



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Egg biomarker sensor

Test Model: E20125

Environmental Conditions

Temperature:	21.1 ° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mark Chen
Supervised by:	Libin

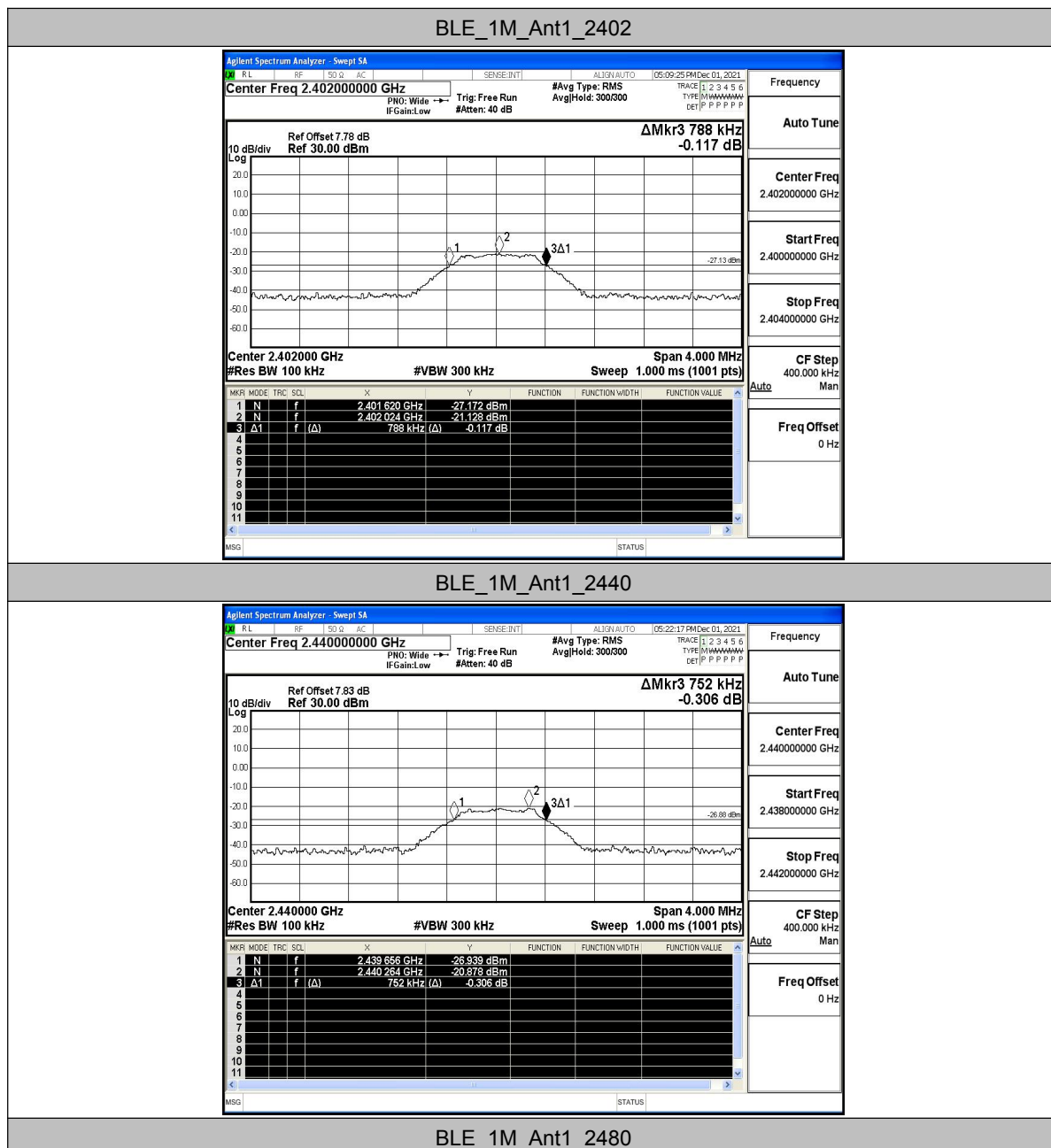


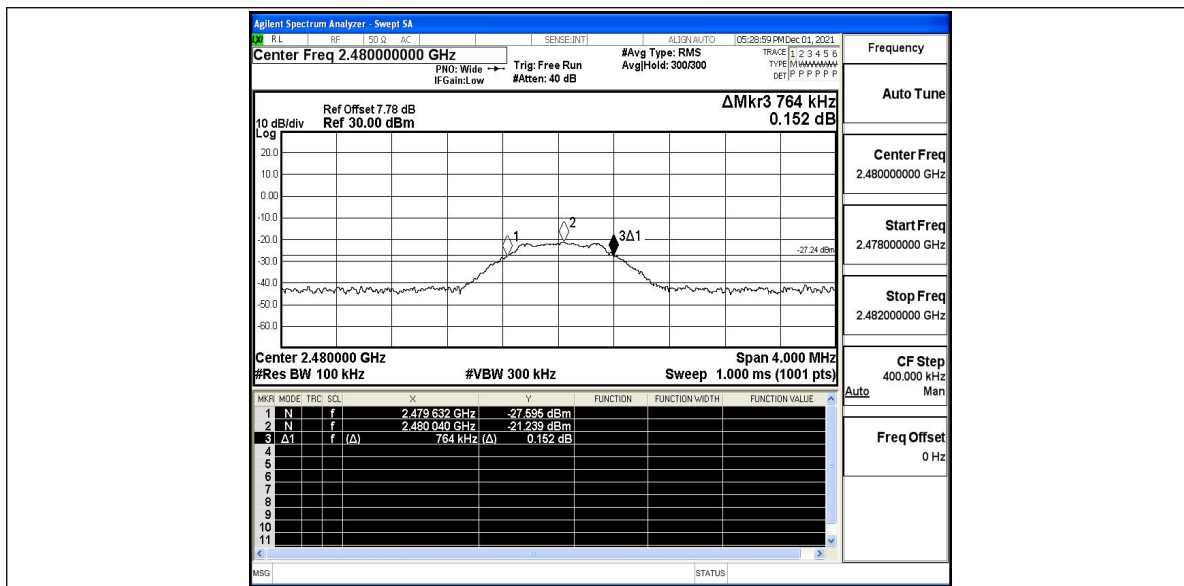
A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.788	2401.620	2402.408	≥0.5	PASS
		2440	0.752	2439.656	2440.408	≥0.5	PASS
		2480	0.764	2479.632	2480.396	≥0.5	PASS

Test Graphs





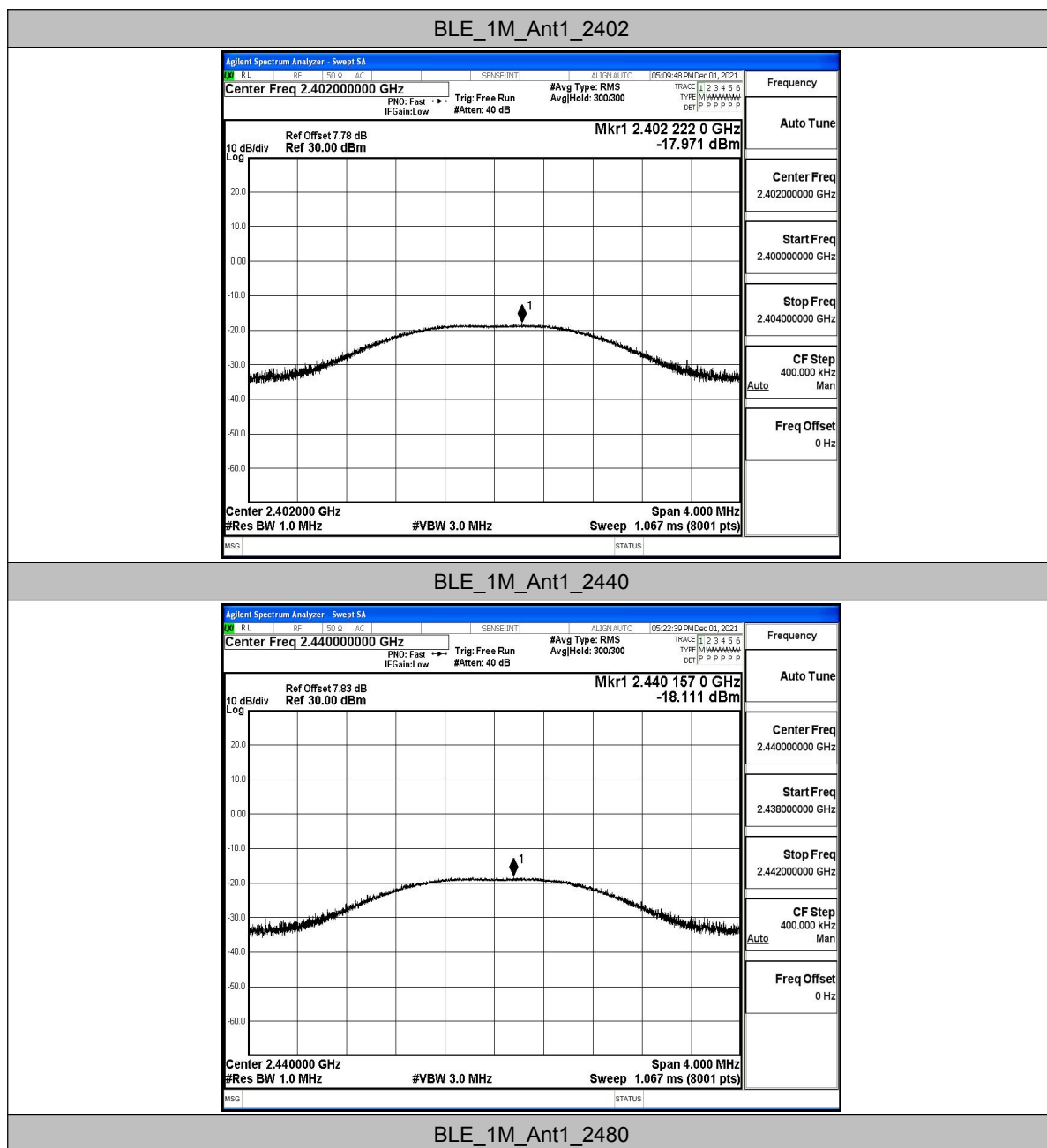


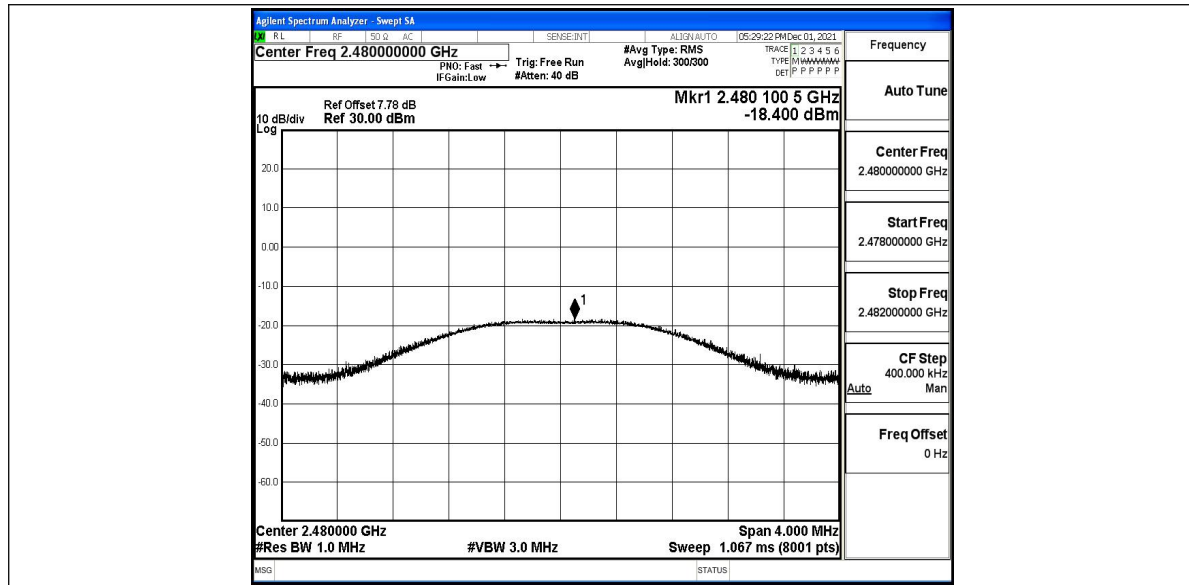
A.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-17.97	≤30	PASS
		2440	-18.11	≤30	PASS
		2480	-18.4	≤30	PASS

Test Graphs





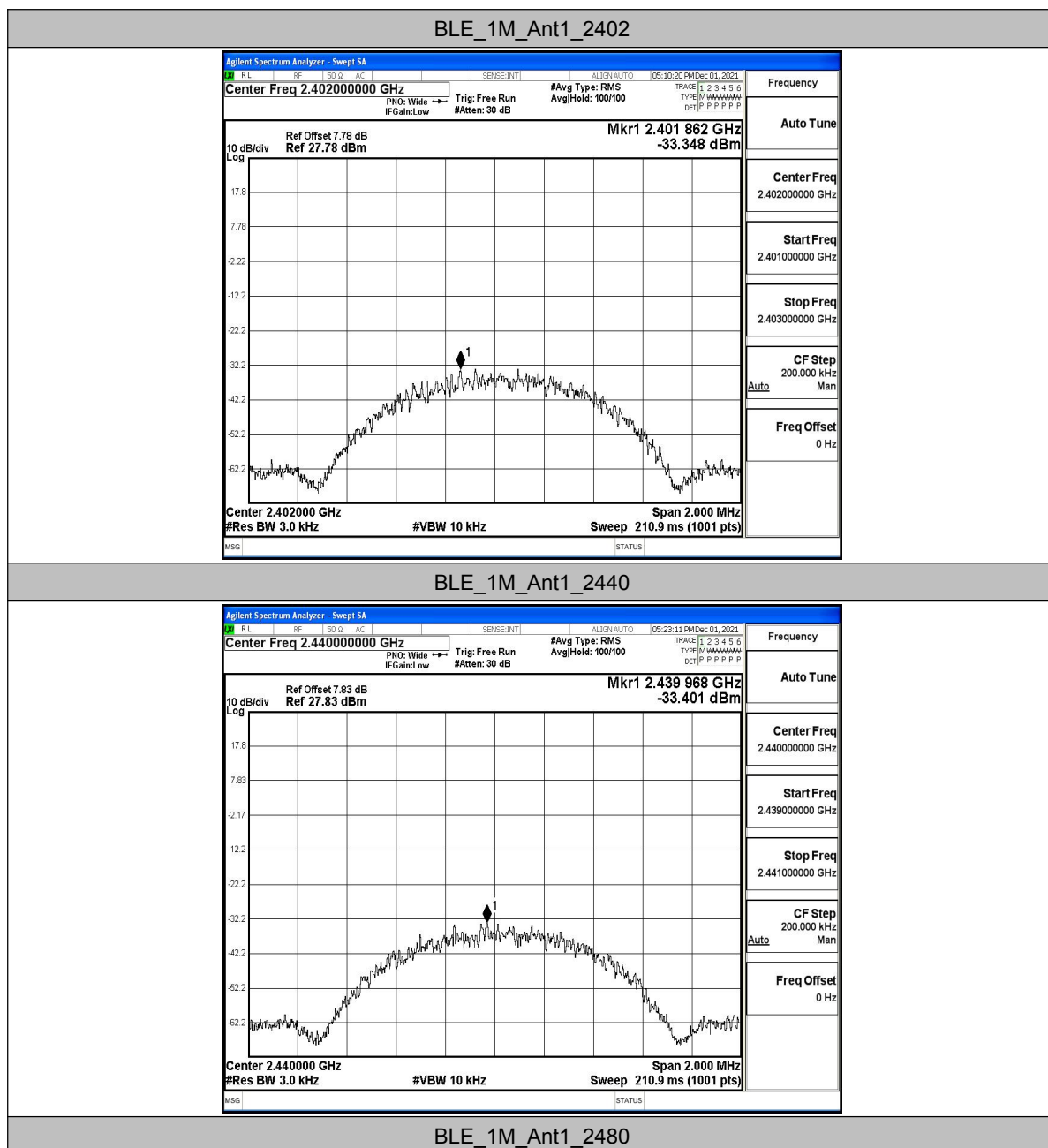


A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-33.35	≤8	PASS
		2440	-33.4	≤8	PASS
		2480	-33.54	≤8	PASS

Test Graphs





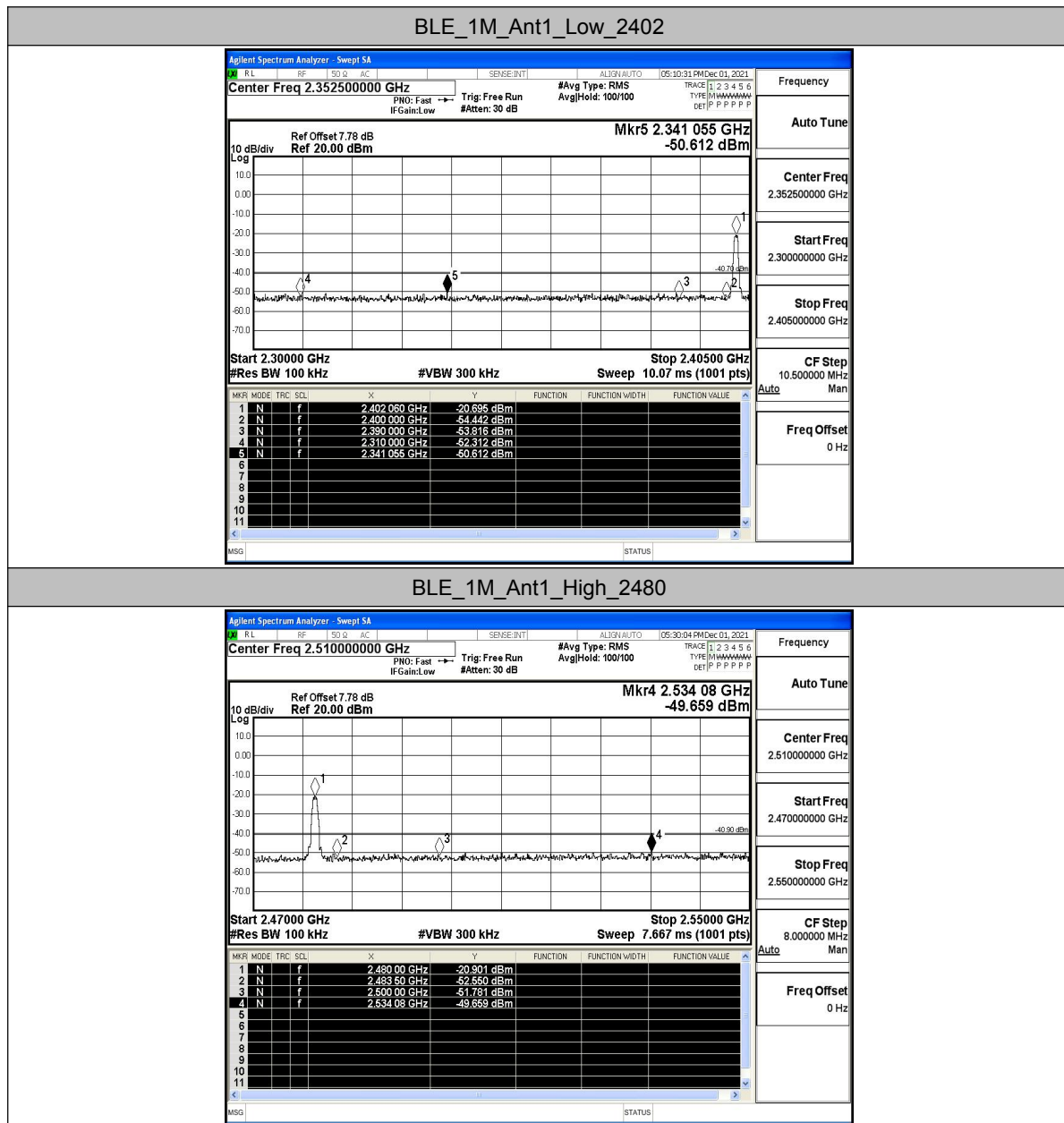


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-20.70	-50.61	≤-40.7	PASS
		High	2480	-20.90	-49.66	≤-40.9	PASS

Test Graphs



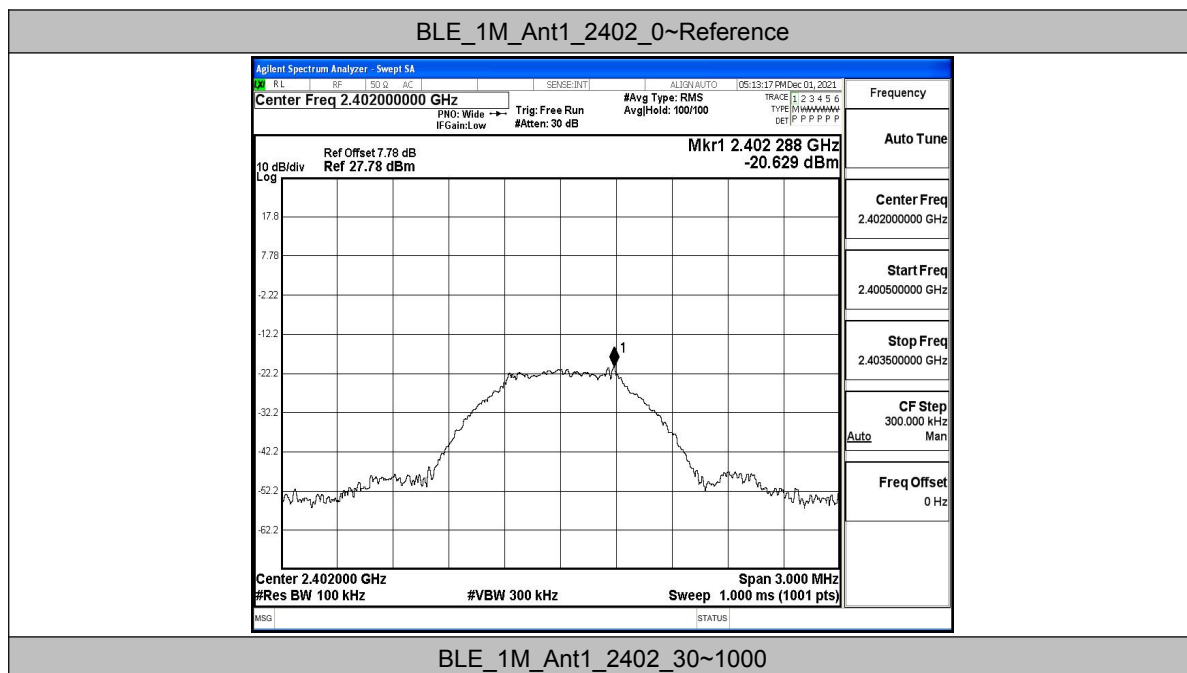


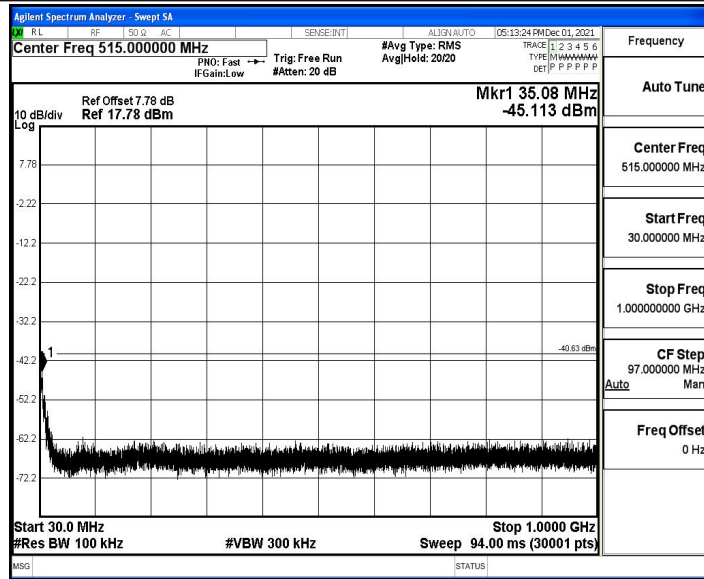
A.5 Conducted Spurious Emission

Test Result

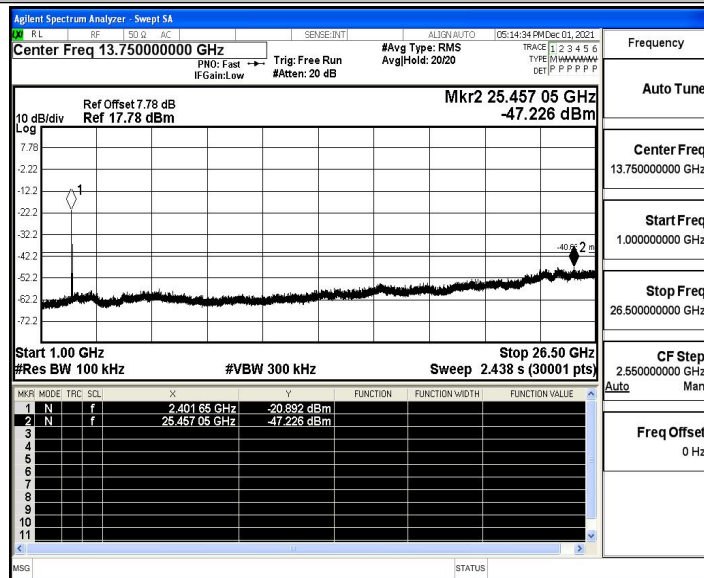
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-20.63	-20.63	---	PASS
			30~1000	-20.63	-45.11	≤-40.63	PASS
			1000~26500	-20.63	-47.23	≤-40.63	PASS
		2440	Reference	-20.86	-20.86	---	PASS
			30~1000	-20.86	-47.73	≤-40.86	PASS
			1000~26500	-20.86	-47.11	≤-40.86	PASS
		2480	Reference	-21.15	-21.15	---	PASS
			30~1000	-21.15	-45.45	≤-41.15	PASS
			1000~26500	-21.15	-47.26	≤-41.15	PASS

Test Graphs

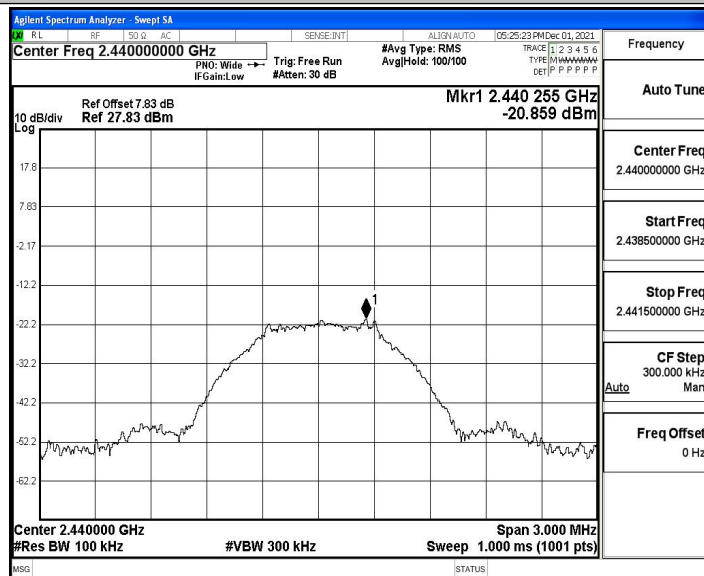




BLE_1M_Ant1_2402_1000~26500

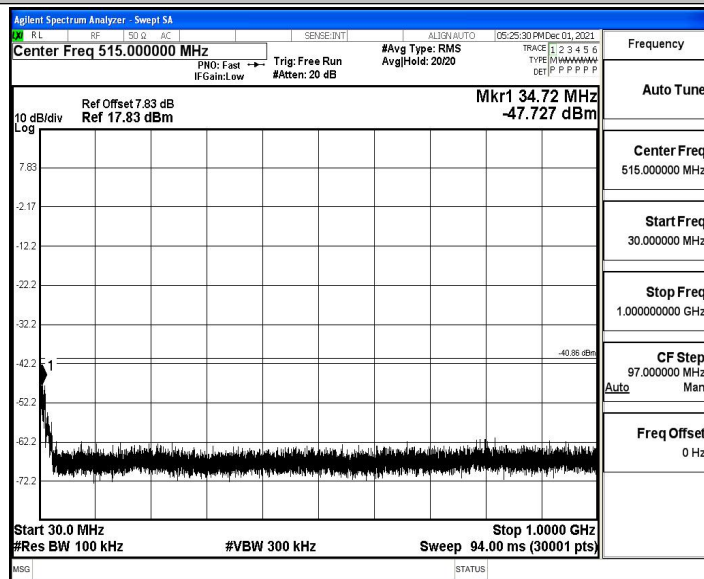


BLE_1M_Ant1_2440_0~Reference

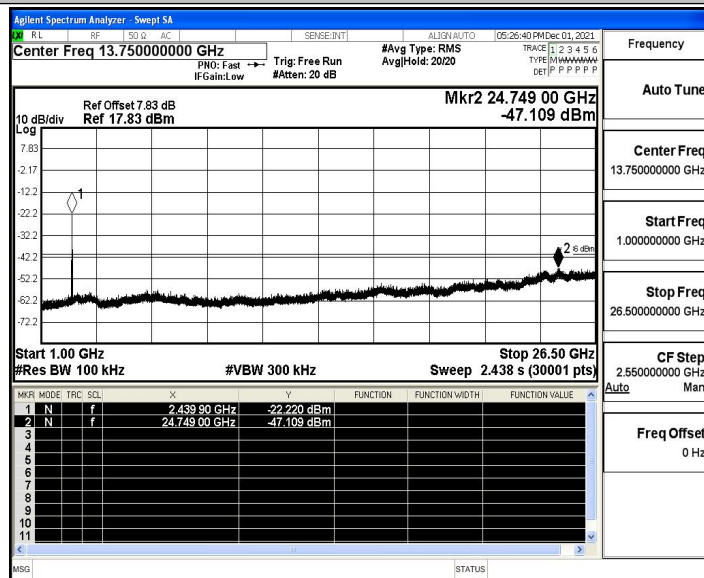




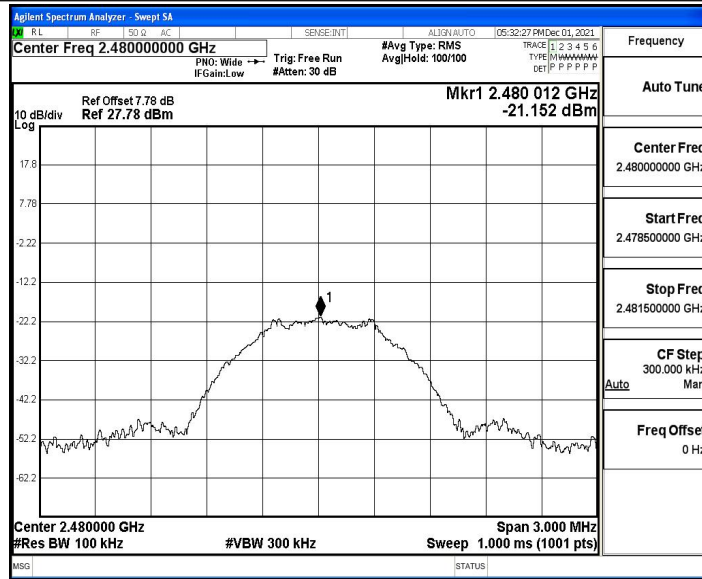
BLE_1M_Ant1_2440_30~1000



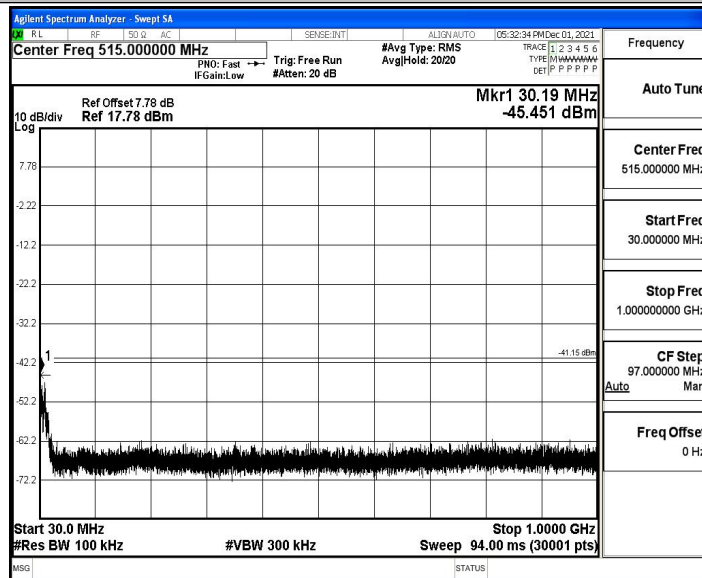
BLE_1M_Ant1_2440_1000~26500



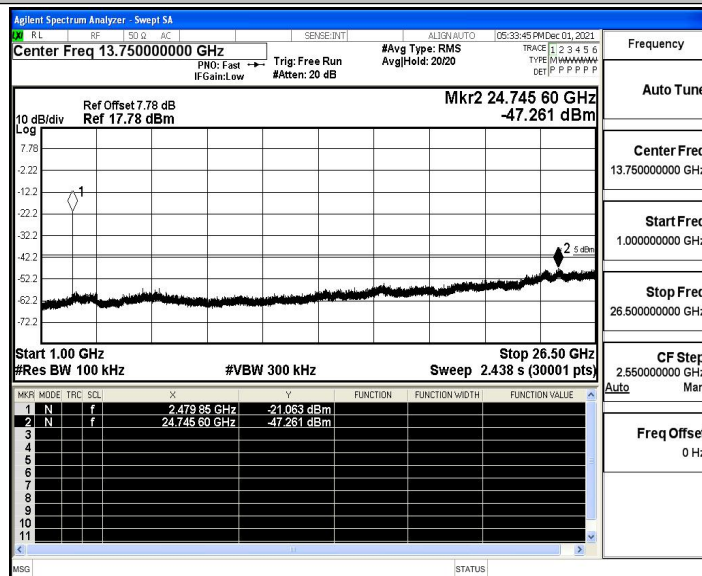
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



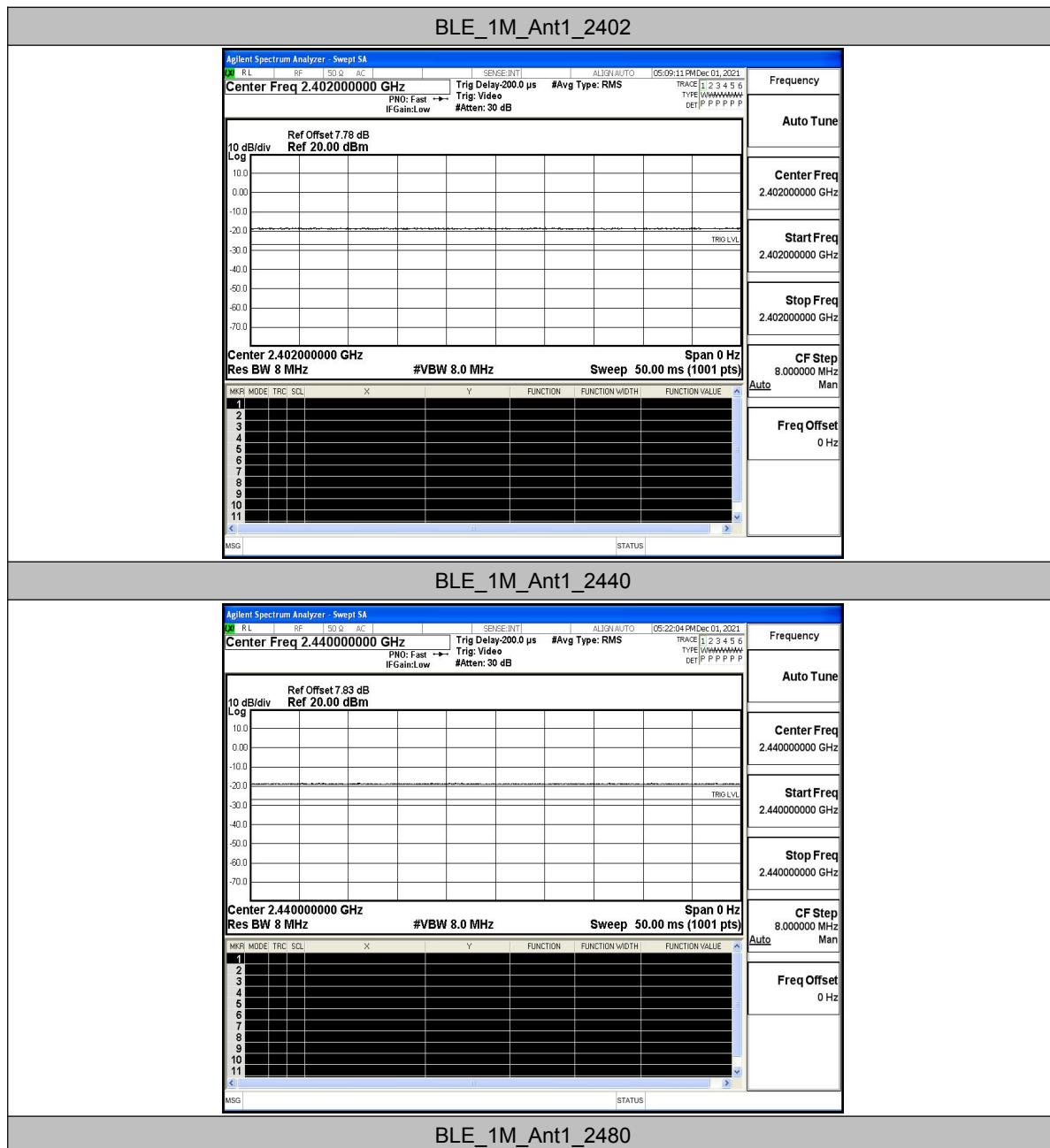


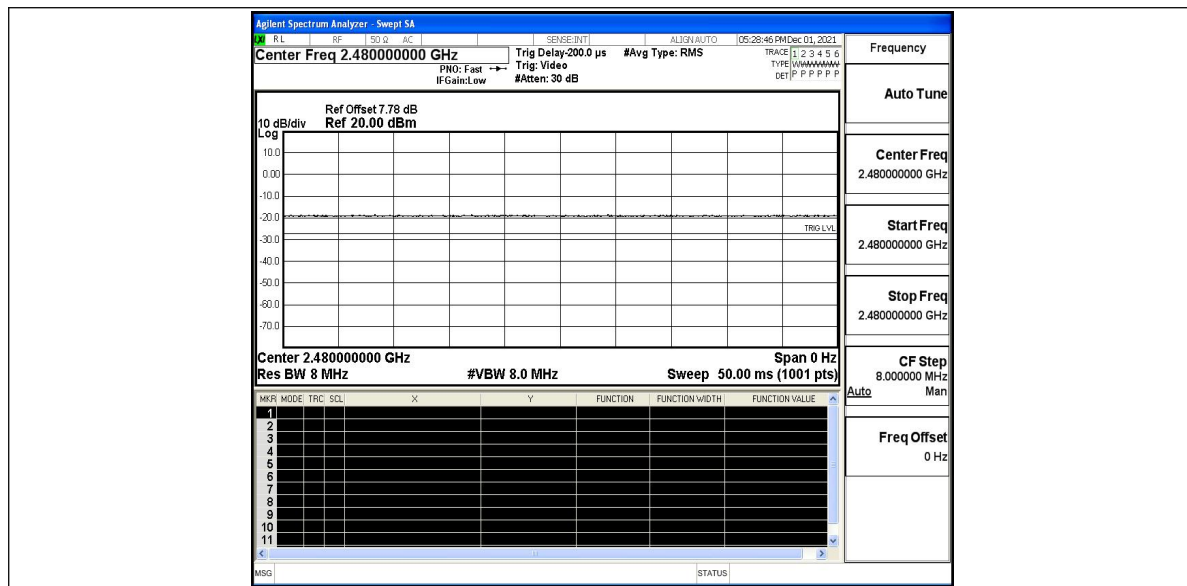
A.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	50.00	50.00	1.0000	100.00	0.00	---	PASS
		2440	50.00	50.00	1.0000	100.00	0.00	---	PASS
		2480	50.00	50.00	1.0000	100.00	0.00	---	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	-49.62	≤-41.20	45.58	≤54	PASS
				AV	2389.775	-49.23	≤-41.20	45.97	≤54	PASS
				AV	2390.000	-49.26	≤-41.20	45.94	≤54	PASS
				Peak	2310.000	-43.3	≤-21.20	51.90	≤74	PASS
				Peak	2361.950	-39.33	≤-21.20	55.87	≤74	PASS
				Peak	2390.000	-43.83	≤-21.20	51.37	≤74	PASS
		High	2480	AV	2483.500	-48.88	≤-41.20	46.32	≤54	PASS
				AV	2499.440	-48.64	≤-41.20	46.56	≤54	PASS
				AV	2500.000	-48.66	≤-41.20	46.54	≤54	PASS
				Peak	2483.500	-44.35	≤-21.20	50.85	≤74	PASS
				Peak	2499.920	-39.81	≤-21.20	55.39	≤74	PASS
				Peak	2500.000	-40.33	≤-21.20	54.87	≤74	PASS

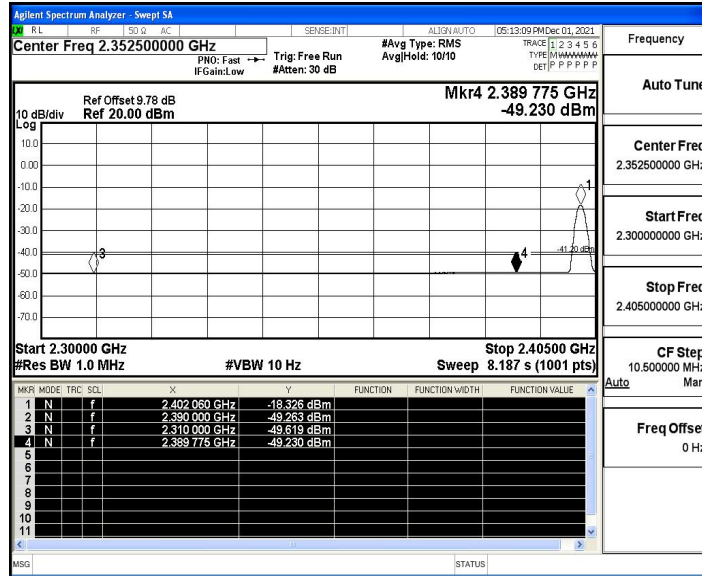
Note:

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.

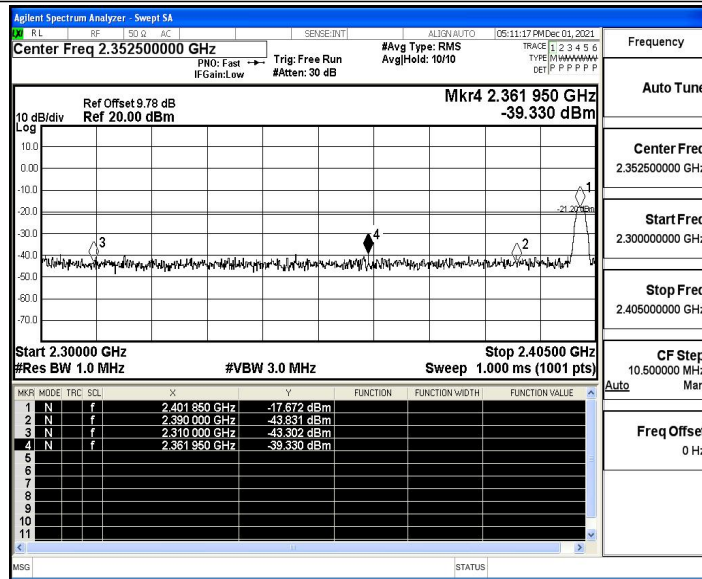


Test Graphs

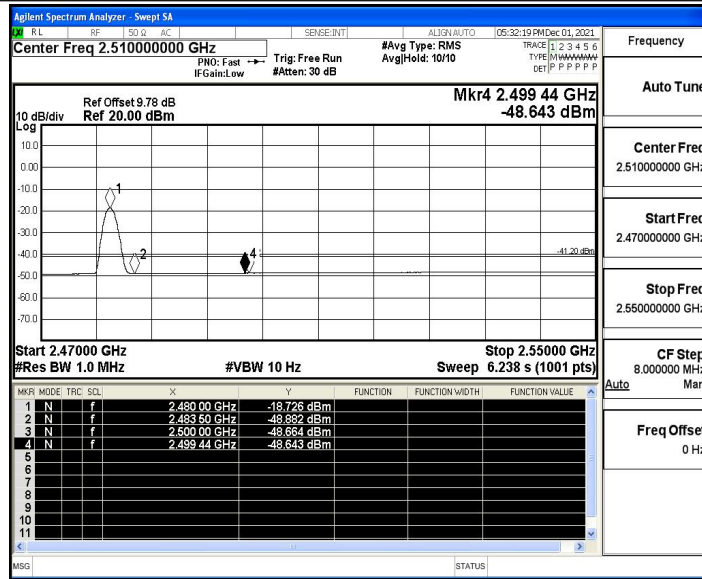
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

