

FCC Appendix RF Test Data for BLE

FCC ID : 2BWDQ-PULAOECHOP1

Company : Beijing Zhixue Vision Management Consulting
Co., Ltd.

EUT : PulaoEcho

Model Number : PulaoEcho P1

Report No. : CTA26051802101

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	0.652	2401.688	2402.340	0.5	PASS
		2440	0.644	2439.692	2440.336	0.5	PASS
		2480	0.648	2479.688	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
Avg/Hold: 100/100

12:17:19 AM May 25, 2026

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

Log

10 dB/div

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

Center 2.402000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 4.000 MHz

Sweep 1.000 ms (1001 pts)

MNR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE

1	N	1	f	2.401688 GHz	-5.643 dBm			
2	N	1	f	2.402008 GHz	0.260 dBm			
3	Δ	1	f (Δ)	652 kHz (Δ)	-0.078 dB			

1

2

3Δ1

ΔMkr3 652 kHz
-0.078 dB

12:19:15 AM May 25, 2026

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

Log

10 dB/div

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

Center 2.440000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 4.000 MHz

Sweep 1.000 ms (1001 pts)

MNR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE

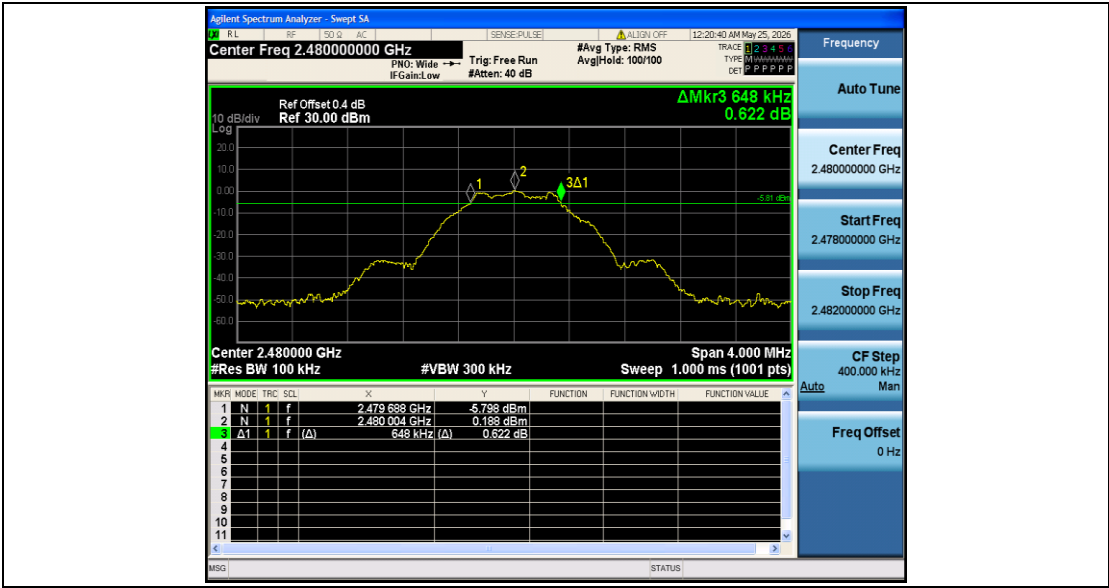
1	N	1	f	2.439692 GHz	-5.504 dBm			
2	N	1	f	2.440012 GHz	0.428 dBm			
3	Δ	1	f (Δ)	644 kHz (Δ)	0.101 dB			

1

2

3Δ1

ΔMkr3 644 kHz
0.101 dB

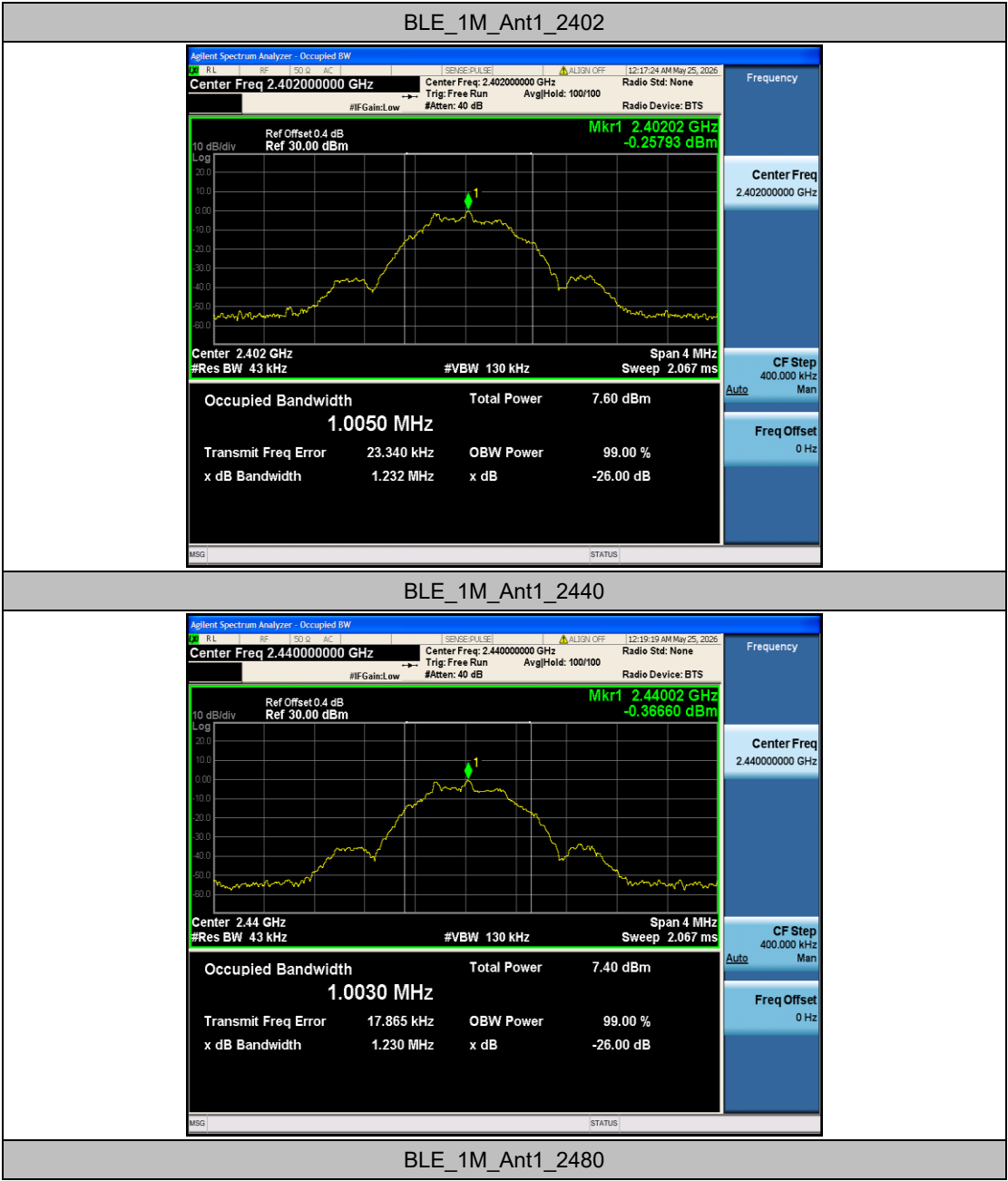


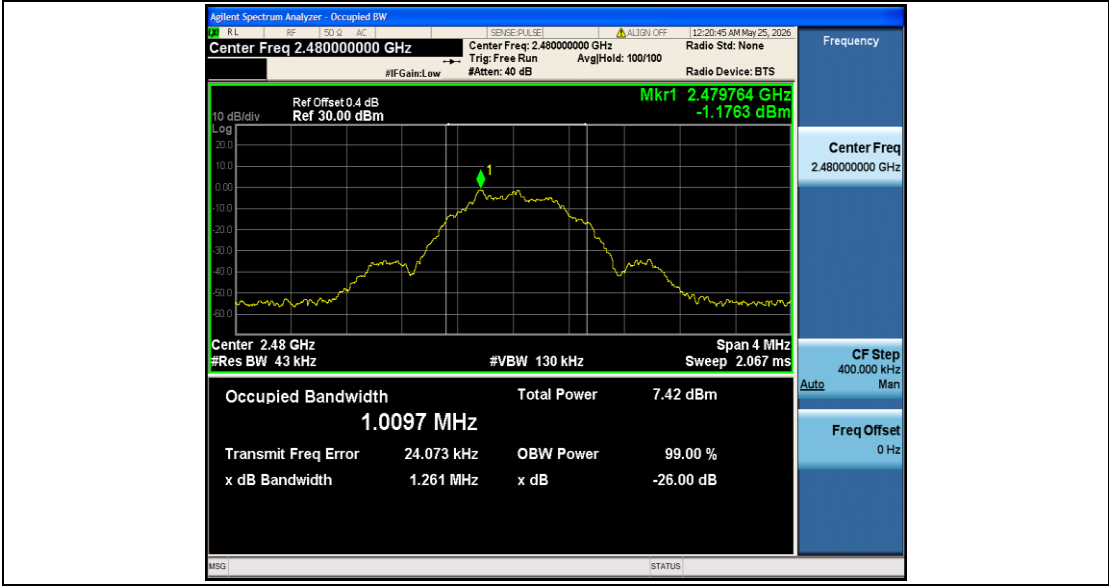
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0050	2401.5208	2402.5258	---	---
		2440	1.0030	2439.5164	2440.5194	---	---
		2480	1.0097	2479.5192	2480.5289	---	---

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	0.78	≤30	PASS
		2440	0.63	≤30	PASS
		2480	0.73	≤30	PASS

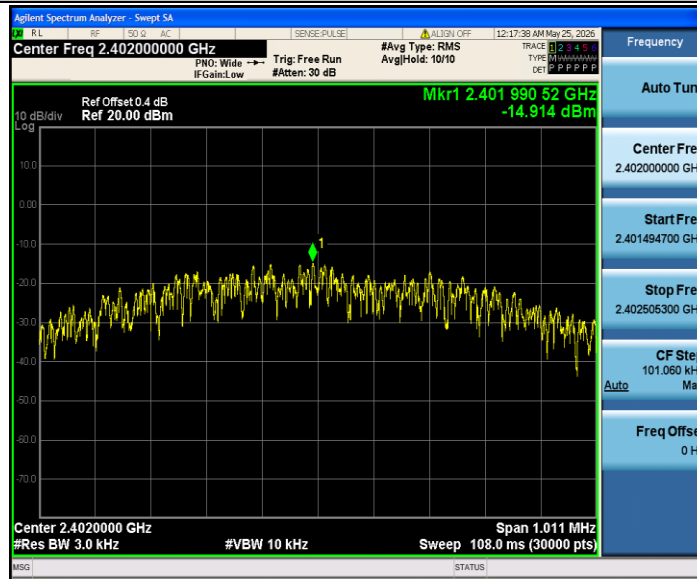
Appendix D: Maximum power spectral density

Test Result

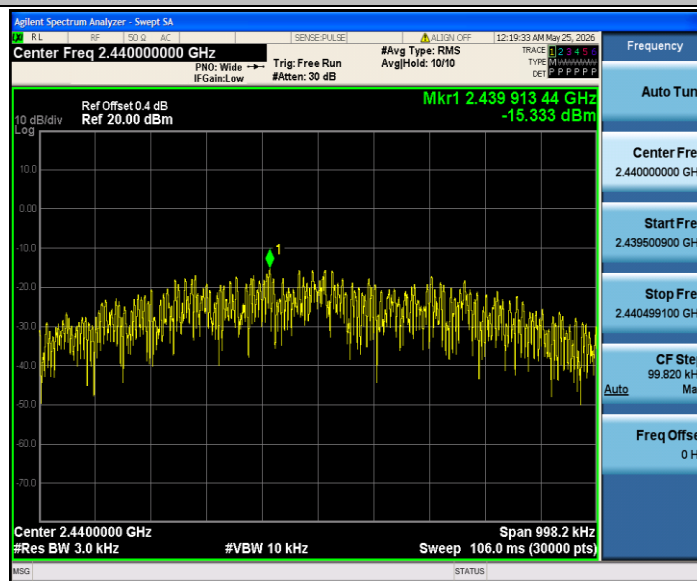
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.91	≤8.00	PASS
		2440	-15.33	≤8.00	PASS
		2480	-15.02	≤8.00	PASS

Test Graphs

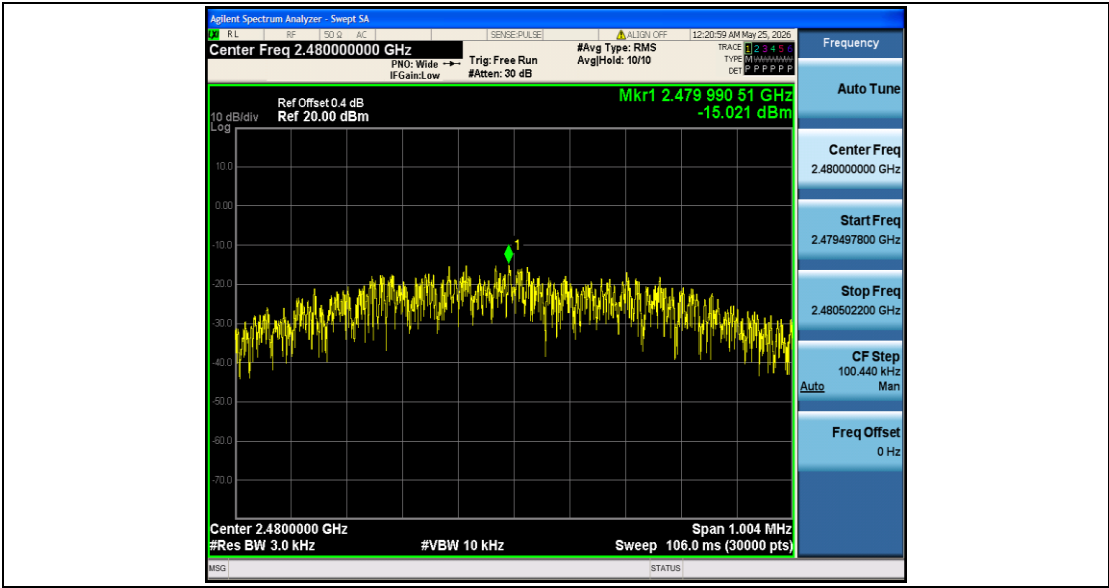
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

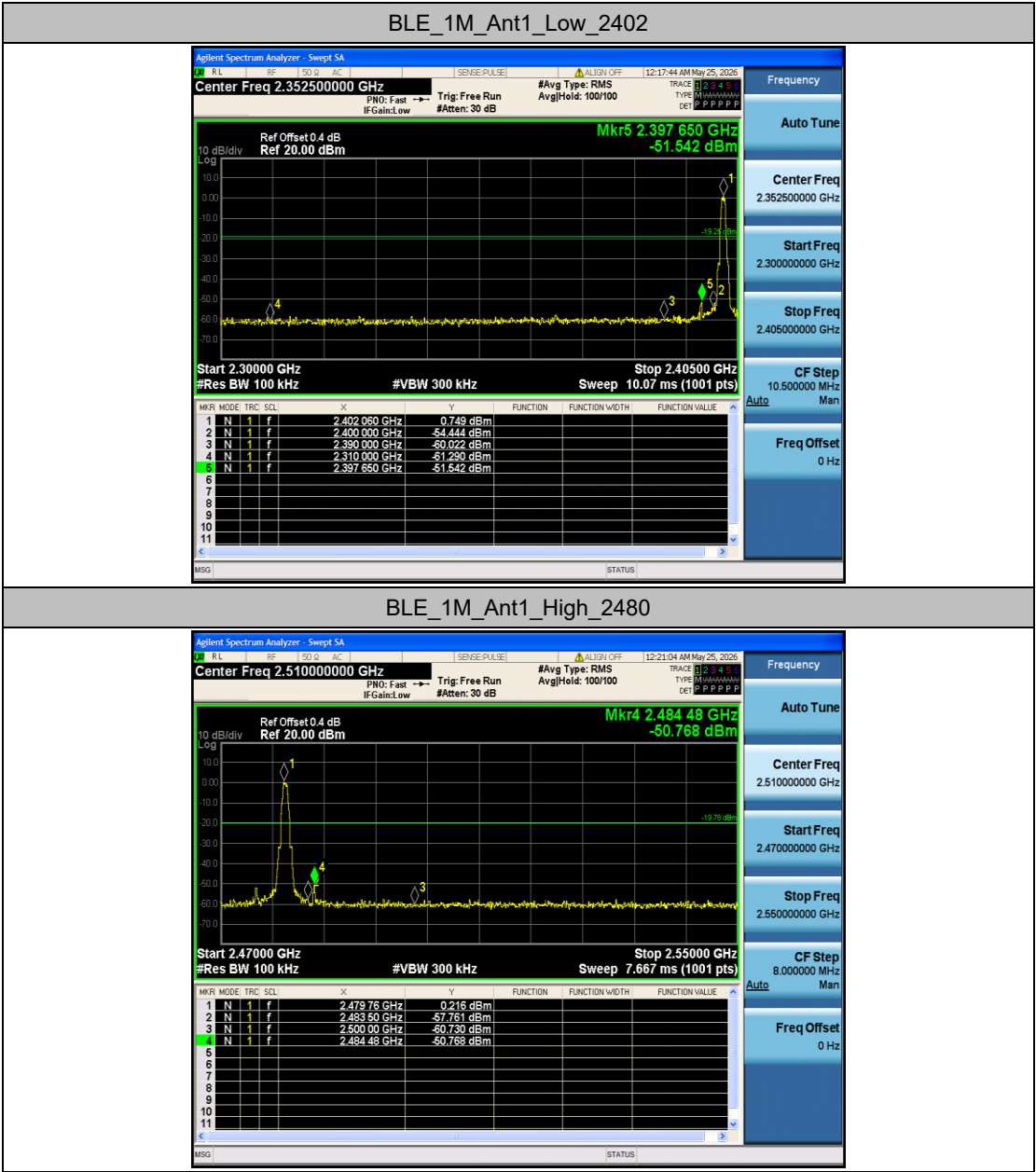


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.75	-51.54	≤-19.25	PASS
		High	2480	0.22	-50.77	≤-19.78	PASS

Test Graphs

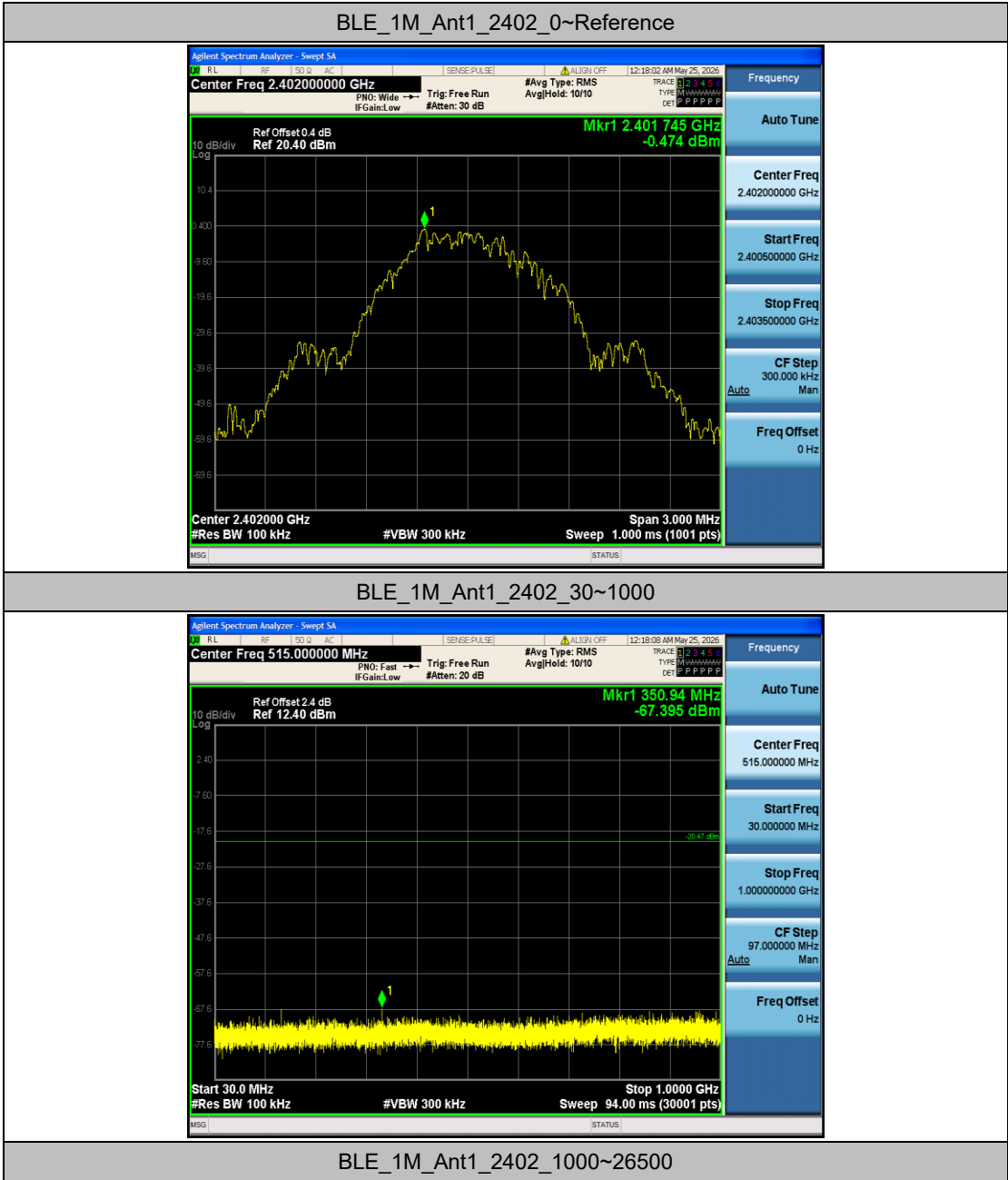


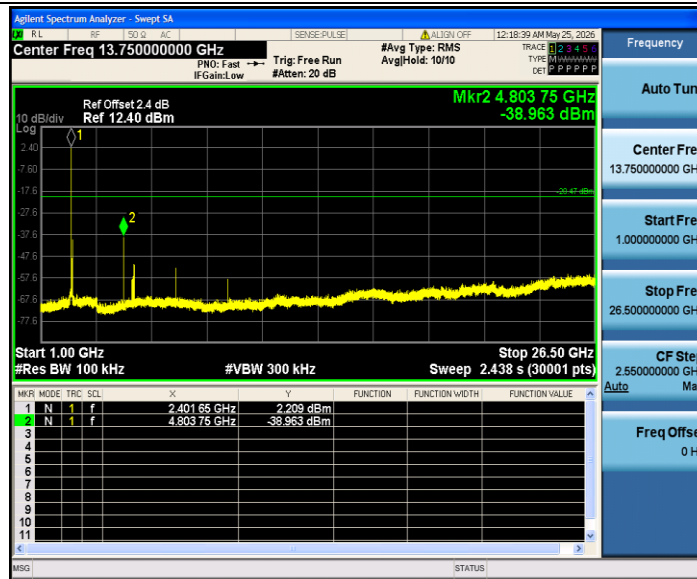
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.47	-0.47	---	PASS
			30~1000	-0.47	-67.4	≤-20.47	PASS
			1000~26500	-0.47	-38.96	≤-20.47	PASS
		2440	Reference	0.45	0.45	---	PASS
			30~1000	0.45	-67.63	≤-19.55	PASS
			1000~26500	0.45	-41.55	≤-19.55	PASS
		2480	Reference	0.17	0.17	---	PASS
			30~1000	0.17	-67.56	≤-19.83	PASS
			1000~26500	0.17	-40.32	≤-19.83	PASS

Test Graphs

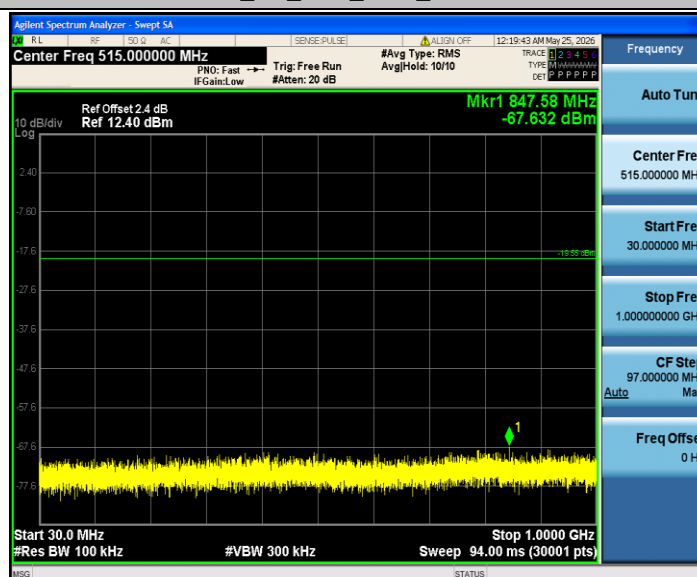




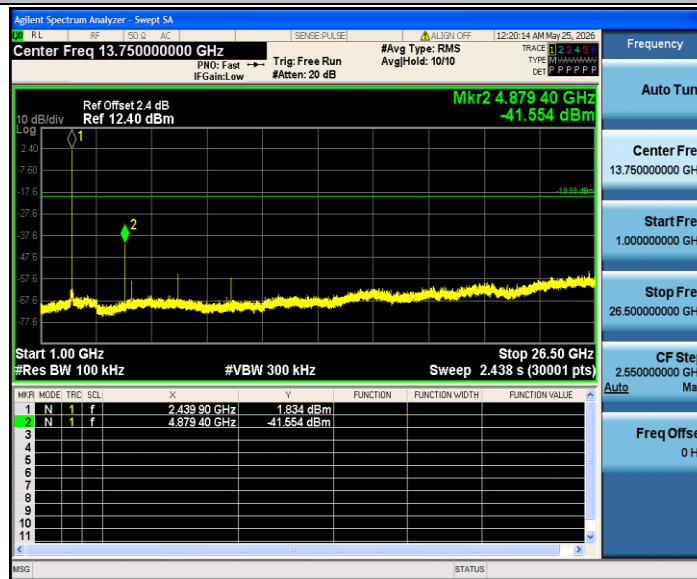
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



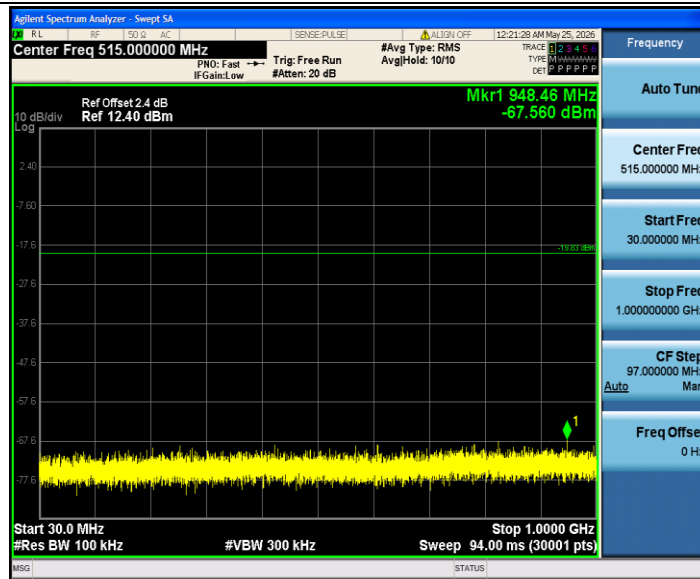
BLE_1M_Ant1_2440_1000~26500



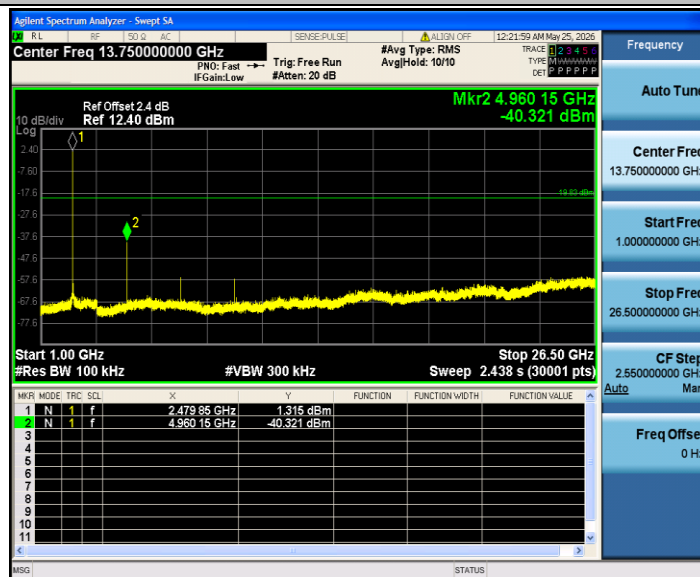
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

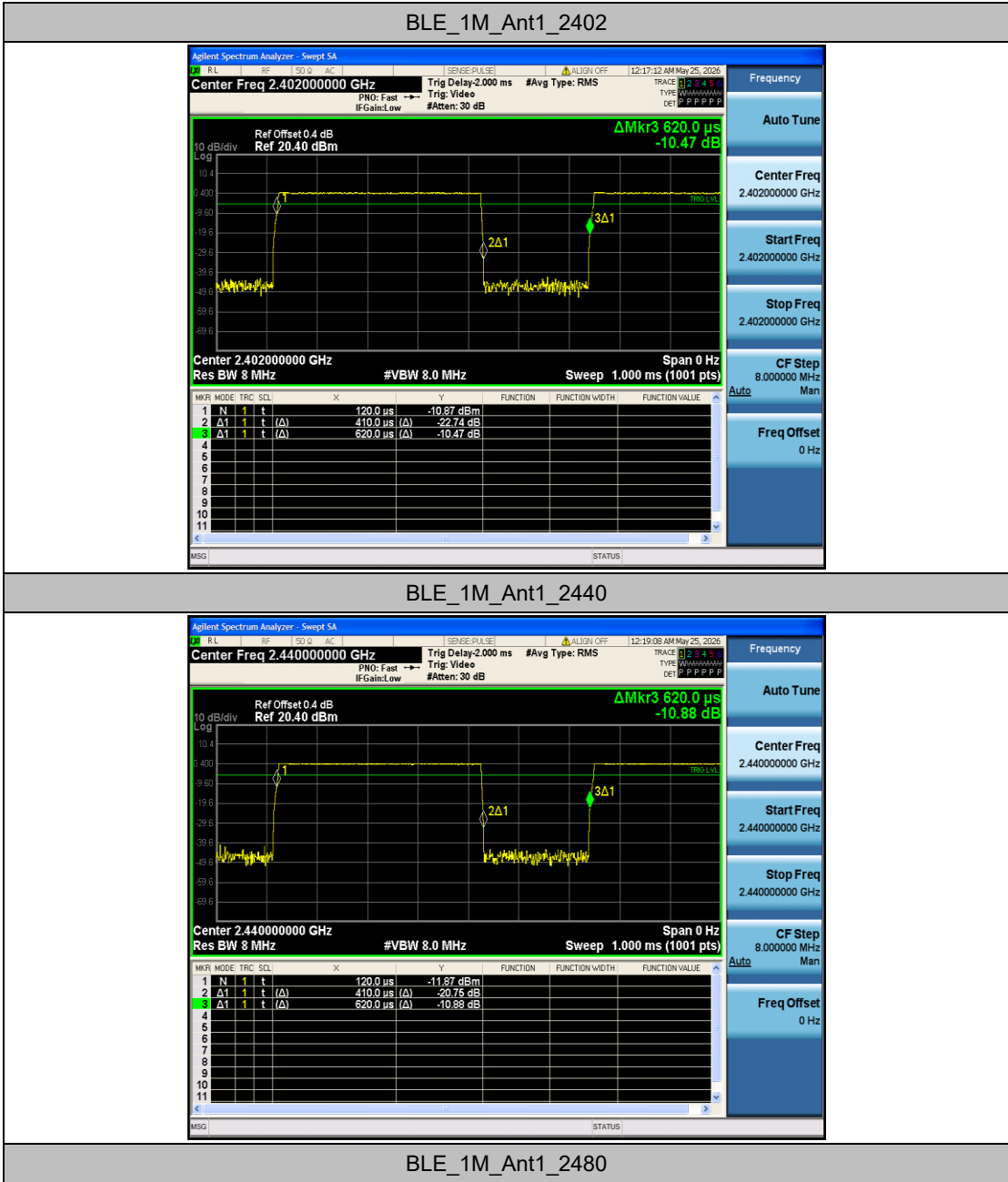


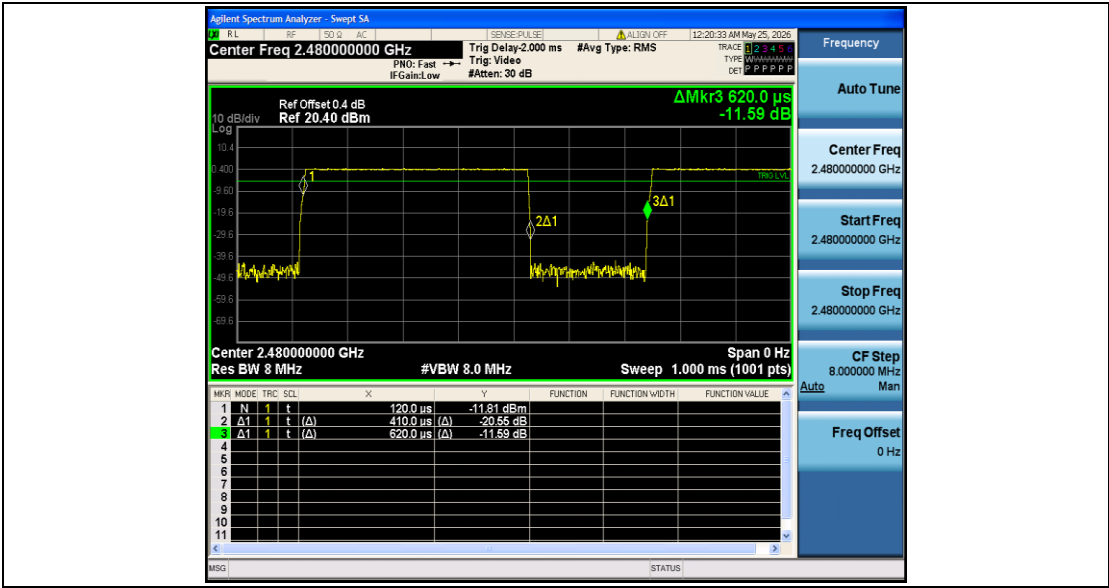
Appendix G: Duty Cycle

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

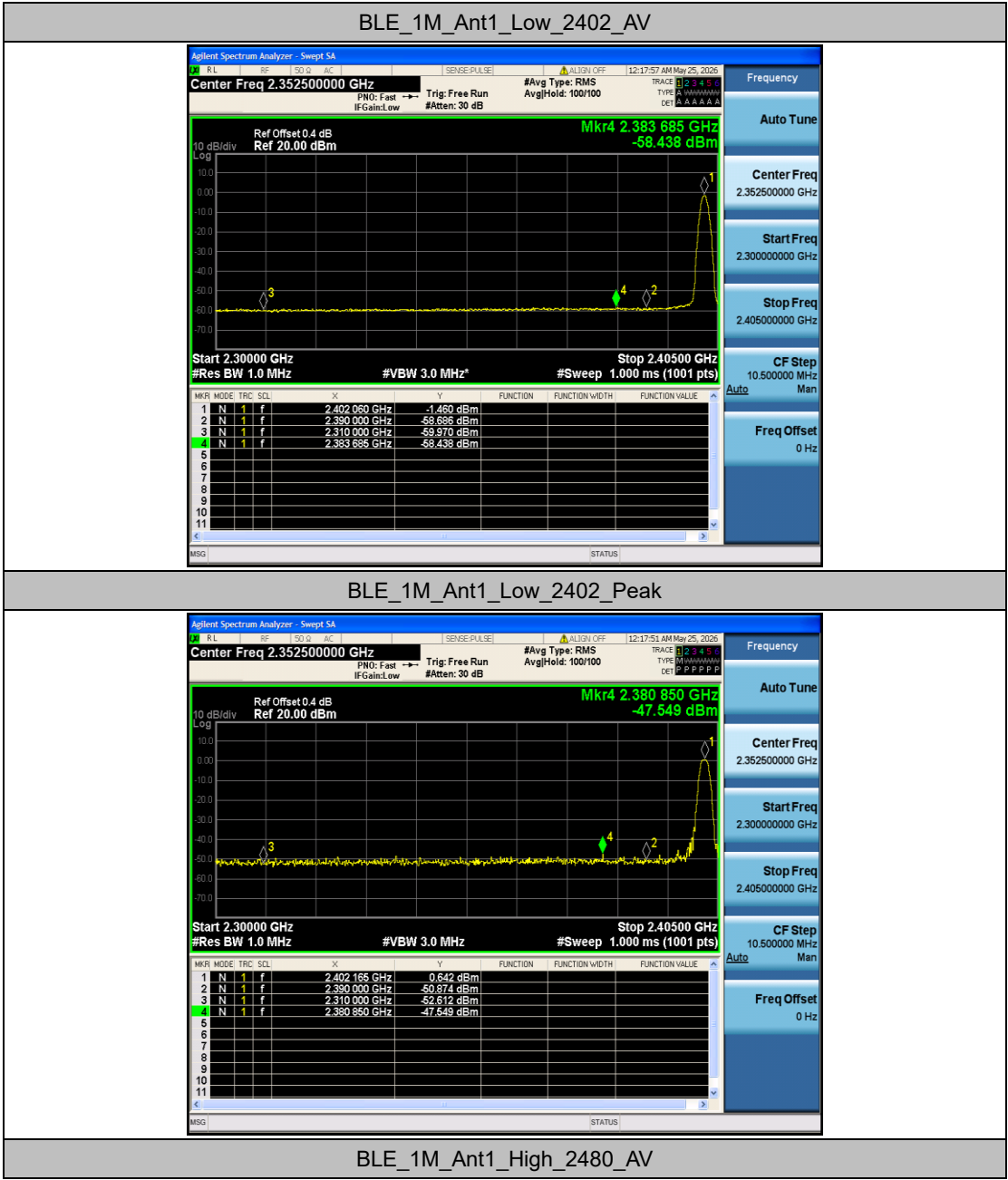
Test Result

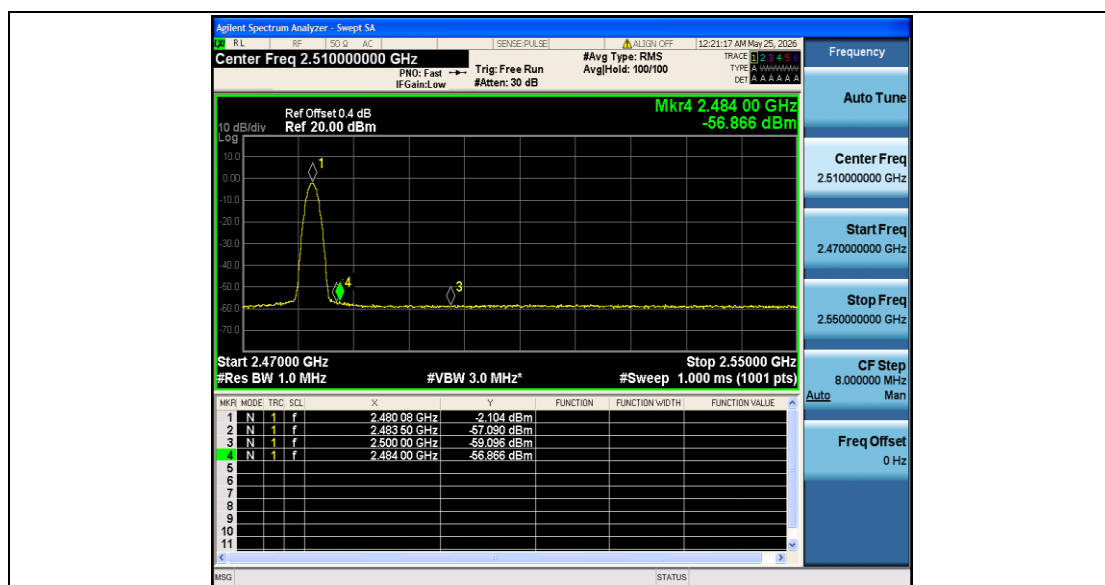
TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-59.97	4.21	1.80	41.24	≤54	PASS
				AV	2383.685	-58.44	4.21	1.80	42.77	≤54	PASS
				AV	2390.000	-58.69	4.21	1.80	42.52	≤54	PASS
				Peak	2310.000	-52.61	4.21	0.00	46.8	≤74	PASS
				Peak	2380.850	-47.55	4.21	0.00	51.86	≤74	PASS
				Peak	2390.000	-50.87	4.21	0.00	48.54	≤74	PASS
		High	2480	AV	2483.500	-57.09	4.21	1.80	44.12	≤54	PASS
				AV	2484.000	-56.87	4.21	1.80	44.34	≤54	PASS
				AV	2500.000	-59.1	4.21	1.80	42.11	≤54	PASS
				Peak	2483.500	-48.54	4.21	0.00	50.87	≤74	PASS
				Peak	2484.640	-42.57	4.21	0.00	56.84	≤74	PASS
				Peak	2500.000	-51.78	4.21	0.00	47.63	≤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

