

RF Test Data for BT(BLE) (Conducted Measurement)**Product Name: ICLED controller****Trade Mark: RECOIL****Test Model: ICLED-4C****FCC ID: 2A6RGICLED-4C****Environmental Conditions**

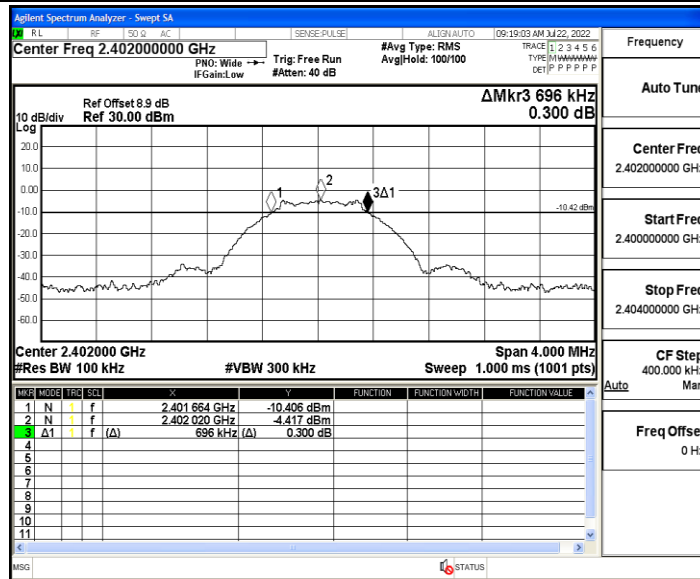
Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth**Test Result**

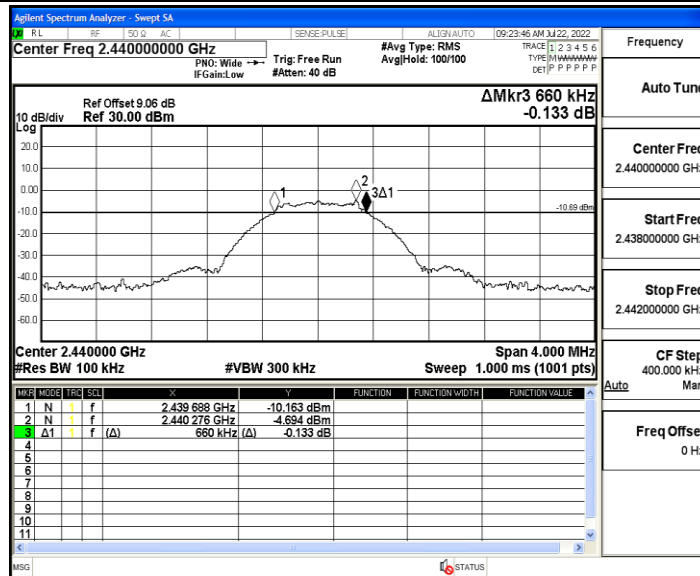
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.696	2401.664	2402.360	0.5	PASS
		2440	0.660	2439.688	2440.348	0.5	PASS
		2480	0.672	2479.676	2480.348	0.5	PASS
BLE_2M	Ant1	2402	1.368	2401.360	2402.728	0.5	PASS
		2440	1.516	2439.272	2440.788	0.5	PASS
		2480	1.224	2479.408	2480.632	0.5	PASS

Test Graphs

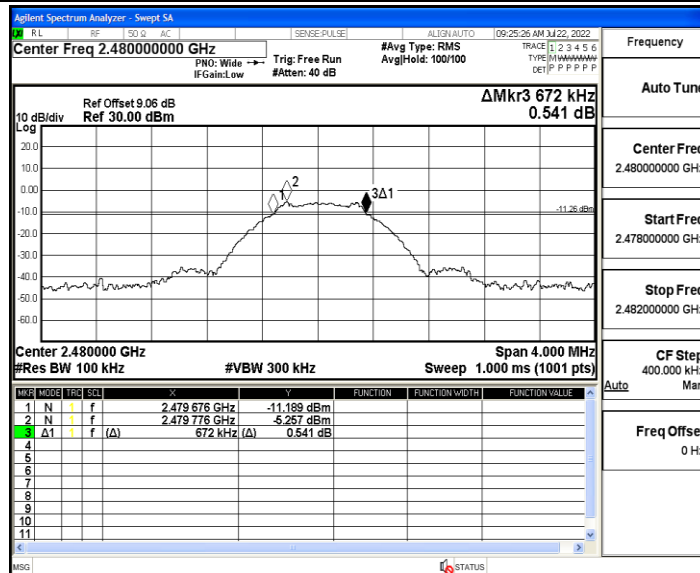
BLE_1M_Ant1_2402



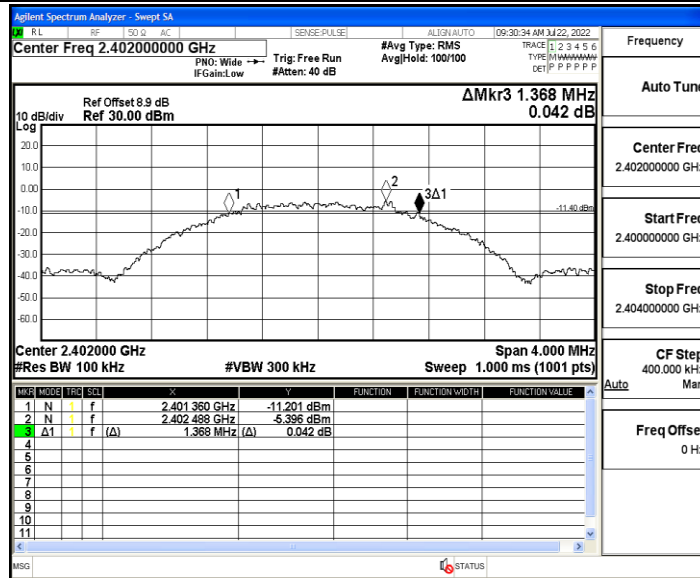
BLE_1M_Ant1_2440



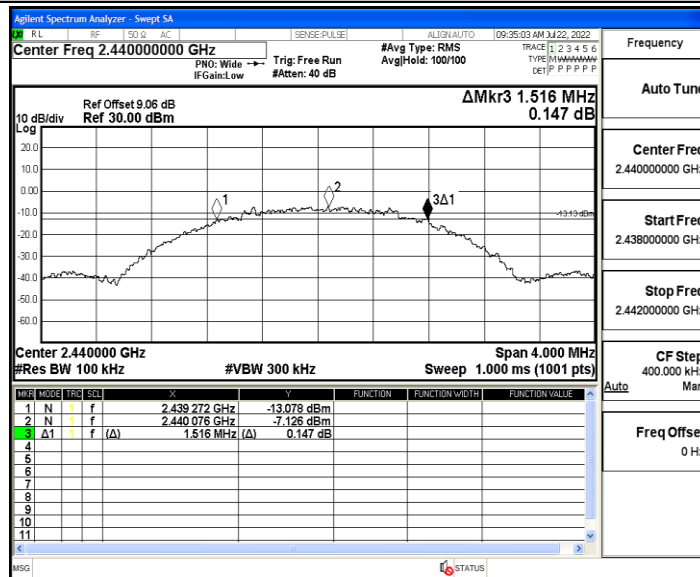
BLE_1M_Ant1_2480



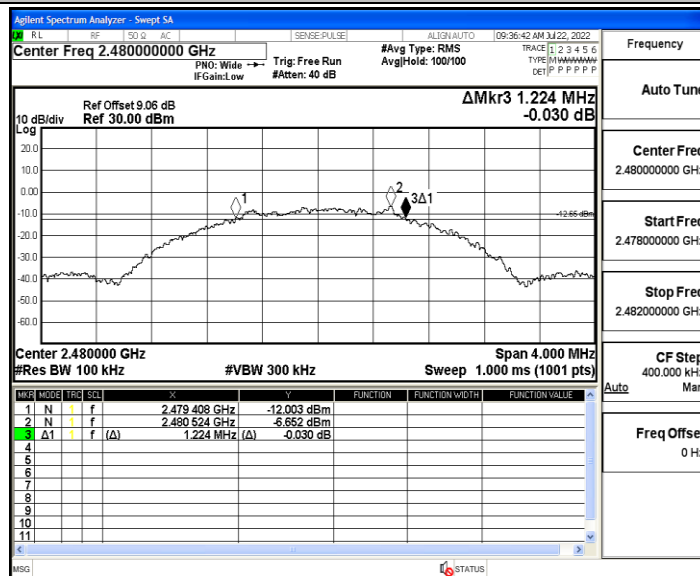
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

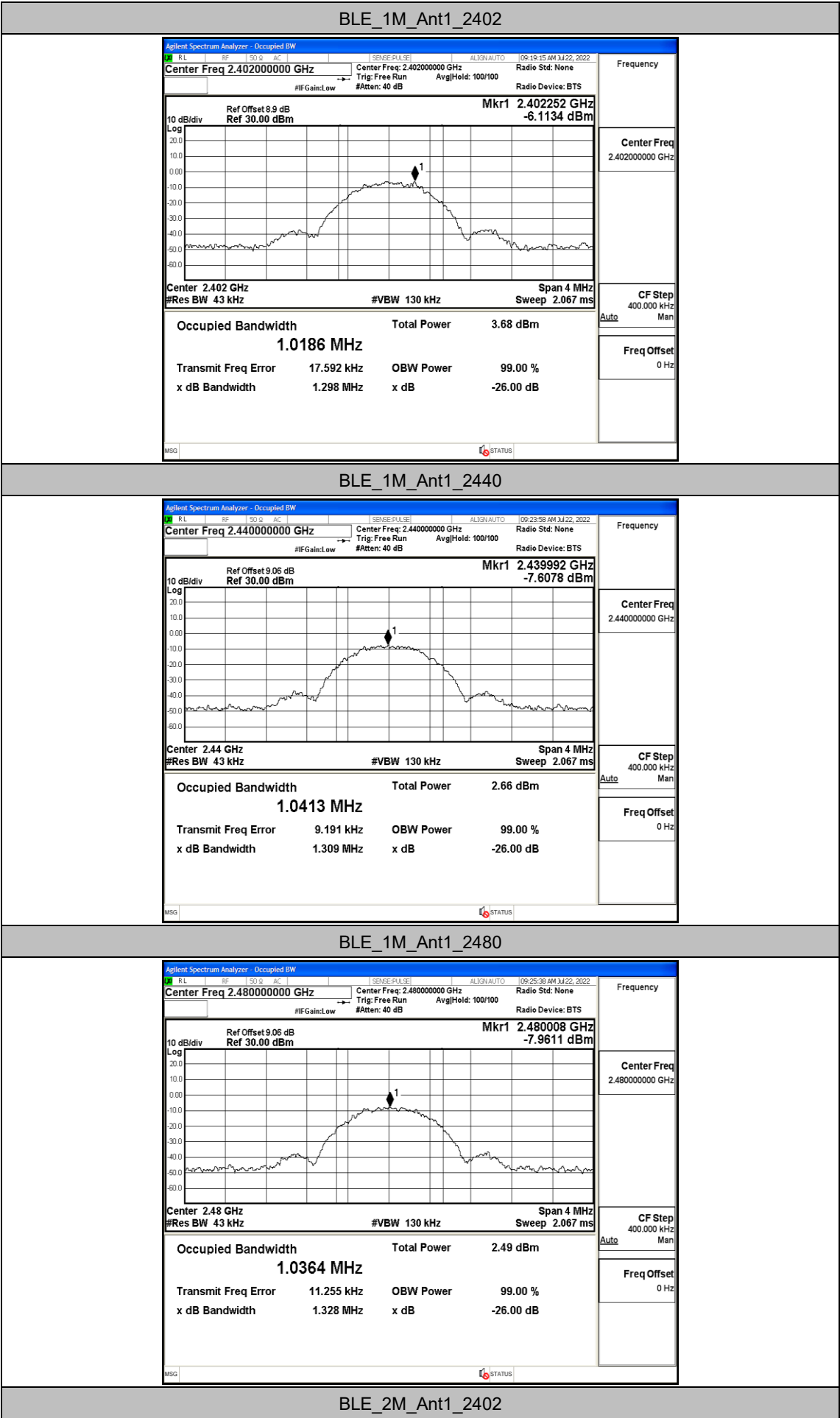


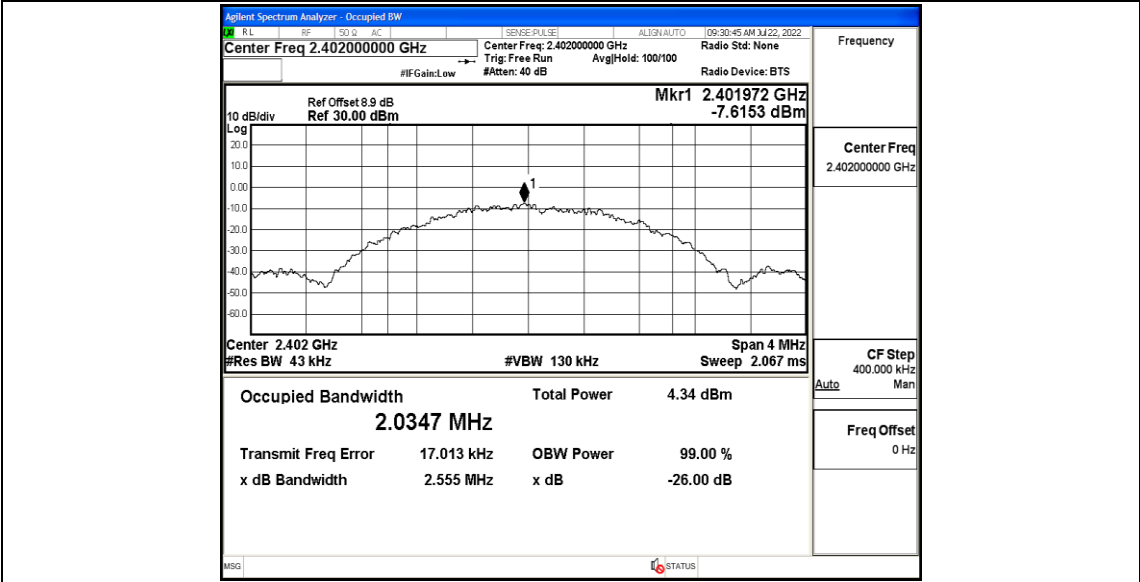
Appendix B: Occupied Channel Bandwidth

Test Result

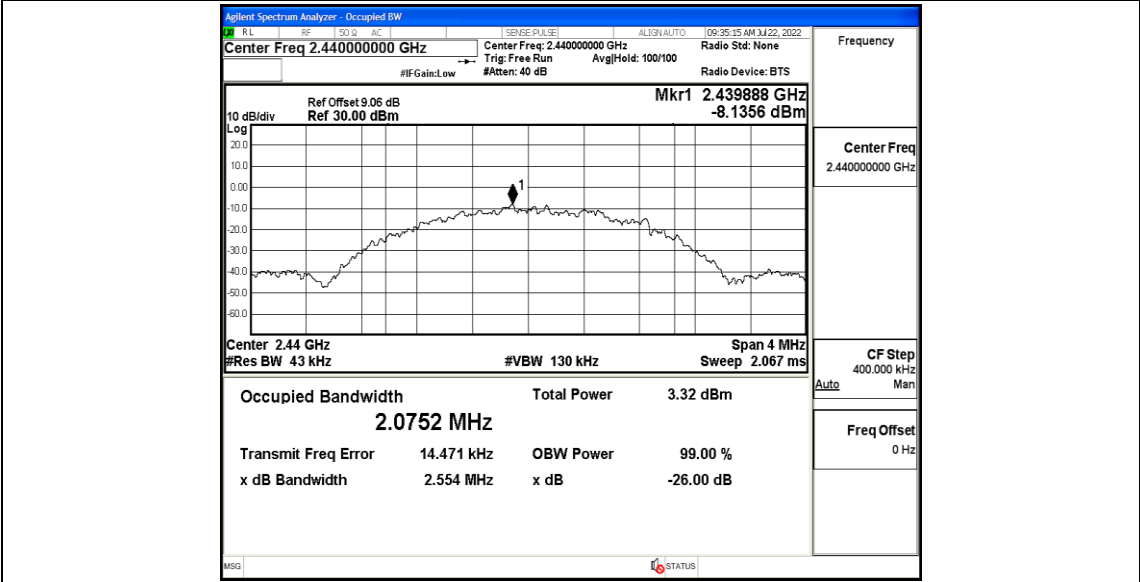
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0186	2401.508	2402.527	---	---
		2440	1.0413	2439.489	2440.530	---	---
		2480	1.0364	2479.493	2480.529	---	---
BLE_2M	Ant1	2402	2.0347	2401.000	2403.034	---	---
		2440	2.0752	2438.977	2441.052	---	---
		2480	2.0674	2478.980	2481.048	---	---

Test Graphs

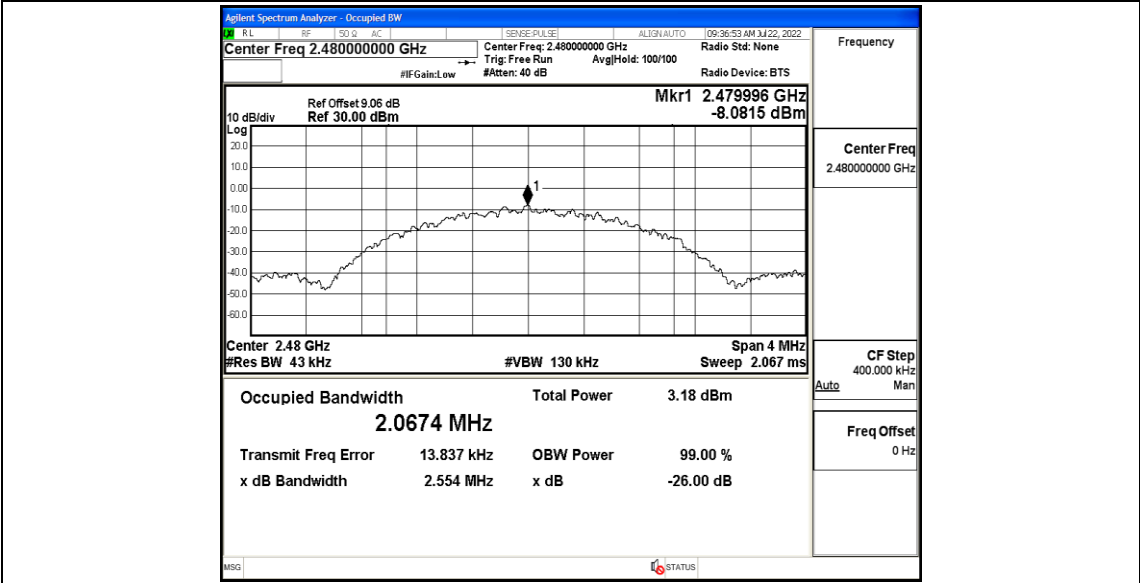




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

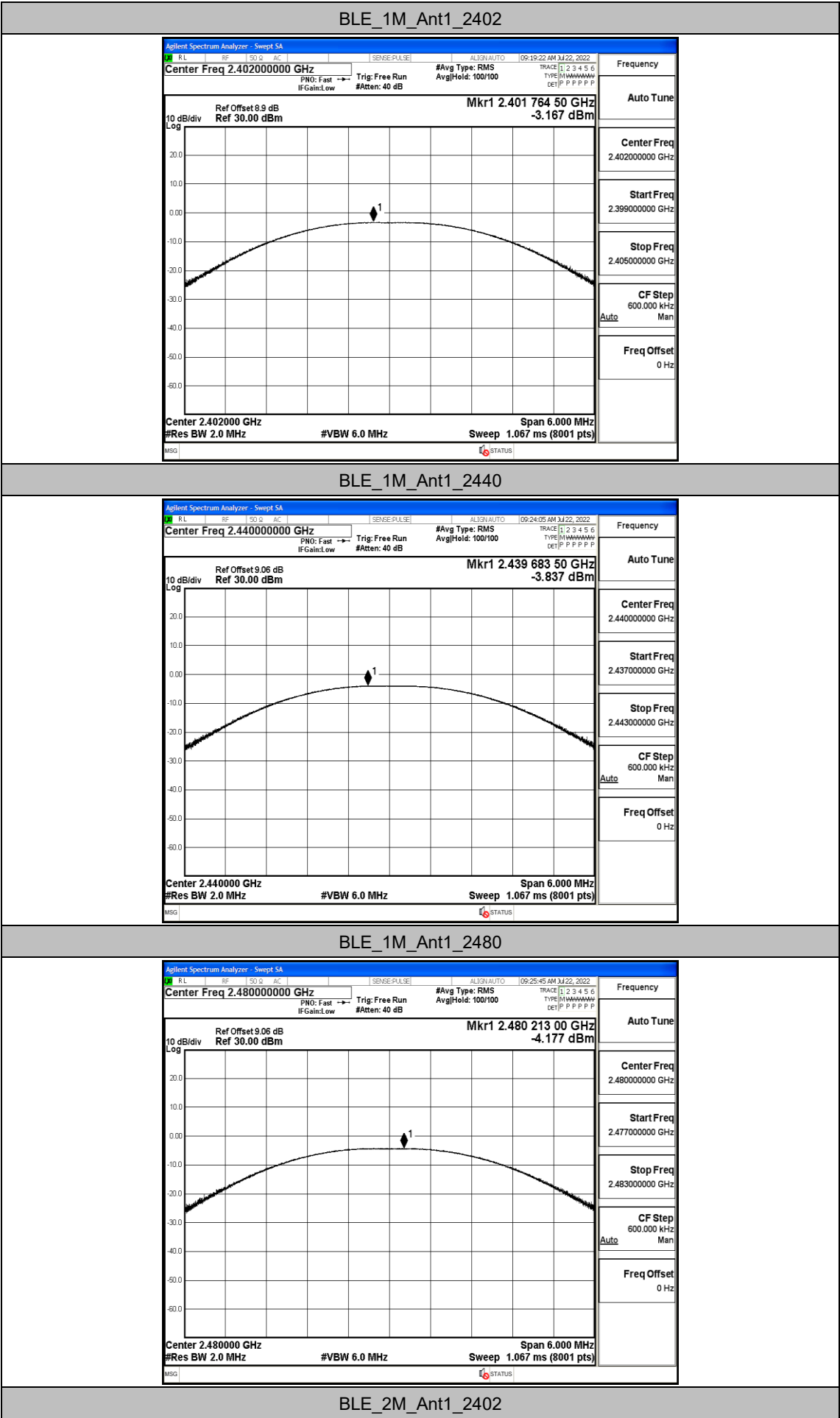


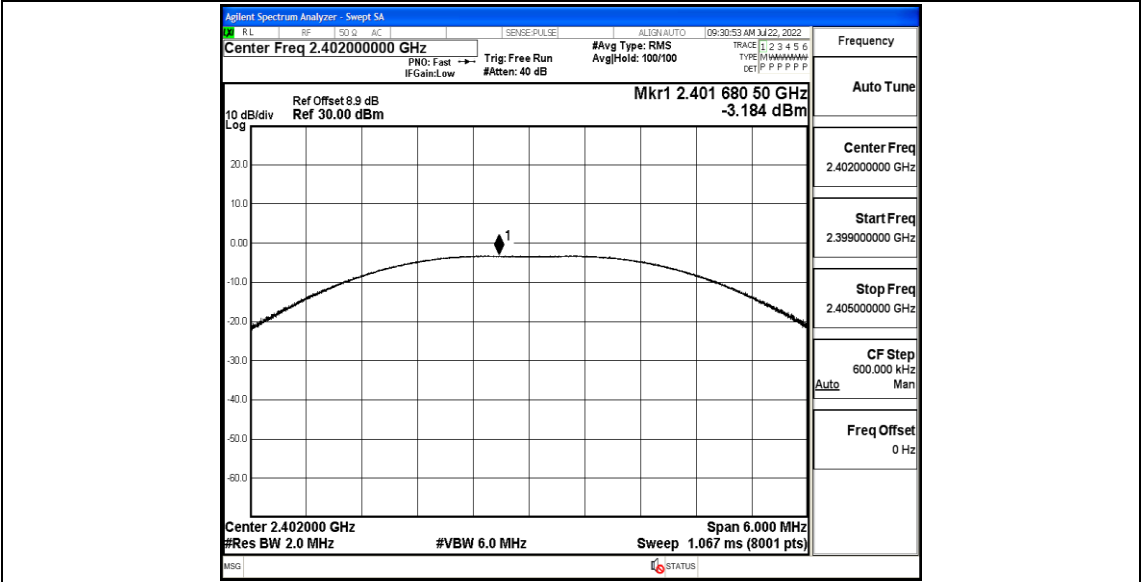
Appendix C: Maximum Peak conducted output power

Test Result

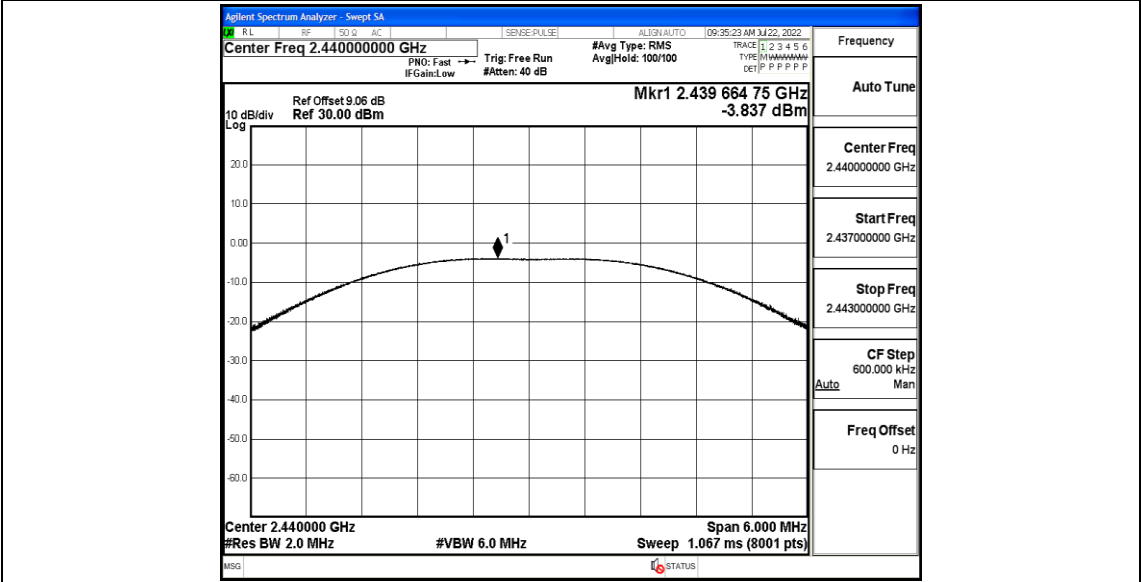
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.17	≤30	PASS
		2440	-3.84	≤30	PASS
		2480	-4.18	≤30	PASS
BLE_2M	Ant1	2402	-3.18	≤30	PASS
		2440	-3.84	≤30	PASS
		2480	-4.24	≤30	PASS

Test Graphs

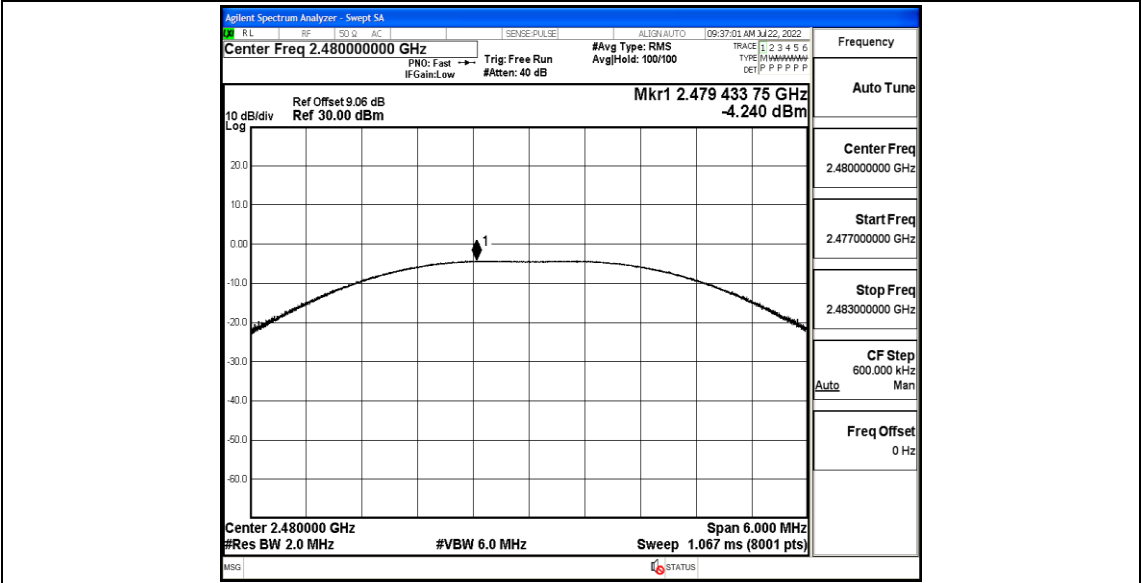




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

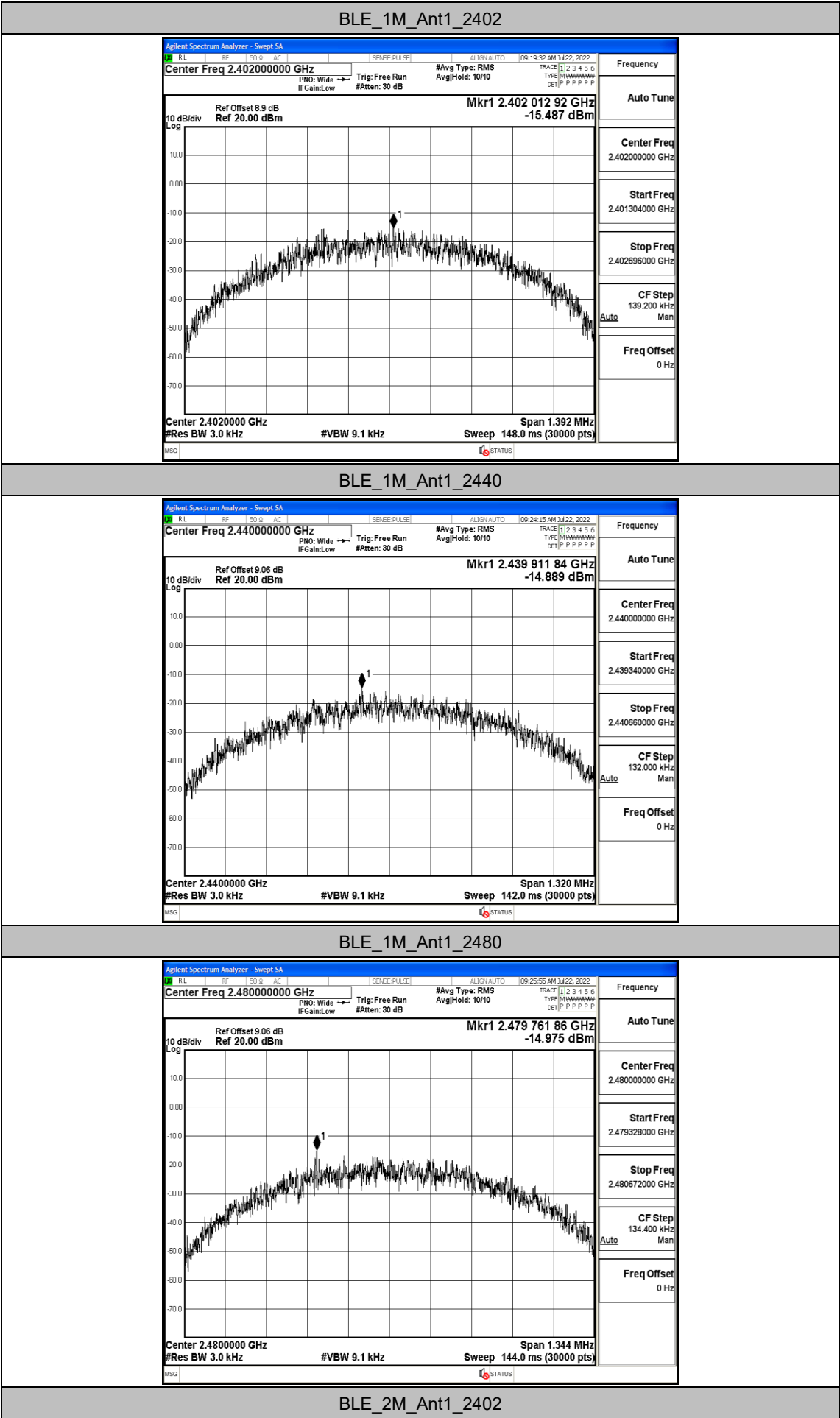


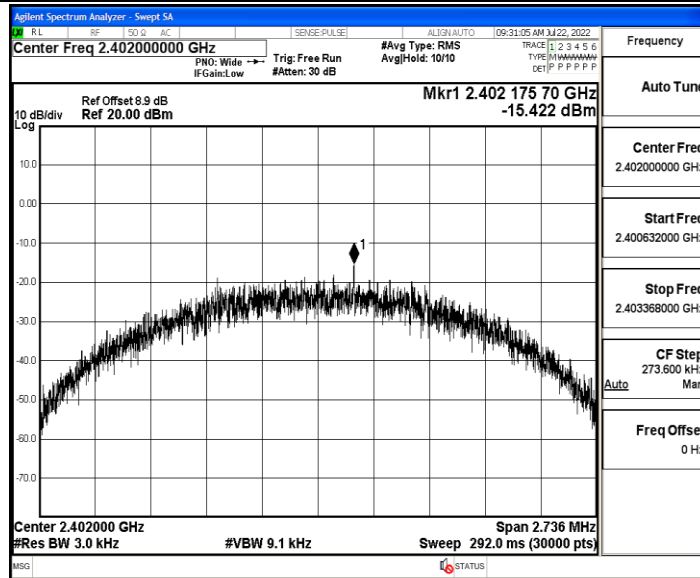
Appendix D: Maximum power spectral density

Test Result

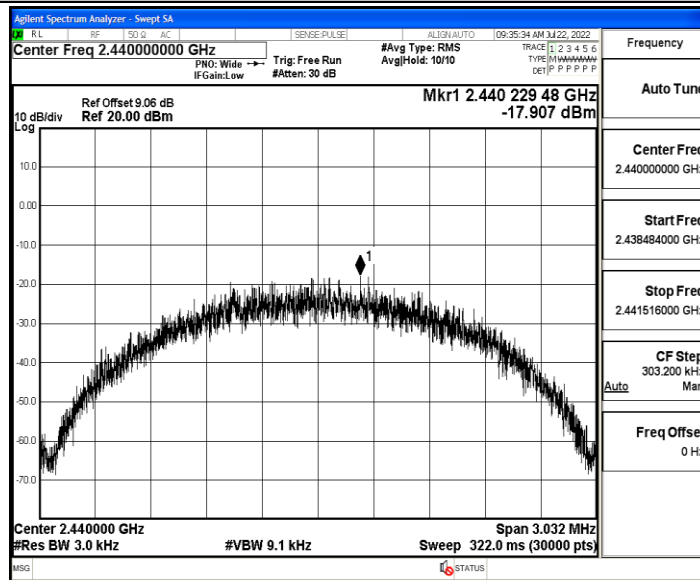
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.49	≤8.00	PASS
		2440	-14.89	≤8.00	PASS
		2480	-14.98	≤8.00	PASS
BLE_2M	Ant1	2402	-15.42	≤8.00	PASS
		2440	-17.91	≤8.00	PASS
		2480	-16.83	≤8.00	PASS

Test Graphs

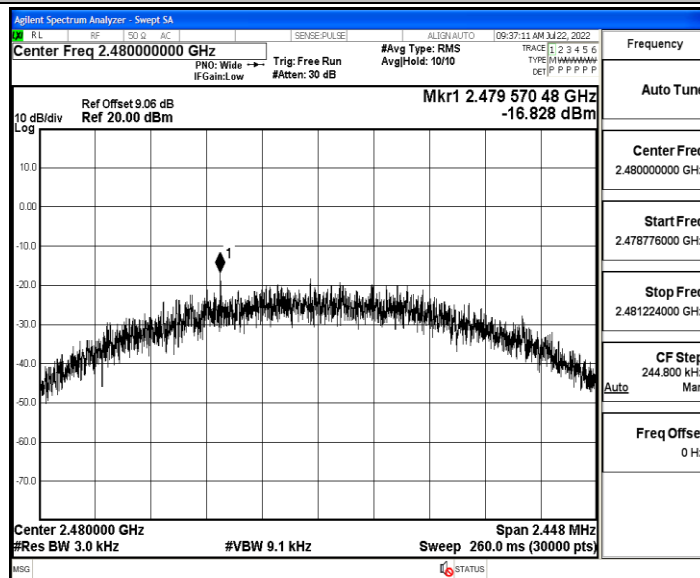




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



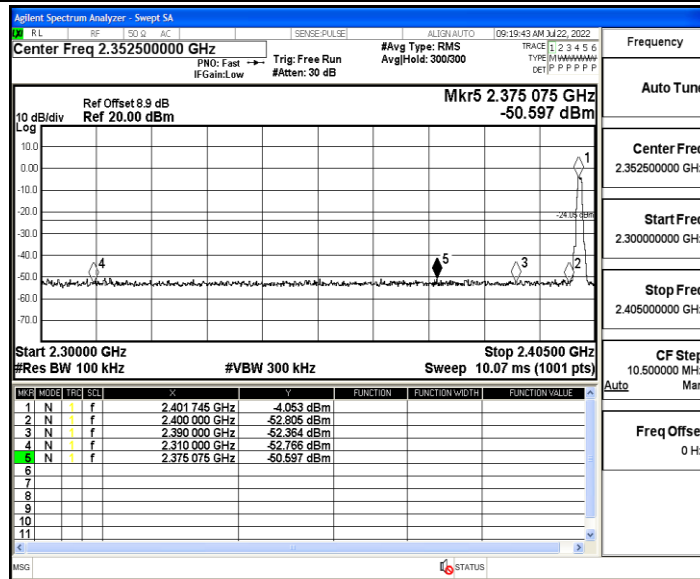
Appendix E: Band edge measurements

Test Result

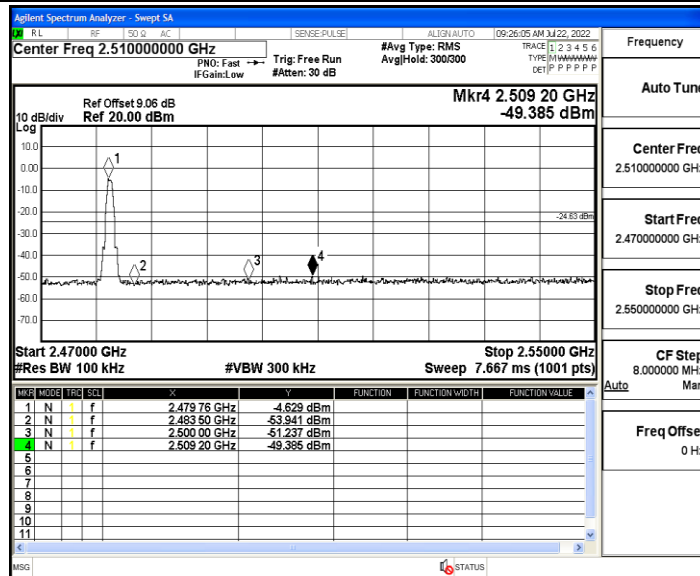
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.05	-50.6	≤-24.05	PASS
		High	2480	-4.63	-49.39	≤-24.63	PASS
BLE_2M	Ant1	Low	2402	-4.54	-38.33	≤-24.54	PASS
		High	2480	-6.29	-49.24	≤-26.29	PASS

Test Graphs

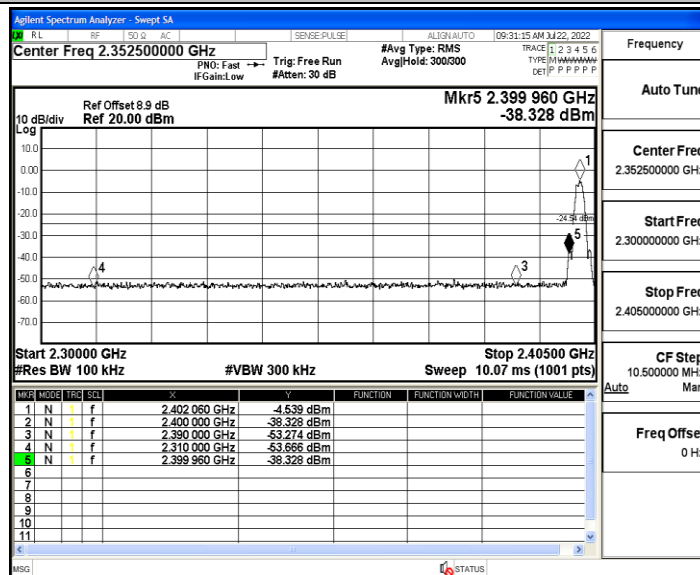
BLE_1M_Ant1_Low_2402



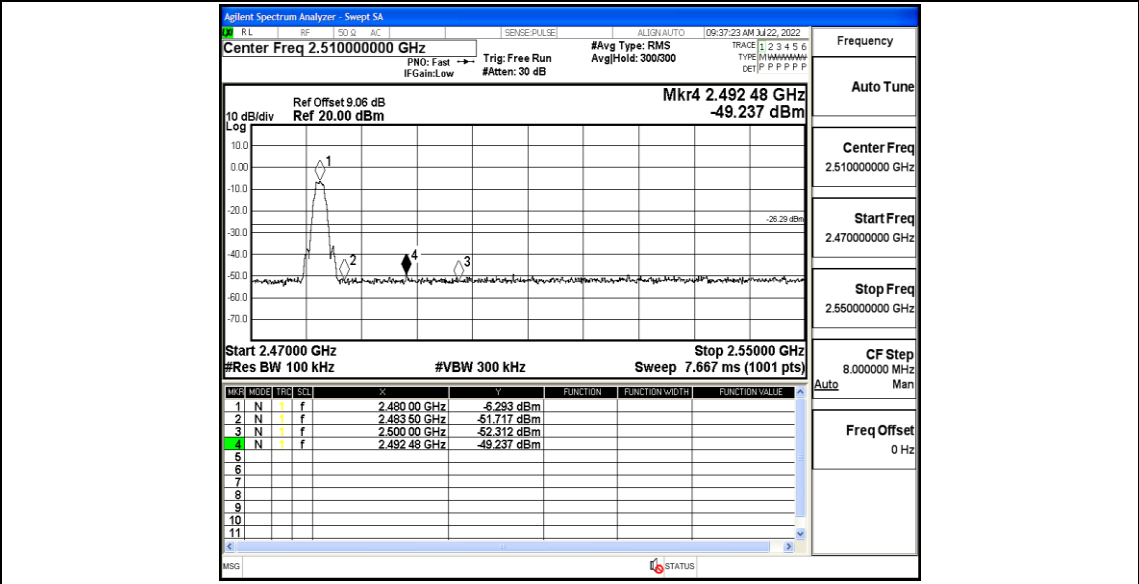
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480

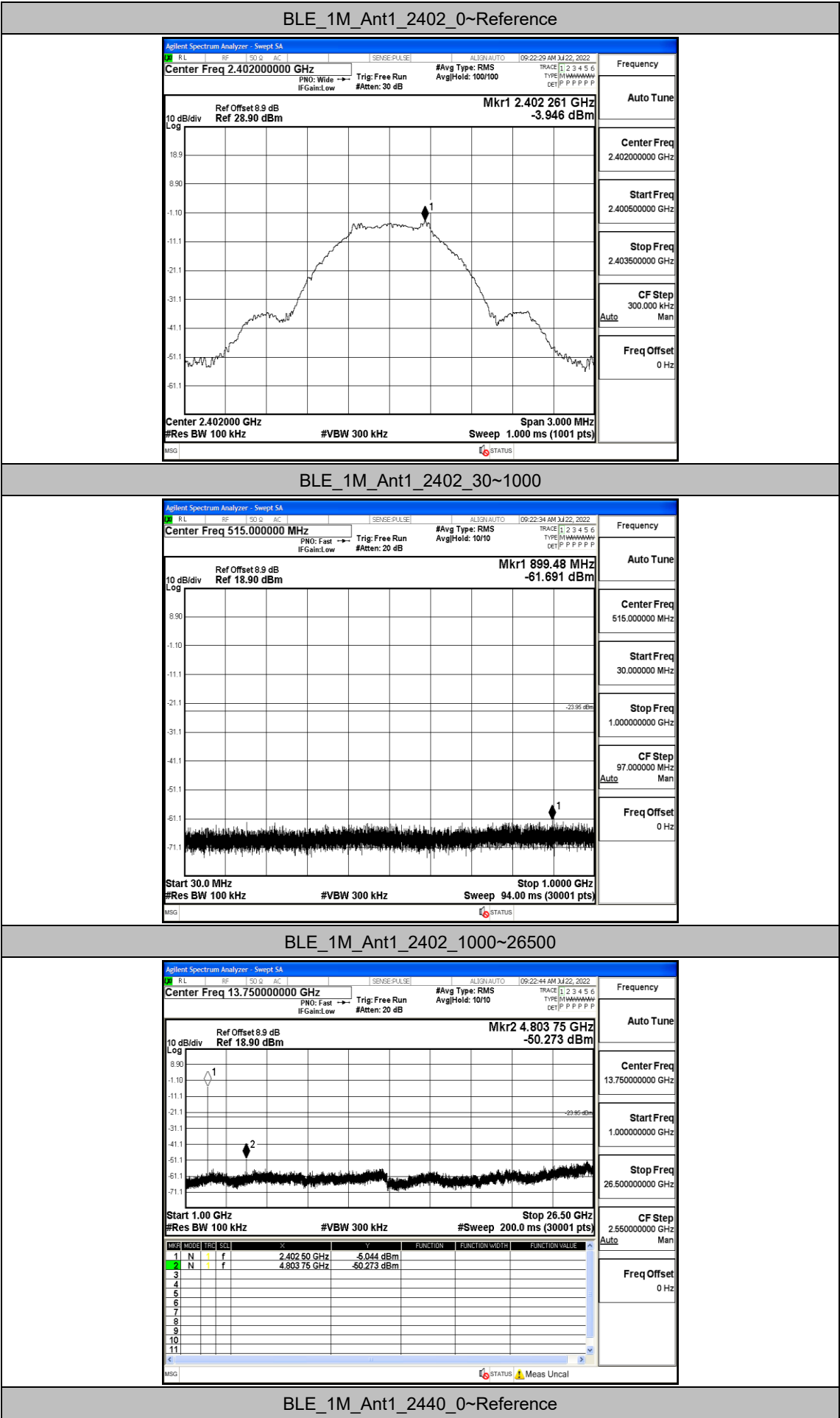


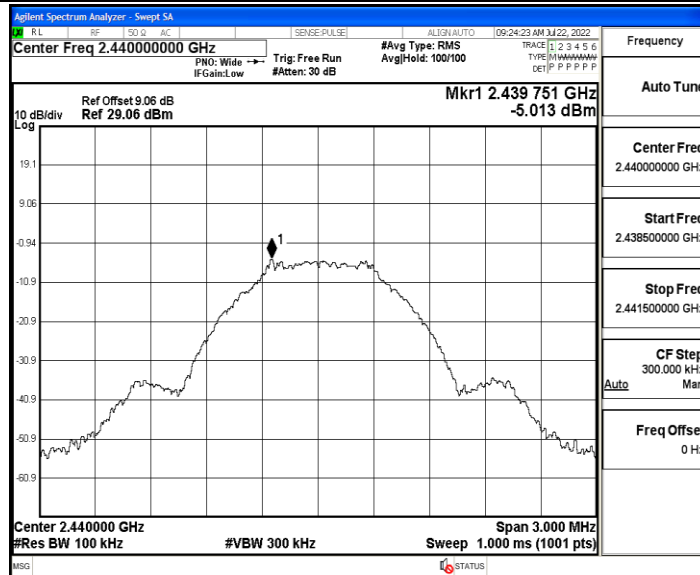
Appendix F: Conducted Spurious Emission

Test Result

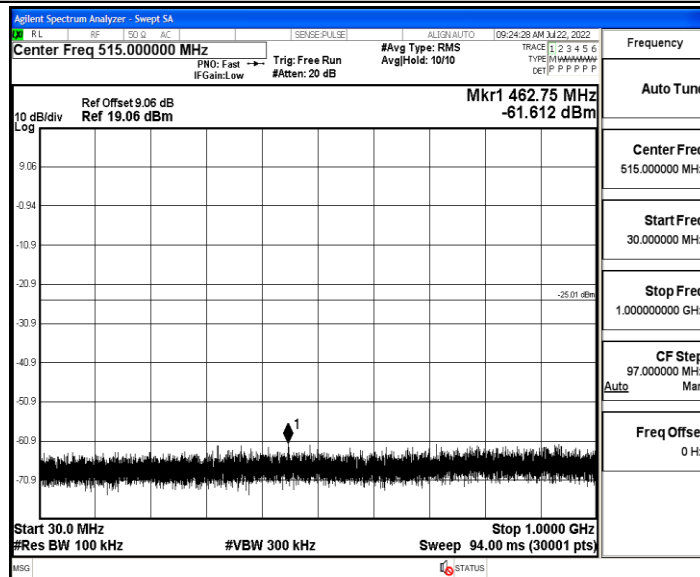
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-3.95	-3.95	---	PASS
			30~1000	-3.95	-61.69	≤-23.95	PASS
			1000~26500	-3.95	-50.27	≤-23.95	PASS
		2440	Reference	-5.01	-5.01	---	PASS
			30~1000	-5.01	-61.61	≤-25.01	PASS
			1000~26500	-5.01	-41.26	≤-25.01	PASS
		2480	Reference	-5.02	-5.02	---	PASS
			30~1000	-5.02	-61.05	≤-25.02	PASS
			1000~26500	-5.02	-50.25	≤-25.02	PASS
BLE_2M	Ant1	2402	Reference	-5.81	-5.81	---	PASS
			30~1000	-5.81	-61.39	≤-25.81	PASS
			1000~26500	-5.81	-51.3	≤-25.81	PASS
		2440	Reference	-6.17	-6.17	---	PASS
			30~1000	-6.17	-60.25	≤-26.17	PASS
			1000~26500	-6.17	-44.4	≤-26.17	PASS
		2480	Reference	-6.67	-6.67	---	PASS
			30~1000	-6.67	-61.58	≤-26.67	PASS
			1000~26500	-6.67	-51.39	≤-26.67	PASS

Test Graphs

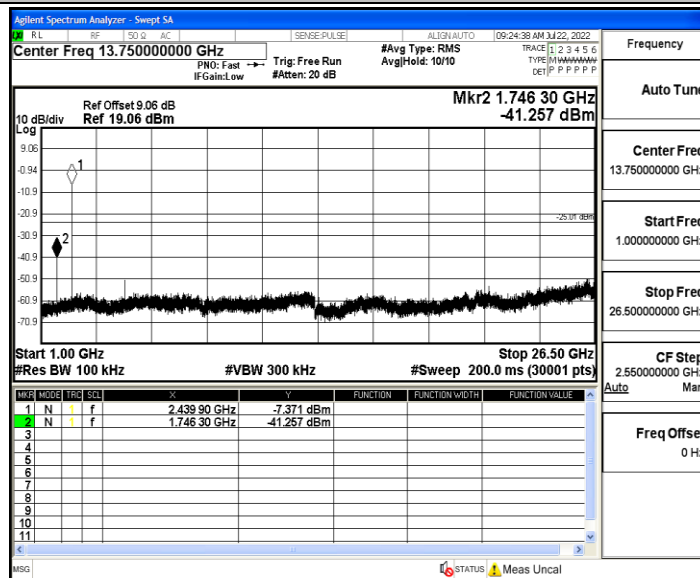




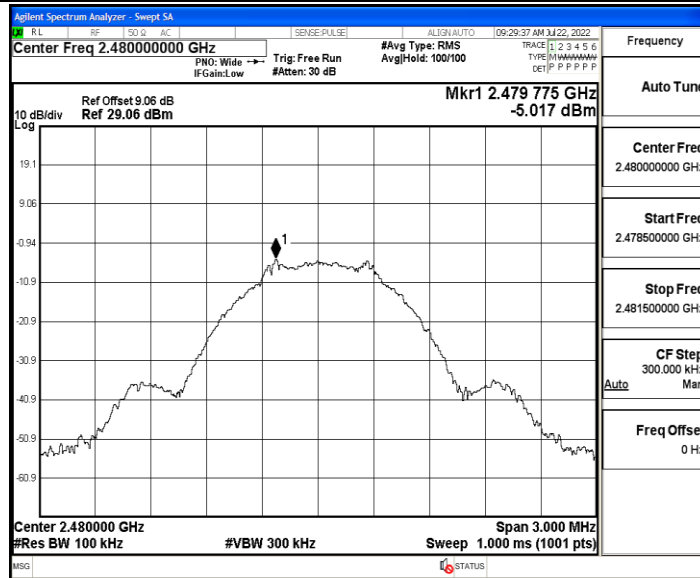
BLE_1M_Ant1_2440_30~1000



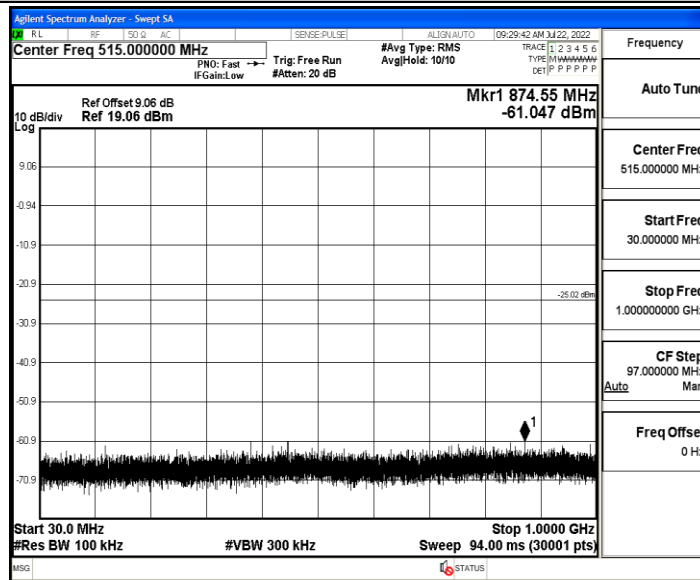
BLE_1M_Ant1_2440_1000~26500



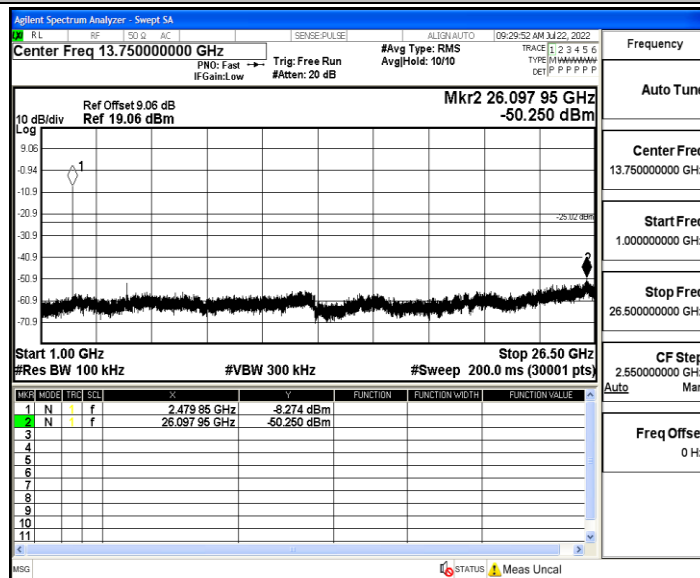
BLE_1M_Ant1_2480_0~Reference



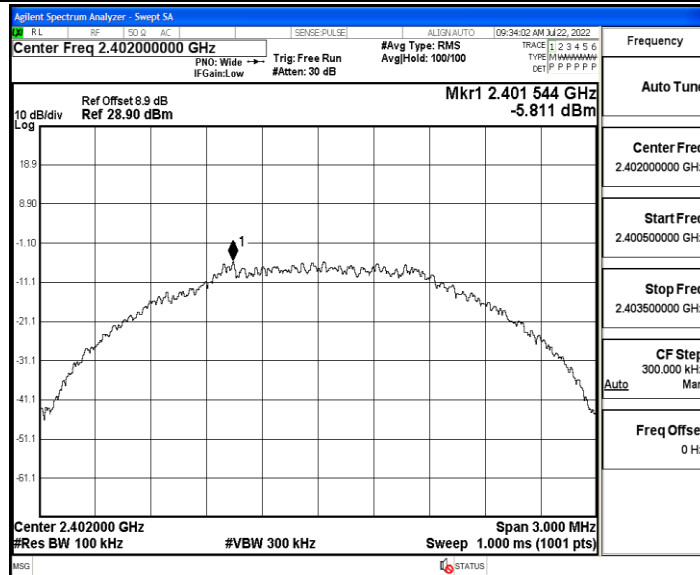
BLE_1M_Ant1_2480_30~1000



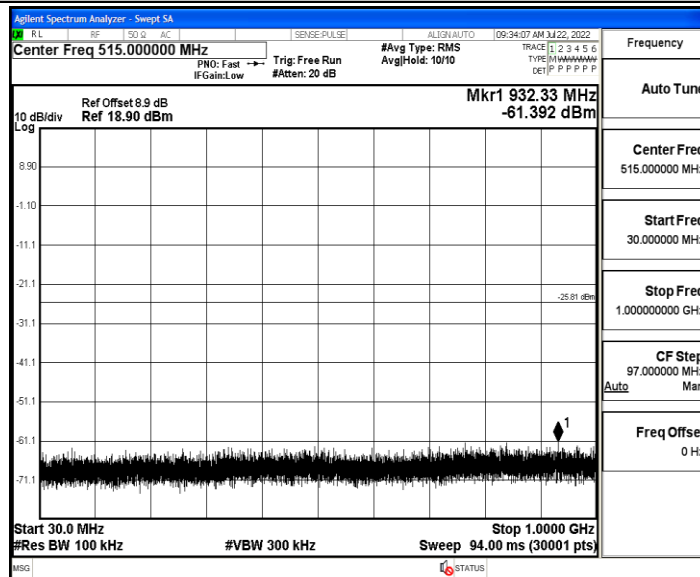
BLE_1M_Ant1_2480_1000~26500



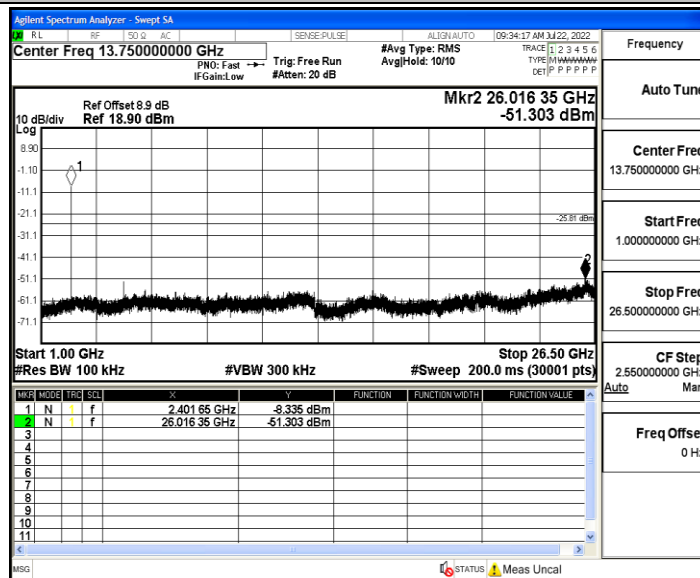
BLE_2M_Ant1_2402_0~Reference



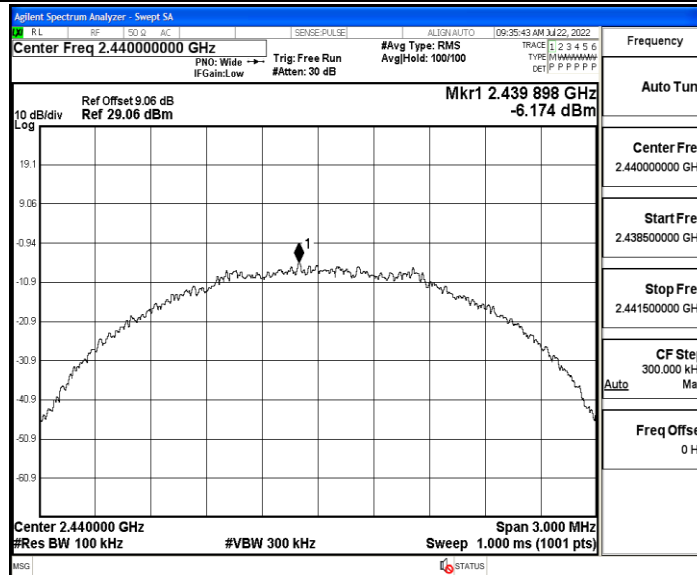
BLE_2M_Ant1_2402_30~1000



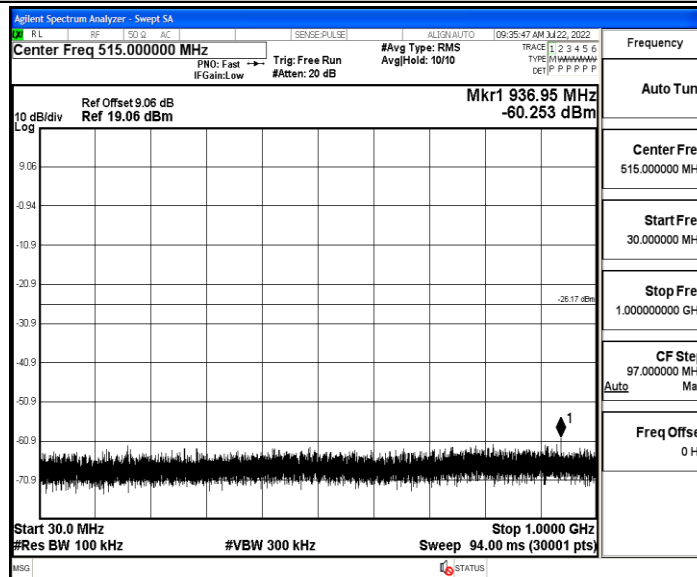
BLE_2M_Ant1_2402_1000~26500



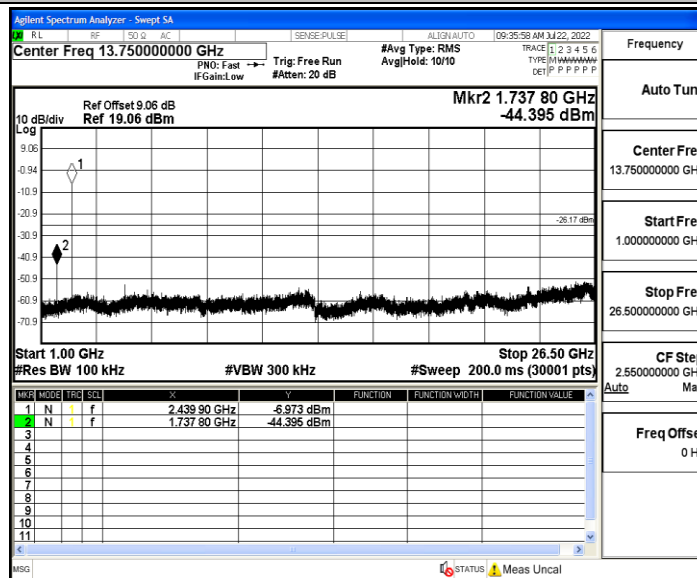
BLE_2M_Ant1_2440_0~Reference



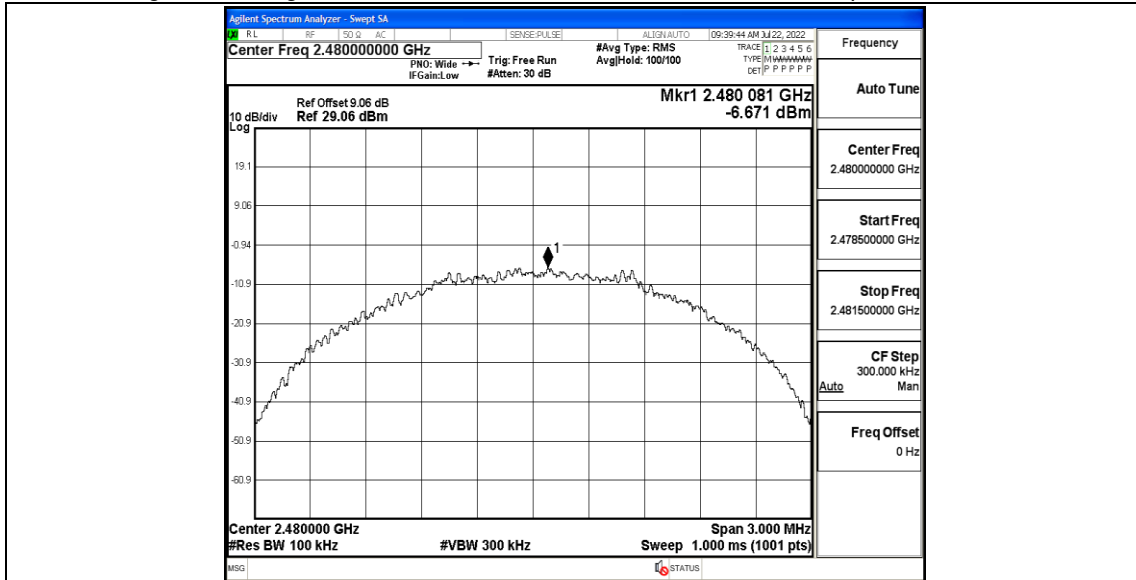
BLE_2M_Ant1_2440_30~1000



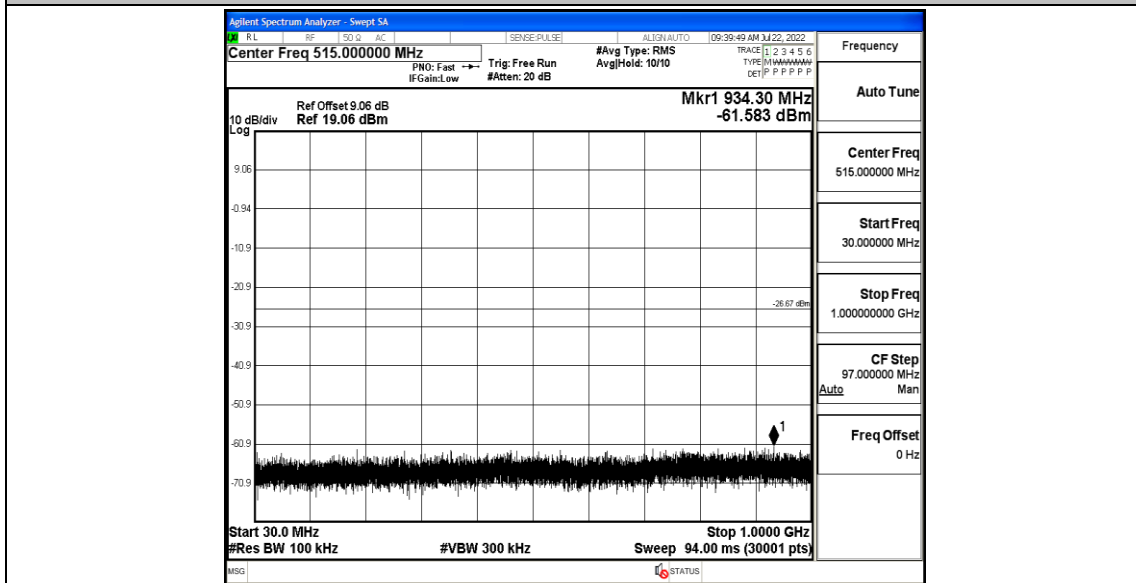
BLE_2M_Ant1_2440_1000~26500



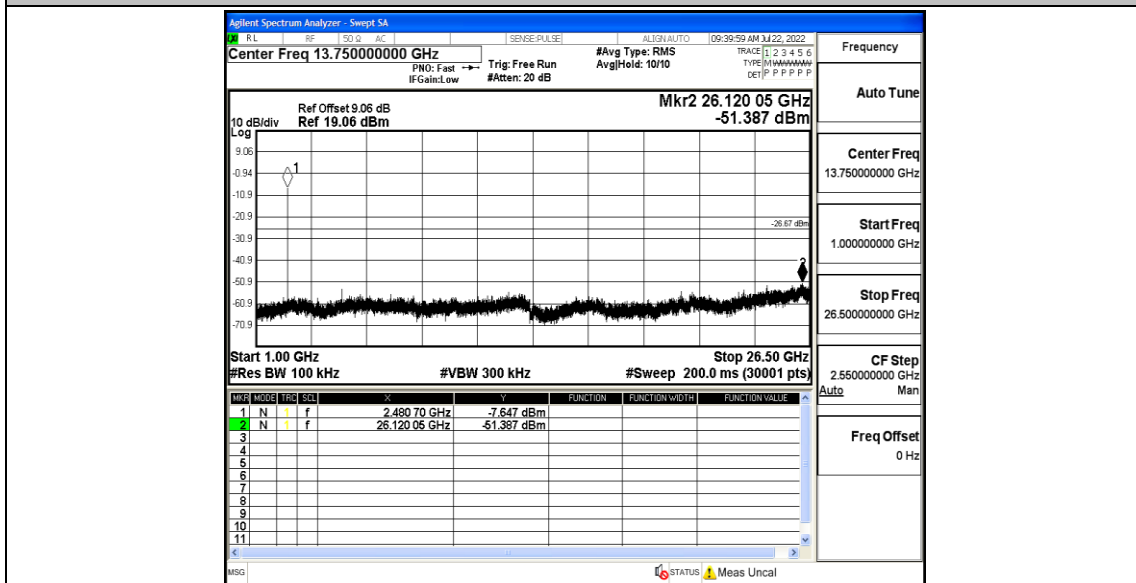
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



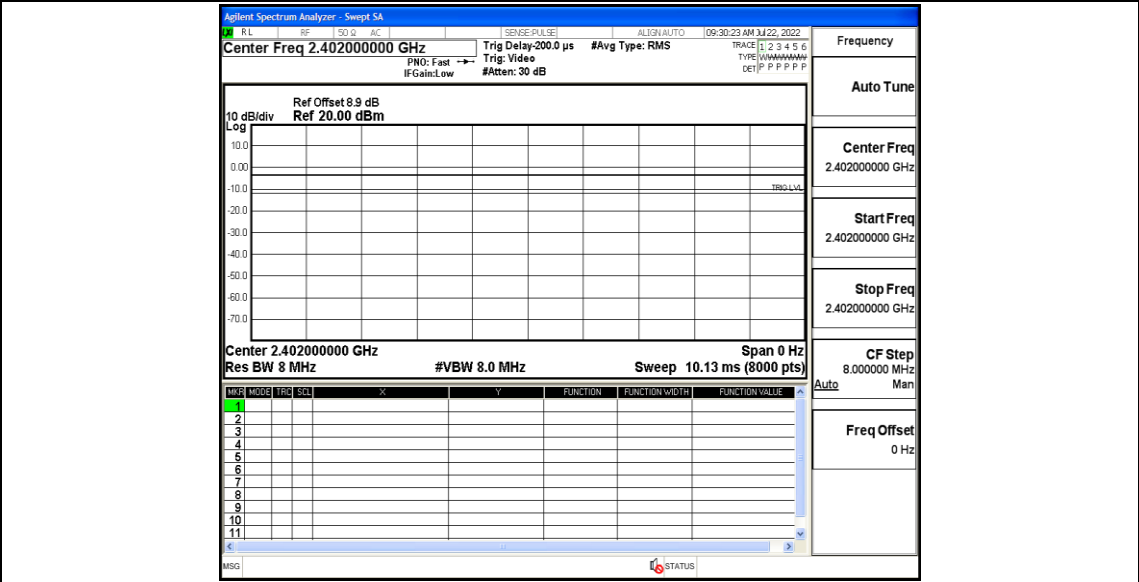
Appendix G: Duty Cycle

Test Result

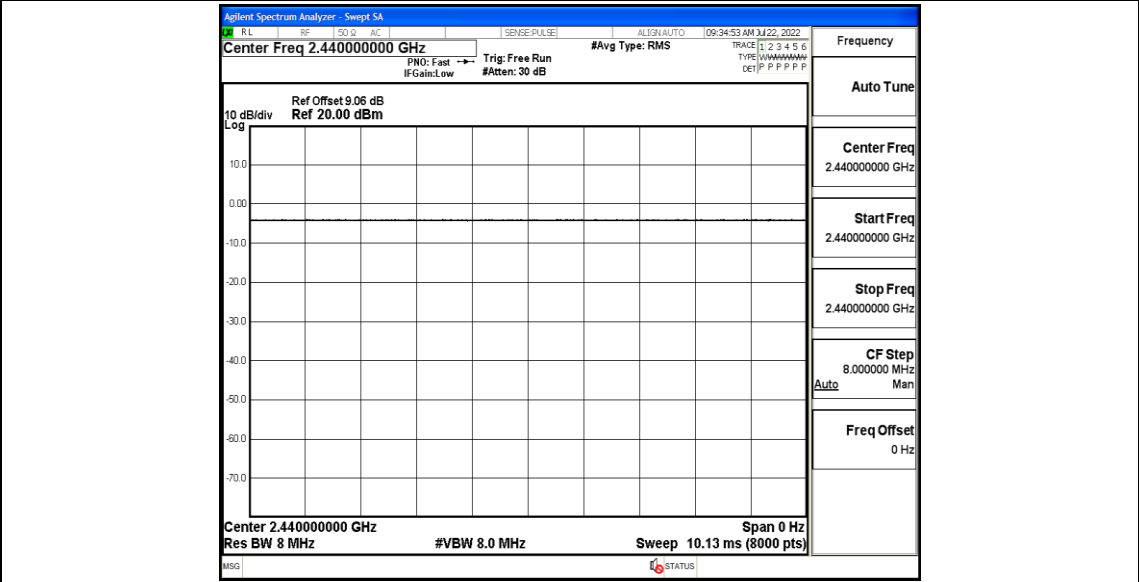
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	10.00	10.00	100.00	0.10
		2440	10.00	10.00	100.00	0.10
		2480	0.00	0.00	100	∞
BLE_2M	Ant1	2402	10.00	10.00	100.00	0.10
		2440	0.00	0.00	100	∞
		2480	0.00	0.00	100	∞

Test Graphs

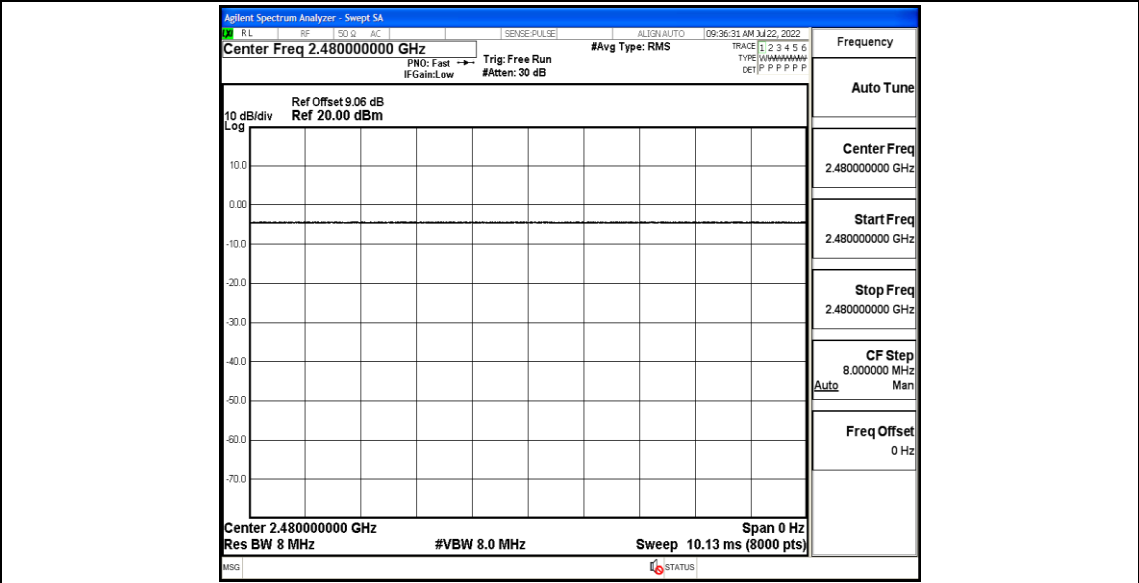




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

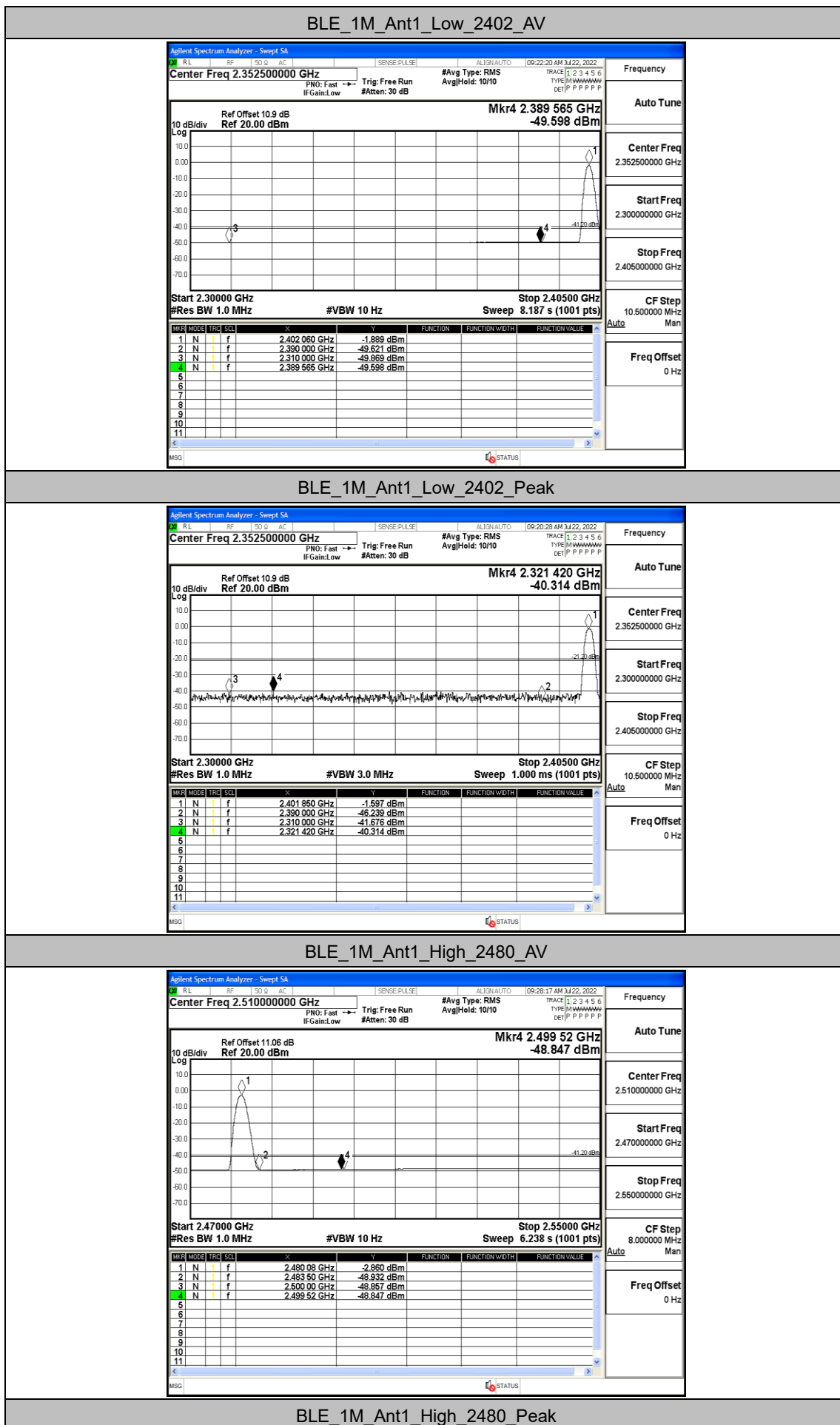
Test Result

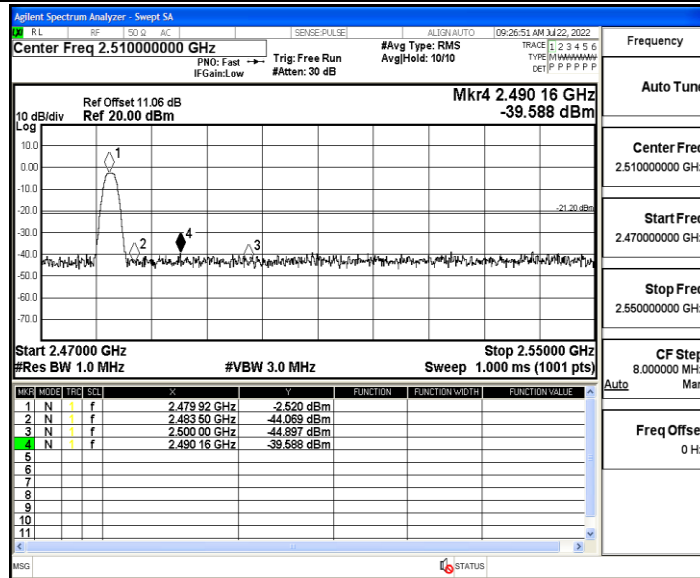
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.87	≤-41.20	PASS
				AV	2389.565	-49.6	≤-41.20	PASS
				AV	2390.000	-49.62	≤-41.20	PASS
				Peak	2310.000	-41.68	≤-21.20	PASS
				Peak	2321.420	-40.31	≤-21.20	PASS
				Peak	2390.000	-46.24	≤-21.20	PASS
		High	2480	AV	2483.500	-48.93	≤-41.20	PASS
				AV	2499.520	-48.85	≤-41.20	PASS
				AV	2500.000	-48.86	≤-41.20	PASS
				Peak	2483.500	-44.07	≤-21.20	PASS
				Peak	2490.160	-39.59	≤-21.20	PASS
				Peak	2500.000	-44.9	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-49.85	≤-41.20	PASS
				AV	2389.985	-49.56	≤-41.20	PASS
				AV	2390.000	-49.56	≤-41.20	PASS
				Peak	2310.000	-45.79	≤-21.20	PASS
				Peak	2323.520	-39.83	≤-21.20	PASS
				Peak	2390.000	-45.55	≤-21.20	PASS
		High	2480	AV	2483.500	-47.7	≤-41.20	PASS
				AV	2483.520	-47.7	≤-41.20	PASS
				AV	2500.000	-48.86	≤-41.20	PASS
				Peak	2483.500	-40.17	≤-21.20	PASS
				Peak	2494.160	-39.57	≤-21.20	PASS
				Peak	2500.000	-44.2	≤-21.20	PASS

Note:

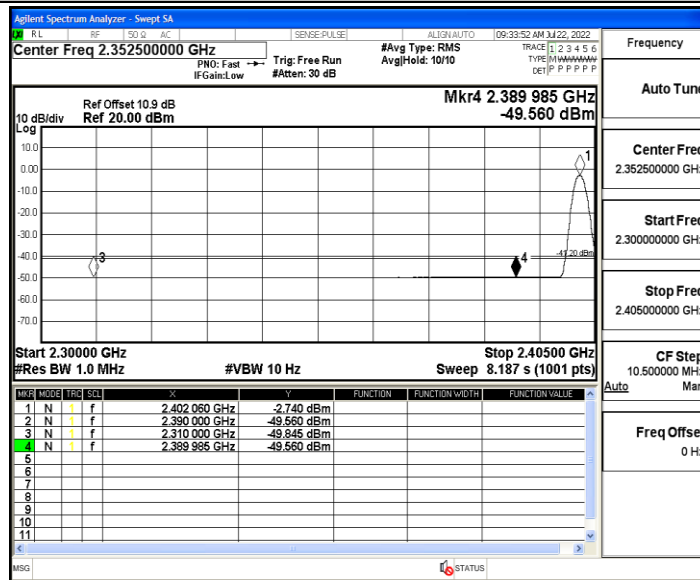
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

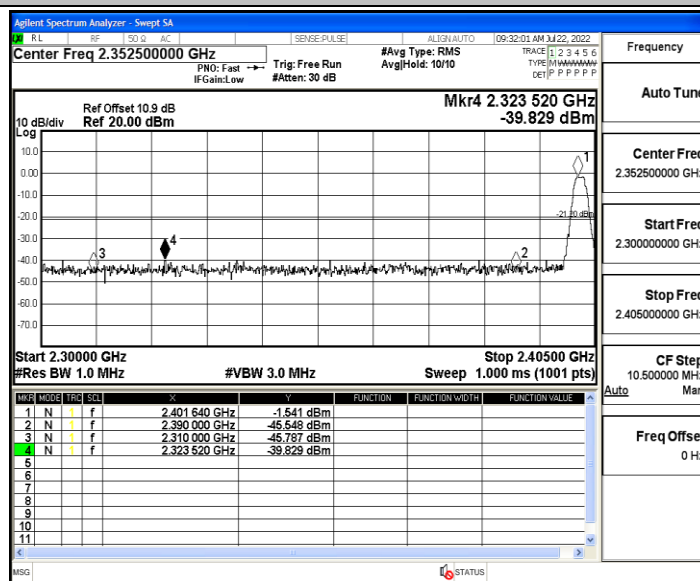




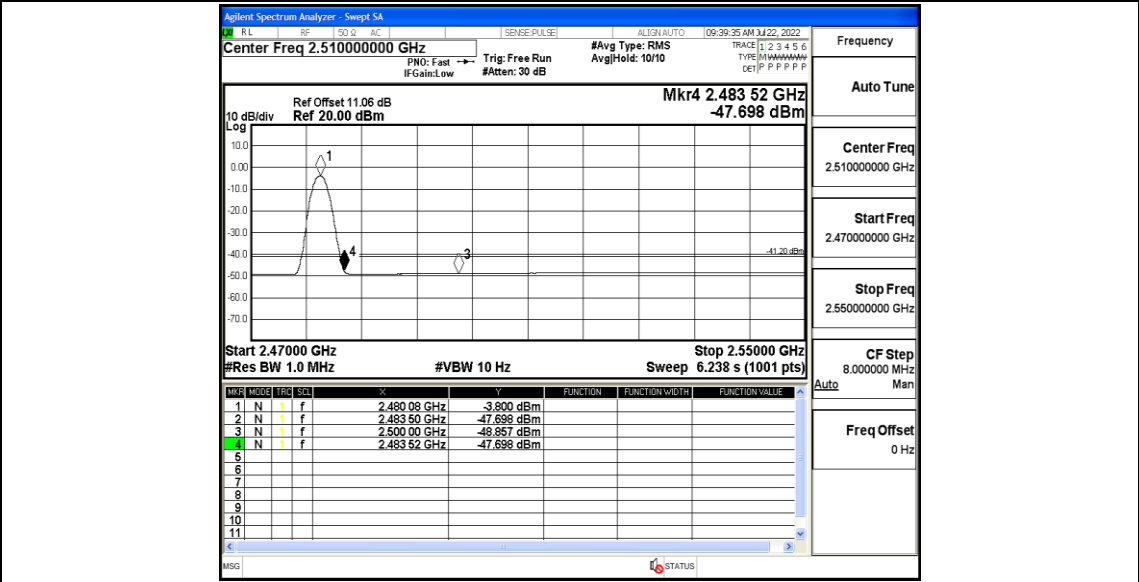
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

