

FCC Appendix RF Test Data for BLE

FCC ID : 2AZW2-T50MPRO

Company : Beijing Supvan Information Technology Co., Ltd.

EUT : Label Maker

Model Number : KATASYMBOL T50M Pro

Report No. : CTA26041604101

Reviewed By : Eric Wang

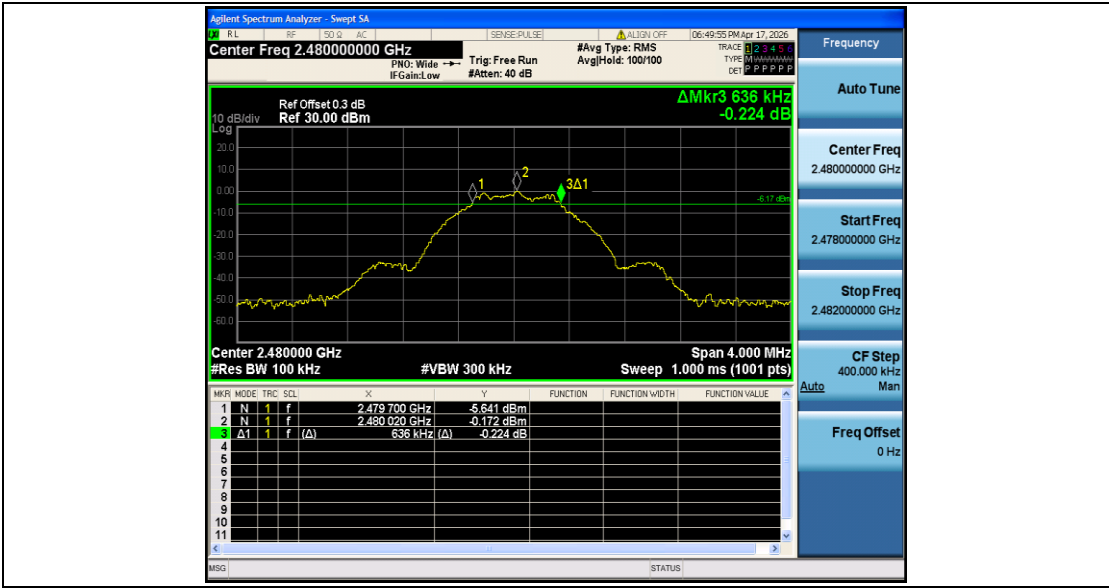
Appendix A: DTS Bandwidth

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	0.640	2439.696	2440.336	0.5	PASS
		2480	0.636	2479.700	2480.336	0.5	PASS

Test Graphs



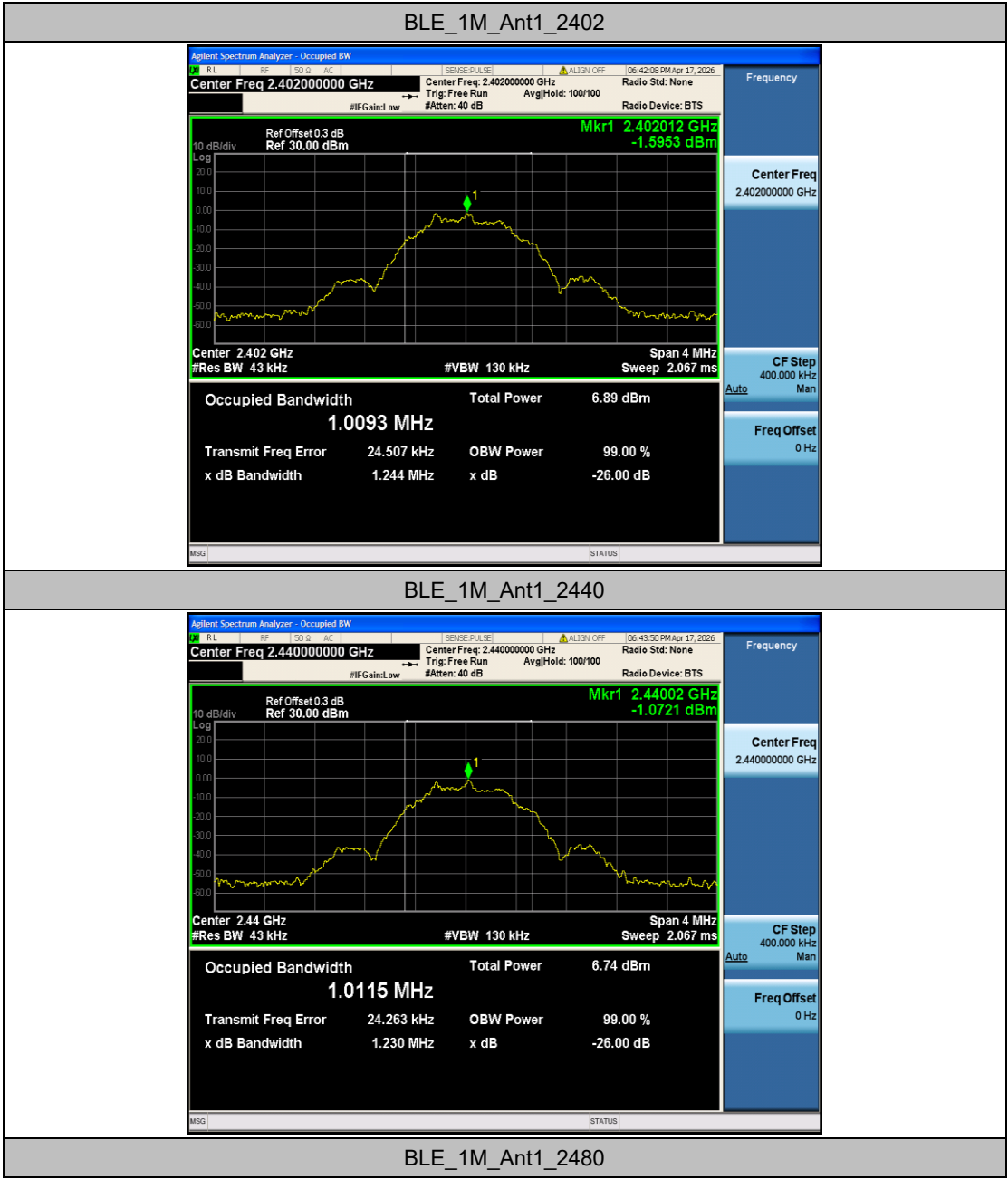


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0093	2401.5199	2402.5292	---	---
		2440	1.0115	2439.5185	2440.5300	---	---
		2480	1.0088	2479.5202	2480.5290	---	---

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	0.23	≤30	PASS
		2440	0.00	≤30	PASS
		2480	0.01	≤30	PASS

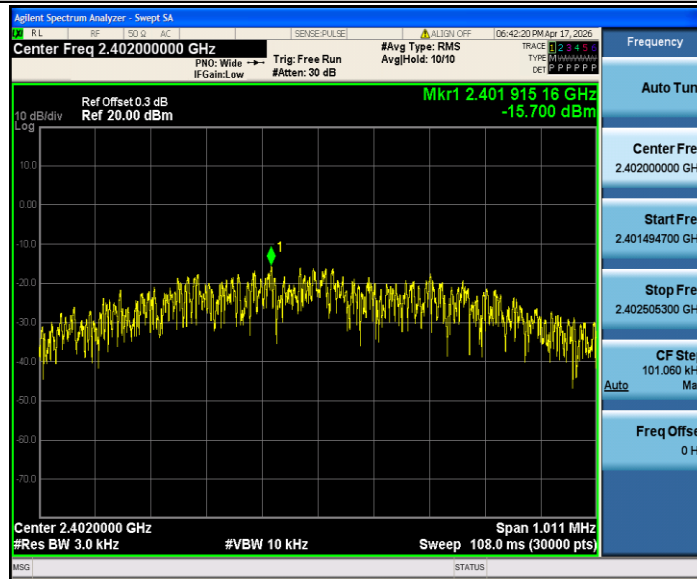
Appendix D: Maximum power spectral density

Test Result

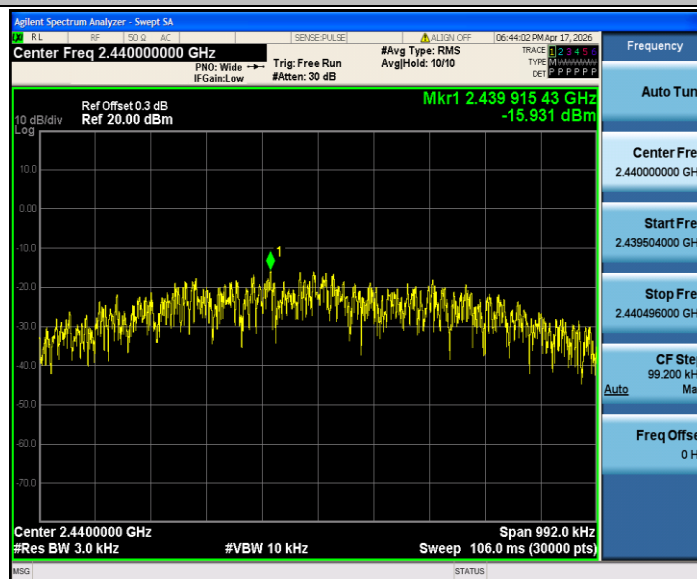
TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.70	≤8.00	PASS
		2440	-15.93	≤8.00	PASS
		2480	-15.65	≤8.00	PASS

Test Graphs

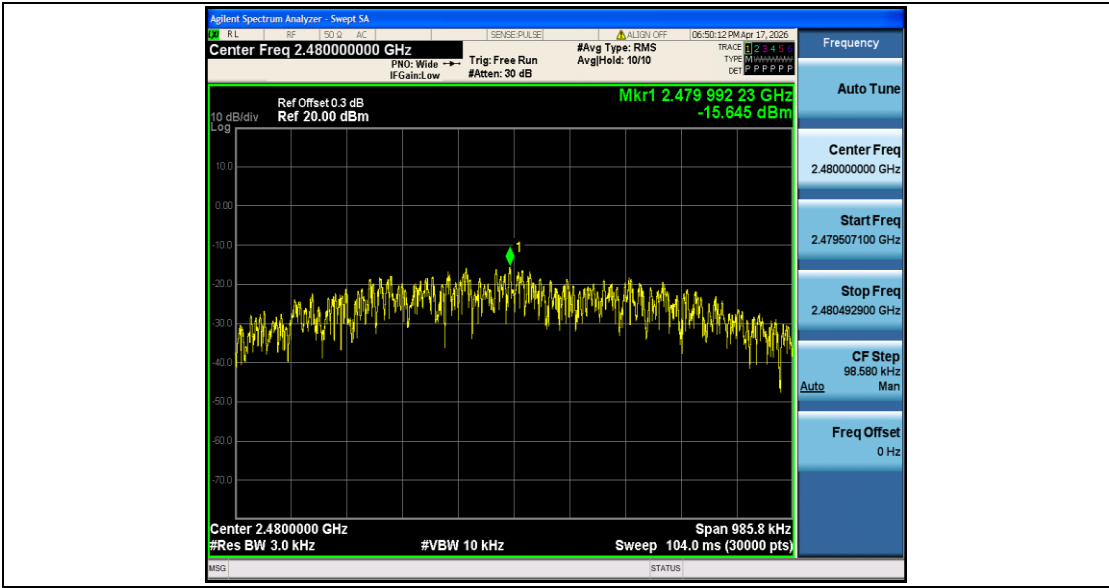
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



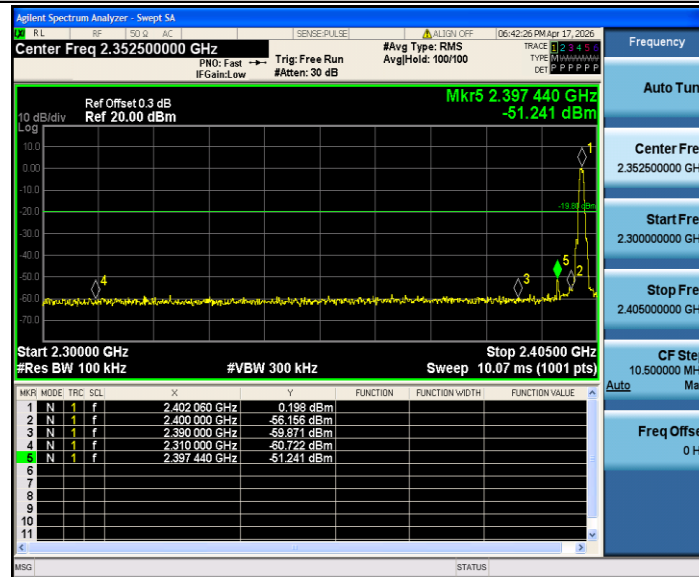
Appendix E: Band edge measurements

Test Result

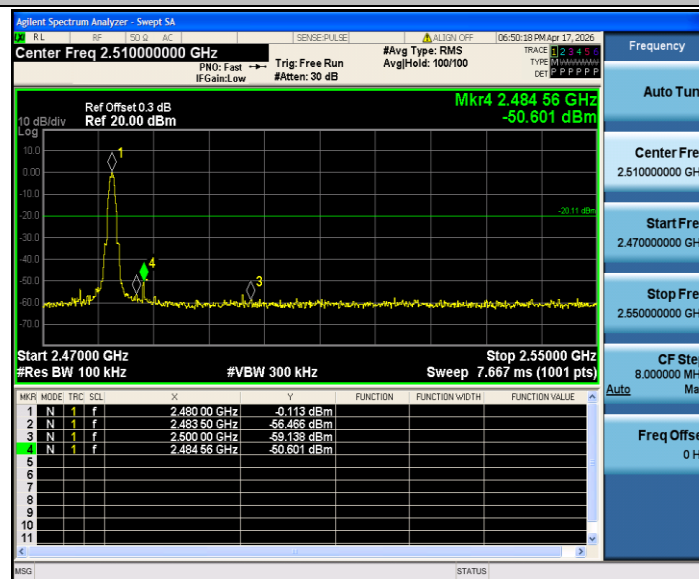
TestMod e	Antenn a	ChNam e	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdic t
BLE_1M	Ant1	Low	2402	0.20	-51.24	≤-19.8	PASS
		High	2480	-0.11	-50.6	≤-20.11	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480

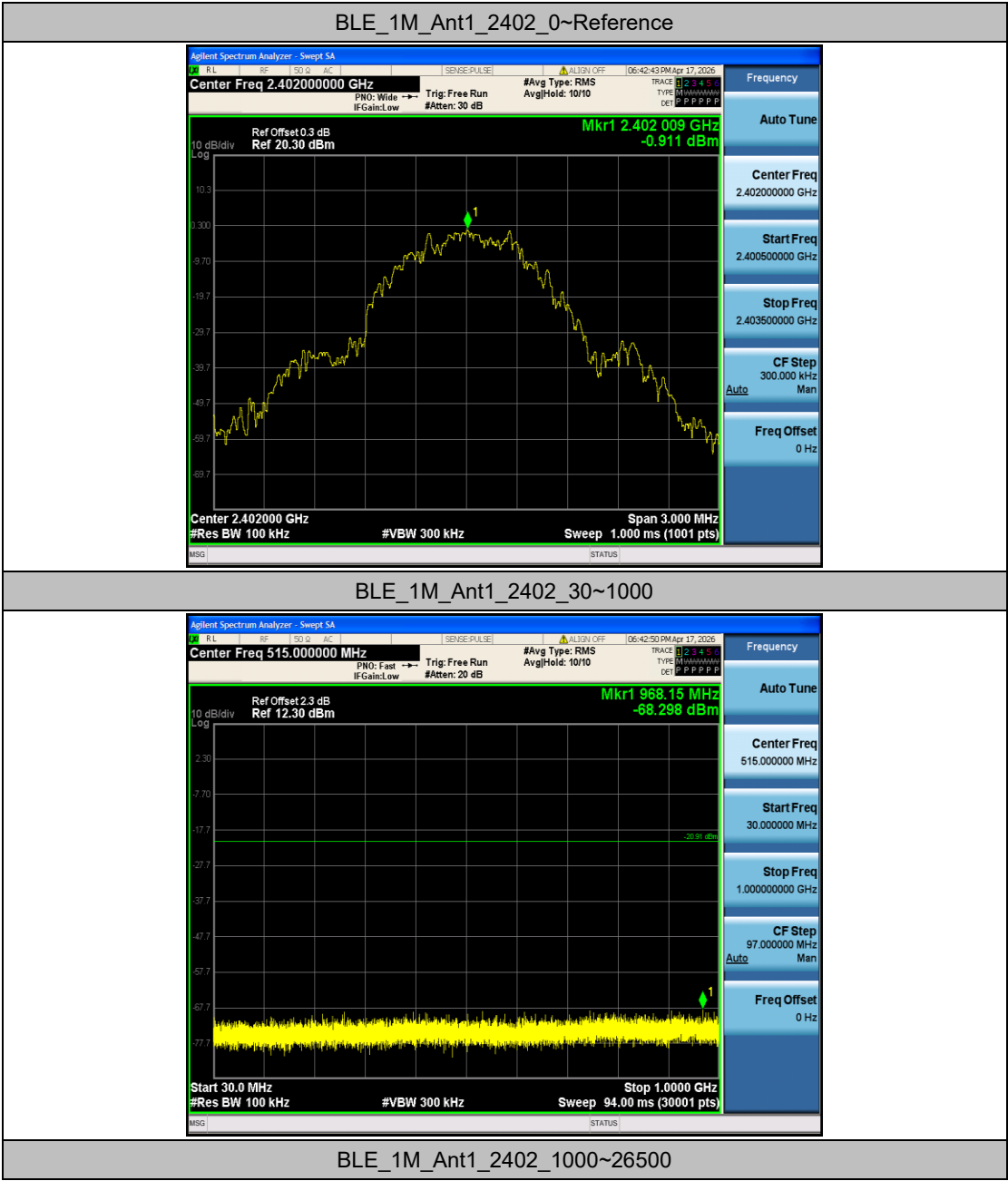


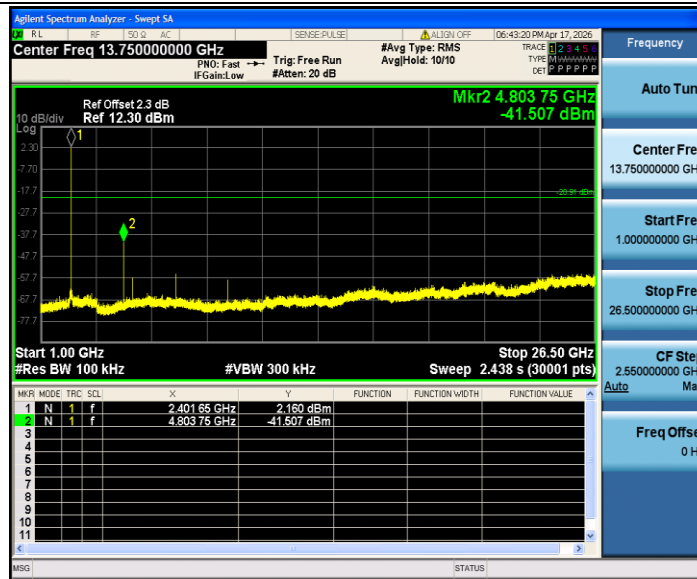
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.91	-0.91	---	PASS
			30~1000	-0.91	-68.3	≤-20.91	PASS
			1000~26500	-0.91	-41.51	≤-20.91	PASS
		2440	Reference	-1.23	-1.23	---	PASS
			30~1000	-1.23	-68.21	≤-21.23	PASS
			1000~26500	-1.23	-45.7	≤-21.23	PASS
		2480	Reference	-1.03	-1.03	---	PASS
			30~1000	-1.03	-68	≤-21.03	PASS
			1000~26500	-1.03	-45.12	≤-21.03	PASS

Test Graphs

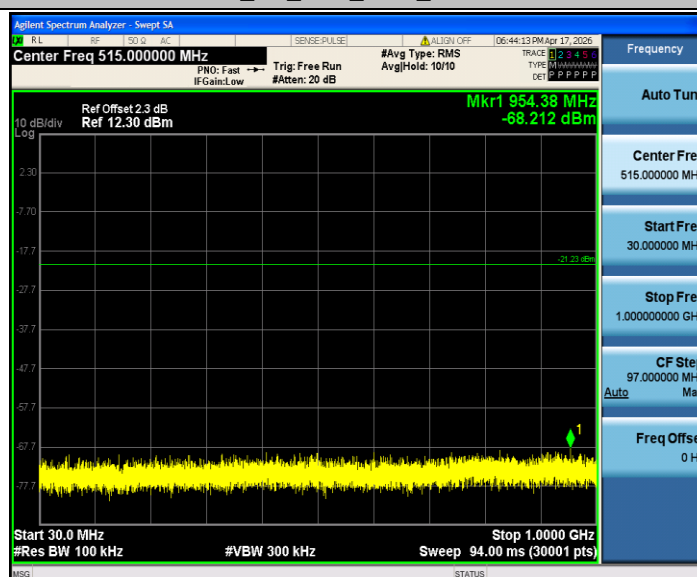




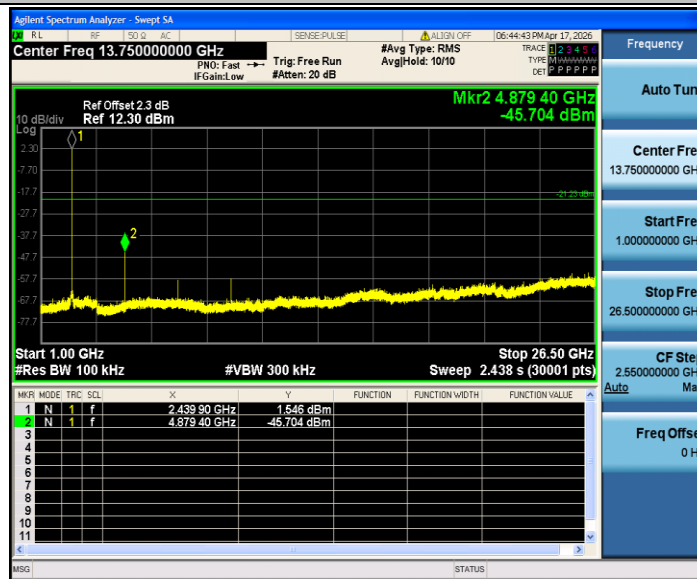
BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



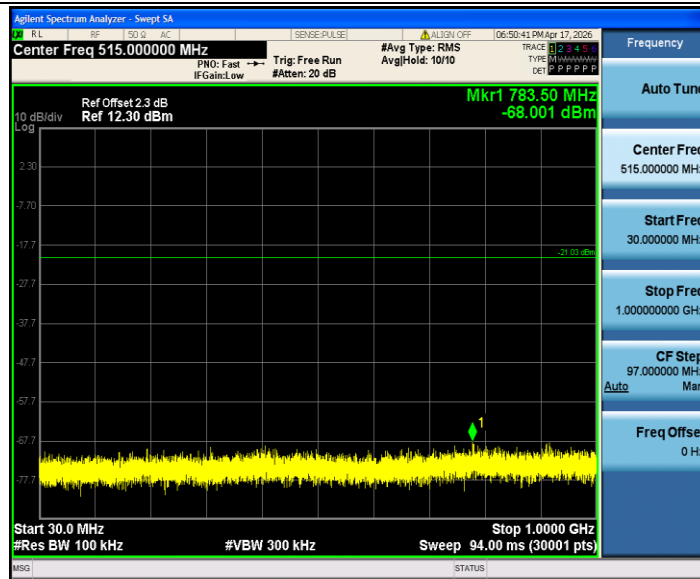
BLE_1M_Ant1_2440_1000~26500



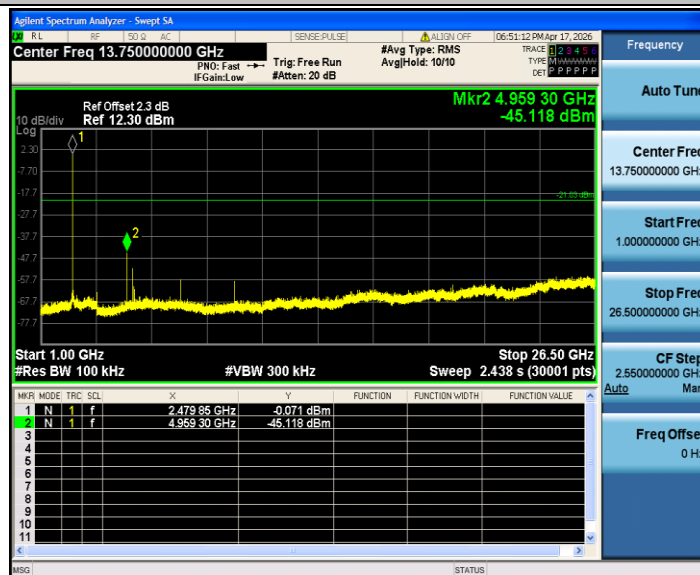
BLE_1M_Ant1_2480_0~Reference



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	---	---

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.402000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Ref Offset 0.3 dB Ref 20.30 dBm

PHO: Fast IF Gain: Low #Atten: 30 dB

Trig: Video

Trace 1: 2 4 5 6 7 8 9 10 11

TYPE: WWWWWWWWWW DET: P P P P P P

Frequency

Auto Tune

Center Freq 2.402000000 GHz

Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 8.0000000 MHz

Auto Man

Freq Offset 0 Hz

Center 2.402000000 GHz

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 1.000 ms (1001 pts)

Span 0 Hz

10 dB/div

Log

Ref 20.30 dBm

ΔMkr3 620.0 μs -10.79 dB

2Δ1

3Δ1

1 N 1 t 120.0 μs -11.95 dBm

2 Δ1 1 t (Δ) 410.0 μs (Δ) -20.45 dB

3 Δ1 1 t (Δ) 620.0 μs (Δ) -10.79 dB

4

5

6

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8

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10

11

MSG

STATUS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.440000000 GHz

Trig Delay: 2.000 ms #Avg Type: RMS

Ref Offset 0.3 dB Ref 20.30 dBm

PHO: Fast IF Gain: Low #Atten: 30 dB

Trig: Video

Trace 1: 2 4 5 6 7 8 9 10 11

TYPE: WWWWWWWWWW DET: P P P P P P

Frequency

Auto Tune

Center Freq 2.440000000 GHz

Start Freq 2.440000000 GHz

Stop Freq 2.440000000 GHz

CF Step 8.0000000 MHz

Auto Man

Freq Offset 0 Hz

Center 2.440000000 GHz

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 1.000 ms (1001 pts)

Span 0 Hz

10 dB/div

Log

Ref 20.30 dBm

ΔMkr3 620.0 μs -10.71 dB

2Δ1

3Δ1

1 N 1 t 120.0 μs -11.43 dBm

2 Δ1 1 t (Δ) 410.0 μs (Δ) -24.36 dB

3 Δ1 1 t (Δ) 620.0 μs (Δ) -10.71 dB

4

5

6

7

8

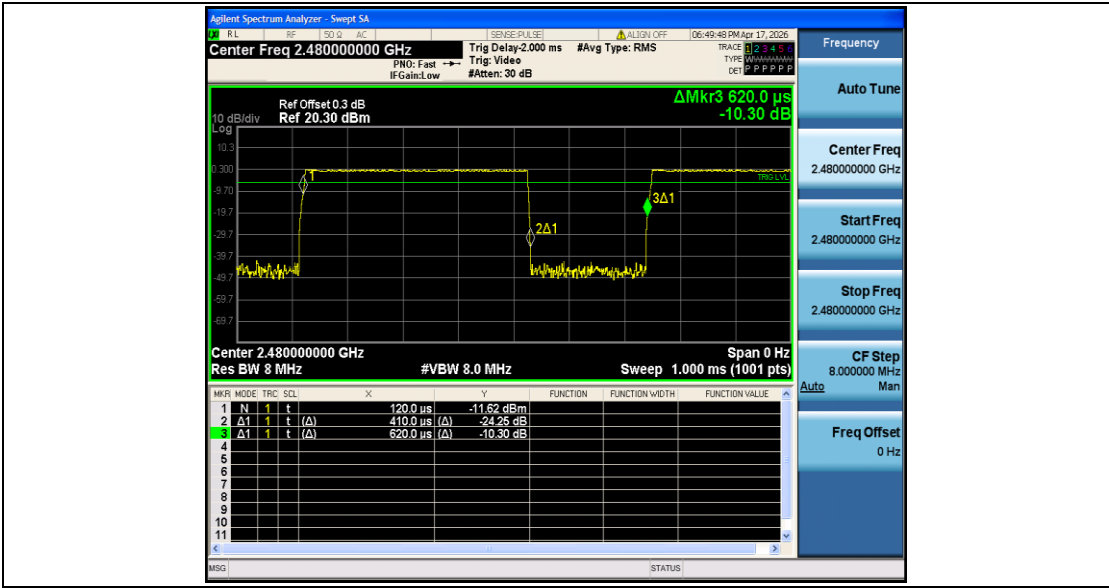
9

10

11

MSG

STATUS



Appendix H: Emissions in Restricted Bands

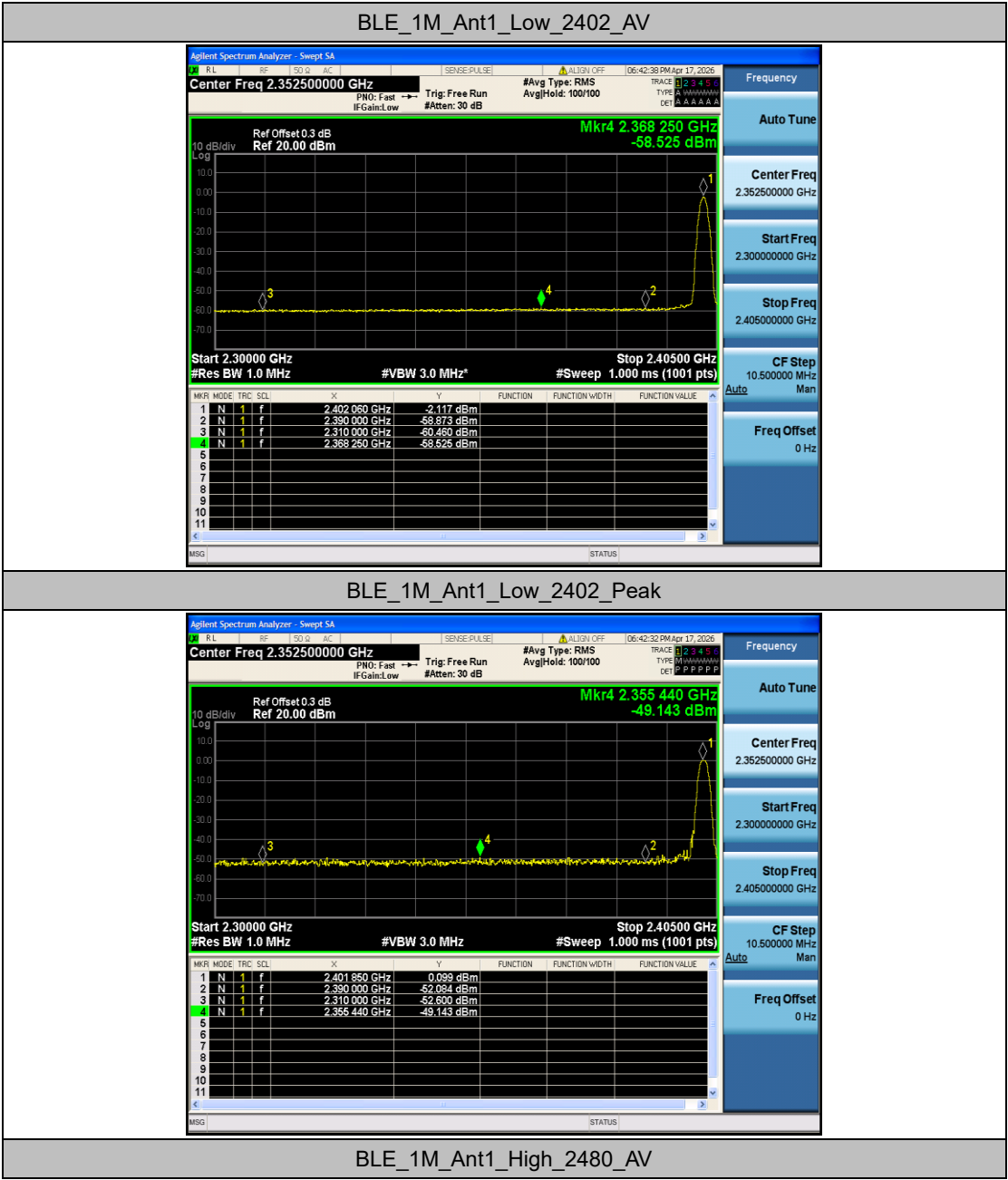
Test Result

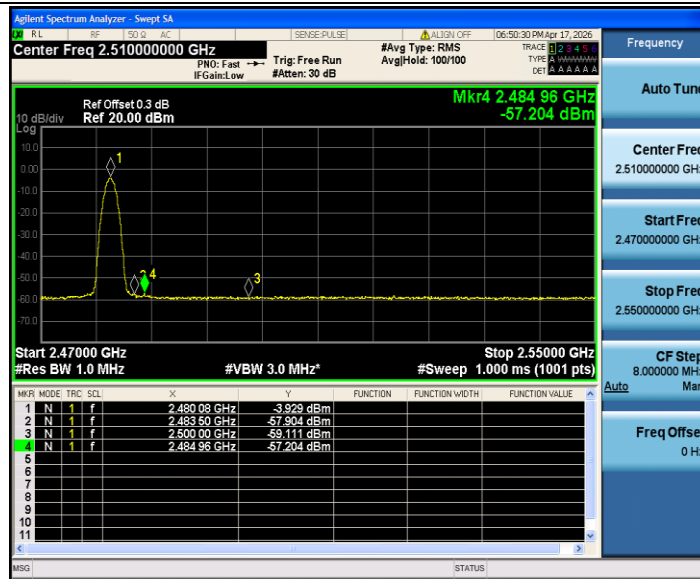
TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Gain [dB]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-60.46	2.00	1.80	38.54	≤54	PASS
				AV	2368.250	-58.52	2.00	1.80	40.48	≤54	PASS
				AV	2390.000	-58.87	2.00	1.80	40.13	≤54	PASS
				Peak	2310.000	-52.6	2.00	0.00	44.60	≤74	PASS
				Peak	2355.440	-49.14	2.00	0.00	48.06	≤74	PASS
				Peak	2390.000	-52.08	2.00	0.00	45.12	≤74	PASS
		High	2480	AV	2483.500	-57.9	2.00	1.80	41.10	≤54	PASS
				AV	2484.960	-57.2	2.00	1.80	41.80	≤54	PASS
				AV	2500.000	-59.11	2.00	1.80	39.89	≤54	PASS
				Peak	2483.500	-47.84	2.00	0.00	49.36	≤74	PASS
				Peak	2484.320	-42.43	2.00	0.00	54.77	≤74	PASS
				Peak	2500.000	-50.82	2.00	0.00	46.38	≤74	PASS

Note:

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

