

FCC Appendix RF Test Data for 2.4GWIFI

FCC ID : 2BVVS-GEN4-ESP32

Company : 4D SYSTEMS PTY LTD

EUT : GEN4-ESP32 Series Intelligent Display Module

Model Number : GEN4-ESP32-43T

Report No. : CTA26041501201

Reviewed By : Eric Wang

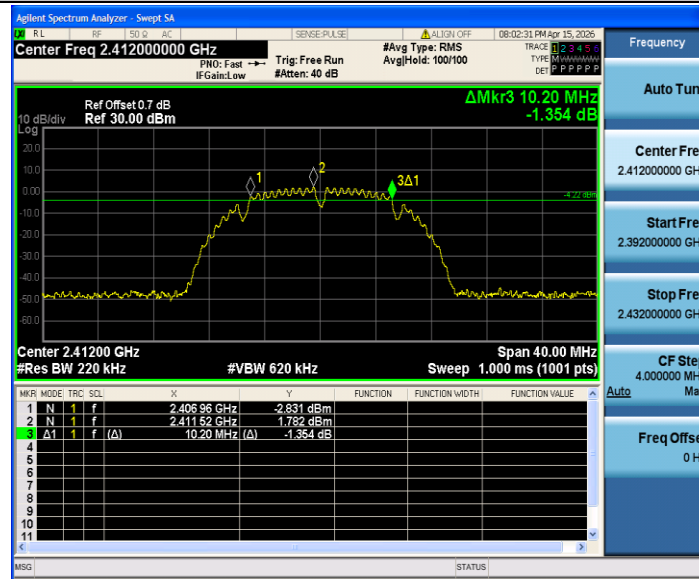
Appendix A: DTS Bandwidth

Test Result

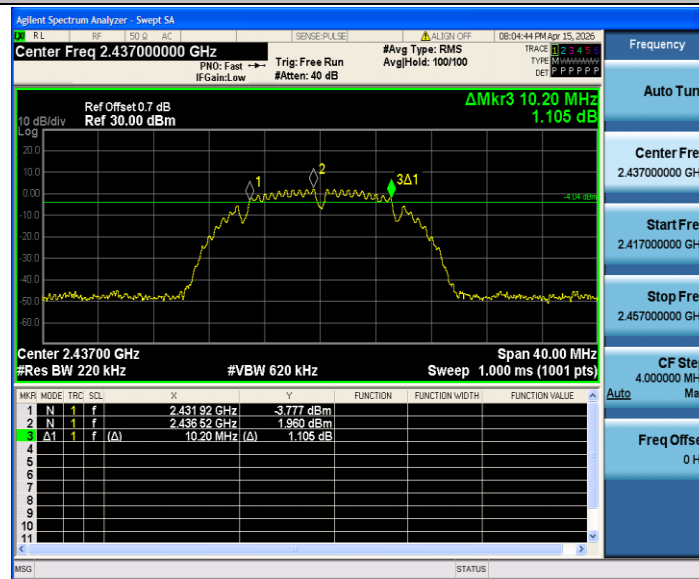
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.200	2406.960	2417.160	0.5	PASS
		2437	10.200	2431.920	2442.120	0.5	PASS
		2462	10.200	2456.920	2467.120	0.5	PASS
11G	Ant1	2412	15.880	2404.080	2419.960	0.5	PASS
		2437	15.720	2429.040	2444.760	0.5	PASS
		2462	15.840	2454.080	2469.920	0.5	PASS
11N20SISO	Ant1	2412	16.880	2403.680	2420.560	0.5	PASS
		2437	16.720	2428.720	2445.440	0.5	PASS
		2462	16.320	2453.880	2470.200	0.5	PASS
11N40SISO	Ant1	2422	35.280	2404.480	2439.760	0.5	PASS
		2437	35.200	2419.560	2454.760	0.5	PASS
		2452	33.920	2434.640	2468.560	0.5	PASS

Test Graphs

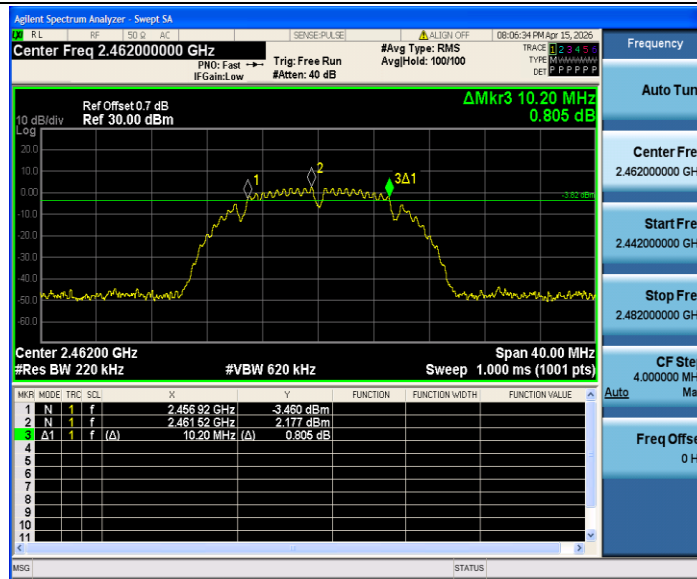
11B_Ant1_2412



11B_Ant1_2437



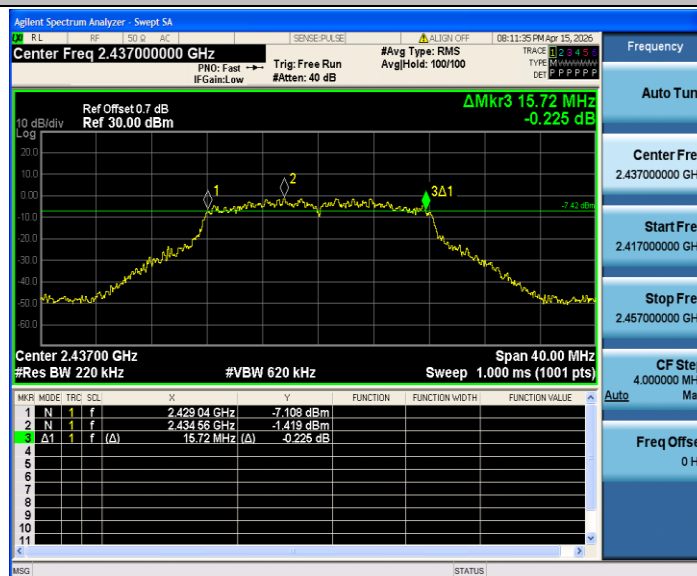
11B_Ant1_2462



11G_Ant1_2412

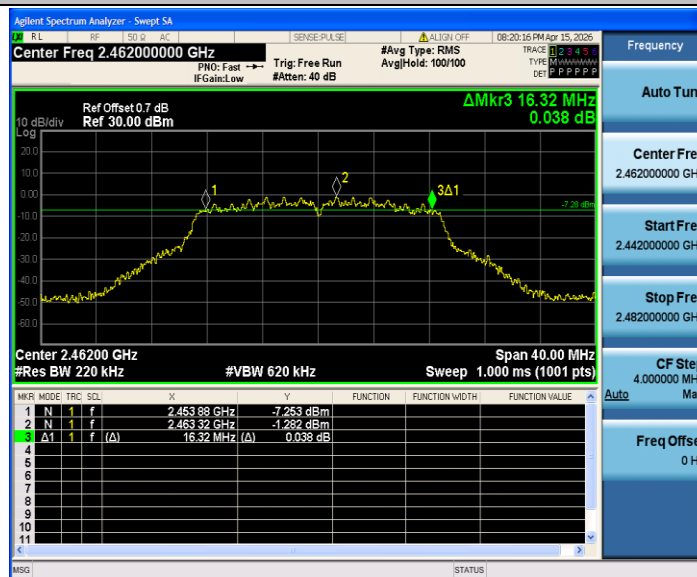


11G_Ant1_2437

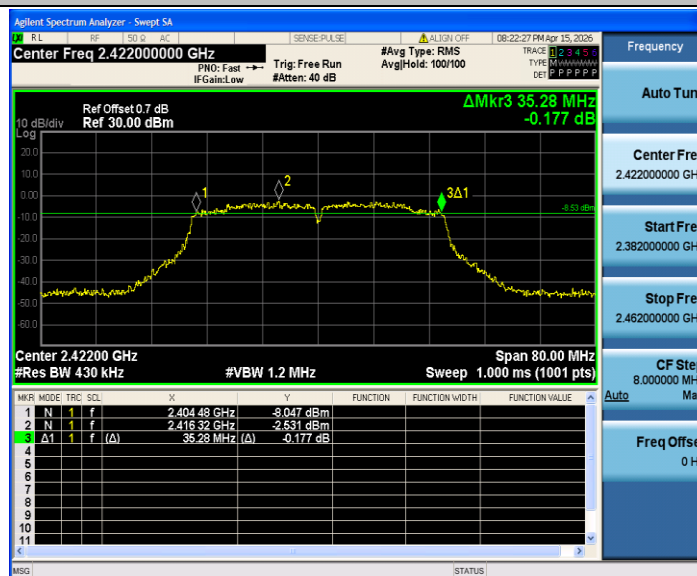




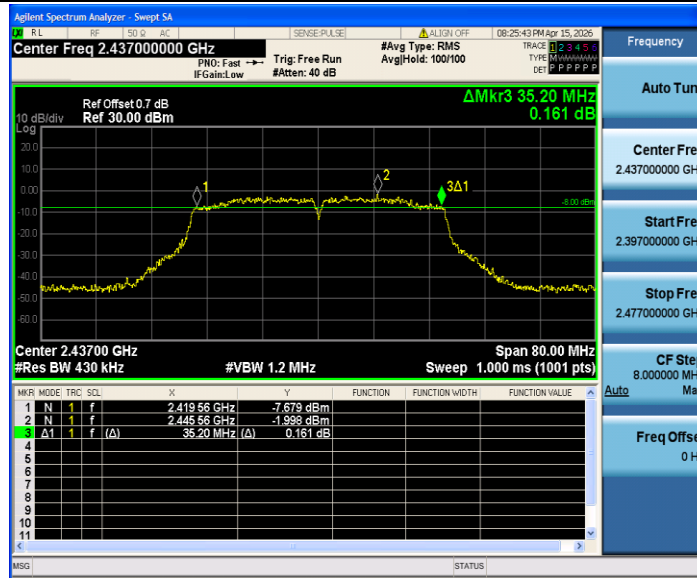
11N20SISO_Ant1_2462



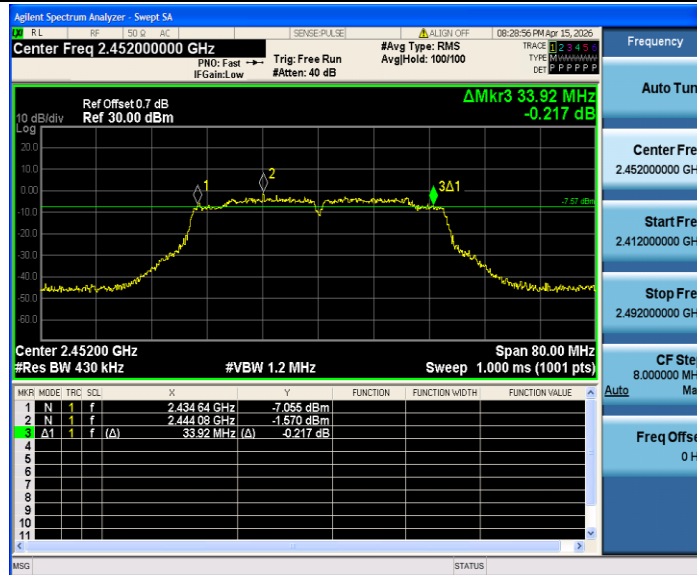
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



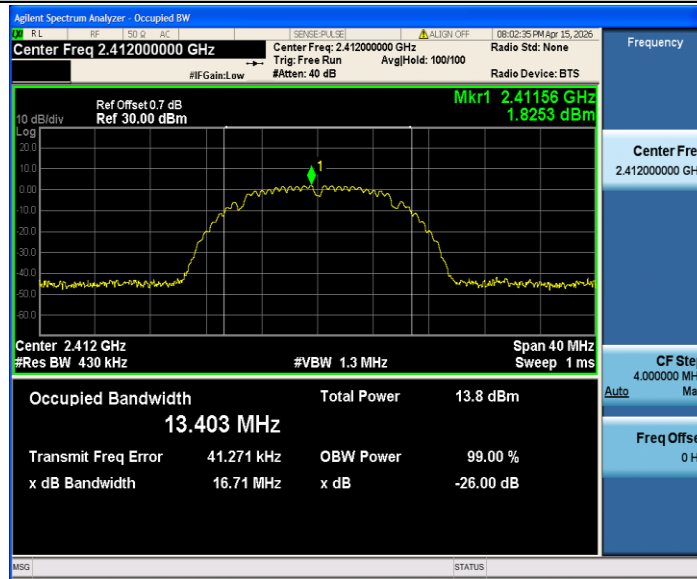
Appendix B: Occupied Channel Bandwidth

Test Result

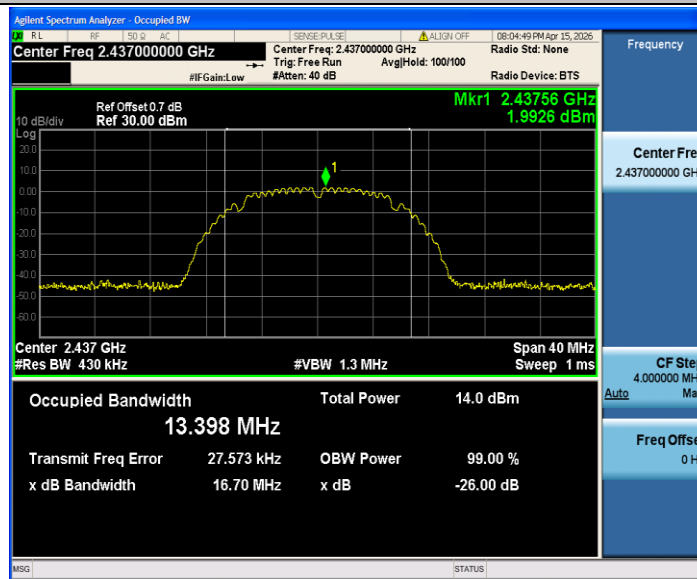
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.403	2405.3398	2418.7428	---	---
		2437	13.398	2430.3286	2443.7266	---	---
		2462	13.412	2455.3018	2468.7138	---	---
11G	Ant1	2412	16.800	2403.6887	2420.4887	---	---
		2437	16.811	2428.6279	2445.4389	---	---
		2462	16.767	2453.6399	2470.4069	---	---
11N20SISO	Ant1	2412	17.903	2403.0787	2420.9817	---	---
		2437	17.903	2428.0416	2445.9446	---	---
		2462	17.940	2453.0228	2470.9628	---	---
11N40SISO	Ant1	2422	36.010	2404.1009	2440.1109	---	---
		2437	36.102	2419.0314	2455.1334	---	---
		2452	36.028	2434.0739	2470.1019	---	---

Test Graphs

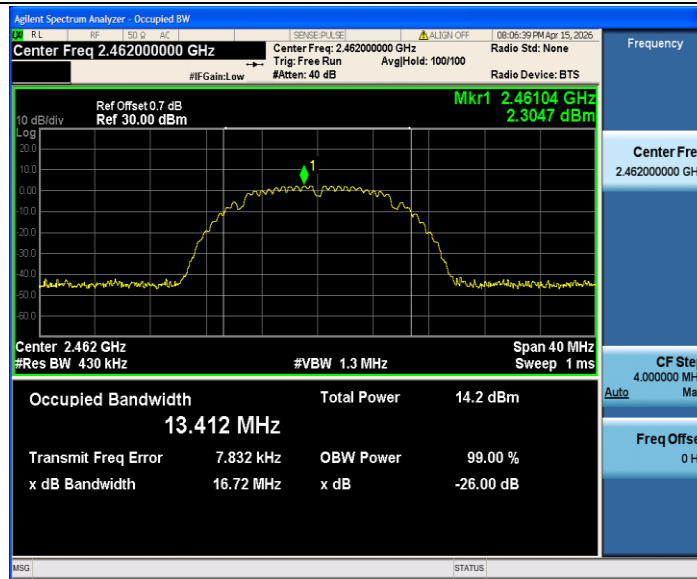
11B_Ant1_2412



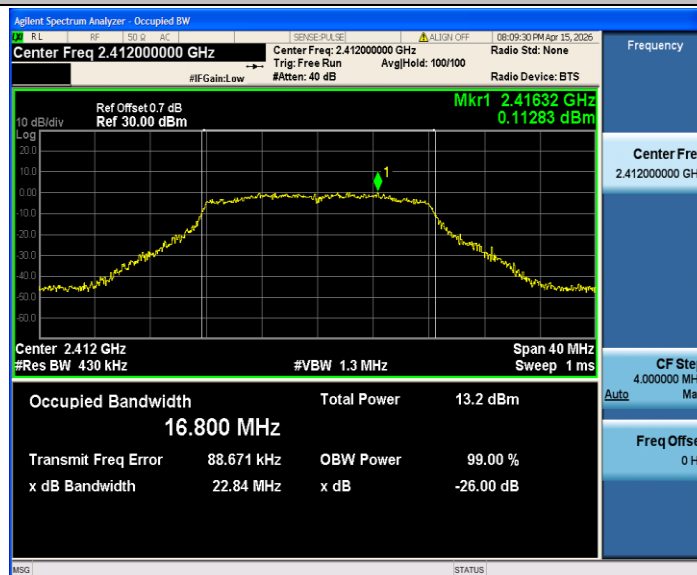
11B_Ant1_2437



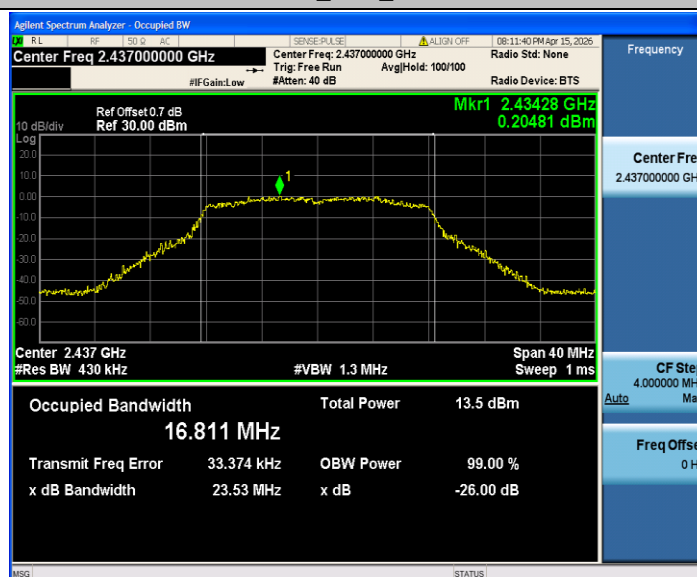
11B_Ant1_2462



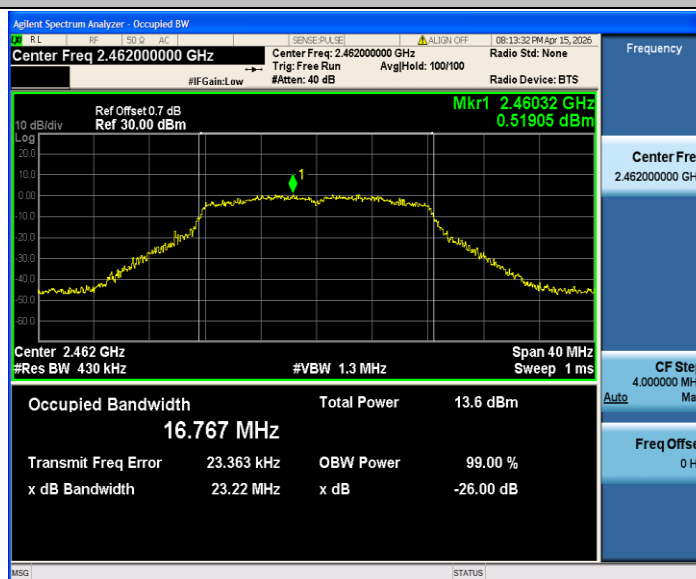
11G_Ant1_2412



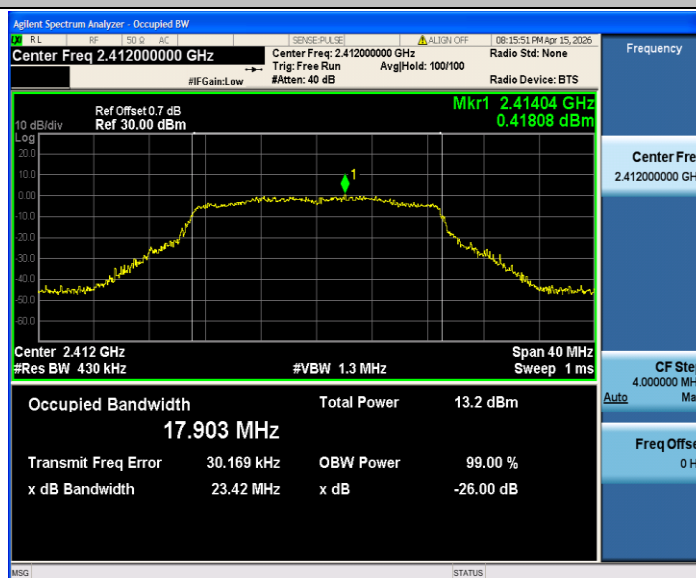
11G_Ant1_2437



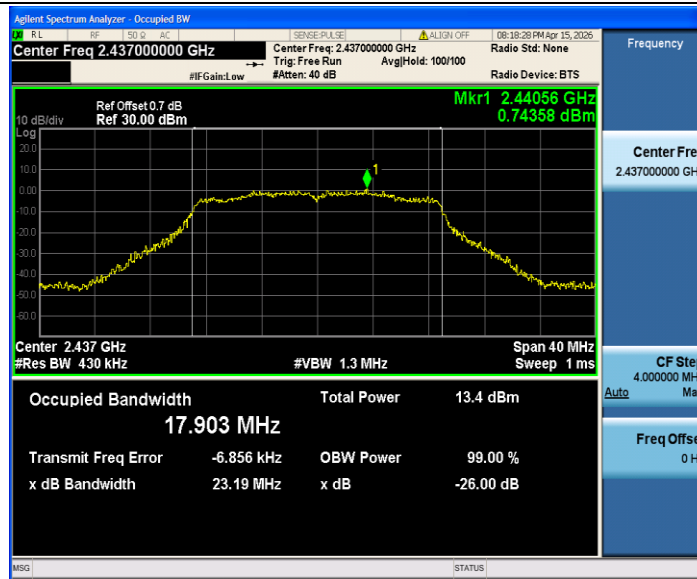
11G_Ant1_2462



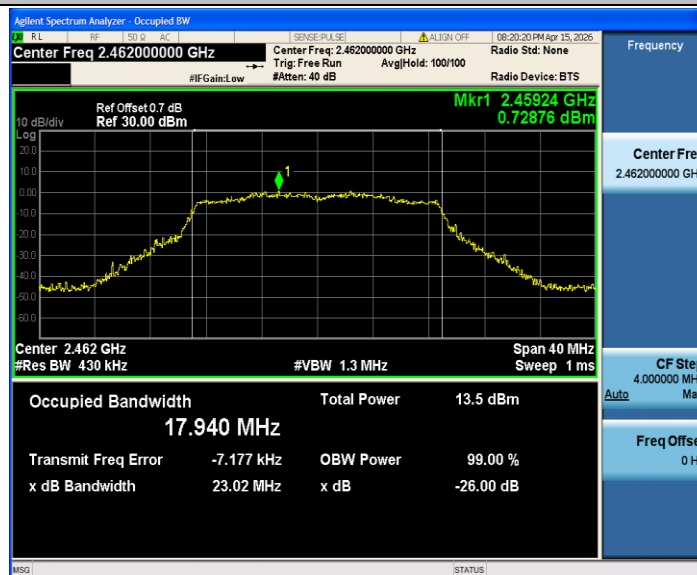
11N20SISO_Ant1_2412



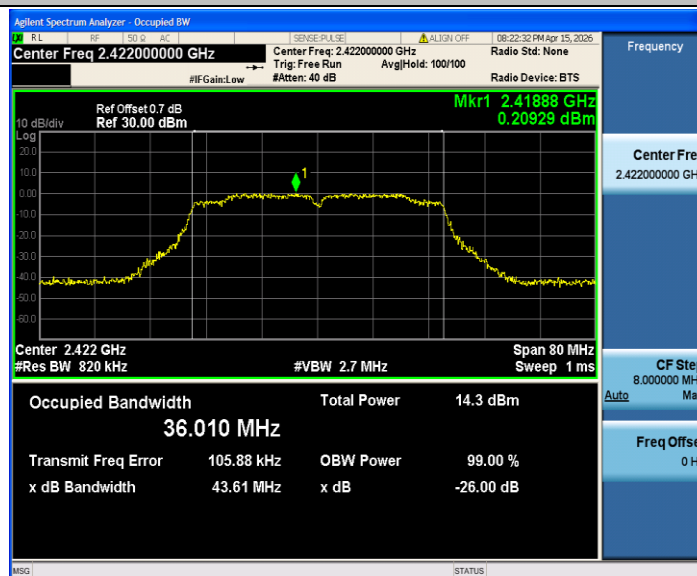
11N20SISO_Ant1_2437



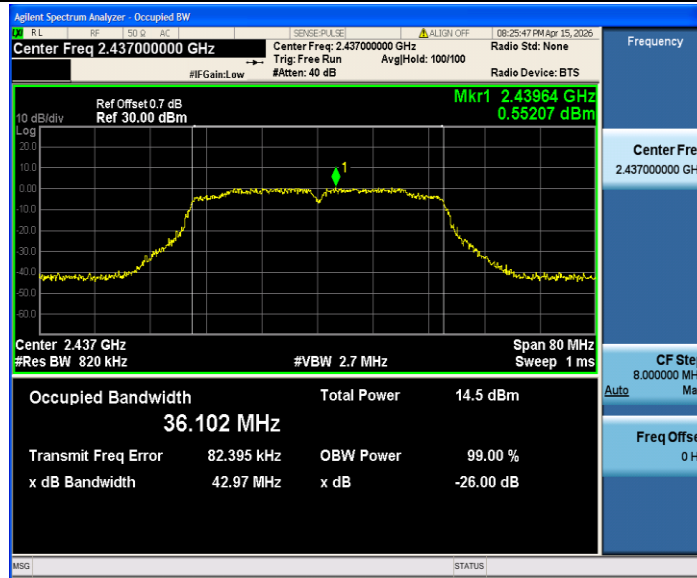
11N20SISO_Ant1_2462



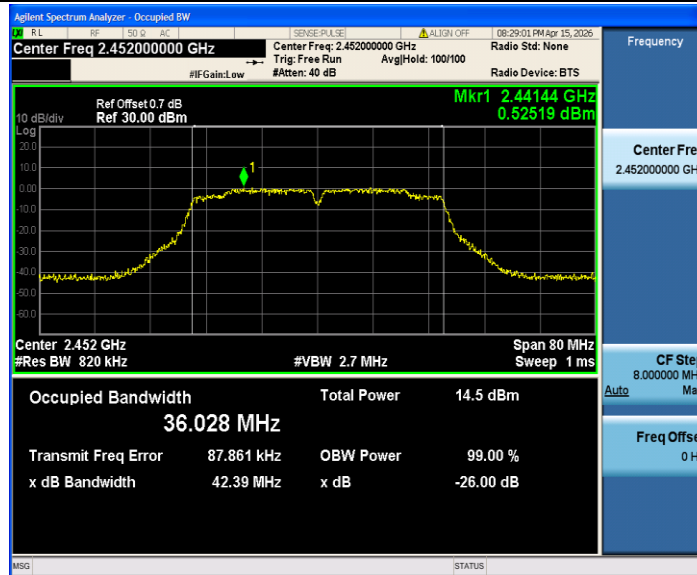
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Peak power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	13.54	≤30.00	PASS
		2437	13.75	≤30.00	PASS
		2462	13.87	≤30.00	PASS
11G	Ant1	2412	14.20	≤30.00	PASS
		2437	14.38	≤30.00	PASS
		2462	14.49	≤30.00	PASS
11N20SISO	Ant1	2412	14.04	≤30.00	PASS
		2437	14.23	≤30.00	PASS
		2462	14.35	≤30.00	PASS
11N40SISO	Ant1	2422	14.47	≤30.00	PASS
		2437	14.68	≤30.00	PASS
		2452	14.43	≤30.00	PASS

Appendix D: Maximum power spectral density

Test Result

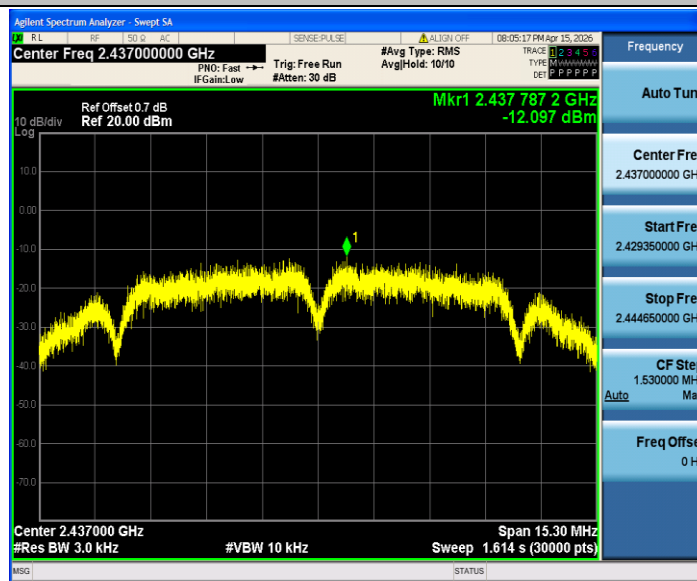
TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-12.83	≤8.00	PASS
		2437	-12.10	≤8.00	PASS
		2462	-11.61	≤8.00	PASS
11G	Ant1	2412	-17.13	≤8.00	PASS
		2437	-16.88	≤8.00	PASS
		2462	-17.32	≤8.00	PASS
11N20SISO	Ant1	2412	-17.54	≤8.00	PASS
		2437	-16.92	≤8.00	PASS
		2462	-17.34	≤8.00	PASS
11N40SISO	Ant1	2422	-19.91	≤8.00	PASS
		2437	-19.65	≤8.00	PASS
		2452	-19.28	≤8.00	PASS

Test Graphs

11B_Ant1_2412



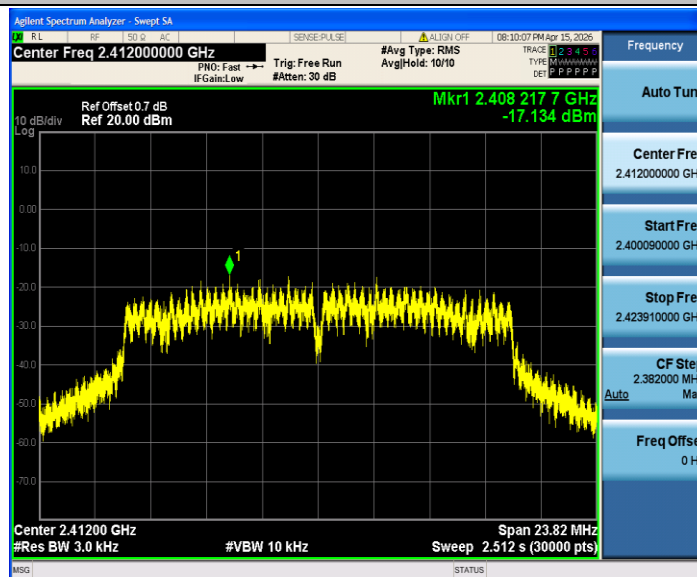
11B_Ant1_2437



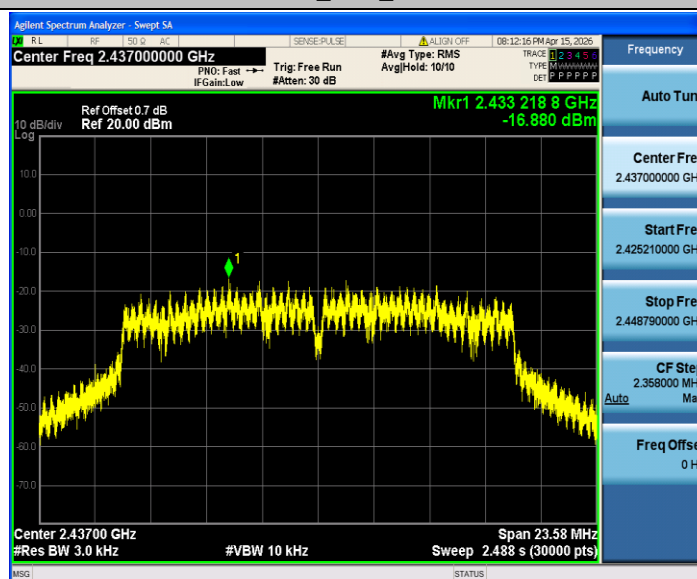
11B_Ant1_2462



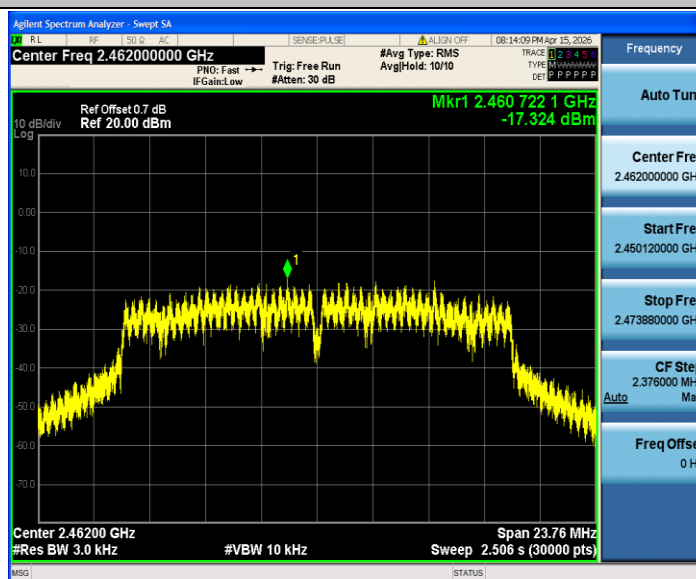
11G_Ant1_2412



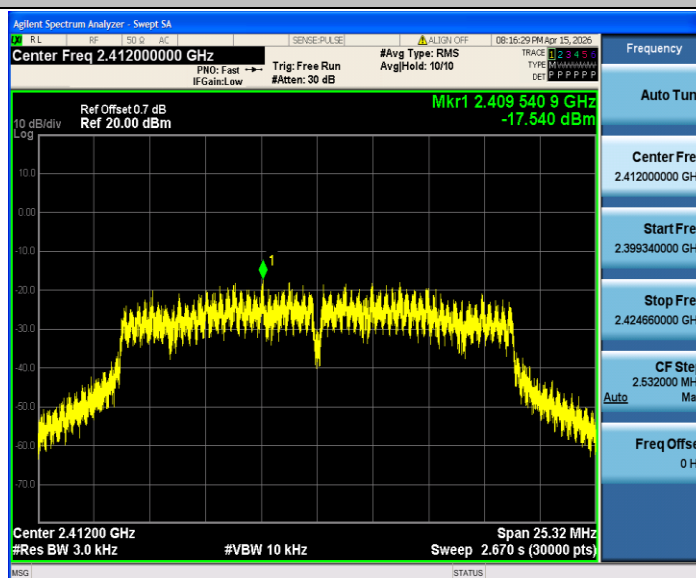
11G_Ant1_2437



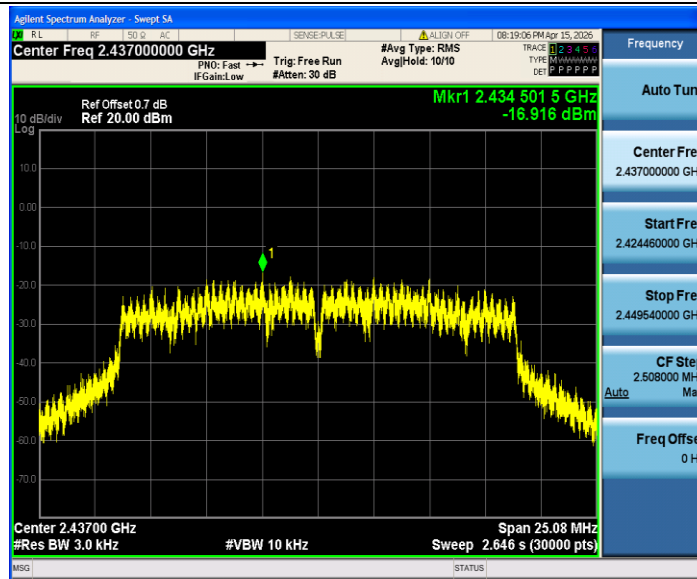
11G_Ant1_2462



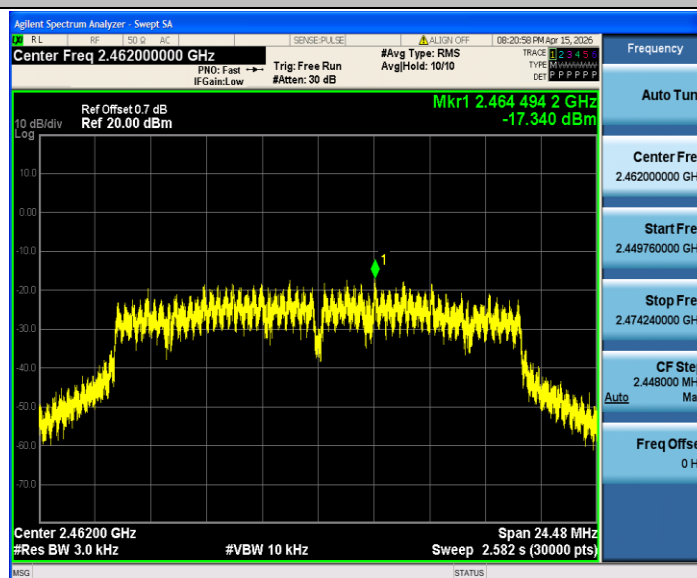
11N20SISO_Ant1_2412



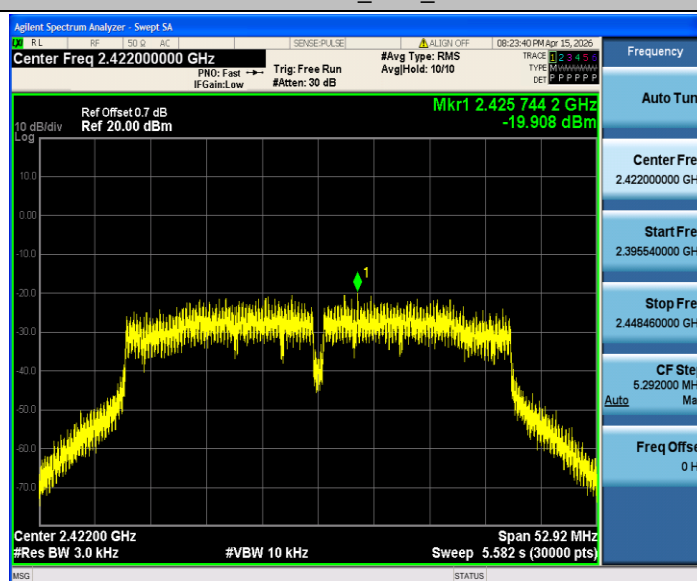
11N20SISO_Ant1_2437



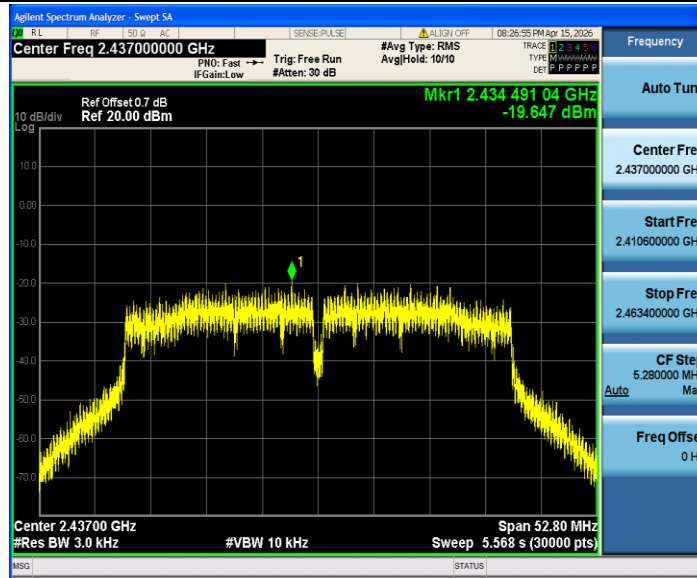
11N20SISO_Ant1_2462



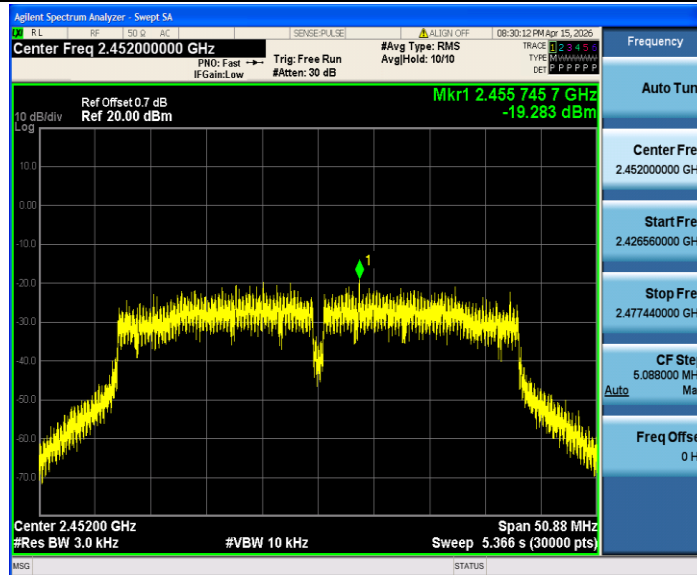
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



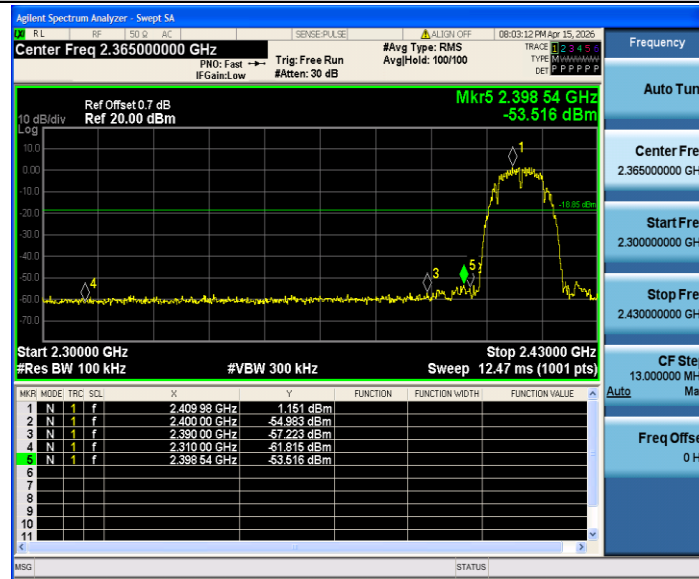
Appendix E: Band edge measurements

Test Result

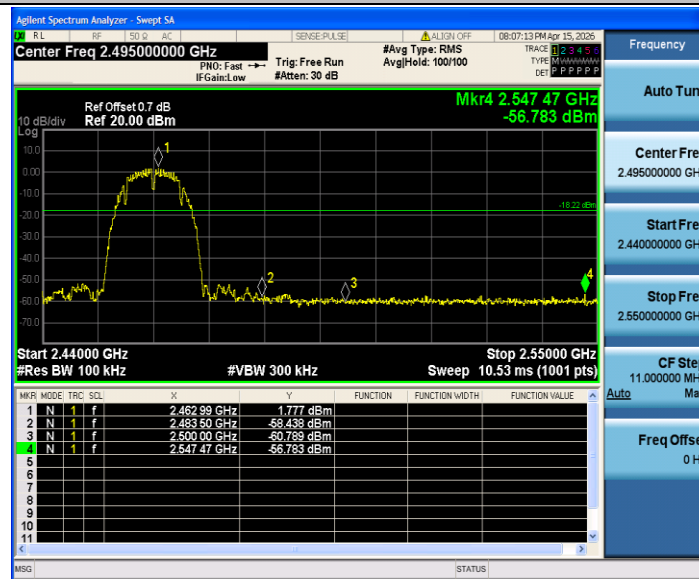
TestMode	Antenna	Channel Name	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	1.15	-53.52	≤-18.85	PASS
		High	2462	1.78	-56.78	≤-18.22	PASS
11G	Ant1	Low	2412	-2.31	-32.84	≤-22.31	PASS
		High	2462	-1.90	-57.14	≤-21.9	PASS
11N20SISO	Ant1	Low	2412	-2.52	-33.27	≤-22.52	PASS
		High	2462	-1.95	-56.22	≤-21.95	PASS
11N40SISO	Ant1	Low	2422	-5.54	-33.65	≤-25.54	PASS
		High	2452	-5.41	-56.67	≤-25.41	PASS

Test Graphs

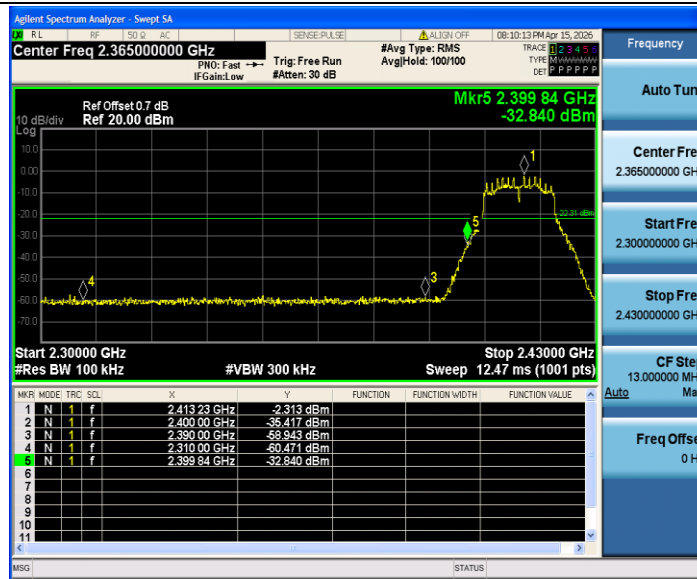
11B_Ant1_Low_2412



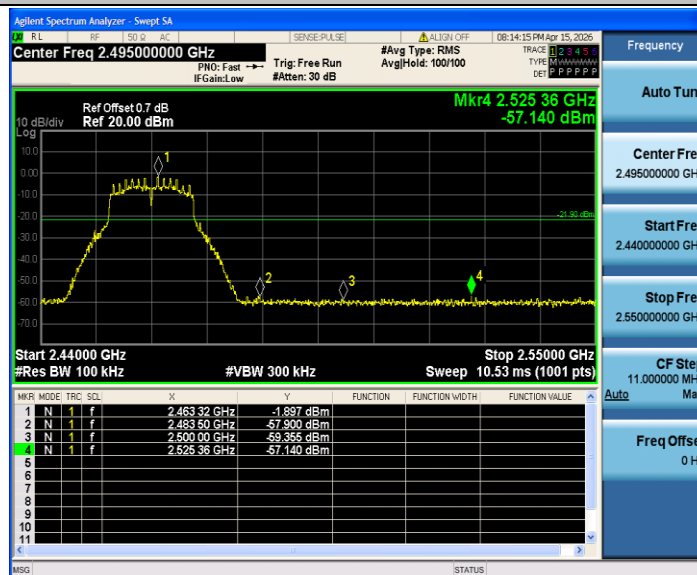
11B_Ant1_High_2462



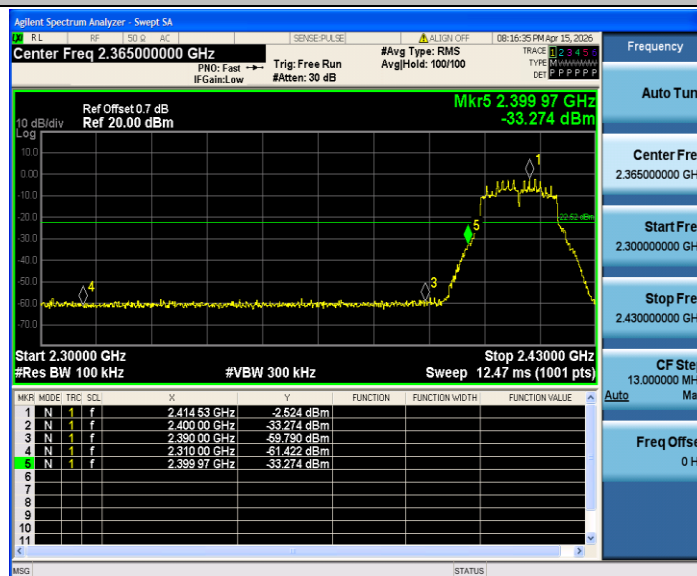
11G_Ant1_Low_2412



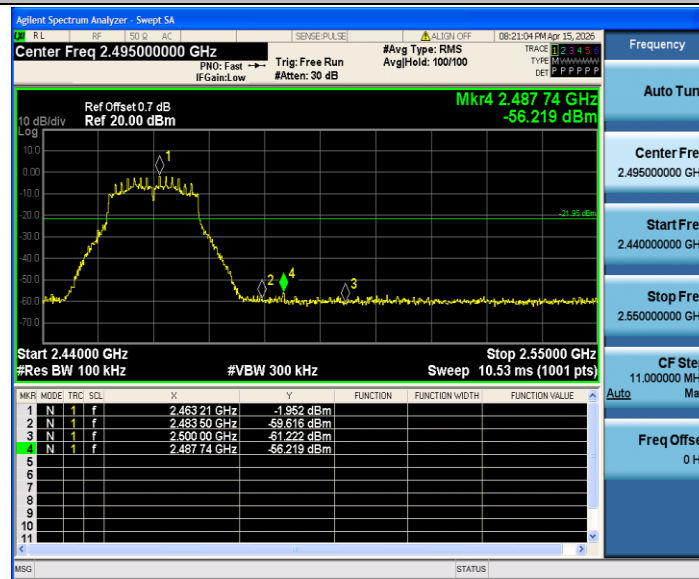
11G_Ant1_High_2462



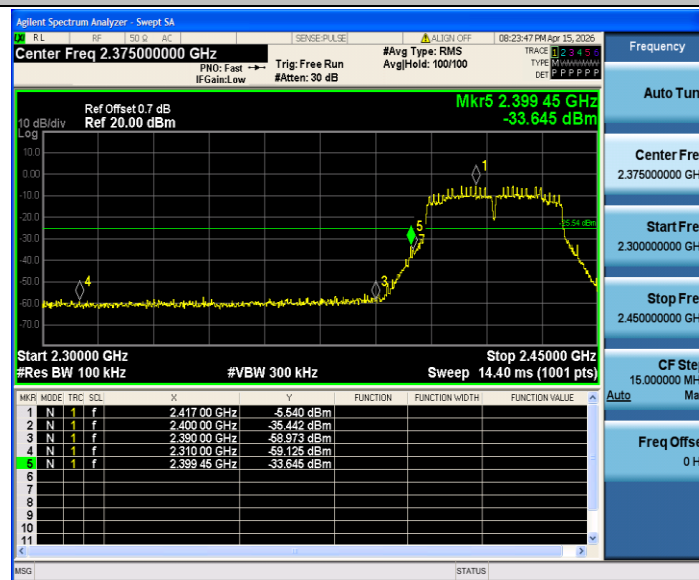
11N20SISO_Ant1_Low_2412



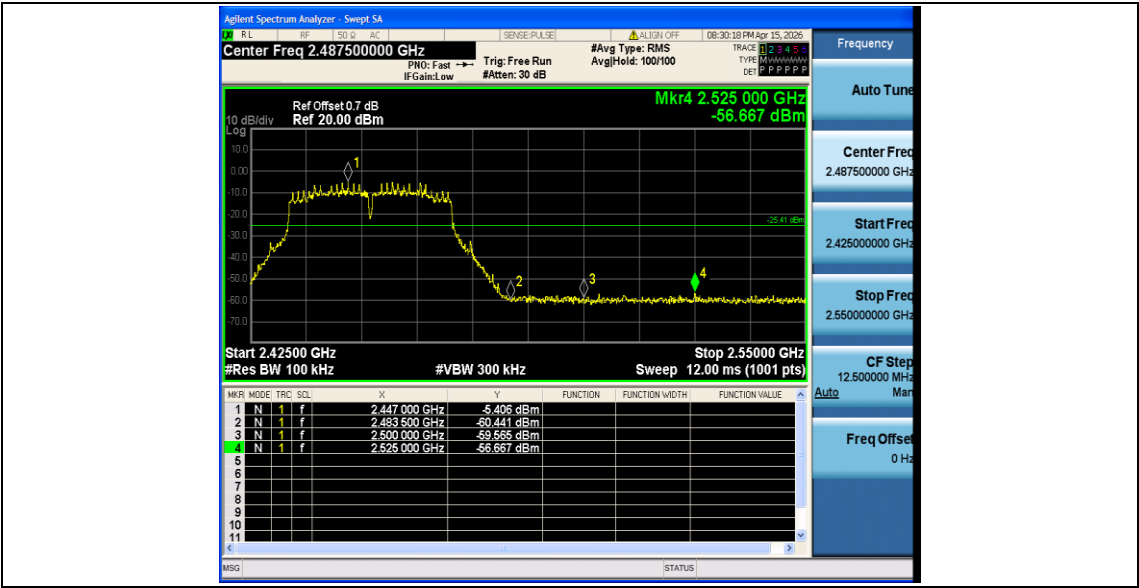
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



Appendix F: Conducted Spurious Emission

Test Result

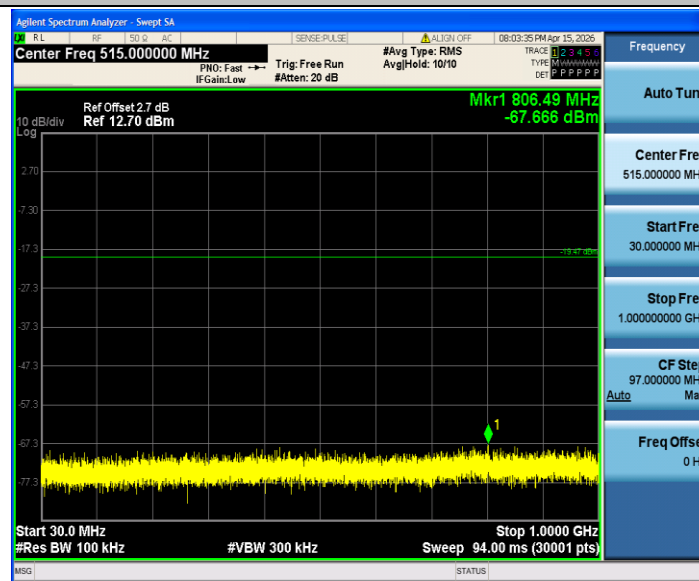
TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	0.53	0.53	---	PASS
			30~1000	0.53	-67.67	≤-19.47	PASS
			1000~26500	0.53	-55.05	≤-19.47	PASS
		2437	Reference	0.63	0.63	---	PASS
			30~1000	0.63	-67.36	≤-19.37	PASS
			1000~26500	0.63	-55.39	≤-19.37	PASS
		2462	Reference	0.54	0.54	---	PASS
			30~1000	0.54	-67.27	≤-19.46	PASS
			1000~26500	0.54	-55.67	≤-19.46	PASS
11G	Ant1	2412	Reference	-2.75	-2.75	---	PASS
			30~1000	-2.75	-66.77	≤-22.75	PASS
			1000~26500	-2.75	-55.17	≤-22.75	PASS
		2437	Reference	-3.31	-3.31	---	PASS
			30~1000	-3.31	-67.17	≤-23.31	PASS
			1000~26500	-3.31	-55.35	≤-23.31	PASS
		2462	Reference	-2.60	-2.60	---	PASS
			30~1000	-2.60	-67.78	≤-22.6	PASS
			1000~26500	-2.60	-55.89	≤-22.6	PASS
11N20SISO	Ant1	2412	Reference	-2.72	-2.72	---	PASS
			30~1000	-2.72	-67.23	≤-22.72	PASS
			1000~26500	-2.72	-55.09	≤-22.72	PASS
		2437	Reference	-3.57	-3.57	---	PASS
			30~1000	-3.57	-67.4	≤-23.57	PASS
			1000~26500	-3.57	-55.28	≤-23.57	PASS
		2462	Reference	-2.46	-2.46	---	PASS
			30~1000	-2.46	-67.95	≤-22.46	PASS
			1000~26500	-2.46	-54.53	≤-22.46	PASS
11N40SISO	Ant1	2422	Reference	-5.51	-5.51	---	PASS
			30~1000	-5.51	-66.16	≤-25.51	PASS
			1000~26500	-5.51	-55.84	≤-25.51	PASS
		2437	Reference	-5.51	-5.51	---	PASS
			30~1000	-5.51	-66.45	≤-25.51	PASS
			1000~26500	-5.51	-55.67	≤-25.51	PASS
		2452	Reference	-5.44	-5.44	---	PASS
			30~1000	-5.44	-67.97	≤-25.44	PASS
			1000~26500	-5.44	-55.57	≤-25.44	PASS

Test Graphs

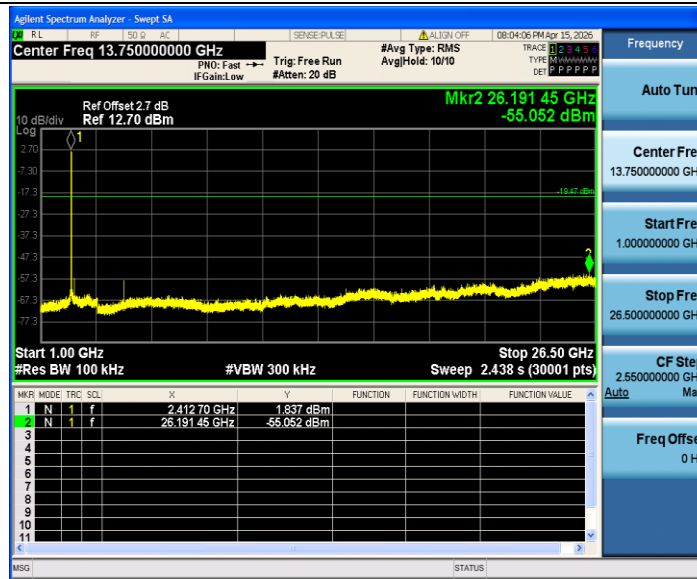
11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



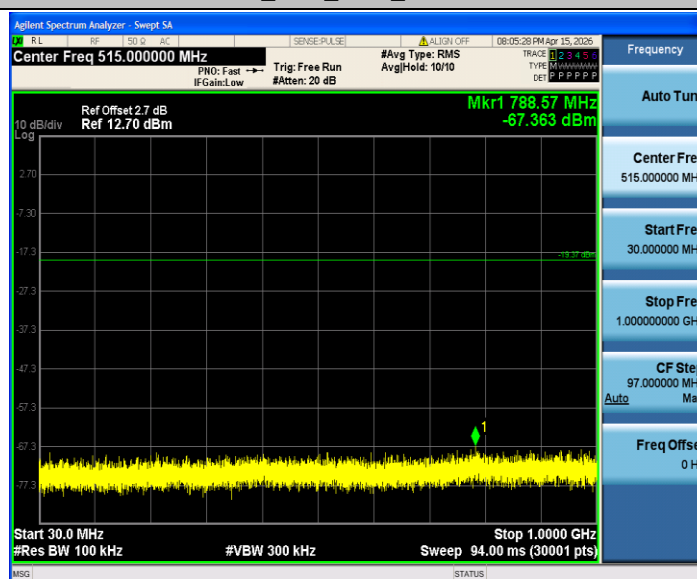
11B_Ant1_2412_1000~26500



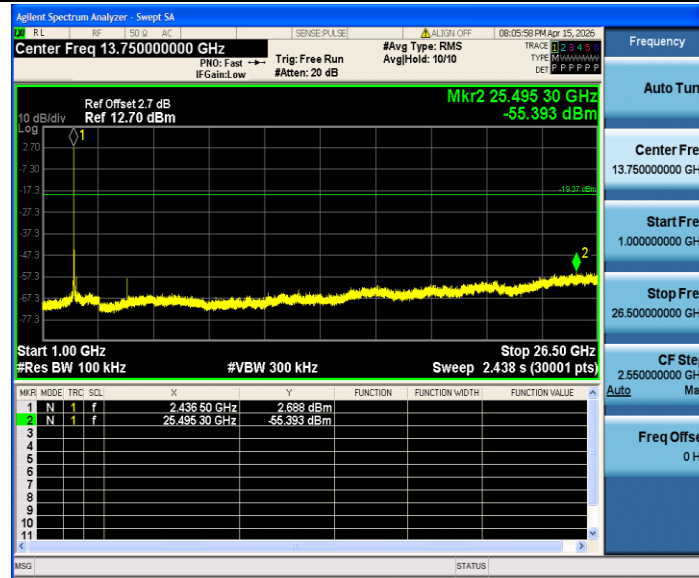
11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



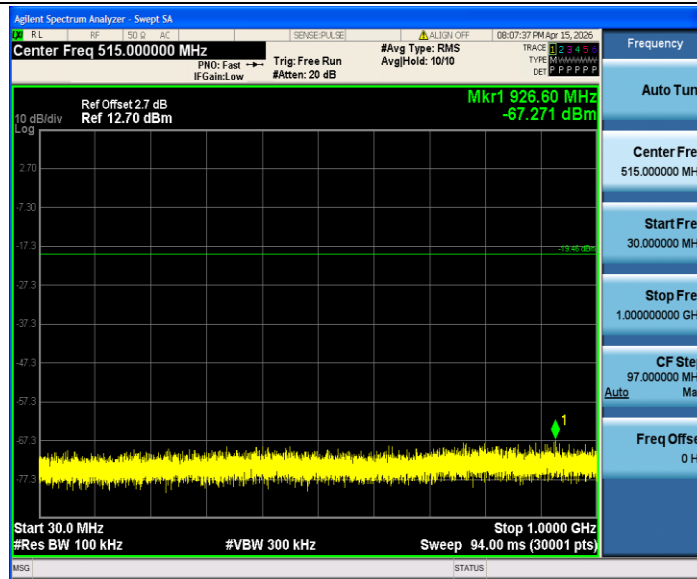
11B_Ant1_2437_1000~26500



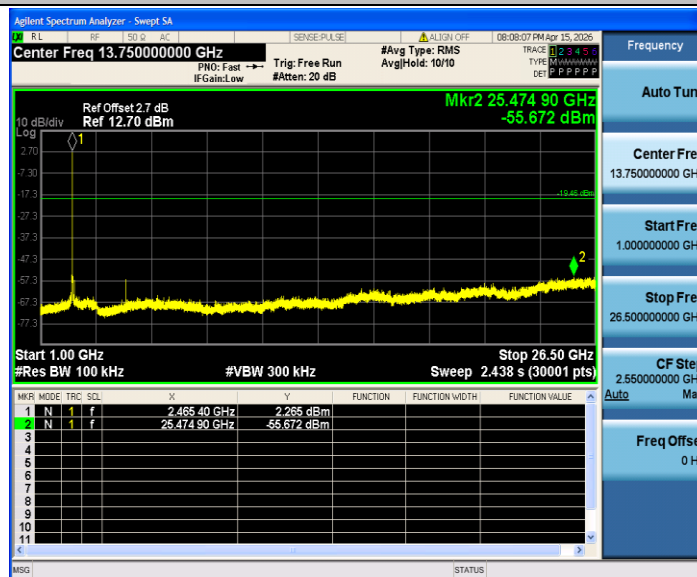
11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



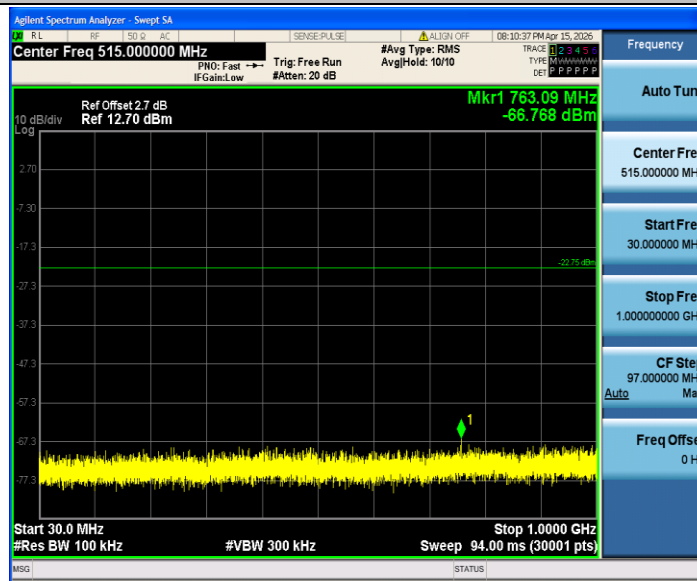
11B_Ant1_2462_1000~26500



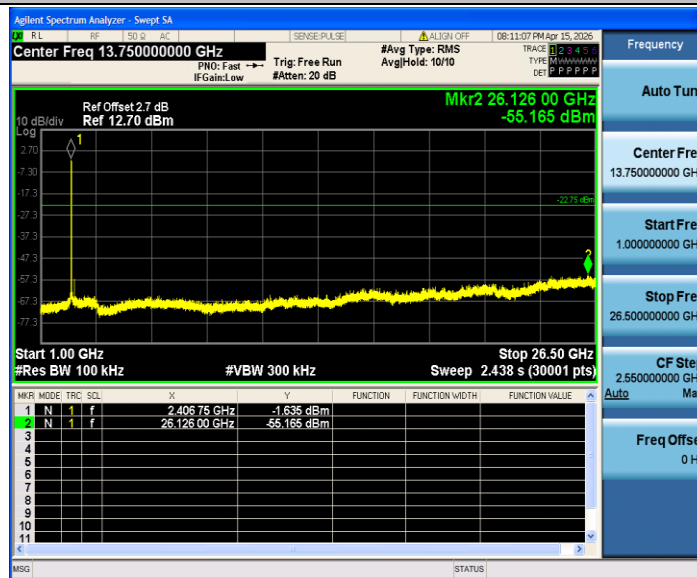
11G_Ant1_2412_0~Reference



11G_Ant1_2412_30~1000



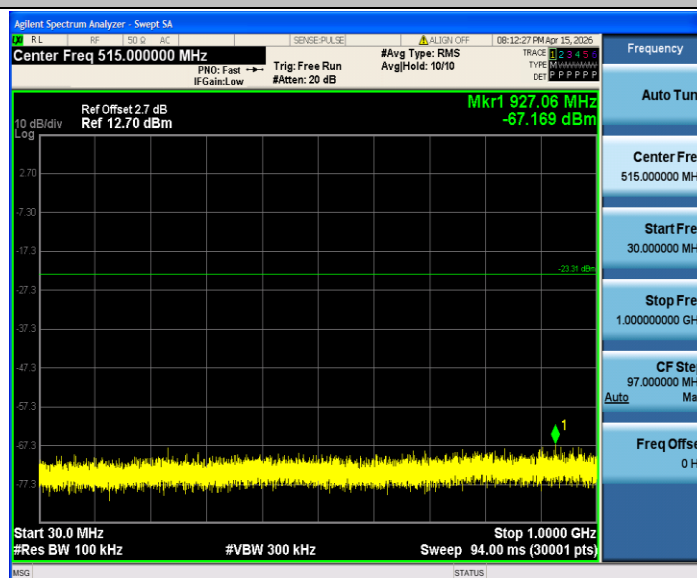
11G_Ant1_2412_1000~26500



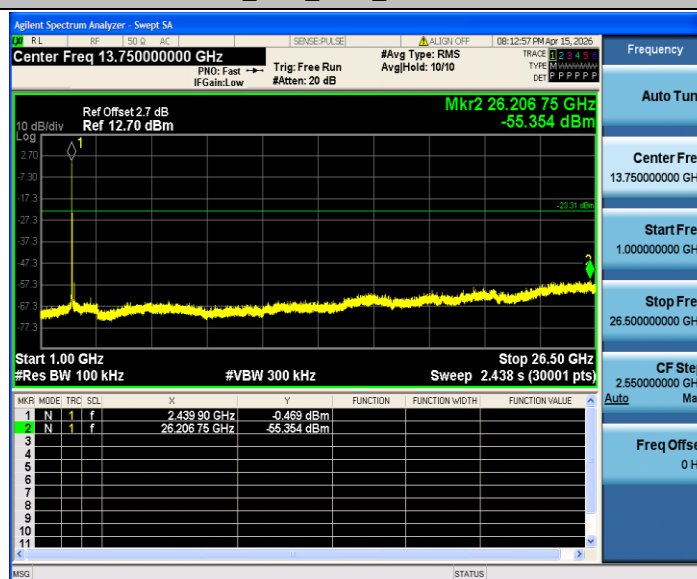
11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000



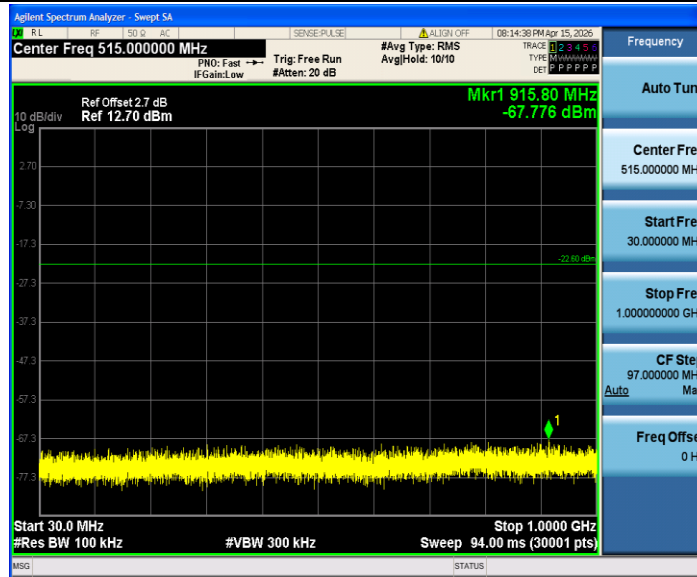
11G_Ant1_2437_1000~26500



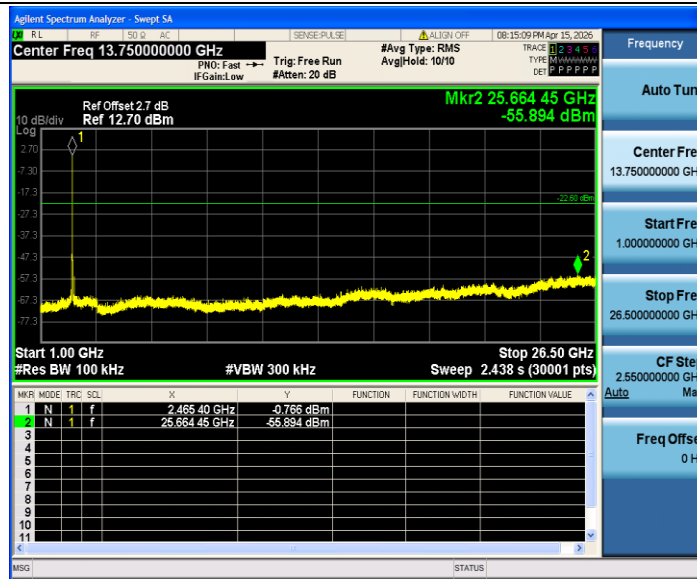
11G_Ant1_2462_0~Reference



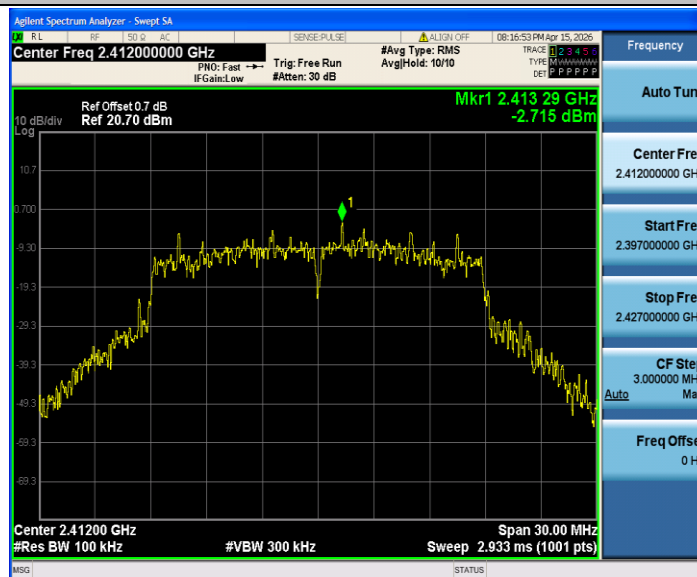
11G_Ant1_2462_30~1000



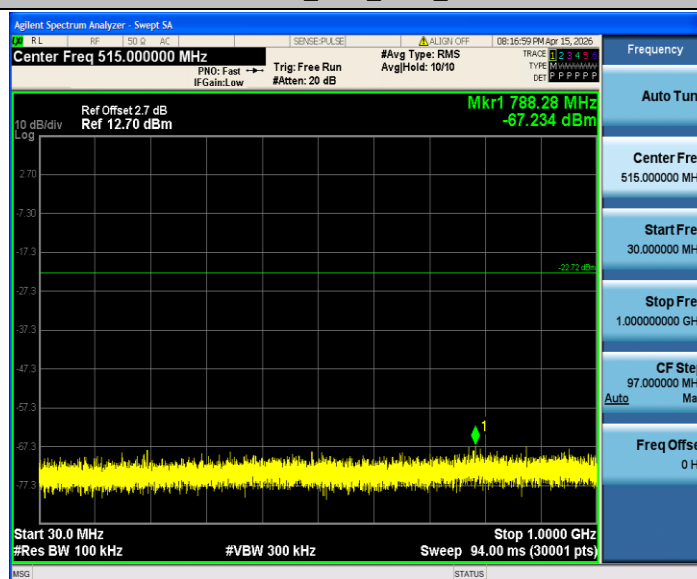
11G_Ant1_2462_1000~26500



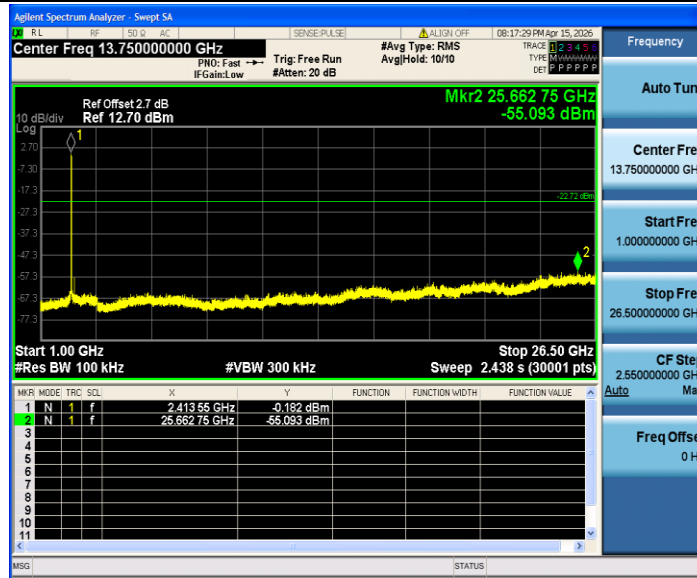
11N20SISO_Ant1_2412_0~Reference



11N20SISO_Ant1_2412_30~1000



11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_0~Reference



11N20SISO_Ant1_2437_30~1000