

FCC Appendix RF Test Data for BLE

FCC ID : 2BWR3-W4003BKBS

Company : Hose Pro USA LLC

EUT : Hose Timer

Model Number : W4003BKBS

Report No. : CTA26060903701

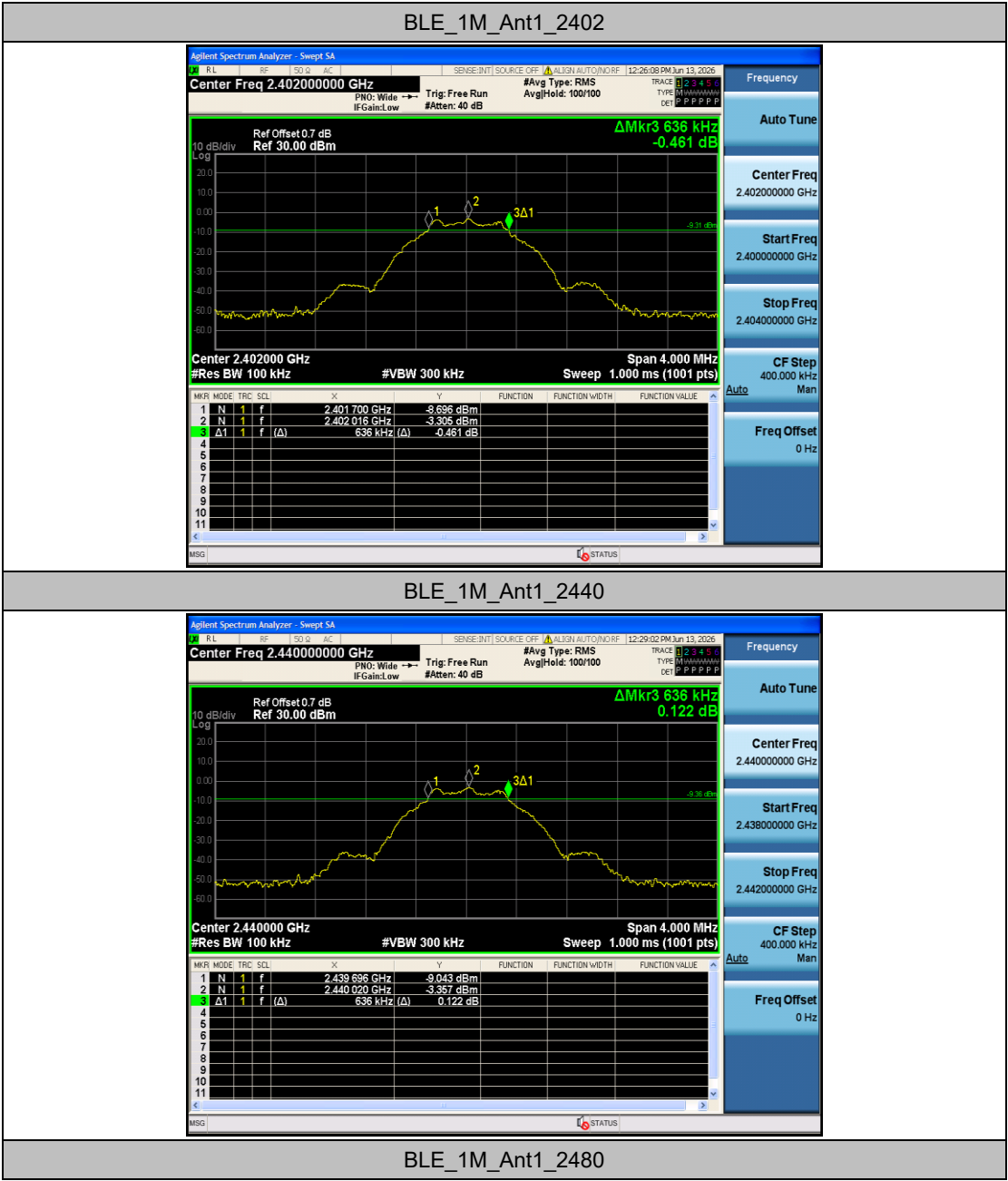
Reviewed By : Eric Wang

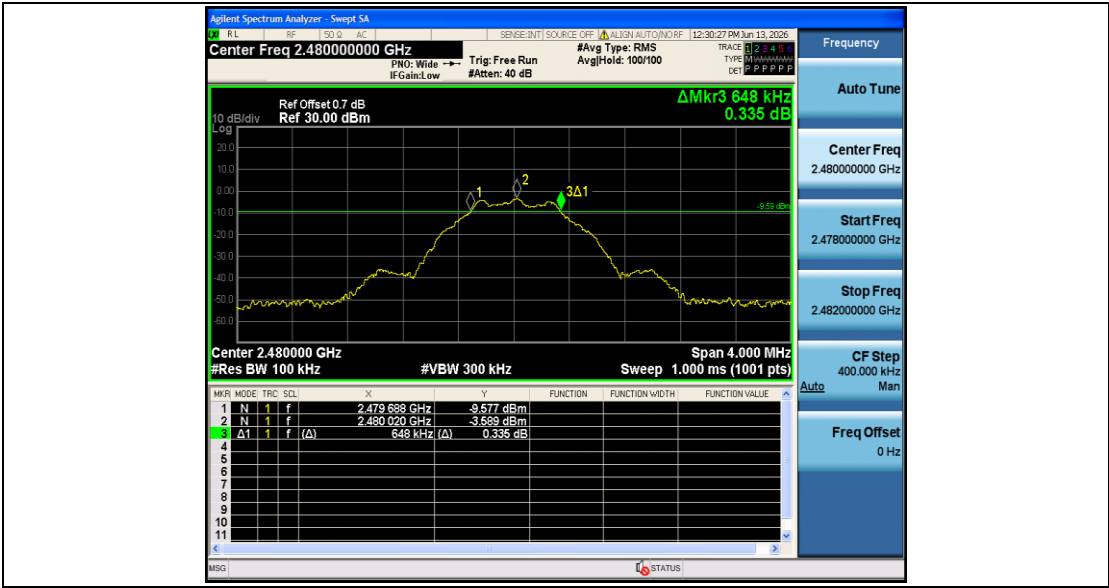
Appendix A: DTS Bandwidth

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	0.636	2439.696	2440.332	0.5	PASS
		2480	0.648	2479.688	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	1.0132	2401.5168	2402.5300	---	---
		2440	1.0015	2439.5176	2440.5191	---	---
		2480	1.0143	2479.5151	2480.5294	---	---

Agilent Spectrum Analyzer - Occupied BW

Center Freq 2.40200000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Mkr1 2.402024 GHz
-4.0237 dBm

Center 2.402 GHz
#Res BW 43 kHz
#VBW 130 kHz
Span 4 MHz
Sweep 2.067 ms

Occupied Bandwidth 1.0132 MHz

Total Power 3.40 dBm

Transmit Freq Error 23.390 kHz

OBW Power 99.00 %

x dB Bandwidth 1.240 MHz

x dB -26.00 dB

Frequency

Center Freq 2.402000000 GHz

CF Step 400.000 kHz
Auto Man

Freq Offset 0 Hz

MSG STATUS

Agilent Spectrum Analyzer - Occupied BW

Center Freq 2.440000000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Mkr1 2.440002 GHz
-4.0116 dBm

Center 2.44 GHz
#Res BW 43 kHz
#VBW 130 kHz
Span 4 MHz
Sweep 2.067 ms

Occupied Bandwidth 1.0015 MHz

Total Power 3.51 dBm

Transmit Freq Error 18.327 kHz

OBW Power 99.00 %

x dB Bandwidth 1.220 MHz

x dB -26.00 dB

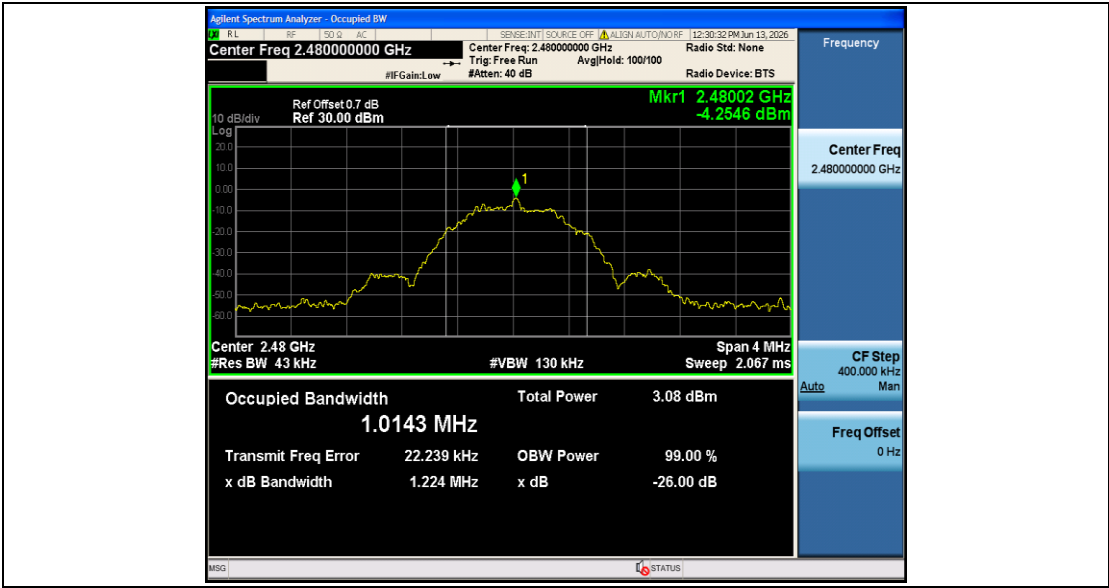
Frequency

Center Freq 2.440000000 GHz

CF Step 400.000 kHz
Auto Man

Freq Offset 0 Hz

MSG STATUS



Appendix C: Maximum conducted output power

Test Result Peak

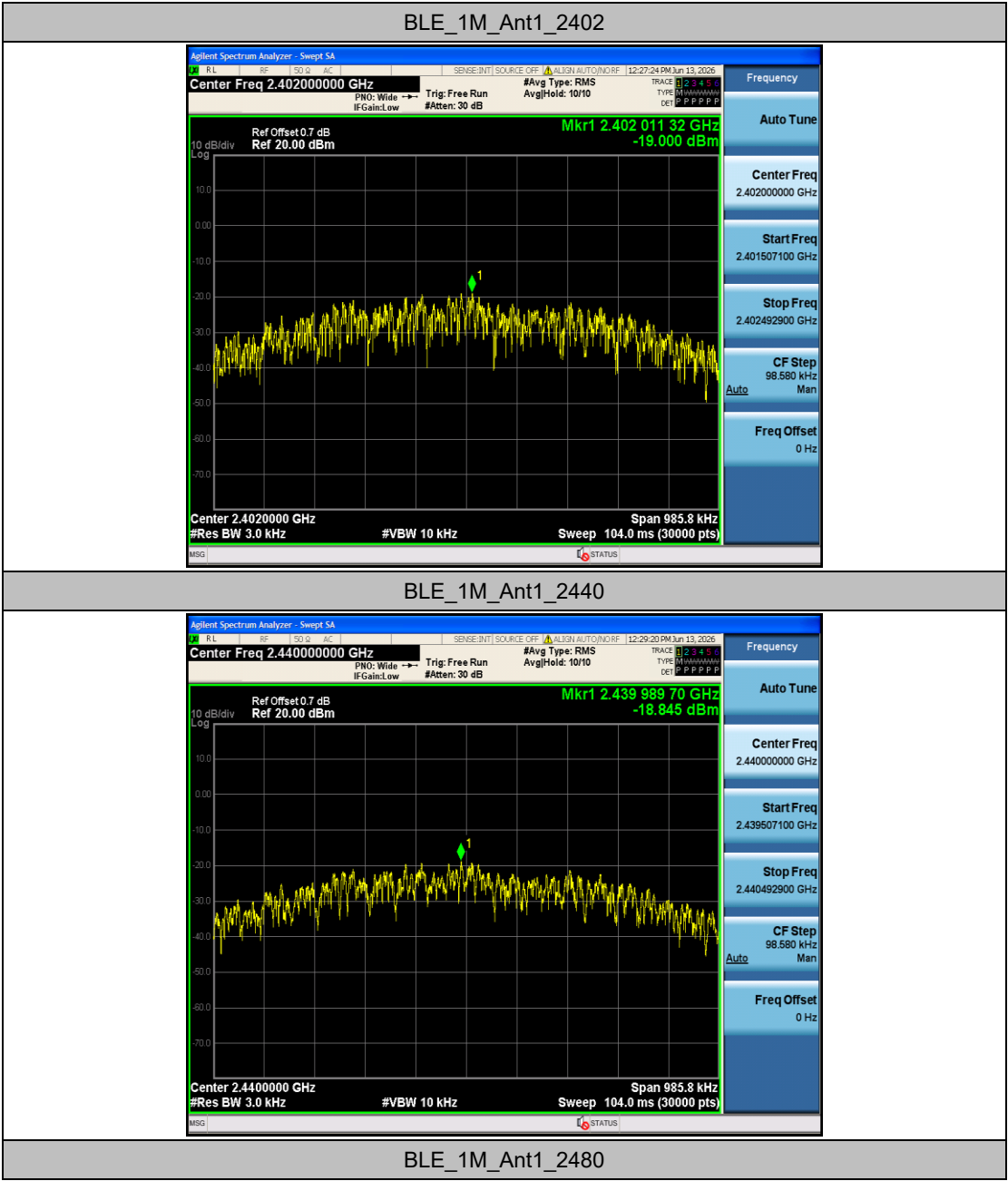
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.18	≤30	PASS
		2440	-3.17	≤30	PASS
		2480	-3.41	≤30	PASS

Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.00	≤8.00	PASS
		2440	-18.85	≤8.00	PASS
		2480	-19.27	≤8.00	PASS

Test Graphs

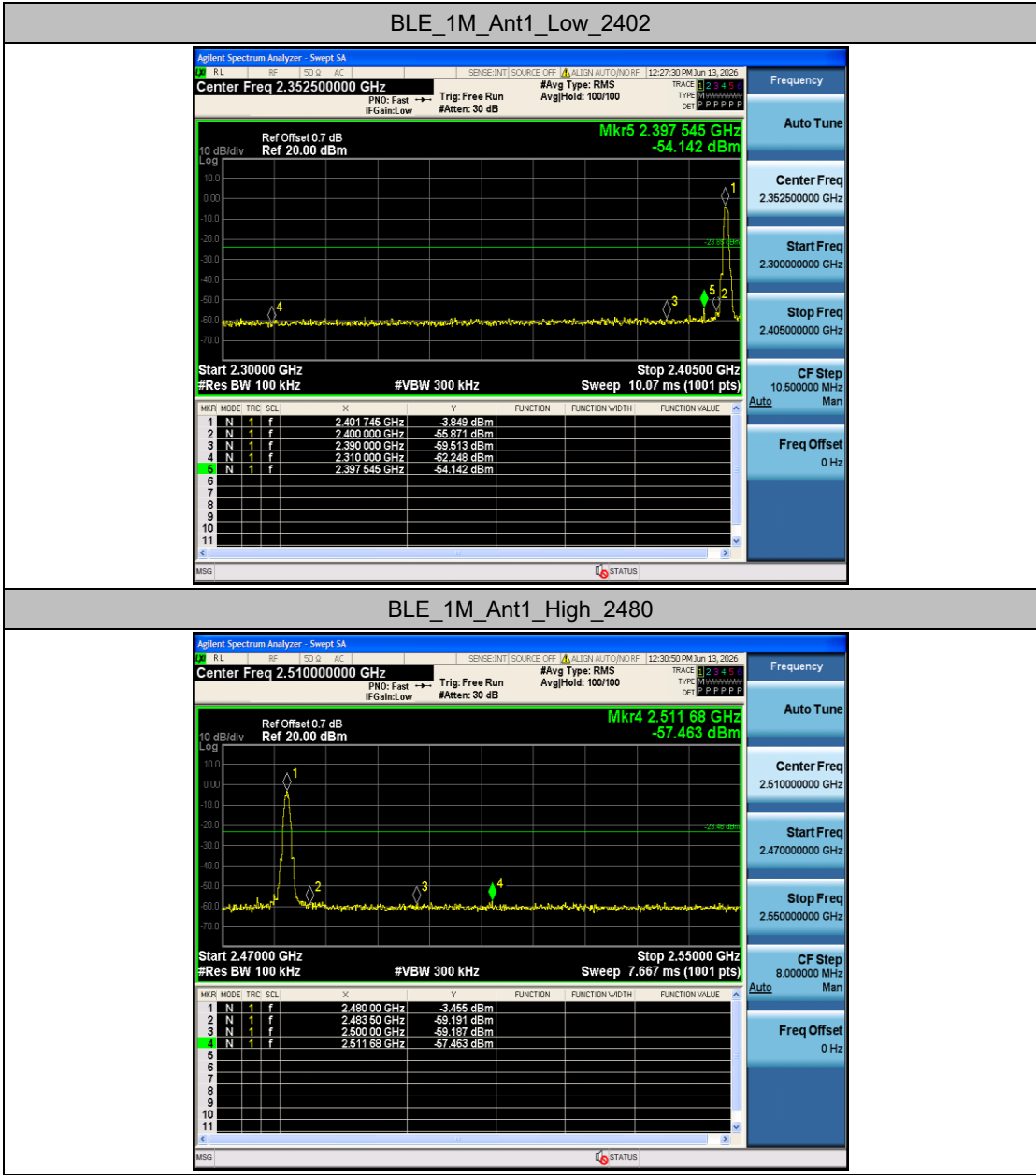


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.85	-54.14	≤-23.85	PASS
		High	2480	-3.46	-57.46	≤-23.46	PASS

Test Graphs

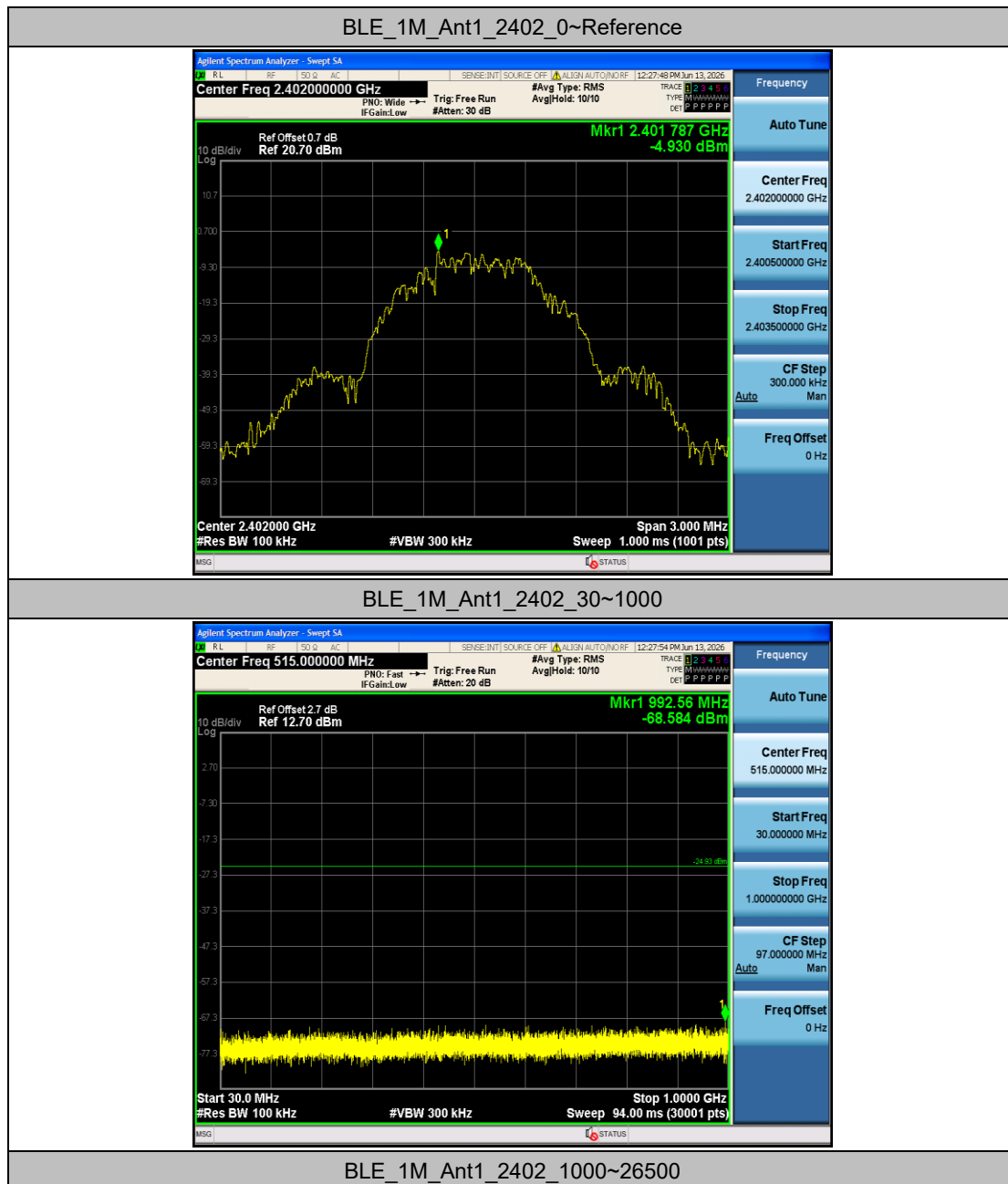


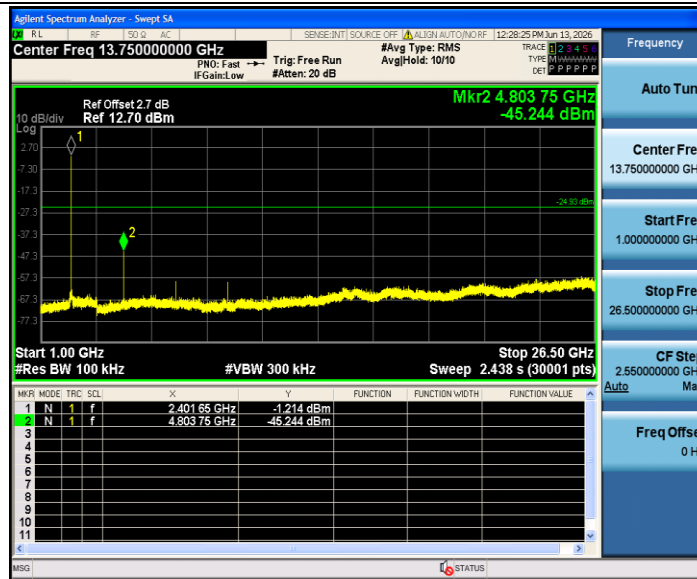
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.93	-4.93	---	PASS
			30~1000	-4.93	-68.58	≤-24.93	PASS
			1000~26500	-4.93	-45.24	≤-24.93	PASS
		2440	Reference	-4.02	-4.02	---	PASS
			30~1000	-4.02	-68.06	≤-24.02	PASS
			1000~26500	-4.02	-46.58	≤-24.02	PASS
		2480	Reference	-4.02	-4.02	---	PASS
			30~1000	-4.02	-68.01	≤-24.02	PASS
			1000~26500	-4.02	-48.7	≤-24.02	PASS

Test Graphs

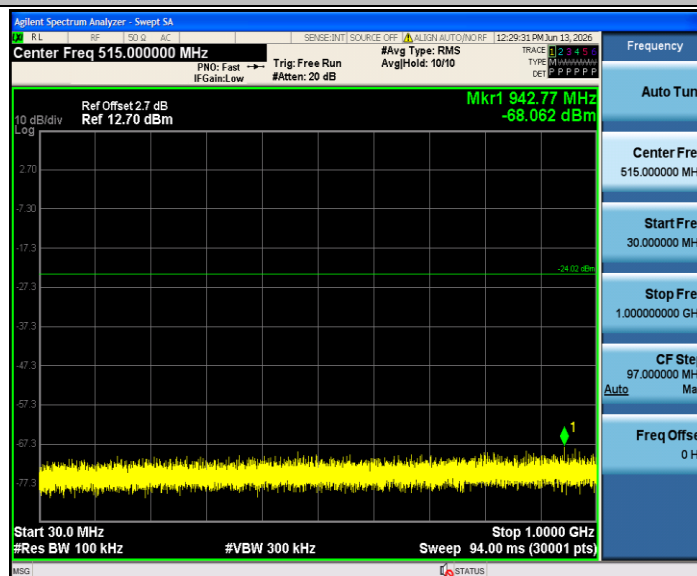




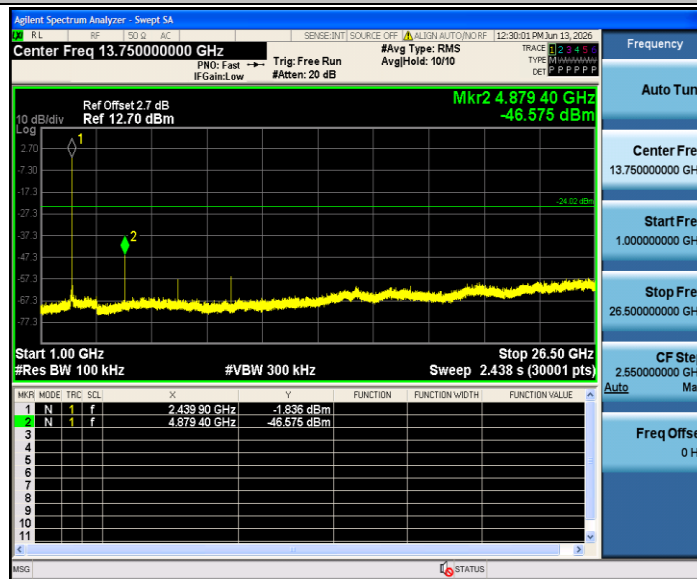
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



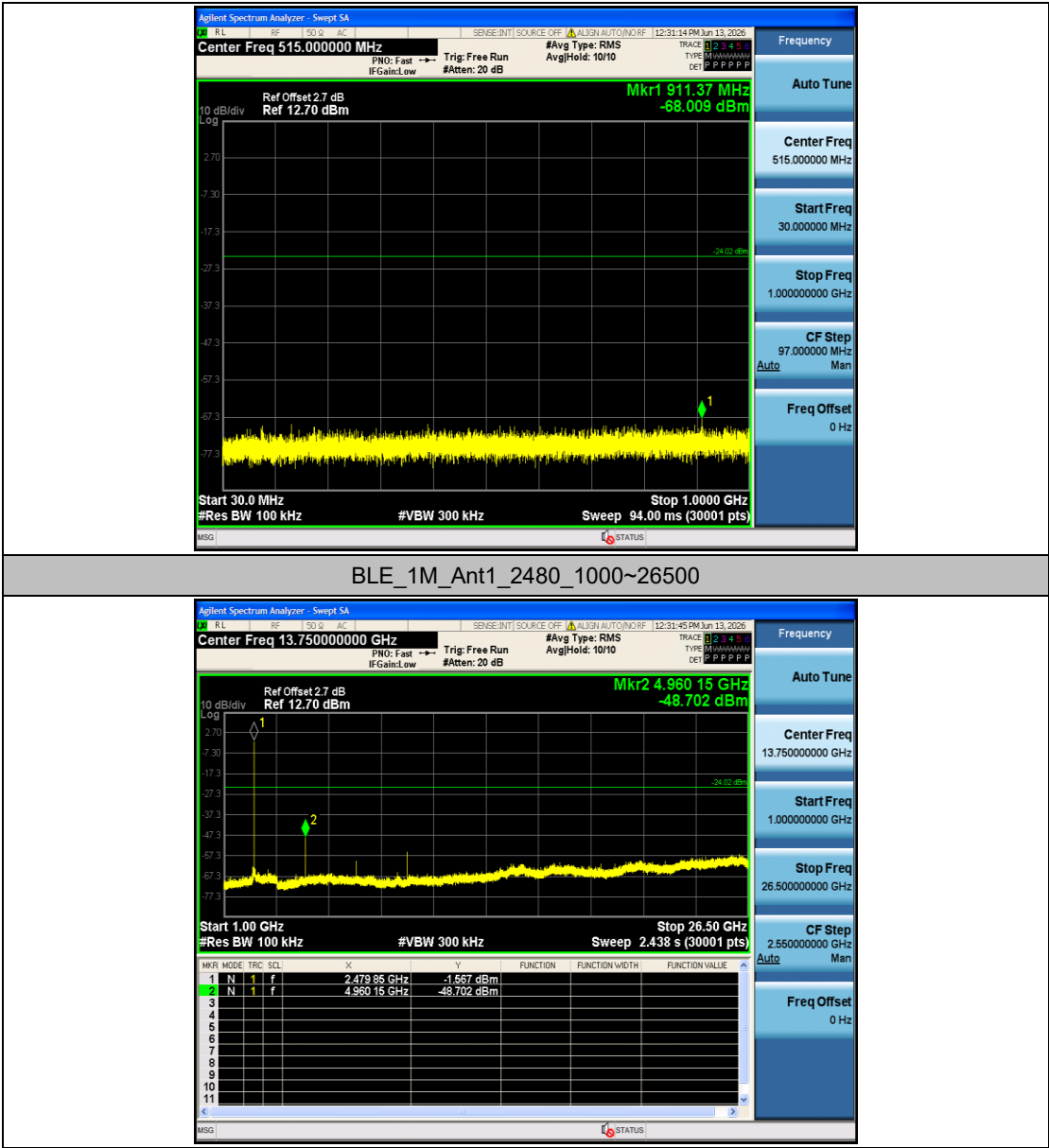
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000

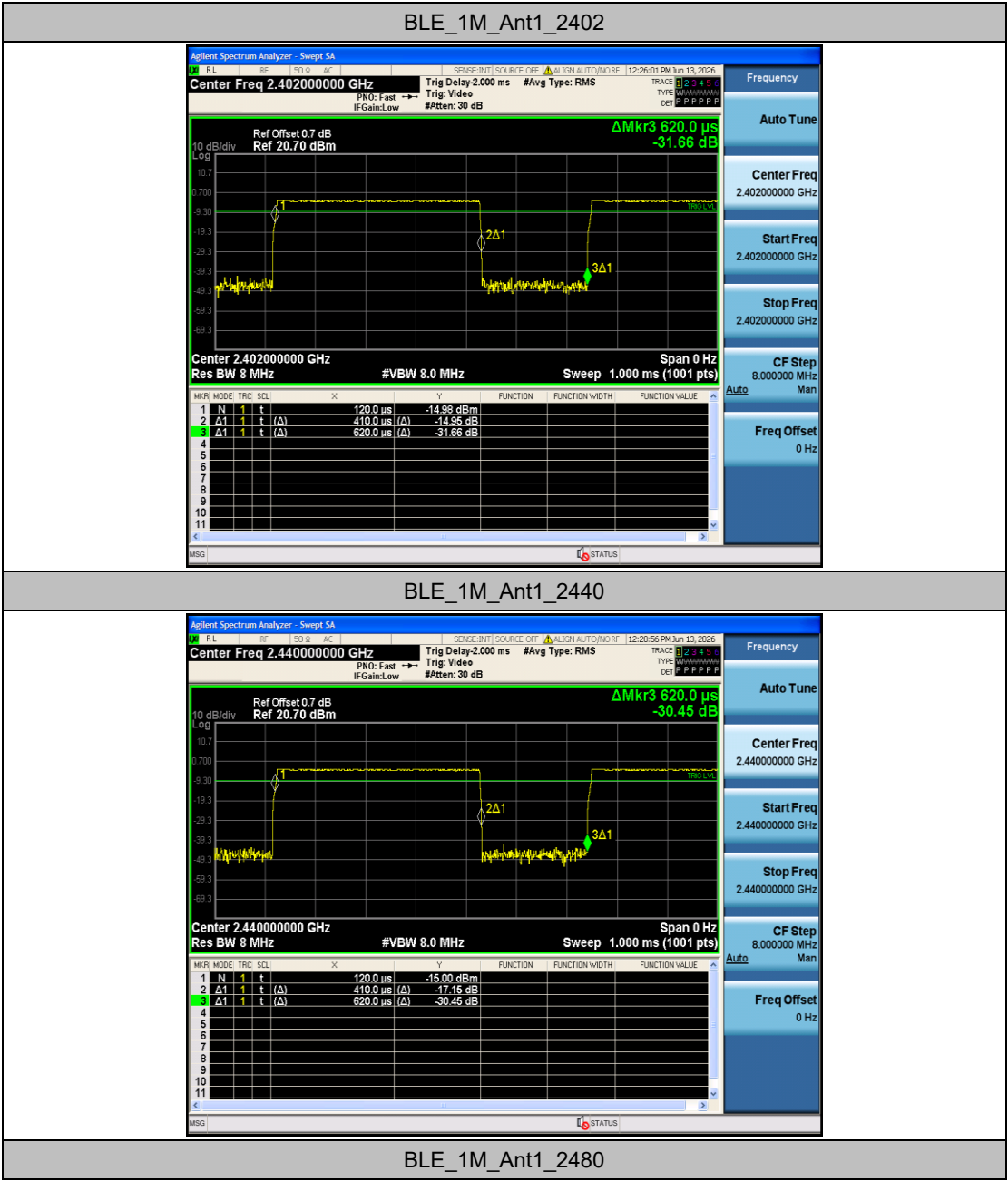


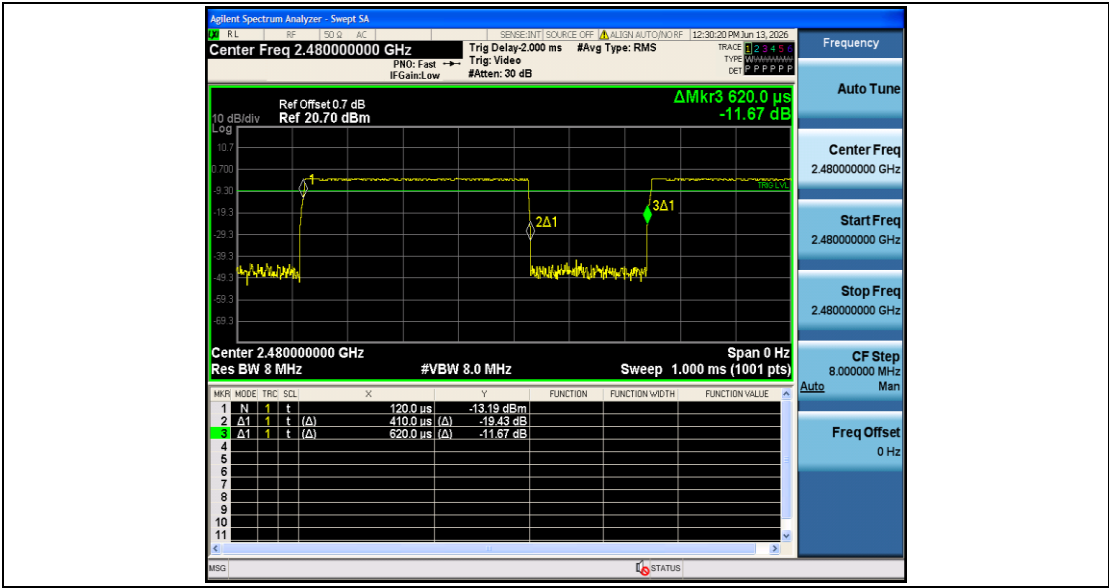
Appendix G: Duty Cycle

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

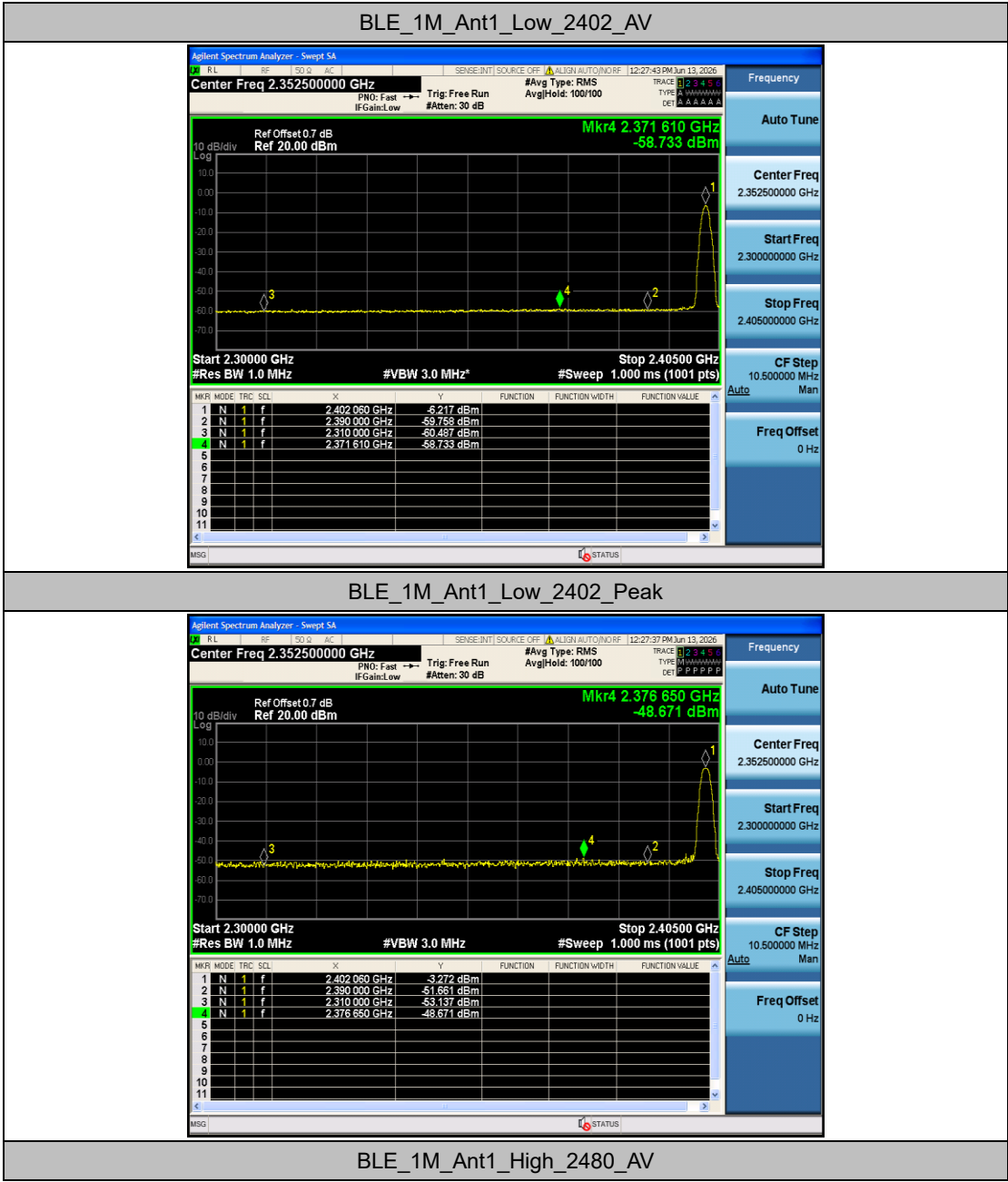
Test Result

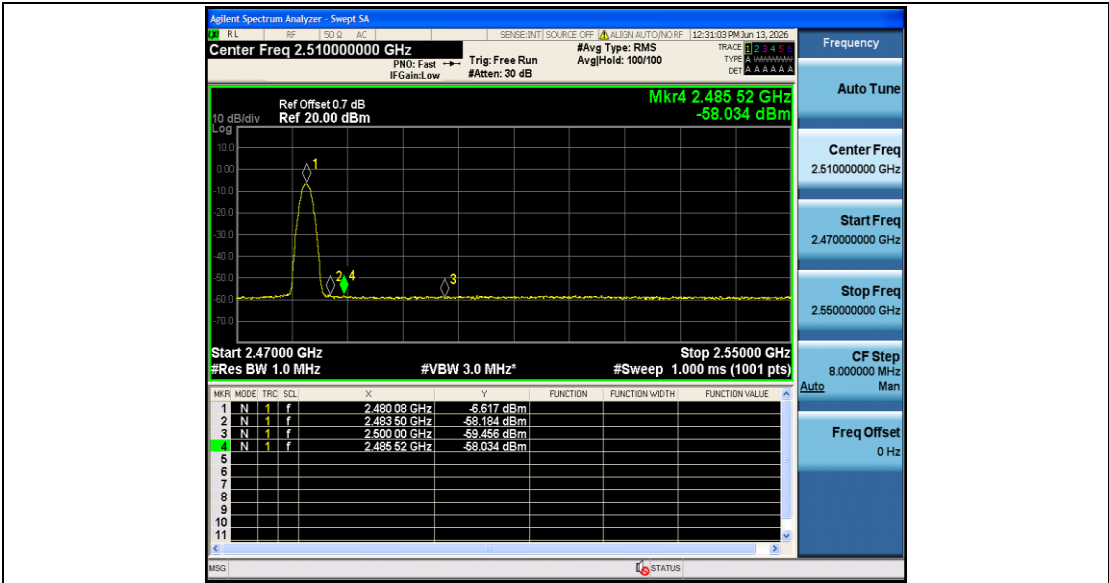
TestMod e	Antenn a	ChNam e	Freq(MH z)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.49	2.00	1.80	38.51	≤54	PASS
				AV	2371.610	-58.73	2.00	1.80	40.27	≤54	PASS
				AV	2390.000	-59.76	2.00	1.80	39.24	≤54	PASS
				Peak	2310.000	-53.14	2.00	0.00	44.06	≤74	PASS
				Peak	2376.650	-48.67	2.00	0.00	48.53	≤74	PASS
				Peak	2390.000	-51.66	2.00	0.00	45.54	≤74	PASS
		High	2480	AV	2483.500	-58.18	2.00	1.80	40.82	≤54	PASS
				AV	2485.520	-58.03	2.00	1.80	40.97	≤54	PASS
				AV	2500.000	-59.46	2.00	1.80	39.54	≤54	PASS
				Peak	2483.500	-48.18	2.00	0.00	49.02	≤74	PASS
				Peak	2483.680	-47.65	2.00	0.00	49.55	≤74	PASS
				Peak	2500.000	-50.01	2.00	0.00	47.19	≤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

