

FCC Appendix RF Test Data for BLE

FCC ID : 2BKI2-XW-03YLBOSU

Company : Yongkang Xiaowang Industry and Trade Co., Ltd.

EUT : Music Armrest Bosu Ball

Model Number : XW-03 YLBOSU

Report No. : CTA26050701801

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	0.640	2401.696	2402.336	0.5	PASS
		2440	0.660	2439.684	2440.344	0.5	PASS
		2480	0.620	2479.700	2480.320	0.5	PASS

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.402000000 GHz

Ref Offset 0.5 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

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401696 GHz	-12.187 dBm			
2	N	1	f	2.402032 GHz	-8.473 dBm			
3	Δ	1	f (Δ)	640 kHz (Δ)	-0.239 dB			

BLE_1M_Ant1_2440

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.440000000 GHz

Ref Offset 0.5 dB
Ref 30.00 dBm

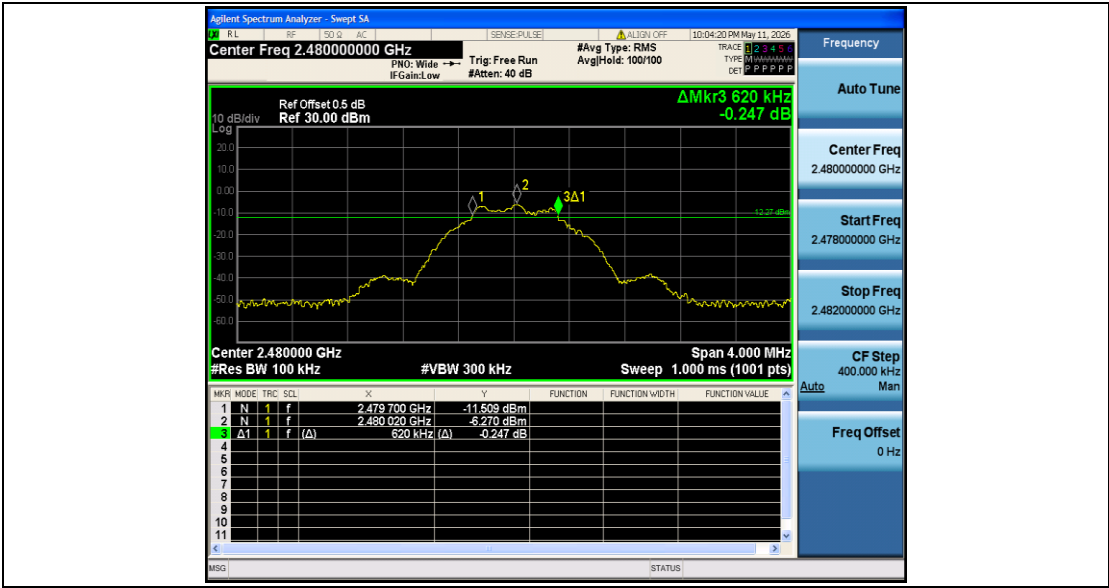
Trig: Free Run
#Atten: 40 dB

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

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

#Res BW 100 kHz
#VBW 300 kHz

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439684 GHz	-12.382 dBm			
2	N	1	f	2.440036 GHz	-8.891 dBm			
3	Δ	1	f (Δ)	660 kHz (Δ)	-0.346 dB			



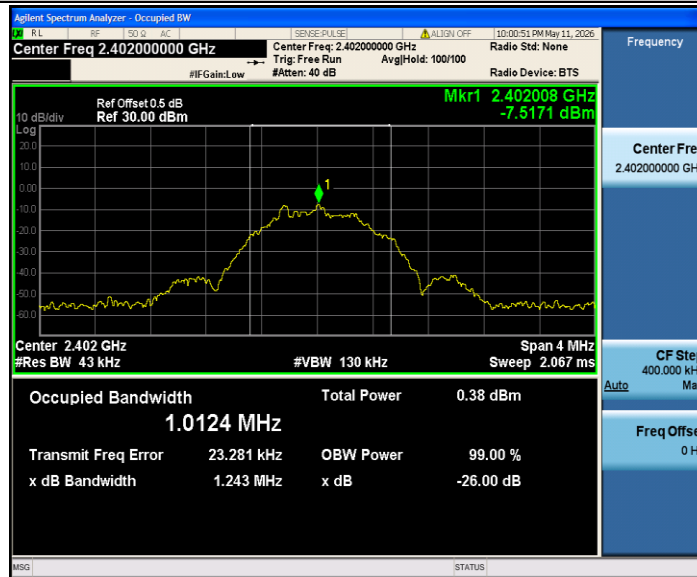
Appendix B: Occupied Channel Bandwidth

Test Result

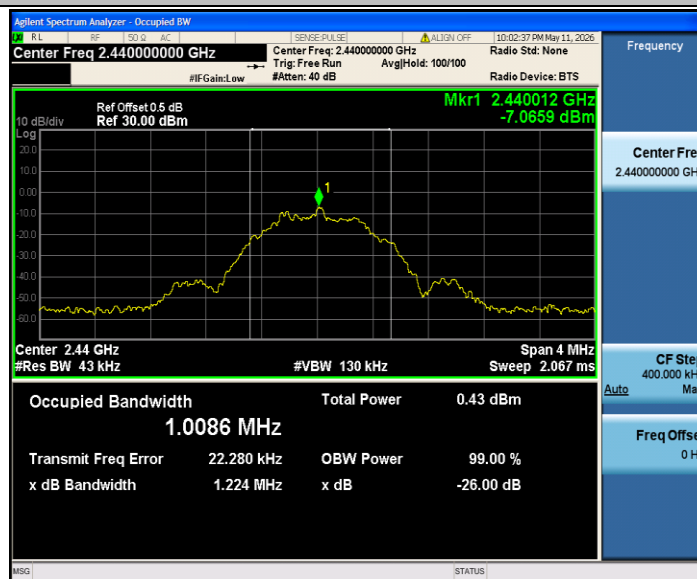
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0124	2401.5171	2402.5295	---	---
		2440	1.0086	2439.5180	2440.5266	---	---
		2480	1.0097	2479.5191	2480.5288	---	---

Test Graphs

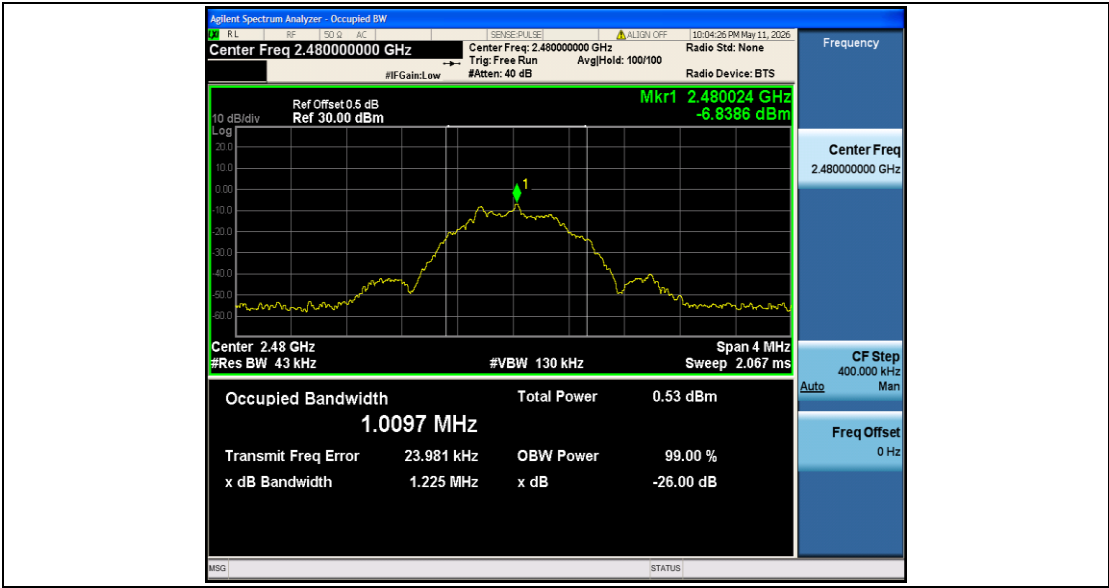
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-5.93	≤30	PASS
		2440	-6.01	≤30	PASS
		2480	-5.96	≤30	PASS

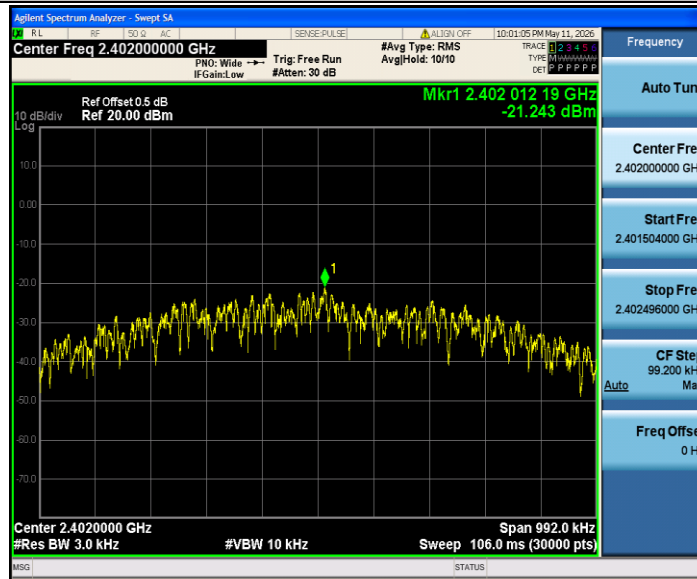
Appendix D: Maximum power spectral density

Test Result

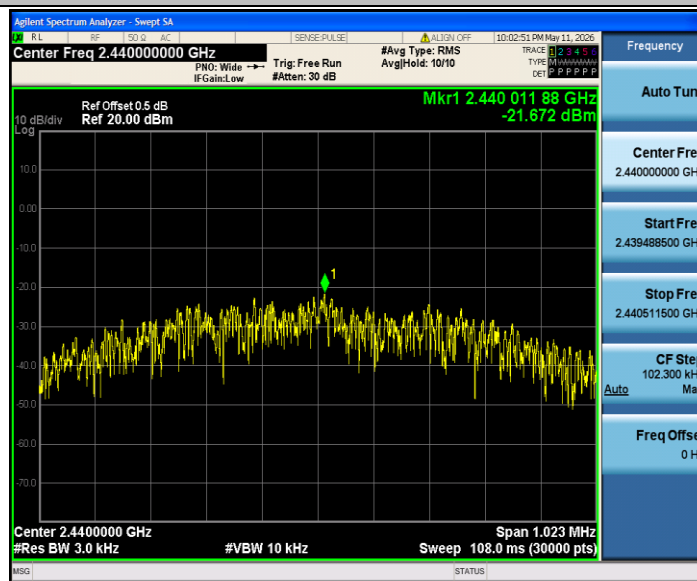
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-21.24	≤8.00	PASS
		2440	-21.67	≤8.00	PASS
		2480	-21.44	≤8.00	PASS

Test Graphs

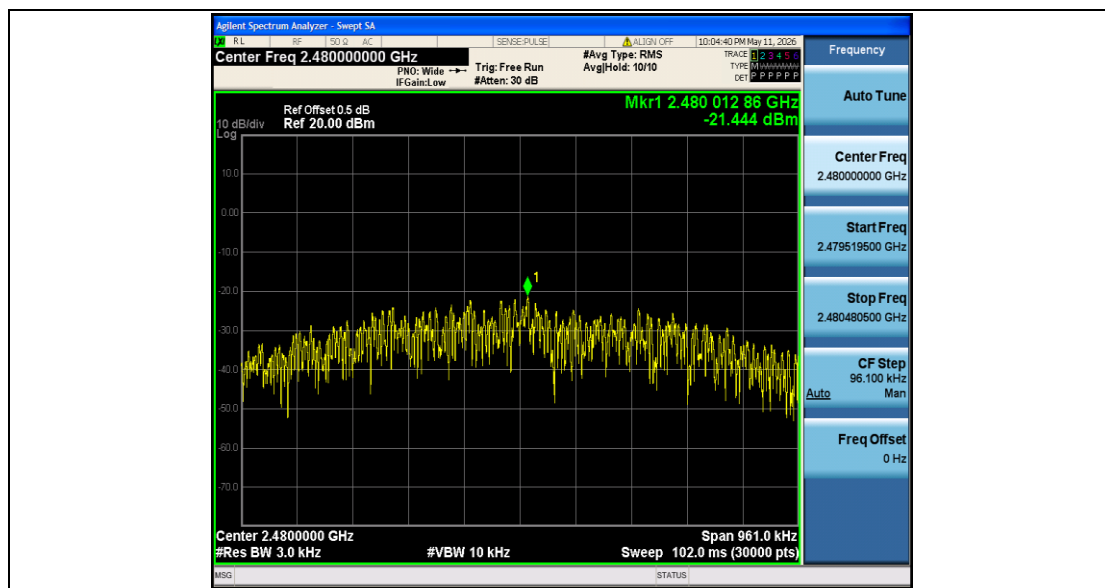
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

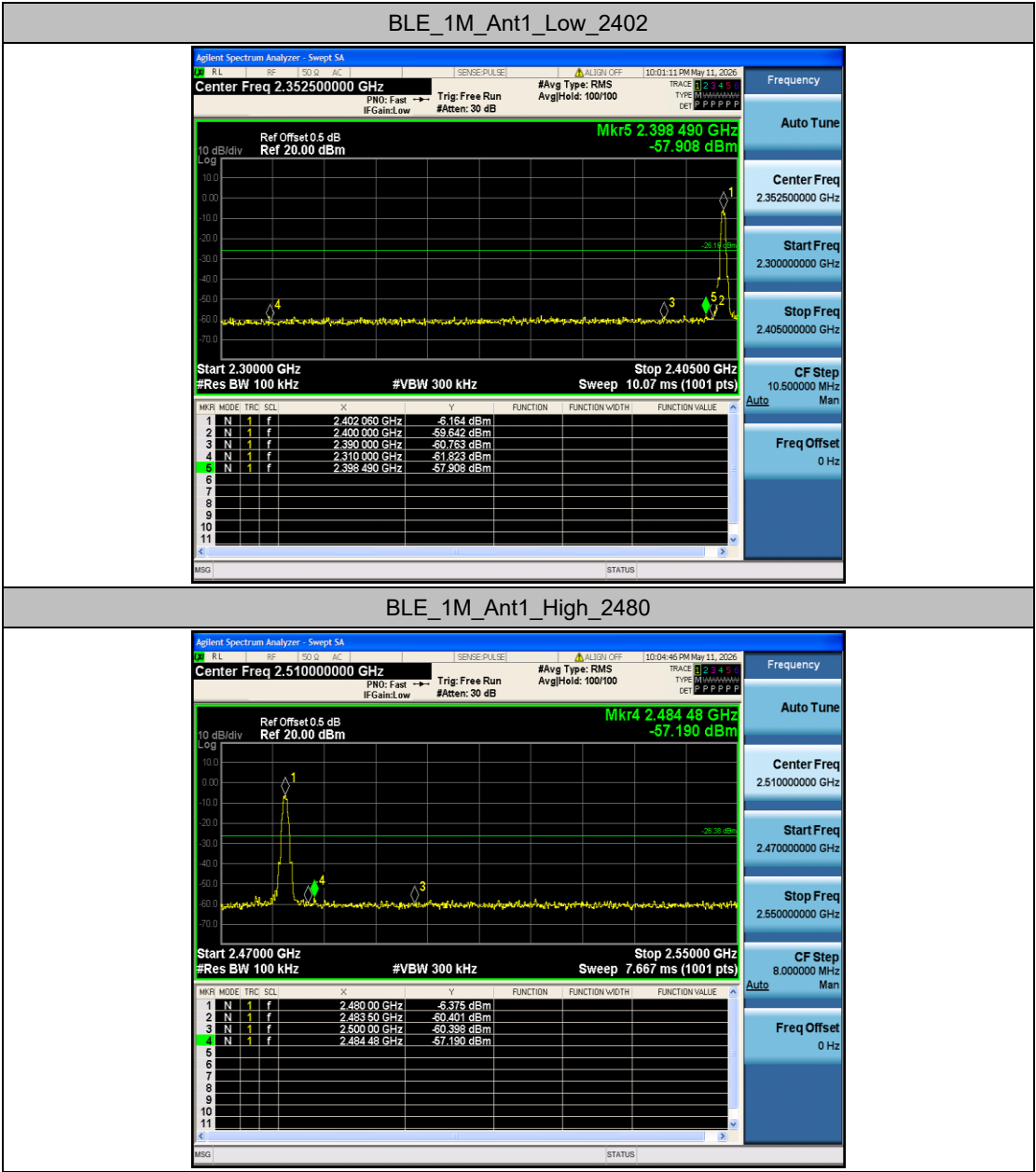


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-6.16	-57.91	≤-26.16	PASS
		High	2480	-6.38	-57.19	≤-26.38	PASS

Test Graphs

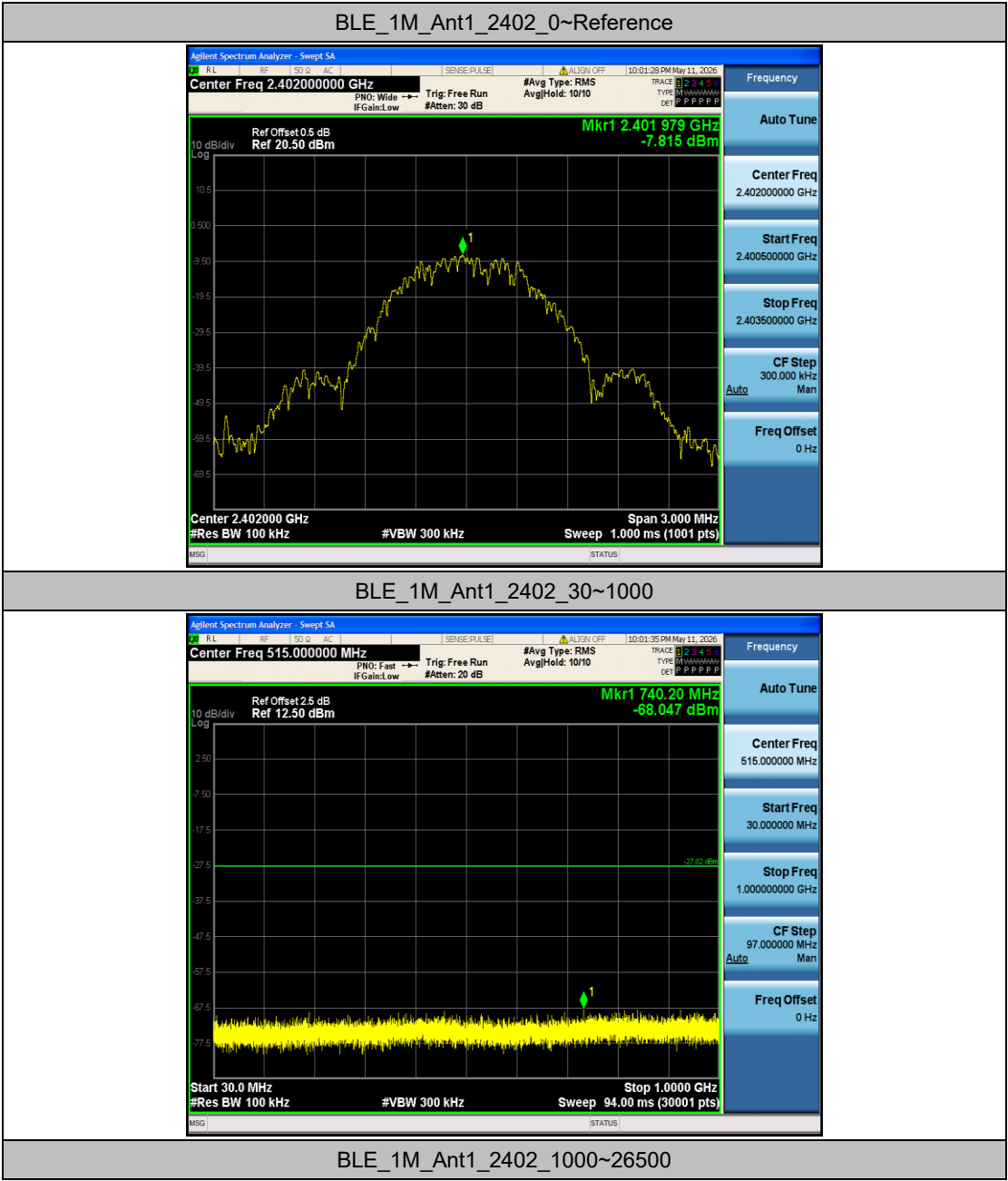


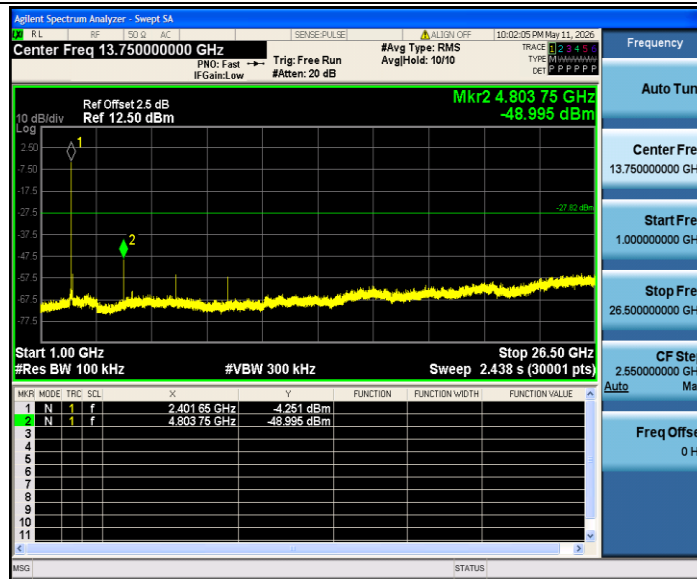
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-7.82	-7.82	---	PASS
			30~1000	-7.82	-68.05	≤ -27.82	PASS
			1000~26500	-7.82	-49	≤ -27.82	PASS
		2440	Reference	-8.00	-8.00	---	PASS
			30~1000	-8.00	-67.83	≤ -28	PASS
			1000~26500	-8.00	-49.03	≤ -28	PASS
		2480	Reference	-7.90	-7.90	---	PASS
			30~1000	-7.90	-67.27	≤ -27.9	PASS
			1000~26500	-7.90	-48.28	≤ -27.9	PASS

Test Graphs

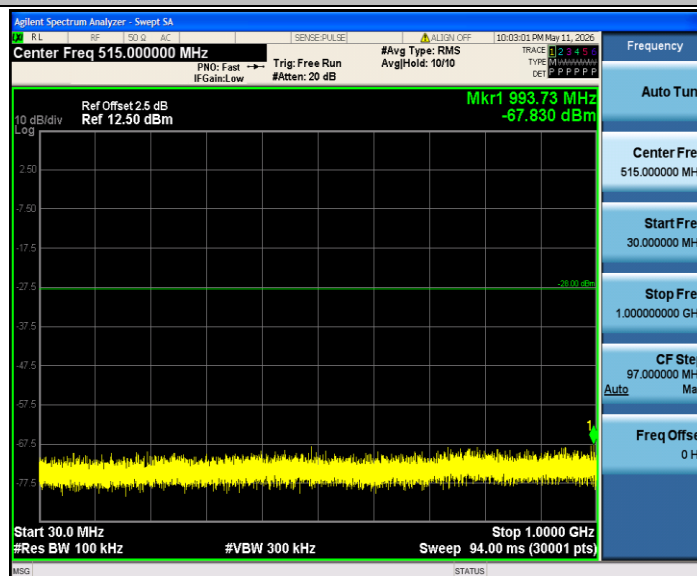




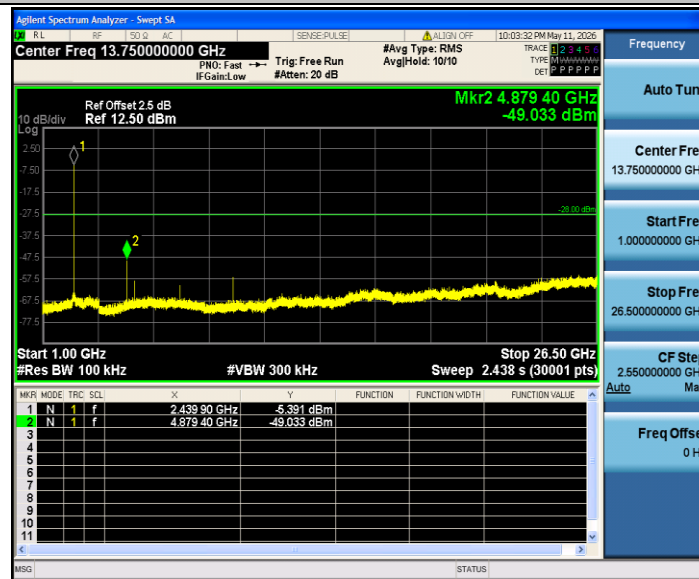
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



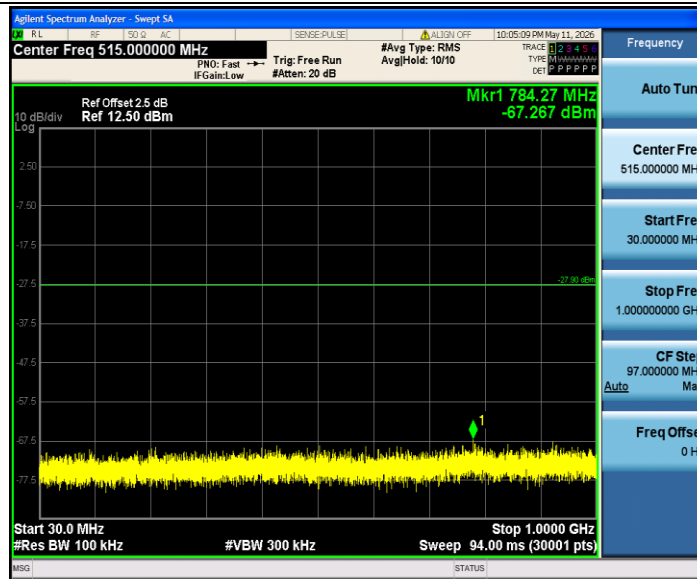
BLE_1M_Ant1_2440_1000~26500



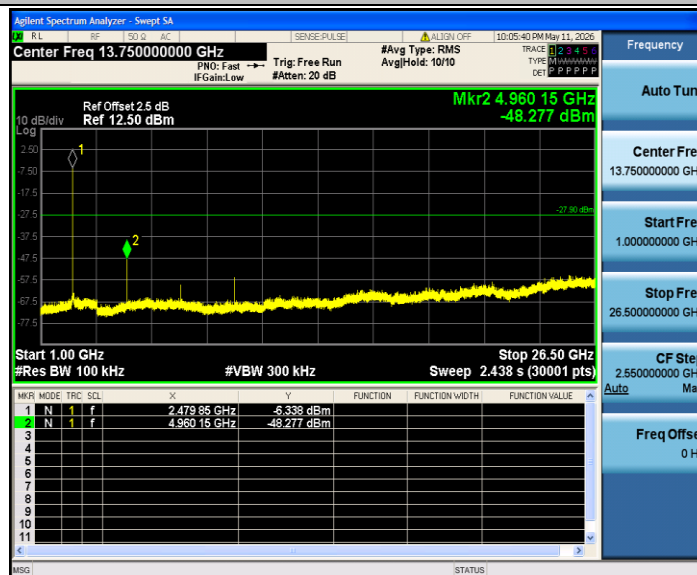
BLE_1M_Ant1_2480_0~Reference



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

Ref Offset 0.5 dB
Ref 20.50 dBm

Trig Delay: 2.000 ms
Trig: Video
#Atten: 30 dB

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 8.000000 MHz

Freq Offset 0 Hz

Span 0 Hz

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 1.000 ms (1001 pts)

ΔMkr3 620.0 μs
-29.54 dB

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		120.0 μs	-16.08 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-5.31 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-29.54 dB		

MSO

STATUS

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Ref Offset 0.5 dB
Ref 20.50 dBm

Trig Delay: 2.000 ms
Trig: Video
#Atten: 30 dB

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.440000000 GHz

CF Step 8.000000 MHz

Freq Offset 0 Hz

Span 0 Hz

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 1.000 ms (1001 pts)

ΔMkr3 620.0 μs
-28.81 dB

MKR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t		120.0 μs	-16.81 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-5.90 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-28.81 dB		

MSO

STATUS



Appendix H: Emissions in Restricted Bands

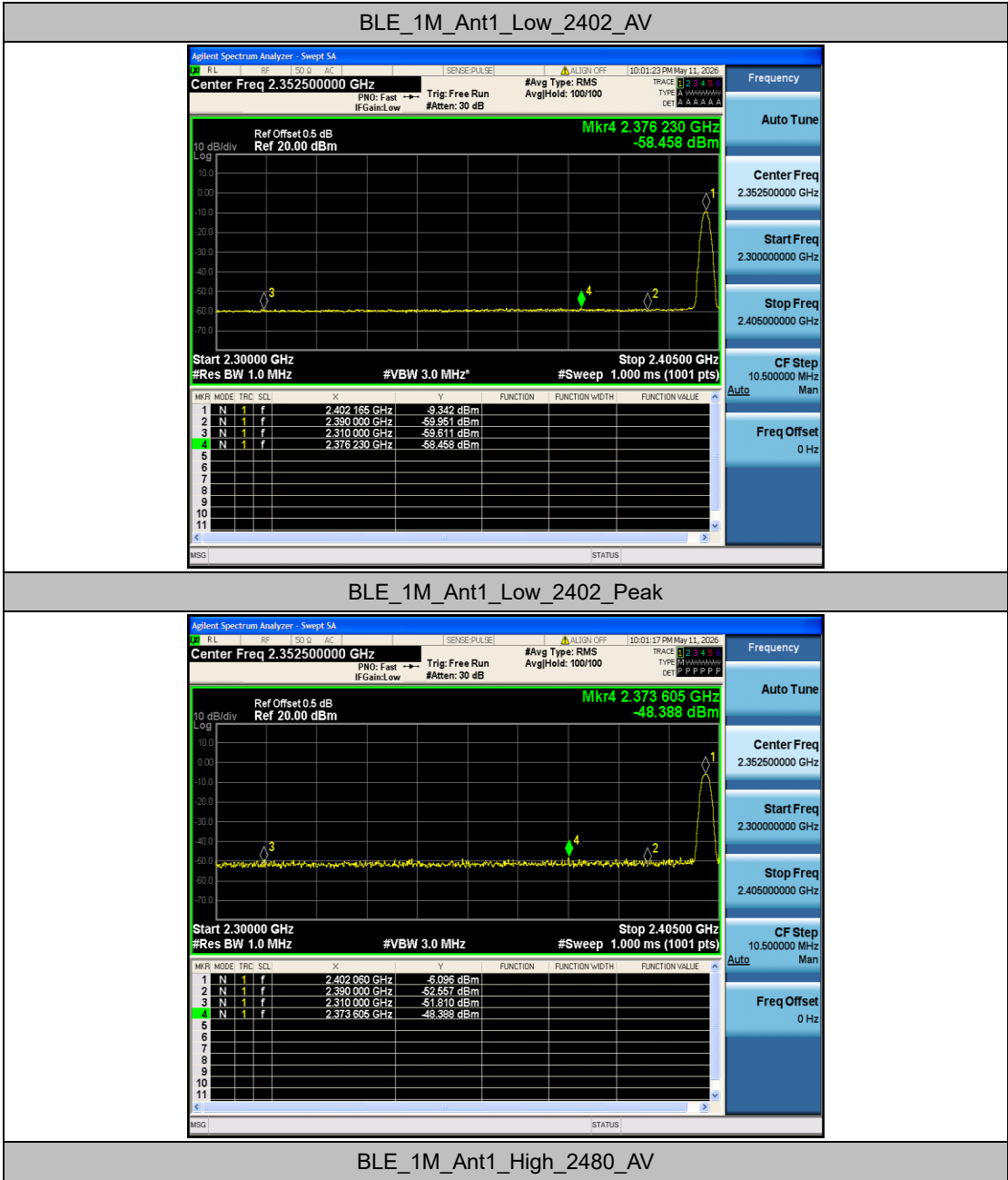
Test Result

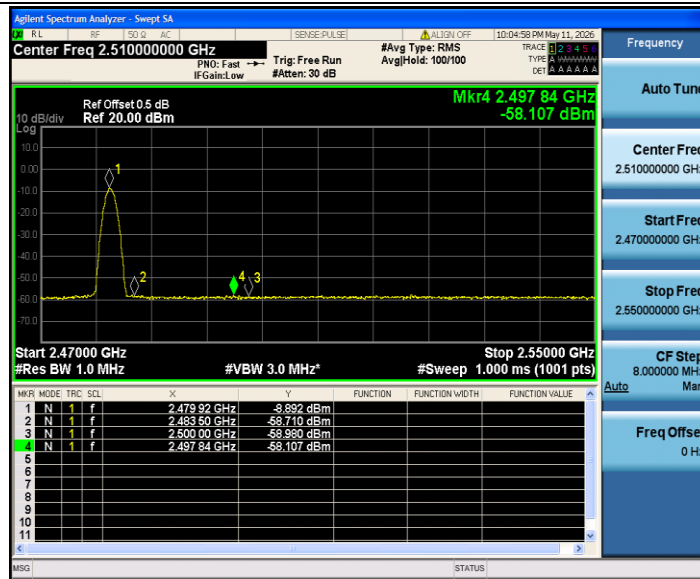
TestMode	Antenna	Channel	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-59.61	2.00	1.80	39.39	≤54	PASS
				AV	2376.230	-58.46	2.00	1.80	40.54	≤54	PASS
				AV	2390.000	-59.95	2.00	1.80	39.05	≤54	PASS
				Peak	2310.000	-51.81	2.00	0.00	45.39	≤74	PASS
				Peak	2373.605	-48.39	2.00	0.00	48.81	≤74	PASS
				Peak	2390.000	-52.56	2.00	0.00	44.64	≤74	PASS
		High	2480	AV	2483.500	-58.71	2.00	1.80	40.29	≤54	PASS
				AV	2497.840	-58.11	2.00	1.80	40.89	≤54	PASS
				AV	2500.000	-58.98	2.00	1.80	40.02	≤54	PASS
				Peak	2483.500	-48.17	2.00	0.00	49.03	≤74	PASS
				Peak	2483.520	-48.17	2.00	0.00	49.03	≤74	PASS
				Peak	2500.000	-51.63	2.00	0.00	45.57	≤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

