



Appendix A

RF Test Data for 2.4G BLE (Conducted Measurement)

Product Name: Rock lights and driver

Test Model: MD-D1BRNPT4

Environmental Conditions

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

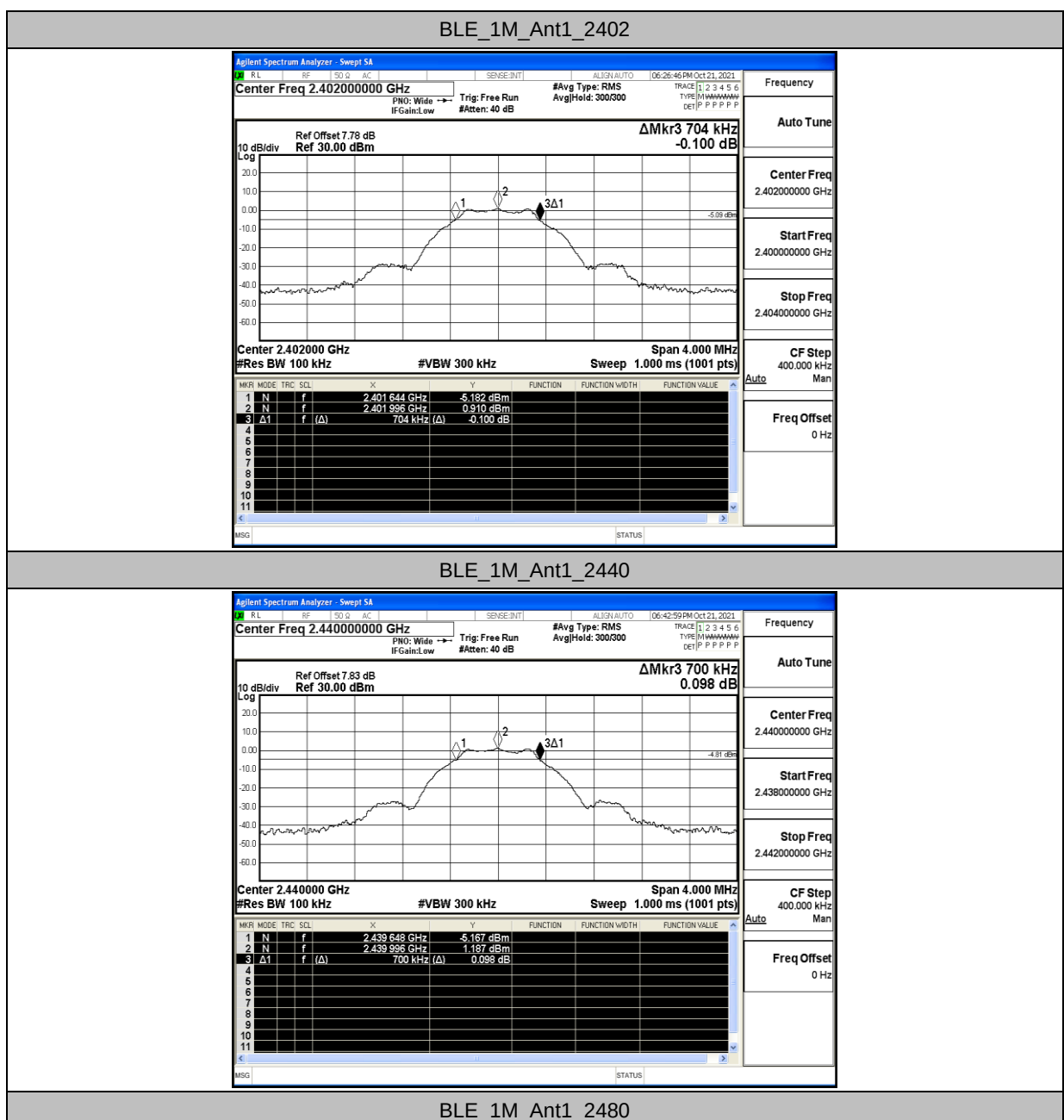


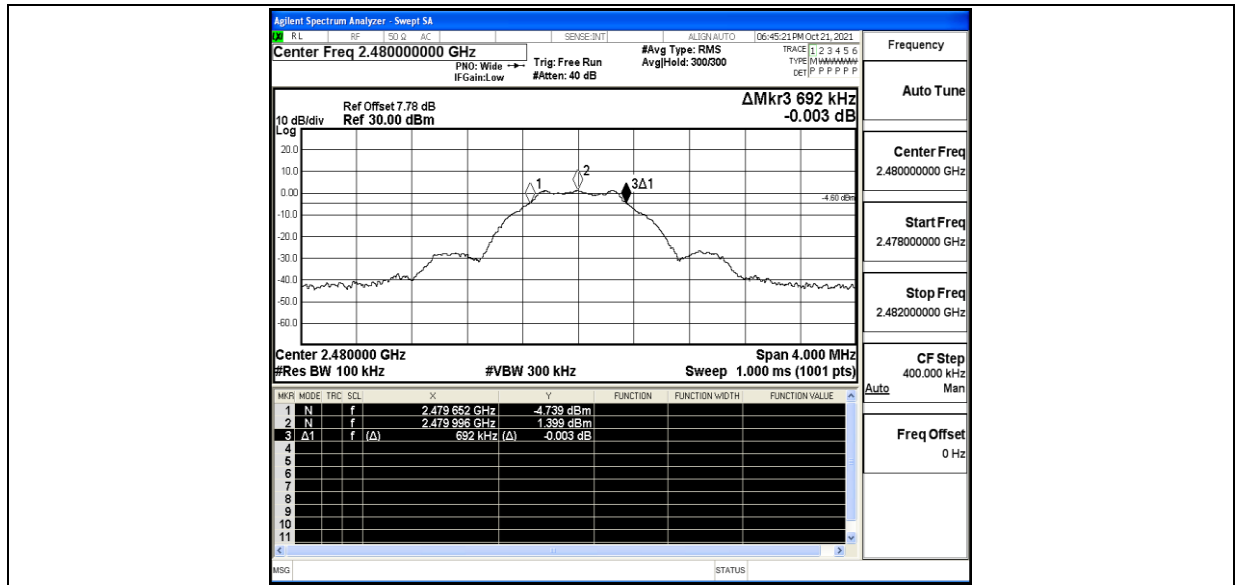
A.1 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.704	2401.644	2402.348	≥0.5	PASS
		2440	0.700	2439.648	2440.348	≥0.5	PASS
		2480	0.692	2479.652	2480.344	≥0.5	PASS

Test Graphs





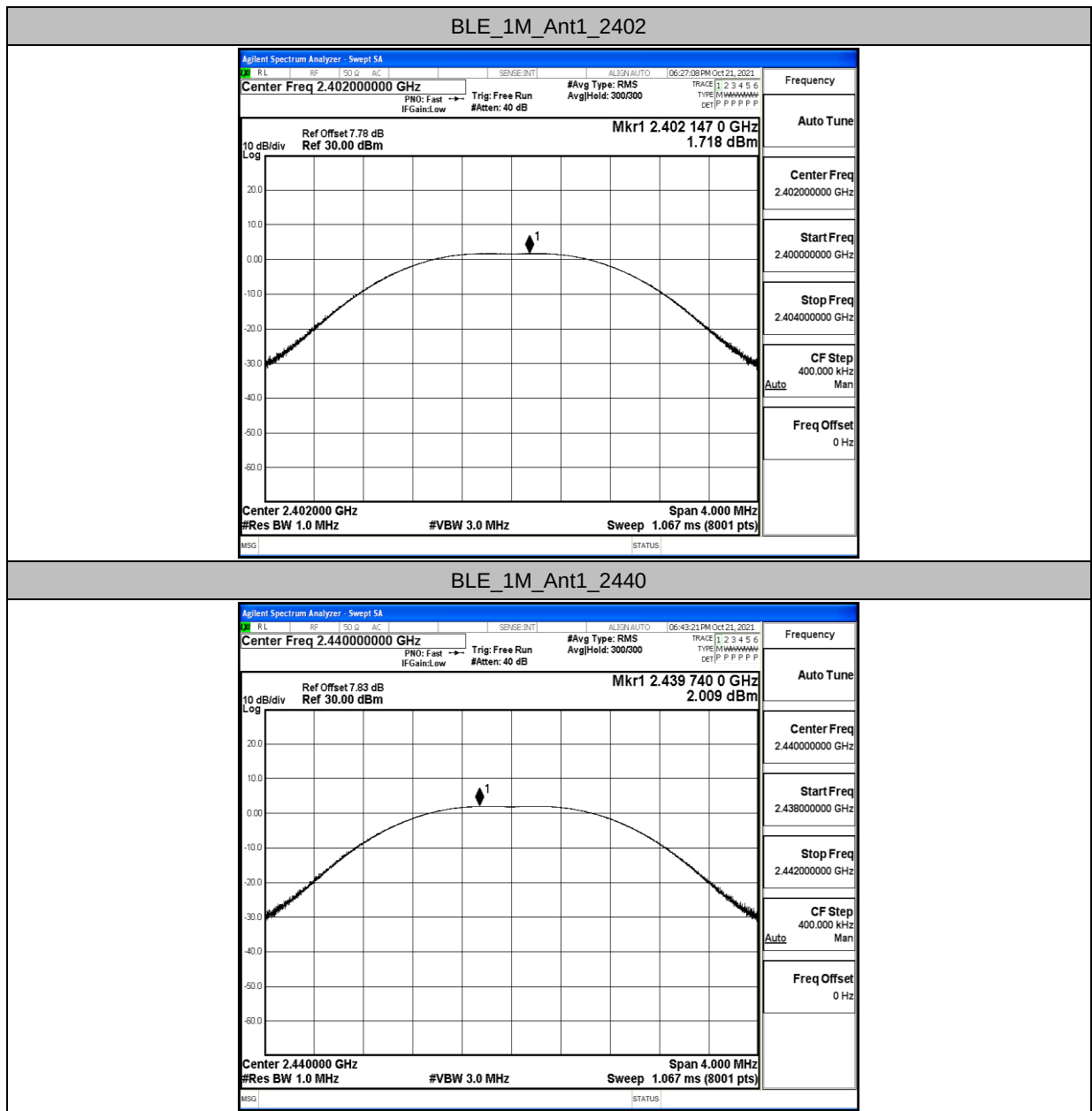


A.2 Maximum conducted output power

Test Result

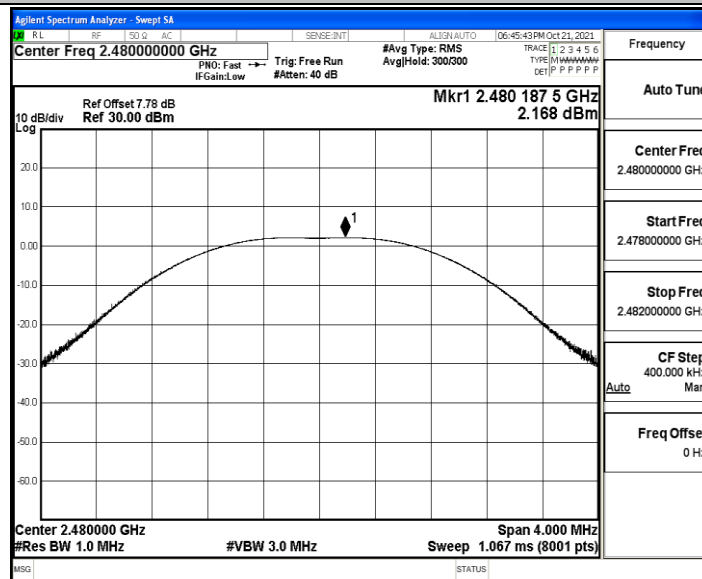
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	1.72	≤30	PASS
		2440	2.01	≤30	PASS
		2480	2.17	≤30	PASS

Test Graphs





BLE_1M_Ant1_2480



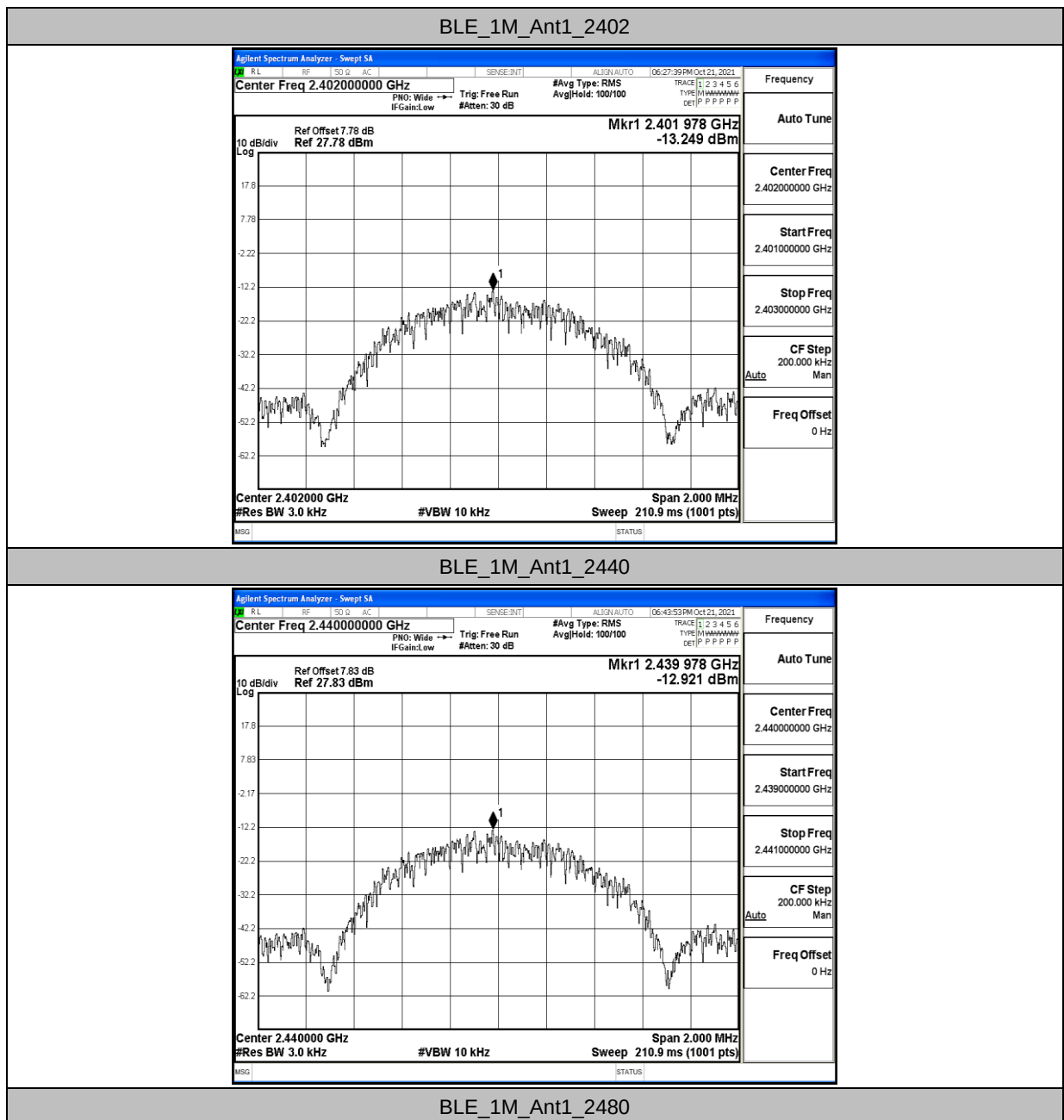


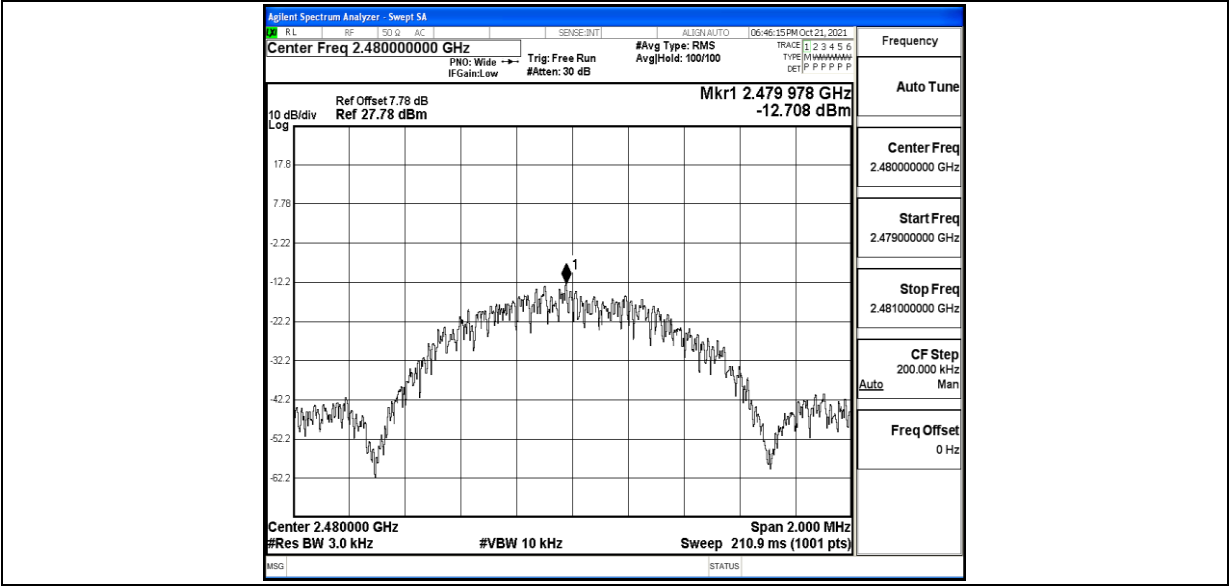
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.25	≤8	PASS
		2440	-12.92	≤8	PASS
		2480	-12.71	≤8	PASS

Test Graphs





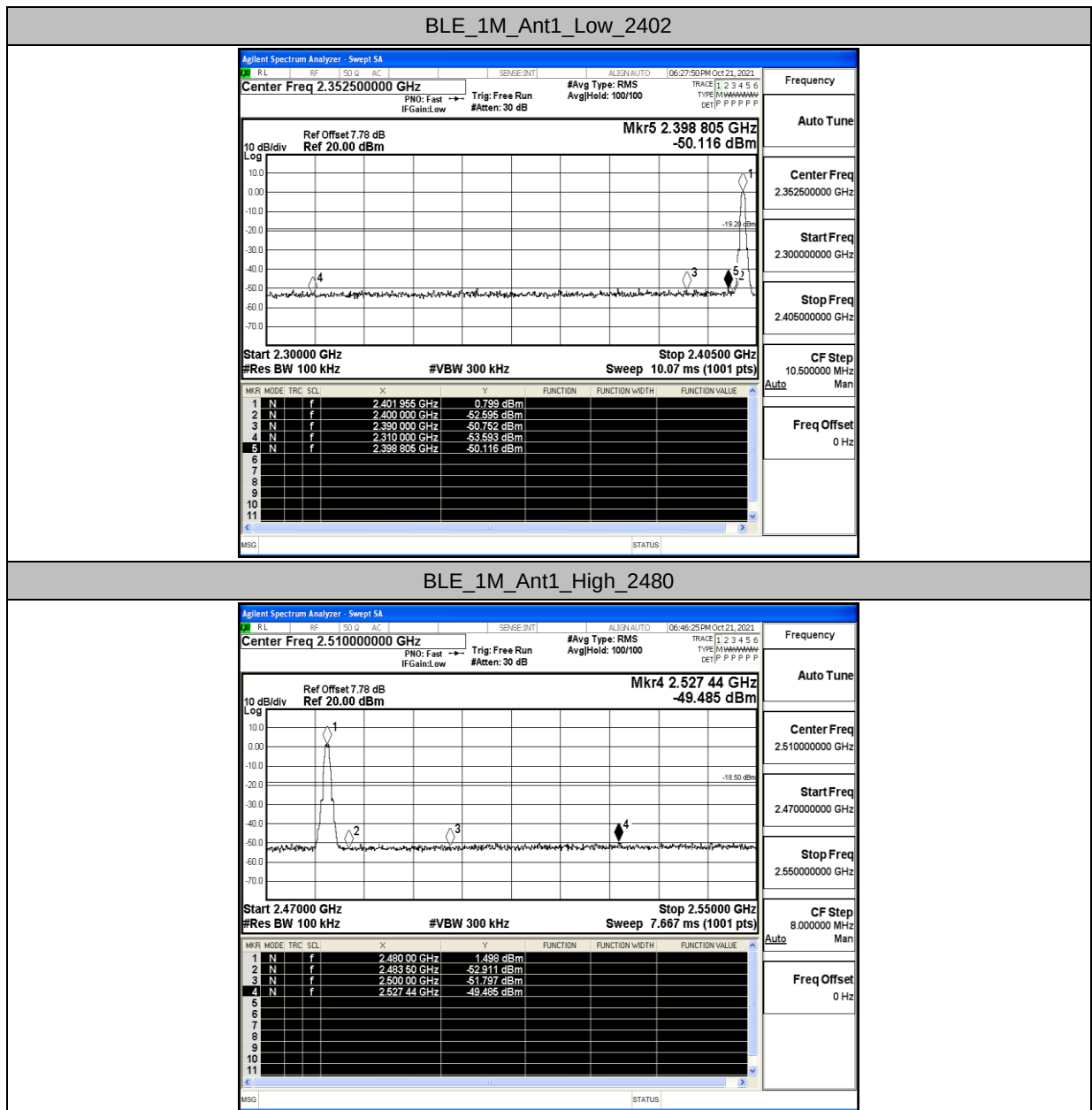


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.80	-50.12	≤-19.2	PASS
		High	2480	1.50	-49.49	≤-18.5	PASS

Test Graphs



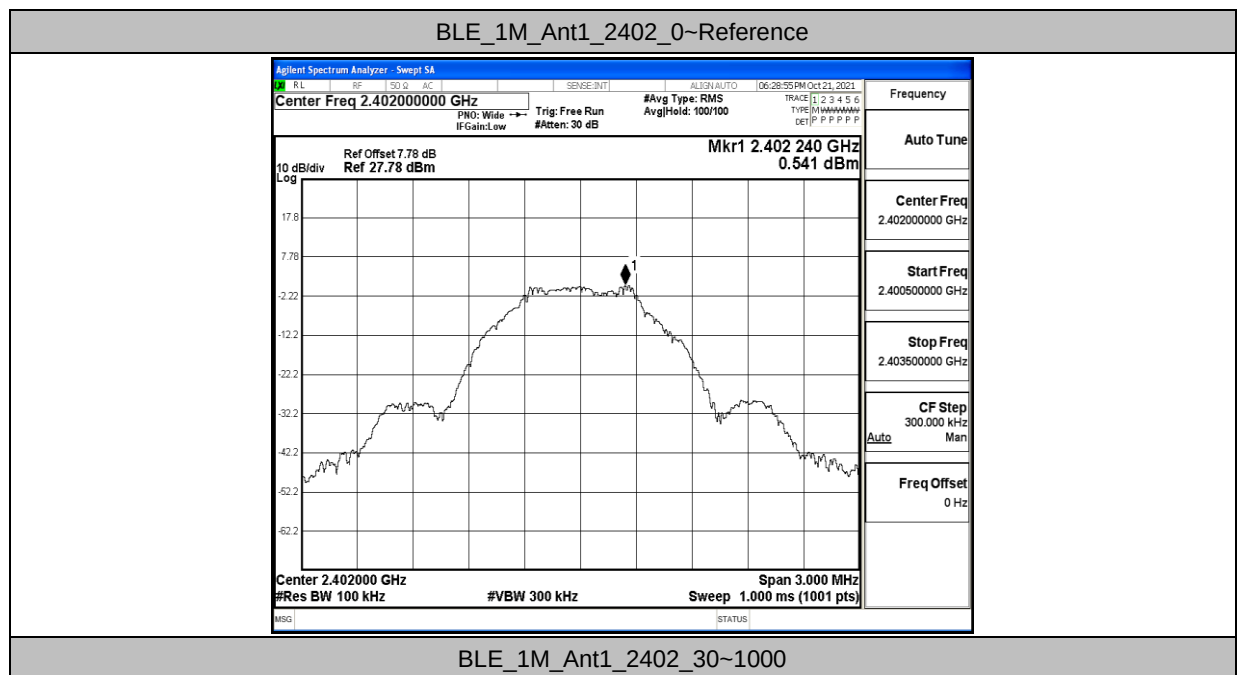


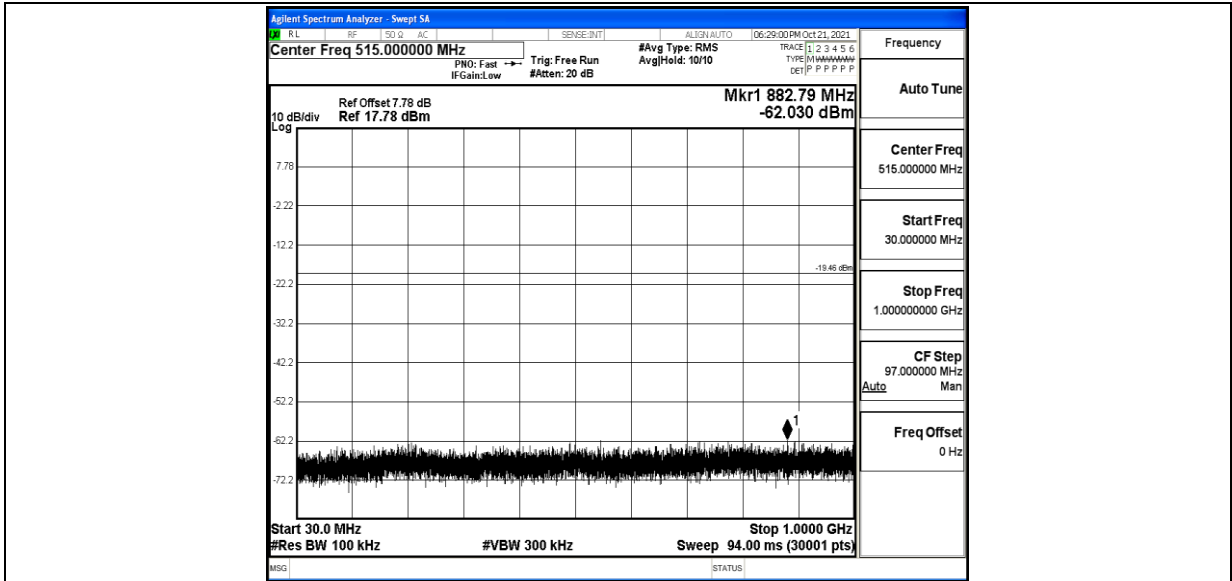
A.5 Conducted Spurious Emission

Test Result

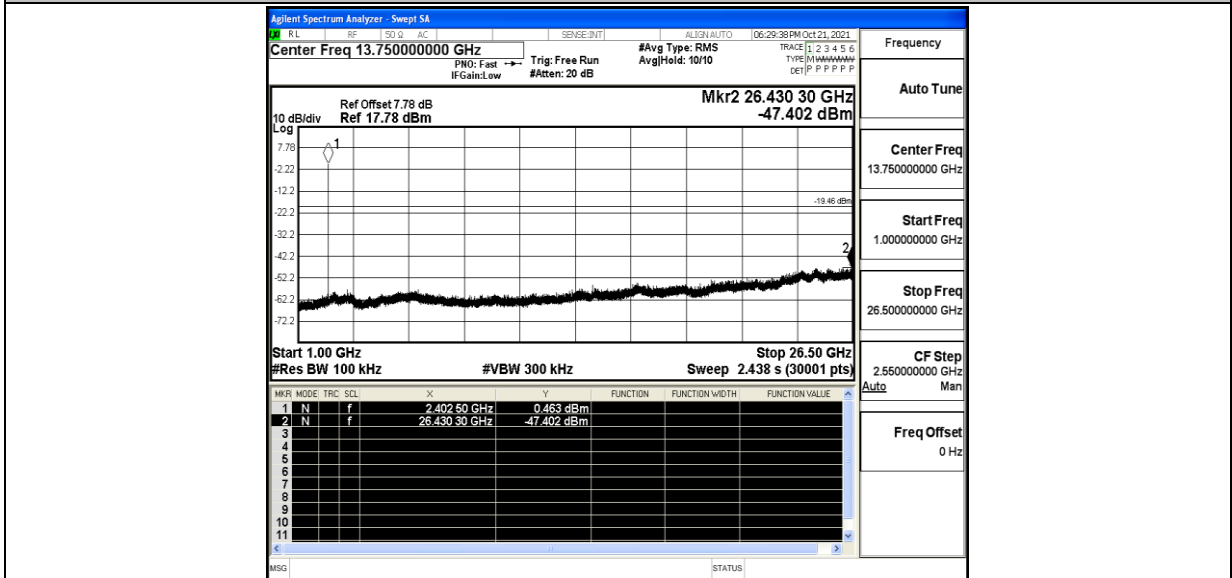
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.54	0.54	---	PASS
			30~1000	0.54	-62.03	≤-19.46	PASS
			1000~26500	0.54	-47.4	≤-19.46	PASS
		2440	Reference	1.13	1.13	---	PASS
			30~1000	1.13	-62.1	≤-18.87	PASS
			1000~26500	1.13	-47.4	≤-18.87	PASS
		2480	Reference	1.26	1.26	---	PASS
			30~1000	1.26	-61.99	≤-18.74	PASS
			1000~26500	1.26	-47.25	≤-18.74	PASS

Test Graphs

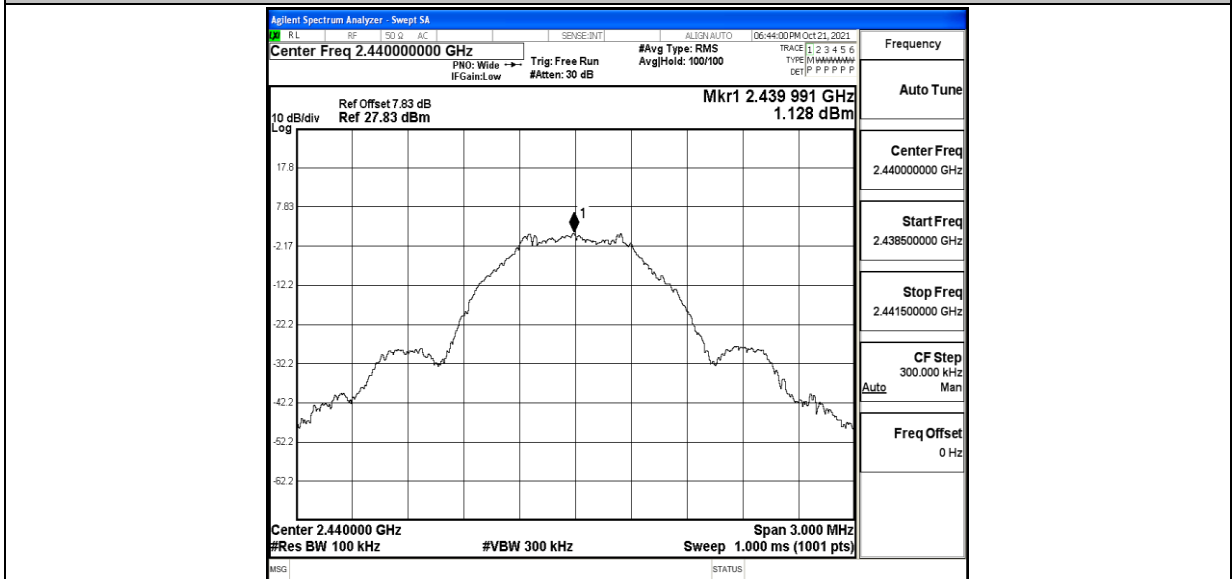




BLE_1M_Ant1_2402_1000~26500

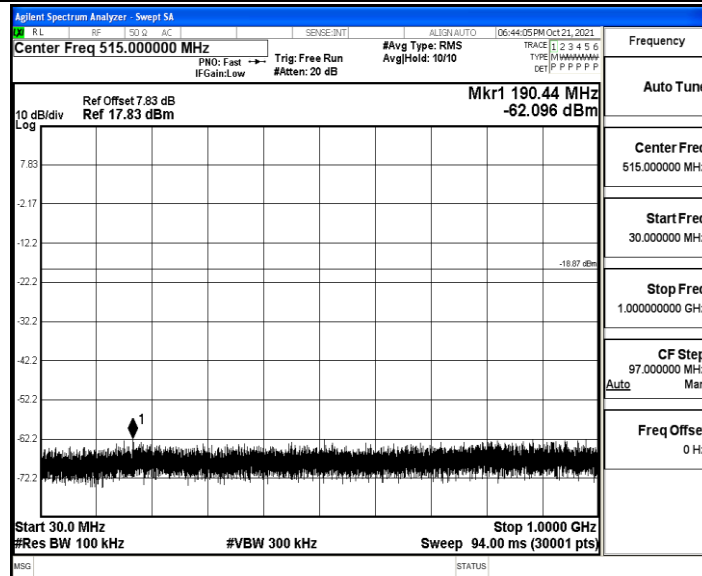


BLE_1M_Ant1_2440_0~Reference

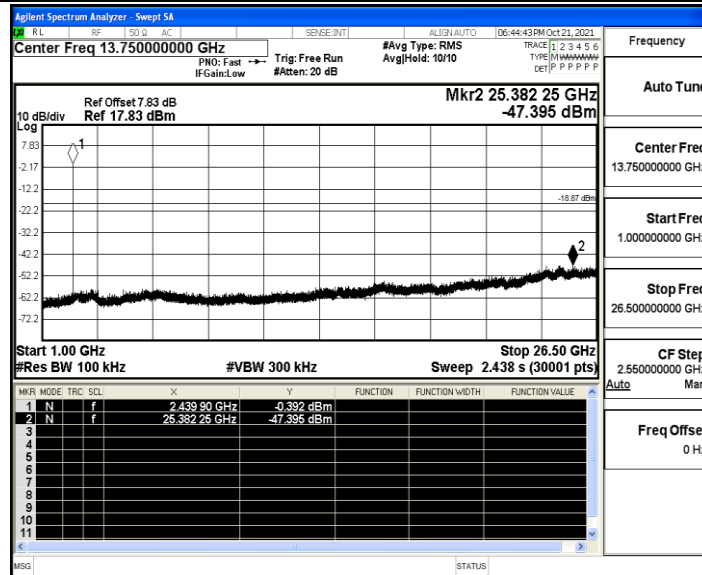




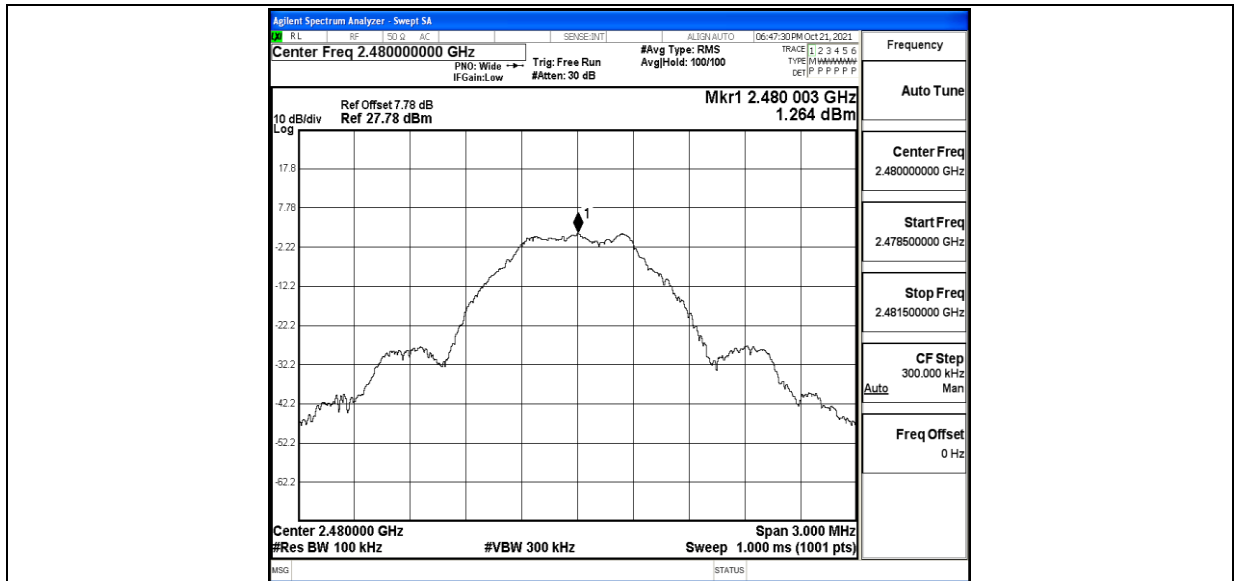
BLE_1M_Ant1_2440_30~1000



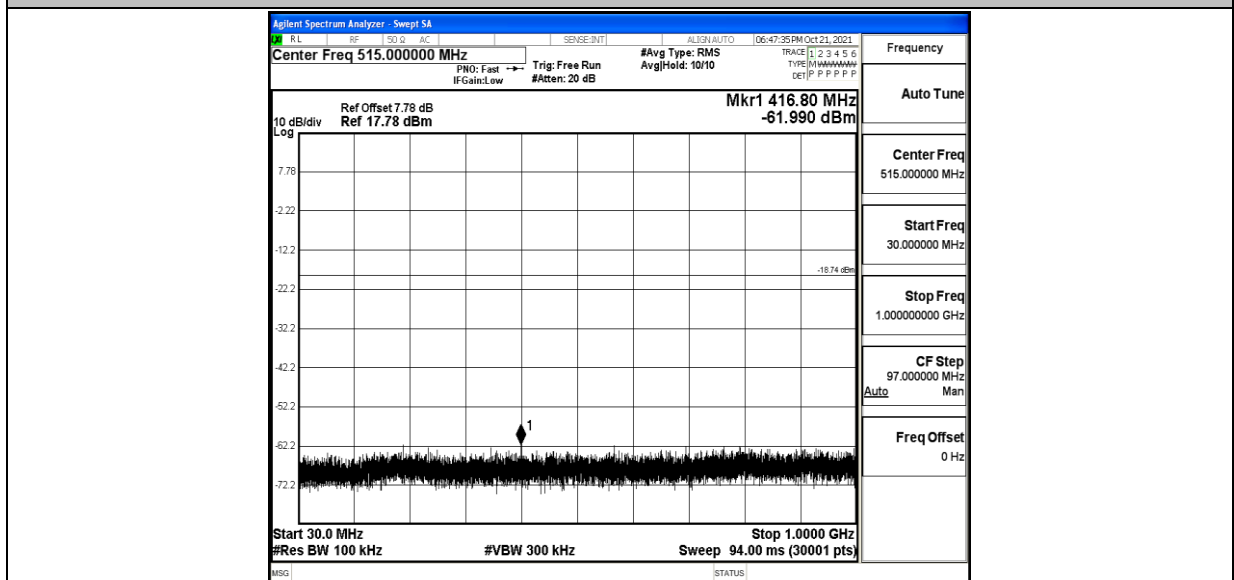
BLE_1M_Ant1_2440_1000~26500



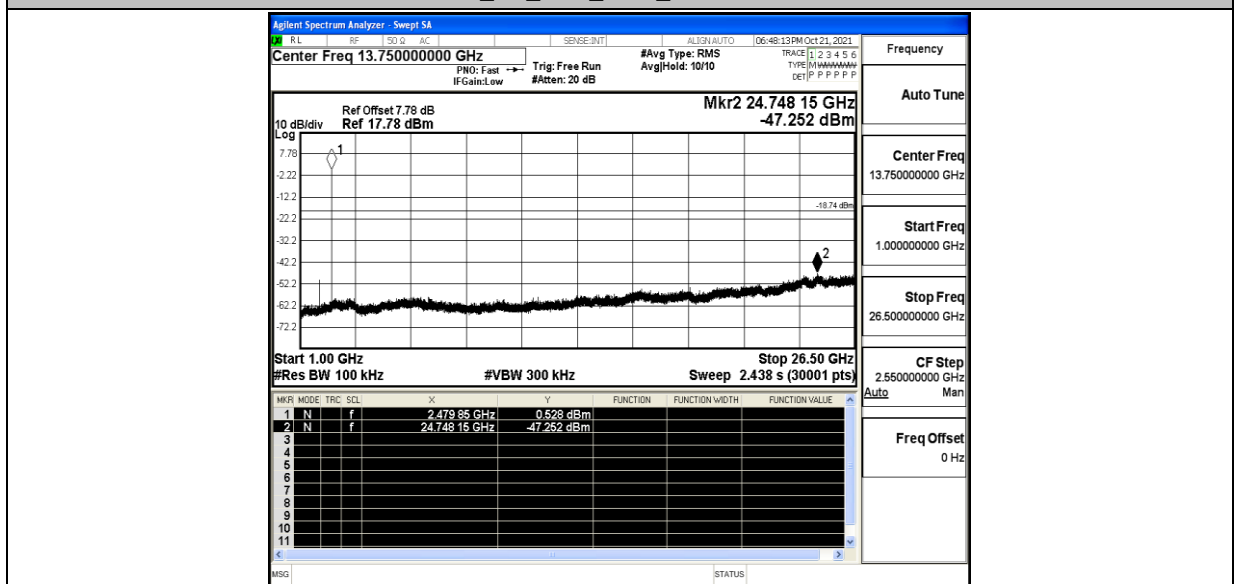
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



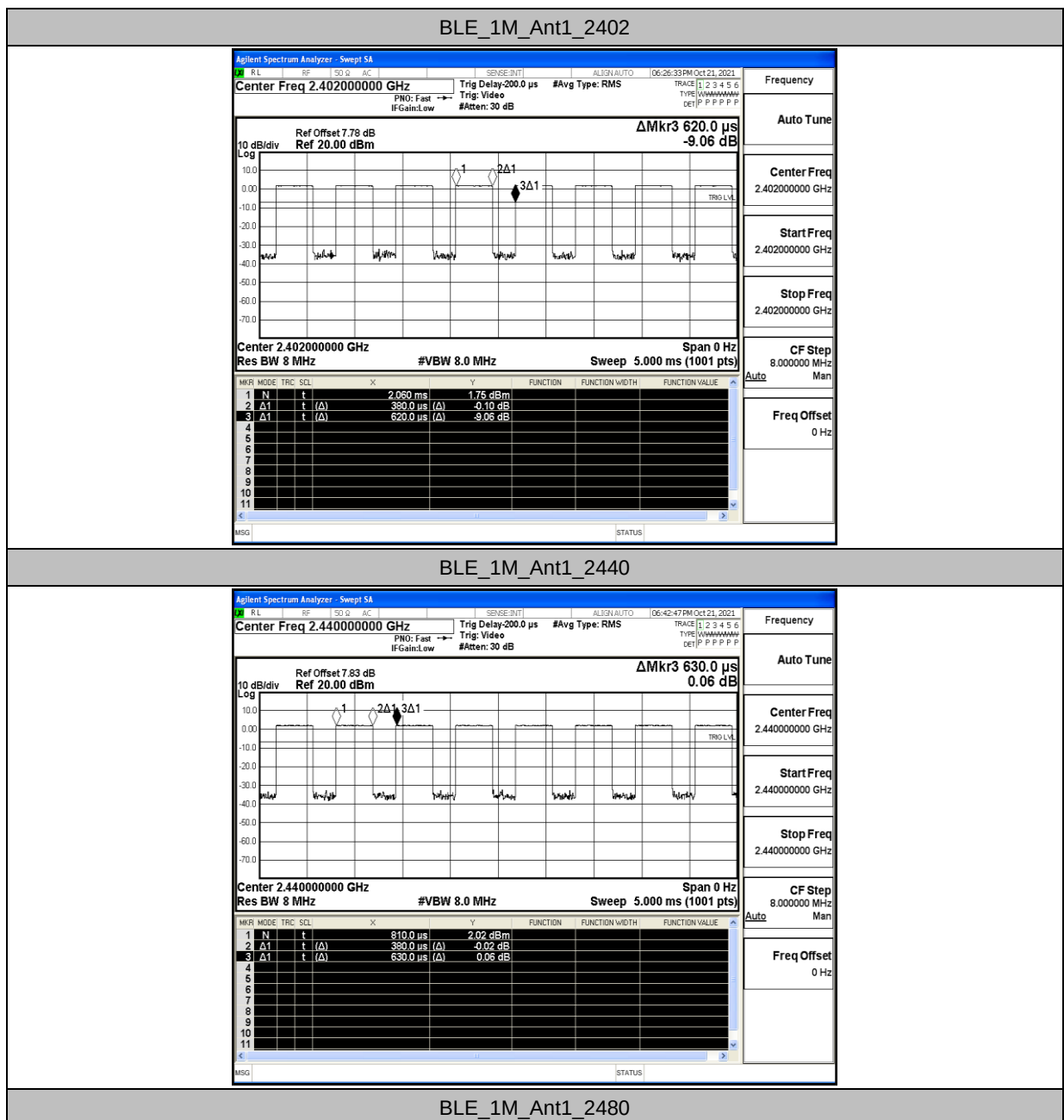


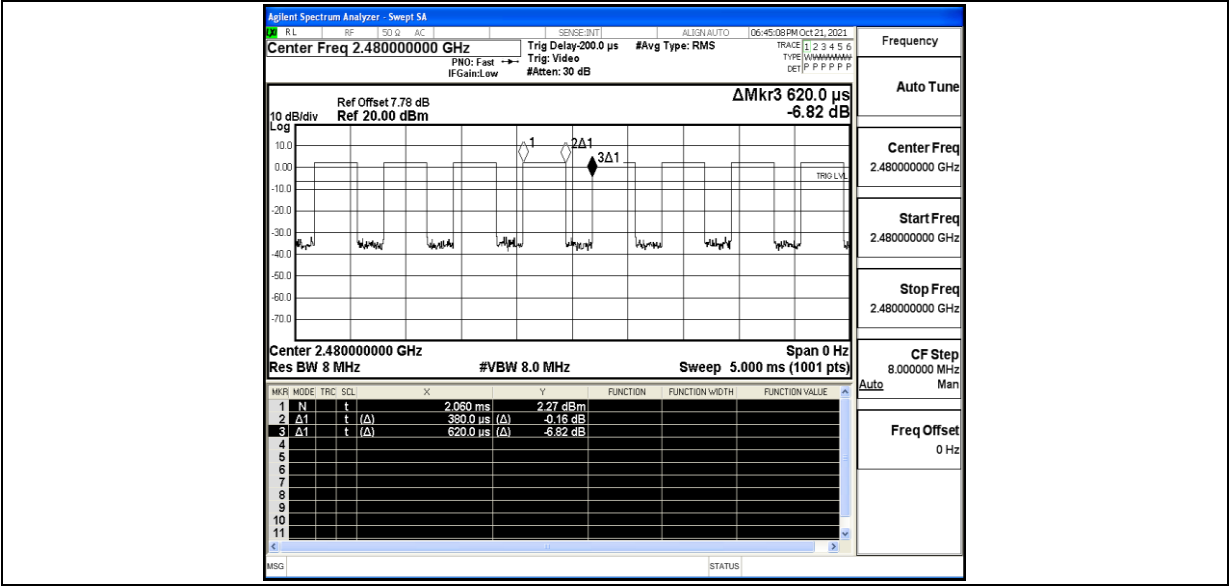
A.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.38	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







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	2382.005	-47.56	≤-41.20	47.64	≤54	PASS
				AV	2390.000	-48	≤-41.20	47.20	≤54	PASS
				Peak	2310.000	-41.02	≤-21.20	54.18	≤74	PASS
				Peak	2333.810	-38.74	≤-21.20	56.46	≤74	PASS
				Peak	2390.000	-39.07	≤-21.20	56.13	≤74	PASS
		High	2480	AV	2483.500	-46.86	≤-41.20	48.34	≤54	PASS
				AV	2483.520	-46.86	≤-41.20	48.34	≤54	PASS
				AV	2500.000	-47.34	≤-41.20	47.86	≤54	PASS
				Peak	2483.500	-40.78	≤-21.20	54.42	≤74	PASS
				Peak	2485.440	-38.91	≤-21.20	56.29	≤74	PASS
				Peak	2500.000	-40.86	≤-21.20	54.34	≤74	PASS

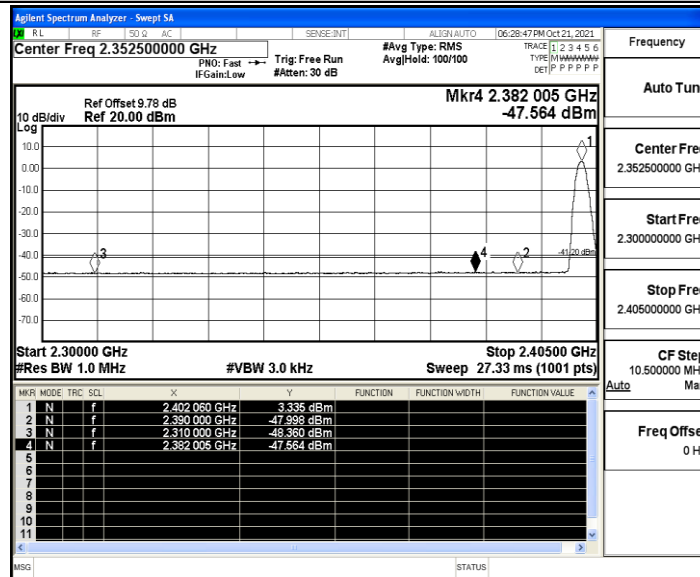
Note:

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.

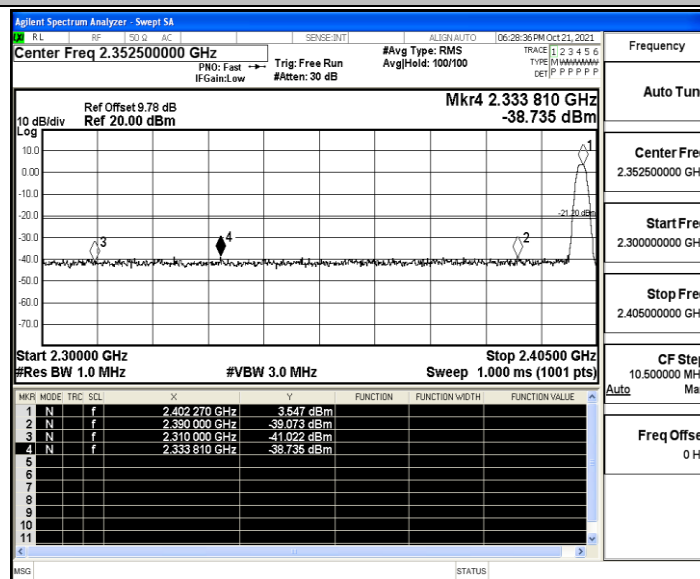


Test Graphs

BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV

