



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Enor E

Test Model: WBTWNER

Environmental Conditions

Temperature:	23.7° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	monkey.Li
Supervised by:	Libin

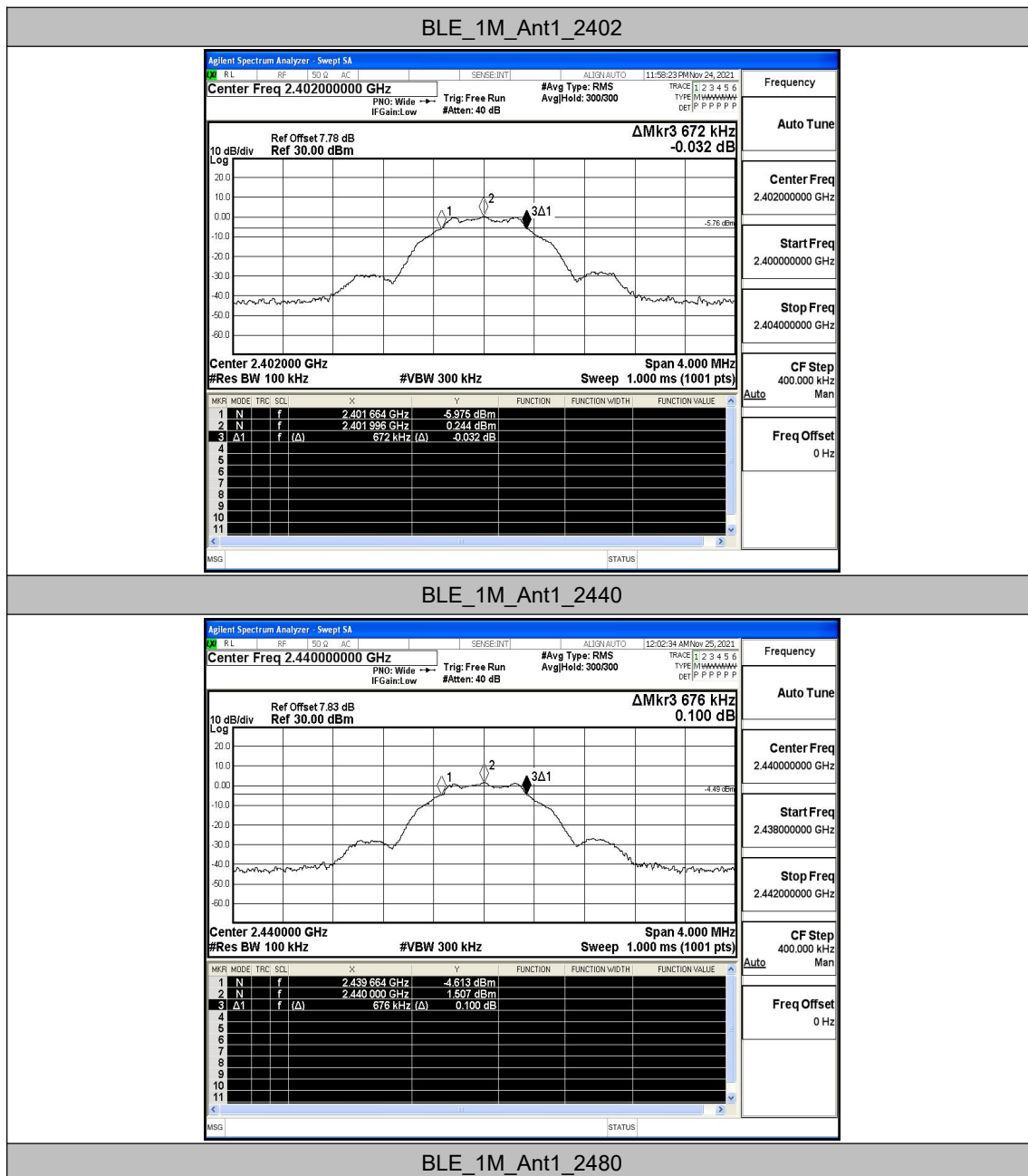


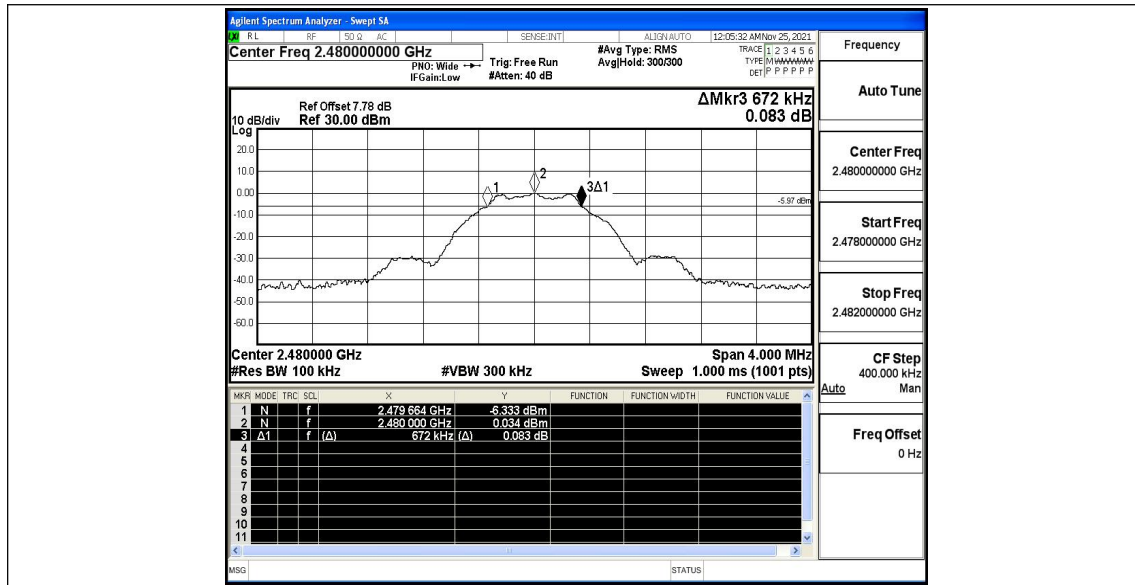
A.1 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.672	2401.664	2402.336	≥ 0.5	PASS
		2440	0.676	2439.664	2440.340	≥ 0.5	PASS
		2480	0.672	2479.664	2480.336	≥ 0.5	PASS

Test Graphs





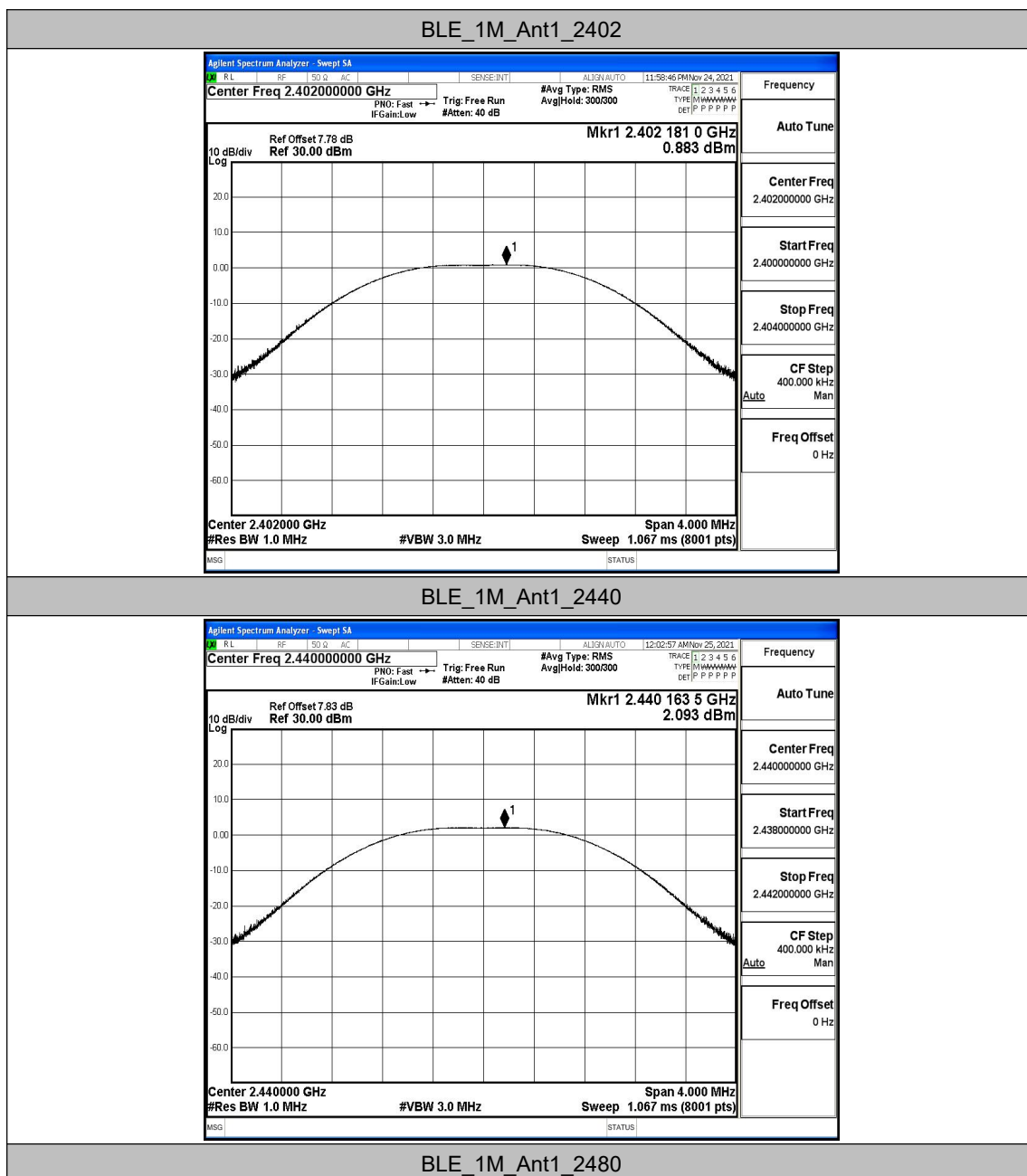


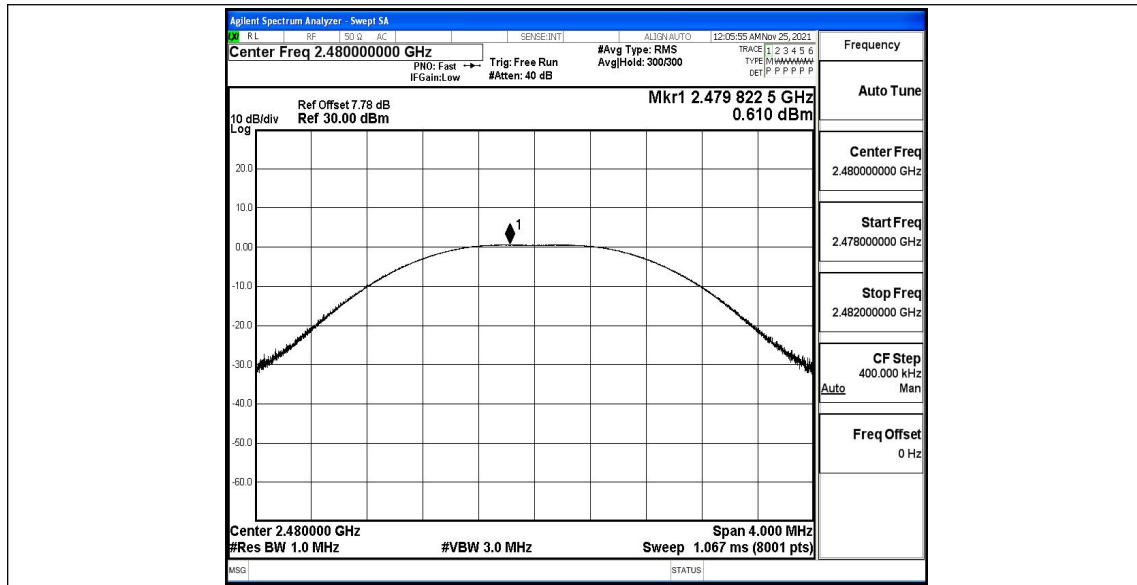
A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.88	≤30	PASS
		2440	2.09	≤30	PASS
		2480	0.61	≤30	PASS

Test Graphs





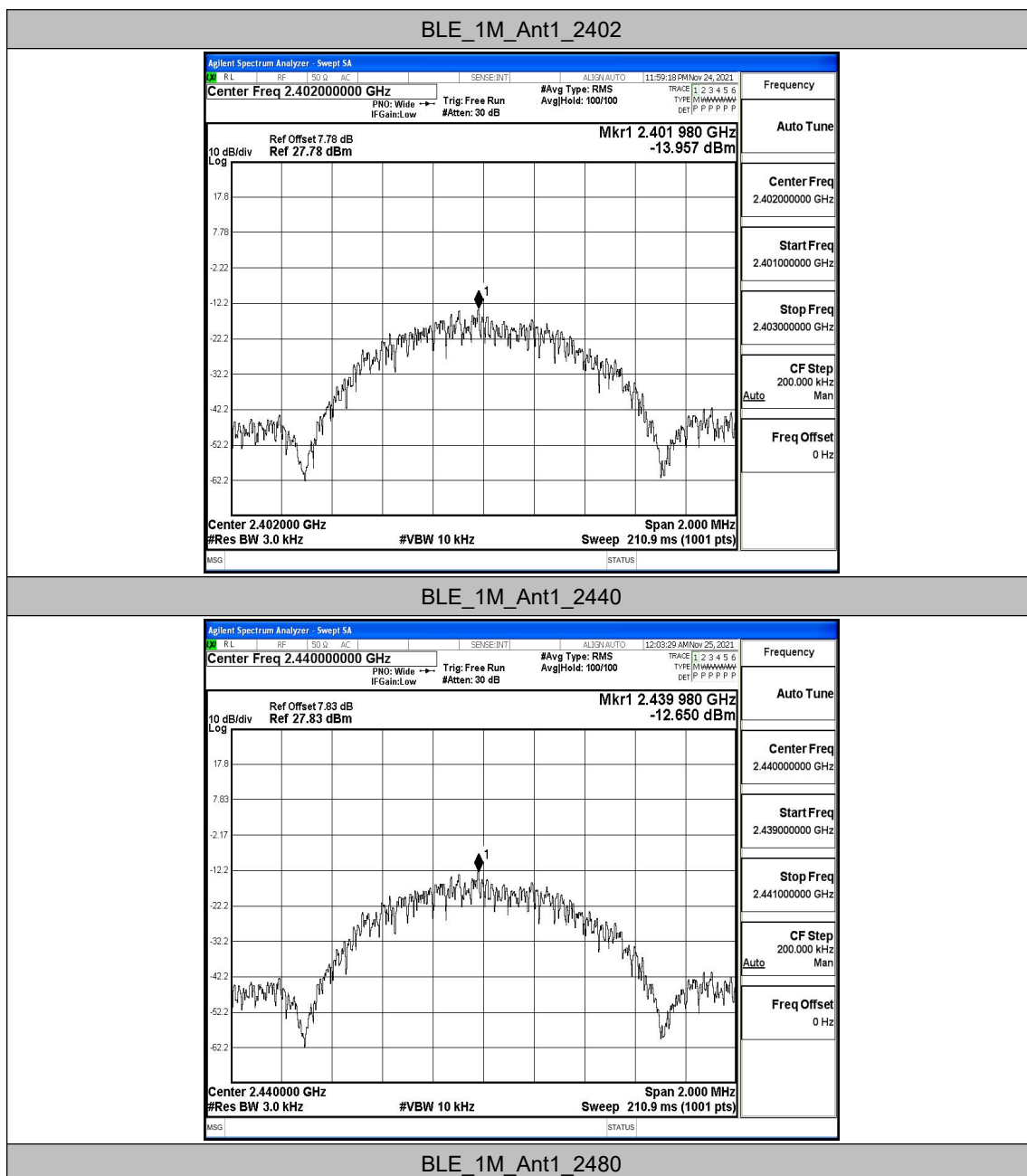


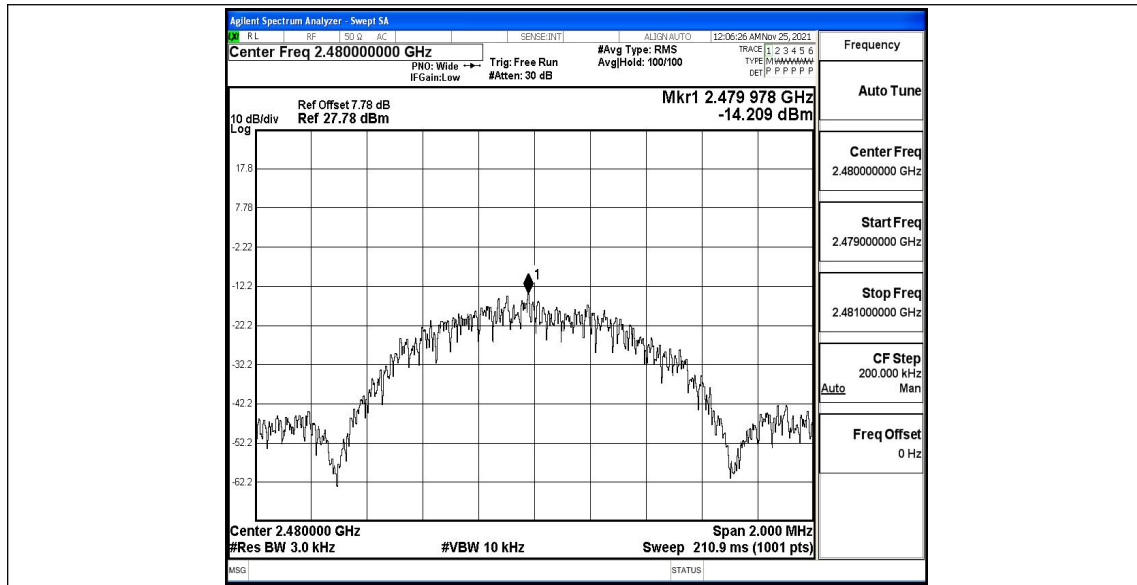
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.96	≤8	PASS
		2440	-12.65	≤8	PASS
		2480	-14.21	≤8	PASS

Test Graphs





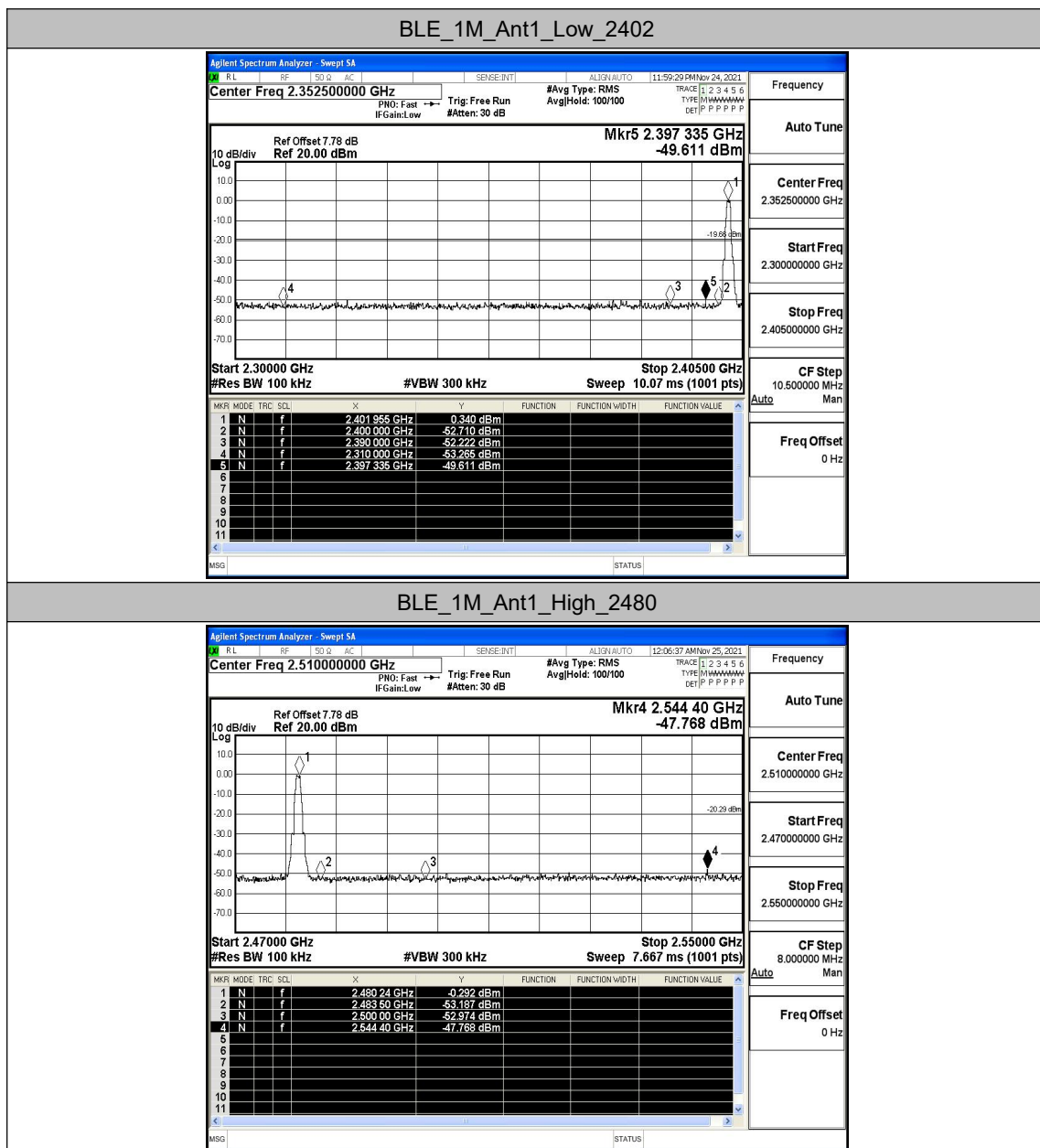


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.34	-49.61	≤-19.66	PASS
		High	2480	-0.29	-47.77	≤-20.29	PASS

Test Graphs



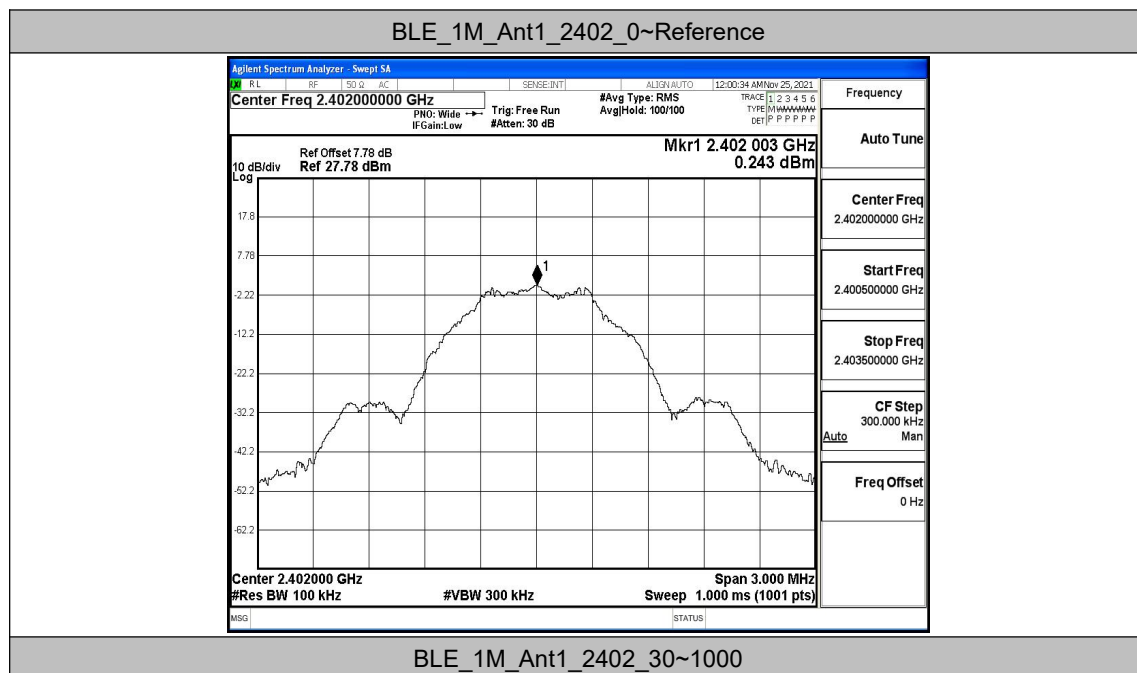


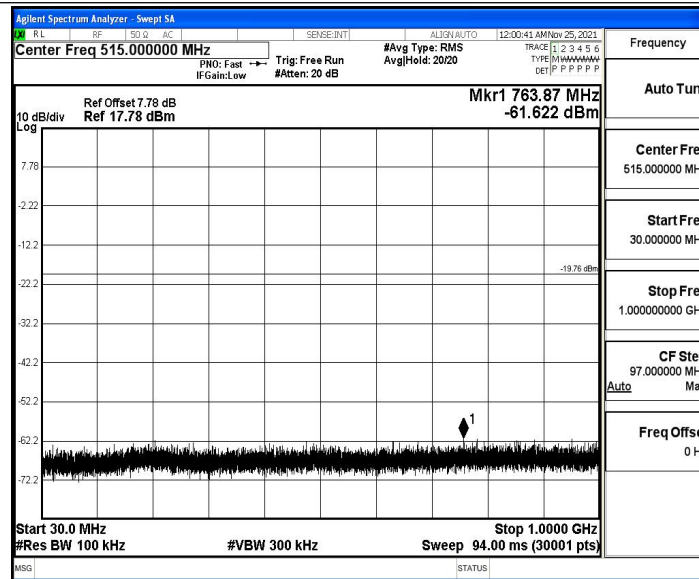
A.5 Conducted Spurious Emission

Test Result

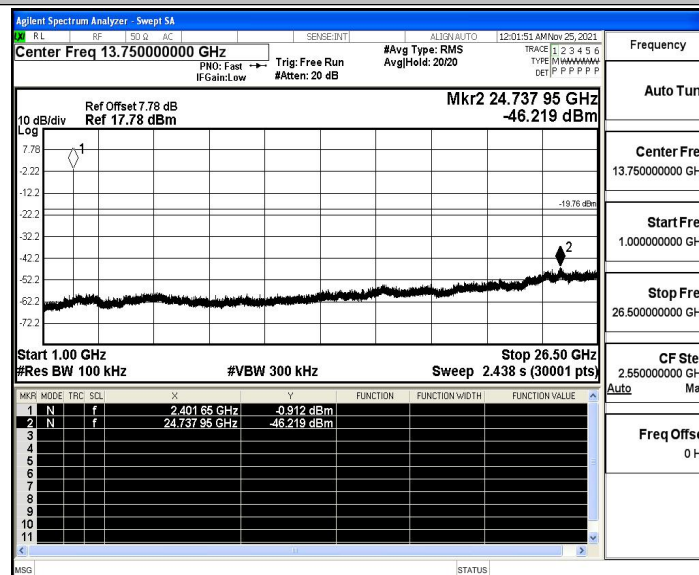
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.24	0.24	---	PASS
			30~1000	0.24	-61.62	≤-19.76	PASS
			1000~26500	0.24	-46.22	≤-19.76	PASS
		2440	Reference	1.46	1.46	---	PASS
			30~1000	1.46	-61.54	≤-18.54	PASS
			1000~26500	1.46	-46.85	≤-18.54	PASS
		2480	Reference	-0.08	-0.08	---	PASS
			30~1000	-0.08	-61.72	≤-20.08	PASS
			1000~26500	-0.08	-47.33	≤-20.08	PASS

Test Graphs

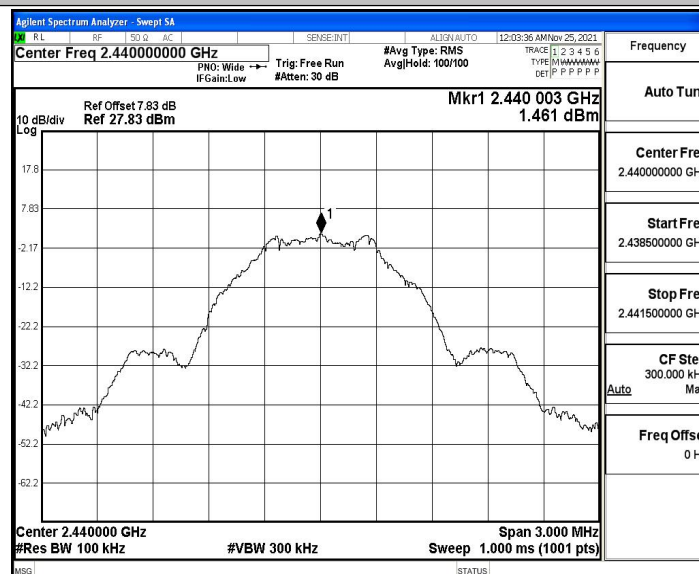




BLE_1M_Ant1_2402_1000~26500

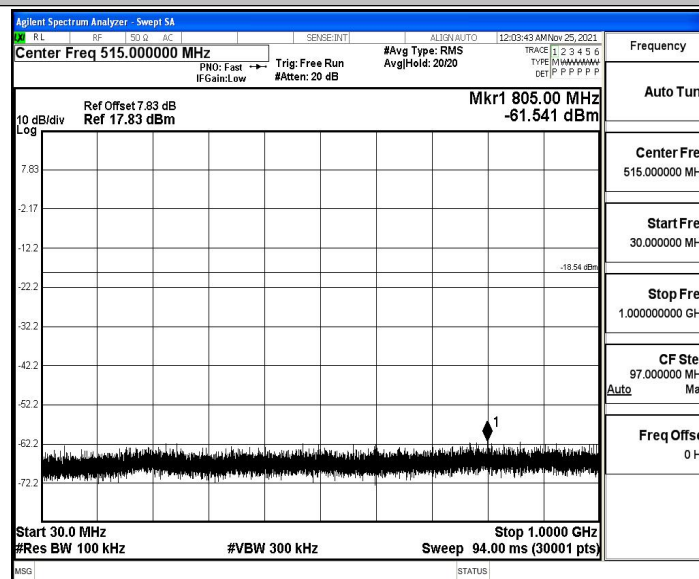


BLE_1M_Ant1_2440_0~Reference

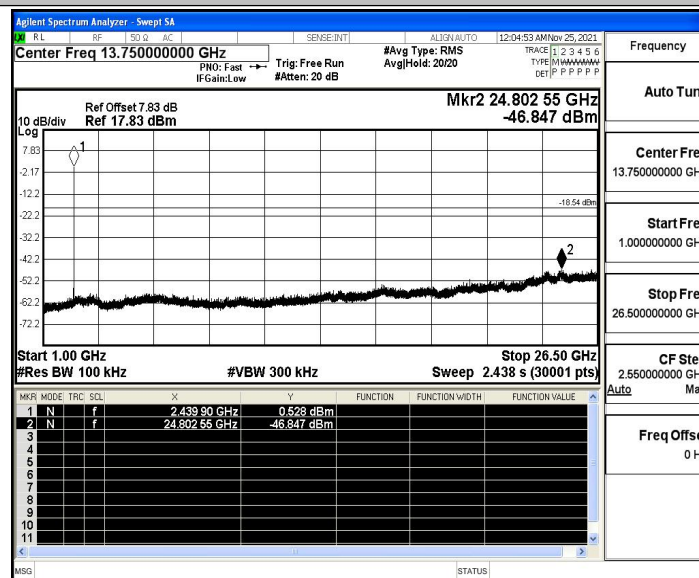




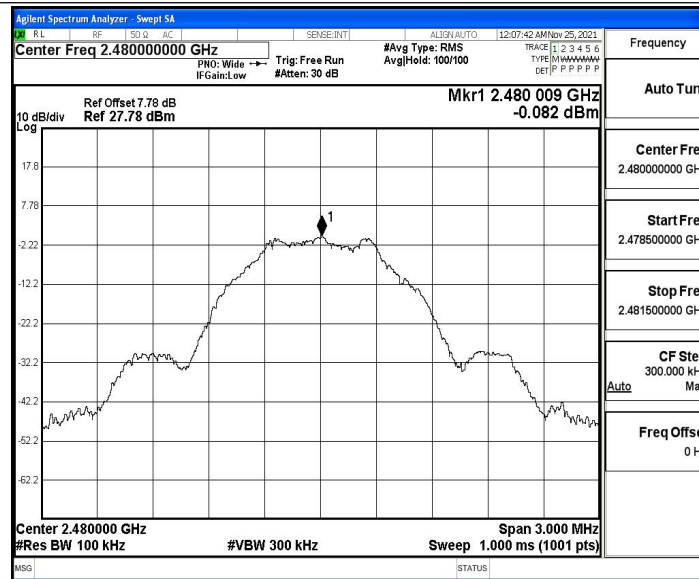
BLE_1M_Ant1_2440_30~1000



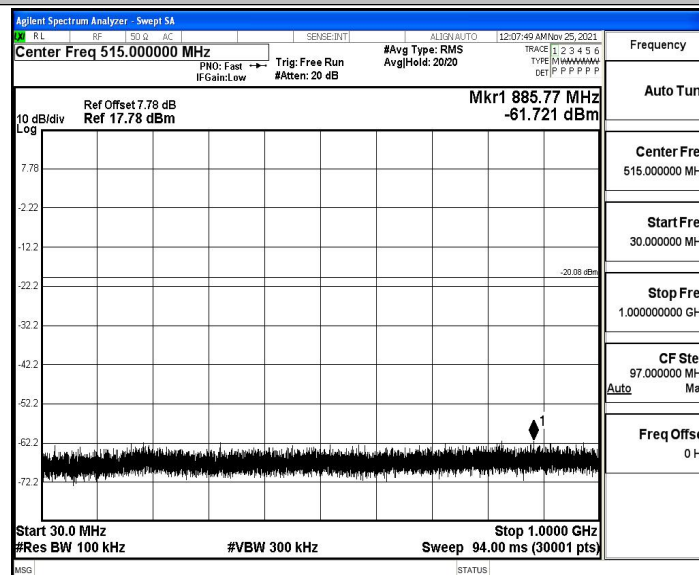
BLE_1M_Ant1_2440_1000~26500



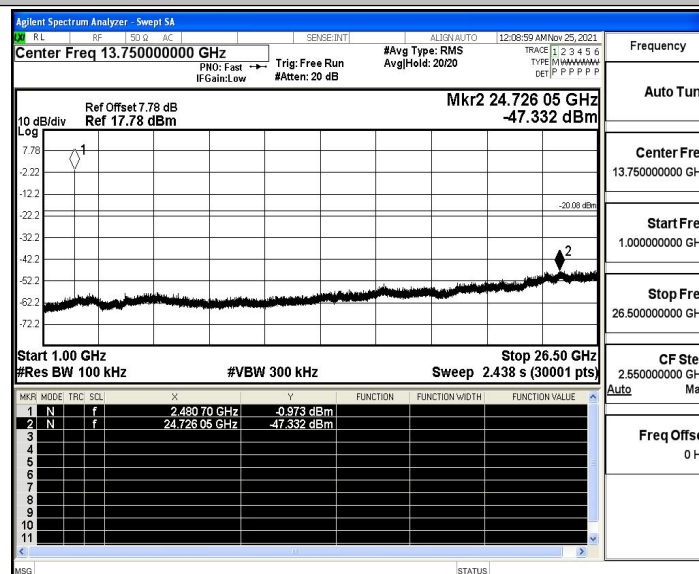
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



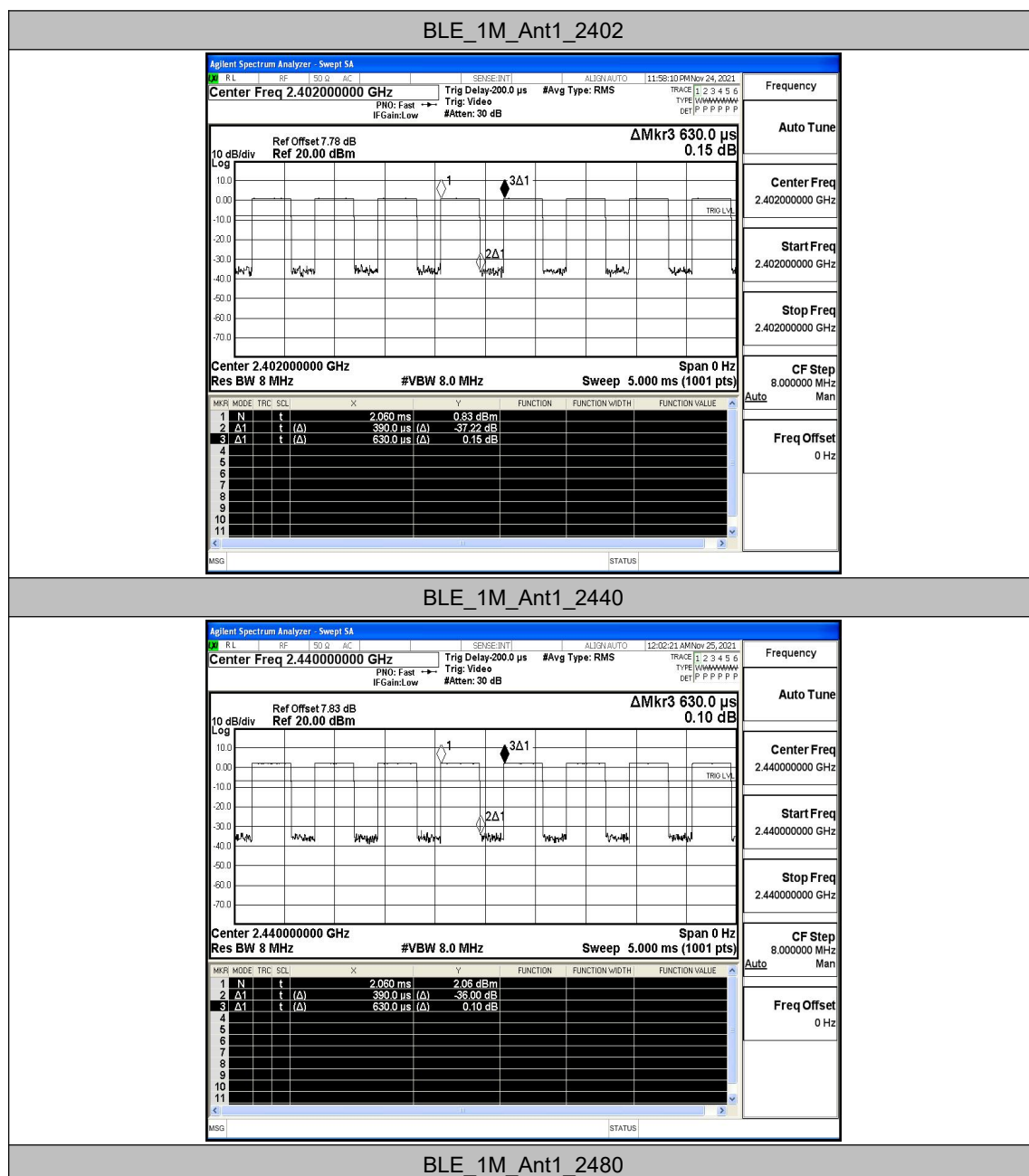


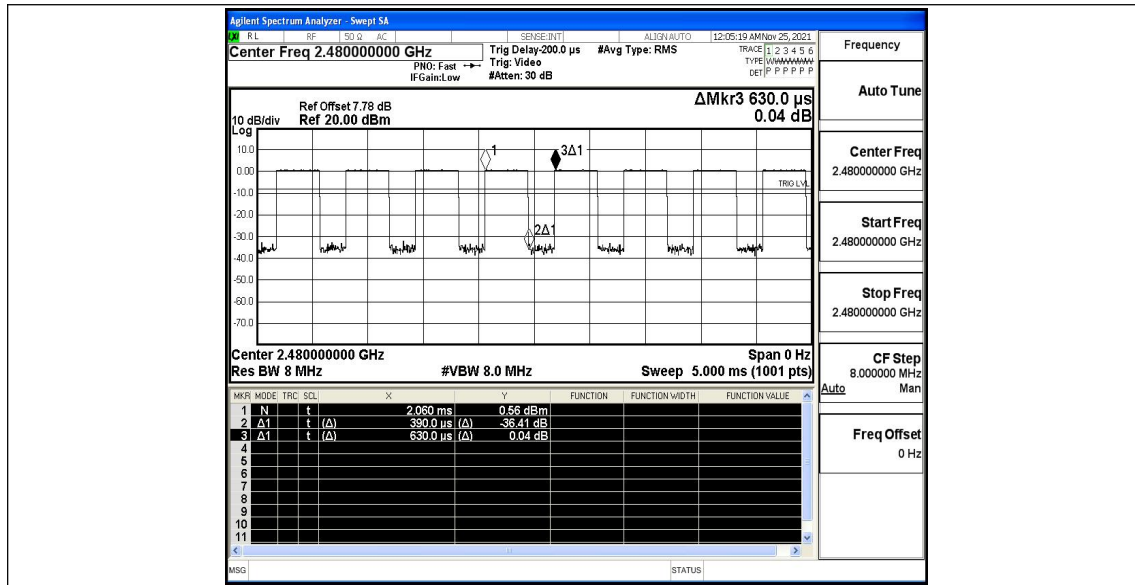
A.6 Duty Cycle

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	0.39	0.63	0.6190	61.90	2.08	---	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	-48.44	≤-41.20	46.76	≤54	PASS
				AV	2388.305	-47.42	≤-41.20	47.78	≤54	PASS
				AV	2390.000	-48.04	≤-41.20	47.16	≤54	PASS
				Peak	2310.000	-42.75	≤-21.20	52.45	≤74	PASS
				Peak	2345.255	-38.88	≤-21.20	56.32	≤74	PASS
				Peak	2390.000	-39.08	≤-21.20	56.12	≤74	PASS
		High	2480	AV	2483.500	-46.85	≤-41.20	48.35	≤54	PASS
				AV	2483.520	-46.85	≤-41.20	48.35	≤54	PASS
				AV	2500.000	-47.04	≤-41.20	48.16	≤54	PASS
				Peak	2483.500	-39.73	≤-21.20	55.47	≤74	PASS
				Peak	2486.960	-38.39	≤-21.20	56.81	≤74	PASS
				Peak	2500.000	-40.09	≤-21.20	55.11	≤74	PASS

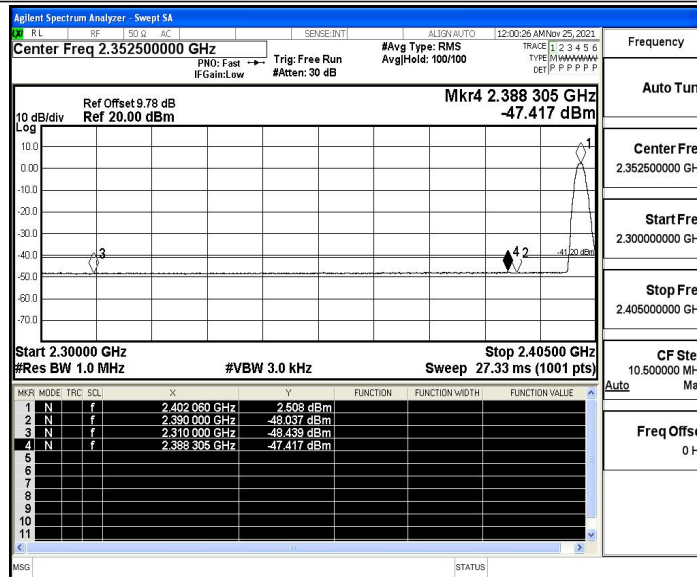
Note:

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.

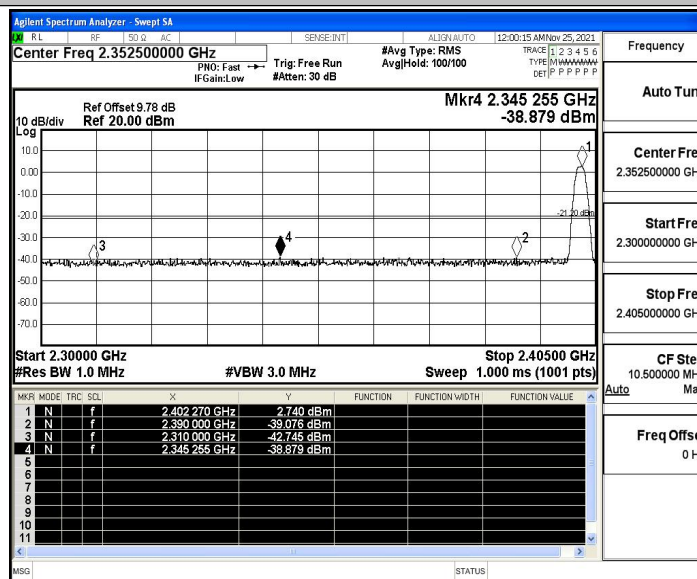


Test Graphs

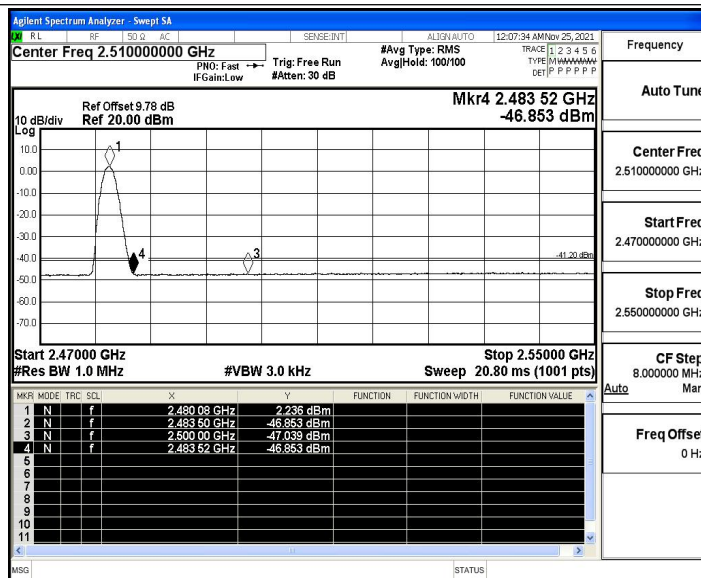
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

