



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: AB Car LED Lights Interior

Trade Mark: Topband

Test Model: TPABSP04RMB-18WR

Environmental Conditions

Temperature:	22.5° C
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li huan

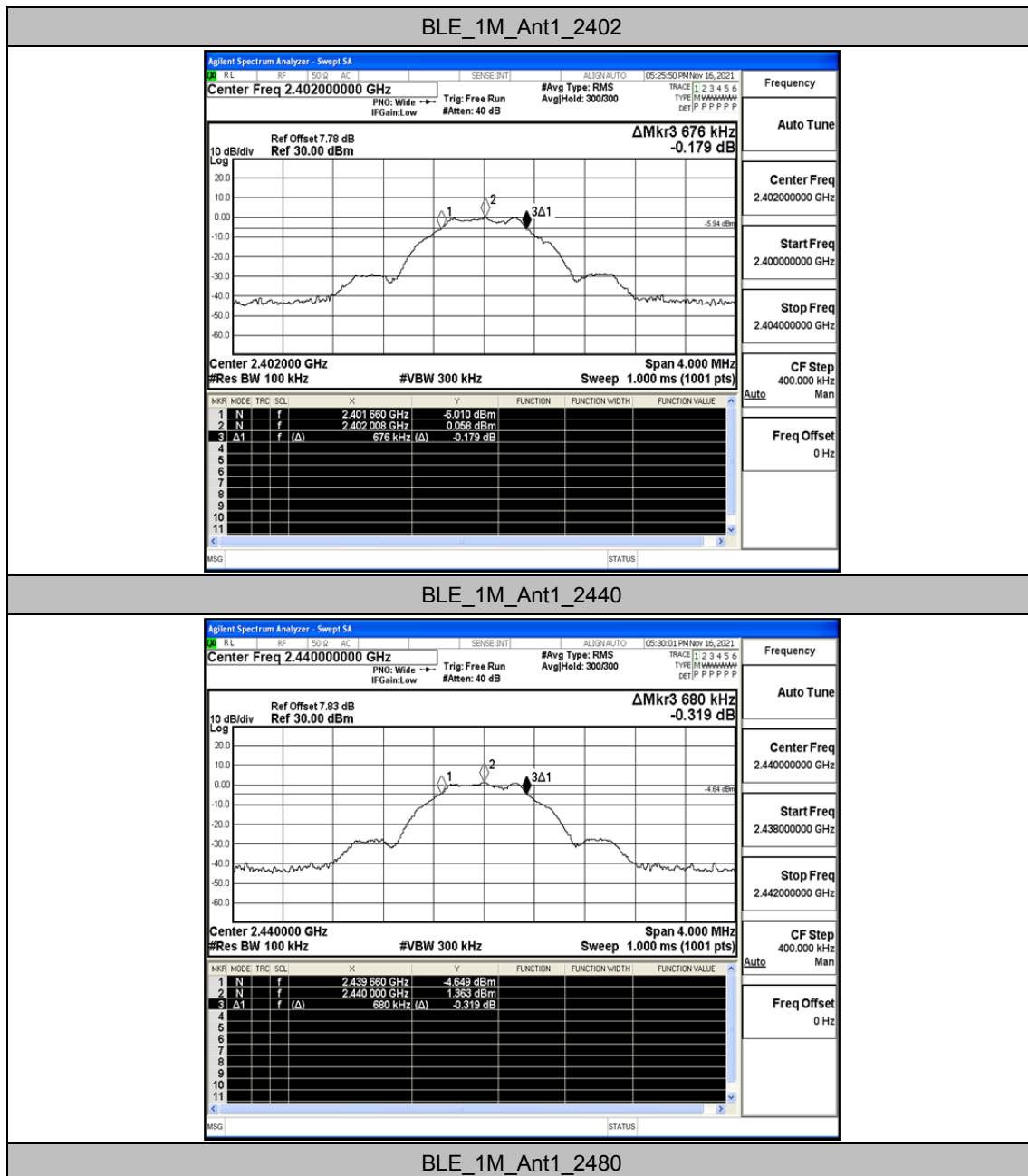


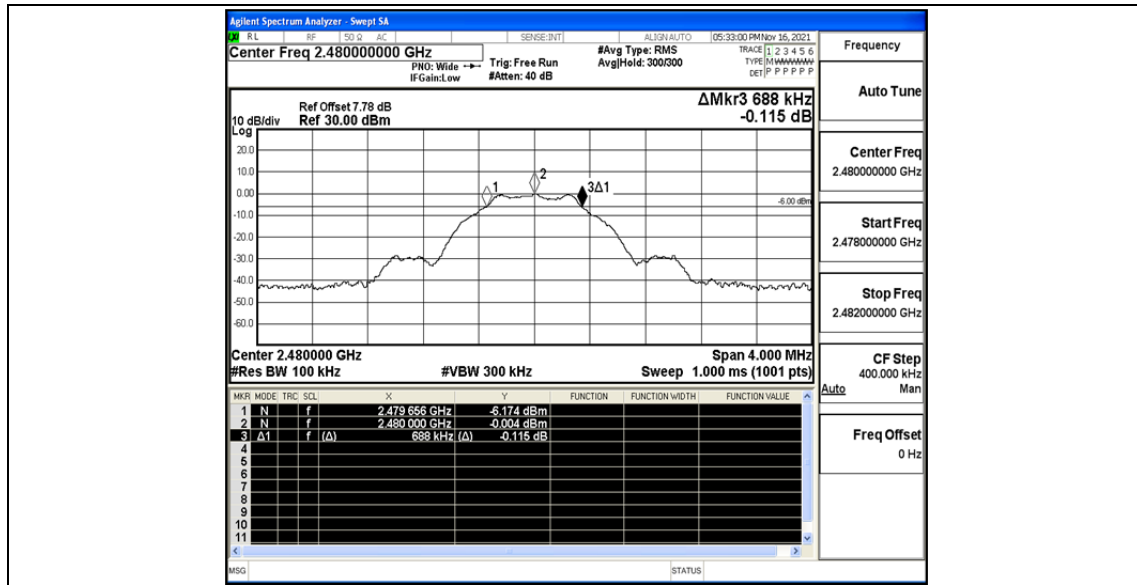
A.1 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.676	2401.660	2402.336	≥0.5	PASS
		2440	0.680	2439.660	2440.340	≥0.5	PASS
		2480	0.688	2479.656	2480.344	≥0.5	PASS

Test Graphs





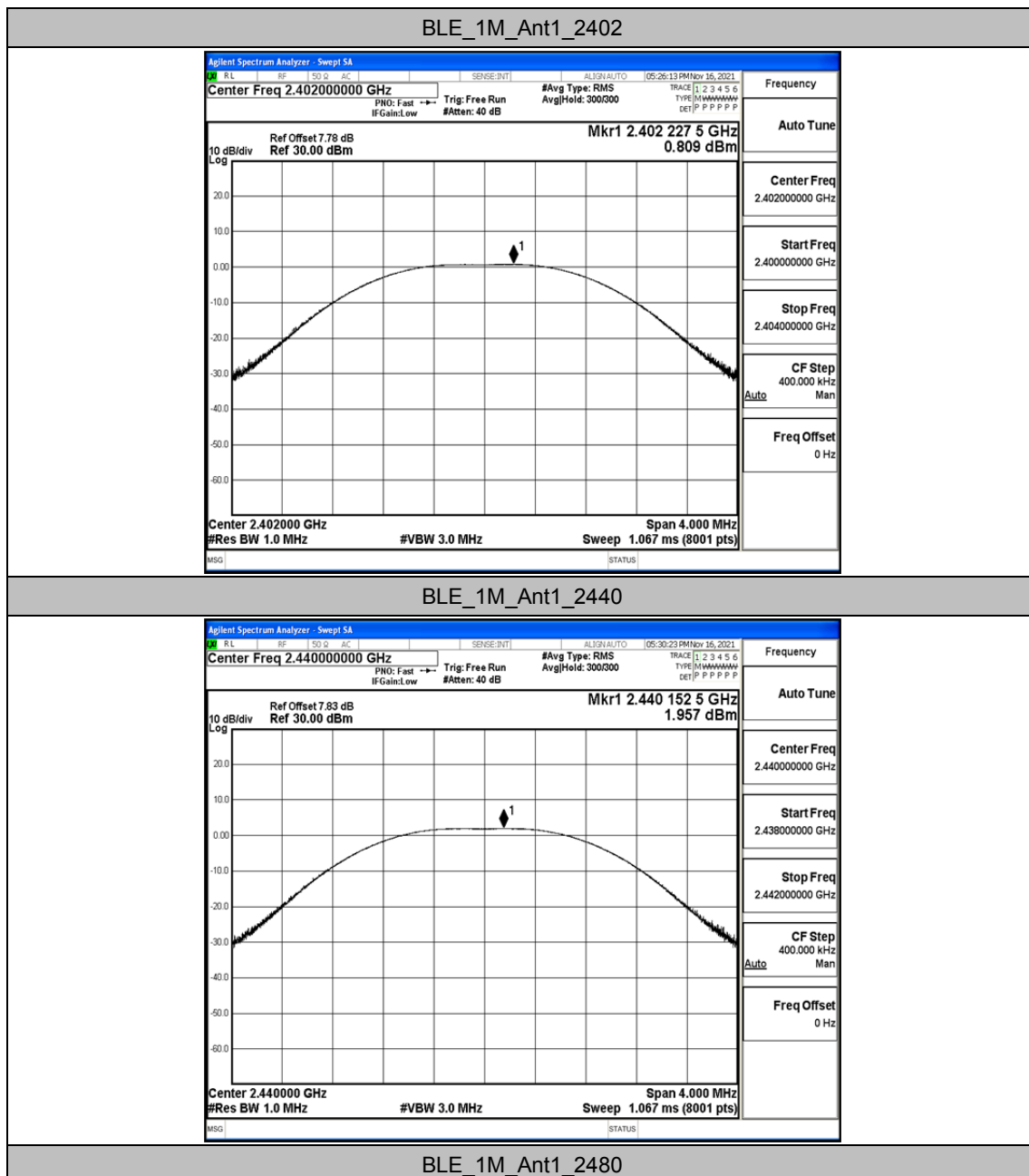


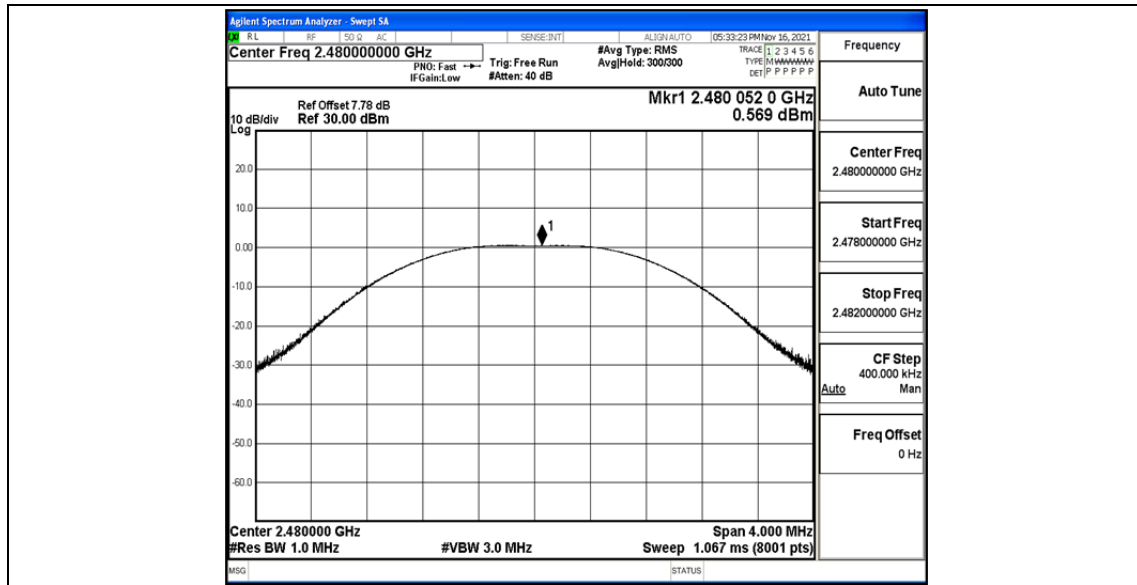
A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.81	≤30	PASS
		2440	1.96	≤30	PASS
		2480	0.57	≤30	PASS

Test Graphs





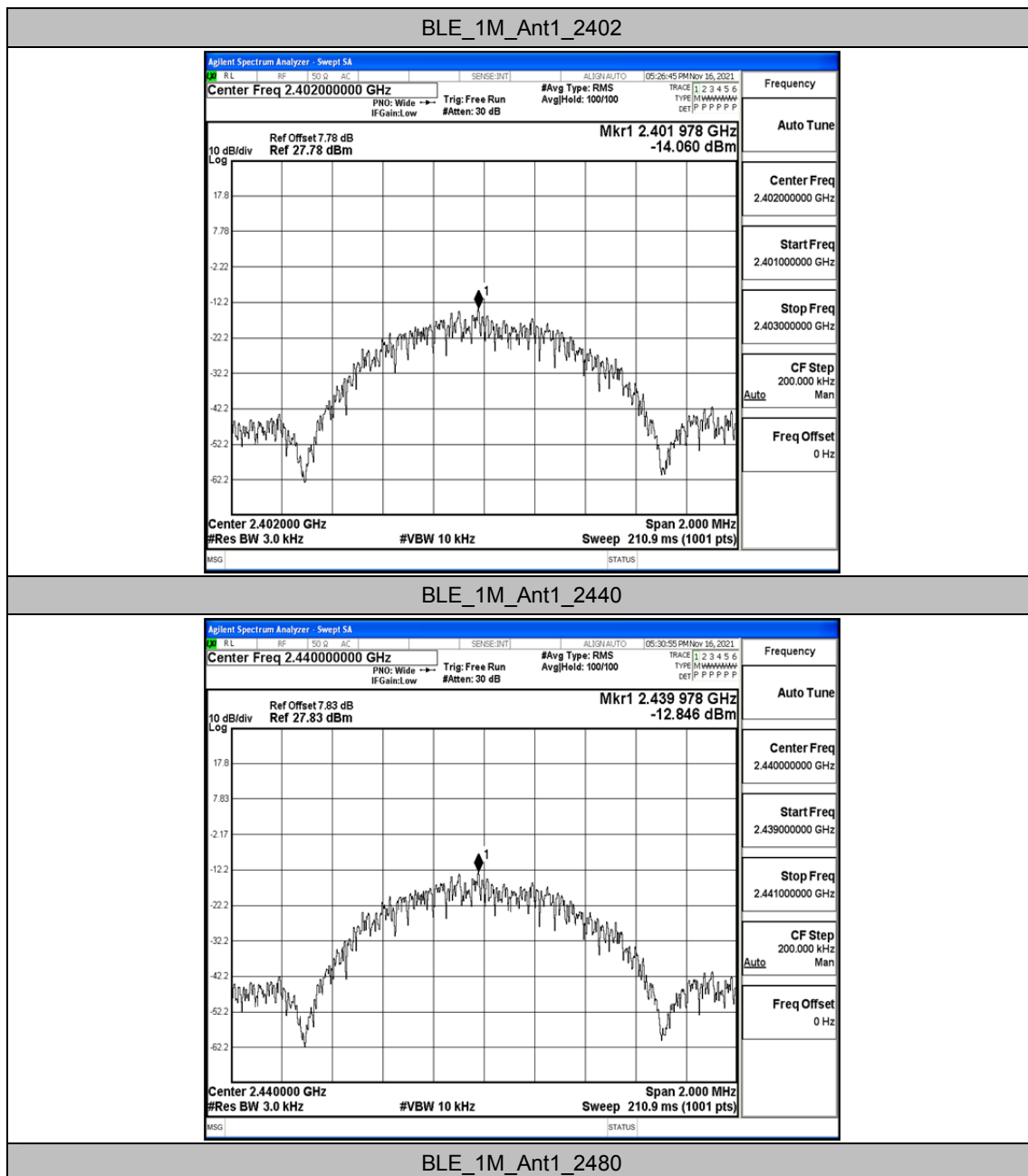


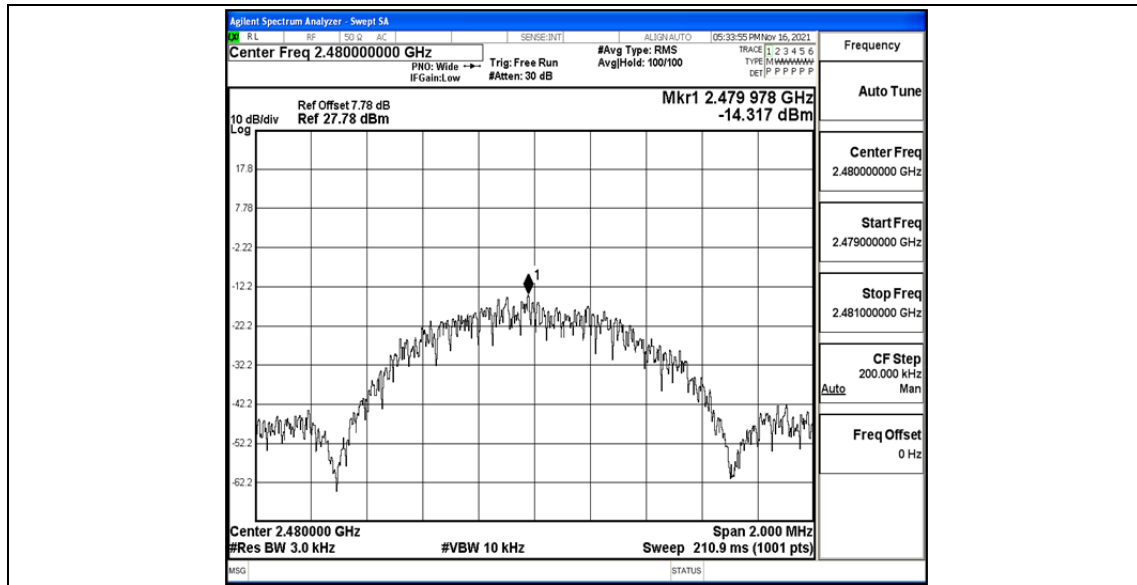
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.06	≤8	PASS
		2440	-12.85	≤8	PASS
		2480	-14.32	≤8	PASS

Test Graphs





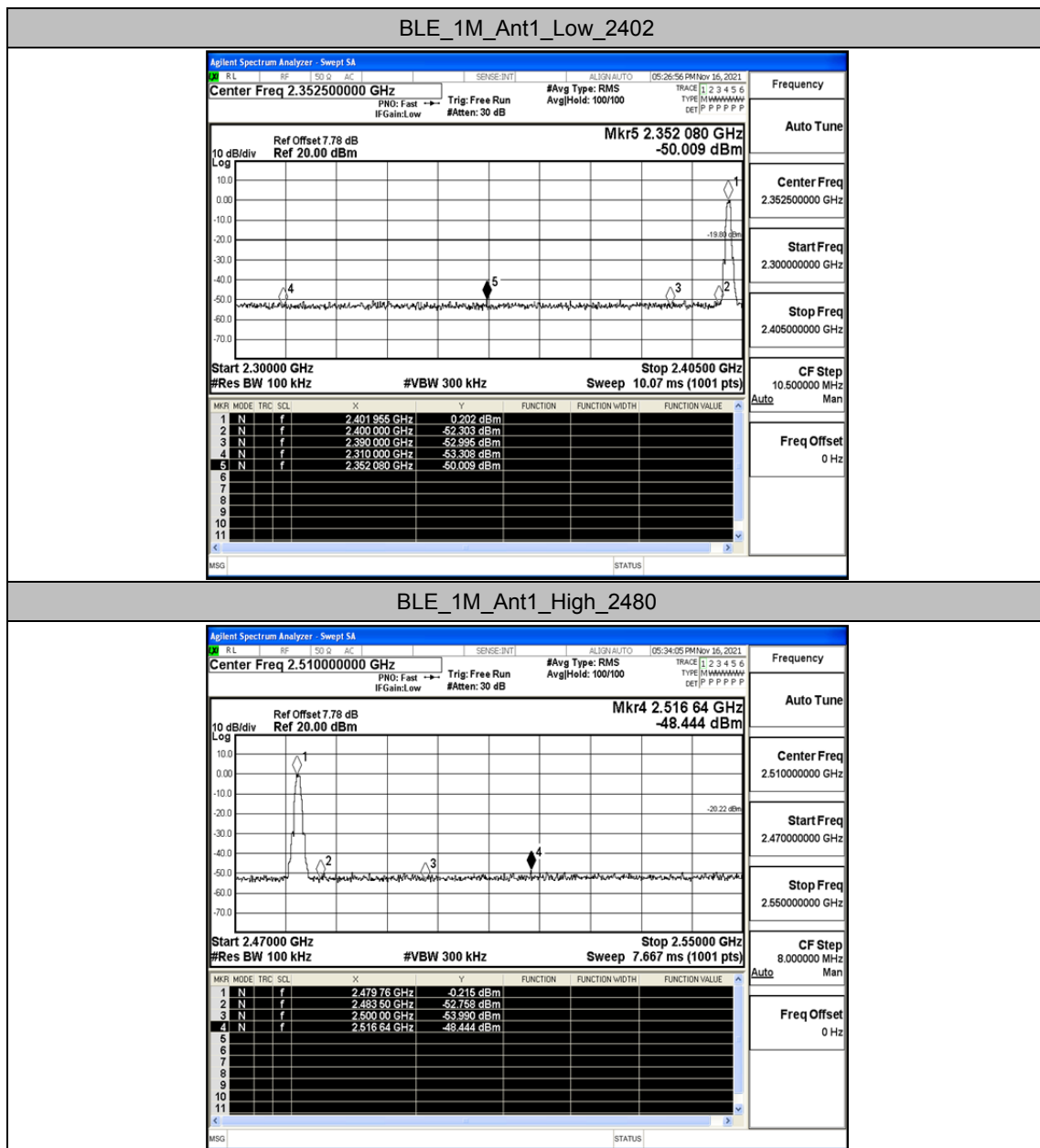


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.20	-50.01	≤-19.8	PASS
		High	2480	-0.22	-48.44	≤-20.22	PASS

Test Graphs





A.5 Conducted Spurious Emission

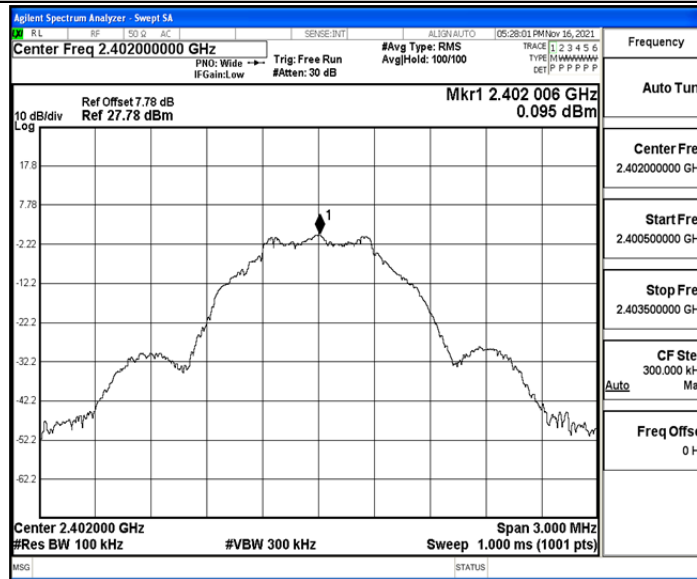
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.10	0.10	---	PASS
			30~1000	0.10	-61.03	≤-19.91	PASS
			1000~26500	0.10	-46.46	≤-19.91	PASS
		2440	Reference	0.76	0.76	---	PASS
			30~1000	0.76	-61.17	≤-19.24	PASS
			1000~26500	0.76	-46.2	≤-19.24	PASS
		2480	Reference	-0.14	-0.14	---	PASS
			30~1000	-0.14	-61.36	≤-20.14	PASS
			1000~26500	-0.14	-46.61	≤-20.14	PASS

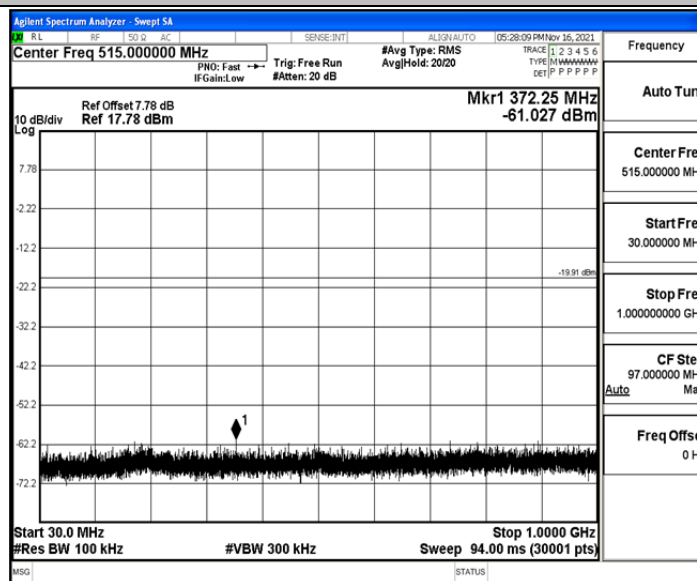


Test Graphs

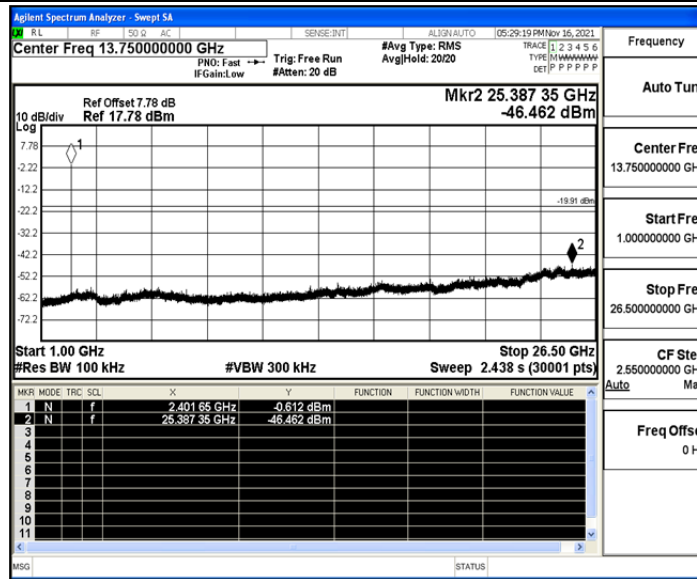
BLE_1M_Ant1_2402_0~Reference



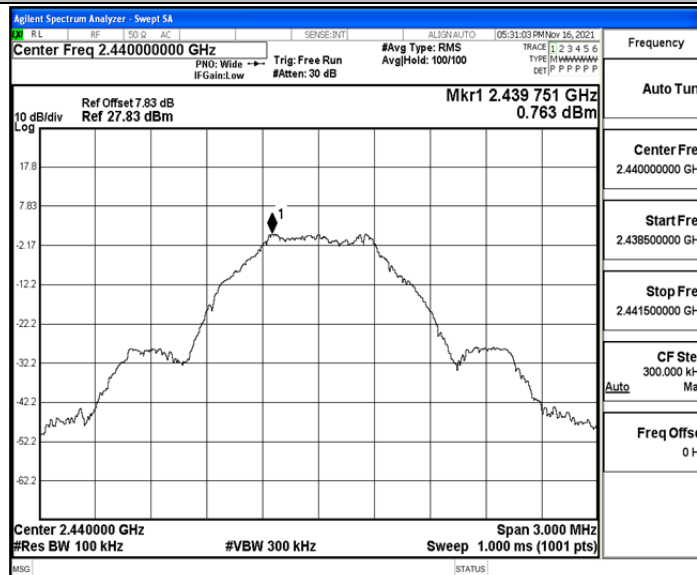
BLE_1M_Ant1_2402_30~1000



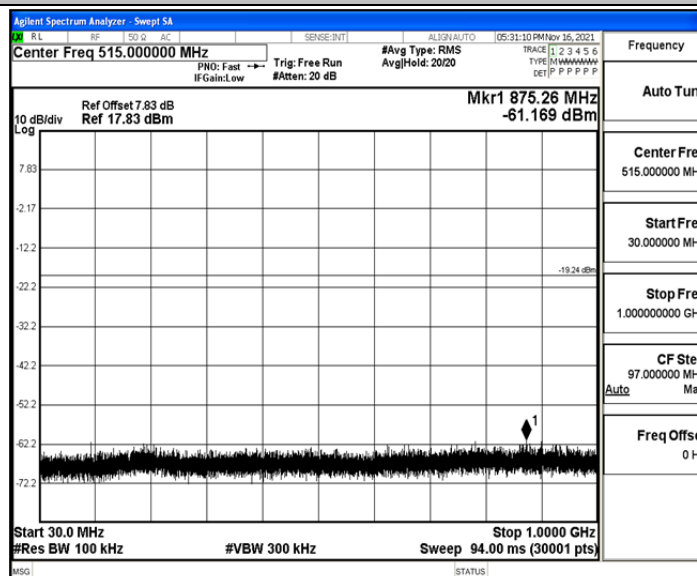
BLE_1M_Ant1_2402_1000~26500



BLE_1M_Ant1_2440_0~Reference

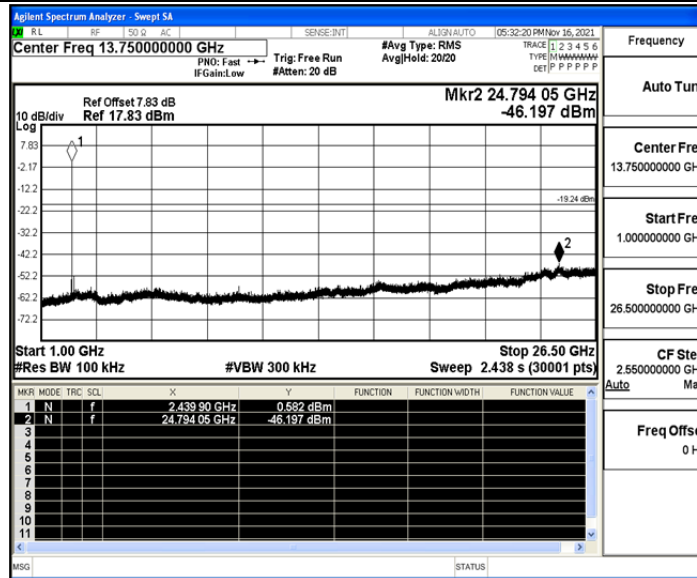


BLE_1M_Ant1_2440_30~1000

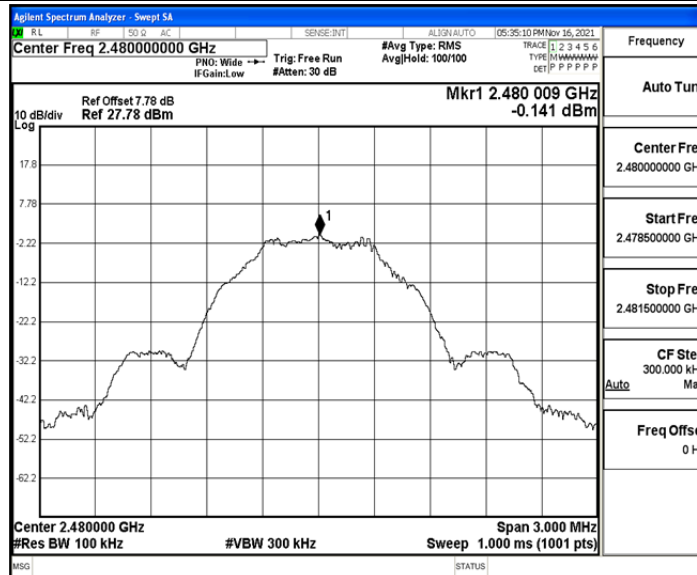




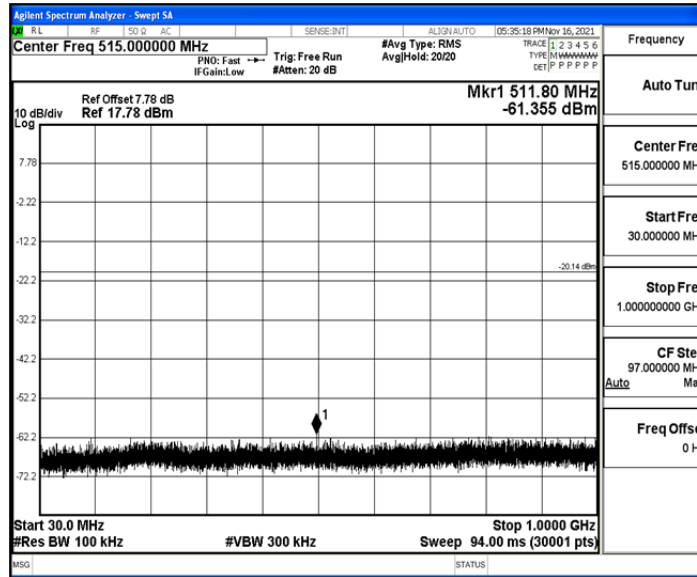
BLE_1M_Ant1_2440_1000~26500



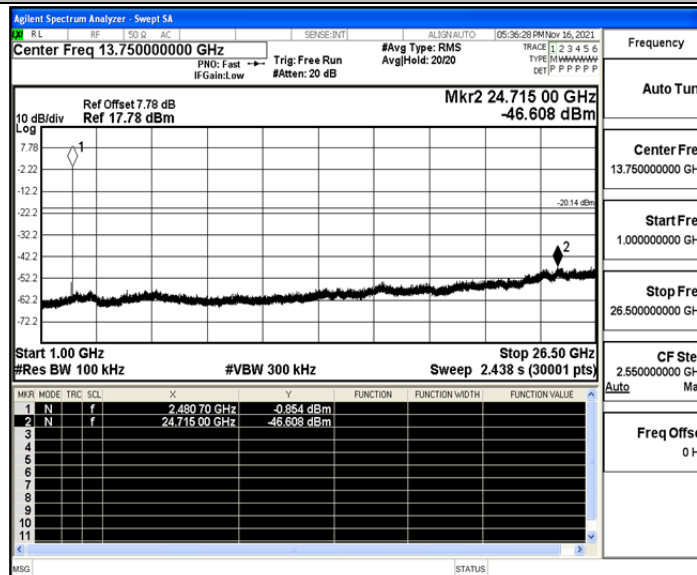
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



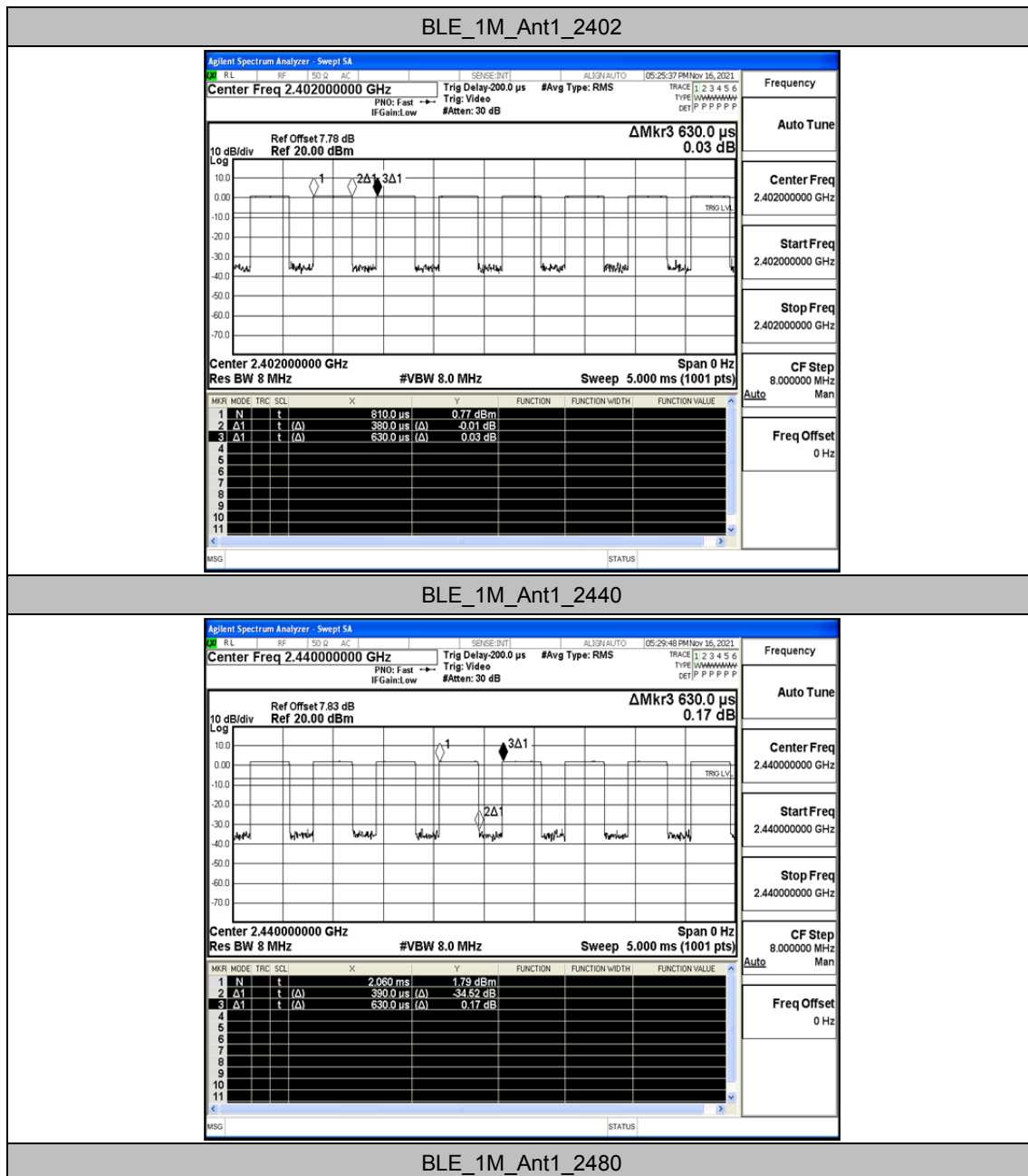


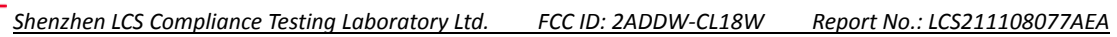
A.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.63	0.6032	60.32	2.20	---	PASS
		2440	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2480	0.38	0.63	0.6032	60.32	2.20	---	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	-47.99	≤-41.20	47.21	≤54	PASS
				AV	2384.630	-47.54	≤-41.20	47.66	≤54	PASS
				AV	2390.000	-48.06	≤-41.20	47.14	≤54	PASS
				Peak	2310.000	-41.87	≤-21.20	53.33	≤74	PASS
				Peak	2386.625	-38.98	≤-21.20	56.22	≤74	PASS
				Peak	2390.000	-41.6	≤-21.20	53.60	≤74	PASS
		High	2480	AV	2483.500	-47.11	≤-41.20	48.09	≤54	PASS
				AV	2497.760	-47.11	≤-41.20	48.09	≤54	PASS
				AV	2500.000	-47.34	≤-41.20	47.86	≤54	PASS
				Peak	2483.500	-41.33	≤-21.20	53.87	≤74	PASS
				Peak	2488.880	-38.42	≤-21.20	56.78	≤74	PASS
				Peak	2500.000	-41.35	≤-21.20	53.85	≤74	PASS

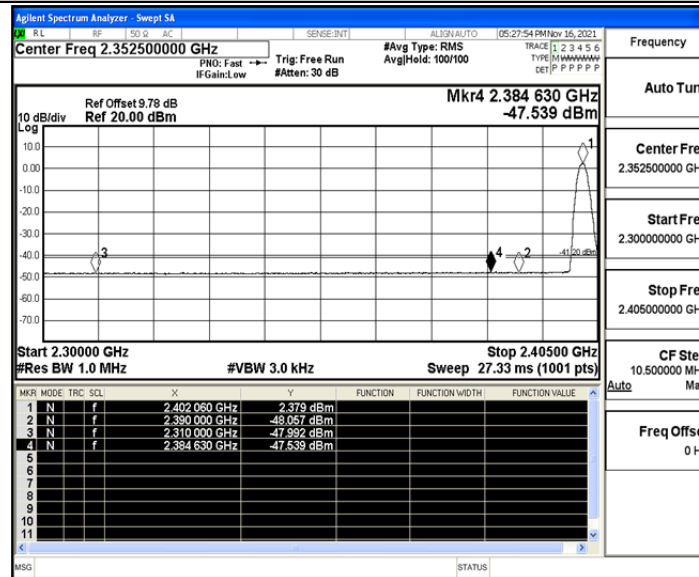
Note:

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.

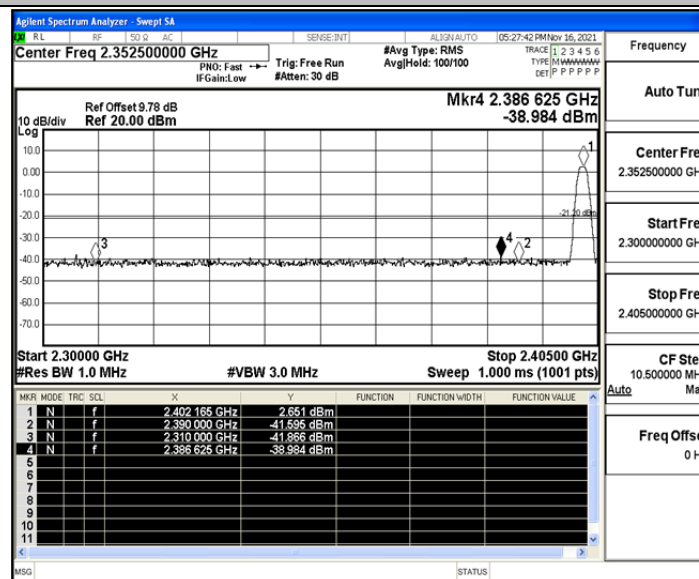


Test Graphs

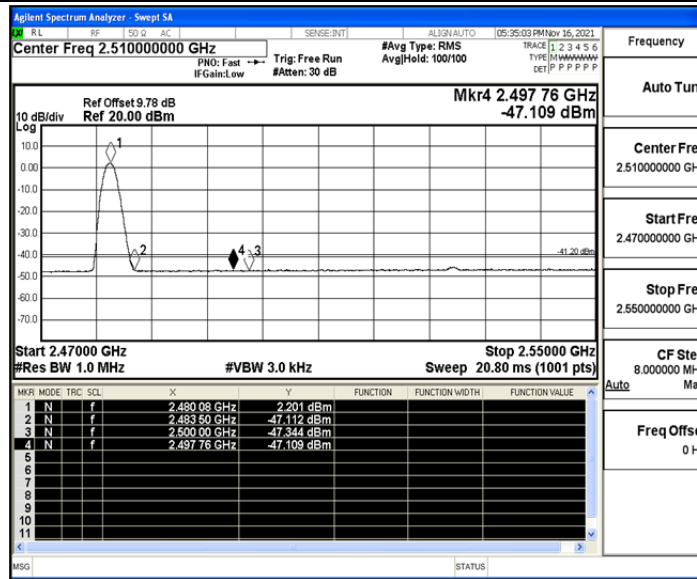
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

