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

Product Name: NucBox3

Trade Mark: GMKtec,GMKTEC

Test Model: KB3

FCC ID: 2AXUD-KB3

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

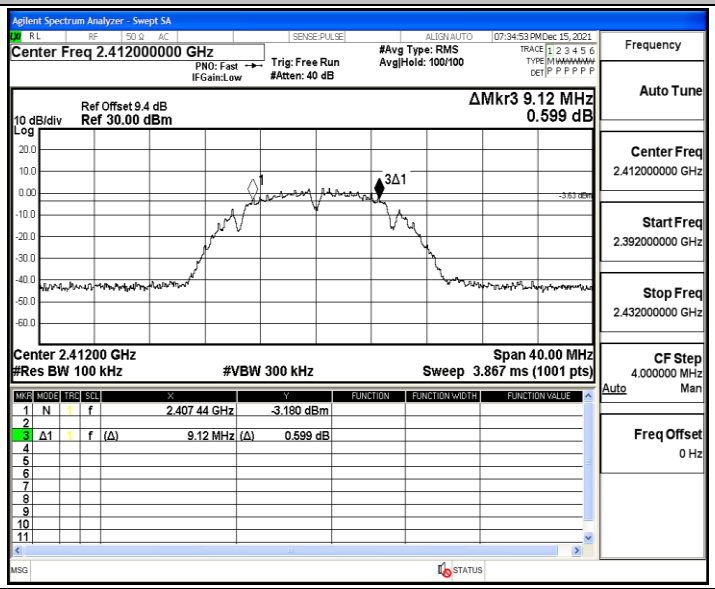
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.120	2407.440	2416.560	0.5	PASS
	Ant2	2412	9.120	2407.440	2416.560	0.5	PASS
	Ant1	2437	9.120	2432.440	2441.560	0.5	PASS
	Ant2	2437	9.600	2431.960	2441.560	0.5	PASS
	Ant1	2462	10.040	2456.960	2467.000	0.5	PASS
	Ant2	2462	9.560	2457.440	2467.000	0.5	PASS
11G	Ant1	2412	12.320	2406.600	2418.920	0.5	PASS
	Ant2	2412	13.840	2404.440	2418.280	0.5	PASS
	Ant1	2437	14.400	2430.120	2444.520	0.5	PASS
	Ant2	2437	14.440	2429.440	2443.880	0.5	PASS
	Ant1	2462	15.040	2454.520	2469.560	0.5	PASS
	Ant2	2462	13.120	2456.360	2469.480	0.5	PASS
11N20MIMO	Ant1	2412	15.400	2404.480	2419.880	0.5	PASS
	Ant2	2412	15.000	2404.480	2419.480	0.5	PASS
	Ant1	2437	15.120	2429.440	2444.560	0.5	PASS
	Ant2	2437	13.360	2431.120	2444.480	0.5	PASS
	Ant1	2462	13.760	2455.720	2469.480	0.5	PASS
	Ant2	2462	12.880	2456.600	2469.480	0.5	PASS
11N40MIMO	Ant1	2422	30.400	2409.120	2439.520	0.5	PASS
	Ant2	2422	35.120	2404.400	2439.520	0.5	PASS
	Ant1	2437	35.040	2419.480	2454.520	0.5	PASS
	Ant2	2437	35.120	2419.400	2454.520	0.5	PASS
	Ant1	2452	35.120	2434.480	2469.600	0.5	PASS
	Ant2	2452	35.040	2434.480	2469.520	0.5	PASS

Test Graphs

11B_Ant1_2412



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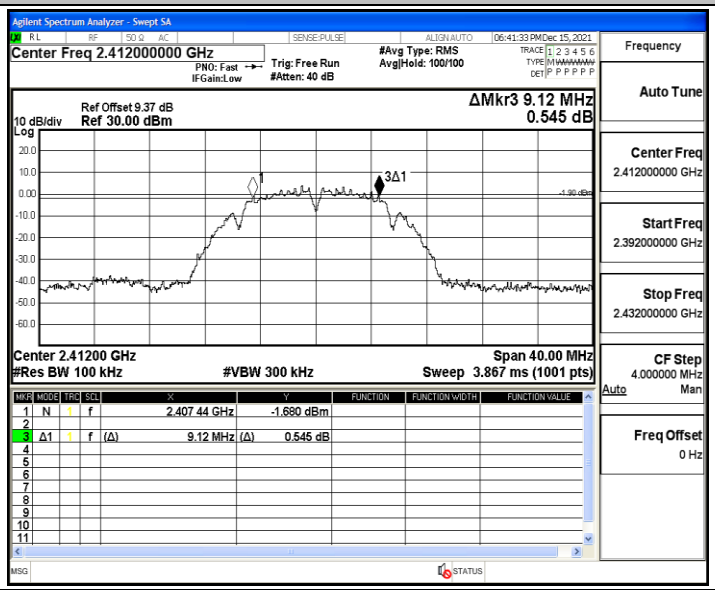

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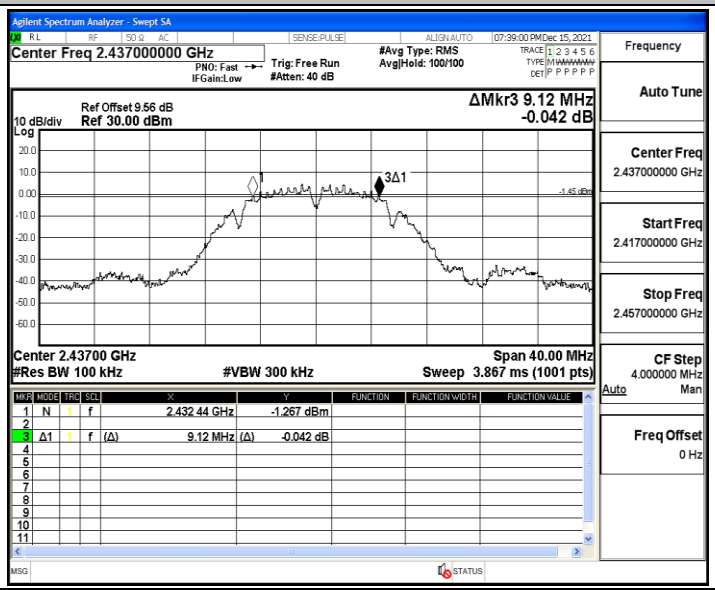

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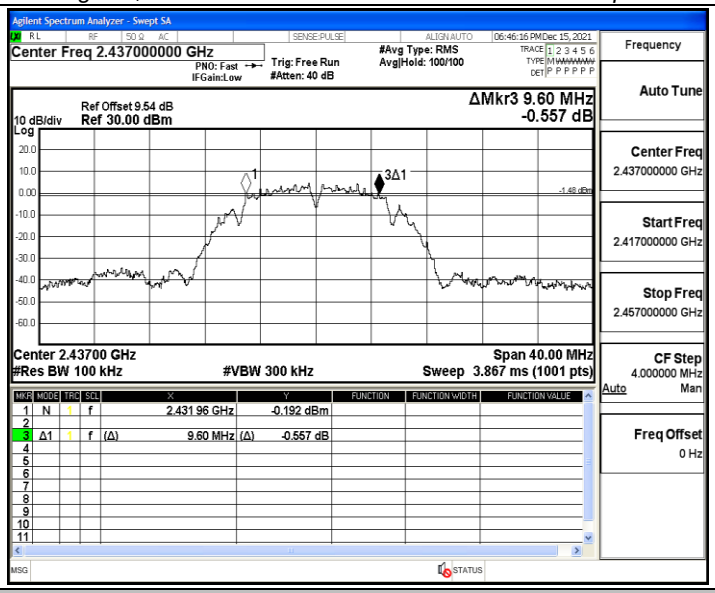

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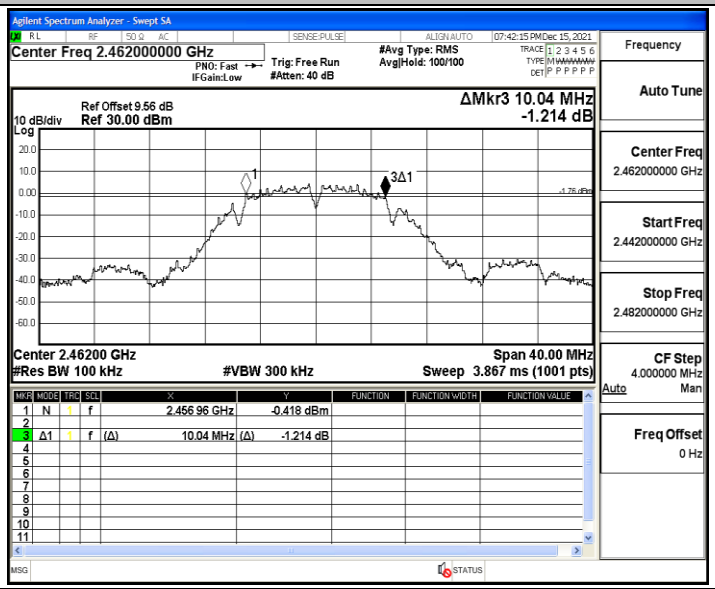

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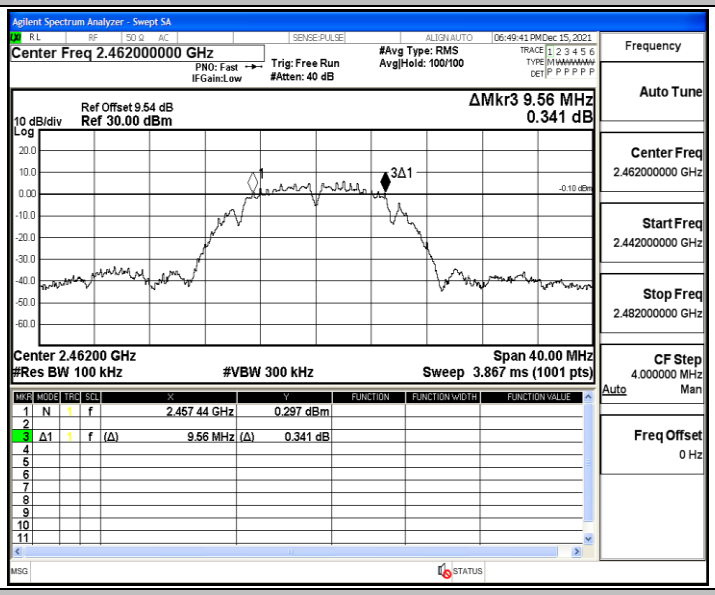

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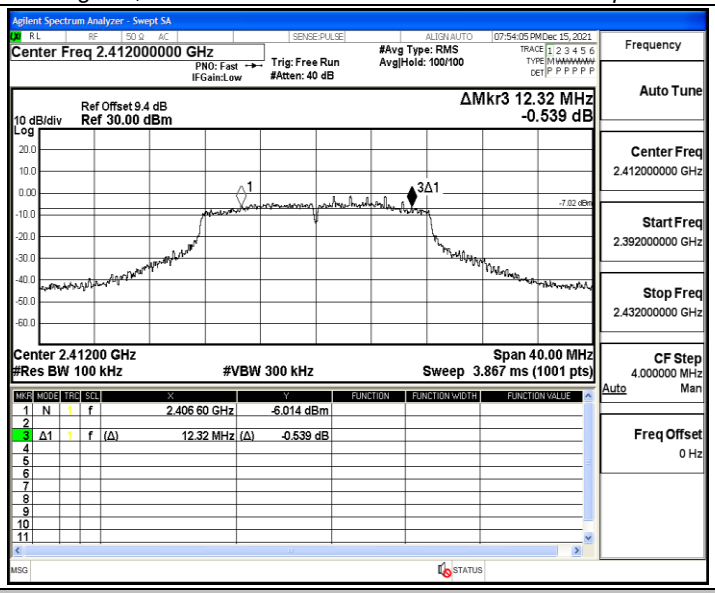

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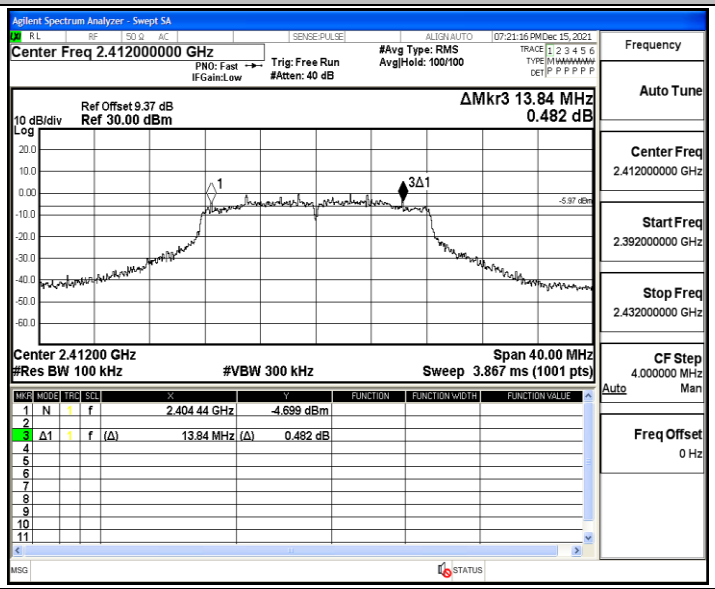

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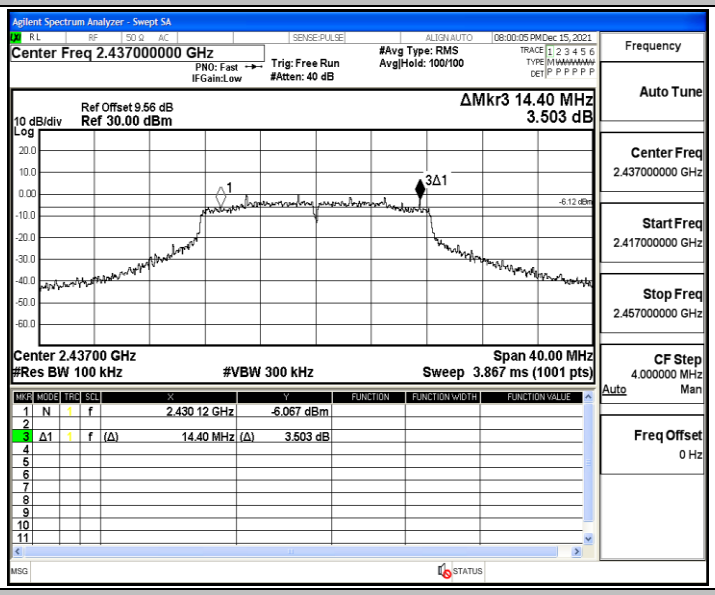

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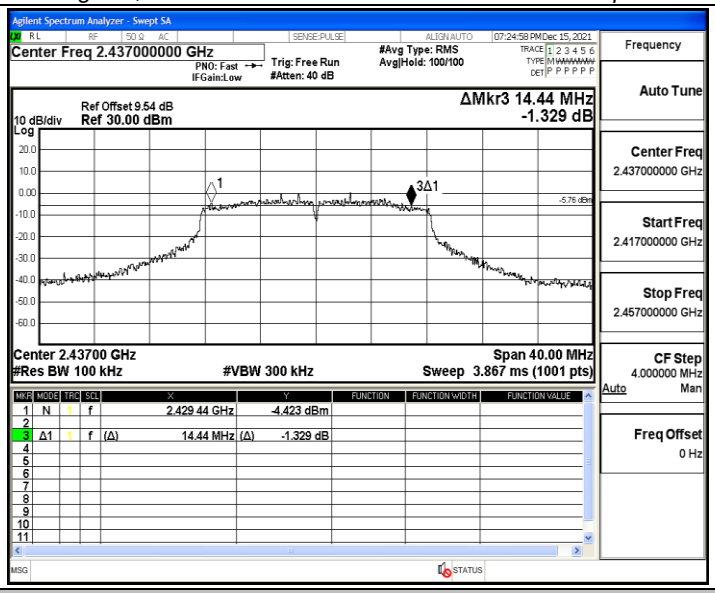

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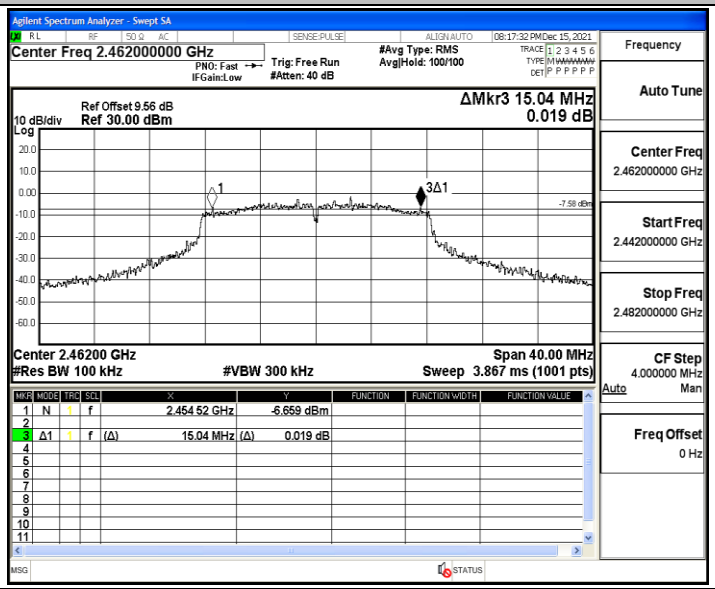

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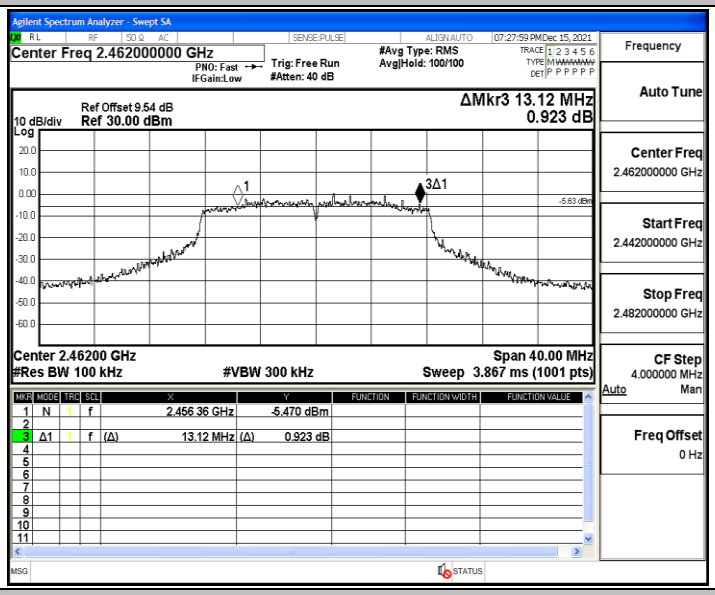

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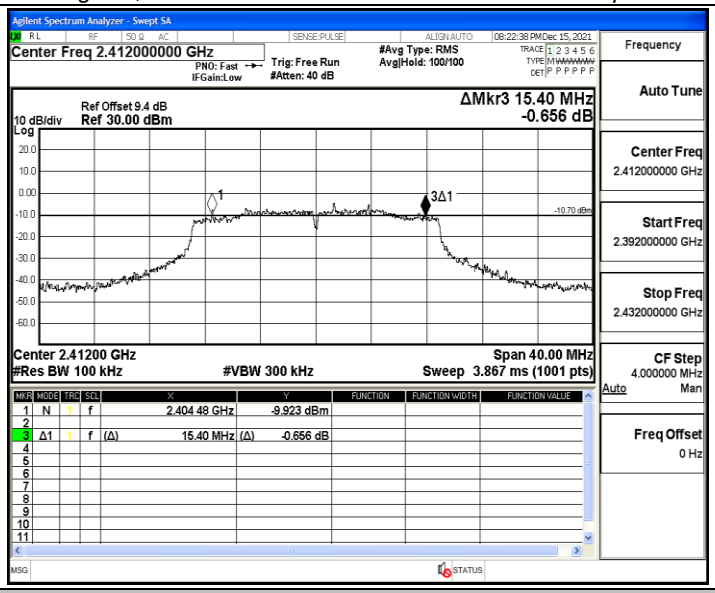

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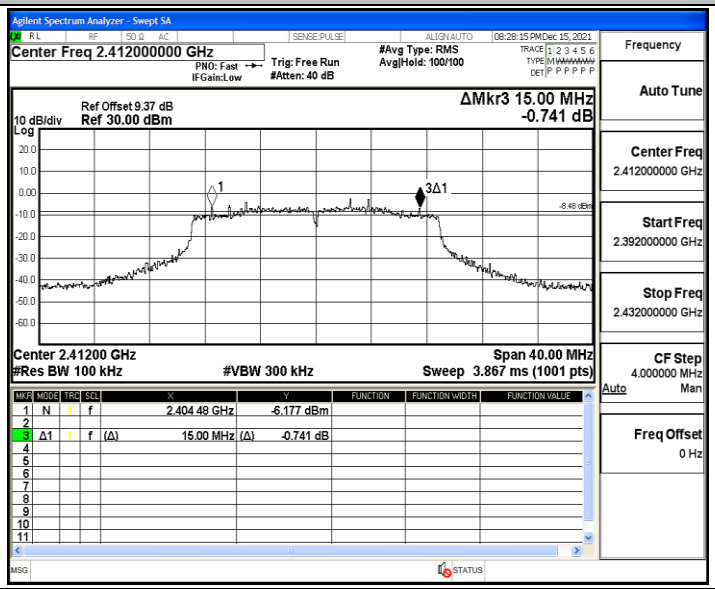

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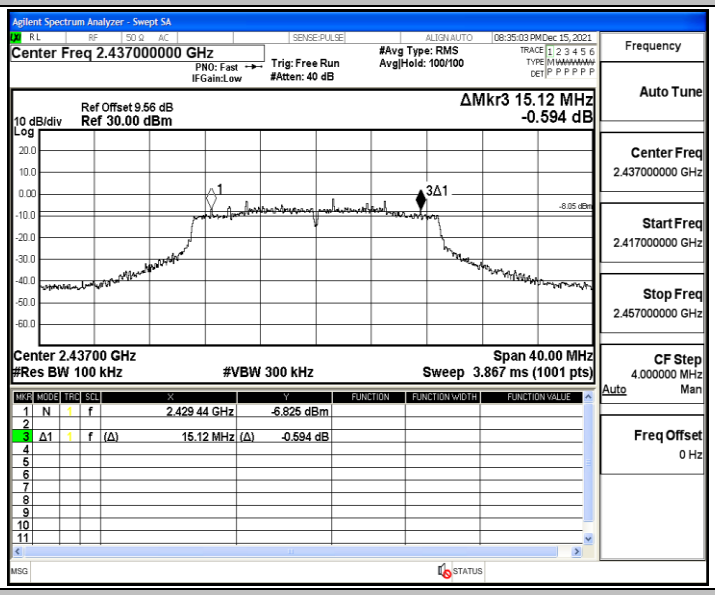

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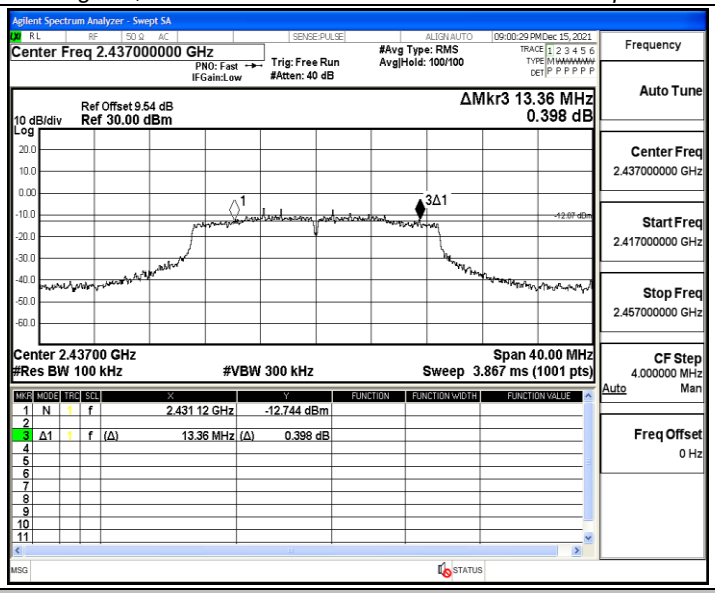

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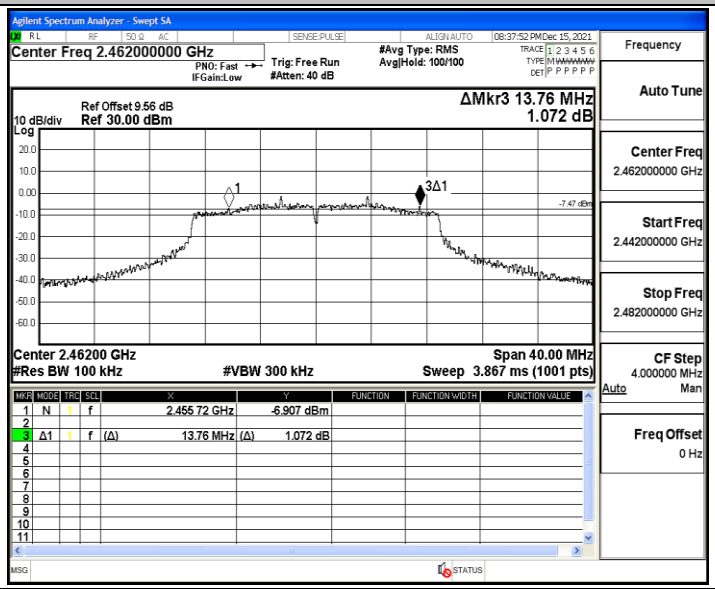

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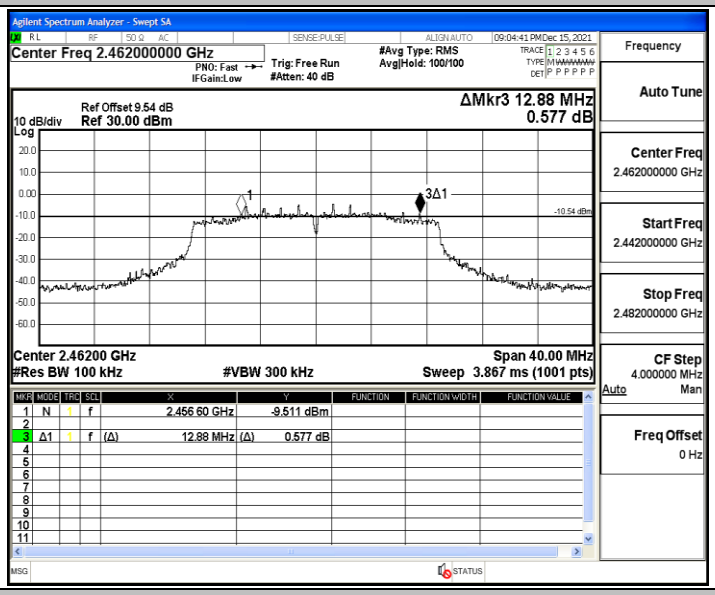

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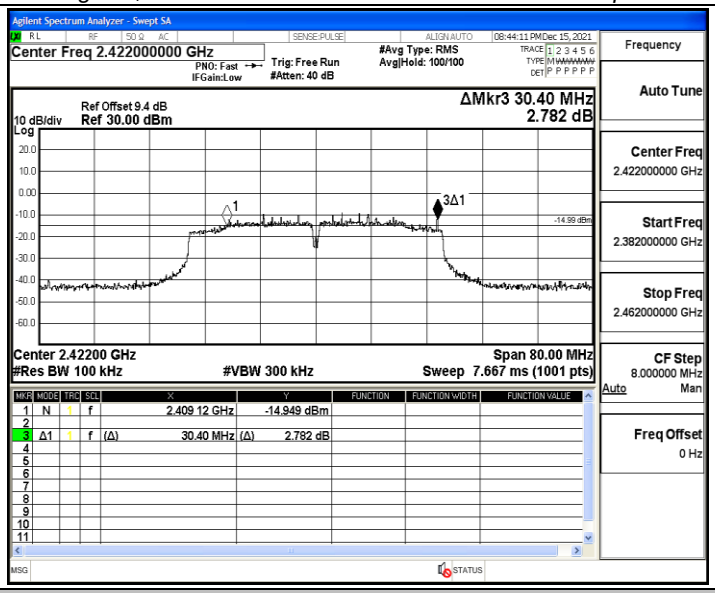

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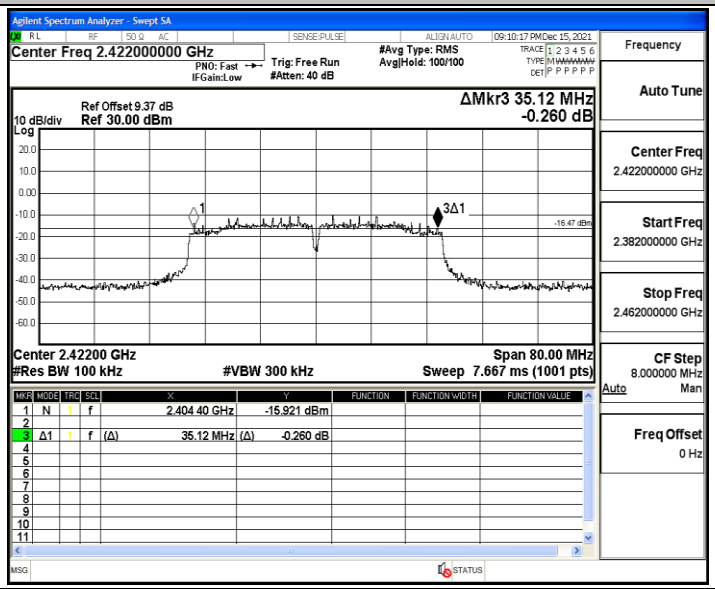

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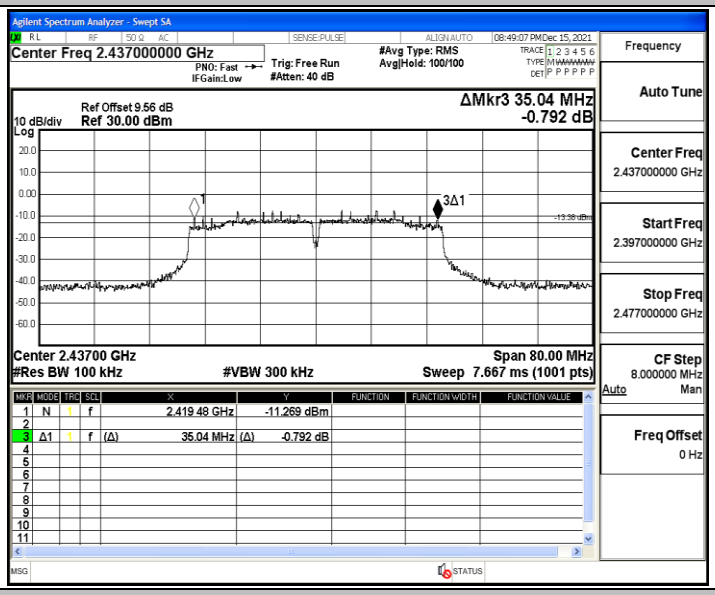

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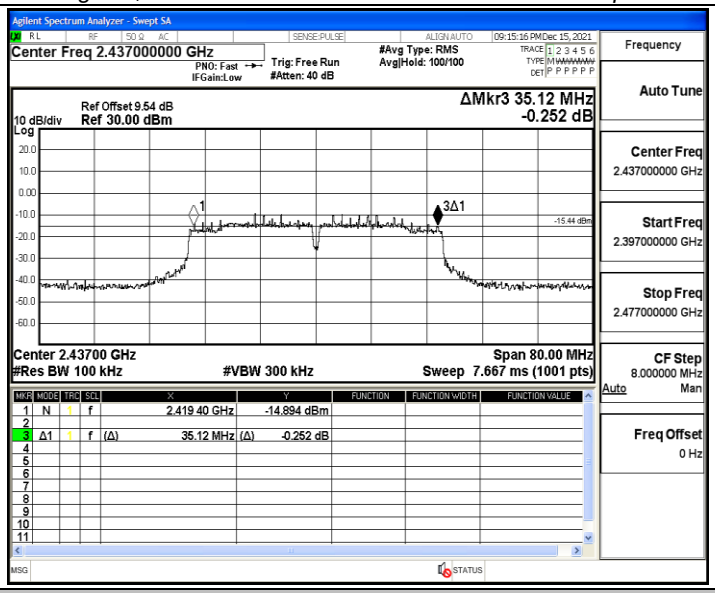

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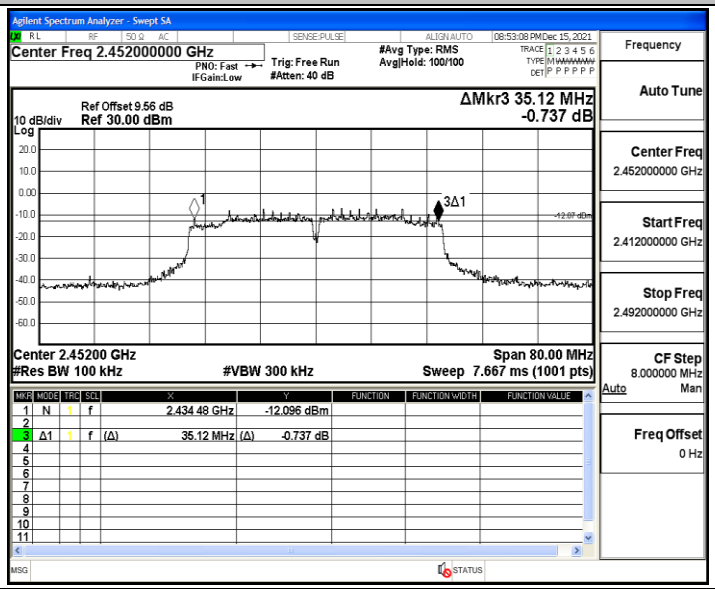

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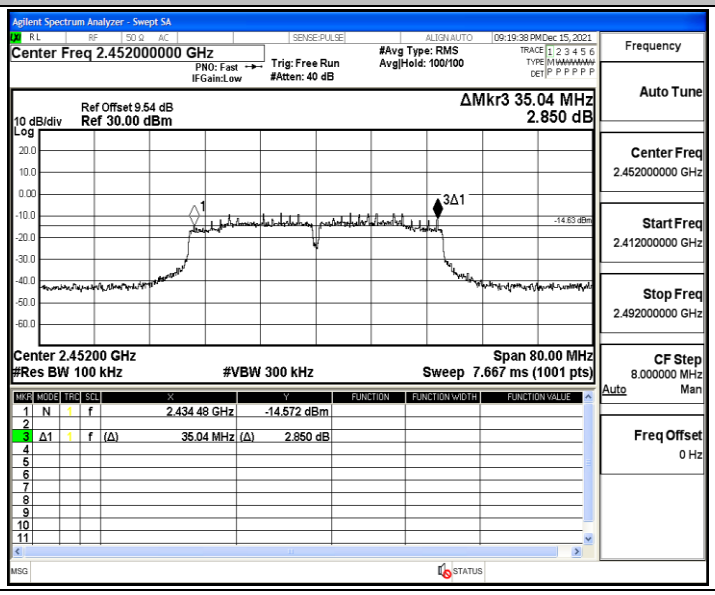


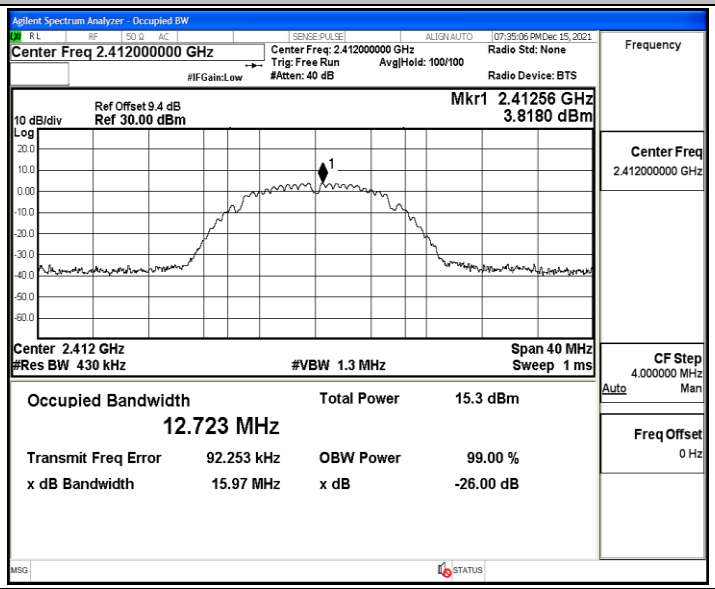
Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.723	2405.731	2418.454	---	PASS
	Ant2	2412	12.711	2405.700	2418.411	---	PASS
	Ant1	2437	12.895	2430.613	2443.508	---	PASS
	Ant2	2437	12.660	2430.680	2443.340	---	PASS
	Ant1	2462	13.021	2455.592	2468.613	---	PASS
	Ant2	2462	12.571	2455.769	2468.340	---	PASS
11G	Ant1	2412	16.837	2403.680	2420.517	---	PASS
	Ant2	2412	16.782	2403.652	2420.434	---	PASS
	Ant1	2437	16.870	2428.639	2445.509	---	PASS
	Ant2	2437	16.869	2428.560	2445.429	---	PASS
	Ant1	2462	16.813	2453.667	2470.480	---	PASS
	Ant2	2462	16.806	2453.641	2470.447	---	PASS
11N20MIMO	Ant1	2412	17.963	2403.112	2421.075	---	PASS
	Ant2	2412	17.976	2403.073	2421.049	---	PASS
	Ant1	2437	17.997	2428.074	2446.071	---	PASS
	Ant2	2437	17.993	2428.041	2446.034	---	PASS
	Ant1	2462	18.105	2453.011	2471.116	---	PASS
	Ant2	2462	17.931	2453.088	2471.019	---	PASS
11N40MIMO	Ant1	2422	36.173	2404.046	2440.219	---	PASS
	Ant2	2422	36.186	2403.965	2440.151	---	PASS
	Ant1	2437	36.306	2418.962	2455.268	---	PASS
	Ant2	2437	36.376	2418.834	2455.210	---	PASS
	Ant1	2452	36.164	2434.026	2470.190	---	PASS
	Ant2	2452	36.330	2433.935	2470.265	---	PASS

Test Graphs

11B_Ant1_2412



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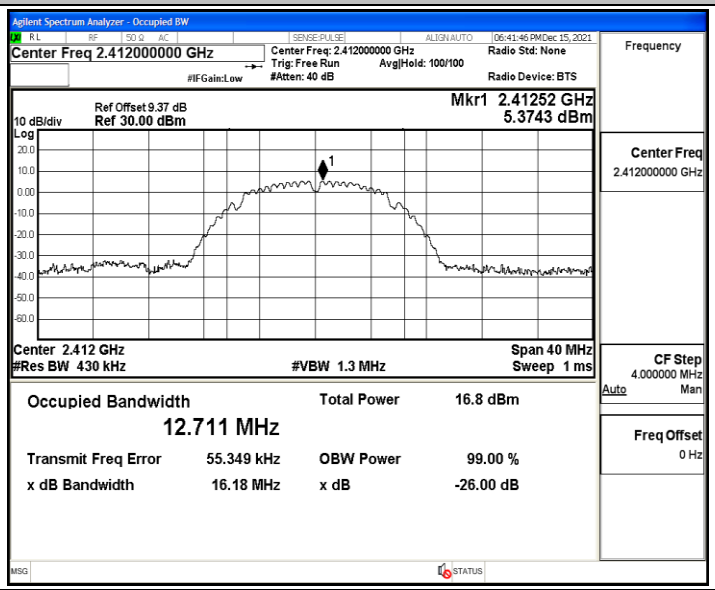

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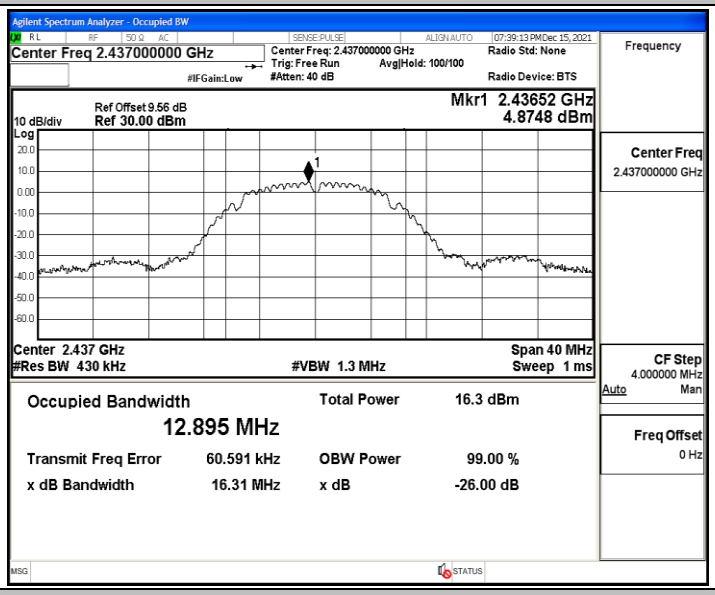

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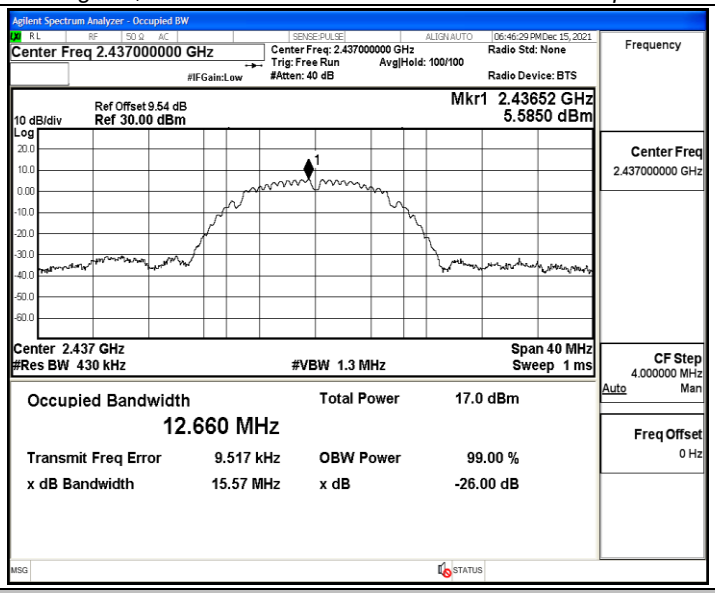

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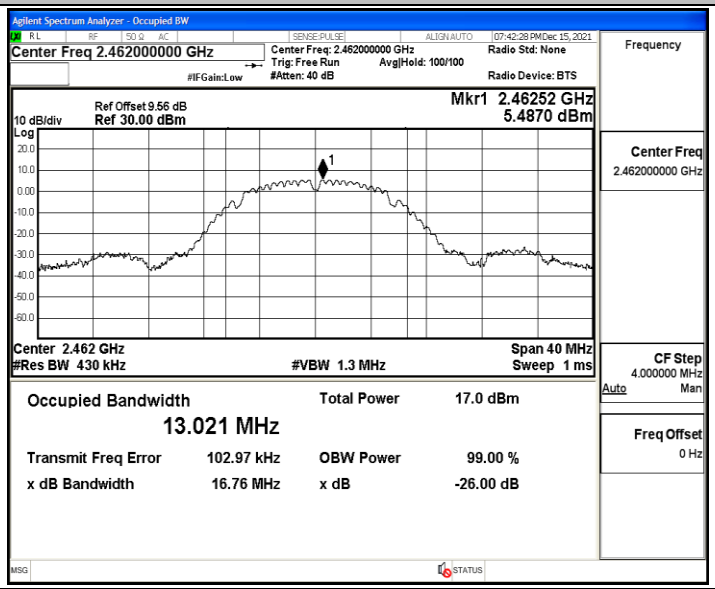

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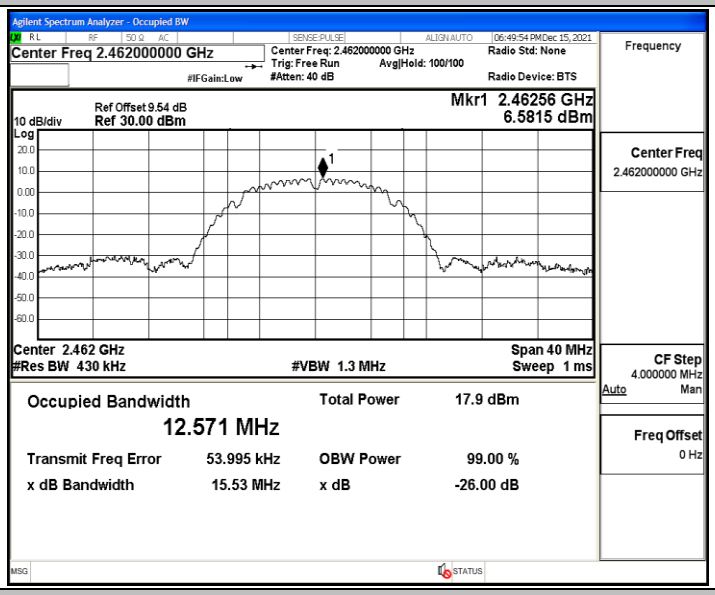

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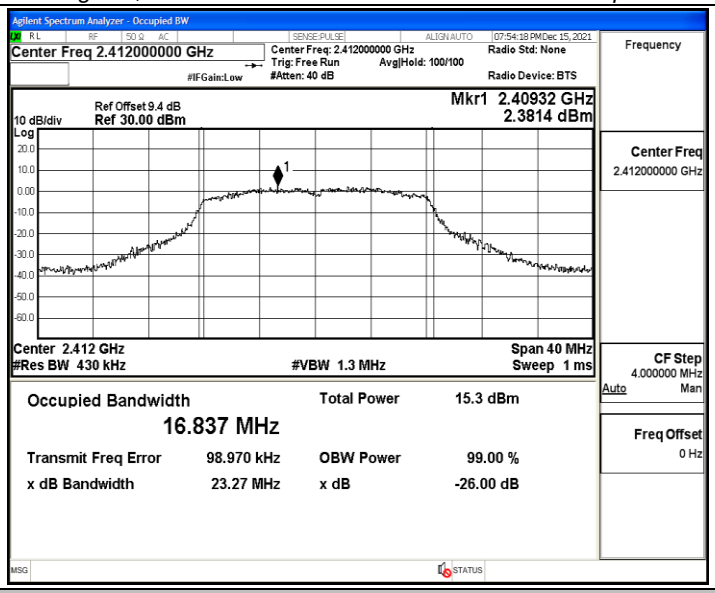

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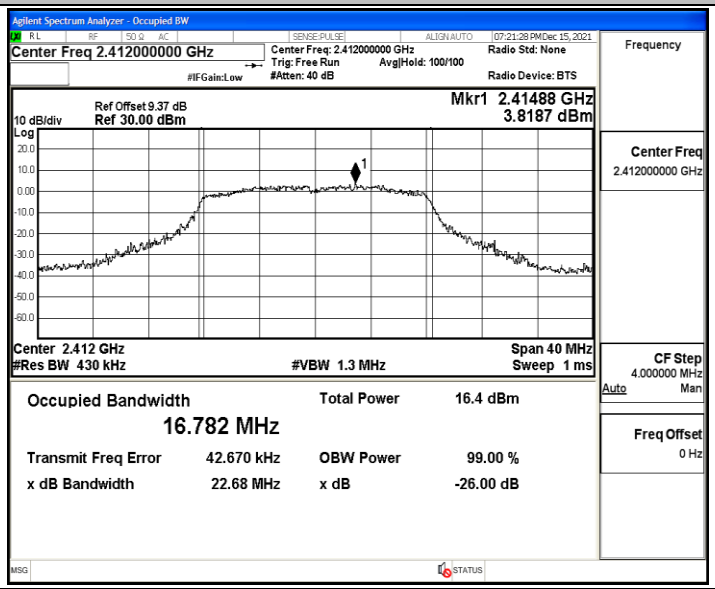

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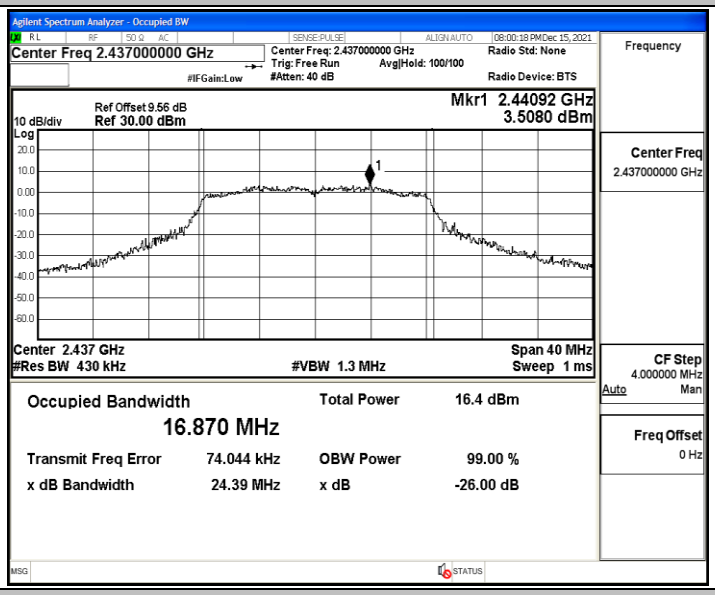

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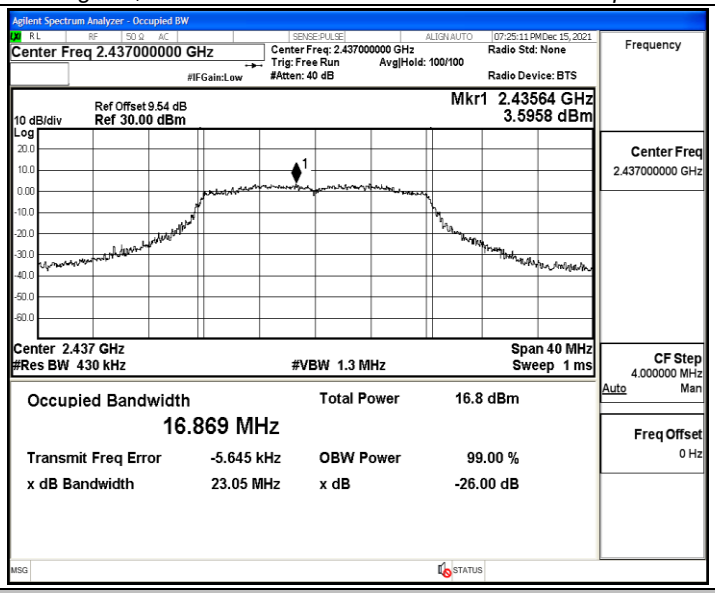

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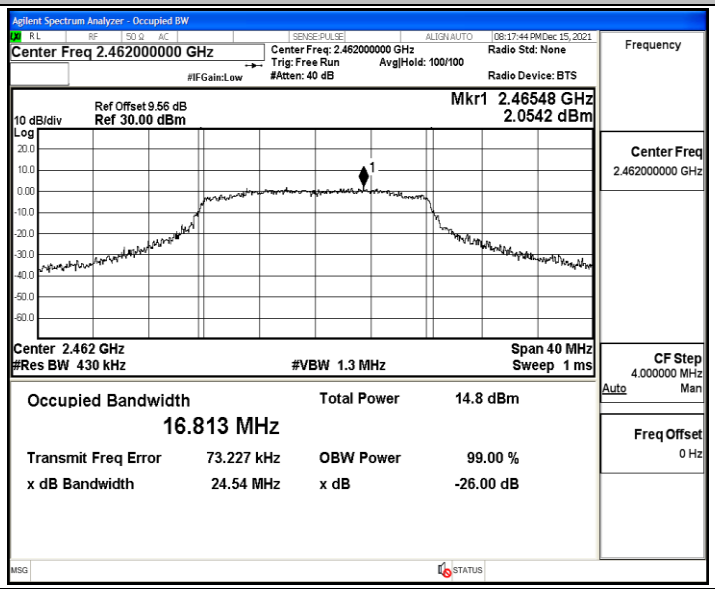

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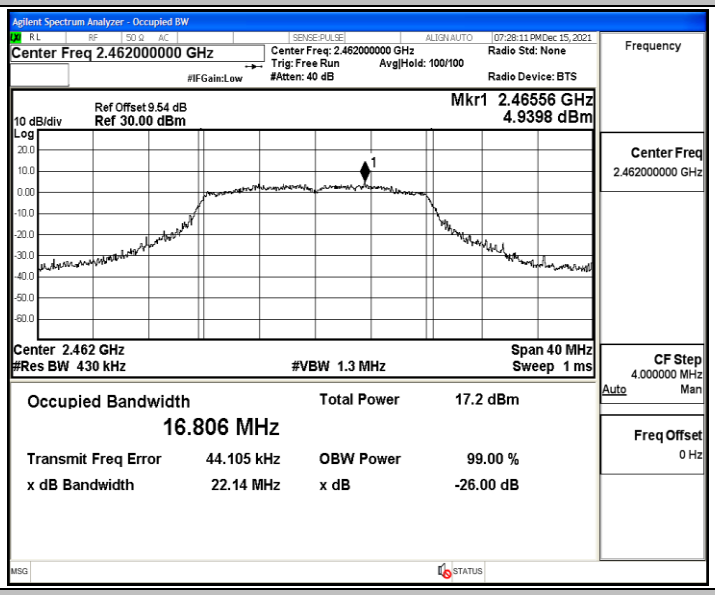

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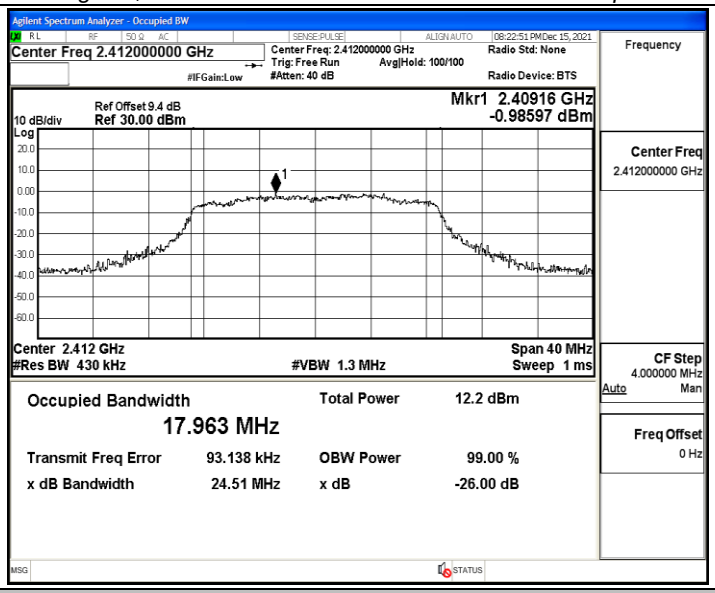

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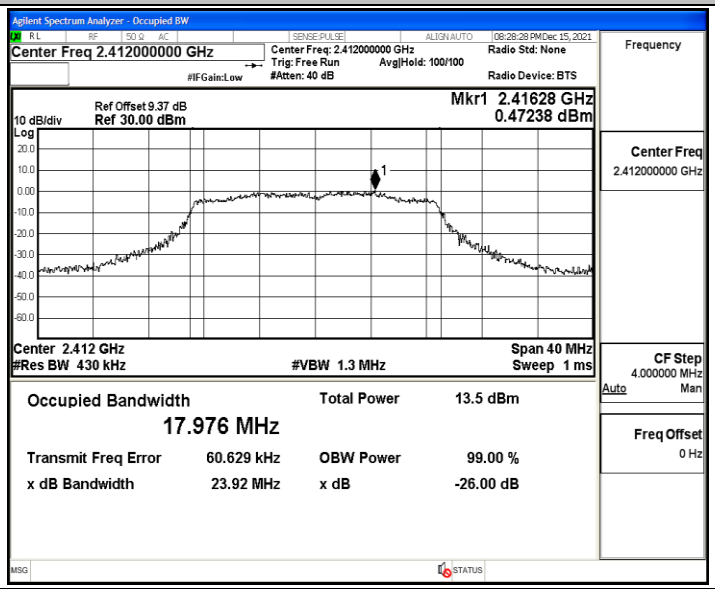

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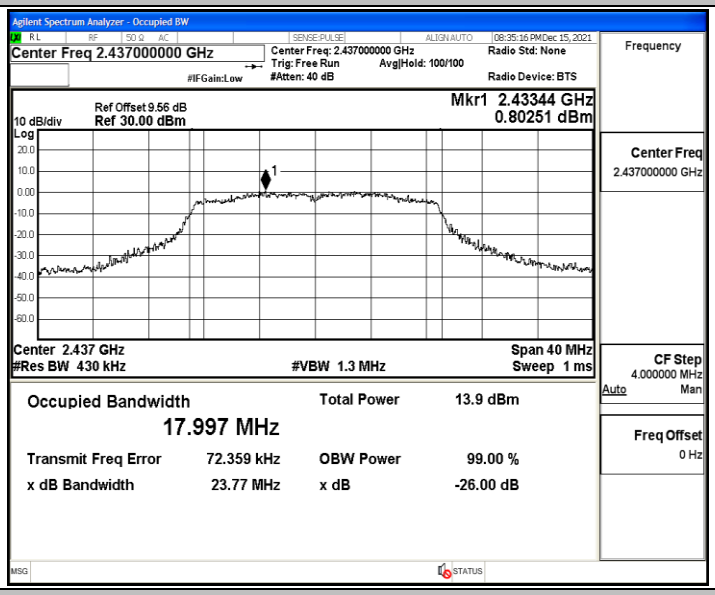

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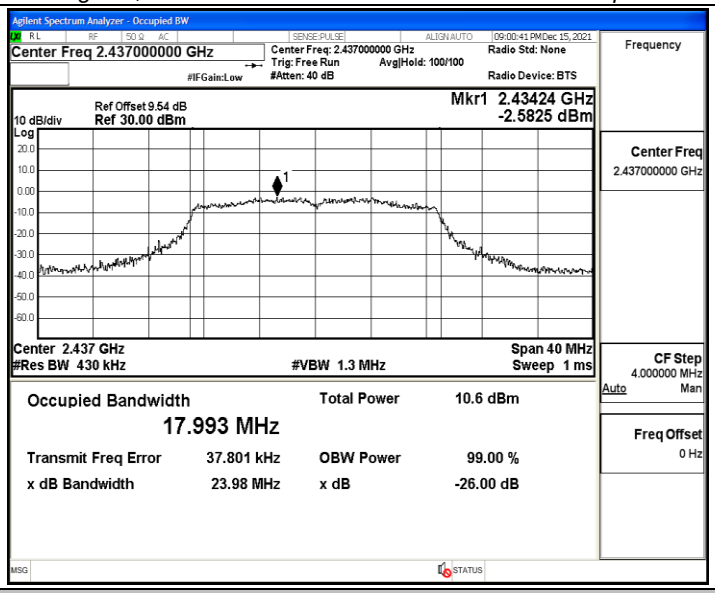

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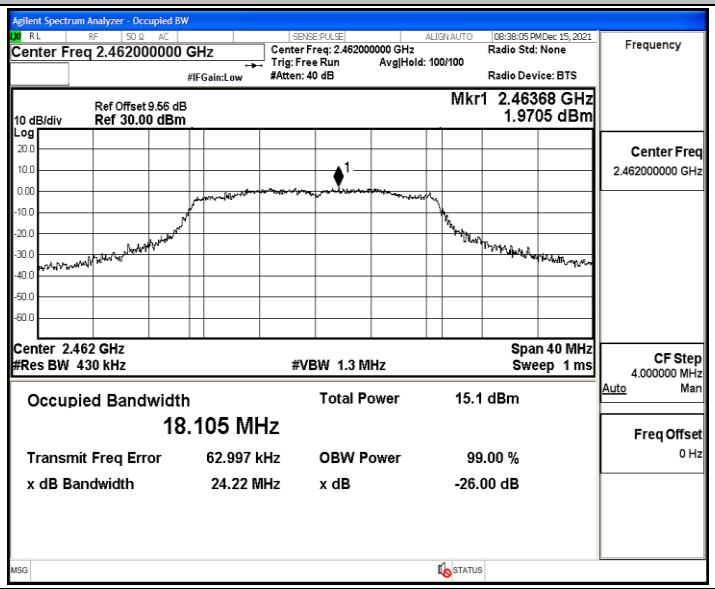

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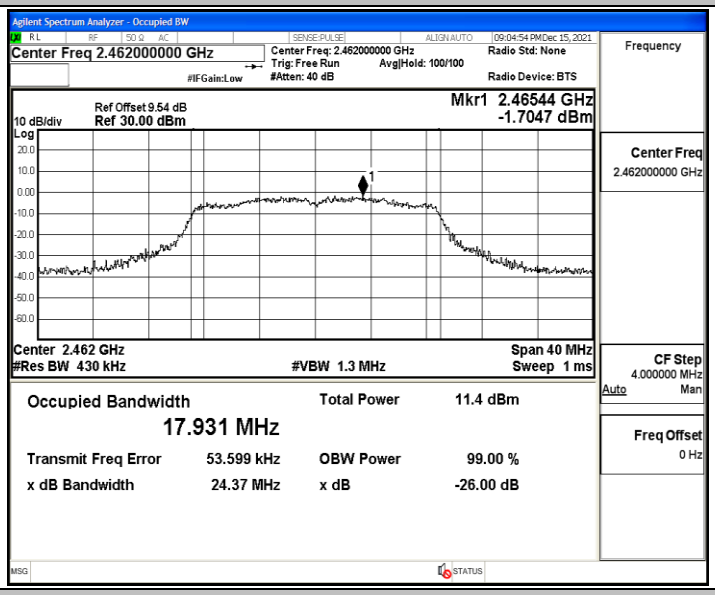

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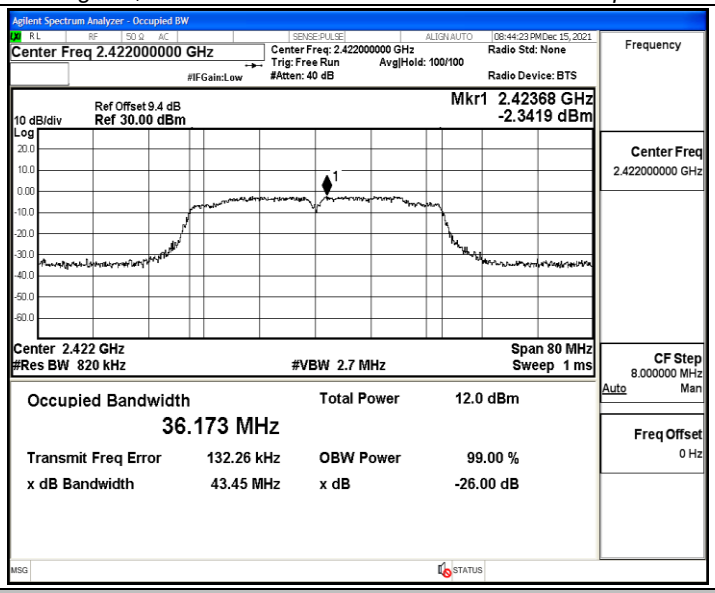
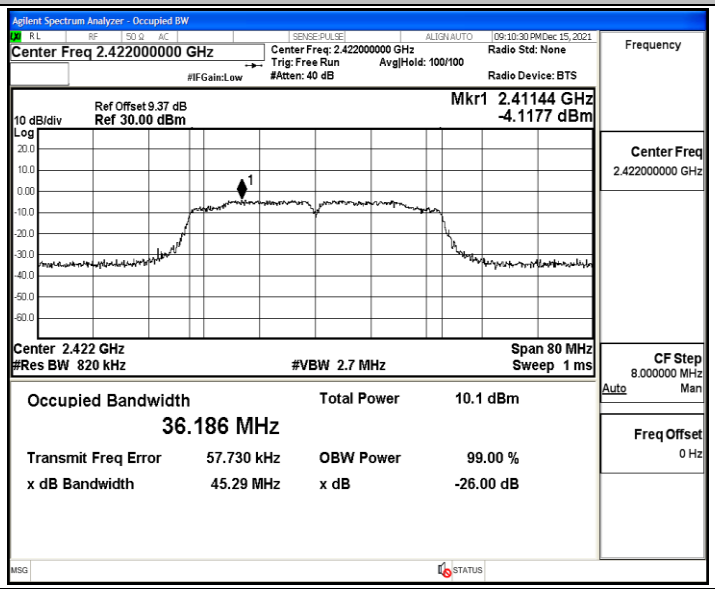
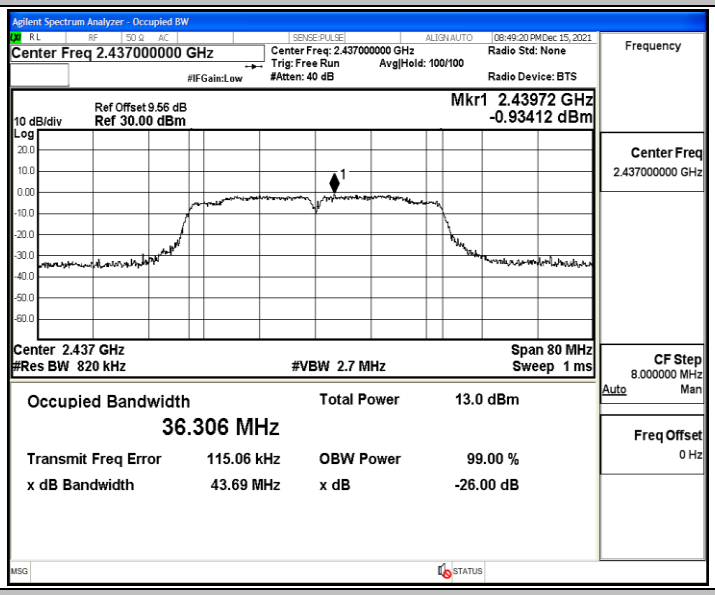


11N40MIMO_Ant2_2422



11N40MIMO_Ant1_2437



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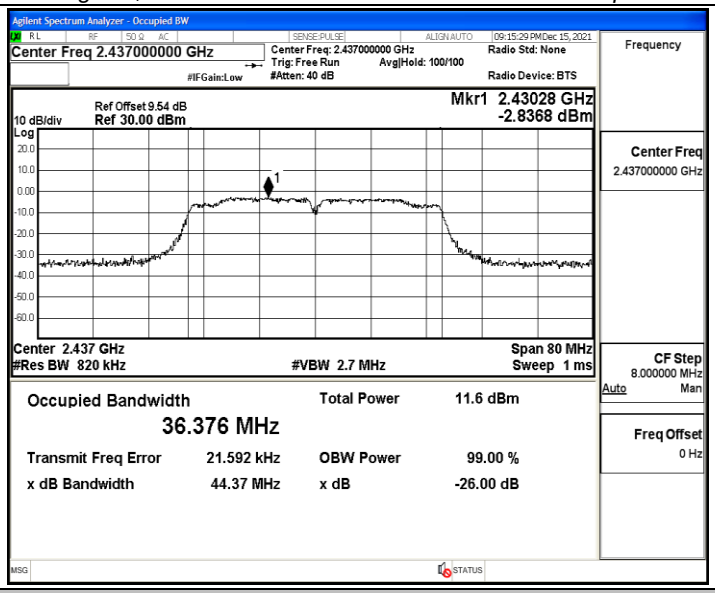
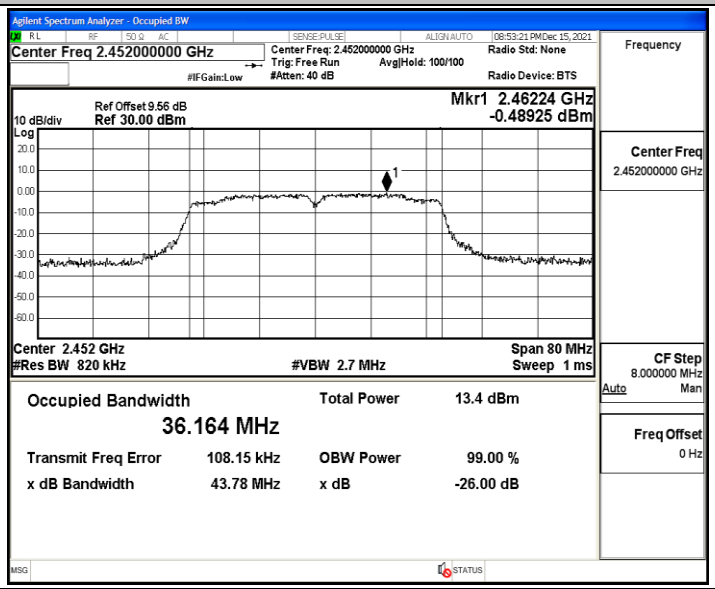
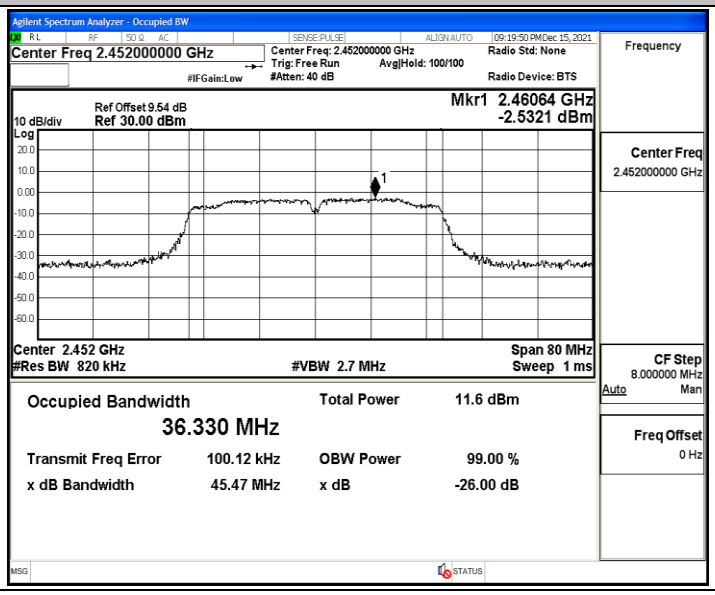


11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	11.43	≤30	PASS
	Ant2	2412	12.27	≤30	PASS
	Ant1	2437	13.38	≤30	PASS
	Ant2	2437	11.92	≤30	PASS
	Ant1	2462	13.15	≤30	PASS
	Ant2	2462	12.80	≤30	PASS
11G	Ant1	2412	10.31	≤30	PASS
	Ant2	2412	10.38	≤30	PASS
	Ant1	2437	10.32	≤30	PASS
	Ant2	2437	10.72	≤30	PASS
	Ant1	2462	8.91	≤30	PASS
	Ant2	2462	11.12	≤30	PASS
11N20MIMO	Ant1	2412	6.24	≤30	PASS
	Ant2	2412	6.39	≤30	PASS
	total	2412	9.3	≤28.69	PASS
	Ant1	2437	7.70	≤30	PASS
	Ant2	2437	4.48	≤30	PASS
	total	2437	9.4	≤28.69	PASS
	Ant1	2462	8.97	≤30	PASS
	Ant2	2462	5.34	≤30	PASS
	total	2462	10.5	≤28.69	PASS
11N40MIMO	Ant1	2422	5.15	≤30	PASS
	Ant2	2422	4.68	≤30	PASS
	total	2422	7.9	≤28.69	PASS
	Ant1	2437	6.14	≤30	PASS
	Ant2	2437	4.79	≤30	PASS
	total	2437	8.5	≤28.69	PASS
	Ant1	2452	6.41	≤30	PASS
	Ant2	2452	4.76	≤30	PASS
	total	2452	8.7	≤28.69	PASS

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

Appendix D: Maximum power spectral density

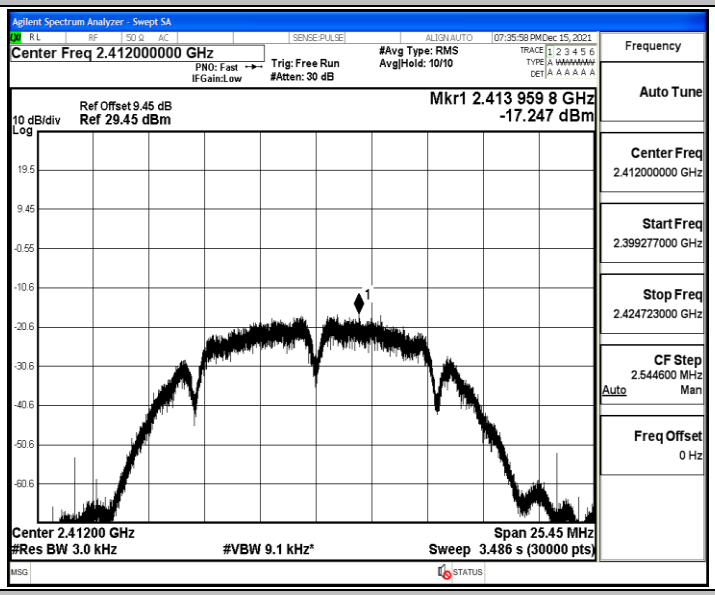
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-17.25	≤8	PASS
	Ant2	2412	-17.57	≤8	PASS
	Ant1	2437	-16.77	≤8	PASS
	Ant2	2437	-17.3	≤8	PASS
	Ant1	2462	-15.25	≤8	PASS
	Ant2	2462	-16.1	≤8	PASS
11G	Ant1	2412	-20.97	≤8	PASS
	Ant2	2412	-21.06	≤8	PASS
	Ant1	2437	-19.91	≤8	PASS
	Ant2	2437	-20.93	≤8	PASS
	Ant1	2462	-22.6	≤8	PASS
	Ant2	2462	-20.14	≤8	PASS
11N20MIMO	Ant1	2412	-25.65	≤8	PASS
	Ant2	2412	-24.17	≤8	PASS
	total	2412	-21.84	≤6.69	PASS
	Ant1	2437	-24.06	≤8	PASS
	Ant2	2437	-27.06	≤8	PASS
	total	2437	-22.30	≤6.69	PASS
	Ant1	2462	-22.93	≤8	PASS
	Ant2	2462	-25.71	≤8	PASS
	total	2462	-21.09	≤6.69	PASS
11N40MIMO	Ant1	2422	-27.7	≤8	PASS
	Ant2	2422	-27.45	≤8	PASS
	total	2422	-24.56	≤6.69	PASS
	Ant1	2437	-26.35	≤8	PASS
	Ant2	2437	-27.36	≤8	PASS
	total	2437	-23.82	≤6.69	PASS
	Ant1	2452	-26.6	≤8	PASS
	Ant2	2452	-28.46	≤8	PASS
	total	2452	-24.42	≤6.69	PASS

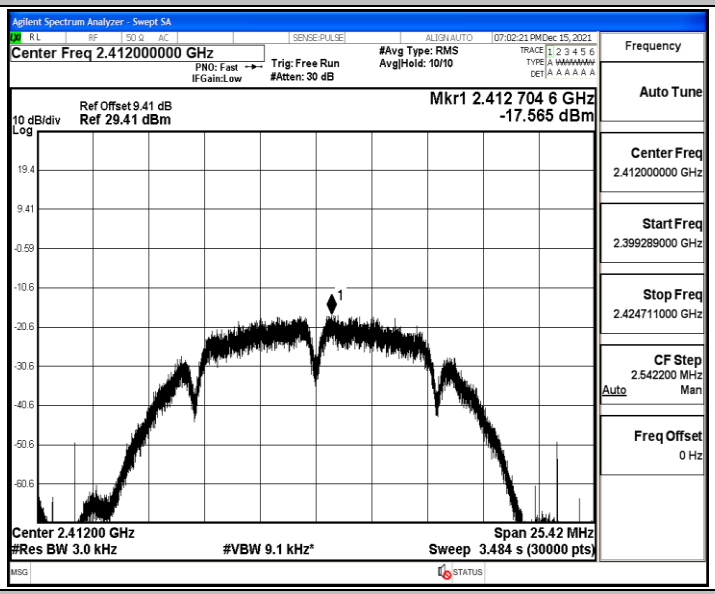
Note：The Duty Cycle Factor is compensated in the test result.

Test Graphs

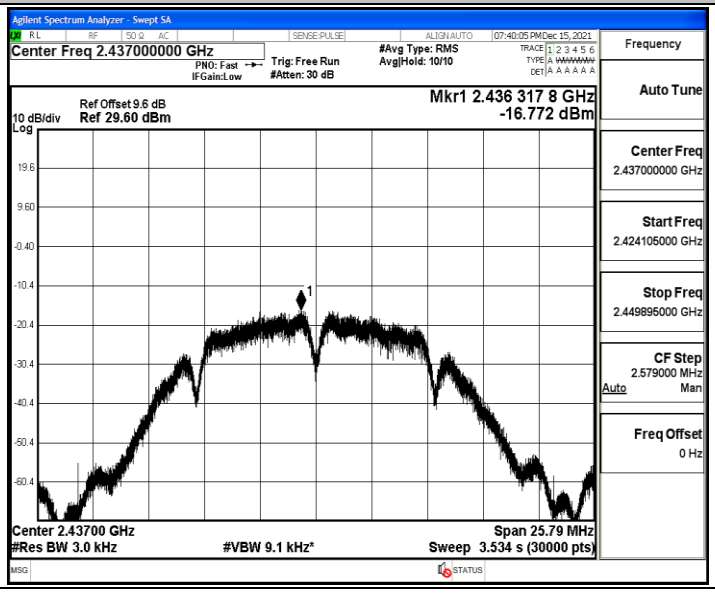
11B_Ant1_2412



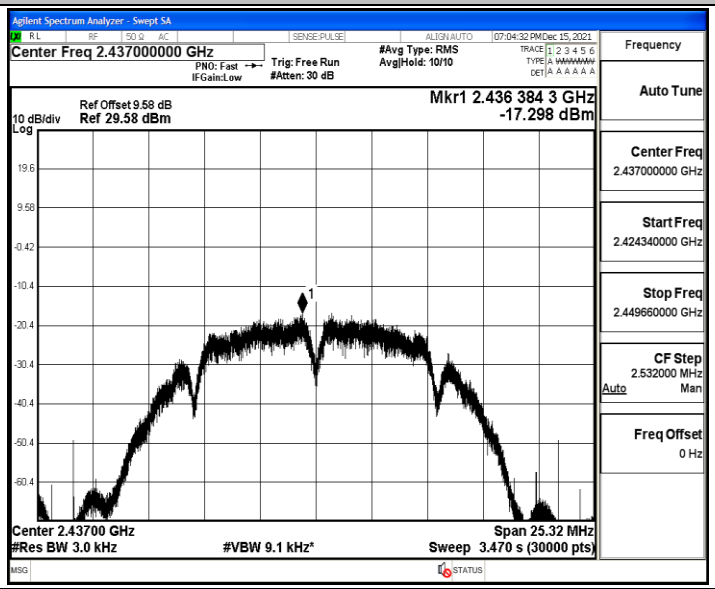
11B_Ant2_2412



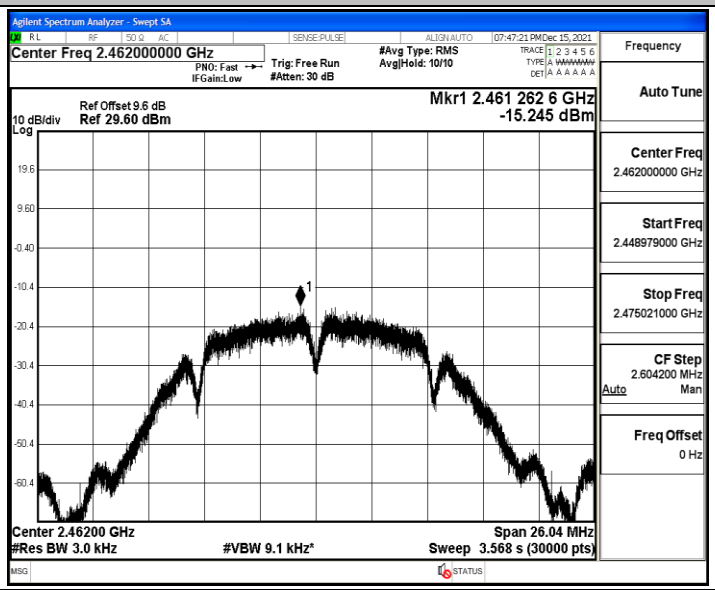
11B_Ant1_2437



11B_Ant2_2437



11B_Ant1_2462



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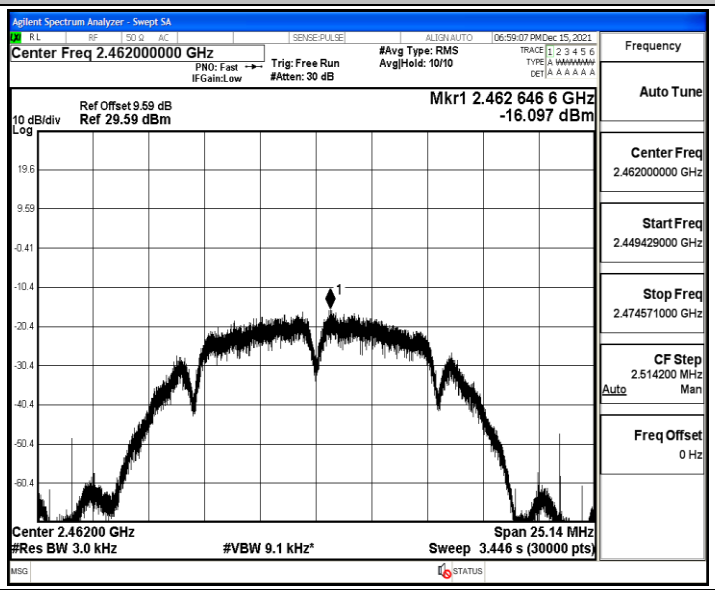

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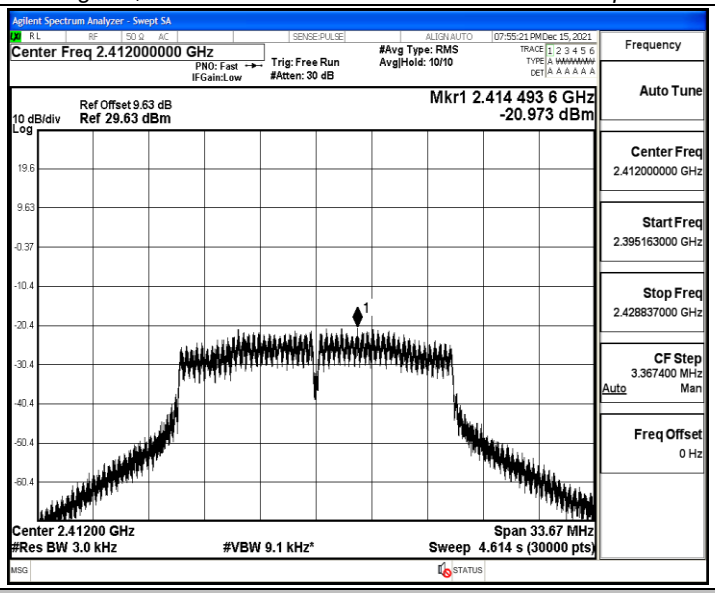

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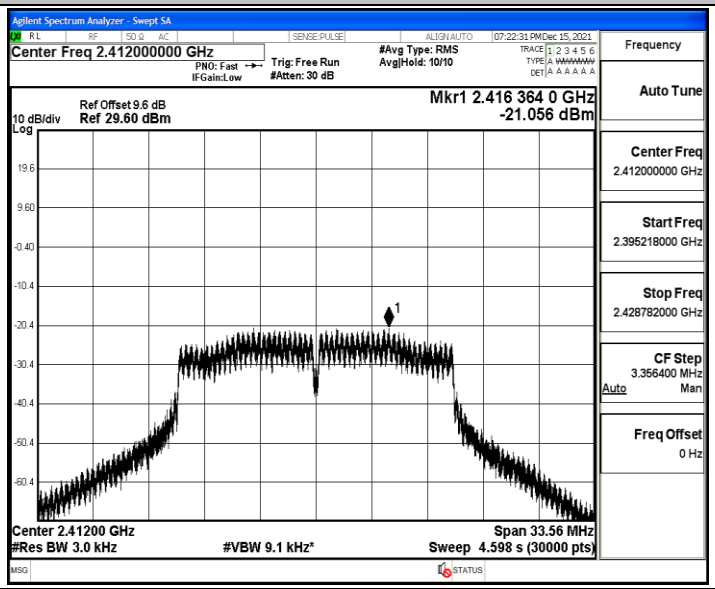

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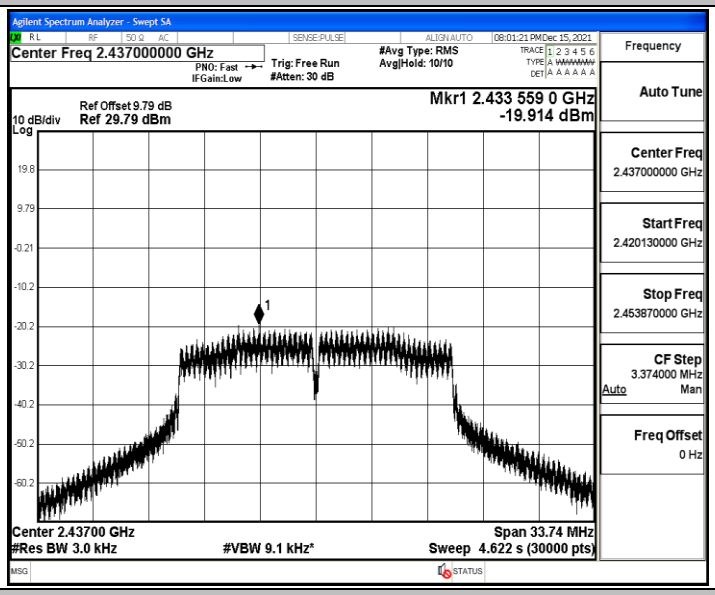

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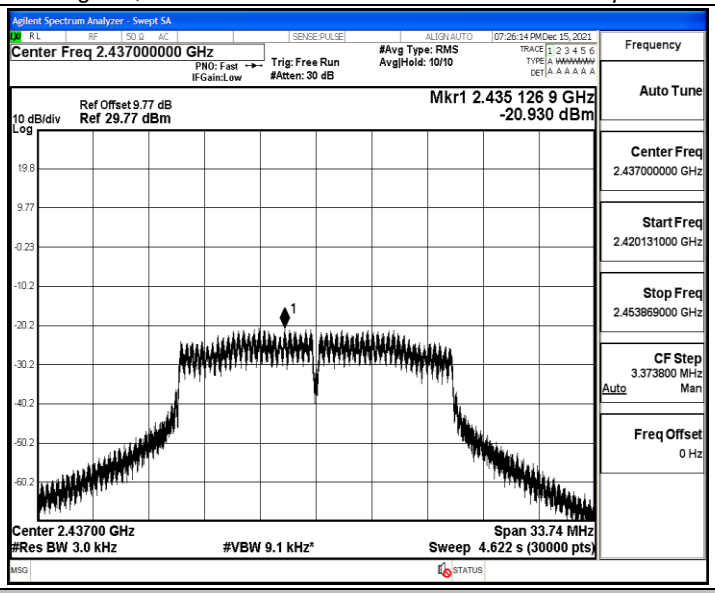

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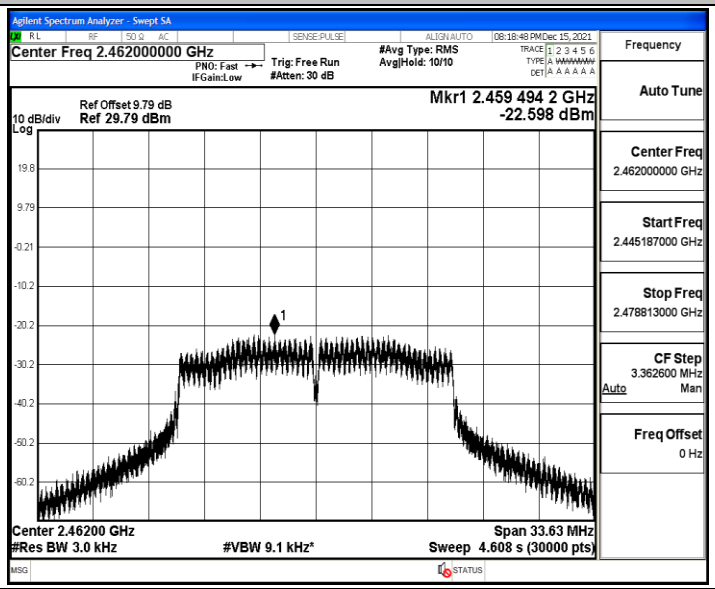

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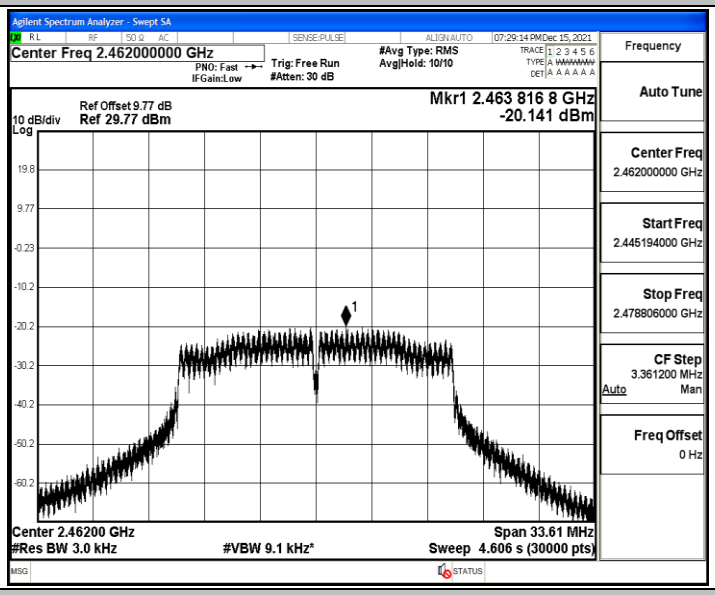
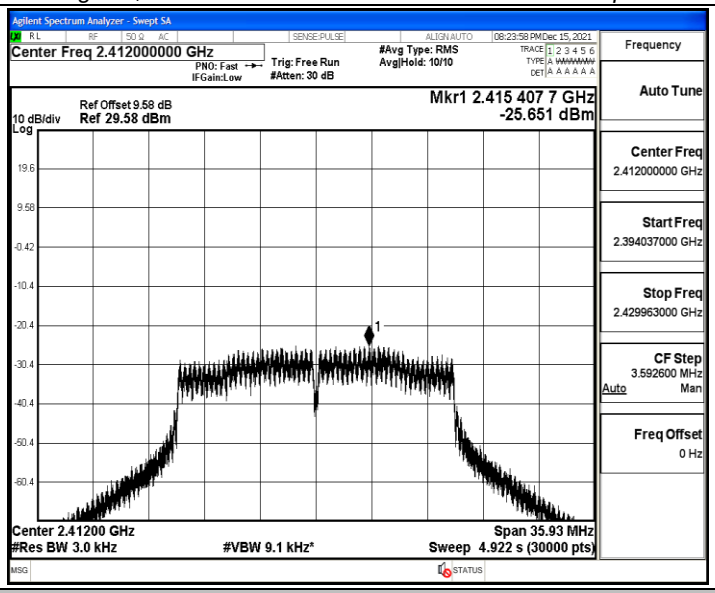


11N20MIMO_Ant1_2412



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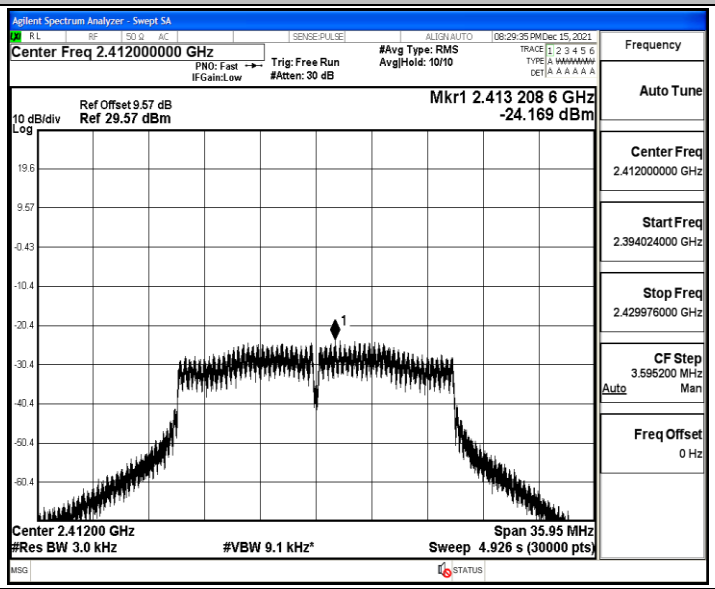

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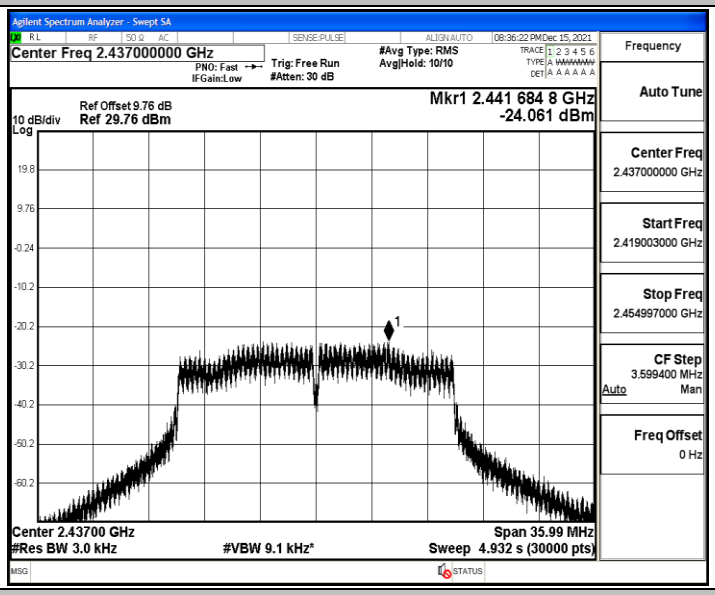

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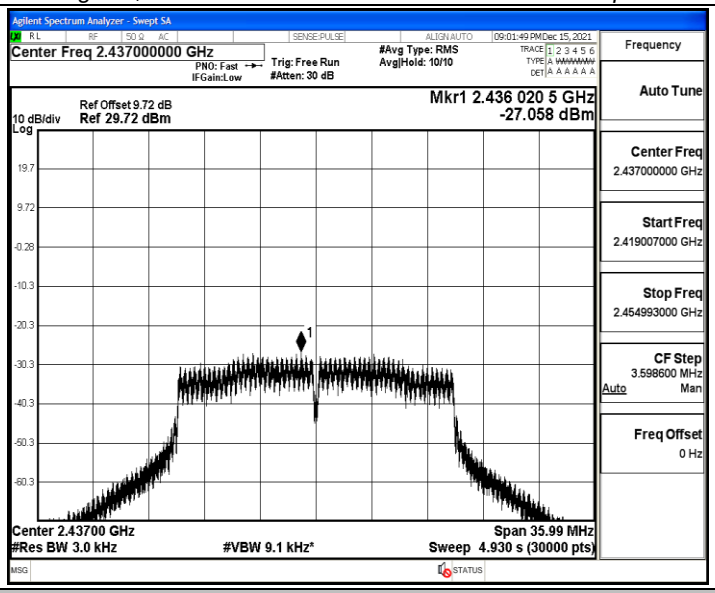

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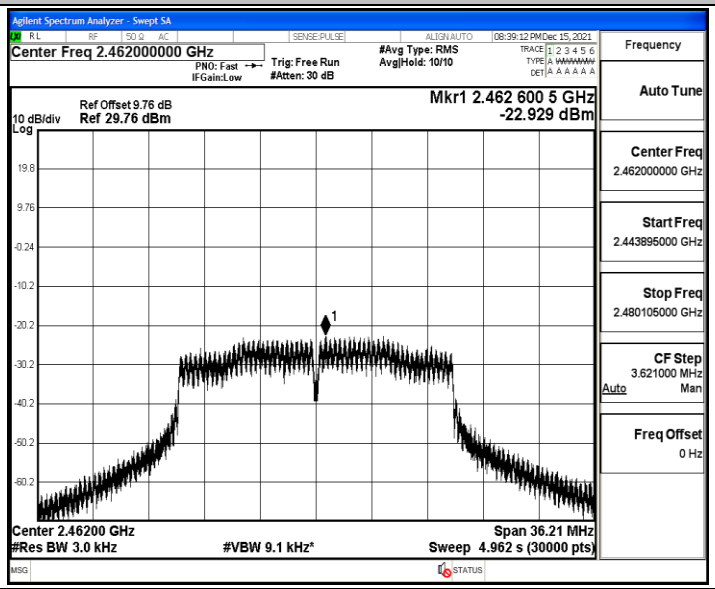

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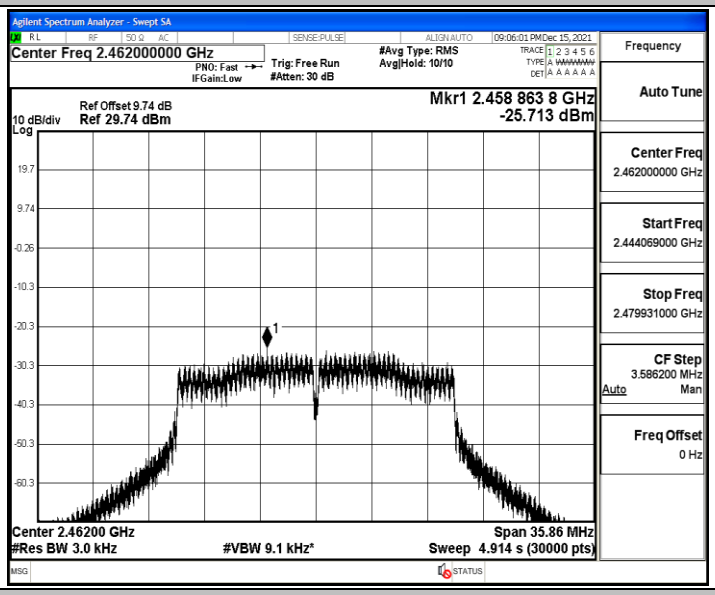

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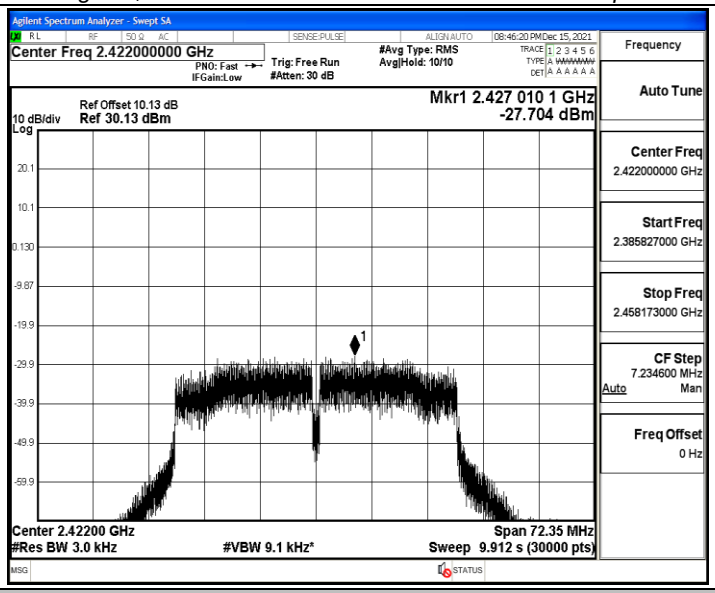

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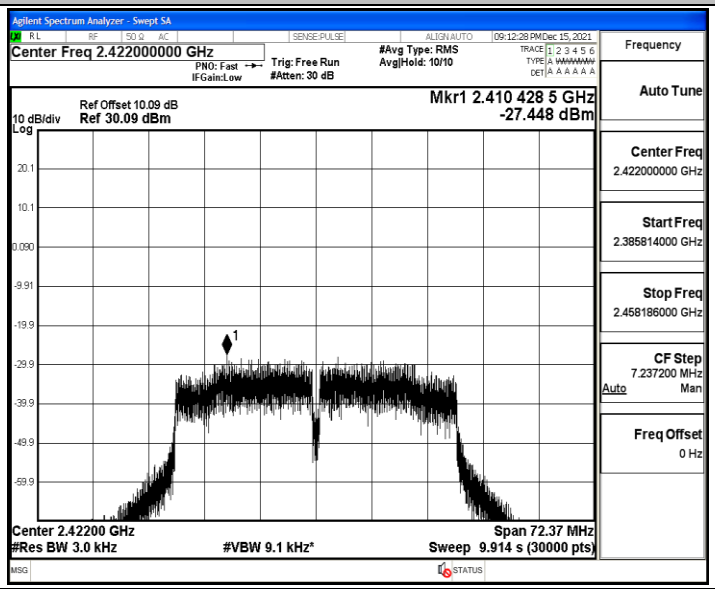

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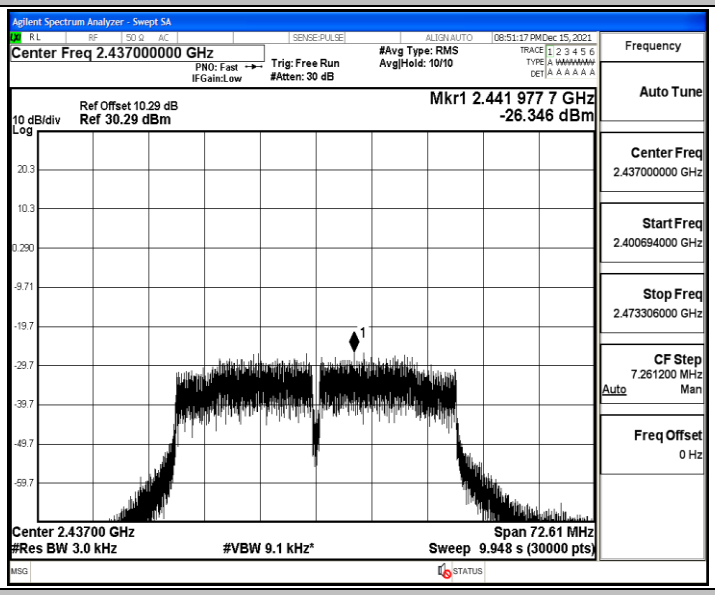
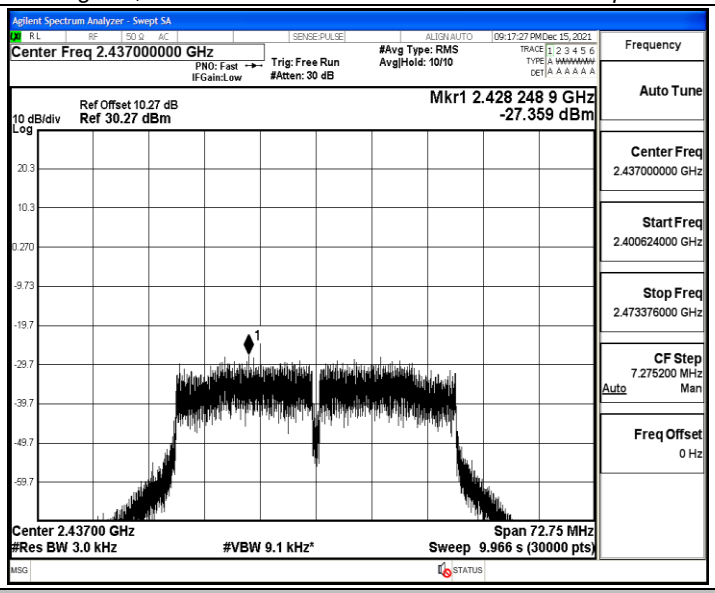
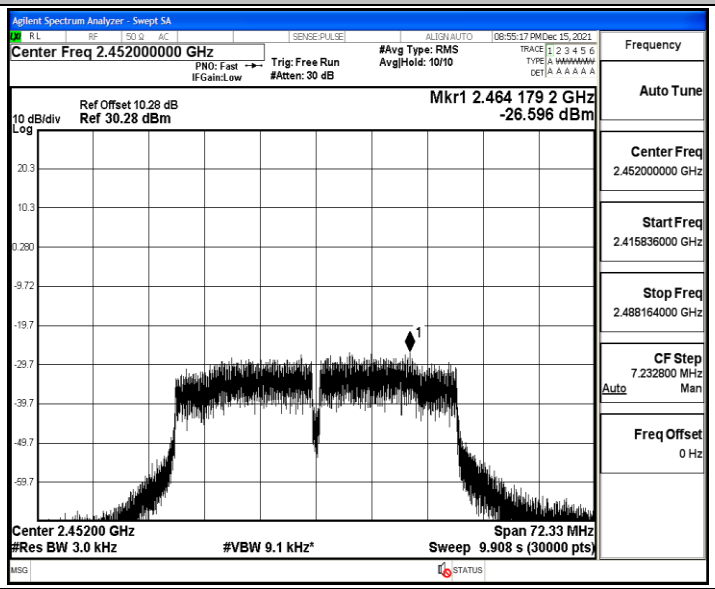


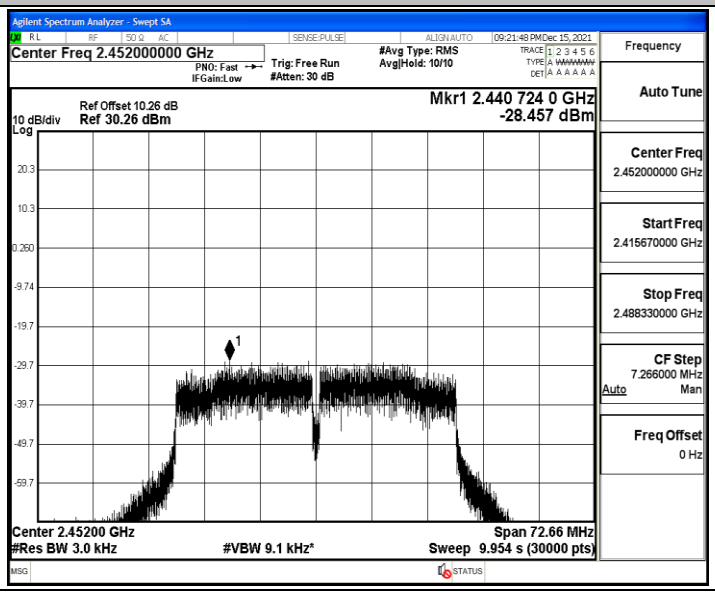
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



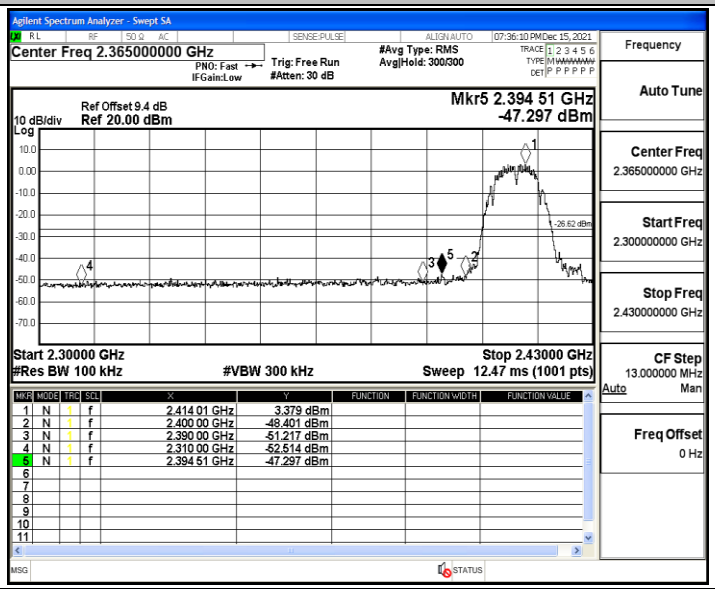
Appendix E: Band edge measurements

Test Result

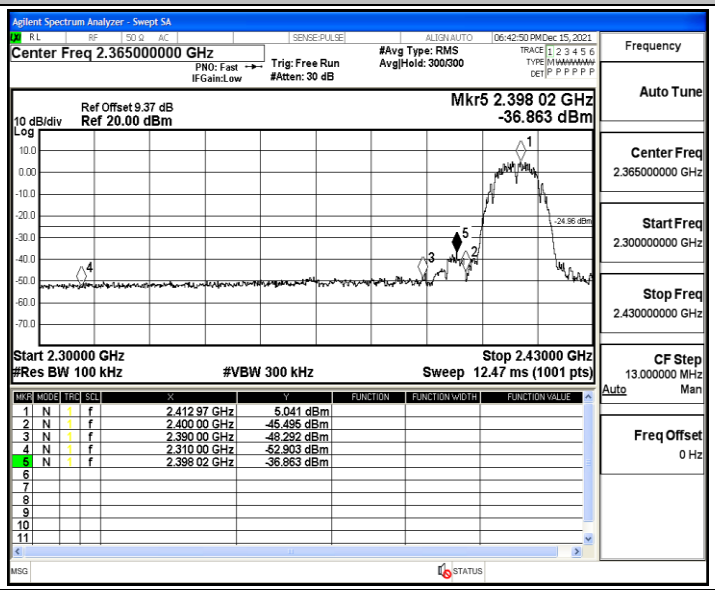
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.38	-47.3	≤-26.62	PASS
	Ant2	Low	2412	5.04	-36.86	≤-24.96	PASS
	Ant1	High	2462	5.35	-44.49	≤-24.65	PASS
	Ant2	High	2462	6.41	-46.22	≤-23.59	PASS
11G	Ant1	Low	2412	0.16	-32.5	≤-29.84	PASS
	Ant2	Low	2412	0.08	-30.88	≤-29.92	PASS
	Ant1	High	2462	-1.33	-44.91	≤-31.33	PASS
	Ant2	High	2462	1.16	-47.38	≤-28.84	PASS
11N20MIMO	Ant1	Low	2412	-3.69	-34.69	≤-33.69	PASS
	Ant2	Low	2412	-2.36	-33.1	≤-32.36	PASS
	Ant1	High	2462	-1.13	-43.76	≤-31.13	PASS
	Ant2	High	2462	-4.80	-48.79	≤-34.8	PASS
11N40MIMO	Ant1	Low	2422	-7.69	-39.18	≤-37.69	PASS
	Ant2	Low	2422	-8.41	-39.39	≤-38.41	PASS
	Ant1	High	2452	-6.24	-41.18	≤-36.24	PASS
	Ant2	High	2452	-7.93	-47.89	≤-37.93	PASS

Test Graphs

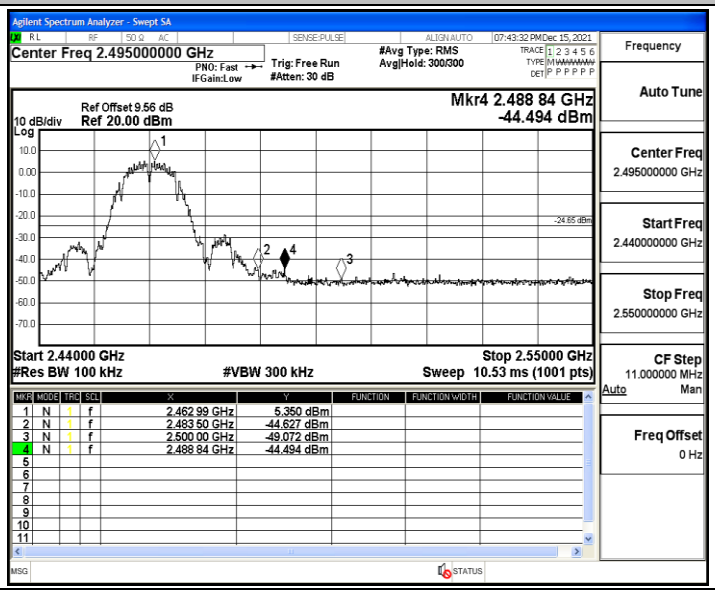
11B_Ant1_Low_2412



11B_Ant2_Low_2412



11B_Ant1_High_2462



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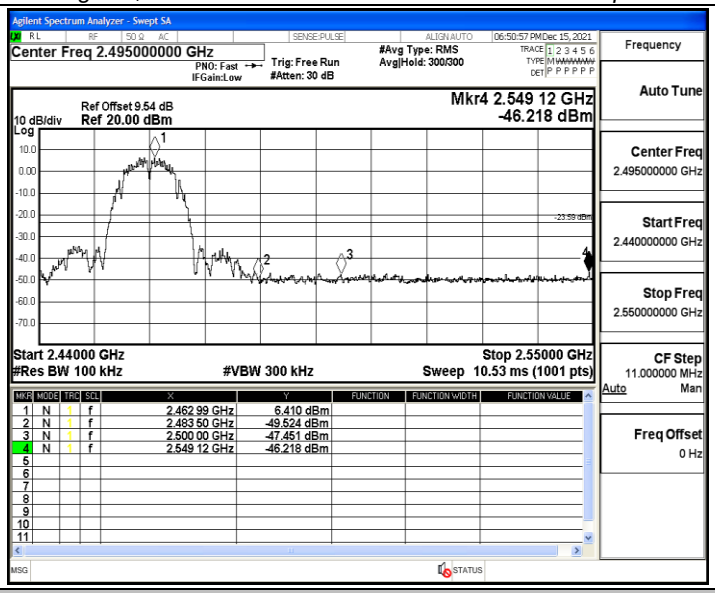
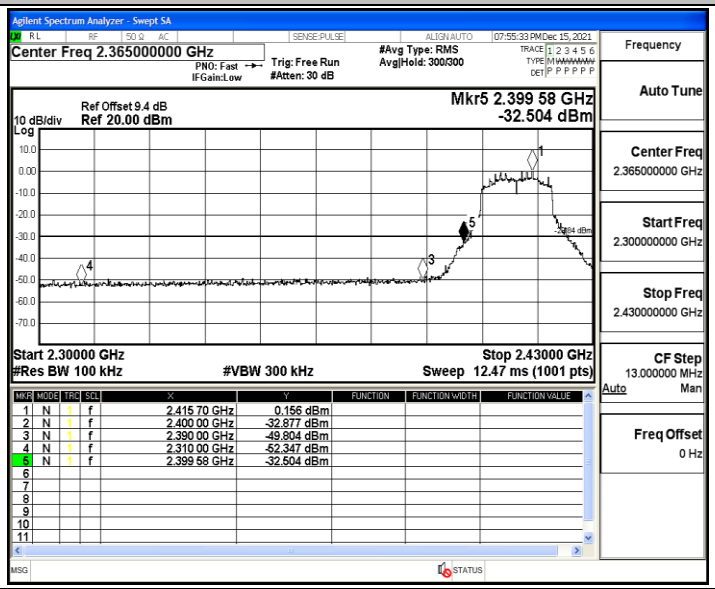
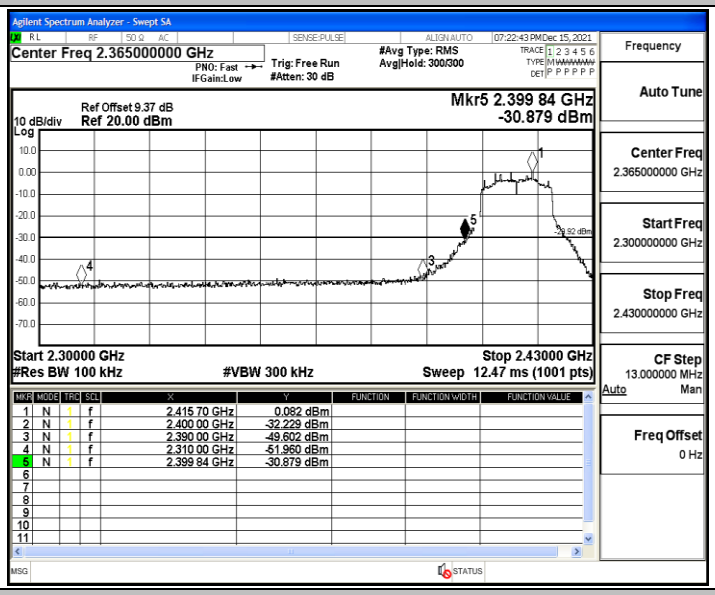


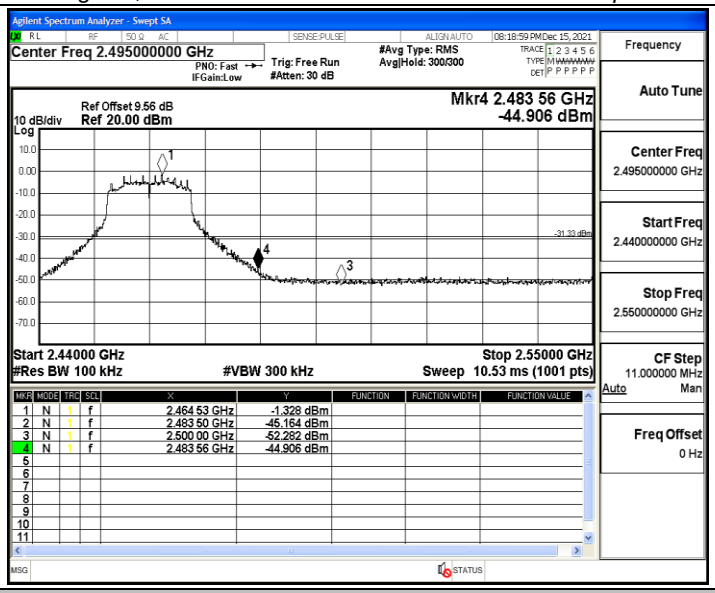
11G_Ant1_Low_2412



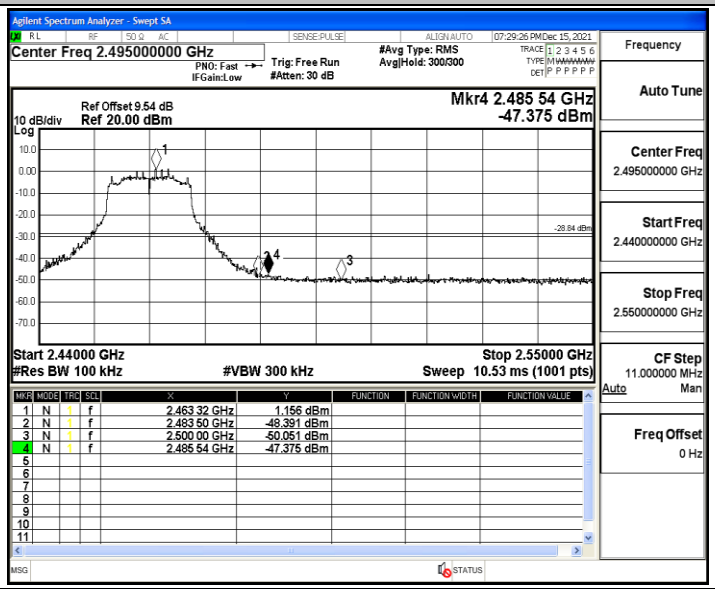
11G_Ant2_Low_2412



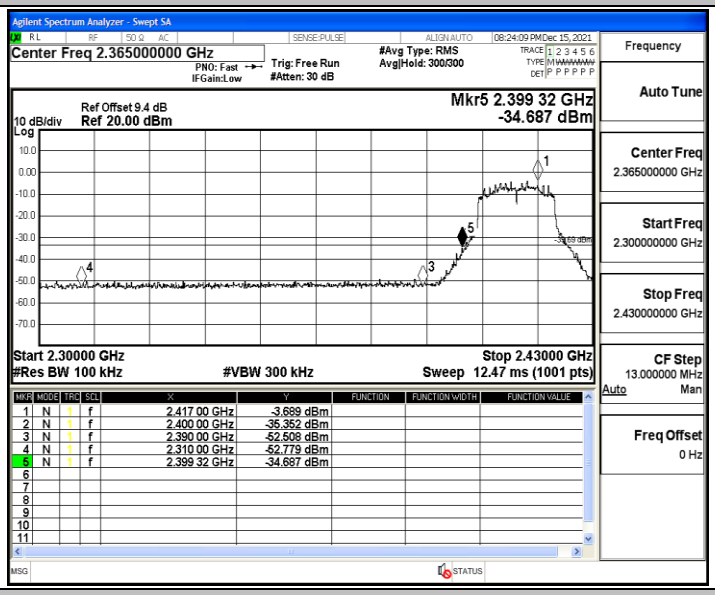
11G_Ant1_High_2462



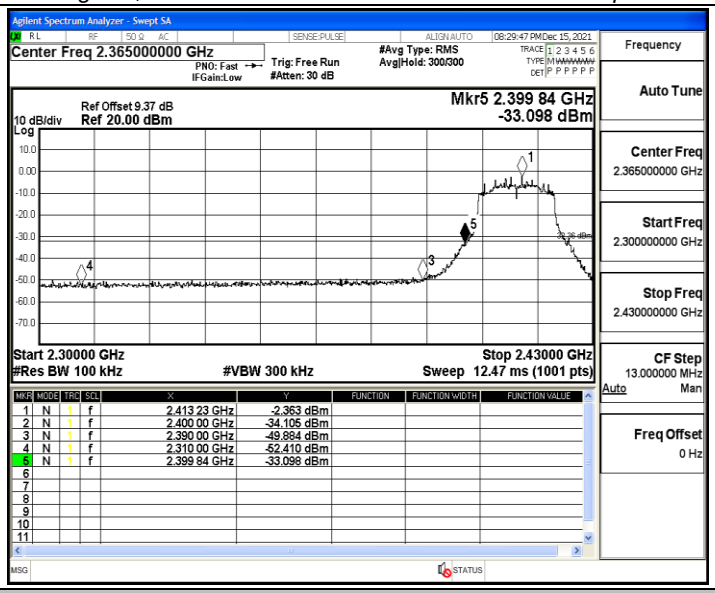
11G_Ant2_High_2462



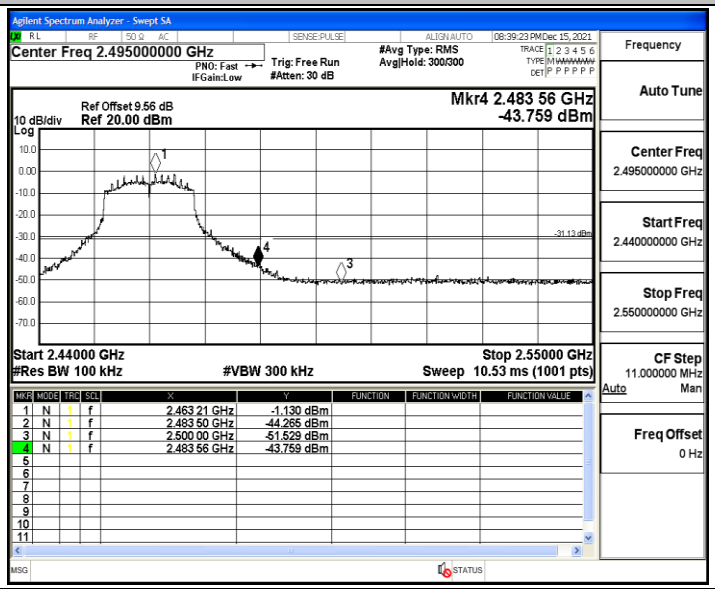
11N20MIMO_Ant1_Low_2412



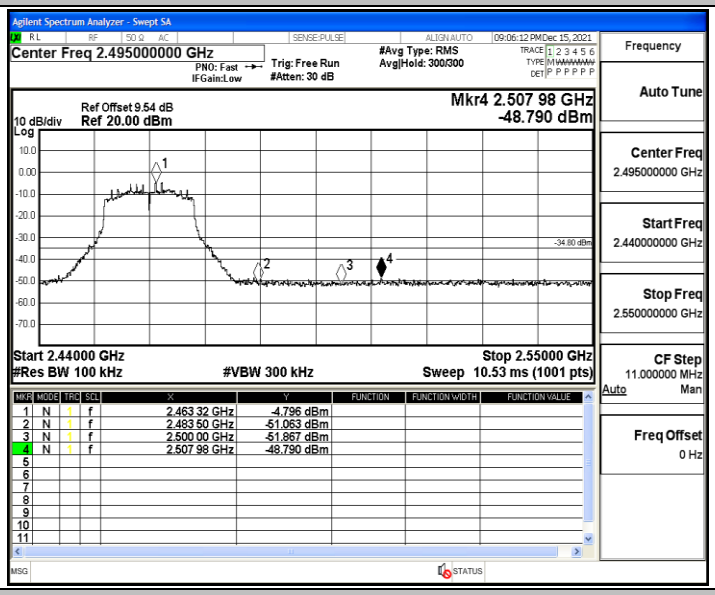
11N20MIMO_Ant2_Low_2412



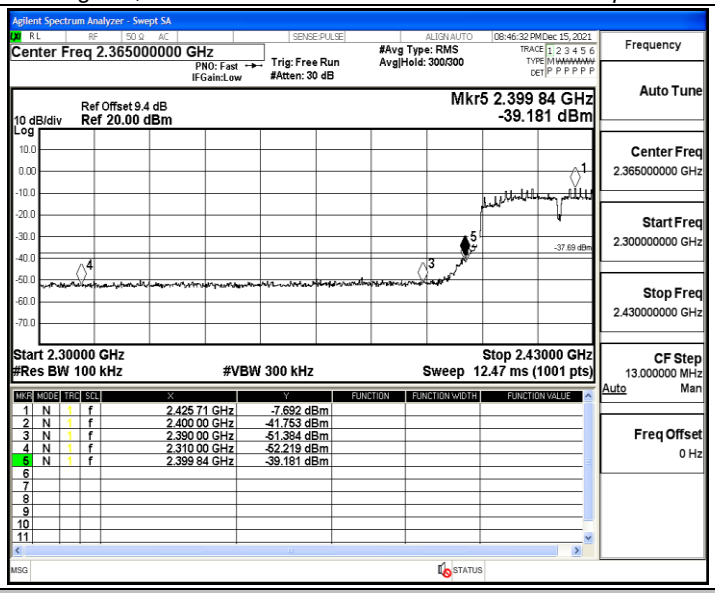
11N20MIMO_Ant1_High_2462



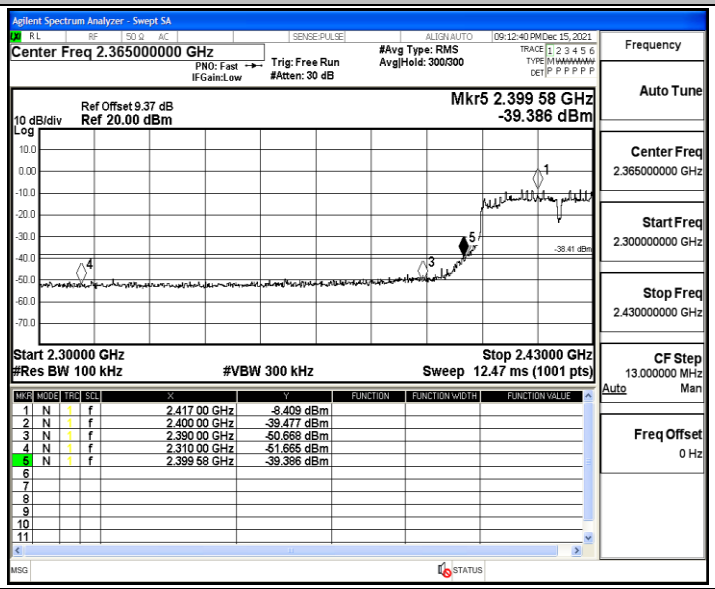
11N20MIMO_Ant2_High_2462



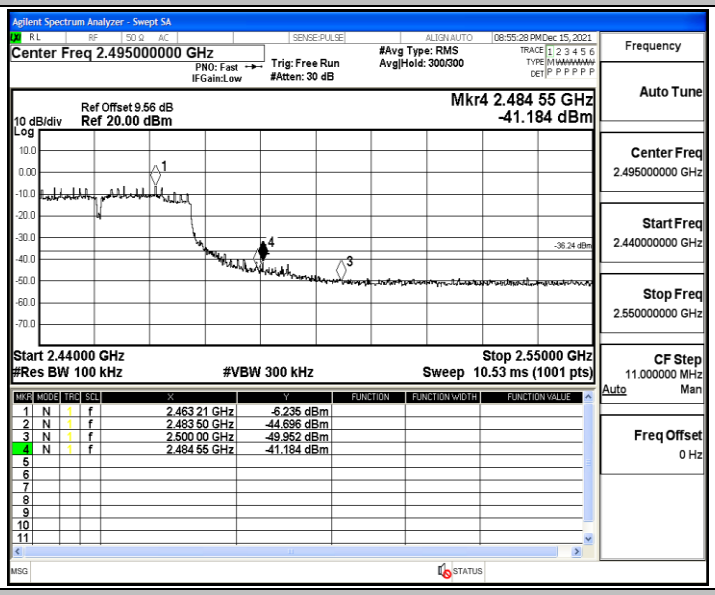
11N40MIMO_Ant1_Low_2422



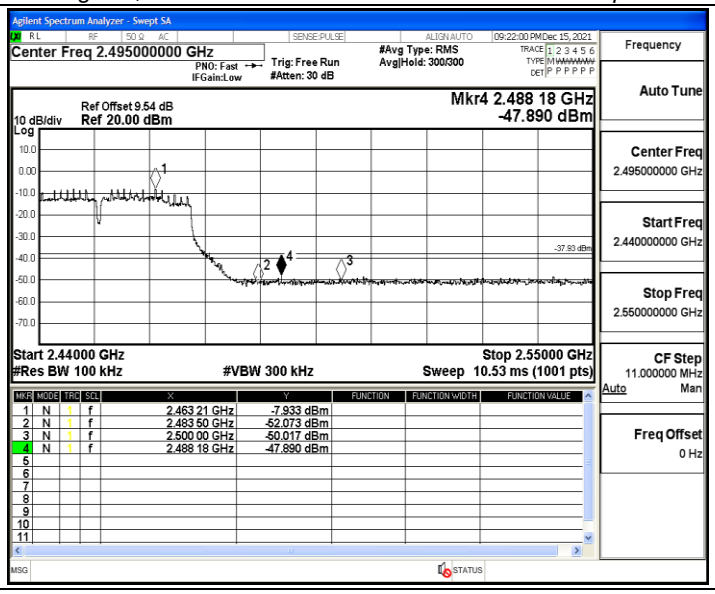
11N40MIMO_Ant2_Low_2422



11N40MIMO_Ant1_High_2452



11N40MIMO_Ant2_High_2452


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.495000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 300/300
09:22:00 PM Dec 15, 2021
Ref Offset 9.54 dB
10 dB/div Ref 20.00 dBm
Log
Mkr4 2.488 18 GHz
-47.890 dBm
-37.93 dBm
Start 2.44000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 10.53 ms (1001 pts)
1 N 1 f 2.463 21 GHz -7.933 dBm
2 N 1 f 2.483 50 GHz -52.073 dBm
3 N 1 f 2.500 00 GHz -50.017 dBm
4 N 1 f 2.488 18 GHz -47.890 dBm
Frequency
Auto Tune
Center Freq
2.495000000 GHz
Start Freq
2.440000000 GHz
Stop Freq
2.550000000 GHz
CF Step
11.000000 MHz
Auto Man
Freq Offset
0 Hz

Appendix F: Conducted Spurious Emission

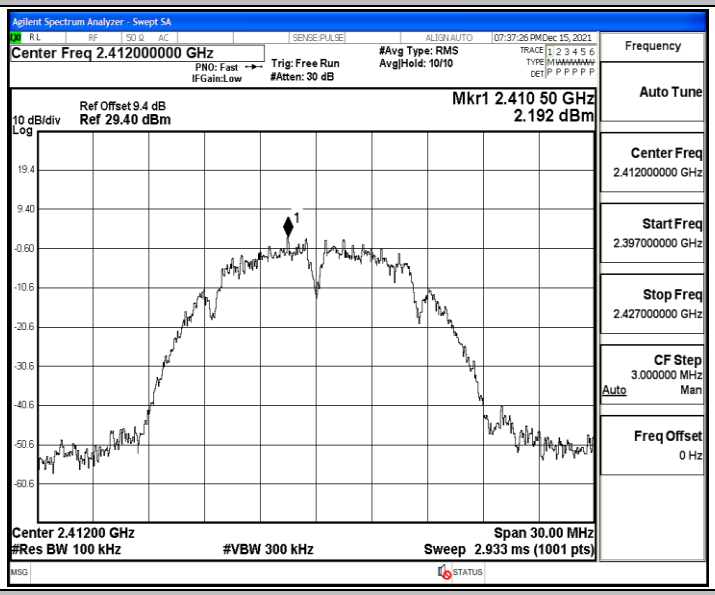
Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	2.19	2.19	---	PASS
			30~1000	2.19	-61.38	≤-27.81	PASS
			1000~26500	2.19	-51.43	≤-27.81	PASS
	Ant2	2412	Reference	3.38	3.38	---	PASS
			30~1000	3.38	-61.89	≤-26.62	PASS
			1000~26500	3.38	-51.44	≤-26.62	PASS
	Ant1	2437	Reference	3.14	3.14	---	PASS
			30~1000	3.14	-60.51	≤-26.86	PASS
			1000~26500	3.14	-51.49	≤-26.86	PASS
	Ant2	2437	Reference	5.36	5.36	---	PASS
			30~1000	5.36	-61.12	≤-24.64	PASS
			1000~26500	5.36	-51.37	≤-24.64	PASS
	Ant1	2462	Reference	1.29	1.29	---	PASS
			30~1000	1.29	-61.12	≤-28.71	PASS
			1000~26500	1.29	-52.48	≤-28.71	PASS
	Ant2	2462	Reference	4.05	4.05	---	PASS
			30~1000	4.05	-60.86	≤-25.95	PASS
			1000~26500	4.05	-51.09	≤-25.95	PASS
11G	Ant1	2412	Reference	-2.28	-2.28	---	PASS
			30~1000	-2.28	-60.62	≤-32.28	PASS
			1000~26500	-2.28	-52.39	≤-32.28	PASS
	Ant2	2412	Reference	-2.80	-2.80	---	PASS
			30~1000	-2.80	-60.95	≤-32.8	PASS
			1000~26500	-2.80	-51.86	≤-32.8	PASS
	Ant1	2437	Reference	0.52	0.52	---	PASS
			30~1000	0.52	-60.45	≤-29.48	PASS
			1000~26500	0.52	-52.34	≤-29.48	PASS
	Ant2	2437	Reference	-1.27	-1.27	---	PASS
			30~1000	-1.27	-60.71	≤-31.27	PASS
			1000~26500	-1.27	-52.63	≤-31.27	PASS
	Ant1	2462	Reference	-5.11	-5.11	---	PASS
			30~1000	-5.11	-61.37	≤-35.11	PASS
			1000~26500	-5.11	-51.87	≤-35.11	PASS
	Ant2	2462	Reference	-2.88	-2.88	---	PASS
			30~1000	-2.88	-59.6	≤-32.88	PASS
			1000~26500	-2.88	-52.36	≤-32.88	PASS
11N20MIMO	Ant1	2412	Reference	-4.79	-4.79	---	PASS
			30~1000	-4.79	-61.14	≤-34.79	PASS
			1000~26500	-4.79	-52.2	≤-34.79	PASS
	Ant2	2412	Reference	-5.64	-5.64	---	PASS

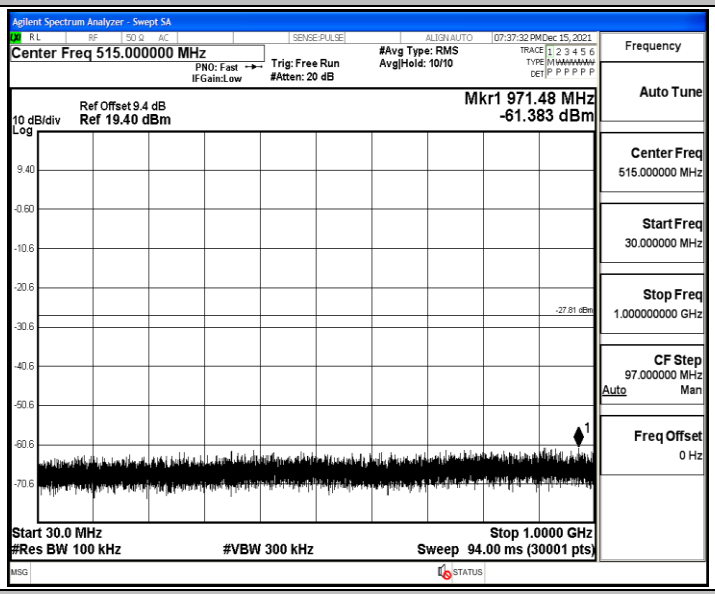
TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
			30~1000	-5.64	-60.55	≤-35.64	PASS
			1000~26500	-5.64	-51.88	≤-35.64	PASS
	Ant1	2437	Reference	-2.84	-2.84	---	PASS
			30~1000	-2.84	-60.81	≤-32.84	PASS
			1000~26500	-2.84	-51.77	≤-32.84	PASS
	Ant2	2437	Reference	-6.71	-6.71	---	PASS
			30~1000	-6.71	-61.41	≤-36.71	PASS
			1000~26500	-6.71	-51.51	≤-36.71	PASS
	Ant1	2462	Reference	-4.95	-4.95	---	PASS
			30~1000	-4.95	-60.74	≤-34.95	PASS
			1000~26500	-4.95	-51.93	≤-34.95	PASS
	Ant2	2462	Reference	-8.43	-8.43	---	PASS
			30~1000	-8.43	-61.09	≤-38.43	PASS
			1000~26500	-8.43	-52.54	≤-38.43	PASS
11N40MIMO	Ant1	2422	Reference	-10.04	-10.04	---	PASS
			30~1000	-10.04	-59.24	≤-40.04	PASS
			1000~26500	-10.04	-52.24	≤-40.04	PASS
	Ant2	2422	Reference	-12.19	-12.19	---	PASS
			30~1000	-12.19	-60.5	≤-42.19	PASS
			1000~26500	-12.19	-52.13	≤-42.19	PASS
	Ant1	2437	Reference	-7.88	-7.88	---	PASS
			30~1000	-7.88	-61.09	≤-37.88	PASS
			1000~26500	-7.88	-50.98	≤-37.88	PASS
	Ant2	2437	Reference	-9.45	-9.45	---	PASS
			30~1000	-9.45	-61.13	≤-39.45	PASS
			1000~26500	-9.45	-51.78	≤-39.45	PASS
	Ant1	2452	Reference	-10.38	-10.38	---	PASS
			30~1000	-10.38	-61.27	≤-40.38	PASS
			1000~26500	-10.38	-52.01	≤-40.38	PASS
	Ant2	2452	Reference	-9.37	-9.37	---	PASS
			30~1000	-9.37	-61.51	≤-39.37	PASS
			1000~26500	-9.37	-52.3	≤-39.37	PASS

Test Graphs

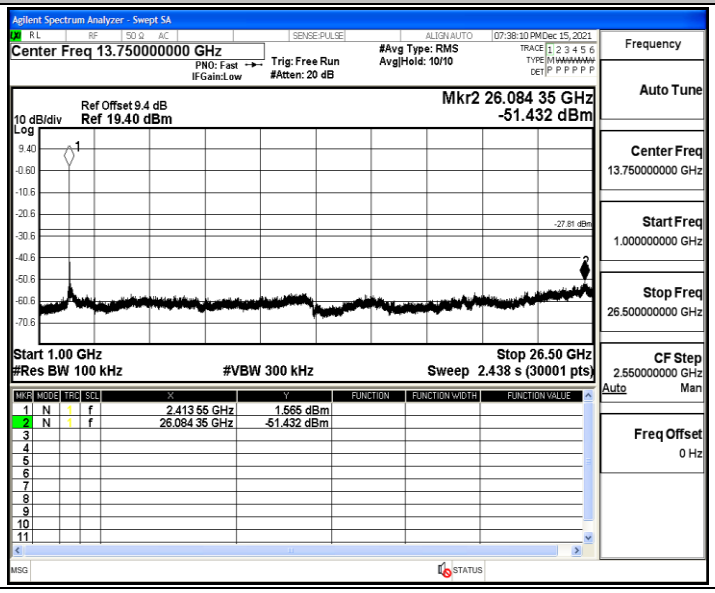
11B_Ant1_2412_0~Reference



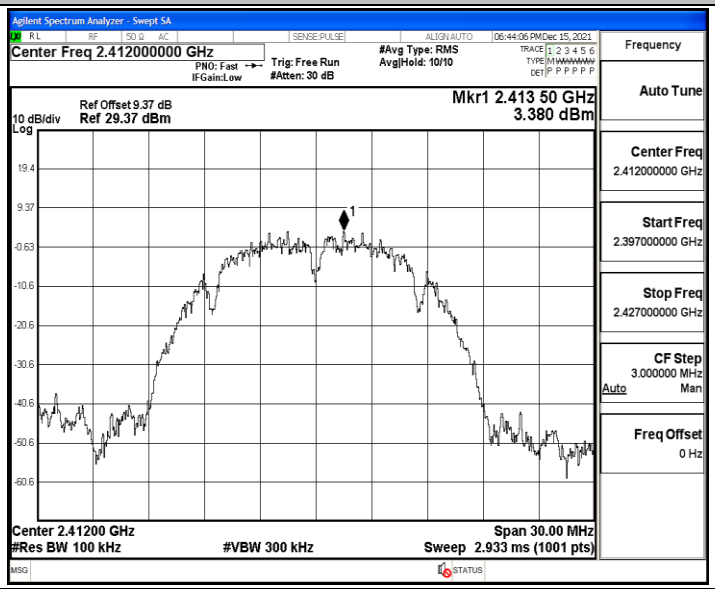
11B_Ant1_2412_30~1000



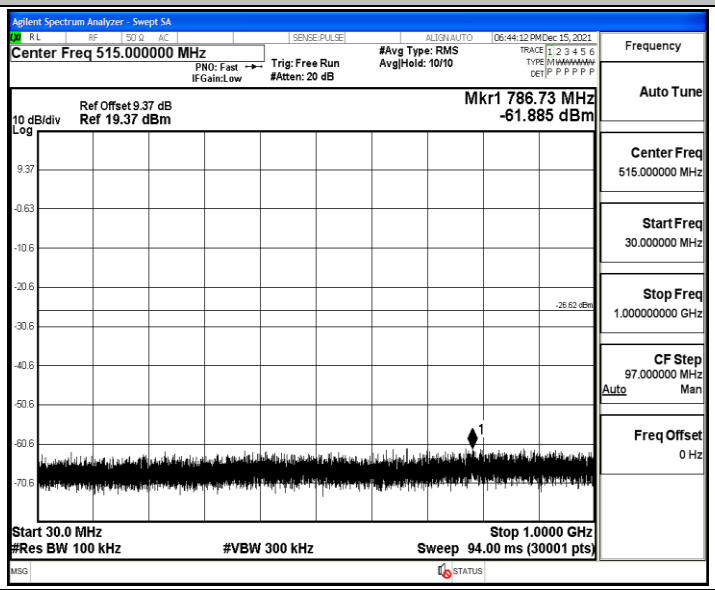
11B_Ant1_2412_1000~26500



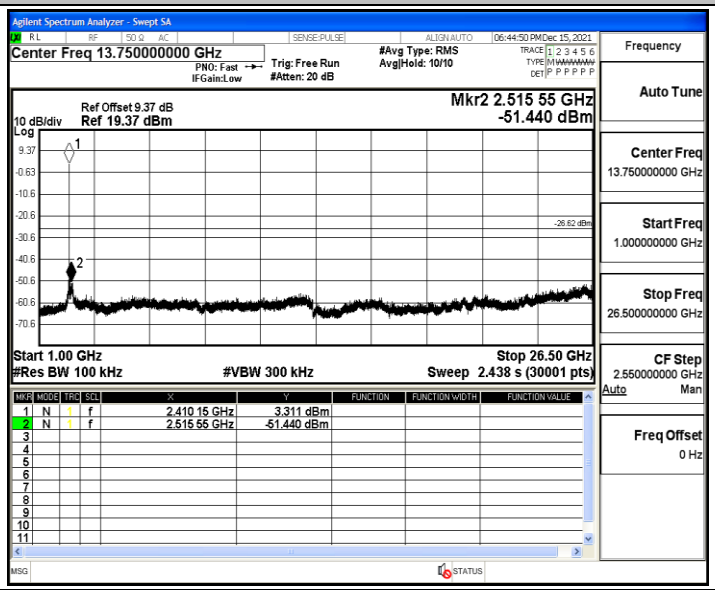
11B_Ant2_2412_0~Reference



11B_Ant2_2412_30~1000



11B_Ant2_2412_1000~26500



11B_Ant1_2437_0~Reference