

FCC Appendix RF Test Data for BLE

FCC ID : 2A5ZU-BTL303

Company : Shenzhen Baojia Battery Technology Co.,Ltd.

EUT : PLAYBULB TRIART

Model Number : BTL303

Report No. : CTA25090200201

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	0.664	2401.648	2402.312	0.5	PASS
		2440	0.668	2439.656	2440.324	0.5	PASS
		2480	0.672	2479.644	2480.316	0.5	PASS

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz

Ref Offset 0.5 dB
Ref 20.00 dBm

Log

10 dB/div

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

-60.00

-70.00

Center 2.402000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep (#Swp) 1.000 ms (1001 pts)

Span 4.000 MHz

Auto

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.400000000 GHz

Stop Freq 2.404000000 GHz

CF Step 400.000 kHz

Freq Offset 0 Hz

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401884 GHz	-2.96 dBm			
2	N	1	f	2.401884 GHz	2.044 dBm			
3	Δ1	1	f (Δ)	664 kHz (Δ)	0.218 dB			

BLE_1M_Ant1_2440

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Ref Offset 0.5 dB
Ref 20.00 dBm

Log

10 dB/div

0.00

-10.00

-20.00

-30.00

-40.00

-50.00

-60.00

-70.00

Center 2.440000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep (#Swp) 1.000 ms (1001 pts)

Span 4.000 MHz

Auto

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.438000000 GHz

Stop Freq 2.442000000 GHz

CF Step 400.000 kHz

Freq Offset 0 Hz

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.439666 GHz	-2.186 dBm			
2	N	1	f	2.440000 GHz	3.712 dBm			
3	Δ1	1	f (Δ)	668 kHz (Δ)	-0.067 dB			

BLE_1M_Ant1_2480



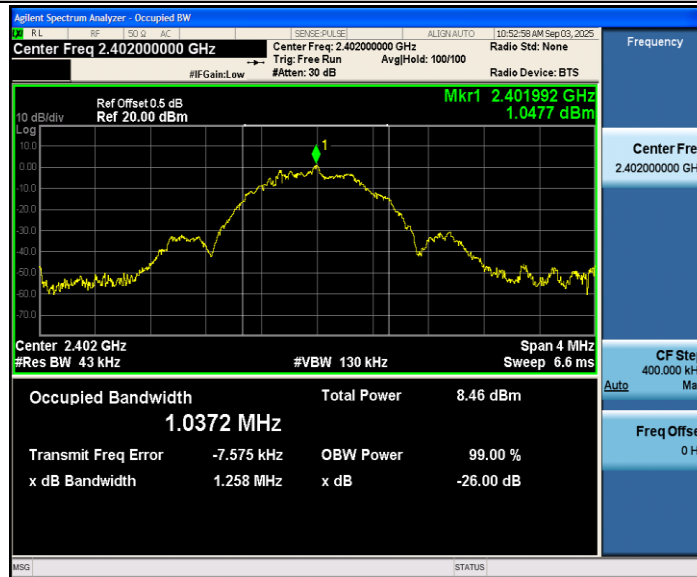
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0372	2401.4738	2402.5110	---	---
		2440	1.0331	2439.4762	2440.5093	---	---
		2480	1.0370	2479.4729	2480.5099	---	---

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	2.49	≤30	PASS
		2440	4.01	≤30	PASS
		2480	3.58	≤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	-12.74	≤8.00	PASS
		2440	-11.67	≤8.00	PASS
		2480	-12.29	≤8.00	PASS

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.40200000 GHz

Ref Offset 0.5 dB
Ref 10.00 dBm

Mkr1 2.401 938 2 GHz
-12.743 dBm

Auto Tune

Center Freq
2.40200000 GHz

Start Freq
2.401502000 GHz

Stop Freq
2.402498000 GHz

CF Step
99.600 kHz
Auto Man

Freq Offset
0 Hz

Center 2.4020000 GHz

#Res BW 3.0 kHz

#VBW 10 kHz

Sweep (#Swp) 105.1 ms (1001 pts)

MSG (STATUS)

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.44000000 GHz

Ref Offset 0.5 dB
Ref 10.00 dBm

Mkr1 2.439 962 9 GHz
-11.667 dBm

Auto Tune

Center Freq
2.44000000 GHz

Start Freq
2.439499000 GHz

Stop Freq
2.440501000 GHz

CF Step
100.200 kHz
Auto Man

Freq Offset
0 Hz

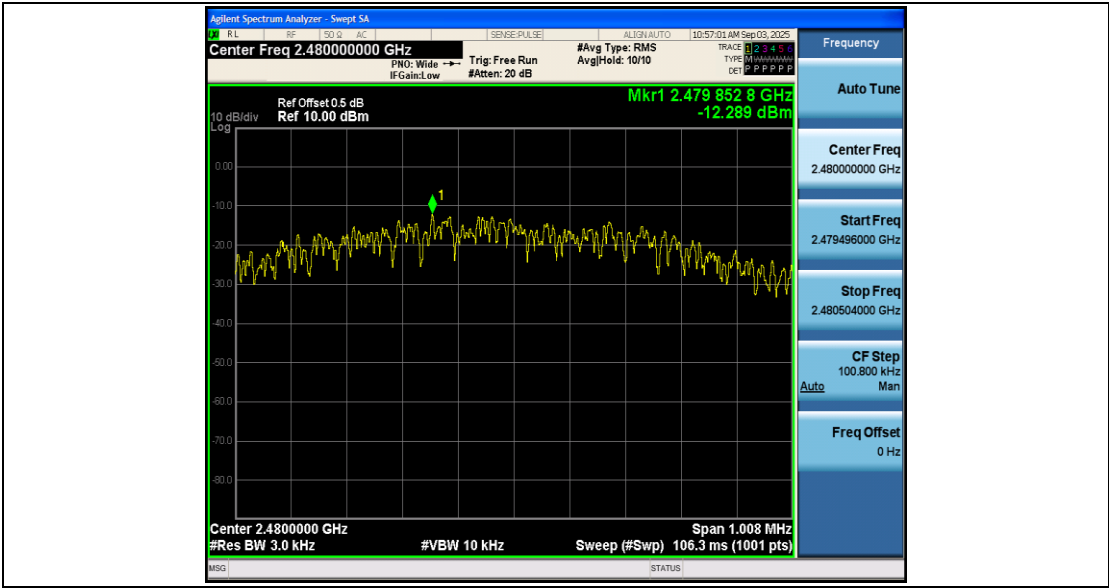
Center 2.4400000 GHz

#Res BW 3.0 kHz

#VBW 10 kHz

Sweep (#Swp) 105.7 ms (1001 pts)

MSG (STATUS)

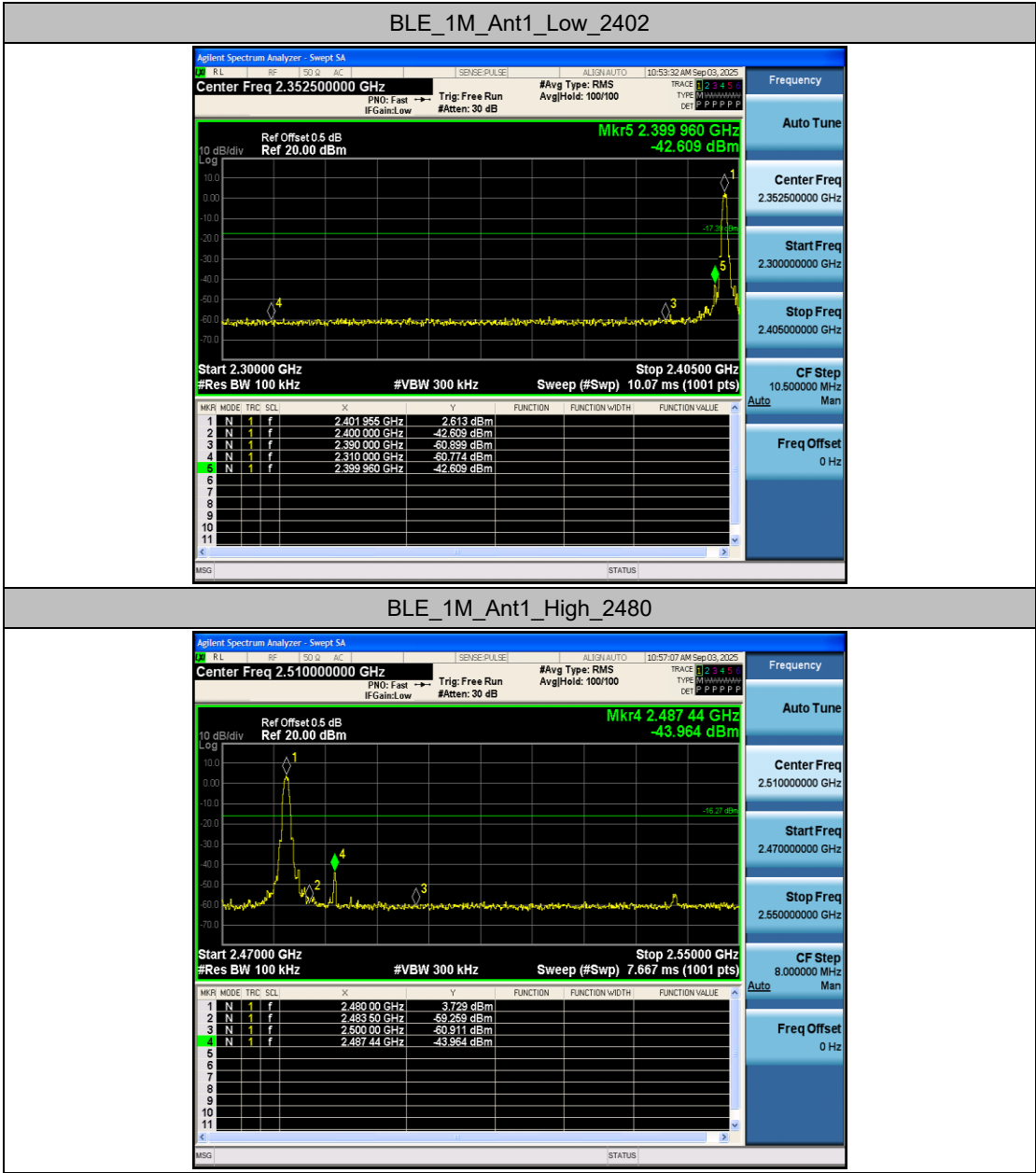


Appendix E: Band edge measurements

Test Result

TestMod e	Antenn a	ChNam e	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdic t
BLE_1M	Ant1	Low	2402	2.61	-42.61	≤-17.39	PASS
		High	2480	3.73	-43.96	≤-16.27	PASS

Test Graphs

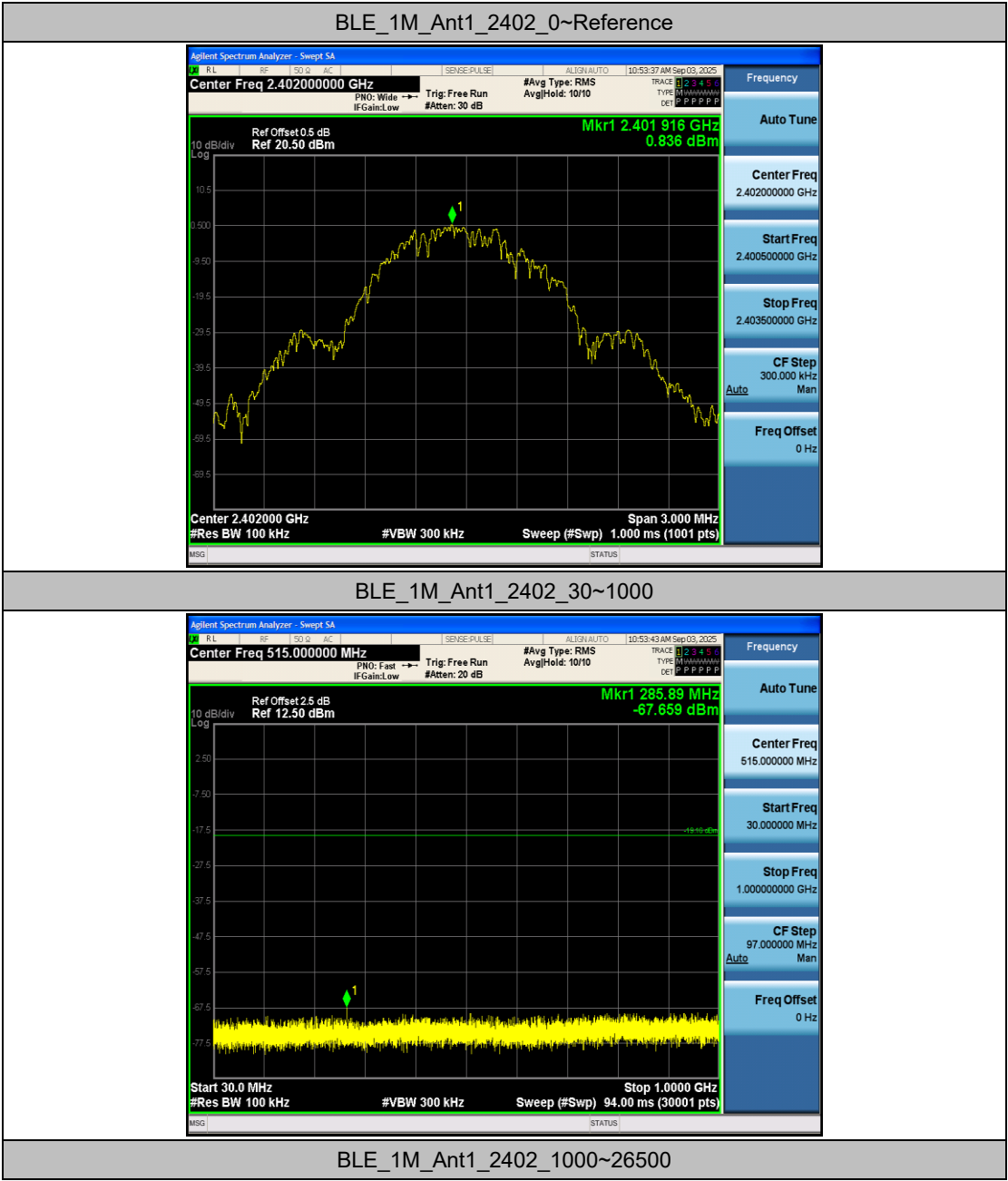


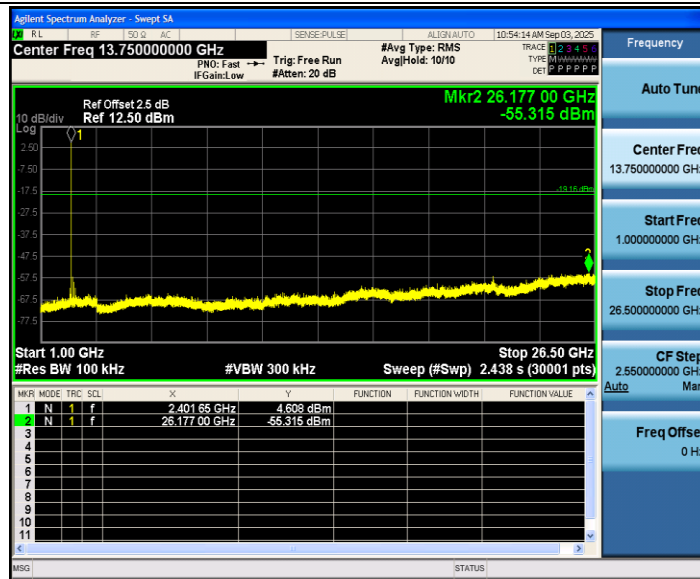
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.84	0.84	---	PASS
			30~1000	0.84	-67.66	≤-19.16	PASS
			1000~26500	0.84	-55.32	≤-19.16	PASS
		2440	Reference	3.18	3.18	---	PASS
			30~1000	3.18	-68.35	≤-16.82	PASS
			1000~26500	3.18	-55.34	≤-16.82	PASS
		2480	Reference	2.67	2.67	---	PASS
			30~1000	2.67	-67.83	≤-17.33	PASS
			1000~26500	2.67	-54.85	≤-17.33	PASS

Test Graphs

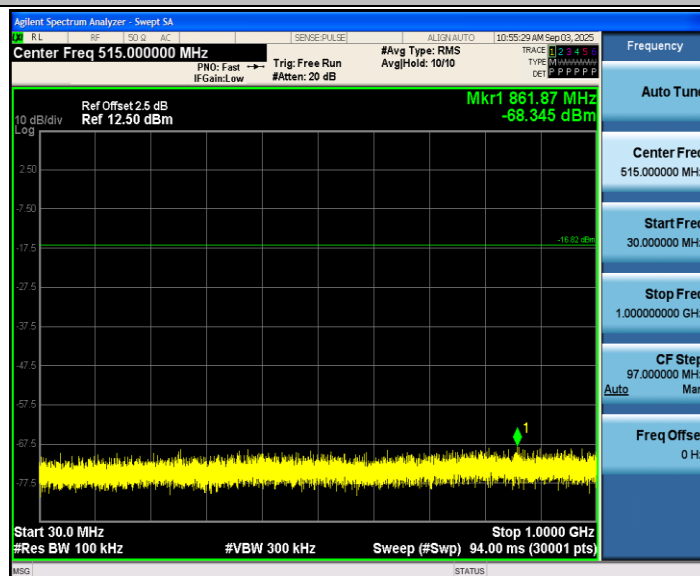




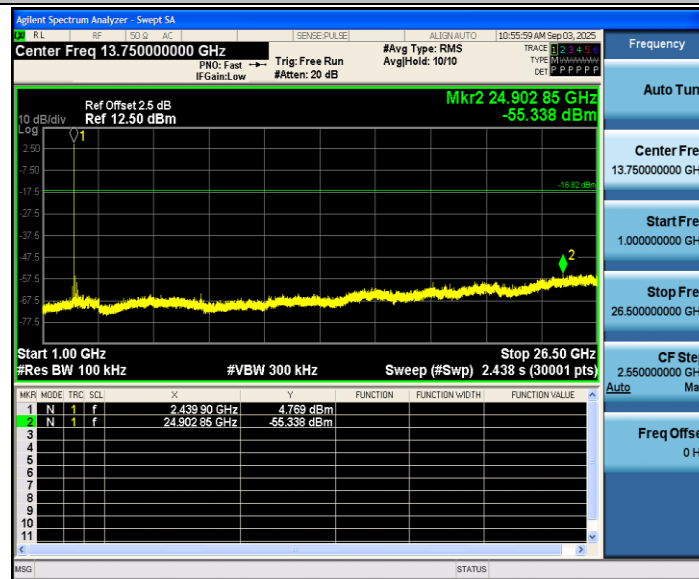
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



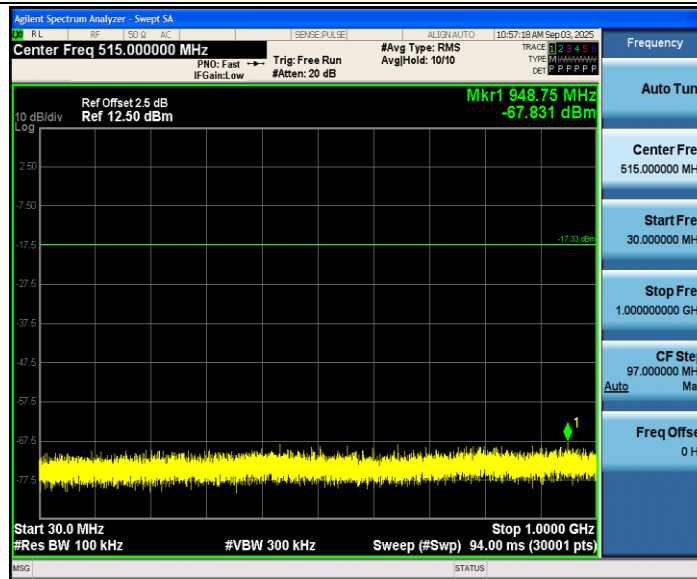
BLE_1M_Ant1_2440_1000~26500



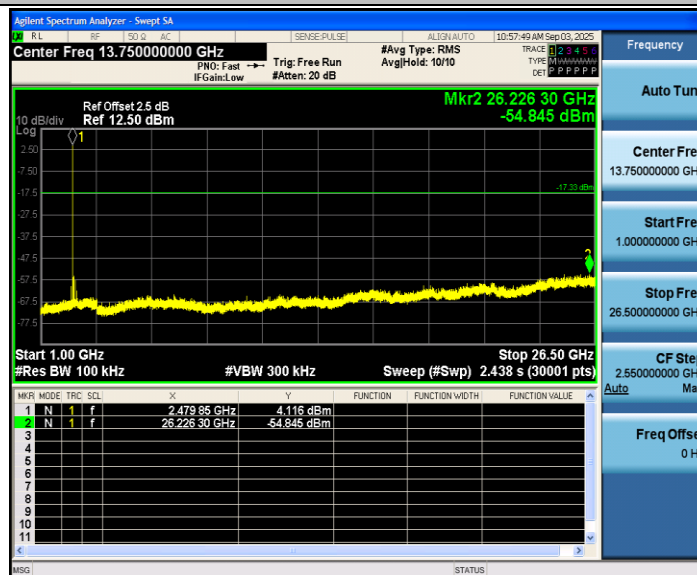
BLE_1M_Ant1_2480_0~Reference



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	0.39	0.62	0.6290	62.90	2.01	---	---
		2440	0.39	0.62	0.6290	62.90	2.01	---	---
		2480	0.39	0.62	0.6290	62.90	2.01	---	---

Test Graphs

