

FCC Appendix RF Test Data for BLE

FCC ID : 2AVJ8-RF7421

Company : DewertOkin Technology Group Co., Ltd.

EUT : REMOTE CONTROL

Model Number : RF7421

Report No. : CTA26081201701

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	0.672	2401.676	2402.348	0.5	PASS
		2440	0.676	2439.676	2440.352	0.5	PASS
		2480	0.676	2479.688	2480.364	0.5	PASS
BLE_2M	Ant1	2402	1.136	2401.456	2402.592	0.5	PASS
		2440	1.136	2439.456	2440.592	0.5	PASS
		2480	1.132	2479.448	2480.580	0.5	PASS

Test Graphs





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

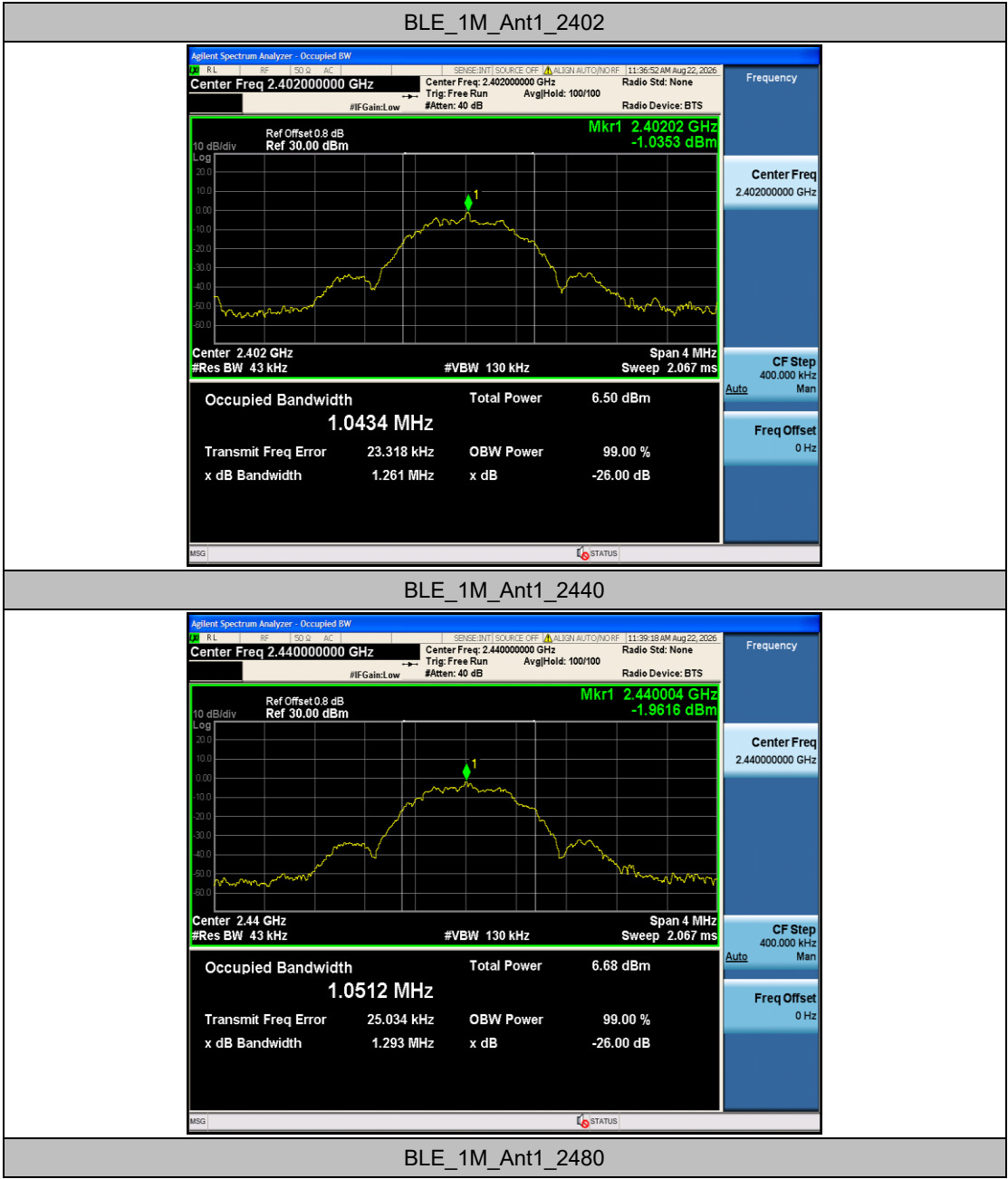


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0434	2401.5016	2402.5450	---	---
		2440	1.0512	2439.4994	2440.5506	---	---
		2480	1.0454	2479.4997	2480.5451	---	---
BLE_2M	Ant1	2402	2.0619	2401.0016	2403.0635	---	---
		2440	2.0644	2439.0057	2441.0701	---	---
		2480	2.0582	2479.0108	2481.0690	---	---

Test Graphs

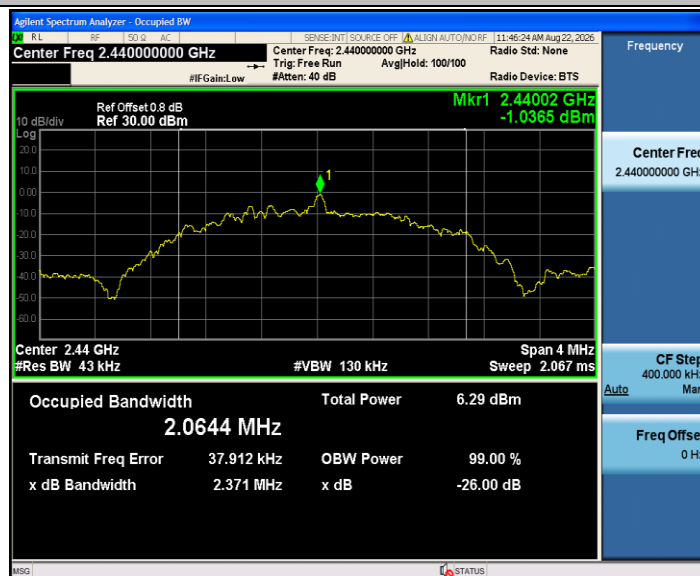




BLE_2M_Ant1_2402



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	-0.24	≤30	PASS
		2440	-0.02	≤30	PASS
		2480	0.18	≤30	PASS
BLE_2M	Ant1	2402	-0.23	≤30	PASS
		2440	0.01	≤30	PASS
		2480	0.07	≤30	PASS

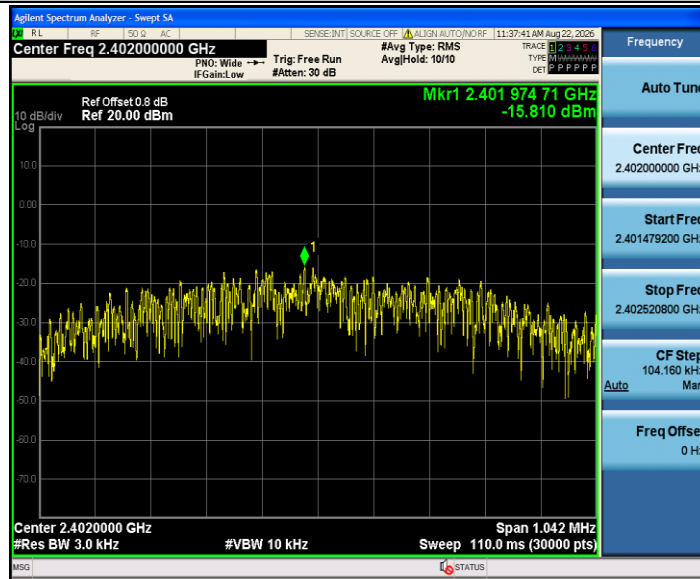
Appendix D: Maximum power spectral density

Test Result

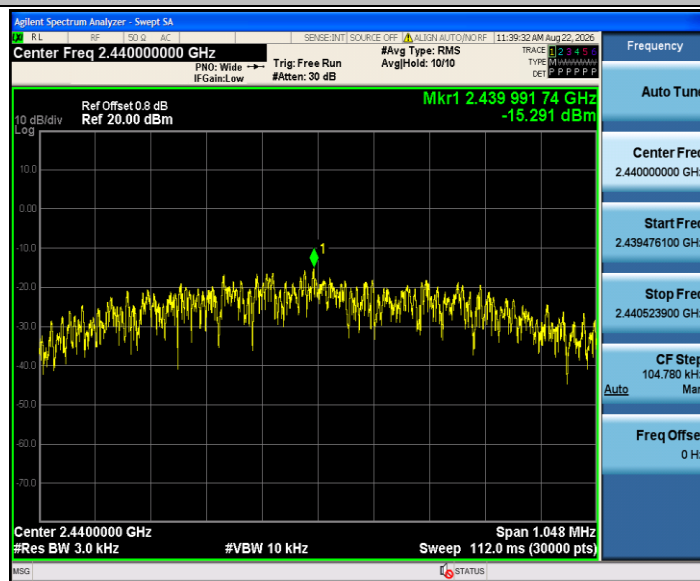
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.81	≤8.00	PASS
		2440	-15.29	≤8.00	PASS
		2480	-15.30	≤8.00	PASS
BLE_2M	Ant1	2402	-17.91	≤8.00	PASS
		2440	-17.71	≤8.00	PASS
		2480	-17.90	≤8.00	PASS

Test Graphs

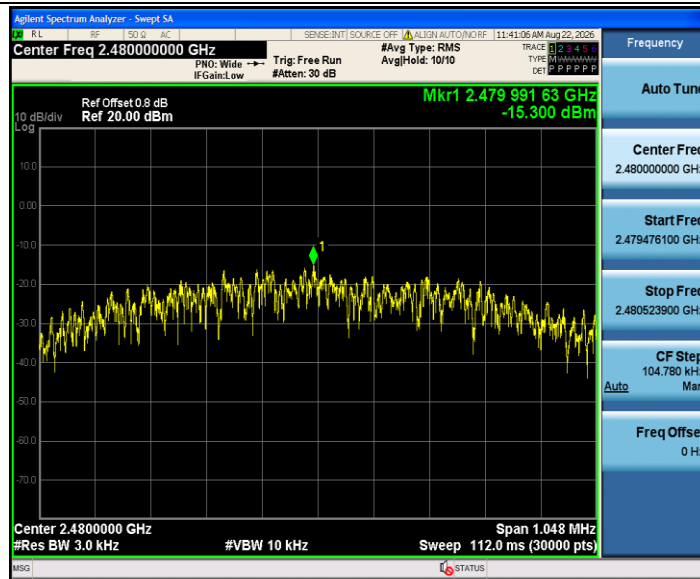
BLE_1M_Ant1_2402



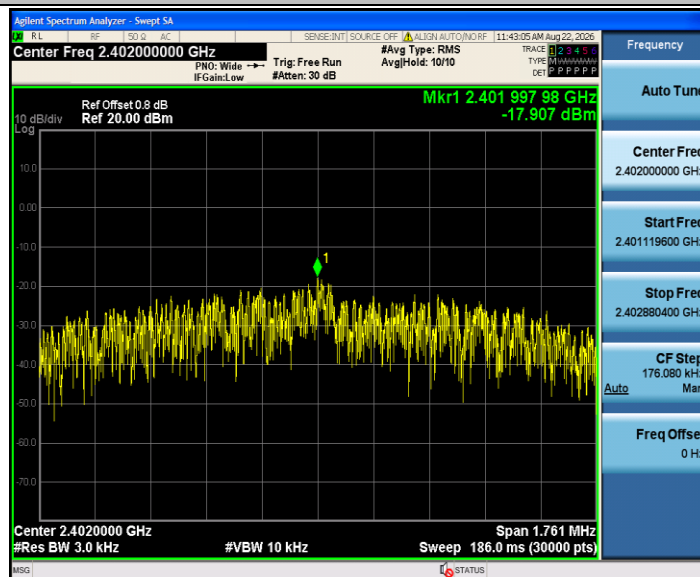
BLE_1M_Ant1_2440



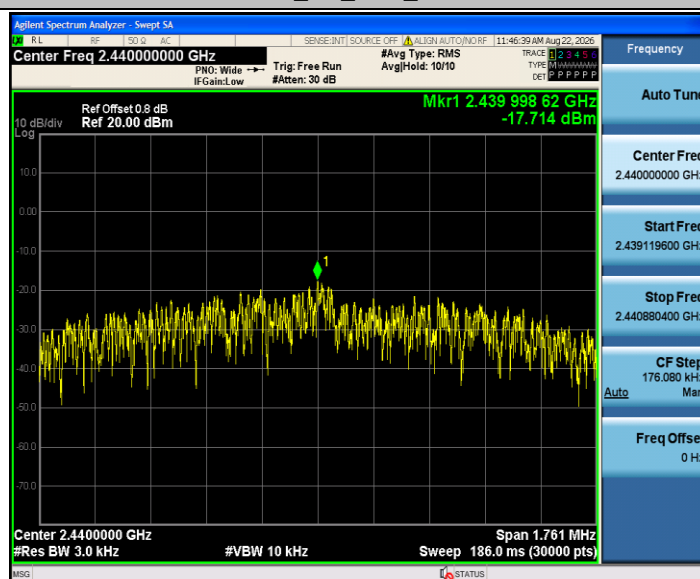
BLE_1M_Ant1_2480



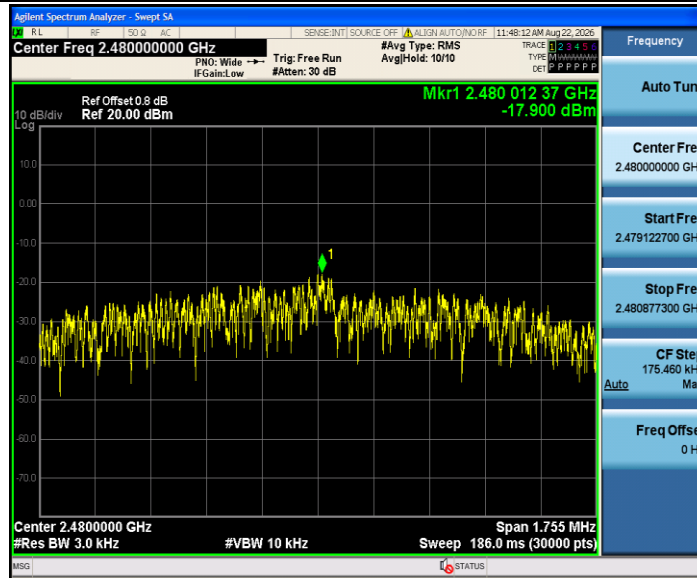
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

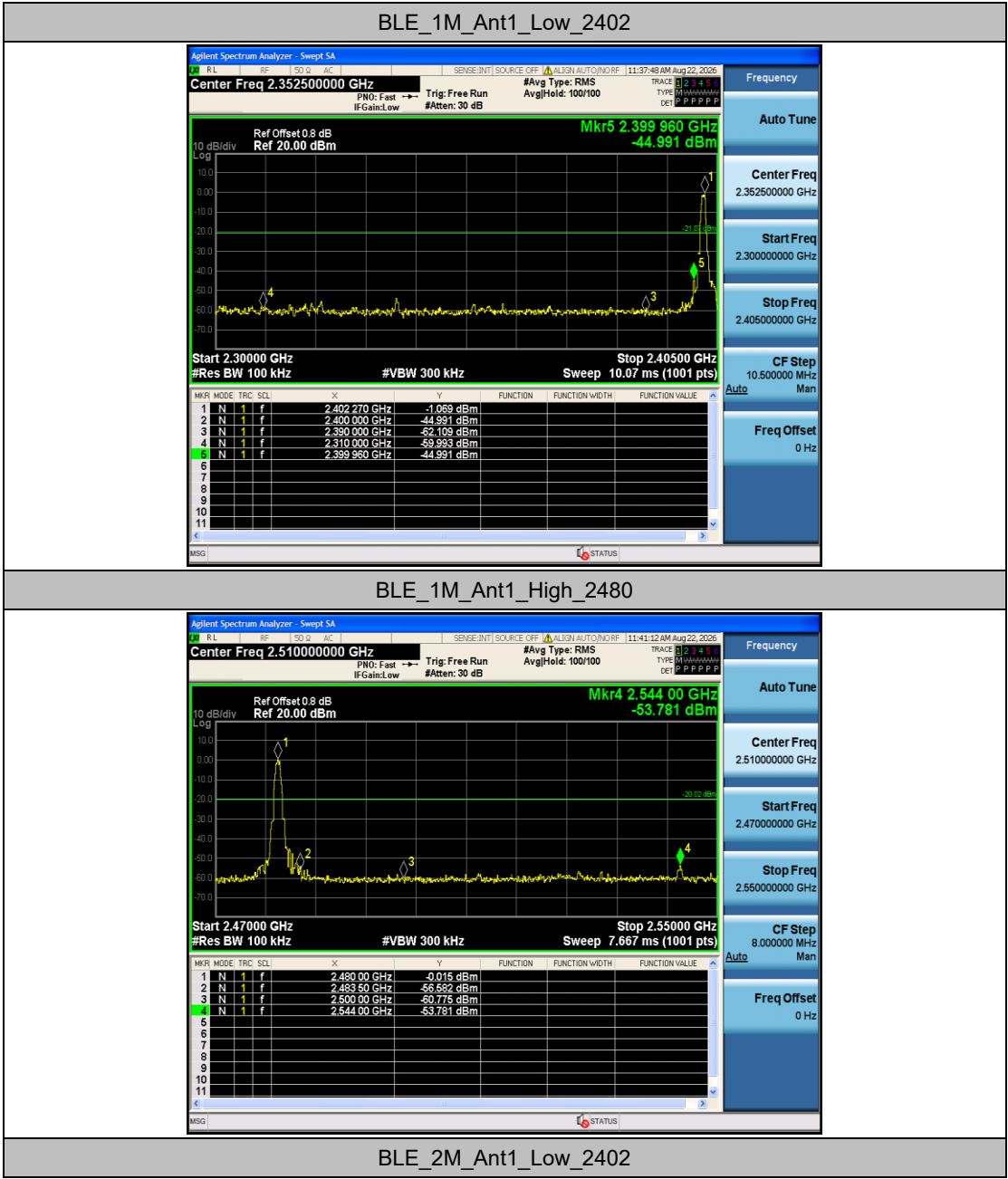


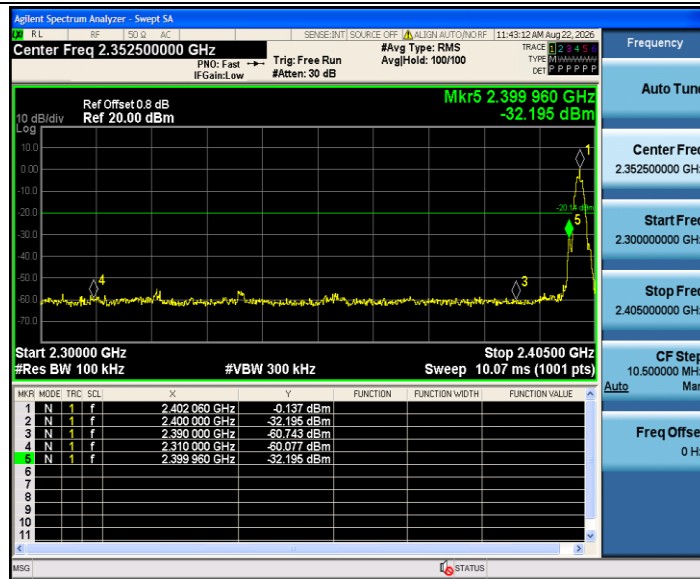
Appendix E: Band edge measurements

Test Result

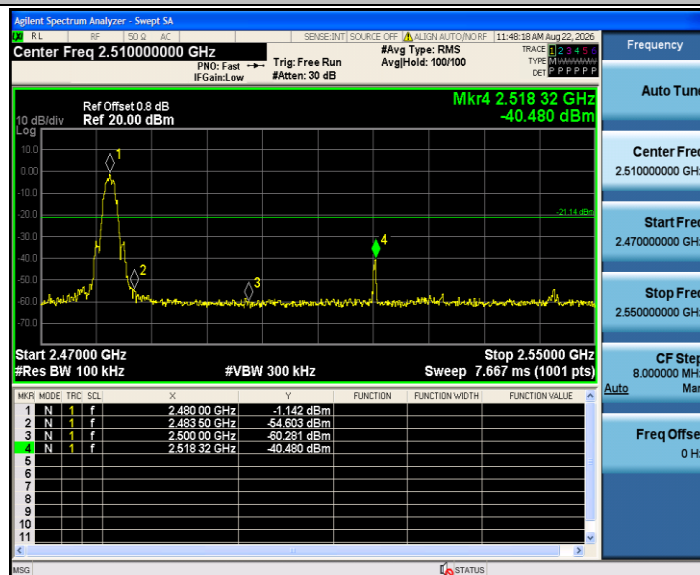
TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.07	-44.99	≤-21.07	PASS
		High	2480	-0.02	-53.78	≤-20.02	PASS
BLE_2M	Ant1	Low	2402	-0.14	-32.2	≤-20.14	PASS
		High	2480	-1.14	-40.48	≤-21.14	PASS

Test Graphs





BLE_2M_Ant1_High_2480

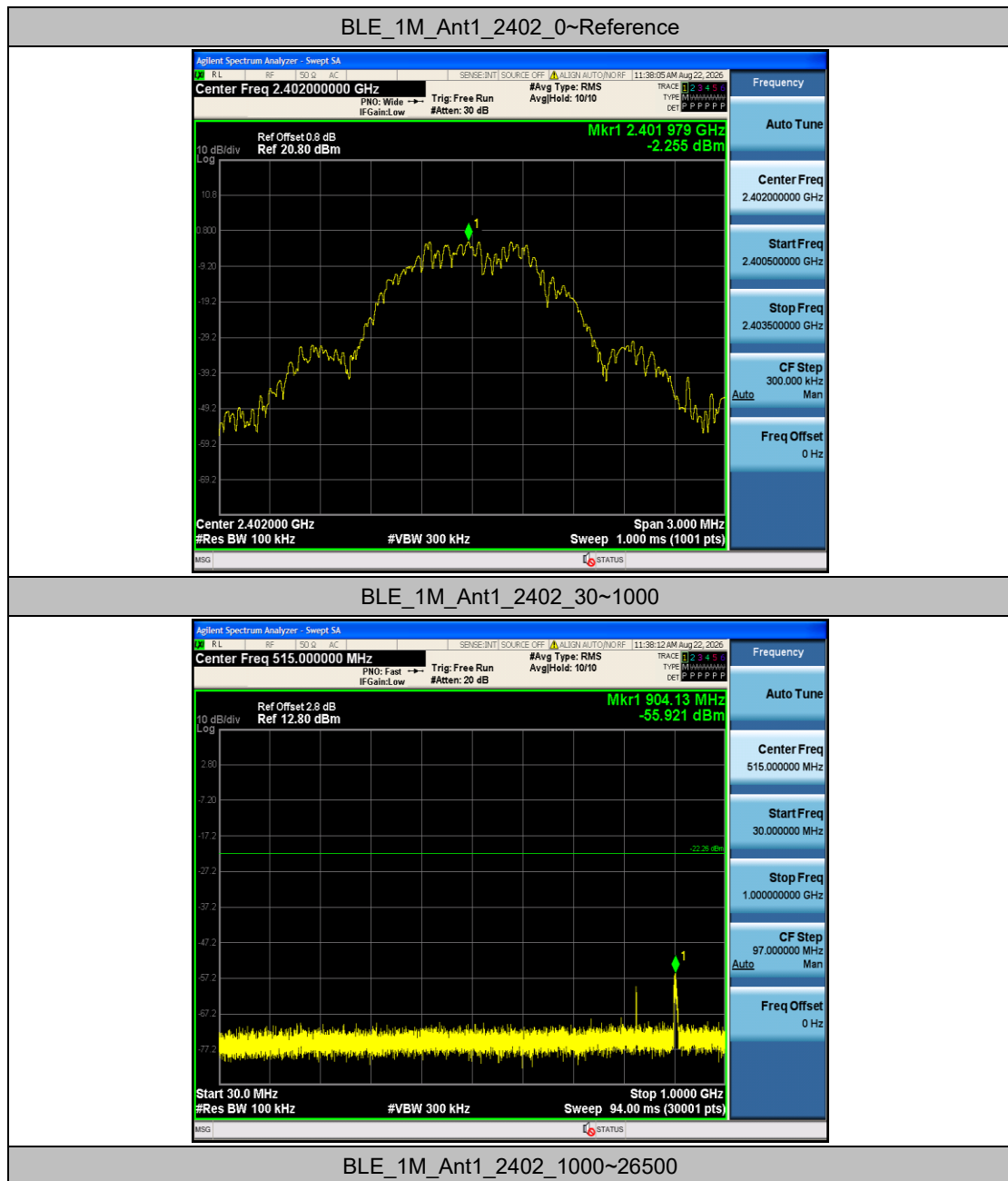


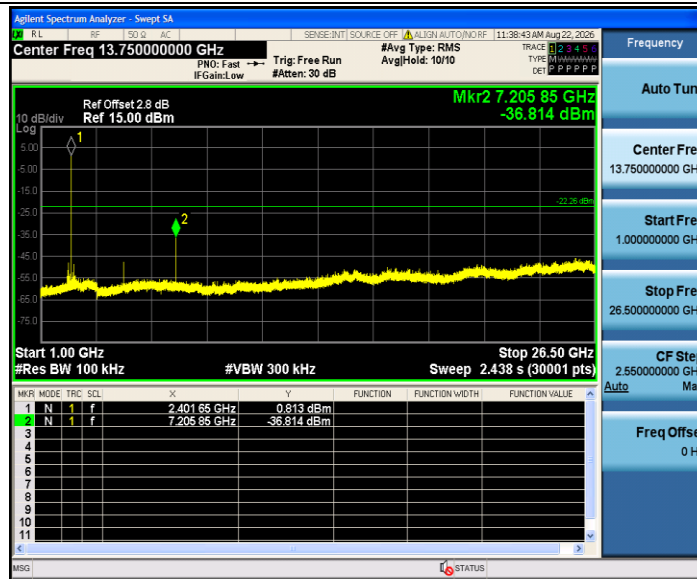
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-2.26	-2.26	---	PASS
			30~1000	-2.26	-55.92	≤-22.26	PASS
			1000~26500	-2.26	-36.81	≤-22.26	PASS
		2440	Reference	-0.91	-0.91	---	PASS
			30~1000	-0.91	-53.04	≤-20.91	PASS
			1000~26500	-0.91	-34.52	≤-20.91	PASS
		2480	Reference	-0.42	-0.42	---	PASS
			30~1000	-0.42	-47.58	≤-20.42	PASS
			1000~26500	-0.42	-35.6	≤-20.42	PASS
BLE_2M	Ant1	2402	Reference	-2.53	-2.53	---	PASS
			30~1000	-2.53	-55.83	≤-22.53	PASS
			1000~26500	-2.53	-32.94	≤-22.53	PASS
		2440	Reference	-2.40	-2.40	---	PASS
			30~1000	-2.40	-46.75	≤-22.4	PASS
			1000~26500	-2.40	-40.36	≤-22.4	PASS
		2480	Reference	-1.14	-1.14	---	PASS
			30~1000	-1.14	-57.95	≤-21.14	PASS
			1000~26500	-1.14	-39.72	≤-21.14	PASS

Test Graphs

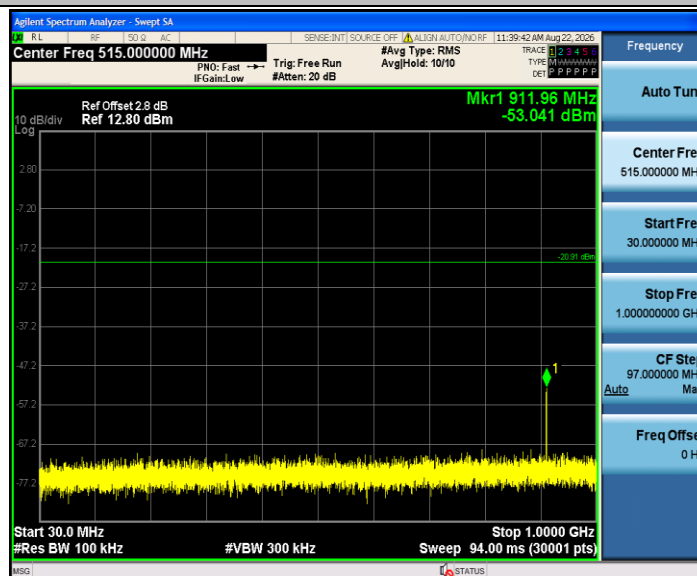




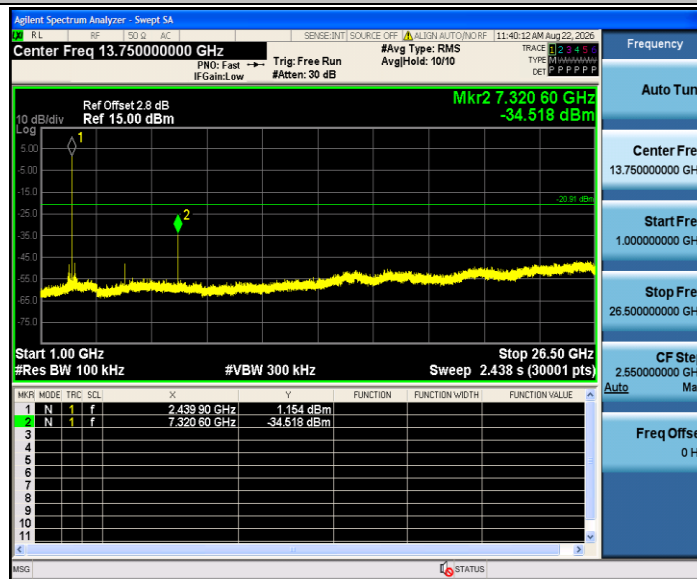
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



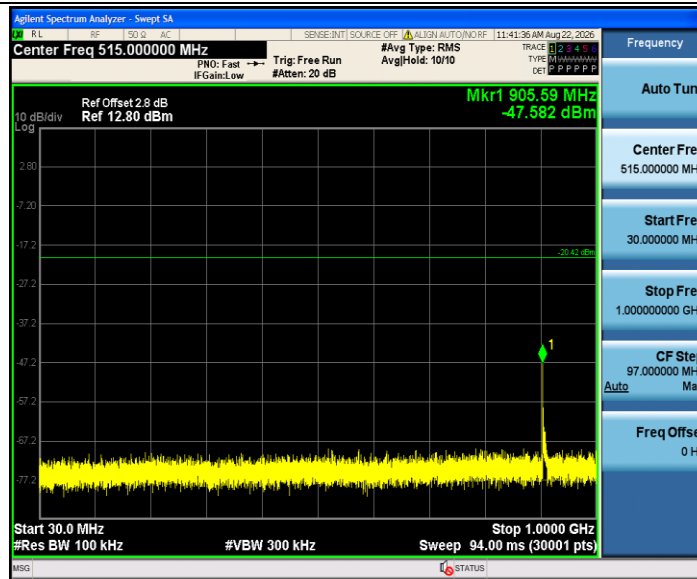
BLE_1M_Ant1_2440_1000~26500



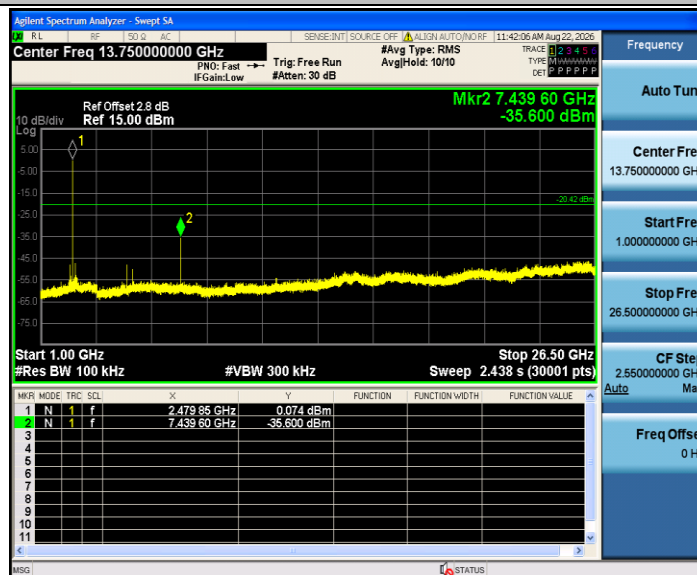
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



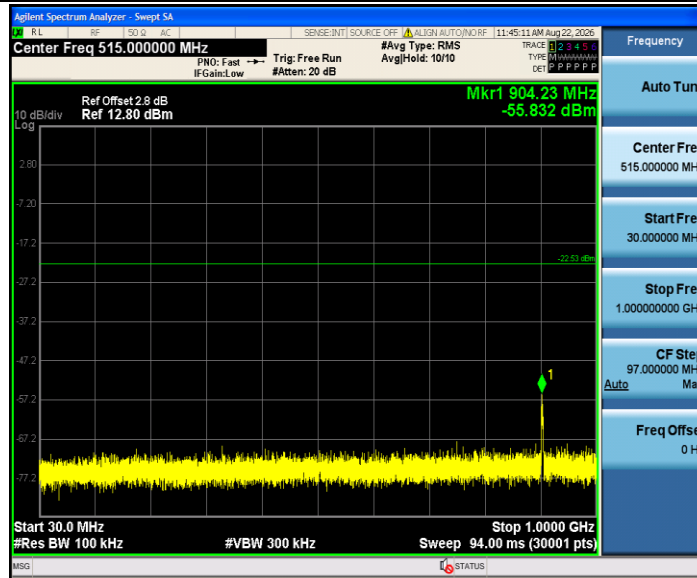
BLE_1M_Ant1_2480_1000~26500



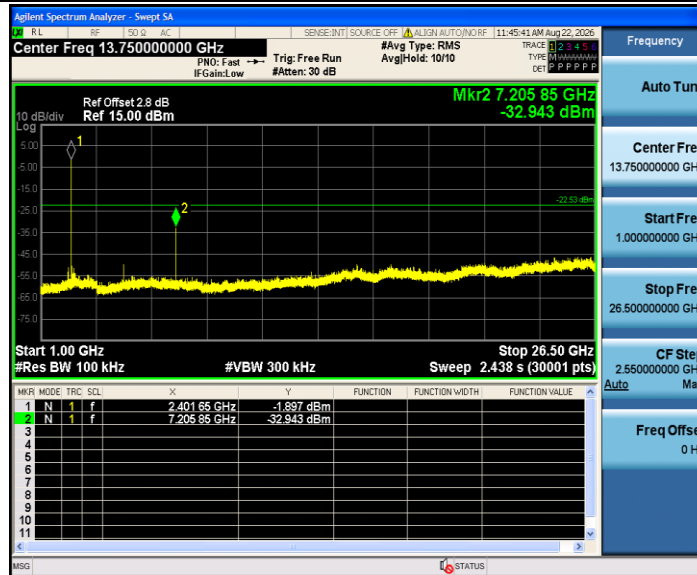
BLE_2M_Ant1_2402_0~Reference



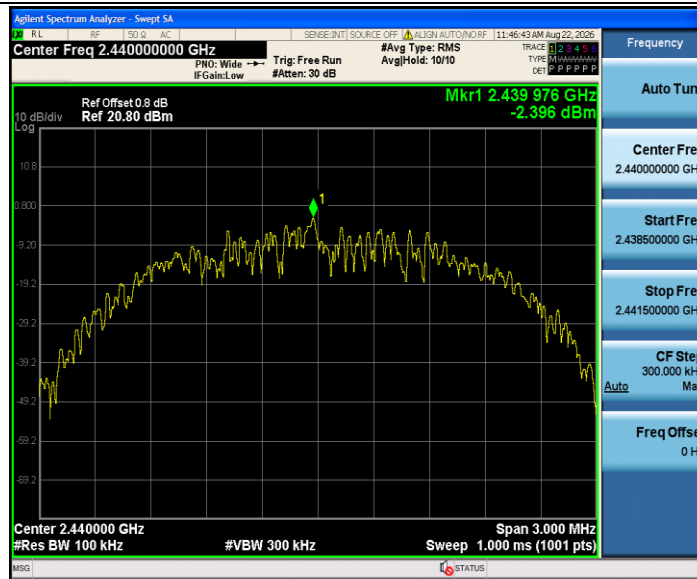
BLE_2M_Ant1_2402_30~1000



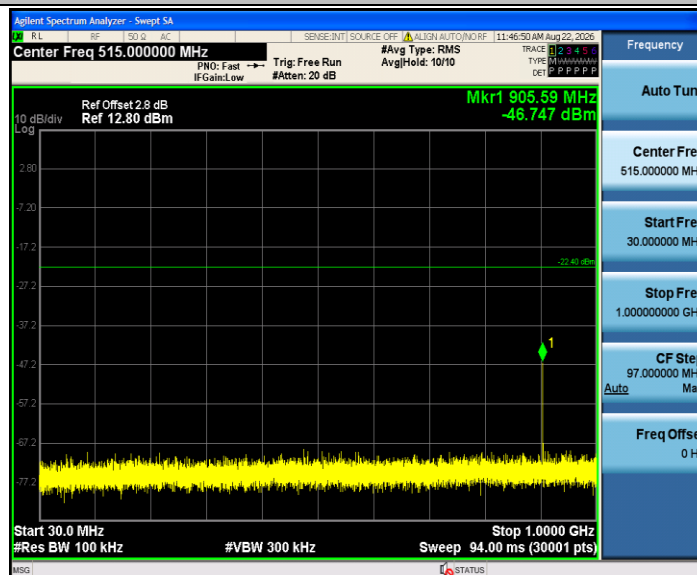
BLE_2M_Ant1_2402_1000~26500



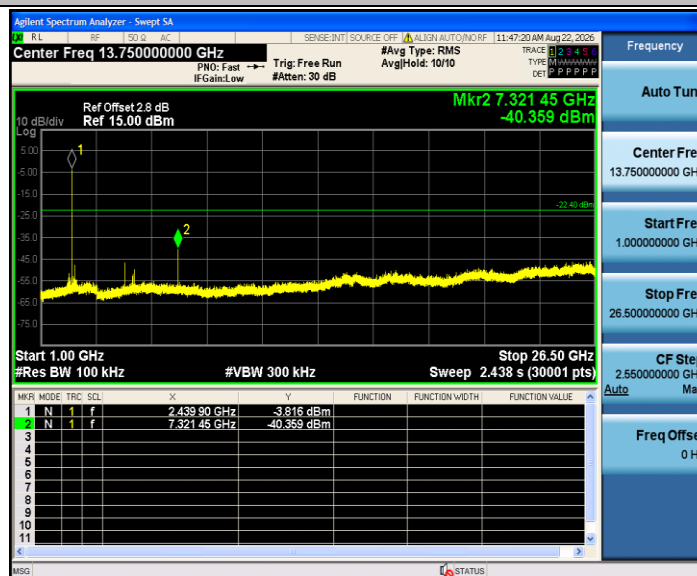
BLE_2M_Ant1_2440_0~Reference



BLE_2M_Ant1_2440_30~1000



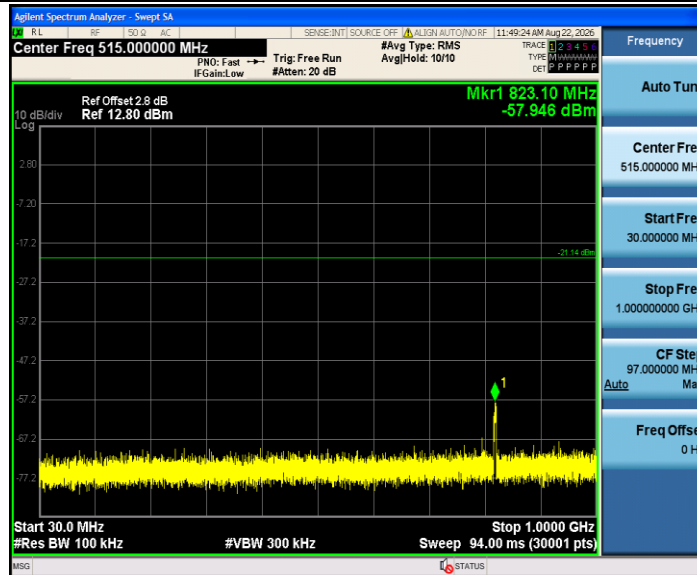
BLE_2M_Ant1_2440_1000~26500



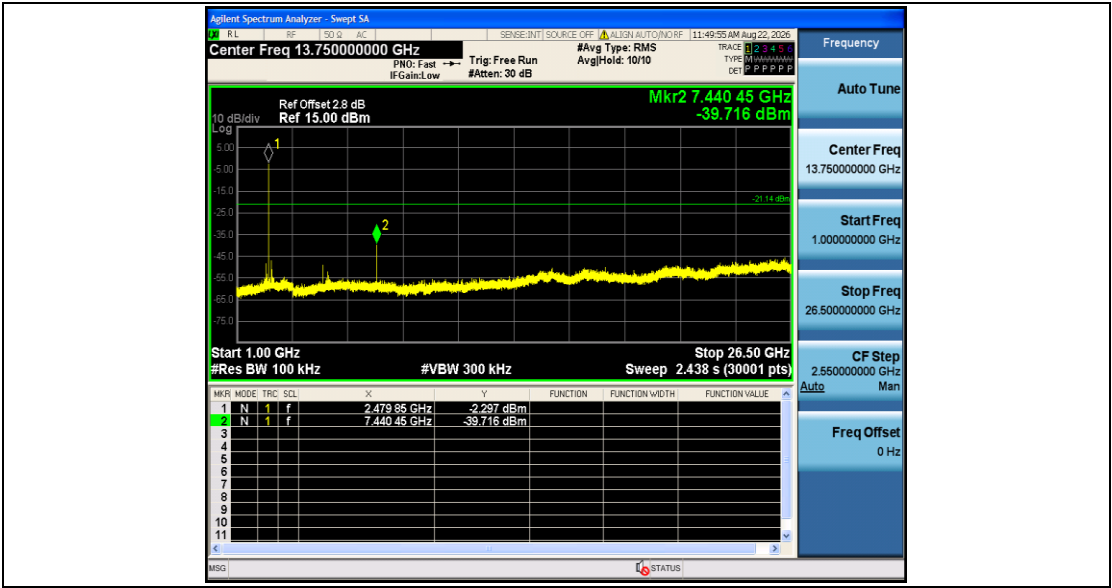
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



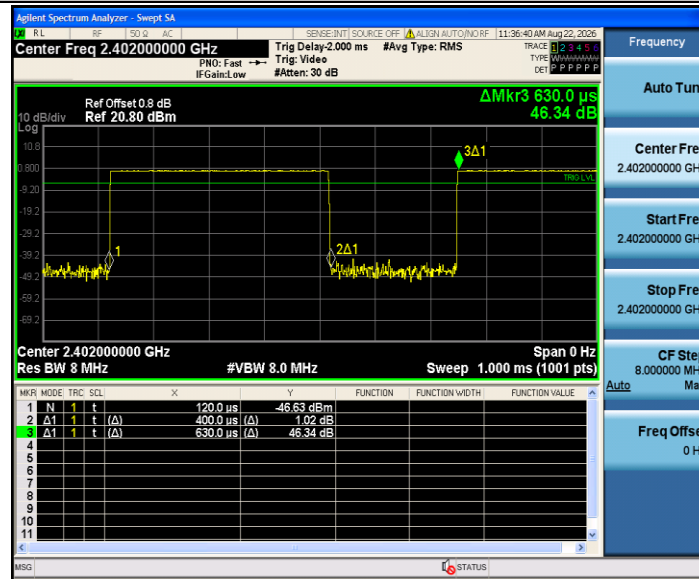
Appendix G: Duty Cycle

Test Result

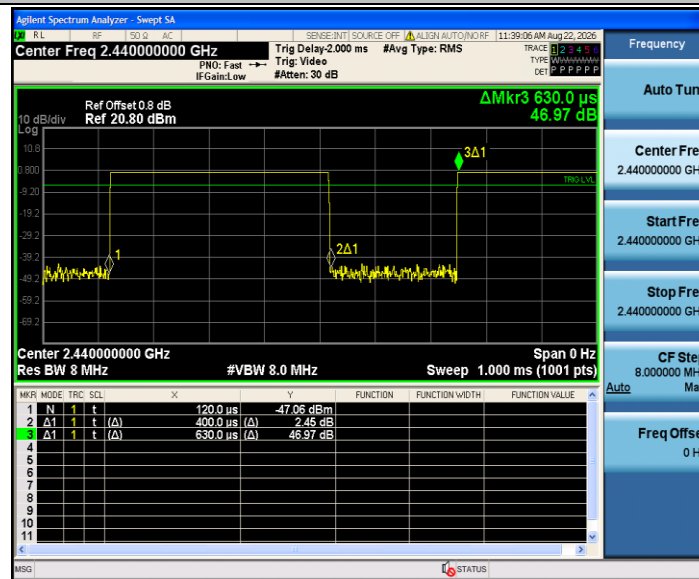
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.40	0.63	0.6349	63.49	1.97	---	---
		2440	0.40	0.63	0.6349	63.49	1.97	---	---
		2480	0.40	0.63	0.6349	63.49	1.97	---	---
BLE_2M	Ant1	2402	0.21	0.63	0.3333	33.33	4.77	---	---
		2440	0.21	0.63	0.3333	33.33	4.77	---	---
		2480	0.21	0.63	0.3333	33.33	4.77	---	---

Test Graphs

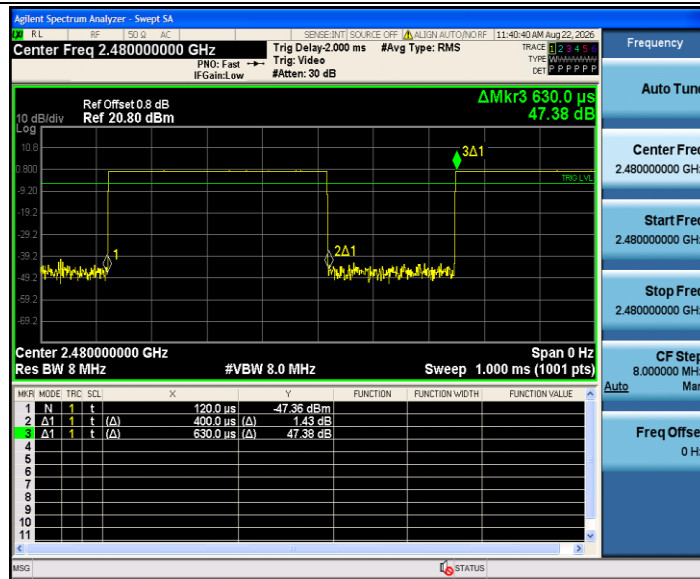
BLE_1M_Ant1_2402



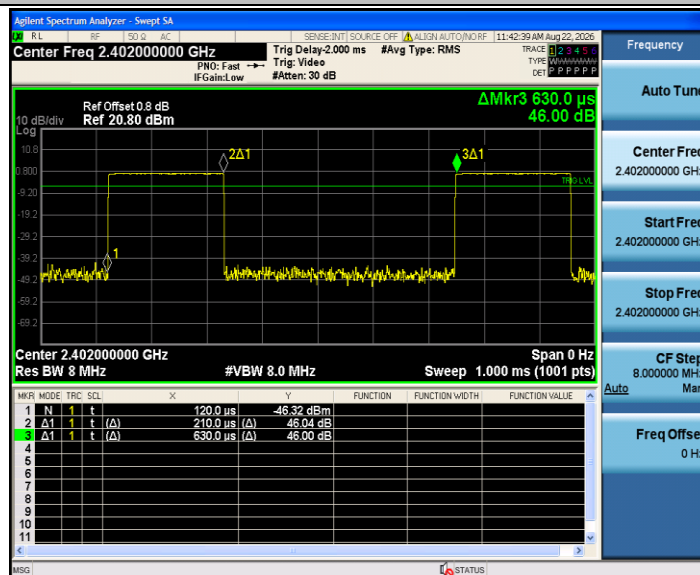
BLE_1M_Ant1_2440



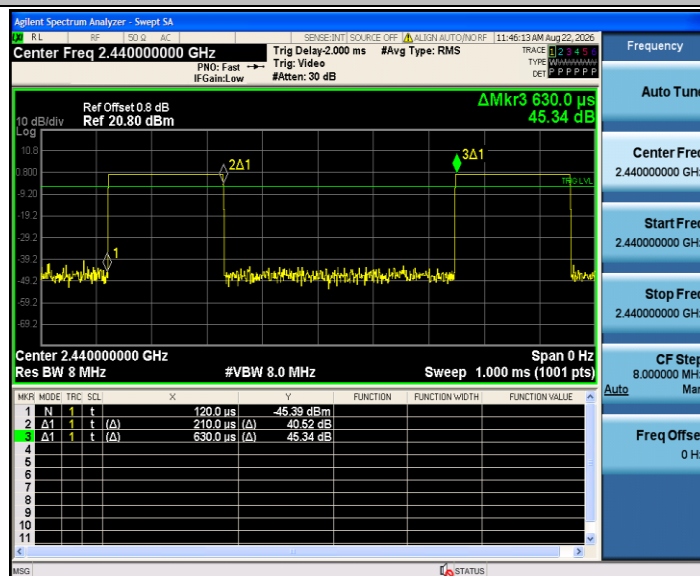
BLE_1M_Ant1_2480



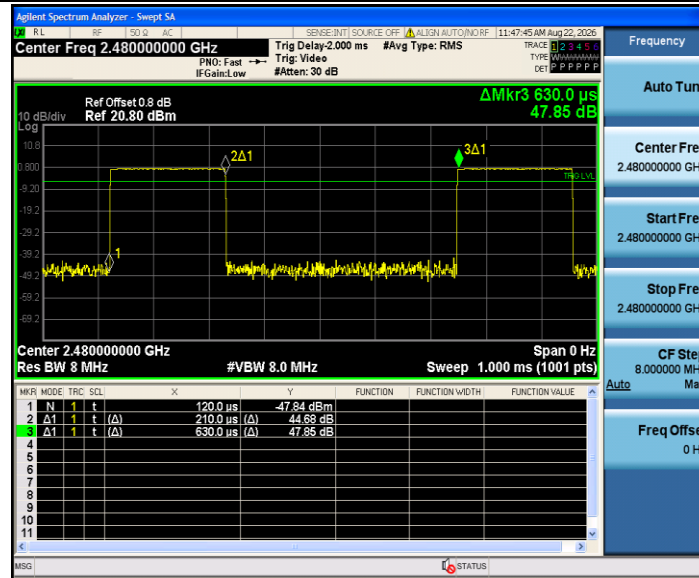
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

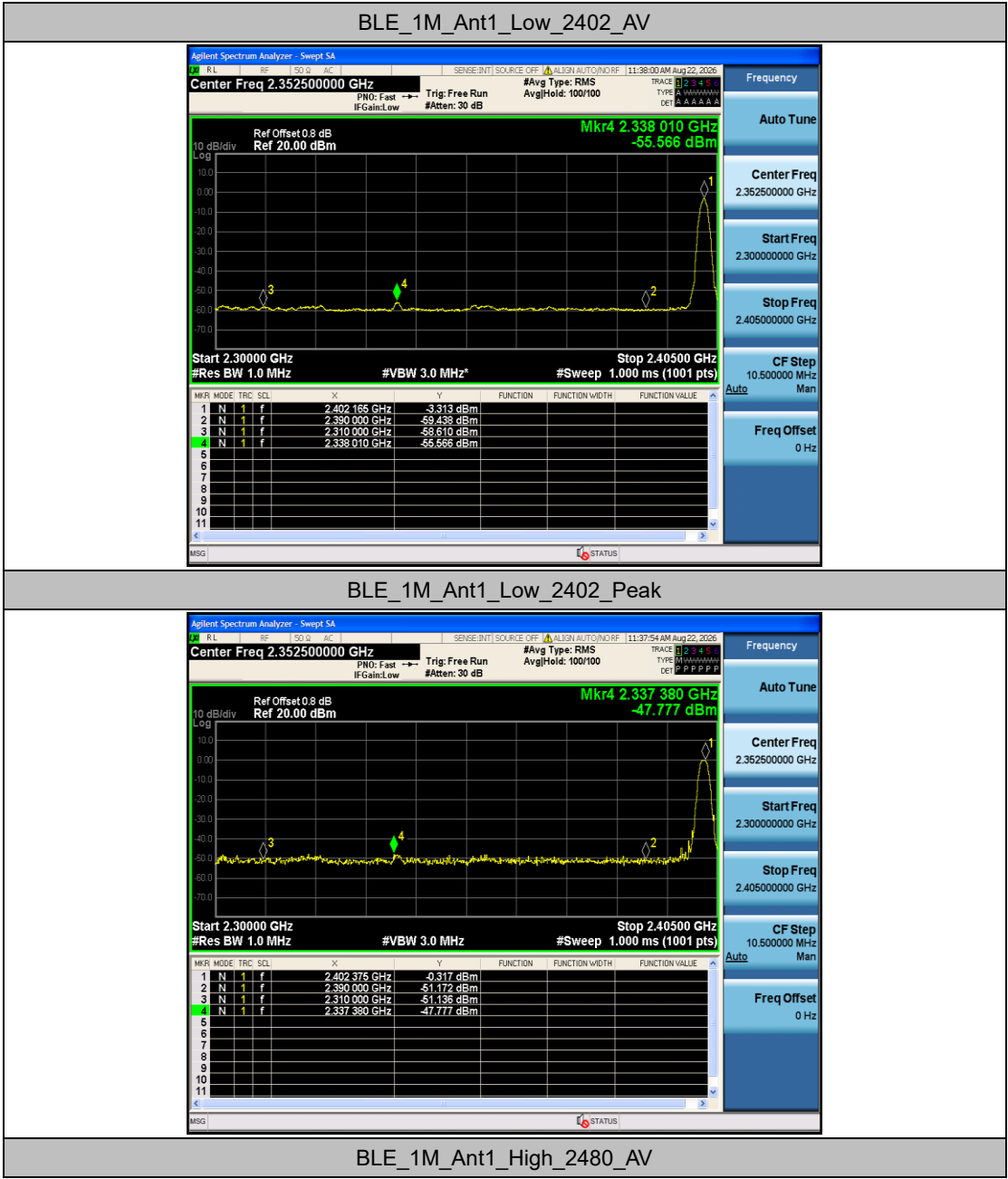
Test Result

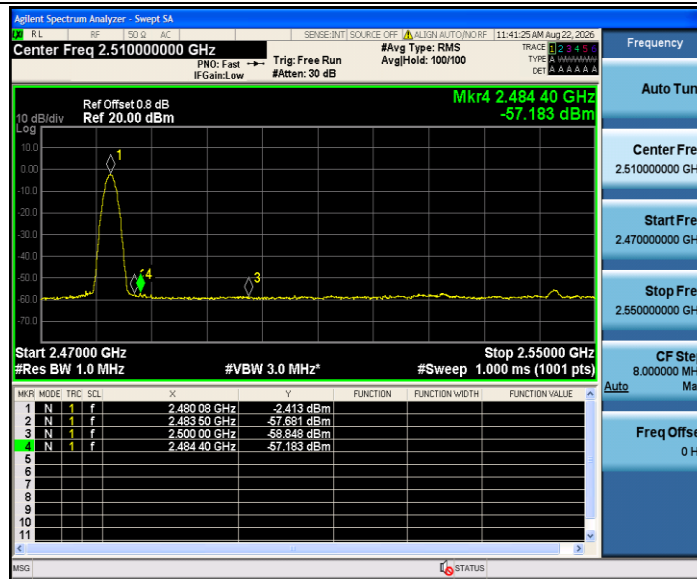
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-58.61	2.00	1.97	40.56	≤54	PASS
				AV	2338.010	-55.57	2.00	1.97	43.60	≤54	PASS
				AV	2390.000	-59.44	2.00	1.97	39.73	≤54	PASS
				Peak	2310.000	-51.14	2.00	0.00	46.06	≤74	PASS
				Peak	2337.380	-47.78	2.00	0.00	49.42	≤74	PASS
				Peak	2390.000	-51.17	2.00	0.00	46.03	≤74	PASS
		High	2480	AV	2483.500	-57.68	2.00	1.97	41.49	≤54	PASS
				AV	2484.400	-57.18	2.00	1.97	41.99	≤54	PASS
				AV	2500.000	-58.85	2.00	1.97	40.32	≤54	PASS
				Peak	2483.500	-36.64	2.00	0.00	60.56	≤74	PASS
				Peak	2483.520	-36.64	2.00	0.00	60.56	≤74	PASS
				Peak	2500.000	-49.16	2.00	0.00	48.04	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-59.48	2.00	4.77	42.49	≤54	PASS
				AV	2337.800	-57.24	2.00	4.77	44.73	≤54	PASS
				AV	2390.000	-59.47	2.00	4.77	42.50	≤54	PASS
				Peak	2310.000	-49.04	2.00	0.00	48.16	≤74	PASS
				Peak	2338.535	-47.49	2.00	0.00	49.71	≤74	PASS
				Peak	2390.000	-51.03	2.00	0.00	46.17	≤74	PASS
		High	2480	AV	2483.500	-56.7	2.00	4.77	45.27	≤54	PASS
				AV	2483.760	-55.21	2.00	4.77	46.76	≤54	PASS
				AV	2500.000	-59.47	2.00	4.77	42.50	≤54	PASS
				Peak	2483.500	-45	2.00	0.00	52.20	≤74	PASS
				Peak	2484.320	-40.4	2.00	0.00	56.80	≤74	PASS
				Peak	2500.000	-50.46	2.00	0.00	46.74	≤74	PASS

Note:

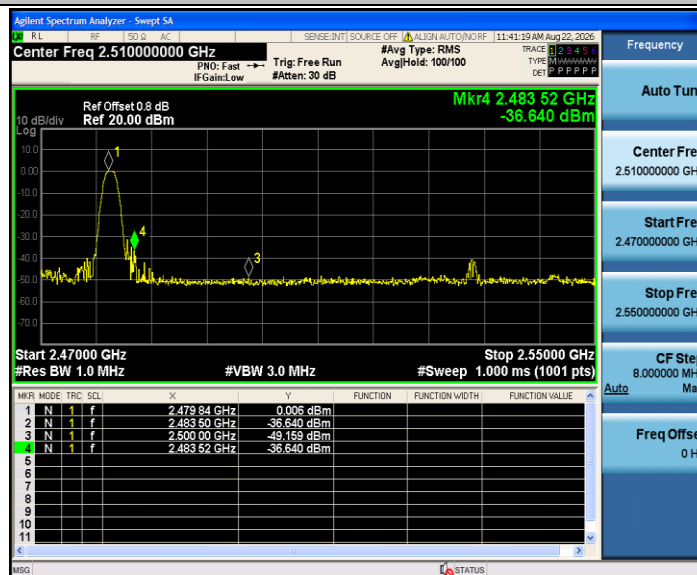
The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

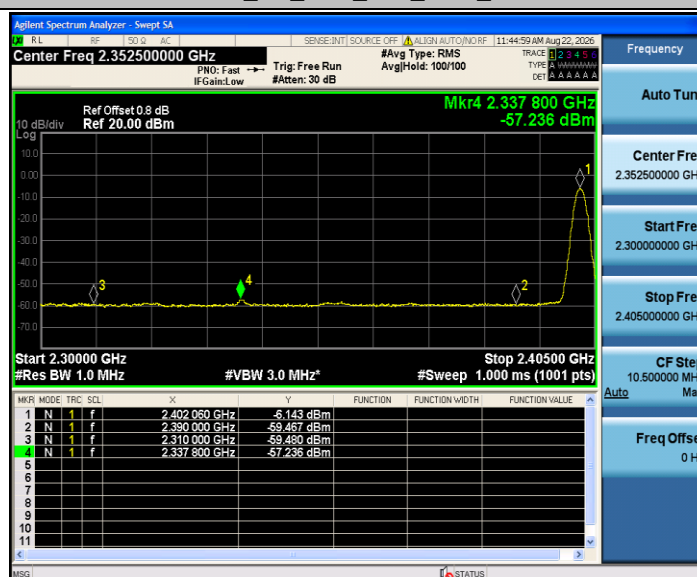




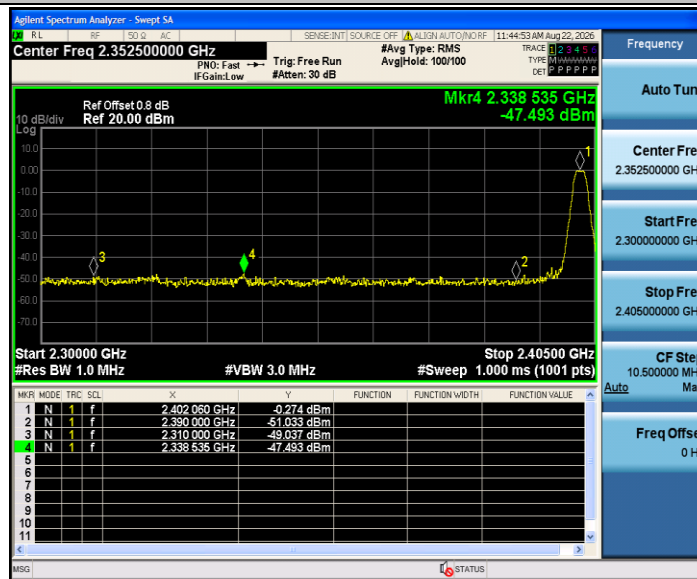
BLE_1M_Ant1_High_2480_Peak



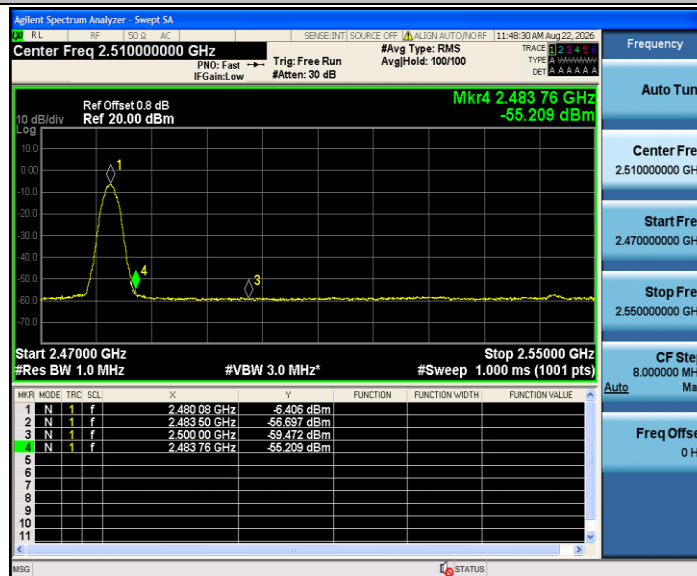
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

