

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: SwitchBot Robot Vacuum K11+ Auto Empty Station

Test Model: W3001000

Environmental Conditions

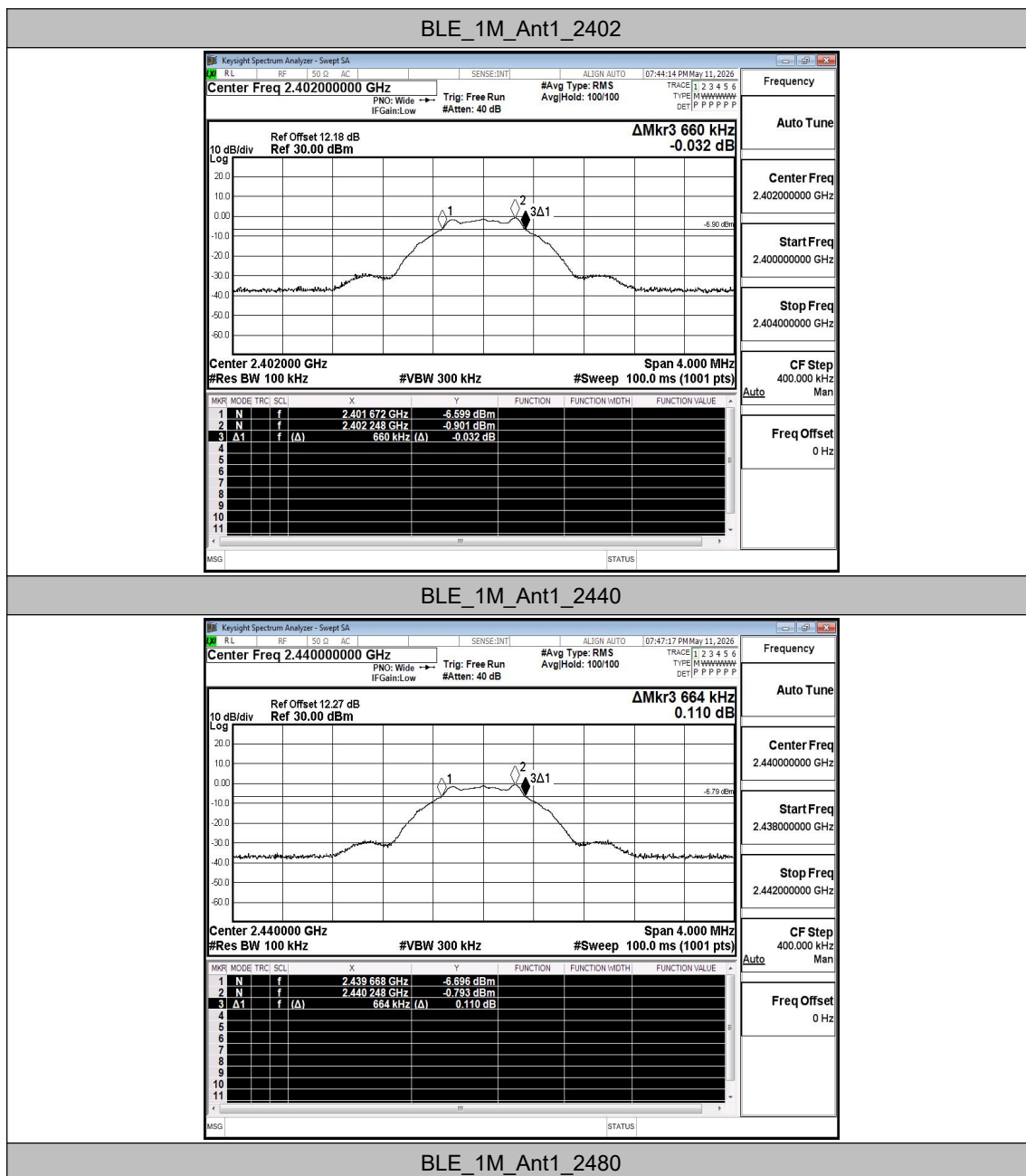
Temperature:	23.8°C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang Hai
Supervised by:	Fengliu Tang

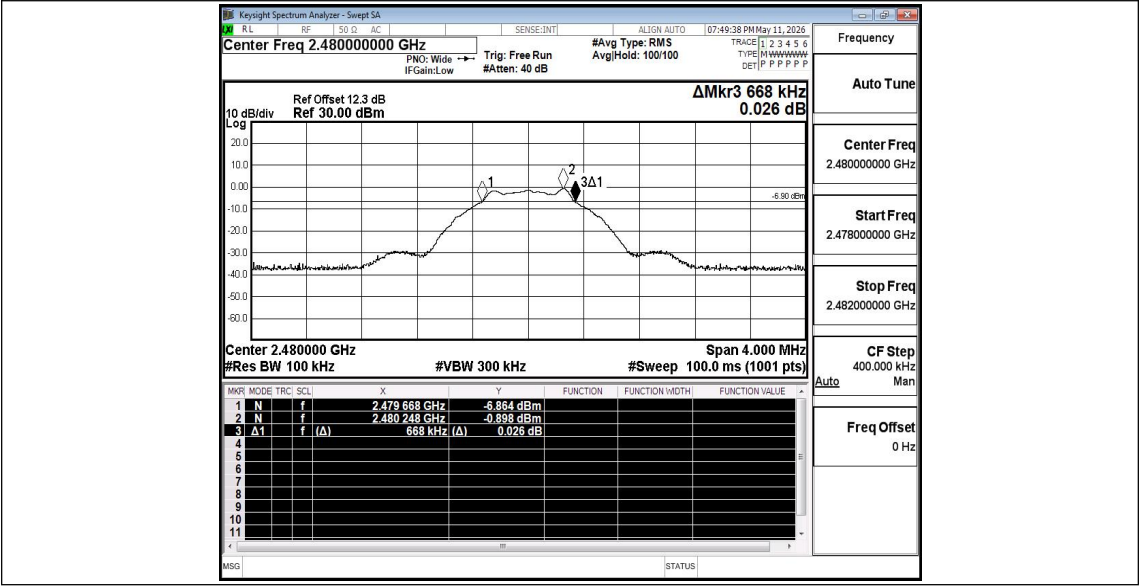
A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.660	2401.672	2402.332	0.5	PASS
		2440	0.664	2439.668	2440.332	0.5	PASS
		2480	0.668	2479.668	2480.336	0.5	PASS

Test Graphs



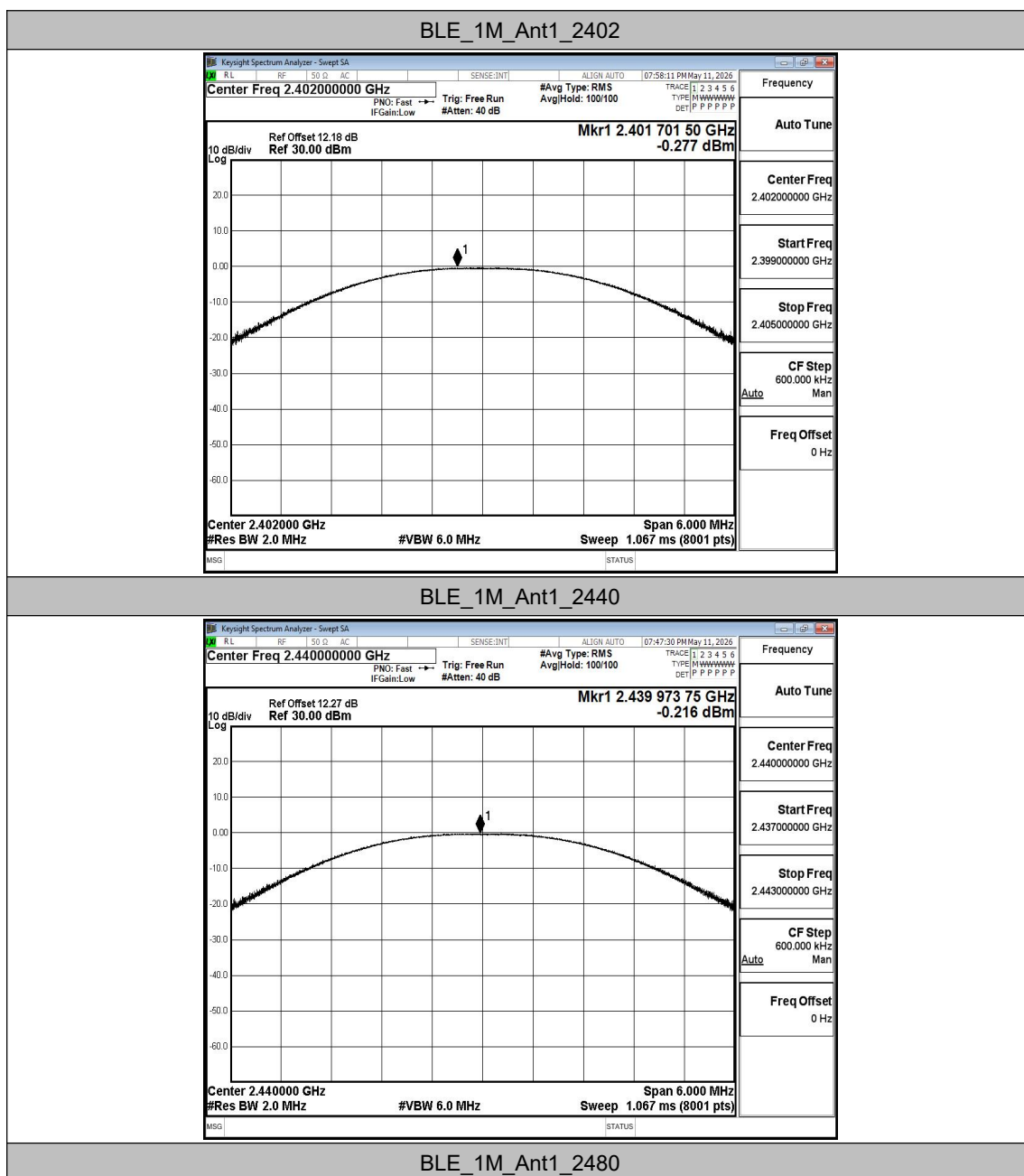


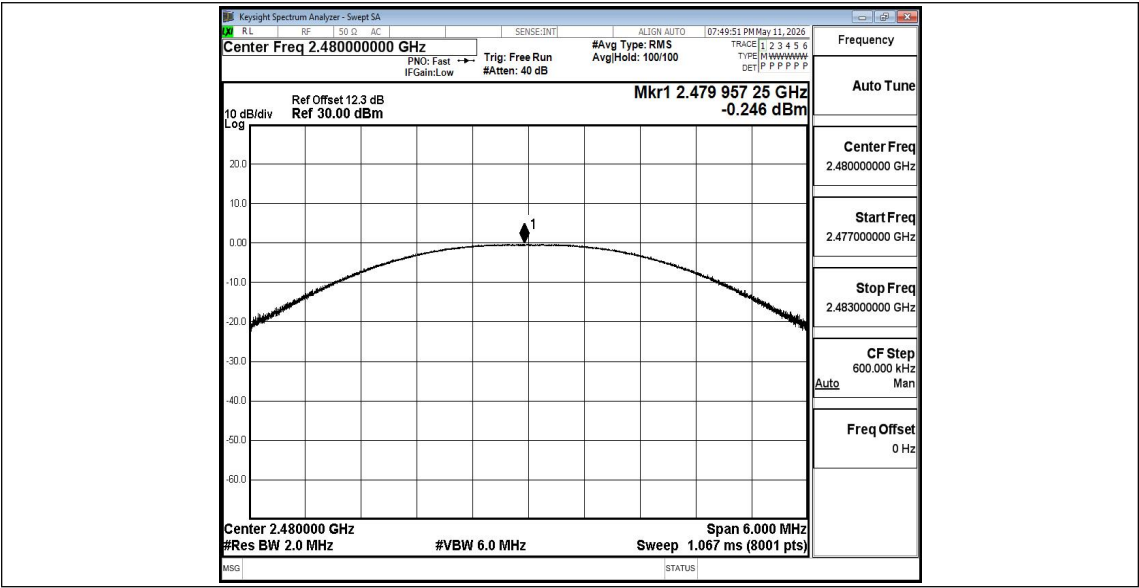
A.2 Maximum Peak Conducted Output Power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.28	≤30	PASS
		2440	-0.22	≤30	PASS
		2480	-0.25	≤30	PASS

Test Graphs Peak



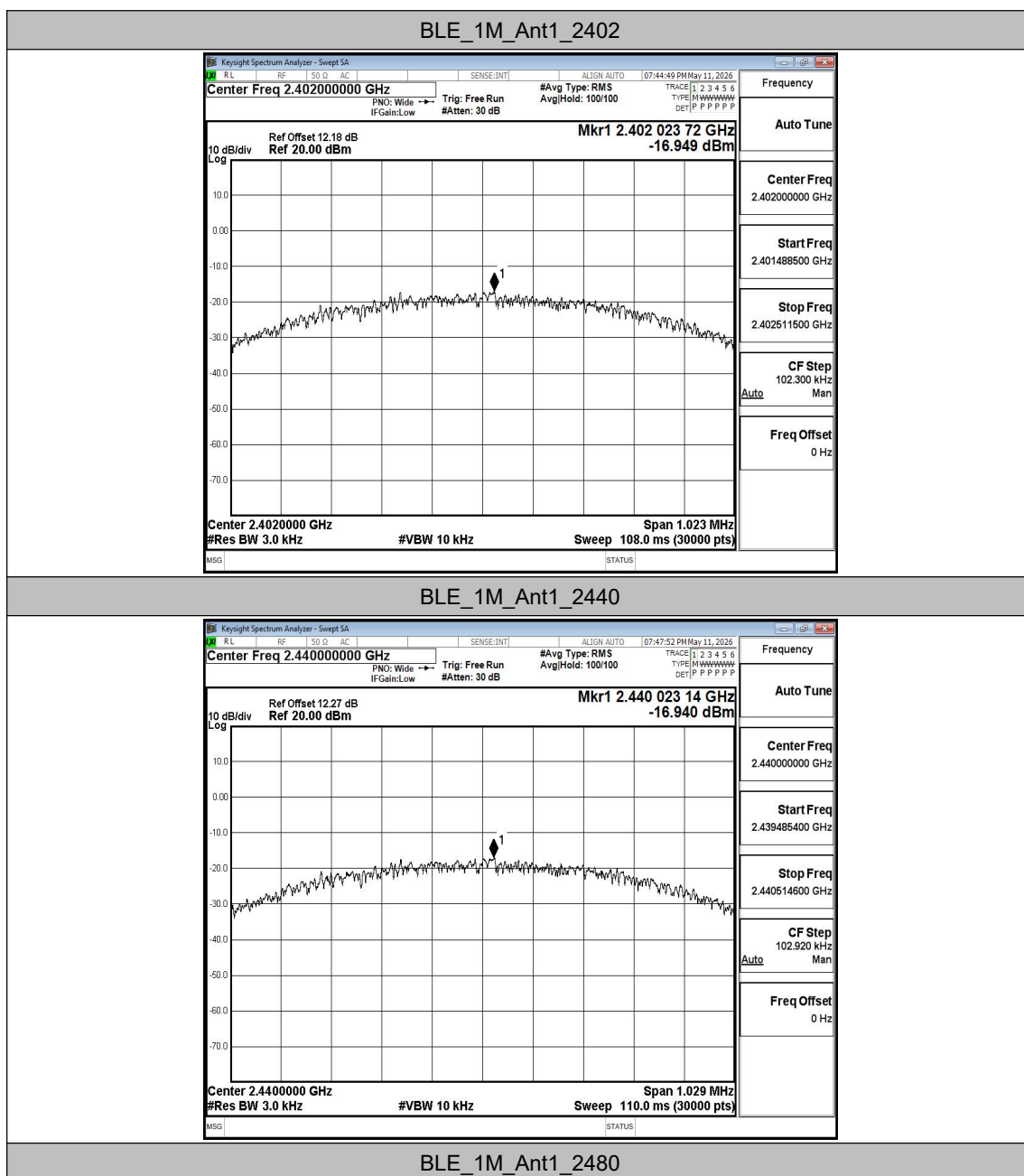


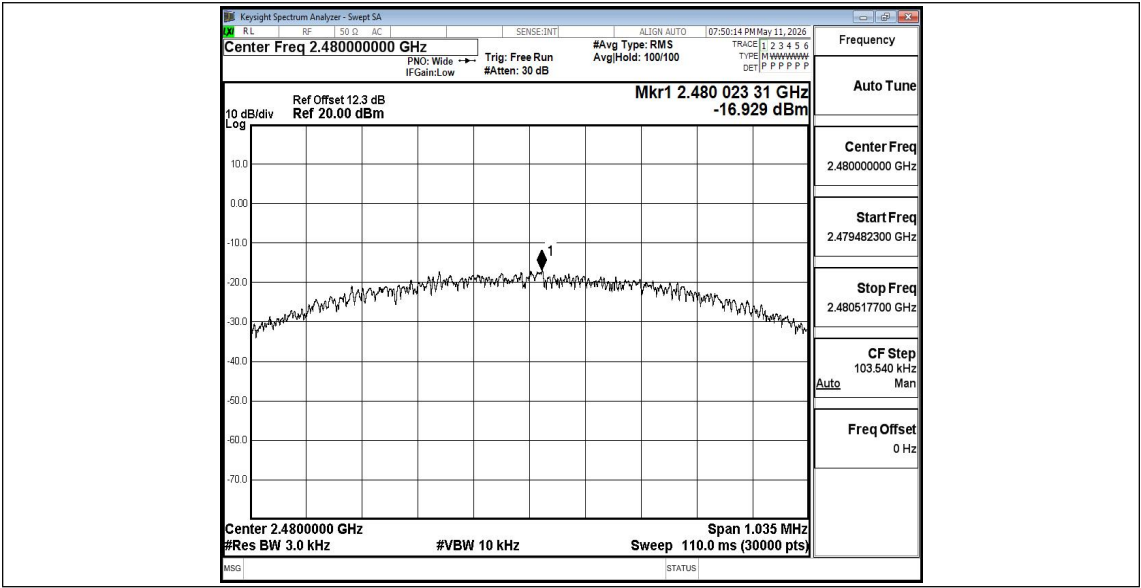
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.95	≤8.00	PASS
		2440	-16.94	≤8.00	PASS
		2480	-16.93	≤8.00	PASS

Test Graphs



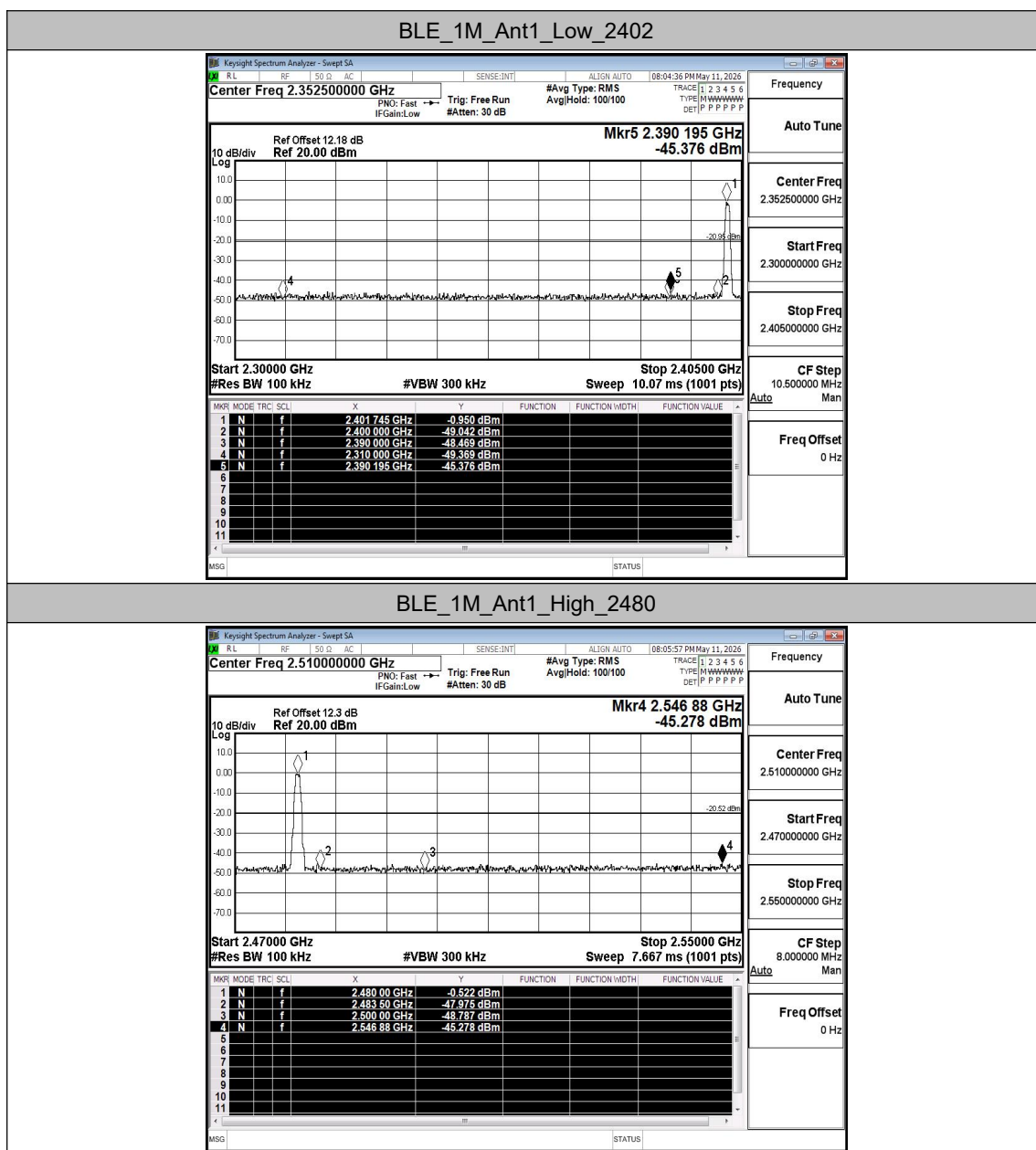


A.4 Band edge measurements

Test Result

TestMode	Antenna	Channel	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.95	-45.38	≤-20.95	PASS
		High	2480	-0.52	-45.28	≤-20.52	PASS

Test Graphs

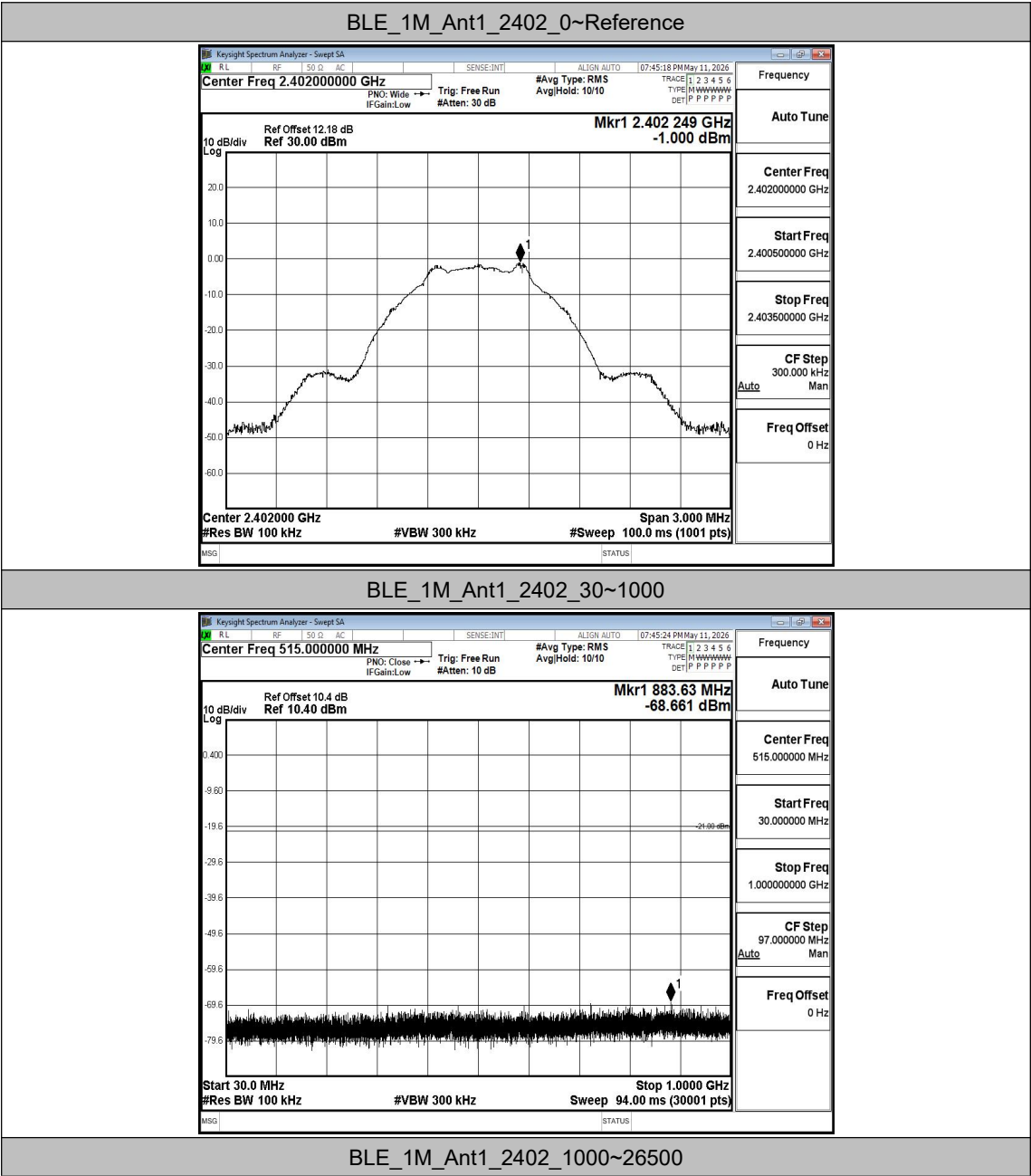


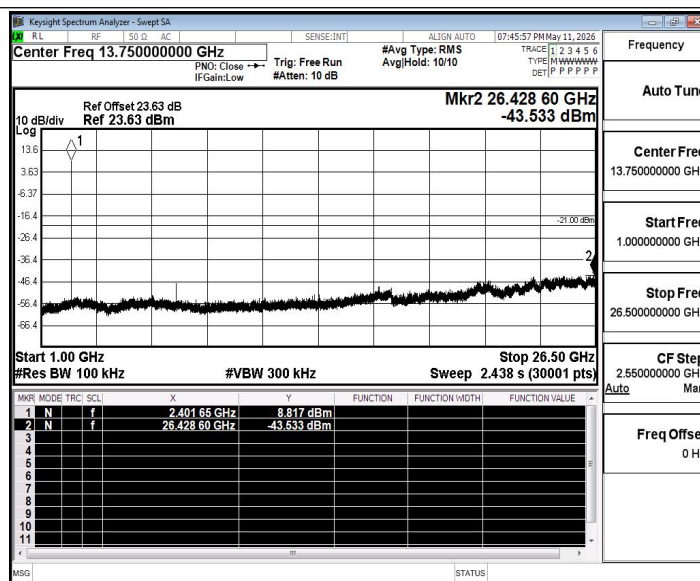
A.5 Conducted Spurious Emission

Test Result

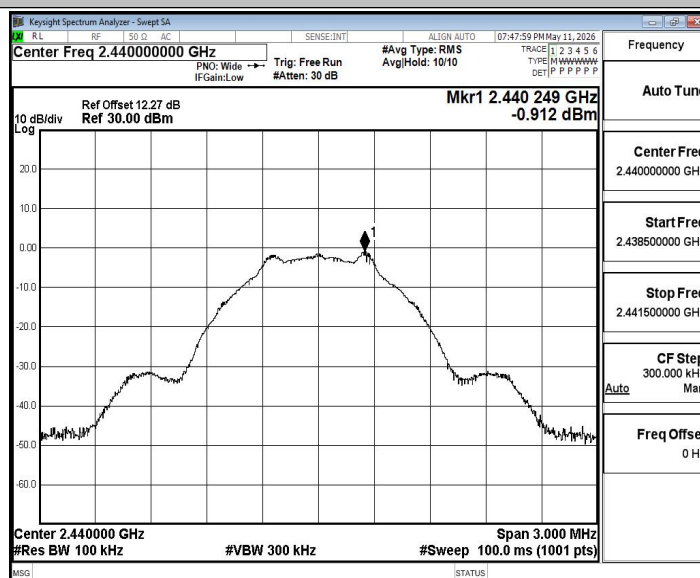
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.00	-1.00	---	PASS
			30~1000	-1.00	-68.66	≤-21	PASS
			1000~26500	-1.00	-43.53	≤-21	PASS
		2440	Reference	-0.91	-0.91	---	PASS
			30~1000	-0.91	-69.41	≤-20.91	PASS
			1000~26500	-0.91	-43.63	≤-20.91	PASS
		2480	Reference	-0.99	-0.99	---	PASS
			30~1000	-0.99	-69.08	≤-20.99	PASS
			1000~26500	-0.99	-43.17	≤-20.99	PASS

Test Graphs

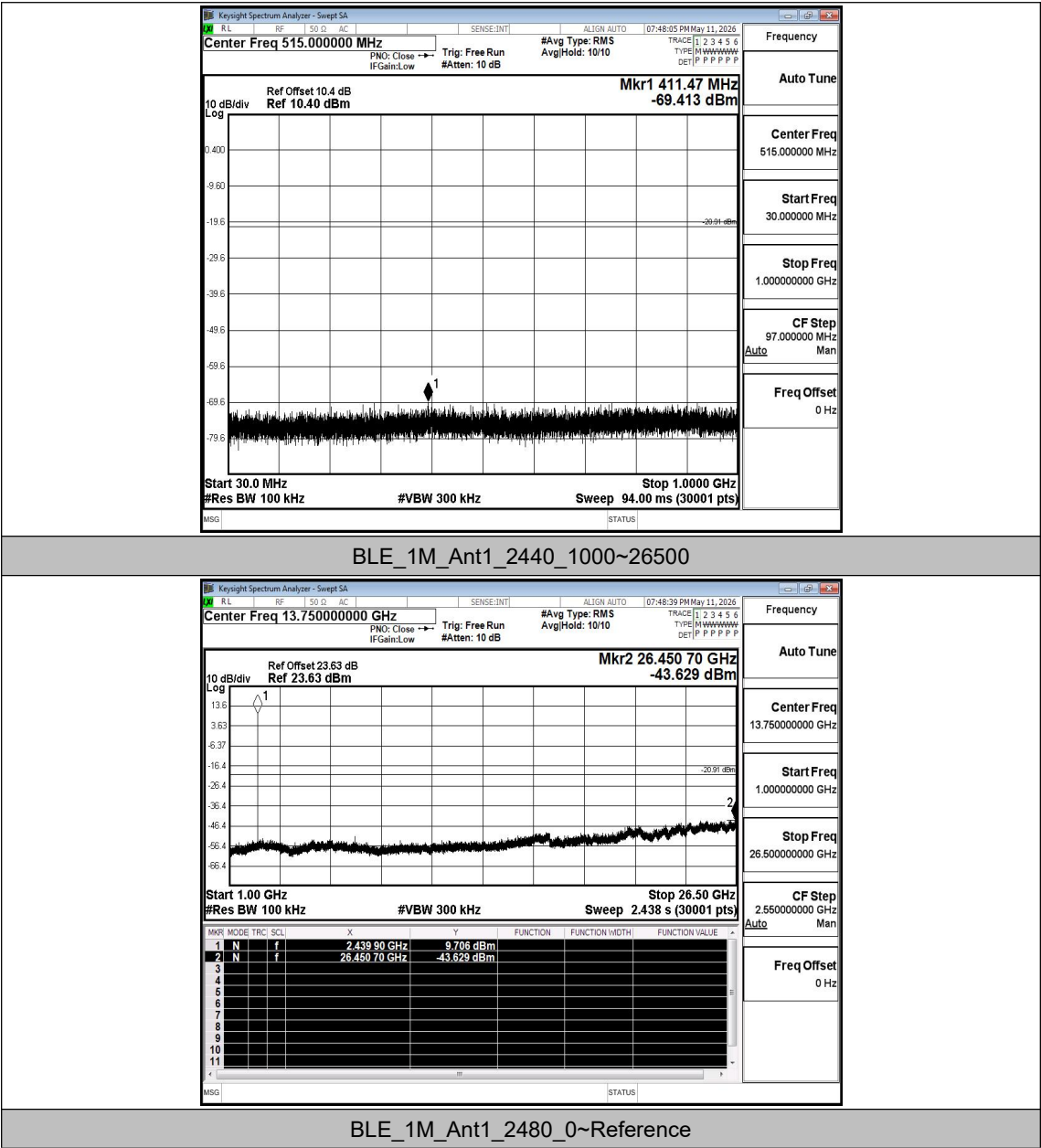


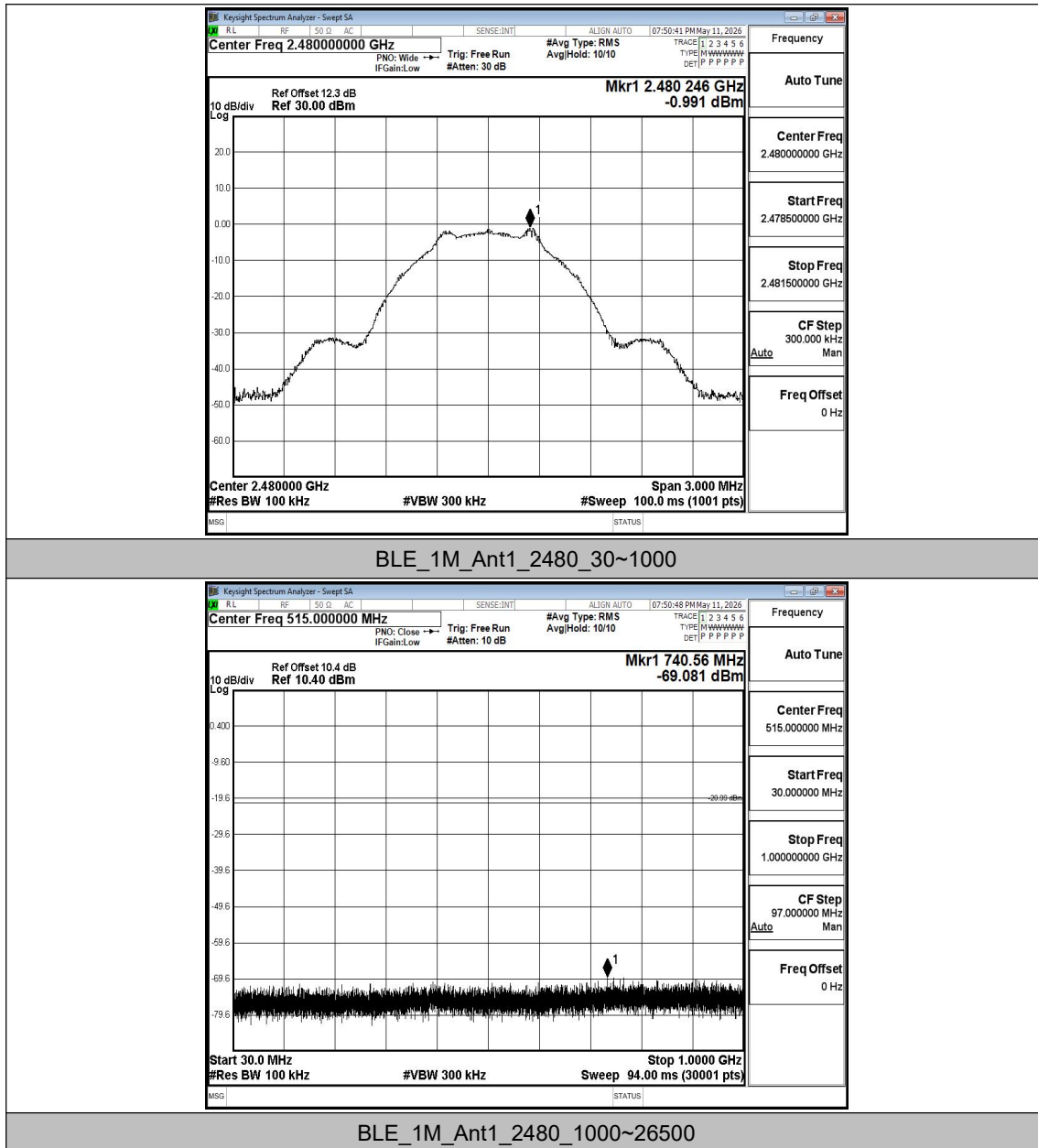


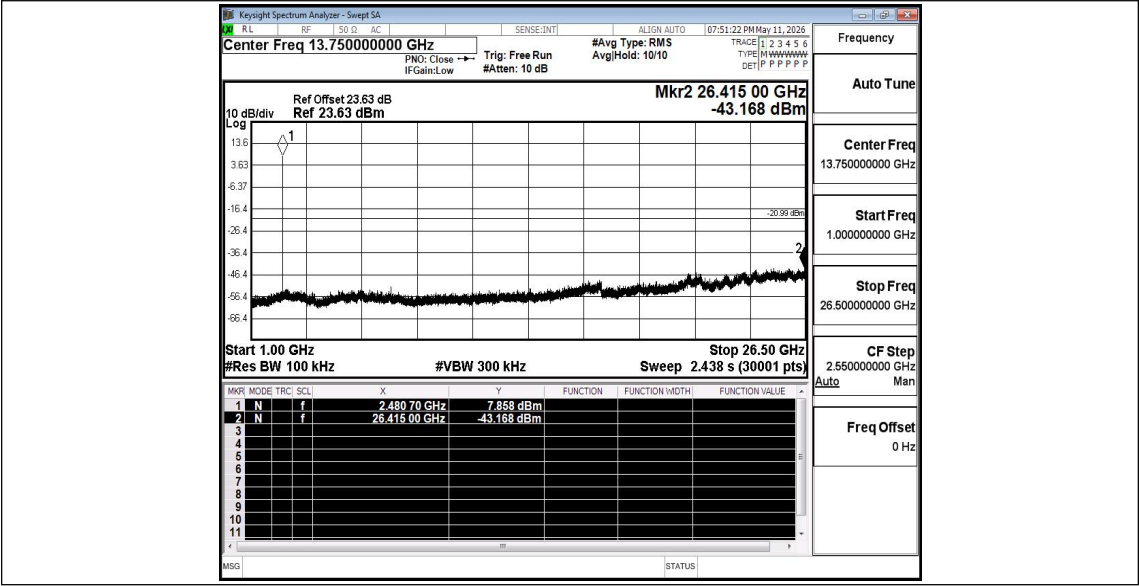
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000





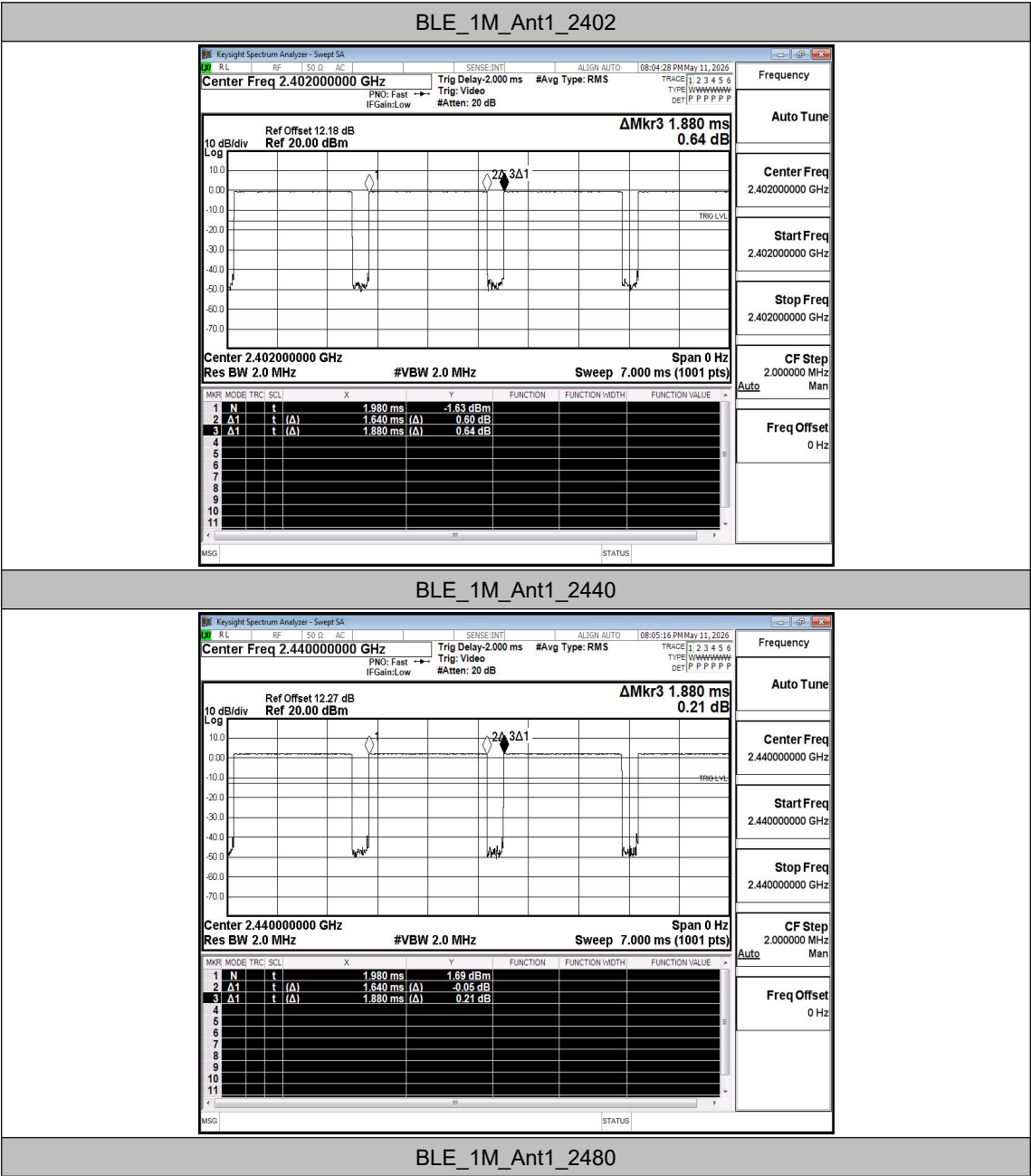


A.6 Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.88	0.8723	87.23	0.59	---	---
		2440	1.64	1.88	0.8723	87.23	0.59	---	---
		2480	1.64	1.88	0.8723	87.23	0.59	---	---

Test Graphs



BLE_1M_Ant1_2440

Keysight Spectrum Analyzer - Swept SA

RF: 150.0 AC SENSE: INT ALIGN: AUTO 08:05:16 PM May 11, 2026

Center Freq 2.440000000 GHz Trig Delay: 2.000 ms #Avg Type: RMS

PNO: Fast IF Gain: Low Trig: Video #Atten: 20 dB

Ref Offset 12.27 dB Δ Mkr3 1.880 ms

Ref 20.00 dBm 0.21 dB

10 dB/div

Log

Center 2.440000000 GHz Span 0 Hz

Res BW 2.0 MHz #VBW 2.0 MHz Sweep 7.000 ms (1001 pts)

Auto

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.440000000 GHz

CF Step 2.000000 MHz

Man

Freq Offset 0 Hz

MSG STATUS

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	t		1.980 ms	1.69 dBm			
2	Δ 1	t	(Δ)	1.640 ms (Δ)	-0.05 dB			
3	Δ 1	t	(Δ)	1.880 ms (Δ)	0.21 dB			
4								
5								
6								
7								
8								
9								
10								
11								

BLE_1M_Ant1_2480

A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.56	≤-44.91	3.12	0.59	42.35	≤54	PASS
				AV	2345.990	-56.09	≤-44.91	3.12	0.59	42.82	≤54	PASS
				AV	2390.000	-57.17	≤-44.91	3.12	0.59	41.74	≤54	PASS
				Peak	2310.000	-48.71	≤-24.32	3.12	0.00	49.61	≤74	PASS
				Peak	2376.020	-45.73	≤-24.32	3.12	0.00	52.59	≤74	PASS
				Peak	2390.000	-48.65	≤-24.32	3.12	0.00	49.67	≤74	PASS
		High	2480	AV	2483.500	-56.49	≤-44.91	3.12	0.59	42.42	≤54	PASS
				AV	2488.080	-55.7	≤-44.91	3.12	0.59	43.21	≤54	PASS
				AV	2500.000	-56.46	≤-44.91	3.12	0.59	42.45	≤54	PASS
				Peak	2483.500	-48.46	≤-24.32	3.12	0.00	49.86	≤74	PASS
				Peak	2483.680	-45.83	≤-24.32	3.12	0.00	52.49	≤74	PASS
				Peak	2500.000	-46.91	≤-24.32	3.12	0.00	51.41	≤74	PASS

Note:

1. The Antenna Gain is compensated in the graph.
2. 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

