

Appendix: Bluetooth LE

Contents

Appendix A: DTS Bandwidth 3

 Test Result 3

 Test Graphs 4

Appendix B: Occupied Channel Bandwidth7

 Test Result 7

 Test Graphs 8

Appendix C: Maximum conducted output power11

 Test Result 11

 Test Graphs 12

Appendix D: Maximum power spectral density 15

 Test Result 15

 Test Graphs 16

Appendix E: Band edge measurements 19

 Test Result 19

 Test Graphs 20

Appendix F: Conducted Spurious Emission 22

 Test Result 22

 Test Graphs 23

Appendix G: Duty Cycle 32

 Test Result 32

 Test Graphs 33

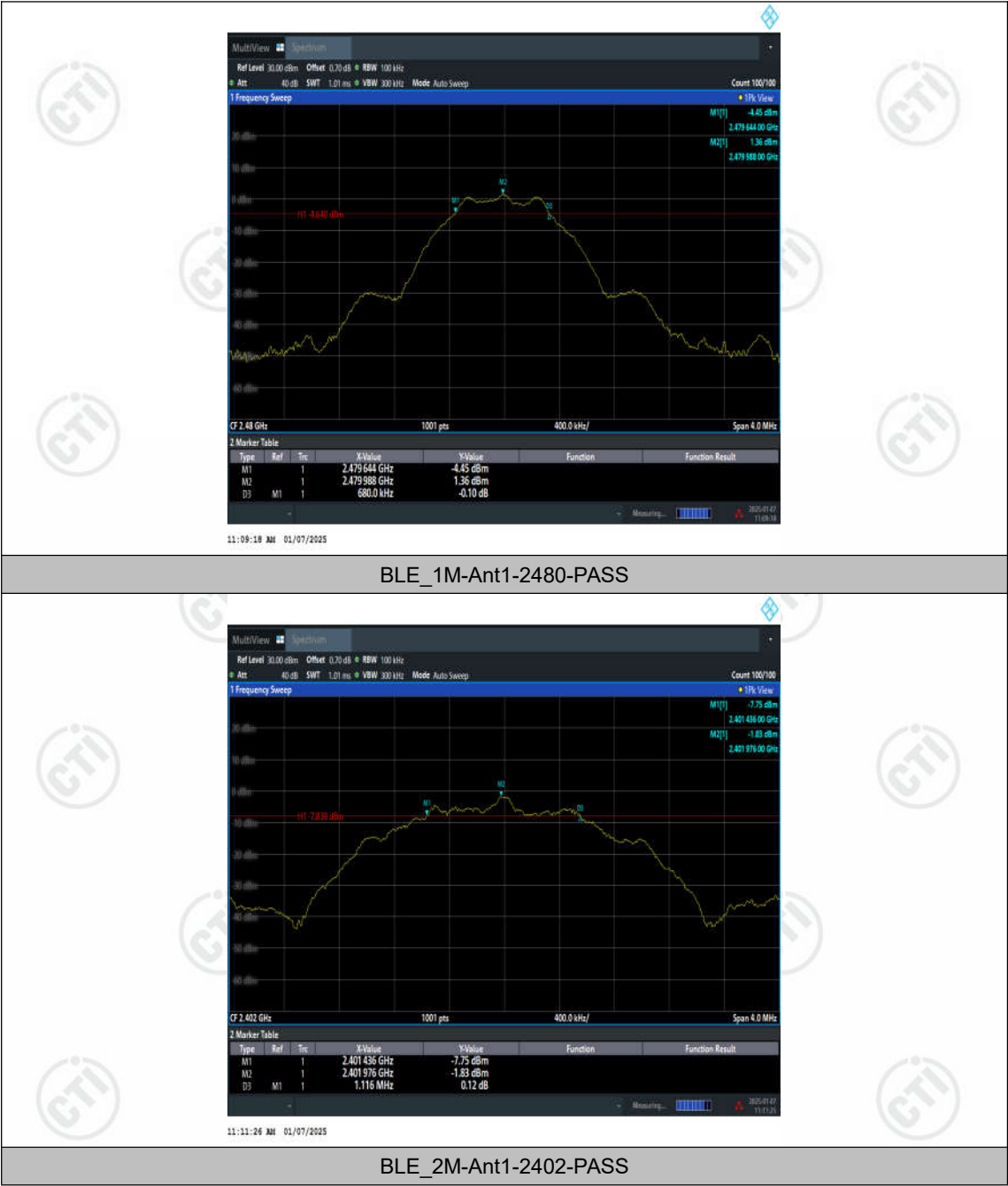
Appendix A: DTS Bandwidth

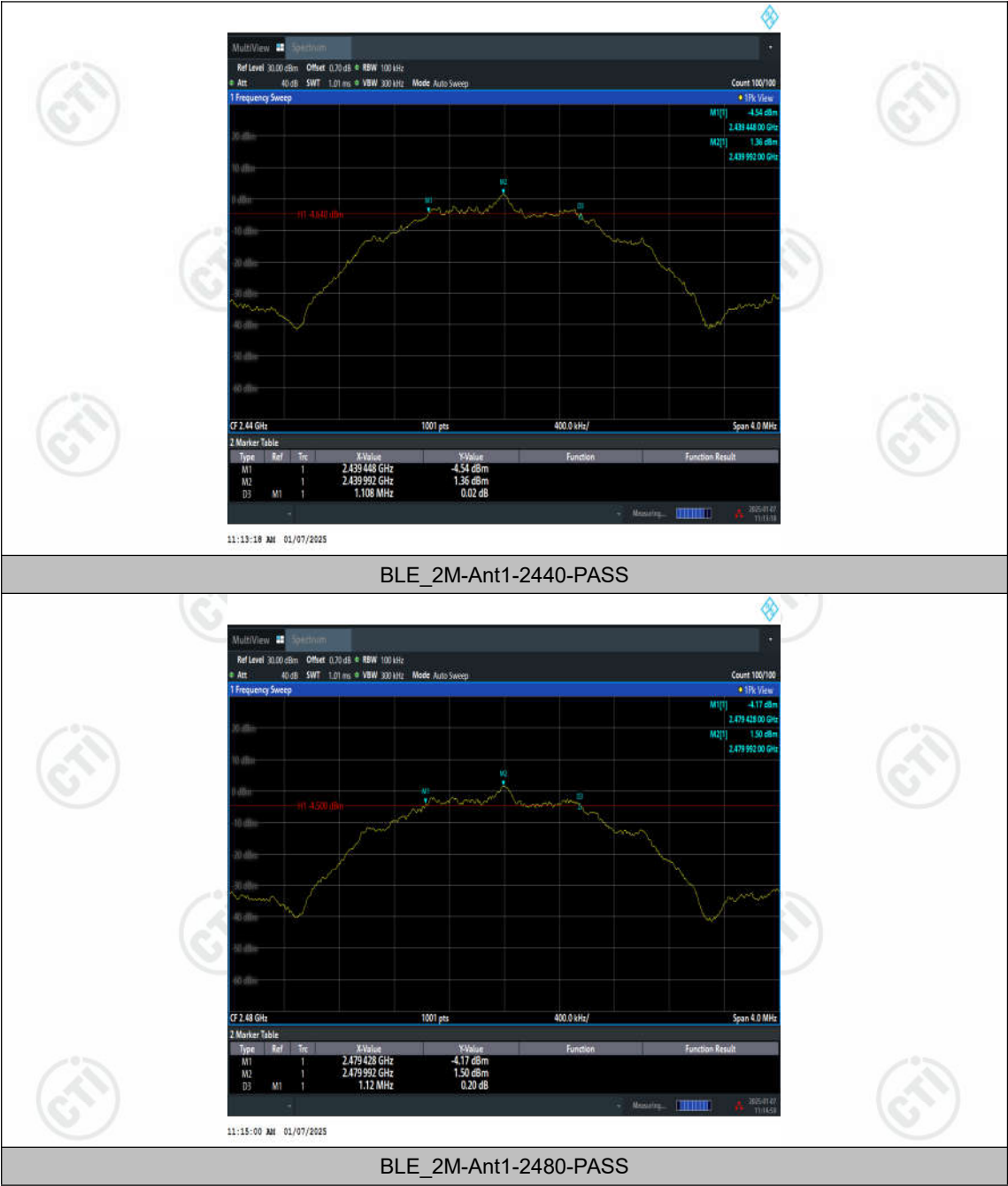
Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.67	2401.65	2402.32	0.5	PASS
BLE_1M	Ant1	2440	0.68	2439.65	2440.32	0.5	PASS
BLE_1M	Ant1	2480	0.68	2479.64	2480.32	0.5	PASS
BLE_2M	Ant1	2402	1.12	2401.44	2402.55	0.5	PASS
BLE_2M	Ant1	2440	1.11	2439.45	2440.56	0.5	PASS
BLE_2M	Ant1	2480	1.12	2479.43	2480.55	0.5	PASS

Test Graphs







Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.043	2401.4788	2402.5221	---	---
BLE_1M	Ant1	2440	1.04	2439.4785	2440.5188	---	---
BLE_1M	Ant1	2480	1.038	2479.4748	2480.5124	---	---
BLE_2M	Ant1	2402	2.035	2400.9915	2403.0262	---	---
BLE_2M	Ant1	2440	2.033	2438.9941	2441.0266	---	---
BLE_2M	Ant1	2480	2.038	2478.9854	2481.0234	---	---

Test Graphs





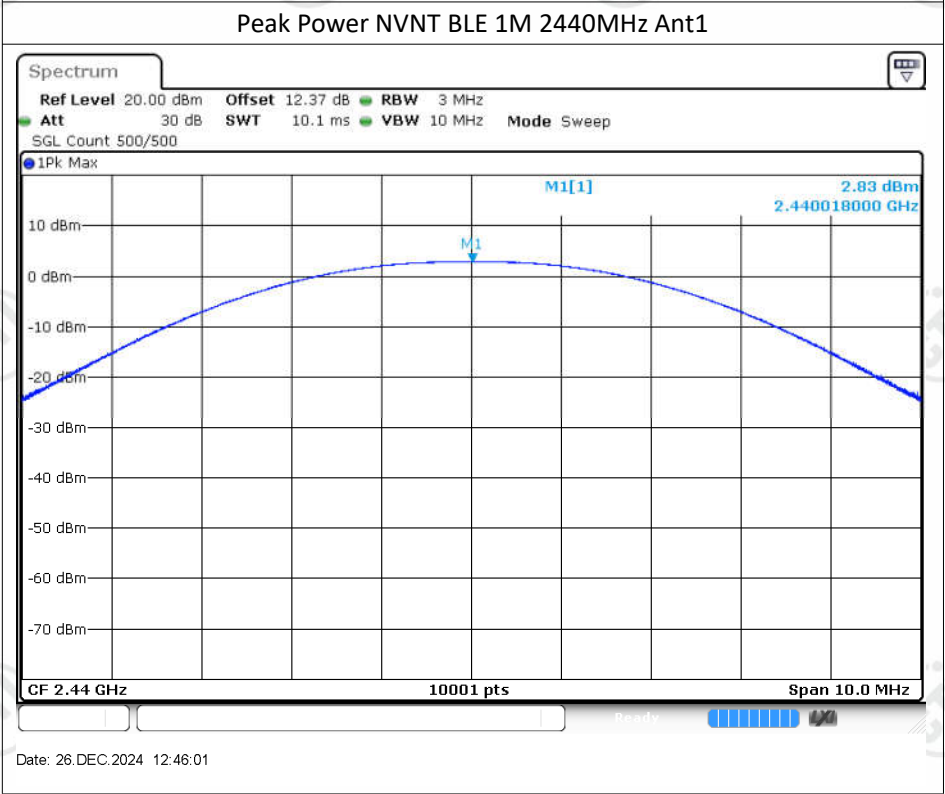
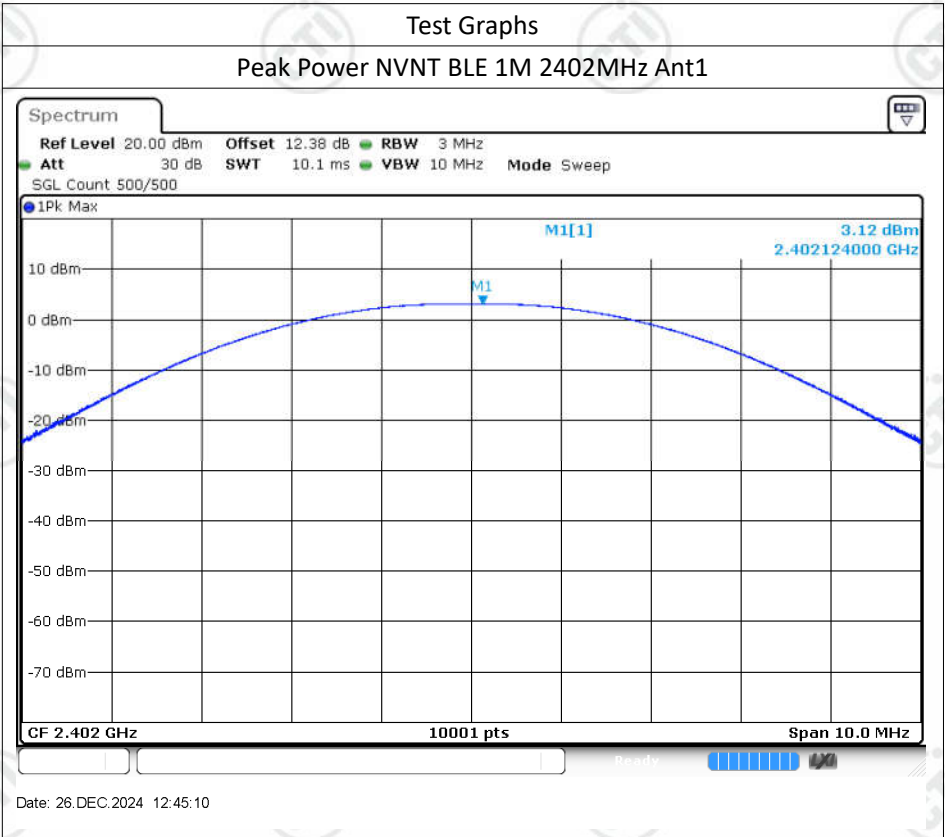


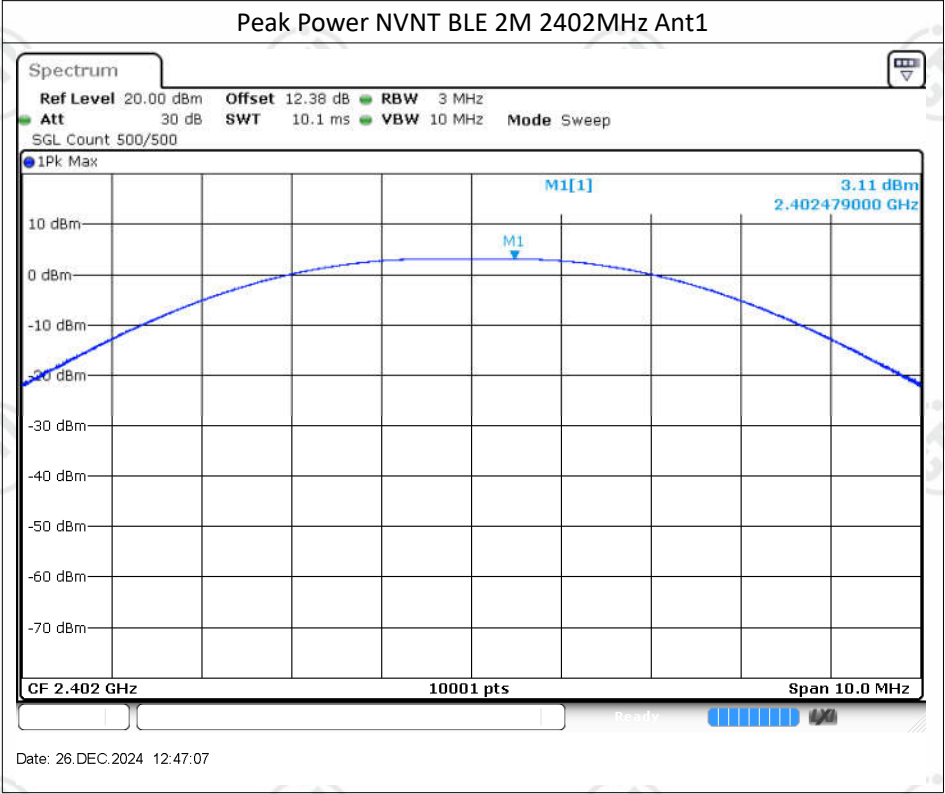
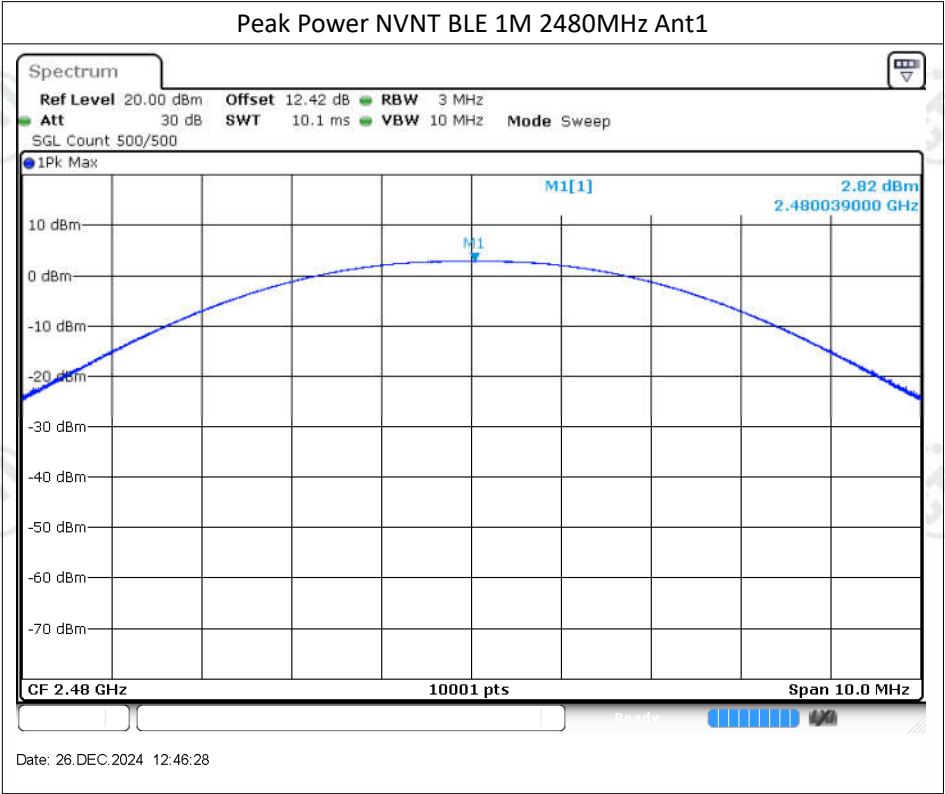
Appendix C: Maximum conducted output power

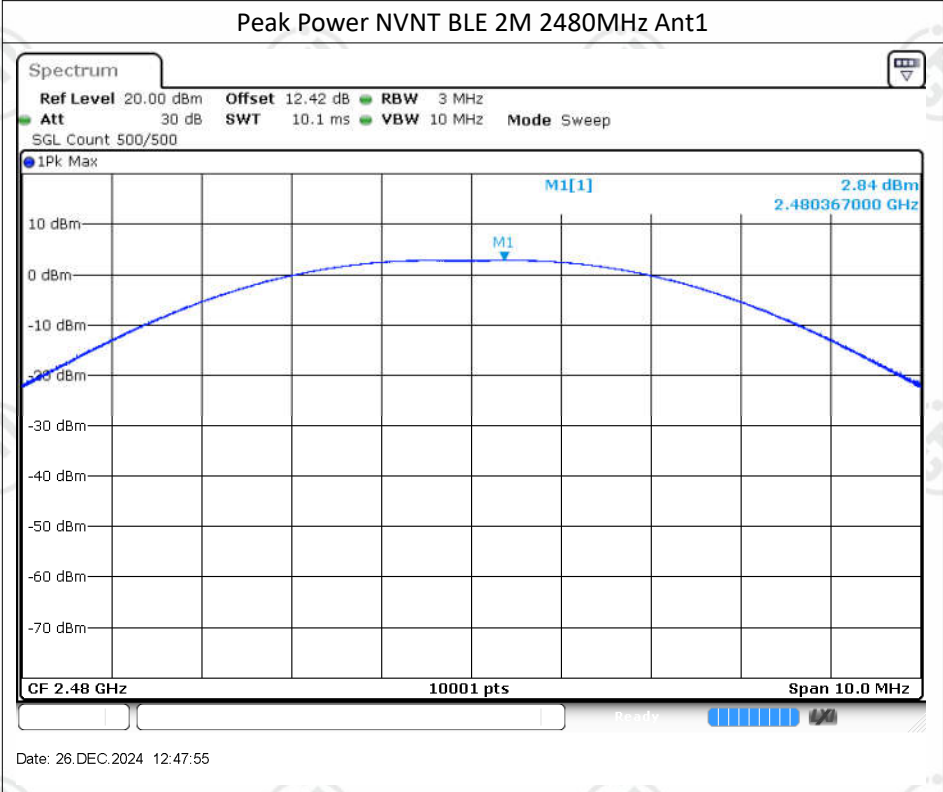
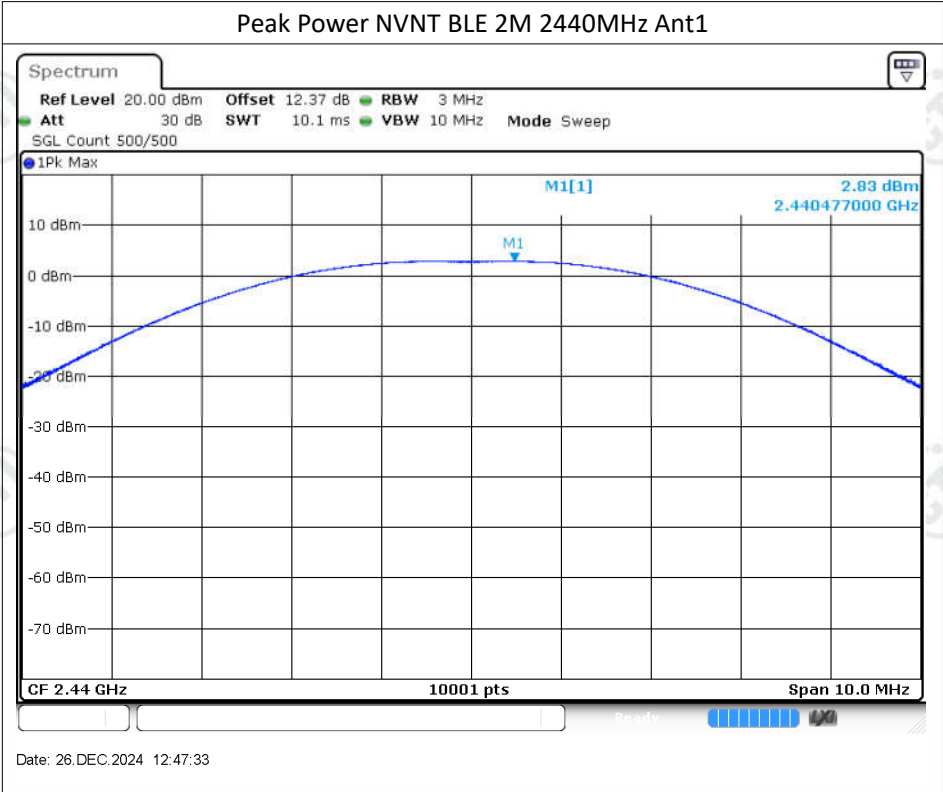
Test Result

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit(dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	3.12	30	Pass
NVNT	BLE 1M	2440	Ant1	2.83	30	Pass
NVNT	BLE 1M	2480	Ant1	2.82	30	Pass
NVNT	BLE 2M	2402	Ant1	3.11	30	Pass
NVNT	BLE 2M	2440	Ant1	2.83	30	Pass
NVNT	BLE 2M	2480	Ant1	2.84	30	Pass

Test Graphs





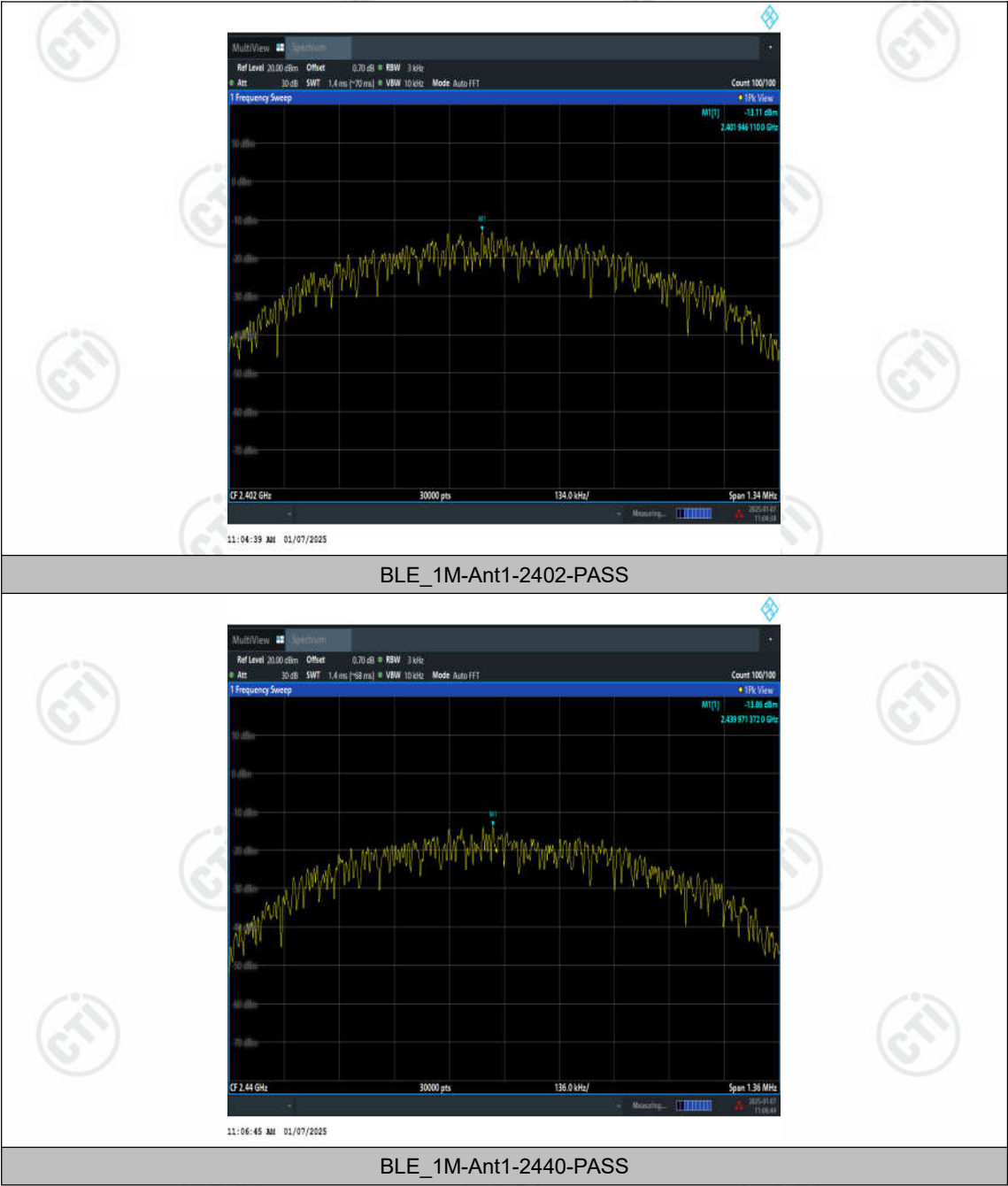


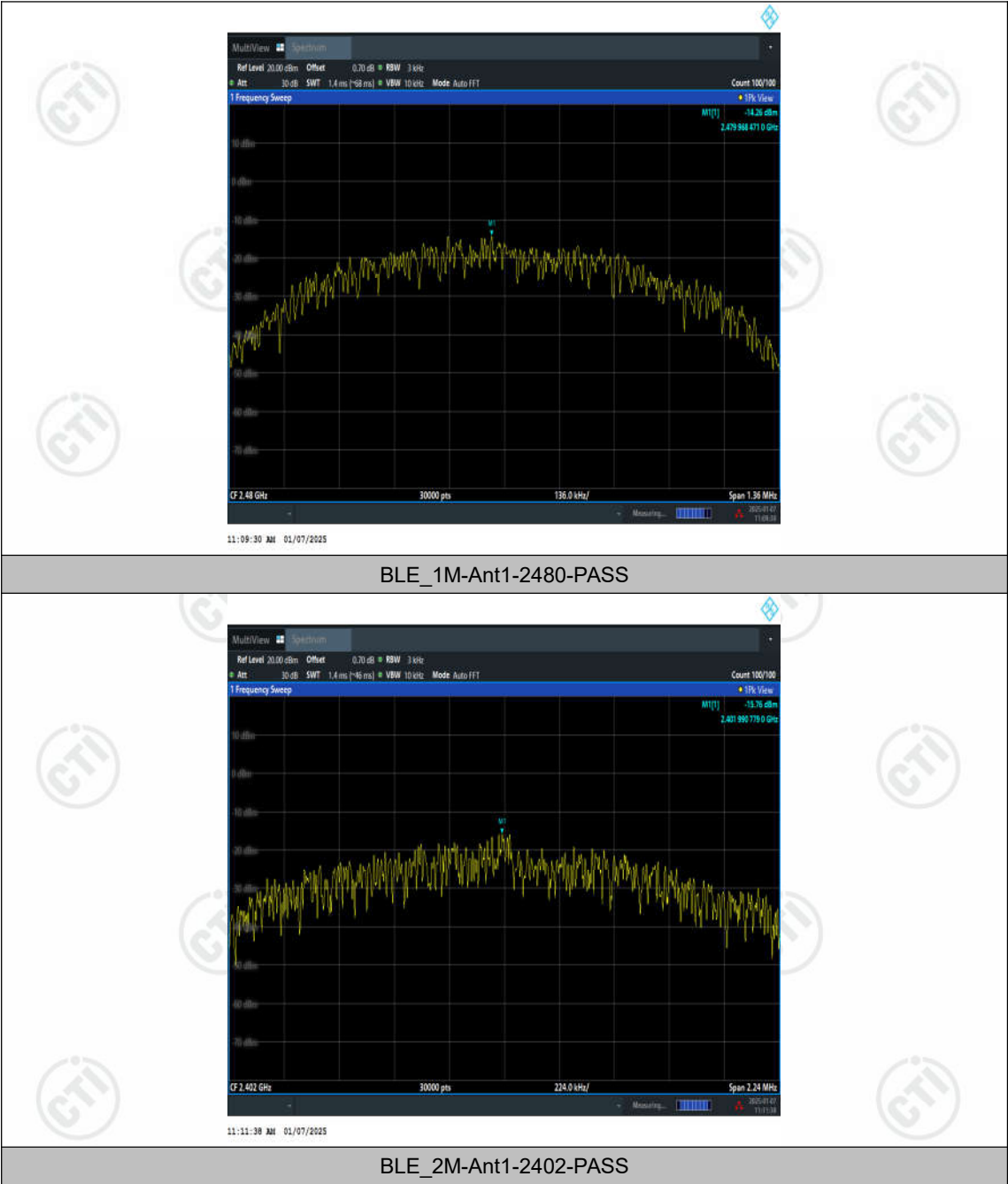
Appendix D: Maximum power spectral density

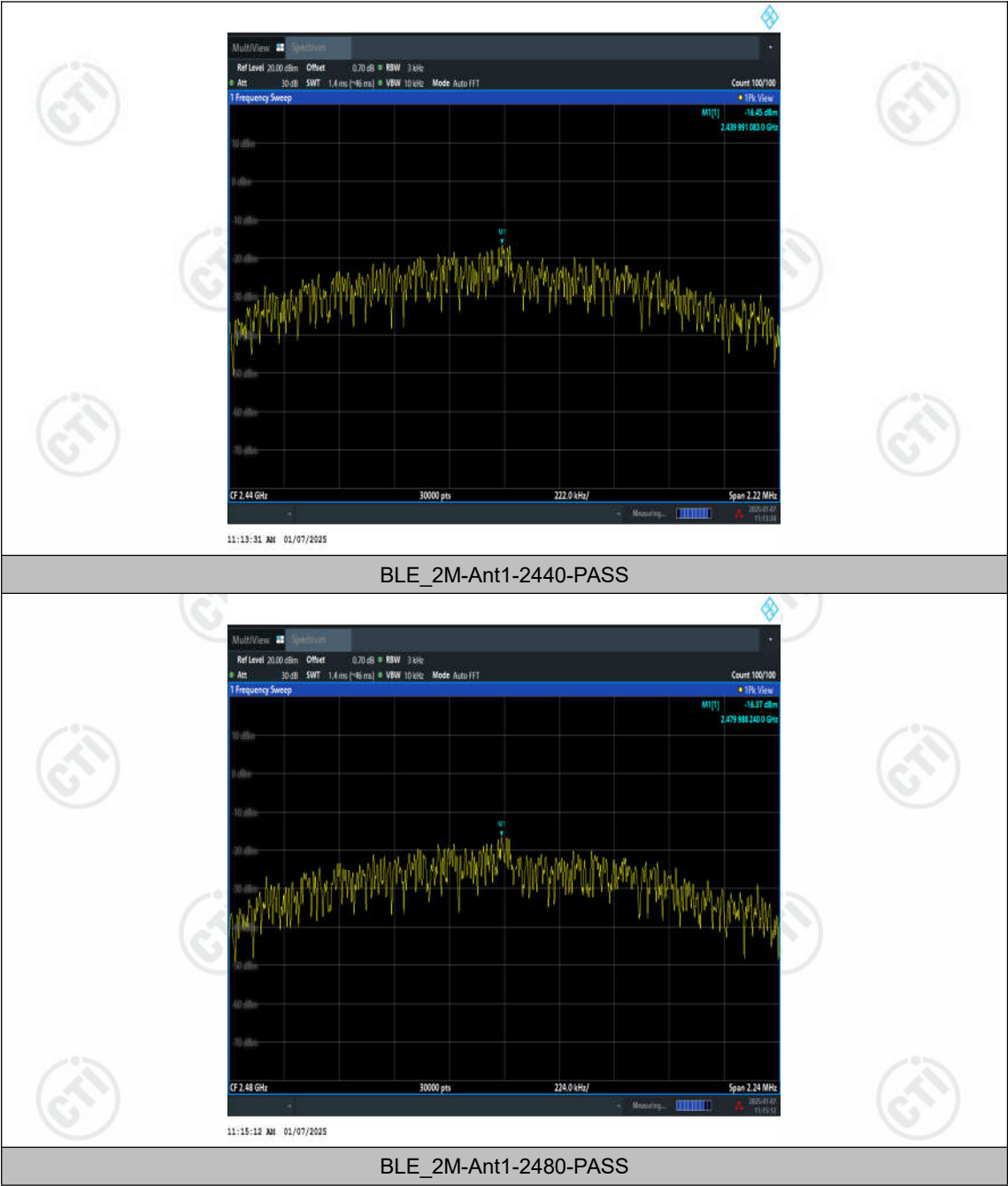
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.11	≤8.00	PASS
BLE_1M	Ant1	2440	-13.86	≤8.00	PASS
BLE_1M	Ant1	2480	-14.26	≤8.00	PASS
BLE_2M	Ant1	2402	-15.76	≤8.00	PASS
BLE_2M	Ant1	2440	-16.45	≤8.00	PASS
BLE_2M	Ant1	2480	-16.37	≤8.00	PASS

Test Graphs





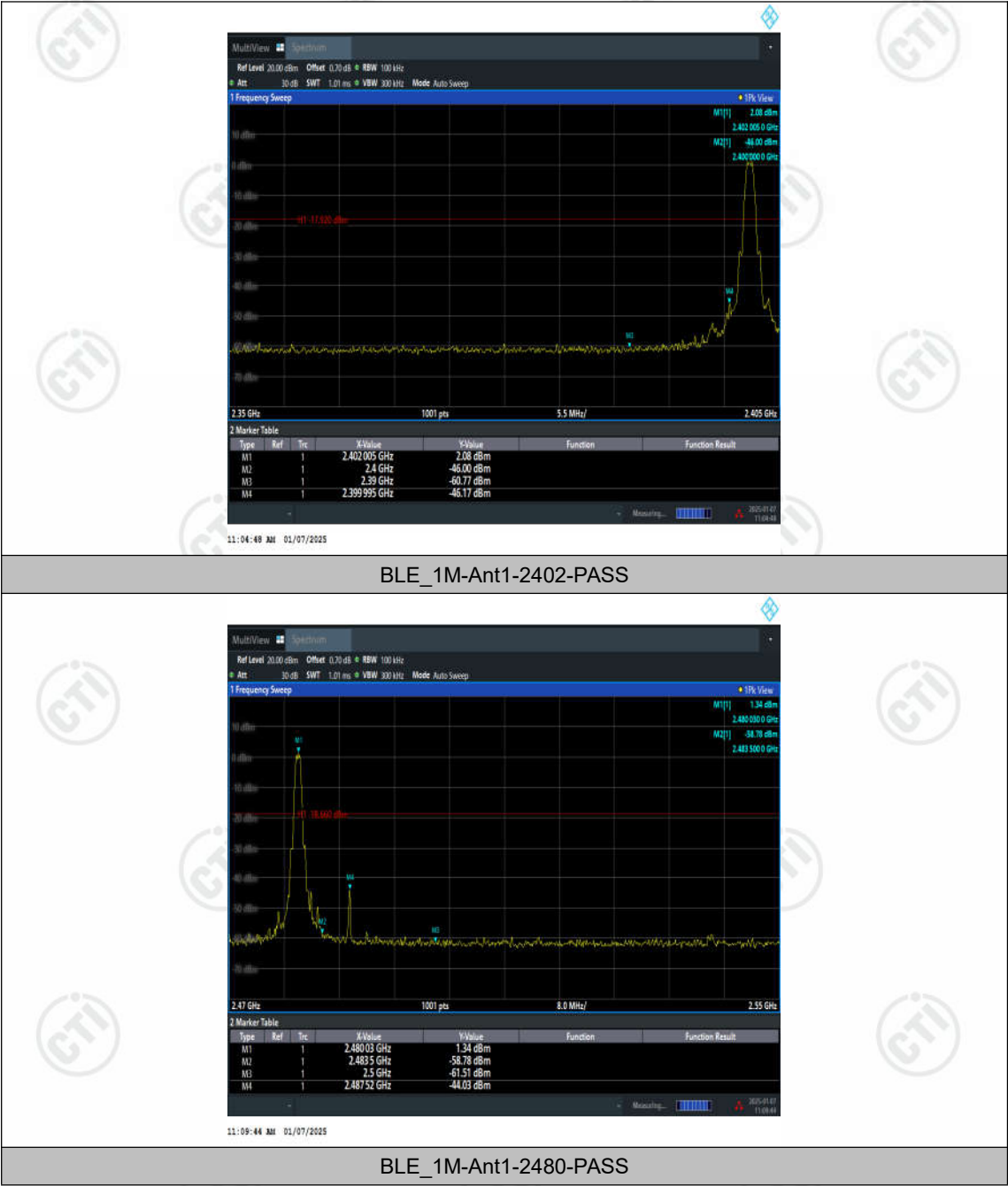


Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	2.08	-46.17	≤-17.92	PASS
BLE_1M	Ant1	High	2480	1.34	-44.03	≤-18.66	PASS
BLE_2M	Ant1	Low	2402	1.97	-29.95	≤-18.03	PASS
BLE_2M	Ant1	High	2480	1.48	-43.56	≤-18.52	PASS

Test Graphs



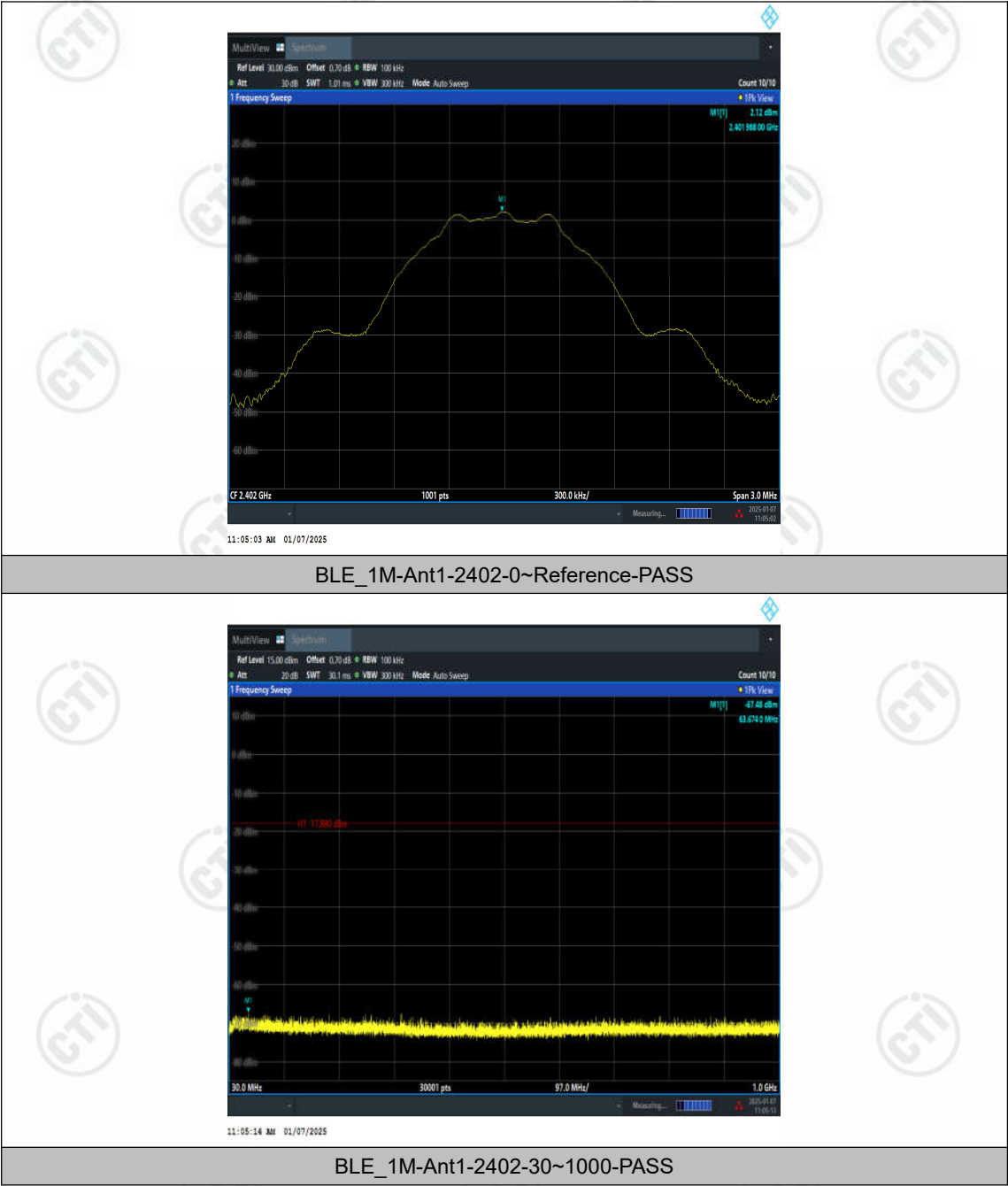


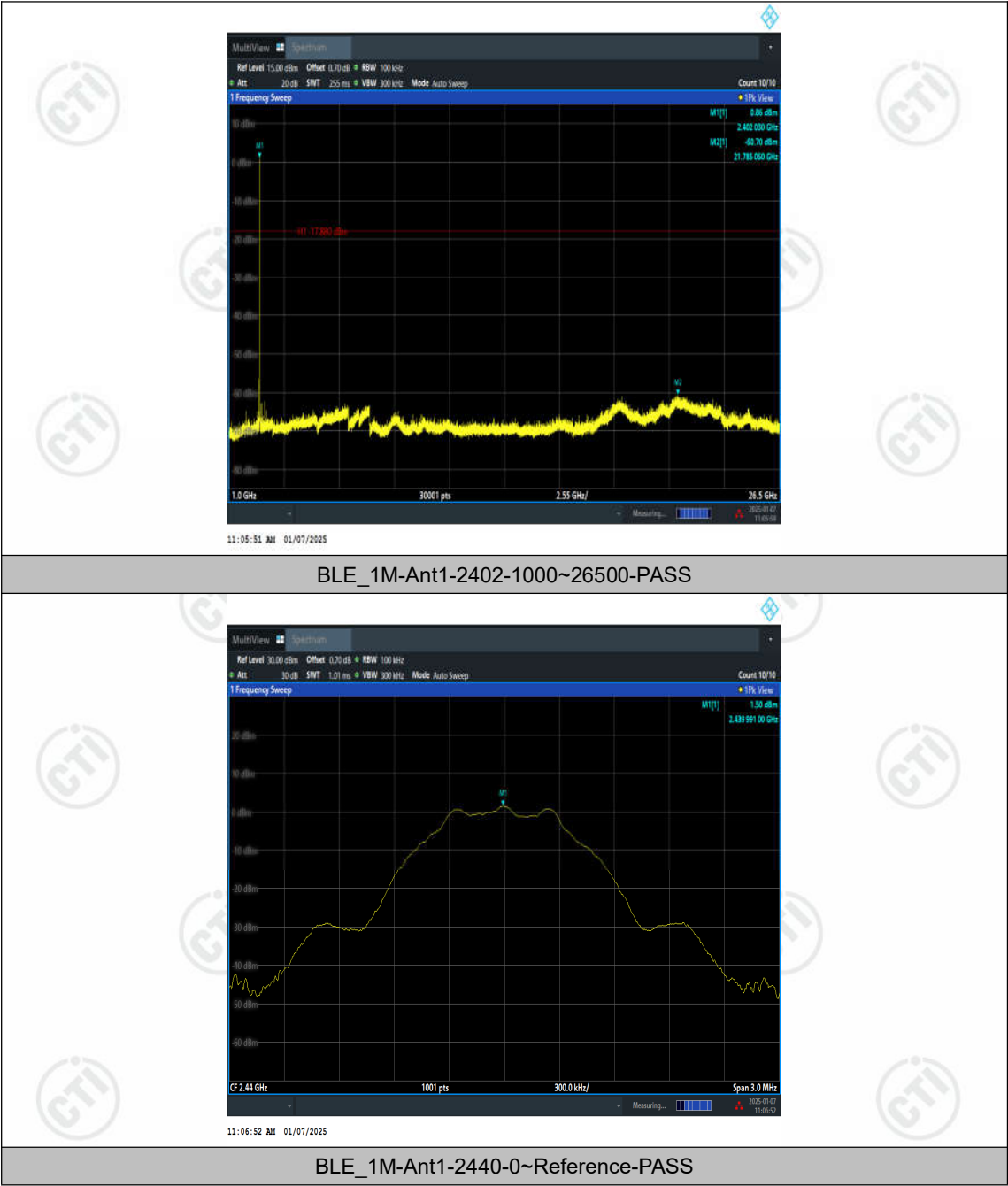
Appendix F: Conducted Spurious Emission

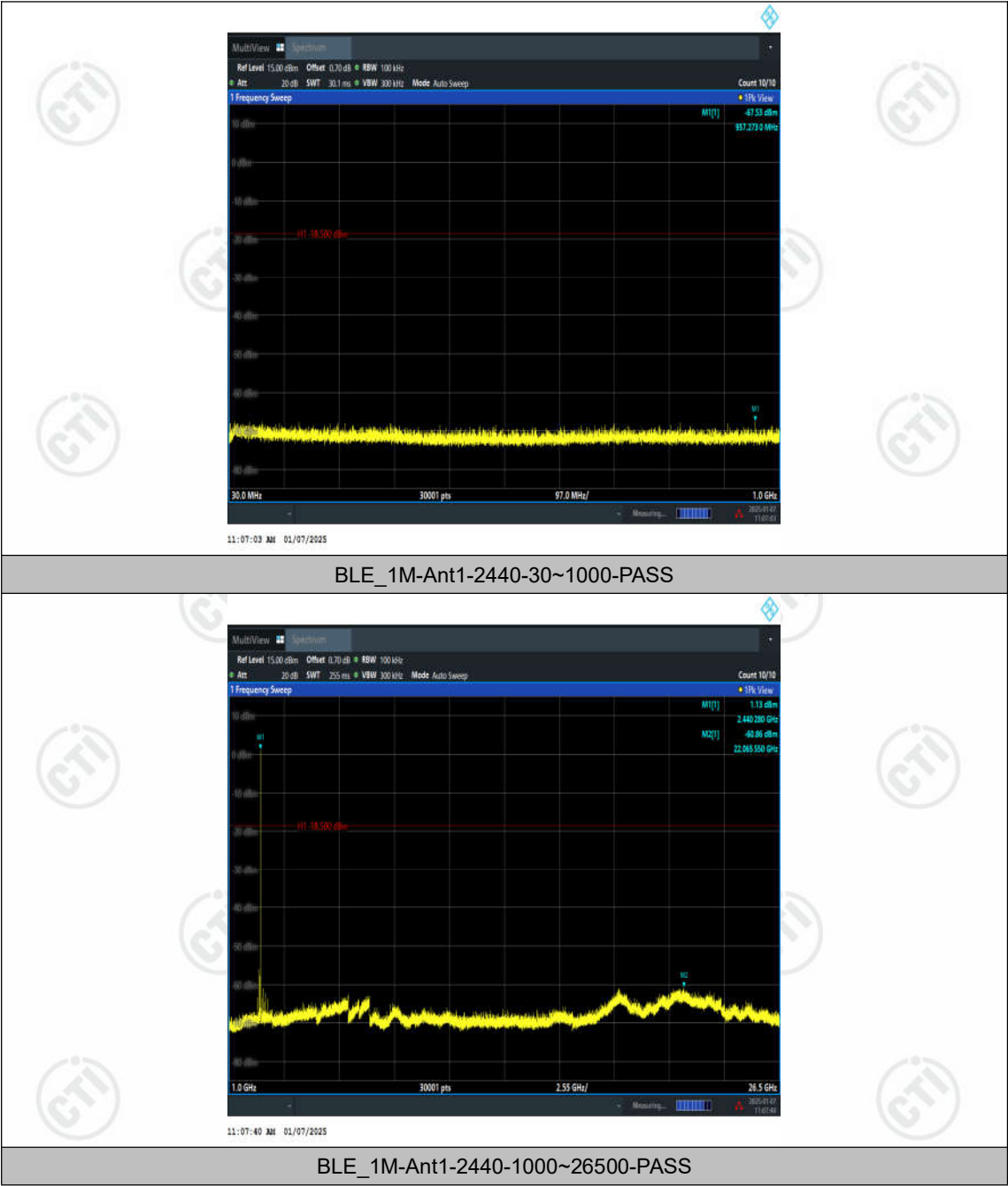
Test Result

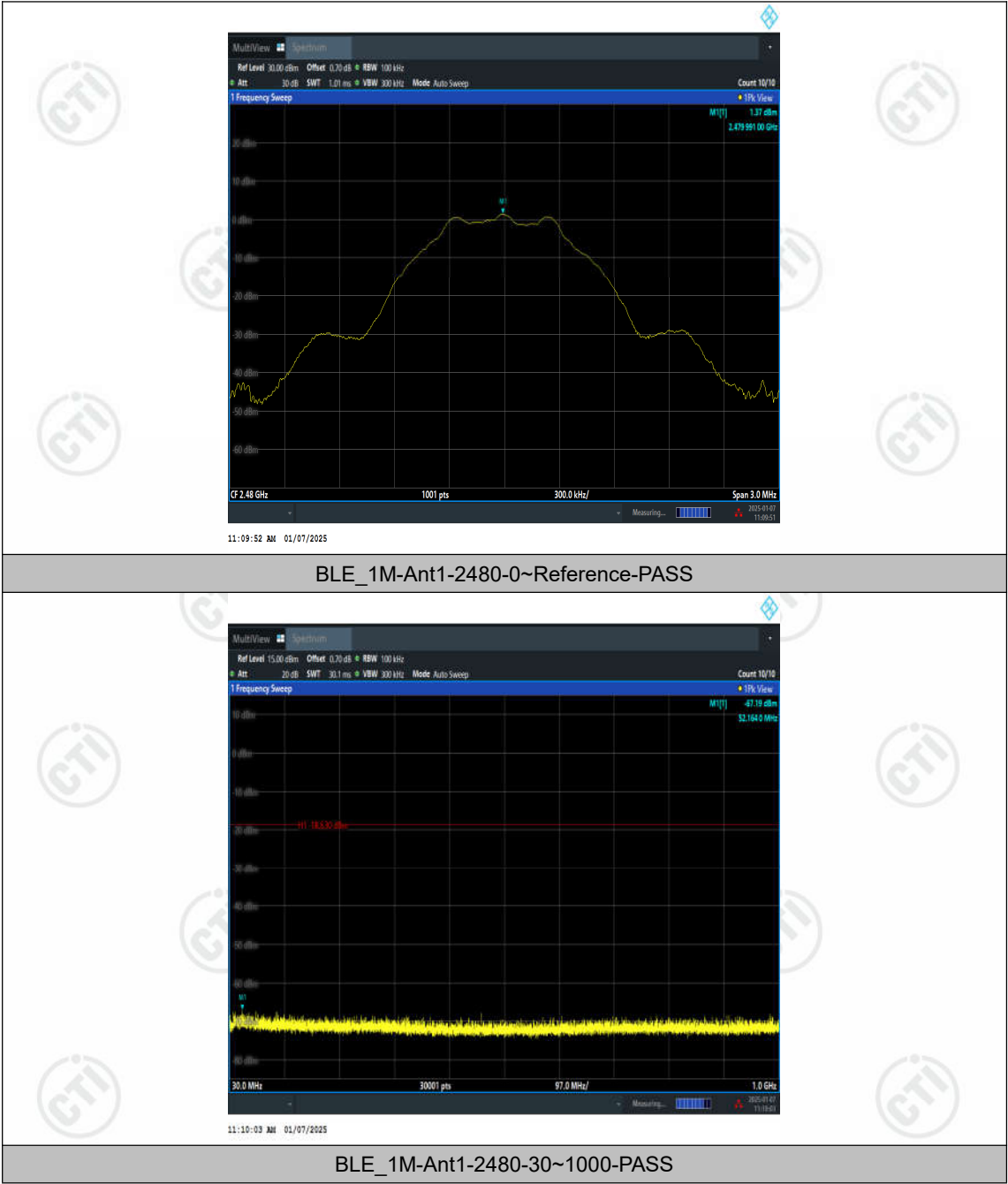
TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	2.12	2.12	---	PASS
BLE_1M	Ant1	2402	30~1000	2.12	-67.48	≤-17.88	PASS
BLE_1M	Ant1	2402	1000~26500	2.12	-60.7	≤-17.88	PASS
BLE_1M	Ant1	2440	0~Reference	1.50	1.50	---	PASS
BLE_1M	Ant1	2440	30~1000	1.50	-67.53	≤-18.5	PASS
BLE_1M	Ant1	2440	1000~26500	1.50	-60.86	≤-18.5	PASS
BLE_1M	Ant1	2480	0~Reference	1.37	1.37	---	PASS
BLE_1M	Ant1	2480	30~1000	1.37	-67.19	≤-18.63	PASS
BLE_1M	Ant1	2480	1000~26500	1.37	-59.85	≤-18.63	PASS
BLE_2M	Ant1	2402	0~Reference	2.02	2.02	---	PASS
BLE_2M	Ant1	2402	30~1000	2.02	-67.28	≤-17.98	PASS
BLE_2M	Ant1	2402	1000~26500	2.02	-58.65	≤-17.98	PASS
BLE_2M	Ant1	2440	0~Reference	1.41	1.41	---	PASS
BLE_2M	Ant1	2440	30~1000	1.41	-66.96	≤-18.59	PASS
BLE_2M	Ant1	2440	1000~26500	1.41	-60.61	≤-18.59	PASS
BLE_2M	Ant1	2480	0~Reference	1.50	1.50	---	PASS
BLE_2M	Ant1	2480	30~1000	1.50	-66.78	≤-18.5	PASS
BLE_2M	Ant1	2480	1000~26500	1.50	-60.32	≤-18.5	PASS

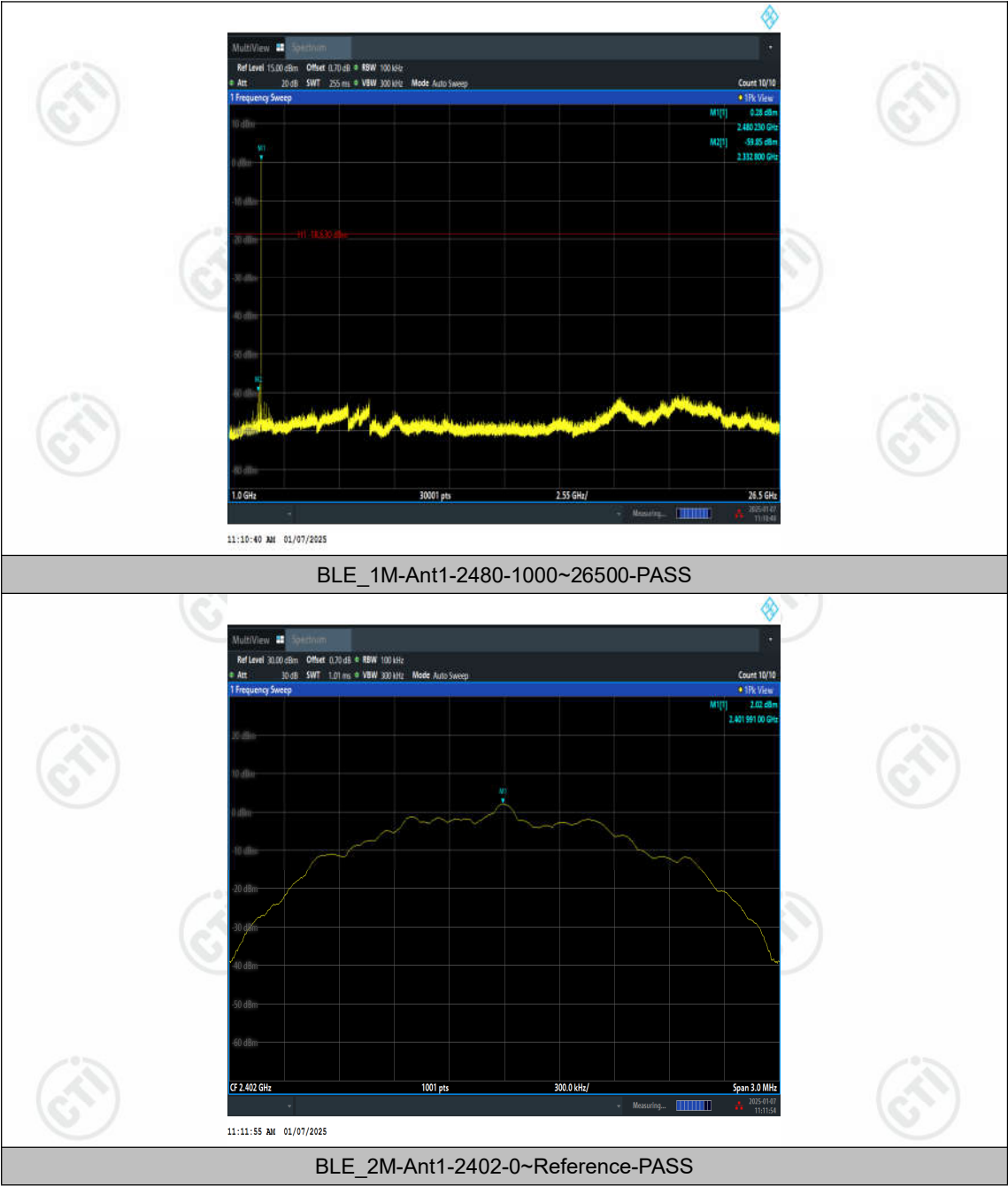
Test Graphs

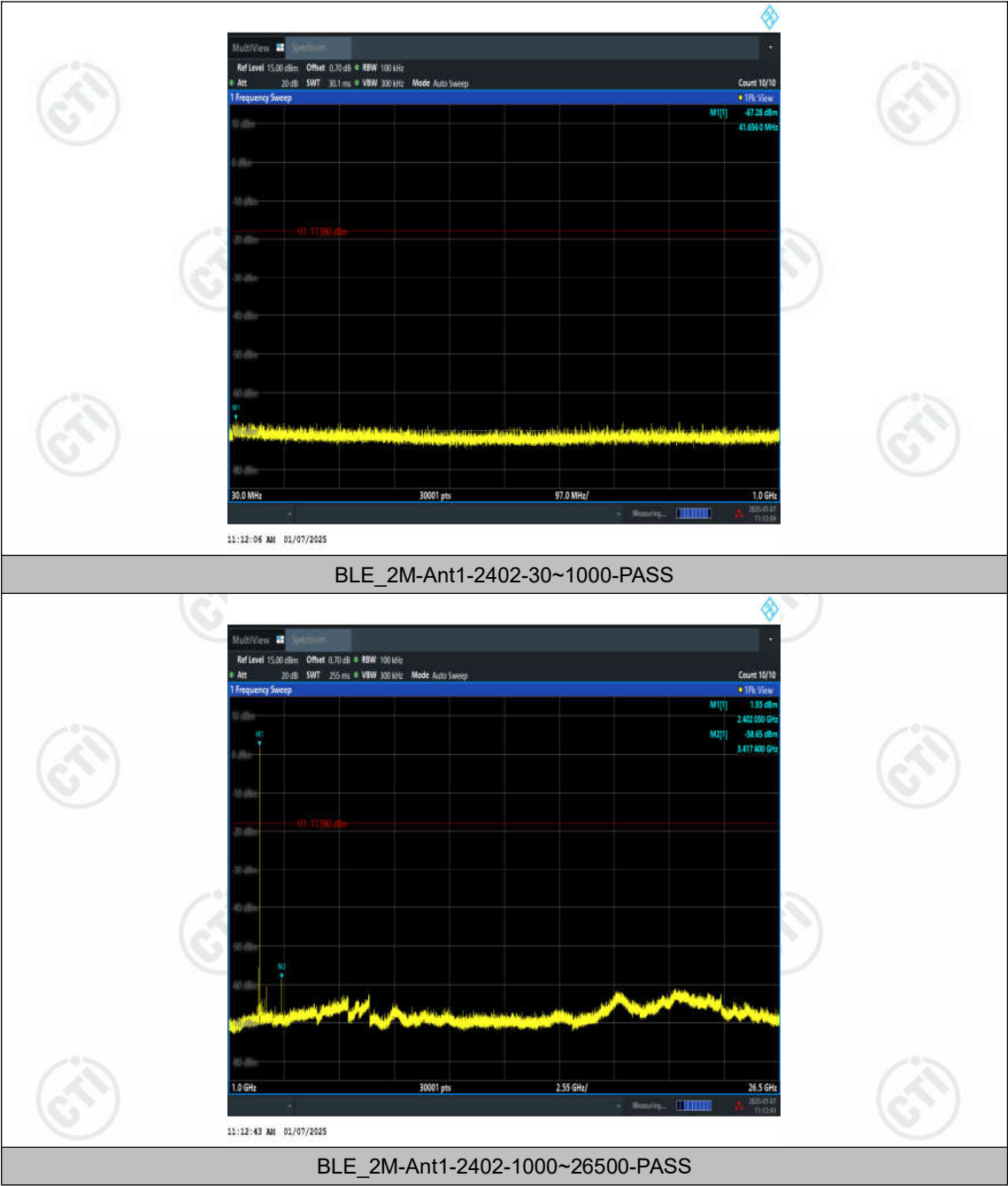


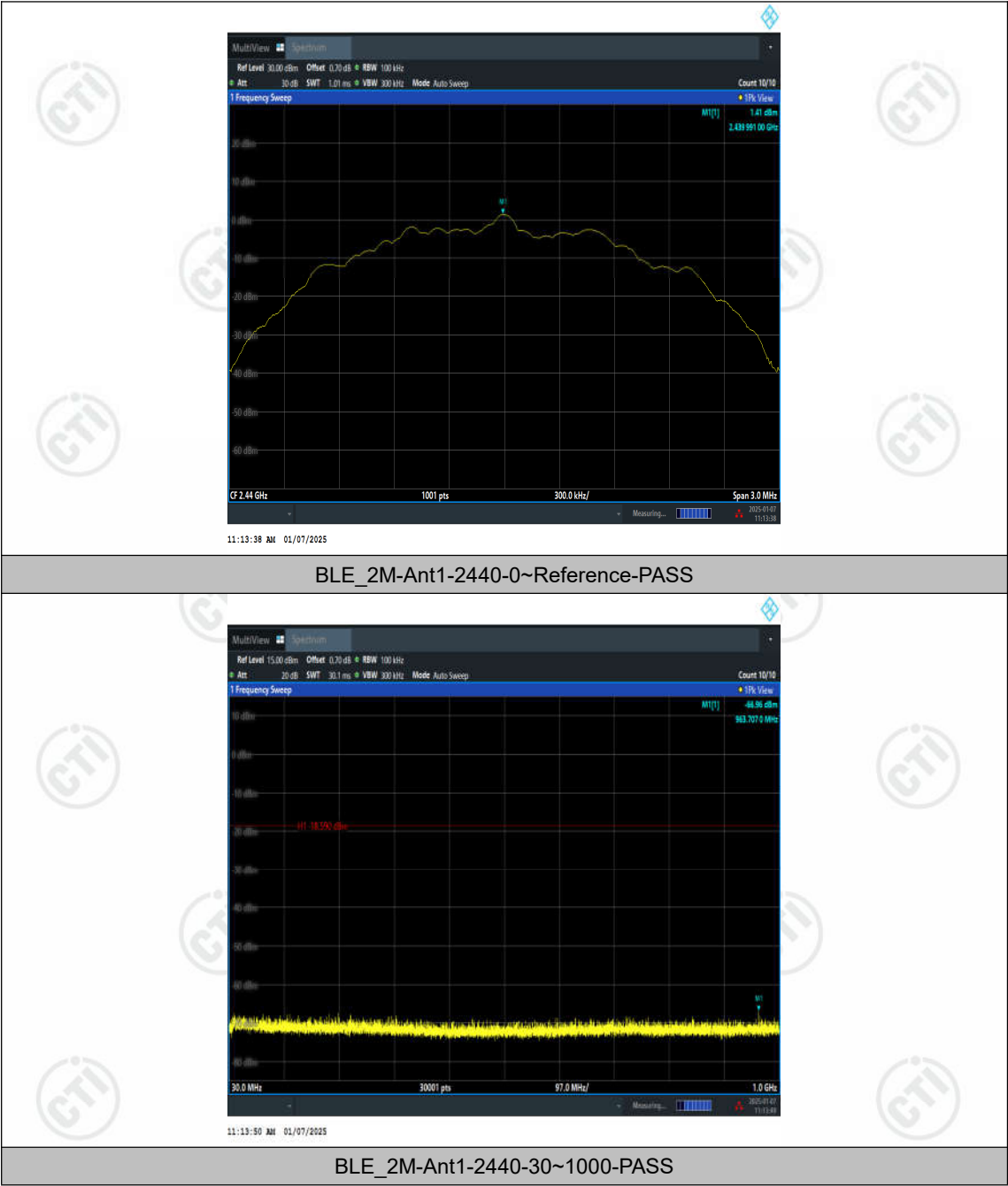






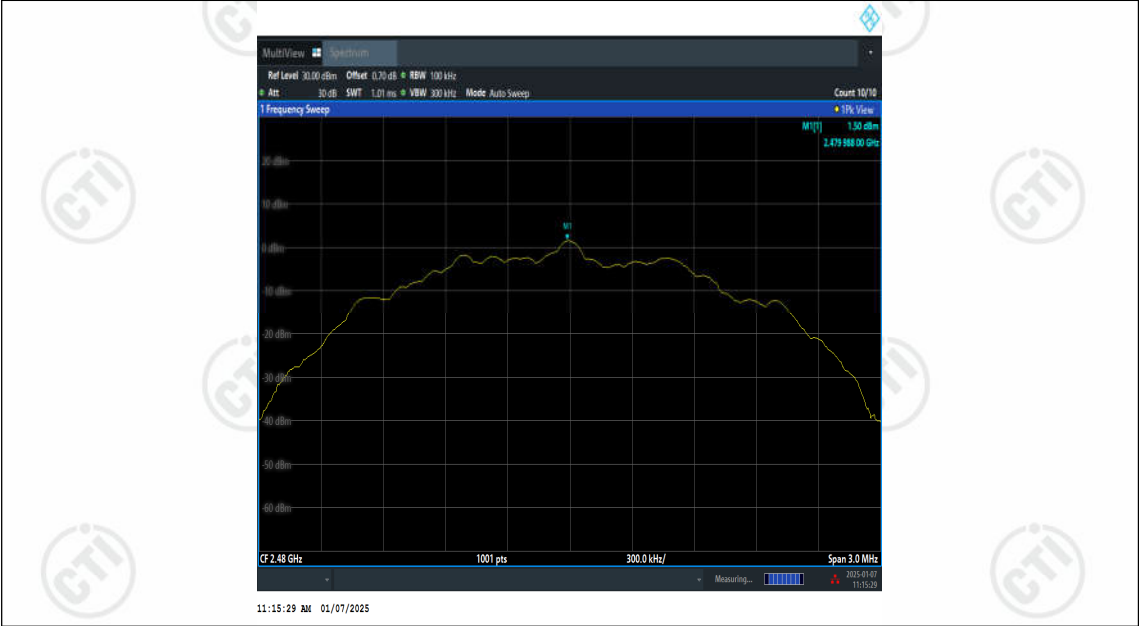




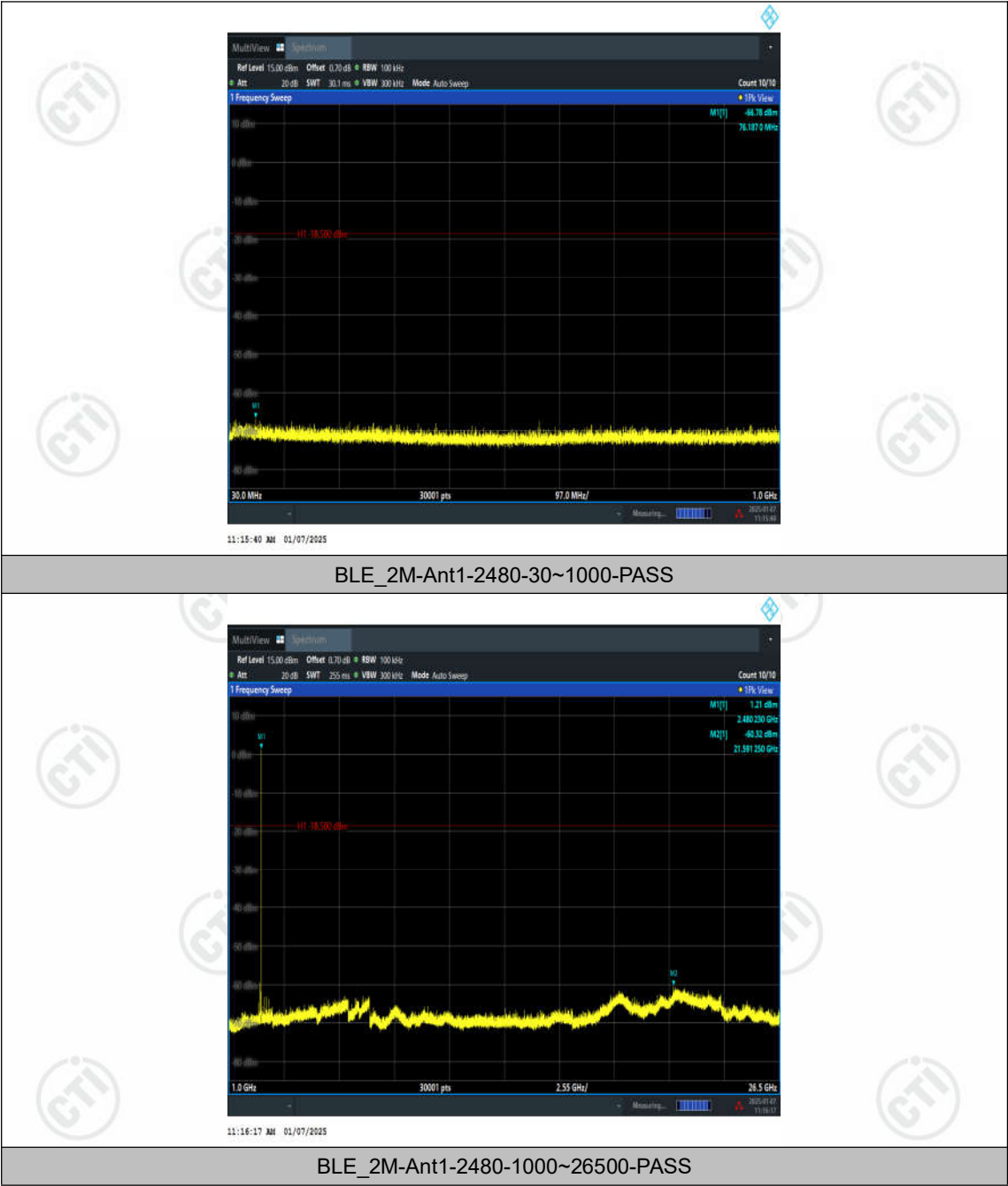




BLE_2M-Ant1-2440-1000~26500-PASS



BLE_2M-Ant1-2480-0~Reference-PASS



Appendix G: Duty Cycle

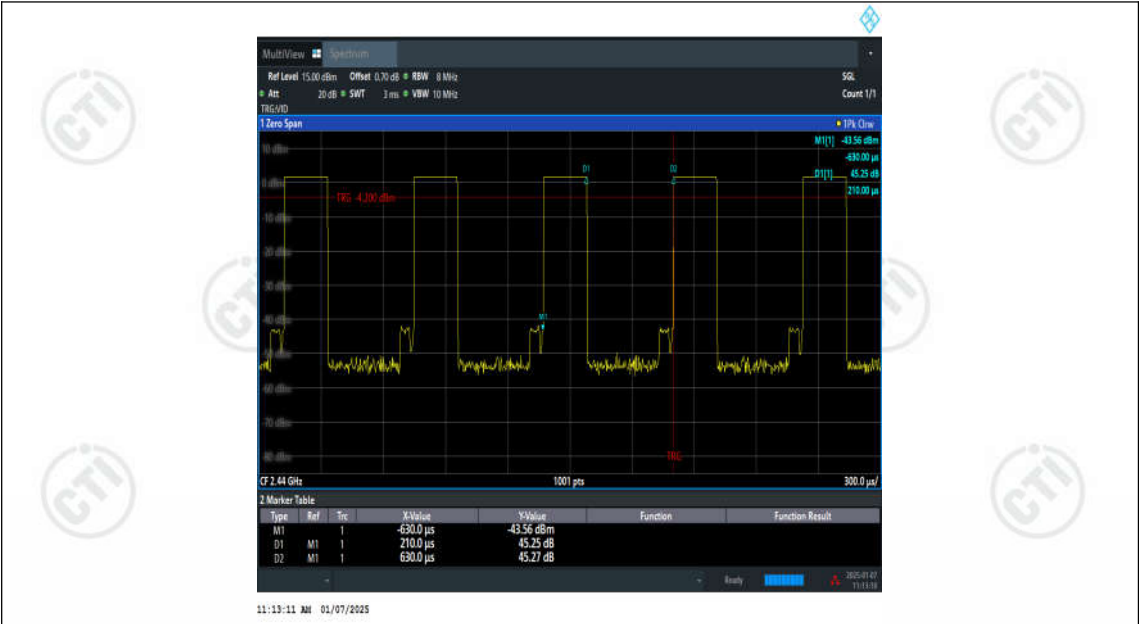
Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.39	0.62	62.90	2.01
BLE_1M	Ant1	2440	0.39	0.62	62.90	2.01
BLE_1M	Ant1	2480	0.39	0.62	62.90	2.01
BLE_2M	Ant1	2402	0.21	0.63	33.33	4.77
BLE_2M	Ant1	2440	0.21	0.63	33.33	4.77
BLE_2M	Ant1	2480	0.21	0.63	33.33	4.77

Test Graphs







NTNV-BLE_2M-Ant1-2440



NTNV-BLE_2M-Ant1-2480

END OF REPORT