

Appendix: Bluetooth LE

Contents

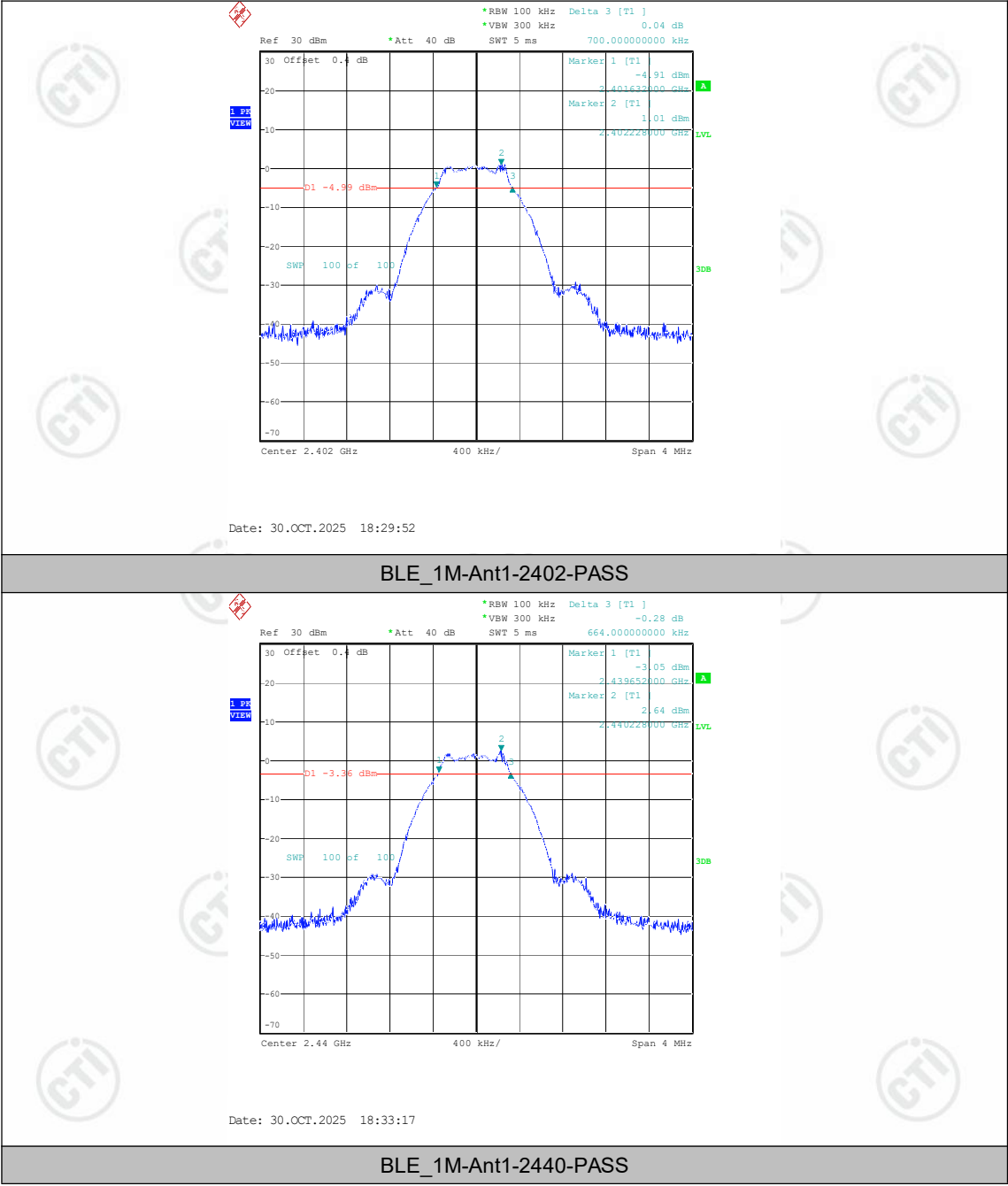
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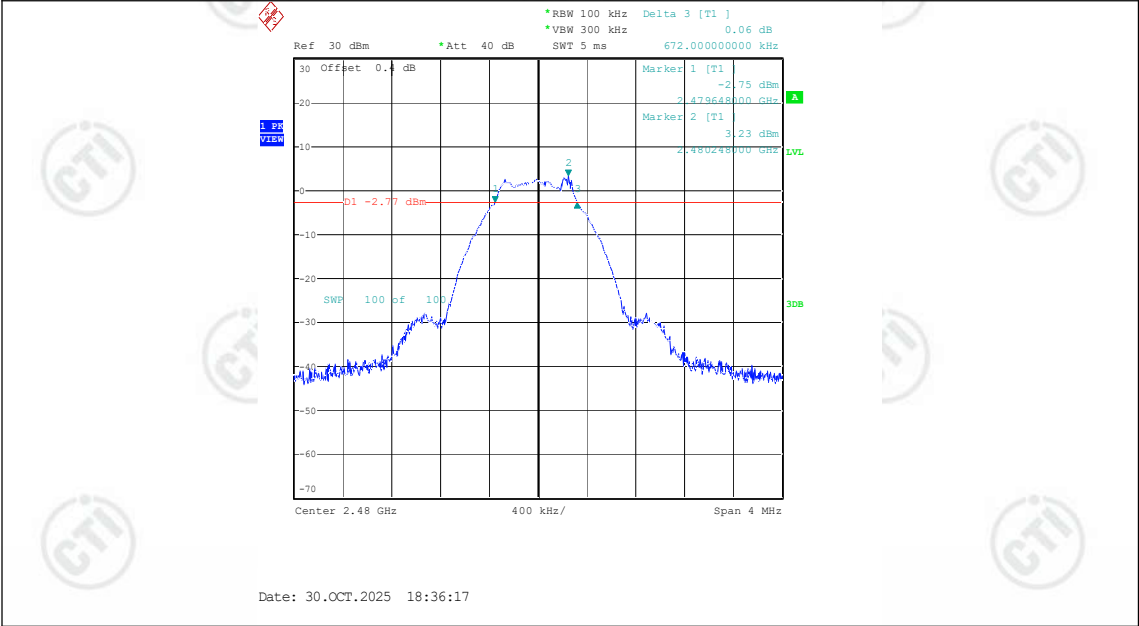
Appendix A: DTS Bandwidth

Test Result

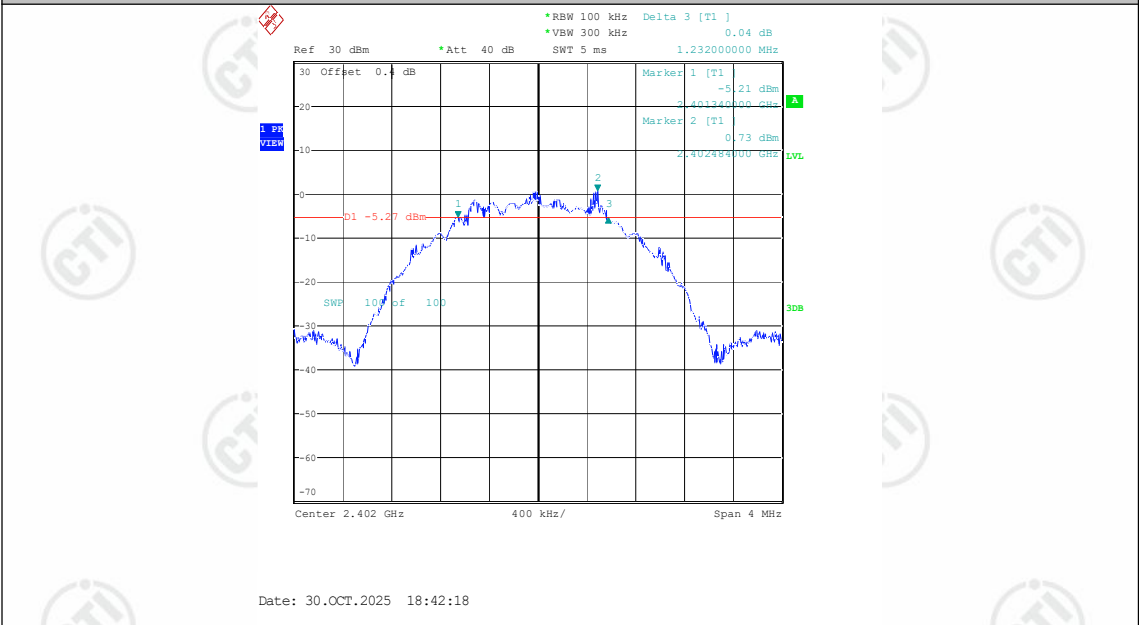
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.70	2401.63	2402.33	0.5	PASS
BLE_1M	Ant1	2440	0.66	2439.65	2440.32	0.5	PASS
BLE_1M	Ant1	2480	0.67	2479.65	2480.32	0.5	PASS
BLE_2M	Ant1	2402	1.23	2401.34	2402.57	0.5	PASS
BLE_2M	Ant1	2440	1.23	2439.34	2440.57	0.5	PASS
BLE_2M	Ant1	2480	1.23	2479.34	2480.57	0.5	PASS

Test Graphs

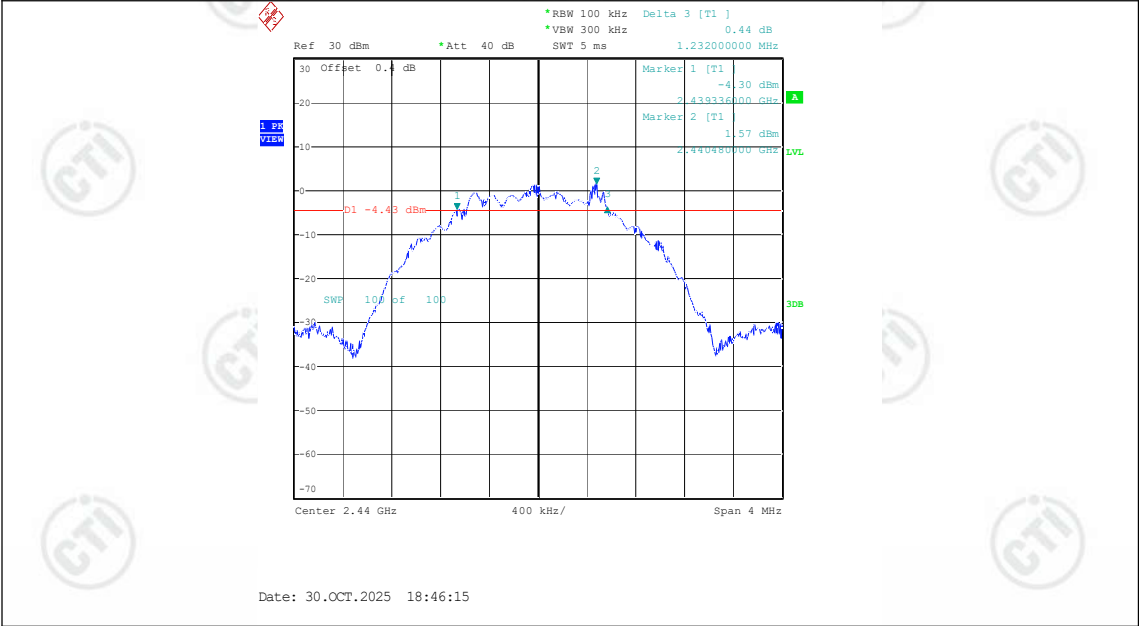




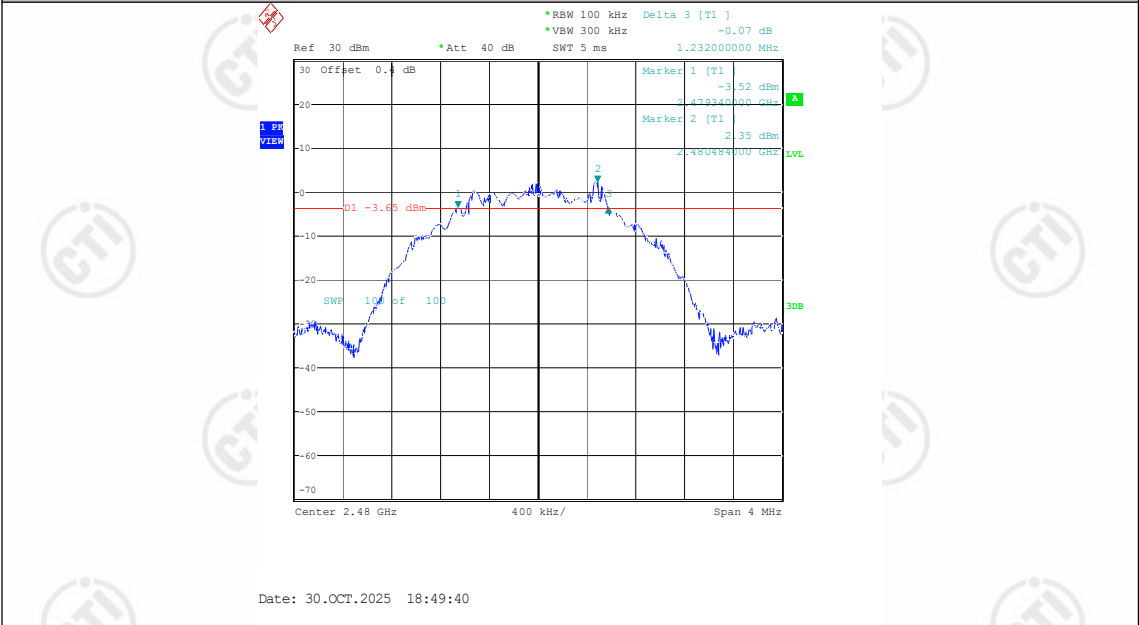
BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



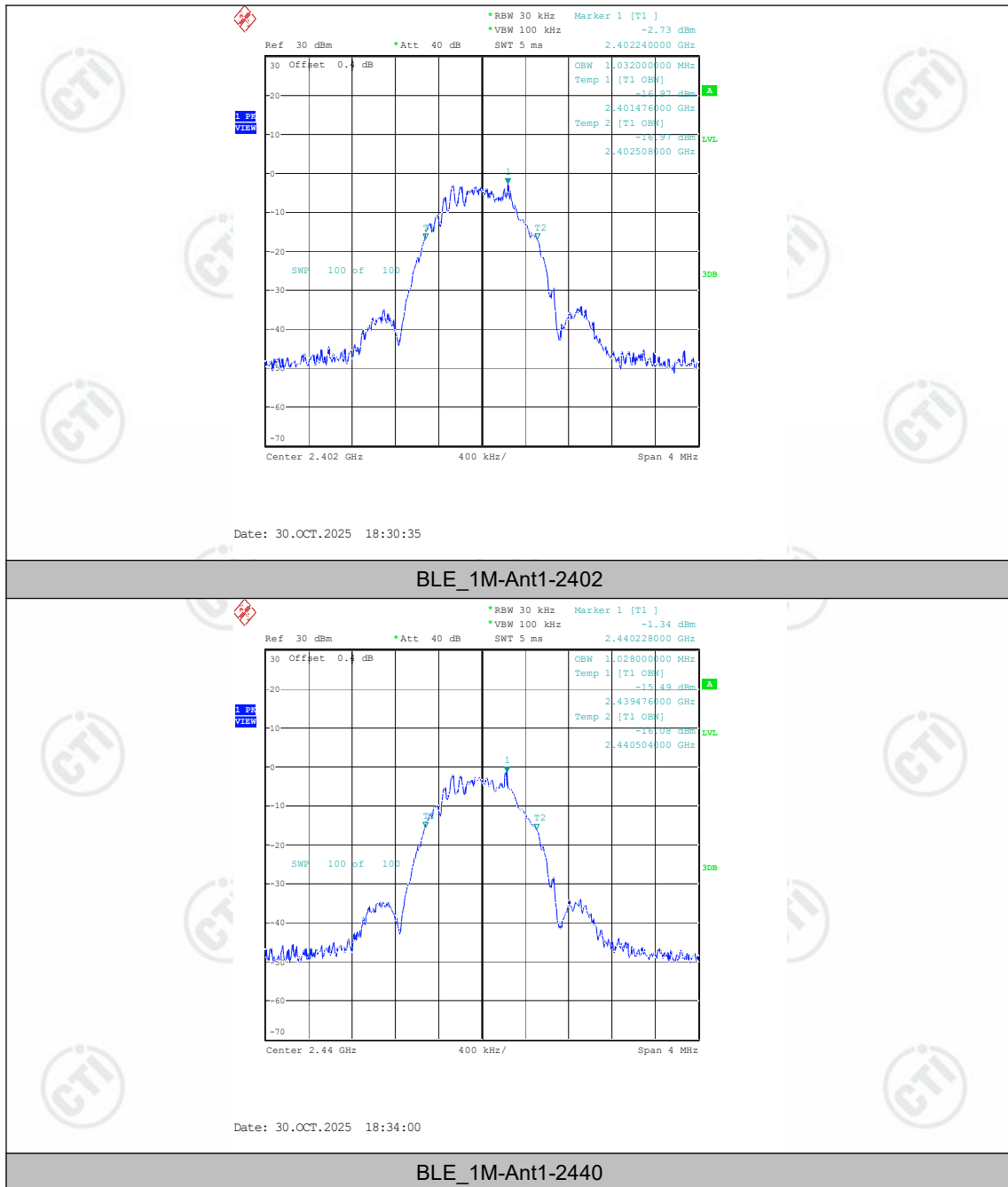
BLE_2M-Ant1-2480-PASS

Appendix B: Occupied Channel Bandwidth

Test Result

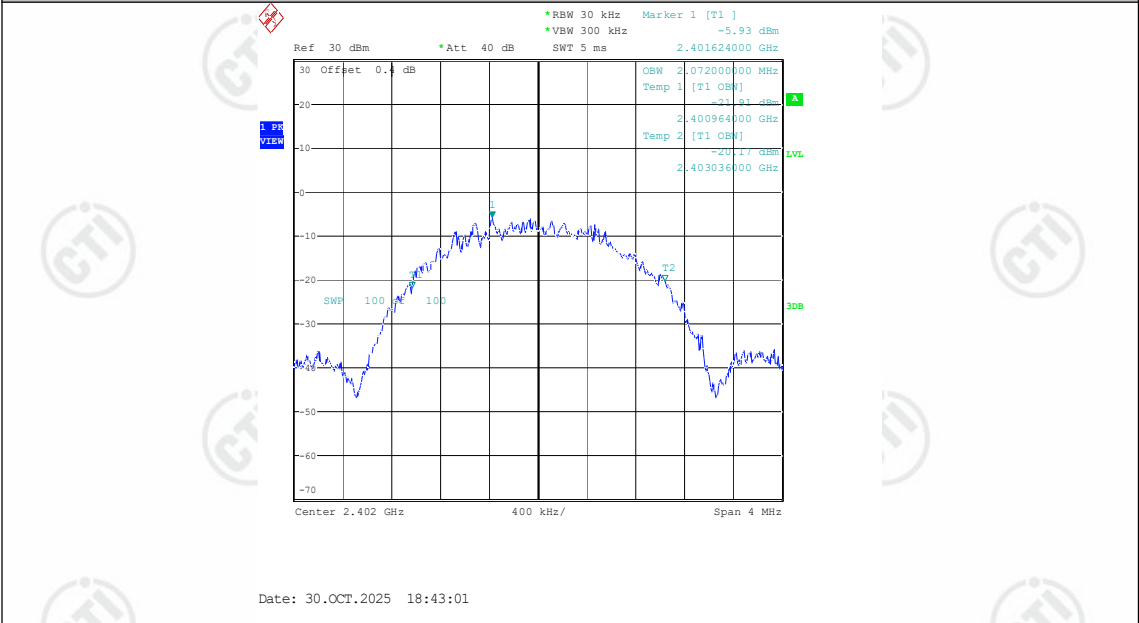
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0320	---	---
BLE_1M	Ant1	2440	1.0280	---	---
BLE_1M	Ant1	2480	1.0320	---	---
BLE_2M	Ant1	2402	2.0720	---	---
BLE_2M	Ant1	2440	2.0720	---	---
BLE_2M	Ant1	2480	2.0640	---	---

Test Graphs





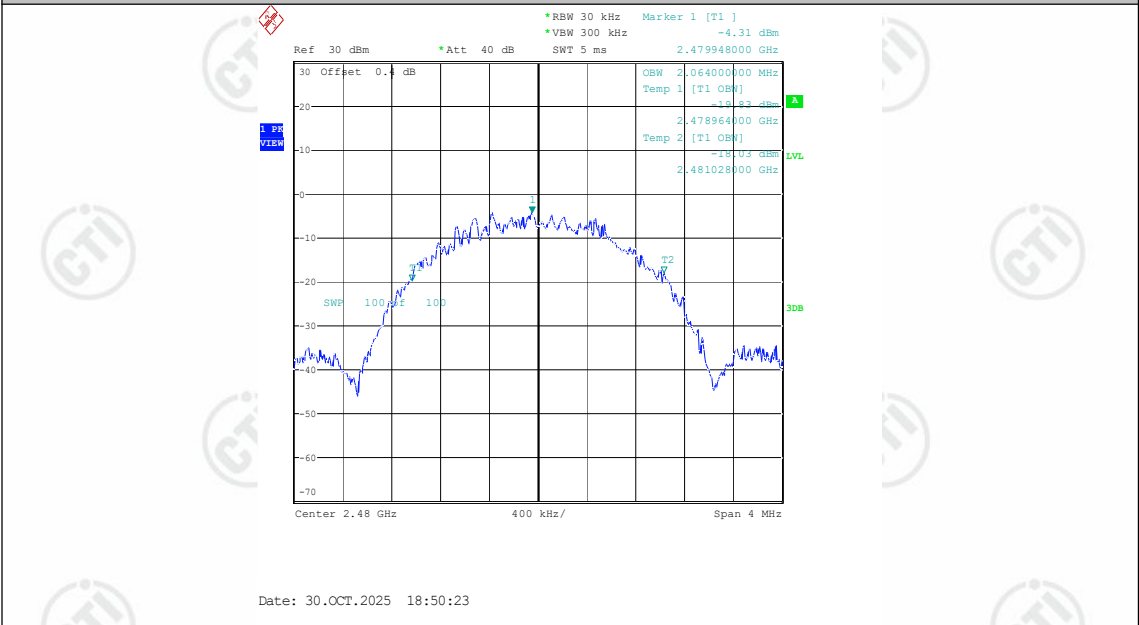
BLE_1M-Ant1-2480



BLE_2M-Ant1-2402



BLE_2M-Ant1-2440

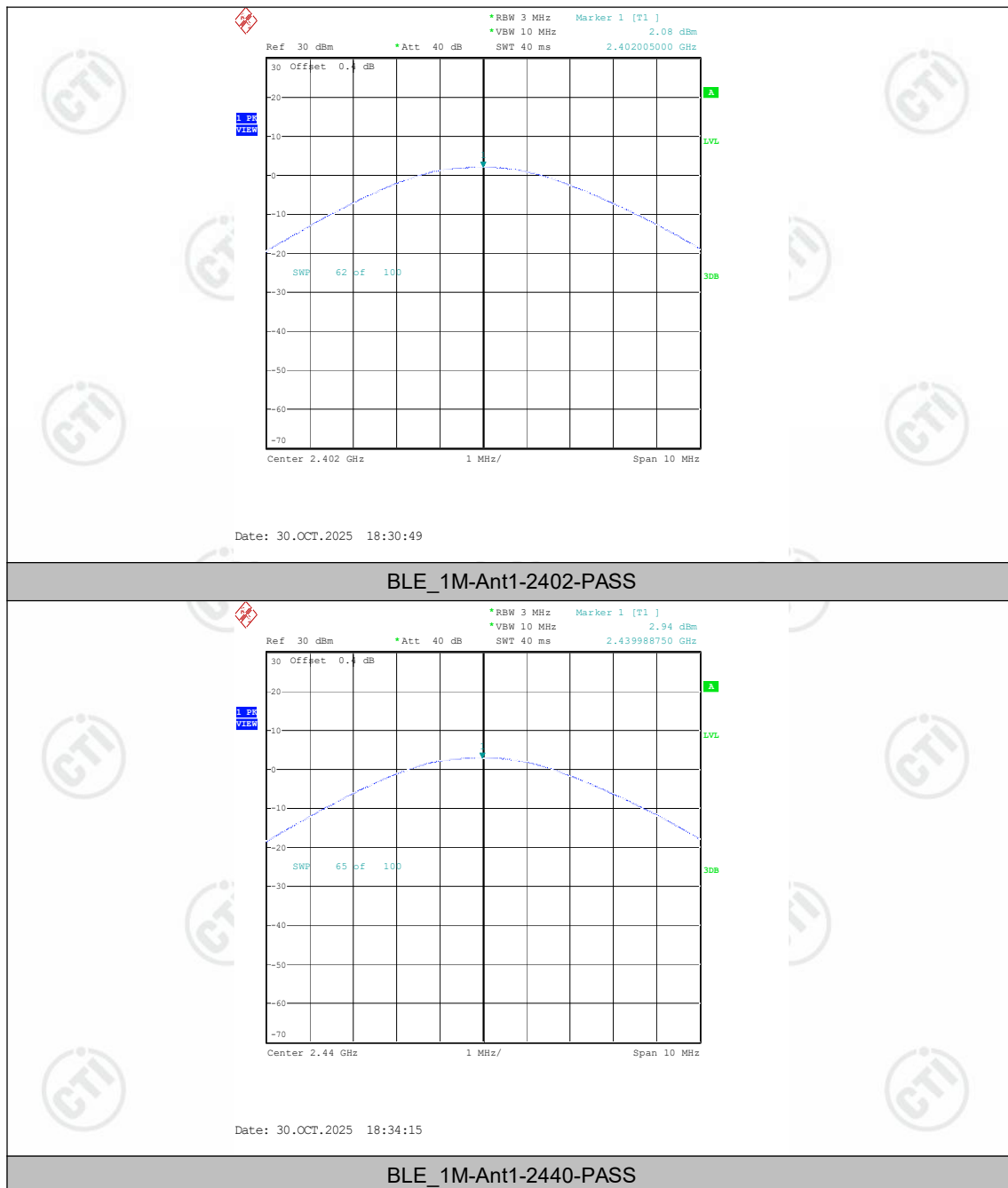


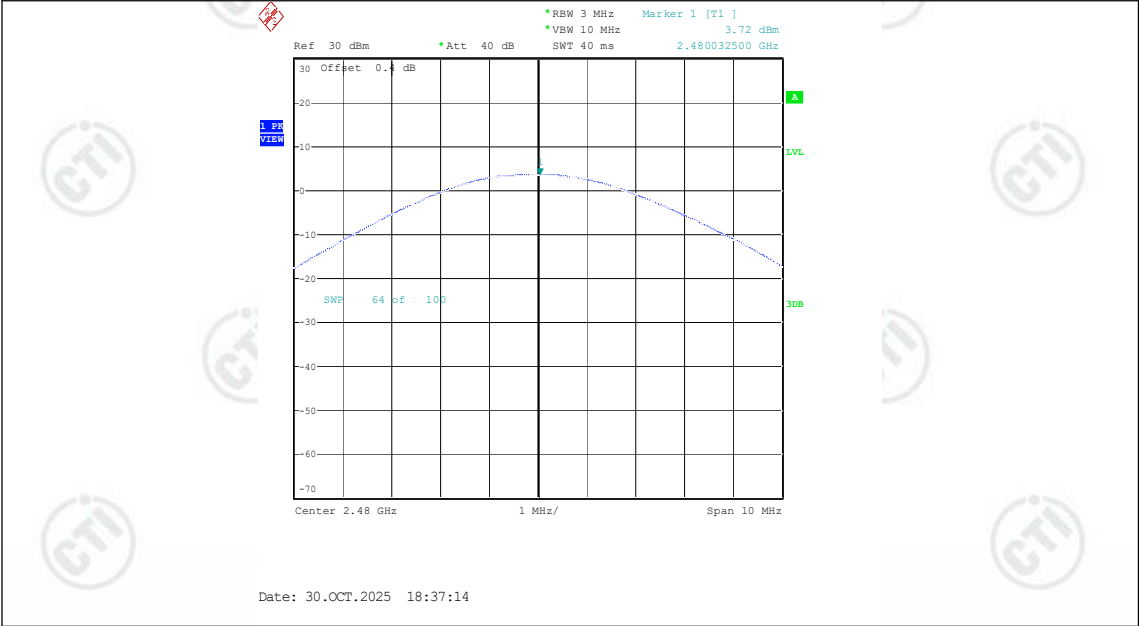
BLE_2M-Ant1-2480

Appendix C: Maximum conducted output power**Test Result Peak**

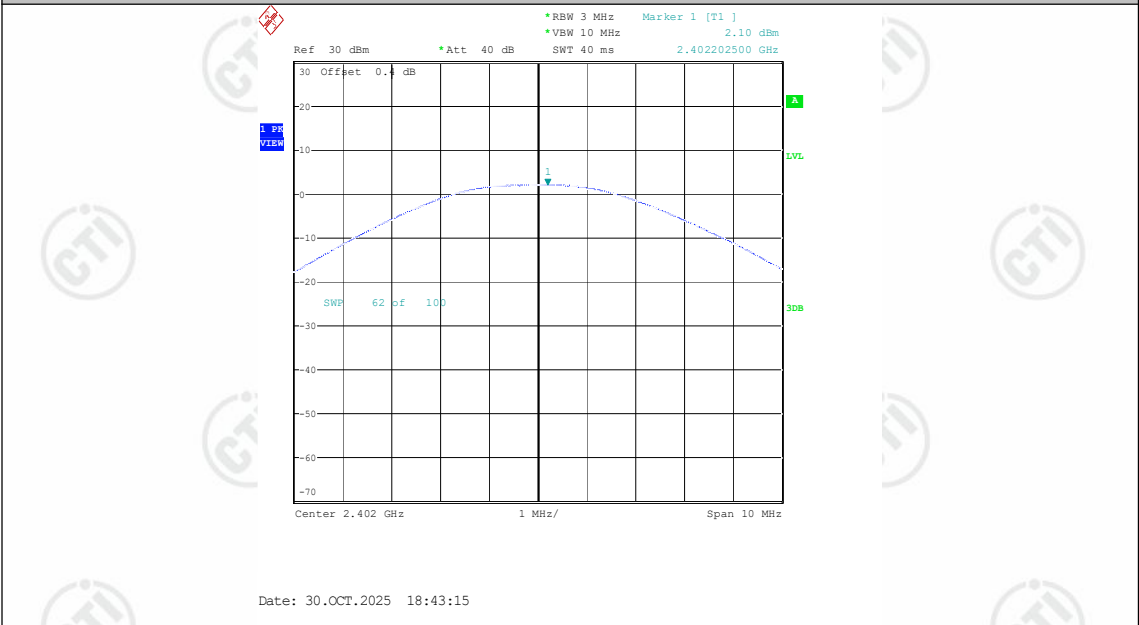
TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	2.08	≤30	PASS
BLE_1M	Ant1	2440	2.94	≤30	PASS
BLE_1M	Ant1	2480	3.72	≤30	PASS
BLE_2M	Ant1	2402	2.10	≤30	PASS
BLE_2M	Ant1	2440	2.98	≤30	PASS
BLE_2M	Ant1	2480	3.66	≤30	PASS

Test Graphs Peak

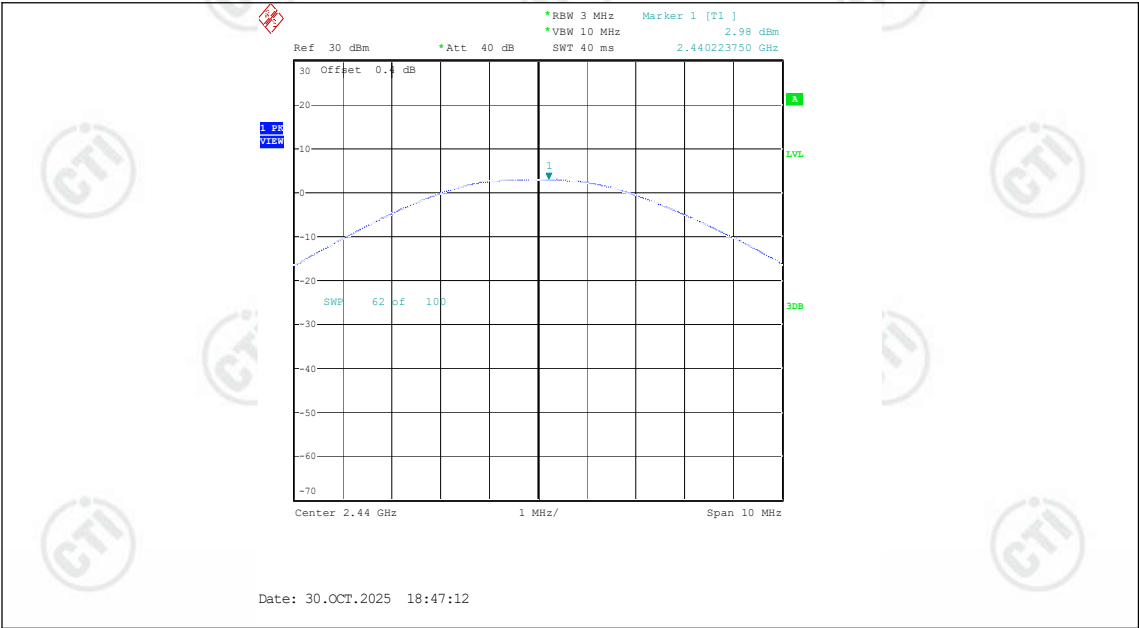




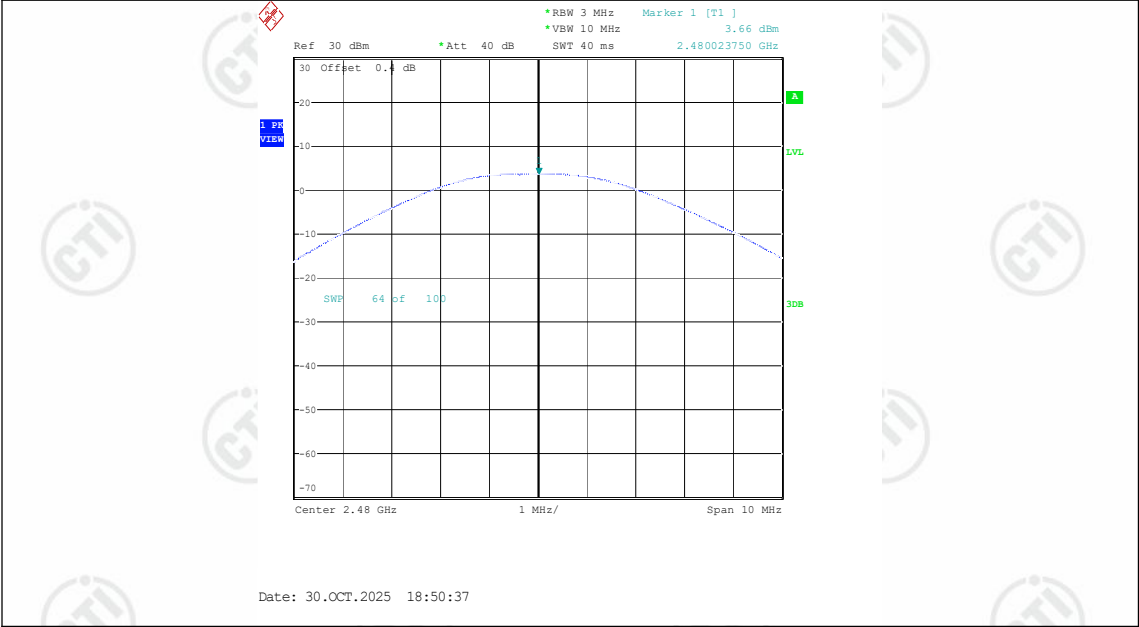
BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



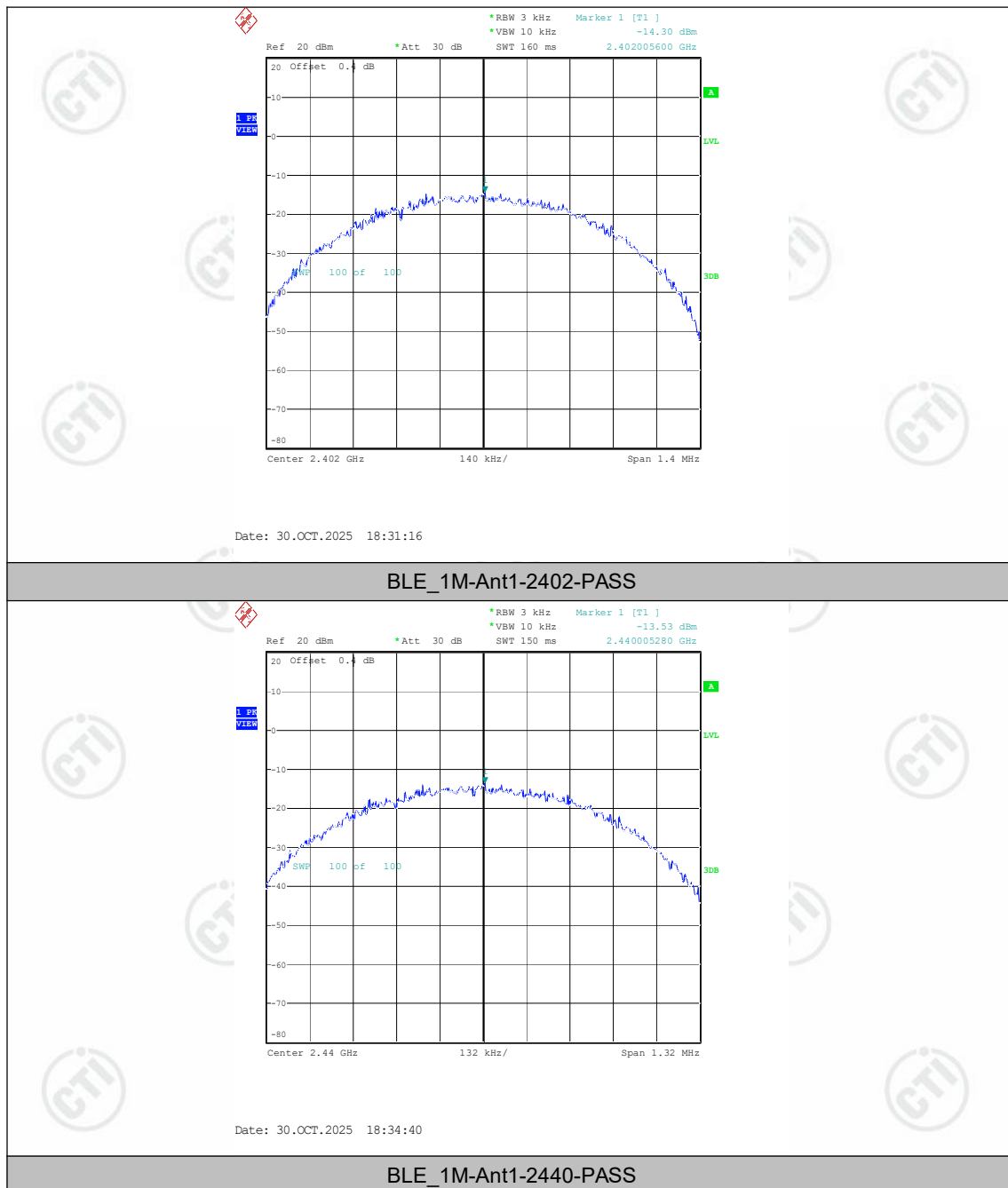
BLE_2M-Ant1-2480-PASS

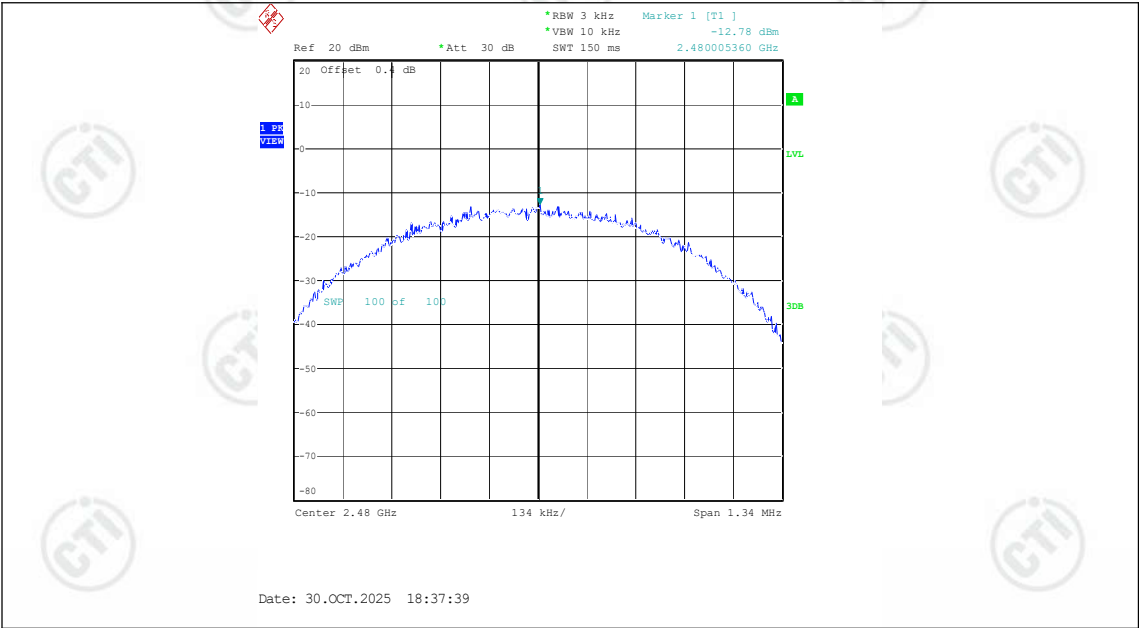
Appendix D: Maximum power spectral density

Test Result

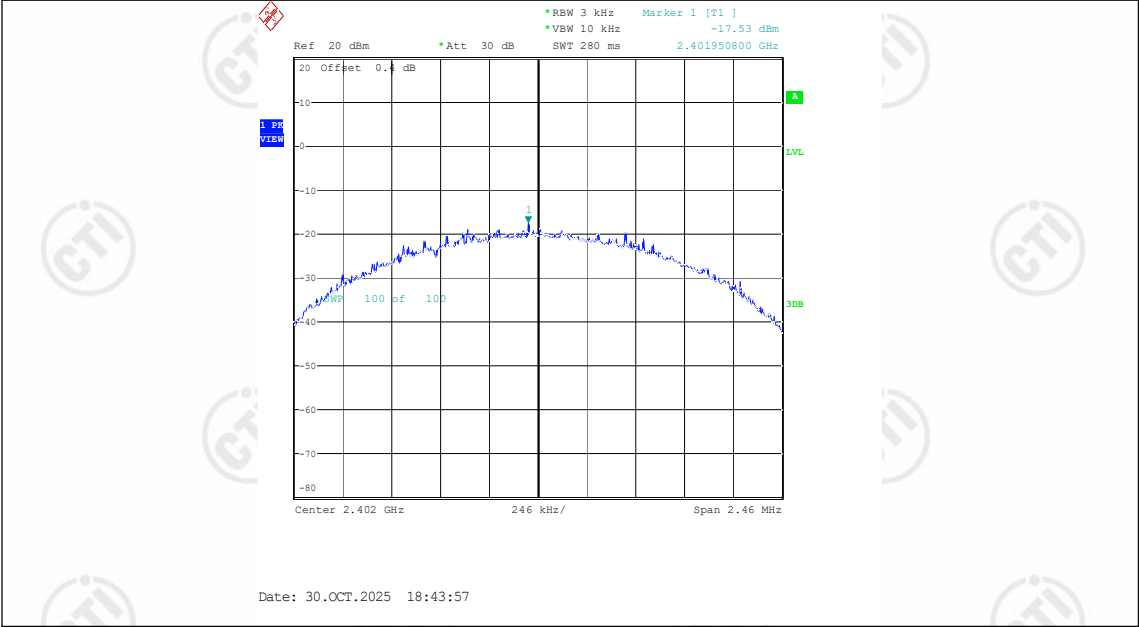
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.30	≤8.00	PASS
BLE_1M	Ant1	2440	-13.53	≤8.00	PASS
BLE_1M	Ant1	2480	-12.78	≤8.00	PASS
BLE_2M	Ant1	2402	-17.53	≤8.00	PASS
BLE_2M	Ant1	2440	-16.73	≤8.00	PASS
BLE_2M	Ant1	2480	-15.95	≤8.00	PASS

Test Graphs

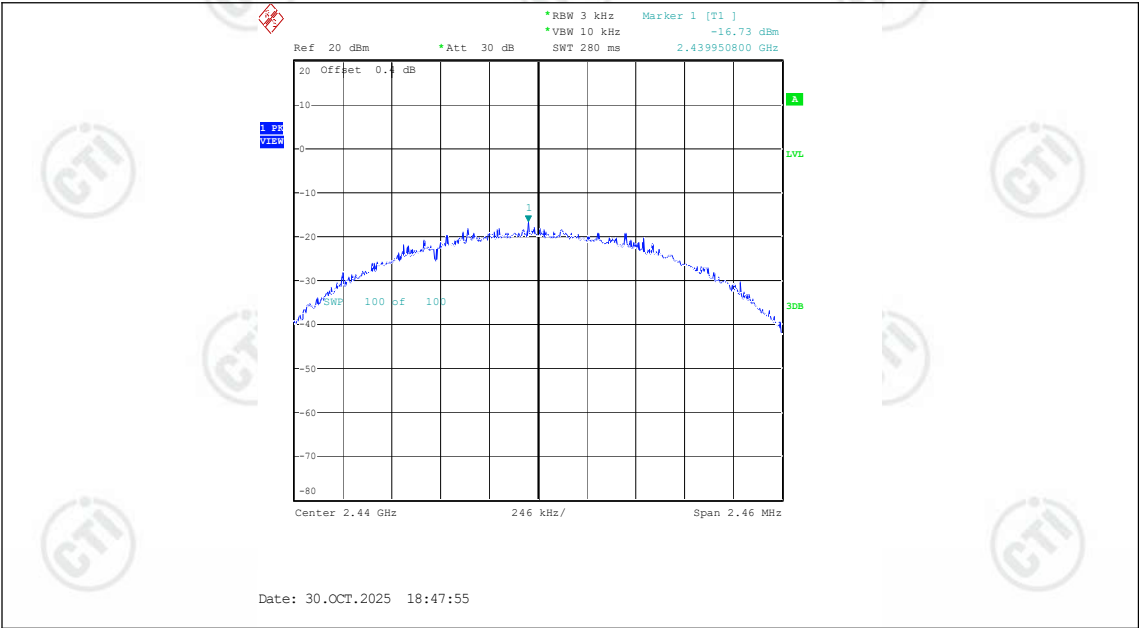




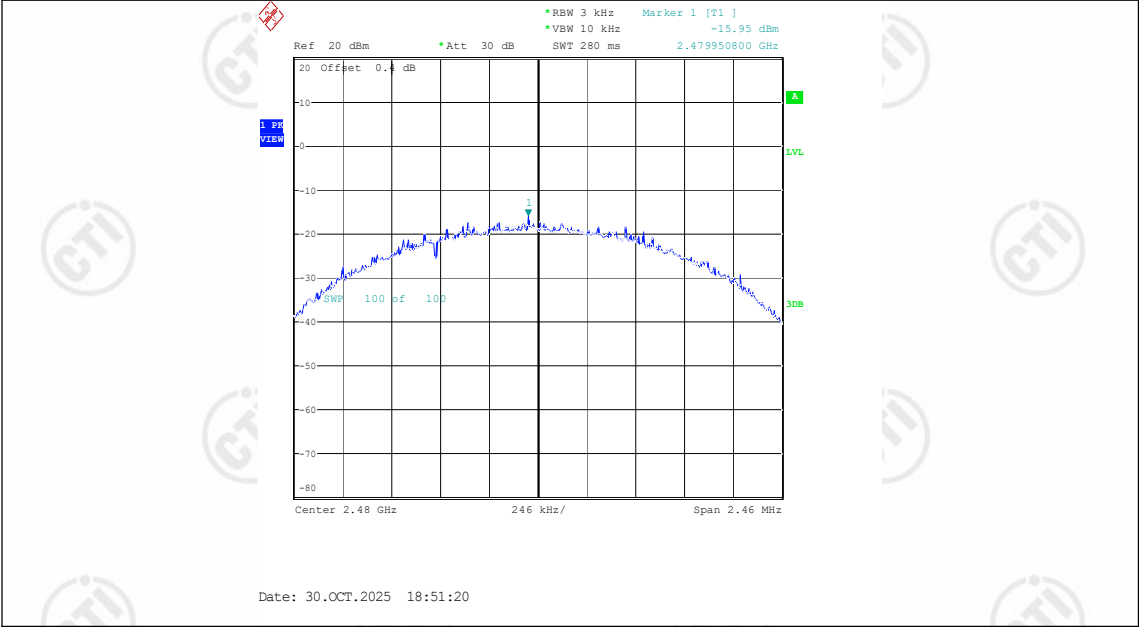
BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



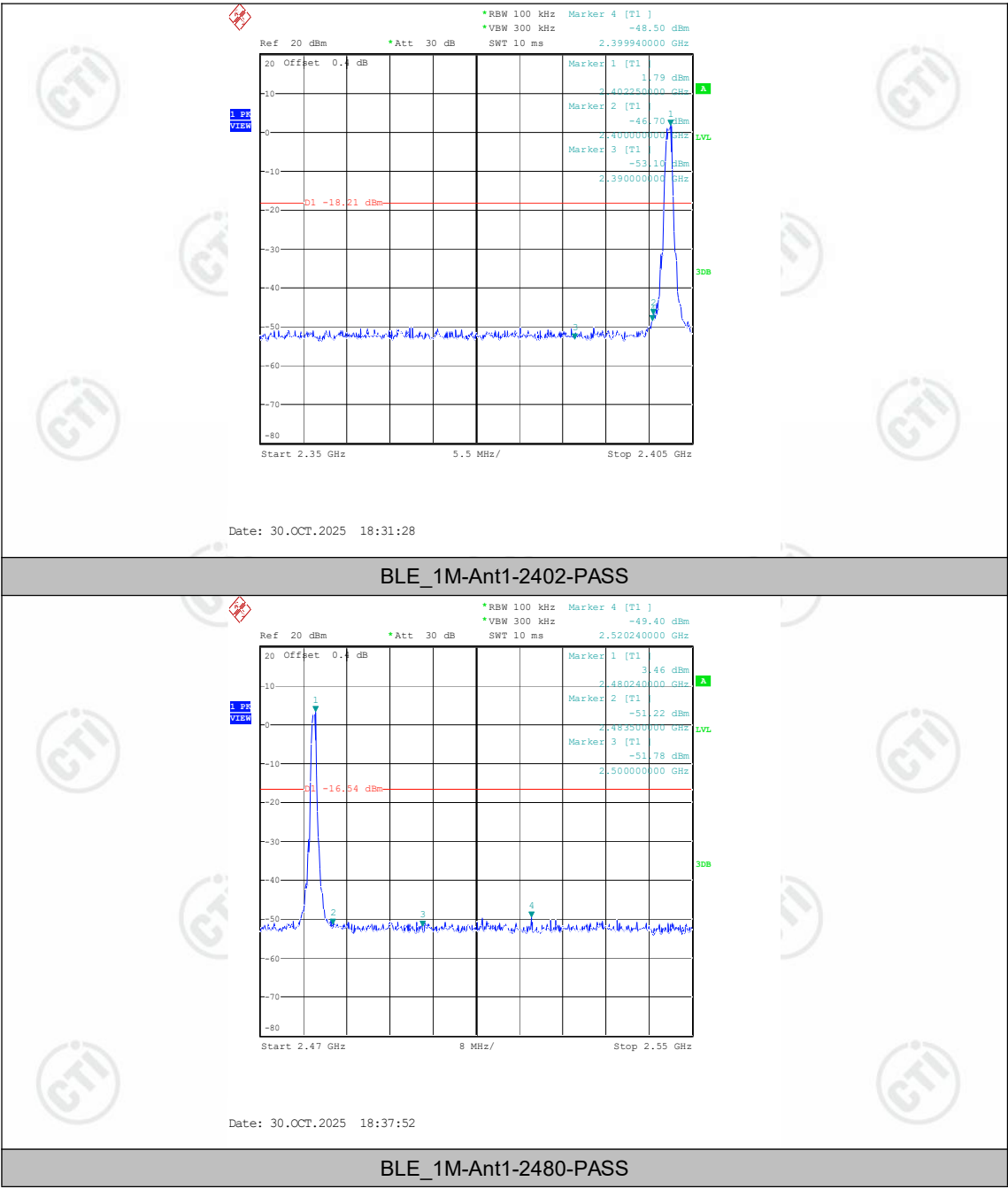
BLE_2M-Ant1-2480-PASS

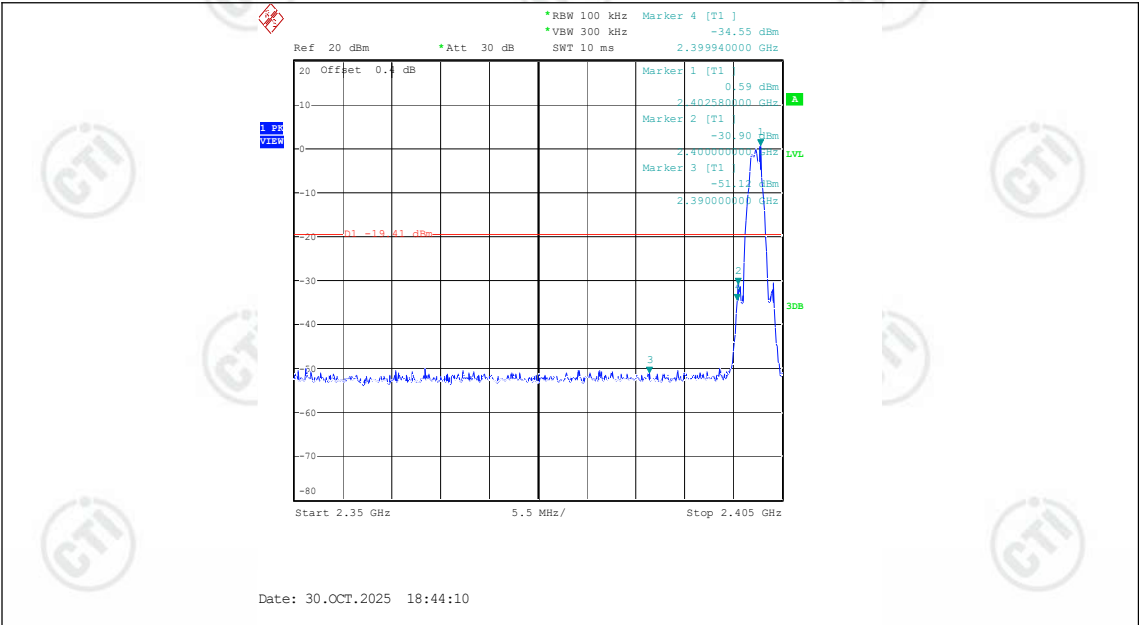
Appendix E: Band edge measurements

Test Result

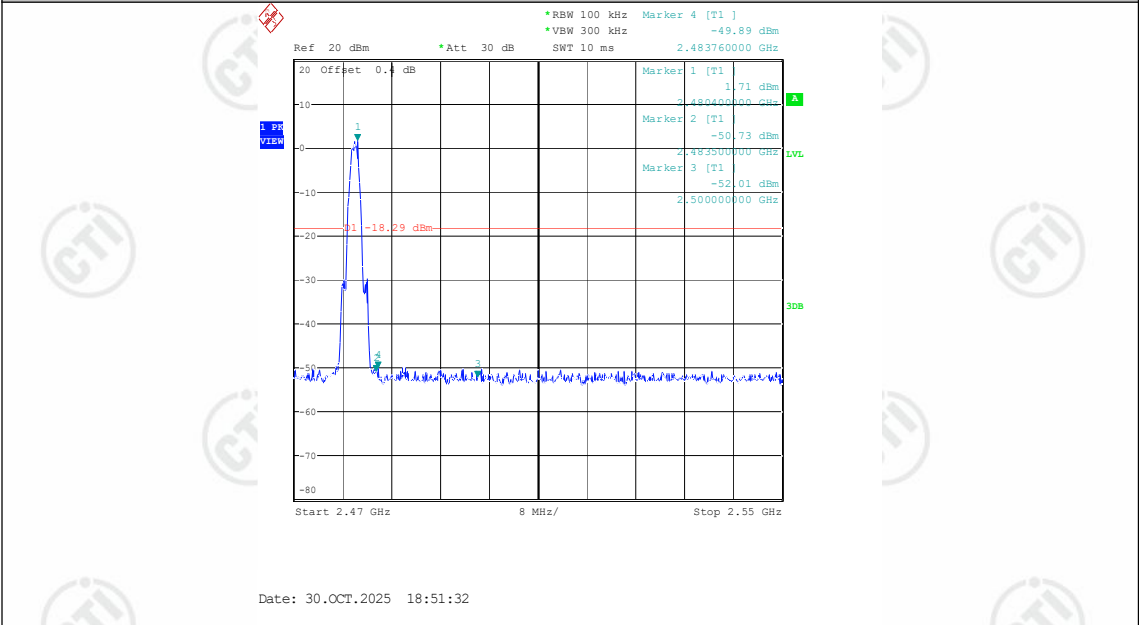
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	1.79	-48.5	≤-18.21	PASS
BLE_1M	Ant1	High	2480	3.46	-49.4	≤-16.54	PASS
BLE_2M	Ant1	Low	2402	0.59	-34.55	≤-19.41	PASS
BLE_2M	Ant1	High	2480	1.71	-49.89	≤-18.29	PASS

Test Graphs





BLE_2M-Ant1-2402-PASS



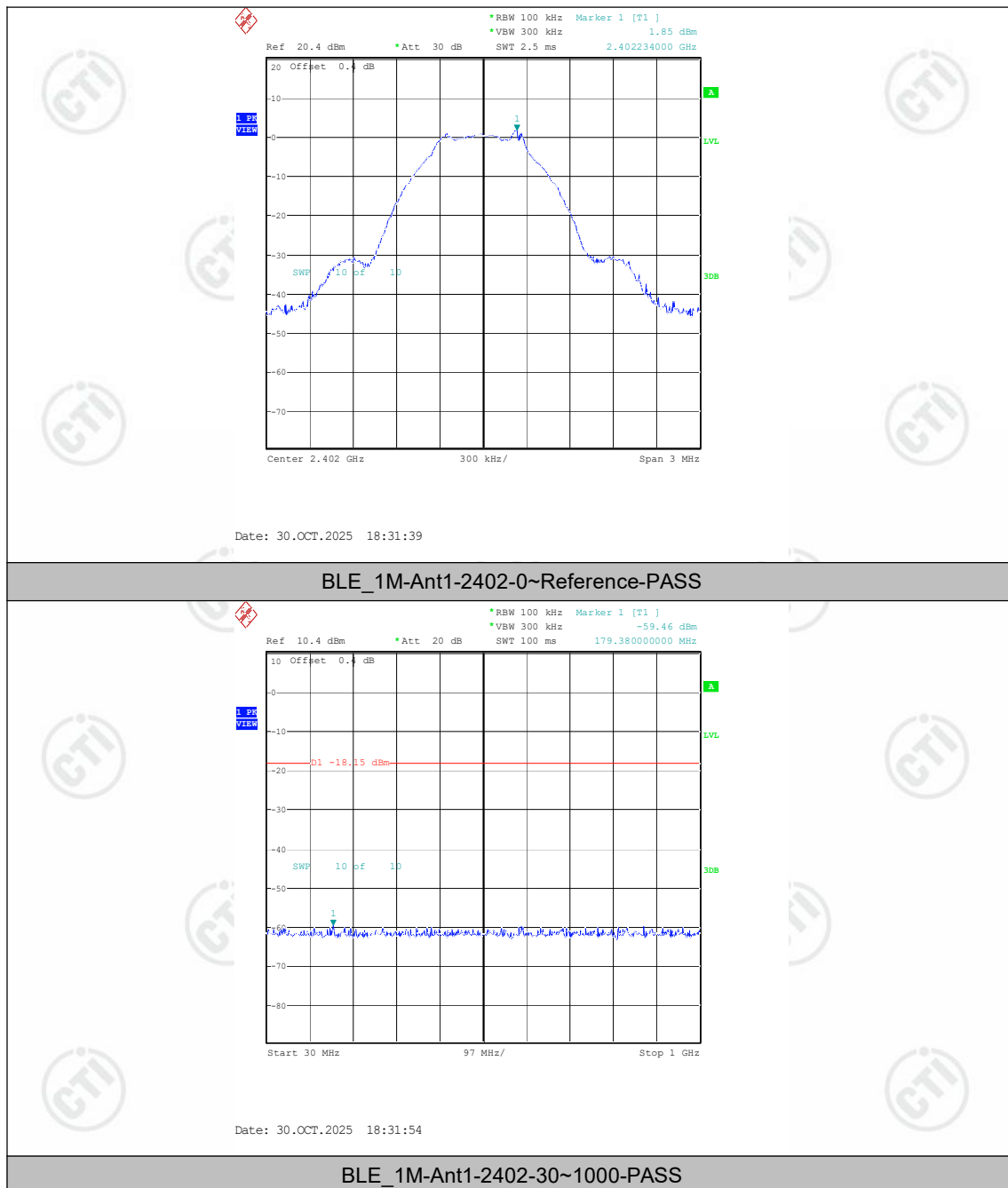
BLE_2M-Ant1-2480-PASS

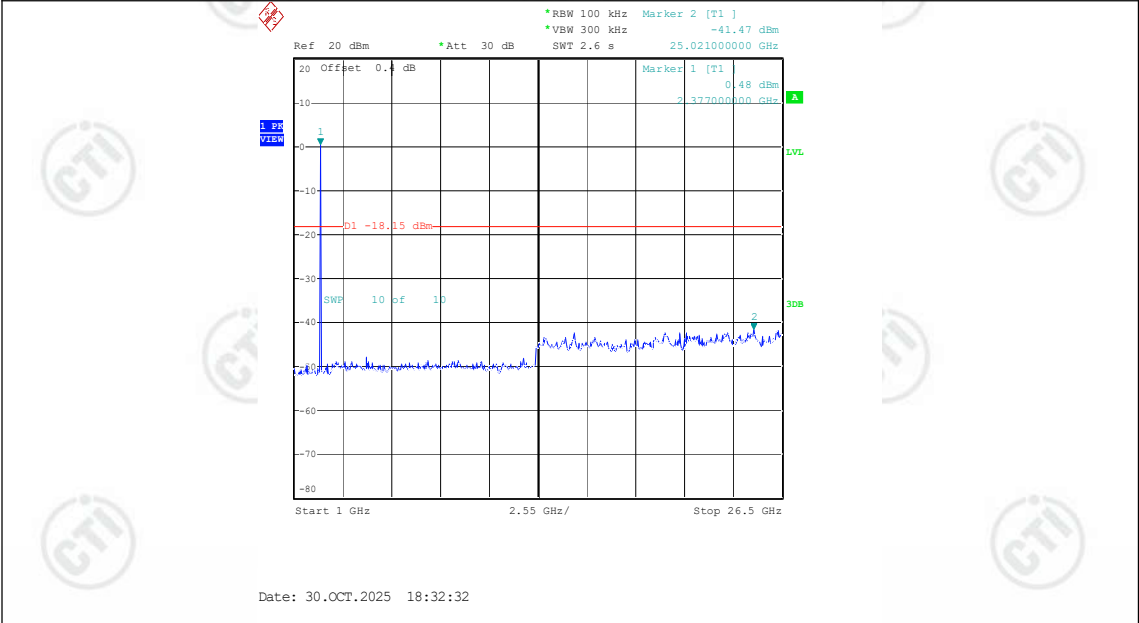
Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	1.85	1.85	---	PASS
BLE_1M	Ant1	2402	30~1000	1.85	-59.46	≤-18.15	PASS
BLE_1M	Ant1	2402	1000~26500	1.85	-41.47	≤-18.15	PASS
BLE_1M	Ant1	2440	0~Reference	2.67	2.67	---	PASS
BLE_1M	Ant1	2440	30~1000	2.67	-58.8	≤-17.33	PASS
BLE_1M	Ant1	2440	1000~26500	2.67	-41.52	≤-17.33	PASS
BLE_1M	Ant1	2480	0~Reference	3.44	3.44	---	PASS
BLE_1M	Ant1	2480	30~1000	3.44	-57.18	≤-16.56	PASS
BLE_1M	Ant1	2480	1000~26500	3.44	-41.67	≤-16.56	PASS
BLE_2M	Ant1	2402	0~Reference	0.81	0.81	---	PASS
BLE_2M	Ant1	2402	30~1000	0.81	-58.54	≤-19.19	PASS
BLE_2M	Ant1	2402	1000~26500	0.81	-41.77	≤-19.19	PASS
BLE_2M	Ant1	2440	0~Reference	1.55	1.55	---	PASS
BLE_2M	Ant1	2440	30~1000	1.55	-59.14	≤-18.45	PASS
BLE_2M	Ant1	2440	1000~26500	1.55	-41.72	≤-18.45	PASS
BLE_2M	Ant1	2480	0~Reference	2.34	2.34	---	PASS
BLE_2M	Ant1	2480	30~1000	2.34	-57.96	≤-17.66	PASS
BLE_2M	Ant1	2480	1000~26500	2.34	-41.24	≤-17.66	PASS

Test Graphs

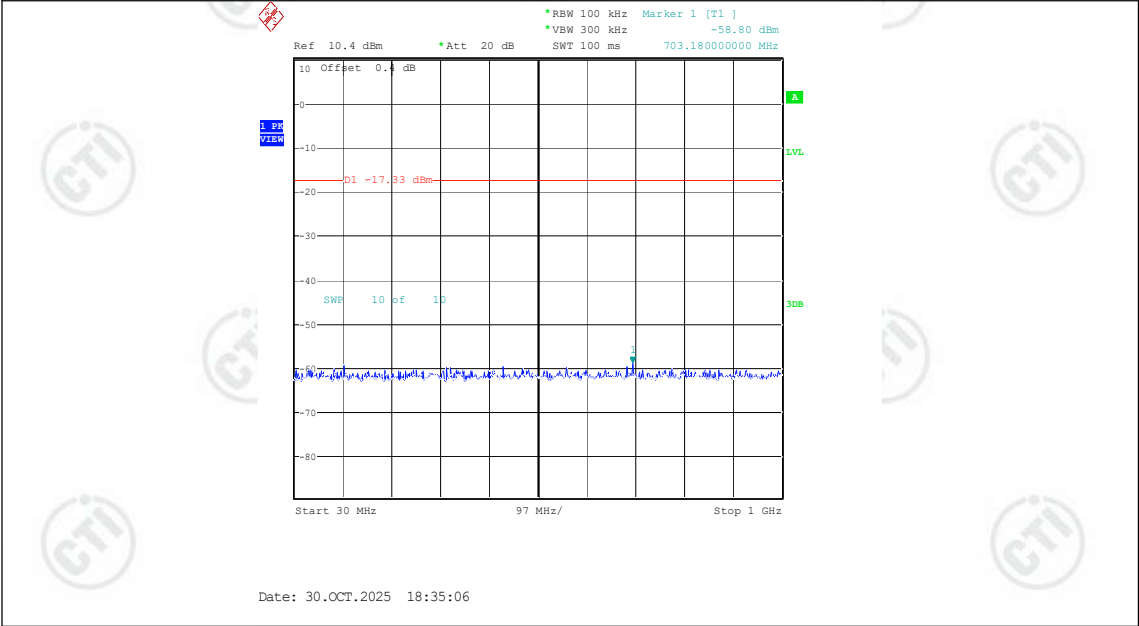




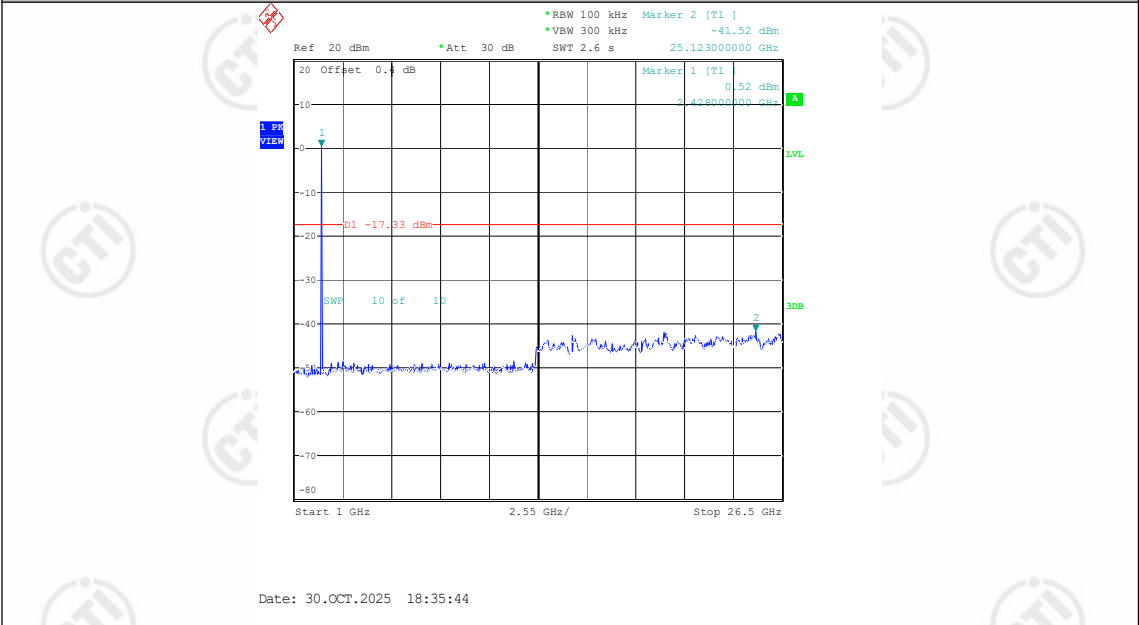
BLE_1M-Ant1-2402-1000~26500-PASS



BLE_1M-Ant1-2440-0~Reference-PASS



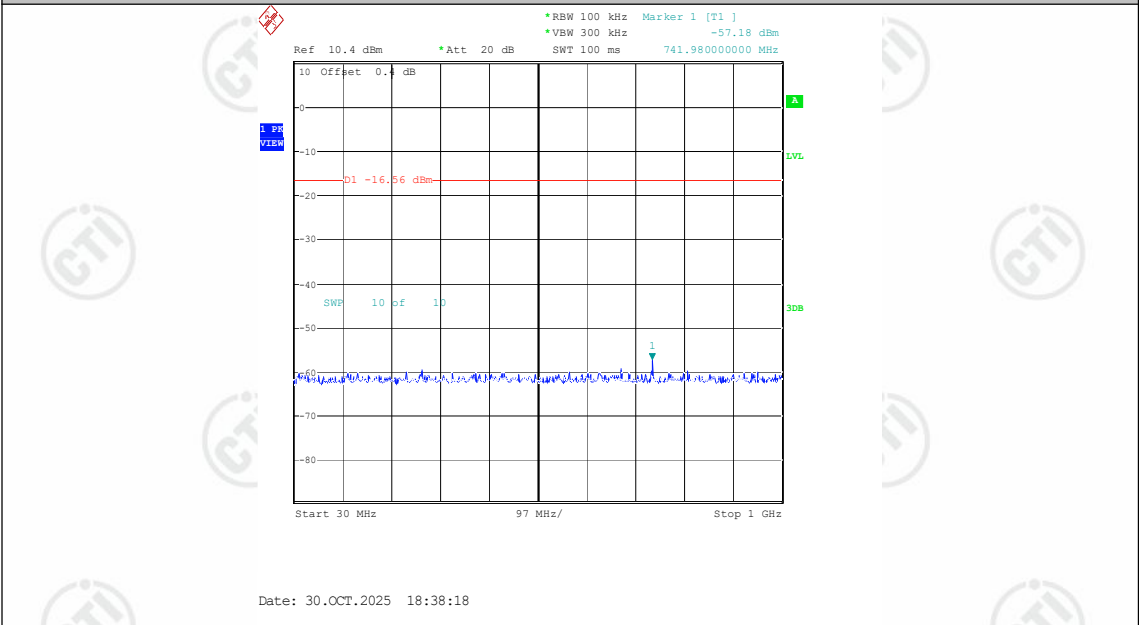
BLE_1M-Ant1-2440-30~1000-PASS



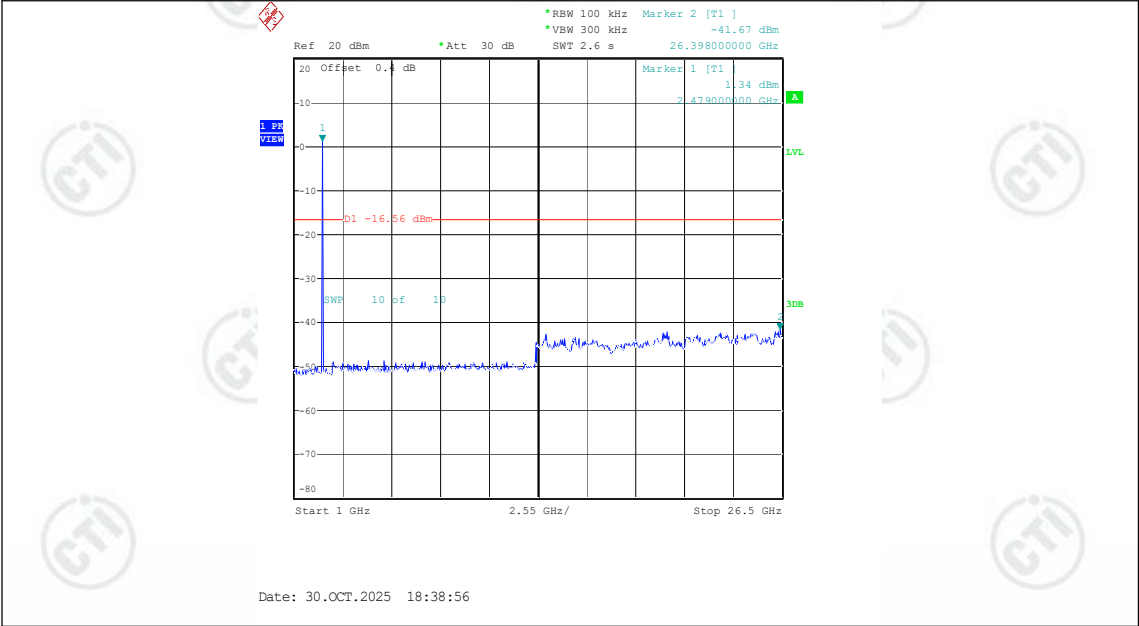
BLE_1M-Ant1-2440-1000~26500-PASS



BLE_1M-Ant1-2480-0~Reference-PASS



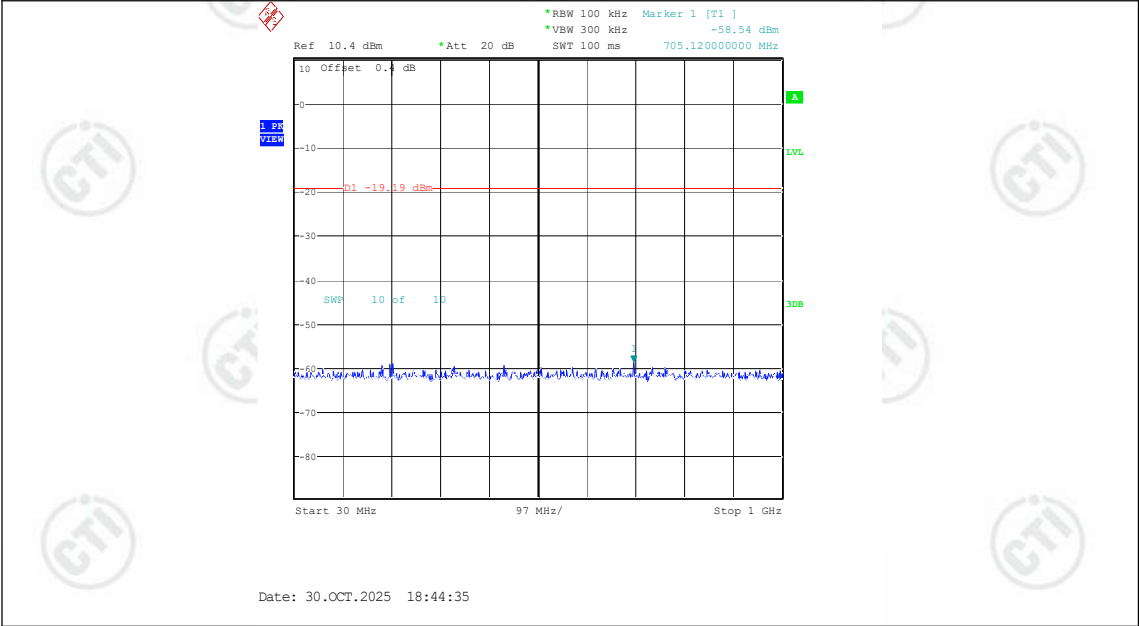
BLE_1M-Ant1-2480-30~1000-PASS



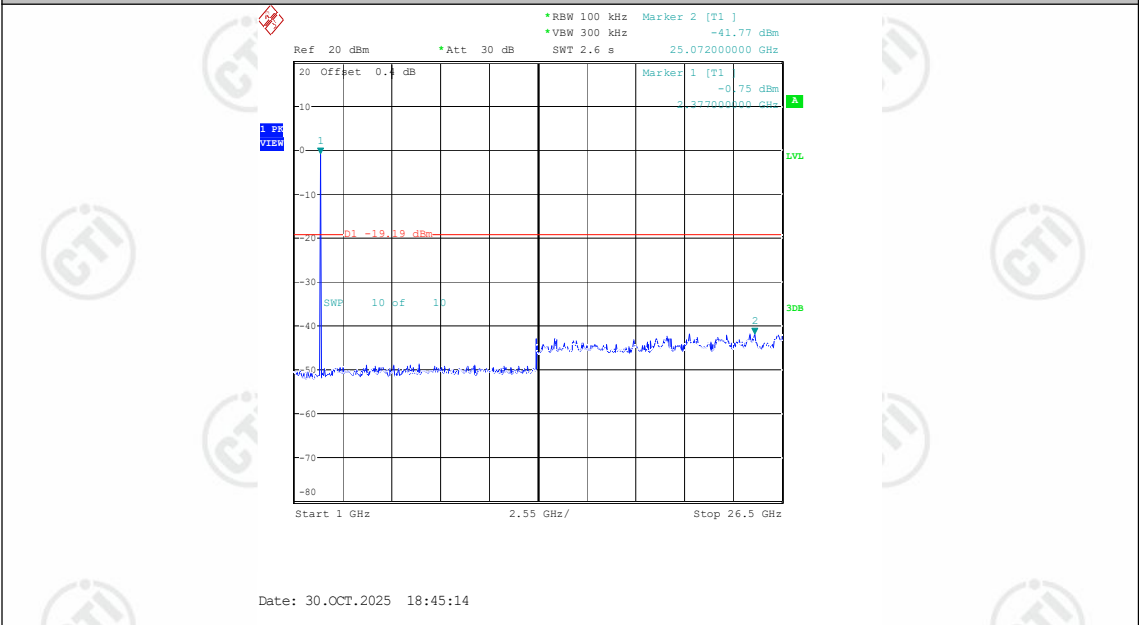
BLE_1M-Ant1-2480-1000~26500-PASS



BLE_2M-Ant1-2402-0~Reference-PASS



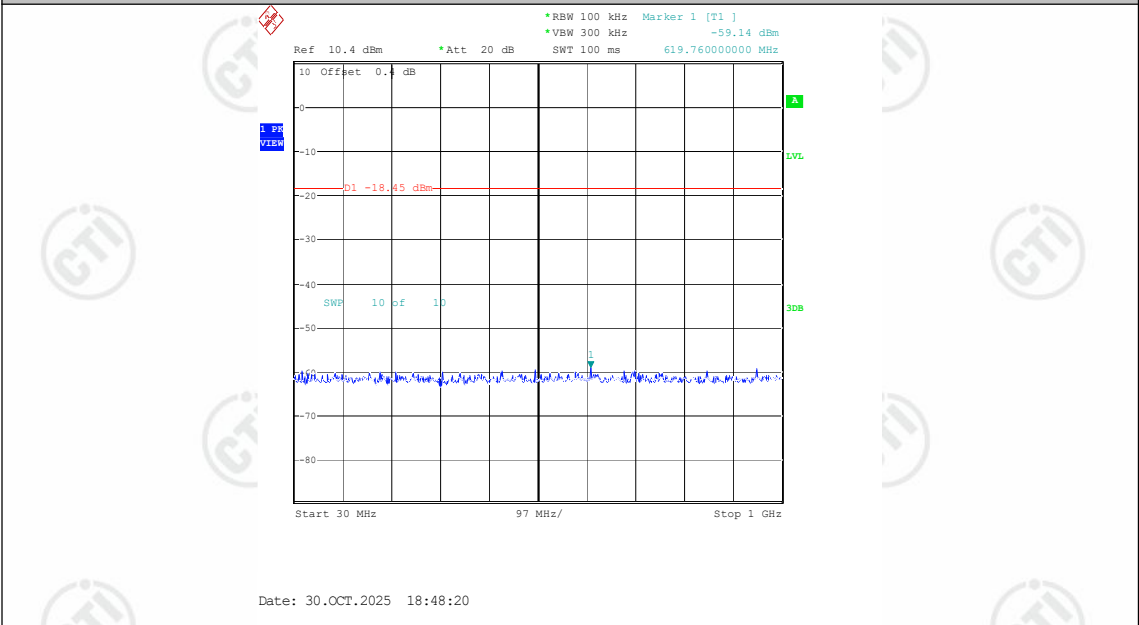
BLE_2M-Ant1-2402-30~1000-PASS



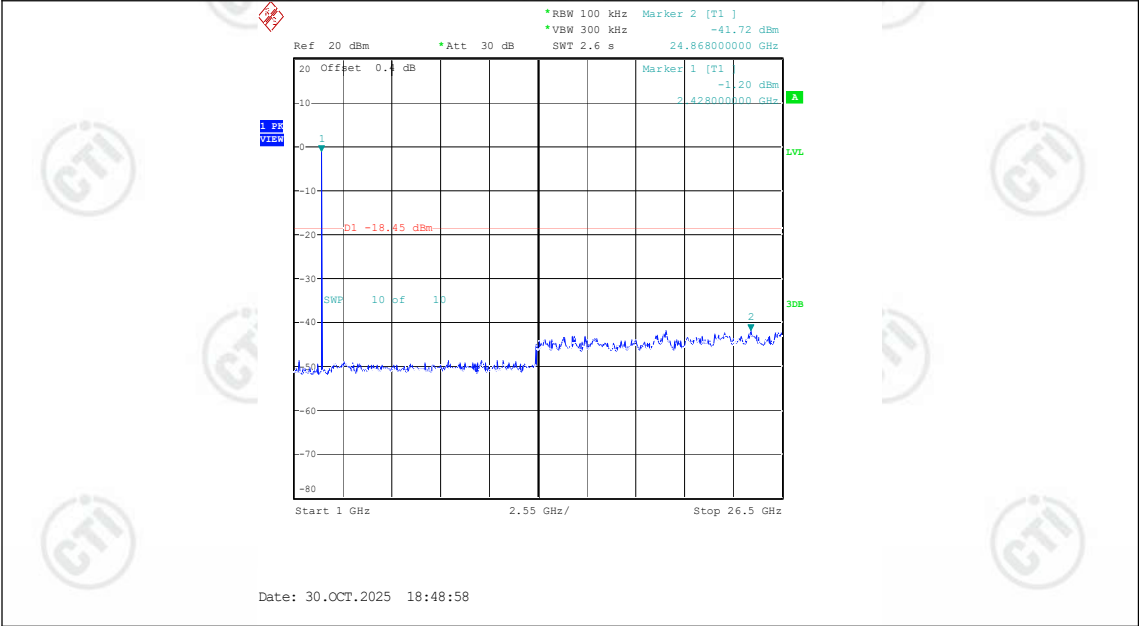
BLE_2M-Ant1-2402-1000~26500-PASS



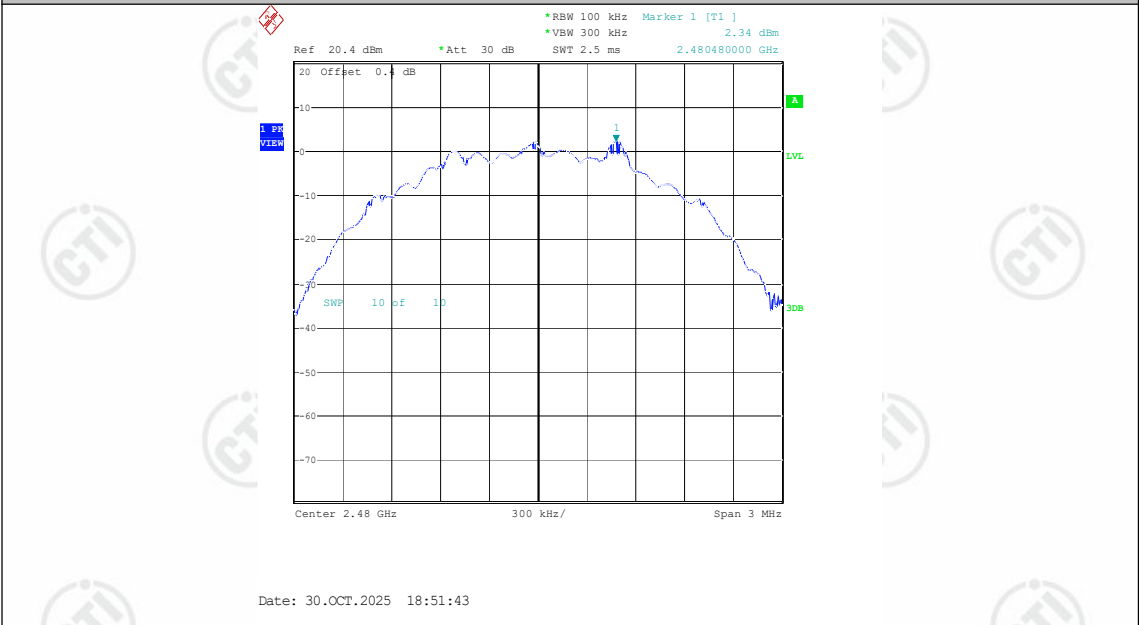
BLE_2M-Ant1-2440-0~Reference-PASS



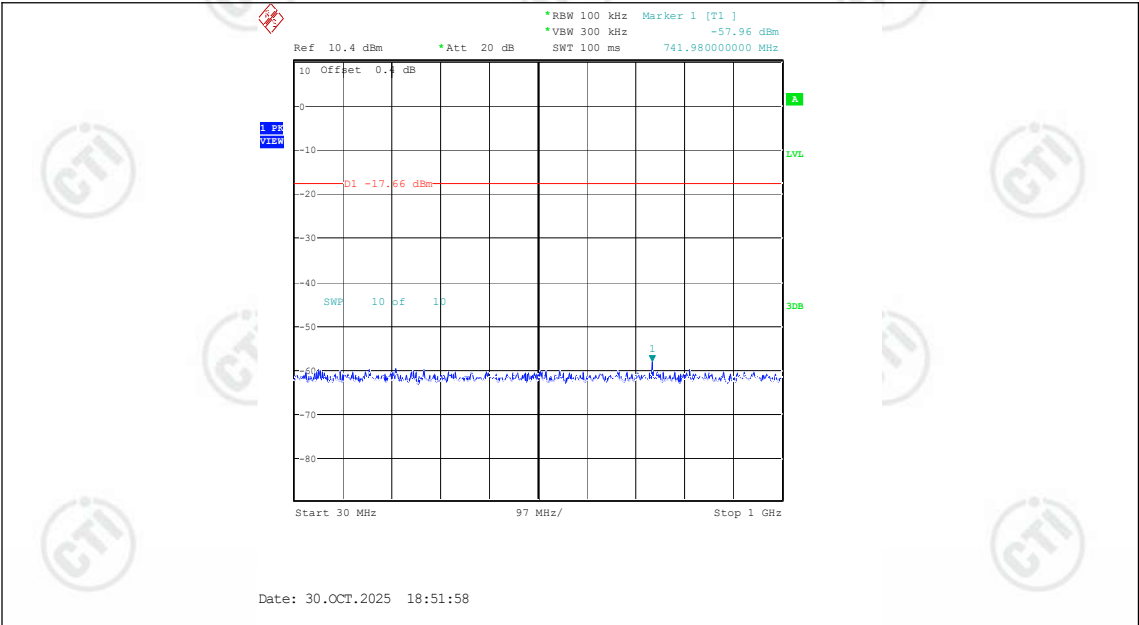
BLE_2M-Ant1-2440-30~1000-PASS



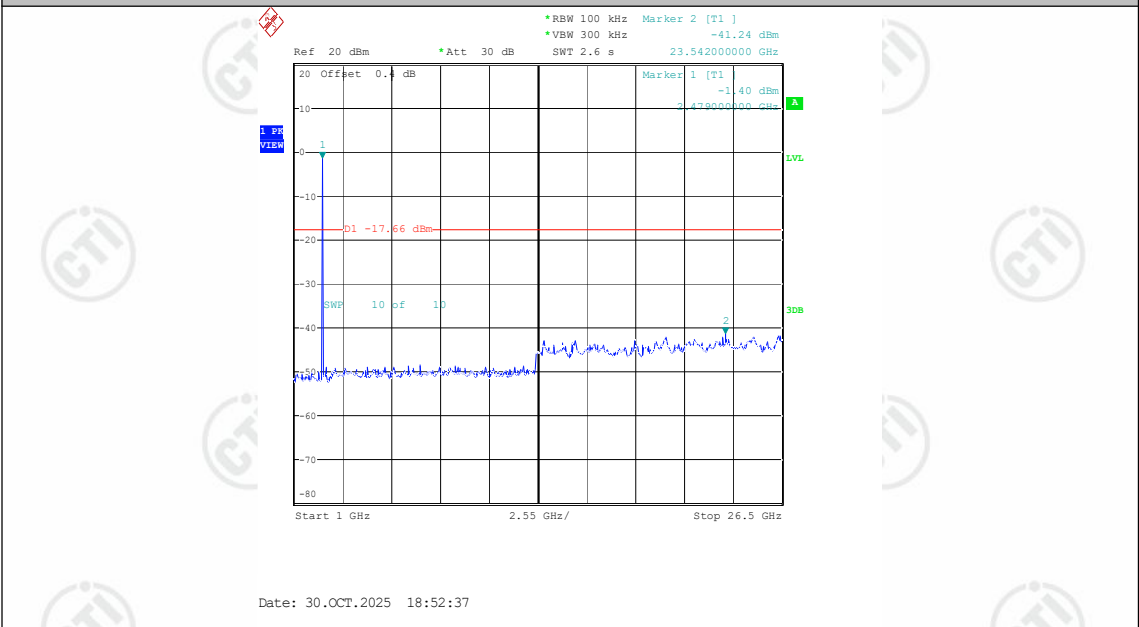
BLE_2M-Ant1-2440-1000~26500-PASS



BLE_2M-Ant1-2480-0~Reference-PASS



BLE_2M-Ant1-2480-30~1000-PASS



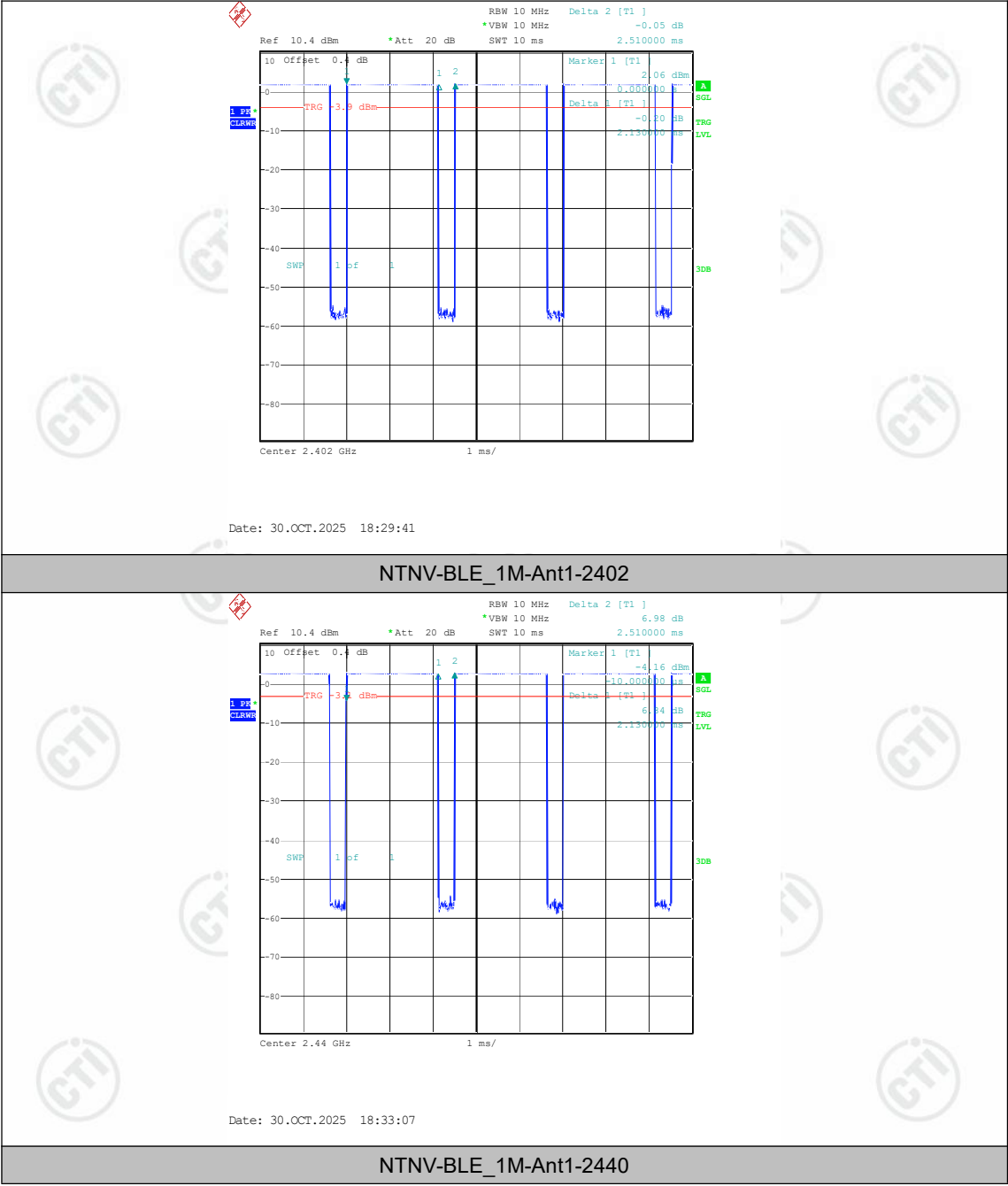
BLE_2M-Ant1-2480-1000~26500-PASS

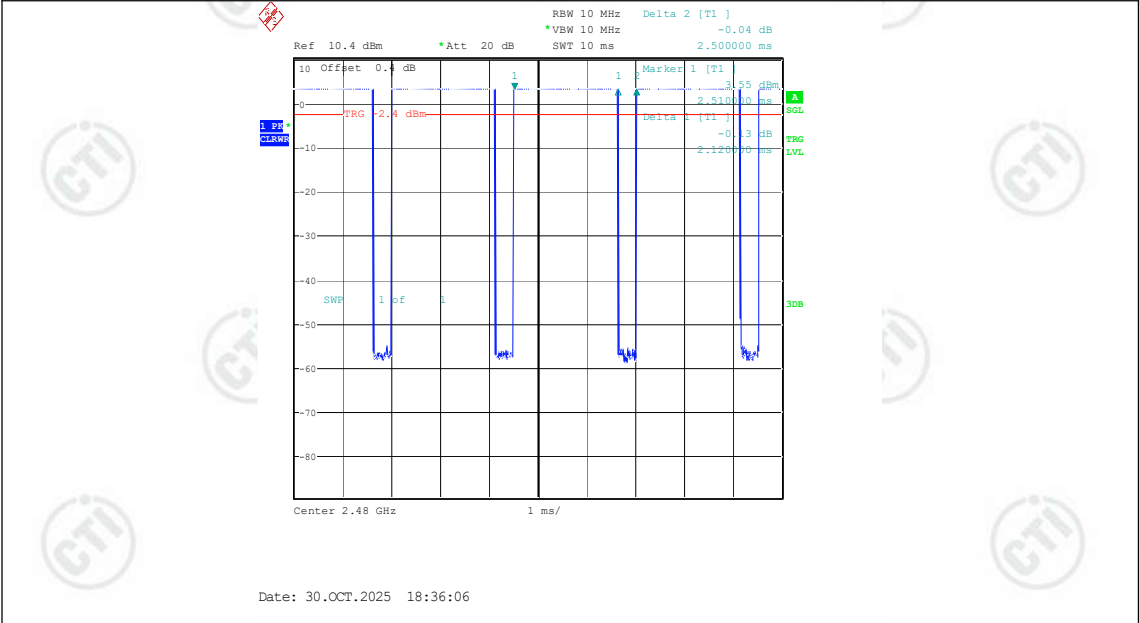
Appendix G: Duty Cycle

Test Result

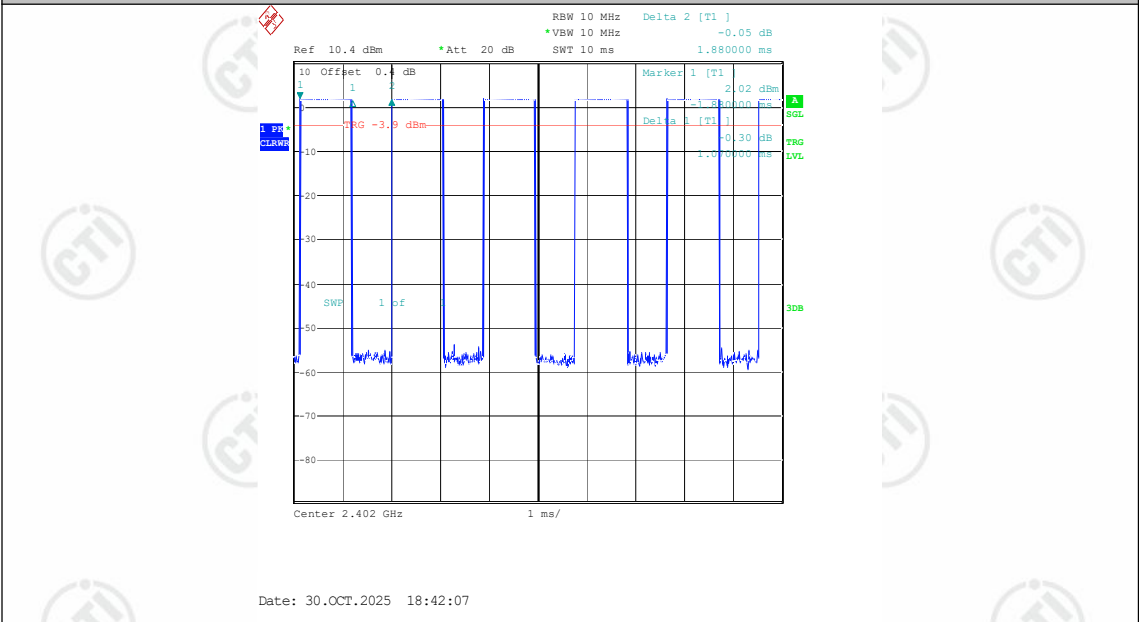
TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	2.13	2.51	84.86	0.71
BLE_1M	Ant1	2440	2.13	2.51	84.86	0.71
BLE_1M	Ant1	2480	2.12	2.50	84.80	0.72
BLE_2M	Ant1	2402	1.07	1.88	56.91	2.45
BLE_2M	Ant1	2440	1.07	1.88	56.91	2.45
BLE_2M	Ant1	2480	1.06	1.88	56.38	2.49

Test Graphs

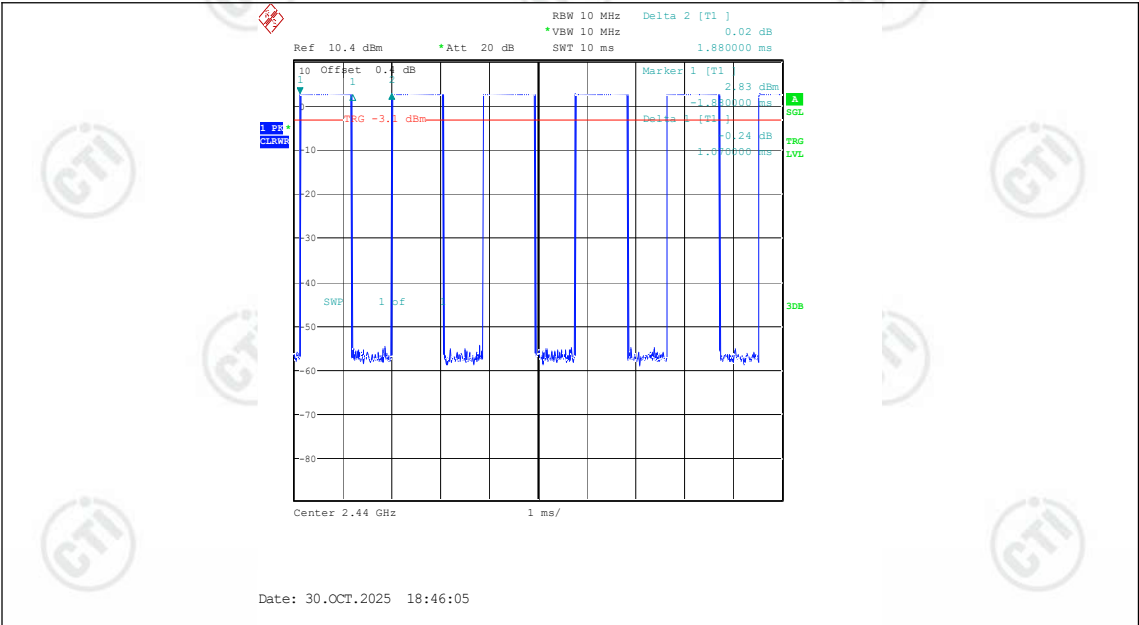




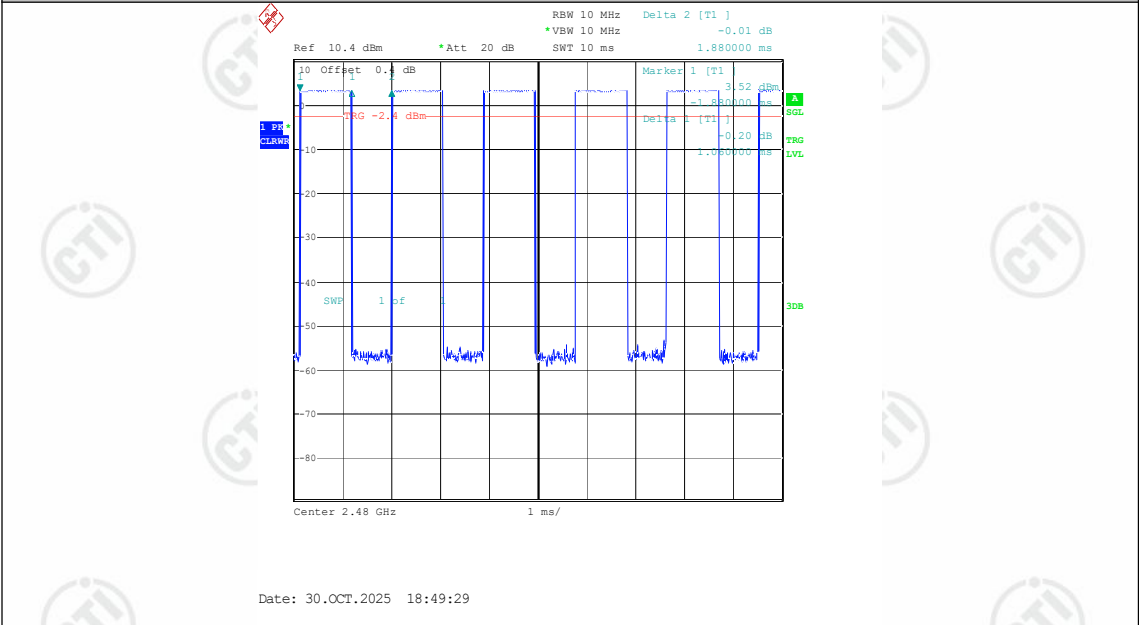
NTNV-BLE_1M-Ant1-2480



NTNV-BLE_2M-Ant1-2402



NTNV-BLE_2M-Ant1-2440



NTNV-BLE_2M-Ant1-2480

*** End of Report ***