

FCC Appendix RF Test Data for BLE

FCC ID : 2BXIY-Q-015-0076

Company : Shenzhen Beiyaochen Technology Co.,Ltd.

EUT : APP Qinghuan Combination Massage Stick Set(Rabbit Stick)

Model Number : Q-015-0076

Report No. : CTA26072204001

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	2401.684	2402.332	0.5	PASS
		2440	0.640	2439.688	2440.328	0.5	PASS
		2480	0.640	2479.692	2480.332	0.5	PASS

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Trig: Free Run
#Atten: 40 dB

#Avg Type: RMS
Avg/Hold: 100/100

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

#Res BW 100 kHz
#VBW 300 kHz

ΔMkr3 648 kHz
0.337 dB

1 2 3Δ1

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401 684 GHz	-5.894 dBm			
2	N	1	f	2.402 022 GHz	0.041 dBm			
3	Δ	1	f (Δ)	648 kHz (Δ)	0.337 dB			

Frequency

Auto Tune

Center Freq
2.402000000 GHz

Start Freq
2.400000000 GHz

Stop Freq
2.404000000 GHz

CF Step
400.000 kHz
Man

Freq Offset
0 Hz

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Ref Offset 0.7 dB
Ref 30.00 dBm

Trig: Free Run
#Atten: 40 dB

#Avg Type: RMS
Avg/Hold: 100/100

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

#Res BW 100 kHz
#VBW 300 kHz

ΔMkr3 640 kHz
-0.209 dB

1 2 3Δ1

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439 688 GHz	-5.782 dBm			
2	N	1	f	2.440 032 GHz	-0.195 dBm			
3	Δ	1	f (Δ)	640 kHz (Δ)	-0.209 dB			

Frequency

Auto Tune

Center Freq
2.440000000 GHz

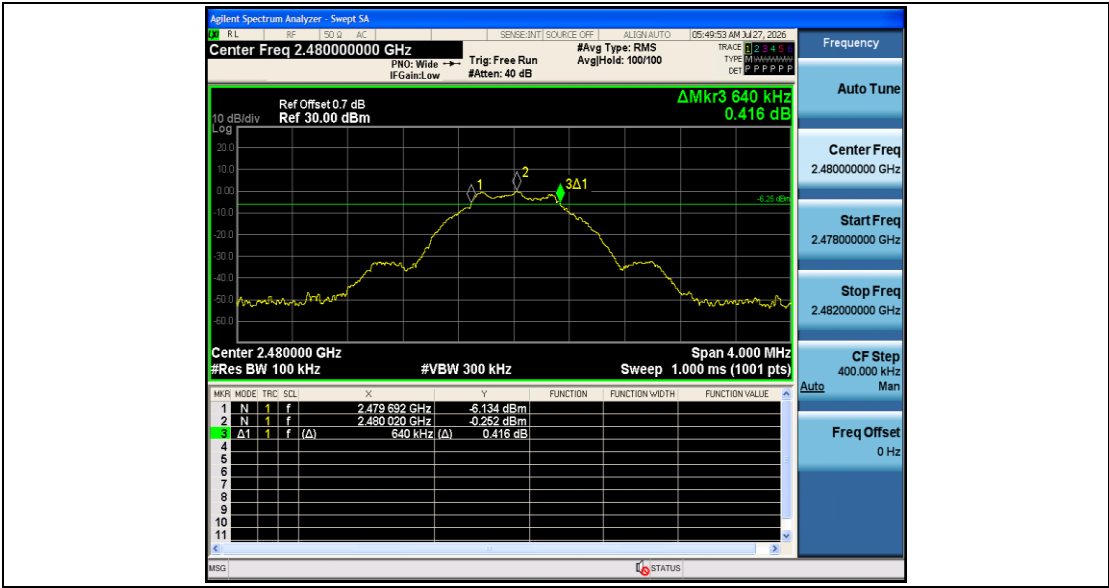
Start Freq
2.438000000 GHz

Stop Freq
2.442000000 GHz

CF Step
400.000 kHz
Man

Freq Offset
0 Hz

BLE_1M_Ant1_2440

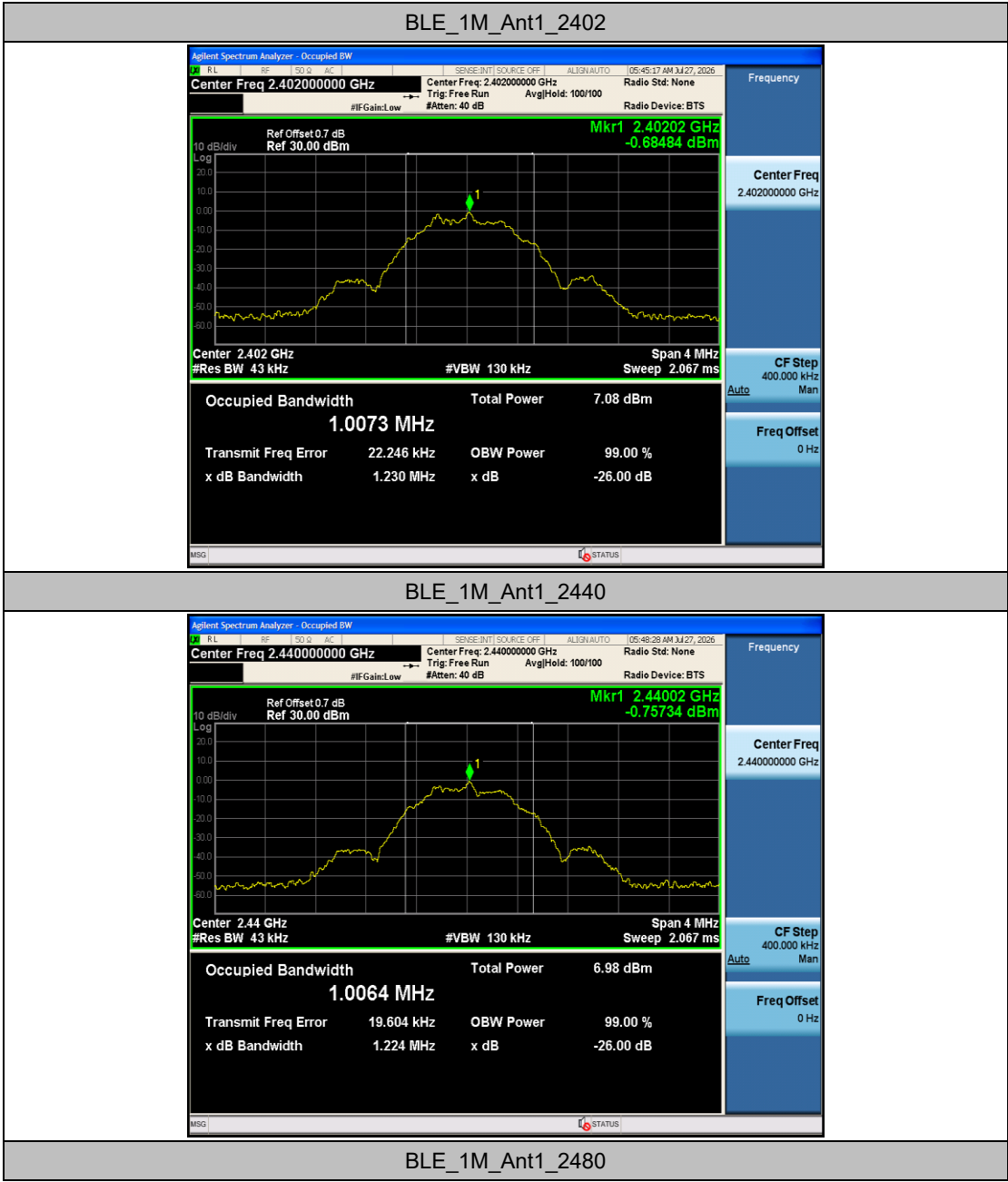


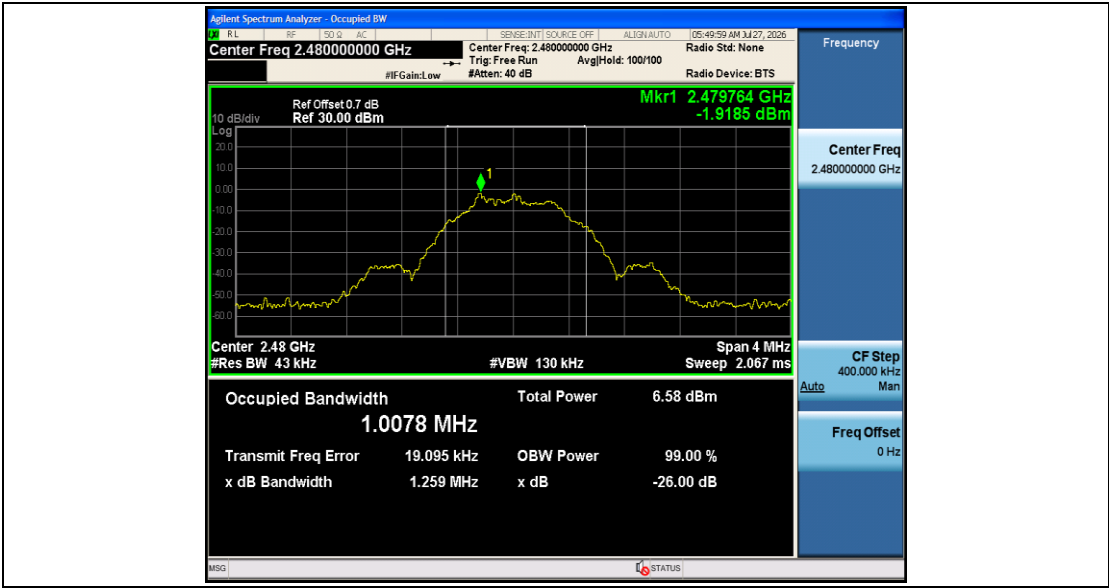
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0073	2401.5186	2402.5259	---	---
		2440	1.0064	2439.5164	2440.5228	---	---
		2480	1.0078	2479.5152	2480.5230	---	---

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	0.35	≤30	PASS
		2440	0.23	≤30	PASS
		2480	-0.06	≤30	PASS

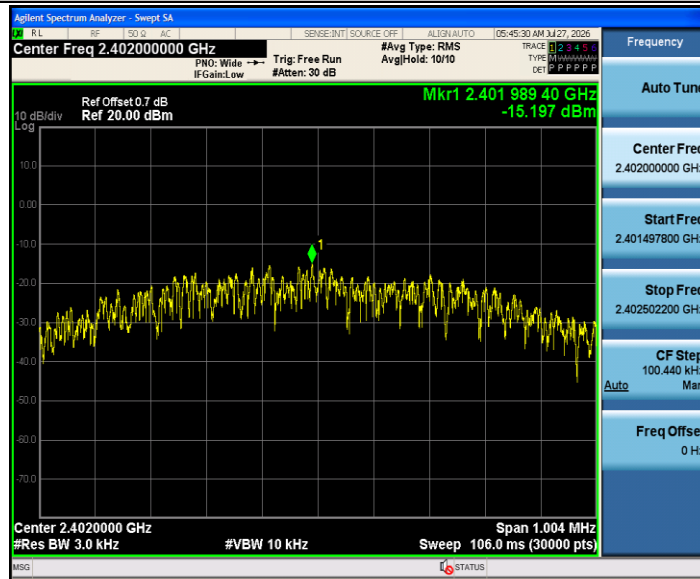
Appendix D: Maximum power spectral density

Test Result

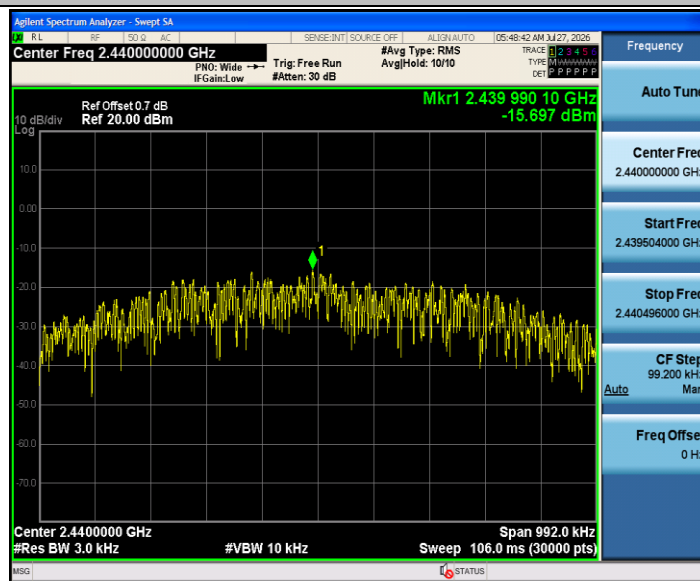
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.20	≤8.00	PASS
		2440	-15.70	≤8.00	PASS
		2480	-15.53	≤8.00	PASS

Test Graphs

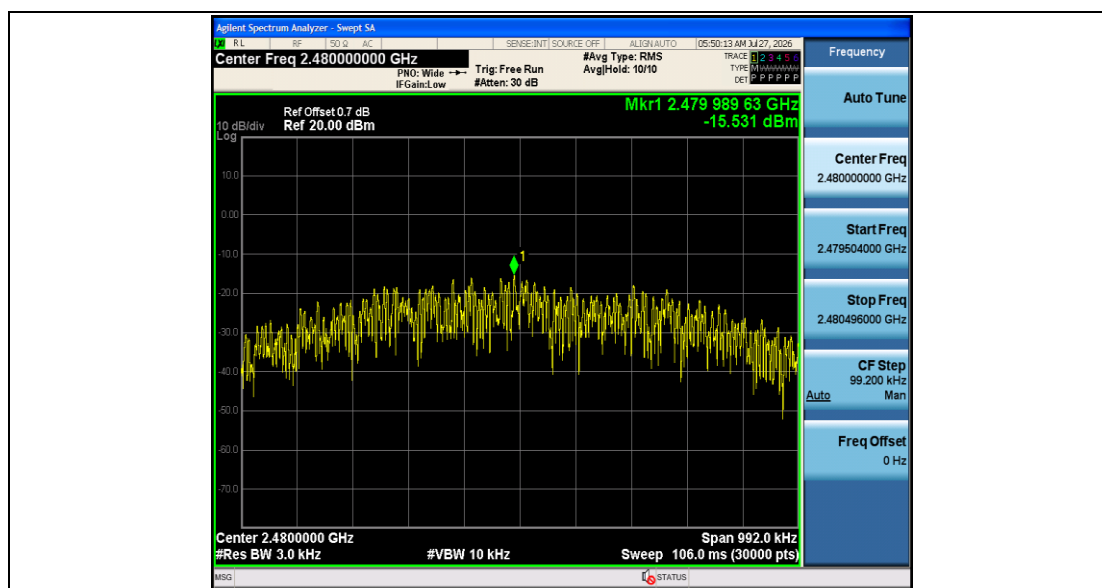
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

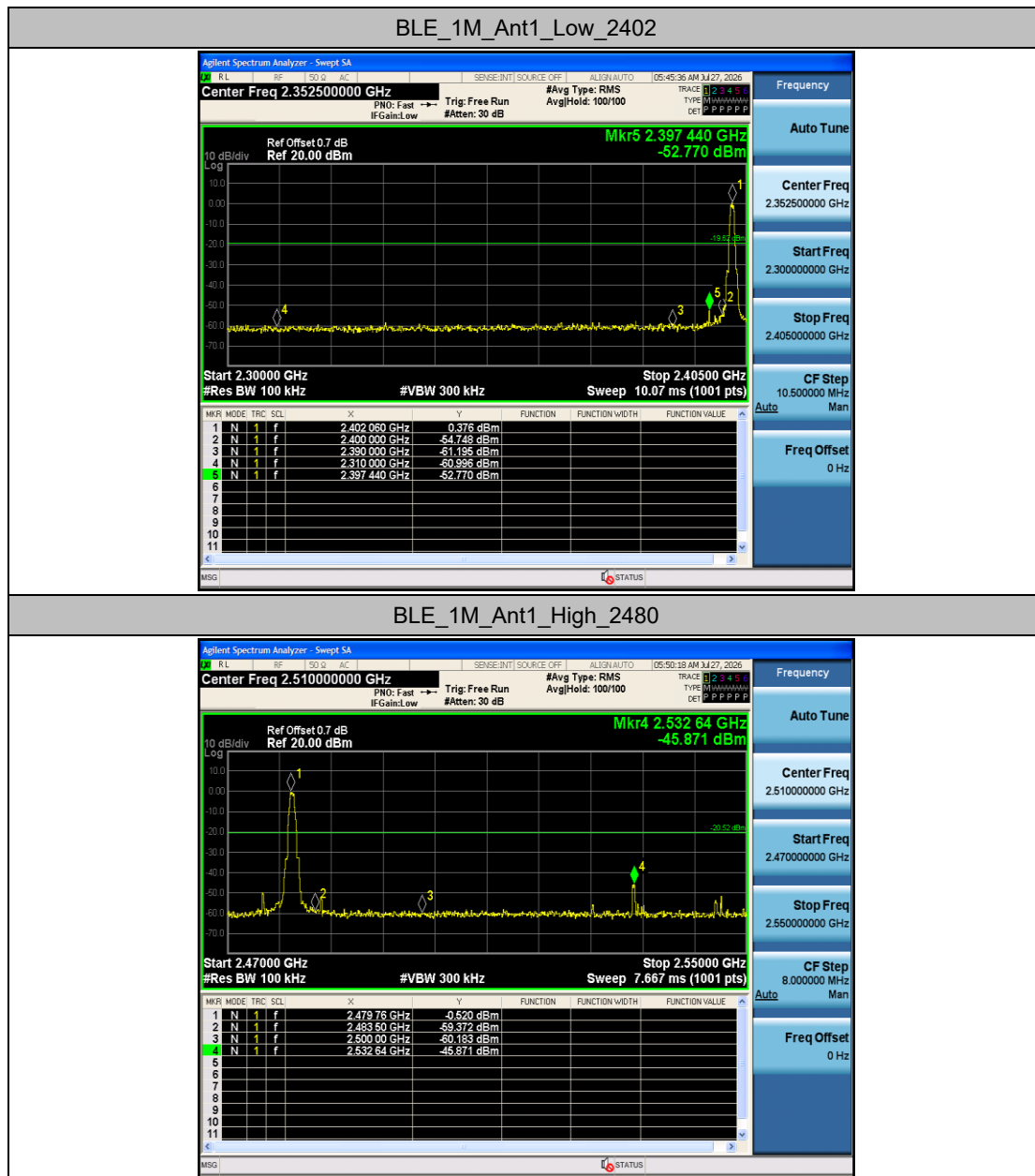


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.38	-52.77	≤-19.62	PASS
		High	2480	-0.52	-45.87	≤-20.52	PASS

Test Graphs

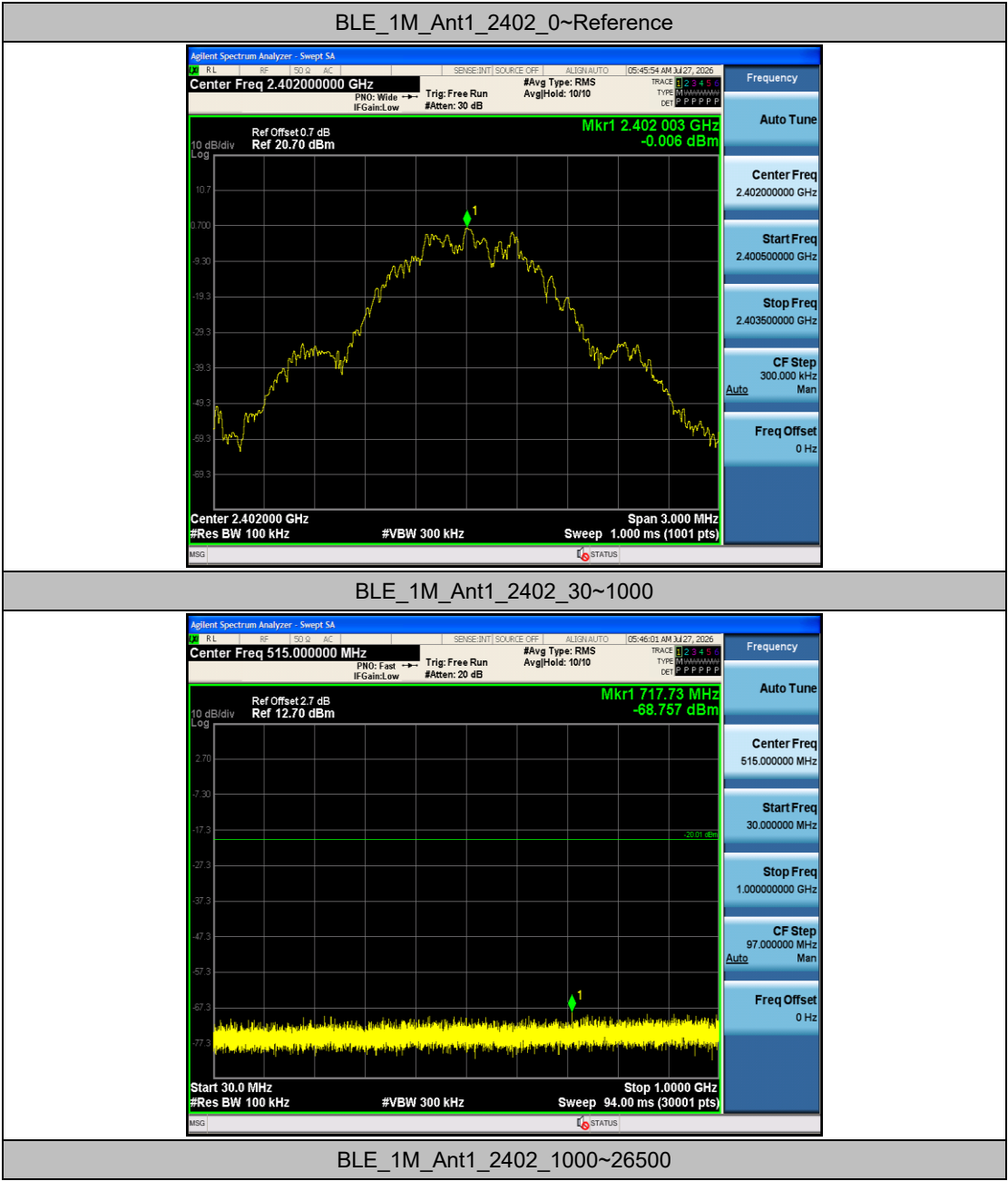


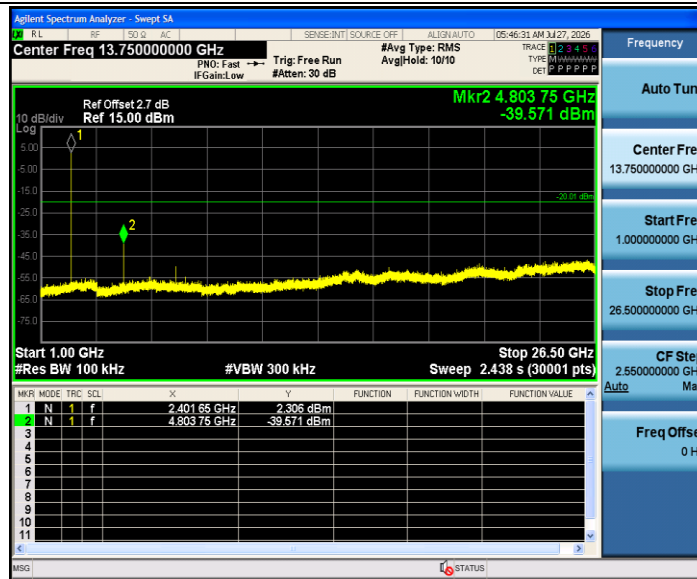
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.01	-0.01	---	PASS
			30~1000	-0.01	-68.76	≤-20.01	PASS
			1000~26500	-0.01	-39.57	≤-20.01	PASS
		2440	Reference	-1.83	-1.83	---	PASS
			30~1000	-1.83	-69.11	≤-21.83	PASS
			1000~26500	-1.83	-41.7	≤-21.83	PASS
		2480	Reference	-0.94	-0.94	---	PASS
			30~1000	-0.94	-69.08	≤-20.94	PASS
			1000~26500	-0.94	-40.16	≤-20.94	PASS

Test Graphs

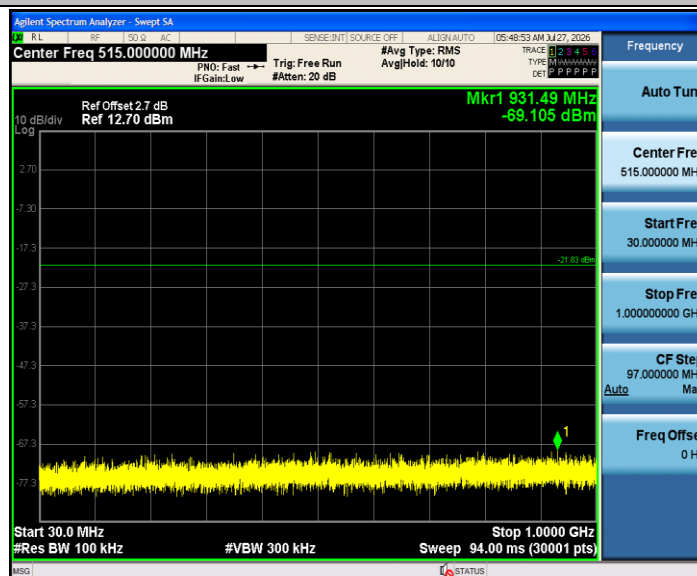




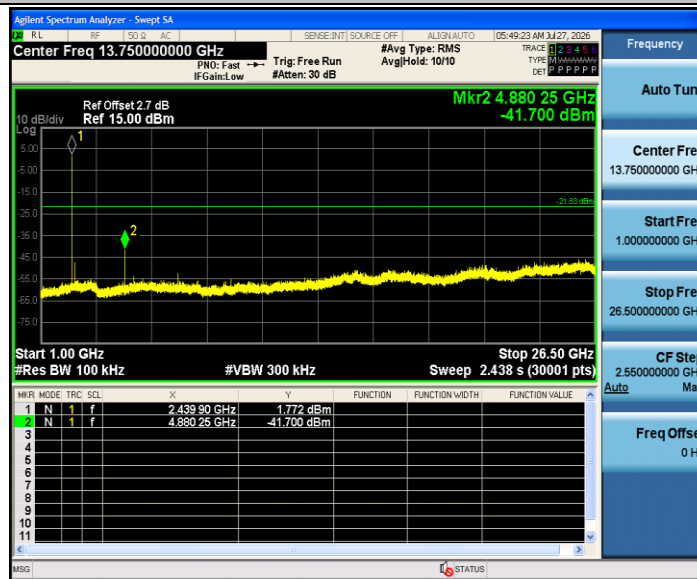
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



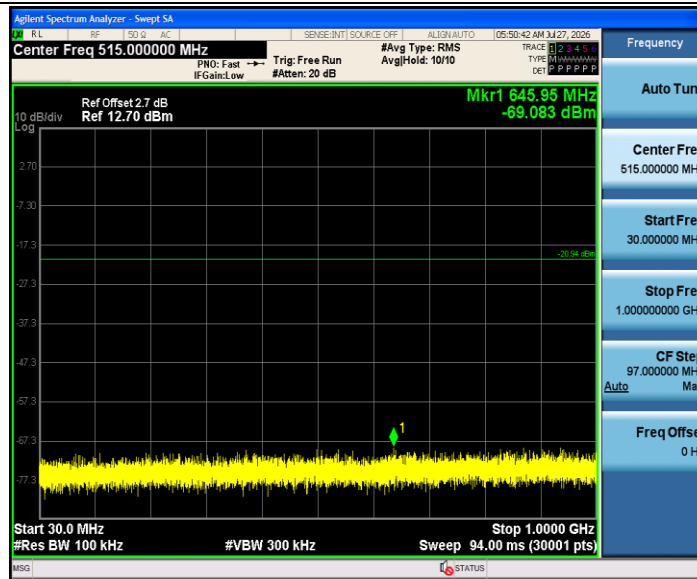
BLE_1M_Ant1_2440_1000~26500



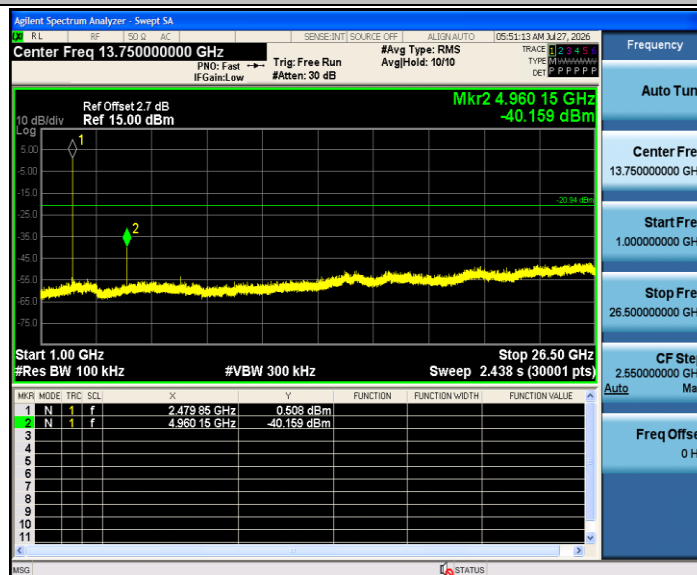
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

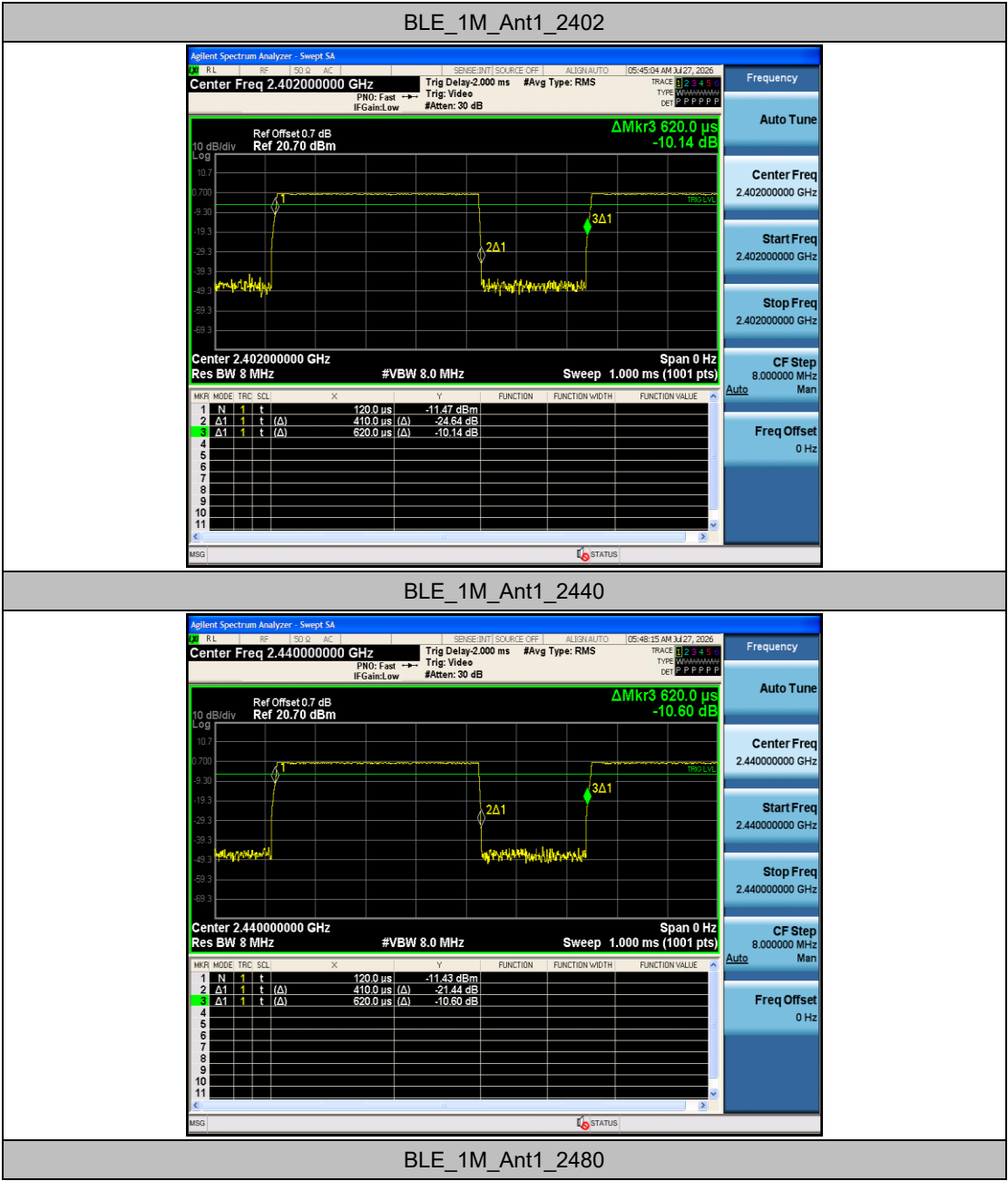


Appendix G: Duty Cycle

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

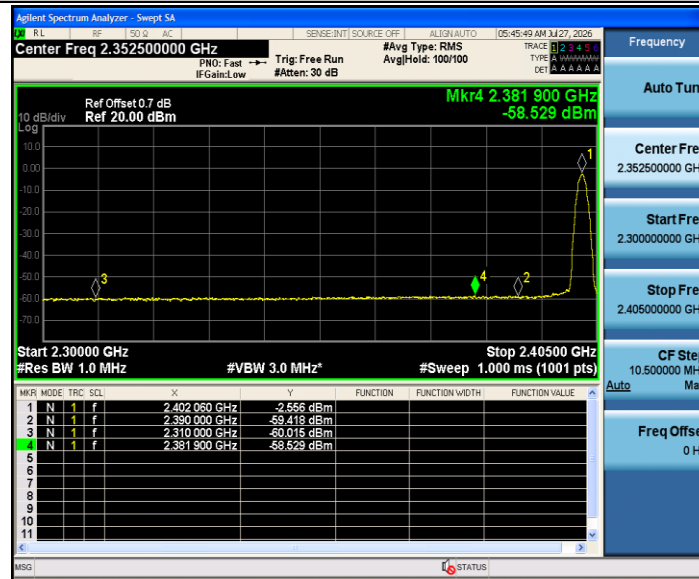
TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.02	2.00	1.80	38.98	≤54	PASS
				AV	2381.900	-58.53	2.00	1.80	40.47	≤54	PASS
				AV	2390.000	-59.42	2.00	1.80	39.58	≤54	PASS
				Peak	2310.000	-53.35	2.00	0.00	43.85	≤74	PASS
				Peak	2376.020	-48.15	2.00	0.00	49.05	≤74	PASS
				Peak	2390.000	-50.87	2.00	0.00	46.33	≤74	PASS
		High	2480	AV	2483.500	-57.33	2.00	1.80	41.67	≤54	PASS
				AV	2483.600	-57.28	2.00	1.80	41.72	≤54	PASS
				AV	2500.000	-59.04	2.00	1.80	39.96	≤54	PASS
				Peak	2483.500	-48.47	2.00	0.00	48.73	≤74	PASS
				Peak	2484.080	-45.16	2.00	0.00	52.04	≤74	PASS
				Peak	2500.000	-51.01	2.00	0.00	46.19	≤74	PASS

Note:

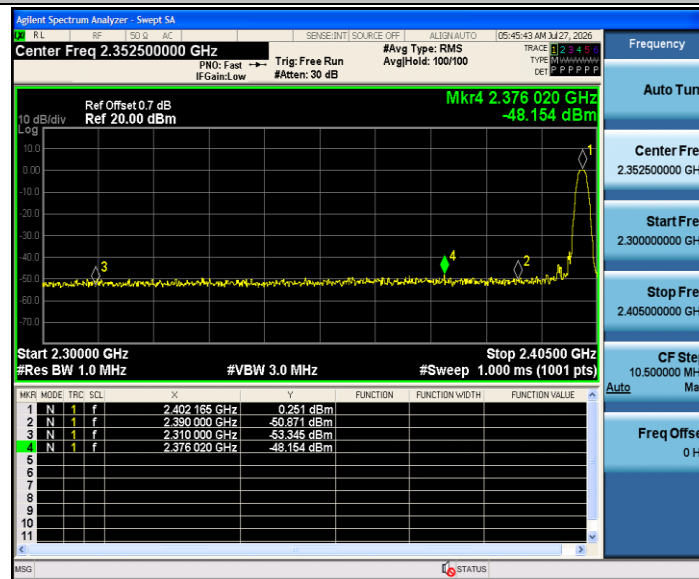
1. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

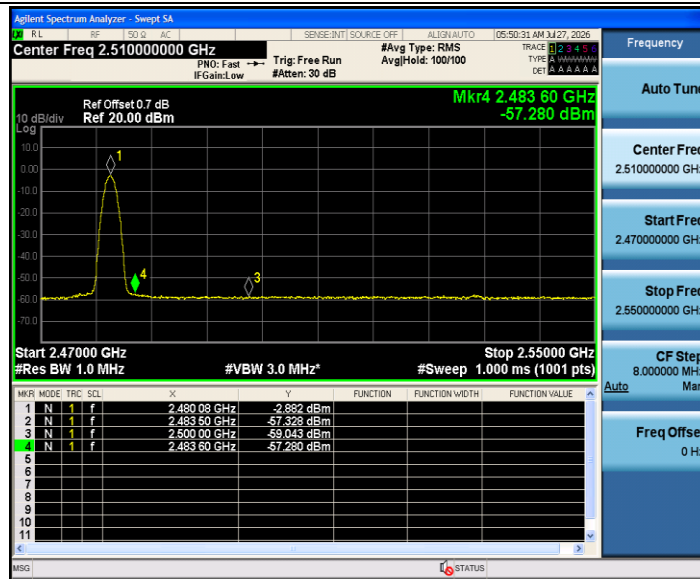
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

