



Appendix Test Data for BLE (Conducted Measurement)

Product Name: Portable Karaoke Speaker PAW PATROL

Trade Mark: /

Test Model: BTC020PA

FCC ID: UU8-BTC020-09

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

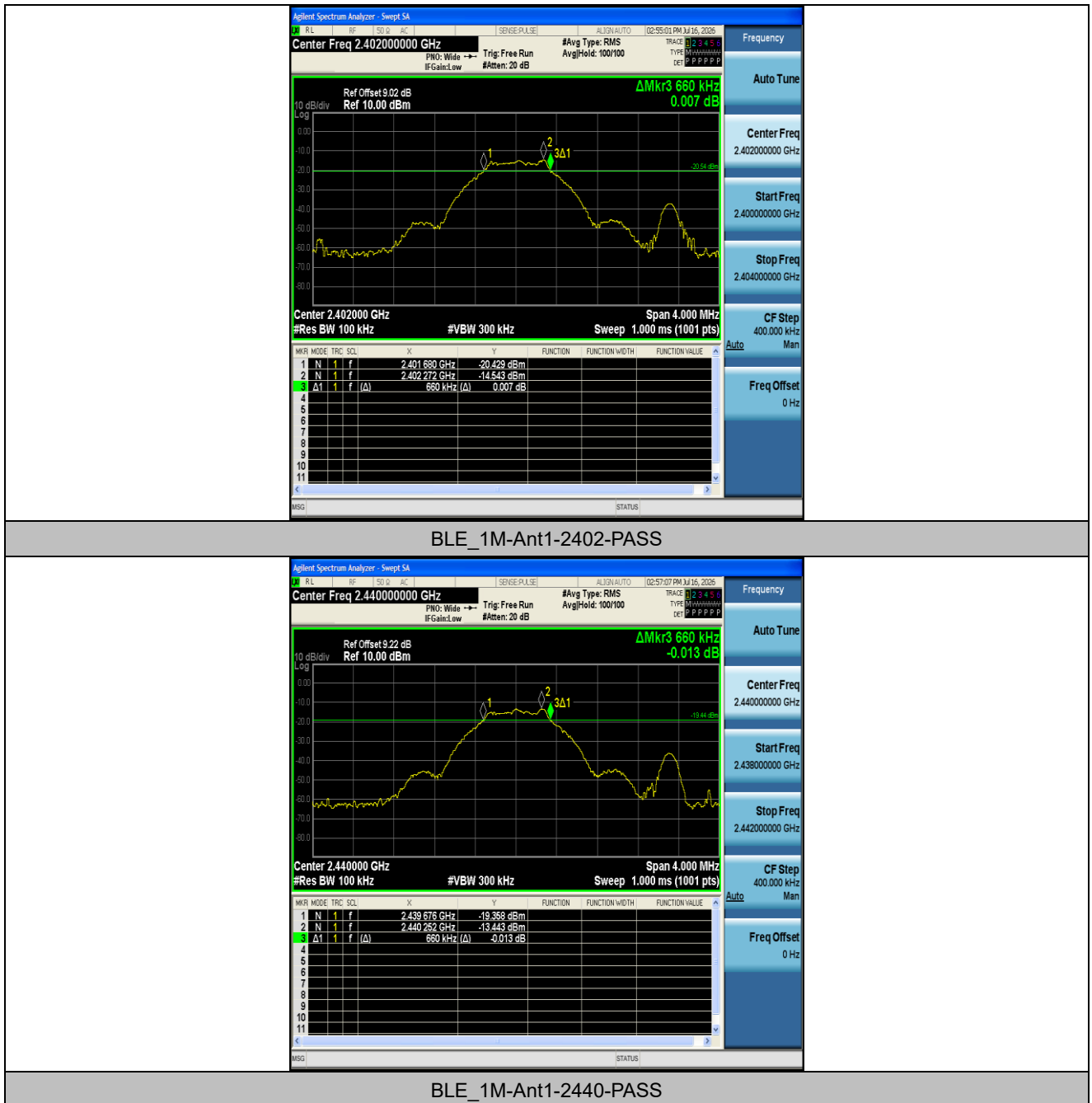
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.660	2401.680	2402.340	0.5	PASS
BLE_1M	Ant1	2440	0.660	2439.676	2440.336	0.5	PASS
BLE_1M	Ant1	2480	0.700	2479.664	2480.364	0.5	PASS
BLE_2M	Ant1	2402	1.132	2401.476	2402.608	0.5	PASS
BLE_2M	Ant1	2440	1.120	2439.460	2440.580	0.5	PASS
BLE_2M	Ant1	2480	1.068	2479.516	2480.584	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	1.0433	2401.5005	2402.5438	---	---
BLE_1M	Ant1	2440	1.0294	2439.5074	2440.5368	---	---
BLE_1M	Ant1	2480	1.0463	2479.5009	2480.5472	---	---
BLE_2M	Ant1	2402	2.0976	2401.0026	2403.1002	---	---
BLE_2M	Ant1	2440	2.1057	2438.9989	2441.1046	---	---
BLE_2M	Ant1	2480	2.0787	2479.0172	2481.0959	---	---

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

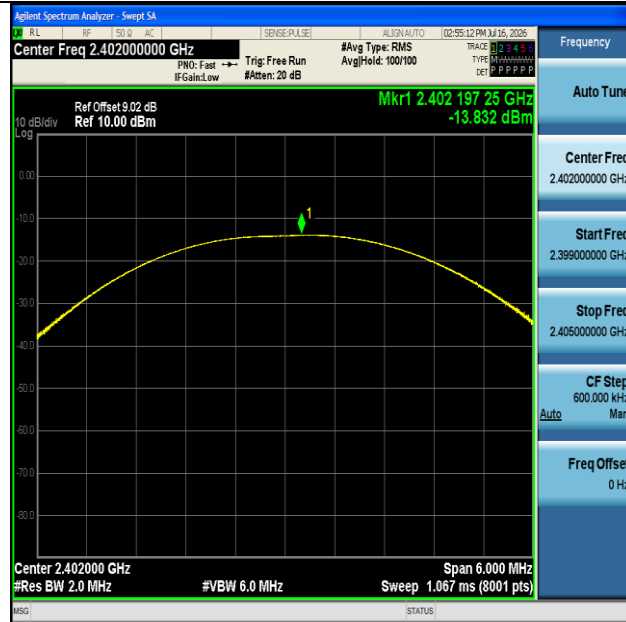
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2402	-13.83	≤30	PASS
BLE_1M	Ant1	2440	-12.81	≤30	PASS
BLE_1M	Ant1	2480	-11.47	≤30	PASS
BLE_2M	Ant1	2402	-13.47	≤30	PASS
BLE_2M	Ant1	2440	-12.43	≤30	PASS
BLE_2M	Ant1	2480	-10.89	≤30	PASS

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

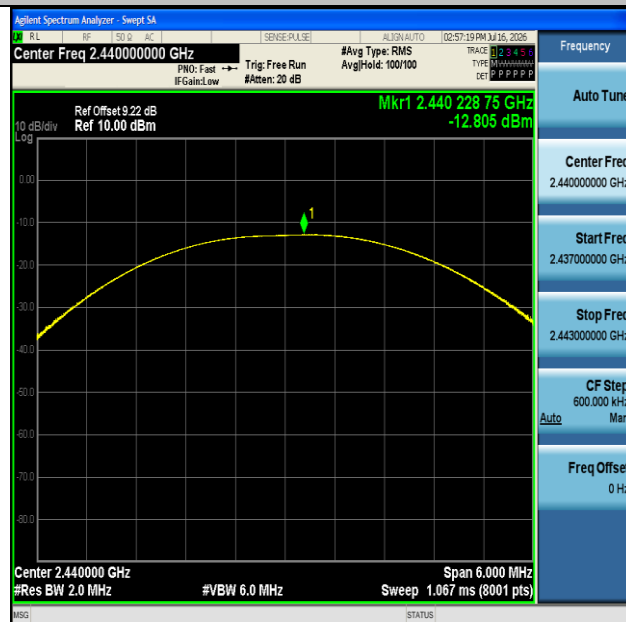




Test Graphs Peak

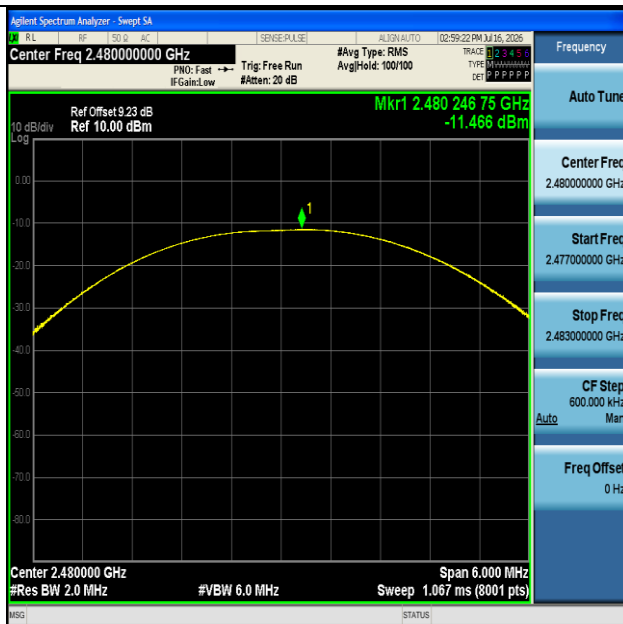


BLE_1M-Ant1-2402-PASS

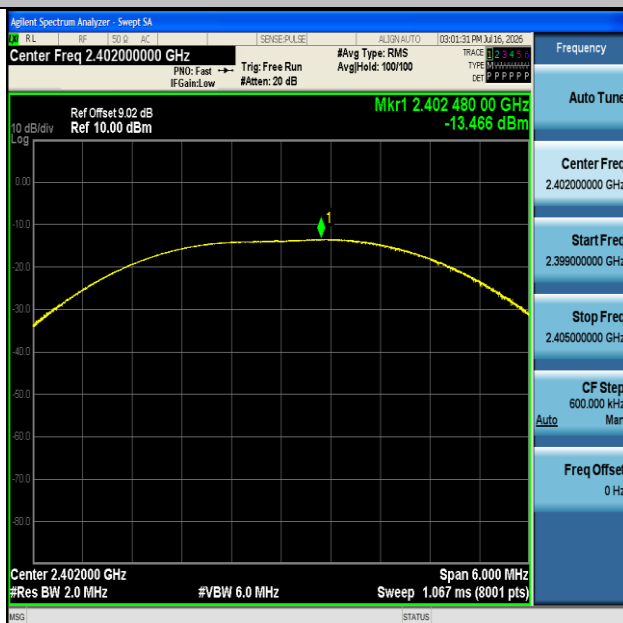


BLE_1M-Ant1-2440-PASS



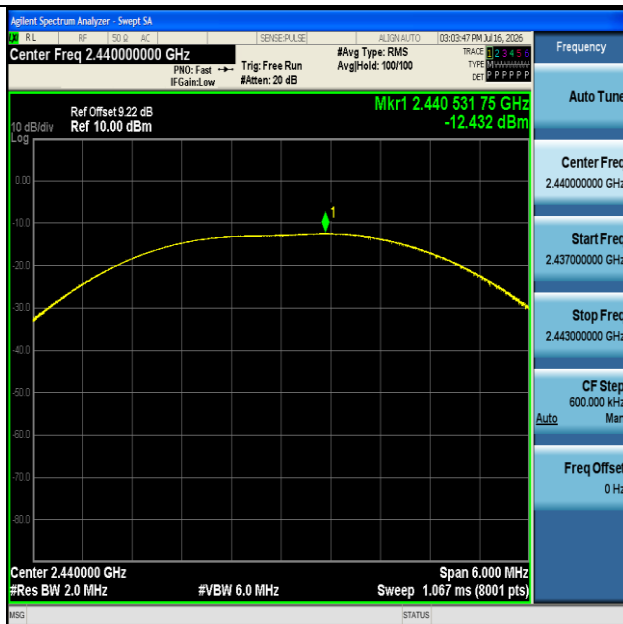


BLE_1M-Ant1-2480-PASS

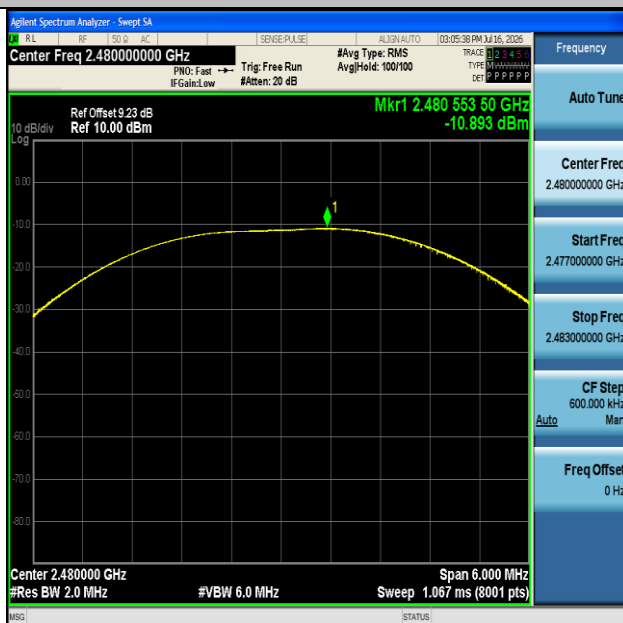


BLE_2M-Ant1-2402-PASS





BLE_2M-Ant1-2440-PASS



BLE_2M-Ant1-2480-PASS





Appendix D: Maximum peak power spectral density

Test Result

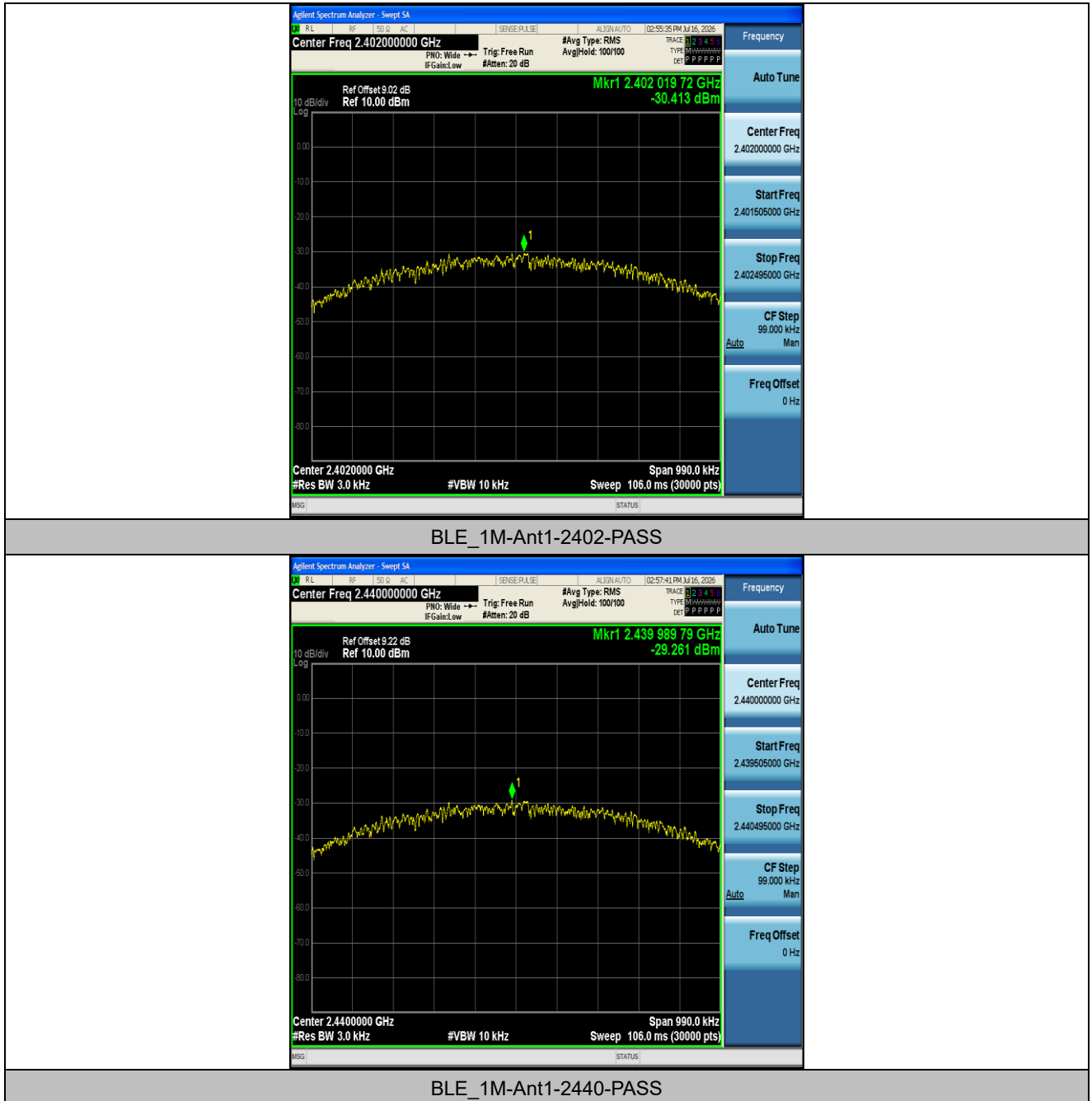
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-30.41	≤8.00	PASS
BLE_1M	Ant1	2440	-29.26	≤8.00	PASS
BLE_1M	Ant1	2480	-27.78	≤8.00	PASS
BLE_2M	Ant1	2402	-31.73	≤8.00	PASS
BLE_2M	Ant1	2440	-30.65	≤8.00	PASS
BLE_2M	Ant1	2480	-29.15	≤8.00	PASS

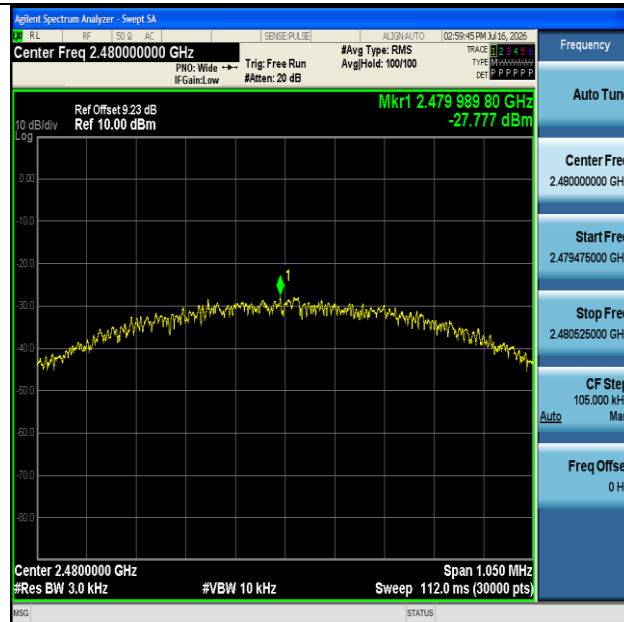
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



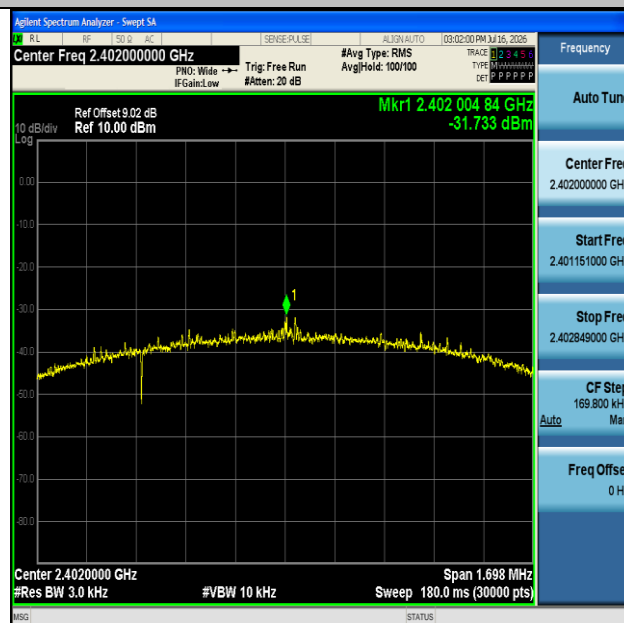


Test Graphs





BLE_1M-Ant1-2480-PASS

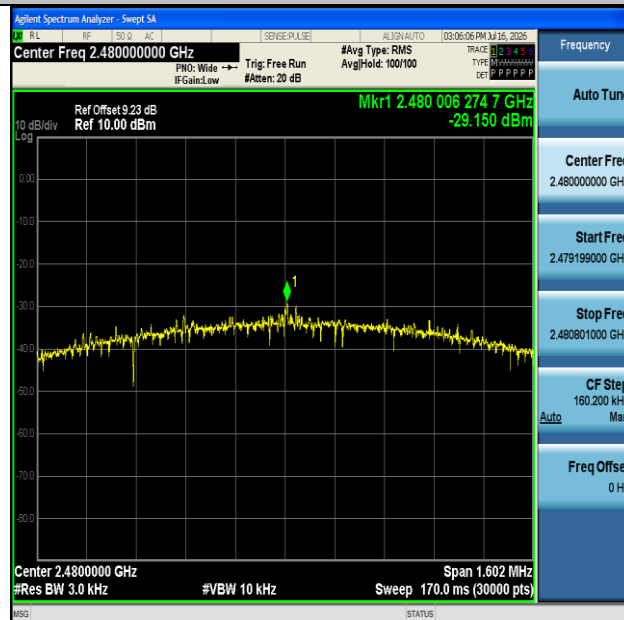


BLE_2M-Ant1-2402-PASS





BLE_2M-Ant1-2440-PASS



BLE_2M-Ant1-2480-PASS





Appendix E: Band edge measurements

Test Result

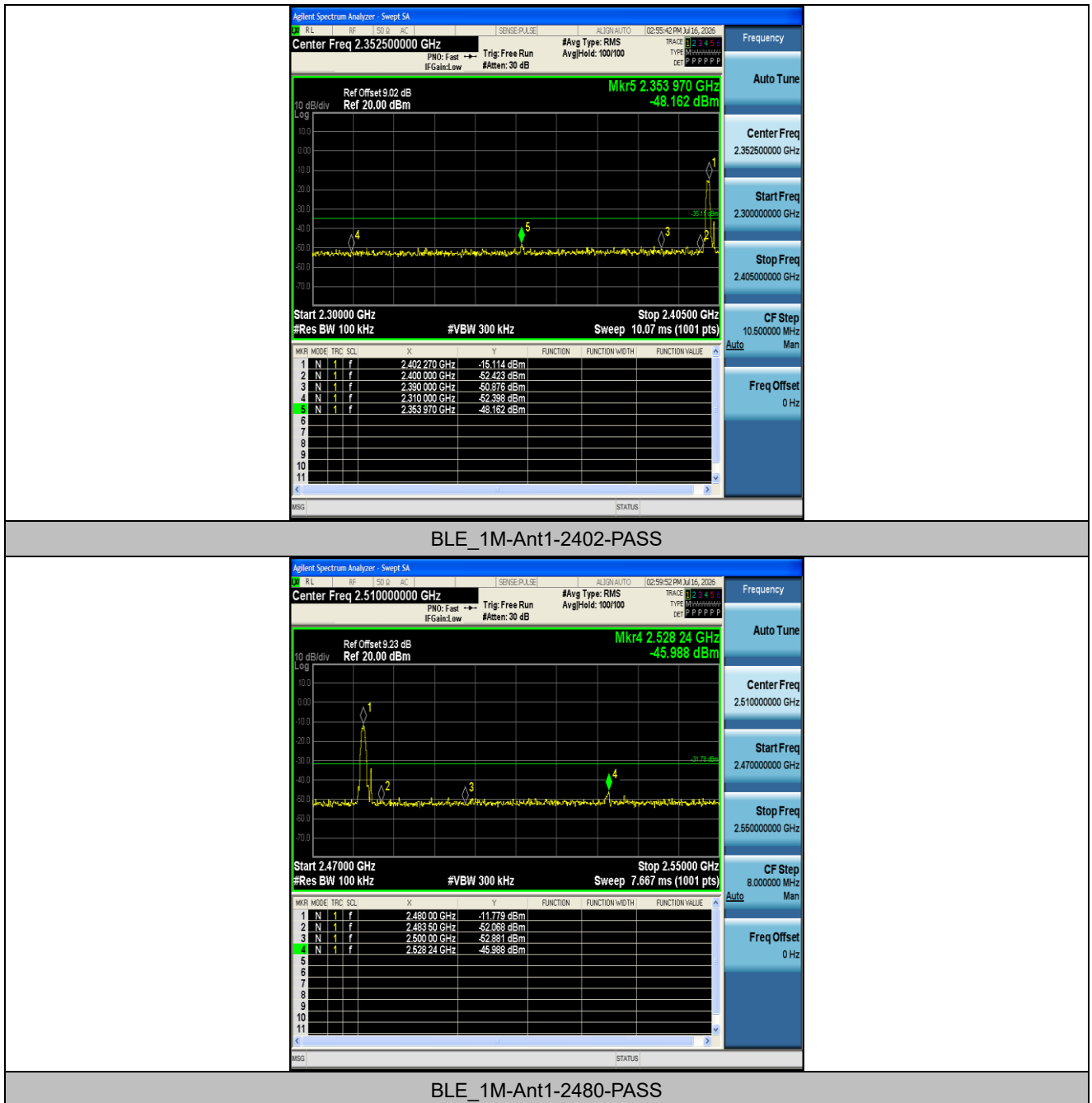
Test Mode	Antenna	Ch. Name	Frequency [MHz]	Ref. Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	-15.11	-48.16	≤ -35.11	PASS
BLE_1M	Ant1	High	2480	-11.78	-45.99	≤ -31.78	PASS
BLE_2M	Ant1	Low	2402	-14.44	-47.61	≤ -34.44	PASS
BLE_2M	Ant1	High	2480	-11.34	-47.7	≤ -31.34	PASS

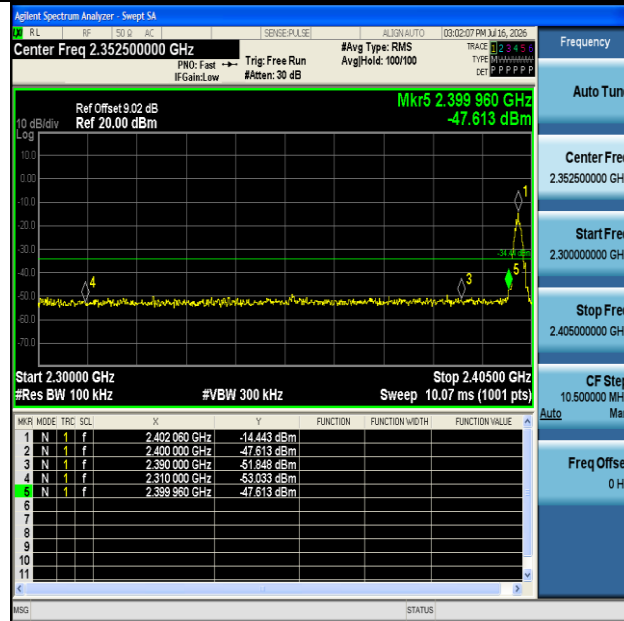
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)



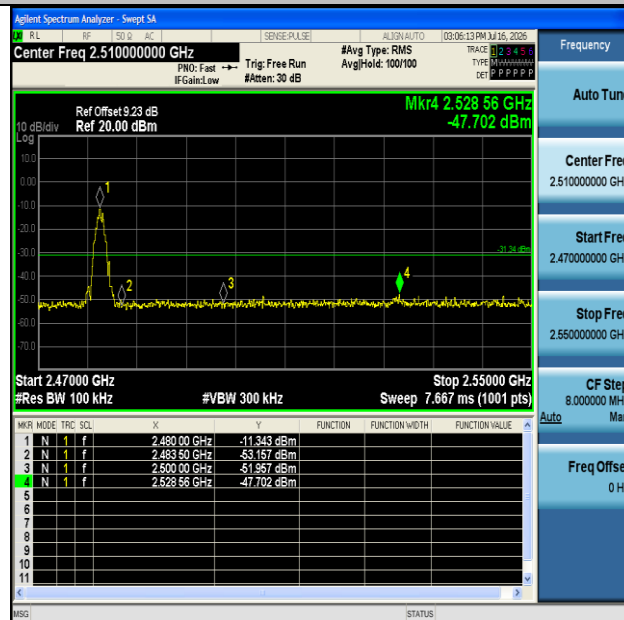


Test Graphs





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	-15.17	-15.17	---	PASS
BLE_1M	Ant1	2402	30~1000	-15.17	-62.58	≤ -35.17	PASS
BLE_1M	Ant1	2402	1000~26500	-15.17	-37.97	≤ -35.17	PASS
BLE_1M	Ant1	2440	0~Reference	-13.41	-13.41	---	PASS
BLE_1M	Ant1	2440	30~1000	-13.41	-62.77	≤ -33.41	PASS
BLE_1M	Ant1	2440	1000~26500	-13.41	-37.85	≤ -33.41	PASS
BLE_1M	Ant1	2480	0~Reference	-12.74	-12.74	---	PASS
BLE_1M	Ant1	2480	30~1000	-12.74	-62.9	≤ -32.74	PASS
BLE_1M	Ant1	2480	1000~26500	-12.74	-37.32	≤ -32.74	PASS
BLE_2M	Ant1	2402	0~Reference	-15.97	-15.97	---	PASS
BLE_2M	Ant1	2402	30~1000	-15.97	-62.89	≤ -35.97	PASS
BLE_2M	Ant1	2402	1000~26500	-15.97	-37.72	≤ -35.97	PASS
BLE_2M	Ant1	2440	0~Reference	-13.16	-13.16	---	PASS
BLE_2M	Ant1	2440	30~1000	-13.16	-63.24	≤ -33.16	PASS
BLE_2M	Ant1	2440	1000~26500	-13.16	-37.7	≤ -33.16	PASS
BLE_2M	Ant1	2480	0~Reference	-14.13	-14.13	---	PASS
BLE_2M	Ant1	2480	30~1000	-14.13	-62.57	≤ -34.13	PASS
BLE_2M	Ant1	2480	1000~26500	-14.13	-37.33	≤ -34.13	PASS

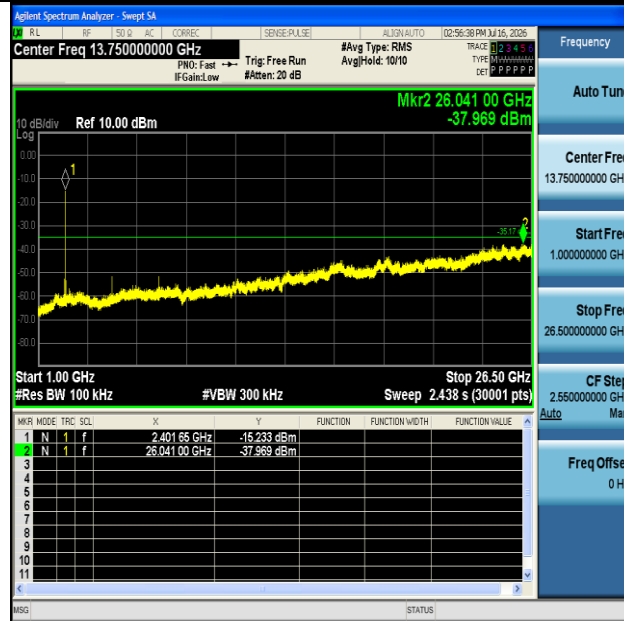
Note: offset(dB) in Reference test plots = cable loss(dB) + attenuator factor(dB); For spurious emissions plots from 30MHz to 26.5GHz, the cable loss and attenuator factors have been set in the 'Input Correction' of the Spectrum Analyzer during the test.





Test Graphs



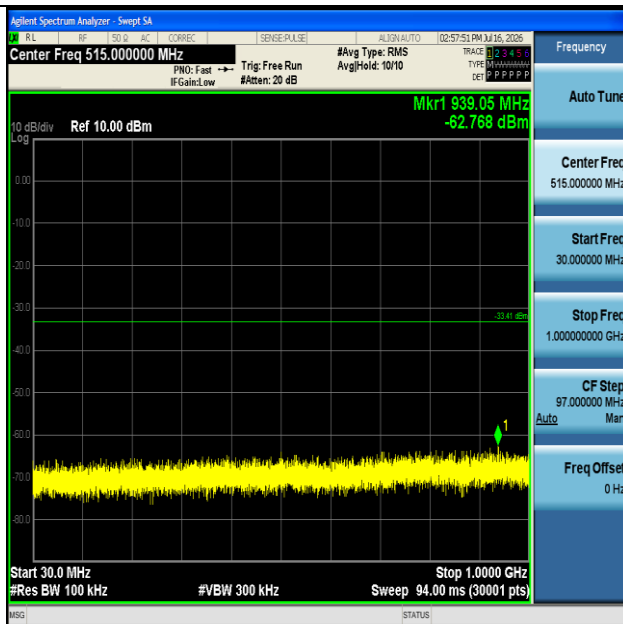


BLE_1M-Ant1-2402-1000~26500-PASS

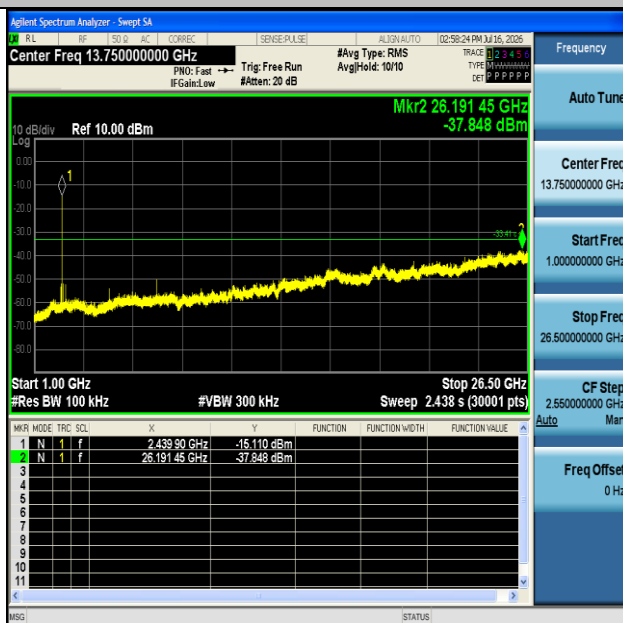


BLE_1M-Ant1-2440-0~Reference-PASS



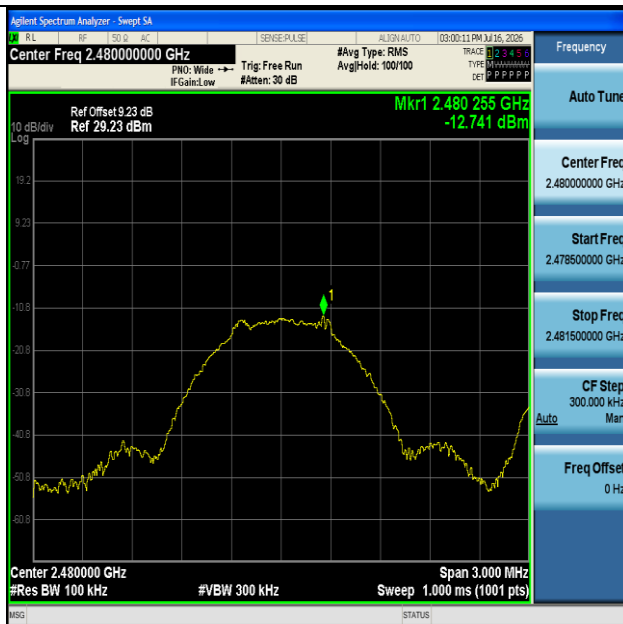


BLE_1M-Ant1-2440-30~1000-PASS

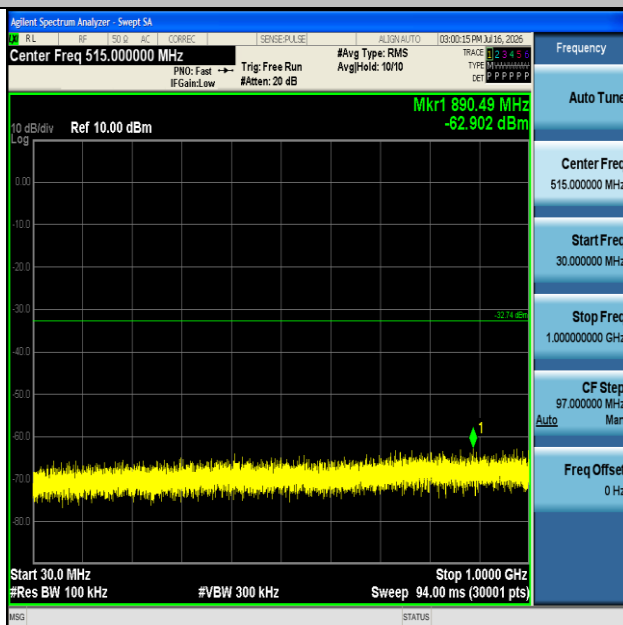


BLE_1M-Ant1-2440-1000~26500-PASS



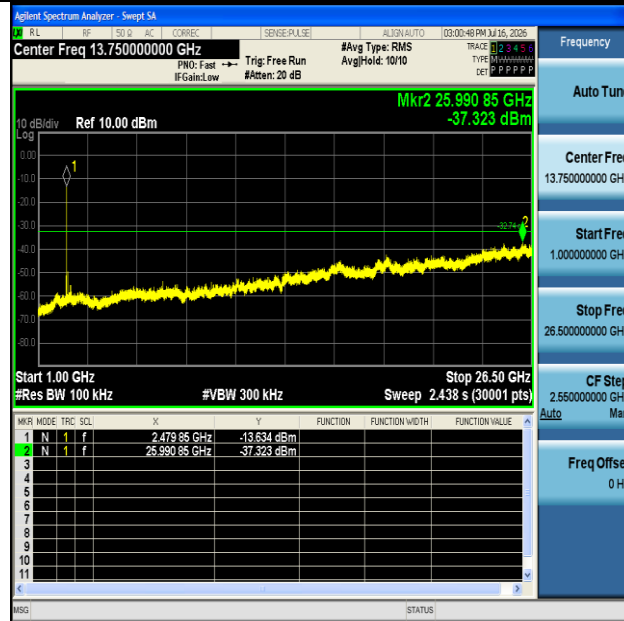


BLE_1M-Ant1-2480-0~Reference-PASS



BLE_1M-Ant1-2480-30~1000-PASS



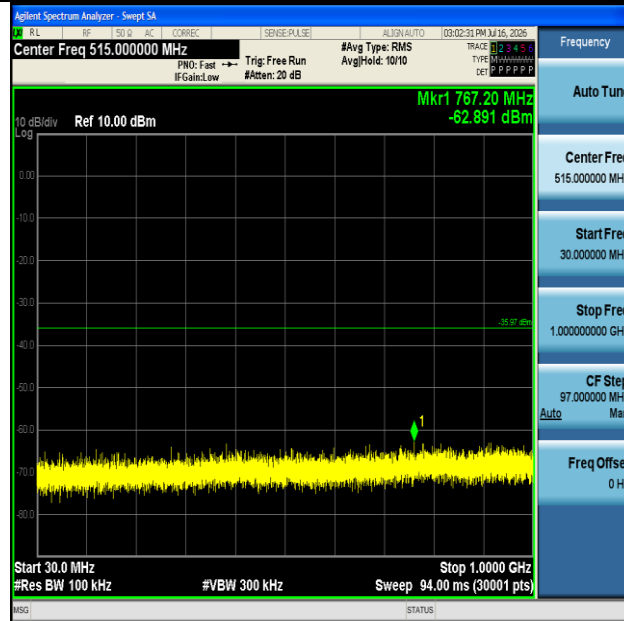


BLE_1M-Ant1-2480-1000~26500-PASS

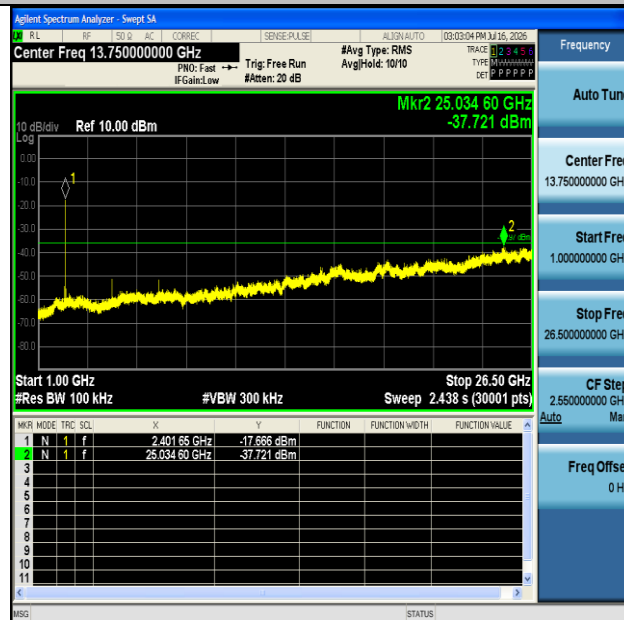


BLE_2M-Ant1-2402-0~Reference-PASS





BLE_2M-Ant1-2402-30~1000-PASS

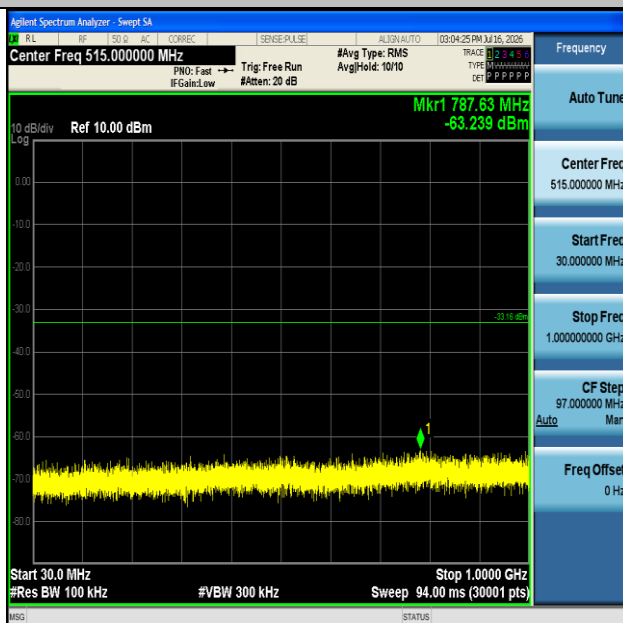


BLE_2M-Ant1-2402-1000~26500-PASS



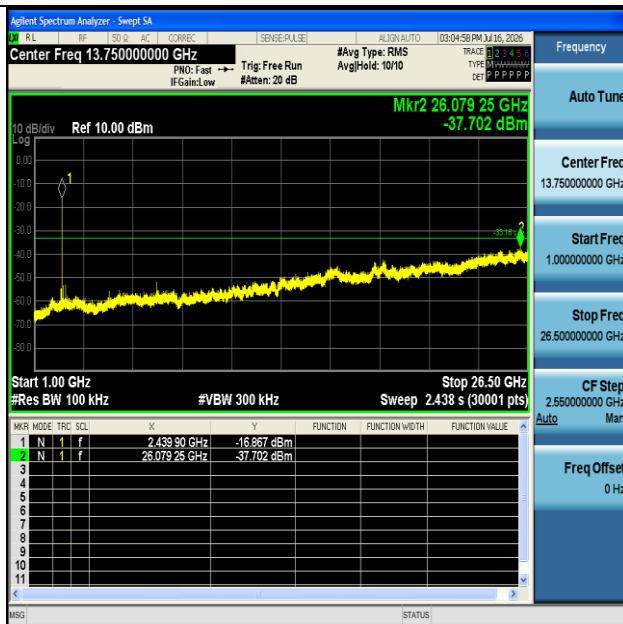


BLE_2M-Ant1-2440-0~Reference-PASS

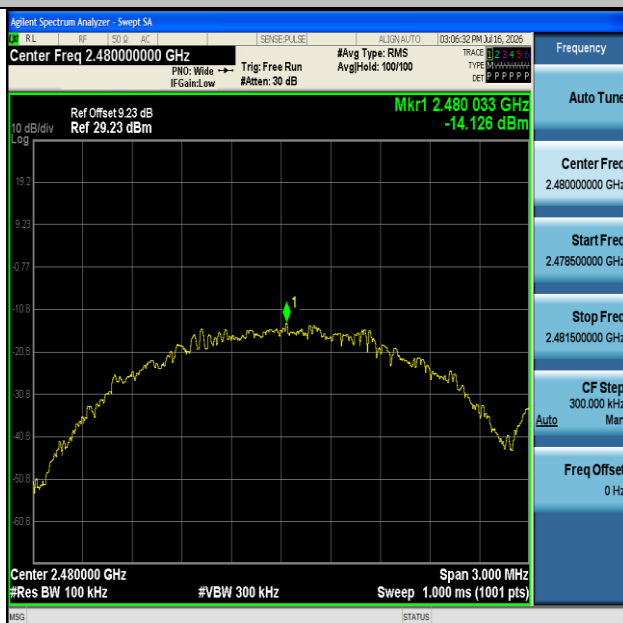


BLE_2M-Ant1-2440-30~1000-PASS



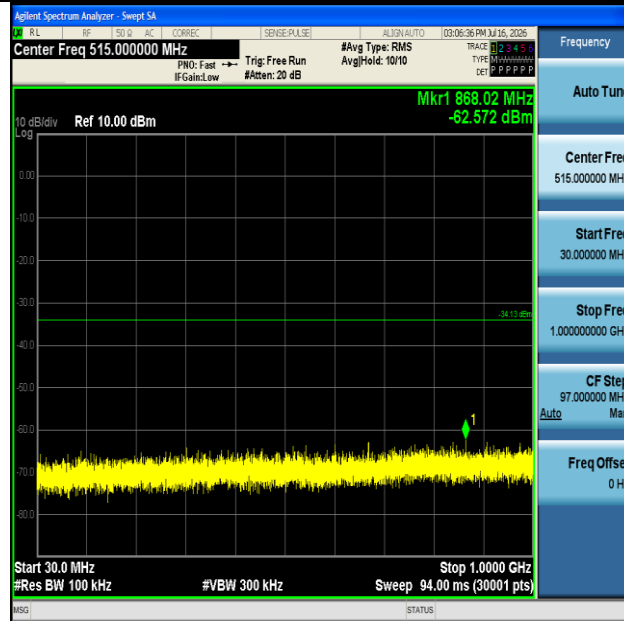


BLE_2M-Ant1-2440-1000~26500-PASS

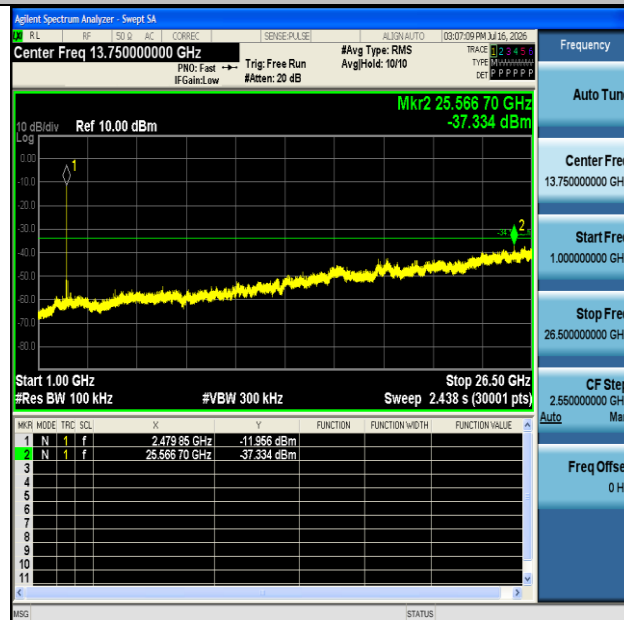


BLE_2M-Ant1-2480-0~Reference-PASS





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	2.14	2.50	85.60	0.68
BLE_1M	Ant1	2480	2.14	2.50	85.60	0.68
BLE_2M	Ant1	2402	1.08	2.50	43.20	3.65
BLE_2M	Ant1	2440	1.08	2.50	43.20	3.65
BLE_2M	Ant1	2480	1.08	2.50	43.20	3.65

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



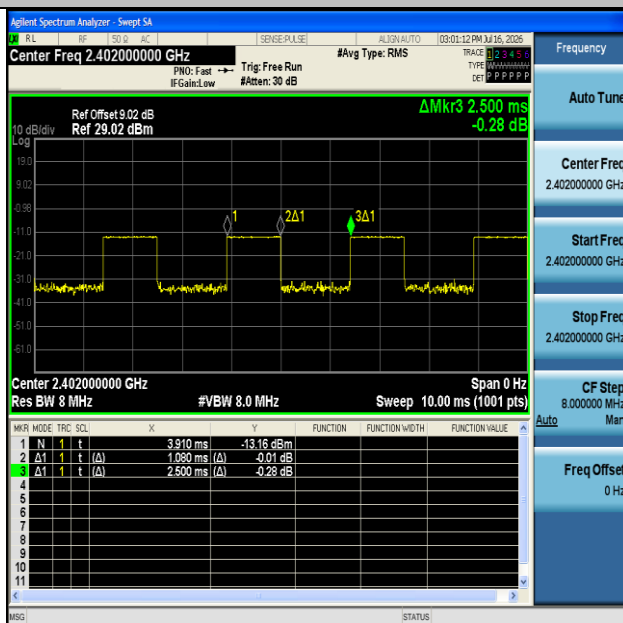


Test Graphs



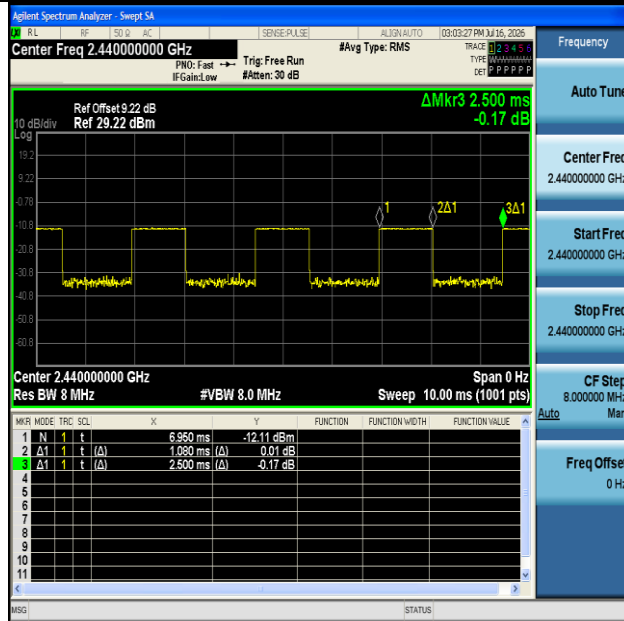


NTNV-BLE_1M-Ant1-2480

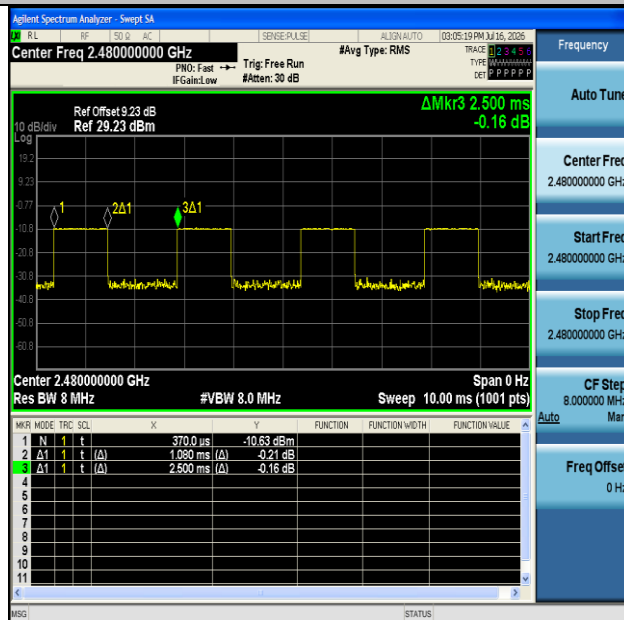


NTNV-BLE_2M-Ant1-2402





NTNV-BLE_2M-Ant1-2440



NTNV-BLE_2M-Ant1-2480

