

FCC Appendix RF Test Data for BLE

FCC ID : 2BYHW-US-H8-2

Company : Changsha Eulon Robot Co., Ltd.

EUT : Double-Lower-Limb Hip Joint Motion Assistance Device

Model Number : US-H8-2.0

Report No. : CTA26092201501

Reviewed By : Eric Wang

Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.656	2401.684	2402.340	0.5	PASS
		2440	0.656	2439.684	2440.340	0.5	PASS
		2480	0.644	2479.692	2480.336	0.5	PASS
BLE_2M	Ant1	2402	1.112	2401.444	2402.556	0.5	PASS
		2440	1.124	2439.440	2440.564	0.5	PASS
		2480	1.116	2479.448	2480.564	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

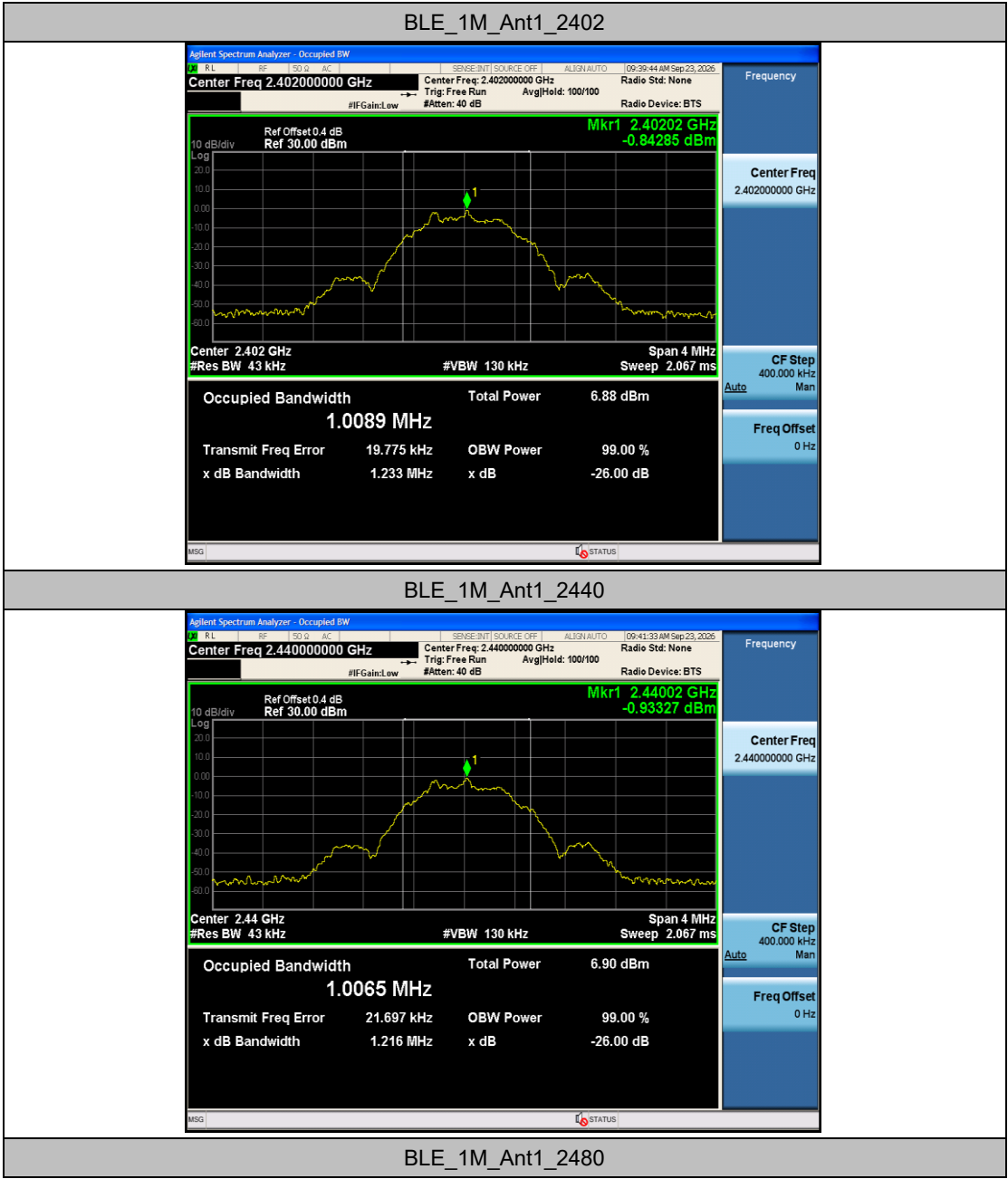


Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0089	2401.5153	2402.5242	---	---
		2440	1.0065	2439.5185	2440.5250	---	---
		2480	1.0033	2479.5172	2480.5205	---	---
BLE_2M	Ant1	2402	2.0018	2401.0351	2403.0369	---	---
		2440	2.0061	2439.0288	2441.0349	---	---
		2480	2.0071	2479.0286	2481.0357	---	---

Test Graphs





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix C: Maximum conducted output power

Test Result Peak

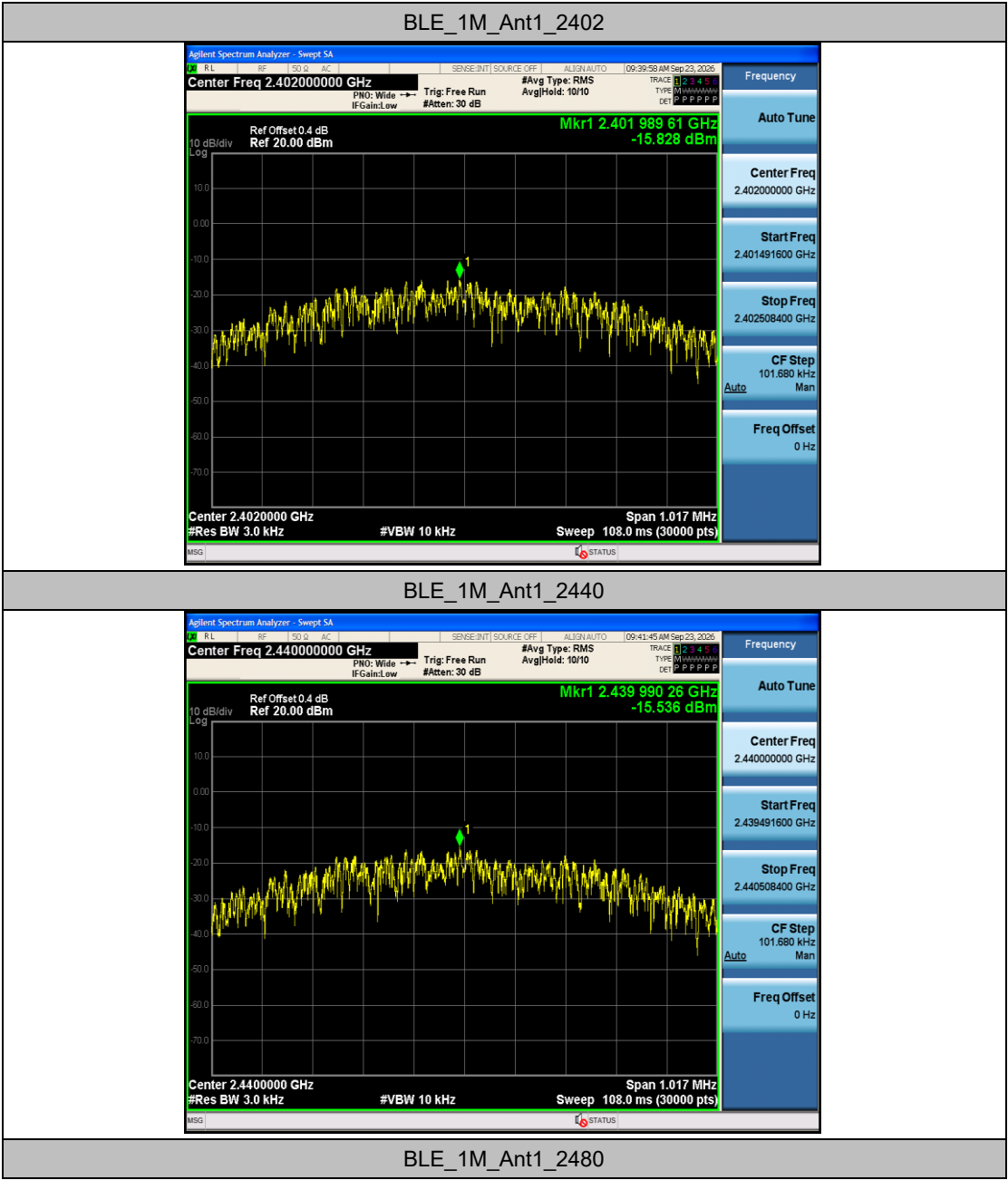
Test Mode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.17	≤30	PASS
		2440	0.05	≤30	PASS
		2480	-0.23	≤30	PASS
BLE_2M	Ant1	2402	0.06	≤30	PASS
		2440	-0.08	≤30	PASS
		2480	-0.34	≤30	PASS

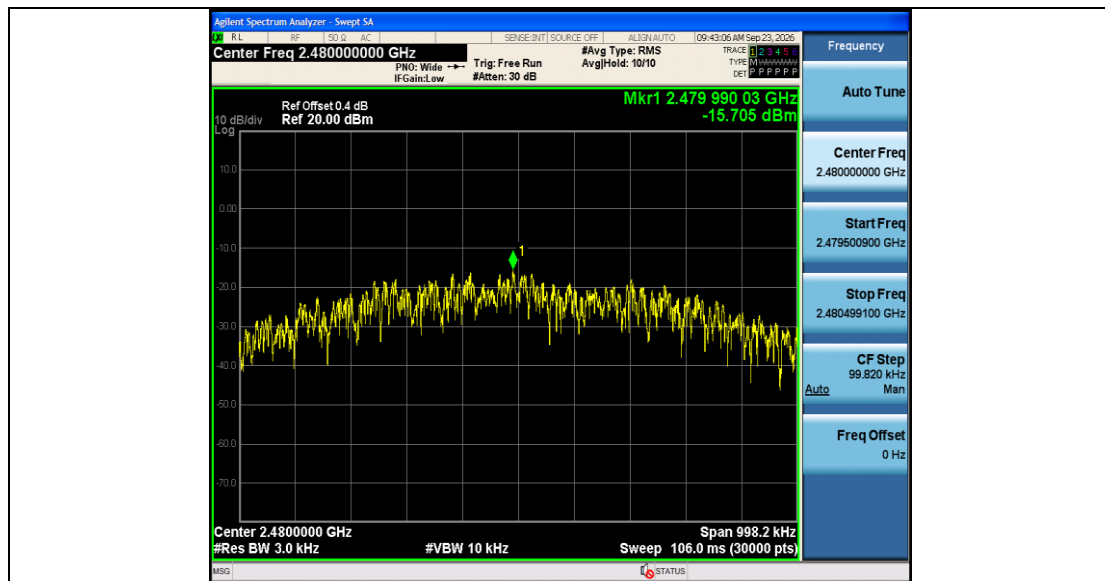
Appendix D: Maximum power spectral density

Test Result

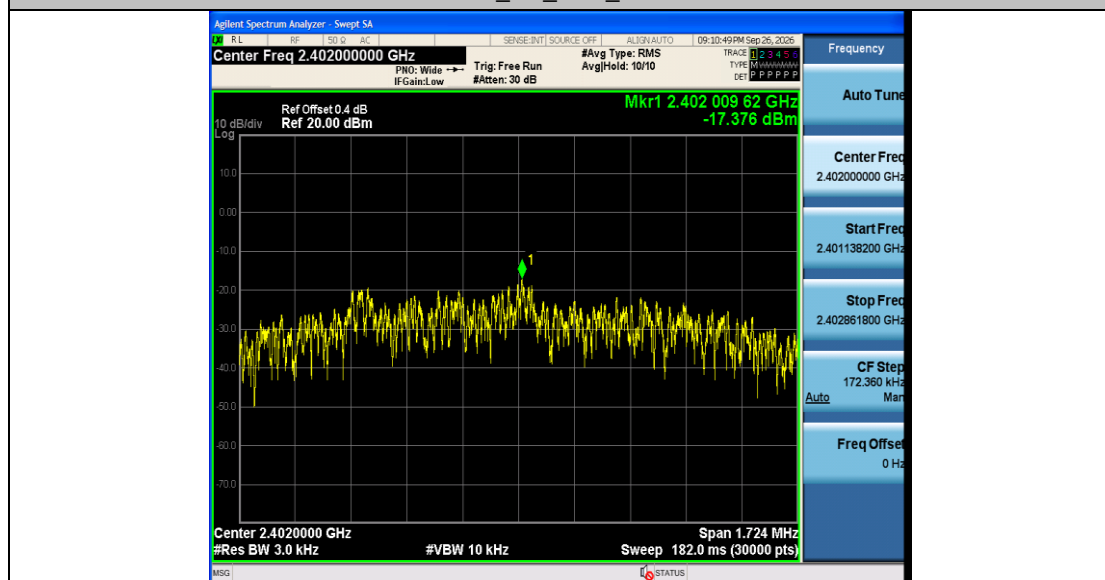
Test Mode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.83	≤8.00	PASS
		2440	-15.54	≤8.00	PASS
		2480	-15.71	≤8.00	PASS
BLE_2M	Ant1	2402	-17.38	≤8.00	PASS
		2440	-17.57	≤8.00	PASS
		2480	-17.71	≤8.00	PASS

Test Graphs

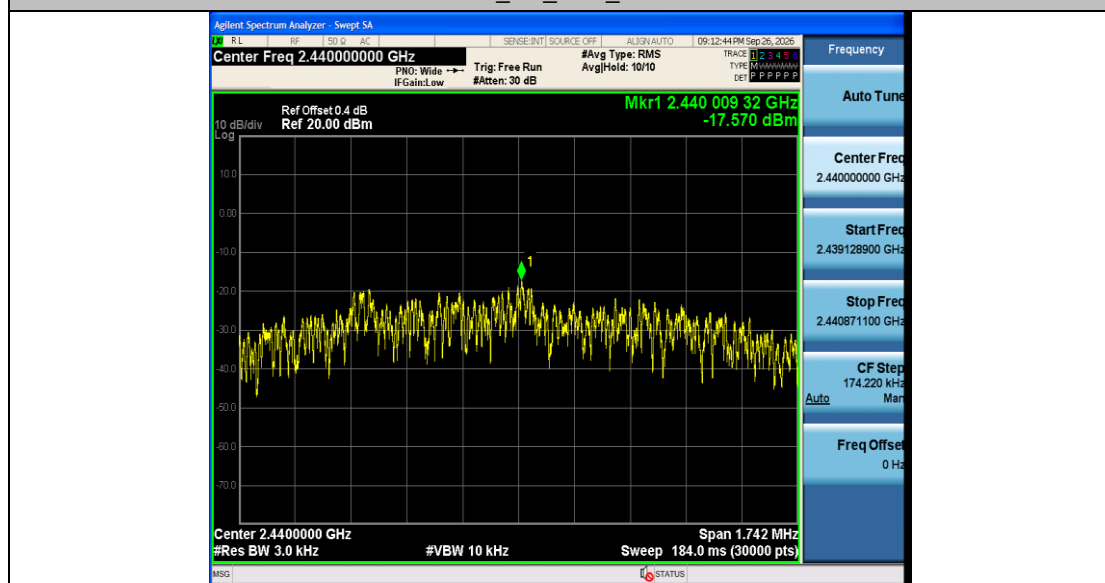




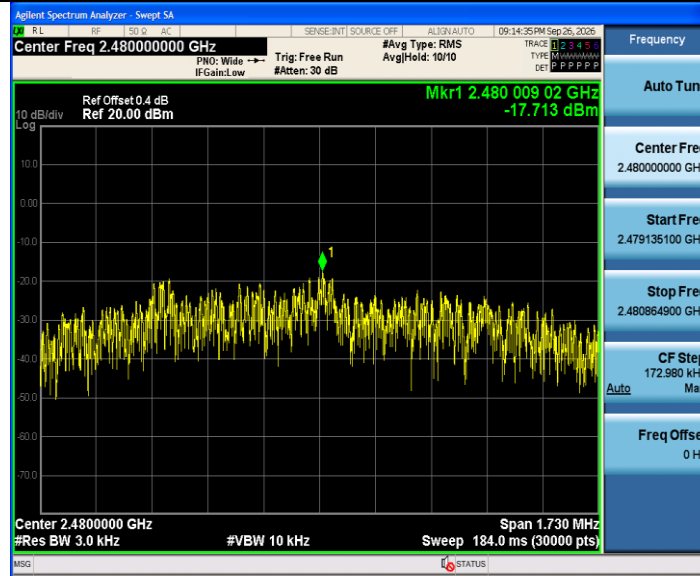
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

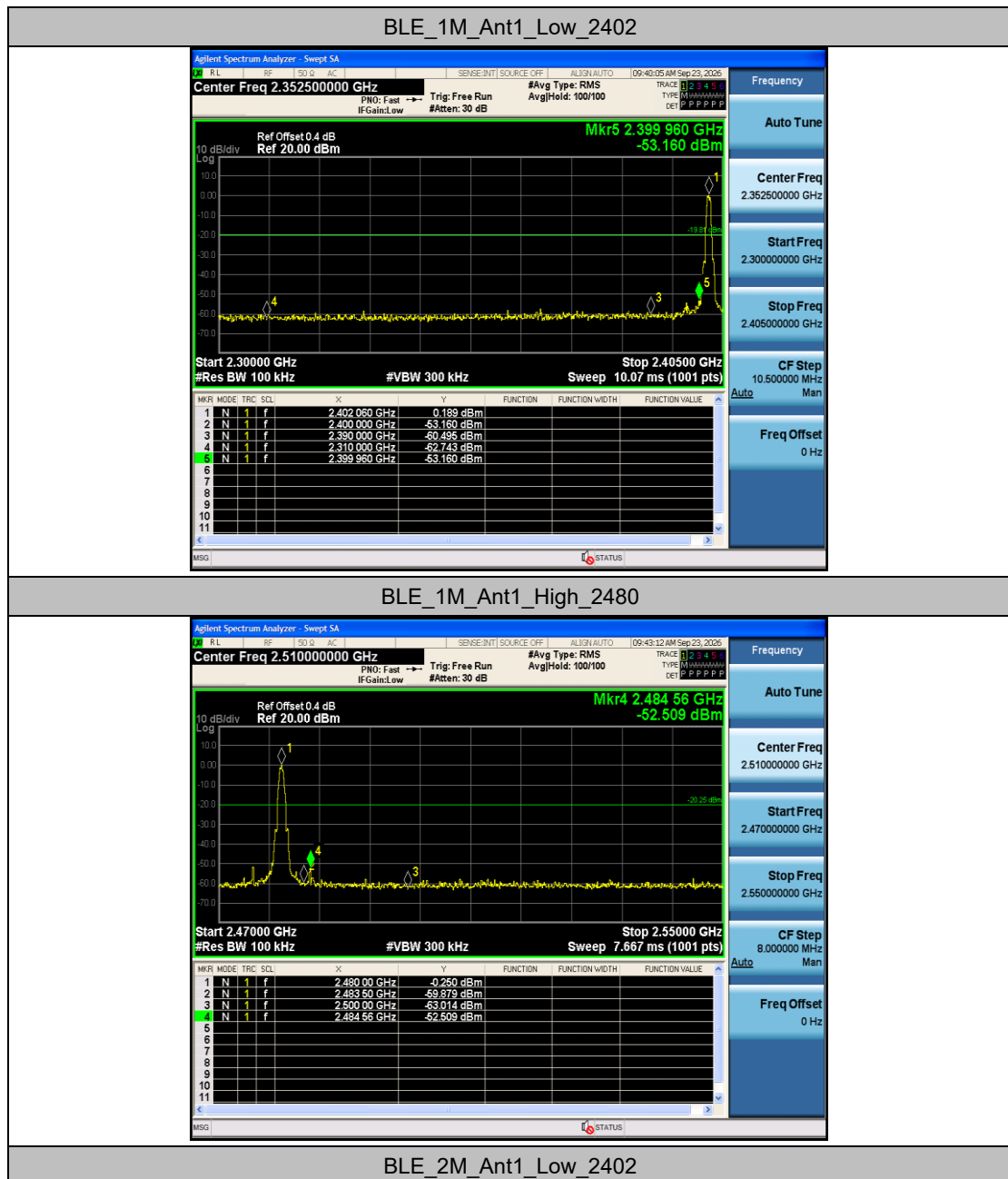


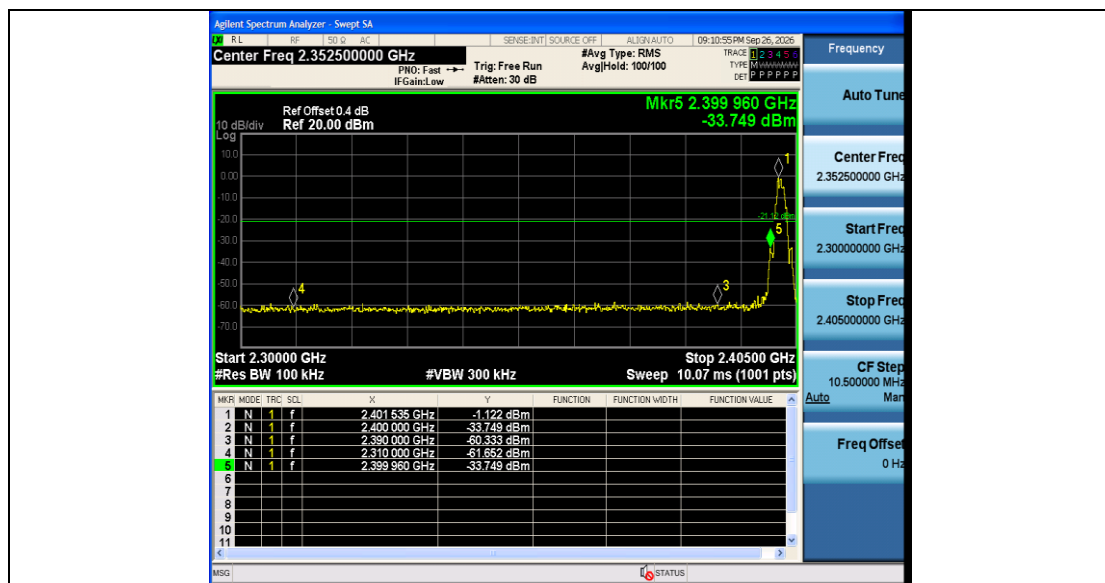
Appendix E: Band edge measurements

Test Result

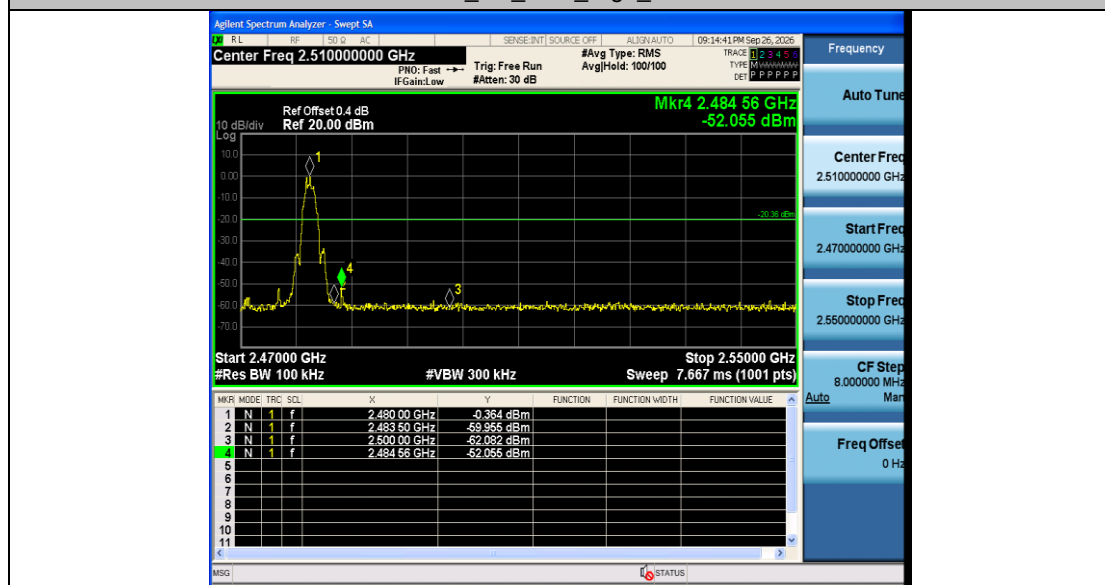
Test Mode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.19	-53.16	≤ -19.81	PASS
		High	2480	-0.25	-52.51	≤ -20.25	PASS
BLE_2M	Ant1	Low	2402	-1.12	-33.75	≤ -21.12	PASS
		High	2480	-0.36	-52.06	≤ -20.36	PASS

Test Graphs





BLE_2M_Ant1_High_2480

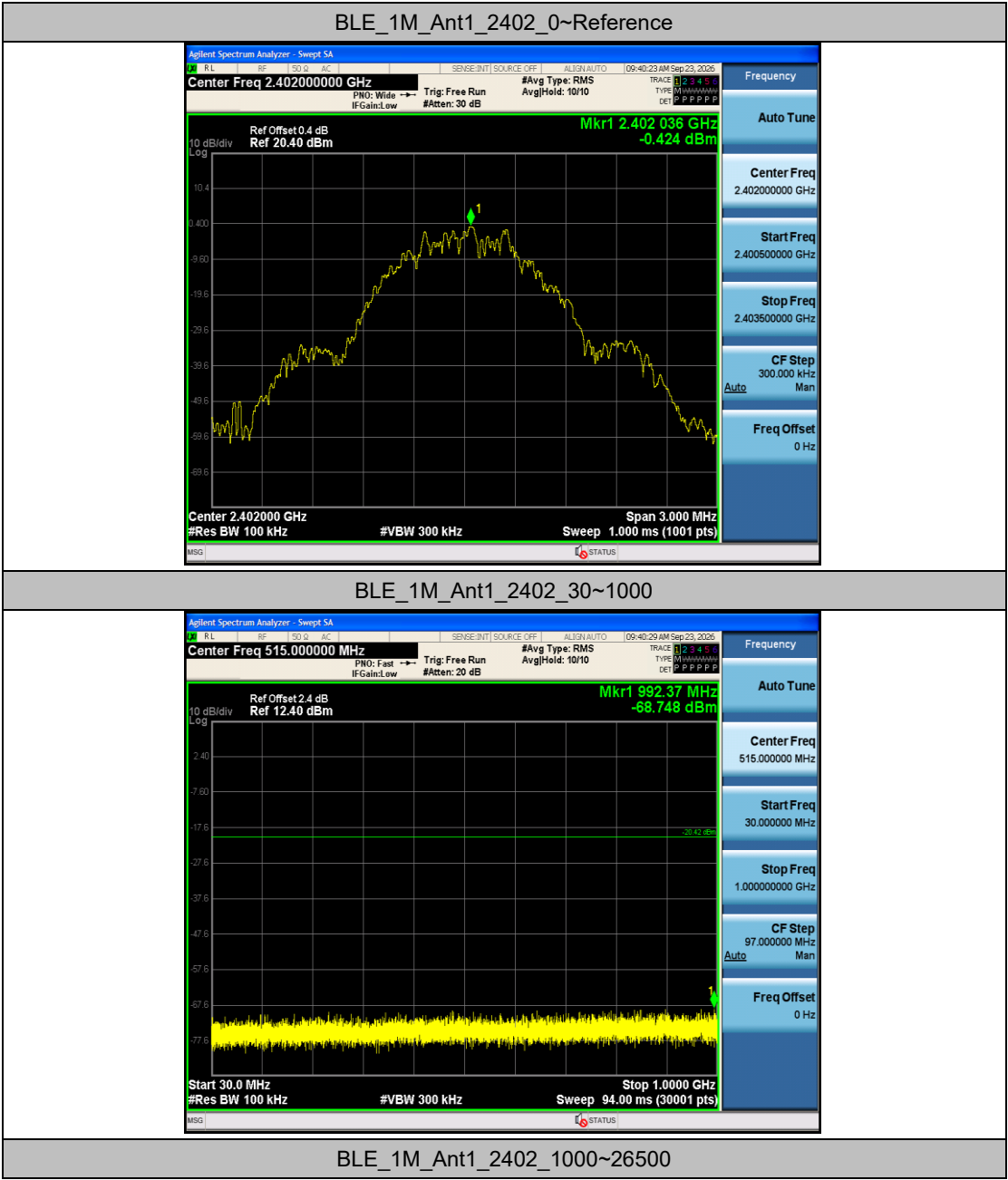


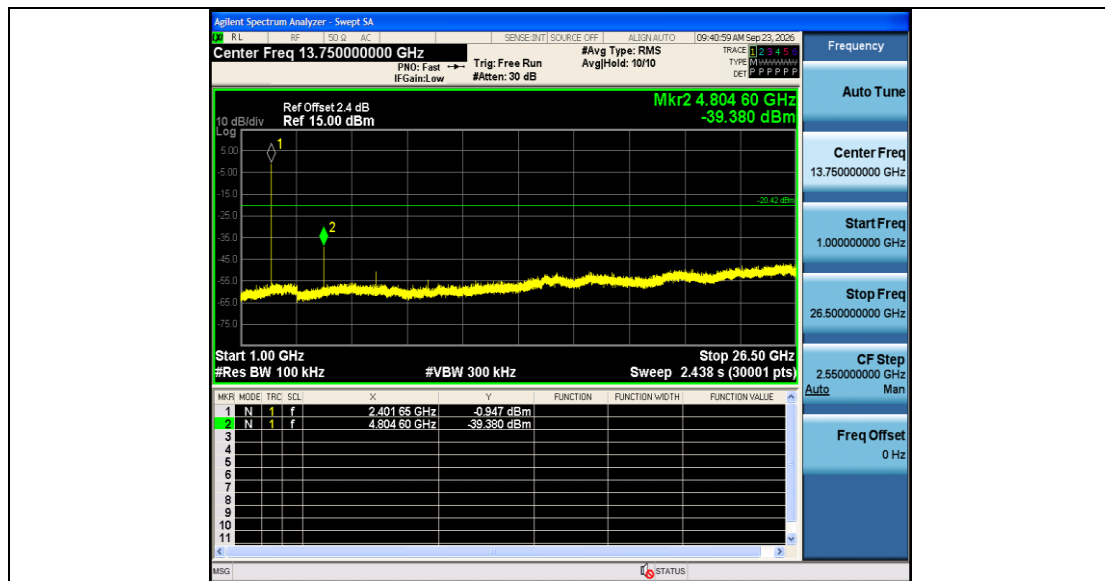
Appendix F: Conducted Spurious Emission

Test Result

Test Mode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.42	-0.42	---	PASS
			30~1000	-0.42	-68.75	≤-20.42	PASS
			1000~26500	-0.42	-39.38	≤-20.42	PASS
		2440	Reference	-0.10	-0.10	---	PASS
			30~1000	-0.10	-68.49	≤-20.1	PASS
			1000~26500	-0.10	-42.06	≤-20.1	PASS
		2480	Reference	-1.06	-1.06	---	PASS
			30~1000	-1.06	-67.92	≤-21.06	PASS
			1000~26500	-1.06	-42.76	≤-21.06	PASS
BLE_2M	Ant1	2402	Reference	-4.98	-4.98	---	PASS
			30~1000	-4.98	-68.49	≤-24.98	PASS
			1000~26500	-4.98	-42.72	≤-24.98	PASS
		2440	Reference	-2.26	-2.26	---	PASS
			30~1000	-2.26	-68.79	≤-22.26	PASS
			1000~26500	-2.26	-42.54	≤-22.26	PASS
		2480	Reference	-0.91	-0.91	---	PASS
			30~1000	-0.91	-68.59	≤-20.91	PASS
			1000~26500	-0.91	-43.48	≤-20.91	PASS

Test Graphs

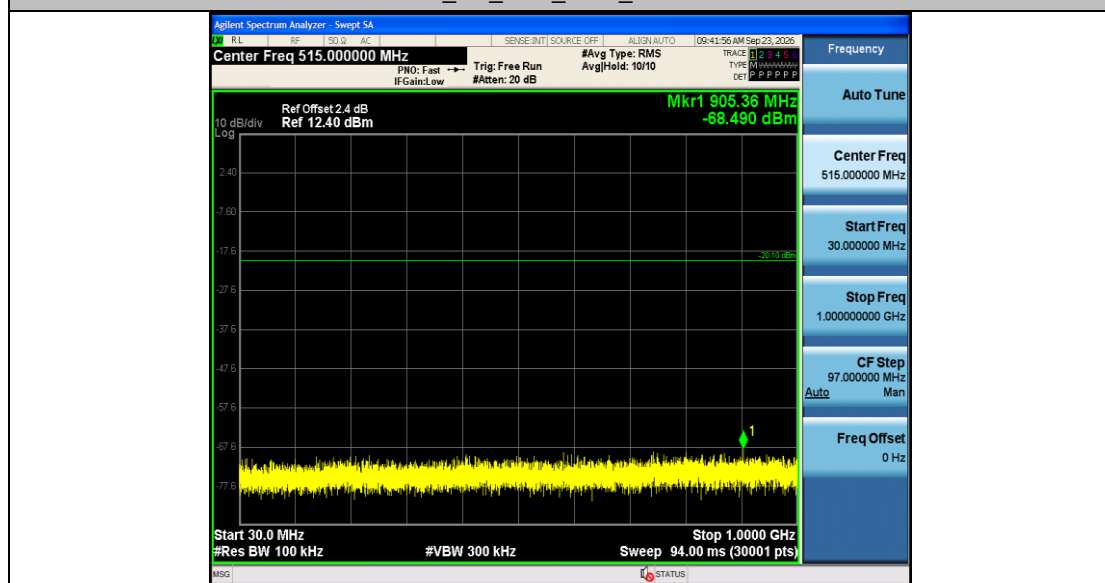




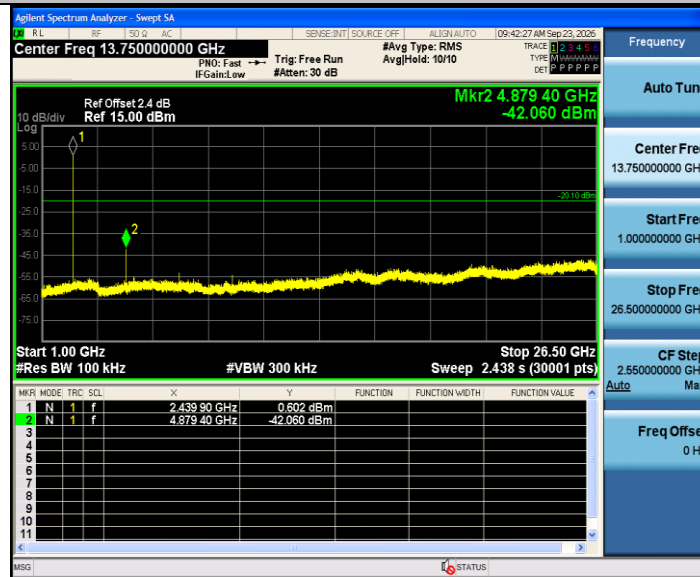
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



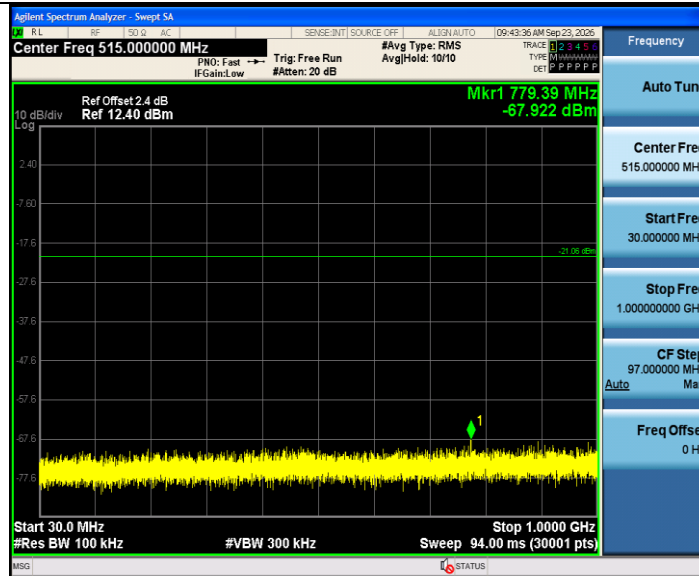
BLE_1M_Ant1_2440_1000~26500



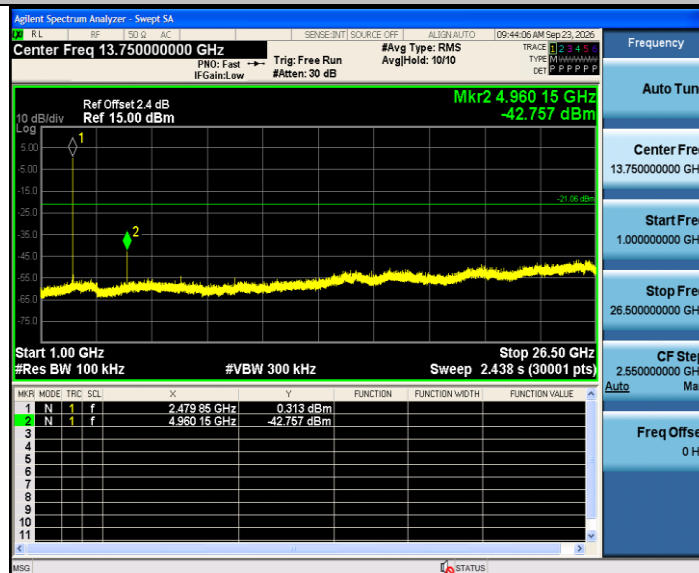
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



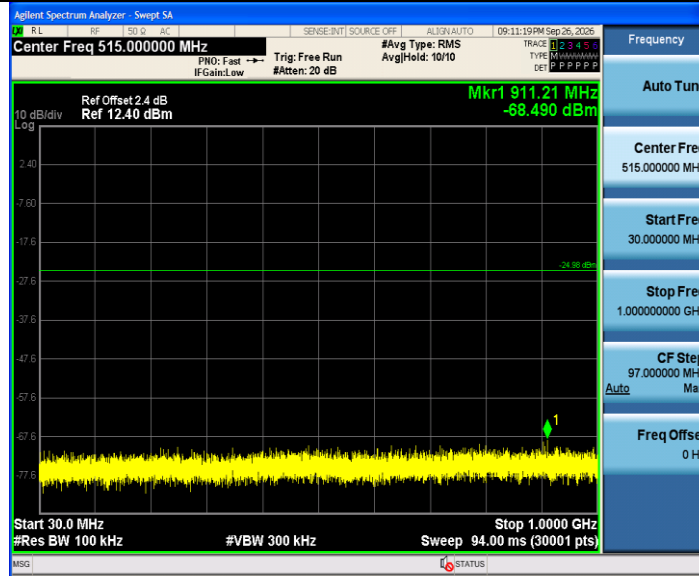
BLE_1M_Ant1_2480_1000~26500



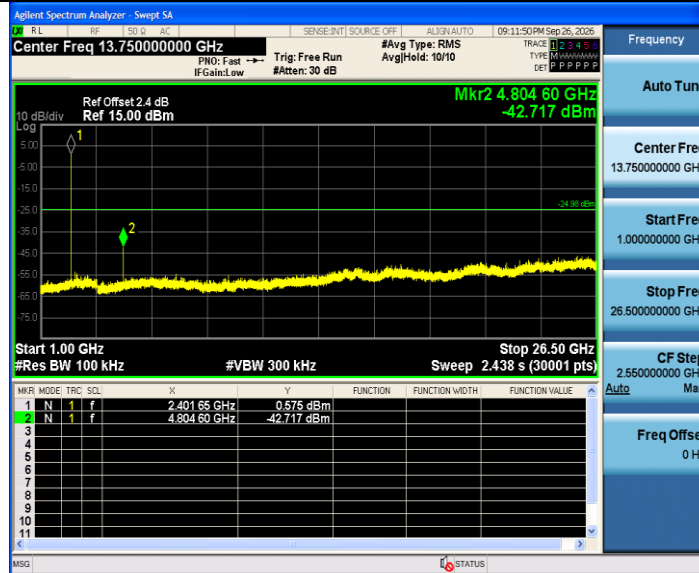
BLE_2M_Ant1_2402_0~Reference



BLE_2M_Ant1_2402_30~1000



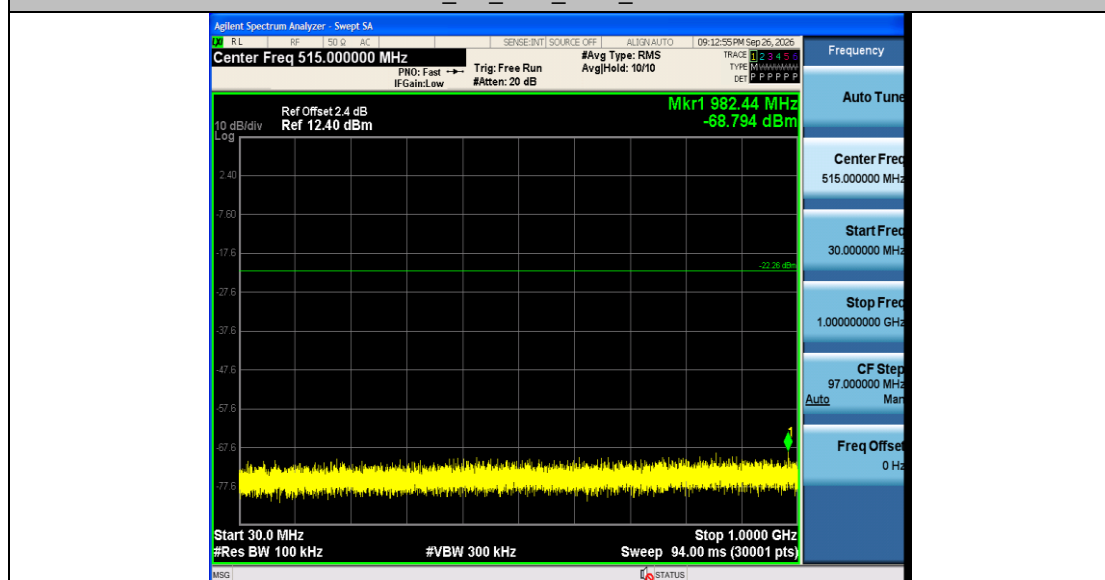
BLE_2M_Ant1_2402_1000~26500



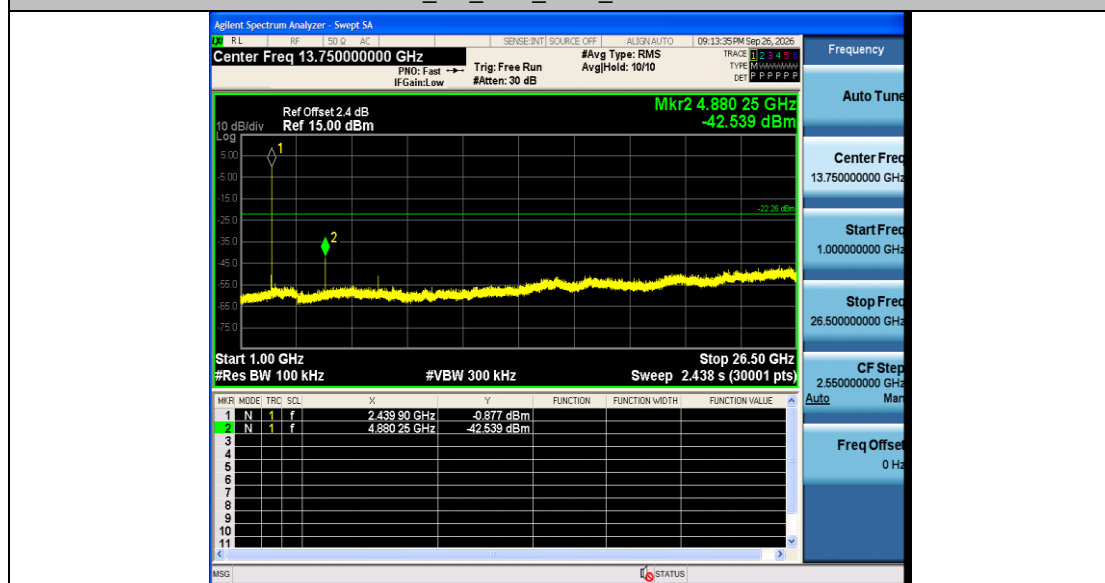
BLE_2M_Ant1_2440_0~Reference



BLE_2M_Ant1_2440_30~1000



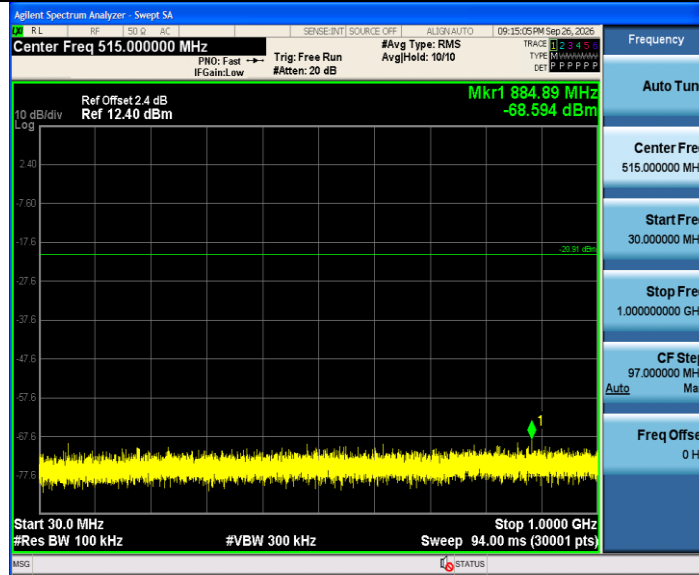
BLE_2M_Ant1_2440_1000~26500



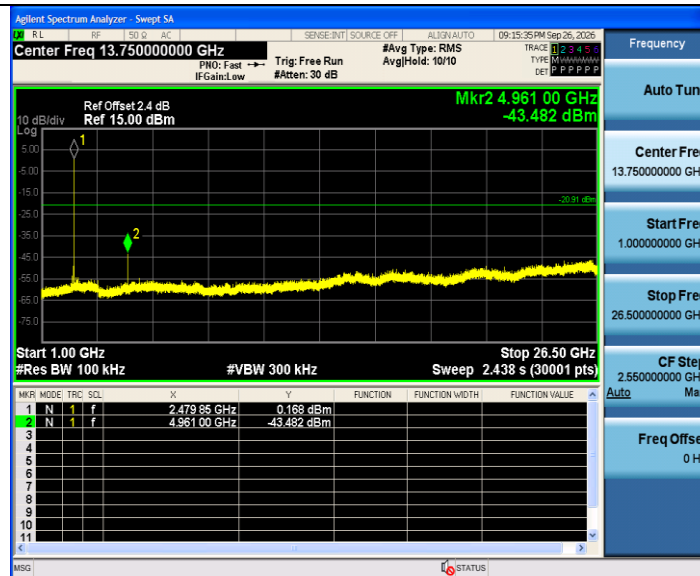
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500

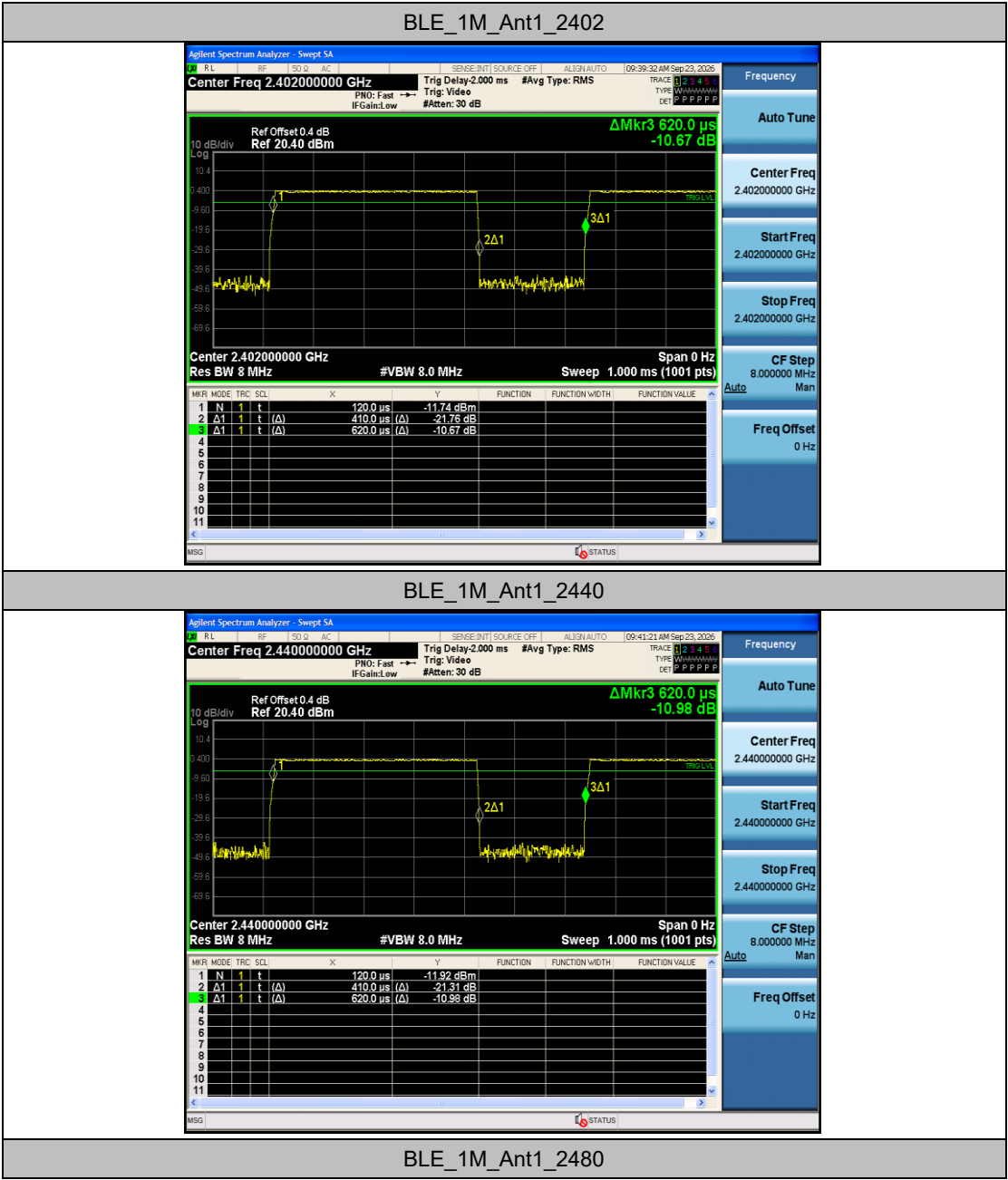


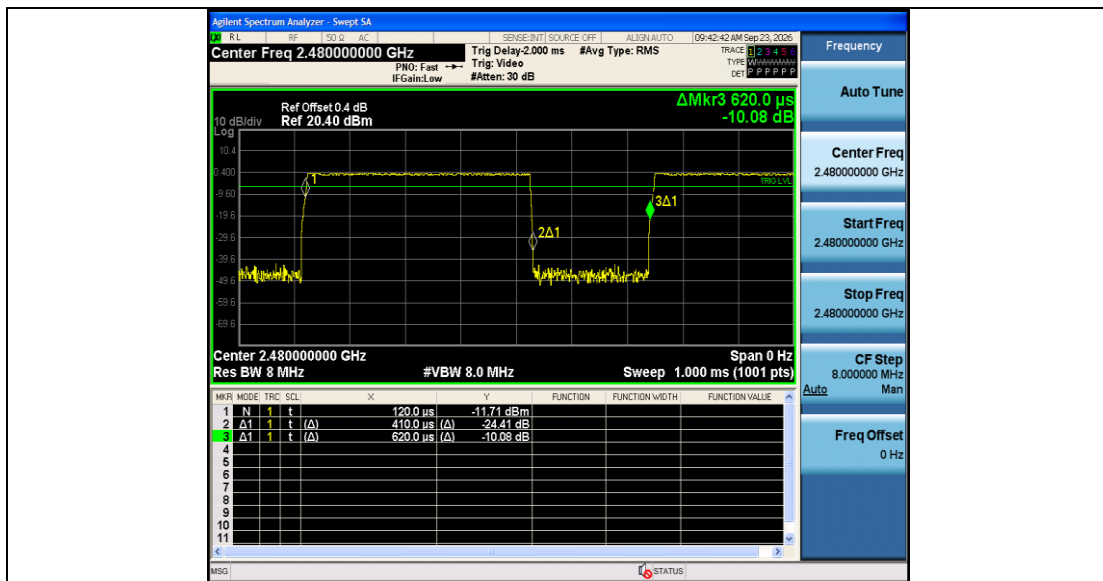
Appendix G: Duty Cycle

Test Result

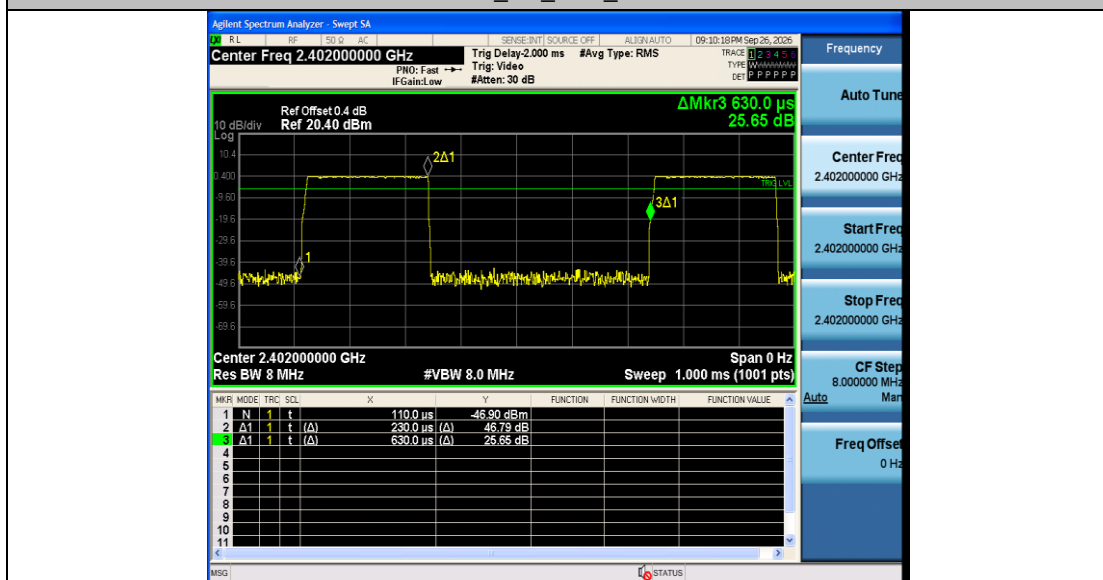
Test Mode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.41	0.62	0.6613	66.13	1.80	---	---
		2440	0.41	0.62	0.6613	66.13	1.80	---	---
		2480	0.41	0.62	0.6613	66.13	1.80	---	---
BLE_2M	Ant1	2402	0.23	0.63	0.3651	36.51	4.38	---	---
		2440	0.22	0.62	0.3548	35.48	4.50	---	---
		2480	0.23	0.63	0.3651	36.51	4.38	---	---

Test Graphs

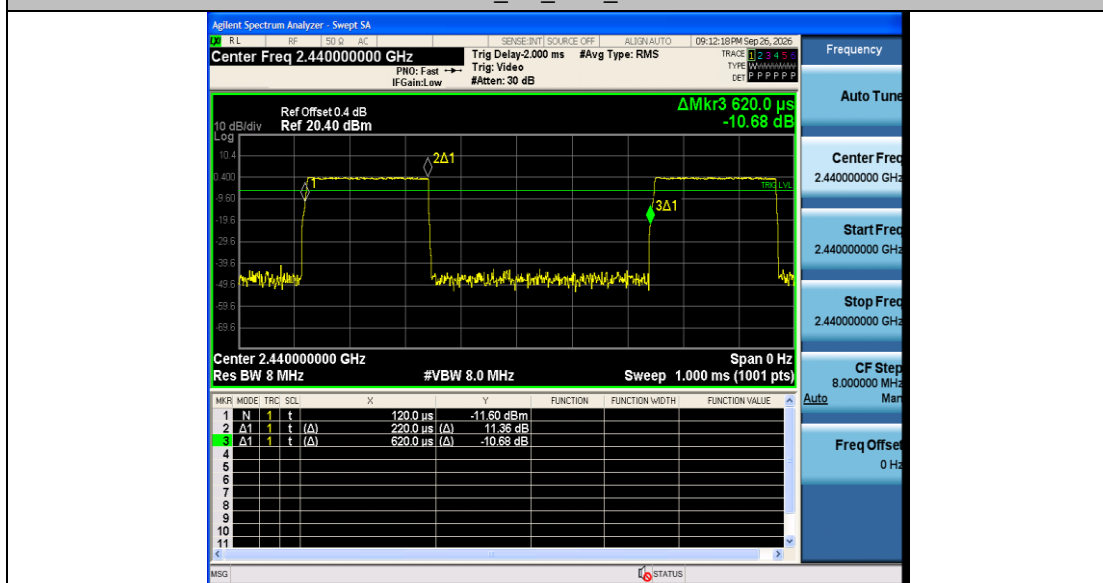




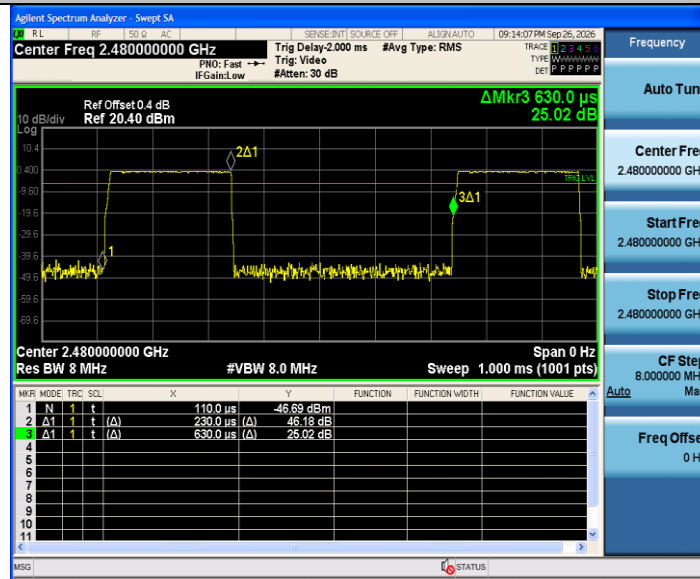
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

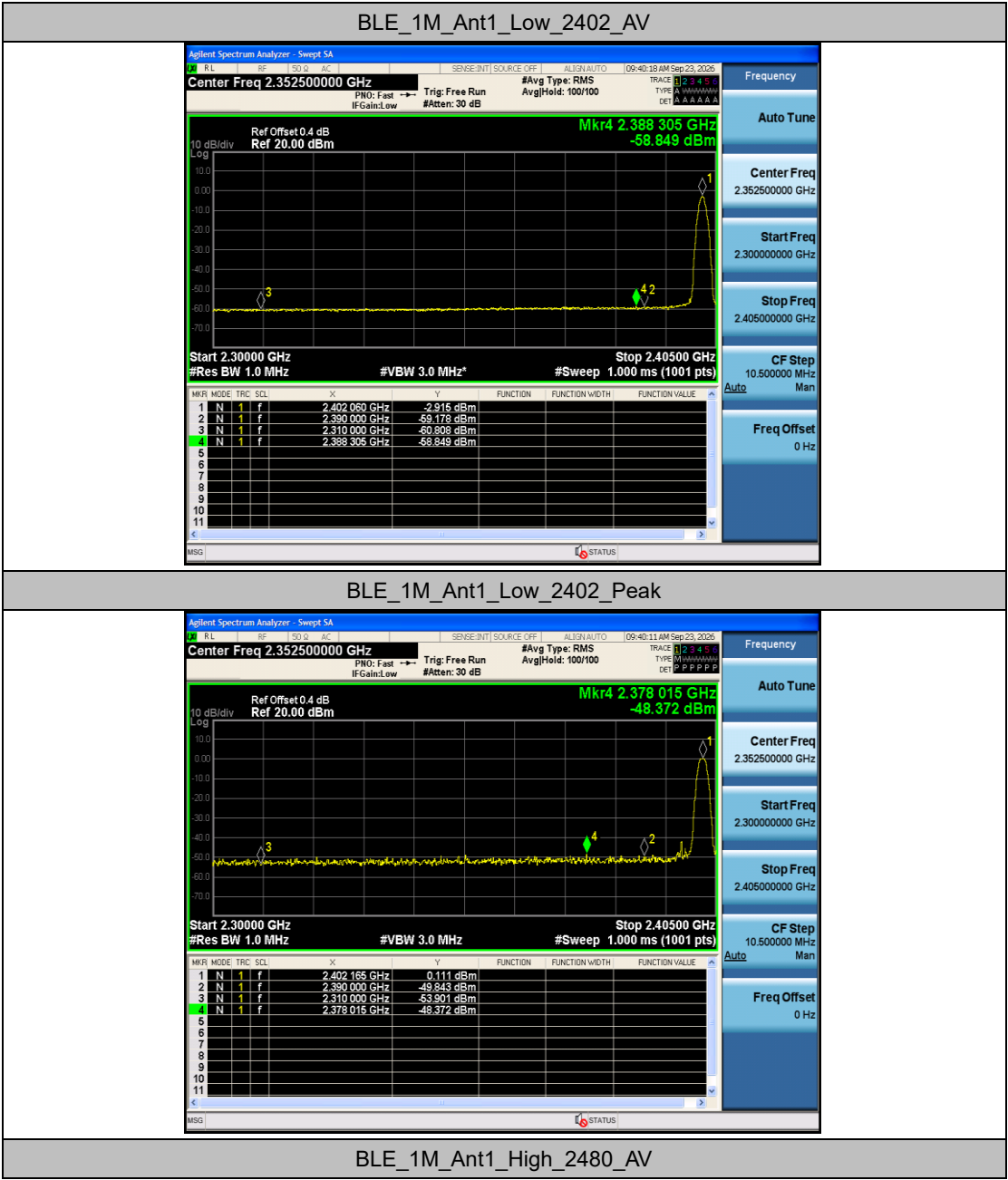
Test Result

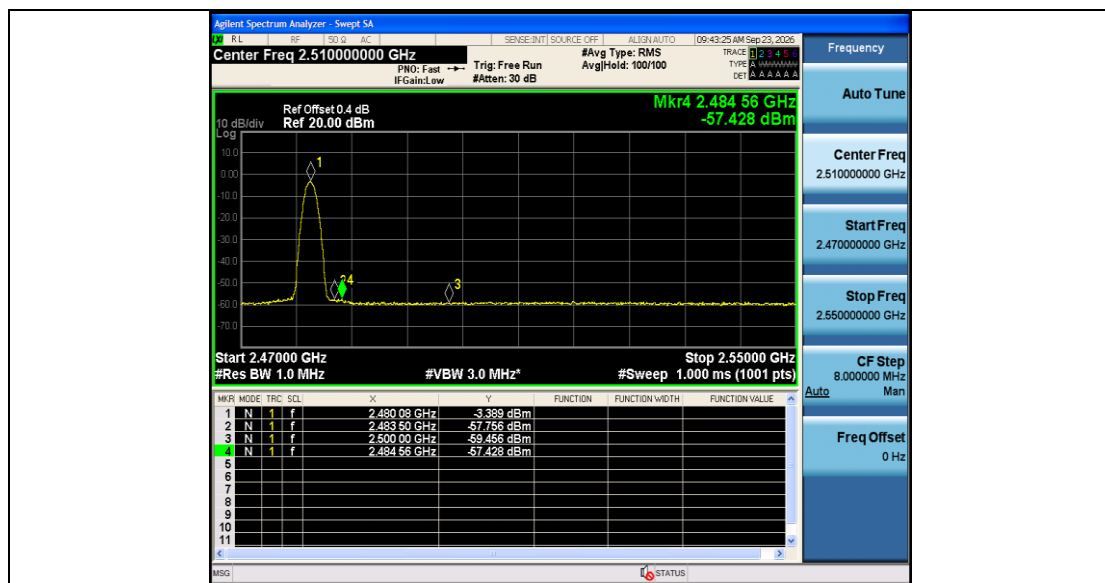
Test Mode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.81	2.0	1.80	38.19	≤54	PASS
				AV	2388.305	-58.85	2.0	1.80	40.15	≤54	PASS
				AV	2390.000	-59.18	2.0	1.80	39.82	≤54	PASS
				Peak	2310.000	-53.9	2.0	0.00	43.3	≤74	PASS
				Peak	2378.015	-48.37	2.0	0.00	48.83	≤74	PASS
				Peak	2390.000	-49.84	2.0	0.00	47.36	≤74	PASS
		High	2480	AV	2483.500	-57.76	2.0	1.80	41.24	≤54	PASS
				AV	2484.560	-57.43	2.0	1.80	41.57	≤54	PASS
				AV	2500.000	-59.46	2.0	1.80	39.54	≤54	PASS
				Peak	2483.500	-50.66	2.0	0.00	46.54	≤74	PASS
				Peak	2484.640	-42.76	2.0	0.00	54.44	≤74	PASS
				Peak	2500.000	-51.73	2.0	0.00	45.47	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-60.11	2.0	4.38	41.47	≤54	PASS
				AV	2369.195	-59.42	2.0	4.38	42.16	≤54	PASS
				AV	2390.000	-59.78	2.0	4.38	41.8	≤54	PASS
				Peak	2310.000	-52.8	2.0	0.00	44.4	≤74	PASS
				Peak	2386.205	-49.08	2.0	0.00	48.12	≤74	PASS
				Peak	2390.000	-52.58	2.0	0.00	44.62	≤74	PASS
		High	2480	AV	2483.500	-57.87	2.0	4.38	43.71	≤54	PASS
				AV	2484.640	-57.59	2.0	4.38	43.99	≤54	PASS
				AV	2500.000	-60.1	2.0	4.38	41.48	≤54	PASS
				Peak	2483.500	-49.8	2.0	0.00	47.4	≤74	PASS
				Peak	2484.320	-44.41	2.0	0.00	52.79	≤74	PASS
				Peak	2500.000	-52.61	2.0	0.00	44.59	≤74	PASS

Note:

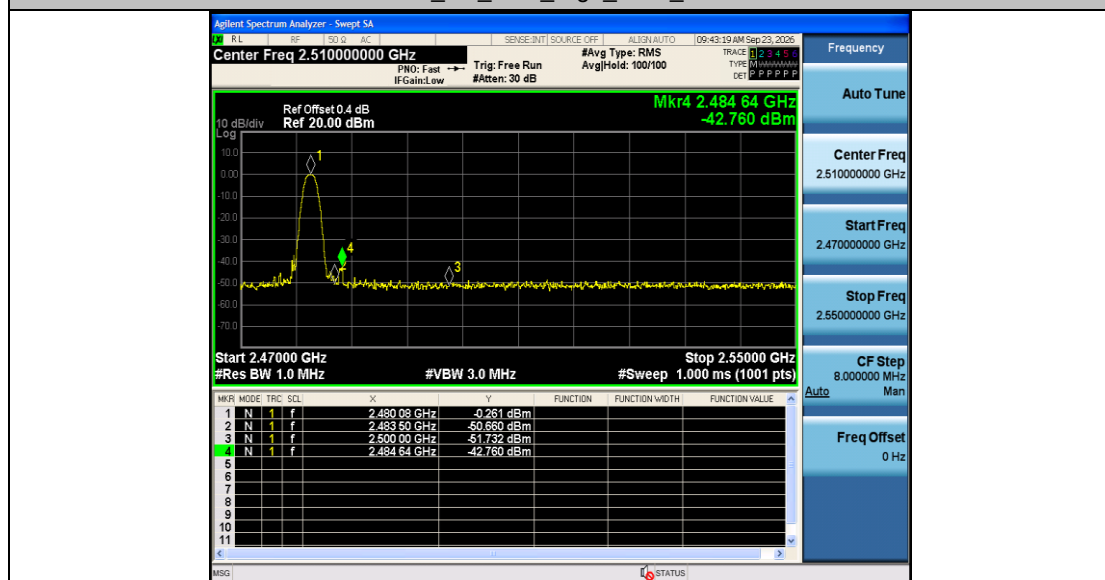
1. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

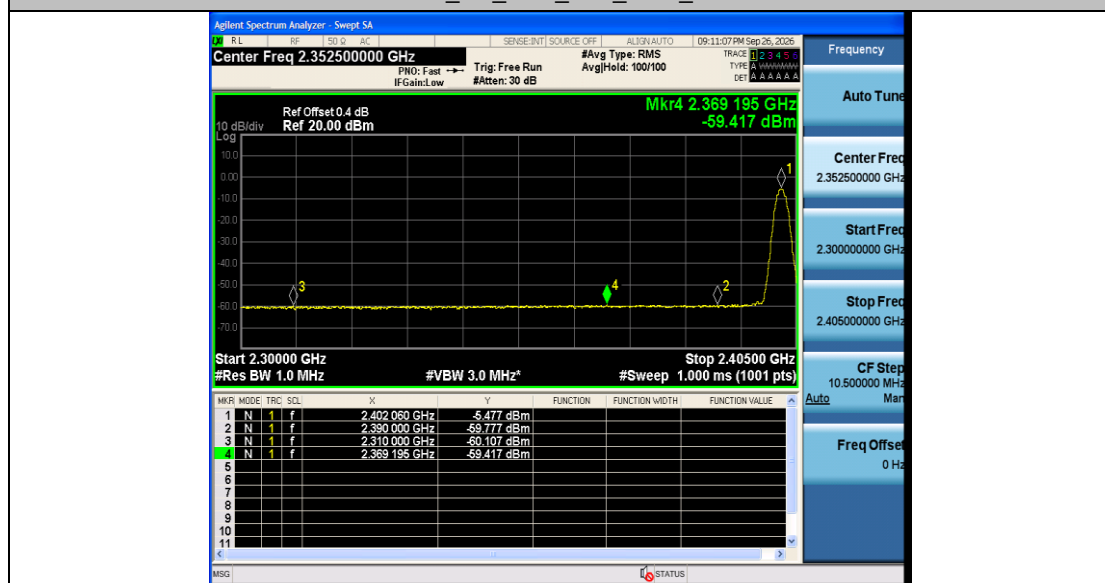




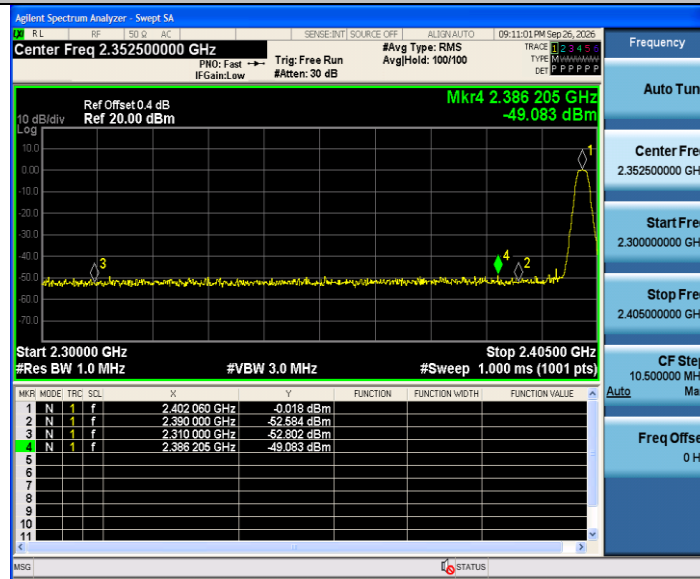
BLE_1M_Ant1_High_2480_Peak



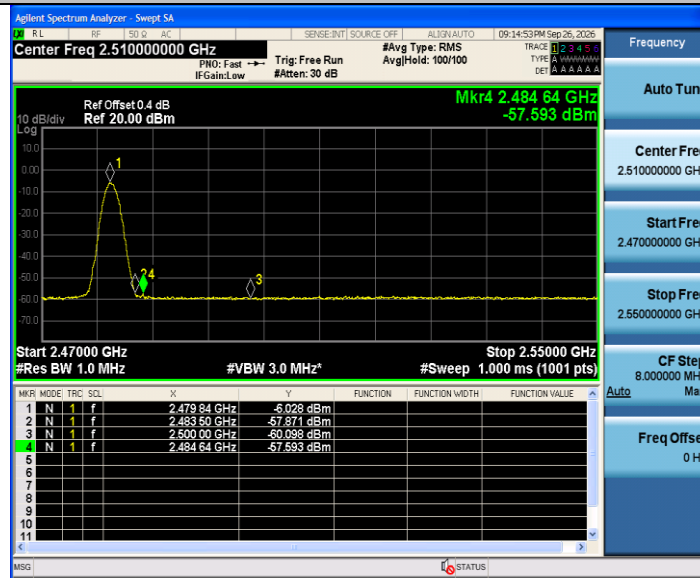
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

