

FCC Appendix RF Test Data for BLE

FCC ID : 2BW5S-LC-IC5050

Company : Jiangsu Wormhole E-commerce Technology Co., Ltd.

EUT : Led Strip Light

Model Number : LC-IC5050

Report No. : CTA26062301201

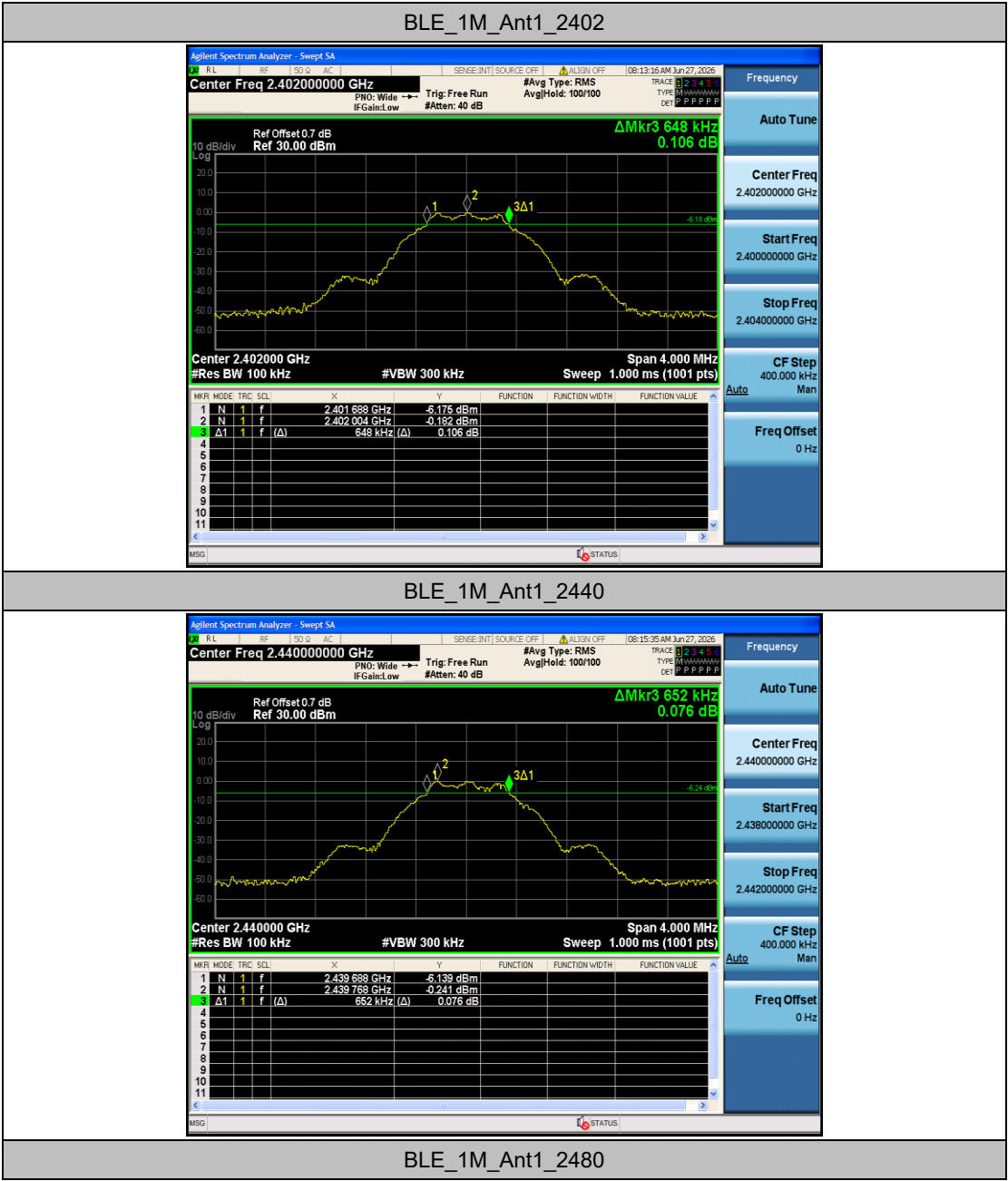
Reviewed By : Eric Wang

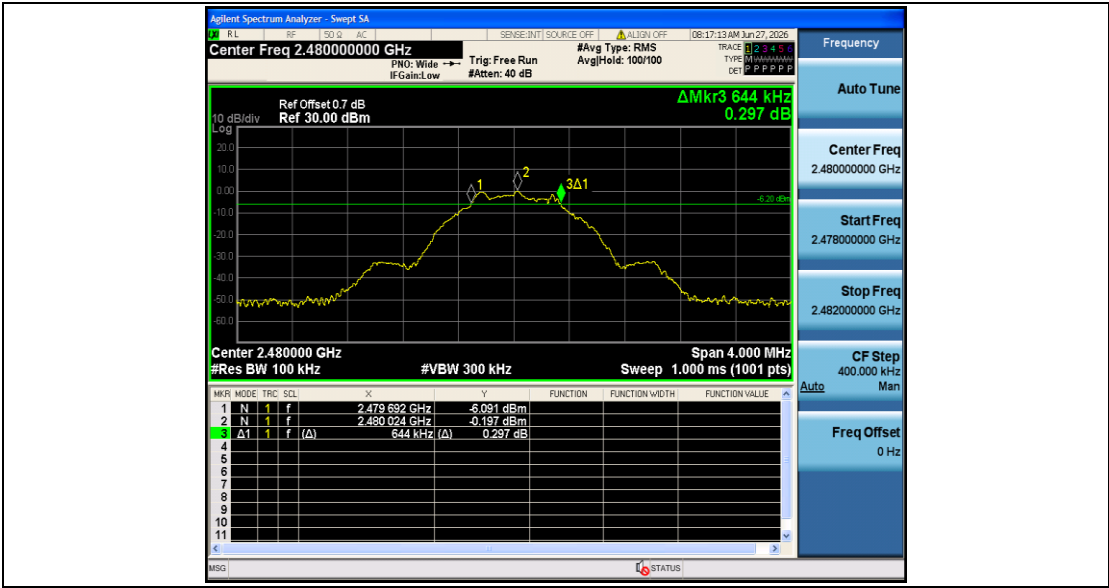
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.648	2401.688	2402.336	0.5	PASS
		2440	0.652	2439.688	2440.340	0.5	PASS
		2480	0.644	2479.692	2480.336	0.5	PASS

Test Graphs



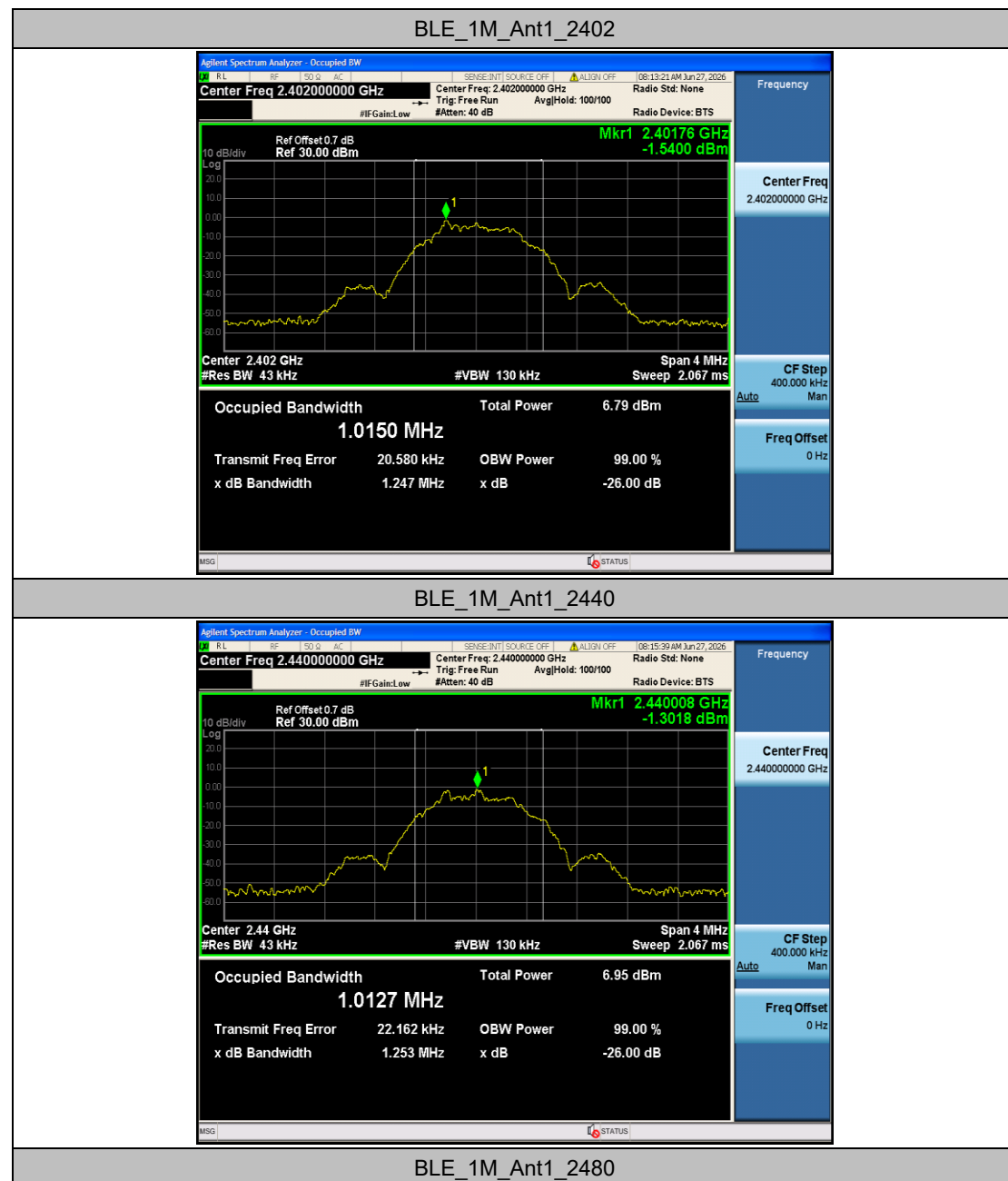


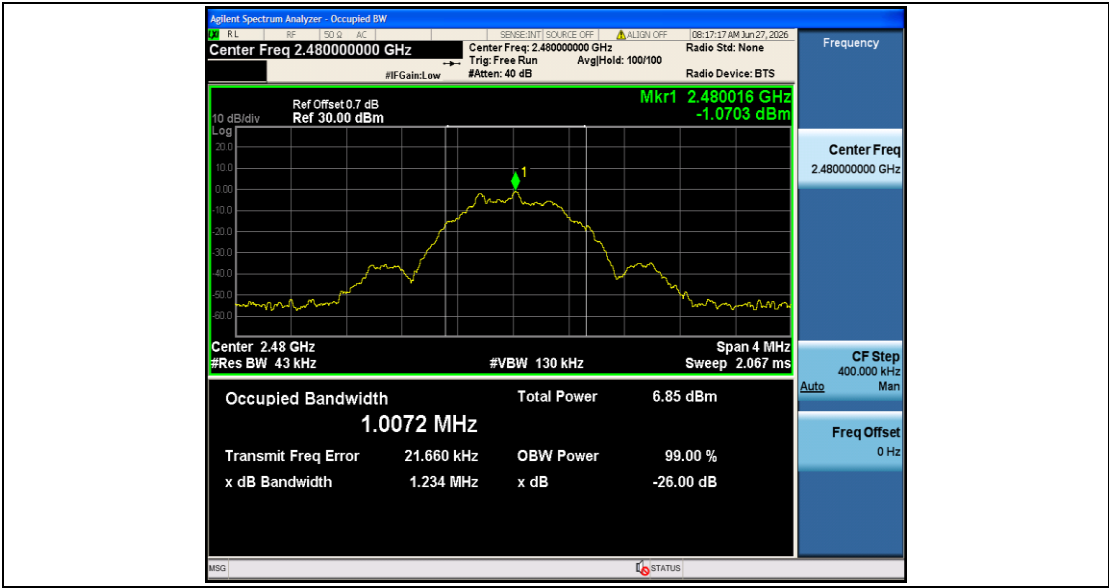
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0150	2401.5131	2402.5281	---	---
		2440	1.0127	2439.5158	2440.5285	---	---
		2480	1.0072	2479.5181	2480.5253	---	---

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	0.25	≤30	PASS
		2440	0.18	≤30	PASS
		2480	-0.09	≤30	PASS

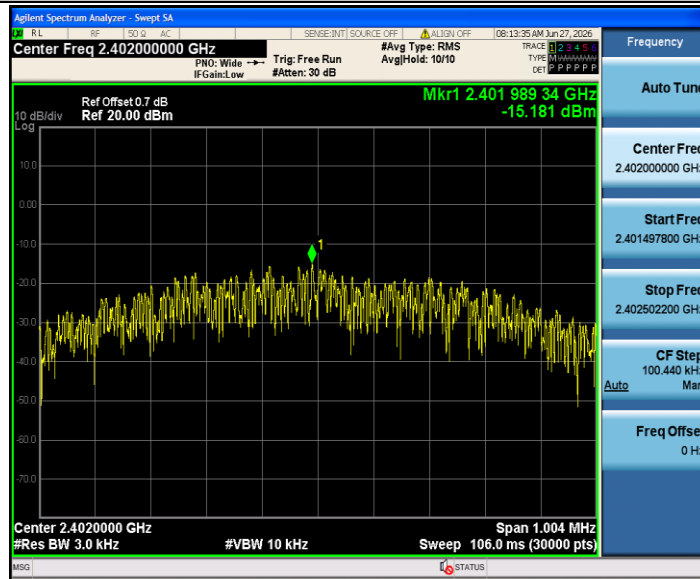
Appendix D: Maximum power spectral density

Test Result

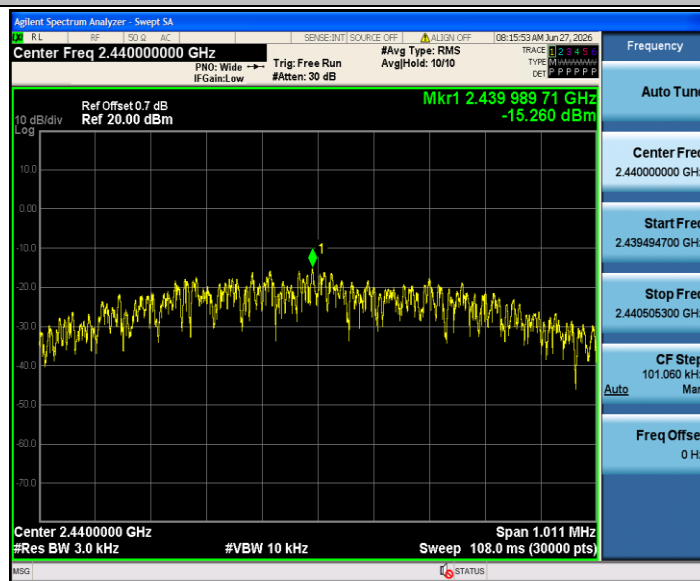
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.18	≤8.00	PASS
		2440	-15.26	≤8.00	PASS
		2480	-15.51	≤8.00	PASS

Test Graphs

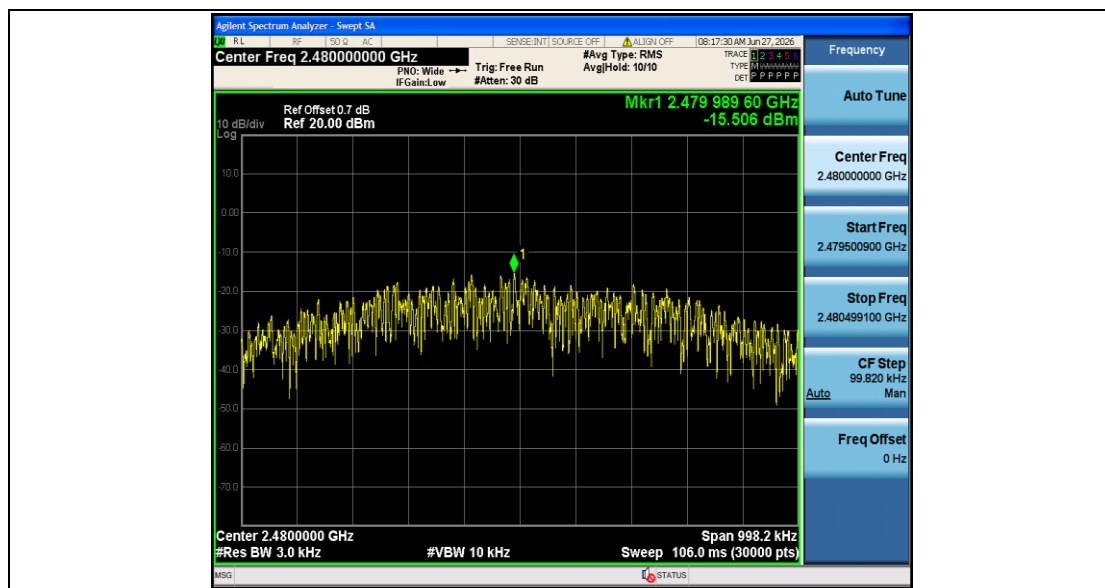
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

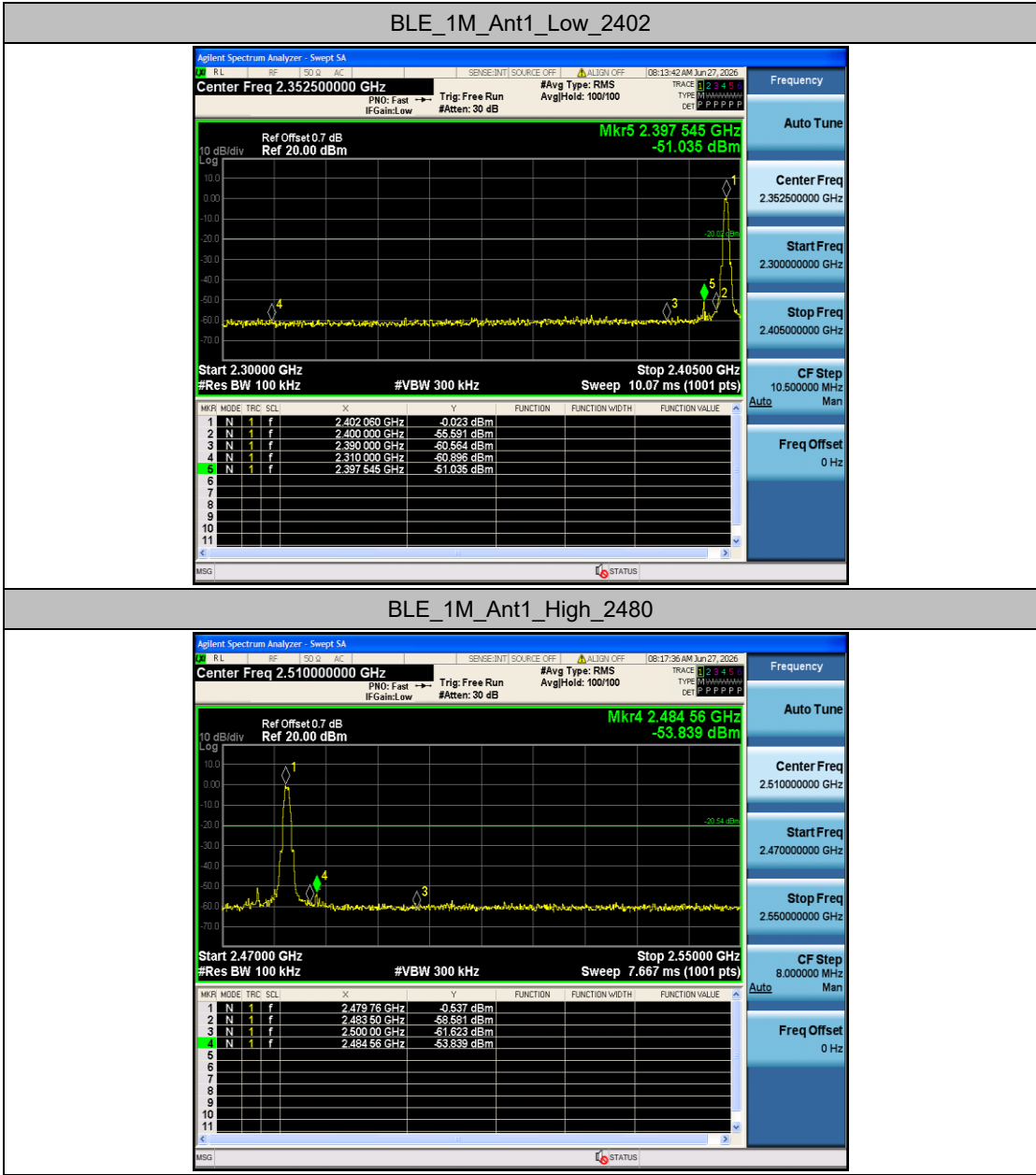


Appendix E: Band edge measurements

Test Result

TestMod e	Antenn a	ChNam e	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdic t
BLE_1M	Ant1	Low	2402	-0.02	-51.04	≤-20.02	PASS
		High	2480	-0.54	-53.84	≤-20.54	PASS

Test Graphs

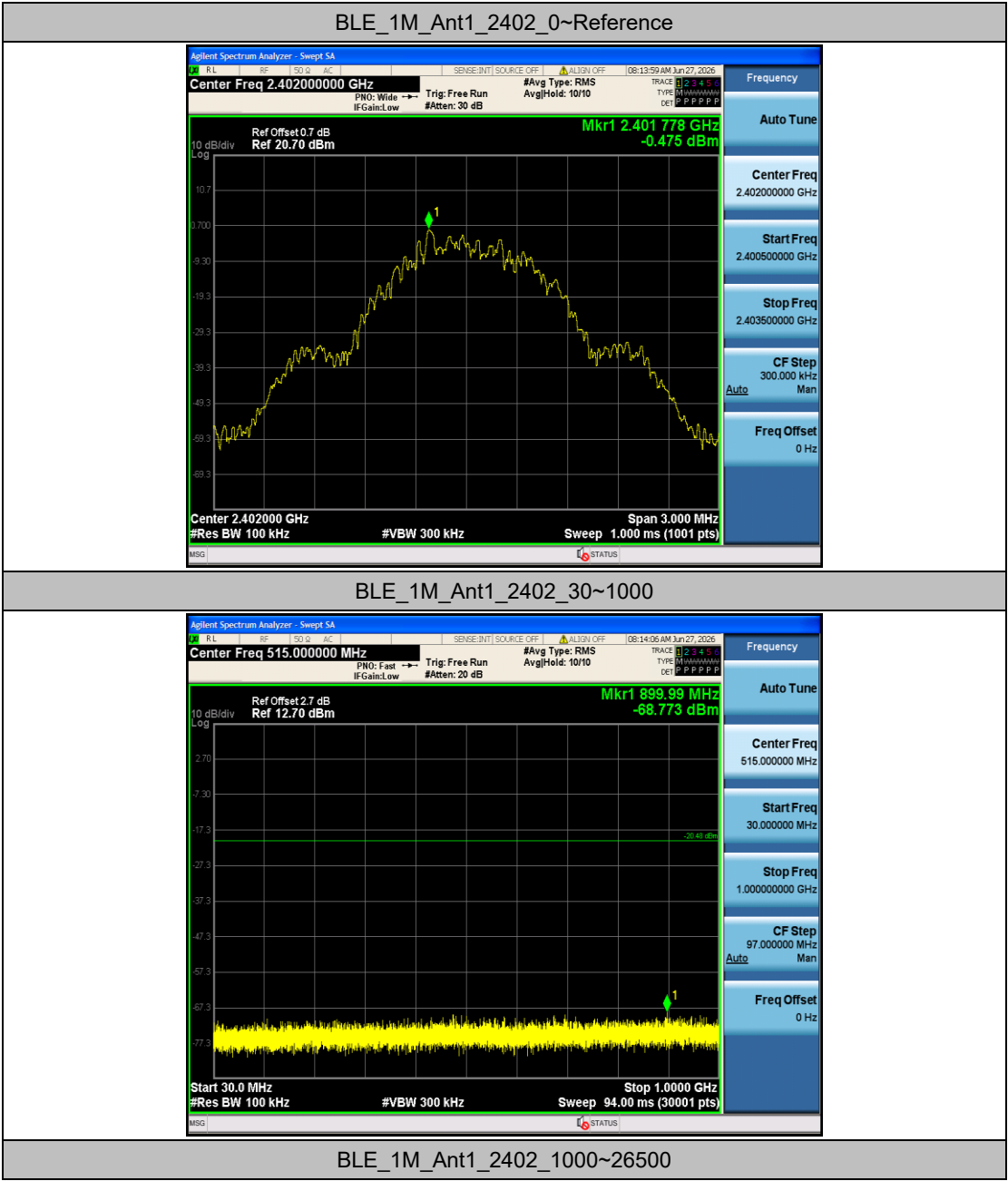


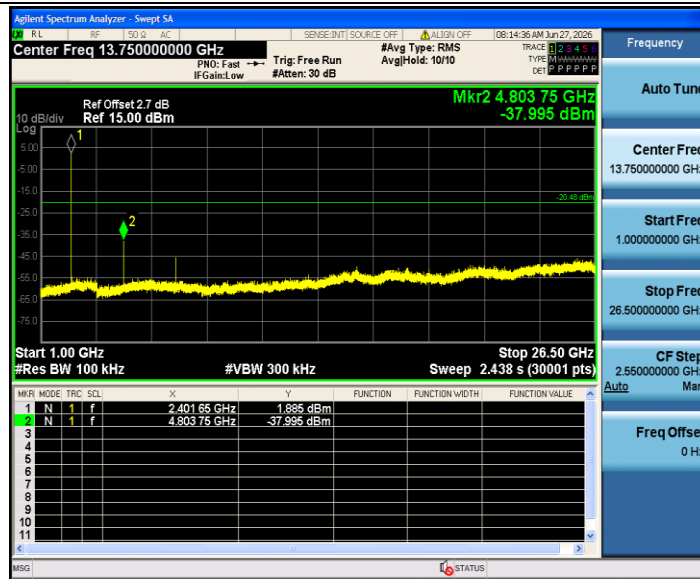
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.48	-0.48	---	PASS
			30~1000	-0.48	-68.77	≤-20.48	PASS
			1000~26500	-0.48	-38	≤-20.48	PASS
		2440	Reference	0.01	0.01	---	PASS
			30~1000	0.01	-68.67	≤-19.99	PASS
			1000~26500	0.01	-40.87	≤-19.99	PASS
		2480	Reference	-0.51	-0.51	---	PASS
			30~1000	-0.51	-68.71	≤-20.51	PASS
			1000~26500	-0.51	-43.61	≤-20.51	PASS

Test Graphs

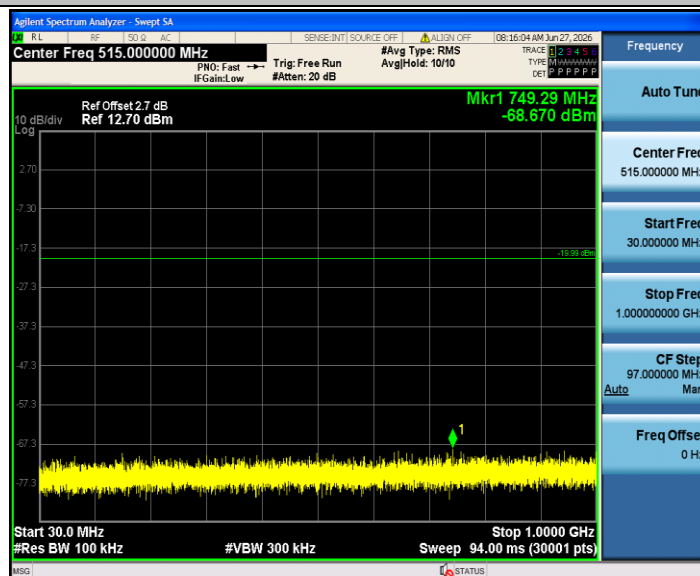




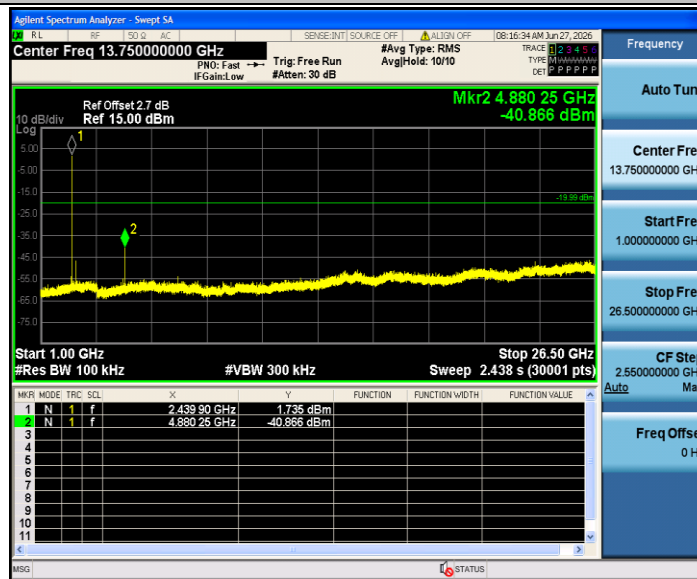
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



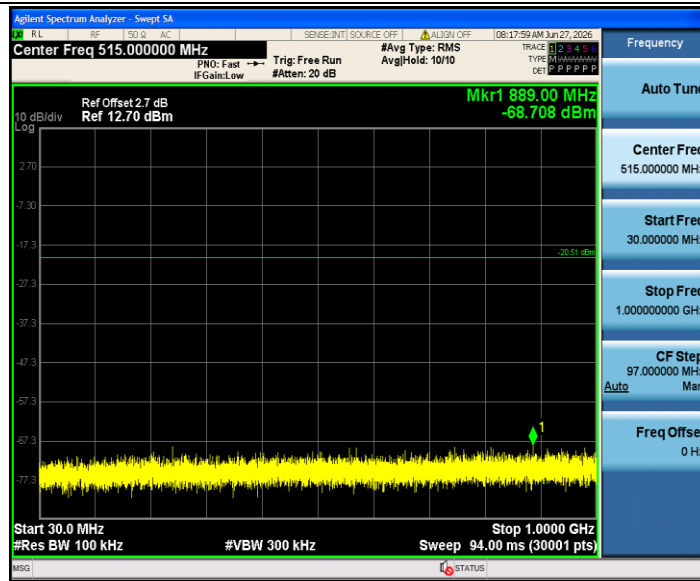
BLE_1M_Ant1_2440_1000~26500



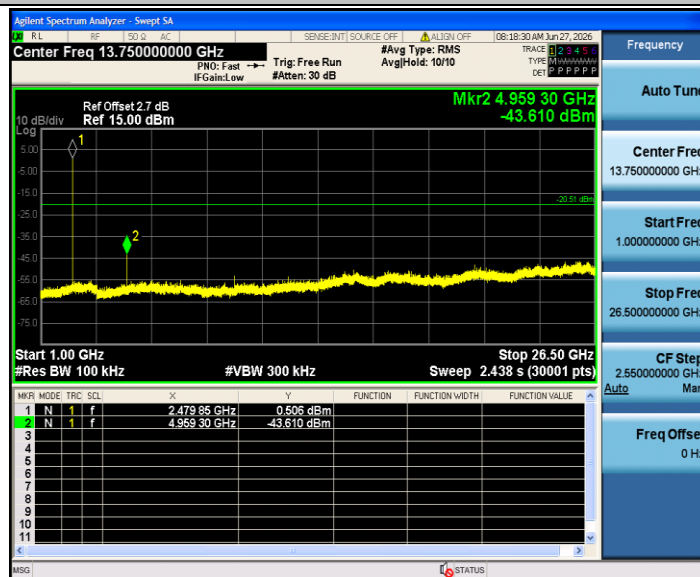
BLE_1M_Ant1_2480_0~Reference



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	---	---

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Ref Offset 0.7 dB Ref 20.70 dBm

ΔMkr3 620.0 μs -10.64 dB

Center 2.402000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts)

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		120.0 μs	-11.48 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-22.71 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-10.64 dB		

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 8.0000000 MHz

Freq Offset 0 Hz

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Ref Offset 0.7 dB Ref 20.70 dBm

ΔMkr3 620.0 μs -10.13 dB

Center 2.440000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts)

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		120.0 μs	-11.71 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-22.26 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-10.13 dB		

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.440000000 GHz

CF Step 8.0000000 MHz

Freq Offset 0 Hz

BLE_1M_Ant1_2440

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.480000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Ref Offset 0.7 dB Ref 20.70 dBm

ΔMkr3 620.0 μs -10.13 dB

Center 2.480000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts)

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		120.0 μs	-11.71 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-22.26 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-10.13 dB		

Frequency

Auto Tune

Center Freq 2.480000000 GHz

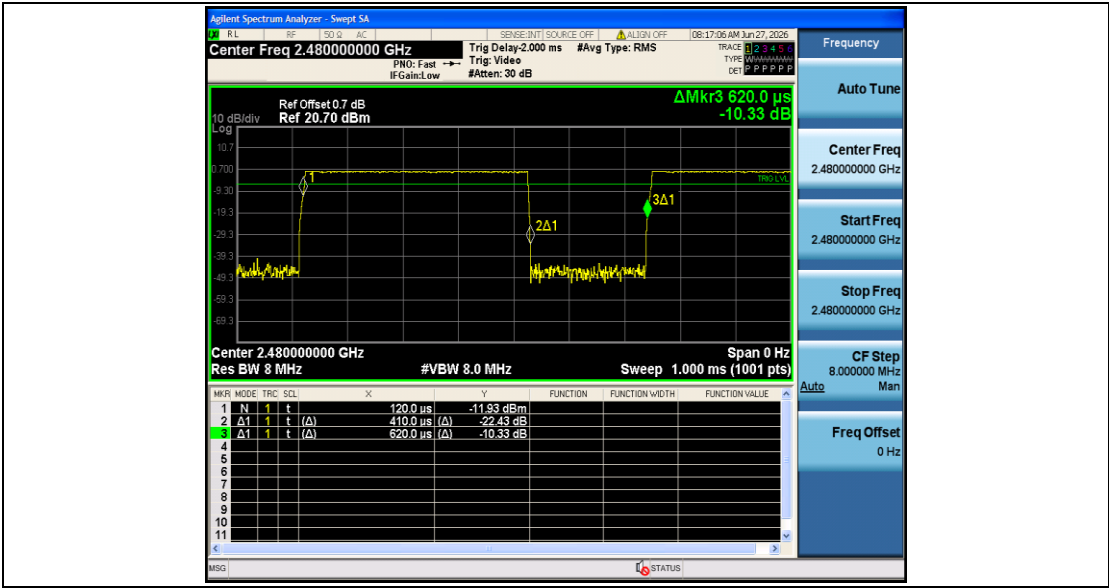
Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

CF Step 8.0000000 MHz

Freq Offset 0 Hz

BLE_1M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

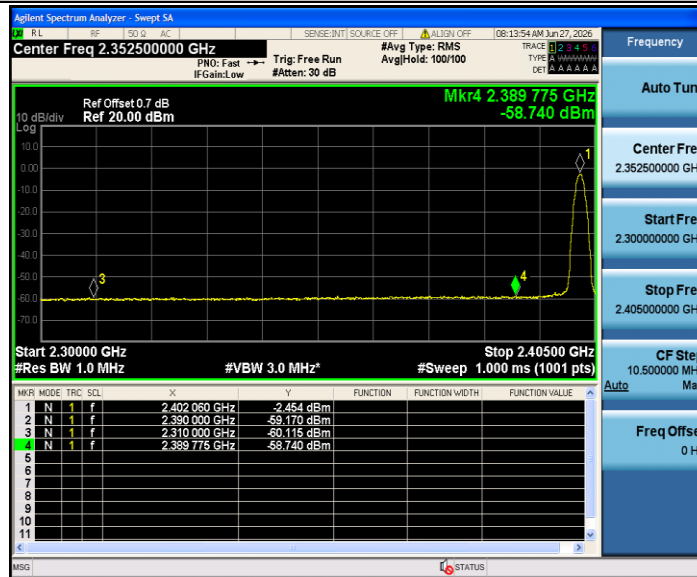
TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.12	2.00	1.80	38.88	≤54	PASS
				AV	2389.775	-58.74	2.00	1.80	40.26	≤54	PASS
				AV	2390.000	-59.17	2.00	1.80	39.83	≤54	PASS
				Peak	2310.000	-51.37	2.00	0.00	45.83	≤74	PASS
				Peak	2380.430	-48.78	2.00	0.00	48.42	≤74	PASS
				Peak	2390.000	-52.43	2.00	0.00	44.77	≤74	PASS
		High	2480	AV	2483.500	-58.34	2.00	1.80	40.66	≤54	PASS
				AV	2484.960	-57.42	2.00	1.80	41.58	≤54	PASS
				AV	2500.000	-59.07	2.00	1.80	39.93	≤54	PASS
				Peak	2483.500	-46.35	2.00	0.00	50.85	≤74	PASS
				Peak	2484.880	-44.72	2.00	0.00	52.48	≤74	PASS
				Peak	2500.000	-50.11	2.00	0.00	47.09	≤74	PASS

Note:

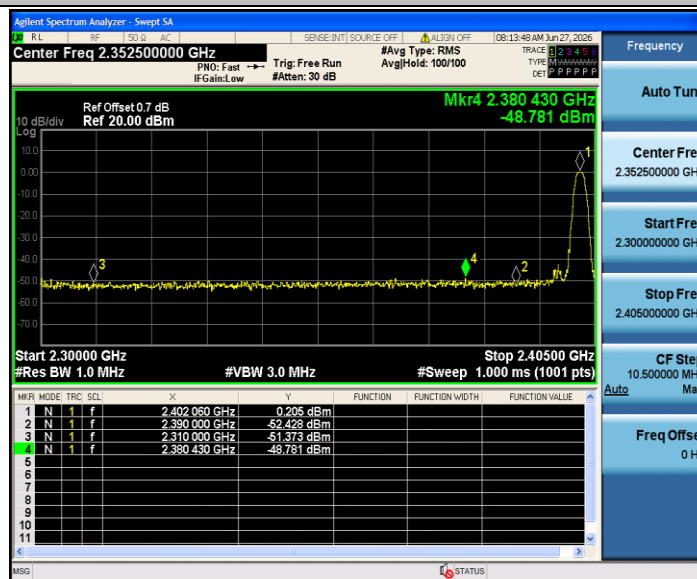
1. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

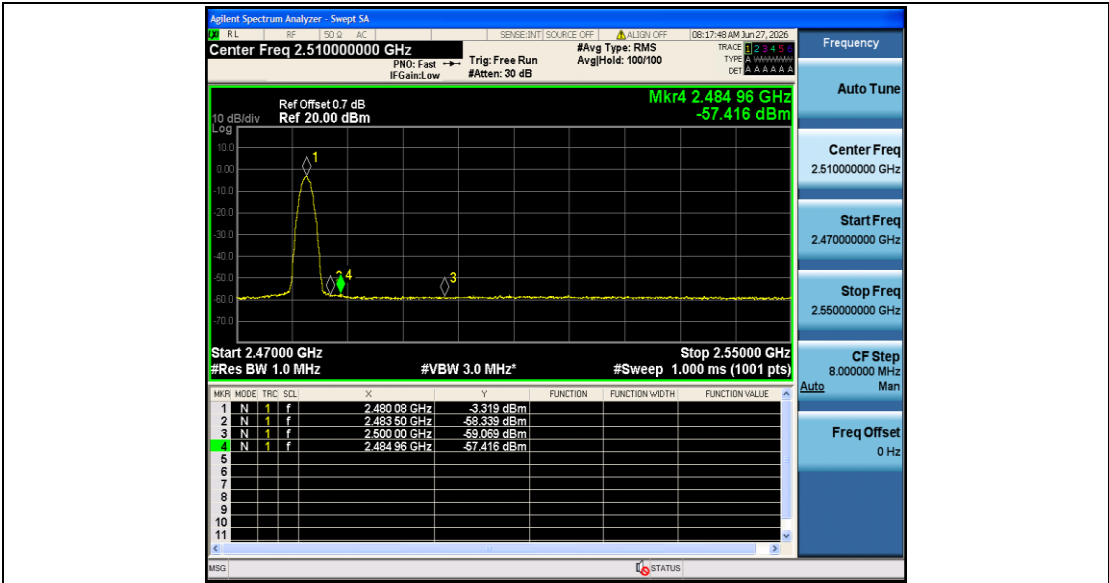
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

