

FCC Appendix RF Test Data for BLE

FCC ID : 2BW3U-MS-10-CM5-B

Company : MYPLAYER LTD

EUT : MY TOUCH T10

Model Number : MS-10-CM5-B

Report No. : CTA26061602501

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	2439.696	2440.336	0.5	PASS
		2480	0.644	2479.692	2480.336	0.5	PASS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.402000000 GHz

Ref Offset 0.4 dB
Ref 30.00 dBm

Trig: Free Run
#Atten: 40 dB

#Avg Type: RMS
AvgHold: 100/100

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

#Res BW 100 kHz
#VBW 300 kHz

ΔMkr3 644 kHz
0.004 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

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401692 GHz	-9.624 dBm			
2	N	1	f	2.402018 GHz	-3.675 dBm			
3	Δ1	1	f (Δ)	644 kHz (Δ)	0.004 dB			

MSO

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.440000000 GHz

Ref Offset 0.4 dB
Ref 30.00 dBm

Trig: Free Run
#Atten: 40 dB

#Avg Type: RMS
AvgHold: 100/100

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

#Res BW 100 kHz
#VBW 300 kHz

ΔMkr3 640 kHz
-0.172 dB

Frequency

Auto Tune

Center Freq
2.440000000 GHz

Start Freq
2.438000000 GHz

Stop Freq
2.442000000 GHz

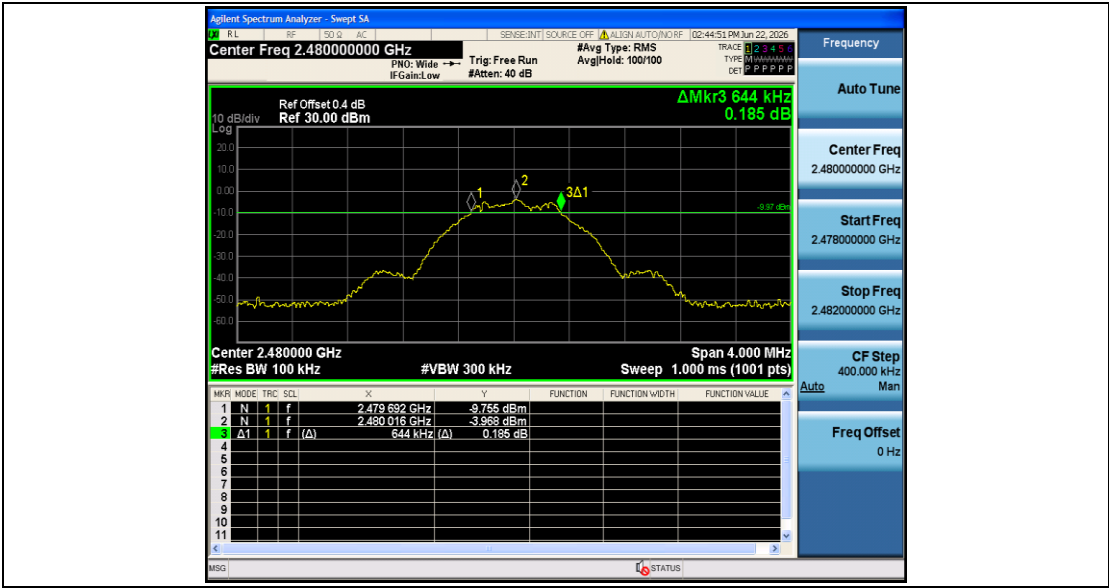
CF Step
400.000 kHz
Man

Freq Offset
0 Hz

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439696 GHz	-9.521 dBm			
2	N	1	f	2.440012 GHz	-3.749 dBm			
3	Δ1	1	f (Δ)	640 kHz (Δ)	-0.172 dB			

MSO

BLE_1M_Ant1_2440

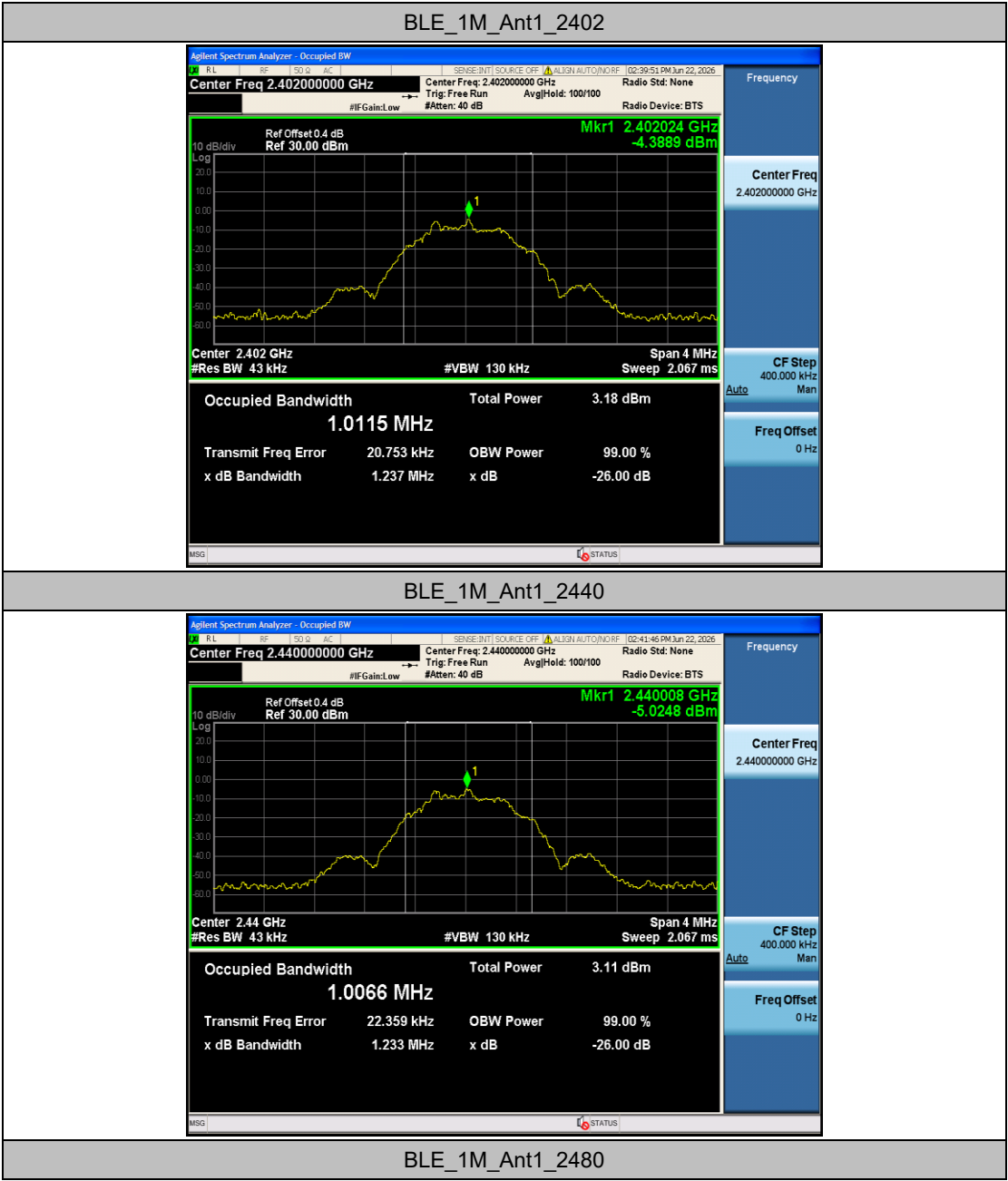


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0115	2401.5150	2402.5265	---	---
		2440	1.0066	2439.5191	2440.5257	---	---
		2480	1.0092	2479.5165	2480.5257	---	---

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	-3.55	≤30	PASS
		2440	-3.52	≤30	PASS
		2480	-3.80	≤30	PASS

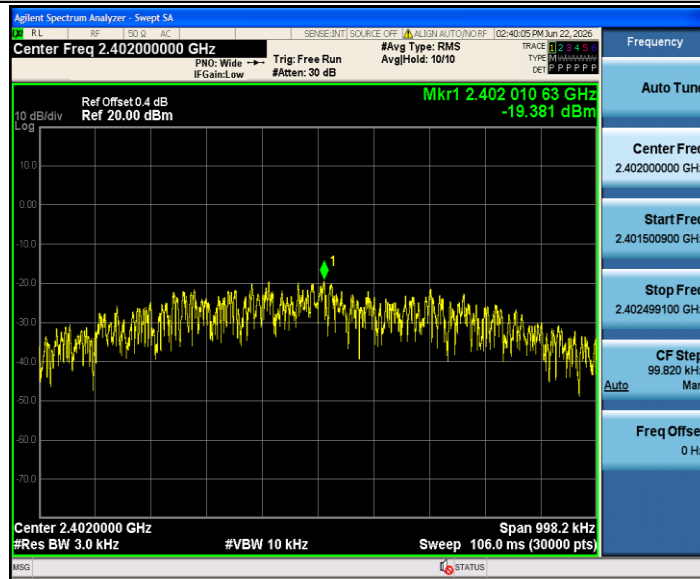
Appendix D: Maximum power spectral density

Test Result

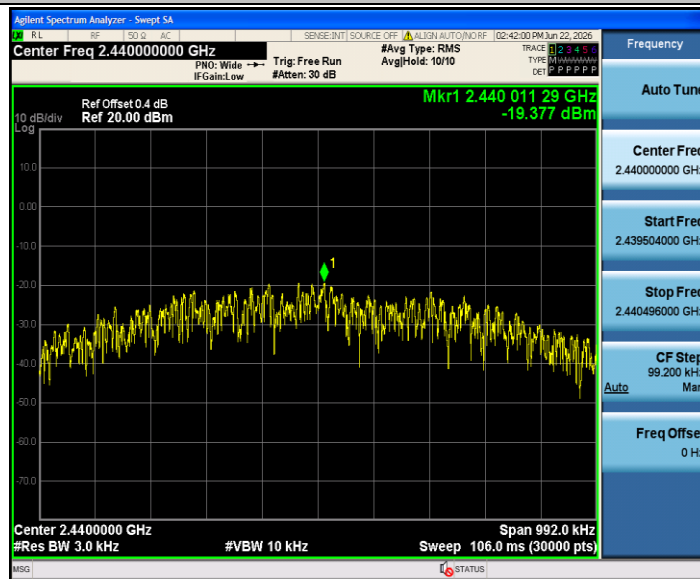
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.38	≤8.00	PASS
		2440	-19.38	≤8.00	PASS
		2480	-19.54	≤8.00	PASS

Test Graphs

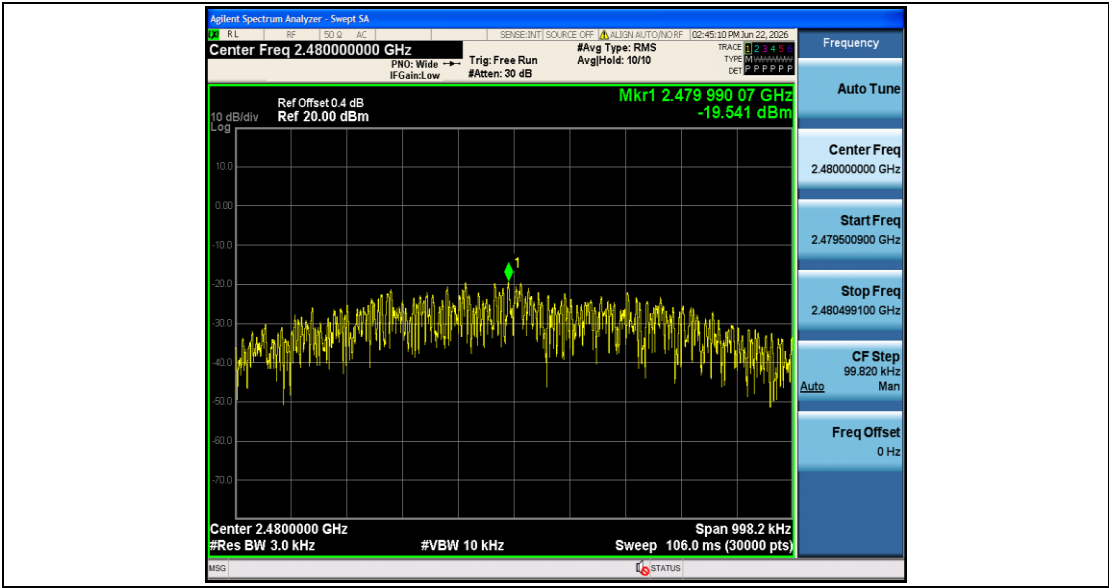
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

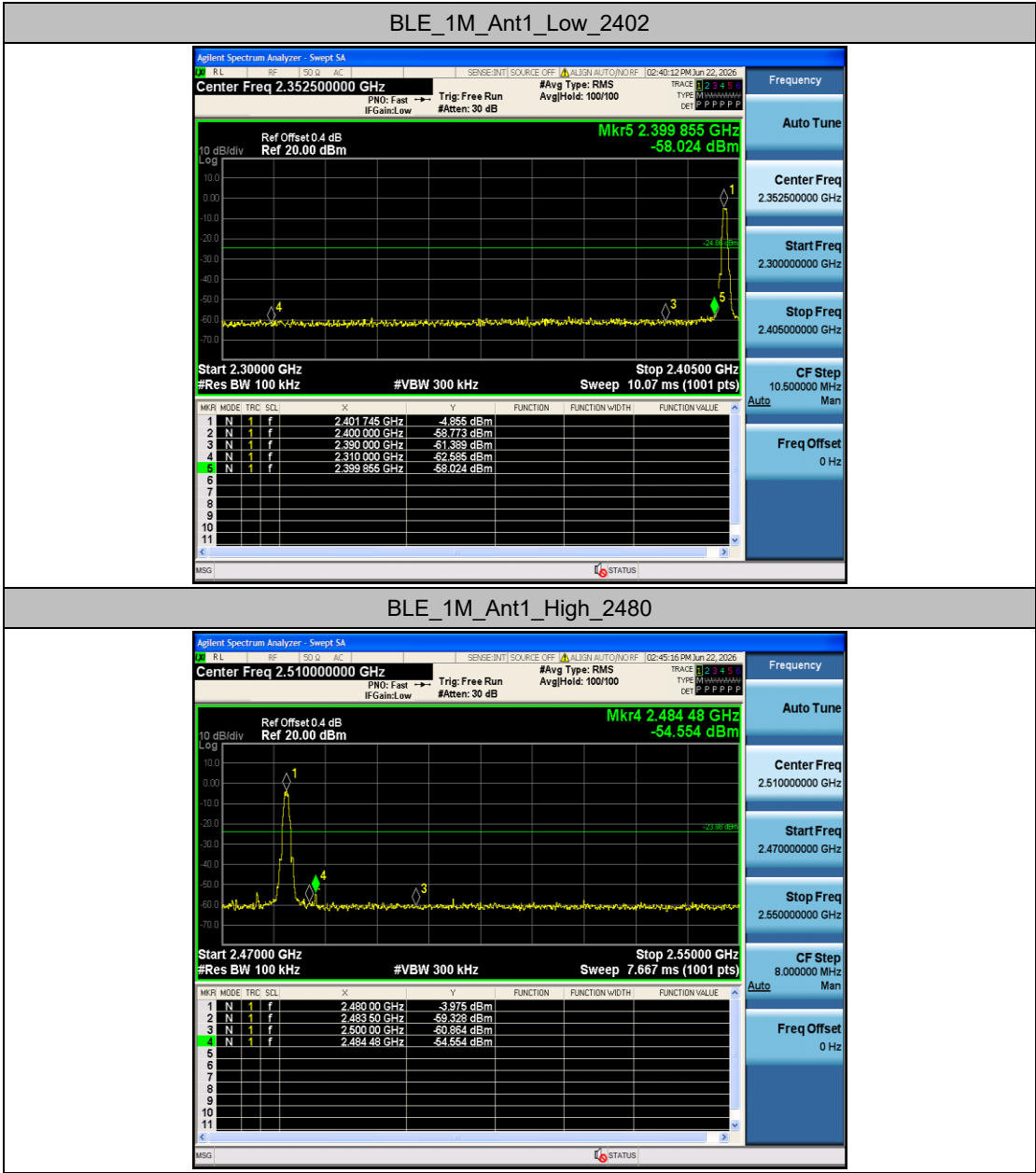


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-4.86	-58.02	≤-24.86	PASS
		High	2480	-3.98	-54.55	≤-23.98	PASS

Test Graphs

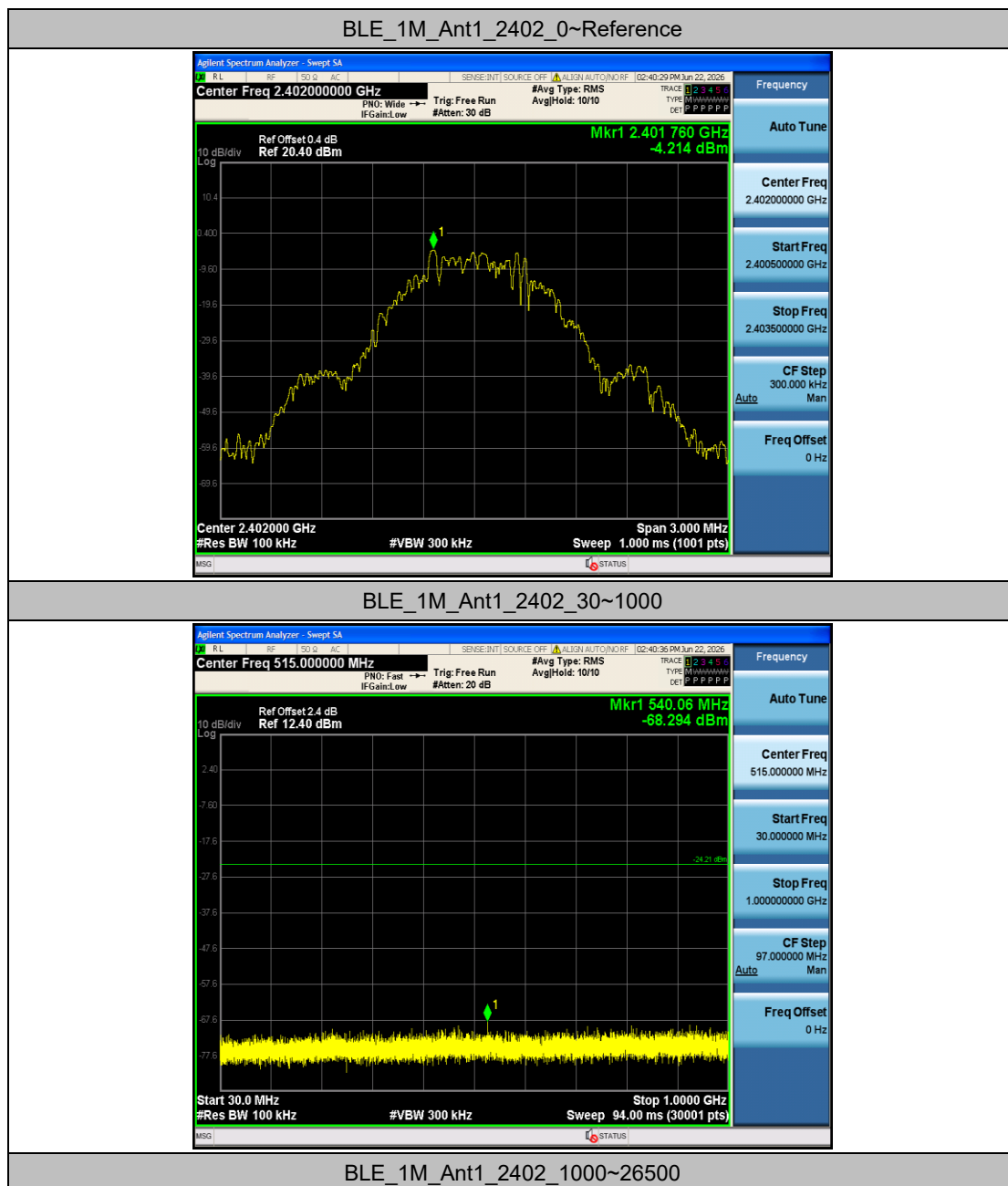


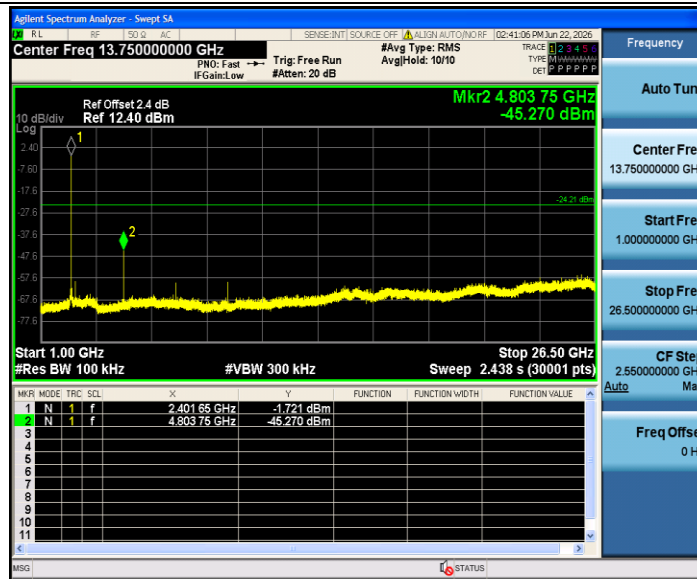
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.21	-4.21	---	PASS
			30~1000	-4.21	-68.29	≤-24.21	PASS
			1000~26500	-4.21	-45.27	≤-24.21	PASS
		2440	Reference	-4.34	-4.34	---	PASS
			30~1000	-4.34	-68.84	≤-24.34	PASS
			1000~26500	-4.34	-45.37	≤-24.34	PASS
		2480	Reference	-5.35	-5.35	---	PASS
			30~1000	-5.35	-68.39	≤-25.35	PASS
			1000~26500	-5.35	-45.76	≤-25.35	PASS

Test Graphs

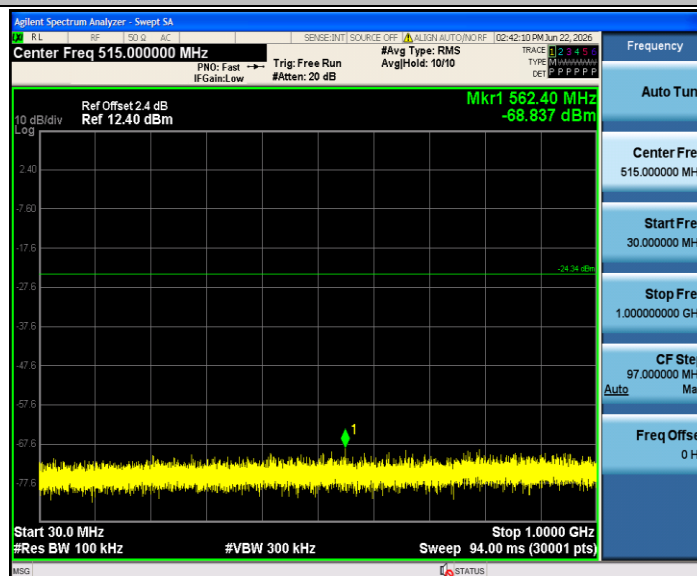




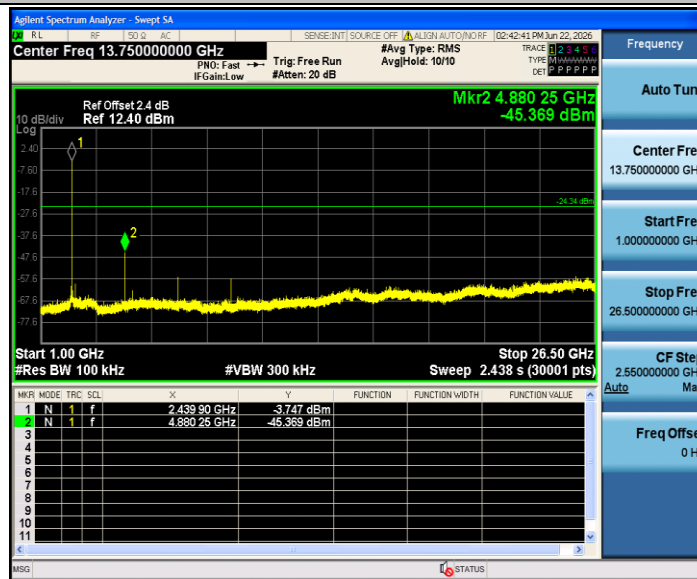
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



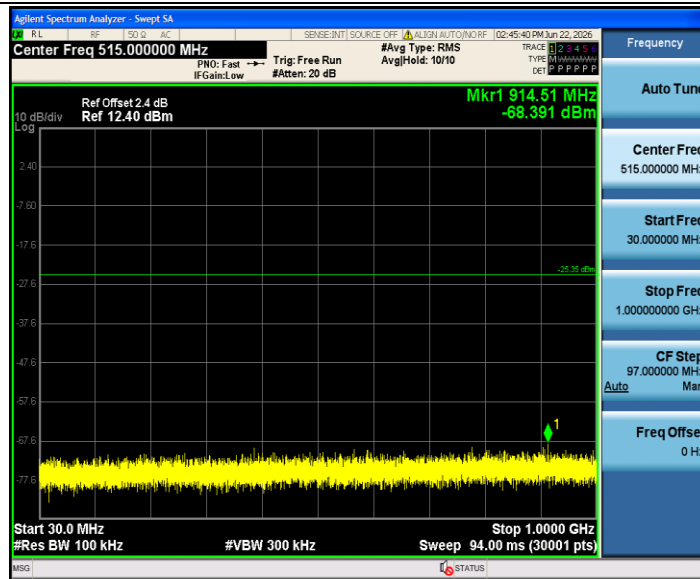
BLE_1M_Ant1_2440_1000~26500



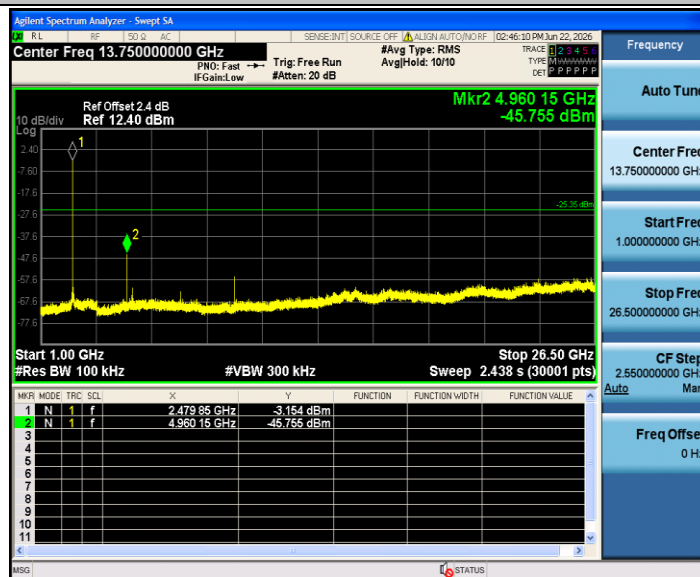
BLE_1M_Ant1_2480_0~Reference



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 0.4 dB Ref 20.40 dBm

ΔMkr3 620.0 μs -13.80 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		120.0 μs	-13.38 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-19.76 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-13.80 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

Ref Offset 0.4 dB Ref 20.40 dBm

ΔMkr3 620.0 μs -18.72 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		120.0 μs	-14.58 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-19.06 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-18.72 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

Ref Offset 0.4 dB Ref 20.40 dBm

ΔMkr3 620.0 μs -18.72 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		120.0 μs	-14.58 dBm		
2	Δ1	1	t	(Δ)	410.0 μs (Δ)	-19.06 dB		
3	Δ1	1	t	(Δ)	620.0 μs (Δ)	-18.72 dB		

Frequency

Auto Tune

Center Freq 2.480000000 GHz

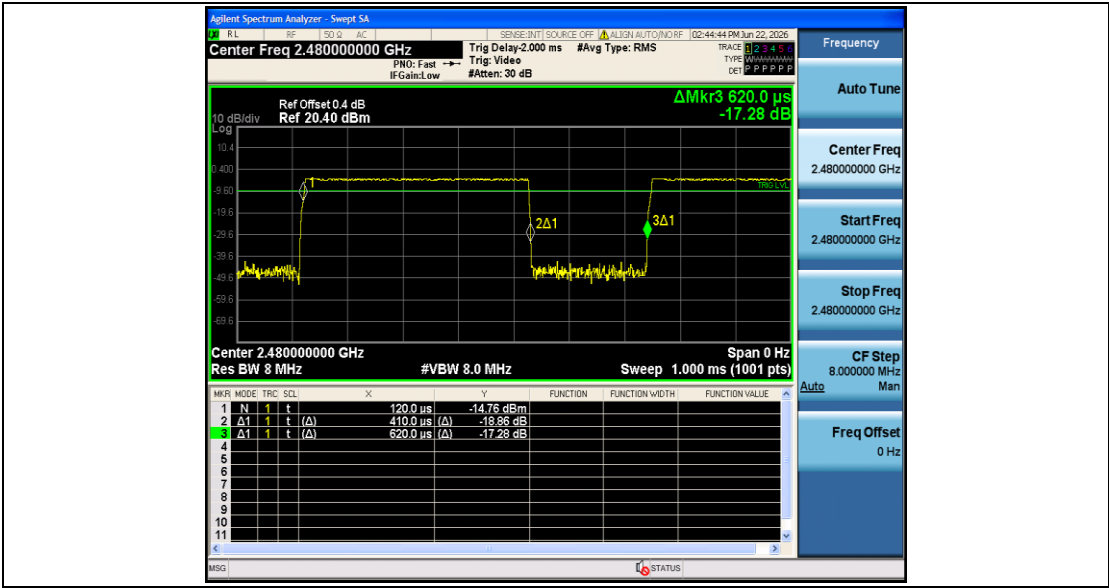
Start Freq 2.480000000 GHz

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

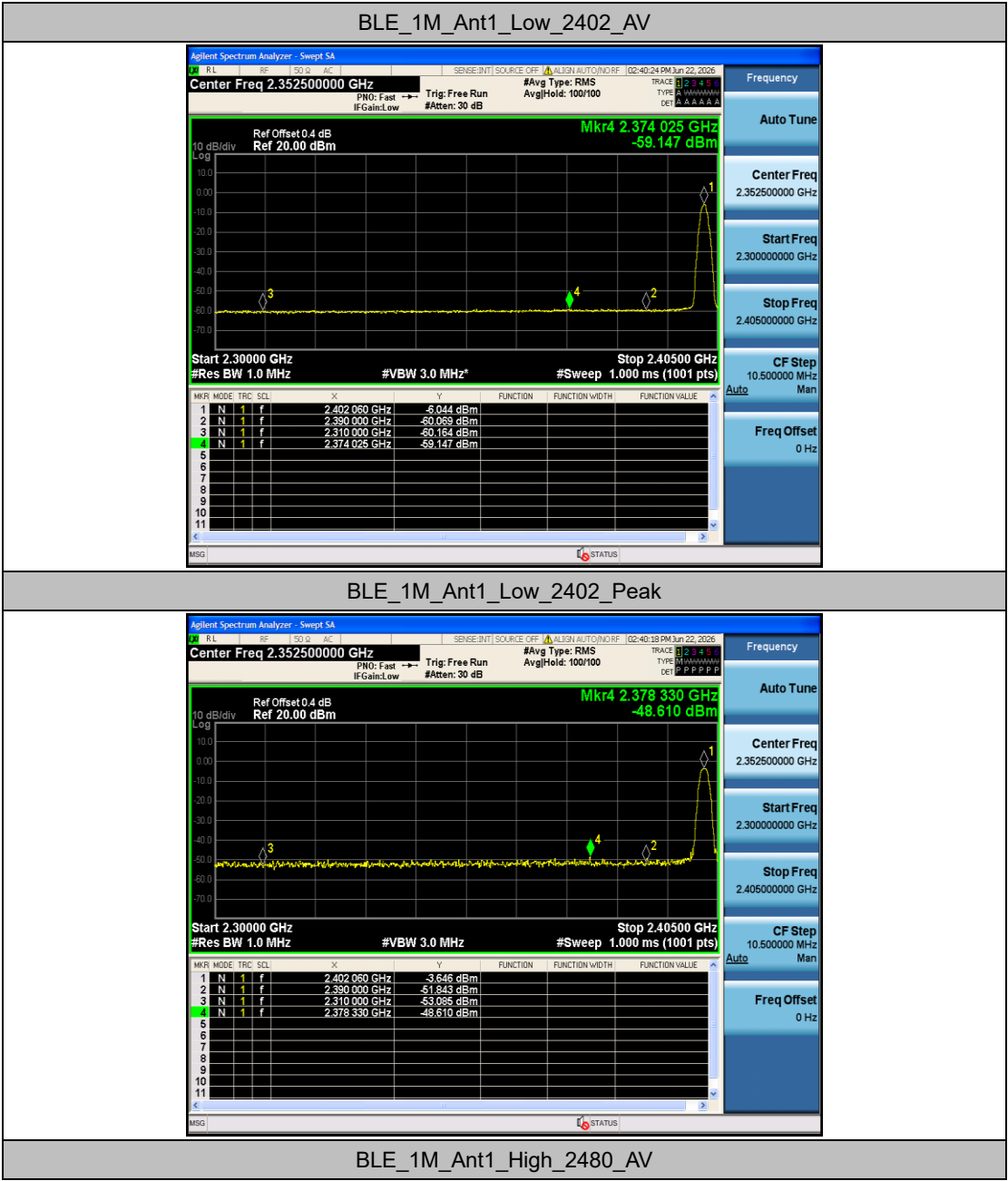
Test Result

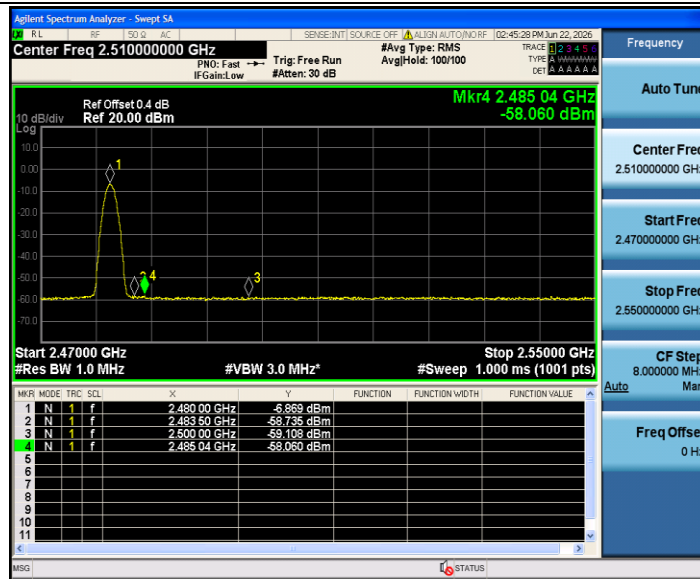
TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.16	2.00	1.80	38.84	≤54	PASS
				AV	2374.025	-59.15	2.00	1.80	39.85	≤54	PASS
				AV	2390.000	-60.07	2.00	1.80	38.93	≤54	PASS
				Peak	2310.000	-53.09	2.00	0.00	44.11	≤74	PASS
				Peak	2378.330	-48.61	2.00	0.00	48.59	≤74	PASS
				Peak	2390.000	-51.84	2.00	0.00	45.36	≤74	PASS
		High	2480	AV	2483.500	-58.74	2.00	1.80	40.26	≤54	PASS
				AV	2485.040	-58.06	2.00	1.80	40.94	≤54	PASS
				AV	2500.000	-59.11	2.00	1.80	39.89	≤54	PASS
				Peak	2483.500	-49.91	2.00	0.00	47.29	≤74	PASS
				Peak	2493.280	-49.2	2.00	0.00	48.00	≤74	PASS
				Peak	2500.000	-51.97	2.00	0.00	45.23	≤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

