

RF Test Data for LTE (Conducted Measurement)

Product Name: FriggaT7
Trade Mark: Frigga
Test Model: FriggaT7
Sample ID: TZ230804732-1#
FCC ID: 2ATWZ-T7X

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

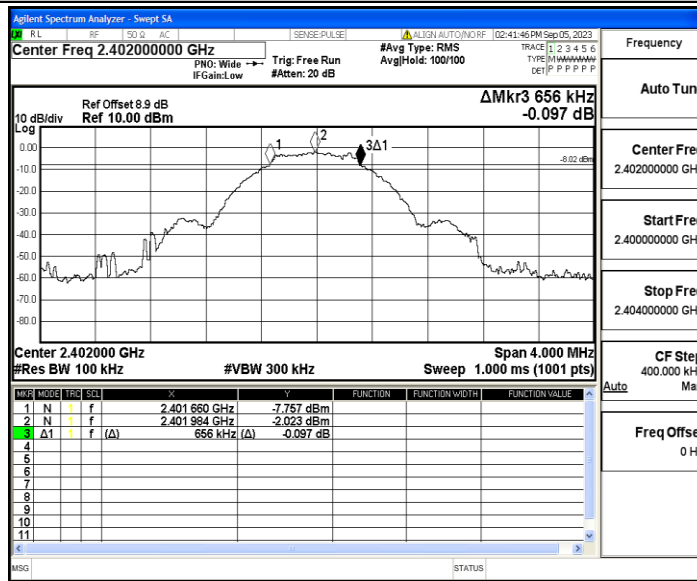
Appendix A: DTS Bandwidth

Test Result

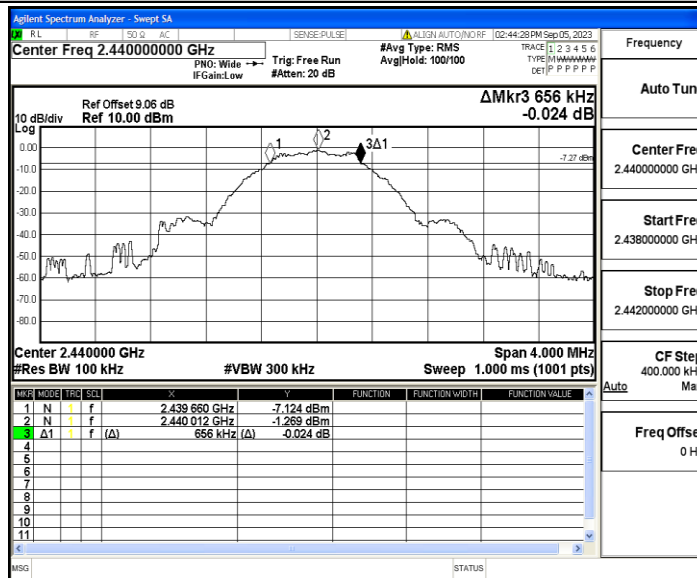
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.656	2401.660	2402.316	0.5	PASS
		2440	0.656	2439.660	2440.316	0.5	PASS
		2480	0.660	2479.664	2480.324	0.5	PASS
BLE_2M	Ant1	2402	1.080	2401.456	2402.536	0.5	PASS
		2440	1.020	2439.520	2440.540	0.5	PASS
		2480	1.120	2479.436	2480.556	0.5	PASS

Test Graphs

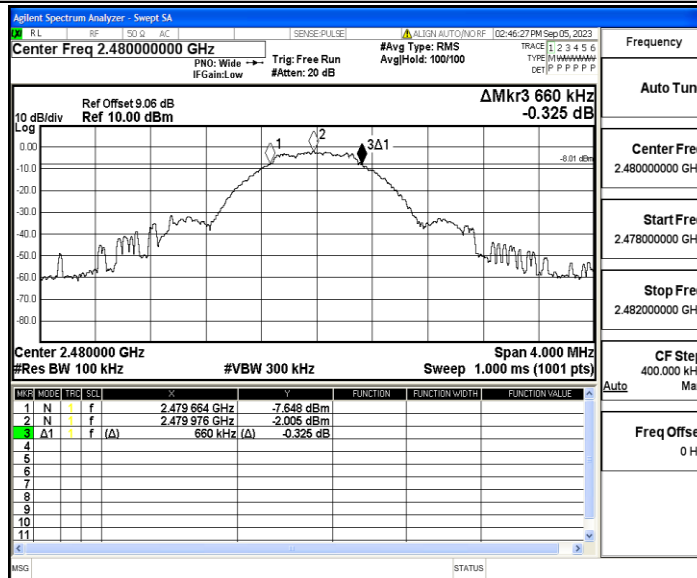
BLE_1M_Ant1_2402



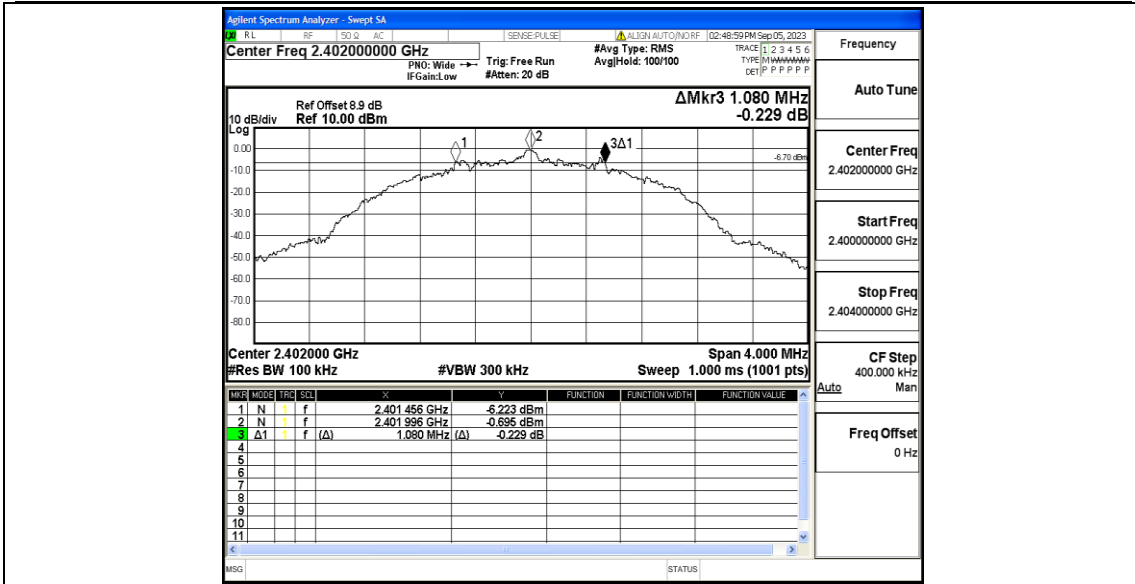
BLE_1M_Ant1_2440



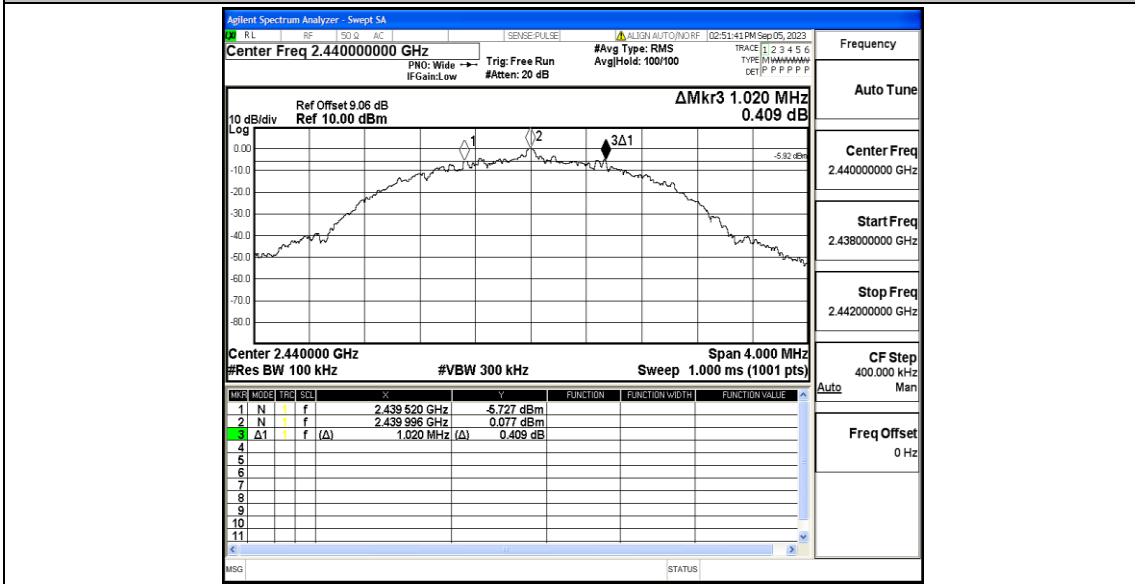
BLE_1M_Ant1_2480



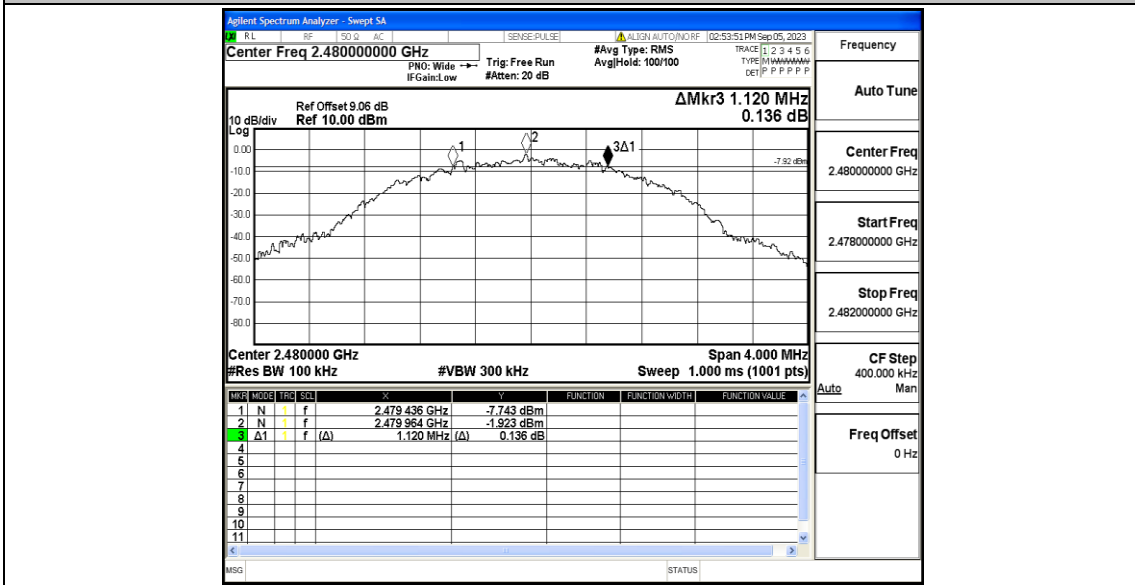
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

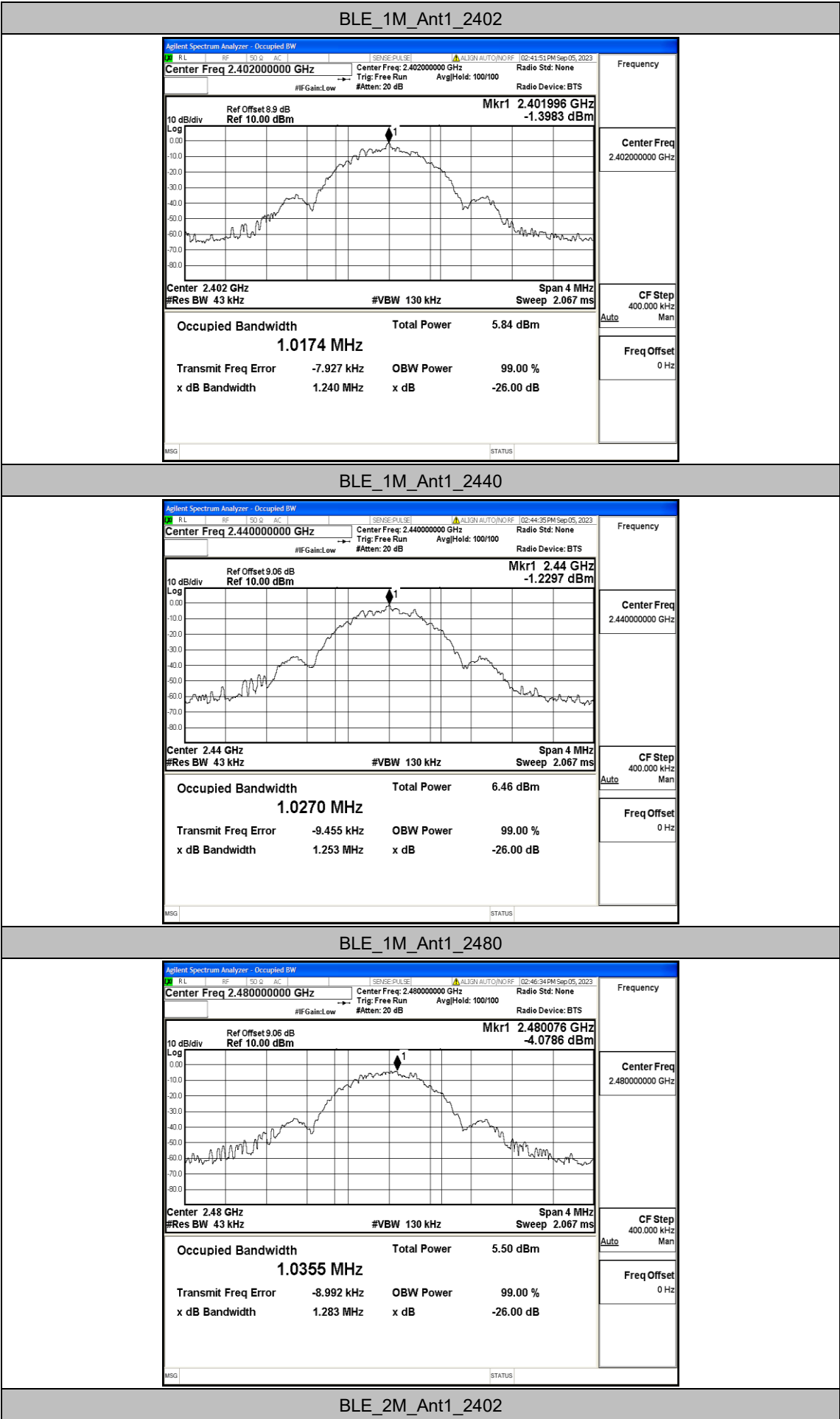


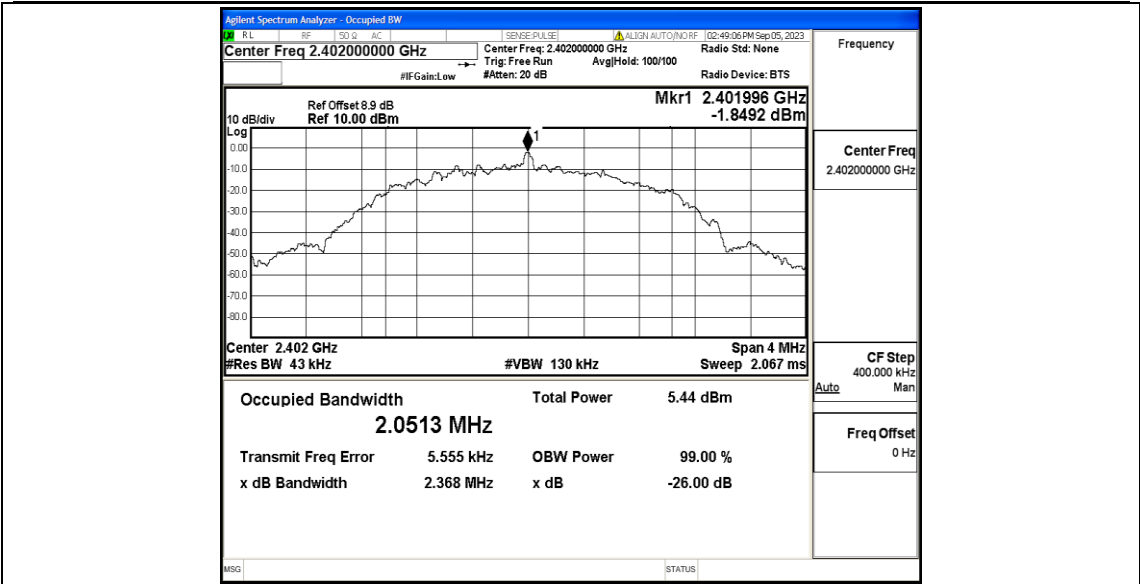
Appendix B: Occupied Channel Bandwidth

Test Result

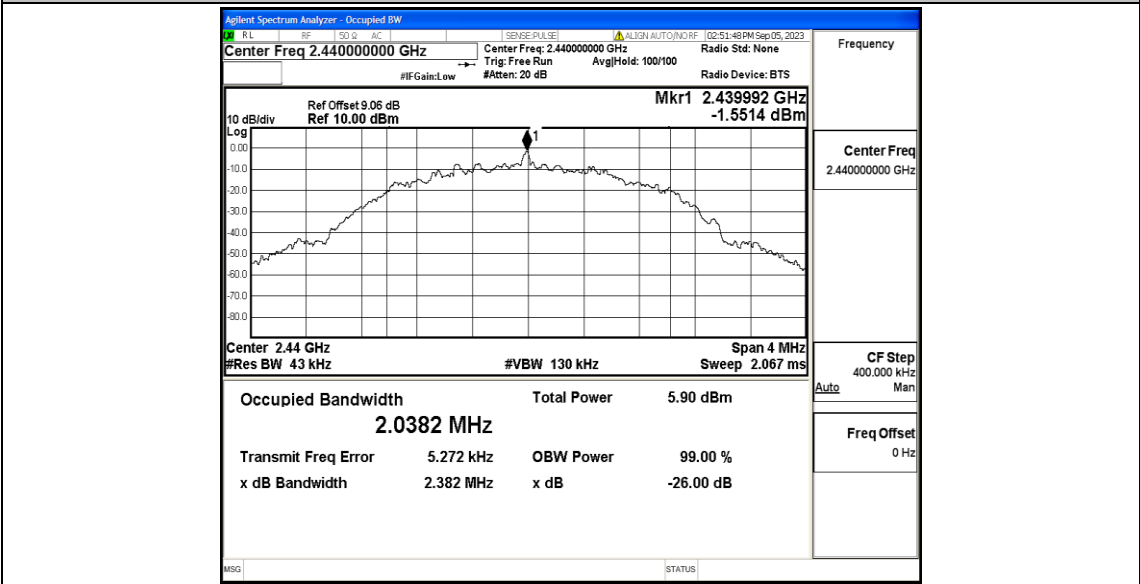
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0174	2401.4834	2402.5008	---	---
		2440	1.0270	2439.4771	2440.5041	---	---
		2480	1.0355	2479.4733	2480.5088	---	---
BLE_2M	Ant1	2402	2.0513	2400.9799	2403.0312	---	---
		2440	2.0382	2438.9862	2441.0244	---	---
		2480	2.0785	2478.9615	2481.0400	---	---

Test Graphs

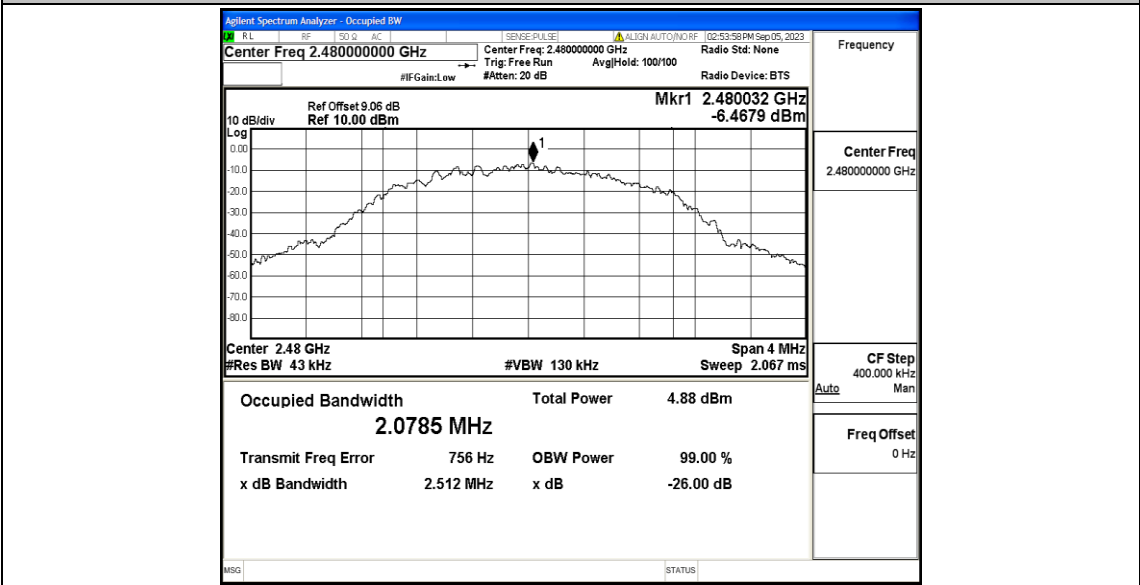




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

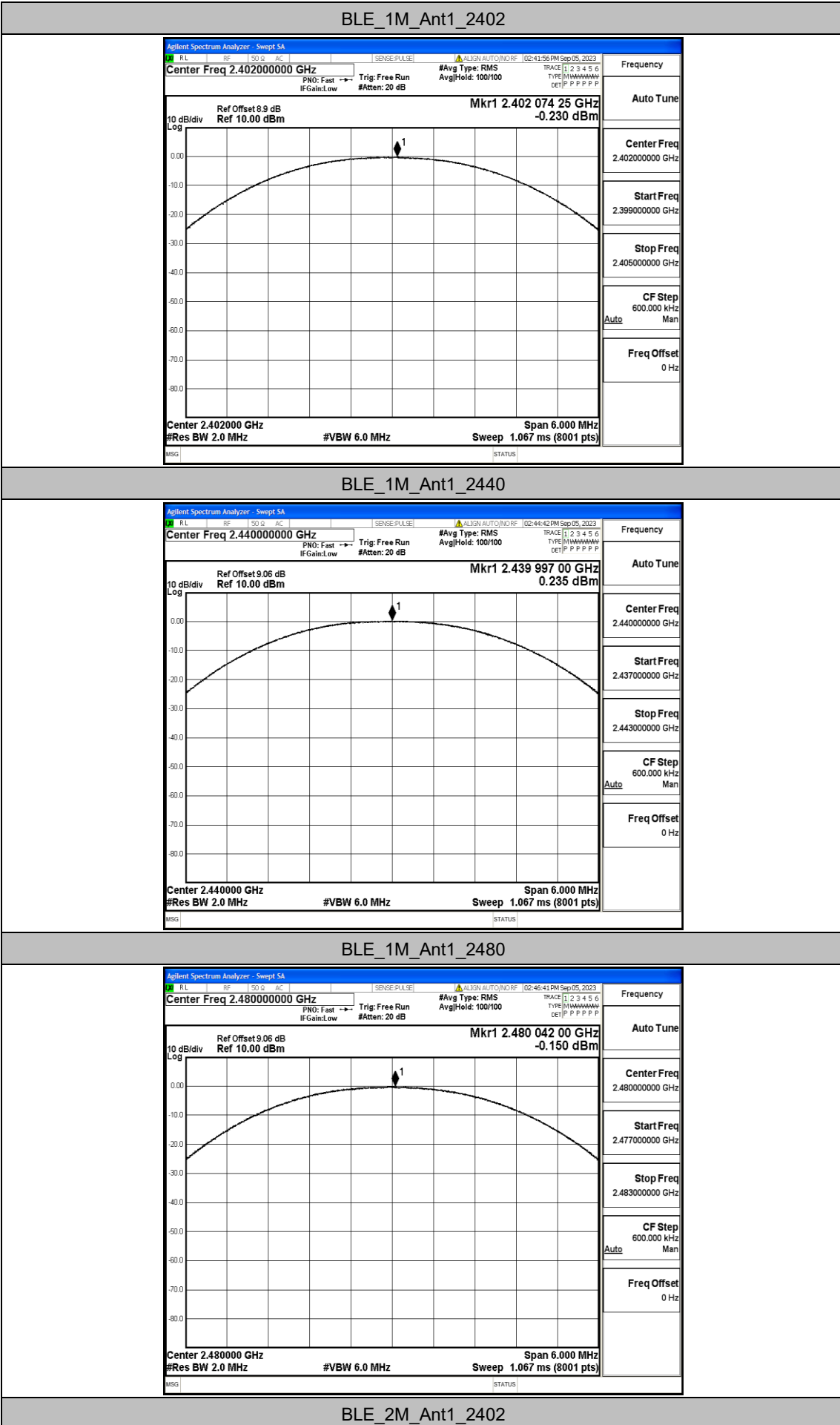


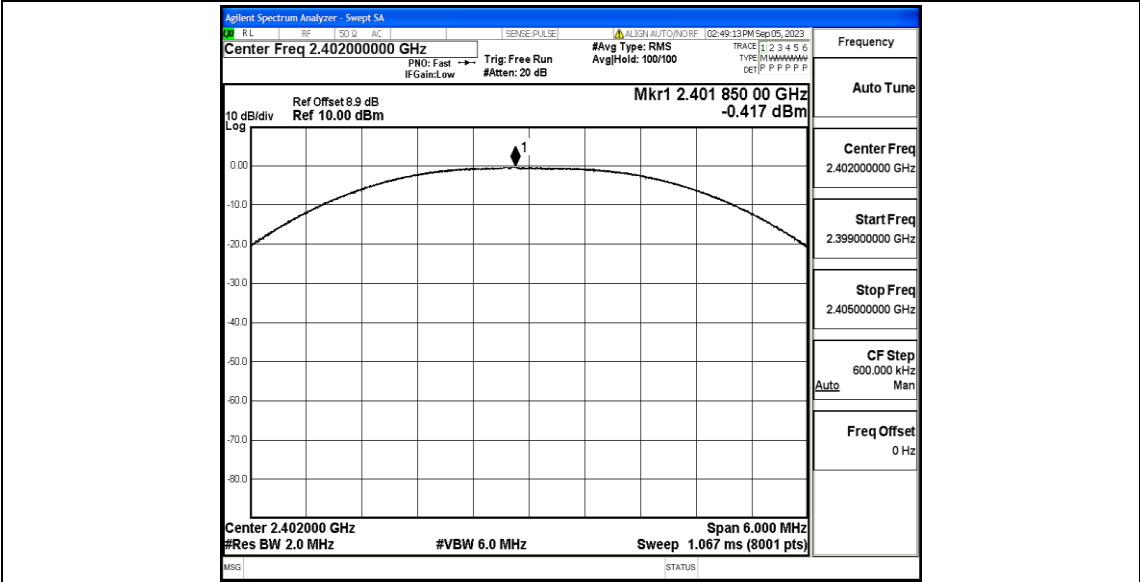
Appendix C: Maximum Peak conducted output power

Test Result

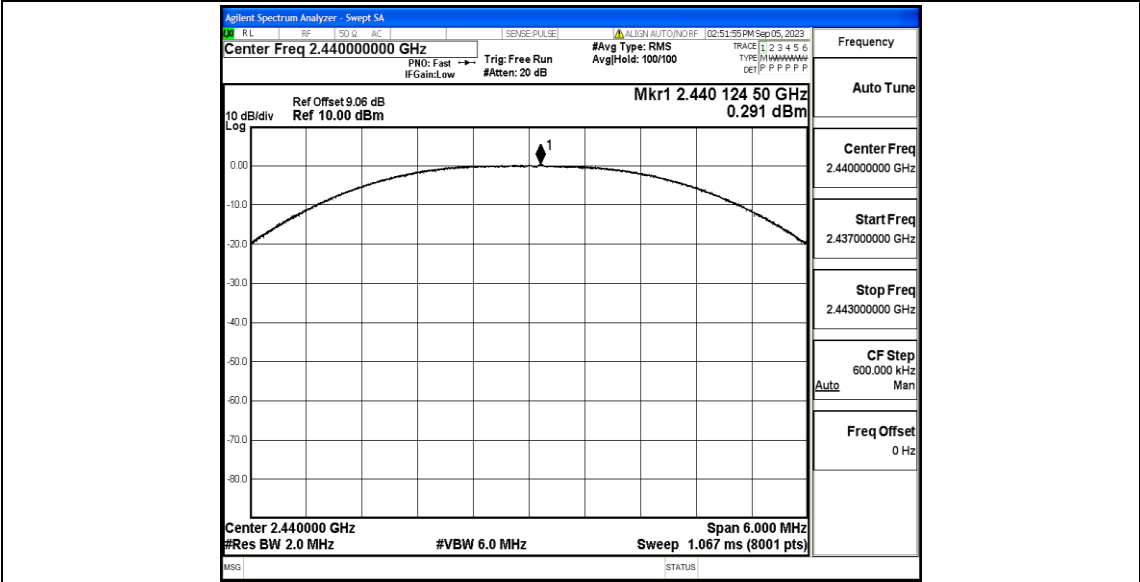
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.23	≤30	PASS
		2440	0.24	≤30	PASS
		2480	-0.15	≤30	PASS
BLE_2M	Ant1	2402	-0.42	≤30	PASS
		2440	0.29	≤30	PASS
		2480	-0.3	≤30	PASS

Test Graphs

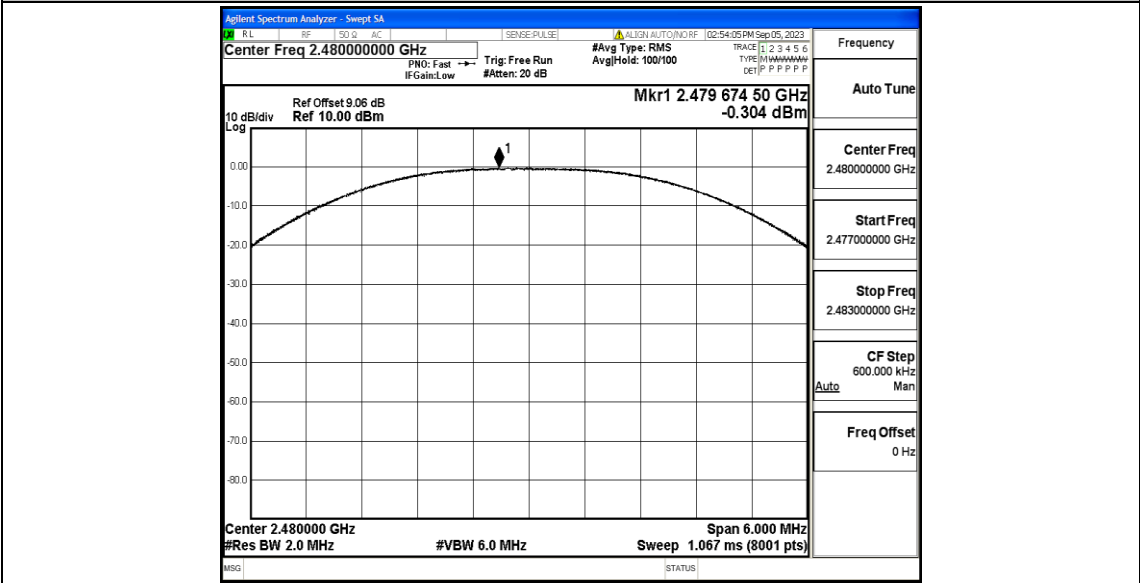




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

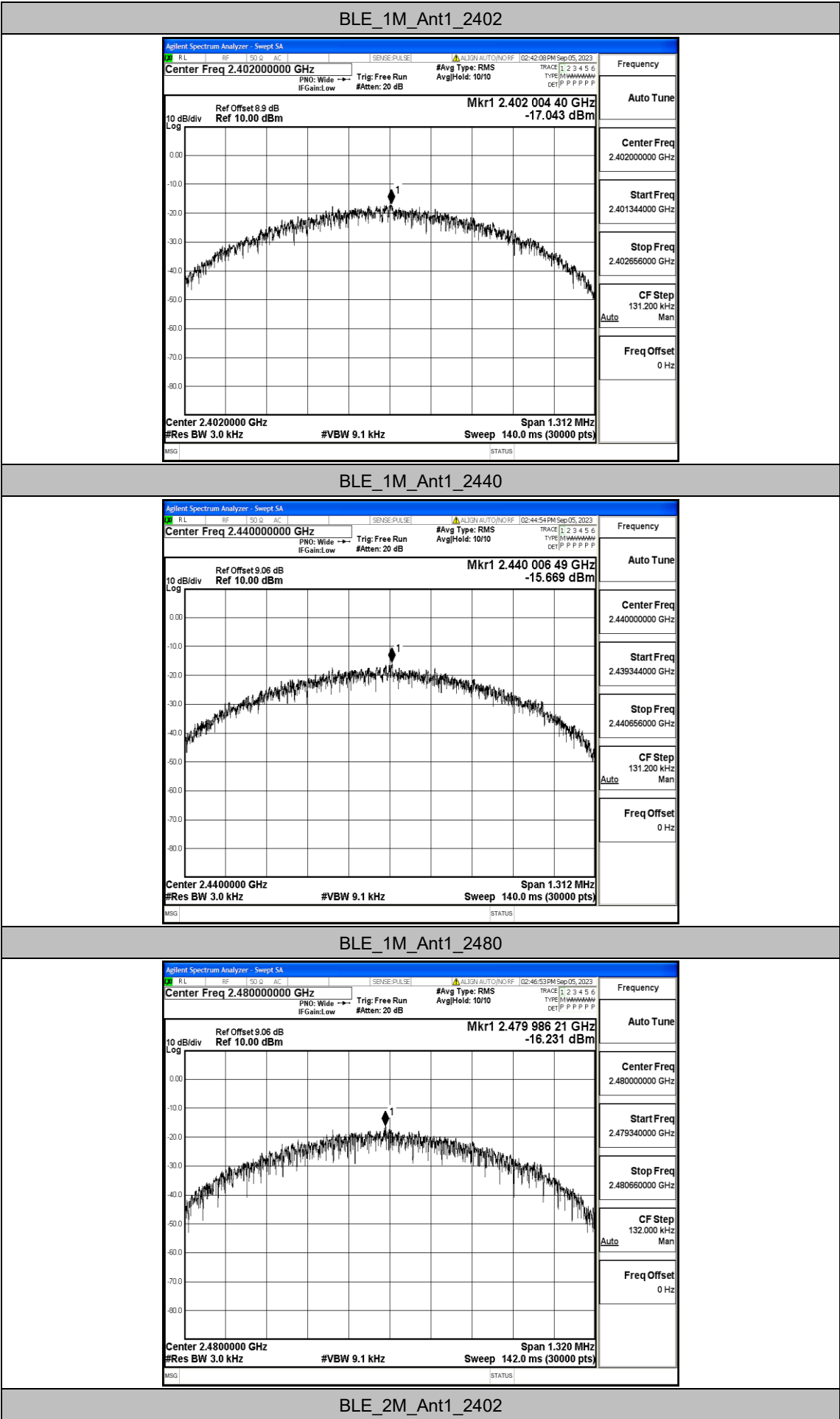


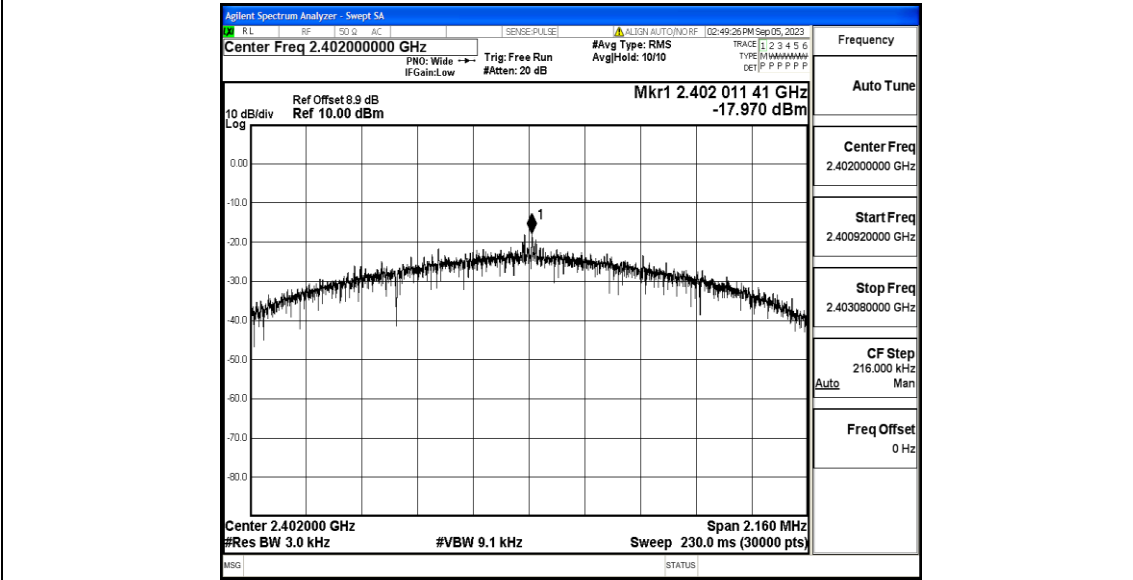
Appendix D: Maximum power spectral density

Test Result

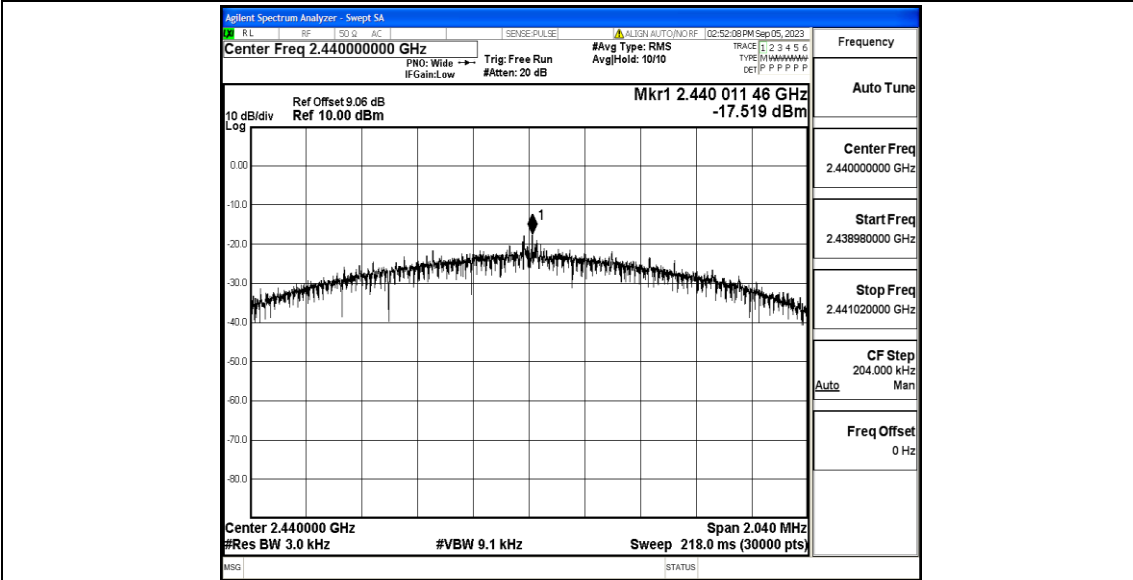
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.04	≤8.00	PASS
		2440	-15.67	≤8.00	PASS
		2480	-16.23	≤8.00	PASS
BLE_2M	Ant1	2402	-17.97	≤8.00	PASS
		2440	-17.52	≤8.00	PASS
		2480	-17.68	≤8.00	PASS

Test Graphs

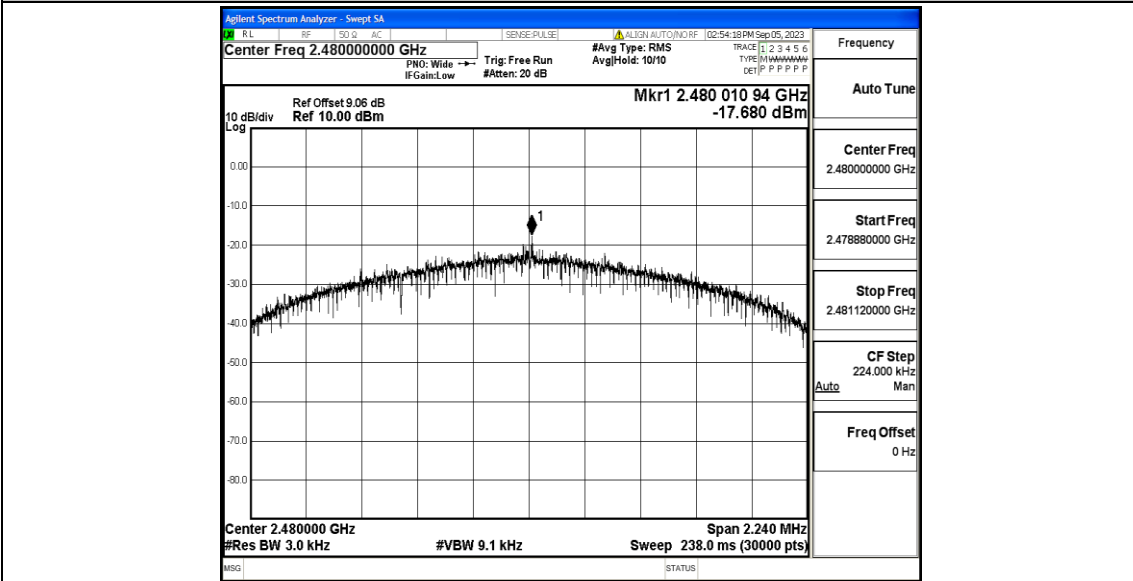




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



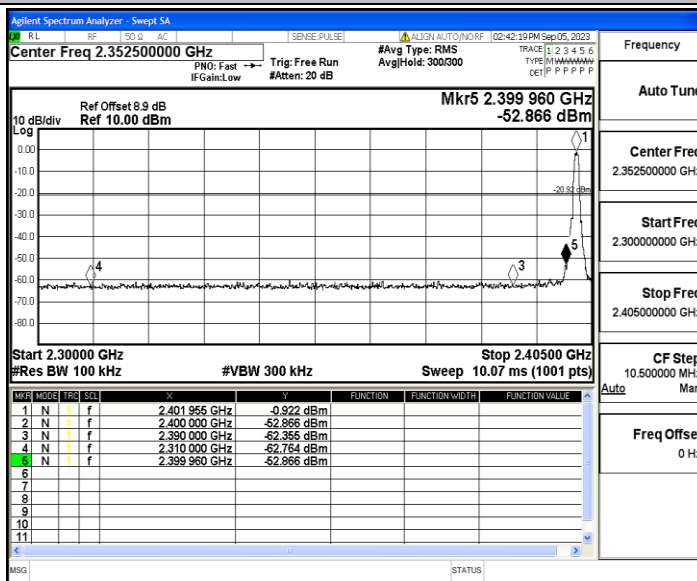
Appendix E: Band edge measurements

Test Result

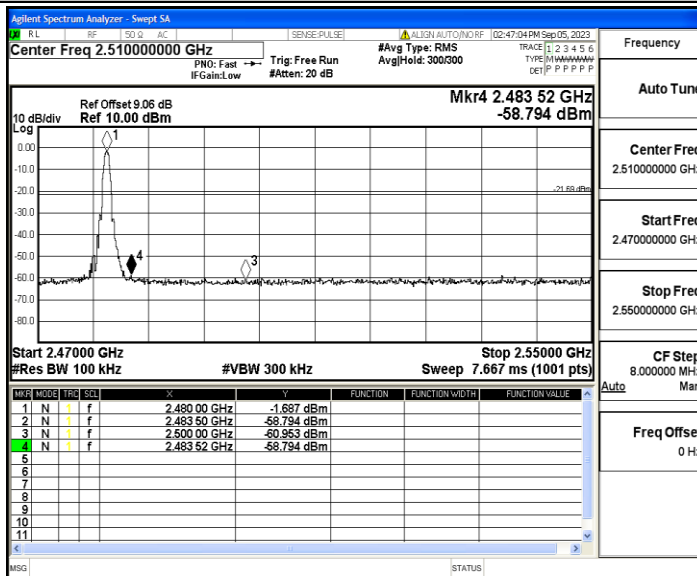
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.92	-52.87	≤-20.92	PASS
		High	2480	-1.69	-58.79	≤-21.69	PASS
BLE_2M	Ant1	Low	2402	-1.06	-48.56	≤-21.06	PASS
		High	2480	-0.82	-58.06	≤-20.82	PASS

Test Graphs

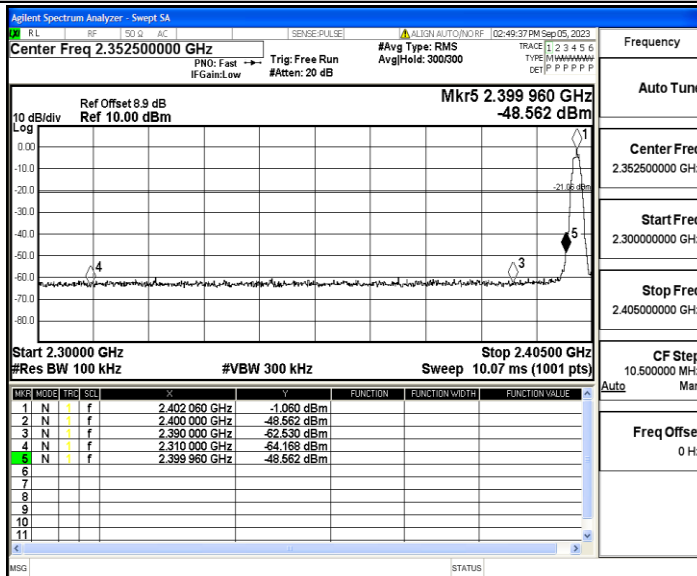
BLE_1M_Ant1_Low_2402



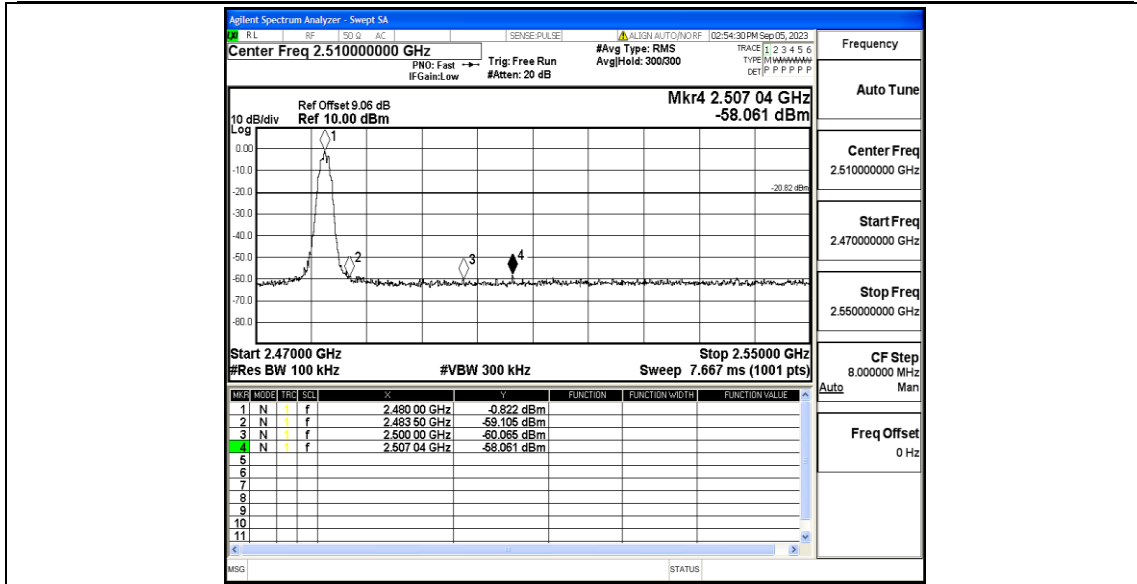
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



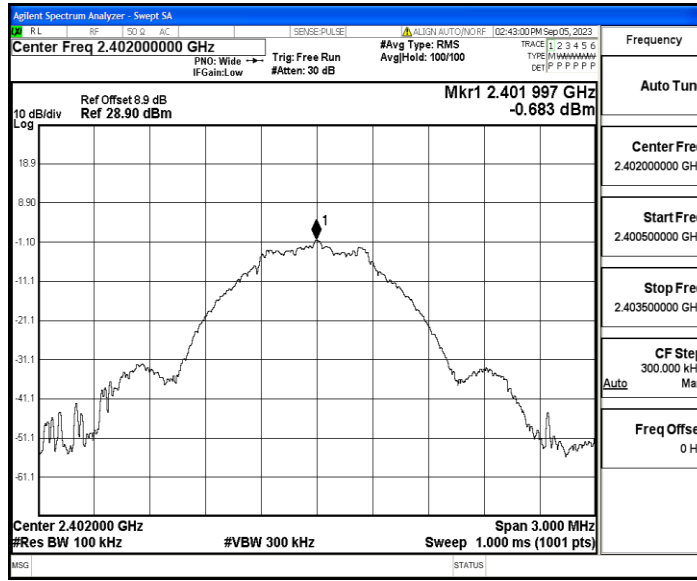
Appendix F: Conducted Spurious Emission

Test Result

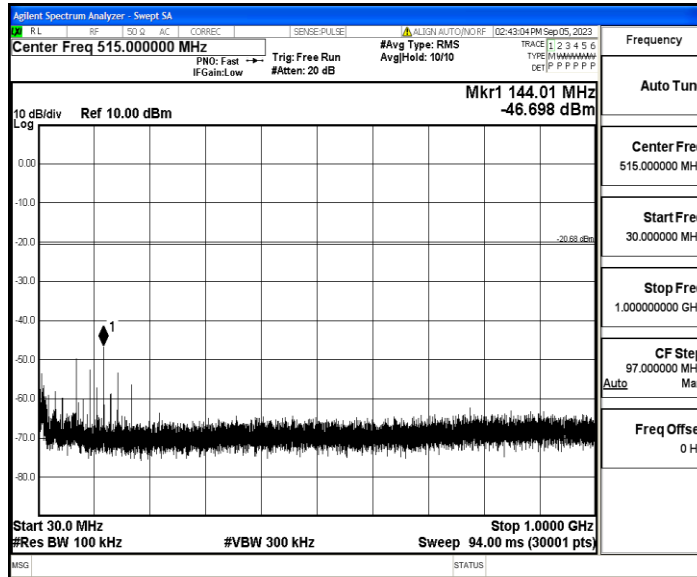
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.68	-0.68	---	PASS
			30~1000	-0.68	-46.7	≤-20.68	PASS
			1000~26500	-0.68	-49.48	≤-20.68	PASS
		2440	Reference	-1.30	-1.30	---	PASS
			30~1000	-1.30	-45.94	≤-21.3	PASS
			1000~26500	-1.30	-49.95	≤-21.3	PASS
		2480	Reference	-1.65	-1.65	---	PASS
			30~1000	-1.65	-46.55	≤-21.65	PASS
			1000~26500	-1.65	-48.88	≤-21.65	PASS
BLE_2M	Ant1	2402	Reference	-2.44	-2.44	---	PASS
			30~1000	-2.44	-45.67	≤-22.44	PASS
			1000~26500	-2.44	-50.12	≤-22.44	PASS
		2440	Reference	-0.69	-0.69	---	PASS
			30~1000	-0.69	-49.23	≤-20.69	PASS
			1000~26500	-0.69	-50.41	≤-20.69	PASS
		2480	Reference	-1.39	-1.39	---	PASS
			30~1000	-1.39	-45.72	≤-21.39	PASS
			1000~26500	-1.39	-50.03	≤-21.39	PASS

Test Graphs

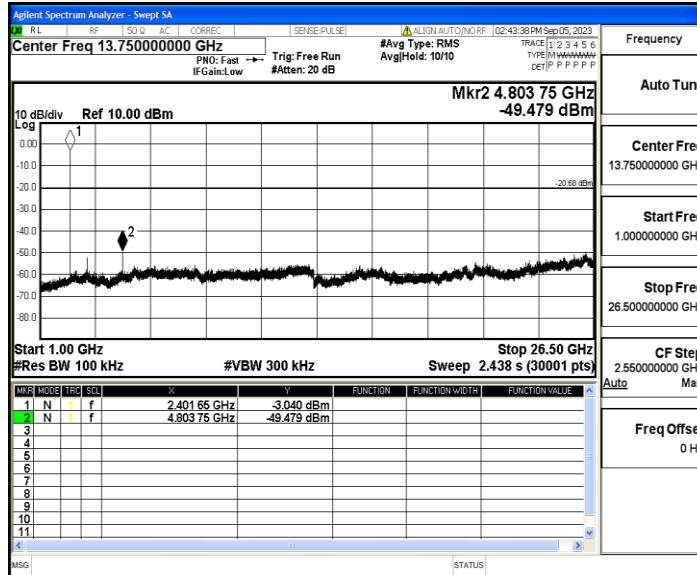
BLE_1M_Ant1_2402_0~Reference



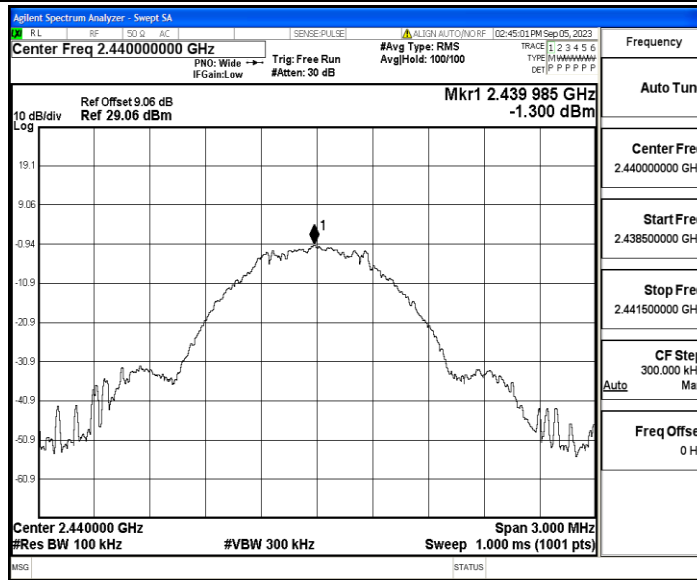
BLE_1M_Ant1_2402_30~1000



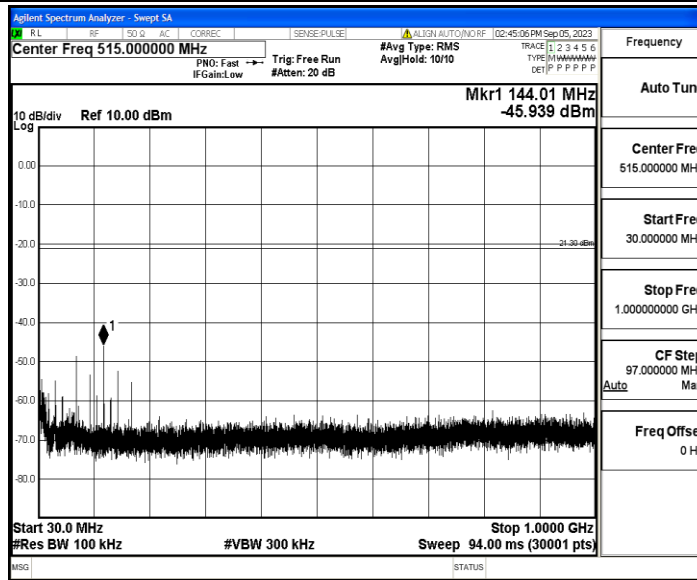
BLE_1M_Ant1_2402_1000~26500



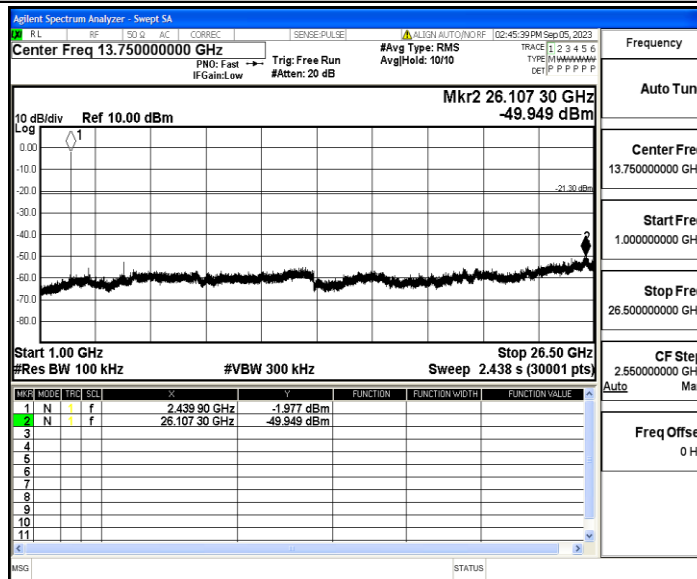
BLE_1M_Ant1_2440_0~Reference



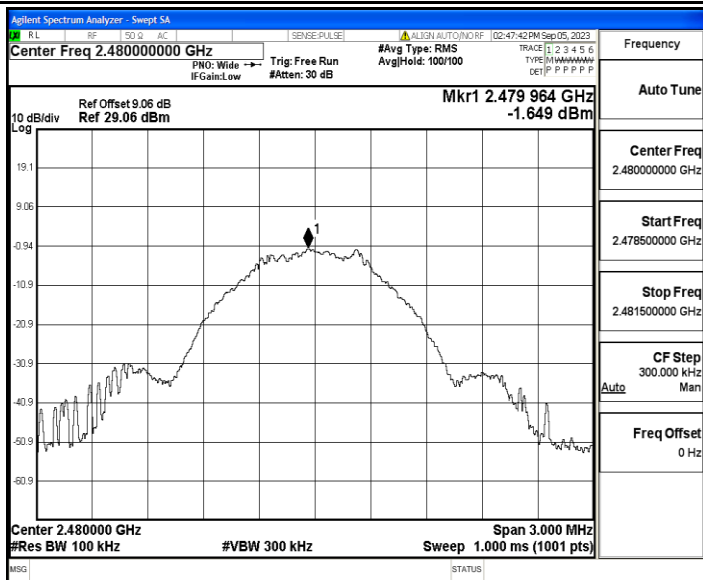
BLE_1M_Ant1_2440_30~1000



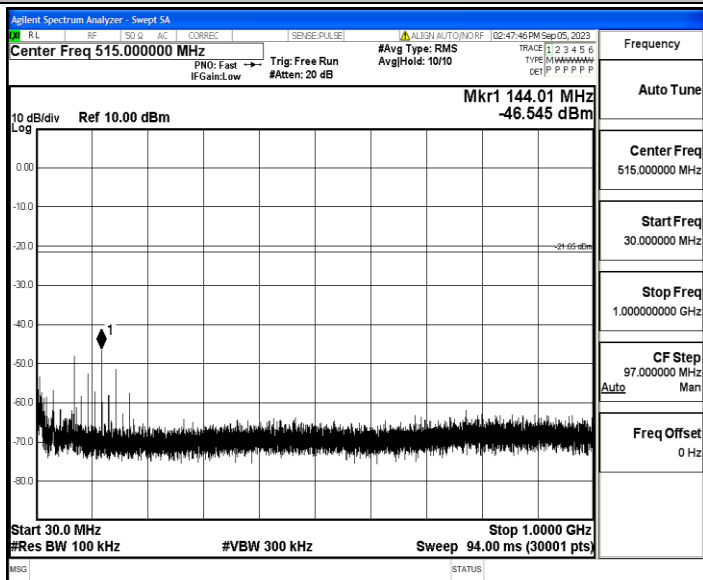
BLE_1M_Ant1_2440_1000~26500



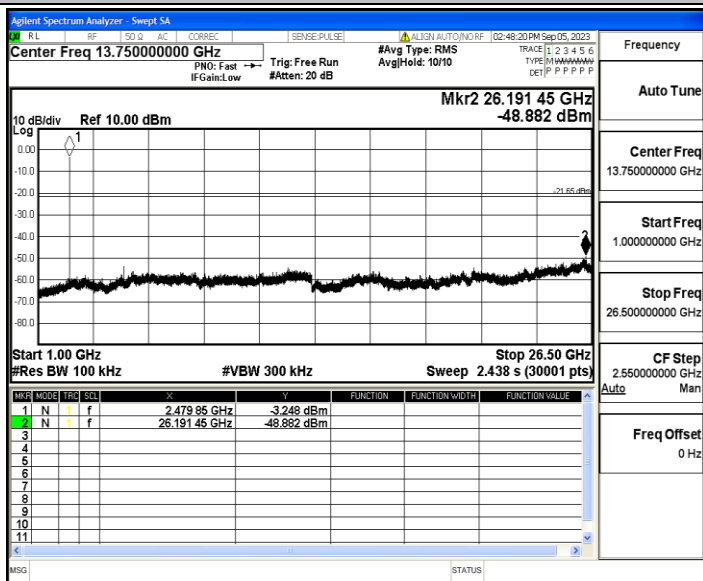
BLE_1M_Ant1_2480_0~Reference



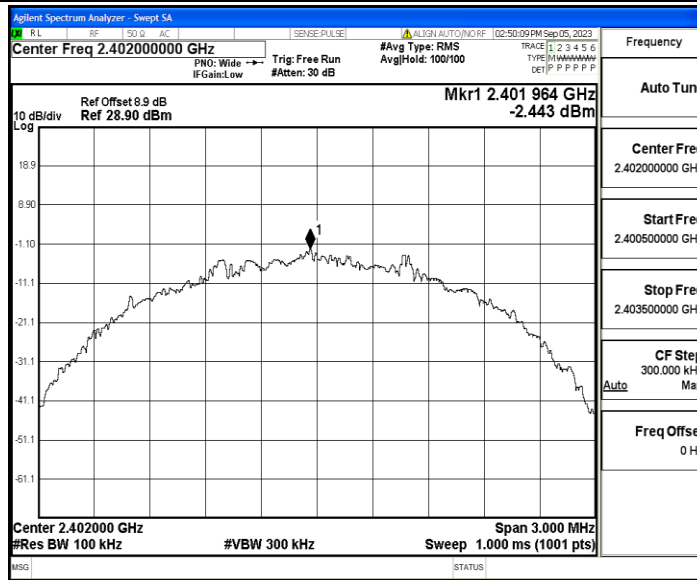
BLE_1M_Ant1_2480_30~1000



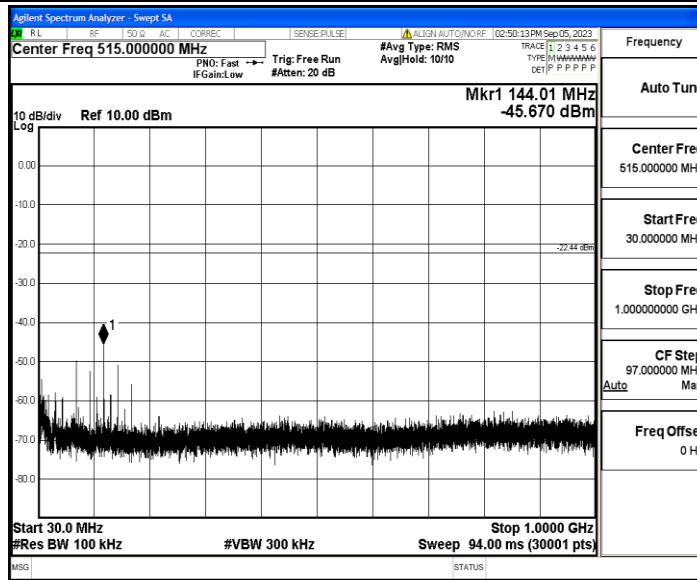
BLE_1M_Ant1_2480_1000~26500



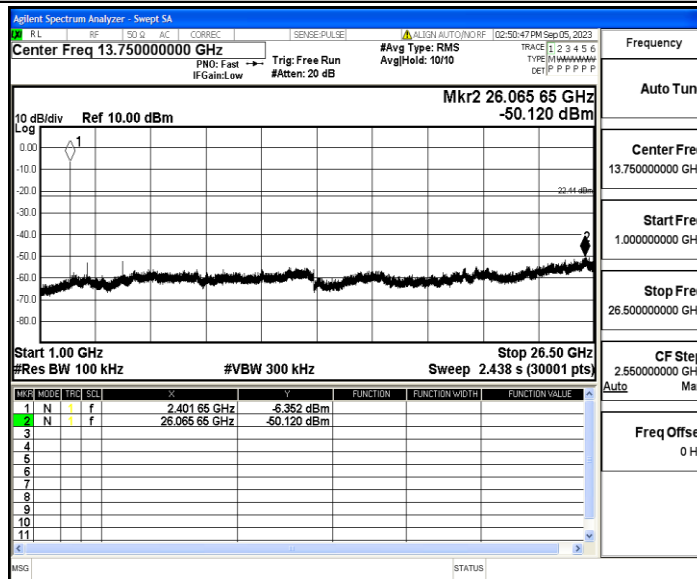
BLE_2M_Ant1_2402_0~Reference



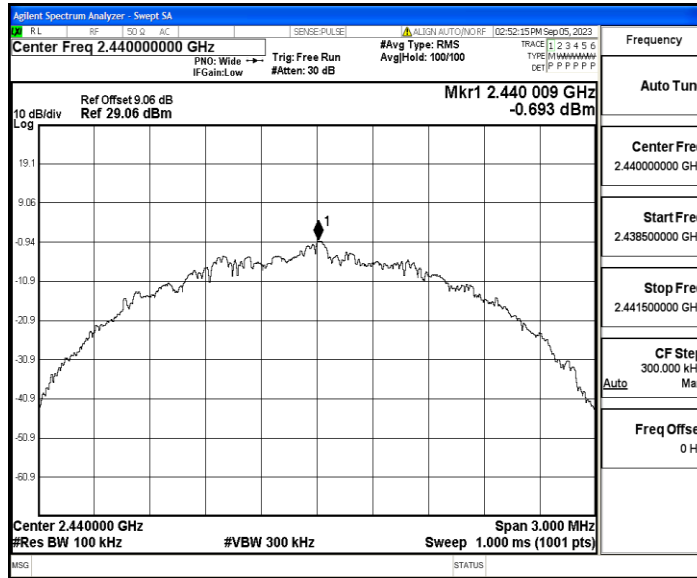
BLE_2M_Ant1_2402_30~1000



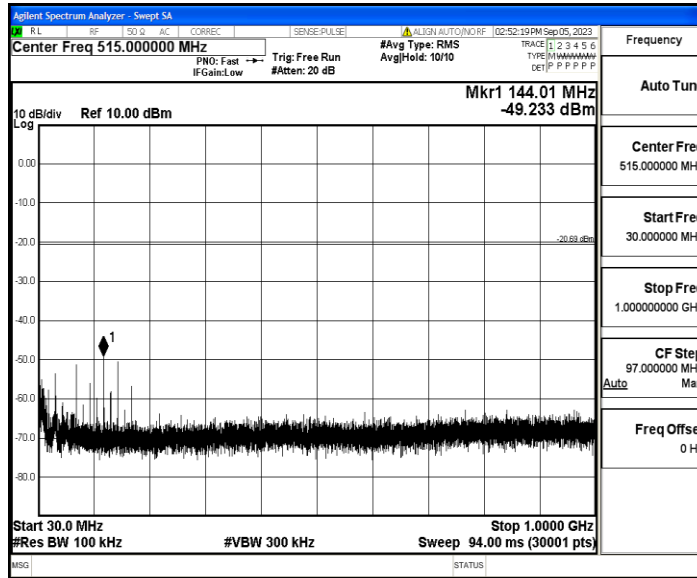
BLE_2M_Ant1_2402_1000~26500



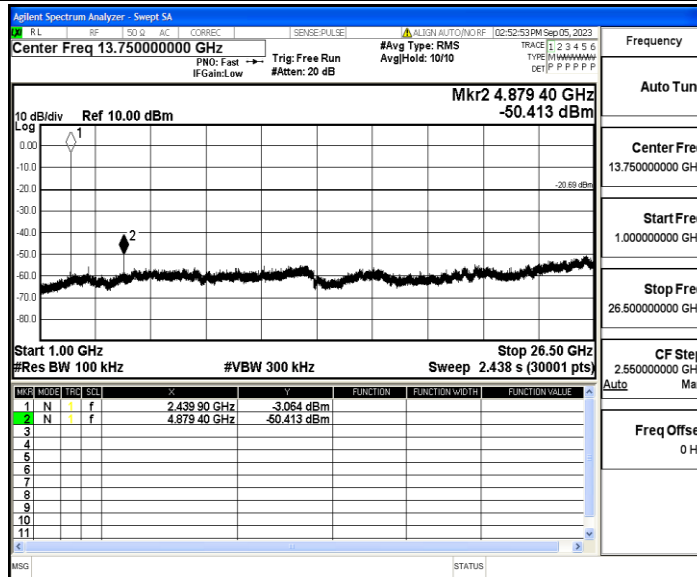
BLE_2M_Ant1_2440_0~Reference



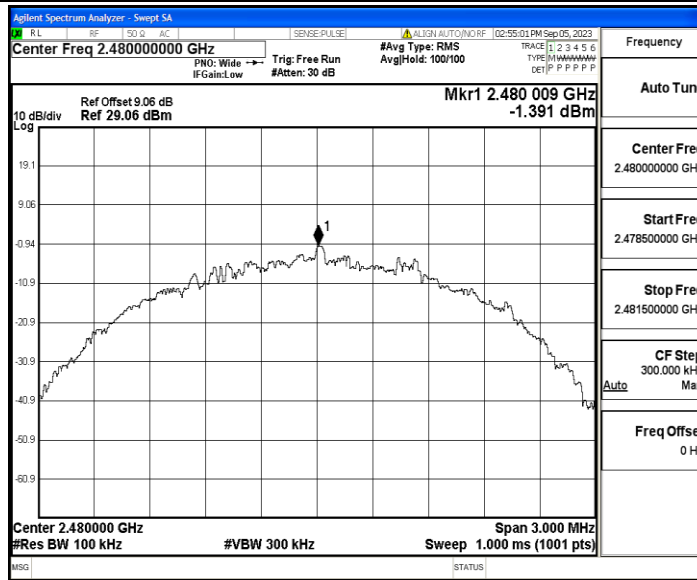
BLE_2M_Ant1_2440_30~1000



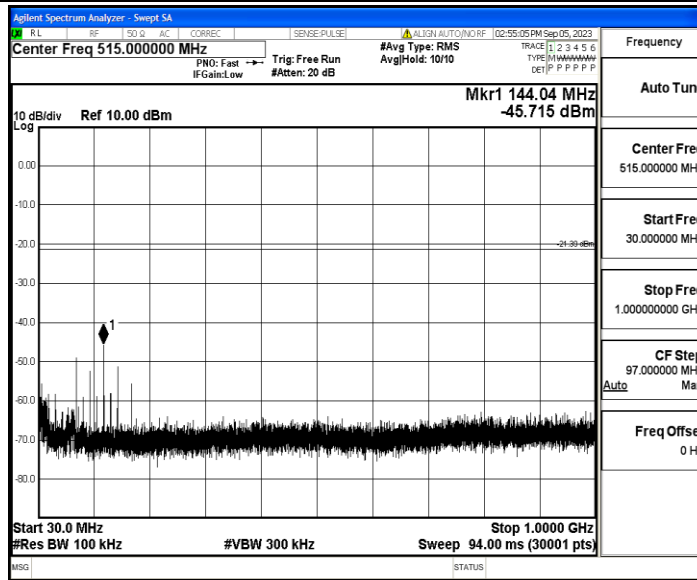
BLE_2M_Ant1_2440_1000~26500



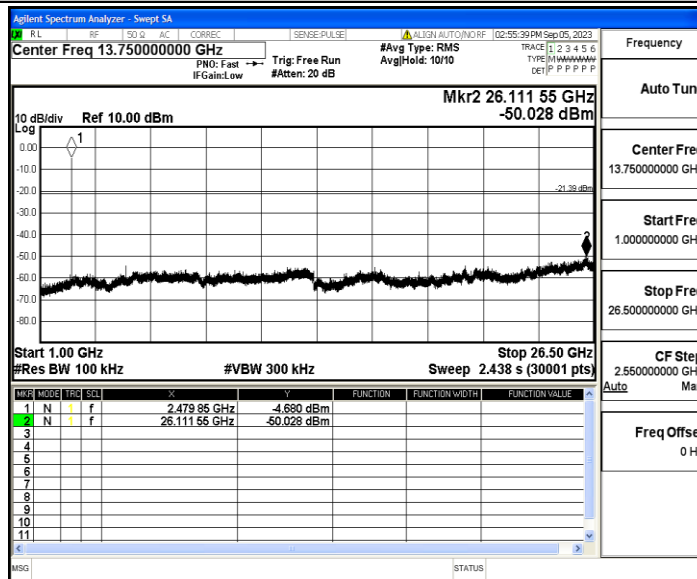
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500

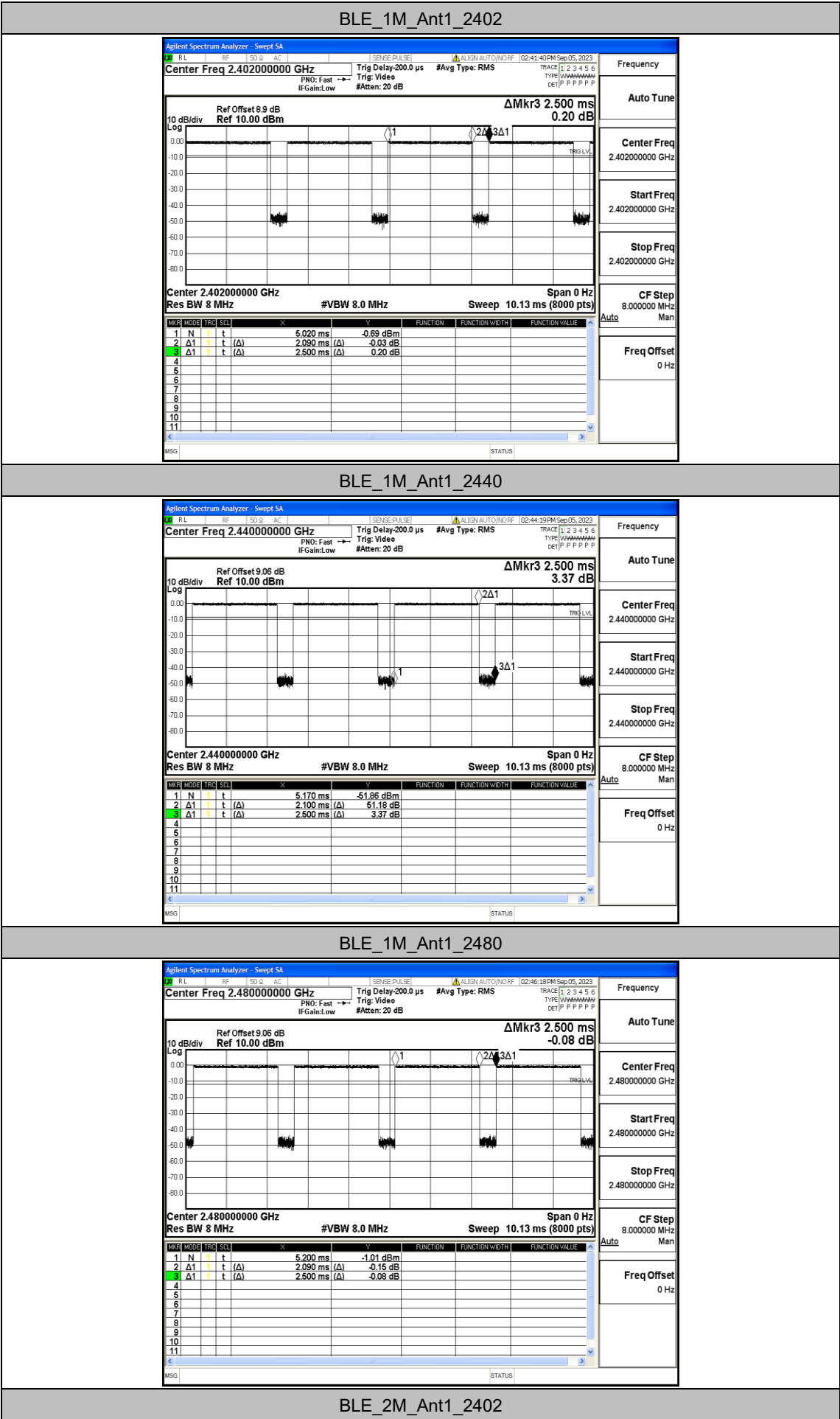


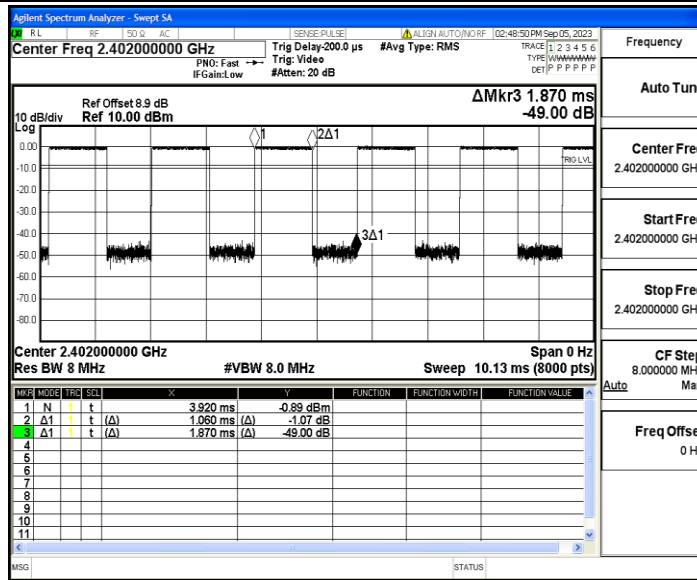
Appendix G: Duty Cycle

Test Result

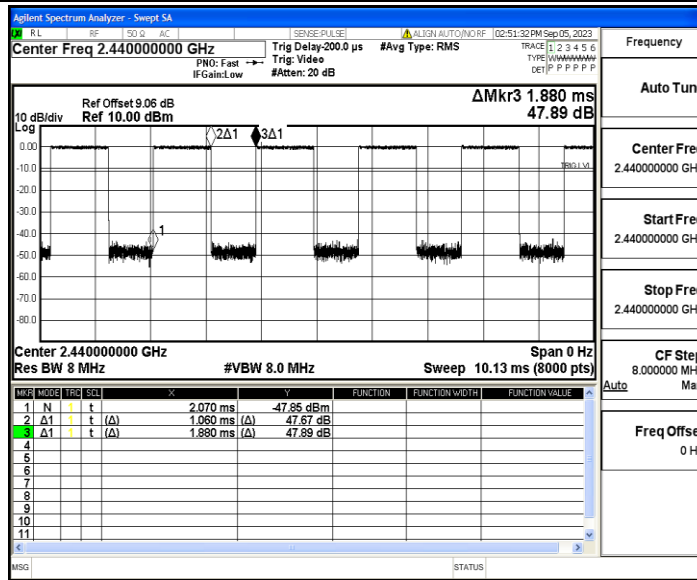
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	2.09	2.50	83.60	0.48
		2440	2.10	2.50	84.00	0.48
		2480	2.09	2.50	83.60	0.48
BLE_2M	Ant1	2402	1.06	1.87	56.68	0.94
		2440	1.06	1.88	56.38	0.94
		2480	1.06	1.88	56.38	0.94

Test Graphs

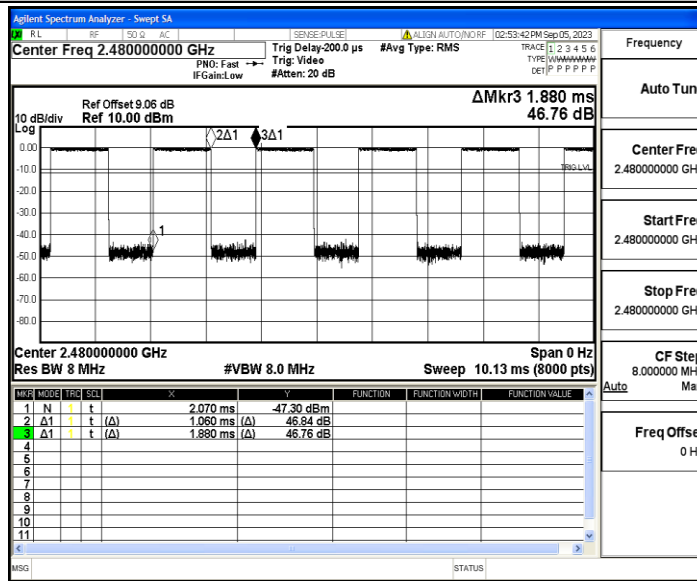




BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

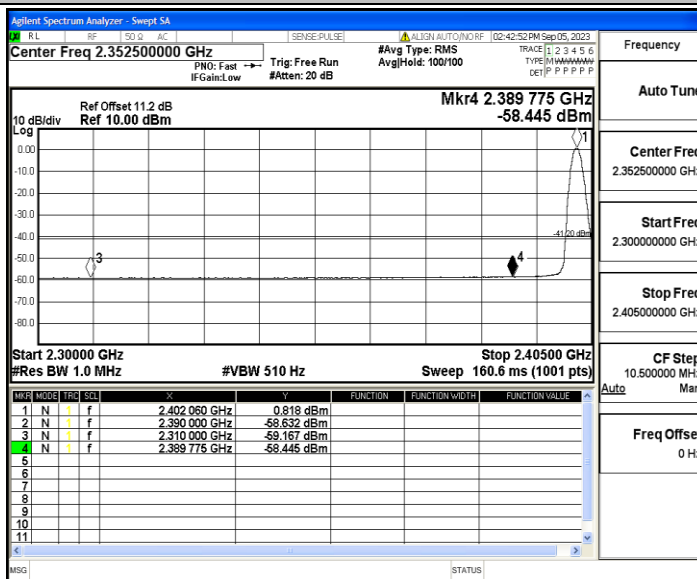
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-59.17	≤-41.20	PASS
				AV	2389.775	-58.44	≤-41.20	PASS
				AV	2390.000	-58.63	≤-41.20	PASS
				Peak	2310.000	-51.49	≤-21.20	PASS
				Peak	2370.665	-48.73	≤-21.20	PASS
				Peak	2390.000	-52.09	≤-21.20	PASS
		High	2480	AV	2483.500	-54.5	≤-41.20	PASS
				AV	2483.520	-54.49	≤-41.20	PASS
				AV	2500.000	-58.02	≤-41.20	PASS
				Peak	2483.500	-50	≤-21.20	PASS
				Peak	2486.640	-48.24	≤-21.20	PASS
				Peak	2500.000	-50.93	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-58.96	≤-41.20	PASS
				AV	2388.830	-58.04	≤-41.20	PASS
				AV	2390.000	-58.36	≤-41.20	PASS
				Peak	2310.000	-50.99	≤-21.20	PASS
				Peak	2378.435	-48.06	≤-21.20	PASS
				Peak	2390.000	-52.35	≤-21.20	PASS
		High	2480	AV	2483.500	-51.48	≤-41.20	PASS
				AV	2483.520	-51.48	≤-41.20	PASS
				AV	2500.000	-57.52	≤-41.20	PASS
				Peak	2483.500	-47.84	≤-21.20	PASS
				Peak	2484.320	-45.6	≤-21.20	PASS
				Peak	2500.000	-52.78	≤-21.20	PASS

Note:

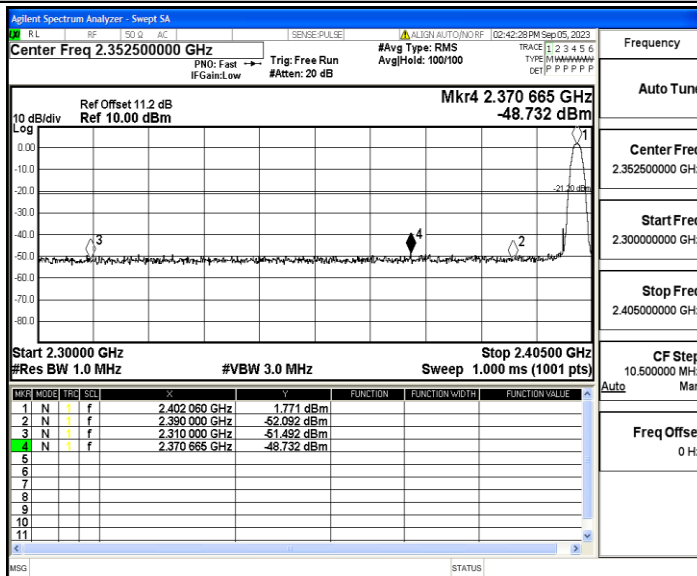
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

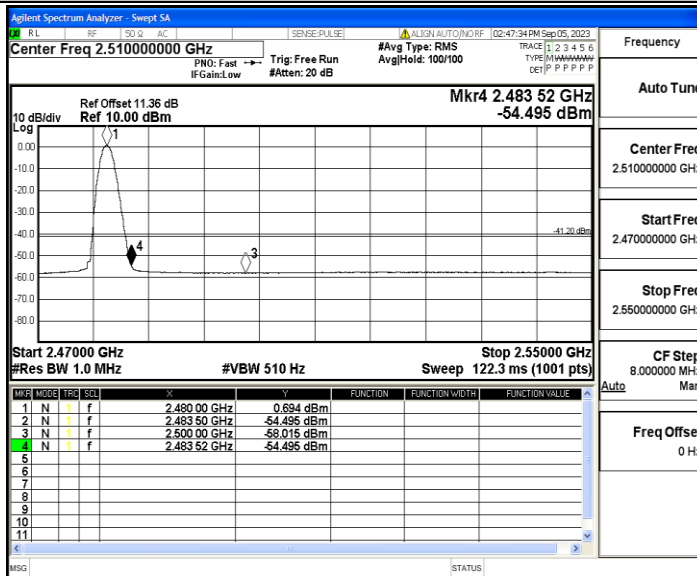
BLE_1M_Ant1_Low_2402_AV



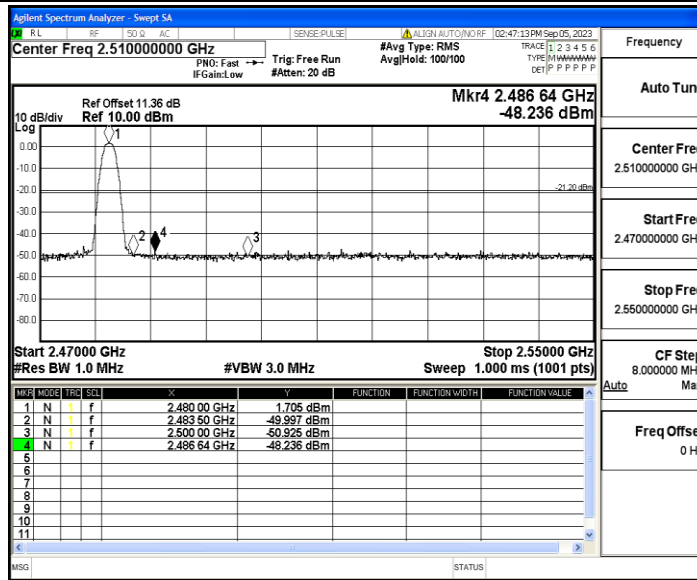
BLE_1M_Ant1_Low_2402_Peak



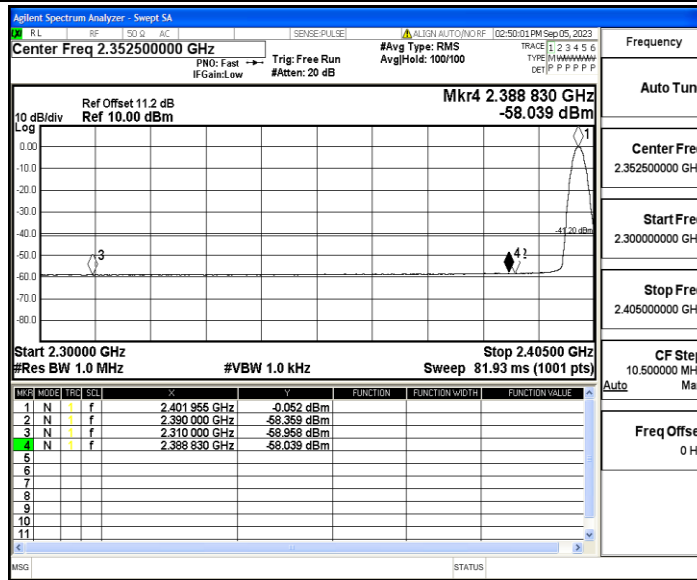
BLE_1M_Ant1_High_2480_AV



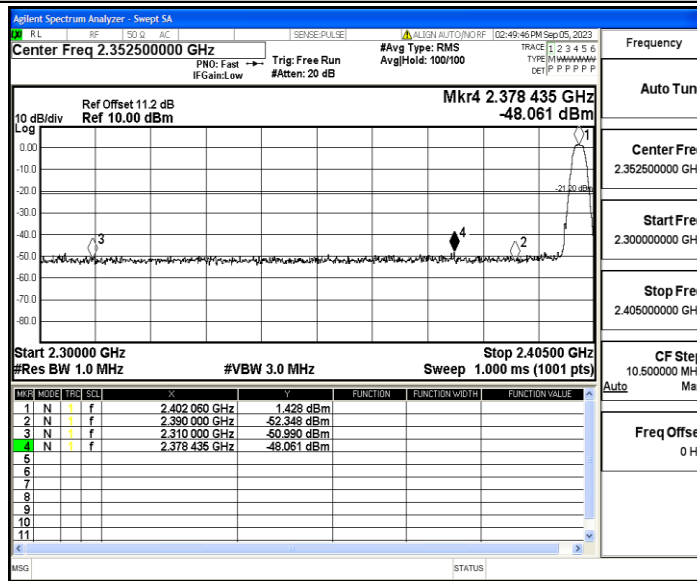
BLE_1M_Ant1_High_2480_Peak



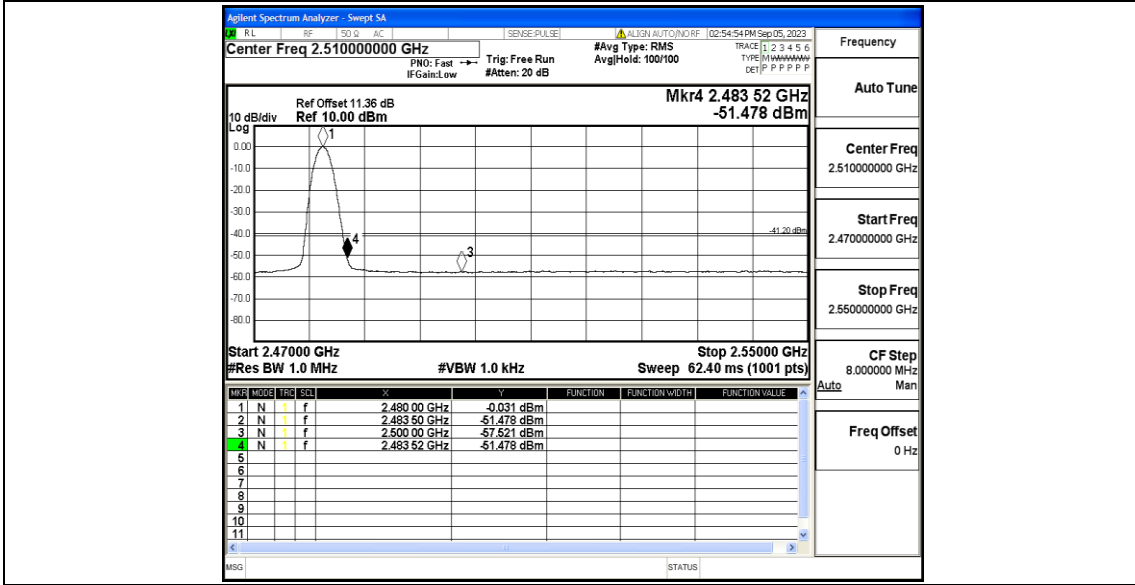
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

