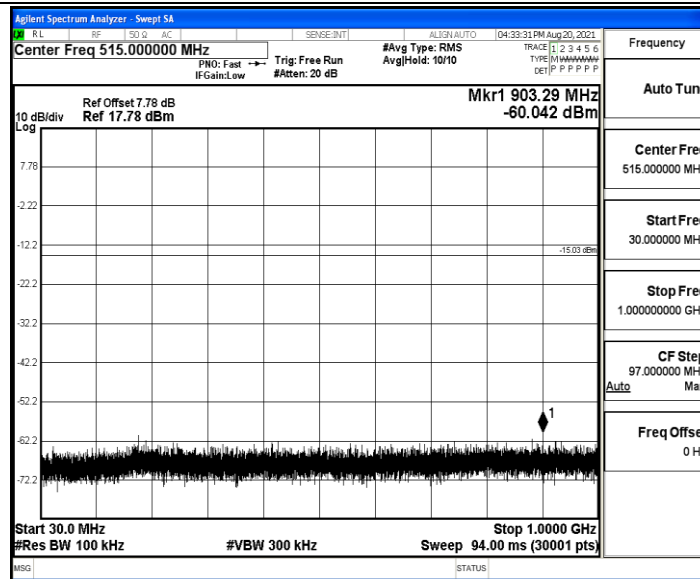
A.5 Conducted Spurious Emission

Test Result

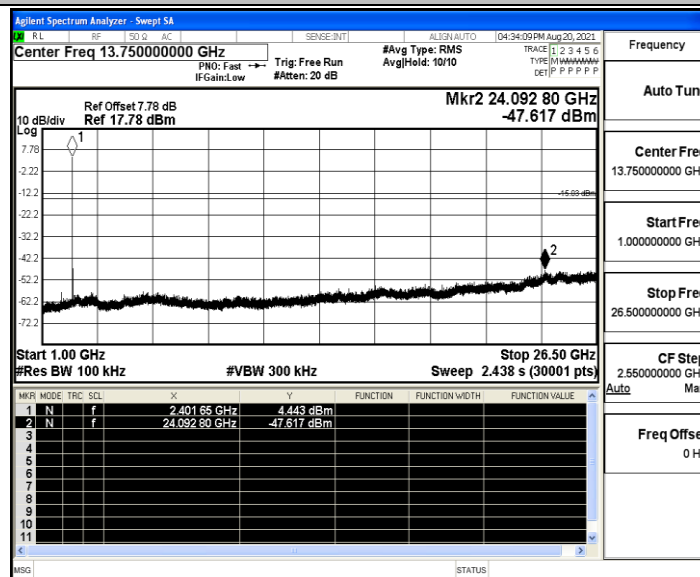
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	4.97	4.97	---	PASS
			30~1000	4.97	-60.04	≤-15.03	PASS
			1000~26500	4.97	-47.62	≤-15.03	PASS
		2440	Reference	6.53	6.53	---	PASS
			30~1000	6.53	-60.39	≤-13.47	PASS
			1000~26500	6.53	-47.29	≤-13.47	PASS
		2480	Reference	5.22	5.22	---	PASS
			30~1000	5.22	-61.6	≤-14.78	PASS
			1000~26500	5.22	-47.98	≤-14.78	PASS

Test Graphs

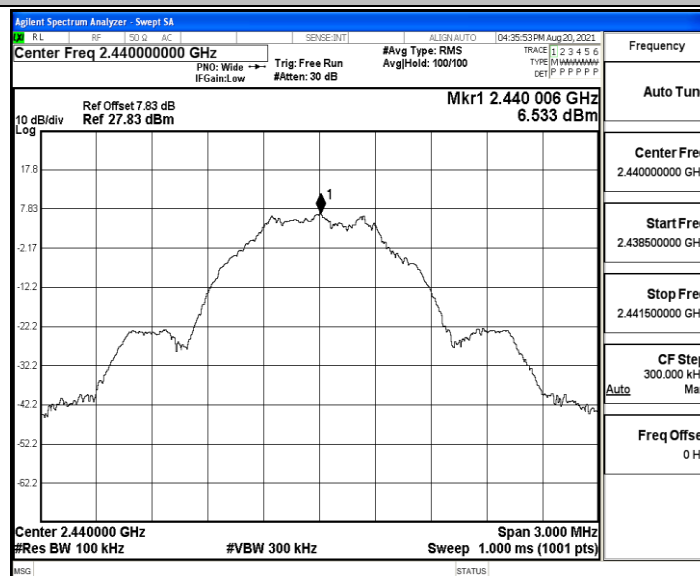




BLE_1M_Ant1_2402_1000~26500

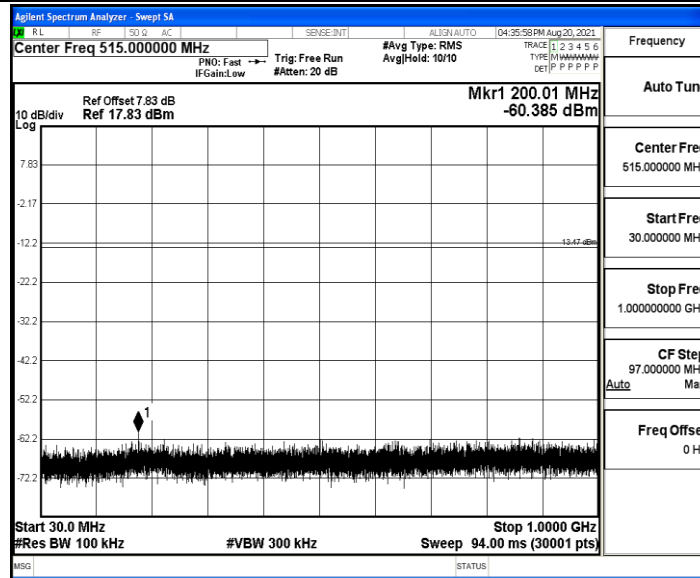


BLE_1M_Ant1_2440_0-Reference

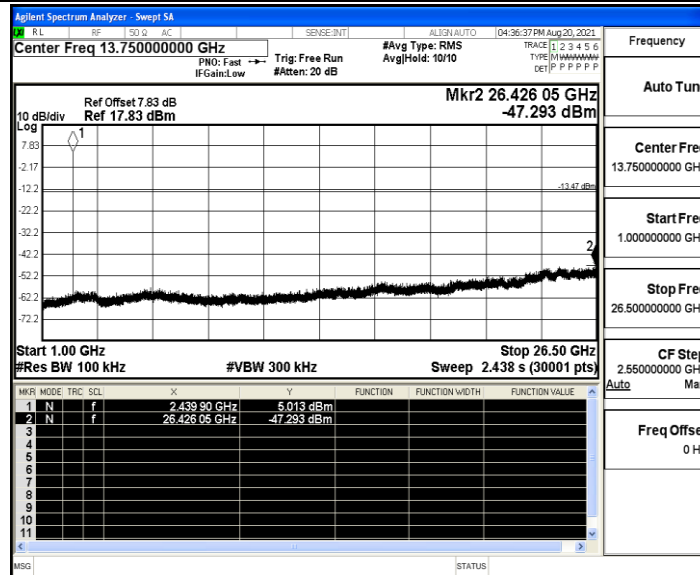




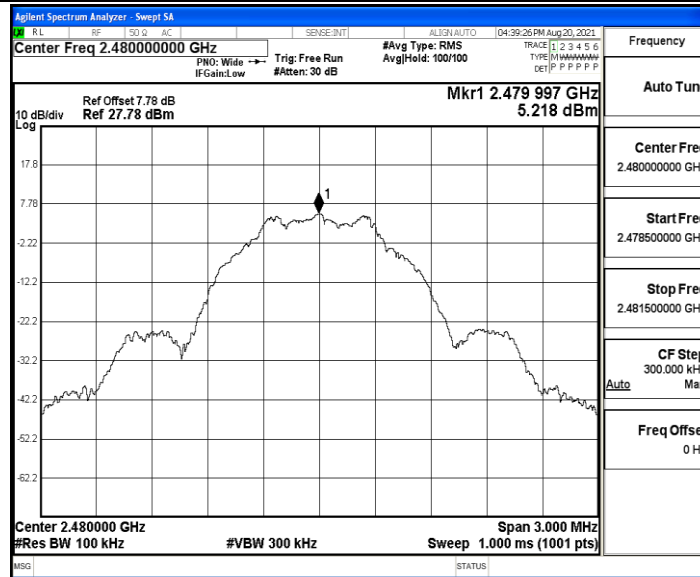
BLE_1M_Ant1_2440_30~1000



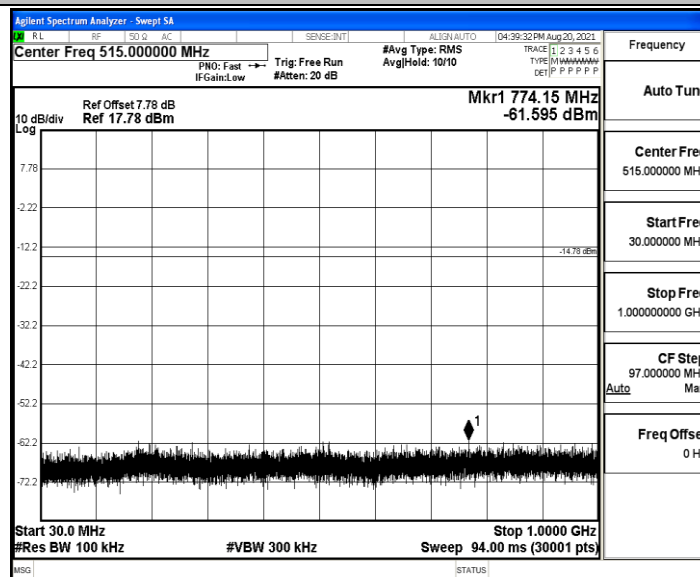
BLE_1M_Ant1_2440_1000~26500



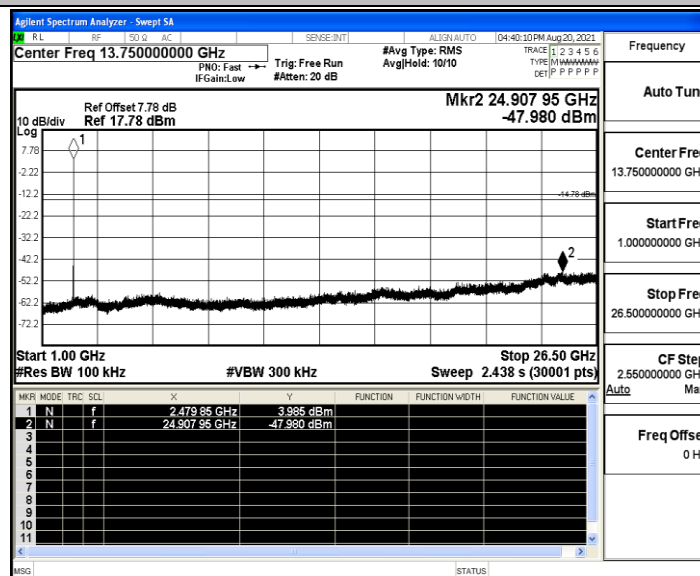
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



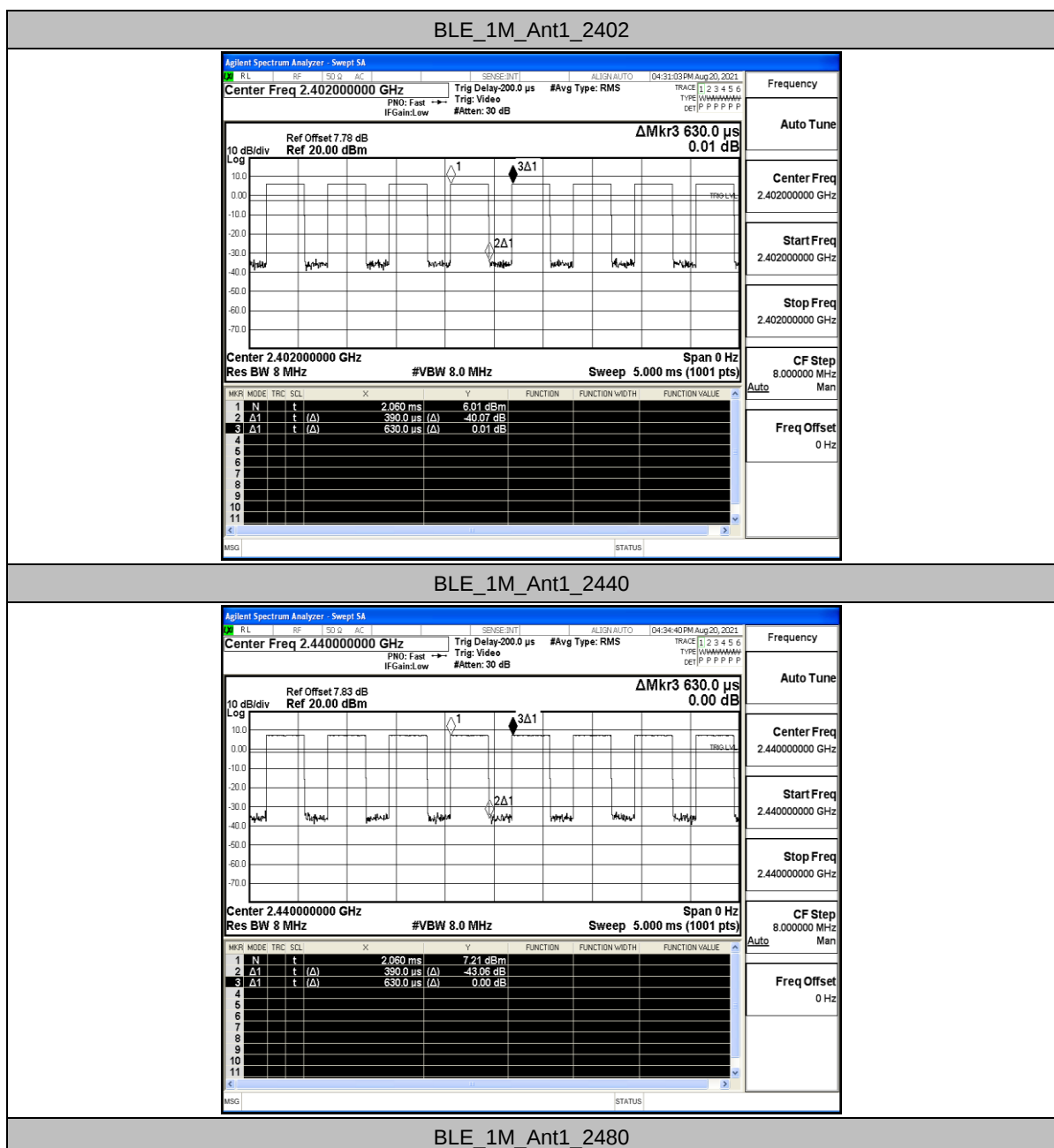


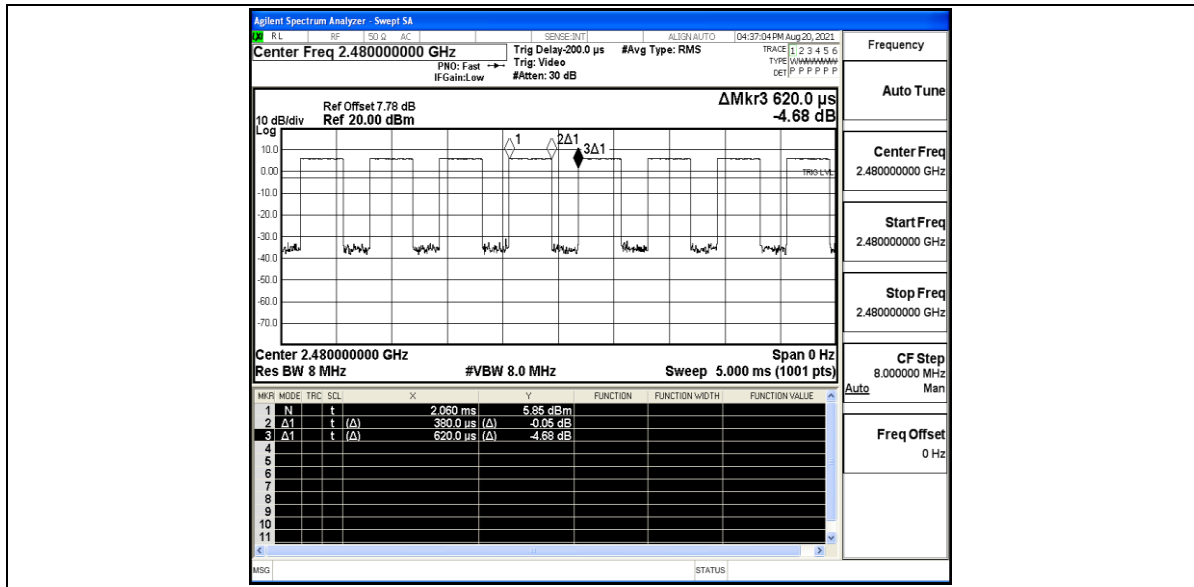
A.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2440	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2480	0.38	0.62	0.6129	61.29	2.13	---	PASS

Test Graphs







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	-48.46	≤-41.20	46.74	≤54	PASS
				AV	2389.565	-47.5	≤-41.20	47.70	≤54	PASS
				AV	2390.000	-47.93	≤-41.20	47.27	≤54	PASS
				Peak	2310.000	-40.07	≤-21.20	55.13	≤74	PASS
				Peak	2368.250	-38.88	≤-21.20	56.32	≤74	PASS
				Peak	2390.000	-41.69	≤-21.20	53.51	≤74	PASS
		High	2480	AV	2483.500	-45.89	≤-41.20	49.31	≤54	PASS
				AV	2483.520	-45.89	≤-41.20	49.31	≤54	PASS
				AV	2500.000	-47.52	≤-41.20	47.68	≤54	PASS
				Peak	2483.500	-40.89	≤-21.20	54.31	≤74	PASS
				Peak	2484.560	-38.3	≤-21.20	56.90	≤74	PASS
				Peak	2500.000	-40.95	≤-21.20	54.25	≤74	PASS

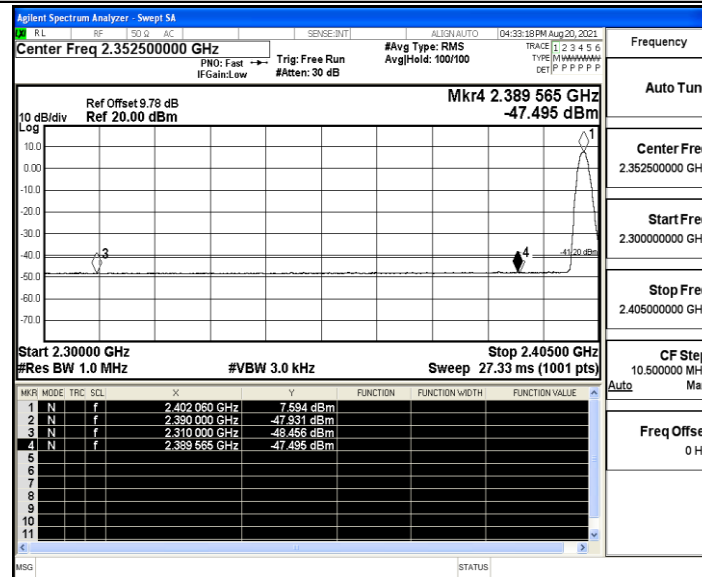
Note:

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.

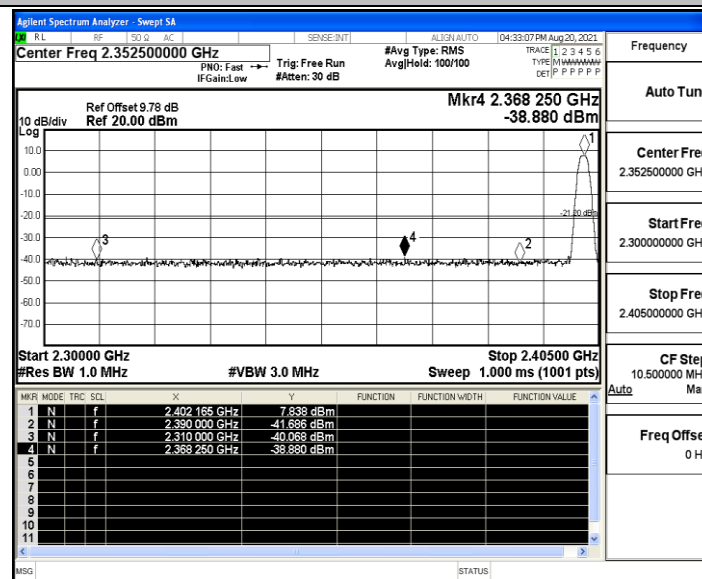


Test Graphs

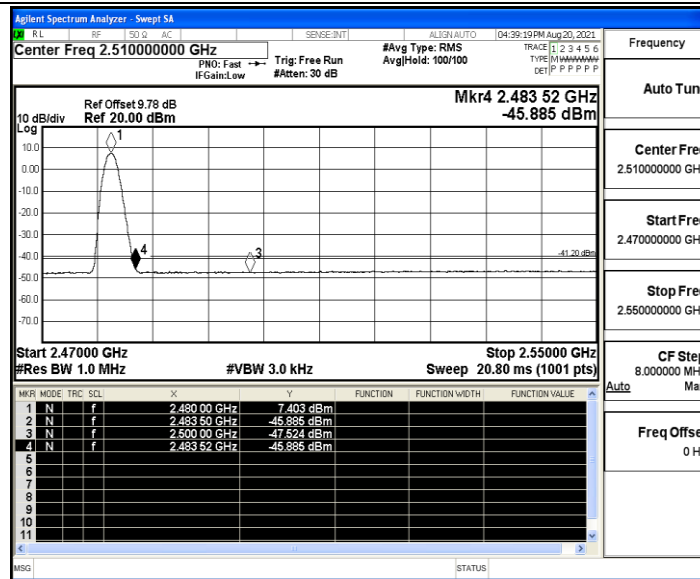
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

