

Appendix: Bluetooth LE

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Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.71	2401.60	2402.32	0.5	PASS
BLE_1M	Ant1	2440	0.72	2439.60	2440.32	0.5	PASS
BLE_1M	Ant1	2480	0.72	2479.60	2480.32	0.5	PASS
BLE_2M	Ant1	2402	1.33	2401.29	2402.62	0.5	PASS
BLE_2M	Ant1	2440	1.34	2439.29	2440.63	0.5	PASS
BLE_2M	Ant1	2480	1.36	2479.28	2480.64	0.5	PASS

Test Graphs





BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



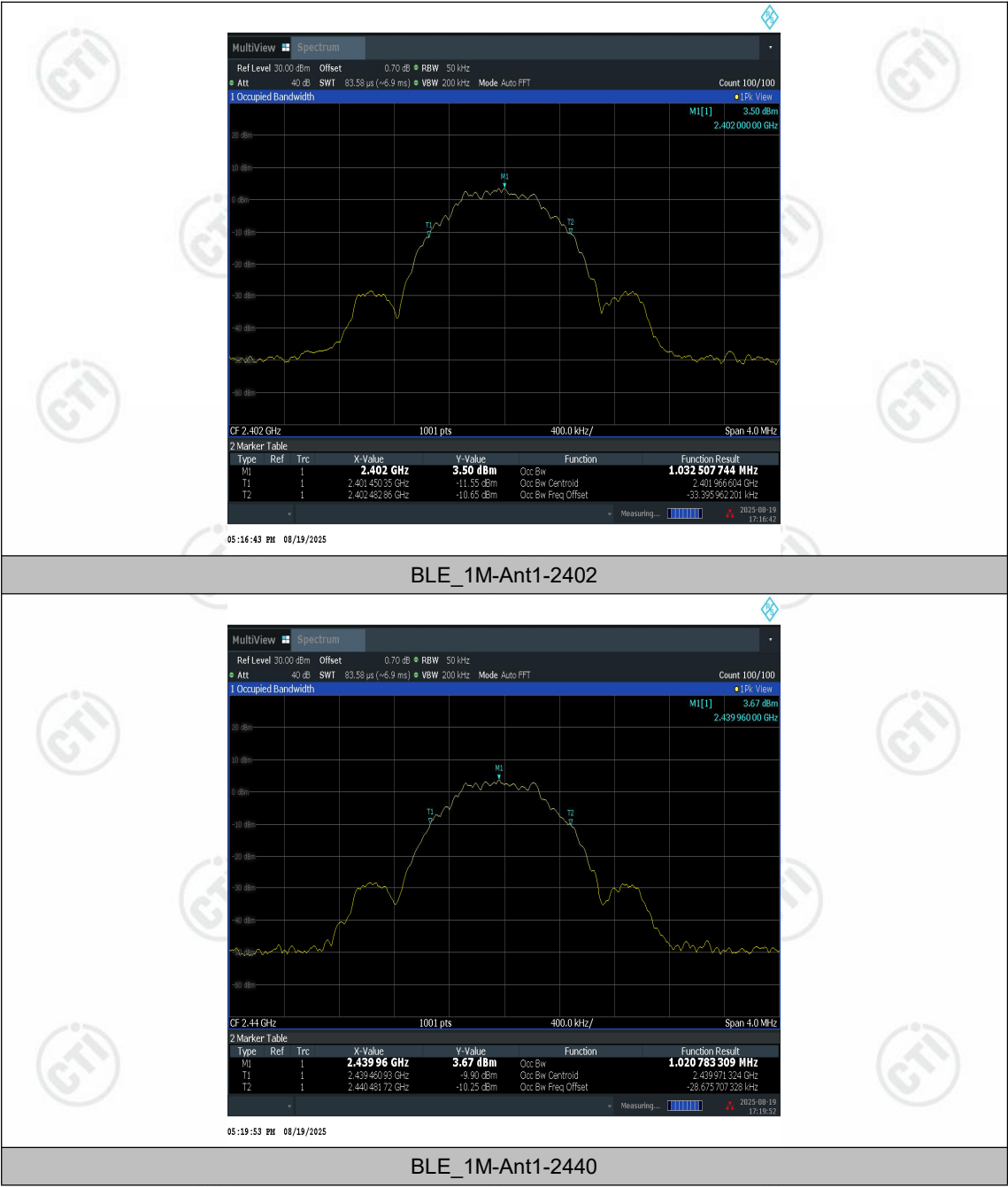
BLE_2M-Ant1-2480-PASS

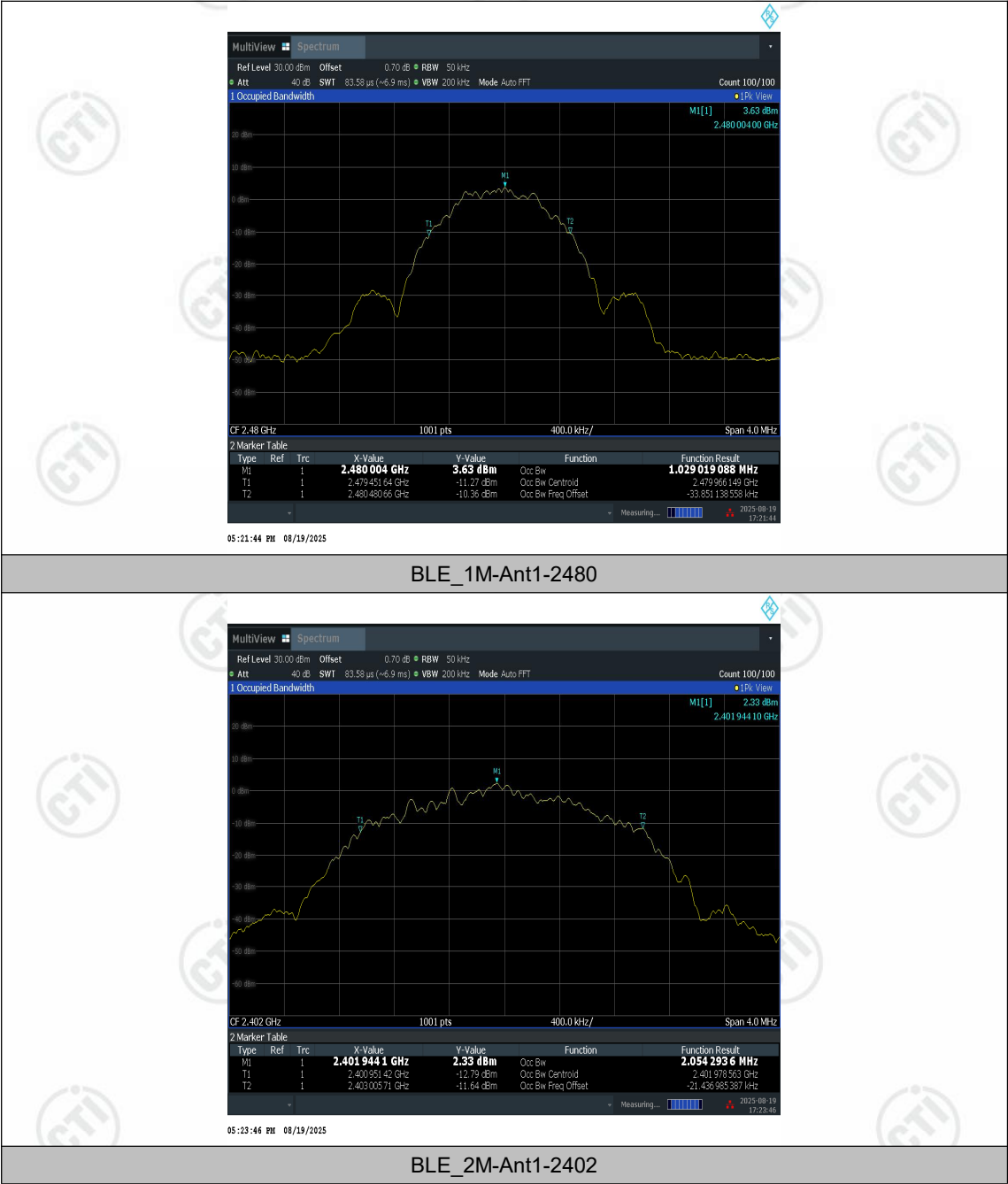
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0325	2401.4504	2402.4829	---	---
BLE_1M	Ant1	2440	1.0208	2439.4609	2440.4817	---	---
BLE_1M	Ant1	2480	1.0290	2479.4516	2480.4807	---	---
BLE_2M	Ant1	2402	2.0543	2400.9514	2403.0057	---	---
BLE_2M	Ant1	2440	2.0407	2438.9533	2440.9940	---	---
BLE_2M	Ant1	2480	2.0351	2478.9612	2480.9962	---	---

Test Graphs







BLE_2M-Ant1-2440



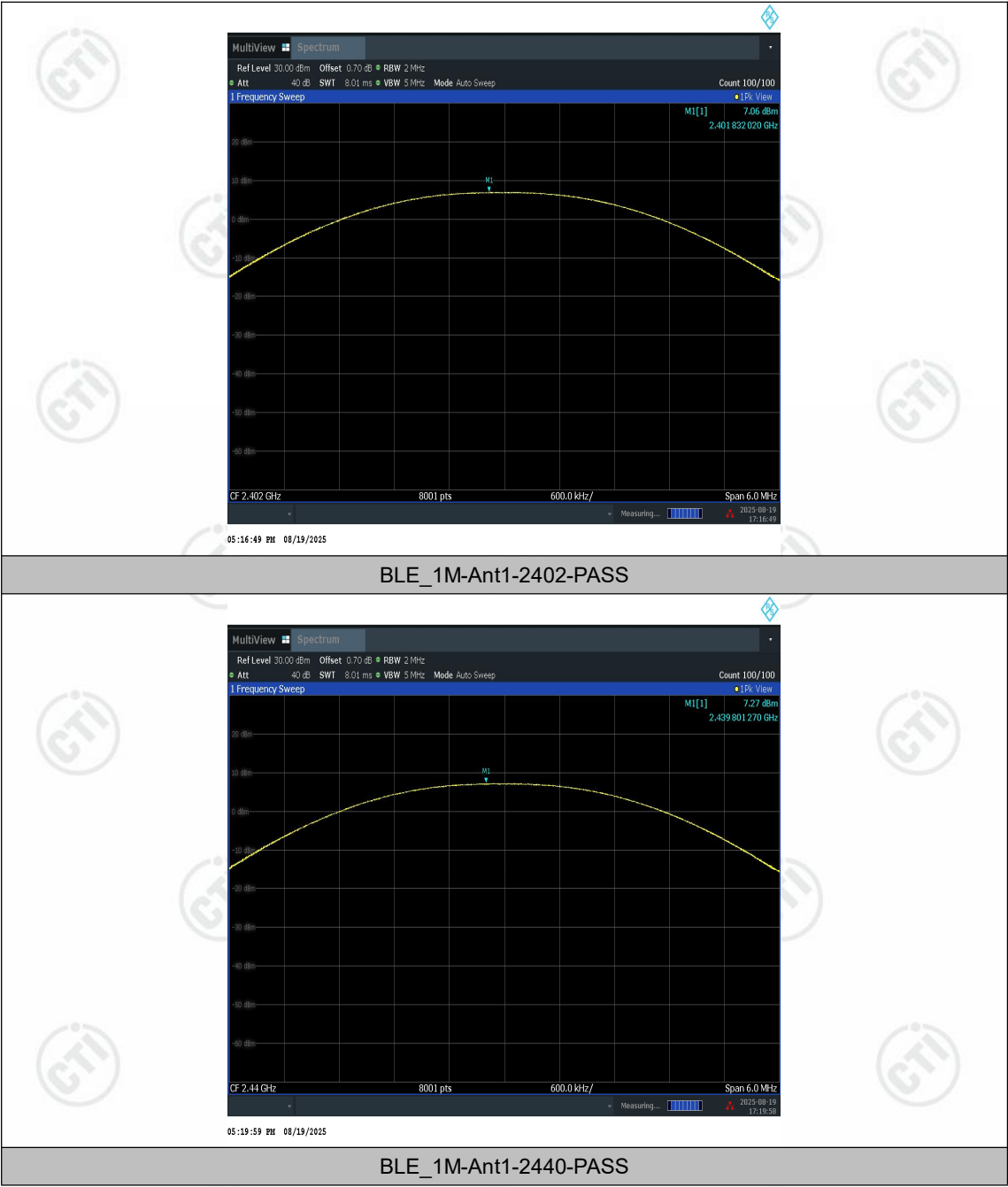
BLE_2M-Ant1-2480

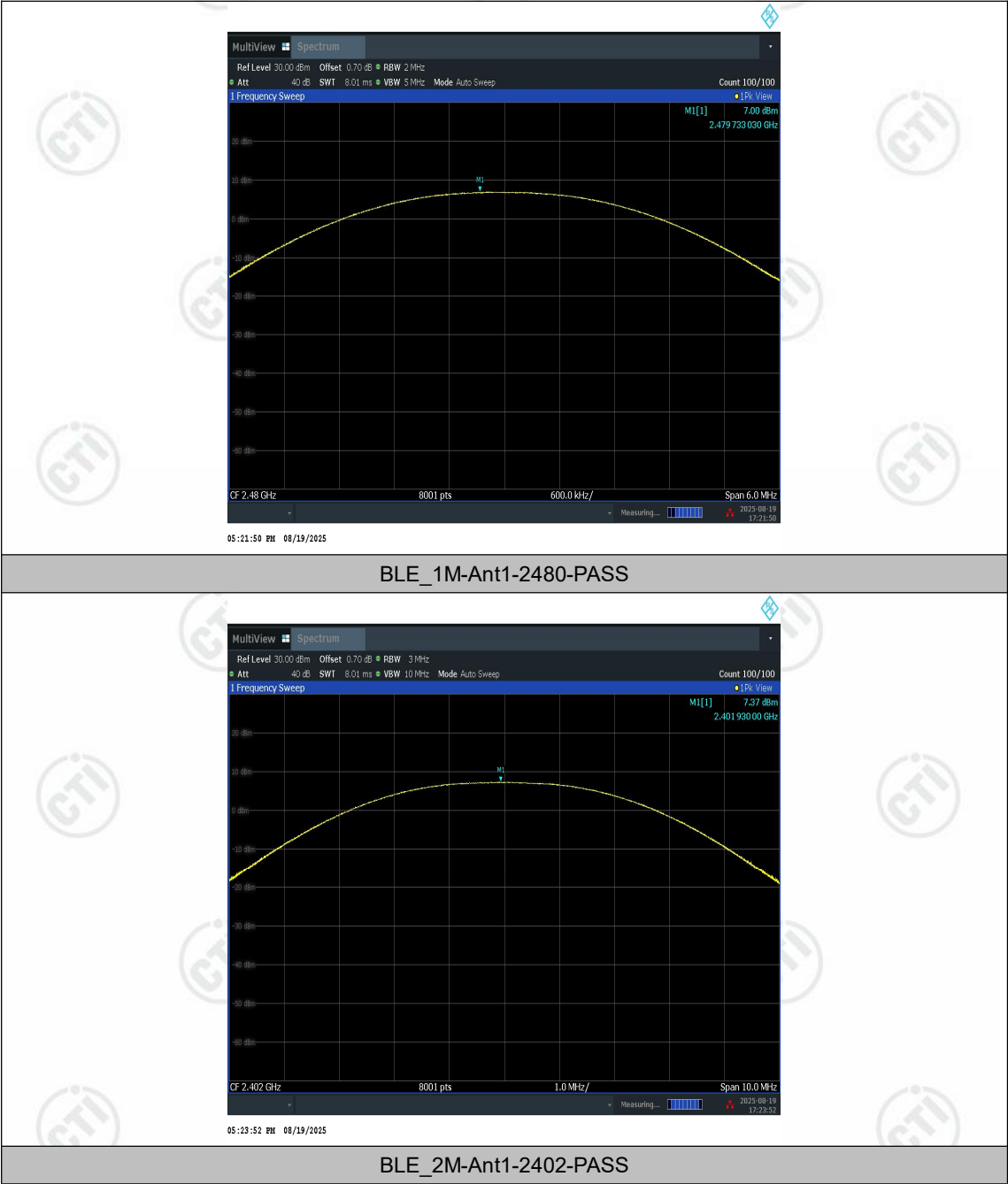
Appendix C: Maximum conducted output power

Test Result Peak

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	7.06	≤30	PASS
BLE_1M	Ant1	2440	7.27	≤30	PASS
BLE_1M	Ant1	2480	7.00	≤30	PASS
BLE_2M	Ant1	2402	7.37	≤30	PASS
BLE_2M	Ant1	2440	7.73	≤30	PASS
BLE_2M	Ant1	2480	7.47	≤30	PASS

Test Graphs Peak







BLE_2M-Ant1-2440-PASS



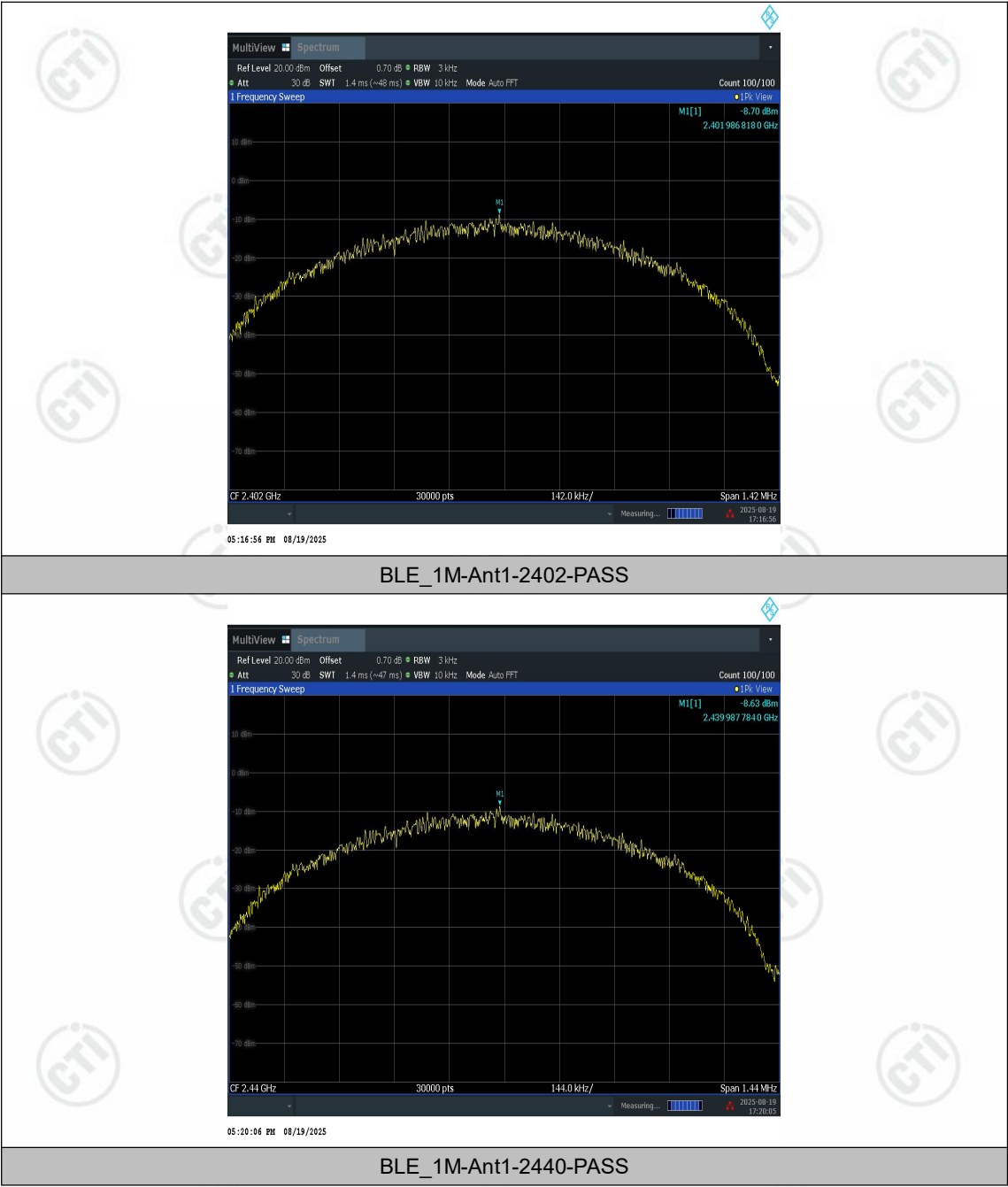
BLE_2M-Ant1-2480-PASS

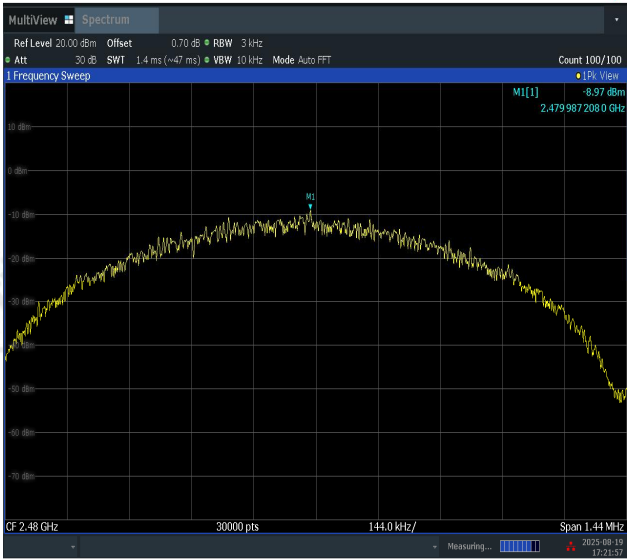
Appendix D: Maximum power spectral density

Test Result

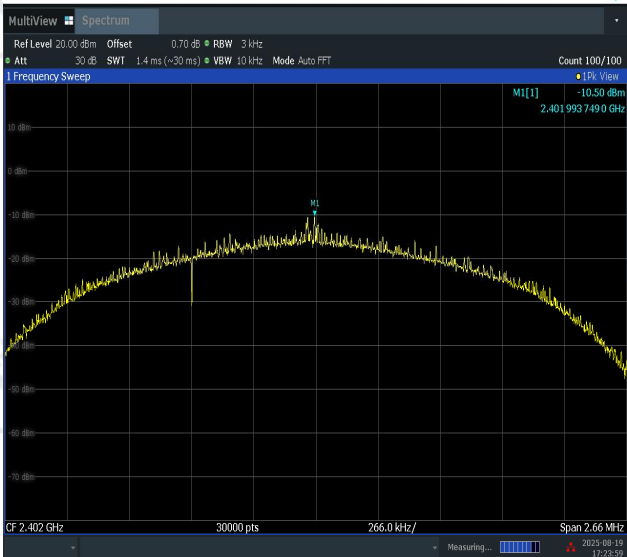
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.70	≤8.00	PASS
BLE_1M	Ant1	2440	-8.63	≤8.00	PASS
BLE_1M	Ant1	2480	-8.97	≤8.00	PASS
BLE_2M	Ant1	2402	-10.50	≤8.00	PASS
BLE_2M	Ant1	2440	-10.12	≤8.00	PASS
BLE_2M	Ant1	2480	-10.87	≤8.00	PASS

Test Graphs





BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



BLE_2M-Ant1-2480-PASS

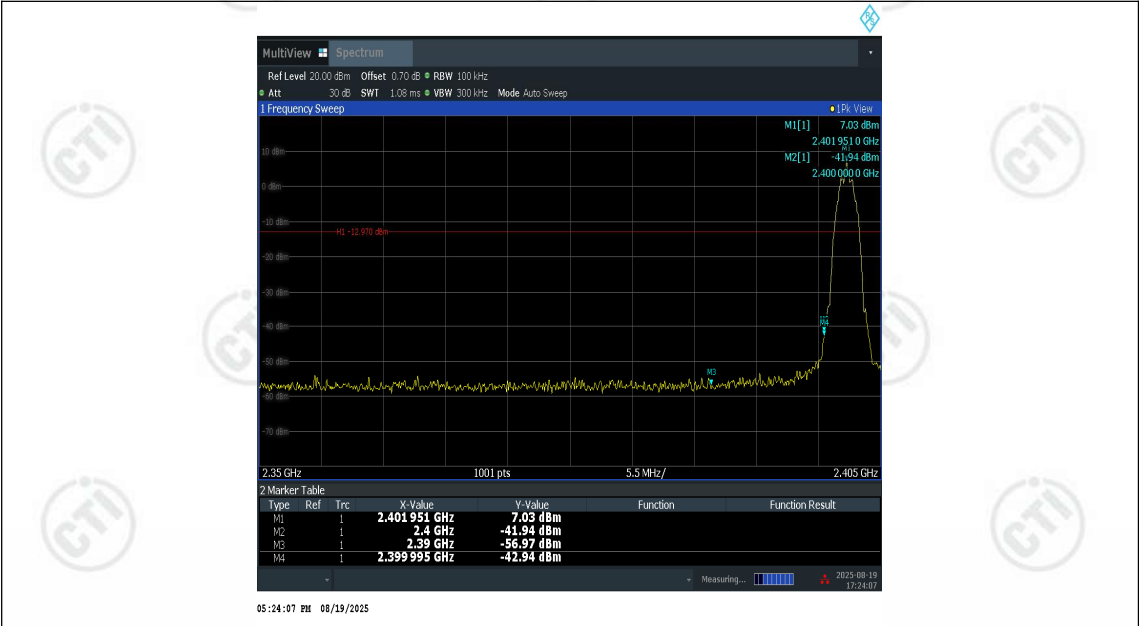
Appendix F: Band edge measurements

Test Result

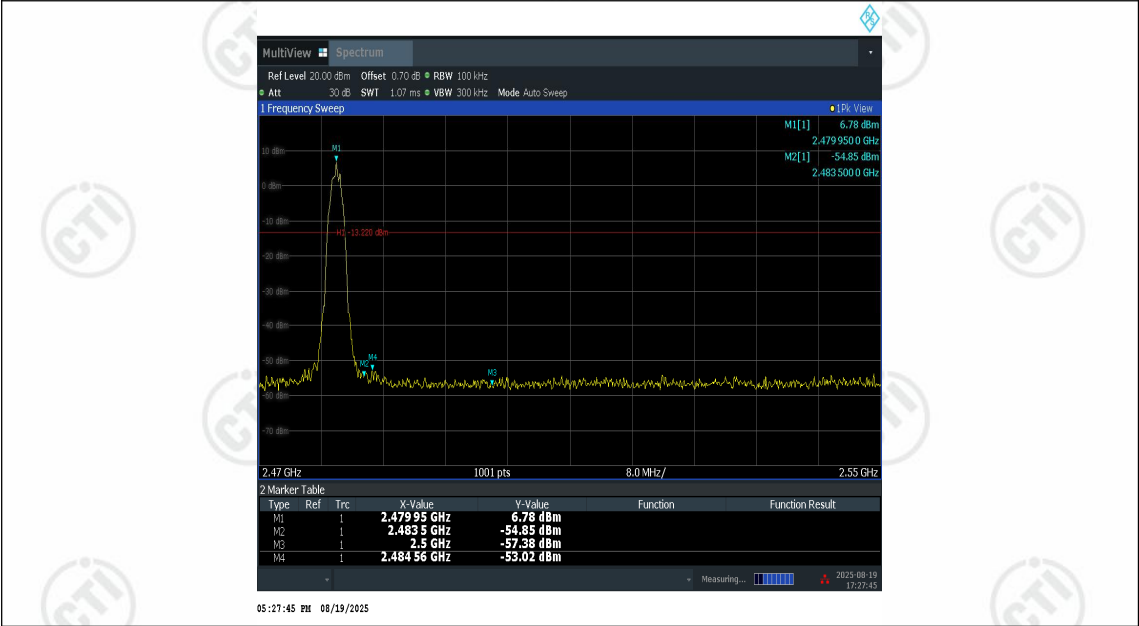
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.36	-49.74	≤-13.64	PASS
BLE_1M	Ant1	High	2480	5.91	-51.15	≤-14.09	PASS
BLE_2M	Ant1	Low	2402	7.03	-42.94	≤-12.97	PASS
BLE_2M	Ant1	High	2480	6.78	-53.02	≤-13.22	PASS

Test Graphs





BLE_2M-Ant1-2402-PASS



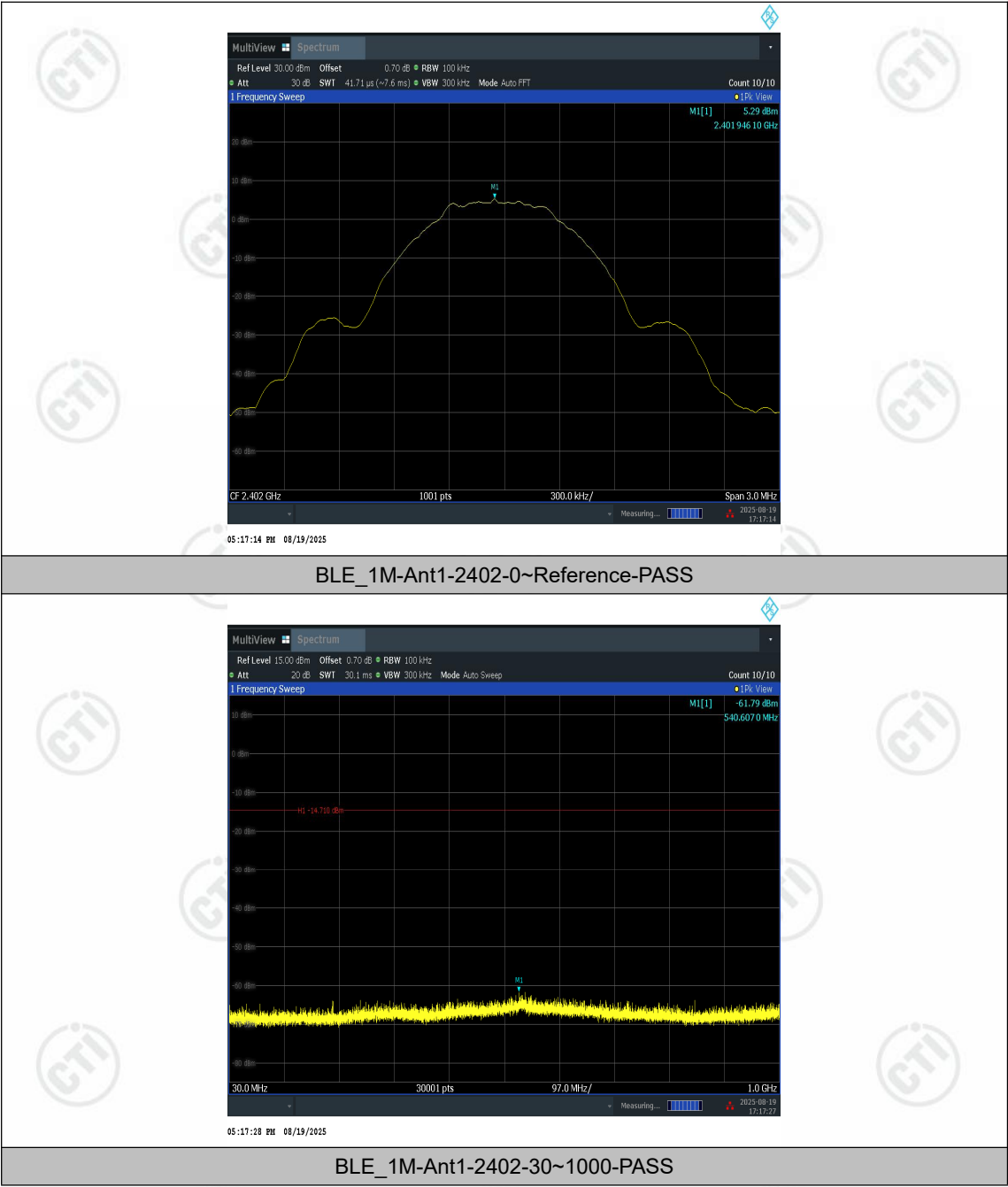
BLE_2M-Ant1-2480-PASS

Appendix G: Conducted Spurious Emission

Test Result

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	5.29	5.29	---	PASS
BLE_1M	Ant1	2402	30~1000	5.29	-61.79	≤-14.71	PASS
BLE_1M	Ant1	2402	1000~26500	5.29	-49.85	≤-14.71	PASS
BLE_1M	Ant1	2440	0~Reference	5.23	5.23	---	PASS
BLE_1M	Ant1	2440	30~1000	5.23	-62.45	≤-14.77	PASS
BLE_1M	Ant1	2440	1000~26500	5.23	-51.03	≤-14.77	PASS
BLE_1M	Ant1	2480	0~Reference	4.48	4.48	---	PASS
BLE_1M	Ant1	2480	30~1000	4.48	-62.45	≤-15.52	PASS
BLE_1M	Ant1	2480	1000~26500	4.48	-51.45	≤-15.52	PASS
BLE_2M	Ant1	2402	0~Reference	3.76	3.76	---	PASS
BLE_2M	Ant1	2402	30~1000	3.76	-61.74	≤-16.24	PASS
BLE_2M	Ant1	2402	1000~26500	3.76	-49.39	≤-16.24	PASS
BLE_2M	Ant1	2440	0~Reference	4.09	4.09	---	PASS
BLE_2M	Ant1	2440	30~1000	4.09	-62.28	≤-15.91	PASS
BLE_2M	Ant1	2440	1000~26500	4.09	-44.83	≤-15.91	PASS
BLE_2M	Ant1	2480	0~Reference	3.88	3.88	---	PASS
BLE_2M	Ant1	2480	30~1000	3.88	-62.51	≤-16.12	PASS
BLE_2M	Ant1	2480	1000~26500	3.88	-46.52	≤-16.12	PASS

Test Graphs

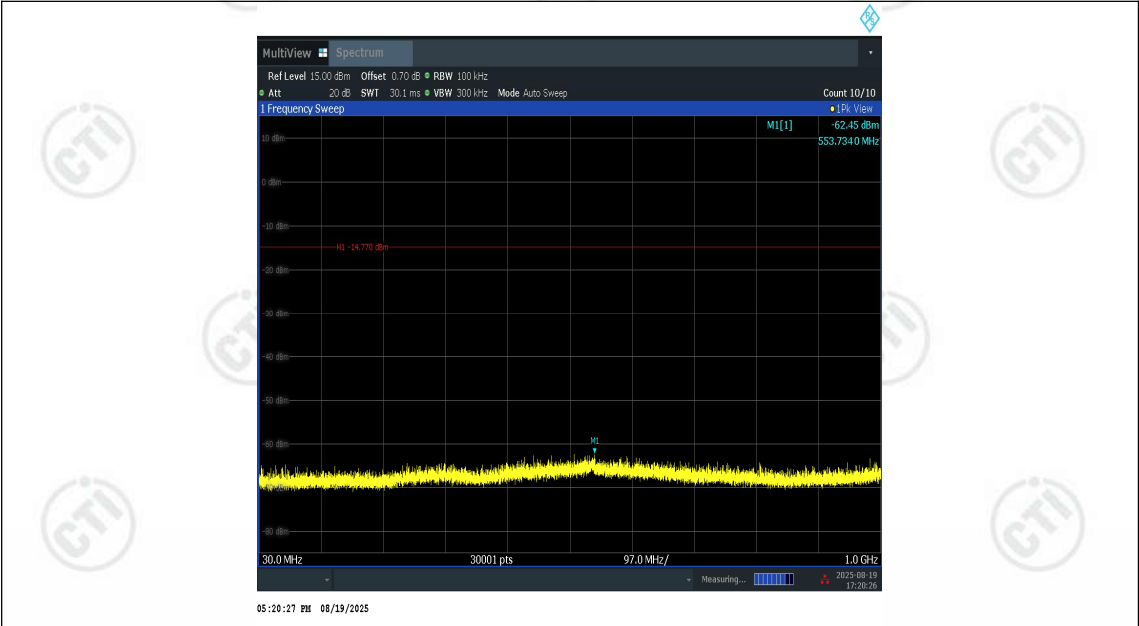




BLE_1M-Ant1-2402-1000~26500-PASS



BLE_1M-Ant1-2440-0~Reference-PASS



BLE_1M-Ant1-2440-30~1000-PASS



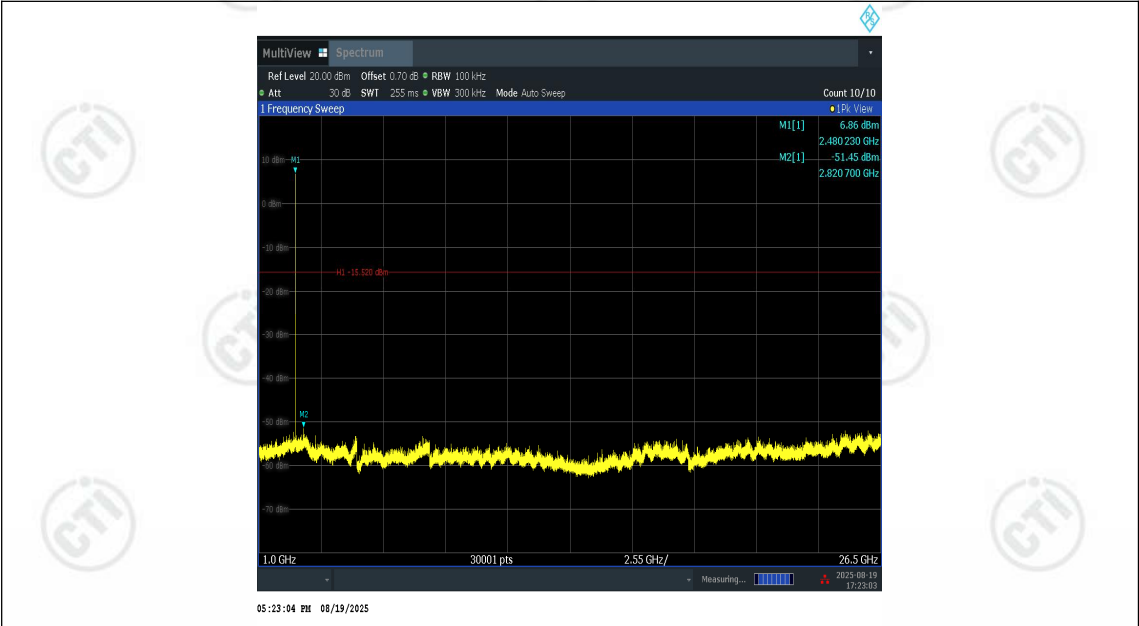
BLE_1M-Ant1-2440-1000~26500-PASS



BLE_1M-Ant1-2480-0~Reference-PASS



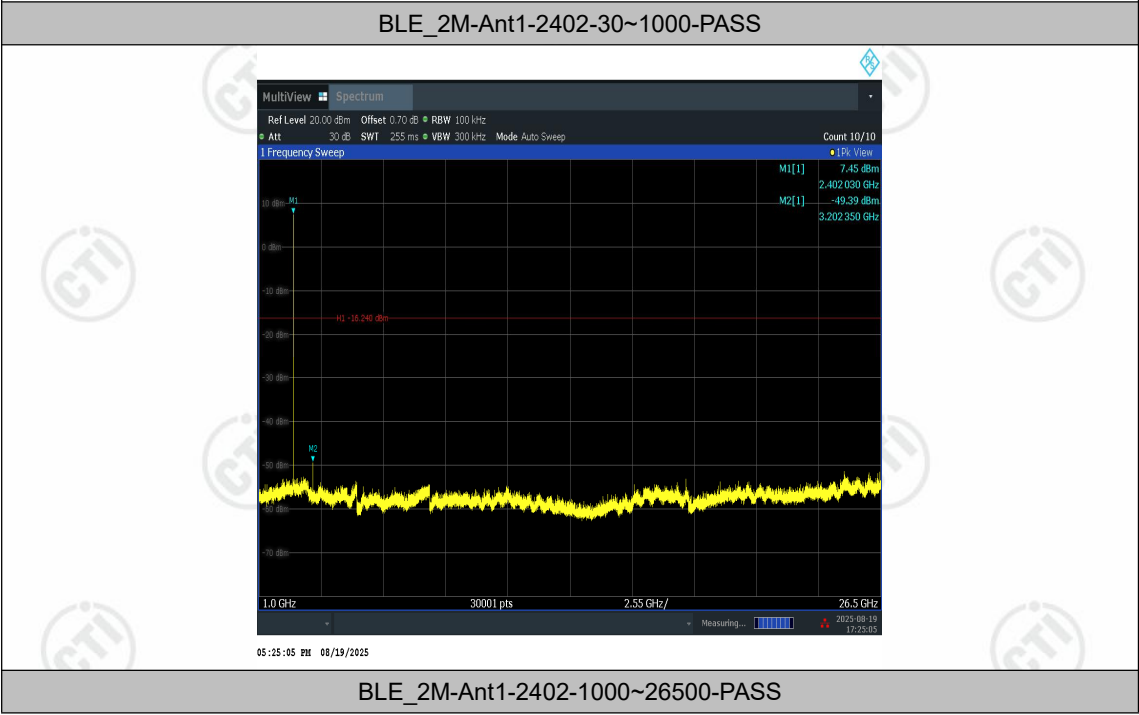
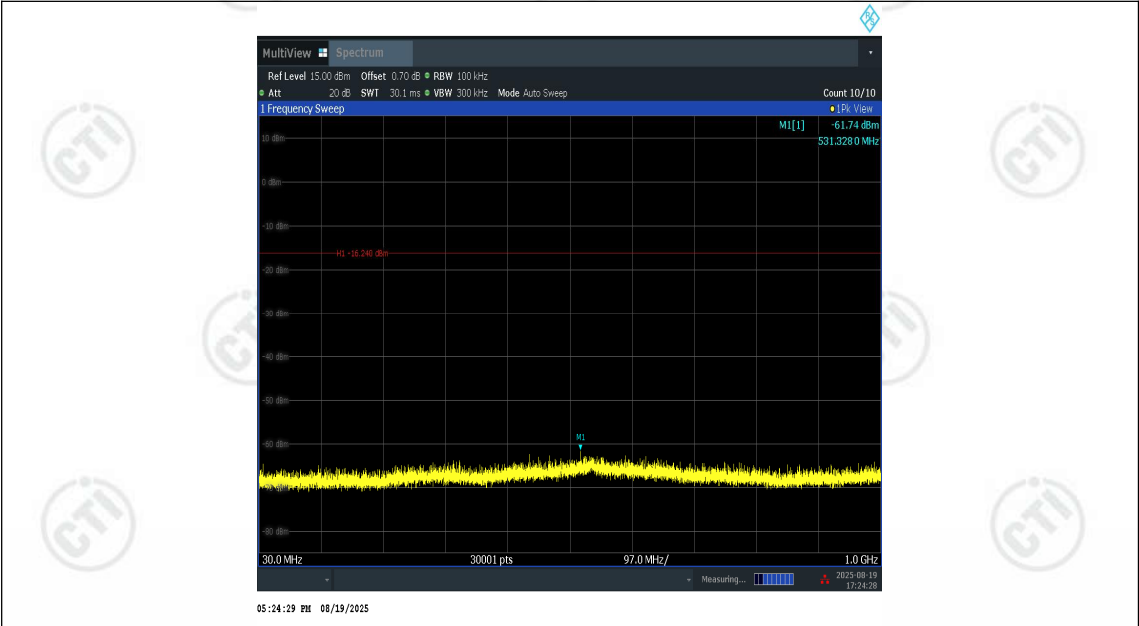
BLE_1M-Ant1-2480-30~1000-PASS



BLE_1M-Ant1-2480-1000~26500-PASS



BLE_2M-Ant1-2402-0~Reference-PASS

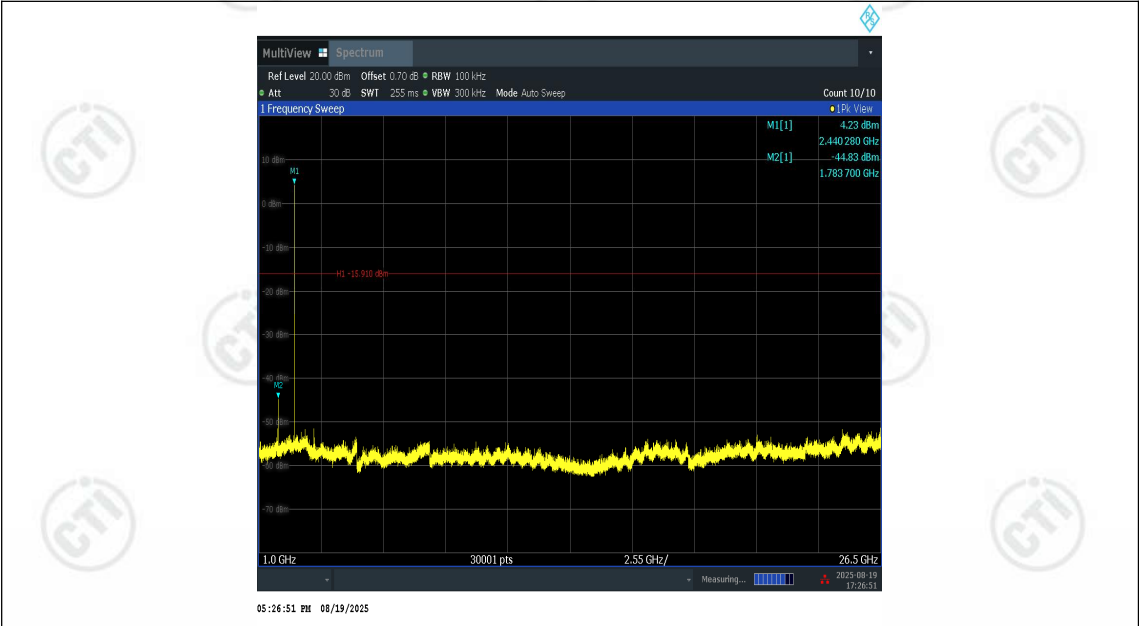




BLE_2M-Ant1-2440-0~Reference-PASS



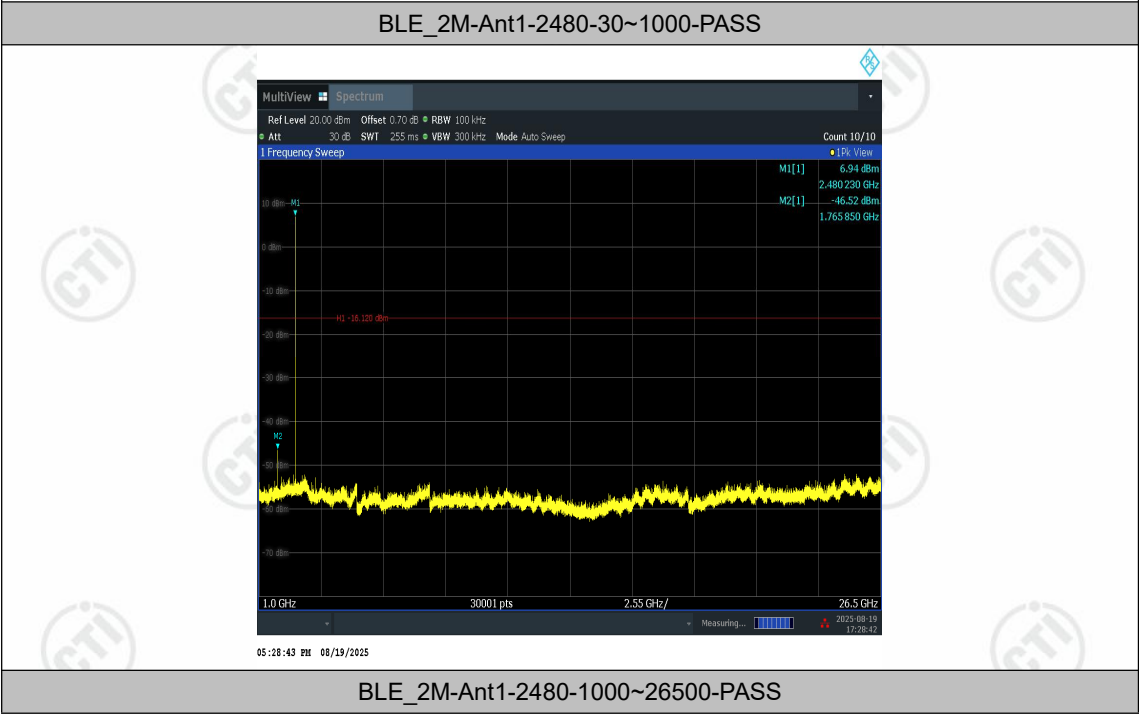
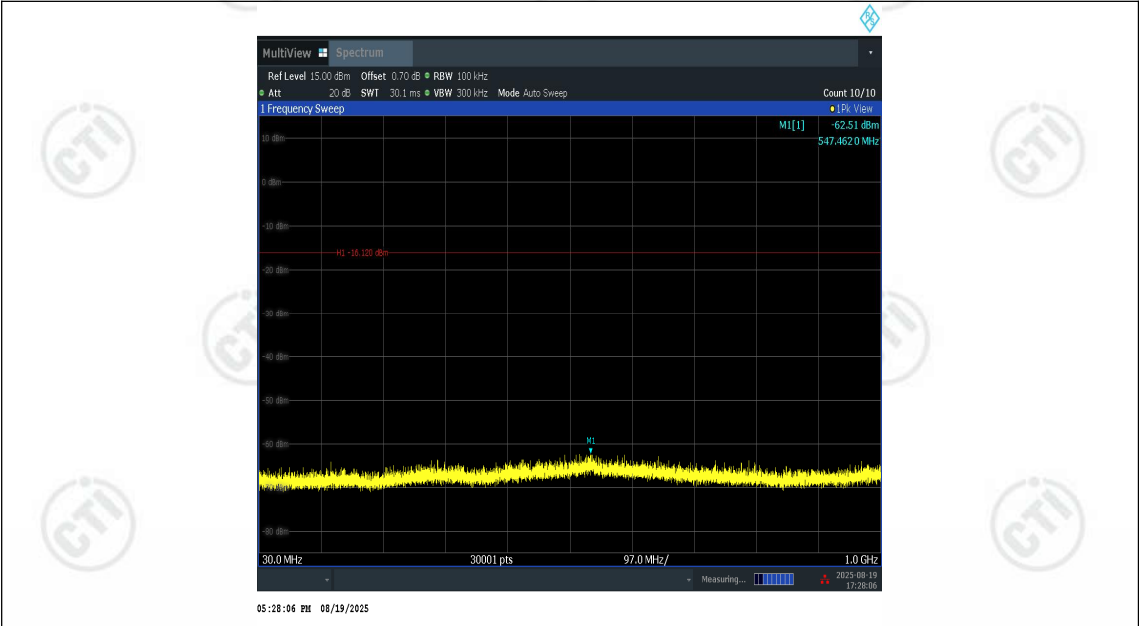
BLE_2M-Ant1-2440-30~1000-PASS



BLE_2M-Ant1-2440-1000~26500-PASS



BLE_2M-Ant1-2480-0~Reference-PASS



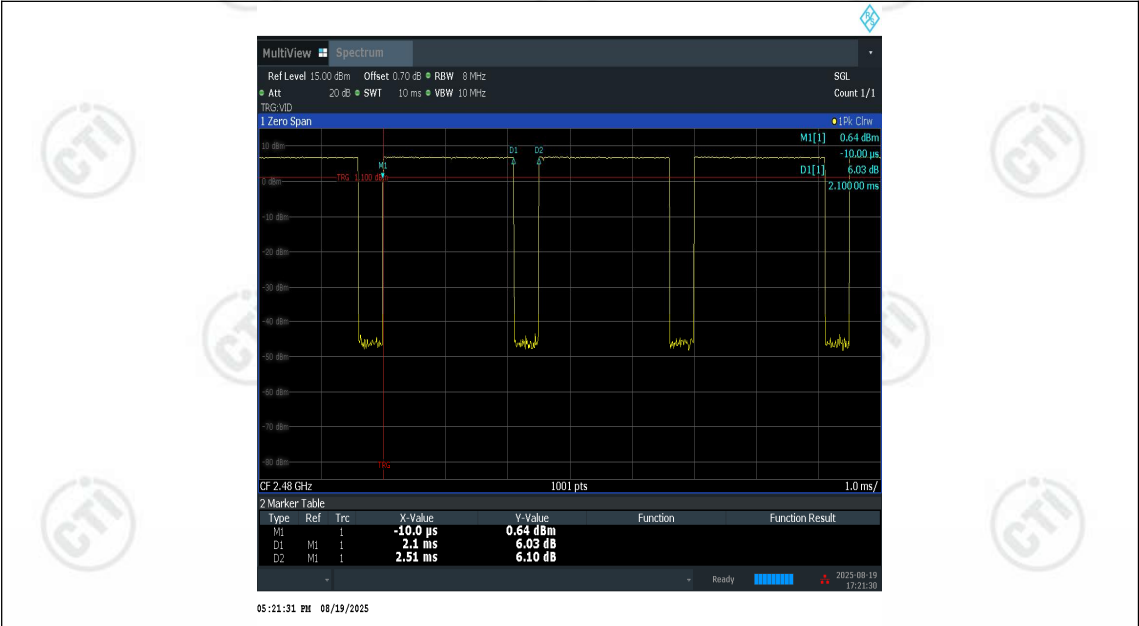
Appendix H: Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	2.10	2.51	83.67	0.77
BLE_1M	Ant1	2440	2.10	2.51	83.67	0.77
BLE_1M	Ant1	2480	2.10	2.51	83.67	0.77
BLE_2M	Ant1	2402	1.06	1.88	56.38	2.49
BLE_2M	Ant1	2440	1.06	1.88	56.38	2.49
BLE_2M	Ant1	2480	1.06	1.88	56.38	2.49

Test Graphs

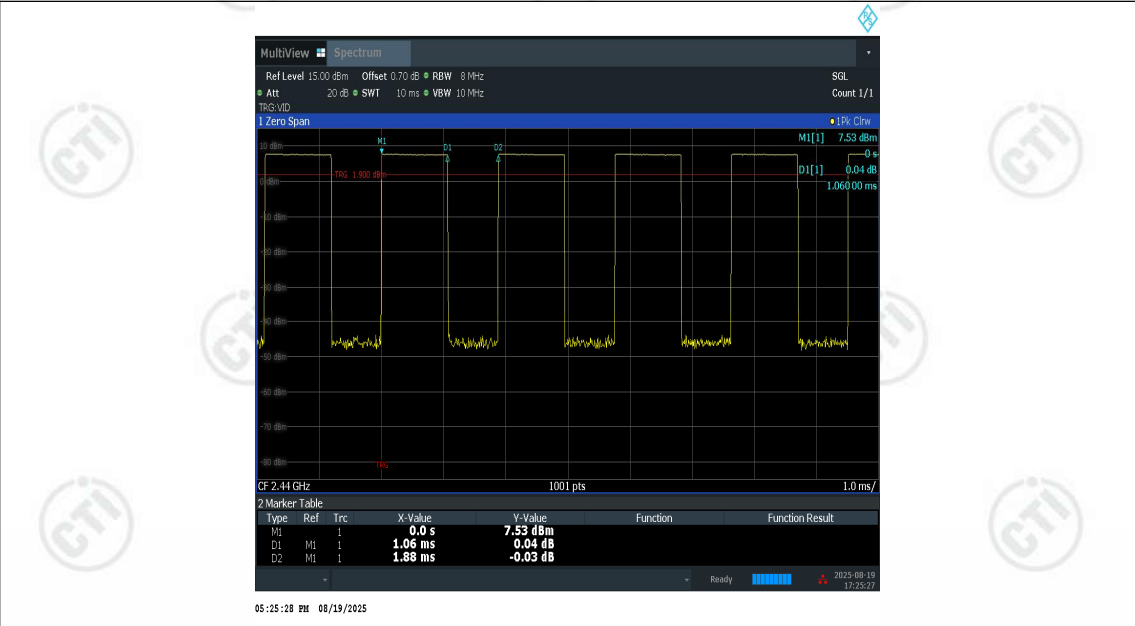




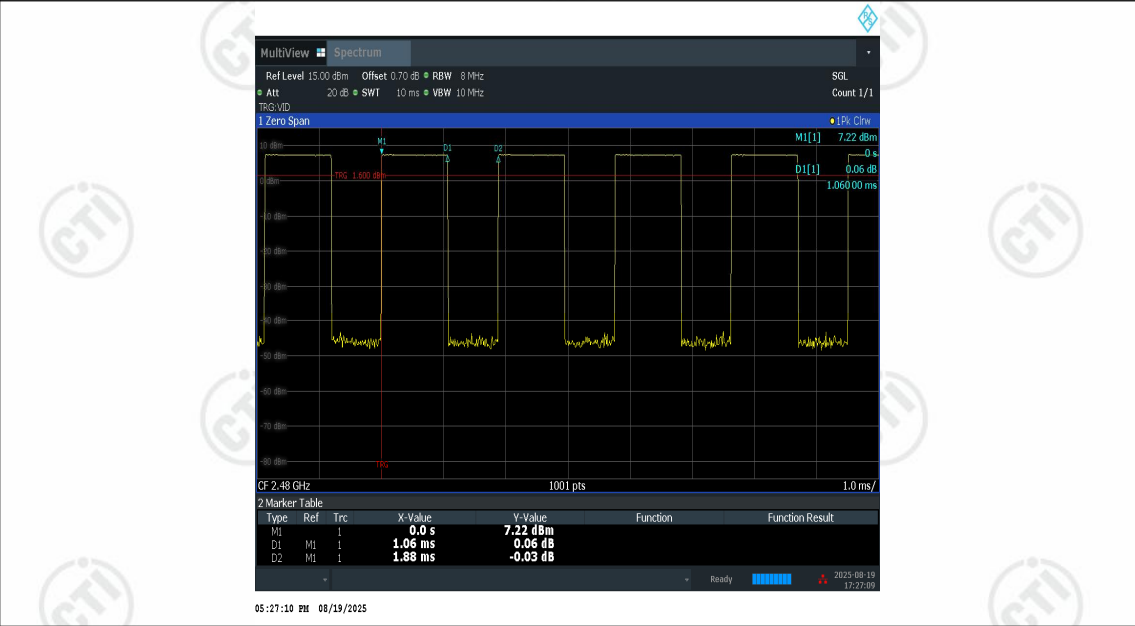
NTNV-BLE_1M-Ant1-2480



NTNV-BLE_2M-Ant1-2402



NTNV-BLE_2M-Ant1-2440



NTNV-BLE_2M-Ant1-2480

*** End of Report ***