Appendix Test Data

Report No.:	18220WC30140401	Test Sample No.:	1-2-2
Start Test Date:	2023.07.10	Finish Test Date:	2023.07.12
Test Engineer:	RICK Luo	Auditor:	Edward. Pan
Temperature:	26.0℃	Relative Humidity:	52%
Pressure:	1012 hPa		

Appendix A: DTS Bandwidth

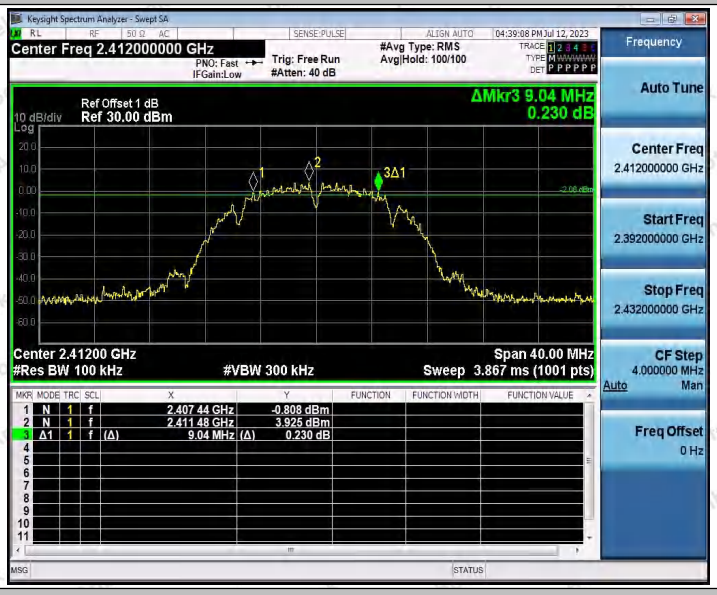
Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.040	2407.440	2416.480	≥0.5	PASS
	Ant2	2412	9.040	2407.440	2416.480	≥0.5	PASS
	Ant1	2437	9.080	2432.440	2441.520	≥0.5	PASS
	Ant2	2437	9.040	2432.440	2441.480	≥0.5	PASS
	Ant1	2462	9.080	2457.400	2466.480	≥0.5	PASS
	Ant2	2462	9.080	2457.440	2466.520	≥0.5	PASS
11G	Ant1	2412	16.080	2404.040	2420.120	≥0.5	PASS
	Ant2	2412	16.320	2403.800	2420.120	≥0.5	PASS
	Ant1	2437	16.080	2429.040	2445.120	≥0.5	PASS
	Ant2	2437	16.360	2428.800	2445.160	≥0.5	PASS
	Ant1	2462	16.320	2453.800	2470.120	≥0.5	PASS
	Ant2	2462	16.360	2453.800	2470.160	≥0.5	PASS
11N20SISO	Ant1	2412	17.560	2403.200	2420.760	≥0.5	PASS
	Ant2	2412	17.560	2403.200	2420.760	≥0.5	PASS
	Ant1	2437	17.520	2428.200	2445.720	≥0.5	PASS
	Ant2	2437	17.600	2428.160	2445.760	≥0.5	PASS
	Ant1	2462	17.000	2453.720	2470.720	≥0.5	PASS
	Ant2	2462	17.560	2453.200	2470.760	≥0.5	PASS
11N40SISO	Ant1	2422	35.820	2404.240	2440.060	≥0.5	PASS
	Ant2	2422	36.060	2404.060	2440.120	≥0.5	PASS
	Ant1	2437	35.700	2419.360	2455.060	≥0.5	PASS
	Ant2	2437	35.880	2419.240	2455.120	≥0.5	PASS
	Ant1	2452	35.700	2434.420	2470.120	≥0.5	PASS
	Ant2	2452	35.640	2434.480	2470.120	≥0.5	PASS

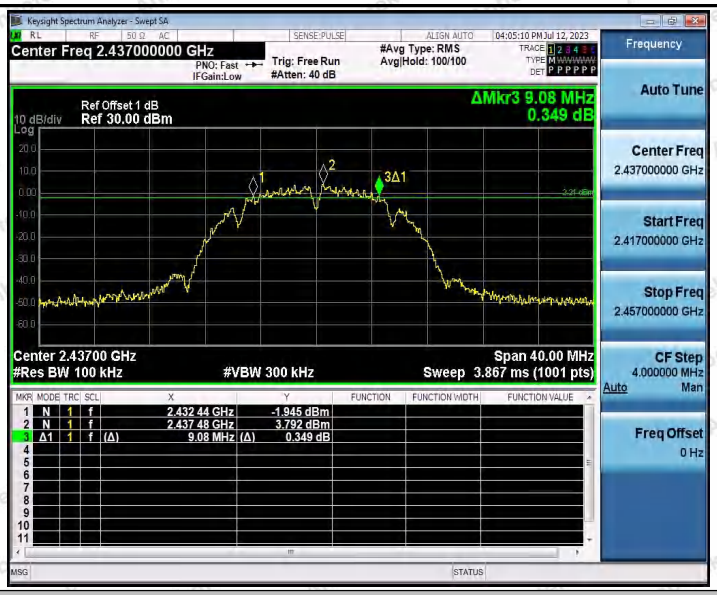
Test Graphs

11B_Ant1_2412

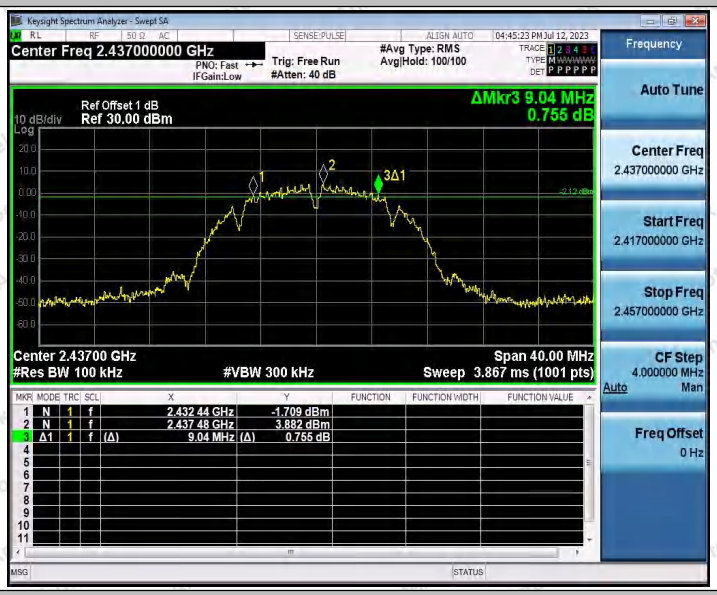
11B_Ant2_2412



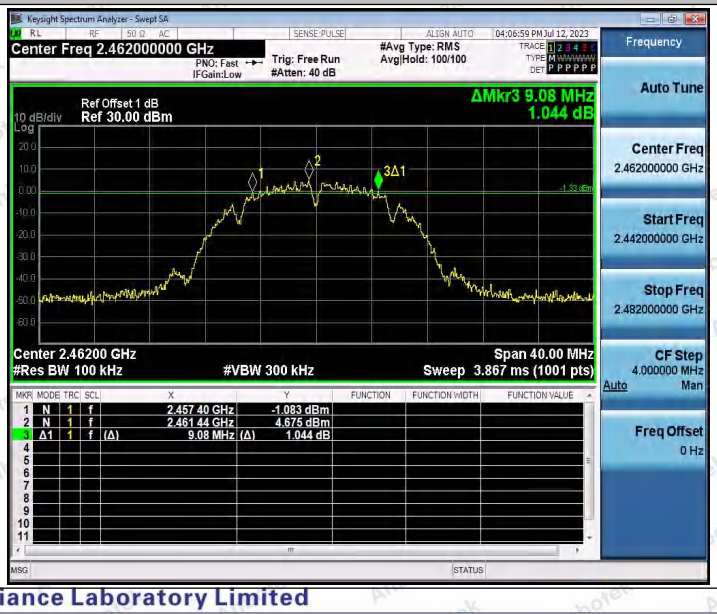
11B_Ant1_2437



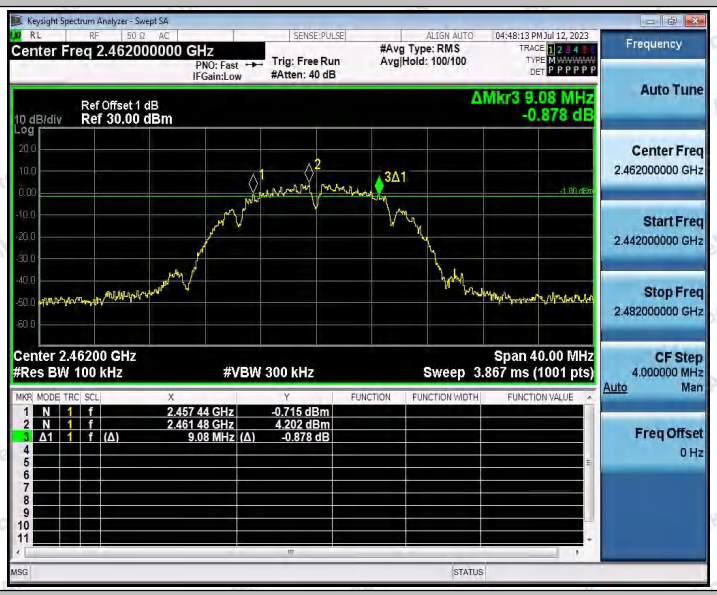
11B_Ant2_2437



11B_Ant1_2462



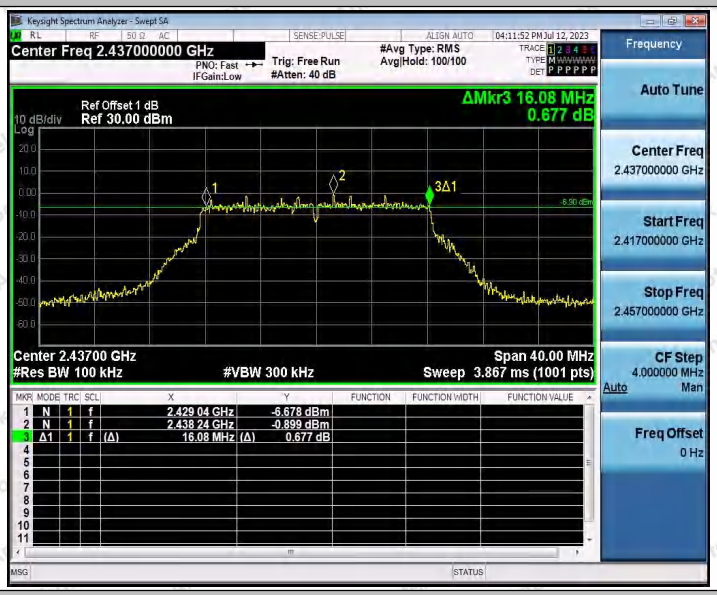
11B_Ant2_2462



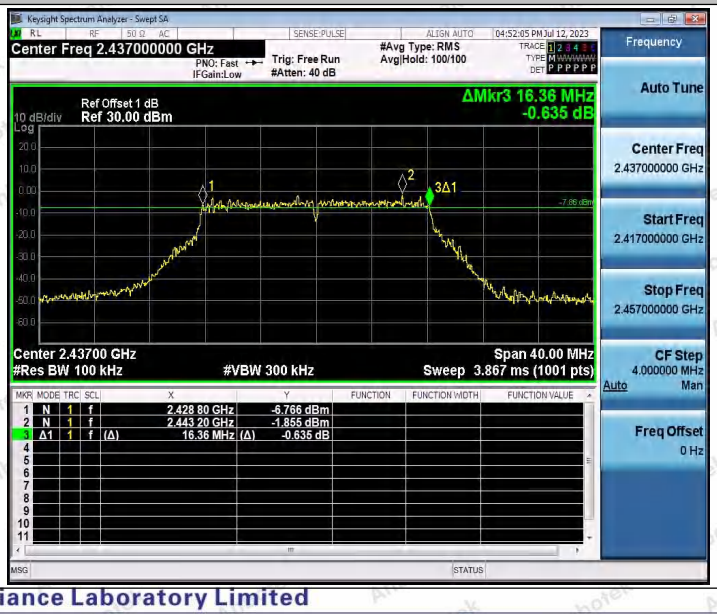
11G_Ant1_2412

11G_Ant2_2412

11G_Ant1_2437



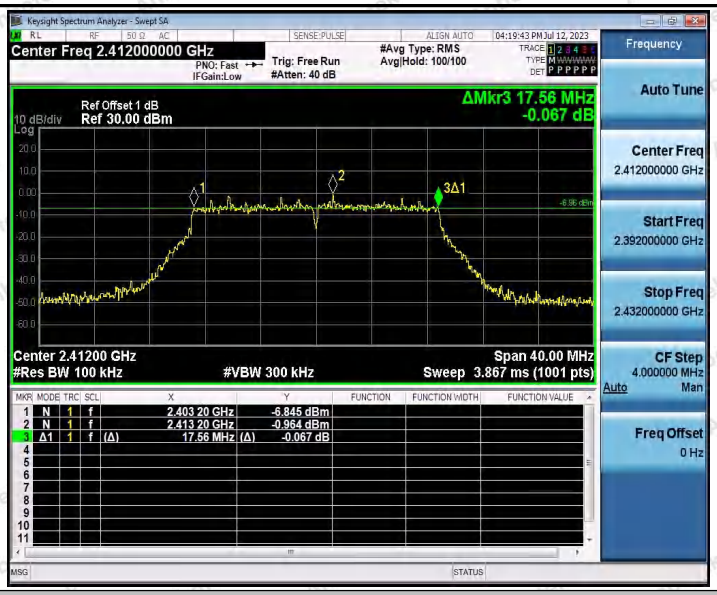
11G_Ant2_2437



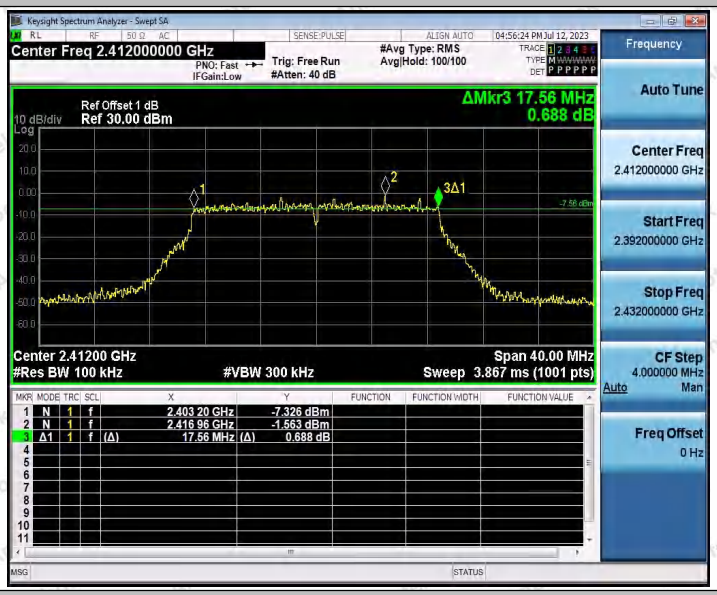
11G_Ant1_2462

11G_Ant2_2462

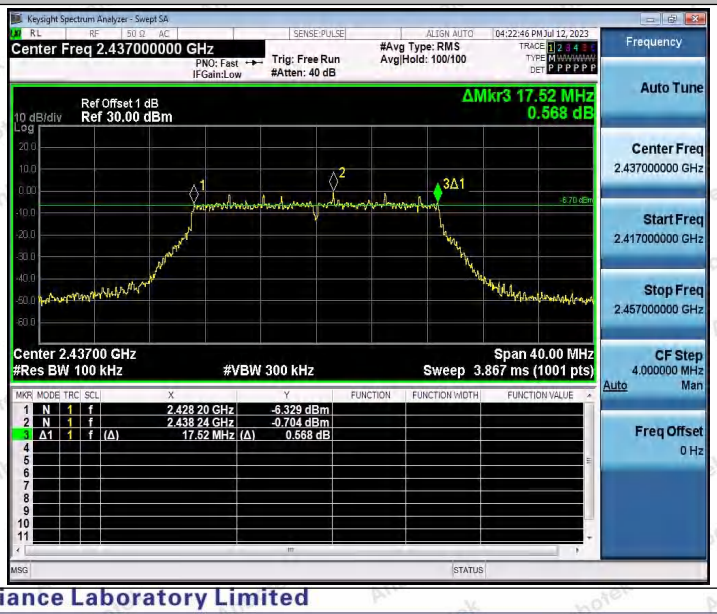
11N20SISO_Ant1_2412



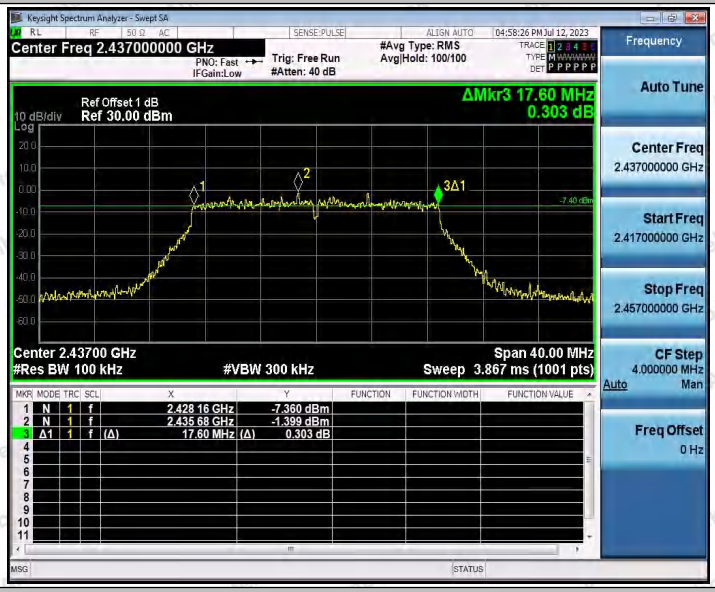
11N20SISO_Ant2_2412



11N20SISO_Ant1_2437

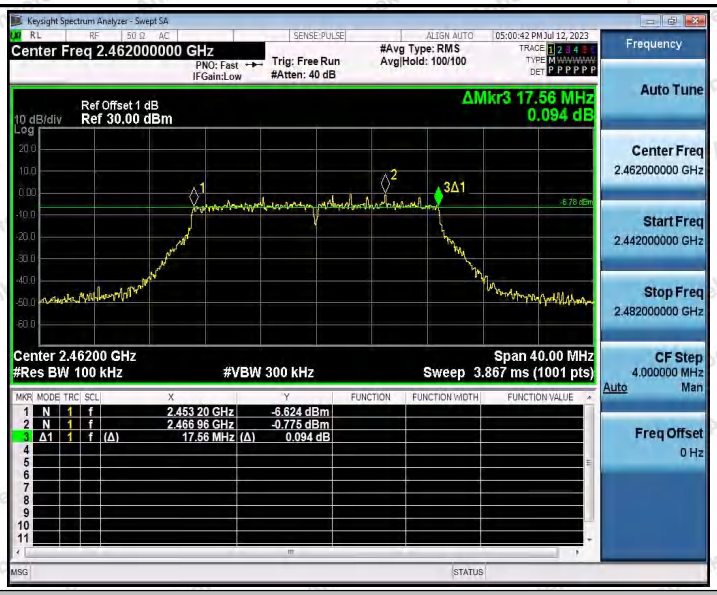


11N20SISO_Ant2_2437

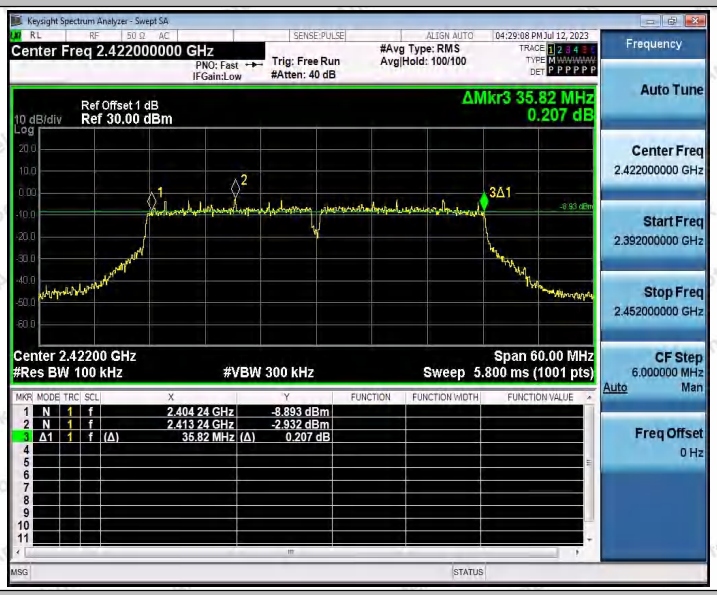


11N20SISO_Ant1_2462

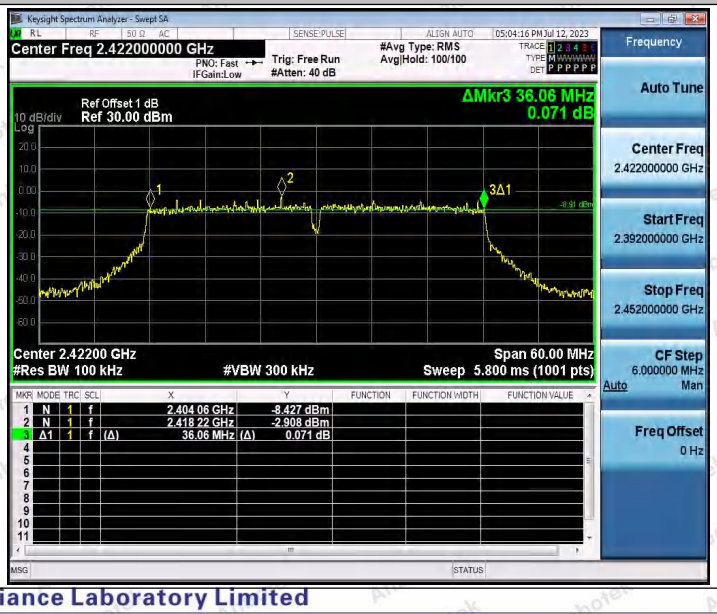
11N20SISO_Ant2_2462



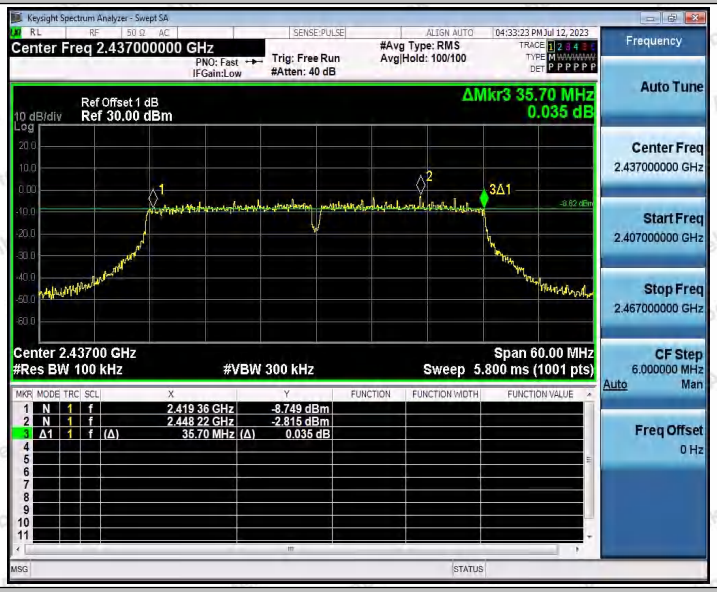
11N40SISO_Ant1_2422



11N40SISO_Ant2_2422

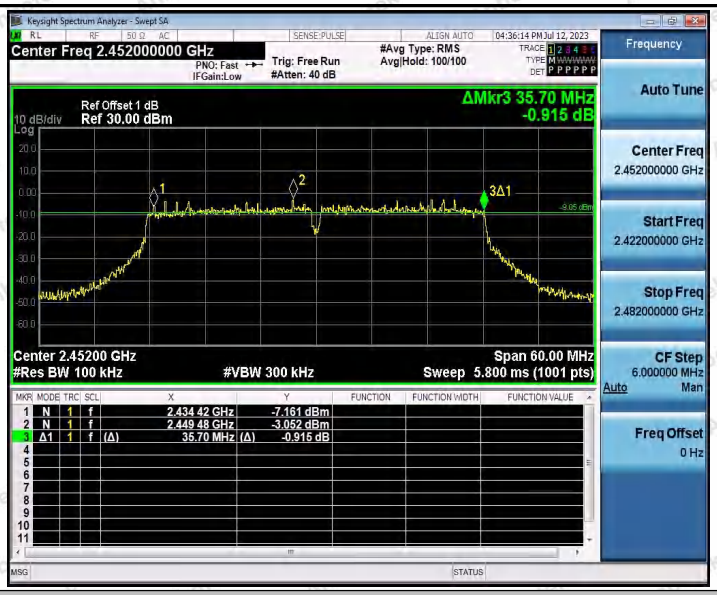


11N40SISO_Ant1_2437

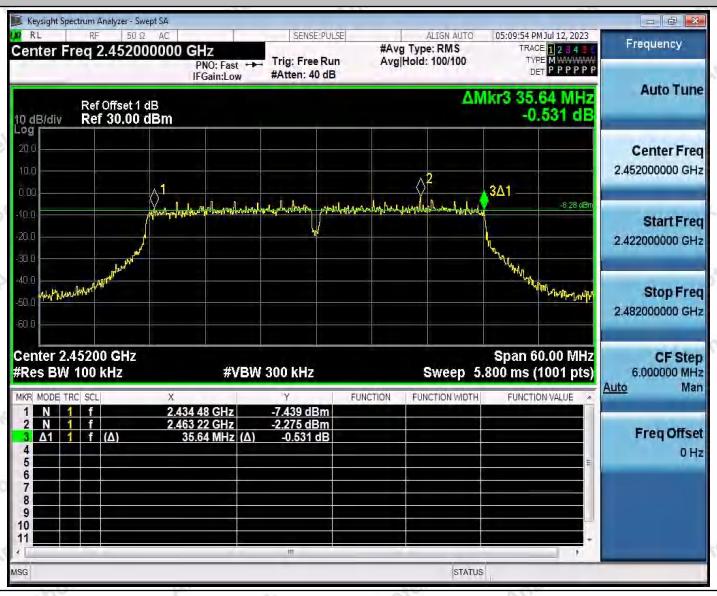


11N40SISO_Ant2_2437

11N40SISO_Ant1_2452



11N40SISO_Ant2_2452



Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
11B	Ant1	2412	13.035	2405.5051	2418.5401
	Ant2	2412	13.030	2405.5029	2418.5329
	Ant1	2437	13.028	2430.5022	2443.5302
	Ant2	2437	13.035	2430.4975	2443.5325
	Ant1	2462	13.027	2455.5102	2468.5372
	Ant2	2462	13.023	2455.5124	2468.5354
11G	Ant1	2412	17.348	2403.3419	2420.6899
	Ant2	2412	17.234	2403.3955	2420.6295
	Ant1	2437	17.275	2428.3981	2445.6731
	Ant2	2437	17.375	2428.3710	2445.7460
	Ant1	2462	17.395	2453.3917	2470.7867
	Ant2	2462	17.235	2453.3850	2470.6200
11N20SISO	Ant1	2412	18.378	2402.8040	2421.1820
	Ant2	2412	18.349	2402.8305	2421.1795
	Ant1	2437	18.414	2427.7965	2446.2105
	Ant2	2437	18.458	2427.7964	2446.2544
	Ant1	2462	18.419	2452.7570	2471.1760
	Ant2	2462	18.442	2452.7780	2471.2200
11N40SISO	Ant1	2422	36.409	2403.8384	2440.2474
	Ant2	2422	36.319	2403.9299	2440.2489
	Ant1	2437	36.380	2418.8859	2455.2659
	Ant2	2437	36.382	2418.9142	2455.2962
	Ant1	2452	36.370	2433.9188	2470.2888
	Ant2	2452	36.337	2433.9230	2470.2600

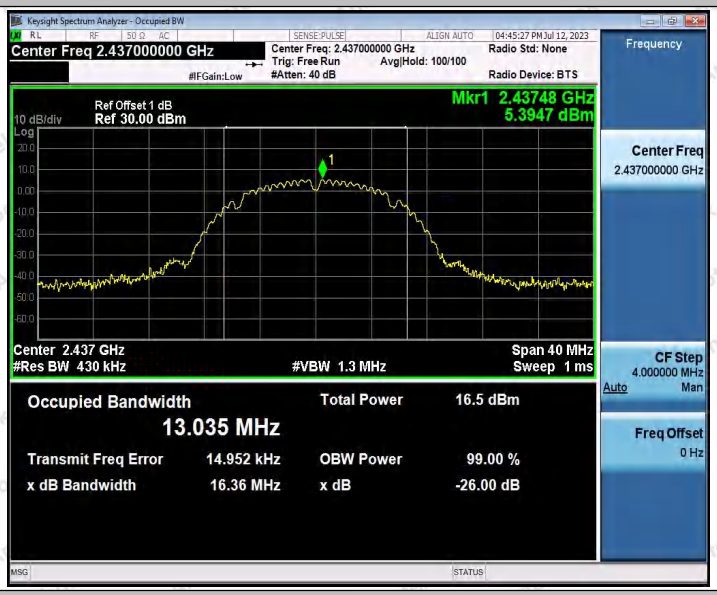
Test Graphs

11B_Ant1_2412

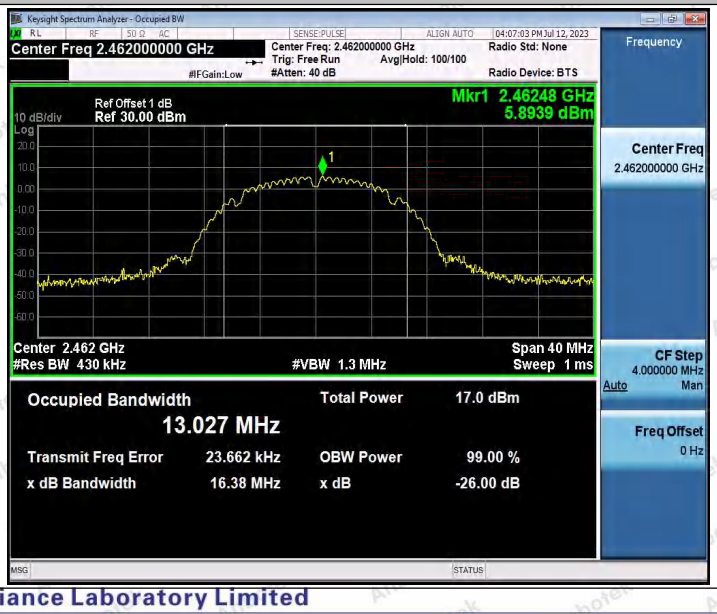
11B_Ant2_2412

11B_Ant1_2437

11B_Ant2_2437



11B_Ant1_2462

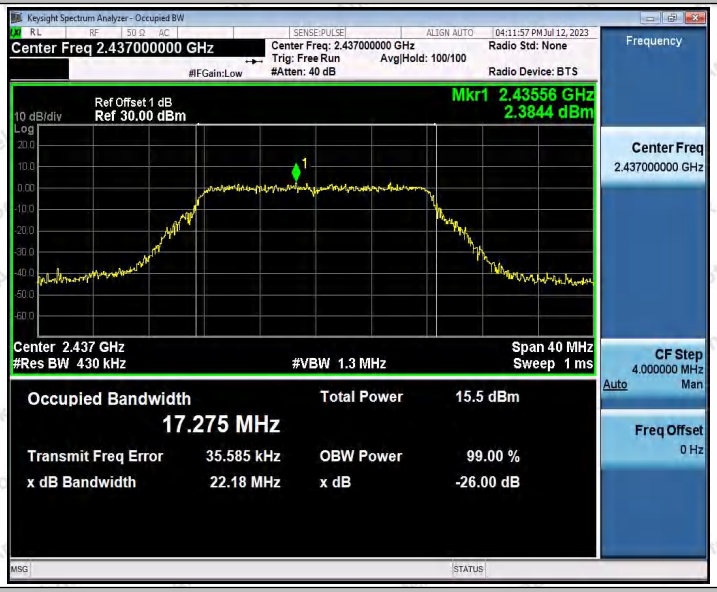


11B_Ant2_2462

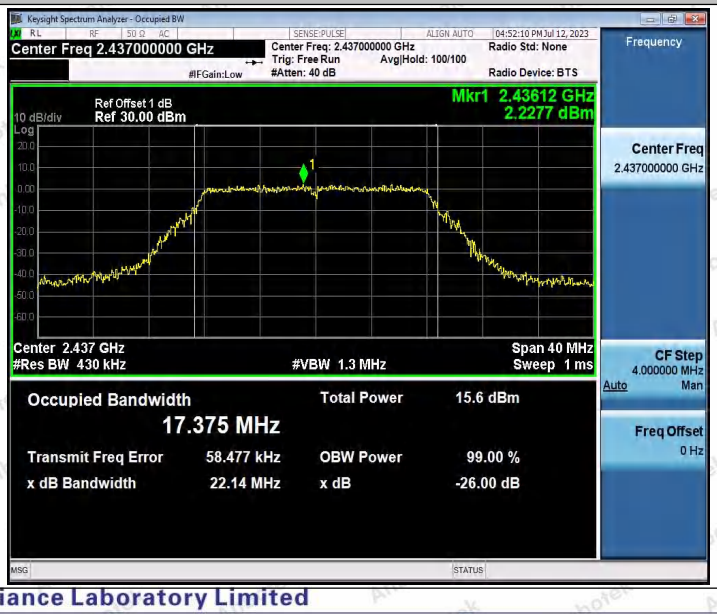
11G_Ant1_2412

11G_Ant2_2412

11G_Ant1_2437



11G_Ant2_2437



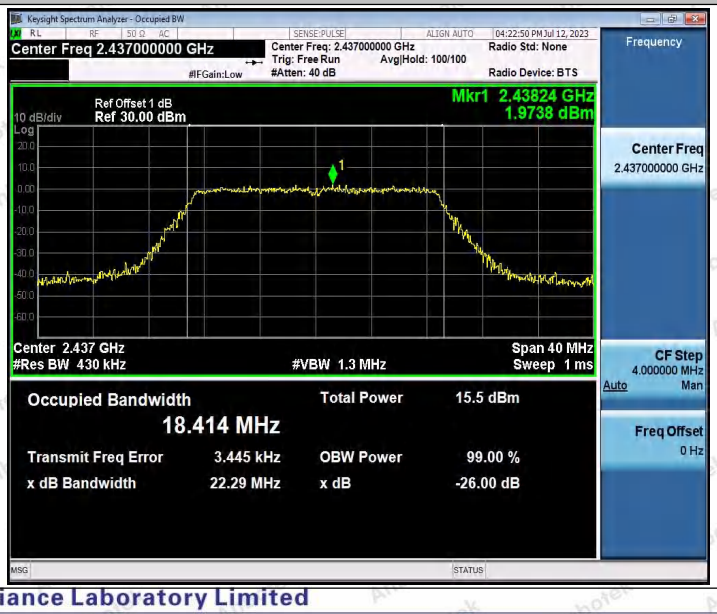
11G_Ant1_2462

11G_Ant2_2462

11N20SISO_Ant1_2412

11N20SISO_Ant2_2412

11N20SISO_Ant1_2437

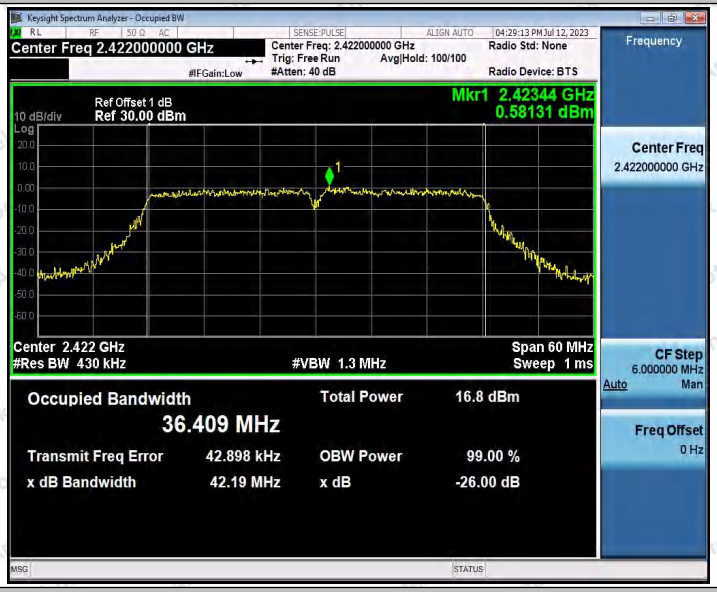


11N20SISO_Ant2_2437

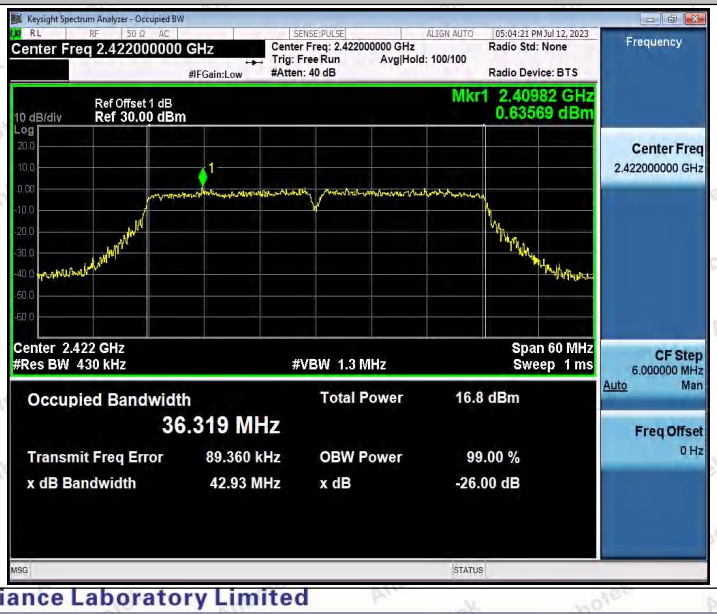
11N20SISO_Ant1_2462

11N20SISO_Ant2_2462

11N40SISO_Ant1_2422



11N40SISO_Ant2_2422



11N40SISO_Ant1_2437

11N40SISO_Ant2_2437

11N40SISO_Ant1_2452

11N40SISO_Ant2_2452

Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Peak Power[dBm]	Conducted Limit[dBm]
11B	Ant1	2412	16.44	≤30.00
	Ant2	2412	16.46	≤30.00
	Ant1	2437	16.63	≤30.00
	Ant2	2437	16.62	≤30.00
	Ant1	2462	17.04	≤30.00
	Ant2	2462	16.99	≤30.00
11G	Ant1	2412	16.60	≤30.00
	Ant2	2412	16.49	≤30.00
	Ant1	2437	16.72	≤30.00
	Ant2	2437	16.64	≤30.00
	Ant1	2462	17.20	≤30.00
	Ant2	2462	17.16	≤30.00
11N20SISO	Ant1	2412	16.61	≤30.00
	Ant2	2412	16.49	≤30.00
	Ant1	2437	16.80	≤30.00
	Ant2	2437	16.67	≤30.00
	Ant1	2462	17.27	≤30.00
	Ant2	2462	17.19	≤30.00
11N40SISO	Ant1	2422	15.49	≤30.00
	Ant2	2422	15.36	≤30.00
	Ant1	2437	15.18	≤30.00
	Ant2	2437	15.17	≤30.00
	Ant1	2452	15.35	≤30.00
	Ant2	2452	15.36	≤30.00

MIMO:

Test Mode	Antenna	Frequency[MHz]	Peak Power[dBm]	Conducted Limit[dBm]
11N20SISO	Ant1+Ant2	2412	19.56	≤30.00
	Ant1+Ant2	2437	19.75	≤30.00
	Ant1+Ant2	2462	20.24	≤30.00
11N40SISO	Ant1+Ant2	2422	18.44	≤30.00
	Ant1+Ant2	2437	18.19	≤30.00
	Ant1+Ant2	2452	18.37	≤30.00

Note:

1. Total (dBm)=10xlog(10(ANT1 power(dBm)/10) + 10(ANT2 power(dBm)/10))
2. As Directional gain=10 log[(10G1/20 + 10G2/20) 2 /NANT] dBi,

so MIMO Limit(dBm)=Limit - (Directional gain-6.00).

Appendix D: Maximum power spectral density

Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.19	≤8.00	PASS
	Ant2	2412	-9.17	≤8.00	PASS
	Ant1	2437	-9.91	≤8.00	PASS
	Ant2	2437	-9.25	≤8.00	PASS
	Ant1	2462	-9.77	≤8.00	PASS
	Ant2	2462	-8.51	≤8.00	PASS
11G	Ant1	2412	-15.80	≤8.00	PASS
	Ant2	2412	-16.09	≤8.00	PASS
	Ant1	2437	-15.99	≤8.00	PASS
	Ant2	2437	-15.81	≤8.00	PASS
	Ant1	2462	-15.69	≤8.00	PASS
	Ant2	2462	-15.20	≤8.00	PASS
11N20SISO	Ant1	2412	-15.50	≤8.00	PASS
	Ant2	2412	-15.74	≤8.00	PASS
	Ant1	2437	-15.5	≤8.00	PASS
	Ant2	2437	-15.25	≤8.00	PASS
	Ant1	2462	-14.93	≤8.00	PASS
	Ant2	2462	-15.02	≤8.00	PASS
11N40SISO	Ant1	2422	-15.95	≤8.00	PASS
	Ant2	2422	-15.94	≤8.00	PASS
	Ant1	2437	-16.44	≤8.00	PASS
	Ant2	2437	-16.47	≤8.00	PASS
	Ant1	2452	-15.85	≤8.00	PASS
	Ant2	2452	-15.78	≤8.00	PASS

MIMO:

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11N20SISO	Ant1+Ant2	2412	-12.61	≤8.00	PASS
	Ant1+Ant2	2437	-12.36	≤8.00	PASS
	Ant1+Ant2	2462	-11.96	≤8.00	PASS
11N40SISO	Ant1+Ant2	2422	-12.93	≤8.00	PASS
	Ant1+Ant2	2437	-13.44	≤8.00	PASS
	Ant1+Ant2	2452	-12.80	≤8.00	PASS

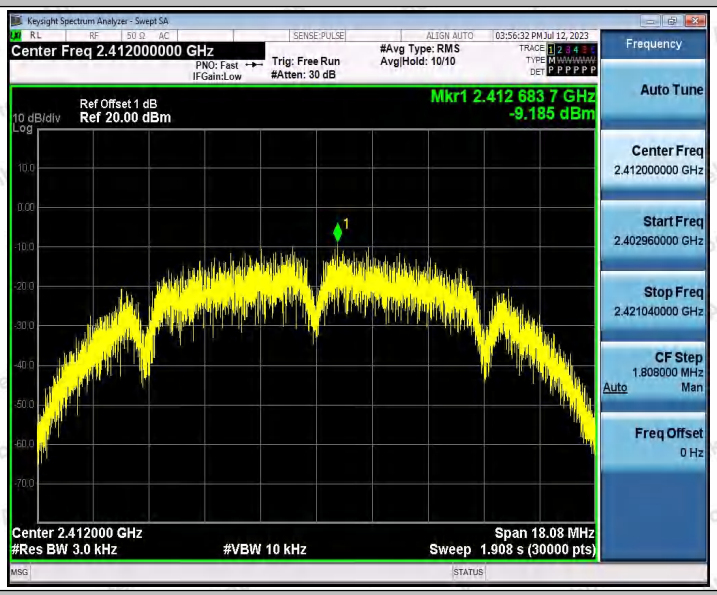
Note:

1. Total (dBm)=10xlog(10(ANT1 power(dBm)/10) + 10(ANT2 power(dBm)/10))
2. As Directional gain=10 log[(10G1/20 + 10G2/20) 2 /NANT] dBi,

so MIMO Limit(dBm)=Limit - (Directional gain-6.00).

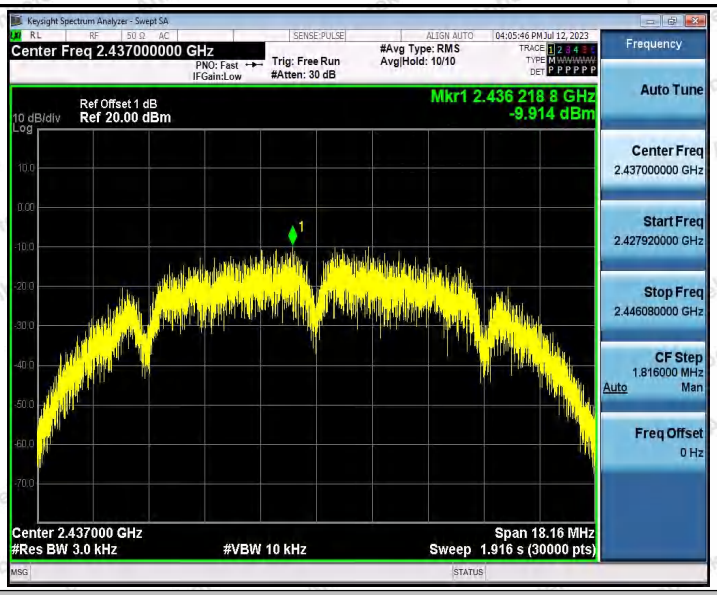
Test Graphs

11B_Ant1_2412



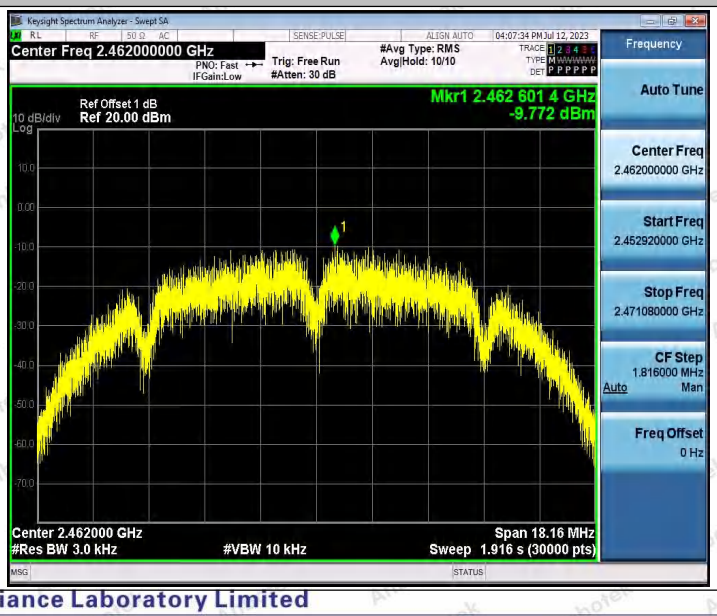
11B_Ant2_2412

11B_Ant1_2437

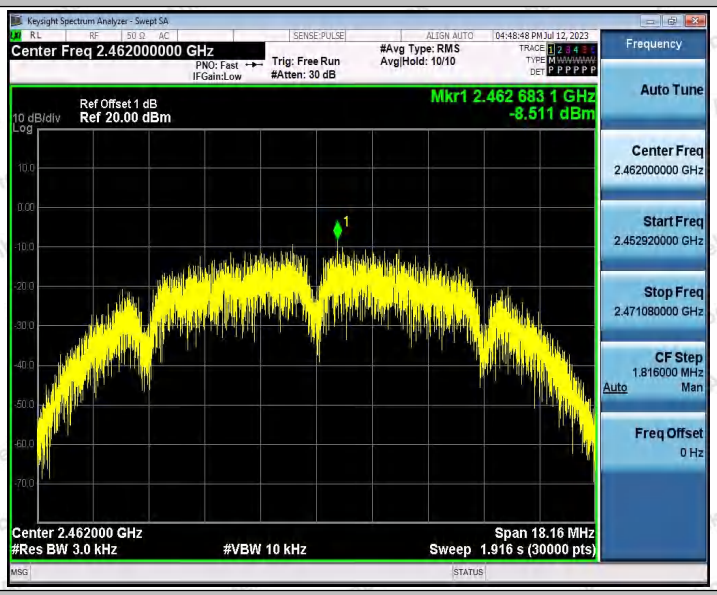


11B_Ant2_2437

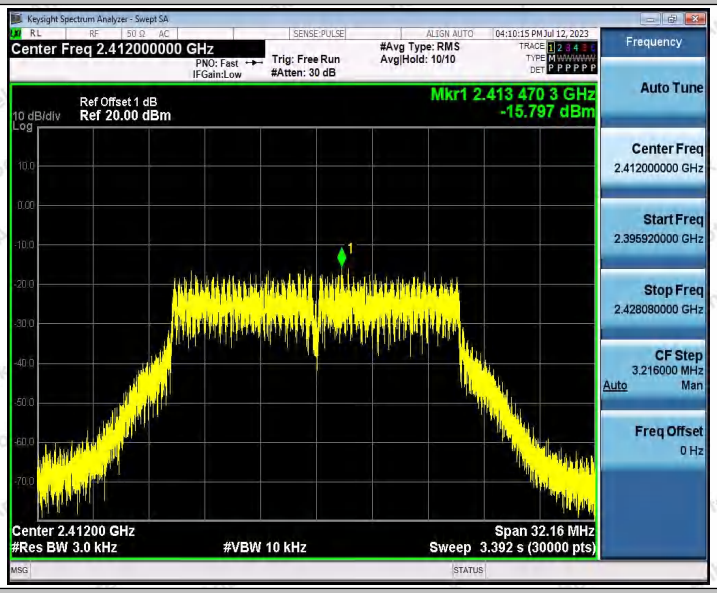
11B_Ant1_2462



11B_Ant2_2462



11G_Ant1_2412



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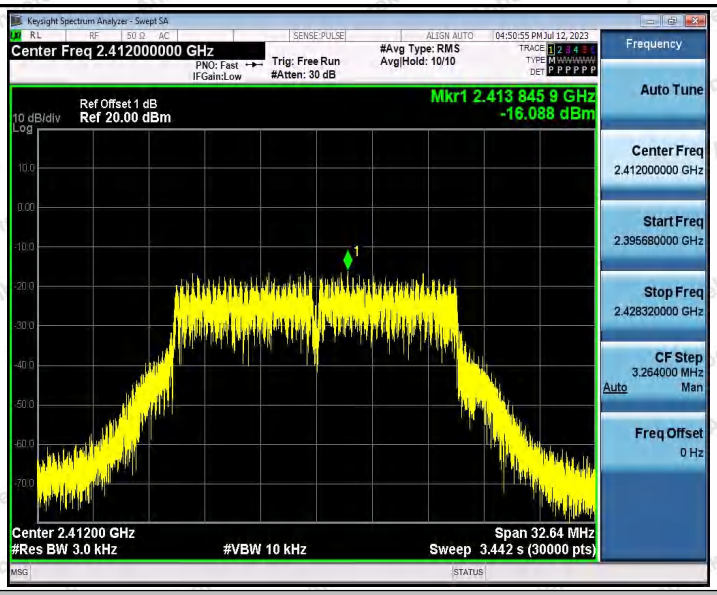
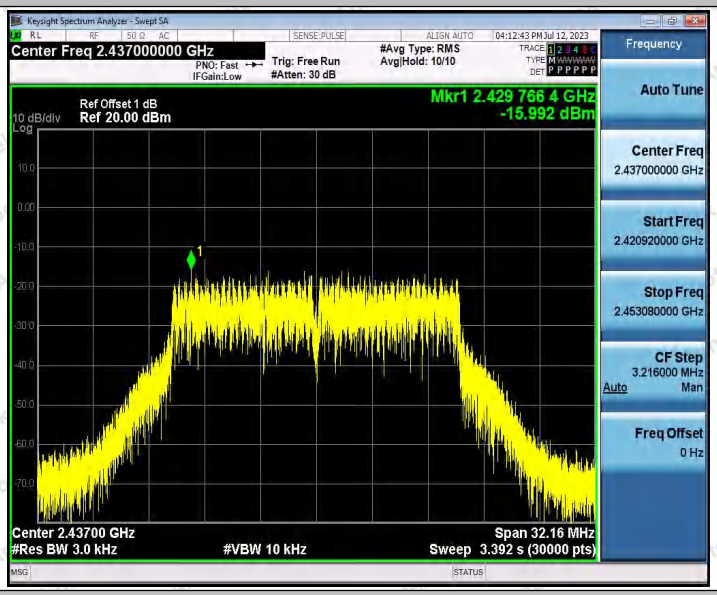
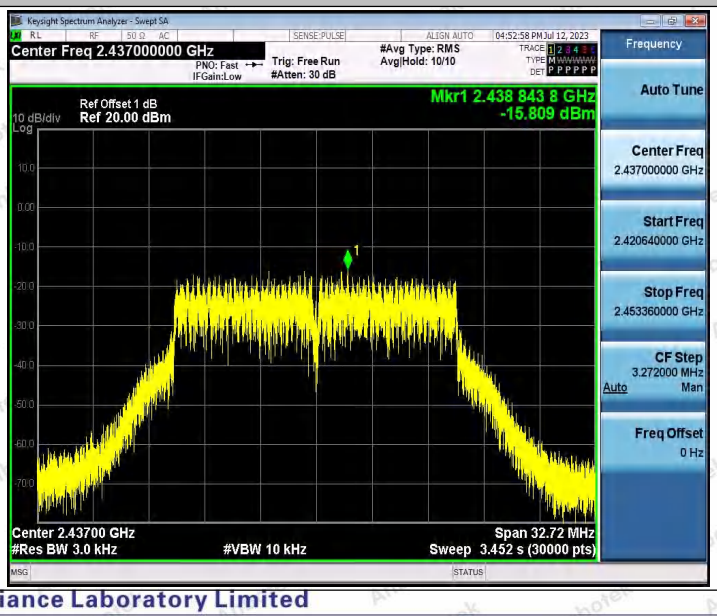


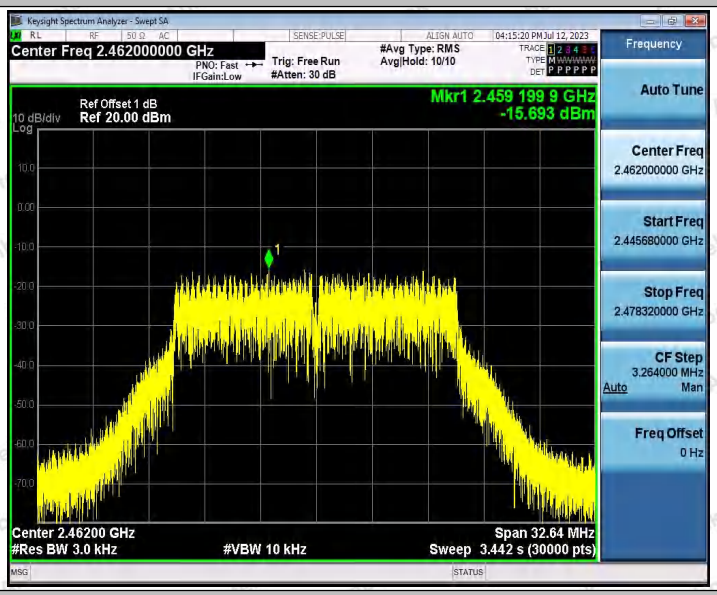
11G_Ant1_2437



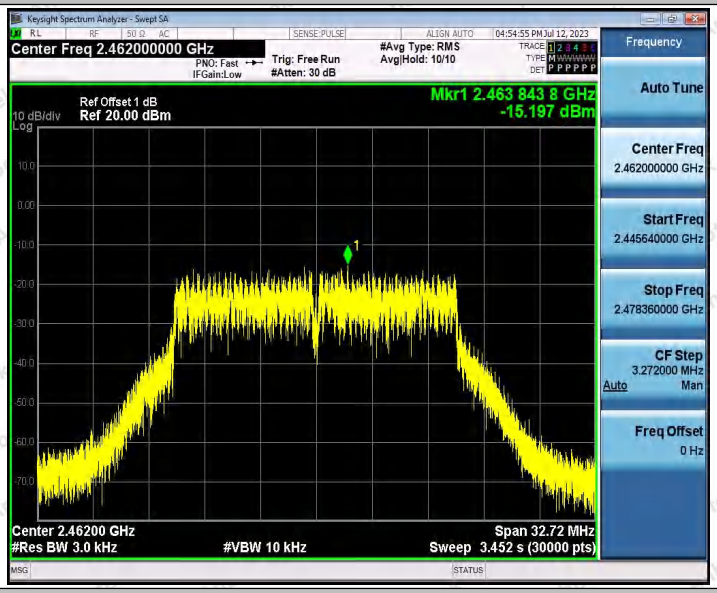
11G_Ant2_2437



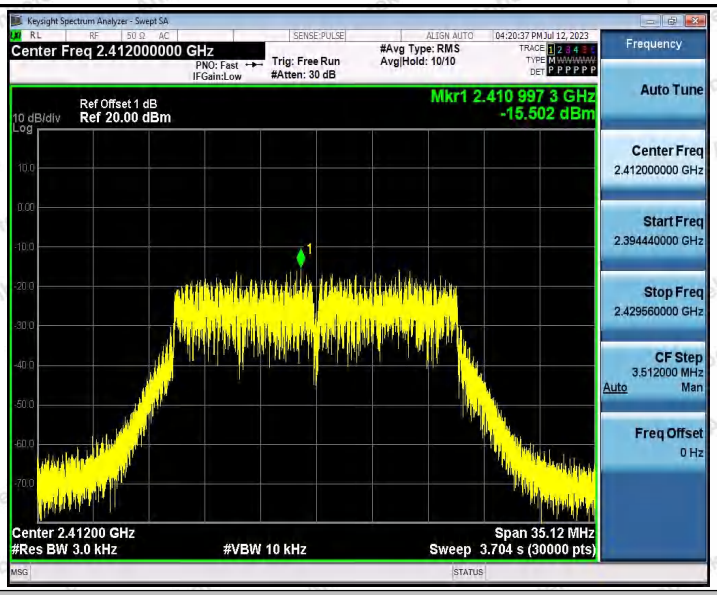
11G_Ant1_2462



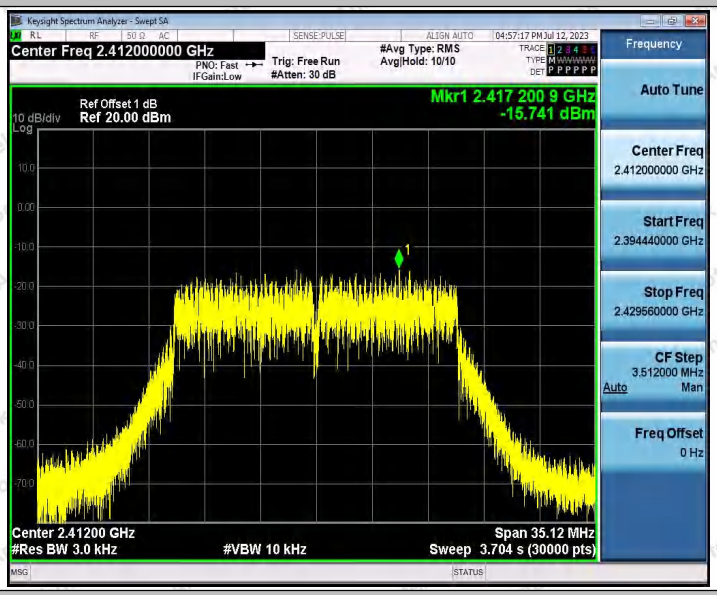
11G_Ant2_2462



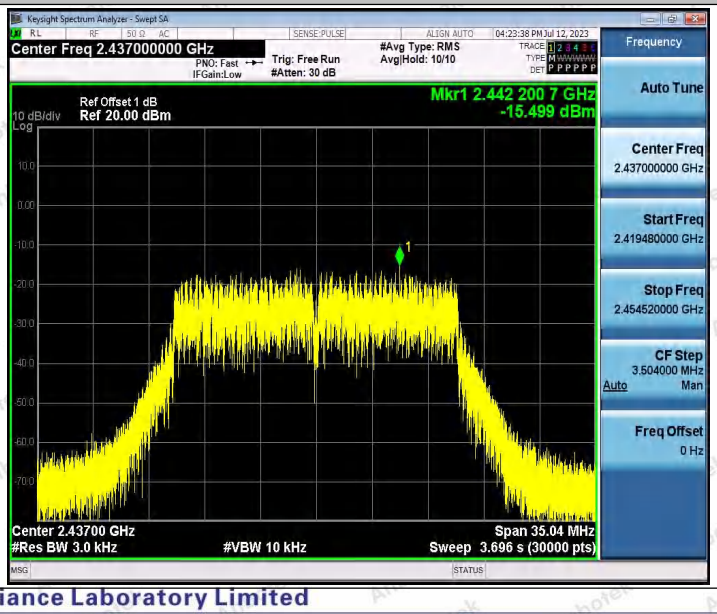
11N20SISO_Ant1_2412



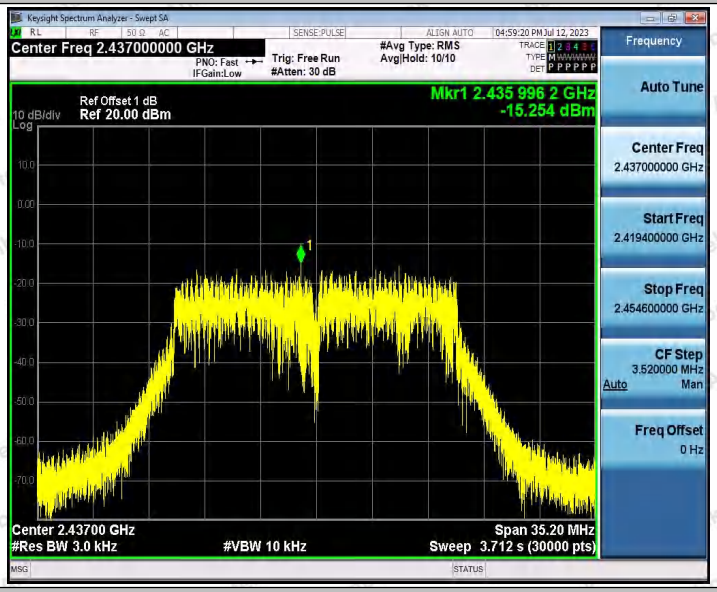
11N20SISO_Ant2_2412



11N20SISO_Ant1_2437



11N20SISO_Ant2_2437



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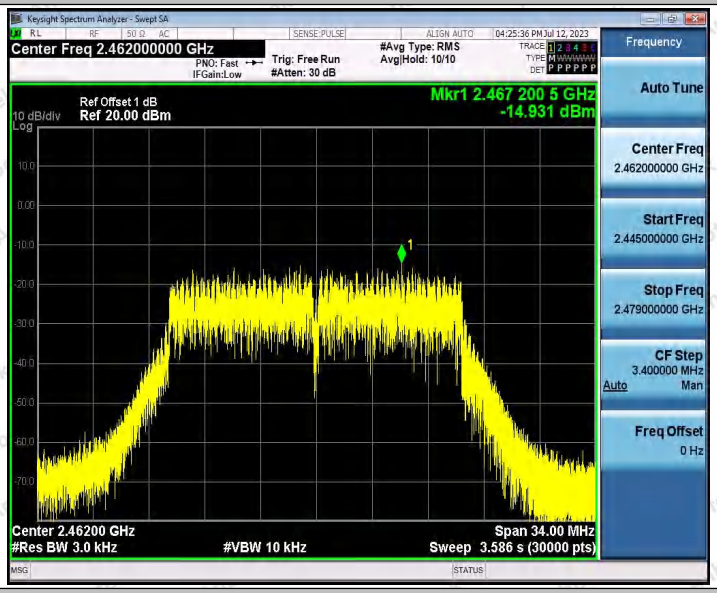

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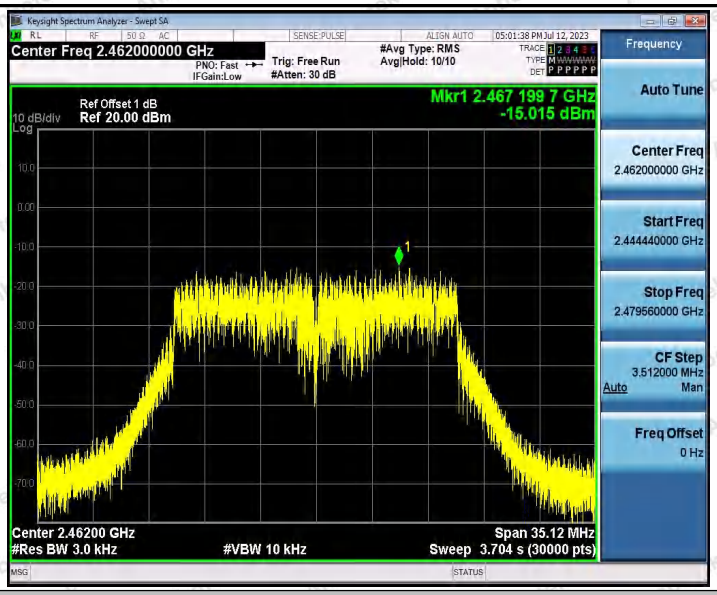
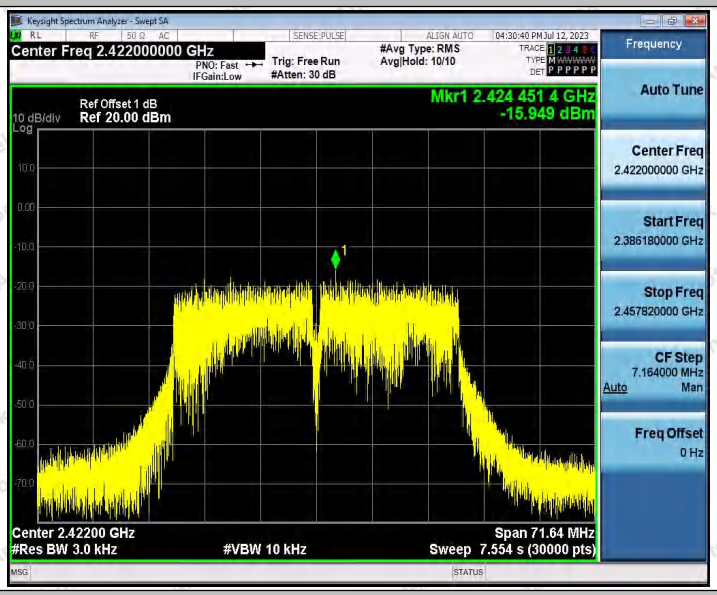
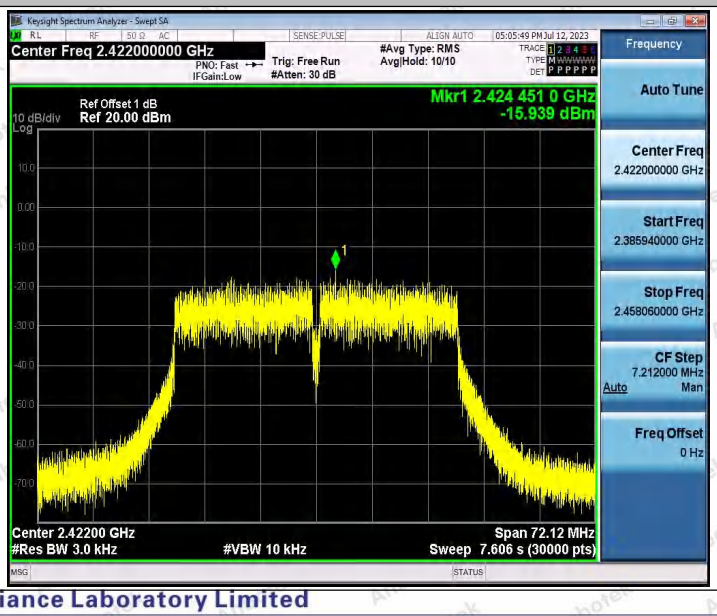


11N40SISO_Ant1_2422



11N40SISO_Ant2_2422



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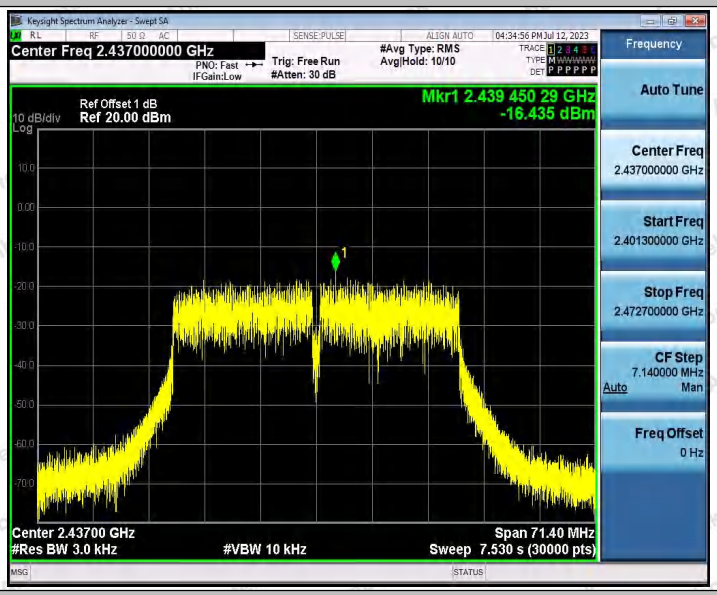
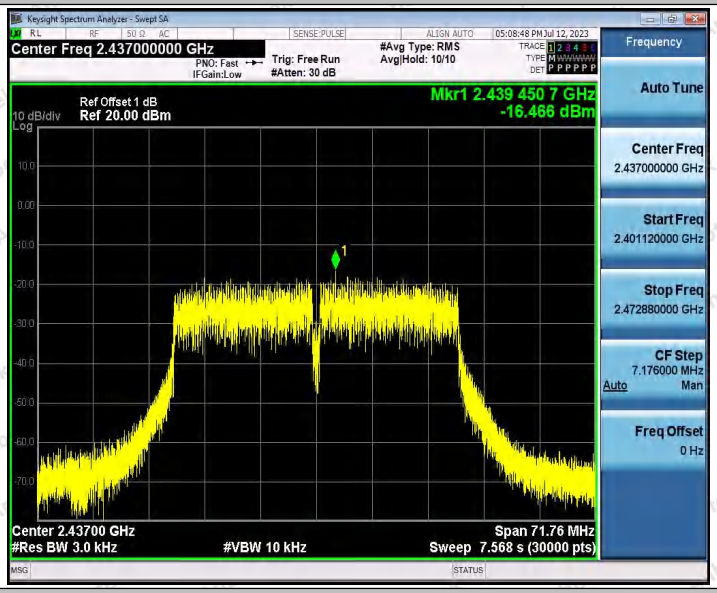
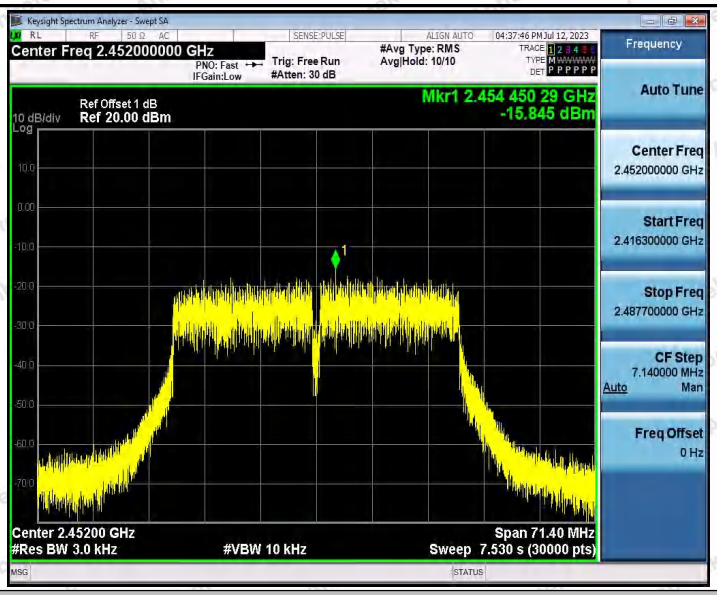


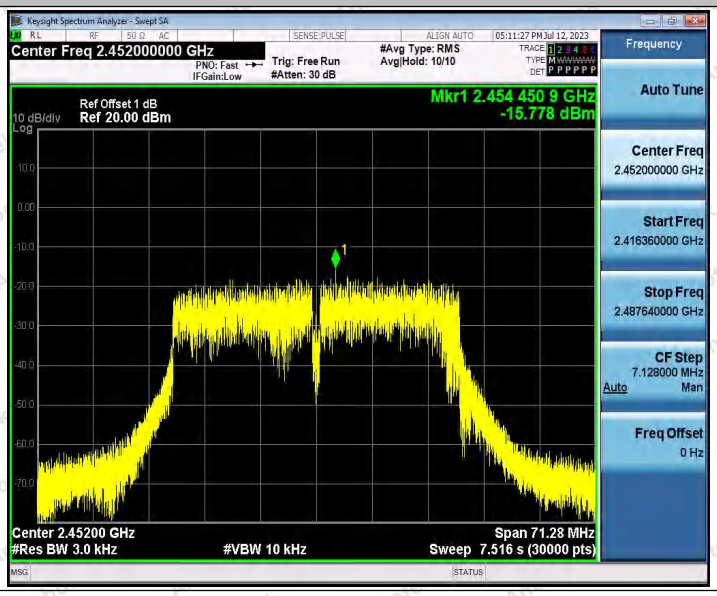
11N40SISO_Ant2_2437



11N40SISO_Ant1_2452



11N40SISO_Ant2_2452



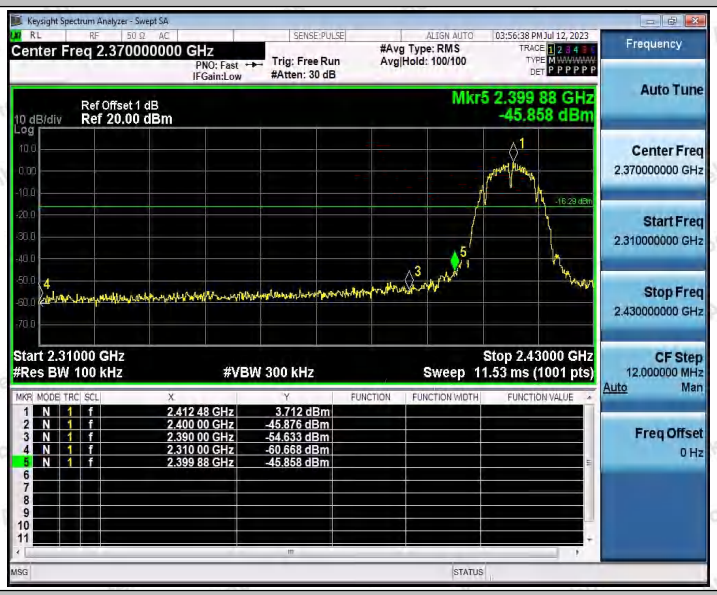
Appendix E: Band edge measurements

Test Result

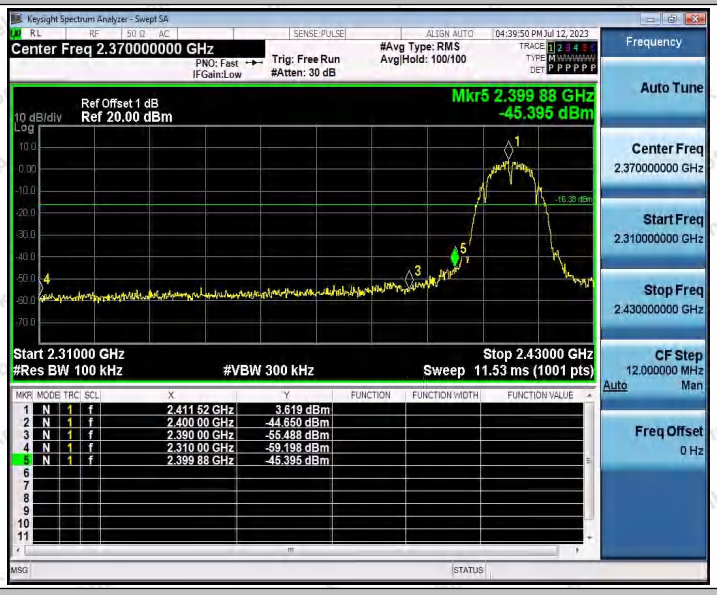
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.71	-45.86	≤-16.29	PASS
	Ant2	Low	2412	3.62	-45.4	≤-16.38	PASS
	Ant1	High	2462	3.98	-50	≤-16.02	PASS
	Ant2	High	2462	4.31	-48.69	≤-15.69	PASS
11G	Ant1	Low	2412	-1.34	-39.76	≤-21.34	PASS
	Ant2	Low	2412	-1.48	-39.06	≤-21.48	PASS
	Ant1	High	2462	-0.87	-52.42	≤-20.87	PASS
	Ant2	High	2462	-1.46	-51	≤-21.46	PASS
11N20SISO	Ant1	Low	2412	-1.70	-40.56	≤-21.7	PASS
	Ant2	Low	2412	-1.27	-38.5	≤-21.27	PASS
	Ant1	High	2462	-0.81	-50.64	≤-20.81	PASS
	Ant2	High	2462	-1.07	-49.73	≤-21.07	PASS
11N40SISO	Ant1	Low	2422	-2.66	-35.98	≤-22.66	PASS
	Ant2	Low	2422	-2.99	-36.47	≤-22.99	PASS
	Ant1	High	2452	-2.31	-46.94	≤-22.31	PASS
	Ant2	High	2452	-2.51	-46.4	≤-22.51	PASS

Test Graphs

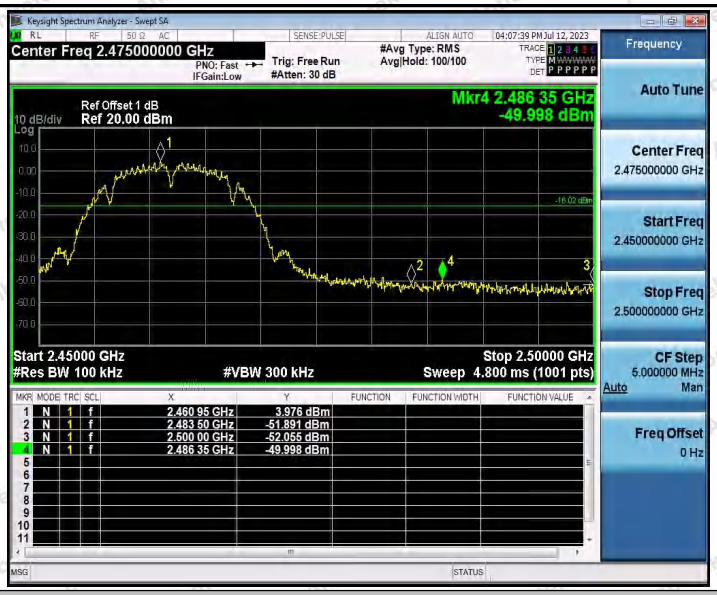
11B_Ant1_Low_2412



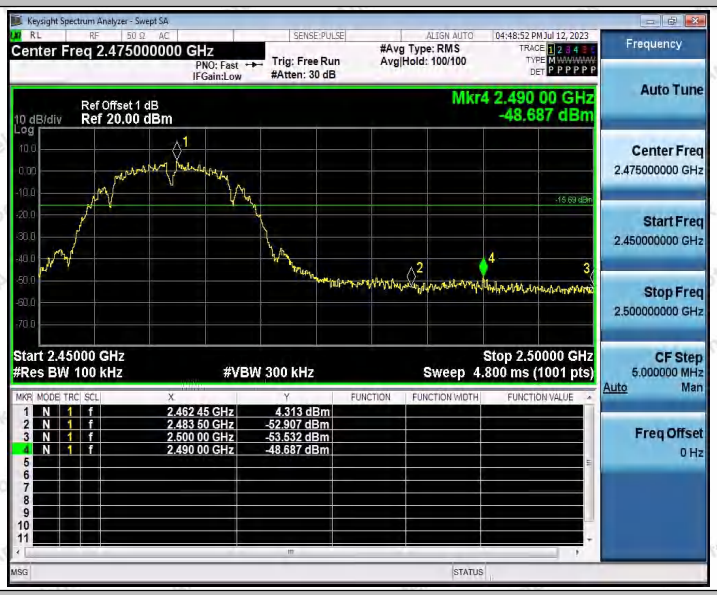
11B_Ant2_Low_2412



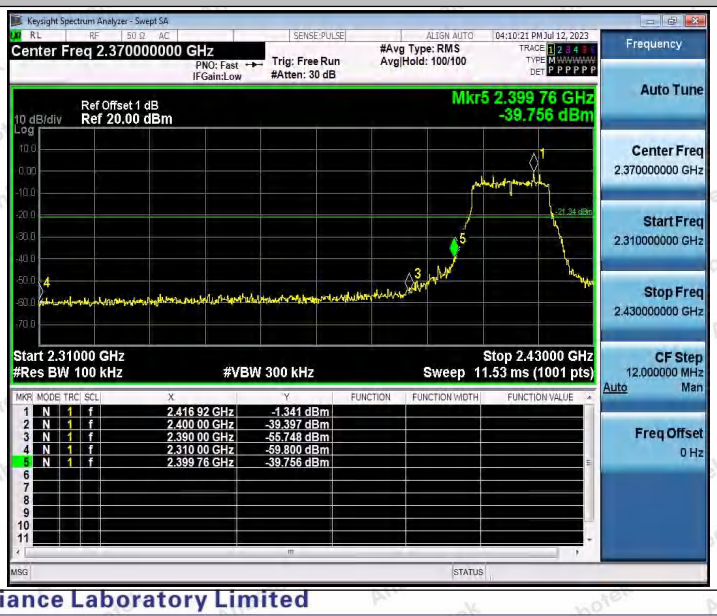
11B_Ant1_High_2462



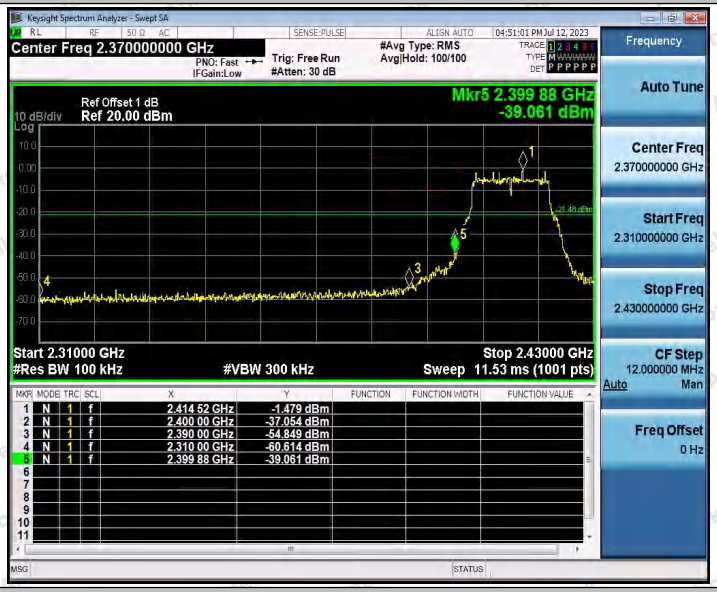
11B_Ant2_High_2462



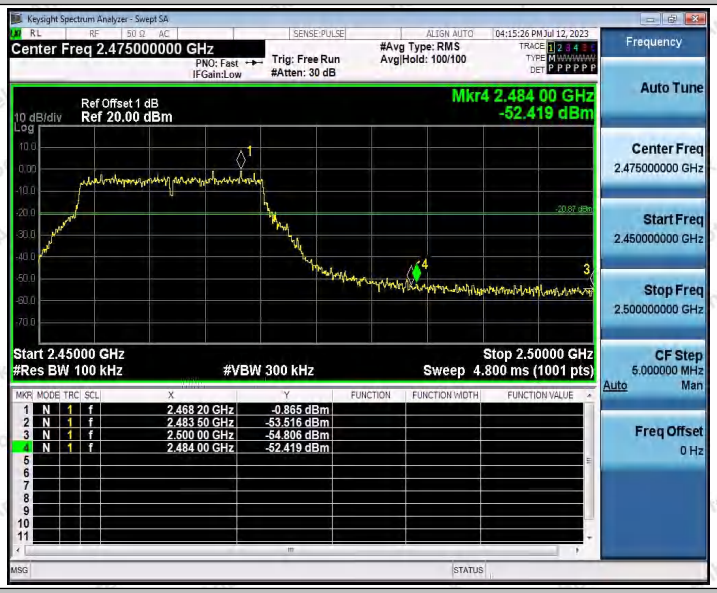
11G_Ant1_Low_2412



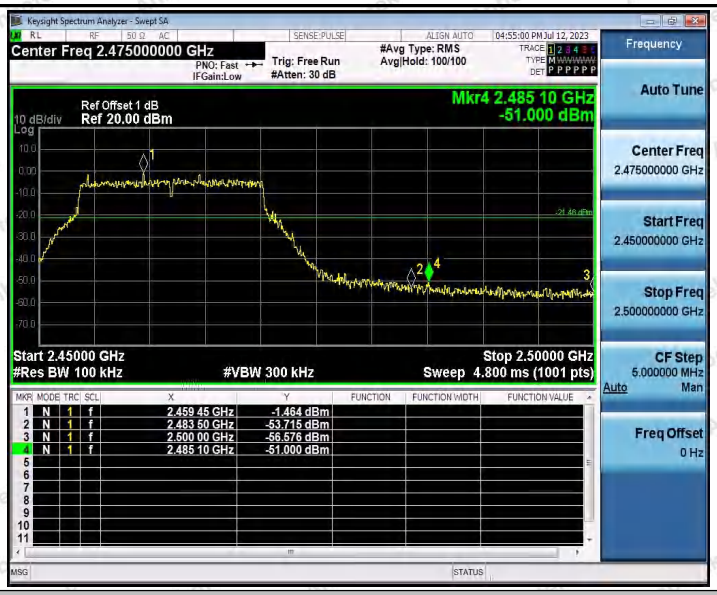
11G_Ant2_Low_2412



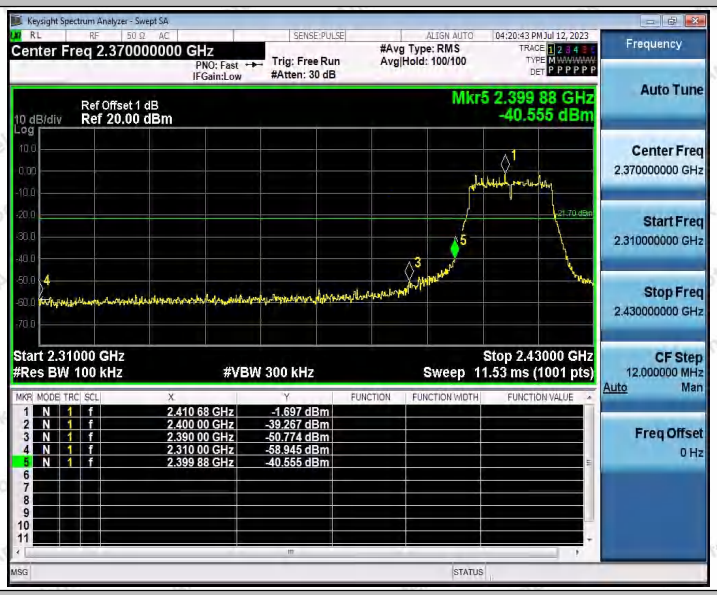
11G_Ant1_High_2462



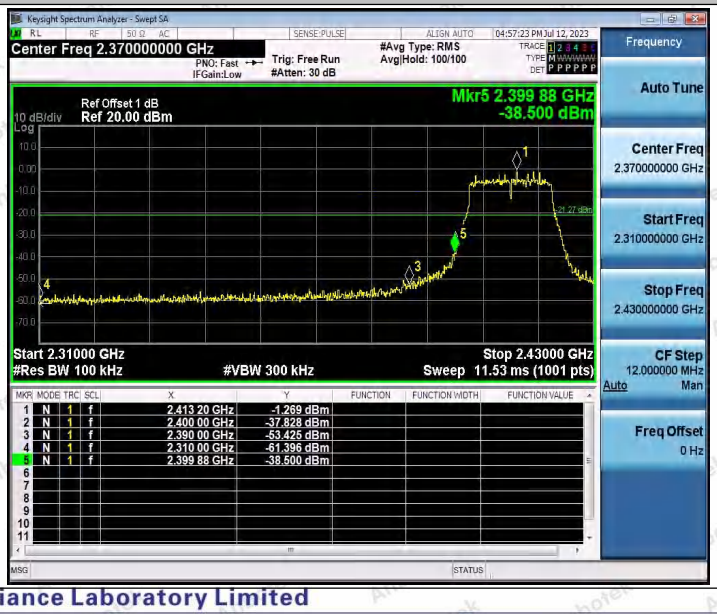
11G_Ant2_High_2462



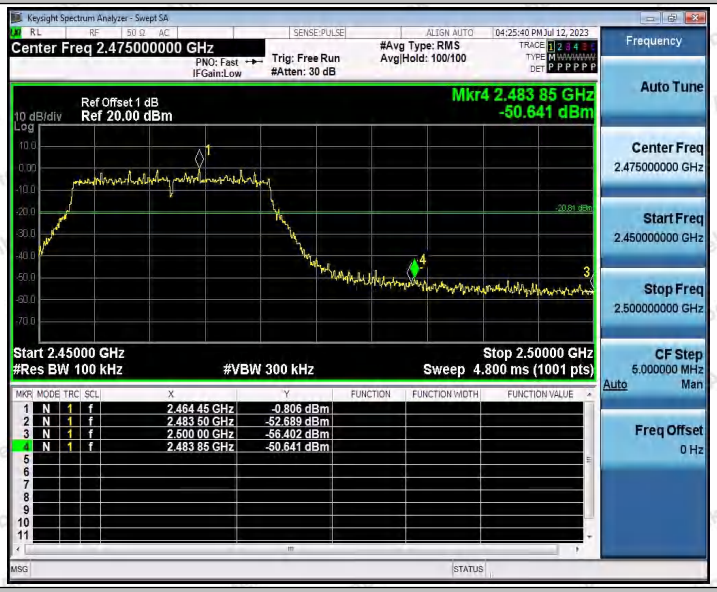
11N20SISO_Ant1_Low_2412



11N20SISO_Ant2_Low_2412

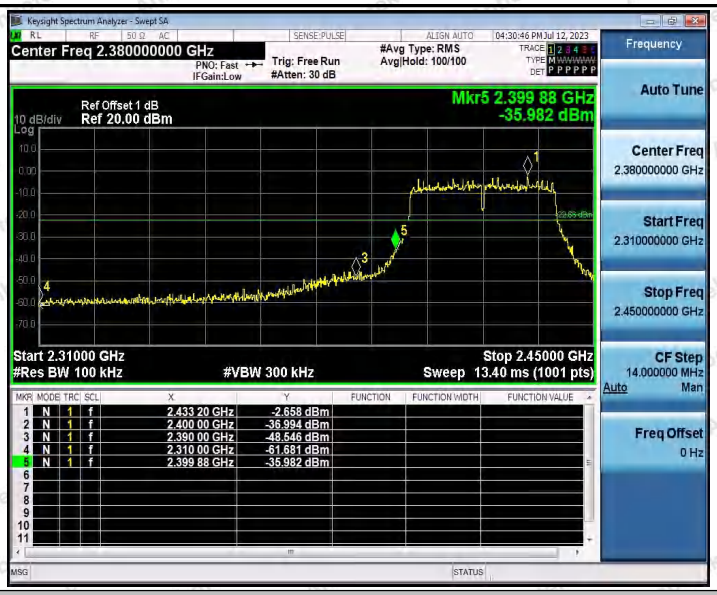


11N20SISO_Ant1_High_2462

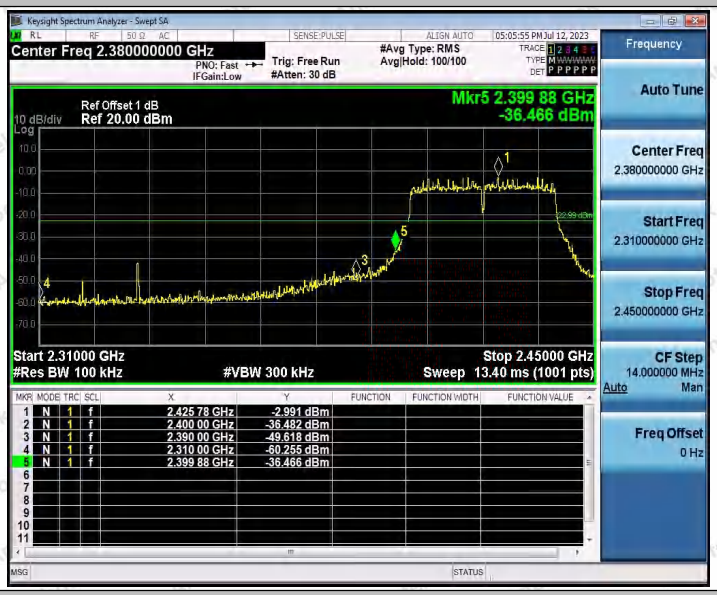


11N20SISO_Ant2_High_2462

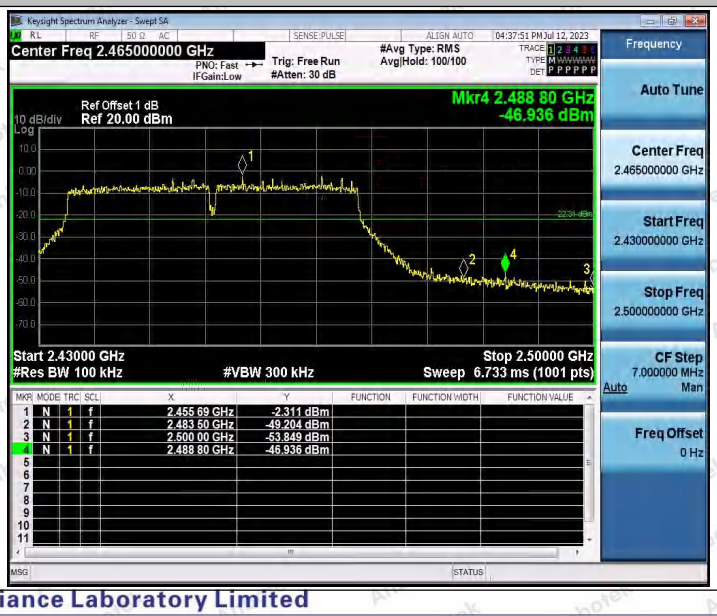
11N40SISO_Ant1_Low_2422



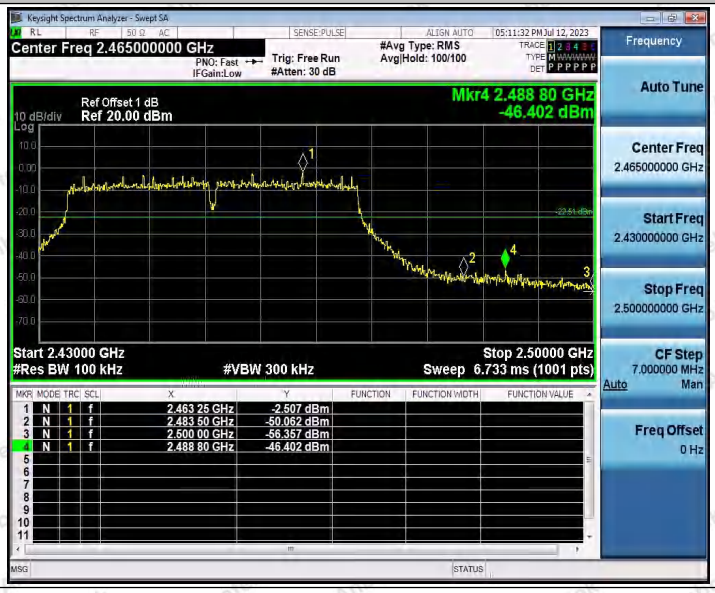
11N40SISO_Ant2_Low_2422



11N40SISO_Ant1_High_2452



11N40SISO_Ant2_High_2452



Appendix F: Conducted Spurious Emission

Test Result

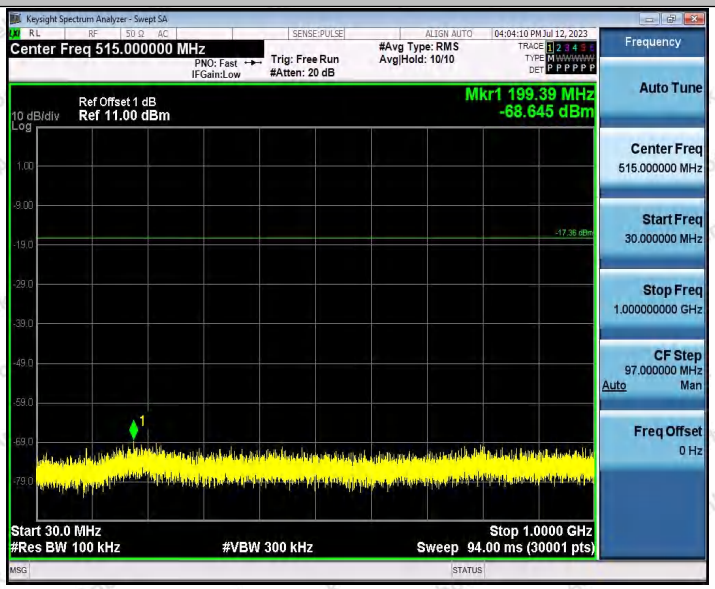
Test Mode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	2.64	2.64	---	PASS
			30~1000	2.64	-68.65	≤-17.36	PASS
			1000~26500	2.64	-48.9	≤-17.36	PASS
	Ant2	2412	Reference	1.71	1.71	---	PASS
			30~1000	1.71	-68.85	≤-18.29	PASS
			1000~26500	1.71	-48.93	≤-18.29	PASS
	Ant1	2437	Reference	3.41	3.41	---	PASS
			30~1000	3.41	-68.2	≤-16.59	PASS
			1000~26500	3.41	-50.94	≤-16.59	PASS
	Ant2	2437	Reference	2.97	2.97	---	PASS
			30~1000	2.97	-67.68	≤-17.03	PASS
			1000~26500	2.97	-50.78	≤-17.03	PASS
	Ant1	2462	Reference	2.57	2.57	---	PASS
			30~1000	2.57	-69.55	≤-17.43	PASS
			1000~26500	2.57	-53.26	≤-17.43	PASS
	Ant2	2462	Reference	3.65	3.65	---	PASS
			30~1000	3.65	-68.03	≤-16.35	PASS
			1000~26500	3.65	-53.82	≤-16.35	PASS
11G	Ant1	2412	Reference	-4.34	-4.34	---	PASS
			30~1000	-4.34	-69.46	≤-24.34	PASS
			1000~26500	-4.34	-53.64	≤-24.34	PASS
	Ant2	2412	Reference	-3.06	-3.06	---	PASS
			30~1000	-3.06	-68.82	≤-23.06	PASS
			1000~26500	-3.06	-53.15	≤-23.06	PASS
	Ant1	2437	Reference	-4.35	-4.35	---	PASS
			30~1000	-4.35	-69.01	≤-24.35	PASS
			1000~26500	-4.35	-53.76	≤-24.35	PASS
	Ant2	2437	Reference	-4.44	-4.44	---	PASS
			30~1000	-4.44	-68.69	≤-24.44	PASS
			1000~26500	-4.44	-53.48	≤-24.44	PASS
	Ant1	2462	Reference	-1.84	-1.84	---	PASS
			30~1000	-1.84	-69.04	≤-21.84	PASS
			1000~26500	-1.84	-53.88	≤-21.84	PASS
	Ant2	2462	Reference	-2.90	-2.90	---	PASS
			30~1000	-2.90	-68.51	≤-22.9	PASS
			1000~26500	-2.90	-53.64	≤-22.9	PASS
11N20SISO	Ant1	2412	Reference	-2.57	-2.57	---	PASS

			30~1000	-2.57	-69.2	≤-22.57	PASS
			1000~26500	-2.57	-53.4	≤-22.57	PASS
	Ant2	2412	Reference	-4.49	-4.49	---	PASS
			30~1000	-4.49	-69.13	≤-24.49	PASS
			1000~26500	-4.49	-52.57	≤-24.49	PASS
	Ant1	2437	Reference	-1.60	-1.60	---	PASS
			30~1000	-1.60	-69.14	≤-21.6	PASS
			1000~26500	-1.60	-53.72	≤-21.6	PASS
	Ant2	2437	Reference	-1.37	-1.37	---	PASS
			30~1000	-1.37	-69.6	≤-21.37	PASS
			1000~26500	-1.37	-53.32	≤-21.37	PASS
	Ant1	2462	Reference	-4.37	-4.37	---	PASS
			30~1000	-4.37	-69.62	≤-24.37	PASS
			1000~26500	-4.37	-53.33	≤-24.37	PASS
	Ant2	2462	Reference	-2.25	-2.25	---	PASS
			30~1000	-2.25	-69.42	≤-22.25	PASS
			1000~26500	-2.25	-53.92	≤-22.25	PASS
11N40SISO	Ant1	2422	Reference	-6.61	-6.61	---	PASS
			30~1000	-6.61	-65.6	≤-26.61	PASS
			1000~26500	-6.61	-53.07	≤-26.61	PASS
	Ant2	2422	Reference	-5.35	-5.35	---	PASS
			30~1000	-5.35	-61.32	≤-25.35	PASS
			1000~26500	-5.35	-52.61	≤-25.35	PASS
	Ant1	2437	Reference	-4.63	-4.63	---	PASS
			30~1000	-4.63	-62.12	≤-24.63	PASS
			1000~26500	-4.63	-53.88	≤-24.63	PASS
	Ant2	2437	Reference	-3.27	-3.27	---	PASS
			30~1000	-3.27	-64.04	≤-23.27	PASS
			1000~26500	-3.27	-54	≤-23.27	PASS
	Ant1	2452	Reference	-3.37	-3.37	---	PASS
			30~1000	-3.37	-65.16	≤-23.37	PASS
			1000~26500	-3.37	-53.34	≤-23.37	PASS
	Ant2	2452	Reference	-3.67	-3.67	---	PASS
			30~1000	-3.67	-68.14	≤-23.67	PASS
			1000~26500	-3.67	-53.82	≤-23.67	PASS

Test Graphs

11B_Ant1_2412_0~Reference

11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500