

FCC Appendix RF Test Data for BLE

FCC ID : 2AUZX-MGW2ULU

Company : UBITECH LIMITED

EUT : Micro Gateway 2

Model Number : MGW2ULU

Report No. : CTA26061601701

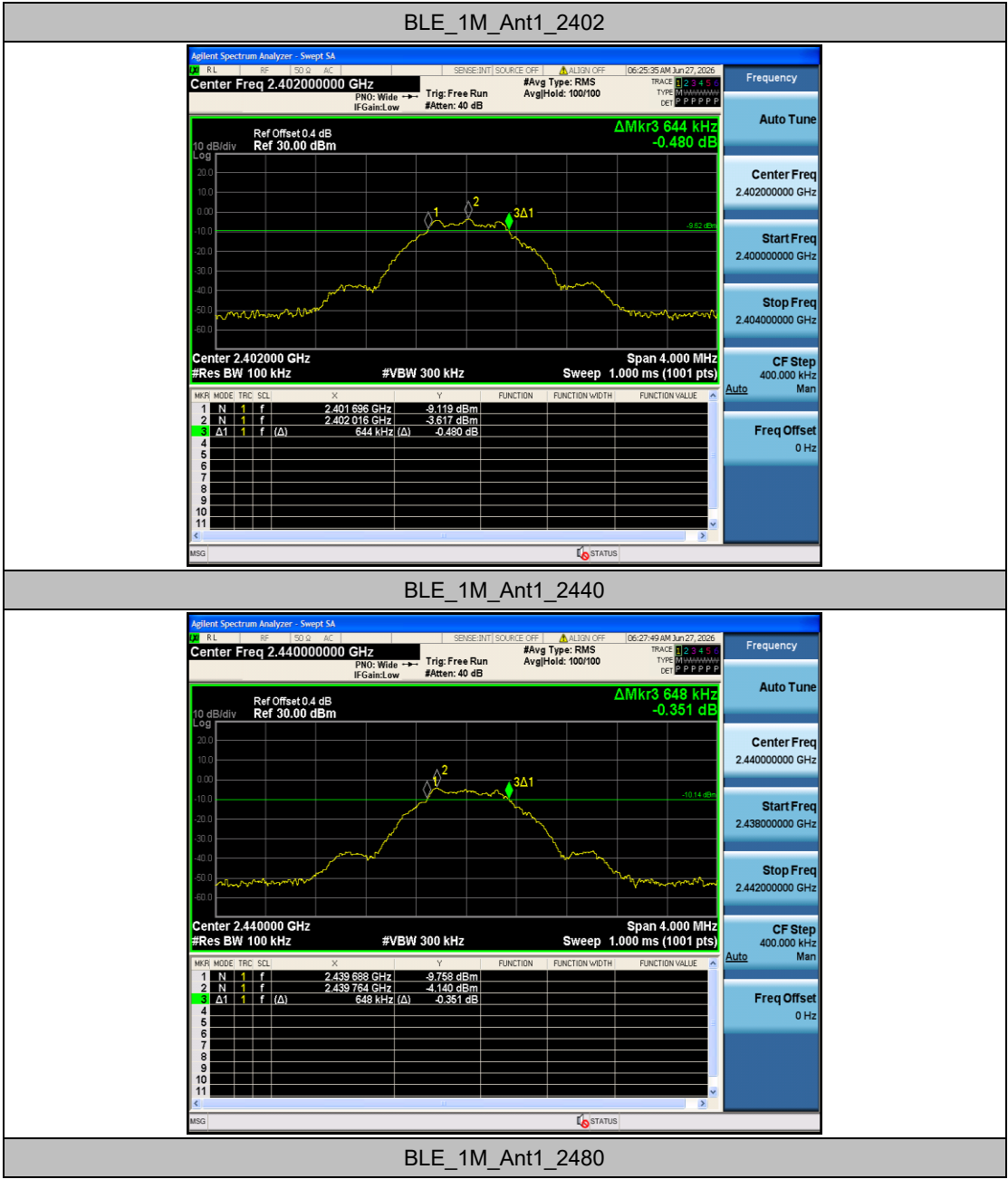
Reviewed By : Eric Wang

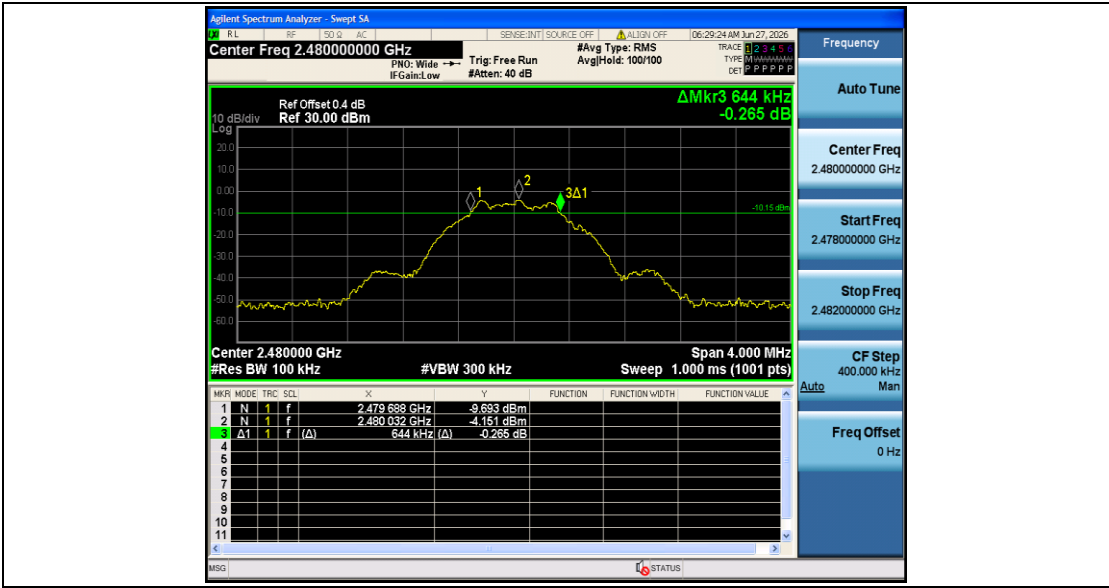
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.644	2401.696	2402.340	0.5	PASS
		2440	0.648	2439.688	2440.336	0.5	PASS
		2480	0.644	2479.688	2480.332	0.5	PASS

Test Graphs



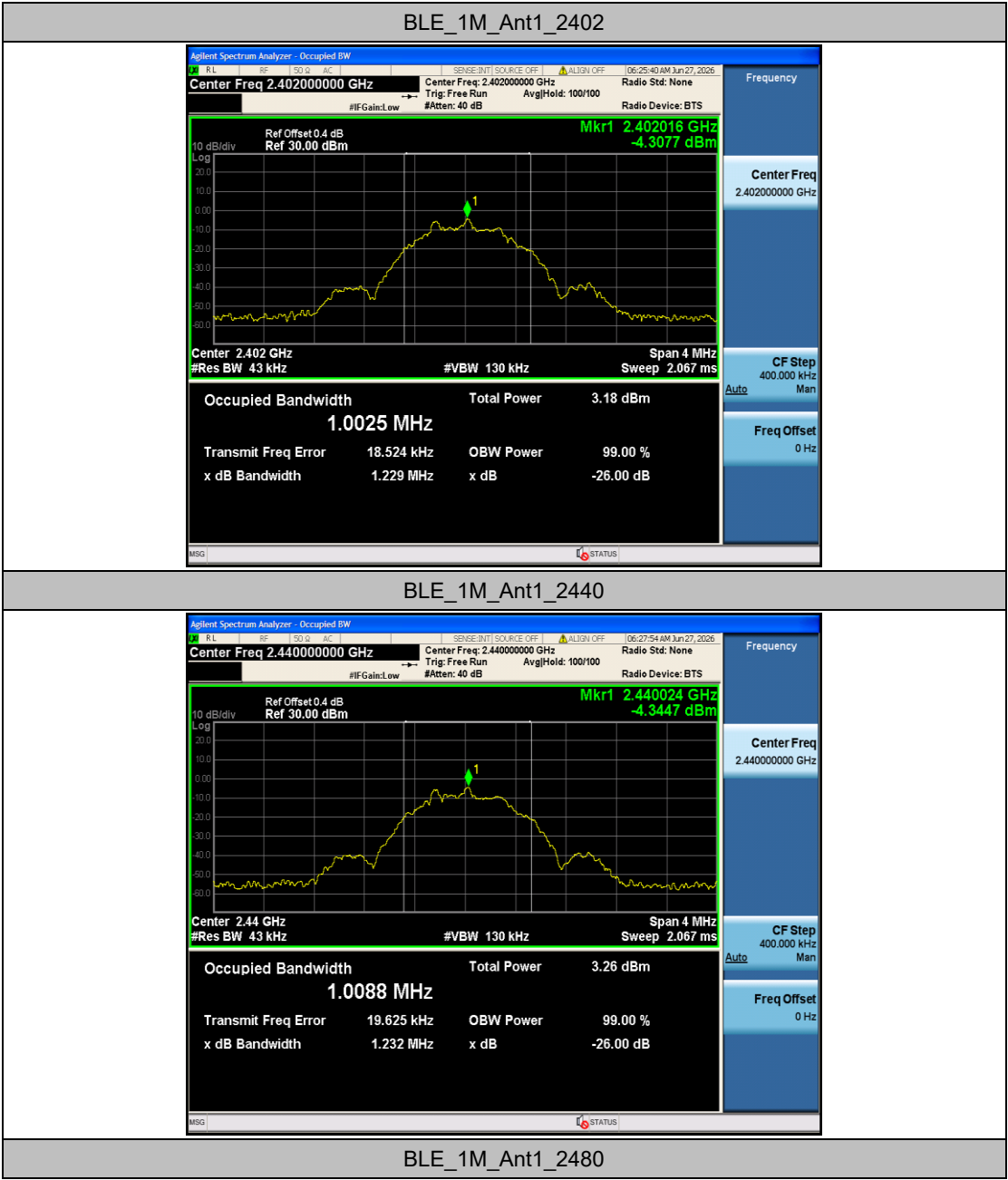


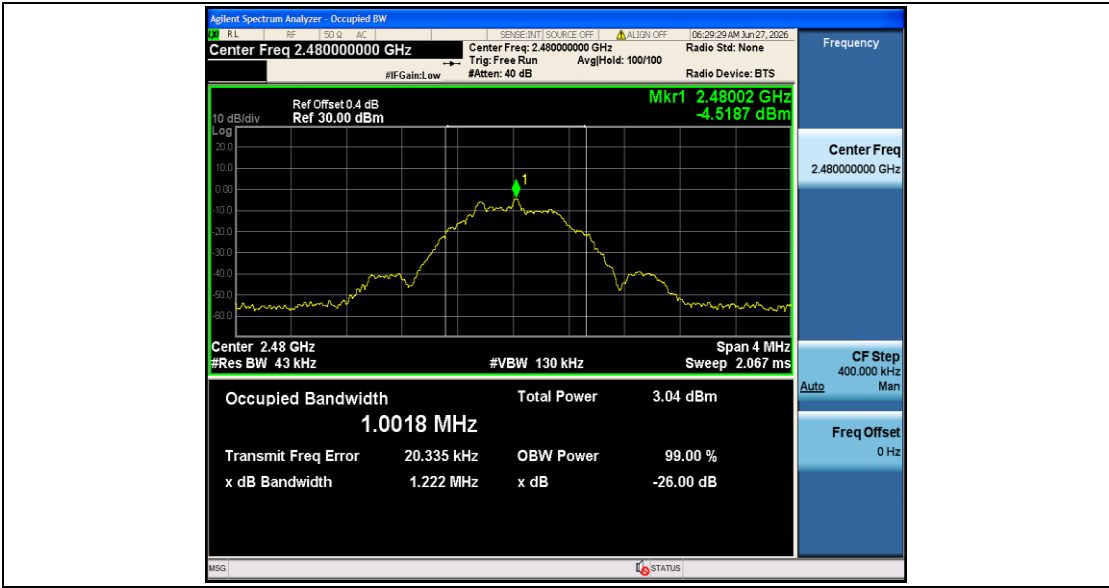
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0025	2401.5173	2402.5198	---	---
		2440	1.0088	2439.5152	2440.5240	---	---
		2480	1.0018	2479.5194	2480.5212	---	---

Test Graphs





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	-3.38	≤30	PASS
		2440	-3.41	≤30	PASS
		2480	-3.68	≤30	PASS

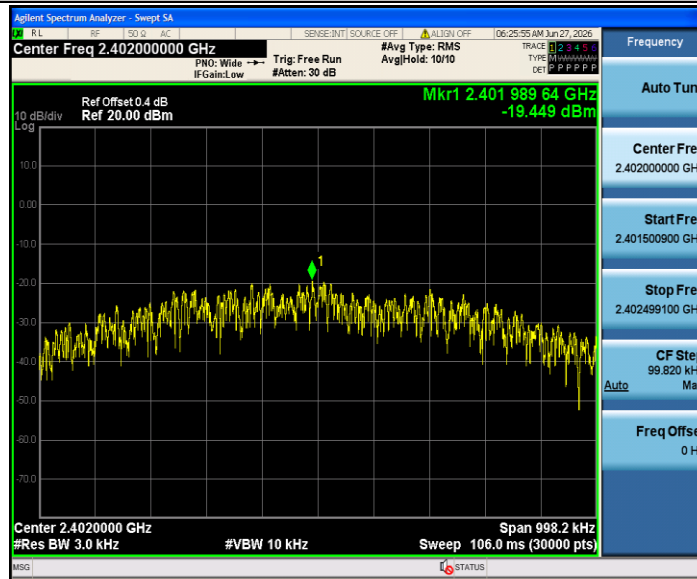
Appendix D: Maximum power spectral density

Test Result

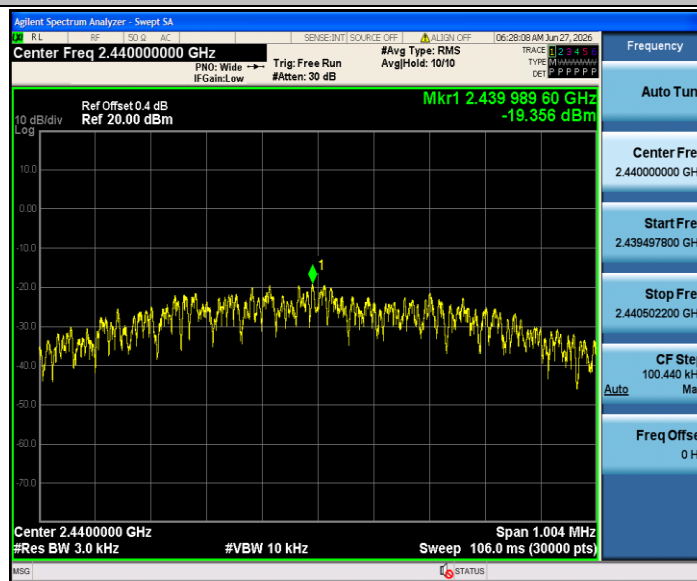
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.45	≤8.00	PASS
		2440	-19.36	≤8.00	PASS
		2480	-19.53	≤8.00	PASS

Test Graphs

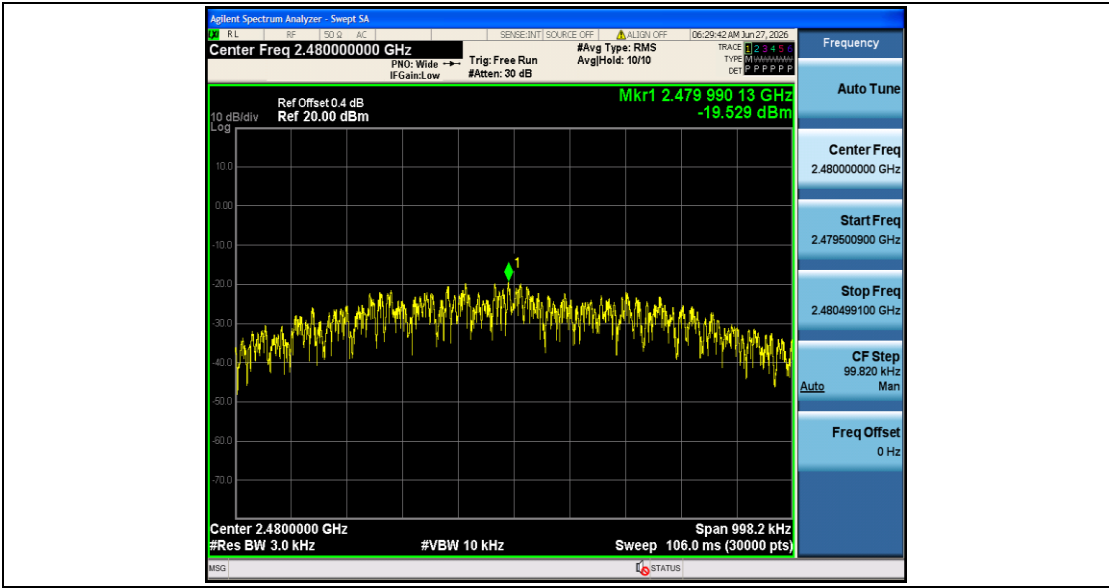
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

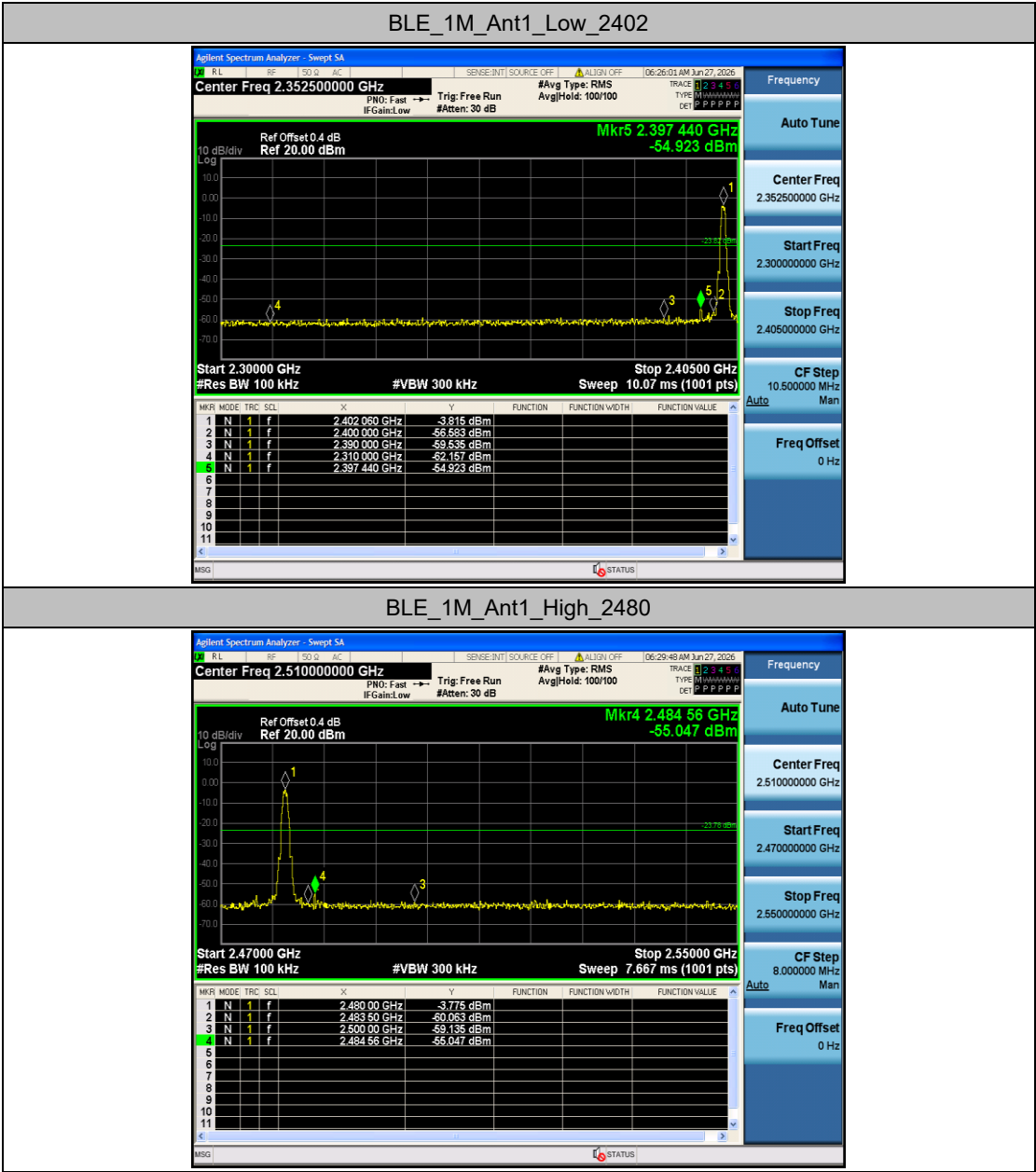


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.82	-54.92	≤-23.82	PASS
		High	2480	-3.78	-55.05	≤-23.78	PASS

Test Graphs

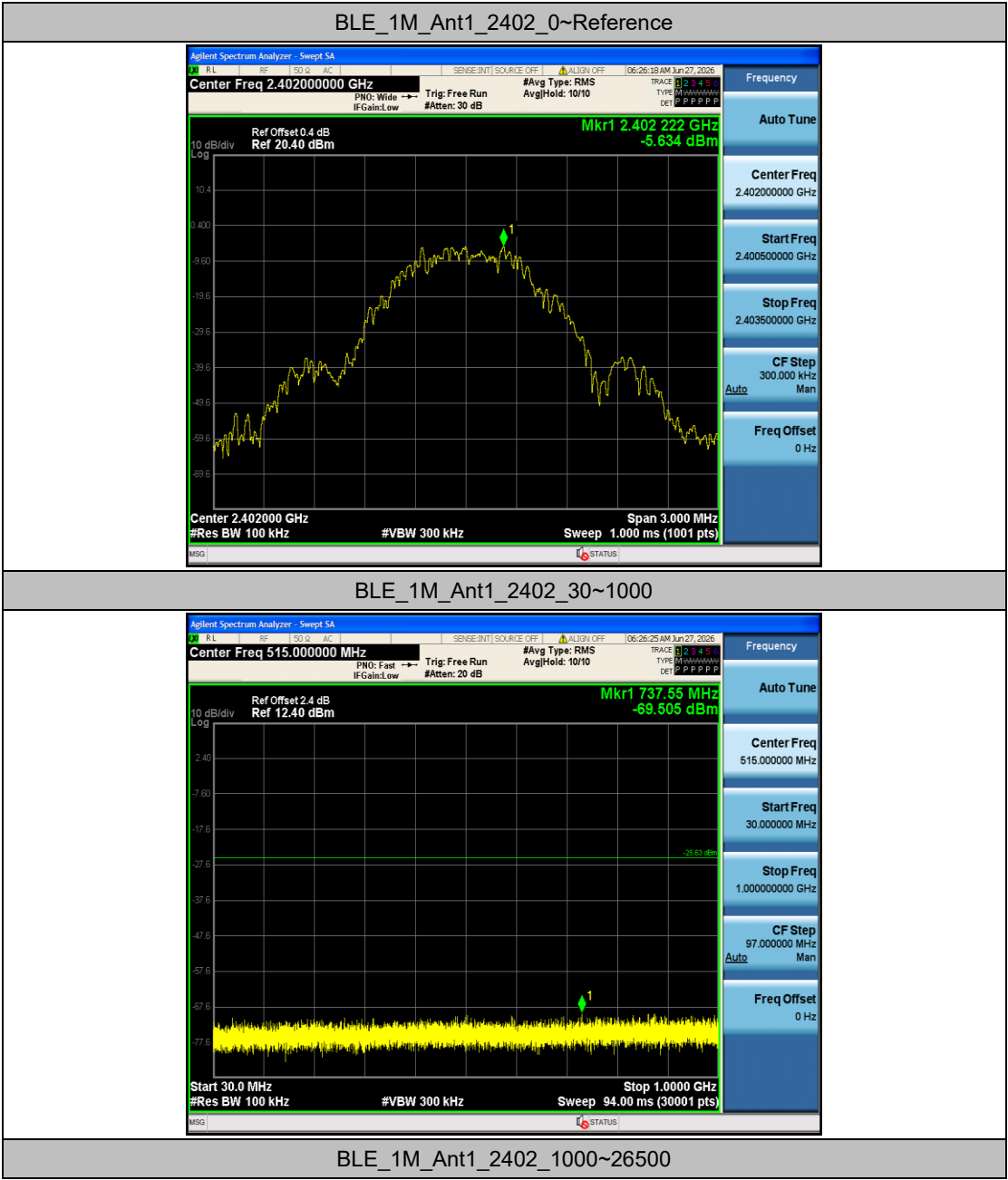


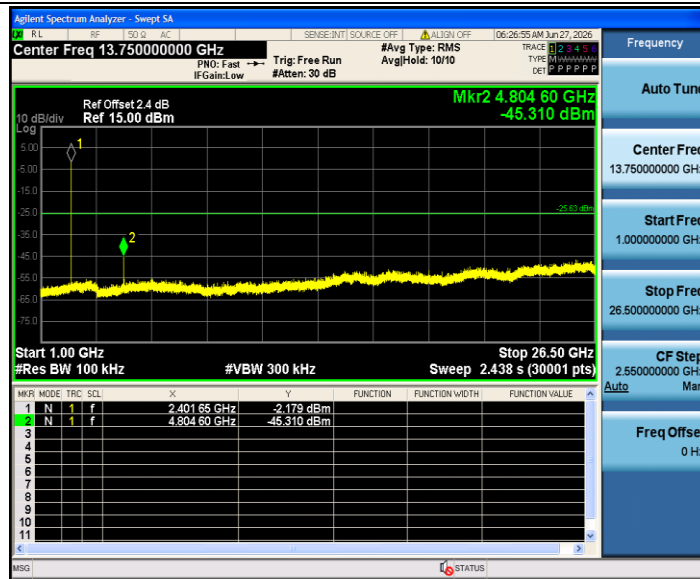
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-5.63	-5.63	---	PASS
			30~1000	-5.63	-69.51	≤-25.63	PASS
			1000~26500	-5.63	-45.31	≤-25.63	PASS
		2440	Reference	-4.04	-4.04	---	PASS
			30~1000	-4.04	-68.27	≤-24.04	PASS
			1000~26500	-4.04	-45.85	≤-24.04	PASS
		2480	Reference	-6.06	-6.06	---	PASS
			30~1000	-6.06	-68.95	≤-26.06	PASS
			1000~26500	-6.06	-44.71	≤-26.06	PASS

Test Graphs

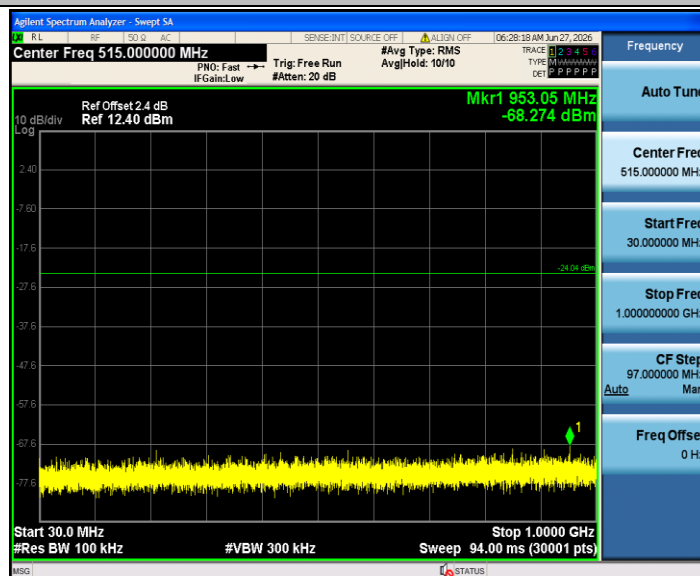




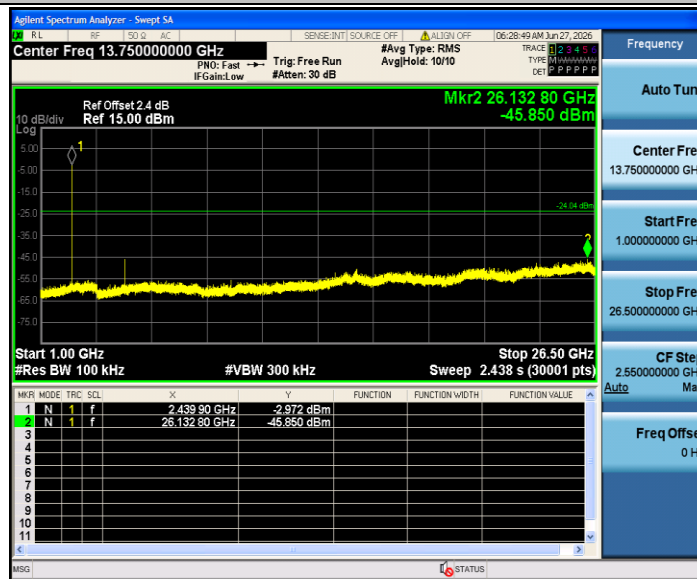
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



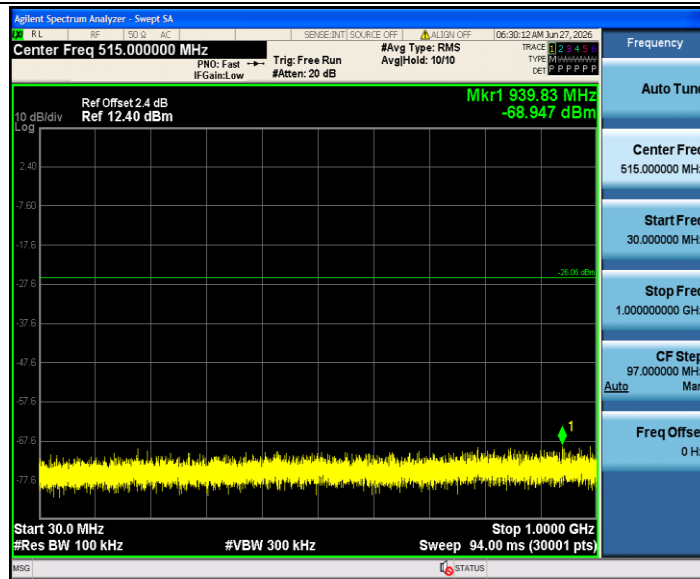
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

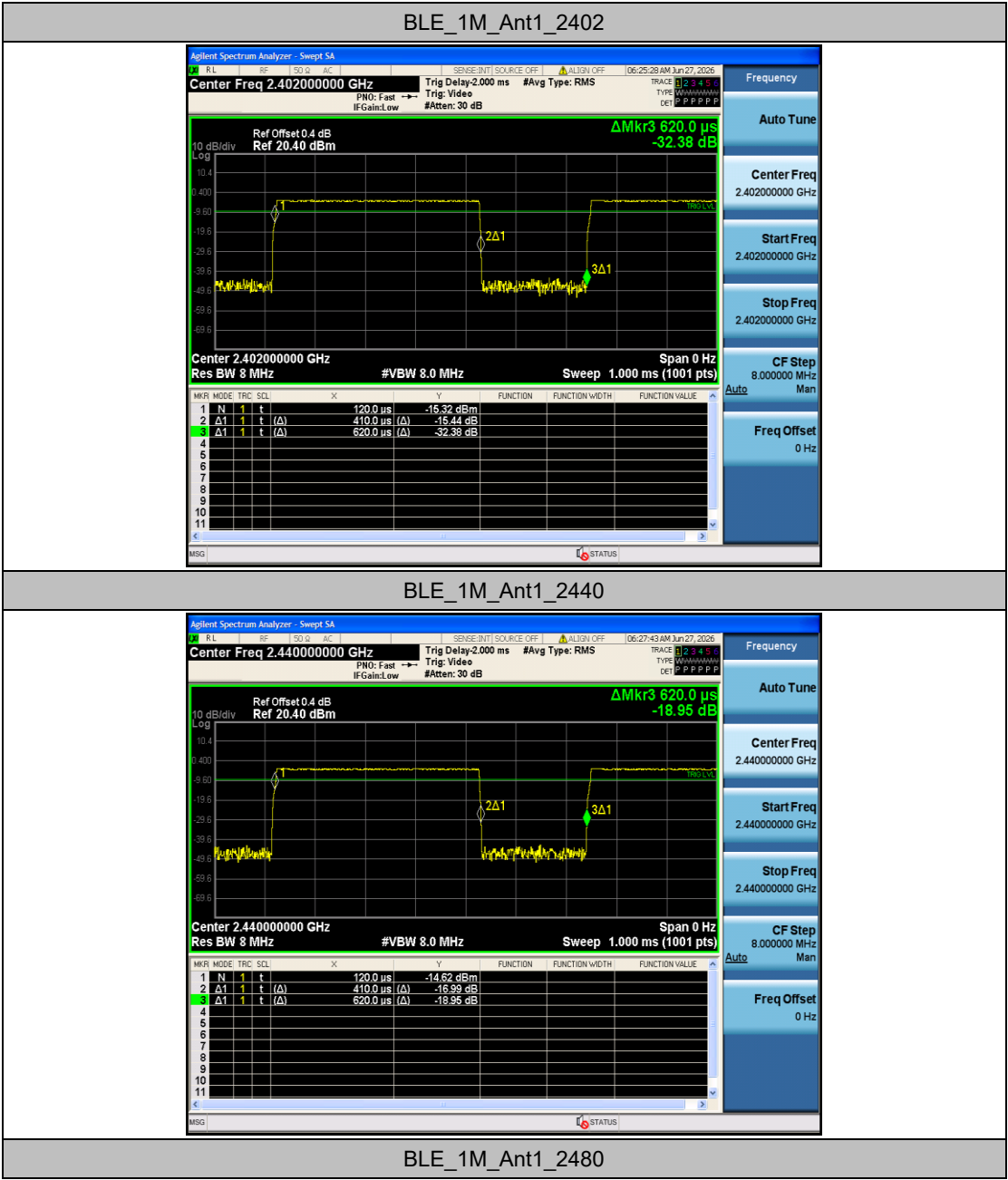


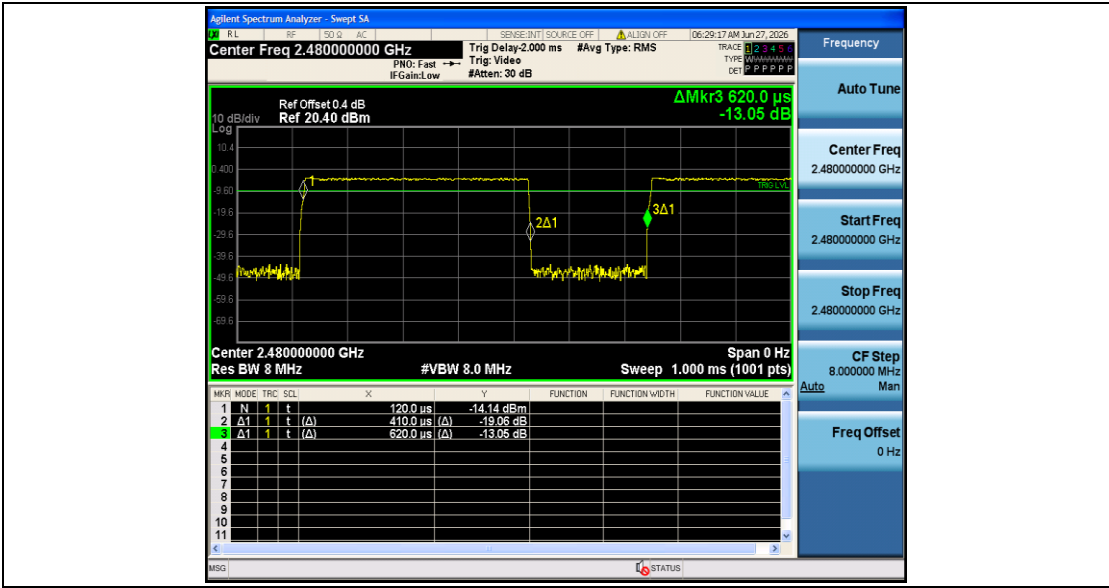
Appendix G: Duty Cycle

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	---	---

Test Graphs





Appendix H: Emissions in Restricted Bands

Test Result

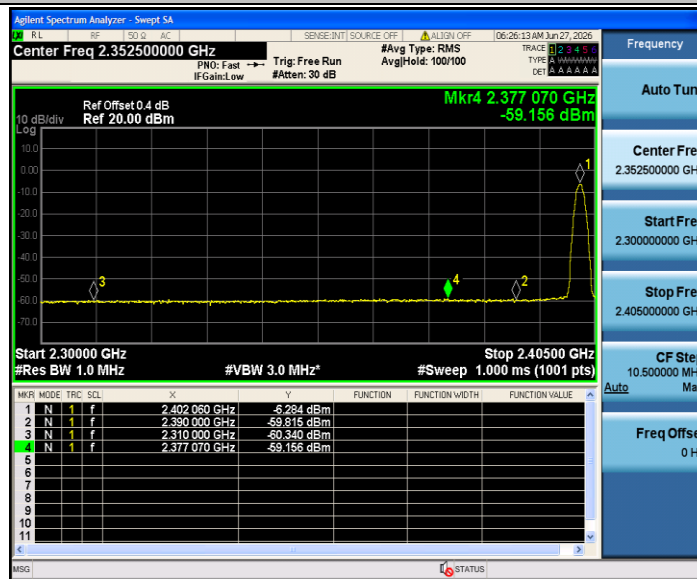
TestMode	Antenna	Channel	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.34	3.98	1.80	40.64	≤54	PASS
				AV	2377.070	-59.16	3.98	1.80	41.82	≤54	PASS
				AV	2390.000	-59.82	3.98	1.80	41.16	≤54	PASS
				Peak	2310.000	-53.21	3.98	0.00	45.97	≤74	PASS
				Peak	2389.880	-48.85	3.98	0.00	50.33	≤74	PASS
				Peak	2390.000	-51.22	3.98	0.00	47.96	≤74	PASS
		High	2480	AV	2483.500	-58.65	3.98	1.80	42.33	≤54	PASS
				AV	2484.320	-58.47	3.98	1.80	42.51	≤54	PASS
				AV	2500.000	-59.13	3.98	1.80	41.85	≤54	PASS
				Peak	2483.500	-49.8	3.98	0.00	49.38	≤74	PASS
				Peak	2483.680	-47.92	3.98	0.00	51.26	≤74	PASS
				Peak	2500.000	-51.91	3.98	0.00	47.27	≤74	PASS

Note:

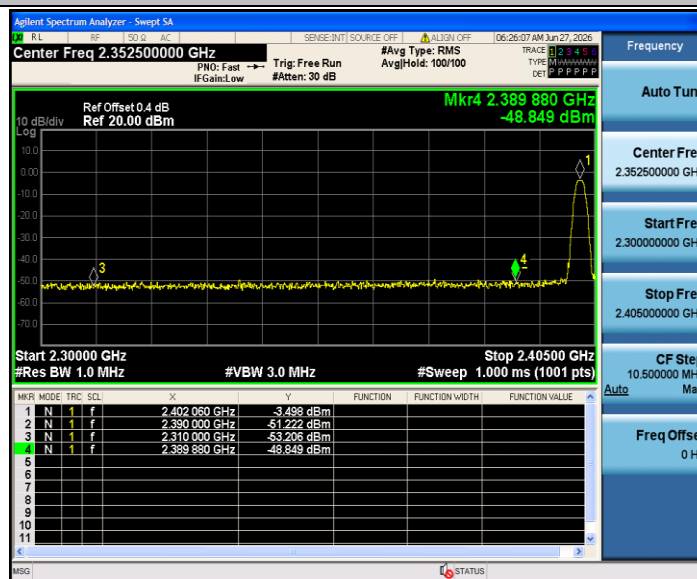
1. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

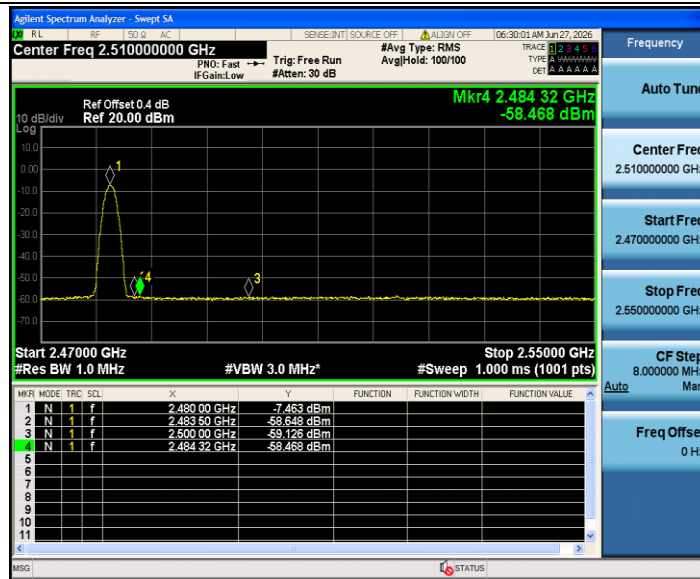
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

