



Appendix B

RF Test Data for BLE (Conducted Measurement)

Product Name: OF2021 Control Center

Test Model: UR200878-CB

Environmental Conditions

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

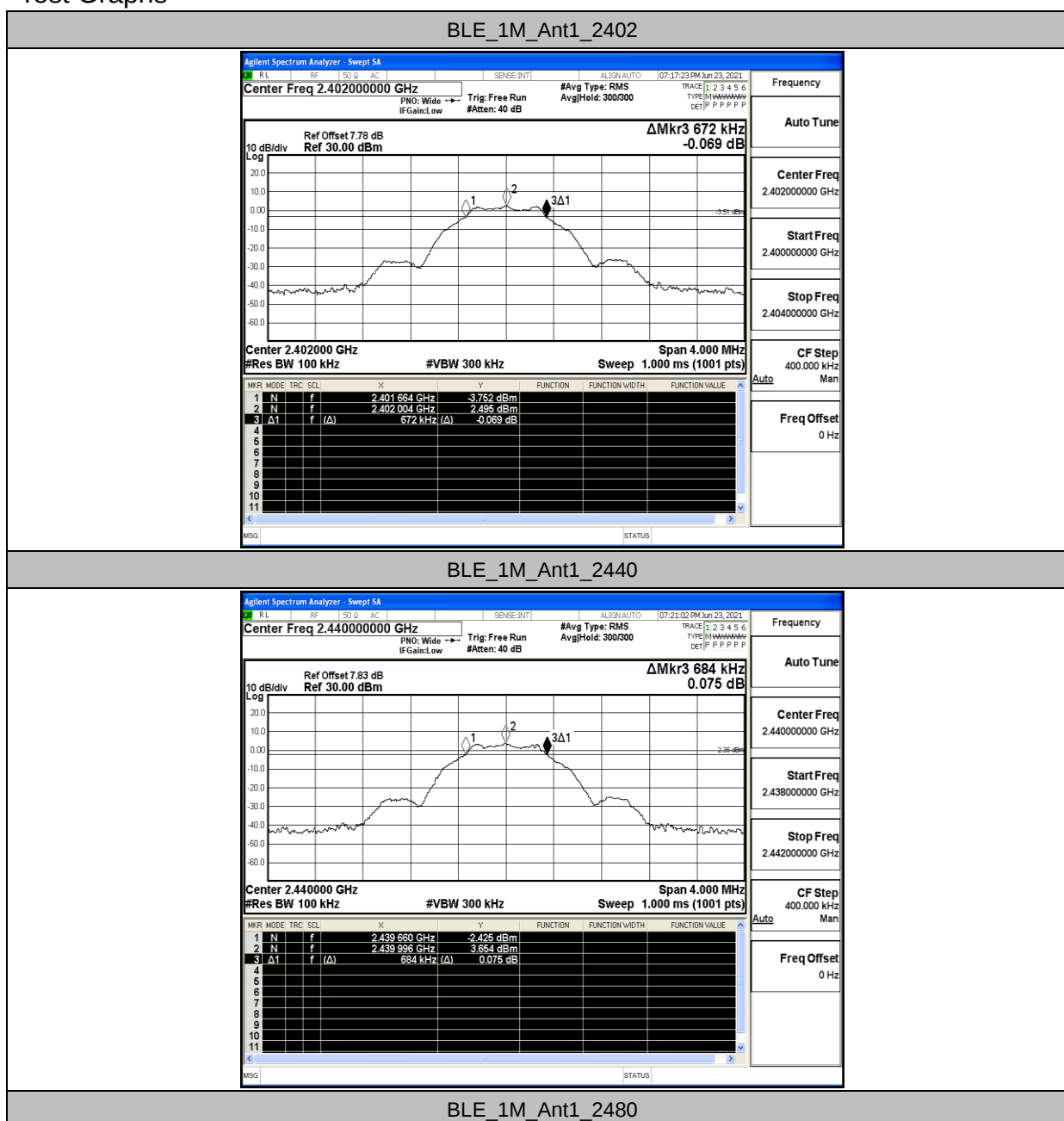


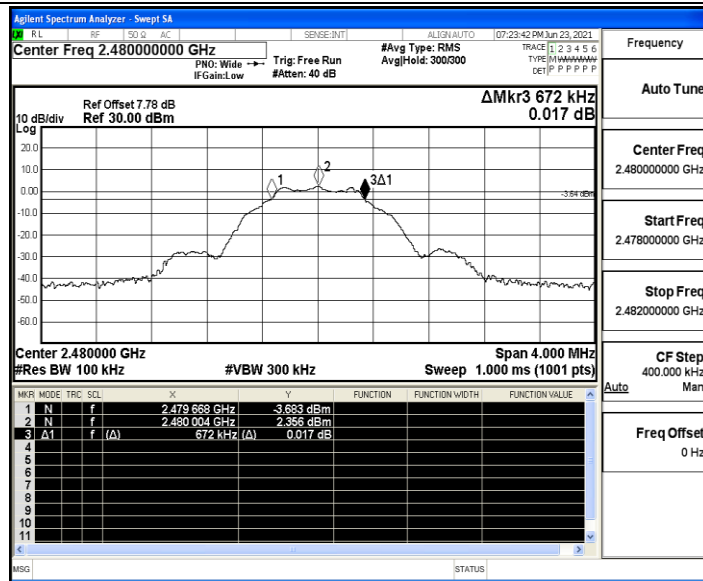
B.1 6dB Bandwidth

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	0.684	2439.660	2440.344	≥0.5	PASS
		2480	0.672	2479.668	2480.340	≥0.5	PASS

Test Graphs







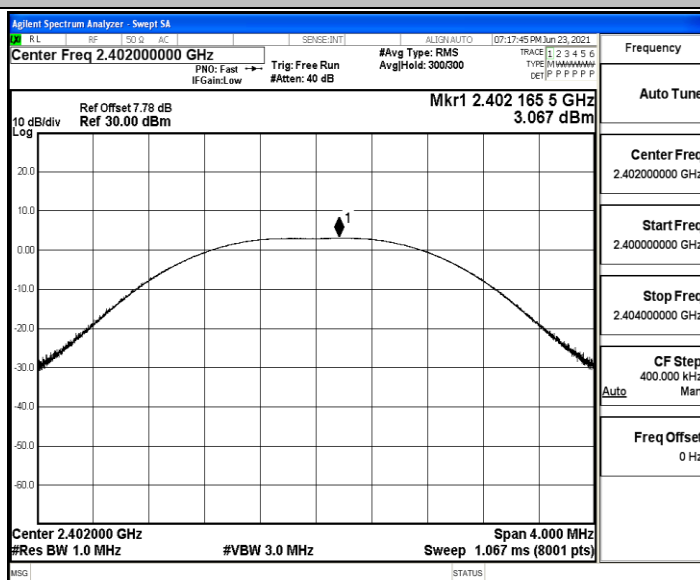
B.2 Maximum conducted output power

Test Result

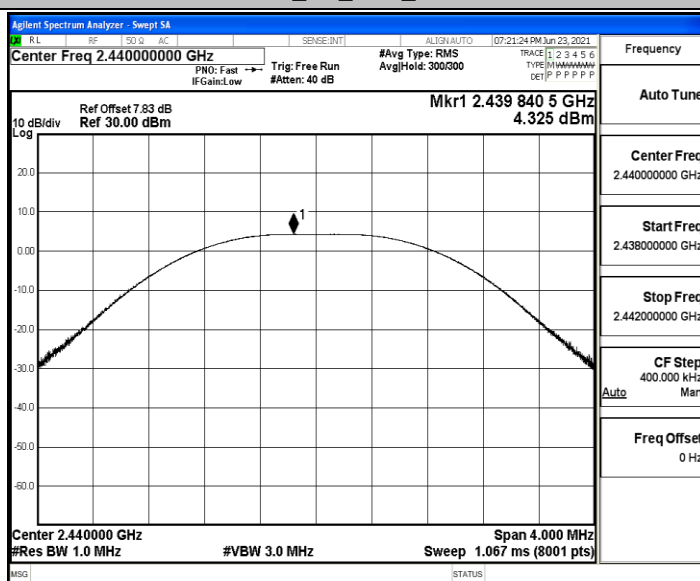
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	3.07	≤30	PASS
		2440	4.33	≤30	PASS
		2480	2.9	≤30	PASS

Test Graphs

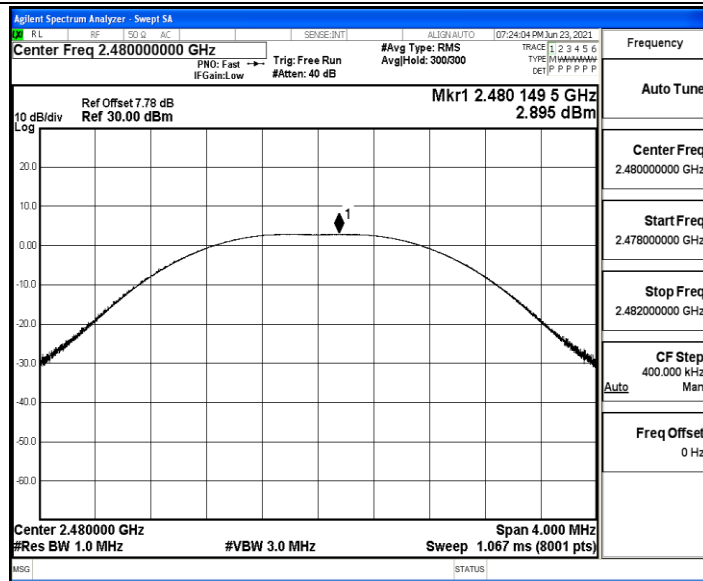
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





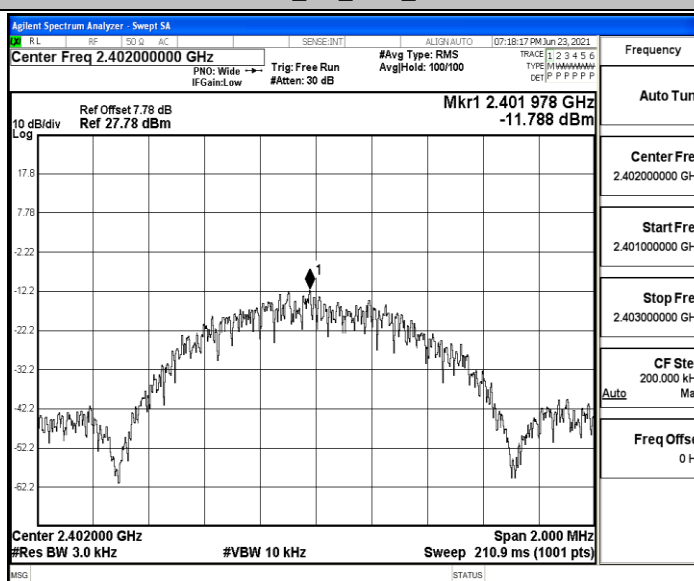
B.3 Maximum power spectral density

Test Result

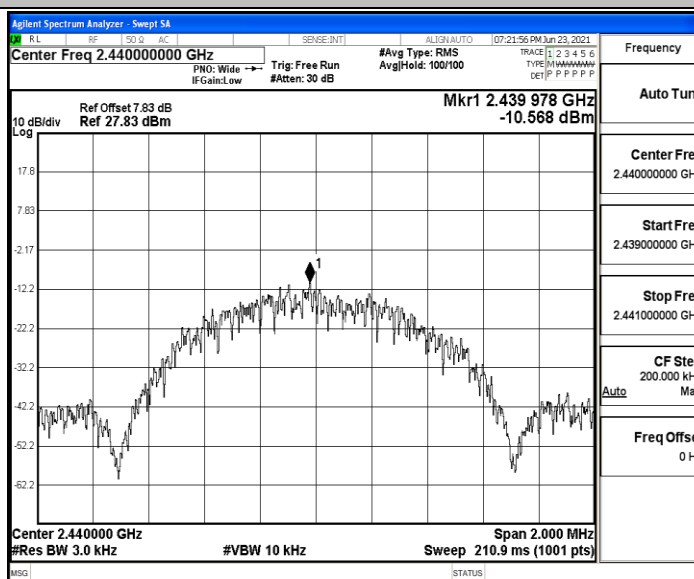
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-11.79	≤8	PASS
		2440	-10.57	≤8	PASS
		2480	-11.87	≤8	PASS

Test Graphs

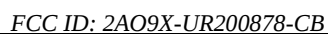
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





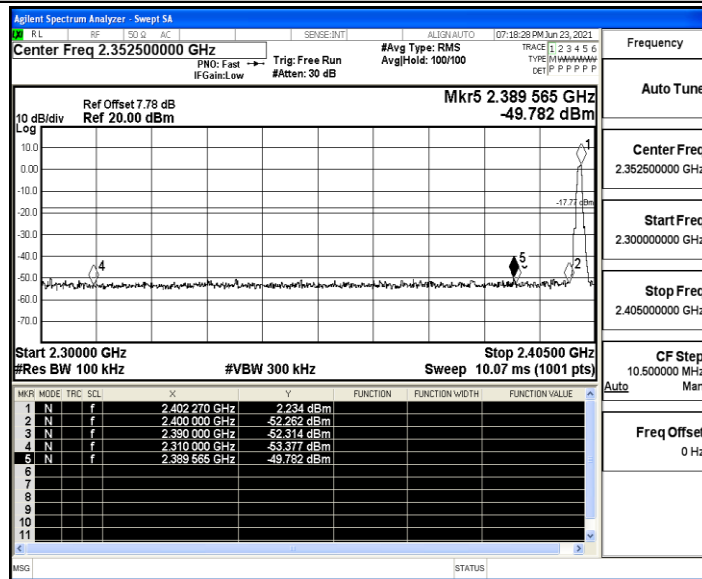
B.4 Band edge measurements

Test Result

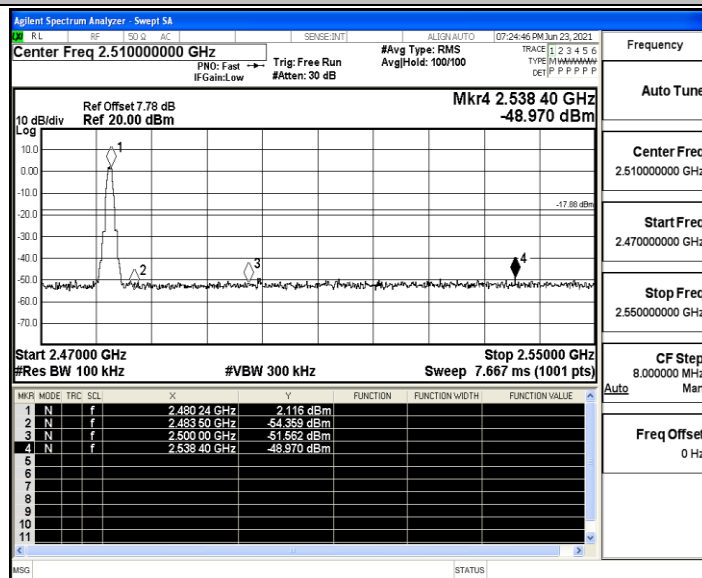
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	2.23	-49.78	≤-17.77	PASS
		High	2480	2.12	-48.97	≤-17.88	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



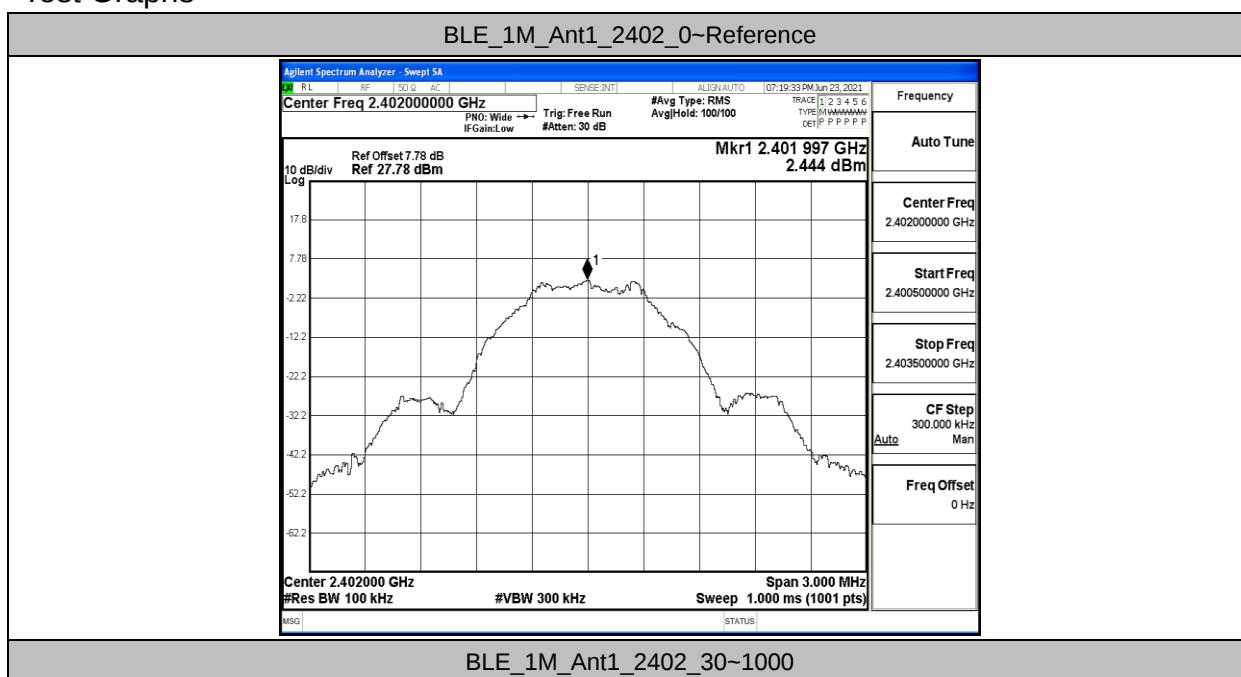


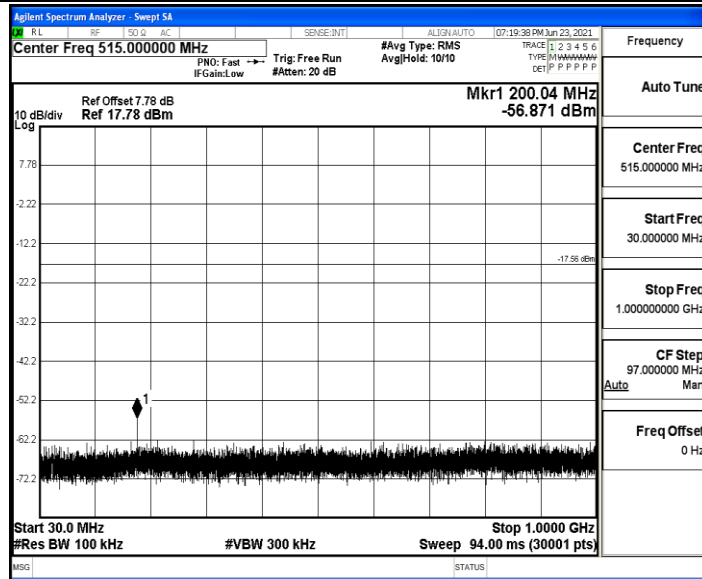
B.5 Conducted Spurious Emission

Test Result

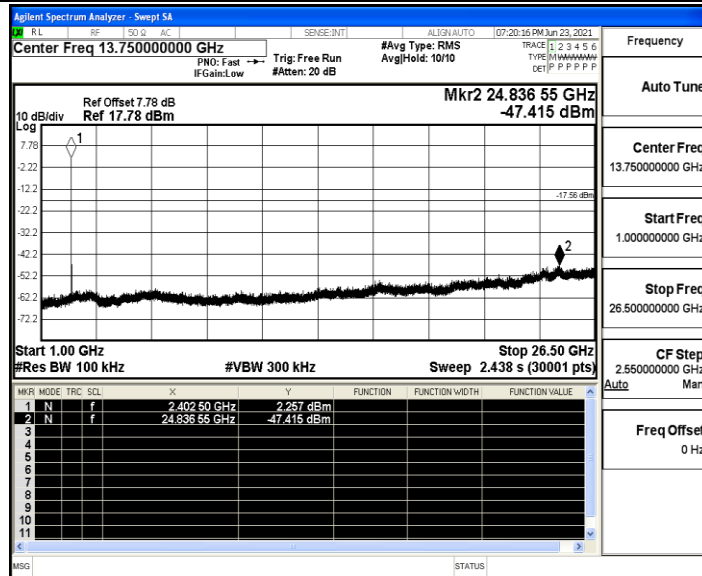
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	2.44	2.44	---	PASS
			30~1000	2.44	-56.87	≤-17.56	PASS
			1000~26500	2.44	-47.42	≤-17.56	PASS
		2440	Reference	3.19	3.19	---	PASS
			30~1000	3.19	-56.84	≤-16.81	PASS
			1000~26500	3.19	-47.85	≤-16.81	PASS
		2480	Reference	1.82	1.82	---	PASS
			30~1000	1.82	-58.83	≤-18.19	PASS
			1000~26500	1.82	-47.08	≤-18.19	PASS

Test Graphs

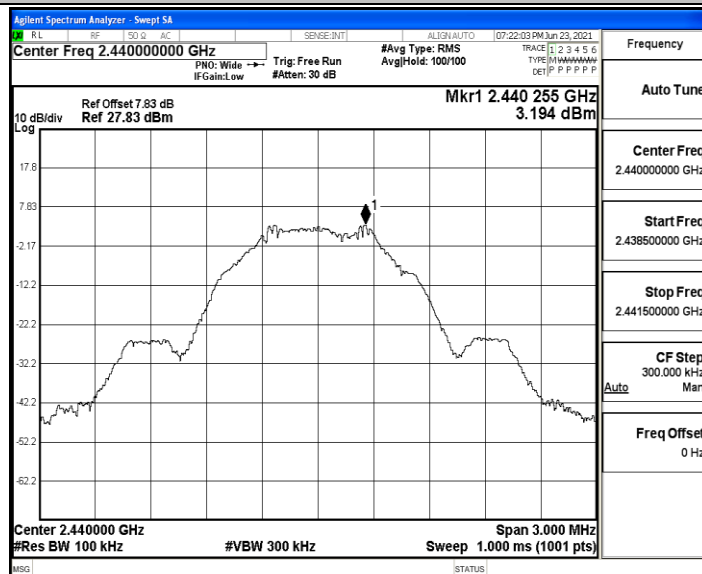




BLE_1M_Ant1_2402_1000~26500

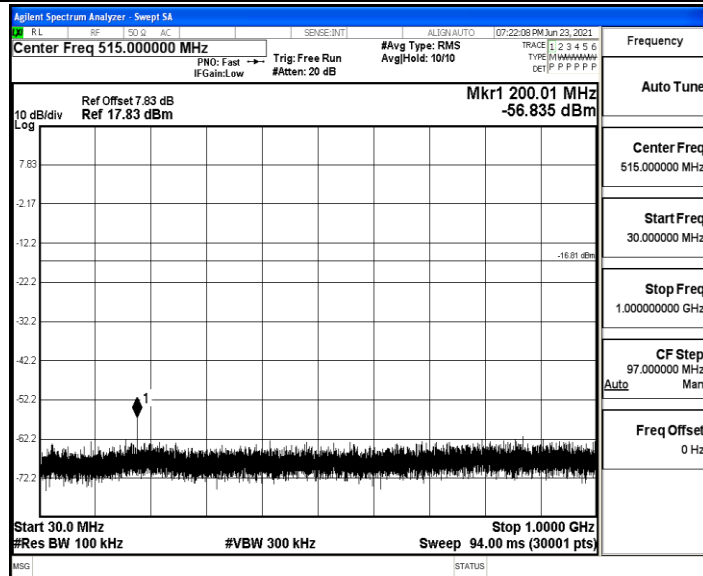


BLE_1M_Ant1_2440_0~Reference

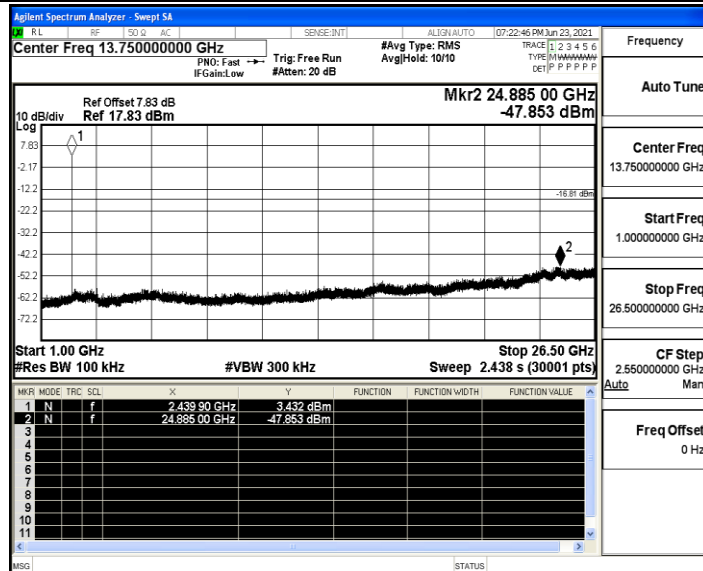




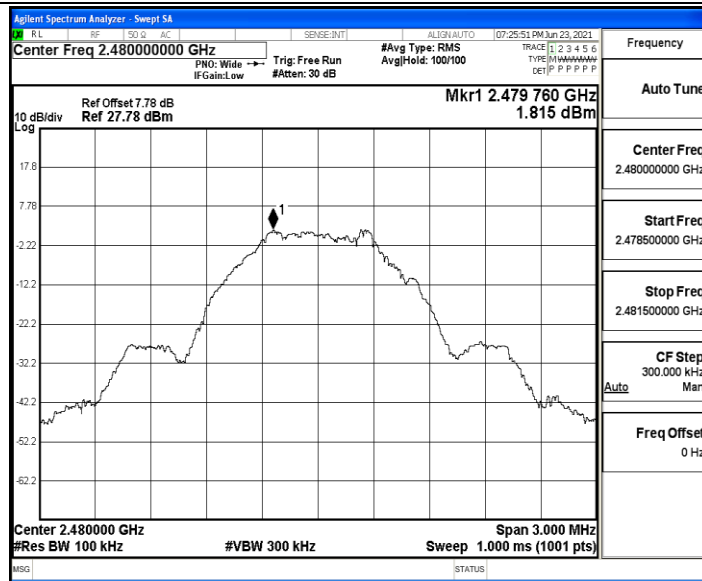
BLE_1M_Ant1_2440_30~1000



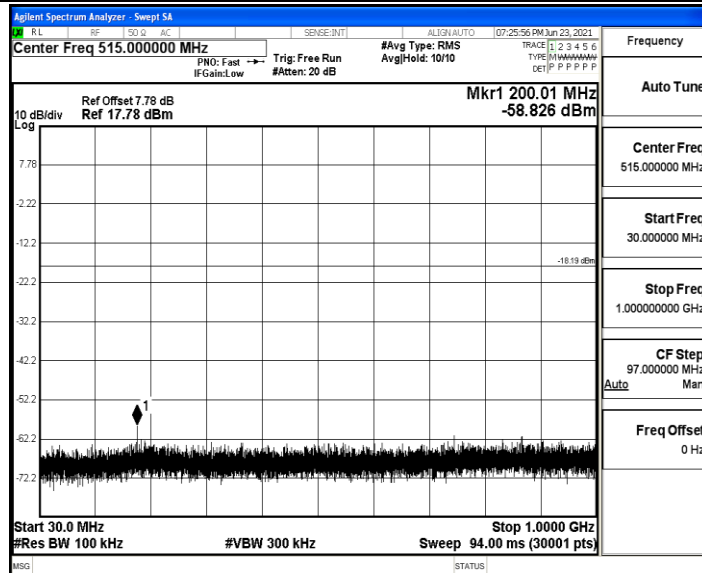
BLE_1M_Ant1_2440_1000~26500



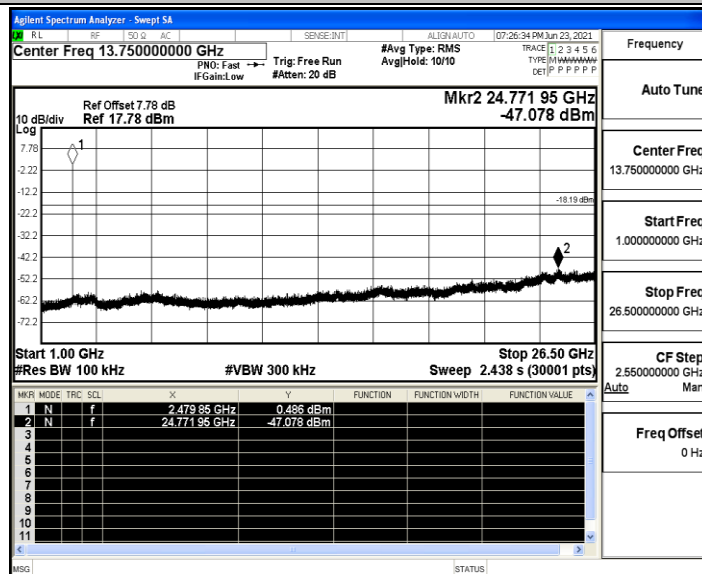
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500





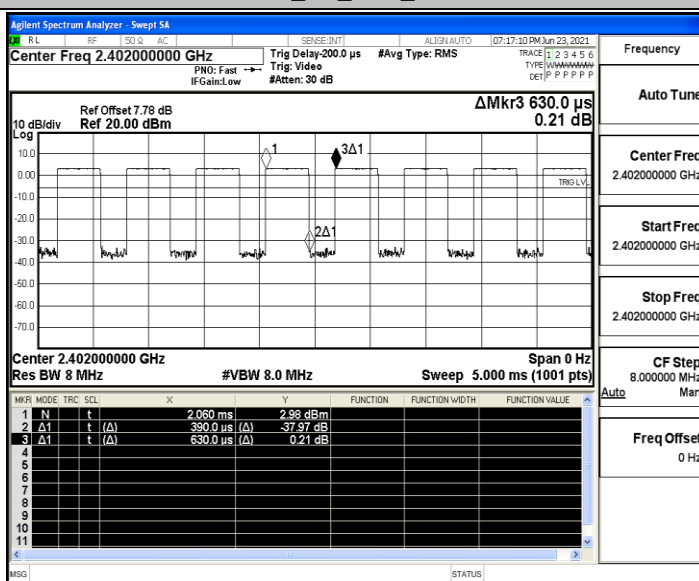
B.6 Duty Cycle

Test Result

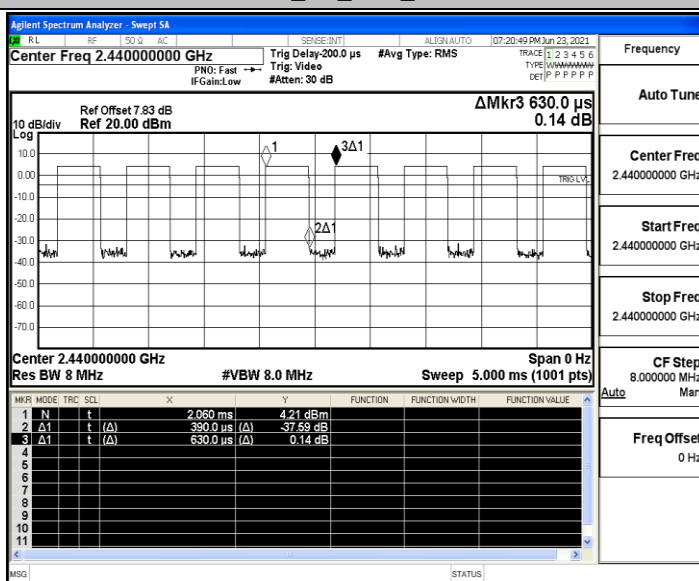
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2440	0.39	0.63	0.6190	61.90	2.08	---	PASS
		2480	0.39	0.63	0.6190	61.90	2.08	---	PASS

Test Graphs

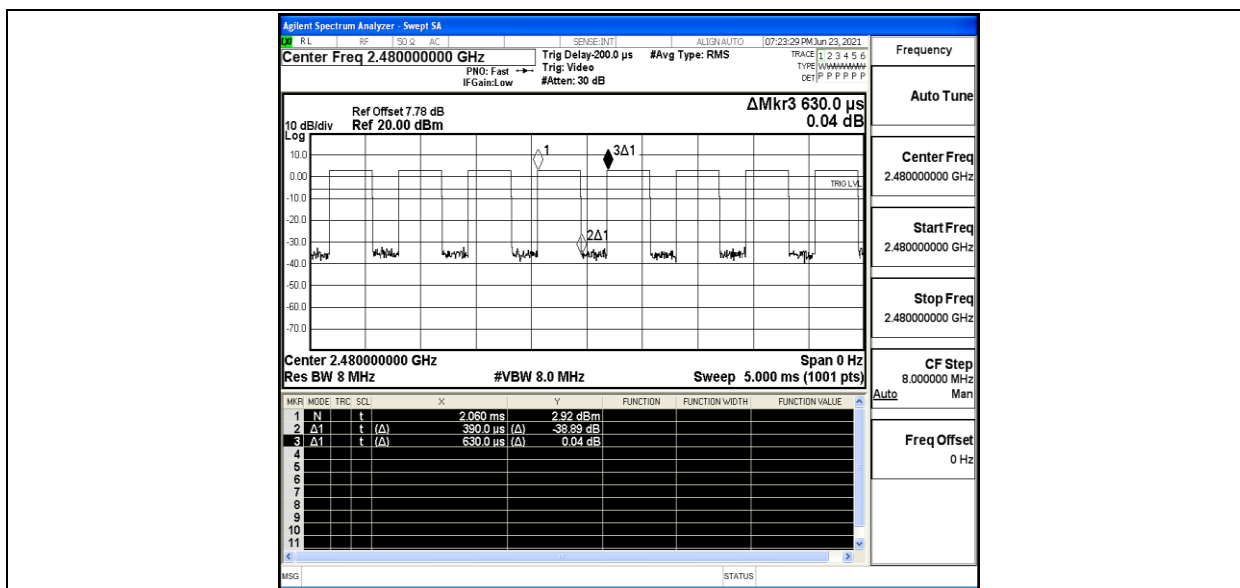
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480





B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	V
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.4	≤-41.20	46.80	≤54	V
				AV	2383.160	-47.6	≤-41.20	47.60	≤54	V
				AV	2390.000	-48.13	≤-41.20	47.07	≤54	V
				Peak	2310.000	-42.88	≤-21.20	52.32	≤74	V
				Peak	2311.655	-39.57	≤-21.20	55.63	≤74	V
				Peak	2390.000	-41.58	≤-21.20	53.62	≤74	V
		High	2480	AV	2483.500	-46.96	≤-41.20	48.24	≤54	V
				AV	2483.520	-46.96	≤-41.20	48.24	≤54	V
				AV	2500.000	-47.48	≤-41.20	47.72	≤54	V
				Peak	2483.500	-41.56	≤-21.20	53.64	≤74	V
				Peak	2488.560	-38.14	≤-21.20	57.06	≤74	V
				Peak	2500.000	-40.93	≤-21.20	54.27	≤74	V

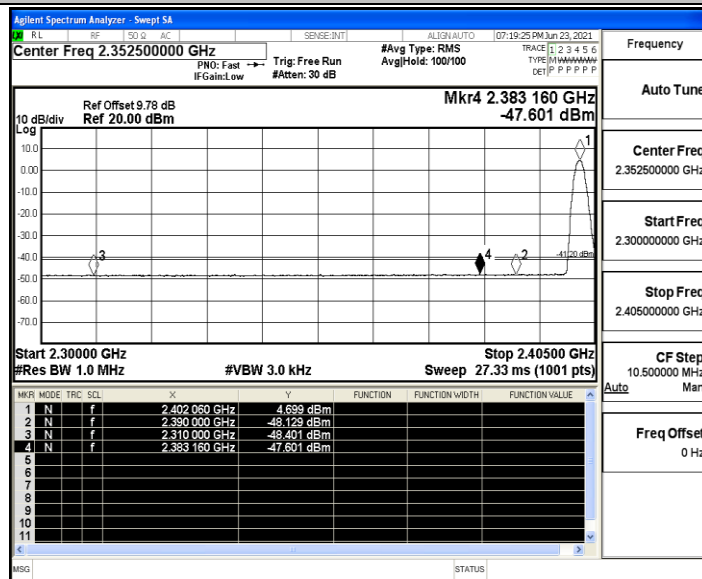
Note:

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.

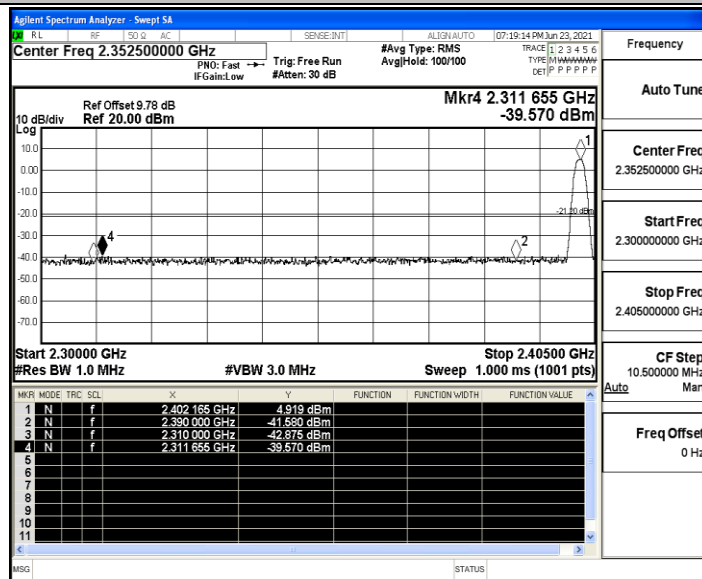


Test Graphs

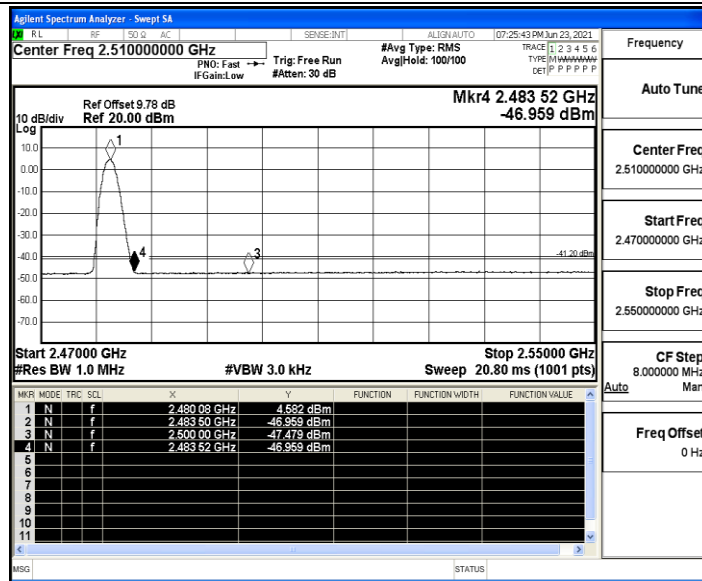
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

