

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

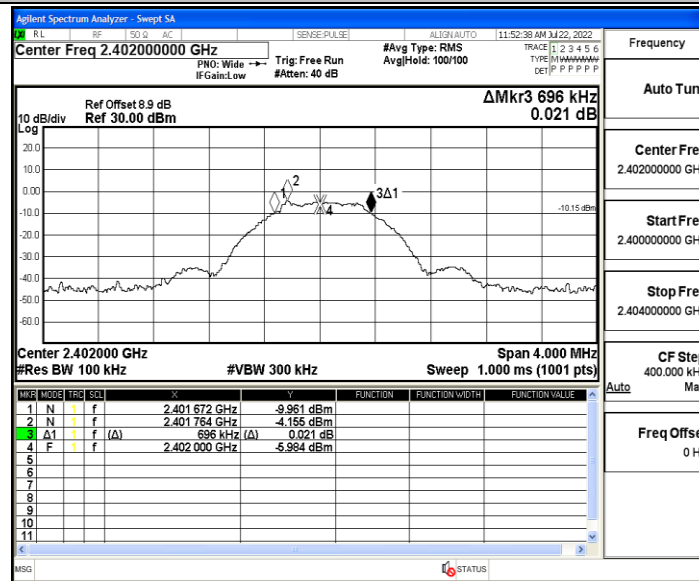
Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth**Test Result**

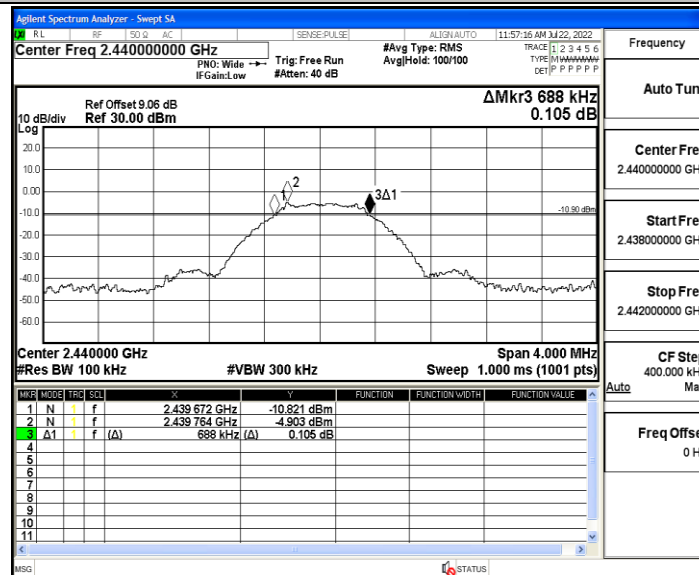
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.696	2401.672	2402.368	0.5	PASS
		2440	0.688	2439.672	2440.360	0.5	PASS
		2480	0.684	2479.668	2480.352	0.5	PASS
BLE_2M	Ant1	2402	1.392	2401.352	2402.744	0.5	PASS
		2440	1.460	2439.308	2440.768	0.5	PASS
		2480	1.228	2479.372	2480.600	0.5	PASS

Test Graphs

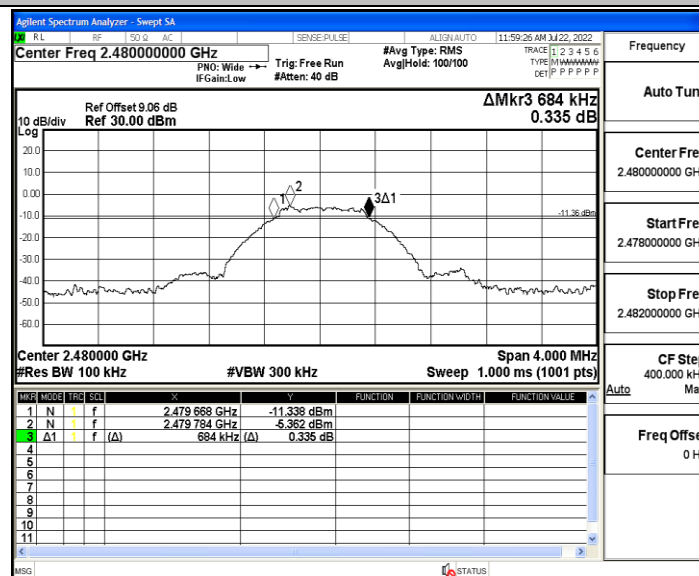
BLE_1M_Ant1_2402



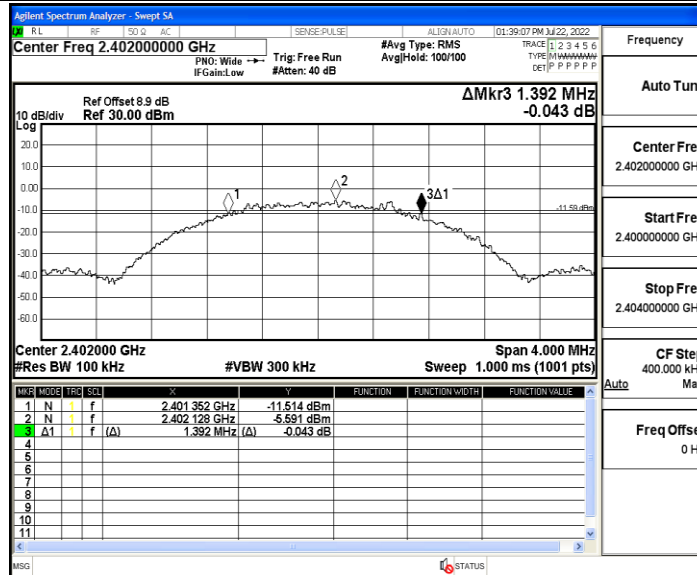
BLE_1M_Ant1_2440



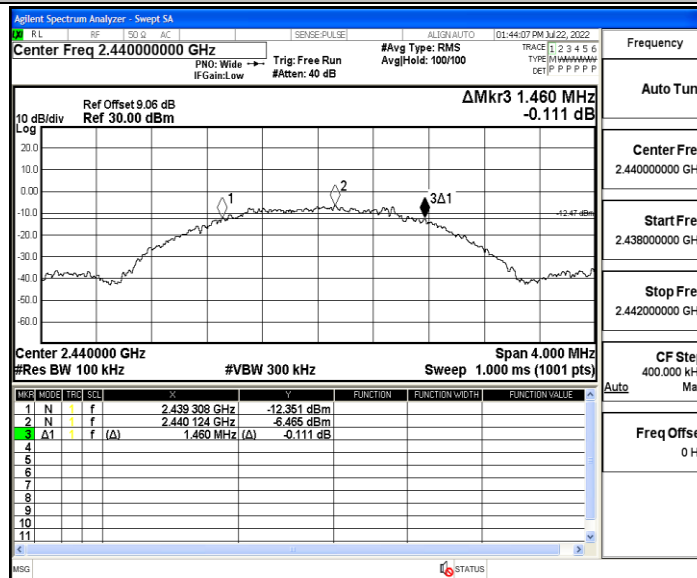
BLE_1M_Ant1_2480



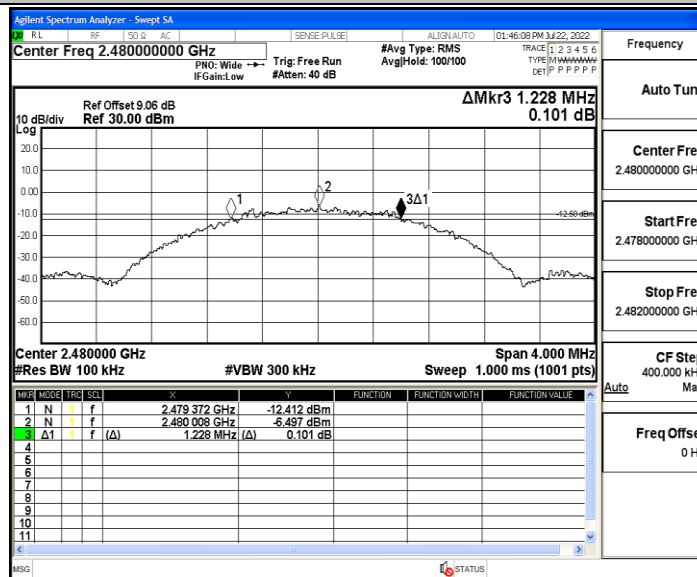
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



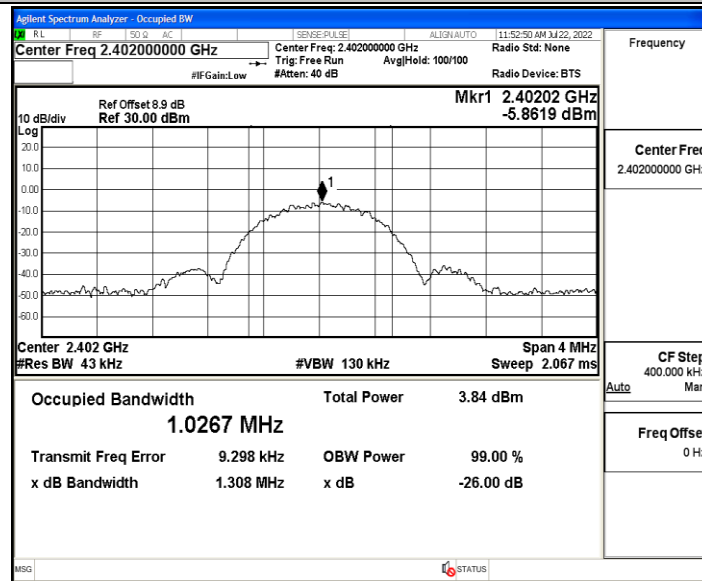
Appendix B: Occupied Channel Bandwidth

Test Result

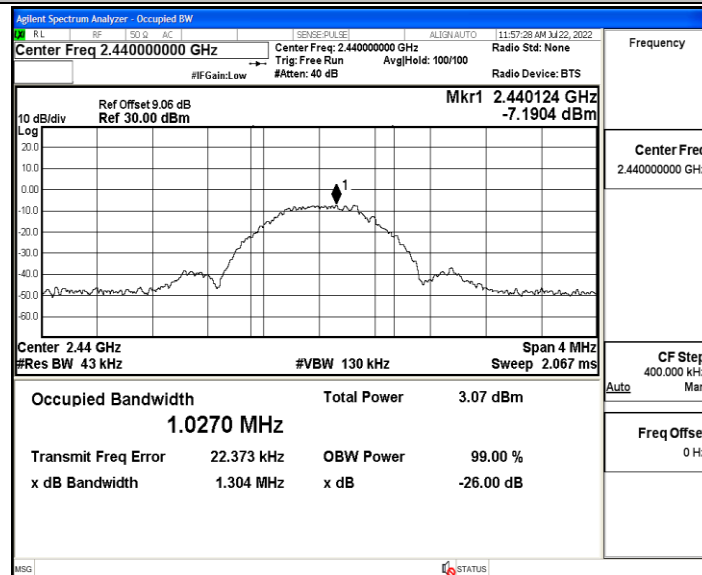
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0267	2401.496	2402.523	---	---
		2440	1.0270	2439.509	2440.536	---	---
		2480	1.0501	2479.488	2480.538	---	---
BLE_2M	Ant1	2402	2.0618	2400.988	2403.049	---	---
		2440	2.0504	2438.991	2441.041	---	---
		2480	2.0565	2478.982	2481.039	---	---

Test Graphs

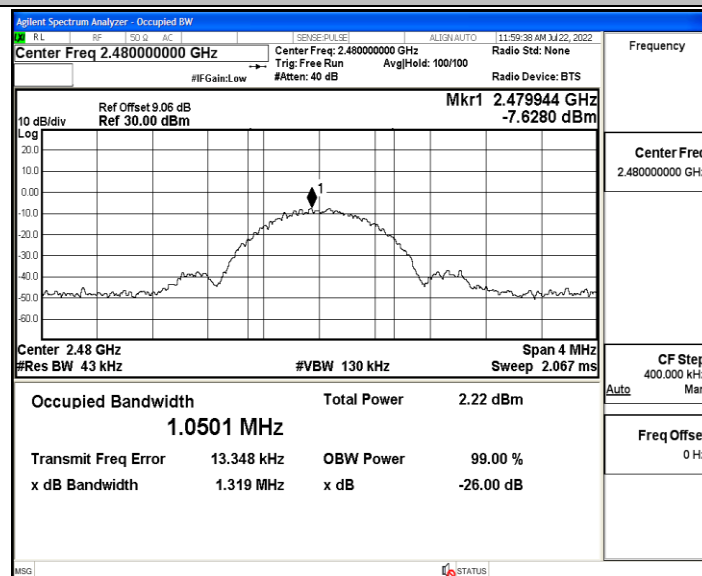
BLE_1M_Ant1_2402



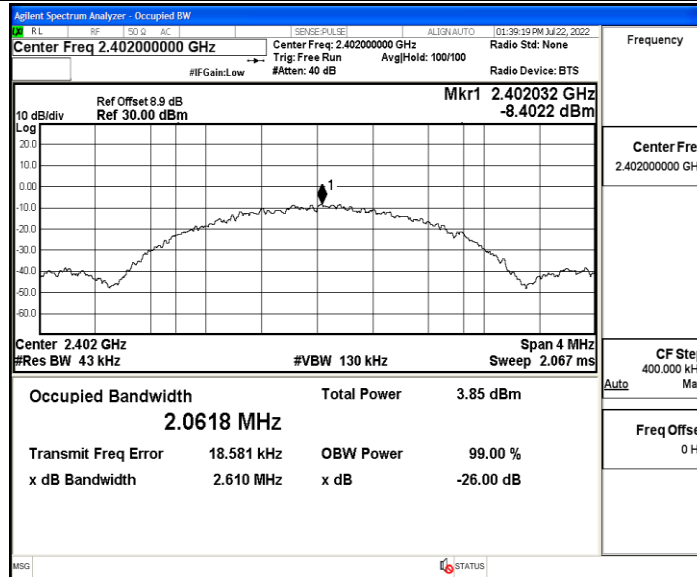
BLE_1M_Ant1_2440



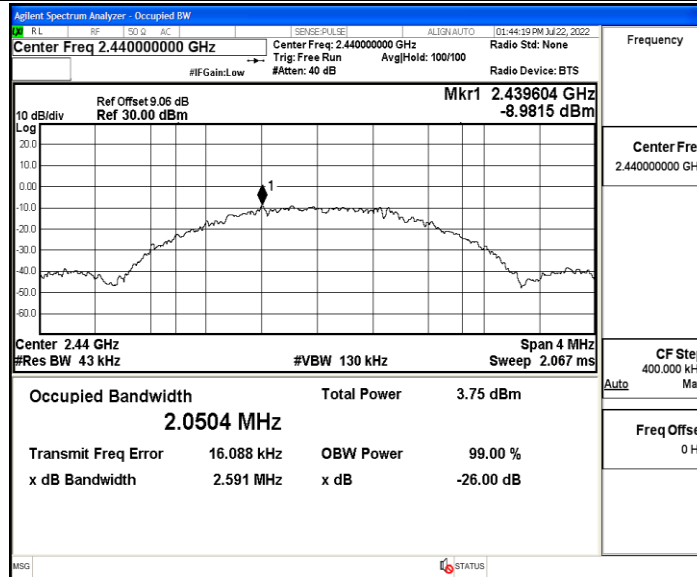
BLE_1M_Ant1_2480



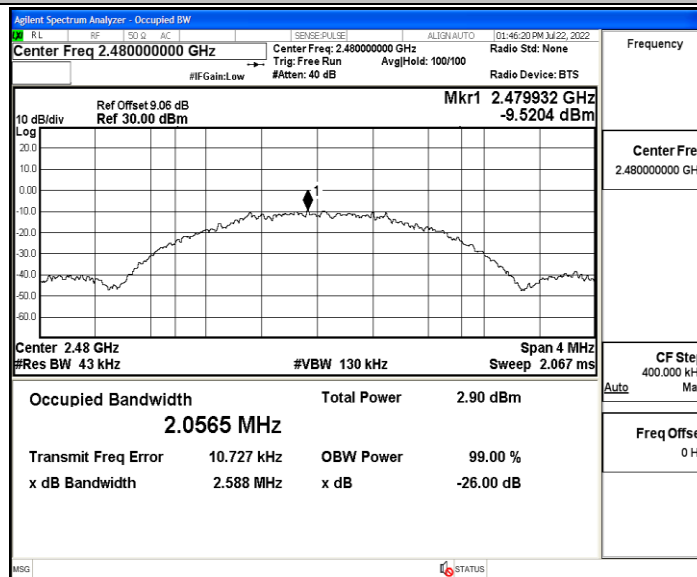
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



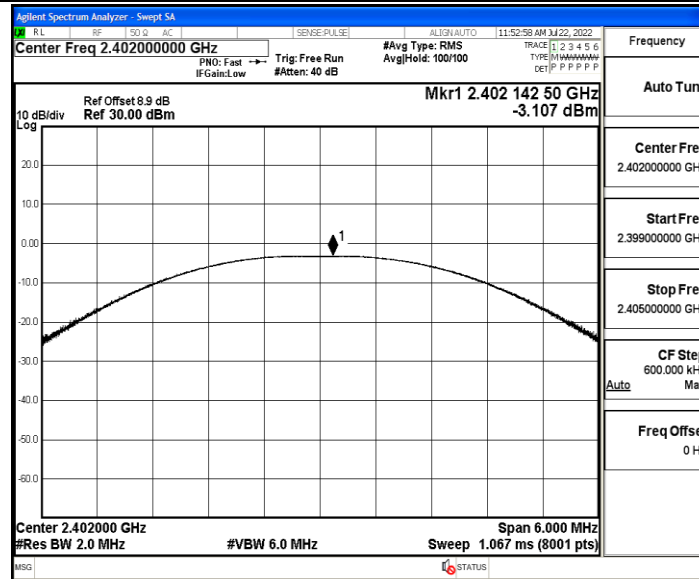
Appendix C: Maximum Peak conducted output power

Test Result

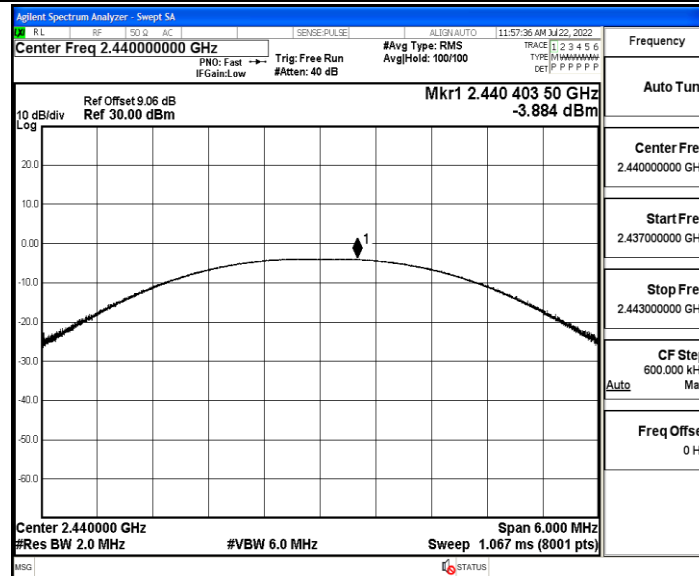
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.11	≤30	PASS
		2440	-3.88	≤30	PASS
		2480	-4.28	≤30	PASS
BLE_2M	Ant1	2402	-3.24	≤30	PASS
		2440	-4	≤30	PASS
		2480	-4.24	≤30	PASS

Test Graphs

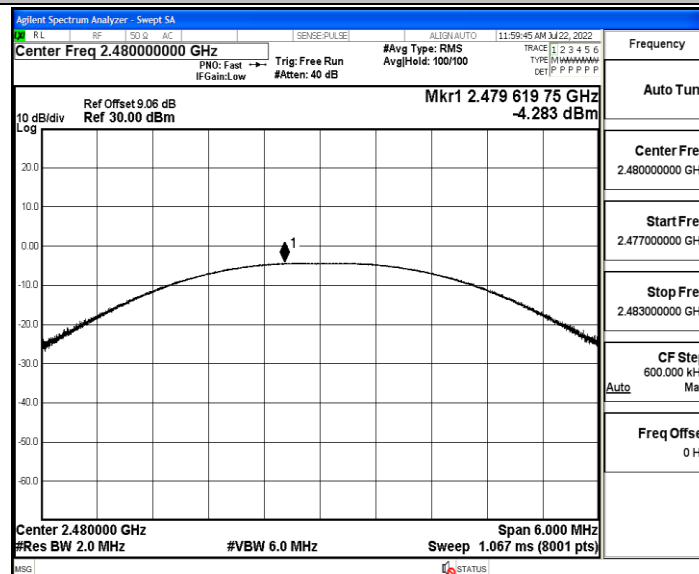
BLE_1M_Ant1_2402



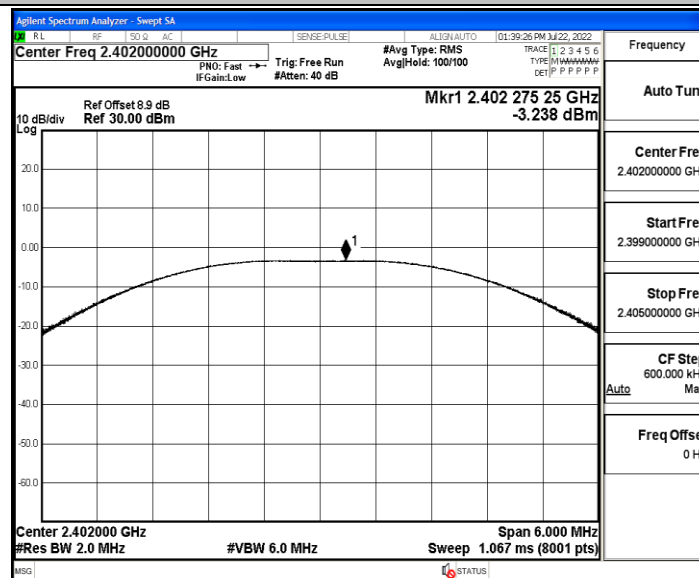
BLE_1M_Ant1_2440



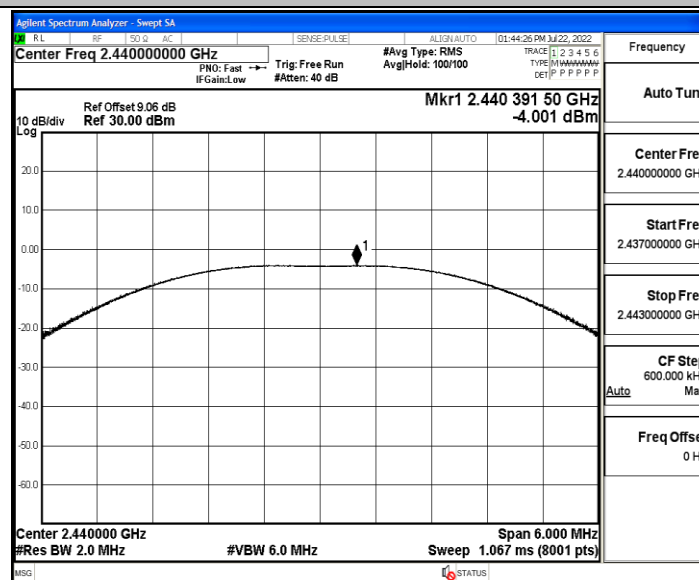
BLE_1M_Ant1_2480



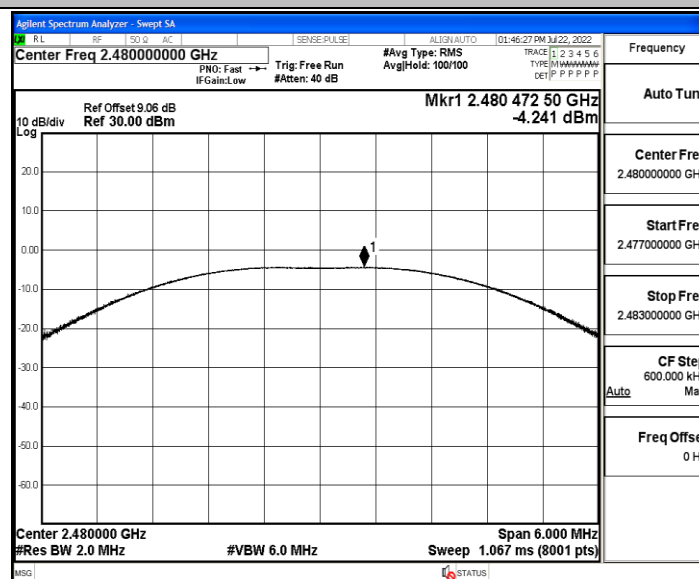
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



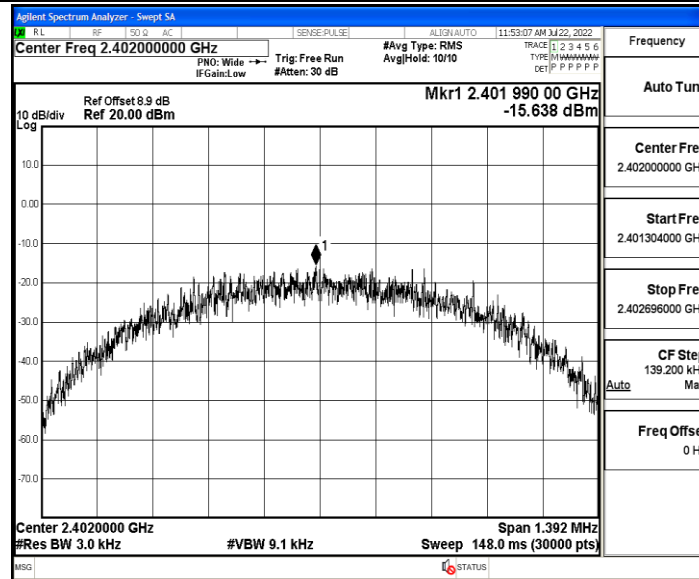
Appendix D: Maximum power spectral density

Test Result

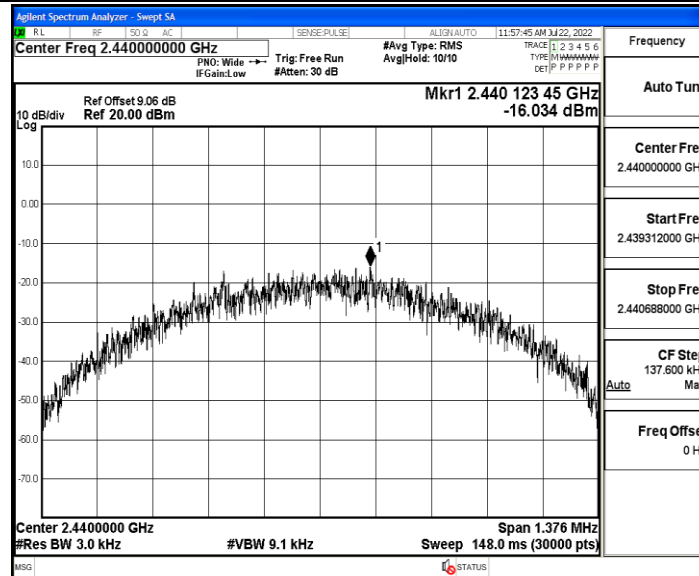
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.64	≤8.00	PASS
		2440	-16.03	≤8.00	PASS
		2480	-16.77	≤8.00	PASS
BLE_2M	Ant1	2402	-17.18	≤8.00	PASS
		2440	-18.65	≤8.00	PASS
		2480	-18.3	≤8.00	PASS

Test Graphs

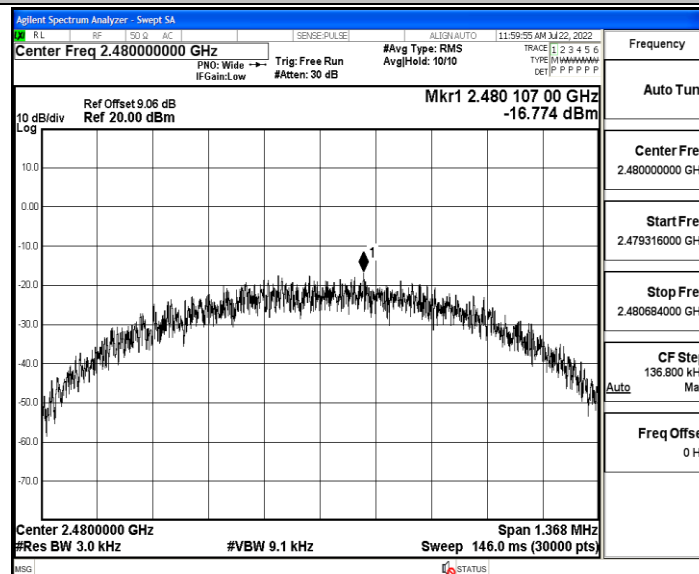
BLE_1M_Ant1_2402



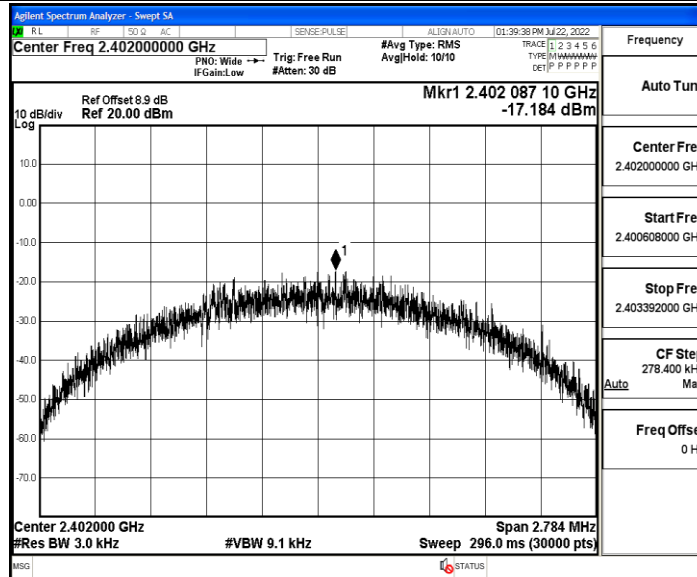
BLE_1M_Ant1_2440



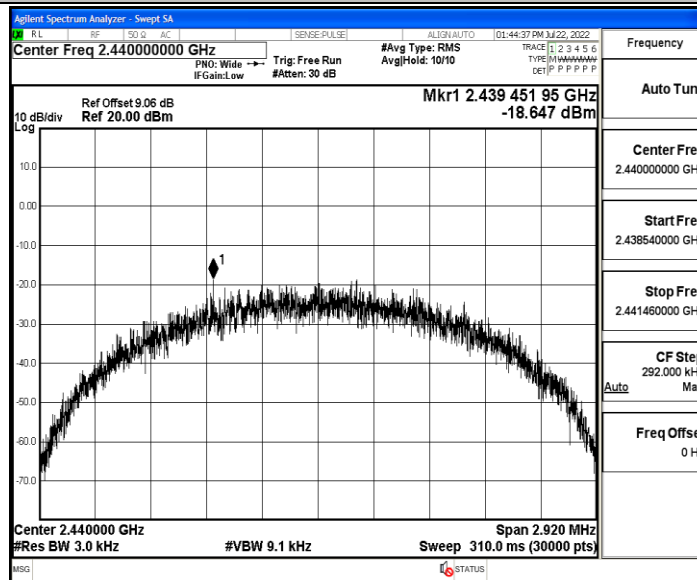
BLE_1M_Ant1_2480



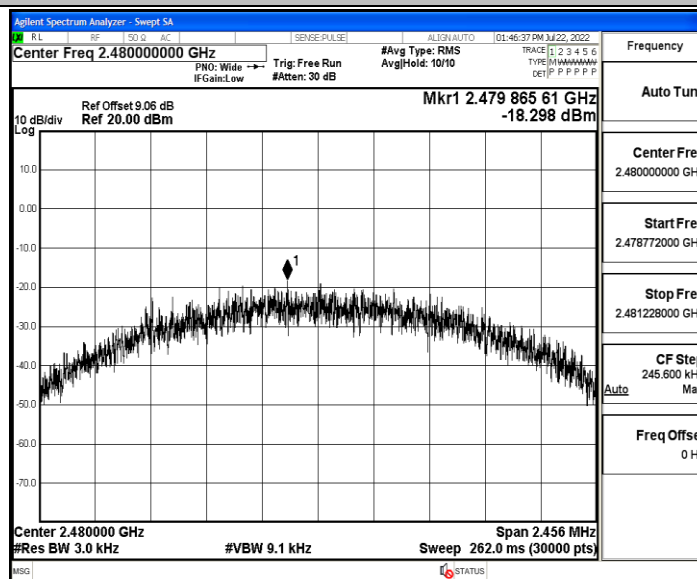
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



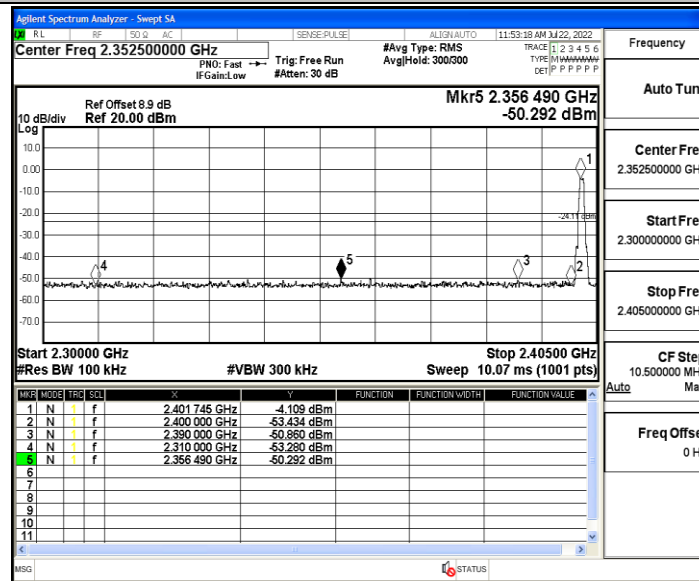
Appendix E: Band edge measurements

Test Result

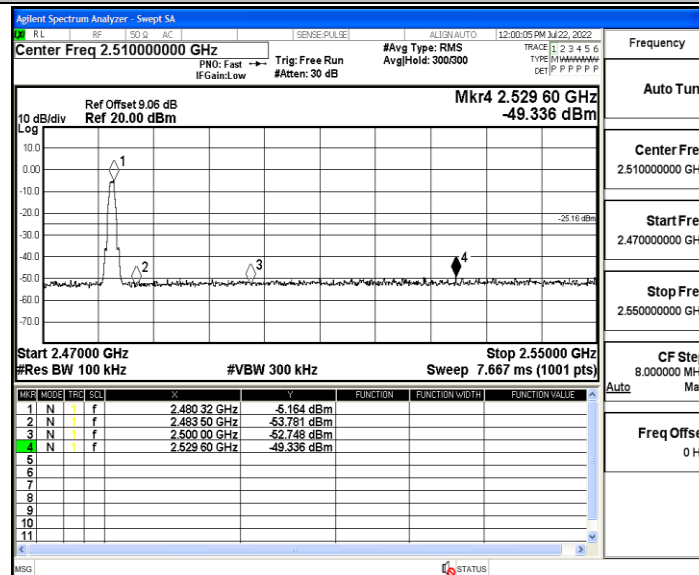
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.11	-50.29	≤ -24.11	PASS
		High	2480	-5.16	-49.34	≤ -25.16	PASS
BLE_2M	Ant1	Low	2402	-5.11	-39.72	≤ -25.11	PASS
		High	2480	-6.47	-48.97	≤ -26.47	PASS

Test Graphs

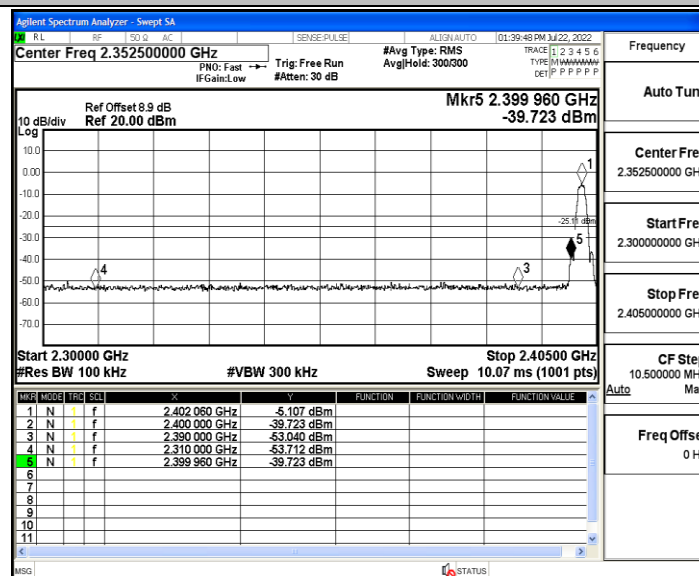
BLE_1M_Ant1_Low_2402



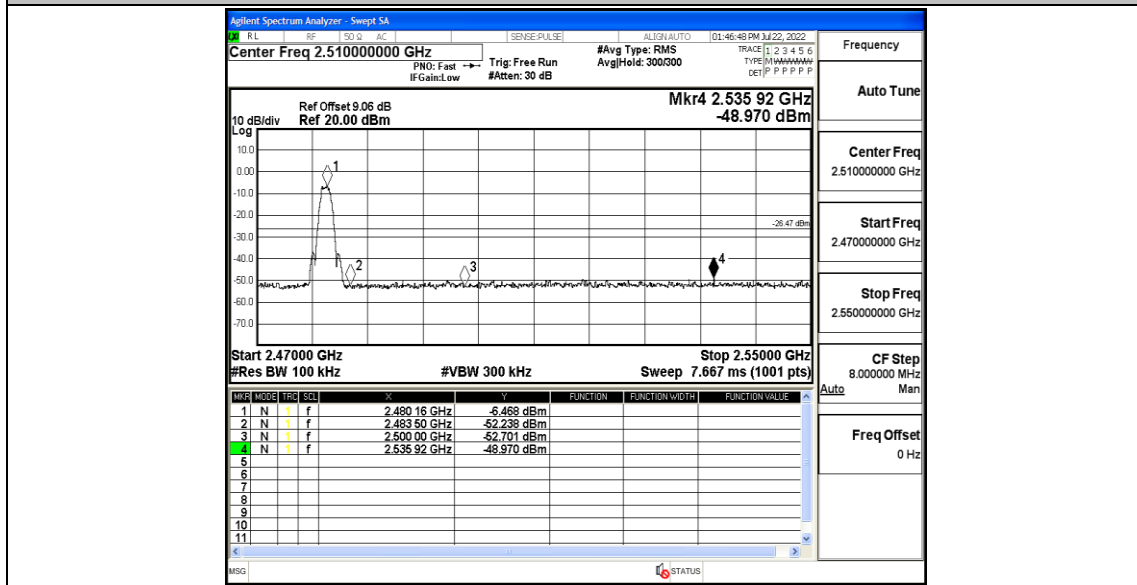
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



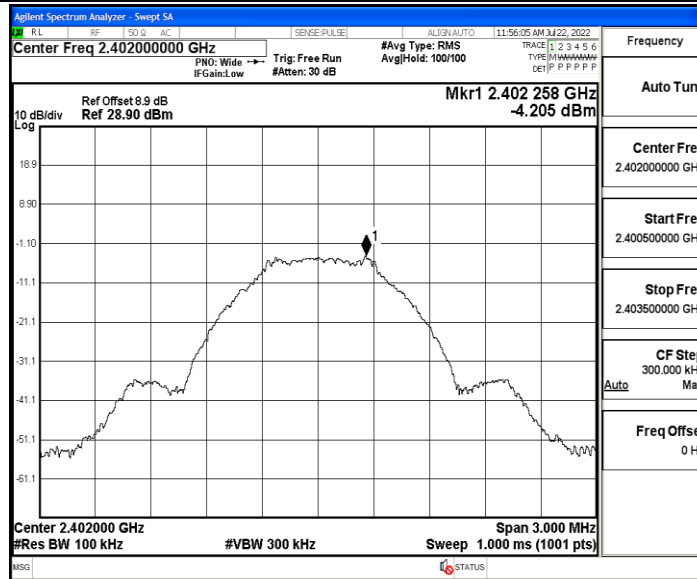
Appendix F: Conducted Spurious Emission

Test Result

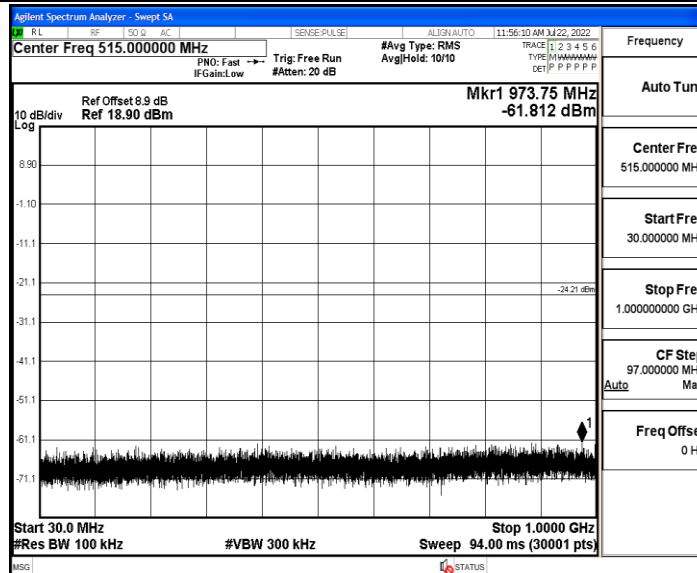
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.21	-4.21	---	PASS
			30~1000	-4.21	-61.81	≤-24.21	PASS
			1000~26500	-4.21	-50.69	≤-24.21	PASS
		2440	Reference	-5.37	-5.37	---	PASS
			30~1000	-5.37	-60.91	≤-25.37	PASS
			1000~26500	-5.37	-50.85	≤-25.37	PASS
		2480	Reference	-5.29	-5.29	---	PASS
			30~1000	-5.29	-61.56	≤-25.29	PASS
			1000~26500	-5.29	-51.87	≤-25.29	PASS
BLE_2M	Ant1	2402	Reference	-6.03	-6.03	---	PASS
			30~1000	-6.03	-61.32	≤-26.03	PASS
			1000~26500	-6.03	-50.72	≤-26.03	PASS
		2440	Reference	-6.91	-6.91	---	PASS
			30~1000	-6.91	-61.32	≤-26.91	PASS
			1000~26500	-6.91	-51.3	≤-26.91	PASS
		2480	Reference	-6.34	-6.34	---	PASS
			30~1000	-6.34	-61.27	≤-26.34	PASS
			1000~26500	-6.34	-51.22	≤-26.34	PASS

Test Graphs

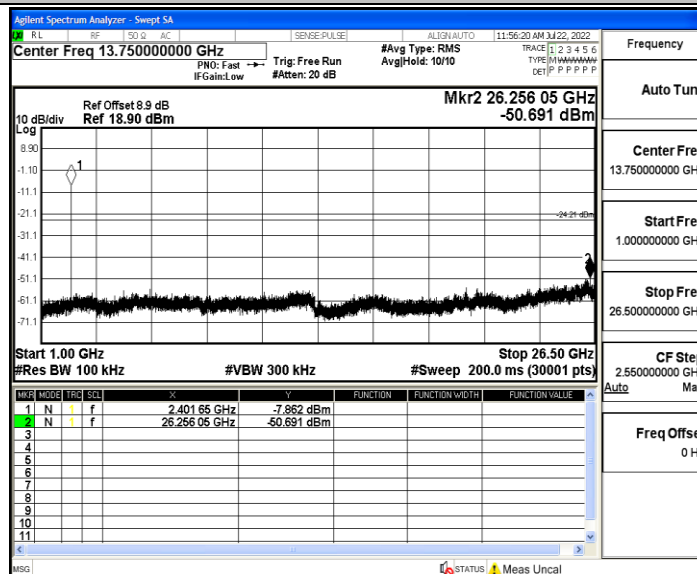
BLE_1M_Ant1_2402_0~Reference



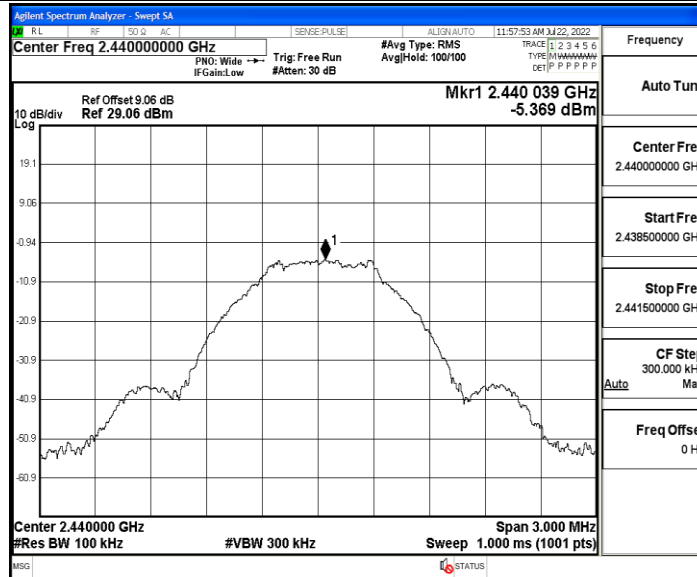
BLE_1M_Ant1_2402_30~1000



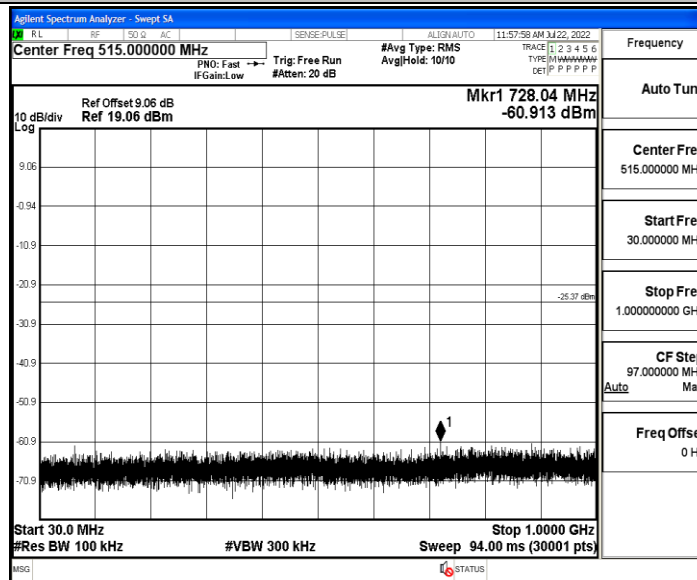
BLE_1M_Ant1_2402_1000~26500



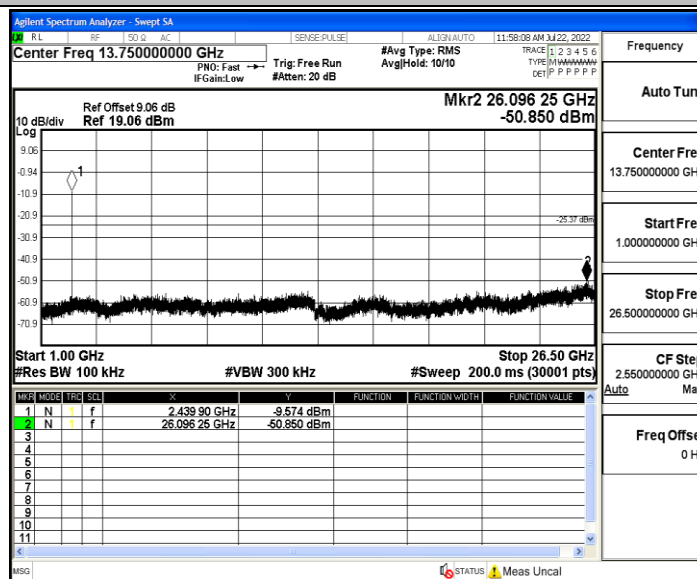
BLE_1M_Ant1_2440_0~Reference



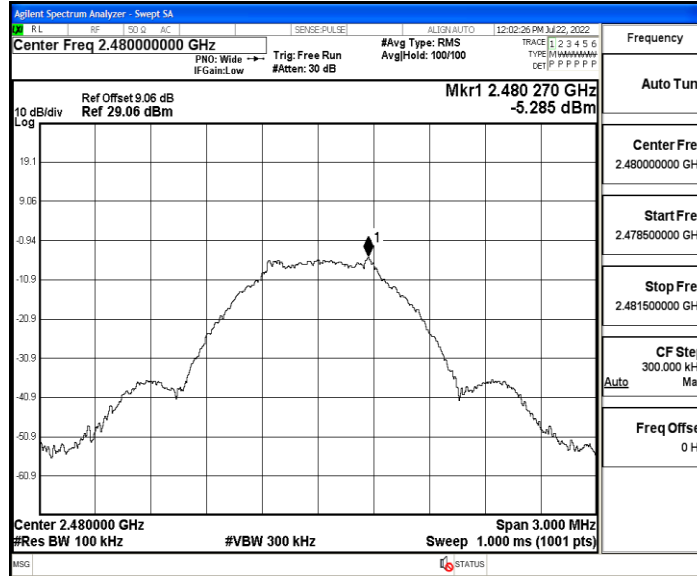
BLE_1M_Ant1_2440_30~1000



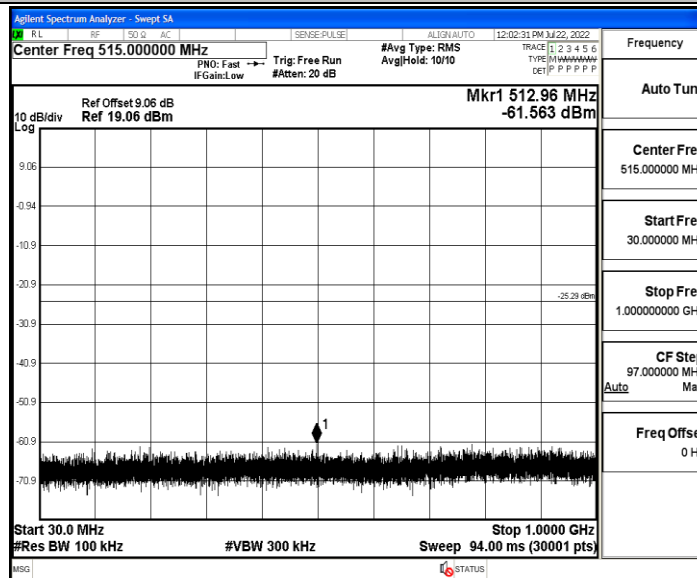
BLE_1M_Ant1_2440_1000~26500



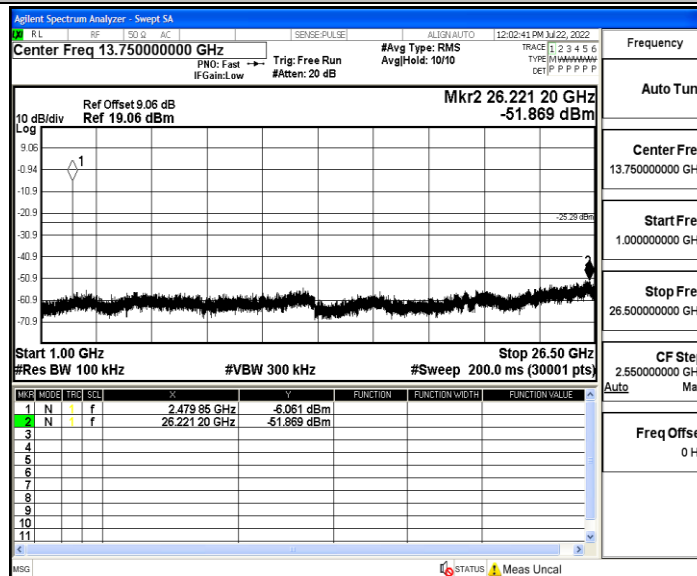
BLE_1M_Ant1_2480_0~Reference



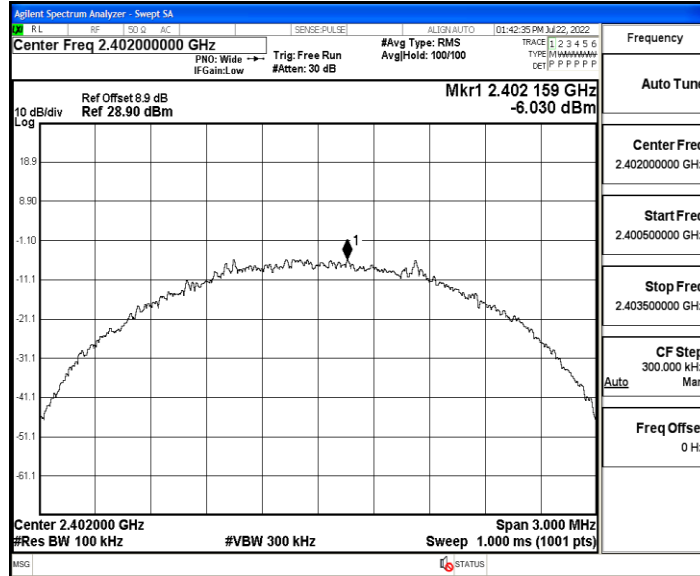
BLE_1M_Ant1_2480_30~1000



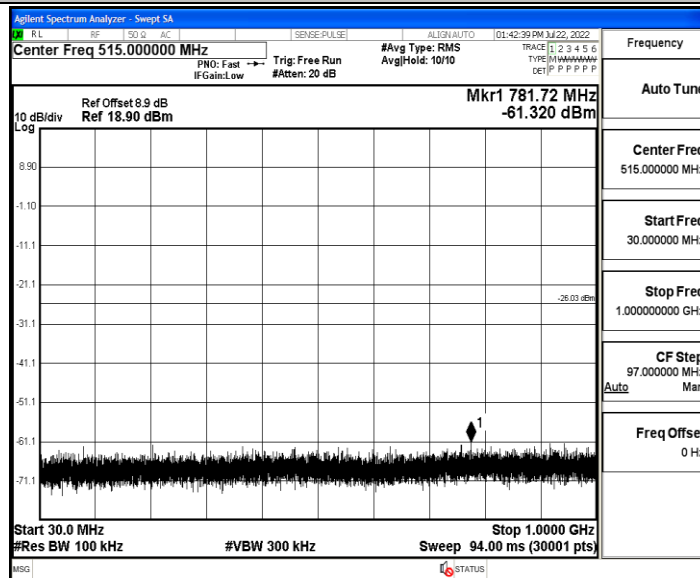
BLE_1M_Ant1_2480_1000~26500



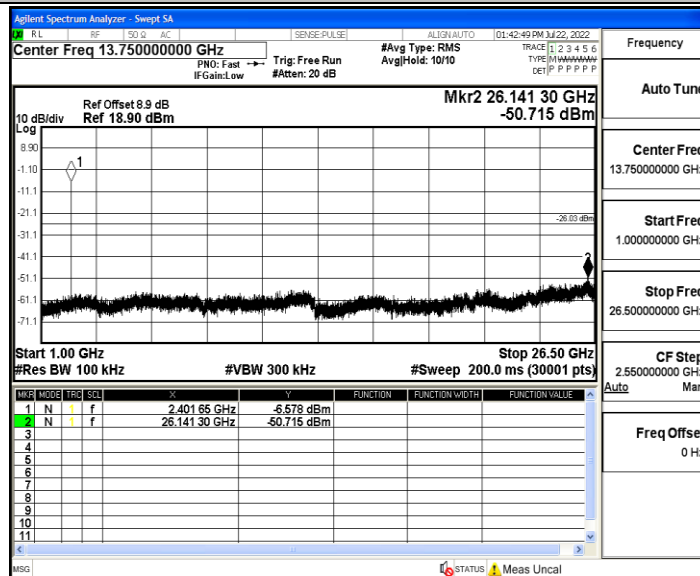
BLE_2M_Ant1_2402_0~Reference



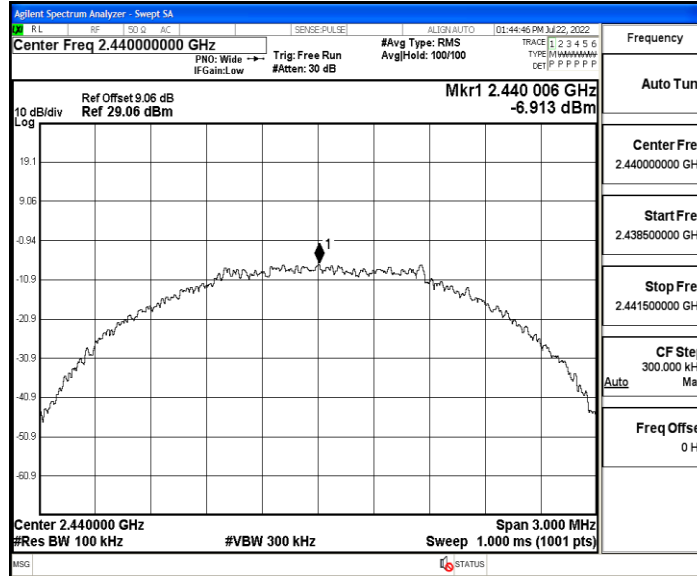
BLE_2M_Ant1_2402_30~1000



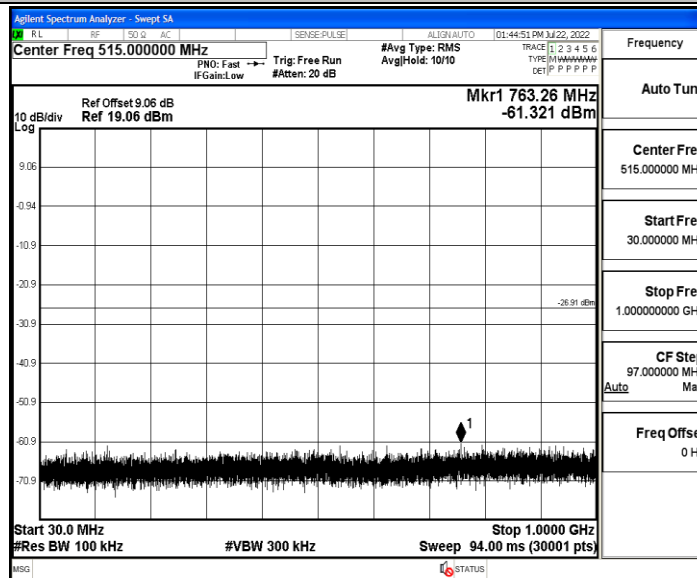
BLE_2M_Ant1_2402_1000~26500



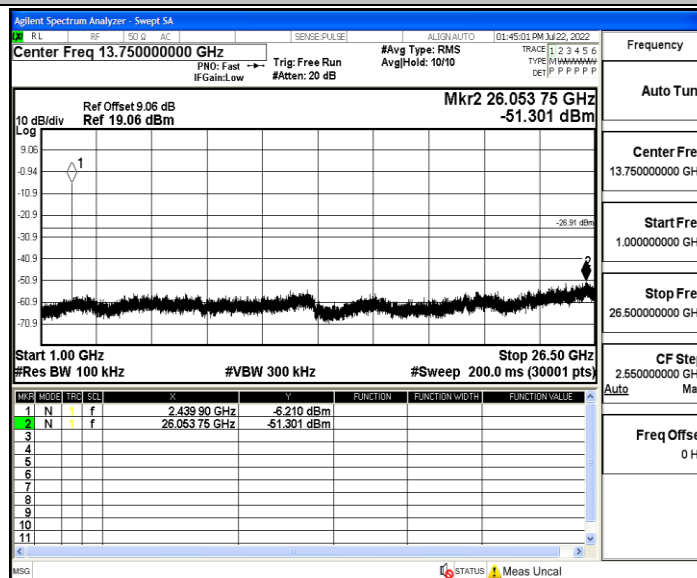
BLE_2M_Ant1_2440_0~Reference



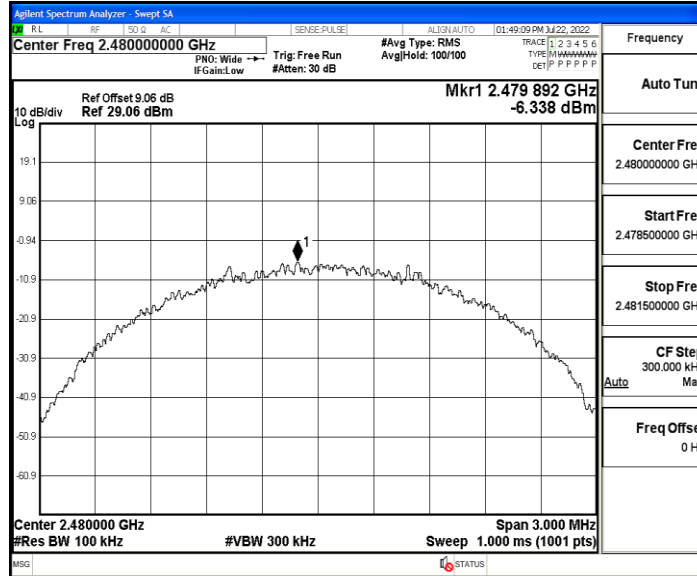
BLE_2M_Ant1_2440_30~1000



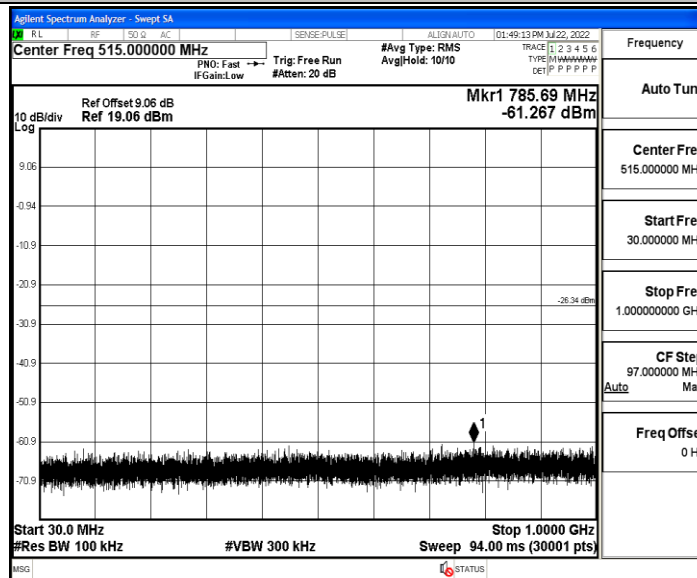
BLE_2M_Ant1_2440_1000~26500



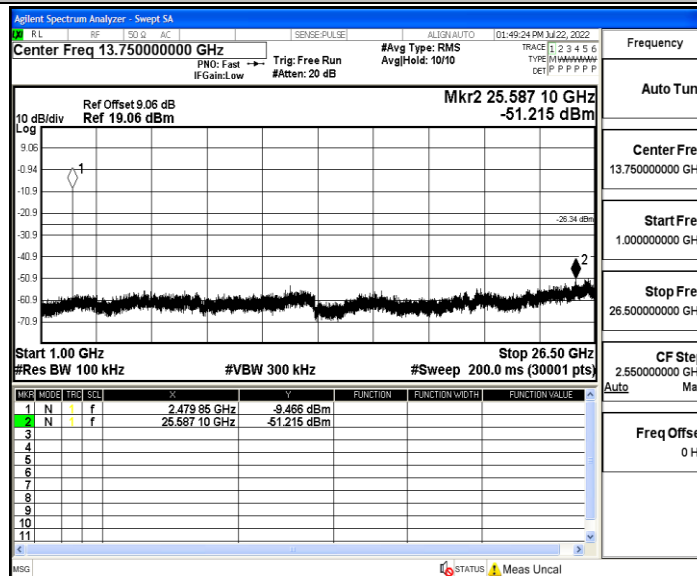
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



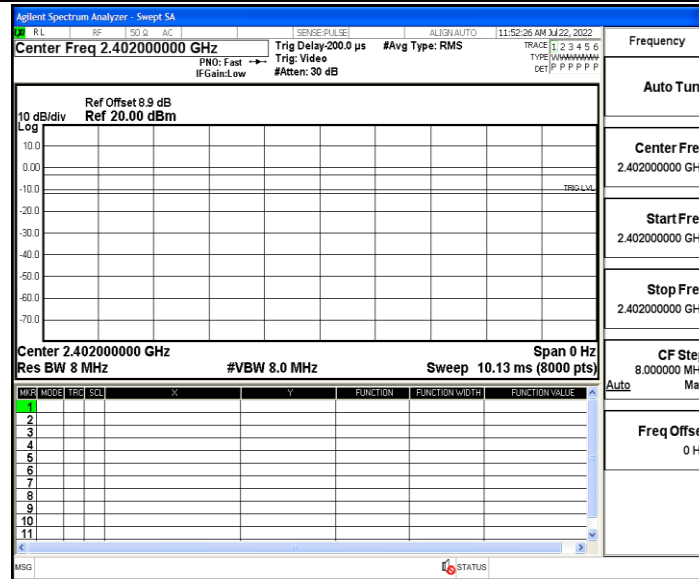
Appendix G: Duty Cycle

Test Result

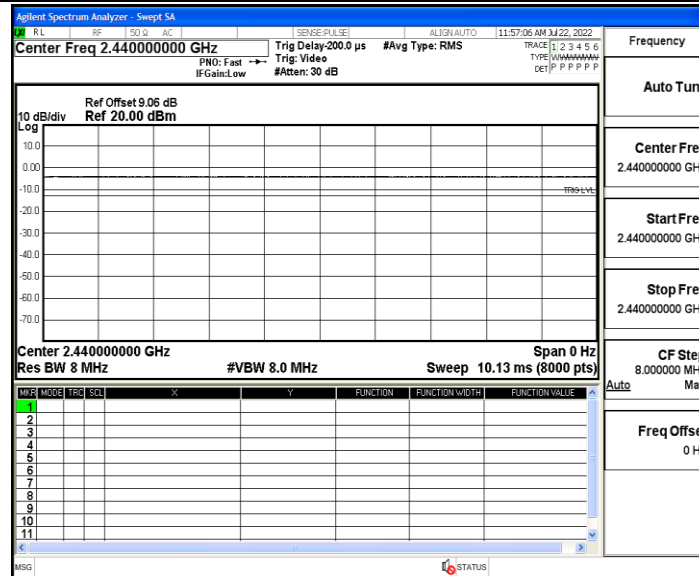
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	10.00	10.00	100.00	0.10
		2440	10.00	10.00	100.00	0.10
		2480	10.00	10.00	100.00	0.10
BLE_2M	Ant1	2402	10.00	10.00	100.00	0.10
		2440	10.00	10.00	100.00	0.10
		2480	10.00	10.00	100.00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

Test Graphs

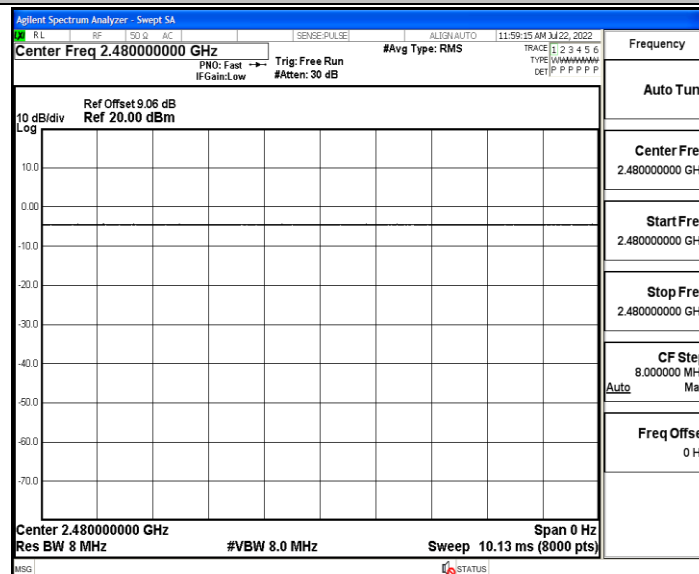
BLE_1M_Ant1_2402



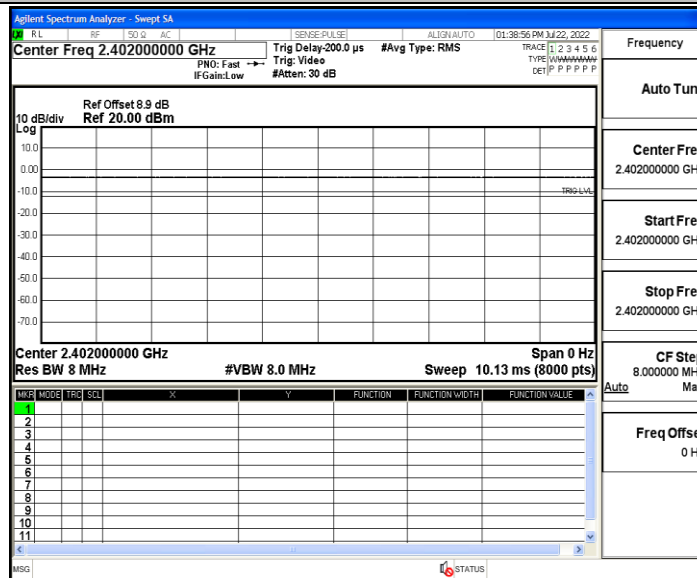
BLE_1M_Ant1_2440



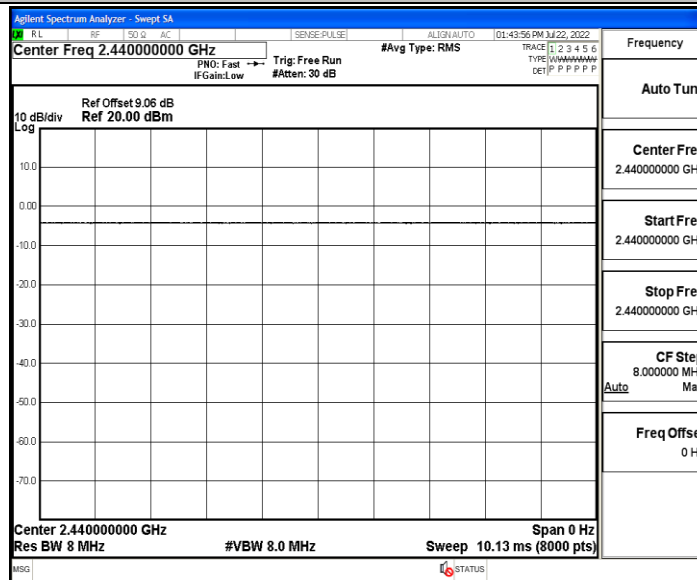
BLE_1M_Ant1_2480



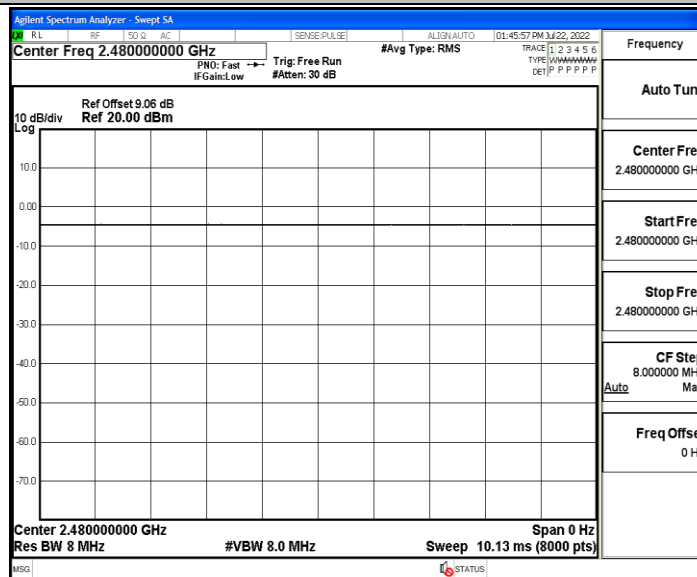
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

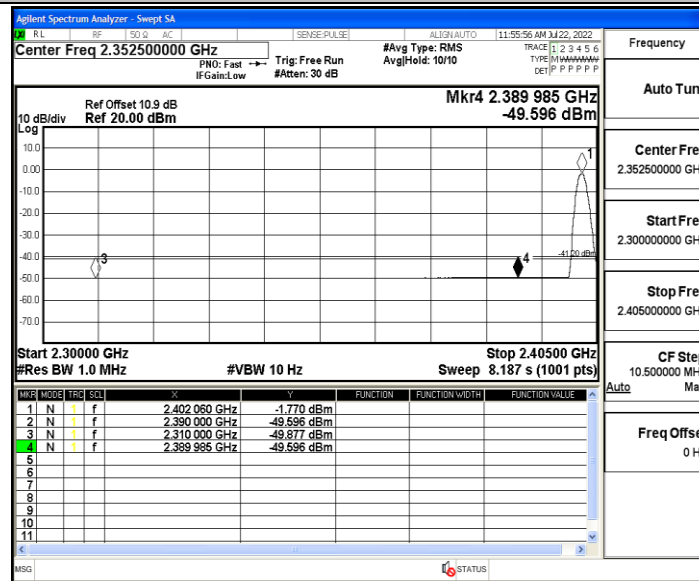
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.88	≤-41.20	PASS
				AV	2389.985	-49.6	≤-41.20	PASS
				AV	2390.000	-49.6	≤-41.20	PASS
				Peak	2310.000	-45.58	≤-21.20	PASS
				Peak	2333.810	-39.85	≤-21.20	PASS
				Peak	2390.000	-45.07	≤-21.20	PASS
		High	2480	AV	2483.500	-48.95	≤-41.20	PASS
				AV	2499.920	-48.9	≤-41.20	PASS
				AV	2500.000	-48.89	≤-41.20	PASS
				Peak	2483.500	-42.94	≤-21.20	PASS
				Peak	2486.320	-39.22	≤-21.20	PASS
				Peak	2500.000	-42.84	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-49.91	≤-41.20	PASS
				AV	2389.670	-49.61	≤-41.20	PASS
				AV	2390.000	-49.64	≤-41.20	PASS
				Peak	2310.000	-41.61	≤-21.20	PASS
				Peak	2330.660	-40.03	≤-21.20	PASS
				Peak	2390.000	-44.05	≤-21.20	PASS
		High	2480	AV	2483.500	-47.74	≤-41.20	PASS
				AV	2483.520	-47.74	≤-41.20	PASS
				AV	2500.000	-48.9	≤-41.20	PASS
				Peak	2483.500	-40.91	≤-21.20	PASS
				Peak	2492.320	-39.47	≤-21.20	PASS
				Peak	2500.000	-40.91	≤-21.20	PASS

Note:

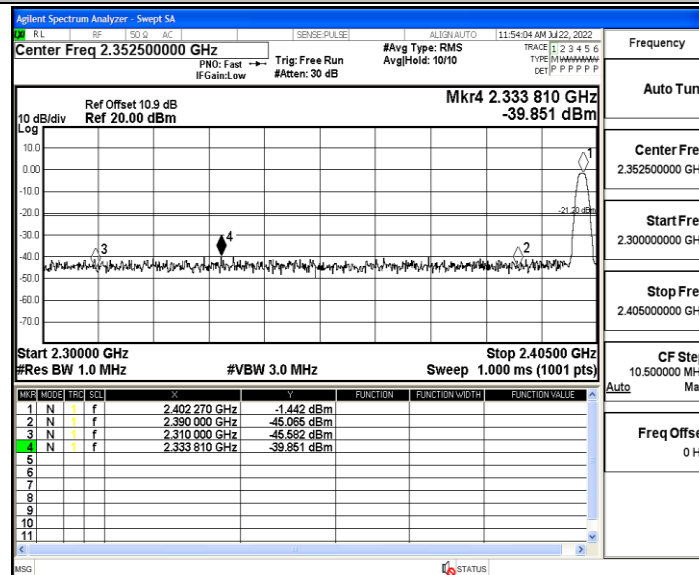
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

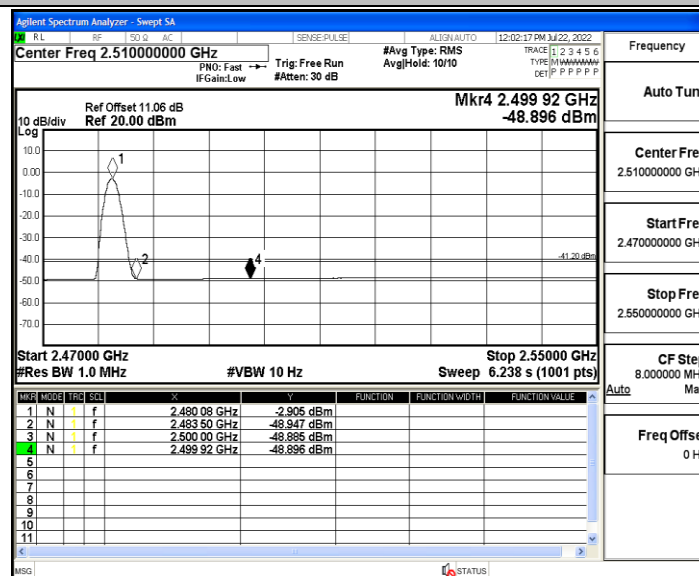
BLE_1M_Ant1_Low_2402_AV



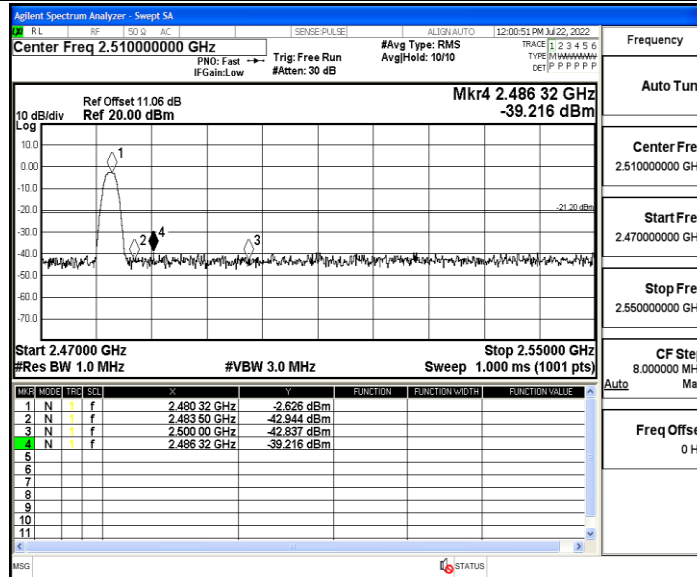
BLE_1M_Ant1_Low_2402_Peak



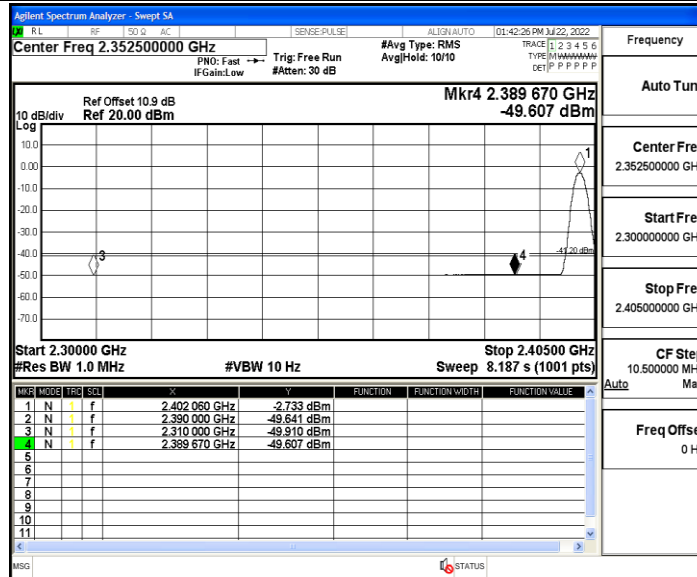
BLE_1M_Ant1_High_2480_AV



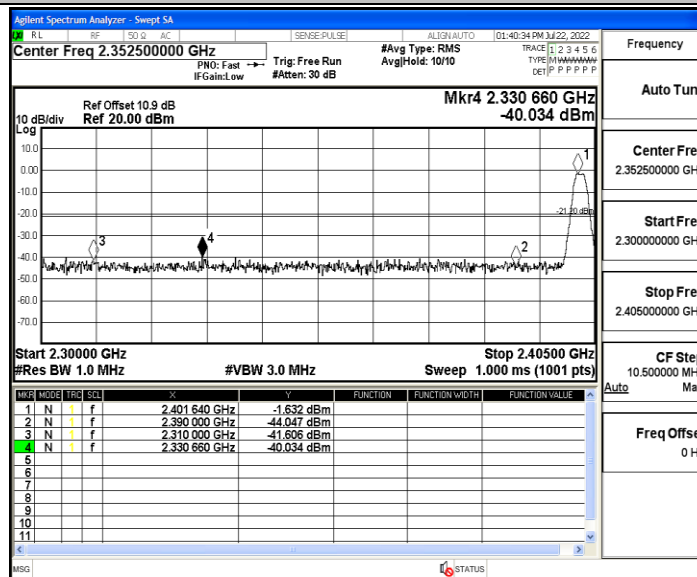
BLE_1M_Ant1_High_2480_Peak



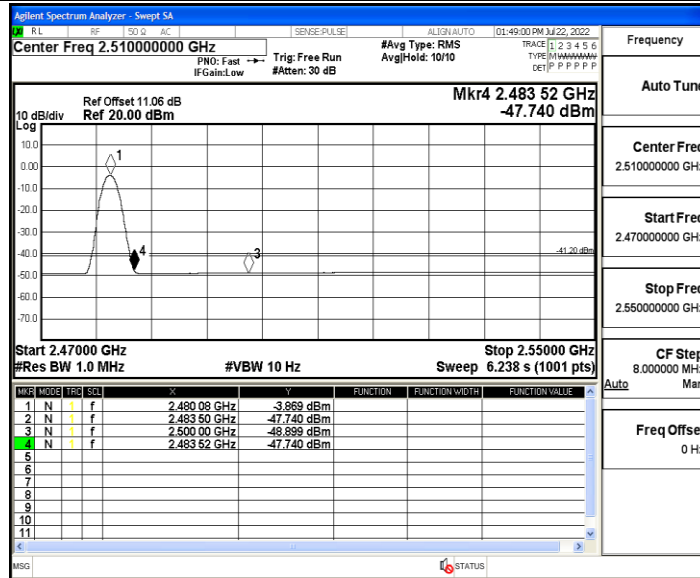
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

