



Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: WIFI Camera
Test Model: WNIP-4LTA-BS

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Mening Su
Supervised by:	Ling Zhu

A.1 DTS Bandwidth

Test Result

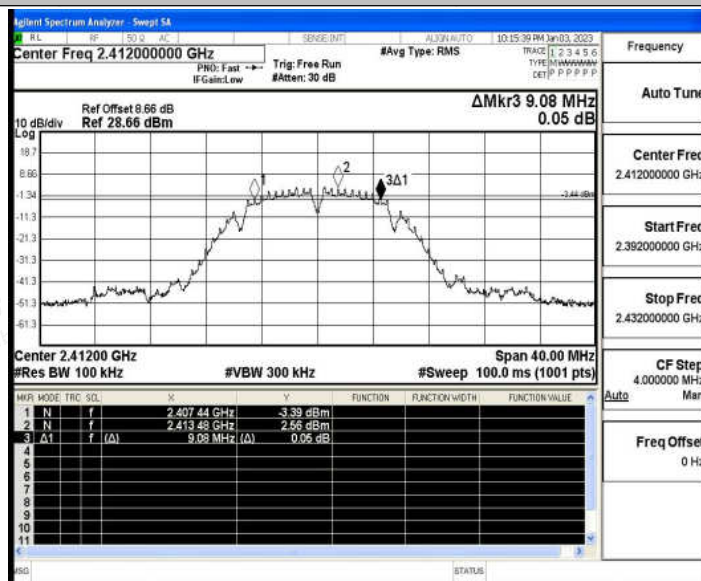
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.080	2407.440	2416.520	0.5	PASS
		2437	9.520	2432.000	2441.520	0.5	PASS
		2462	9.560	2457.440	2467.000	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.360	2428.800	2445.160	0.5	PASS
		2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.560	2403.200	2420.760	0.5	PASS
		2437	17.560	2428.200	2445.760	0.5	PASS
		2462	17.560	2453.200	2470.760	0.5	PASS
11N40SISO	Ant1	2422	35.760	2404.080	2439.840	0.5	PASS
		2437	36.080	2419.080	2455.160	0.5	PASS
		2452	35.920	2434.160	2470.080	0.5	PASS



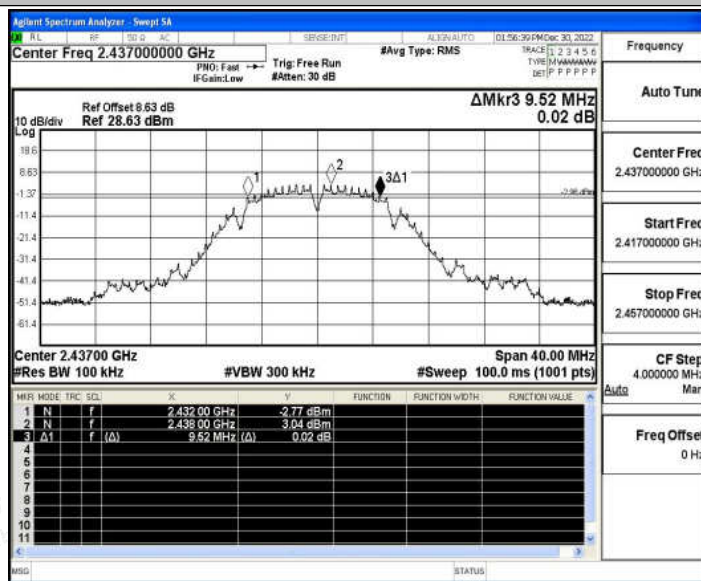


Test Graphs

11B_Ant1_2412

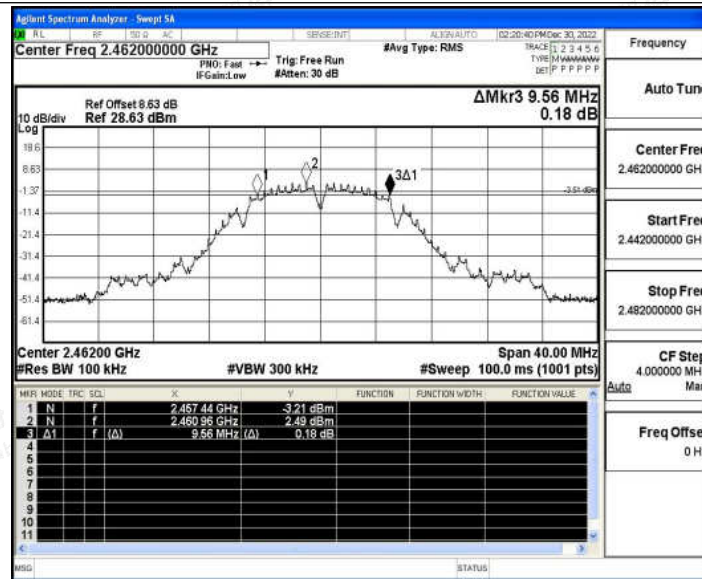


11B_Ant1_2437

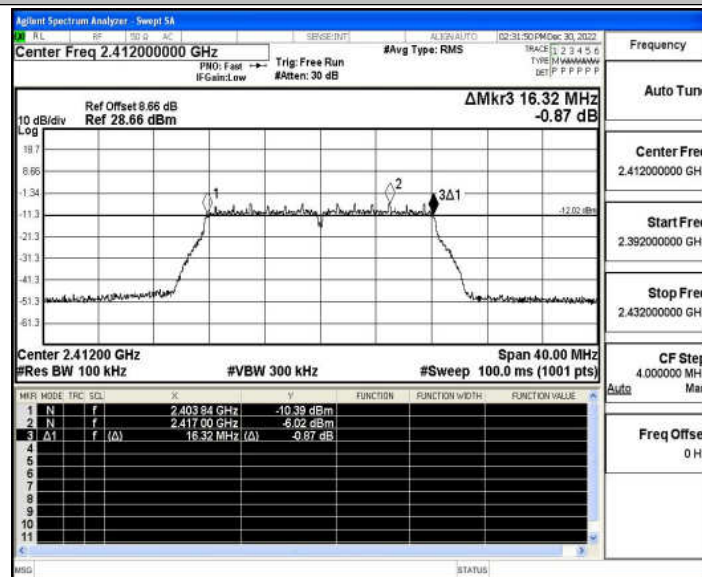


11B_Ant1_2462



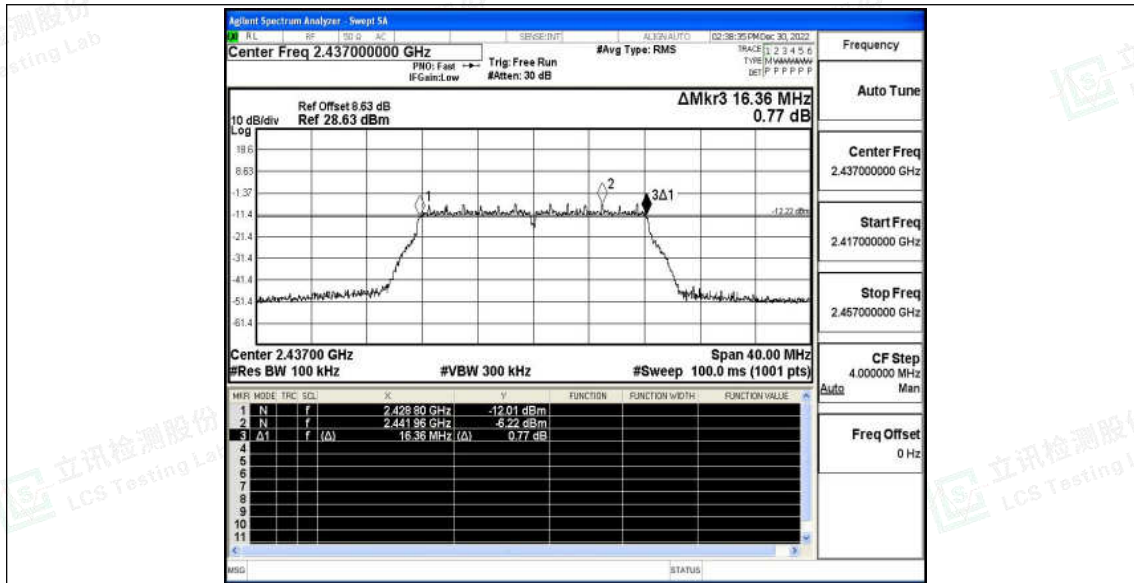


11G_Ant1_2412

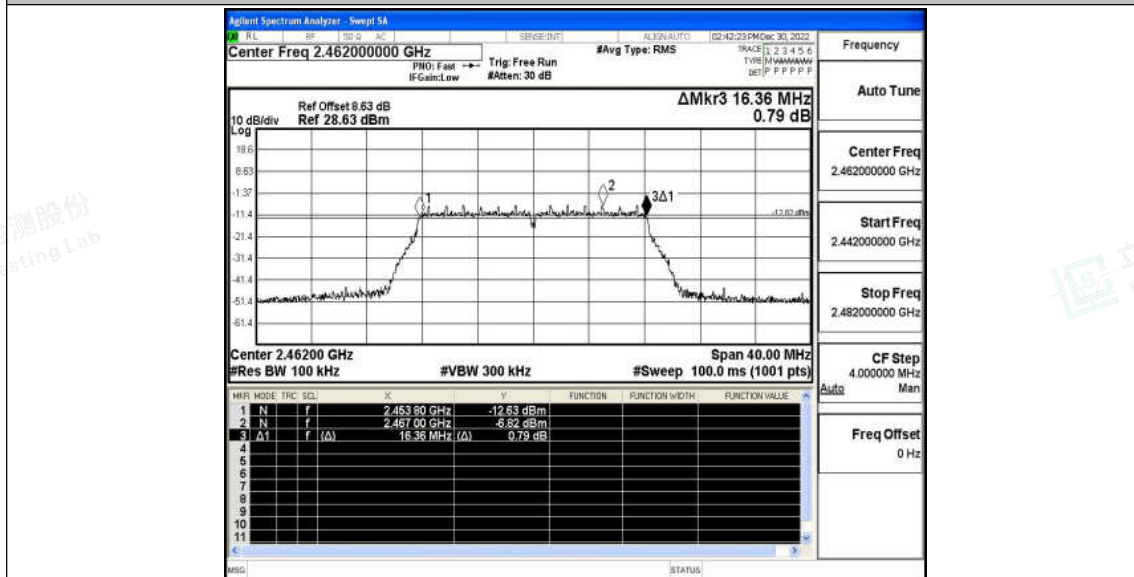


11G_Ant1_2437



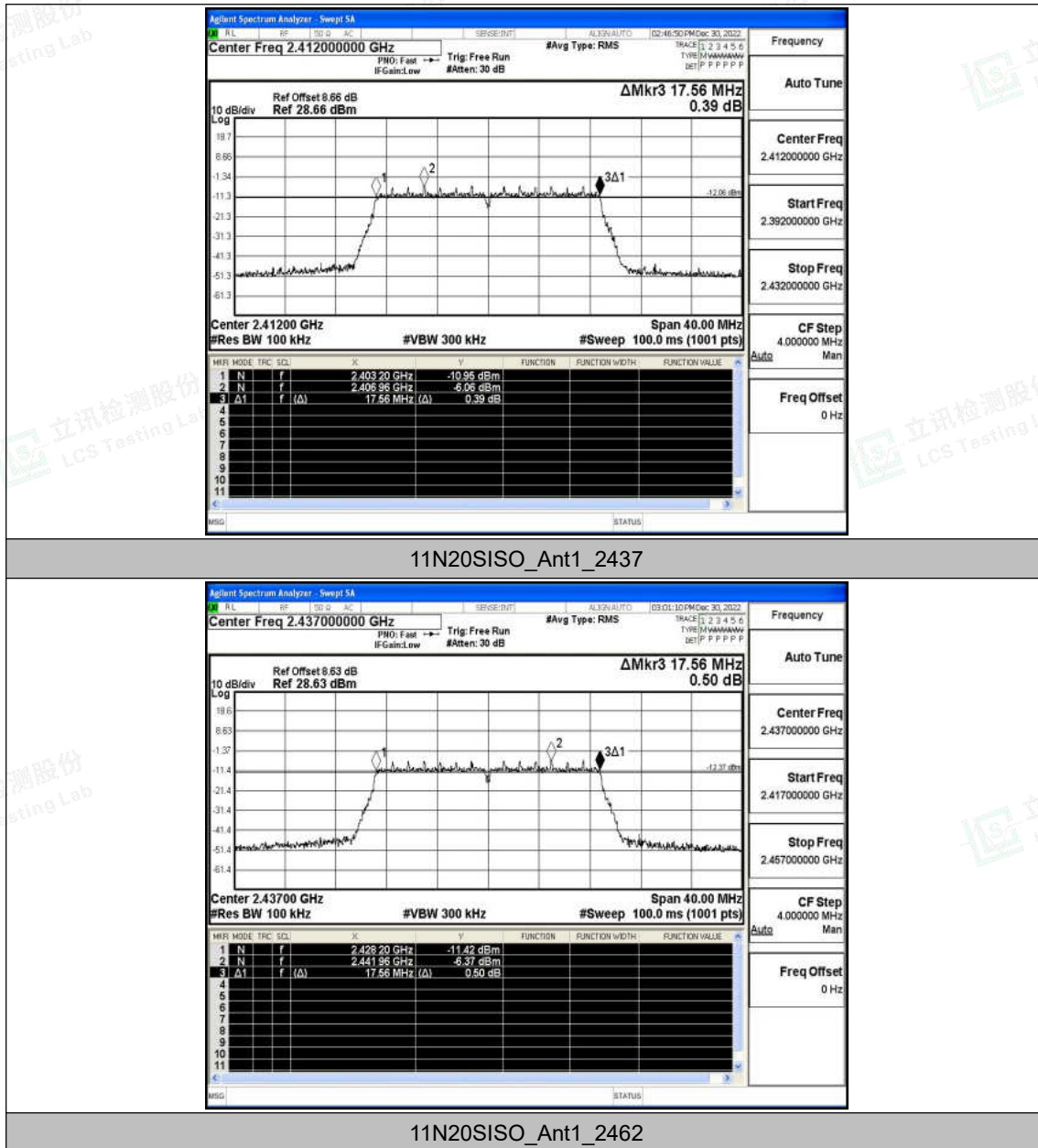


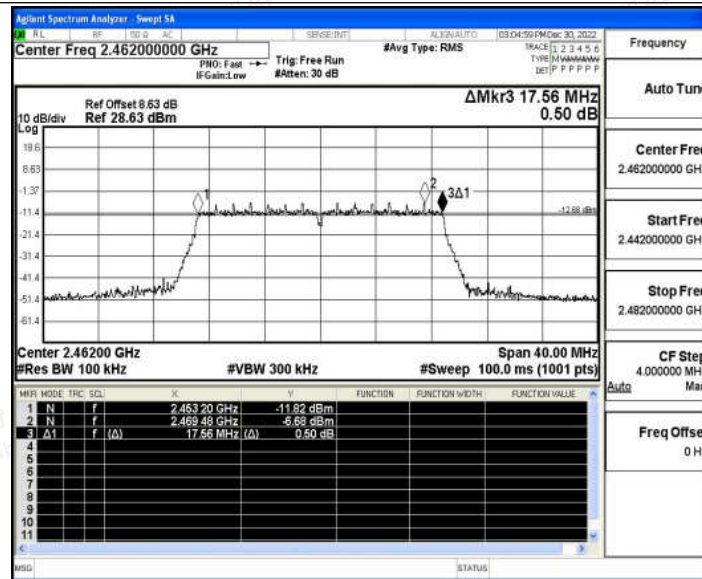
11G_Ant1_2462



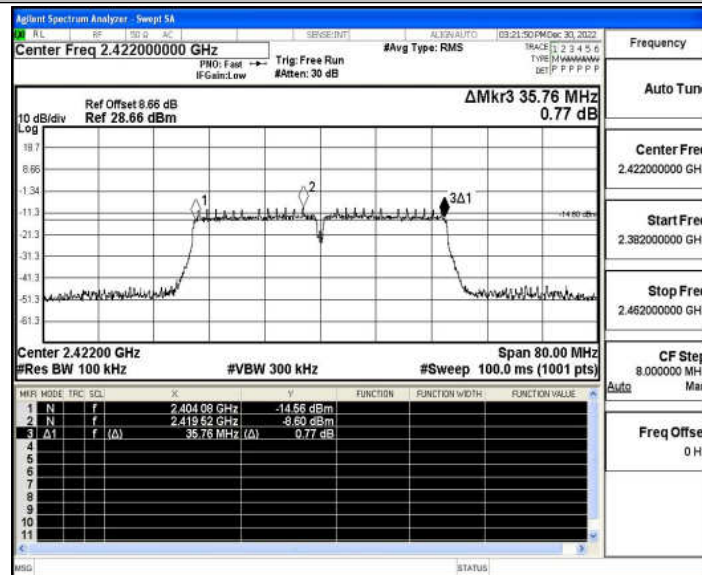
11N20SISO_Ant1_2412





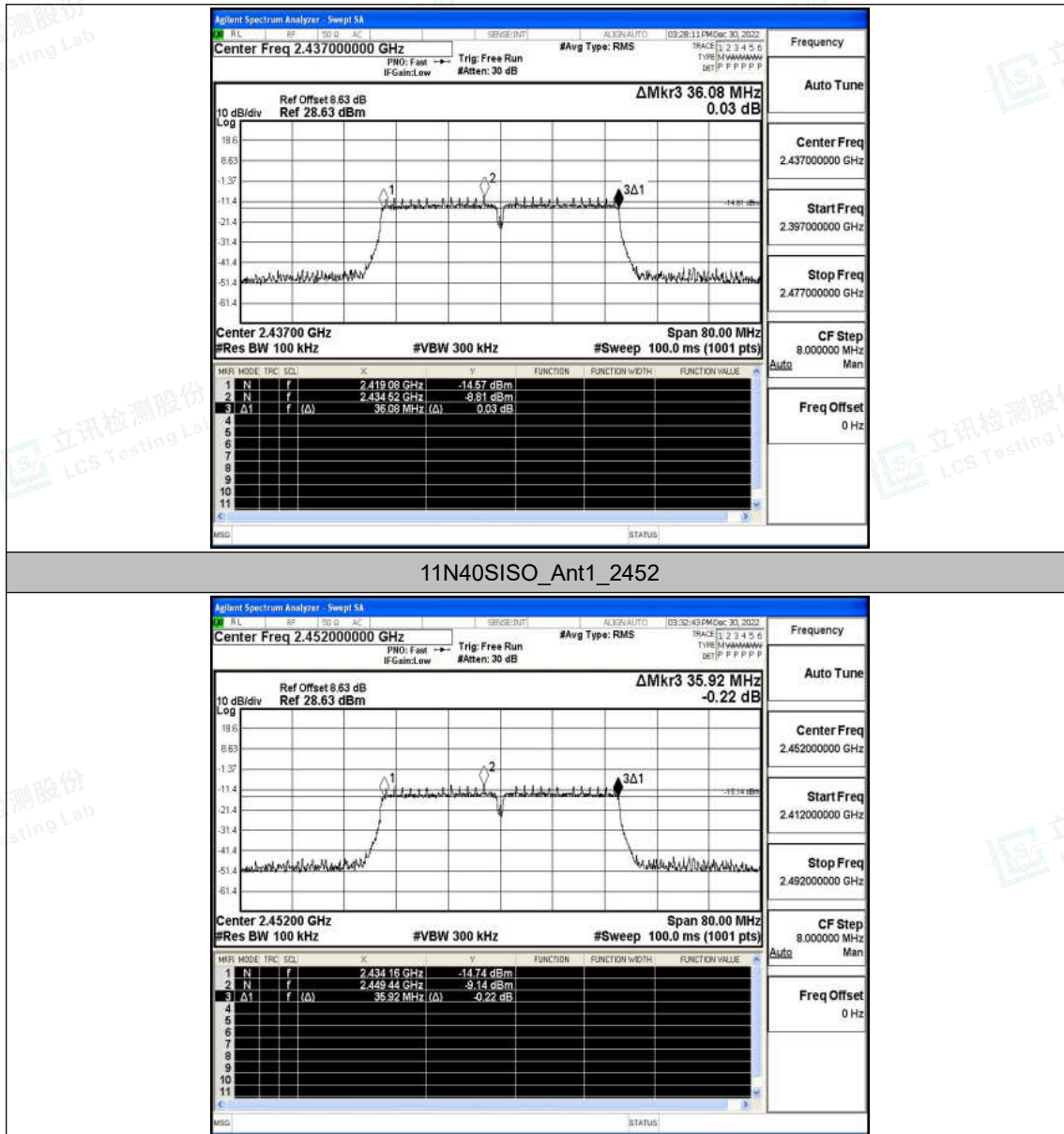


11N40SISO_Ant1_2422



11N40SISO_Ant1_2437







A.2 Maximum conducted output power

Test Result Peak

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	14.50	≤30.00	PASS
		2437	14.98	≤30.00	PASS
		2462	14.51	≤30.00	PASS
11G	Ant1	2412	13.63	≤30.00	PASS
		2437	13.31	≤30.00	PASS
		2462	13.04	≤30.00	PASS
11N20SISO	Ant1	2412	13.63	≤30.00	PASS
		2437	13.28	≤30.00	PASS
		2462	12.96	≤30.00	PASS
11N40SISO	Ant1	2422	13.59	≤30.00	PASS
		2437	13.50	≤30.00	PASS
		2452	13.11	≤30.00	PASS





A.3 Maximum power spectral density

Test Result

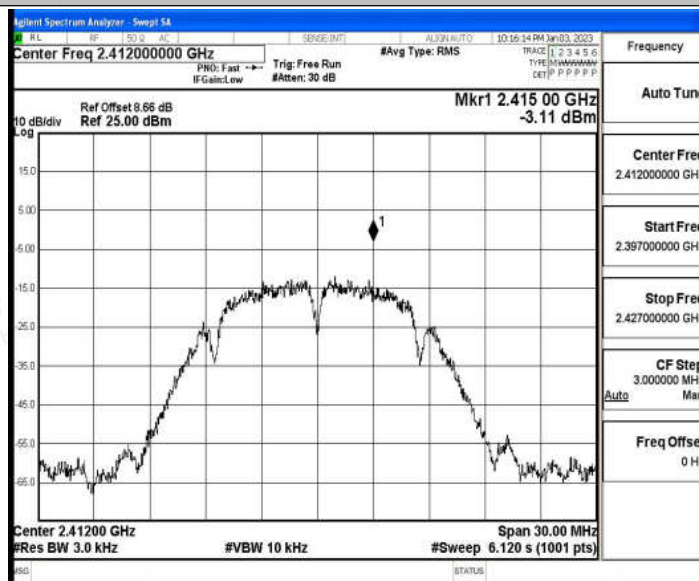
TestMode	Antenna	Freq(MHz)	Result [dBm/3-100kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-3.11	≤8.00	PASS
		2437	-10.93	≤8.00	PASS
		2462	-11.72	≤8.00	PASS
11G	Ant1	2412	-20.4	≤8.00	PASS
		2437	-20.18	≤8.00	PASS
		2462	-20.74	≤8.00	PASS
11N20SISO	Ant1	2412	-20.06	≤8.00	PASS
		2437	-20.72	≤8.00	PASS
		2462	-21.4	≤8.00	PASS
11N40SISO	Ant1	2422	-23	≤8.00	PASS
		2437	-21.82	≤8.00	PASS
		2452	-23.78	≤8.00	PASS



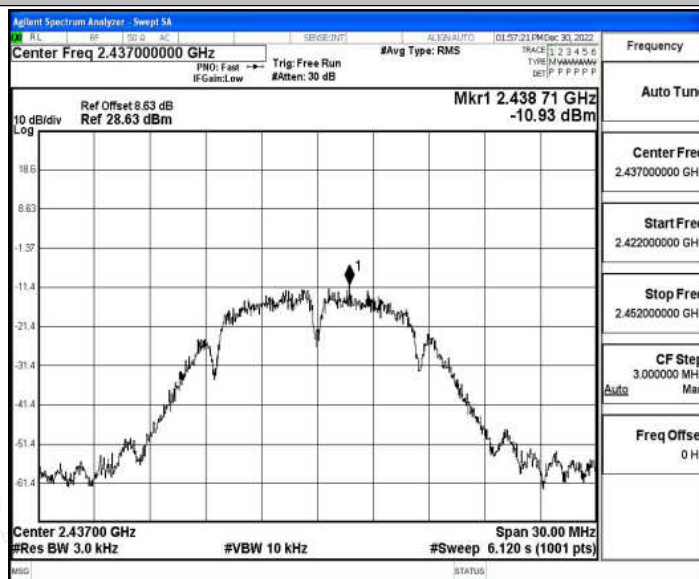


Test Graphs

11B_Ant1_2412

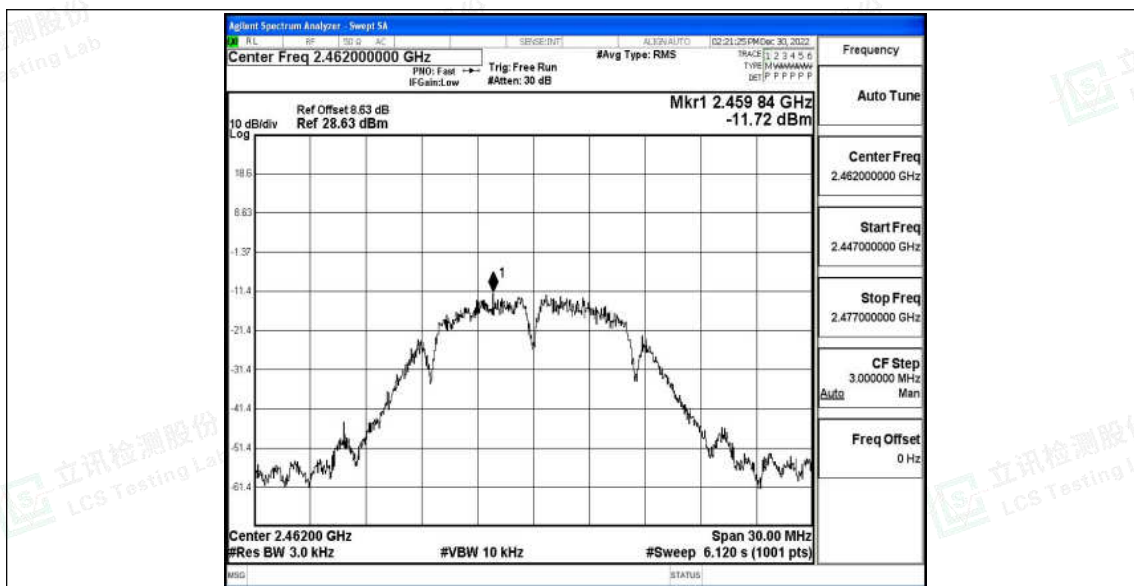


11B_Ant1_2437

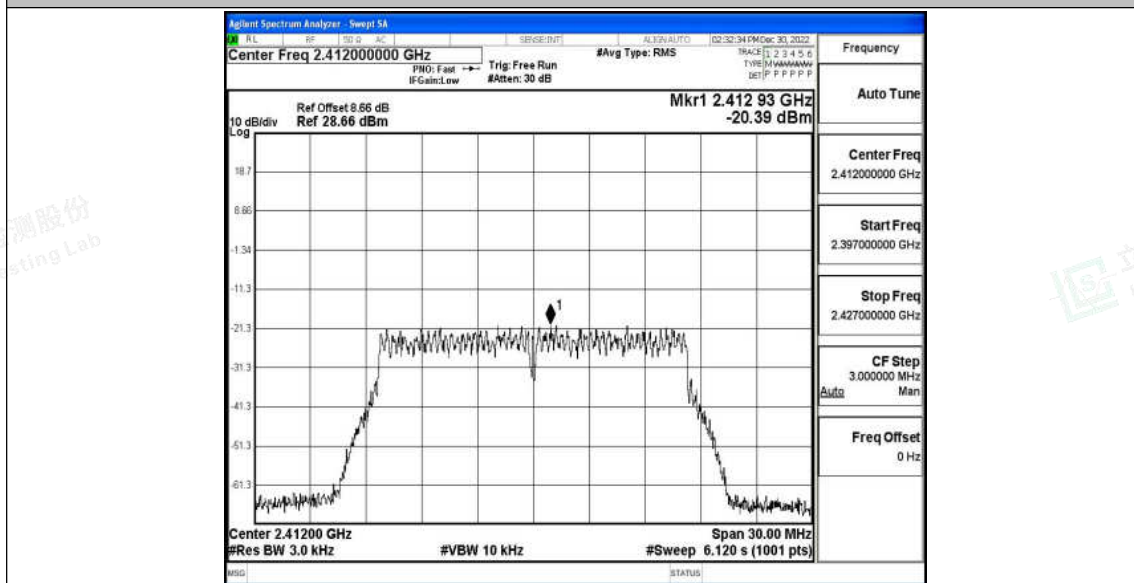


11B_Ant1_2462



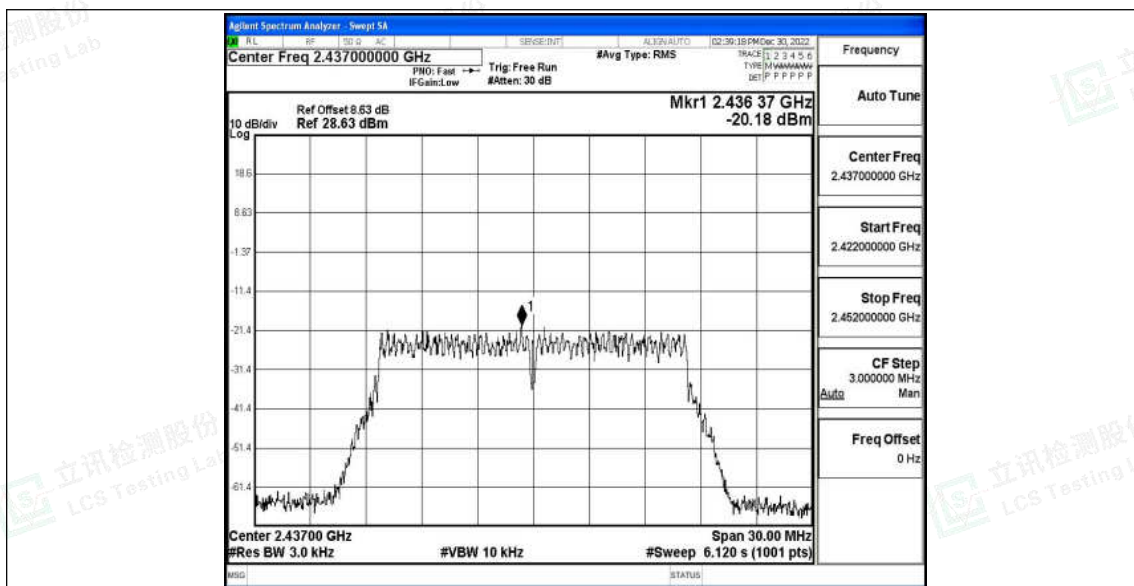


11G_Ant1_2412

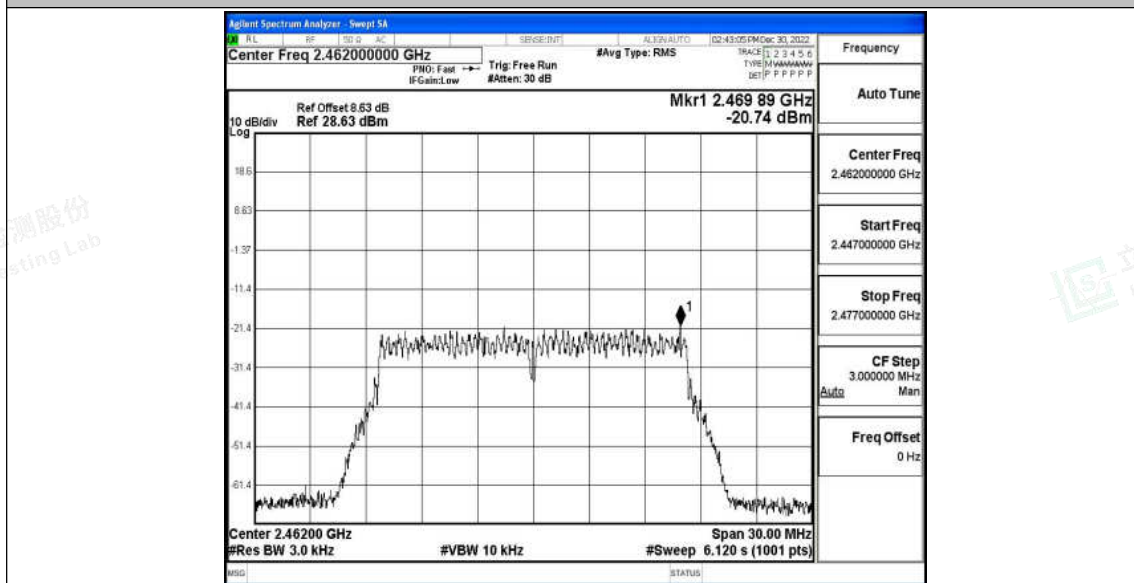


11G_Ant1_2437



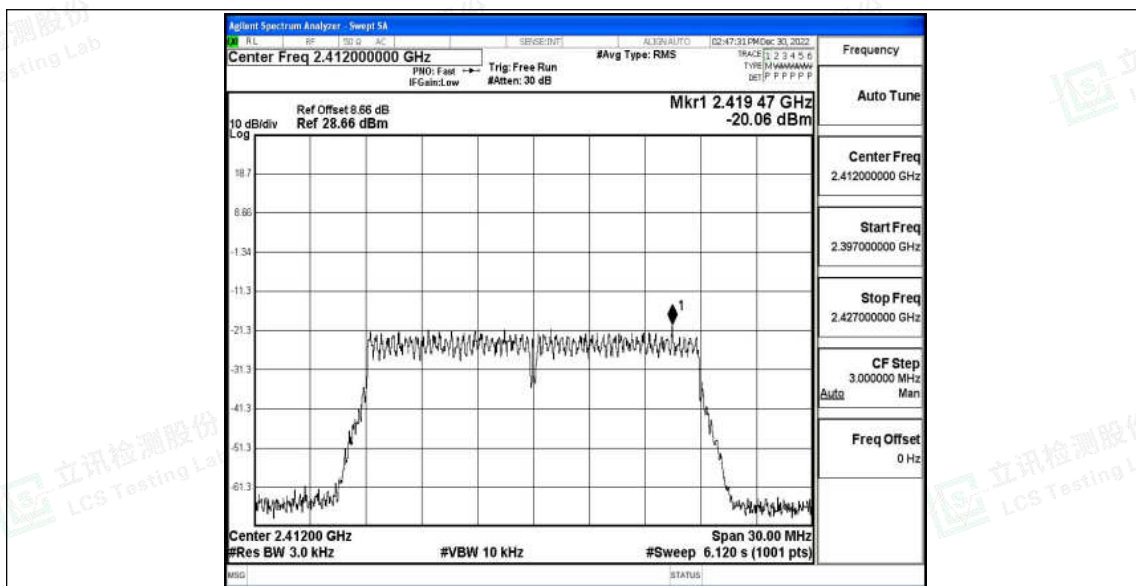


11G_Ant1_2462

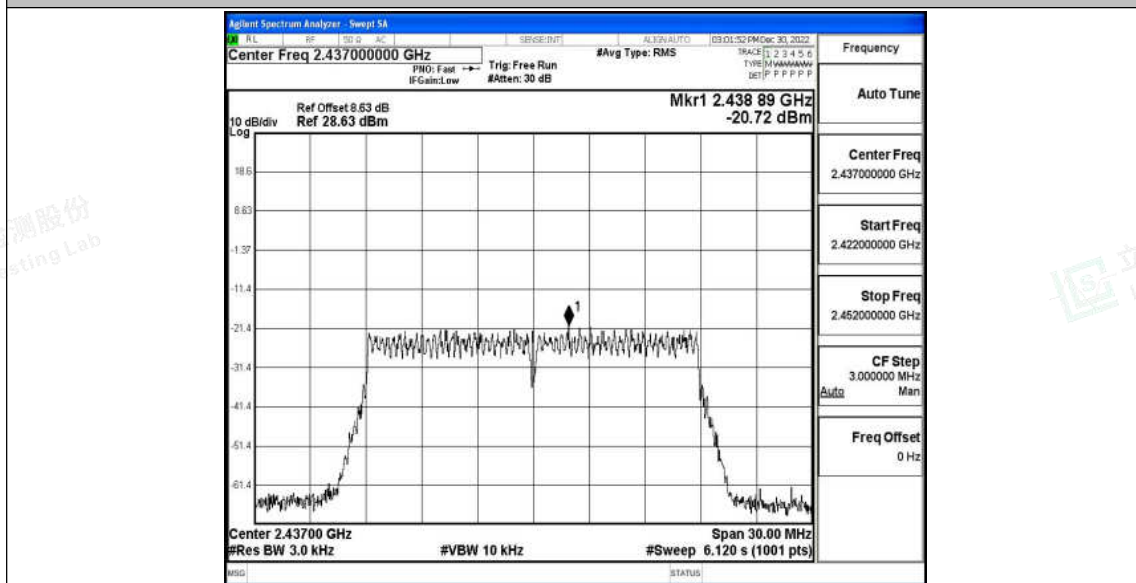


11N20SISO_Ant1_2412



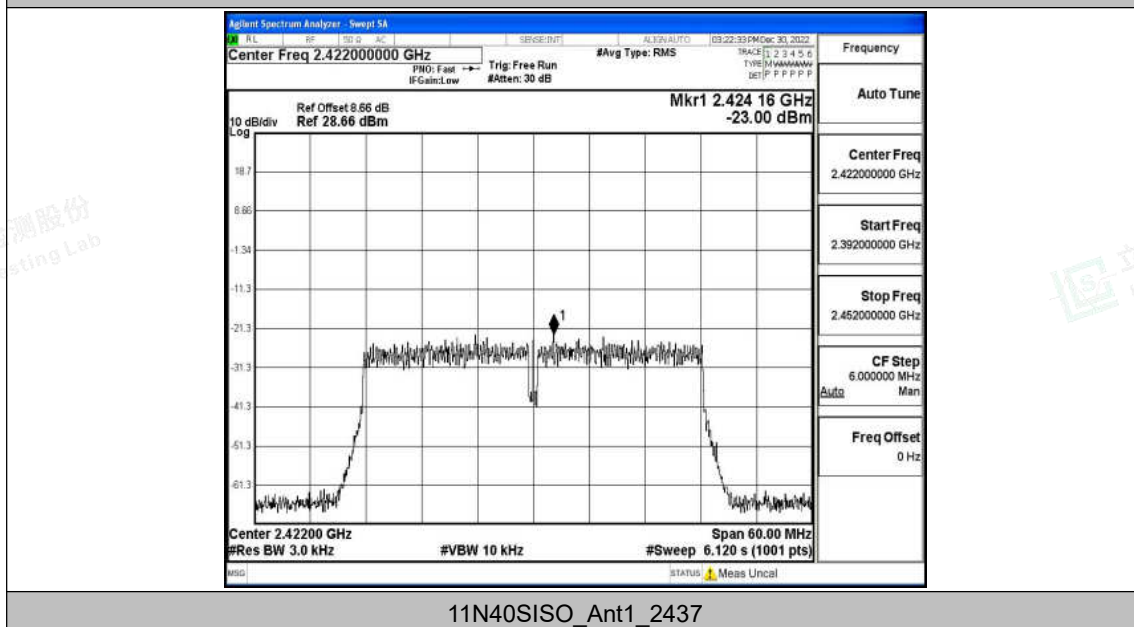
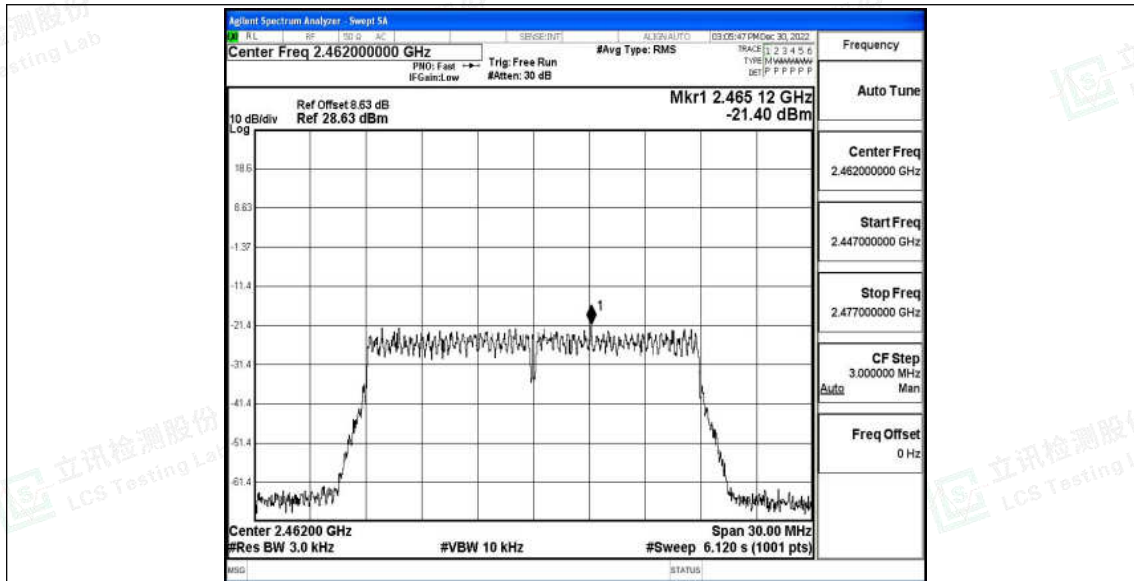


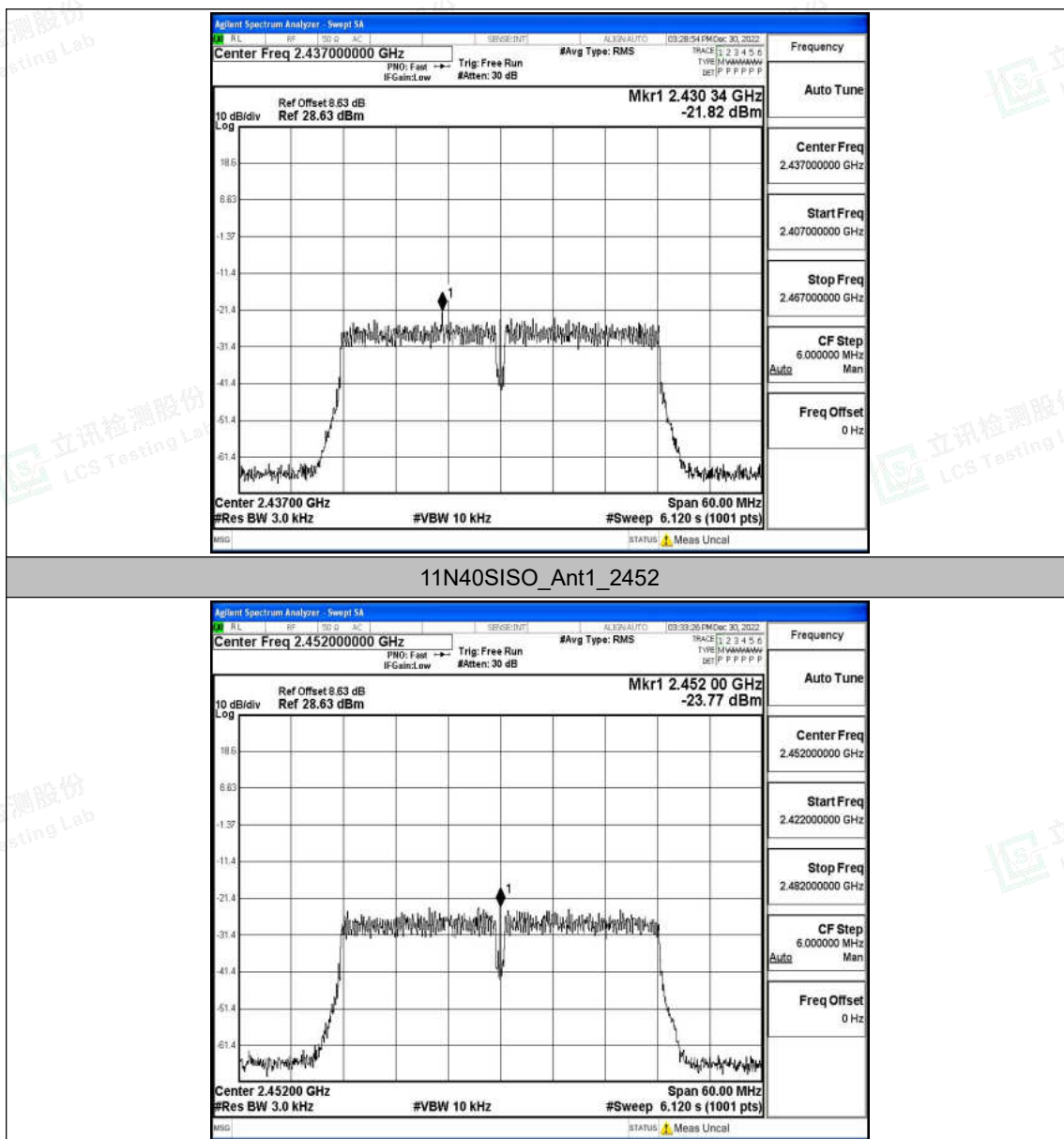
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462









A.4 Band edge measurements

Test Result

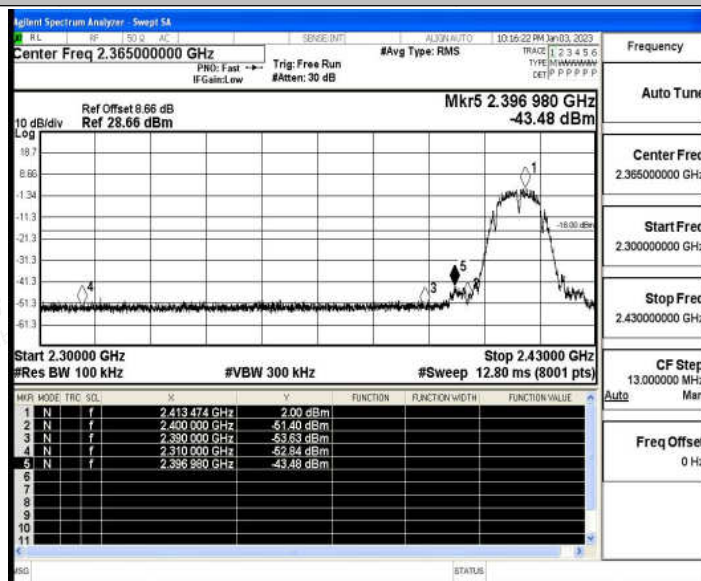
TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	2.00	-43.48	≤ -18	PASS
		High	2462	2.41	-48.97	≤ -17.59	PASS
11G	Ant1	Low	2412	-6.27	-45.96	≤ -26.27	PASS
		High	2462	-6.60	-48.68	≤ -26.6	PASS
11N20SISO	Ant1	Low	2412	-6.10	-45.75	≤ -26.1	PASS
		High	2462	-6.72	-48.7	≤ -26.72	PASS
11N40SISO	Ant1	Low	2422	-8.65	-45.63	≤ -28.65	PASS
		High	2452	-9.40	-46.93	≤ -29.4	PASS



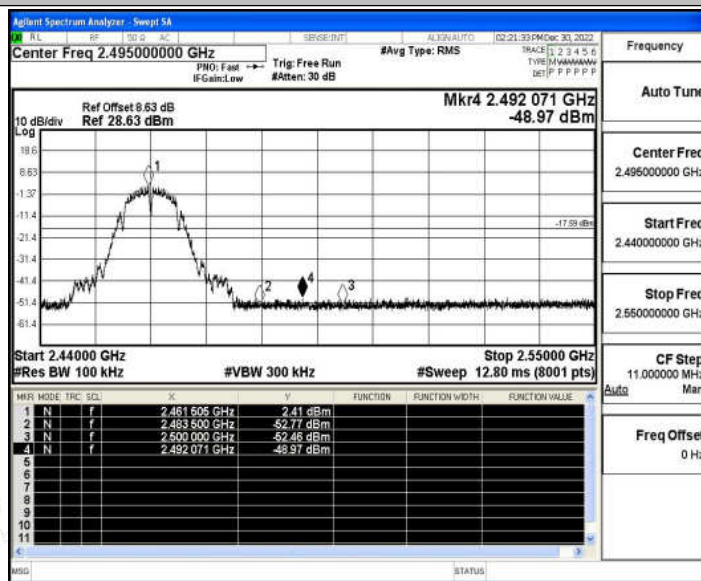


Test Graphs

11B_Ant1_Low_2412

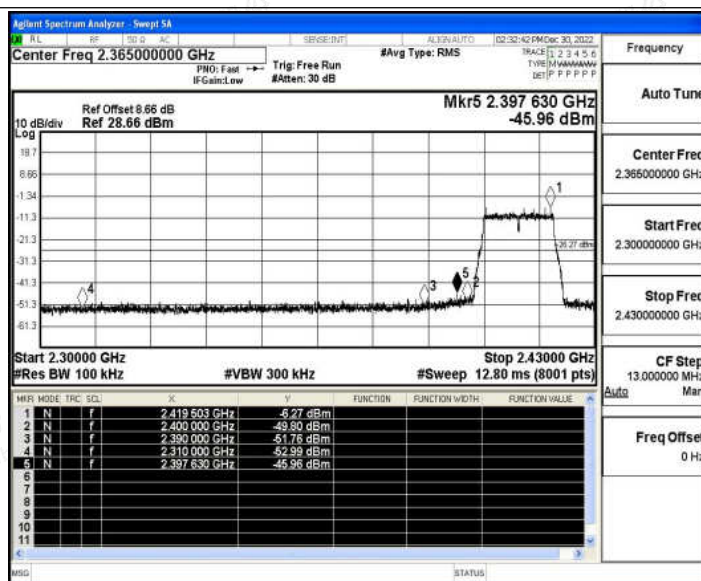


11B_Ant1_High_2462

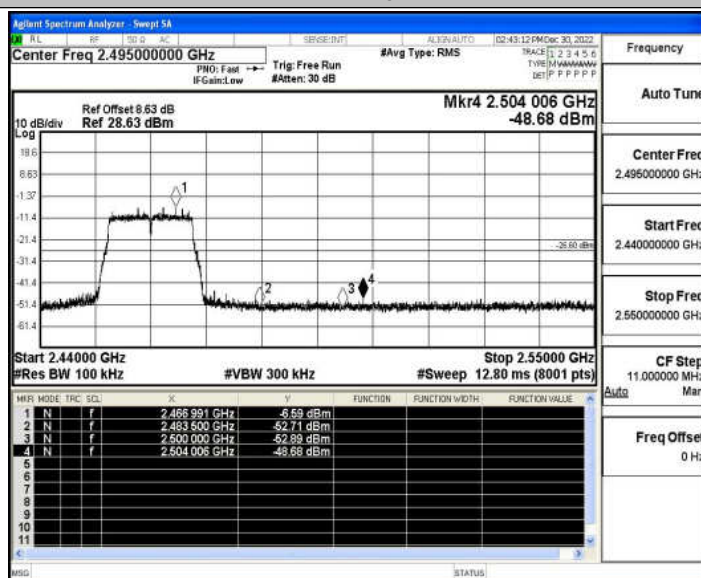


11G_Ant1_Low_2412



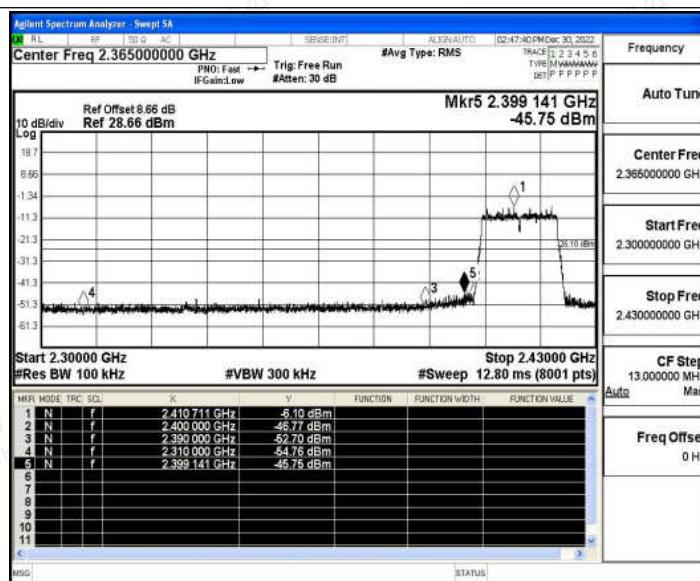


11G_Ant1_High_2462

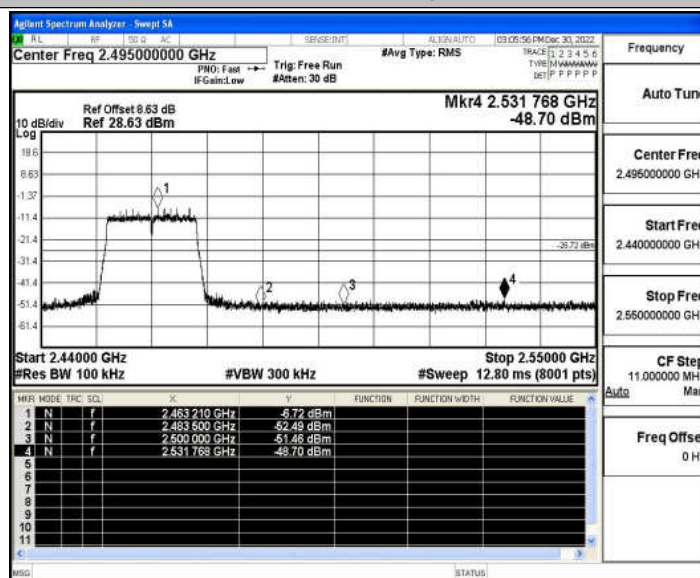


11N20SISO_Ant1_Low_2412



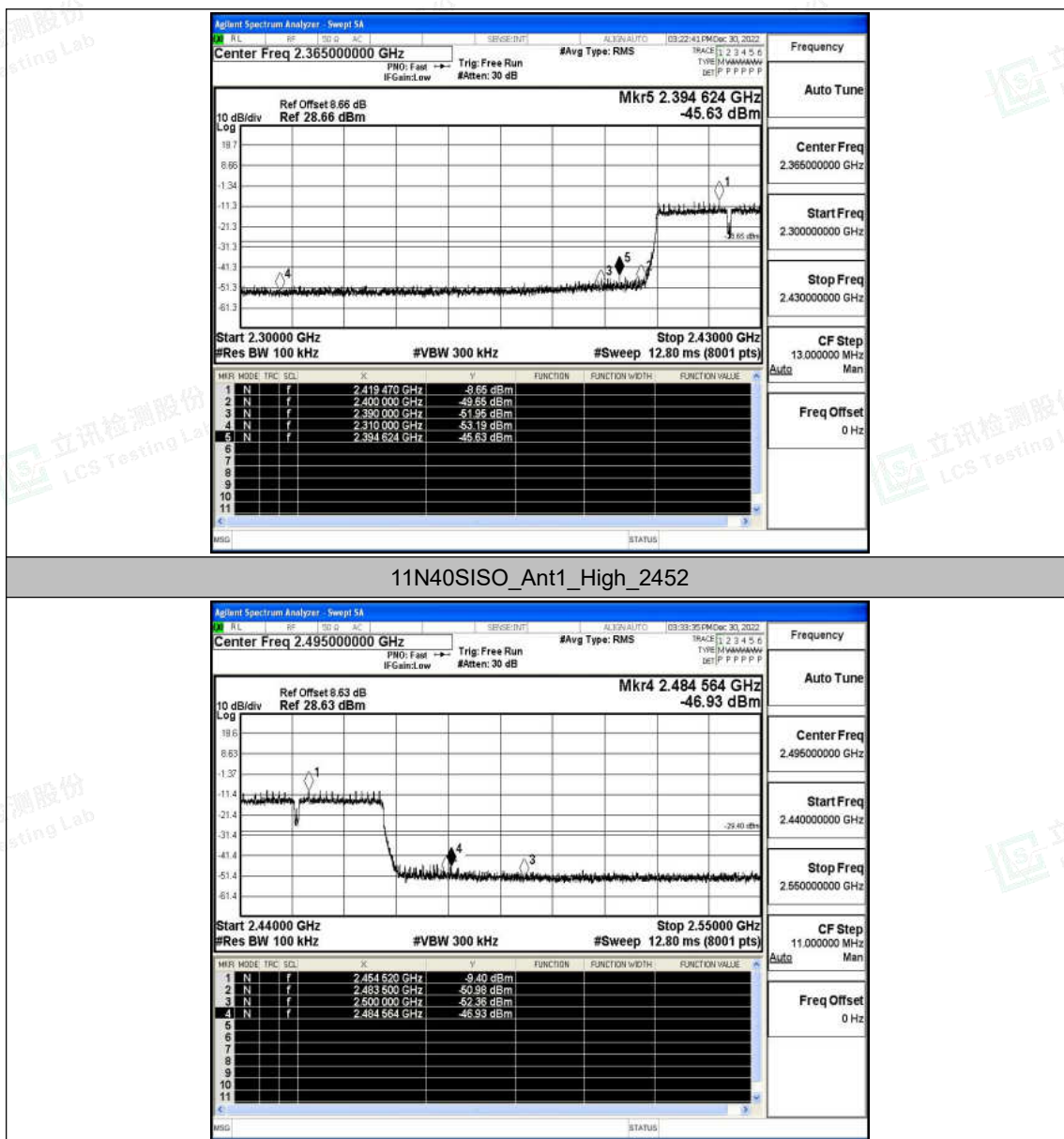


11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422







A.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	1.52	1.52	---	PASS
			30~1000	1.52	-59.55	≤-18.48	PASS
			1000~26500	1.52	-45.78	≤-18.48	PASS
		2437	Reference	2.42	2.42	---	PASS
			30~1000	2.42	-60.92	≤-17.58	PASS
			1000~26500	2.42	-45.49	≤-17.58	PASS
		2462	Reference	1.98	1.98	---	PASS
			30~1000	1.98	-60.76	≤-18.02	PASS
			1000~26500	1.98	-45.61	≤-18.02	PASS
11G	Ant1	2412	Reference	-8.32	-8.32	---	PASS
			30~1000	-8.32	-60.55	≤-28.32	PASS
			1000~26500	-8.32	-46.1	≤-28.32	PASS
		2437	Reference	-8.09	-8.09	---	PASS
			30~1000	-8.09	-60.65	≤-28.09	PASS
			1000~26500	-8.09	-46.12	≤-28.09	PASS
		2462	Reference	-9.71	-9.71	---	PASS
			30~1000	-9.71	-60.99	≤-29.71	PASS
			1000~26500	-9.71	-45.74	≤-29.71	PASS
11N20SISO	Ant1	2412	Reference	-8.24	-8.24	---	PASS
			30~1000	-8.24	-60.82	≤-28.24	PASS
			1000~26500	-8.24	-46.34	≤-28.24	PASS
		2437	Reference	-6.21	-6.21	---	PASS
			30~1000	-6.21	-60.17	≤-26.21	PASS
			1000~26500	-6.21	-46.04	≤-26.21	PASS
		2462	Reference	-6.53	-6.53	---	PASS
			30~1000	-6.53	-60.72	≤-26.53	PASS
			1000~26500	-6.53	-46.4	≤-26.53	PASS
11N40SISO	Ant1	2422	Reference	-8.96	-8.96	---	PASS
			30~1000	-8.96	-60.96	≤-28.96	PASS
			1000~26500	-8.96	-46.14	≤-28.96	PASS
		2437	Reference	-9.19	-9.19	---	PASS
			30~1000	-9.19	-61.1	≤-29.19	PASS
			1000~26500	-9.19	-46.47	≤-29.19	PASS
		2452	Reference	-9.39	-9.39	---	PASS
			30~1000	-9.39	-60.54	≤-29.39	PASS
			1000~26500	-9.39	-45.91	≤-29.39	PASS



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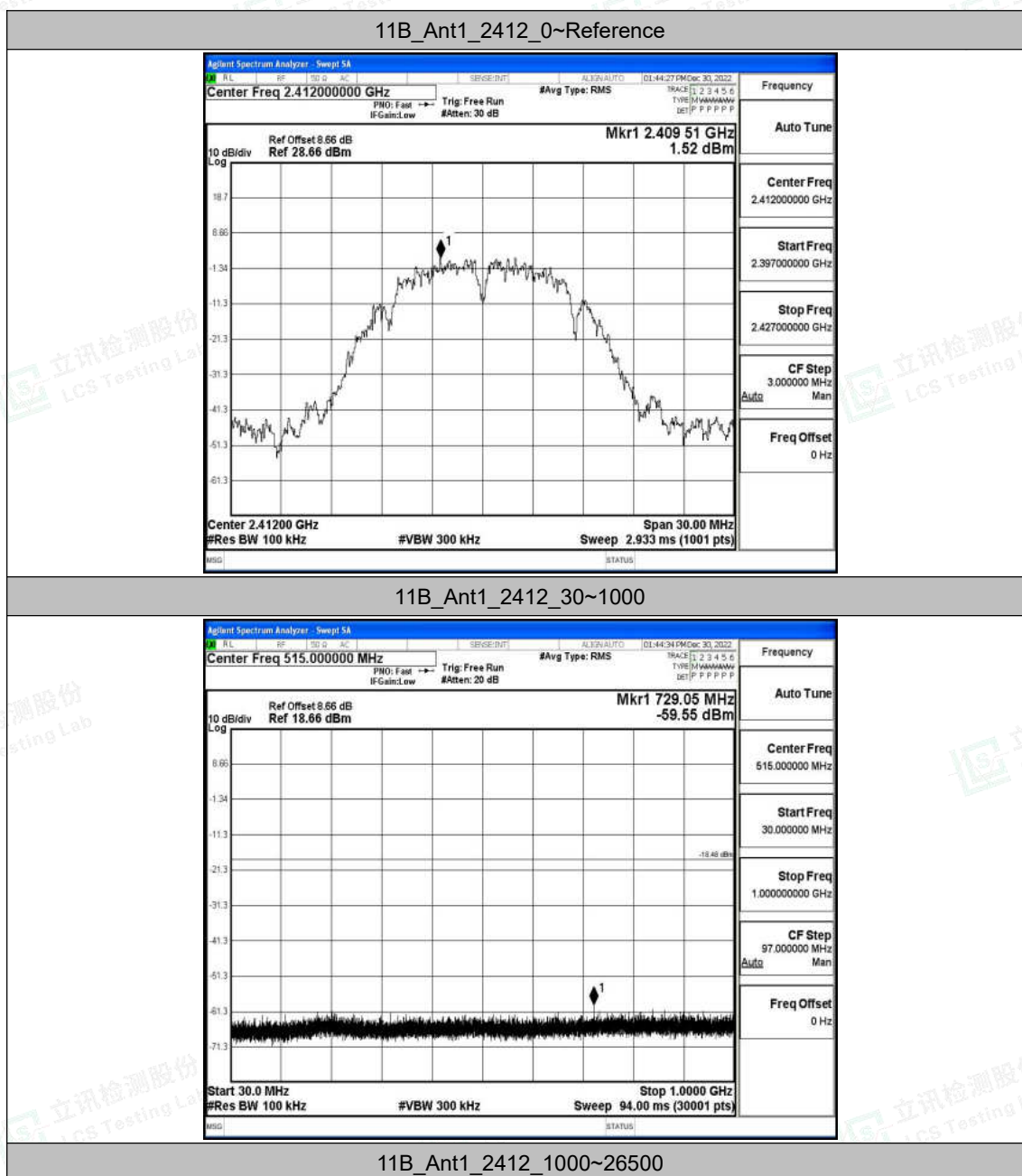
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

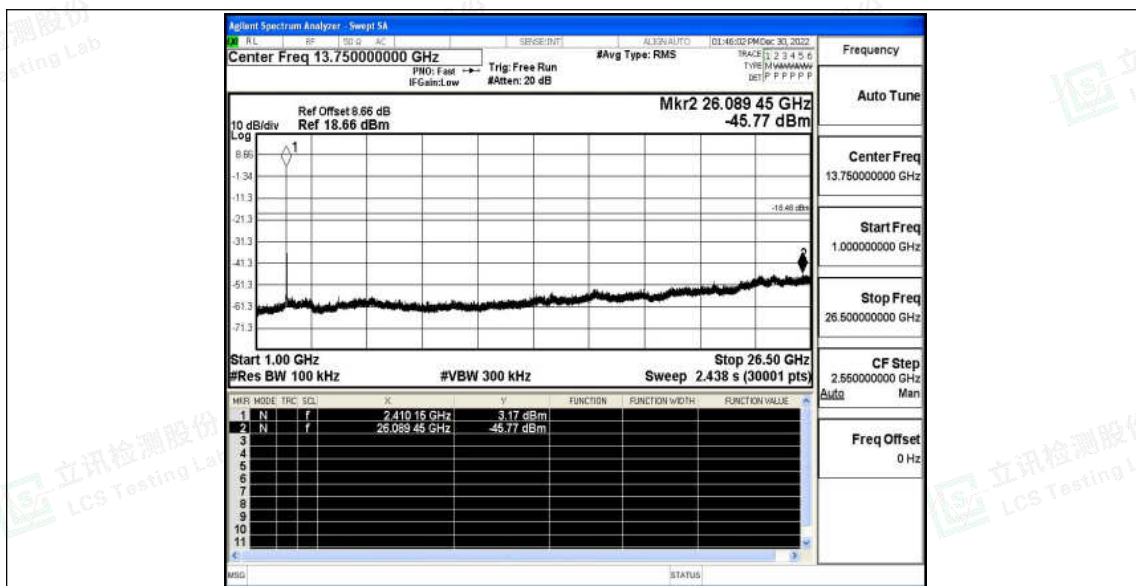
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

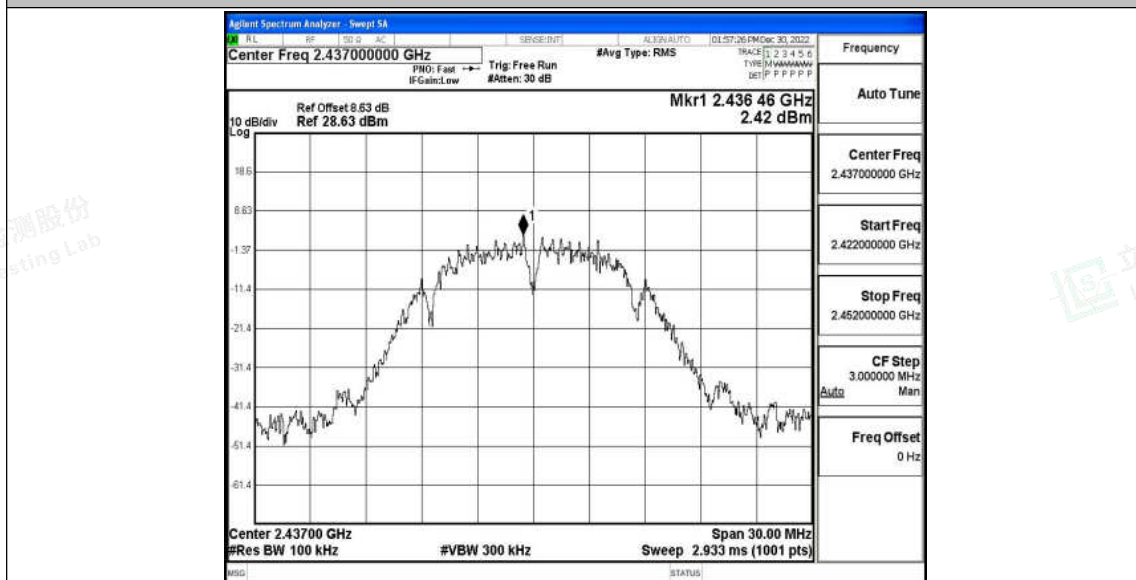


Test Graphs



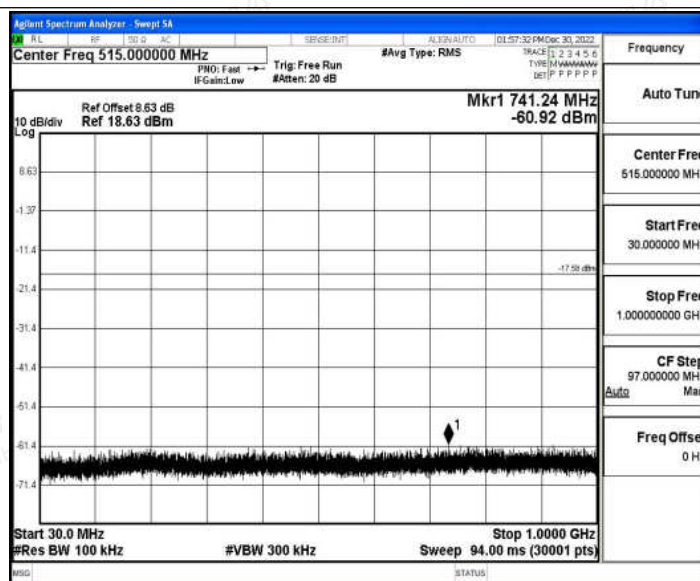


11B_Ant1_2437_0~Reference

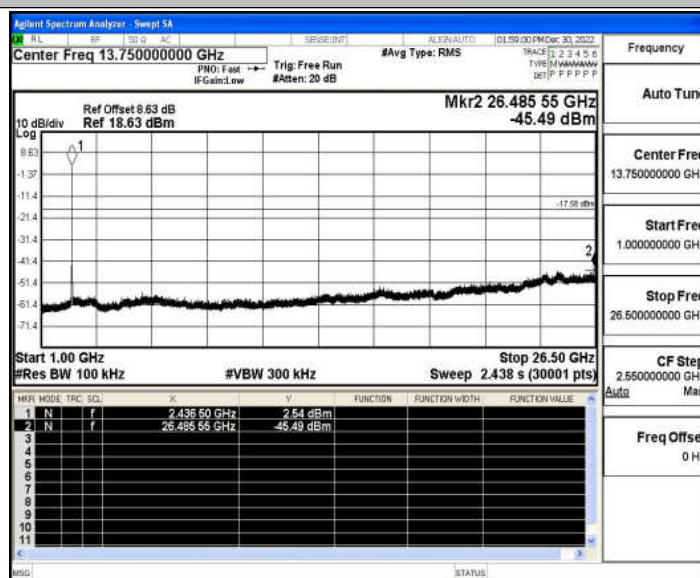


11B_Ant1_2437_30~1000



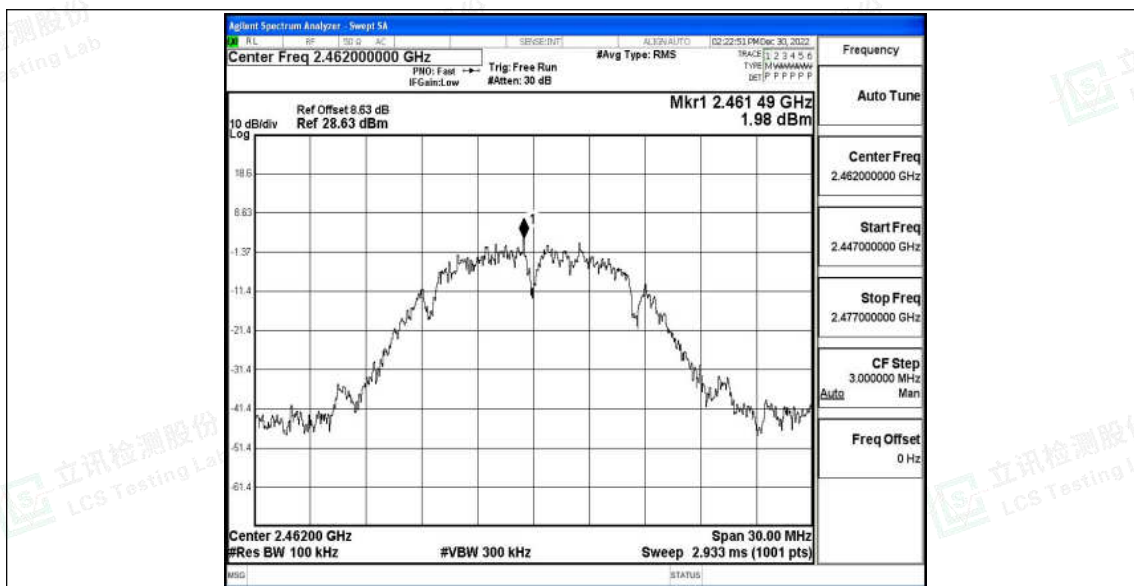


11B_Ant1_2437_1000~26500

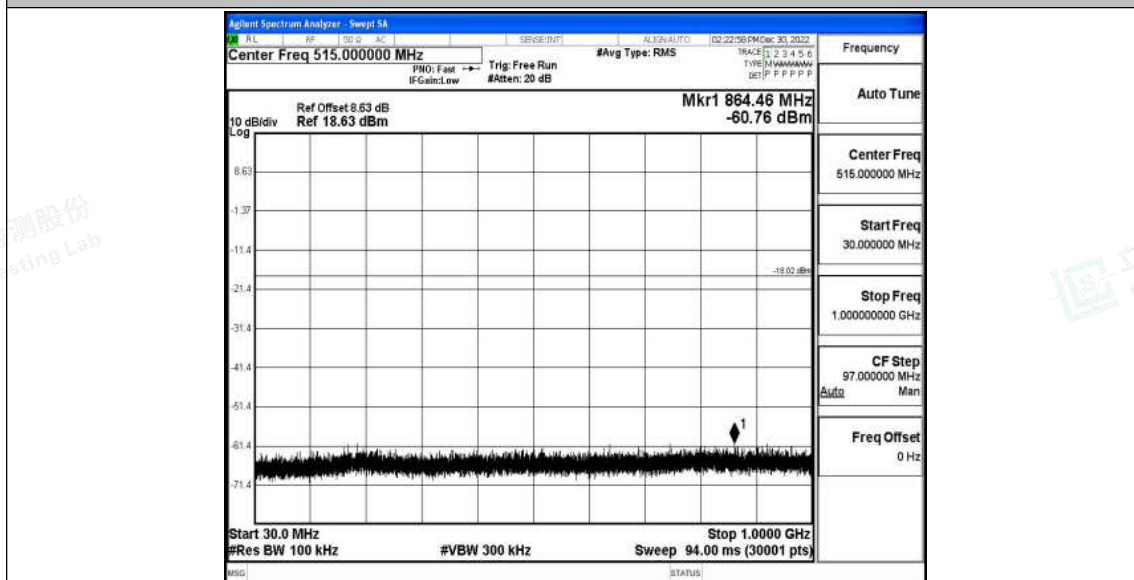


11B_Ant1_2462_0~Reference



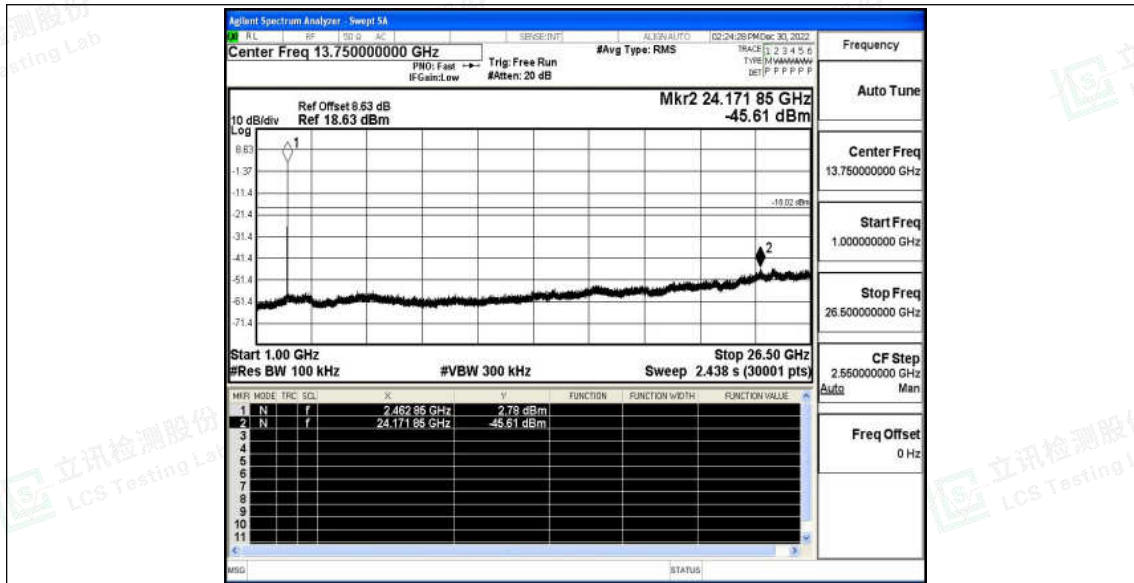


11B_Ant1_2462_30~1000

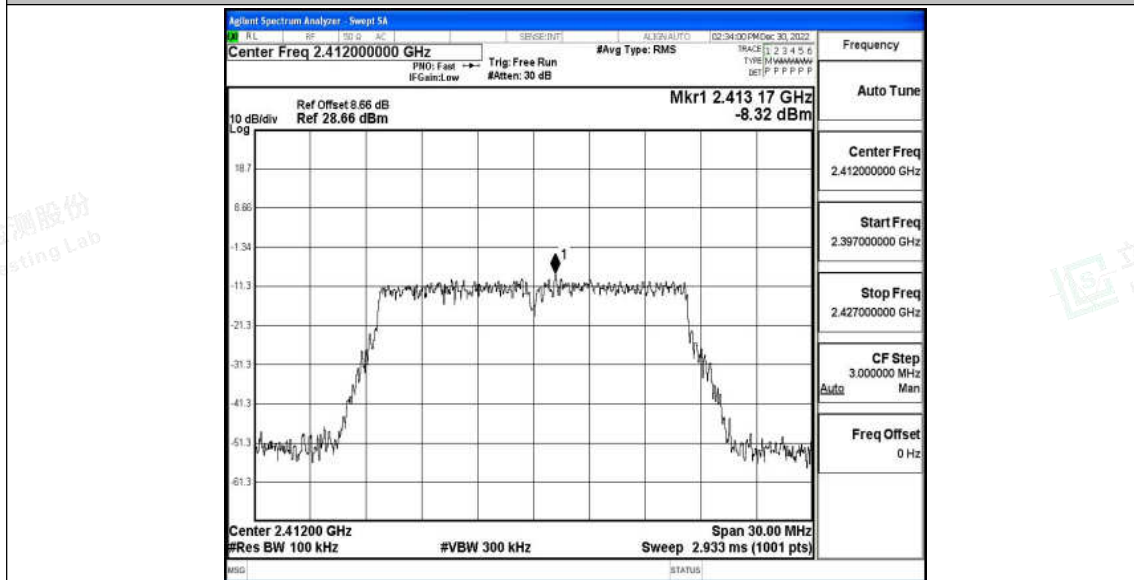


11B_Ant1_2462_1000~26500



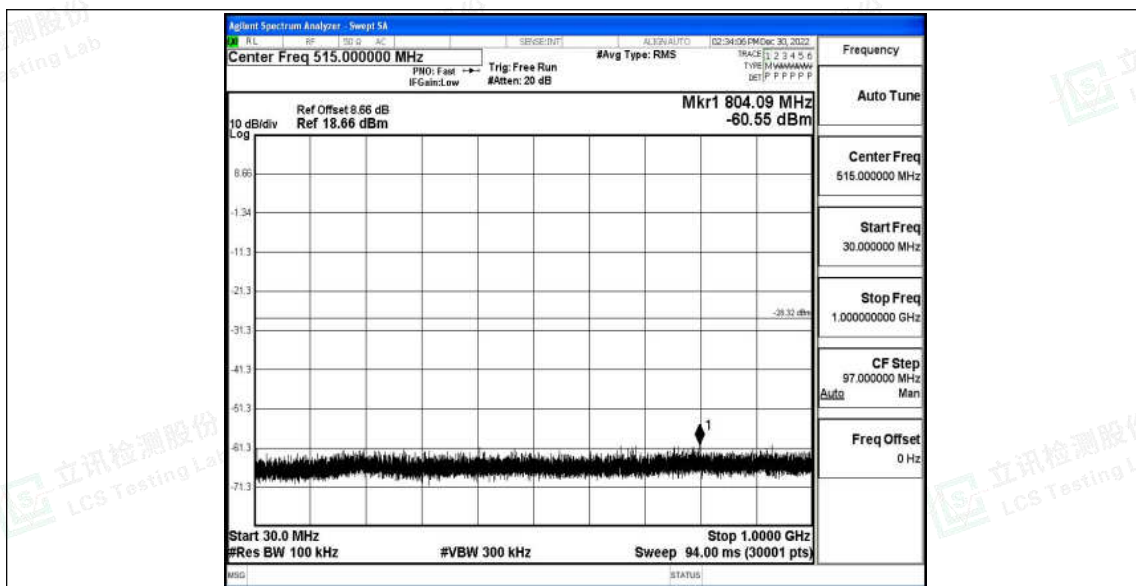


11G_Ant1_2412_0~Reference

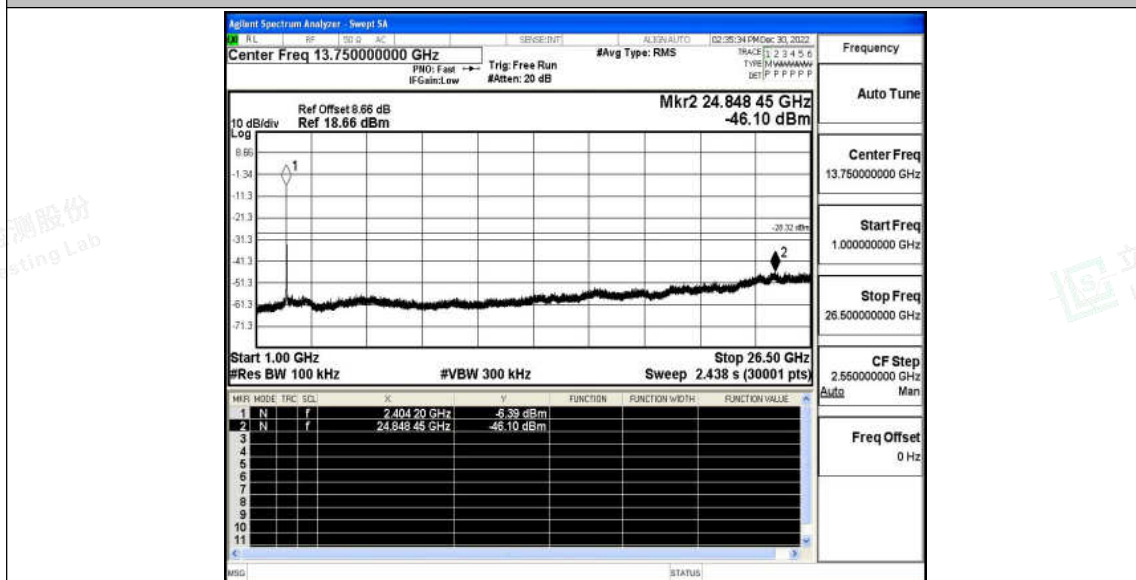


11G_Ant1_2412_30~1000



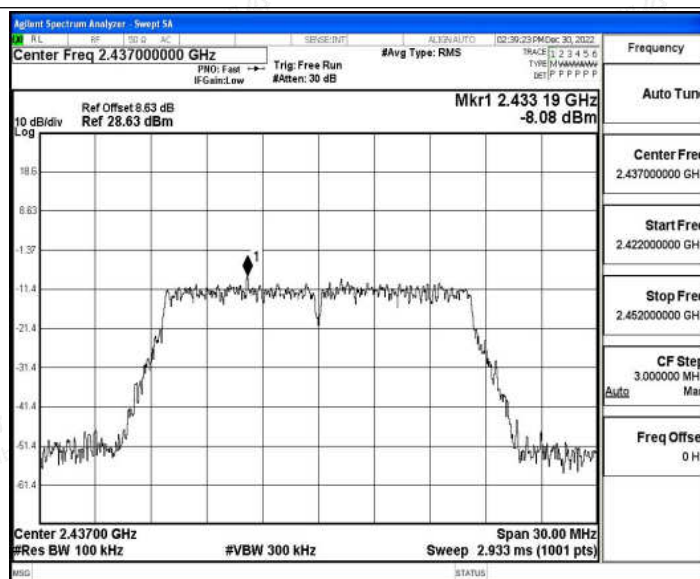


11G_Ant1_2412_1000~26500

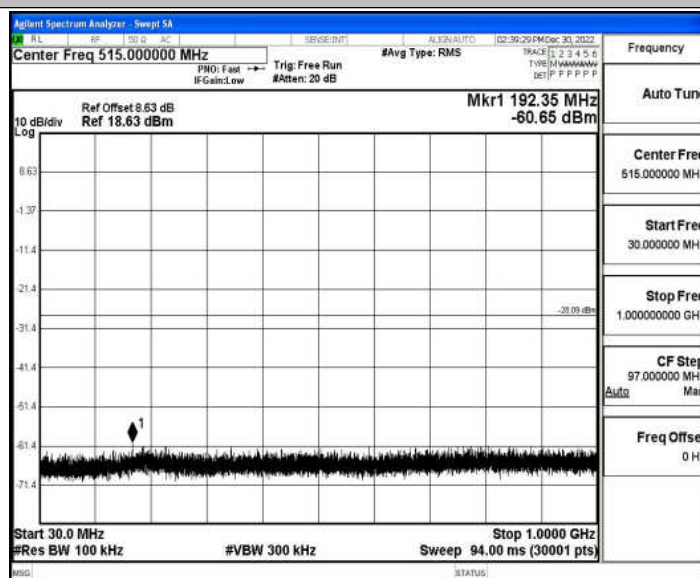


11G_Ant1_2437_0~Reference



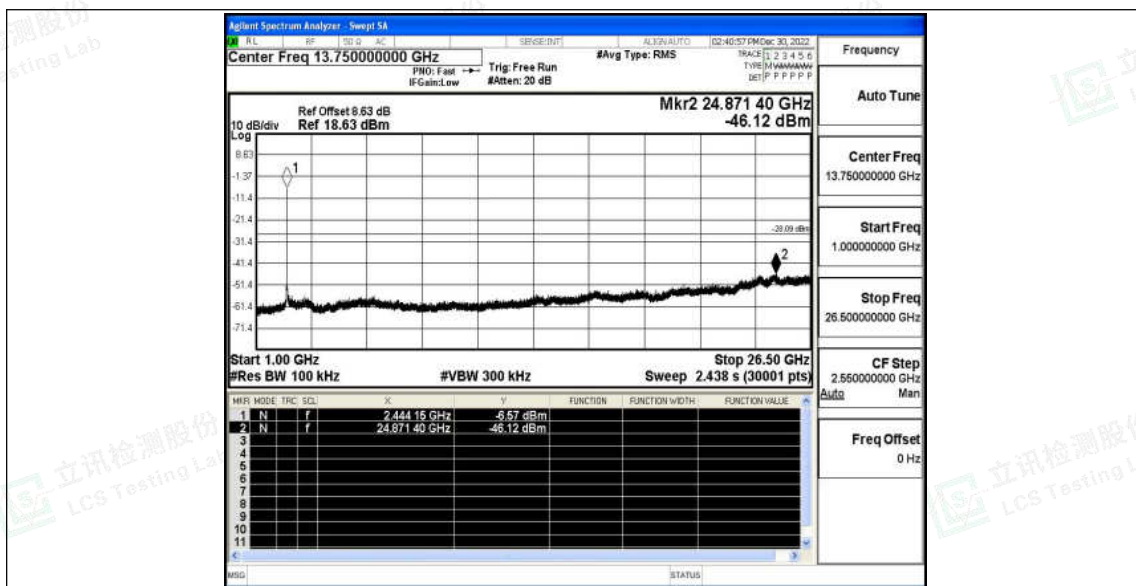


11G_Ant1_2437_30~1000

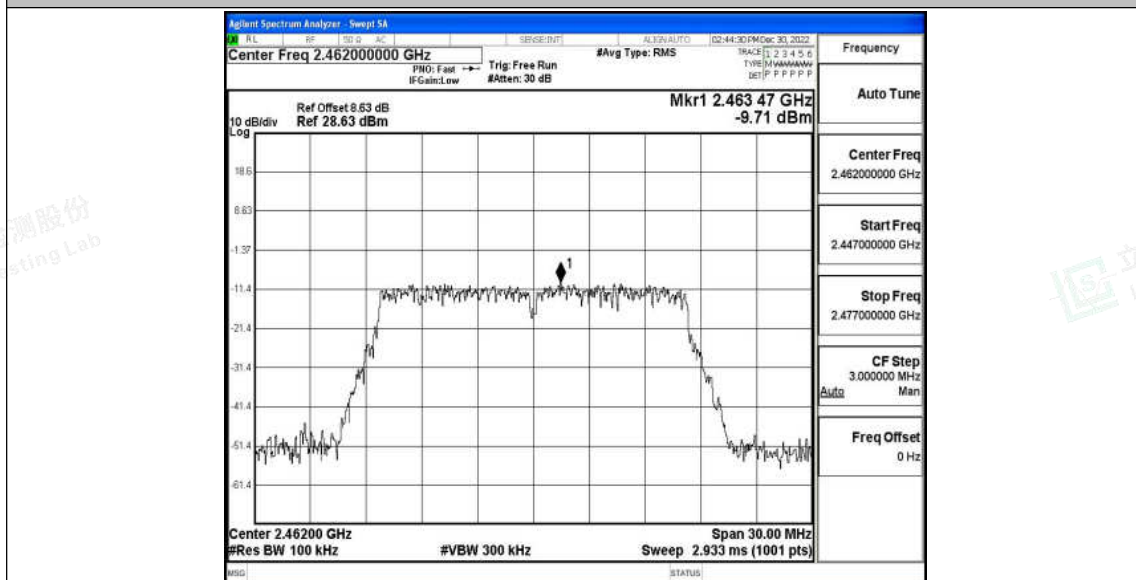


11G_Ant1_2437_1000~26500



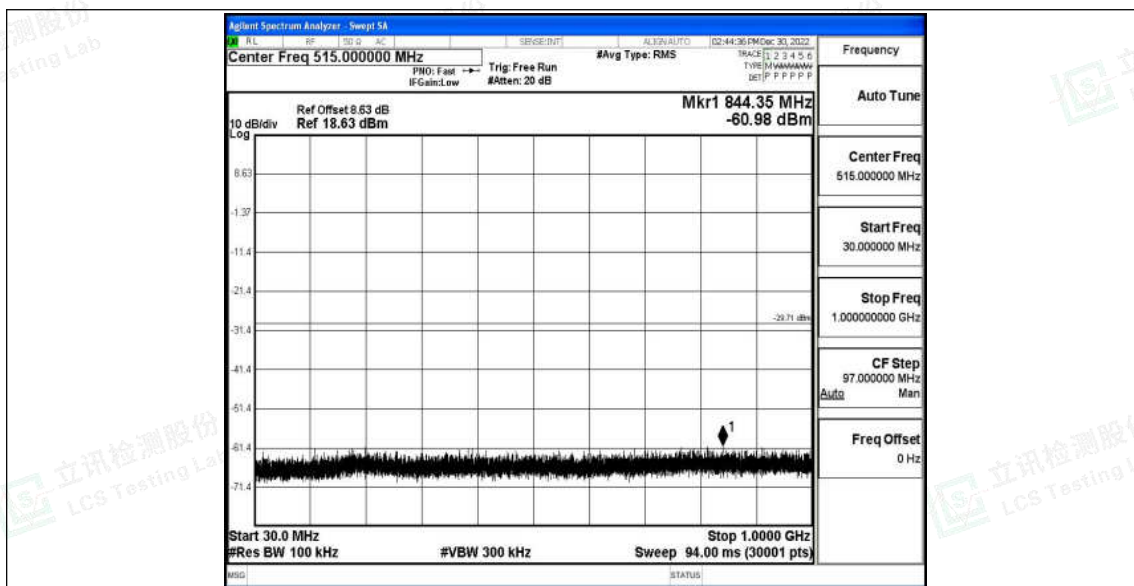


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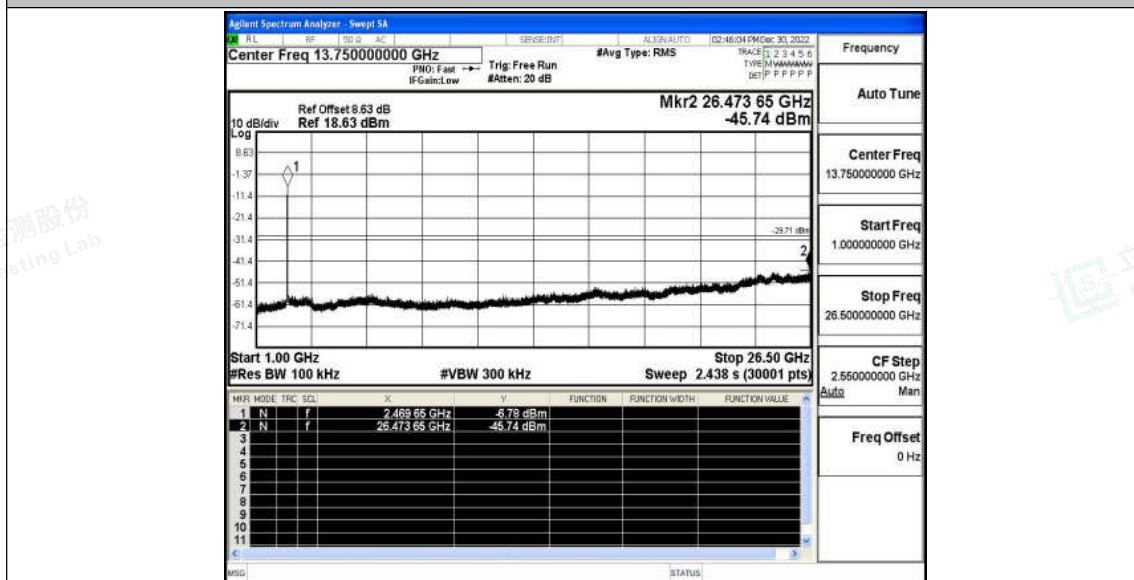


11G_Ant1_2462_30~1000



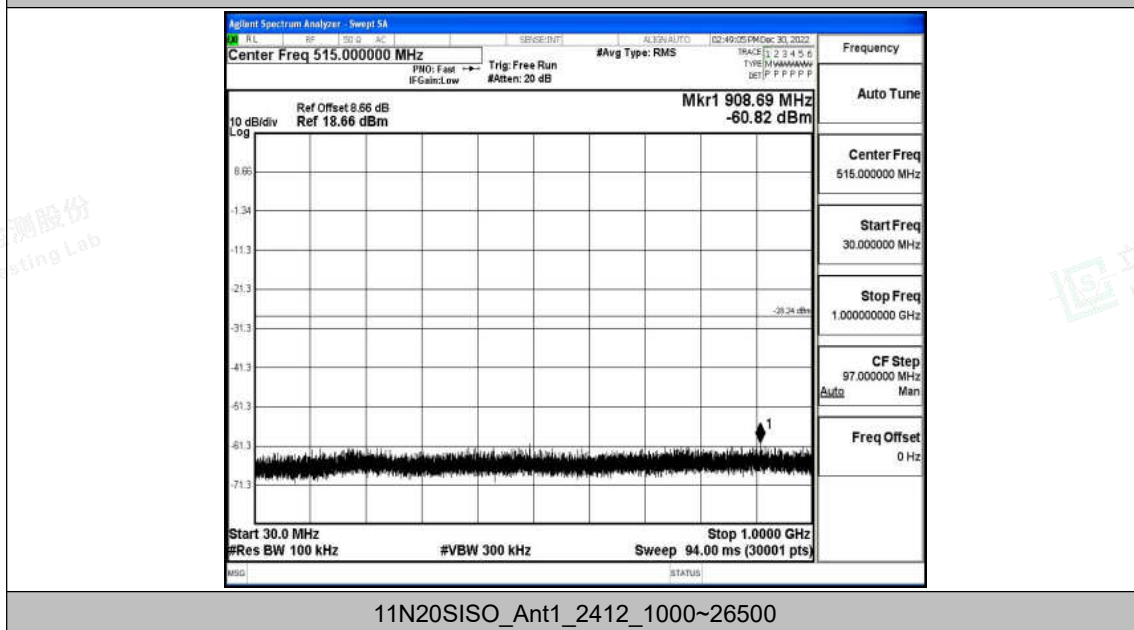
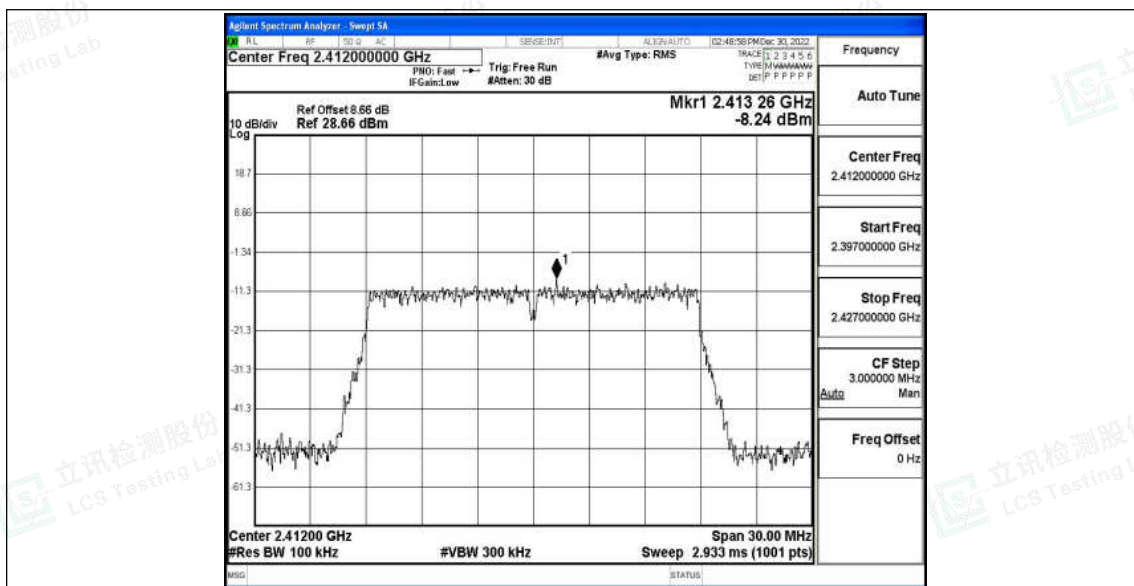


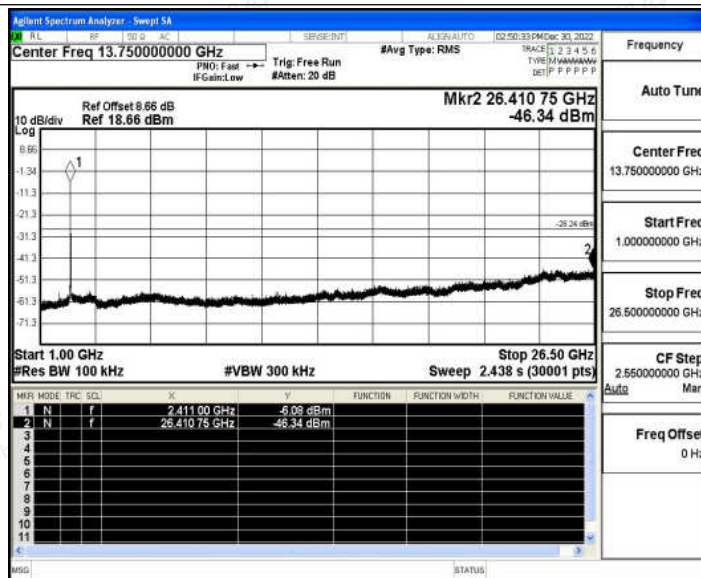
11G_Ant1_2462_1000~26500



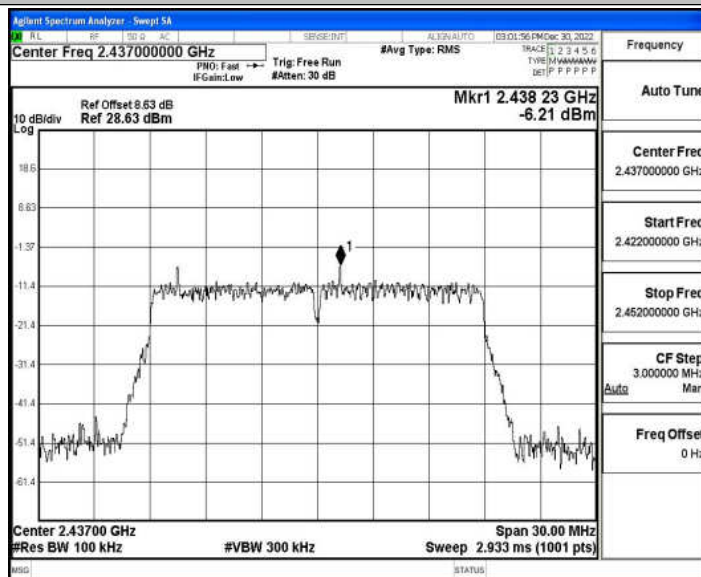
11N20SISO_Ant1_2412_0~Reference





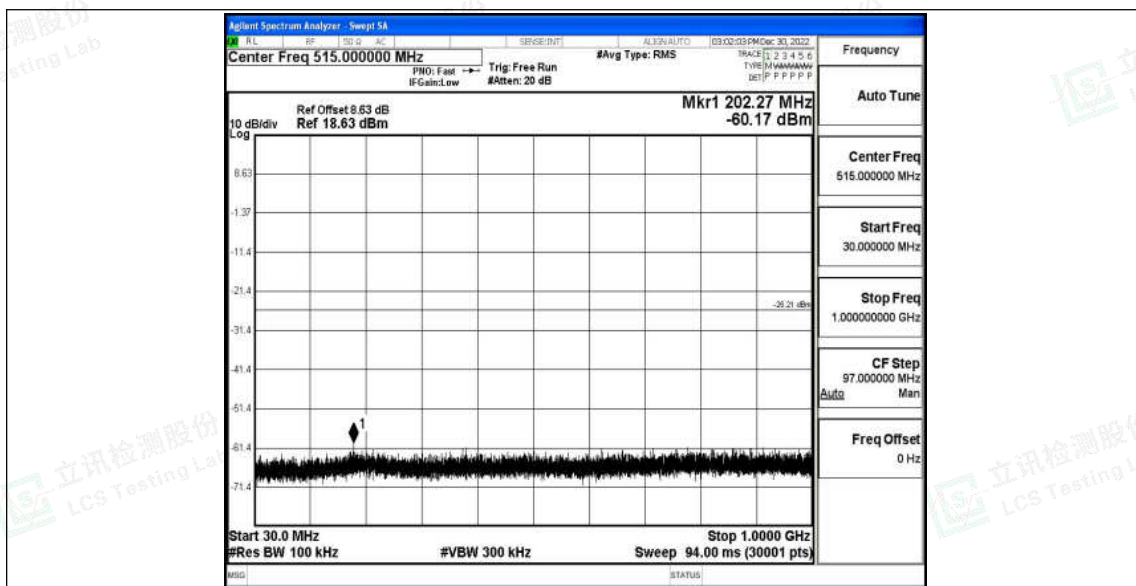


11N20SISO_Ant1_2437_0~Reference

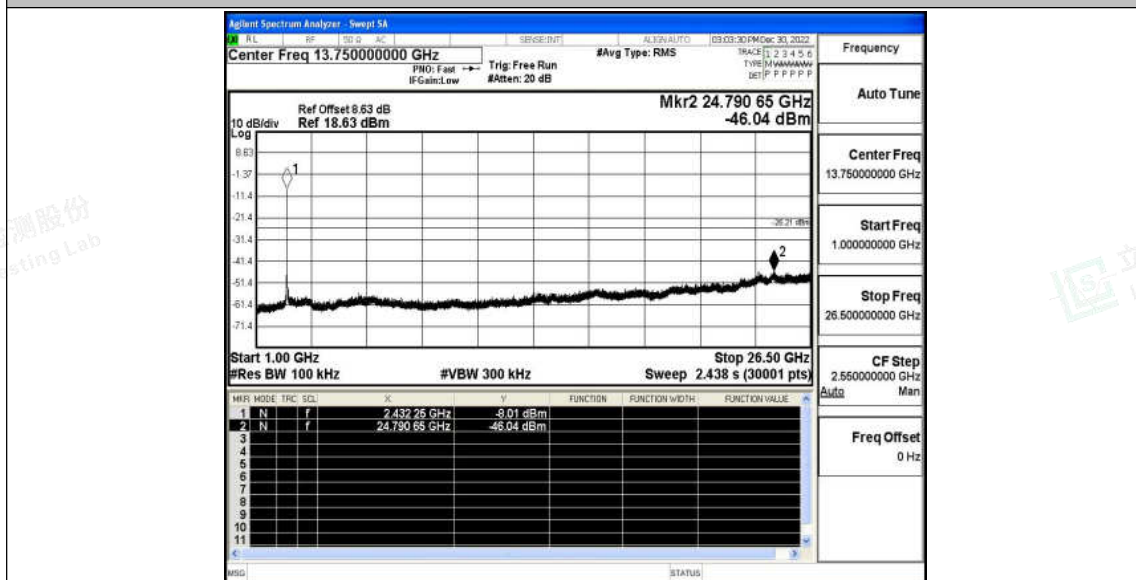


11N20SISO_Ant1_2437_30~1000



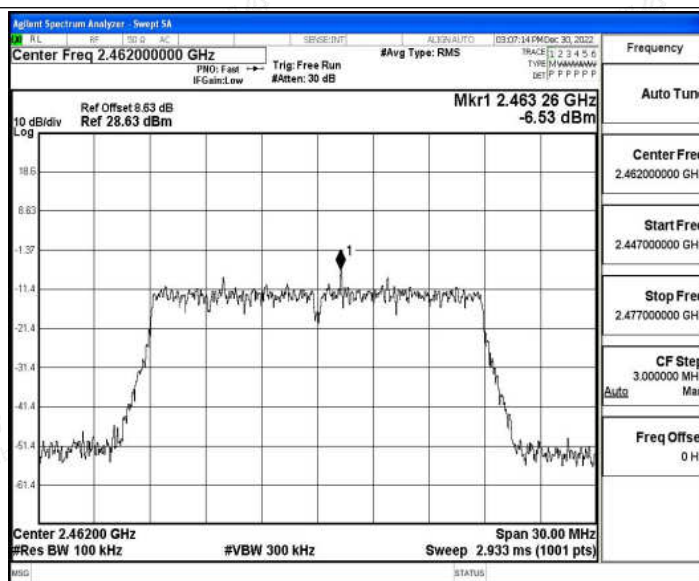


11N20SISO_Ant1_2437_1000~26500

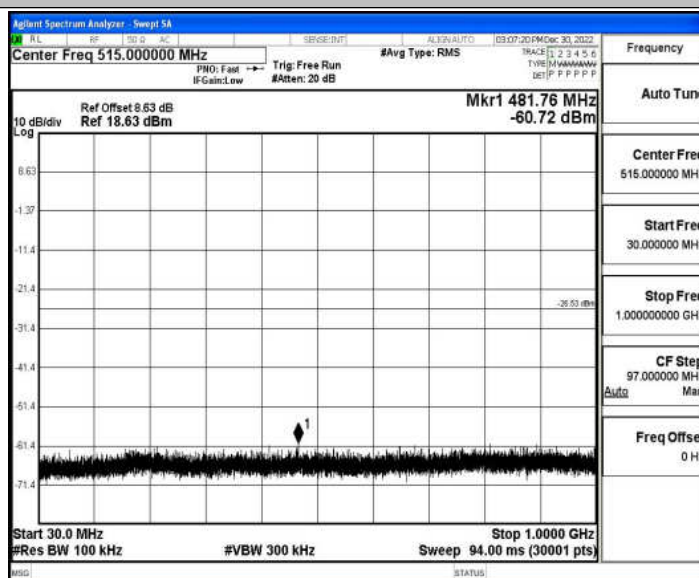


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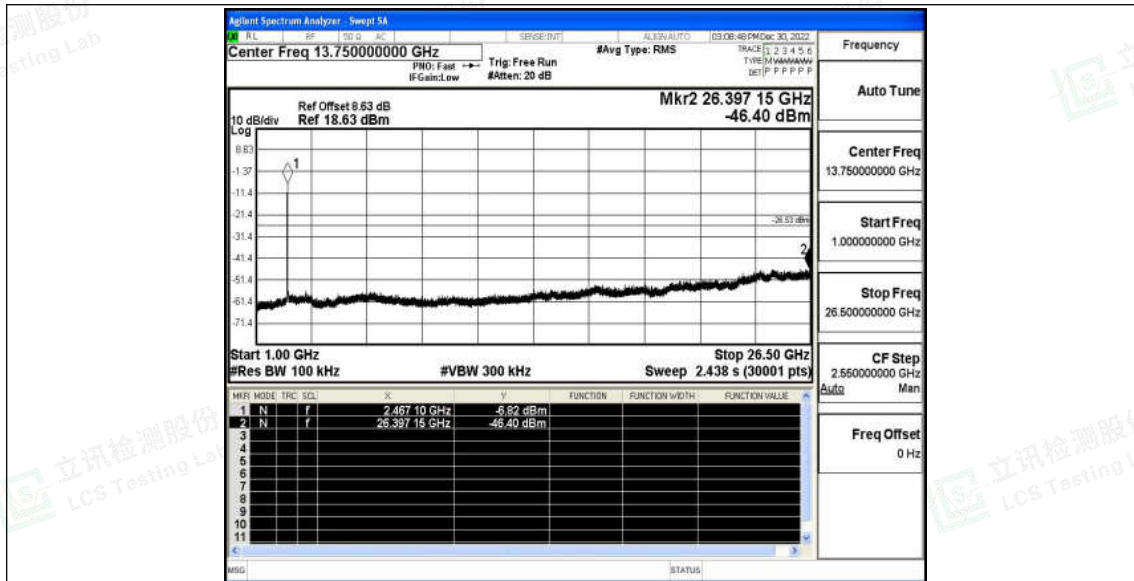


11N20SISO_Ant1_2462_30~1000

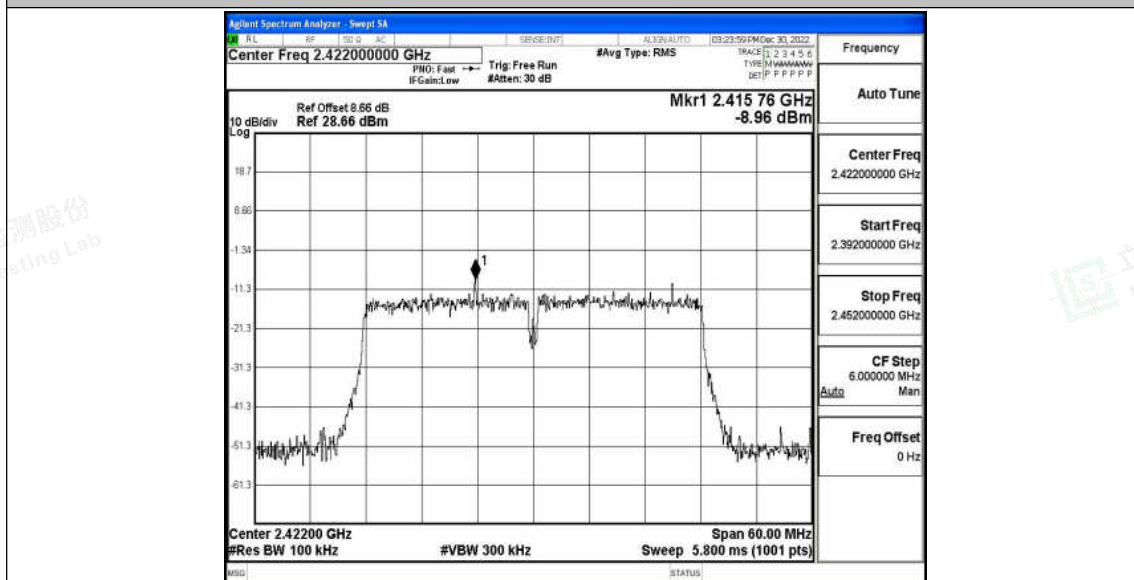


11N20SISO_Ant1_2462_1000~26500



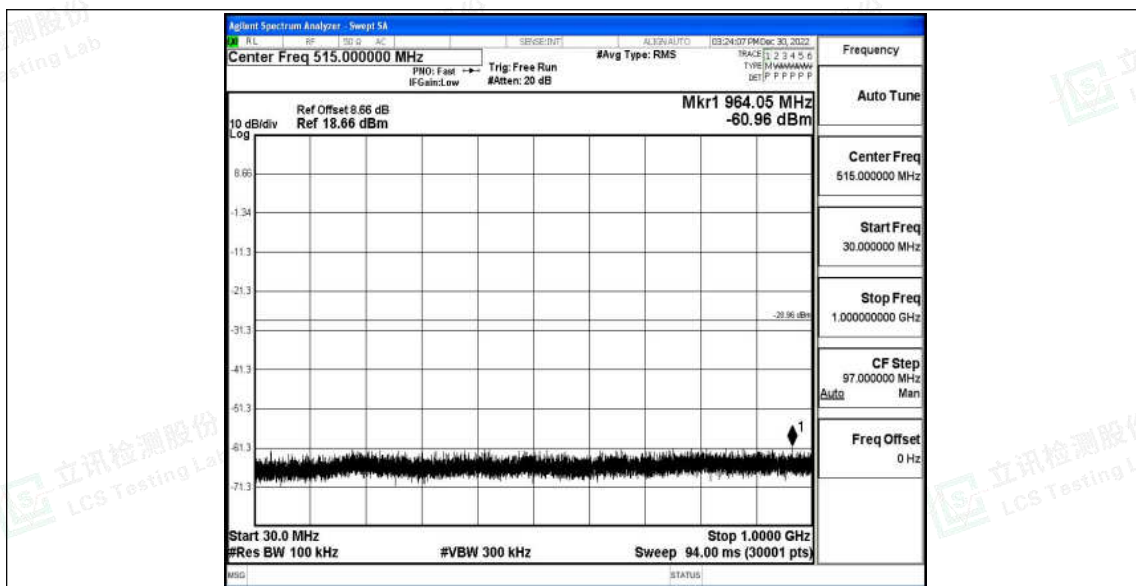


11N40SISO_Ant1_2422_0~Reference

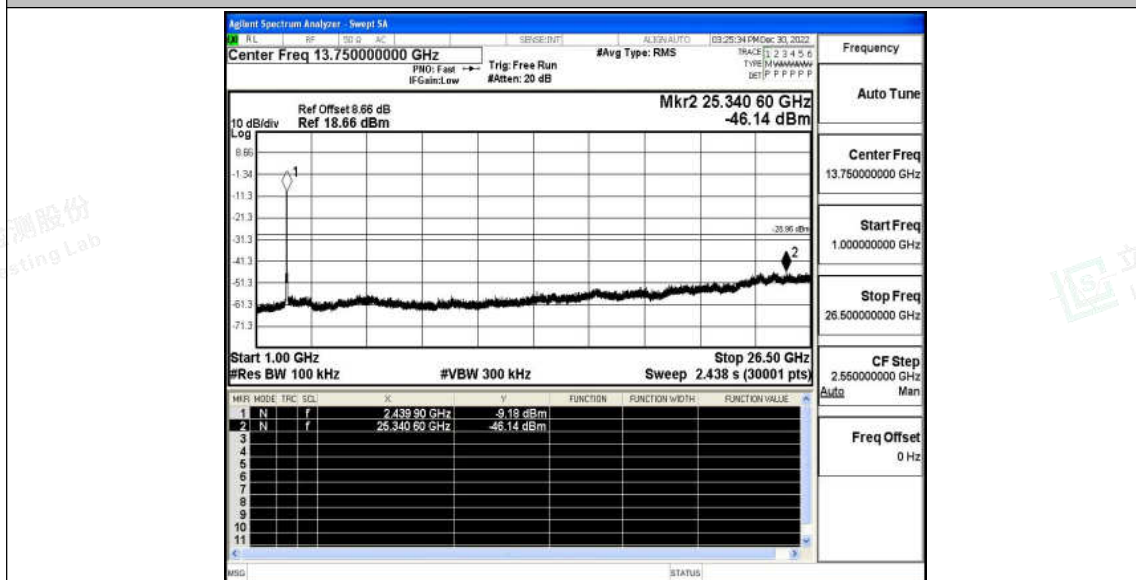


11N40SISO_Ant1_2422_30~1000



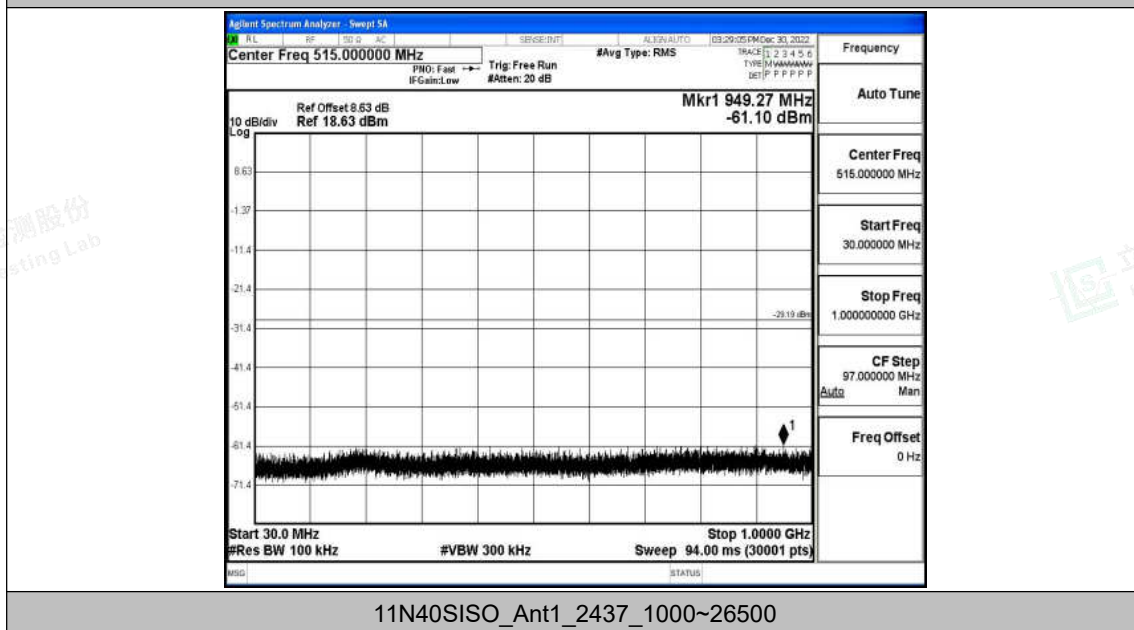
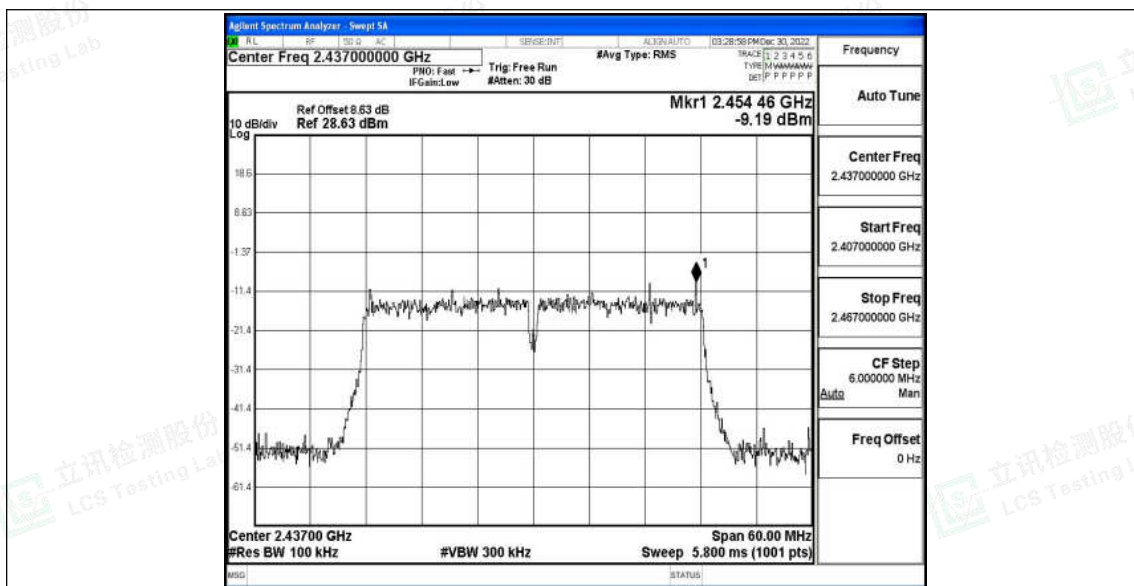


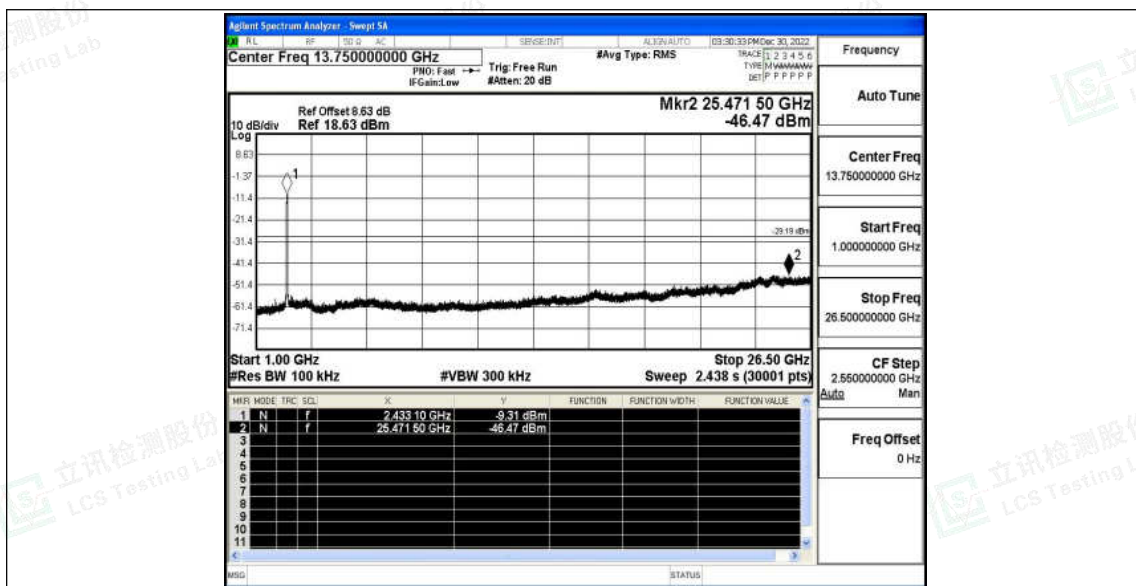
11N40SISO_Ant1_2422_1000~26500



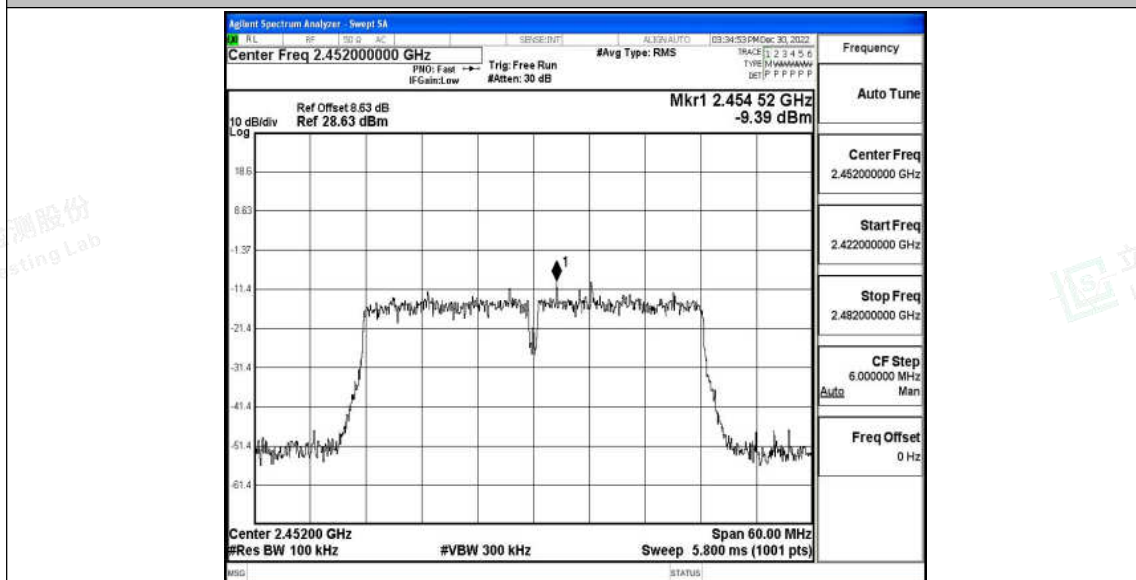
11N40SISO_Ant1_2437_0~Reference





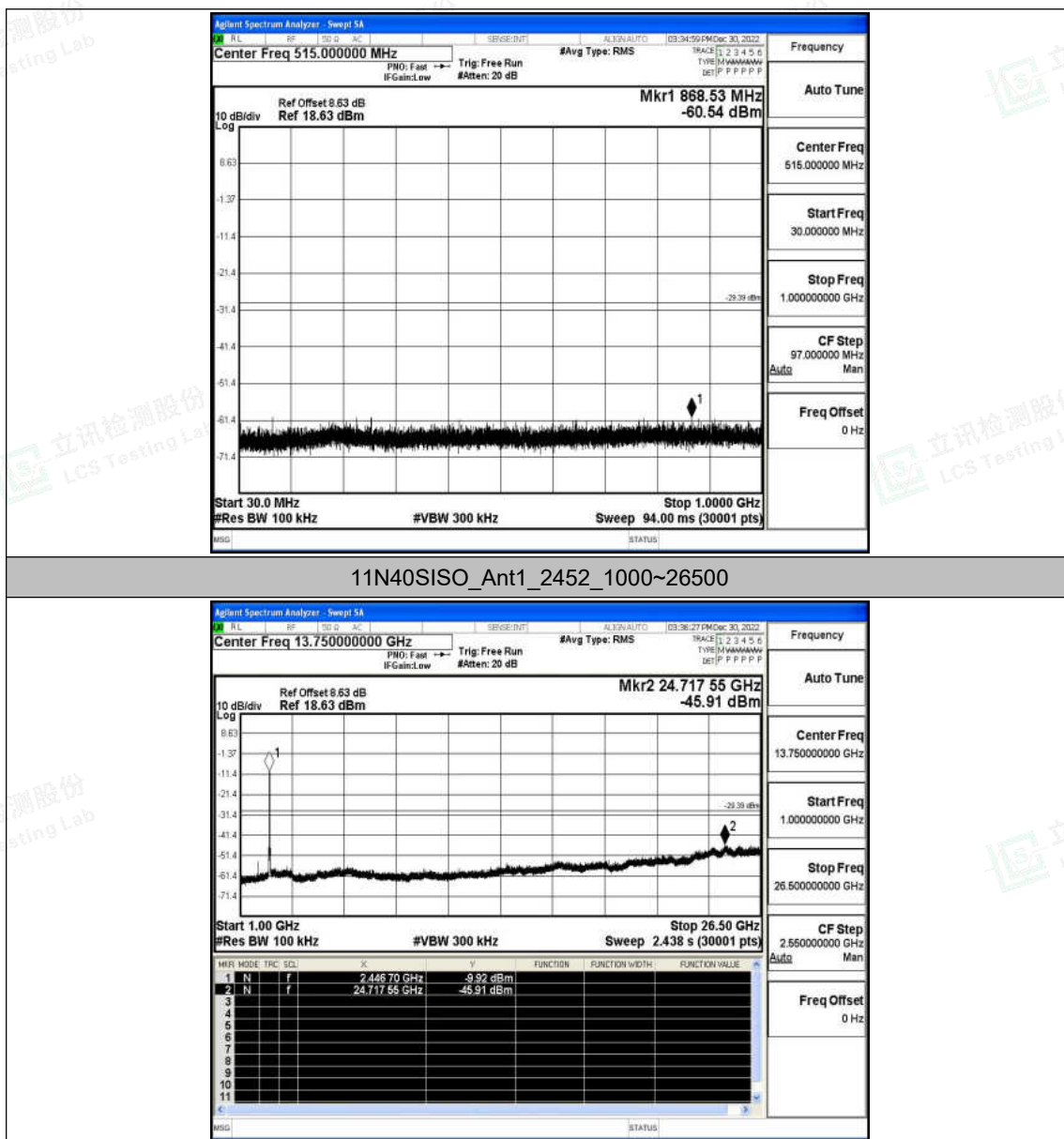


11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000







A.6 Duty Cycle

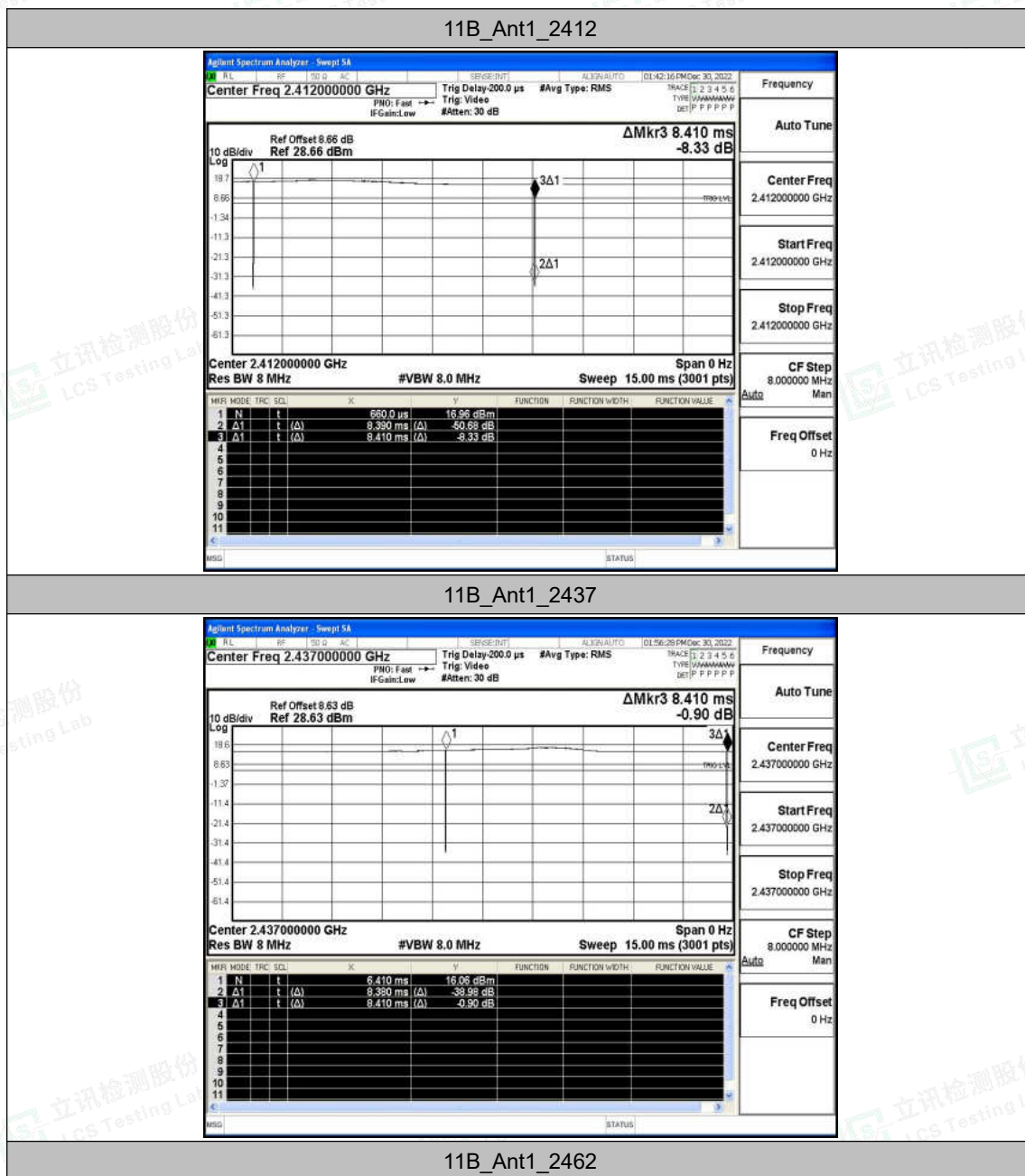
Test Result

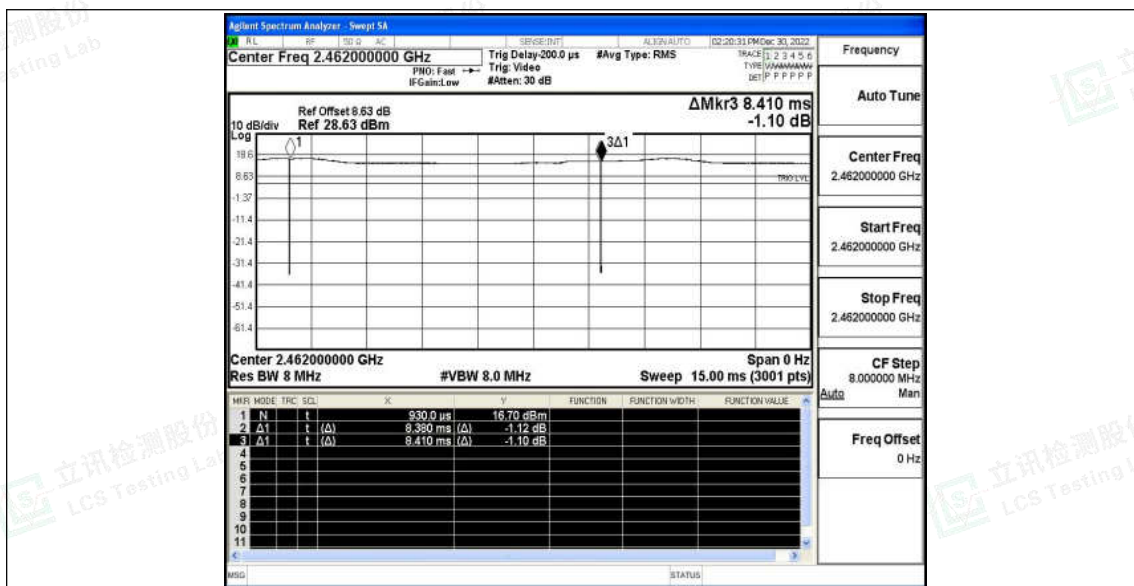
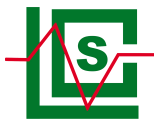
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	Verdict
11B	Ant1	2412	8.39	8.41	99.76	0.01	---
		2437	8.38	8.41	99.64	0.02	---
		2462	8.38	8.41	99.64	0.02	---
11G	Ant1	2412	1.39	1.42	97.89	0.09	---
		2437	1.39	1.43	97.20	0.12	---
		2462	1.39	1.43	97.20	0.12	---
11N20SISO	Ant1	2412	1.30	1.34	97.01	0.13	---
		2437	1.30	1.34	97.01	0.13	---
		2462	1.30	1.33	97.74	0.10	---
11N40SISO	Ant1	2422	0.65	0.68	95.59	0.20	---
		2437	0.65	0.69	94.20	0.26	---
		2452	0.64	0.68	94.12	0.26	---



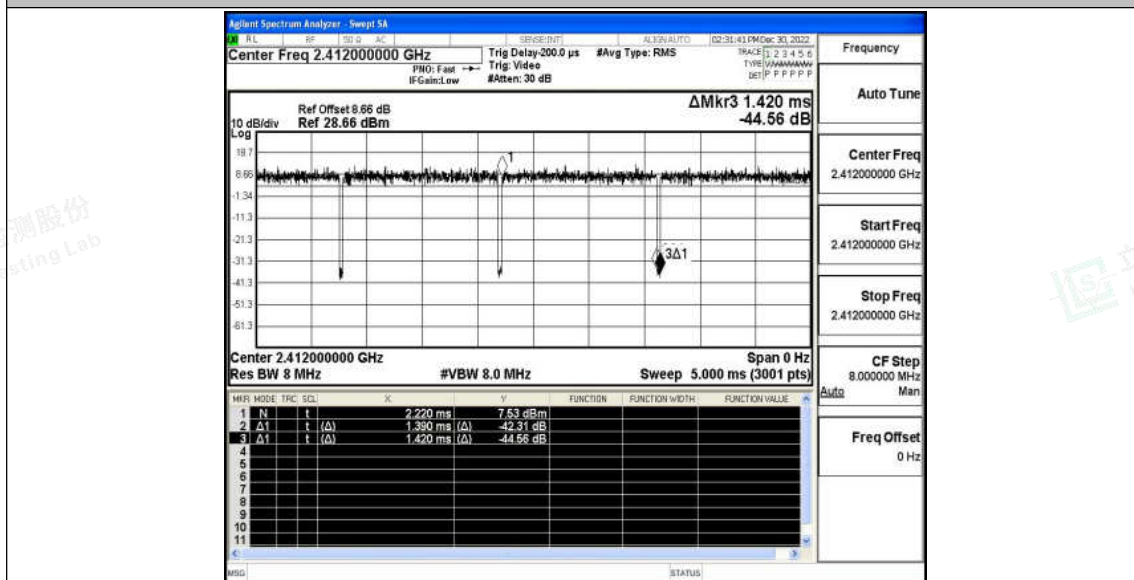


Test Graphs



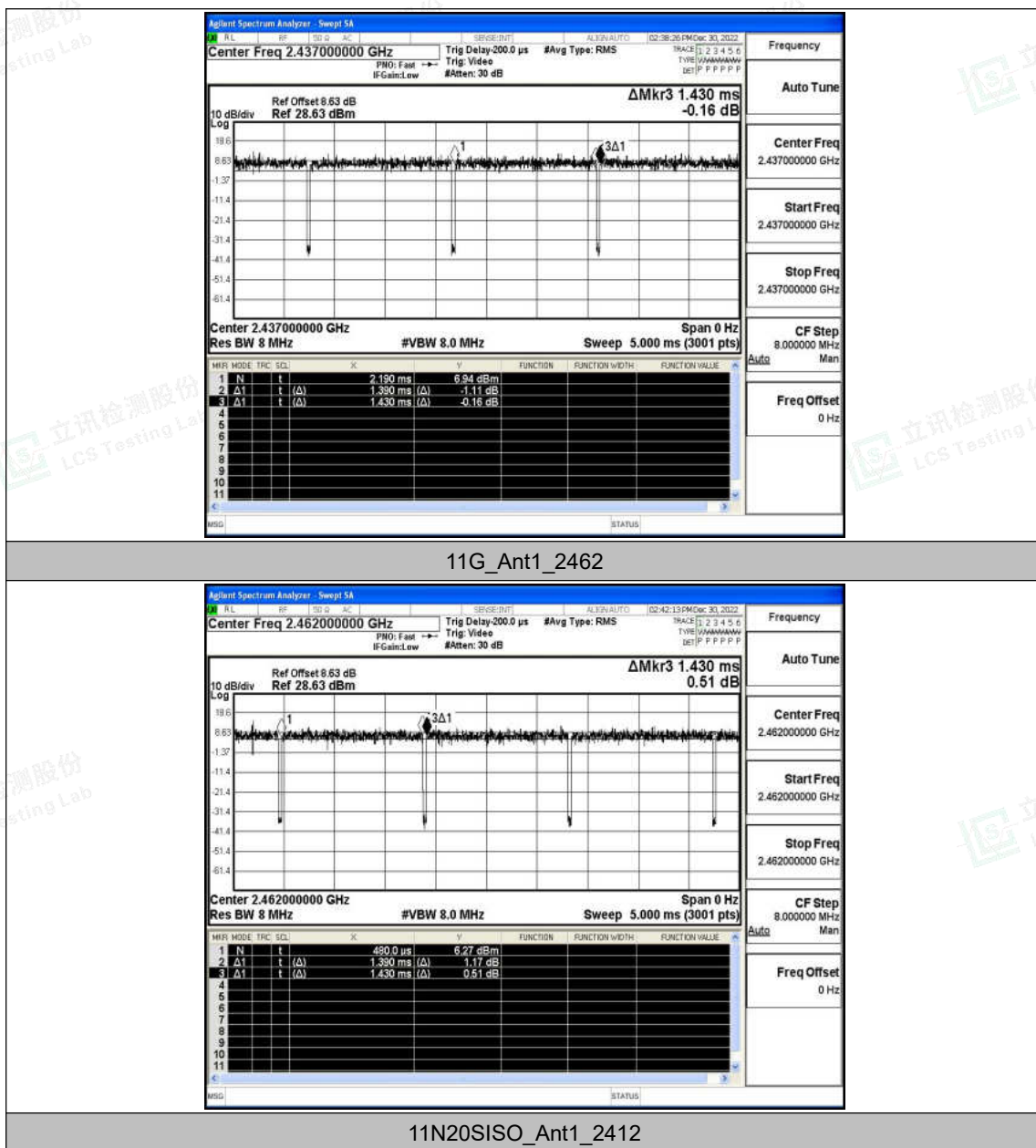


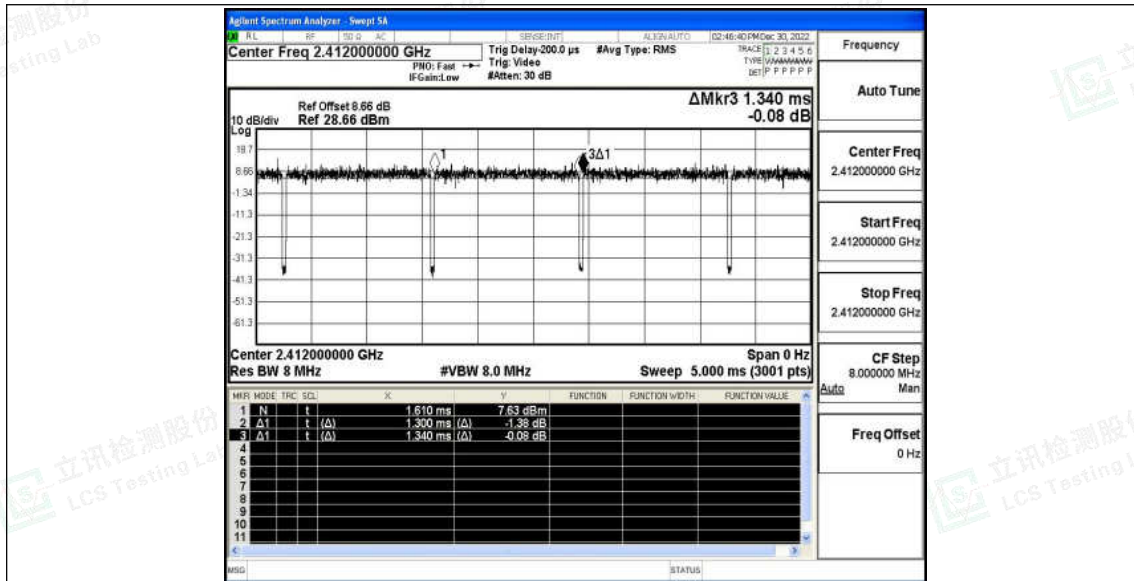
11G_Ant1_2412



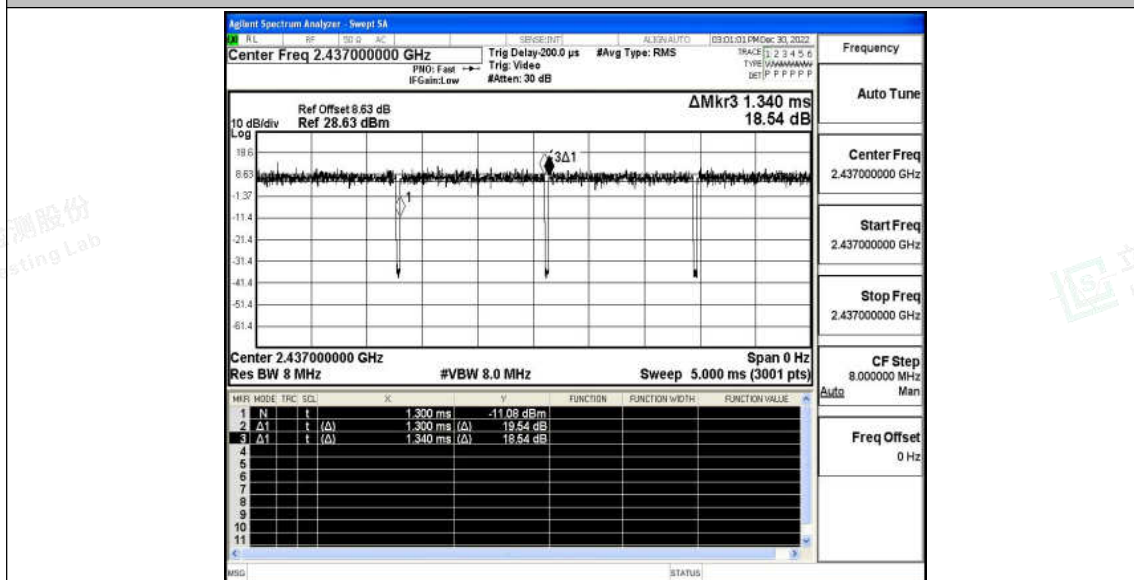
11G_Ant1_2437





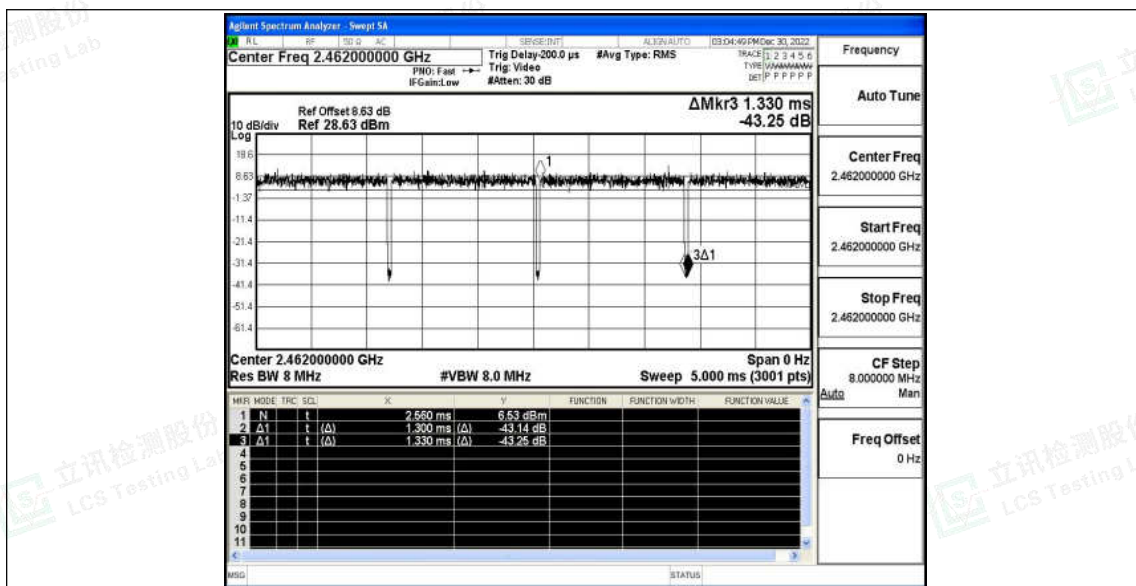


11N20SISO_Ant1_2437

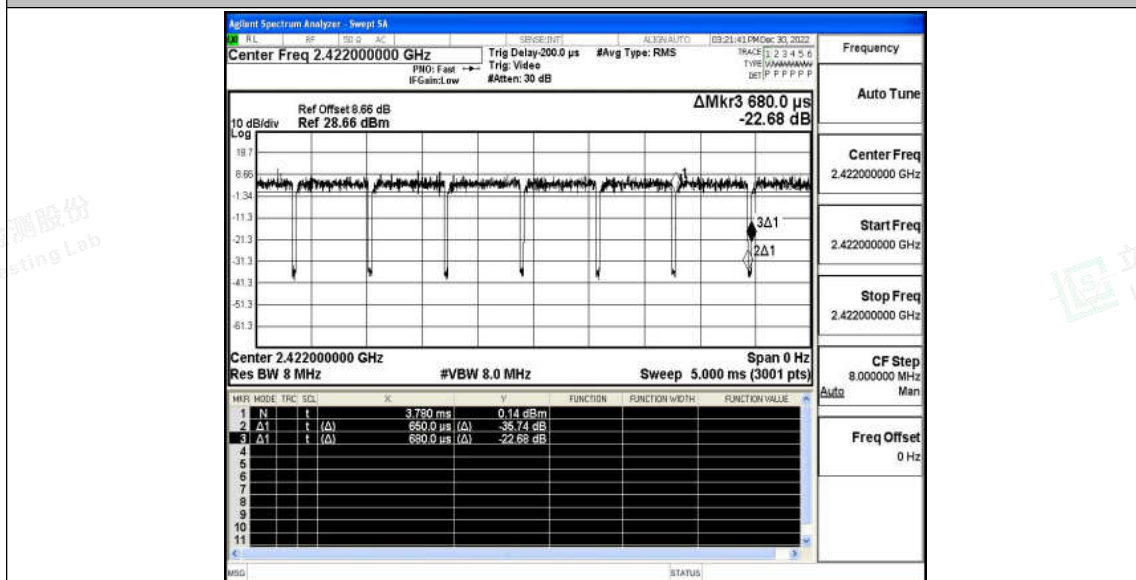


11N20SISO_Ant1_2462



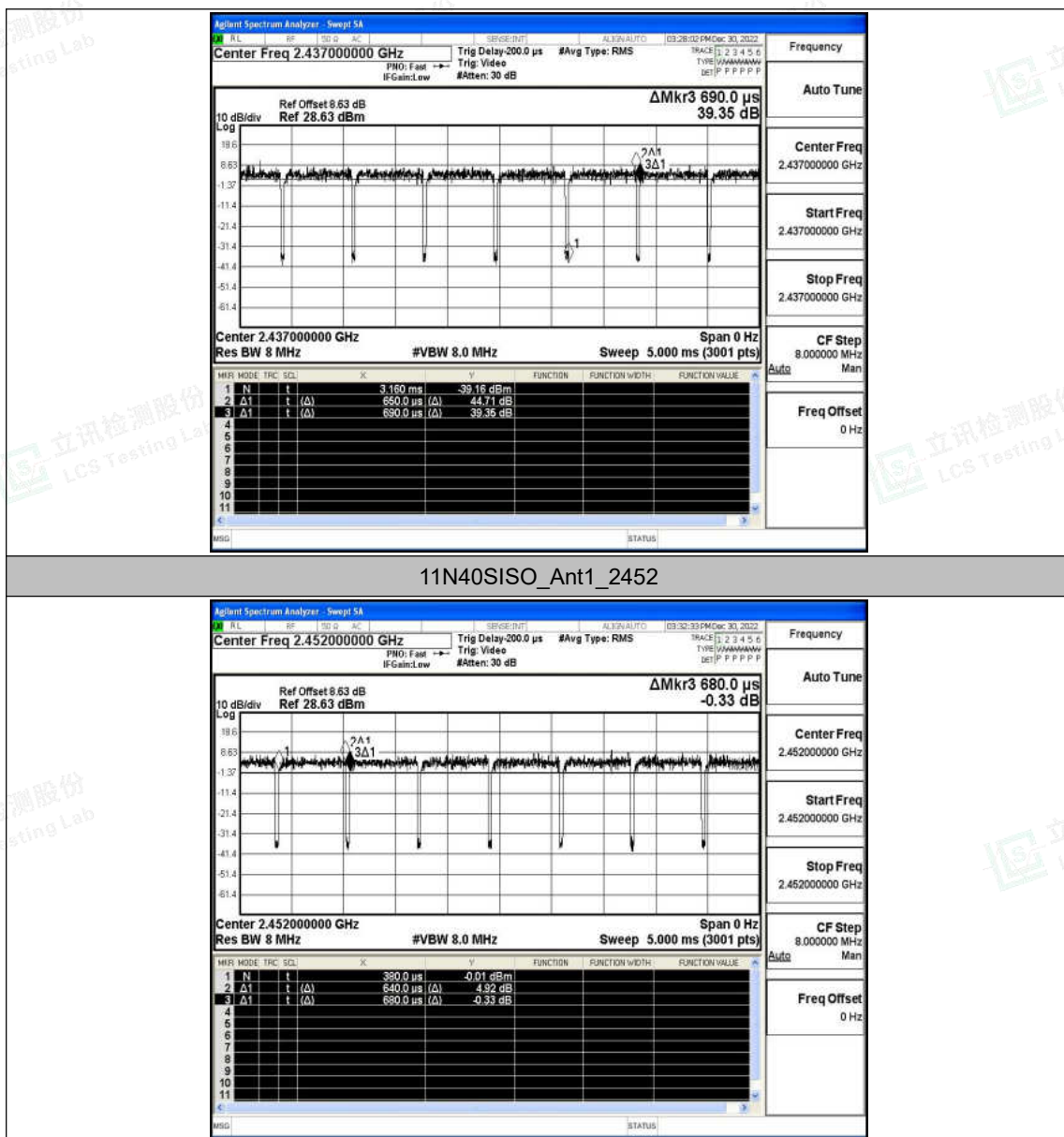


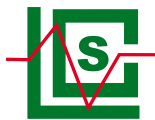
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437







A.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	Ant1	Low	2412	AV	2310.000	-58.42	≤-41.20	36.78	≤54	PASS
				AV	2389.960	-54.98	≤-41.20	40.22	≤54	PASS
				AV	2390.000	-54.98	≤-41.20	40.22	≤54	PASS
				Peak	2310.000	-47.72	≤-21.20	47.48	≤74	PASS
				Peak	2389.960	-44.86	≤-21.20	50.34	≤74	PASS
				Peak	2390.000	-44.86	≤-21.20	50.34	≤74	PASS
		High	2462	AV	2483.500	-54.77	≤-41.20	40.43	≤54	PASS
				AV	2486.750	-54.72	≤-41.20	40.48	≤54	PASS
				AV	2500.000	-56.65	≤-41.20	38.55	≤54	PASS
				Peak	2483.500	-44.7	≤-21.20	50.50	≤74	PASS
				Peak	2487.190	-43.77	≤-21.20	51.43	≤74	PASS
				Peak	2500.000	-46.24	≤-21.20	48.96	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-57.84	≤-41.20	37.36	≤54	PASS
				AV	2389.700	-53.36	≤-41.20	41.84	≤54	PASS
				AV	2390.000	-53.44	≤-41.20	41.76	≤54	PASS
				Peak	2310.000	-47.41	≤-21.20	47.79	≤74	PASS
				Peak	2389.960	-38.61	≤-21.20	56.59	≤74	PASS
				Peak	2390.000	-38.61	≤-21.20	56.59	≤74	PASS
		High	2462	AV	2483.500	-53.3	≤-41.20	41.90	≤54	PASS
				AV	2483.560	-53.69	≤-41.20	41.51	≤54	PASS
				AV	2500.000	-55.8	≤-41.20	39.40	≤54	PASS
				Peak	2483.500	-37.54	≤-21.20	57.66	≤74	PASS
				Peak	2484.220	-37.2	≤-21.20	58.00	≤74	PASS
				Peak	2500.000	-46.16	≤-21.20	49.04	≤74	PASS
11N20SIS O	Ant1	Low	2412	AV	2310.000	-57.85	≤-41.20	37.35	≤54	PASS
				AV	2389.960	-52.2	≤-41.20	43.00	≤54	PASS
				AV	2390.000	-52.2	≤-41.20	43.00	≤54	PASS
				Peak	2310.000	-47.58	≤-21.20	47.62	≤74	PASS
				Peak	2389.830	-36.44	≤-21.20	58.76	≤74	PASS
				Peak	2390.000	-37.74	≤-21.20	57.46	≤74	PASS
		High	2462	AV	2483.500	-52.67	≤-41.20	42.53	≤54	PASS
				AV	2483.780	-52.66	≤-41.20	42.54	≤54	PASS
				AV	2500.000	-55.79	≤-41.20	39.41	≤54	PASS
				Peak	2483.500	-32.63	≤-21.20	62.57	≤74	PASS
				Peak	2483.560	-33.98	≤-21.20	61.22	≤74	PASS



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Scan code to check authenticity



11N40SIS O	Ant1	Low	2422	Peak	2500.000	-45.1	≤ -21.20	50.10	≤ 74	PASS
				AV	2310.000	-57.8	≤ -41.20	37.40	≤ 54	PASS
				AV	2388.530	-48.49	≤ -41.20	46.71	≤ 54	PASS
				AV	2390.000	-48.76	≤ -41.20	46.44	≤ 54	PASS
				Peak	2310.000	-47.68	≤ -21.20	47.52	≤ 74	PASS
				Peak	2388.270	-30.93	≤ -21.20	64.27	≤ 74	PASS
				Peak	2390.000	-32.47	≤ -21.20	62.73	≤ 74	PASS
		High	2452	AV	2483.500	-48.73	≤ -41.20	46.47	≤ 54	PASS
				AV	2484.330	-46.55	≤ -41.20	48.65	≤ 54	PASS
				AV	2500.000	-53.04	≤ -41.20	42.16	≤ 54	PASS
				Peak	2483.500	-31.71	≤ -21.20	63.49	≤ 74	PASS
				Peak	2485.540	-28.88	≤ -21.20	66.32	≤ 74	PASS
				Peak	2500.000	-41.02	≤ -21.20	54.18	≤ 74	PASS

Note:

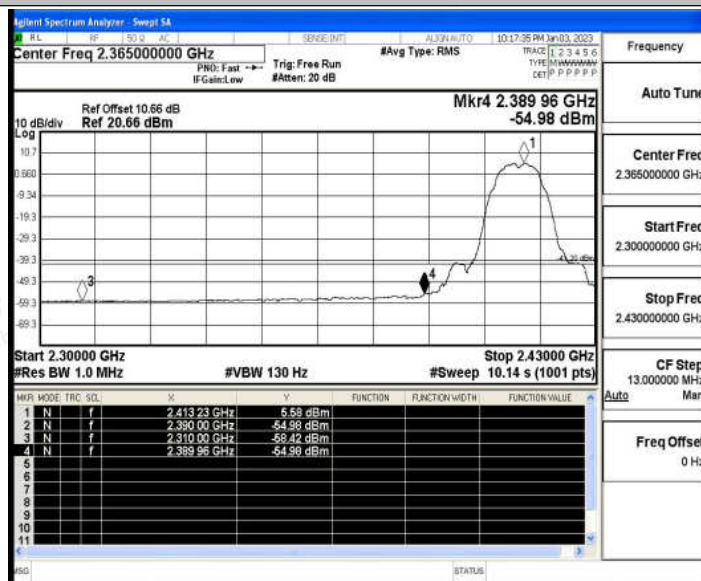
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



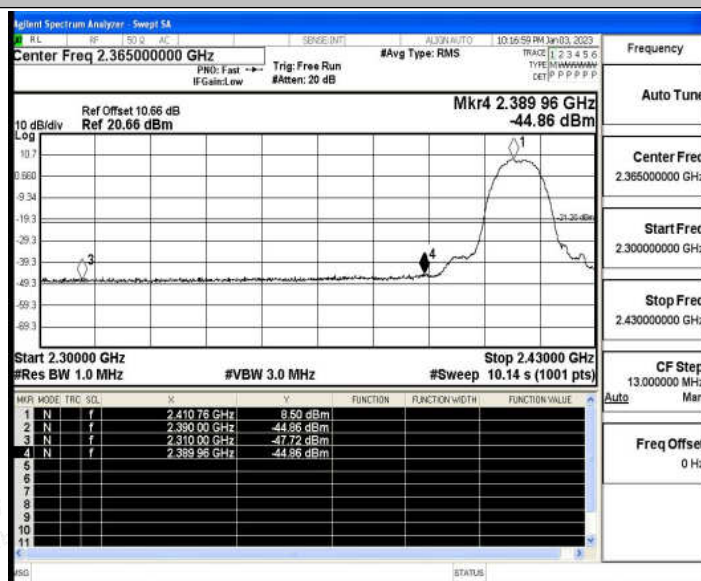


Test Graphs

11B_Ant1_Low_2412_AV

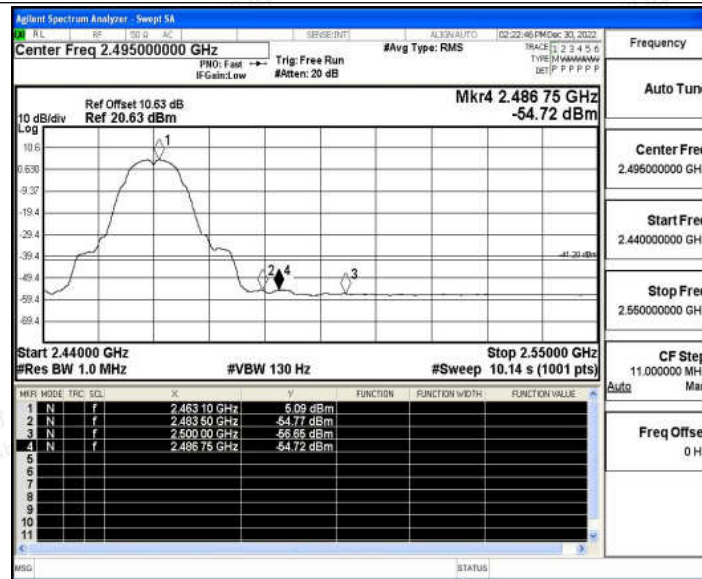


11B_Ant1_Low_2412_Peak

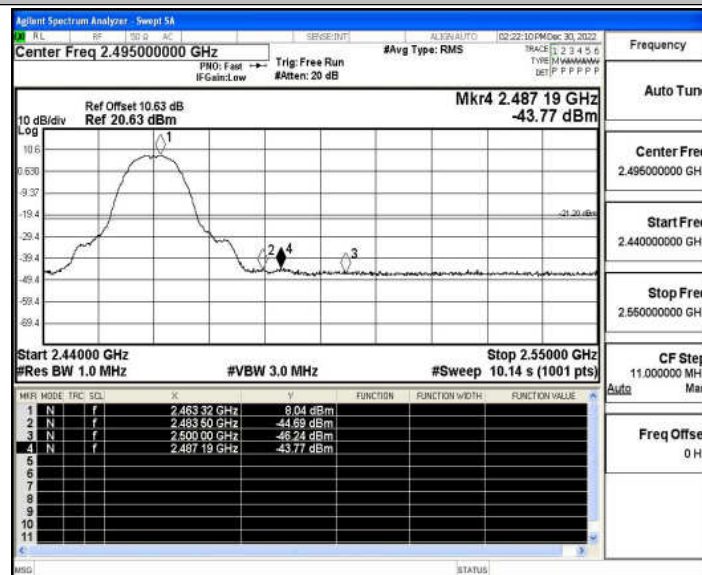


11B_Ant1_High_2462_AV



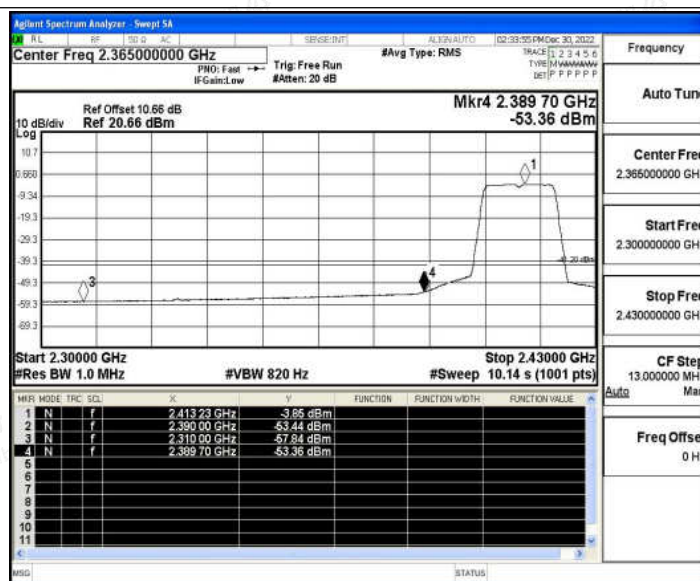


11B_Ant1_High_2462_Peak

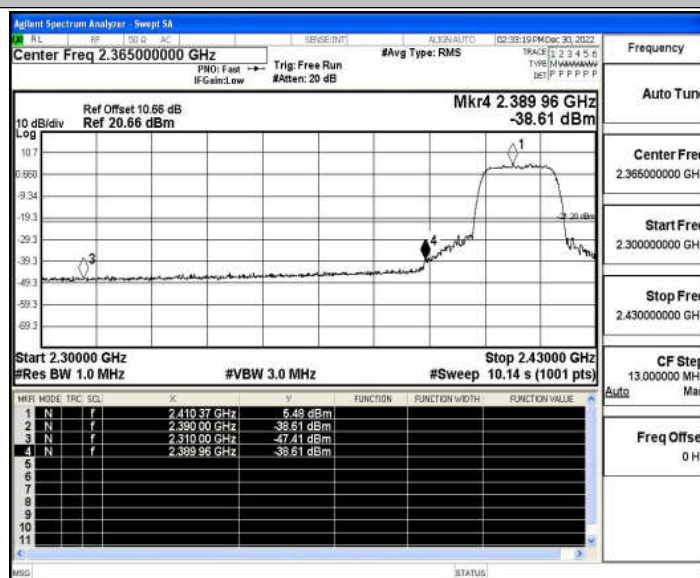


11G_Ant1_Low_2412_AV



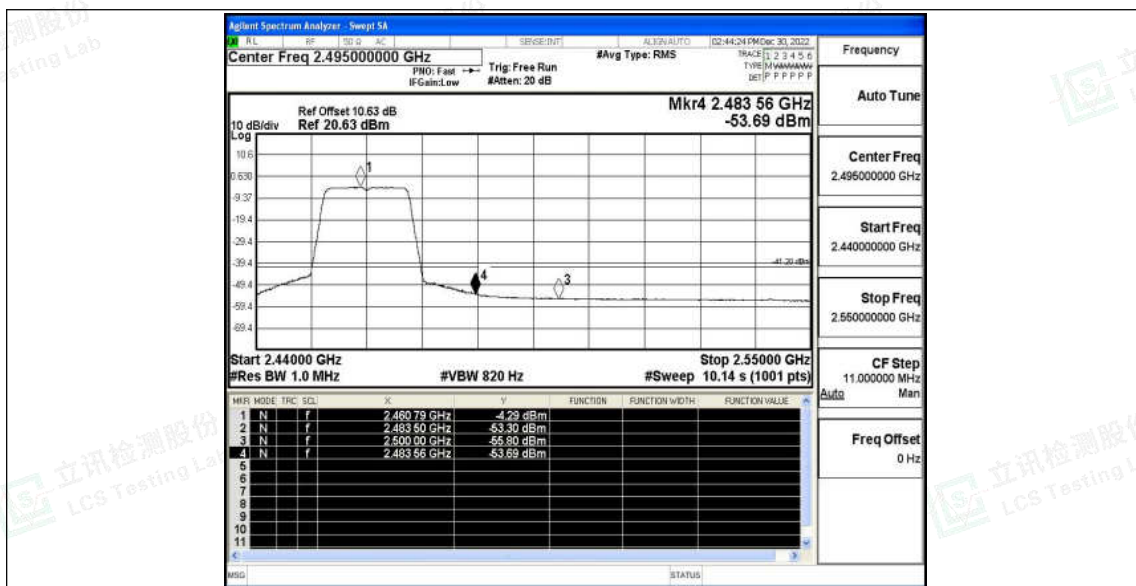


11G_Ant1_Low_2412_Peak

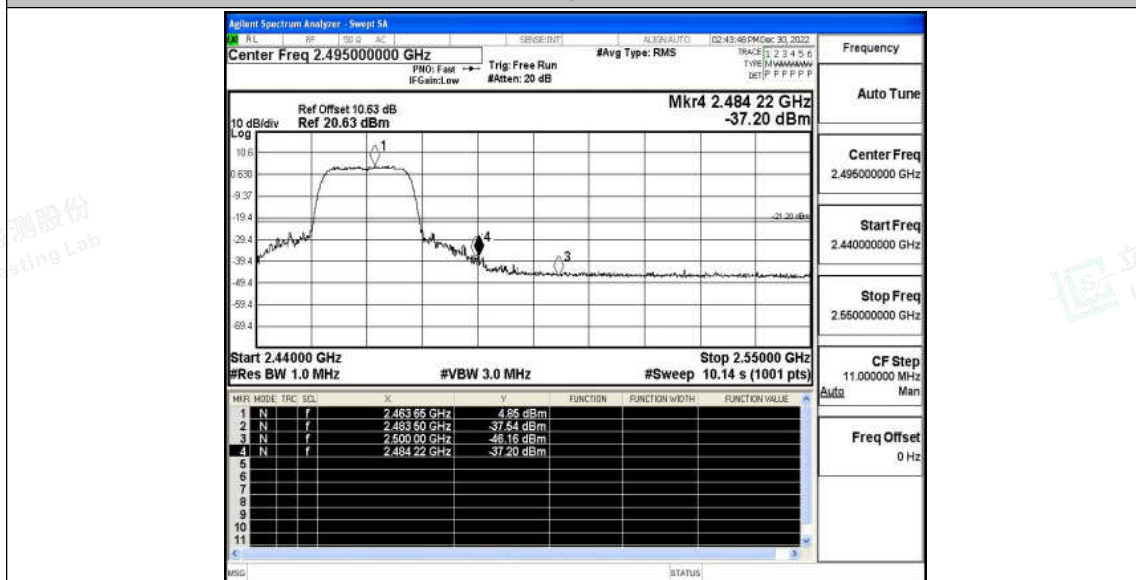


11G_Ant1_High_2462_AV



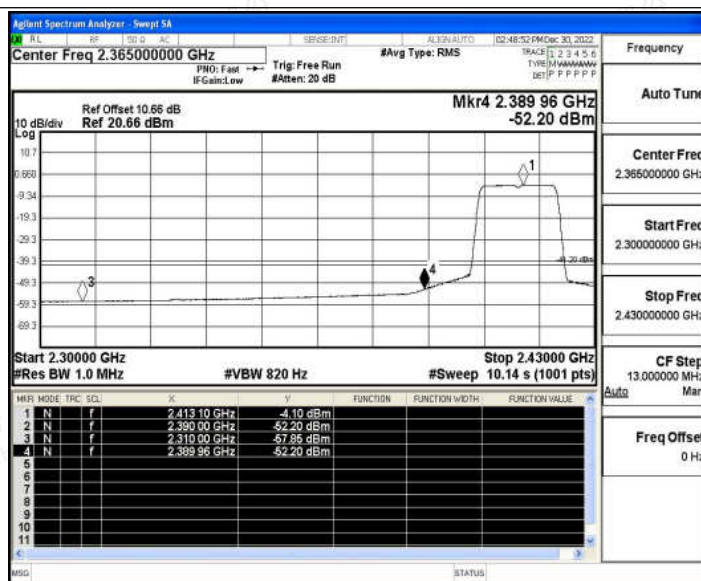


11G_Ant1_High_2462_Peak

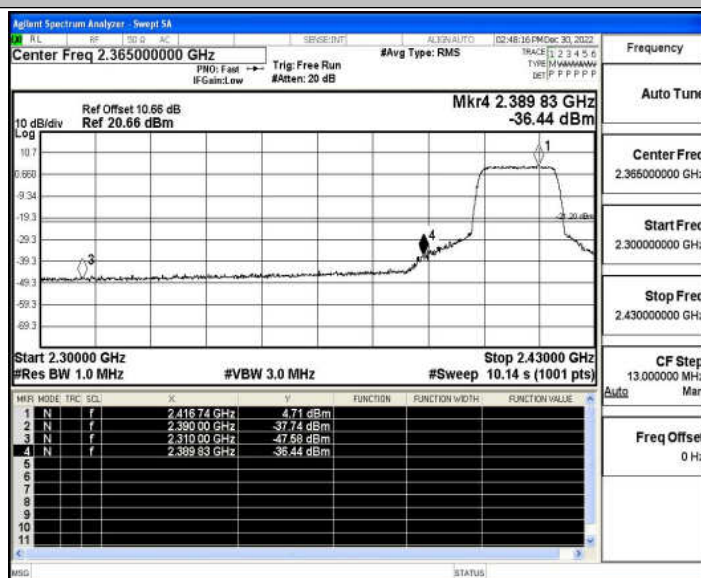


11N20SISO_Ant1_Low_2412_AV



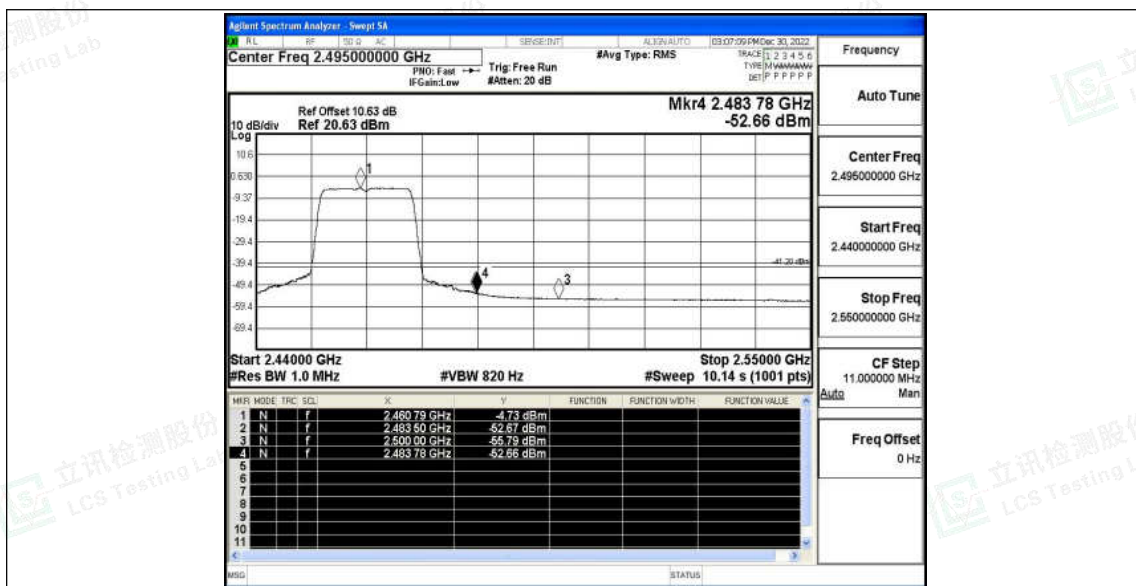


11N20SISO_Ant1_Low_2412_Peak

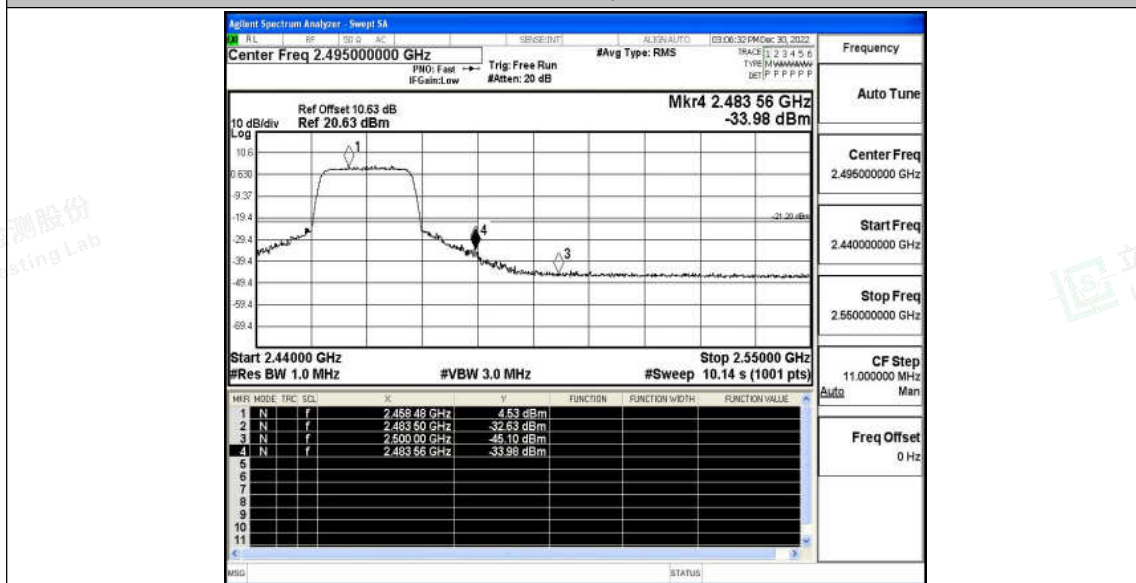


11N20SISO_Ant1_High_2462_AV



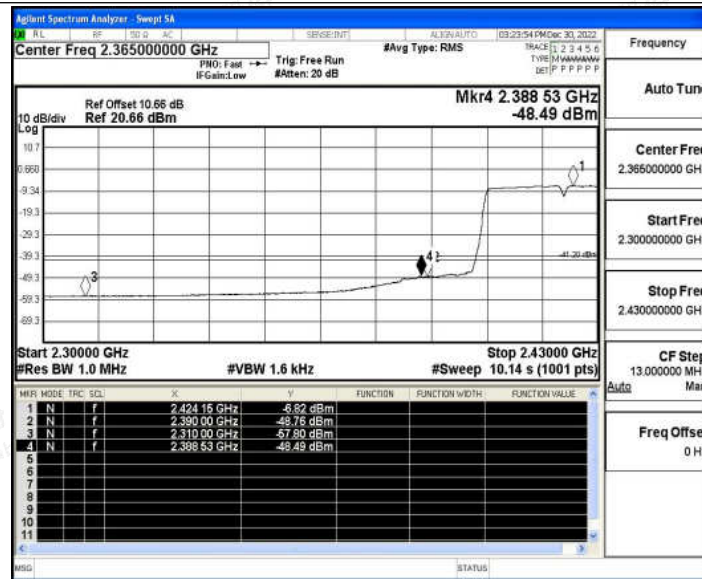


11N20SISO_Ant1_High_2462_Peak

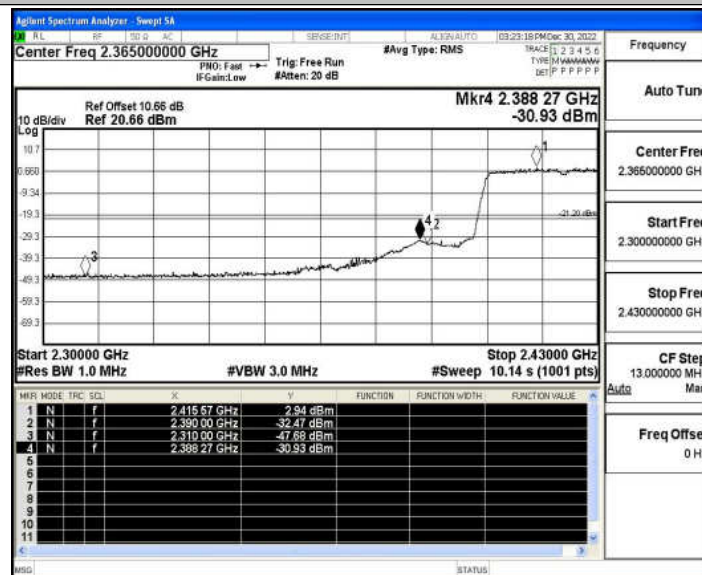


11N40SISO_Ant1_Low_2422_AV





11N40SISO_Ant1_Low_2422_Peak



11N40SISO_Ant1_High_2452_AV



