

FCC Appendix RF Test Data for BLE

FCC ID : 2A4VG-SDRGBIC

Company : Changsha Henglei Imp. & Exp. Co. Ltd

EUT : RGBIC CONTROLLER

Model Number : HL-CONTROLLER-RGBIC

Report No. : CTA26081000101

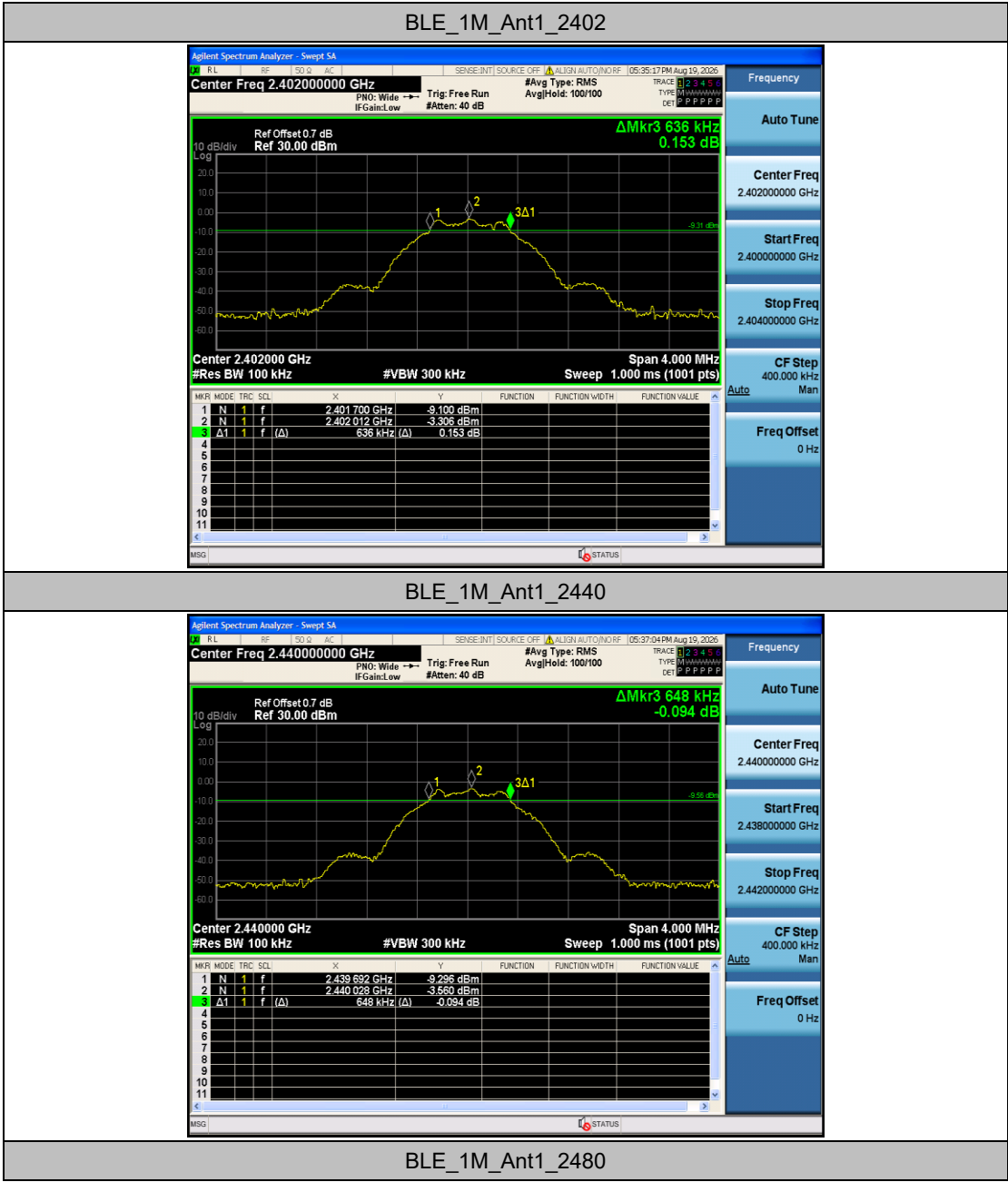
Reviewed By : Eric Wang

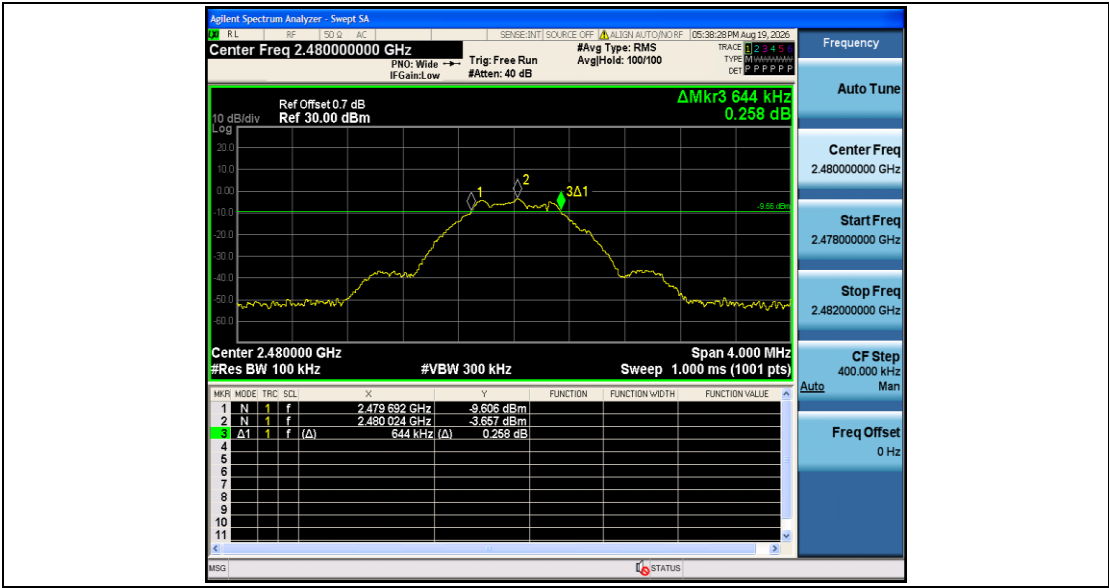
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.636	2401.700	2402.336	0.5	PASS
		2440	0.648	2439.692	2440.340	0.5	PASS
		2480	0.644	2479.692	2480.336	0.5	PASS

Test Graphs





Appendix B: Occupied Channel Bandwidth

Test Result

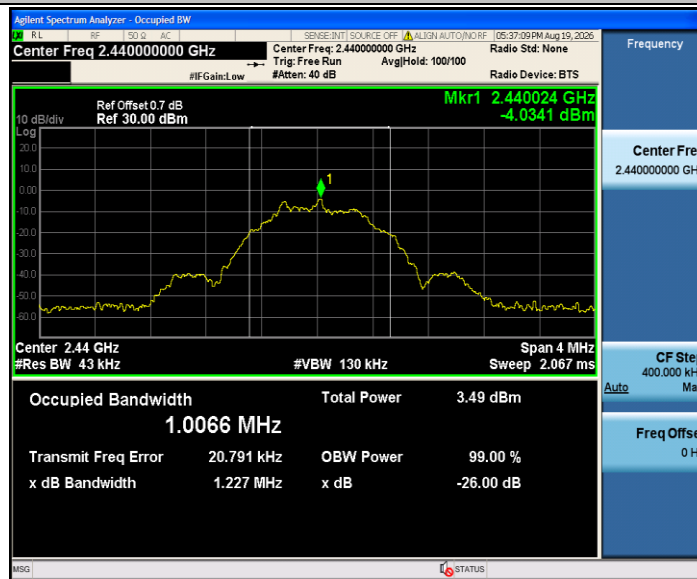
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0089	2401.5209	2402.5298	---	---
		2440	1.0066	2439.5175	2440.5241	---	---
		2480	0.99837	2479.5250	2480.5233	---	---

Test Graphs

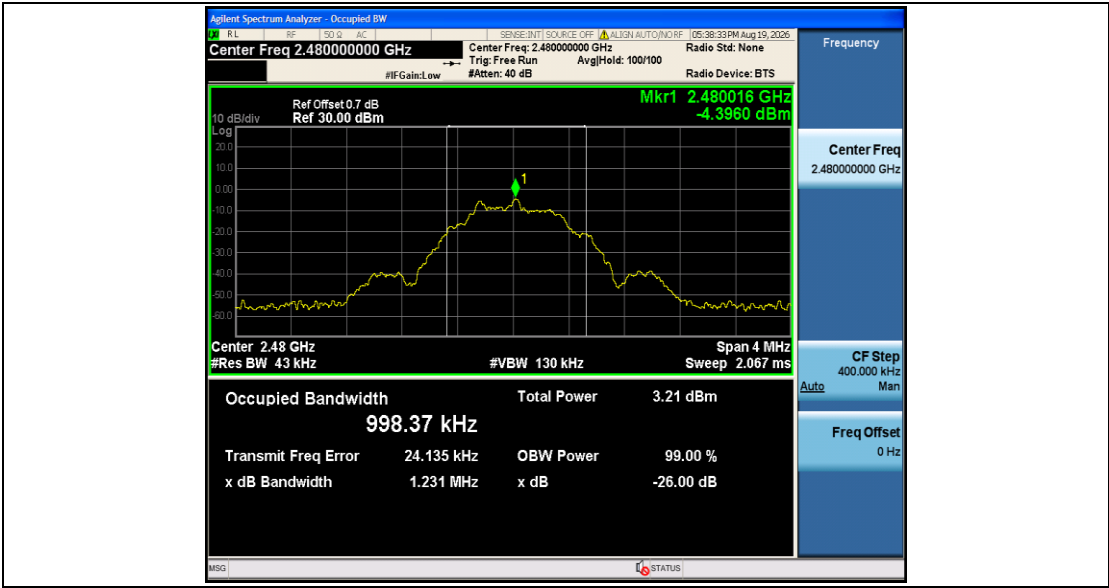
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_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	-3.12	≤30	PASS
		2440	-3.19	≤30	PASS
		2480	-3.48	≤30	PASS

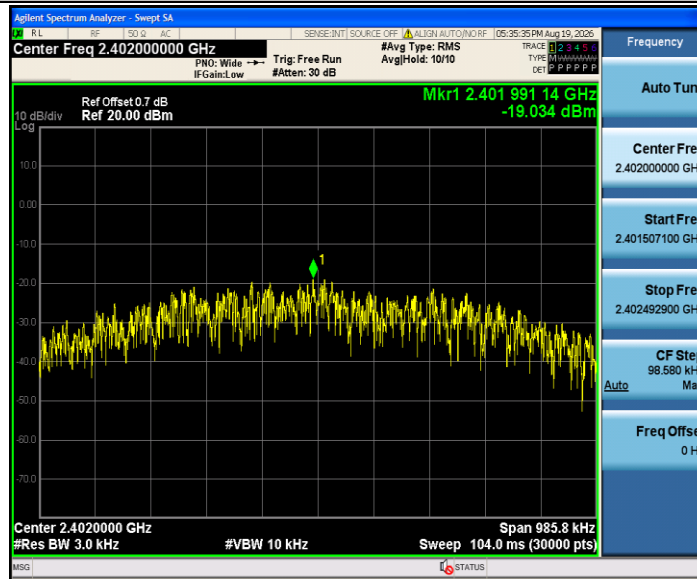
Appendix D: Maximum power spectral density

Test Result

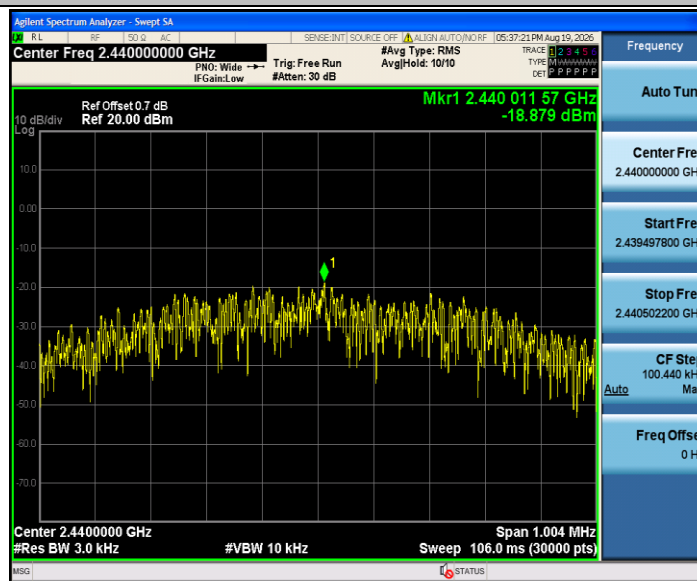
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.03	≤8.00	PASS
		2440	-18.88	≤8.00	PASS
		2480	-19.30	≤8.00	PASS

Test Graphs

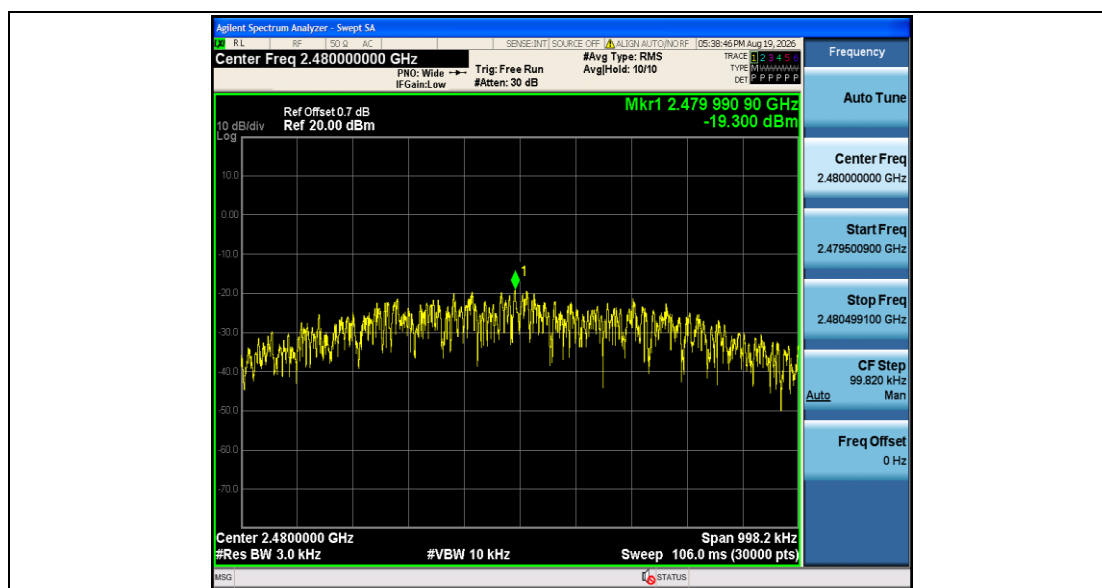
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

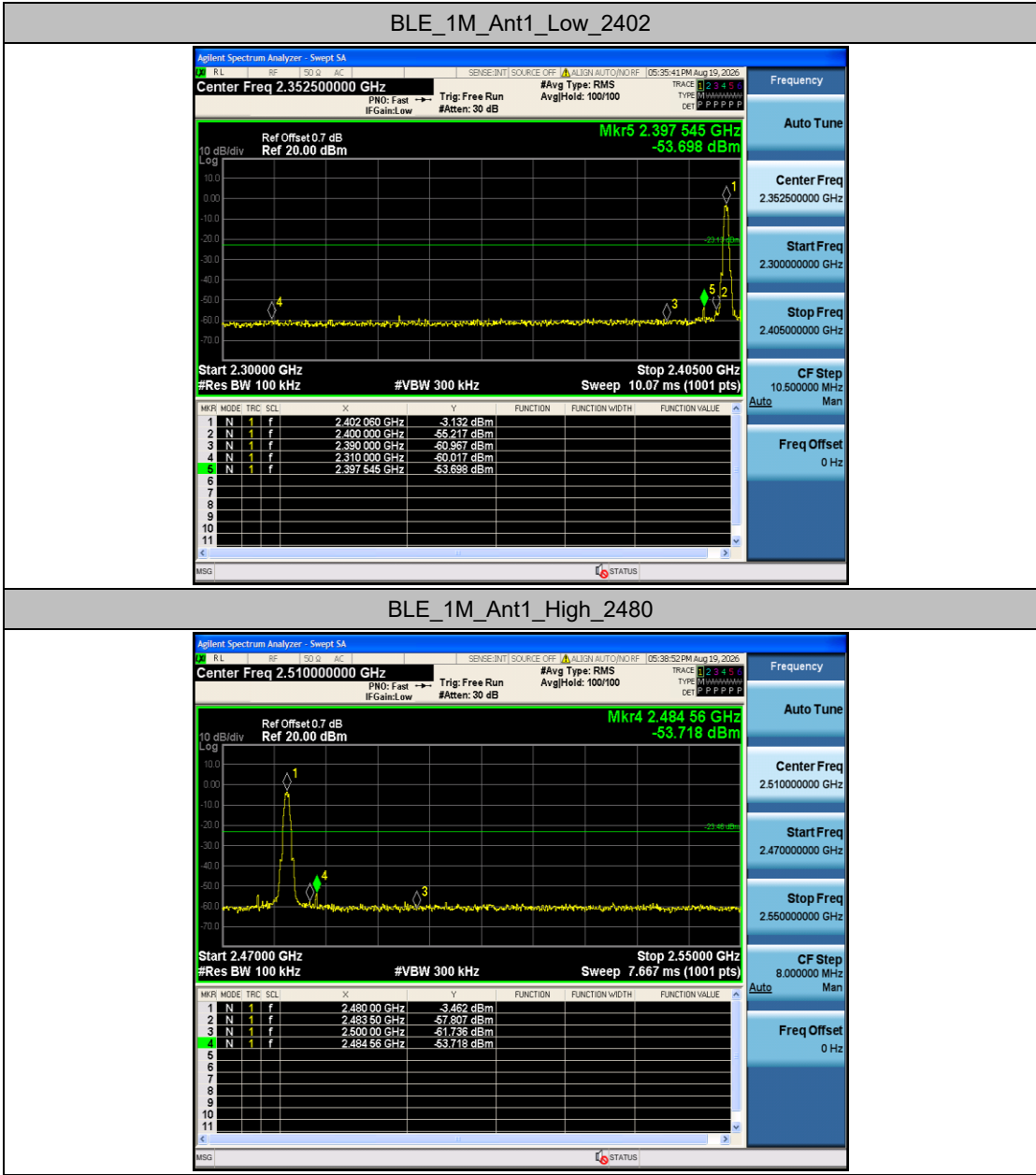


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.13	-53.7	≤ -23.13	PASS
		High	2480	-3.46	-53.72	≤ -23.46	PASS

Test Graphs

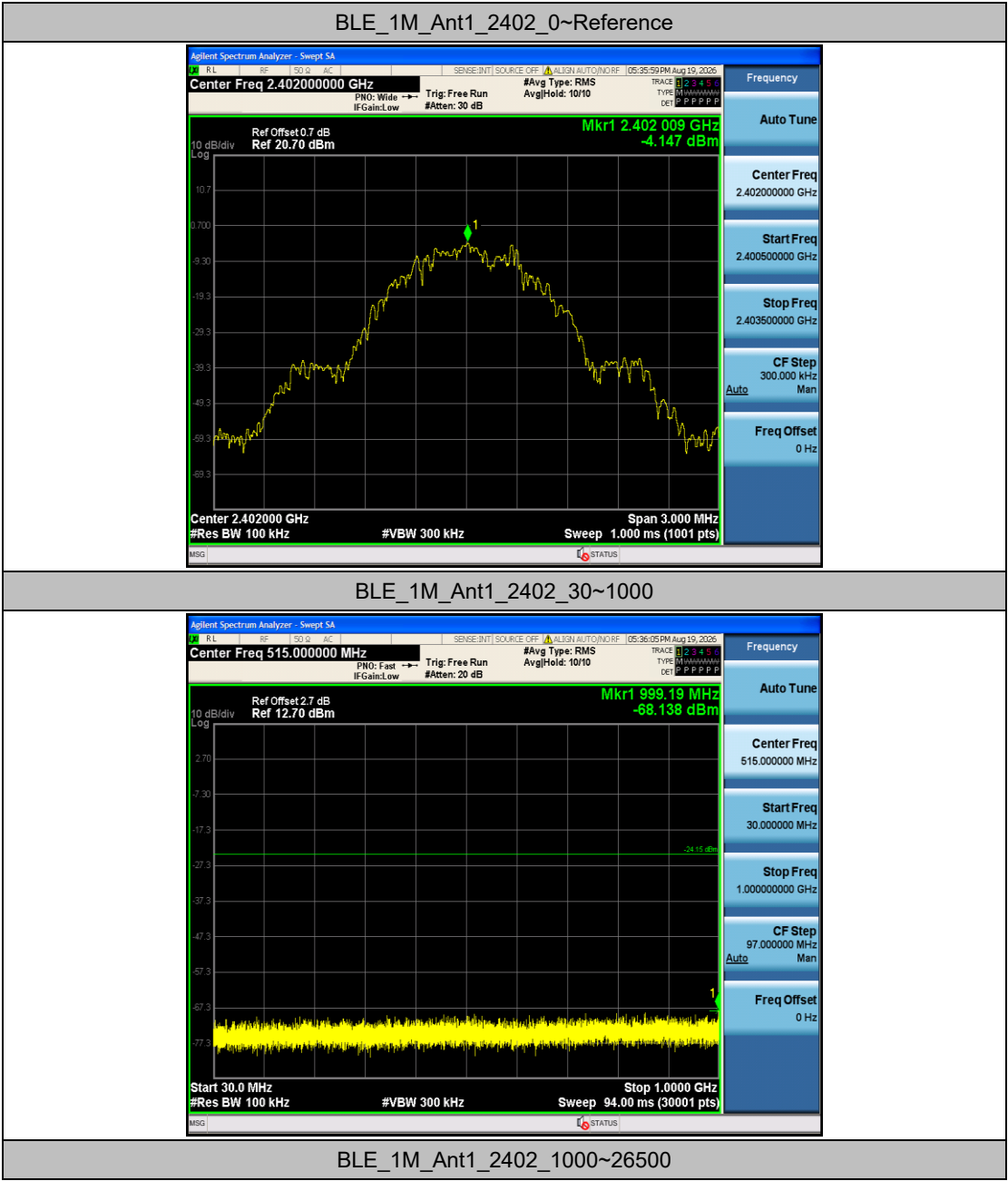


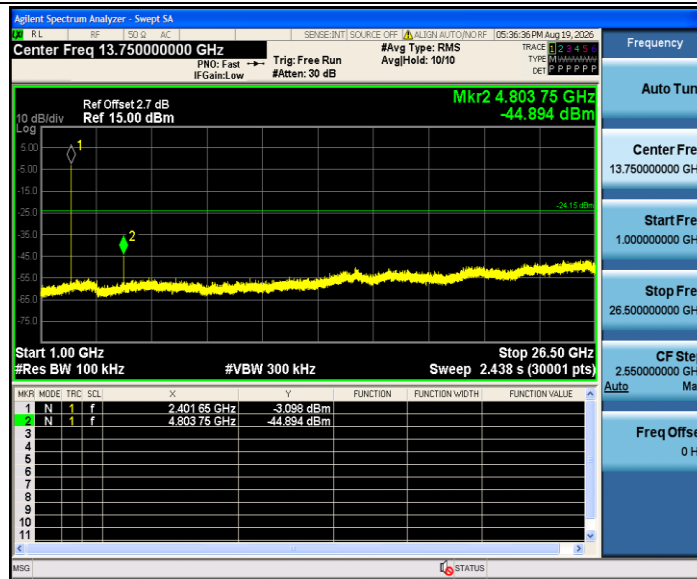
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.15	-4.15	---	PASS
			30~1000	-4.15	-68.14	≤-24.15	PASS
			1000~26500	-4.15	-44.89	≤-24.15	PASS
		2440	Reference	-5.02	-5.02	---	PASS
			30~1000	-5.02	-67.57	≤-25.02	PASS
			1000~26500	-5.02	-46.6	≤-25.02	PASS
		2480	Reference	-4.00	-4.00	---	PASS
			30~1000	-4.00	-68.17	≤-24	PASS
			1000~26500	-4.00	-45.46	≤-24	PASS

Test Graphs

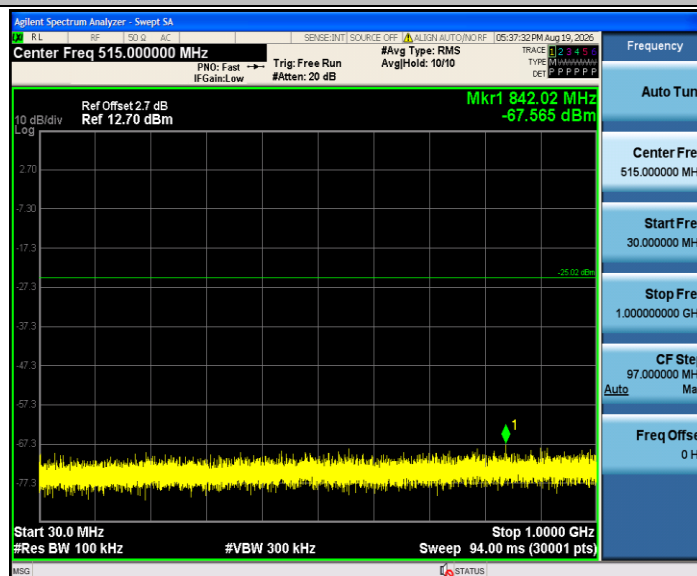




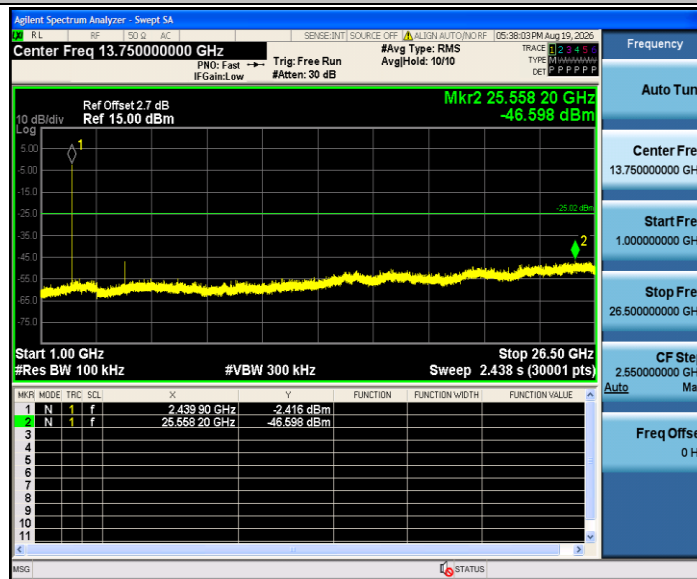
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



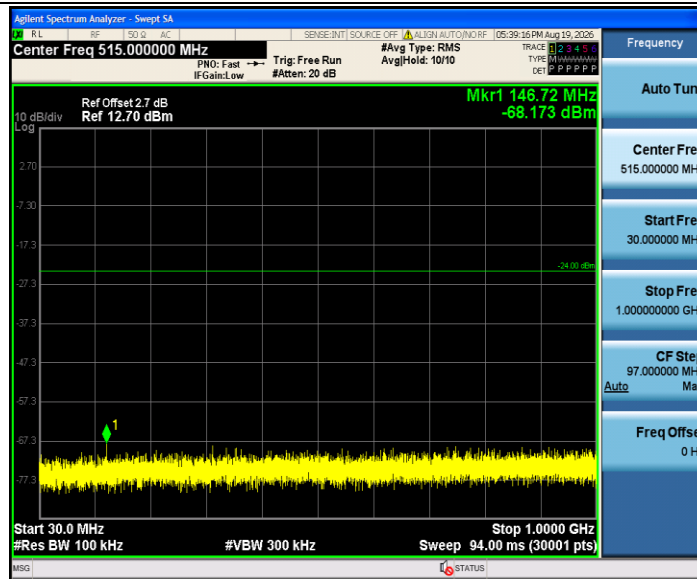
BLE_1M_Ant1_2440_1000~26500



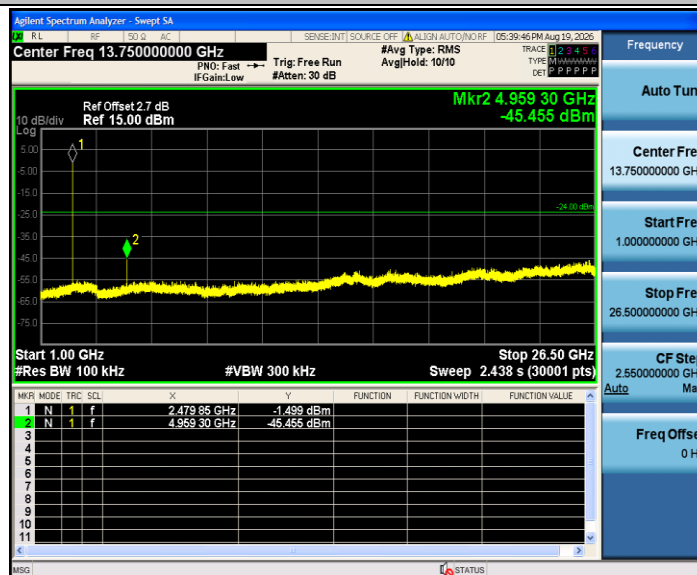
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



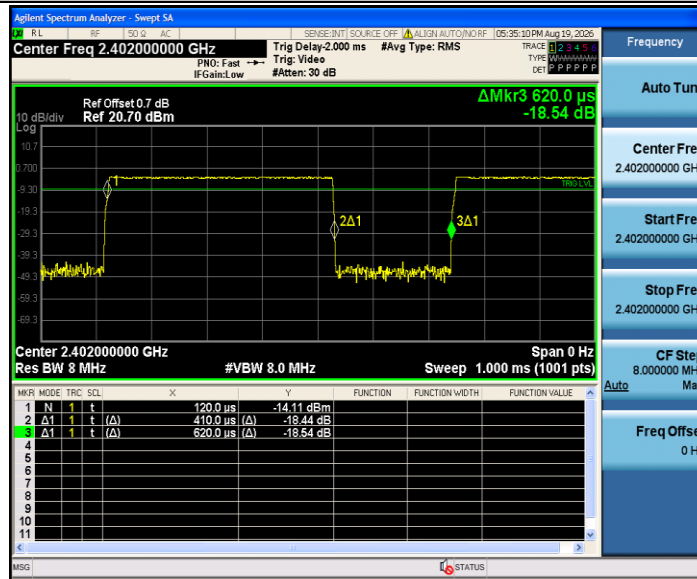
Appendix G: Duty Cycle

Test Result

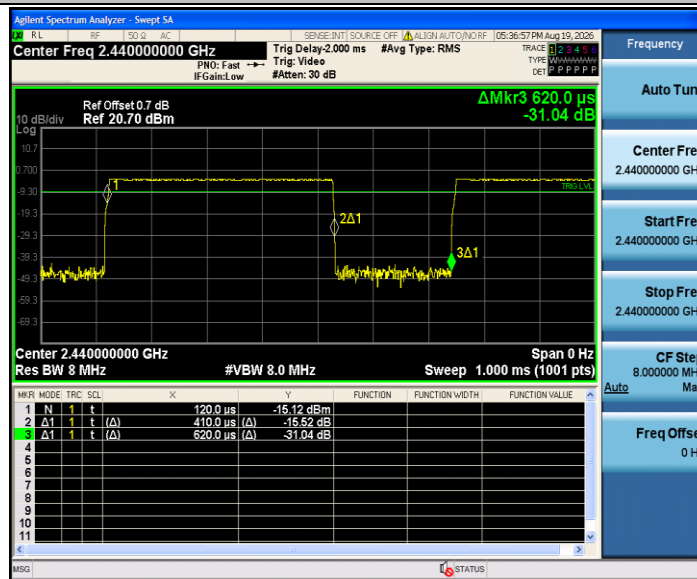
TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.41	0.62	0.6613	66.13	1.80	---	---
		2440	0.41	0.62	0.6613	66.13	1.80	---	---
		2480	0.41	0.62	0.6613	66.13	1.80	---	---

Test Graphs

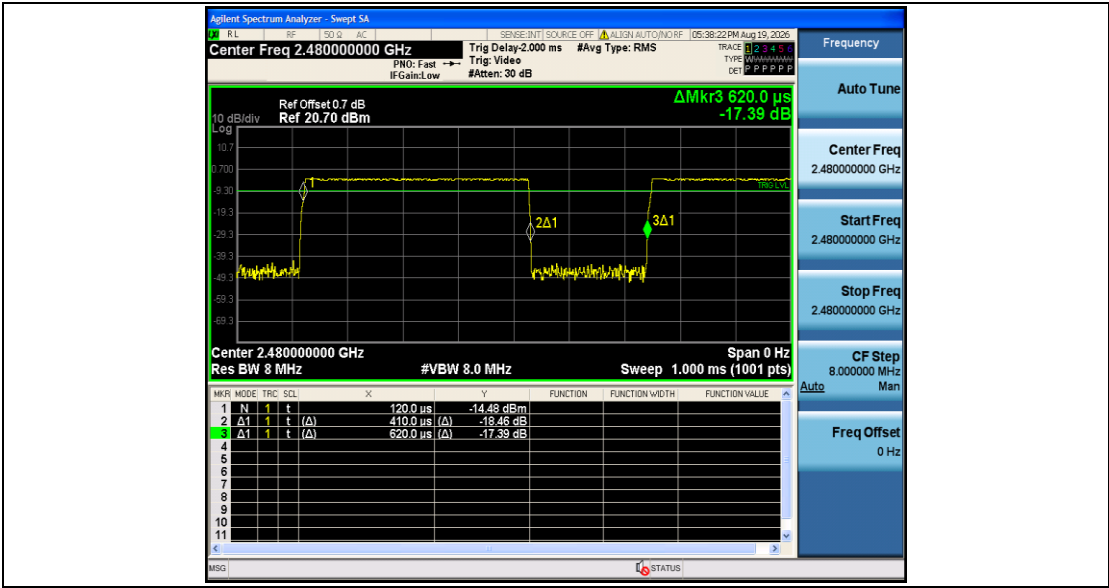
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix H: Emissions in Restricted Bands

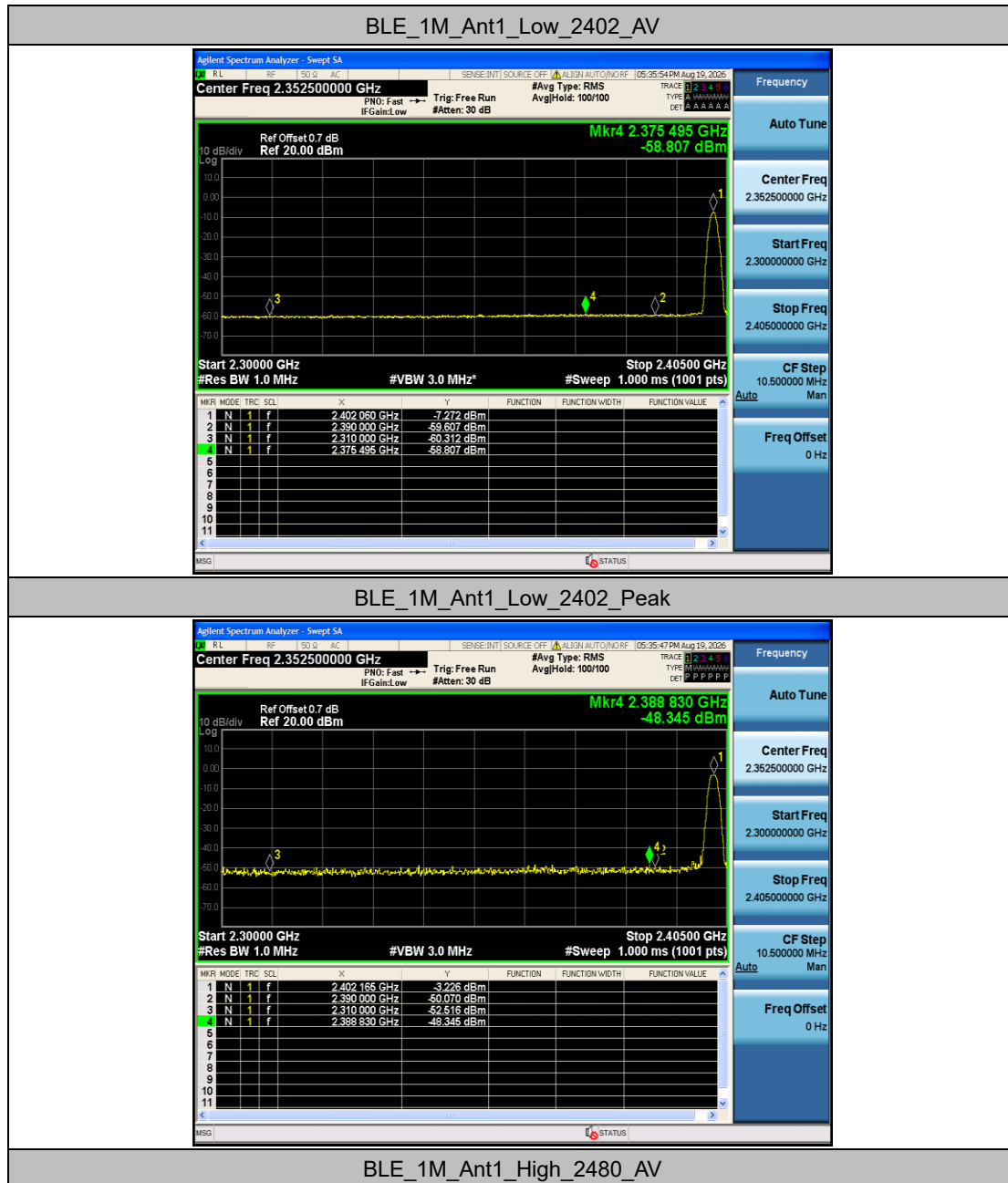
Test Result

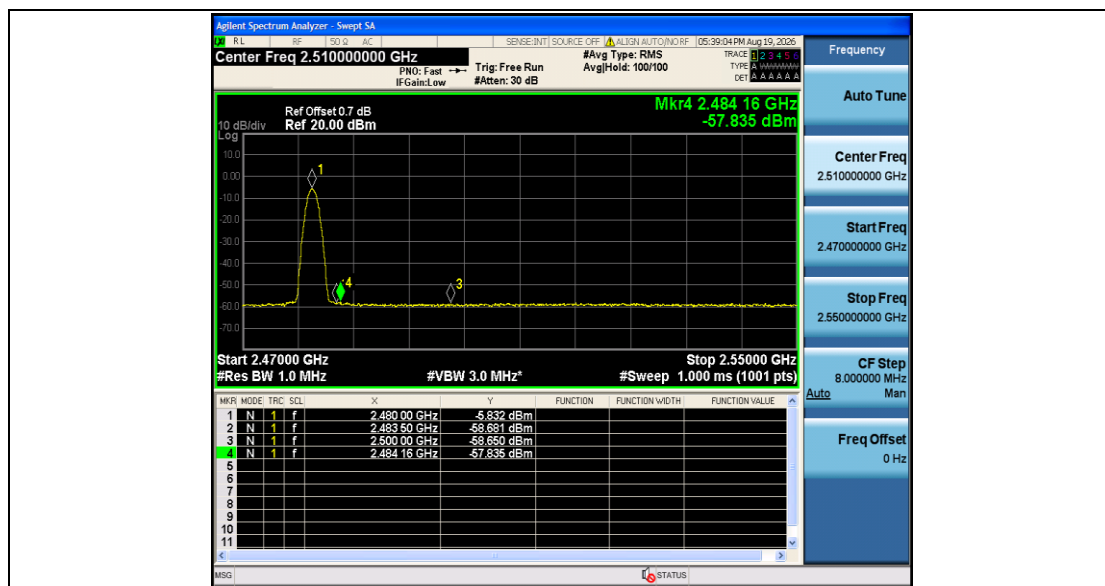
TestMode	Antenna	Channel	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.31	3.26	1.80	39.95	≤54	PASS
				AV	2375.495	-58.81	3.26	1.80	41.45	≤54	PASS
				AV	2390.000	-59.61	3.26	1.80	40.65	≤54	PASS
				Peak	2310.000	-52.52	3.26	0.00	45.94	≤74	PASS
				Peak	2388.830	-48.35	3.26	0.00	50.11	≤74	PASS
				Peak	2390.000	-50.07	3.26	0.00	48.39	≤74	PASS
		High	2480	AV	2483.500	-58.68	3.26	1.80	41.58	≤54	PASS
				AV	2484.160	-57.84	3.26	1.80	42.42	≤54	PASS
				AV	2500.000	-58.65	3.26	1.80	41.61	≤54	PASS
				Peak	2483.500	-49.29	3.26	0.00	49.17	≤74	PASS
				Peak	2486.160	-48.44	3.26	0.00	50.02	≤74	PASS
				Peak	2500.000	-50.55	3.26	0.00	47.91	≤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

