



Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Digital WiFi Photo Frame

Test Model: 110K

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng <i>Nick Peng</i>
Supervised by:	Eason Zhou <i>Eason Zhou</i>





A.1 DTS Bandwidth

Test Result

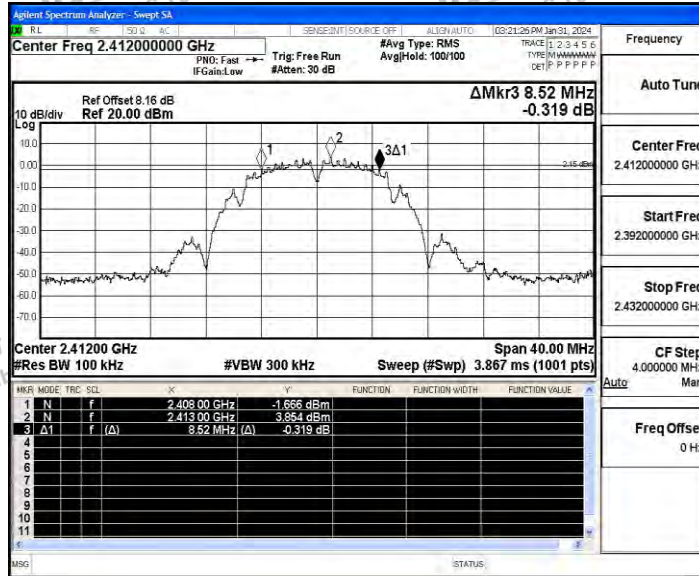
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant	2412	8.520	2408.000	2416.520	0.5	PASS
		2437	8.560	2432.520	2441.080	0.5	PASS
		2462	9.000	2457.520	2466.520	0.5	PASS
11G	Ant	2412	15.680	2404.480	2420.160	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.320	2453.840	2470.160	0.5	PASS
11N20SISO	Ant	2412	16.680	2403.920	2420.600	0.5	PASS
		2437	17.240	2428.400	2445.640	0.5	PASS
		2462	17.400	2453.360	2470.760	0.5	PASS
11N40SISO	Ant	2422	35.280	2404.480	2439.760	0.5	PASS
		2437	35.920	2419.080	2455.000	0.5	PASS
		2452	35.440	2434.080	2469.520	0.5	PASS



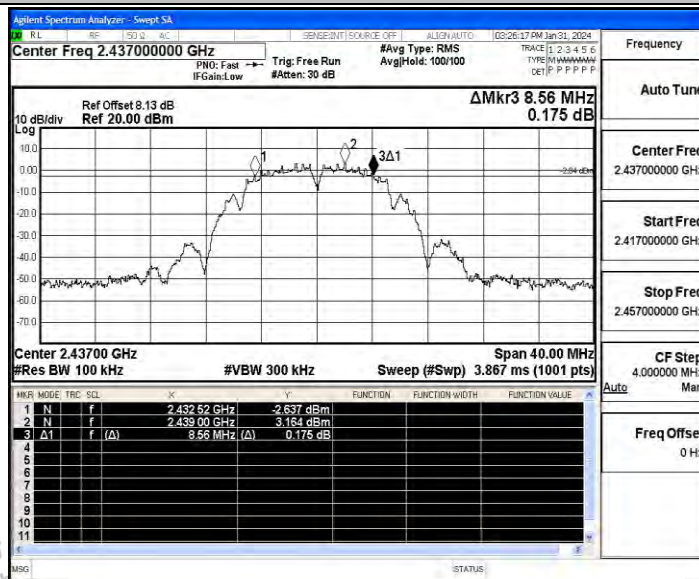


Test Graphs

11B_Ant_2412

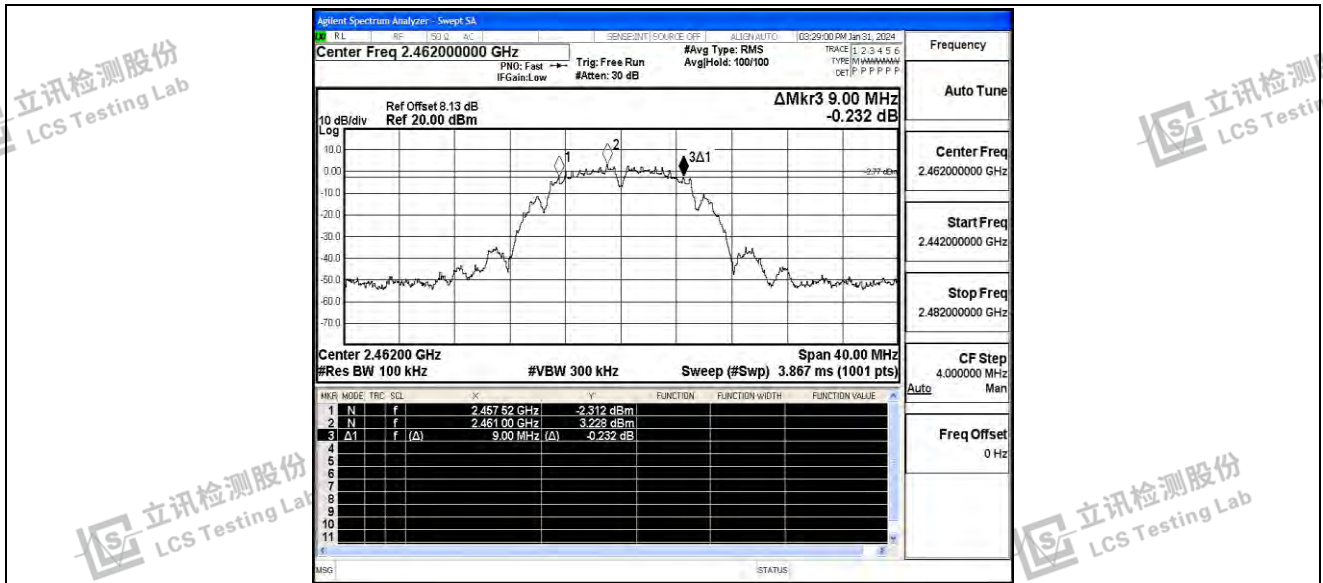


11B_Ant_2437

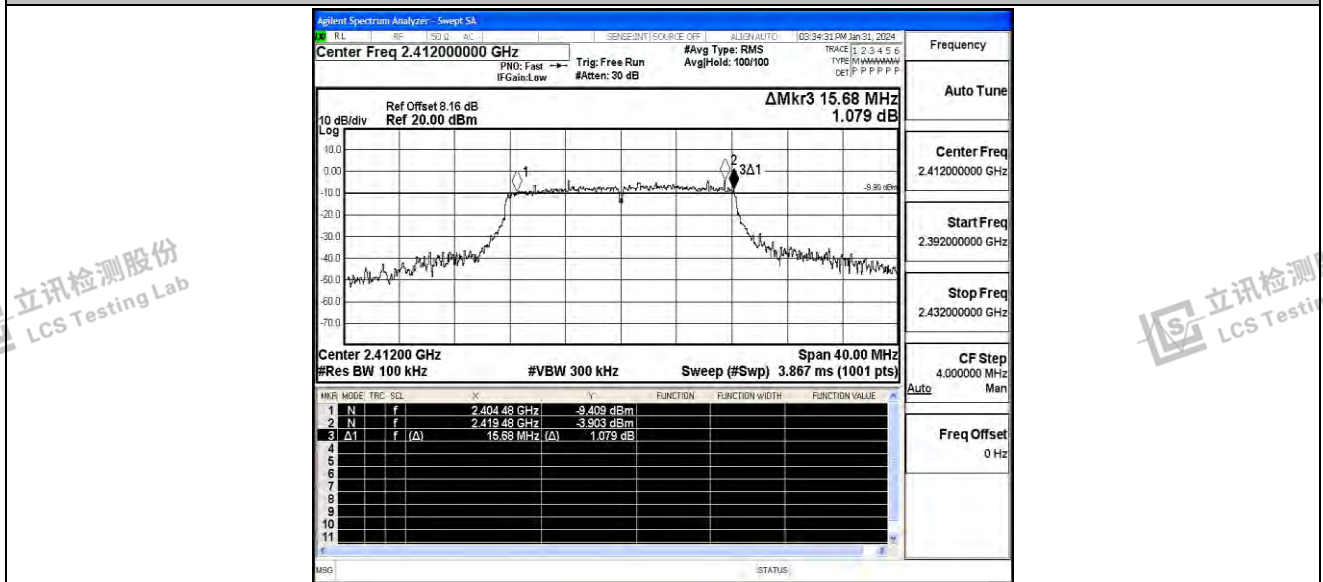


11B_Ant_2462

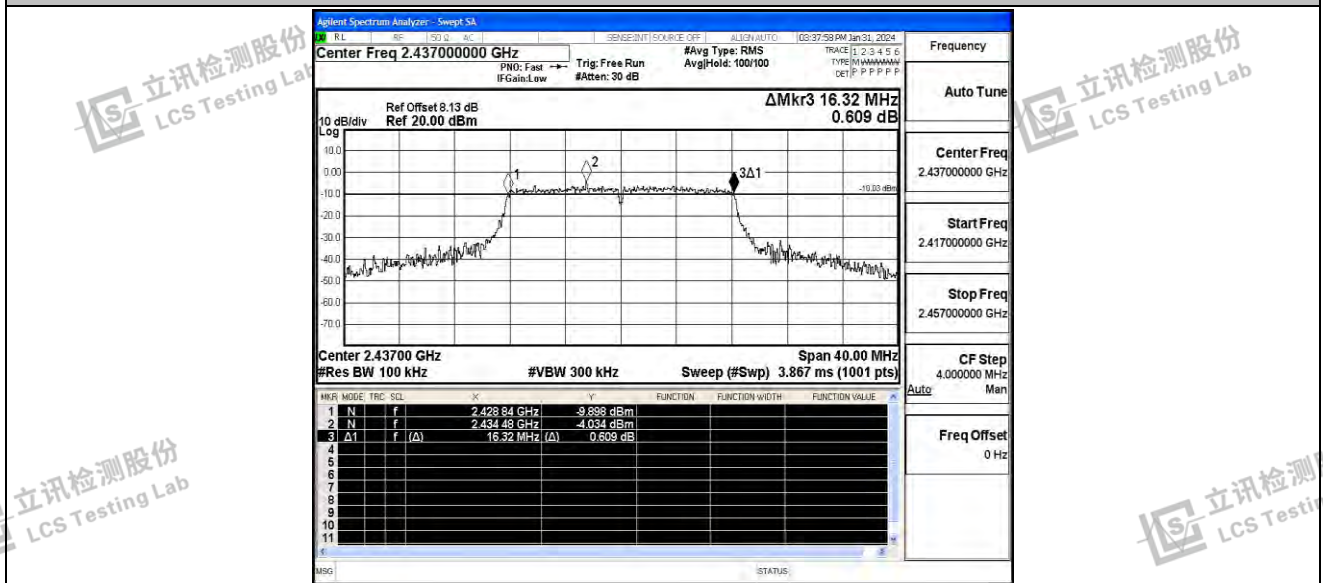




11G_Ant_2412

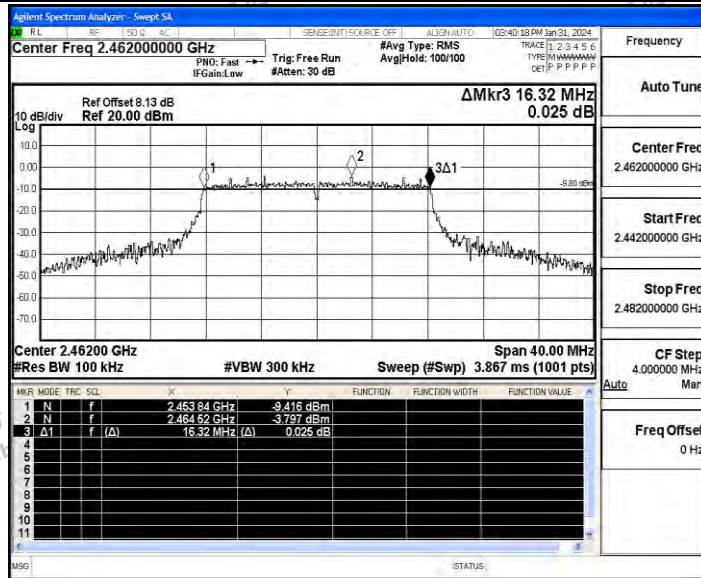


11G_Ant_2437

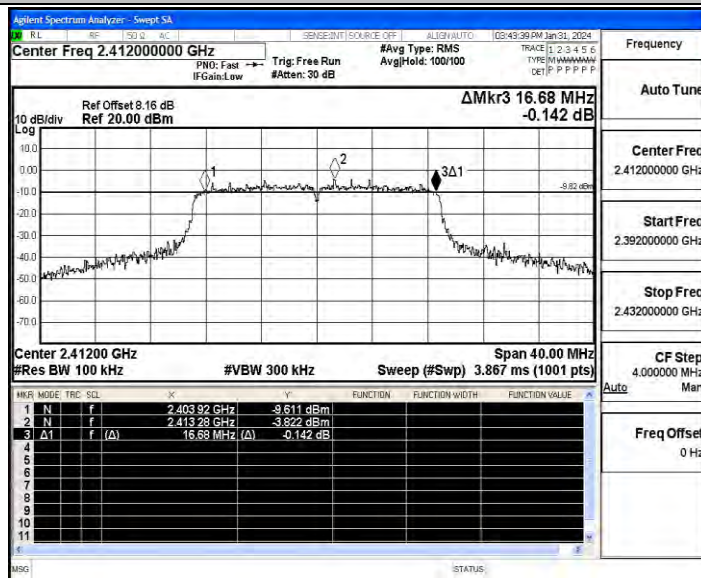




11G_Ant_2462

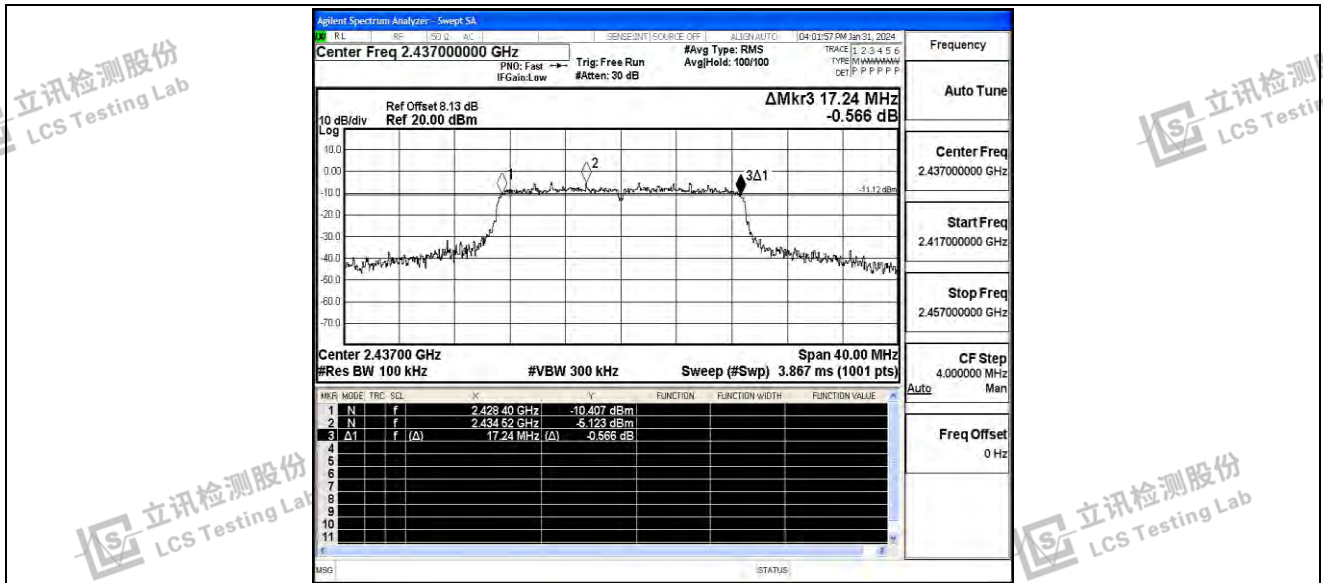


11N20SISO_Ant_2412

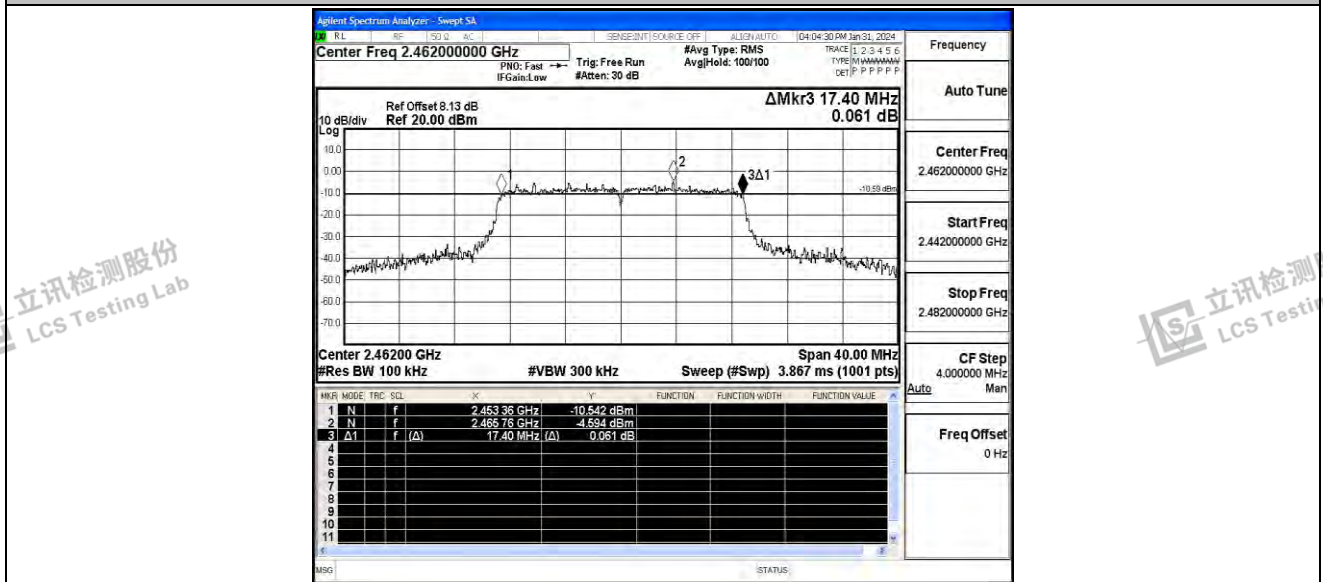


11N20SISO_Ant_2437

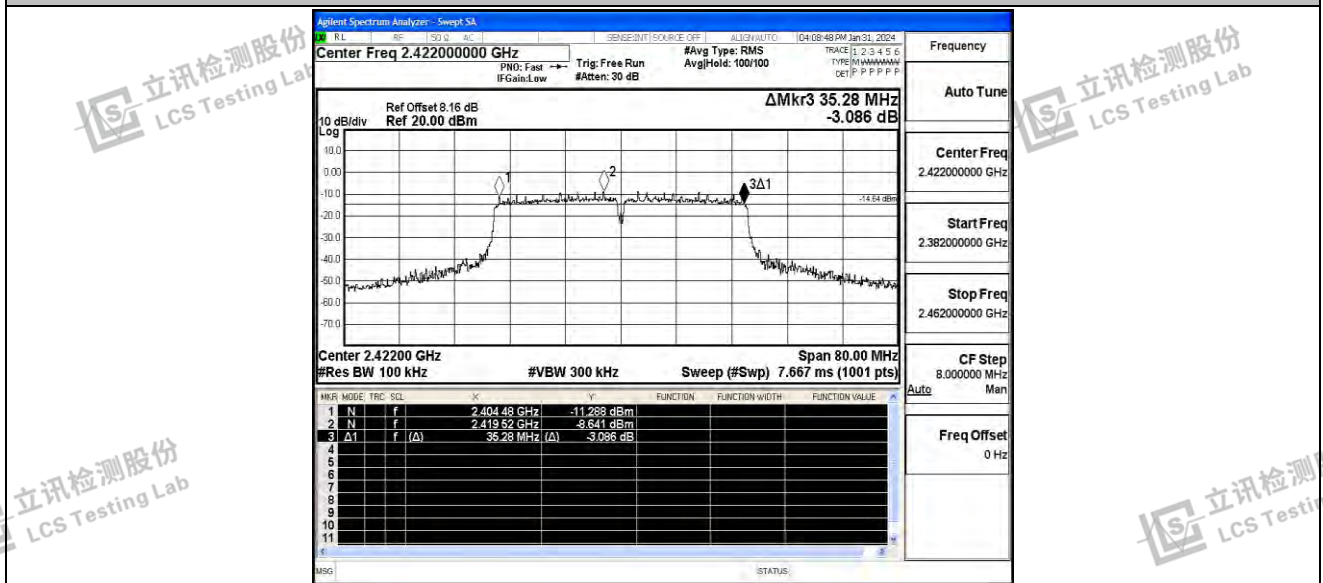




11N20SISO_Ant_2462

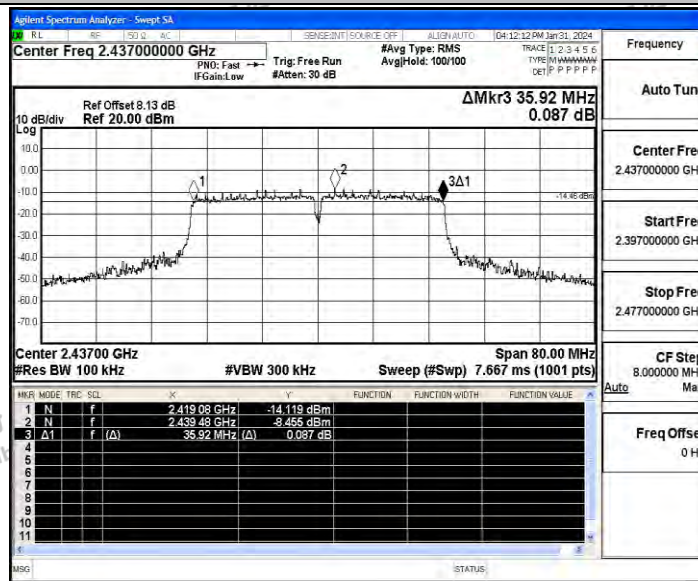


11N40SISO_Ant_2422

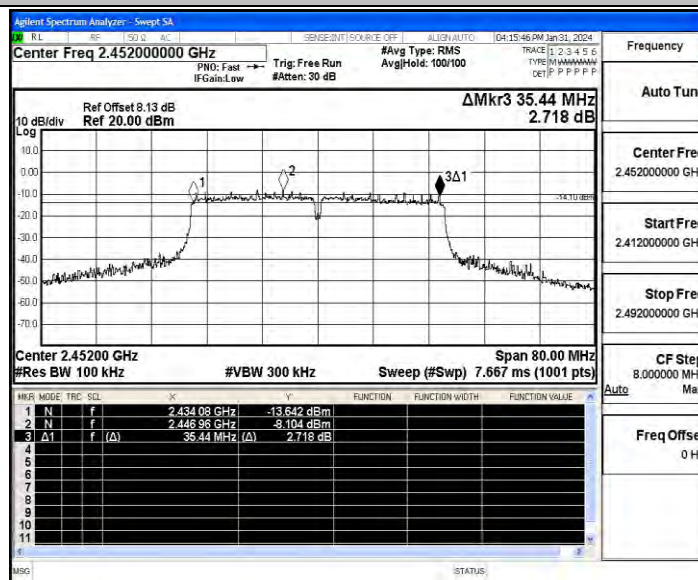




11N40SISO_Ant_2437



11N40SISO_Ant_2452





A.2 Maximum conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant	2412	15.09	≤30.00	PASS
		2437	15.30	≤30.00	PASS
		2462	15.07	≤30.00	PASS
11G	Ant	2412	13.97	≤30.00	PASS
		2437	14.18	≤30.00	PASS
		2462	14.02	≤30.00	PASS
11N20SISO	Ant	2412	13.74	≤30.00	PASS
		2437	13.35	≤30.00	PASS
		2462	13.44	≤30.00	PASS
11N40SISO	Ant	2422	11.87	≤30.00	PASS
		2437	12.31	≤30.00	PASS
		2452	12.61	≤30.00	PASS





A.3 Maximum power spectral density

Test Result

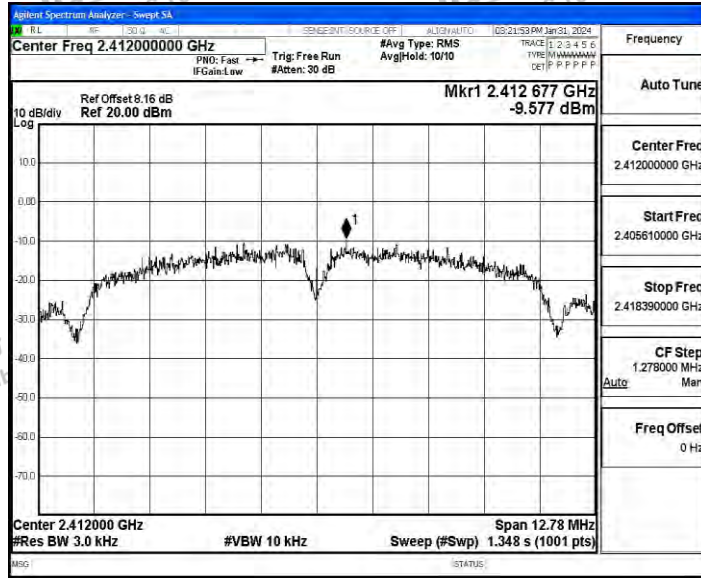
TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant	2412	-9.58	≤8.00	PASS
		2437	-7.02	≤8.00	PASS
		2462	-9.74	≤8.00	PASS
11G	Ant	2412	-17.60	≤8.00	PASS
		2437	-17.92	≤8.00	PASS
		2462	-17.96	≤8.00	PASS
11N20SISO	Ant	2412	-17.75	≤8.00	PASS
		2437	-17.91	≤8.00	PASS
		2462	-17.87	≤8.00	PASS
11N40SISO	Ant	2422	-23.13	≤8.00	PASS
		2437	-22.62	≤8.00	PASS
		2452	-22.59	≤8.00	PASS



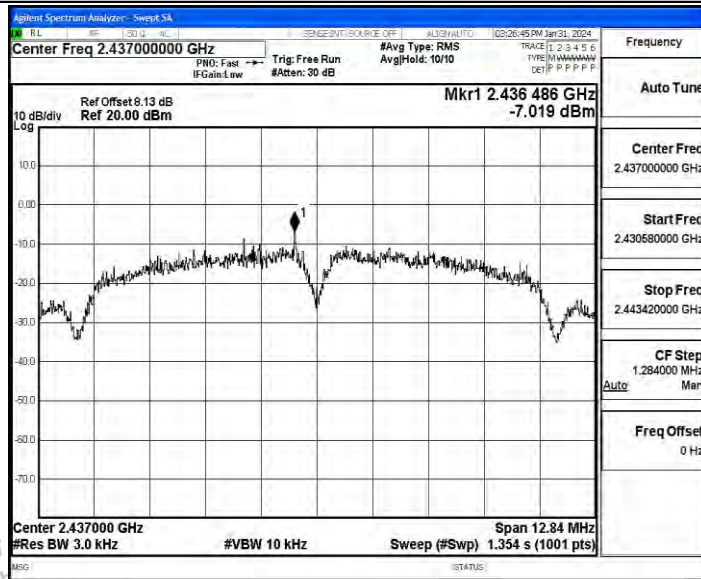


Test Graphs

11B_Ant_2412

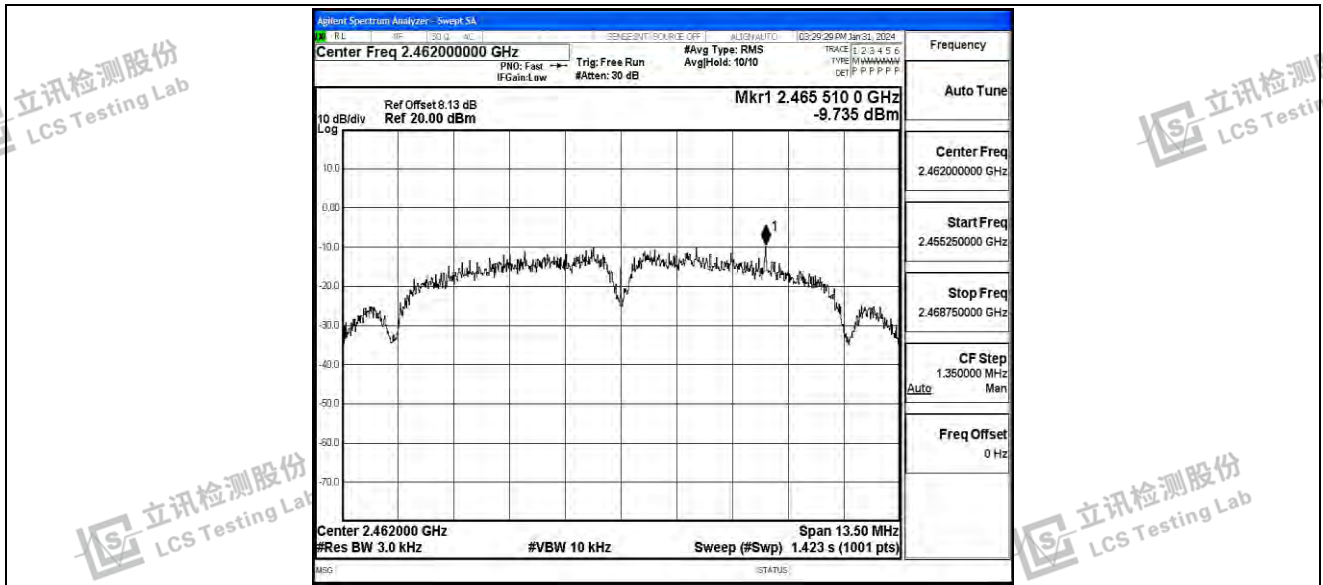


11B_Ant_2437

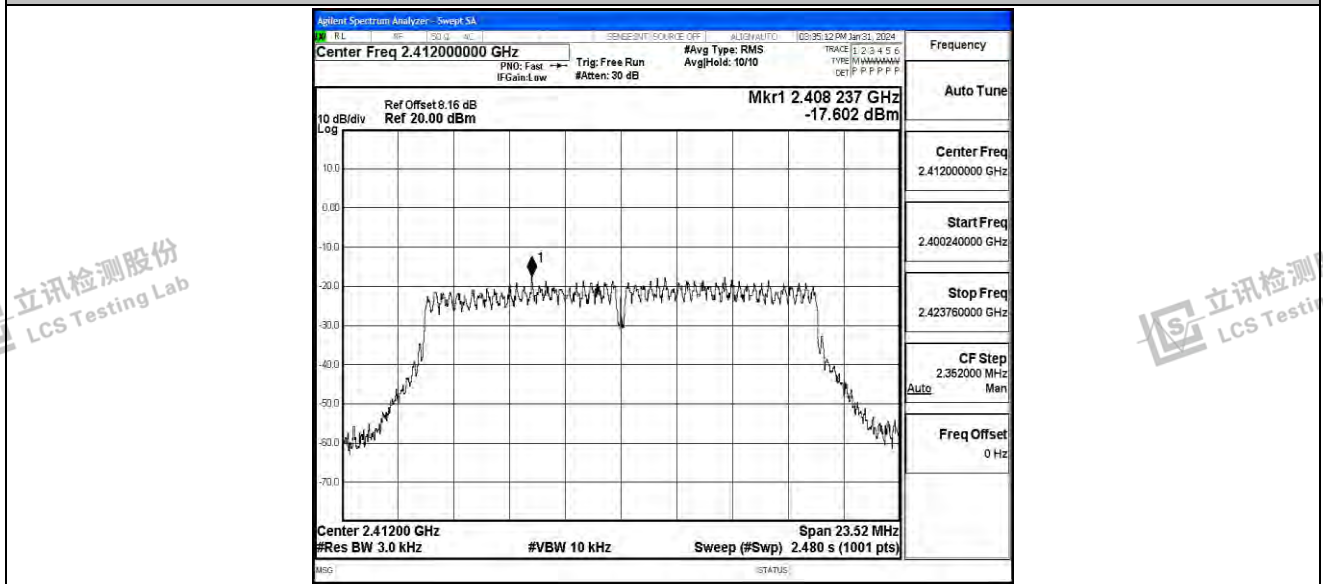


11B_Ant_2462

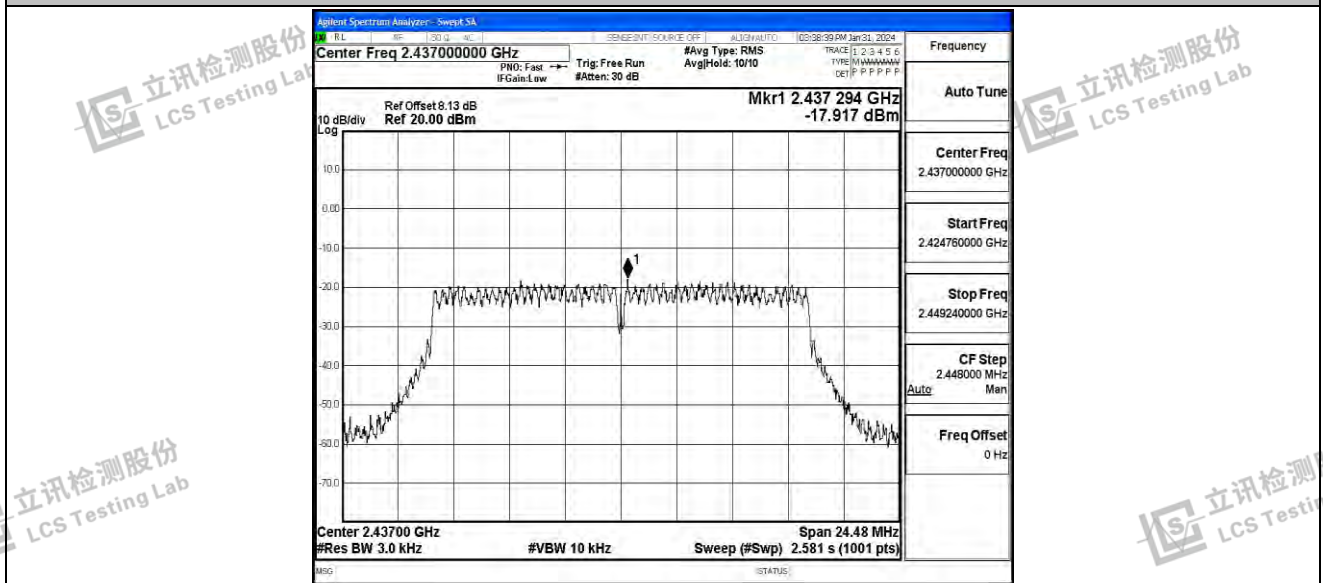




11G_Ant_2412

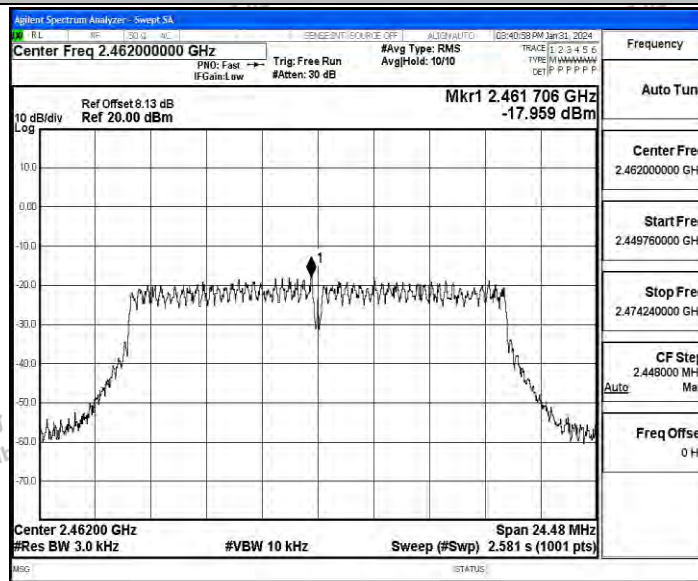


11G_Ant_2437

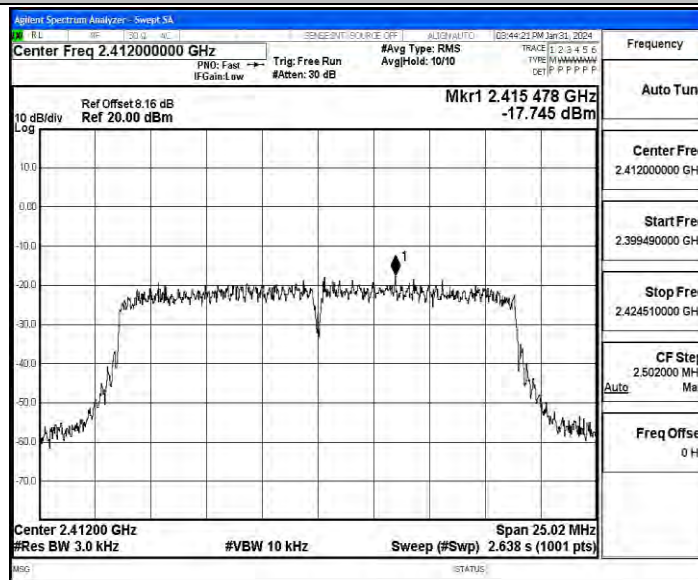




11G_Ant_2462

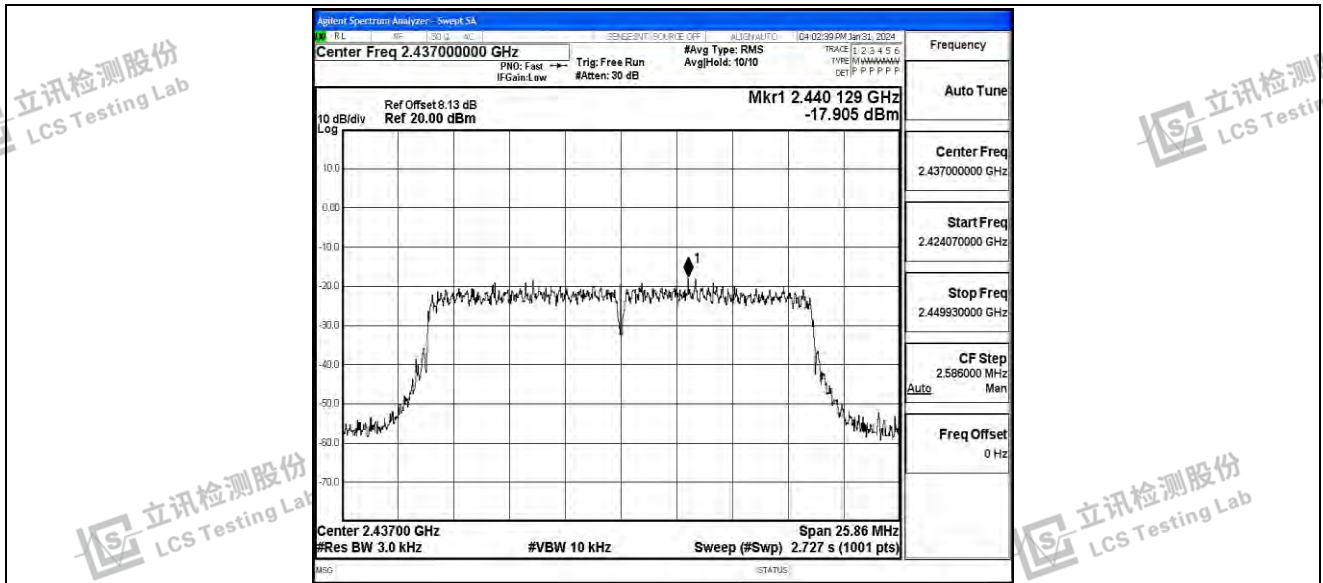


11N20SISO_Ant_2412

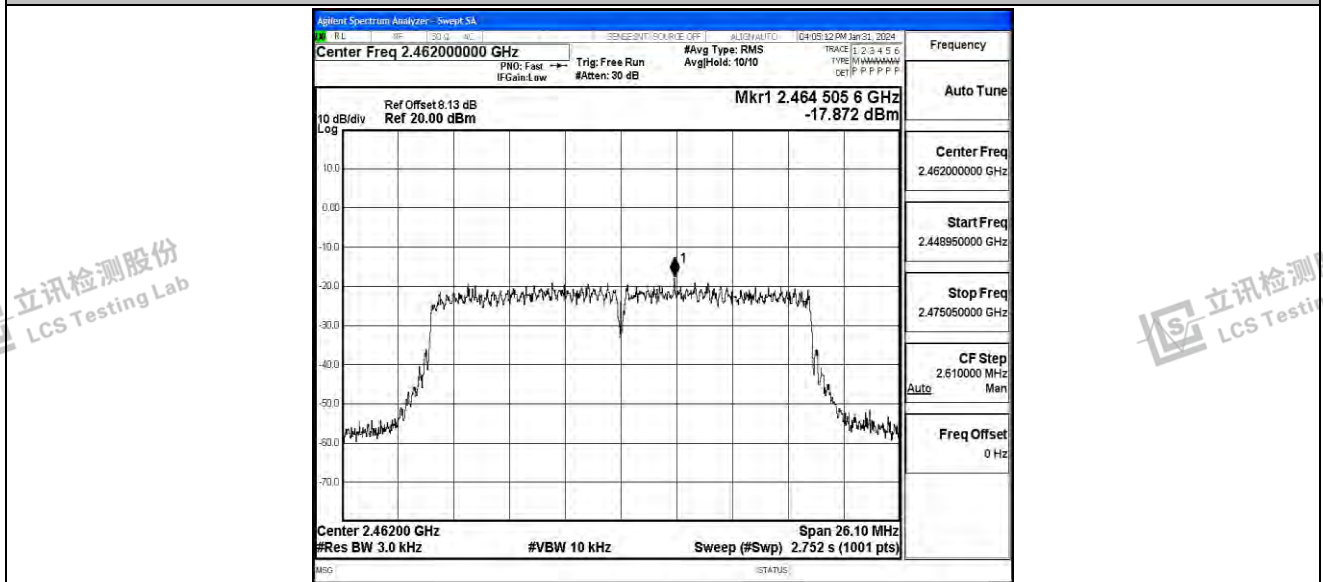


11N20SISO_Ant_2437

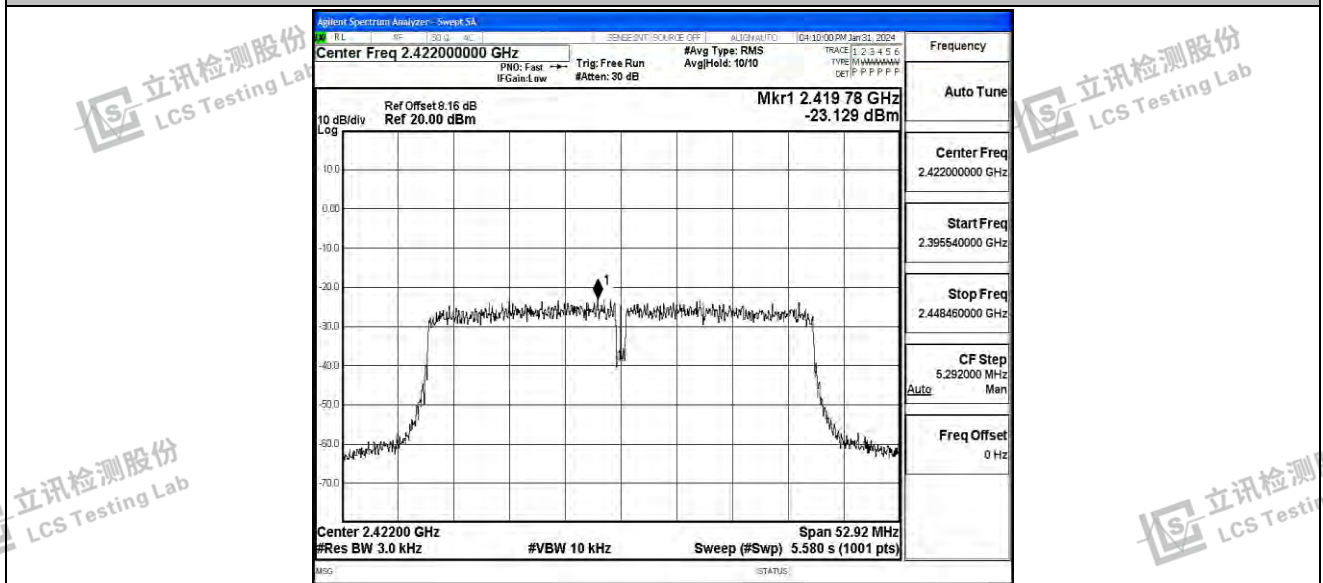




11N20SISO_Ant_2462

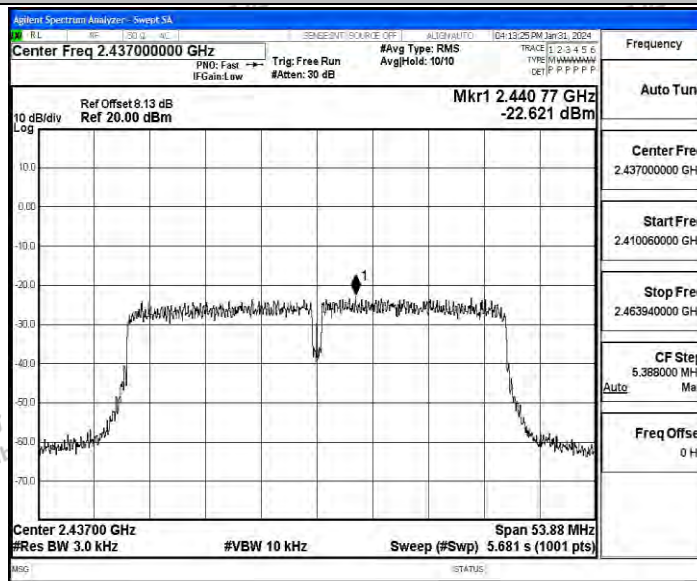


11N40SISO_Ant_2422

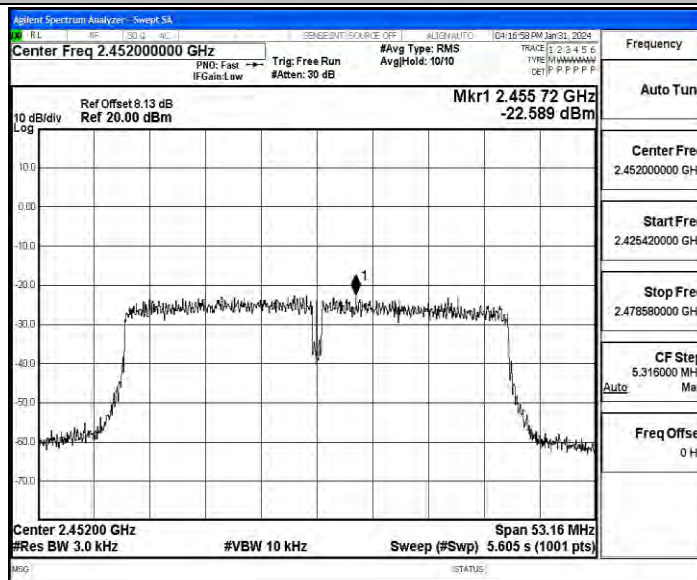




11N40SISO_Ant_2437



11N40SISO_Ant_2452





A.4 Band edge measurements

Test Result

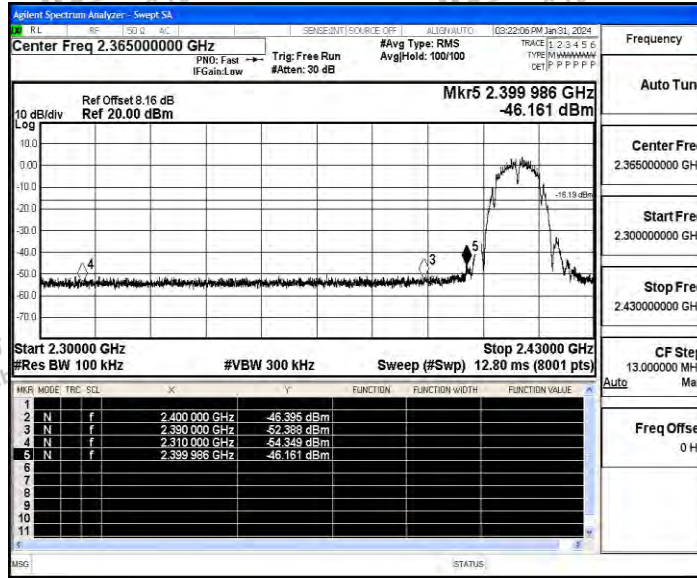
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant	Low	2412	3.81	-46.16	≤-16.19	PASS
		High	2462	3.69	-50.21	≤-16.31	PASS
11G	Ant	Low	2412	-4.02	-36.16	≤-24.02	PASS
		High	2462	-3.42	-47.47	≤-23.42	PASS
11N20SISO	Ant	Low	2412	-4.69	-35.48	≤-24.69	PASS
		High	2462	-4.45	-47.44	≤-24.45	PASS
11N40SISO	Ant	Low	2422	-8.90	-39.54	≤-28.9	PASS
		High	2452	-7.88	-45.7	≤-27.88	PASS



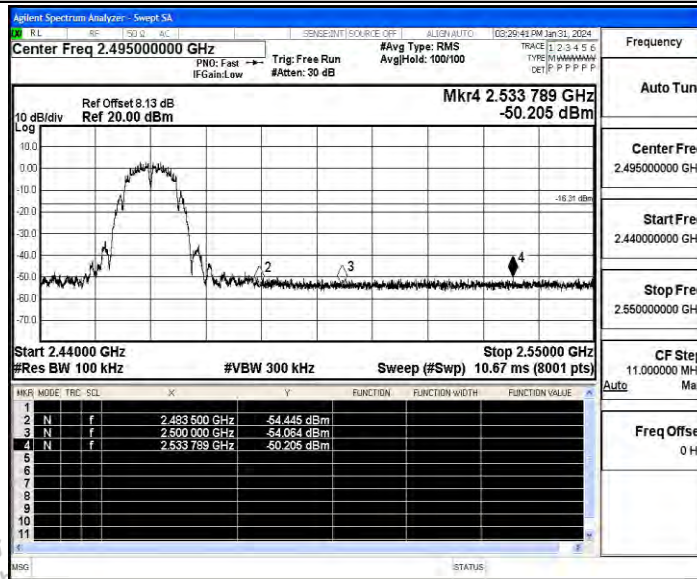


Test Graphs

11B_Ant_Low_2412

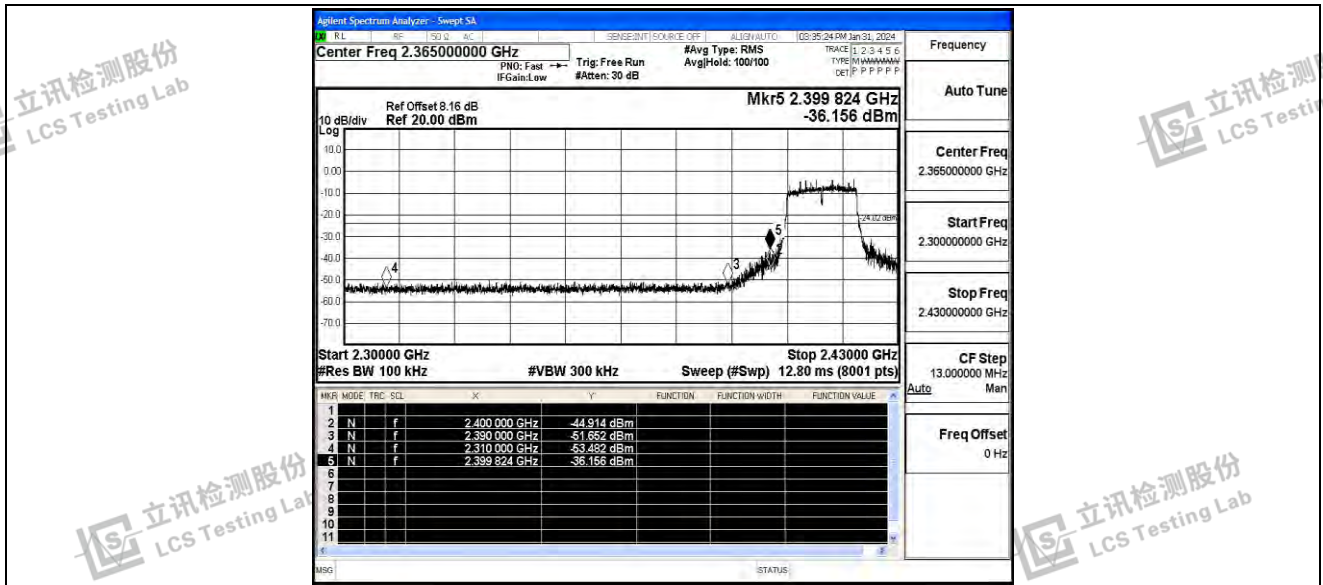


11B_Ant_High_2462

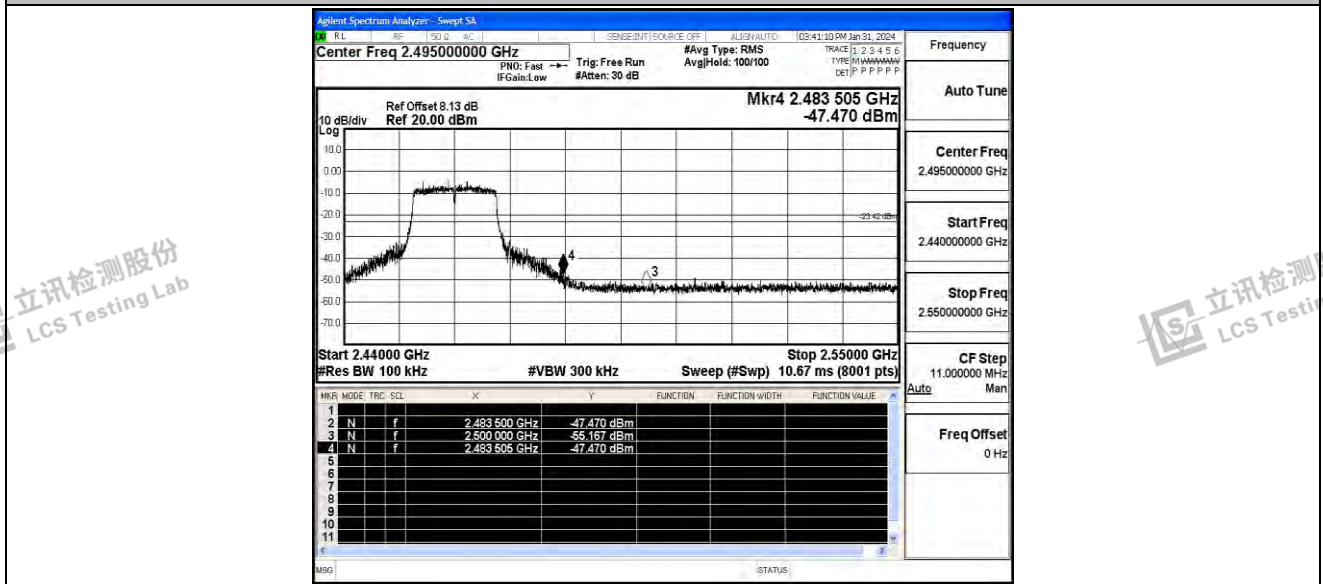


11G_Ant_Low_2412

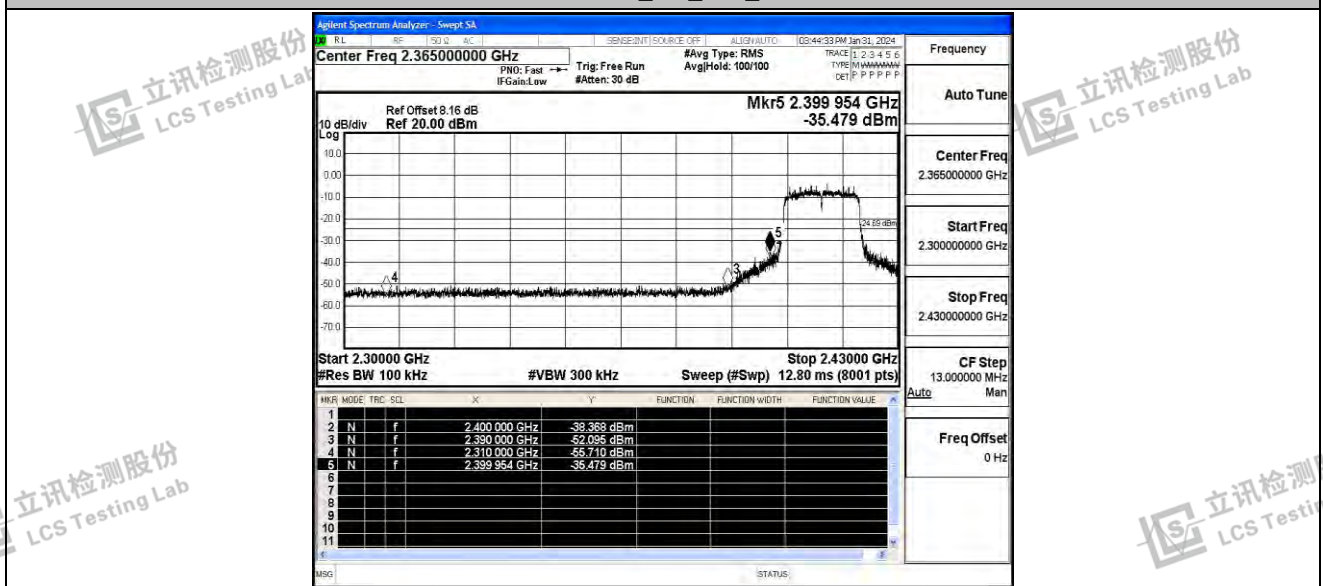




11G_Ant_High_2462

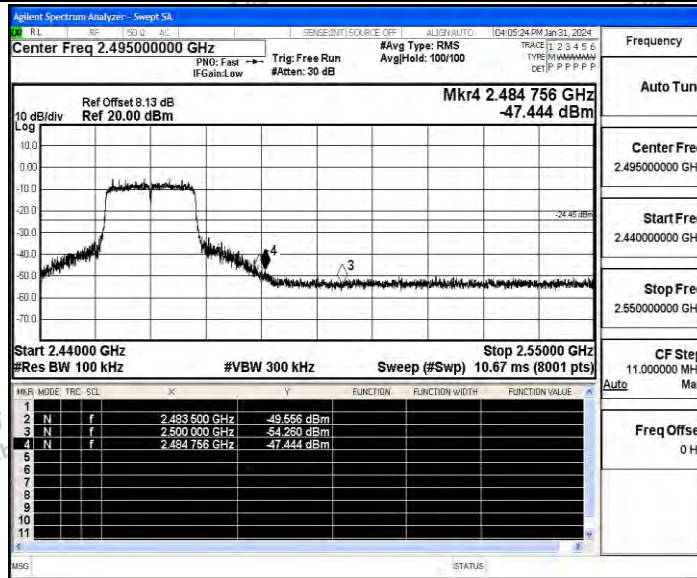


11N20SISO_Ant_Low_2412

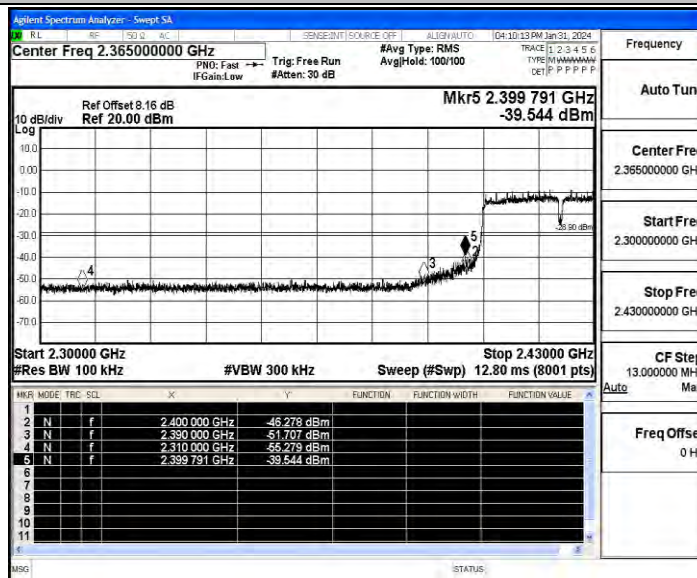




11N20SISO_Ant_High_2462

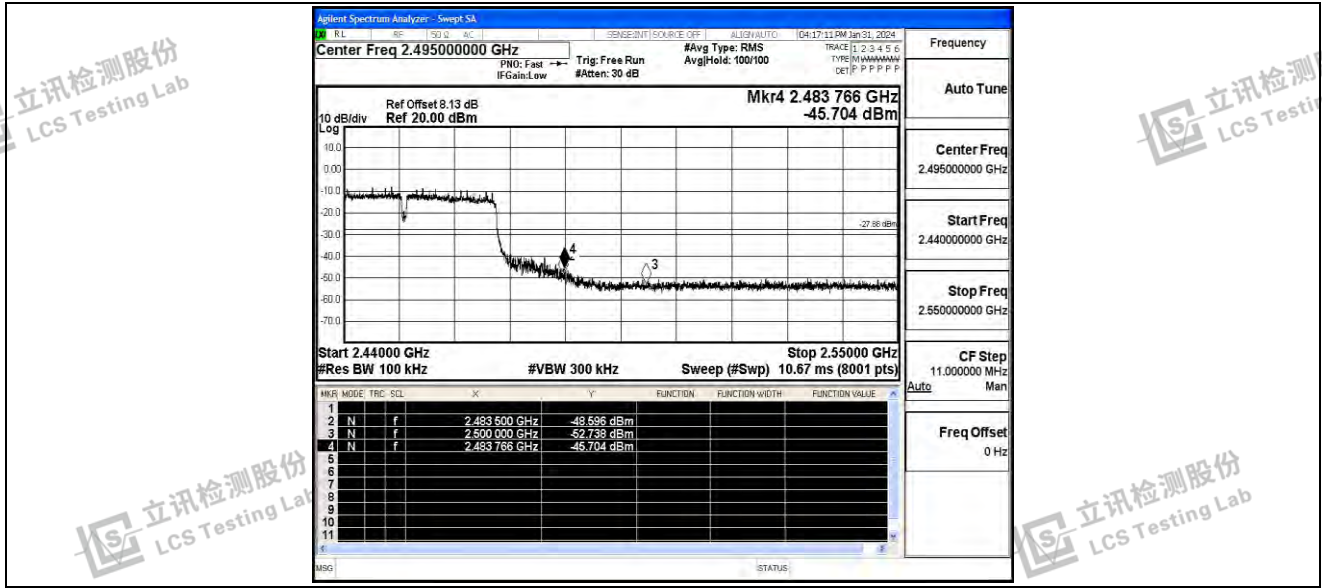


11N40SISO_Ant_Low_2422



11N40SISO_Ant_High_2452







A.5 Conducted Spurious Emission

Test Result

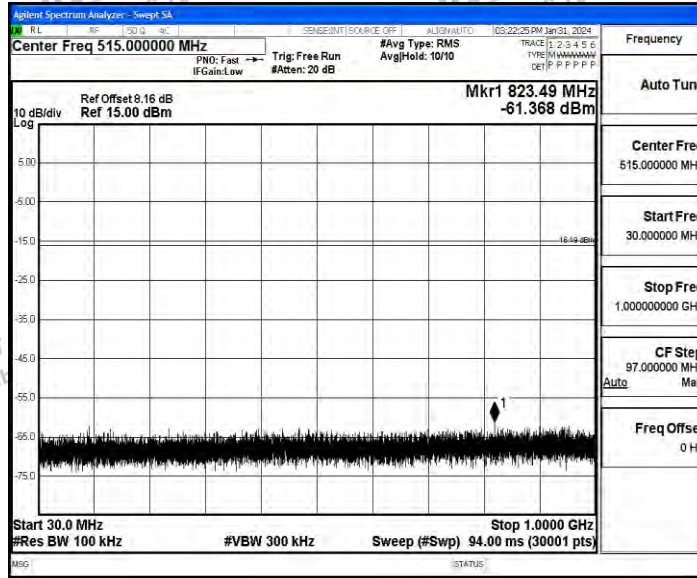
TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant	2412	30~1000	3.81	-61.37	≤-16.19	PASS
			1000~26500	3.81	-49.09	≤-16.19	PASS
		2437	30~1000	2.87	-61.36	≤-17.13	PASS
			1000~26500	2.87	-49.21	≤-17.13	PASS
		2462	30~1000	3.69	-62.13	≤-16.31	PASS
			1000~26500	3.69	-49.25	≤-16.31	PASS
11G	Ant	2412	30~1000	-4.02	-62.08	≤-24.02	PASS
			1000~26500	-4.02	-48.9	≤-24.02	PASS
		2437	30~1000	-4.03	-61.48	≤-24.03	PASS
			1000~26500	-4.03	-48.58	≤-24.03	PASS
		2462	30~1000	-3.42	-61.93	≤-23.42	PASS
			1000~26500	-3.42	-49.47	≤-23.42	PASS
11N20SISO	Ant	2412	30~1000	-4.69	-61.11	≤-24.69	PASS
			1000~26500	-4.69	-49.71	≤-24.69	PASS
		2437	30~1000	-5.14	-61.96	≤-25.14	PASS
			1000~26500	-5.14	-48.66	≤-25.14	PASS
		2462	30~1000	-4.45	-61.26	≤-24.45	PASS
			1000~26500	-4.45	-49.47	≤-24.45	PASS
11N40SISO	Ant	2422	30~1000	-8.90	-60	≤-28.9	PASS
			1000~26500	-8.90	-49.11	≤-28.9	PASS
		2437	30~1000	-8.42	-61.46	≤-28.42	PASS
			1000~26500	-8.42	-49.13	≤-28.42	PASS
		2452	30~1000	-7.88	-61.87	≤-27.88	PASS
			1000~26500	-7.88	-48.95	≤-27.88	PASS



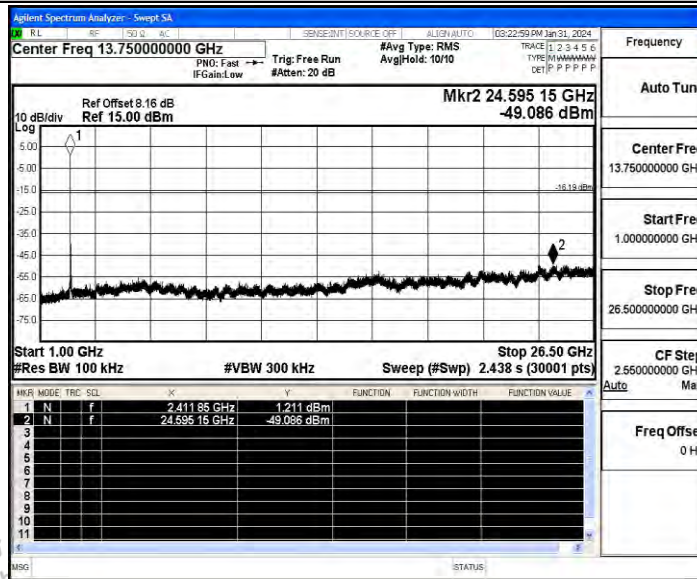


Test Graphs

11B_Ant_2412_30~1000

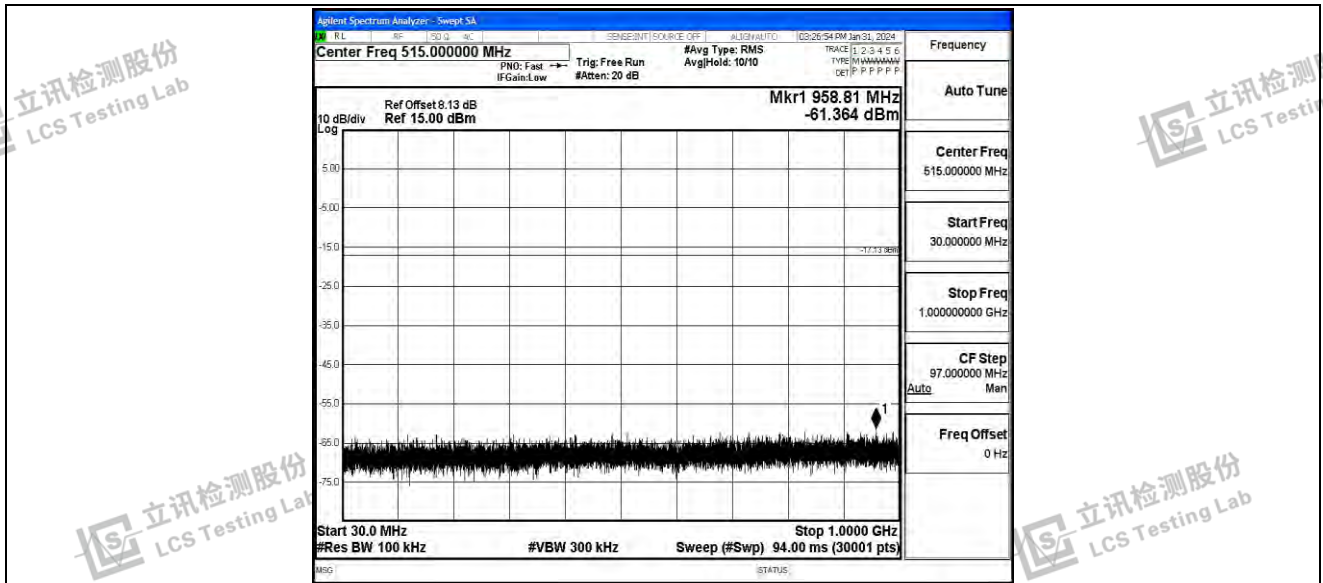


11B_Ant_2412_1000~26500

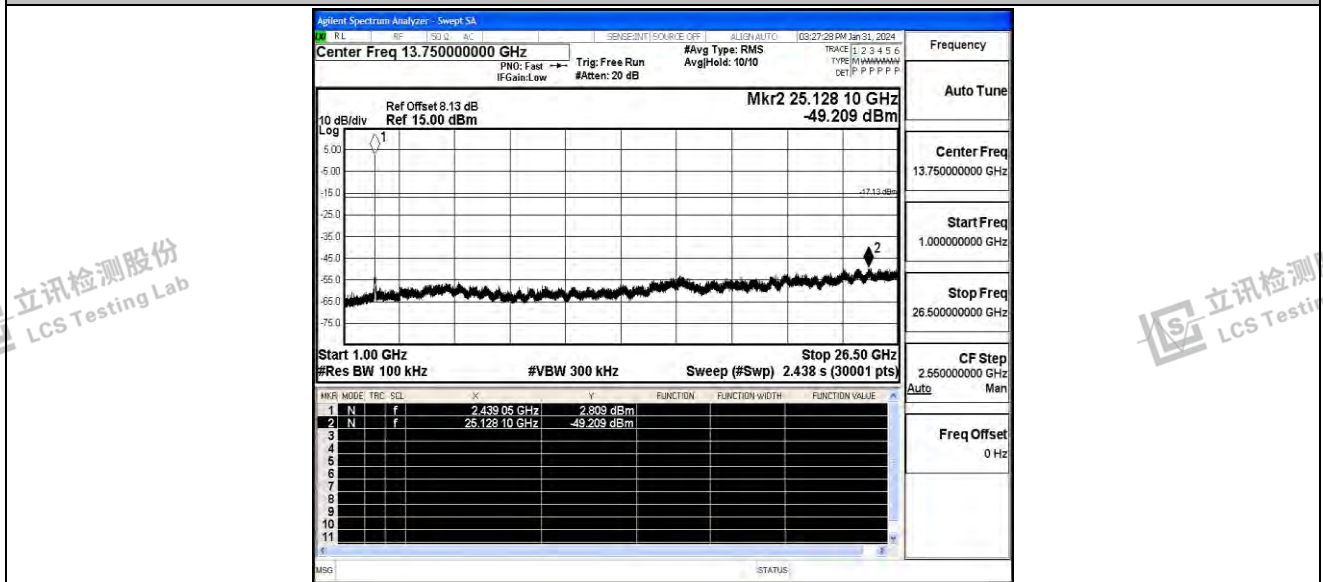


11B_Ant_2437_30~1000

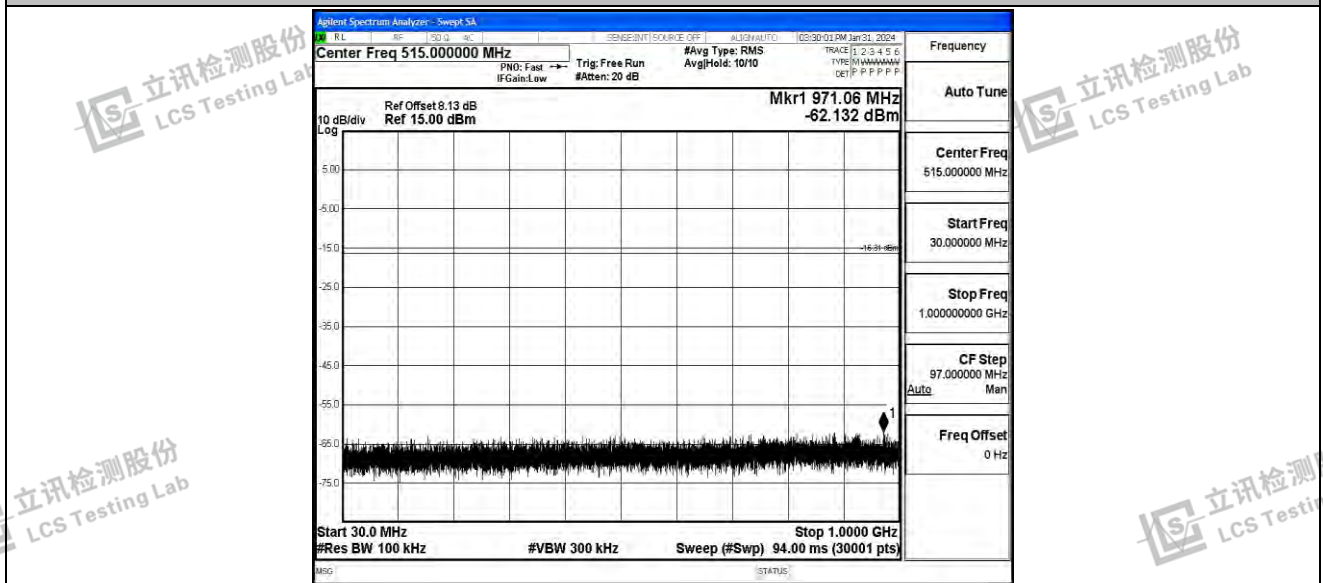




11B_Ant_2437_1000~26500

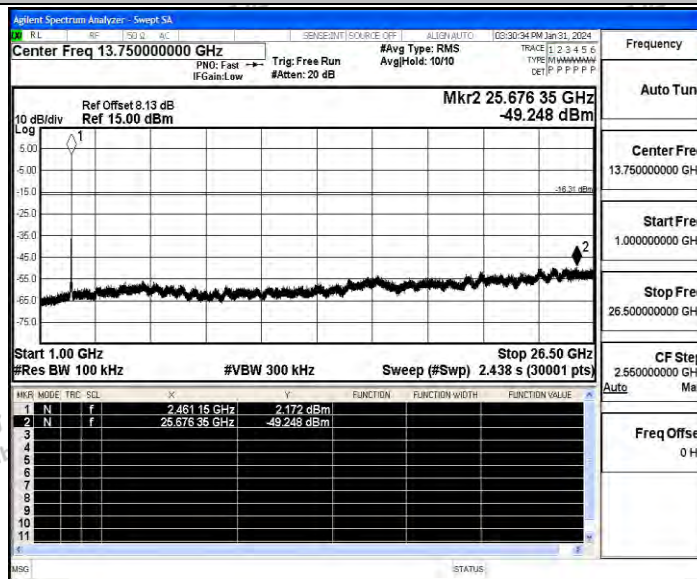


11B_Ant_2462_30~1000

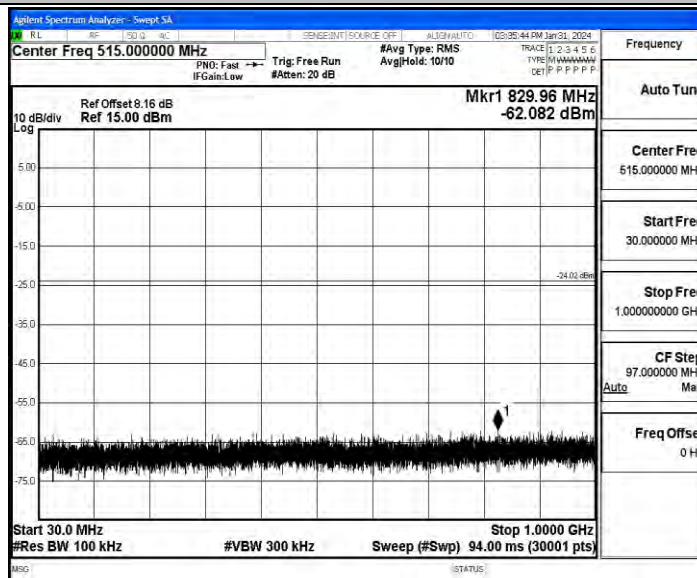




11B_Ant_2462_1000~26500

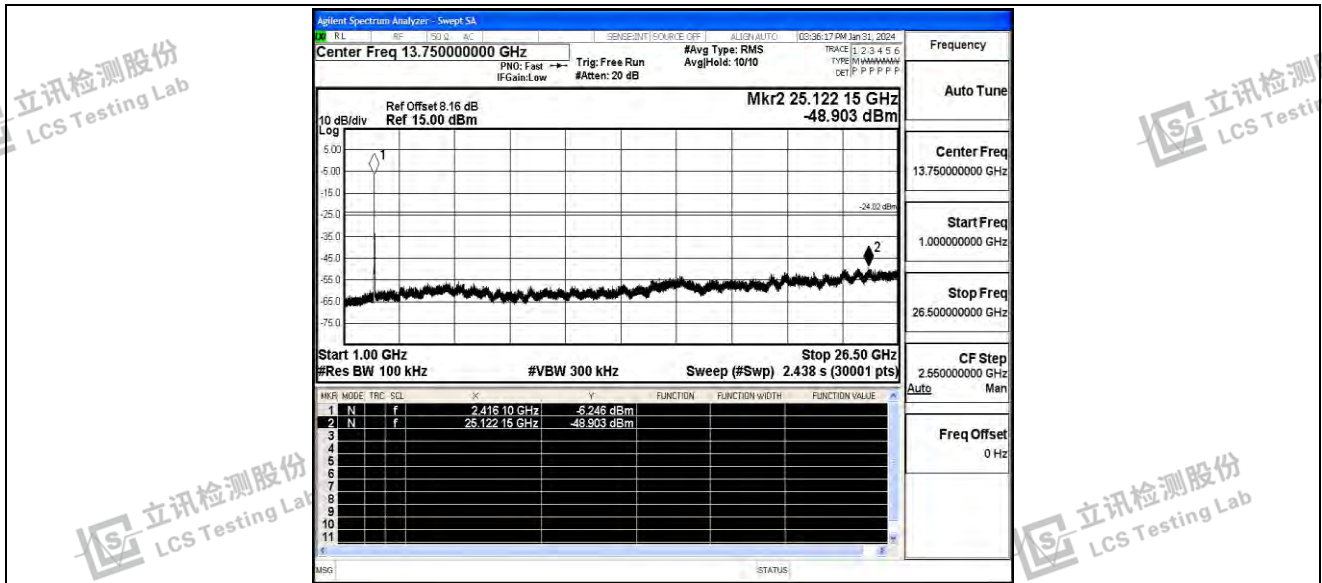


11G_Ant_2412_30~1000

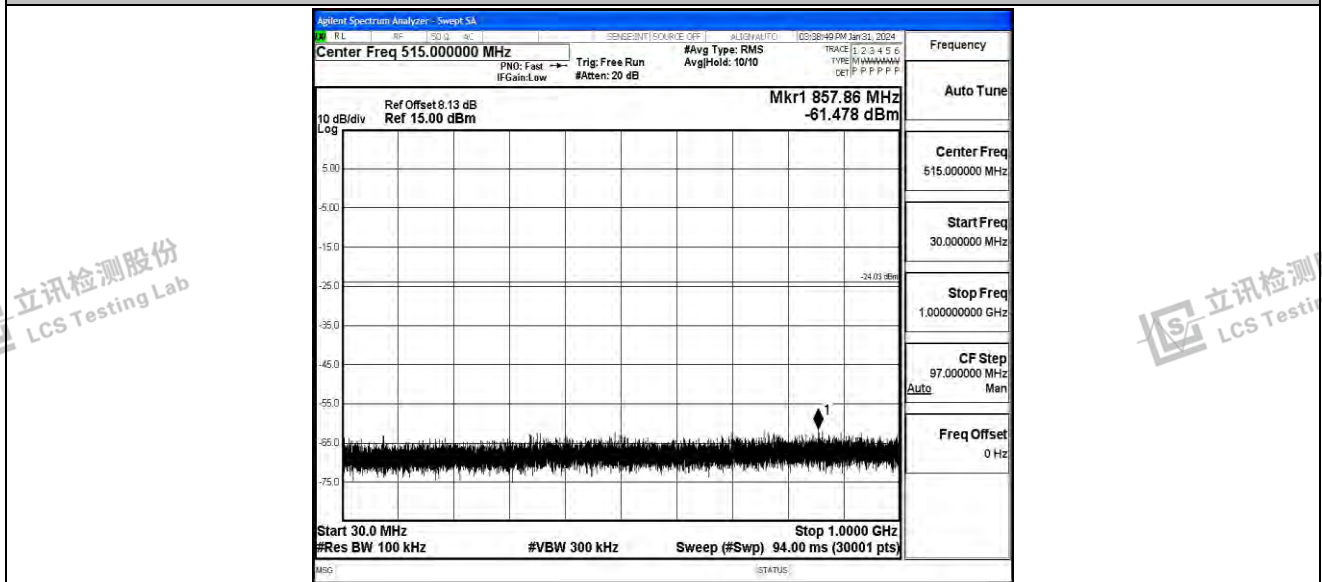


11G_Ant_2412_1000~26500

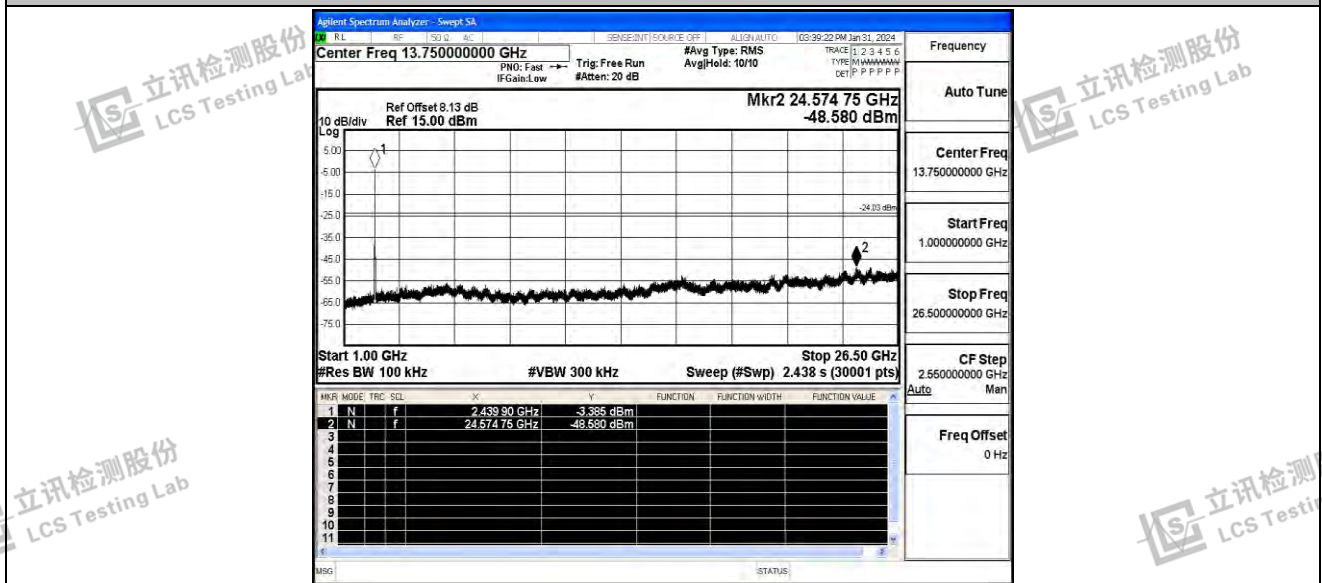




11G_Ant_2437_30~100

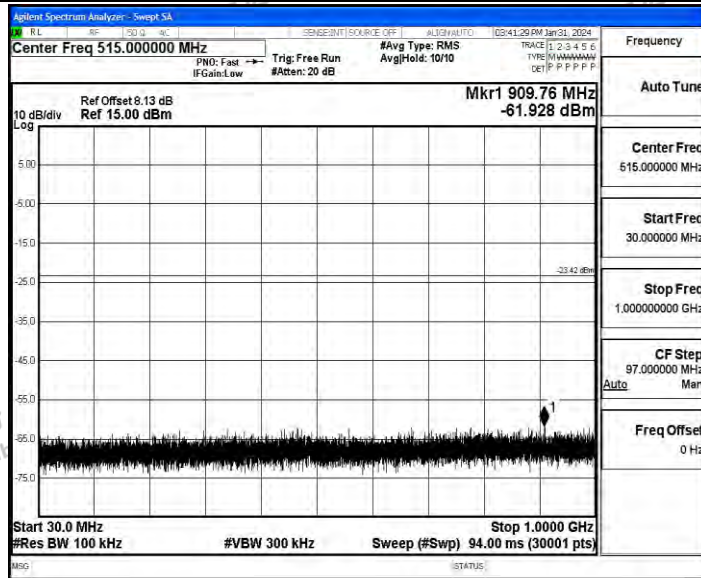


11G_Ant_2437_1000~26500

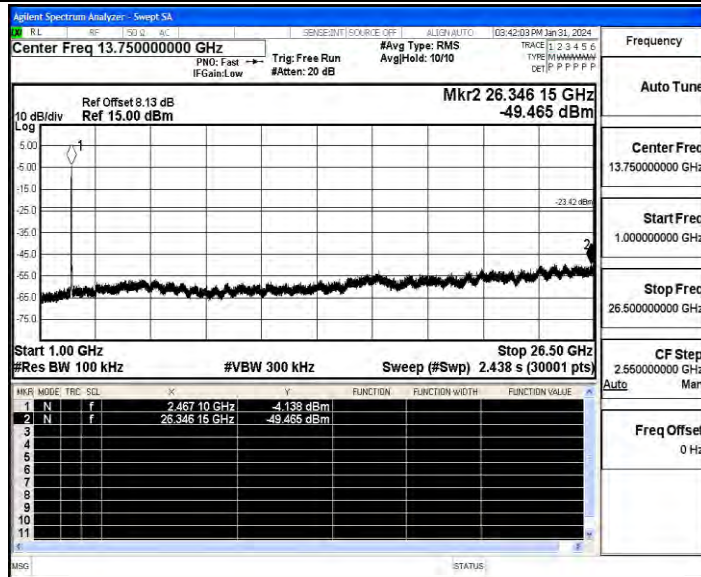




11G_Ant_2462_30~1000

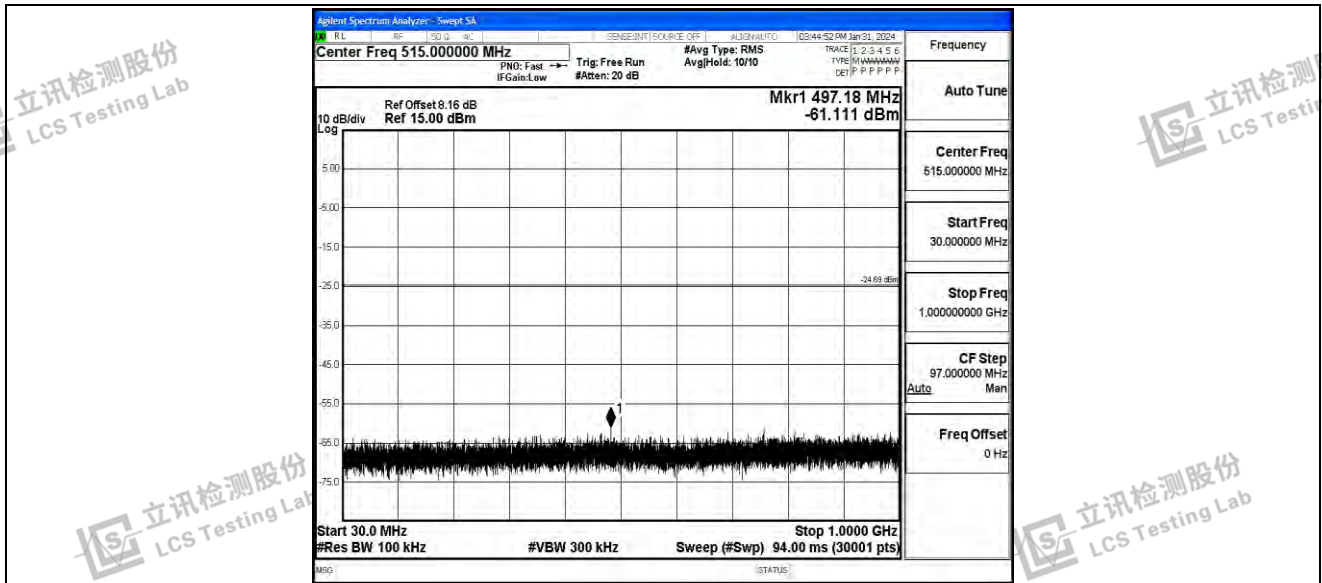


11G_Ant_2462_1000~26500

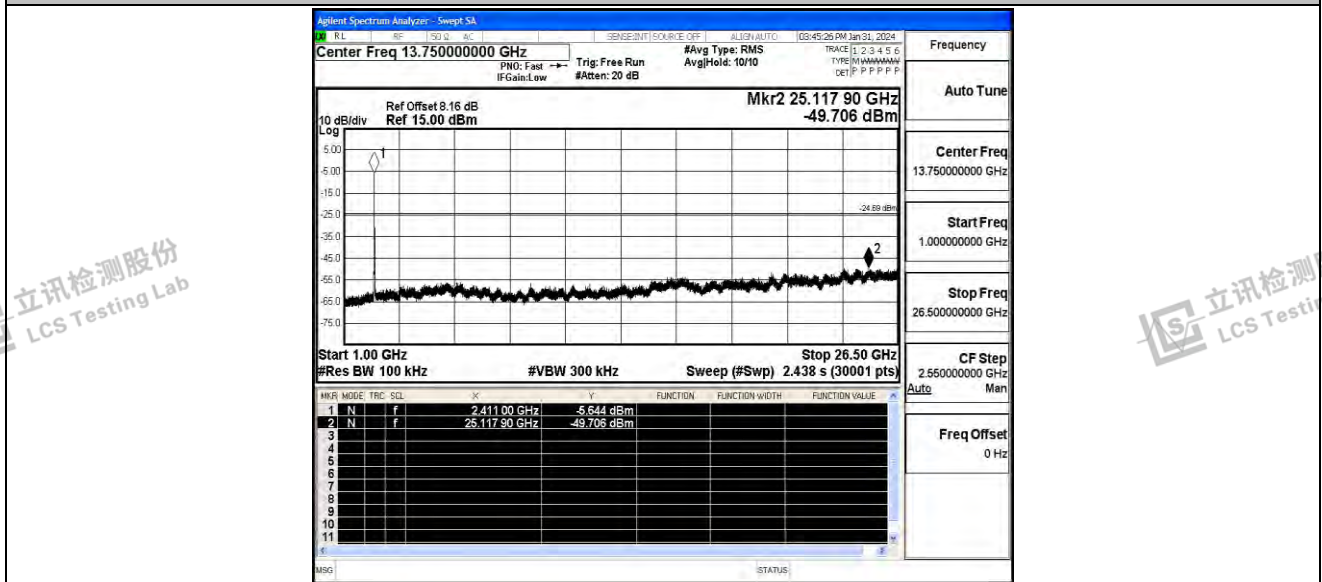


11N20SISO_Ant_2412_30~1000

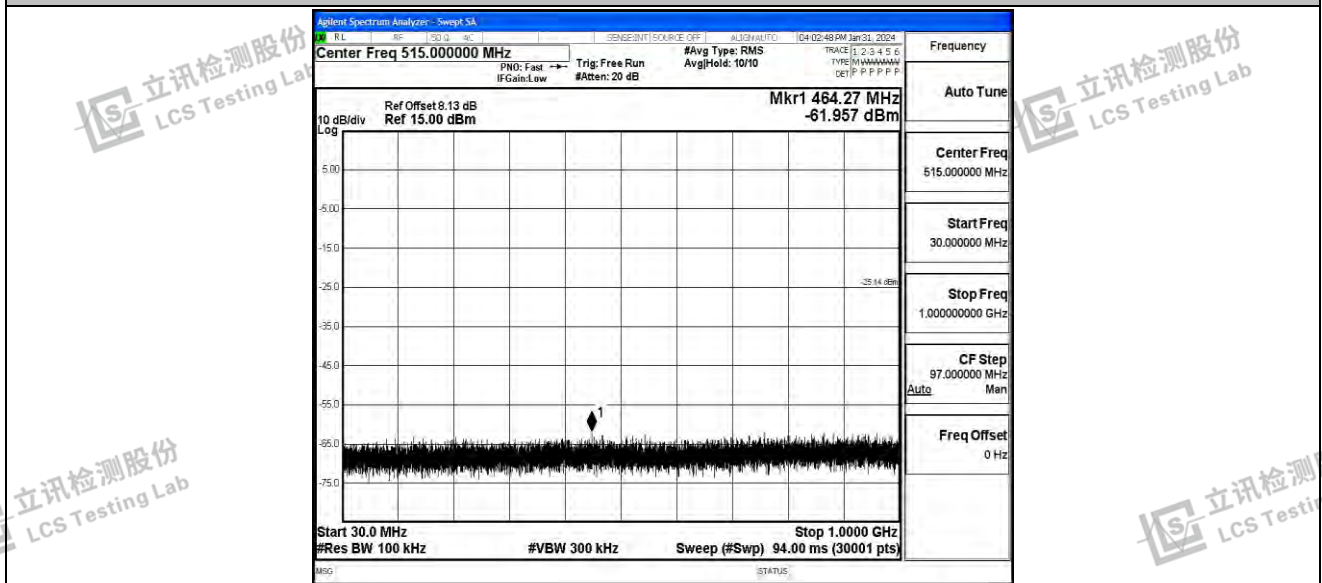




11N20SISO_Ant_2412_1000~26500

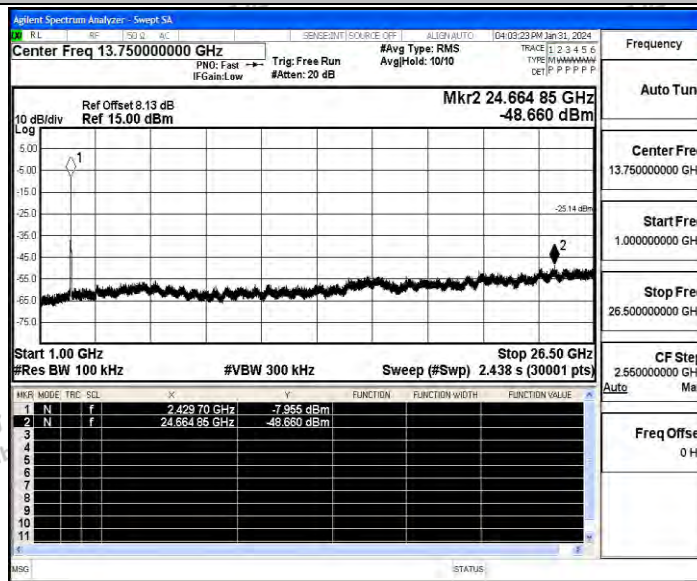


11N20SISO_Ant_2437_30~1000

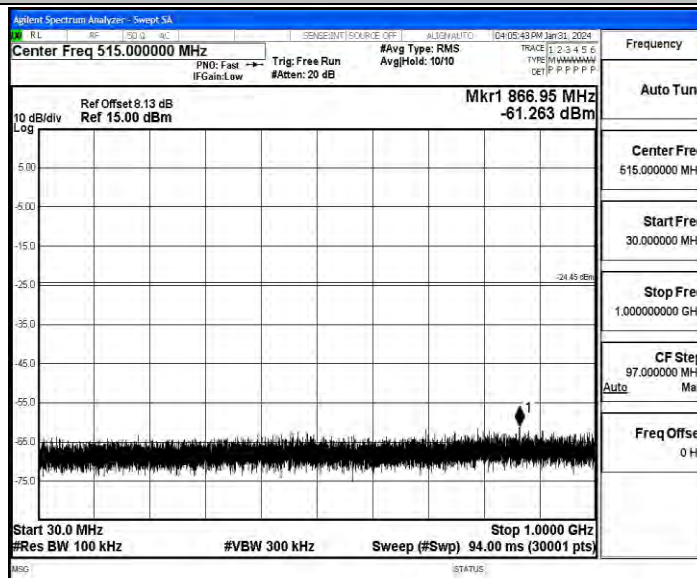




11N20SISO_Ant_2437_1000~26500

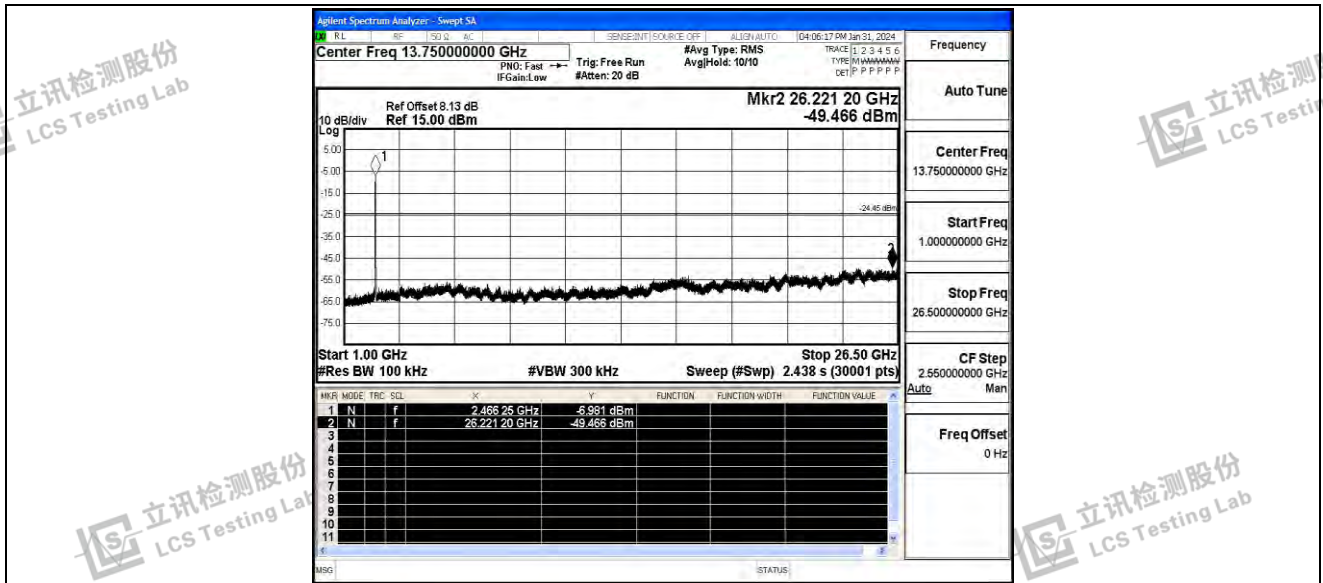


11N20SISO_Ant_2462_30~1000

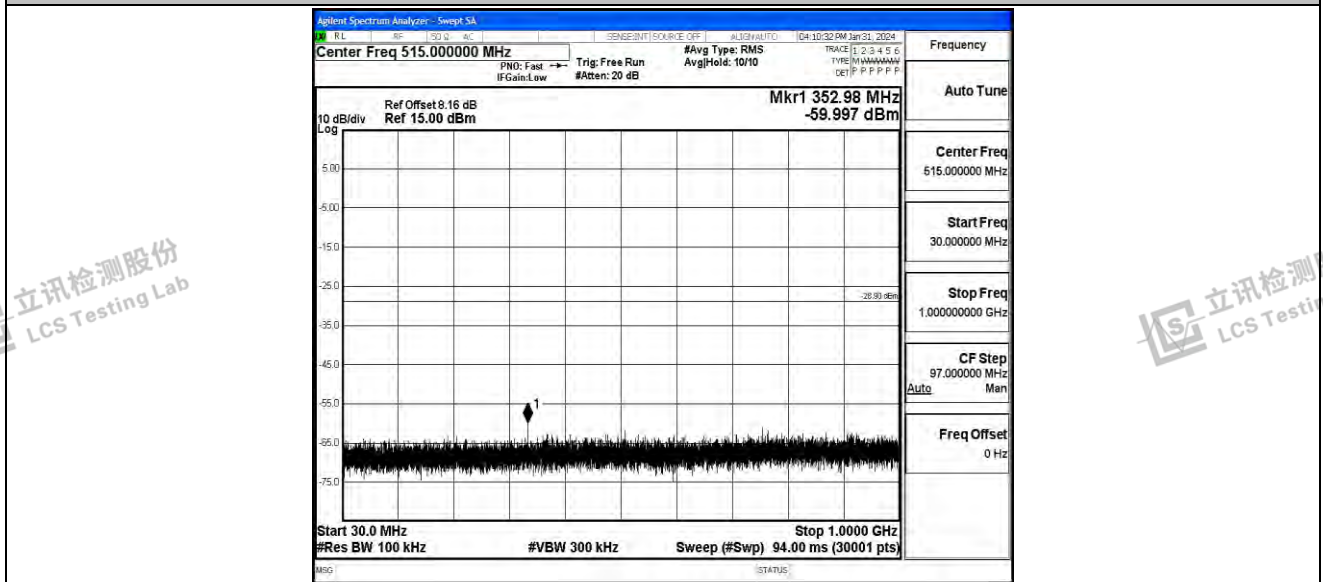


11N20SISO_Ant_2462_1000~26500

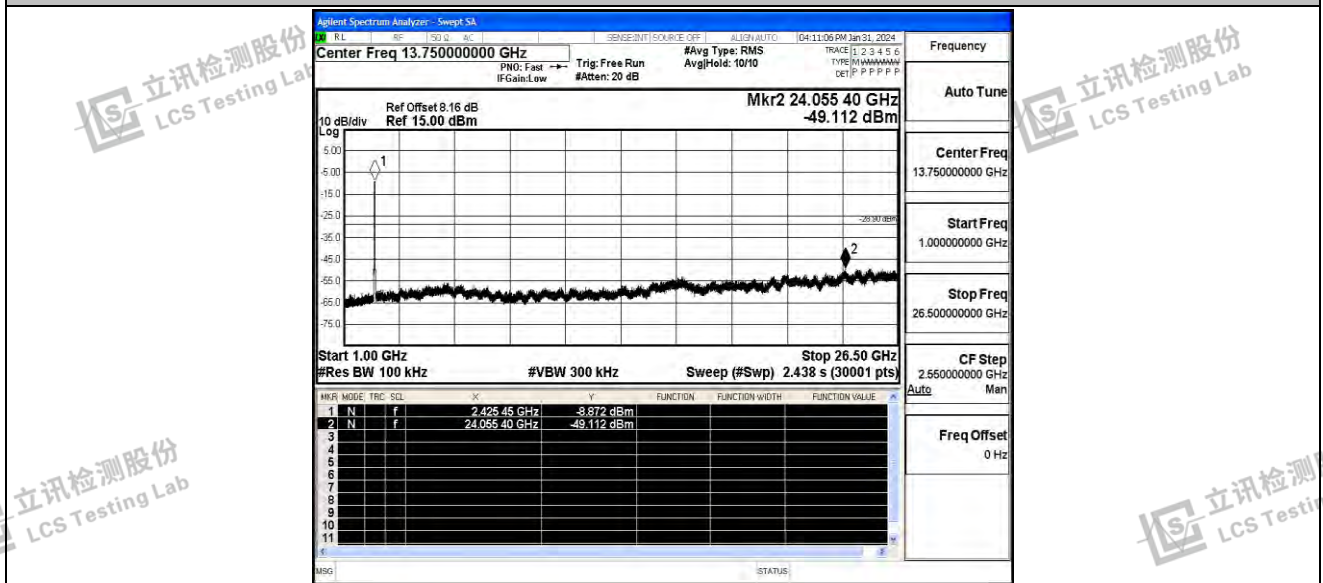




11N40SISO_Ant_2422_30~1000

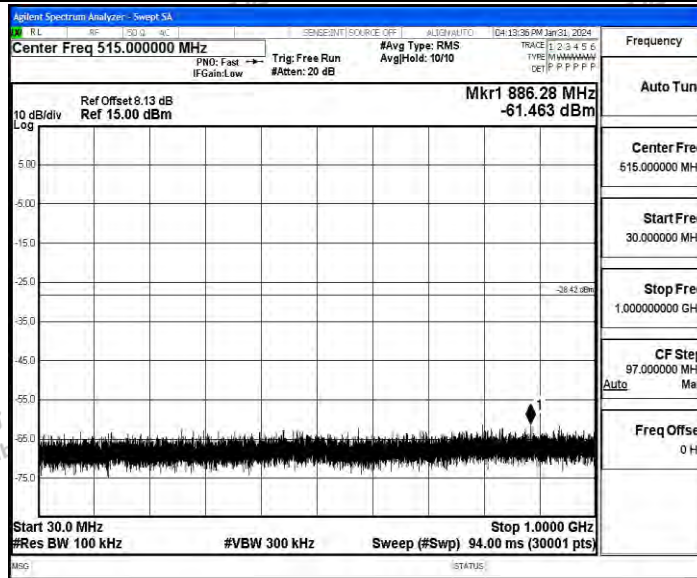


11N40SISO_Ant_2422_1000~26500

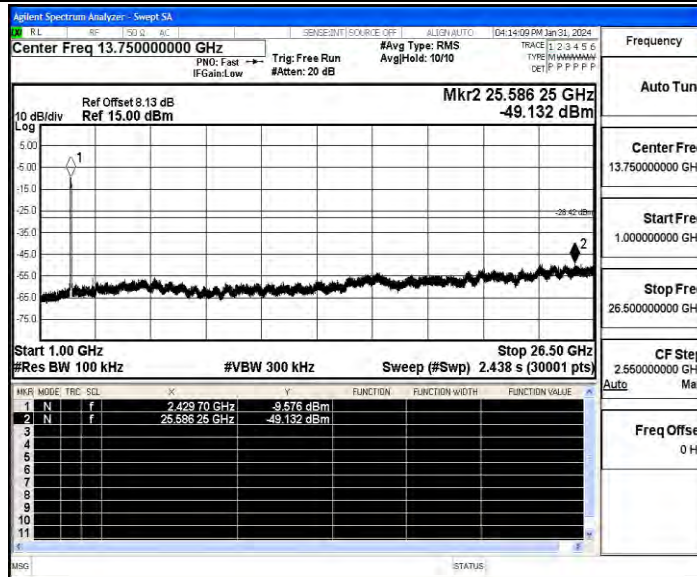




11N40SISO_Ant_2437_30~1000

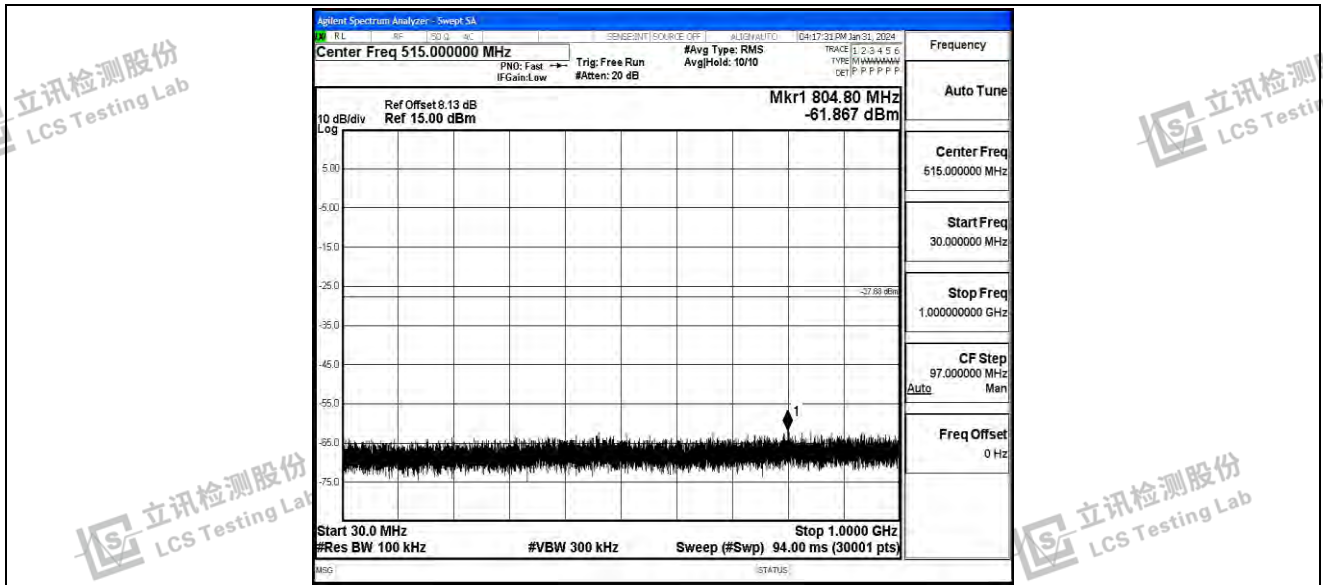


11N40SISO_Ant_2437_1000~26500

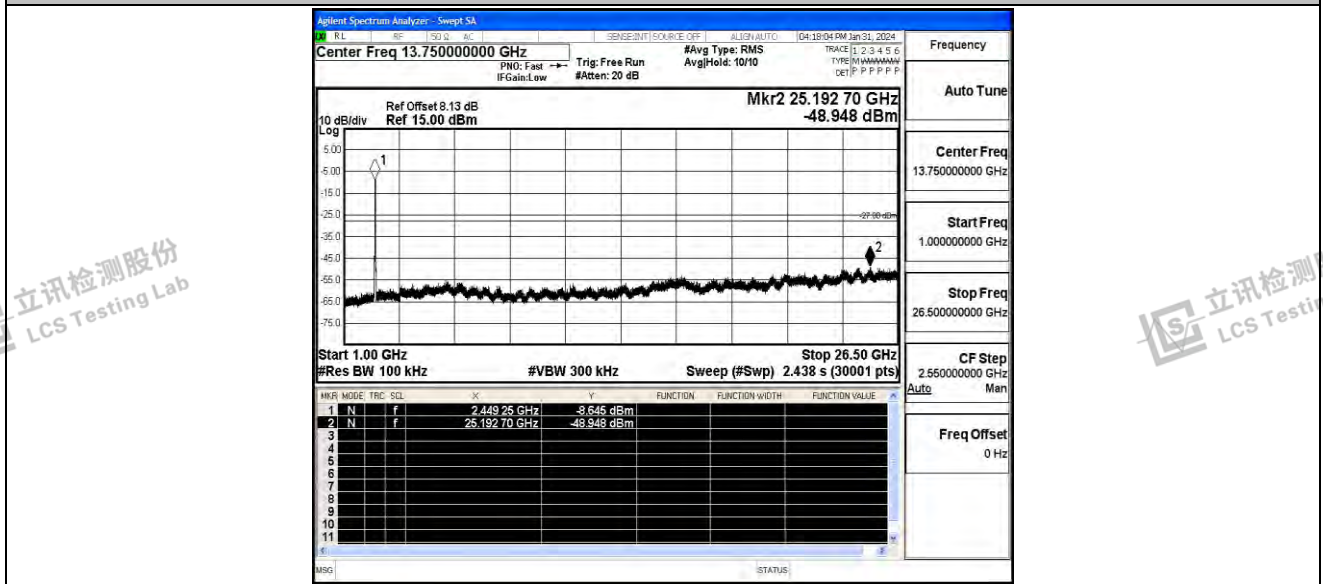


11N40SISO_Ant_2452_30~1000





11N40SISO_Ant_2452_1000~26500





Reference level measurement

Test Result

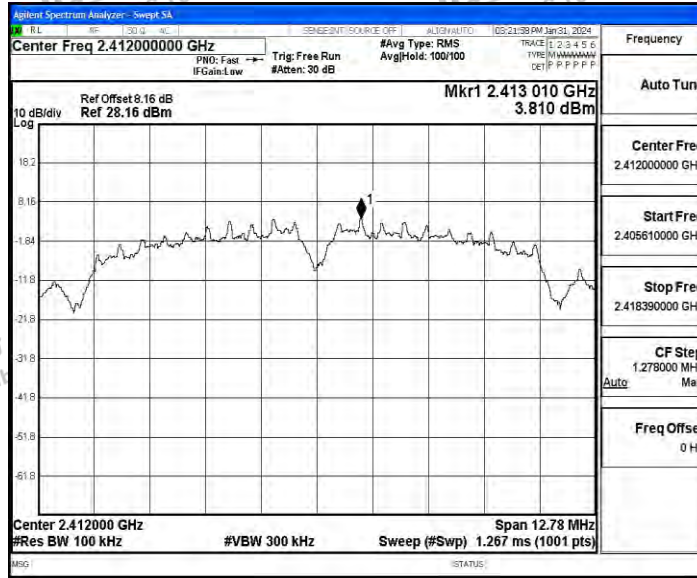
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant	2412	2413.01	3.81
		2437	2435.01	2.87
		2462	2463.00	3.69
11G	Ant	2412	2410.73	-4.02
		2437	2435.73	-4.03
		2462	2464.50	-3.42
11N20SISO	Ant	2412	2408.25	-4.69
		2437	2429.53	-5.14
		2462	2463.25	-4.45
11N40SISO	Ant	2422	2424.49	-8.90
		2437	2442.01	-8.42
		2452	2449.50	-7.88



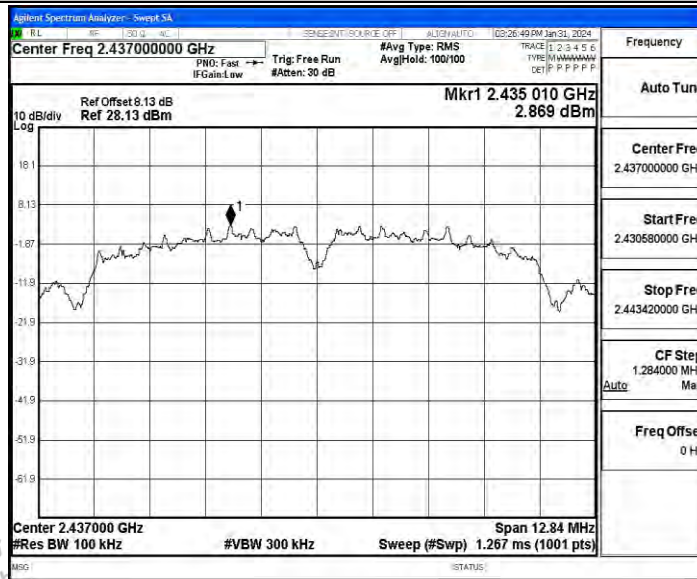


Test Graphs

11B_Ant_2412

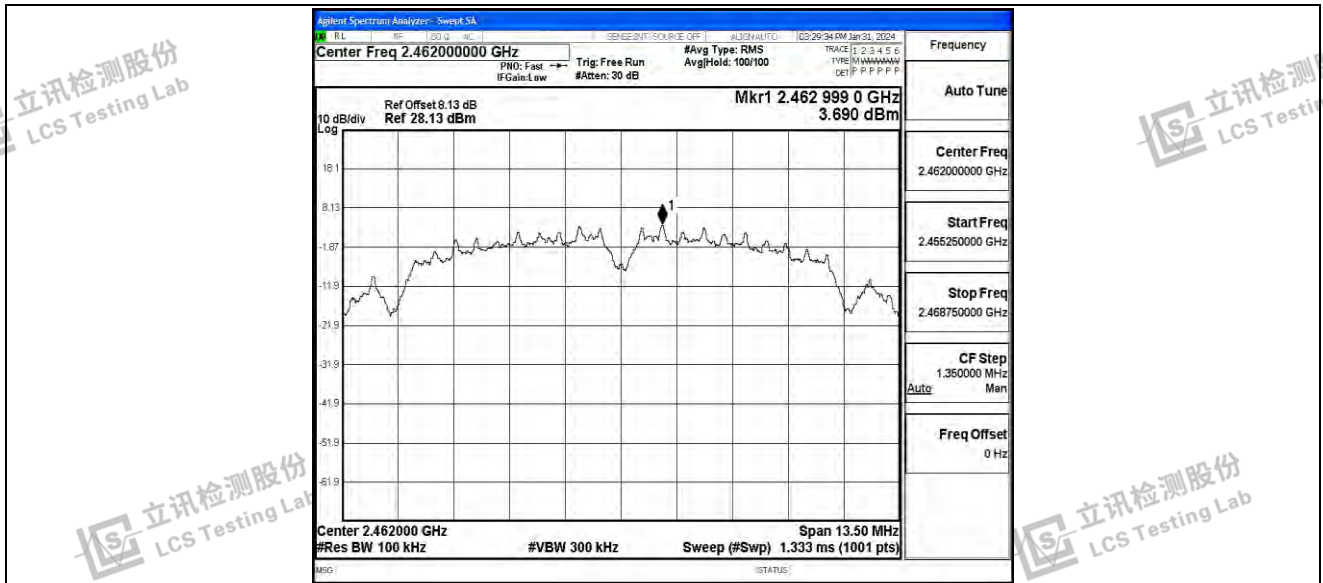


11B_Ant_2437

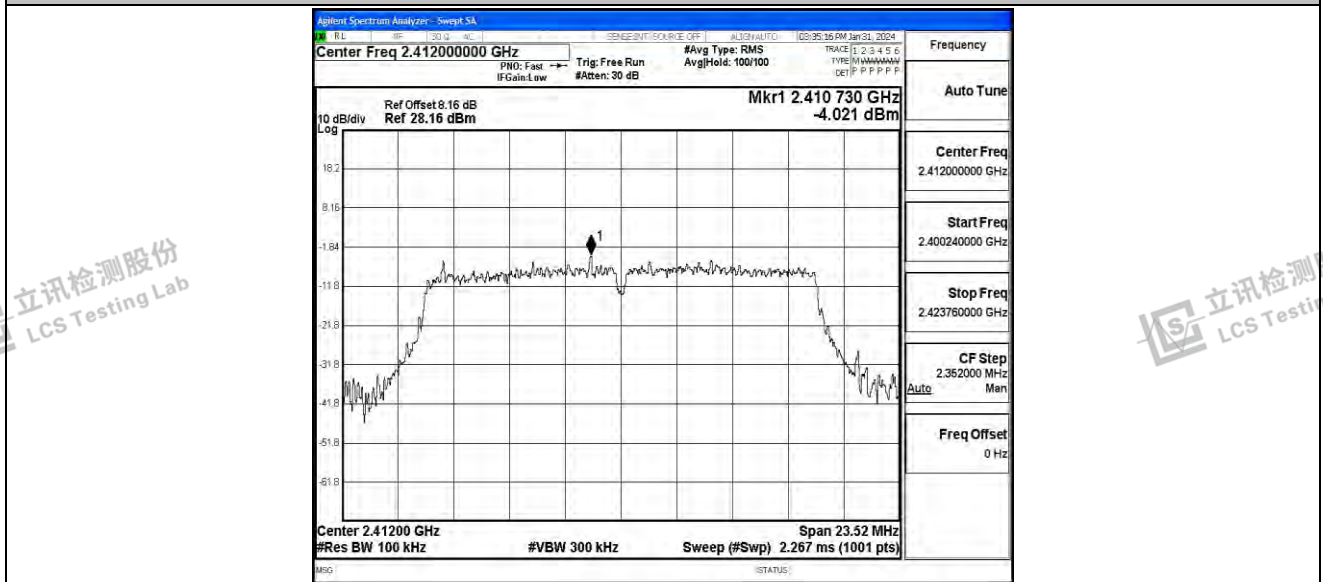


11B_Ant_2462

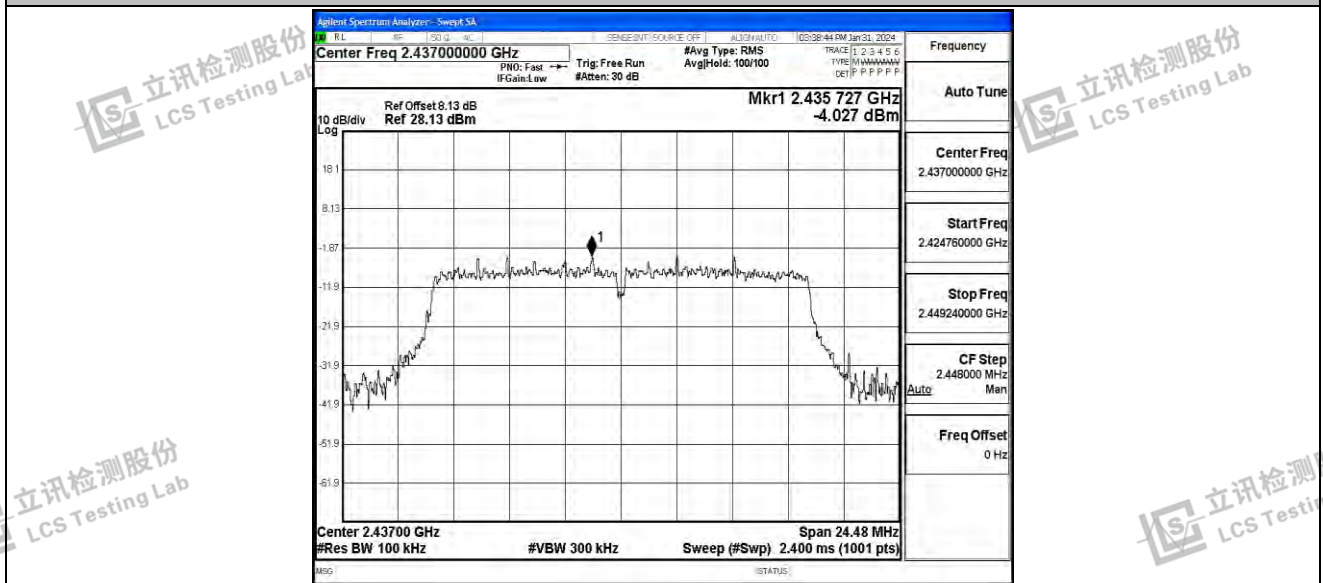




11G_Ant_2412

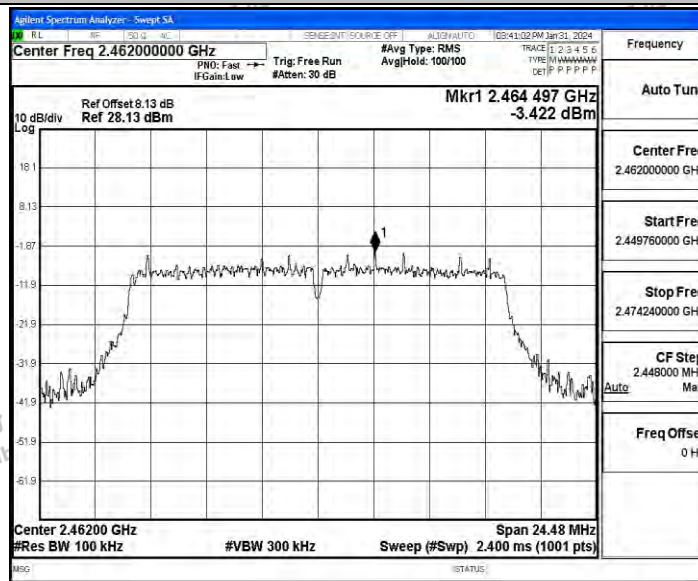


11G_Ant_2437

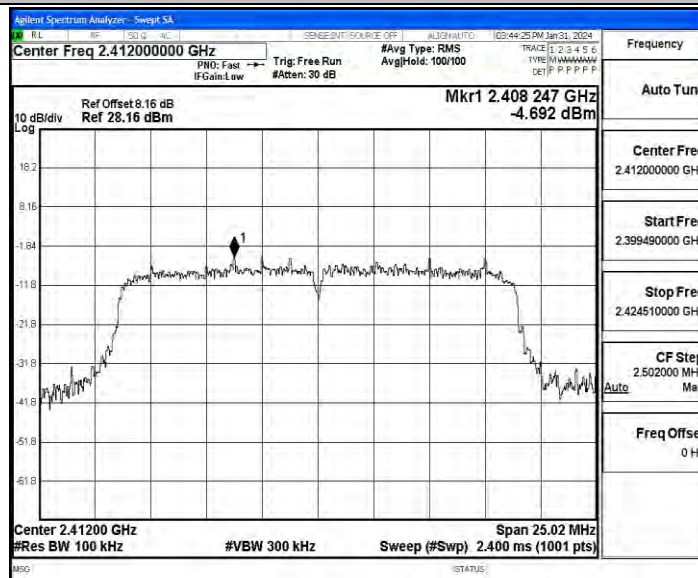




11G_Ant_2462

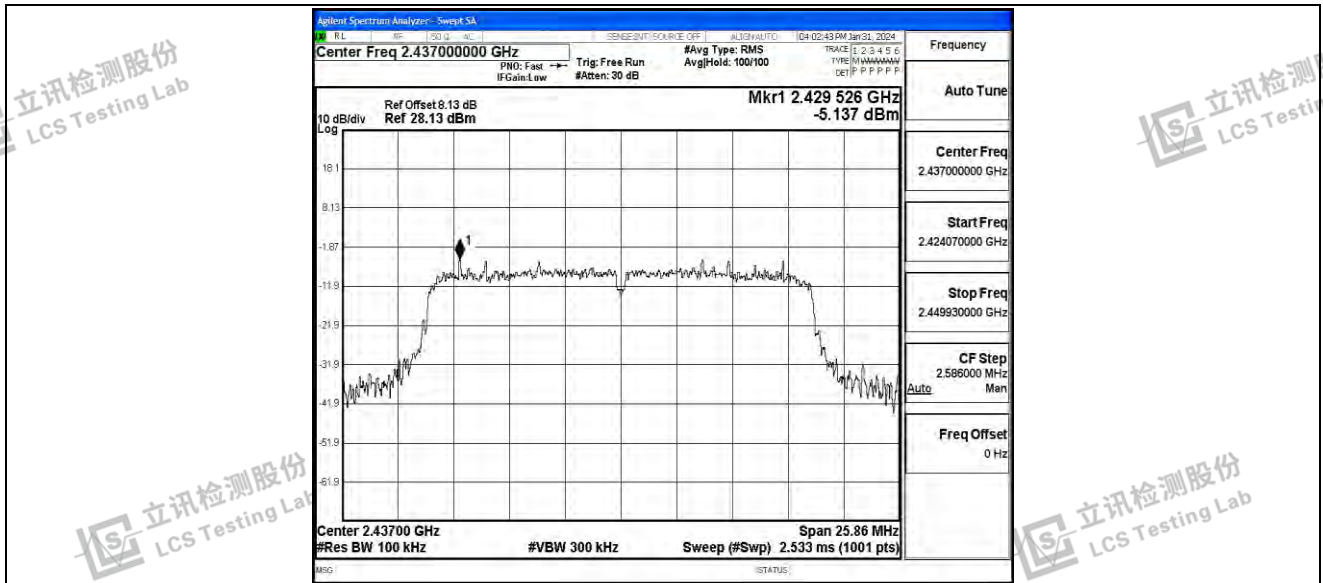


11N20SISO_Ant_2412

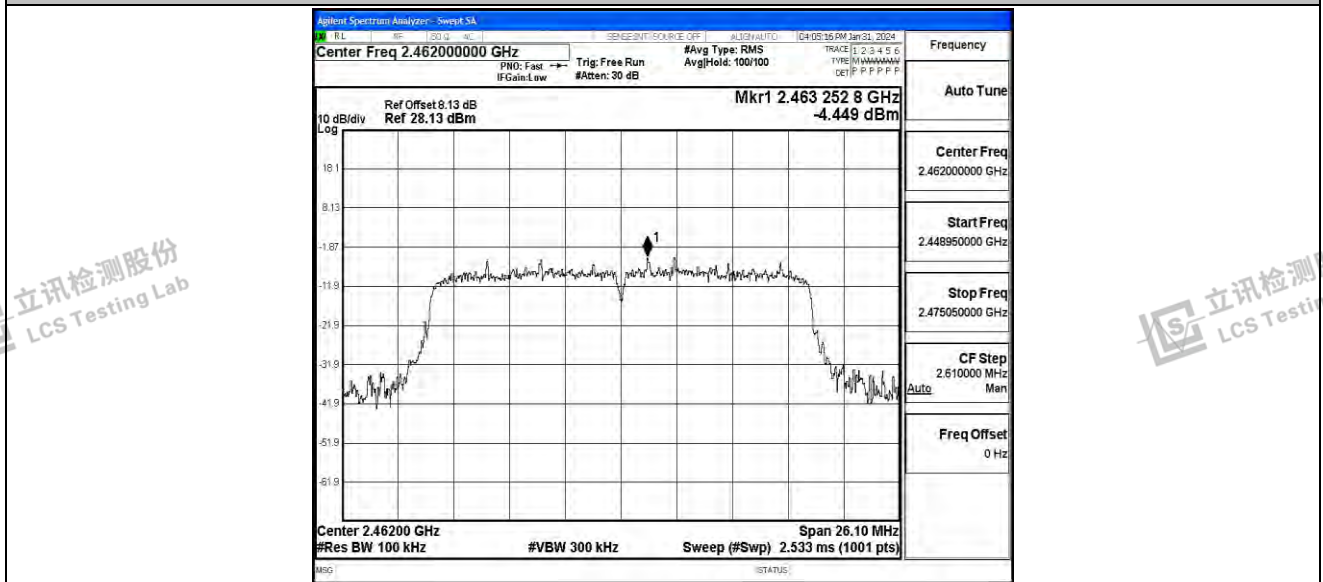


11N20SISO_Ant_2437

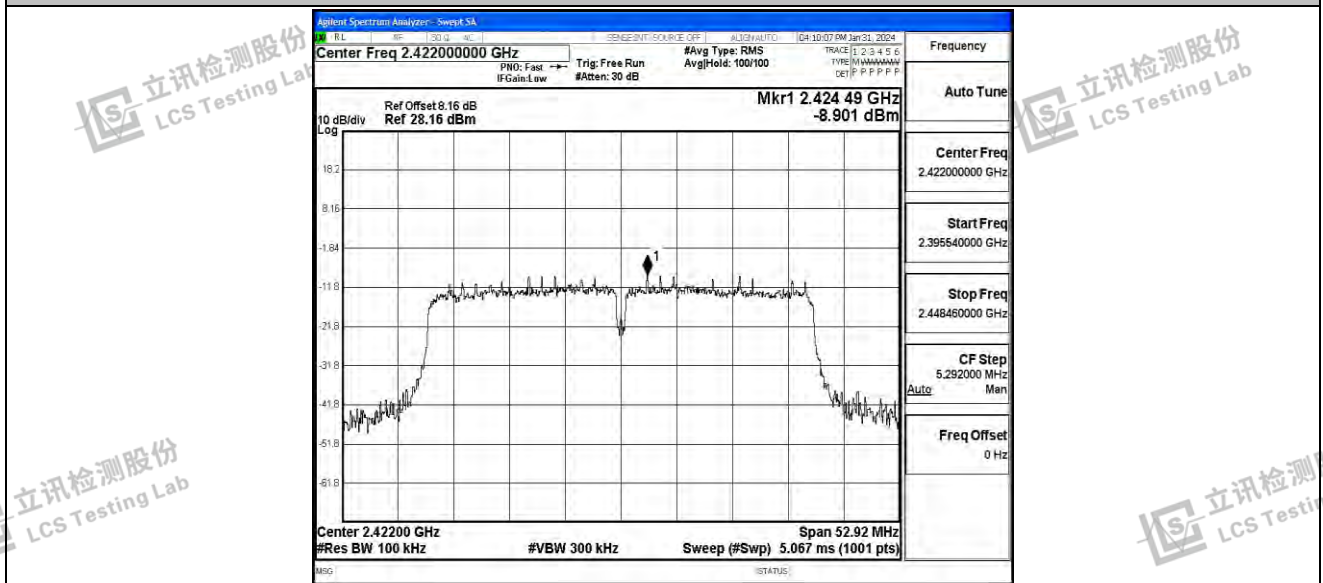




11N20SISO_Ant_2462

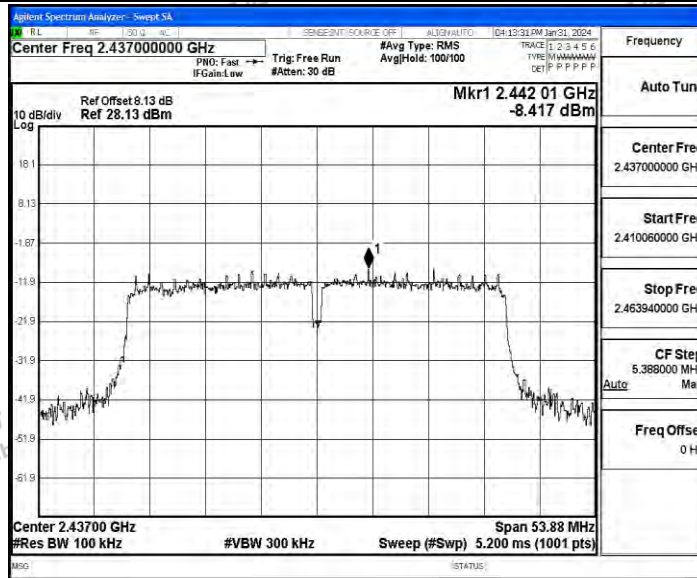


11N40SISO_Ant_2422

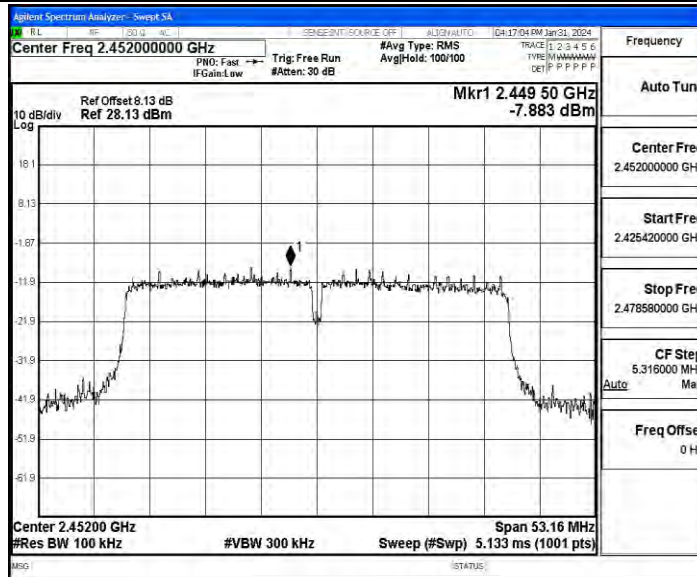




11N40SISO_Ant_2437



11N40SISO_Ant_2452

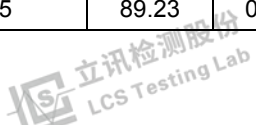
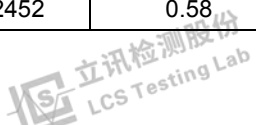




A.6 Duty Cycle

Test Result

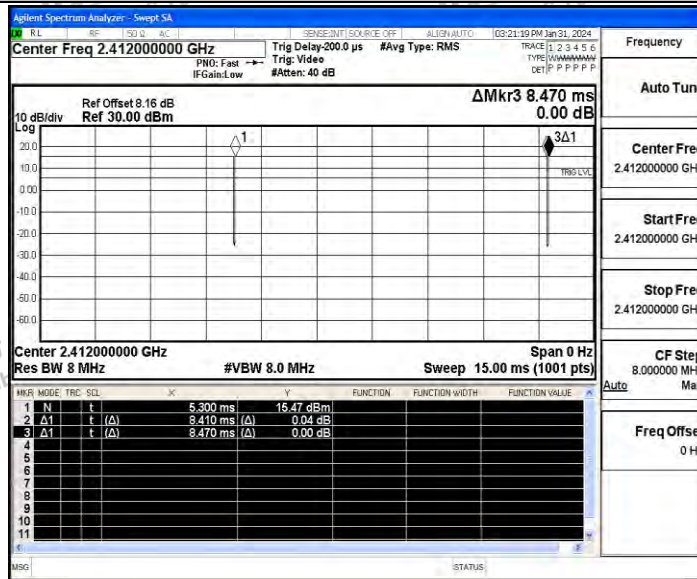
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	1/T Factor[kHz]	Verdict
11B	Ant	2412	8.41	8.47	99.29	0.03	0.12	---
		2437	8.41	8.47	99.29	0.03	0.12	---
		2462	8.42	8.48	99.29	0.03	0.12	---
11G	Ant	2412	1.40	1.46	95.89	0.18	0.71	---
		2437	1.39	1.46	95.21	0.21	0.72	---
		2462	1.39	1.46	95.21	0.21	0.72	---
11N20SISO	Ant	2412	1.18	1.24	95.16	0.22	0.85	---
		2437	1.18	1.25	94.40	0.25	0.85	---
		2462	1.18	1.24	95.16	0.22	0.85	---
11N40SISO	Ant	2422	0.59	0.65	90.77	0.42	1.69	---
		2437	0.59	0.65	90.77	0.42	1.69	---
		2452	0.58	0.65	89.23	0.49	1.72	---



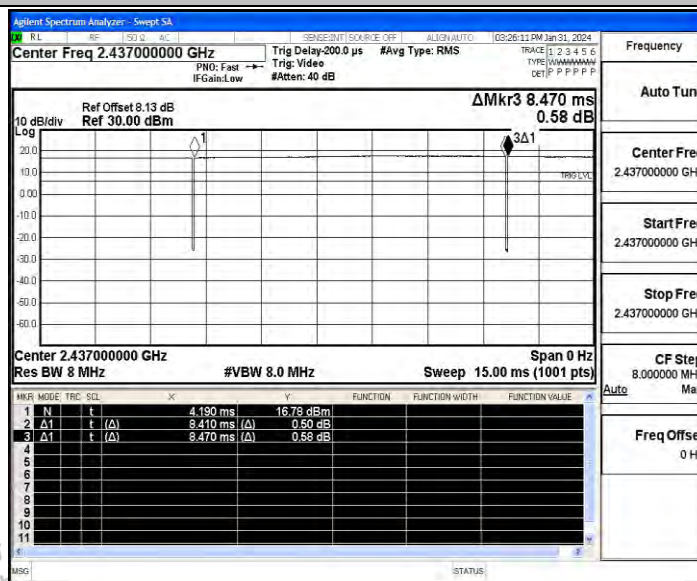


Test Graphs

11B_Ant_2412

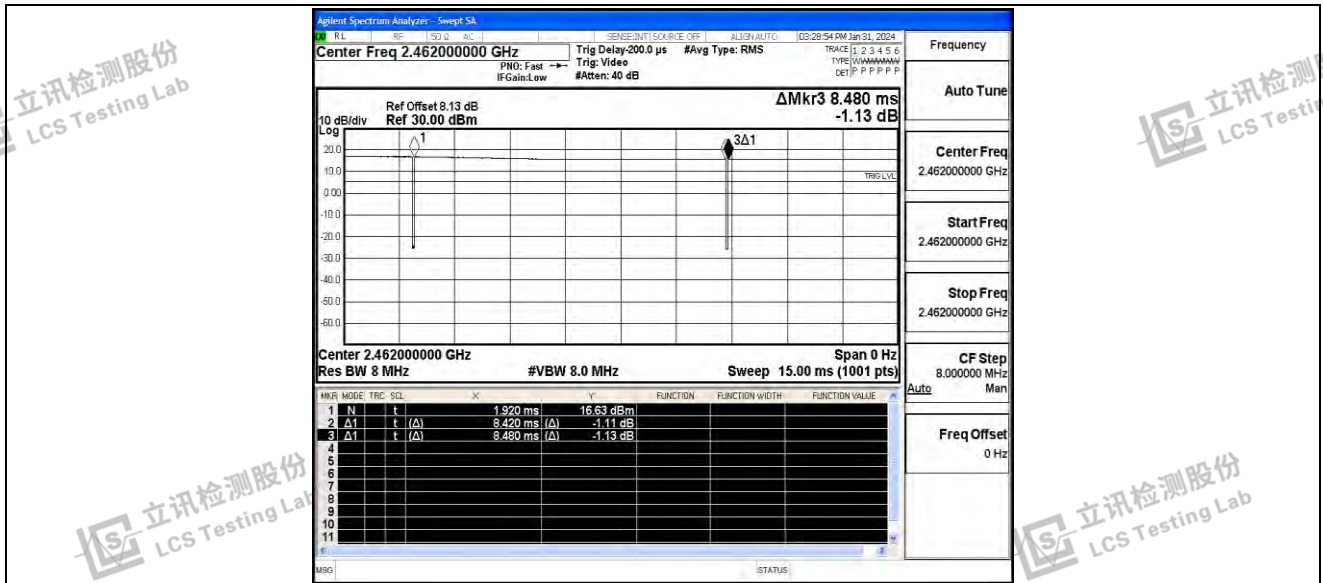


11B_Ant_2437

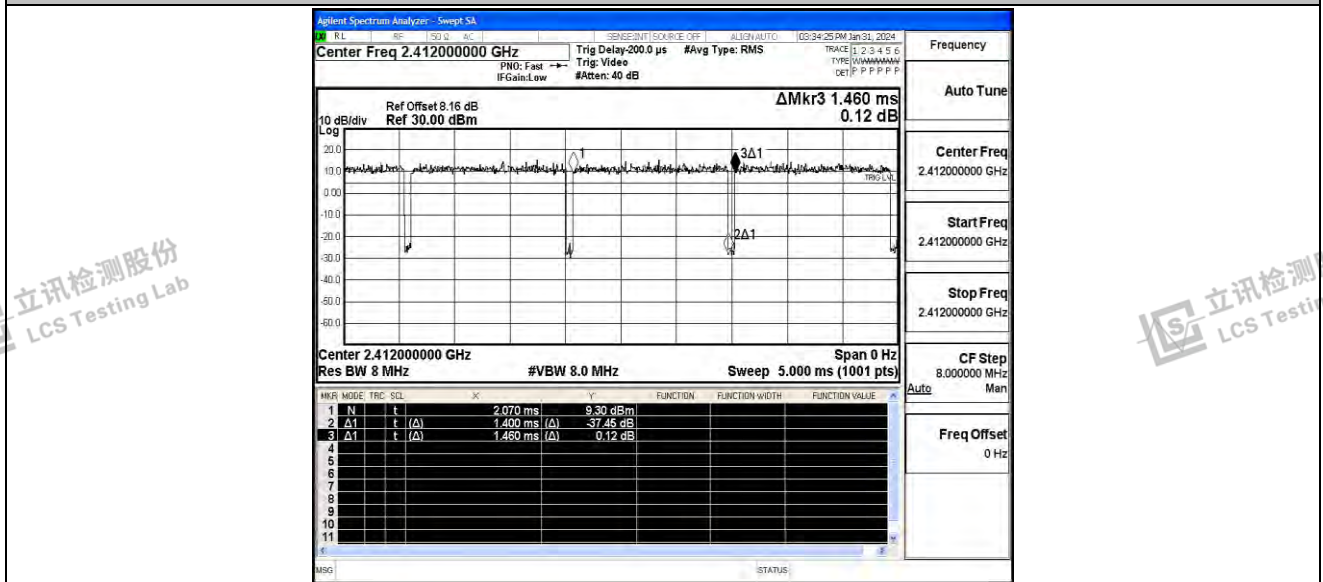


11B_Ant_2462

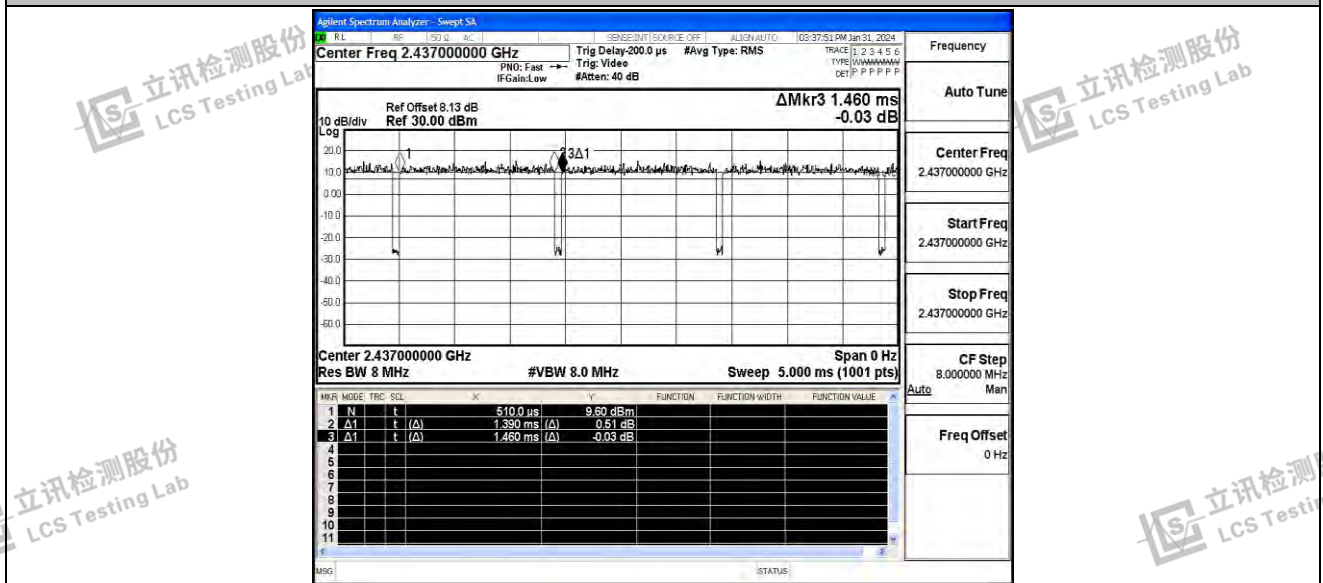




11G_Ant_2412

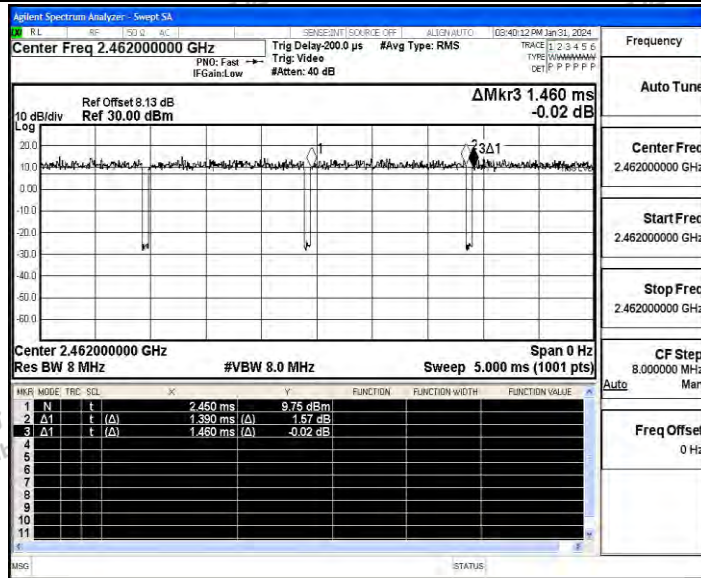


11G_Ant_2437

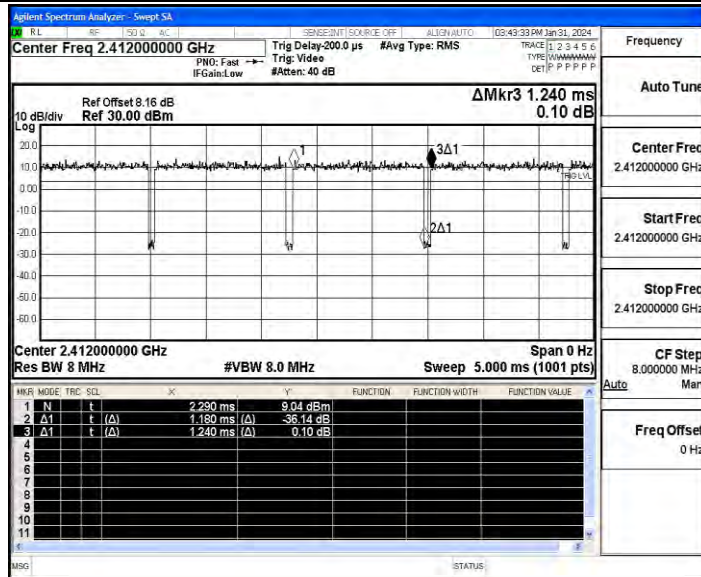




11G_Ant_2462

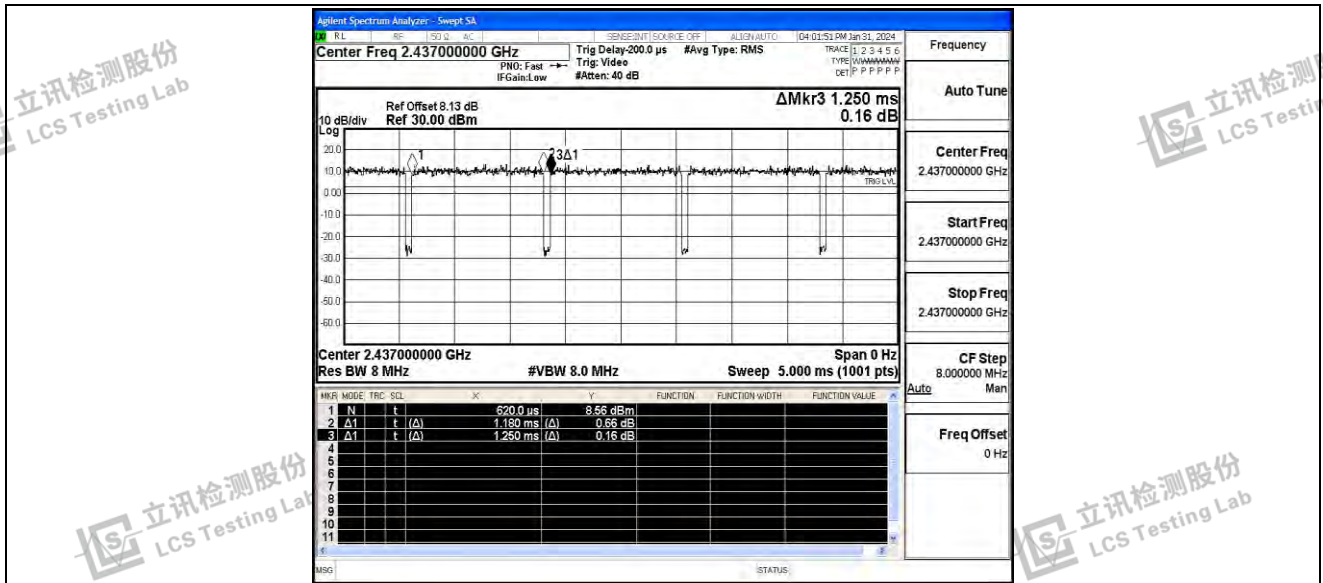


11N20SISO_Ant_2412

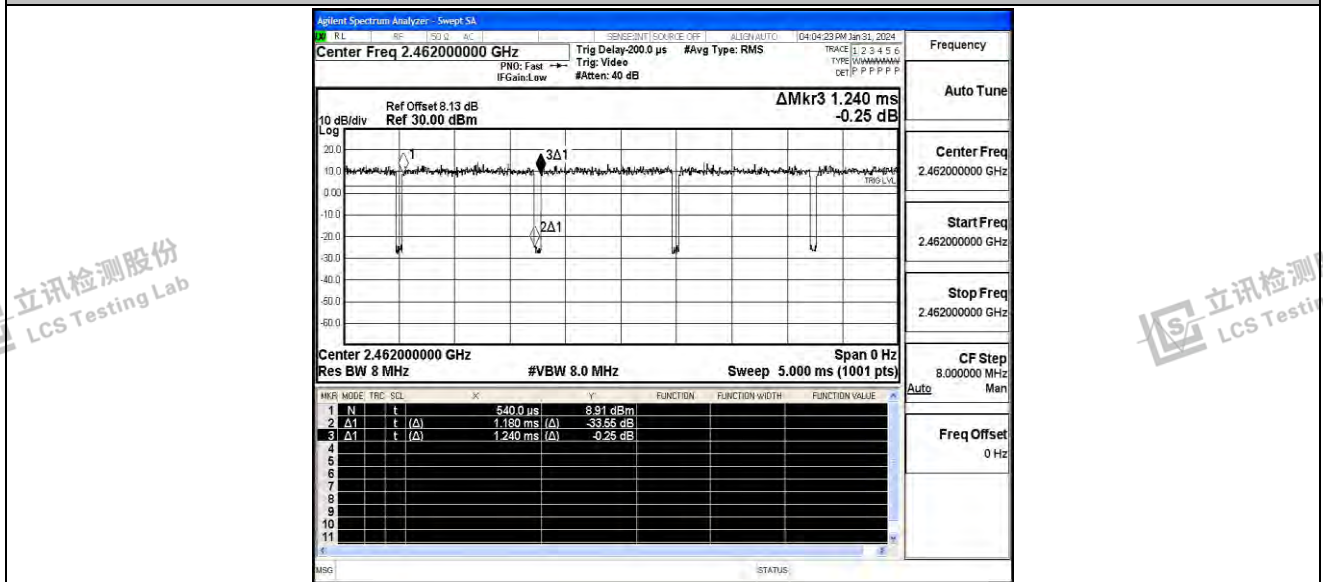


11N20SISO_Ant_2437

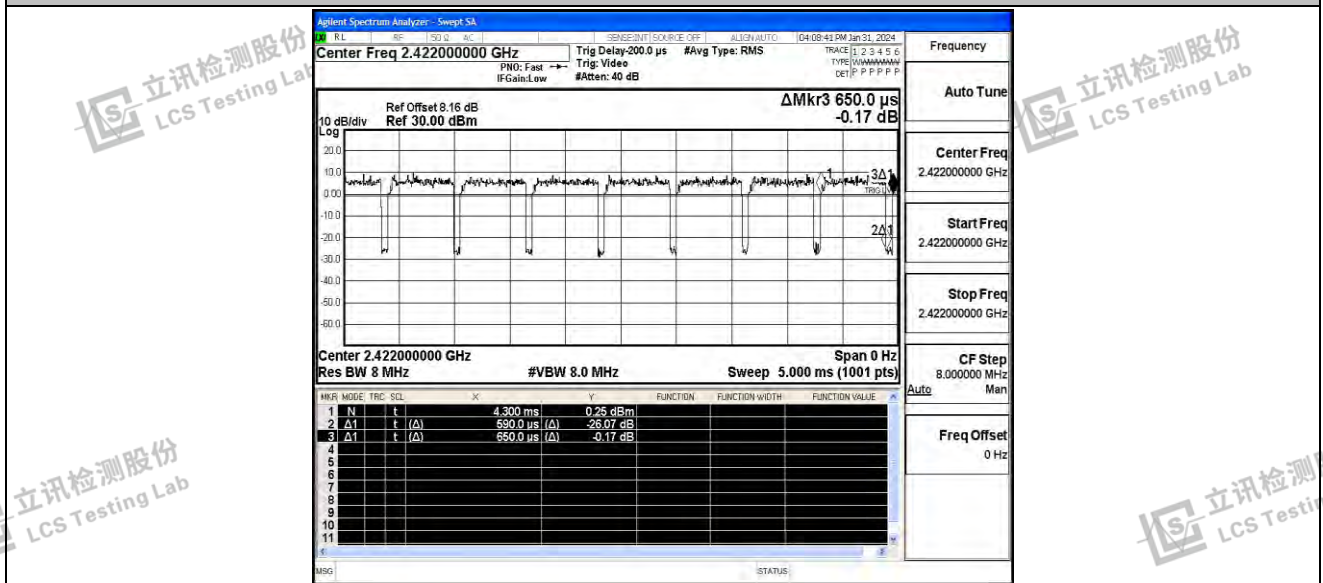




11N20SISO_Ant_2462

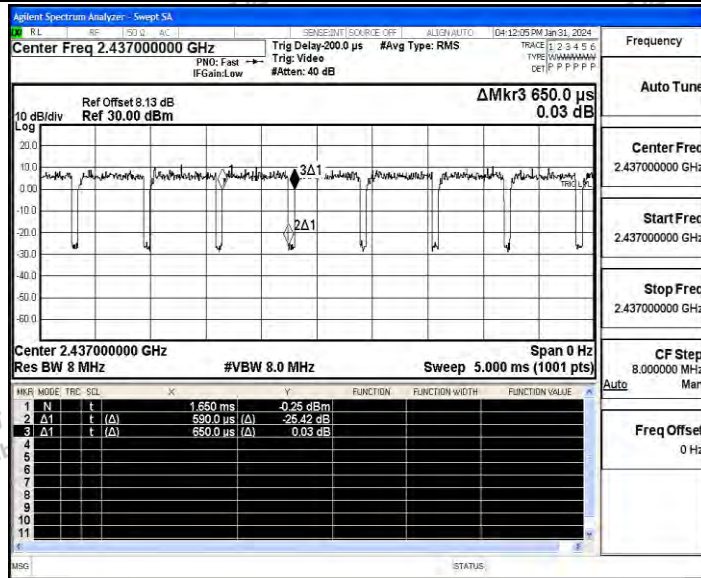


11N40SISO_Ant_2422

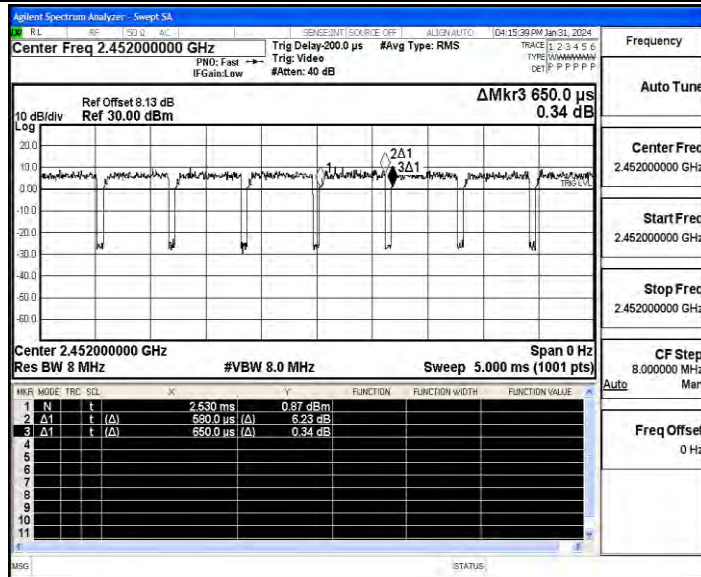




11N40SISO_Ant_2437



11N40SISO_Ant_2452





A.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	Channel Name	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant	Low	2412	AV	2310.000	-50.05	≤-41.20	45.15	≤54	PASS
				AV	2389.830	-48.8	≤-41.20	46.40	≤54	PASS
				AV	2390.000	-49.1	≤-41.20	46.10	≤54	PASS
				Peak	2310.000	-42.4	≤-21.20	52.80	≤74	PASS
				Peak	2389.180	-38.94	≤-21.20	56.26	≤74	PASS
				Peak	2390.000	-40.82	≤-21.20	54.38	≤74	PASS
		High	2462	AV	2483.500	-48.23	≤-41.20	46.97	≤54	PASS
				AV	2486.420	-47.84	≤-41.20	47.36	≤54	PASS
				AV	2500.000	-49.04	≤-41.20	46.16	≤54	PASS
				Peak	2483.500	-40.25	≤-21.20	54.95	≤74	PASS
				Peak	2484.770	-37.09	≤-21.20	58.11	≤74	PASS
				Peak	2500.000	-42.19	≤-21.20	53.01	≤74	PASS
11G	Ant	Low	2412	AV	2310.000	-50.72	≤-41.20	44.48	≤54	PASS
				AV	2389.960	-48.5	≤-41.20	46.70	≤54	PASS
				AV	2390.000	-48.5	≤-41.20	46.70	≤54	PASS
				Peak	2310.000	-43.02	≤-21.20	52.18	≤74	PASS
				Peak	2388.660	-37.85	≤-21.20	57.35	≤74	PASS
				Peak	2390.000	-40.59	≤-21.20	54.61	≤74	PASS
		High	2462	AV	2483.500	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2483.890	-46.39	≤-41.20	48.81	≤54	PASS
				AV	2500.000	-49.62	≤-41.20	45.58	≤54	PASS
				Peak	2483.500	-35.92	≤-21.20	59.28	≤74	PASS
				Peak	2483.560	-29.98	≤-21.20	65.22	≤74	PASS
				Peak	2500.000	-41.29	≤-21.20	53.91	≤74	PASS
11N20SI SO	Ant	Low	2412	AV	2310.000	-49.89	≤-41.20	45.31	≤54	PASS
				AV	2389.310	-47.88	≤-41.20	47.32	≤54	PASS
				AV	2390.000	-48.34	≤-41.20	46.86	≤54	PASS
				Peak	2310.000	-42.56	≤-21.20	52.64	≤74	PASS
				Peak	2389.960	-35.69	≤-21.20	59.51	≤74	PASS
				Peak	2390.000	-35.69	≤-21.20	59.51	≤74	PASS
		High	2462	AV	2483.500	-44.56	≤-41.20	50.64	≤54	PASS
				AV	2483.670	-45.54	≤-41.20	49.66	≤54	PASS
				AV	2500.000	-49.61	≤-41.20	45.59	≤54	PASS
				Peak	2483.500	-34.33	≤-21.20	60.87	≤74	PASS
				Peak	2484.220	-27.19	≤-21.20	68.01	≤74	PASS
				Peak	2500.000	-41.28	≤-21.20	53.92	≤74	PASS





11N40SI SO	Ant	Low	2422	AV	2310.000	-50.17	≤-41.20	45.03	≤54	PASS
				AV	2389.960	-46.68	≤-41.20	48.52	≤54	PASS
				AV	2390.000	-46.68	≤-41.20	48.52	≤54	PASS
				Peak	2310.000	-39.88	≤-21.20	55.32	≤74	PASS
				Peak	2389.440	-34.63	≤-21.20	60.57	≤74	PASS
				Peak	2390.000	-36.84	≤-21.20	58.36	≤74	PASS
	High	2452	AV	2483.500	-46.28	≤-41.20	48.92	≤54	PASS	
			AV	2483.560	-45.73	≤-41.20	49.47	≤54	PASS	
			AV	2500.000	-48.67	≤-41.20	46.53	≤54	PASS	
			Peak	2483.500	-33.35	≤-21.20	61.85	≤74	PASS	
			Peak	2483.890	-31.25	≤-21.20	63.95	≤74	PASS	
			Peak	2500.000	-42.86	≤-21.20	52.34	≤74	PASS	

Note:

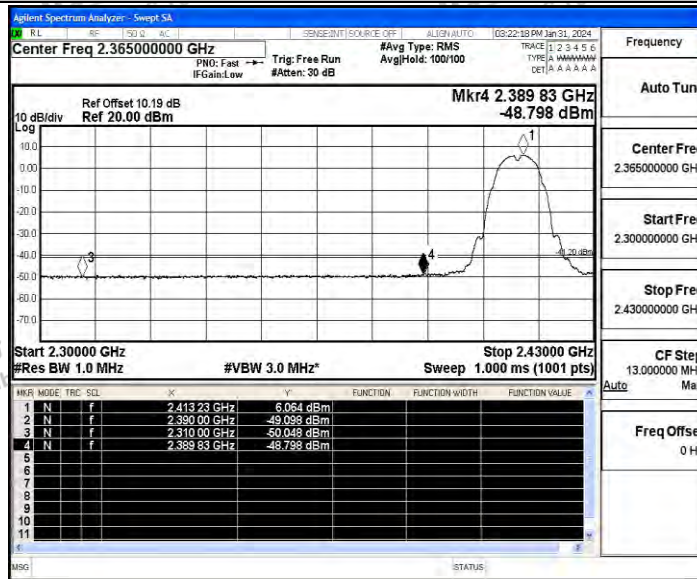
1. The Antenna Gain is compensated in the graph. The Correction Factor is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



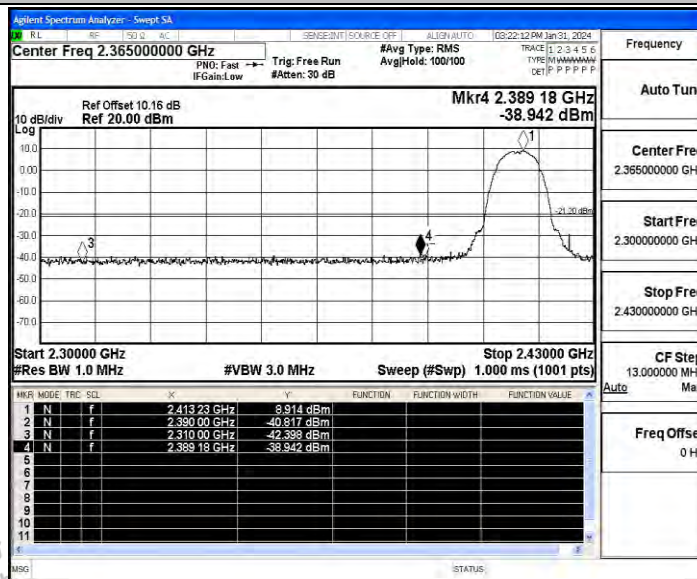


Test Graphs

11B_Ant_Low_2412_AV

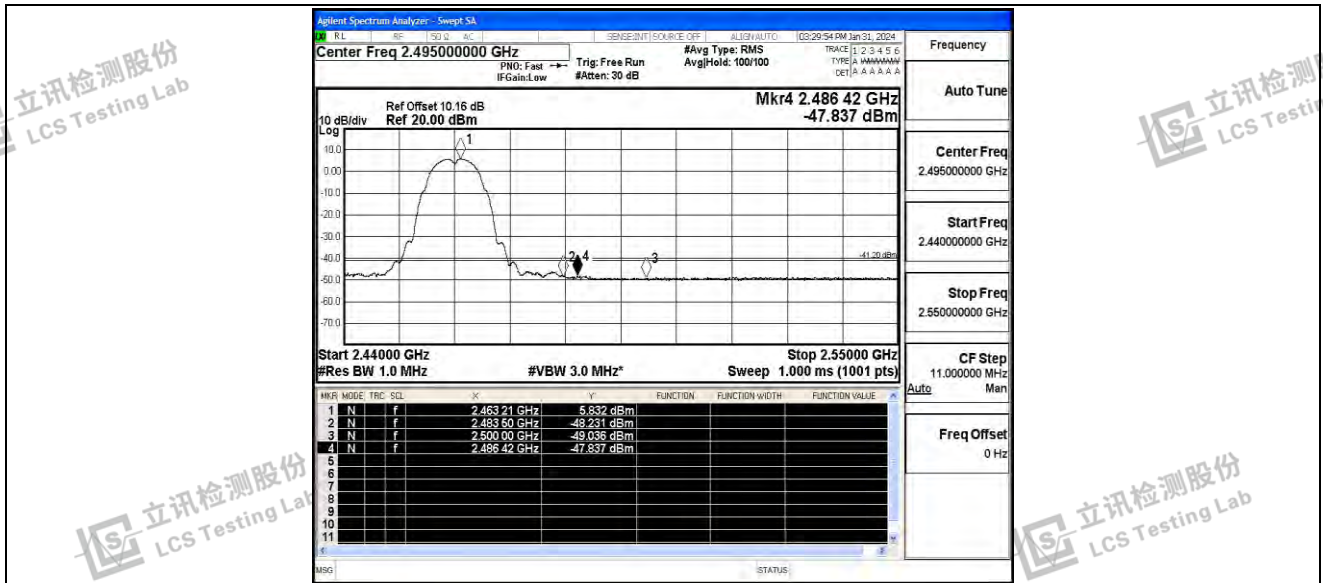


11B_Ant_Low_2412_Peak

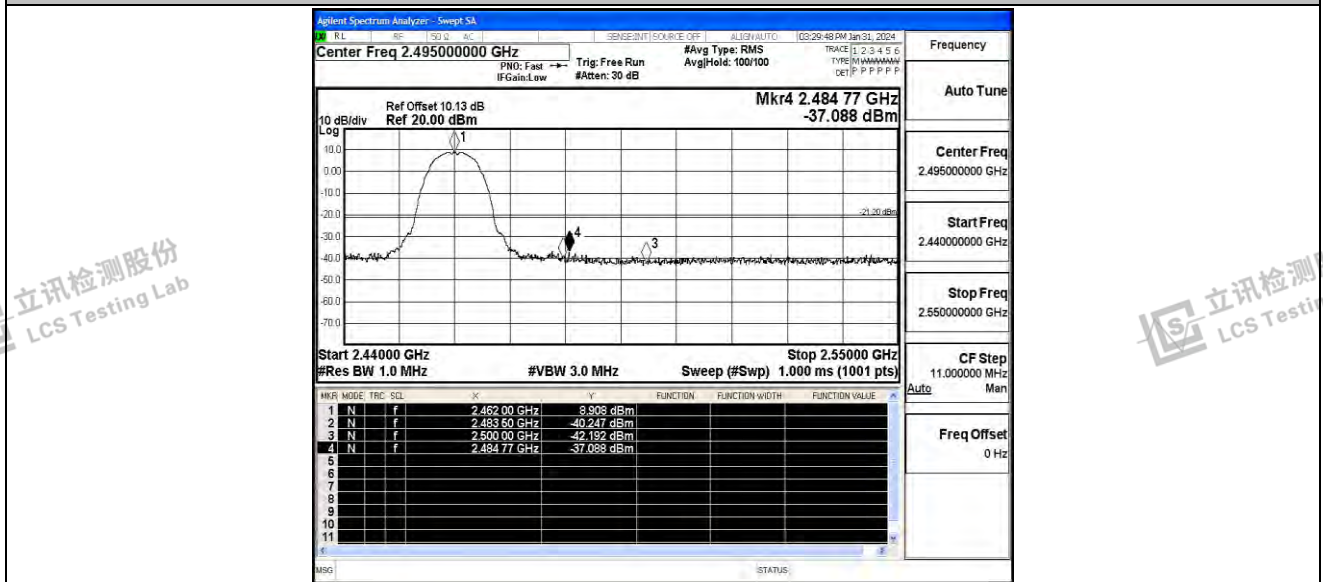


11B_Ant_High_2462_AV

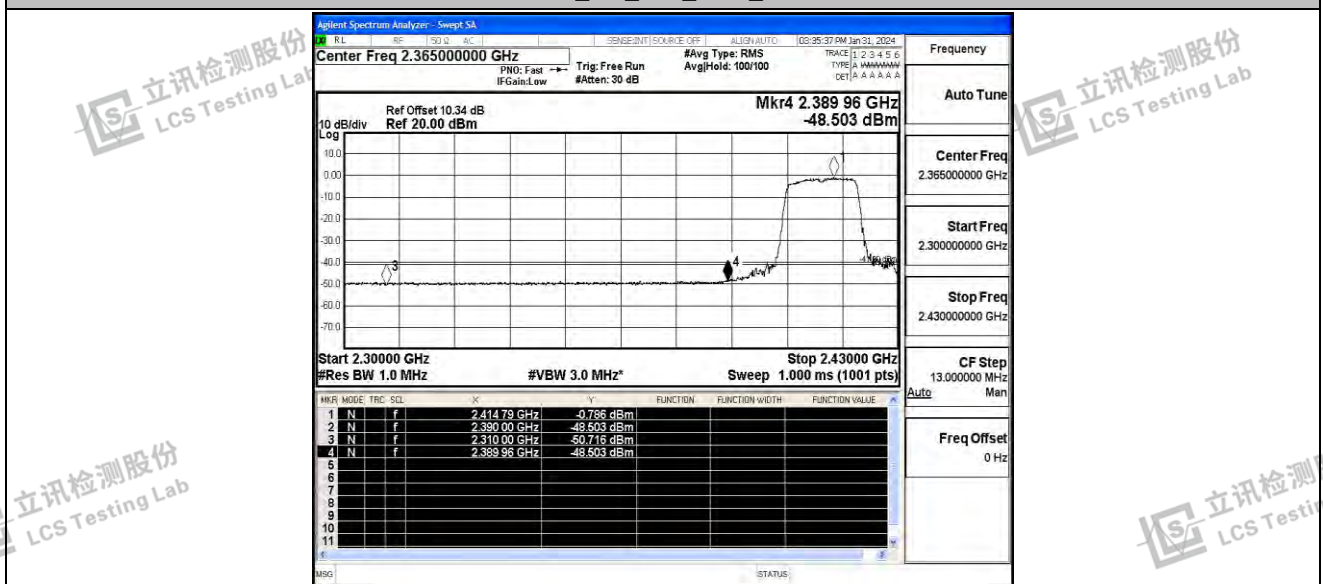




11B_Ant_High_2462_Peak

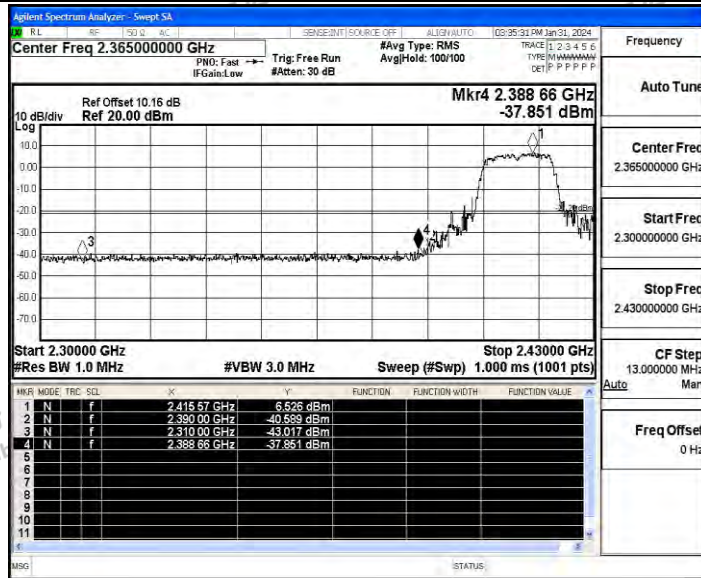


11G_Ant_Low_2412_AV

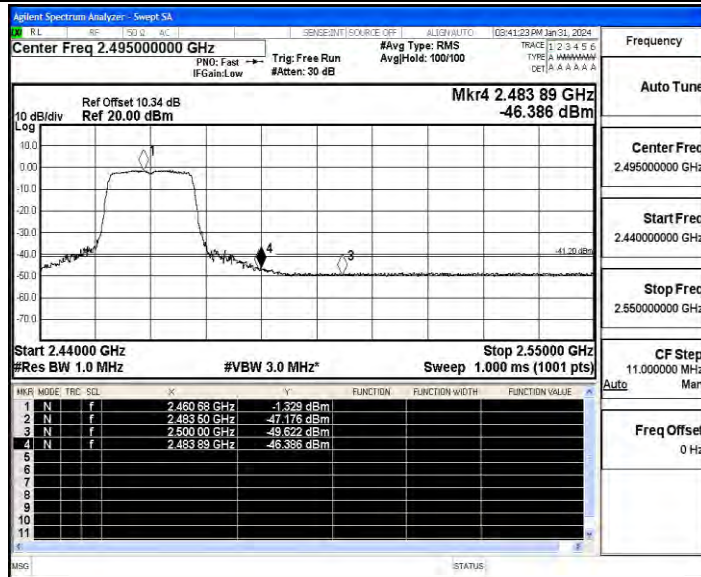




11G_Ant_Low_2412_Peak

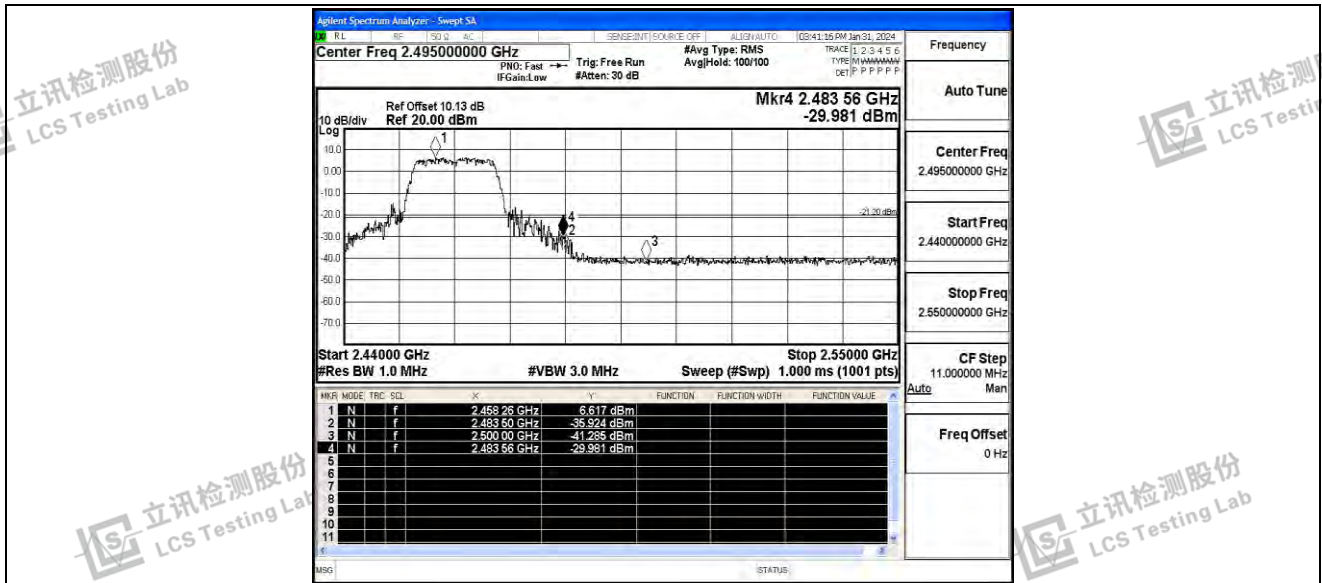


11G_Ant_High_2462_AV

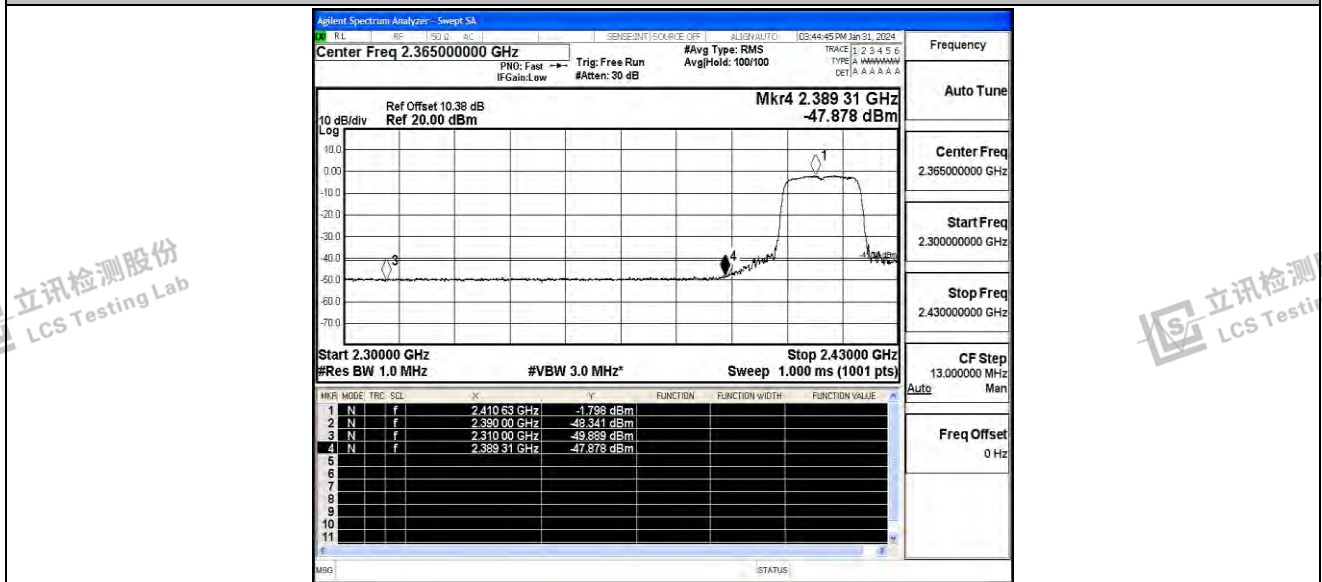


11G_Ant_High_2462_Peak

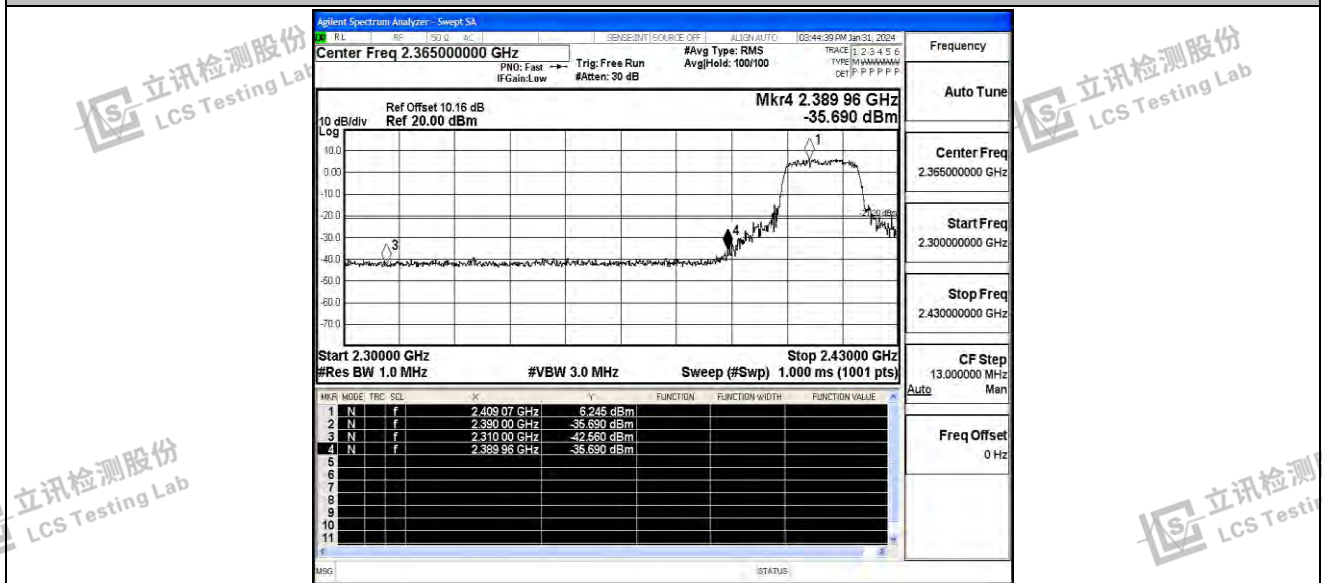




11N20SISO_Ant_Low_2412_AV

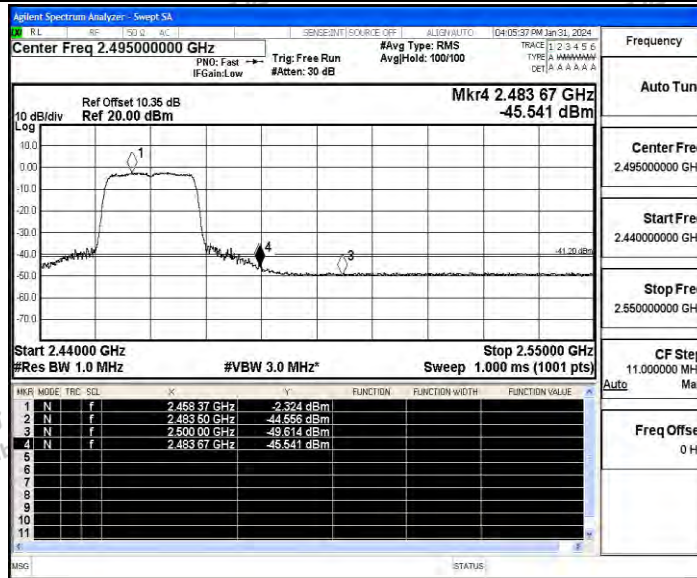


11N20SISO_Ant_Low_2412_Peak

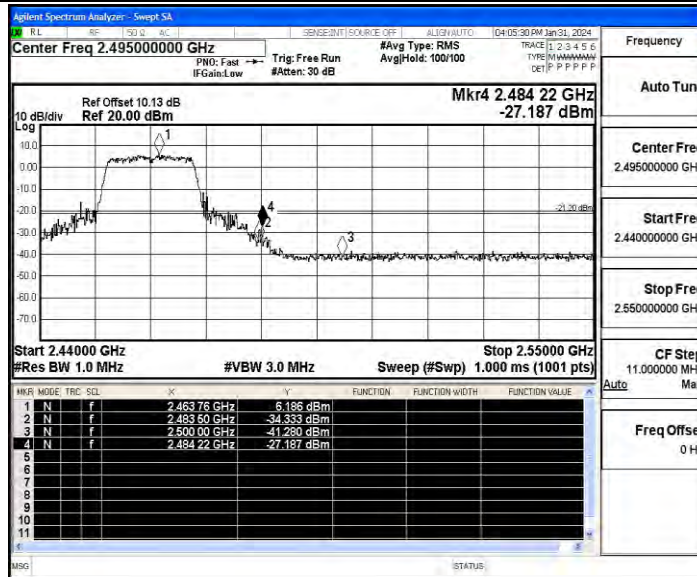




11N20SISO_Ant_High_2462_AV

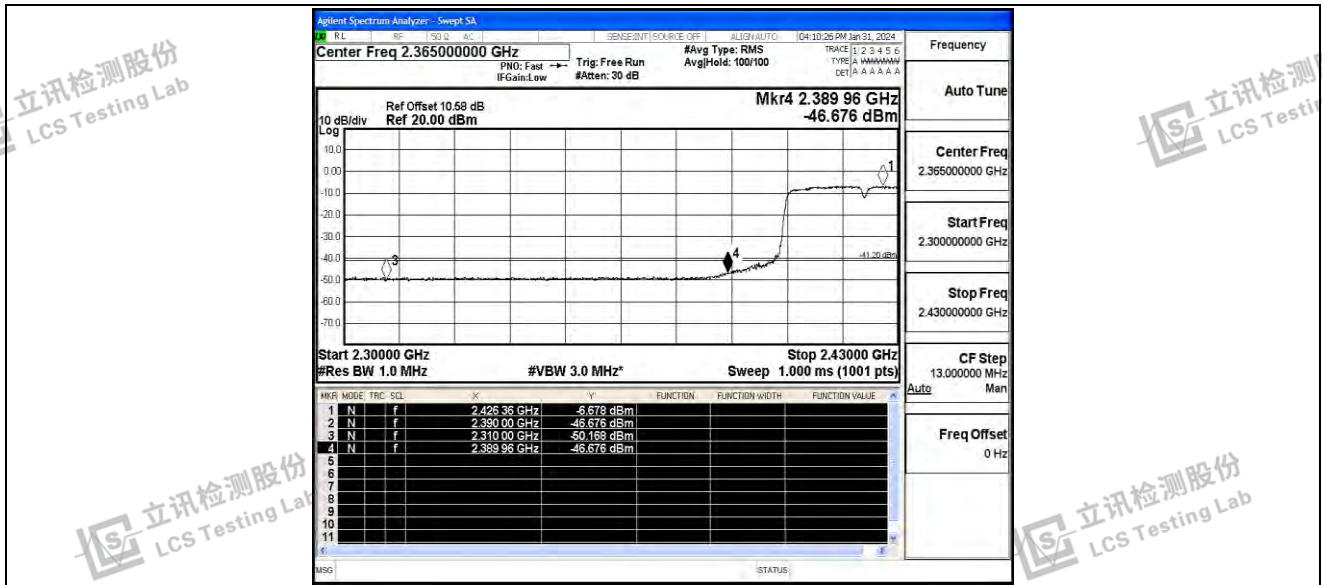


11N20SISO_Ant_High_2462_Peak

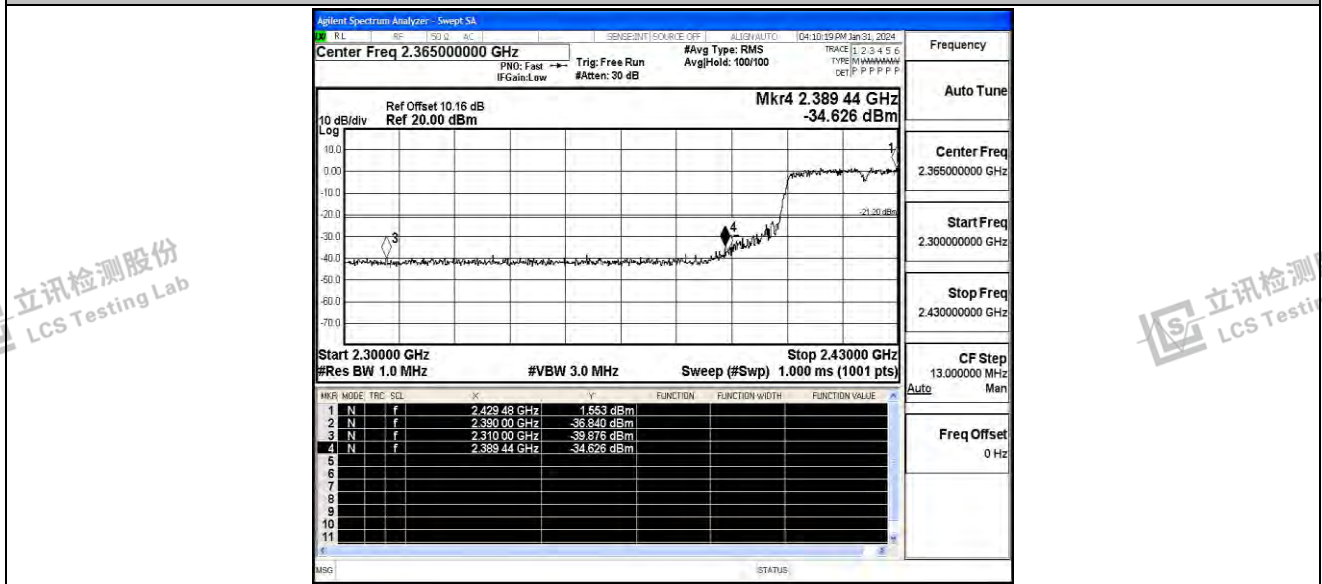


11N40SISO_Ant_Low_2422_AV

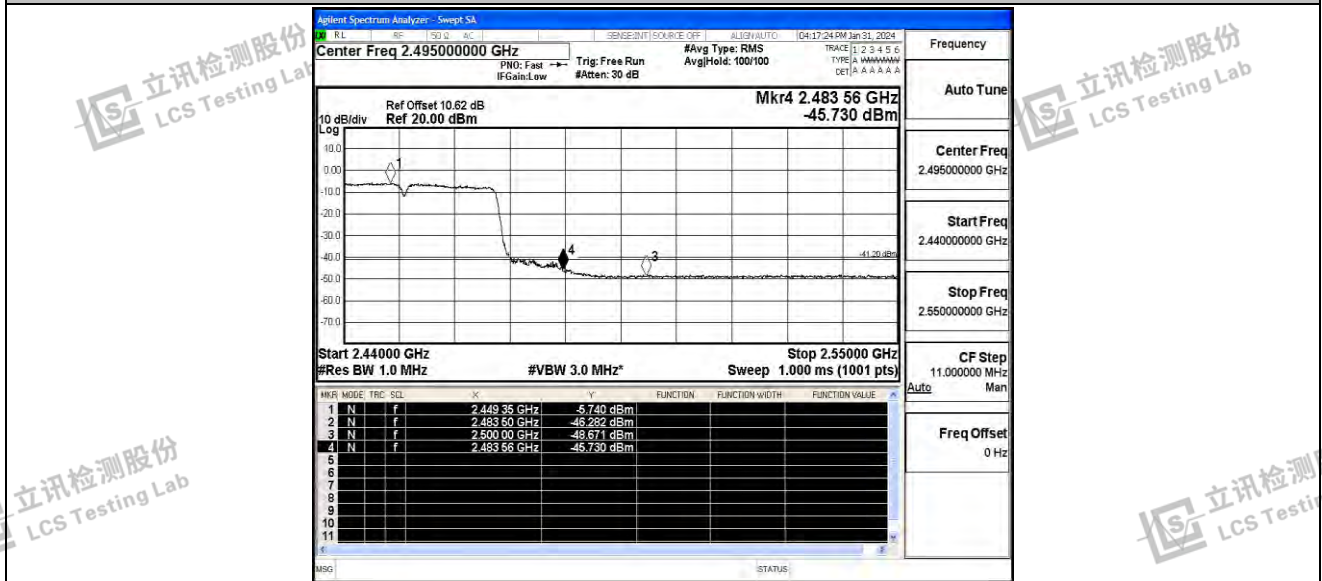




11N40SISO_Ant_Low_2422_Peak



11N40SISO_Ant_High_2452_AV





11N40SISO_Ant_High_2452_Peak

