

Annex for FCC 2.4G WIFI

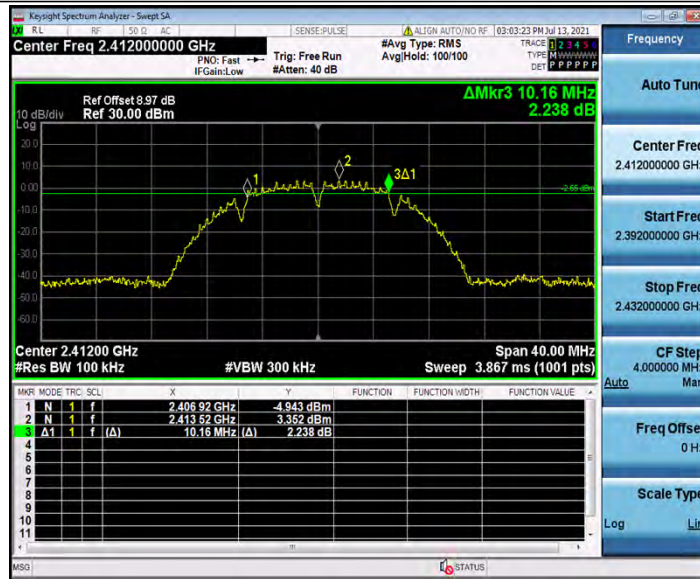
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.160	2406.920	2417.080	0.5	PASS
	Ant2	2412	10.160	2406.920	2417.080	0.5	PASS
	Ant1	2437	10.080	2431.960	2442.040	0.5	PASS
	Ant2	2437	10.120	2431.920	2442.040	0.5	PASS
	Ant1	2462	10.160	2456.920	2467.080	0.5	PASS
	Ant2	2462	10.160	2456.960	2467.120	0.5	PASS
11G	Ant1	2412	14.640	2405.320	2419.960	0.5	PASS
	Ant2	2412	15.960	2404.200	2420.160	0.5	PASS
	Ant1	2437	16.400	2428.800	2445.200	0.5	PASS
	Ant2	2437	15.960	2428.800	2444.760	0.5	PASS
	Ant1	2462	16.120	2454.080	2470.200	0.5	PASS
	Ant2	2462	16.400	2453.800	2470.200	0.5	PASS
11N20SISO	Ant1	2412	15.680	2404.520	2420.200	0.5	PASS
	Ant2	2412	16.840	2403.600	2420.440	0.5	PASS
	Ant1	2437	16.760	2428.440	2445.200	0.5	PASS
	Ant2	2437	15.760	2428.440	2444.200	0.5	PASS
	Ant1	2462	15.800	2454.400	2470.200	0.5	PASS
	Ant2	2462	16.920	2453.480	2470.400	0.5	PASS
11N40SISO	Ant1	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant2	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant1	2437	35.440	2419.160	2454.600	0.5	PASS
	Ant2	2437	35.600	2419.080	2454.680	0.5	PASS
	Ant1	2452	35.200	2434.400	2469.600	0.5	PASS
	Ant2	2452	35.200	2434.400	2469.600	0.5	PASS
11N20MIMO	Ant1	2412	16.160	2404.440	2420.600	0.5	PASS
	Ant2	2412	17.000	2403.800	2420.800	0.5	PASS
	Ant1	2437	15.440	2429.160	2444.600	0.5	PASS
	Ant2	2437	17.160	2428.640	2445.800	0.5	PASS
	Ant1	2462	15.120	2454.520	2469.640	0.5	PASS
	Ant2	2462	16.600	2453.600	2470.200	0.5	PASS
11N40MIMO	Ant1	2422	35.200	2404.400	2439.600	0.5	PASS
	Ant2	2422	32.800	2405.600	2438.400	0.5	PASS
	Ant1	2437	35.200	2419.400	2454.600	0.5	PASS
	Ant2	2437	35.280	2419.320	2454.600	0.5	PASS
	Ant1	2452	35.280	2434.400	2469.680	0.5	PASS
	Ant2	2452	35.280	2434.320	2469.600	0.5	PASS

Test Graphs

11B_Ant1_2412



11B_Ant2_2412



11B_Ant1_2437



11B_Ant2_2437



11B_Ant1_2462



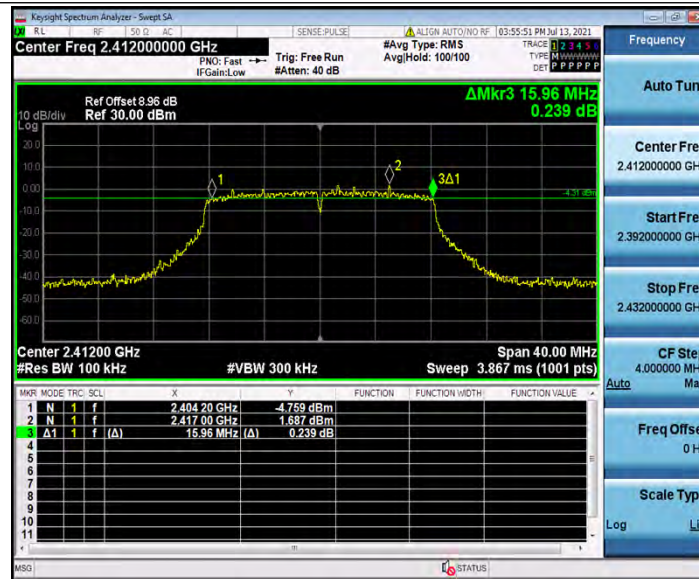
11B_Ant2_2462



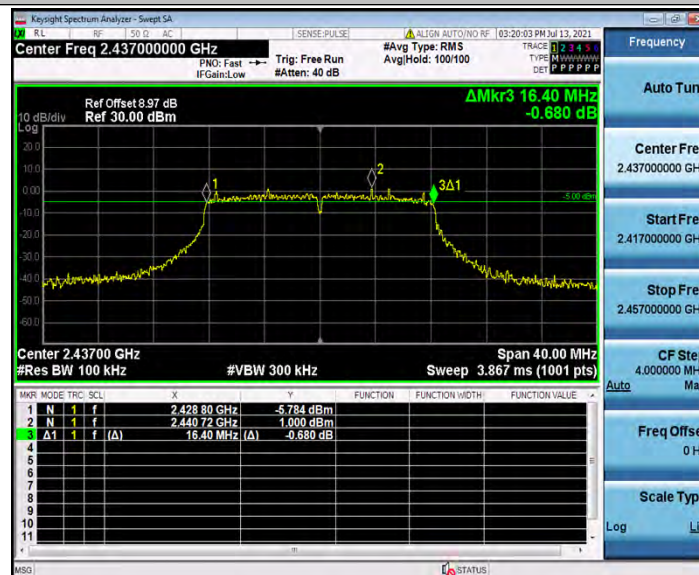
11G_Ant1_2412



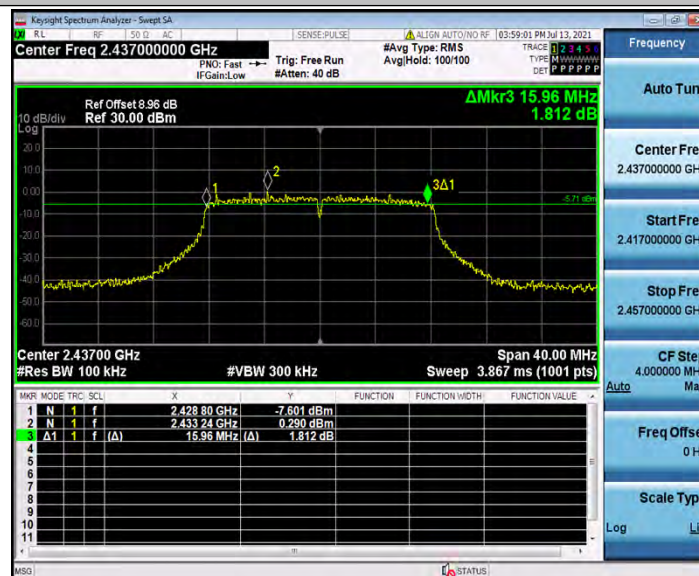
11G_Ant2_2412



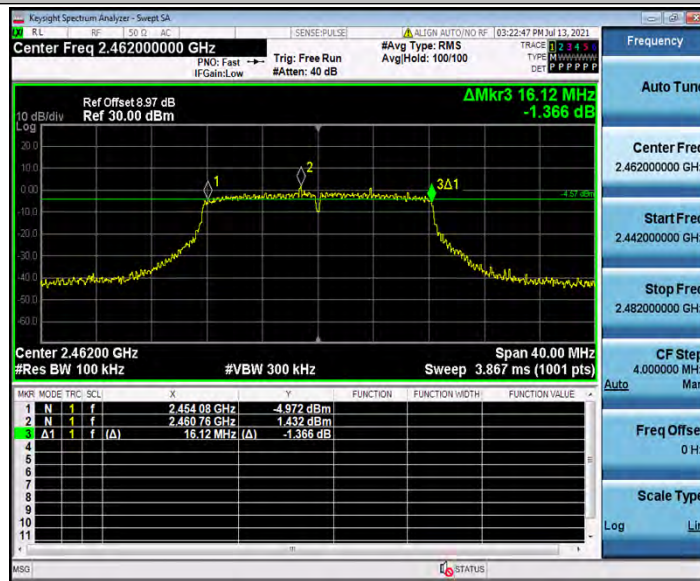
11G_Ant1_2437



11G_Ant2_2437



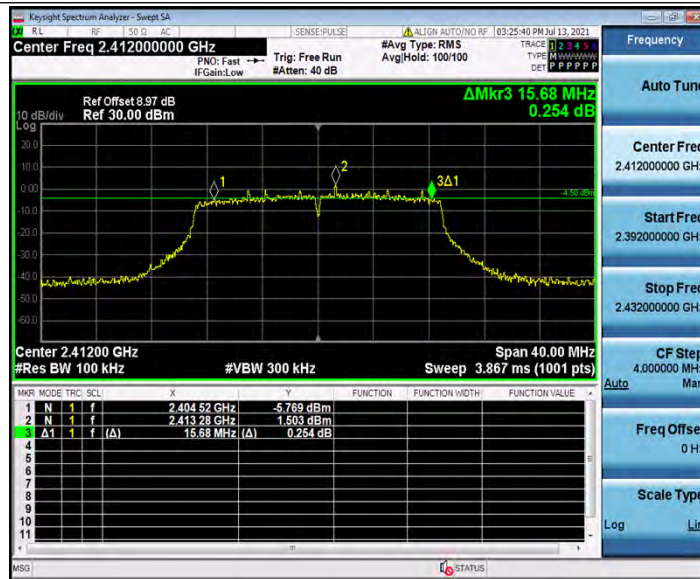
11G_Ant1_2462



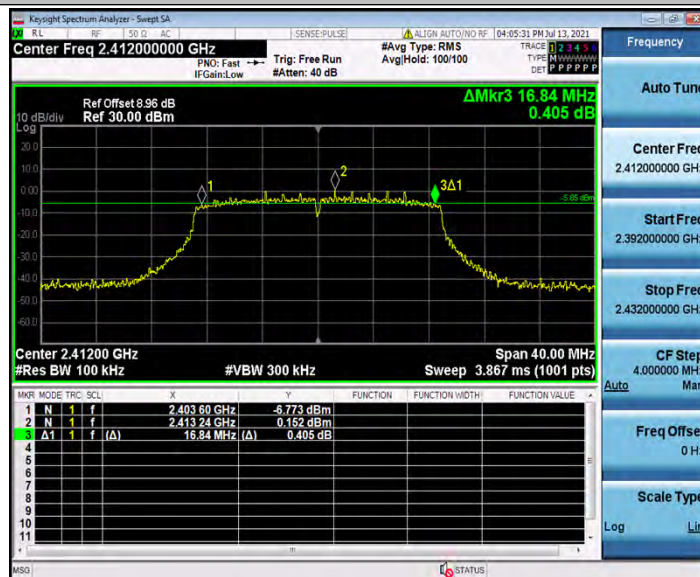
11G_Ant2_2462



11N20SISO_Ant1_2412



11N20SISO_Ant2_2412



11N20SISO_Ant1_2437



11N20SISO_Ant2_2437



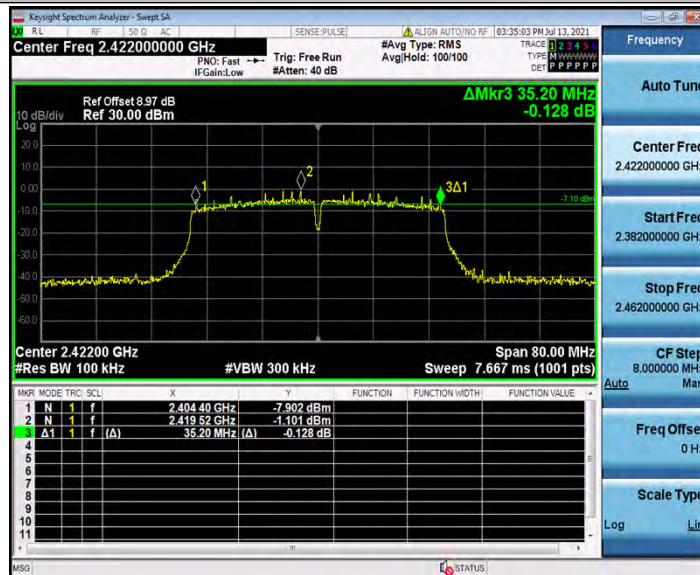
11N20SISO_Ant1_2462



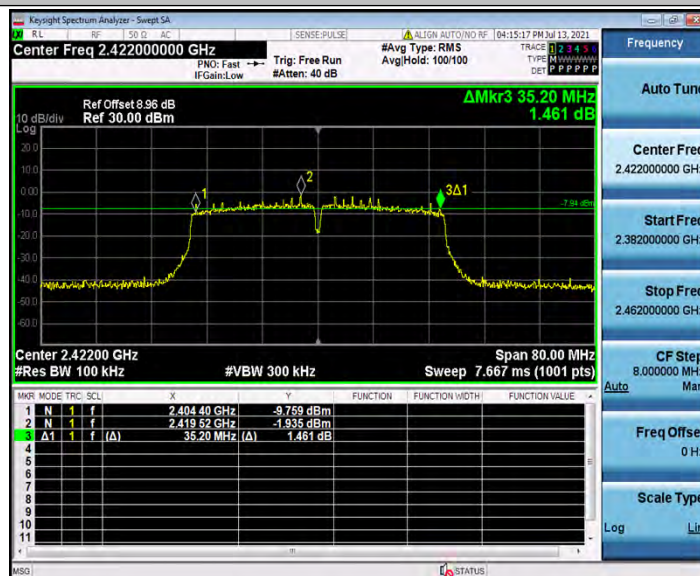
11N20SISO_Ant2_2462



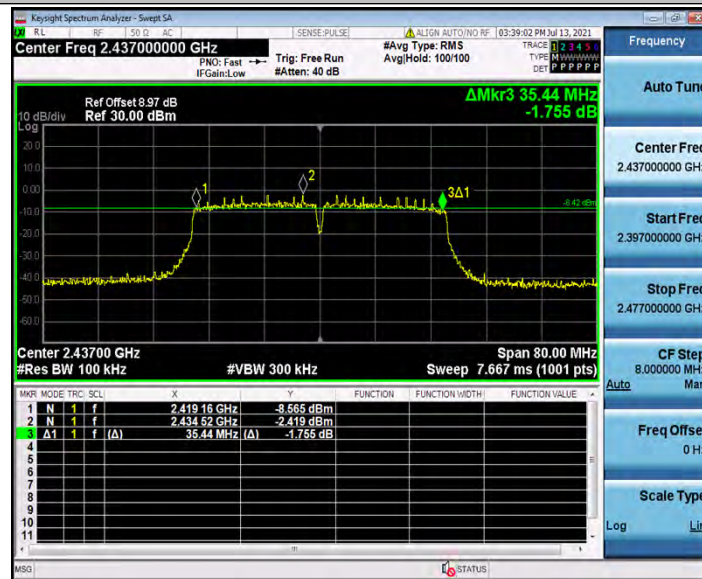
11N40SISO_Ant1_2422



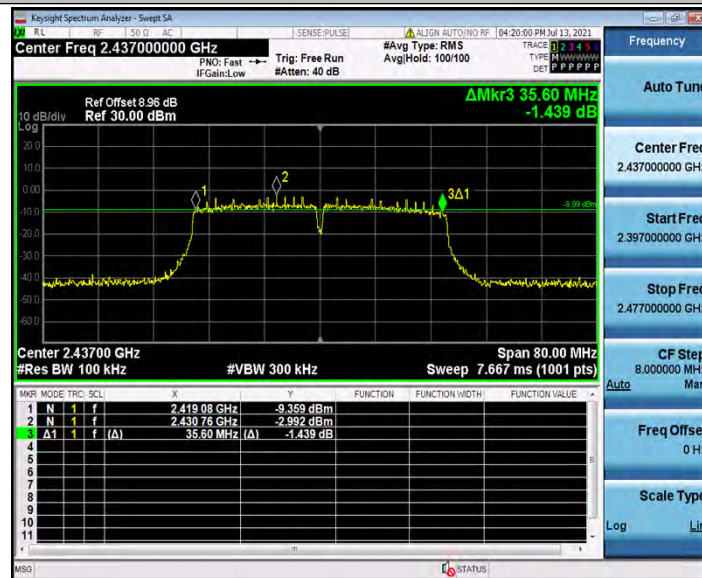
11N40SISO_Ant2_2422



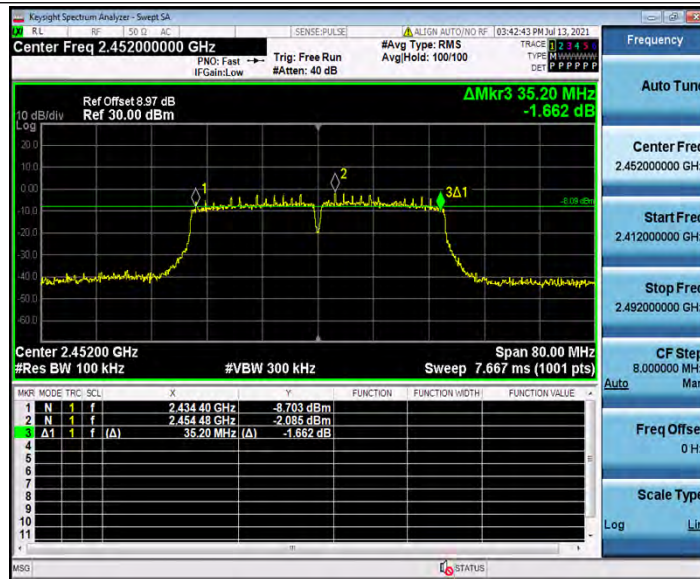
11N40SISO_Ant1_2437



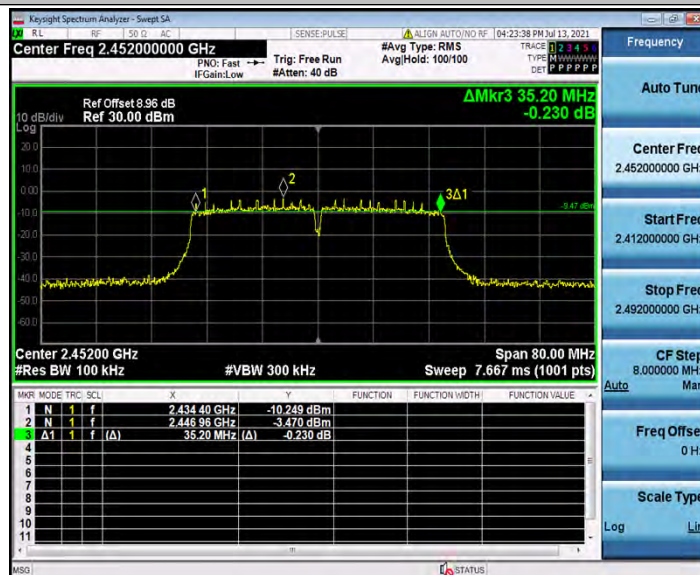
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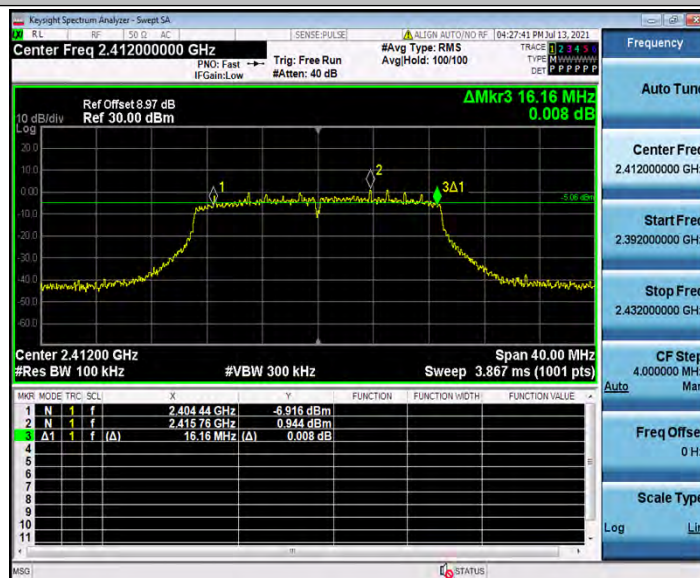
11N40SISO_Ant1_2452



11N40SISO_Ant2_2452



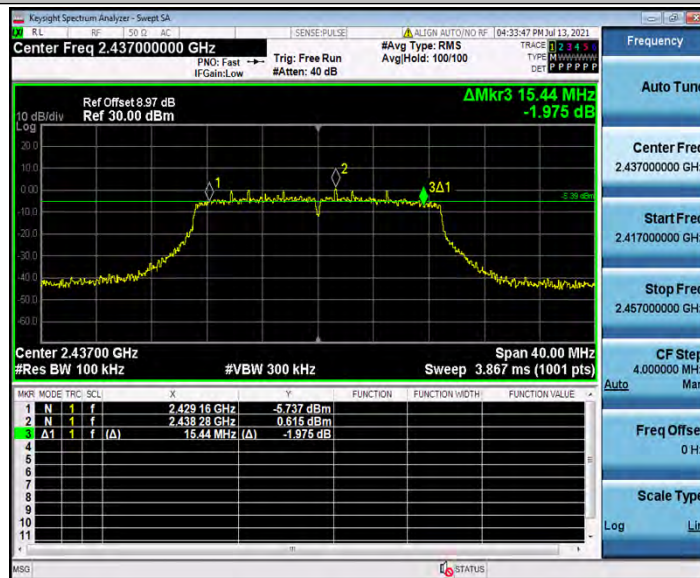
11N20MIMO_Ant1_2412



11N20MIMO_Ant2_2412



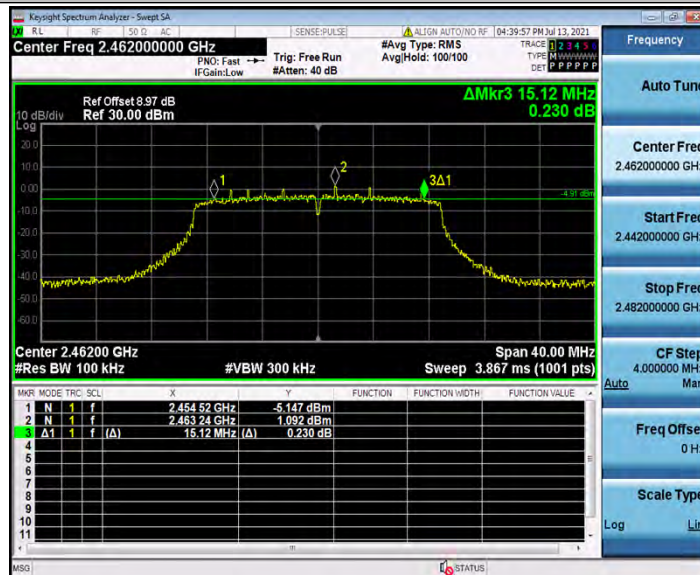
11N20MIMO_Ant1_2437



11N20MIMO_Ant2_2437



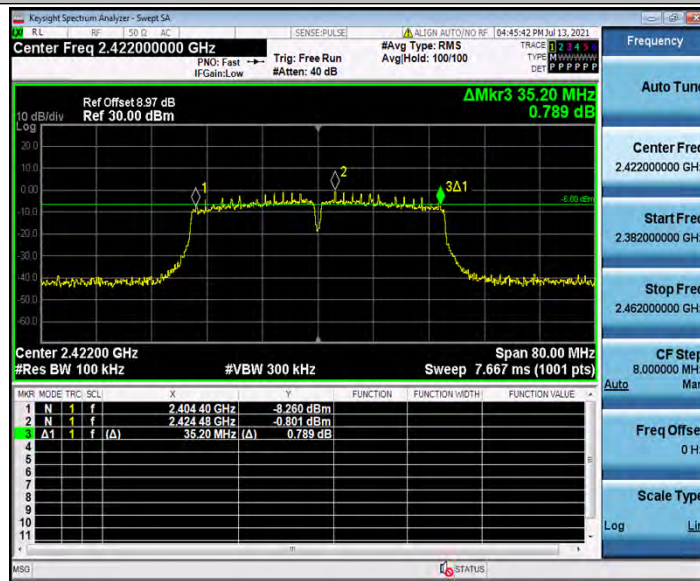
11N20MIMO_Ant1_2462



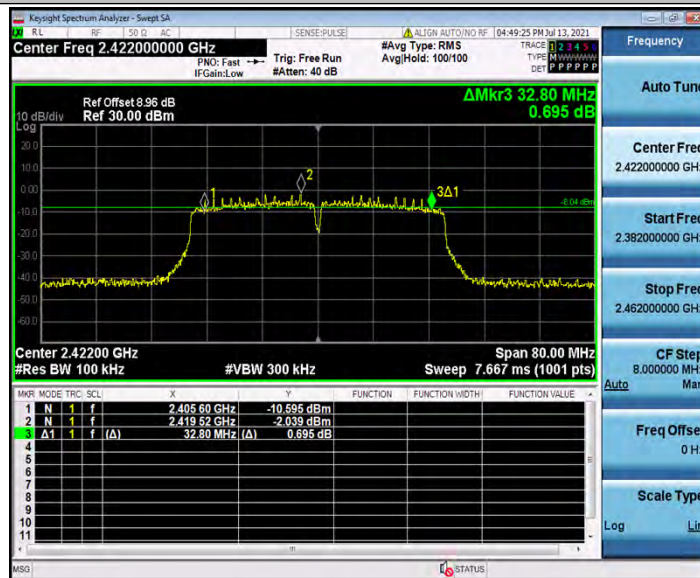
11N20MIMO_Ant2_2462



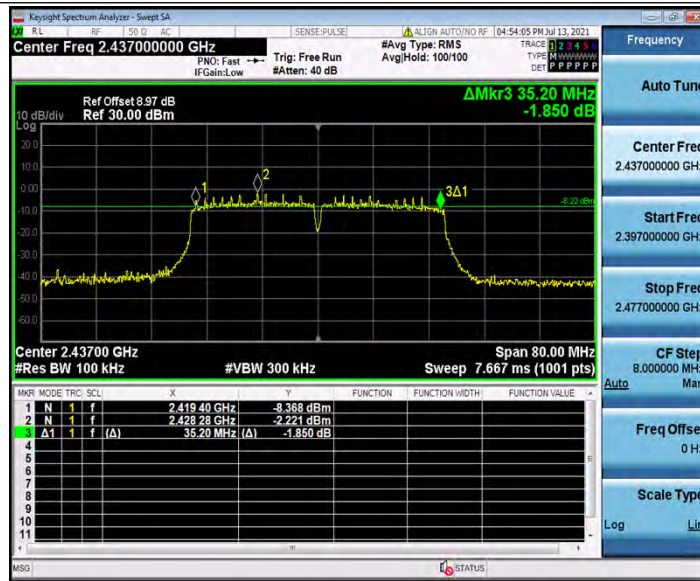
11N40MIMO_Ant1_2422



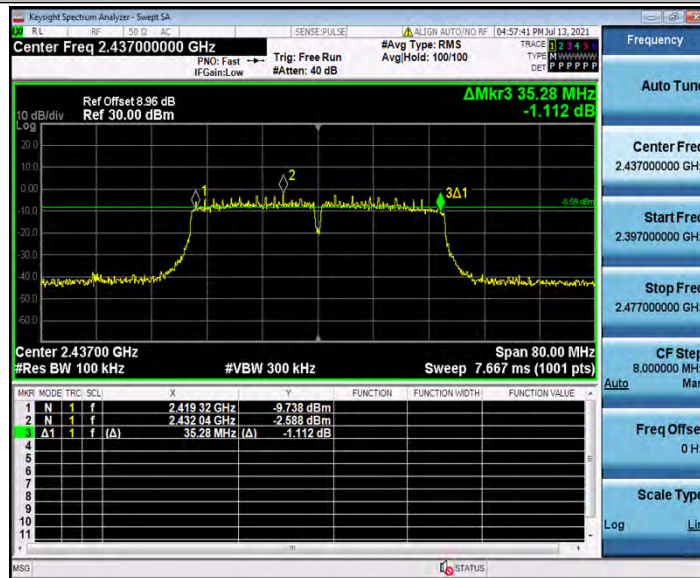
11N40MIMO_Ant2_2422



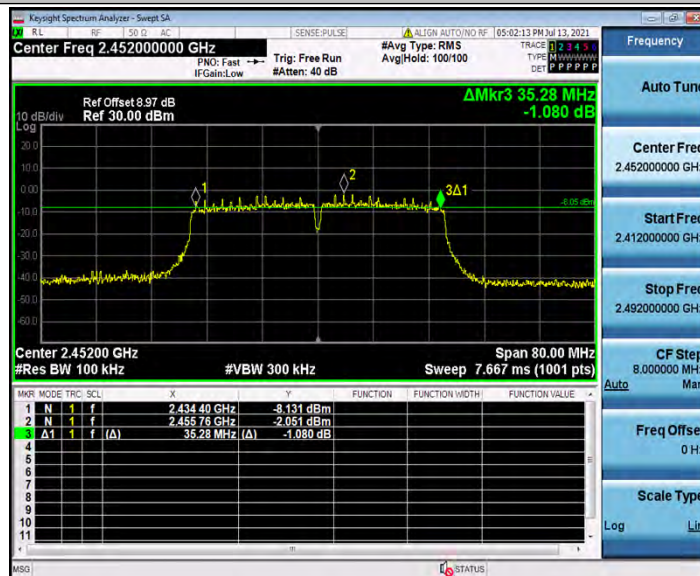
11N40MIMO_Ant1_2437



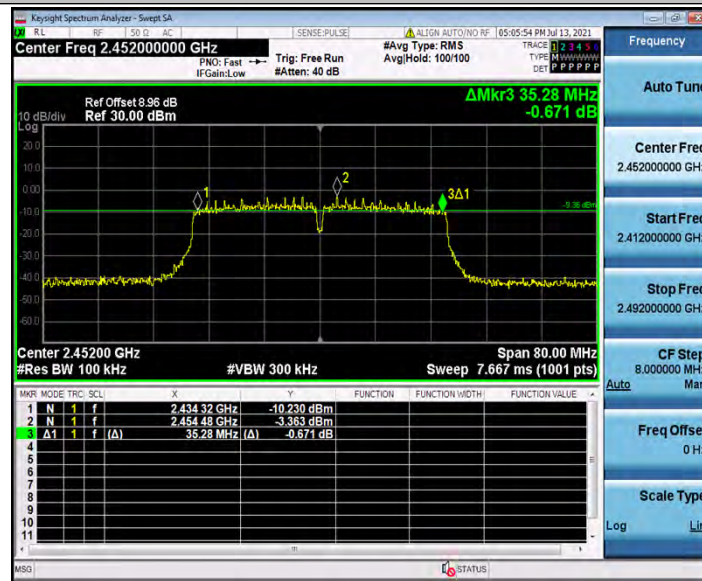
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



Appendix B: Occupied Channel Bandwidth

Test Result

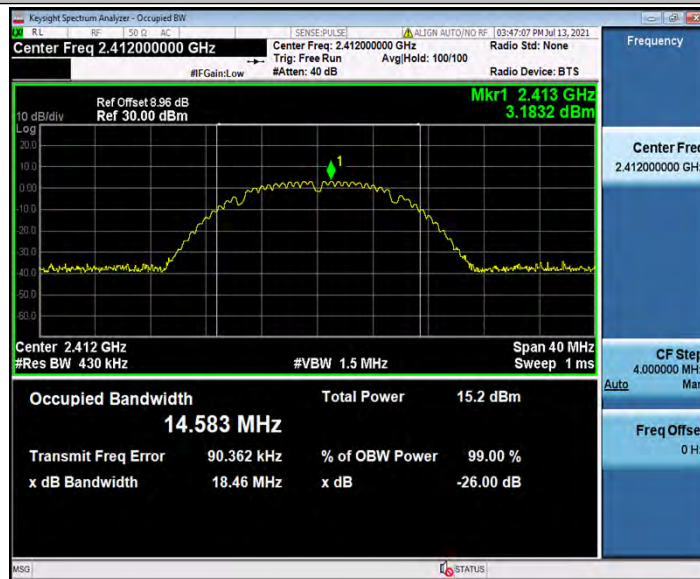
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.569	2404.879	2419.448	---	PASS
	Ant2	2412	14.583	2404.799	2419.382	---	PASS
	Ant1	2437	14.772	2429.580	2444.352	---	PASS
	Ant2	2437	14.685	2429.610	2444.295	---	PASS
	Ant1	2462	14.713	2454.709	2469.422	---	PASS
	Ant2	2462	14.772	2454.663	2469.435	---	PASS
11G	Ant1	2412	16.702	2403.815	2420.517	---	PASS
	Ant2	2412	16.698	2403.759	2420.457	---	PASS
	Ant1	2437	16.796	2428.600	2445.396	---	PASS
	Ant2	2437	16.739	2428.593	2445.332	---	PASS
	Ant1	2462	16.744	2453.666	2470.410	---	PASS
	Ant2	2462	16.825	2453.665	2470.490	---	PASS
11N20SISO	Ant1	2412	17.888	2403.153	2421.041	---	PASS
	Ant2	2412	17.792	2403.169	2420.961	---	PASS
	Ant1	2437	17.940	2428.003	2445.943	---	PASS
	Ant2	2437	17.875	2428.059	2445.934	---	PASS
	Ant1	2462	17.912	2453.075	2470.987	---	PASS
	Ant2	2462	17.962	2453.063	2471.025	---	PASS
11N40SISO	Ant1	2422	36.108	2404.090	2440.198	---	PASS
	Ant2	2422	35.985	2404.039	2440.024	---	PASS
	Ant1	2437	36.265	2418.876	2455.141	---	PASS
	Ant2	2437	36.235	2418.852	2455.087	---	PASS
	Ant1	2452	36.261	2433.946	2470.207	---	PASS
	Ant2	2452	36.206	2433.930	2470.136	---	PASS
11N20MIM O	Ant1	2412	17.883	2403.195	2421.078	---	PASS
	Ant2	2412	17.711	2403.198	2420.909	---	PASS
	Ant1	2437	17.909	2428.046	2445.955	---	PASS
	Ant2	2437	17.715	2428.160	2445.875	---	PASS
	Ant1	2462	17.872	2453.077	2470.949	---	PASS
	Ant2	2462	17.805	2453.158	2470.963	---	PASS
11N40MIM O	Ant1	2422	36.100	2404.076	2440.176	---	PASS
	Ant2	2422	35.946	2404.087	2440.033	---	PASS
	Ant1	2437	36.334	2418.886	2455.220	---	PASS
	Ant2	2437	36.097	2418.869	2454.966	---	PASS
	Ant1	2452	36.300	2433.919	2470.219	---	PASS
	Ant2	2452	36.271	2433.835	2470.106	---	PASS

Test Graphs

11B_Ant1_2412



11B_Ant2_2412



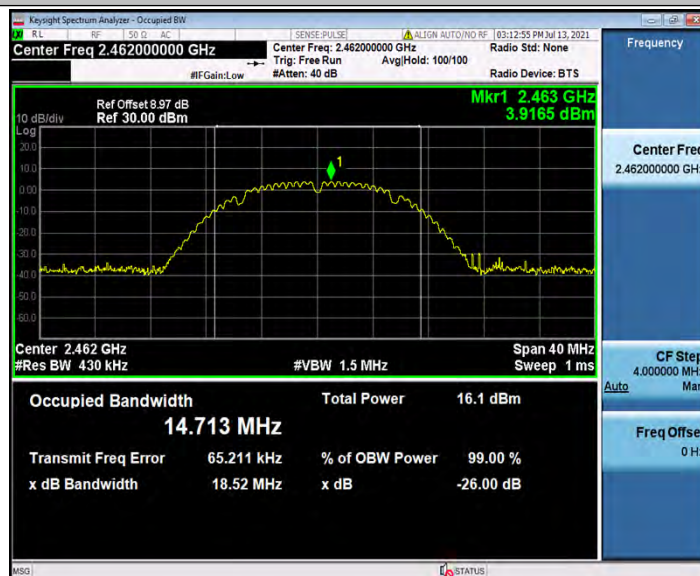
11B_Ant1_2437



11B_Ant2_2437



11B_Ant1_2462



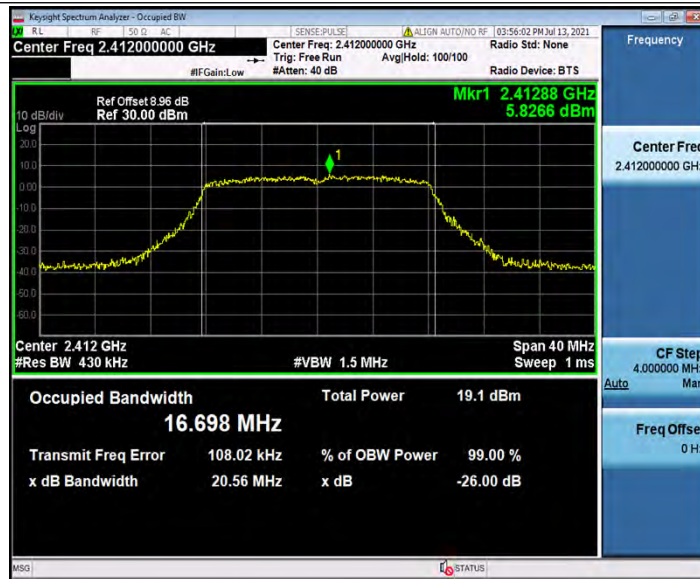
11B_Ant2_2462



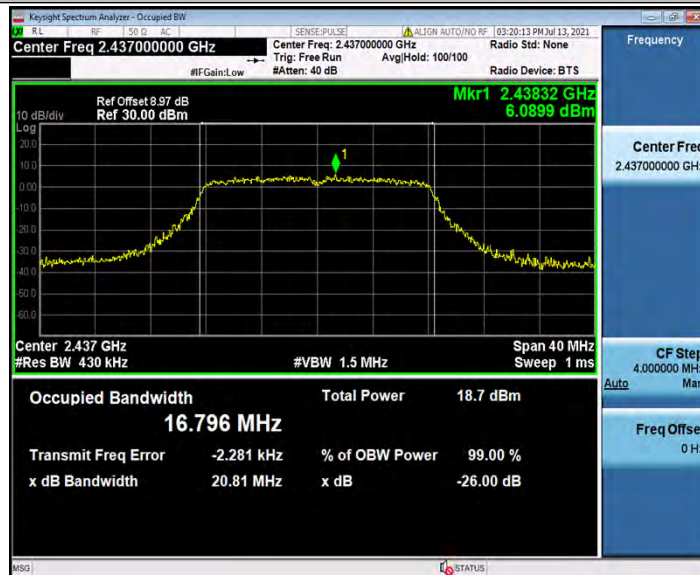
11G_Ant1_2412



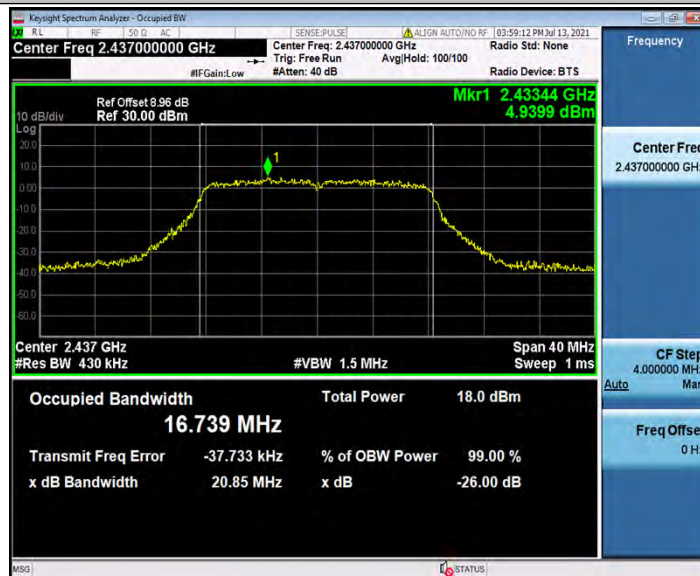
11G_Ant2_2412



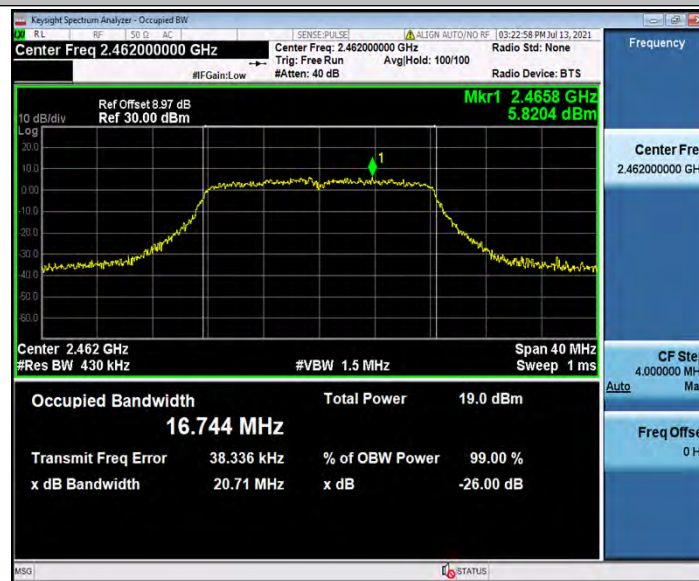
11G_Ant1_2437



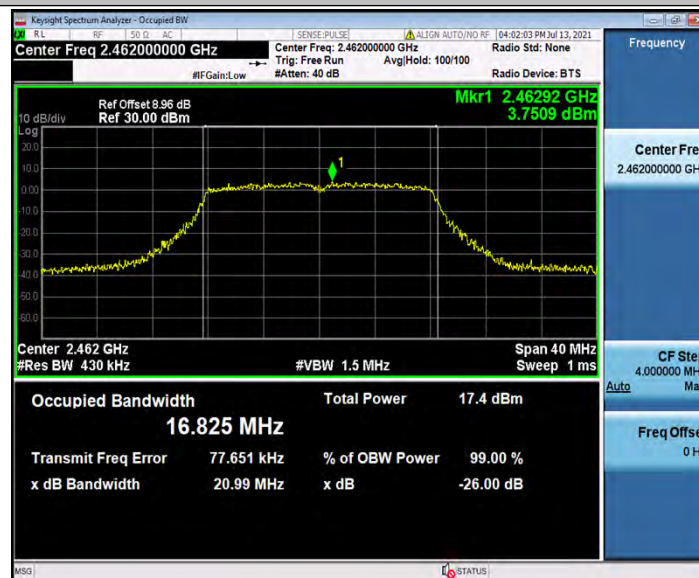
11G_Ant2_2437



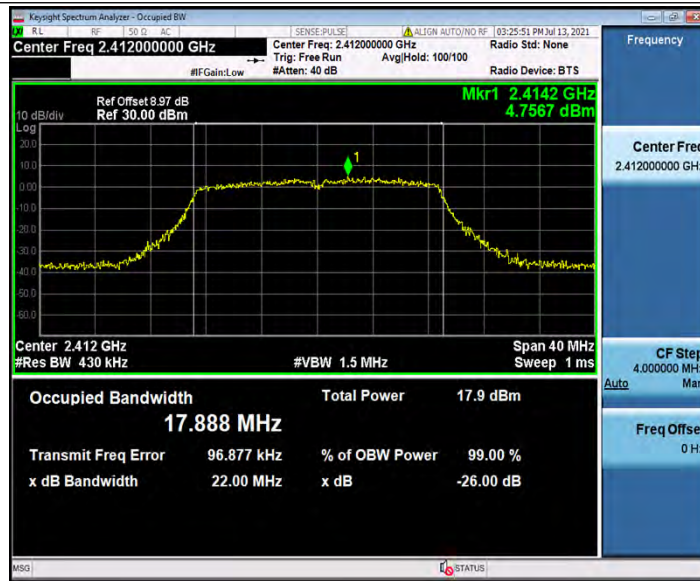
11G_Ant1_2462



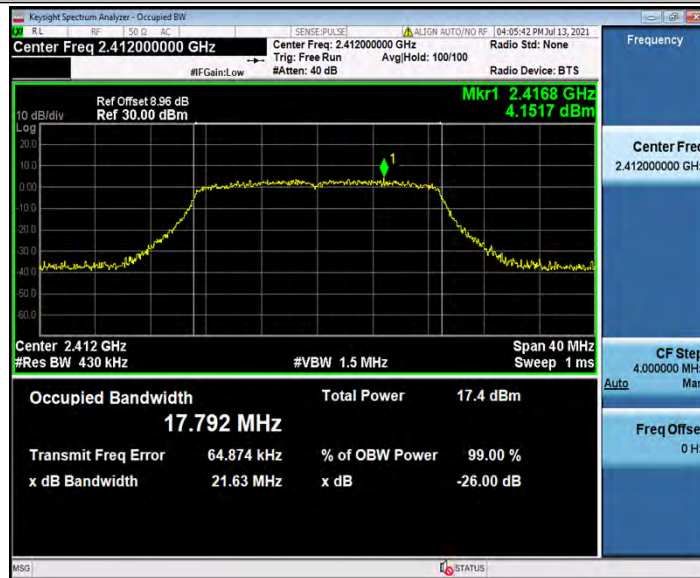
11G_Ant2_2462



11N20SISO_Ant1_2412



11N20SISO_Ant2_2412



11N20SISO_Ant1_2437



11N20SISO_Ant2_2437



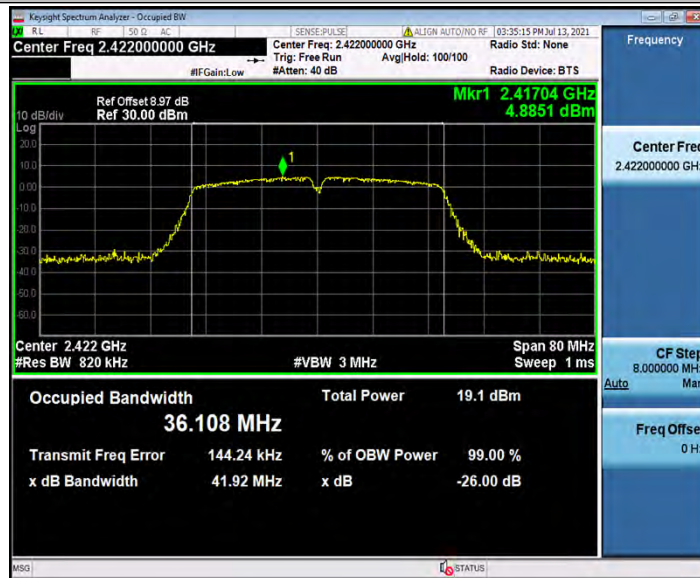
11N20SISO_Ant1_2462



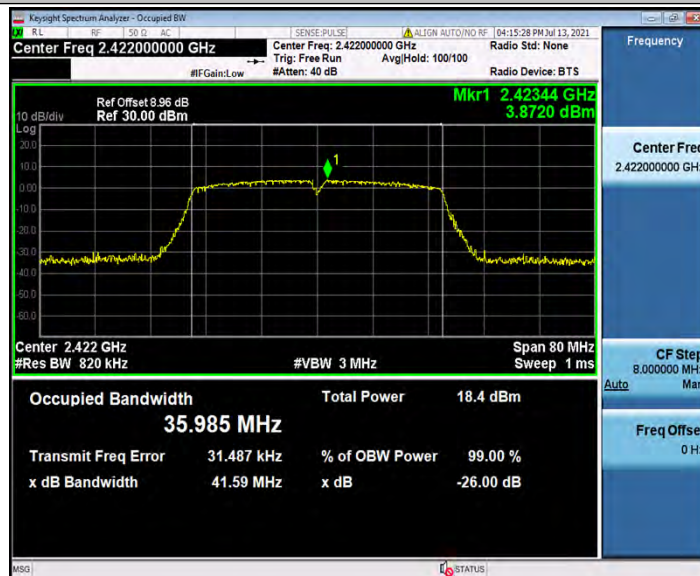
11N20SISO_Ant2_2462



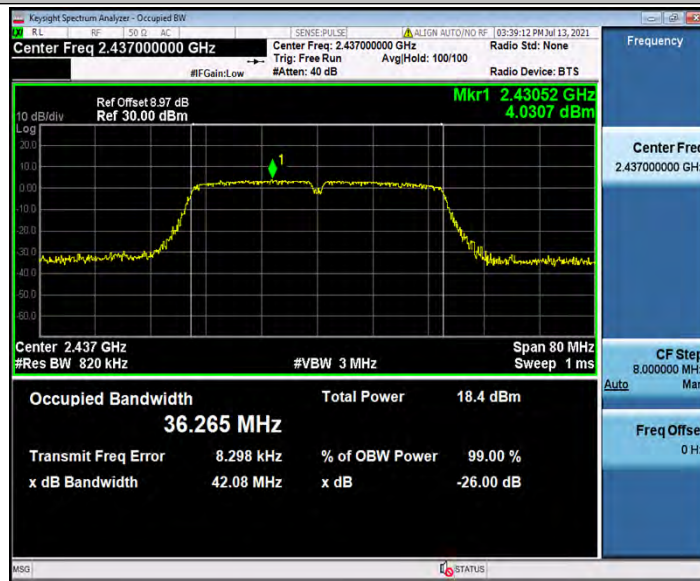
11N40SISO_Ant1_2422



11N40SISO_Ant2_2422



11N40SISO_Ant1_2437



11N40SISO_Ant2_2437



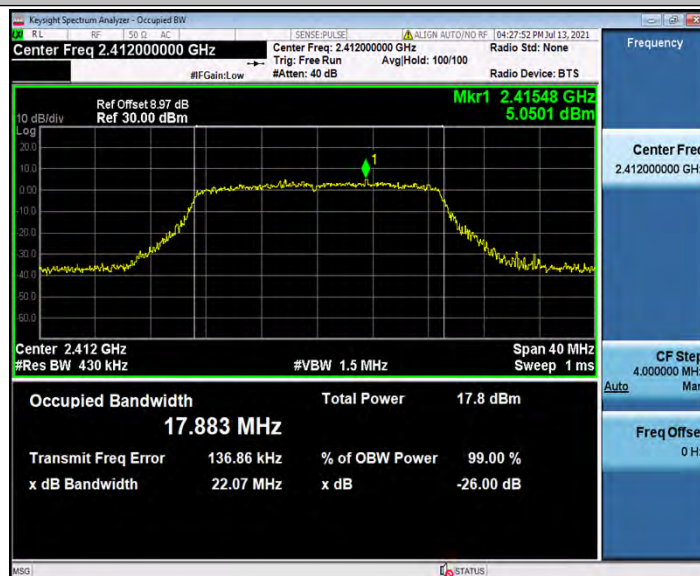
11N40SISO_Ant1_2452



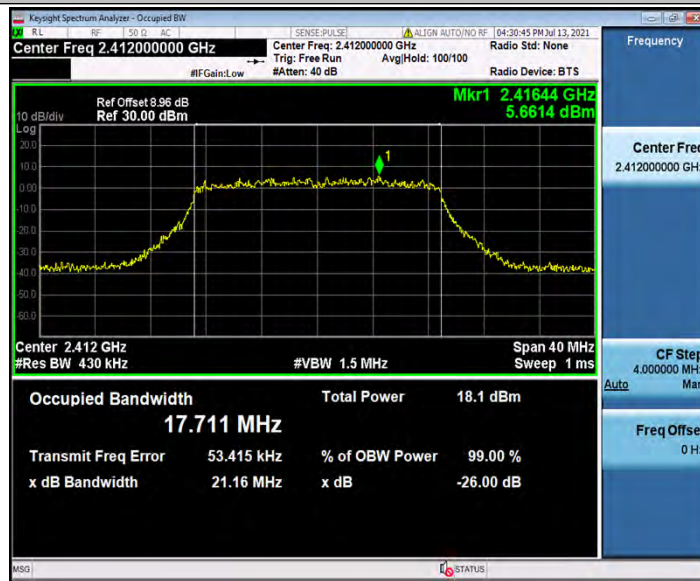
11N40SISO_Ant2_2452



11N20MIMO_Ant1_2412



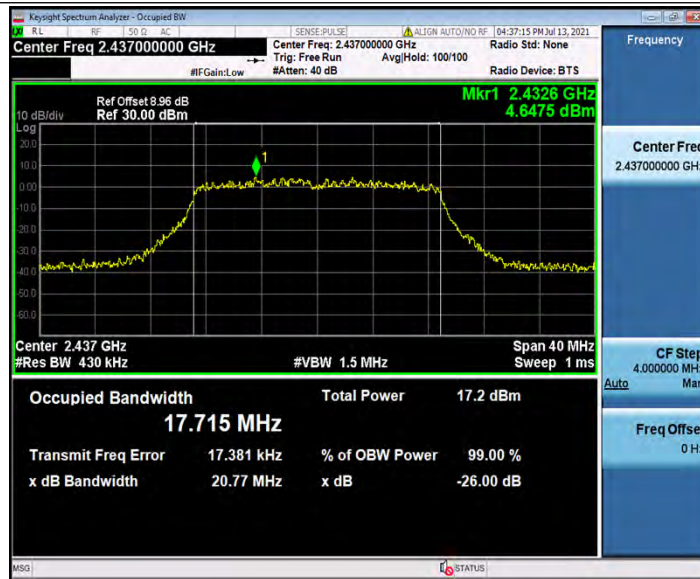
11N20MIMO_Ant2_2412



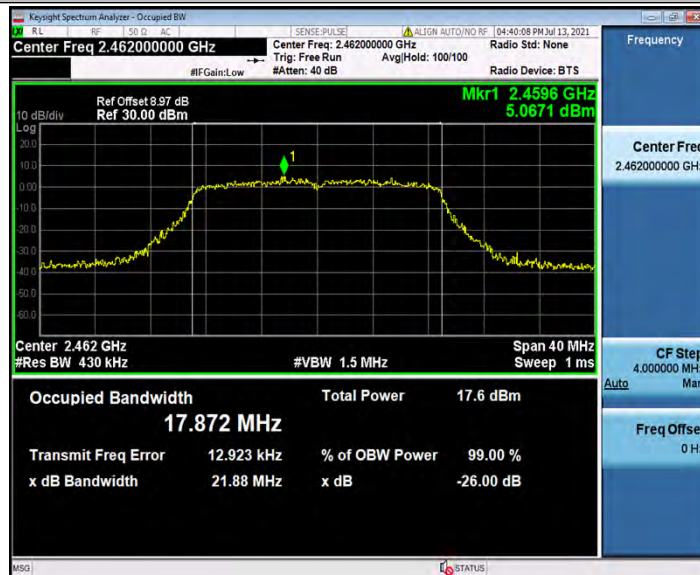
11N20MIMO_Ant1_2437



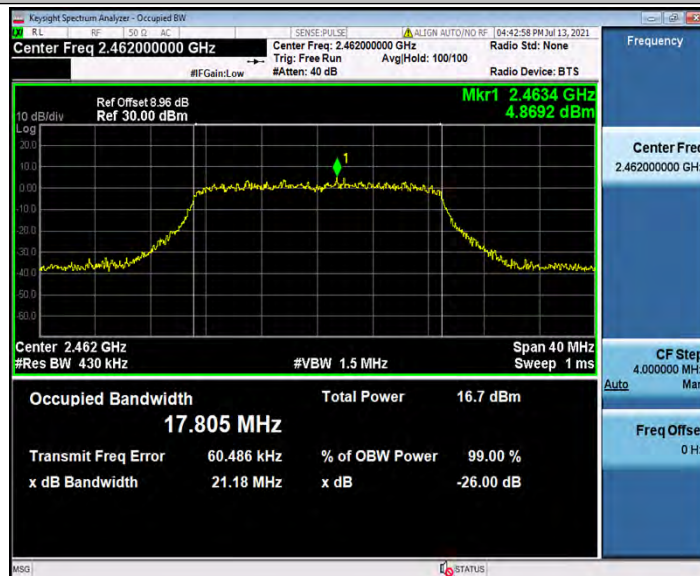
11N20MIMO_Ant2_2437



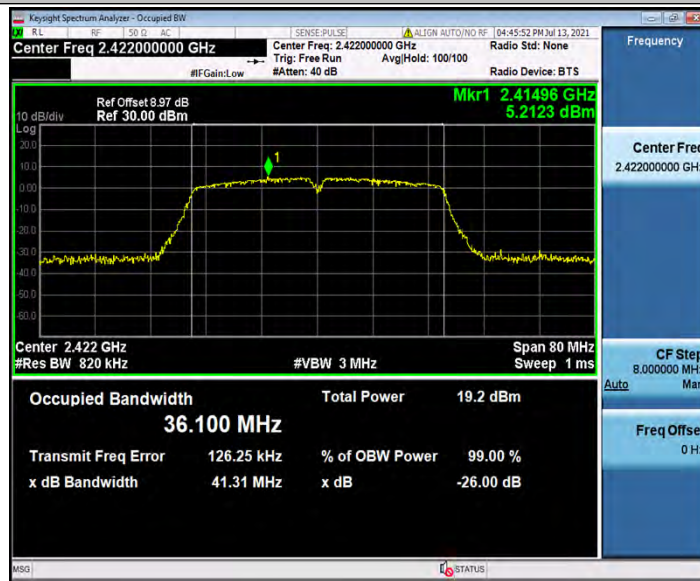
11N20MIMO_Ant1_2462



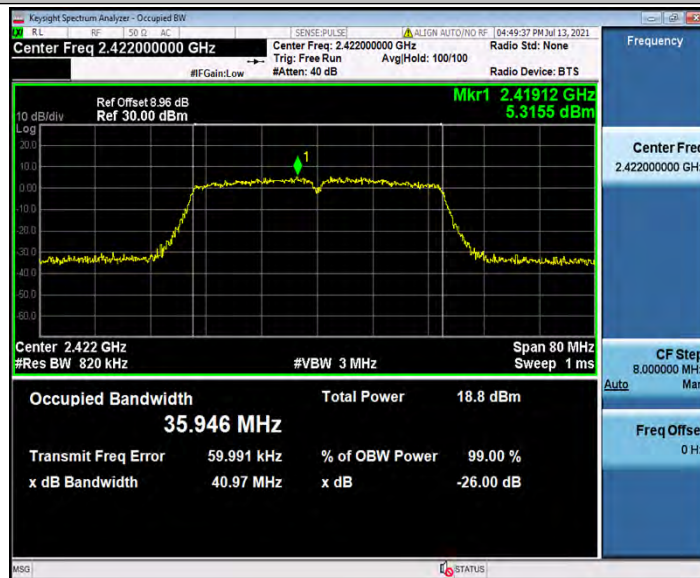
11N20MIMO_Ant2_2462



11N40MIMO_Ant1_2422



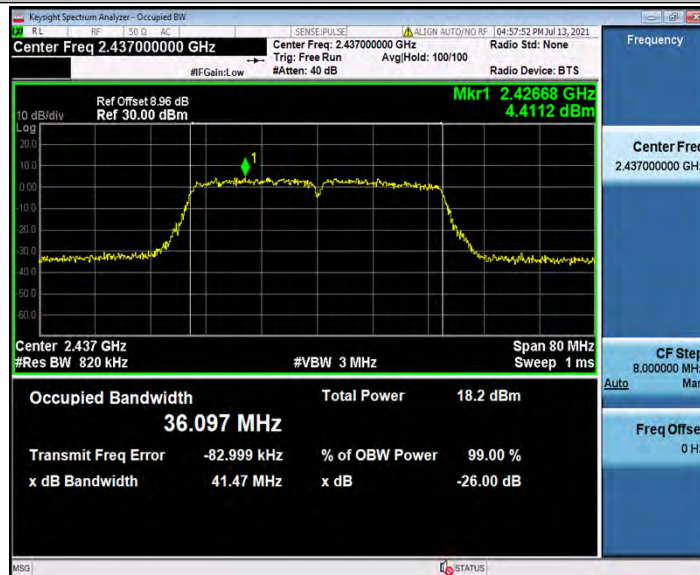
11N40MIMO_Ant2_2422



11N40MIMO_Ant1_2437



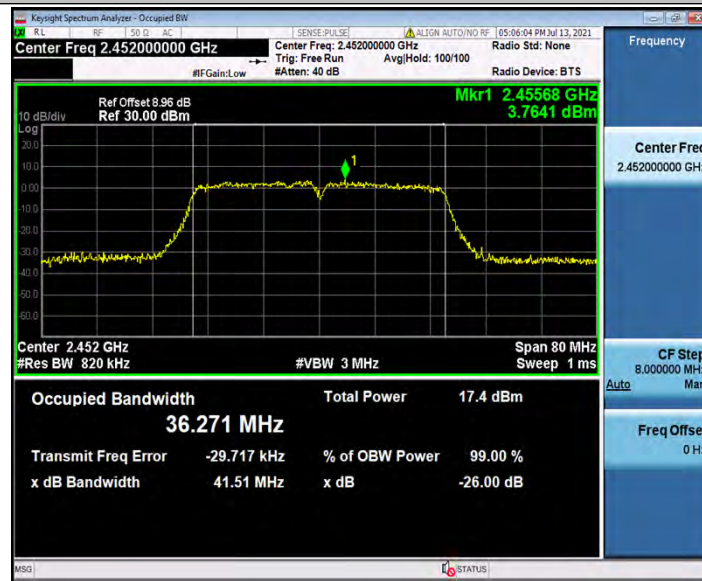
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	15.80	<=30	PASS
	Ant2	2412	14.83	<=30	PASS
	Ant1	2437	14.02	<=30	PASS
	Ant2	2437	14.06	<=30	PASS
	Ant1	2462	14.23	<=30	PASS
	Ant2	2462	13.44	<=30	PASS
11G	Ant1	2412	20.26	<=30	PASS
	Ant2	2412	19.81	<=30	PASS
	Ant1	2437	19.76	<=30	PASS
	Ant2	2437	19.05	<=30	PASS
	Ant1	2462	20.13	<=30	PASS
	Ant2	2462	18.55	<=30	PASS
11N20SISO	Ant1	2412	18.78	<=30	PASS
	Ant2	2412	18.56	<=30	PASS
	Ant1	2437	18.29	<=30	PASS
	Ant2	2437	17.49	<=30	PASS
	Ant1	2462	18.38	<=30	PASS
	Ant2	2462	17.13	<=30	PASS
11N40SISO	Ant1	2422	19.36	<=30	PASS
	Ant2	2422	18.66	<=30	PASS
	Ant1	2437	18.69	<=30	PASS
	Ant2	2437	17.89	<=30	PASS
	Ant1	2452	18.57	<=30	PASS
	Ant2	2452	17.46	<=30	PASS
11N20MIMO	Ant1	2412	18.61	<=30	PASS
	Ant2	2412	19.18	<=30	PASS
	total	2412	21.90	<=28.16	PASS
	Ant1	2437	17.95	<=30	PASS
	Ant2	2437	18.05	<=30	PASS
	total	2437	21.00	<=28.16	PASS
	Ant1	2462	18.30	<=30	PASS
	Ant2	2462	17.61	<=30	PASS
	total	2462	21.00	<=28.16	PASS
11N40MIMO	Ant1	2422	19.44	<=30	PASS
	Ant2	2422	18.75	<=30	PASS
	total	2422	22.10	<=28.16	PASS
	Ant1	2437	18.42	<=30	PASS
	Ant2	2437	18.27	<=30	PASS

	total	2437	21.40	≤ 28.16	PASS
	Ant1	2452	18.51	≤ 30	PASS
	Ant2	2452	17.61	≤ 30	PASS
	total	2452	21.10	≤ 28.16	PASS

Note: For MIMO mode the directional gain of the antenna is 7.84dbi. the limit reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-3.09	<=8	PASS
	Ant2	2412	-5.51	<=8	PASS
	Ant1	2437	-4.5	<=8	PASS
	Ant2	2437	-6.47	<=8	PASS
	Ant1	2462	-4.49	<=8	PASS
	Ant2	2462	-6.67	<=8	PASS
11G	Ant1	2412	-5.57	<=8	PASS
	Ant2	2412	-5.54	<=8	PASS
	Ant1	2437	-7.62	<=8	PASS
	Ant2	2437	-7.25	<=8	PASS
	Ant1	2462	-6.55	<=8	PASS
	Ant2	2462	-8.13	<=8	PASS
11N20SISO	Ant1	2412	-7.5	<=8	PASS
	Ant2	2412	-8	<=8	PASS
	Ant1	2437	-8.47	<=8	PASS
	Ant2	2437	-9.56	<=8	PASS
	Ant1	2462	-8.09	<=8	PASS
	Ant2	2462	-8.77	<=8	PASS
11N40SISO	Ant1	2422	-10.71	<=8	PASS
	Ant2	2422	-11.12	<=8	PASS
	Ant1	2437	-10.64	<=8	PASS
	Ant2	2437	-11.85	<=8	PASS
	Ant1	2452	-11.38	<=8	PASS
	Ant2	2452	-11.99	<=8	PASS
11N20MIMO	Ant1	2412	-8.74	<=8	PASS
	Ant2	2412	-7.00	<=8	PASS
	total	2412	-4.77	<=6.16	PASS
	Ant1	2437	-8.98	<=8	PASS
	Ant2	2437	-8.84	<=8	PASS
	total	2437	-5.90	<=6.16	PASS
	Ant1	2462	-7.23	<=8	PASS
	Ant2	2462	-8.72	<=8	PASS
	total	2462	-4.90	<=6.16	PASS
11N40MIMO	Ant1	2422	-9.66	<=8	PASS
	Ant2	2422	-10.38	<=8	PASS
	total	2422	-6.99	<=6.16	PASS
	Ant1	2437	-11.63	<=8	PASS
	Ant2	2437	-12.06	<=8	PASS

	total	2437	-8.83	≤ 6.16	PASS
	Ant1	2452	-10.58	≤ 8	PASS
	Ant2	2452	-12.15	≤ 8	PASS
	total	2452	-8.28	≤ 6.16	PASS

Note: For MIMO mode the directional gain of the antenna is 7.84dbi. the limit reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Graphs

11B_Ant1_2412



11B_Ant2_2412



11B_Ant1_2437



11B_Ant2_2437



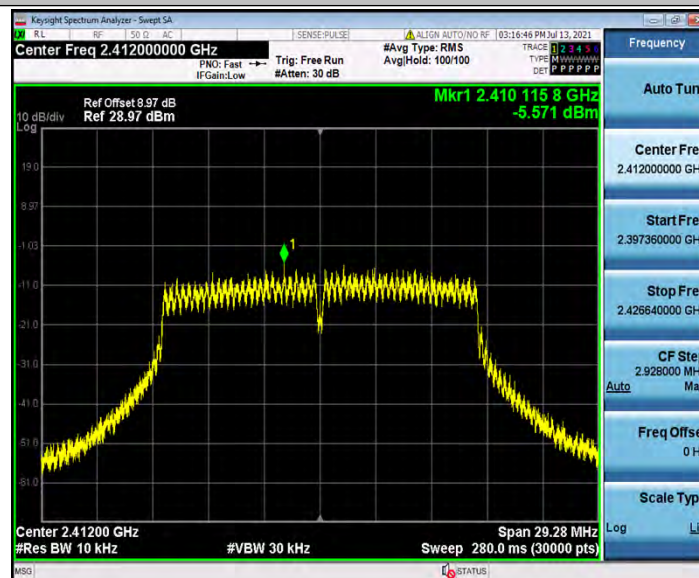
11B_Ant1_2462



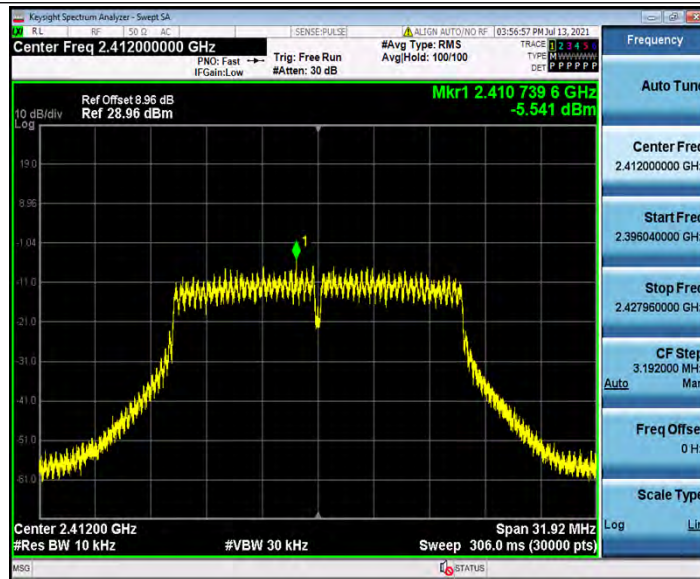
11B_Ant2_2462



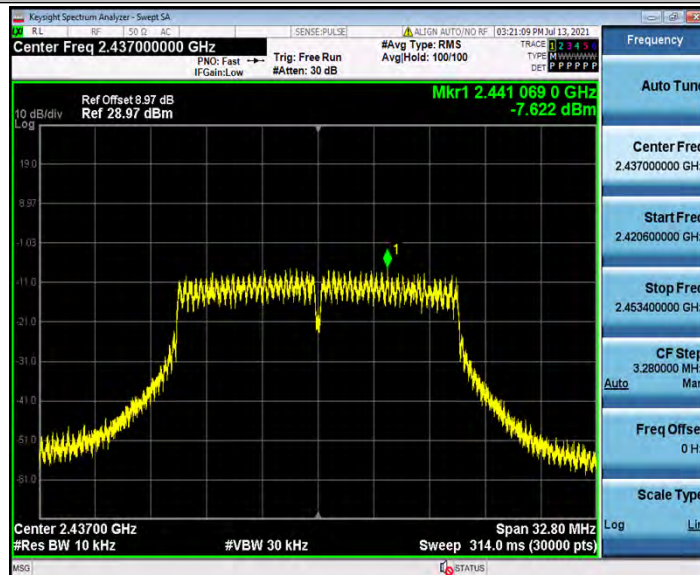
11G_Ant1_2412



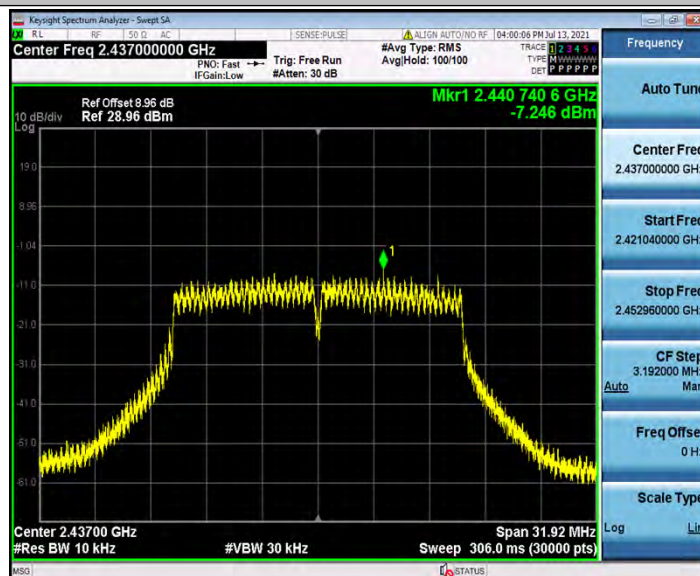
11G_Ant2_2412



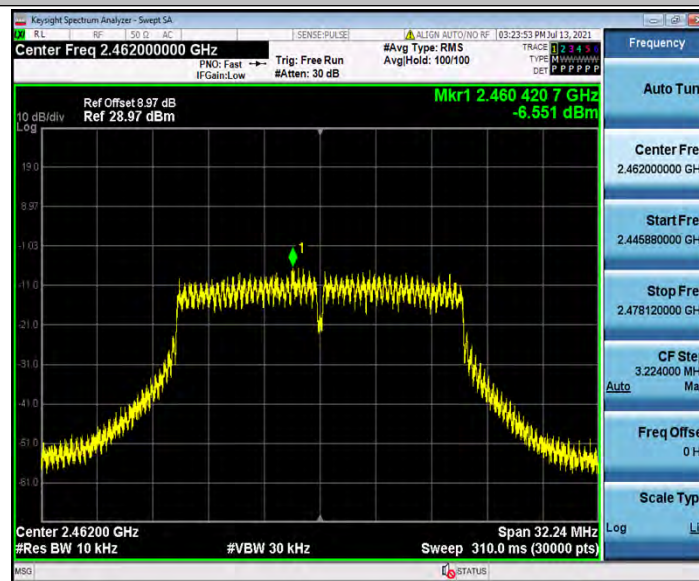
11G_Ant1_2437



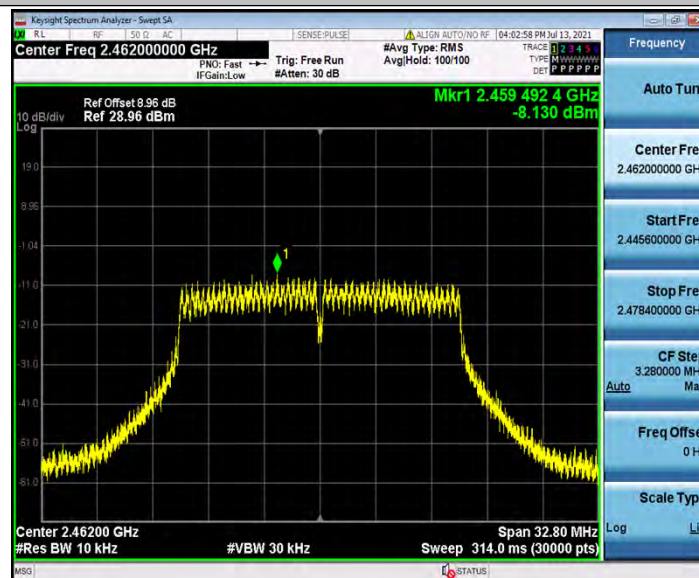
11G_Ant2_2437



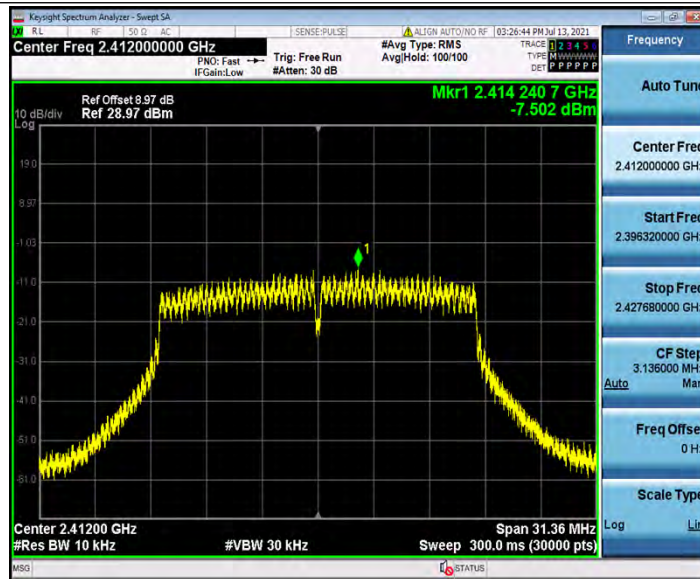
11G_Ant1_2462



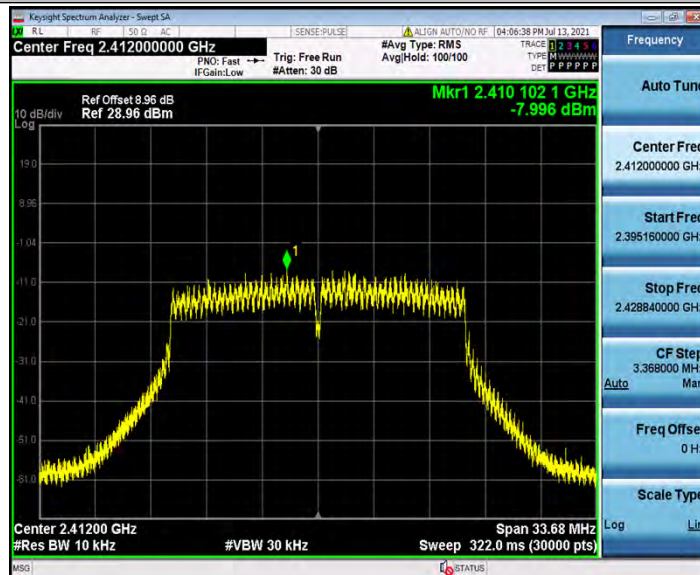
11G_Ant2_2462



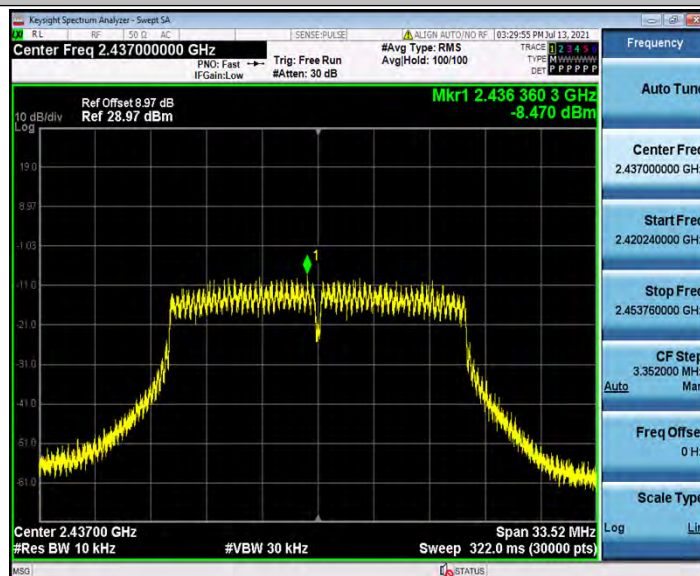
11N20SISO_Ant1_2412



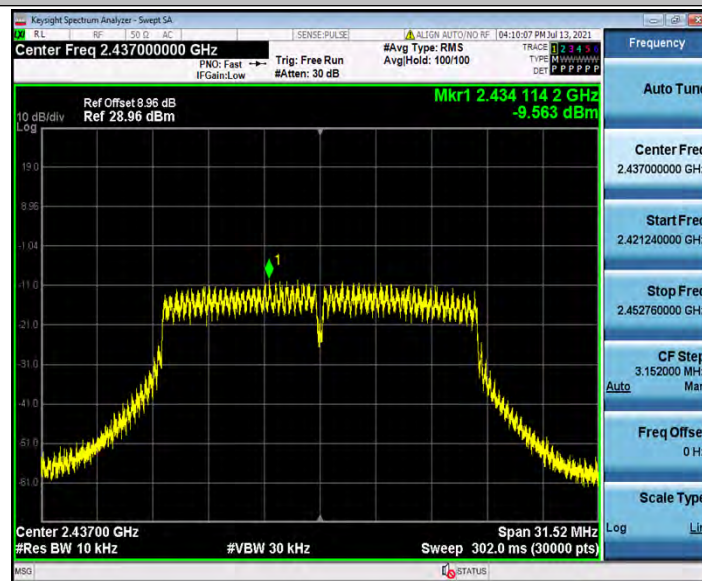
11N20SISO_Ant2_2412



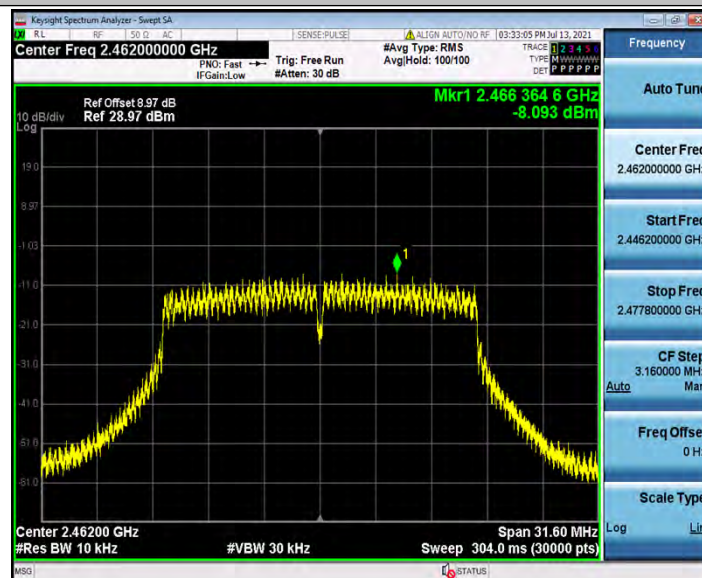
11N20SISO_Ant1_2437



11N20SISO_Ant2_2437



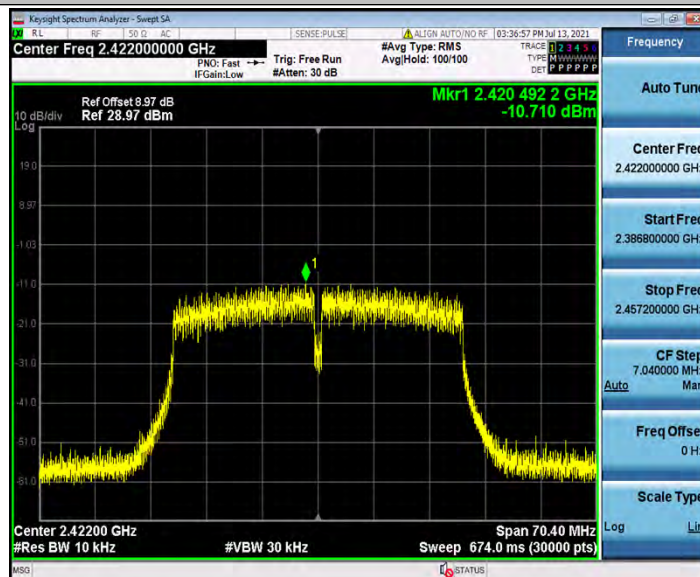
11N20SISO_Ant1_2462



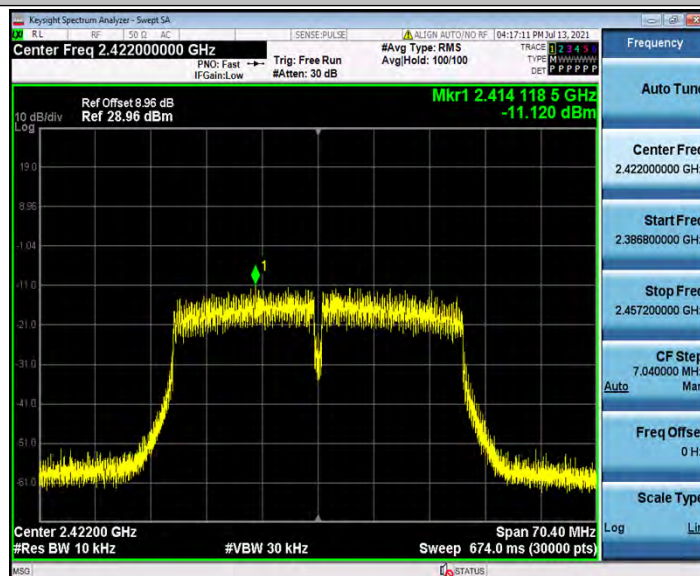
11N20SISO_Ant2_2462



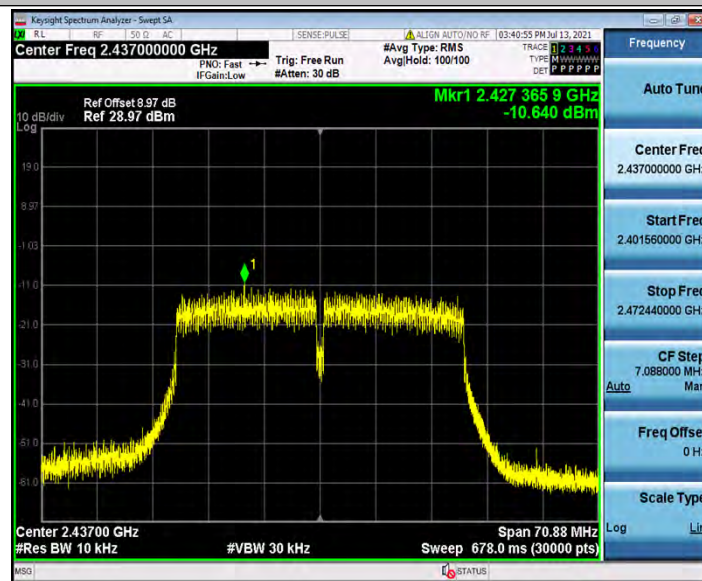
11N40SISO_Ant1_2422



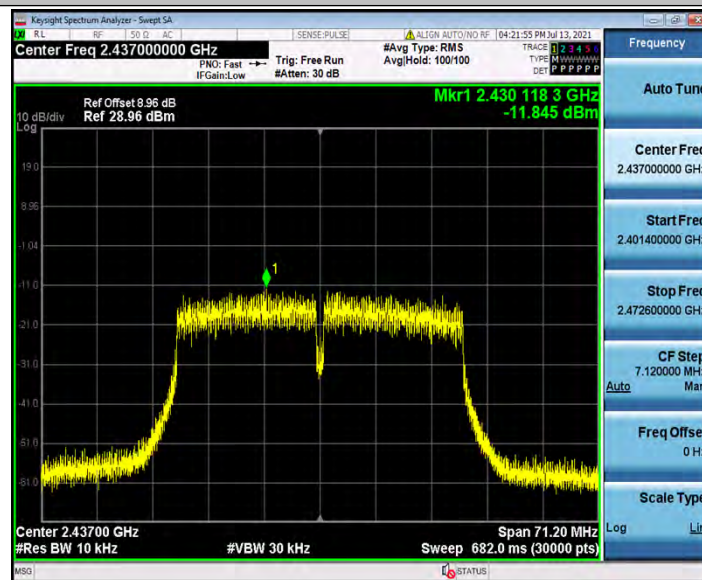
11N40SISO_Ant2_2422



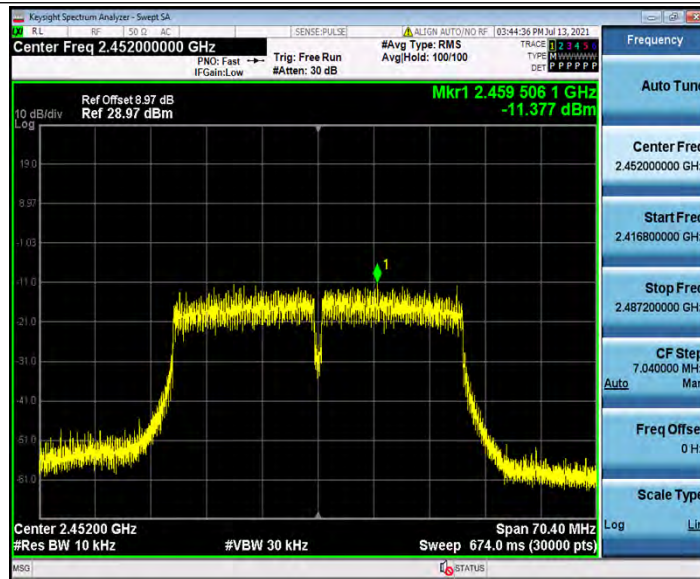
11N40SISO_Ant1_2437



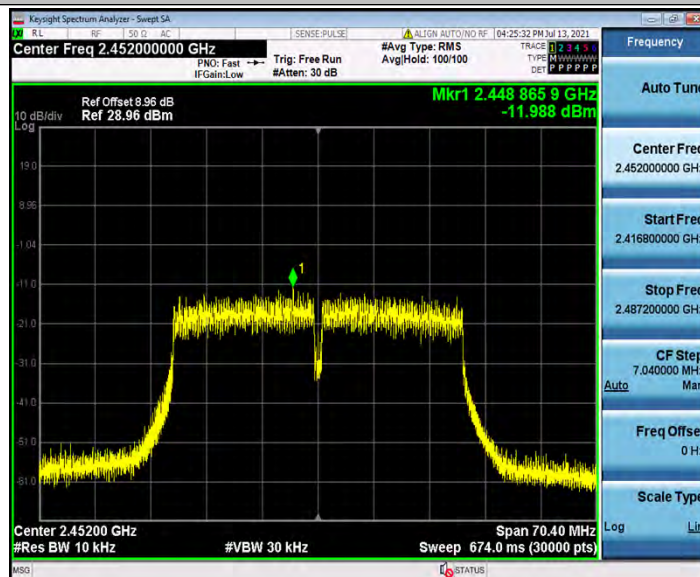
11N40SISO_Ant2_2437



11N40SISO_Ant1_2452



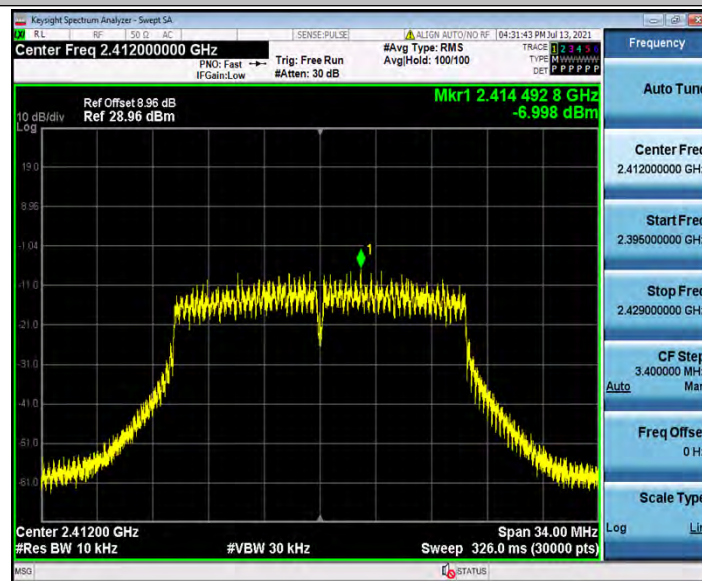
11N40SISO_Ant2_2452



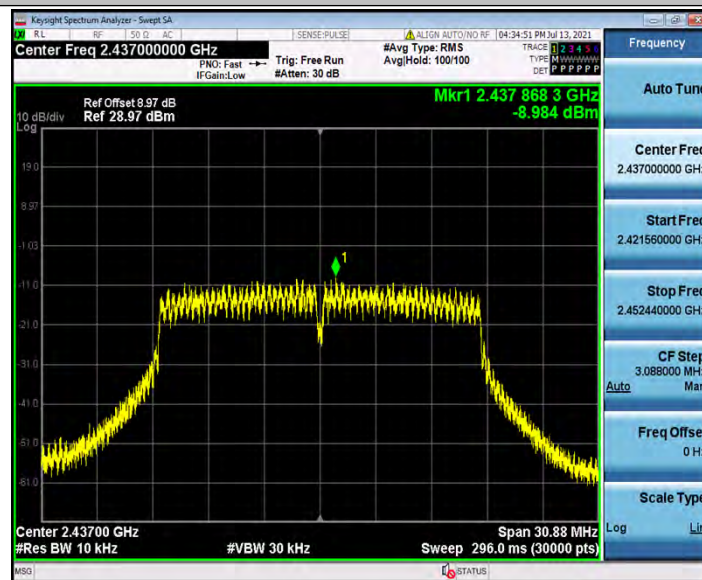
11N20MIMO_Ant1_2412



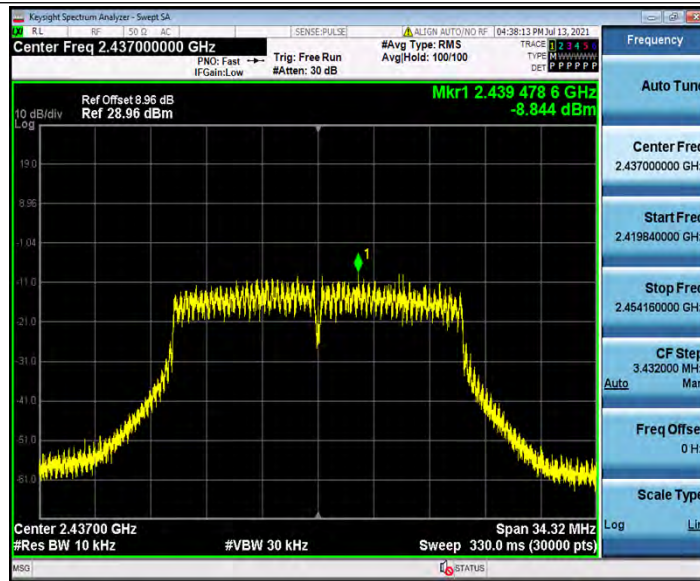
11N20MIMO_Ant2_2412



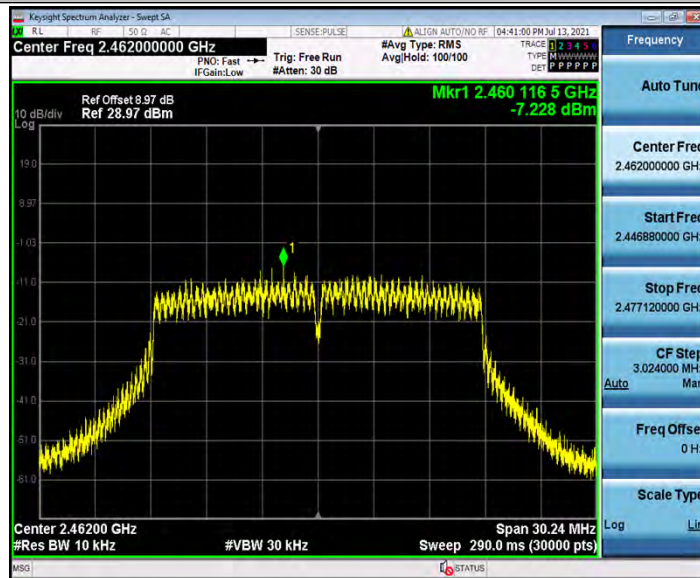
11N20MIMO_Ant1_2437



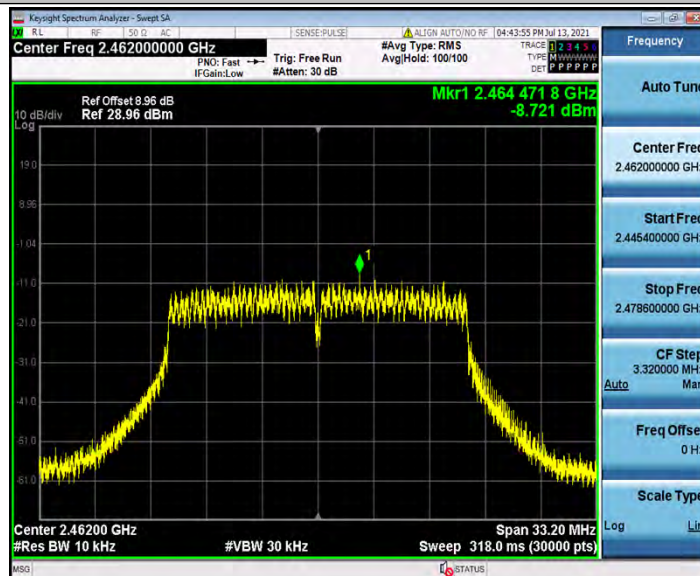
11N20MIMO_Ant2_2437



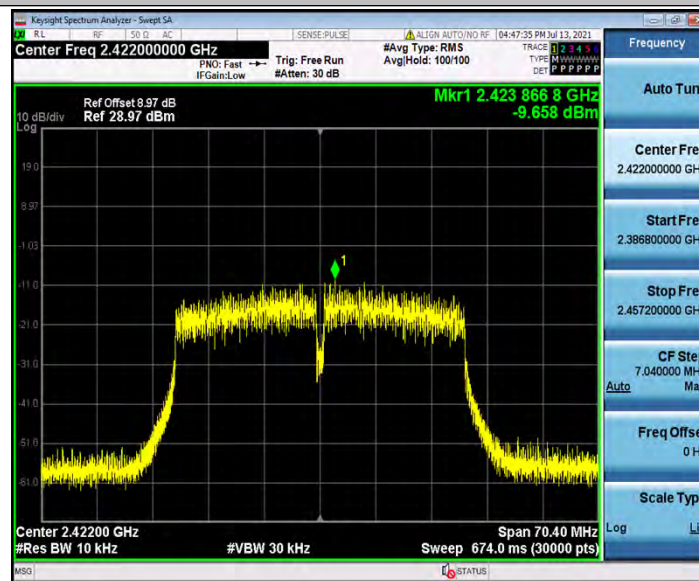
11N20MIMO_Ant1_2462



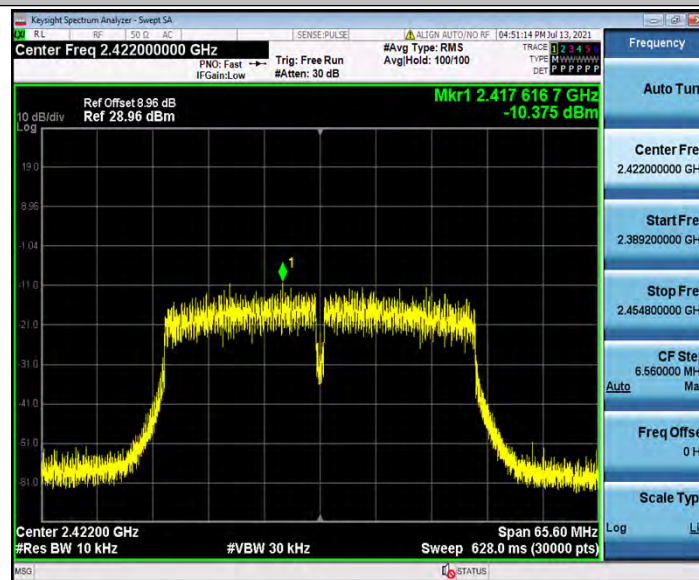
11N20MIMO_Ant2_2462



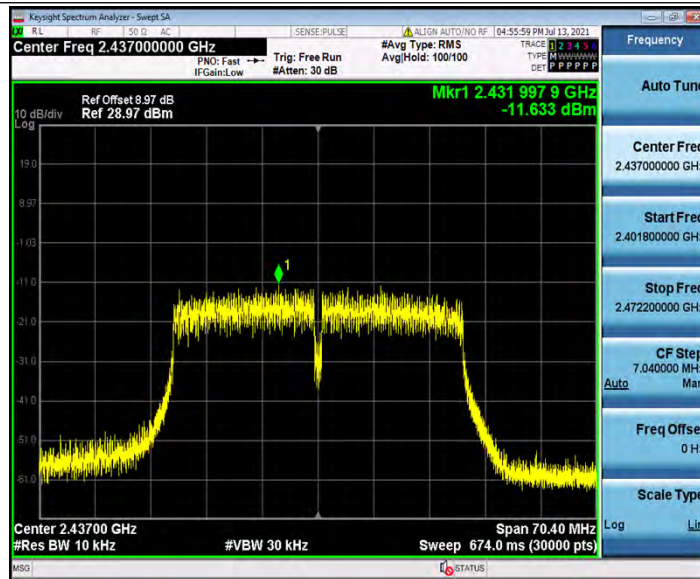
11N40MIMO_Ant1_2422



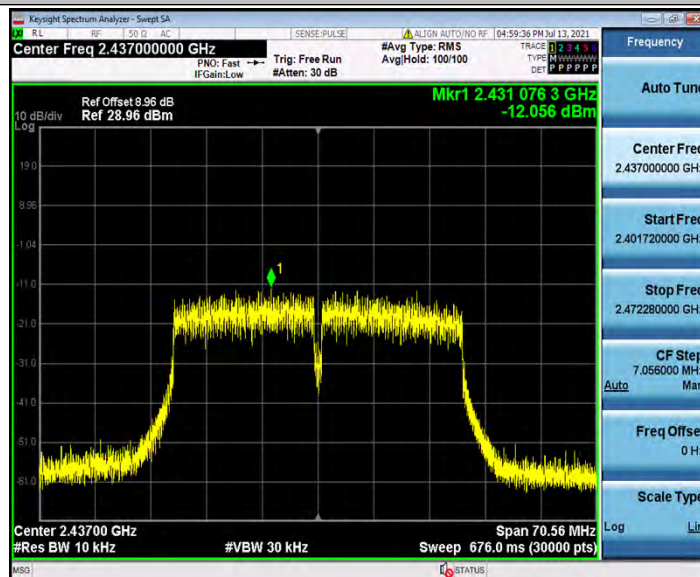
11N40MIMO_Ant2_2422



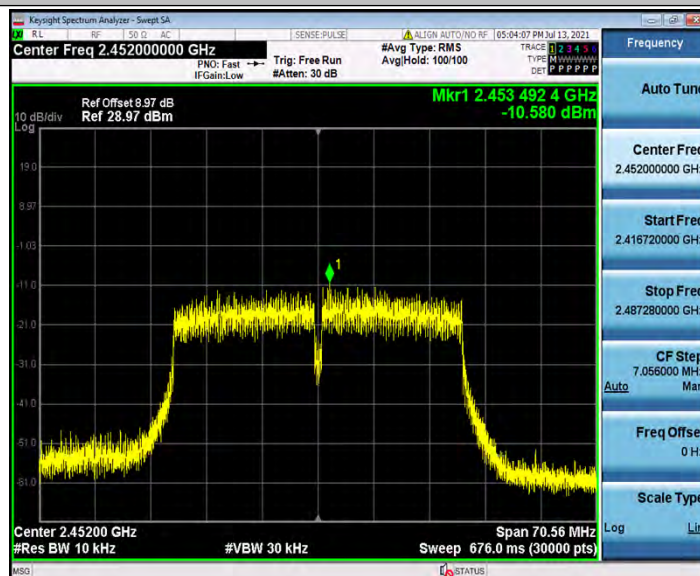
11N40MIMO_Ant1_2437



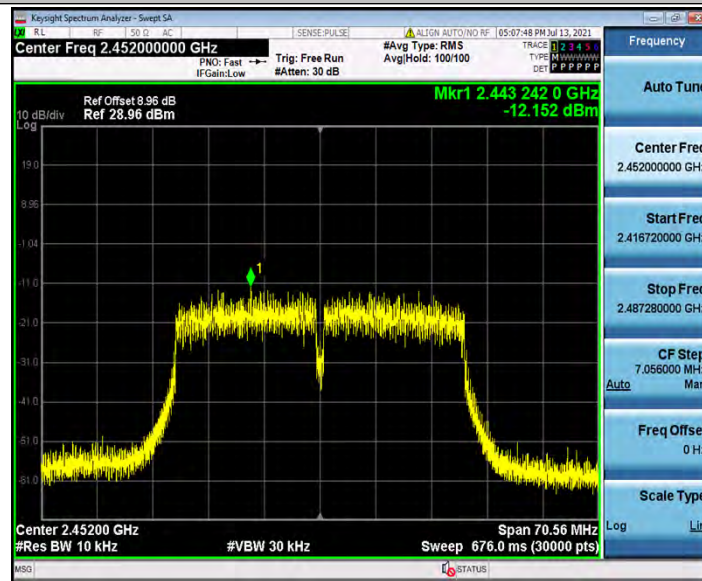
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



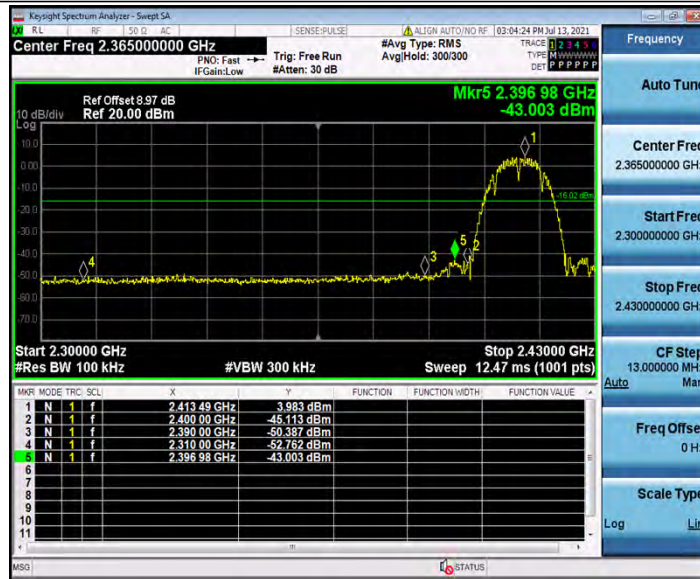
Appendix E: Band edge measurements

Test Result

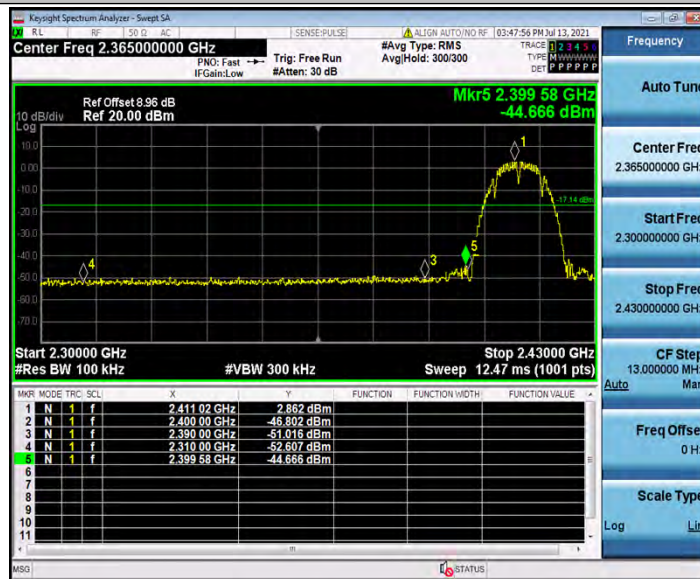
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.98	-43	<=-16.02	PASS
	Ant2	Low	2412	2.86	-44.67	<=-17.14	PASS
	Ant1	High	2462	3.28	-49.05	<=-16.72	PASS
	Ant2	High	2462	1.50	-49.29	<=-18.5	PASS
11G	Ant1	Low	2412	2.71	-35.76	<=-17.29	PASS
	Ant2	Low	2412	2.48	-37.93	<=-17.52	PASS
	Ant1	High	2462	1.90	-46.98	<=-18.1	PASS
	Ant2	High	2462	0.15	-48.51	<=-19.85	PASS
11N20SISO	Ant1	Low	2412	1.52	-36.24	<=-18.48	PASS
	Ant2	Low	2412	0.96	-37.43	<=-19.04	PASS
	Ant1	High	2462	0.85	-48.45	<=-19.15	PASS
	Ant2	High	2462	-0.93	-48.85	<=-20.93	PASS
11N40SISO	Ant1	Low	2422	-1.08	-40.87	<=-21.08	PASS
	Ant2	Low	2422	-2.02	-41.87	<=-22.02	PASS
	Ant1	High	2452	-2.17	-42.41	<=-22.17	PASS
	Ant2	High	2452	-3.42	-43.43	<=-23.42	PASS
11N20MIM O	Ant1	Low	2412	1.31	-37.47	<=-18.69	PASS
	Ant2	Low	2412	1.32	-37.02	<=-18.68	PASS
	Ant1	High	2462	1.08	-48.28	<=-18.93	PASS
	Ant2	High	2462	-0.32	-48.57	<=-20.32	PASS
11N40MIM O	Ant1	Low	2422	-1.12	-41.14	<=-21.12	PASS
	Ant2	Low	2422	-1.66	-40.07	<=-21.66	PASS
	Ant1	High	2452	-2.12	-43.35	<=-22.12	PASS
	Ant2	High	2452	-3.25	-43.79	<=-23.25	PASS

Test Graphs

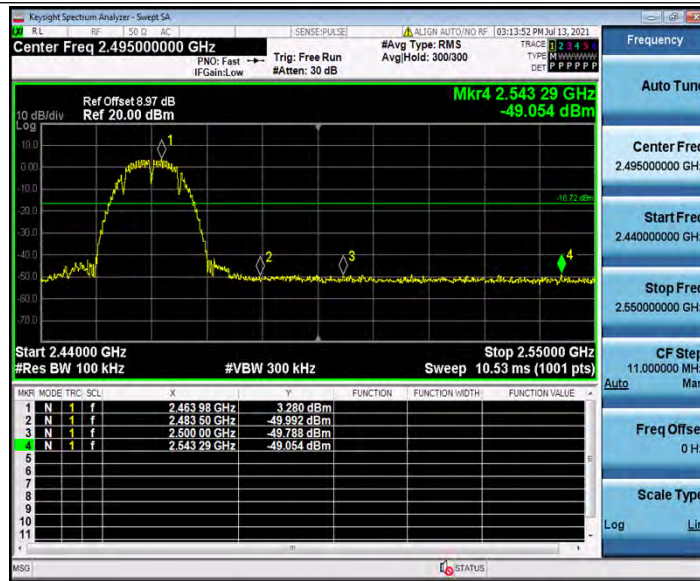
11B_Ant1_Low_2412



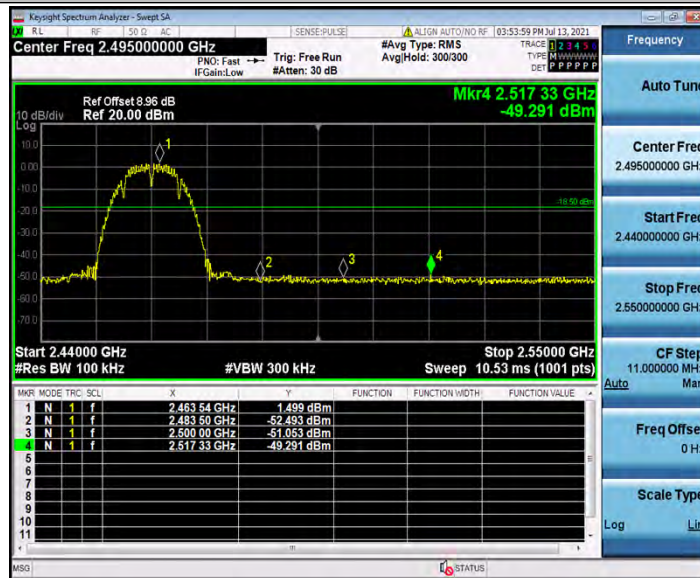
11B_Ant2_Low_2412



11B_Ant1_High_2462



11B_Ant2_High_2462



11G_Ant1_Low_2412

