

Appendix RF Test Data for 2.4GWIFI

Company : Guangzhou wangkong Ltd.
EUT : indoor air quality transmitter
Model Number : MN-WTHM
Report No. : CTA25070801001
Reviewed By : Eric Wang

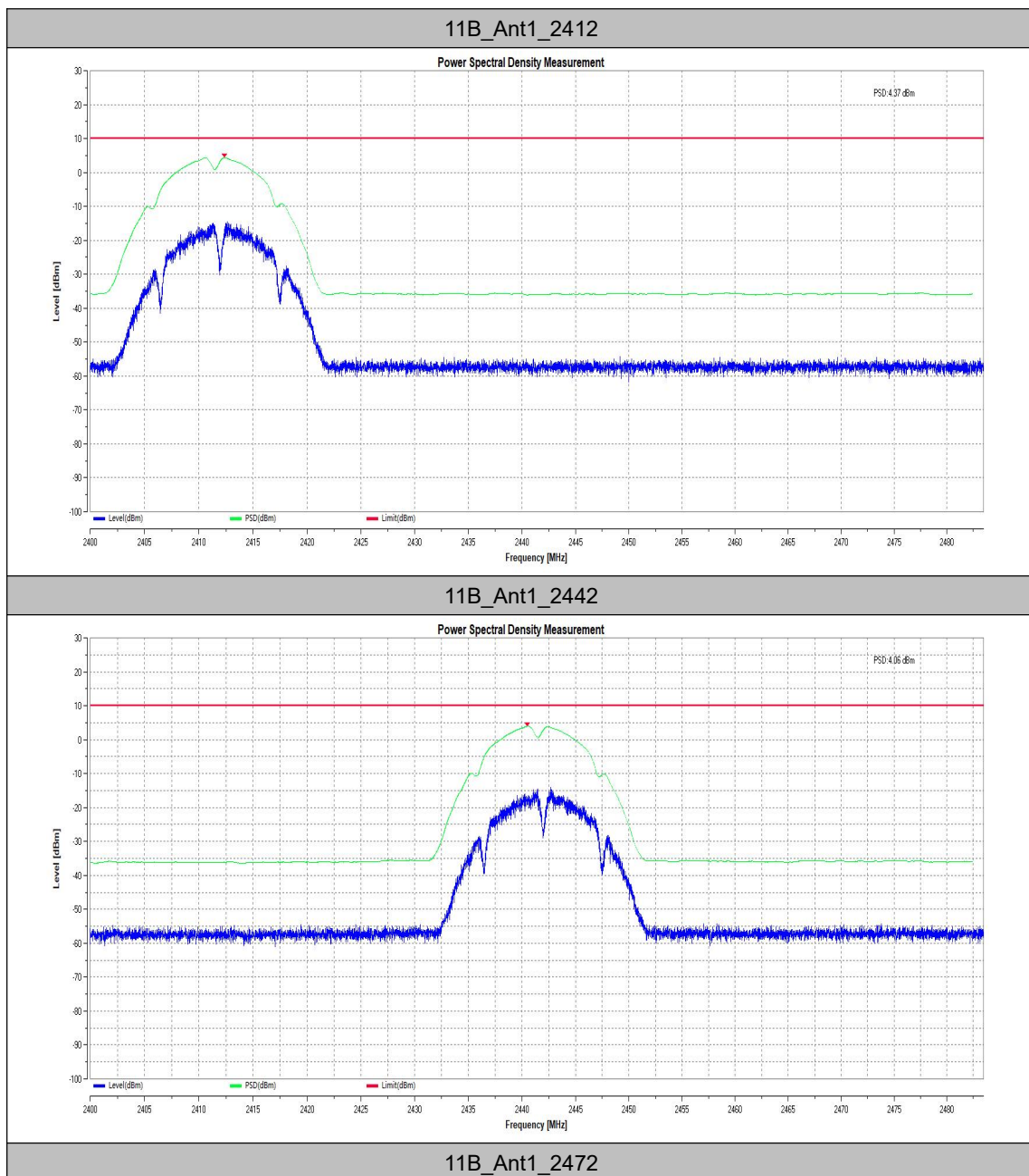
Appendix A: Power Spectral Density

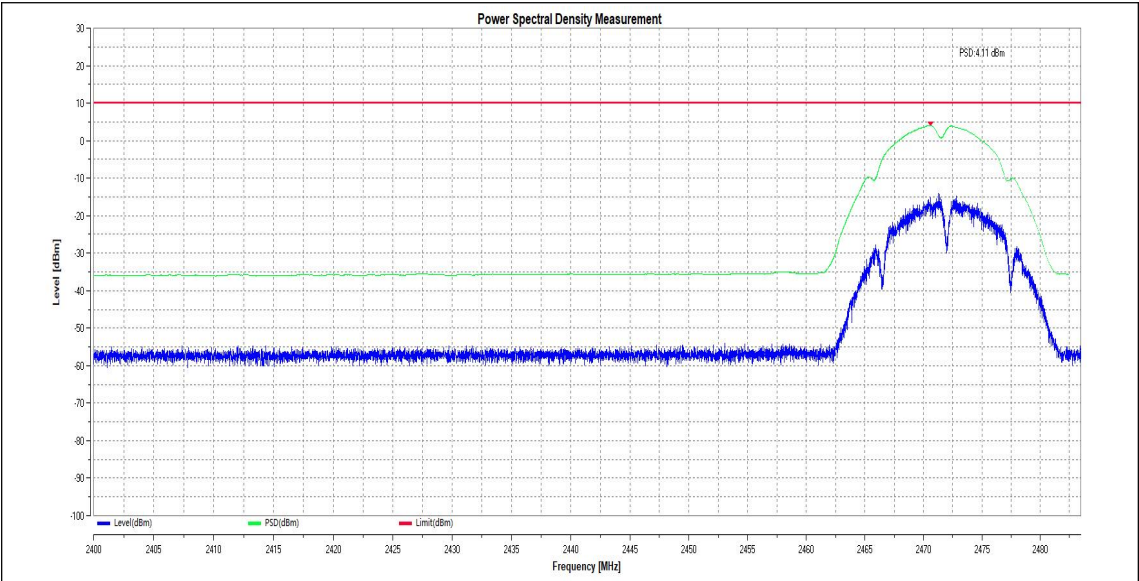
Test Result

TestMode	Antenna	Freq(MHz)	EIRP PSD[dBm/MHz]	Limit[dBm/MHz]	Verdict
11B	Ant1	2412	4.37	10	PASS
		2442	4.06	10	PASS
		2472	4.11	10	PASS
11G	Ant1	2412	-0.13	10	PASS
		2442	-0.17	10	PASS
		2472	-0.23	10	PASS
11N20SISO	Ant1	2412	-0.39	10	PASS
		2442	-0.30	10	PASS
		2472	-0.49	10	PASS
11N40SISO	Ant1	2422	-2.72	10	PASS
		2442	-2.90	10	PASS
		2462	-2.69	10	PASS

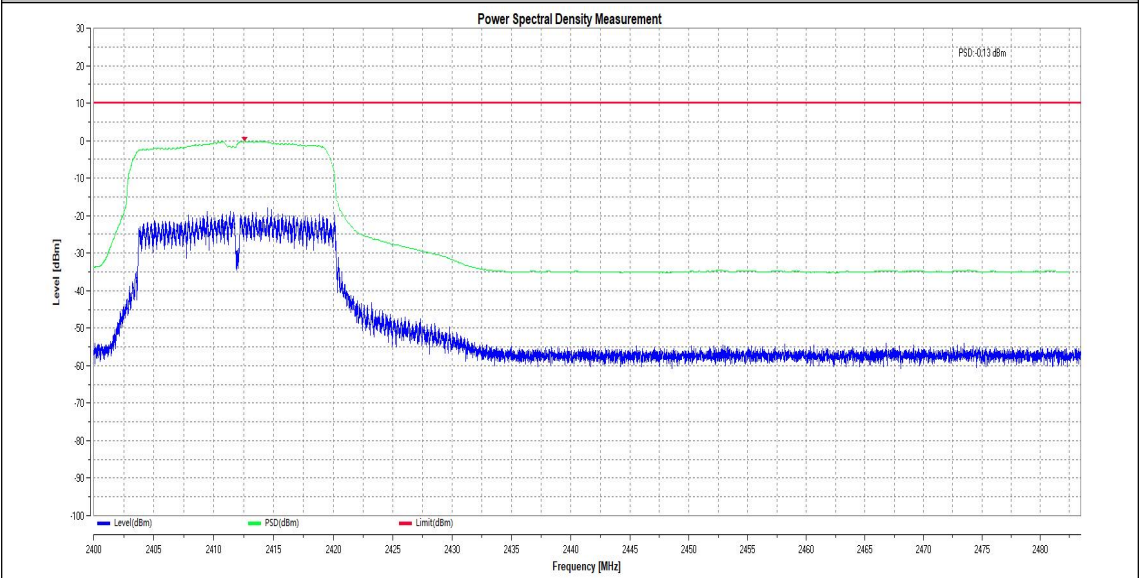
Note : 1. Measured result include the cable loss.
2. Measured result include the ant Gain.

Test Graphs

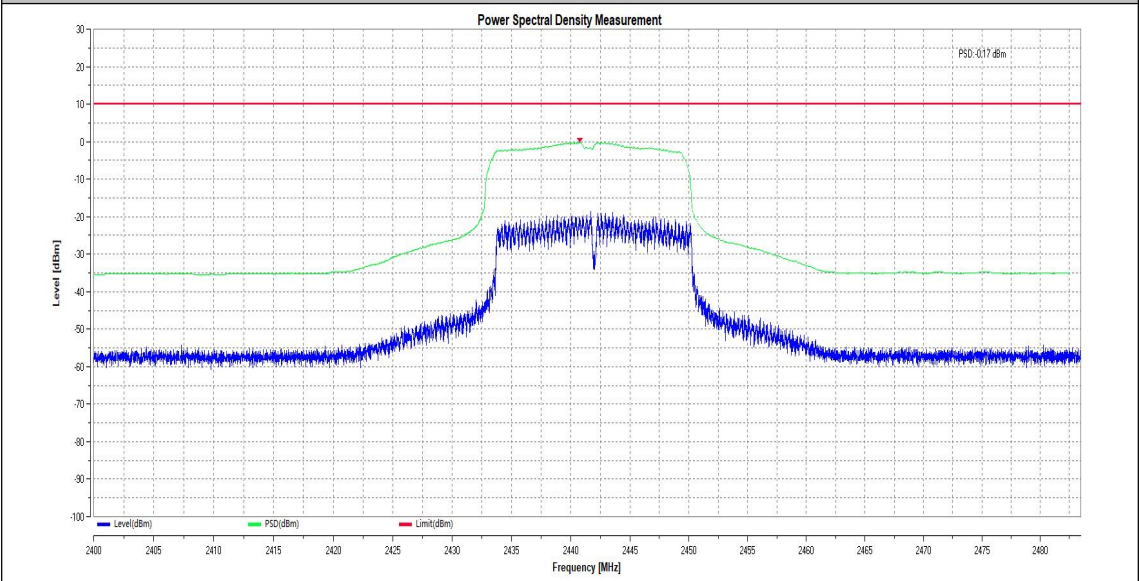




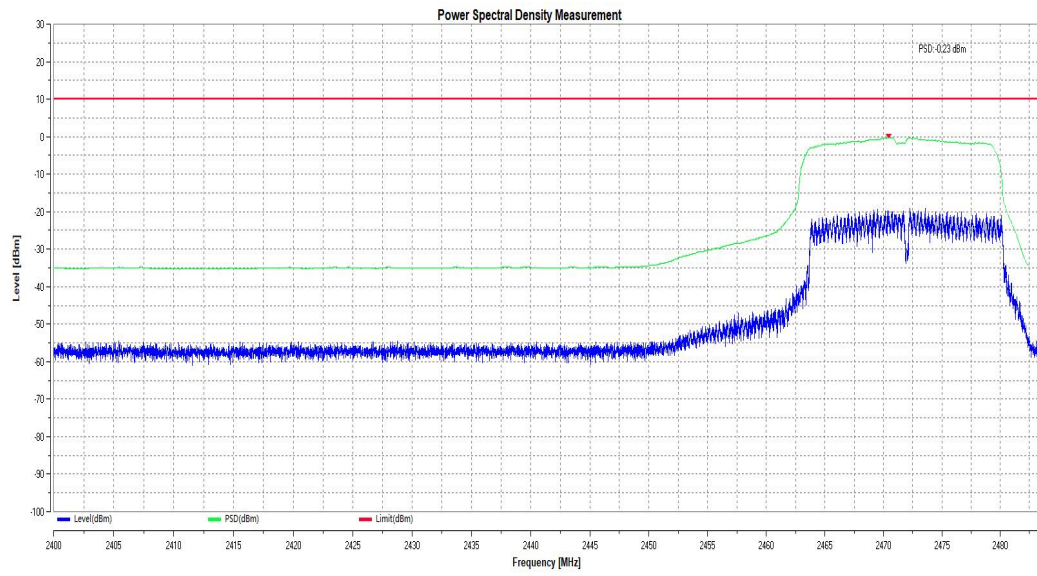
11G_Ant1_2412



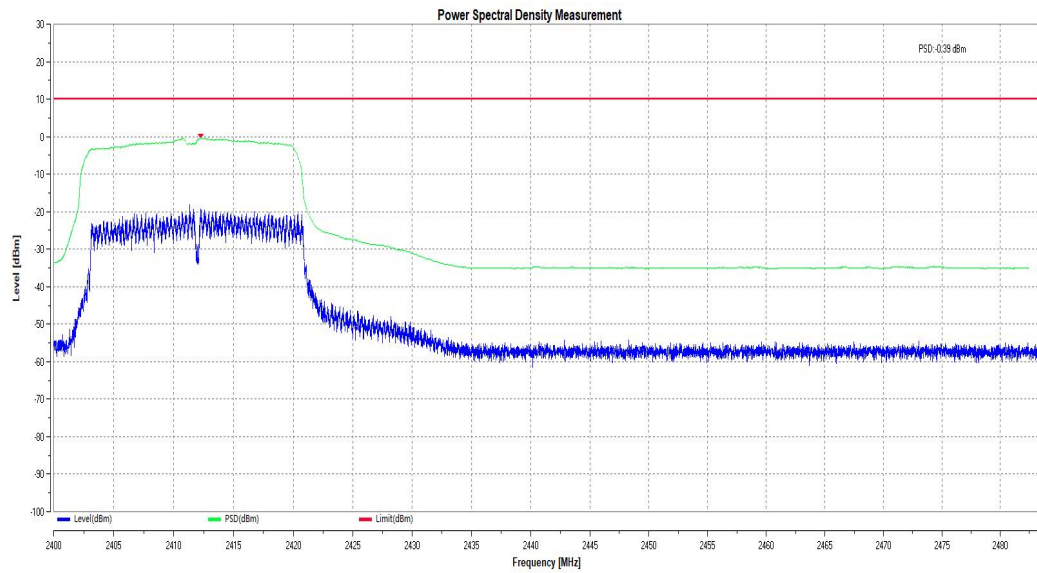
11G_Ant1_2442



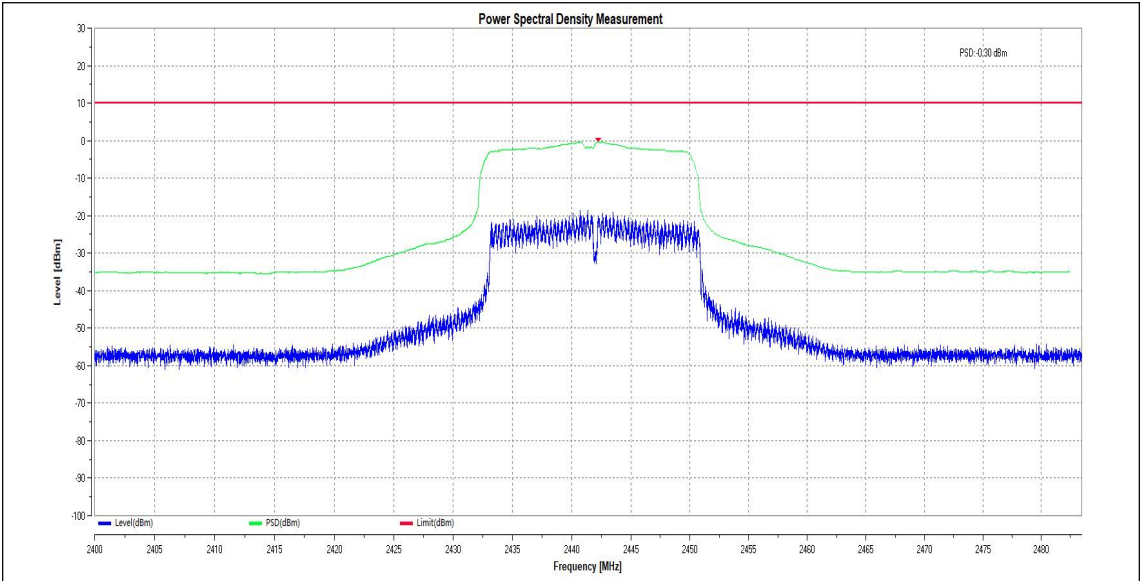
11G_Ant1_2472



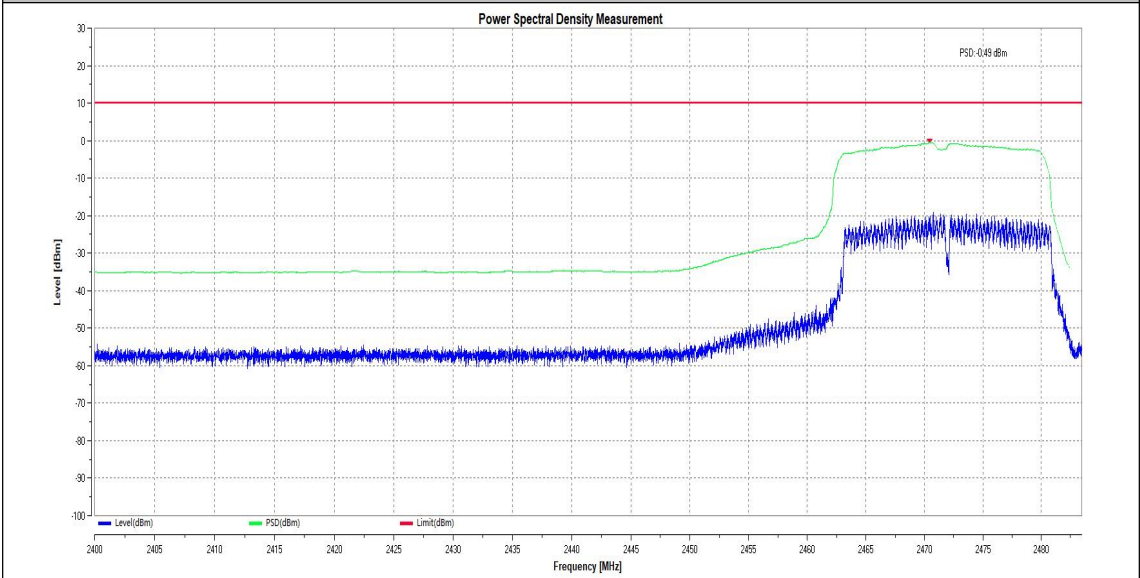
11N20SISO_Ant1_2412



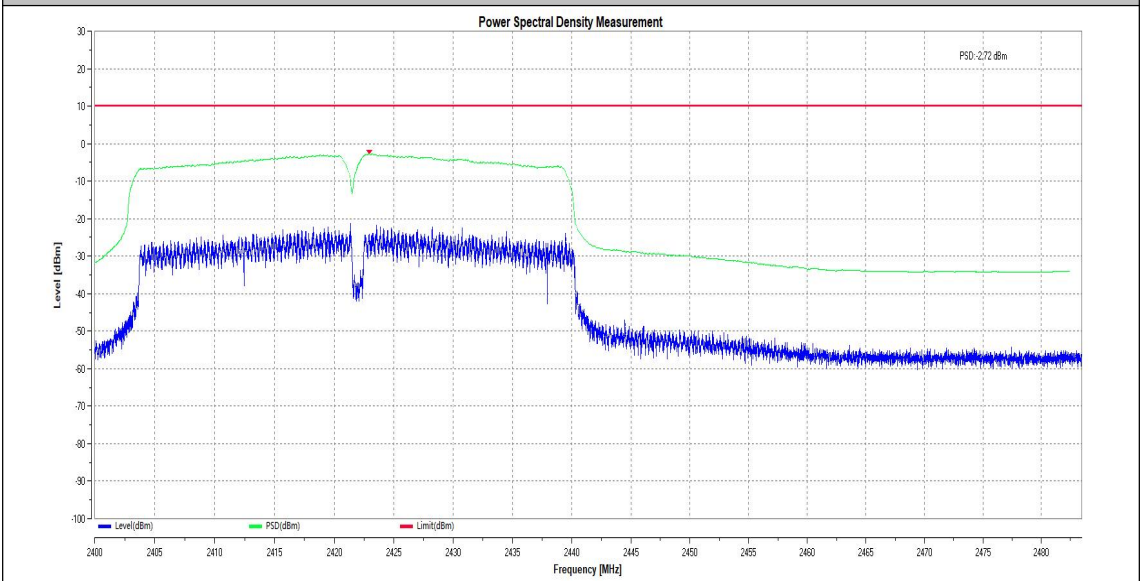
11N20SISO_Ant1_2442



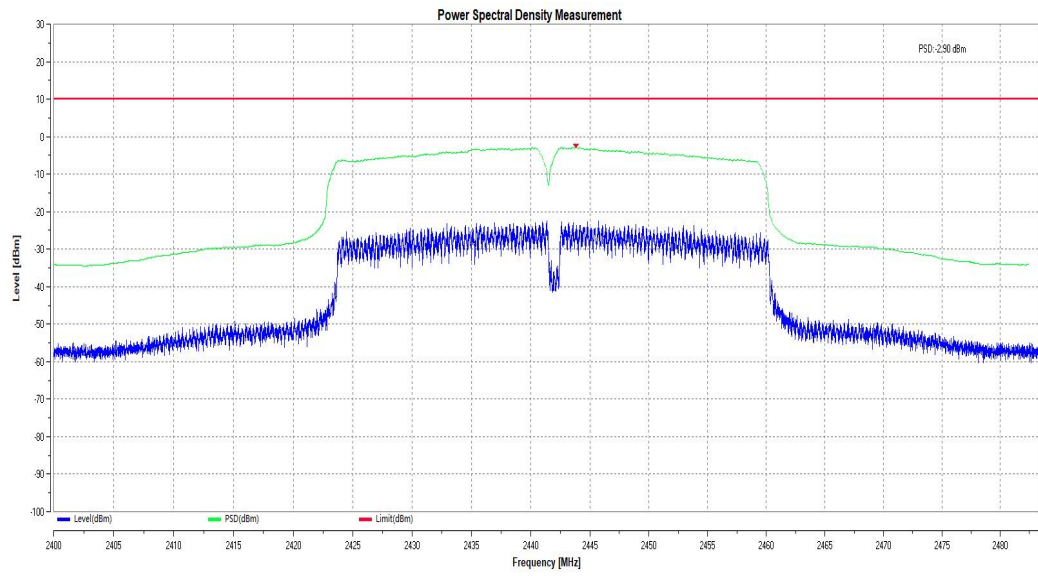
11N20SISO_Ant1_2472



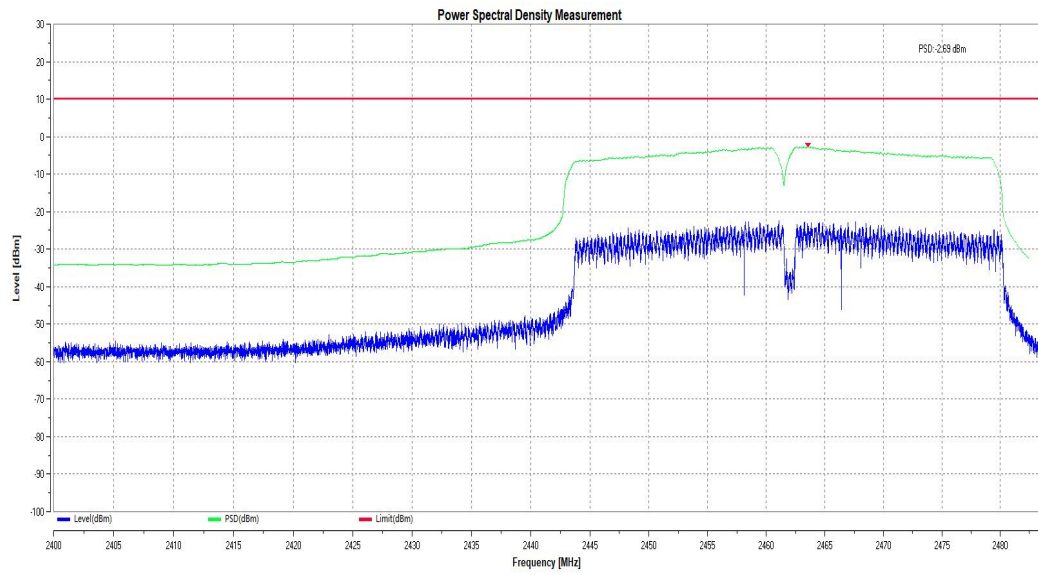
11N40SISO_Ant1_2422



11N40SISO_Ant1_2442



11N40SISO_Ant1_2462



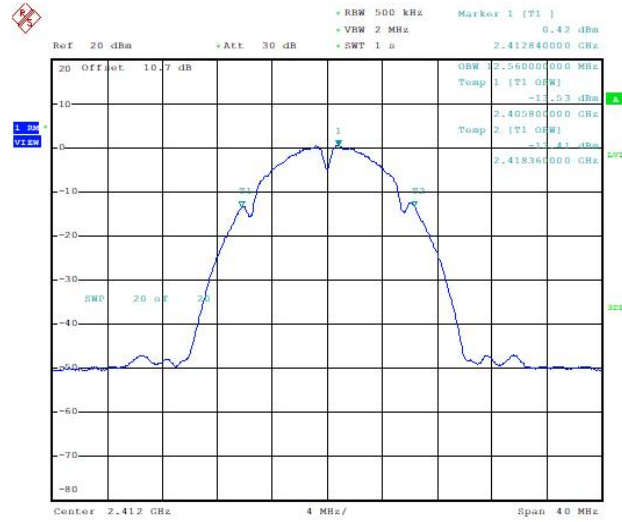
Appendix B: Occupied Channel Bandwidth

Test Result

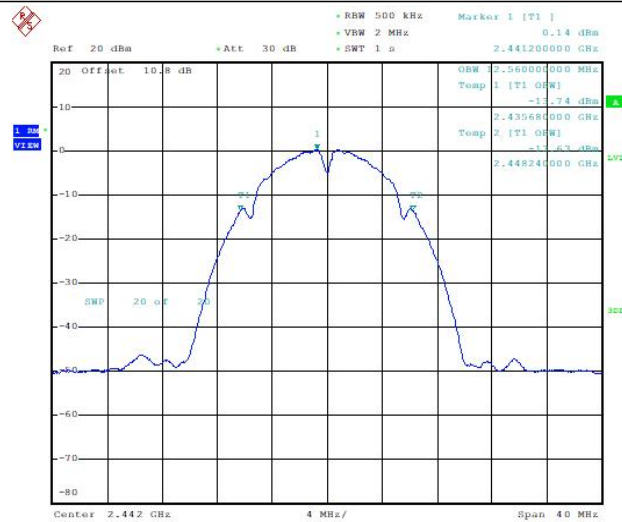
TestMode	Antenna	Freq(MHz)	OCB[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.56	2405.8000	2418.3600	2400 to 2483.5	PASS
		2442	12.56	2435.6800	2448.2400	2400 to 2483.5	PASS
		2472	12.48	2465.7200	2478.2000	2400 to 2483.5	PASS
11G	Ant1	2412	16.76	2403.6800	2420.4400	2400 to 2483.5	PASS
		2442	16.72	2433.6400	2450.3600	2400 to 2483.5	PASS
		2472	16.68	2463.6400	2480.3200	2400 to 2483.5	PASS
11N20SISO	Ant1	2412	17.92	2403.0800	2421.0000	2400 to 2483.5	PASS
		2442	17.92	2433.0400	2450.9600	2400 to 2483.5	PASS
		2472	17.88	2463.0400	2480.9200	2400 to 2483.5	PASS
11N40SISO	Ant1	2422	36.4	2403.8400	2440.2400	2400 to 2483.5	PASS
		2442	36.48	2423.7600	2460.2400	2400 to 2483.5	PASS
		2462	36.48	2443.7600	2480.2400	2400 to 2483.5	PASS

Test Graphs

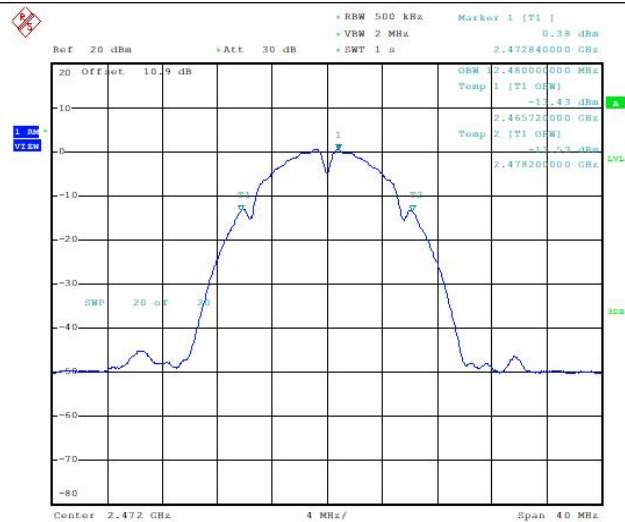
11B_Ant1_2412



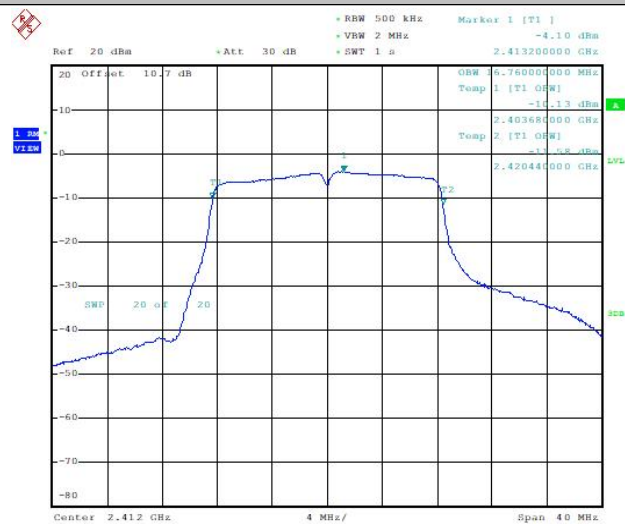
11B_Ant1_2442



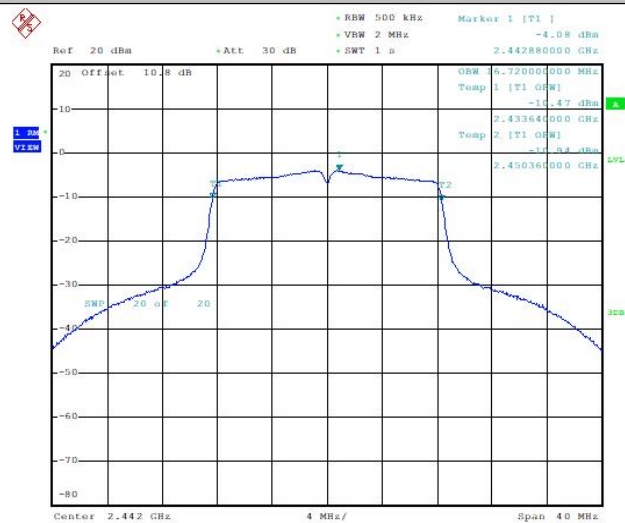
11B_Ant1_2472



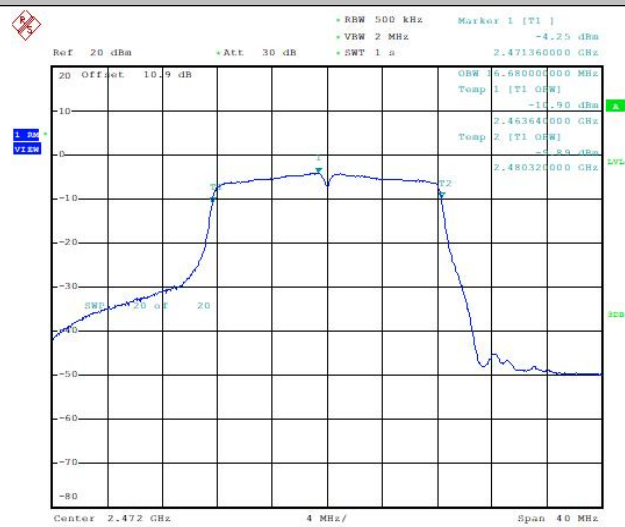
11G_Ant1_2412



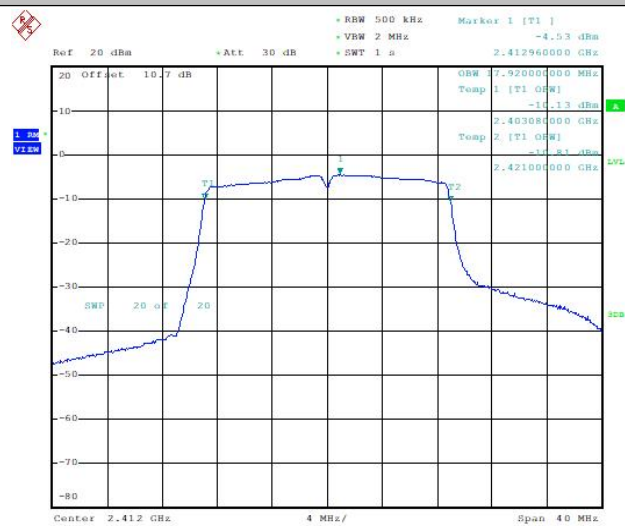
11G_Ant1_2442



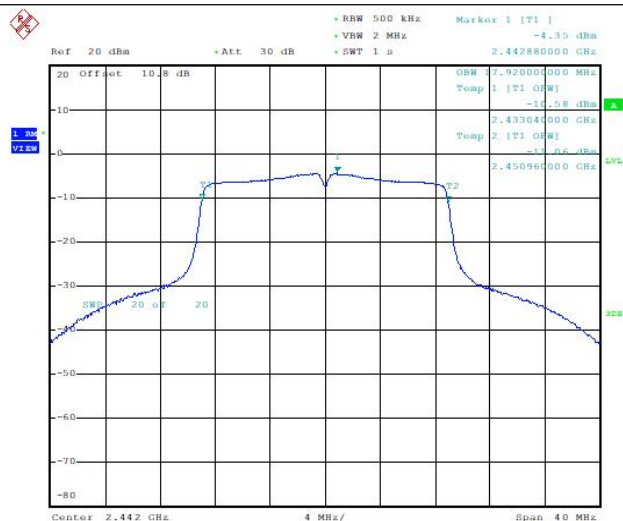
11G_Ant1_2472



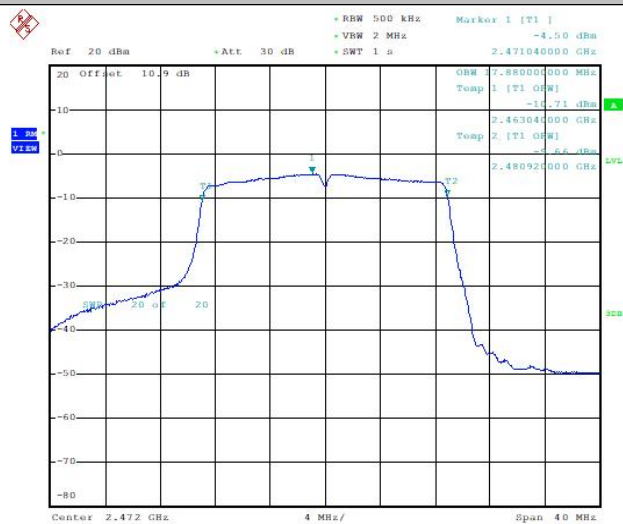
11N20SISO_Ant1_2412



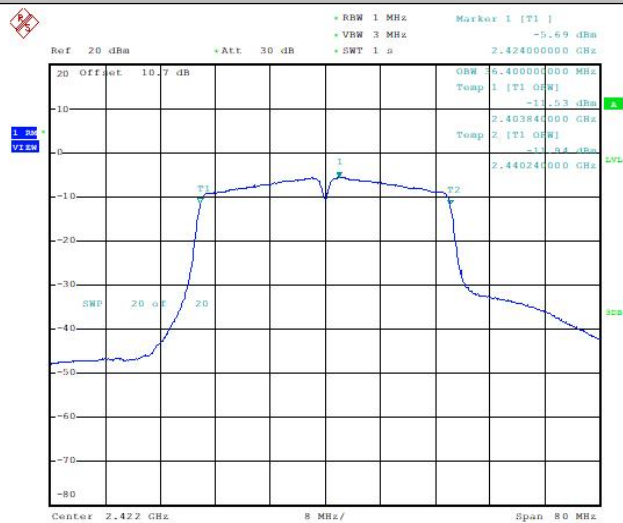
11N20SISO_Ant1_2442



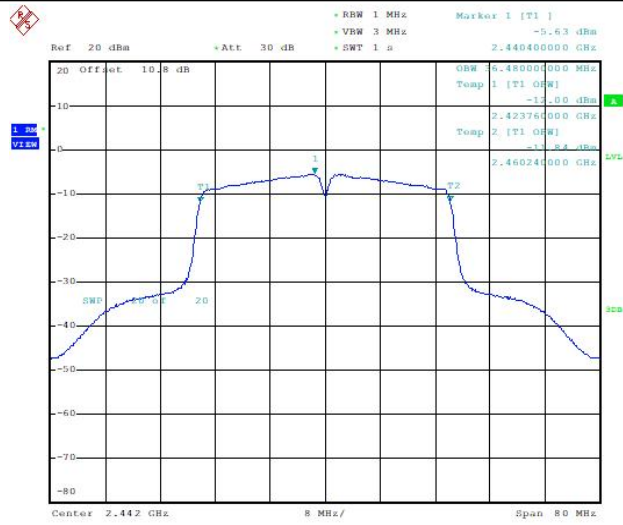
11N20SISO_Ant1_2472



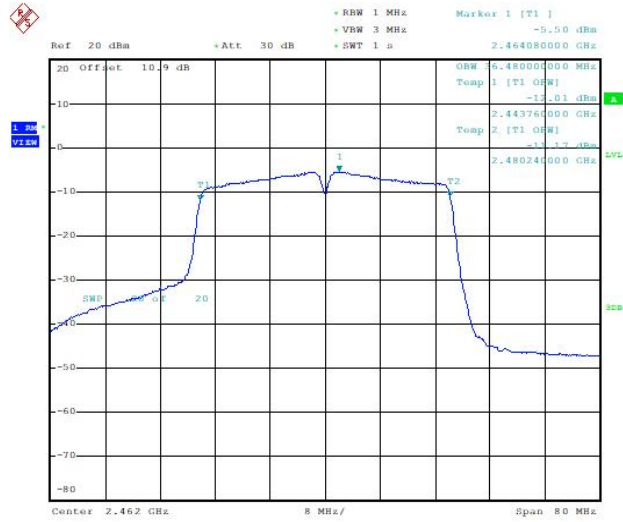
11N40SISO_Ant1_2422



11N40SISO_Ant1_2442



11N40SISO_Ant1_2462



Appendix C: Transmitter Unwanted Emissions In The Out-Of-BandDomain

Test Result

only show the worst test result.

TestMode	Antenna	Freq(MHz)	Freq. [MHz]	Level[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	2374.94	-133.30	-20.00	PASS
			2375.38	-50.16	-20.00	PASS
			2375.94	-50.19	-20.00	PASS
			2376.94	-49.39	-20.00	PASS
			2377.94	-50.00	-20.00	PASS
			2378.94	-49.91	-20.00	PASS
			2379.94	-50.59	-20.00	PASS
			2380.94	-50.17	-20.00	PASS
			2381.94	-57.29	-20.00	PASS
			2382.94	-50.25	-20.00	PASS
			2383.94	-48.55	-20.00	PASS
			2384.94	-49.30	-20.00	PASS
			2385.94	-50.19	-20.00	PASS
			2386.94	-49.85	-20.00	PASS
			2387.5	-49.95	-10.00	PASS
			2387.94	-56.93	-10.00	PASS
			2388.5	-49.93	-10.00	PASS
			2389.5	-57.56	-10.00	PASS
			2390.5	-50.38	-10.00	PASS
			2391.5	-50.14	-10.00	PASS
			2392.5	-48.64	-10.00	PASS
			2393.5	-54.49	-10.00	PASS
			2394.5	-47.48	-10.00	PASS
			2395.5	-47.61	-10.00	PASS
			2396.5	-53.29	-10.00	PASS
			2397.5	-45.51	-10.00	PASS
			2398.5	-133.30	-10.00	PASS
			2399.5	-44.08	-10.00	PASS
		2472	2484	-133.10	-10.00	PASS
			2485	-45.53	-10.00	PASS
			2486	-43.41	-10.00	PASS
			2487	-48.57	-10.00	PASS
			2488	-54.79	-10.00	PASS
			2489	-54.45	-10.00	PASS

			2490	-55.89	-10.00	PASS
			2491	-47.87	-10.00	PASS
			2492	-49.54	-10.00	PASS
			2493	-50.06	-10.00	PASS
			2494	-50.65	-10.00	PASS
			2495	-48.55	-10.00	PASS
			2495.48	-48.78	-10.00	PASS
			2496.48	-133.30	-20.00	PASS
			2497.48	-49.42	-20.00	PASS
			2498.48	-49.63	-20.00	PASS
			2499.48	-49.86	-20.00	PASS
			2500.48	-50.11	-20.00	PASS
			2501.48	-50.14	-20.00	PASS
			2502.48	-49.84	-20.00	PASS
			2503.48	-57.27	-20.00	PASS
			2504.48	-50.47	-20.00	PASS
			2505.48	-49.98	-20.00	PASS
			2506.48	-50.16	-20.00	PASS
			2507.48	-50.39	-20.00	PASS
			2507.96	-49.41	-20.00	PASS
11G	Ant1	2412	2366.74	-133.30	-20.00	PASS
			2366.98	-49.58	-20.00	PASS
			2367.74	-57.26	-20.00	PASS
			2368.74	-49.92	-20.00	PASS
			2369.74	-49.58	-20.00	PASS
			2370.74	-50.28	-20.00	PASS
			2371.74	-57.20	-20.00	PASS
			2372.74	-50.13	-20.00	PASS
			2373.74	-50.80	-20.00	PASS
			2374.74	-49.50	-20.00	PASS
			2375.74	-56.89	-20.00	PASS
			2376.74	-133.30	-20.00	PASS
			2377.74	-133.30	-20.00	PASS
			2378.74	-49.86	-20.00	PASS
			2379.74	-49.43	-20.00	PASS
			2380.74	-48.77	-20.00	PASS
			2381.74	-48.83	-20.00	PASS
			2382.74	-55.87	-20.00	PASS
			2383.5	-133.30	-10.00	PASS
			2383.74	-47.14	-10.00	PASS
			2384.5	-55.88	-10.00	PASS
			2385.5	-46.91	-10.00	PASS
			2386.5	-47.88	-10.00	PASS

			2387.5	-54.55	-10.00	PASS
			2388.5	-53.28	-10.00	PASS
			2389.5	-44.09	-10.00	PASS
			2390.5	-50.69	-10.00	PASS
			2391.5	-49.85	-10.00	PASS
			2392.5	-48.74	-10.00	PASS
			2393.5	-47.01	-10.00	PASS
			2394.5	-46.65	-10.00	PASS
			2395.5	-44.92	-10.00	PASS
			2396.5	-44.32	-10.00	PASS
			2397.5	-43.05	-10.00	PASS
			2398.5	-42.08	-10.00	PASS
			2399.5	-41.09	-10.00	PASS
		2472	2484	-133.10	-10.00	PASS
			2485	-47.60	-10.00	PASS
			2486	-44.37	-10.00	PASS
			2487	-50.58	-10.00	PASS
			2488	-52.17	-10.00	PASS
			2489	-45.33	-10.00	PASS
			2490	-53.83	-10.00	PASS
			2491	-46.66	-10.00	PASS
			2492	-54.92	-10.00	PASS
			2493	-48.00	-10.00	PASS
			2494	-48.91	-10.00	PASS
			2495	-133.30	-10.00	PASS
			2496	-48.54	-10.00	PASS
			2497	-56.55	-10.00	PASS
			2498	-49.30	-10.00	PASS
			2499	-49.37	-10.00	PASS
			2499.68	-49.04	-10.00	PASS
			2500	-50.01	-10.00	PASS
			2500.68	-56.80	-20.00	PASS
			2501.68	-50.46	-20.00	PASS
			2502.68	-49.89	-20.00	PASS
			2503.68	-49.76	-20.00	PASS
			2504.68	-49.77	-20.00	PASS
			2505.68	-49.90	-20.00	PASS
			2506.68	-49.81	-20.00	PASS
			2507.68	-49.68	-20.00	PASS
			2508.68	-49.69	-20.00	PASS
			2509.68	-49.40	-20.00	PASS
			2510.68	-50.01	-20.00	PASS
			2511.68	-48.96	-20.00	PASS

			2512.68	-50.26	-20.00	PASS
			2513.68	-56.81	-20.00	PASS
			2514.68	-48.70	-20.00	PASS
			2515.68	-49.97	-20.00	PASS
			2516.36	-49.97	-20.00	PASS
			2516.68	-50.57	-20.00	PASS
11N20SISO	Ant1	2412	2364.62	-133.30	-20.00	PASS
			2364.74	-49.96	-20.00	PASS
			2365.62	-57.32	-20.00	PASS
			2366.62	-50.38	-20.00	PASS
			2367.62	-49.81	-20.00	PASS
			2368.62	-50.07	-20.00	PASS
			2369.62	-50.72	-20.00	PASS
			2370.62	-50.61	-20.00	PASS
			2371.62	-56.70	-20.00	PASS
			2372.62	-50.36	-20.00	PASS
			2373.62	-49.44	-20.00	PASS
			2374.62	-50.58	-20.00	PASS
			2375.62	-49.89	-20.00	PASS
			2376.62	-57.28	-20.00	PASS
			2377.62	-50.12	-20.00	PASS
			2378.62	-50.59	-20.00	PASS
			2379.62	-56.68	-20.00	PASS
			2380.62	-49.77	-20.00	PASS
			2381.62	-48.52	-20.00	PASS
			2382.5	-48.26	-10.00	PASS
			2382.62	-50.35	-10.00	PASS
			2383.5	-48.79	-10.00	PASS
			2384.5	-48.44	-10.00	PASS
			2385.5	-55.65	-10.00	PASS
			2386.5	-47.22	-10.00	PASS
			2387.5	-54.23	-10.00	PASS
			2388.5	-53.39	-10.00	PASS
			2389.5	-52.99	-10.00	PASS
			2390.5	-51.58	-10.00	PASS
			2391.5	-50.03	-10.00	PASS
			2392.5	-49.02	-10.00	PASS
			2393.5	-47.63	-10.00	PASS
			2394.5	-46.81	-10.00	PASS
			2395.5	-46.50	-10.00	PASS
			2396.5	-45.16	-10.00	PASS
			2397.5	-44.81	-10.00	PASS
			2398.5	-43.50	-10.00	PASS

			2399.5	-42.35	-10.00	PASS
		2472	2484	-133.10	-10.00	PASS
			2485	-47.71	-10.00	PASS
			2486	-51.62	-10.00	PASS
			2487	-50.70	-10.00	PASS
			2488	-52.21	-10.00	PASS
			2489	-53.35	-10.00	PASS
			2490	-133.10	-10.00	PASS
			2491	-46.97	-10.00	PASS
			2492	-54.41	-10.00	PASS
			2493	-46.29	-10.00	PASS
			2494	-48.40	-10.00	PASS
			2495	-49.07	-10.00	PASS
			2496	-48.77	-10.00	PASS
			2497	-50.11	-10.00	PASS
			2498	-49.66	-10.00	PASS
			2499	-48.97	-10.00	PASS
			2500	-48.68	-10.00	PASS
			2500.88	-49.96	-10.00	PASS
			2501	-48.59	-10.00	PASS
			2501.88	-47.91	-20.00	PASS
			2502.88	-49.36	-20.00	PASS
			2503.88	-50.48	-20.00	PASS
			2504.88	-49.36	-20.00	PASS
			2505.88	-49.84	-20.00	PASS
			2506.88	-49.10	-20.00	PASS
			2507.88	-56.65	-20.00	PASS
			2508.88	-50.21	-20.00	PASS
			2509.88	-50.24	-20.00	PASS
			2510.88	-56.76	-20.00	PASS
			2511.88	-49.88	-20.00	PASS
			2512.88	-50.03	-20.00	PASS
			2513.88	-49.59	-20.00	PASS
			2514.88	-50.06	-20.00	PASS
			2515.88	-133.30	-20.00	PASS
			2516.88	-50.70	-20.00	PASS
			2517.88	-56.89	-20.00	PASS
			2518.76	-49.19	-20.00	PASS
			2518.88	-49.81	-20.00	PASS
11N40SISO	Ant1	2422	2327.7	-133.30	-20.00	PASS
			2328.1	-50.05	-20.00	PASS
			2329.1	-51.13	-20.00	PASS
			2330.1	-50.79	-20.00	PASS

			2331.1	-50.83	-20.00	PASS
			2332.1	-50.53	-20.00	PASS
			2333.1	-50.05	-20.00	PASS
			2334.1	-57.60	-20.00	PASS
			2335.1	-49.80	-20.00	PASS
			2336.1	-57.72	-20.00	PASS
			2337.1	-57.56	-20.00	PASS
			2338.1	-50.90	-20.00	PASS
			2339.1	-49.80	-20.00	PASS
			2340.1	-51.14	-20.00	PASS
			2341.1	-51.33	-20.00	PASS
			2342.1	-50.07	-20.00	PASS
			2343.1	-50.25	-20.00	PASS
			2344.1	-50.31	-20.00	PASS
			2345.1	-51.34	-20.00	PASS
			2346.1	-49.63	-20.00	PASS
			2347.1	-51.24	-20.00	PASS
			2348.1	-50.41	-20.00	PASS
			2349.1	-50.31	-20.00	PASS
			2350.1	-50.13	-20.00	PASS
			2351.1	-50.50	-20.00	PASS
			2352.1	-57.12	-20.00	PASS
			2353.1	-49.90	-20.00	PASS
			2354.1	-49.52	-20.00	PASS
			2355.1	-50.30	-20.00	PASS
			2356.1	-51.04	-20.00	PASS
			2357.1	-48.65	-20.00	PASS
			2358.1	-50.43	-20.00	PASS
			2359.1	-57.58	-20.00	PASS
			2360.1	-50.52	-20.00	PASS
			2361.1	-50.48	-20.00	PASS
			2362.1	-49.88	-20.00	PASS
			2363.1	-49.43	-20.00	PASS
			2364.1	-49.76	-10.00	PASS
			2364.5	-57.20	-10.00	PASS
			2365.5	-49.84	-10.00	PASS
			2366.5	-49.73	-10.00	PASS
			2367.5	-49.94	-10.00	PASS
			2368.5	-50.23	-10.00	PASS
			2369.5	-57.07	-10.00	PASS
			2370.5	-49.84	-10.00	PASS
			2371.5	-48.00	-10.00	PASS
			2372.5	-56.41	-10.00	PASS

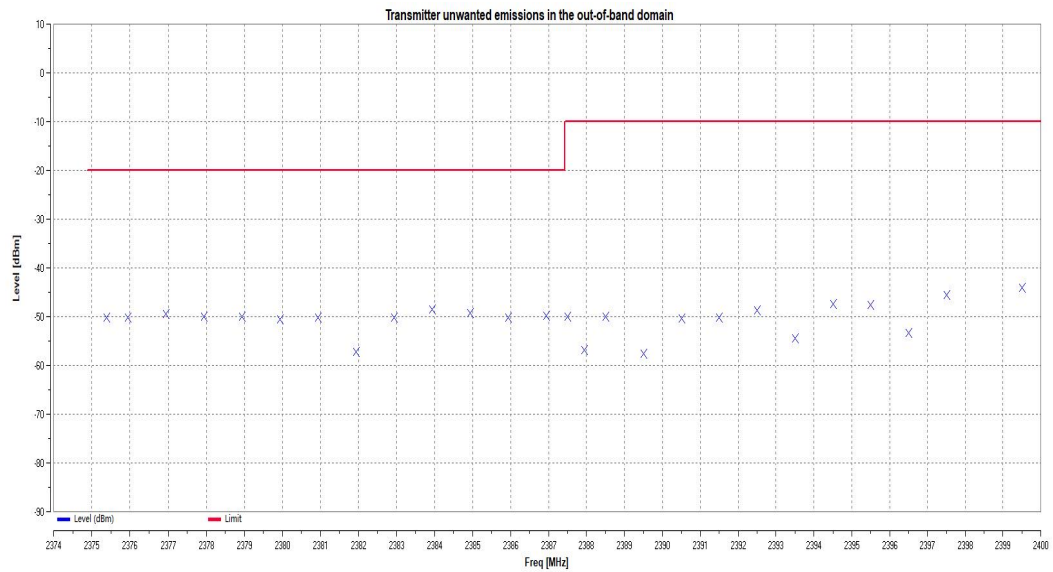
			2373.5	-48.59	-10.00	PASS
			2374.5	-49.32	-10.00	PASS
			2375.5	-47.36	-10.00	PASS
			2376.5	-55.75	-10.00	PASS
			2377.5	-48.04	-10.00	PASS
			2378.5	-47.70	-10.00	PASS
			2379.5	-47.20	-10.00	PASS
			2380.5	-47.59	-10.00	PASS
			2381.5	-54.98	-10.00	PASS
			2382.5	-133.30	-10.00	PASS
			2383.5	-54.23	-10.00	PASS
			2384.5	-54.09	-10.00	PASS
			2385.5	-53.62	-10.00	PASS
			2386.5	-53.12	-10.00	PASS
			2387.5	-52.71	-10.00	PASS
			2388.5	-52.63	-10.00	PASS
			2389.5	-51.31	-10.00	PASS
			2390.5	-52.55	-10.00	PASS
			2391.5	-51.91	-10.00	PASS
			2392.5	-52.02	-10.00	PASS
			2393.5	-52.70	-10.00	PASS
			2394.5	-52.43	-10.00	PASS
			2395.5	-49.83	-10.00	PASS
			2396.5	-49.70	-10.00	PASS
			2397.5	-45.94	-10.00	PASS
			2398.5	-42.75	-10.00	PASS
			2399.5	-39.63	-10.00	PASS
		2462	2484	-133.10	-10.00	PASS
			2485	-45.66	-10.00	PASS
			2486	-48.15	-10.00	PASS
			2487	-50.59	-10.00	PASS
			2488	-50.21	-10.00	PASS
			2489	-50.42	-10.00	PASS
			2490	-51.92	-10.00	PASS
			2491	-52.94	-10.00	PASS
			2492	-51.67	-10.00	PASS
			2493	-133.30	-10.00	PASS
			2494	-44.39	-10.00	PASS
			2495	-54.00	-10.00	PASS
			2496	-54.00	-10.00	PASS
			2497	-45.77	-10.00	PASS
			2498	-46.26	-10.00	PASS
			2499	-46.02	-10.00	PASS

			2500	-46.28	-10.00	PASS
			2501	-55.37	-10.00	PASS
			2502	-55.51	-10.00	PASS
			2503	-47.86	-10.00	PASS
			2504	-48.54	-10.00	PASS
			2505	-48.20	-10.00	PASS
			2506	-48.49	-10.00	PASS
			2507	-48.71	-10.00	PASS
			2508	-47.90	-10.00	PASS
			2509	-47.94	-10.00	PASS
			2510	-48.80	-10.00	PASS
			2511	-48.86	-10.00	PASS
			2512	-47.91	-10.00	PASS
			2513	-49.54	-10.00	PASS
			2514	-49.82	-10.00	PASS
			2515	-47.74	-10.00	PASS
			2516	-50.38	-10.00	PASS
			2517	-49.39	-10.00	PASS
			2518	-50.02	-10.00	PASS
			2519	-49.93	-10.00	PASS
			2519.48	-49.59	-10.00	PASS
			2520.48	-49.86	-20.00	PASS
			2521.48	-50.67	-20.00	PASS
			2522.48	-49.54	-20.00	PASS
			2523.48	-49.82	-20.00	PASS
			2524.48	-49.62	-20.00	PASS
			2525.48	-49.96	-20.00	PASS
			2526.48	-49.56	-20.00	PASS
			2527.48	-49.43	-20.00	PASS
			2528.48	-49.26	-20.00	PASS
			2529.48	-50.70	-20.00	PASS
			2530.48	-48.70	-20.00	PASS
			2531.48	-49.77	-20.00	PASS
			2532.48	-49.76	-20.00	PASS
			2533.48	-49.81	-20.00	PASS
			2534.48	-50.08	-20.00	PASS
			2535.48	-49.22	-20.00	PASS
			2536.48	-50.40	-20.00	PASS
			2537.48	-49.81	-20.00	PASS
			2538.48	-49.57	-20.00	PASS
			2539.48	-57.06	-20.00	PASS
			2540.48	-49.82	-20.00	PASS
			2541.48	-49.59	-20.00	PASS

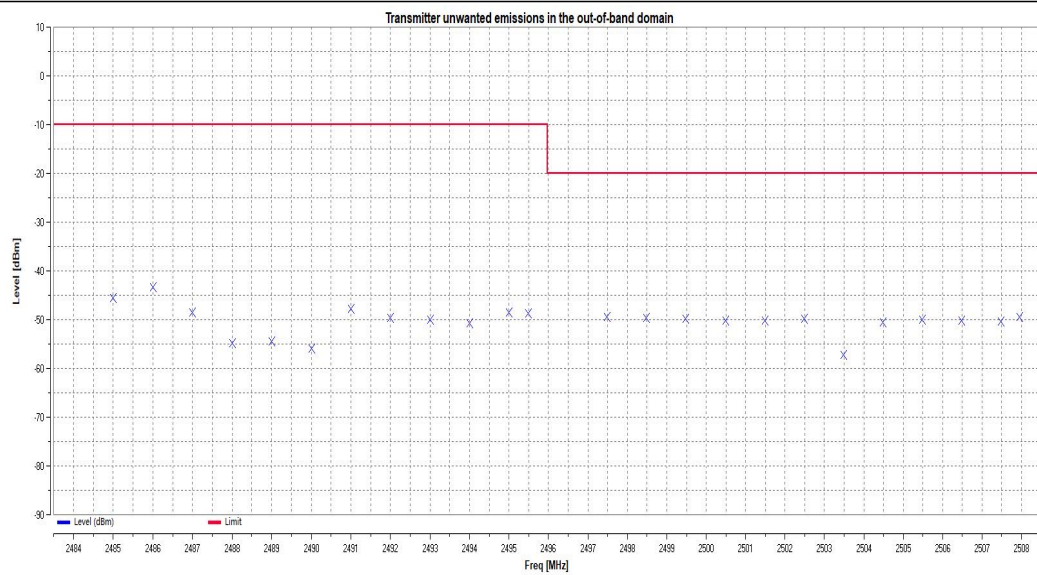
			2542.48	-50.29	-20.00	PASS
			2543.48	-49.67	-20.00	PASS
			2544.48	-49.83	-20.00	PASS
			2545.48	-50.23	-20.00	PASS
			2546.48	-49.80	-20.00	PASS
			2547.48	-50.88	-20.00	PASS
			2548.48	-49.97	-20.00	PASS
			2549.48	-56.94	-20.00	PASS
			2550.48	-57.18	-20.00	PASS
			2551.48	-50.76	-20.00	PASS
			2552.48	-57.23	-20.00	PASS
			2553.48	-50.15	-20.00	PASS
			2554.48	-57.18	-20.00	PASS
			2555.48	-48.78	-20.00	PASS
			2555.96	-49.88	-20.00	PASS

Test Graphs

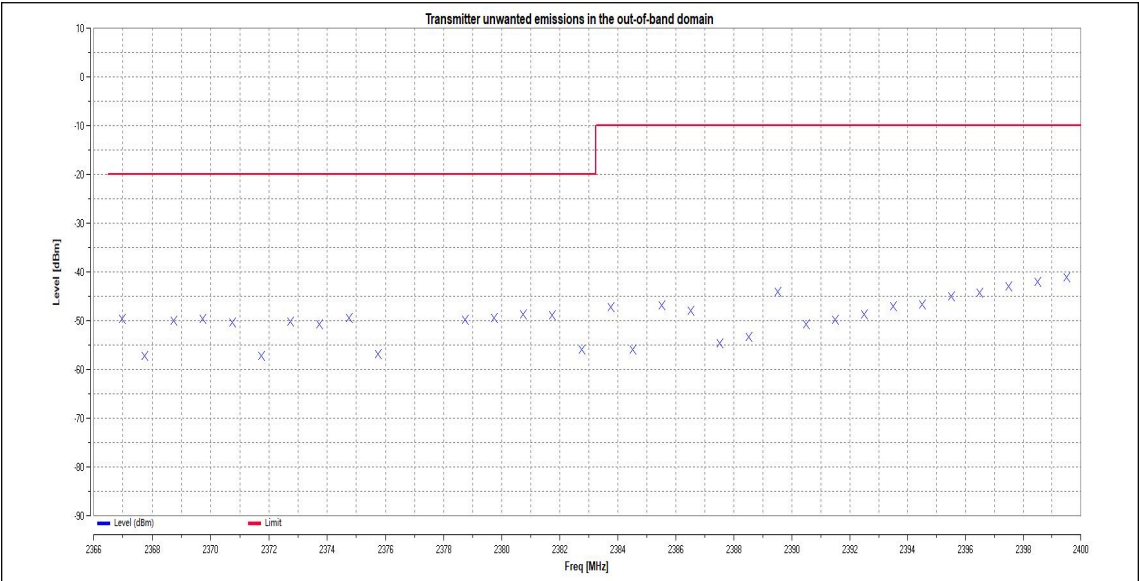
11B_Ant1_2412_2400MHz-2BW to 2400MHz



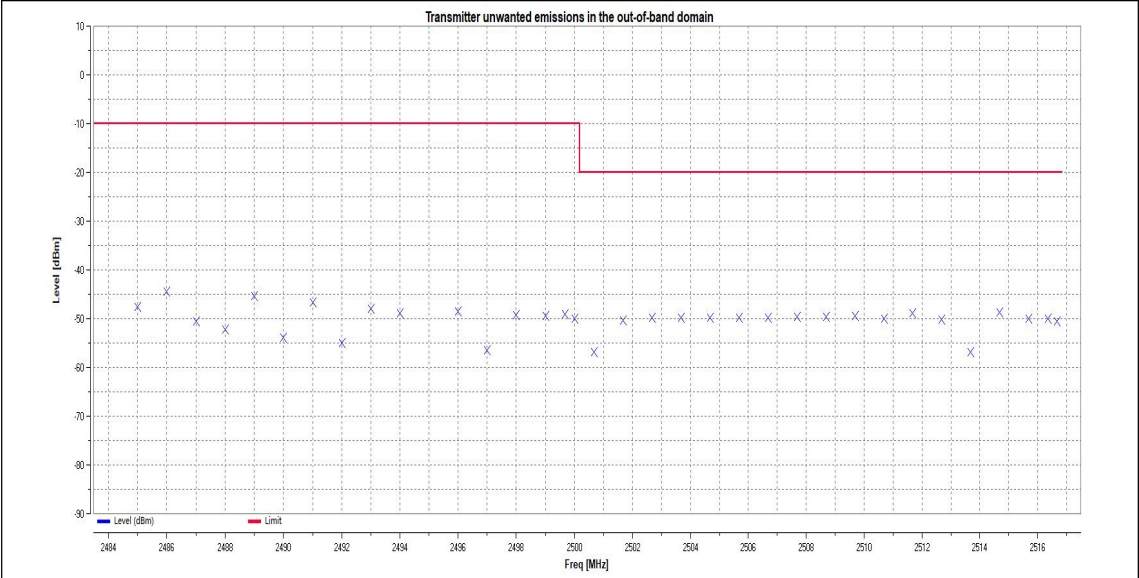
11B_Ant1_2472_2483.5MHz to 2483.5MHz+2BW



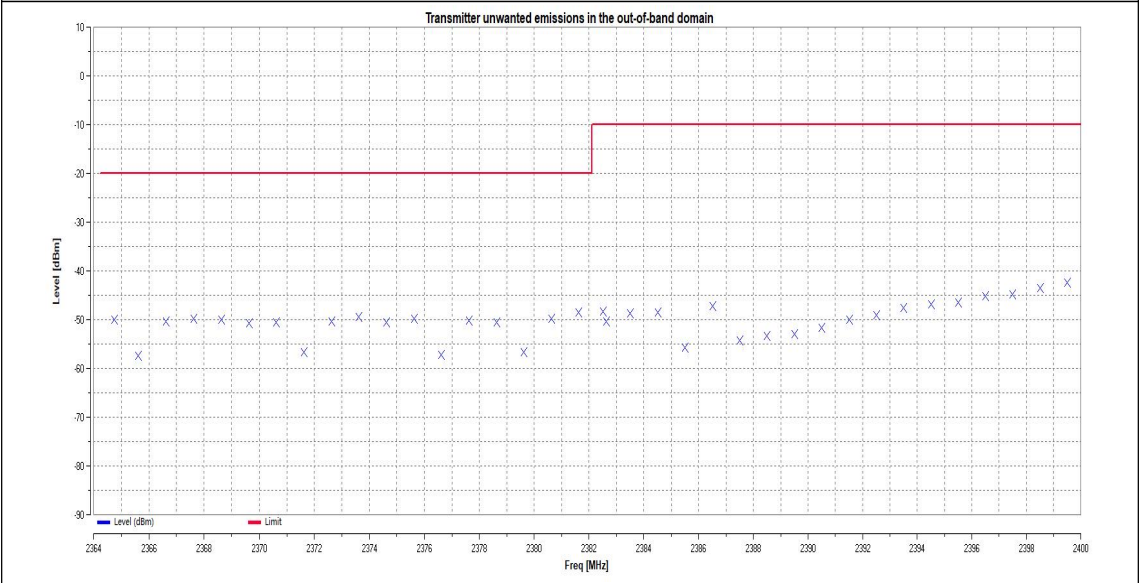
11G_Ant1_2412_2400MHz-2BW to 2400MHz



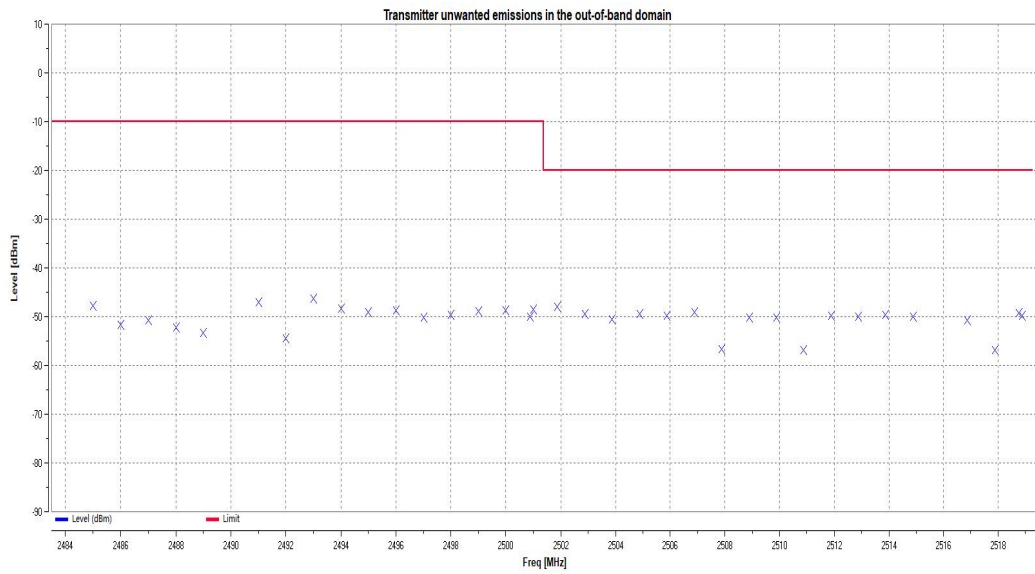
11G_Ant1_2472_2483.5MHz to 2483.5MHz+2BW



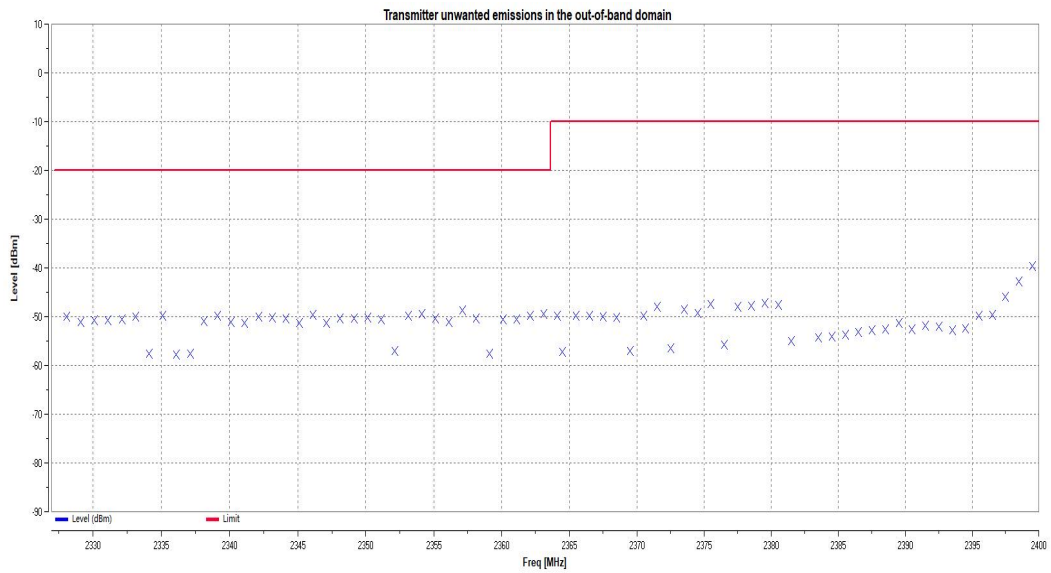
11N20SISO_Ant1_2412_2400MHz-2BW to 2400MHz

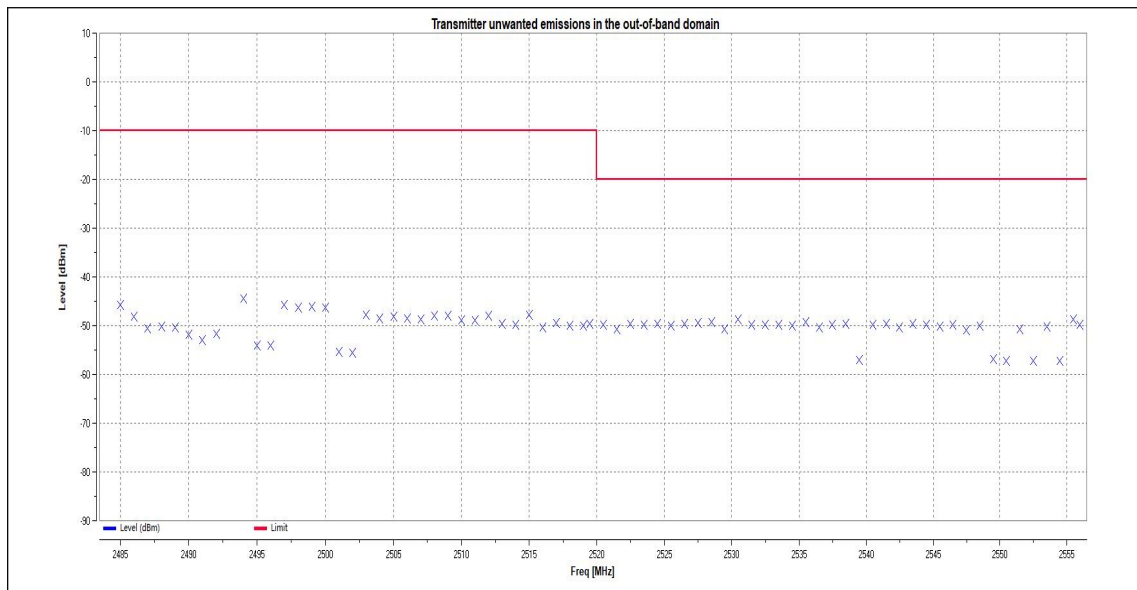


11N20SISO_Ant1_2472_2483.5MHz to 2483.5MHz+2BW



11N40SISO_Ant1_2422_2400MHz-2BW to 2400MHz



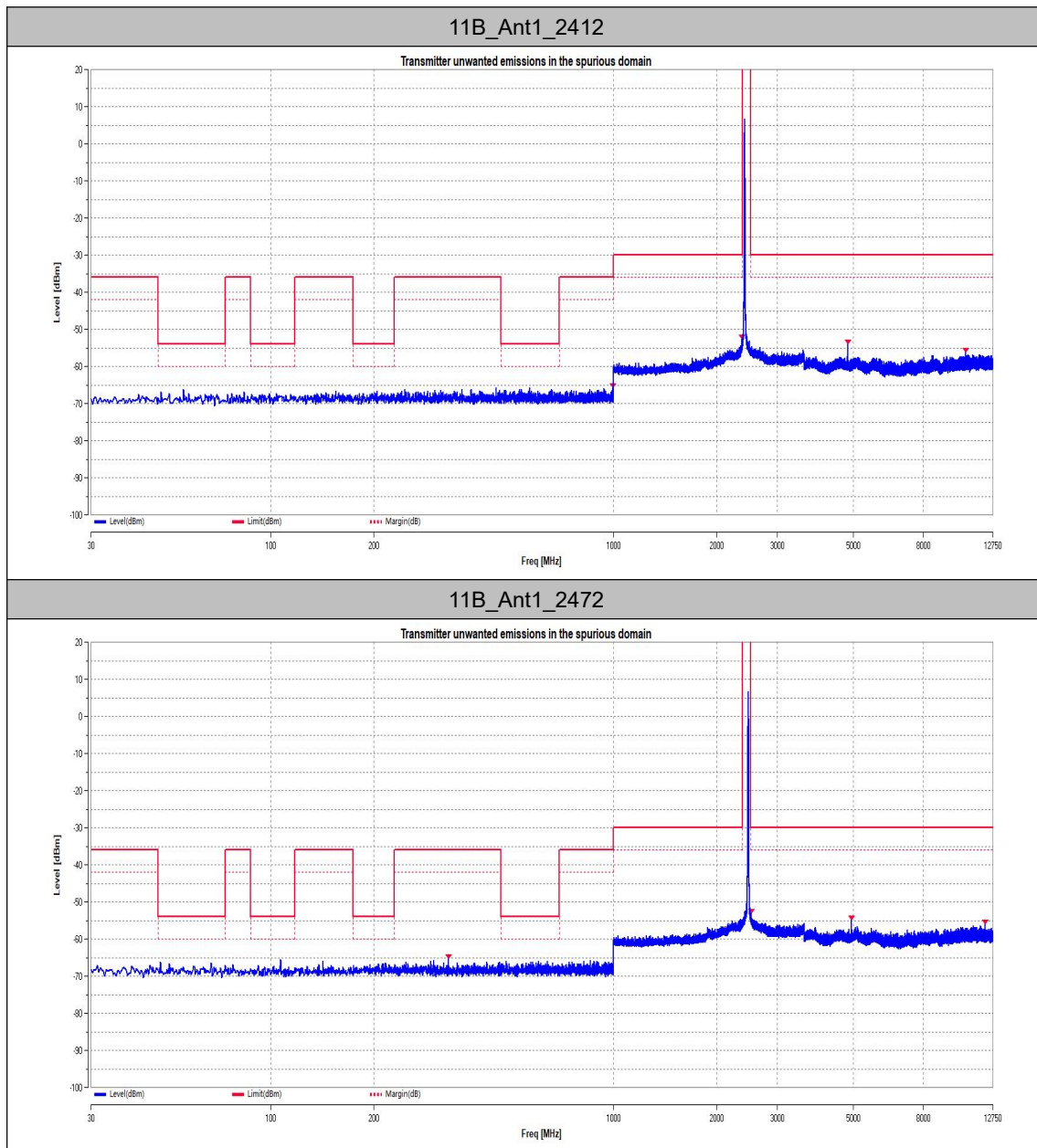


Appendix D: Transmitter unwanted emissions in the spurious domain

Test Result-Pre-scan

TestMode	Antenna	Freq(MHz)	Freq. [MHz]	Level[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	996.44	-65.68	-36	PASS
			2366.33	-52.66	-30	PASS
			4824.3	-53.92	-30	PASS
			10614.95	-56.12	-30	PASS
		2472	330.7	-65.28	-36	PASS
			2525.67	-53.21	-30	PASS
			4943.7	-54.9	-30	PASS
			12127.83	-56.02	-30	PASS

Test Graphs-Pre-scan



Appendix E: Receiver spurious emissions

Test Result-Pre-scan

TestMode	Antenna	Freq(MHz)	Freq. [MHz]	Level[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	90.43	-77.42	-57.00	PASS
			3390.34	-68.54	-47.00	PASS
		2472	957.95	-77.13	-57.00	PASS
			2662.23	-68.11	-47.00	PASS

Test Graphs-Pre-scan

