

FCC Appendix RF Test Data for BLE

FCC ID : 2BWKE-MD-I75C48

Company : Foshan Mida Technology Co., Ltd.

EUT : Interactive Whiteboard/Smart Board

Model Number : MD-I75C48

Report No. : CTA26051901201

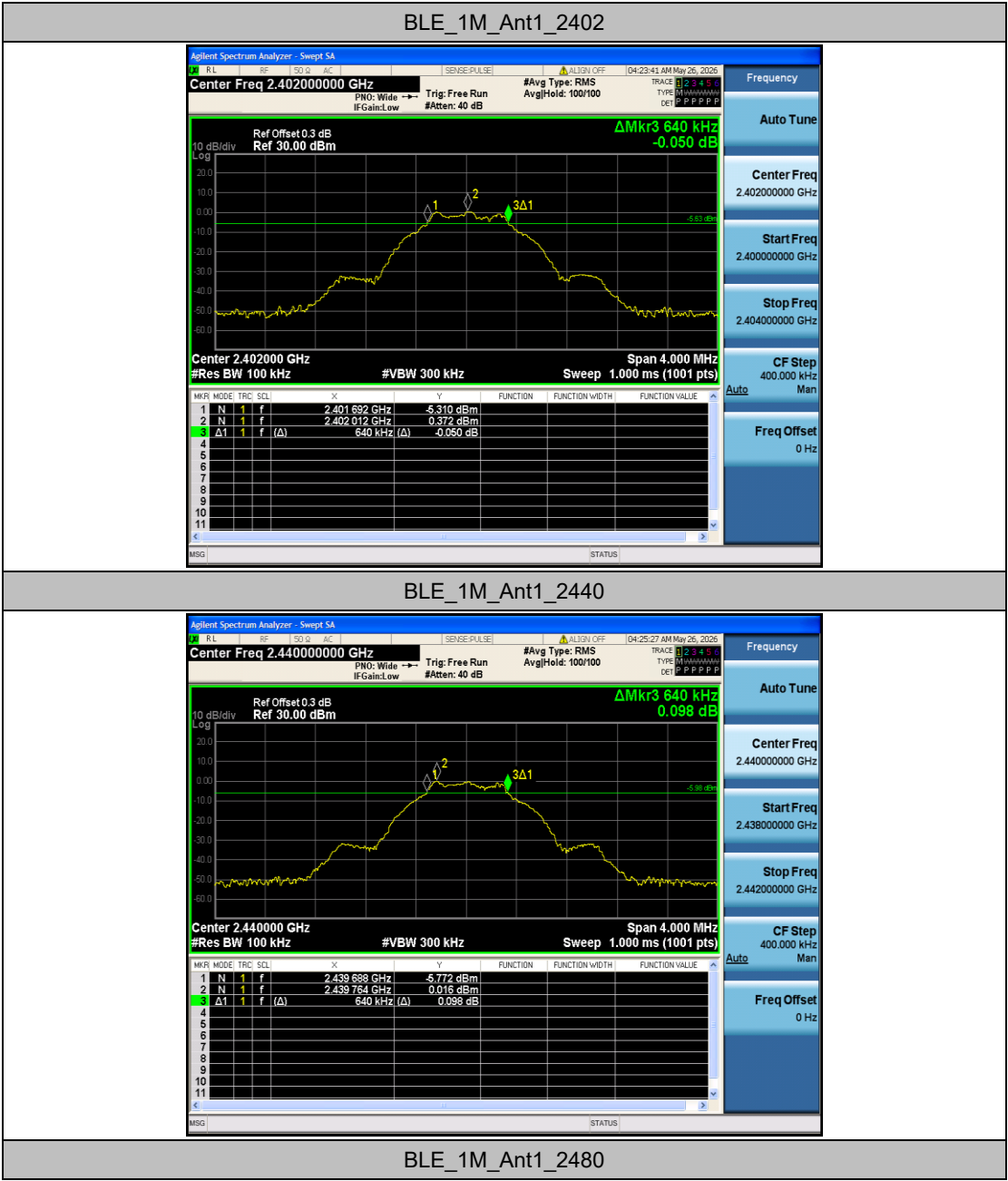
Reviewed By : Eric Wang

Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.640	2401.692	2402.332	0.5	PASS
		2440	0.640	2439.688	2440.328	0.5	PASS
		2480	0.636	2479.696	2480.332	0.5	PASS
BLE_2M	Ant1	2402	1.128	2401.444	2402.572	0.5	PASS
		2440	1.136	2439.448	2440.584	0.5	PASS
		2480	1.076	2479.464	2480.540	0.5	PASS

Test Graphs





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

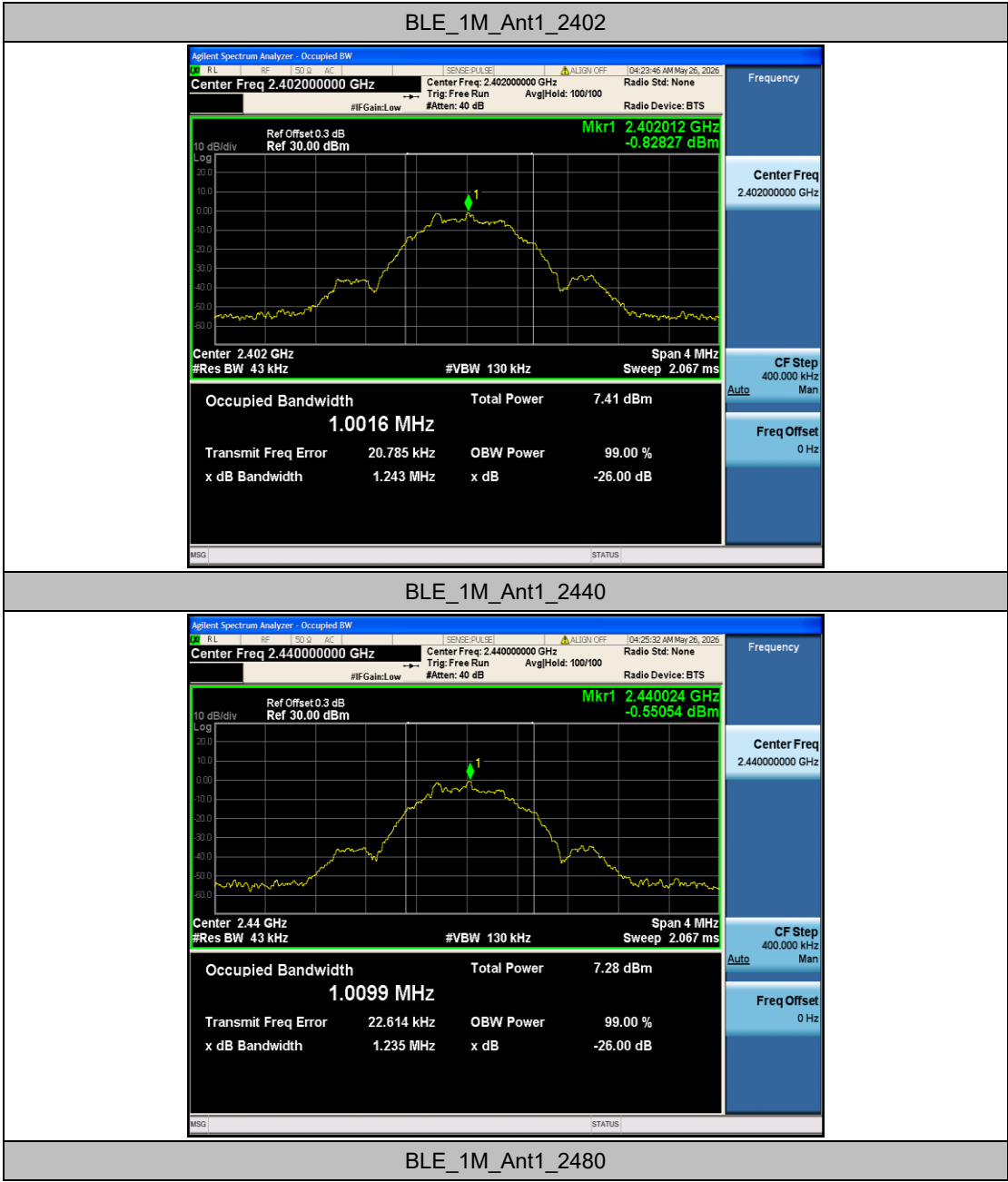


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0016	2401.5200	2402.5216	---	---
		2440	1.0099	2439.5177	2440.5276	---	---
		2480	1.0052	2479.5197	2480.5249	---	---
BLE_2M	Ant1	2402	2.0203	2401.0243	2403.0446	---	---
		2440	2.0029	2439.0310	2441.0339	---	---
		2480	2.0067	2479.0280	2481.0347	---	---

Test Graphs





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix C: Maximum conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.58	≤30	PASS
		2440	0.49	≤30	PASS
		2480	0.56	≤30	PASS
BLE_2M	Ant1	2402	0.60	≤30	PASS
		2440	0.52	≤30	PASS
		2480	0.59	≤30	PASS

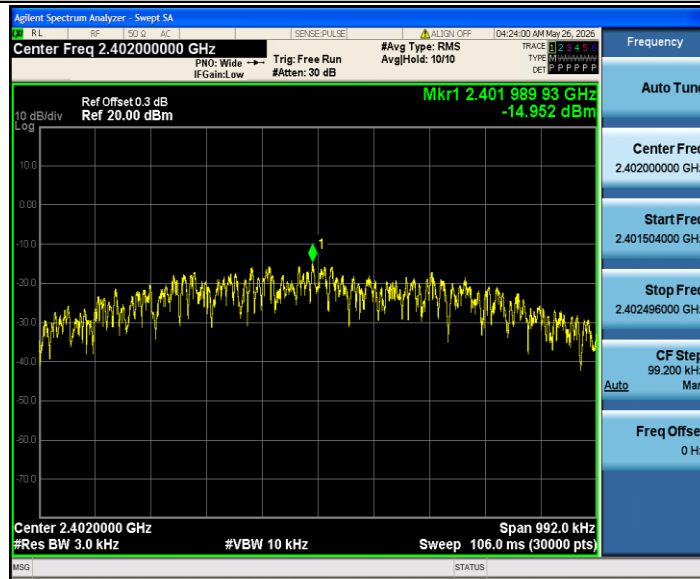
Appendix D: Maximum power spectral density

Test Result

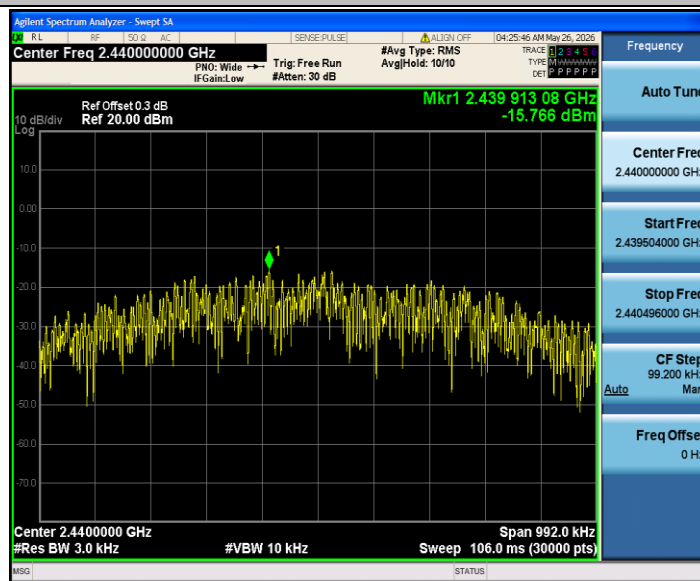
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.95	≤8.00	PASS
		2440	-15.77	≤8.00	PASS
		2480	-15.69	≤8.00	PASS
BLE_2M	Ant1	2402	-16.82	≤8.00	PASS
		2440	-16.79	≤8.00	PASS
		2480	-16.84	≤8.00	PASS

Test Graphs

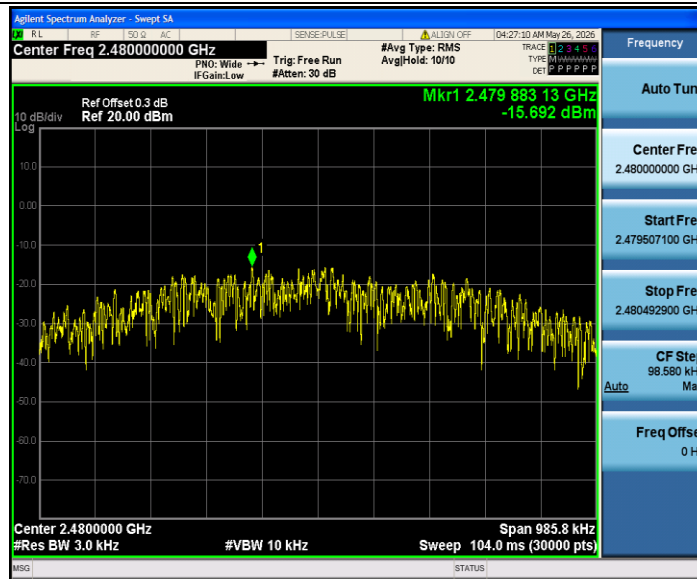
BLE_1M_Ant1_2402



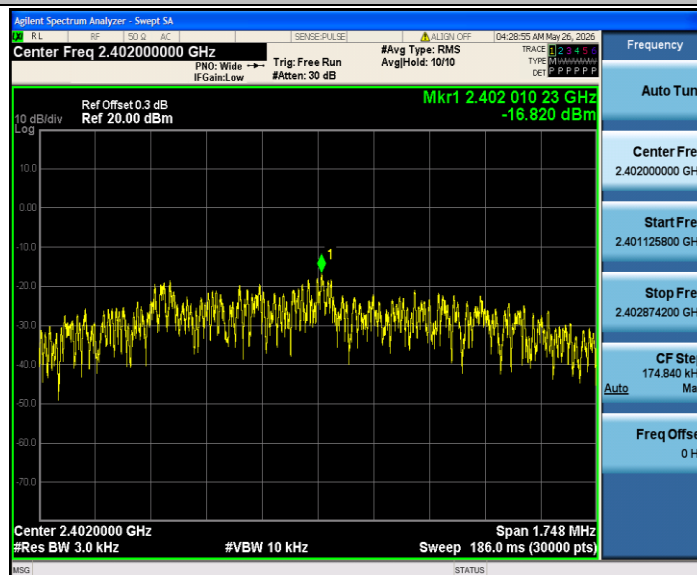
BLE_1M_Ant1_2440



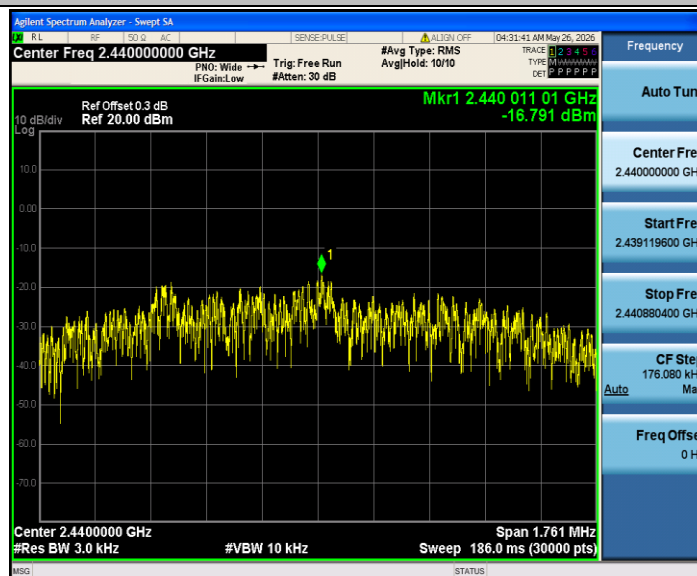
BLE_1M_Ant1_2480



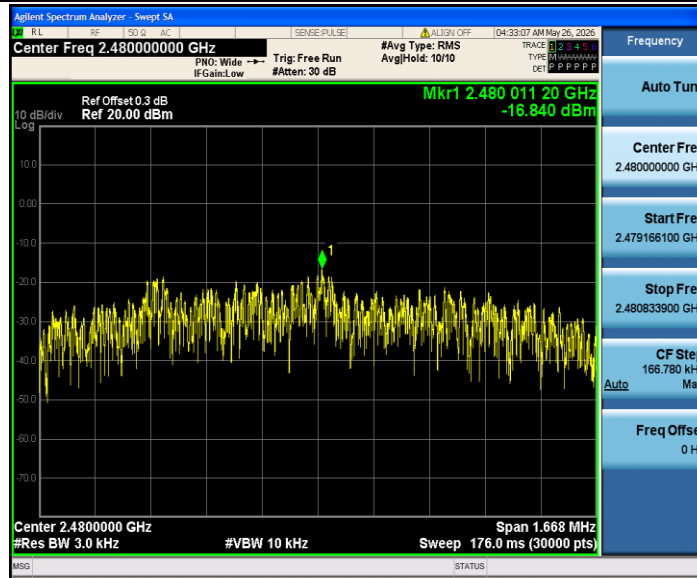
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



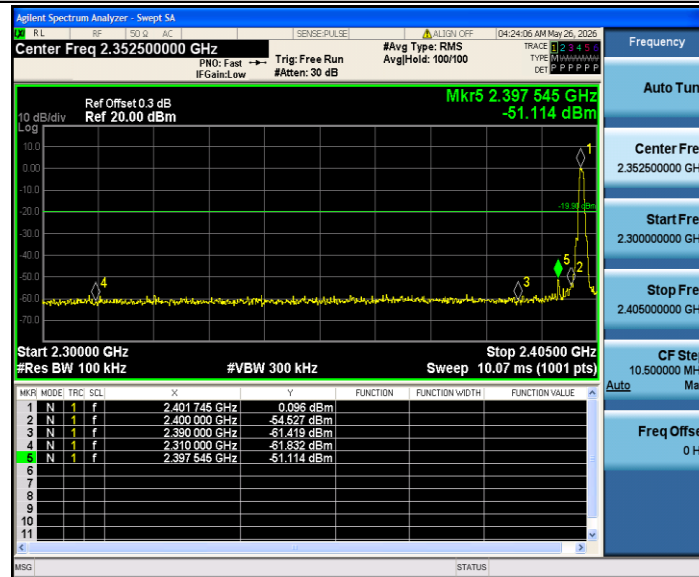
Appendix E: Band edge measurements

Test Result

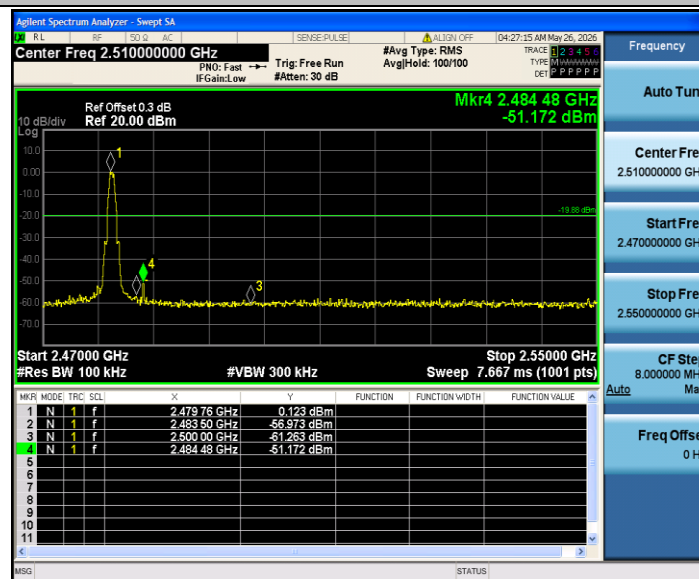
TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.10	-51.11	≤-19.9	PASS
		High	2480	0.12	-51.17	≤-19.88	PASS
BLE_2M	Ant1	Low	2402	0.63	-35.1	≤-19.37	PASS
		High	2480	0.61	-51.51	≤-19.39	PASS

Test Graphs

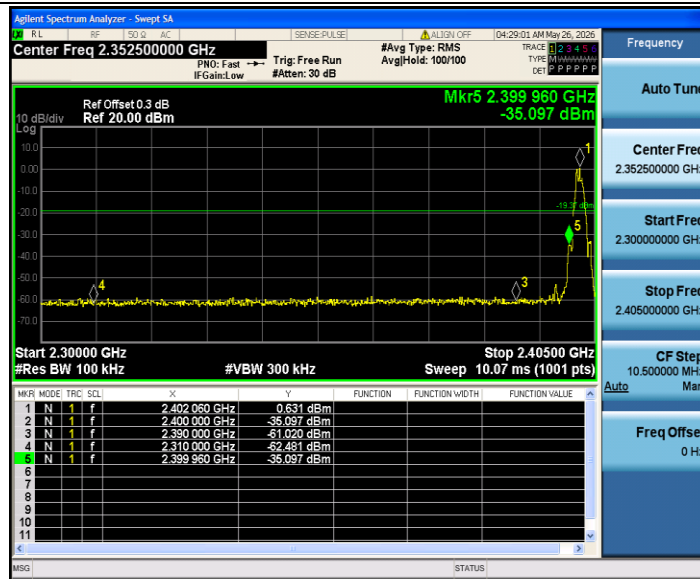
BLE_1M_Ant1_Low_2402



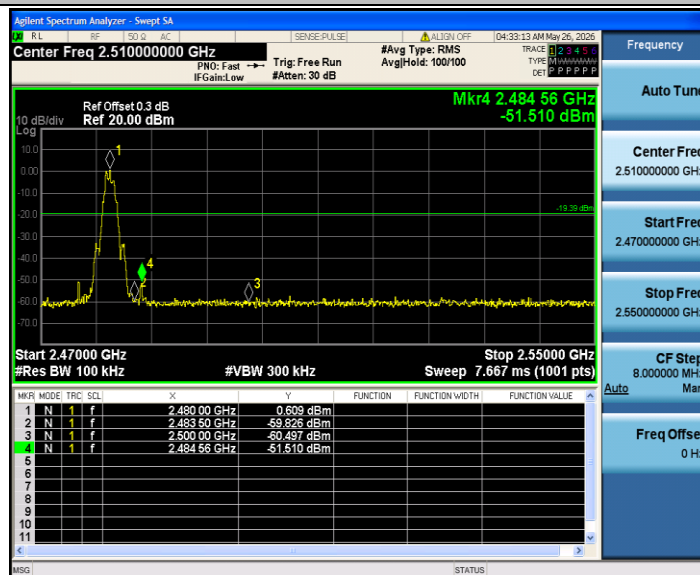
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480

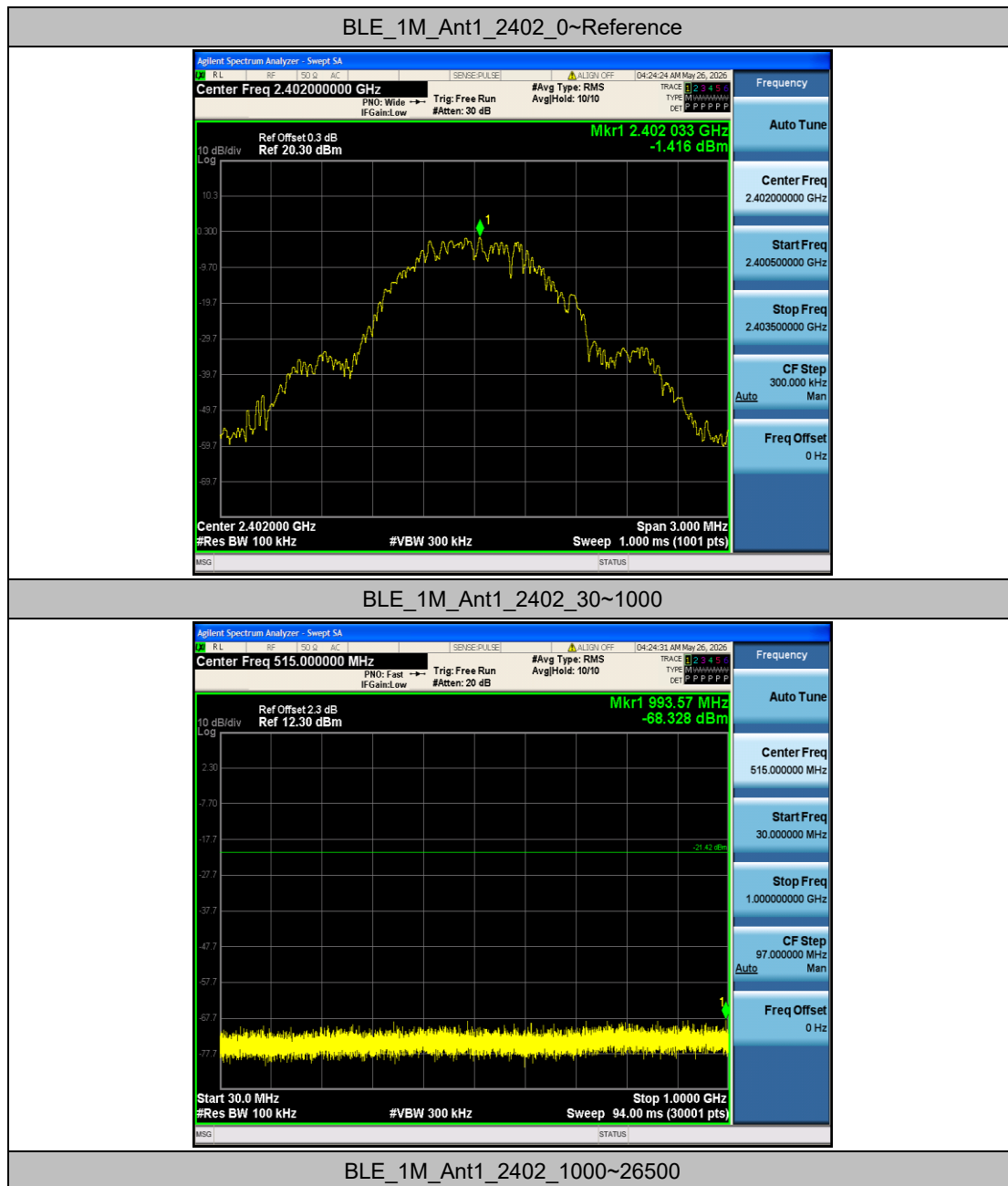


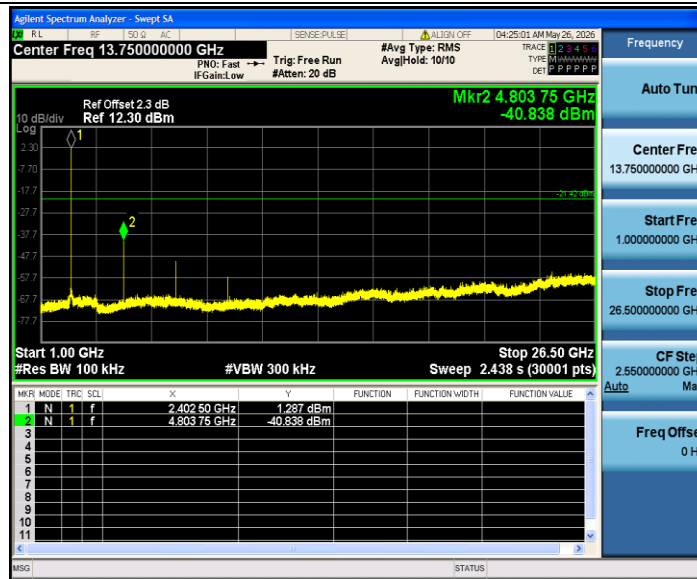
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.42	-1.42	---	PASS
			30~1000	-1.42	-68.33	≤-21.42	PASS
			1000~26500	-1.42	-40.84	≤-21.42	PASS
		2440	Reference	0.03	0.03	---	PASS
			30~1000	0.03	-67.78	≤-19.97	PASS
			1000~26500	0.03	-40.87	≤-19.97	PASS
		2480	Reference	-1.36	-1.36	---	PASS
			30~1000	-1.36	-67.98	≤-21.36	PASS
			1000~26500	-1.36	-39.2	≤-21.36	PASS
BLE_2M	Ant1	2402	Reference	0.19	0.19	---	PASS
			30~1000	0.19	-68.46	≤-19.81	PASS
			1000~26500	0.19	-39.33	≤-19.81	PASS
		2440	Reference	-0.13	-0.13	---	PASS
			30~1000	-0.13	-68.41	≤-20.13	PASS
			1000~26500	-0.13	-41.26	≤-20.13	PASS
		2480	Reference	-2.40	-2.40	---	PASS
			30~1000	-2.40	-68.35	≤-22.4	PASS
			1000~26500	-2.40	-42.77	≤-22.4	PASS

Test Graphs

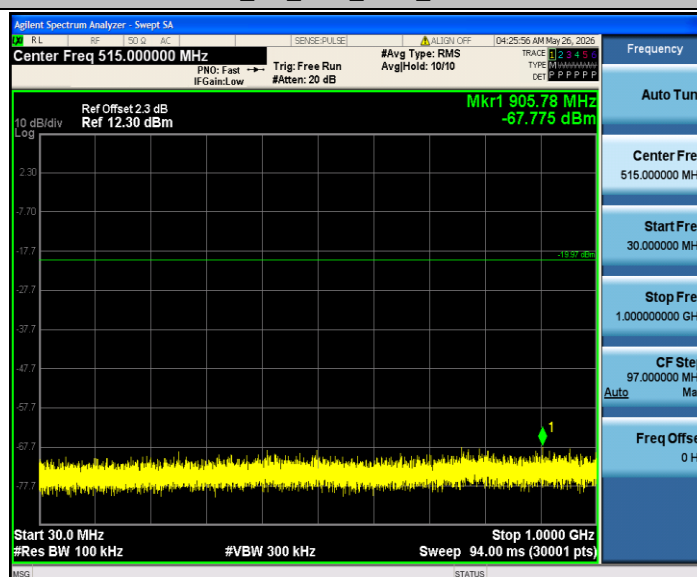




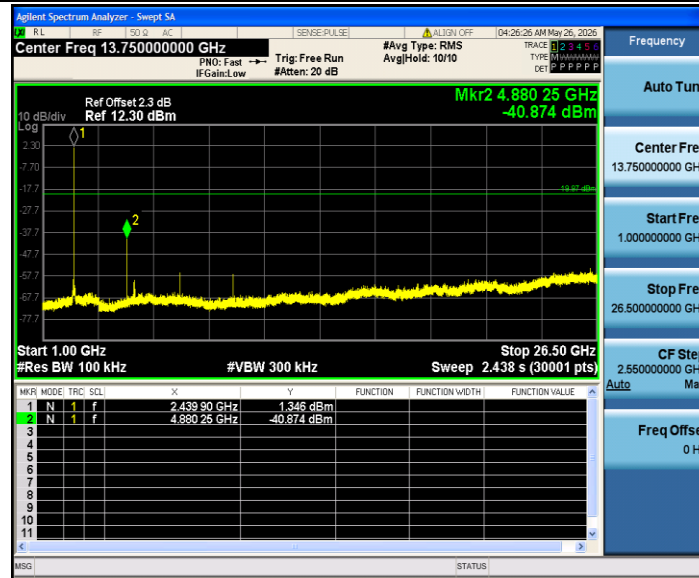
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



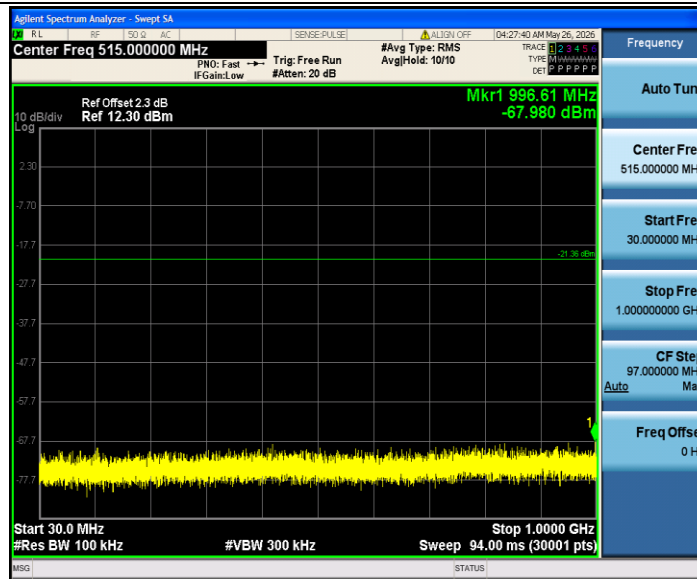
BLE_1M_Ant1_2440_1000~26500



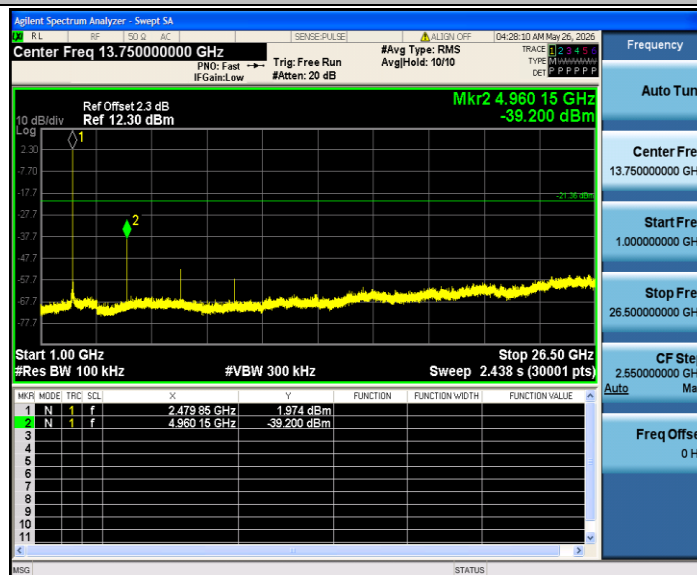
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



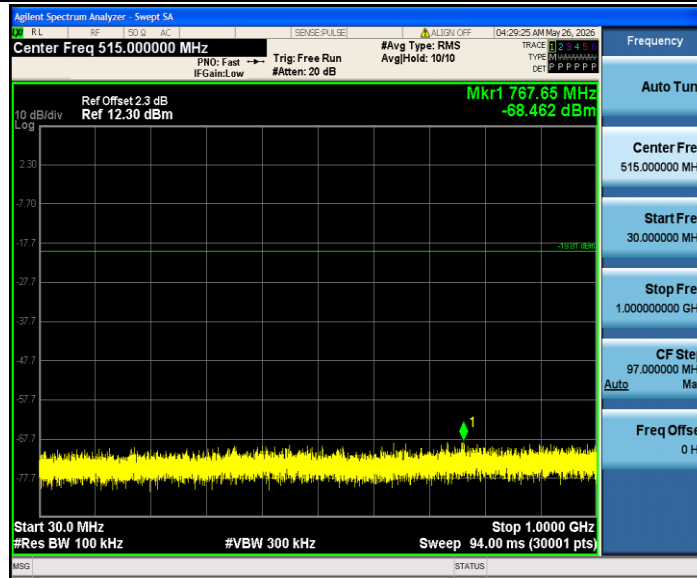
BLE_1M_Ant1_2480_1000~26500



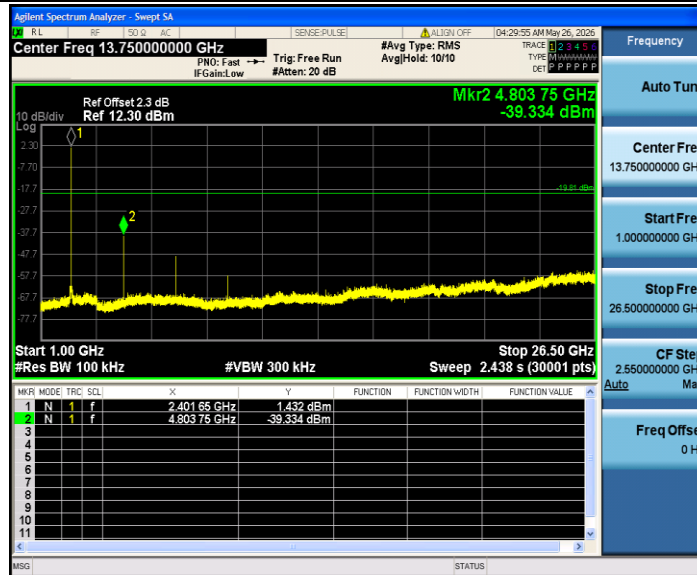
BLE_2M_Ant1_2402_0~Reference



BLE_2M_Ant1_2402_30~1000



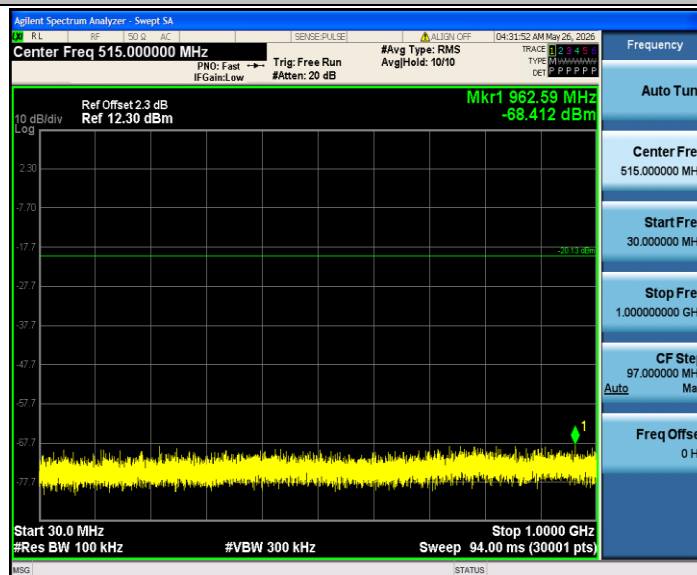
BLE_2M_Ant1_2402_1000~26500



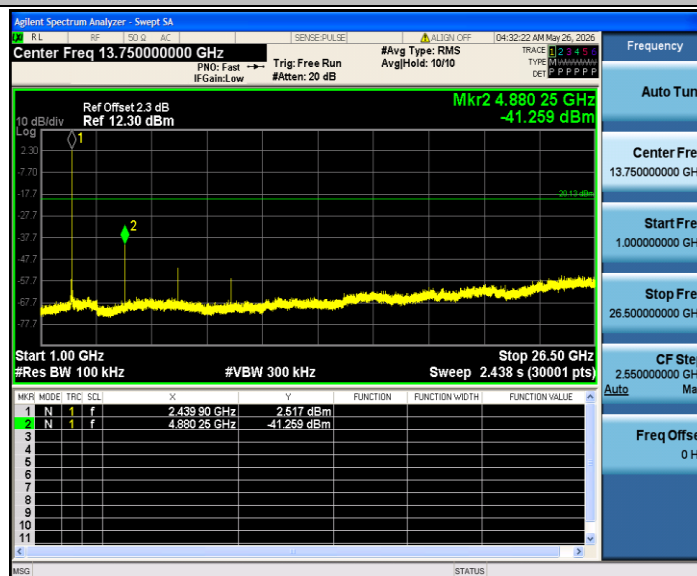
BLE_2M_Ant1_2440_0~Reference



BLE_2M_Ant1_2440_30~1000



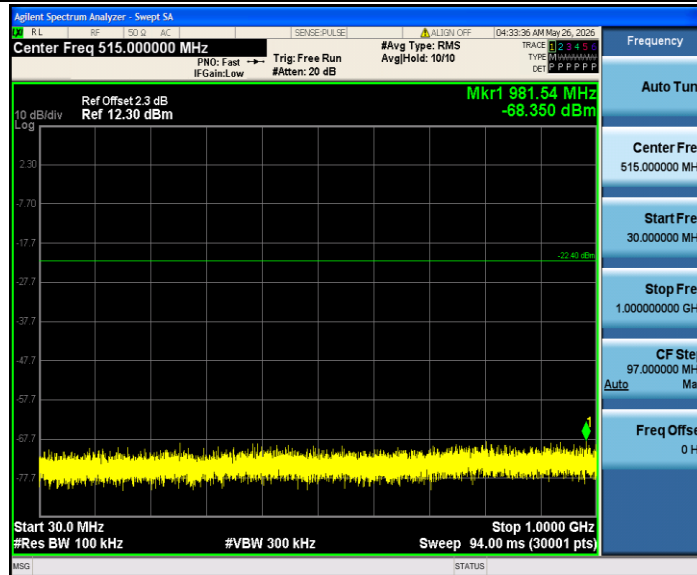
BLE_2M_Ant1_2440_1000~26500



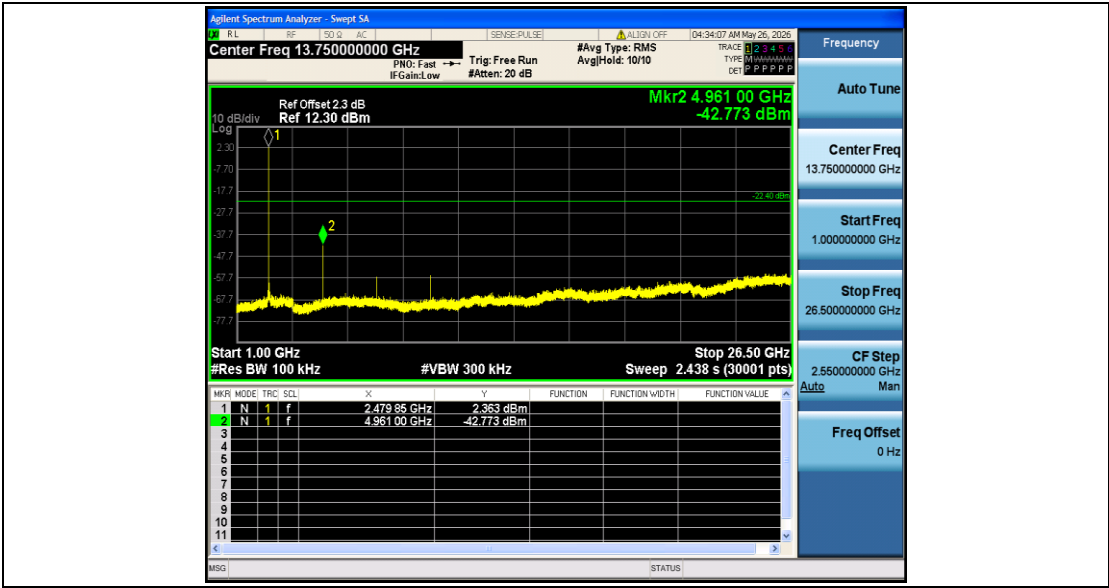
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



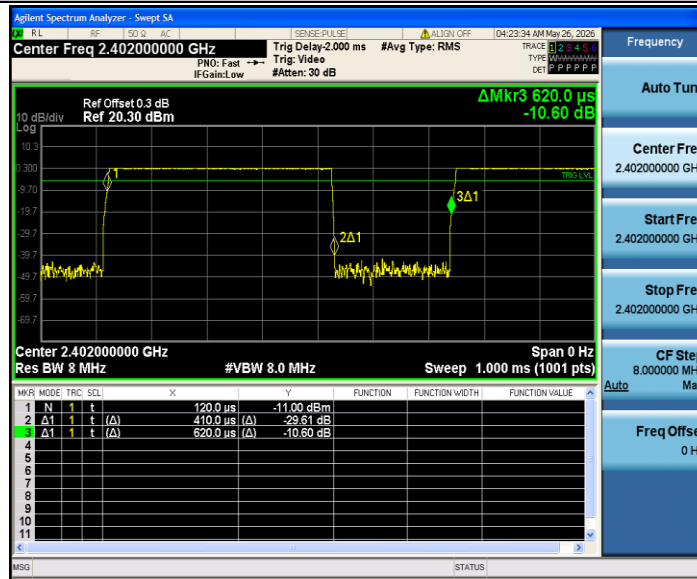
Appendix G: Duty Cycle

Test Result

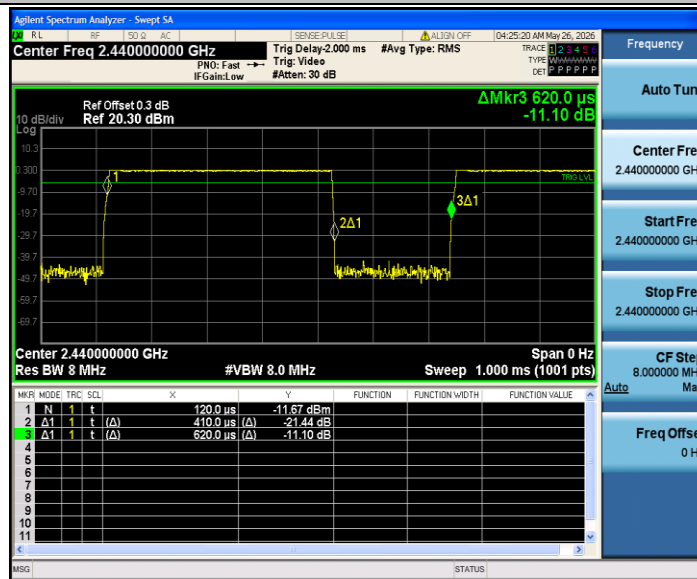
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.41	0.62	0.6613	66.13	1.80	---	---
		2440	0.41	0.62	0.6613	66.13	1.80	---	---
		2480	0.41	0.62	0.6613	66.13	1.80	---	---
BLE_2M	Ant1	2402	0.22	0.62	0.3548	35.48	4.50	---	---
		2440	0.22	0.62	0.3548	35.48	4.50	---	---
		2480	0.22	0.62	0.3548	35.48	4.50	---	---

Test Graphs

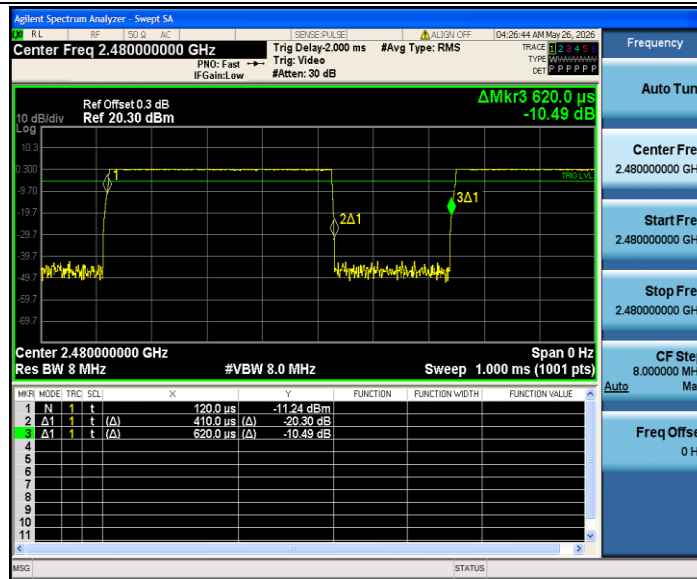
BLE_1M_Ant1_2402



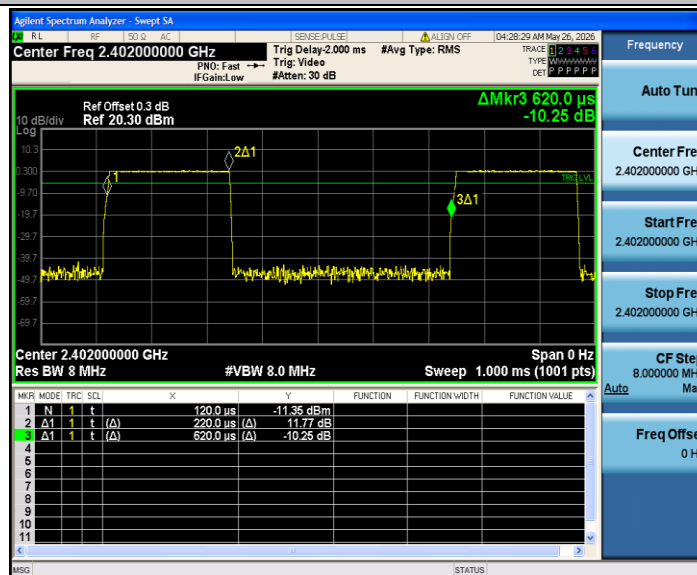
BLE_1M_Ant1_2440



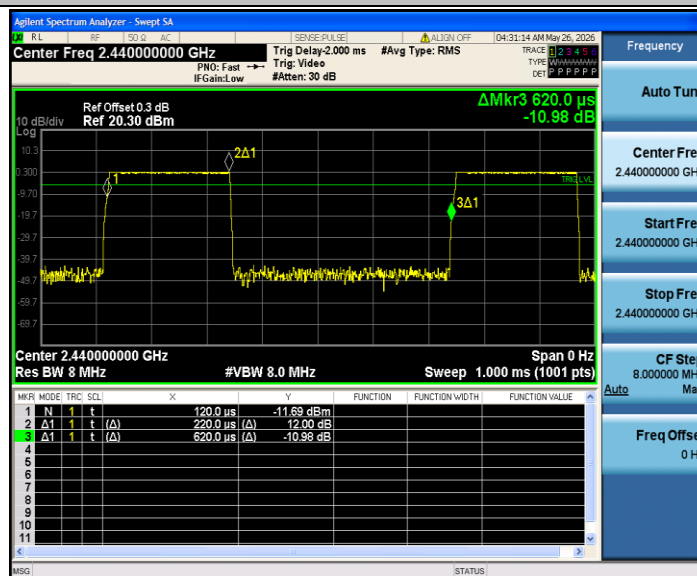
BLE_1M_Ant1_2480



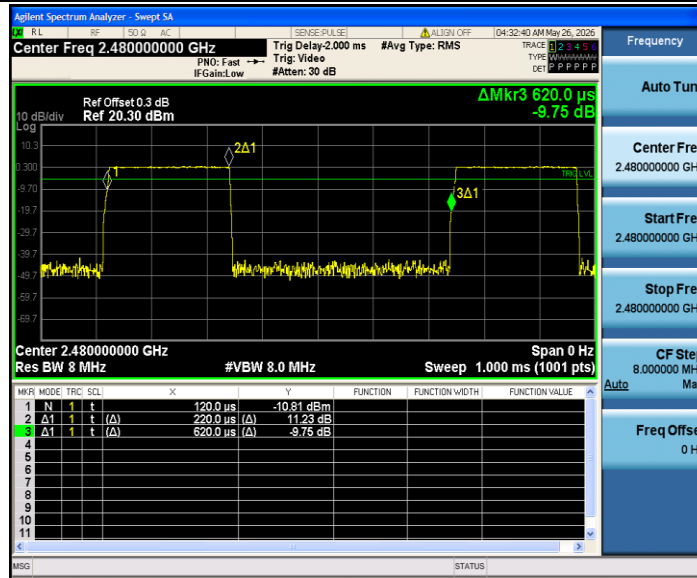
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

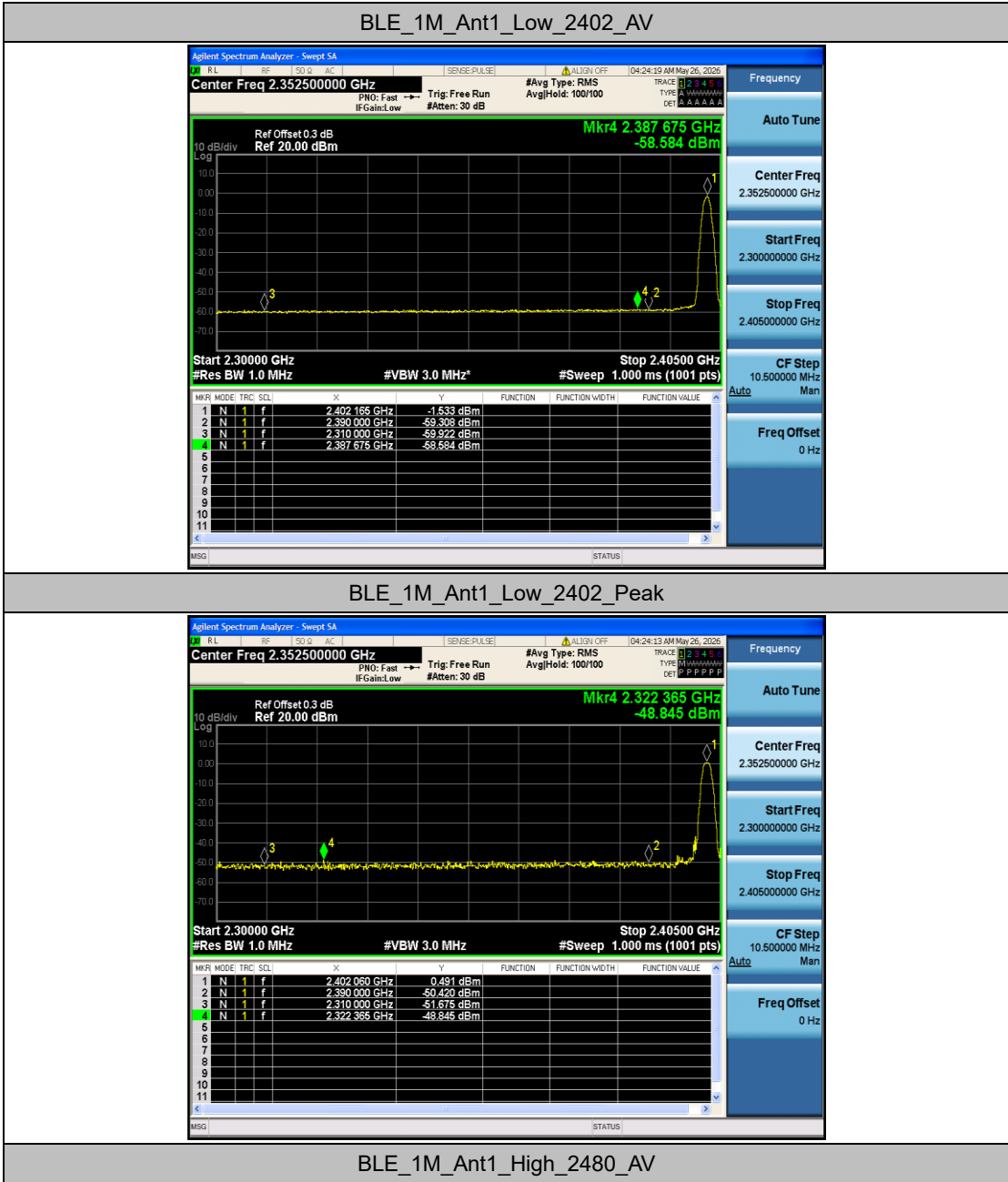
Test Result

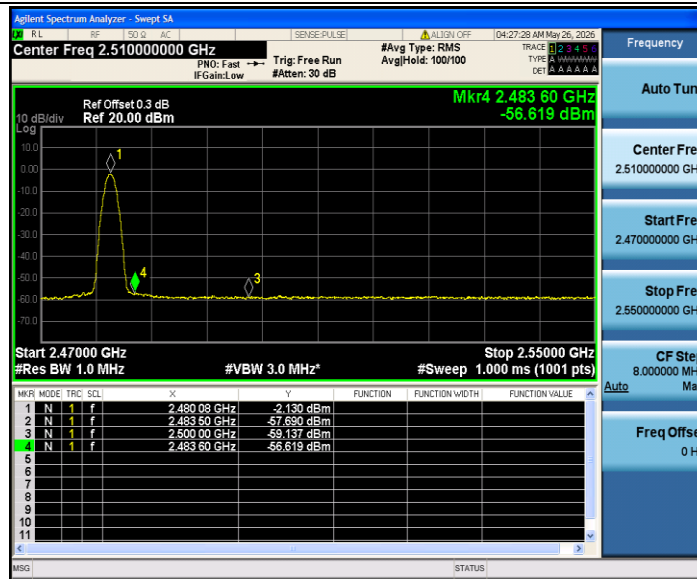
TestMode	Antenna	Channel	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-59.92	2.00	1.80	39.08	≤54	PASS
				AV	2387.675	-58.58	2.00	1.80	40.42	≤54	PASS
				AV	2390.000	-59.31	2.00	1.80	39.69	≤54	PASS
				Peak	2310.000	-51.68	2.00	0.00	45.52	≤74	PASS
				Peak	2322.365	-48.85	2.00	0.00	48.35	≤74	PASS
				Peak	2390.000	-50.42	2.00	0.00	46.78	≤74	PASS
		High	2480	AV	2483.500	-57.69	2.00	1.80	41.31	≤54	PASS
				AV	2483.600	-56.62	2.00	1.80	42.38	≤54	PASS
				AV	2500.000	-59.14	2.00	1.80	39.86	≤54	PASS
				Peak	2483.500	-49.89	2.00	0.00	47.31	≤74	PASS
				Peak	2484.640	-43.35	2.00	0.00	53.85	≤74	PASS
				Peak	2500.000	-49.66	2.00	0.00	47.54	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-60.32	2.00	4.50	41.38	≤54	PASS
				AV	2382.635	-58.65	2.00	4.50	43.05	≤54	PASS
				AV	2390.000	-59.9	2.00	4.50	41.80	≤54	PASS
				Peak	2310.000	-52.79	2.00	0.00	44.41	≤74	PASS
				Peak	2332.130	-48.78	2.00	0.00	48.42	≤74	PASS
				Peak	2390.000	-52.15	2.00	0.00	45.05	≤74	PASS
		High	2480	AV	2483.500	-58.24	2.00	4.50	43.46	≤54	PASS
				AV	2483.760	-58.16	2.00	4.50	43.54	≤54	PASS
				AV	2500.000	-59.34	2.00	4.50	42.36	≤54	PASS
				Peak	2483.500	-47.37	2.00	0.00	49.83	≤74	PASS
				Peak	2484.160	-44.15	2.00	0.00	53.05	≤74	PASS
				Peak	2500.000	-51.96	2.00	0.00	45.24	≤74	PASS

Note:

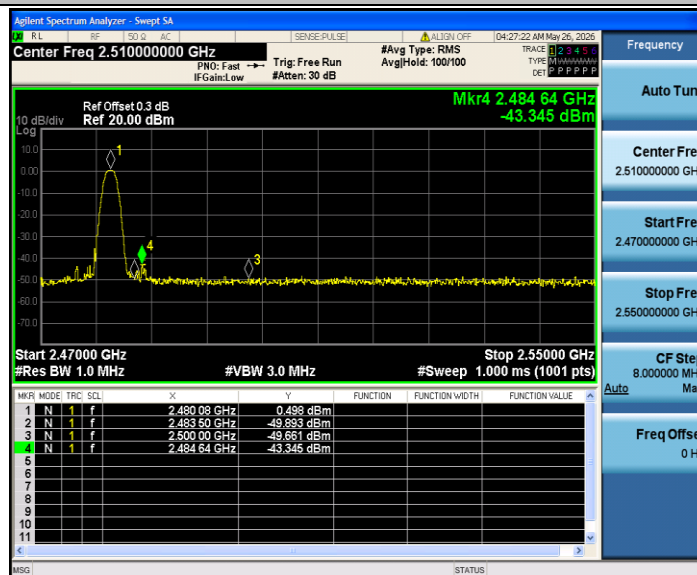
- The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

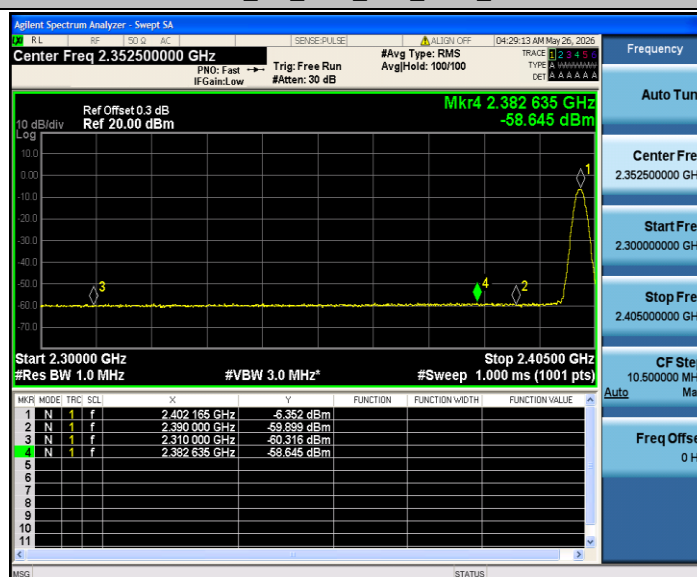




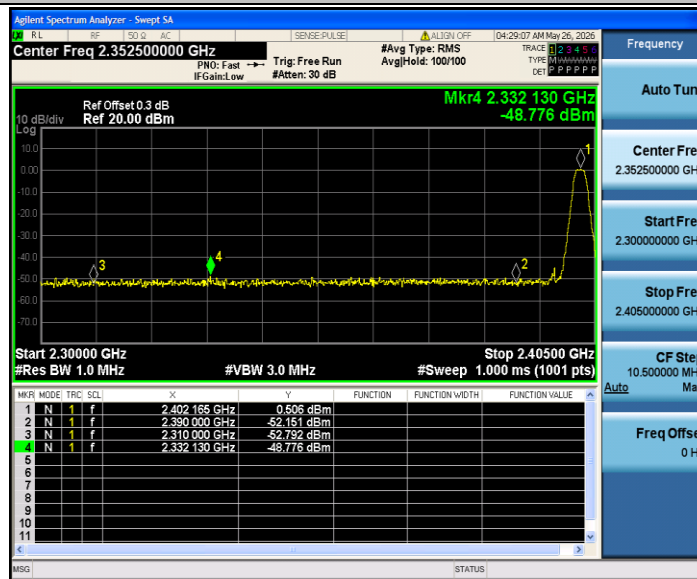
BLE_1M_Ant1_High_2480_Peak



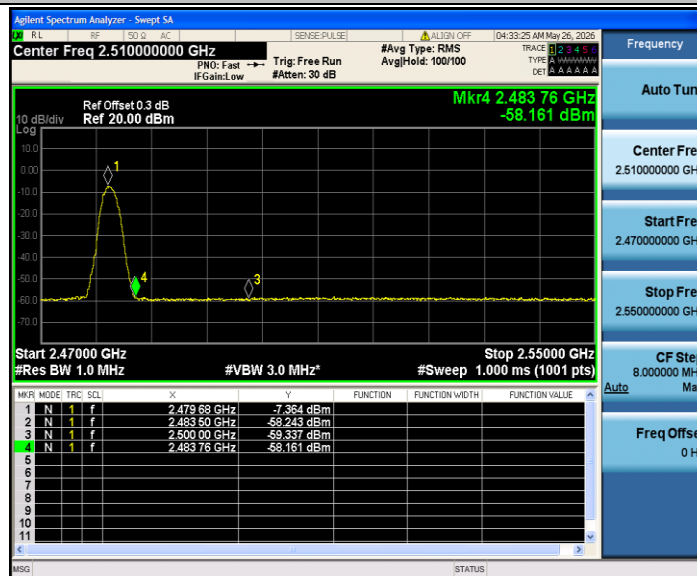
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

