



Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: 7.5 inch Wi-Fi/BLE smart ceiling light

Test Model: LMFFM714SMWH

Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng





B.1 -6dB Bandwidth

Test Result

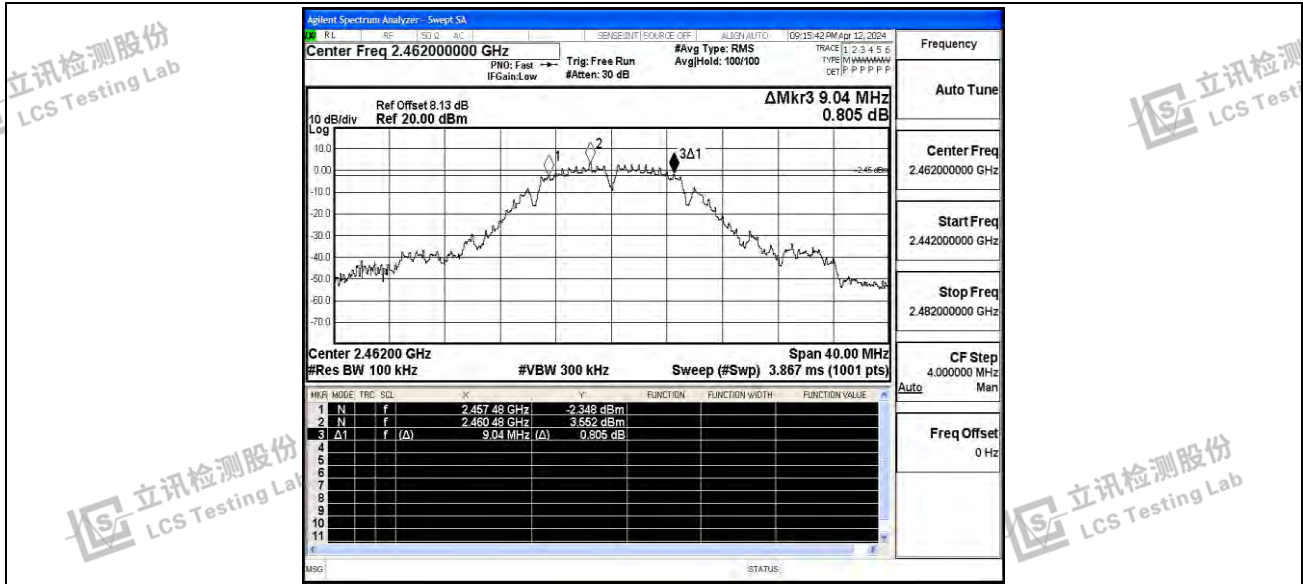
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant	2412	9.040	2407.480	2416.520	0.5	PASS
		2437	9.040	2432.480	2441.520	0.5	PASS
		2462	9.040	2457.480	2466.520	0.5	PASS
11G	Ant	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant	2412	17.600	2403.200	2420.800	0.5	PASS
		2437	17.560	2428.200	2445.760	0.5	PASS
		2462	17.600	2453.200	2470.800	0.5	PASS
11N40SISO	Ant	2422	35.600	2404.240	2439.840	0.5	PASS
		2437	36.080	2419.080	2455.160	0.5	PASS
		2452	36.080	2434.080	2470.160	0.5	PASS



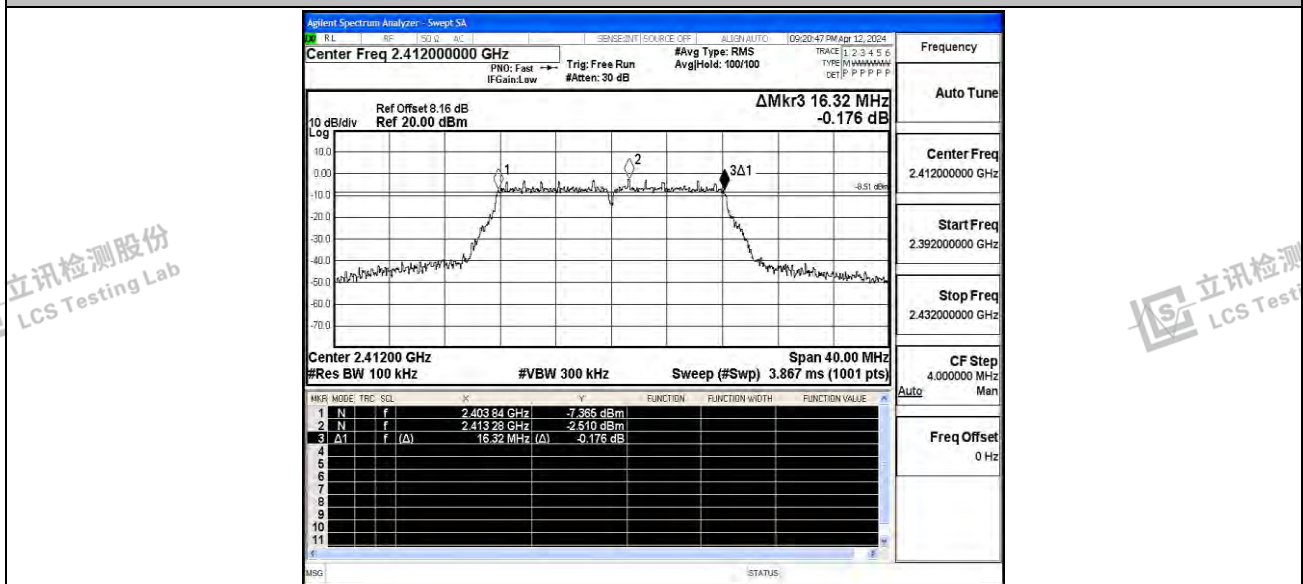


Test Graphs



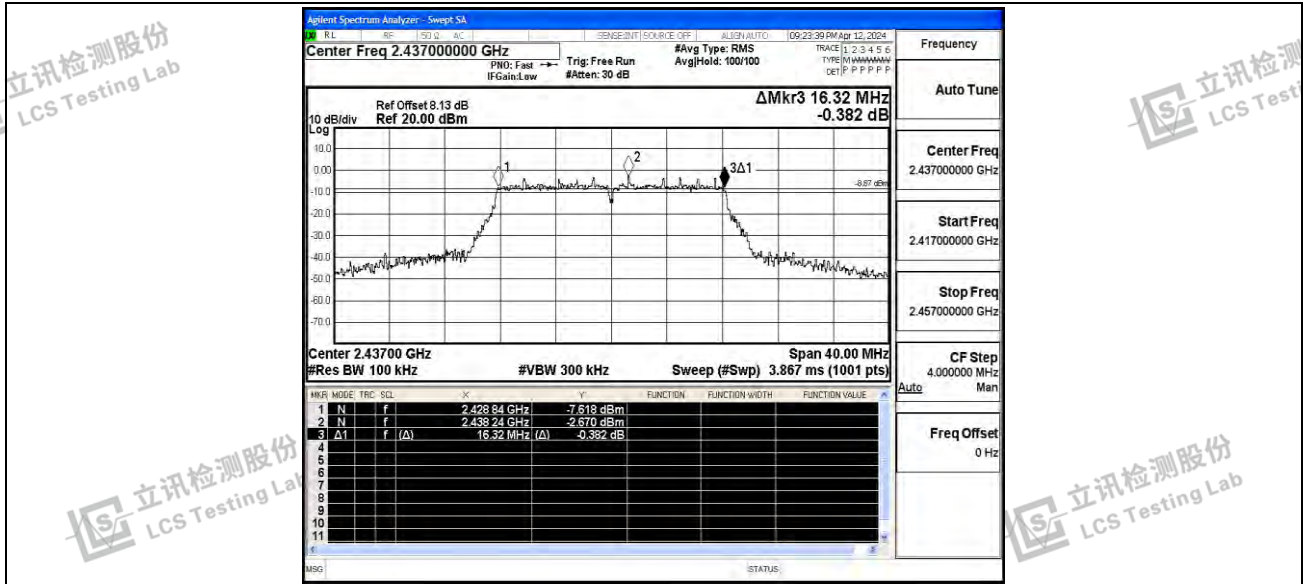


11G_Ant_2412

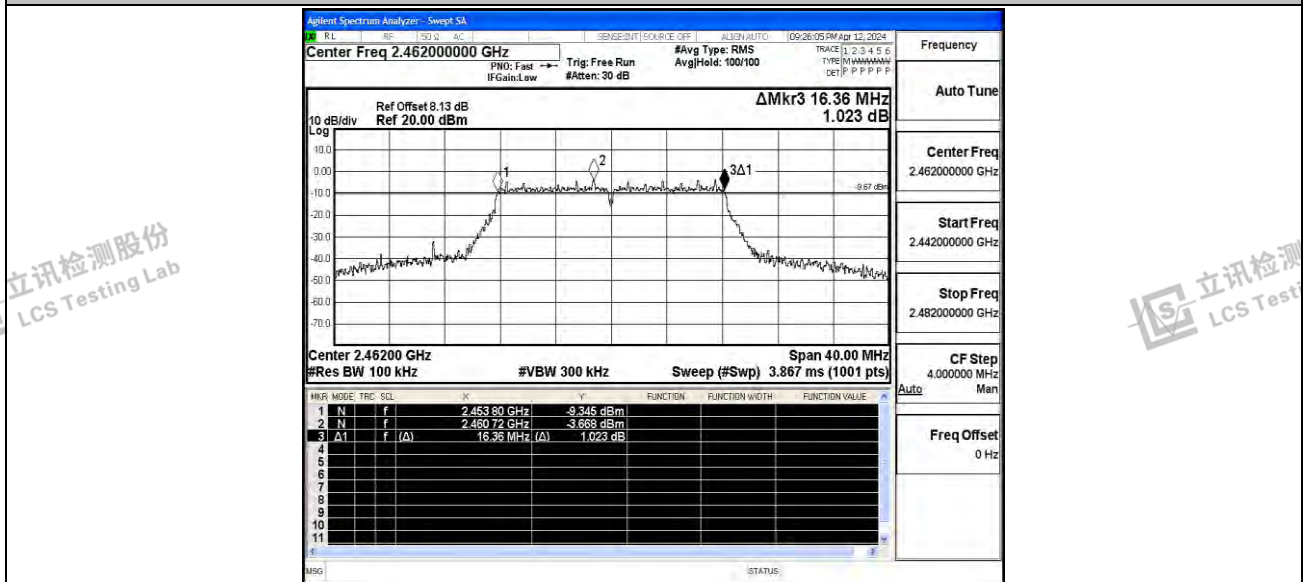


11G_Ant_2437



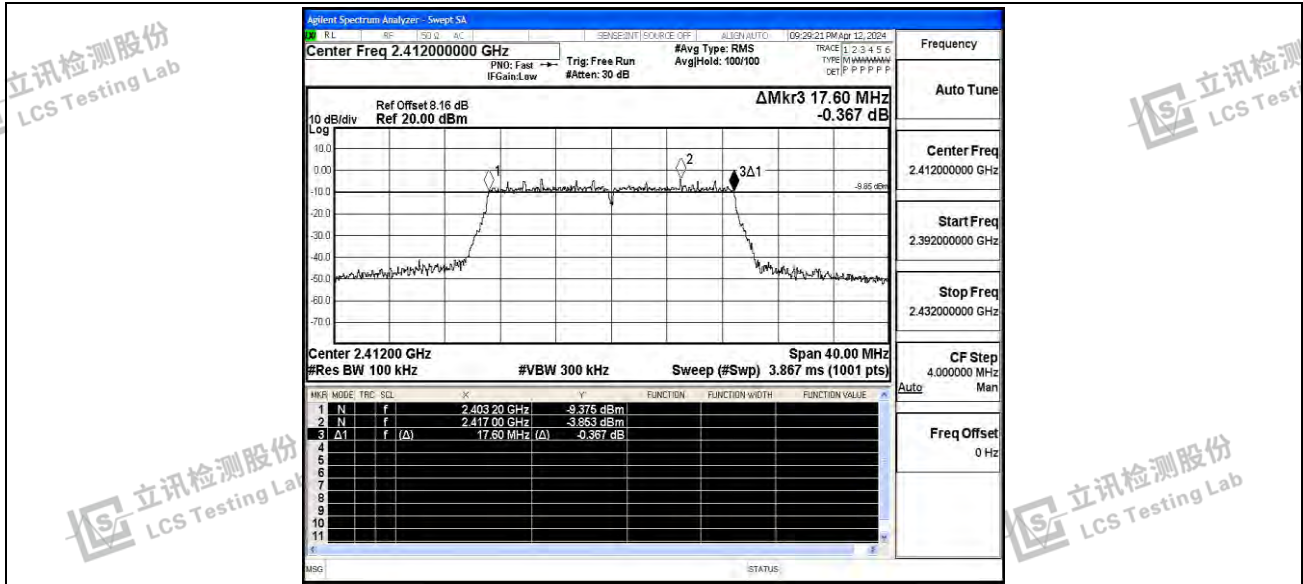


11G_Ant_2462

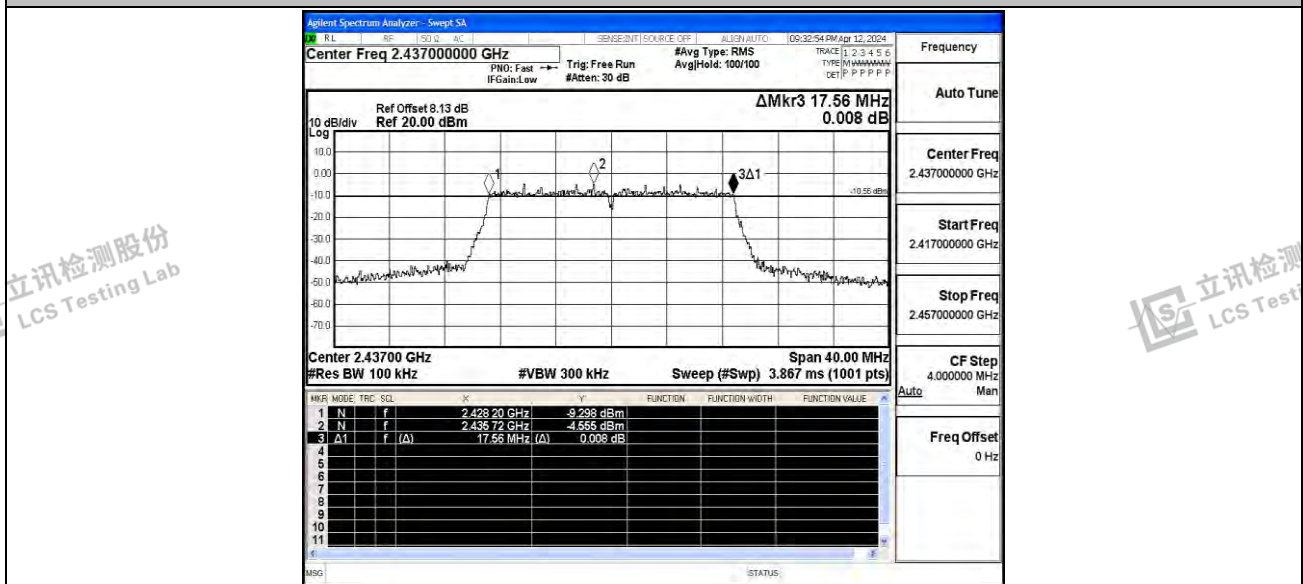


11N20SISO_Ant_2412



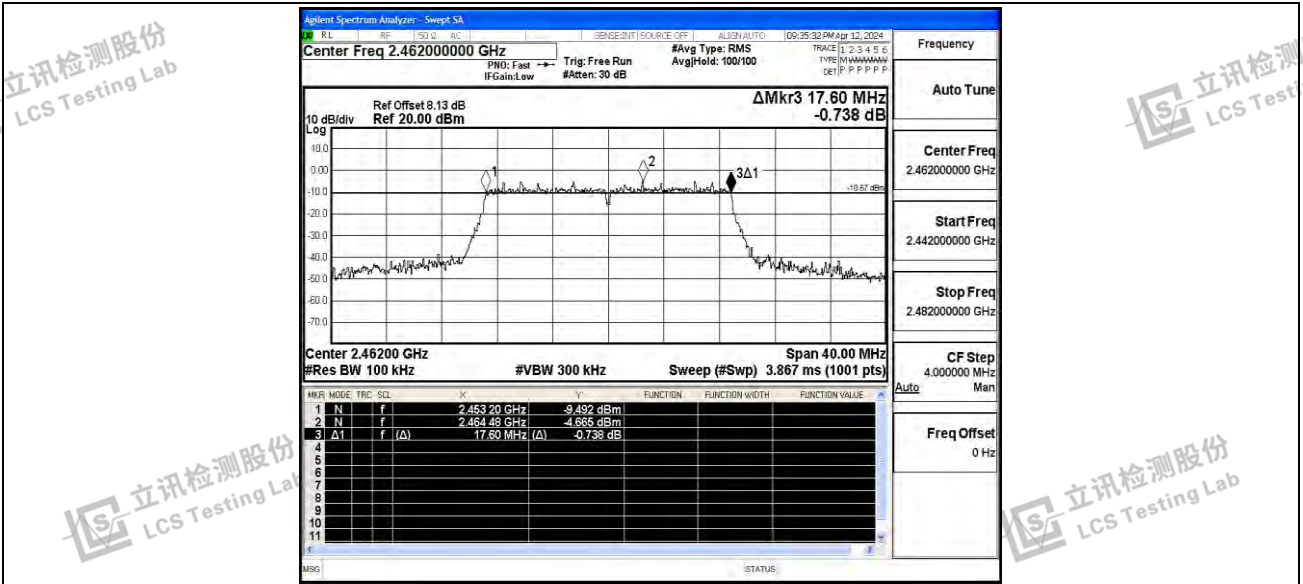


11N20SISO_Ant_2437

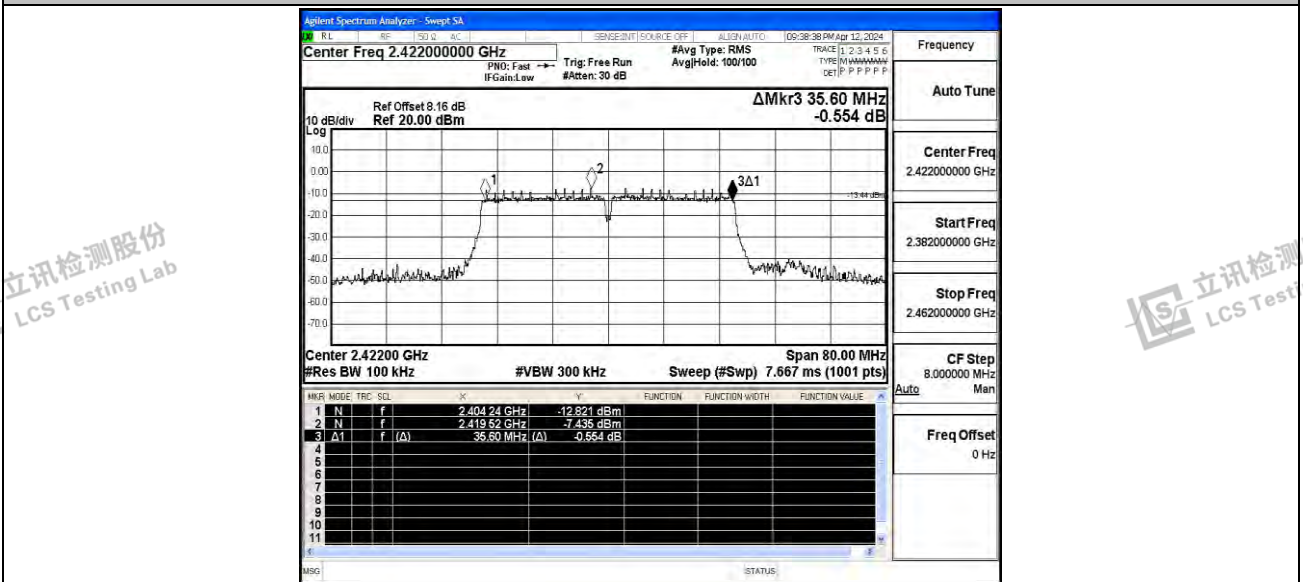


11N20SISO_Ant_2462



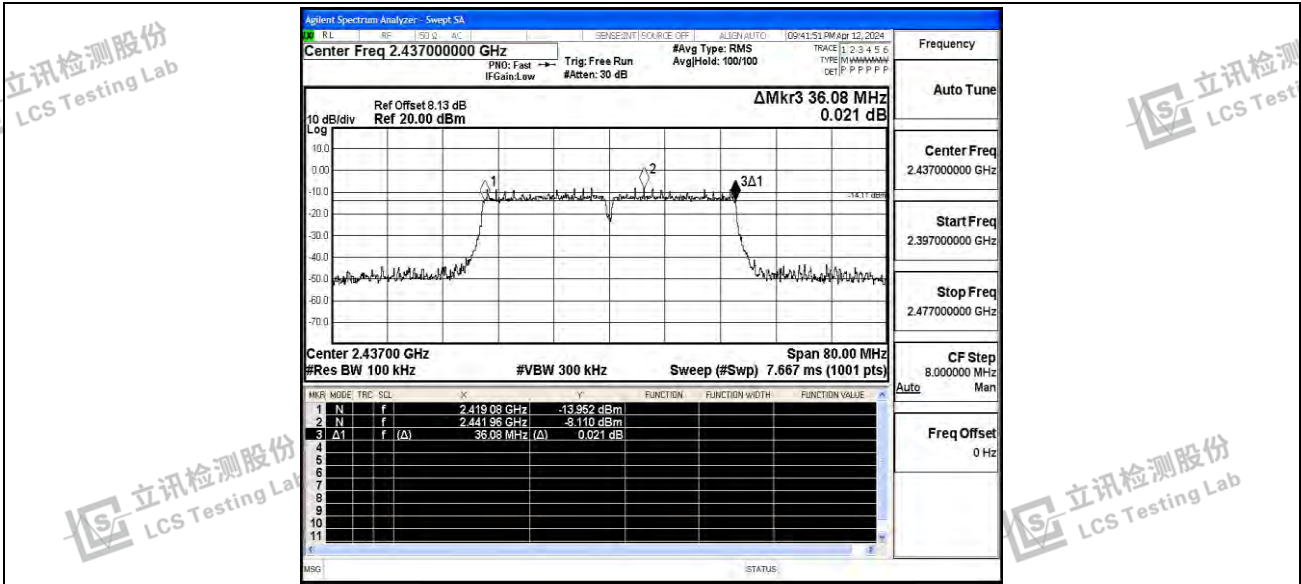


11N40SISO_Ant_2422

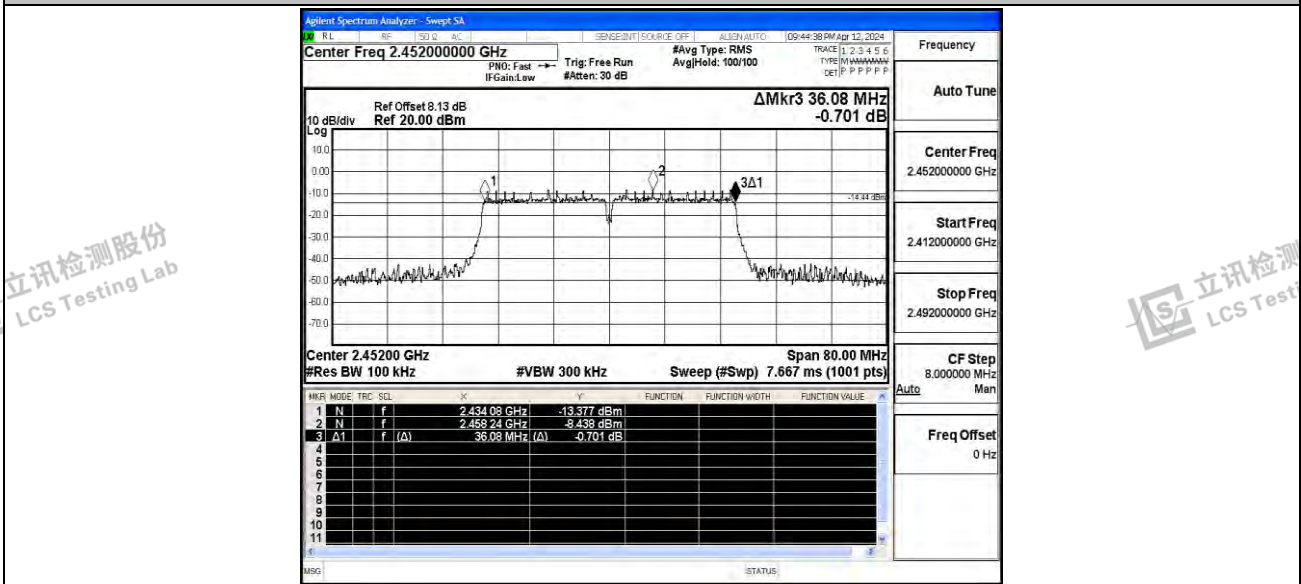


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.2 Maximum conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant	2412	15.22	≤30.00	PASS
		2437	15.68	≤30.00	PASS
		2462	15.31	≤30.00	PASS
11G	Ant	2412	14.94	≤30.00	PASS
		2437	14.55	≤30.00	PASS
		2462	14.18	≤30.00	PASS
11N20SISO	Ant	2412	13.98	≤30.00	PASS
		2437	13.45	≤30.00	PASS
		2462	13.24	≤30.00	PASS
11N40SISO	Ant	2422	12.76	≤30.00	PASS
		2437	12.53	≤30.00	PASS
		2452	12.19	≤30.00	PASS





B.3 Maximum power spectral density

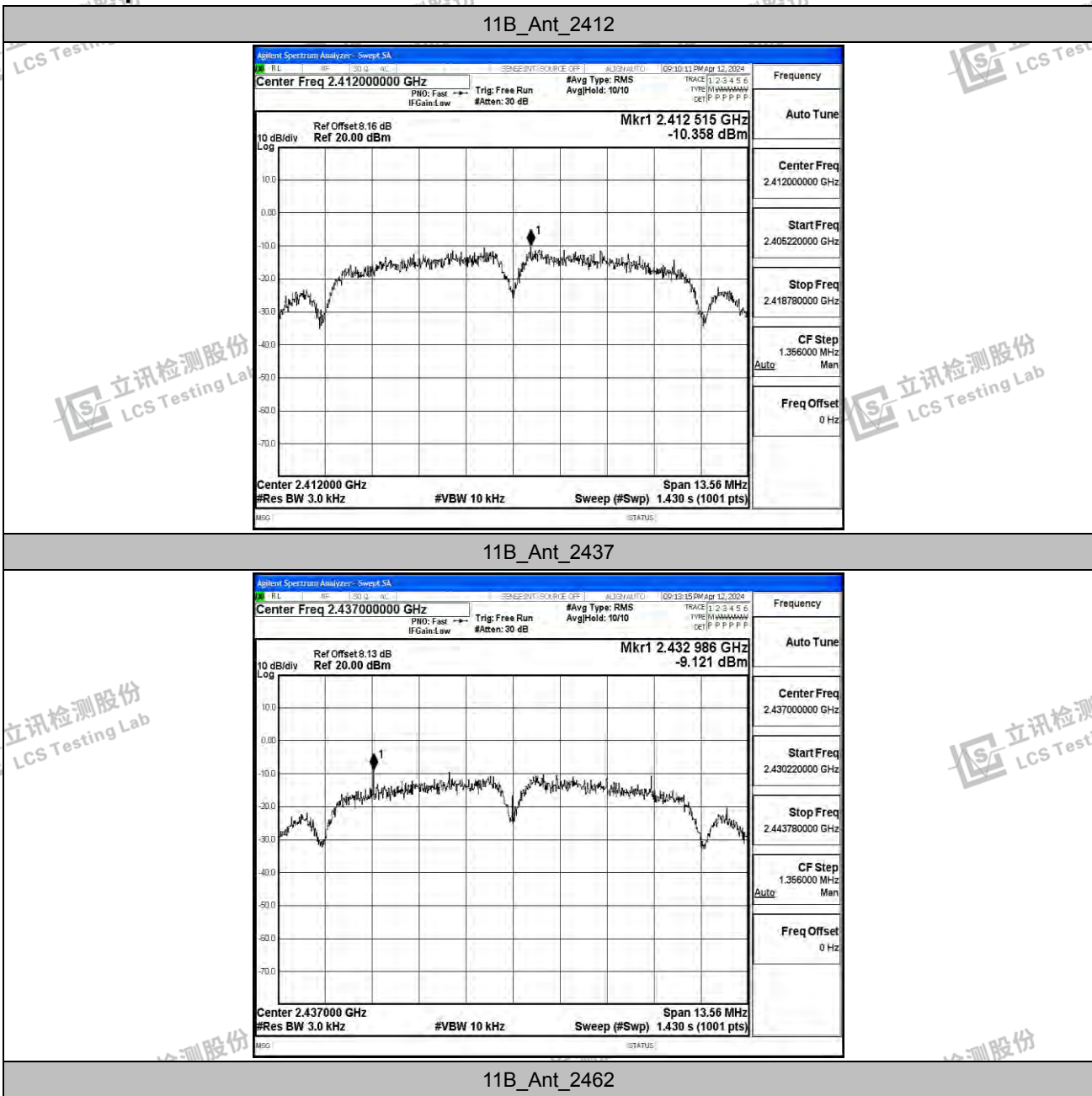
Test Result

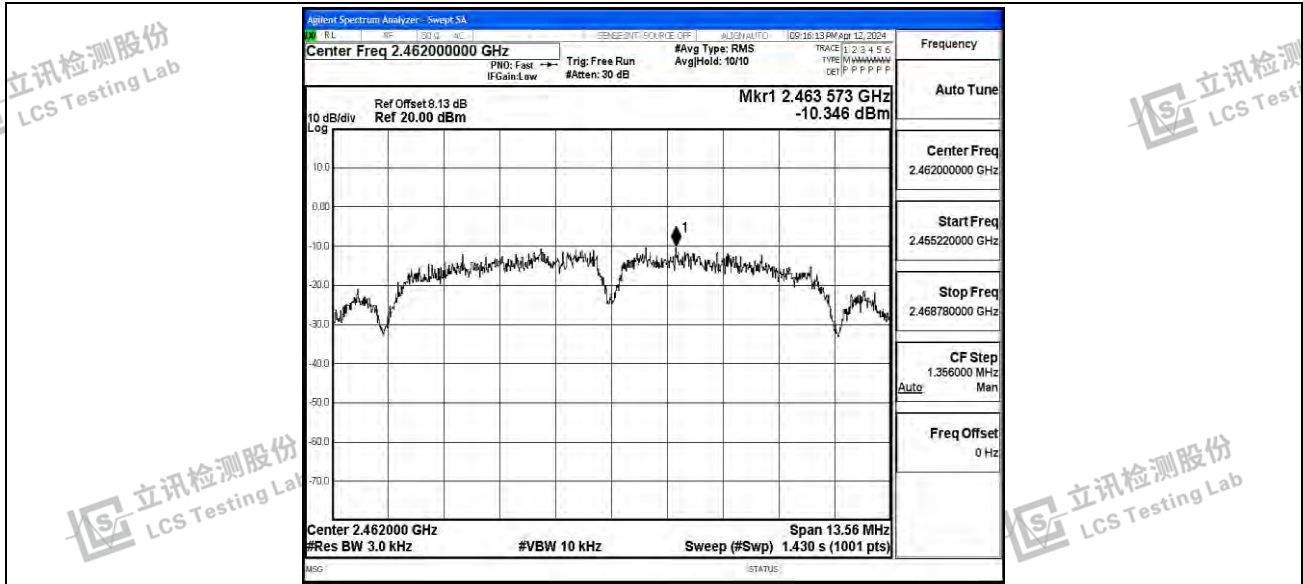
TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant	2412	-10.36	≤8.00	PASS
		2437	-9.12	≤8.00	PASS
		2462	-10.35	≤8.00	PASS
11G	Ant	2412	-16.15	≤8.00	PASS
		2437	-16.67	≤8.00	PASS
		2462	-17.37	≤8.00	PASS
11N20SISO	Ant	2412	-17.42	≤8.00	PASS
		2437	-18.62	≤8.00	PASS
		2462	-18.92	≤8.00	PASS
11N40SISO	Ant	2422	-22.15	≤8.00	PASS
		2437	-22.38	≤8.00	PASS
		2452	-22.19	≤8.00	PASS



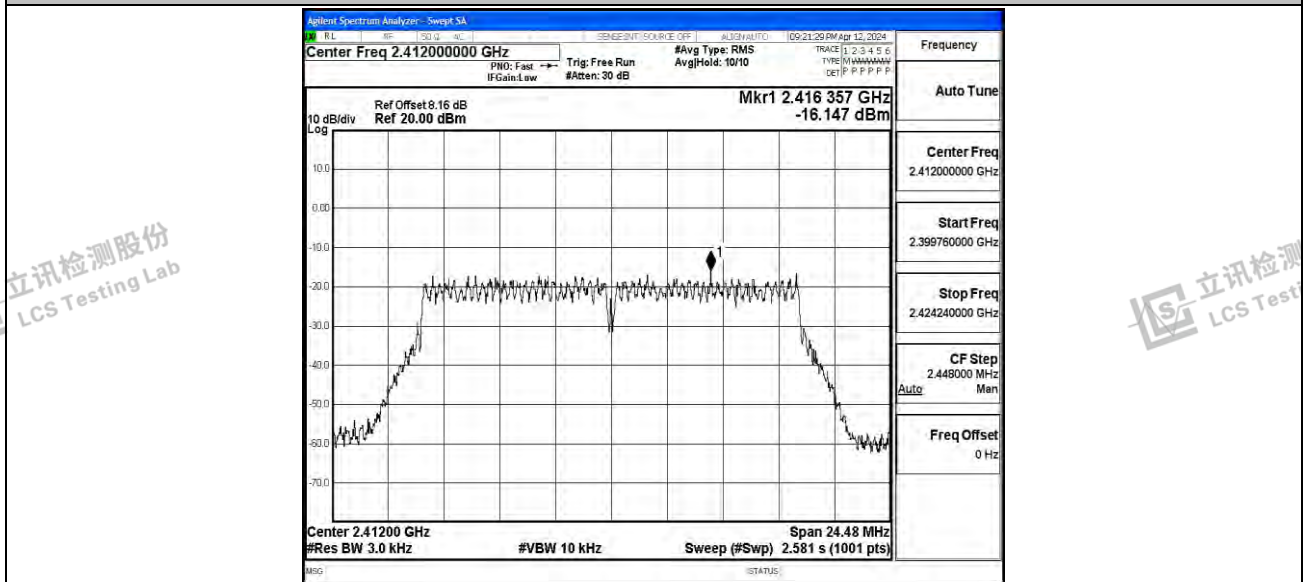


Test Graphs



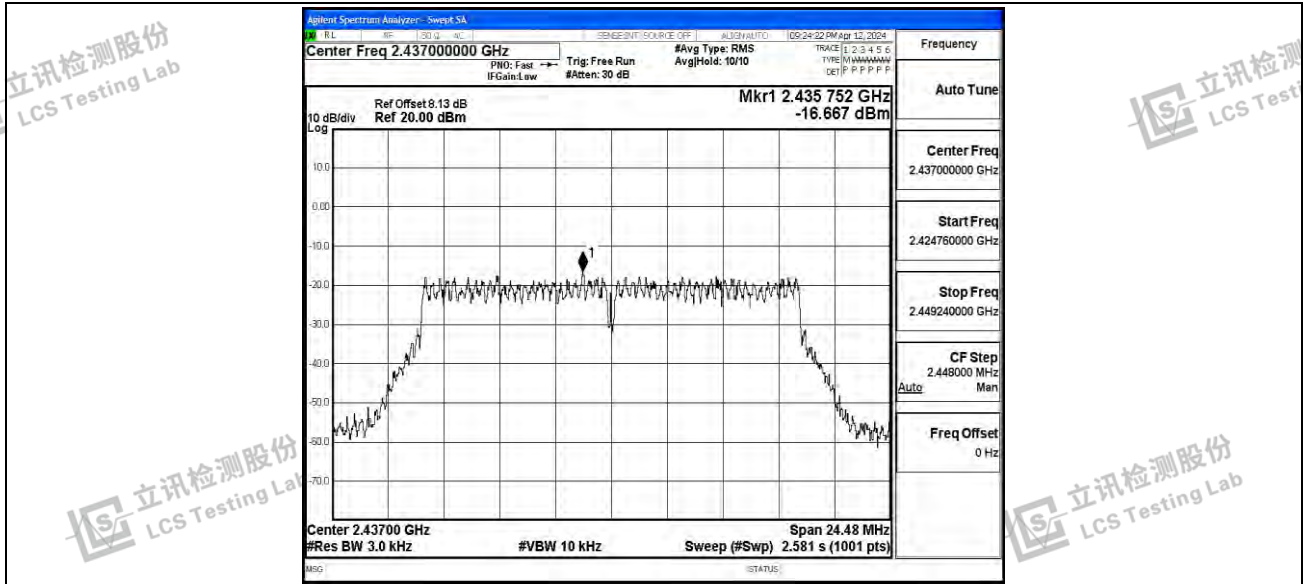


11G_Ant_2412

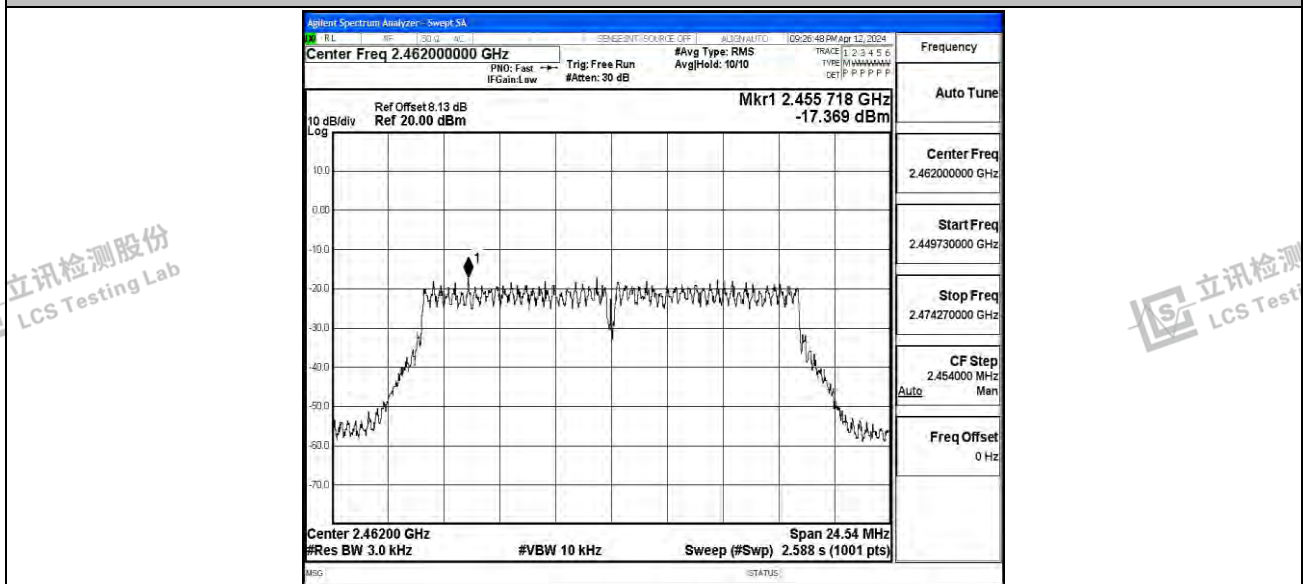


11G_Ant_2437



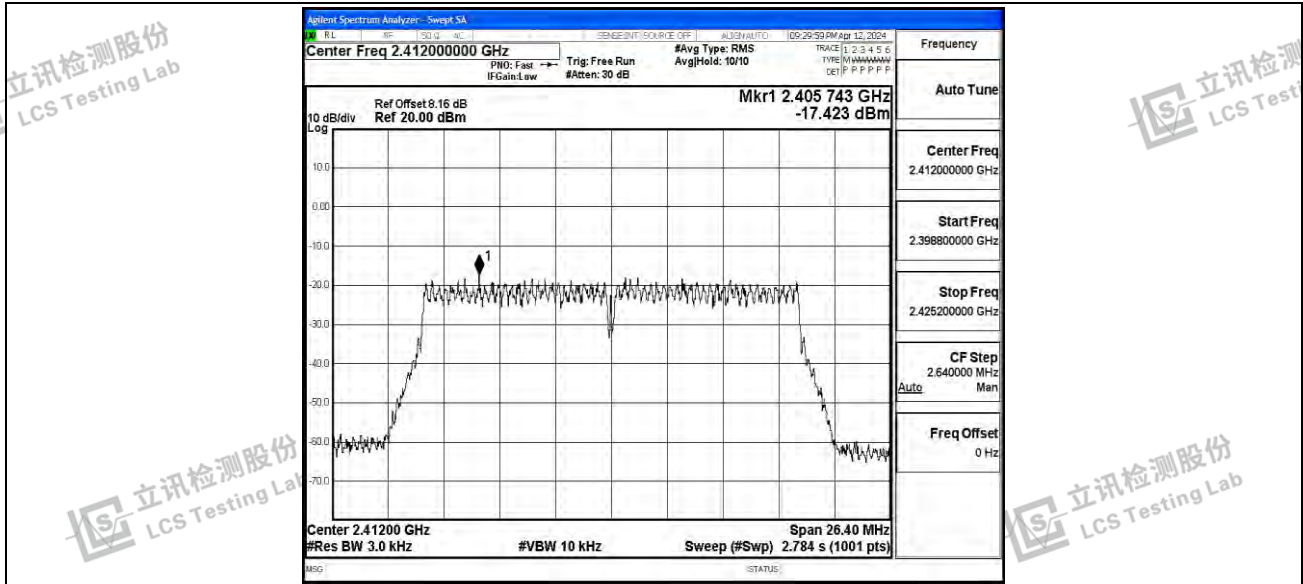


11G_Ant_2462

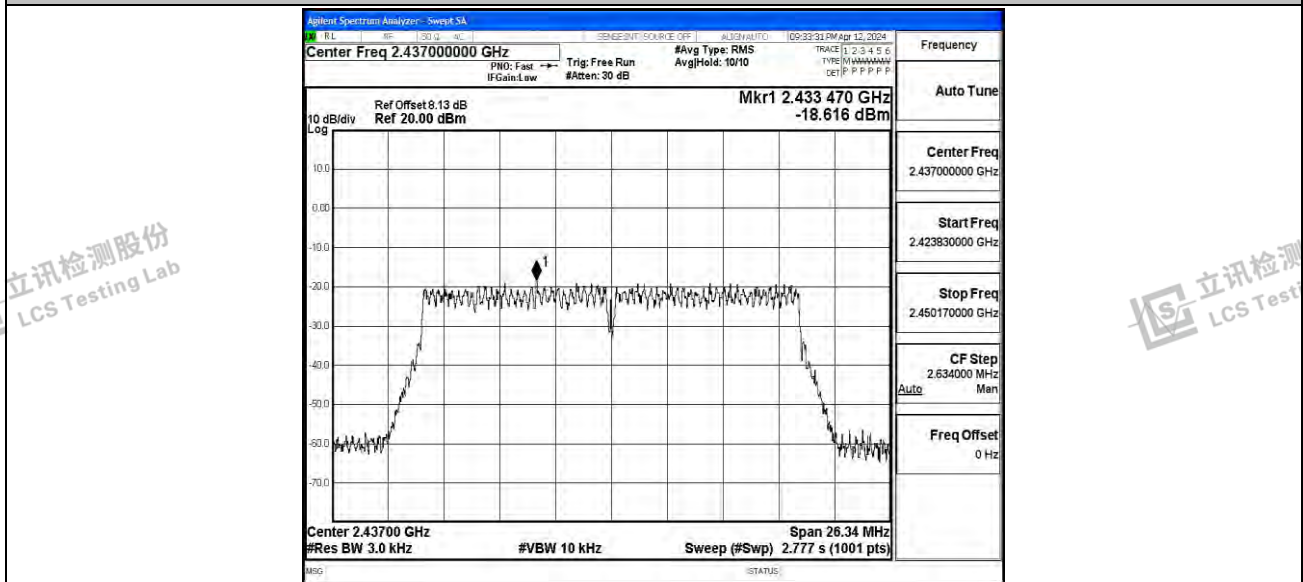


11N20SISO_Ant_2412



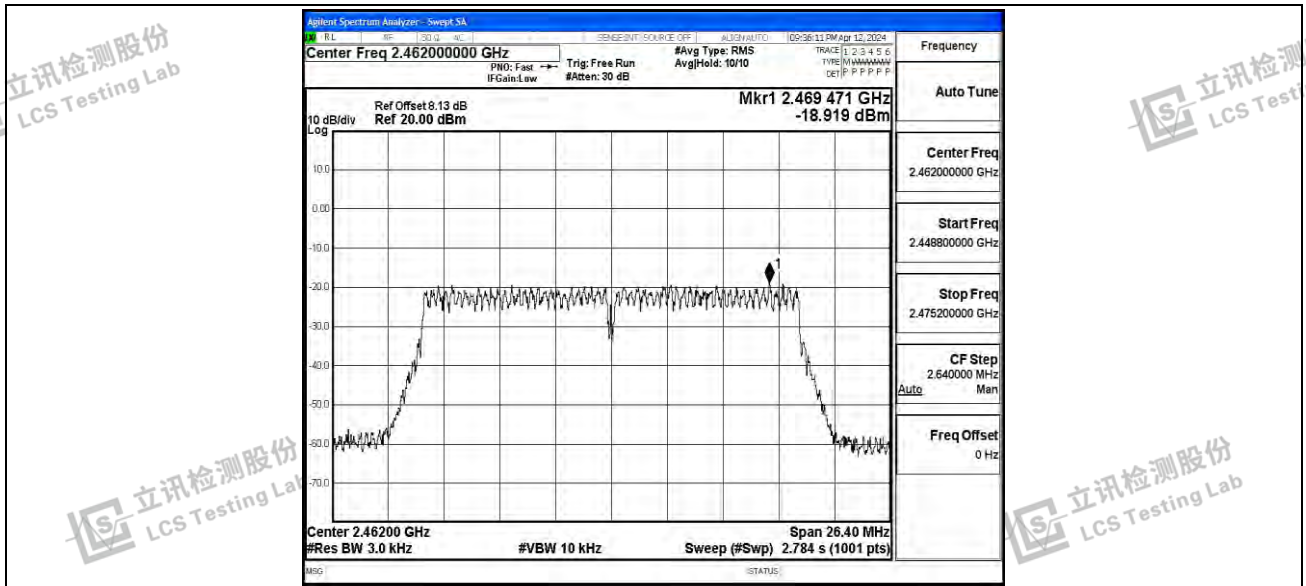


11N20SISO_Ant_2437

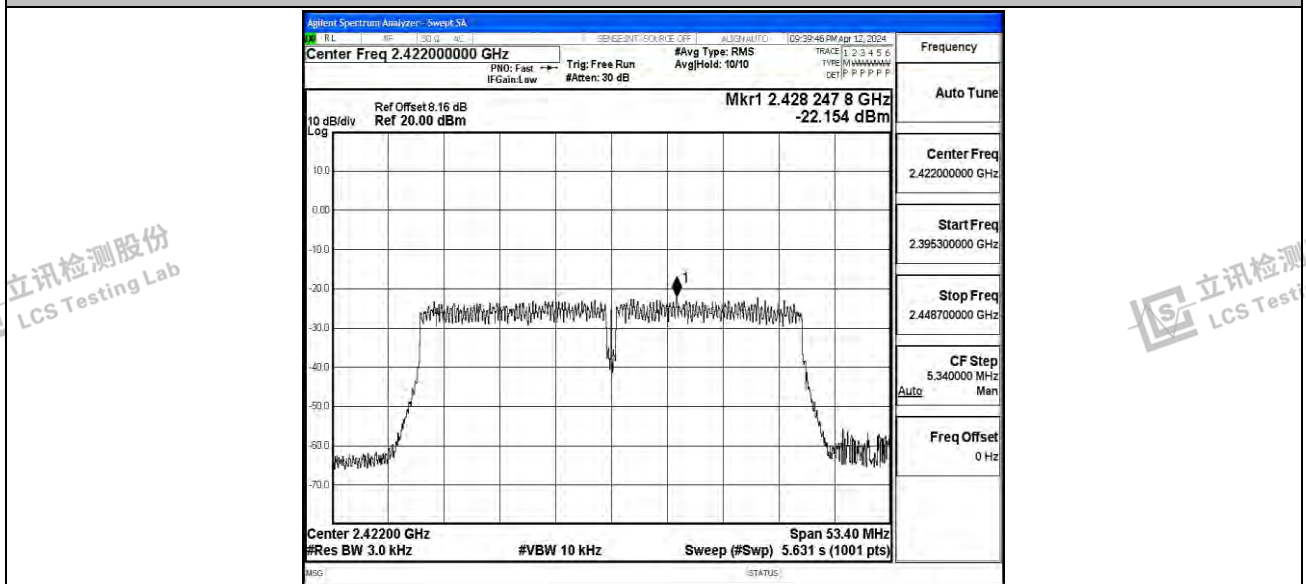


11N20SISO_Ant_2462



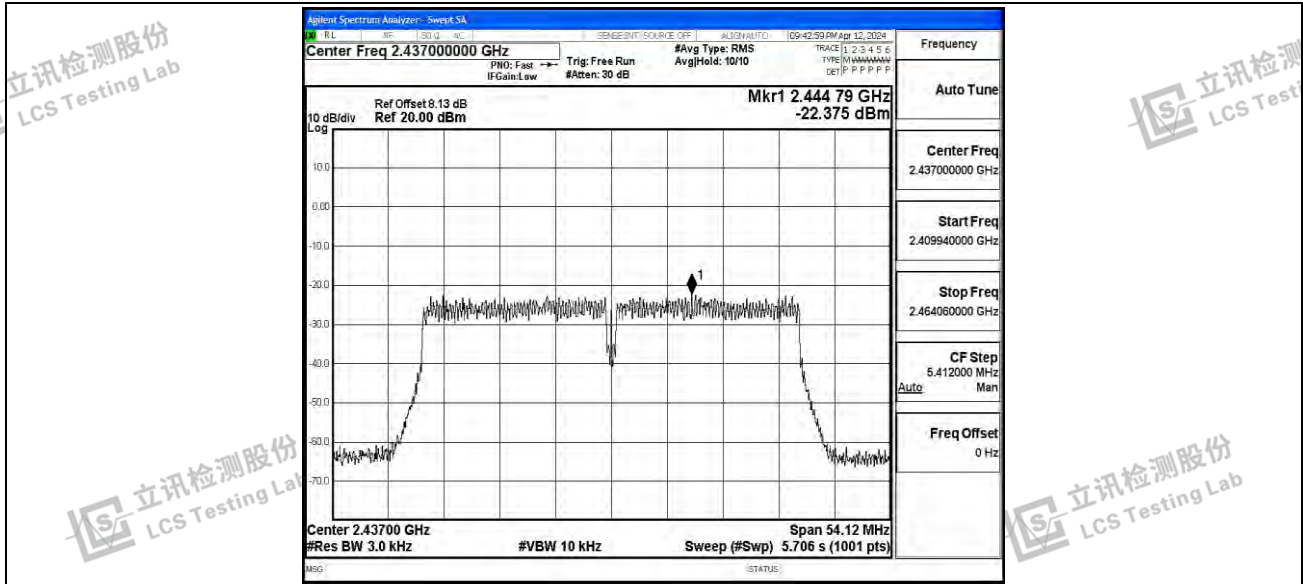


11N40SISO_Ant_2422

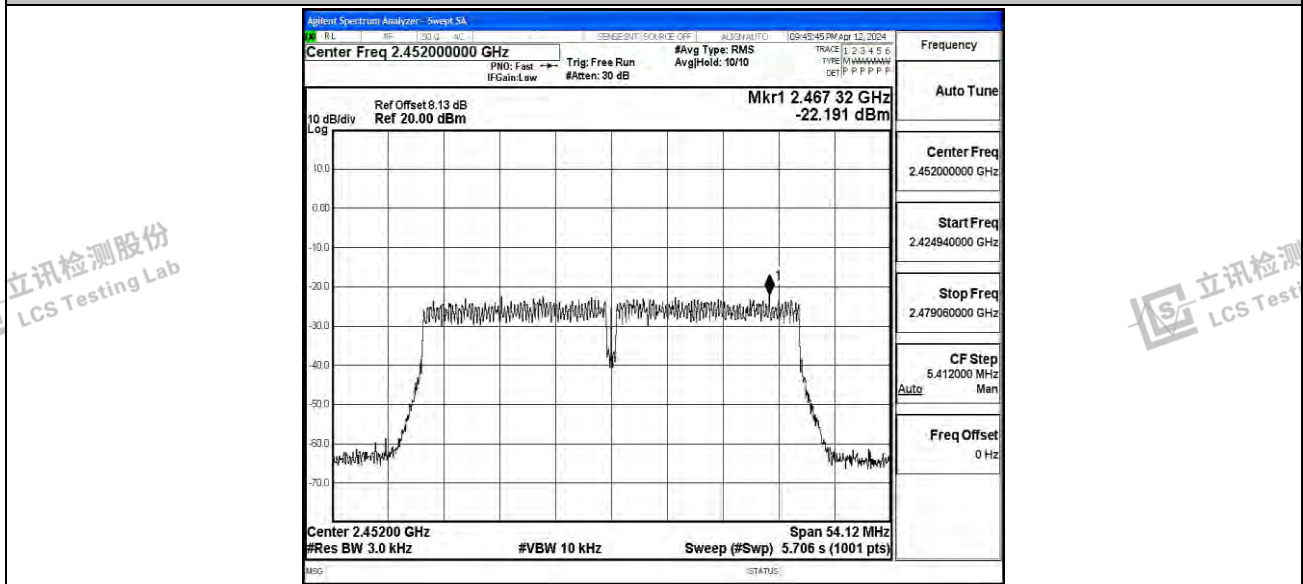


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.4 Band edge measurements

Test Result

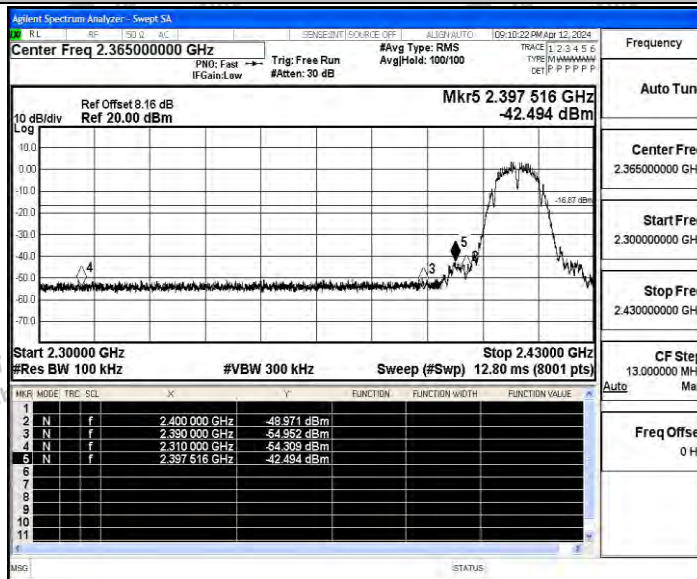
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant	Low	2412	3.13	-42.49	≤-16.87	PASS
		High	2462	3.76	-50.14	≤-16.24	PASS
11G	Ant	Low	2412	-2.78	-39.42	≤-22.78	PASS
		High	2462	-3.23	-47.78	≤-23.23	PASS
11N20SISO	Ant	Low	2412	-3.86	-40.86	≤-23.86	PASS
		High	2462	-4.61	-48.71	≤-24.61	PASS
11N40SISO	Ant	Low	2422	-7.96	-44.84	≤-27.96	PASS
		High	2452	-8.44	-44.34	≤-28.44	PASS



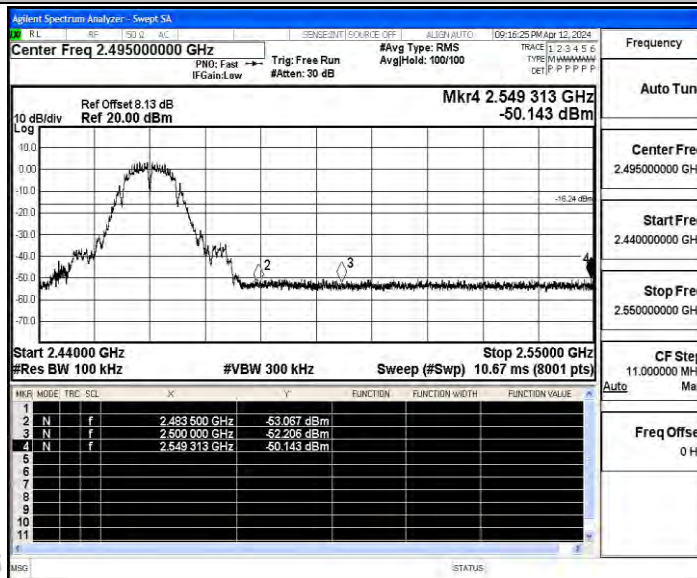


Test Graphs

11B_Ant_Low_2412

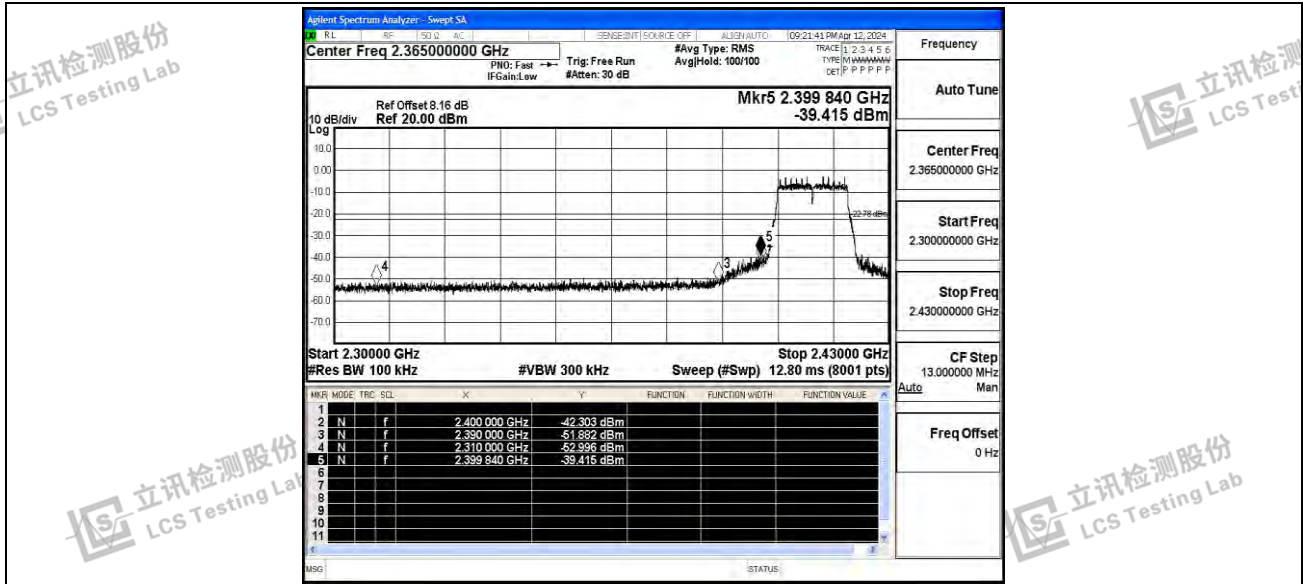


11B_Ant_High_2462

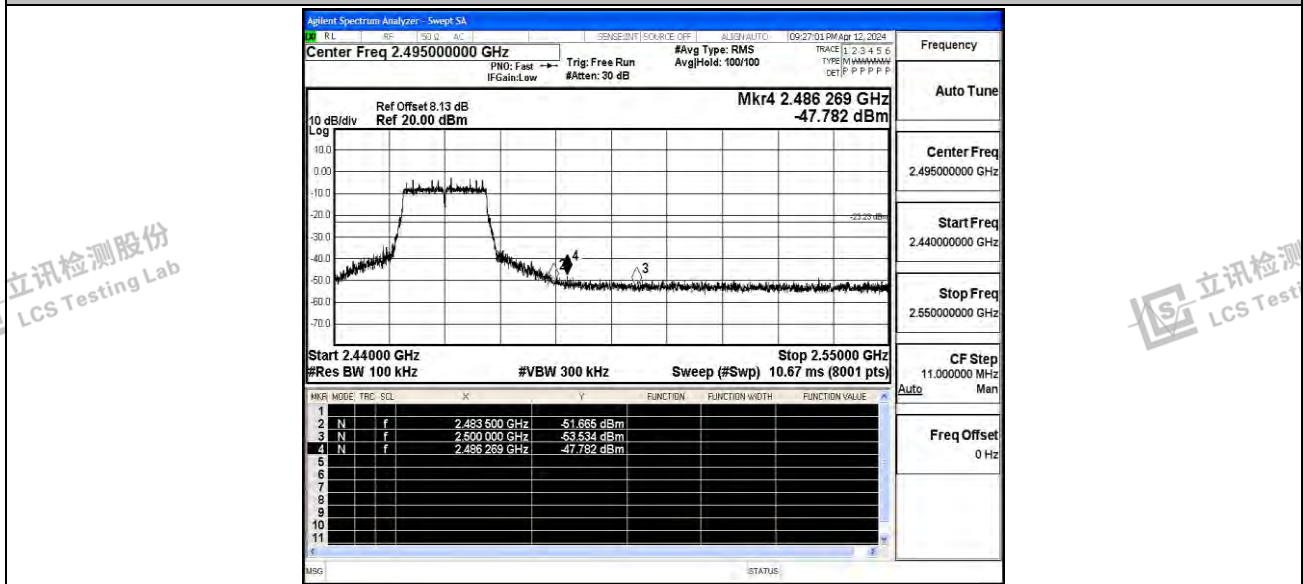


11G_Ant_Low_2412



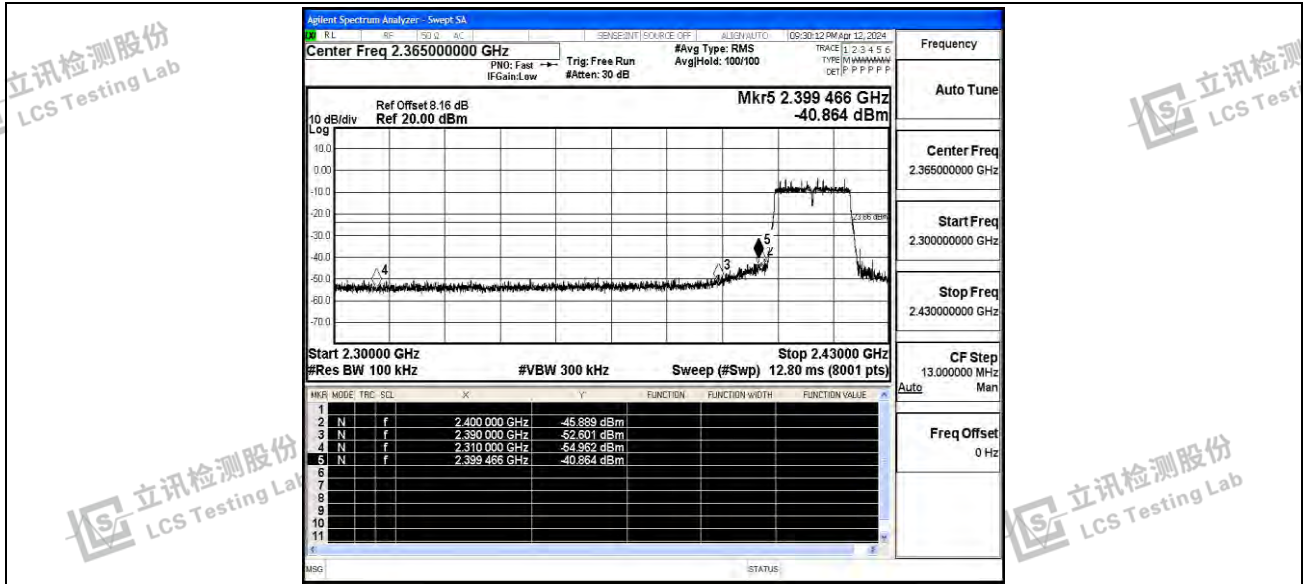


11G_Ant_High_2462

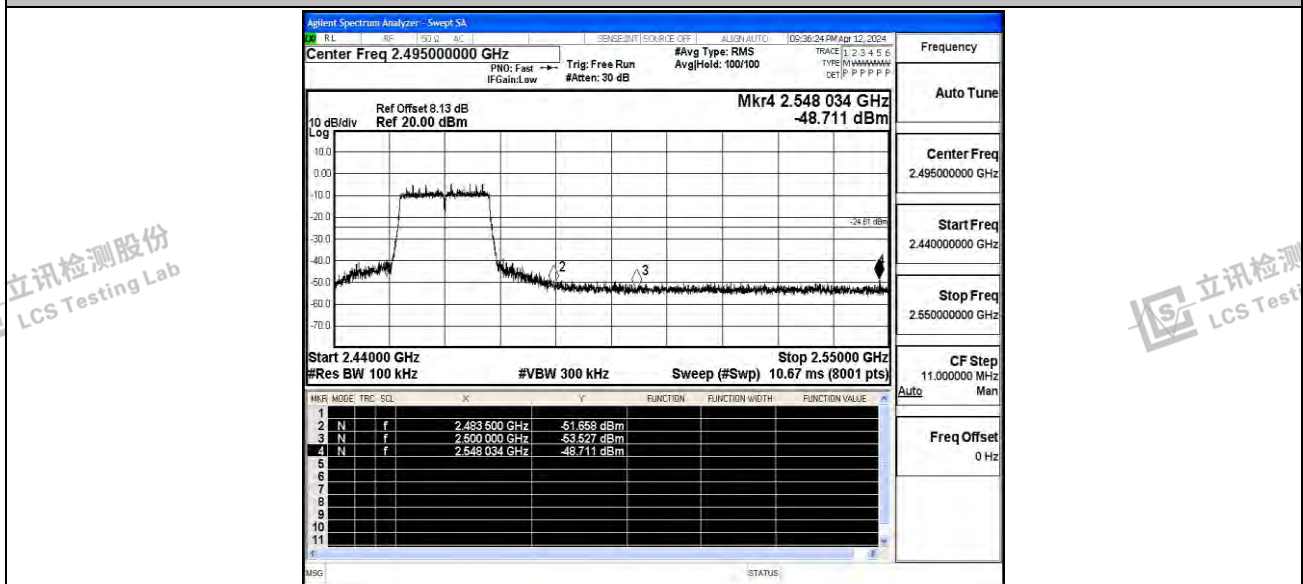


11N20SISO_Ant_Low_2412



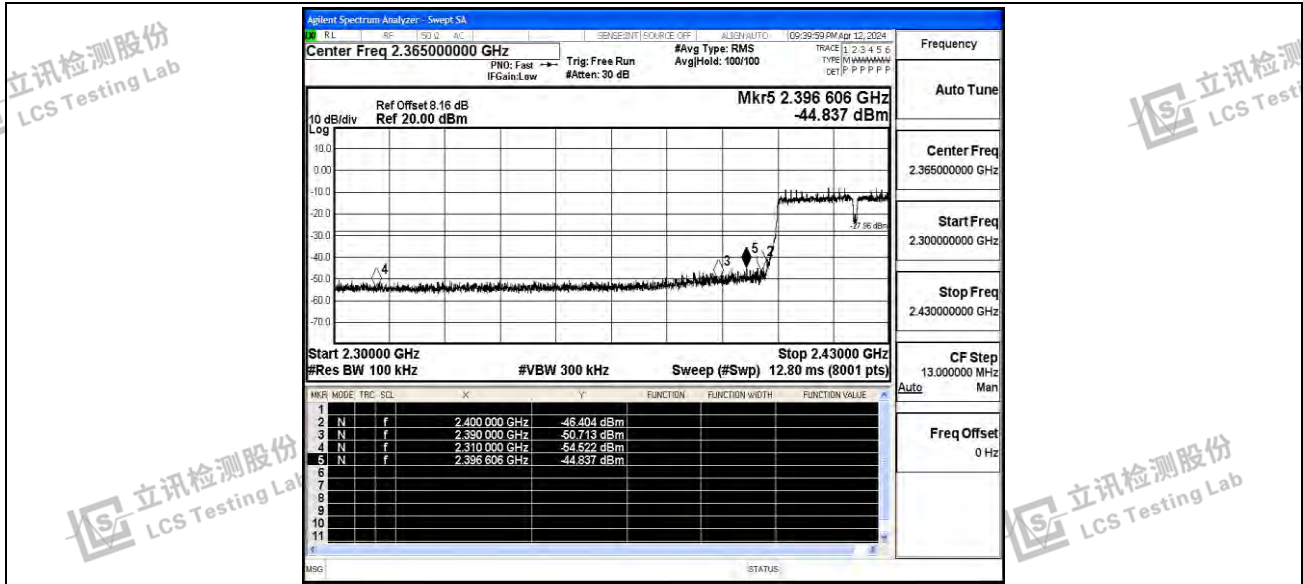


11N20SISO_Ant_High_2462

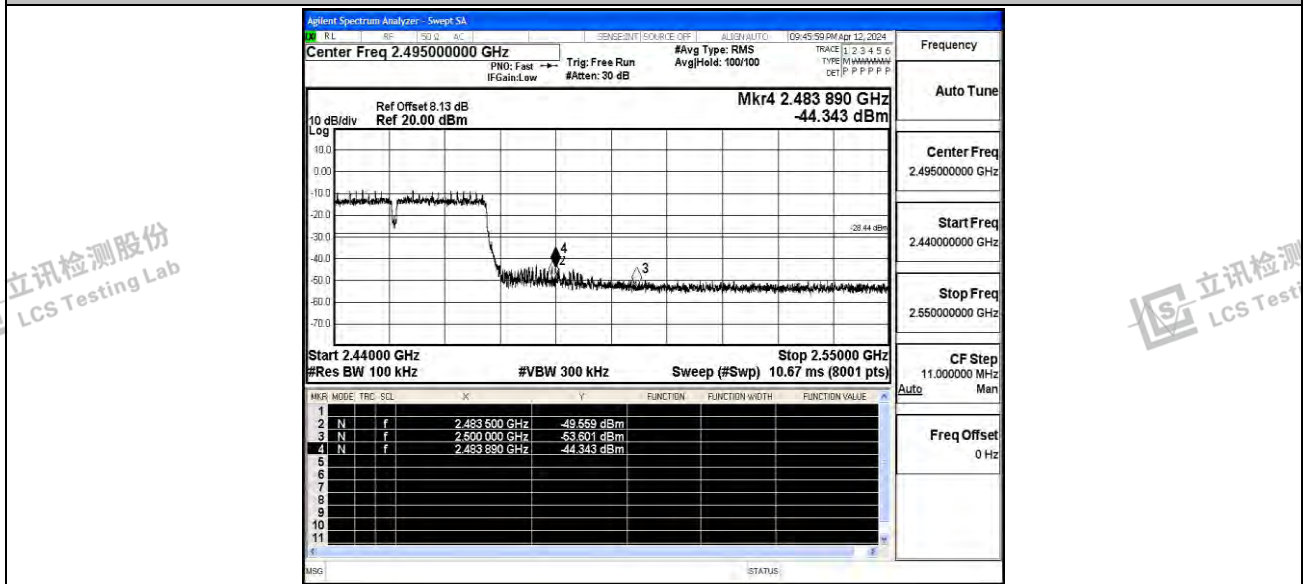


11N40SISO_Ant_Low_2422





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	3.13	-61.84	≤-16.87	PASS		
			1000~26500	3.13	-49.3	≤-16.87	PASS		
		2437	30~1000	3.54	-61.83	≤-16.46	PASS		
			1000~26500	3.54	-49.01	≤-16.46	PASS		
		2462	30~1000	3.76	-61.96	≤-16.24	PASS		
			1000~26500	3.76	-49.09	≤-16.24	PASS		
11G	Ant	2412	30~1000	-2.78	-61.22	≤-22.78	PASS		
			1000~26500	-2.78	-49.36	≤-22.78	PASS		
		2437	30~1000	-3.09	-61.19	≤-23.09	PASS		
			1000~26500	-3.09	-48.54	≤-23.09	PASS		
		2462	30~1000	-3.23	-61.69	≤-23.23	PASS		
			1000~26500	-3.23	-47.9	≤-23.23	PASS		
		11N20SISO	Ant	2412	30~1000	-3.86	-61.65	≤-23.86	PASS
					1000~26500	-3.86	-48.89	≤-23.86	PASS
2437	30~1000			-4.51	-61.6	≤-24.51	PASS		
	1000~26500			-4.51	-48.98	≤-24.51	PASS		
2462	30~1000			-4.61	-61.73	≤-24.61	PASS		
	1000~26500			-4.61	-48.79	≤-24.61	PASS		
11N40SISO	Ant	2422	30~1000	-7.96	-61.29	≤-27.96	PASS		
			1000~26500	-7.96	-49.54	≤-27.96	PASS		
		2437	30~1000	-8.14	-61.16	≤-28.14	PASS		
			1000~26500	-8.14	-49.26	≤-28.14	PASS		
		2452	30~1000	-8.44	-61.78	≤-28.44	PASS		
			1000~26500	-8.44	-49.43	≤-28.44	PASS		



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

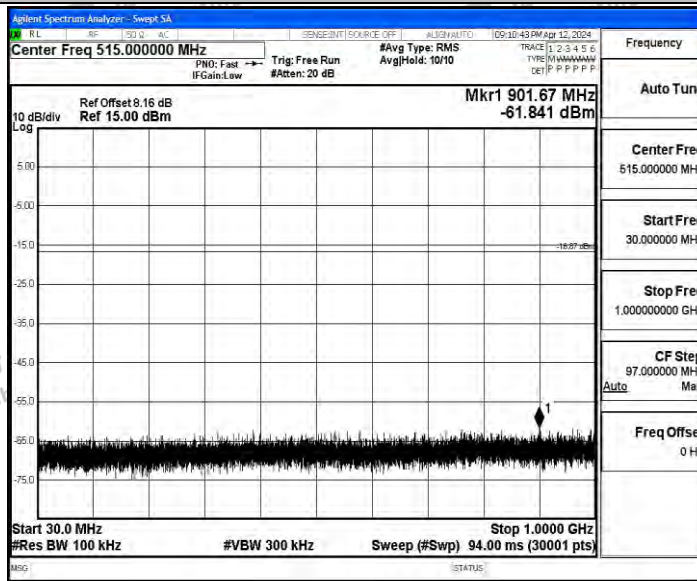
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

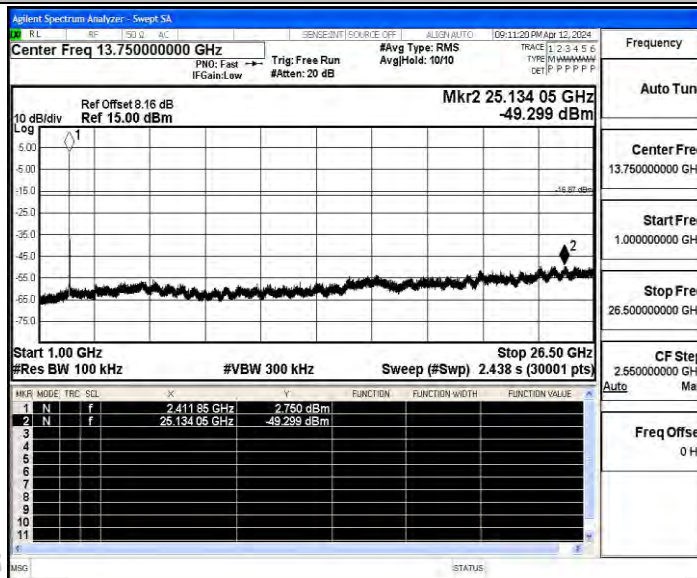


Test Graphs

11B_Ant_2412_30~1000

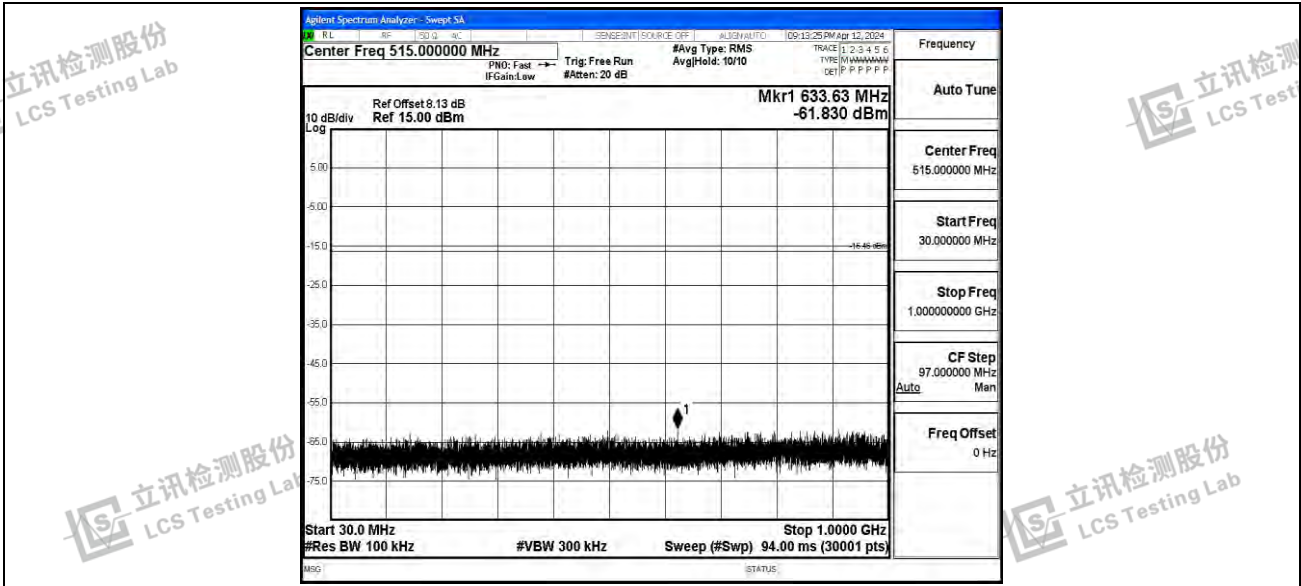


11B_Ant_2412_1000~26500

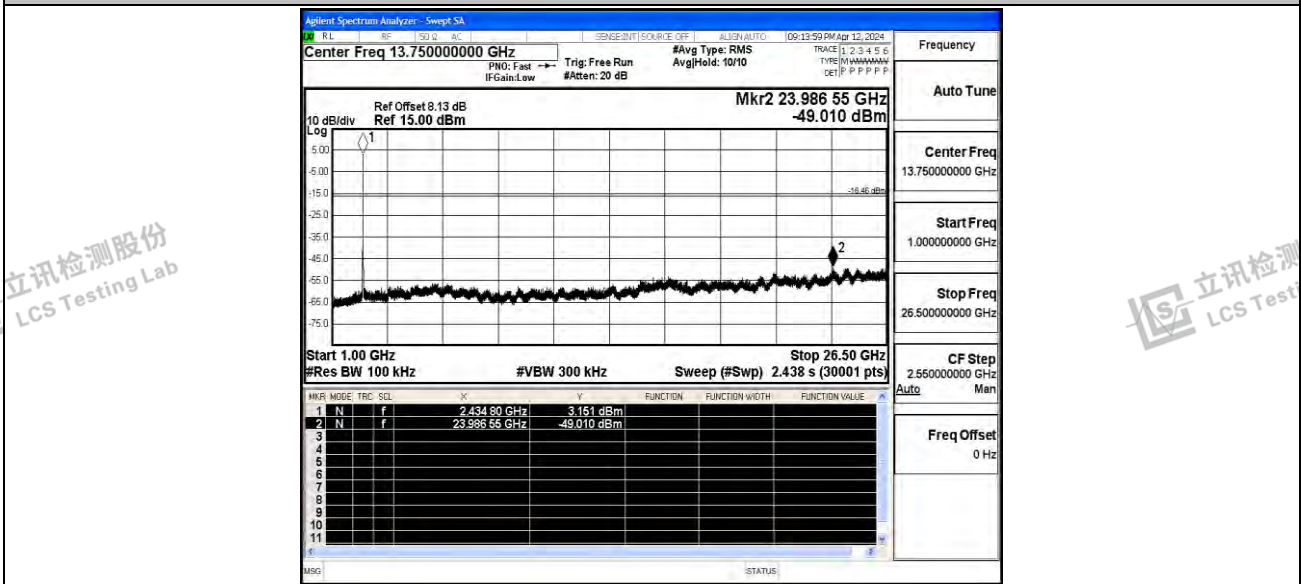


11B_Ant_2437_30~1000



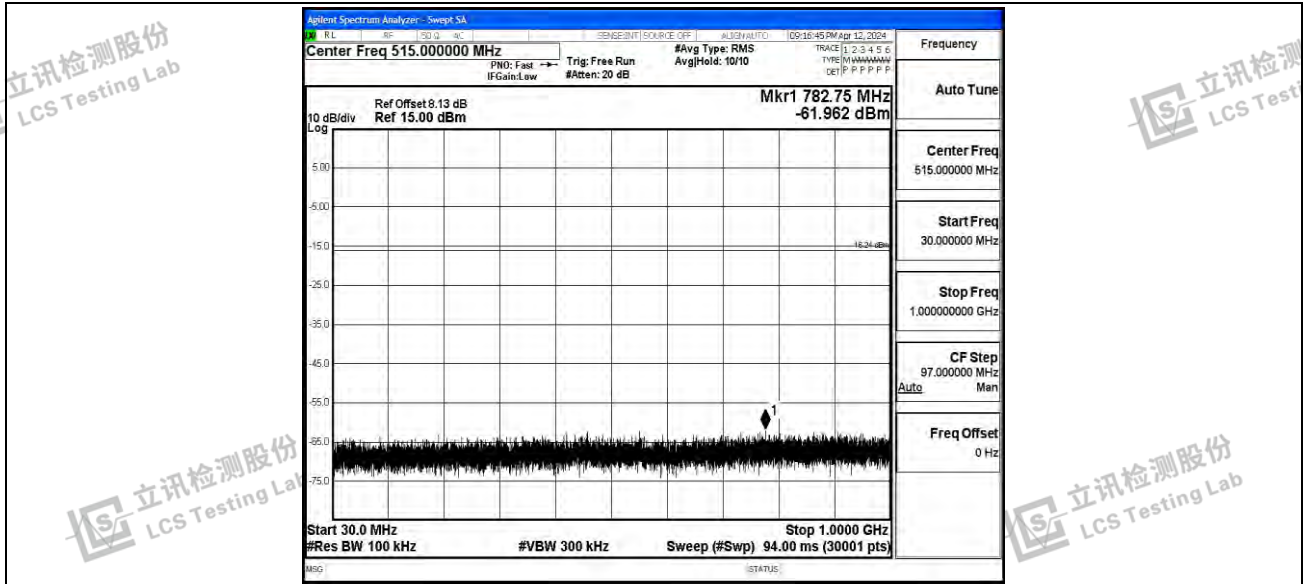


11B_Ant_2437_1000~26500

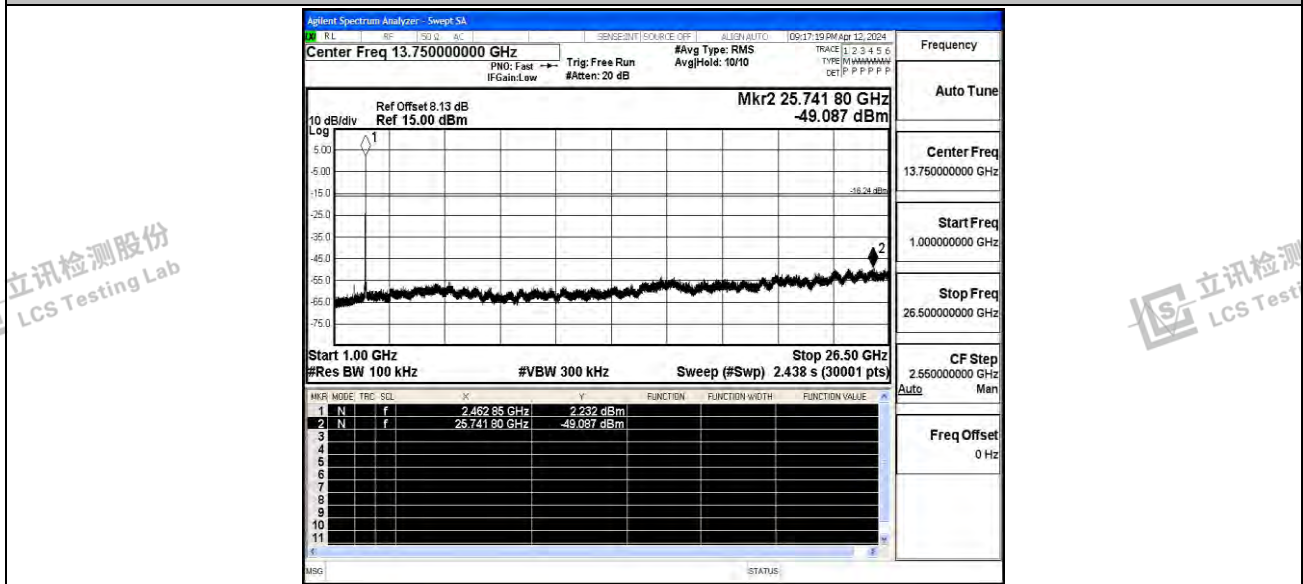


11B_Ant_2462_30~1000



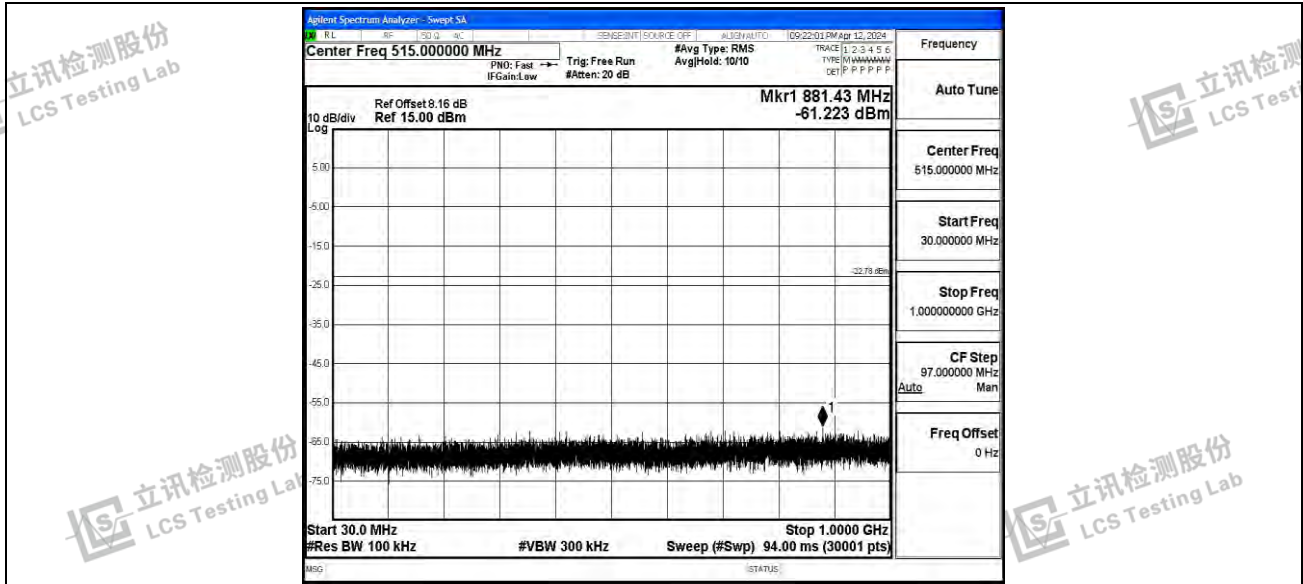


11B_Ant_2462_1000~26500

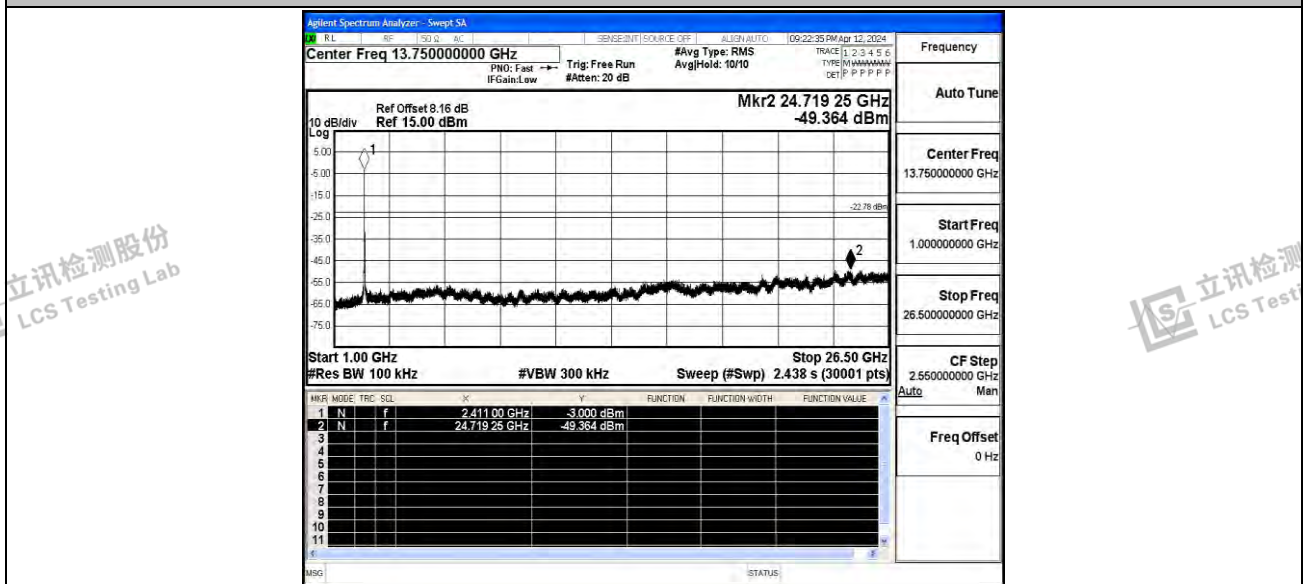


11G_Ant_2412_30~1000



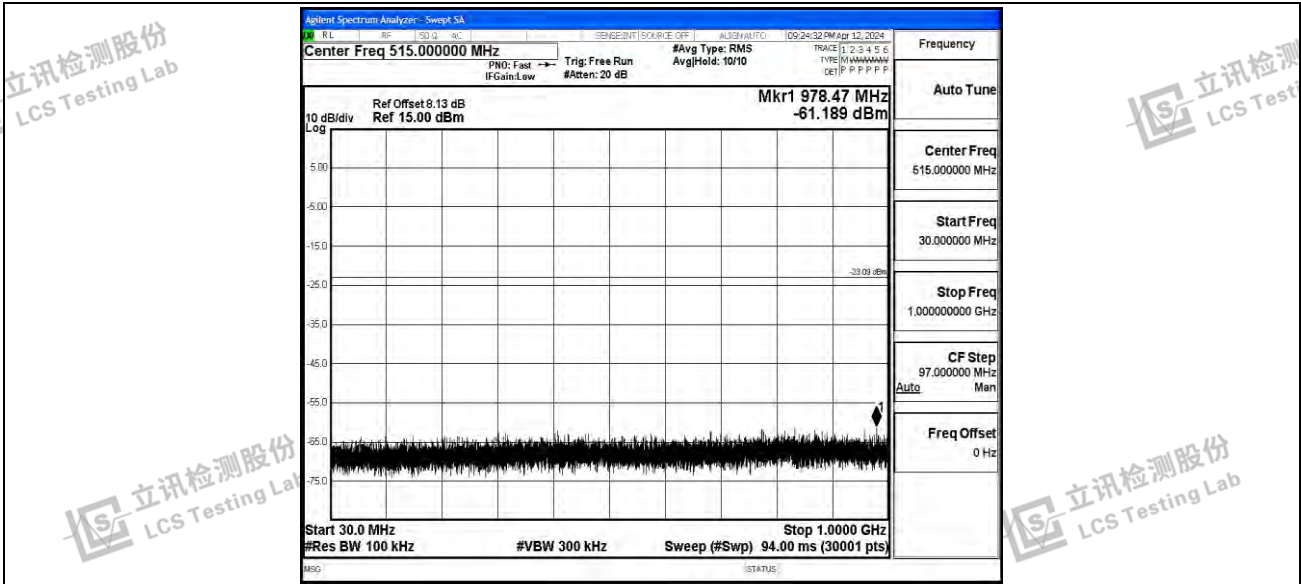


11G_Ant_2412_1000~26500

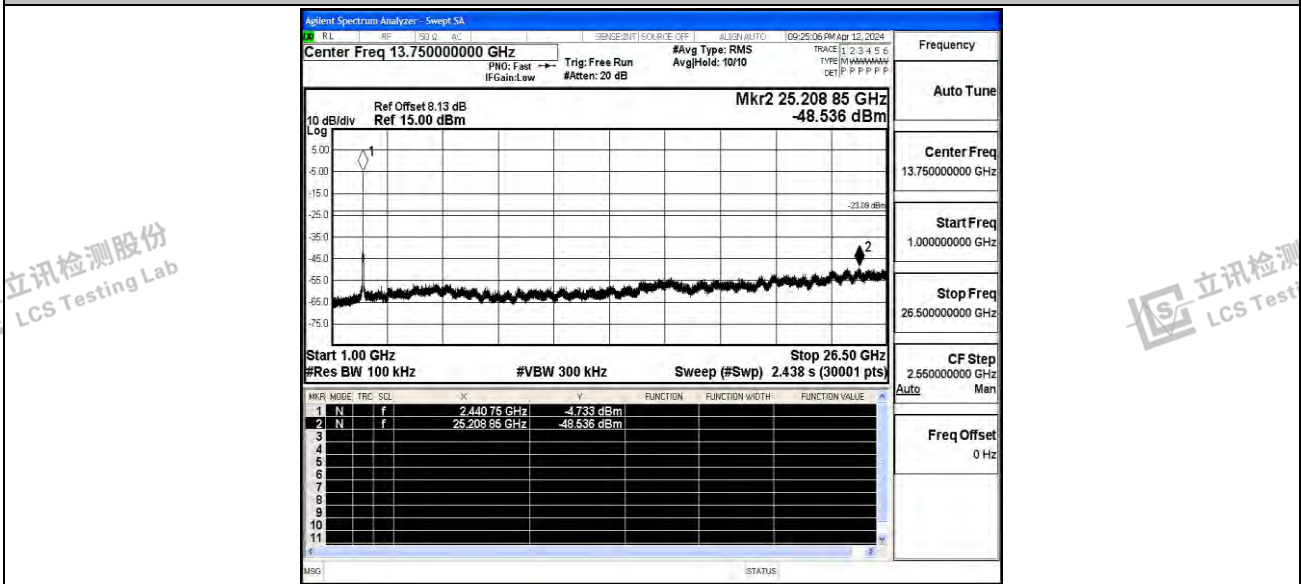


11G_Ant_2437_30~1000



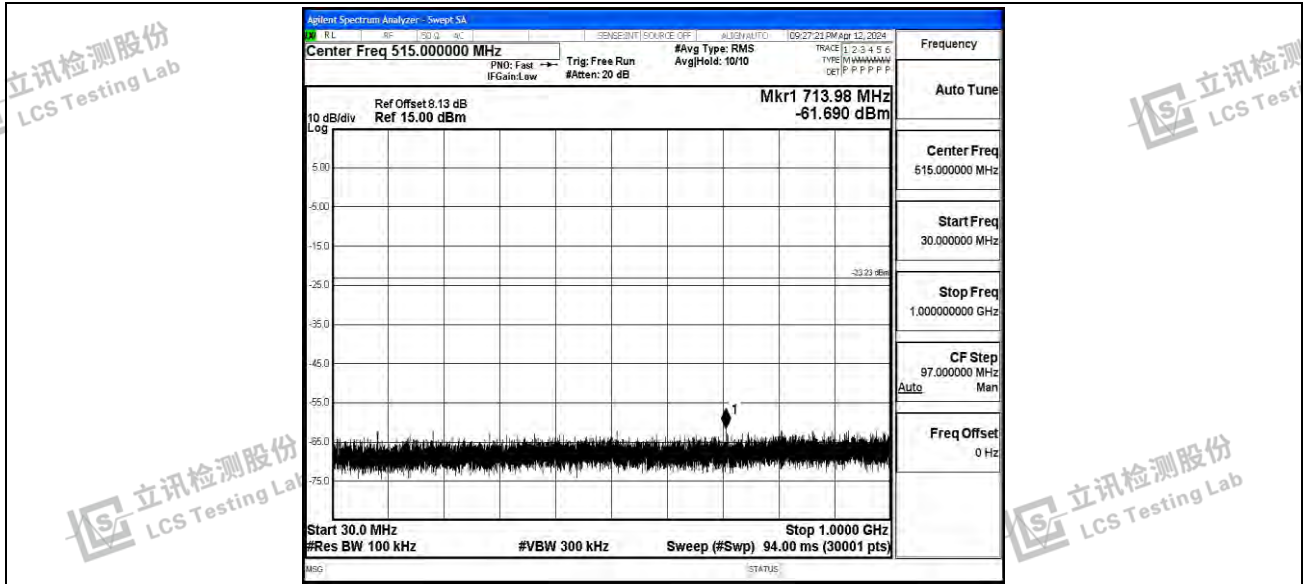


11G_Ant_2437_1000~26500

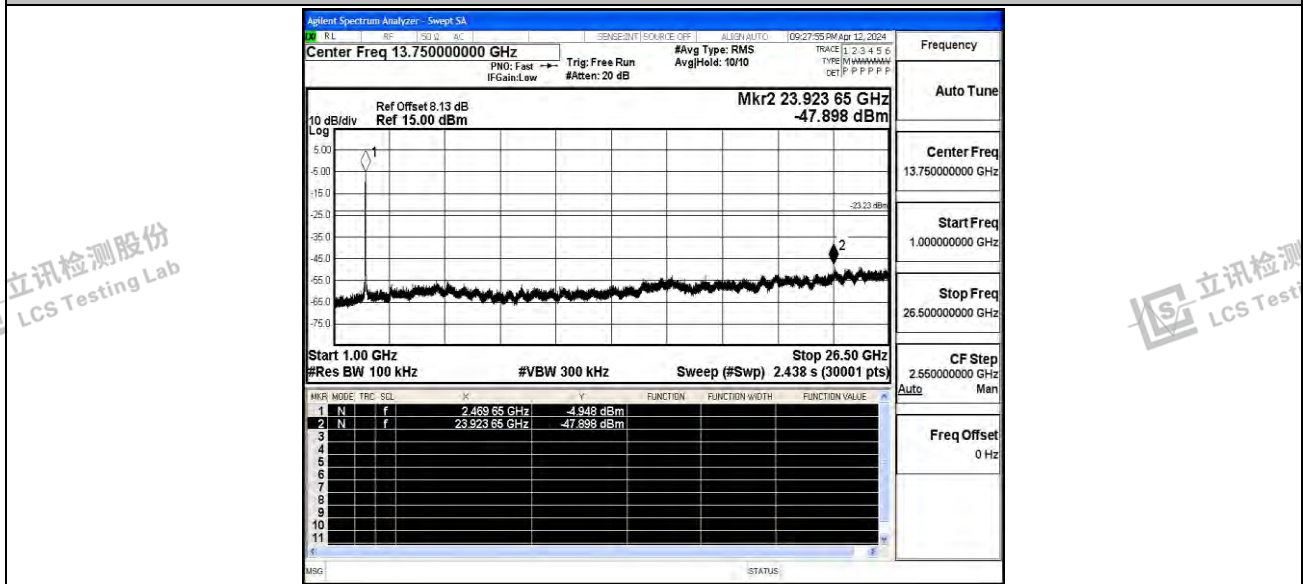


11G_Ant_2462_30~1000



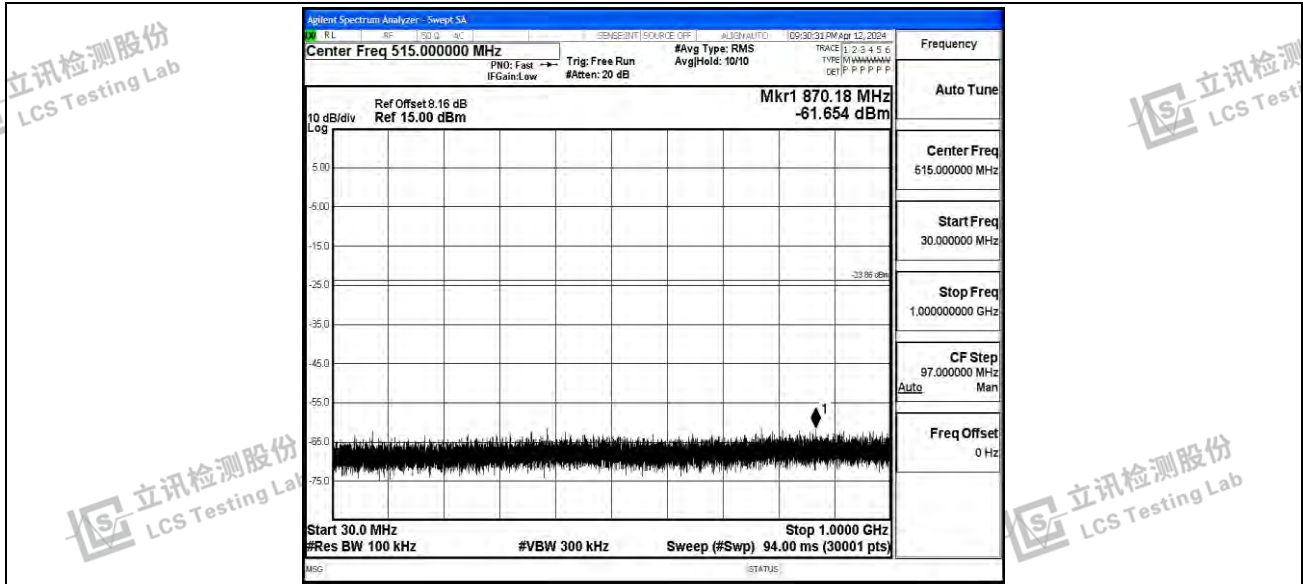


11G_Ant_2462_1000~26500

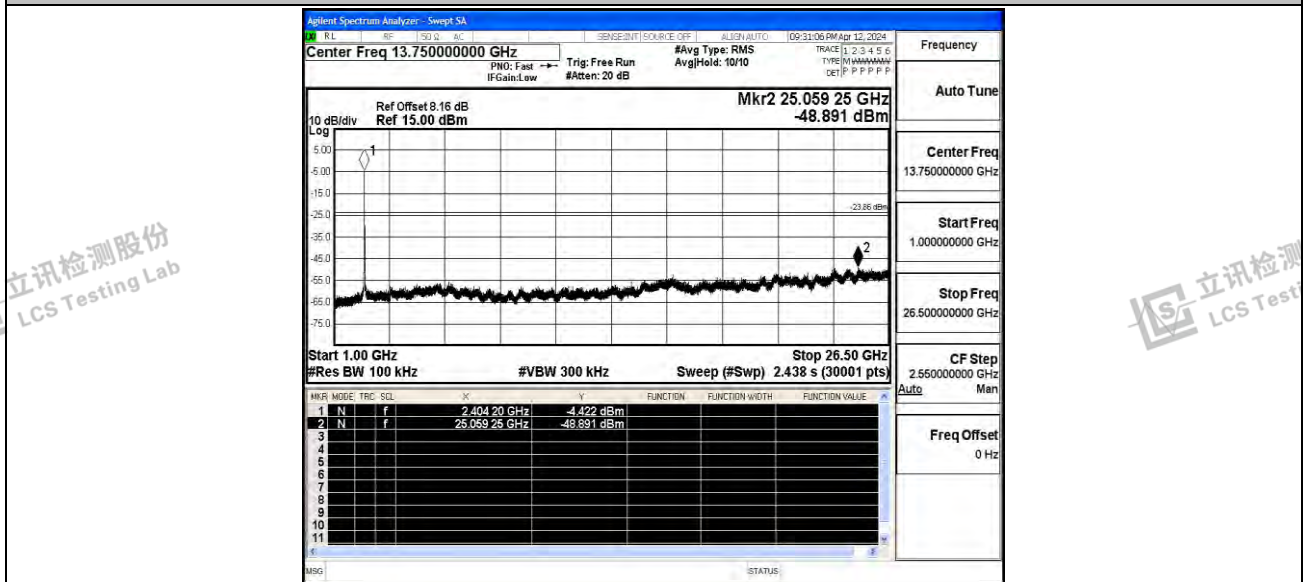


11N20SISO_Ant_2412_30~1000



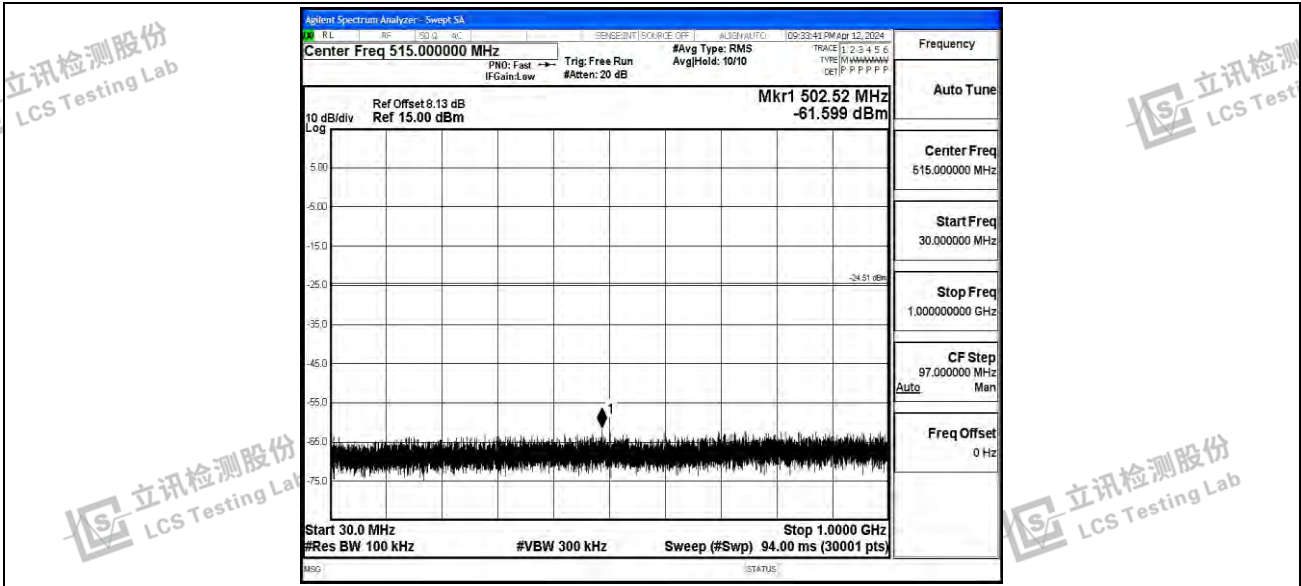


11N20SISO_Ant_2412_1000~26500

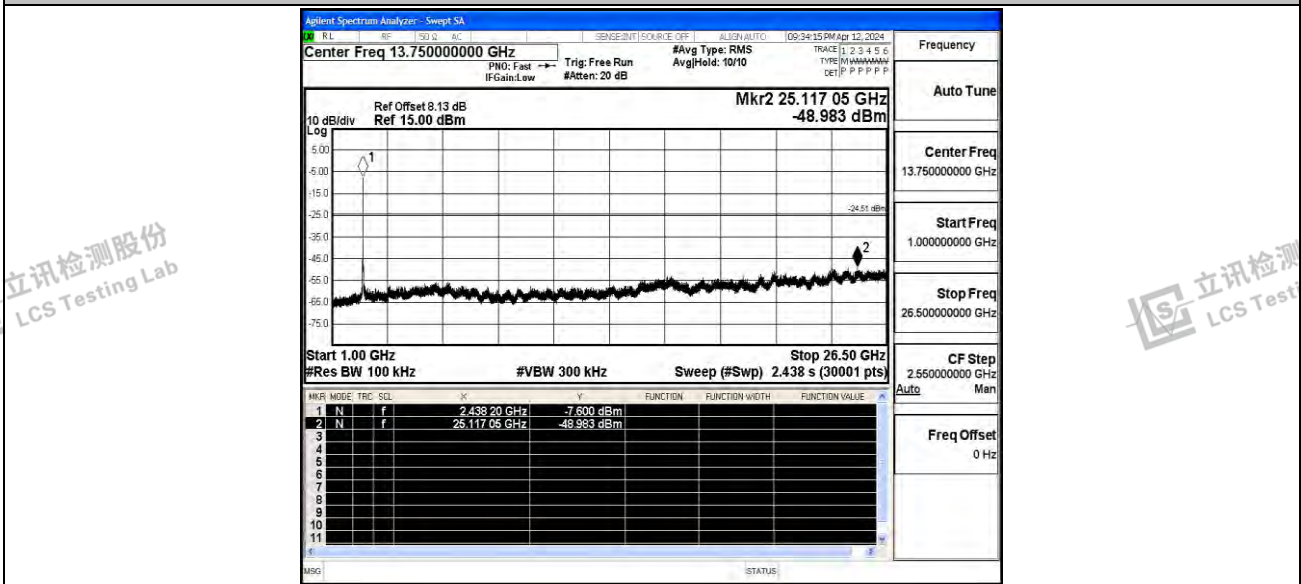


11N20SISO_Ant_2437_30~1000



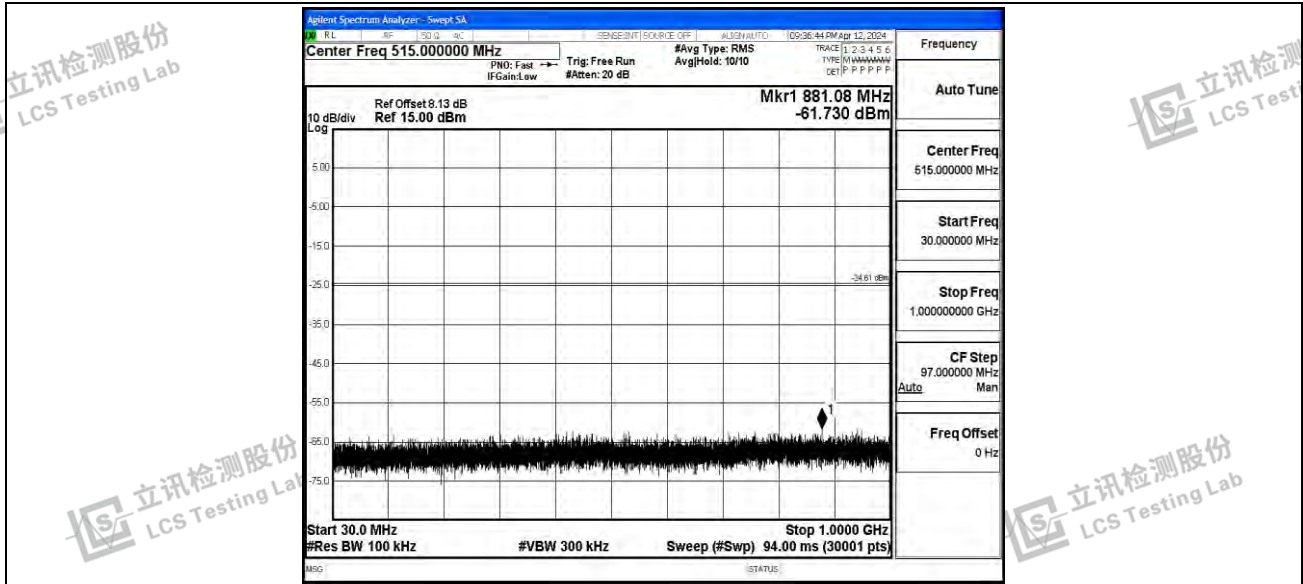


11N20SISO_Ant_2437_1000~26500

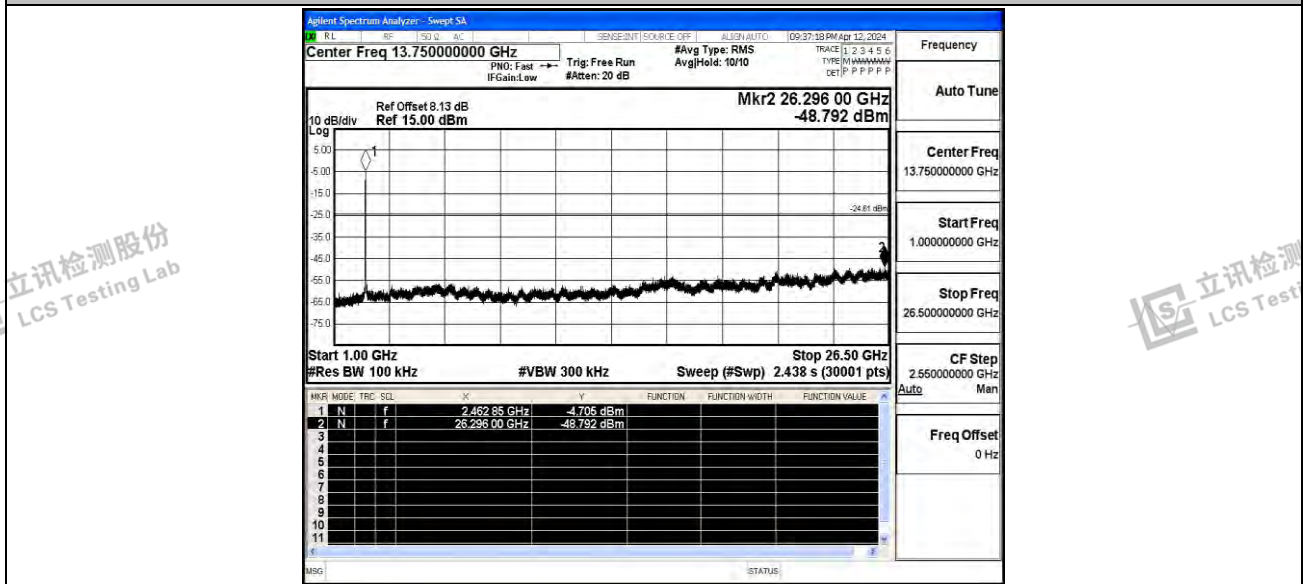


11N20SISO_Ant_2462_30~1000



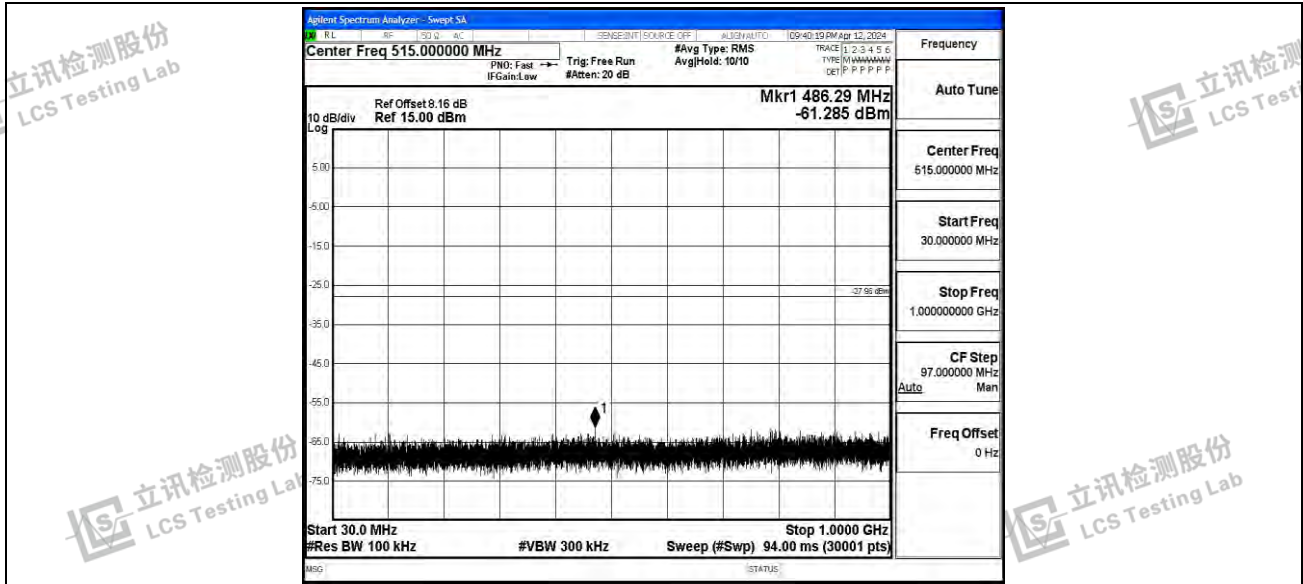


11N20SISO_Ant_2462_1000~26500

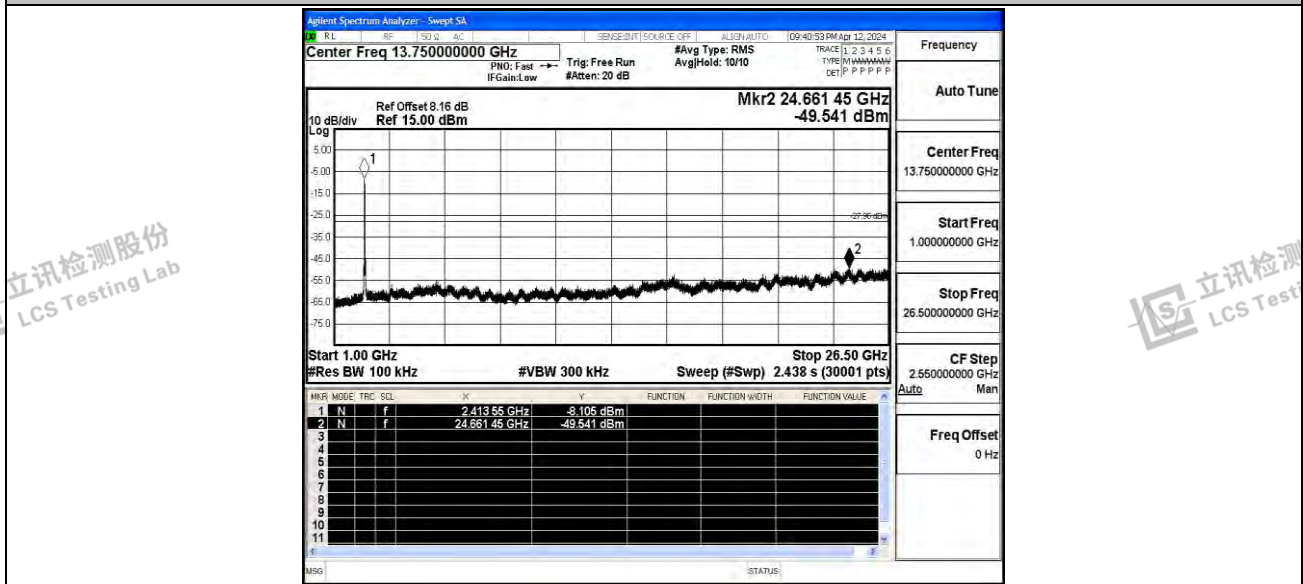


11N40SISO_Ant_2422_30~1000



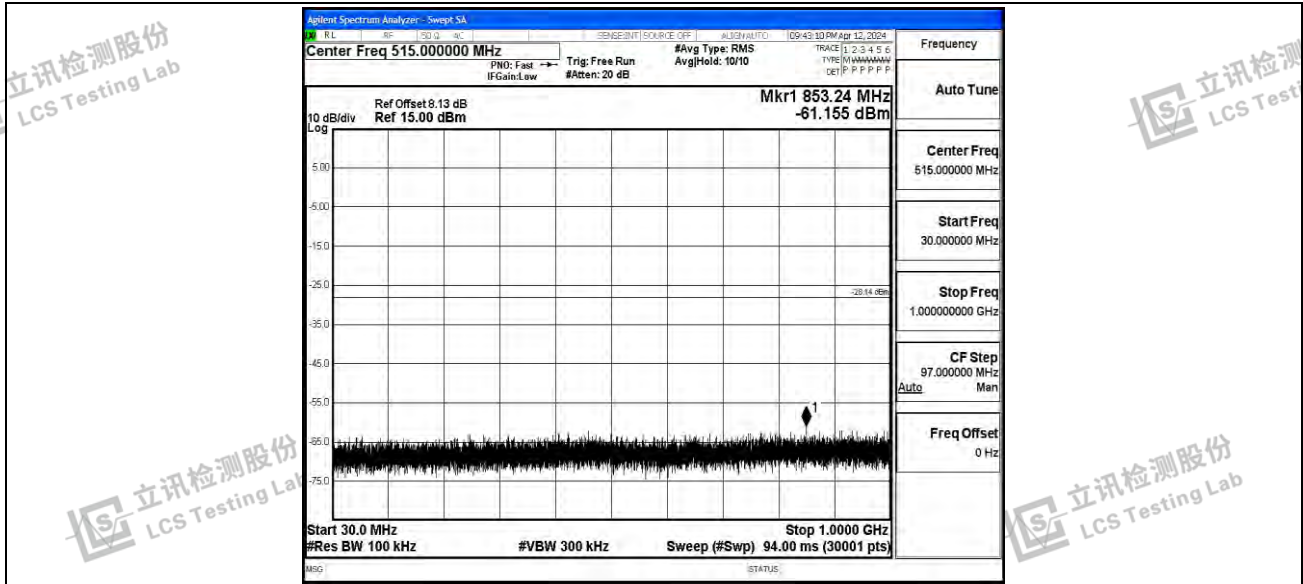


11N40SISO_Ant_2422_1000~26500

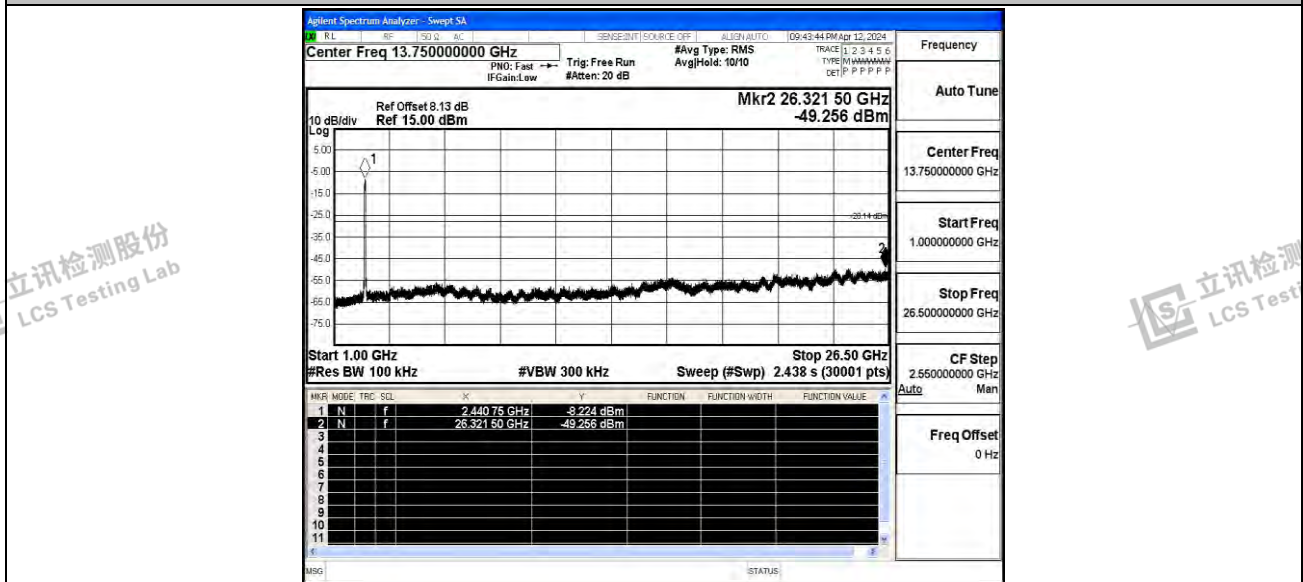


11N40SISO_Ant_2437_30~1000



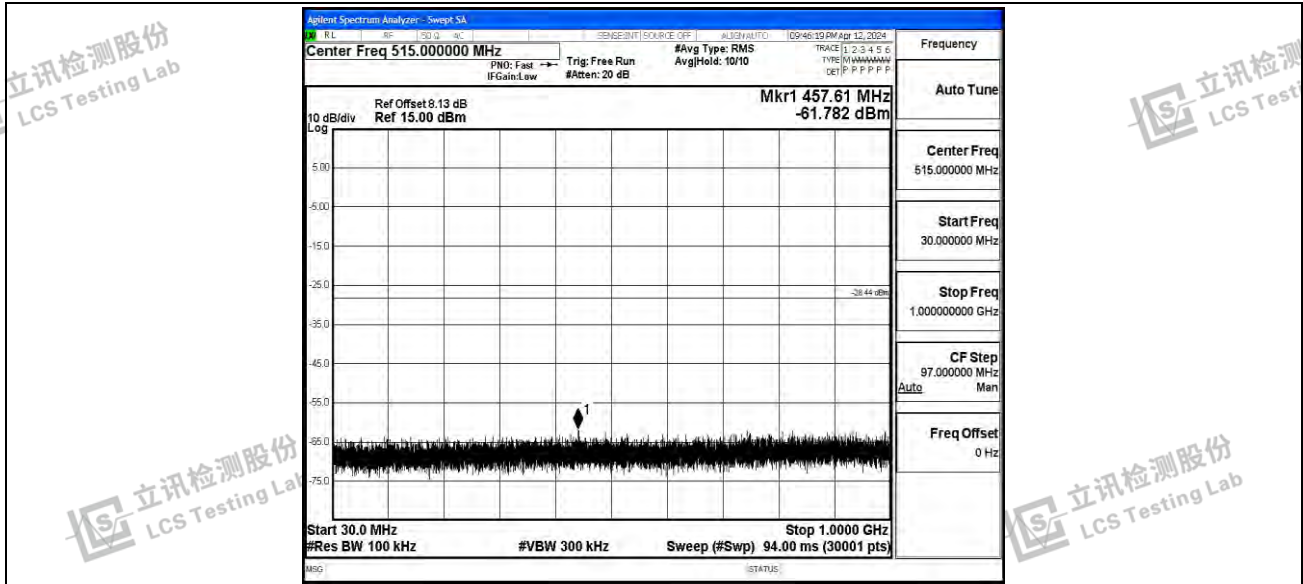


11N40SISO_Ant_2437_1000~26500

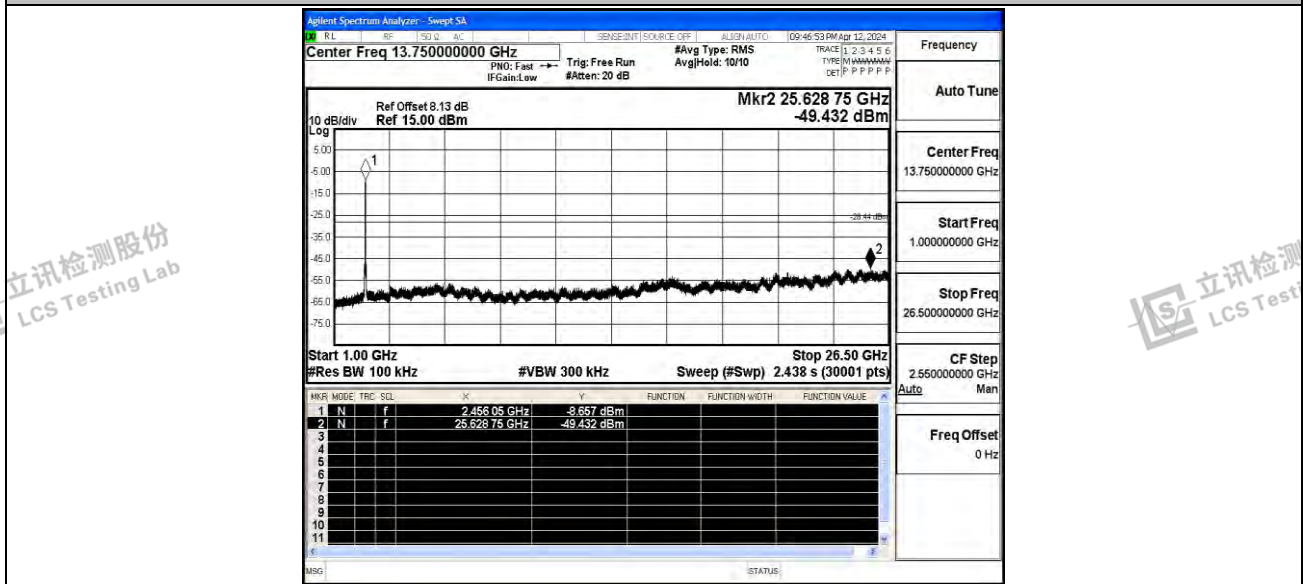


11N40SISO_Ant_2452_30~1000





11N40SISO_Ant_2452_1000~26500





Reference level measurement

Test Result

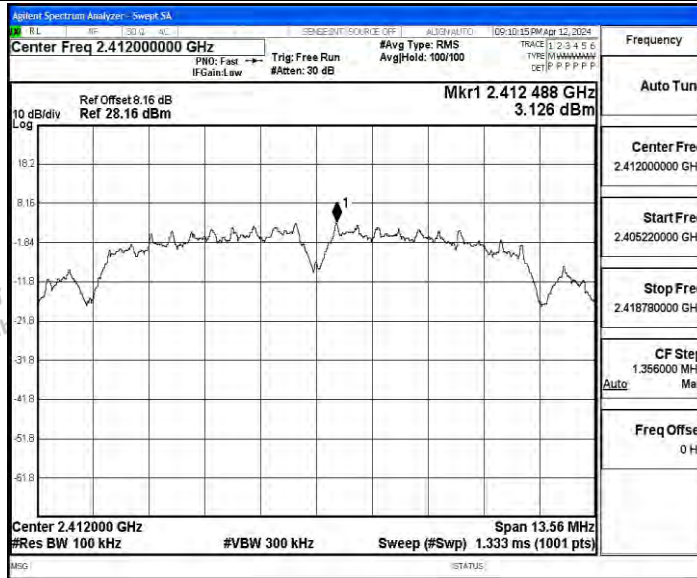
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant	2412	2412.49	3.13
		2437	2435.49	3.54
		2462	2462.99	3.76
11G	Ant	2412	2413.27	-2.78
		2437	2431.98	-3.09
		2462	2463.23	-3.23
11N20SISO	Ant	2412	2416.99	-3.86
		2437	2442.00	-4.51
		2462	2464.48	-4.61
11N40SISO	Ant	2422	2419.49	-7.96
		2437	2441.98	-8.14
		2452	2463.26	-8.44



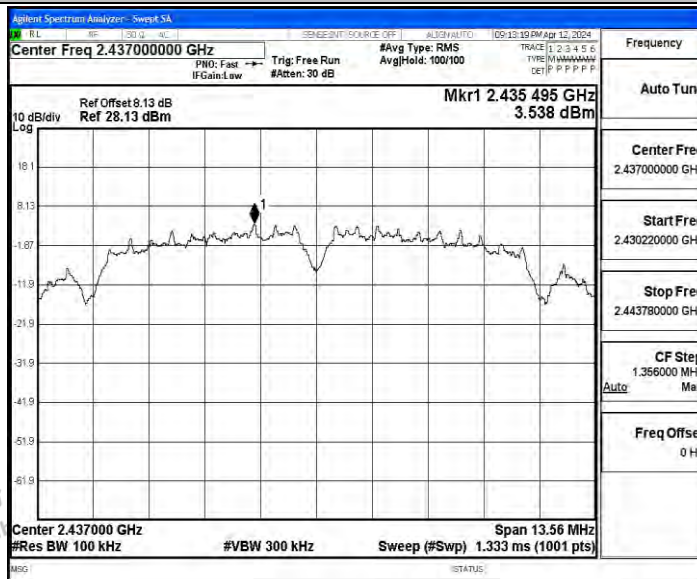


Test Graphs

11B_Ant_2412

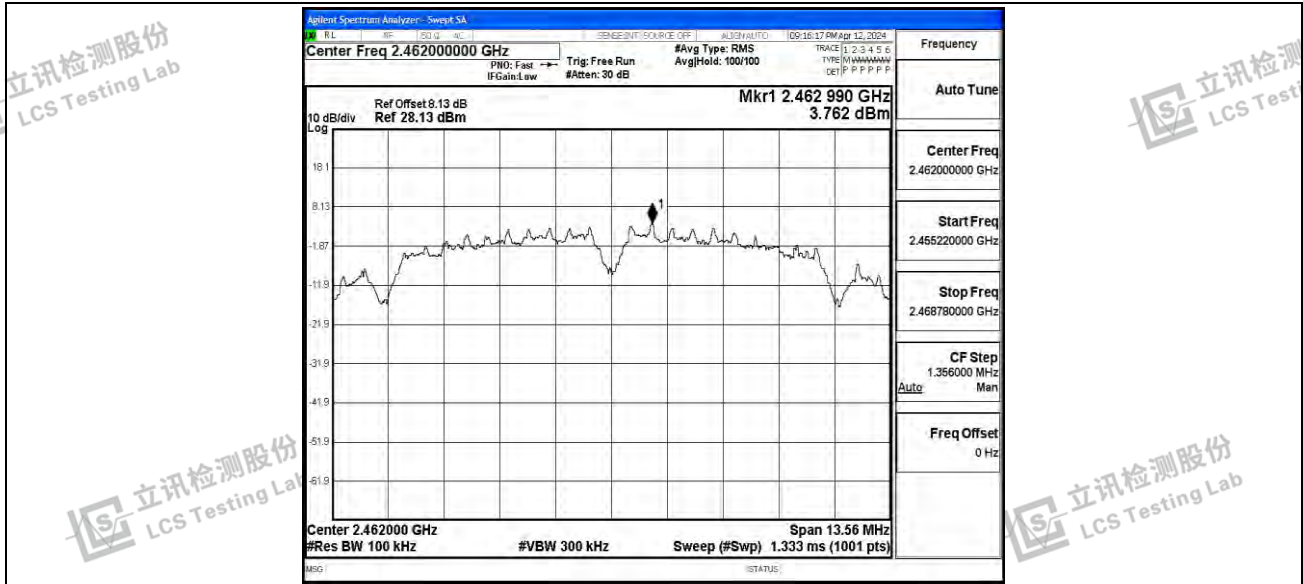


11B_Ant_2437

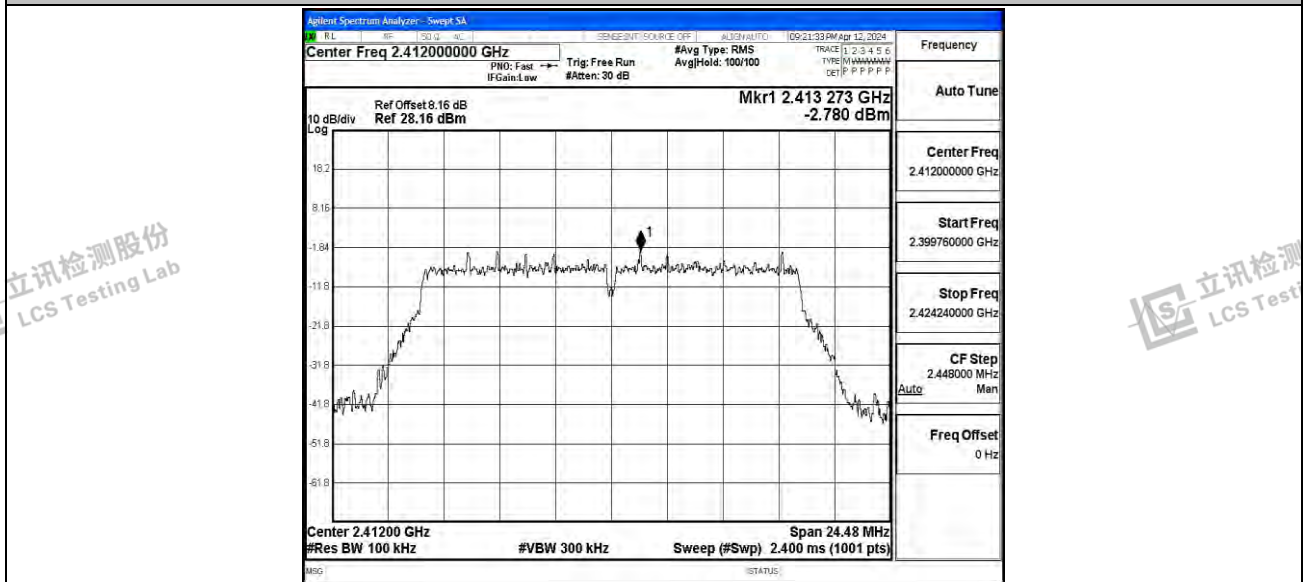


11B_Ant_2462



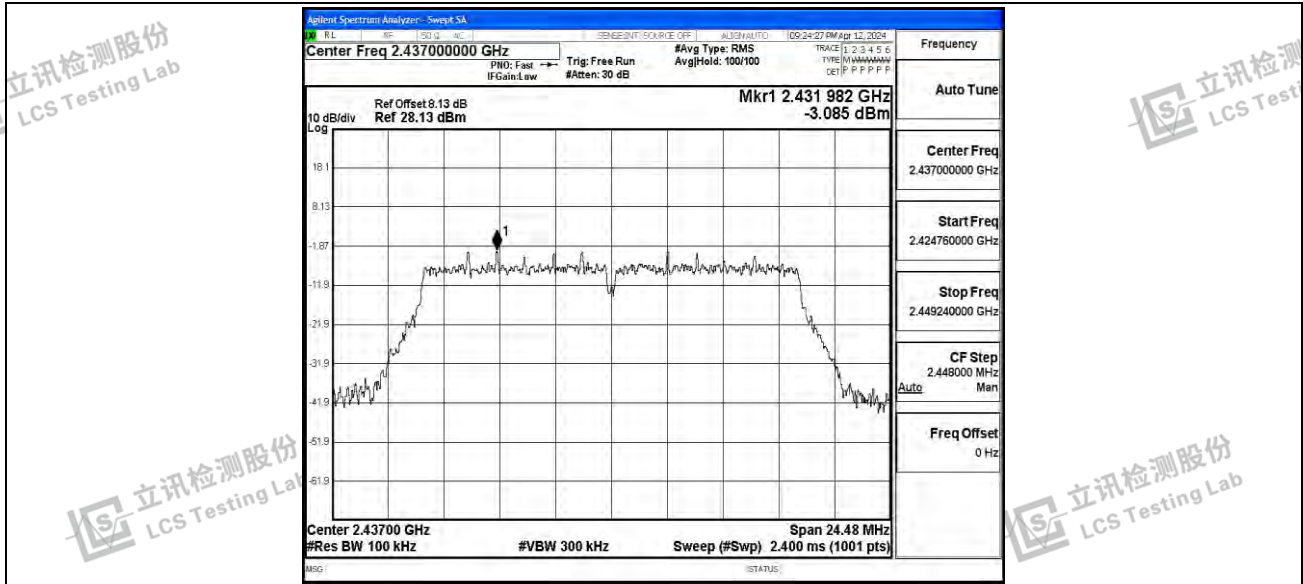


11G_Ant_2412

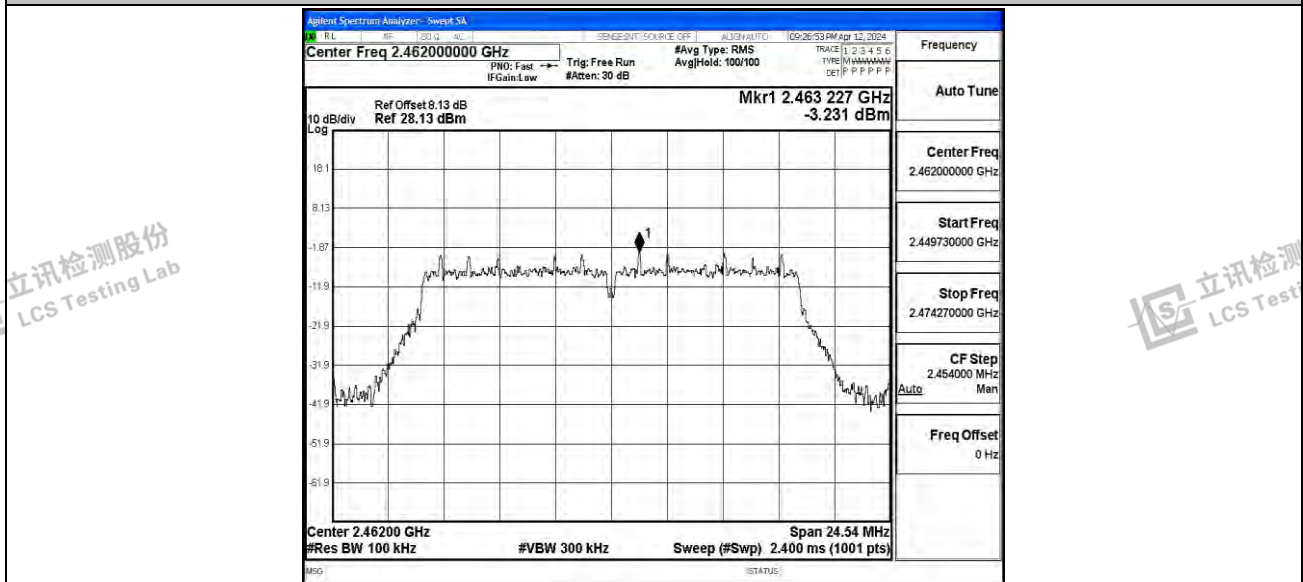


11G_Ant_2437



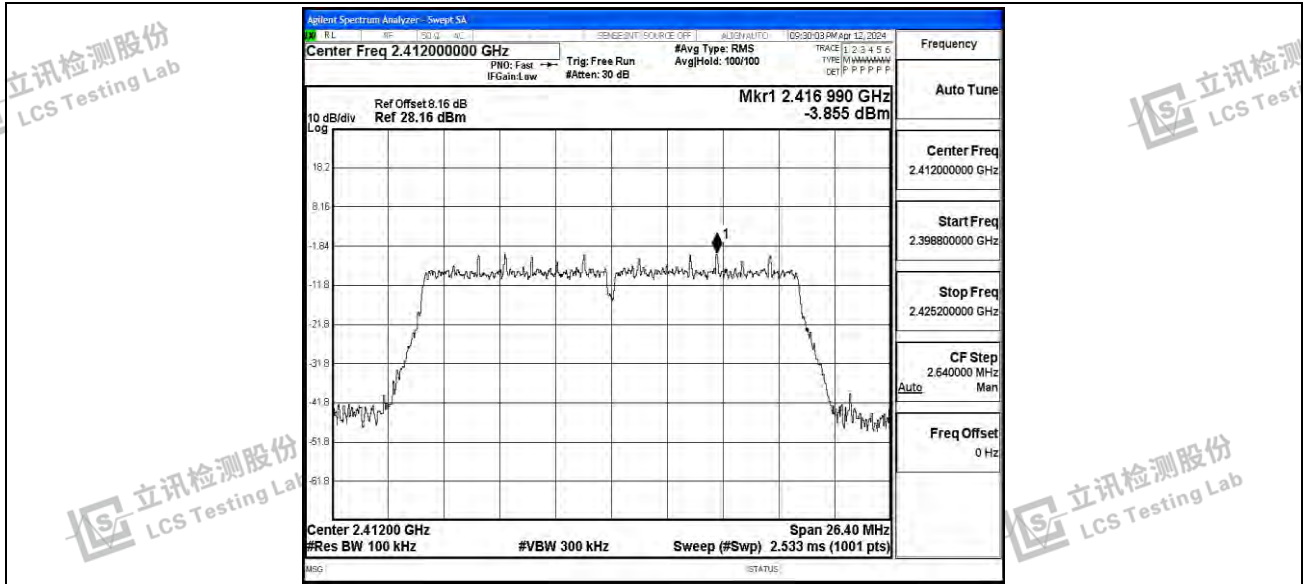


11G_Ant_2462

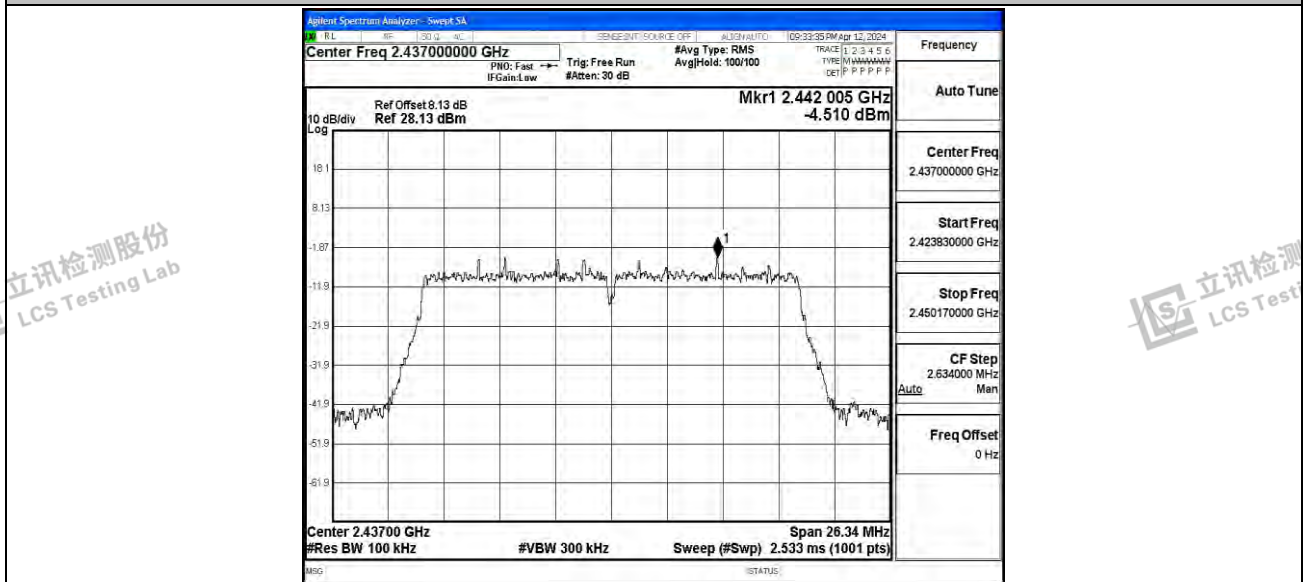


11N20SISO_Ant_2412



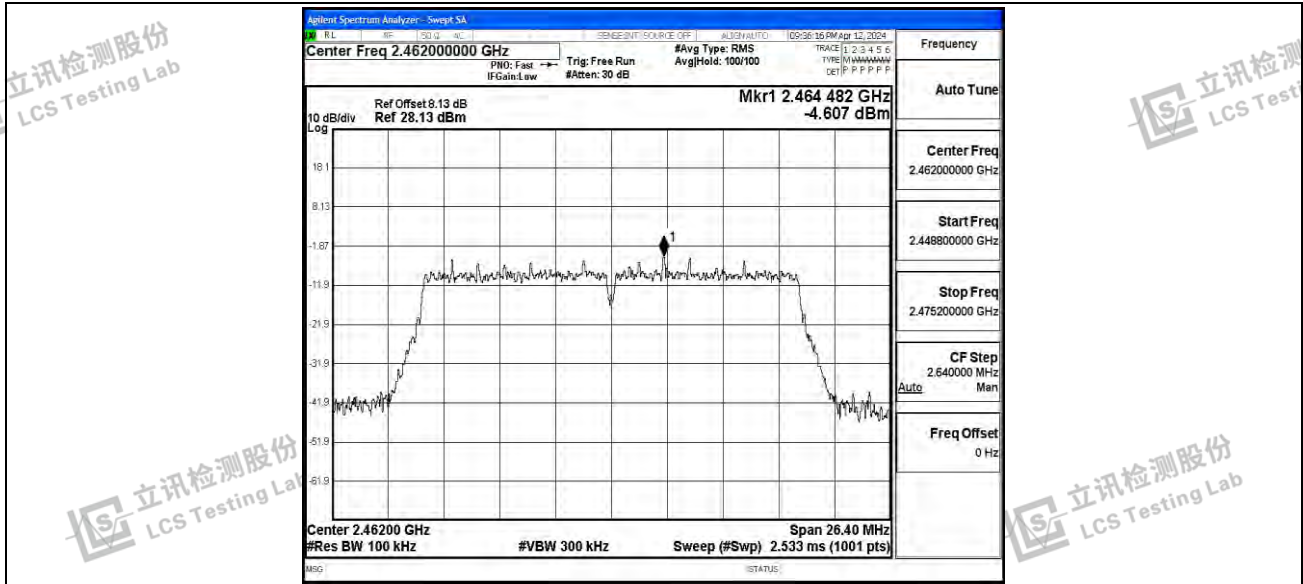


11N20SISO_Ant_2437

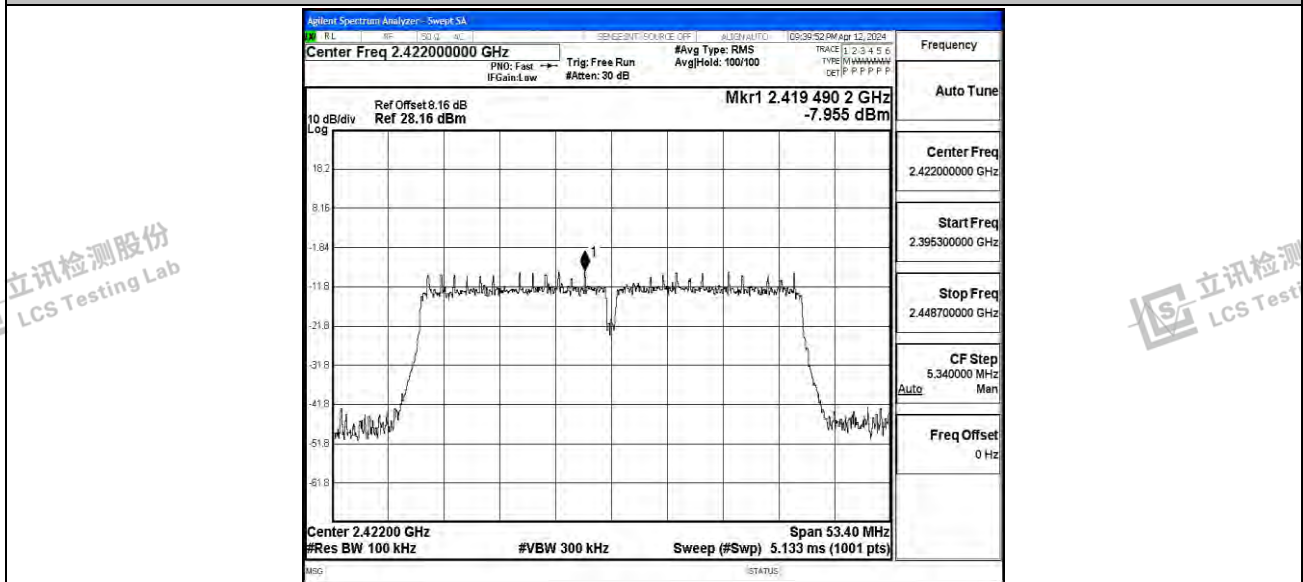


11N20SISO_Ant_2462



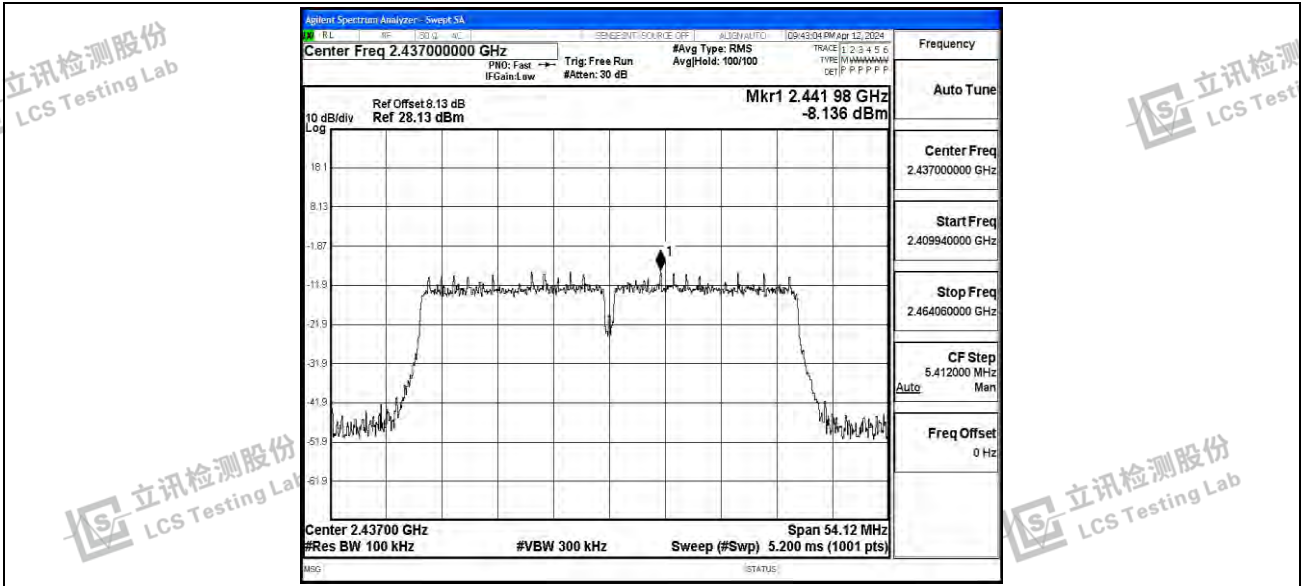


11N40SISO_Ant_2422

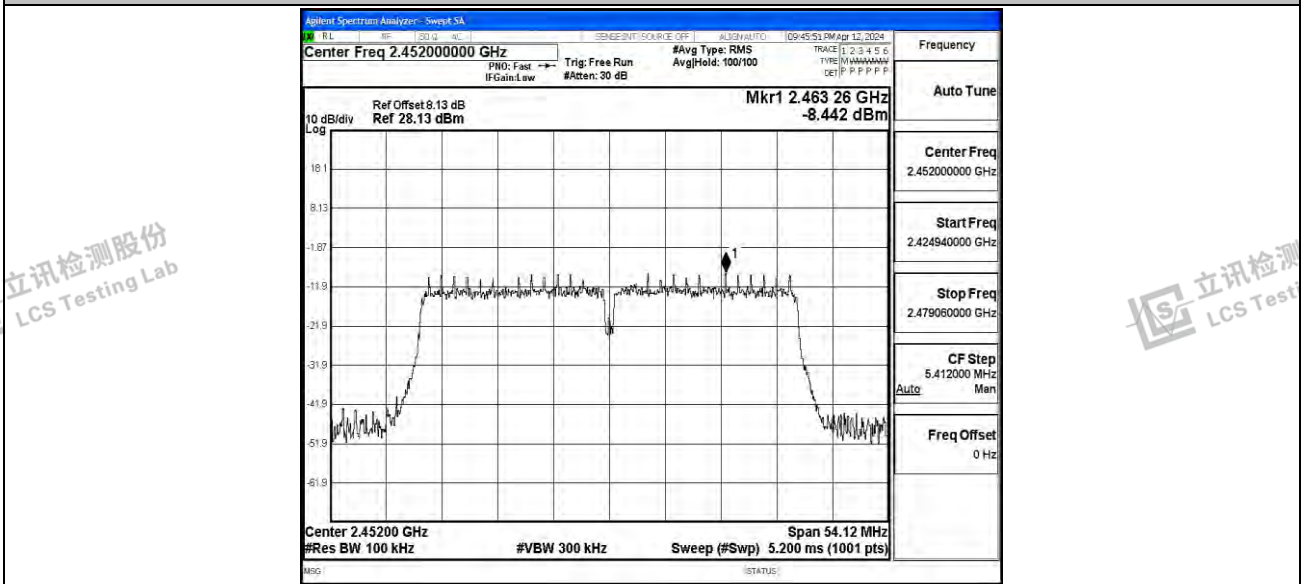


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.6 Duty Cycle

Test Result

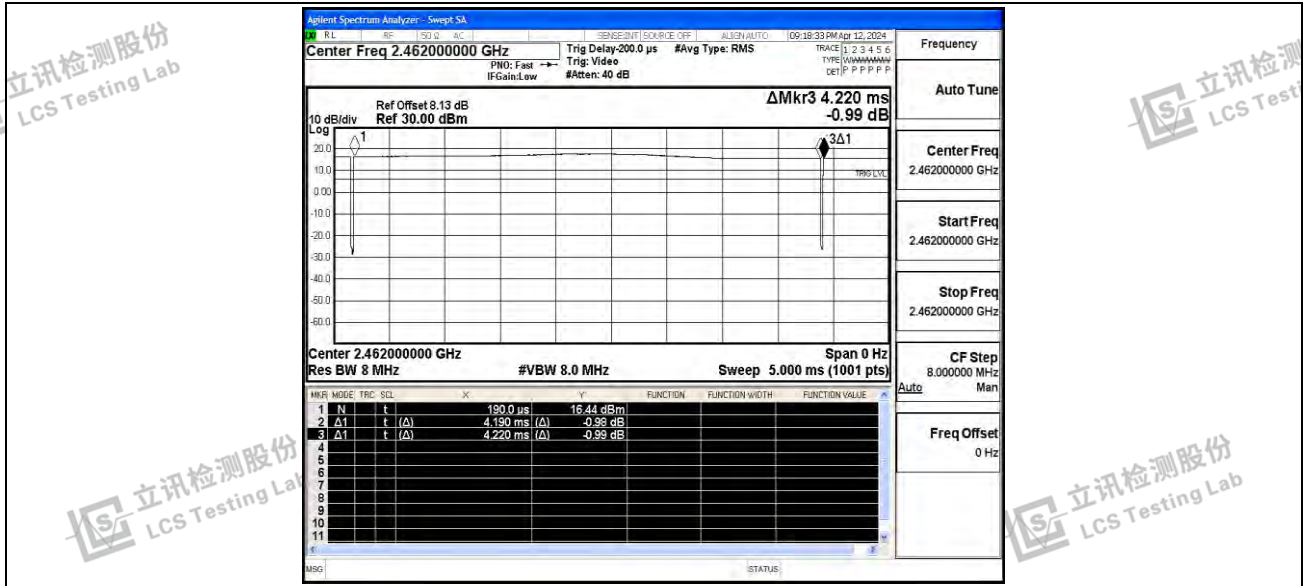
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	1/T Factor[kHz]	Verdict
11B	Ant	2412	4.19	4.22	99.29	0.03	0.24	---
		2437	4.19	4.22	99.29	0.03	0.24	---
		2462	4.19	4.22	99.29	0.03	0.24	---
11G	Ant	2412	0.69	0.73	94.52	0.24	1.45	---
		2437	0.69	0.73	94.52	0.24	1.45	---
		2462	0.69	0.73	94.52	0.24	1.45	---
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	0.65	0.68	95.59	0.20	1.54	---
		2437	0.65	0.68	95.59	0.20	1.54	---
		2452	0.64	0.68	94.12	0.26	1.56	---



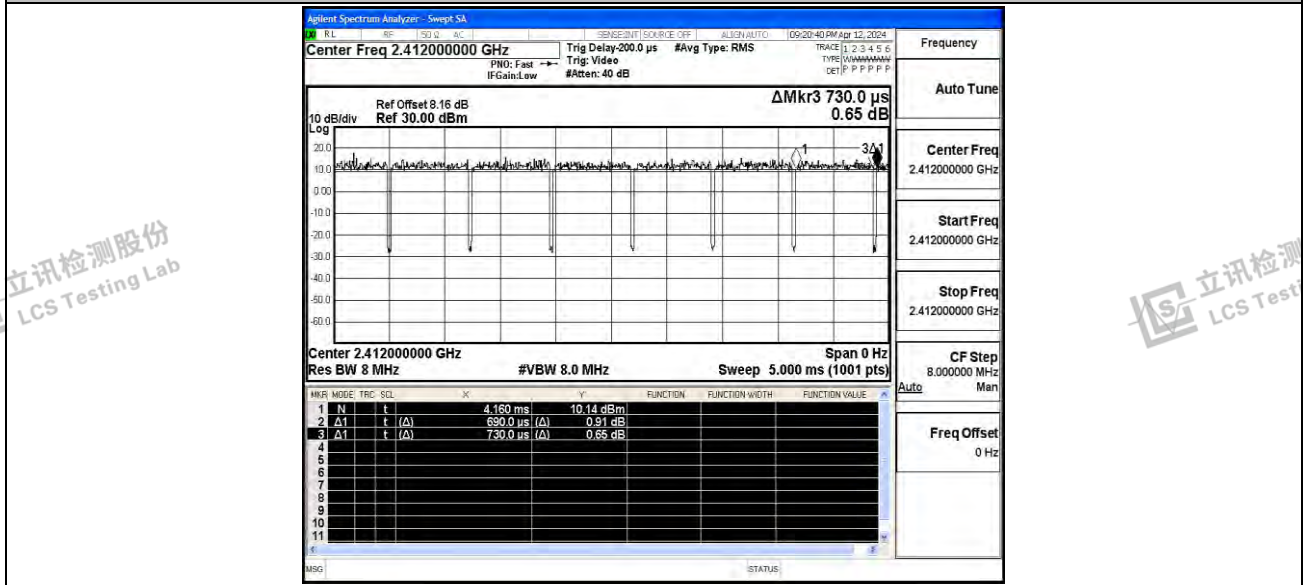


Test Graphs



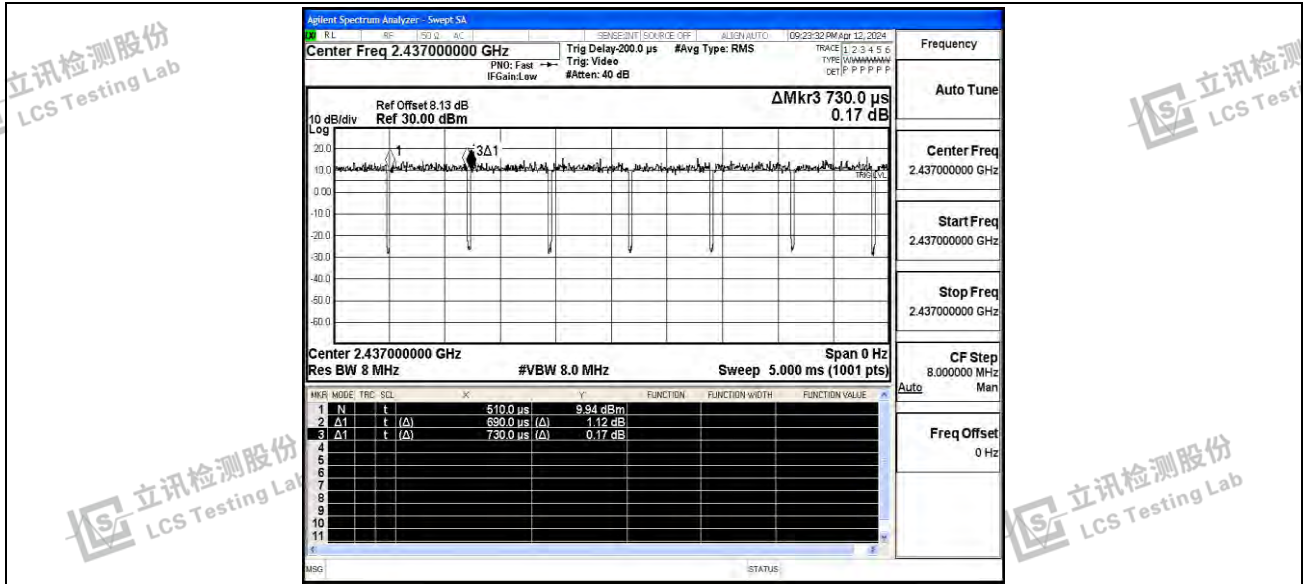


11G_Ant_2412

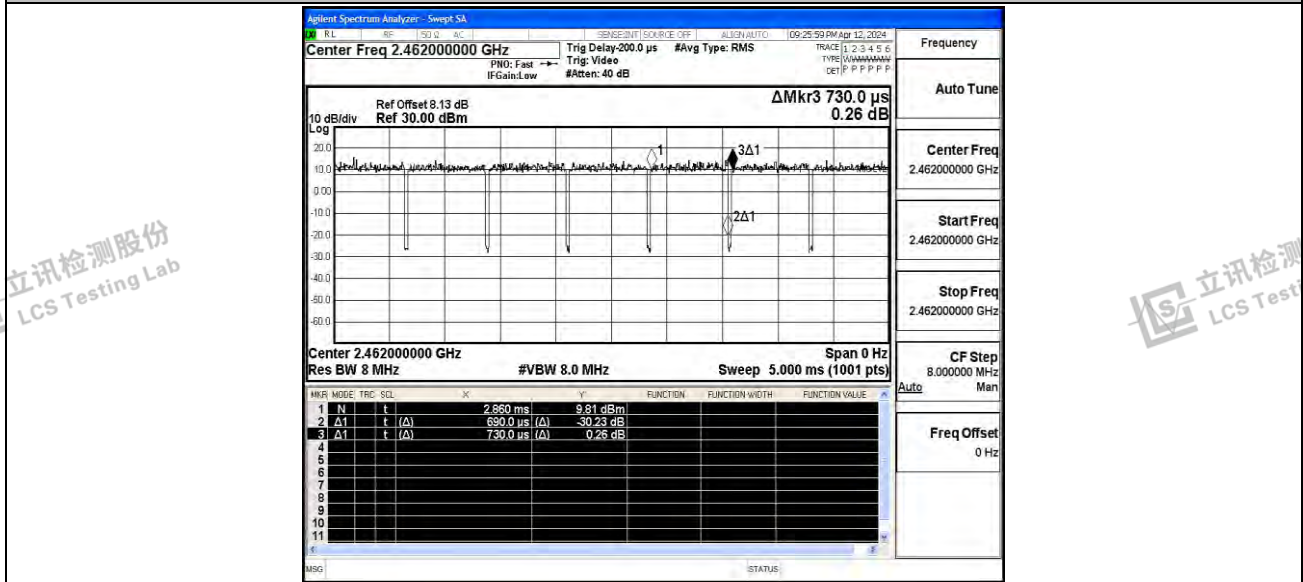


11G_Ant_2437



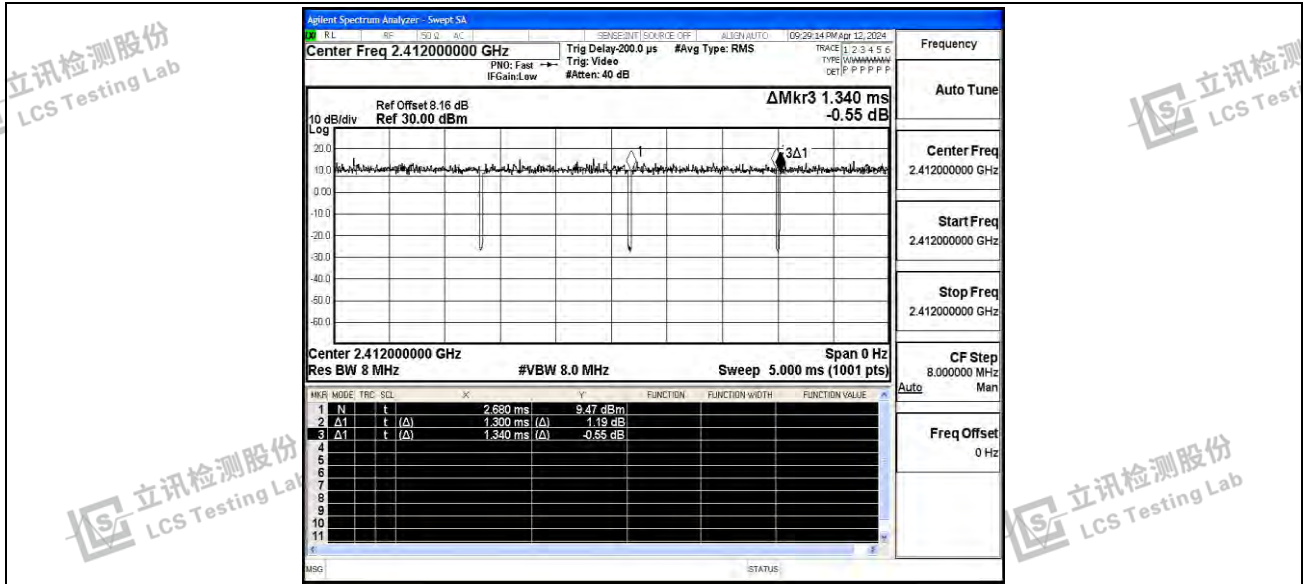


11G_Ant_2462

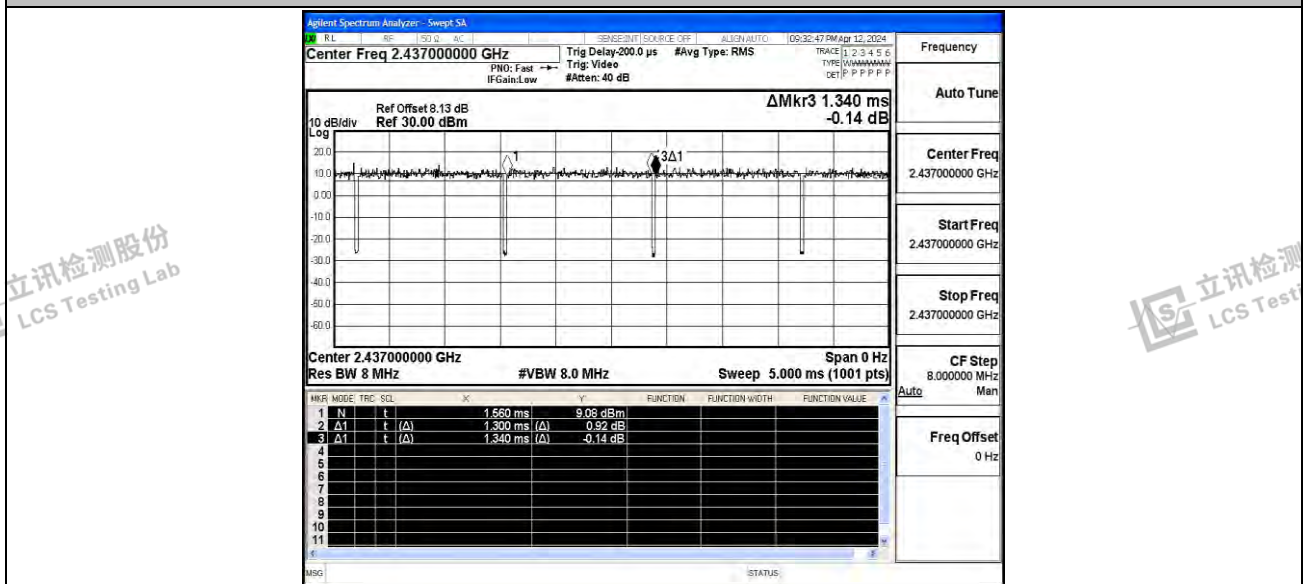


11N20SISO_Ant_2412



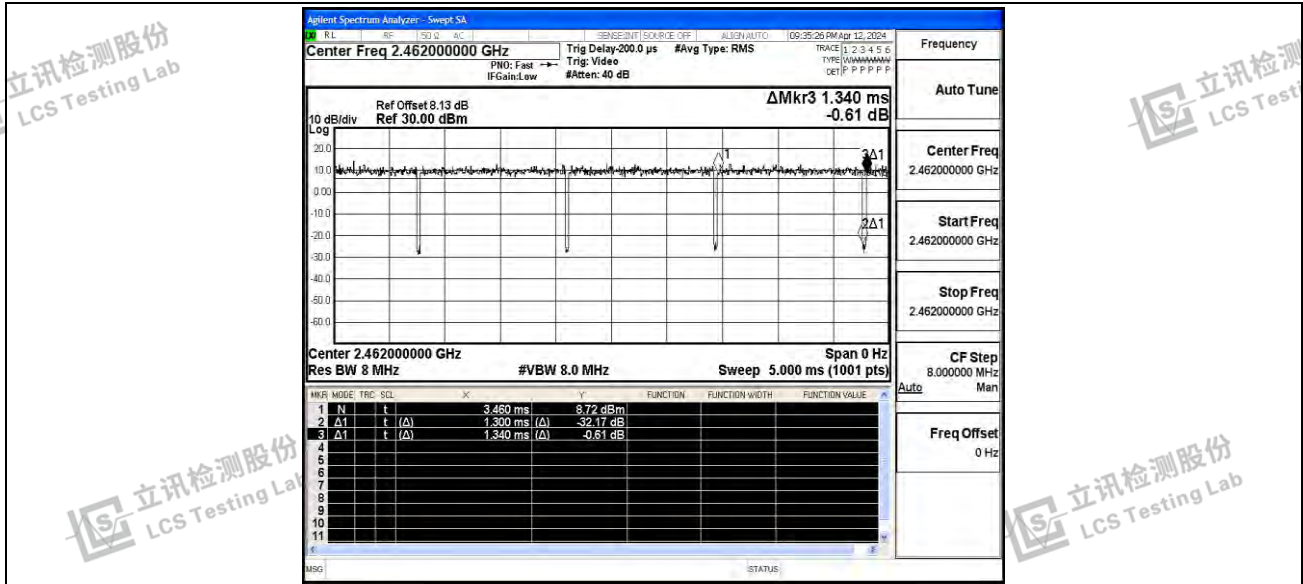


11N20SISO_Ant_2437

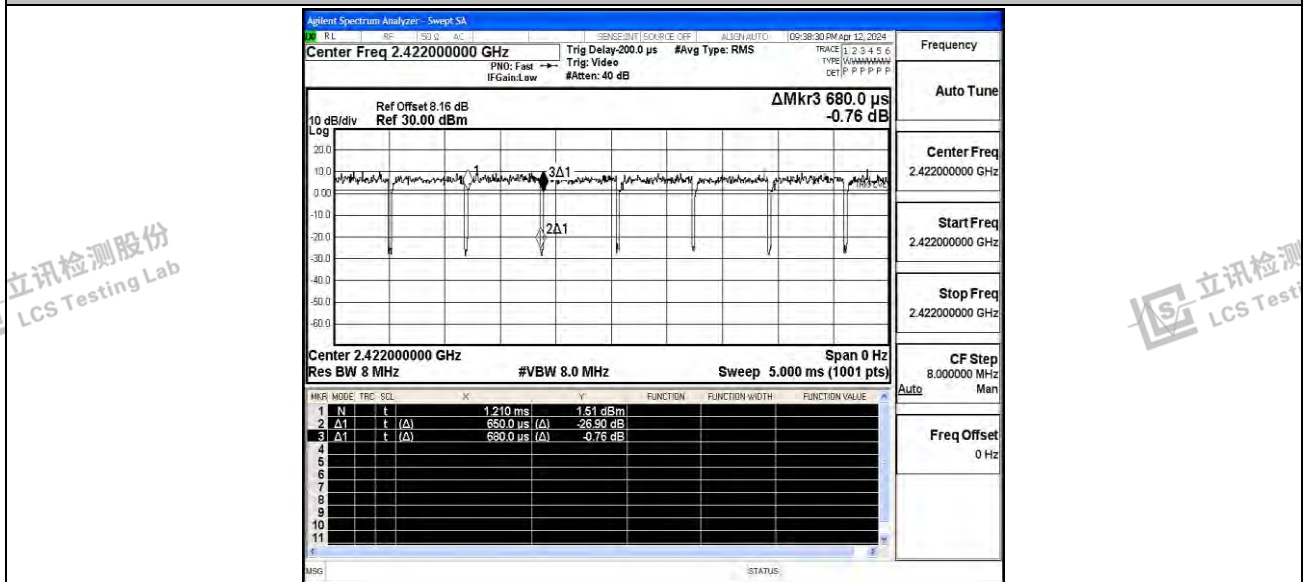


11N20SISO_Ant_2462



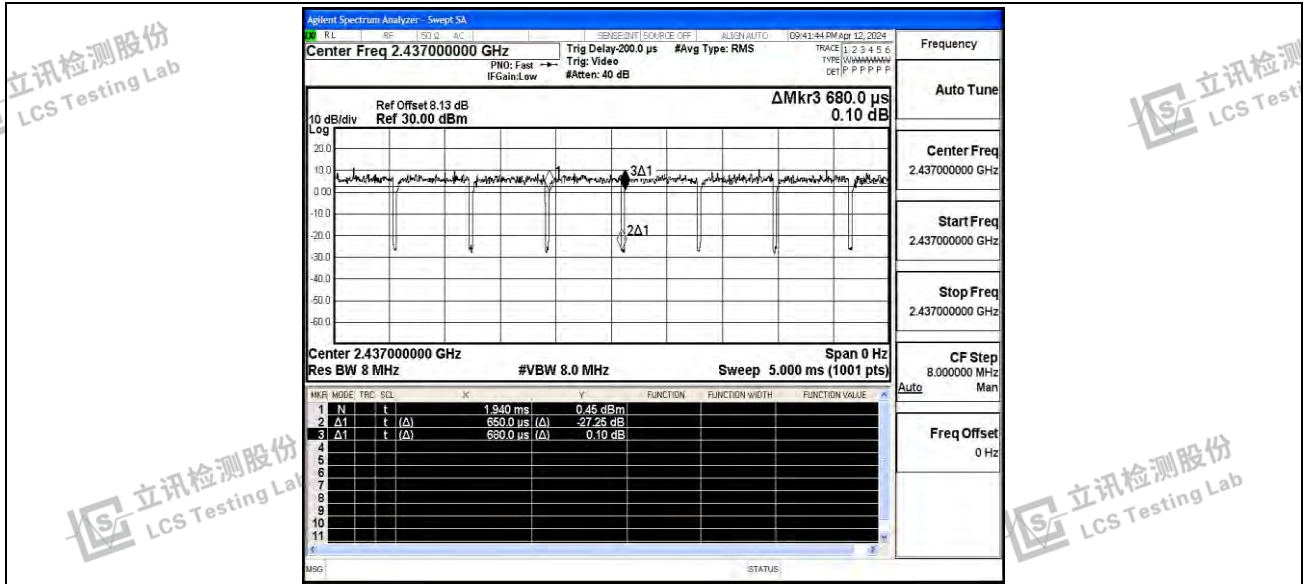


11N40SISO_Ant_2422

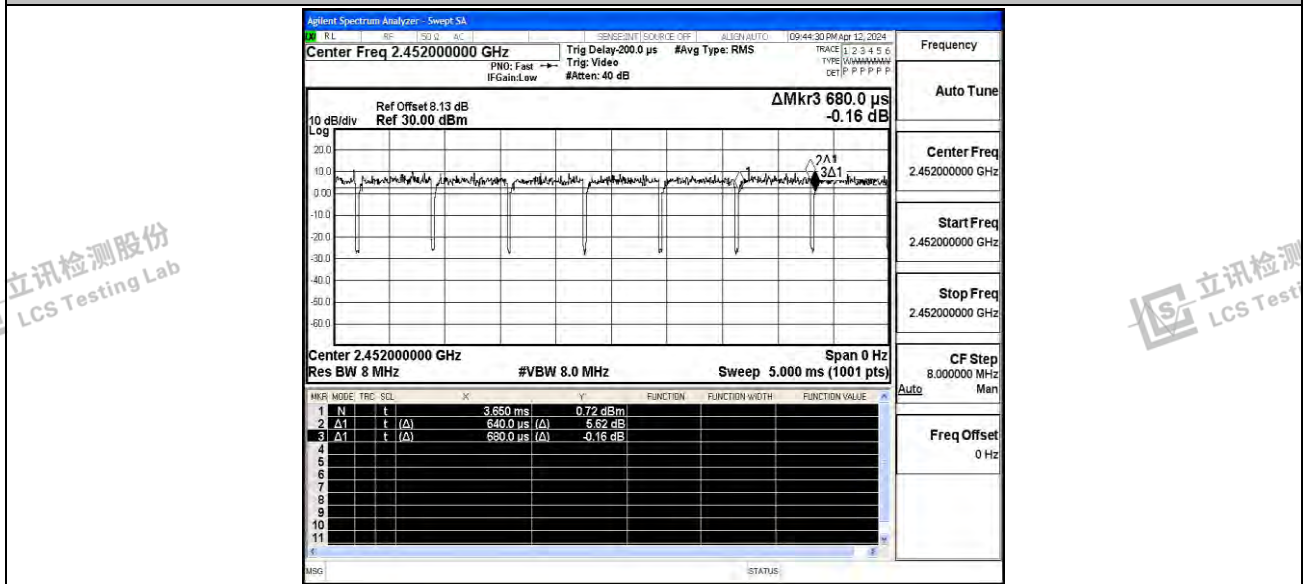


11N40SISO_Ant_2437





11N40SISO_Ant_2452





B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	Channel	Freq(MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant	Low	2412	AV	2310.000	-50.24	≤-41.20	44.96	≤54	PASS
				AV	2389.700	-48.31	≤-41.20	46.89	≤54	PASS
				AV	2390.000	-48.73	≤-41.20	46.47	≤54	PASS
				Peak	2310.000	-40.84	≤-21.20	54.36	≤74	PASS
				Peak	2387.620	-38.82	≤-21.20	56.38	≤74	PASS
				Peak	2390.000	-40.17	≤-21.20	55.03	≤74	PASS
		High	2462	AV	2483.500	-48.36	≤-41.20	46.84	≤54	PASS
				AV	2488.620	-48.07	≤-41.20	47.13	≤54	PASS
				AV	2500.000	-49.69	≤-41.20	45.51	≤54	PASS
				Peak	2483.500	-39.97	≤-21.20	55.23	≤74	PASS
				Peak	2488.620	-38.67	≤-21.20	56.53	≤74	PASS
				Peak	2500.000	-40.25	≤-21.20	54.95	≤74	PASS
11G	Ant	Low	2412	AV	2310.000	-50.05	≤-41.20	45.15	≤54	PASS
				AV	2389.570	-46.65	≤-41.20	48.55	≤54	PASS
				AV	2390.000	-46.77	≤-41.20	48.43	≤54	PASS
				Peak	2310.000	-42.49	≤-21.20	52.71	≤74	PASS
				Peak	2389.960	-34.4	≤-21.20	60.80	≤74	PASS
				Peak	2390.000	-34.4	≤-21.20	60.80	≤74	PASS
		High	2462	AV	2483.500	-45.43	≤-41.20	49.77	≤54	PASS
				AV	2483.670	-45.15	≤-41.20	50.05	≤54	PASS
				AV	2500.000	-48.6	≤-41.20	46.60	≤54	PASS
				Peak	2483.500	-29.7	≤-21.20	65.50	≤74	PASS
				Peak	2483.560	-29.7	≤-21.20	65.50	≤74	PASS
				Peak	2500.000	-40.13	≤-21.20	55.07	≤74	PASS
11N20SI SO	Ant	Low	2412	AV	2310.000	-49.7	≤-41.20	45.50	≤54	PASS
				AV	2389.570	-46.51	≤-41.20	48.69	≤54	PASS
				AV	2390.000	-47.7	≤-41.20	47.50	≤54	PASS
				Peak	2310.000	-42.51	≤-21.20	52.69	≤74	PASS
				Peak	2389.570	-34.21	≤-21.20	60.99	≤74	PASS
				Peak	2390.000	-36.33	≤-21.20	58.87	≤74	PASS
		High	2462	AV	2483.500	-47.39	≤-41.20	47.81	≤54	PASS
				AV	2484.440	-46.71	≤-41.20	48.49	≤54	PASS
				AV	2500.000	-48.85	≤-41.20	46.35	≤54	PASS
				Peak	2483.500	-35.46	≤-21.20	59.74	≤74	PASS
				Peak	2484.440	-34.31	≤-21.20	60.89	≤74	PASS
				Peak	2500.000	-41.7	≤-21.20	53.50	≤74	PASS
11N40SI	Ant	Low	2422	AV	2310.000	-49.56	≤-41.20	45.64	≤54	PASS





SO			AV	2389.700	-45.38	≤-41.20	49.82	≤54	PASS
			AV	2390.000	-46.04	≤-41.20	49.16	≤54	PASS
			Peak	2310.000	-41.91	≤-21.20	53.29	≤74	PASS
			Peak	2389.050	-30.22	≤-21.20	64.98	≤74	PASS
			Peak	2390.000	-38.27	≤-21.20	56.93	≤74	PASS
			Peak	2390.000	-38.27	≤-21.20	56.93	≤74	PASS
	High	2452	AV	2483.500	-46.2	≤-41.20	49.00	≤54	PASS
			AV	2484.440	-45.32	≤-41.20	49.88	≤54	PASS
			AV	2500.000	-47.68	≤-41.20	47.52	≤54	PASS
			Peak	2483.500	-30.34	≤-21.20	64.86	≤74	PASS
			Peak	2486.090	-27.95	≤-21.20	67.25	≤74	PASS
			Peak	2500.000	-41.36	≤-21.20	53.84	≤74	PASS

Note:

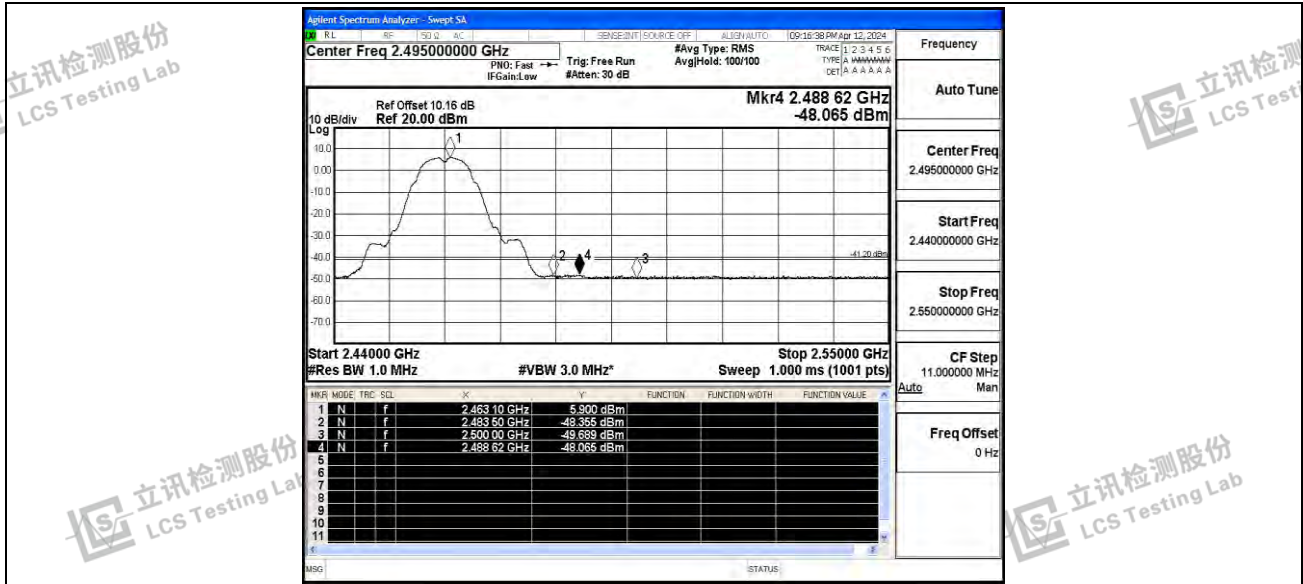
1. The Antenna Gain is compensated in the graph. The Correction Factor is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



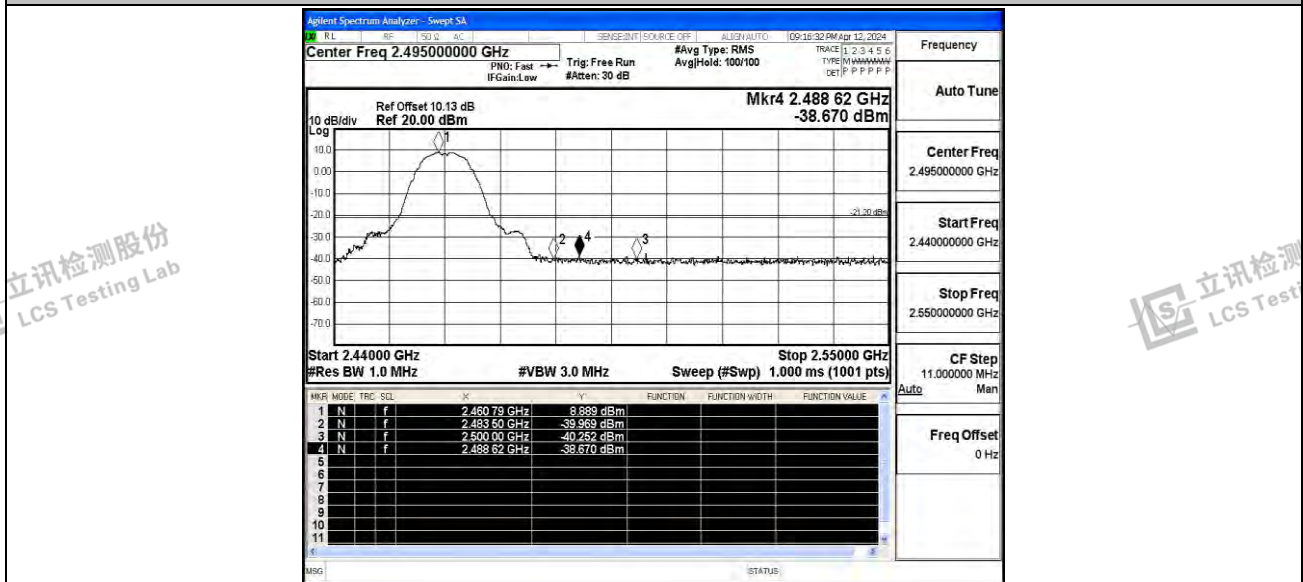


Test Graphs



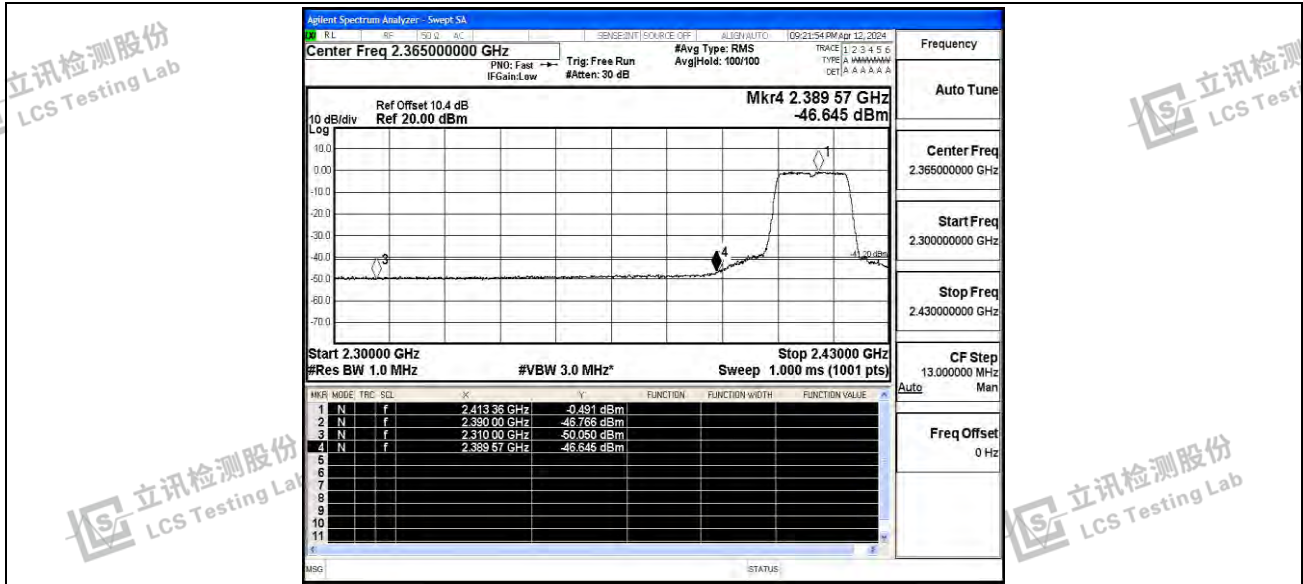


11B_Ant_High_2462_Peak

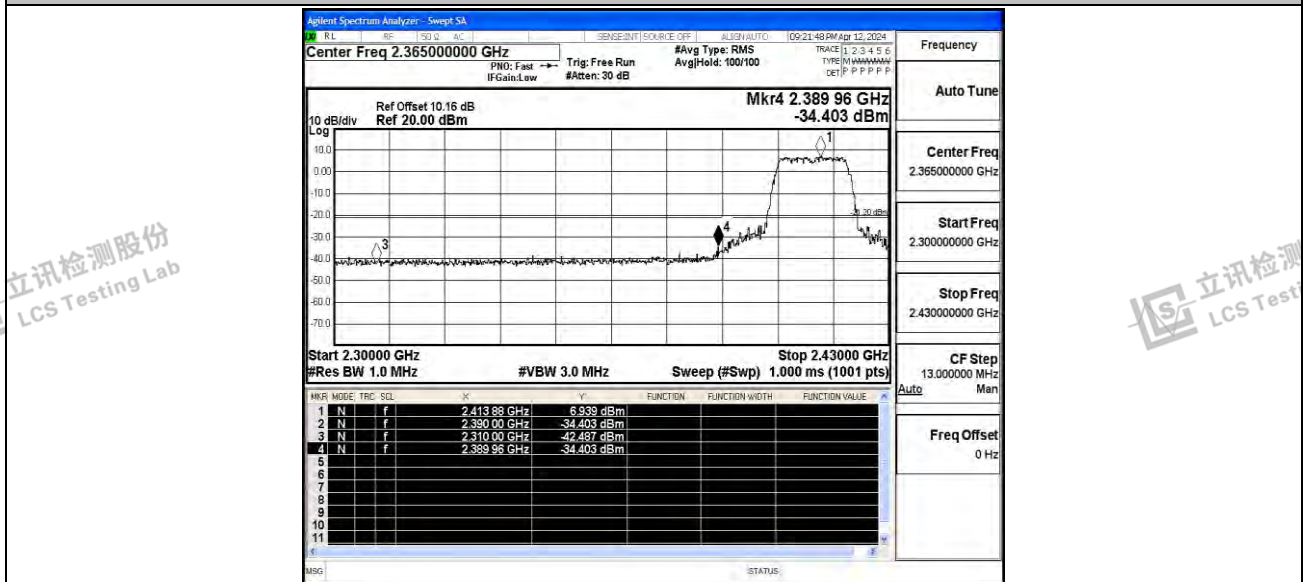


11G_Ant_Low_2412_AV



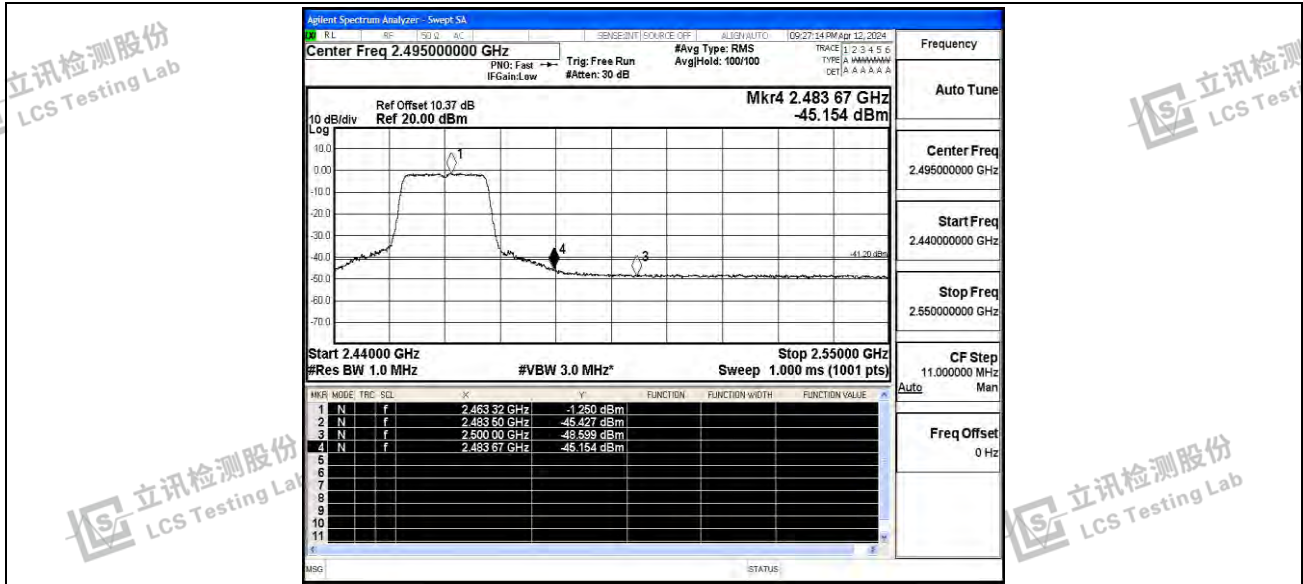


11G_Ant_Low_2412_Peak

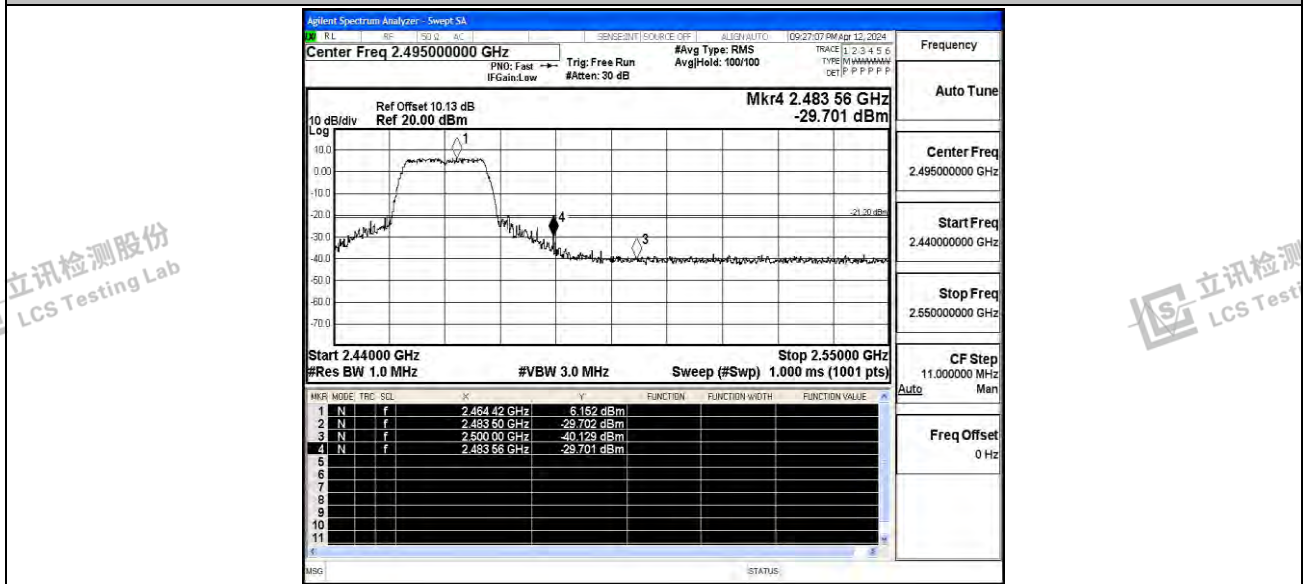


11G_Ant_High_2462_AV



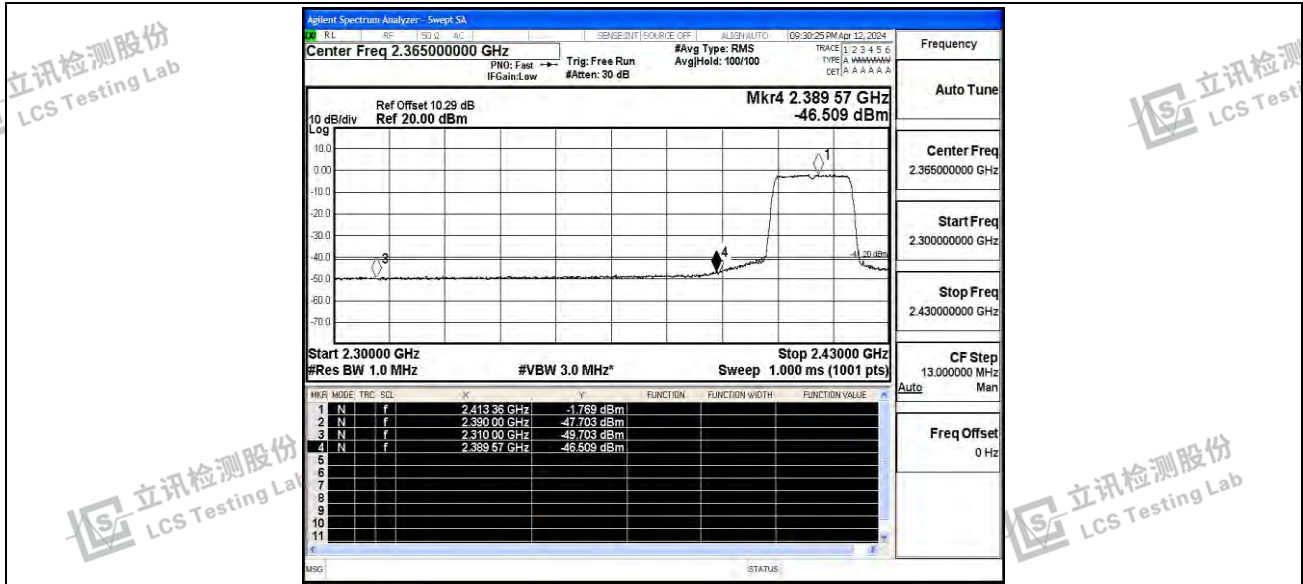


11G_Ant_High_2462_Peak

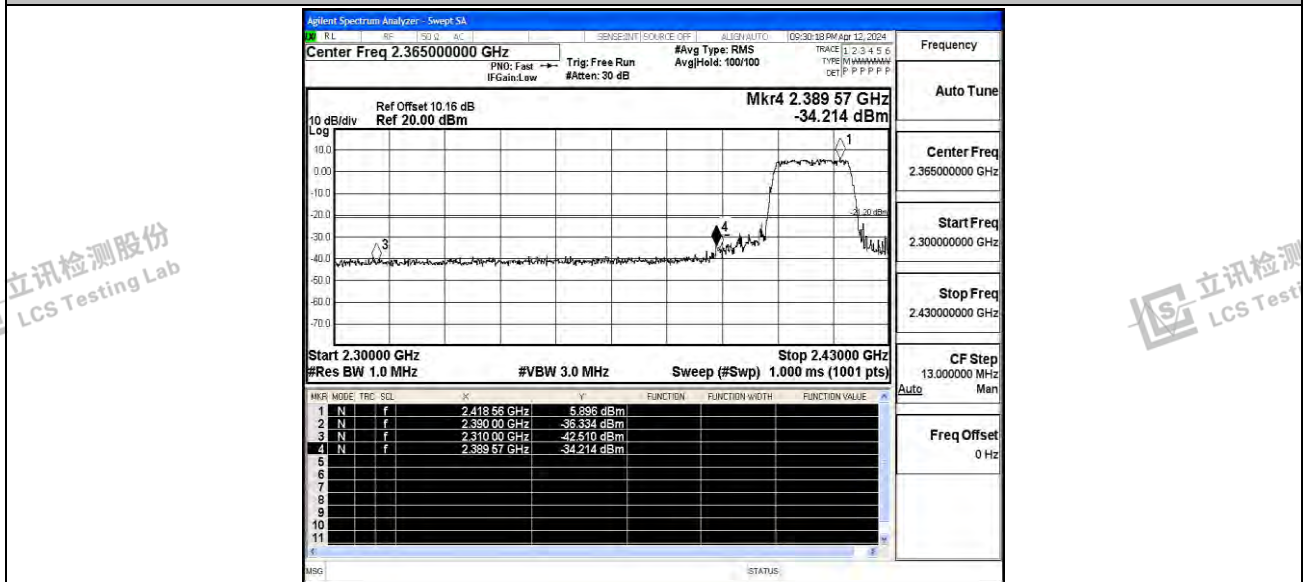


11N20SISO_Ant_Low_2412_AV



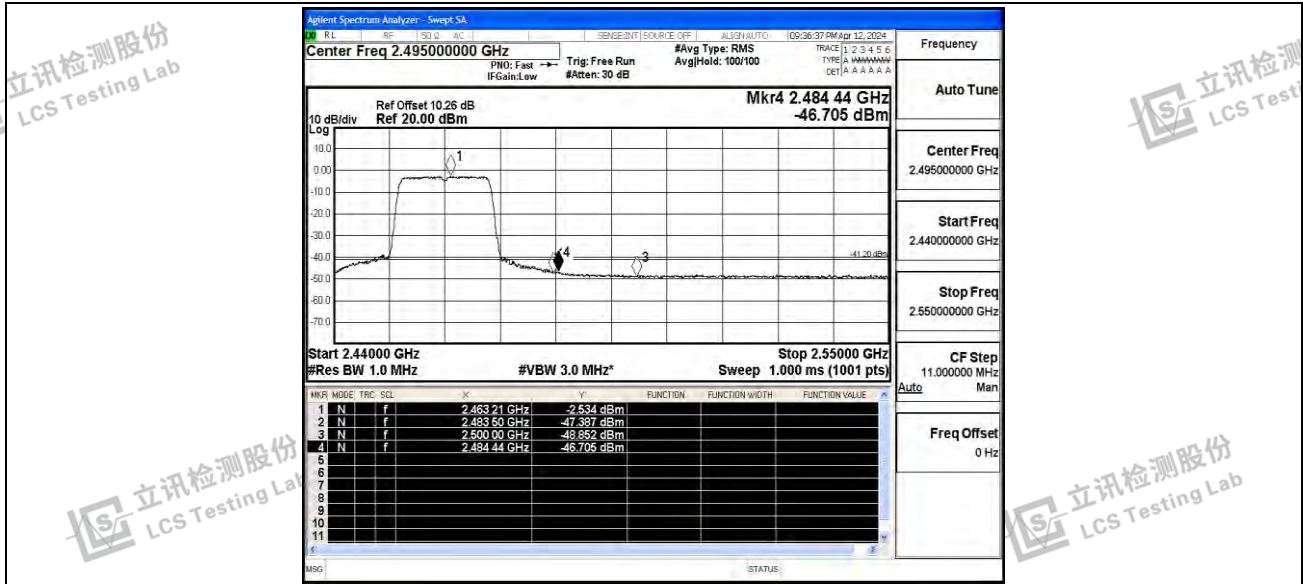


11N20SISO_Ant_Low_2412_Peak

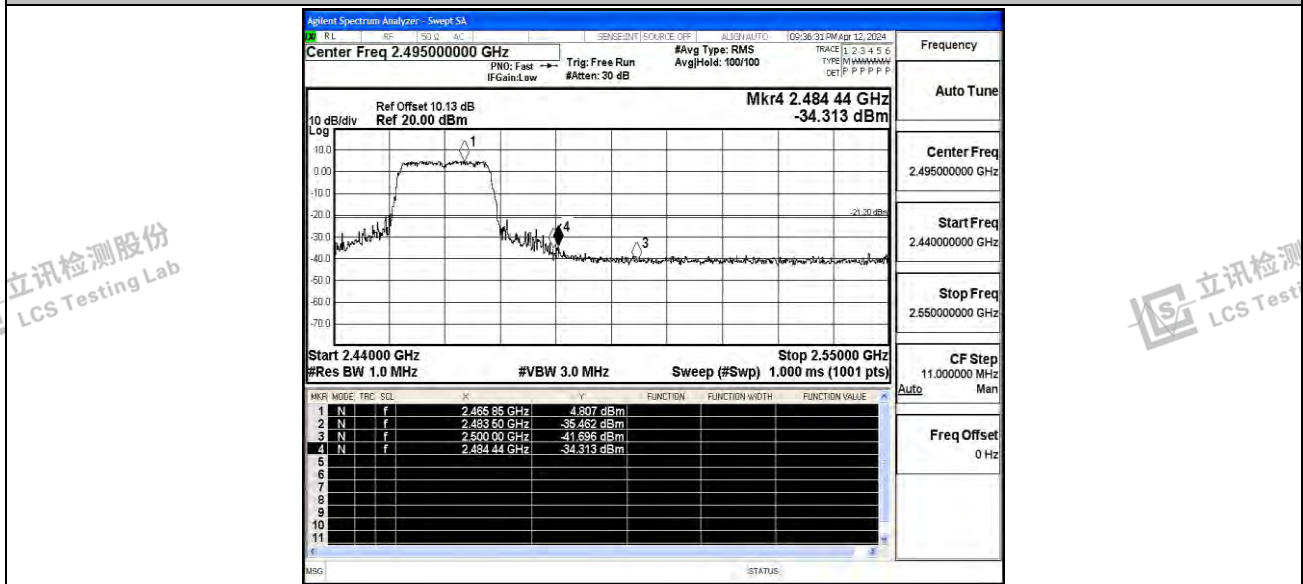


11N20SISO_Ant_High_2462_AV



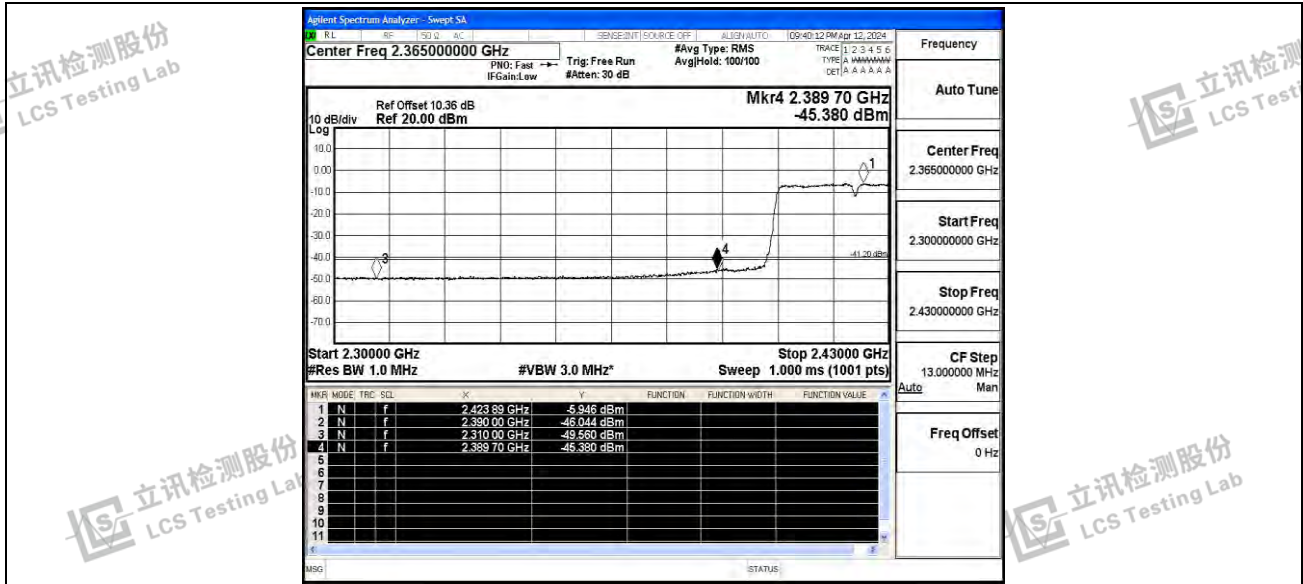


11N20SISO_Ant_High_2462_Peak

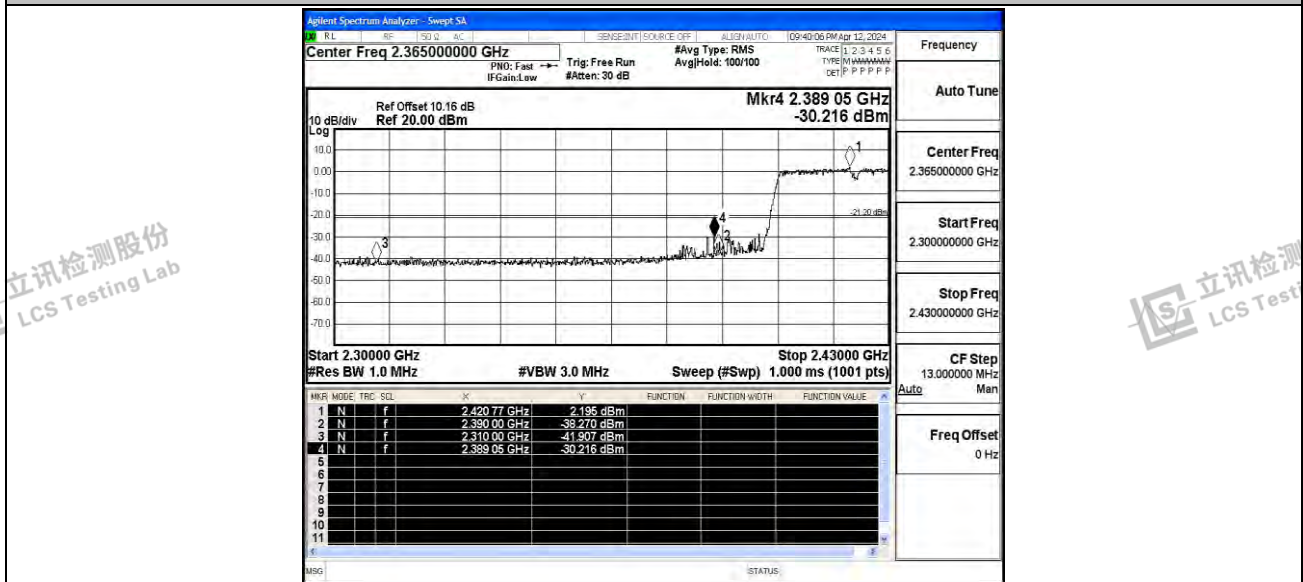


11N40SISO_Ant_Low_2422_AV



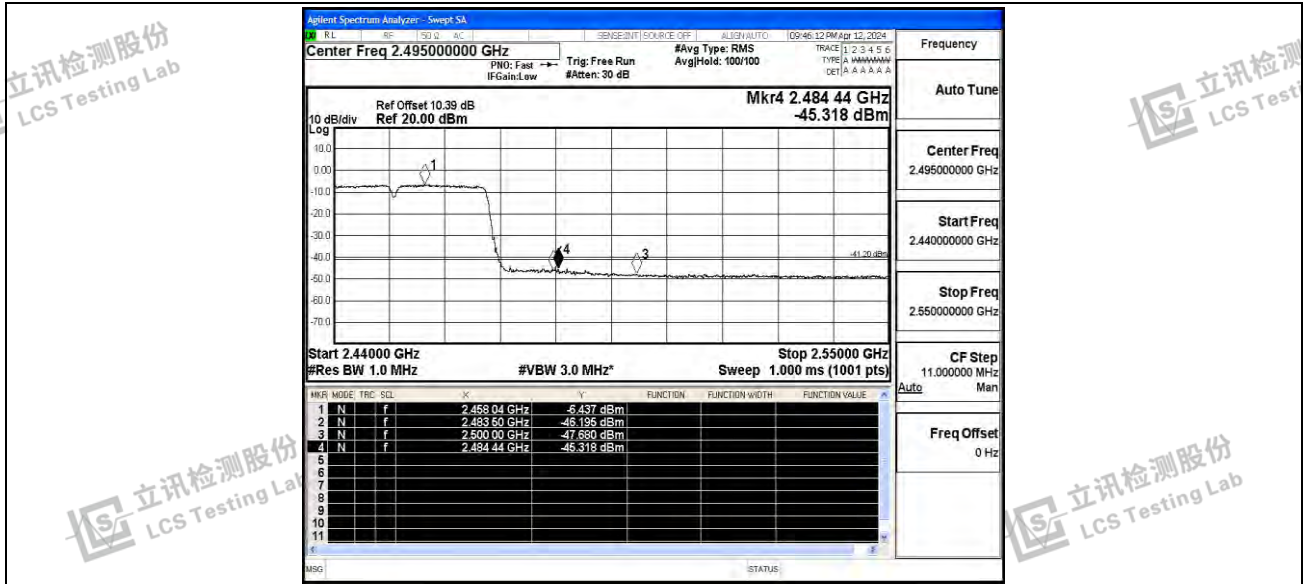


11N40SISO_Ant_Low_2422_Peak



11N40SISO_Ant_High_2452_AV





11N40SISO_Ant_High_2452_Peak

