

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: BT RCU

Test Model: WH-323A

Environmental Conditions

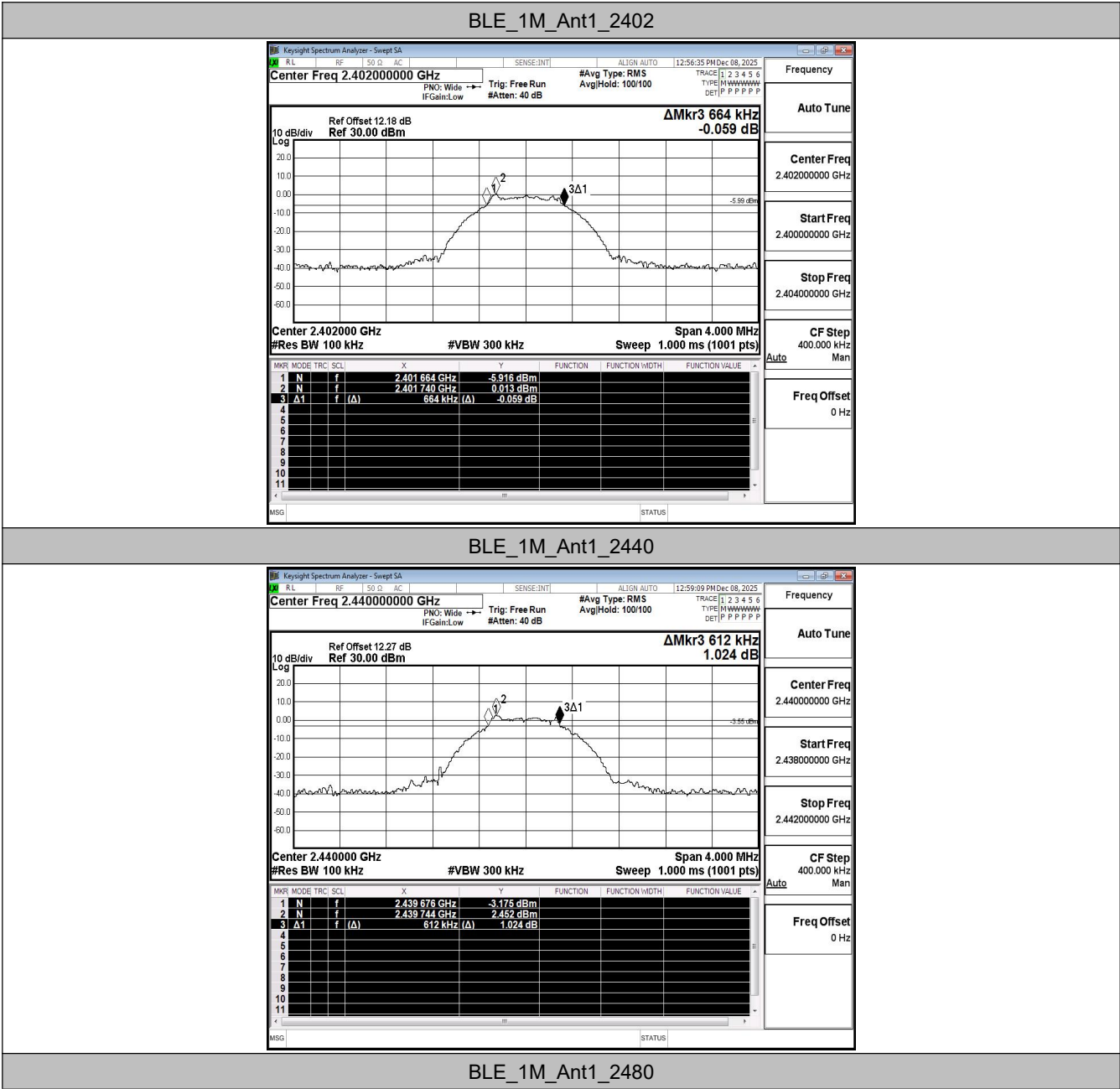
Temperature:	23.8°C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

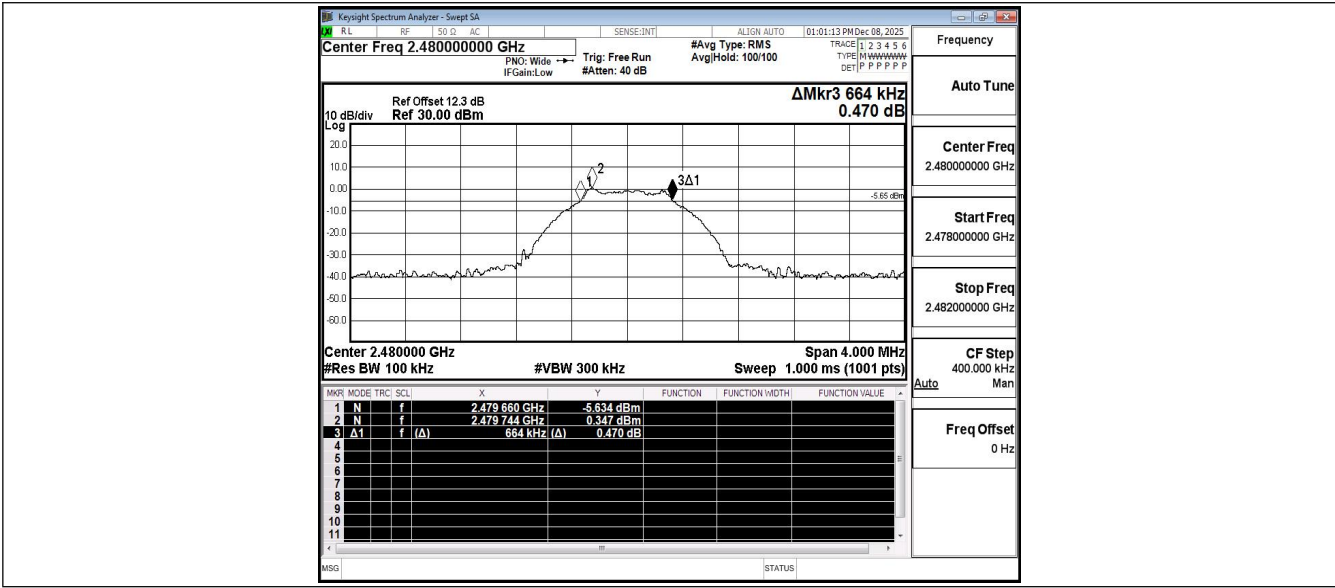
A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.664	2402.328	0.5	PASS
		2440	0.612	2439.676	2440.288	0.5	PASS
		2480	0.664	2479.660	2480.324	0.5	PASS

Test Graphs



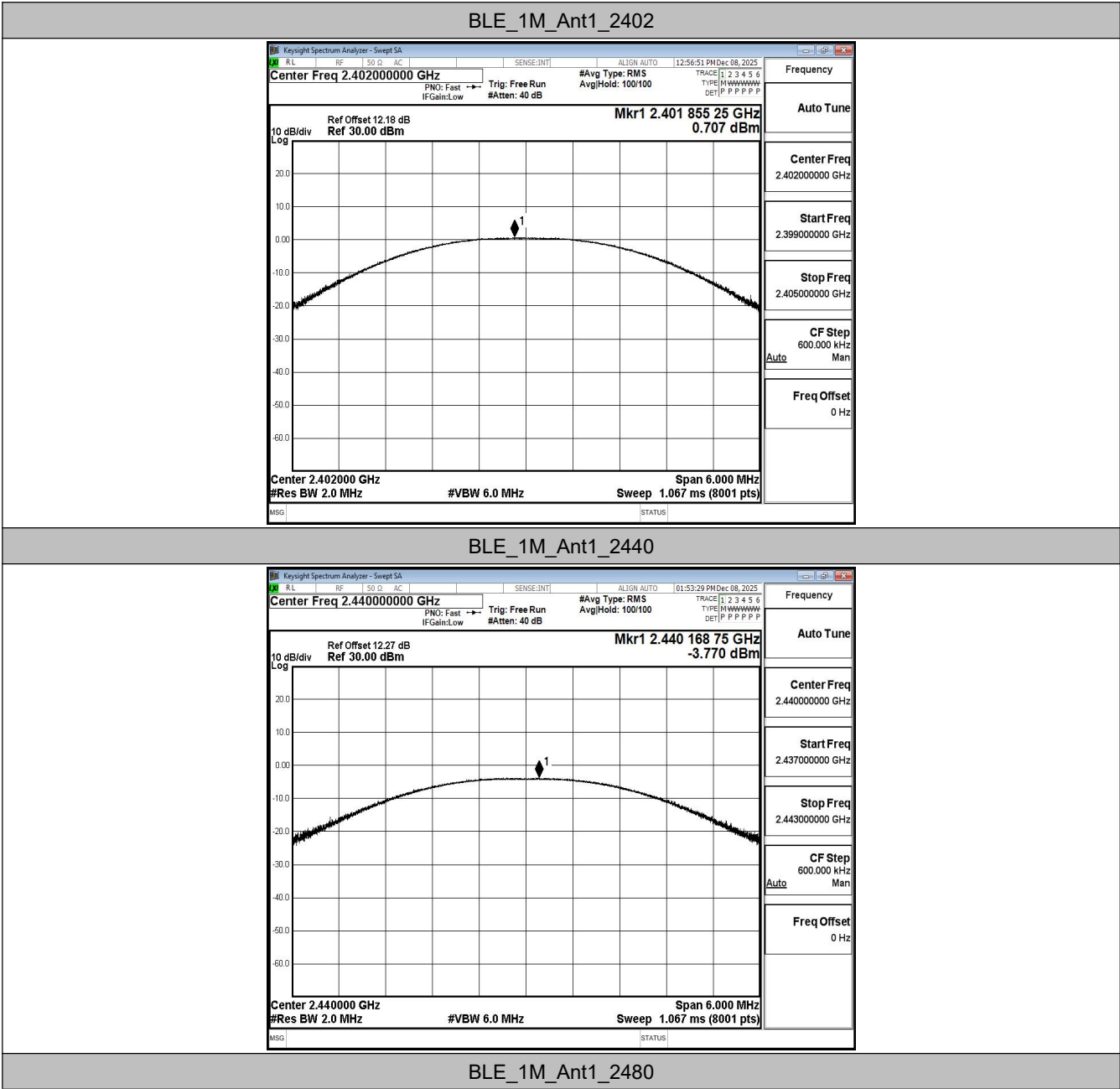


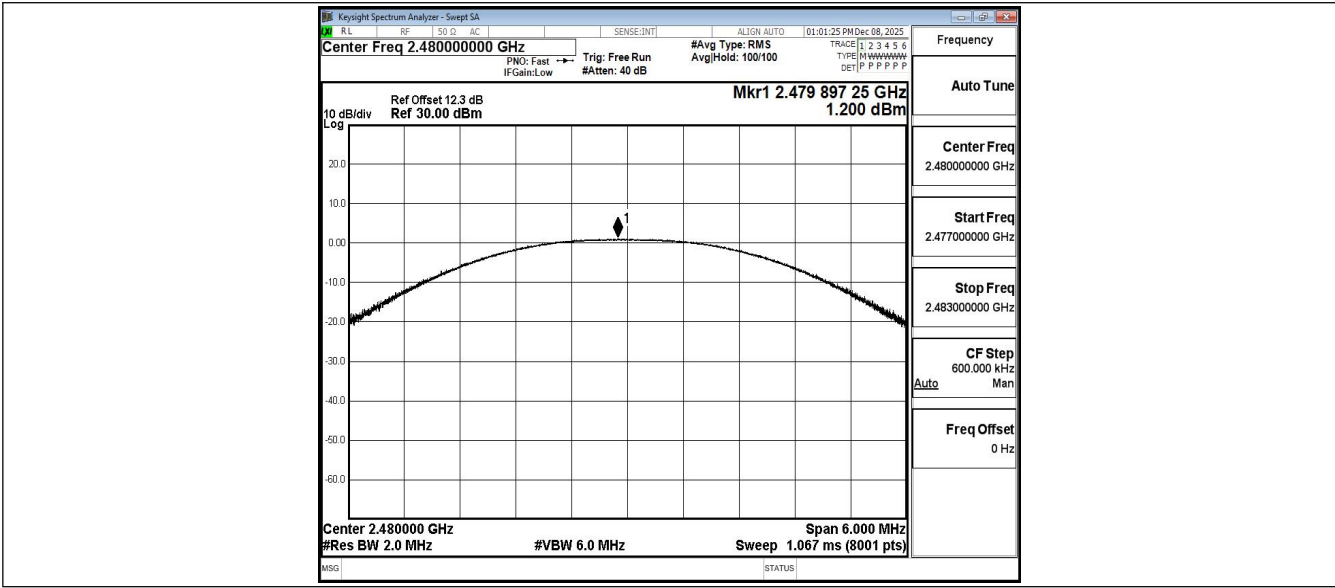
A.2 Maximum Peak Conducted Output Power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.71	≤30	PASS
		2440	-3.77	≤30	PASS
		2480	1.20	≤30	PASS

Test Graphs Peak



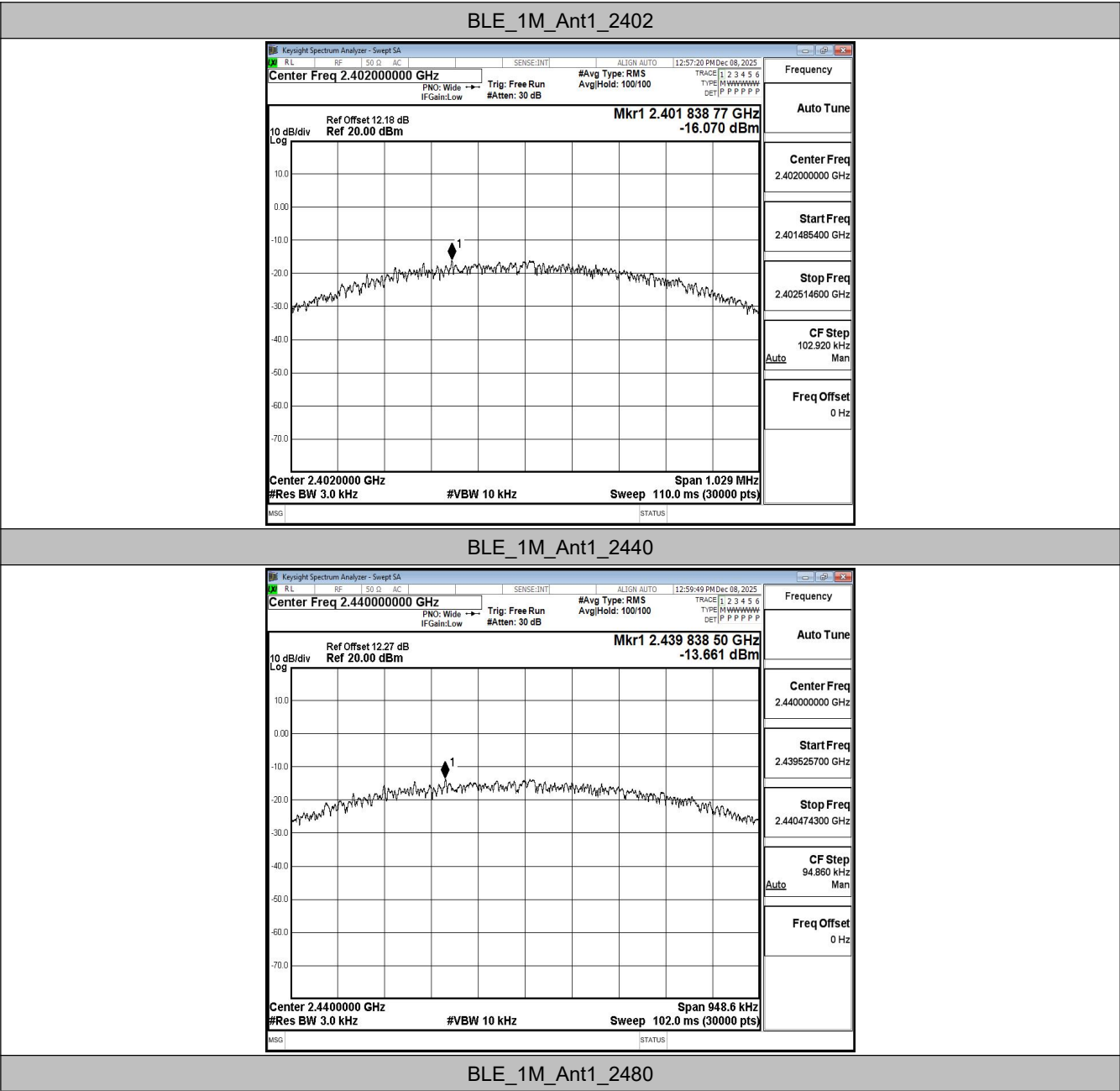


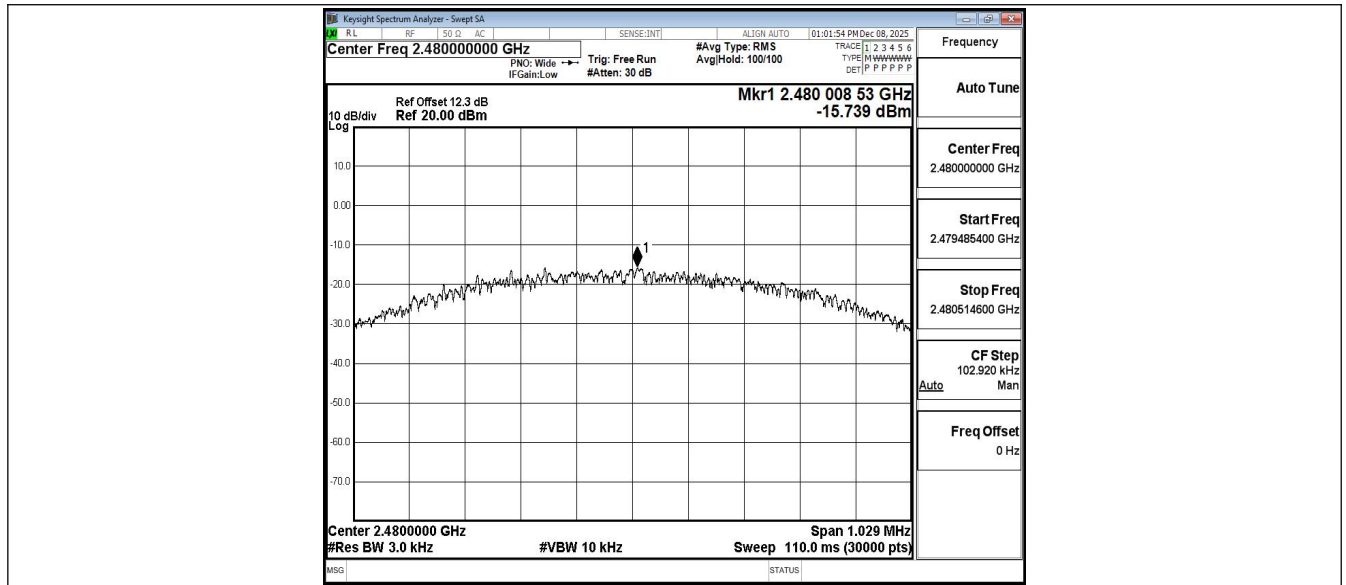
A.3 Maximum power spectral density

Test Result

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.07	≤8.00	PASS
		2440	-13.66	≤8.00	PASS
		2480	-15.74	≤8.00	PASS

Test Graphs



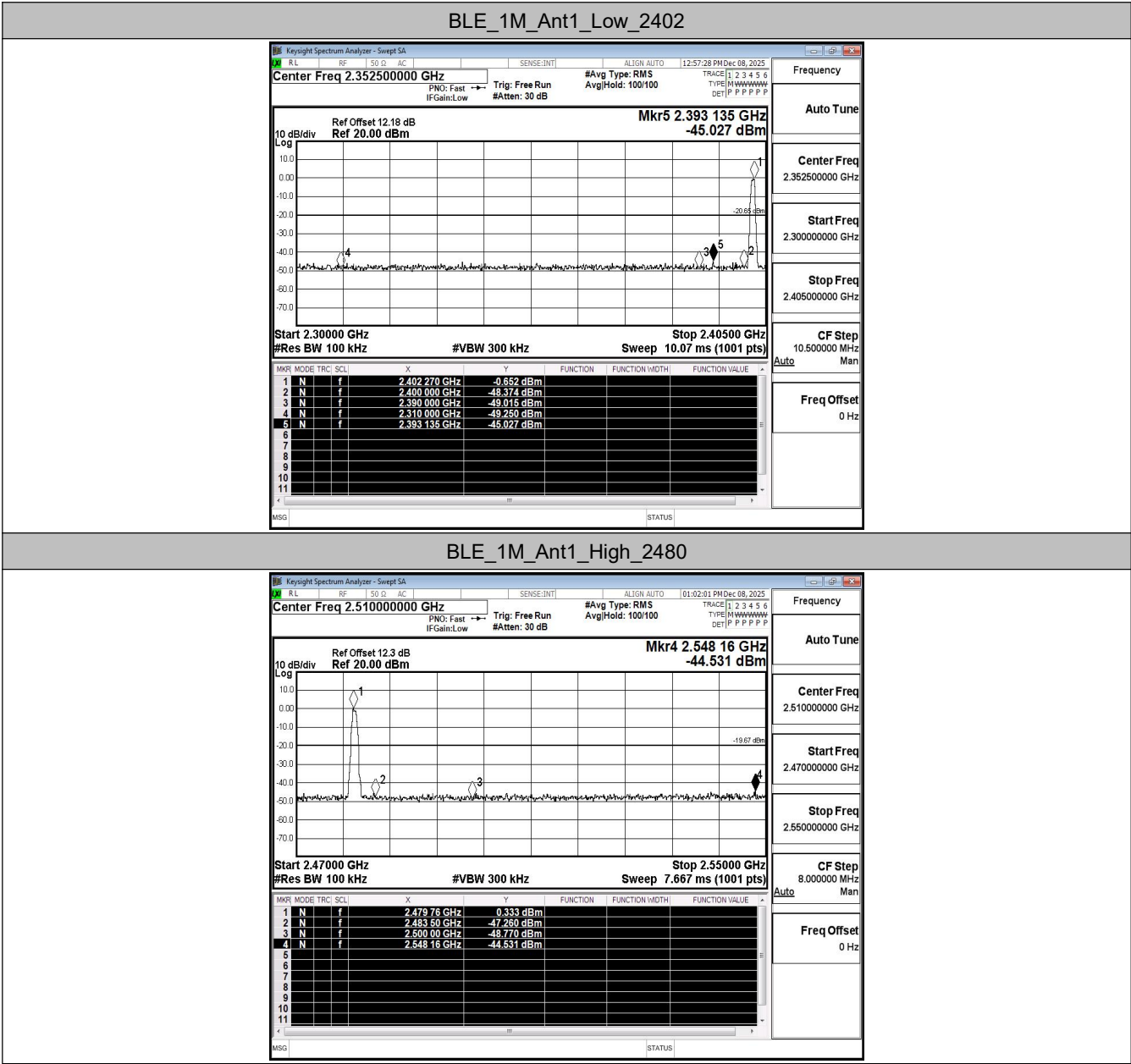


A.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.65	-45.03	≤-20.65	PASS
		High	2480	0.33	-44.53	≤-19.67	PASS

Test Graphs

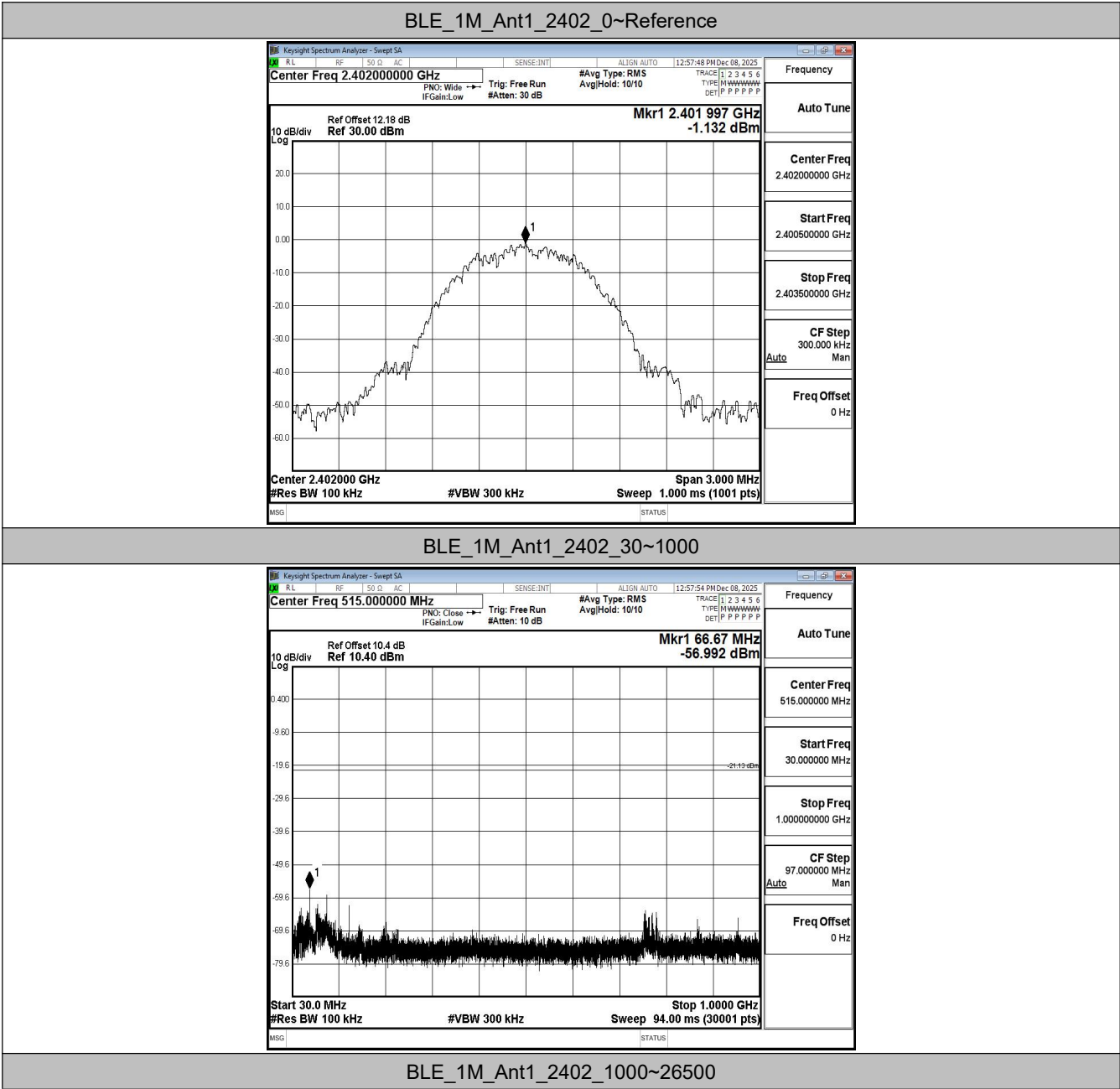


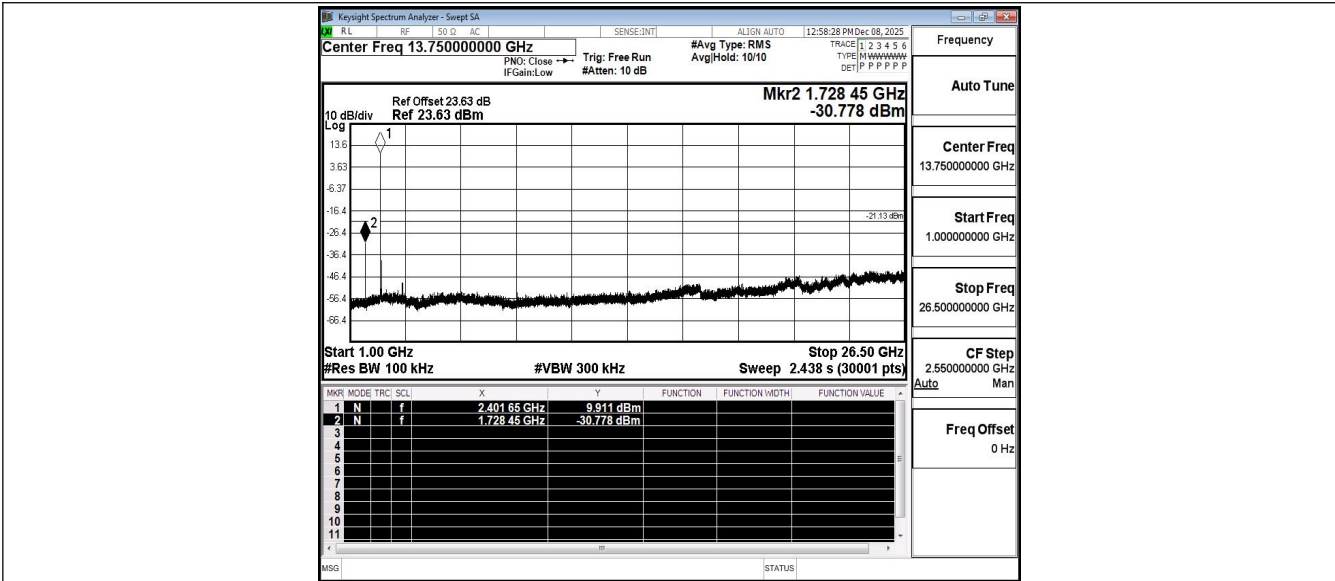
A.5 Conducted Spurious Emission

Test Result

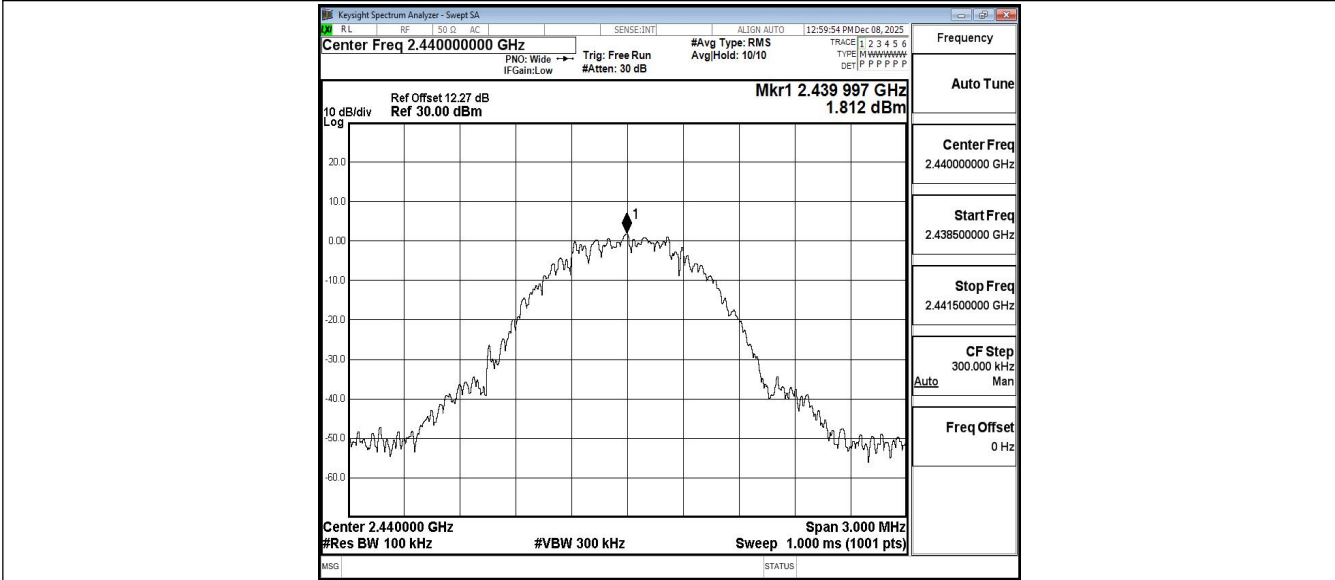
TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.13	-1.13	---	PASS
			30~1000	-1.13	-56.99	≤-21.13	PASS
			1000~26500	-1.13	-30.78	≤-21.13	PASS
		2440	Reference	1.81	1.81	---	PASS
			30~1000	1.81	-58.25	≤-18.19	PASS
			1000~26500	1.81	-43.09	≤-18.19	PASS
		2480	Reference	-0.79	-0.79	---	PASS
			30~1000	-0.79	-57.44	≤-20.79	PASS
			1000~26500	-0.79	-39.63	≤-20.79	PASS

Test Graphs

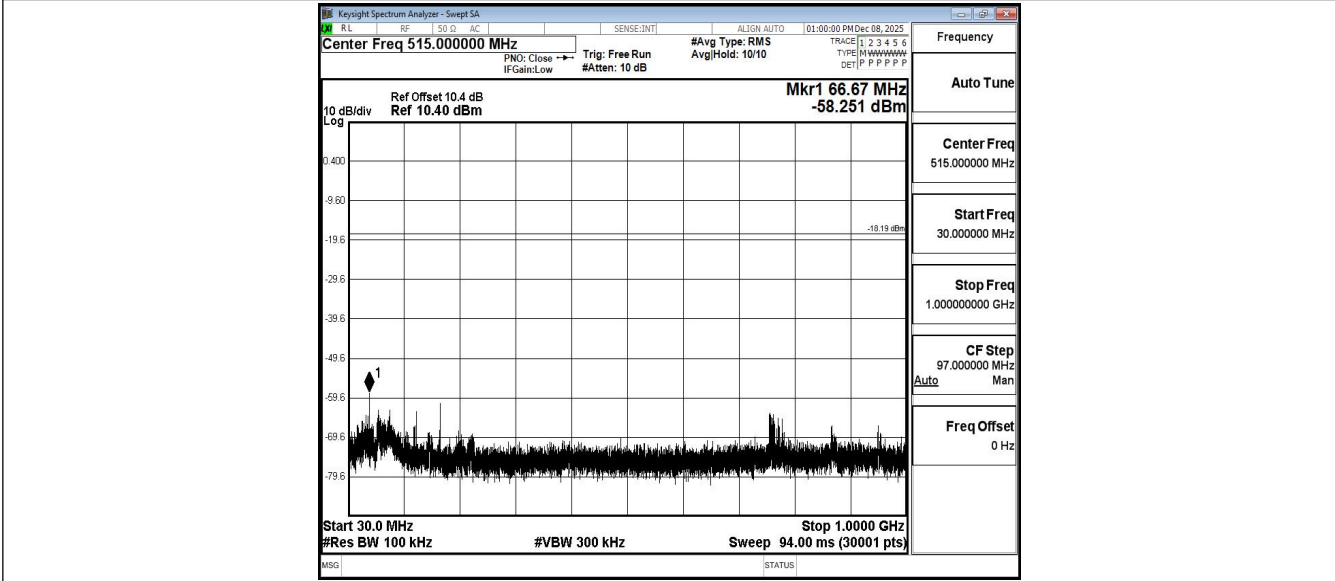


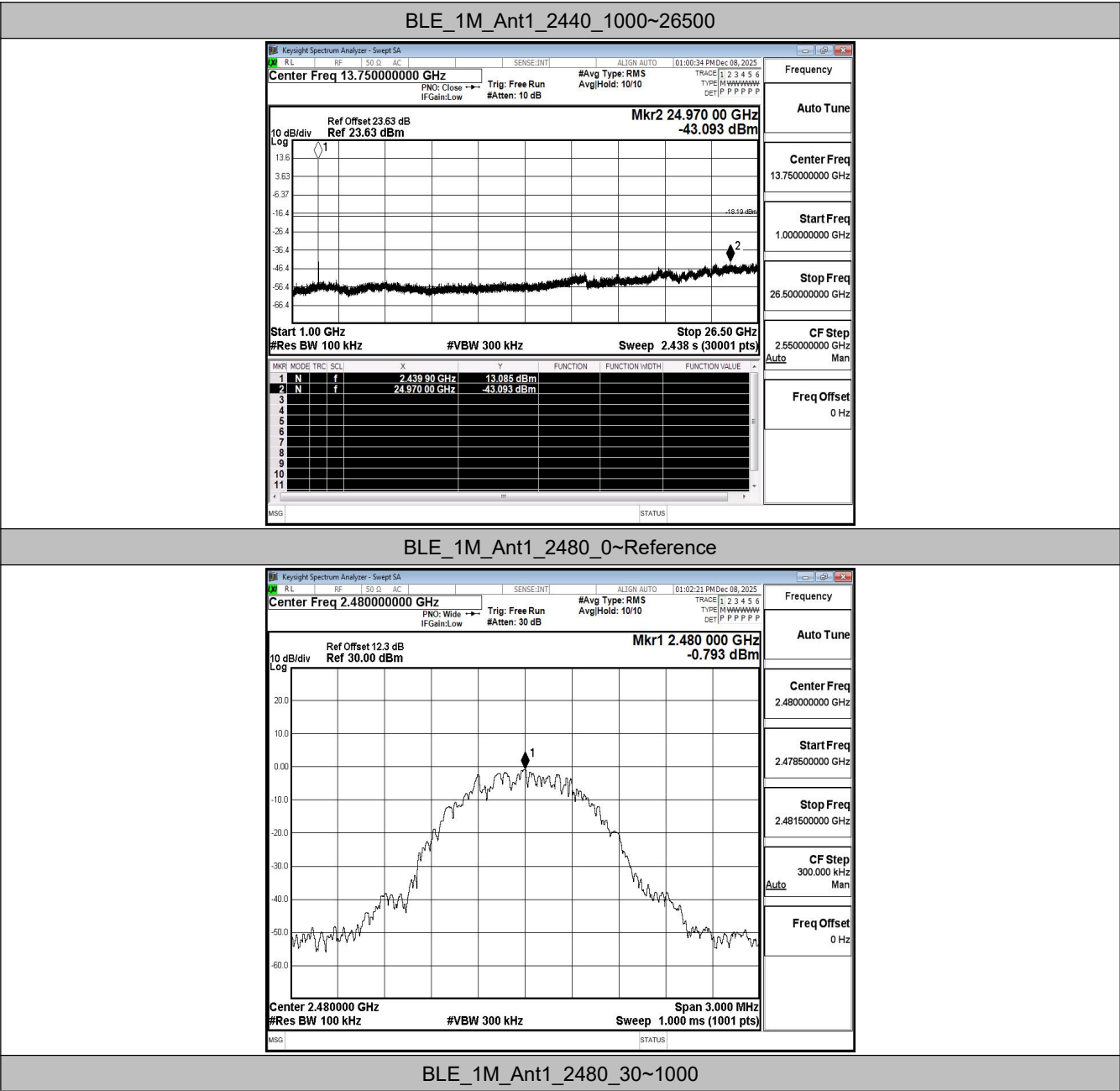


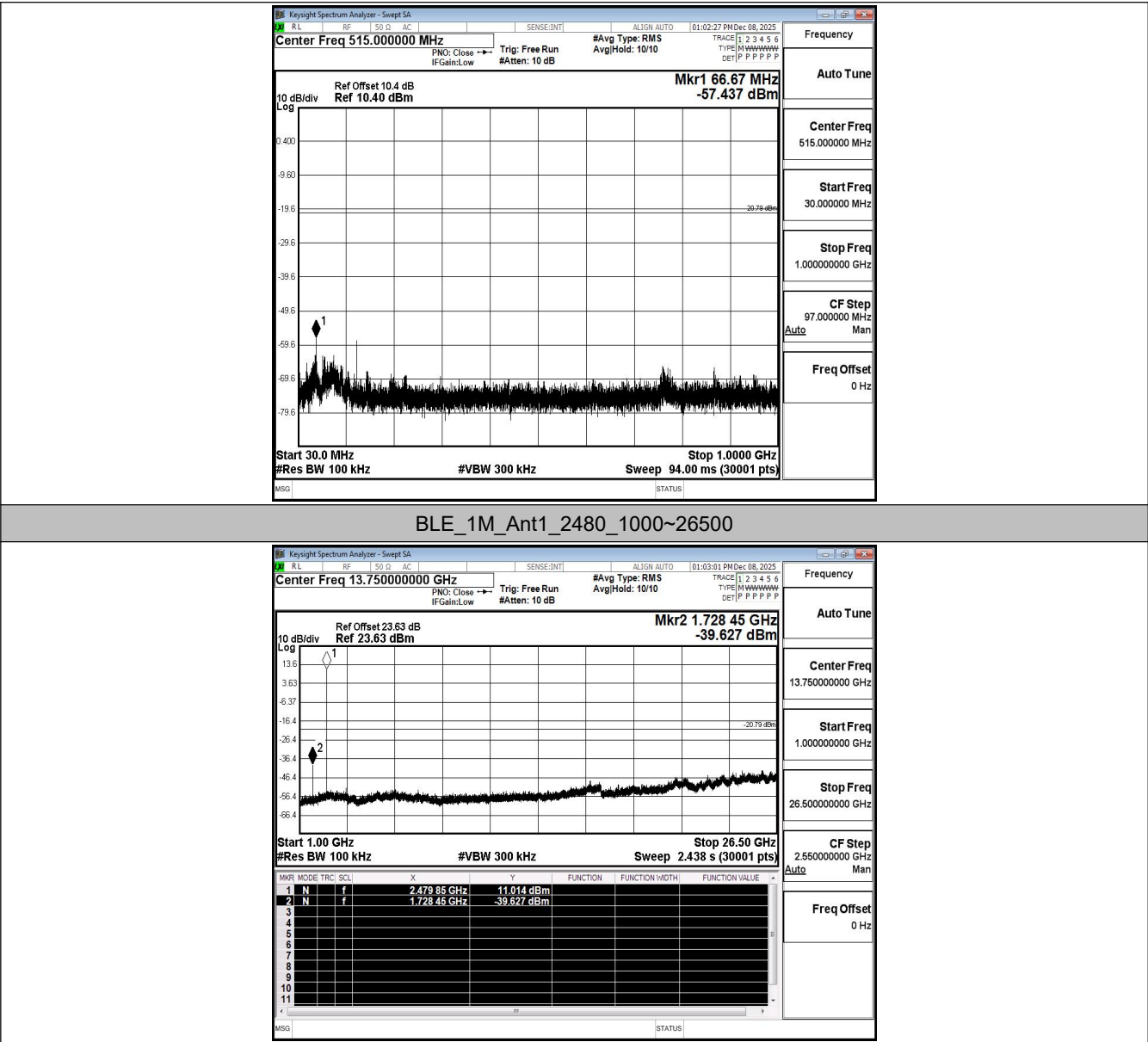
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000





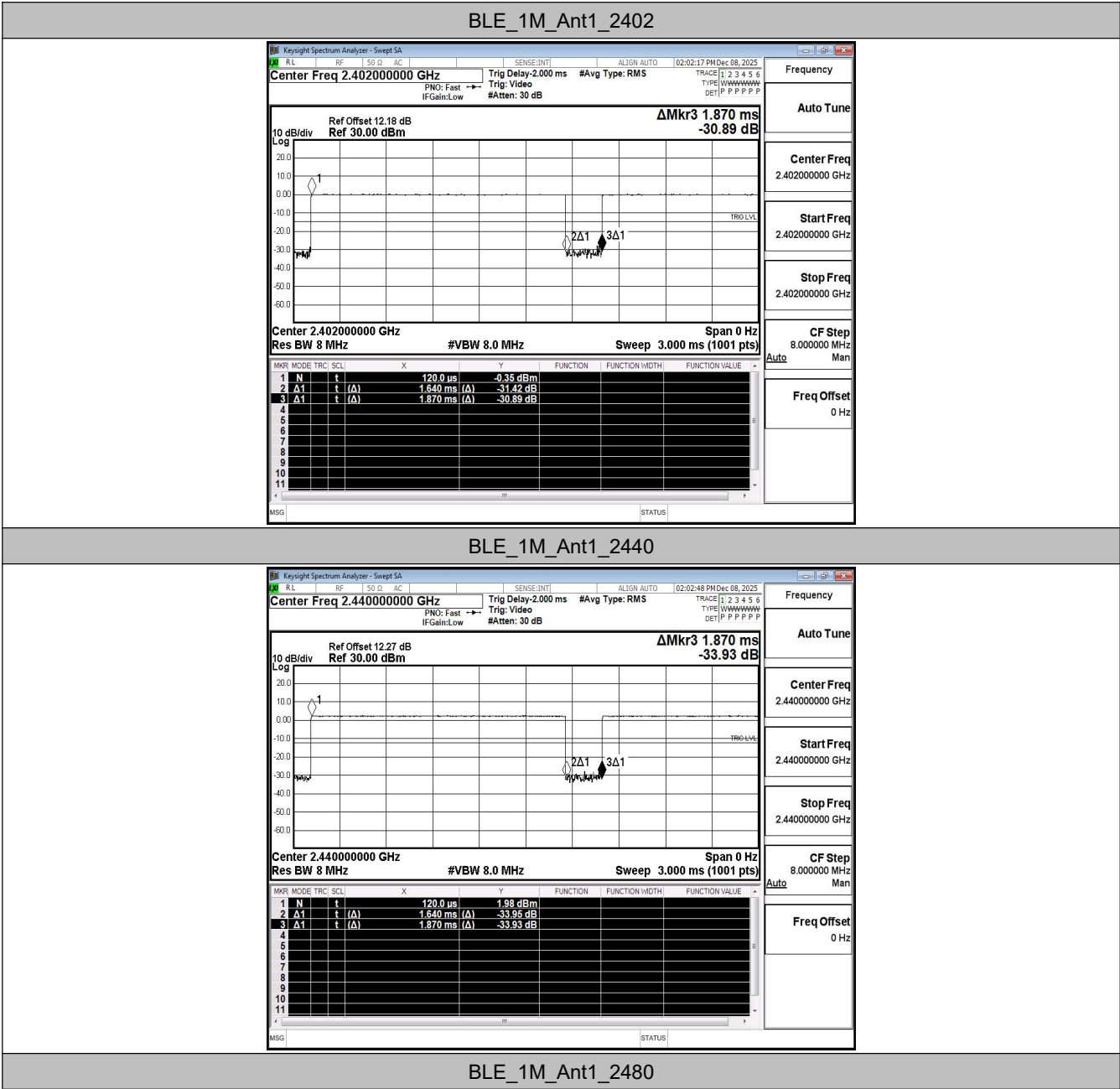


A.6 Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	1.64	1.87	0.8770	87.70	0.57	---	---
		2440	1.64	1.87	0.8770	87.70	0.57	---	---
		2480	1.64	1.88	0.8723	87.23	0.59	---	---

Test Graphs



BLE_1M_Ant1_2440

KeySight Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Ref Offset 12.27 dB
Ref 30.00 dBm

10 dB/div

Log

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

Center 2.440000000 GHz

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 3.000 ms (1001 pts)

1 N t 120.0 μ s 1.98 dBm

2 Δ 1 t (Δ) 1.640 ms (Δ) -33.95 dB

3 Δ 1 t (Δ) 1.870 ms (Δ) -33.93 dB

4

5

6

7

8

9

10

11

MSG

STATUS

Frequency

Auto Tune

Center Freq
2.440000000 GHz

Start Freq
2.440000000 GHz

Stop Freq
2.440000000 GHz

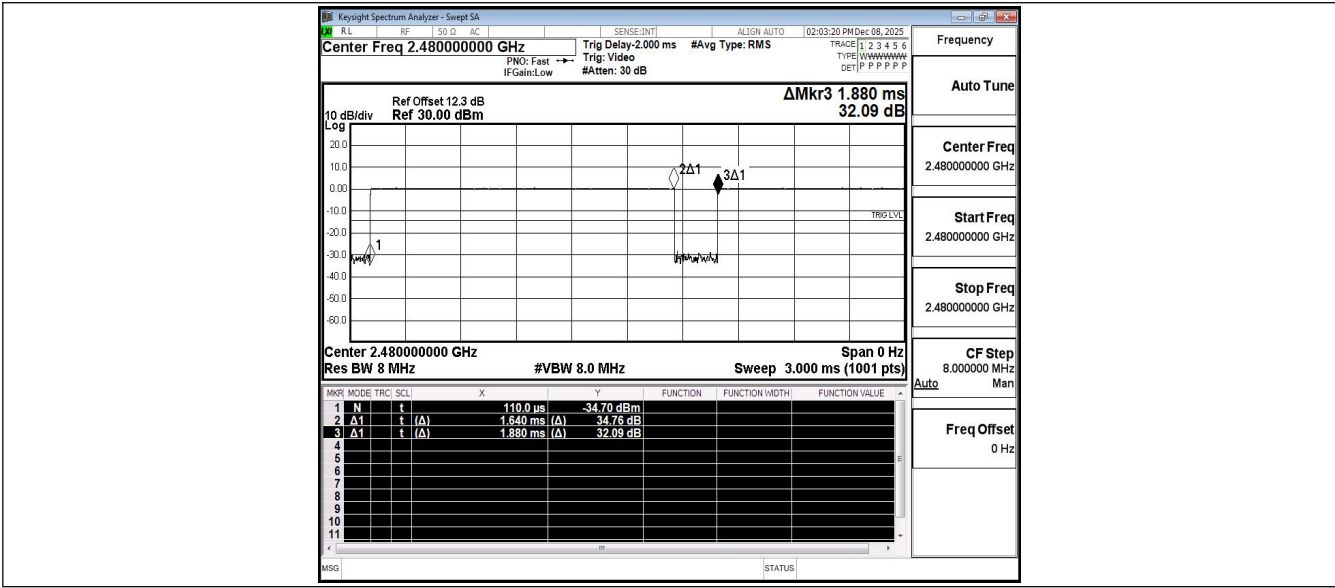
CF Step
8.000000 MHz

Auto

Man

Freq Offset
0 Hz

BLE_1M_Ant1_2480



A.7 Emissions in Restricted Bands

Test Result

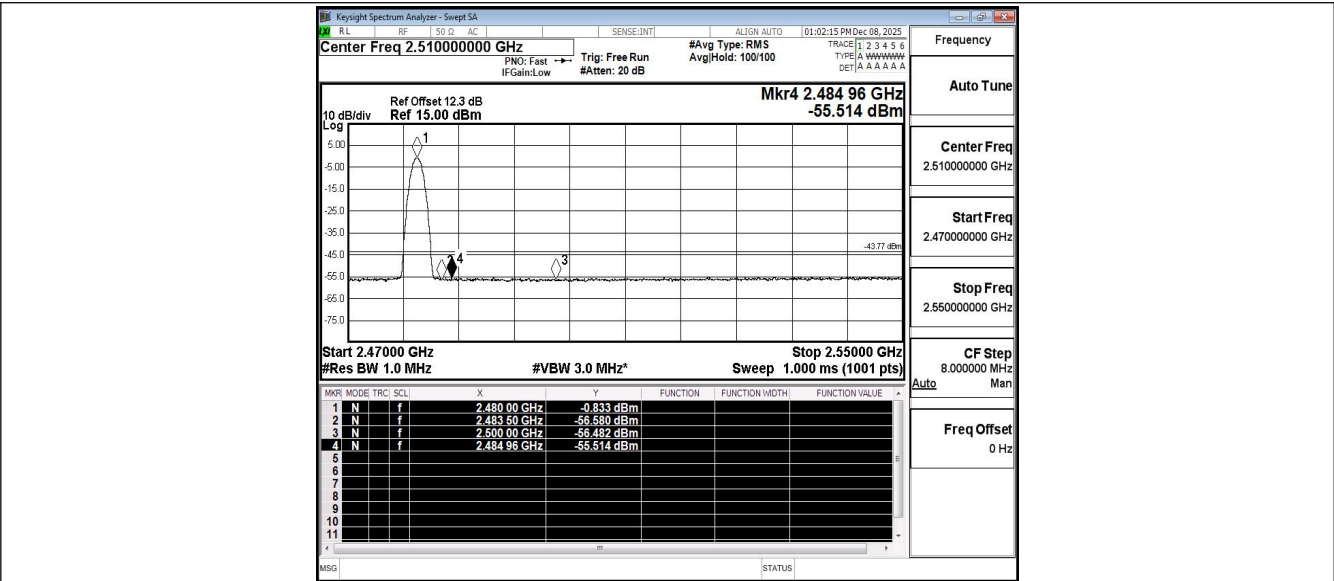
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-57.18	≤-43.77	2.00	0.57	40.59	≤54	PASS
				AV	2380.325	-55.99	≤-43.77	2.00	0.57	41.78	≤54	PASS
				AV	2390.000	-56.43	≤-43.77	2.00	0.57	41.34	≤54	PASS
				Peak	2310.000	-48.09	≤-23.20	2.00	0.00	49.11	≤74	PASS
				Peak	2336.960	-46.04	≤-23.20	2.00	0.00	51.16	≤74	PASS
				Peak	2390.000	-48.94	≤-23.20	2.00	0.00	48.26	≤74	PASS
		High	2480	AV	2483.500	-56.58	≤-43.77	2.00	0.57	41.19	≤54	PASS
				AV	2484.960	-55.51	≤-43.77	2.00	0.57	42.26	≤54	PASS
				AV	2500.000	-56.48	≤-43.77	2.00	0.57	41.29	≤54	PASS
				Peak	2483.500	-48	≤-23.20	2.00	0.00	49.20	≤74	PASS
				Peak	2484.240	-45.45	≤-23.20	2.00	0.00	51.75	≤74	PASS
				Peak	2500.000	-47.61	≤-23.20	2.00	0.00	49.59	≤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





BLE_1M_Ant1_High_2480_Peak

