

FCC Appendix RF Test Data for 2.4GWIFI

FCC ID : 2BVVS-GEN4-ESP32Q

Company : 4D SYSTEMS PTY LTD

EUT : GEN4-ESP32 Series Intelligent Display Module

Model Number : GEN4-ESP32Q-43CT-CLB

Report No. : CTA26042801201

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	10.240	2406.920	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	15.520	2404.360	2419.880	0.5	PASS
		2437	15.840	2429.040	2444.880	0.5	PASS
		2462	15.960	2454.040	2470.000	0.5	PASS
11N20SISO	Ant1	2412	15.720	2404.480	2420.200	0.5	PASS
		2437	16.440	2428.880	2445.320	0.5	PASS
		2462	17.040	2453.480	2470.520	0.5	PASS
11N40SISO	Ant1	2422	35.440	2404.480	2439.920	0.5	PASS
		2437	35.040	2419.880	2454.920	0.5	PASS
		2452	35.600	2434.480	2470.080	0.5	PASS

Test Graphs

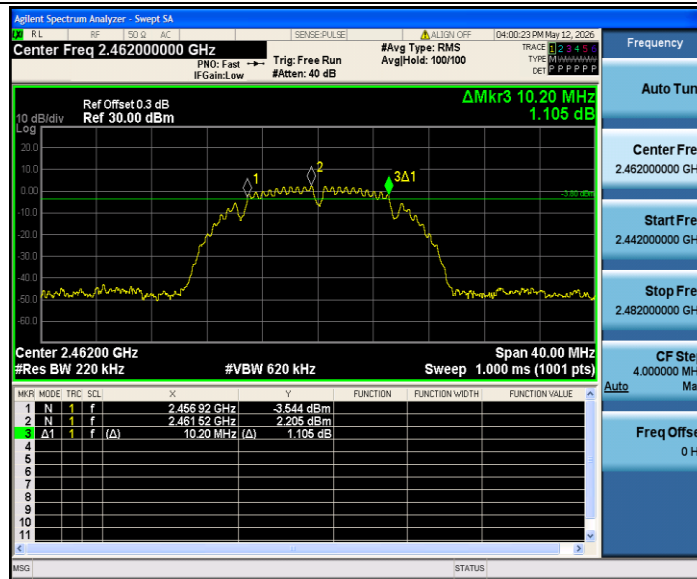
11B_Ant1_2412



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



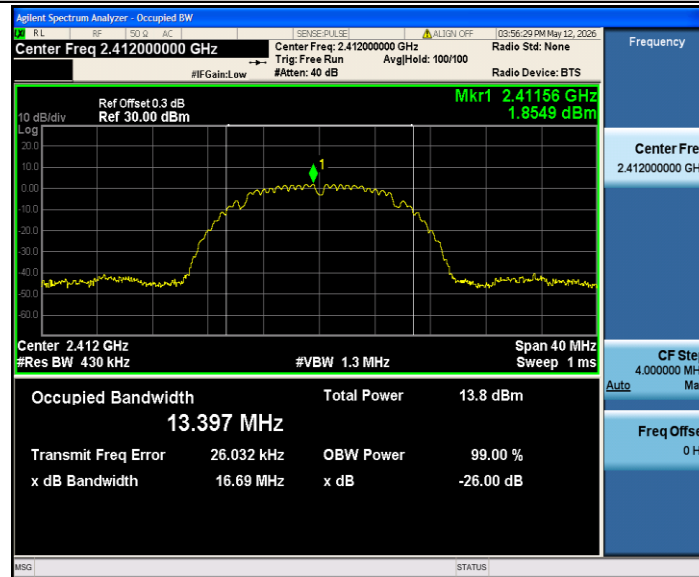
Appendix B: Occupied Channel Bandwidth

Test Result

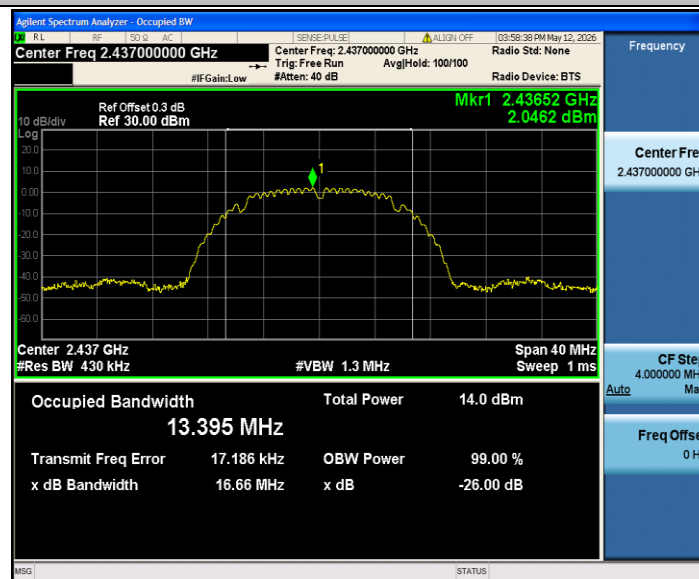
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.397	2405.3275	2418.7245	---	---
		2437	13.395	2430.3197	2443.7147	---	---
		2462	13.415	2455.3070	2468.7220	---	---
11G	Ant1	2412	16.882	2403.5932	2420.4752	---	---
		2437	16.917	2428.5959	2445.5129	---	---
		2462	16.835	2453.6321	2470.4671	---	---
11N20SISO	Ant1	2412	17.910	2403.0662	2420.9762	---	---
		2437	17.879	2428.0733	2445.9523	---	---
		2462	17.940	2453.0366	2470.9766	---	---
11N40SISO	Ant1	2422	36.070	2404.1143	2440.1843	---	---
		2437	36.071	2419.1169	2455.1879	---	---
		2452	36.033	2434.0885	2470.1215	---	---

Test Graphs

11B_Ant1_2412



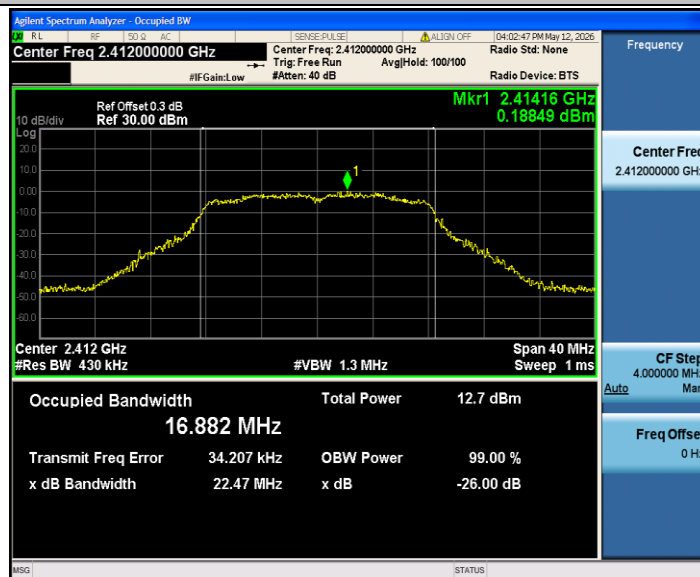
11B_Ant1_2437



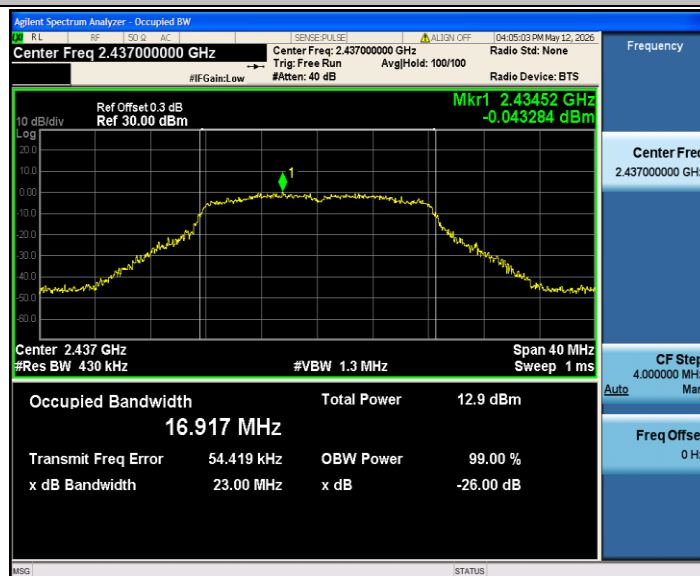
11B_Ant1_2462



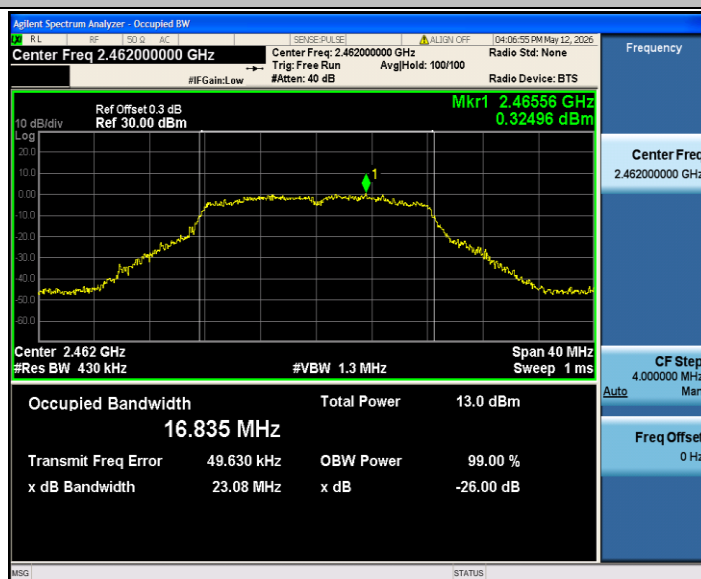
11G_Ant1_2412



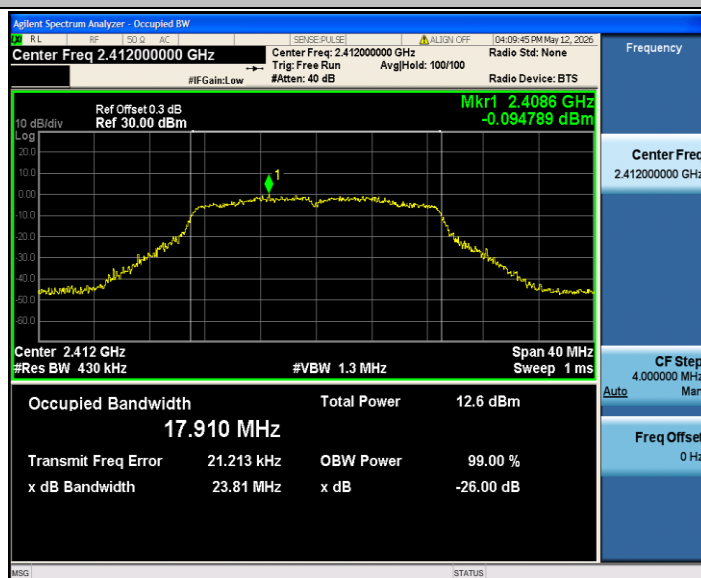
11G_Ant1_2437



11G_Ant1_2462



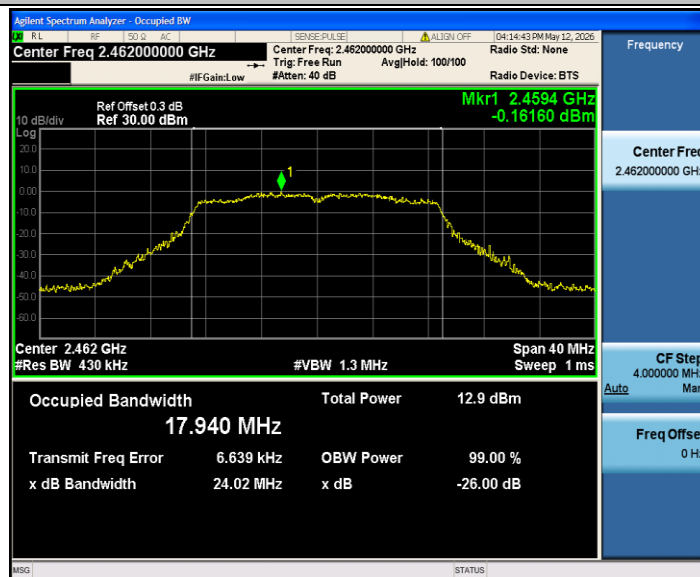
11N20SISO_Ant1_2412



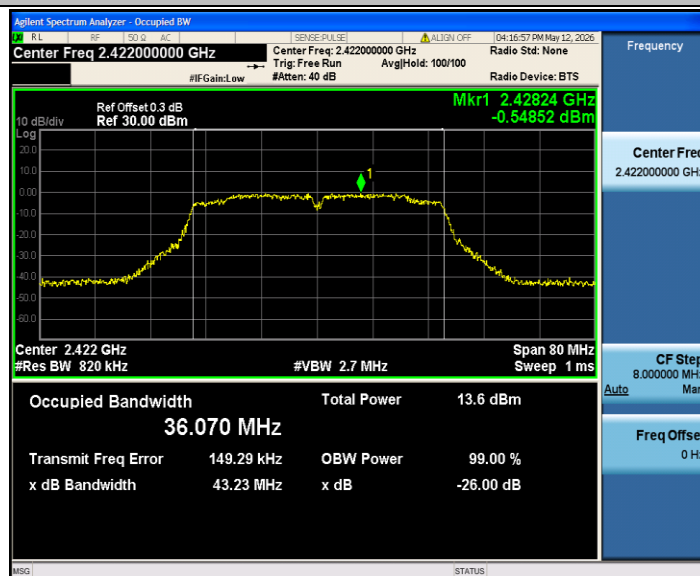
11N20SISO_Ant1_2437



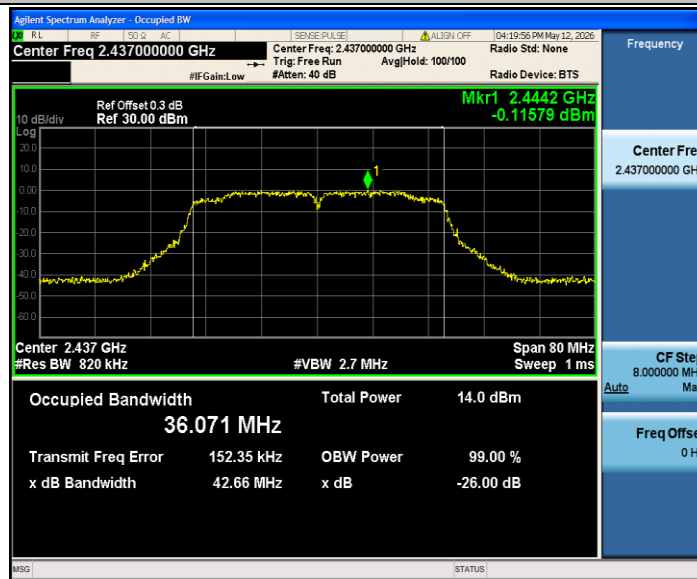
11N20SISO_Ant1_2462



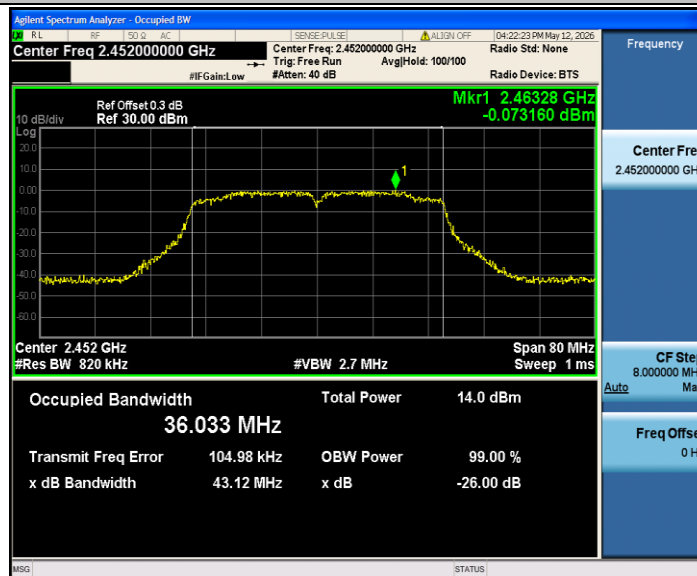
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



Appendix C: Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	13.51	≤30.00	PASS
		2437	13.69	≤30.00	PASS
		2462	13.83	≤30.00	PASS
11G	Ant1	2412	13.55	≤30.00	PASS
		2437	13.73	≤30.00	PASS
		2462	13.97	≤30.00	PASS
11N20SISO	Ant1	2412	13.29	≤30.00	PASS
		2437	13.66	≤30.00	PASS
		2462	13.71	≤30.00	PASS
11N40SISO	Ant1	2422	13.71	≤30.00	PASS
		2437	14.10	≤30.00	PASS
		2452	14.13	≤30.00	PASS

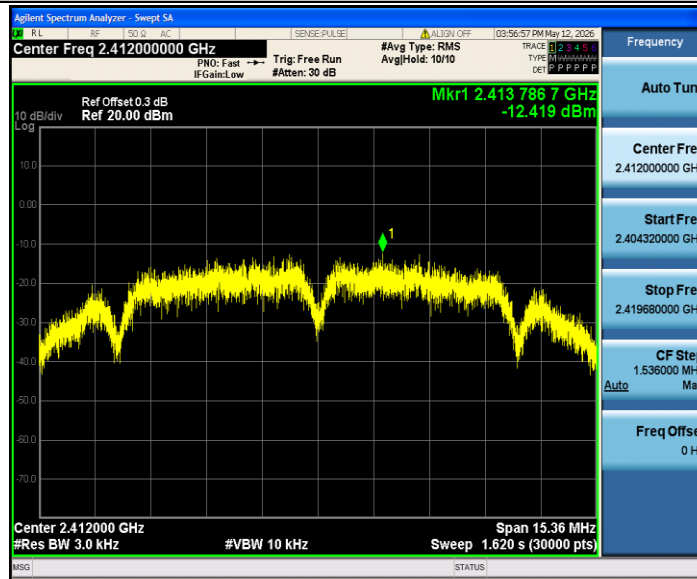
Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-12.42	≤8.00	PASS
		2437	-12.58	≤8.00	PASS
		2462	-12.32	≤8.00	PASS
11G	Ant1	2412	-18.07	≤8.00	PASS
		2437	-18.10	≤8.00	PASS
		2462	-17.82	≤8.00	PASS
11N20SISO	Ant1	2412	-17.92	≤8.00	PASS
		2437	-18.06	≤8.00	PASS
		2462	-17.16	≤8.00	PASS
11N40SISO	Ant1	2422	-21.32	≤8.00	PASS
		2437	-20.77	≤8.00	PASS
		2452	-20.25	≤8.00	PASS

Test Graphs

11B_Ant1_2412



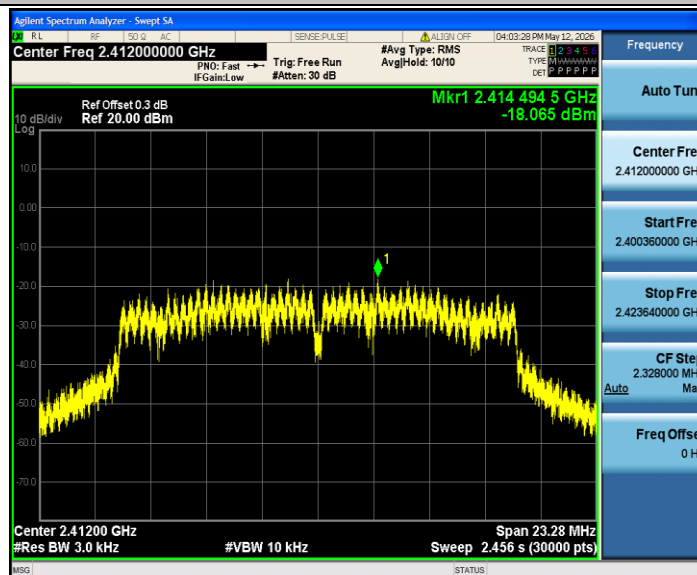
11B_Ant1_2437



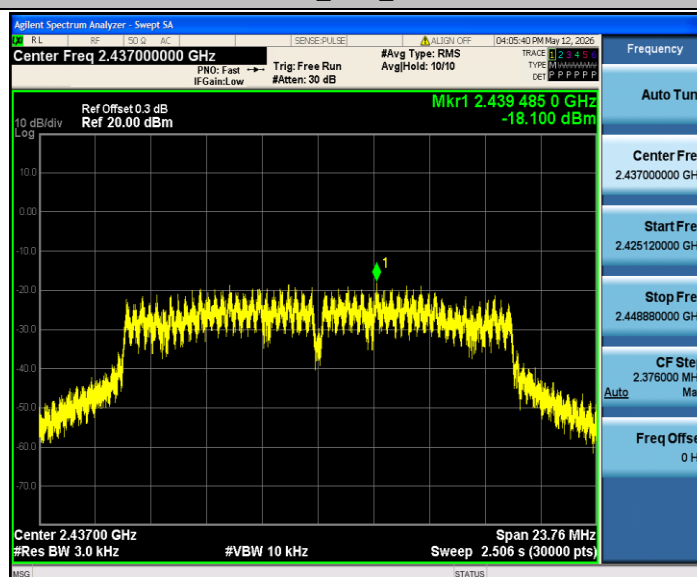
11B_Ant1_2462



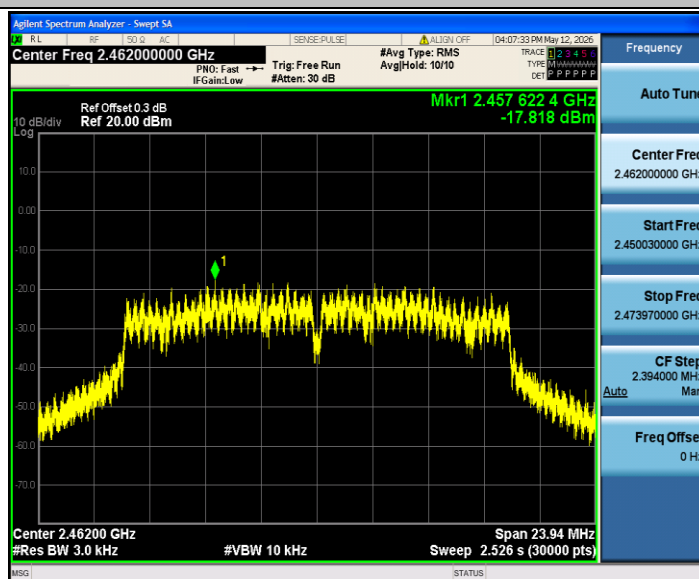
11G_Ant1_2412



11G_Ant1_2437



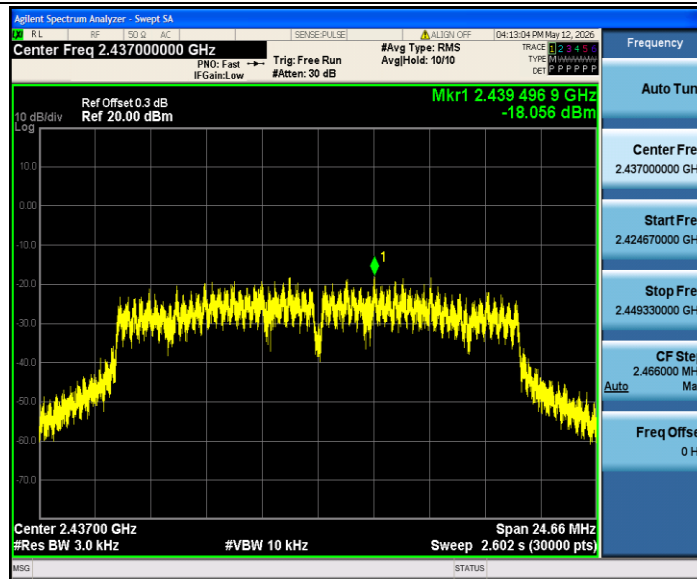
11G_Ant1_2462



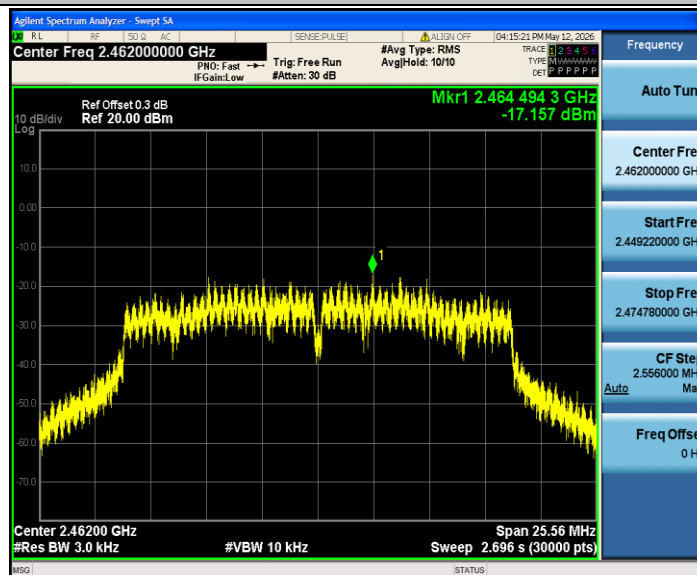
11N20SISO_Ant1_2412



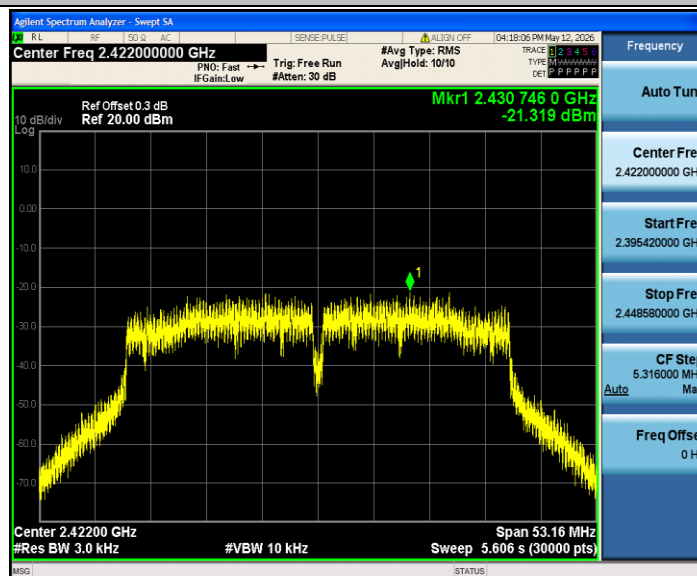
11N20SISO_Ant1_2437



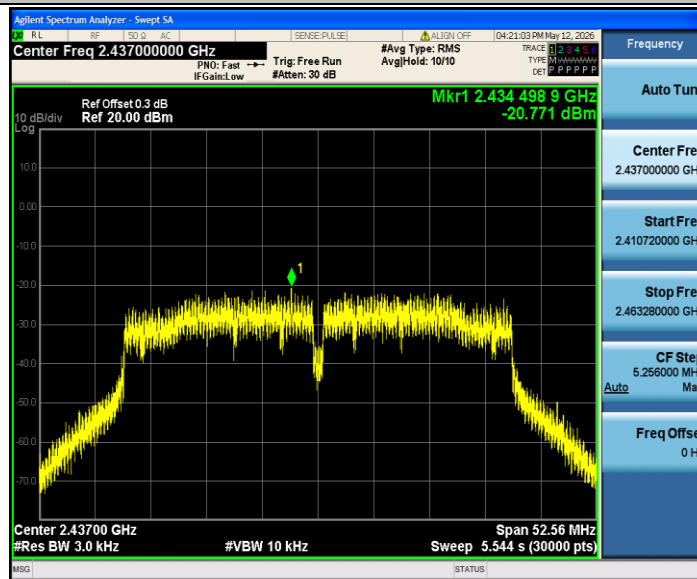
11N20SISO_Ant1_2462



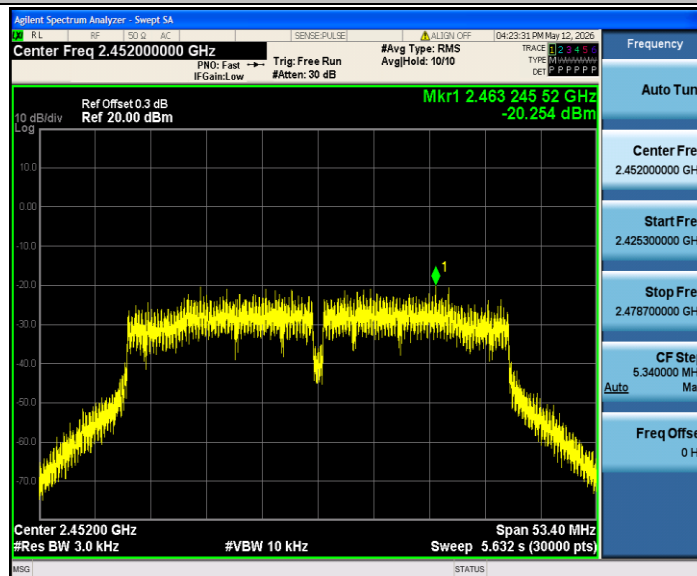
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



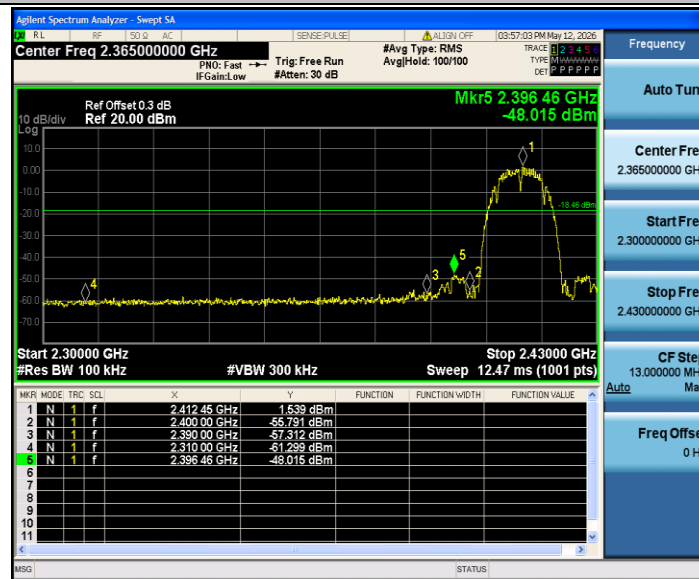
Appendix E: Band edge measurements

Test Result

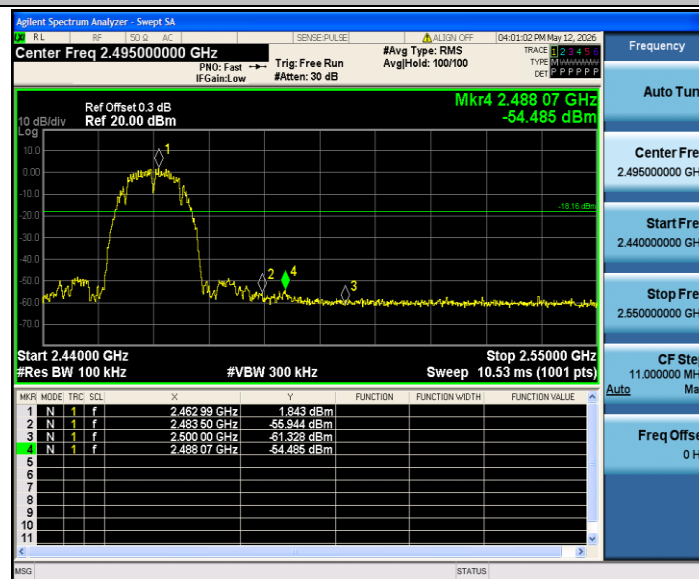
TestMode	Antenna	Channel Name	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	1.54	-48.02	≤-18.46	PASS
		High	2462	1.84	-54.49	≤-18.16	PASS
11G	Ant1	Low	2412	-2.85	-34.42	≤-22.85	PASS
		High	2462	-2.84	-57.63	≤-22.84	PASS
11N20SISO	Ant1	Low	2412	-2.84	-32.7	≤-22.84	PASS
		High	2462	-2.56	-57.17	≤-22.56	PASS
11N40SISO	Ant1	Low	2422	-6.12	-34.2	≤-26.12	PASS
		High	2452	-5.87	-57.01	≤-25.87	PASS

Test Graphs

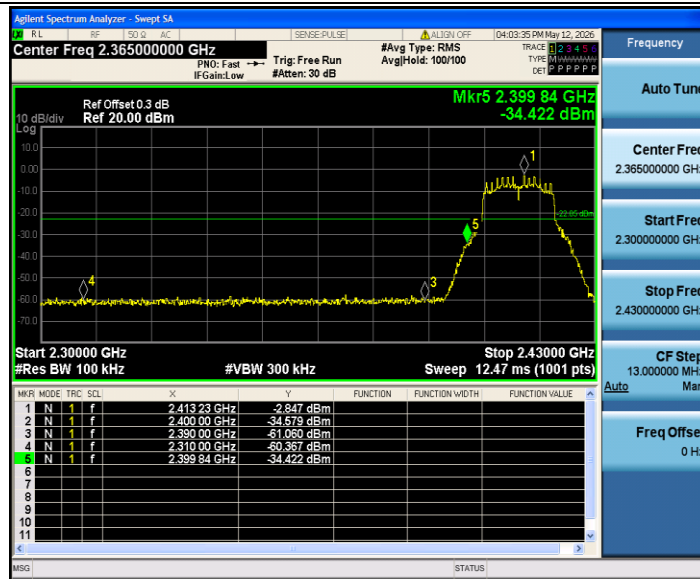
11B_Ant1_Low_2412



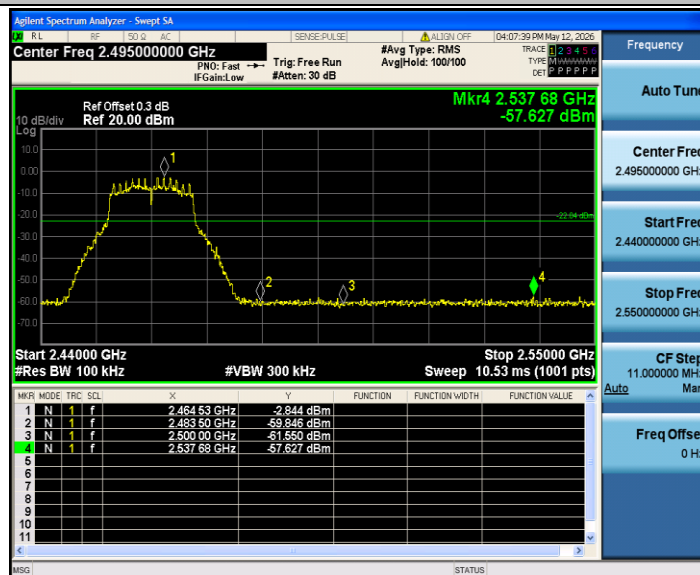
11B_Ant1_High_2462



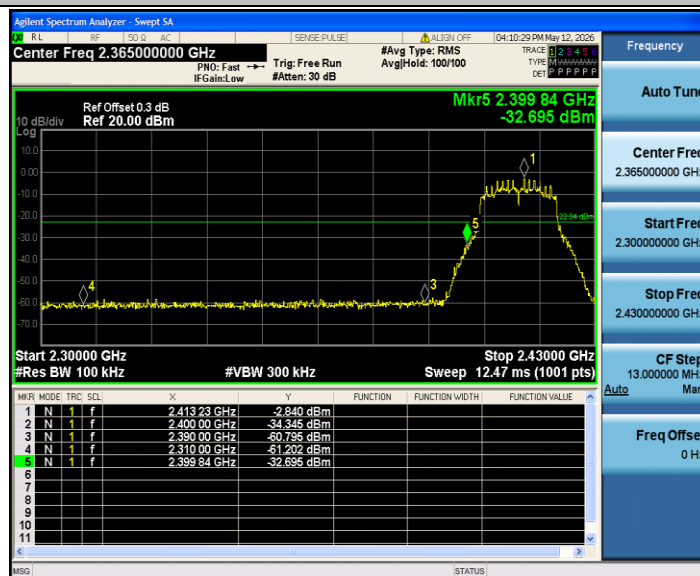
11G_Ant1_Low_2412



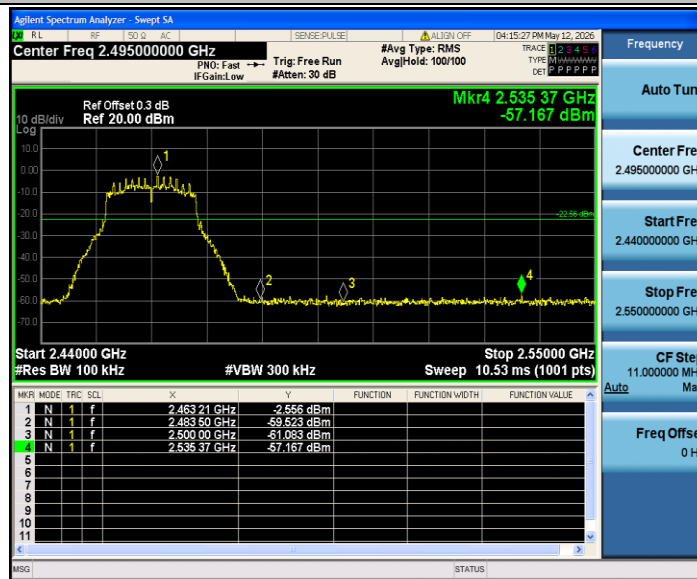
11G_Ant1_High_2462



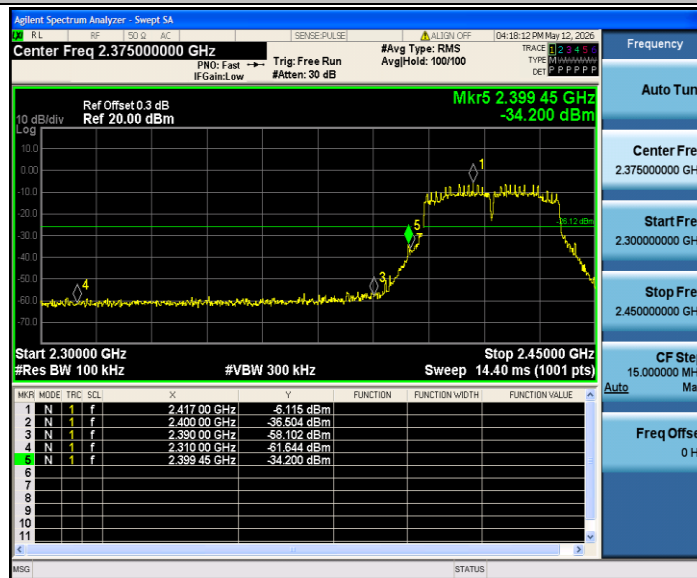
11N20SISO_Ant1_Low_2412



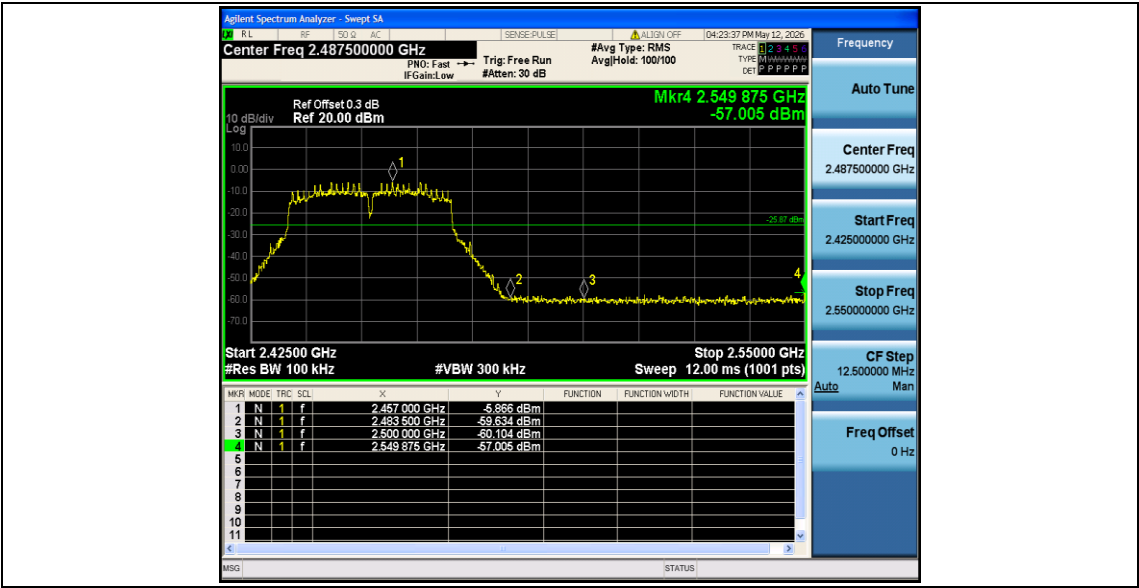
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



Appendix F: Conducted Spurious Emission

Test Result

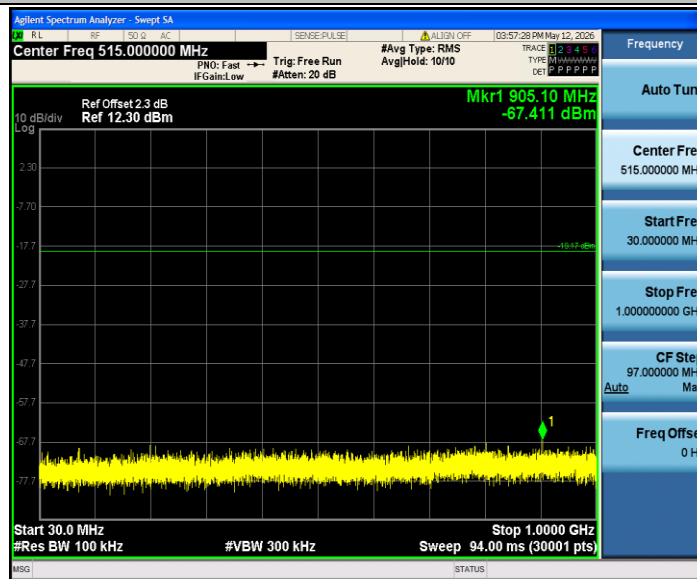
TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	0.83	0.83	---	PASS
			30~1000	0.83	-67.41	≤-19.17	PASS
			1000~26500	0.83	-56.21	≤-19.17	PASS
		2437	Reference	1.14	1.14	---	PASS
			30~1000	1.14	-67.68	≤-18.86	PASS
			1000~26500	1.14	-55.89	≤-18.86	PASS
		2462	Reference	0.86	0.86	---	PASS
			30~1000	0.86	-68.01	≤-19.14	PASS
			1000~26500	0.86	-56.22	≤-19.14	PASS
11G	Ant1	2412	Reference	-3.02	-3.02	---	PASS
			30~1000	-3.02	-67.61	≤-23.02	PASS
			1000~26500	-3.02	-55.89	≤-23.02	PASS
		2437	Reference	-3.71	-3.71	---	PASS
			30~1000	-3.71	-68.2	≤-23.71	PASS
			1000~26500	-3.71	-55.9	≤-23.71	PASS
		2462	Reference	-2.77	-2.77	---	PASS
			30~1000	-2.77	-67.93	≤-22.77	PASS
			1000~26500	-2.77	-56.39	≤-22.77	PASS
11N20SISO	Ant1	2412	Reference	-3.18	-3.18	---	PASS
			30~1000	-3.18	-67.73	≤-23.18	PASS
			1000~26500	-3.18	-55.58	≤-23.18	PASS
		2437	Reference	-2.61	-2.61	---	PASS
			30~1000	-2.61	-68.06	≤-22.61	PASS
			1000~26500	-2.61	-56.03	≤-22.61	PASS
		2462	Reference	-3.88	-3.88	---	PASS
			30~1000	-3.88	-67.9	≤-23.88	PASS
			1000~26500	-3.88	-55.17	≤-23.88	PASS
11N40SISO	Ant1	2422	Reference	-6.33	-6.33	---	PASS
			30~1000	-6.33	-67.18	≤-26.33	PASS
			1000~26500	-6.33	-55.91	≤-26.33	PASS
		2437	Reference	-6.35	-6.35	---	PASS
			30~1000	-6.35	-67.45	≤-26.35	PASS
			1000~26500	-6.35	-55.81	≤-26.35	PASS
		2452	Reference	-5.89	-5.89	---	PASS
			30~1000	-5.89	-67.36	≤-25.89	PASS
			1000~26500	-5.89	-55.54	≤-25.89	PASS

Test Graphs

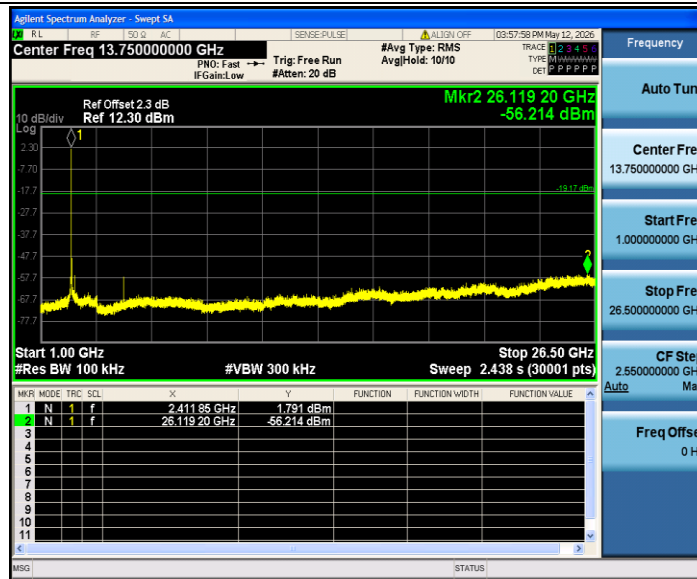
11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



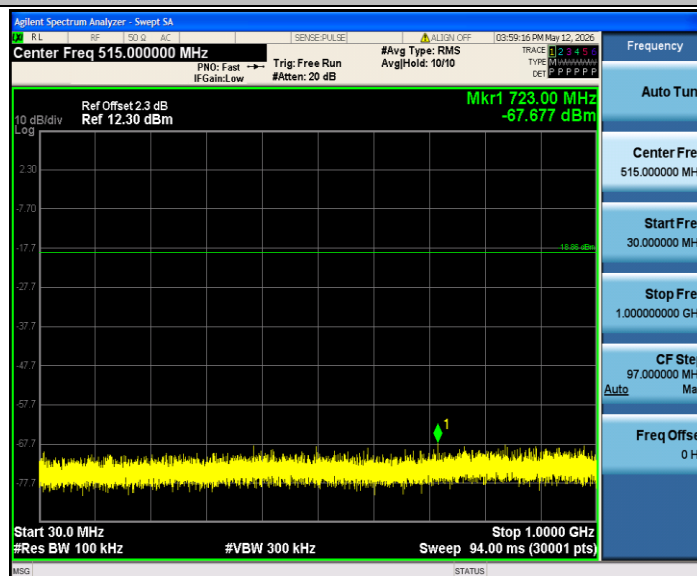
11B_Ant1_2412_1000~26500



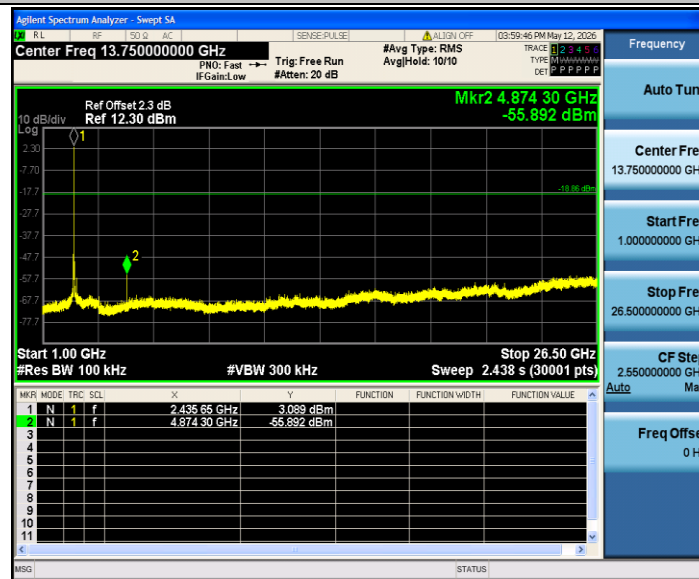
11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



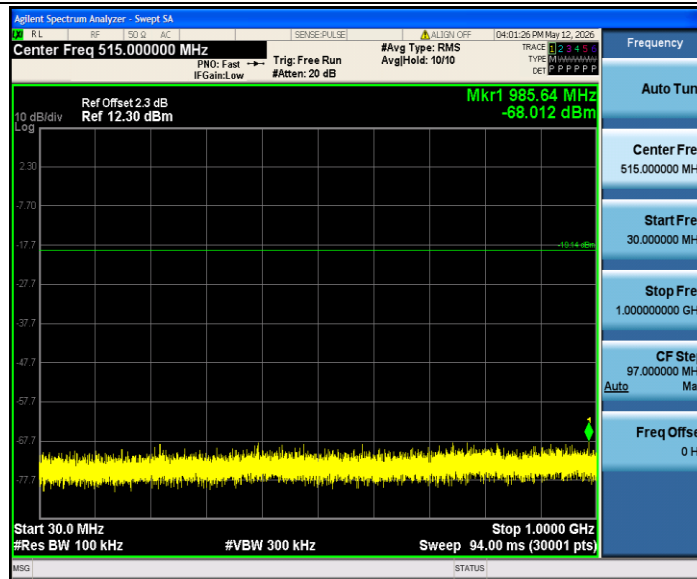
11B_Ant1_2437_1000~26500



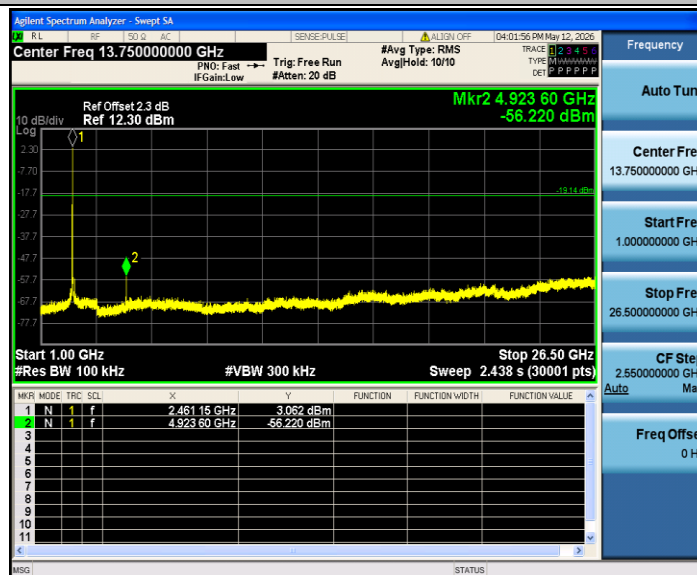
11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



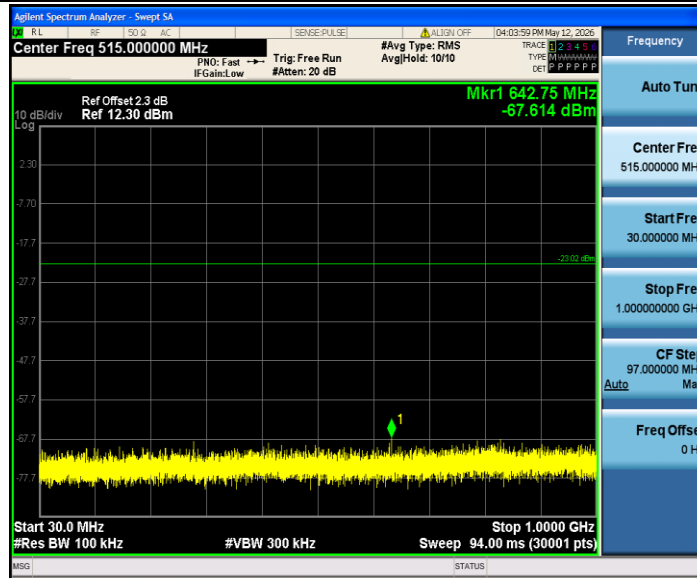
11B_Ant1_2462_1000~26500



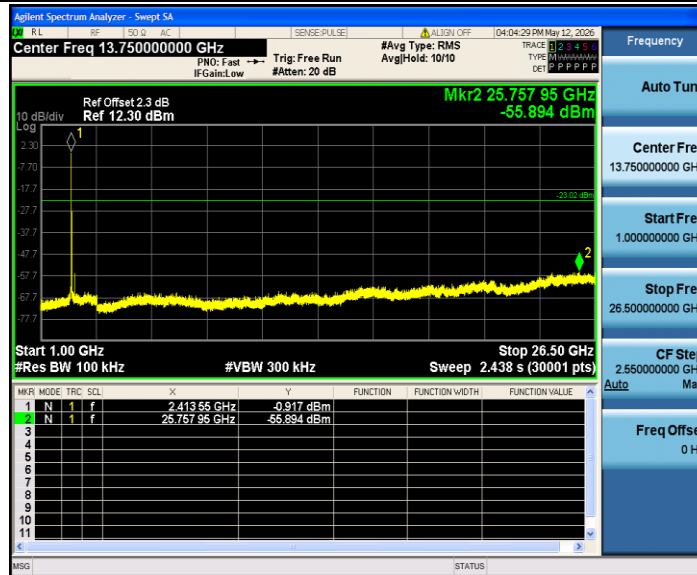
11G_Ant1_2412_0~Reference



11G_Ant1_2412_30~1000



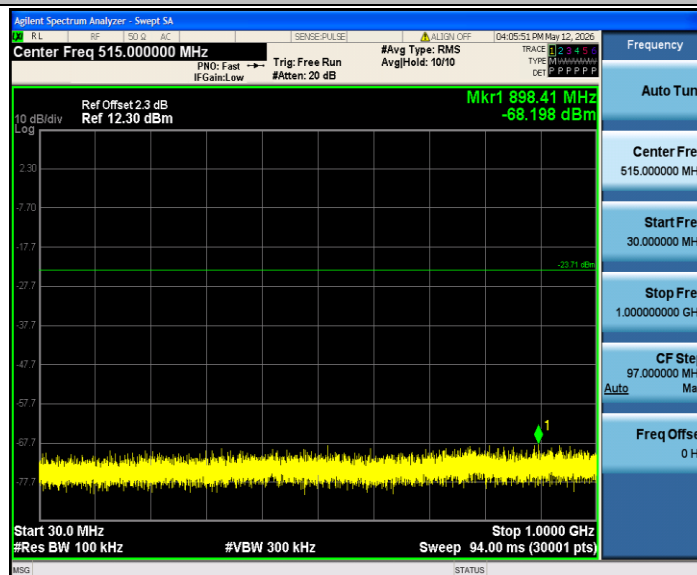
11G_Ant1_2412_1000~26500



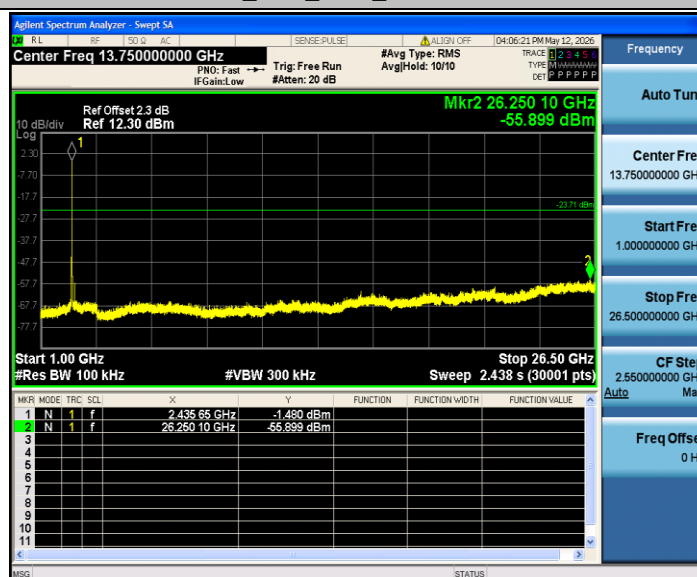
11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000



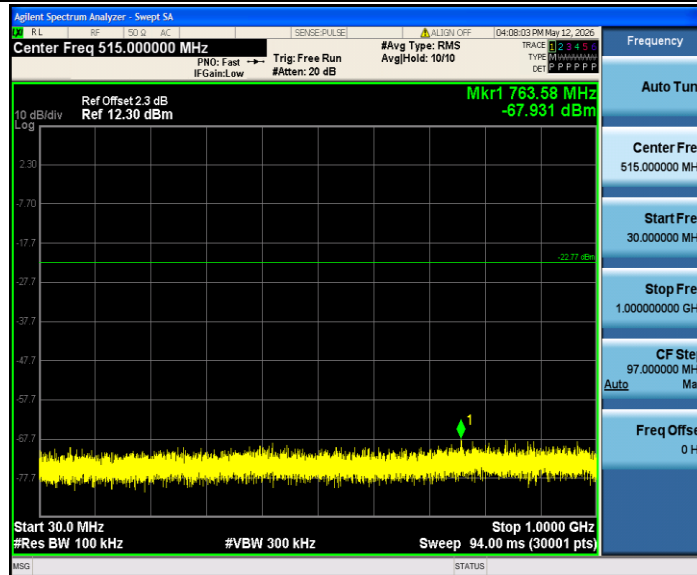
11G_Ant1_2437_1000~26500



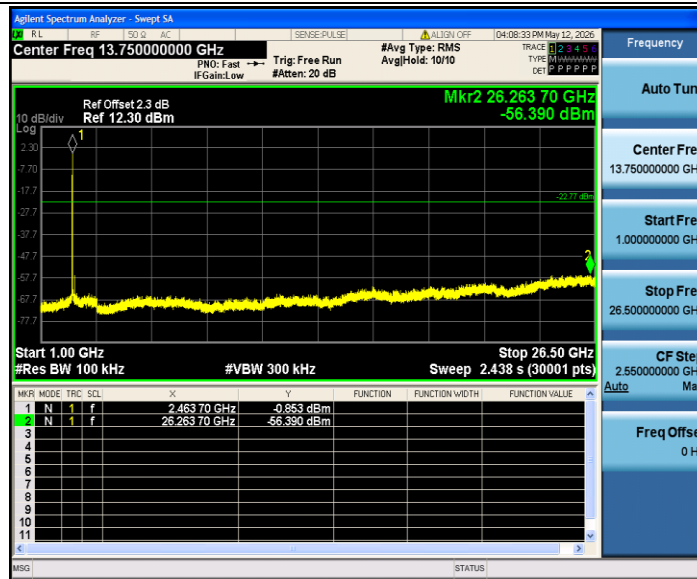
11G_Ant1_2462_0~Reference



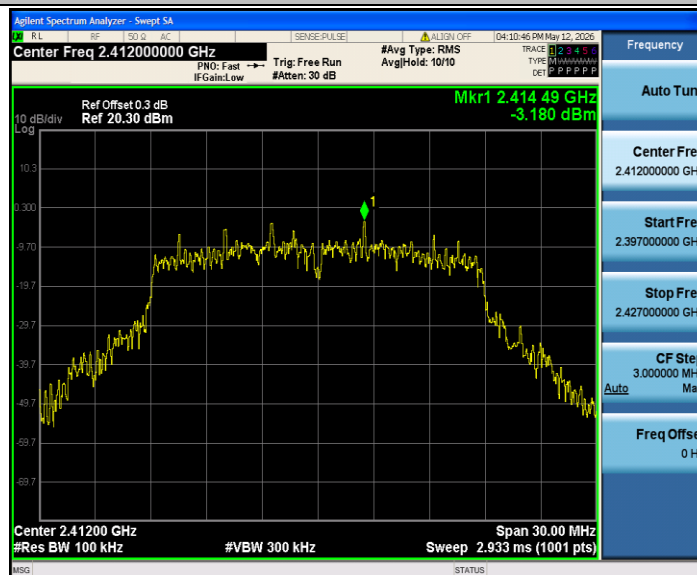
11G_Ant1_2462_30~1000



11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference



11N20SISO_Ant1_2412_30~1000

