

Appendix Test Data for BLE (Conducted Measurement)

Product Name: Voter Identification Unit

Trade Mark: SMARTMATIC

Test Model: VIU-500 Model 700

FCC ID: 2AGVK-VIU-500A70-R2

Environmental Conditions

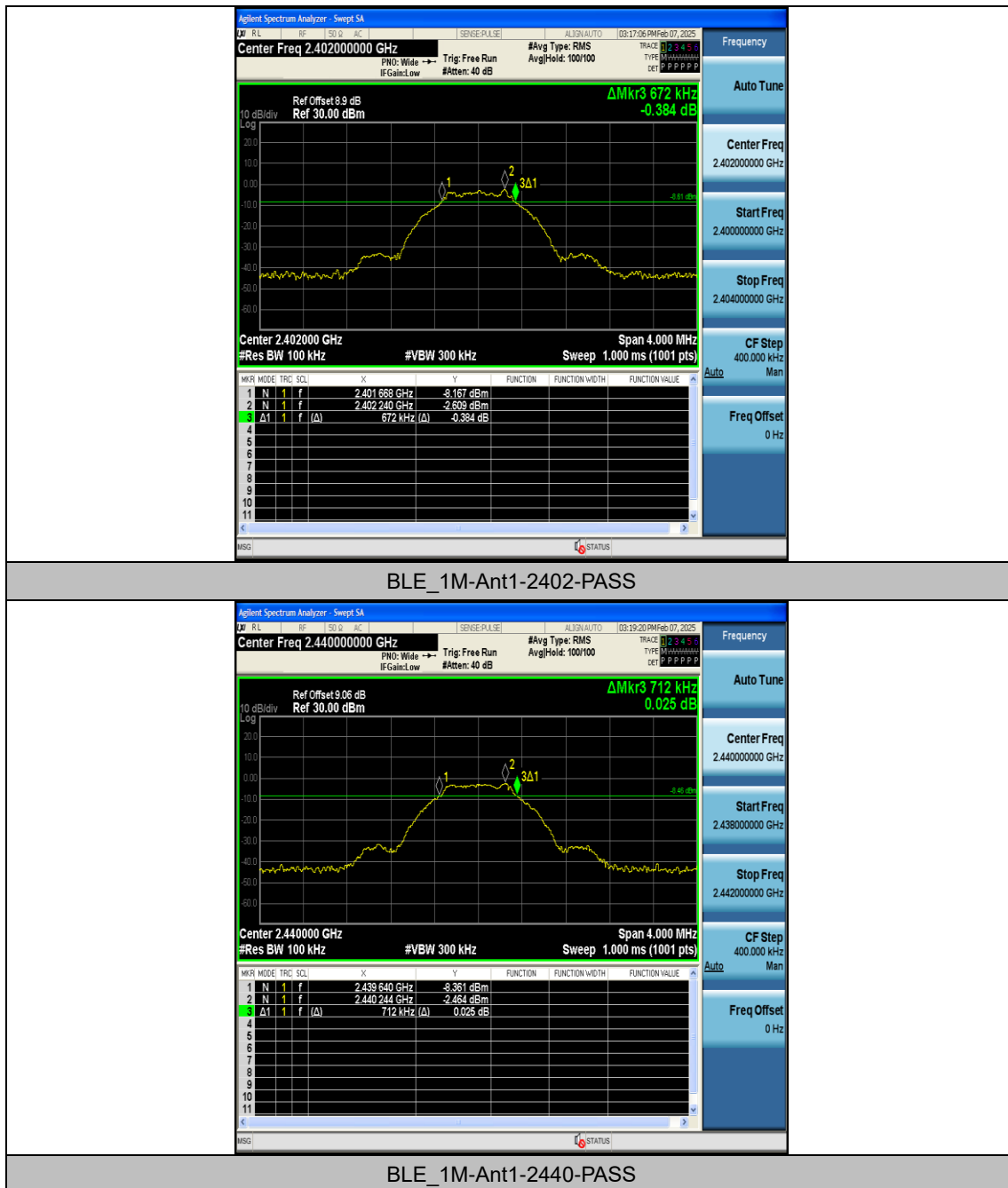
Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.672	2401.668	2402.340	0.5	PASS
BLE_1M	Ant1	2440	0.712	2439.640	2440.352	0.5	PASS
BLE_1M	Ant1	2480	0.664	2479.672	2480.336	0.5	PASS
BLE_2M	Ant1	2404	1.328	2403.328	2404.656	0.5	PASS
BLE_2M	Ant1	2440	1.140	2439.444	2440.584	0.5	PASS
BLE_2M	Ant1	2478	1.144	2477.412	2478.556	0.5	PASS

Test Graphs





BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2404-PASS



BLE_2M-Ant1-2440-PASS

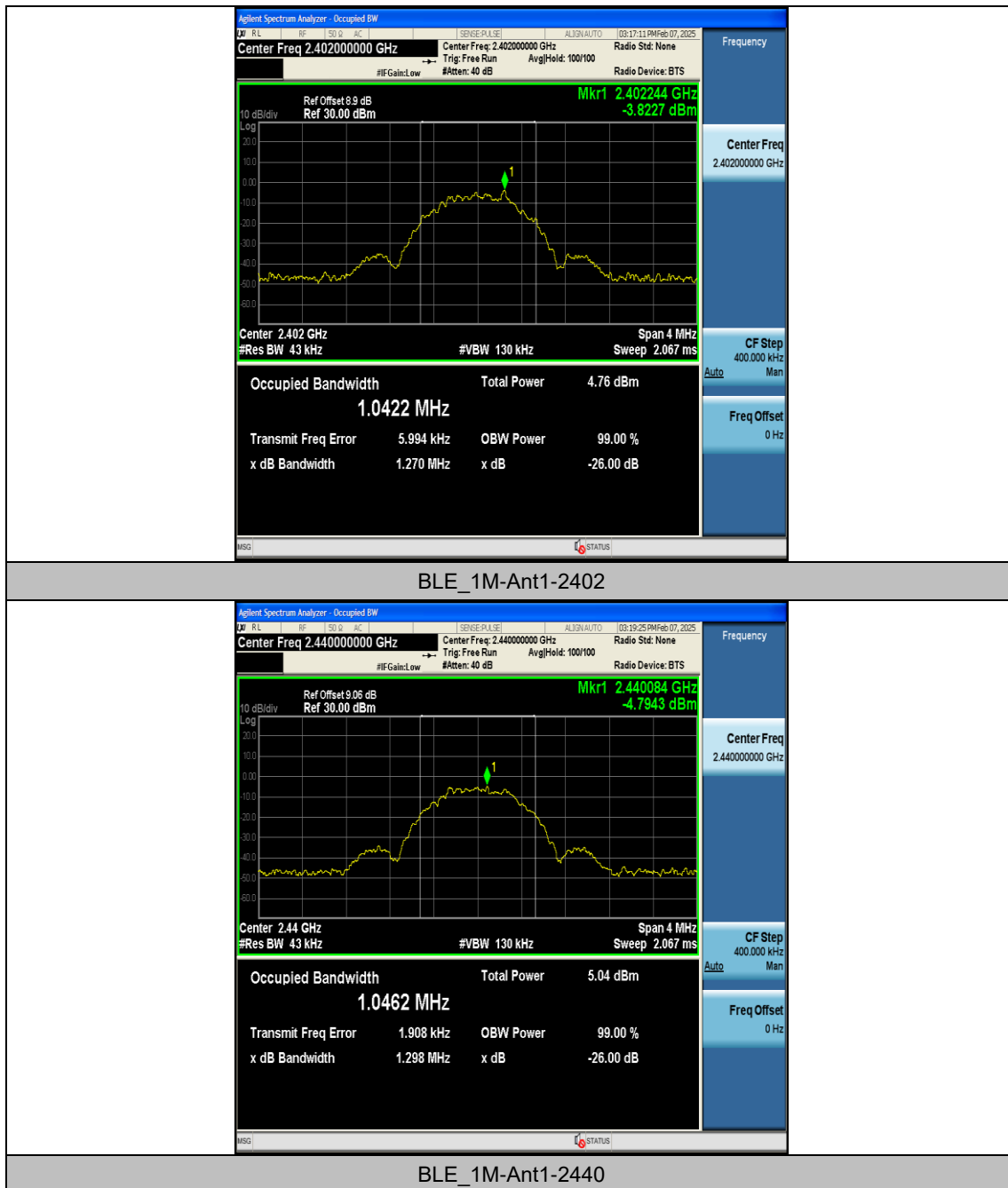


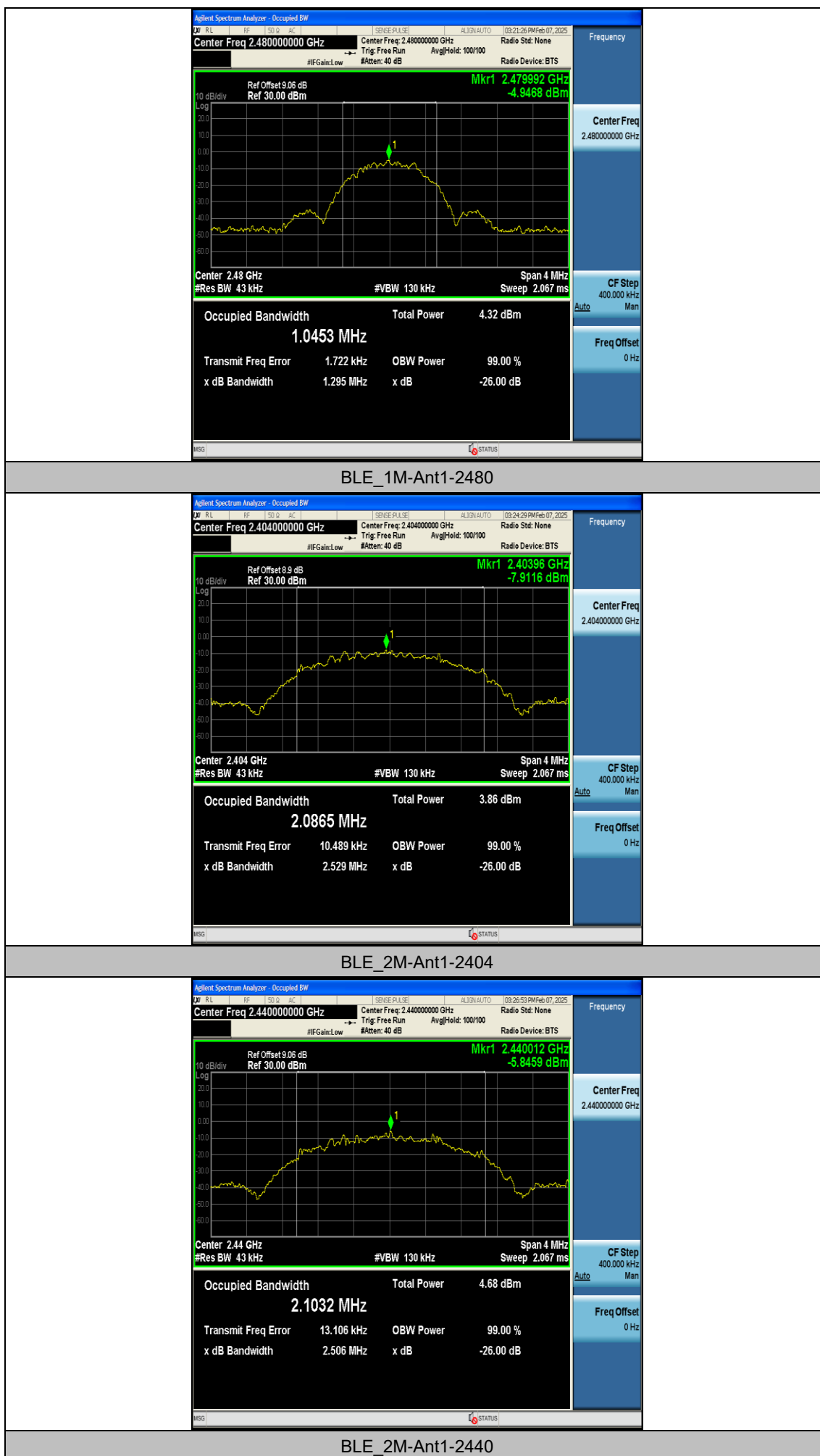
Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	1.0422	2401.4849	2402.5271	---	---
BLE_1M	Ant1	2440	1.0462	2439.4788	2440.5250	---	---
BLE_1M	Ant1	2480	1.0453	2479.4791	2480.5244	---	---
BLE_2M	Ant1	2404	2.0865	2402.9672	2405.0537	---	---
BLE_2M	Ant1	2440	2.1032	2438.9615	2441.0647	---	---
BLE_2M	Ant1	2478	2.0903	2476.9669	2479.0572	---	---

Test Graphs





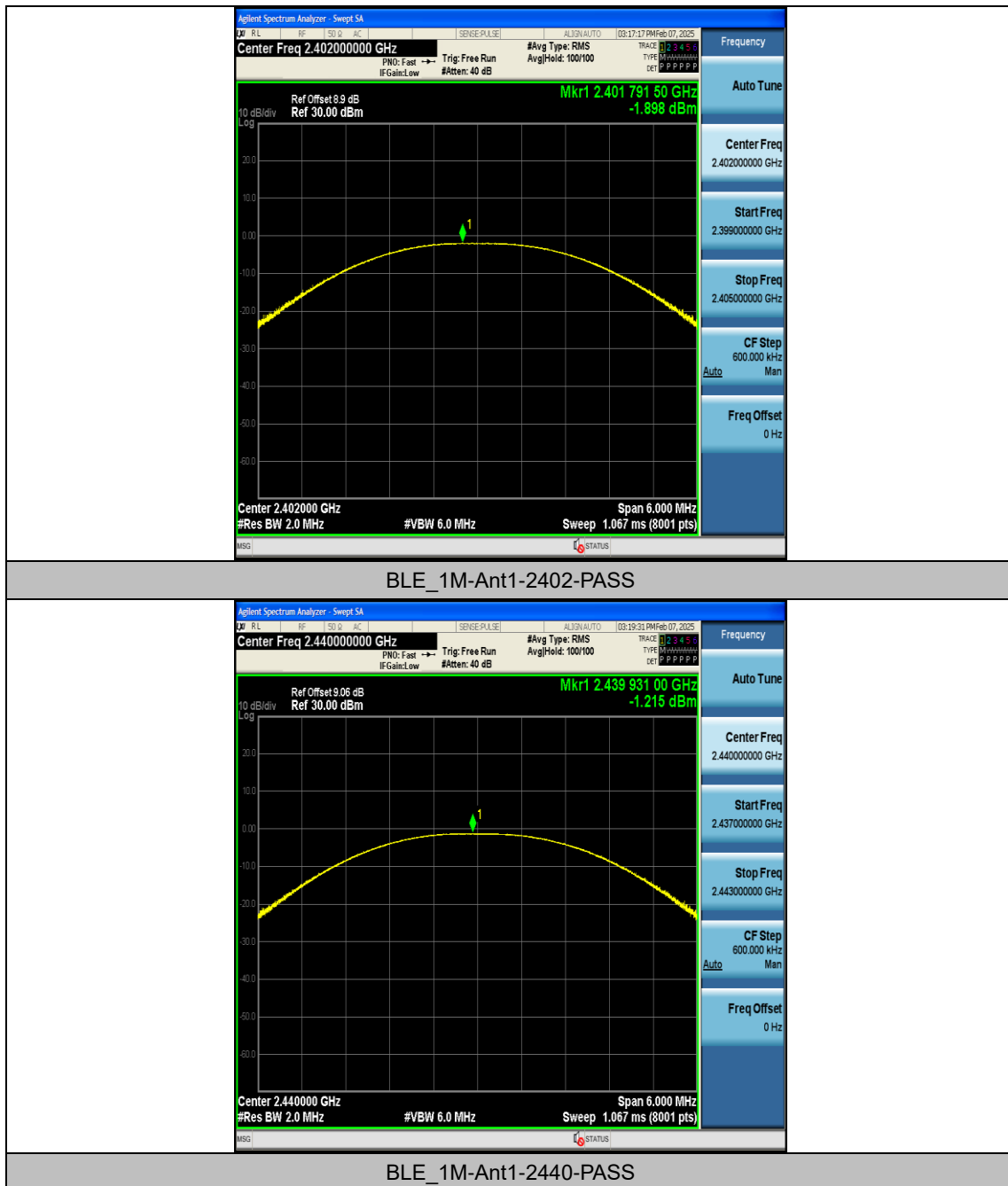


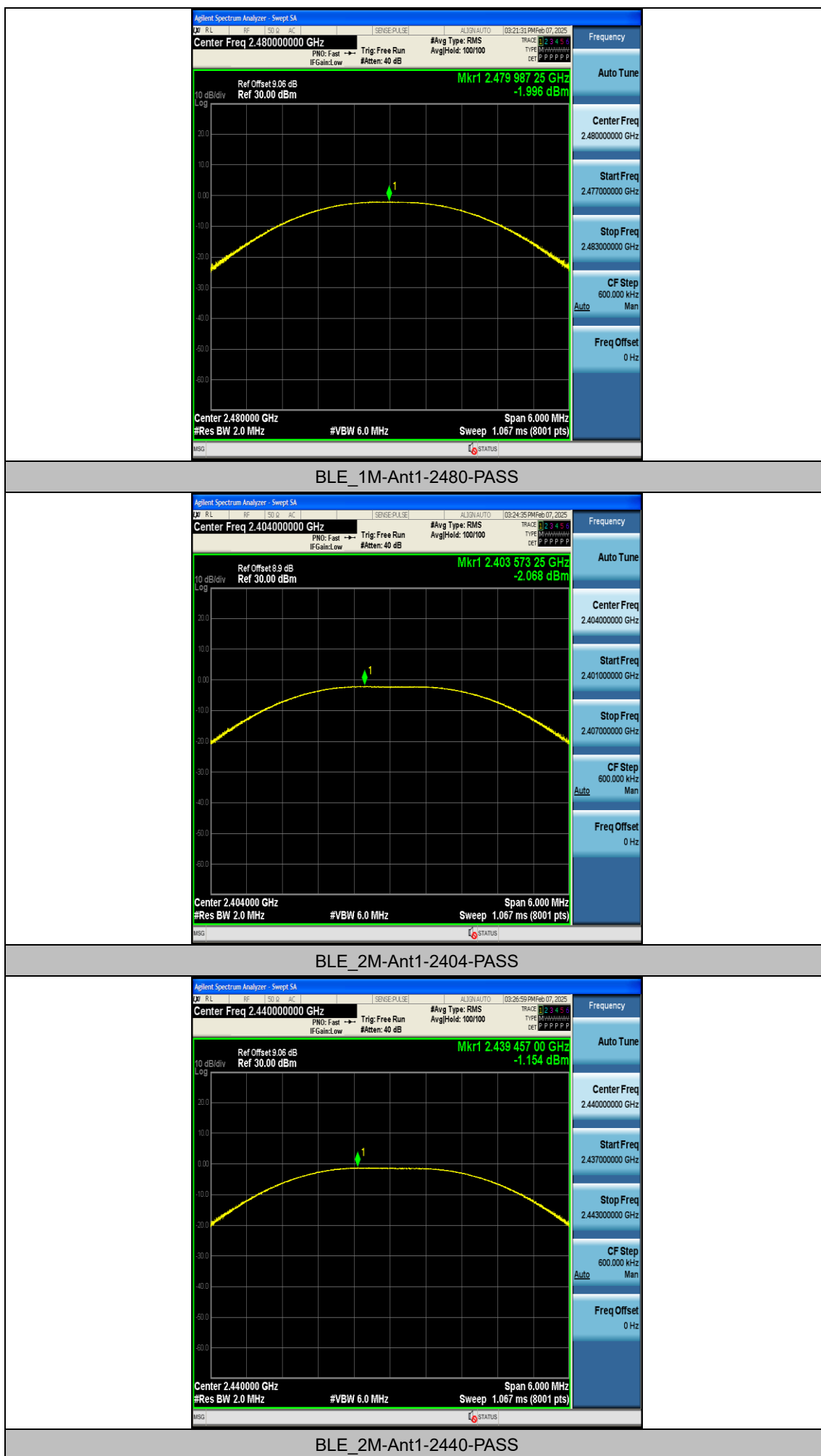
Appendix C: Maximum peak conducted output power

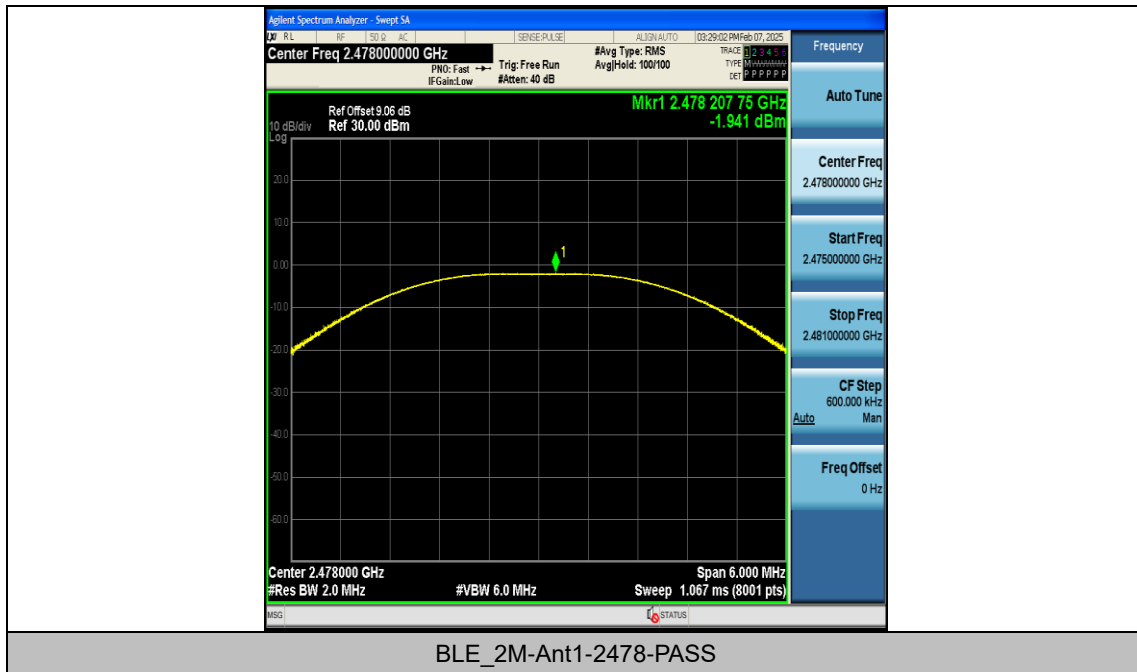
Test Result Peak

Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2402	-1.90	≤30	PASS
BLE_1M	Ant1	2440	-1.22	≤30	PASS
BLE_1M	Ant1	2480	-2.00	≤30	PASS
BLE_2M	Ant1	2404	-2.07	≤30	PASS
BLE_2M	Ant1	2440	-1.15	≤30	PASS
BLE_2M	Ant1	2478	-1.94	≤30	PASS

Test Graphs Peak





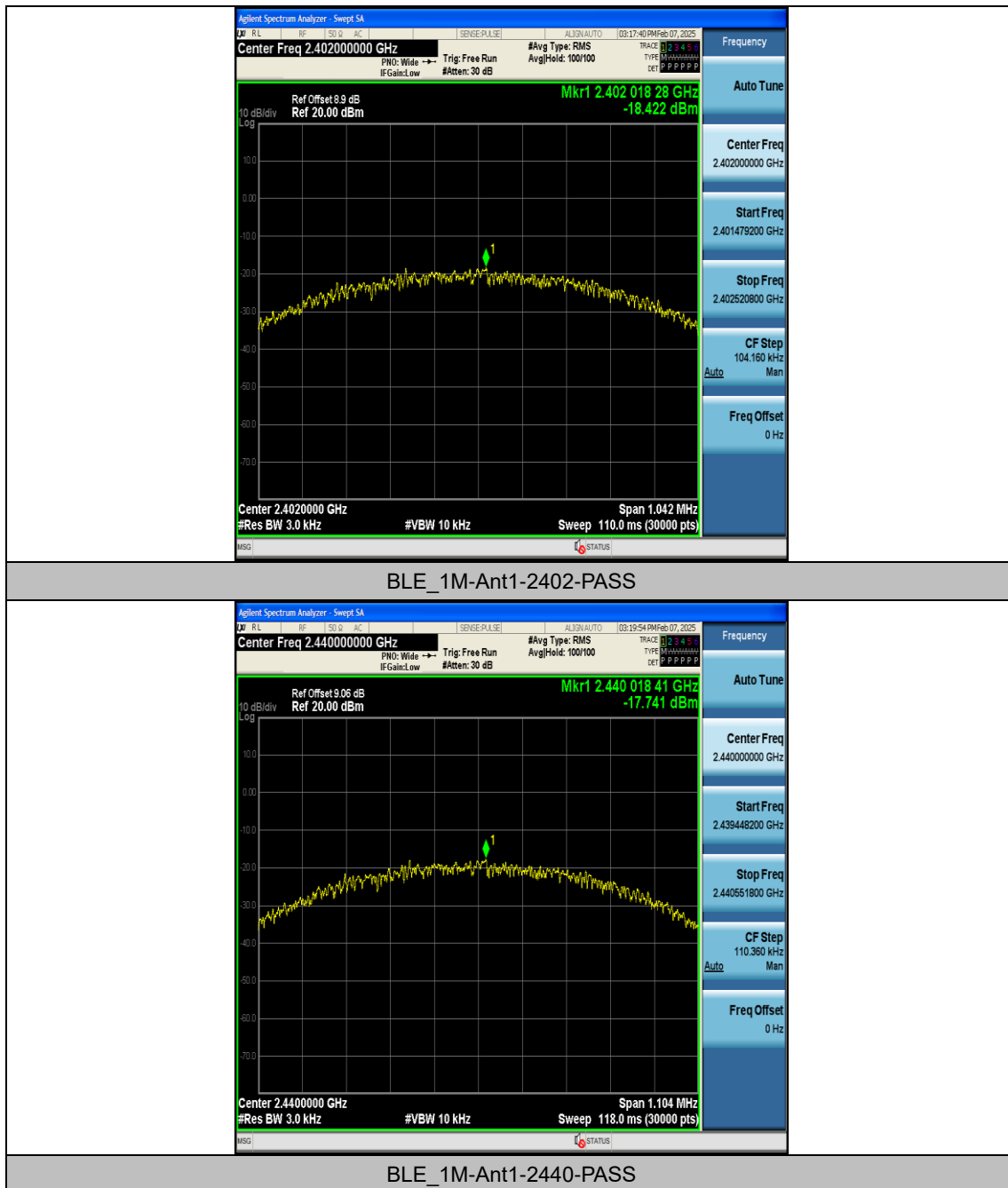


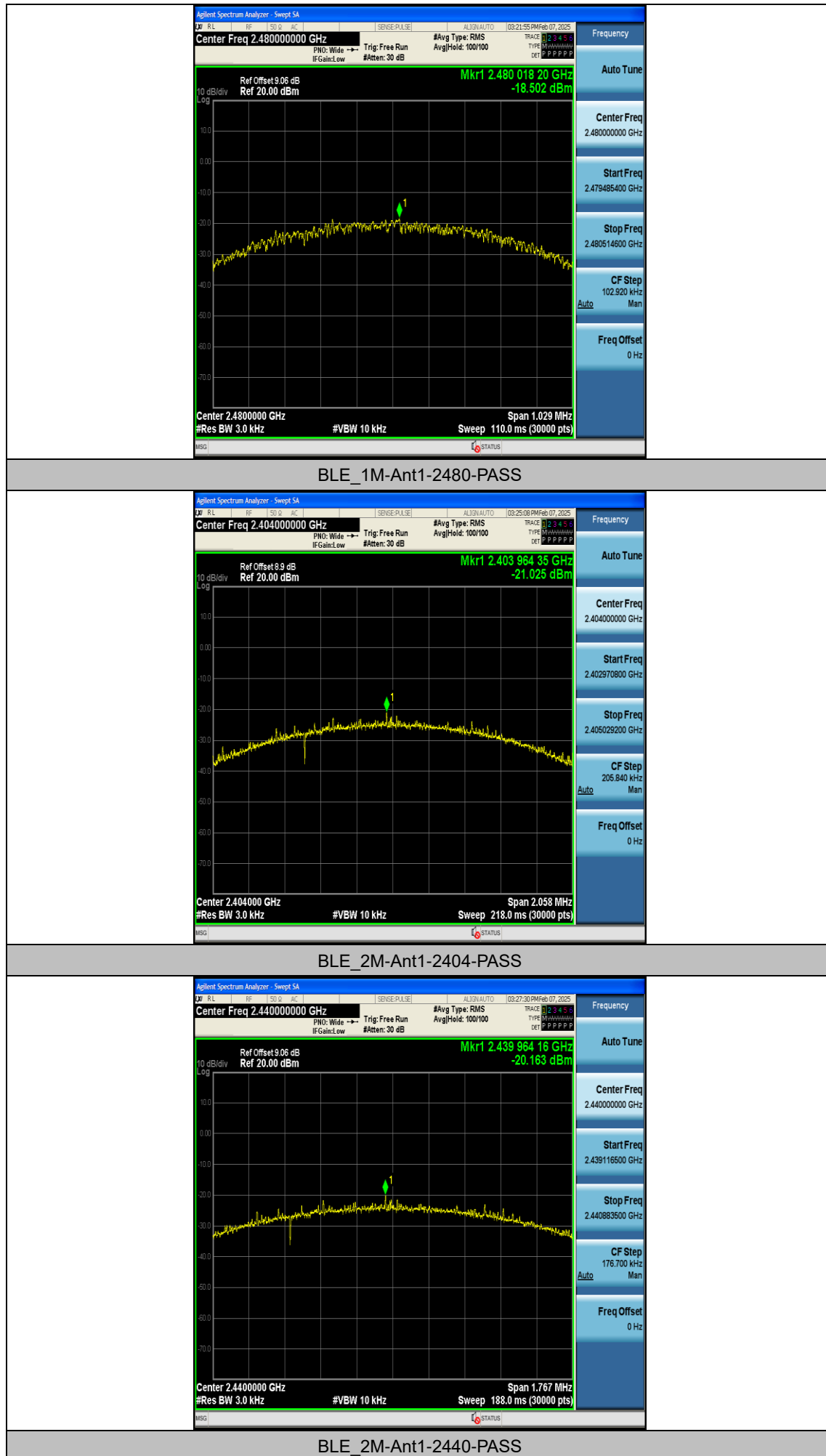
Appendix D: Maximum peak power spectral density

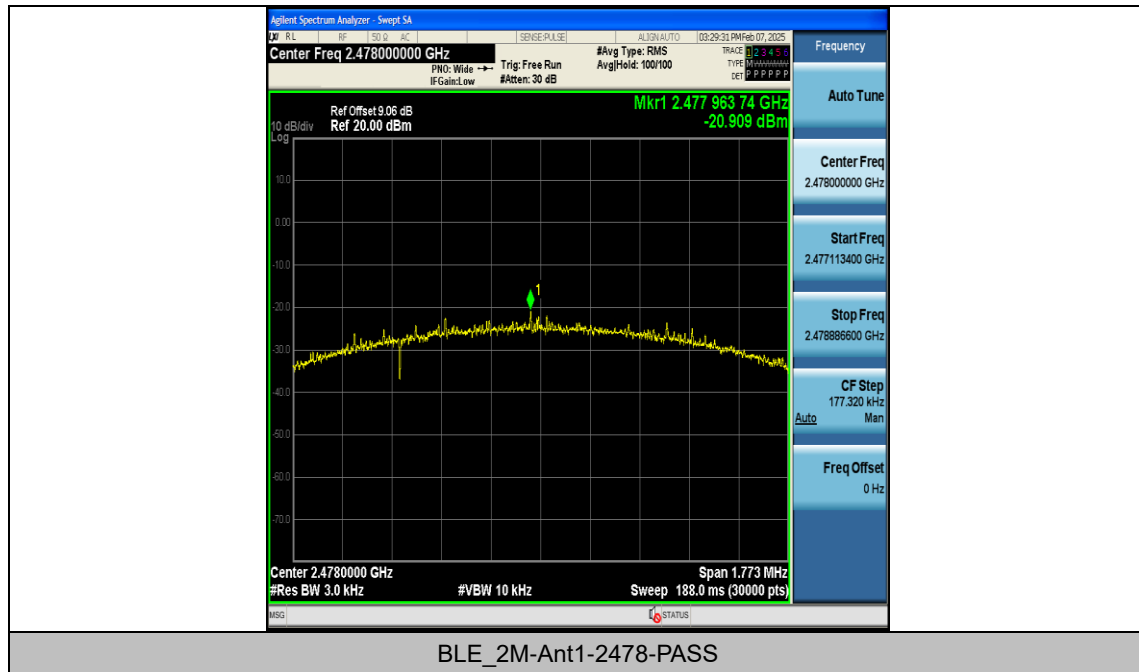
Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-18.42	≤8.00	PASS
BLE_1M	Ant1	2440	-17.74	≤8.00	PASS
BLE_1M	Ant1	2480	-18.50	≤8.00	PASS
BLE_2M	Ant1	2404	-21.03	≤8.00	PASS
BLE_2M	Ant1	2440	-20.16	≤8.00	PASS
BLE_2M	Ant1	2478	-20.91	≤8.00	PASS

Test Graphs





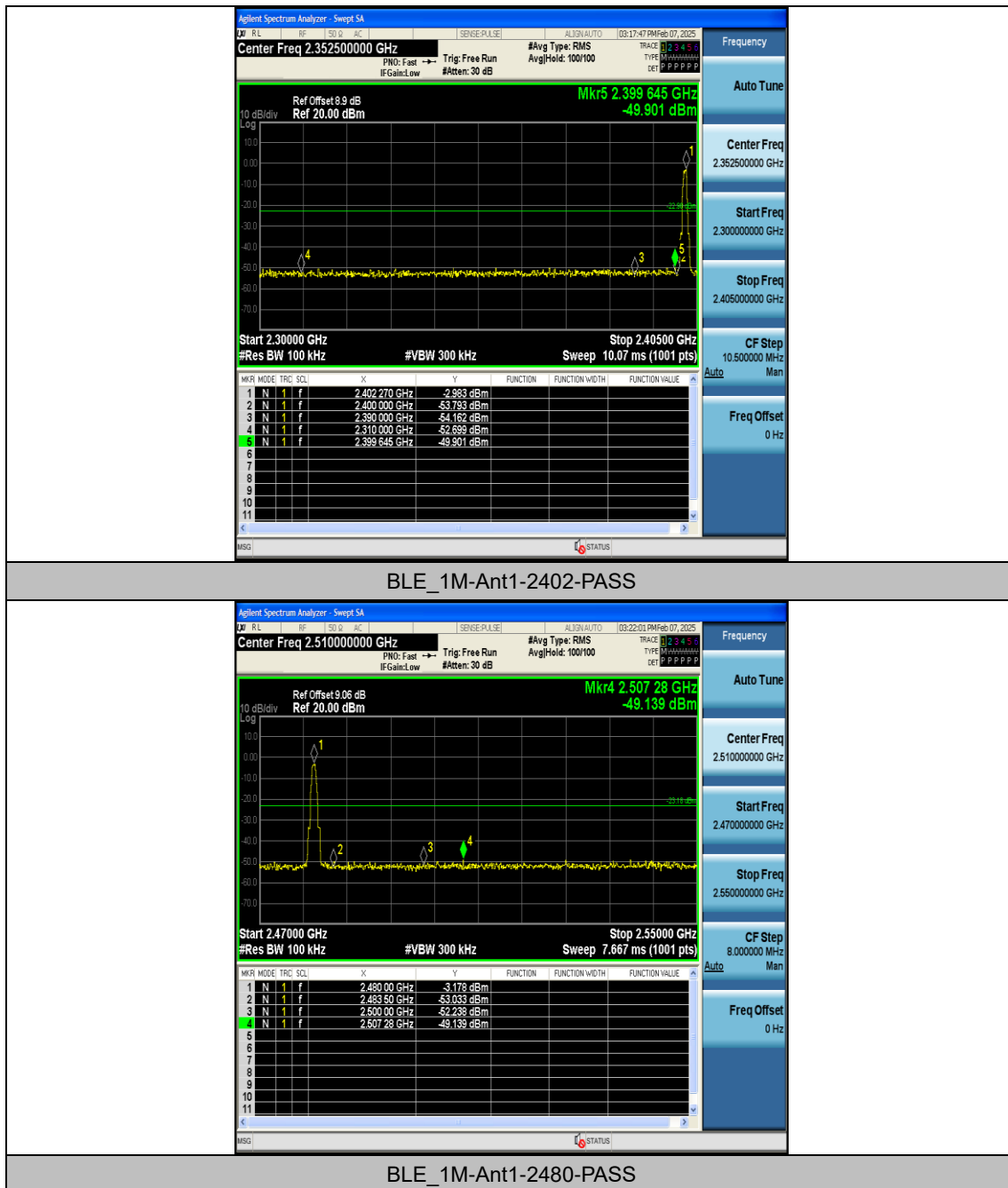


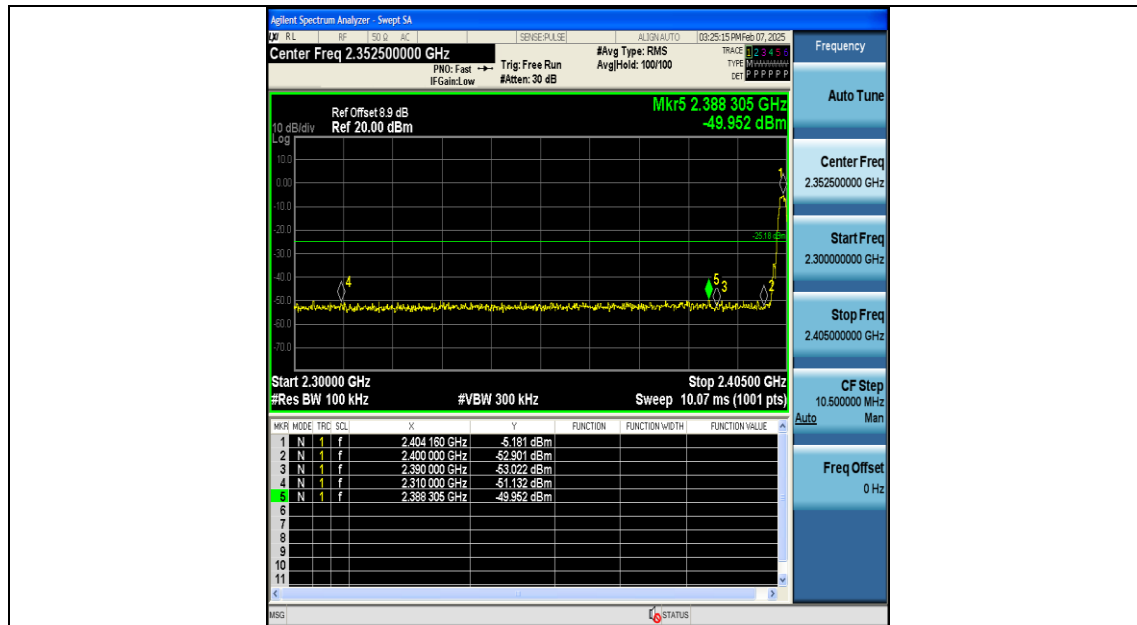
Appendix E: Band edge measurements

Test Result

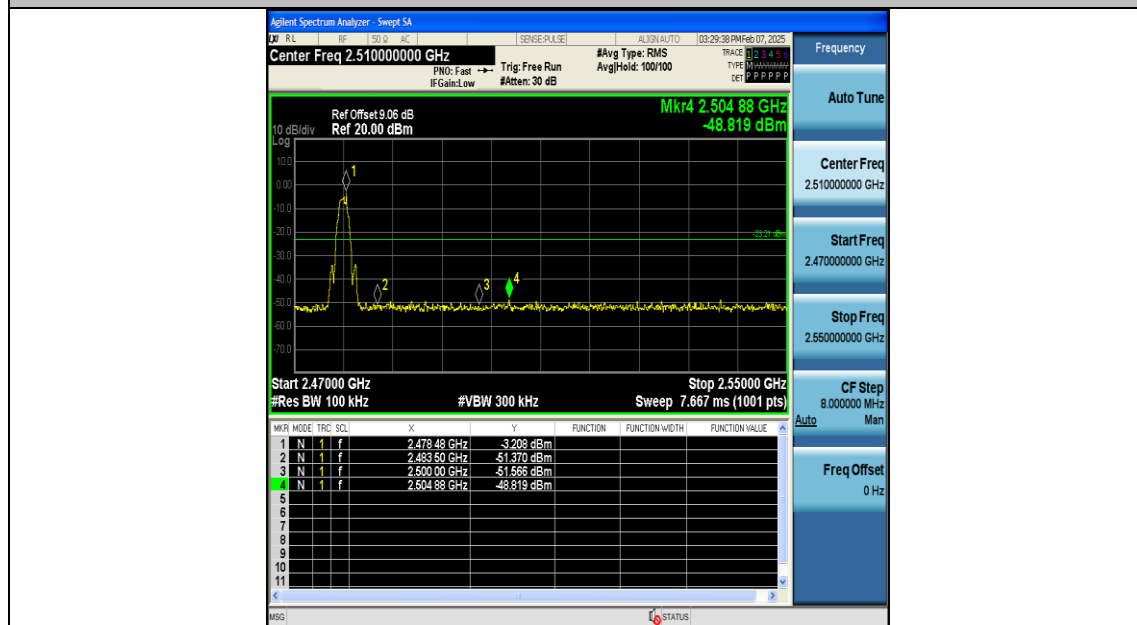
Test Mode	Antenna	Ch. Name	Frequency [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	-2.98	-49.9	≤ -22.98	PASS
BLE_1M	Ant1	High	2480	-3.18	-49.14	≤ -23.18	PASS
BLE_2M	Ant1	Low	2404	-5.18	-49.95	≤ -25.18	PASS
BLE_2M	Ant1	High	2478	-3.21	-48.82	≤ -23.21	PASS

Test Graphs





BLE_2M-Ant1-2404-PASS



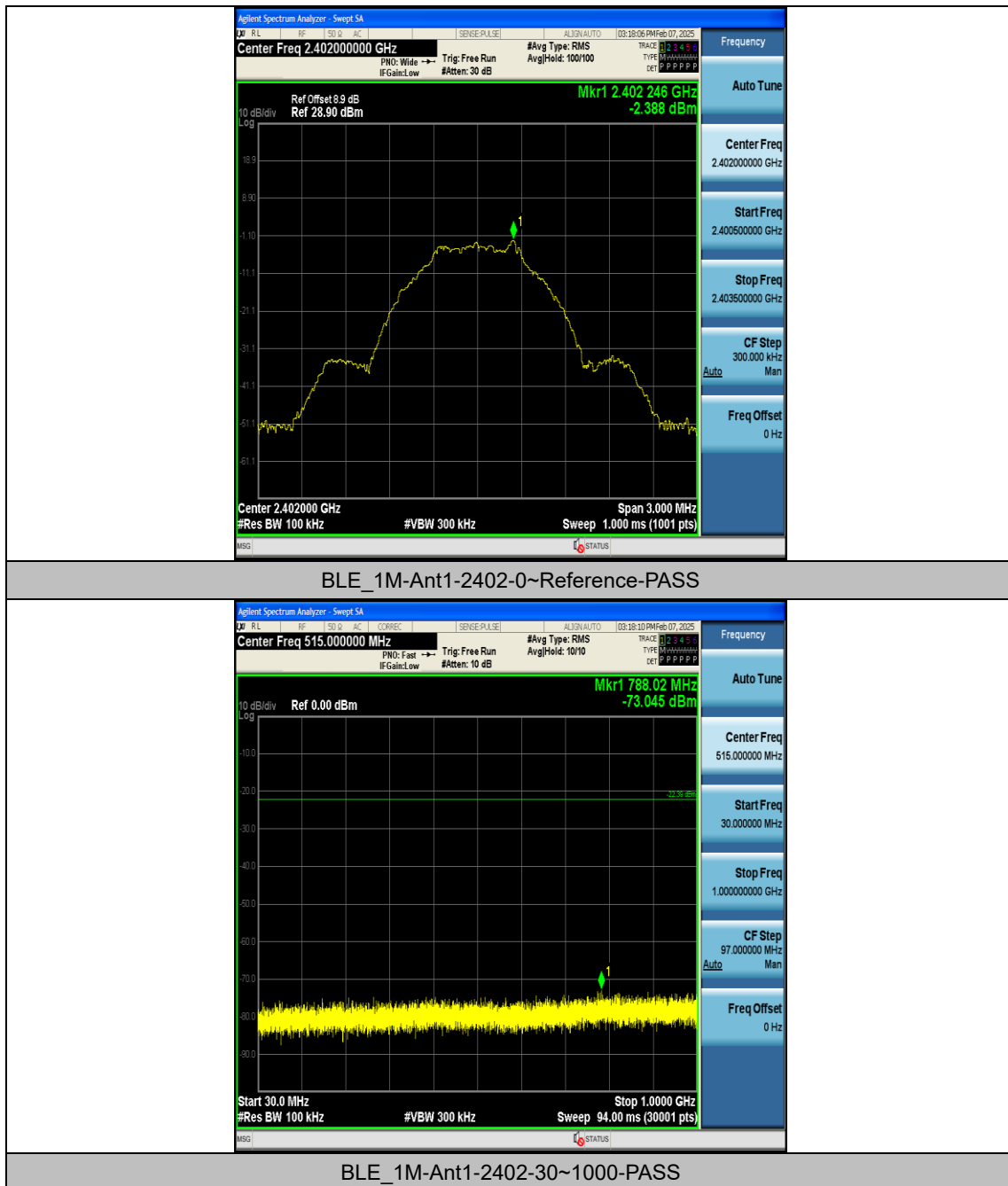
BLE_2M-Ant1-2478-PASS

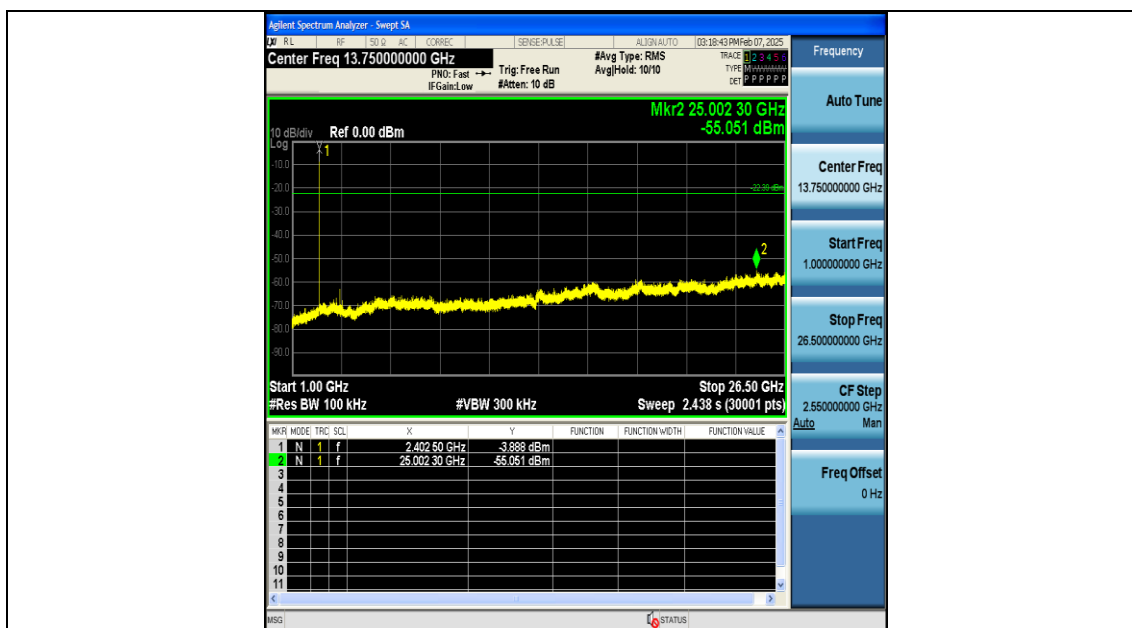
Appendix F: Conducted Spurious Emission

Test Result

Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	-2.39	-2.39	---	PASS
BLE_1M	Ant1	2402	30~1000	-2.39	-73.05	≤-22.39	PASS
BLE_1M	Ant1	2402	1000~26500	-2.39	-55.05	≤-22.39	PASS
BLE_1M	Ant1	2440	0~Reference	-2.50	-2.50	---	PASS
BLE_1M	Ant1	2440	30~1000	-2.50	-73.01	≤-22.5	PASS
BLE_1M	Ant1	2440	1000~26500	-2.50	-55.7	≤-22.5	PASS
BLE_1M	Ant1	2480	0~Reference	-2.98	-2.98	---	PASS
BLE_1M	Ant1	2480	30~1000	-2.98	-72.94	≤-22.98	PASS
BLE_1M	Ant1	2480	1000~26500	-2.98	-54.35	≤-22.98	PASS
BLE_2M	Ant1	2404	0~Reference	-3.73	-3.73	---	PASS
BLE_2M	Ant1	2404	30~1000	-3.73	-72.89	≤-23.73	PASS
BLE_2M	Ant1	2404	1000~26500	-3.73	-55.55	≤-23.73	PASS
BLE_2M	Ant1	2440	0~Reference	-2.24	-2.24	---	PASS
BLE_2M	Ant1	2440	30~1000	-2.24	-72.89	≤-22.24	PASS
BLE_2M	Ant1	2440	1000~26500	-2.24	-55.29	≤-22.24	PASS
BLE_2M	Ant1	2478	0~Reference	-2.92	-2.92	---	PASS
BLE_2M	Ant1	2478	30~1000	-2.92	-72.7	≤-22.92	PASS
BLE_2M	Ant1	2478	1000~26500	-2.92	-55.56	≤-22.92	PASS

Test Graphs

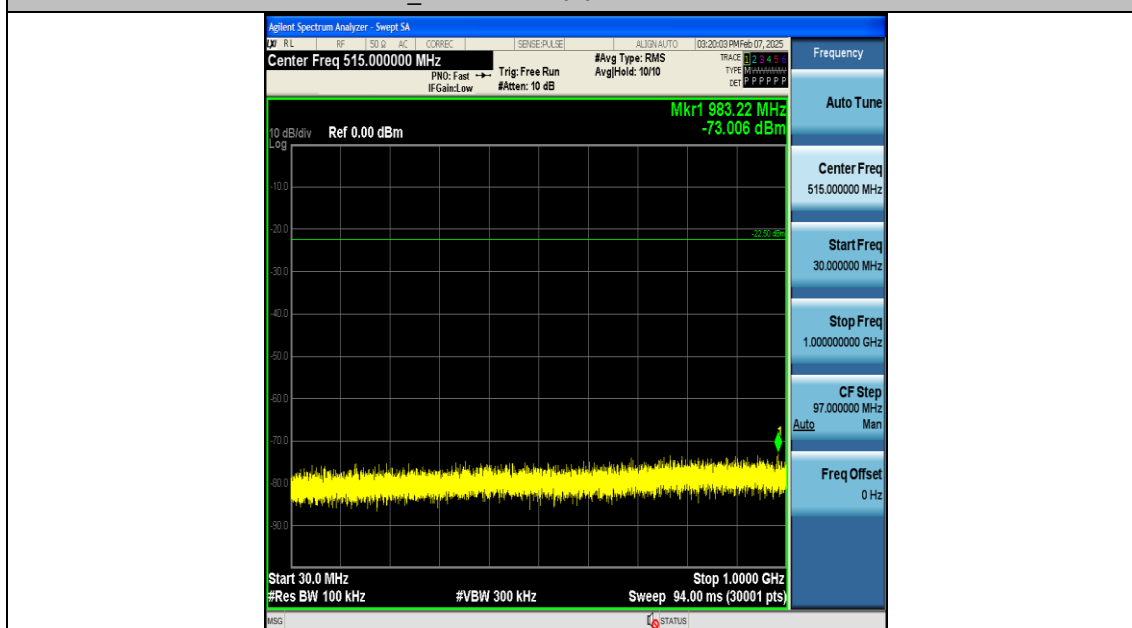




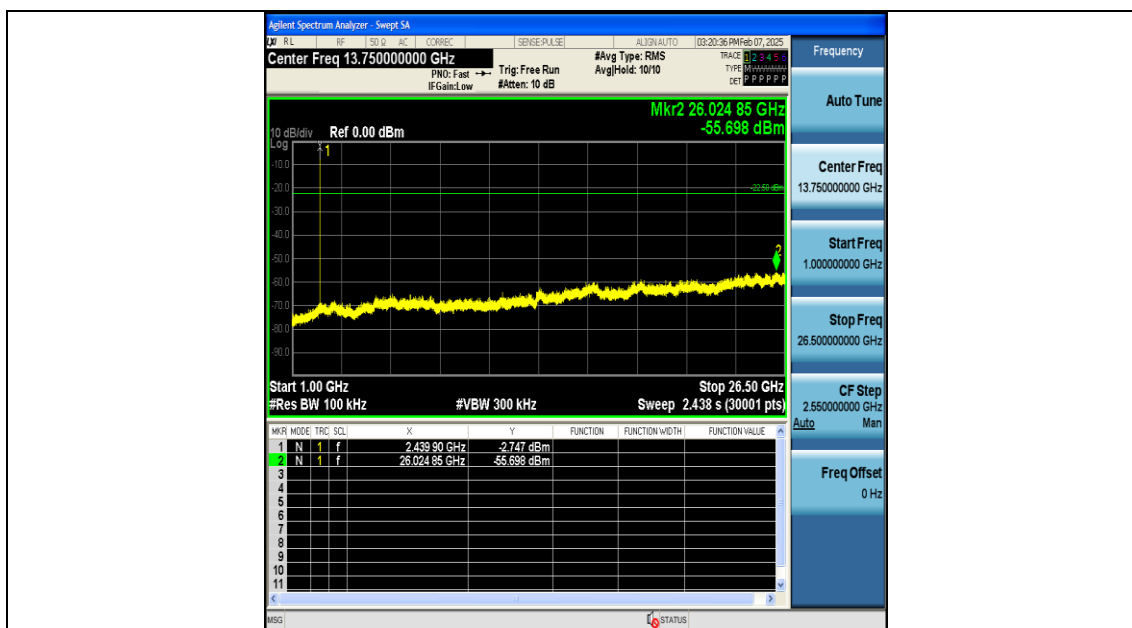
BLE_1M-Ant1-2402-1000~26500-PASS



BLE_1M-Ant1-2440-0~Reference-PASS



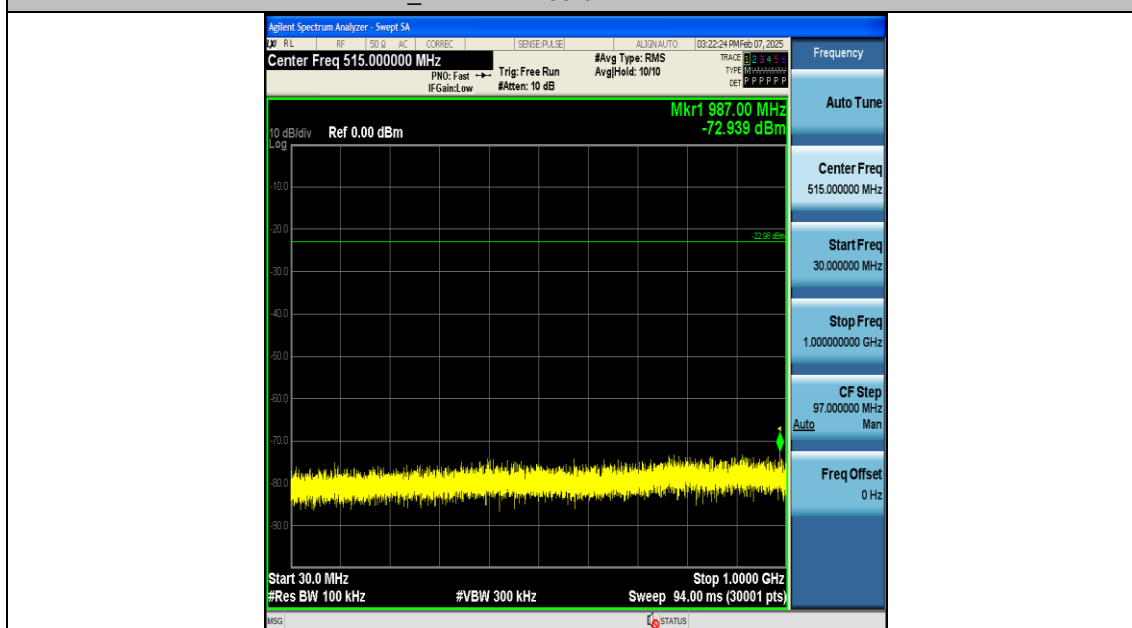
BLE_1M-Ant1-2440-30~1000-PASS



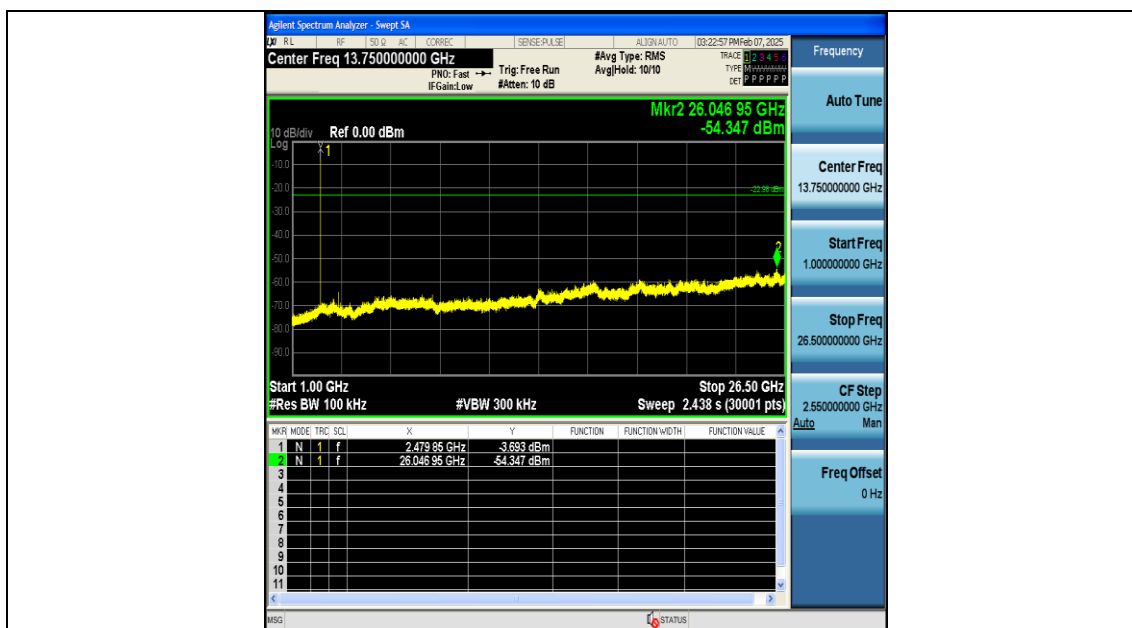
BLE_1M-Ant1-2440-1000~26500-PASS



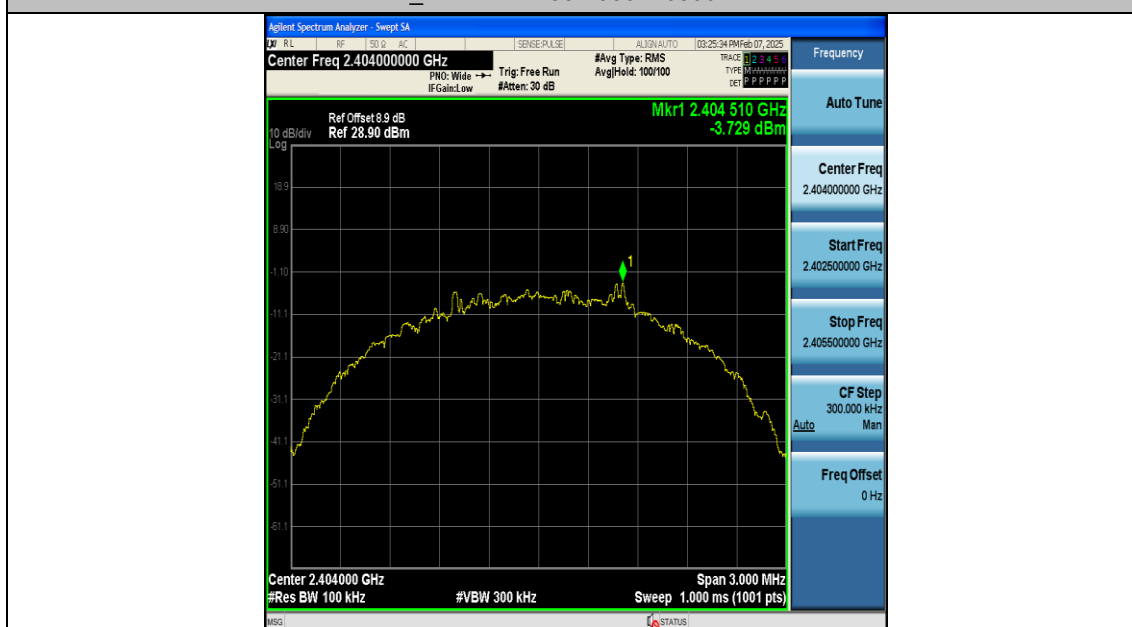
BLE_1M-Ant1-2480-0~Reference-PASS



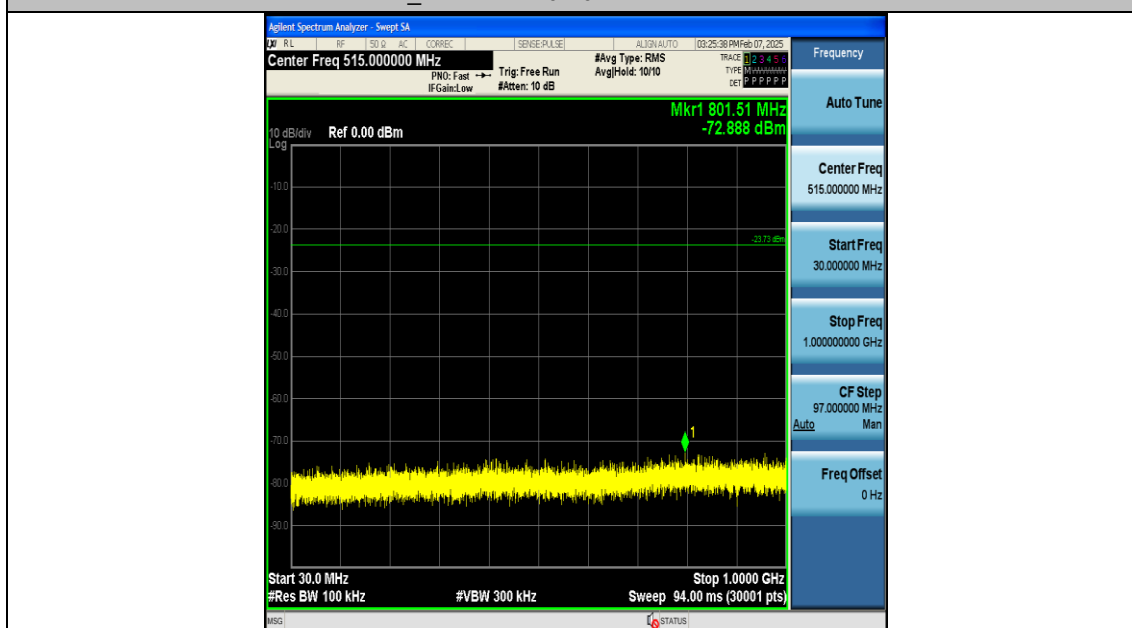
BLE_1M-Ant1-2480-30~1000-PASS



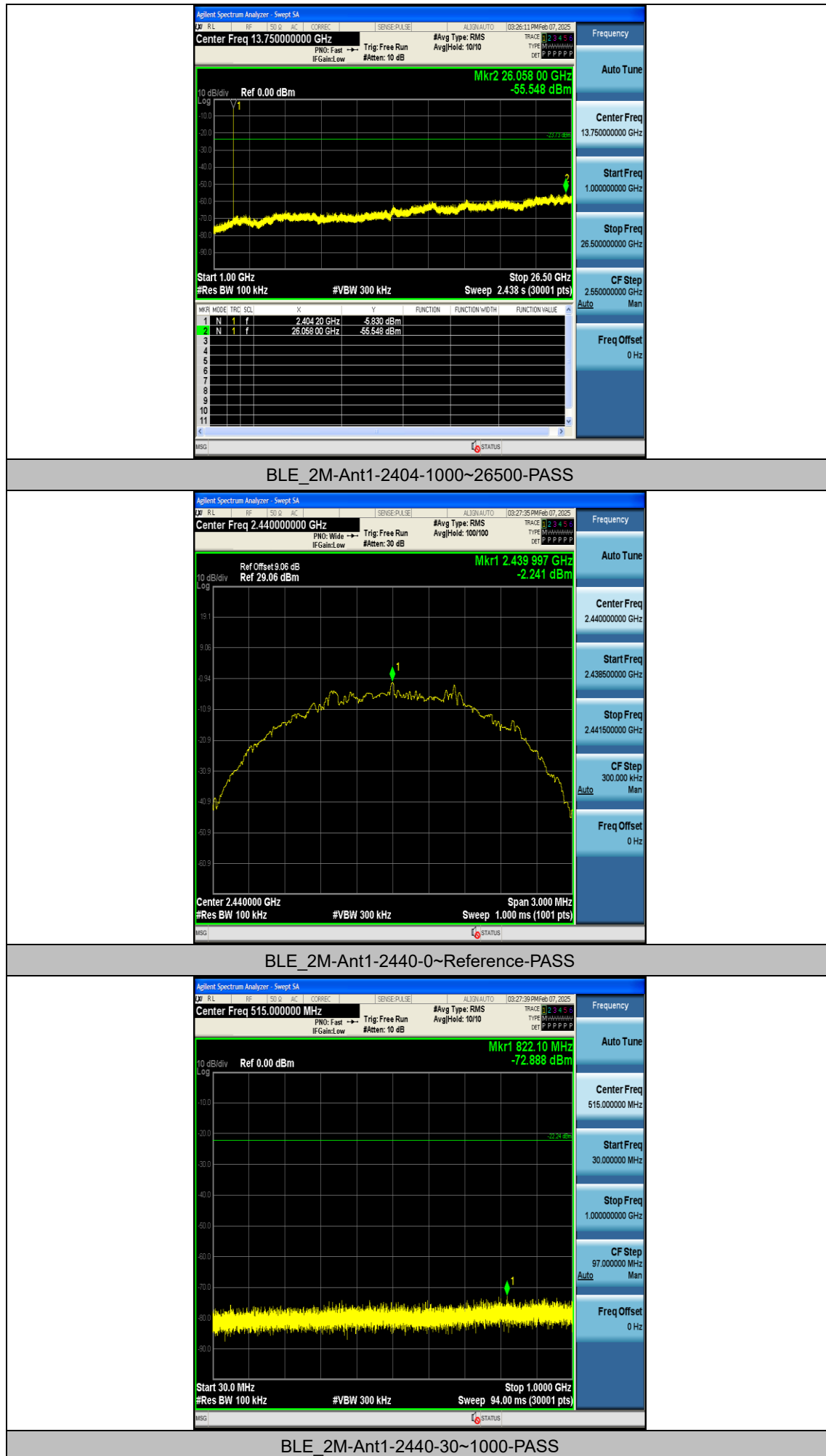
BLE_1M-Ant1-2480-1000~26500-PASS

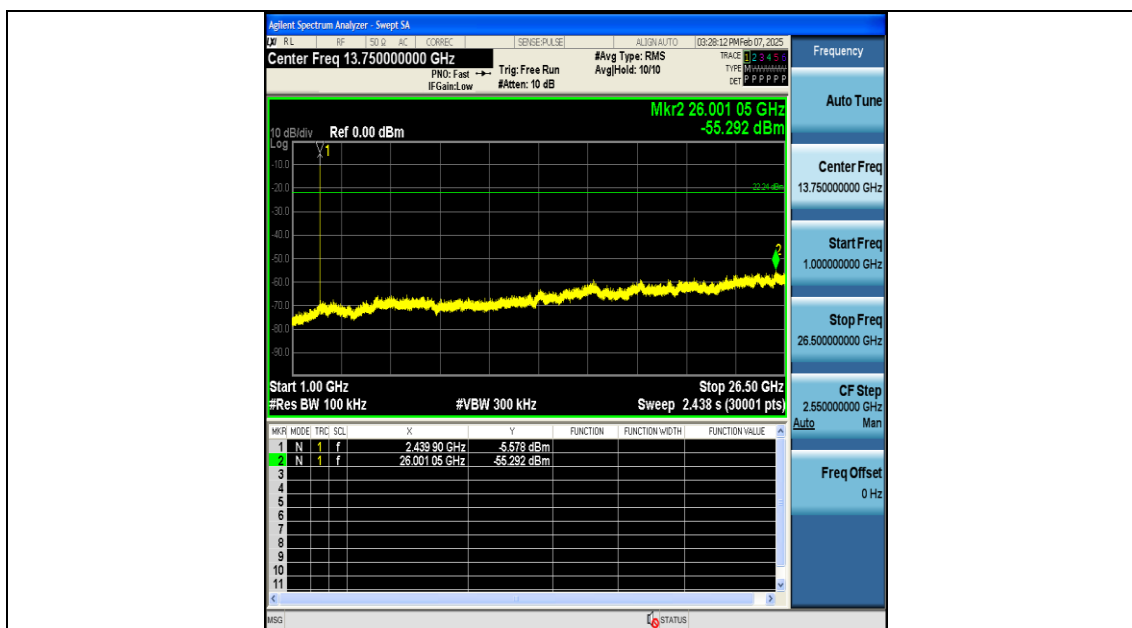


BLE_2M-Ant1-2404-0~Reference-PASS



BLE_2M-Ant1-2404-30~1000-PASS

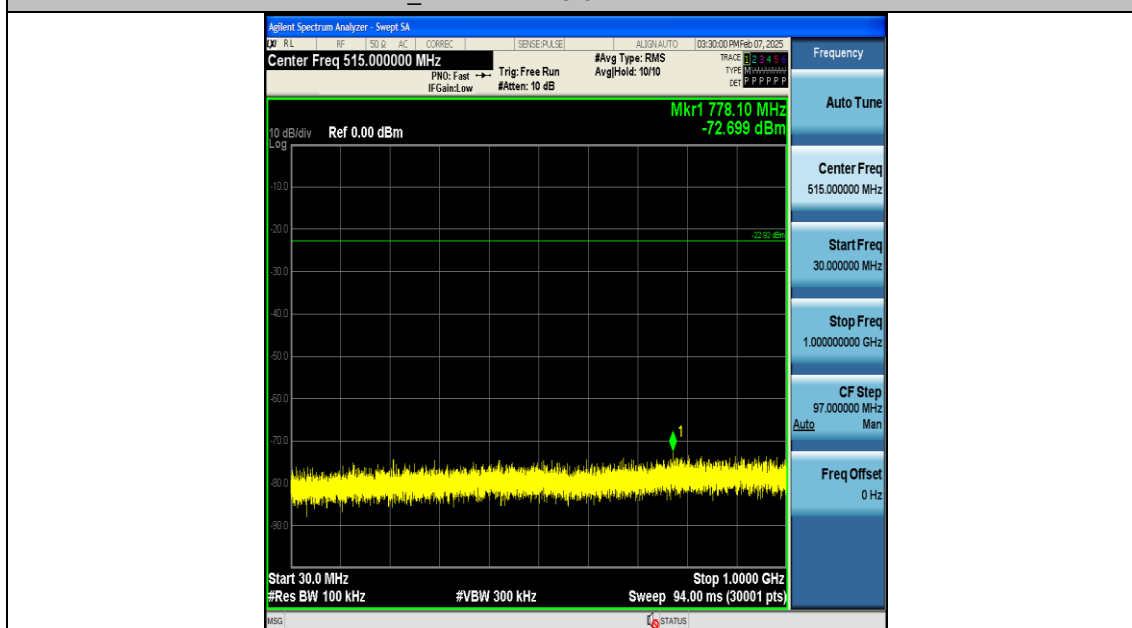




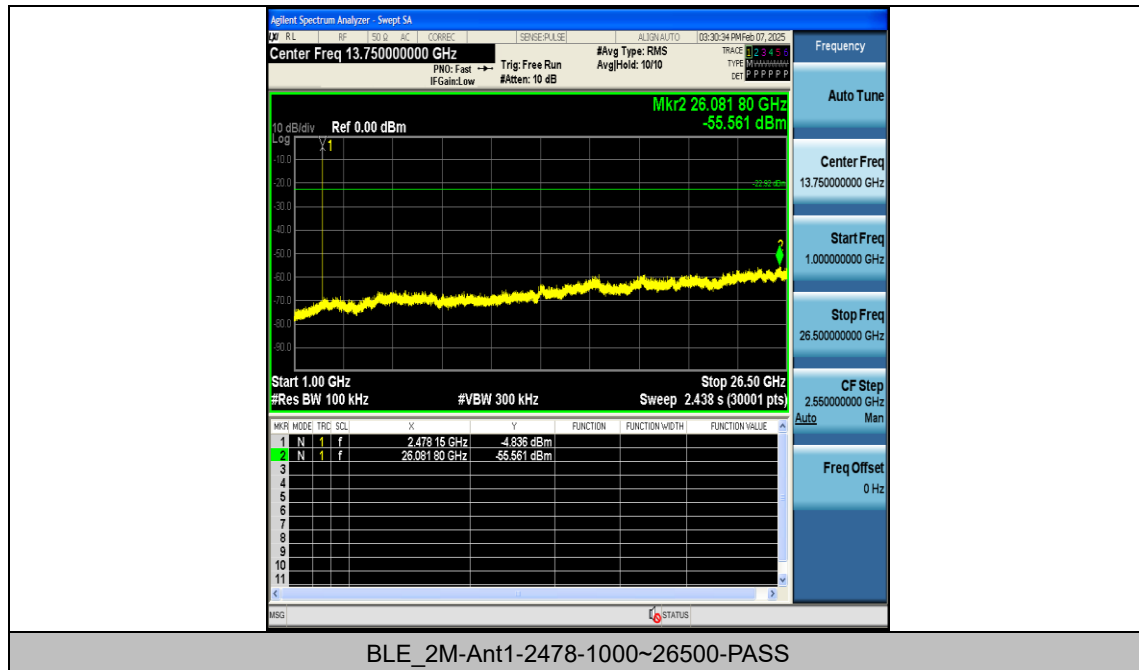
BLE_2M-Ant1-2440-1000~26500-PASS



BLE_2M-Ant1-2478-0~Reference-PASS



BLE_2M-Ant1-2478-30~1000-PASS

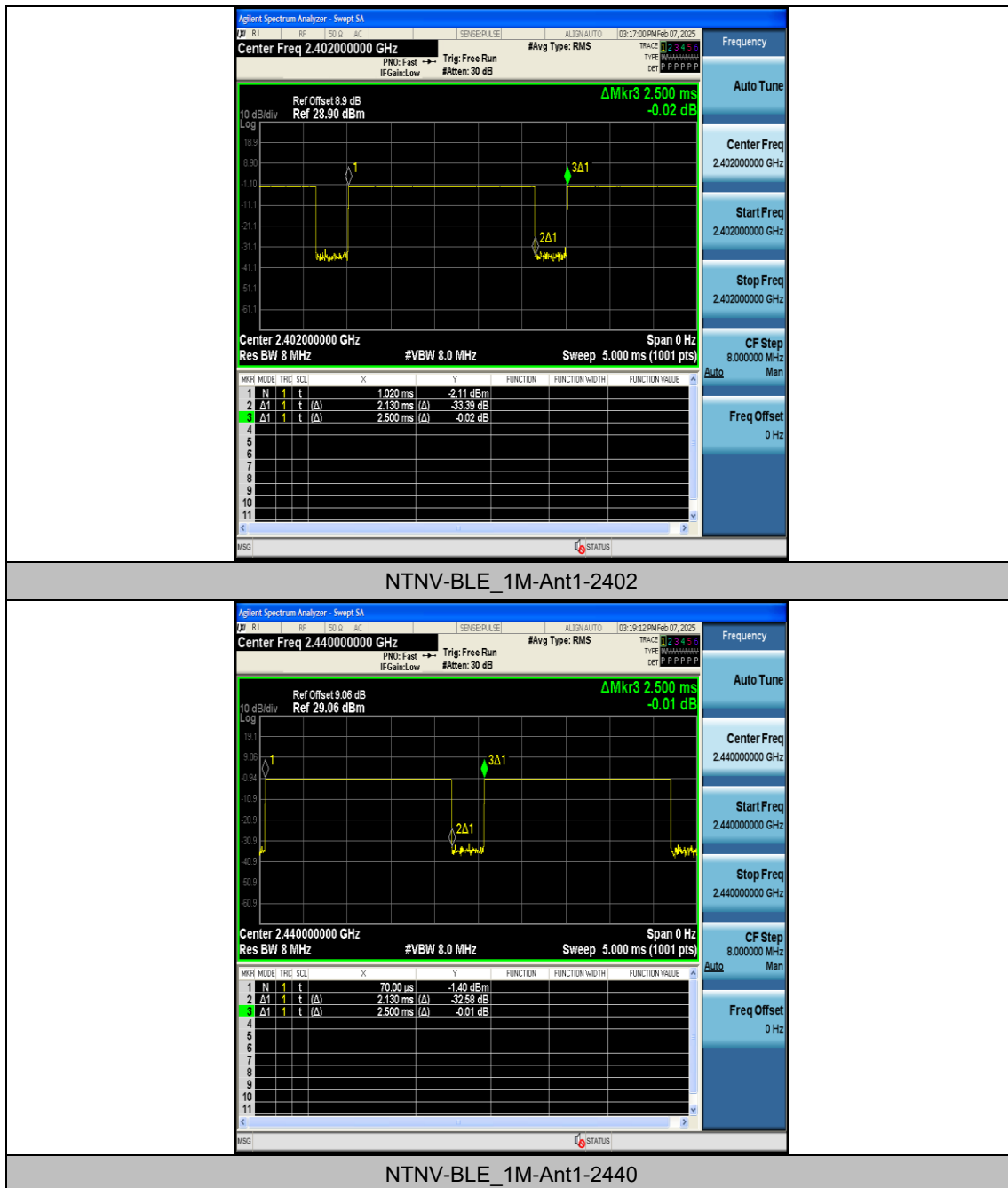


Appendix G: Duty Cycle

Test Result

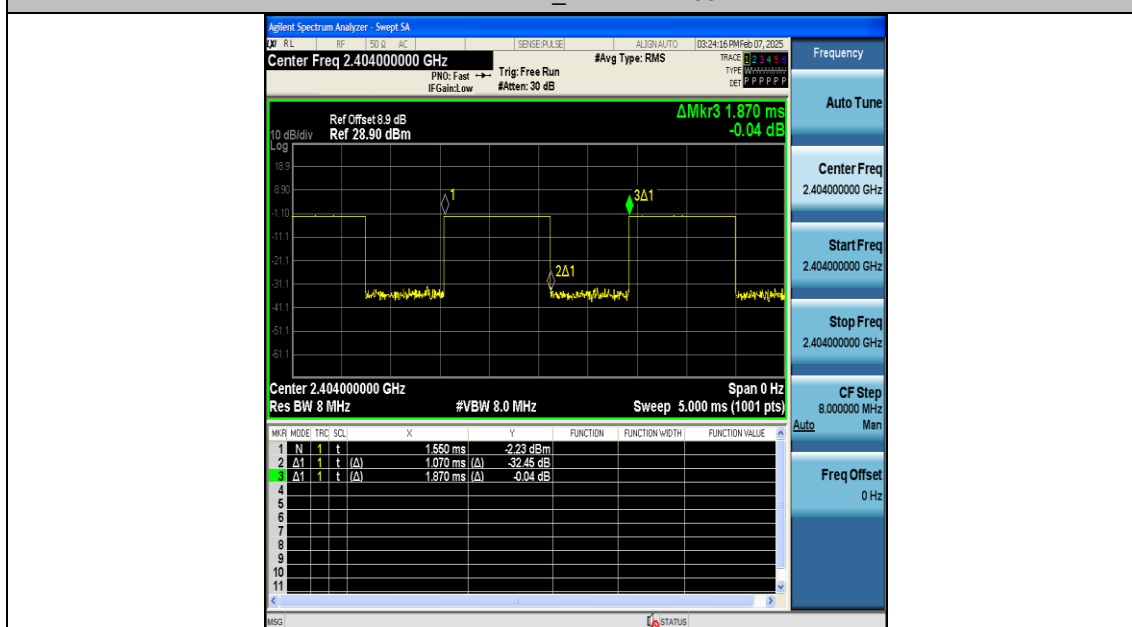
Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
BLE_1M	Ant1	2402	2.13	2.50	85.20	0.70
BLE_1M	Ant1	2440	2.13	2.50	85.20	0.70
BLE_1M	Ant1	2480	2.13	2.50	85.20	0.70
BLE_2M	Ant1	2404	1.07	1.87	57.22	2.42
BLE_2M	Ant1	2440	1.07	1.88	56.91	2.45
BLE_2M	Ant1	2478	1.08	1.88	57.45	2.41

Test Graphs

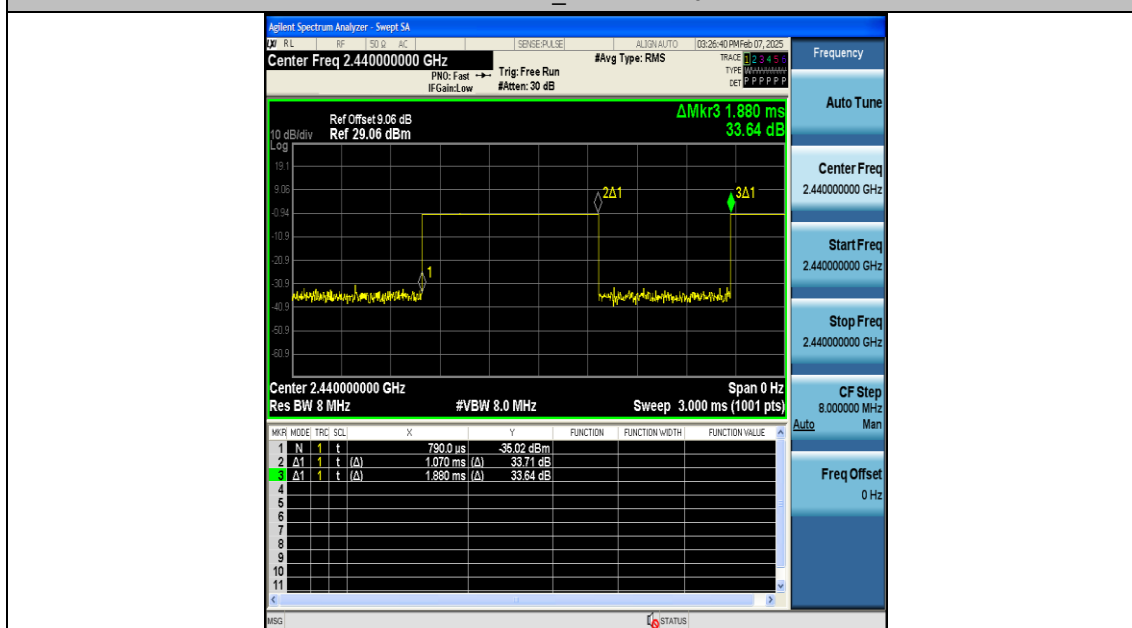




NTNV-BLE_1M-Ant1-2480



NTNV-BLE_2M-Ant1-2404



NTNV-BLE_2M-Ant1-2440

