

RF Test Data for BT(BLE) (Conducted Measurement)

Product Name: Smart phone

Trade Mark: N/A

Test Model: K58

FCC ID: 2APX7K58

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.656	2401.668	2402.324	0.5	PASS
		2440	0.612	2439.676	2440.288	0.5	PASS
		2480	0.660	2479.672	2480.332	0.5	PASS

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.402000000 GHz

Ref Offset 9.4 dB
Ref 30.00 dBm

ΔMkr3 656 kHz
-0.164 dB

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

Center 2.402000 GHz
#Res BW 100 kHz
#VBW 300 kHz

10 dB/div
Log

1 2 3 4 5 6 7 8 9 10 11

1 N f 2.401868 GHz -8.860 dBm

Δ1 f (Δ) 656 kHz (Δ) -0.164 dB

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

BLE_1M_Ant1_2402

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.440000000 GHz

Ref Offset 9.56 dB
Ref 30.00 dBm

ΔMkr3 612 kHz
1.111 dB

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

Center 2.440000 GHz
#Res BW 100 kHz
#VBW 300 kHz

10 dB/div
Log

1 2 3 4 5 6 7 8 9 10 11

1 N f 2.439876 GHz -9.768 dBm

Δ1 f (Δ) 612 kHz (Δ) 1.111 dB

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

BLE_1M_Ant1_2440

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.480000000 GHz

Ref Offset 9.56 dB
Ref 30.00 dBm

ΔMkr3 660 kHz
0.080 dB

Span 4.000 MHz
Sweep 1.000 ms (1001 pts)

Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz

10 dB/div
Log

1 2 3 4 5 6 7 8 9 10 11

1 N f 2.479872 GHz -11.097 dBm

Δ1 f (Δ) 660 kHz (Δ) 0.080 dB

Frequency

Auto Tune

Center Freq 2.480000000 GHz

Start Freq 2.478000000 GHz

Stop Freq 2.482000000 GHz

CF Step 400.000 kHz

Freq Offset 0 Hz

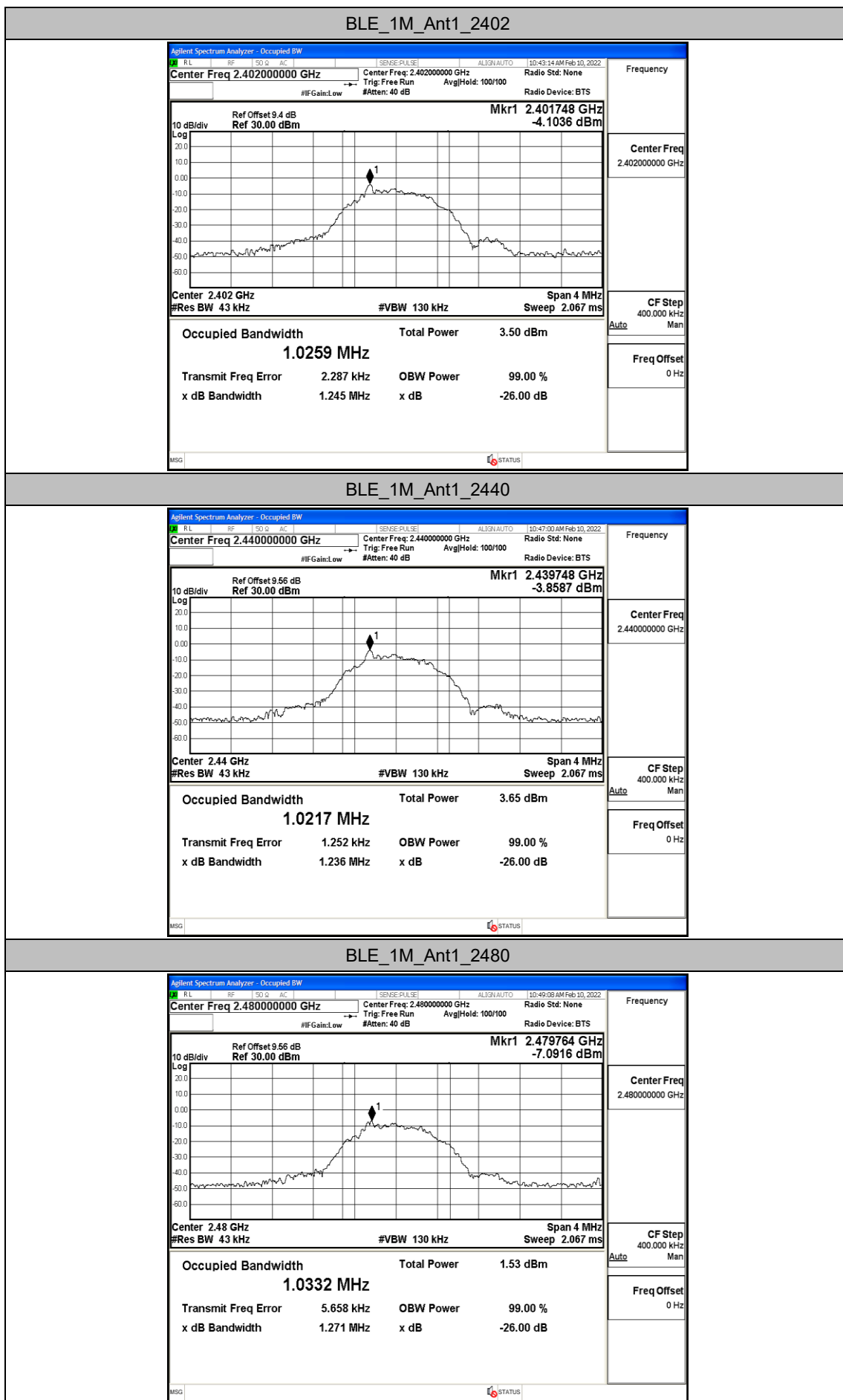
BLE_1M_Ant1_2480

Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0259	2401.489	2402.515	---	PASS
		2440	1.0217	2439.490	2440.512	---	PASS
		2480	1.0332	2479.489	2480.522	---	PASS

Test Graphs

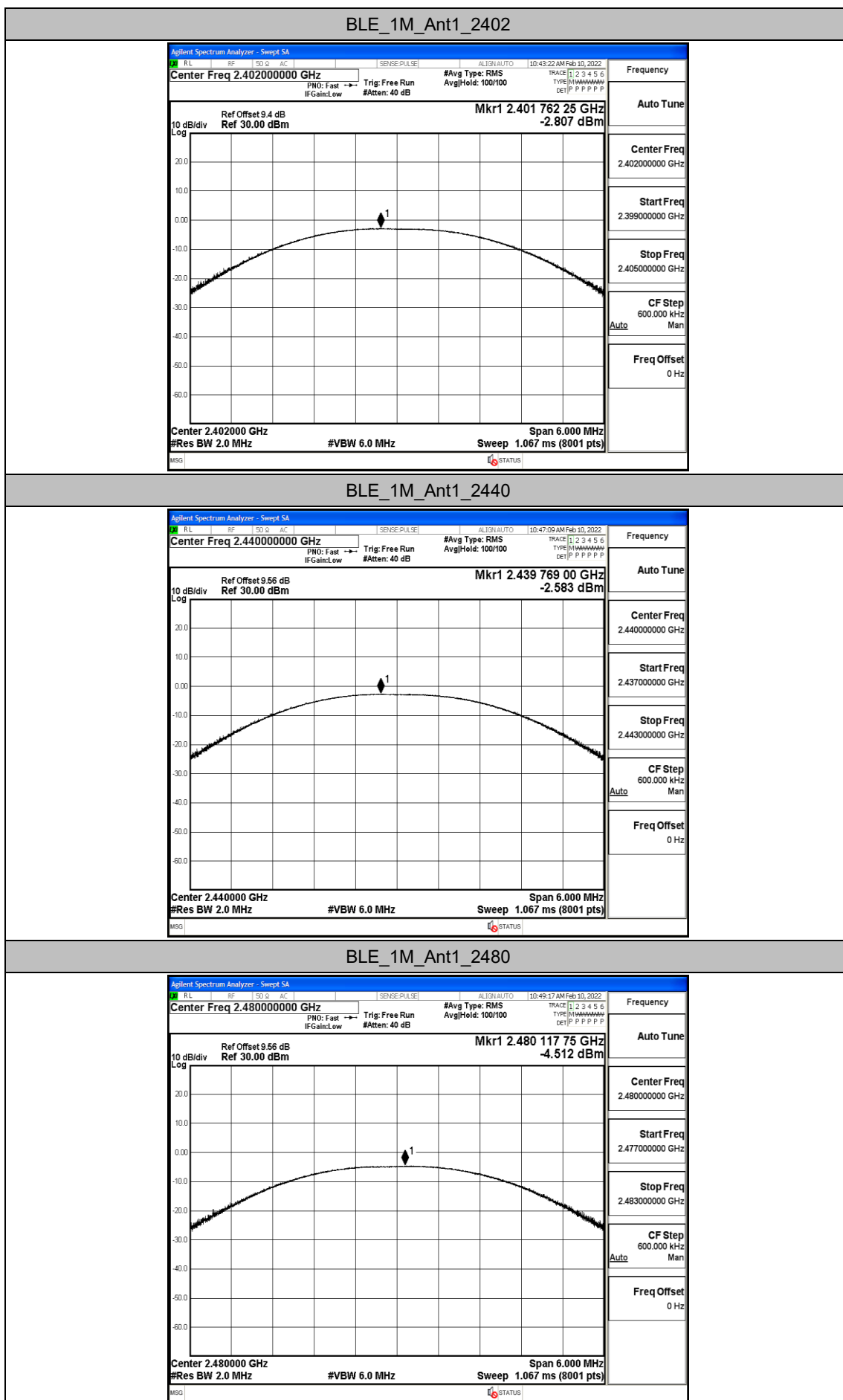


Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-2.81	<=30	PASS
		2440	-2.58	<=30	PASS
		2480	-4.51	<=30	PASS

Test Graphs

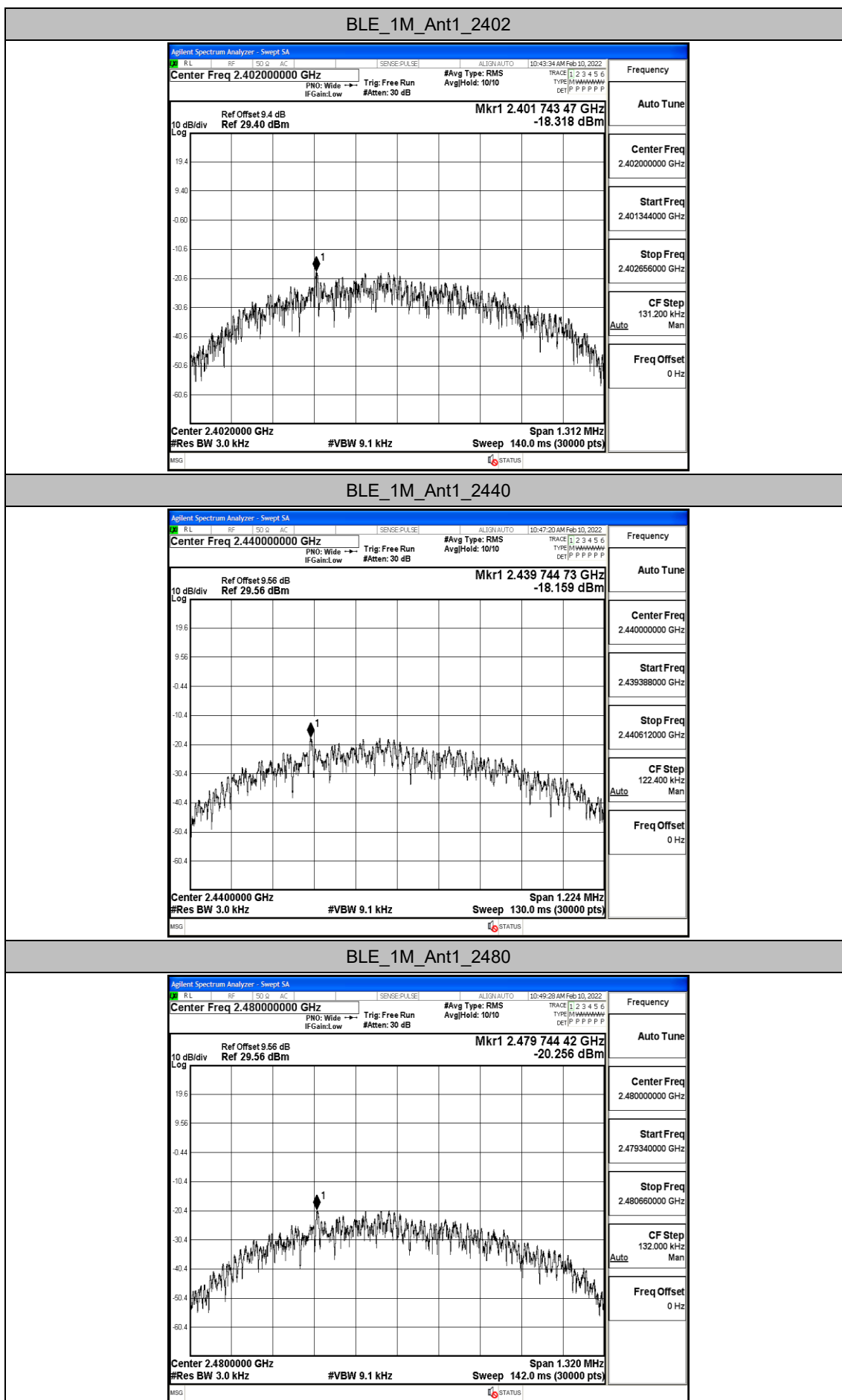


Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-18.32	≤8	PASS
		2440	-18.16	≤8	PASS
		2480	-20.26	≤8	PASS

Test Graphs

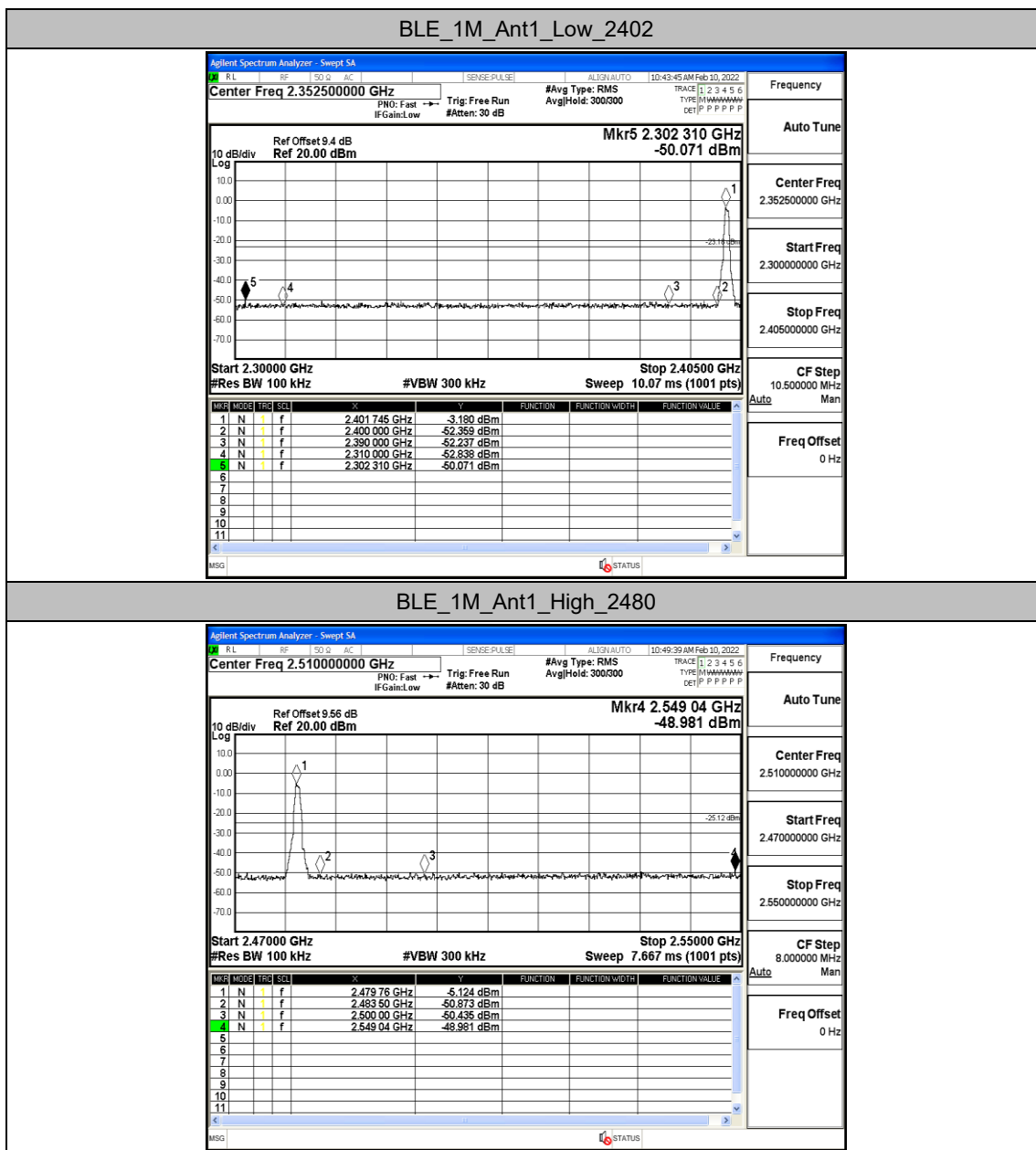


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.18	-50.07	≤-23.18	PASS
		High	2480	-5.12	-48.98	≤-25.12	PASS

Test Graphs



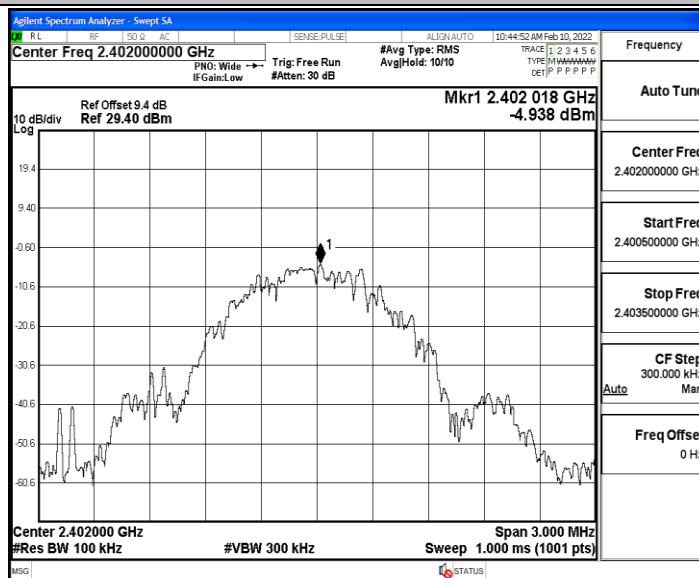
Appendix F: Conducted Spurious Emission

Test Result

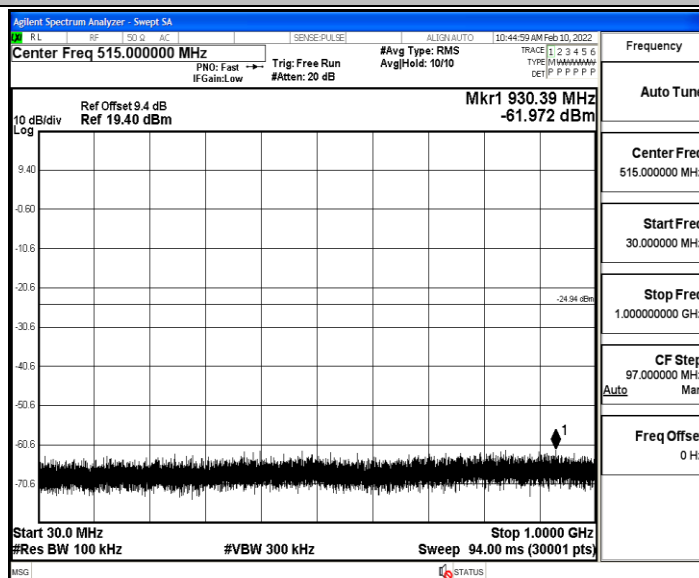
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-4.94	-4.94	---	PASS
			30~1000	-4.94	-61.97	≤-24.94	PASS
			1000~26500	-4.94	-52.41	≤-24.94	PASS
		2440	Reference	-3.08	-3.08	---	PASS
			30~1000	-3.08	-61.6	≤-23.08	PASS
			1000~26500	-3.08	-52.77	≤-23.08	PASS
		2480	Reference	-6.72	-6.72	---	PASS
			30~1000	-6.72	-61.38	≤-26.72	PASS
			1000~26500	-6.72	-52.1	≤-26.72	PASS

Test Graphs

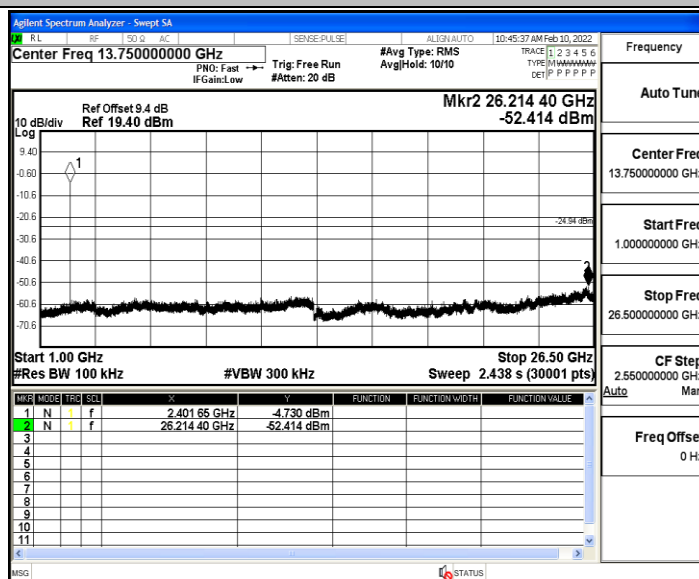
BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



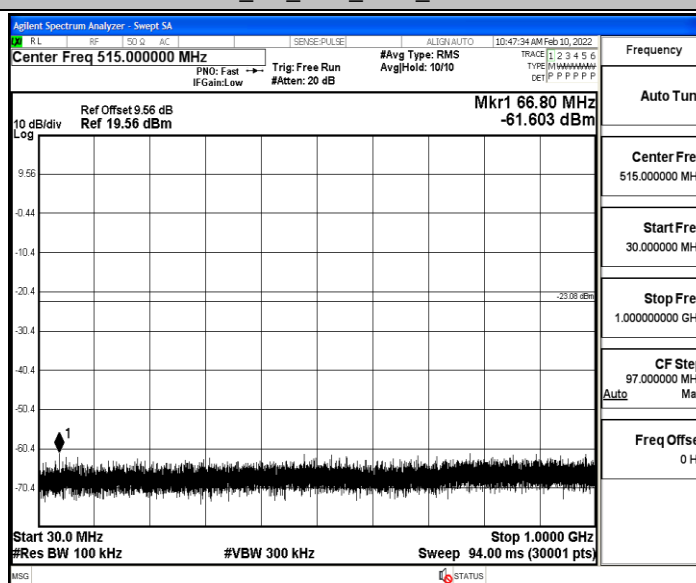
BLE_1M_Ant1_2402_1000~26500



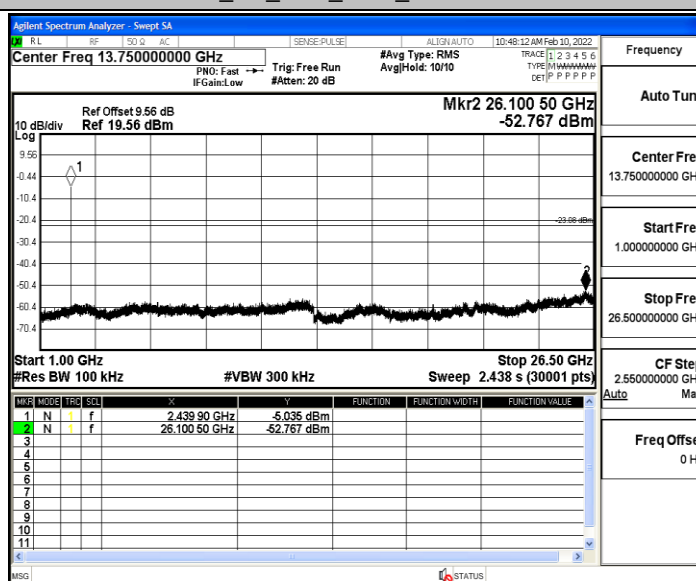
BLE_1M_Ant1_2440_0~Reference



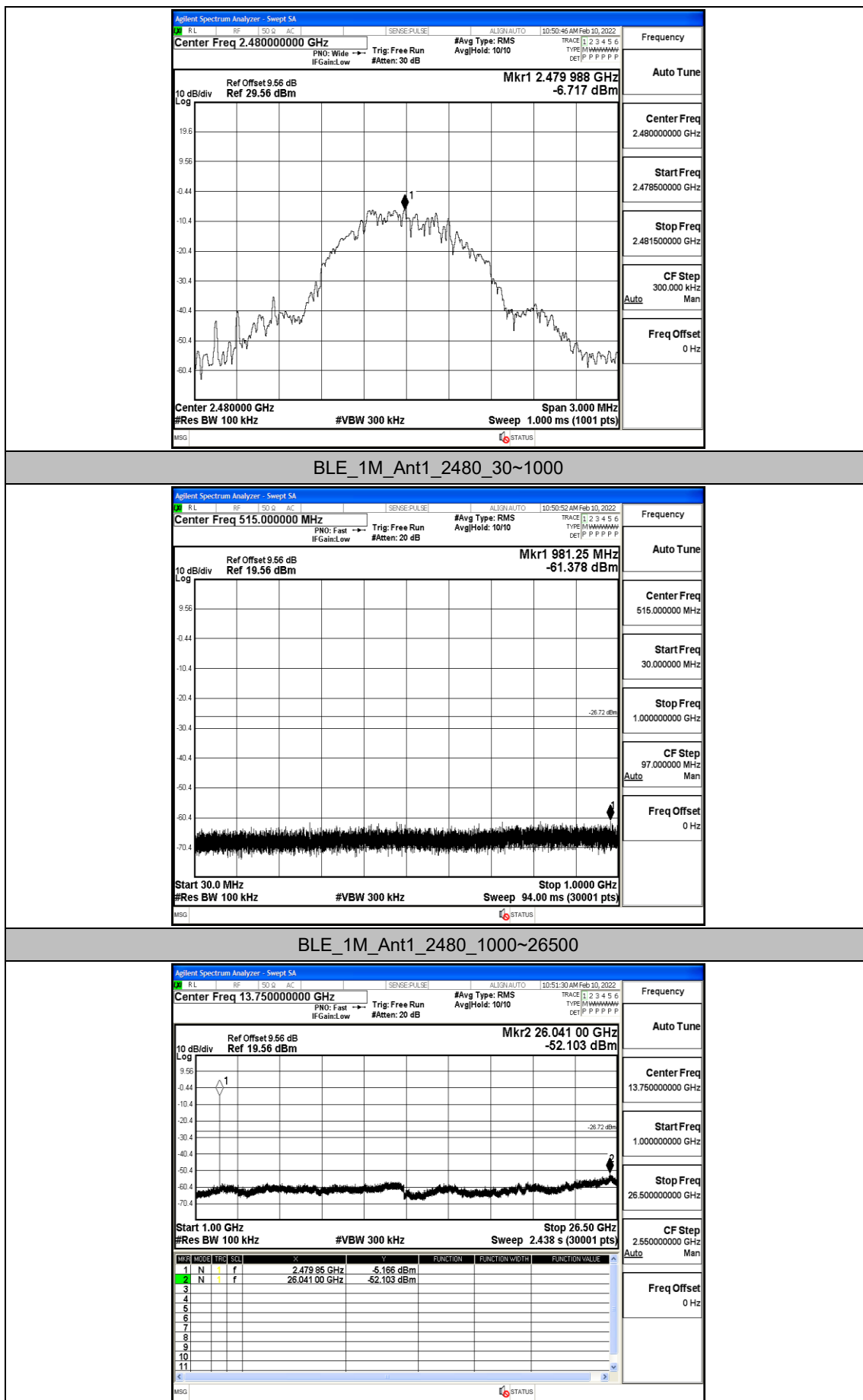
BLE_1M_Ant1_2440_30~1000



BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

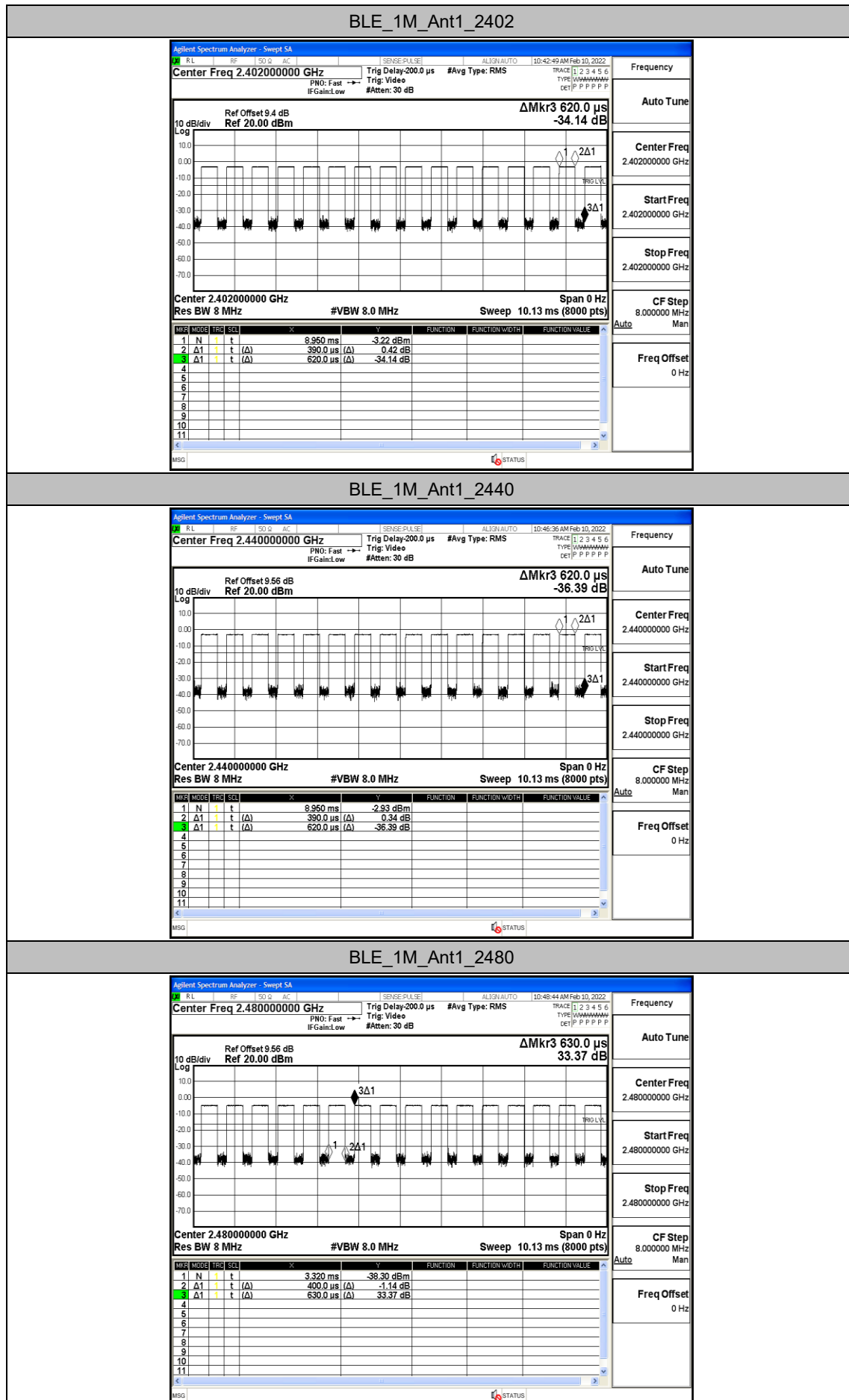


Appendix G: Duty Cycle

Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/B [KHz]
BLE_1M	Ant1	2402	0.39	0.62	62.90	2.56
		2440	0.39	0.62	62.90	2.56
		2480	0.40	0.63	63.49	2.50

Test Graphs



Appendix H: Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.22	≤-41.20	PASS
				AV	2386.940	-48.1	≤-41.20	PASS
				AV	2390.000	-48.5	≤-41.20	PASS
				Peak	2310.000	-42.43	≤-21.20	PASS
				Peak	2362.685	-38.9	≤-21.20	PASS
				Peak	2390.000	-41.2	≤-21.20	PASS
		High	2480	AV	2483.500	-48.04	≤-41.20	PASS
				AV	2499.360	-47.3	≤-41.20	PASS
				AV	2500.000	-47.39	≤-41.20	PASS
				Peak	2483.500	-40.98	≤-21.20	PASS
				Peak	2487.920	-38.87	≤-21.20	PASS
				Peak	2500.000	-39.91	≤-21.20	PASS

Note:

1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
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

