



Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Vehicle navigation

Test Model: AV-N64

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Jack Cheng





B.1 DTS Bandwidth

Test Result

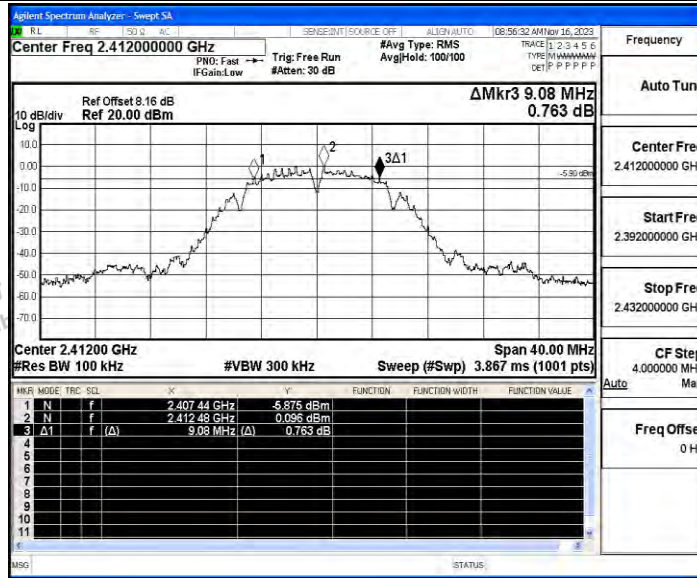
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant	2412	9.080	2407.440	2416.520	0.5	PASS
		2437	10.080	2431.960	2442.040	0.5	PASS
		2462	8.520	2458.000	2466.520	0.5	PASS
11G	Ant	2412	16.360	2403.800	2420.160	0.5	PASS
		2437	16.360	2428.800	2445.160	0.5	PASS
		2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant	2412	17.560	2403.200	2420.760	0.5	PASS
		2437	17.600	2428.200	2445.800	0.5	PASS
		2462	17.600	2453.200	2470.800	0.5	PASS
11N40SISO	Ant	2422	35.680	2404.240	2439.920	0.5	PASS
		2437	35.840	2419.080	2454.920	0.5	PASS
		2452	35.760	2434.160	2469.920	0.5	PASS



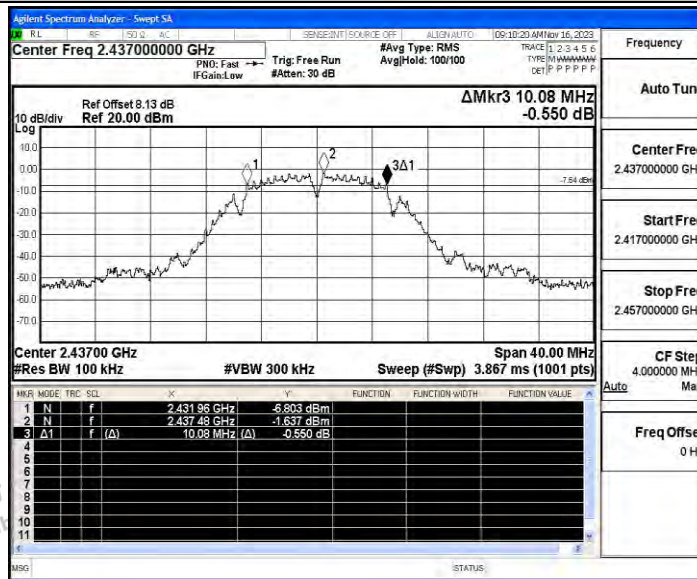


Test Graphs

11B_Ant_2412

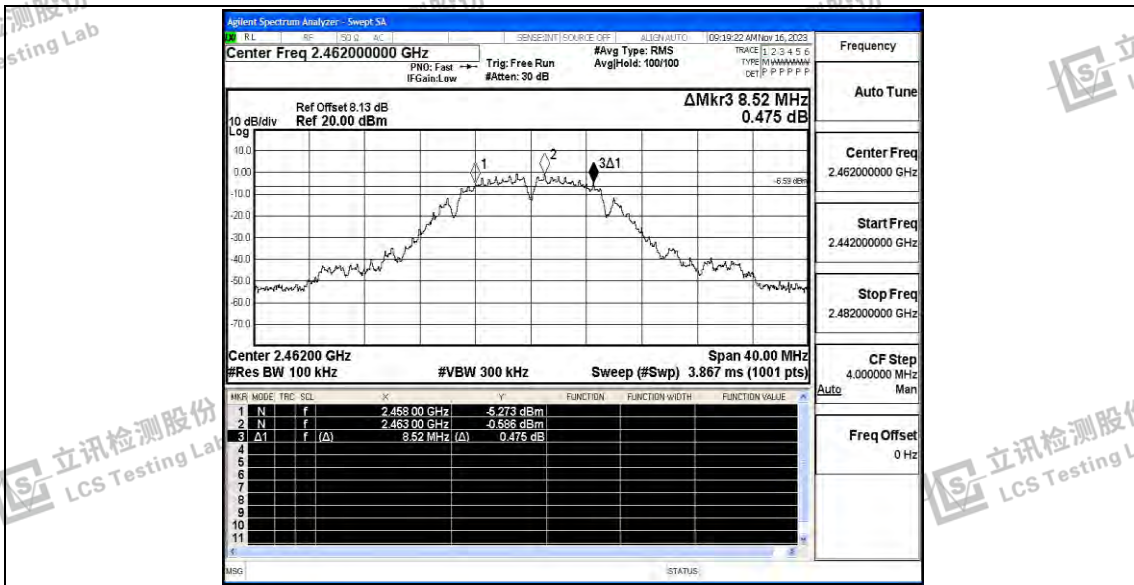


11B_Ant_2437

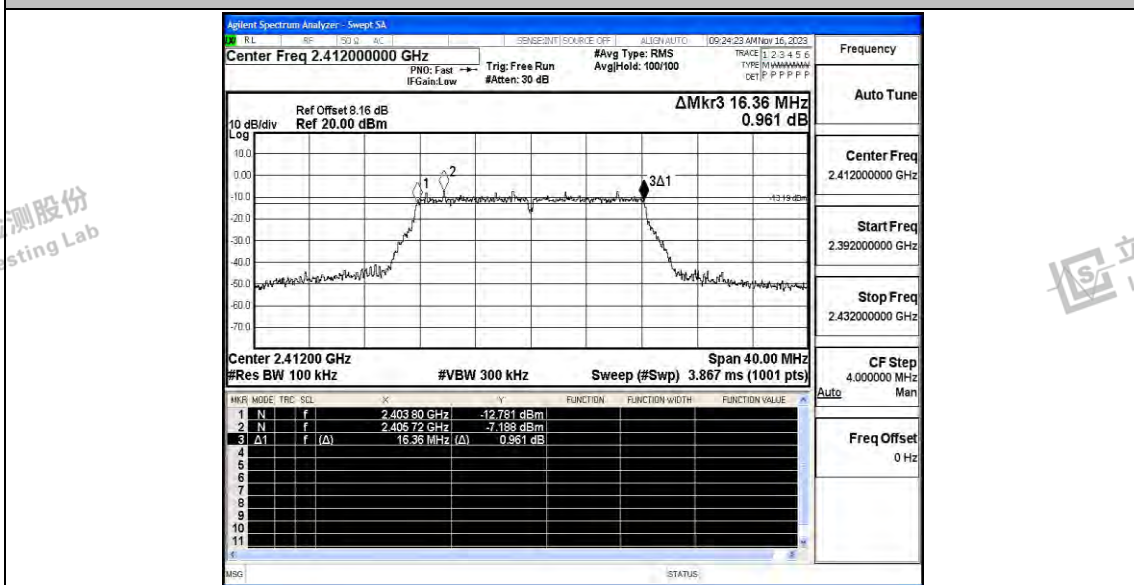


11B_Ant_2462



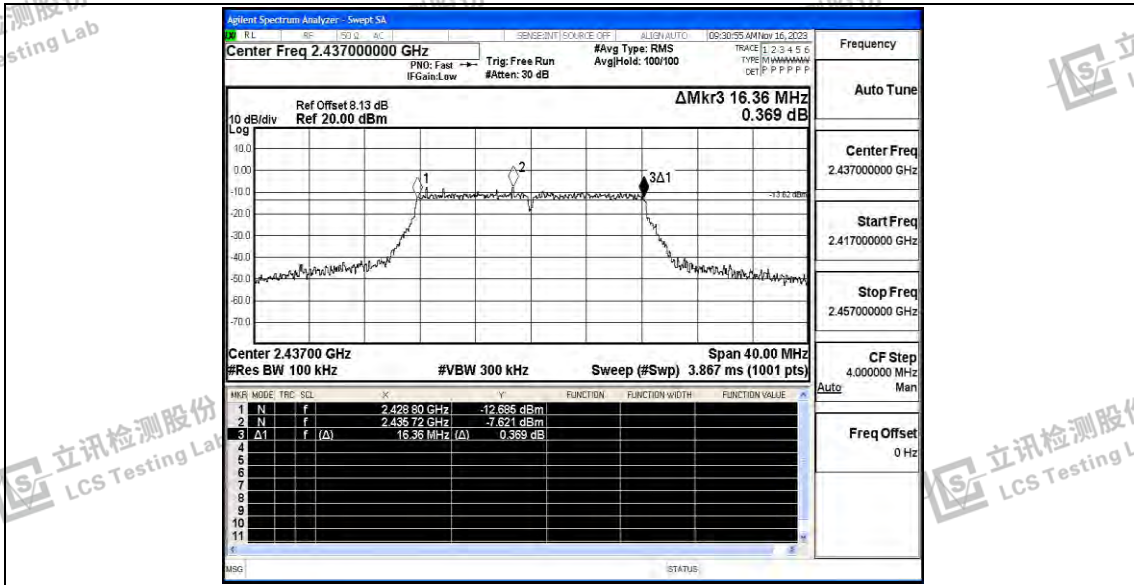


11G_Ant_2412

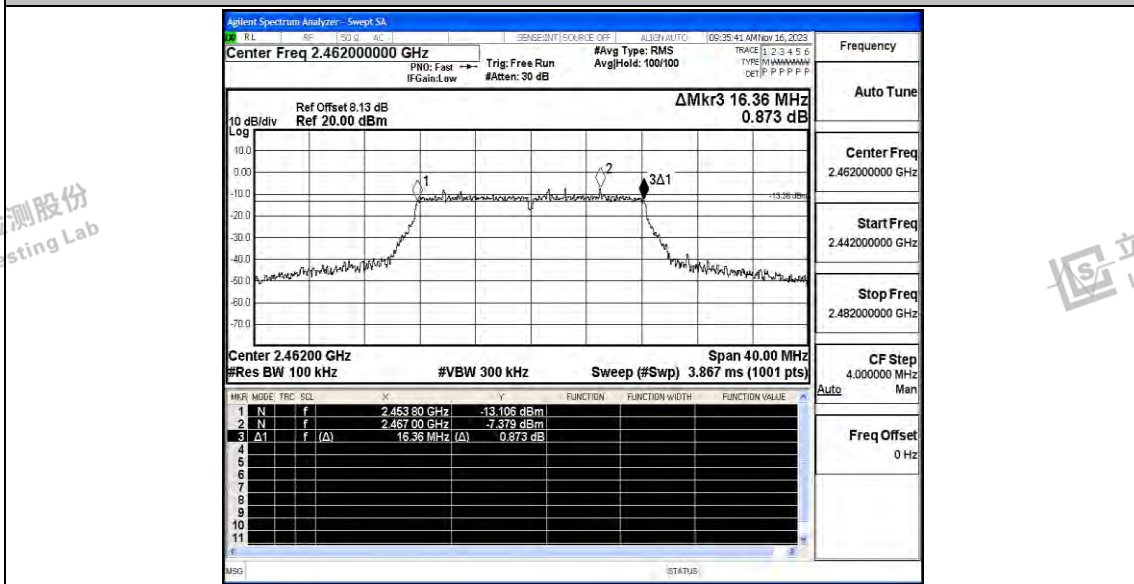


11G_Ant_2437



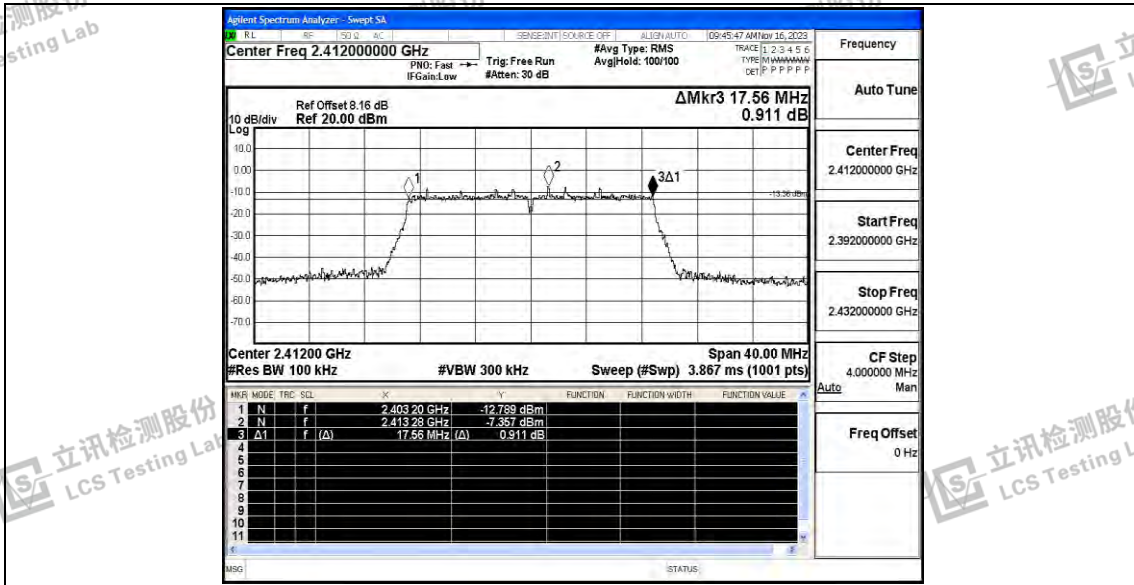


11G_Ant_2462

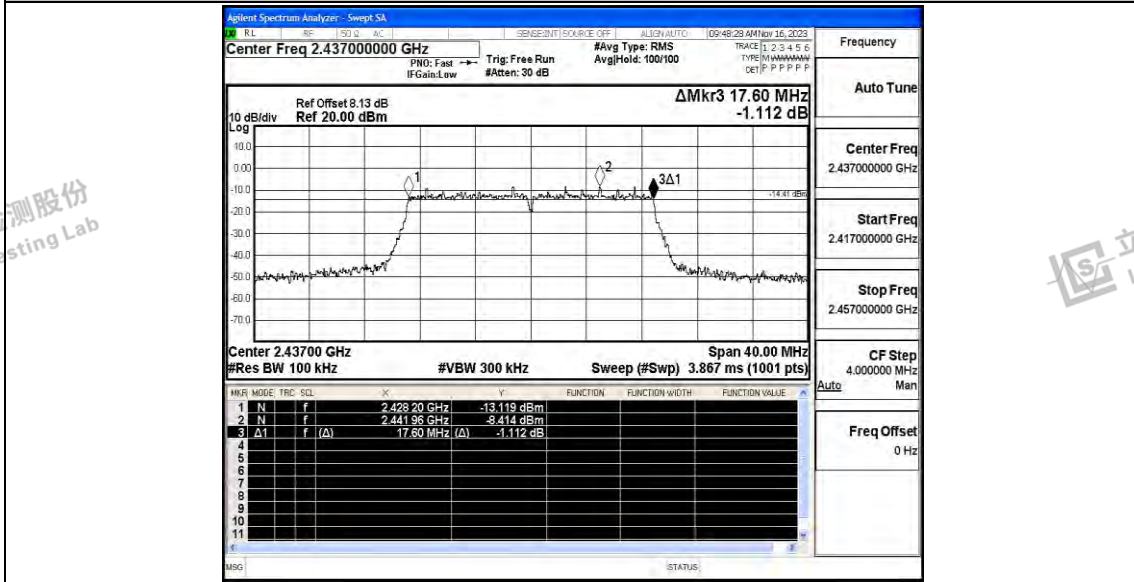


11N20SISO_Ant_2412



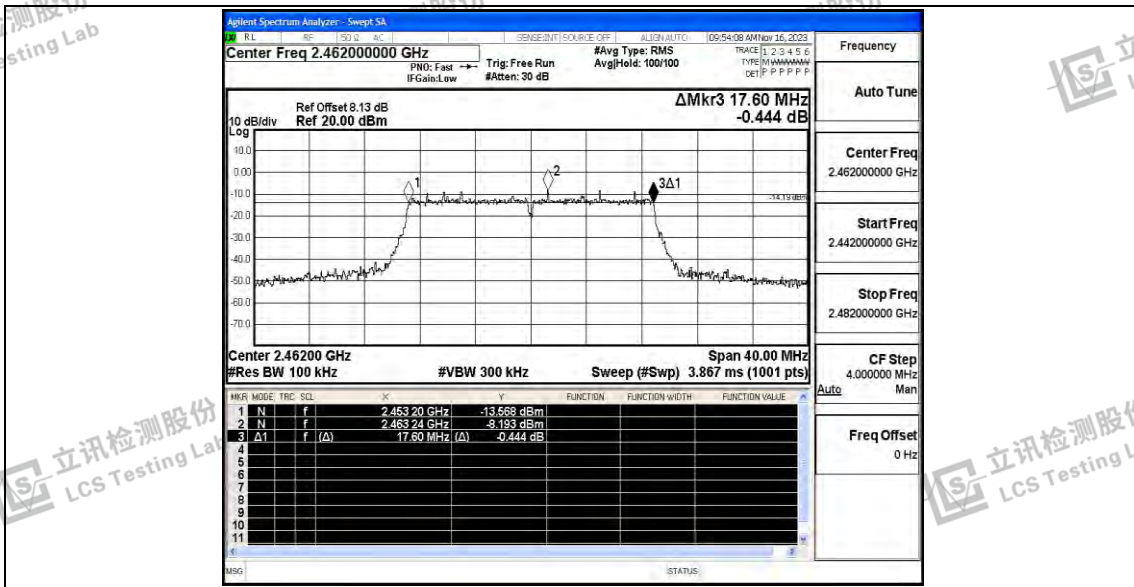


11N20SISO_Ant_2437

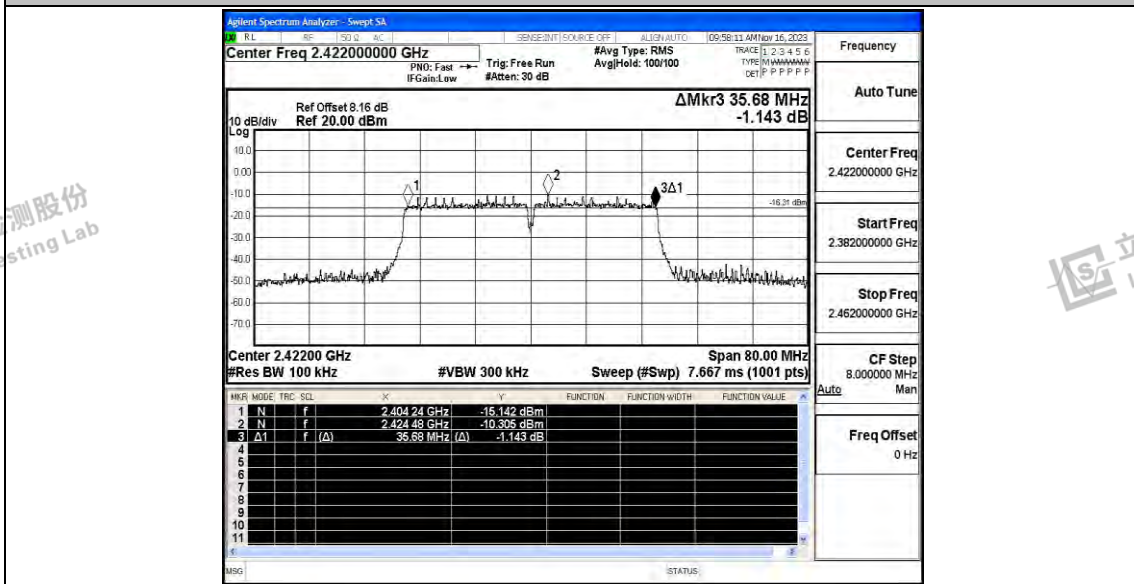


11N20SISO_Ant_2462



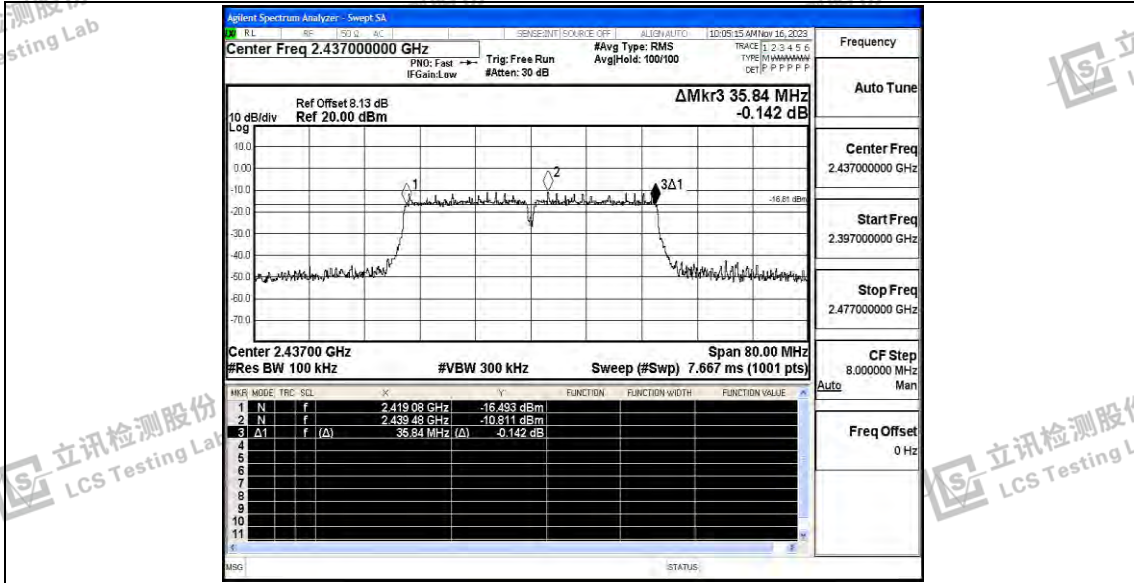


11N40SISO_Ant_2422

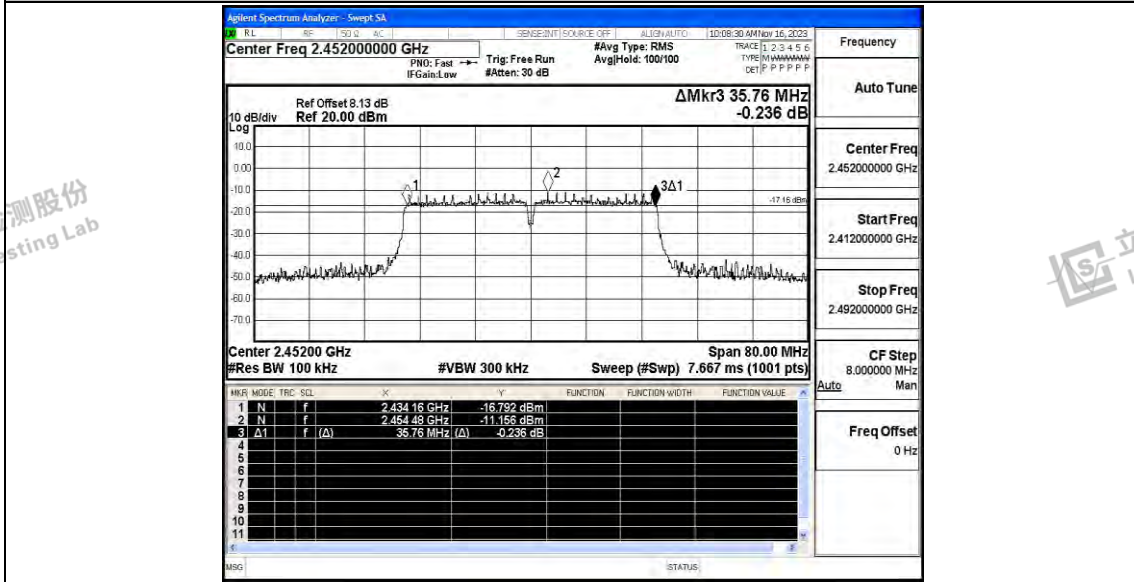


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.2 Maximum conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Set Power	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant	2412	---	14.49	≤30.00	PASS
		2437	---	14.20	≤30.00	PASS
		2462	---	13.64	≤30.00	PASS
11G	Ant	2412	---	14.19	≤30.00	PASS
		2437	---	13.73	≤30.00	PASS
		2462	---	13.49	≤30.00	PASS
11N20SISO	Ant	2412	---	13.21	≤30.00	PASS
		2437	---	12.96	≤30.00	PASS
		2462	---	12.43	≤30.00	PASS
11N40SISO	Ant	2422	---	13.08	≤30.00	PASS
		2437	---	13.02	≤30.00	PASS
		2452	---	12.71	≤30.00	PASS





B.3 Maximum power spectral density

Test Result

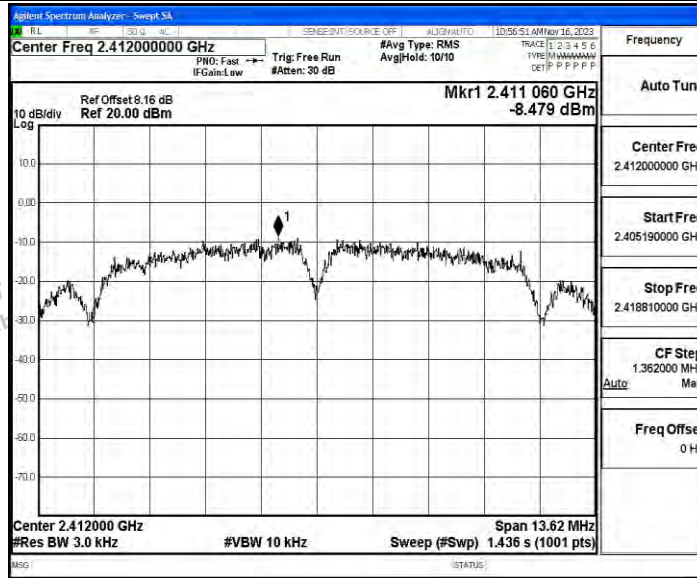
TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant	2412	-8.48	≤8.00	PASS
		2437	-9.35	≤8.00	PASS
		2462	-8.92	≤8.00	PASS
11G	Ant	2412	-20	≤8.00	PASS
		2437	-20.46	≤8.00	PASS
		2462	-20.44	≤8.00	PASS
11N20SISO	Ant	2412	-20.85	≤8.00	PASS
		2437	-20.98	≤8.00	PASS
		2462	-22.44	≤8.00	PASS
11N40SISO	Ant	2422	-24.16	≤8.00	PASS
		2437	-24.95	≤8.00	PASS
		2452	-25.22	≤8.00	PASS



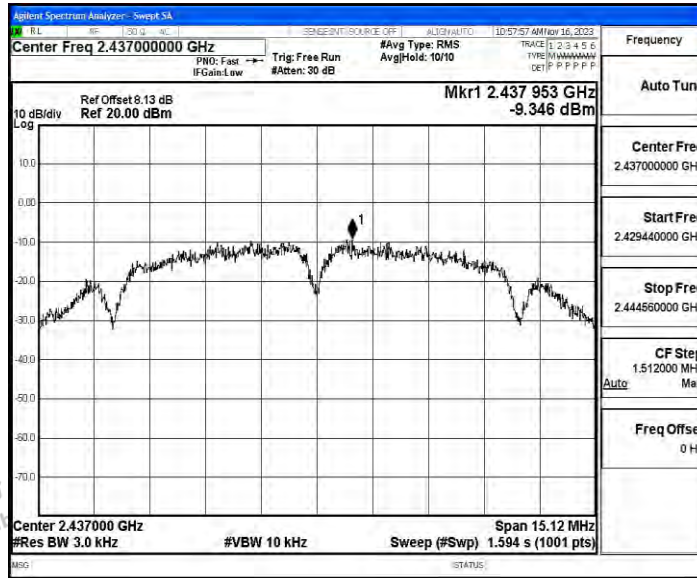


Test Graphs

11B_Ant_2412

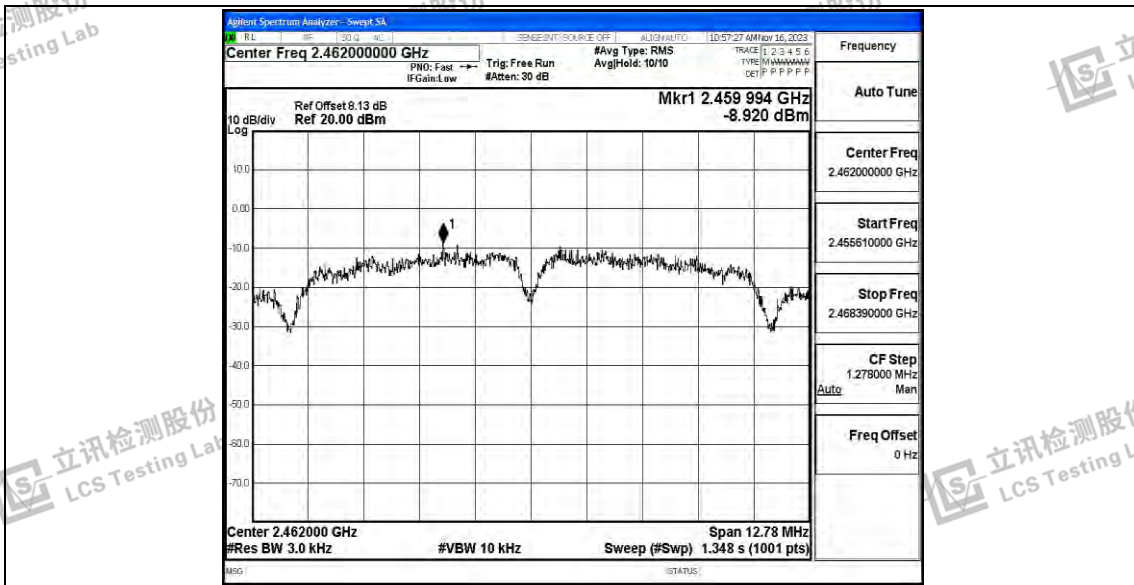


11B_Ant_2437

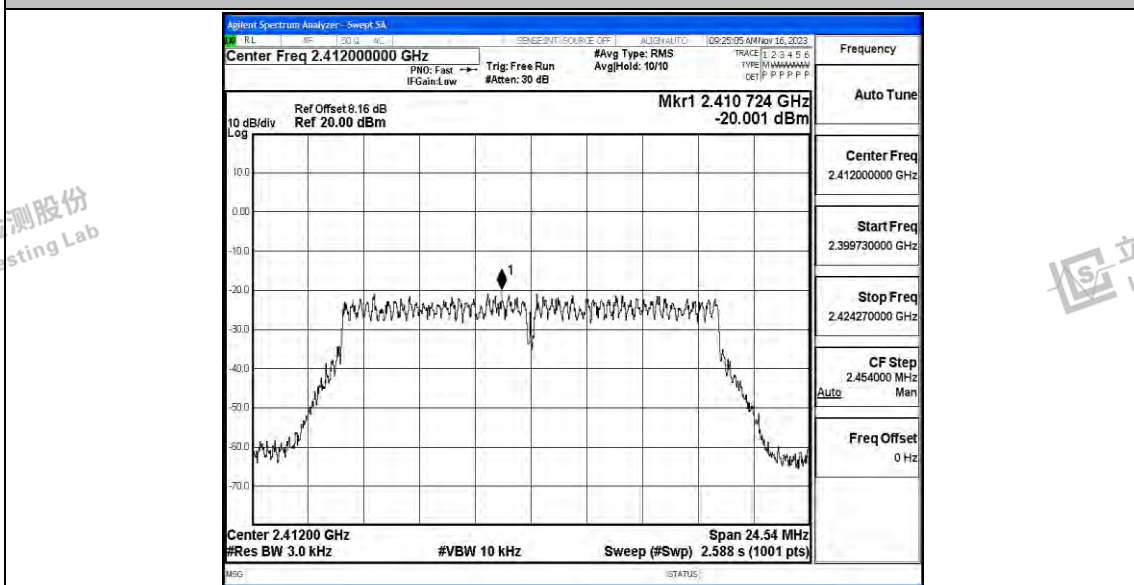


11B_Ant_2462



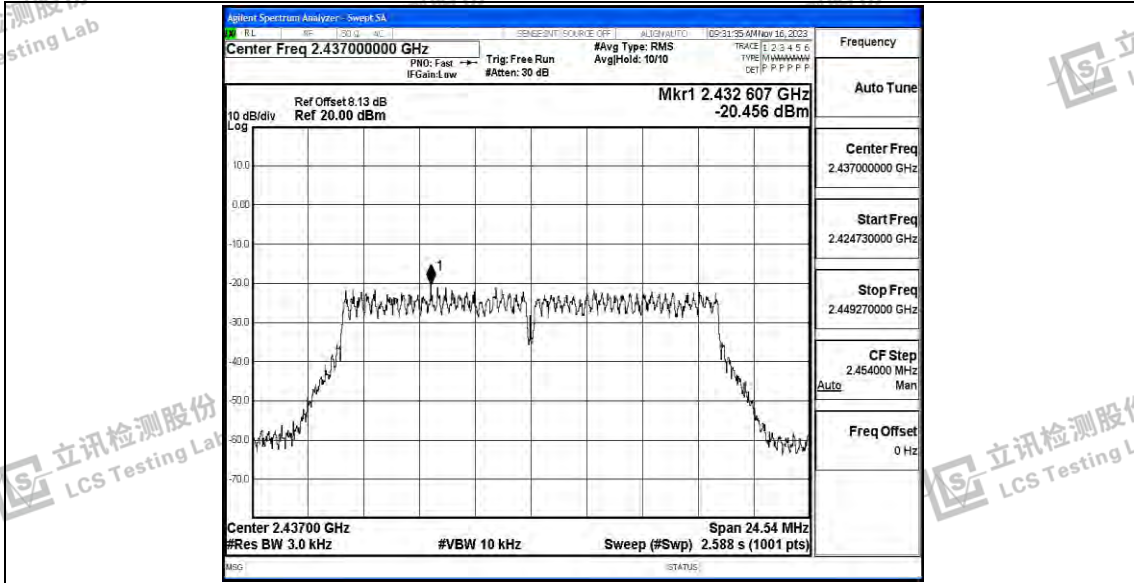


11G_Ant_2412

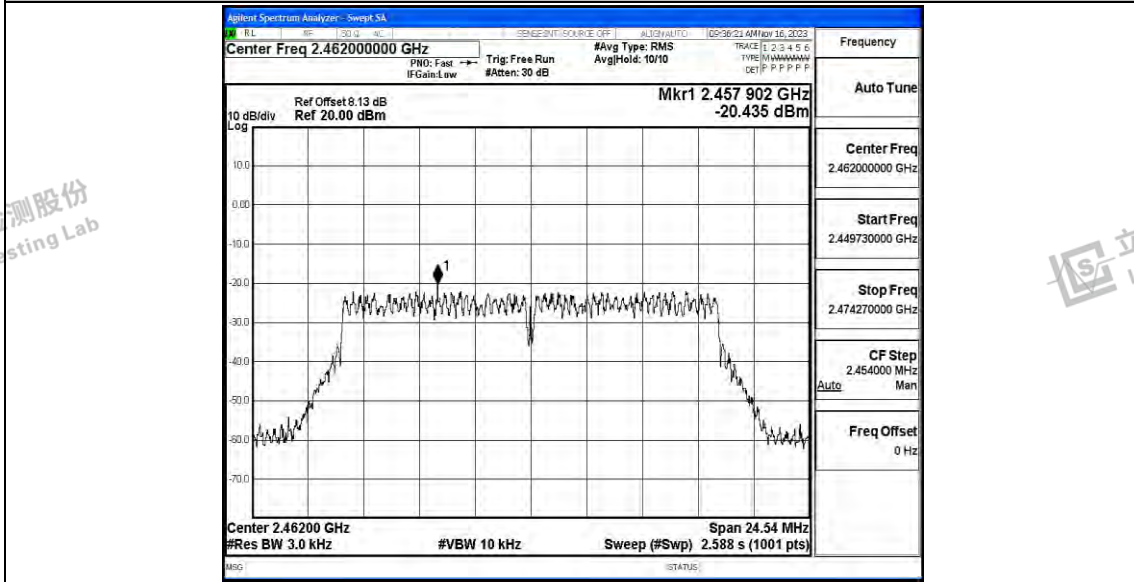


11G_Ant_2437



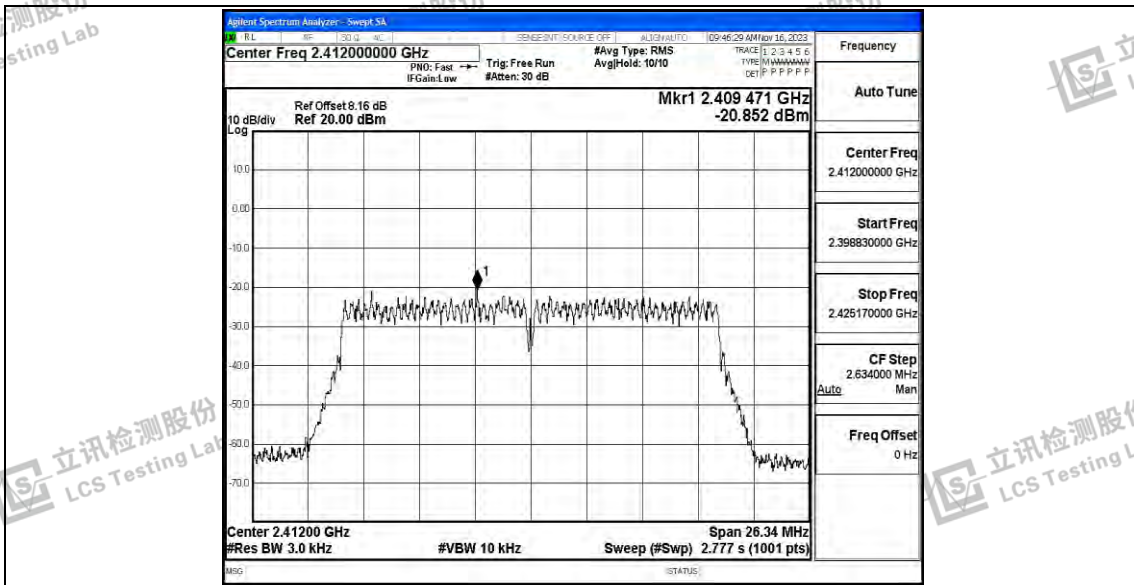


11G_Ant_2462

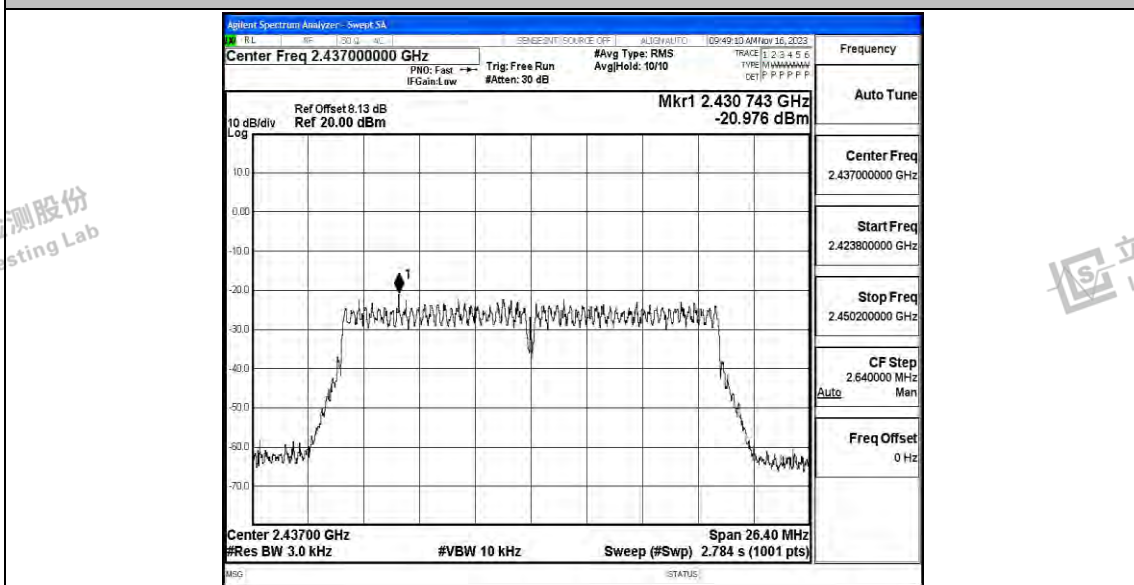


11N20SISO_Ant_2412



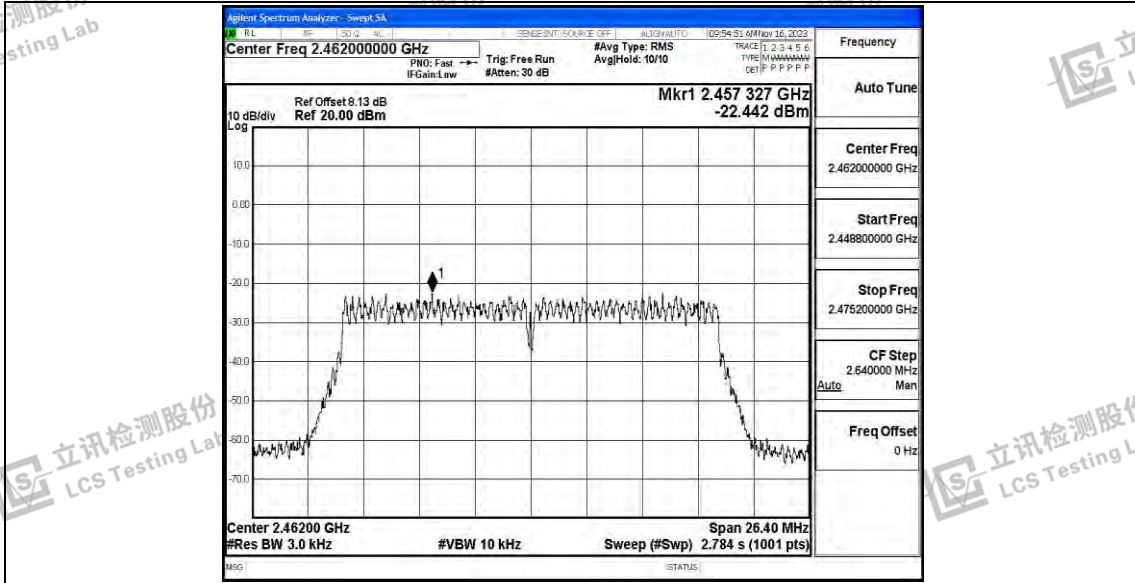


11N20SISO_Ant_2437

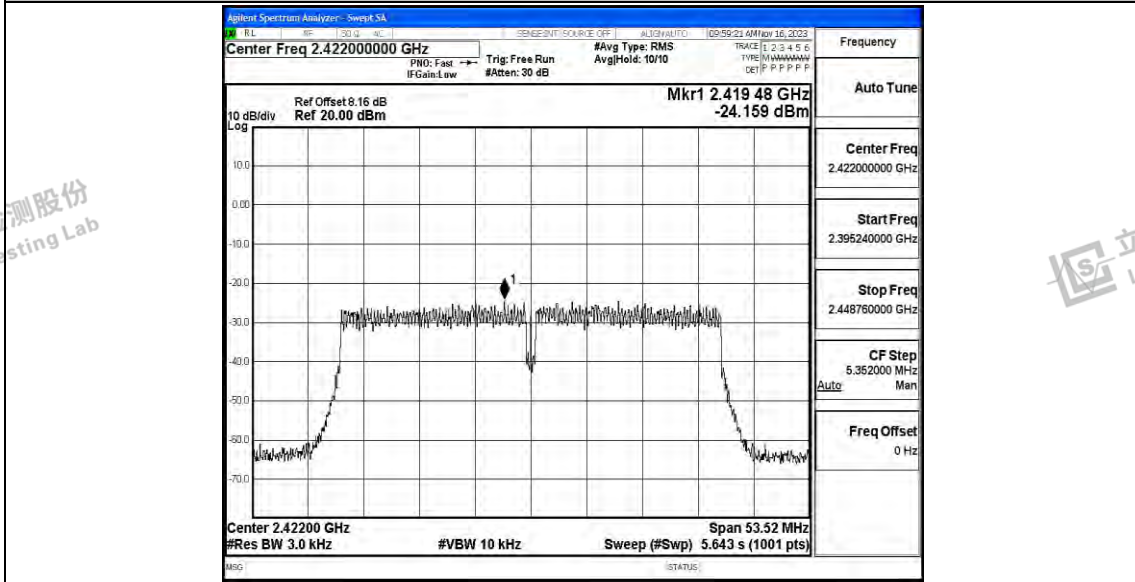


11N20SISO_Ant_2462



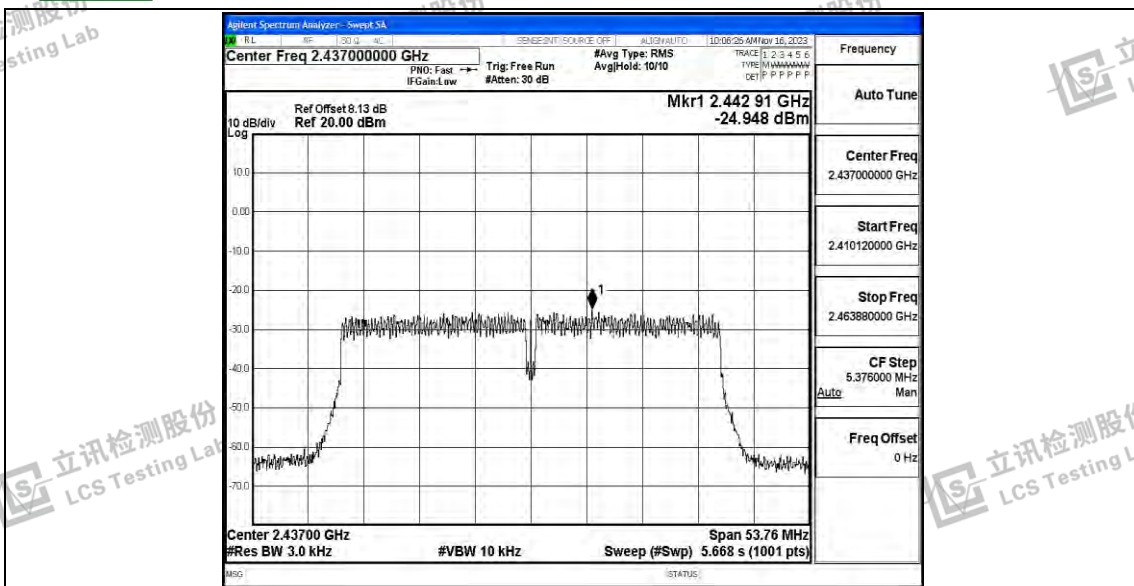


11N40SISO_Ant_2422

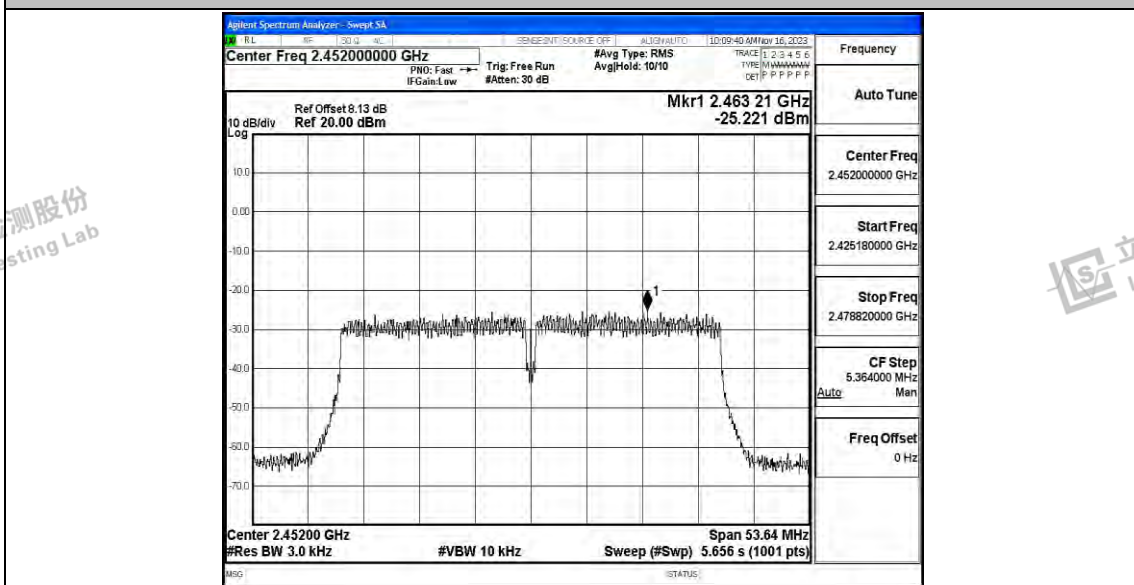


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.4 Band edge measurements

Test Result

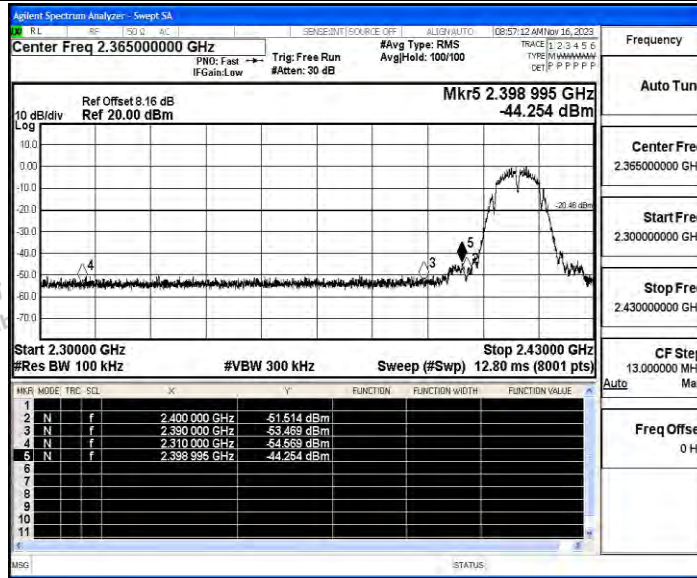
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant	Low	2412	-0.46	-44.25	≤-20.46	PASS
		High	2462	-1.14	-49.89	≤-21.14	PASS
11G	Ant	Low	2412	-6.73	-42.72	≤-26.73	PASS
		High	2462	-7.30	-48.78	≤-27.3	PASS
11N20SISO	Ant	Low	2412	-7.25	-44.95	≤-27.25	PASS
		High	2462	-8.62	-49.24	≤-28.62	PASS
11N40SISO	Ant	Low	2422	-10.25	-43.91	≤-30.25	PASS
		High	2452	-11.15	-43.8	≤-31.15	PASS



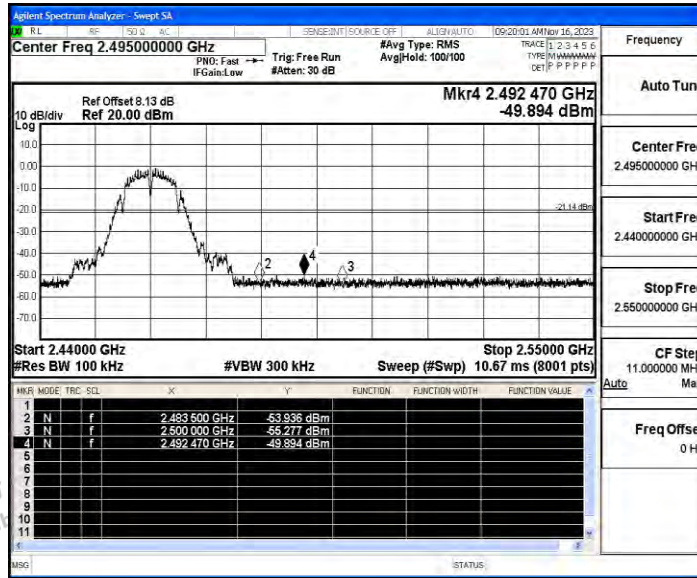


Test Graphs

11B_Ant_Low_2412

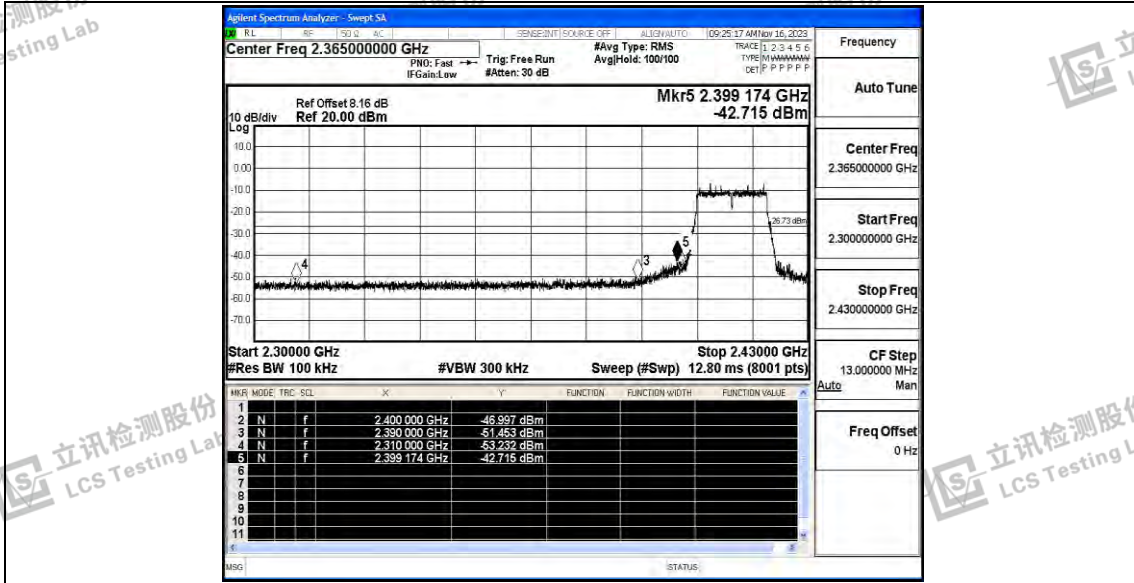


11B_Ant_High_2462

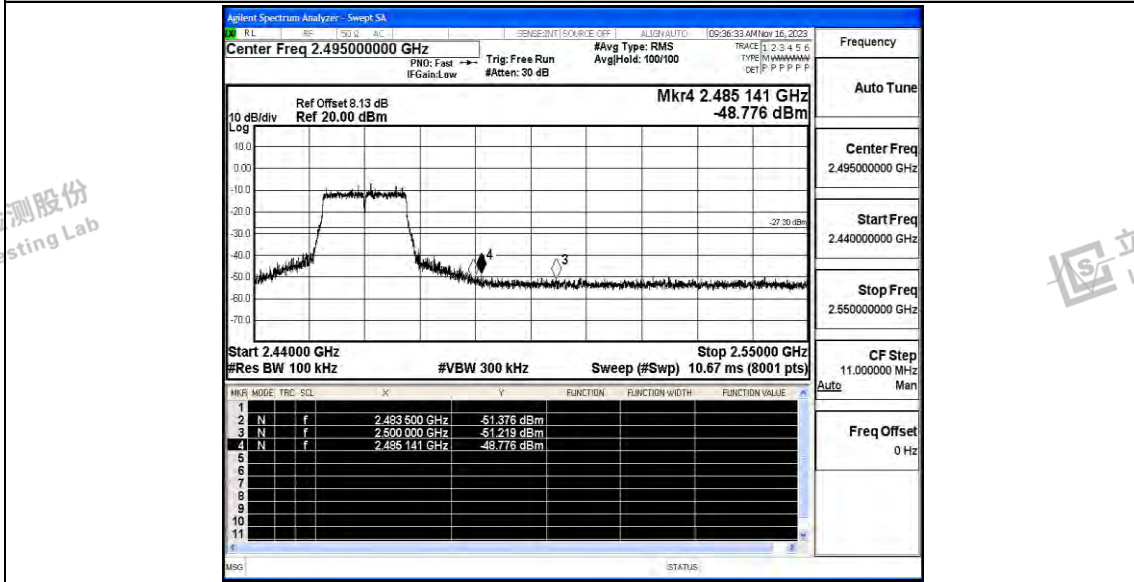


11G_Ant_Low_2412



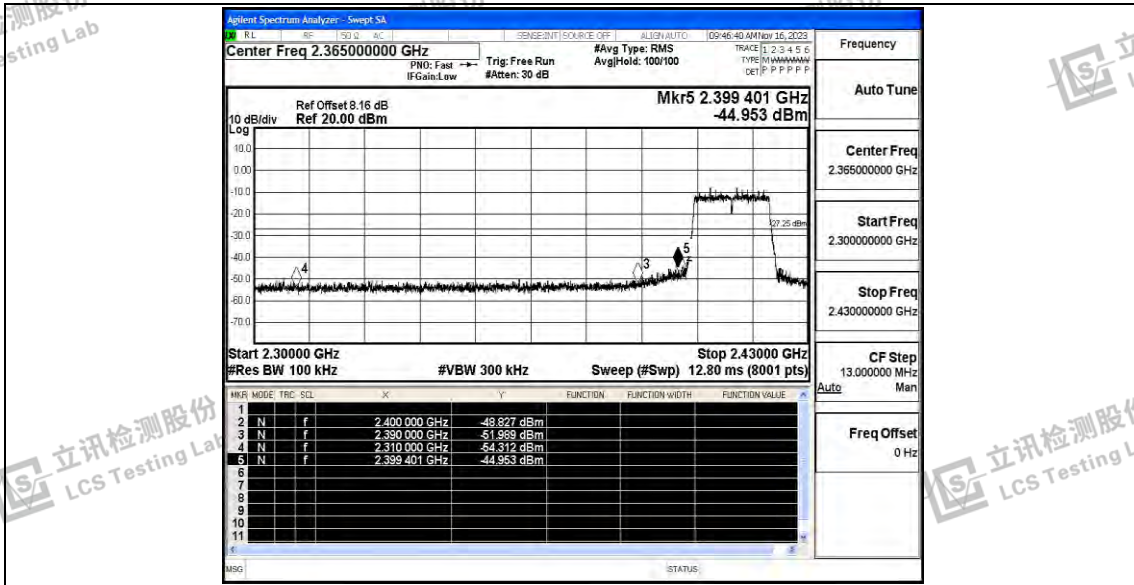


11G_Ant_High_2462

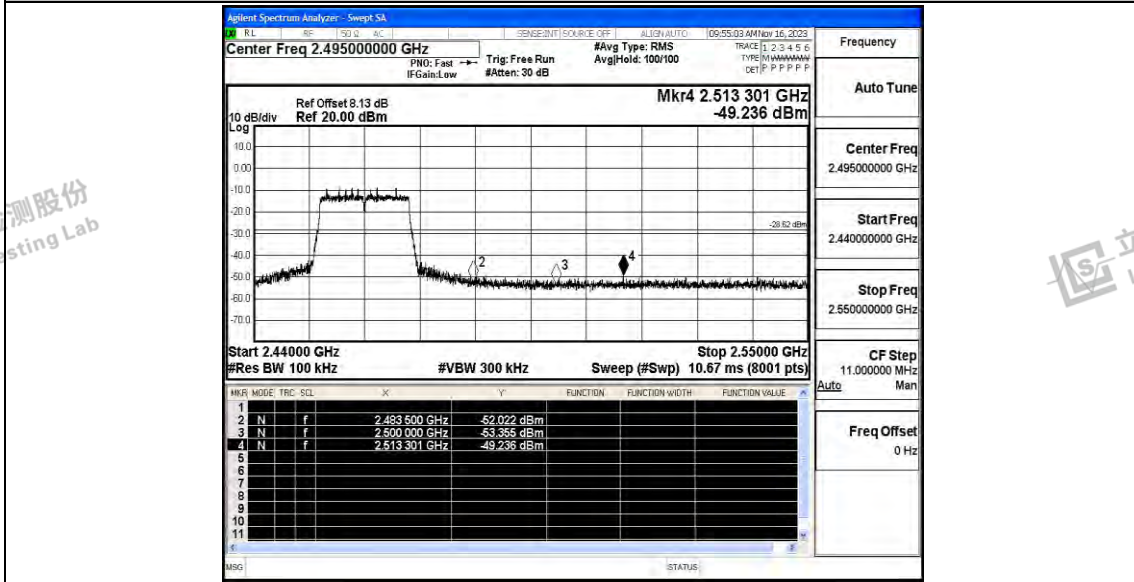


11N20SISO_Ant_Low_2412



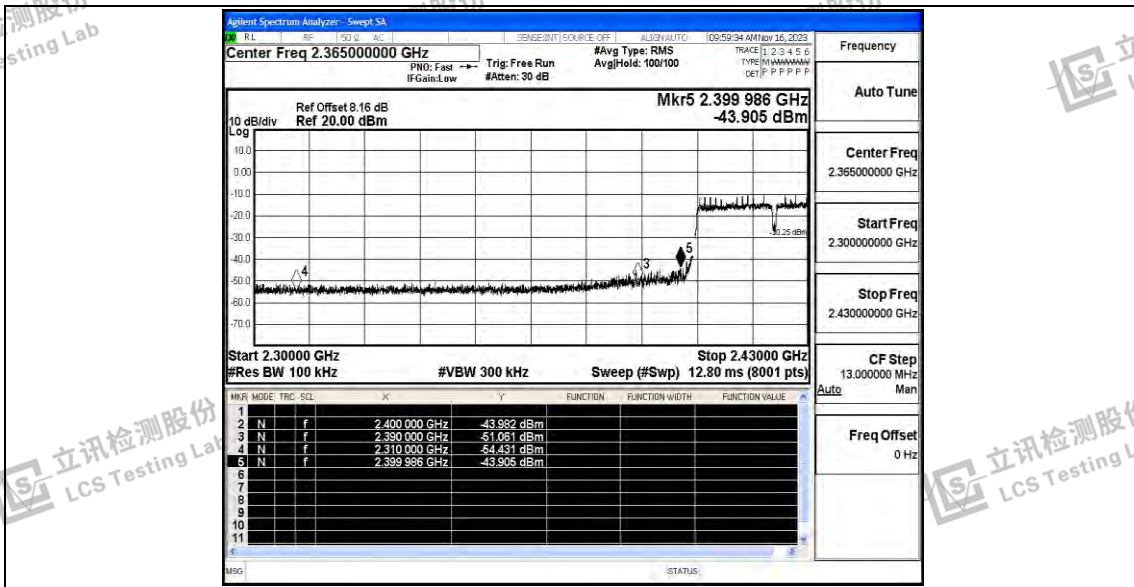


11N20SISO_Ant_High_2462

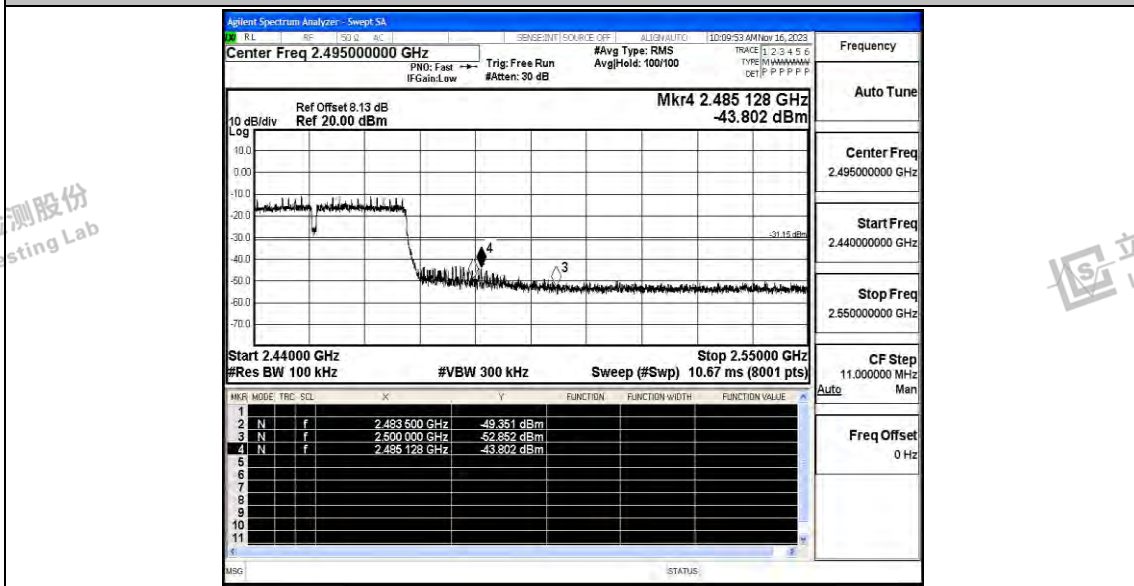


11N40SISO_Ant_Low_2422





11N40SISO_Ant_High_2452





B.5 Conducted Spurious Emission

Test Result

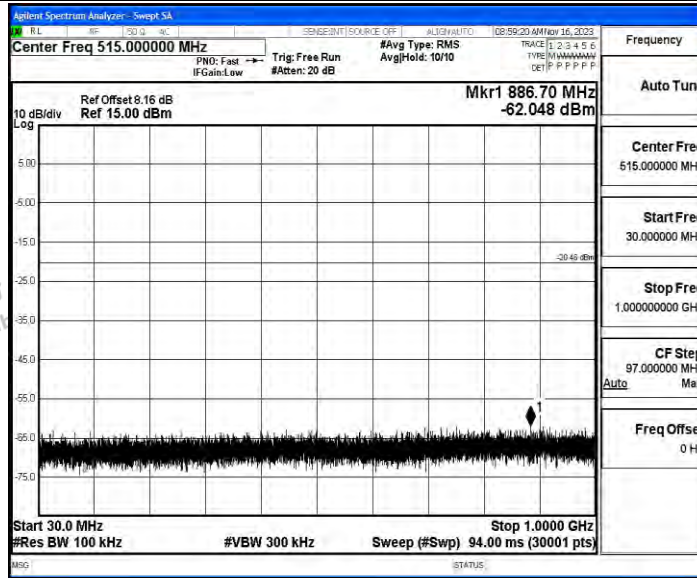
TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant	2412	30~1000	-0.46	-62.05	≤-20.46	PASS
			1000~26500	-0.46	-48.75	≤-20.46	PASS
		2437	30~1000	-0.98	-61.23	≤-20.98	PASS
			1000~26500	-0.98	-49.4	≤-20.98	PASS
		2462	30~1000	-1.14	-61.42	≤-21.14	PASS
			1000~26500	-1.14	-48.29	≤-21.14	PASS
11G	Ant	2412	30~1000	-6.73	-61.85	≤-26.73	PASS
			1000~26500	-6.73	-49.12	≤-26.73	PASS
		2437	30~1000	-7.53	-61.49	≤-27.53	PASS
			1000~26500	-7.53	-48.53	≤-27.53	PASS
		2462	30~1000	-7.30	-61.74	≤-27.3	PASS
			1000~26500	-7.30	-48.76	≤-27.3	PASS
11N20SISO	Ant	2412	30~1000	-7.25	-61.35	≤-27.25	PASS
			1000~26500	-7.25	-49.04	≤-27.25	PASS
		2437	30~1000	-7.87	-61.8	≤-27.87	PASS
			1000~26500	-7.87	-49.54	≤-27.87	PASS
		2462	30~1000	-8.62	-61.52	≤-28.62	PASS
			1000~26500	-8.62	-49.1	≤-28.62	PASS
11N40SISO	Ant	2422	30~1000	-10.25	-61.84	≤-30.25	PASS
			1000~26500	-10.25	-49.34	≤-30.25	PASS
		2437	30~1000	-10.77	-35.7	≤-30.77	PASS
			1000~26500	-10.77	-49.19	≤-30.77	PASS
		2452	30~1000	-11.15	-61.58	≤-31.15	PASS
			1000~26500	-11.15	-48.98	≤-31.15	PASS



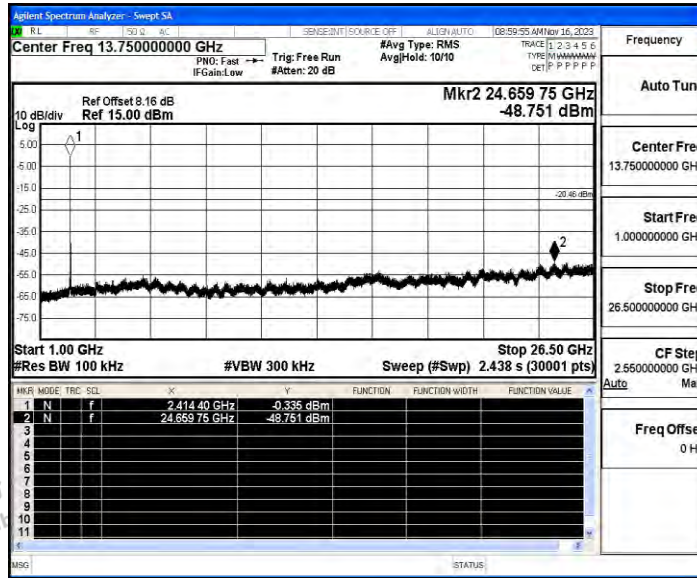


Test Graphs

11B_Ant_2412_30~1000

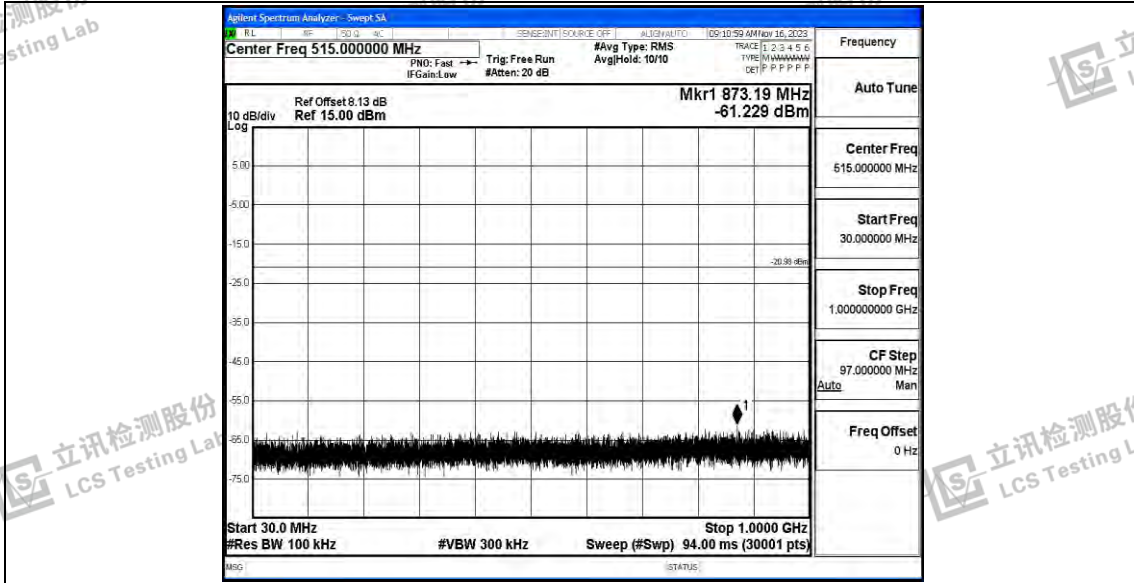


11B_Ant_2412_1000~26500

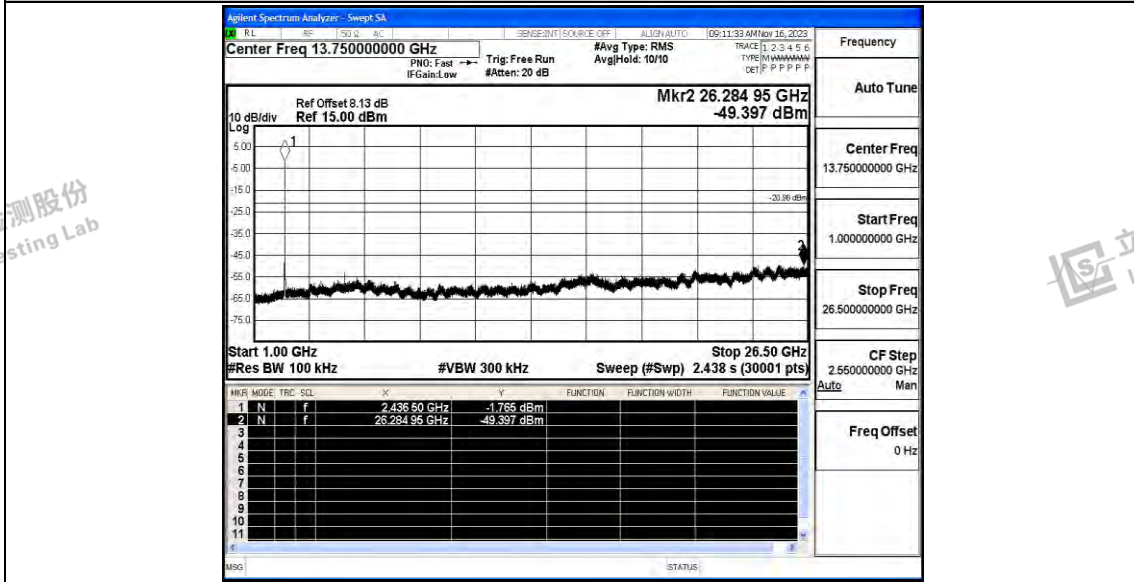


11B_Ant_2437_30~1000



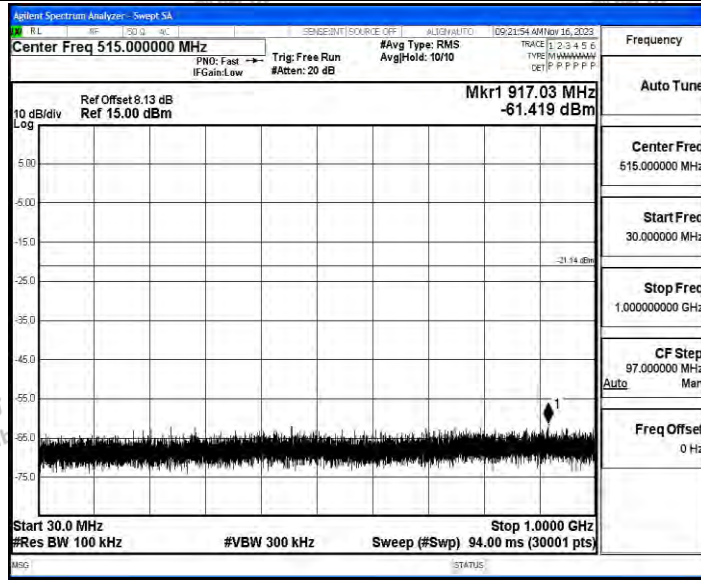


11B_Ant_2437_1000~26500

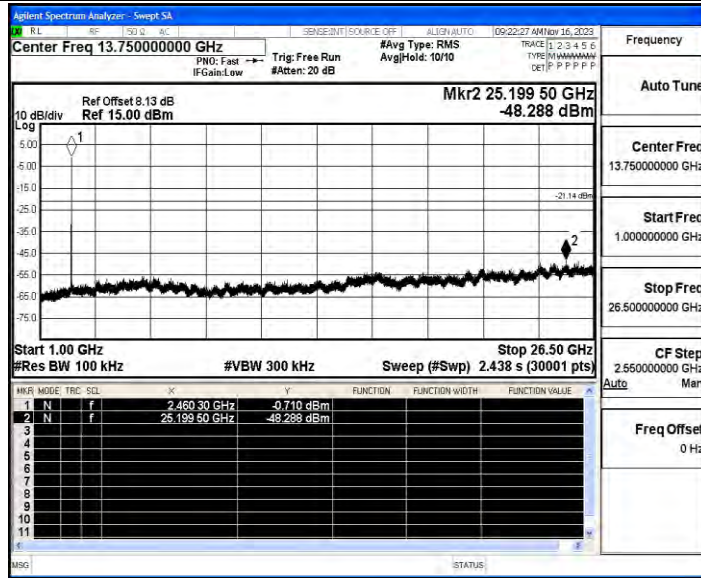


11B_Ant_2462_30~1000



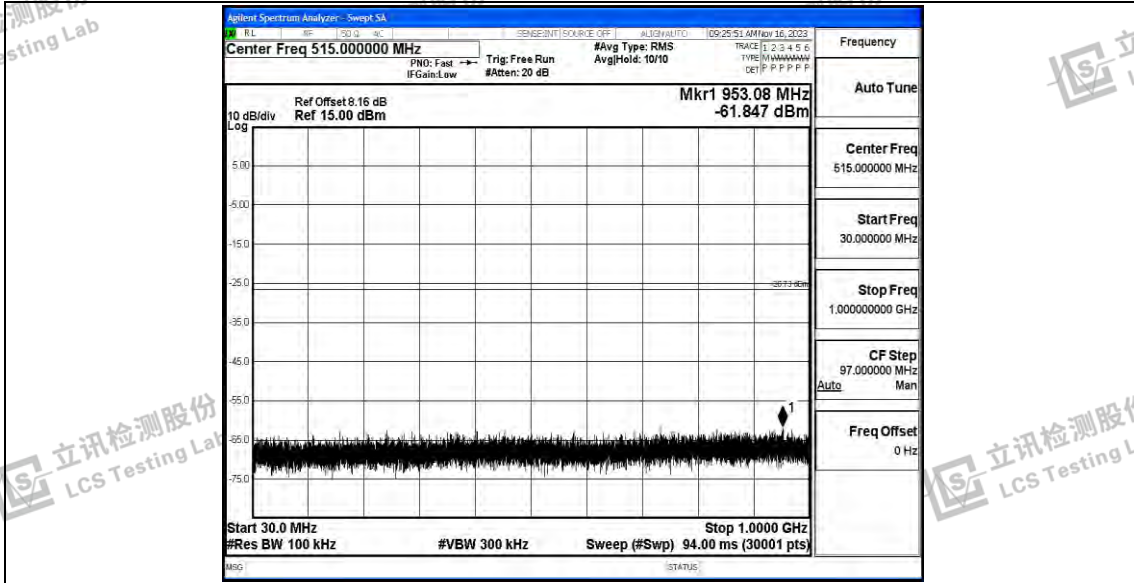


11B_Ant_2462_1000~26500

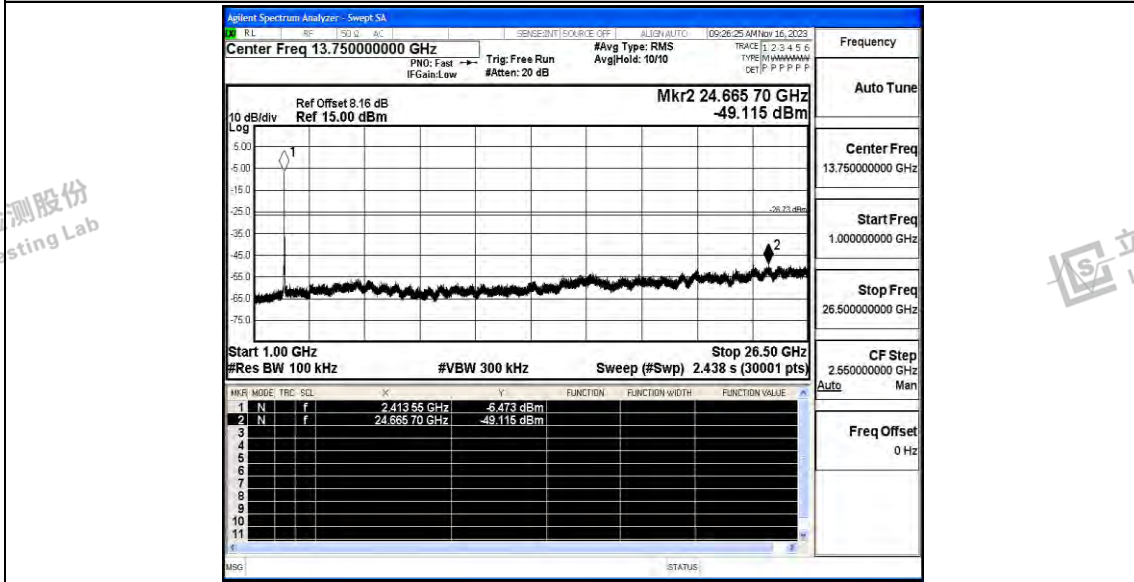


11G_Ant_2412_30~1000



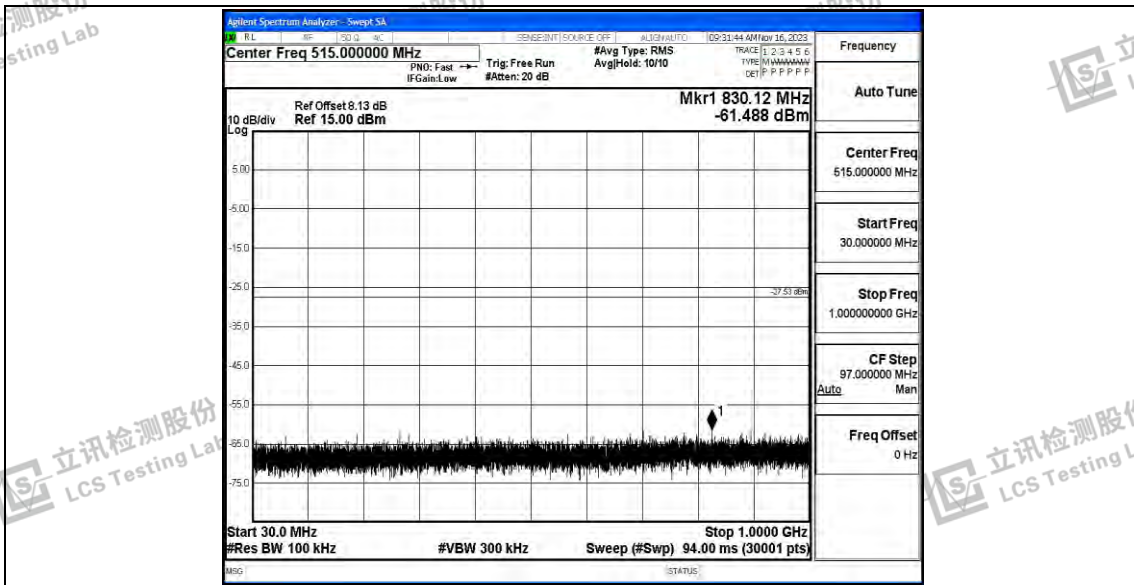


11G_Ant_2412_1000~26500

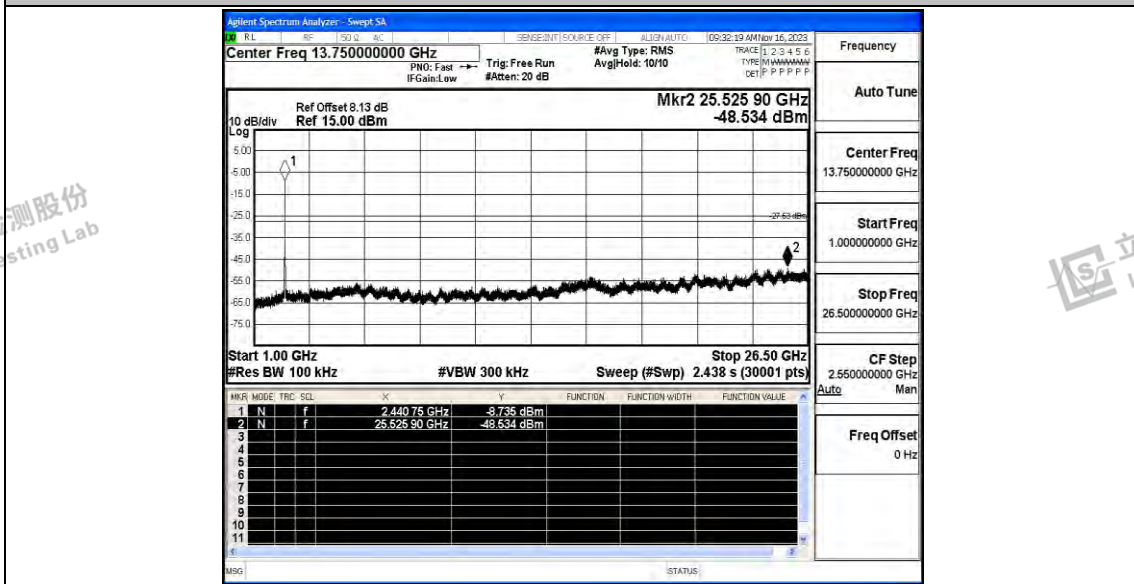


11G_Ant_2437_30~1000



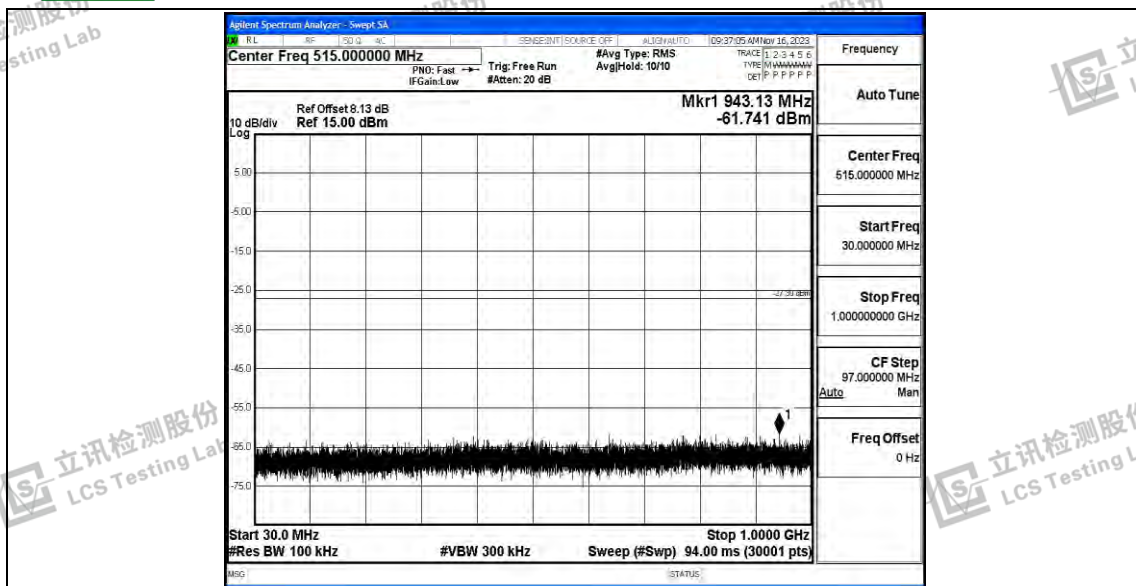


11G_Ant_2437_1000~26500

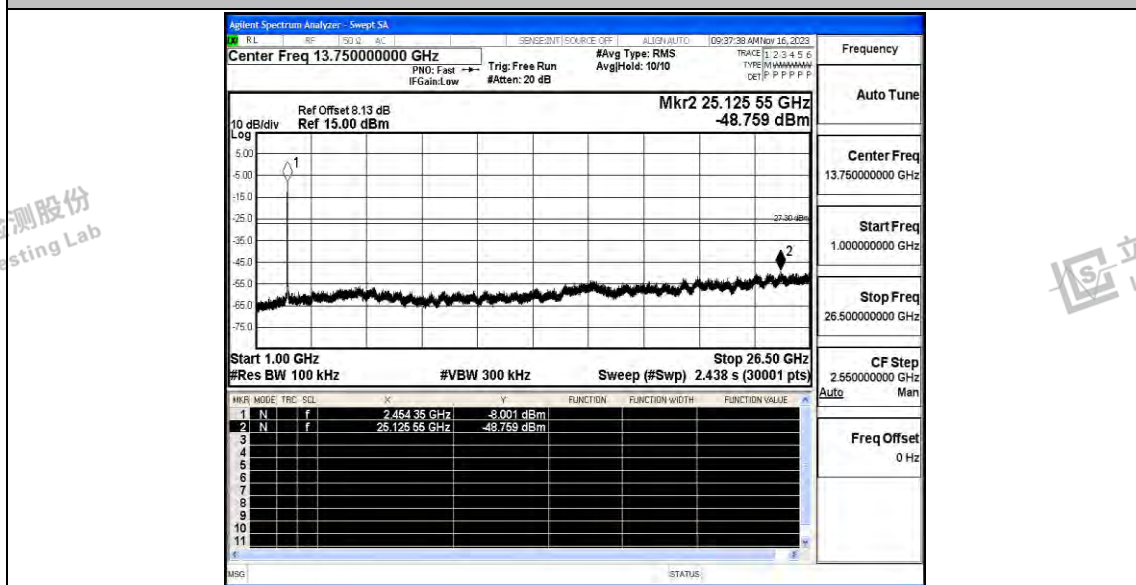


11G_Ant_2462_30~1000



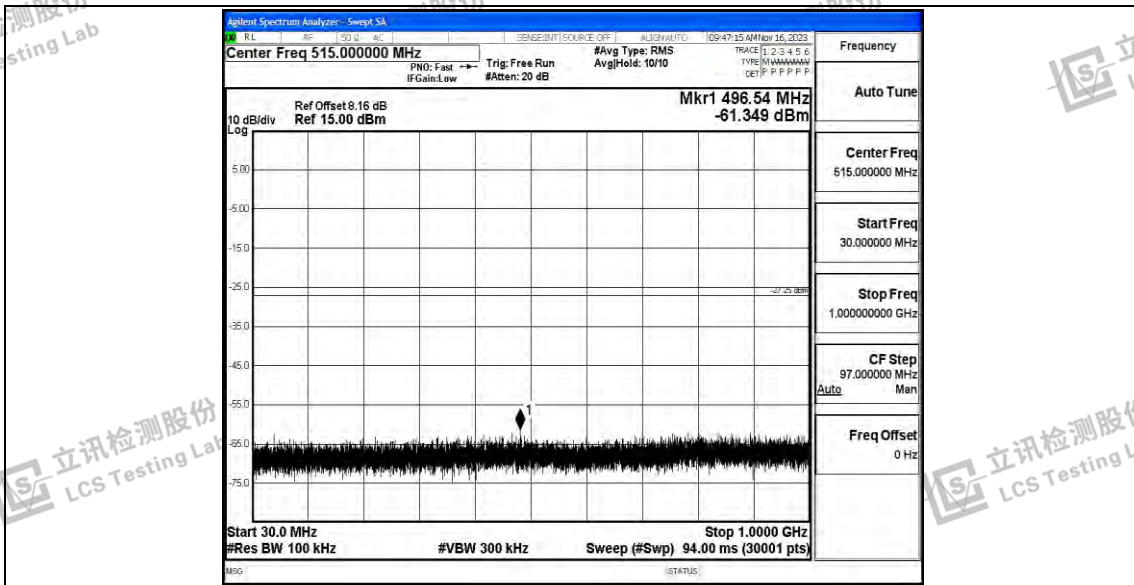


11G_Ant_2462_1000~26500

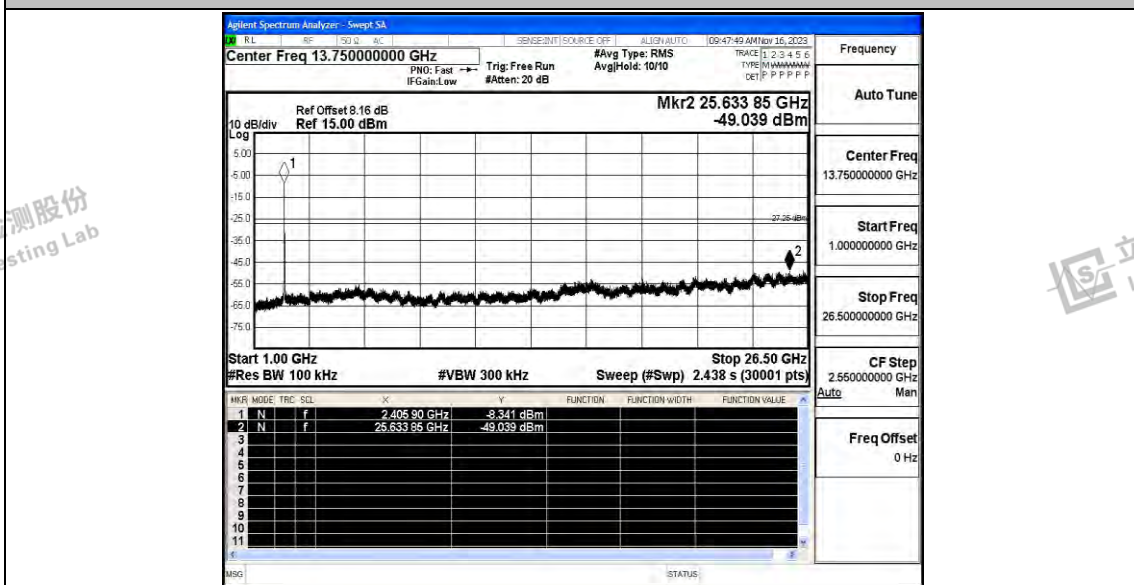


11N20SISO_Ant_2412_30~1000



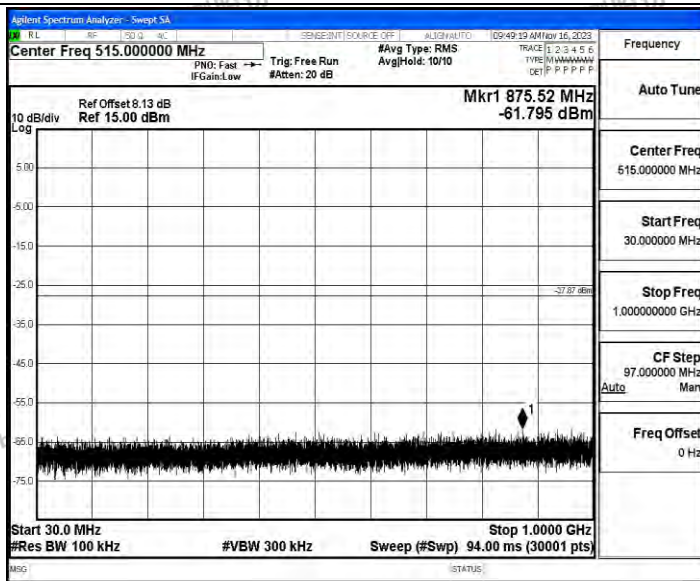


11N20SISO_Ant_2412_1000~26500

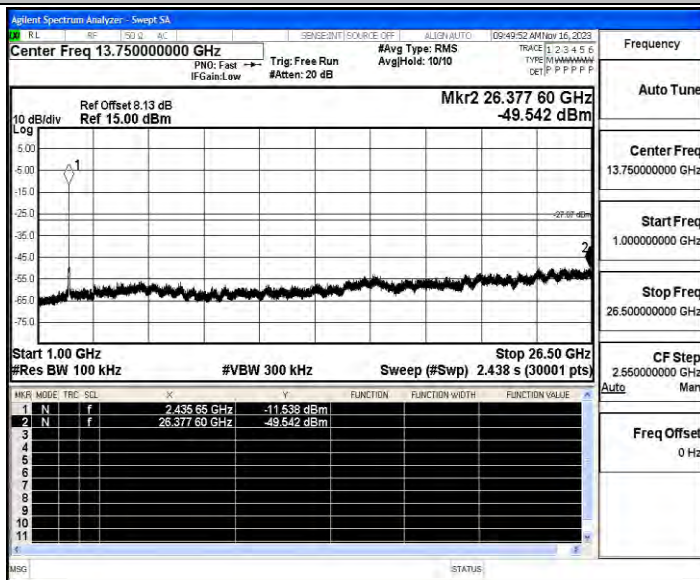


11N20SISO_Ant_2437_30~1000



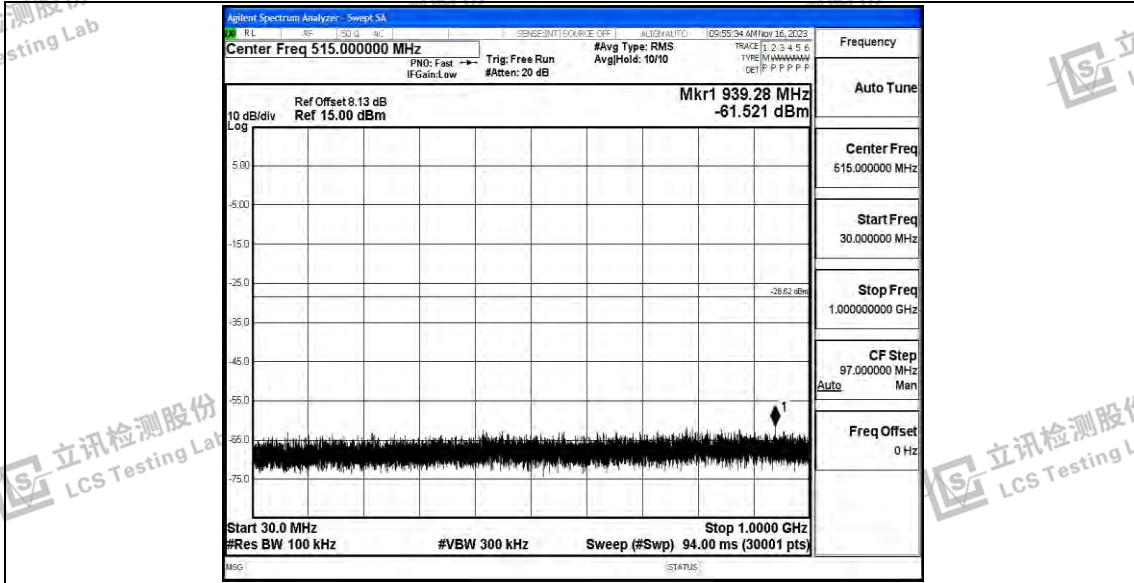


11N20SISO_Ant_2437_1000~26500

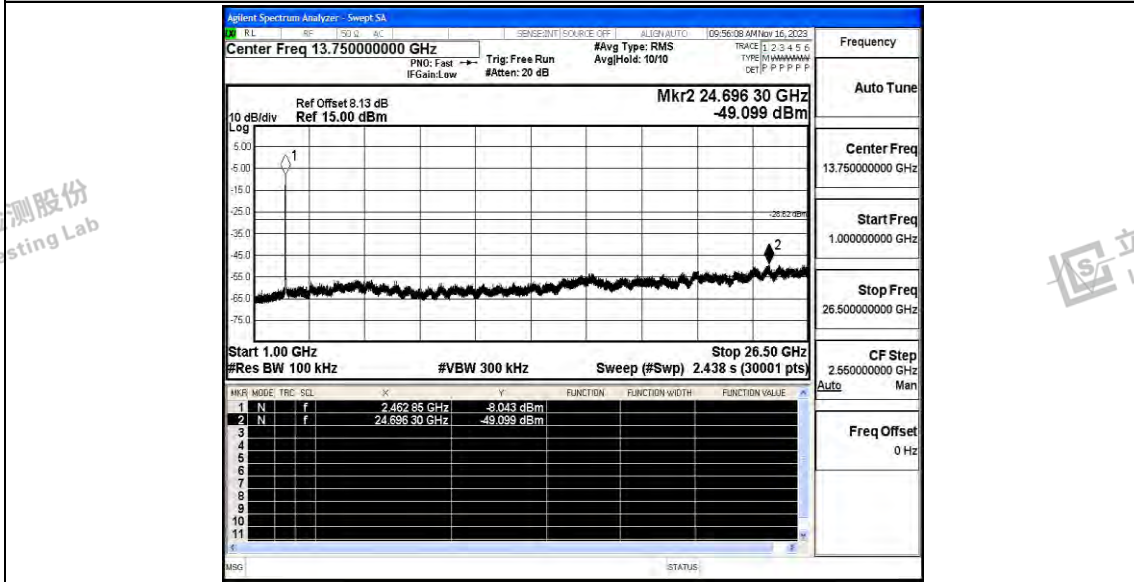


11N20SISO_Ant_2462_30~1000



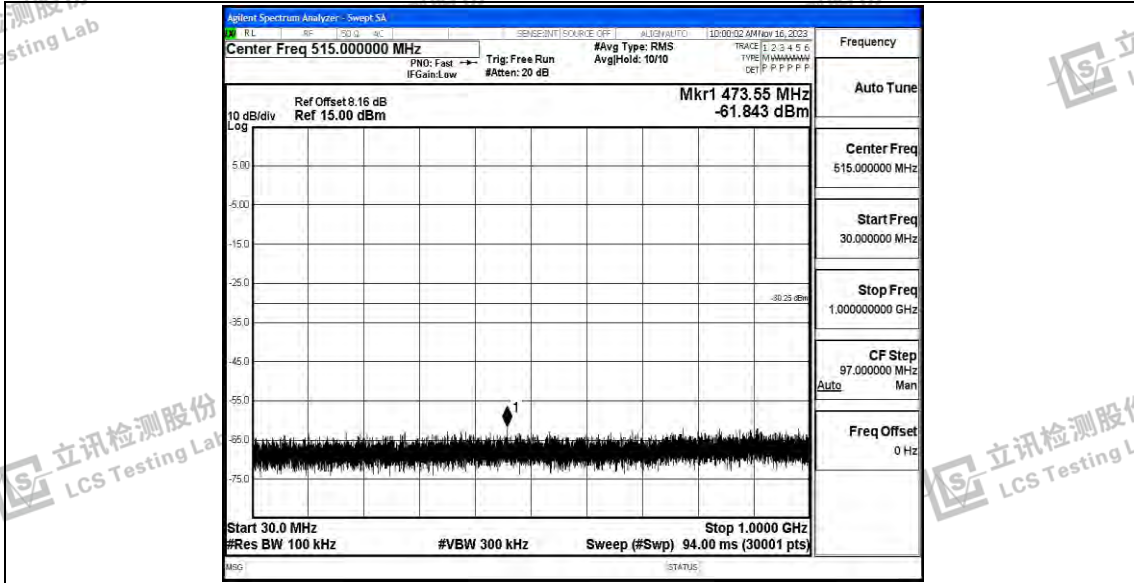


11N20SISO_Ant_2462_1000~26500

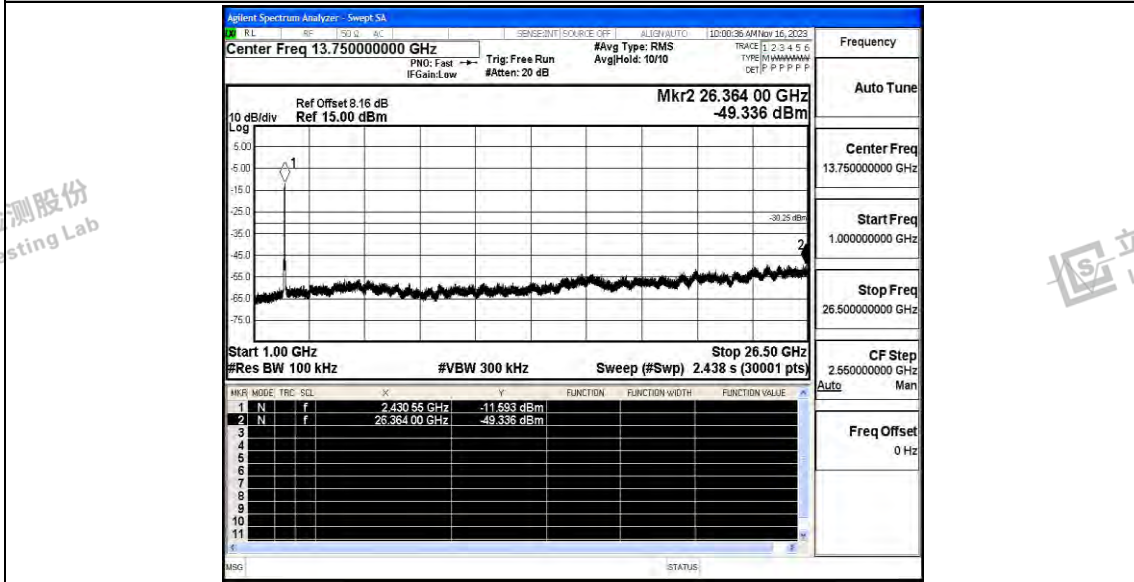


11N40SISO_Ant_2422_30~1000



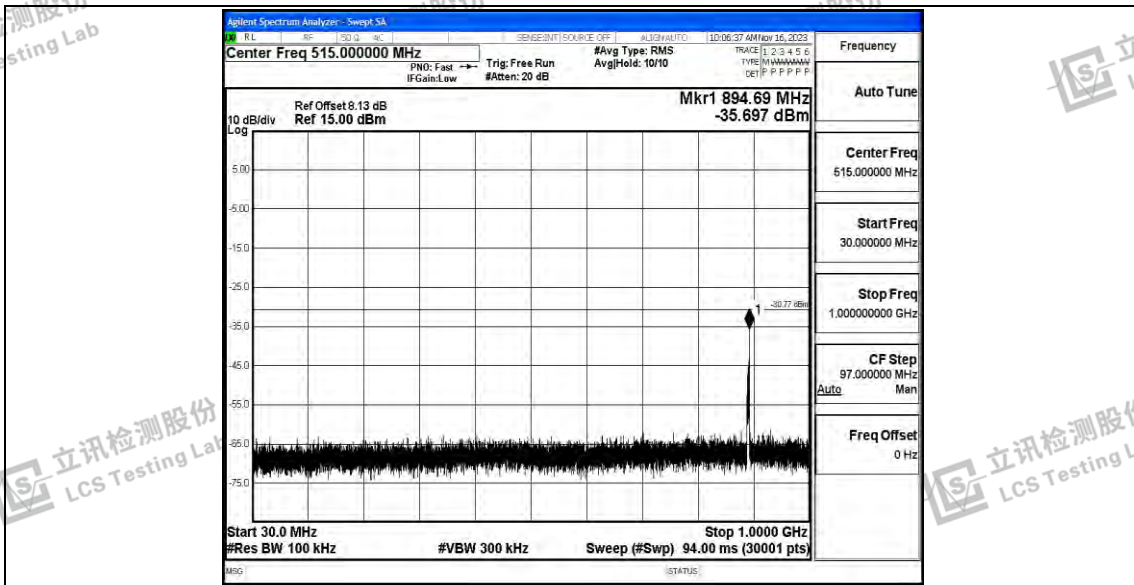


11N40SISO_Ant_2422_1000~26500

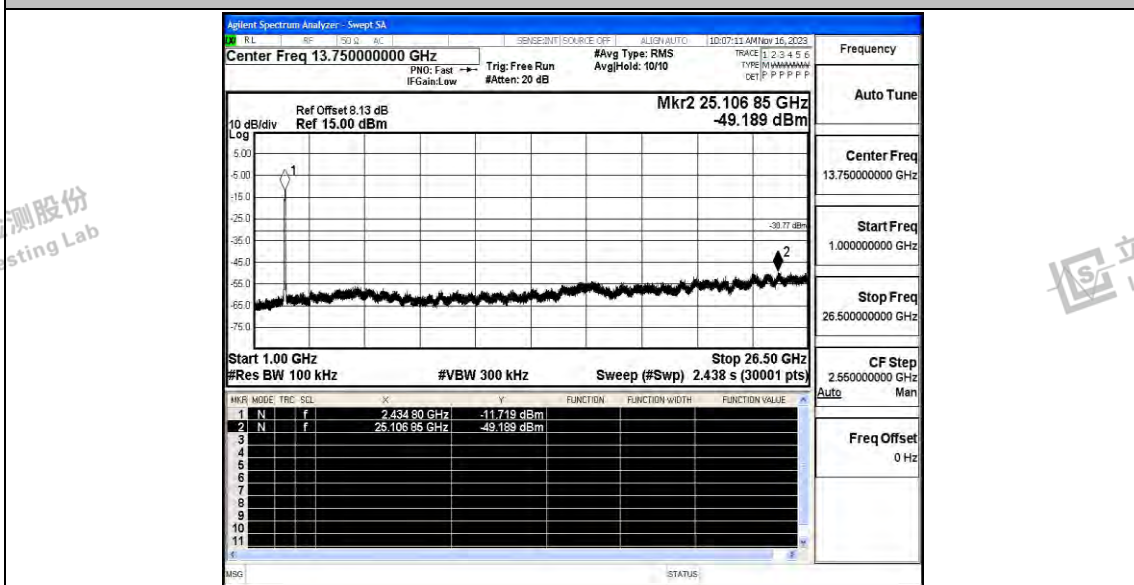


11N40SISO_Ant_2437_30~1000



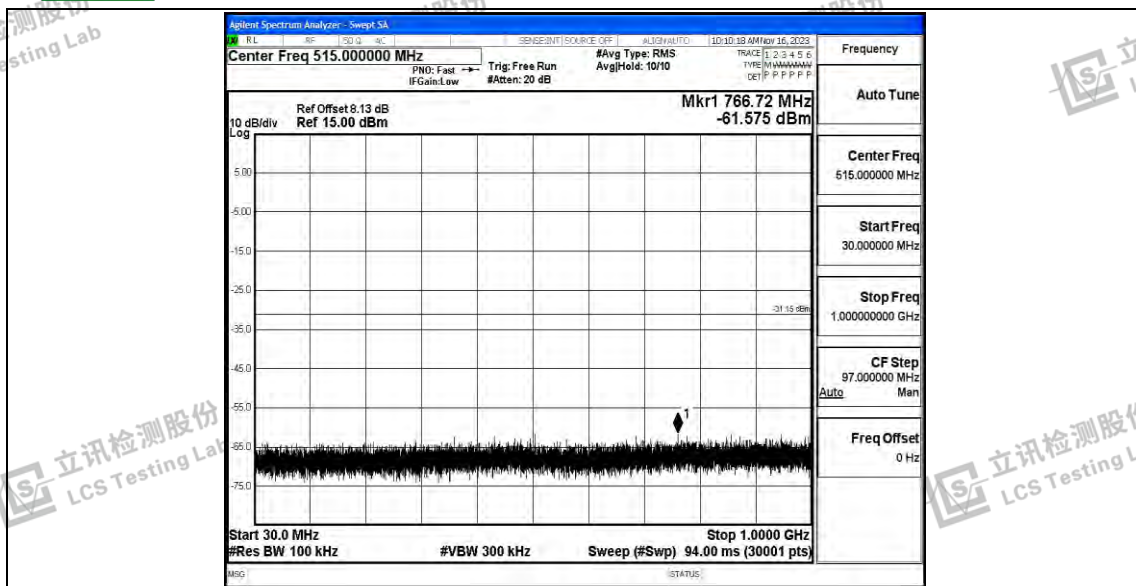


11N40SISO_Ant_2437_1000~26500

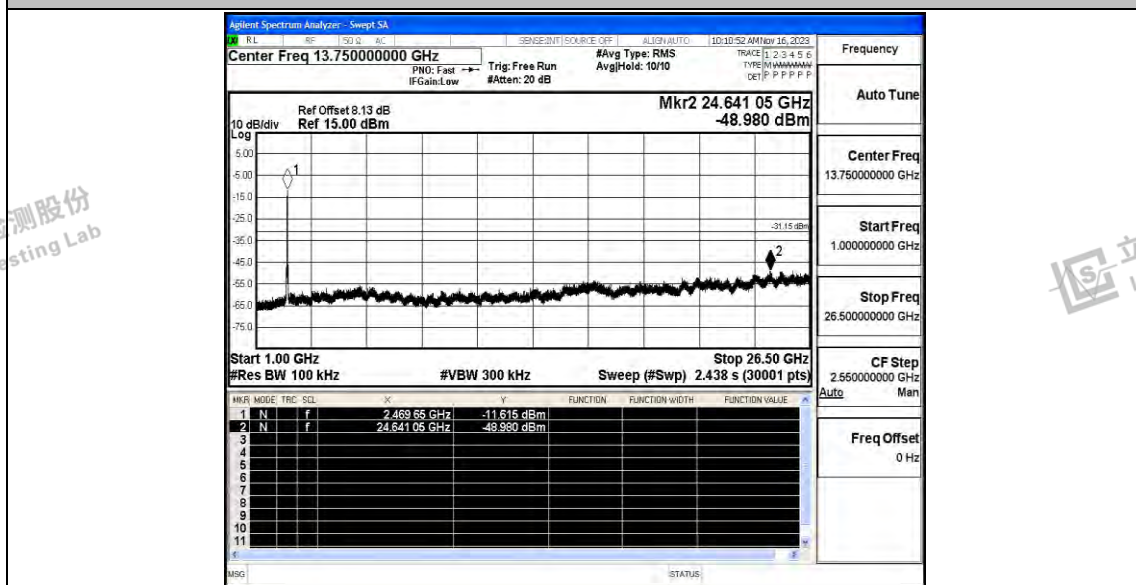


11N40SISO_Ant_2452_30~1000





11N40SISO_Ant_2452_1000~26500





B.6 Duty Cycle

Test Result

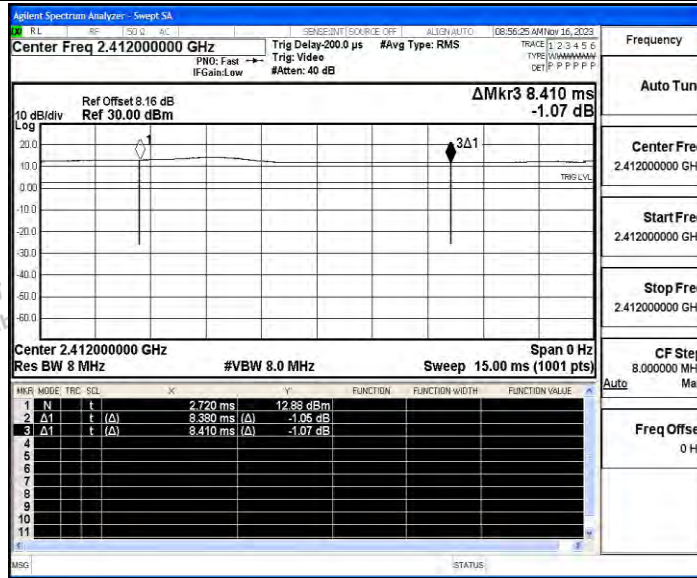
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	1/T (kHz)	Verdict
11B	Ant	2412	8.38	8.41	99.64	0.02	0.01	---
		2437	20.00	20.00	100.00	0.00	0.01	---
		2462	20.00	20.00	100.00	0.00	0.01	---
11G	Ant	2412	1.39	1.42	97.89	0.09	0.72	---
		2437	1.39	1.42	97.89	0.09	0.72	---
		2462	1.39	1.43	97.20	0.12	0.72	---
11N20SISO	Ant	2412	1.30	1.34	97.01	0.13	0.77	---
		2437	1.30	1.34	97.01	0.13	0.77	---
		2462	1.30	1.34	97.01	0.13	0.77	---
11N40SISO	Ant	2422	0.64	0.68	94.12	0.26	1.56	---
		2437	0.65	0.68	95.59	0.20	1.54	---
		2452	0.65	0.68	95.59	0.20	1.54	---



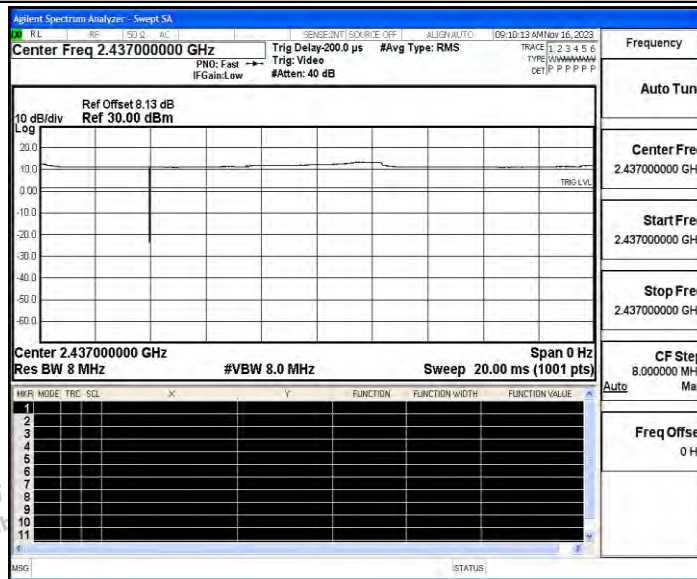


Test Graphs

11B_Ant_2412

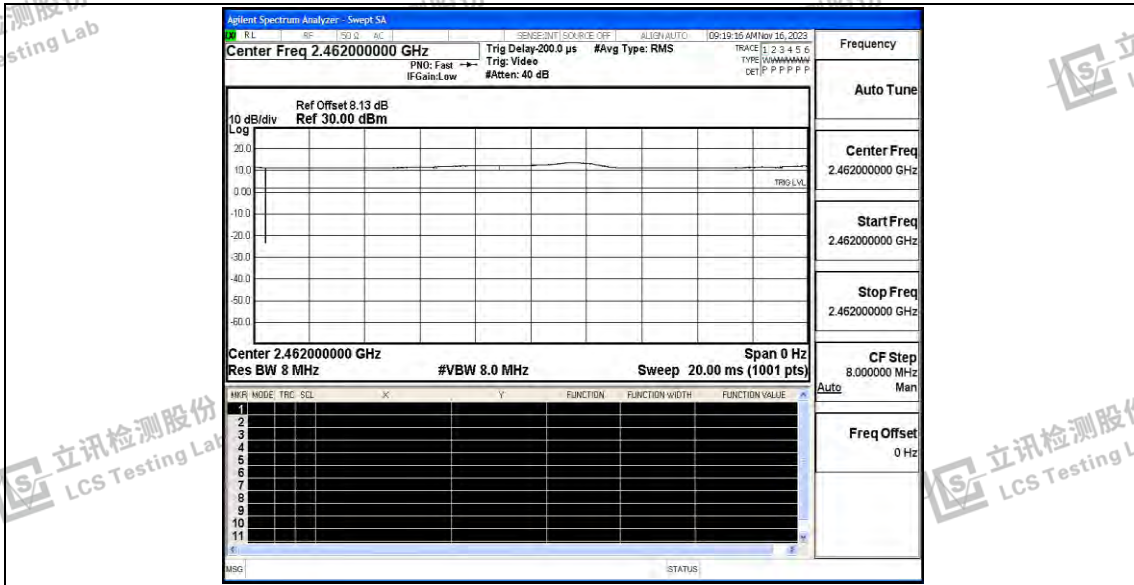


11B_Ant_2437

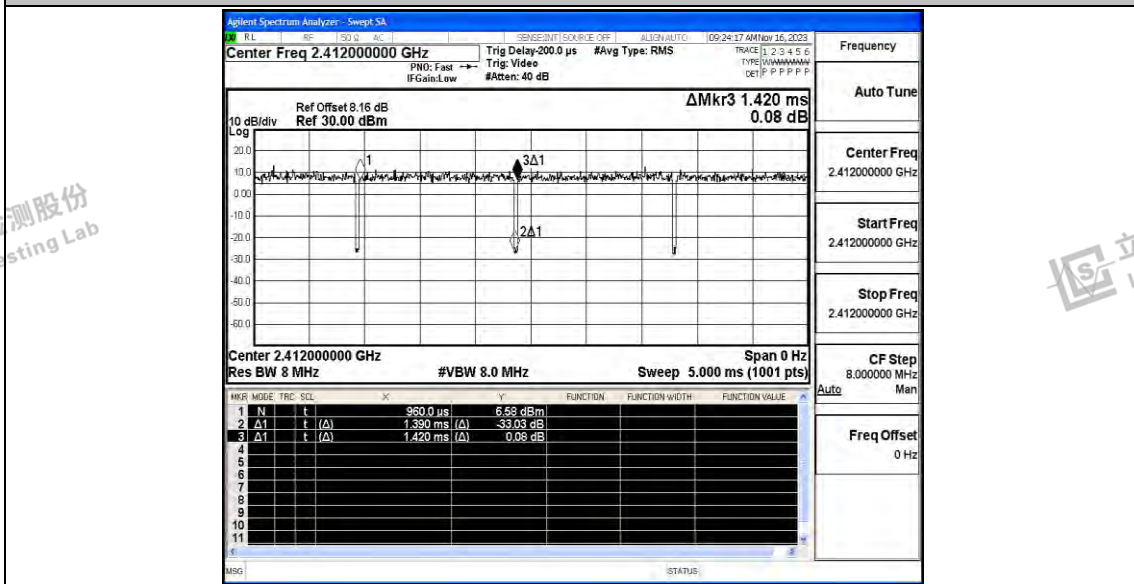


11B_Ant_2462



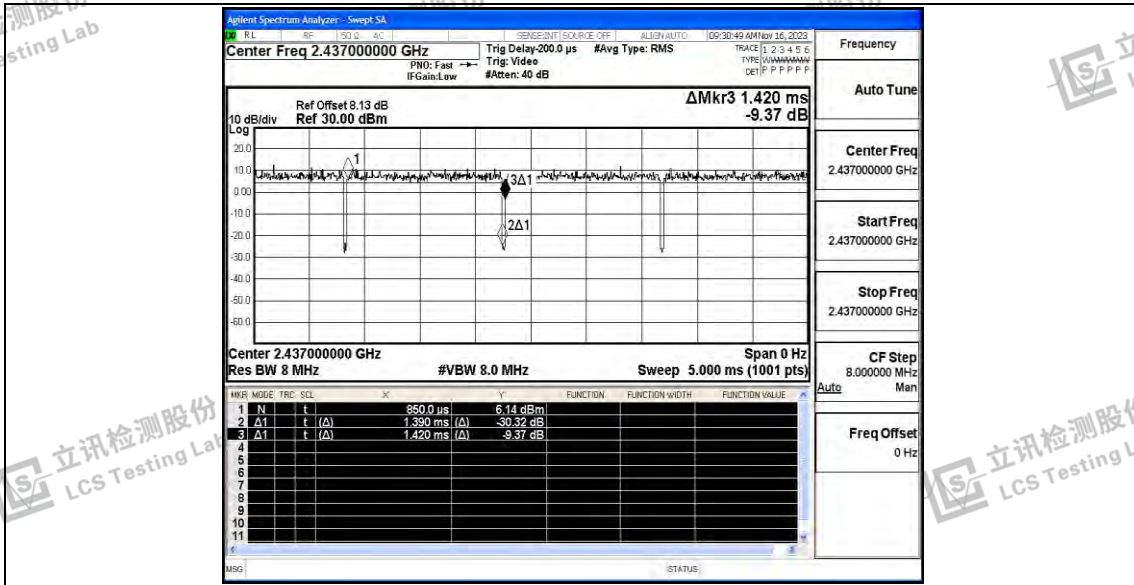


11G_Ant_2412

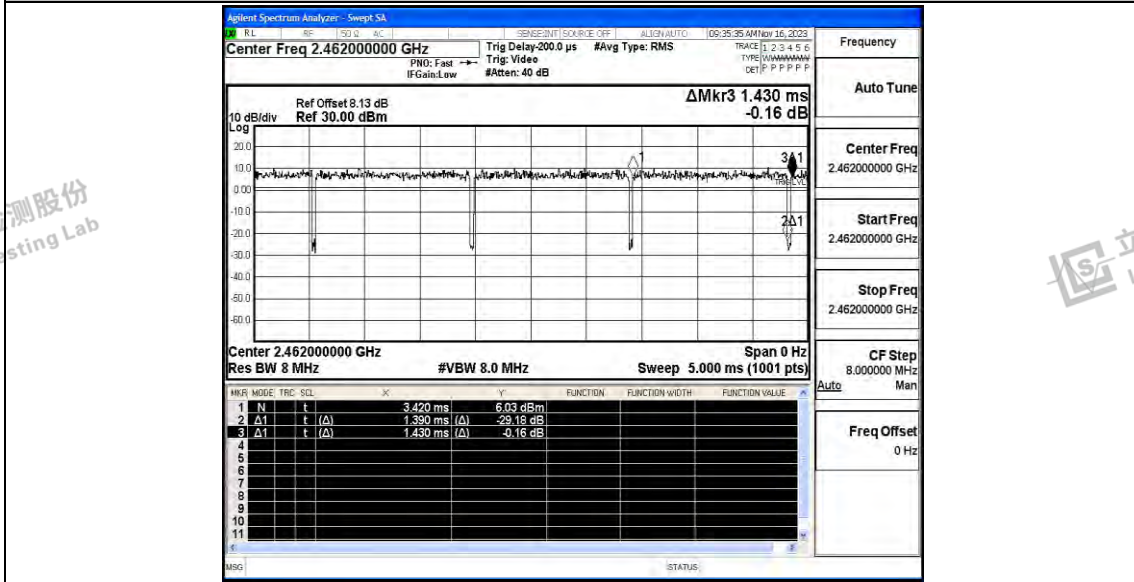


11G_Ant_2437



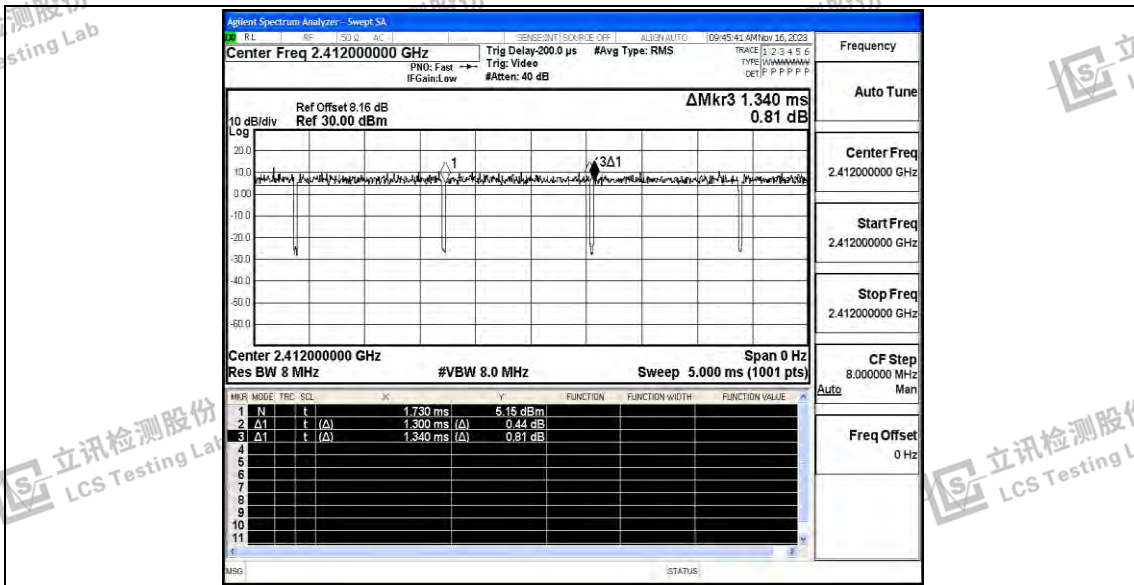


11G_Ant_2462

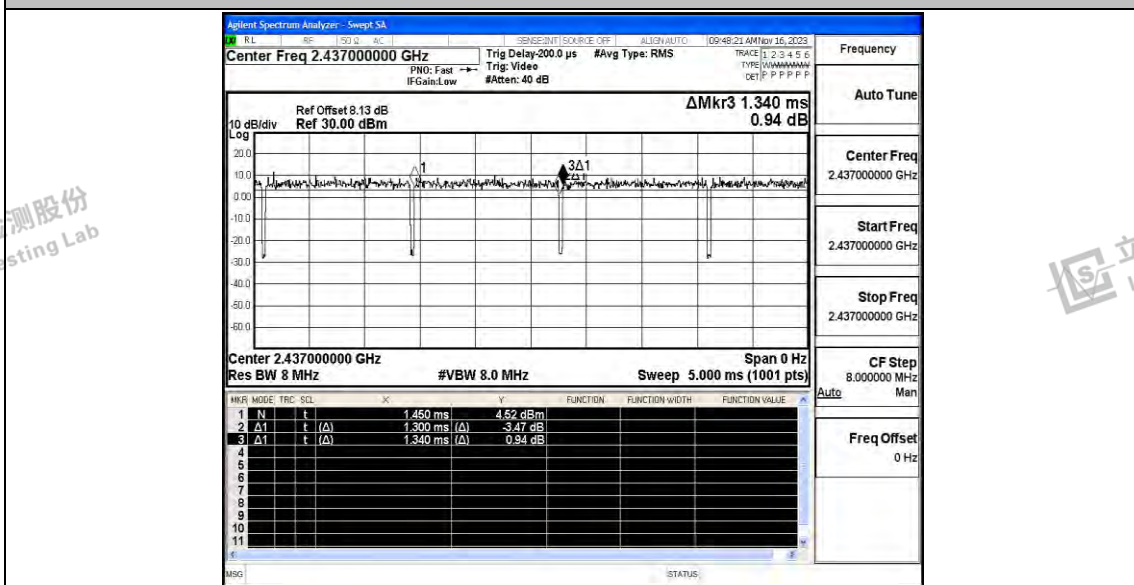


11N20SISO_Ant_2412



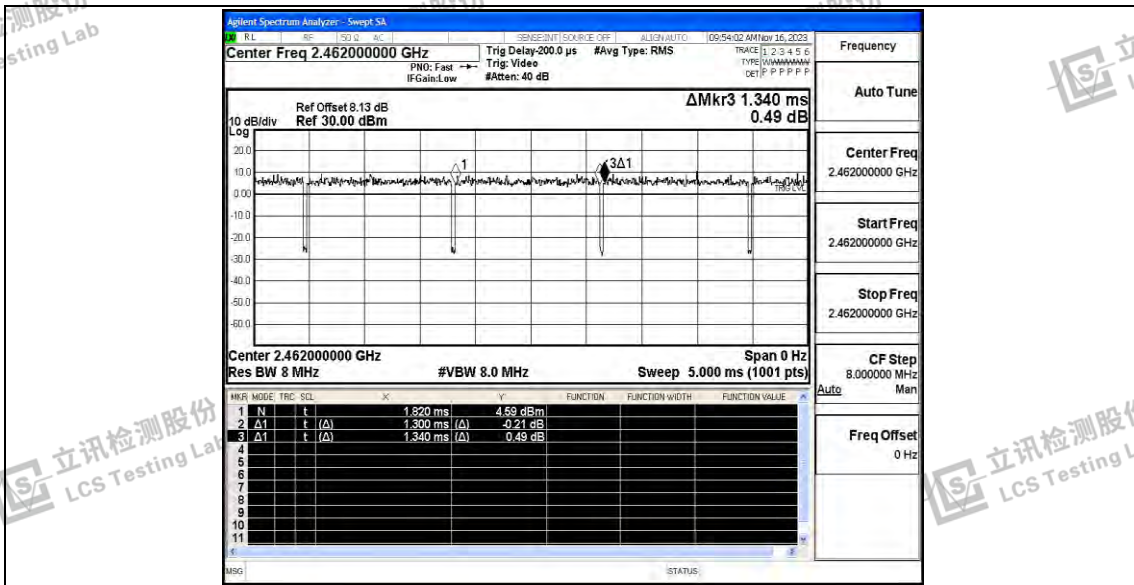


11N20SISO_Ant_2437

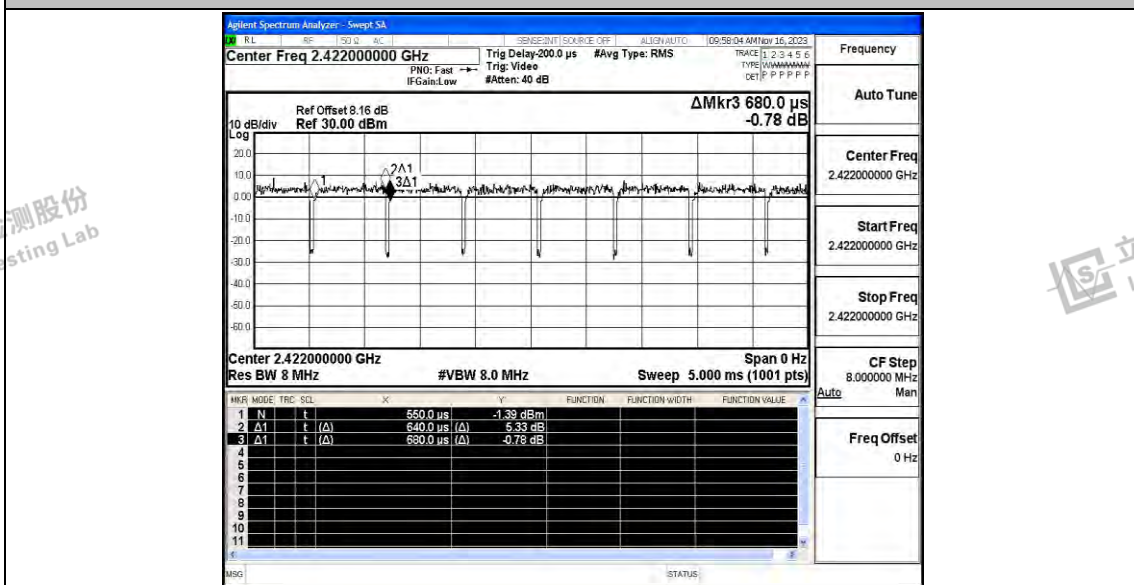


11N20SISO_Ant_2462



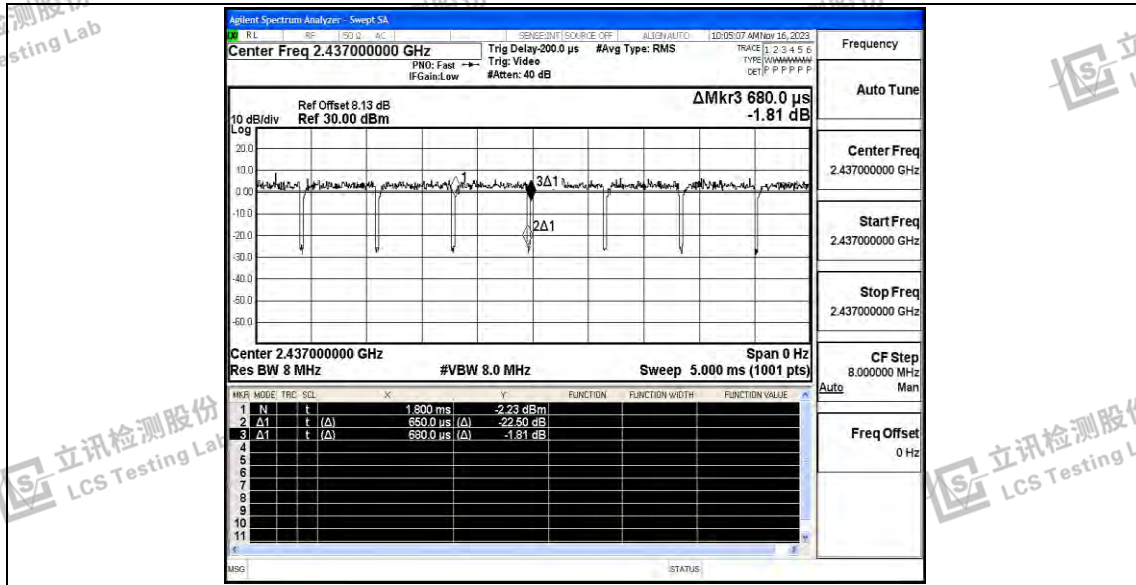


11N40SISO_Ant_2422

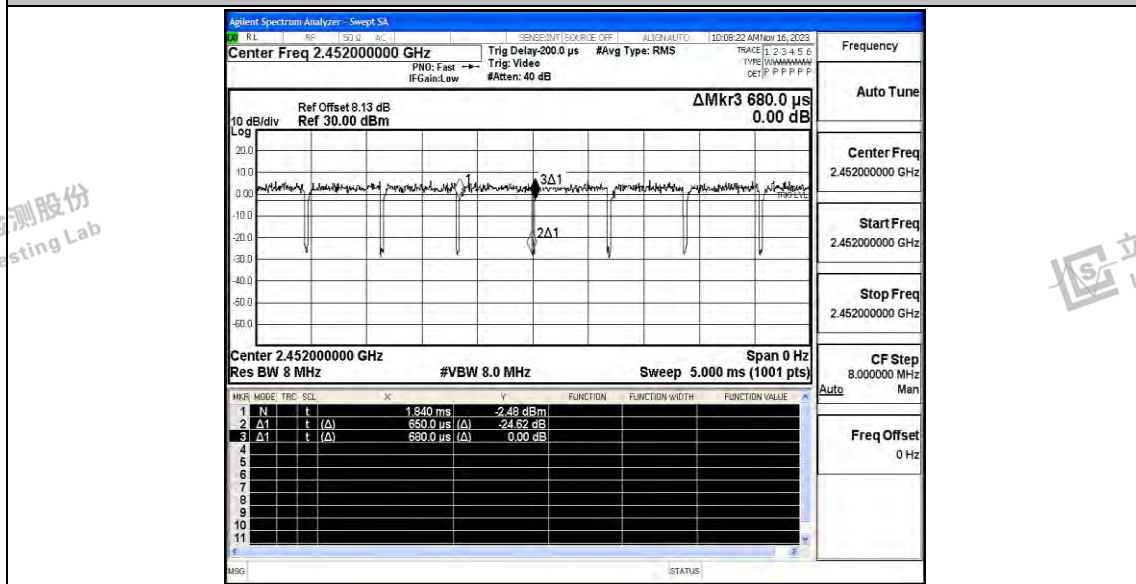


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant	Low	2412	AV	2310.000	-49.45	≤-41.20	45.75	≤54	PASS
				AV	2389.960	-48.74	≤-41.20	46.46	≤54	PASS
				AV	2390.000	-48.74	≤-41.20	46.46	≤54	PASS
				Peak	2310.000	-44.6	≤-21.20	50.60	≤74	PASS
				Peak	2349.920	-39.47	≤-21.20	55.73	≤74	PASS
				Peak	2390.000	-42.64	≤-21.20	52.56	≤74	PASS
		High	2462	AV	2483.500	-48.73	≤-41.20	46.47	≤54	PASS
				AV	2486.310	-48.51	≤-41.20	46.69	≤54	PASS
				AV	2500.000	-48.9	≤-41.20	46.30	≤54	PASS
				Peak	2483.500	-43.6	≤-21.20	51.60	≤74	PASS
				Peak	2496.540	-39.02	≤-21.20	56.18	≤74	PASS
				Peak	2500.000	-40.36	≤-21.20	54.84	≤74	PASS
11G	Ant	Low	2412	AV	2310.000	-48.76	≤-41.20	46.44	≤54	PASS
				AV	2389.960	-47.24	≤-41.20	47.96	≤54	PASS
				AV	2390.000	-47.24	≤-41.20	47.96	≤54	PASS
				Peak	2310.000	-43.46	≤-21.20	51.74	≤74	PASS
				Peak	2379.820	-39	≤-21.20	56.20	≤74	PASS
				Peak	2390.000	-41.65	≤-21.20	53.55	≤74	PASS
		High	2462	AV	2483.500	-46.22	≤-41.20	48.98	≤54	PASS
				AV	2483.670	-46.26	≤-41.20	48.94	≤54	PASS
				AV	2500.000	-48.17	≤-41.20	47.03	≤54	PASS
				Peak	2483.500	-39.47	≤-21.20	55.73	≤74	PASS
				Peak	2484.440	-37.51	≤-21.20	57.69	≤74	PASS
				Peak	2500.000	-42.63	≤-21.20	52.57	≤74	PASS
11N20SIS O	Ant	Low	2412	AV	2310.000	-48.56	≤-41.20	46.64	≤54	PASS
				AV	2389.830	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2390.000	-47.21	≤-41.20	47.99	≤54	PASS
				Peak	2310.000	-43.78	≤-21.20	51.42	≤74	PASS
				Peak	2389.310	-38.18	≤-21.20	57.02	≤74	PASS
				Peak	2390.000	-39.9	≤-21.20	55.30	≤74	PASS
		High	2462	AV	2483.500	-46.85	≤-41.20	48.35	≤54	PASS
				AV	2483.560	-47.1	≤-41.20	48.10	≤54	PASS
				AV	2500.000	-48.17	≤-41.20	47.03	≤54	PASS
				Peak	2483.500	-40.11	≤-21.20	55.09	≤74	PASS



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 Scan code to check authenticity



11N40SIS O	Ant	Low	2422	Peak	2483.560	-35.89	≤-21.20	59.31	≤74	PASS
				Peak	2500.000	-42.78	≤-21.20	52.42	≤74	PASS
				AV	2310.000	-48.53	≤-41.20	46.67	≤54	PASS
				AV	2389.310	-44.16	≤-41.20	51.04	≤54	PASS
				AV	2390.000	-44.29	≤-41.20	50.91	≤54	PASS
				Peak	2310.000	-43.42	≤-21.20	51.78	≤74	PASS
				Peak	2386.840	-32.3	≤-21.20	62.90	≤74	PASS
		High	2452	Peak	2390.000	-38.35	≤-21.20	56.85	≤74	PASS
				AV	2483.500	-44.51	≤-41.20	50.69	≤54	PASS
				AV	2484.220	-44.4	≤-41.20	50.80	≤54	PASS
				AV	2500.000	-47.53	≤-41.20	47.67	≤54	PASS
				Peak	2483.500	-39.2	≤-21.20	56.00	≤74	PASS
				Peak	2489.390	-33.02	≤-21.20	62.18	≤74	PASS
				Peak	2500.000	-42.99	≤-21.20	52.21	≤74	PASS

Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

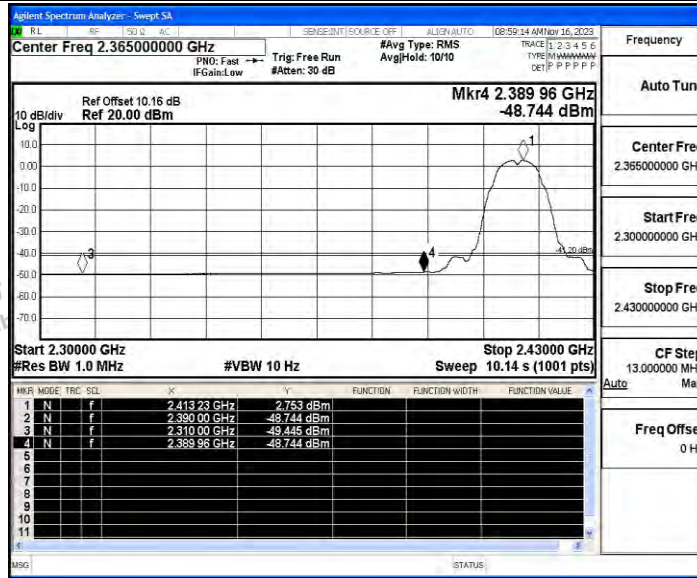


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 Scan code to check authenticity

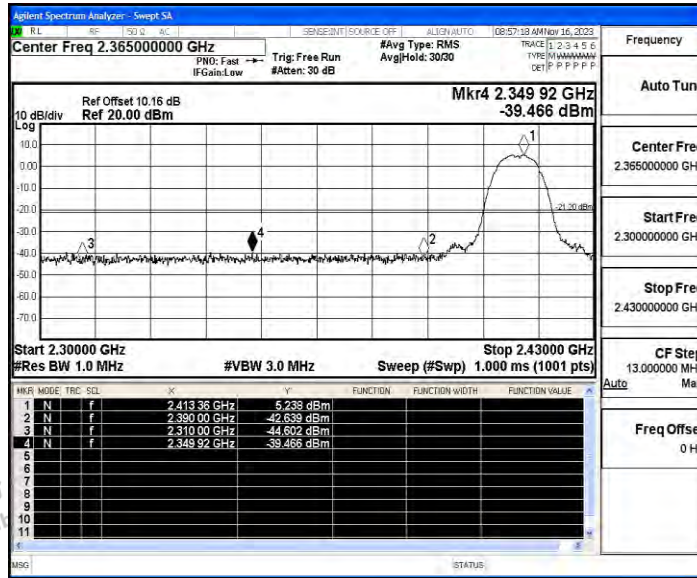


Test Graphs

11B_Ant_Low_2412_AV

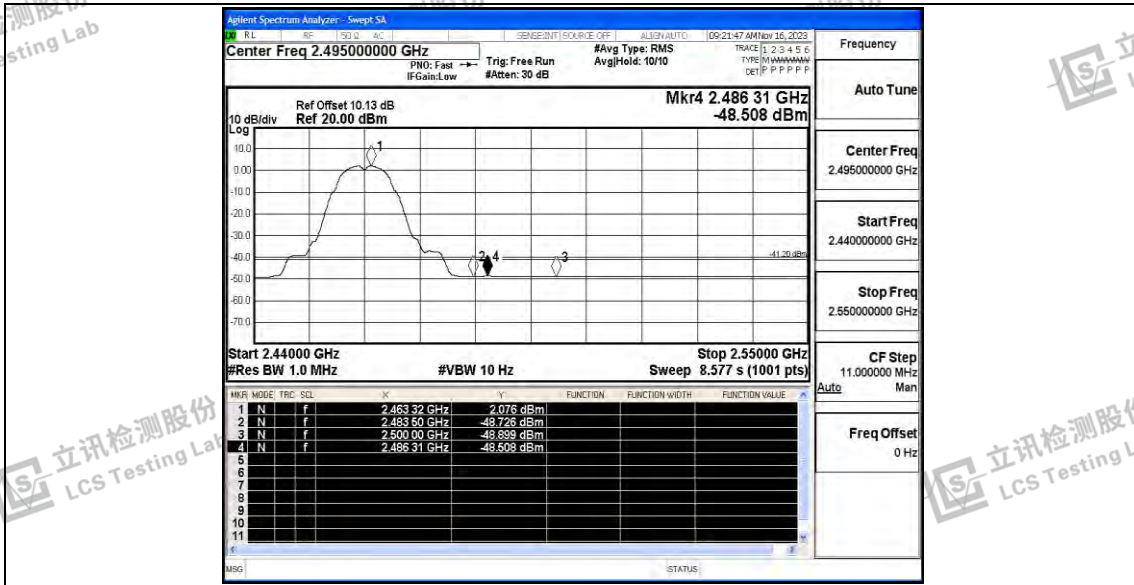


11B_Ant_Low_2412_Peak

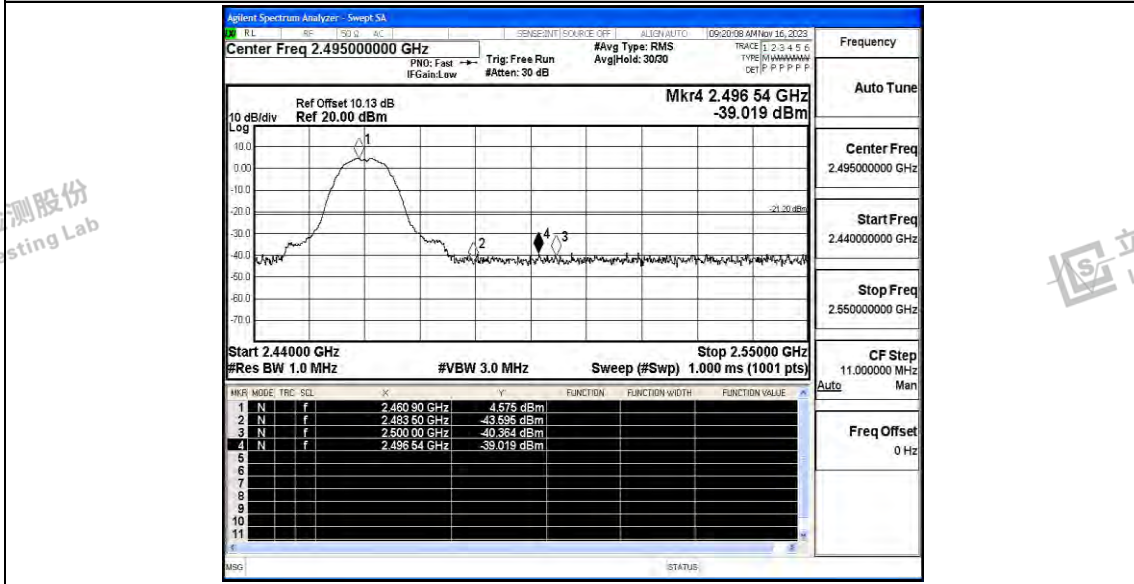


11B_Ant_High_2462_AV



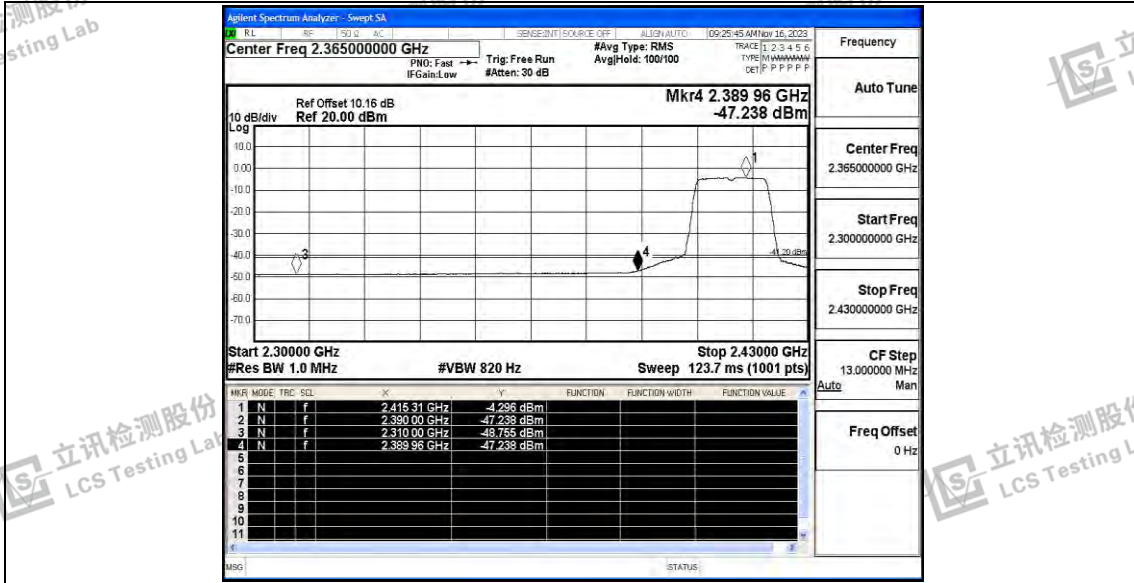


11B_Ant_High_2462_Peak

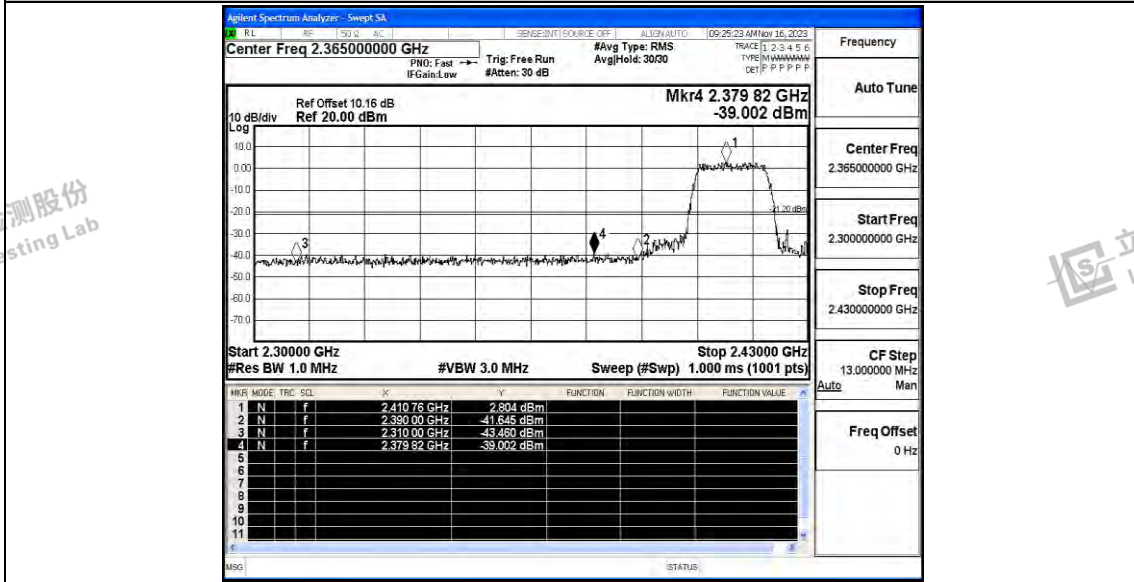


11G_Ant_Low_2412_AV



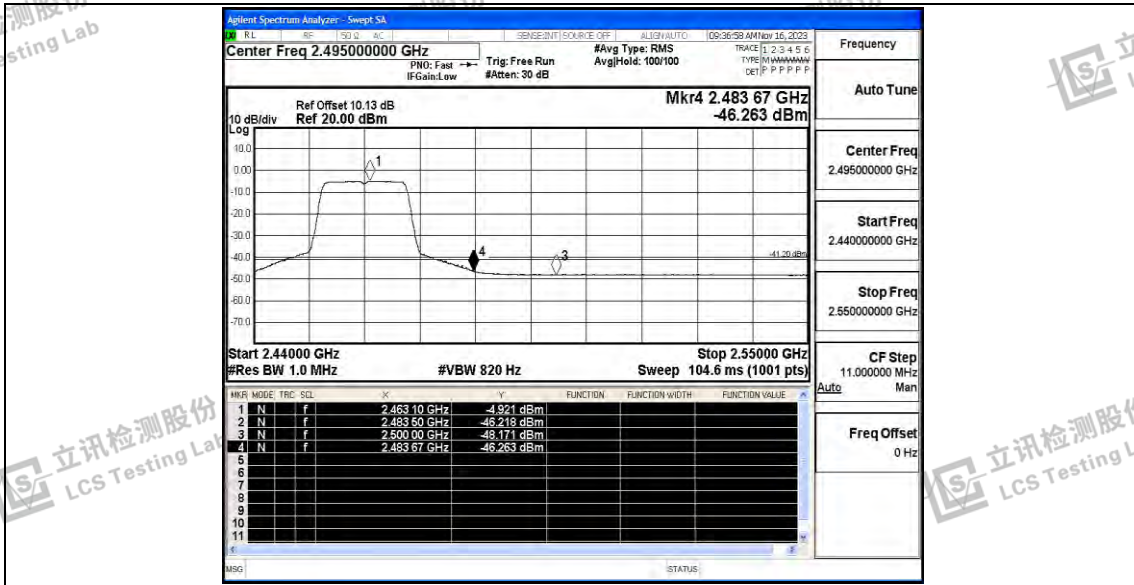


11G_Ant_Low_2412_Peak

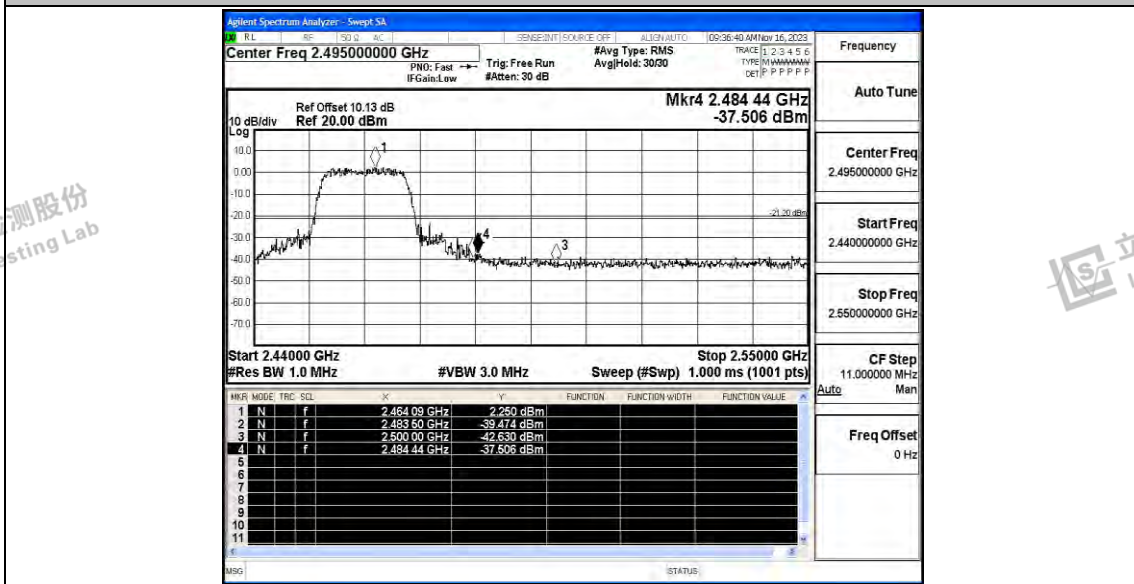


11G_Ant_High_2462_AV



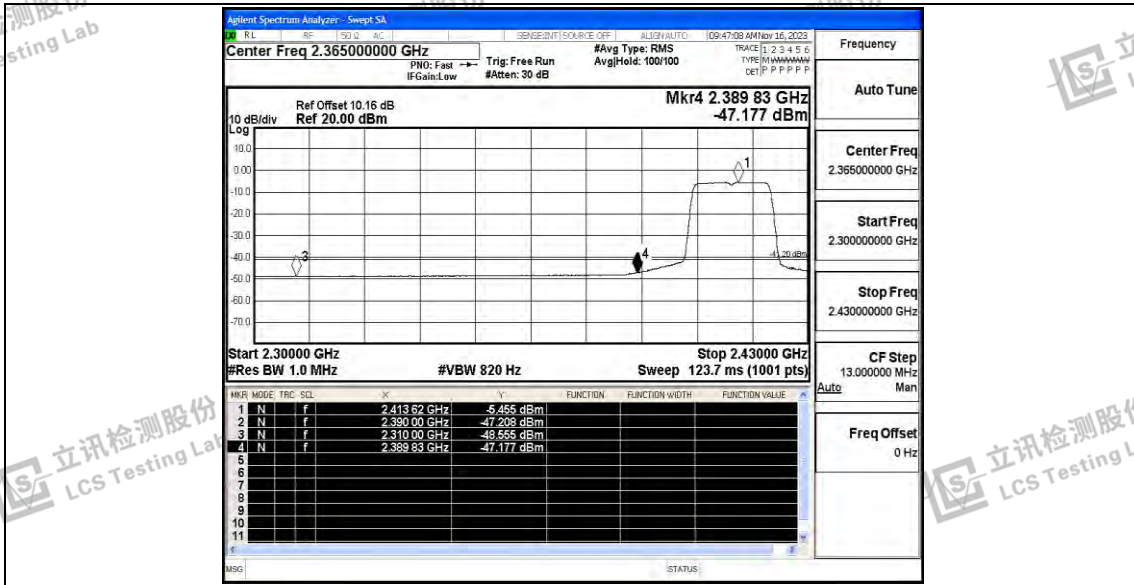


11G_Ant_High_2462_Peak

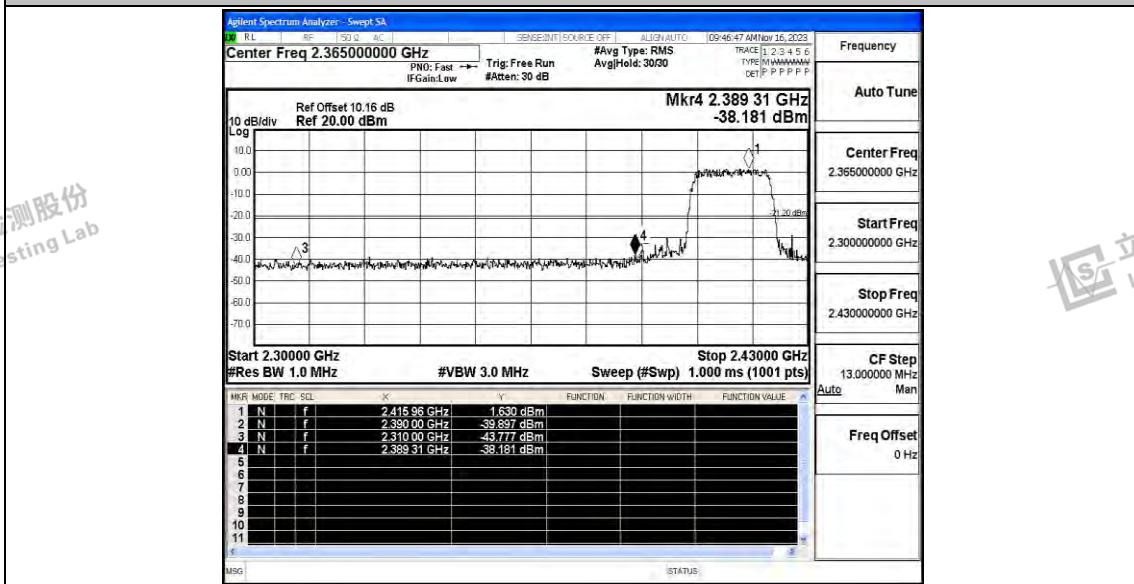


11N20SISO_Ant_Low_2412_AV



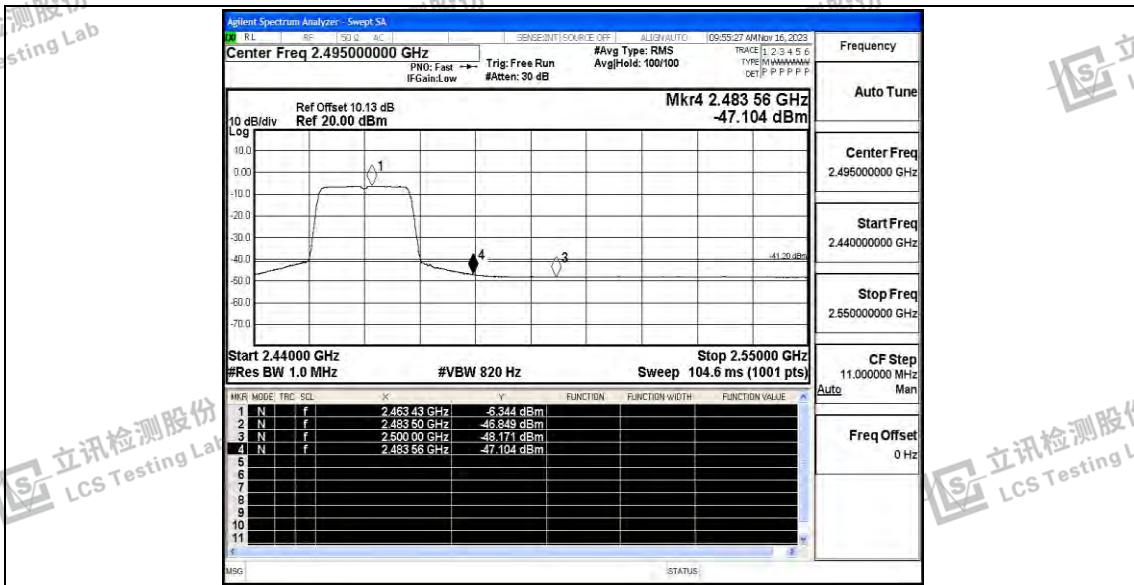


11N20SISO_Ant_Low_2412_Peak

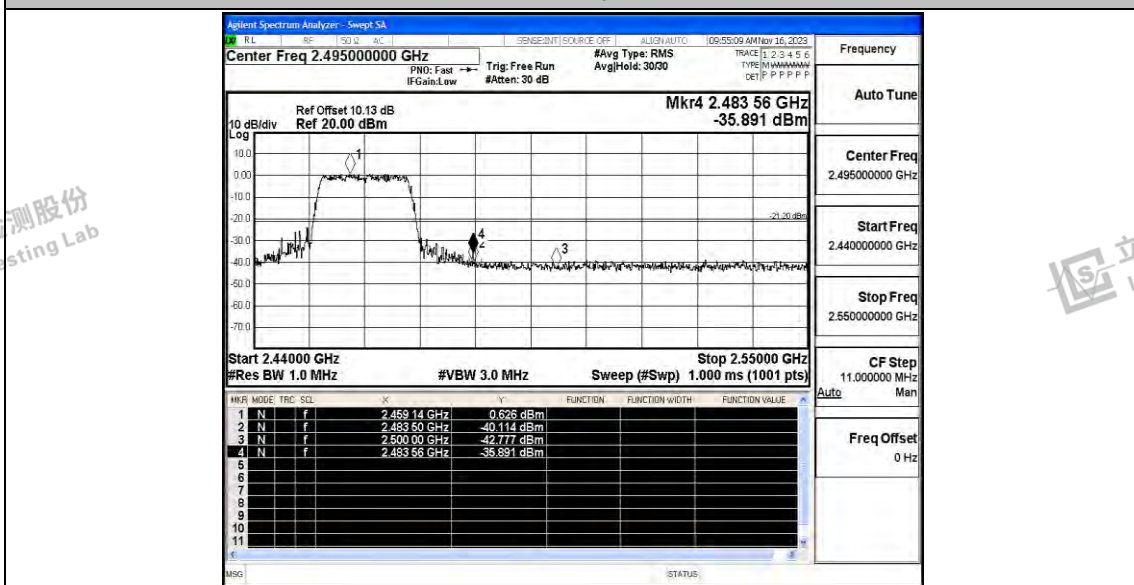


11N20SISO_Ant_High_2462_AV



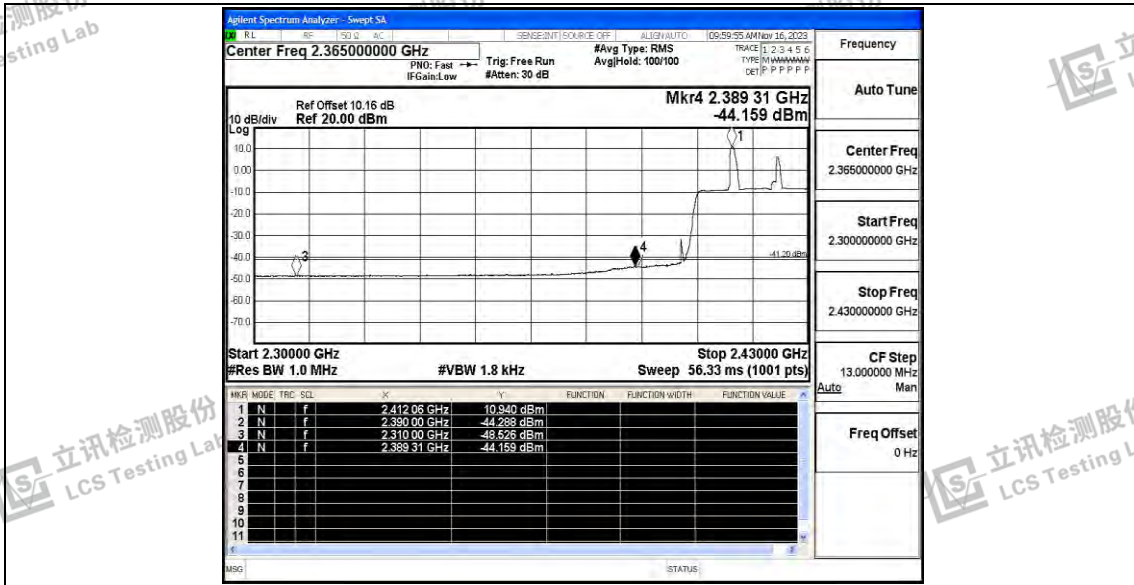


11N20SISO_Ant_High_2462_Peak

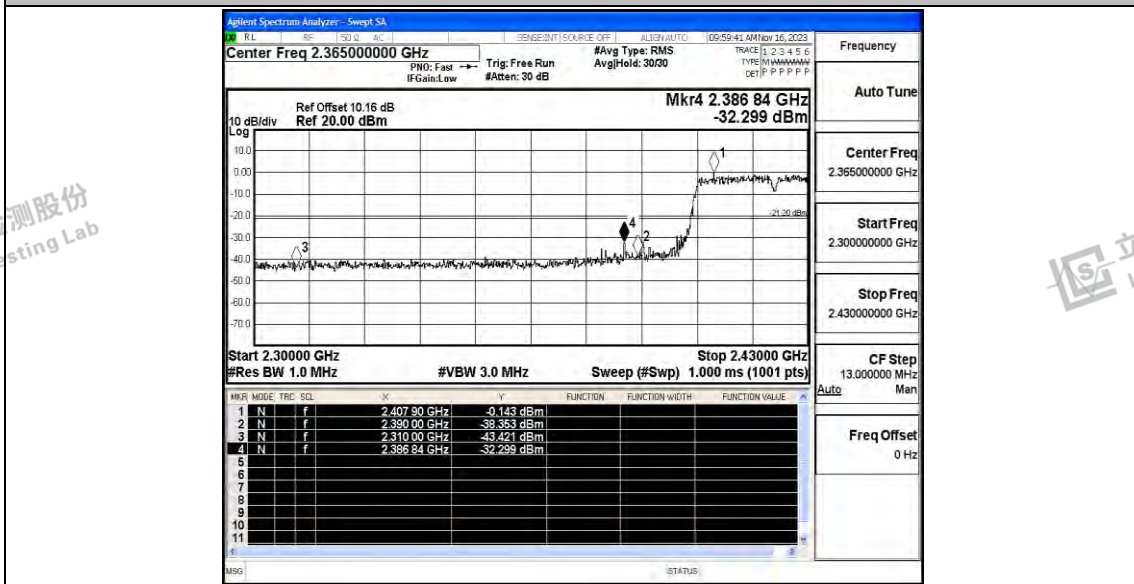


11N40SISO_Ant_Low_2422_AV



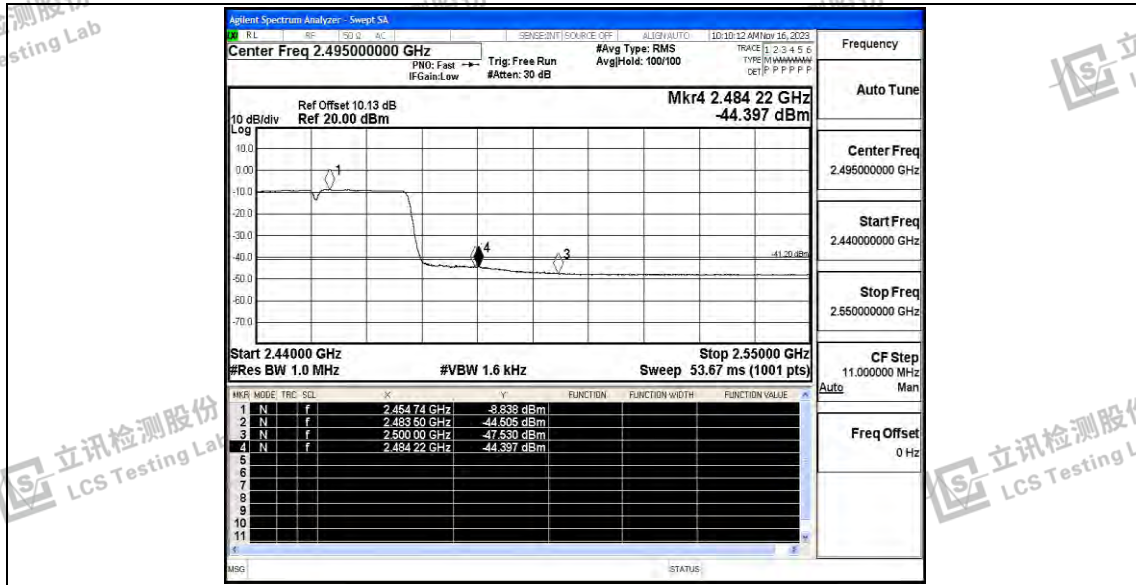


11N40SISO_Ant_Low_2422_Peak



11N40SISO_Ant_High_2452_AV





11N40SISO_Ant_High_2452_Peak

