Appendix: Bluetooth LE

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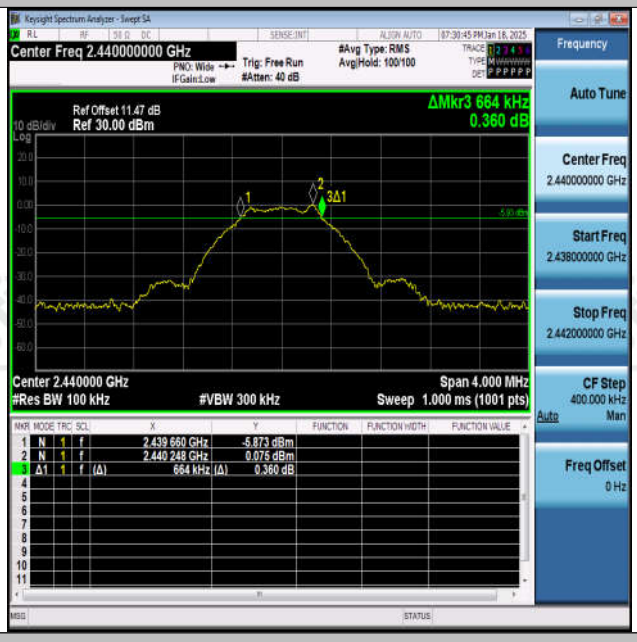
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.668	2401.664	2402.332	0.5	PASS
BLE_1M	Ant1	2440	0.664	2439.660	2440.324	0.5	PASS
BLE_1M	Ant1	2480	0.712	2479.632	2480.344	0.5	PASS
BLE_2M	Ant1	2402	1.144	2401.436	2402.580	0.5	PASS
BLE_2M	Ant1	2440	1.136	2439.440	2440.576	0.5	PASS
BLE_2M	Ant1	2480	1.352	2479.308	2480.660	0.5	PASS

Test Graphs

BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS

BLE_1M-Ant1-2480-PASS

BLE_2M-Ant1-2402-PASS

BLE_2M-Ant1-2440-PASS

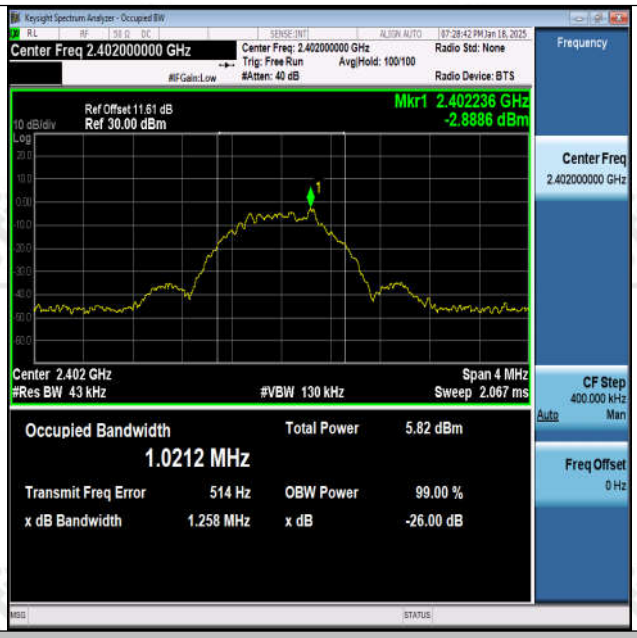
BLE_2M-Ant1-2480-PASS

Appendix B: Occupied Channel Bandwidth

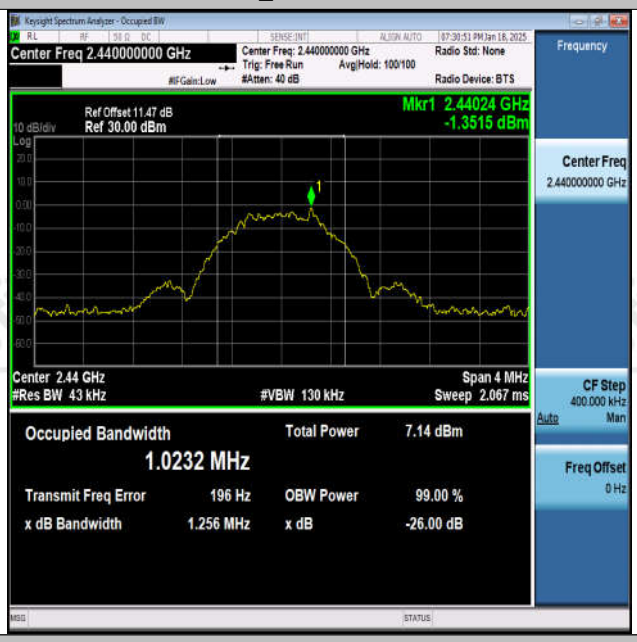
Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0212	2401.4899	2402.5111	---	---
BLE_1M	Ant1	2440	1.0232	2439.4886	2440.5118	---	---
BLE_1M	Ant1	2480	1.0363	2479.4786	2480.5149	---	---
BLE_2M	Ant1	2402	2.0717	2400.9800	2403.0517	---	---
BLE_2M	Ant1	2440	2.0645	2438.9905	2441.0550	---	---
BLE_2M	Ant1	2480	2.0742	2478.9741	2481.0483	---	---

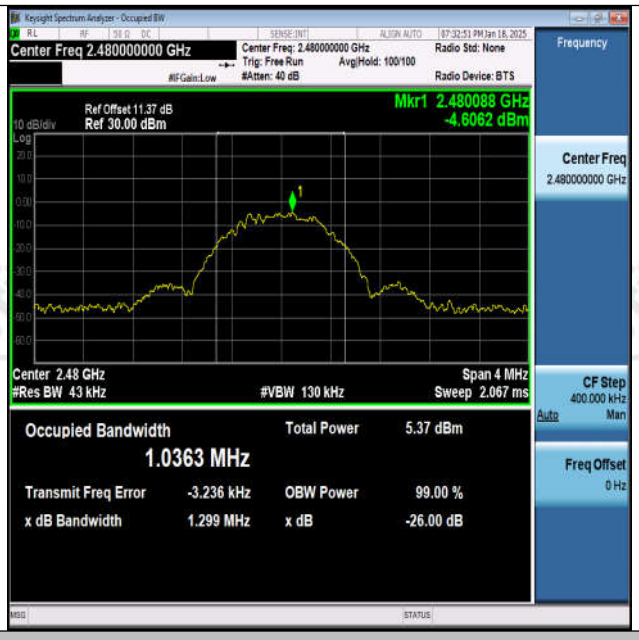
Test Graphs



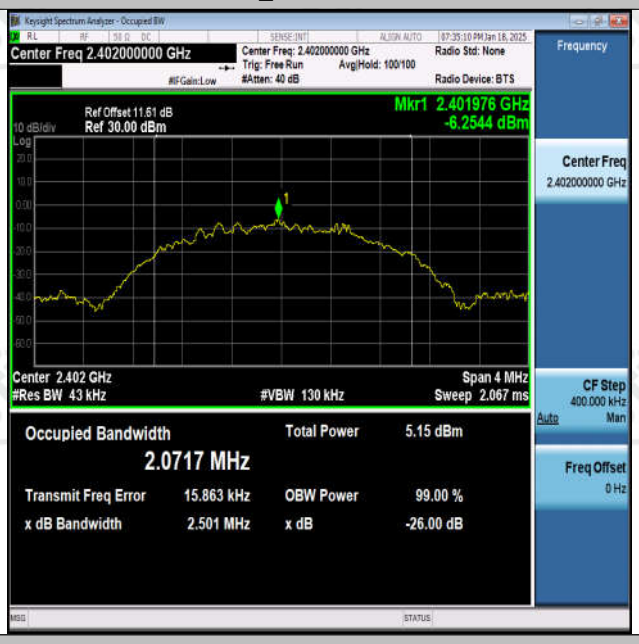
BLE_1M-Ant1-2402



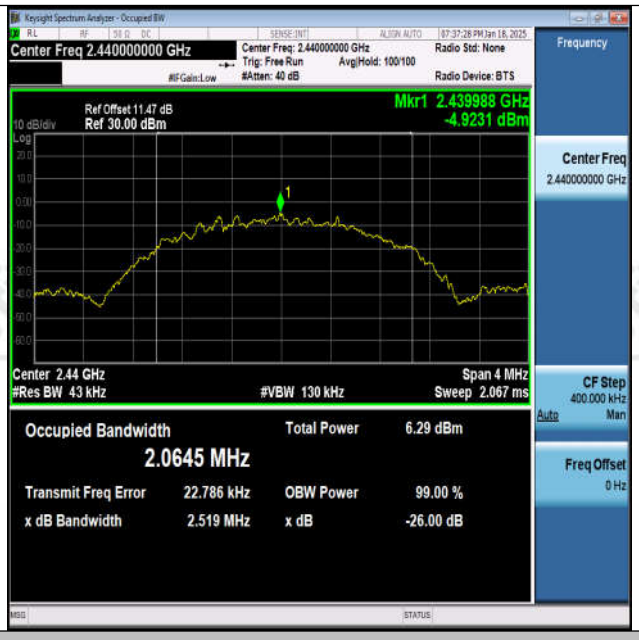
BLE_1M-Ant1-2440



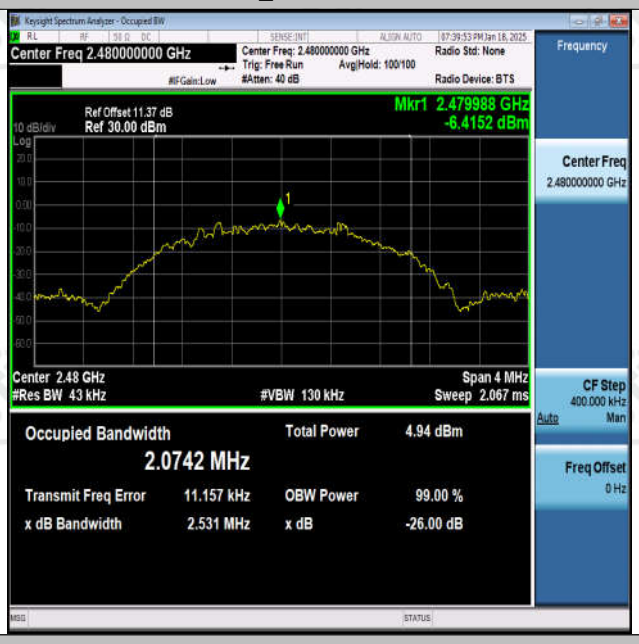
BLE_1M-Ant1-2480



BLE_2M-Ant1-2402



BLE_2M-Ant1-2440



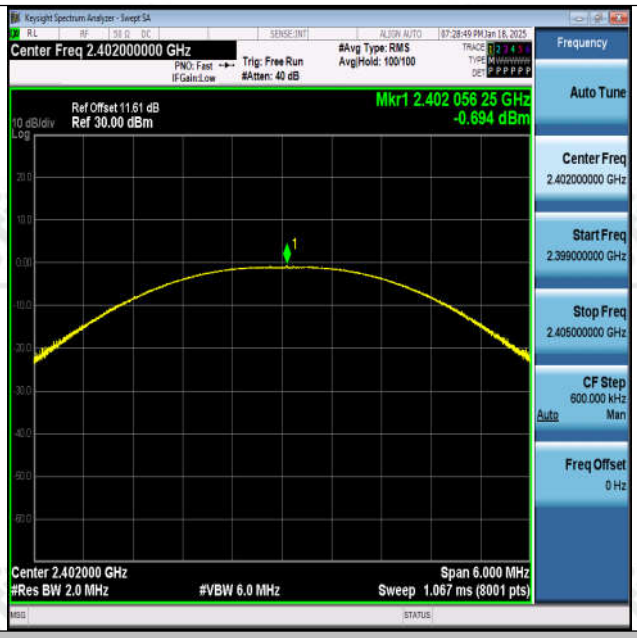
BLE_2M-Ant1-2480

Appendix C: Maximum conducted output power

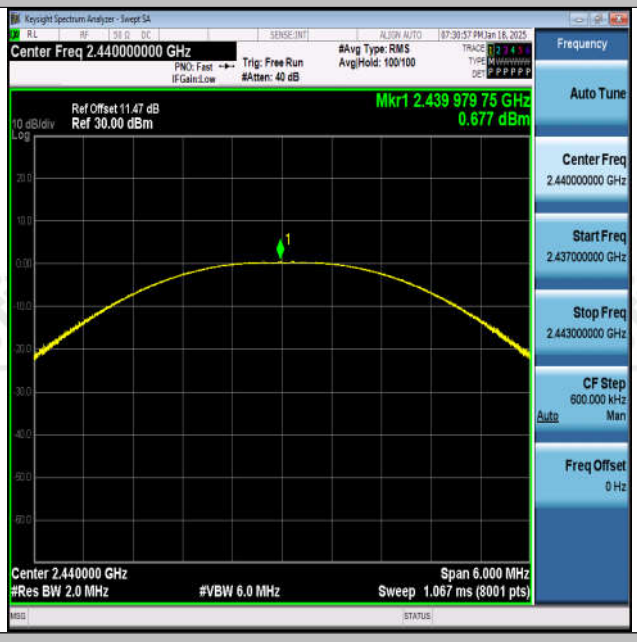
Test Result

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.69	≤30	PASS
BLE_1M	Ant1	2440	0.68	≤30	PASS
BLE_1M	Ant1	2480	-0.77	≤30	PASS
BLE_2M	Ant1	2402	-0.67	≤30	PASS
BLE_2M	Ant1	2440	0.80	≤30	PASS
BLE_2M	Ant1	2480	-0.62	≤30	PASS

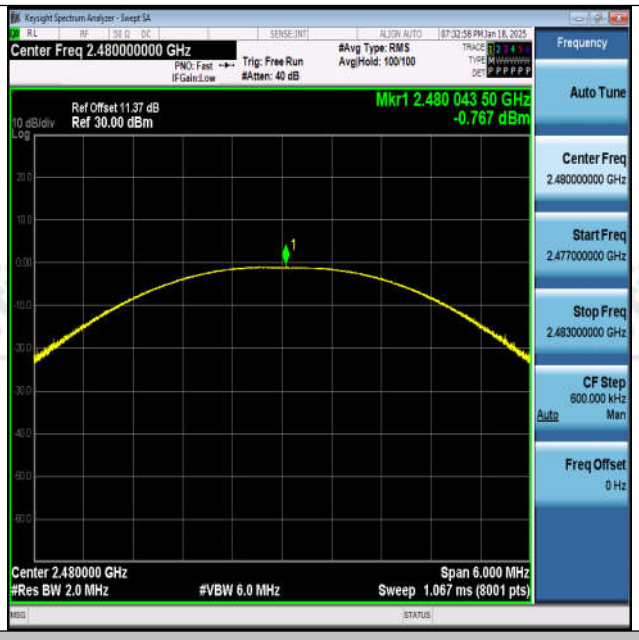
Test Graphs



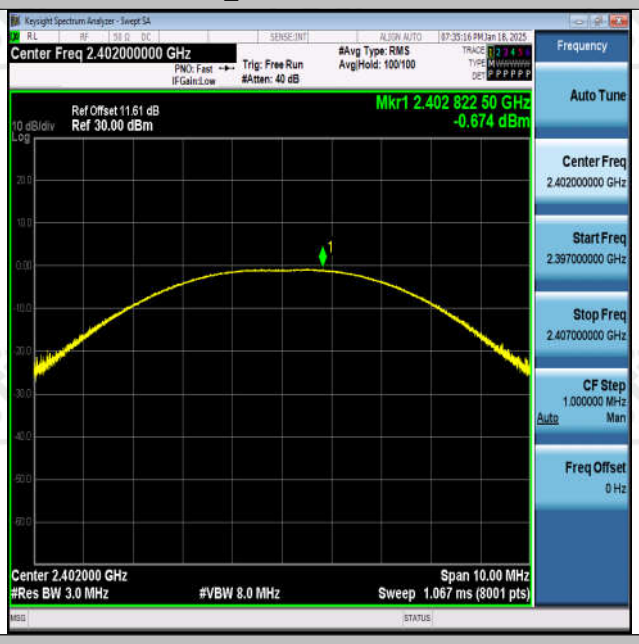
BLE_1M-Ant1-2402-PASS



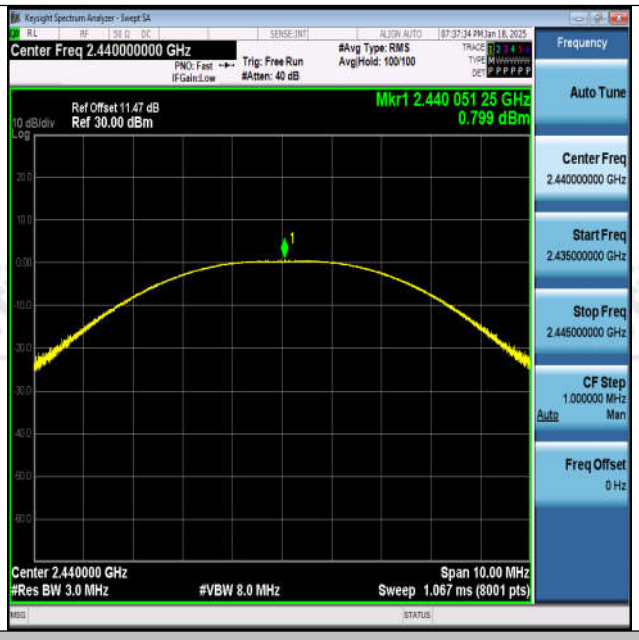
BLE_1M-Ant1-2440-PASS



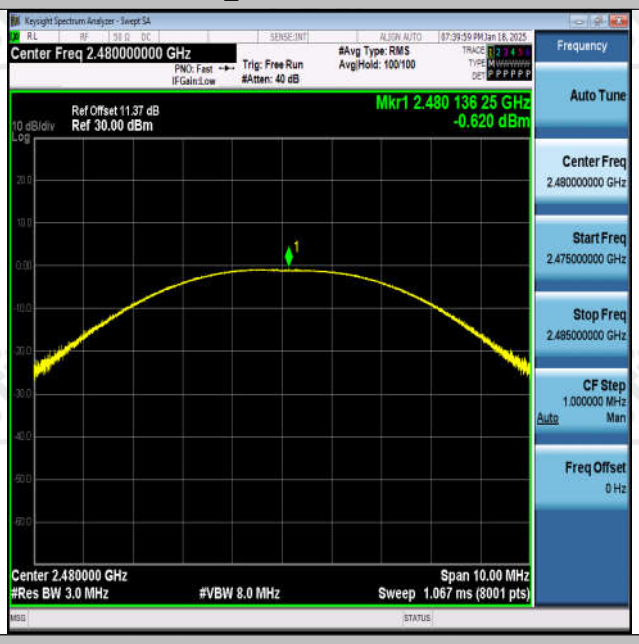
BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



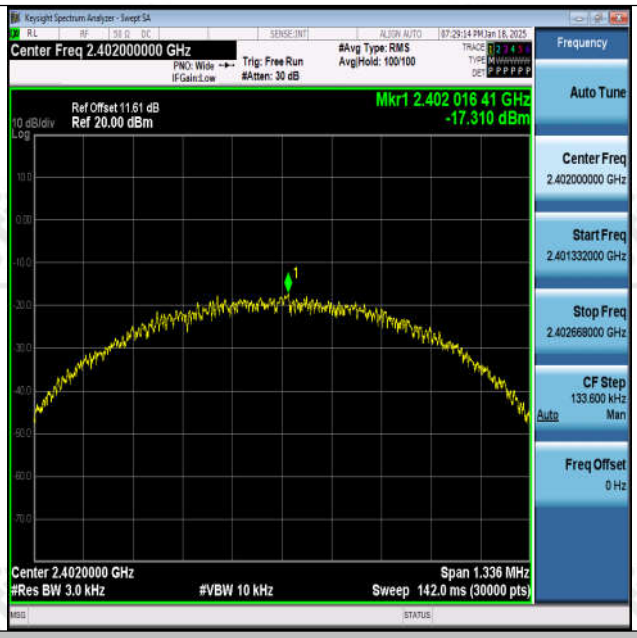
BLE_2M-Ant1-2480-PASS

Appendix D: Maximum power spectral density

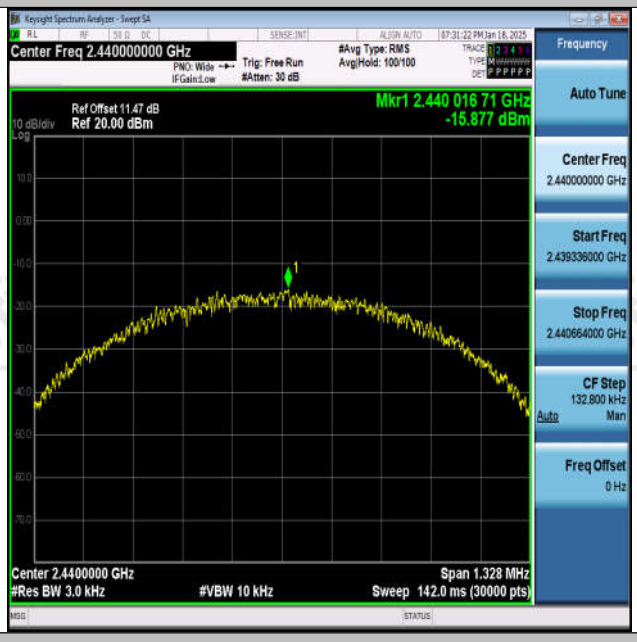
Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.31	≤8.00	PASS
BLE_1M	Ant1	2440	-15.88	≤8.00	PASS
BLE_1M	Ant1	2480	-17.39	≤8.00	PASS
BLE_2M	Ant1	2402	-20.35	≤8.00	PASS
BLE_2M	Ant1	2440	-18.88	≤8.00	PASS
BLE_2M	Ant1	2480	-20.26	≤8.00	PASS

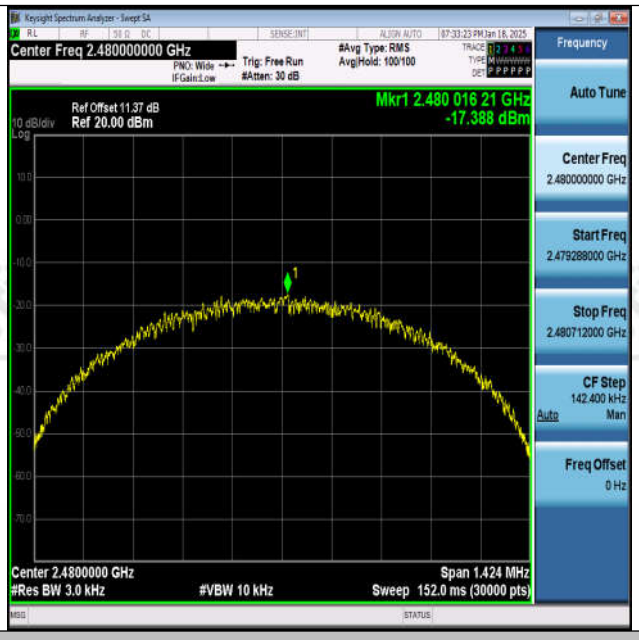
Test Graphs



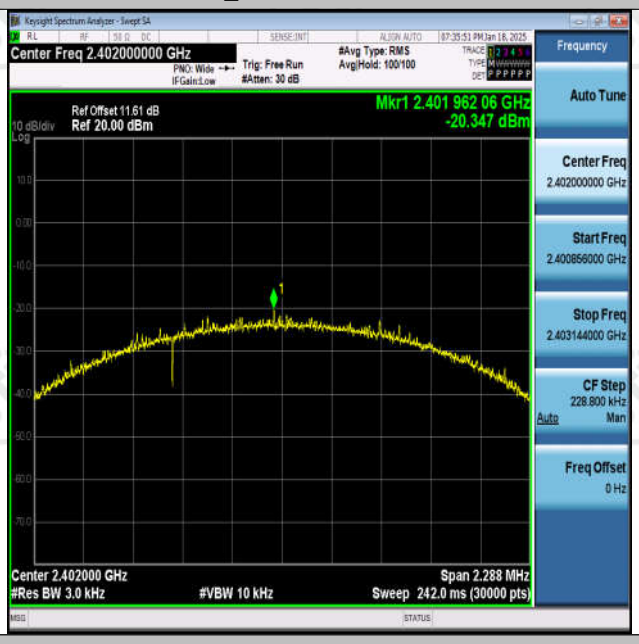
BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS

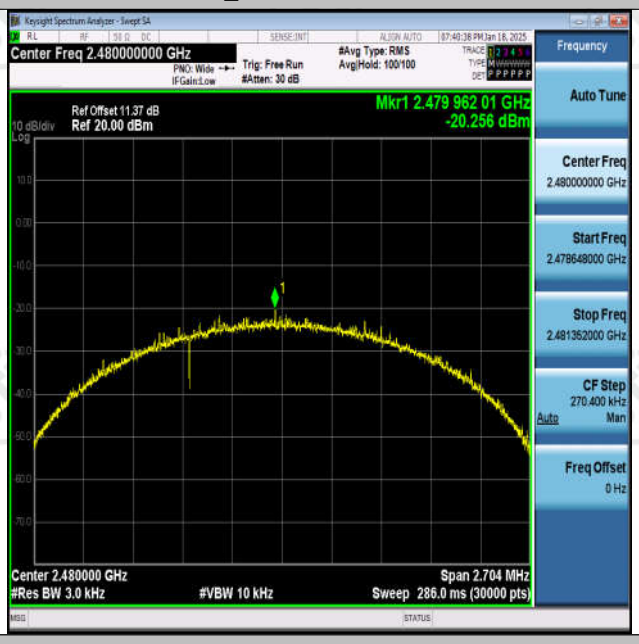


BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS

BLE_2M-Ant1-2440-PASS



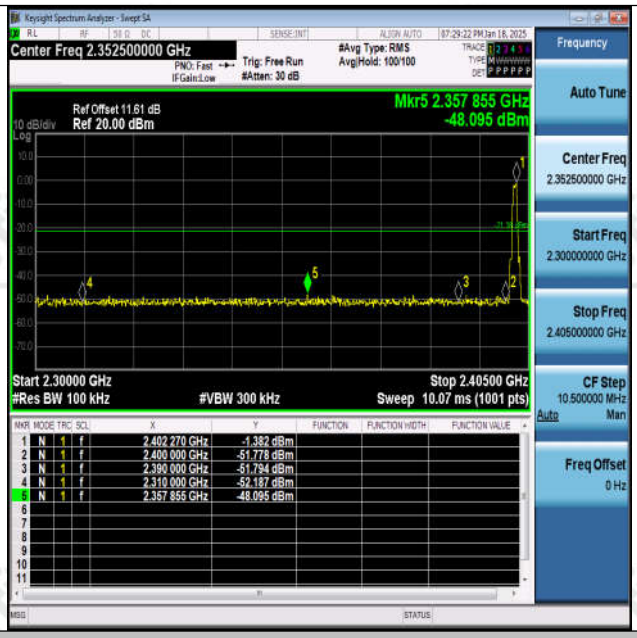
BLE_2M-Ant1-2480-PASS

Appendix E: Band edge measurements

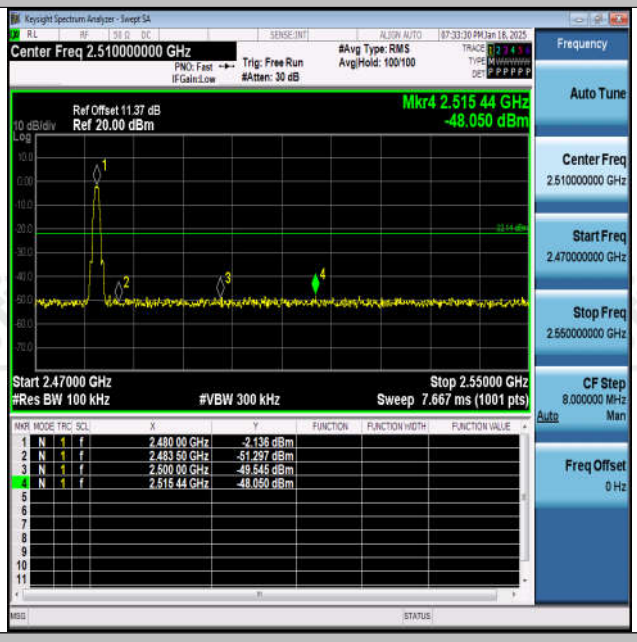
Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.38	-48.1	≤-21.38	PASS
BLE_1M	Ant1	High	2480	-2.14	-48.05	≤-22.14	PASS
BLE_2M	Ant1	Low	2402	-4.41	-37.46	≤-24.41	PASS
BLE_2M	Ant1	High	2480	-2.36	-48.58	≤-22.36	PASS

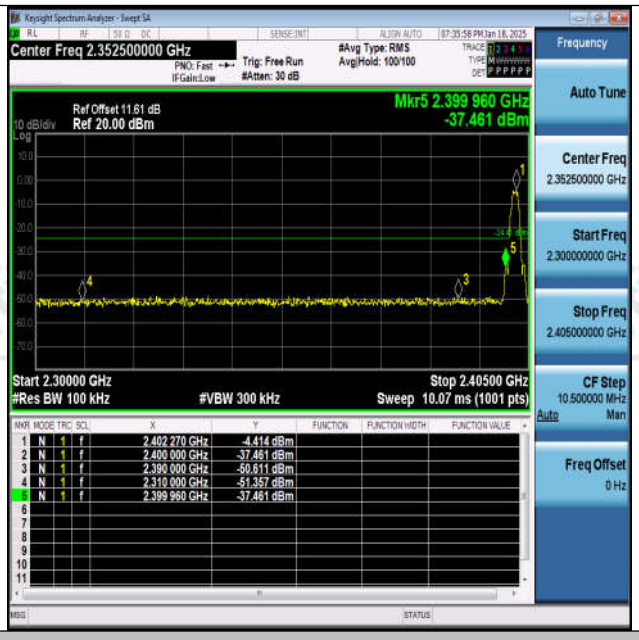
Test Graphs



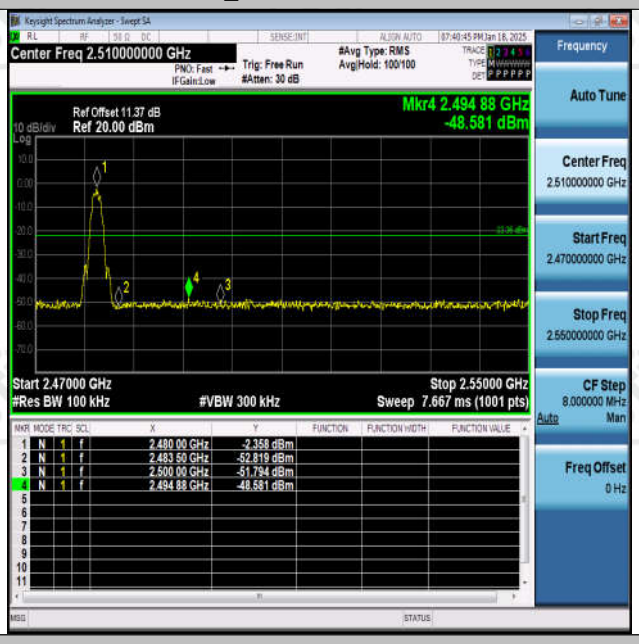
BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2480-PASS

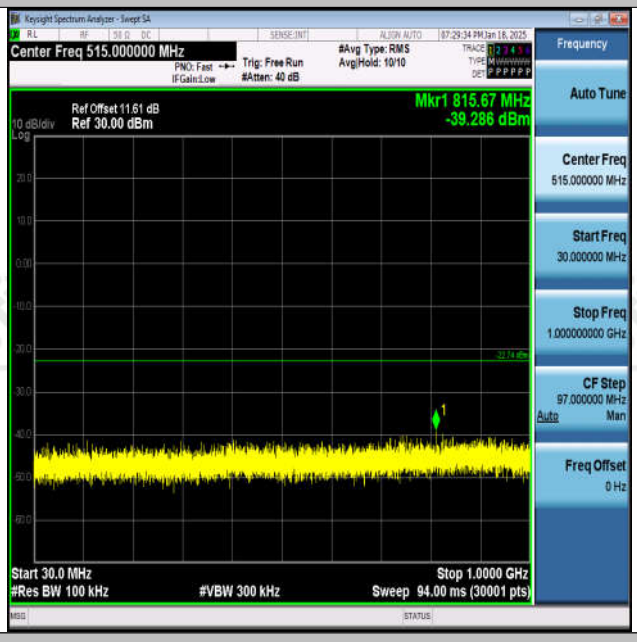
Appendix F: Conducted Spurious Emission

Test Result

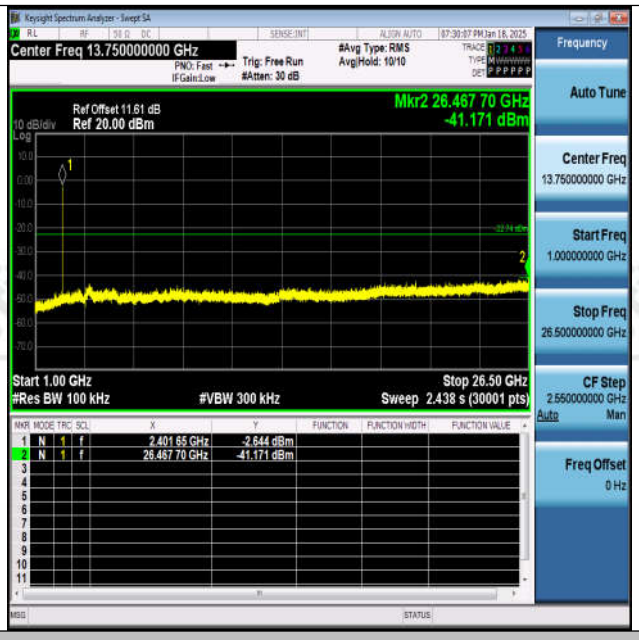
TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	-2.74	-2.74	---	PASS
BLE_1M	Ant1	2402	30~1000	-2.74	-39.29	≤-22.74	PASS
BLE_1M	Ant1	2402	1000~26500	-2.74	-41.17	≤-22.74	PASS
BLE_1M	Ant1	2440	0~Reference	-1.08	-1.08	---	PASS
BLE_1M	Ant1	2440	30~1000	-1.08	-39.1	≤-21.08	PASS
BLE_1M	Ant1	2440	1000~26500	-1.08	-42.1	≤-21.08	PASS
BLE_1M	Ant1	2480	0~Reference	-2.16	-2.16	---	PASS
BLE_1M	Ant1	2480	30~1000	-2.16	-39.9	≤-22.16	PASS
BLE_1M	Ant1	2480	1000~26500	-2.16	-41.07	≤-22.16	PASS
BLE_2M	Ant1	2402	0~Reference	-4.34	-4.34	---	PASS
BLE_2M	Ant1	2402	30~1000	-4.34	-39.85	≤-24.34	PASS
BLE_2M	Ant1	2402	1000~26500	-4.34	-41.56	≤-24.34	PASS
BLE_2M	Ant1	2440	0~Reference	-3.70	-3.70	---	PASS
BLE_2M	Ant1	2440	30~1000	-3.70	-39.66	≤-23.7	PASS
BLE_2M	Ant1	2440	1000~26500	-3.70	-41.79	≤-23.7	PASS
BLE_2M	Ant1	2480	0~Reference	-4.03	-4.03	---	PASS
BLE_2M	Ant1	2480	30~1000	-4.03	-39.48	≤-24.03	PASS
BLE_2M	Ant1	2480	1000~26500	-4.03	-42.02	≤-24.03	PASS

Test Graphs

BLE_1M-Ant1-2402-0~Reference-PASS

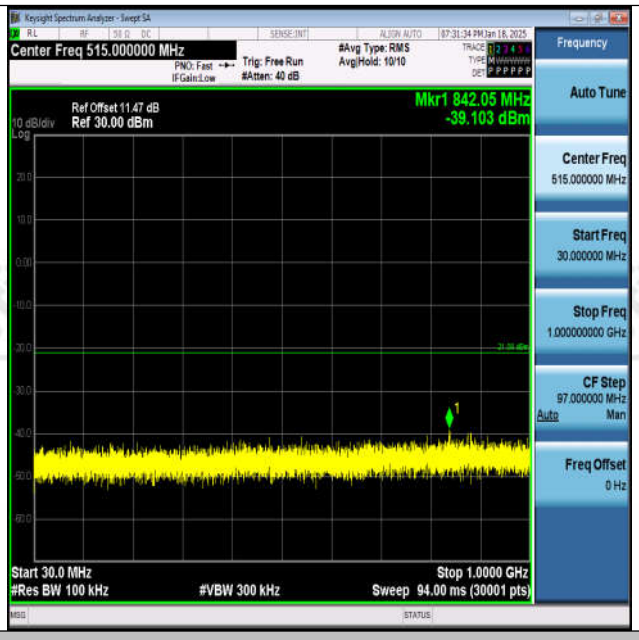


BLE_1M-Ant1-2402-30~1000-PASS

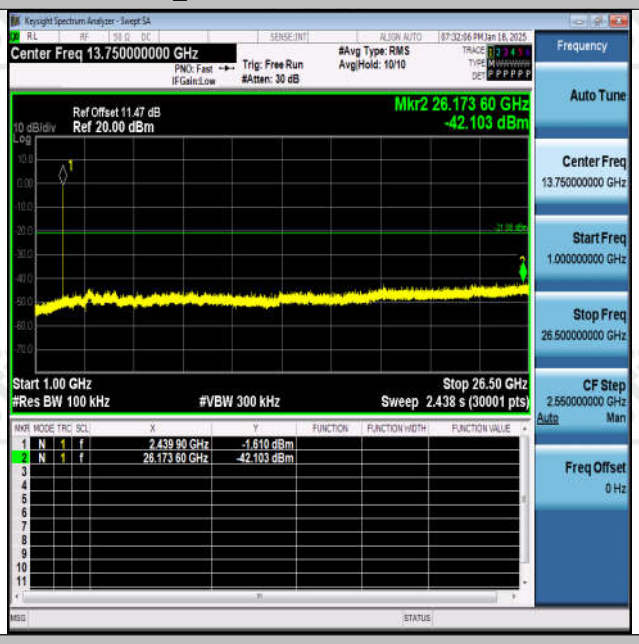


BLE_1M-Ant1-2402-1000~26500-PASS

BLE_1M-Ant1-2440-0~Reference-PASS

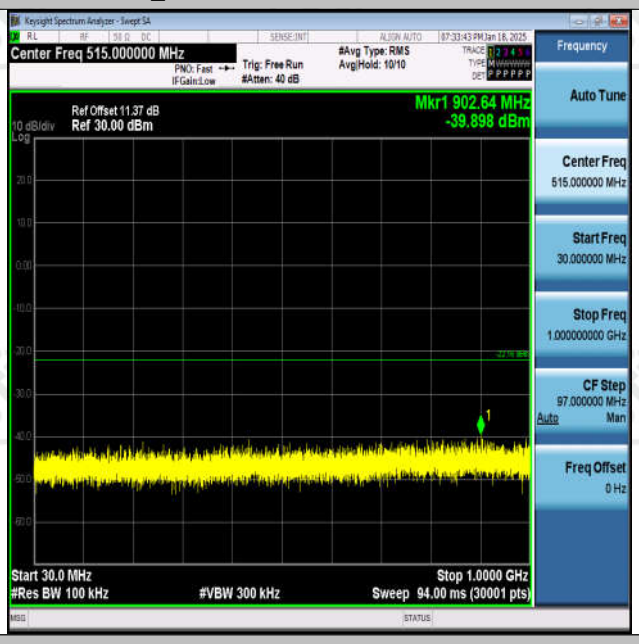


BLE_1M-Ant1-2440-30~1000-PASS

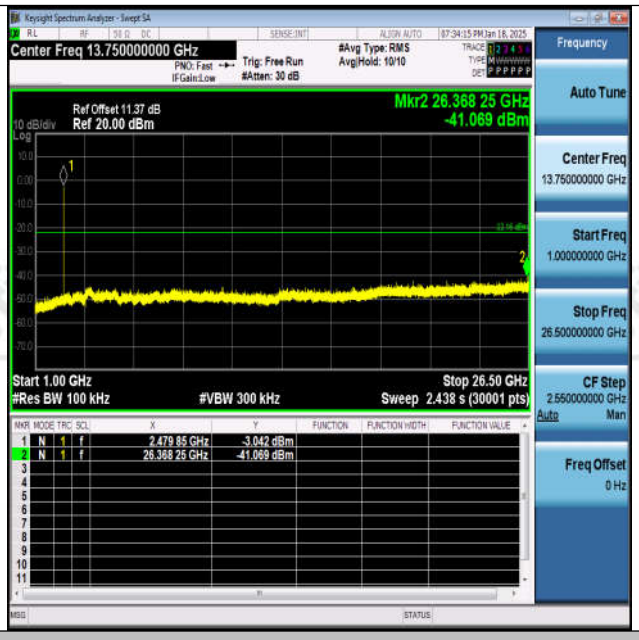


BLE_1M-Ant1-2440-1000~26500-PASS

BLE_1M-Ant1-2480-0~Reference-PASS

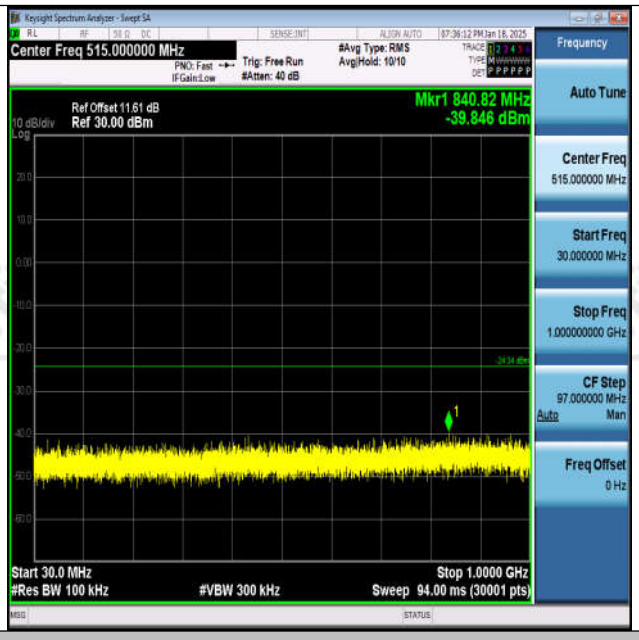


BLE_1M-Ant1-2480-30~1000-PASS

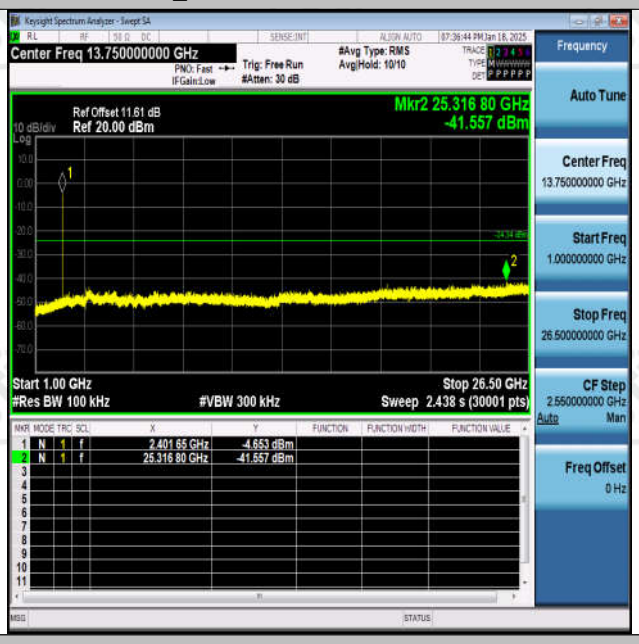


BLE_1M-Ant1-2480-1000~26500-PASS

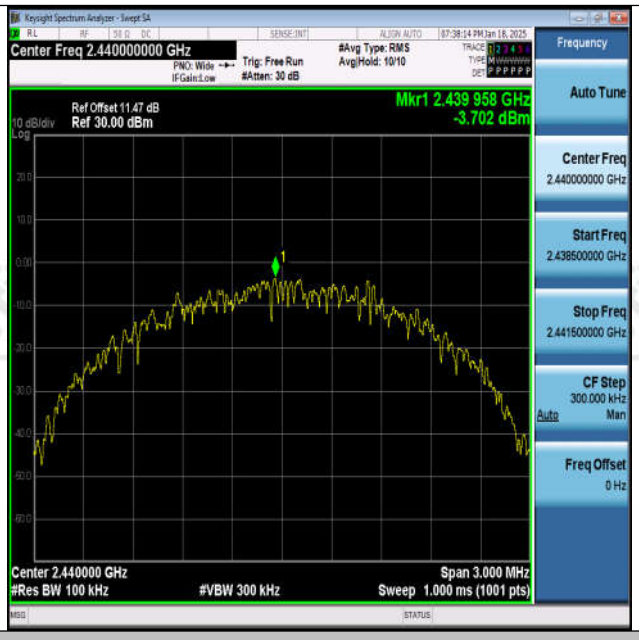
BLE_2M-Ant1-2402-0~Reference-PASS



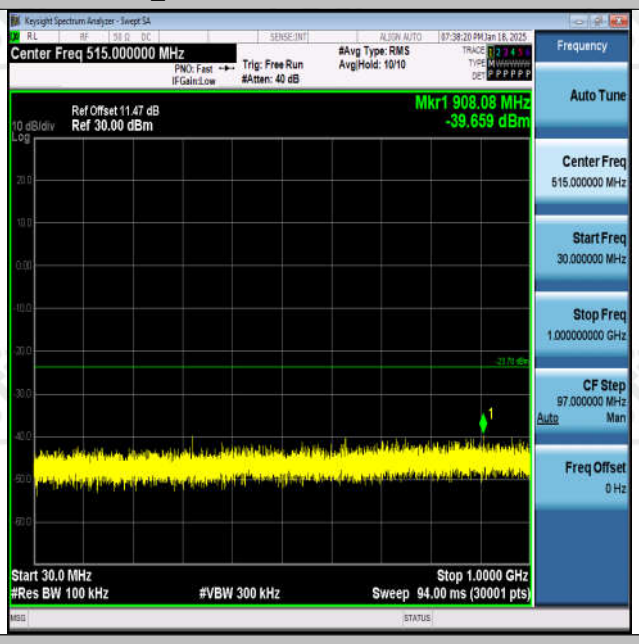
BLE_2M-Ant1-2402-30~1000-PASS



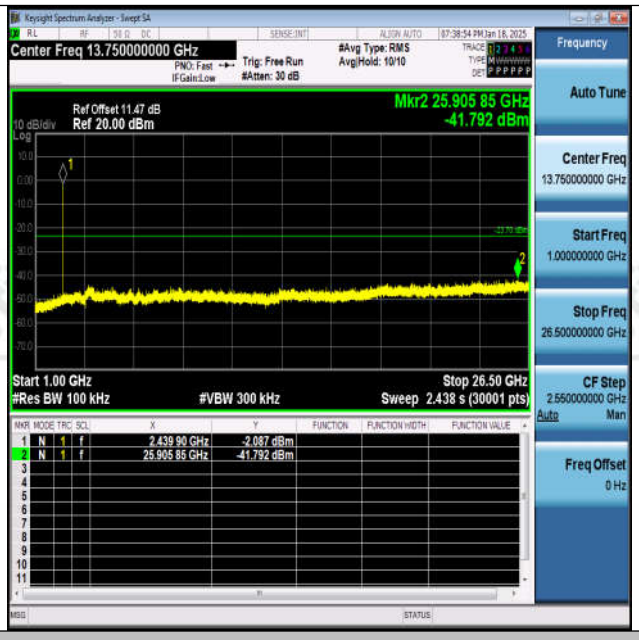
BLE_2M-Ant1-2402-1000~26500-PASS



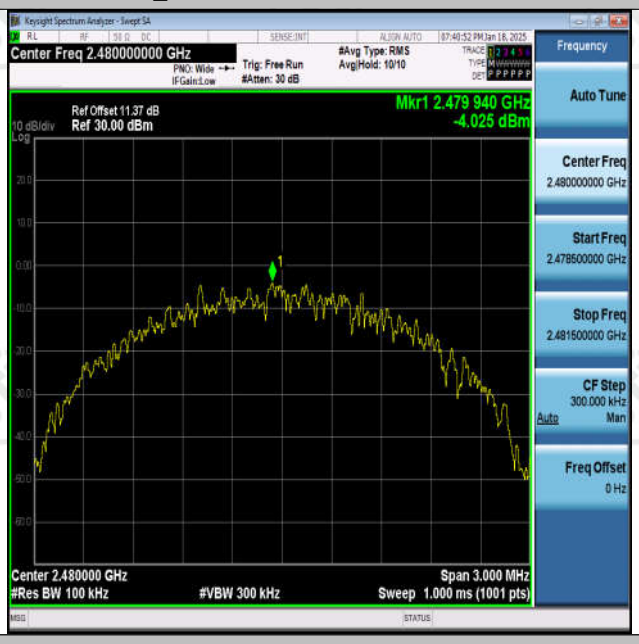
BLE_2M-Ant1-2440-0~Reference-PASS



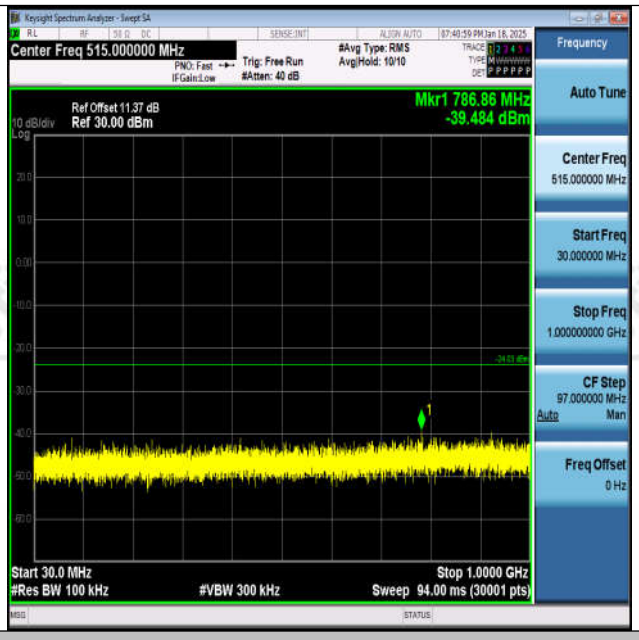
BLE_2M-Ant1-2440-30~1000-PASS



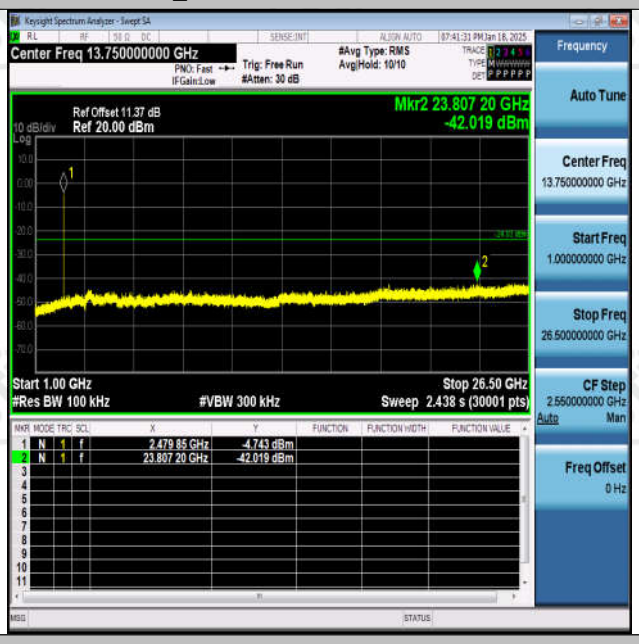
BLE_2M-Ant1-2440-1000~26500-PASS



BLE_2M-Ant1-2480-0~Reference-PASS



BLE_2M-Ant1-2480-30~1000-PASS



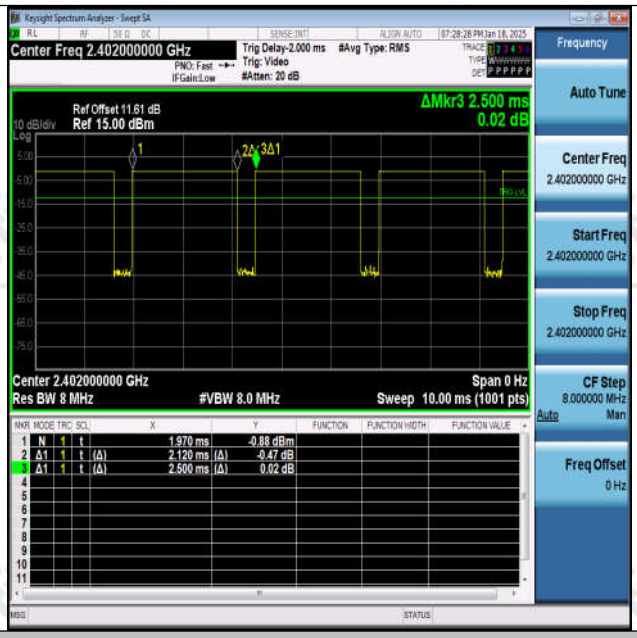
BLE_2M-Ant1-2480-1000~26500-PASS

Appendix G: Duty Cycle

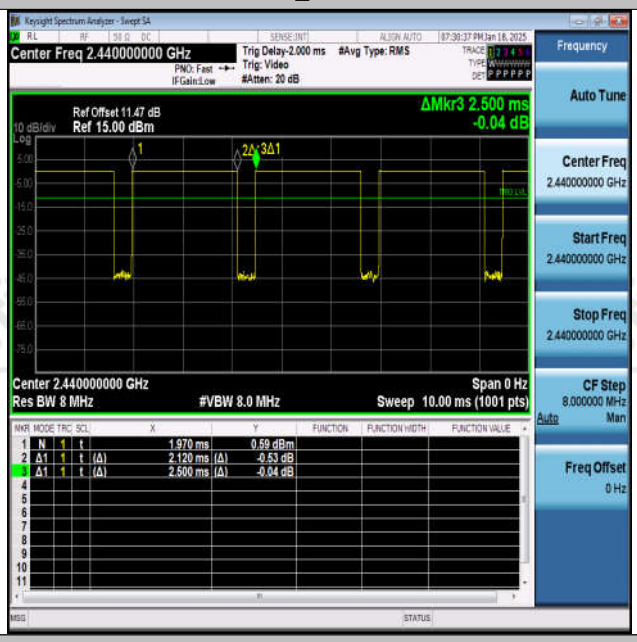
Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	2.12	2.50	84.80	0.72
BLE_1M	Ant1	2440	2.12	2.50	84.80	0.72
BLE_1M	Ant1	2480	2.13	2.50	85.20	0.70
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	1.87	56.68	2.47

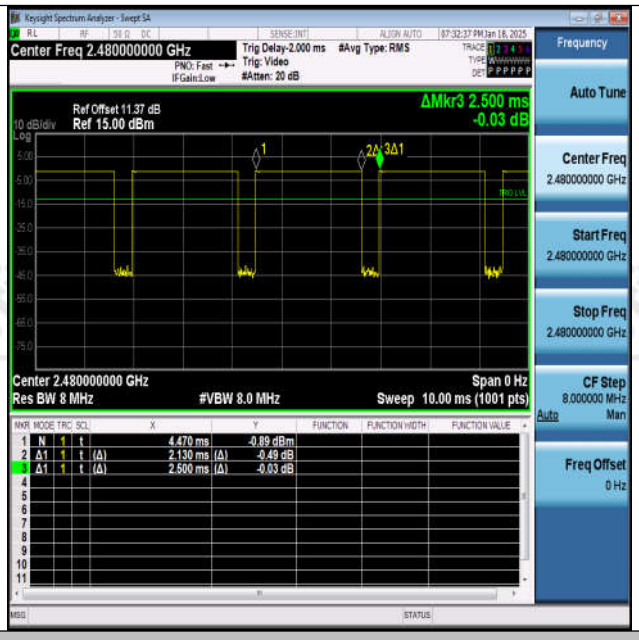
Test Graphs



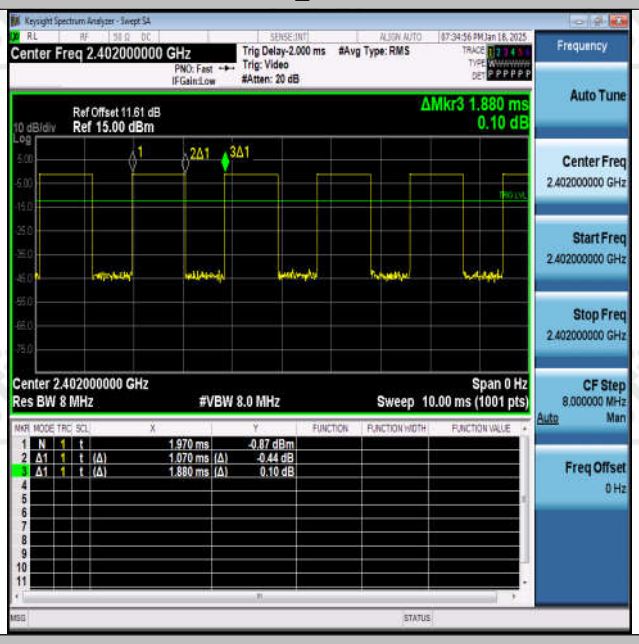
NTNV-BLE_1M-Ant1-2402



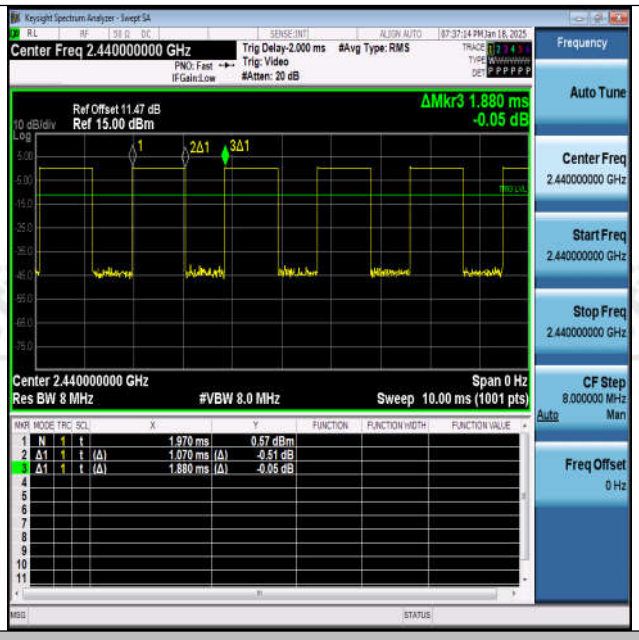
NTNV-BLE_1M-Ant1-2440



NTNV-BLE_1M-Ant1-2480



NTNV-BLE_2M-Ant1-2402



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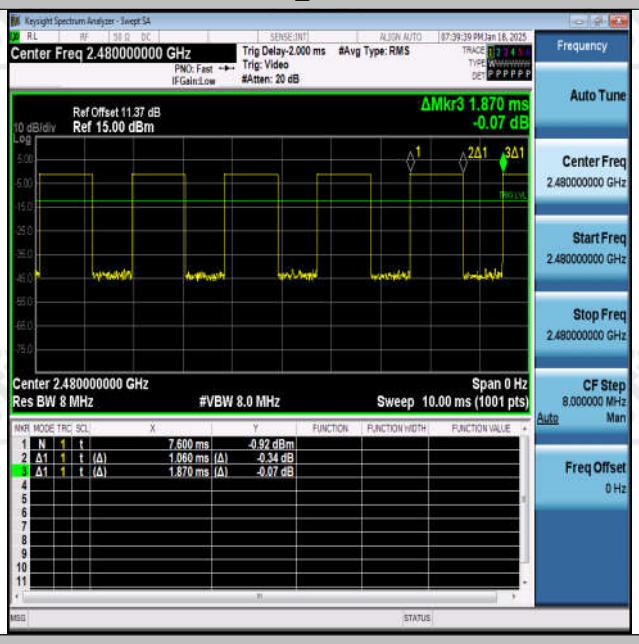

NTNV-BLE_2M-Ant1-2480

*** End of Report ***