

Appendix RF Test Data for BLE

FCC ID : 2A6P9-APID02

Company : Promaster Electronic LLC

EUT : Portable Infotainment Display

Model Number : APID-301

Report No. : CTA25072801101

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	0.640	2439.696	2440.336	0.5	PASS
		2480	0.632	2479.696	2480.328	0.5	PASS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.402000000 GHz

Ref Offset 0.5 dB
Ref 20.00 dBm

Trig: Free Run
#Atten: 30 dB

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

TRACE 1 2 3 4 5 6
TYPE M M M M M M M M
DET P P P P P P

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

Span 4.000 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep (#Swp) 1.000 ms (1001 pts)

ΔMkr3 640 kHz
0.113 dB

Log

10 dB/div

1 2 3Δ1

Center 2.402000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep (#Swp) 1.000 ms (1001 pts)

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401696 GHz	-9.225 dBm			
2	N	1	f	2.402024 GHz	-3.381 dBm			
3	Δ	1	f (Δ)	640 kHz (Δ)	0.113 dB			

MSO

STATUS

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.440000000 GHz

Ref Offset 0.5 dB
Ref 20.00 dBm

Trig: Free Run
#Atten: 30 dB

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

TRACE 1 2 3 4 5 6
TYPE M M M M M M M M
DET P P P P P P

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

Span 4.000 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep (#Swp) 1.000 ms (1001 pts)

ΔMkr3 640 kHz
0.057 dB

Log

10 dB/div

1 2 3Δ1

Center 2.440000 GHz

#Res BW 100 kHz

#VBW 300 kHz

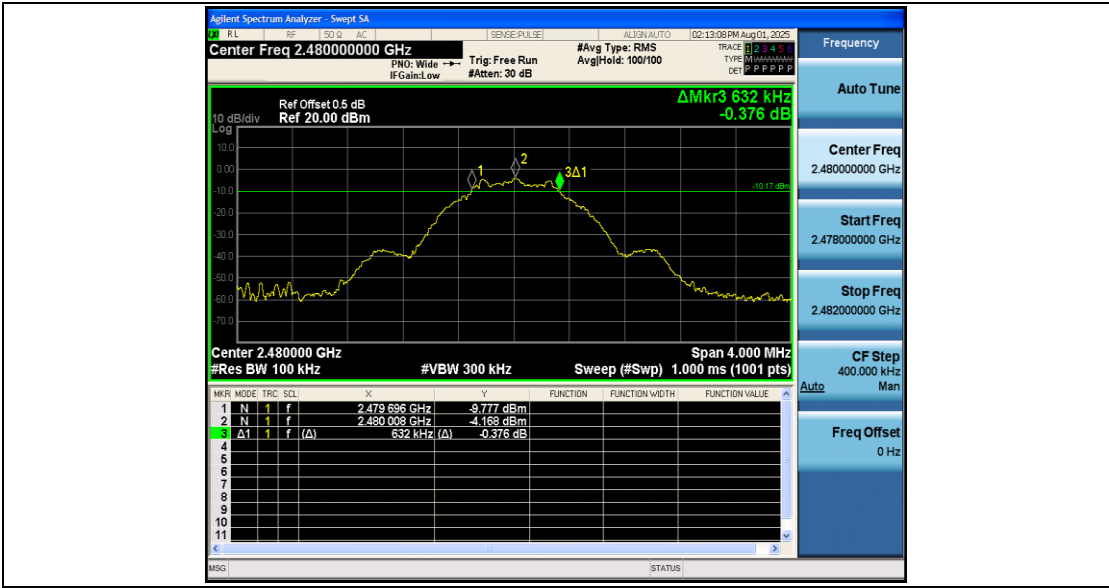
Sweep (#Swp) 1.000 ms (1001 pts)

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439696 GHz	-9.751 dBm			
2	N	1	f	2.440024 GHz	-3.888 dBm			
3	Δ	1	f (Δ)	640 kHz (Δ)	0.057 dB			

MSO

STATUS

BLE_1M_Ant1_2440



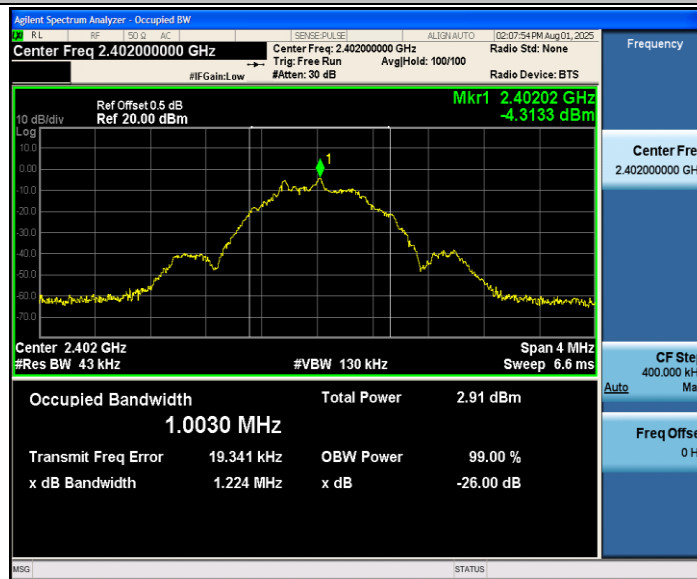
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0030	2401.5178	2402.5208	---	---
		2440	1.0035	2439.5180	2440.5215	---	---
		2480	1.0072	2479.5155	2480.5227	---	---

Test Graphs

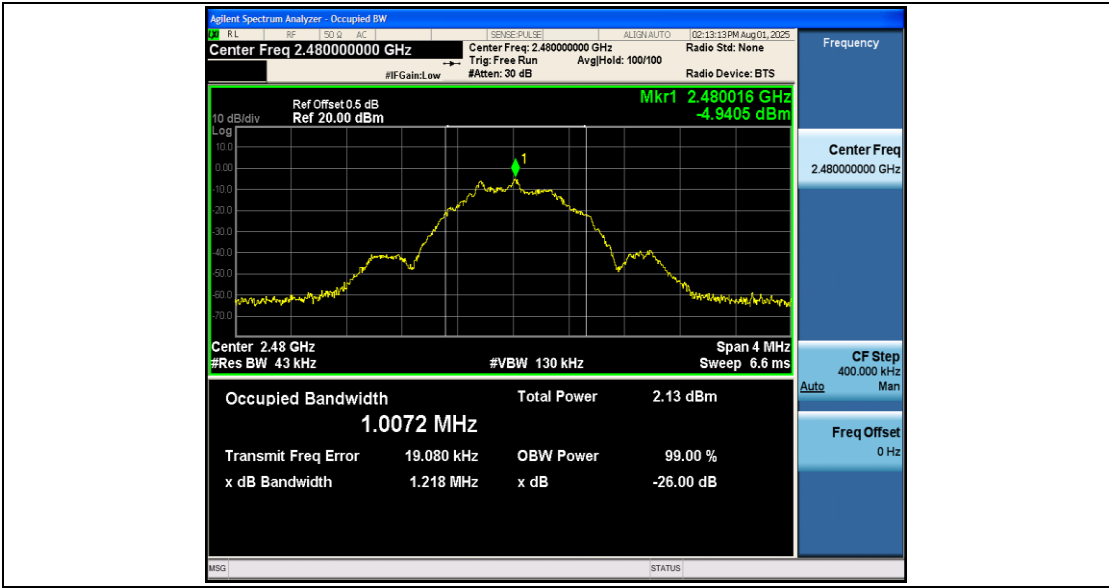
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix C: Maximum conducted output power

Test Result Peak

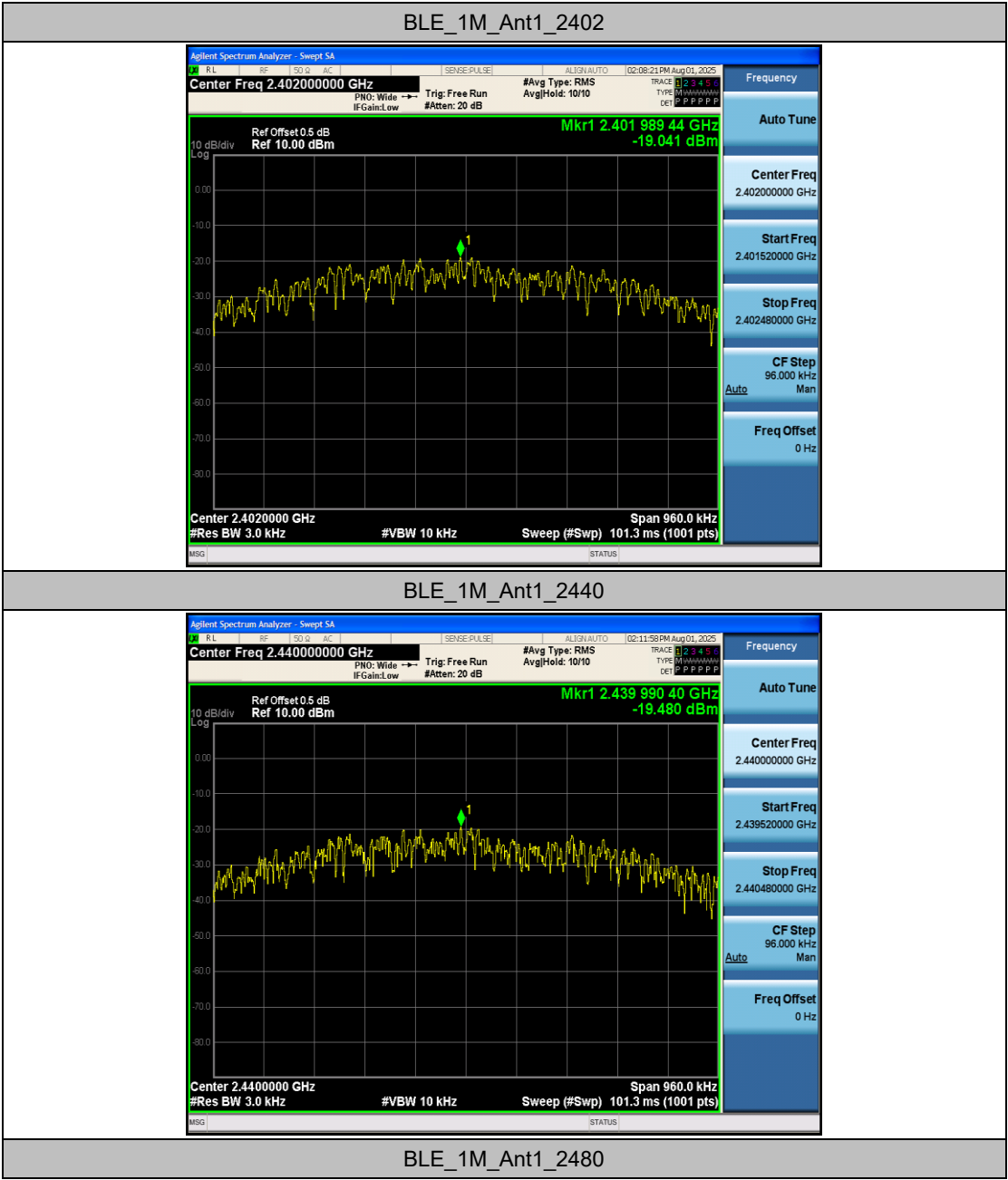
TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.23	≤30	PASS
		2440	-3.73	≤30	PASS
		2480	-3.92	≤30	PASS

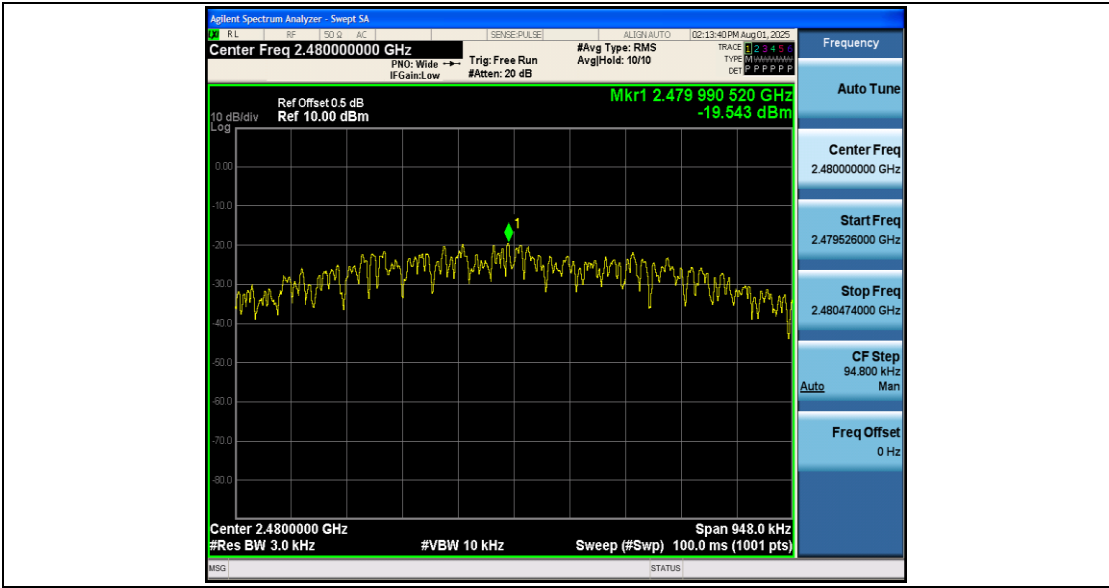
Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.04	≤8.00	PASS
		2440	-19.48	≤8.00	PASS
		2480	-19.54	≤8.00	PASS

Test Graphs





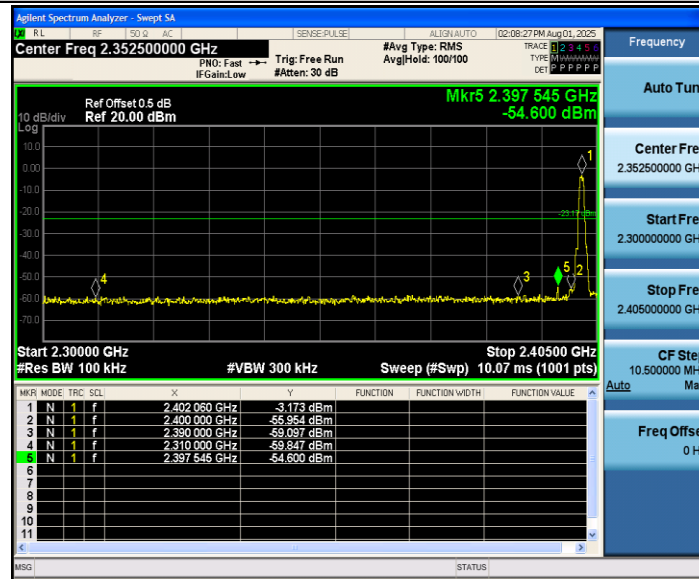
Appendix E: Band edge measurements

Test Result

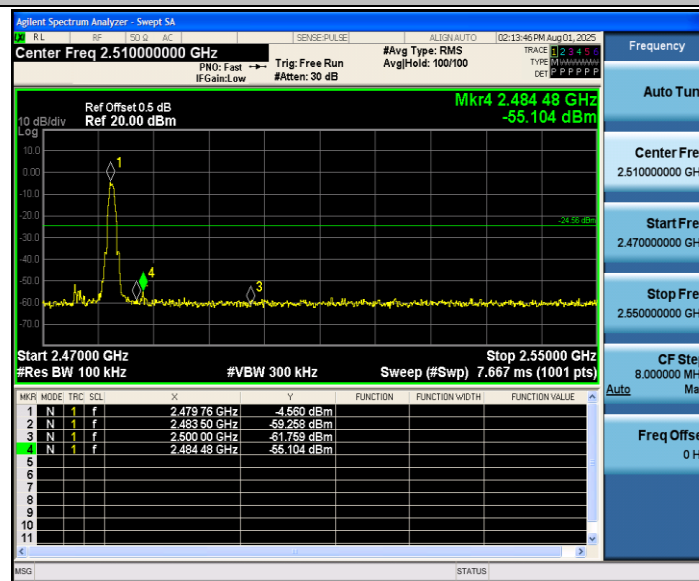
TestMod e	Antenn a	ChNam e	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdic t
BLE_1M	Ant1	Low	2402	-3.17	-54.6	≤-23.17	PASS
		High	2480	-4.56	-55.1	≤-24.56	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480

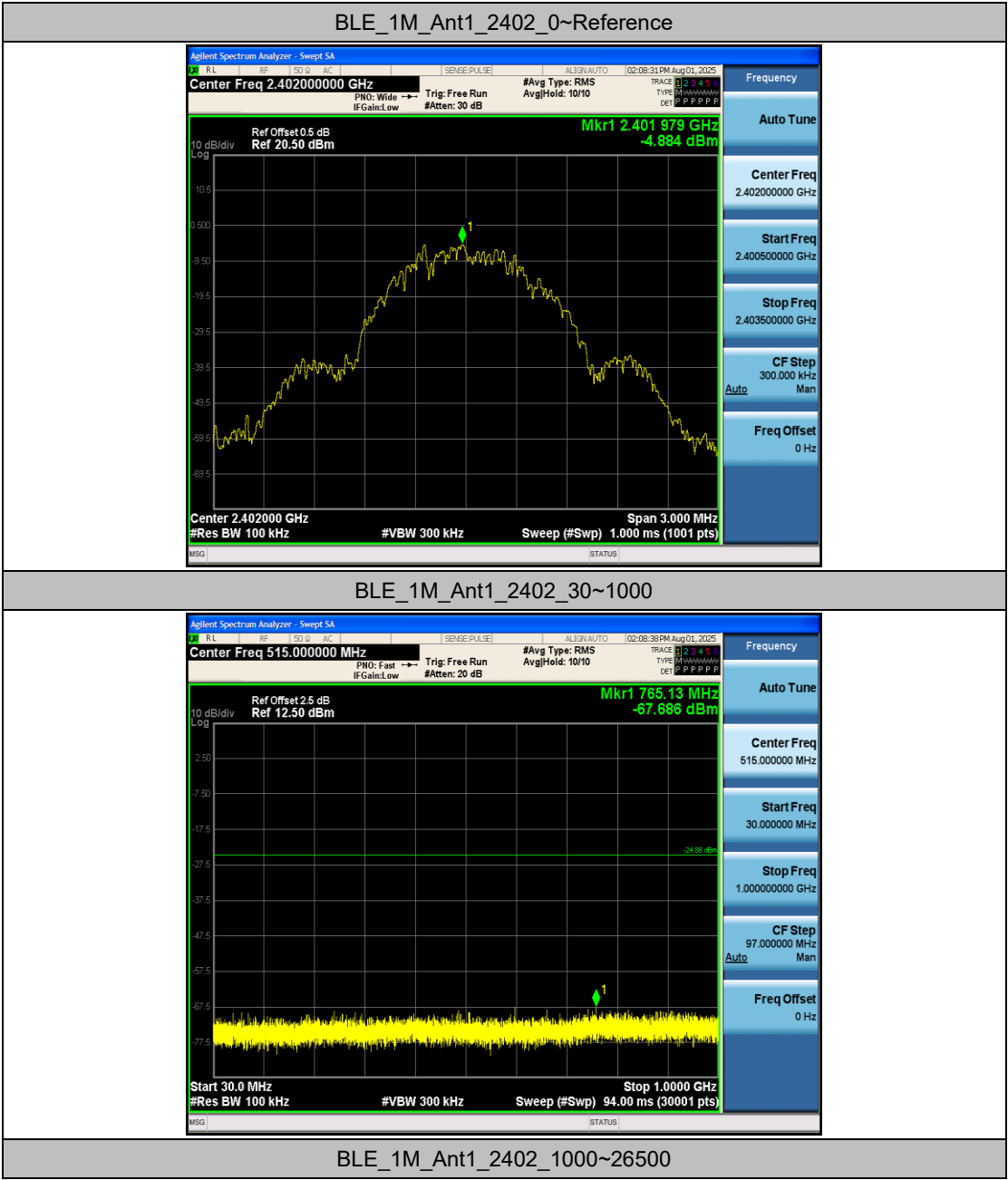


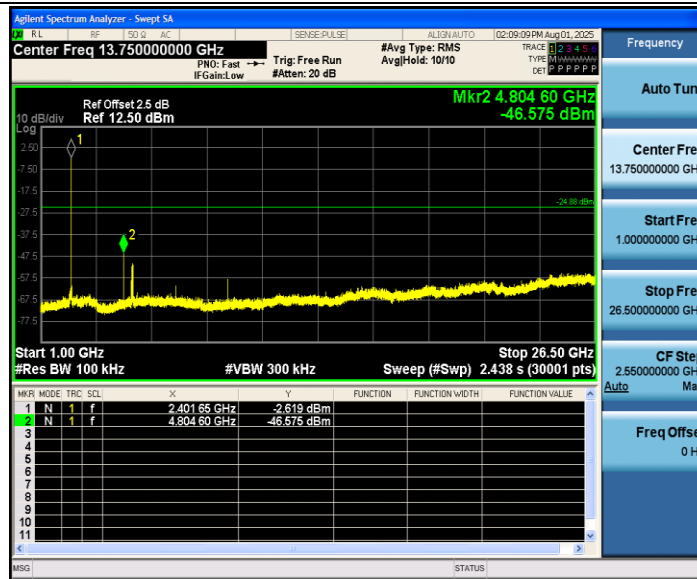
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.88	-4.88	---	PASS
			30~1000	-4.88	-67.69	≤-24.88	PASS
			1000~26500	-4.88	-46.58	≤-24.88	PASS
		2440	Reference	-5.20	-5.20	---	PASS
			30~1000	-5.20	-66.74	≤-25.2	PASS
			1000~26500	-5.20	-46.46	≤-25.2	PASS
		2480	Reference	-4.12	-4.12	---	PASS
			30~1000	-4.12	-67.76	≤-24.12	PASS
			1000~26500	-4.12	-46.02	≤-24.12	PASS

Test Graphs

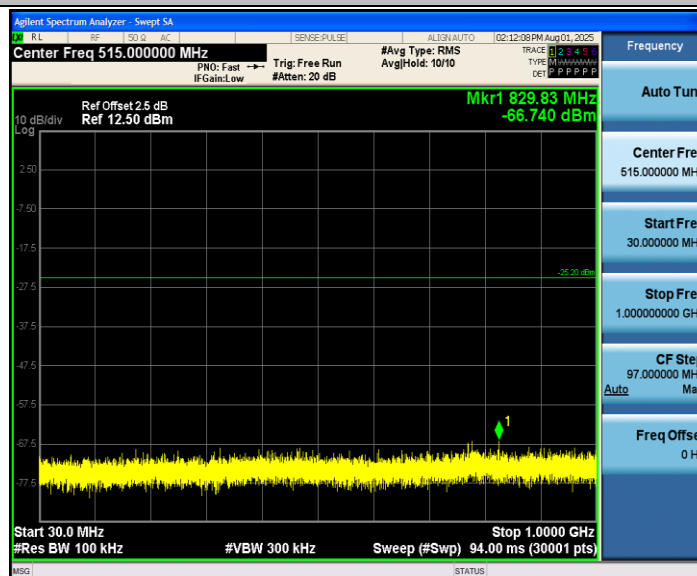




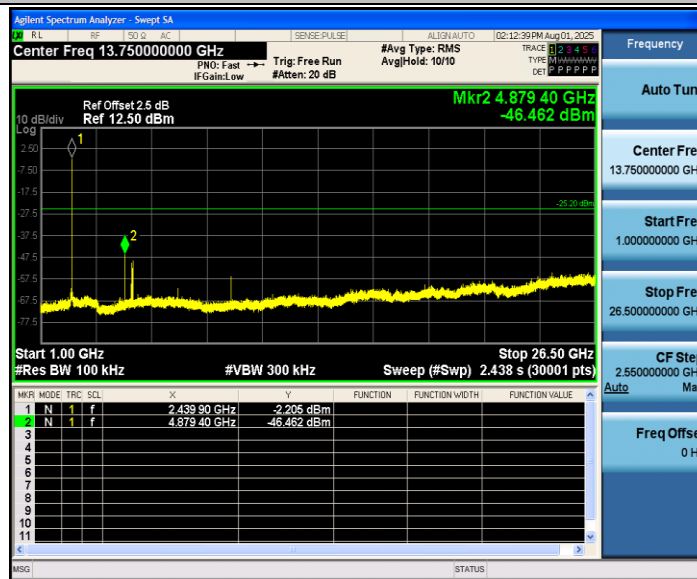
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



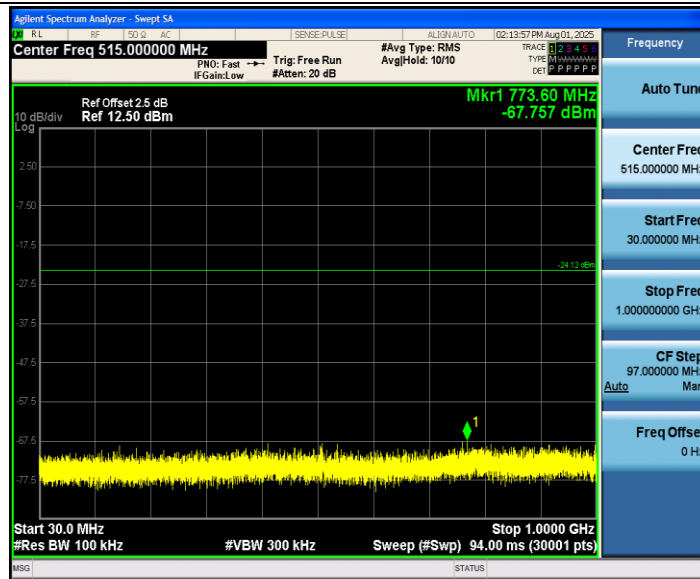
BLE_1M_Ant1_2440_1000~26500



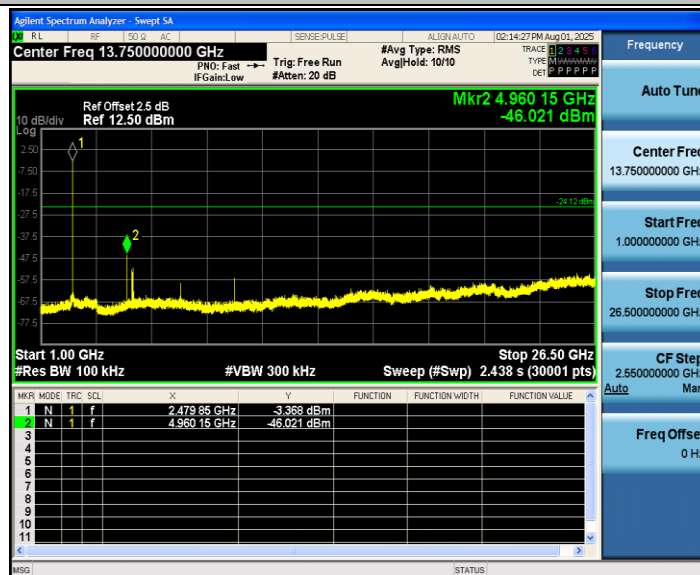
BLE_1M_Ant1_2480_0~Reference



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	0.63	0.6508	65.08	1.87	---	---
		2440	0.41	0.63	0.6508	65.08	1.87	---	---
		2480	0.41	0.63	0.6508	65.08	1.87	---	---

Test Graphs

