

Appendix Test Data for WLAN(2.4G) (Conducted Measurement)

Product Name: Wanbo Projector

Trade Mark: Wanbo

Test Model: WPA34

FCC ID: 2A7PIX5PRO

Environmental Conditions

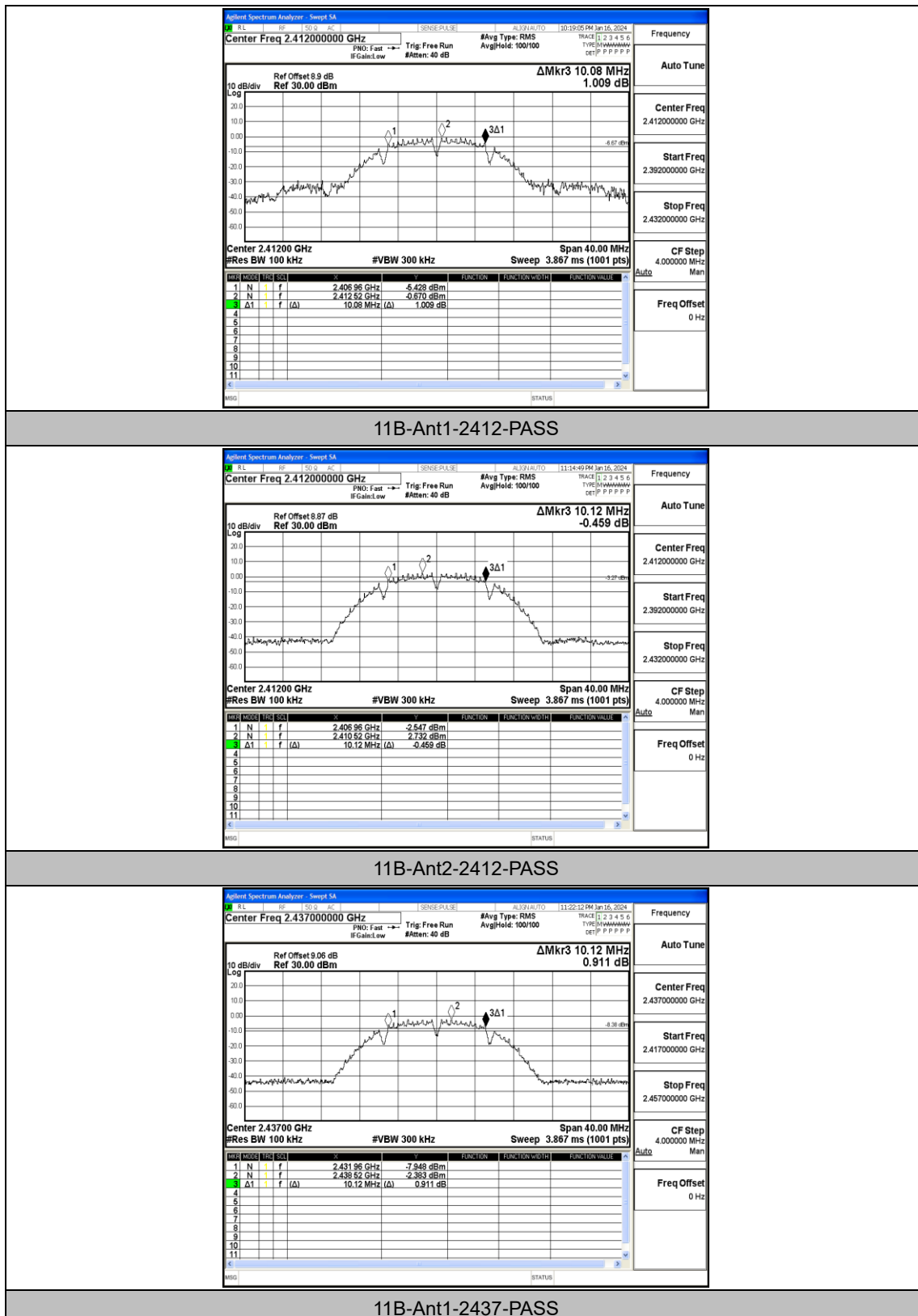
Temperature:	23.8℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

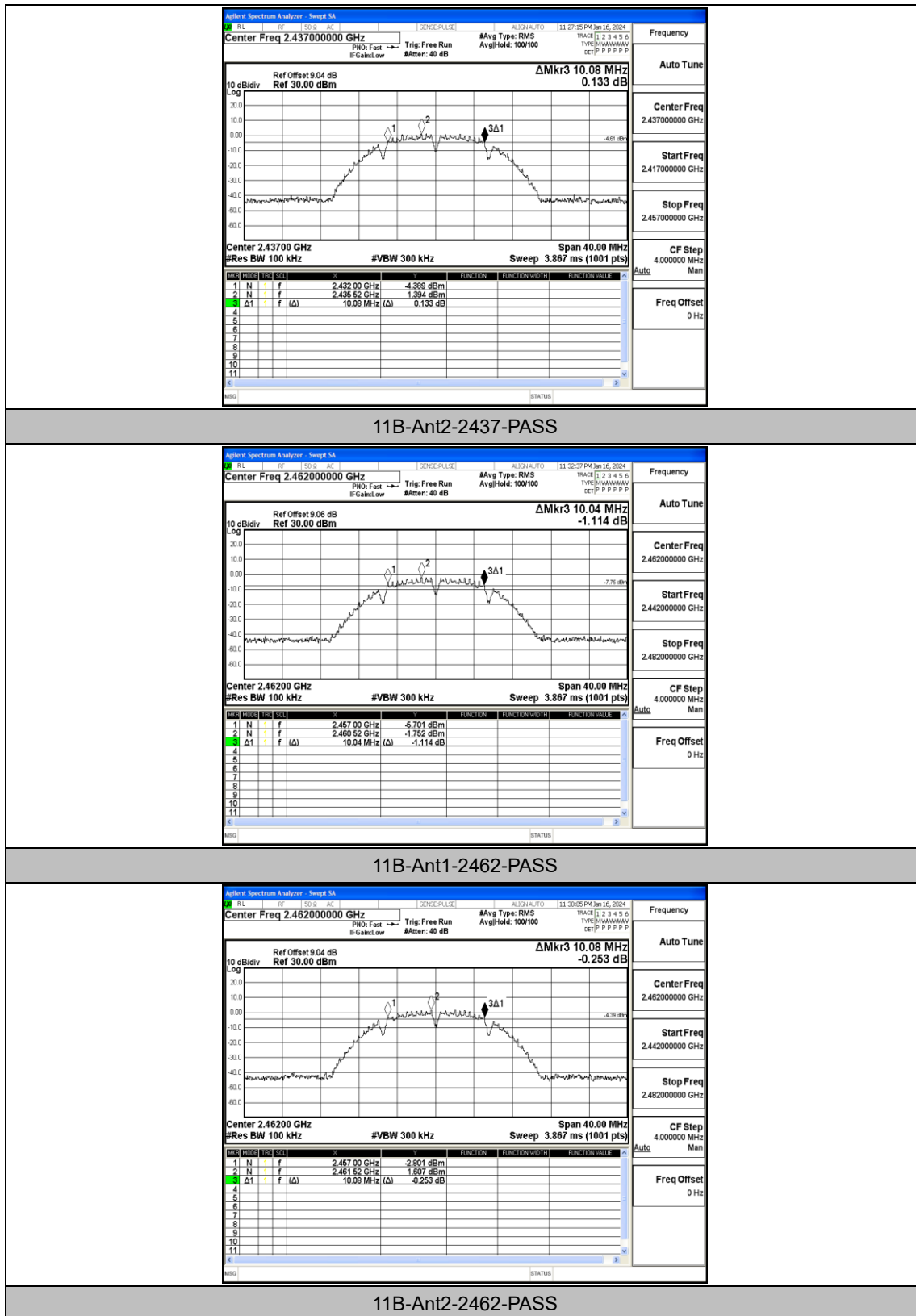
Appendix A: DTS Bandwidth

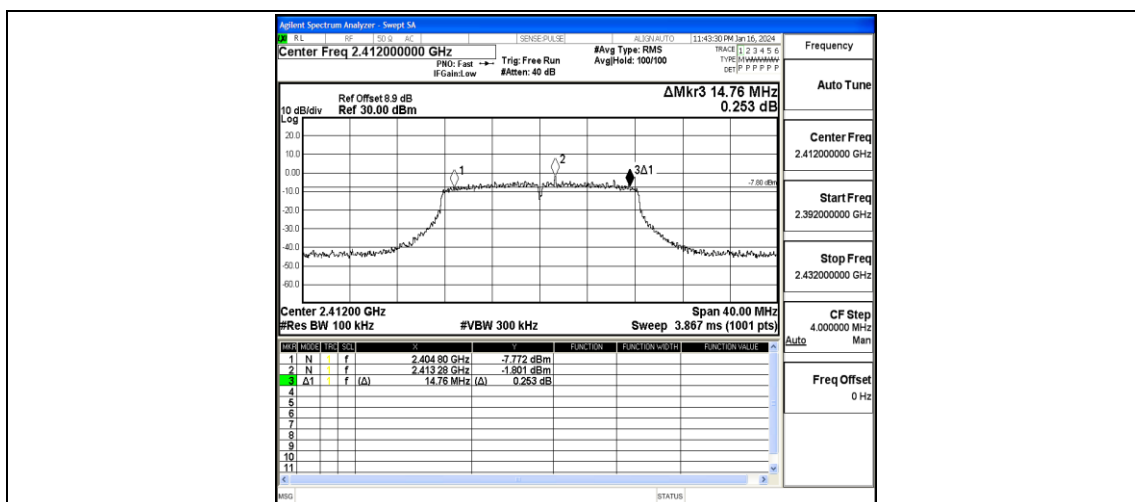
Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.080	2406.960	2417.040	0.5	PASS
11B	Ant2	2412	10.120	2406.960	2417.080	0.5	PASS
11B	Ant1	2437	10.120	2431.960	2442.080	0.5	PASS
11B	Ant2	2437	10.080	2432.000	2442.080	0.5	PASS
11B	Ant1	2462	10.040	2457.000	2467.040	0.5	PASS
11B	Ant2	2462	10.080	2457.000	2467.080	0.5	PASS
11G	Ant1	2412	14.760	2404.800	2419.560	0.5	PASS
11G	Ant2	2412	15.720	2404.440	2420.160	0.5	PASS
11G	Ant1	2437	16.280	2428.880	2445.160	0.5	PASS
11G	Ant2	2437	16.360	2428.840	2445.200	0.5	PASS
11G	Ant1	2462	16.320	2453.880	2470.200	0.5	PASS
11G	Ant2	2462	15.640	2454.120	2469.760	0.5	PASS
11N20MIMO	Ant1	2412	16.000	2404.560	2420.560	0.5	PASS
11N20MIMO	Ant2	2412	15.640	2404.880	2420.520	0.5	PASS
11N20MIMO	Ant1	2437	17.000	2428.520	2445.520	0.5	PASS
11N20MIMO	Ant2	2437	15.240	2429.560	2444.800	0.5	PASS
11N20MIMO	Ant1	2462	15.720	2454.160	2469.880	0.5	PASS
11N20MIMO	Ant2	2462	15.800	2454.120	2469.920	0.5	PASS
11N40MIMO	Ant1	2422	32.560	2405.680	2438.240	0.5	PASS
11N40MIMO	Ant2	2422	35.040	2404.480	2439.520	0.5	PASS
11N40MIMO	Ant1	2437	35.120	2419.480	2454.600	0.5	PASS
11N40MIMO	Ant2	2437	34.960	2419.560	2454.520	0.5	PASS
11N40MIMO	Ant1	2452	33.920	2435.680	2469.600	0.5	PASS
11N40MIMO	Ant2	2452	34.960	2434.560	2469.520	0.5	PASS

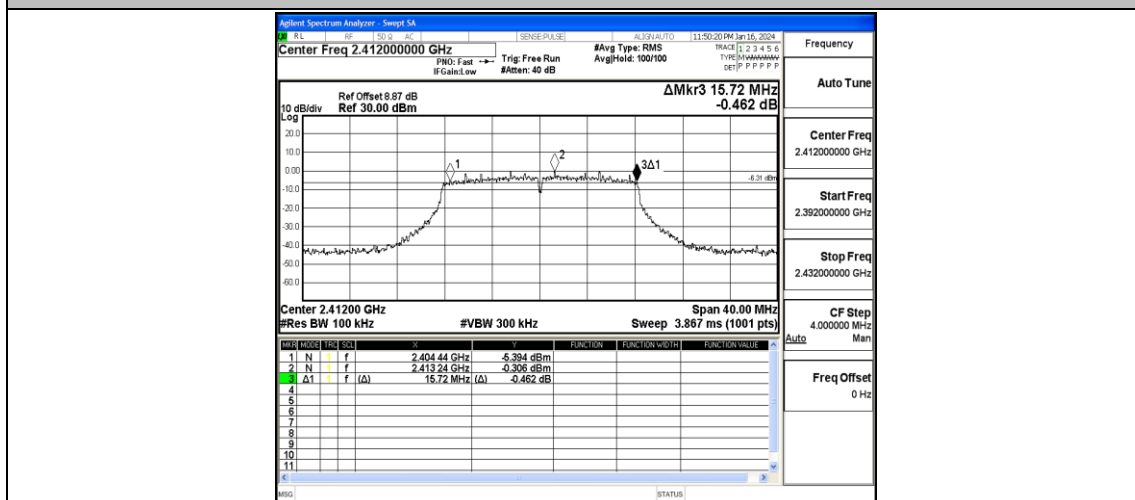
Test Graphs



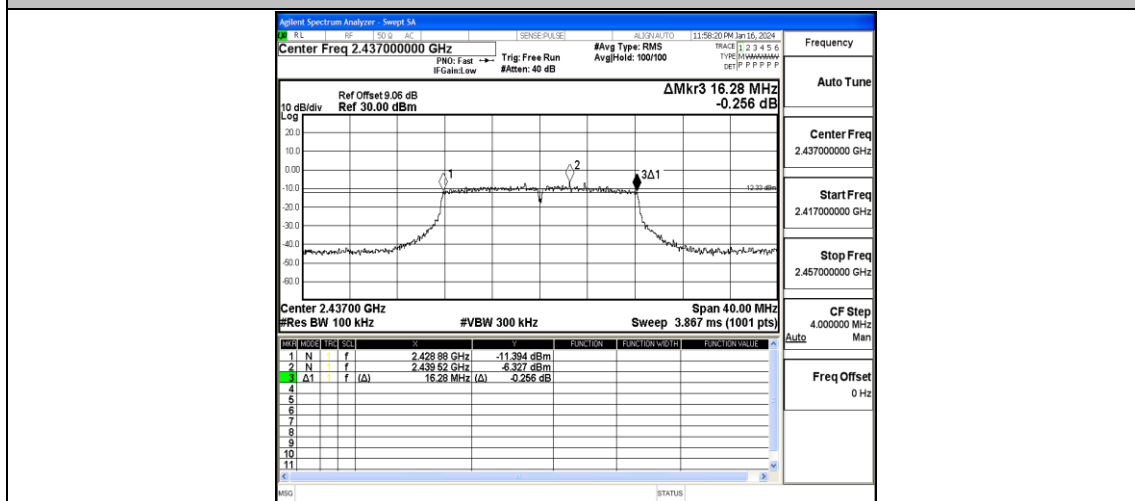




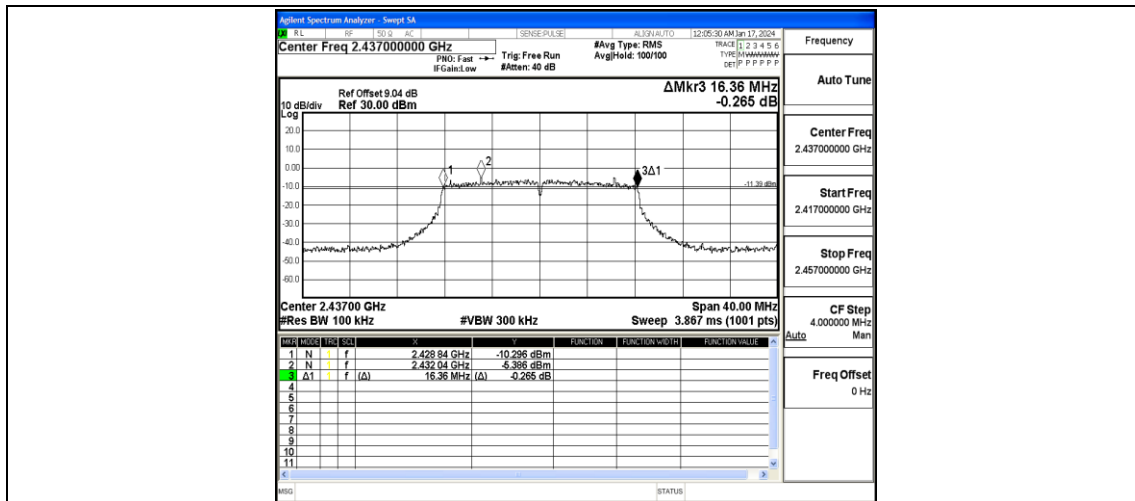
11G-Ant1-2412-PASS



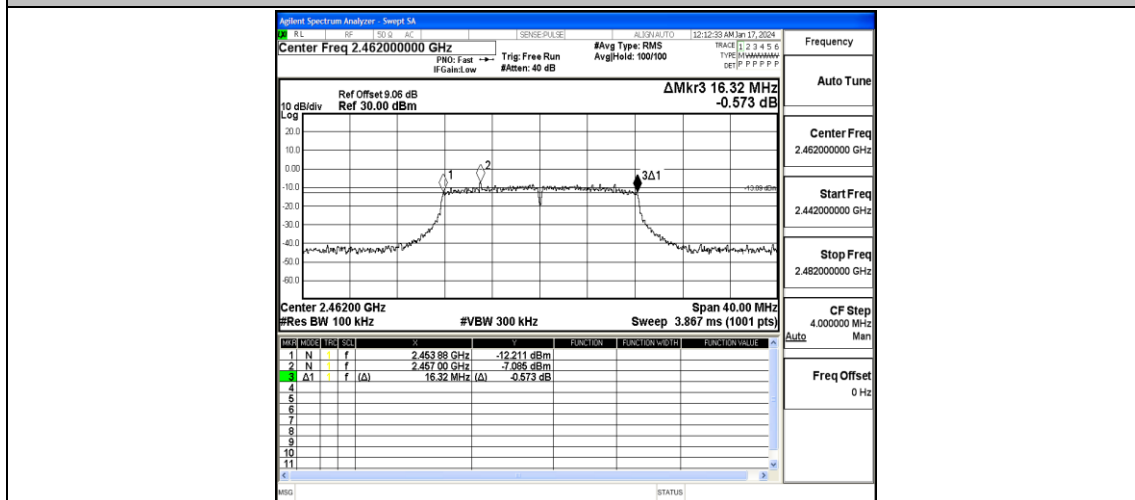
11G-Ant2-2412-PASS



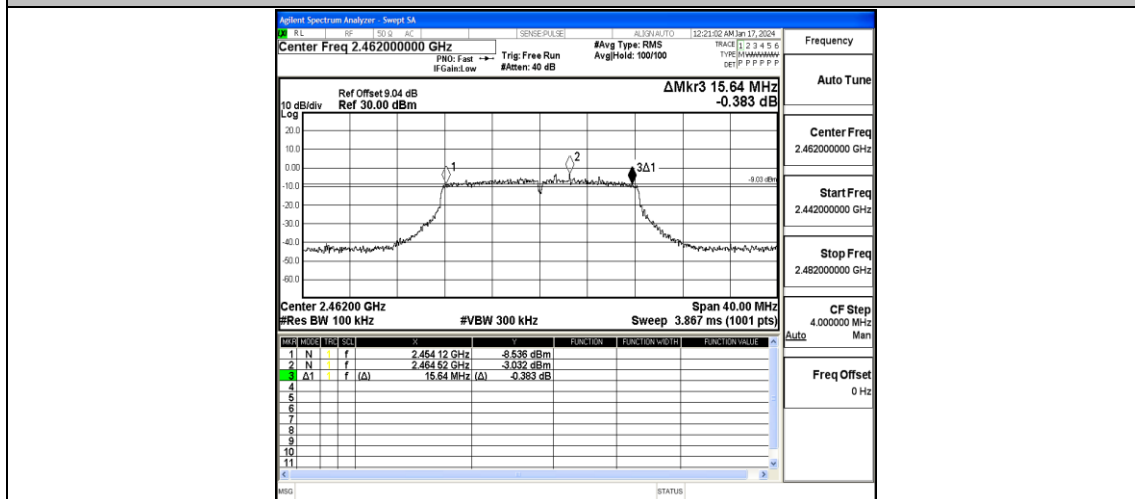
11G-Ant1-2437-PASS



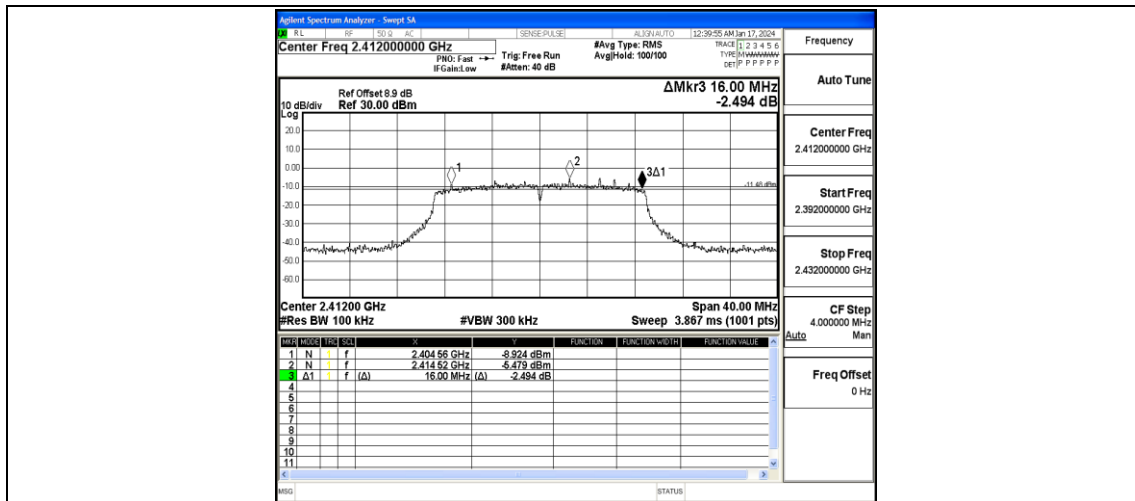
11G-Ant2-2437-PASS



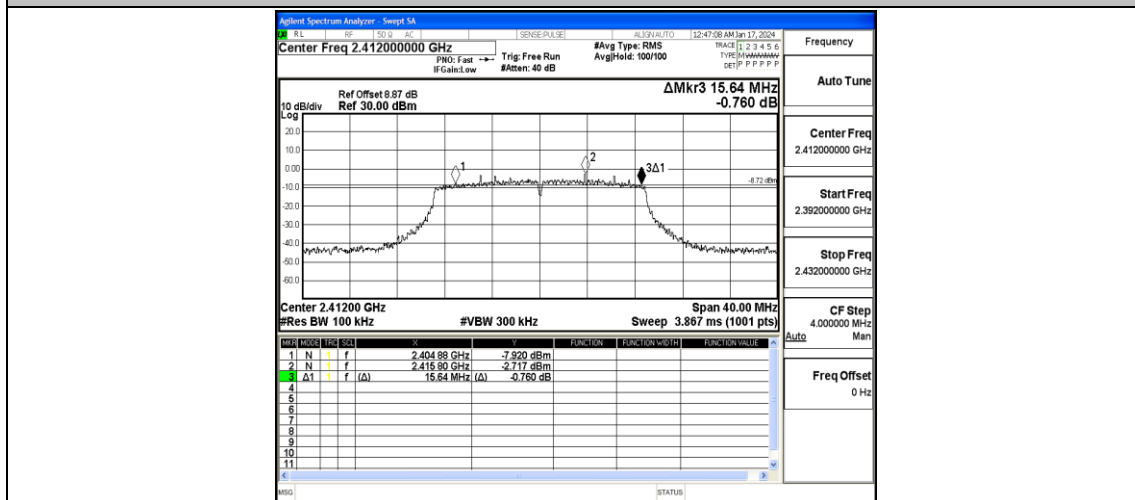
11G-Ant1-2462-PASS



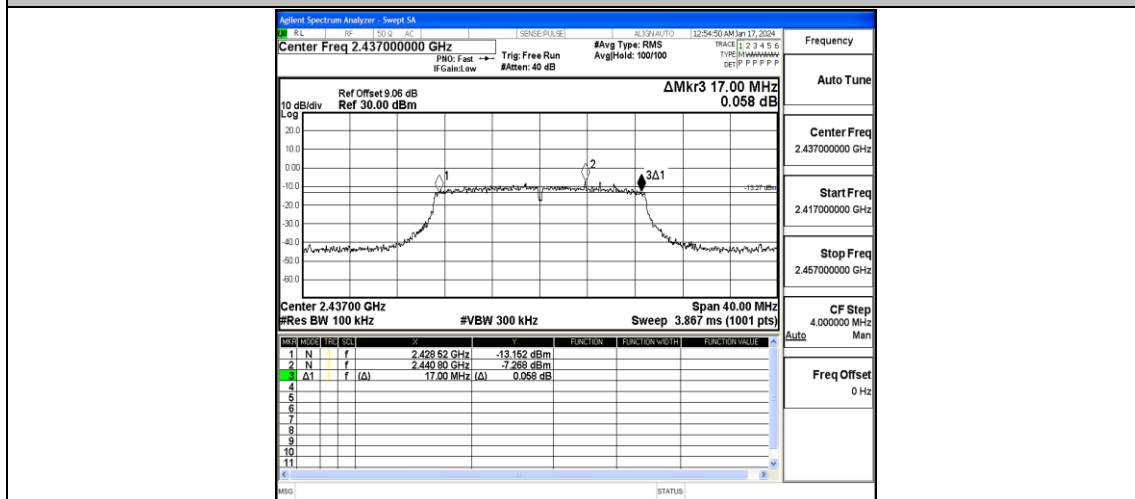
11G-Ant2-2462-PASS



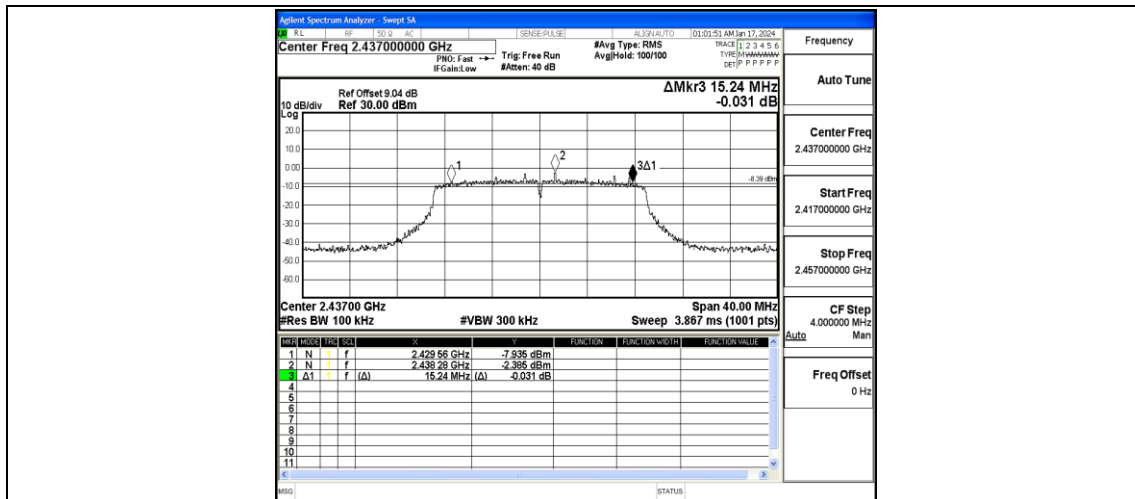
11N20MIMO-Ant1-2412-PASS



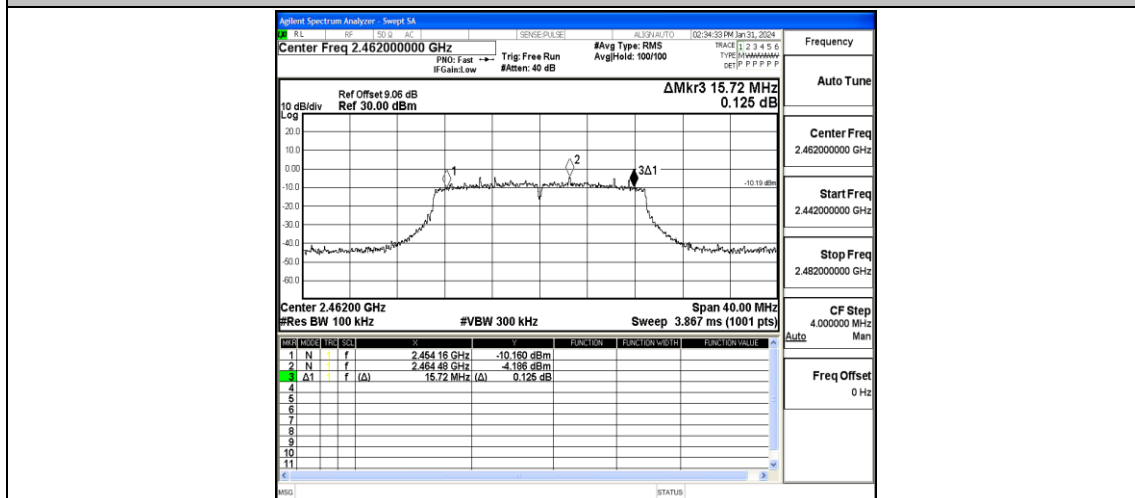
11N20MIMO-Ant2-2412-PASS



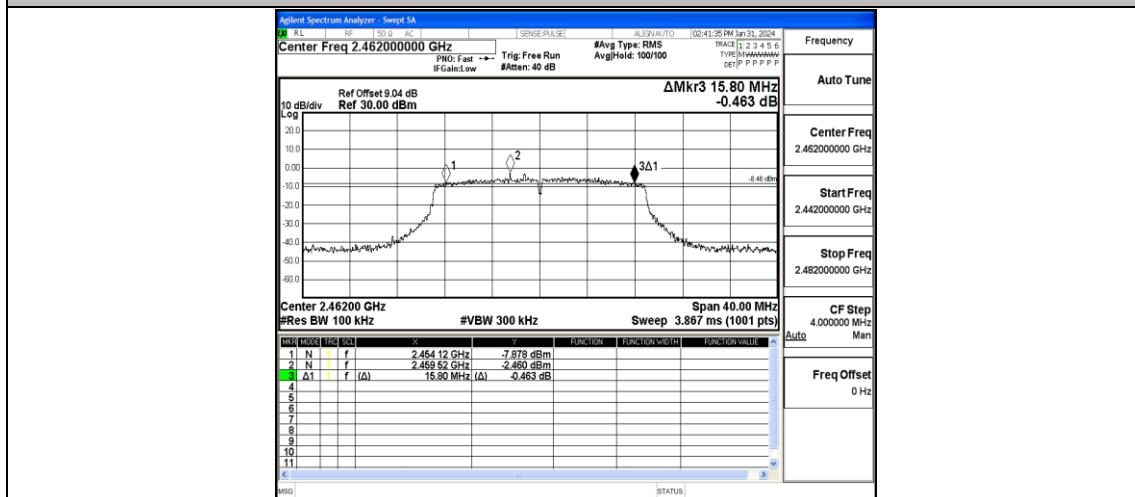
11N20MIMO-Ant1-2437-PASS



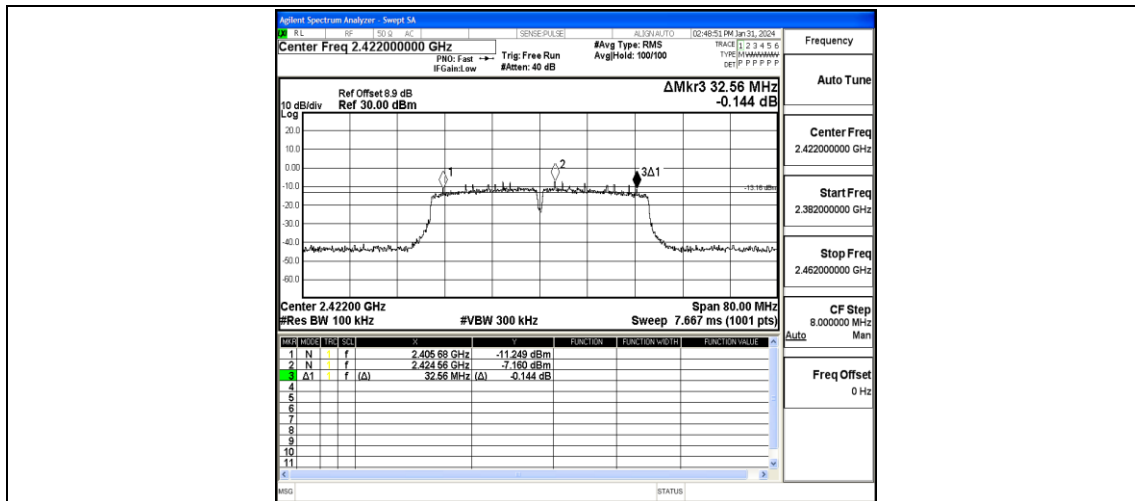
11N20MIMO-Ant2-2437-PASS



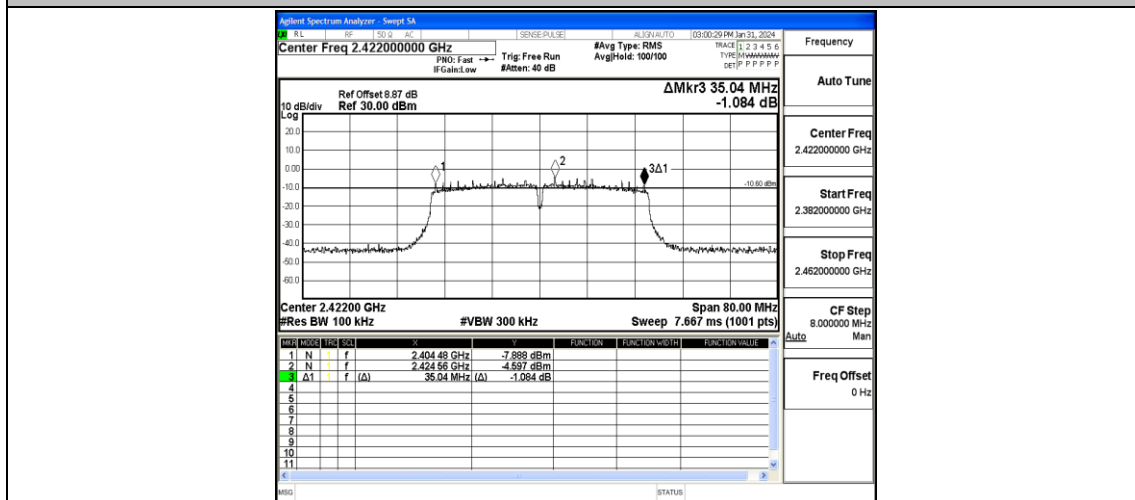
11N20MIMO-Ant1-2462-PASS



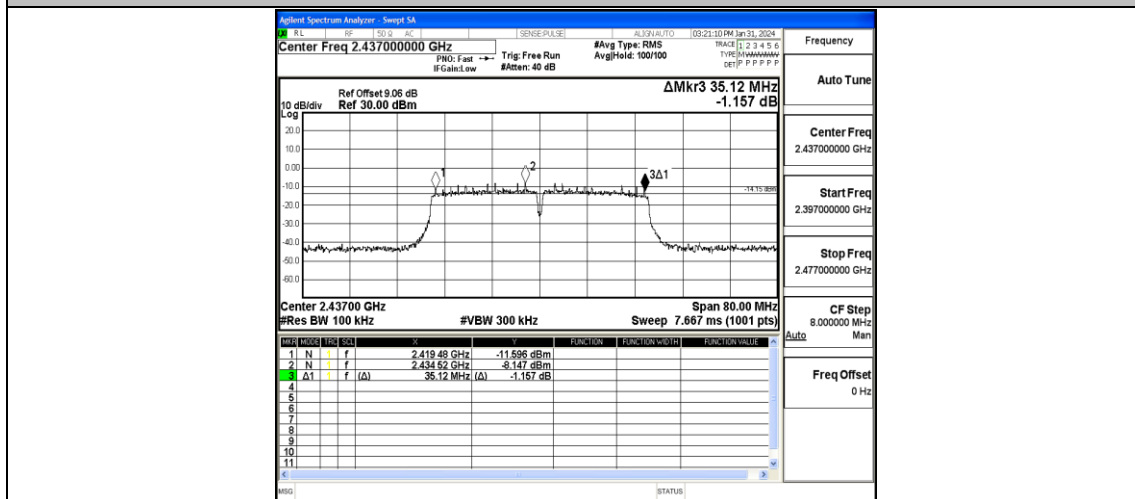
11N20MIMO-Ant2-2462-PASS



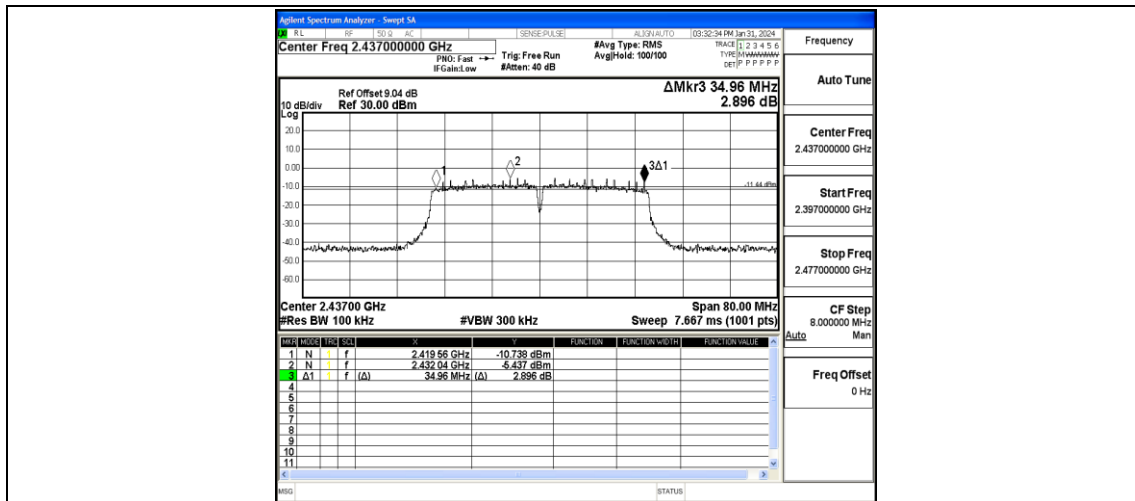
11N40MIMO-Ant1-2422-PASS



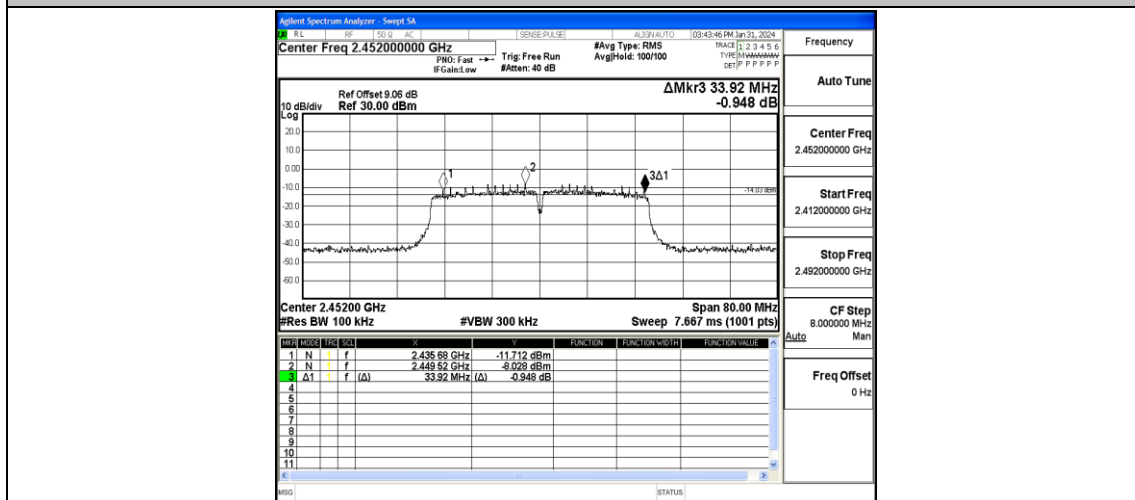
11N40MIMO-Ant2-2422-PASS



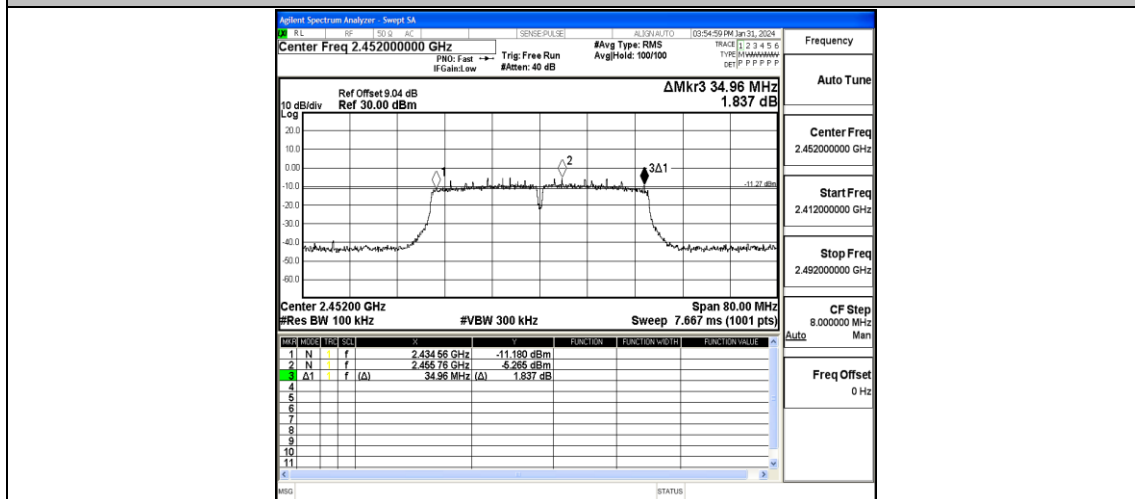
11N40MIMO-Ant1-2437-PASS



11N40MIMO-Ant2-2437-PASS



11N40MIMO-Ant1-2452-PASS



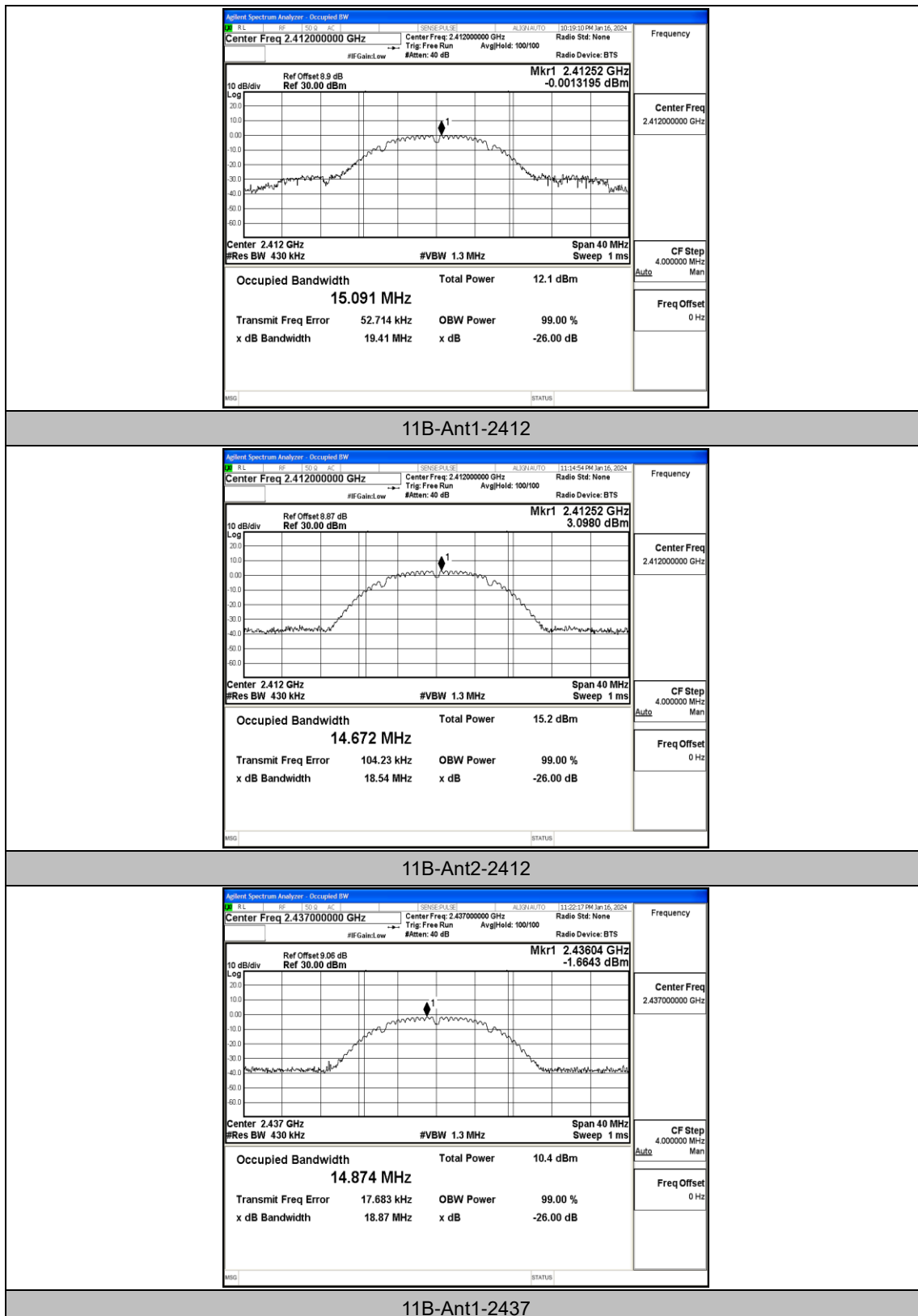
11N40MIMO-Ant2-2452-PASS

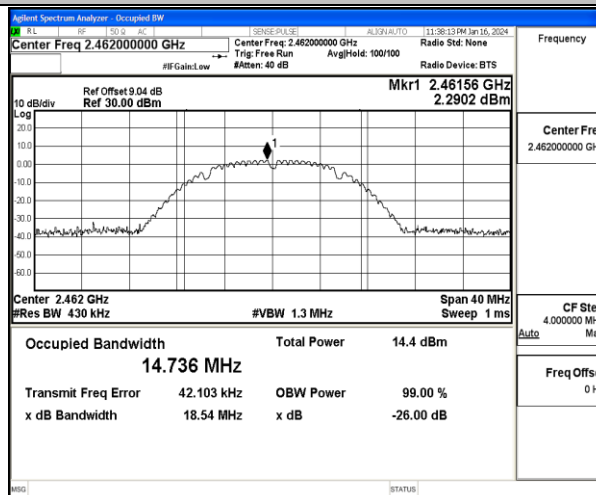
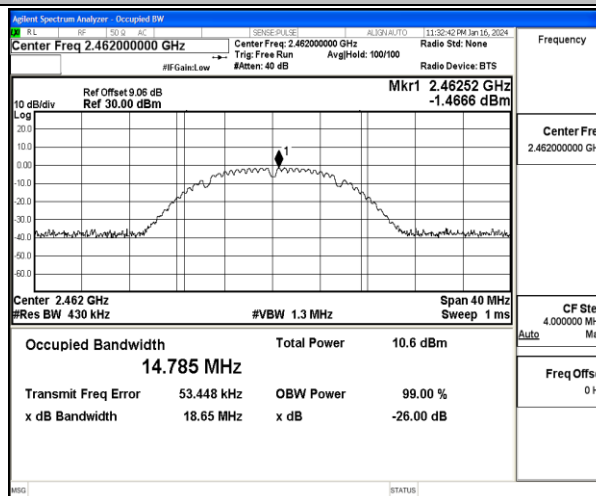
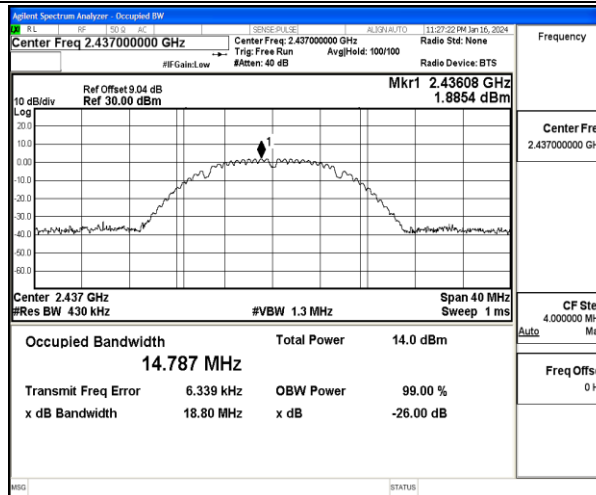
Appendix B: Occupied Channel Bandwidth

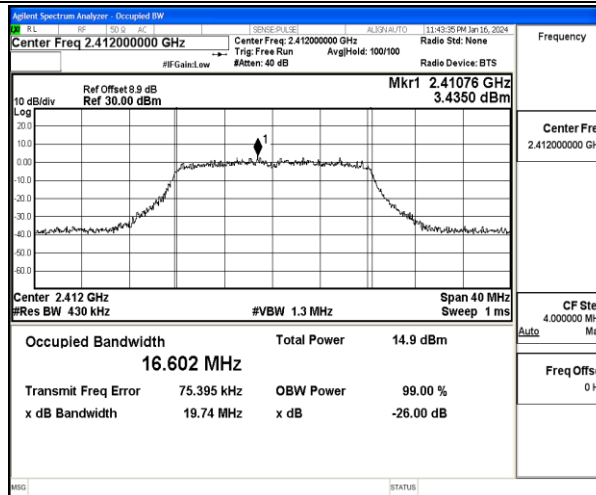
Test Result

TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	15.091	2404.5072	2419.5982	---	---
11B	Ant2	2412	14.672	2404.7682	2419.4402	---	---
11B	Ant1	2437	14.874	2429.5807	2444.4547	---	---
11B	Ant2	2437	14.787	2429.6128	2444.3998	---	---
11B	Ant1	2462	14.785	2454.6610	2469.4460	---	---
11B	Ant2	2462	14.736	2454.6741	2469.4101	---	---
11G	Ant1	2412	16.602	2403.7744	2420.3764	---	---
11G	Ant2	2412	16.739	2403.7322	2420.4712	---	---
11G	Ant1	2437	16.590	2428.7618	2445.3518	---	---
11G	Ant2	2437	16.749	2428.6833	2445.4323	---	---
11G	Ant1	2462	16.620	2453.7501	2470.3701	---	---
11G	Ant2	2462	16.725	2453.6886	2470.4136	---	---
11N20MIMO	Ant1	2412	17.881	2403.1138	2420.9948	---	---
11N20MIMO	Ant2	2412	17.872	2403.1203	2420.9923	---	---
11N20MIMO	Ant1	2437	17.910	2428.1002	2446.0102	---	---
11N20MIMO	Ant2	2437	17.853	2428.0852	2445.9382	---	---
11N20MIMO	Ant1	2462	17.825	2453.1265	2470.9515	---	---
11N20MIMO	Ant2	2462	17.786	2453.1404	2470.9264	---	---
11N40MIMO	Ant1	2422	36.103	2404.0030	2440.1060	---	---
11N40MIMO	Ant2	2422	36.082	2404.0273	2440.1093	---	---
11N40MIMO	Ant1	2437	36.240	2418.9664	2455.2064	---	---
11N40MIMO	Ant2	2437	36.276	2418.9197	2455.1957	---	---
11N40MIMO	Ant1	2452	36.373	2433.8581	2470.2311	---	---
11N40MIMO	Ant2	2452	36.307	2433.9201	2470.2271	---	---

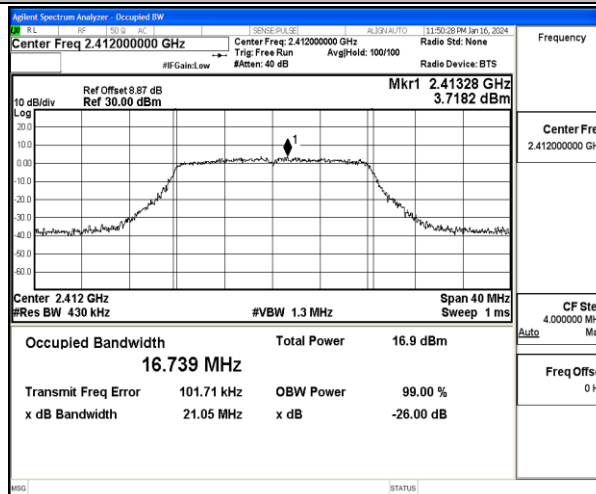
Test Graphs



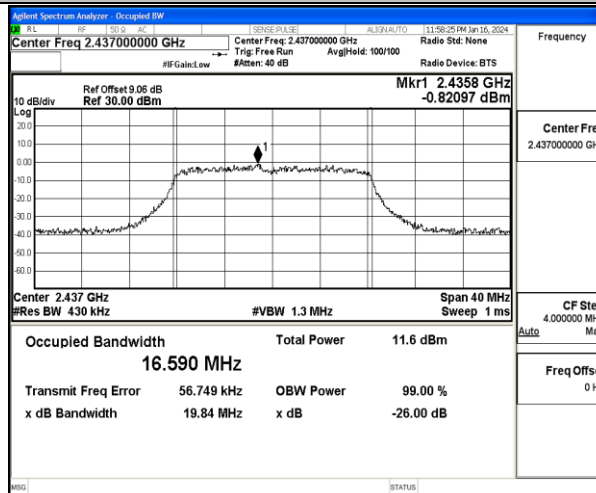




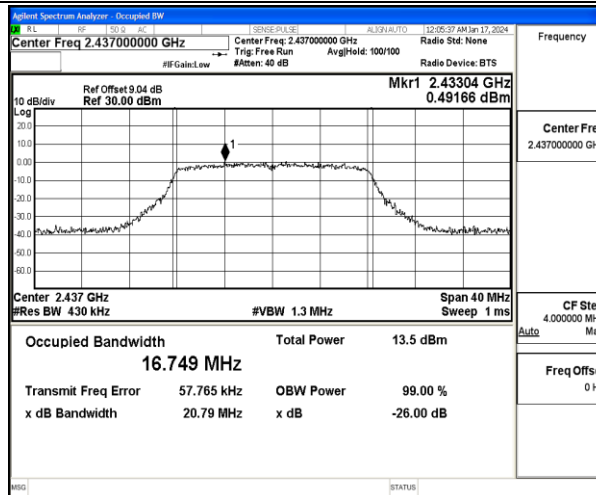
11G-Ant1-2412



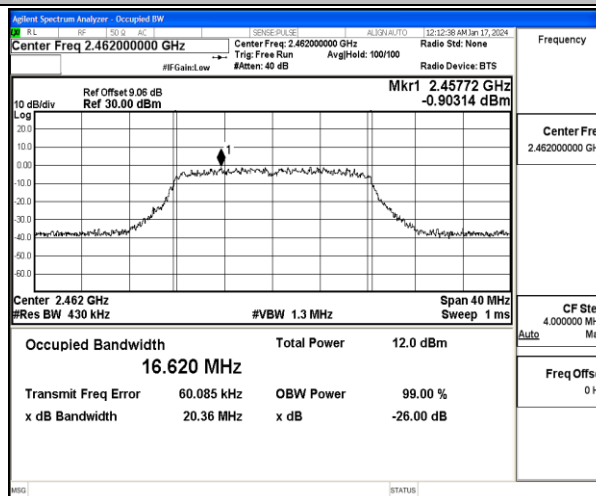
11G-Ant2-2412



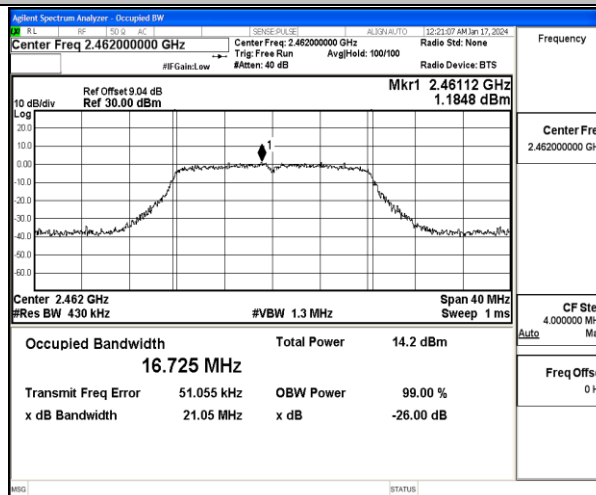
11G-Ant1-2437



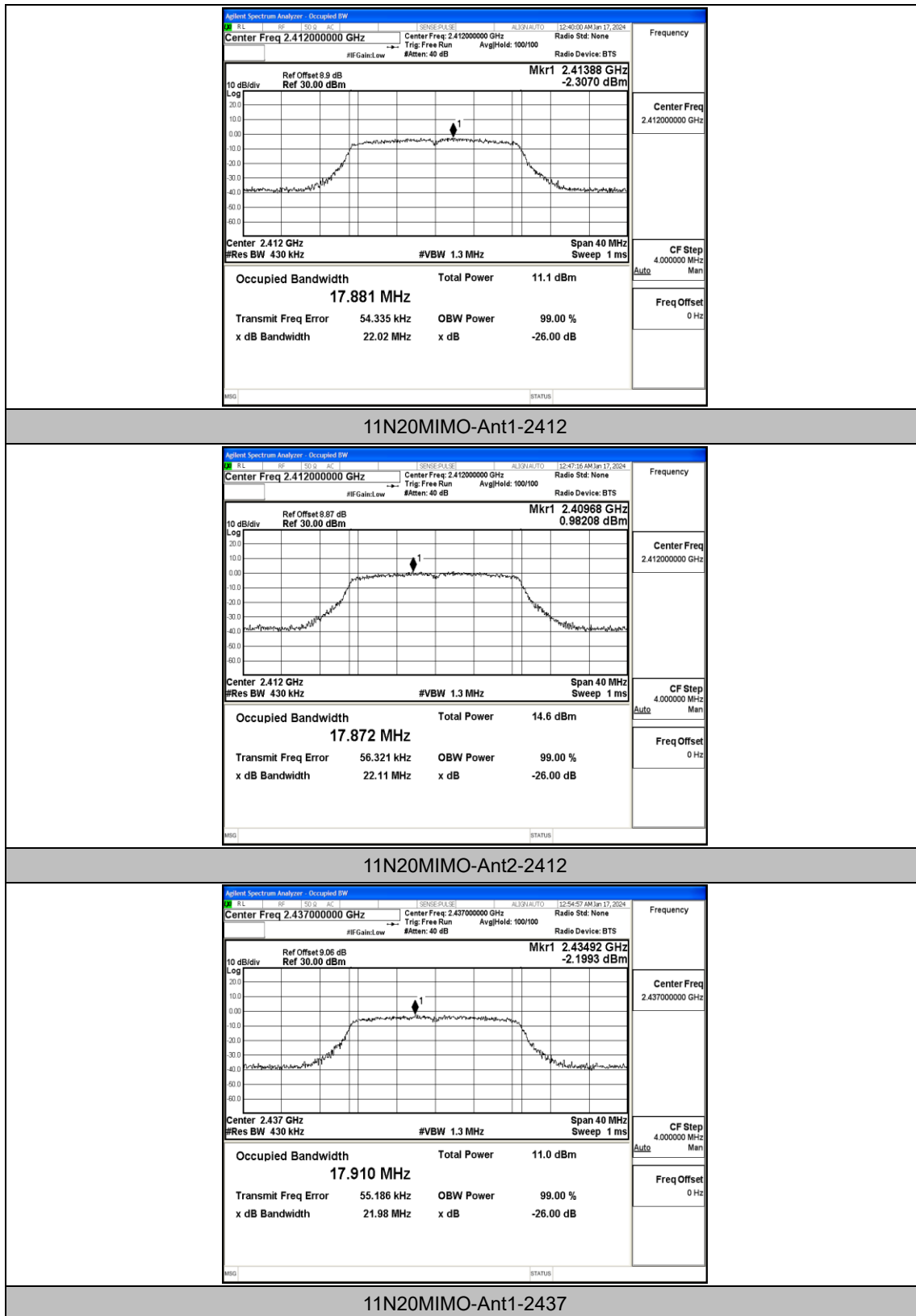
11G-Ant2-2437

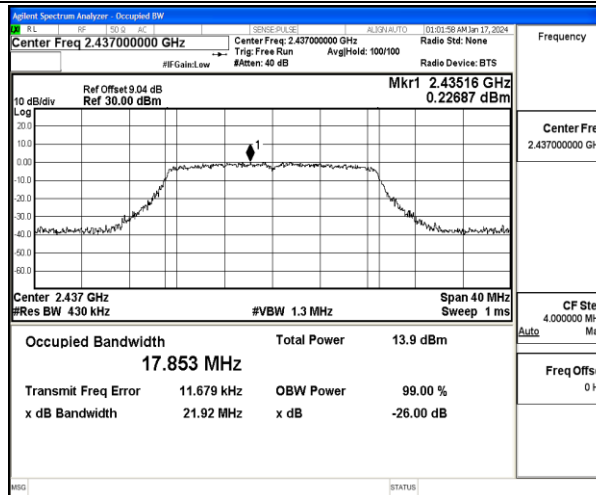


11G-Ant1-2462

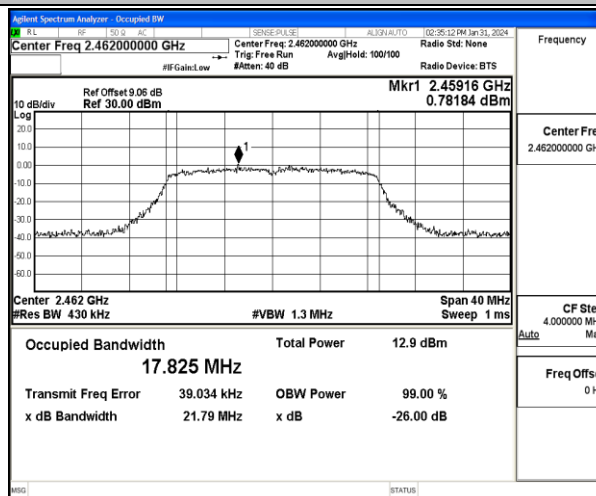


11G-Ant2-2462

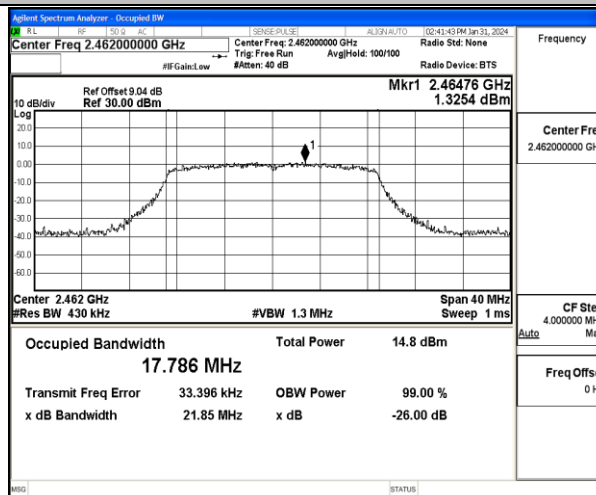




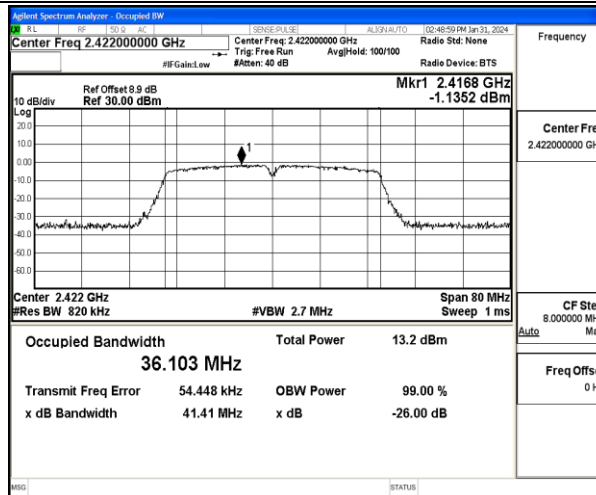
11N20MIMO-Ant2-2437



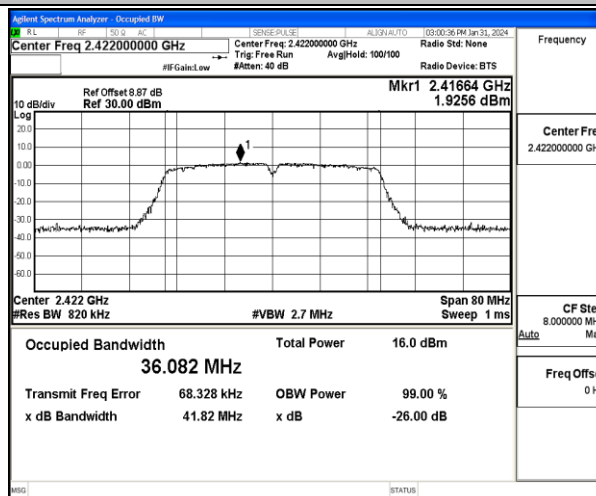
11N20MIMO-Ant1-2462



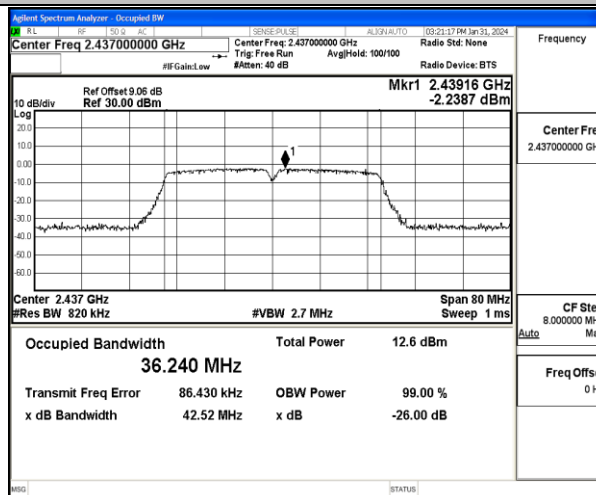
11N20MIMO-Ant2-2462



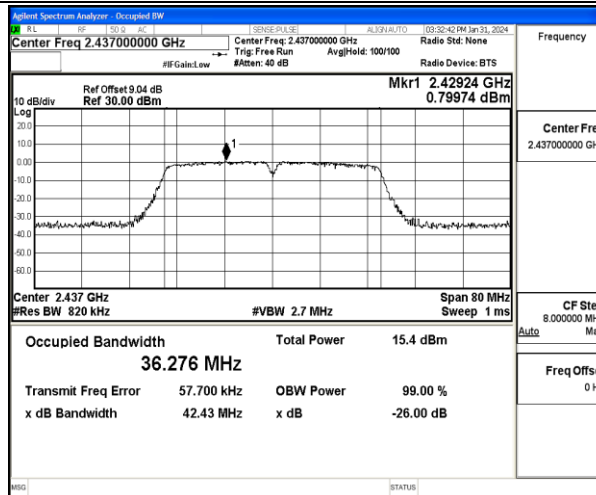
11N40MIMO-Ant1-2422



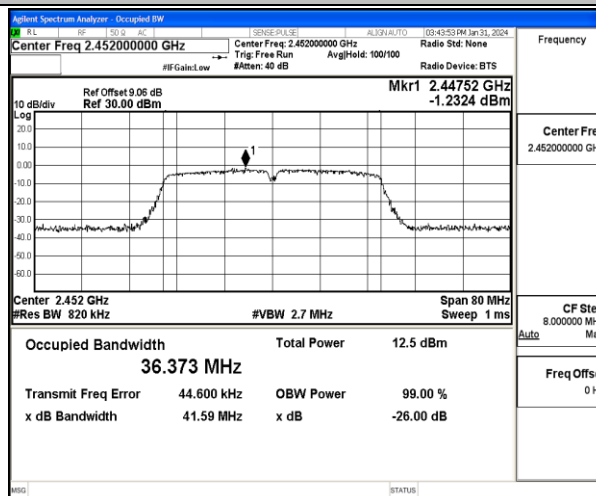
11N40MIMO-Ant2-2422



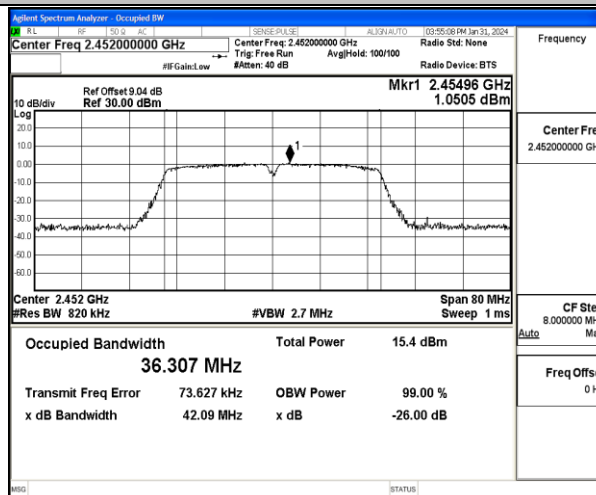
11N40MIMO-Ant1-2437



11N40MIMO-Ant2-2437



11N40MIMO-Ant1-2452



11N40MIMO-Ant2-2452

Appendix C: Maximum Average conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	11.59	≤30.00	4.83	16.42	≤36.00	PASS
11B	Ant2	2412	14.81	≤30.00	2.35	17.16	≤36.00	PASS
11B	Ant1	2437	9.98	≤30.00	4.83	14.81	≤36.00	PASS
11B	Ant2	2437	13.62	≤30.00	2.35	15.97	≤36.00	PASS
11B	Ant1	2462	10.16	≤30.00	4.83	14.99	≤36.00	PASS
11B	Ant2	2462	14.06	≤30.00	2.35	16.41	≤36.00	PASS
11G	Ant1	2412	13.08	≤30.00	4.83	17.91	≤36.00	PASS
11G	Ant2	2412	15.67	≤30.00	2.35	18.02	≤36.00	PASS
11G	Ant1	2437	12.58	≤30.00	4.83	17.41	≤36.00	PASS
11G	Ant2	2437	15.23	≤30.00	2.35	17.58	≤36.00	PASS
11G	Ant1	2462	13.15	≤30.00	4.83	17.98	≤36.00	PASS
11G	Ant2	2462	14.72	≤30.00	2.35	17.07	≤36.00	PASS
11N20MIMO	Ant1	2412	12.78	≤30.00	4.83	17.61	≤36.00	PASS
11N20MIMO	Ant2	2412	15.07	≤30.00	2.35	17.42	≤36.00	PASS
11N20MIMO	total	2412	17.08	≤30.00	4.83	21.91	≤36.00	PASS
11N20MIMO	Ant1	2437	12.36	≤30.00	4.83	17.19	≤36.00	PASS
11N20MIMO	Ant2	2437	14.72	≤30.00	2.35	17.07	≤36.00	PASS
11N20MIMO	total	2437	16.71	≤30.00	4.83	21.54	≤36.00	PASS
11N20MIMO	Ant1	2462	13.80	≤30.00	4.83	18.63	≤36.00	PASS
11N20MIMO	Ant2	2462	15.76	≤30.00	2.35	18.11	≤36.00	PASS
11N20MIMO	total	2462	17.90	≤30.00	4.83	22.73	≤36.00	PASS
11N40MIMO	Ant1	2422	13.21	≤30.00	4.83	18.04	≤36.00	PASS
11N40MIMO	Ant2	2422	16.11	≤30.00	2.35	18.46	≤36.00	PASS
11N40MIMO	total	2422	17.91	≤30.00	4.83	22.74	≤36.00	PASS
11N40MIMO	Ant1	2437	12.78	≤30.00	4.83	17.61	≤36.00	PASS
11N40MIMO	Ant2	2437	15.65	≤30.00	2.35	18.00	≤36.00	PASS

O								
11N40MIM O	total	2437	17.46	≤30.00	4.83	22.29	≤36.00	PASS
11N40MIM O	Ant1	2452	12.74	≤30.00	4.83	17.57	≤36.00	PASS
11N40MIM O	Ant2	2452	15.48	≤30.00	2.35	17.83	≤36.00	PASS
11N40MIM O	total	2452	17.33	≤30.00	4.83	22.16	≤36.00	PASS

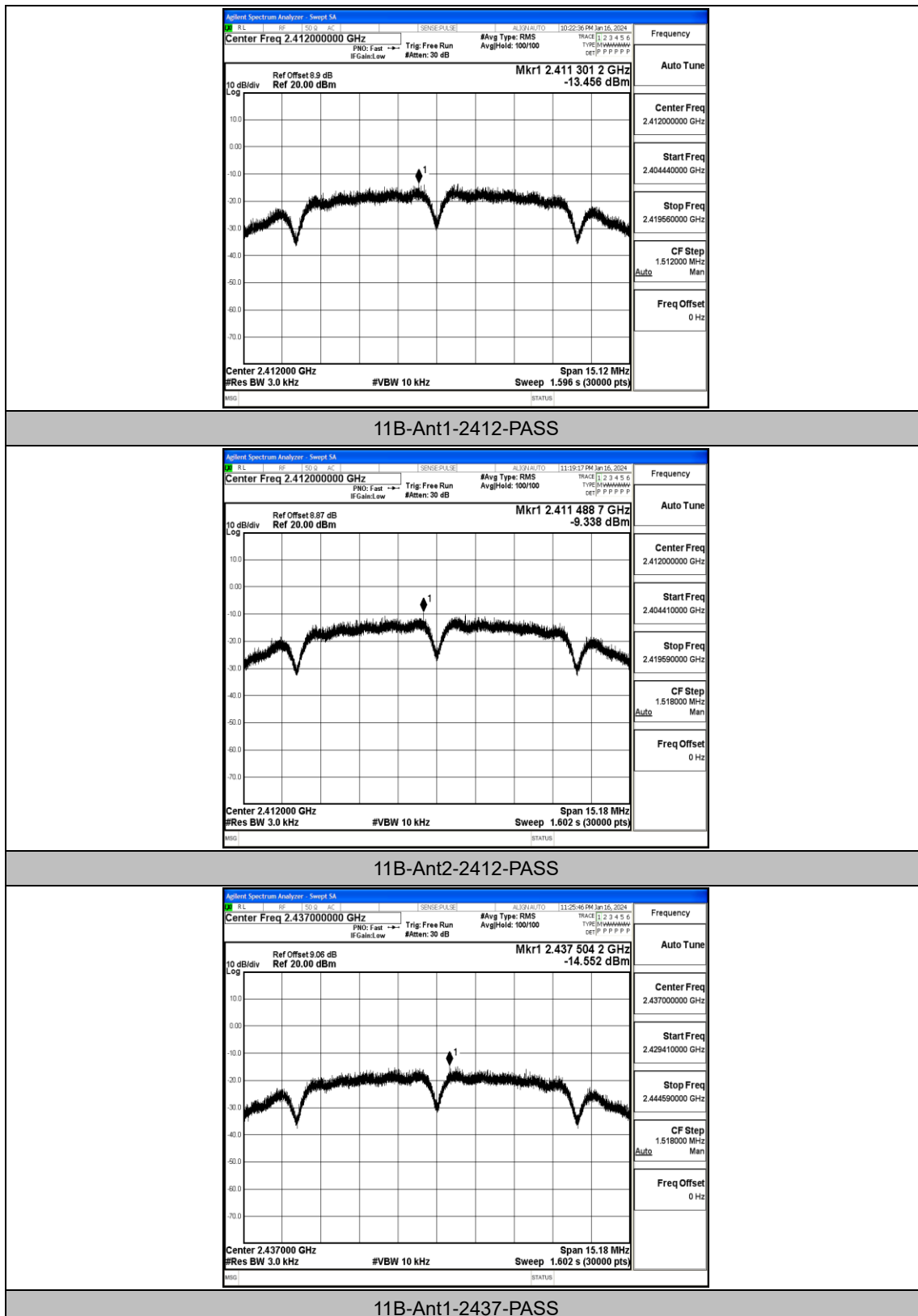
Note: The Duty Cycle Factor is compensated in the result.

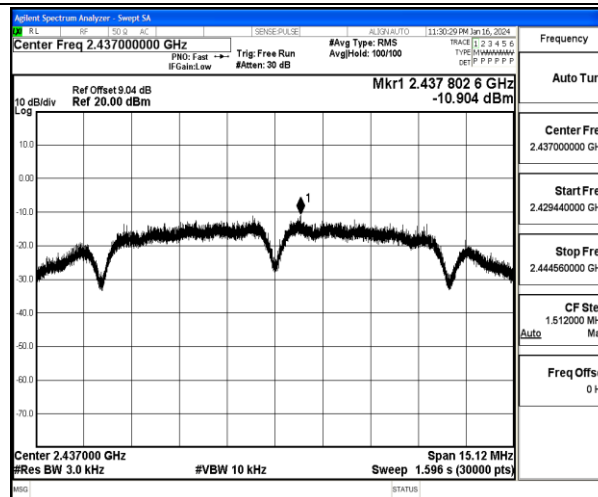
Appendix D: Maximum Average power spectral density

Test Result

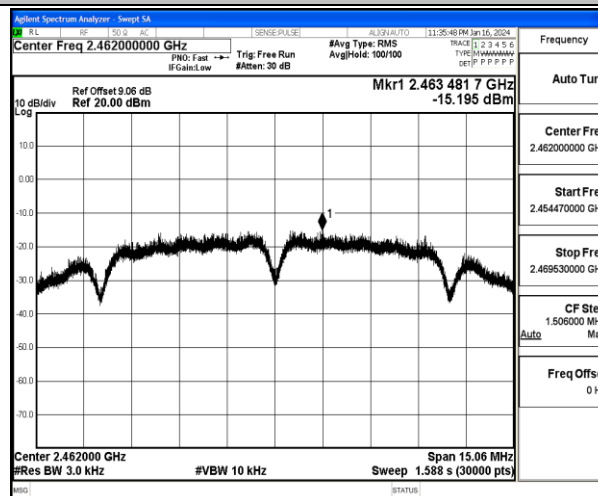
TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-13.46	≤8.00	PASS
11B	Ant2	2412	-9.34	≤8.00	PASS
11B	Ant1	2437	-14.55	≤8.00	PASS
11B	Ant2	2437	-10.90	≤8.00	PASS
11B	Ant1	2462	-15.20	≤8.00	PASS
11B	Ant2	2462	-10.03	≤8.00	PASS
11G	Ant1	2412	-18.83	≤8.00	PASS
11G	Ant2	2412	-15.86	≤8.00	PASS
11G	Ant1	2437	-18.56	≤8.00	PASS
11G	Ant2	2437	-15.63	≤8.00	PASS
11G	Ant1	2462	-18.03	≤8.00	PASS
11G	Ant2	2462	-15.29	≤8.00	PASS
11N20MIMO	Ant1	2412	-18.66	≤8.00	PASS
11N20MIMO	Ant2	2412	-15.91	≤8.00	PASS
11N20MIMO	total	2412	-14.06	≤8.00	PASS
11N20MIMO	Ant1	2437	-18.04	≤8.00	PASS
11N20MIMO	Ant2	2437	-15.29	≤8.00	PASS
11N20MIMO	total	2437	-13.44	≤8.00	PASS
11N20MIMO	Ant1	2462	-17.97	≤8.00	PASS
11N20MIMO	Ant2	2462	-15.95	≤8.00	PASS
11N20MIMO	total	2462	-13.83	≤8.00	PASS
11N40MIMO	Ant1	2422	-21.74	≤8.00	PASS
11N40MIMO	Ant2	2422	-19.14	≤8.00	PASS
11N40MIMO	total	2422	-17.24	≤8.00	PASS
11N40MIMO	Ant1	2437	-22.44	≤8.00	PASS
11N40MIMO	Ant2	2437	-19.64	≤8.00	PASS
11N40MIMO	total	2437	-17.81	≤8.00	PASS
11N40MIMO	Ant1	2452	-21.65	≤8.00	PASS
11N40MIMO	Ant2	2452	-19.00	≤8.00	PASS
11N40MIMO	total	2452	-17.12	≤8.00	PASS

Test Graphs

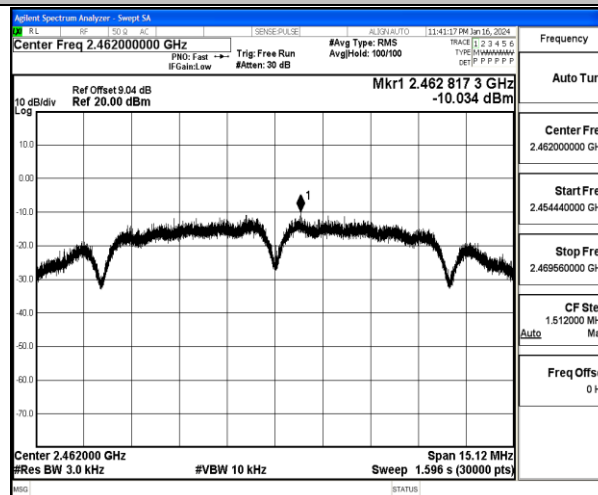




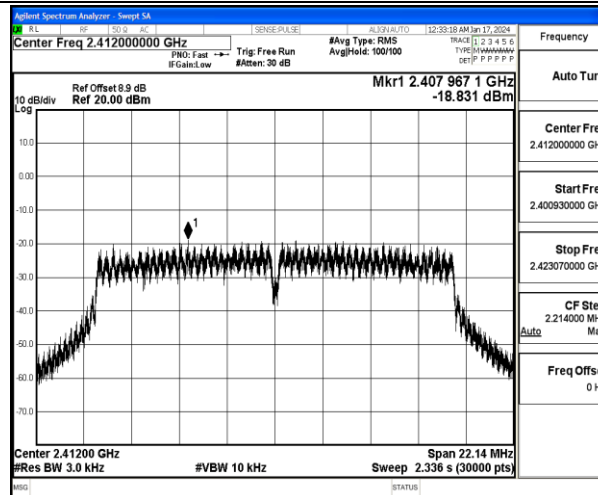
11B-Ant2-2437-PASS



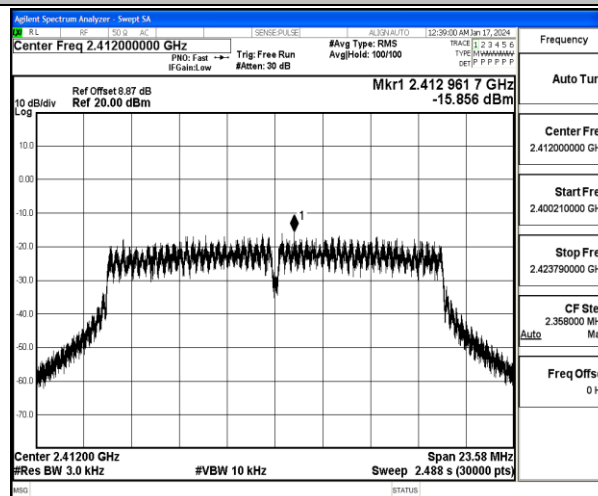
11B-Ant1-2462-PASS



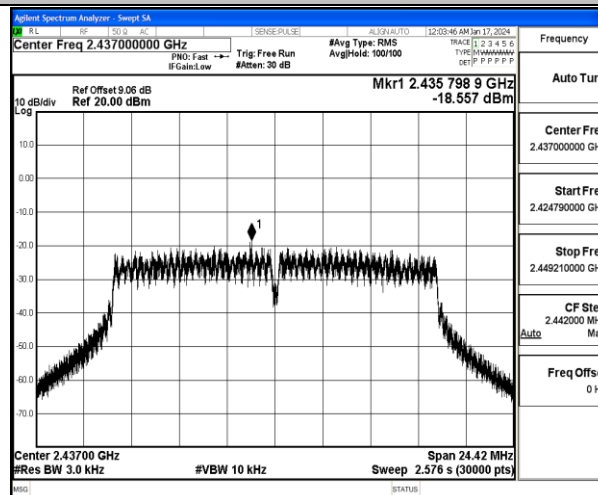
11B-Ant2-2462-PASS



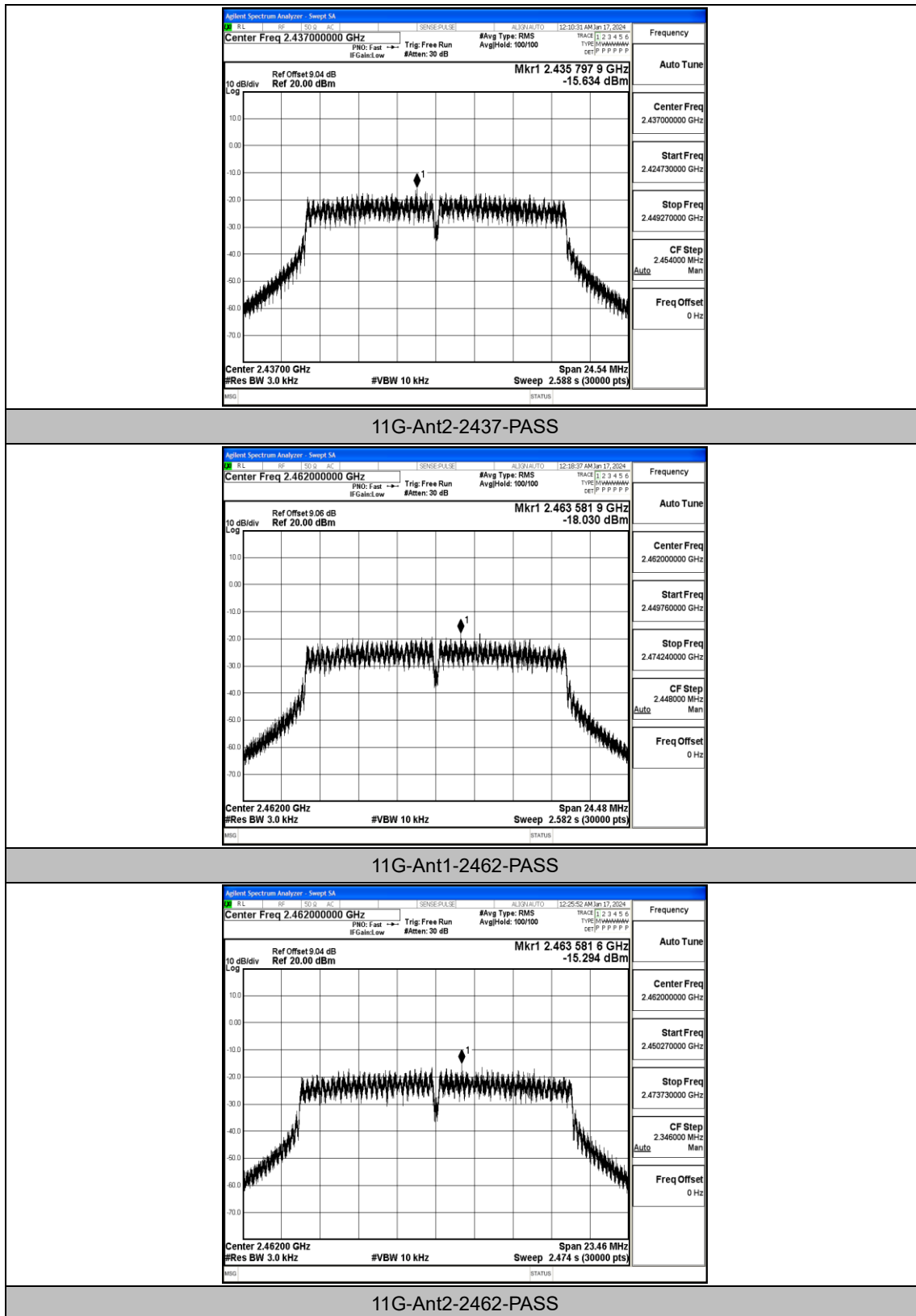
11G-Ant1-2412-PASS

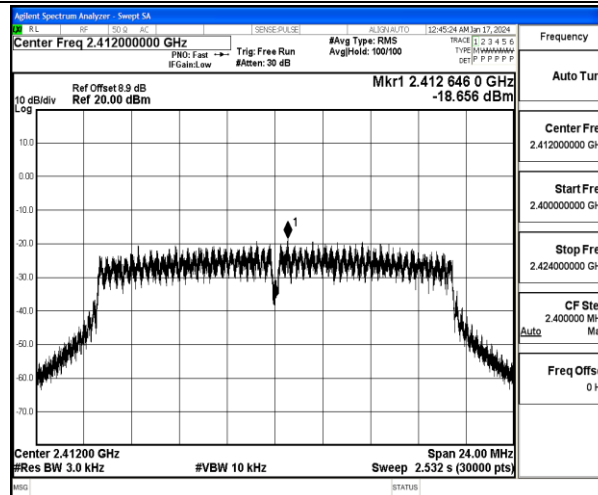


11G-Ant2-2412-PASS

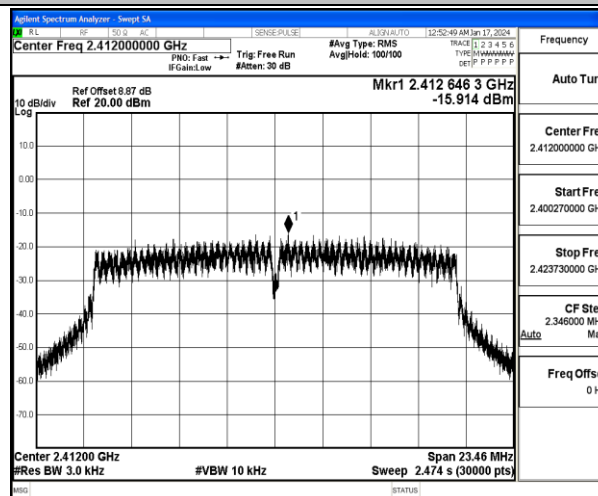


11G-Ant1-2437-PASS

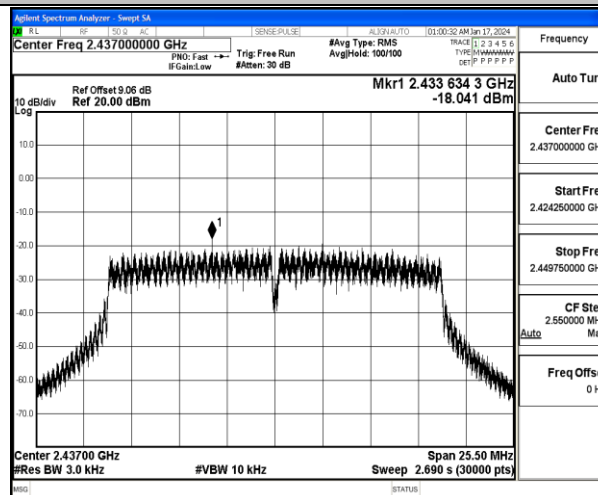




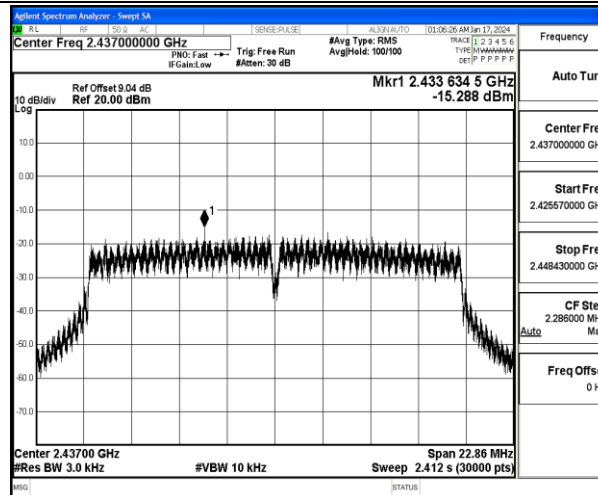
11N20MIMO-Ant1-2412-PASS



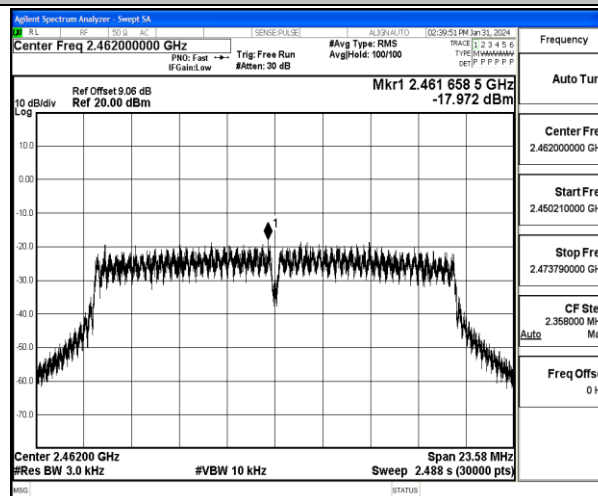
11N20MIMO-Ant2-2412-PASS



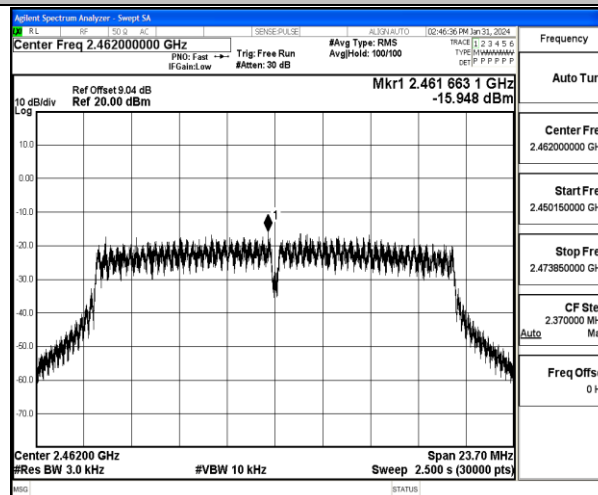
11N20MIMO-Ant1-2437-PASS



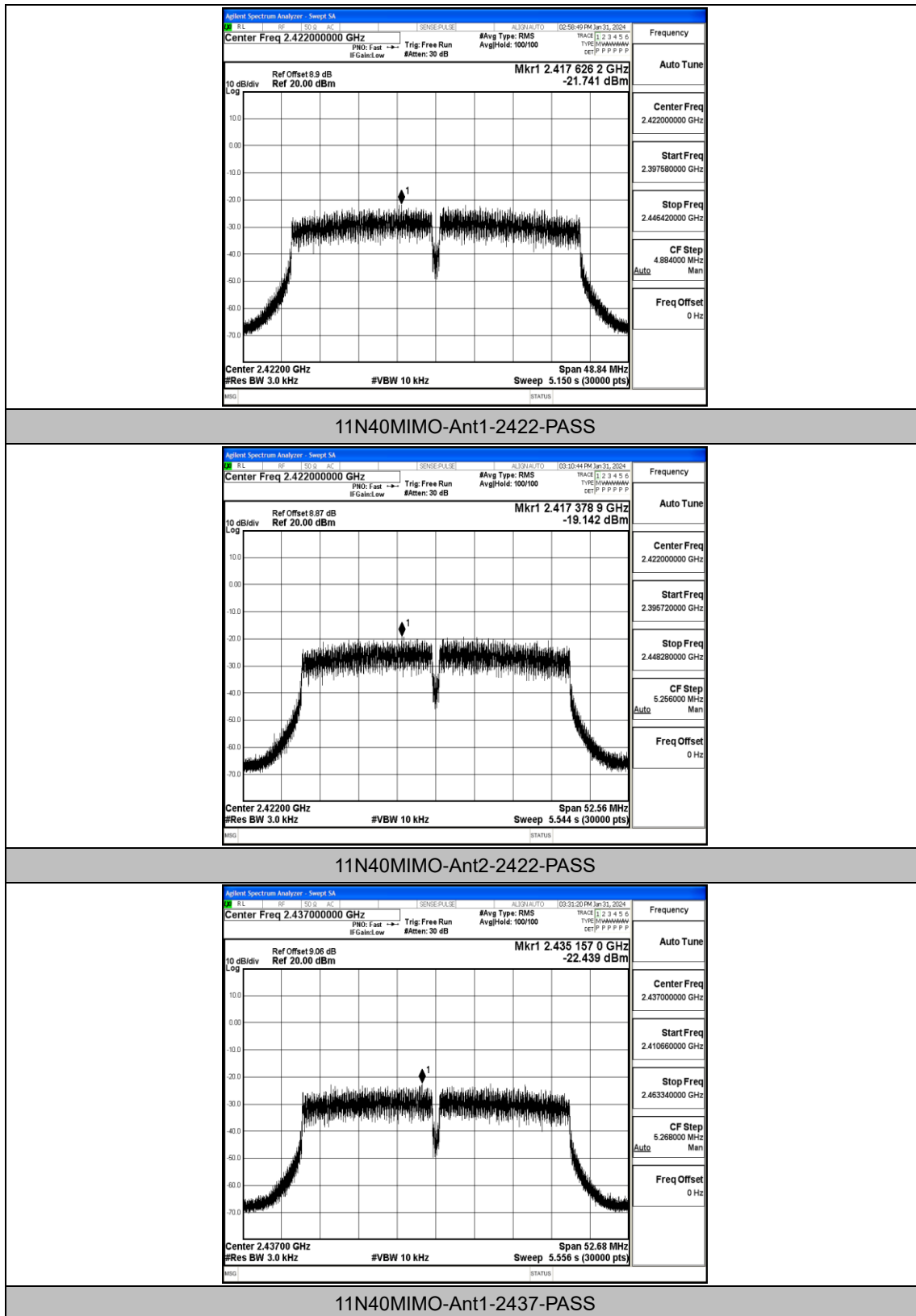
11N20MIMO-Ant2-2437-PASS

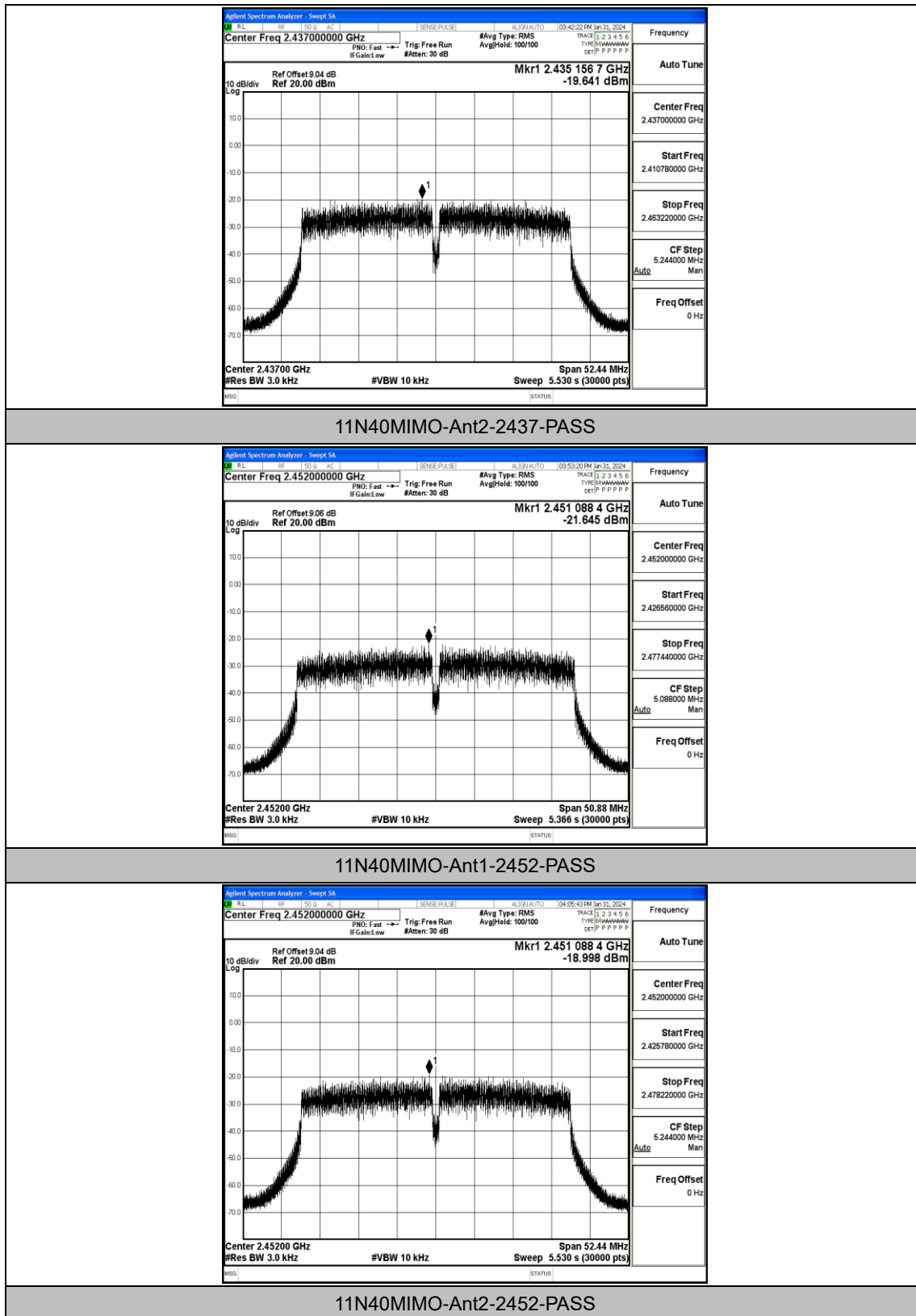


11N20MIMO-Ant1-2462-PASS



11N20MIMO-Ant2-2462-PASS



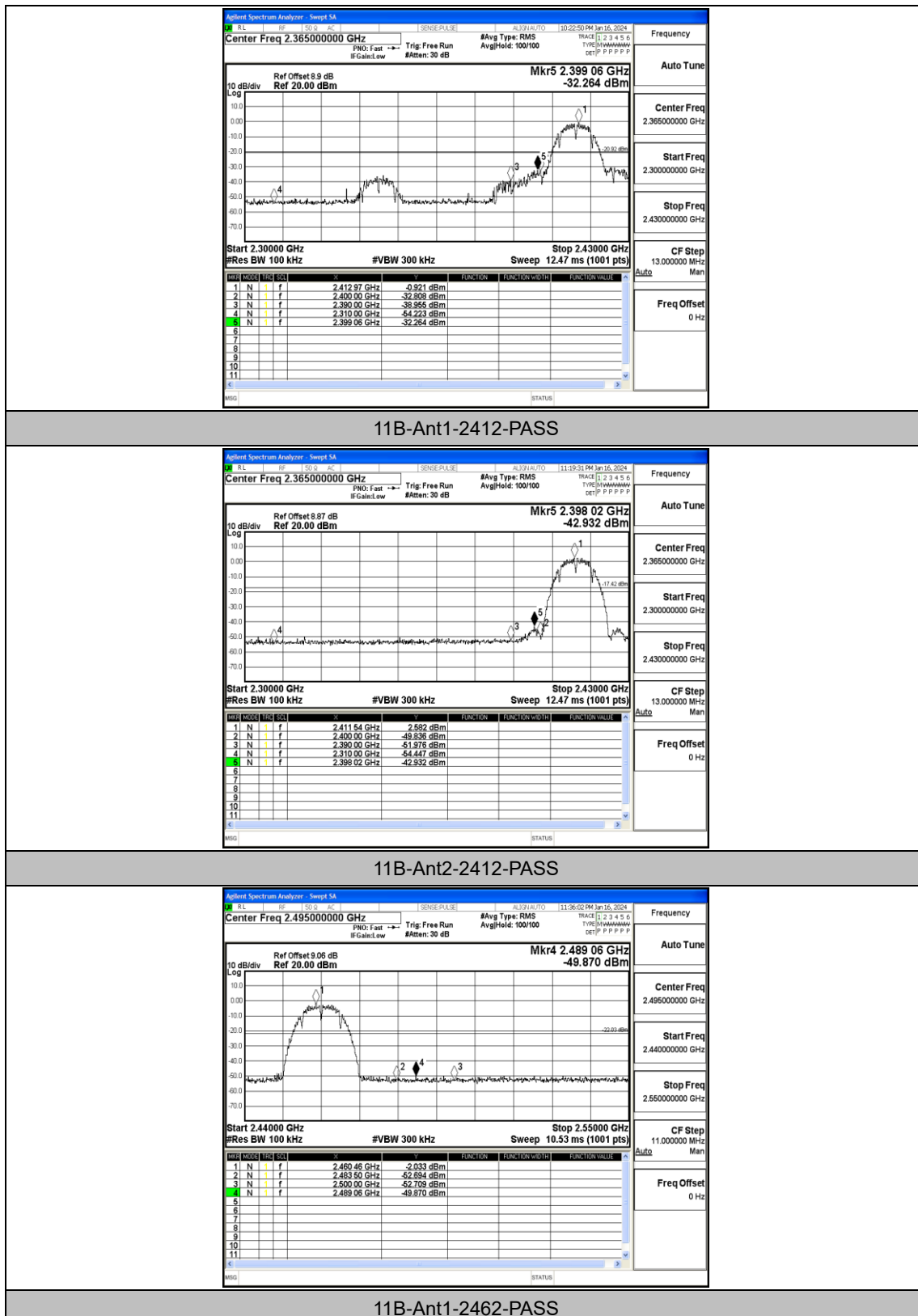


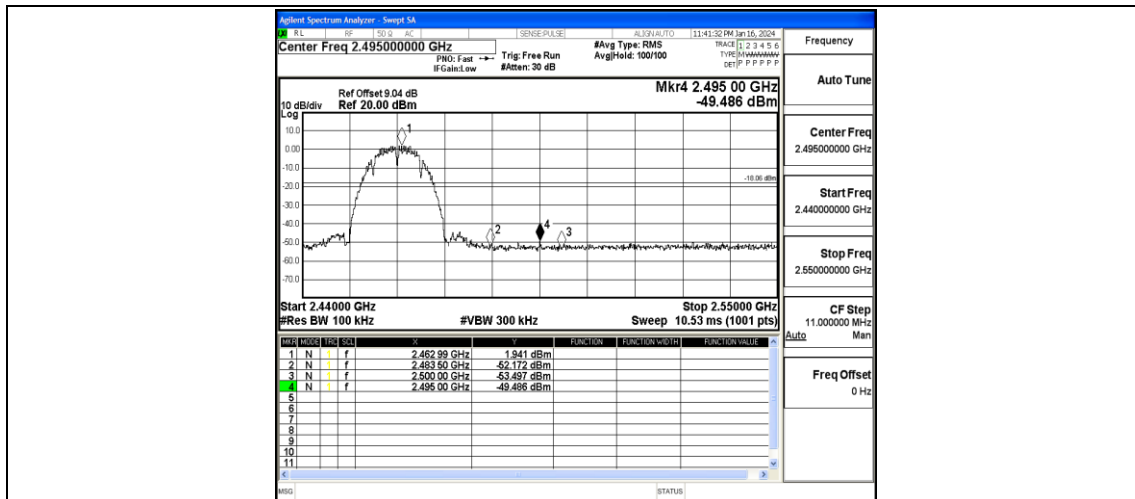
Appendix E: Band edge measurements

Test Result

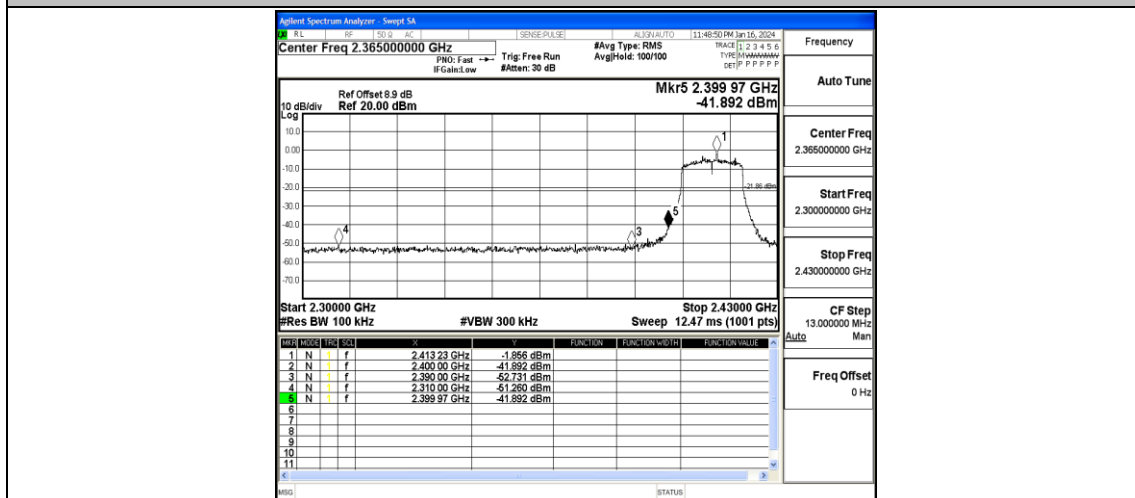
TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	-0.92	-32.26	≤-20.92	PASS
11B	Ant2	Low	2412	2.58	-42.93	≤-17.42	PASS
11B	Ant1	High	2462	-2.03	-49.87	≤-22.03	PASS
11B	Ant2	High	2462	1.94	-49.49	≤-18.06	PASS
11G	Ant1	Low	2412	-1.86	-41.89	≤-21.86	PASS
11G	Ant2	Low	2412	-0.85	-41.02	≤-20.85	PASS
11G	Ant1	High	2462	-6.15	-49.39	≤-26.15	PASS
11G	Ant2	High	2462	-3.36	-49.02	≤-23.36	PASS
11N20MIMO	Ant1	Low	2412	-6.85	-42.52	≤-26.85	PASS
11N20MIMO	Ant2	Low	2412	-2.76	-40.92	≤-22.76	PASS
11N20MIMO	Ant1	High	2462	-4.62	-49.24	≤-24.62	PASS
11N20MIMO	Ant2	High	2462	-3.52	-49.1	≤-23.52	PASS
11N40MIMO	Ant1	Low	2422	-7.50	-46.13	≤-27.5	PASS
11N40MIMO	Ant2	Low	2422	-4.86	-45.18	≤-24.86	PASS
11N40MIMO	Ant1	High	2452	-8.02	-49.25	≤-28.02	PASS
11N40MIMO	Ant2	High	2452	-5.24	-49.68	≤-25.24	PASS

Test Graphs

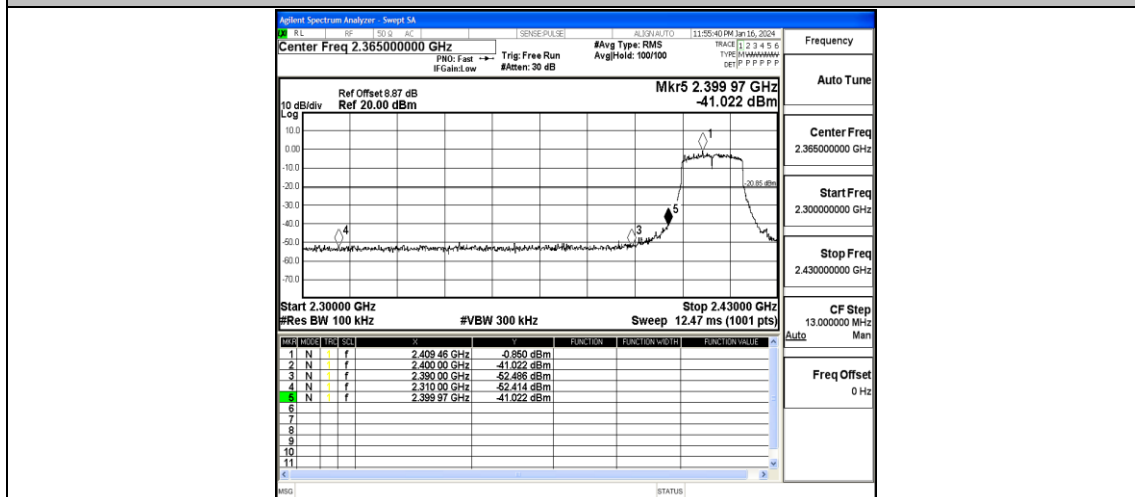




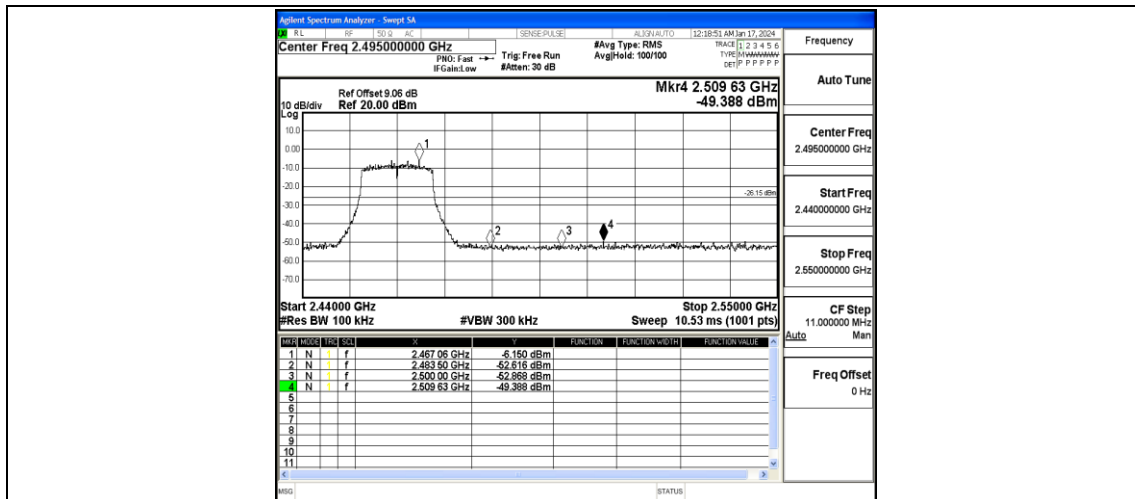
11B-Ant2-2462-PASS



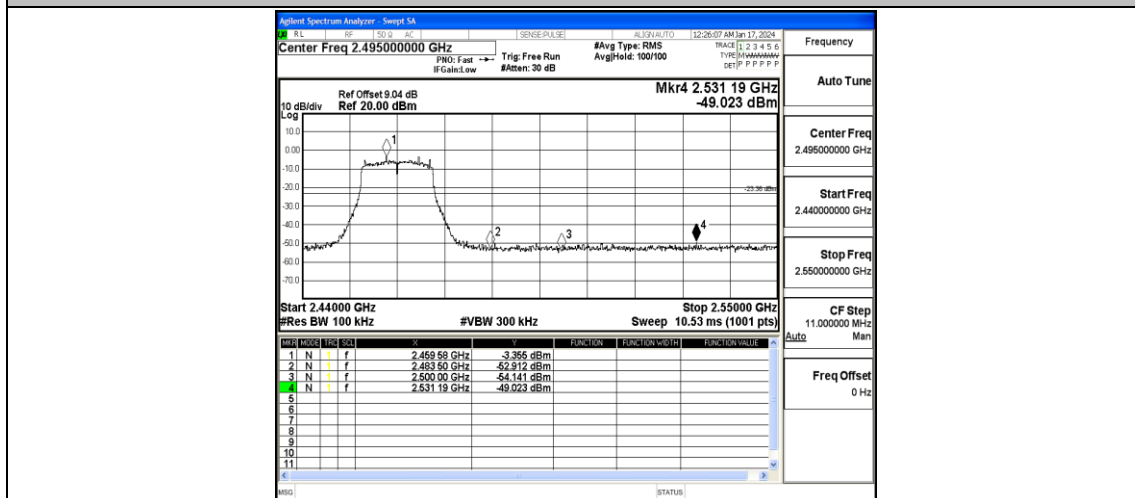
11G-Ant1-2412-PASS



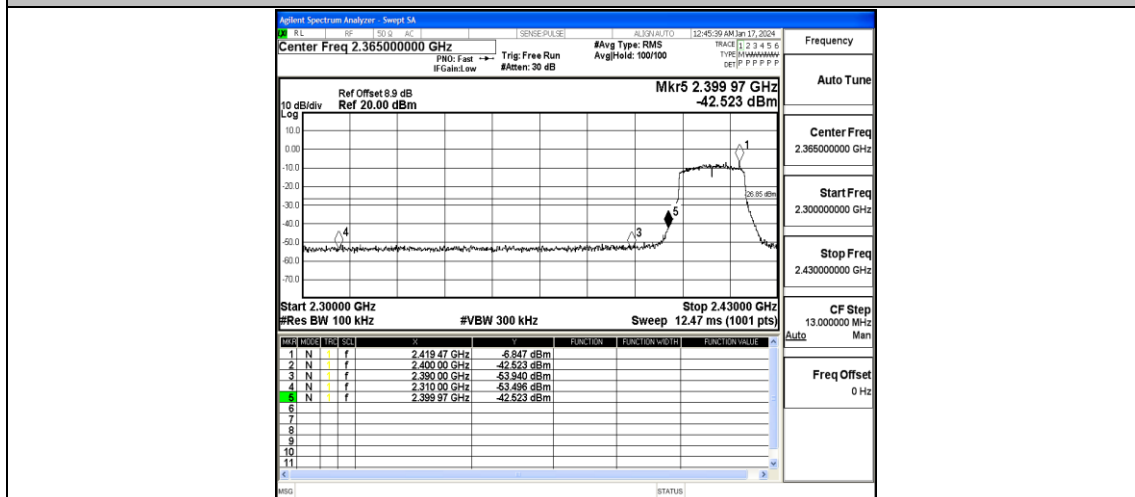
11G-Ant2-2412-PASS



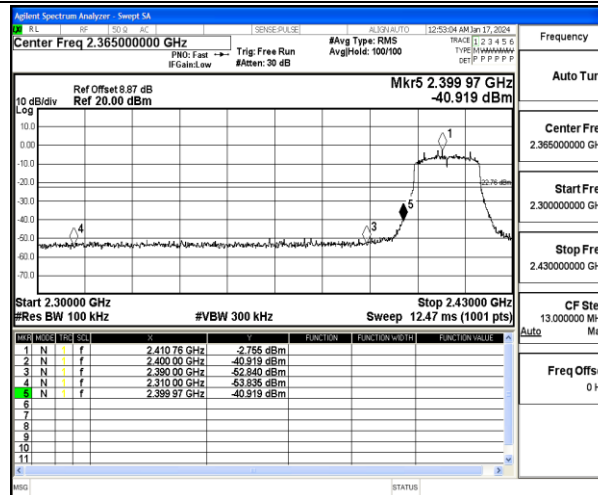
11G-Ant1-2462-PASS



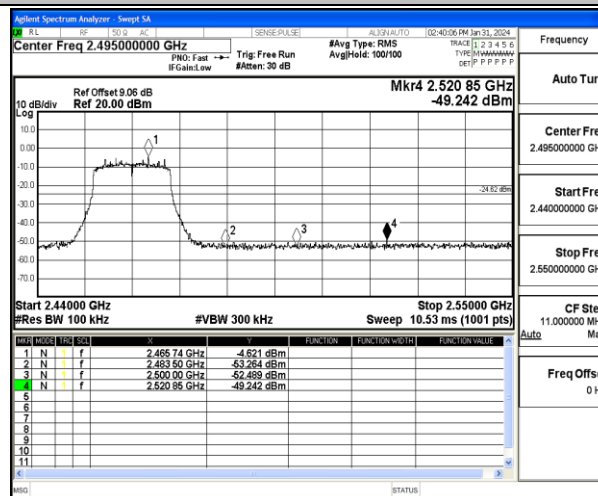
11G-Ant2-2462-PASS



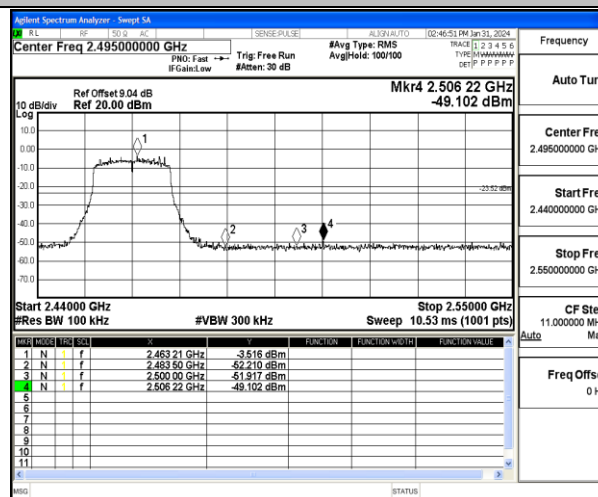
11N20MIMO-Ant1-2412-PASS



11N20MIMO-Ant2-2412-PASS



11N20MIMO-Ant1-2462-PASS



11N20MIMO-Ant2-2462-PASS