Appendix Test Data for BLE (Conducted Measurement)

Product Name: Wanbo Projector

Trade Mark: wanbo

Test Model: WPF14

FCC ID: 2A7PI-WPF14

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
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	0.668	2401.656	2402.324	0.5	PASS
BLE_1M	Ant1	2440	0.668	2439.648	2440.316	0.5	PASS
BLE_1M	Ant1	2480	0.660	2479.664	2480.324	0.5	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

BLE_1M-Ant1-2402-PASS

BLE_1M-Ant1-2440-PASS

BLE_1M-Ant1-2480-PASS

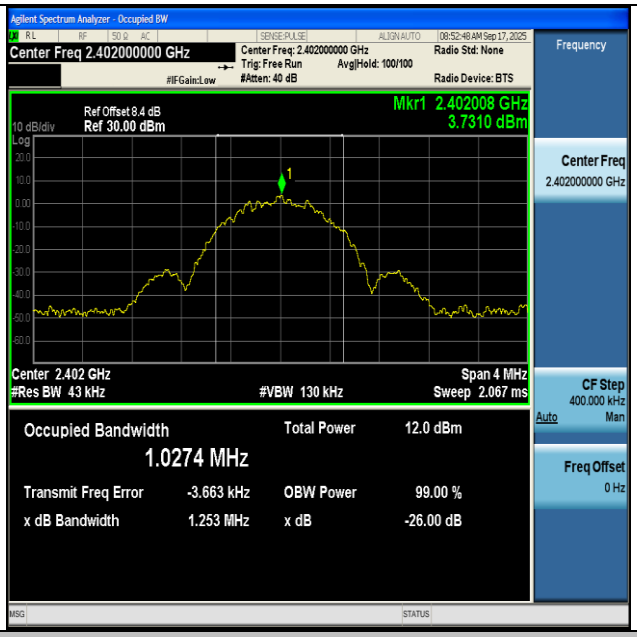
Appendix B: Occupied Channel Bandwidth

Test Result

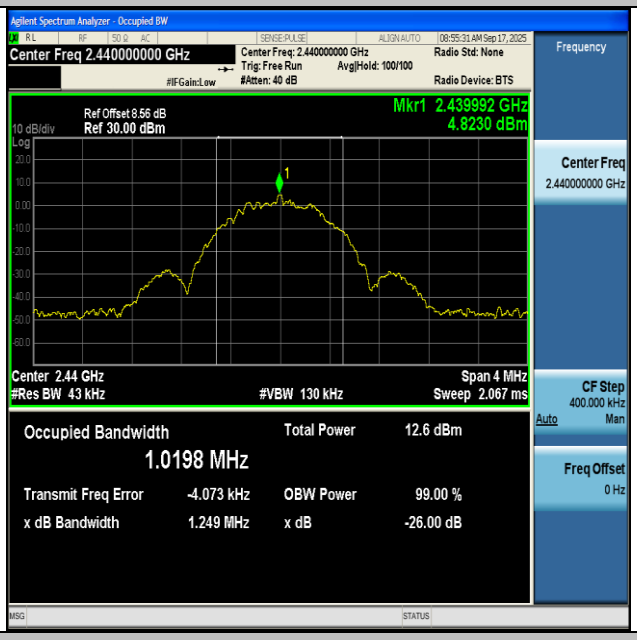
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	1.0274	2401.4826	2402.5100	---	---
BLE_1M	Ant1	2440	1.0198	2439.4860	2440.5058	---	---
BLE_1M	Ant1	2480	1.0333	2479.4777	2480.5110	---	---

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

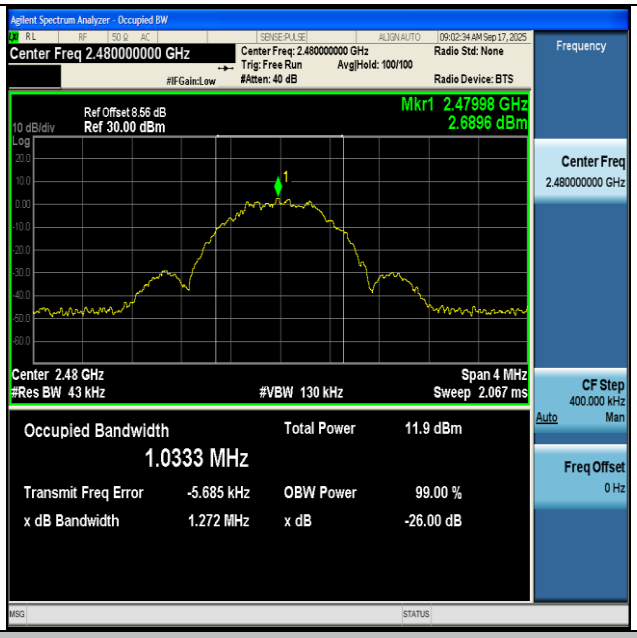
Test Graphs



BLE_1M-Ant1-2402



BLE_1M-Ant1-2440



BLE_1M-Ant1-2480

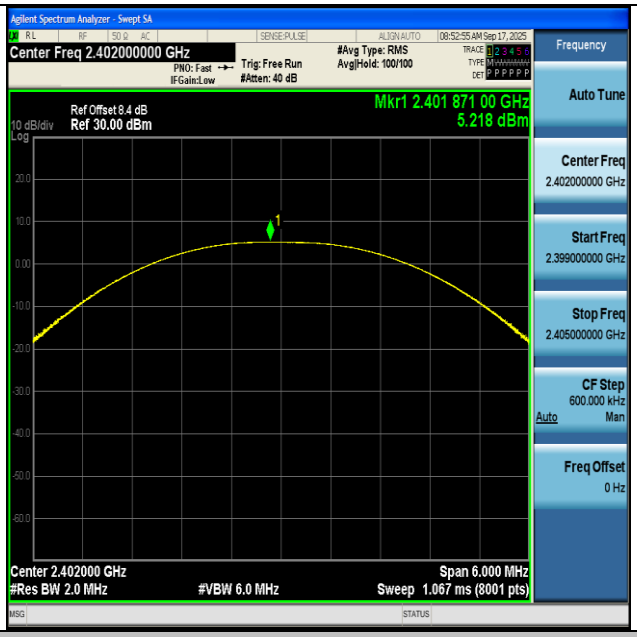
Appendix C: Maximum peak conducted output power

Test Result Peak

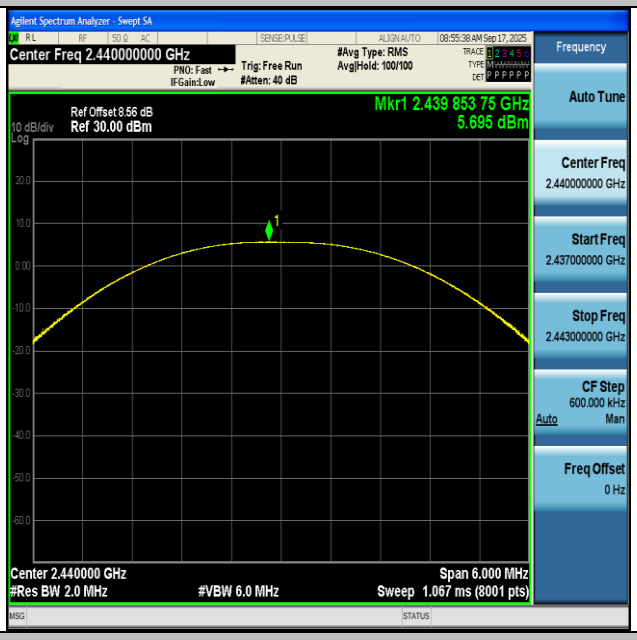
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2402	5.22	≤30	PASS
BLE_1M	Ant1	2440	5.70	≤30	PASS
BLE_1M	Ant1	2480	5.44	≤30	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

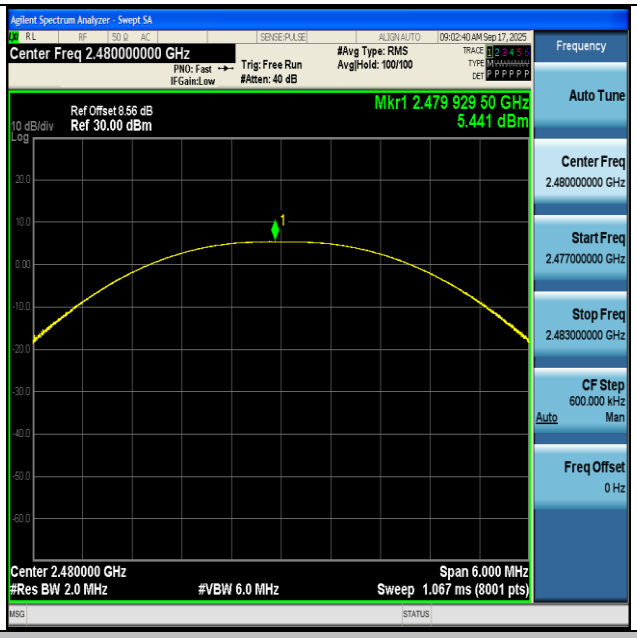
Test Graphs Peak



BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS



BLE_1M-Ant1-2480-PASS

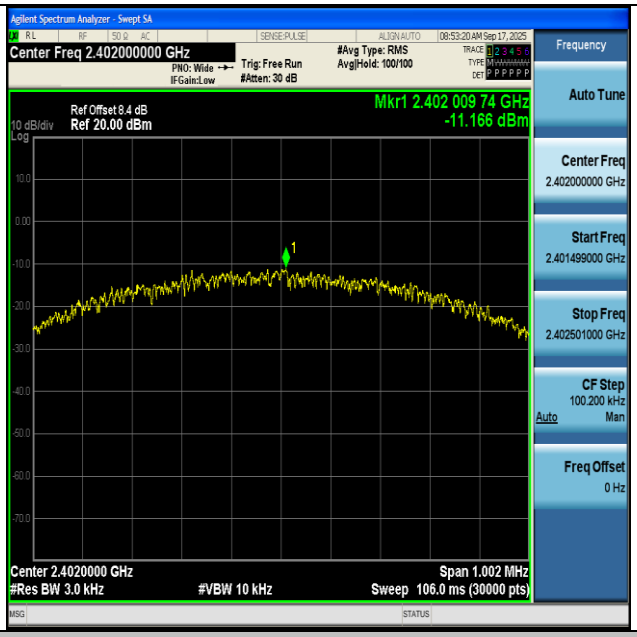
Appendix D: Maximum peak power spectral density

Test Result

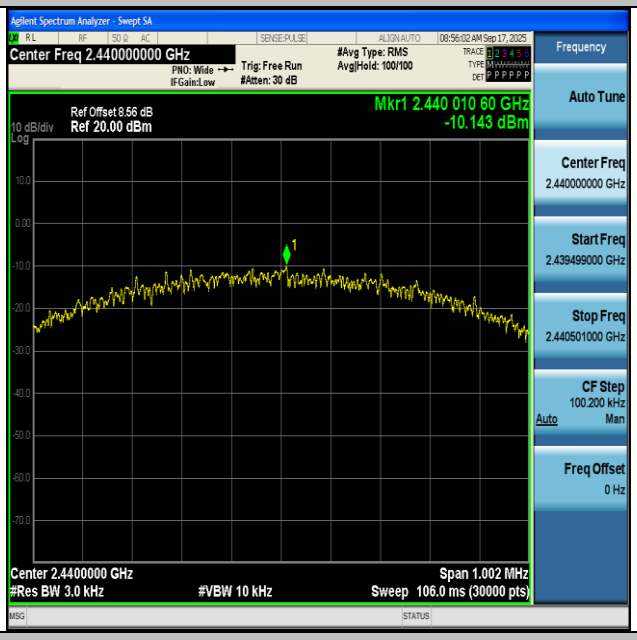
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-11.17	≤8.00	PASS
BLE_1M	Ant1	2440	-10.14	≤8.00	PASS
BLE_1M	Ant1	2480	-11.07	≤8.00	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

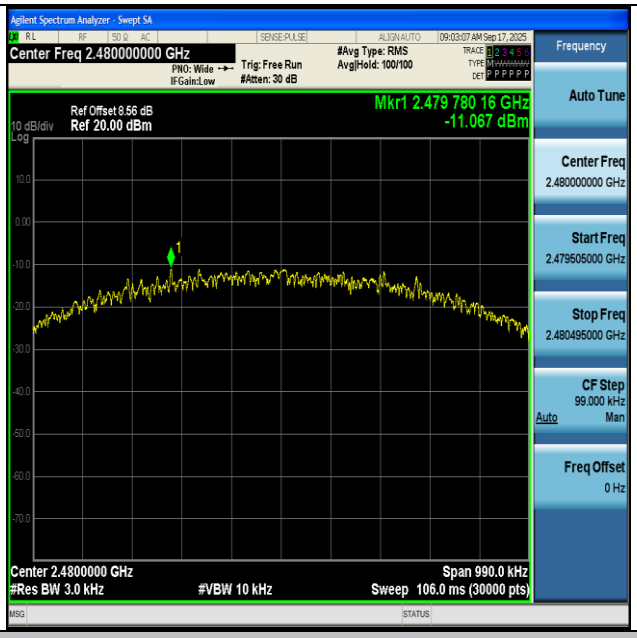
Test Graphs



BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS



BLE_1M-Ant1-2480-PASS

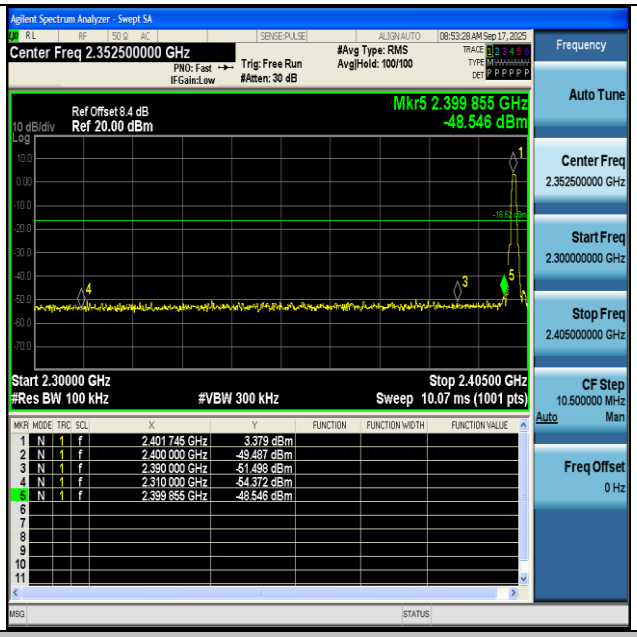
Appendix E: Band edge measurements

Test Result

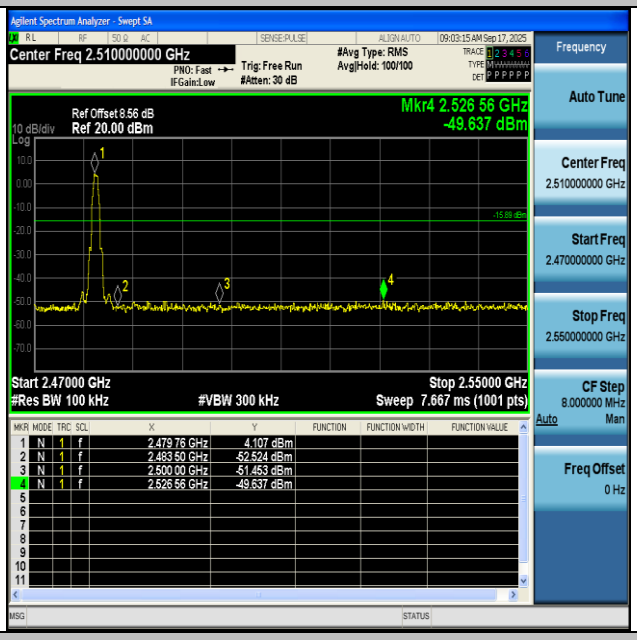
Test Mode	Antenna	Ch. Name	Frequency [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	3.38	-48.55	≤-16.62	PASS
BLE_1M	Ant1	High	2480	4.11	-49.64	≤-15.89	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs



BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2480-PASS

Appendix F: Conducted Spurious Emission

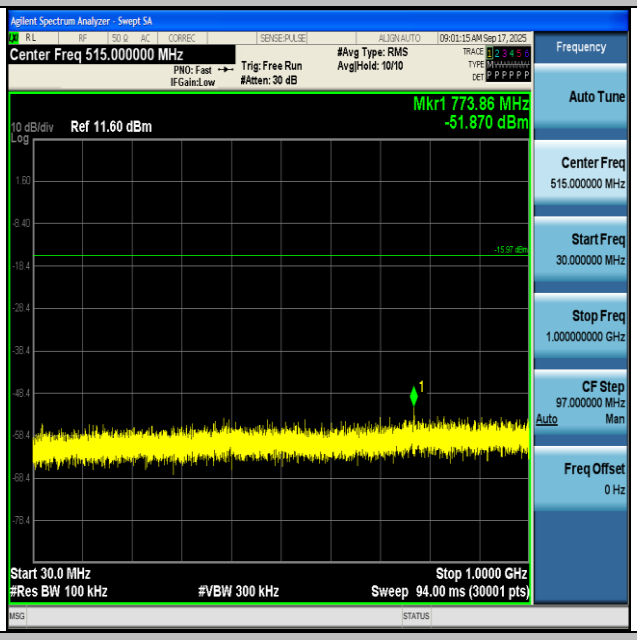
Test Result

Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	4.03	4.03	---	PASS
BLE_1M	Ant1	2402	30~1000	4.03	-51.87	≤-15.97	PASS
BLE_1M	Ant1	2402	1000~26500	4.03	-36.24	≤-15.97	PASS
BLE_1M	Ant1	2440	0~Reference	5.34	5.34	---	PASS
BLE_1M	Ant1	2440	30~1000	5.34	-53.41	≤-14.66	PASS
BLE_1M	Ant1	2440	1000~26500	5.34	-34.75	≤-14.66	PASS
BLE_1M	Ant1	2480	0~Reference	5.23	5.23	---	PASS
BLE_1M	Ant1	2480	30~1000	5.23	-52.13	≤-14.77	PASS
BLE_1M	Ant1	2480	1000~26500	5.23	-35.7	≤-14.77	PASS

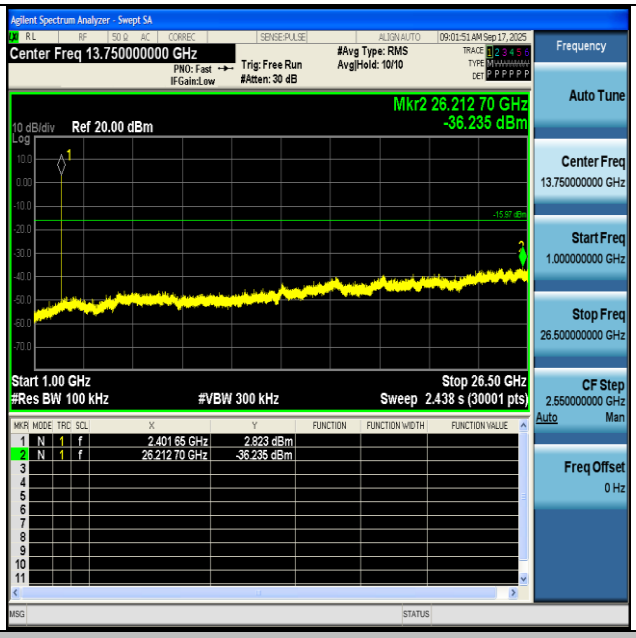
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.

Test Graphs

BLE_1M-Ant1-2402-0~Reference-PASS

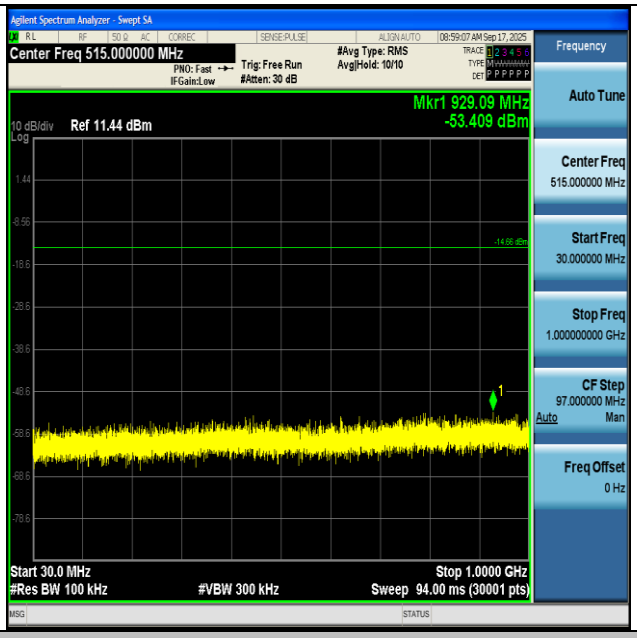


BLE_1M-Ant1-2402-30~1000-PASS

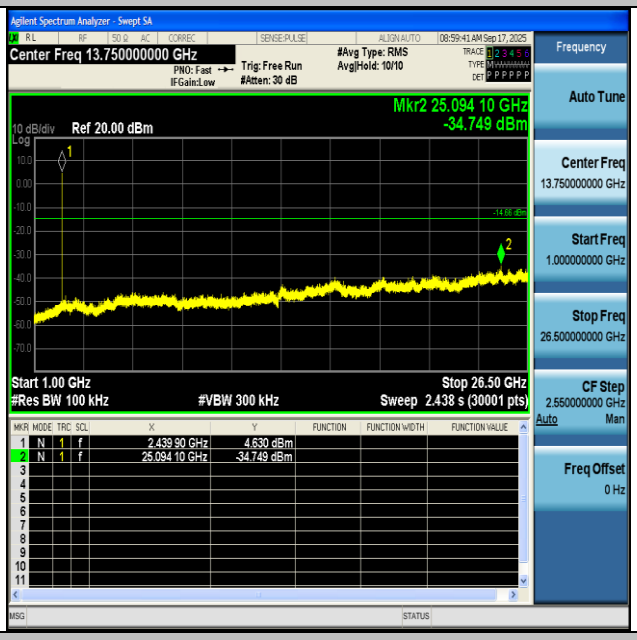


BLE_1M-Ant1-2402-1000~26500-PASS

BLE_1M-Ant1-2440-0~Reference-PASS

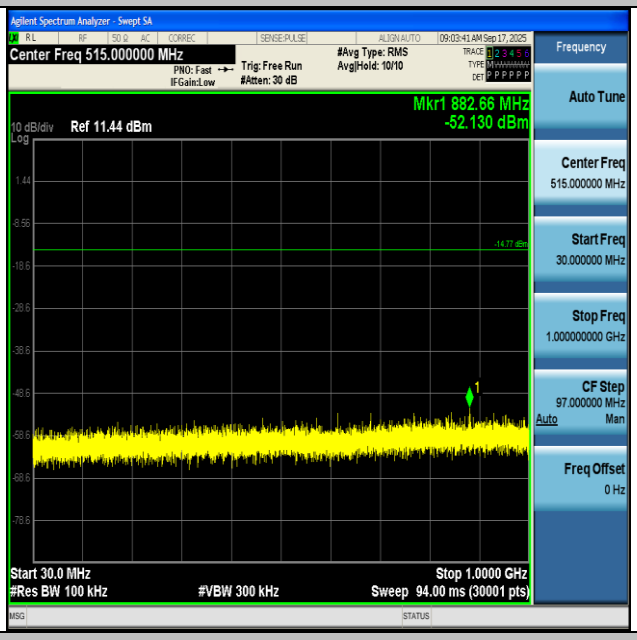


BLE_1M-Ant1-2440-30~1000-PASS

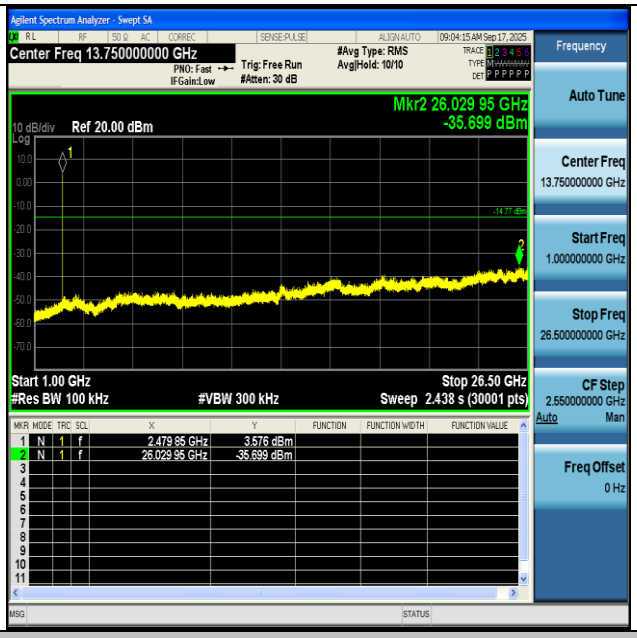


BLE_1M-Ant1-2440-1000~26500-PASS

BLE_1M-Ant1-2480-0~Reference-PASS



BLE_1M-Ant1-2480-30~1000-PASS



BLE_1M-Ant1-2480-1000~26500-PASS

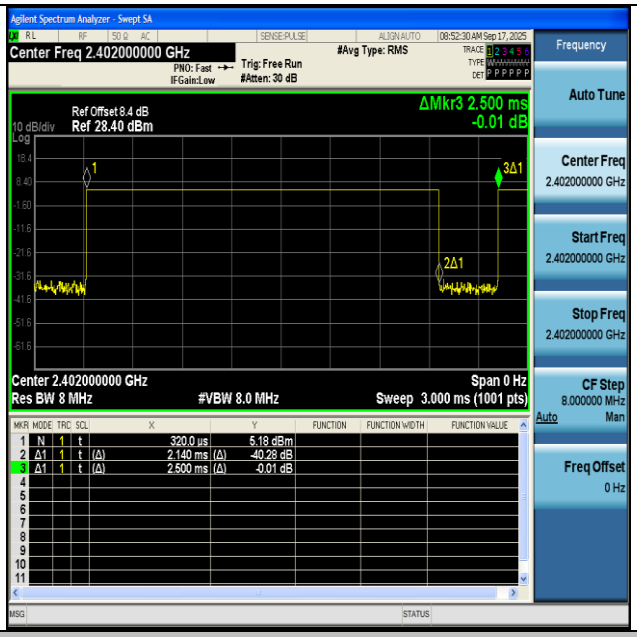
Appendix G: Duty Cycle

Test Result

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
BLE_1M	Ant1	2402	2.14	2.50	85.60	0.68
BLE_1M	Ant1	2440	2.14	2.50	85.60	0.68
BLE_1M	Ant1	2480	2.14	2.50	85.60	0.68

Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs



NTNV-BLE_1M-Ant1-2402

NTNV-BLE_1M-Ant1-2440

NTNV-BLE_1M-Ant1-2480