

## Appendix B: Test Results of 2.4GHz Wi-Fi

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## Appendix B.1: Test Results of Conducted Power Spectral Density

### SISO mode (Worst case\_ANT0)

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant0	2412	5.43	≤8.00	PASS
		2437	6.71	≤8.00	PASS
		2462	6.29	≤8.00	PASS
11G	Ant0	2412	1.08	≤8.00	PASS
		2437	1.47	≤8.00	PASS
		2462	1.16	≤8.00	PASS

11B Ant0 2412



11B Ant0 2437



11B Ant0 2462



11G\_Ant0\_2412



11G\_Ant0\_2437



11G\_Ant0\_2462

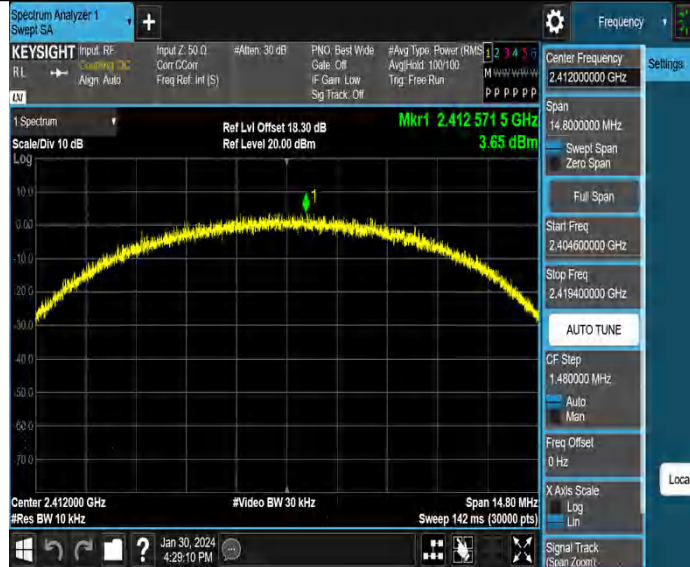


**MIMO mode (Worst case\_ANT0+ANT3)**

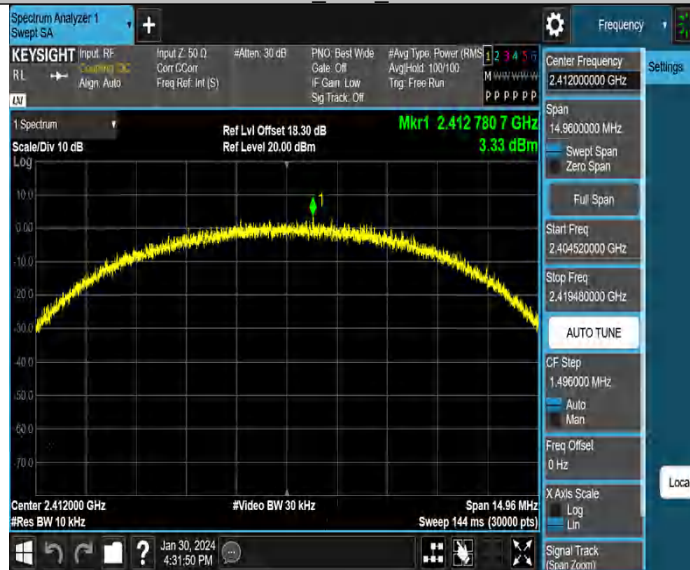
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant0	2412	3.65	≤8.00	PASS
	Ant3	2412	3.33	≤8.00	PASS
	Ant0	2437	5.50	≤8.00	PASS
	Ant3	2437	3.67	≤8.00	PASS
	Ant0	2462	4.97	≤8.00	PASS
	Ant3	2462	4.46	≤8.00	PASS
11G	Ant0	2412	1.15	≤8.00	PASS
	Ant3	2412	-0.79	≤8.00	PASS
	Ant0	2437	1.51	≤8.00	PASS
	Ant3	2437	-0.44	≤8.00	PASS
	Ant0	2462	1.11	≤8.00	PASS
	Ant3	2462	-0.12	≤8.00	PASS
11N20MIMO	Ant0	2412	-0.73	≤8.00	PASS
	Ant3	2412	-1.83	≤8.00	PASS
	total	2412	1.77	≤8.00	PASS
	Ant0	2437	-0.57	≤8.00	PASS
	Ant3	2437	-1.74	≤8.00	PASS
	total	2437	1.89	≤8.00	PASS
	Ant0	2462	-0.68	≤8.00	PASS
	Ant3	2462	-1.31	≤8.00	PASS
total	2462	2.03	≤8.00	PASS	
11N40MIMO	Ant0	2422	-3.74	≤8.00	PASS
	Ant3	2422	-4.77	≤8.00	PASS
	total	2422	-1.21	≤8.00	PASS
	Ant0	2437	-3.44	≤8.00	PASS
	Ant3	2437	-4.56	≤8.00	PASS
	total	2437	-0.95	≤8.00	PASS
	Ant0	2452	-3.62	≤8.00	PASS
	Ant3	2452	-4.83	≤8.00	PASS
total	2452	-1.17	≤8.00	PASS	
11AX20MIMO	Ant0	2412	-1.62	≤8.00	PASS
	Ant3	2412	-2.82	≤8.00	PASS
	total	2412	0.83	≤8.00	PASS
	Ant0	2437	-1.14	≤8.00	PASS
	Ant3	2437	-2.36	≤8.00	PASS
	total	2437	1.30	≤8.00	PASS
	Ant0	2462	-1.71	≤8.00	PASS
	Ant3	2462	-2.73	≤8.00	PASS
total	2462	0.82	≤8.00	PASS	
11AX40MIMO	Ant0	2422	-4.62	≤8.00	PASS
	Ant3	2422	-5.82	≤8.00	PASS
	total	2422	-2.17	≤8.00	PASS
	Ant0	2437	-4.49	≤8.00	PASS
	Ant3	2437	-5.82	≤8.00	PASS
	total	2437	-2.09	≤8.00	PASS
	Ant0	2452	-4.83	≤8.00	PASS
	Ant3	2452	-6.52	≤8.00	PASS
total	2452	-2.58	≤8.00	PASS	

\*For the 802.11n/802.11ax MIMO mode, the directional gain is 6.33dBi for MIMO mode, thus the power density limit should be reduced by 0.33dB.

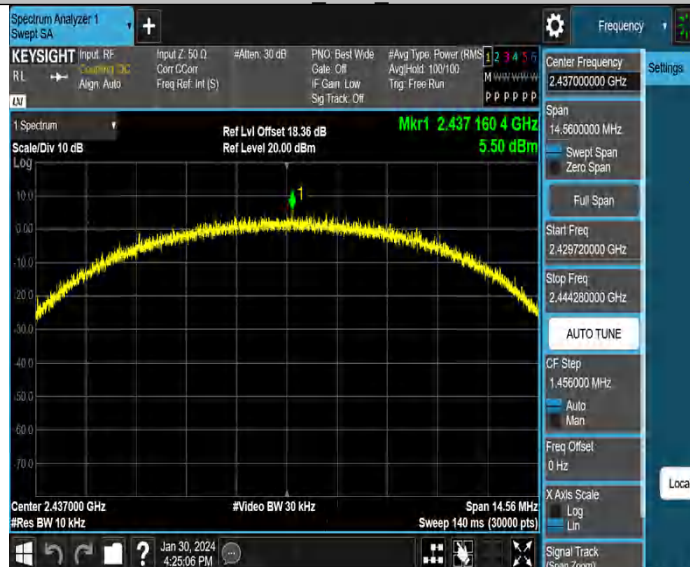
11B Ant0 2412



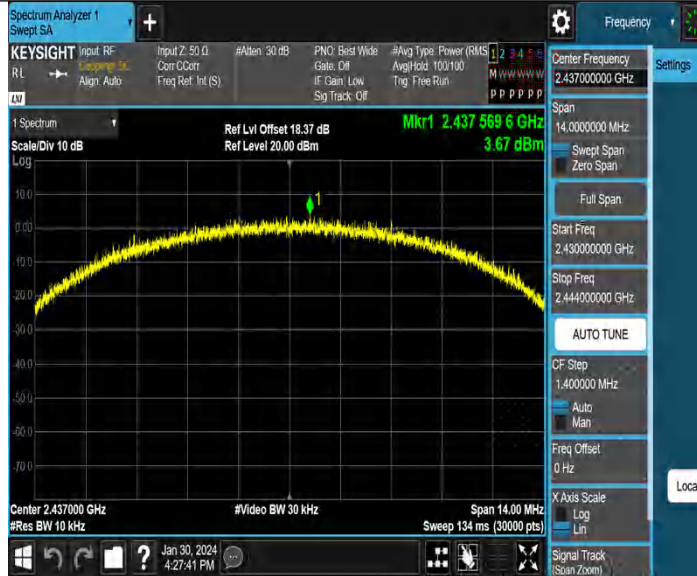
11B Ant3 2412



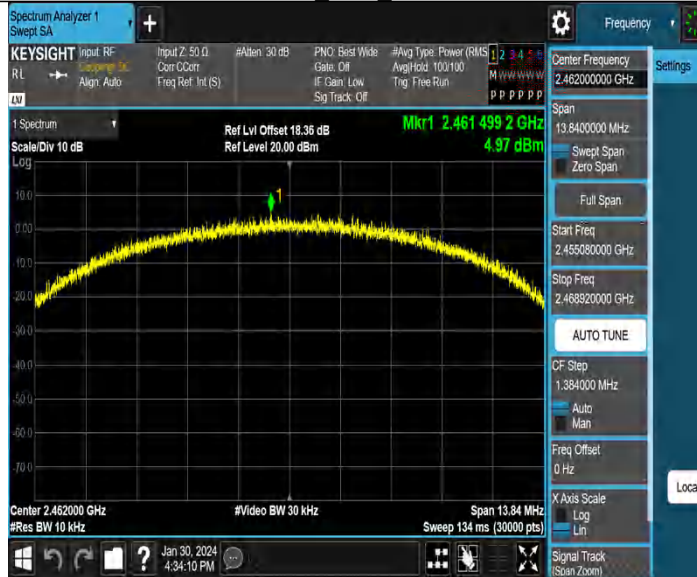
11B Ant0 2437



11B\_Ant3\_2437



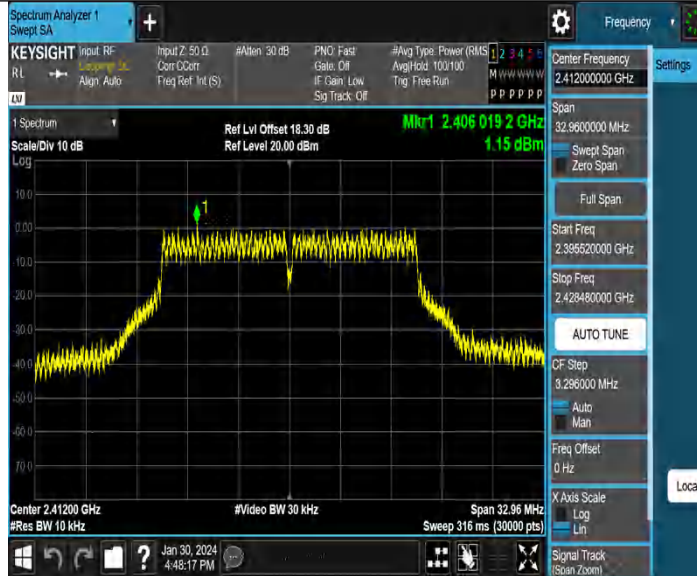
11B\_Ant0\_2462



11B\_Ant3\_2462



11G\_Ant0\_2412



11G\_Ant3\_2412

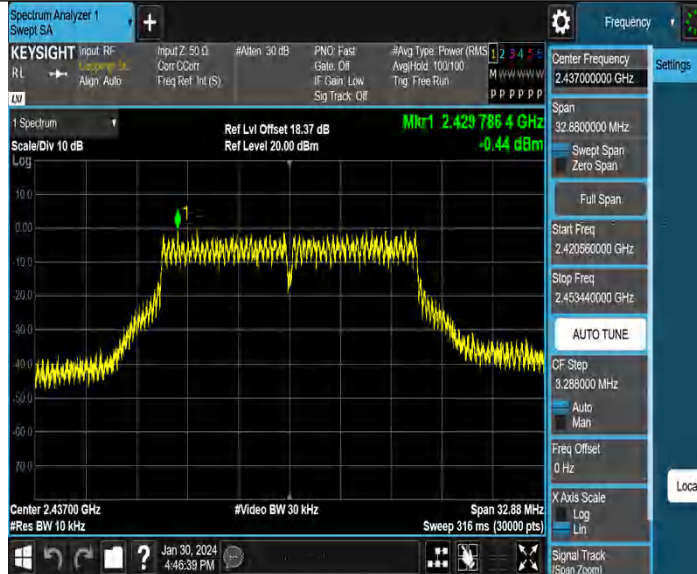


11G\_Ant0\_2437

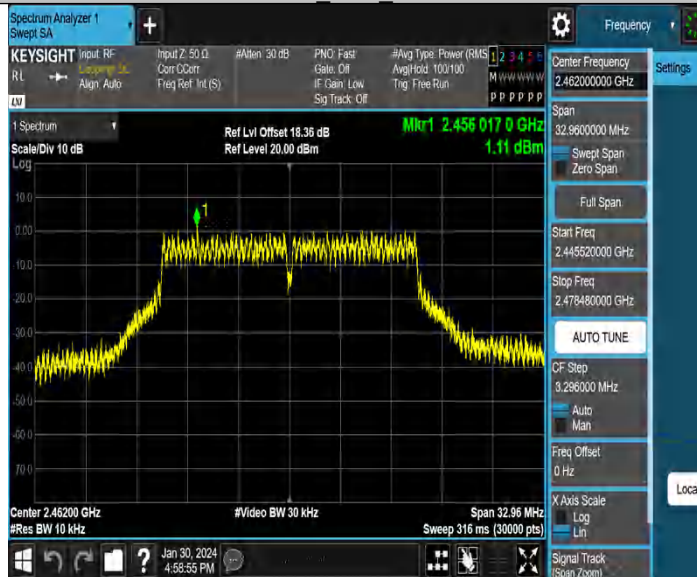




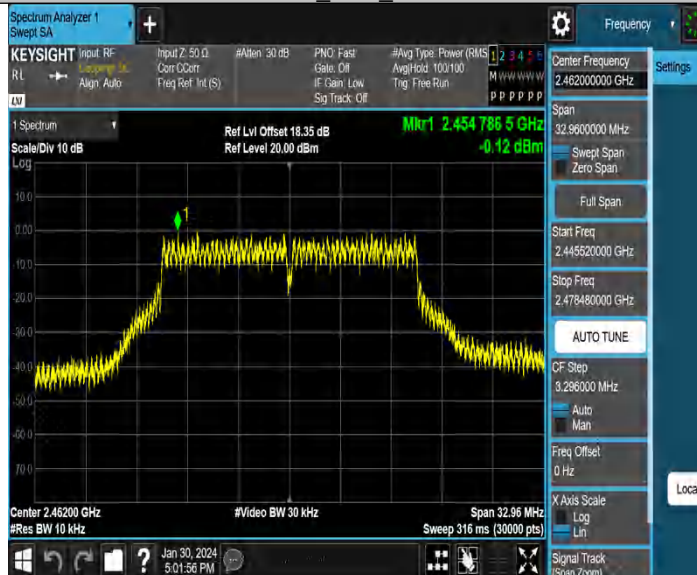
11G\_Ant3\_2437



11G\_Ant0\_2462

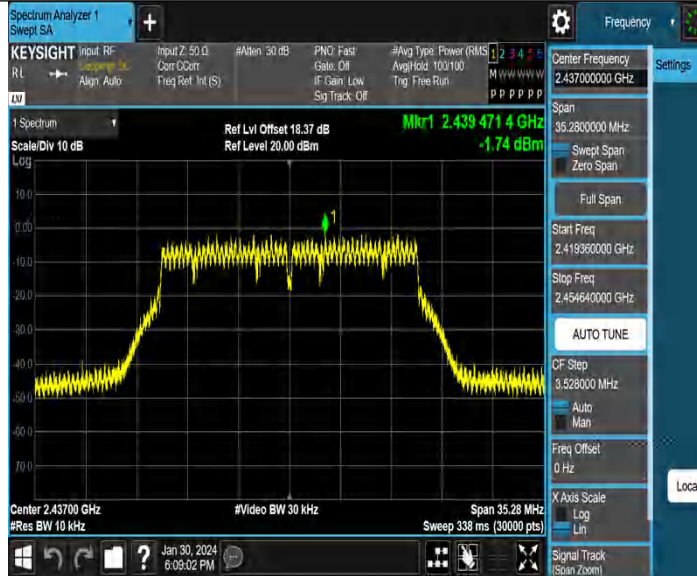


11G\_Ant3\_2462

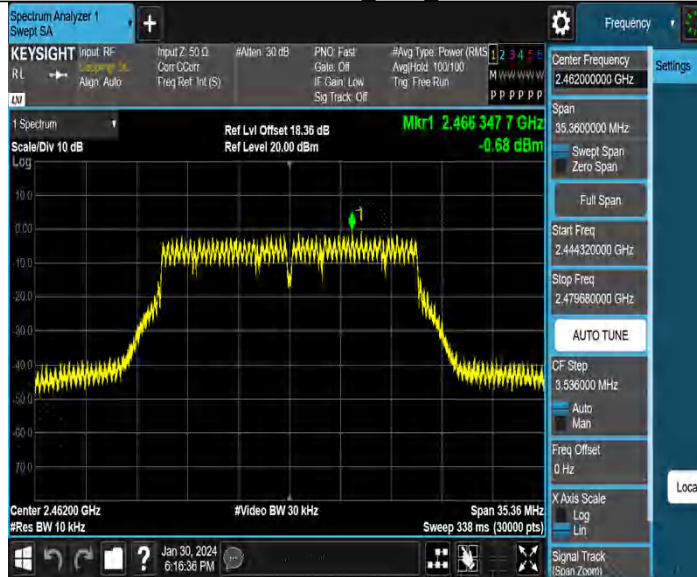




11N20MIMO Ant3 2437



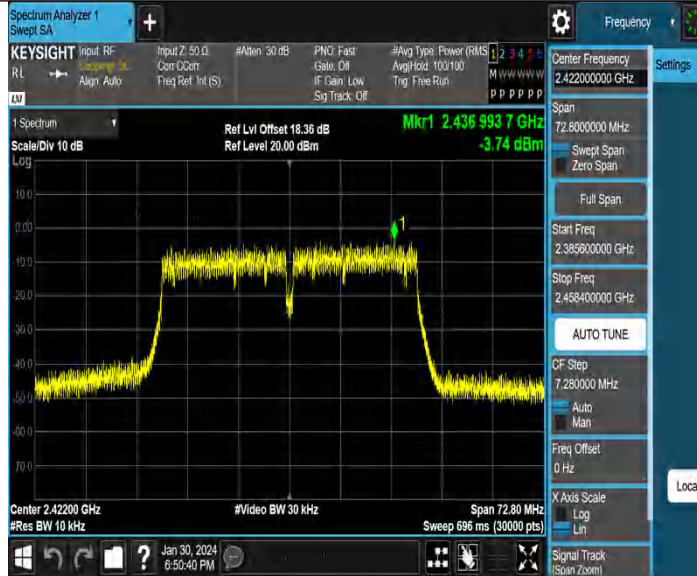
11N20MIMO Ant0 2462



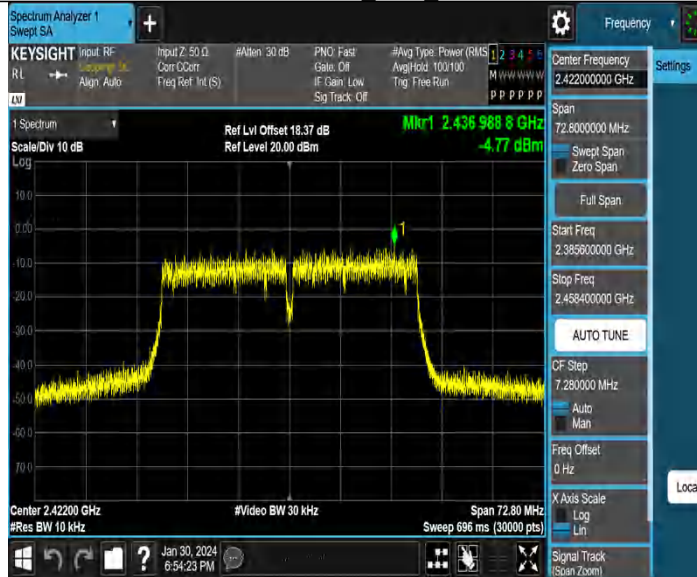
11N20MIMO Ant3 2462



11N40MIMO Ant0 2422



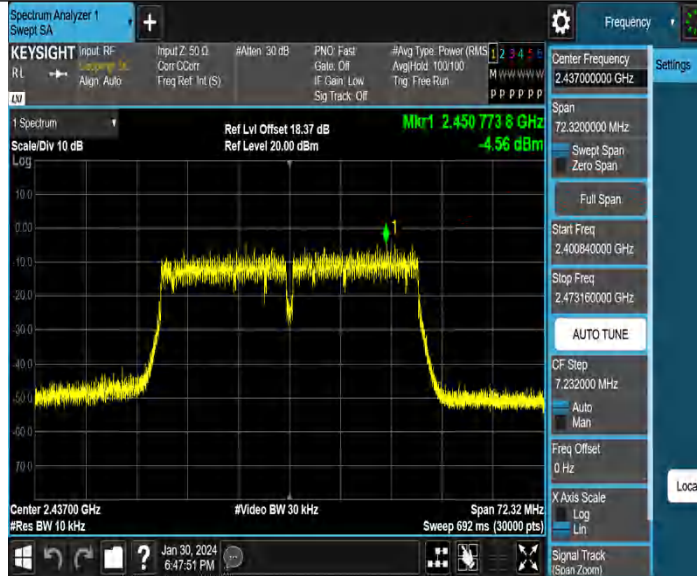
11N40MIMO Ant3 2422



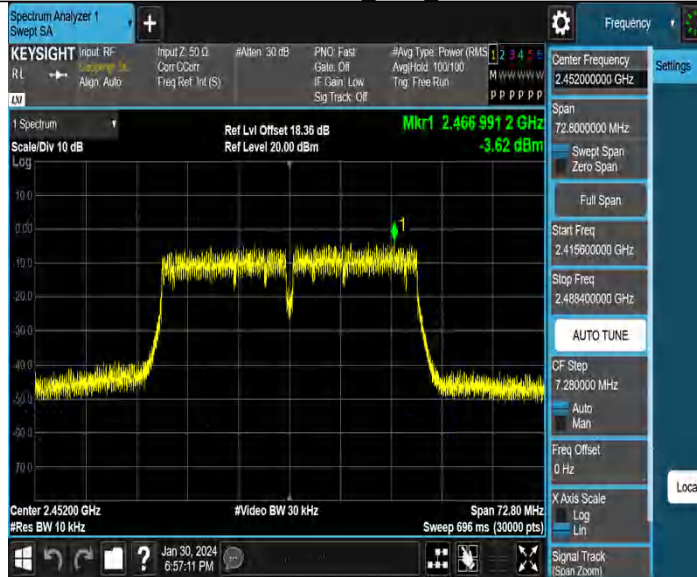
11N40MIMO Ant0 2437



11N40MIMO Ant3 2437



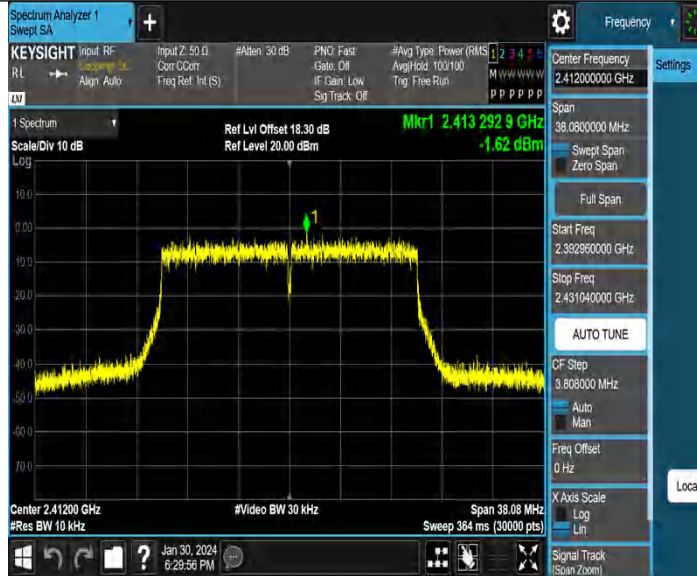
11N40MIMO Ant0 2452



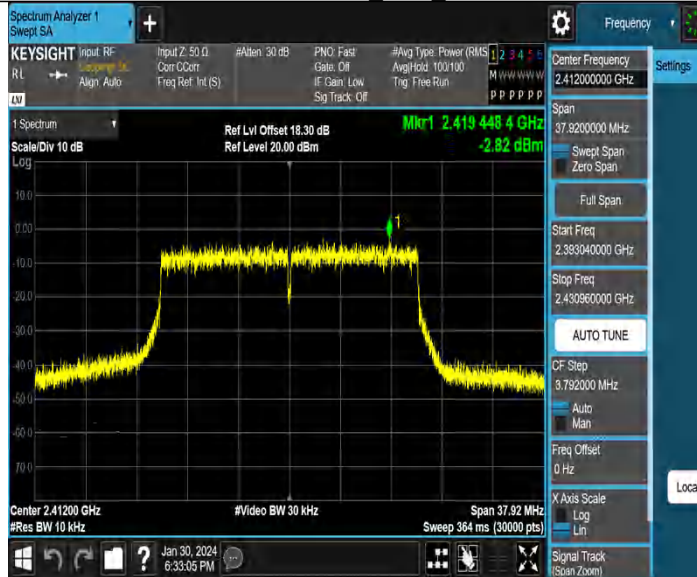
11N40MIMO Ant3 2452



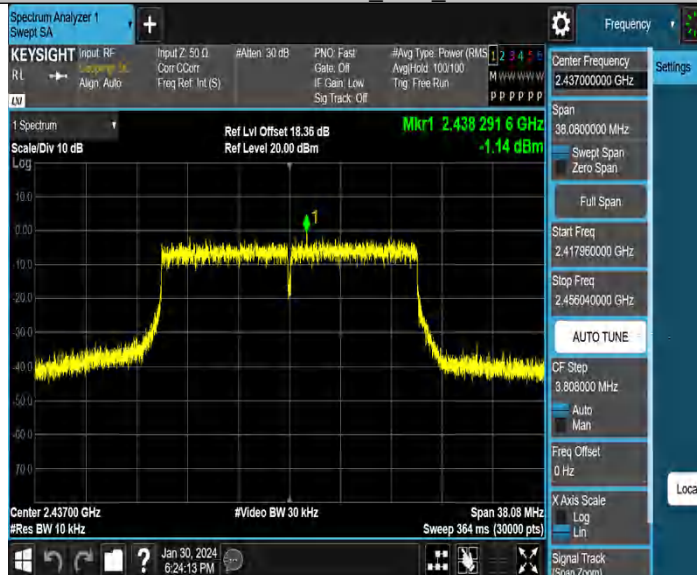
11AX20MIMO\_Ant0\_2412



11AX20MIMO\_Ant3\_2412



11AX20MIMO\_Ant0\_2437

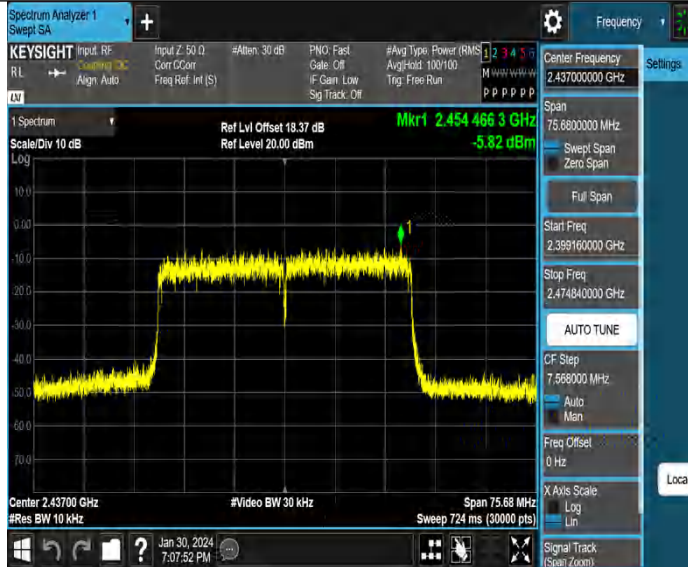








11AX40MIMO\_Ant3\_2437



11AX40MIMO\_Ant0\_2452



11AX40MIMO\_Ant3\_2452



### Appendix B.2: Test Results of 6dB Bandwidth

Note: This testing was carried out on SISO mode and MIMO mode, but only the worst case (MIMO mode ANT0+3) was presented in this report.

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant0	2412	7.400	2408.440	2415.840	0.5	PASS
	Ant3	2412	7.480	2408.120	2415.600	0.5	PASS
	Ant0	2437	7.280	2433.280	2440.560	0.5	PASS
	Ant3	2437	7.000	2433.480	2440.480	0.5	PASS
	Ant0	2462	6.920	2458.760	2465.680	0.5	PASS
	Ant3	2462	8.200	2458.000	2466.200	0.5	PASS
11G	Ant0	2412	16.480	2403.760	2420.240	0.5	PASS
	Ant3	2412	16.440	2403.800	2420.240	0.5	PASS
	Ant0	2437	16.480	2428.760	2445.240	0.5	PASS
	Ant3	2437	16.440	2428.800	2445.240	0.5	PASS
	Ant0	2462	16.480	2453.760	2470.240	0.5	PASS
	Ant3	2462	16.480	2453.760	2470.240	0.5	PASS
11N20MIMO	Ant0	2412	17.720	2403.120	2420.840	0.5	PASS
	Ant3	2412	17.680	2403.160	2420.840	0.5	PASS
	Ant0	2437	17.760	2428.120	2445.880	0.5	PASS
	Ant3	2437	17.640	2428.200	2445.840	0.5	PASS
	Ant0	2462	17.680	2453.160	2470.840	0.5	PASS
	Ant3	2462	17.680	2453.160	2470.840	0.5	PASS
11N40MIMO	Ant0	2422	36.400	2403.840	2440.240	0.5	PASS
	Ant3	2422	36.400	2403.840	2440.240	0.5	PASS
	Ant0	2437	36.160	2419.080	2455.240	0.5	PASS
	Ant3	2437	36.160	2419.080	2455.240	0.5	PASS
	Ant0	2452	36.400	2433.840	2470.240	0.5	PASS
	Ant3	2452	36.320	2433.840	2470.160	0.5	PASS
11AX20MIMO	Ant0	2412	19.040	2402.480	2421.520	0.5	PASS
	Ant3	2412	18.960	2402.520	2421.480	0.5	PASS
	Ant0	2437	19.040	2427.480	2446.520	0.5	PASS
	Ant3	2437	19.000	2427.520	2446.520	0.5	PASS
	Ant0	2462	19.040	2452.480	2471.520	0.5	PASS
	Ant3	2462	18.920	2452.600	2471.520	0.5	PASS
11AX40MIMO	Ant0	2422	37.760	2403.200	2440.960	0.5	PASS
	Ant3	2422	37.760	2403.200	2440.960	0.5	PASS
	Ant0	2437	37.600	2418.200	2455.800	0.5	PASS
	Ant3	2437	37.840	2418.200	2456.040	0.5	PASS
	Ant0	2452	37.760	2433.200	2470.960	0.5	PASS
	Ant3	2452	37.600	2433.200	2470.800	0.5	PASS

11B Ant0 2412



11B Ant3 2412



11B Ant0 2437



11B\_Ant3\_2437



11B\_Ant0\_2462



11B\_Ant3\_2462



11G\_Ant0\_2412



11G\_Ant3\_2412



11G\_Ant0\_2437



11G\_Ant3\_2437



11G\_Ant0\_2462



11G\_Ant3\_2462



11N20MIMO Ant0 2412



11N20MIMO Ant3 2412



11N20MIMO Ant0 2437



11N20MIMO Ant3 2437



11N20MIMO Ant0 2462



11N20MIMO Ant3 2462





11N40MIMO Ant0 2422



11N40MIMO Ant3 2422



11N40MIMO Ant0 2437



11N40MIMO Ant3 2437



11N40MIMO Ant0 2452



11N40MIMO Ant3 2452



11AX20MIMO\_Ant0\_2412



11AX20MIMO\_Ant3\_2412



11AX20MIMO\_Ant0\_2437



11AX20MIMO\_Ant3\_2437



11AX20MIMO\_Ant0\_2462



11AX20MIMO\_Ant3\_2462



11AX40MIMO\_Ant0\_2422



11AX40MIMO\_Ant3\_2422



11AX40MIMO\_Ant0\_2437



11AX40MIMO\_Ant3\_2437



11AX40MIMO\_Ant0\_2452



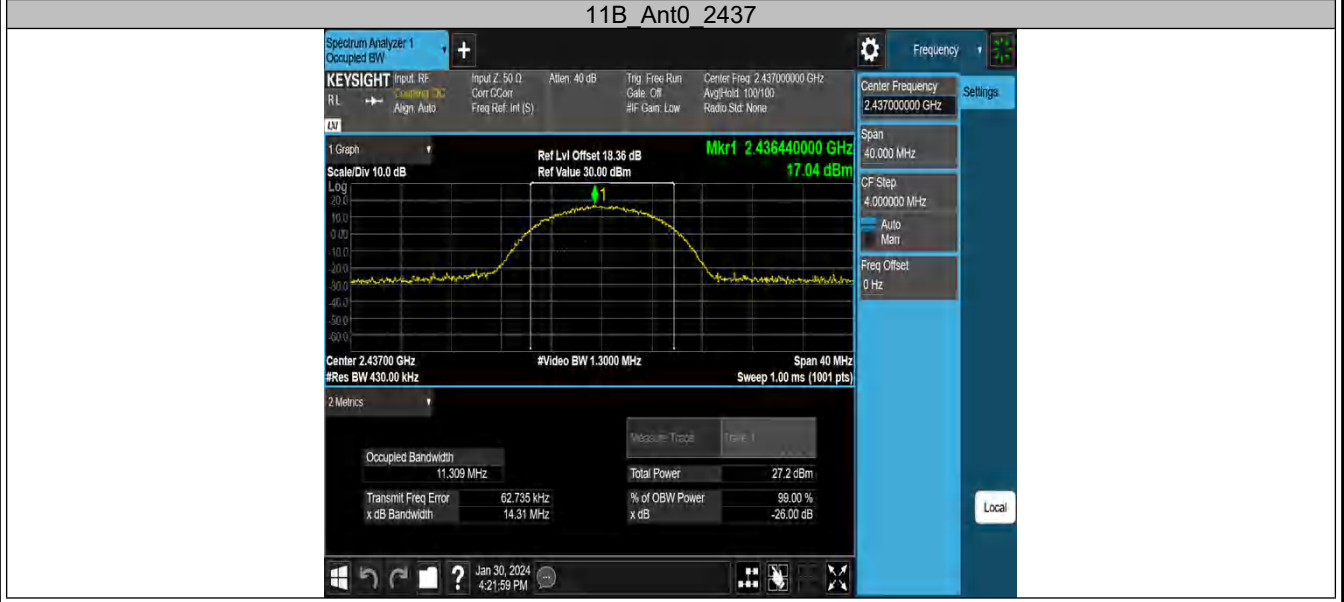
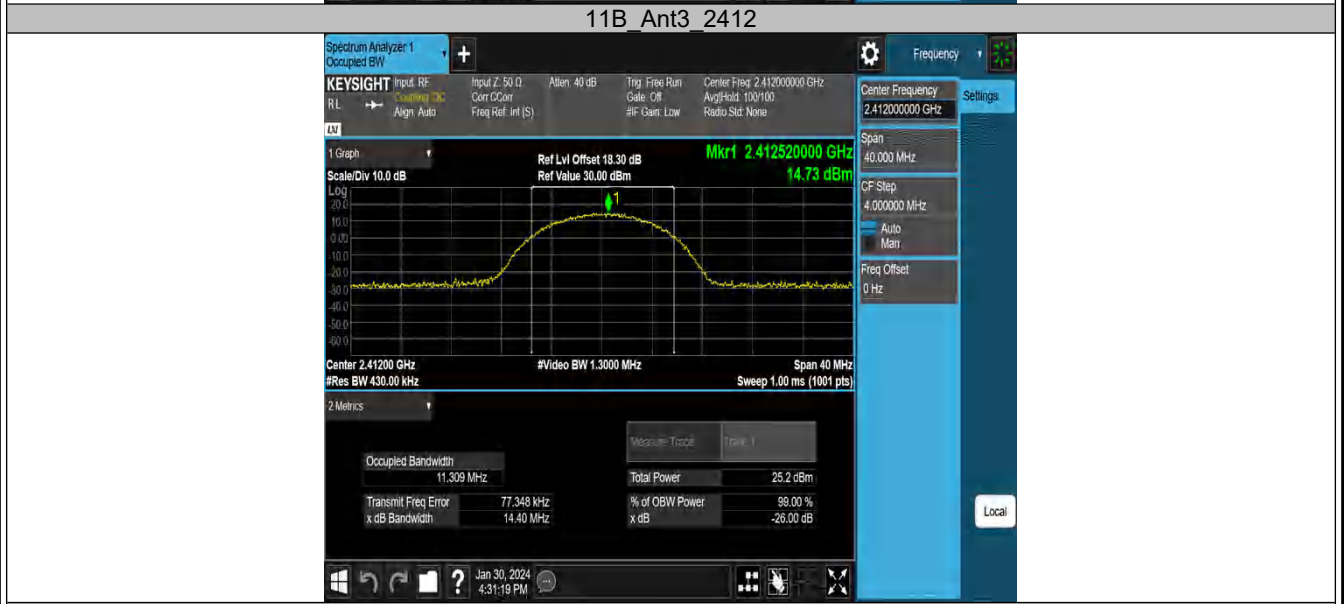
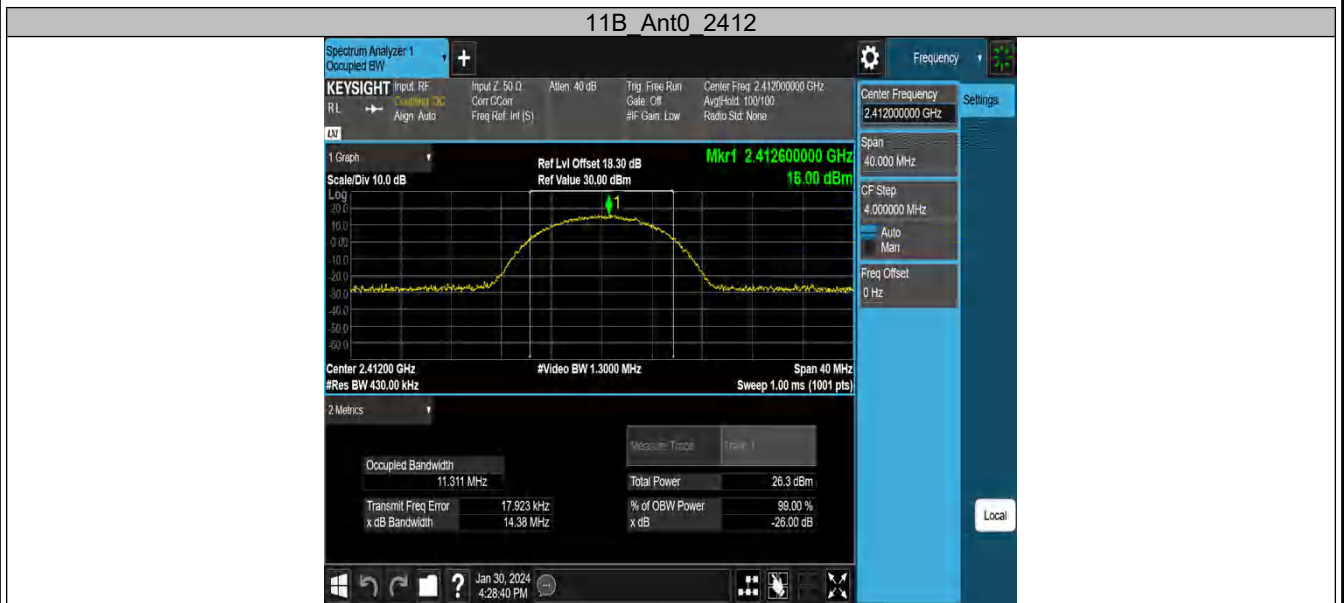
11AX40MIMO\_Ant3\_2452



### Appendix B.3: Test Results of 99% Bandwidth

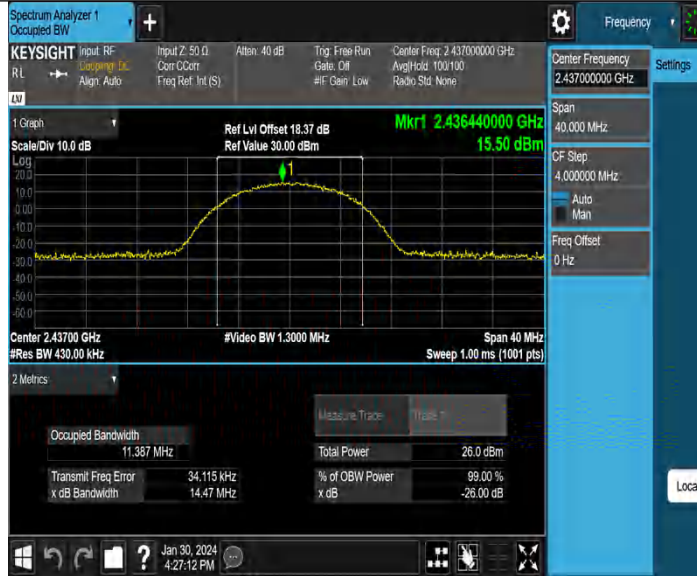
Note: This testing was carried out on SISO mode and MIMO mode, but only the worst case (MIMO mode ANT0+3) was presented in this report.

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant0	2412	11.311	2406.3624	2417.6734	---	PASS
	Ant3	2412	11.309	2406.4229	2417.7319	---	PASS
	Ant0	2437	11.309	2431.4082	2442.7172	---	PASS
	Ant3	2437	11.387	2431.3406	2442.7276	---	PASS
	Ant0	2462	11.327	2456.3735	2467.7005	---	PASS
	Ant3	2462	11.452	2456.3149	2467.7669	---	PASS
11G	Ant0	2412	17.166	2403.4898	2420.6558	---	PASS
	Ant3	2412	17.388	2403.3880	2420.7760	---	PASS
	Ant0	2437	17.255	2428.4853	2445.7403	---	PASS
	Ant3	2437	17.205	2428.4816	2445.6866	---	PASS
	Ant0	2462	17.224	2453.4991	2470.7231	---	PASS
	Ant3	2462	17.189	2453.5079	2470.6969	---	PASS
11N20MIMO	Ant0	2412	18.218	2402.9310	2421.1490	---	PASS
	Ant3	2412	18.181	2402.9313	2421.1123	---	PASS
	Ant0	2437	18.192	2427.9671	2446.1591	---	PASS
	Ant3	2437	18.182	2427.9448	2446.1268	---	PASS
	Ant0	2462	18.284	2452.8993	2471.1833	---	PASS
	Ant3	2462	18.225	2452.9676	2471.1926	---	PASS
11N40MIMO	Ant0	2422	36.571	2403.8301	2440.4011	---	PASS
	Ant3	2422	36.536	2403.8390	2440.3750	---	PASS
	Ant0	2437	36.605	2418.8323	2455.4373	---	PASS
	Ant3	2437	36.607	2418.8225	2455.4295	---	PASS
	Ant0	2452	36.507	2433.8890	2470.3960	---	PASS
	Ant3	2452	36.536	2433.8885	2470.4245	---	PASS
11AX20MIMO	Ant0	2412	19.192	2402.4328	2421.6248	---	PASS
	Ant3	2412	19.172	2402.4340	2421.6060	---	PASS
	Ant0	2437	19.171	2427.4421	2446.6131	---	PASS
	Ant3	2437	19.139	2427.4268	2446.5658	---	PASS
	Ant0	2462	19.167	2452.4166	2471.5836	---	PASS
	Ant3	2462	19.203	2452.4215	2471.6245	---	PASS
11AX40MIMO	Ant0	2422	37.705	2403.2736	2440.9786	---	PASS
	Ant3	2422	37.797	2403.1793	2440.9763	---	PASS
	Ant0	2437	37.721	2418.2752	2455.9962	---	PASS
	Ant3	2437	37.823	2418.1767	2455.9997	---	PASS
	Ant0	2452	37.837	2433.1854	2471.0224	---	PASS
	Ant3	2452	37.799	2433.1914	2470.9904	---	PASS





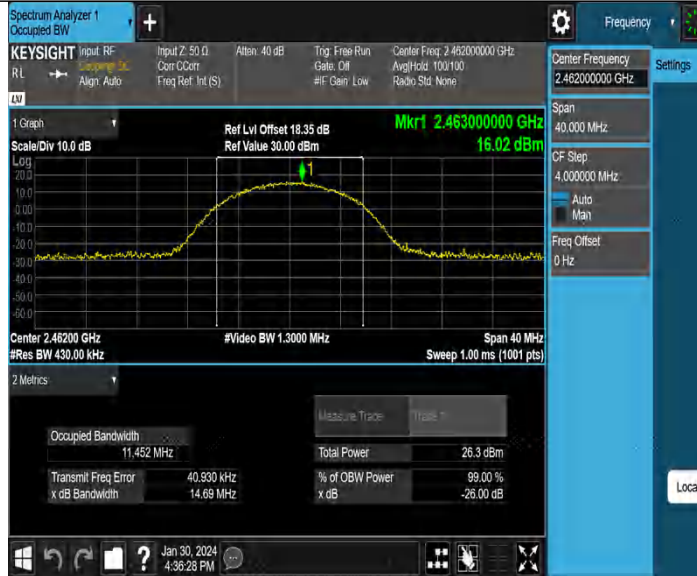
11B\_Ant3\_2437



11B\_Ant0\_2462



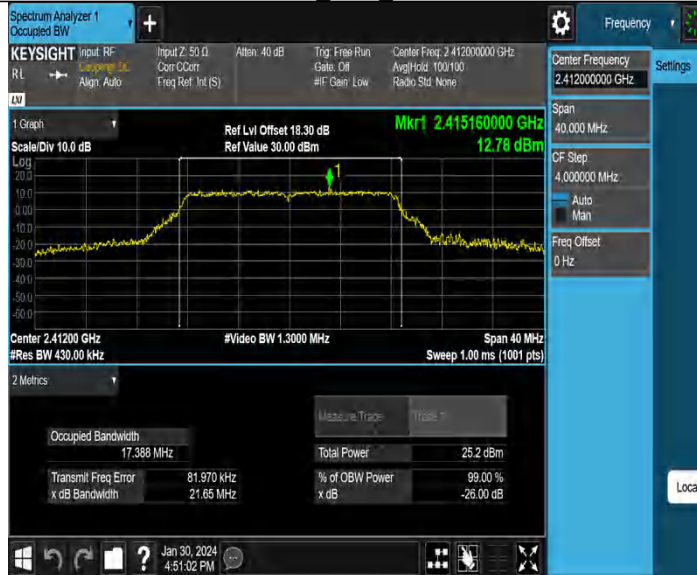
11B\_Ant3\_2462



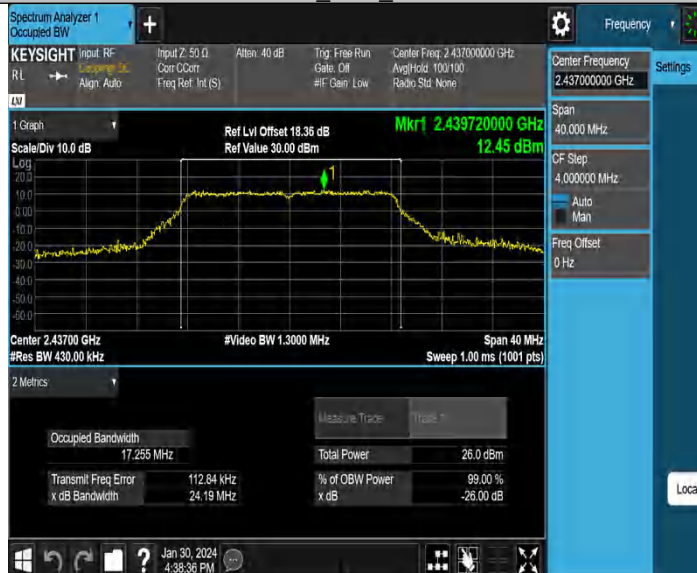
11G\_Ant0\_2412



11G\_Ant3\_2412



11G\_Ant0\_2437



11G\_Ant3\_2437



11G\_Ant0\_2462



11G\_Ant3\_2462



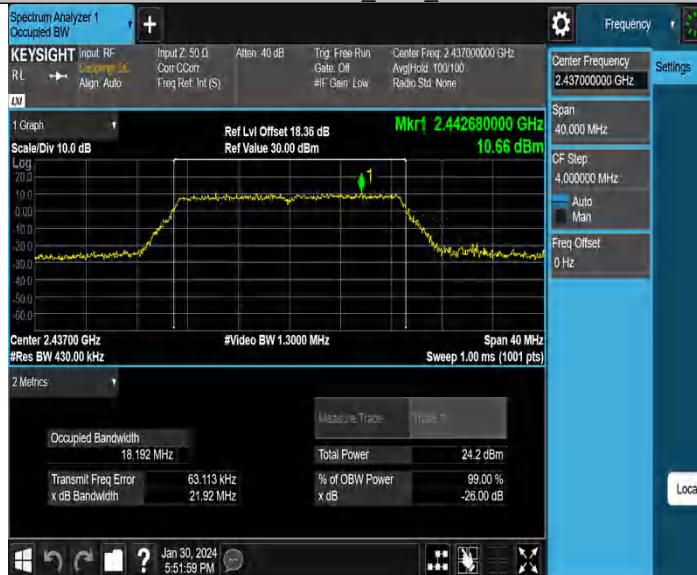
11N20MIMO Ant0 2412



11N20MIMO Ant3 2412



11N20MIMO Ant0 2437



11N20MIMO Ant3 2437



11N20MIMO Ant0 2462



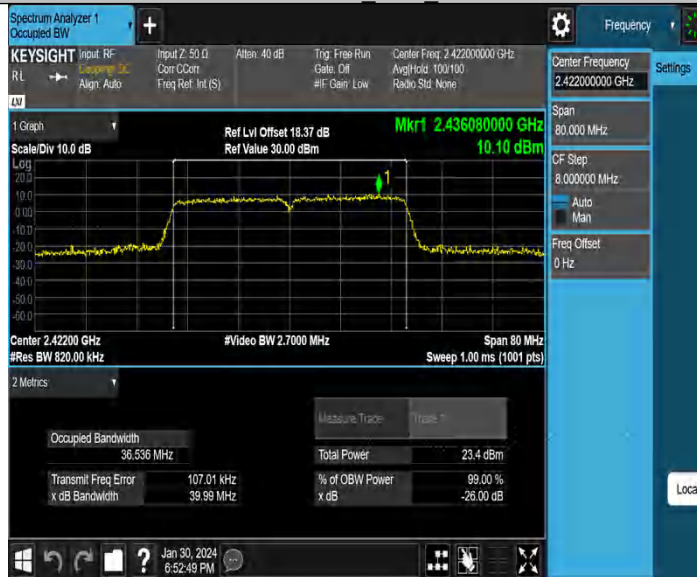
11N20MIMO Ant3 2462



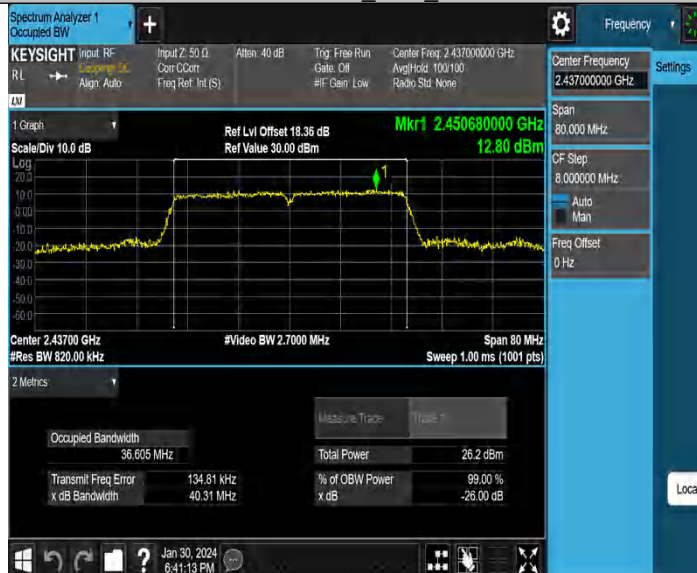
11N40MIMO Ant0 2422



11N40MIMO Ant3 2422



11N40MIMO Ant0 2437



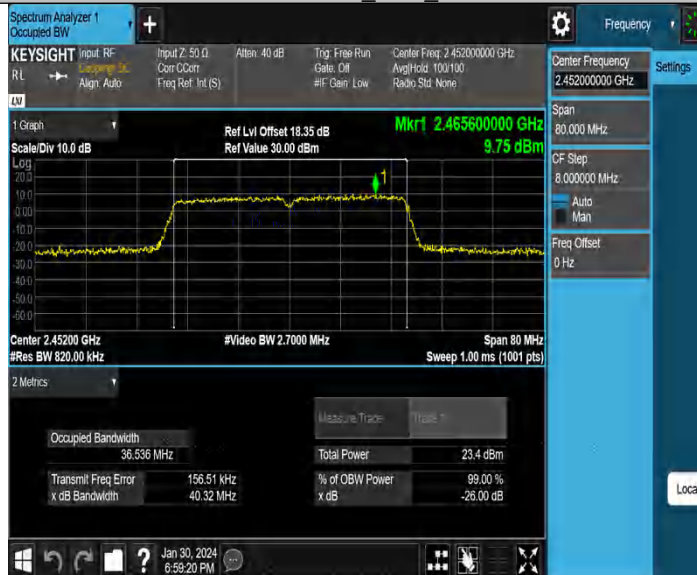
11N40MIMO Ant3 2437



11N40MIMO Ant0 2452



11N40MIMO Ant3 2452



11AX20MIMO\_Ant0\_2412



11AX20MIMO\_Ant3\_2412



11AX20MIMO\_Ant0\_2437





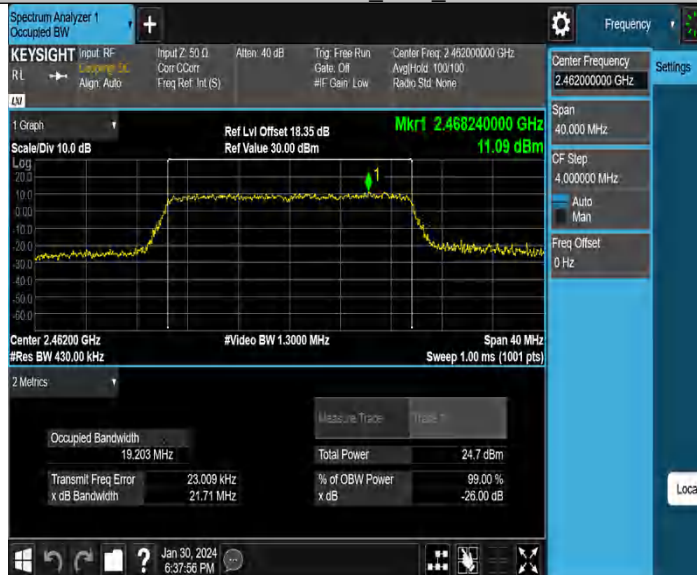
11AX20MIMO\_Ant3\_2437



11AX20MIMO\_Ant0\_2462



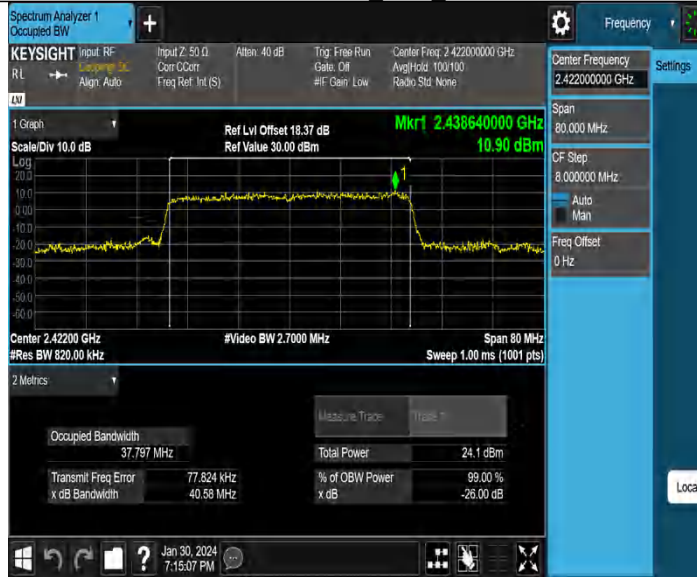
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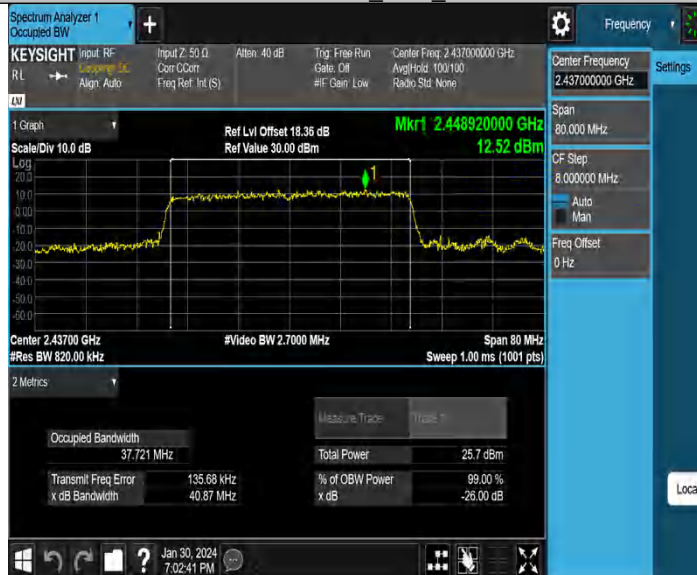
11AX40MIMO\_Ant0\_2422



11AX40MIMO\_Ant3\_2422



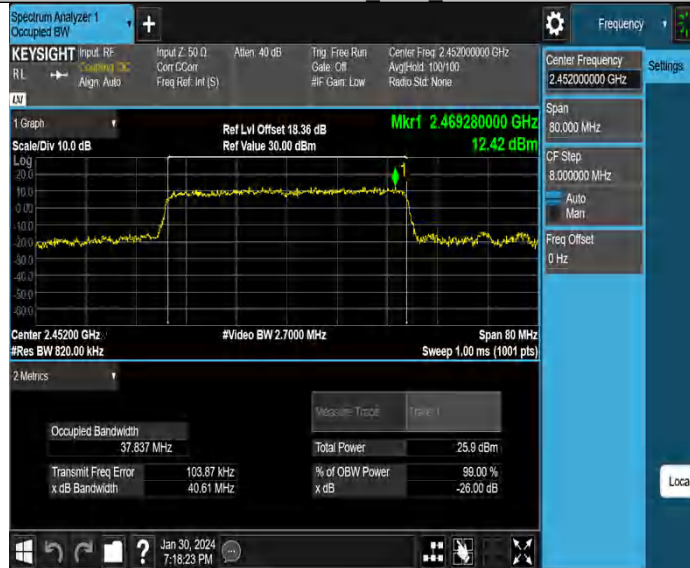
11AX40MIMO\_Ant0\_2437



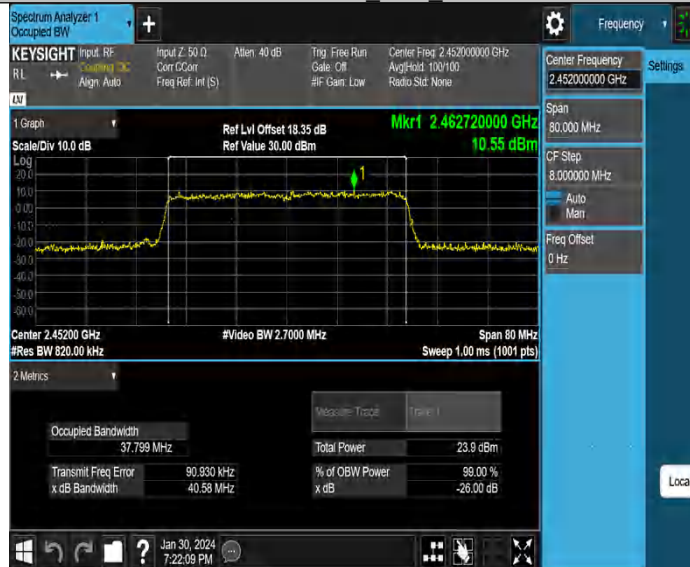
11AX40MIMO\_Ant3\_2437



11AX40MIMO\_Ant0\_2452



11AX40MIMO\_Ant3\_2452



## Appendix B.4: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

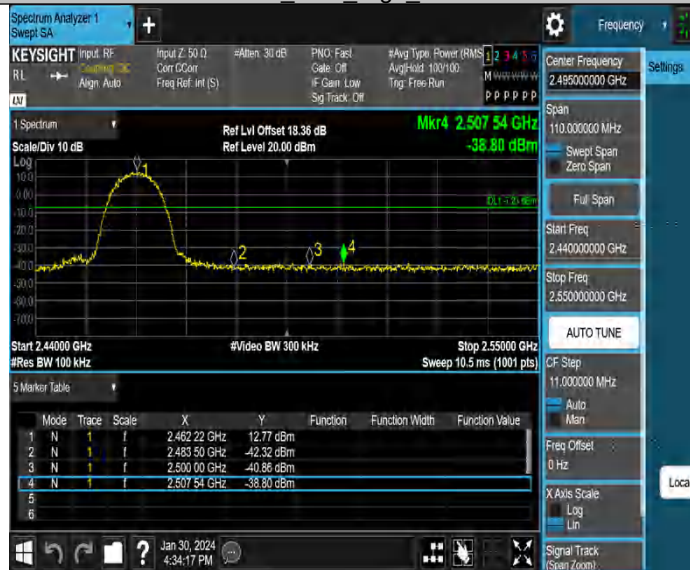
### Band Edge

TestMode	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Low	2412	12.93	-37.76	≤-7.07	PASS
	High	2462	12.77	-38.8	≤-7.23	PASS
11G	Low	2412	9.54	-23.34	≤-10.46	PASS
	High	2462	9.62	-28.75	≤-10.38	PASS
11N20MIMO	Low	2412	7.33	-28.65	≤-12.67	PASS
	High	2462	7.55	-31.54	≤-12.45	PASS
11N40MIMO	Low	2422	4.49	-27.87	≤-15.51	PASS
	High	2452	4.56	-30.36	≤-15.44	PASS
11AX20MIMO	Low	2412	7.39	-28.58	≤-12.61	PASS
	High	2462	7.41	-33.33	≤-12.59	PASS
11AX40MIMO	Low	2422	4.17	-26.55	≤-15.83	PASS
	High	2452	4.81	-26.35	≤-15.19	PASS

11B Ant0 Low 2412



11B Ant0 High 2462



11G Ant0 Low 2412



11G Ant0 High 2462



11N20MIMO Ant0 Low 2412



11N20MIMO Ant0 High 2462



11N40MIMO\_Ant0\_Low\_2422



11N40MIMO\_Ant0\_High\_2452



11AX20MIMO\_Ant0\_Low\_2412



11AX20MIMO Ant0 High 2462



11AX40MIMO Ant0 Low 2422



11AX40MIMO Ant0 High 2452





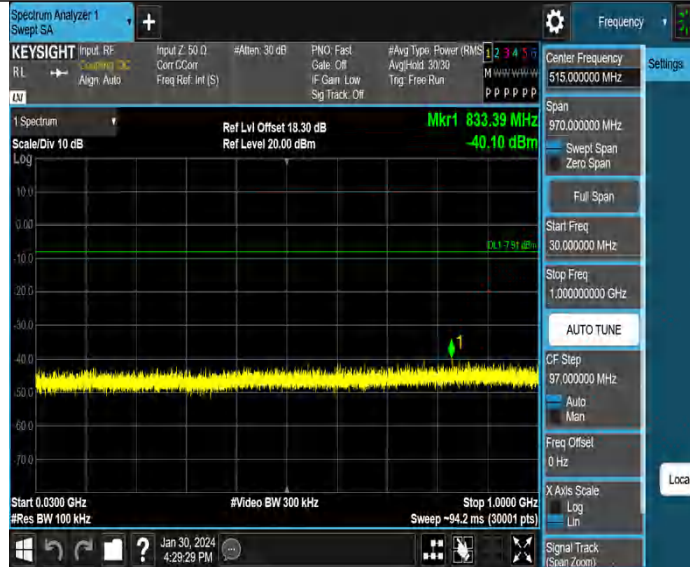
**Conducted Spurious Emission**

TestMode	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	2412	Reference	12.09	12.09	---	PASS
		30~1000	12.09	-40.1	≤-7.91	PASS
		1000~26500	12.09	-31.9	≤-7.91	PASS
	2437	Reference	14.42	14.42	---	PASS
		30~1000	14.42	-40.47	≤-5.58	PASS
		1000~26500	14.42	-29.77	≤-5.58	PASS
	2462	Reference	12.42	12.42	---	PASS
		30~1000	12.42	-40.22	≤-7.58	PASS
		1000~26500	12.42	-31.96	≤-7.58	PASS
11G	2412	Reference	8.68	8.68	---	PASS
		30~1000	8.68	-40.92	≤-11.32	PASS
		1000~26500	8.68	-30.8	≤-11.32	PASS
	2437	Reference	8.20	8.20	---	PASS
		30~1000	8.20	-39.95	≤-11.8	PASS
		1000~26500	8.20	-31.47	≤-11.8	PASS
	2462	Reference	8.65	8.65	---	PASS
		30~1000	8.65	-40.7	≤-11.35	PASS
		1000~26500	8.65	-31.4	≤-11.35	PASS
11N20MIMO	2412	Reference	7.09	7.09	---	PASS
		30~1000	7.09	-39.38	≤-12.91	PASS
		1000~26500	7.09	-31.11	≤-12.91	PASS
	2437	Reference	7.89	7.89	---	PASS
		30~1000	7.89	-40.53	≤-12.11	PASS
		1000~26500	7.89	-31.62	≤-12.11	PASS
	2462	Reference	7.13	7.13	---	PASS
		30~1000	7.13	-40.21	≤-12.87	PASS
		1000~26500	7.13	-31.34	≤-12.87	PASS
11N40MIMO	2422	Reference	4.73	4.73	---	PASS
		30~1000	4.73	-40.71	≤-15.27	PASS
		1000~26500	4.73	-30.01	≤-15.27	PASS
	2437	Reference	4.49	4.49	---	PASS
		30~1000	4.49	-40.94	≤-15.51	PASS
		1000~26500	4.49	-31.41	≤-15.51	PASS
	2452	Reference	4.40	4.40	---	PASS
		30~1000	4.40	-40.27	≤-15.6	PASS
		1000~26500	4.40	-31.84	≤-15.6	PASS
11AX20MIMO	2412	Reference	6.92	6.92	---	PASS
		30~1000	6.92	-40.53	≤-13.08	PASS
		1000~26500	6.92	-30.84	≤-13.08	PASS
	2437	Reference	7.59	7.59	---	PASS
		30~1000	7.59	-40.52	≤-12.41	PASS
		1000~26500	7.59	-31.5	≤-12.41	PASS
	2462	Reference	7.12	7.12	---	PASS
		30~1000	7.12	-40.03	≤-12.88	PASS
		1000~26500	7.12	-30.79	≤-12.88	PASS
11AX40MIMO	2422	Reference	4.46	4.46	---	PASS
		30~1000	4.46	-39.58	≤-15.54	PASS
		1000~26500	4.46	-30.79	≤-15.54	PASS
	2437	Reference	4.33	4.33	---	PASS
		30~1000	4.33	-40.27	≤-15.67	PASS
		1000~26500	4.33	-31.06	≤-15.67	PASS
	2452	Reference	4.60	4.60	---	PASS
		30~1000	4.60	-40.09	≤-15.4	PASS
		1000~26500	4.60	-31.04	≤-15.4	PASS

11B\_Ant0\_2412\_0~Reference



11B\_Ant0\_2412\_30~1000



11B\_Ant0\_2412\_1000~26500



11B\_Ant0\_2437\_0~Reference



11B\_Ant0\_2437\_30~1000



11B\_Ant0\_2437\_1000~26500



11B\_Ant0\_2462\_0~Reference



11B\_Ant0\_2462\_30~1000



11B\_Ant0\_2462\_1000~26500



11G\_Ant0\_2412\_0~Reference



11G\_Ant0\_2412\_30~1000



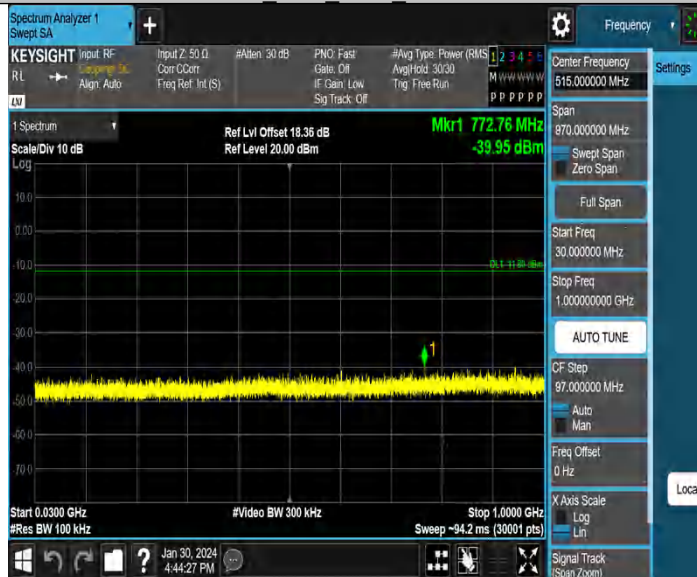
11G\_Ant0\_2412\_1000~26500



11G\_Ant0\_2437\_0~Reference



11G\_Ant0\_2437\_30~1000



11G\_Ant0\_2437\_1000~26500



11G\_Ant0\_2462\_0~Reference



11G\_Ant0\_2462\_30~1000



11G\_Ant0\_2462\_1000~26500

