

Appendix F: Conducted Spurious Emission Test Result

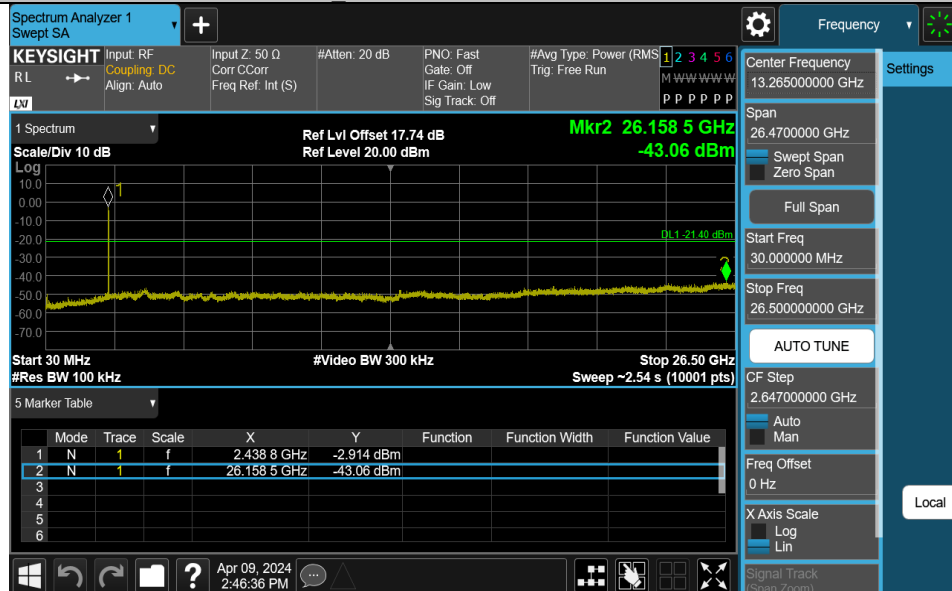
Test Mode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~26500	-1.07	-42.85	≤ -21.07	PASS
BLE_1M	Ant1	2440	30~26500	-1.40	-43.06	≤ -21.4	PASS
BLE_1M	Ant1	2480	30~26500	-2.13	-43.03	≤ -22.13	PASS
BLE_2M	Ant1	2402	30~26500	-3.20	-43.22	≤ -23.2	PASS
BLE_2M	Ant1	2440	30~26500	-3.48	-43.58	≤ -23.48	PASS
BLE_2M	Ant1	2480	30~26500	-4.24	-43.33	≤ -24.24	PASS

Test Graphs

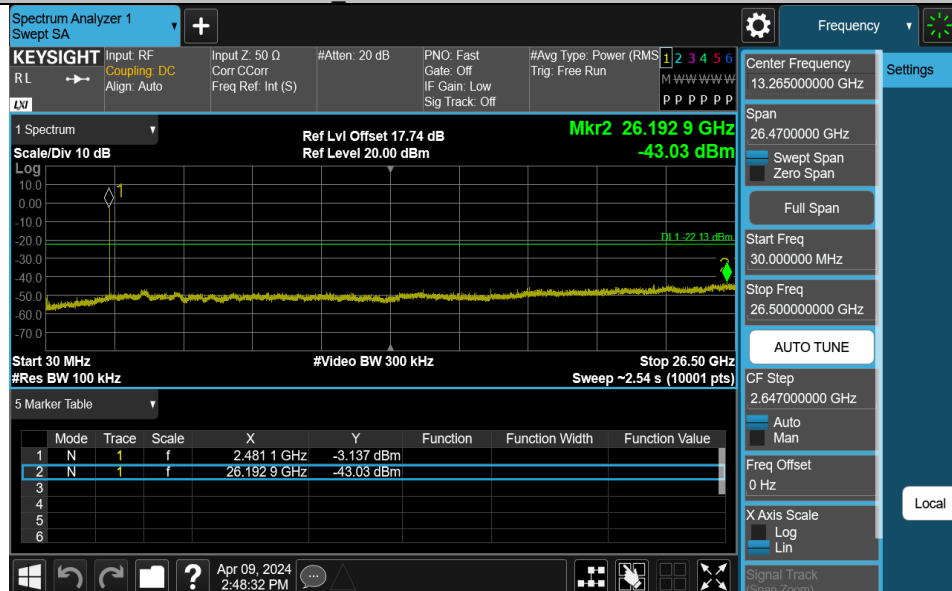
BLE 1M-Ant1-2402-30~26500-PASS



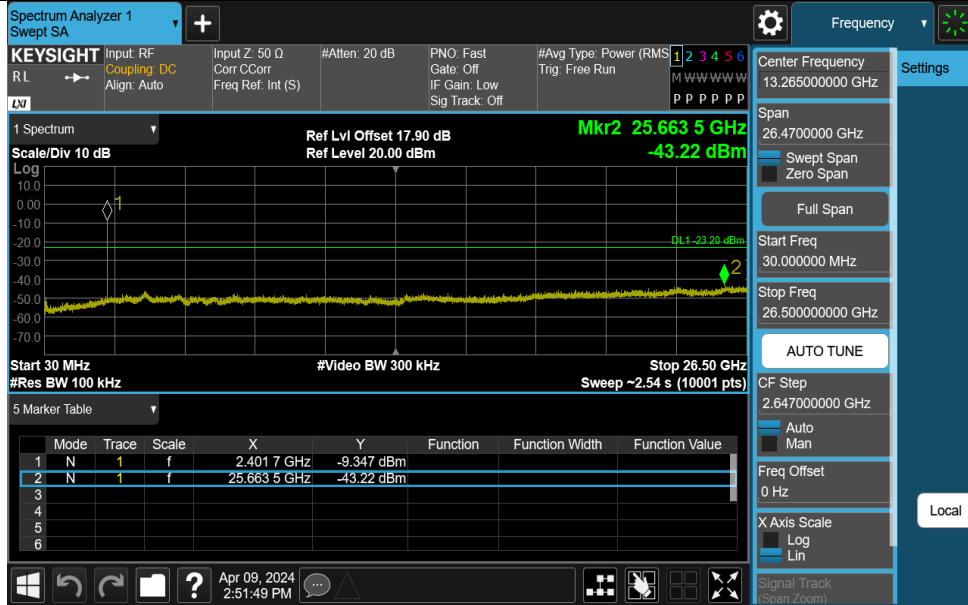
BLE 1M-Ant1-2440-30~26500-PASS



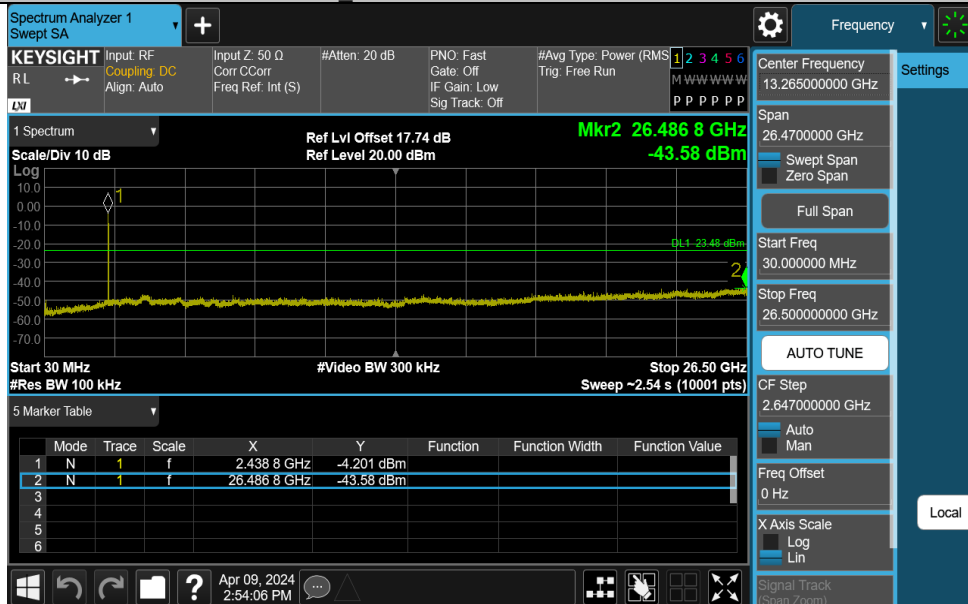
BLE 1M-Ant1-2480-30~26500-PASS



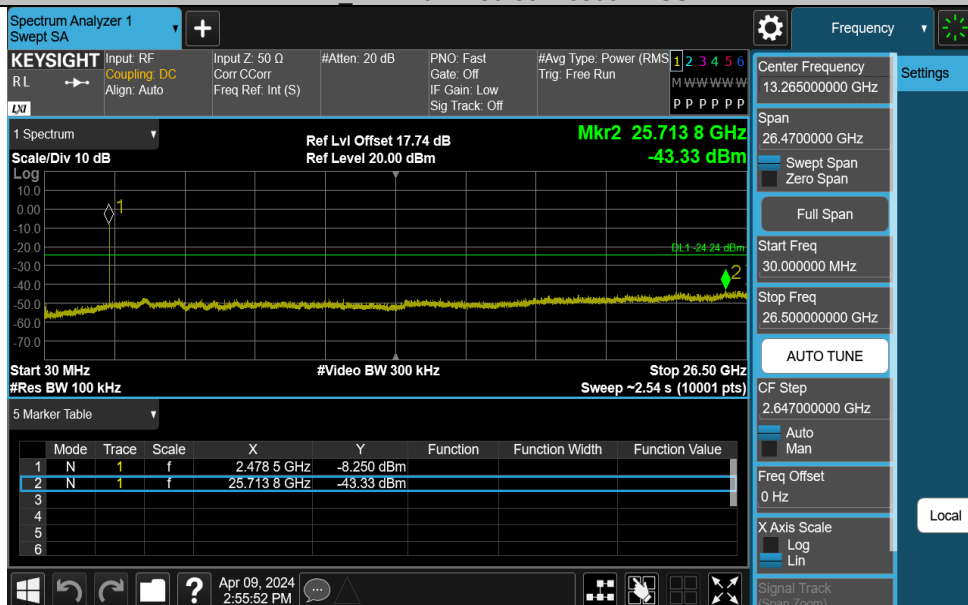
BLE 2M-Ant1-2402-30~26500-PASS



BLE 2M-Ant1-2440-30~26500-PASS



BLE 2M-Ant1-2480-30~26500-PASS



Appendix G: Duty Cycle

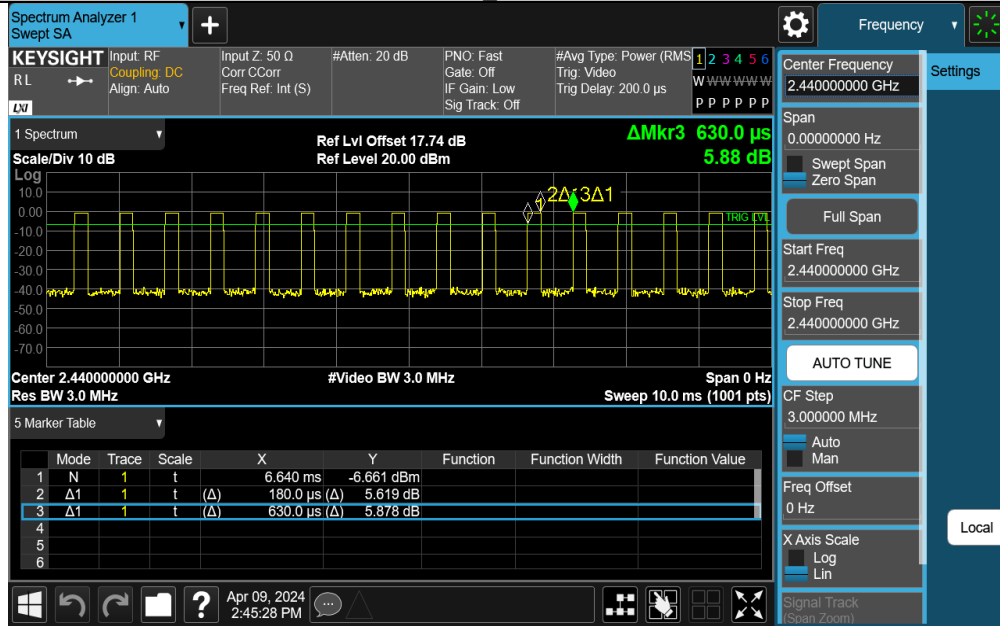
Test Result

Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2440	0.18	0.63	28.57	5.44
BLE_2M	Ant1	2440	0.09	0.62	14.52	8.38

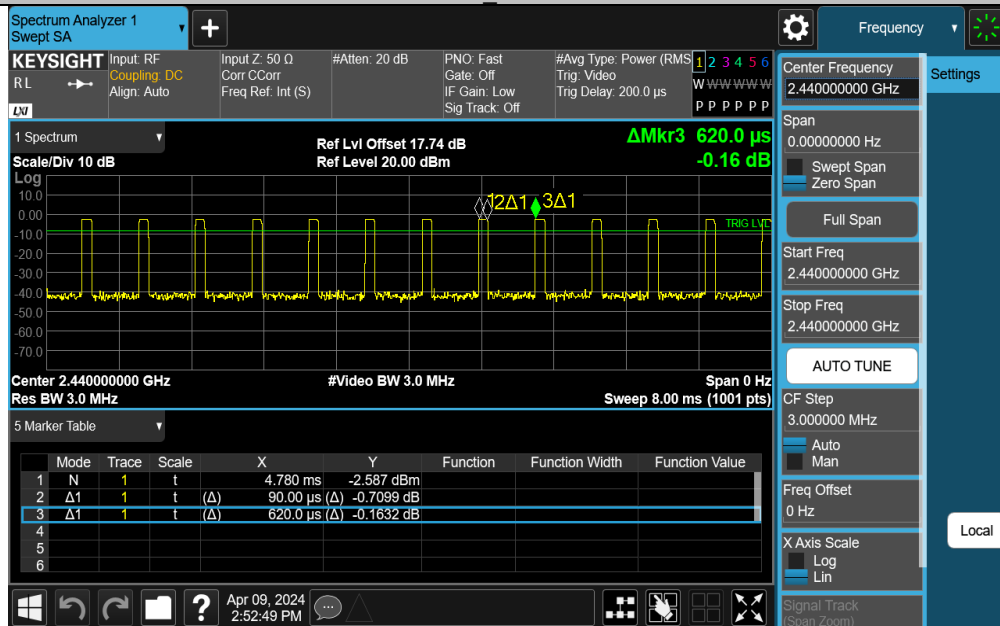


Test Graphs

NTNV-BLE 1M-Ant1-2440



NTNV-BLE 2M-Ant1-2440



10.2.Test Result For Right Earbud

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	0.663	2401.667	2402.330	0.5	PASS
BLE_1M	Ant1	2440	0.693	2439.649	2440.342	0.5	PASS
BLE_1M	Ant1	2480	0.663	2479.664	2480.327	0.5	PASS
BLE_2M	Ant1	2402	0.996	2401.460	2402.456	0.5	PASS
BLE_2M	Ant1	2440	1.170	2439.412	2440.582	0.5	PASS
BLE_2M	Ant1	2480	1.218	2479.382	2480.600	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



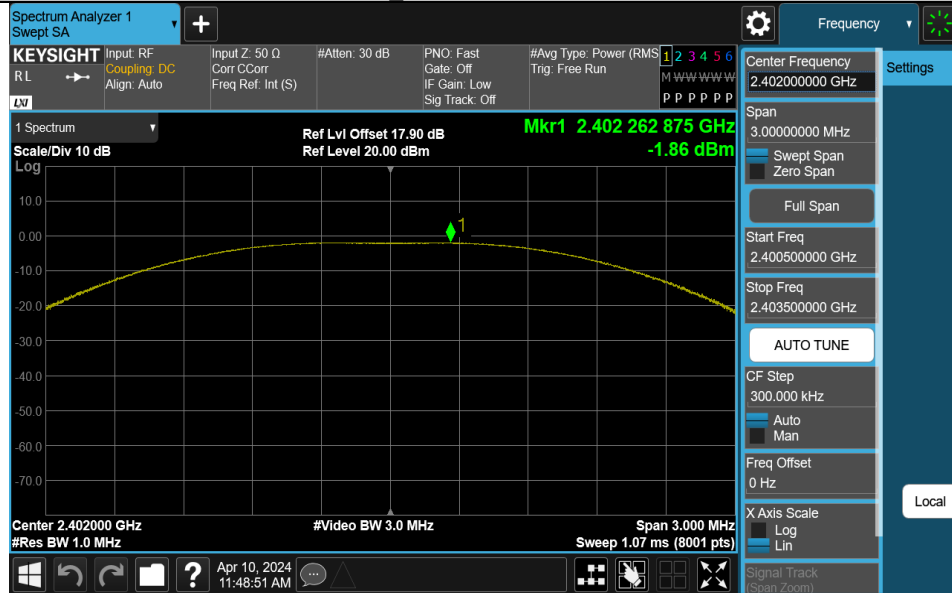
Appendix B: Maximum conducted output power

Test Result Peak

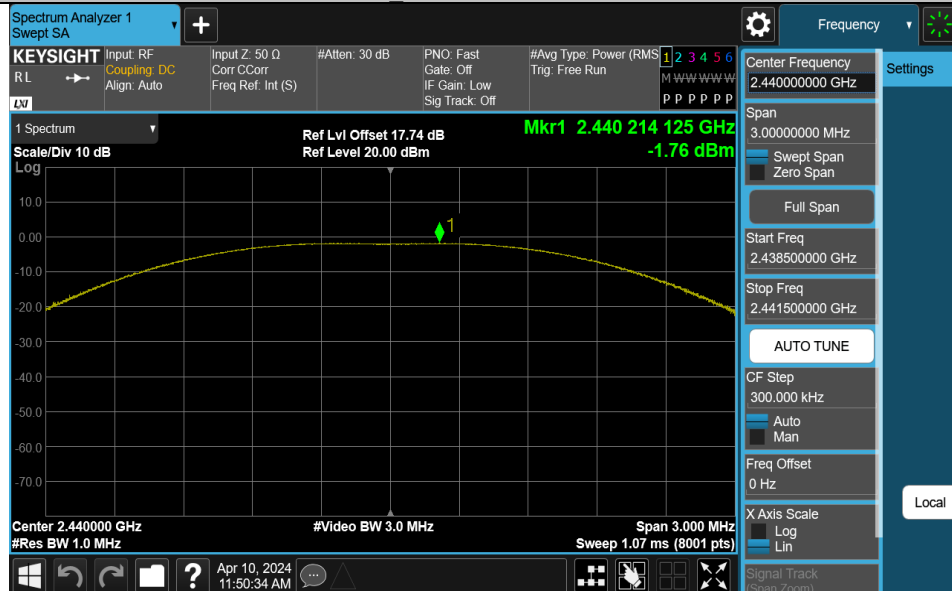
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-1.86	≤30	PASS
BLE_1M	Ant1	2440	-1.76	≤30	PASS
BLE_1M	Ant1	2480	-2.41	≤30	PASS
BLE_2M	Ant1	2402	-3.58	≤30	PASS
BLE_2M	Ant1	2440	-3.50	≤30	PASS
BLE_2M	Ant1	2480	-4.20	≤30	PASS

Test Graphs Peak

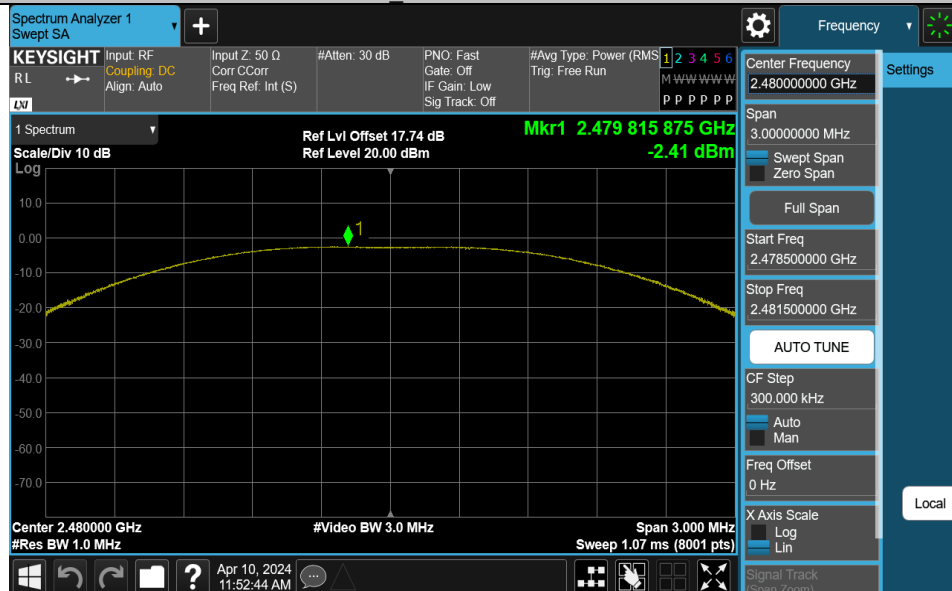
BLE 1M-Ant1-2402-PASS



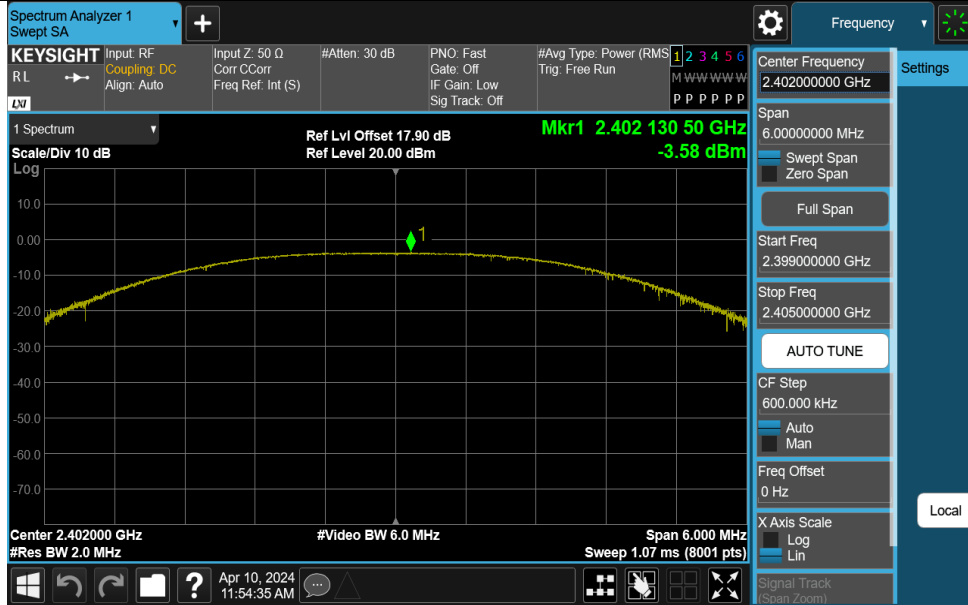
BLE 1M-Ant1-2440-PASS



BLE 1M-Ant1-2480-PASS



BLE 2M-Ant1-2402-PASS



BLE 2M-Ant1-2440-PASS



BLE 2M-Ant1-2480-PASS



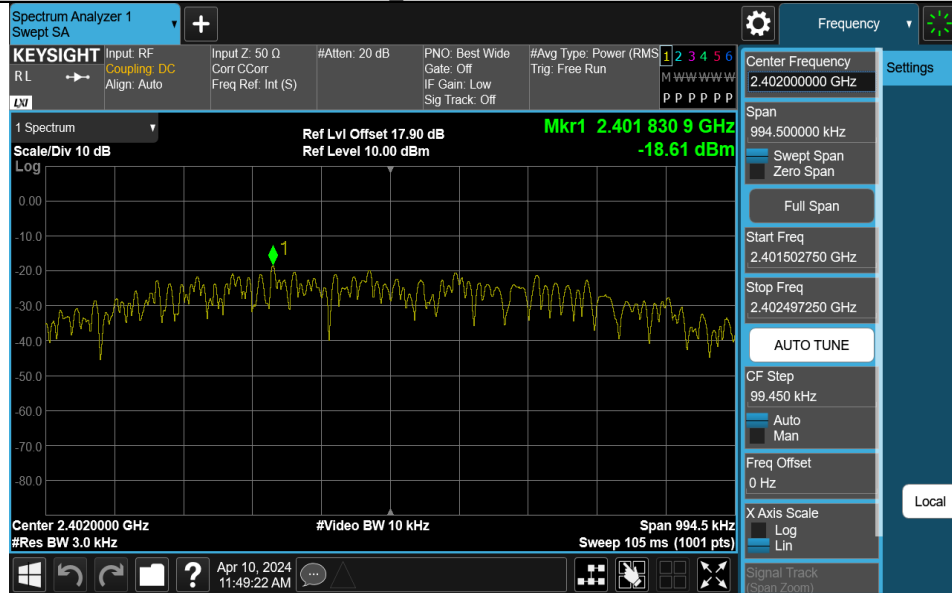
Appendix C: Maximum power spectral density

Test Result

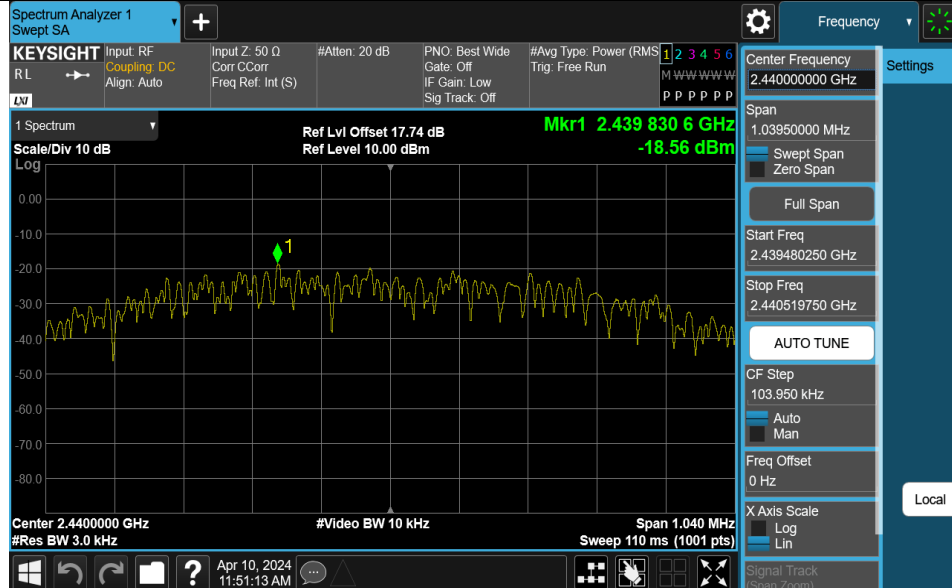
Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-18.61	≤8.00	PASS
BLE_1M	Ant1	2440	-18.56	≤8.00	PASS
BLE_1M	Ant1	2480	-19.27	≤8.00	PASS
BLE_2M	Ant1	2402	-25.57	≤8.00	PASS
BLE_2M	Ant1	2440	-25.41	≤8.00	PASS
BLE_2M	Ant1	2480	-26.30	≤8.00	PASS

Test Graphs

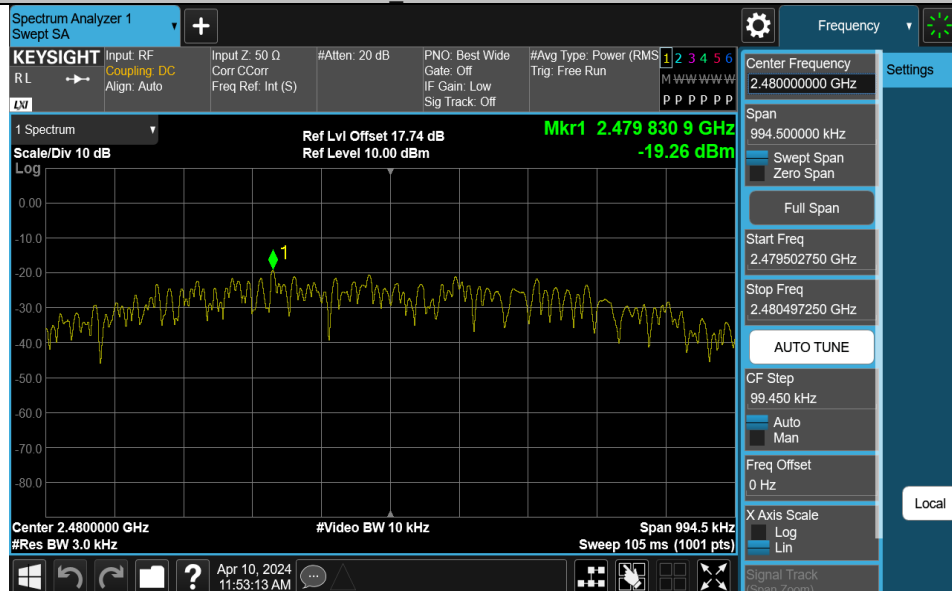
BLE 1M-Ant1-2402-PASS



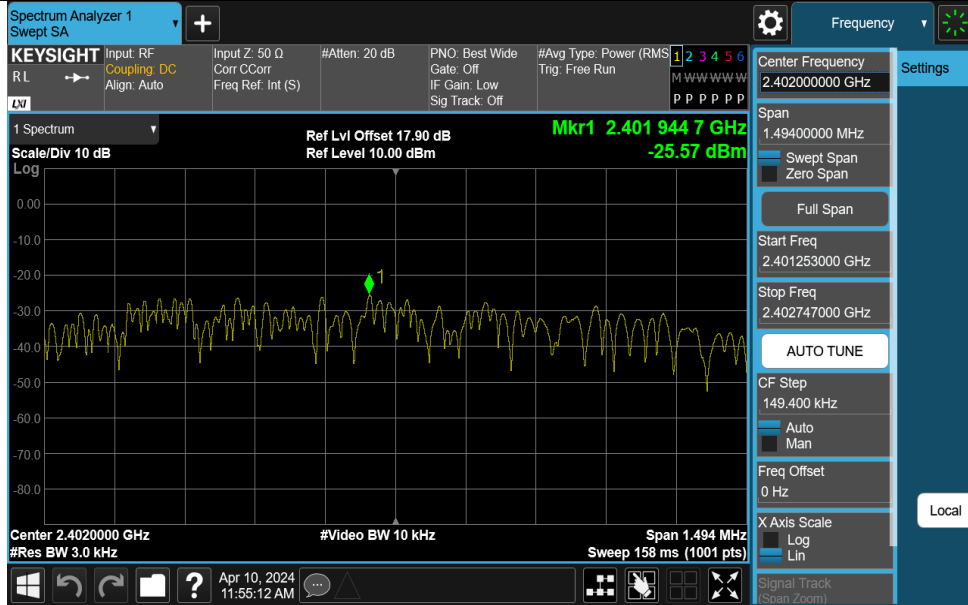
BLE 1M-Ant1-2440-PASS



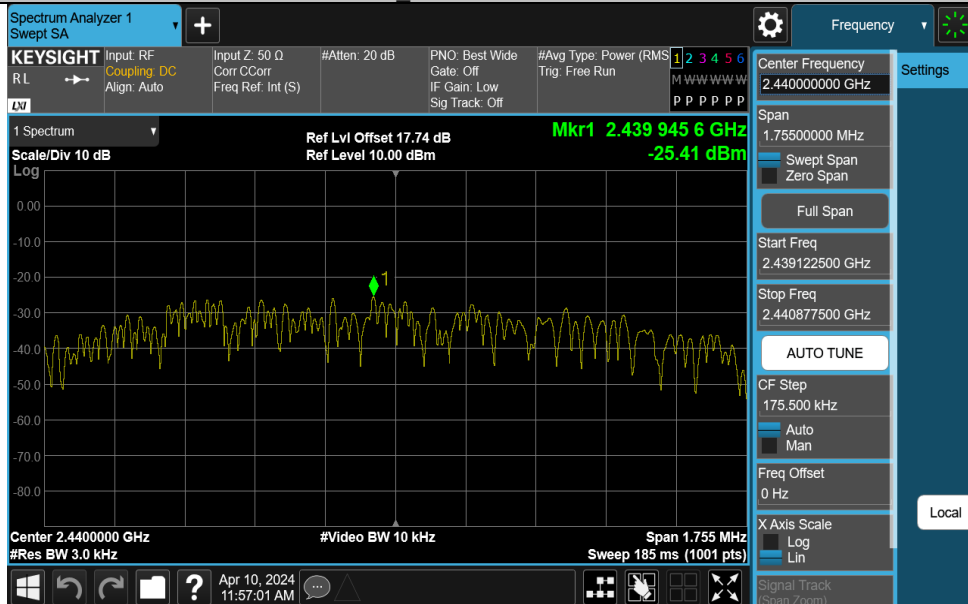
BLE 1M-Ant1-2480-PASS



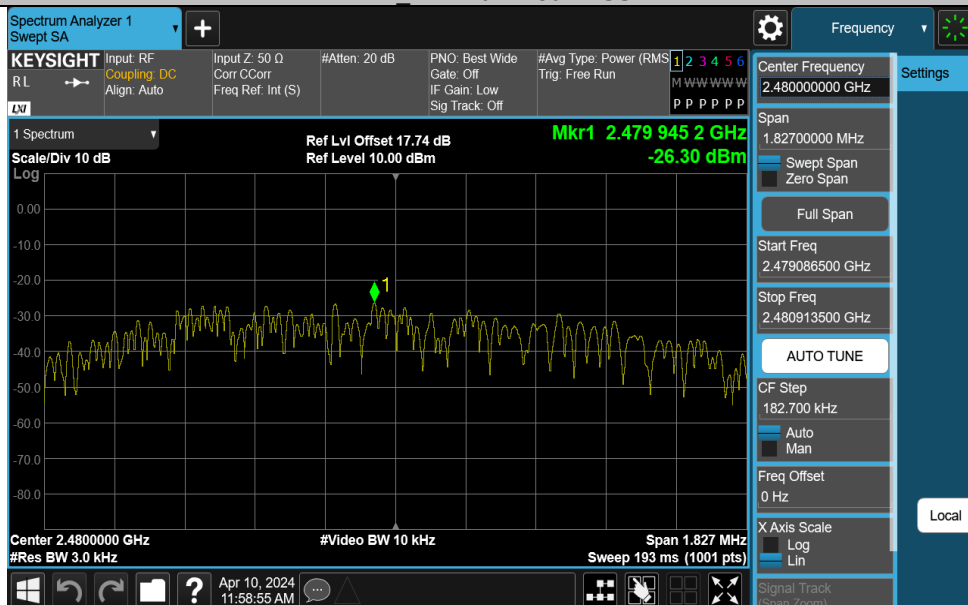
BLE 2M-Ant1-2402-PASS



BLE 2M-Ant1-2440-PASS



BLE 2M-Ant1-2480-PASS



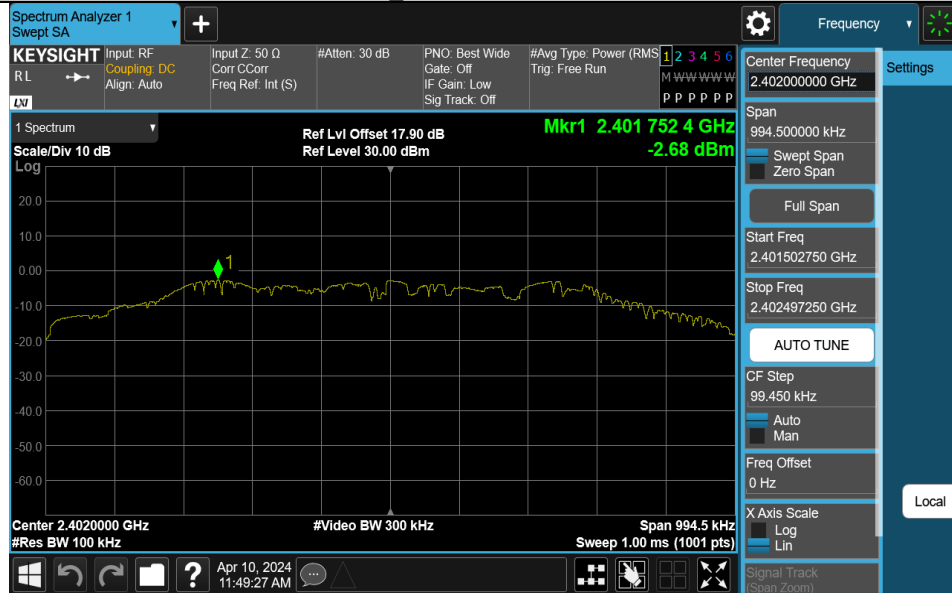
Appendix D: Reference level measurement

Test Result

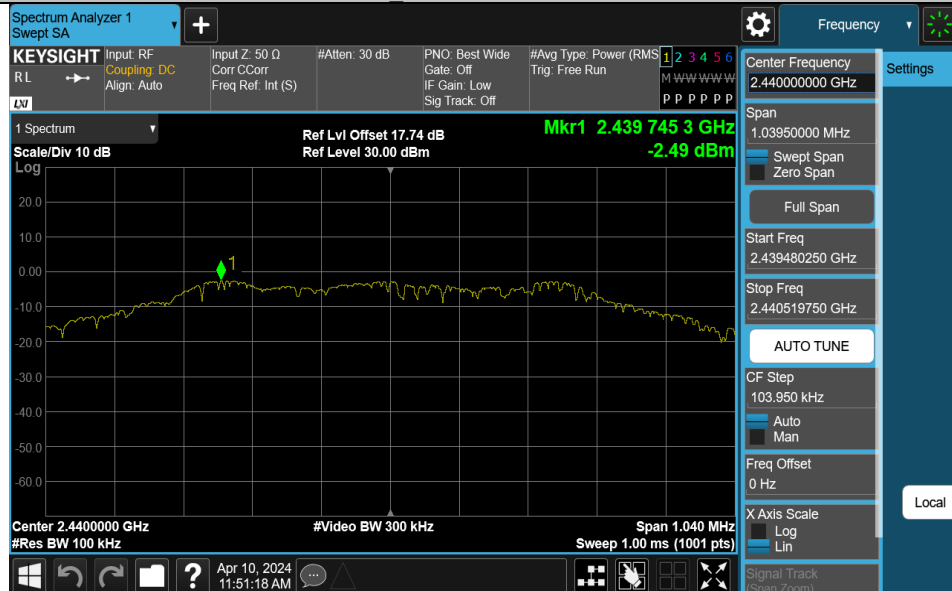
Test Mode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2401.75	-2.68
BLE_1M	Ant1	2440	2439.75	-2.49
BLE_1M	Ant1	2480	2479.75	-3.15
BLE_2M	Ant1	2402	2401.51	-4.73
BLE_2M	Ant1	2440	2439.50	-4.55
BLE_2M	Ant1	2480	2479.51	-5.49

Test Graphs

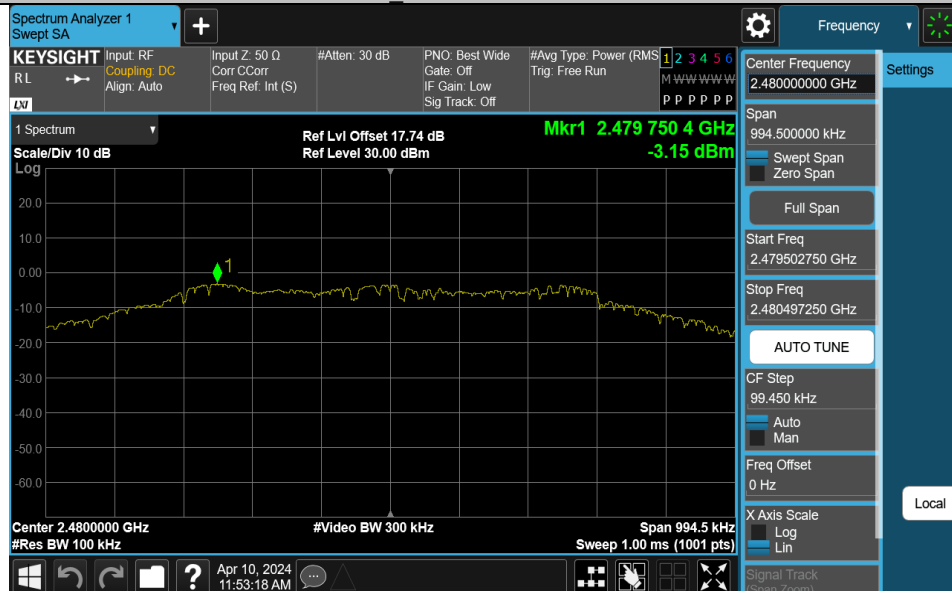
BLE 1M-Ant1-2402-PASS



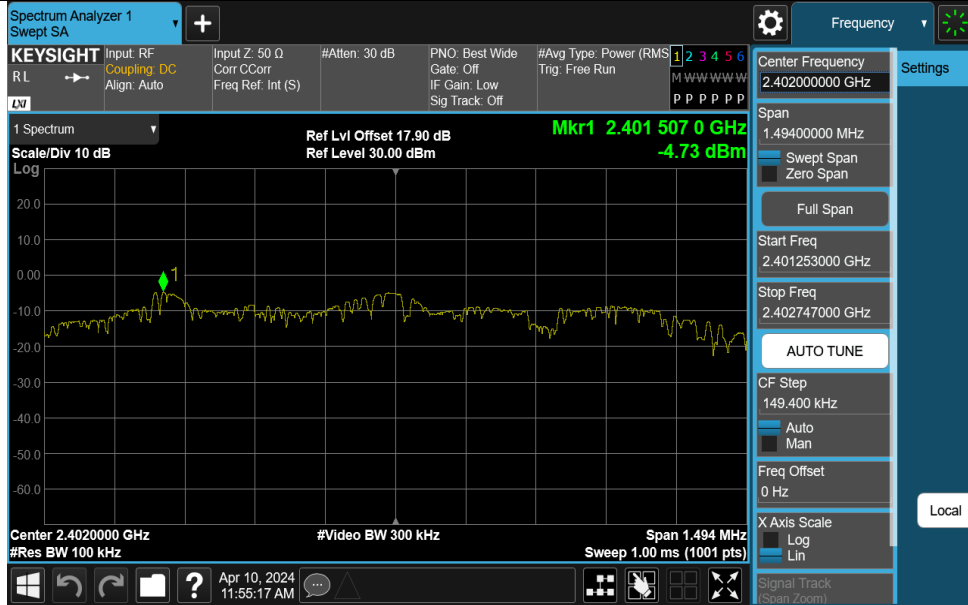
BLE 1M-Ant1-2440-PASS



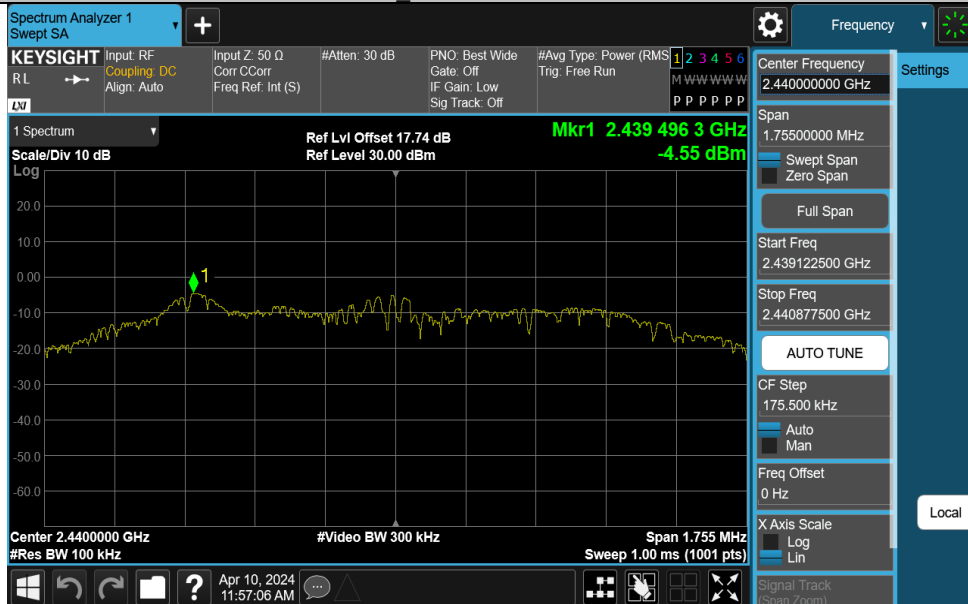
BLE 1M-Ant1-2480-PASS



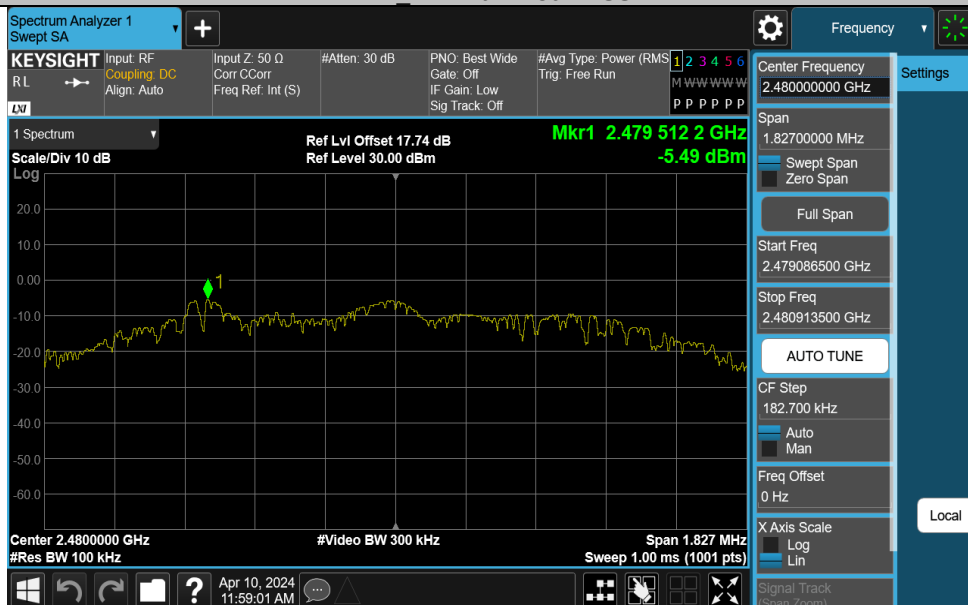
BLE 2M-Ant1-2402-PASS



BLE 2M-Ant1-2440-PASS



BLE 2M-Ant1-2480-PASS



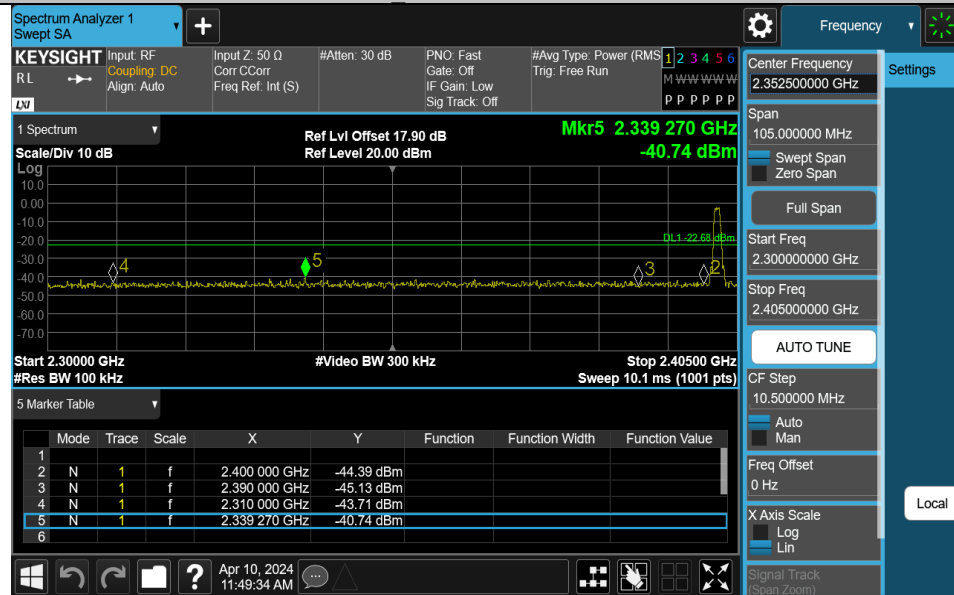
Appendix E: Band edge measurements

Test Result

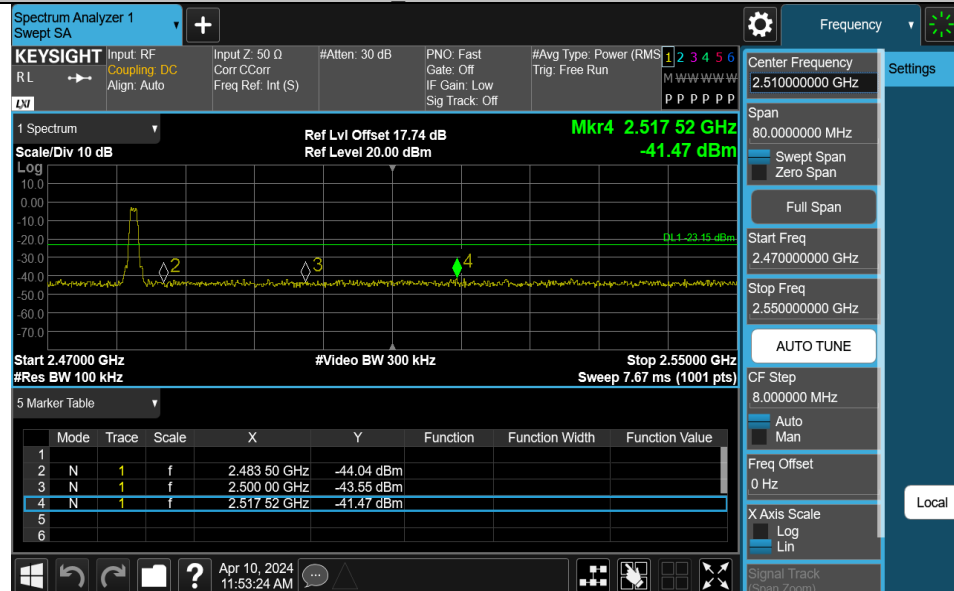
Test Mode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-2.68	-40.74	≤ -22.68	PASS
BLE_1M	Ant1	High	2480	-3.15	-41.47	≤ -23.15	PASS
BLE_2M	Ant1	Low	2402	-4.73	-40.22	≤ -24.73	PASS
BLE_2M	Ant1	High	2480	-5.49	-40.52	≤ -25.49	PASS

Test Graphs

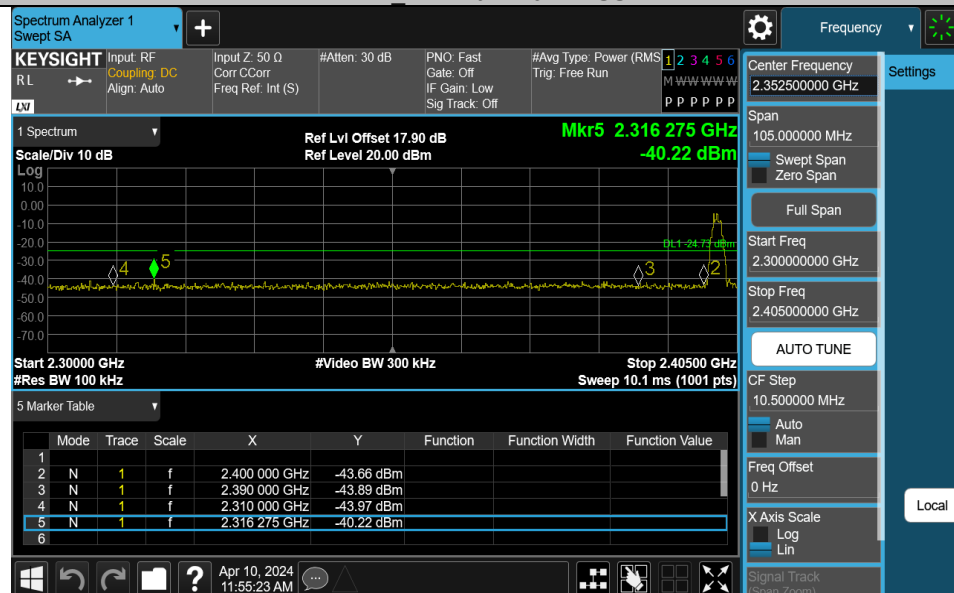
BLE 1M-Ant1-2402-PASS



BLE 1M-Ant1-2480-PASS

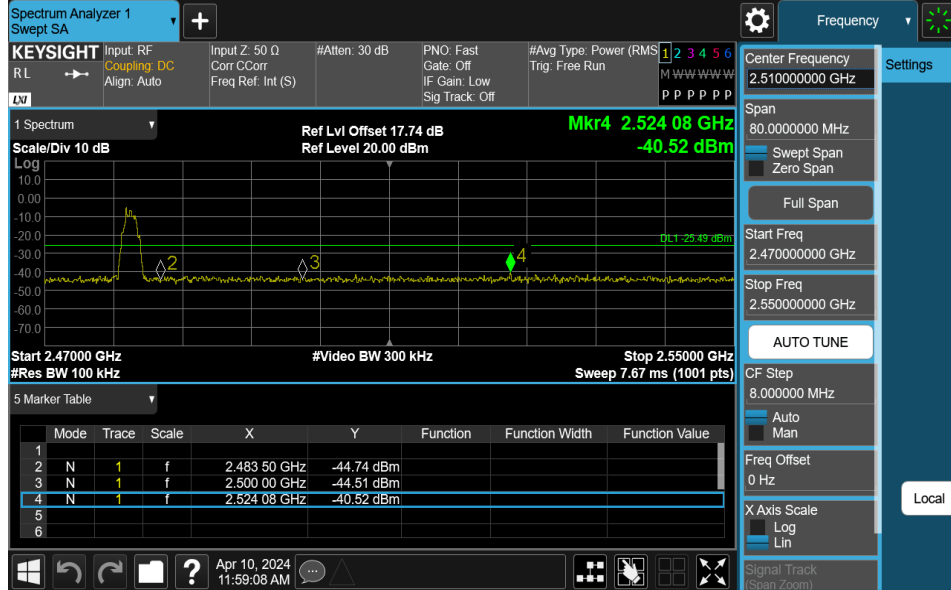


BLE 2M-Ant1-2402-PASS





BLE 2M-Ant1-2480-PASS

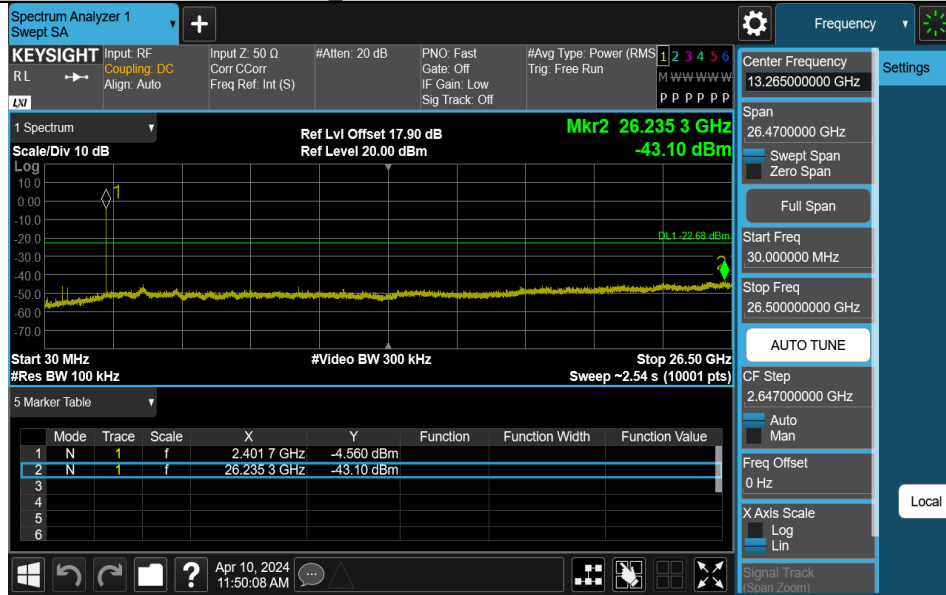


Appendix F: Conducted Spurious Emission Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~26500	-2.68	-43.1	≤-22.68	PASS
BLE_1M	Ant1	2440	30~26500	-2.49	-42.98	≤-22.49	PASS
BLE_1M	Ant1	2480	30~26500	-3.15	-43.52	≤-23.15	PASS
BLE_2M	Ant1	2402	30~26500	-4.73	-43.07	≤-24.73	PASS
BLE_2M	Ant1	2440	30~26500	-4.55	-43.03	≤-24.55	PASS
BLE_2M	Ant1	2480	30~26500	-5.49	-43.5	≤-25.49	PASS

Test Graphs

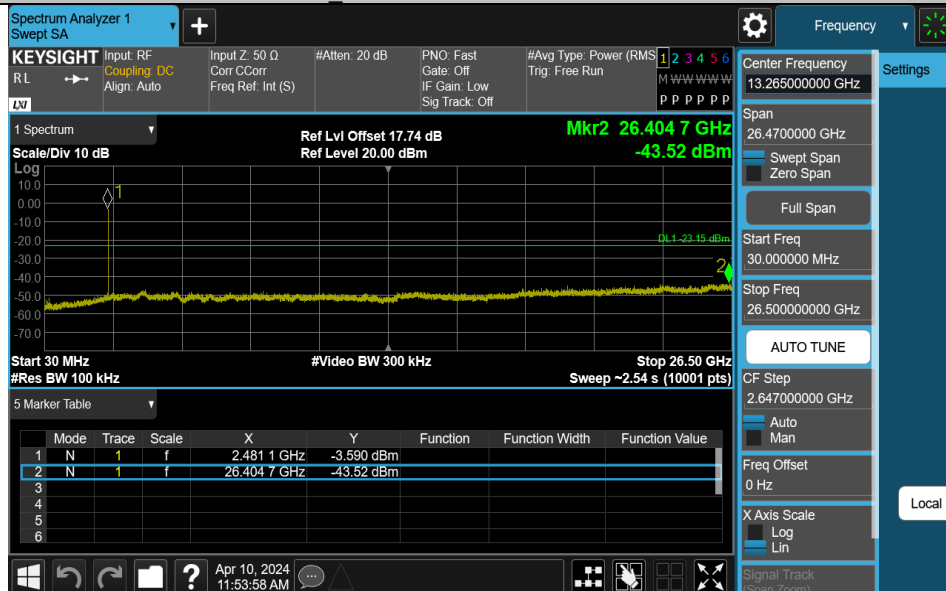
BLE 1M-Ant1-2402-30~26500-PASS



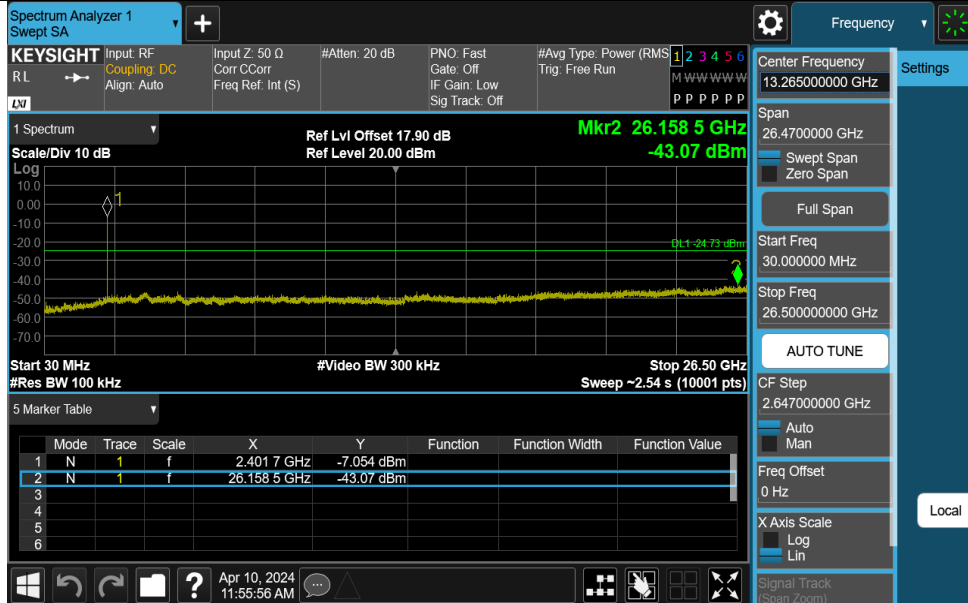
BLE 1M-Ant1-2440-30~26500-PASS



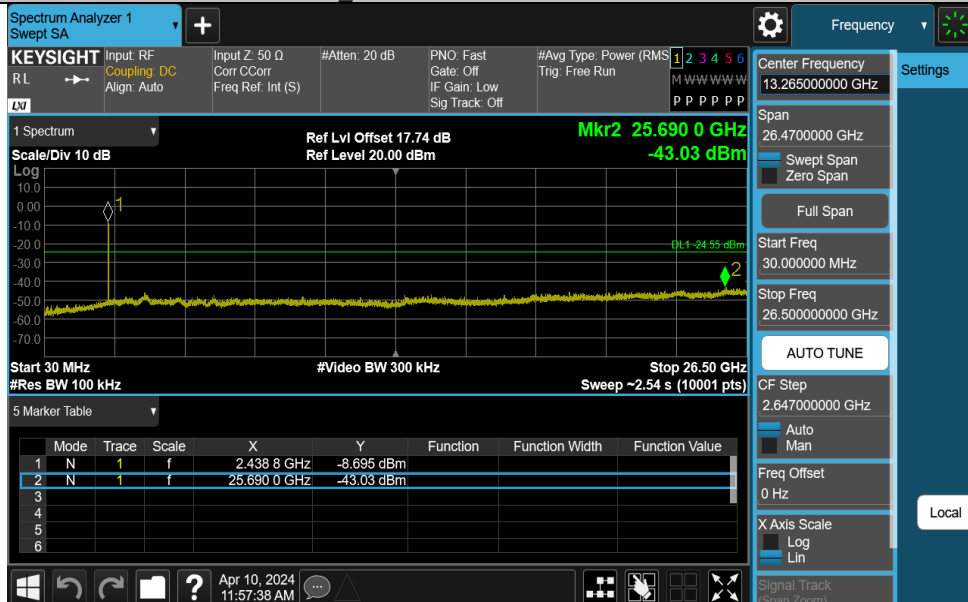
BLE 1M-Ant1-2480-30~26500-PASS



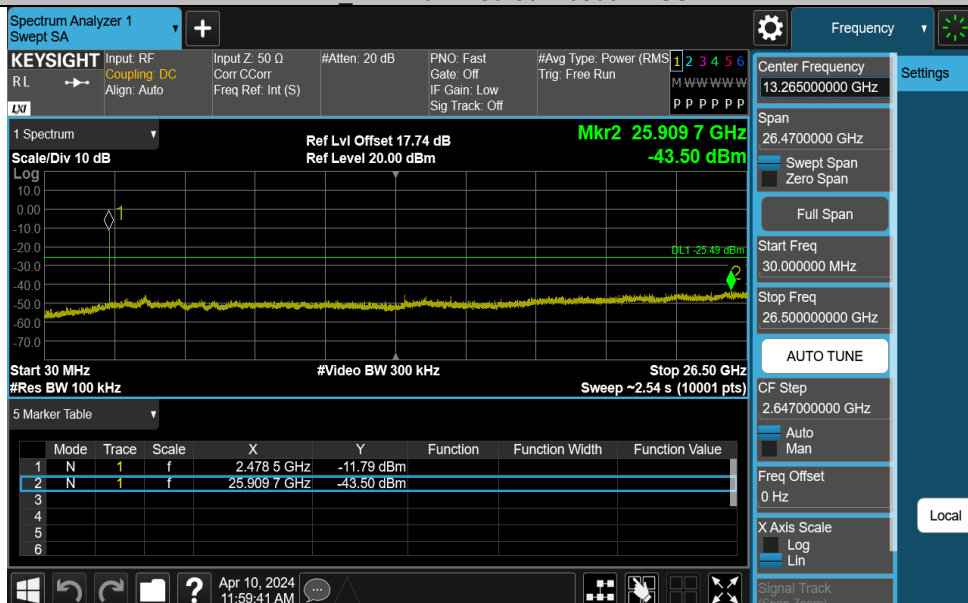
BLE 2M-Ant1-2402-30~26500-PASS



BLE 2M-Ant1-2440-30~26500-PASS



BLE 2M-Ant1-2480-30~26500-PASS



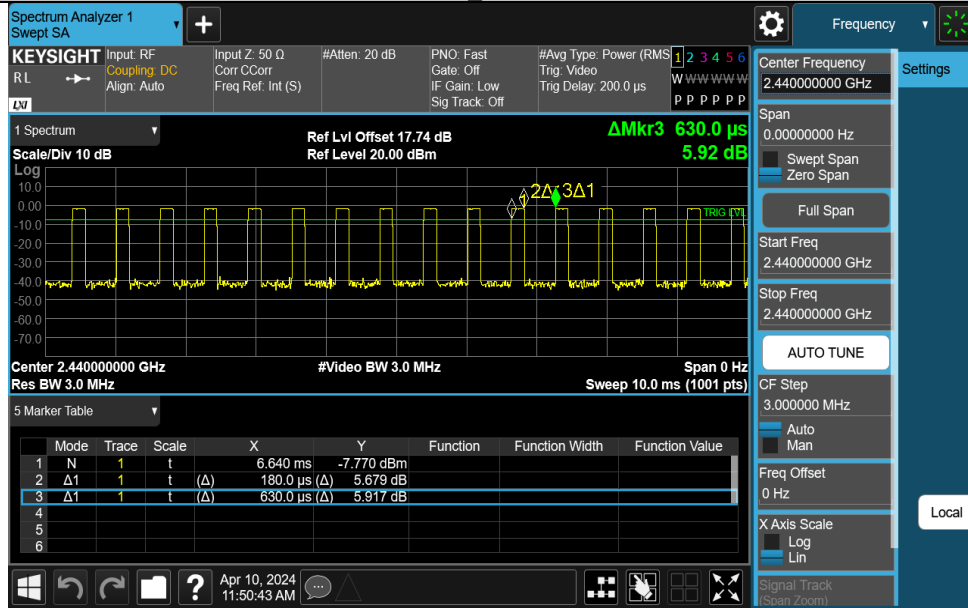
Appendix G: Duty Cycle

Test Result

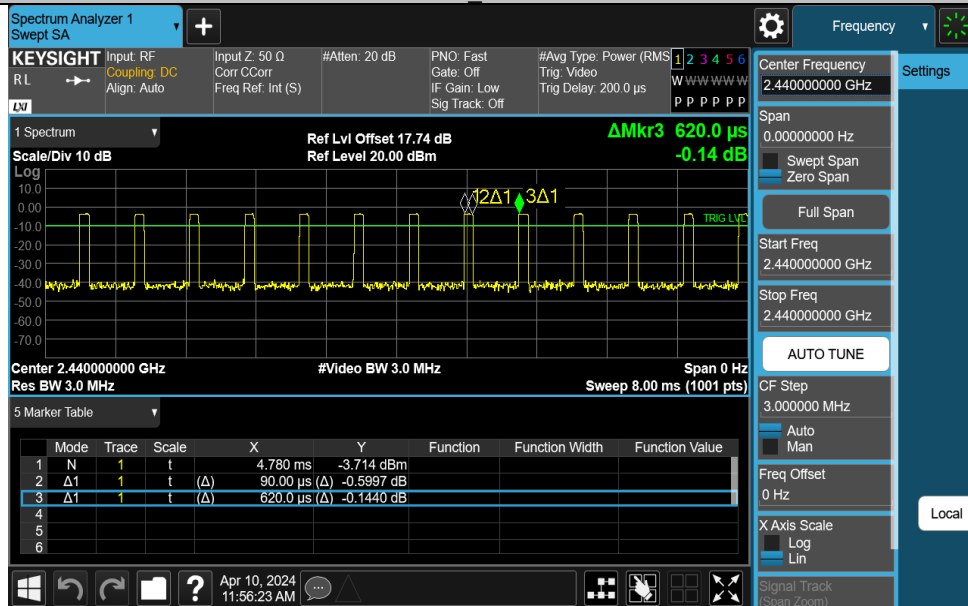
Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2440	0.18	0.63	28.57	5.44
BLE_2M	Ant1	2440	0.09	0.62	14.52	8.38

Test Graphs

NTNV-BLE 1M-Ant1-2440

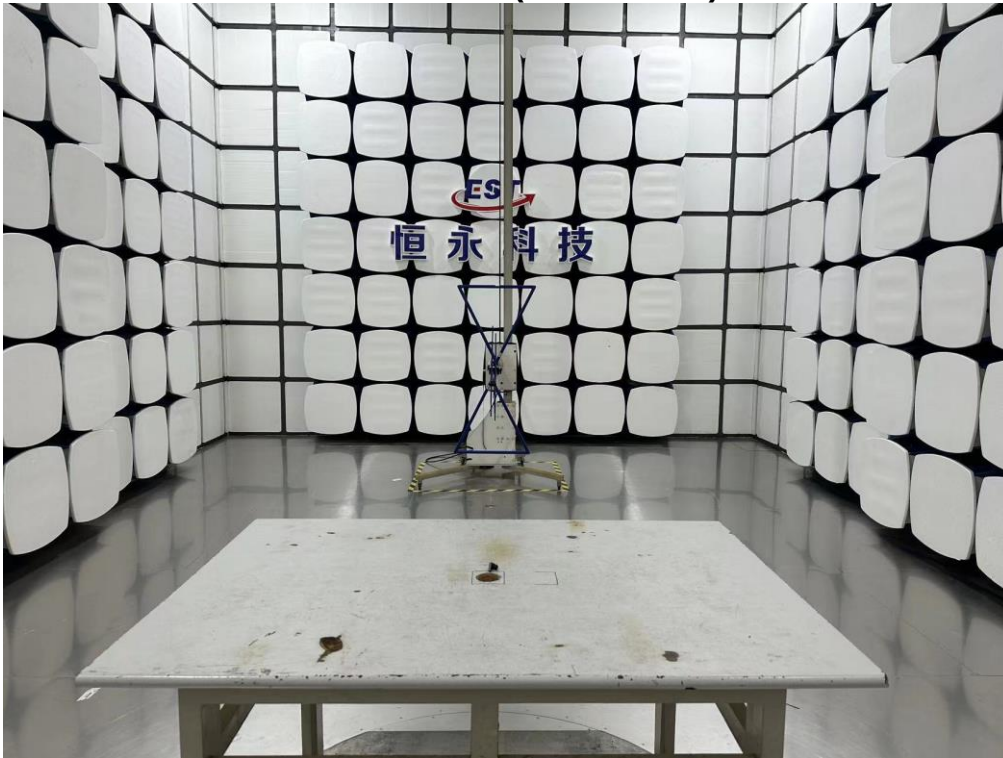


NTNV-BLE 2M-Ant1-2440

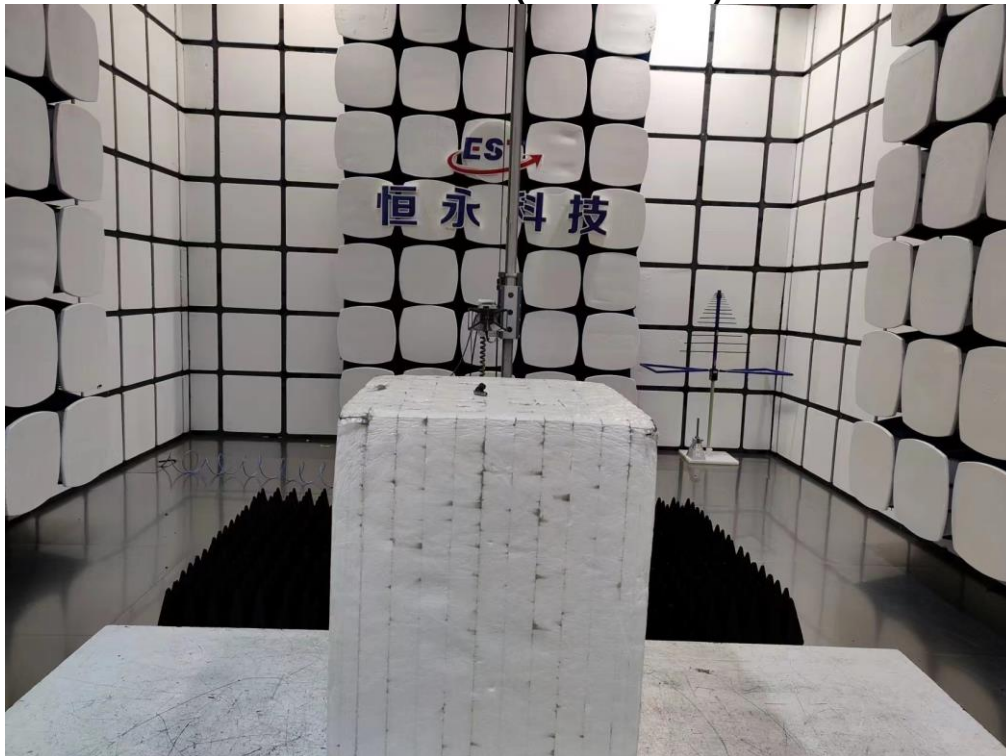


11. TEST SETUP PHOTO

Radiated Test (Below 1GHz)



Radiated Test (Above 1GHz)



12. EUT PHOTO

External Photos

M/N: TW220



External Photos
M/N: TW220



External Photos
M/N: TW220



External Photos
M/N: TW220

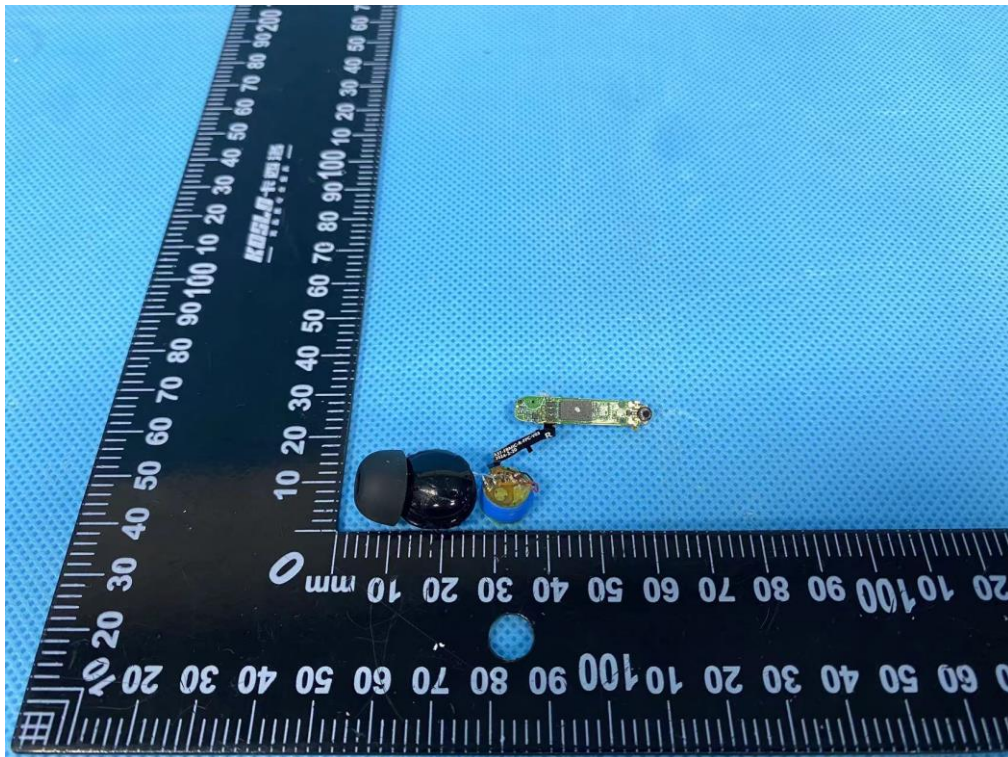
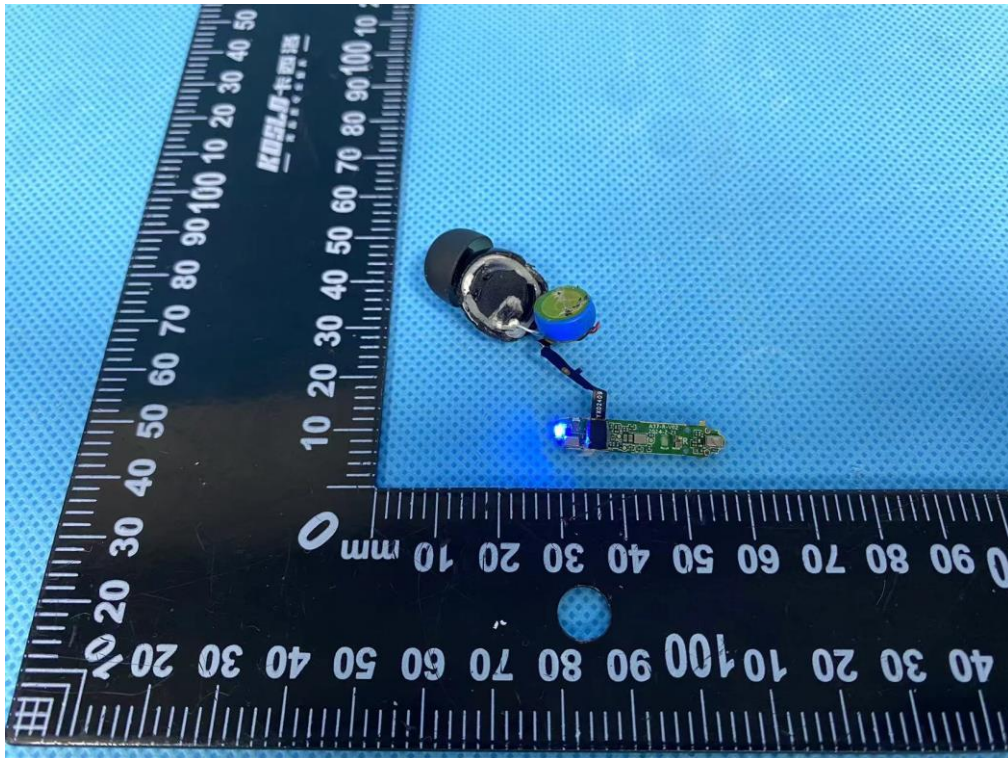


Internal Photos
M/N: TW220

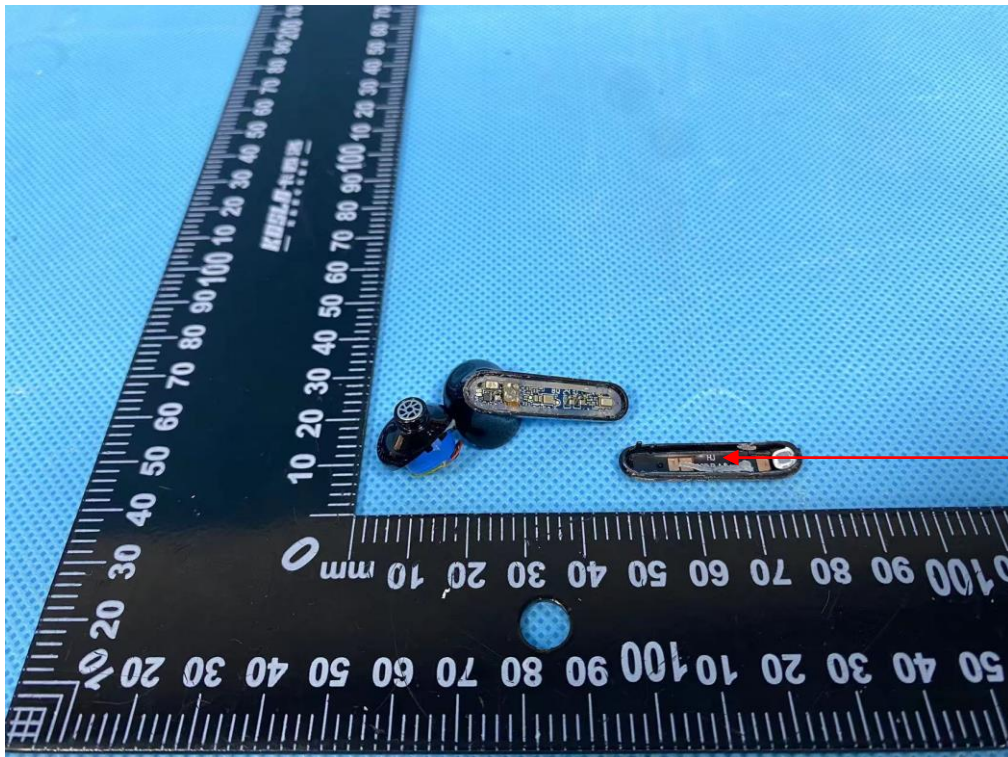
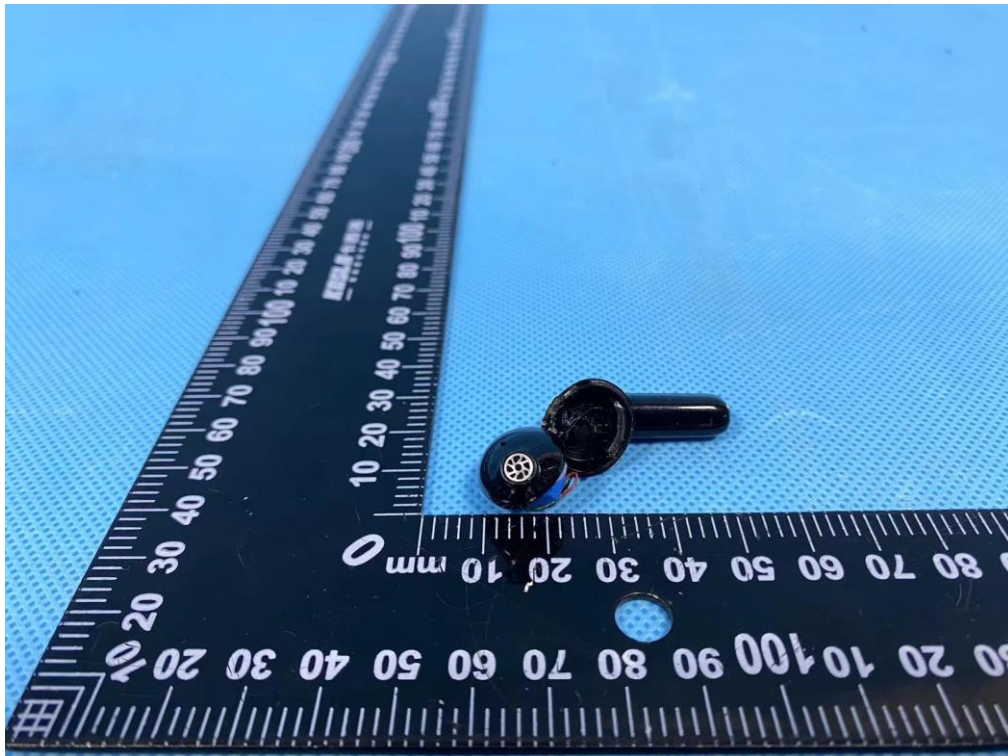


Internal Photos

M/N: TW220



Internal Photos
M/N: TW220



Bluetooth
Antenna

Internal Photos

M/N: TW220



End of Test Report