

FCC Appendix RF Test Data for BLE

FCC ID : 2BXF6-KSTDMG001

Company : shenzhenshihongweimaoyiyouxiangongsi

EUT : RGBIC Smart Mushroom Table Lamp

Model Number : KS.TD.MG.001

Report No. : CTA26071402801

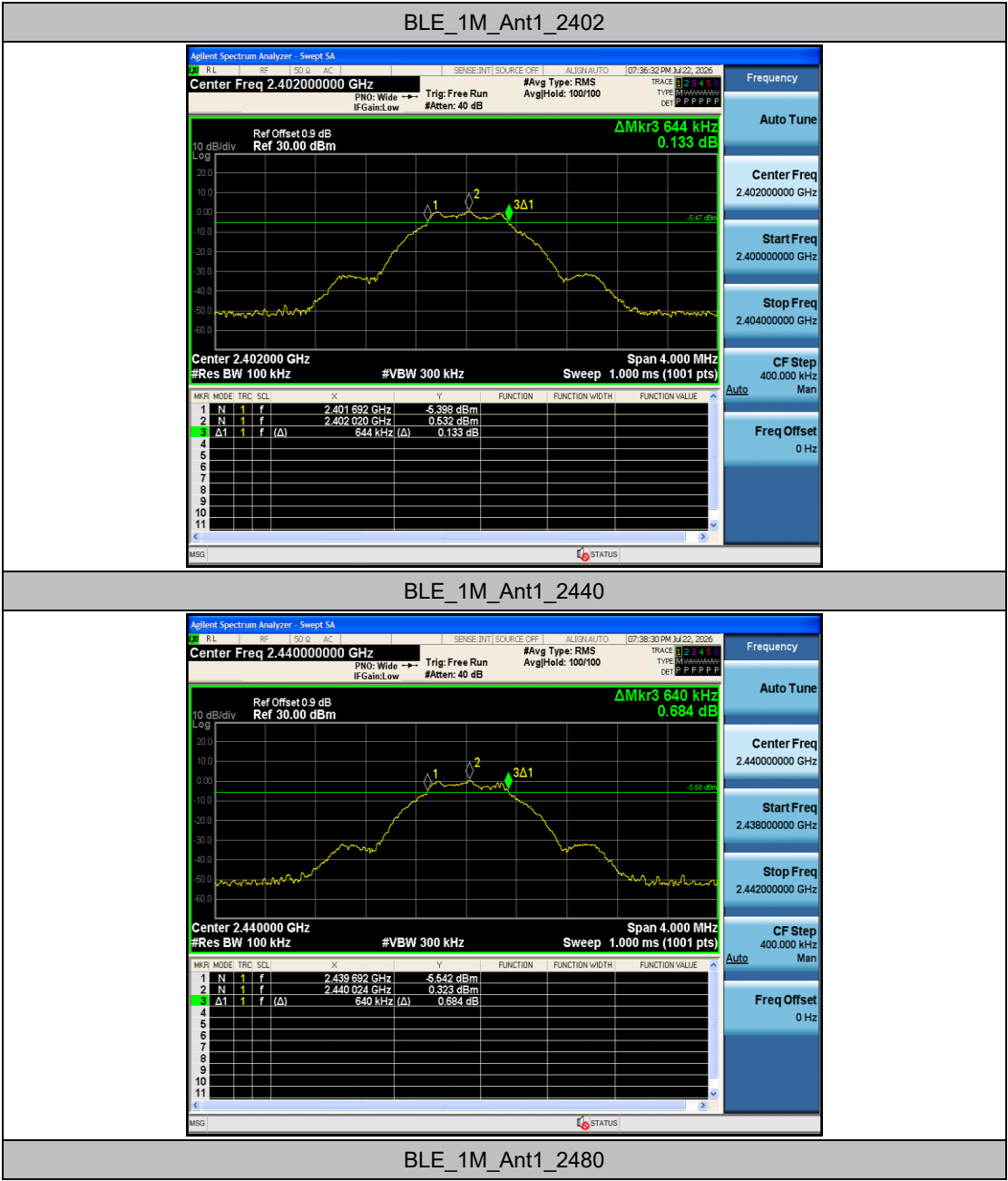
Reviewed By : Eric Wang

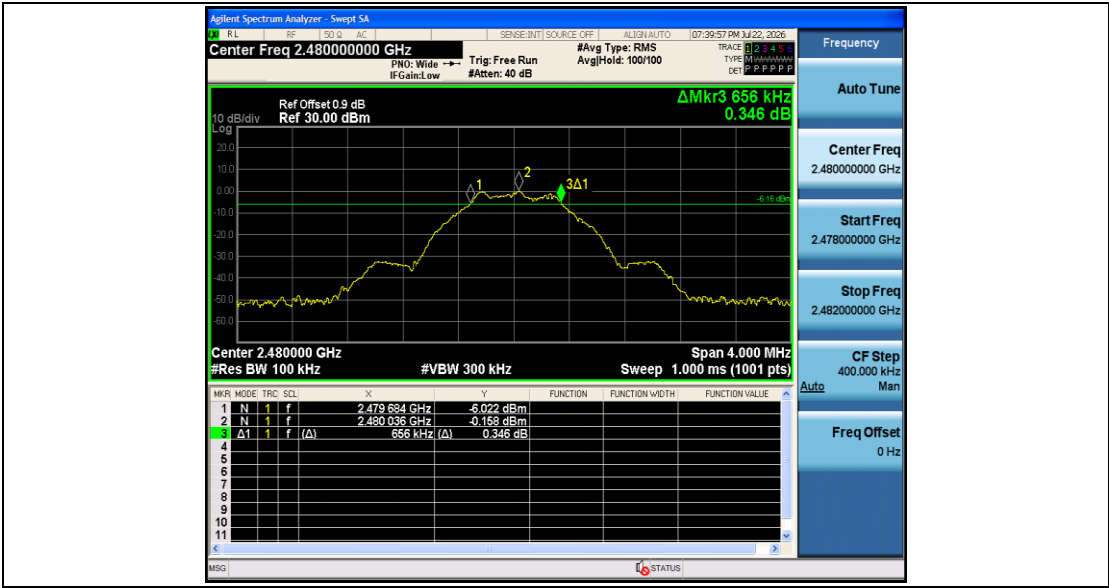
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.644	2401.692	2402.336	0.5	PASS
		2440	0.640	2439.692	2440.332	0.5	PASS
		2480	0.656	2479.684	2480.340	0.5	PASS

Test Graphs



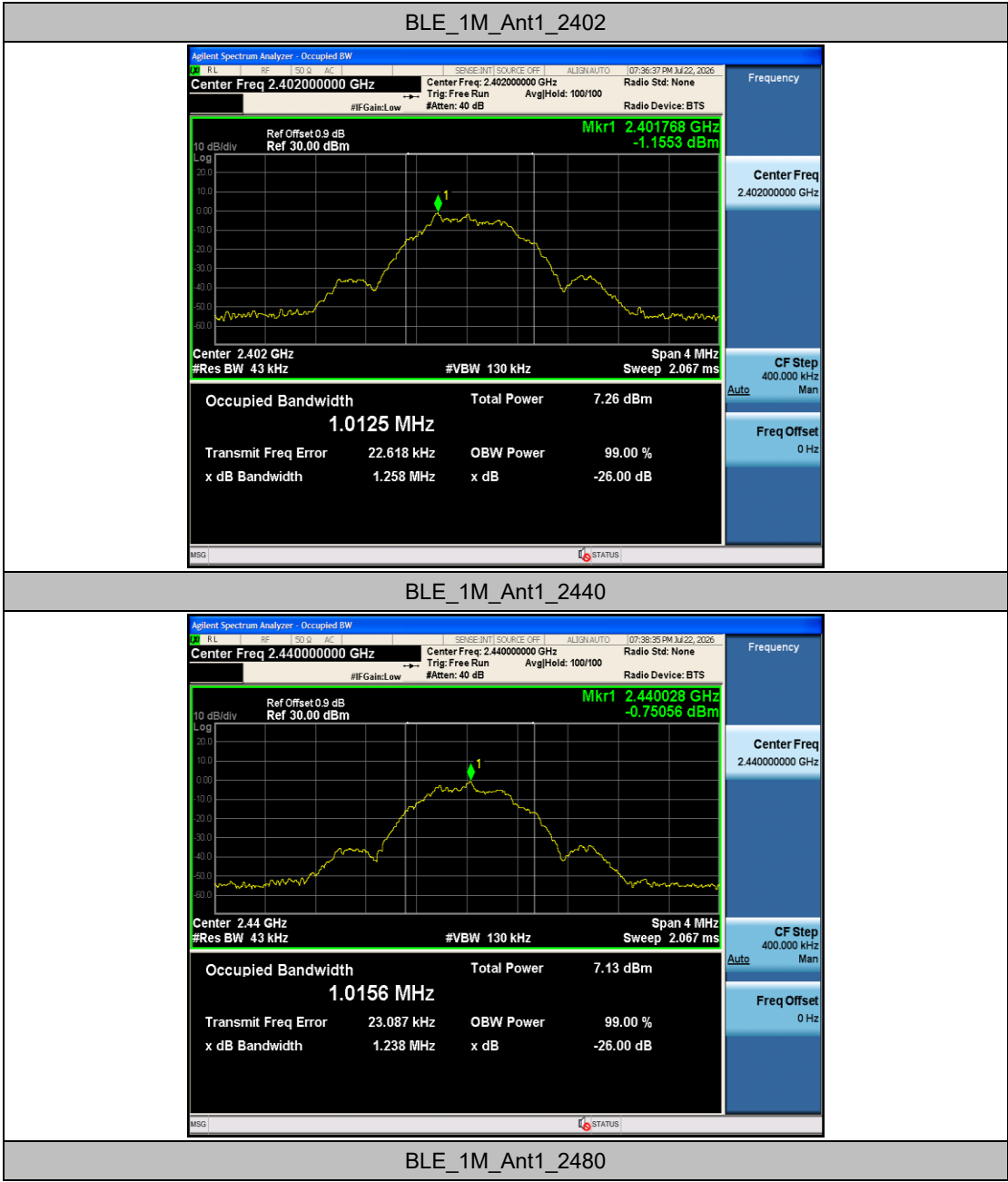


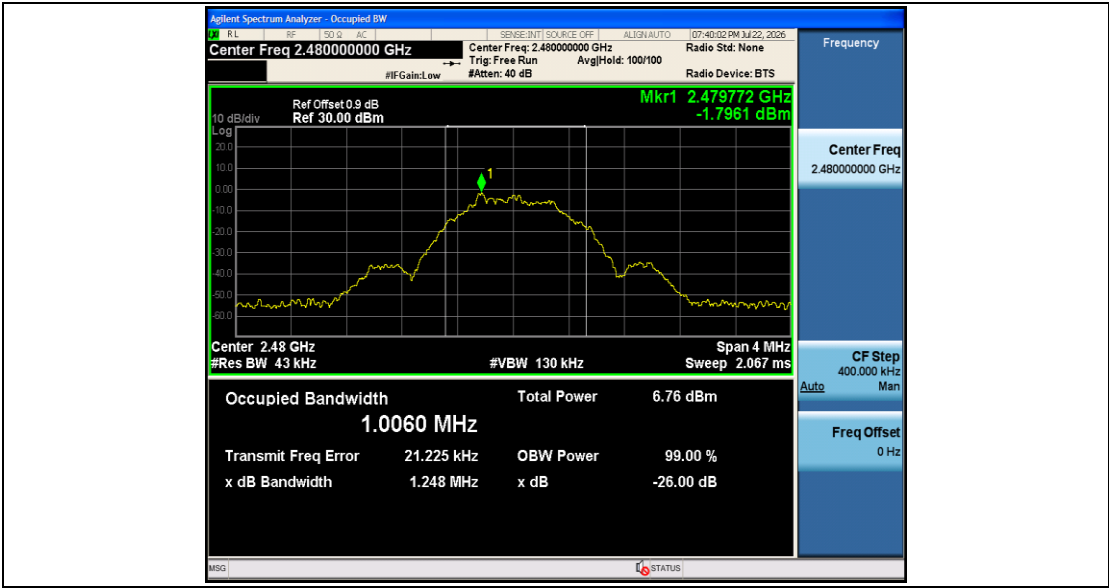
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0125	2401.5164	2402.5289	---	---
		2440	1.0156	2439.5153	2440.5309	---	---
		2480	1.0060	2479.5182	2480.5242	---	---

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	0.68	≤30	PASS
		2440	0.51	≤30	PASS
		2480	0.21	≤30	PASS

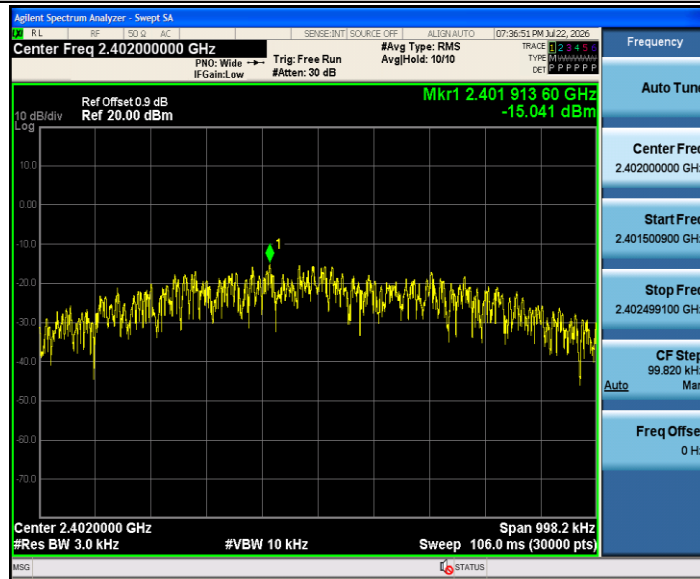
Appendix D: Maximum power spectral density

Test Result

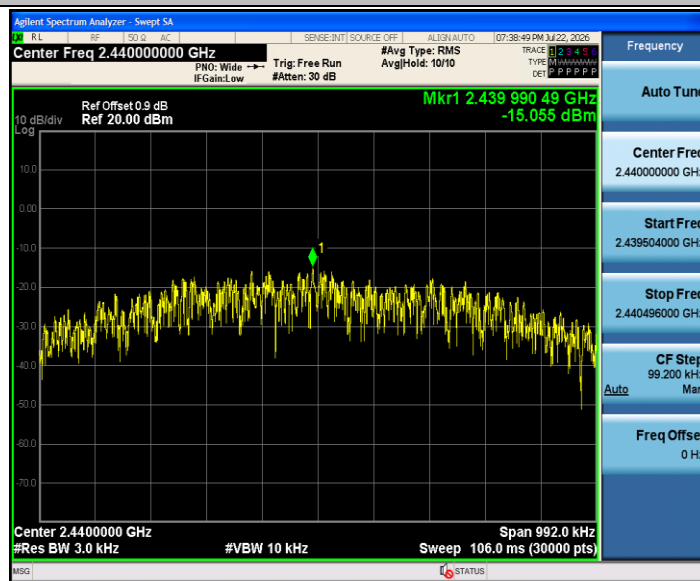
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.04	≤8.00	PASS
		2440	-15.06	≤8.00	PASS
		2480	-15.20	≤8.00	PASS

Test Graphs

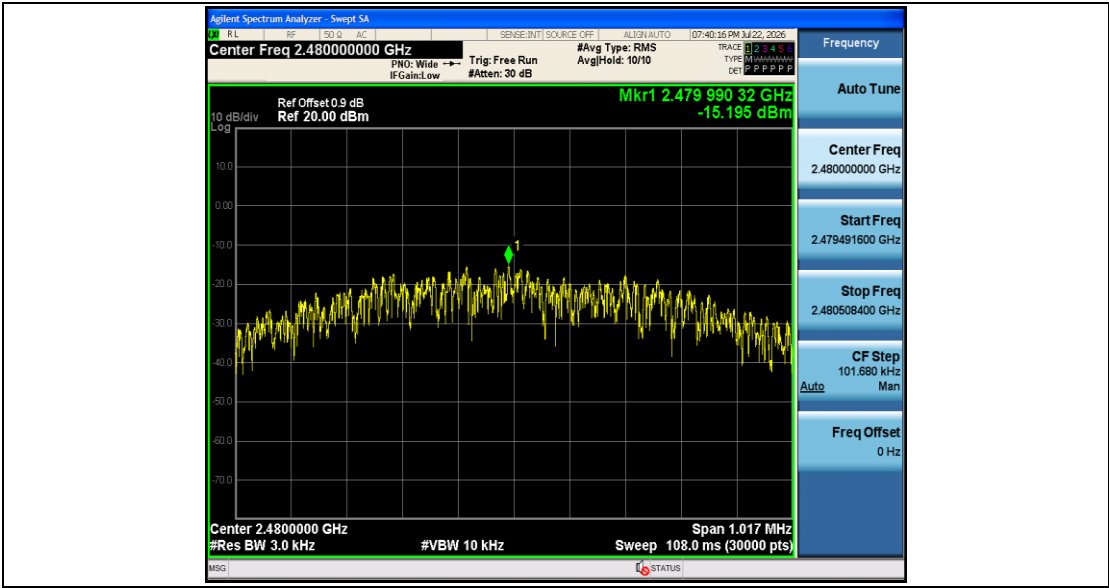
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

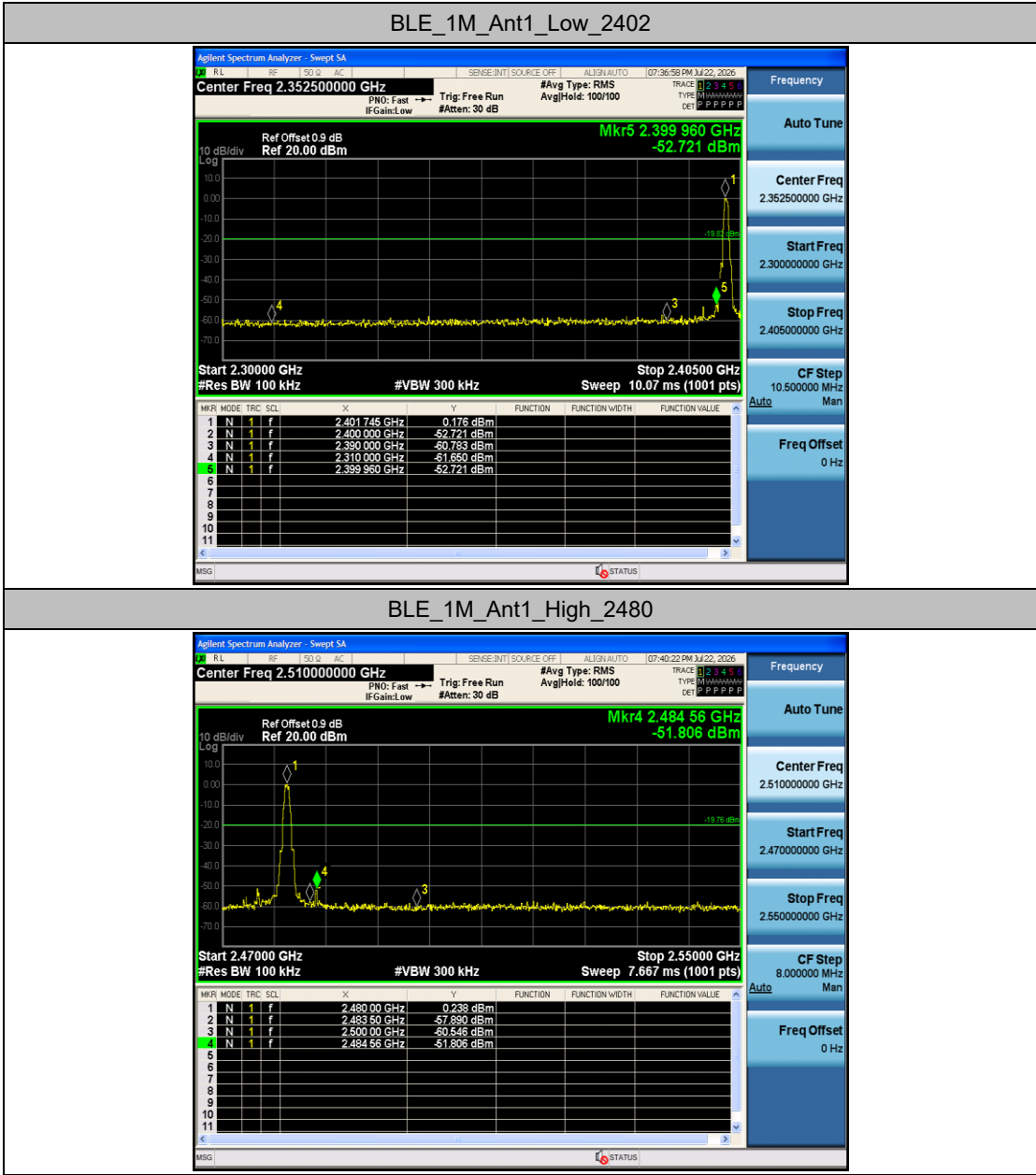


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.18	-52.72	≤-19.82	PASS
		High	2480	0.24	-51.81	≤-19.76	PASS

Test Graphs

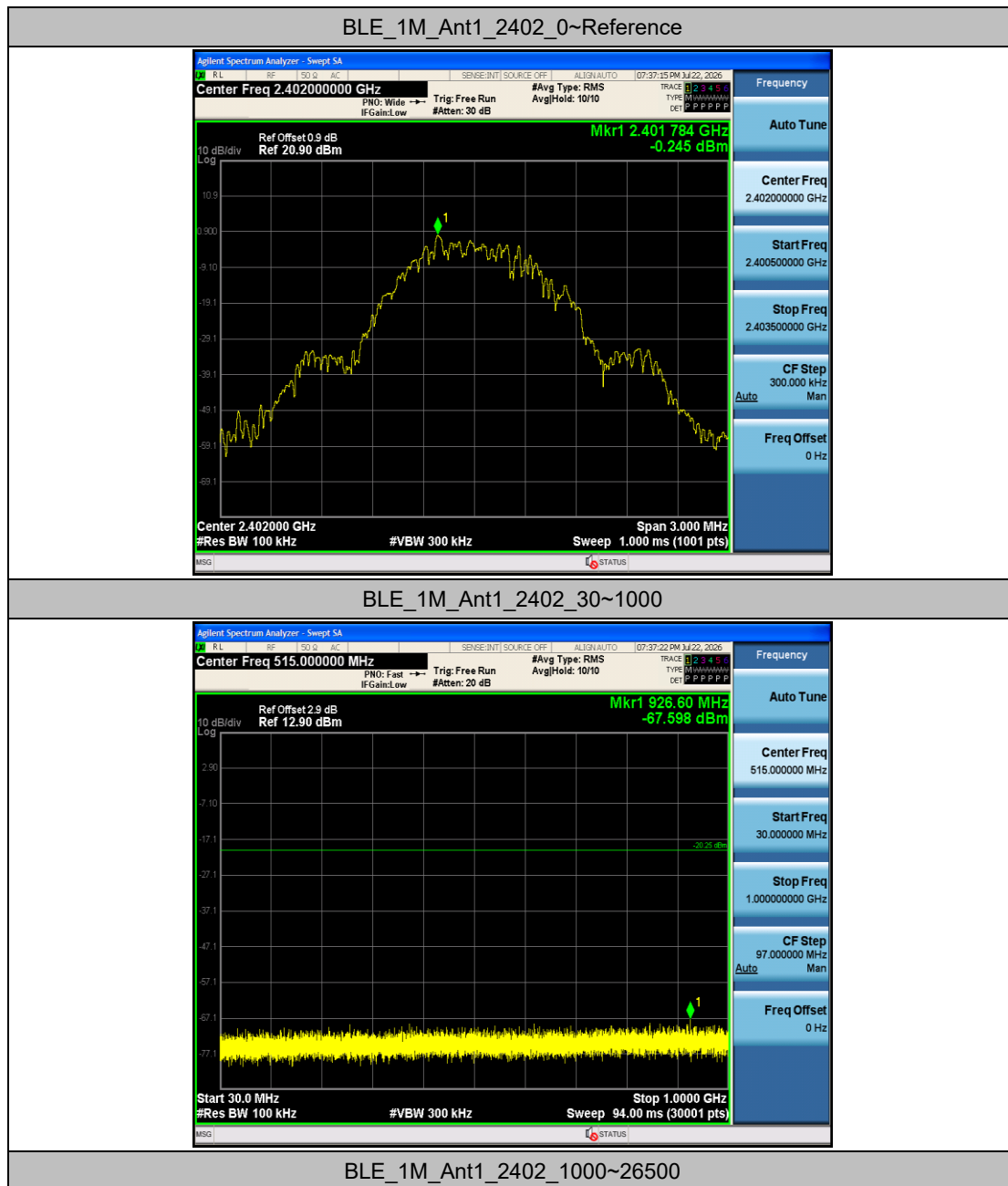


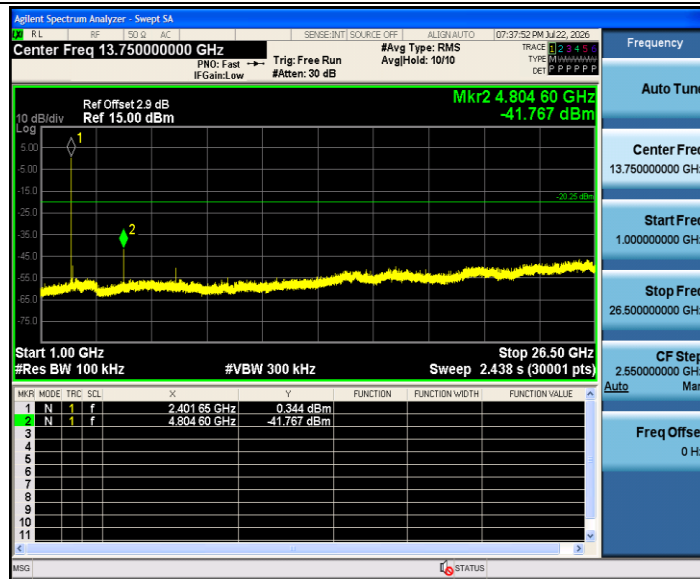
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.25	-0.25	---	PASS
			30~1000	-0.25	-67.6	≤-20.25	PASS
			1000~26500	-0.25	-41.77	≤-20.25	PASS
		2440	Reference	-0.98	-0.98	---	PASS
			30~1000	-0.98	-67.86	≤-20.98	PASS
			1000~26500	-0.98	-41.07	≤-20.98	PASS
		2480	Reference	-1.17	-1.17	---	PASS
			30~1000	-1.17	-67.41	≤-21.17	PASS
			1000~26500	-1.17	-41.48	≤-21.17	PASS

Test Graphs

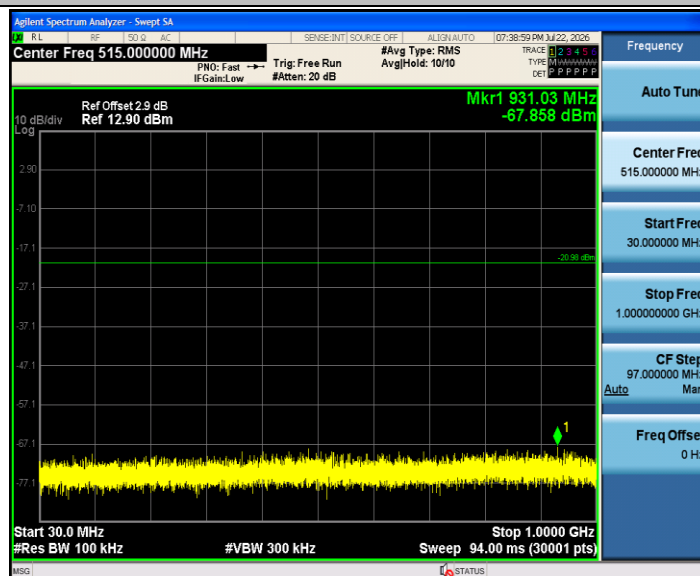




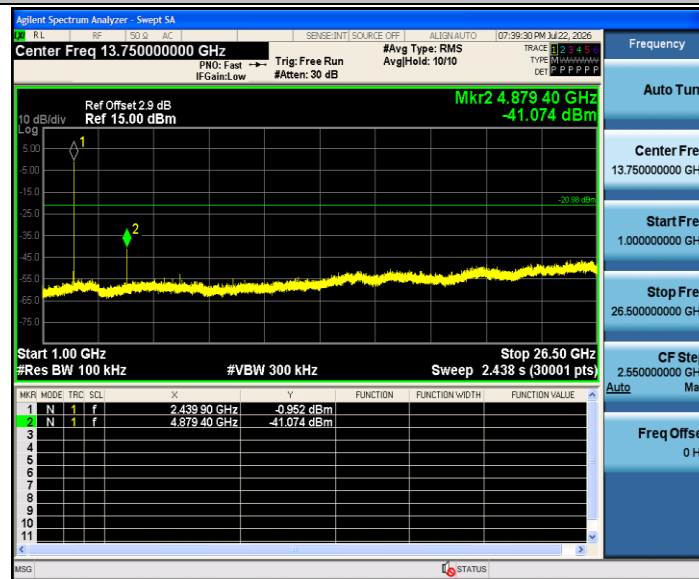
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



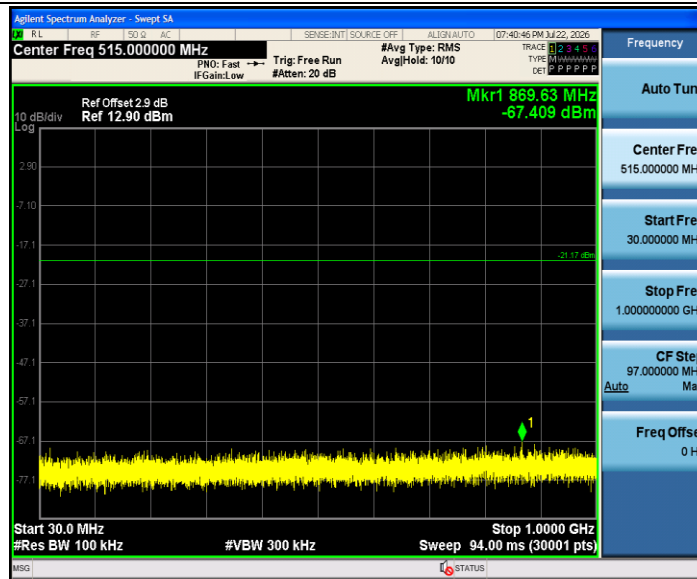
BLE_1M_Ant1_2440_1000~26500



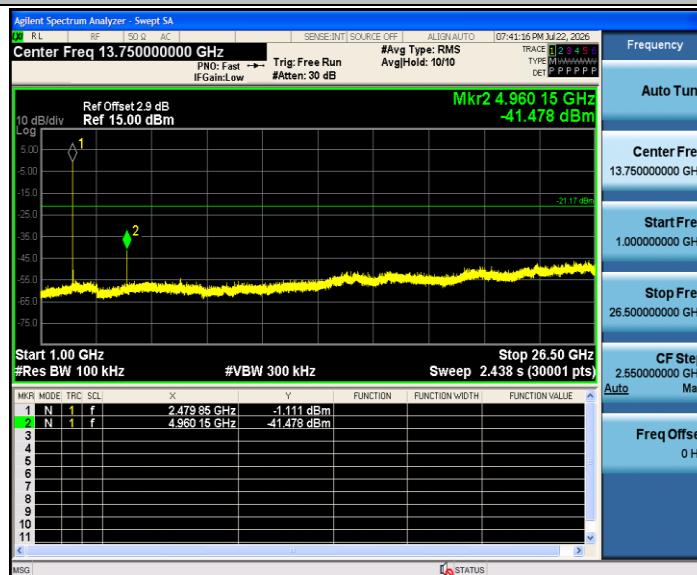
BLE_1M_Ant1_2480_0~Reference



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	0.42	0.63	0.6667	66.67	1.76	---	---
		2440	0.42	0.63	0.6667	66.67	1.76	---	---
		2480	0.42	0.63	0.6667	66.67	1.76	---	---

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Trig: Video #Atten: 30 dB

Ref Offset 0.9 dB Ref 20.90 dBm

ΔMkr3 630.0 μs 24.32 dB

Center 2.402000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts) Span 0 Hz

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		110.0 μs	-44.90 dBm		
2	Δ1	1	t	(Δ)	420.0 μs (Δ)	-3.57 dB		
3	Δ1	1	t	(Δ)	630.0 μs (Δ)	24.32 dB		

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 8.0000000 MHz Man

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

Trig: Video #Atten: 30 dB

Ref Offset 0.9 dB Ref 20.90 dBm

ΔMkr3 630.0 μs 27.17 dB

Center 2.440000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts) Span 0 Hz

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		110.0 μs	-47.68 dBm		
2	Δ1	1	t	(Δ)	420.0 μs (Δ)	1.08 dB		
3	Δ1	1	t	(Δ)	630.0 μs (Δ)	27.17 dB		

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.440000000 GHz

CF Step 8.0000000 MHz Man

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

Trig: Video #Atten: 30 dB

Ref Offset 0.9 dB Ref 20.90 dBm

ΔMkr3 630.0 μs 27.17 dB

Center 2.480000000 GHz Res BW 8 MHz #VBW 8.0 MHz Sweep 1.000 ms (1001 pts) Span 0 Hz

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		110.0 μs	-47.68 dBm		
2	Δ1	1	t	(Δ)	420.0 μs (Δ)	1.08 dB		
3	Δ1	1	t	(Δ)	630.0 μs (Δ)	27.17 dB		

Frequency

Auto Tune

Center Freq 2.480000000 GHz

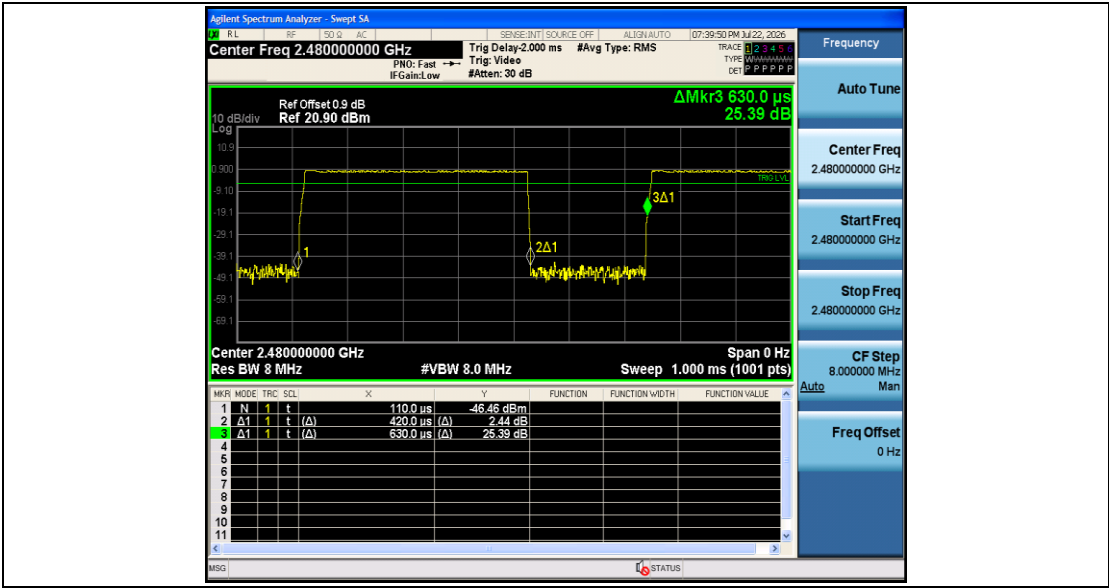
Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

CF Step 8.0000000 MHz Man

Freq Offset 0 Hz

BLE_1M_Ant1_2480



Appendix H: Emissions in Restricted Bands

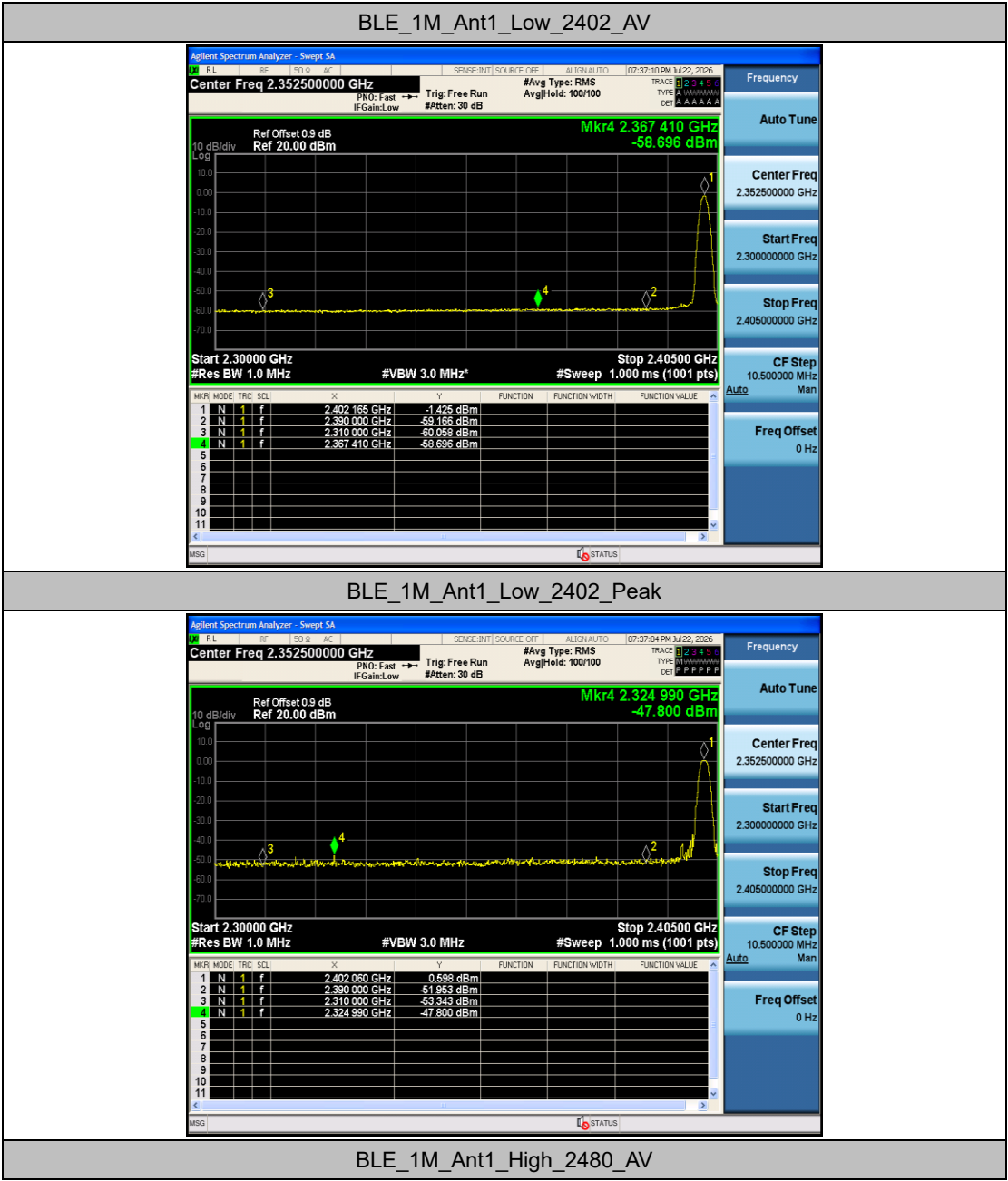
Test Result

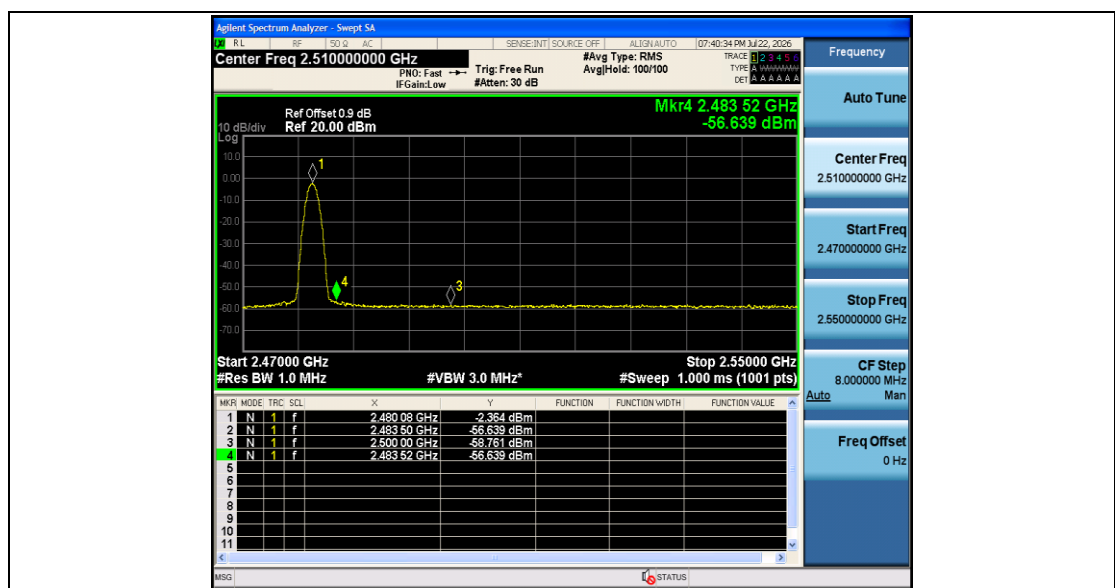
TestMod e	Antenn a	ChNam e	Freq(M Hz)	Detecto r	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdic t
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.06	2.00	1.76	38.90	≤54	PASS
				AV	2367.410	-58.7	2.00	1.76	40.26	≤54	PASS
				AV	2390.000	-59.17	2.00	1.76	39.79	≤54	PASS
				Peak	2310.000	-53.34	2.00	0.00	43.86	≤74	PASS
				Peak	2324.990	-47.8	2.00	0.00	49.40	≤74	PASS
				Peak	2390.000	-51.95	2.00	0.00	45.25	≤74	PASS
		High	2480	AV	2483.500	-56.64	2.00	1.76	42.32	≤54	PASS
				AV	2483.520	-56.64	2.00	1.76	42.32	≤54	PASS
				AV	2500.000	-58.76	2.00	1.76	40.20	≤54	PASS
				Peak	2483.500	-49.39	2.00	0.00	47.81	≤74	PASS
				Peak	2484.880	-43.81	2.00	0.00	53.39	≤74	PASS
				Peak	2500.000	-50.77	2.00	0.00	46.43	≤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

