



Appendix Test Data for BLE (Conducted Measurement)

Product Name: Smart Projector

Trade Mark: /

Test Model: A300

FCC ID: 2BK4U-A300

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

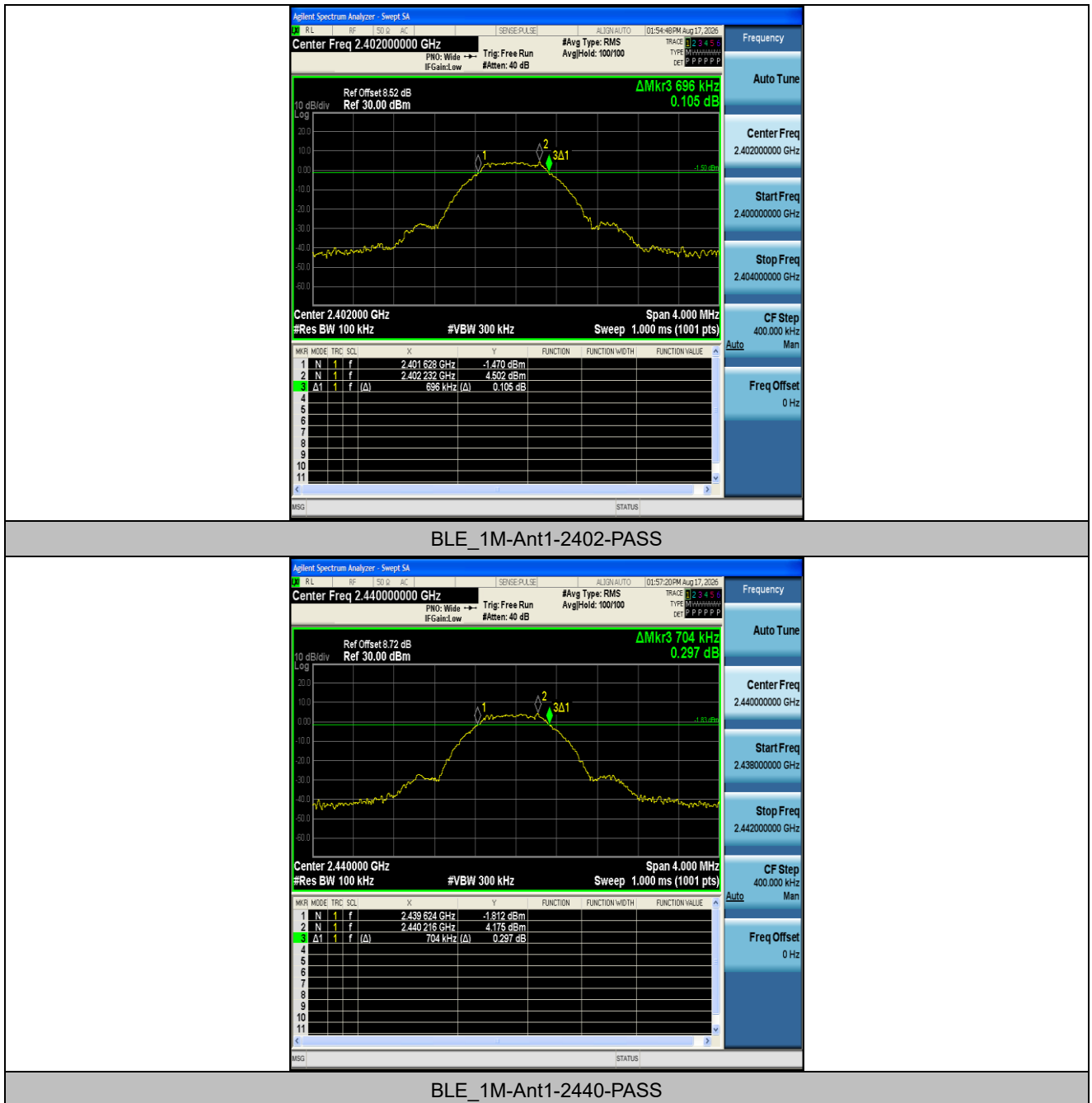
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.696	2401.628	2402.324	0.5	PASS
BLE_1M	Ant1	2440	0.704	2439.624	2440.328	0.5	PASS
BLE_1M	Ant1	2480	0.640	2479.660	2480.300	0.5	PASS
BLE_2M	Ant1	2402	1.372	2401.300	2402.672	0.5	PASS
BLE_2M	Ant1	2440	1.224	2439.352	2440.576	0.5	PASS
BLE_2M	Ant1	2480	1.172	2479.408	2480.580	0.5	PASS

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





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

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	1.0257	2401.4710	2402.4967	---	---
BLE_1M	Ant1	2440	1.0282	2439.4682	2440.4964	---	---
BLE_1M	Ant1	2480	1.0226	2479.4718	2480.4944	---	---
BLE_2M	Ant1	2402	2.0719	2400.9647	2403.0366	---	---
BLE_2M	Ant1	2440	2.0731	2438.9599	2441.0330	---	---
BLE_2M	Ant1	2480	2.0789	2478.9595	2481.0384	---	---

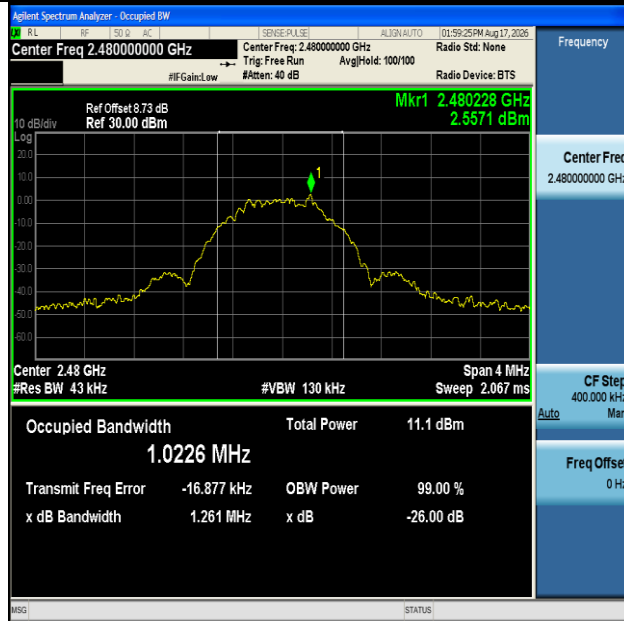
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)





Test Graphs



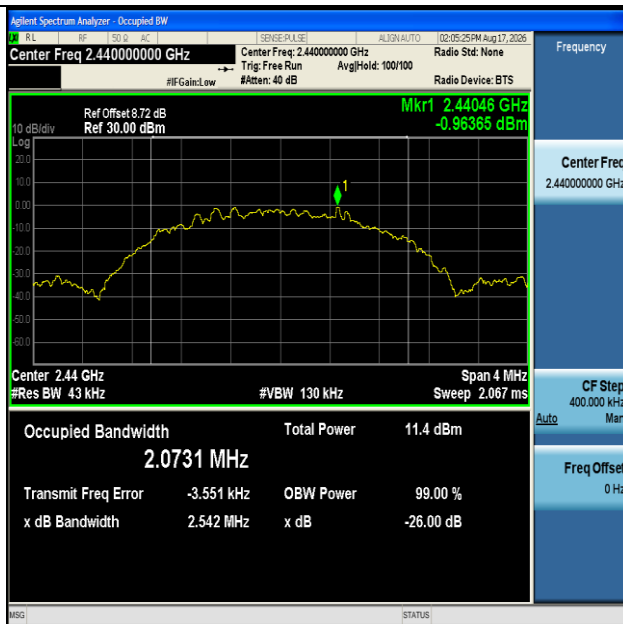


BLE_1M-Ant1-2480



BLE_2M-Ant1-2402





BLE_2M-Ant1-2440



BLE_2M-Ant1-2480





Appendix C: Maximum peak conducted output power

Test Result Peak

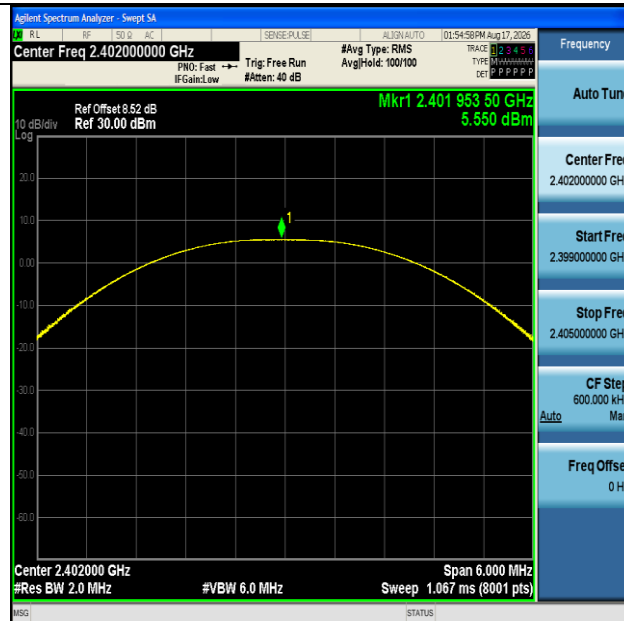
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2402	5.55	≤30	PASS
BLE_1M	Ant1	2440	5.33	≤30	PASS
BLE_1M	Ant1	2480	4.25	≤30	PASS
BLE_2M	Ant1	2402	5.54	≤30	PASS
BLE_2M	Ant1	2440	5.33	≤30	PASS
BLE_2M	Ant1	2480	4.20	≤30	PASS

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

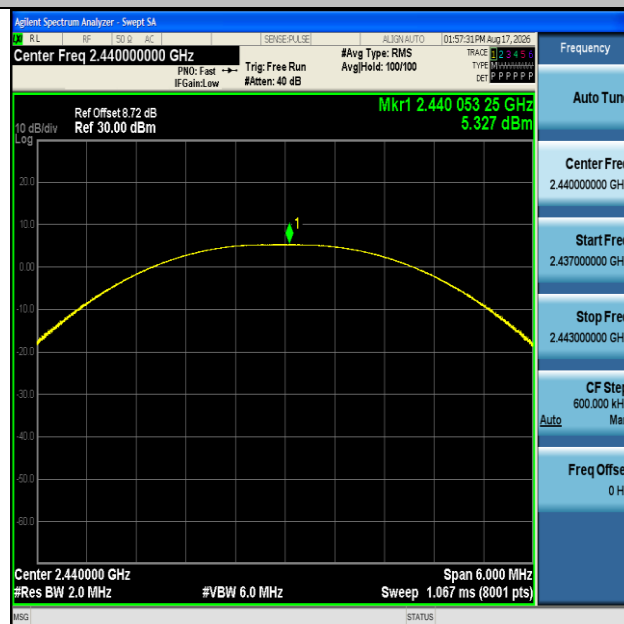




Test Graphs Peak

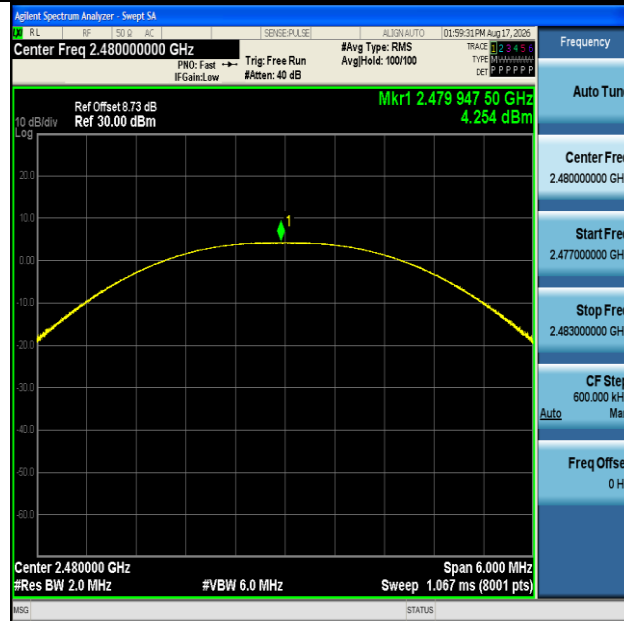


BLE_1M-Ant1-2402-PASS

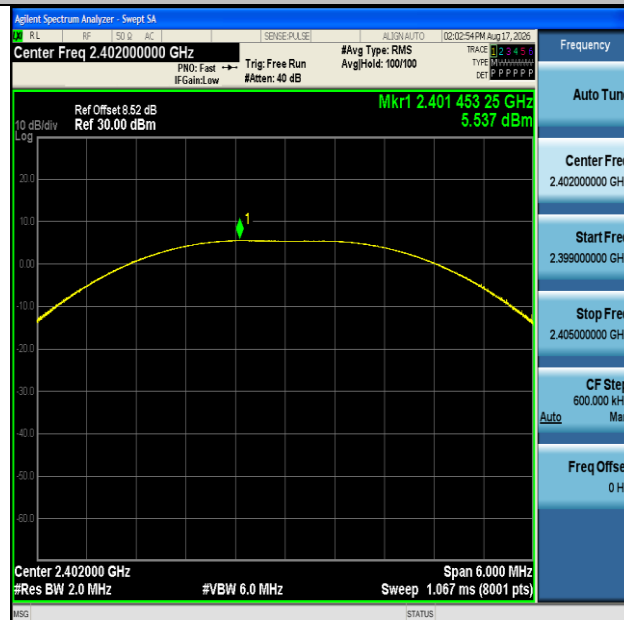


BLE_1M-Ant1-2440-PASS



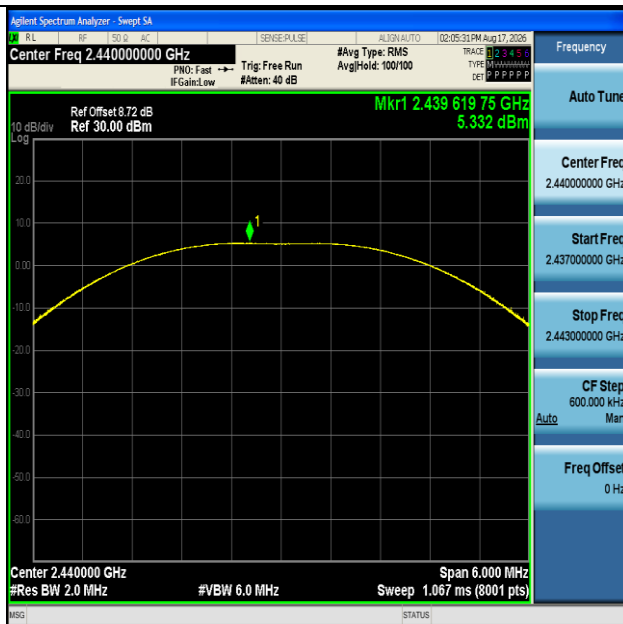


BLE_1M-Ant1-2480-PASS

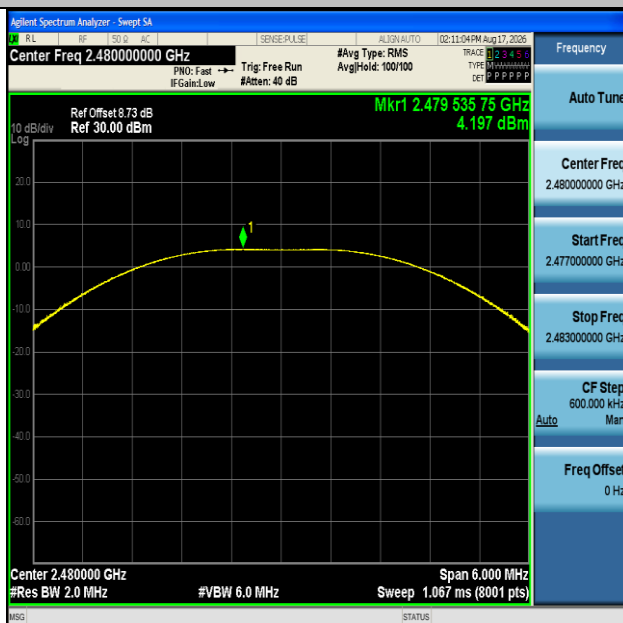


BLE_2M-Ant1-2402-PASS





BLE_2M-Ant1-2440-PASS



BLE_2M-Ant1-2480-PASS





Appendix D: Maximum peak power spectral density

Test Result

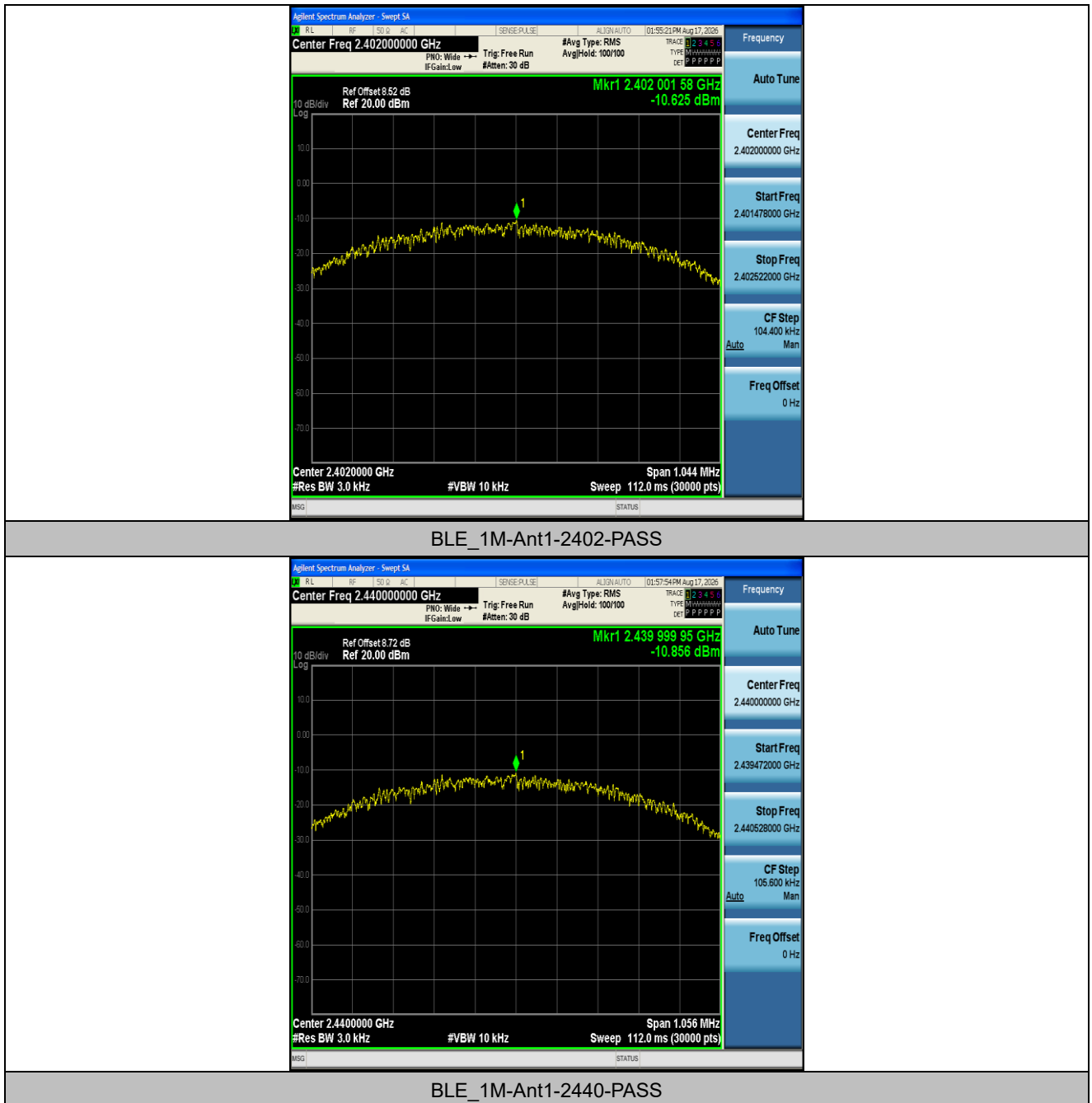
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.63	≤8.00	PASS
BLE_1M	Ant1	2440	-10.86	≤8.00	PASS
BLE_1M	Ant1	2480	-11.90	≤8.00	PASS
BLE_2M	Ant1	2402	-13.95	≤8.00	PASS
BLE_2M	Ant1	2440	-14.20	≤8.00	PASS
BLE_2M	Ant1	2480	-15.27	≤8.00	PASS

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





Test Graphs



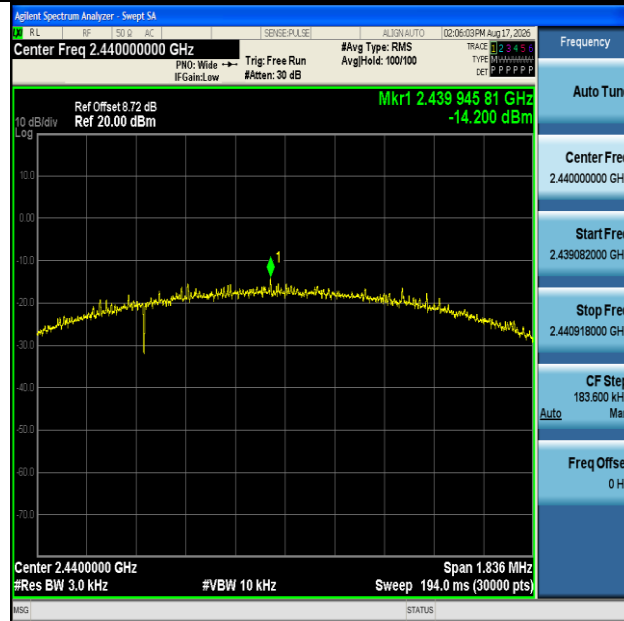


BLE_1M-Ant1-2480-PASS



BLE_2M-Ant1-2402-PASS





BLE_2M-Ant1-2440-PASS



BLE_2M-Ant1-2480-PASS





Appendix E: Band edge measurements

Test Result

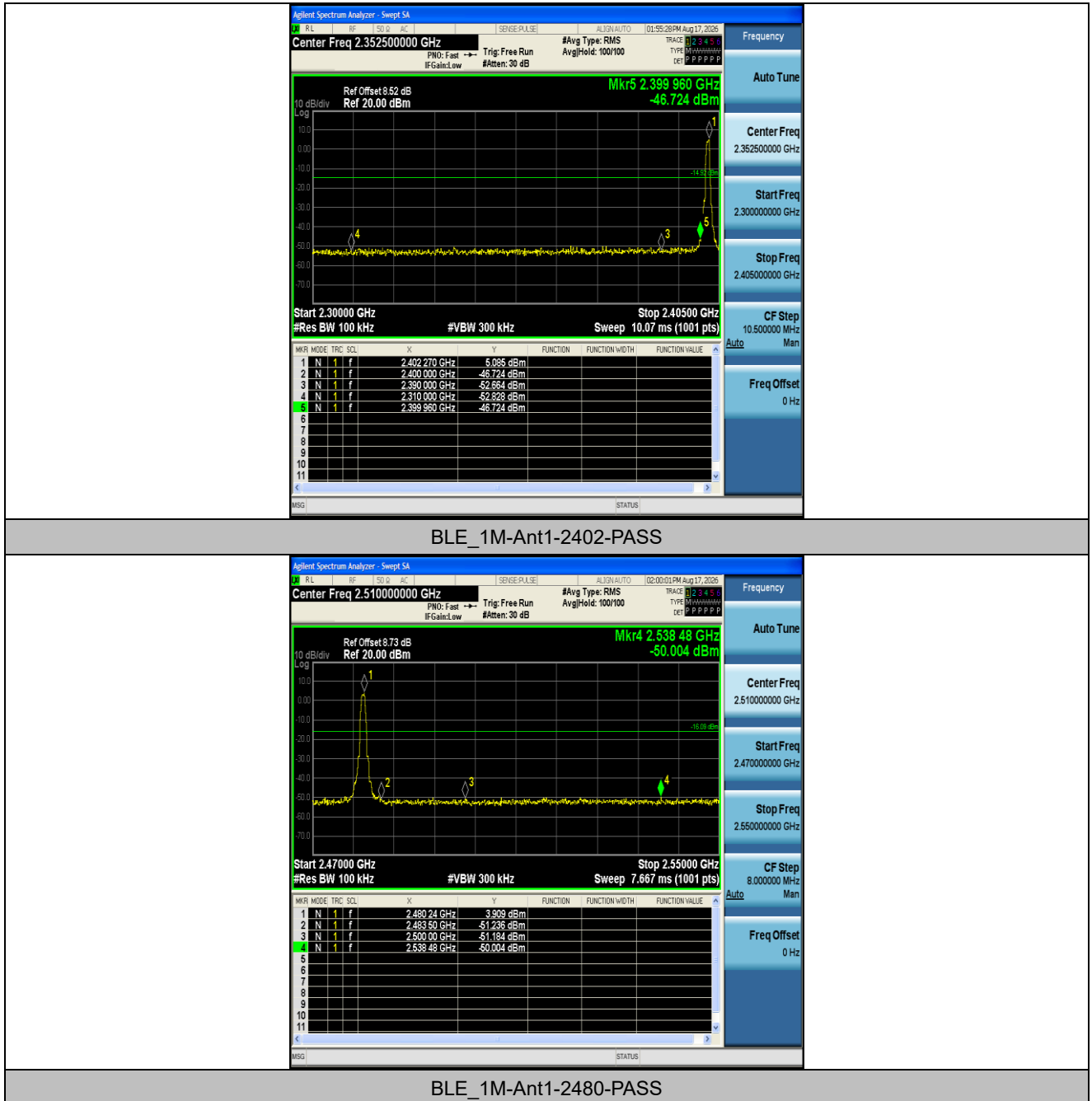
Test Mode	Antenna	Ch. Name	Frequency [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.09	-46.72	≤ -14.92	PASS
BLE_1M	Ant1	High	2480	3.91	-50	≤ -16.09	PASS
BLE_2M	Ant1	Low	2402	2.90	-28.87	≤ -17.1	PASS
BLE_2M	Ant1	High	2480	2.12	-49.2	≤ -17.88	PASS

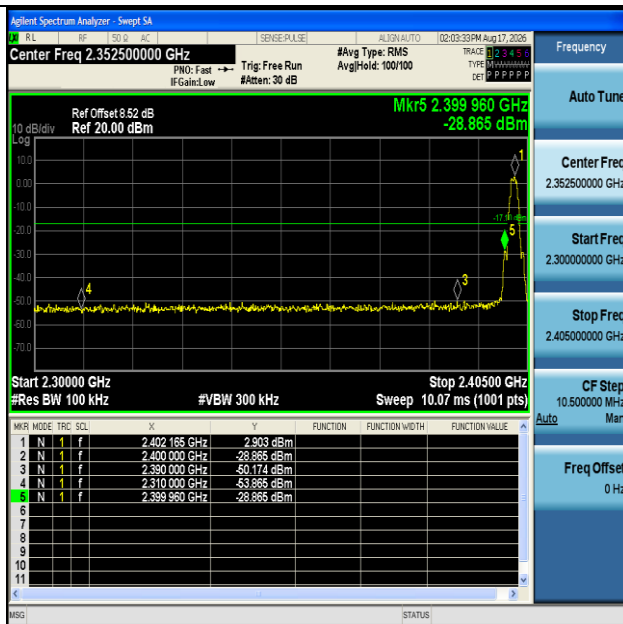
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



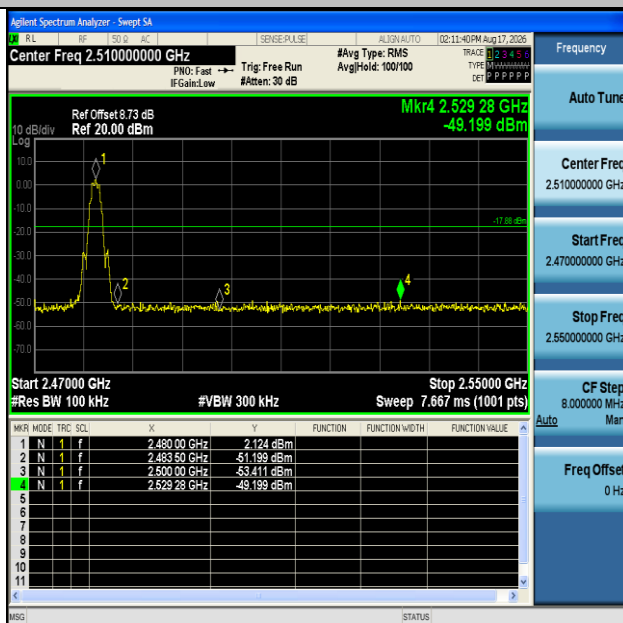


Test Graphs





BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2480-PASS





Appendix F: Conducted Spurious Emission

Test Result

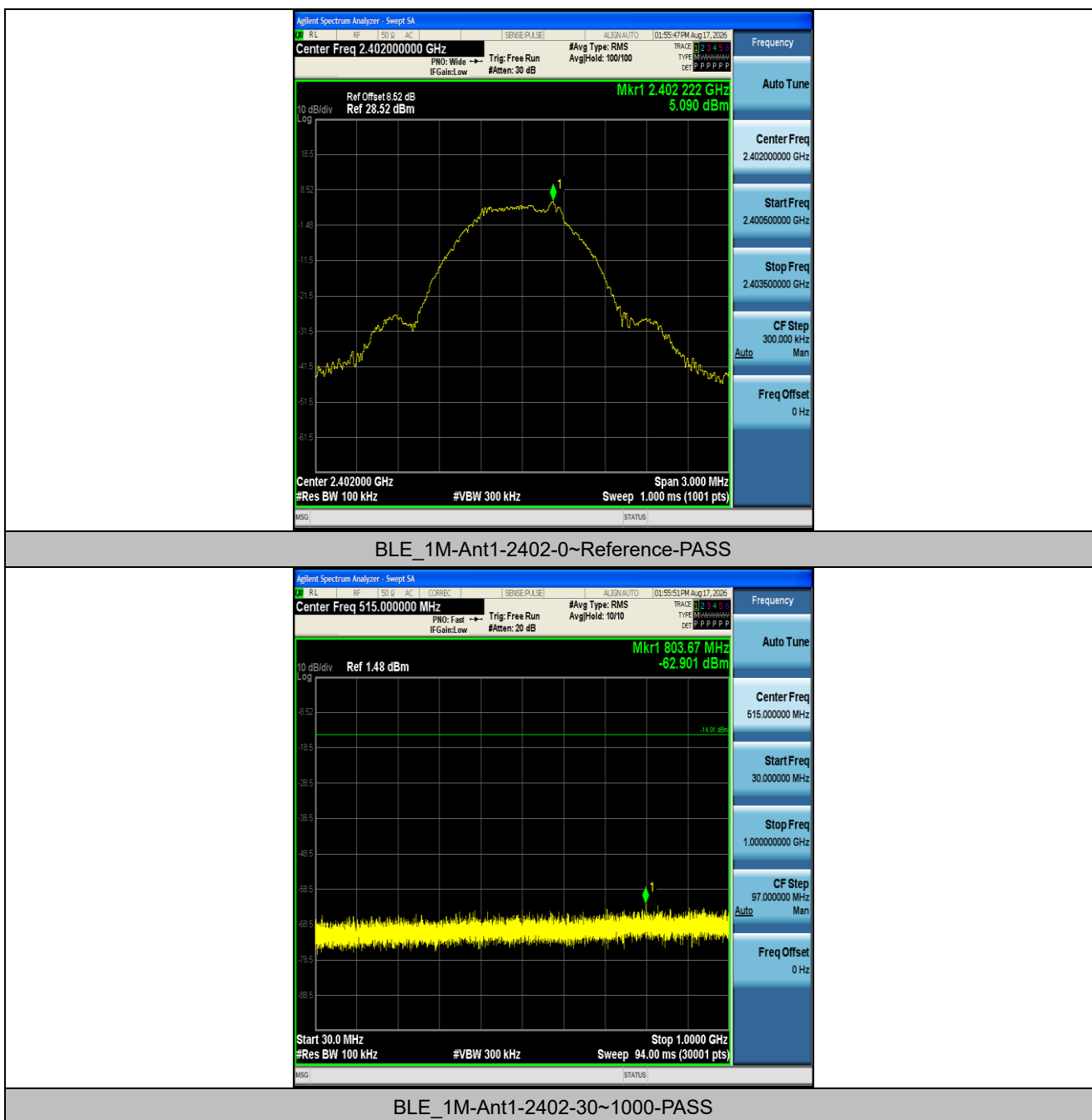
Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	2402	0~Reference	5.09	5.09	---	PASS
BLE_1M	Ant1	2402	30~1000	5.09	-62.9	≤-14.91	PASS
BLE_1M	Ant1	2402	1000~26500	5.09	-36.28	≤-14.91	PASS
BLE_1M	Ant1	2440	0~Reference	3.84	3.84	---	PASS
BLE_1M	Ant1	2440	30~1000	3.84	-63.1	≤-16.16	PASS
BLE_1M	Ant1	2440	1000~26500	3.84	-37.41	≤-16.16	PASS
BLE_1M	Ant1	2480	0~Reference	3.09	3.09	---	PASS
BLE_1M	Ant1	2480	30~1000	3.09	-62.51	≤-16.91	PASS
BLE_1M	Ant1	2480	1000~26500	3.09	-37.58	≤-16.91	PASS
BLE_2M	Ant1	2402	0~Reference	2.92	2.92	---	PASS
BLE_2M	Ant1	2402	30~1000	2.92	-62.81	≤-17.08	PASS
BLE_2M	Ant1	2402	1000~26500	2.92	-37.55	≤-17.08	PASS
BLE_2M	Ant1	2440	0~Reference	3.77	3.77	---	PASS
BLE_2M	Ant1	2440	30~1000	3.77	-63.62	≤-16.23	PASS
BLE_2M	Ant1	2440	1000~26500	3.77	-37.7	≤-16.23	PASS
BLE_2M	Ant1	2480	0~Reference	2.48	2.48	---	PASS
BLE_2M	Ant1	2480	30~1000	2.48	-63.95	≤-17.52	PASS
BLE_2M	Ant1	2480	1000~26500	2.48	-37.64	≤-17.52	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



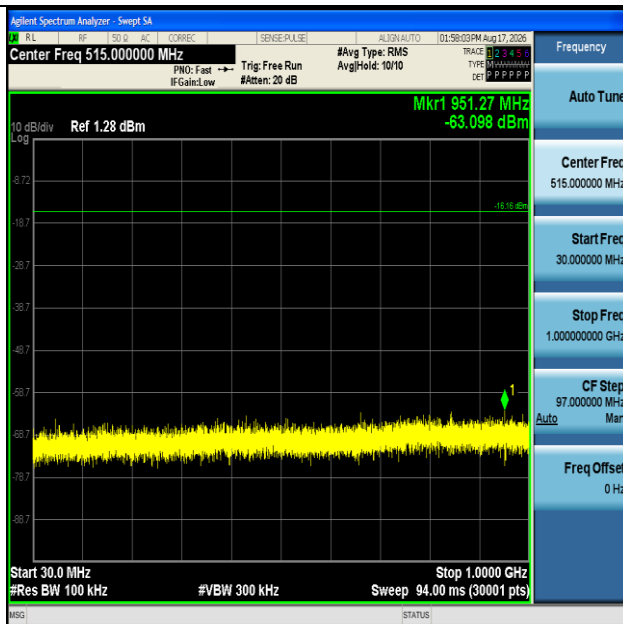


BLE_1M-Ant1-2402-1000~26500-PASS

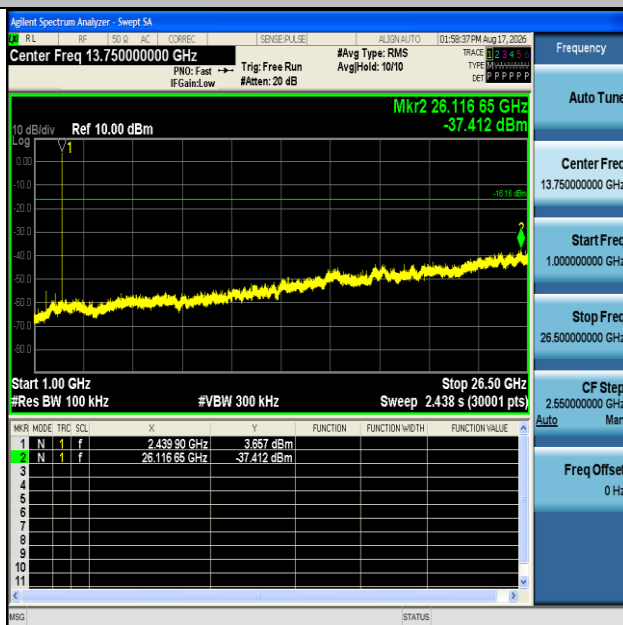


BLE_1M-Ant1-2440-0~Reference-PASS





BLE_1M-Ant1-2440-30~1000-PASS

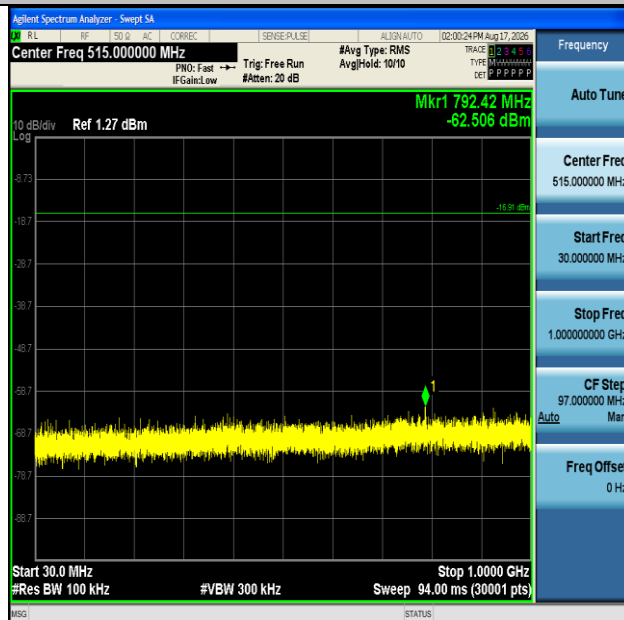


BLE_1M-Ant1-2440-1000~26500-PASS



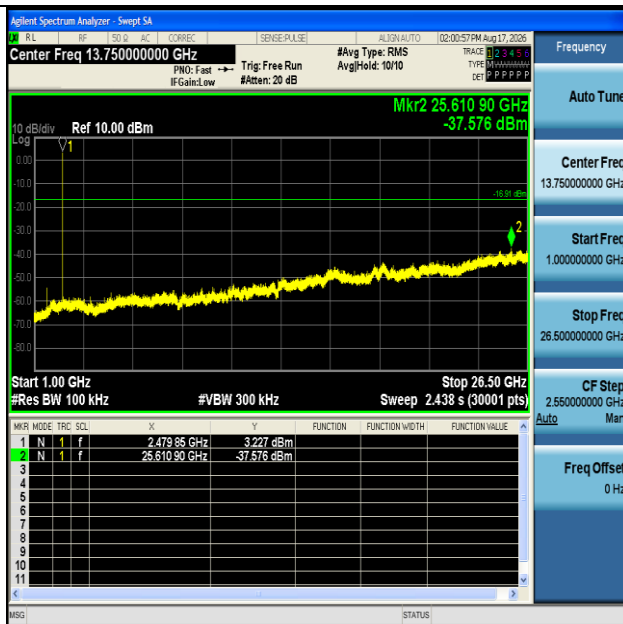


BLE_1M-Ant1-2480-0~Reference-PASS

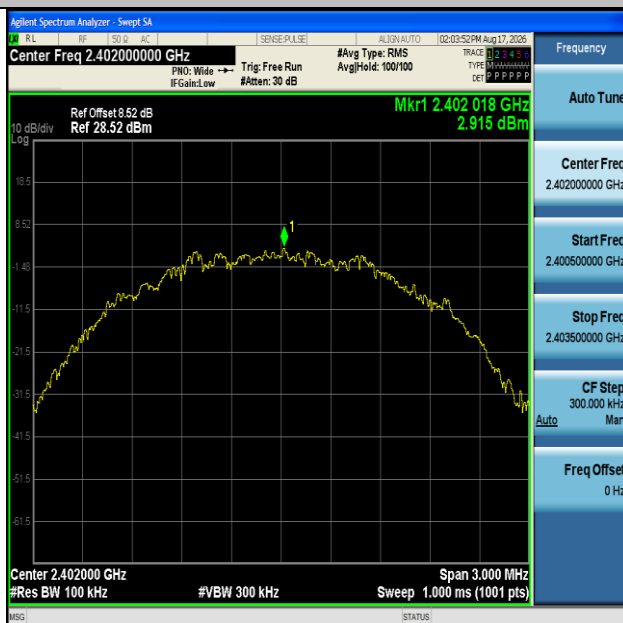


BLE_1M-Ant1-2480-30~1000-PASS



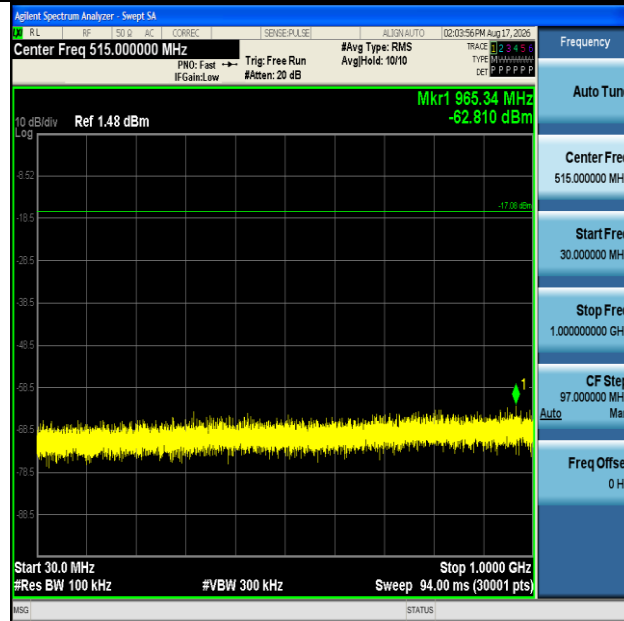


BLE_1M-Ant1-2480-1000~26500-PASS

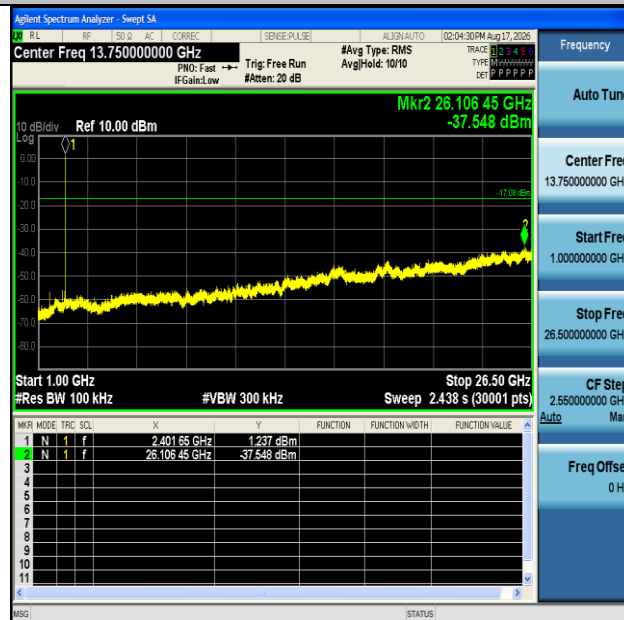


BLE_2M-Ant1-2402-0~Reference-PASS





BLE_2M-Ant1-2402-30~1000-PASS



BLE_2M-Ant1-2402-1000~26500-PASS



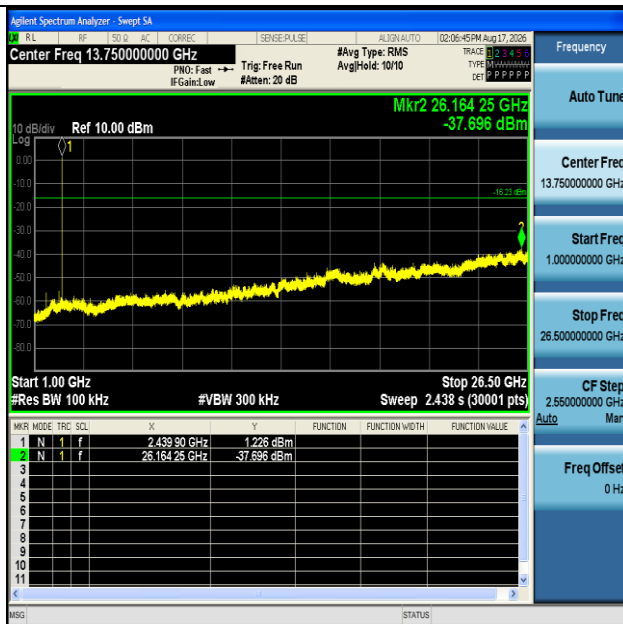


BLE_2M-Ant1-2440-0~Reference-PASS



BLE_2M-Ant1-2440-30~1000-PASS



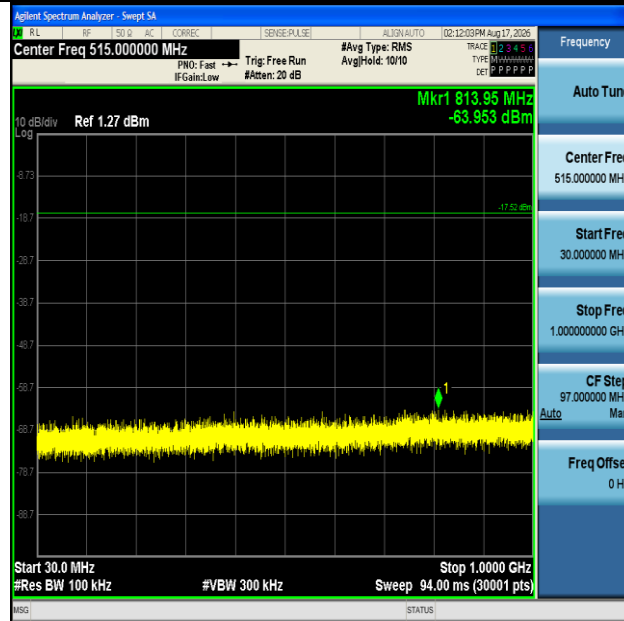


BLE_2M-Ant1-2440-1000~26500-PASS

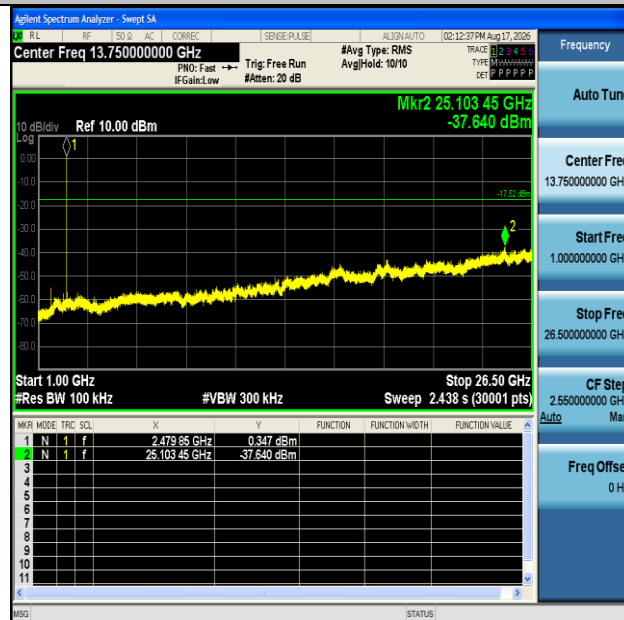


BLE_2M-Ant1-2480-0~Reference-PASS





BLE_2M-Ant1-2480-30~1000-PASS



BLE_2M-Ant1-2480-1000~26500-PASS





Appendix G: Duty Cycle

Test Result

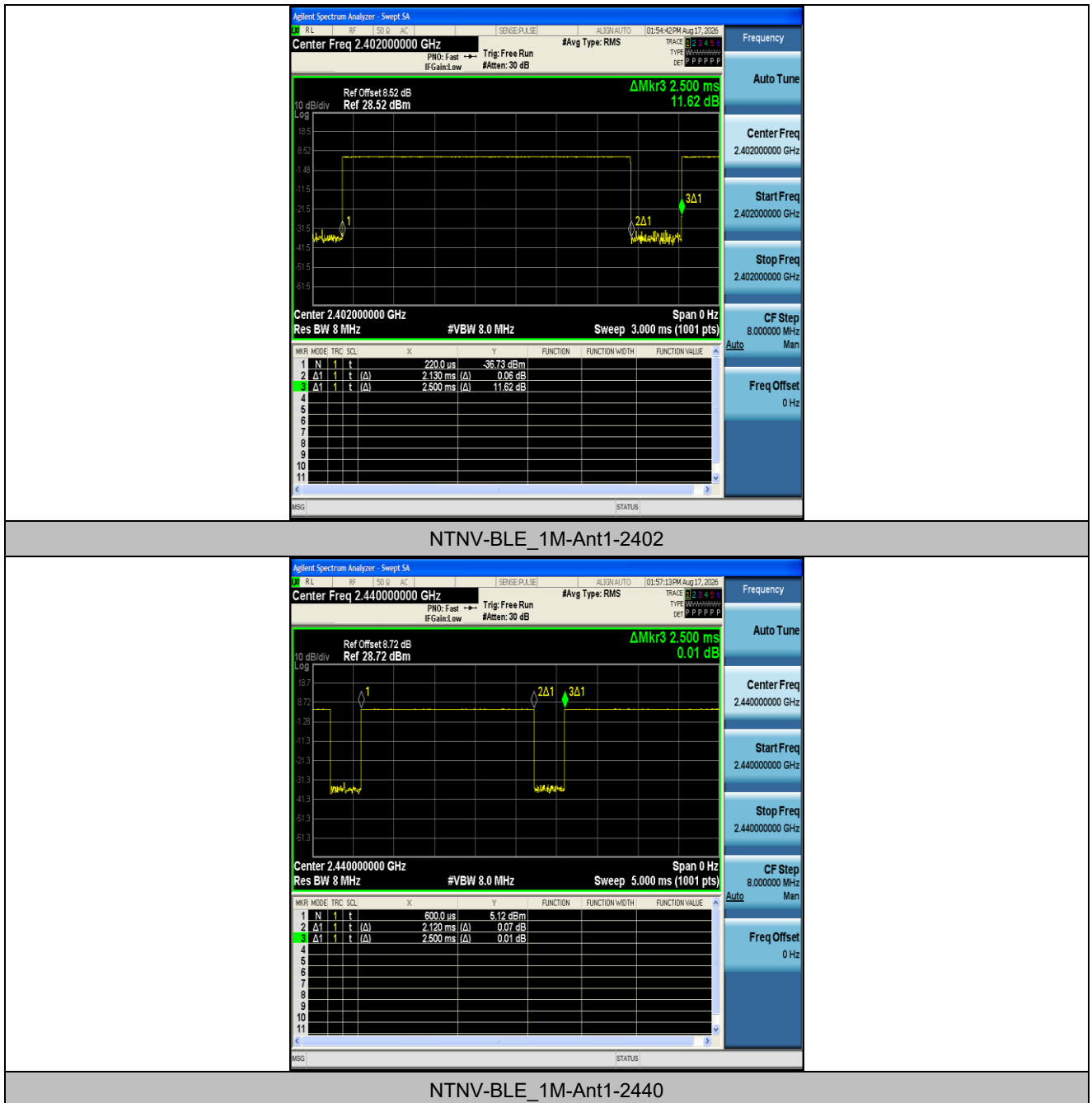
Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]
BLE_1M	Ant1	2402	2.13	2.50	85.20	0.70
BLE_1M	Ant1	2440	2.12	2.50	84.80	0.72
BLE_1M	Ant1	2480	2.12	2.50	84.80	0.72
BLE_2M	Ant1	2402	1.07	1.88	56.91	2.45
BLE_2M	Ant1	2440	1.07	1.88	56.91	2.45
BLE_2M	Ant1	2480	1.07	1.88	56.91	2.45

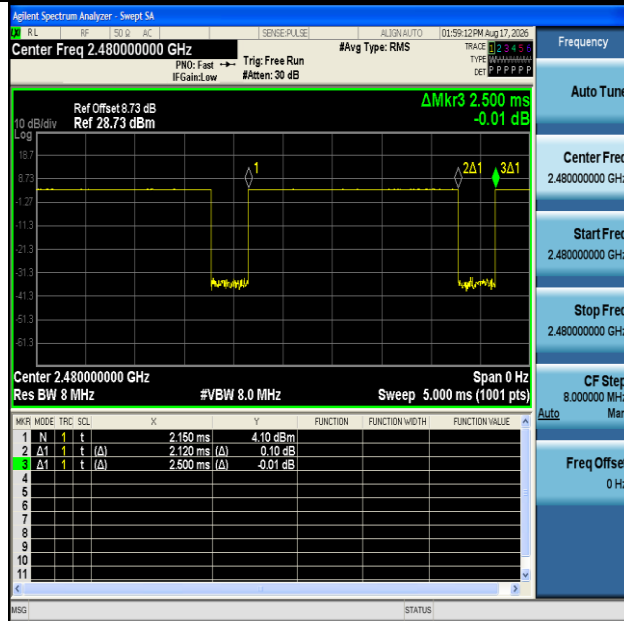
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



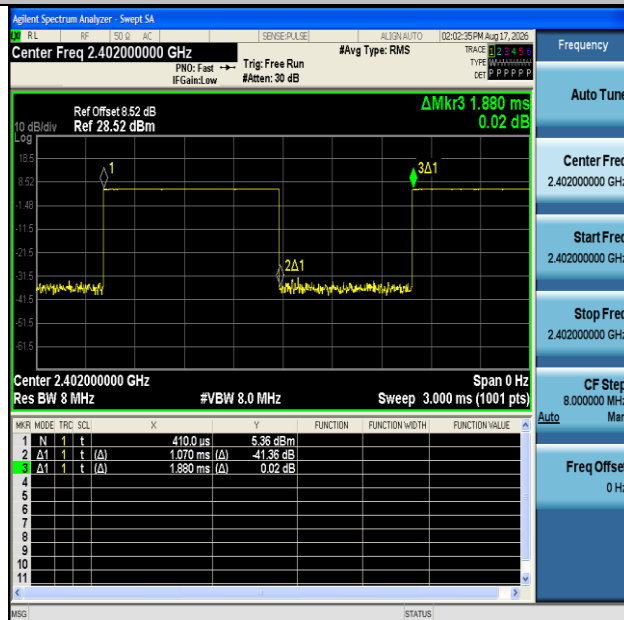


Test Graphs



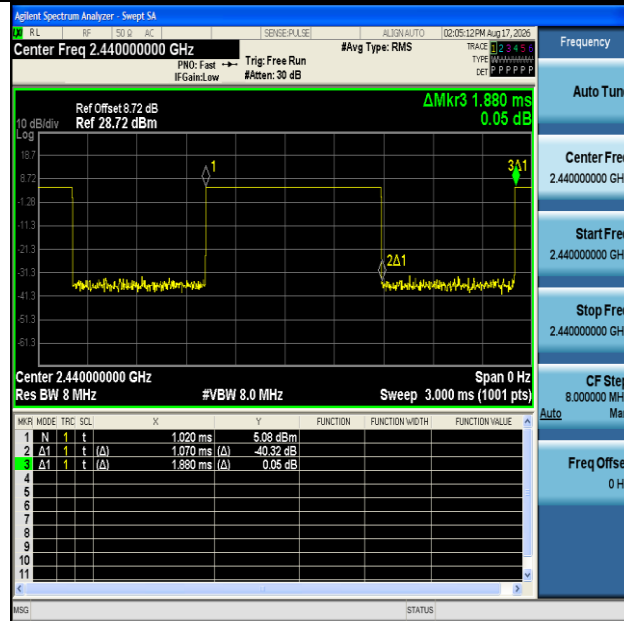


NTNV-BLE_1M-Ant1-2480

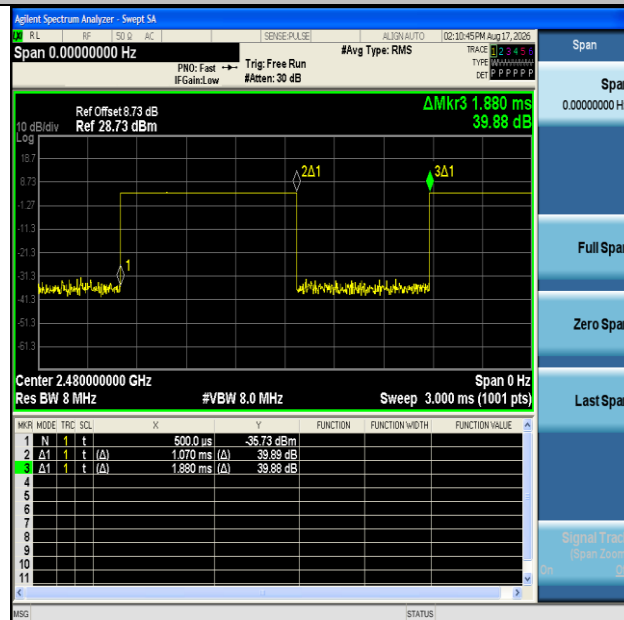


NTNV-BLE_2M-Ant1-2402





NTNV-BLE_2M-Ant1-2440



NTNV-BLE_2M-Ant1-2480

