



## Appendix B

### RF Test Data for BLE (Conducted Measurement)

Product Name: Human Presence Sensor

Test Model: SWR07

#### Environmental Conditions

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





### B.1 DTS Bandwidth

#### Test Result

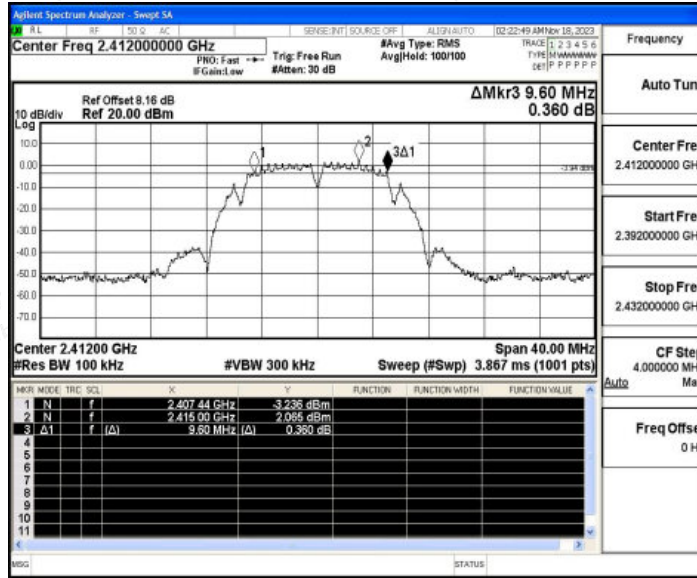
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.600	2407.440	2417.040	0.5	PASS
		2437	9.600	2431.960	2441.560	0.5	PASS
		2462	9.600	2457.440	2467.040	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.280	2428.840	2445.120	0.5	PASS
		2462	16.280	2453.840	2470.120	0.5	PASS
11N20SISO	Ant1	2412	16.680	2403.680	2420.360	0.5	PASS
		2437	16.960	2428.520	2445.480	0.5	PASS
		2462	16.360	2453.920	2470.280	0.5	PASS
11N40SISO	Ant1	2422	35.520	2404.080	2439.600	0.5	PASS
		2437	35.840	2419.080	2454.920	0.5	PASS
		2452	35.280	2434.320	2469.600	0.5	PASS



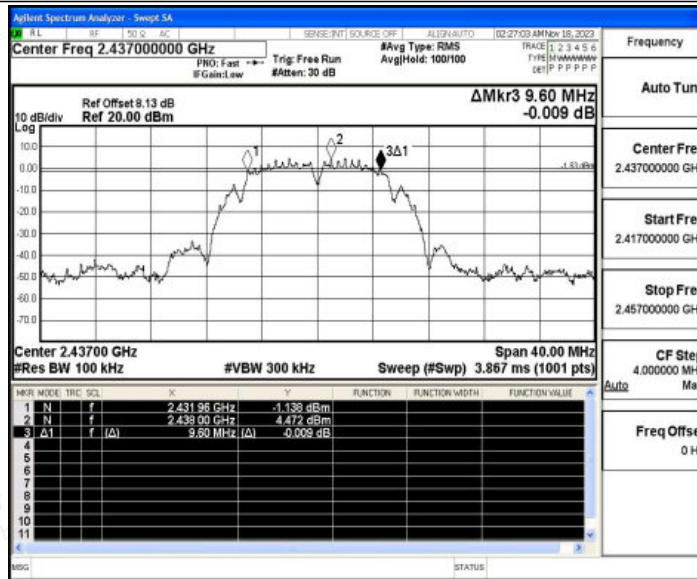


### Test Graphs

11B\_Ant1\_2412

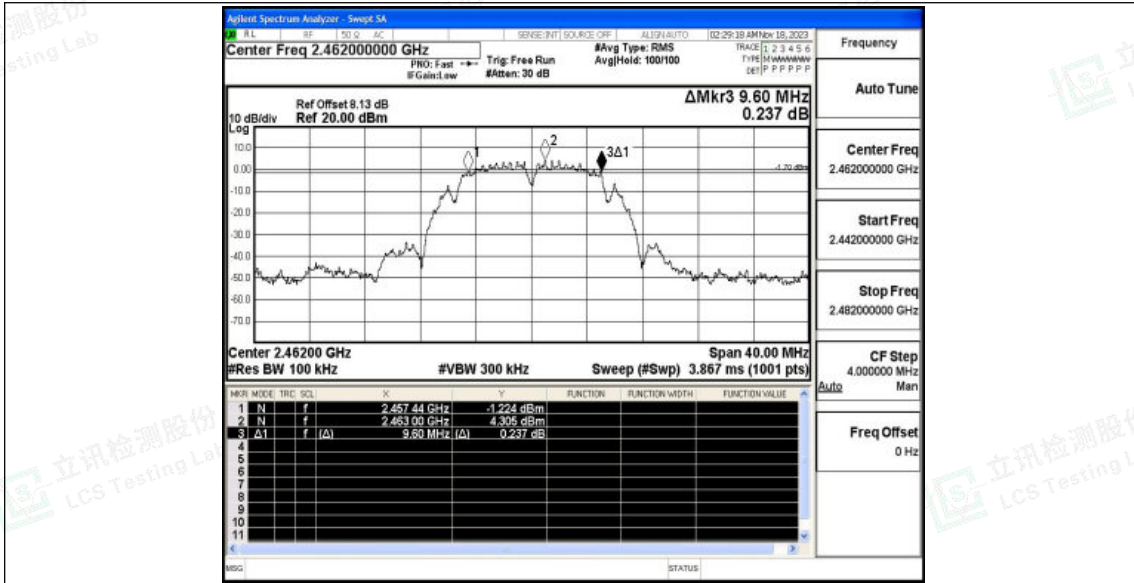


11B\_Ant1\_2437

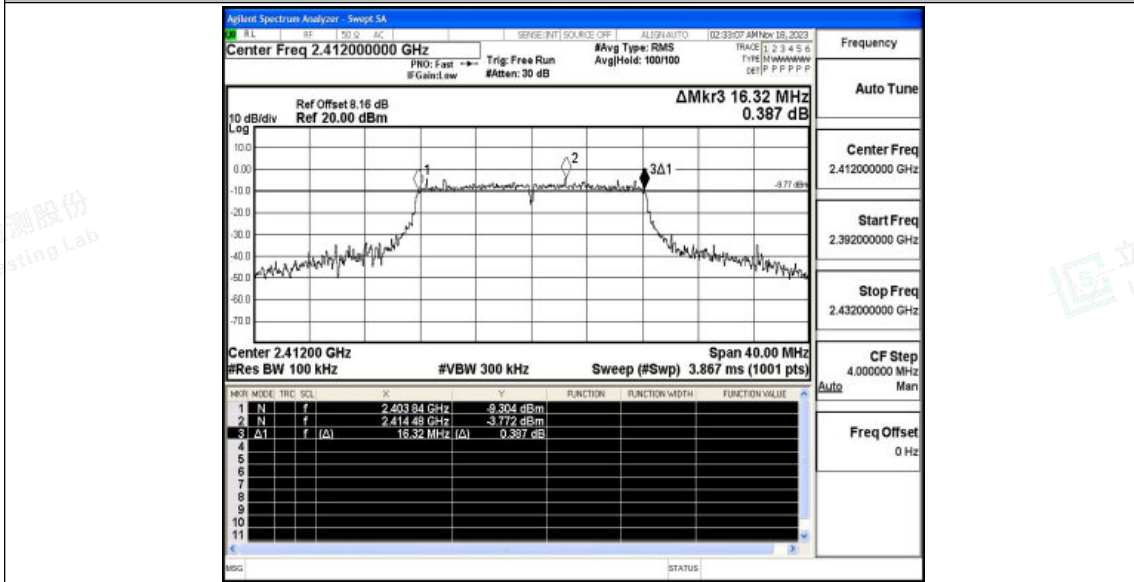


11B\_Ant1\_2462



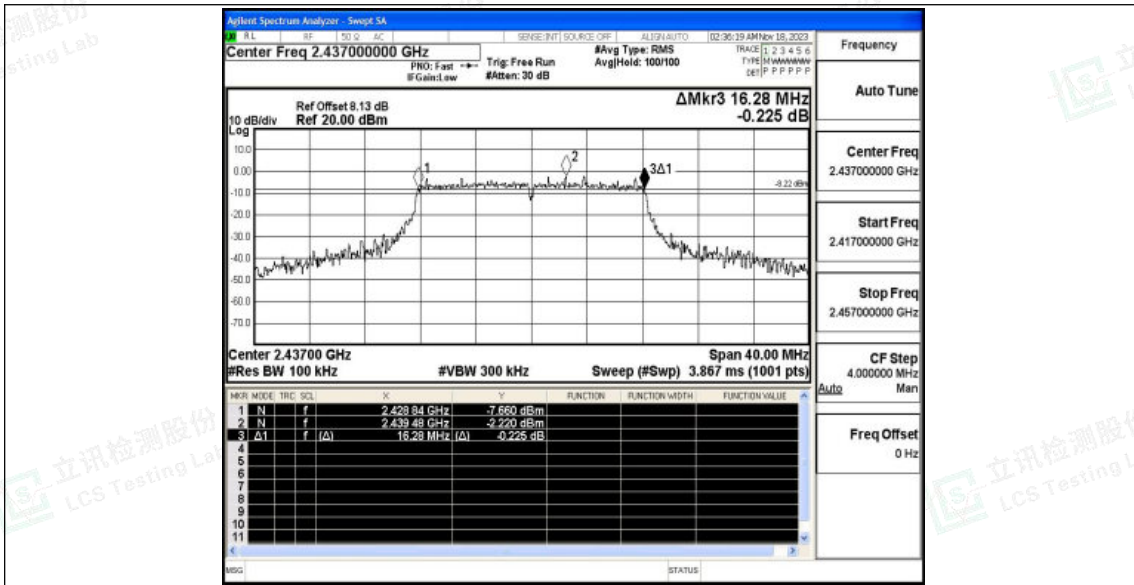


11G\_Ant1\_2412

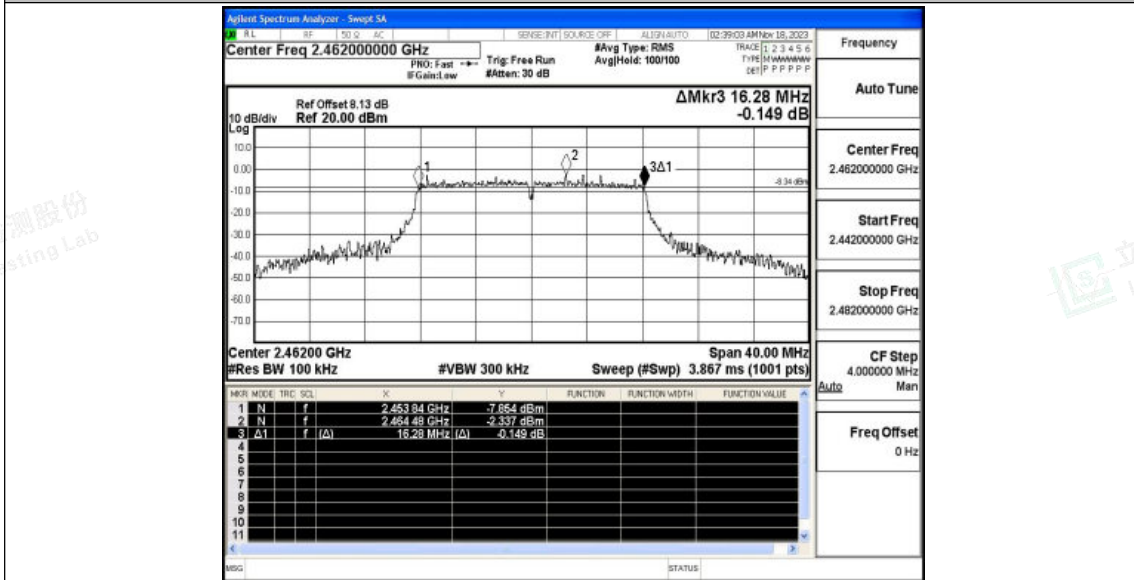


11G\_Ant1\_2437



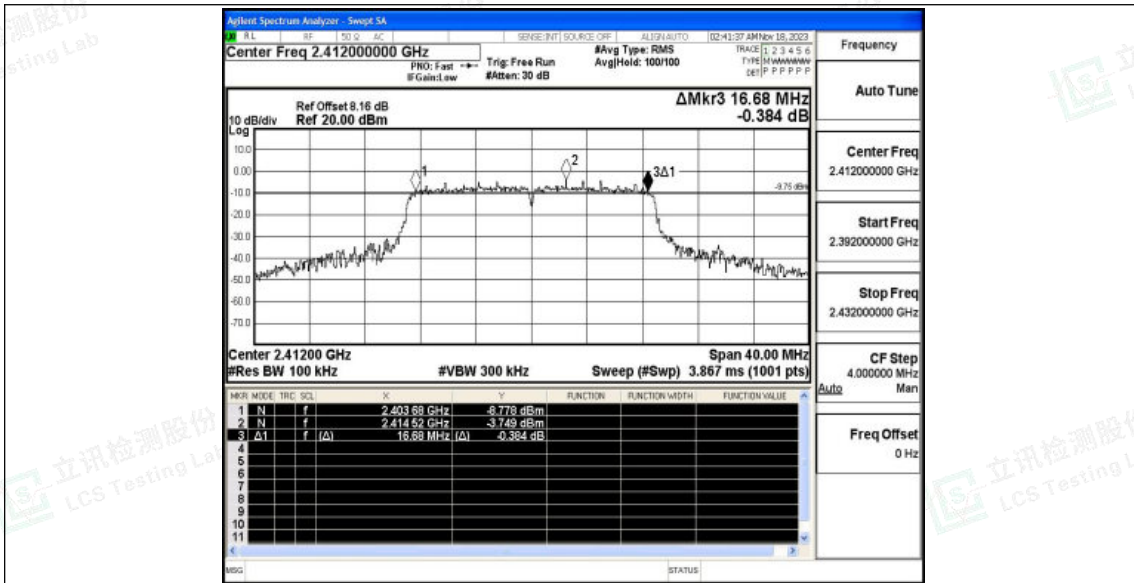


11G\_Ant1\_2462

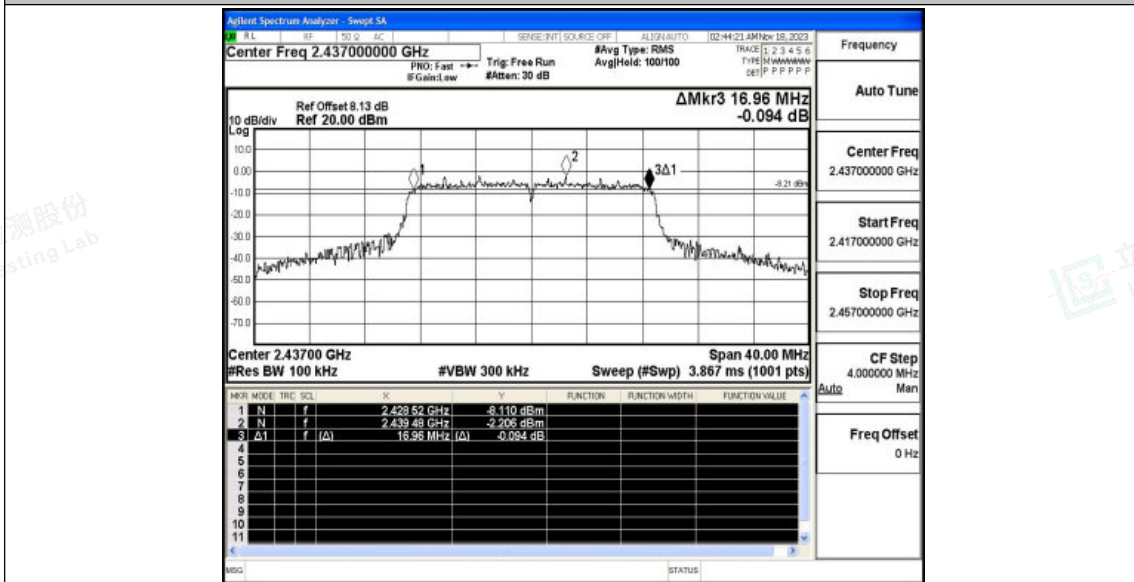


11N20SISO\_Ant1\_2412



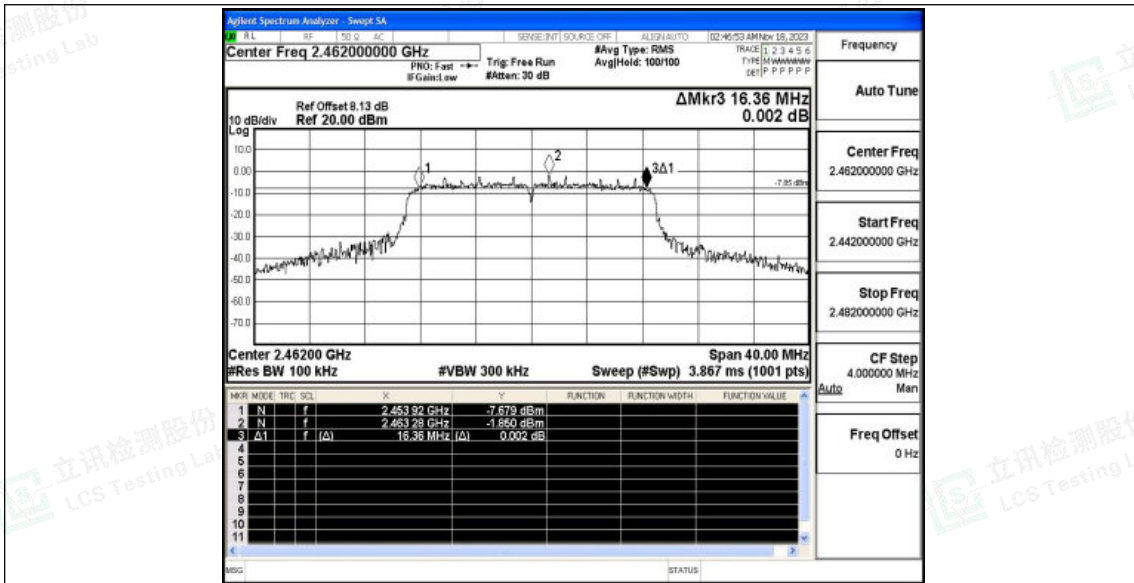


11N20SISO\_Ant1\_2437

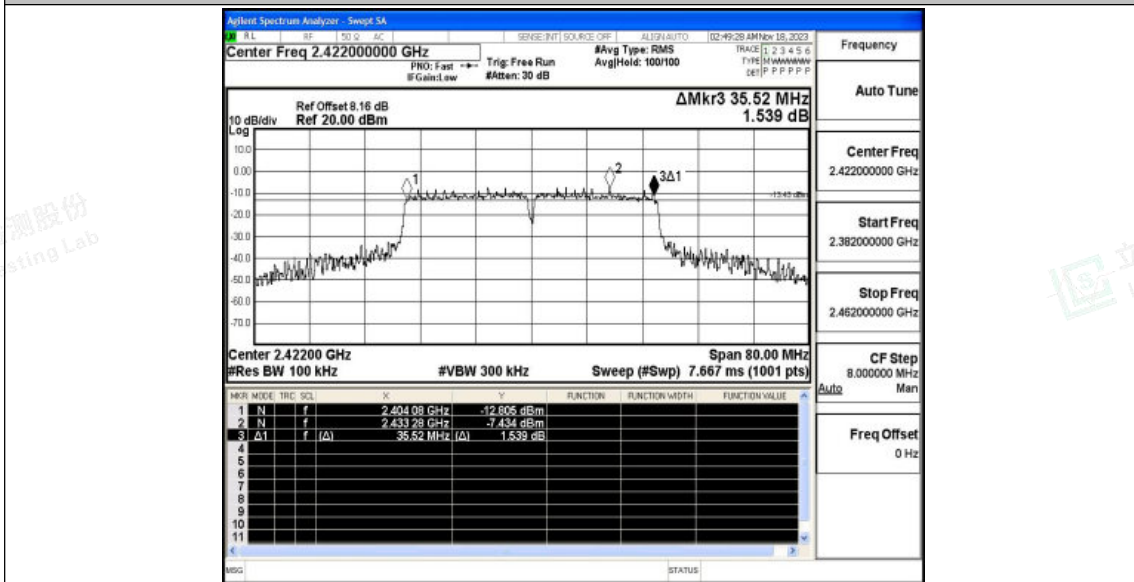


11N20SISO\_Ant1\_2462



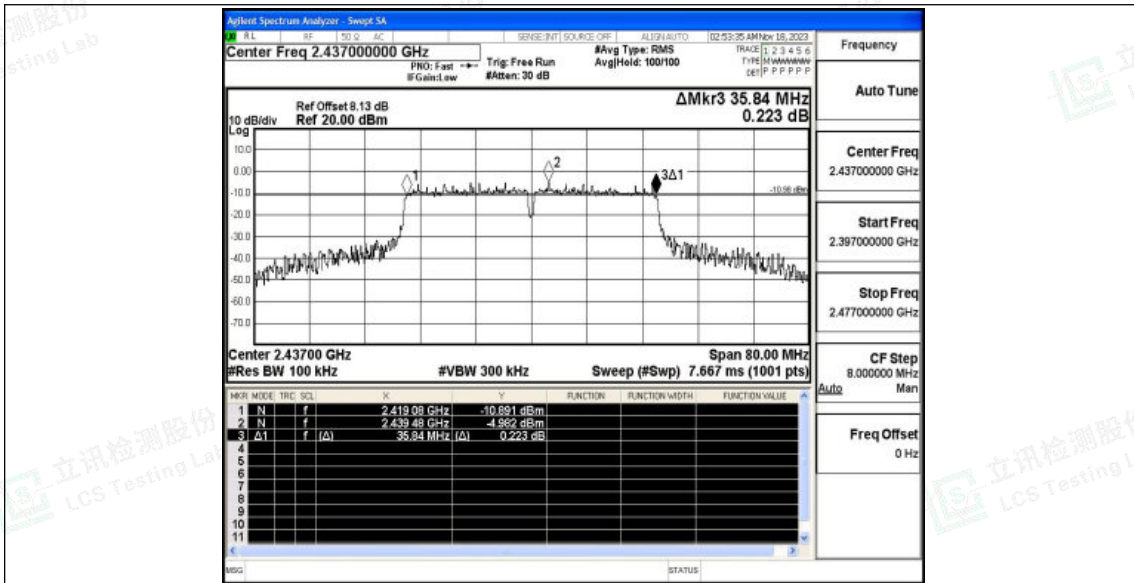


11N40SISO\_Ant1\_2422

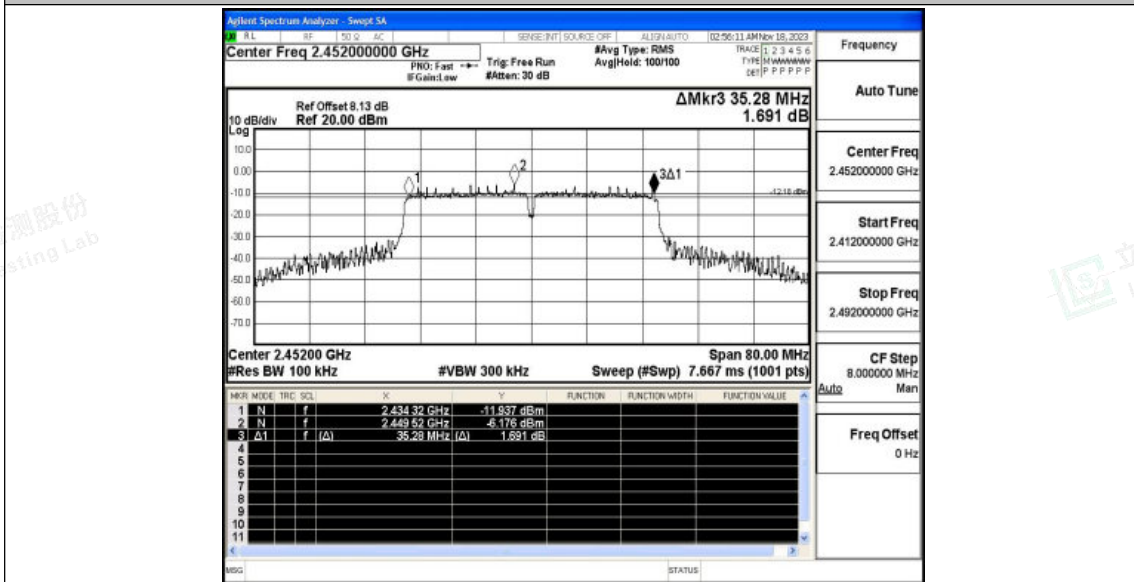


11N40SISO\_Ant1\_2437





11N40SISO\_Ant1\_2452







## B.2 Maximum conducted output power

### Test Result Peak

TestMode	Antenna	Freq(MHz)	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	14.45	≤30.00	PASS
		2437	16.48	≤30.00	PASS
		2462	16.37	≤30.00	PASS
11G	Ant1	2412	13.69	≤30.00	PASS
		2437	15.82	≤30.00	PASS
		2462	15.39	≤30.00	PASS
11N20SISO	Ant1	2412	13.71	≤30.00	PASS
		2437	15.42	≤30.00	PASS
		2462	15.28	≤30.00	PASS
11N40SISO	Ant1	2422	13.28	≤30.00	PASS
		2437	15.25	≤30.00	PASS
		2452	14.14	≤30.00	PASS





### B.3 Maximum power spectral density

#### Test Result

TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-10.41	≤8.00	PASS
		2437	-8.99	≤8.00	PASS
		2462	-6.56	≤8.00	PASS
11G	Ant1	2412	-17.69	≤8.00	PASS
		2437	-16.79	≤8.00	PASS
		2462	-17.2	≤8.00	PASS
11N20SISO	Ant1	2412	-18.07	≤8.00	PASS
		2437	-15.74	≤8.00	PASS
		2462	-16.68	≤8.00	PASS
11N40SISO	Ant1	2422	-22.07	≤8.00	PASS
		2437	-19.71	≤8.00	PASS
		2452	-21.07	≤8.00	PASS



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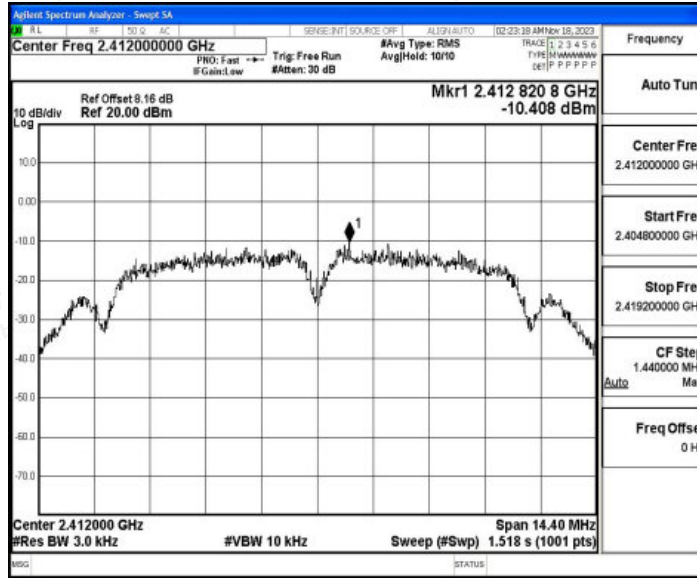
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

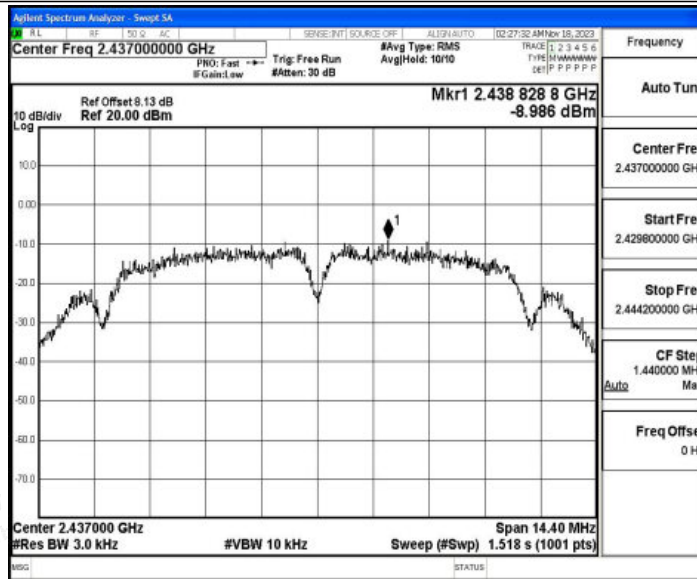


### Test Graphs

11B\_Ant1\_2412

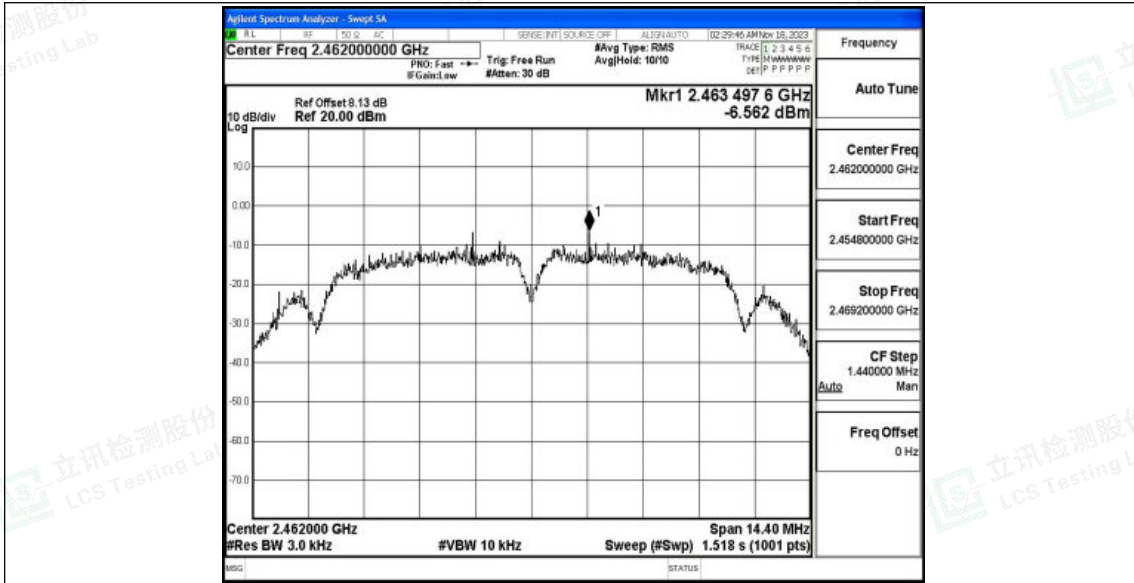


11B\_Ant1\_2437

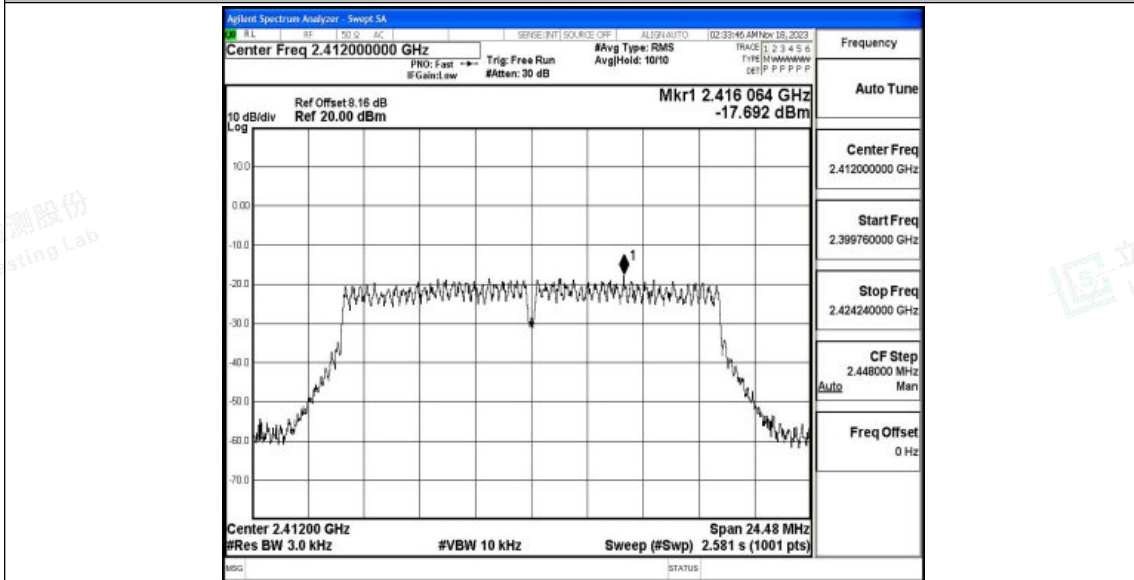


11B\_Ant1\_2462



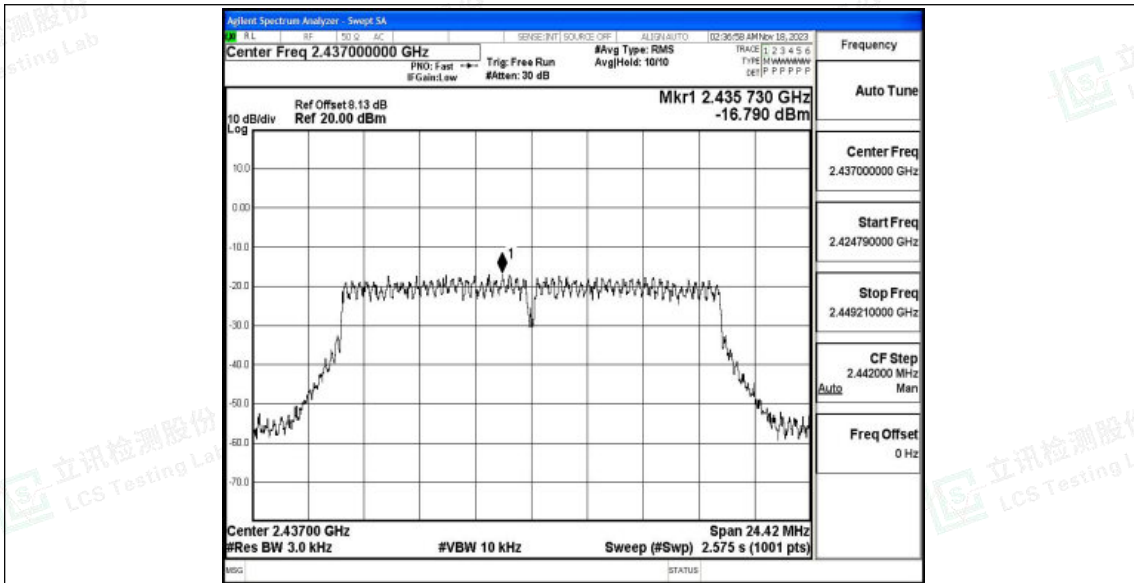


11G\_Ant1\_2412

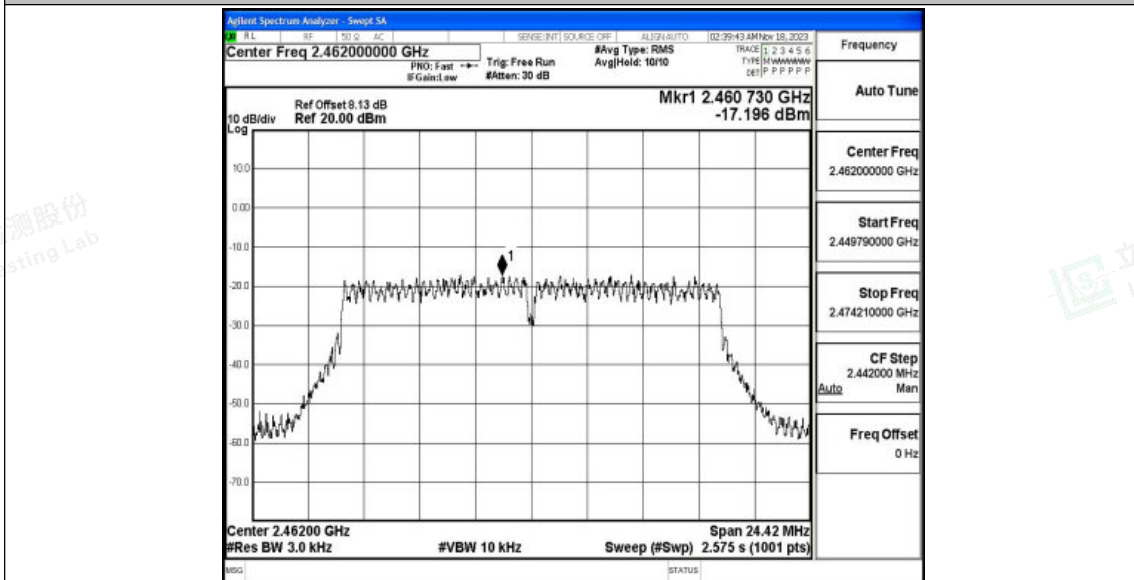


11G\_Ant1\_2437



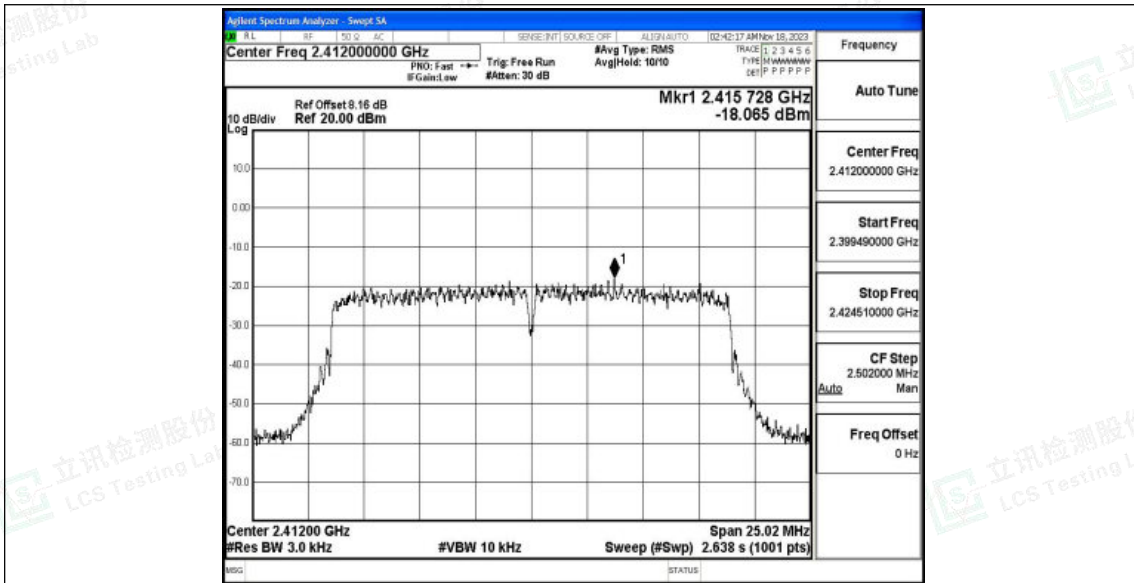


11G\_Ant1\_2462

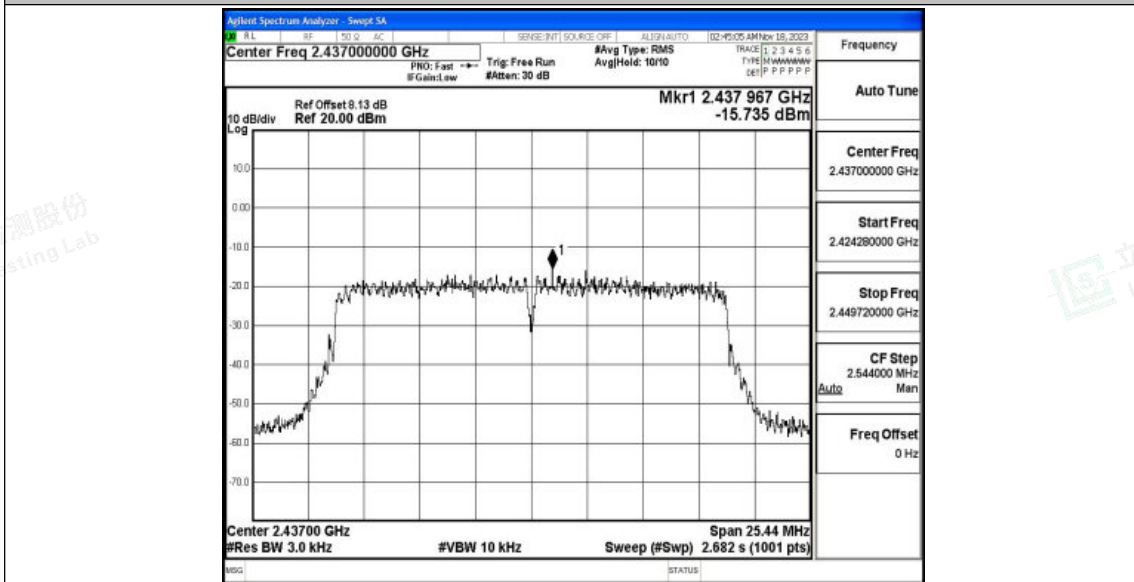


11N20SISO\_Ant1\_2412



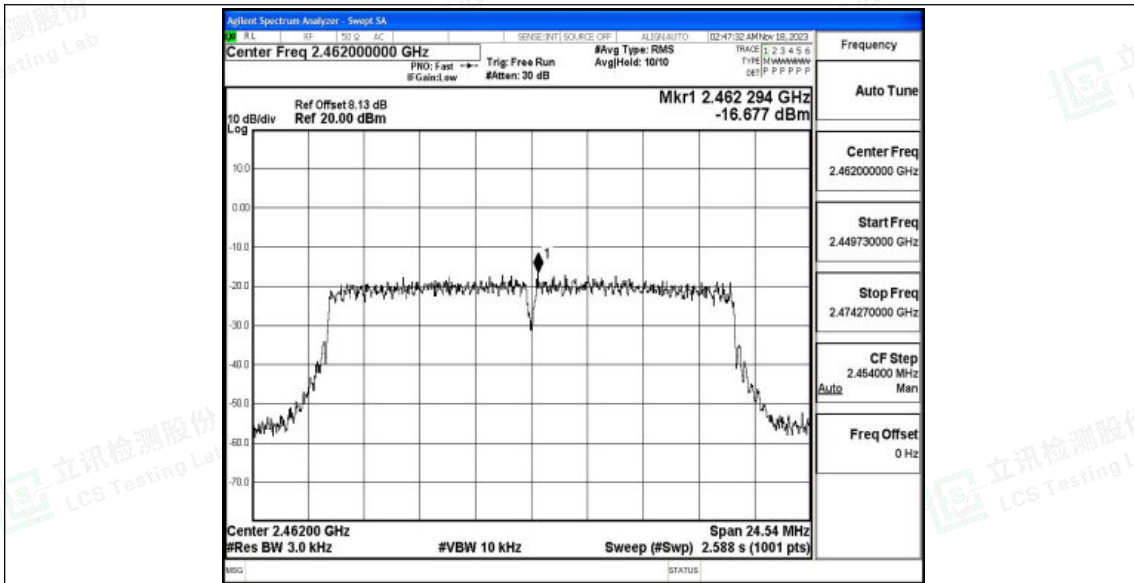


11N20SISO\_Ant1\_2437

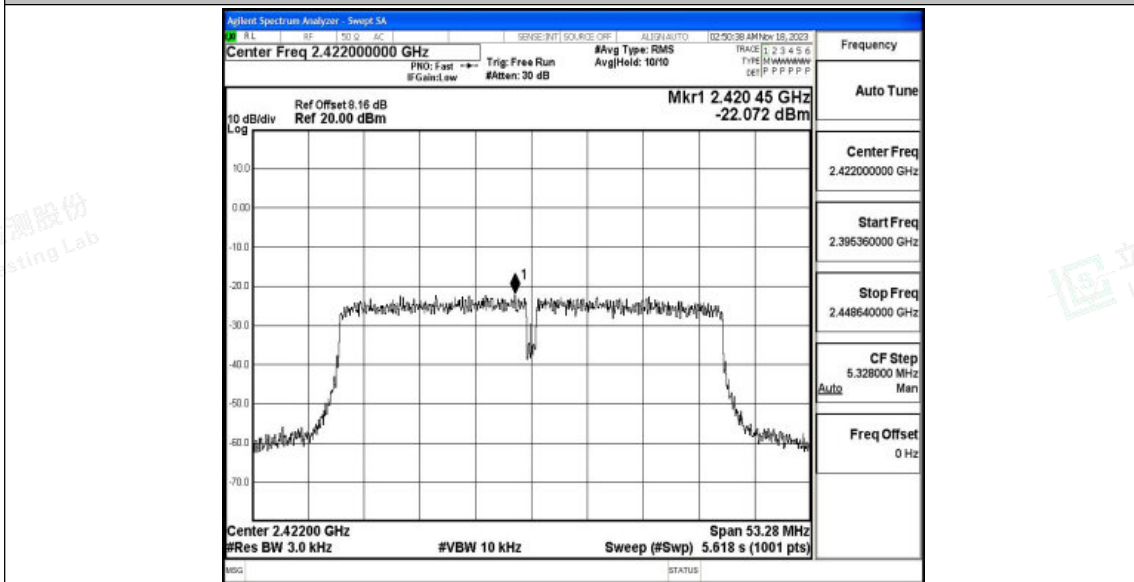


11N20SISO\_Ant1\_2462



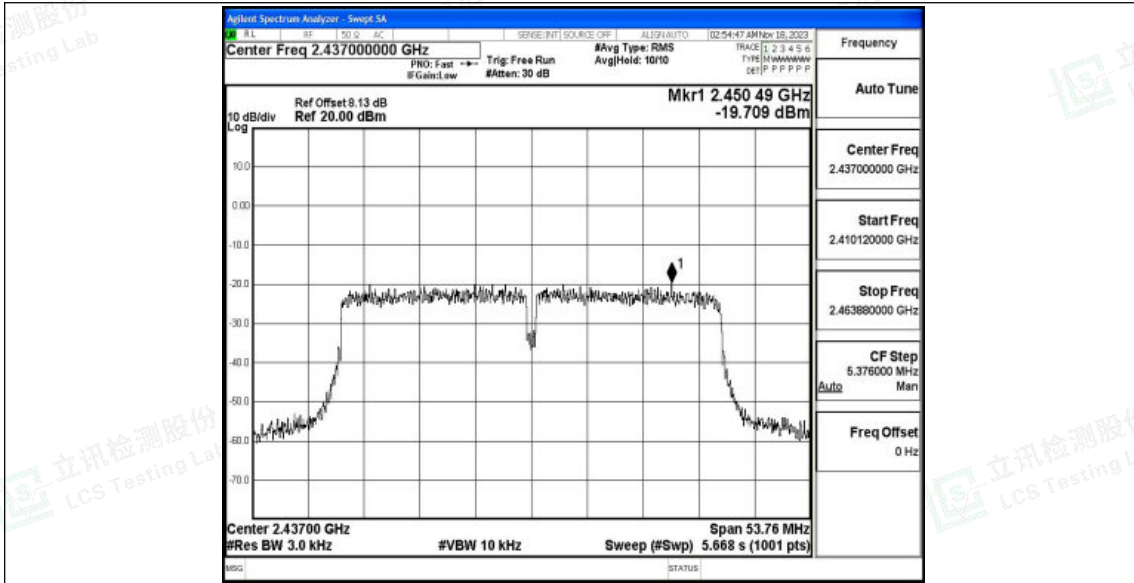


11N40SISO\_Ant1\_2422

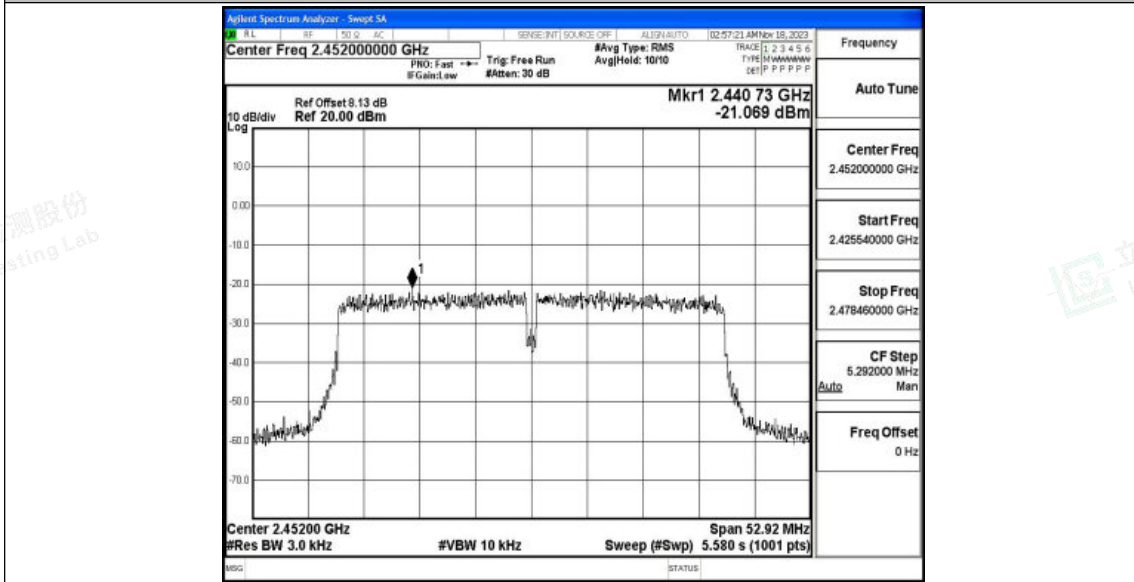


11N40SISO\_Ant1\_2437





11N40SISO\_Ant1\_2452







## B.4 Band edge measurements

### Test Result

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	2.80	-47.79	$\leq -17.2$	PASS
		High	2462	4.33	-46.8	$\leq -15.67$	PASS
11G	Ant1	Low	2412	-3.88	-36.72	$\leq -23.88$	PASS
		High	2462	-1.81	-45.59	$\leq -21.81$	PASS
11N20SISO	Ant1	Low	2412	-3.47	-34.4	$\leq -23.47$	PASS
		High	2462	-2.46	-45.5	$\leq -22.46$	PASS
11N40SISO	Ant1	Low	2422	-7.06	-34.18	$\leq -27.06$	PASS
		High	2452	-6.41	-39.08	$\leq -26.41$	PASS



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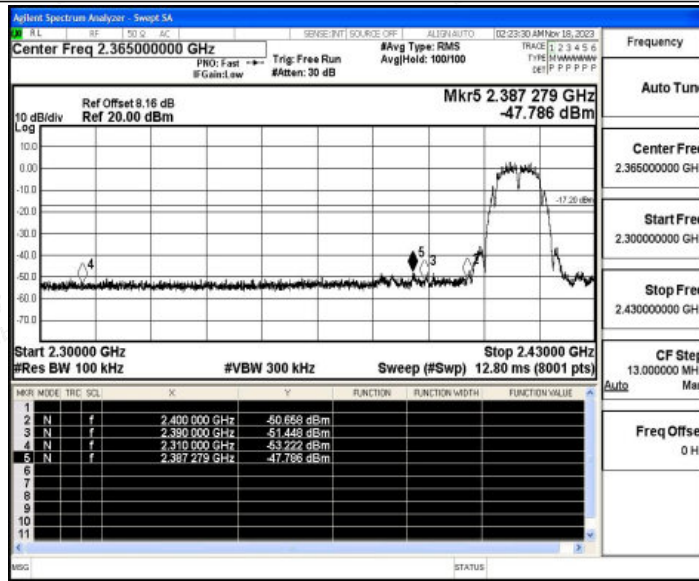
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

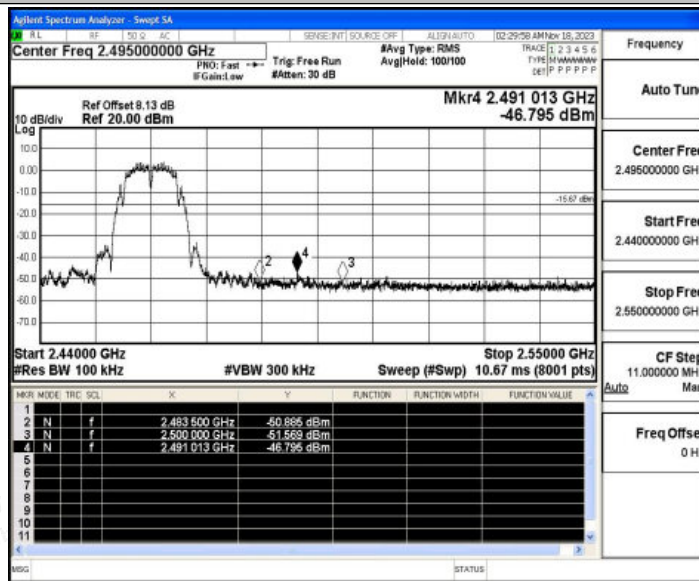


### Test Graphs

11B\_Ant1\_Low\_2412

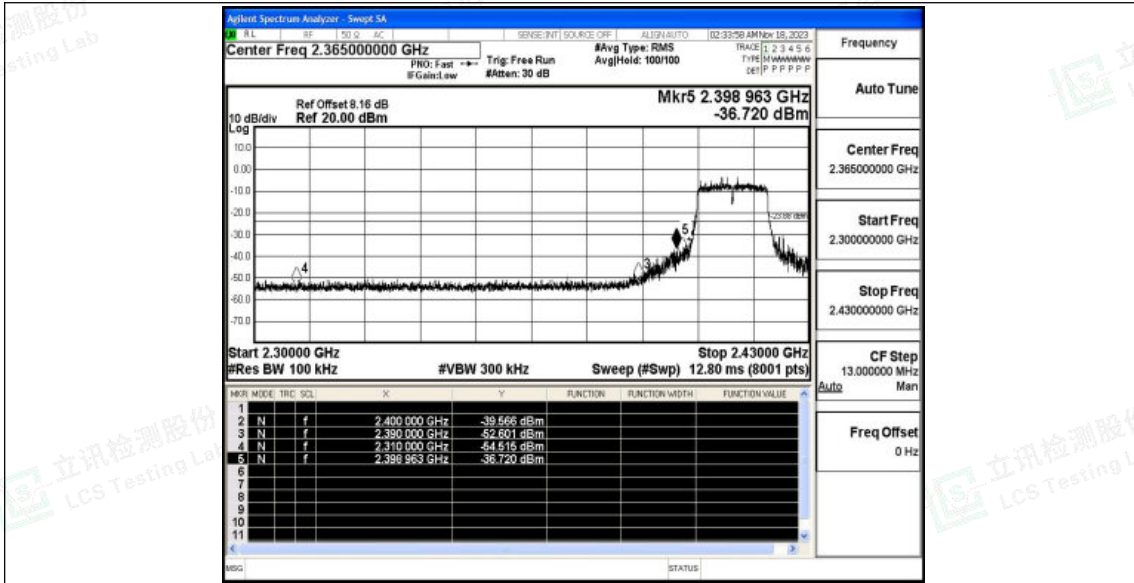


11B\_Ant1\_High\_2462

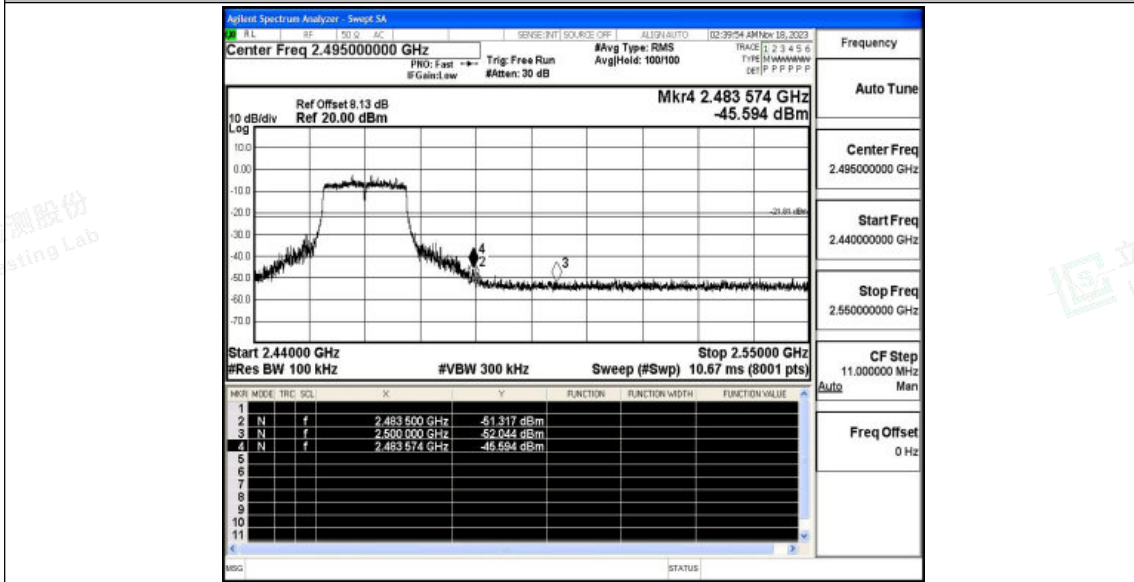


11G\_Ant1\_Low\_2412



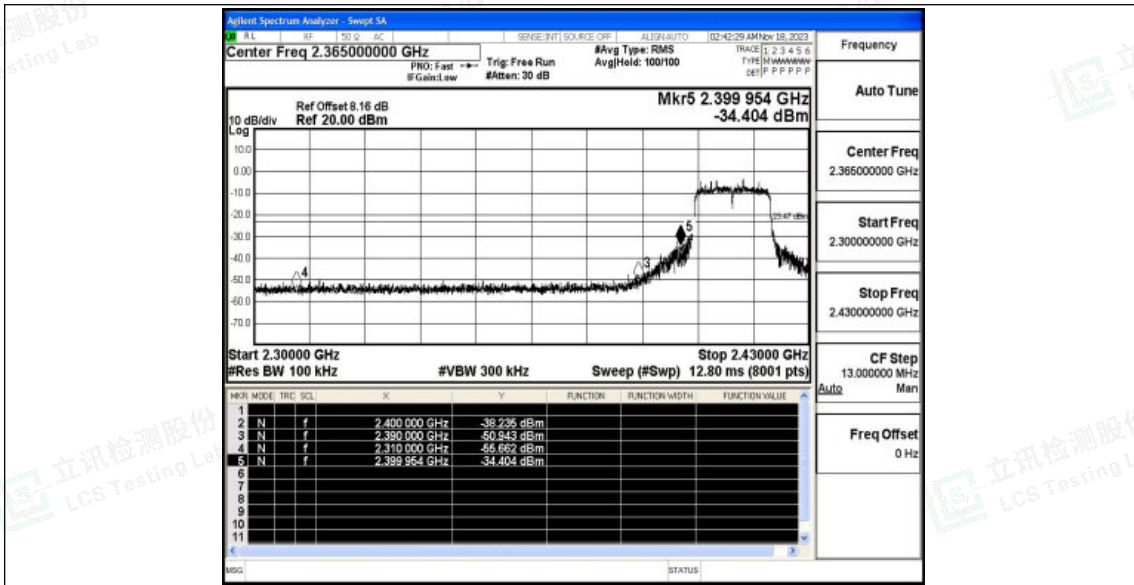


11G\_Ant1\_High\_2462

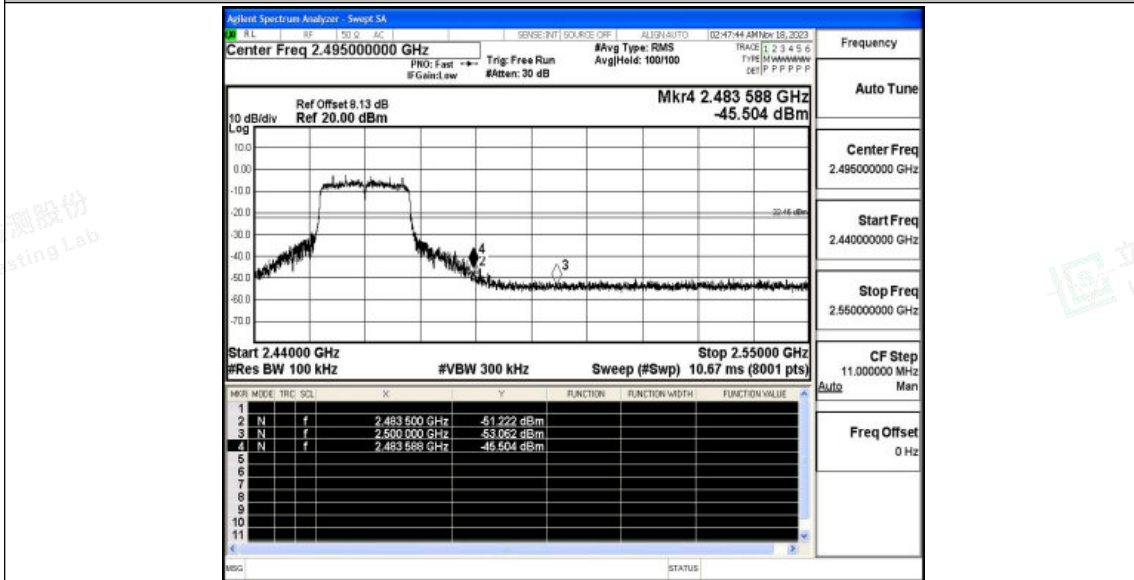


11N20SISO\_Ant1\_Low\_2412



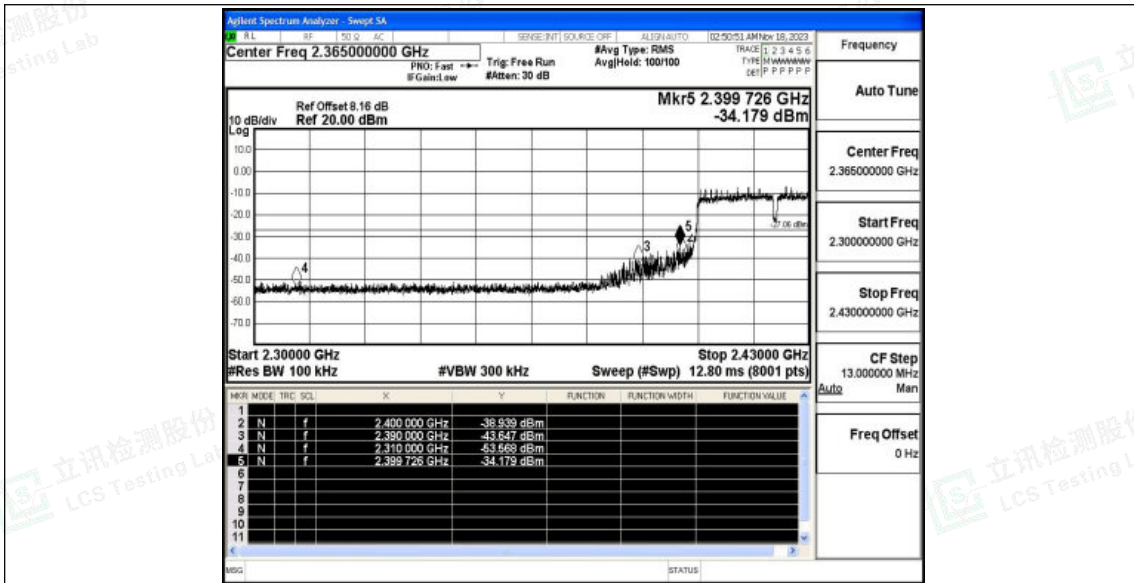


11N20SISO\_Ant1\_High\_2462

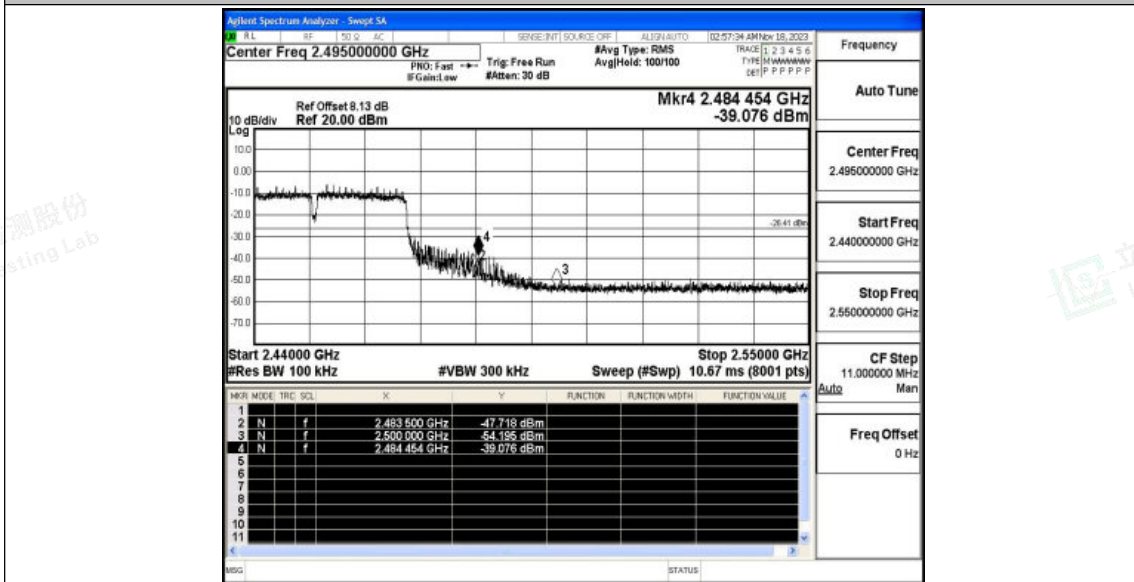


11N40SISO\_Ant1\_Low\_2422





11N40SISO\_Ant1\_High\_2452





## B.5 Conducted Spurious Emission

### Test Result

TestMode	Antenna	Freq(MHz)	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	2.80	-61.42	≤-17.2	PASS
			1000~26500	2.80	-45.48	≤-17.2	PASS
		2437	30~1000	4.45	-62.05	≤-15.55	PASS
			1000~26500	4.45	-49.02	≤-15.55	PASS
		2462	30~1000	4.33	-61.85	≤-15.67	PASS
			1000~26500	4.33	-48.95	≤-15.67	PASS
11G	Ant1	2412	30~1000	-3.88	-61.52	≤-23.88	PASS
			1000~26500	-3.88	-43.59	≤-23.88	PASS
		2437	30~1000	-2.21	-60.25	≤-22.21	PASS
			1000~26500	-2.21	-47.68	≤-22.21	PASS
		2462	30~1000	-1.81	-62.25	≤-21.81	PASS
			1000~26500	-1.81	-45.54	≤-21.81	PASS
11N20SISO	Ant1	2412	30~1000	-3.47	-61.25	≤-23.47	PASS
			1000~26500	-3.47	-48.99	≤-23.47	PASS
		2437	30~1000	-1.72	-61.07	≤-21.72	PASS
			1000~26500	-1.72	-49.68	≤-21.72	PASS
		2462	30~1000	-2.46	-62.12	≤-22.46	PASS
			1000~26500	-2.46	-49.09	≤-22.46	PASS
11N40SISO	Ant1	2422	30~1000	-7.06	-61.36	≤-27.06	PASS
			1000~26500	-7.06	-49.06	≤-27.06	PASS
		2437	30~1000	-4.99	-61.54	≤-24.99	PASS
			1000~26500	-4.99	-44.24	≤-24.99	PASS
		2452	30~1000	-6.41	-61.7	≤-26.41	PASS
			1000~26500	-6.41	-49.25	≤-26.41	PASS



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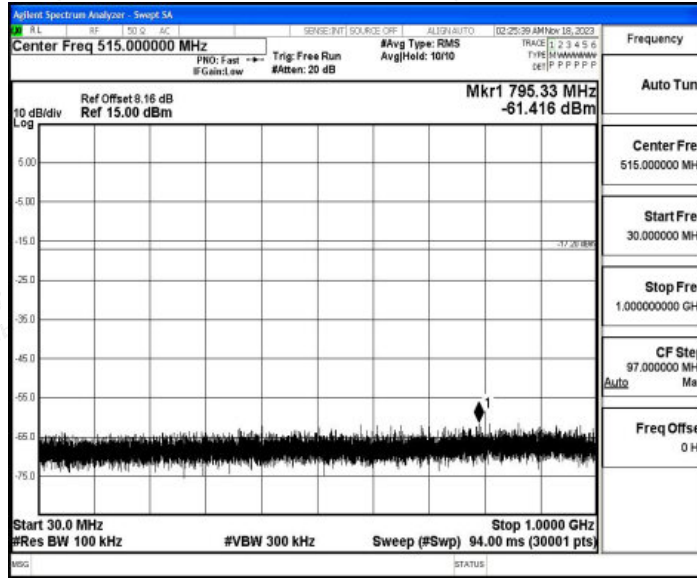
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

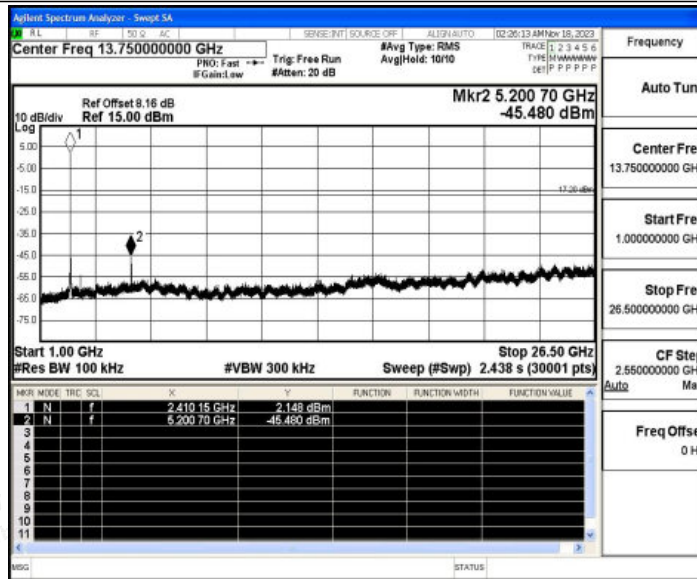


### Test Graphs

11B\_Ant1\_2412\_30~1000

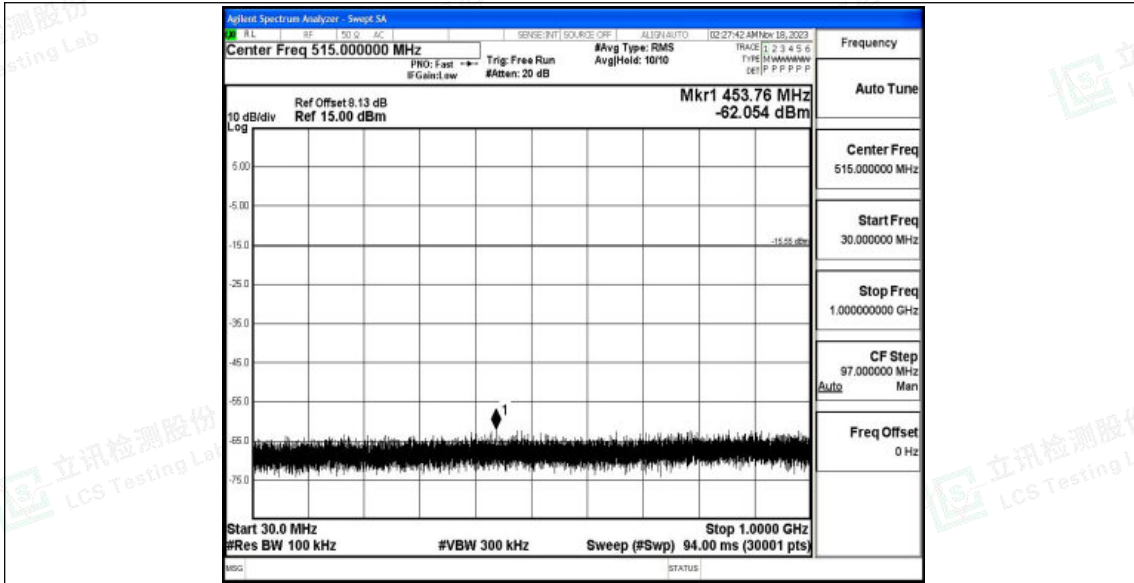


11B\_Ant1\_2412\_1000~26500

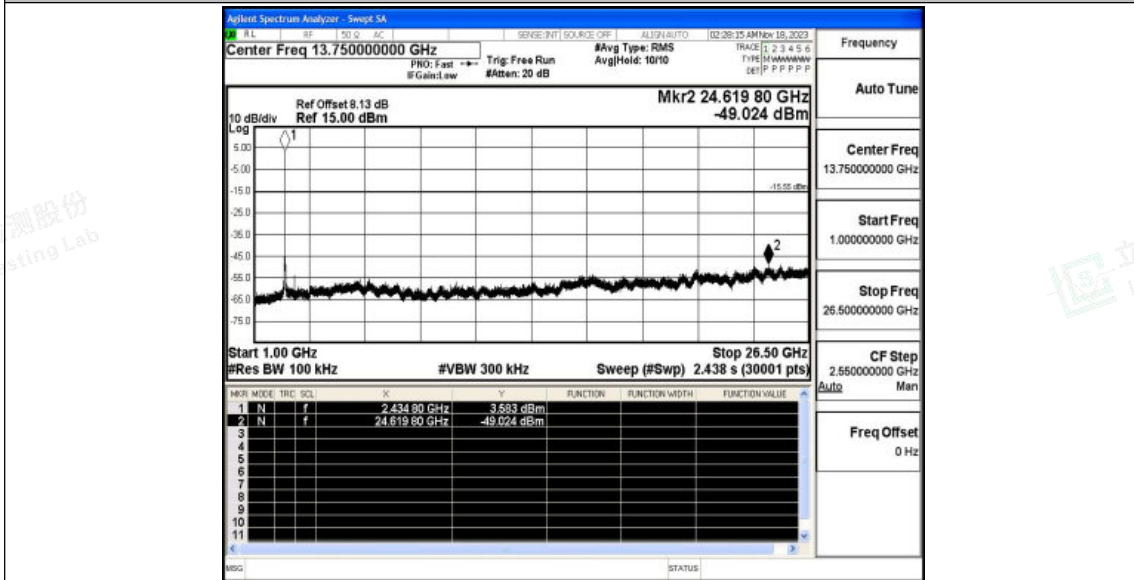


11B\_Ant1\_2437\_30~1000





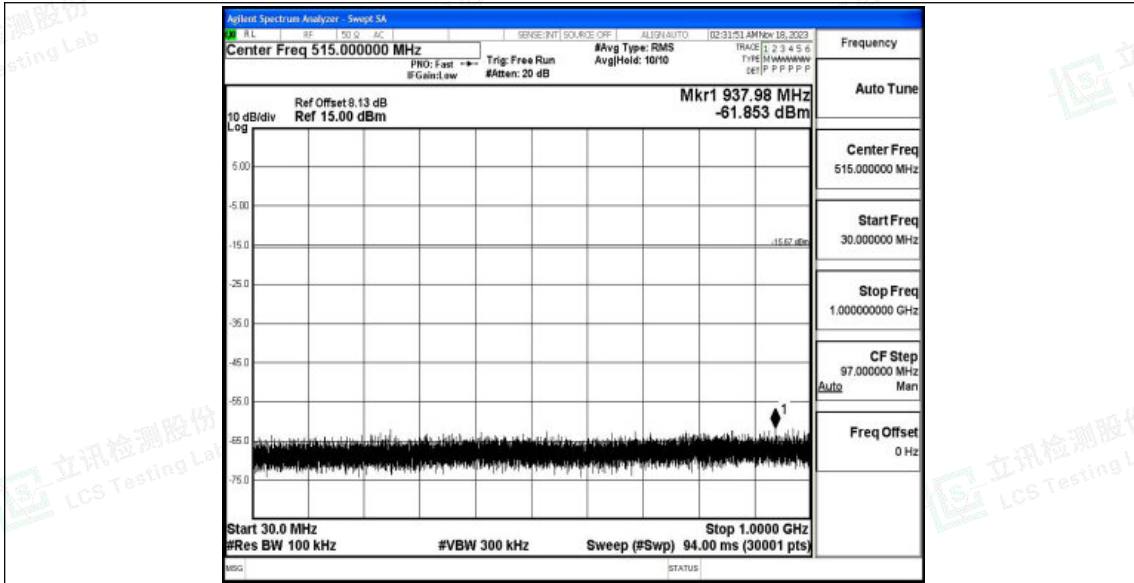
11B\_Ant1\_2437\_1000~26500



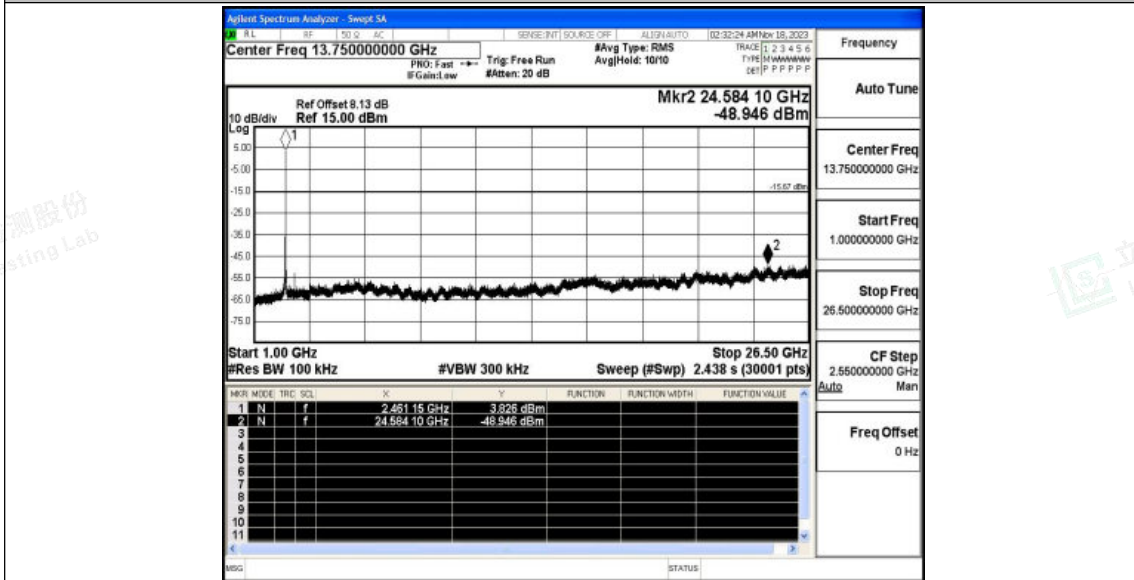
11B\_Ant1\_2462\_30~1000





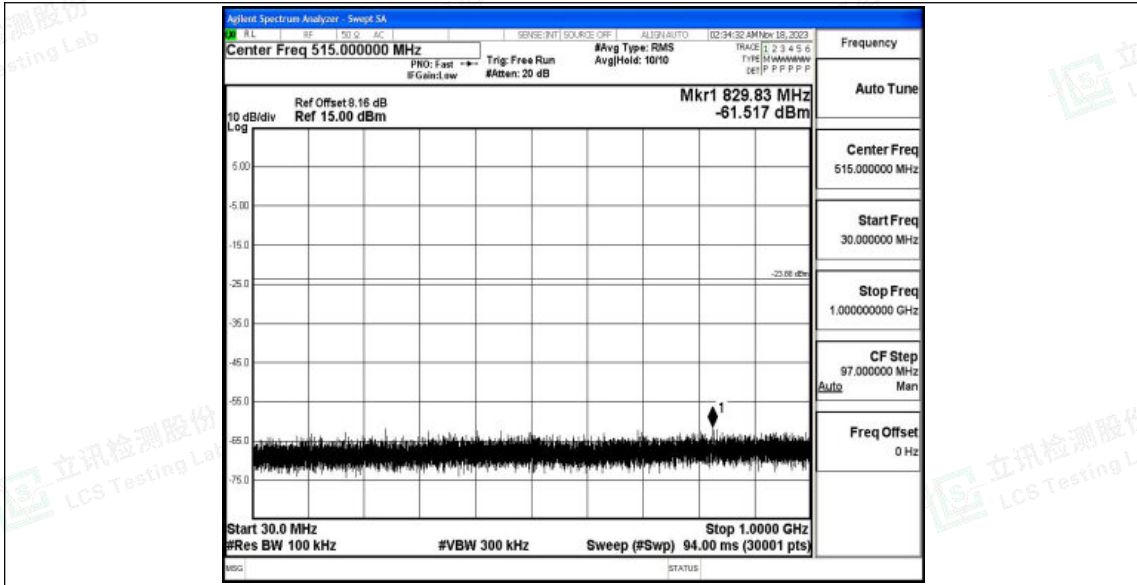


11B\_Ant1\_2462\_1000~26500

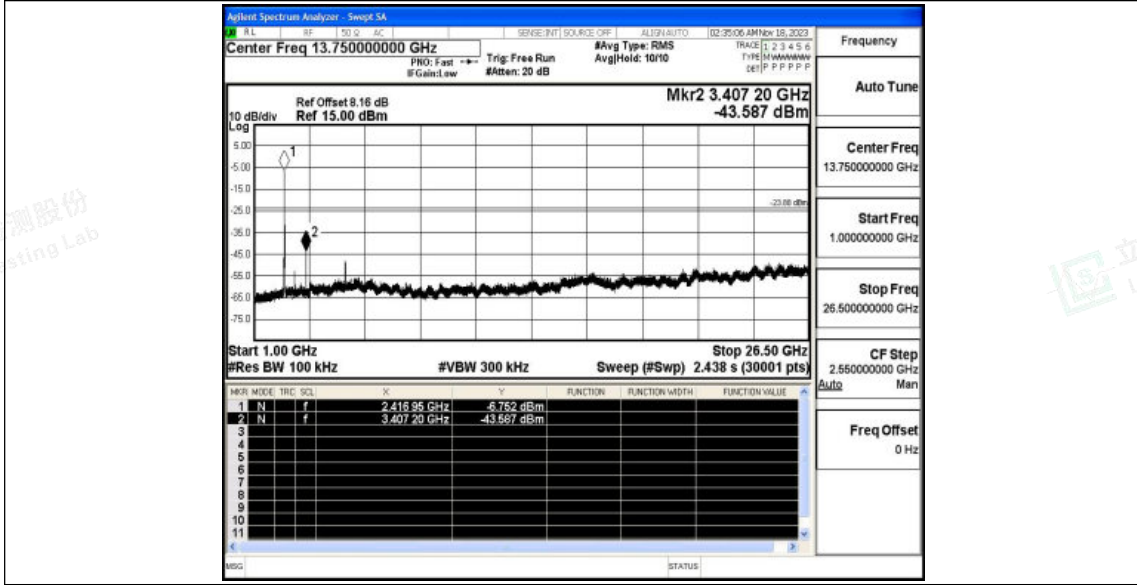


11G\_Ant1\_2412\_30~1000



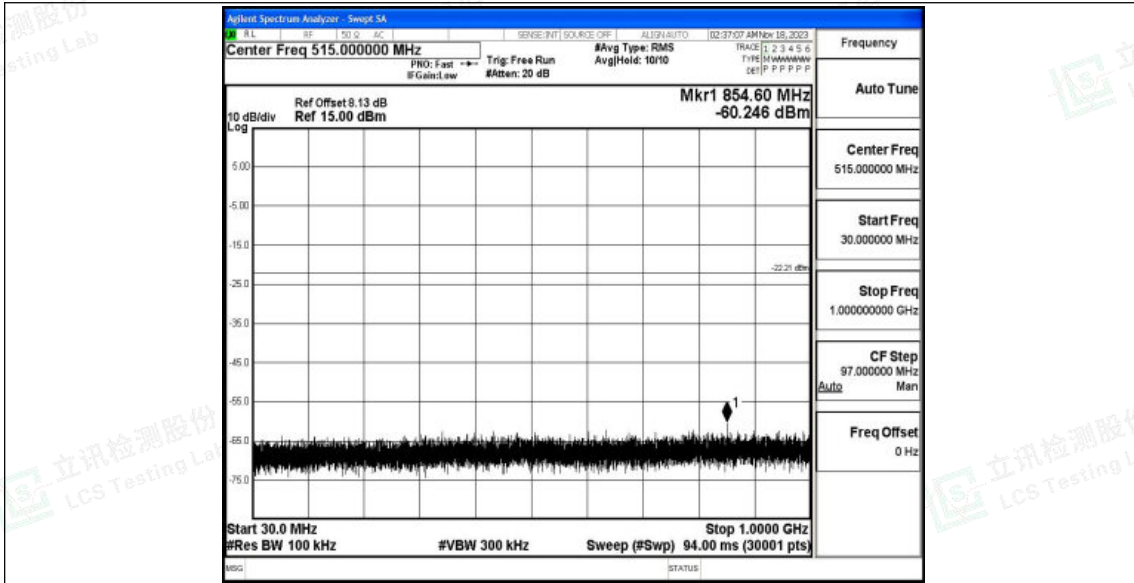


11G\_Ant1\_2412\_1000~26500

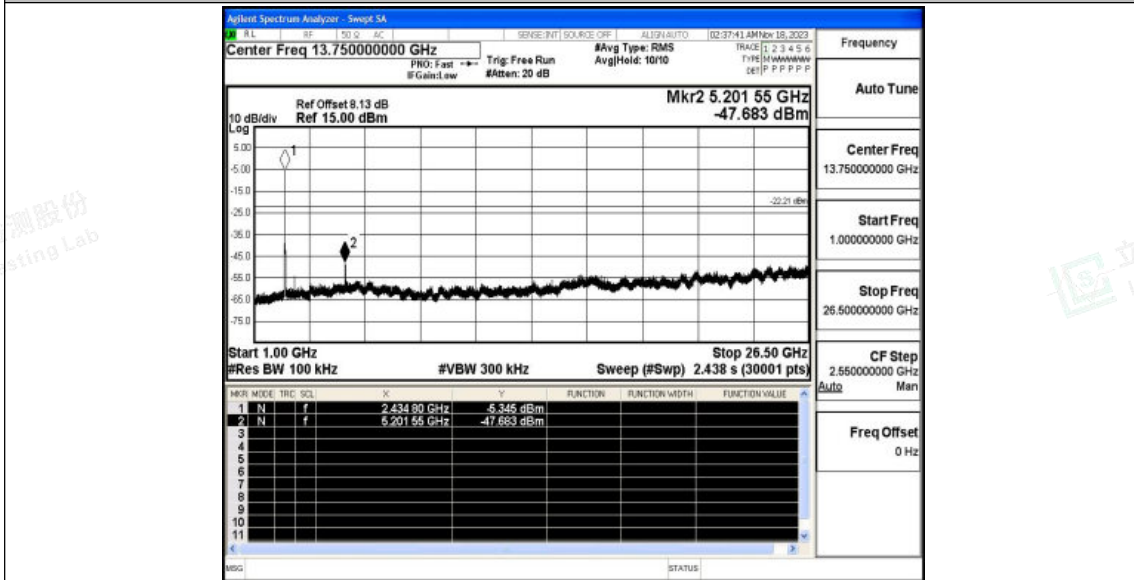


11G\_Ant1\_2437\_30~1000



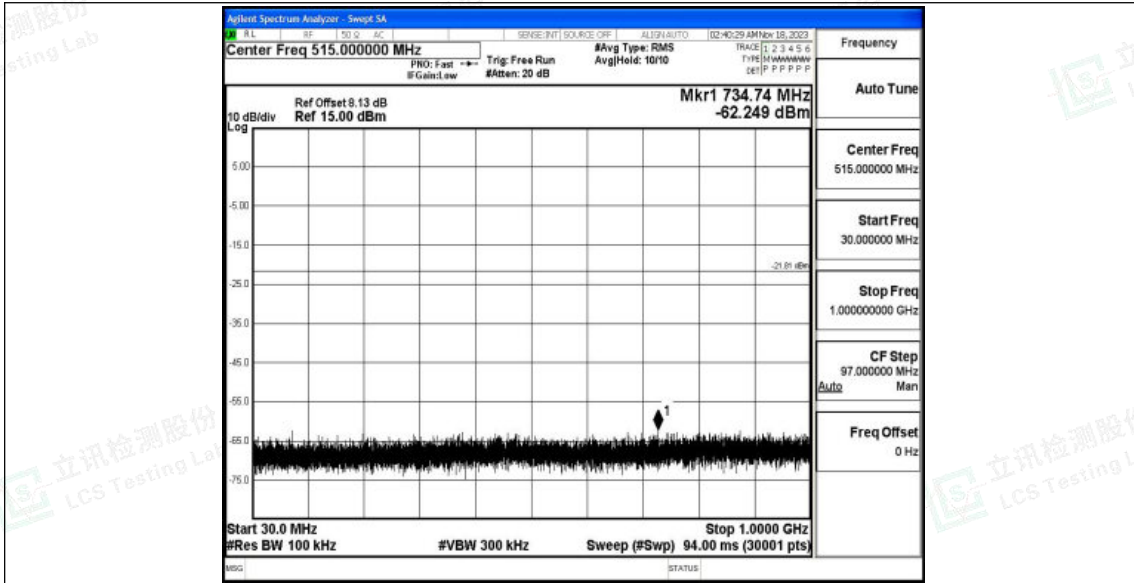


11G\_Ant1\_2437\_1000~26500

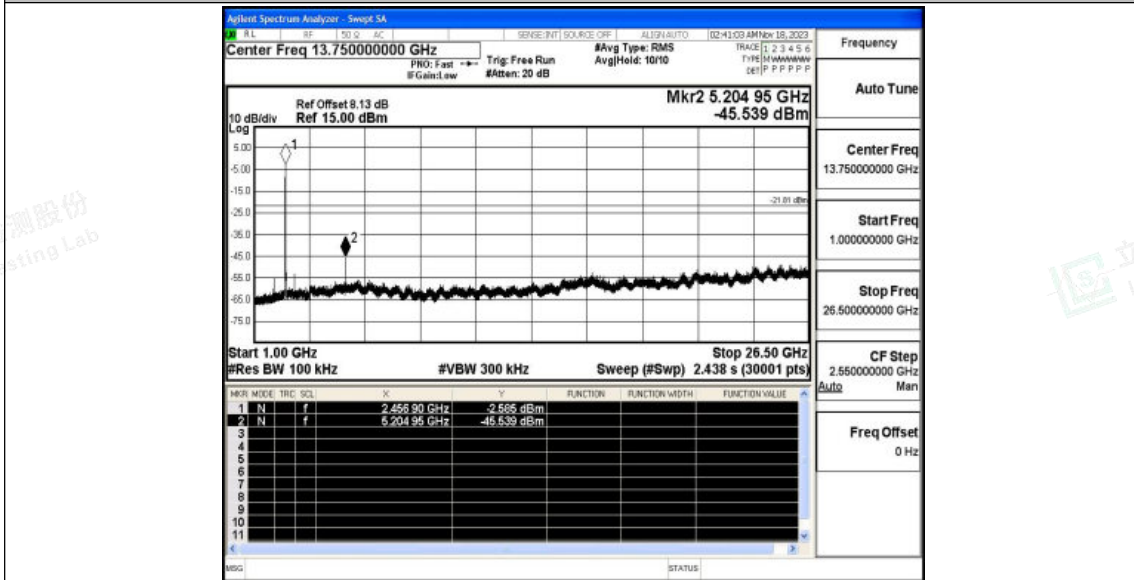


11G\_Ant1\_2462\_30~1000



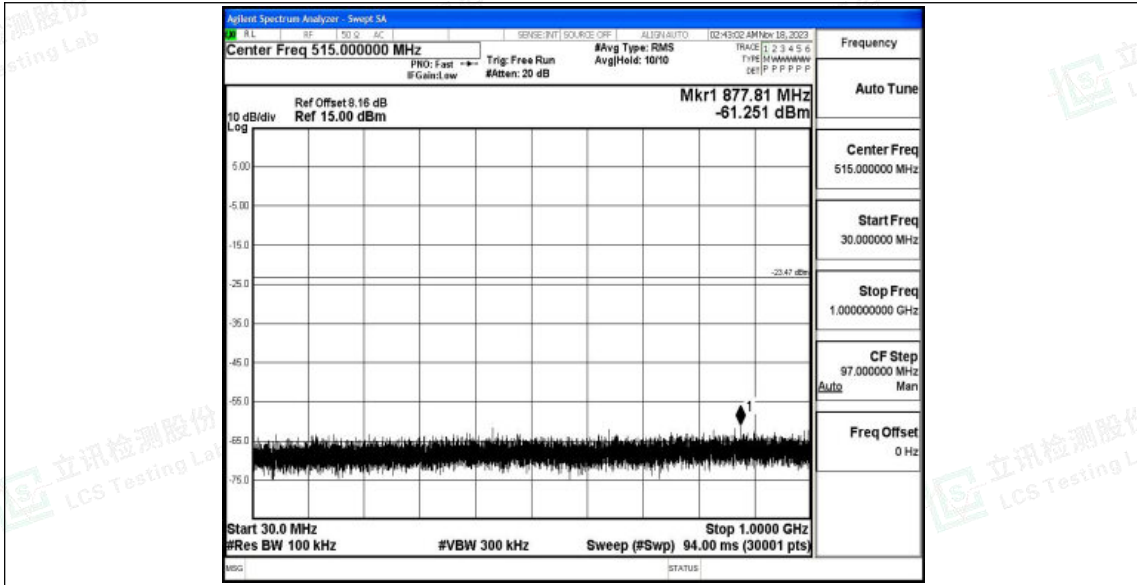


11G\_Ant1\_2462\_1000~26500

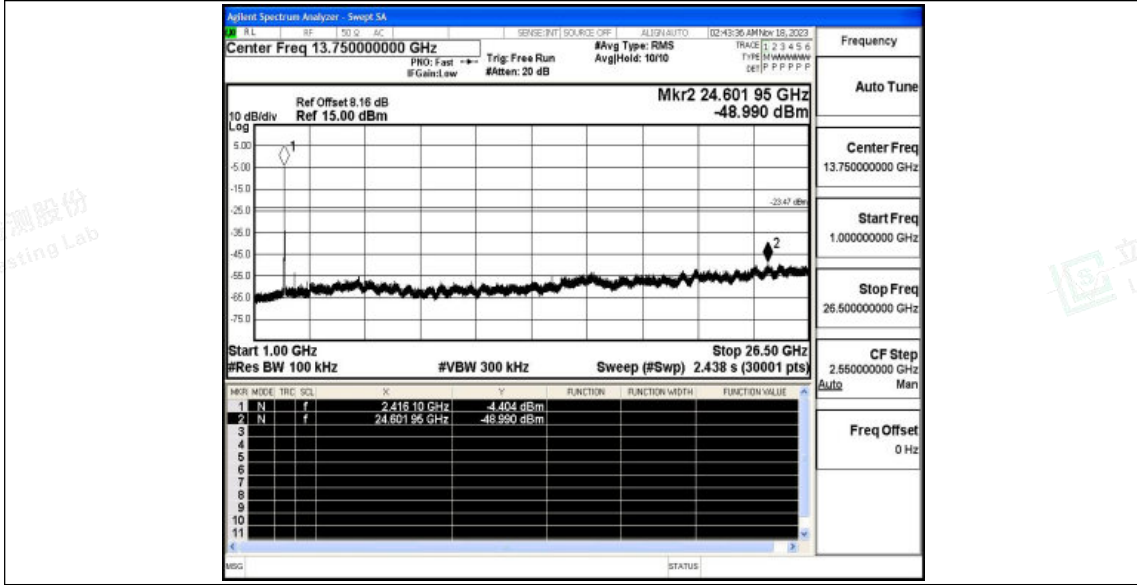


11N20SISO\_Ant1\_2412\_30~1000



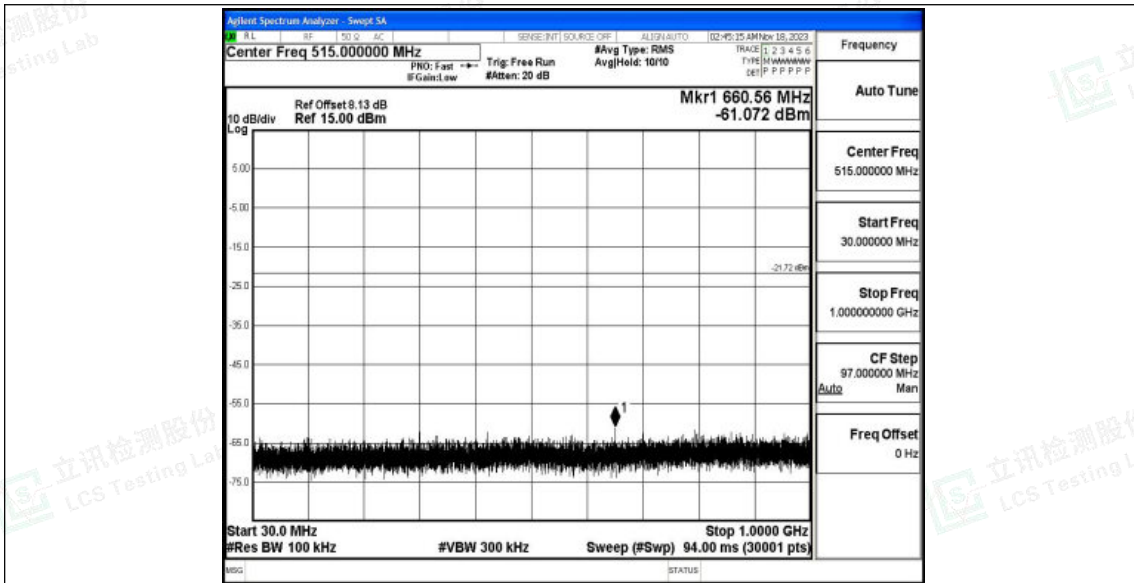


11N20SISO\_Ant1\_2412\_1000~26500

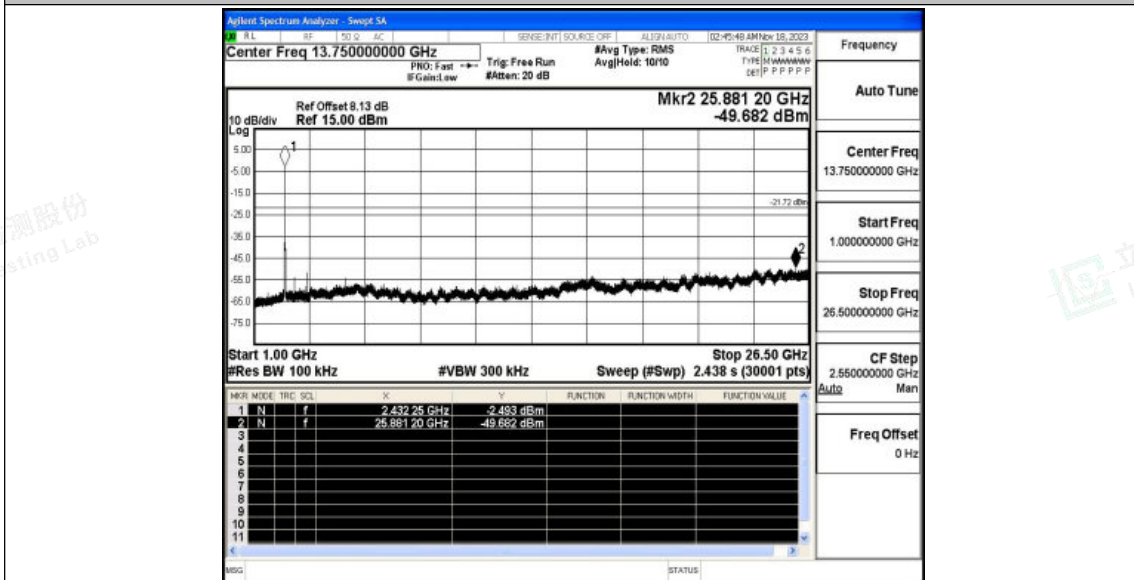


11N20SISO\_Ant1\_2437\_30~1000



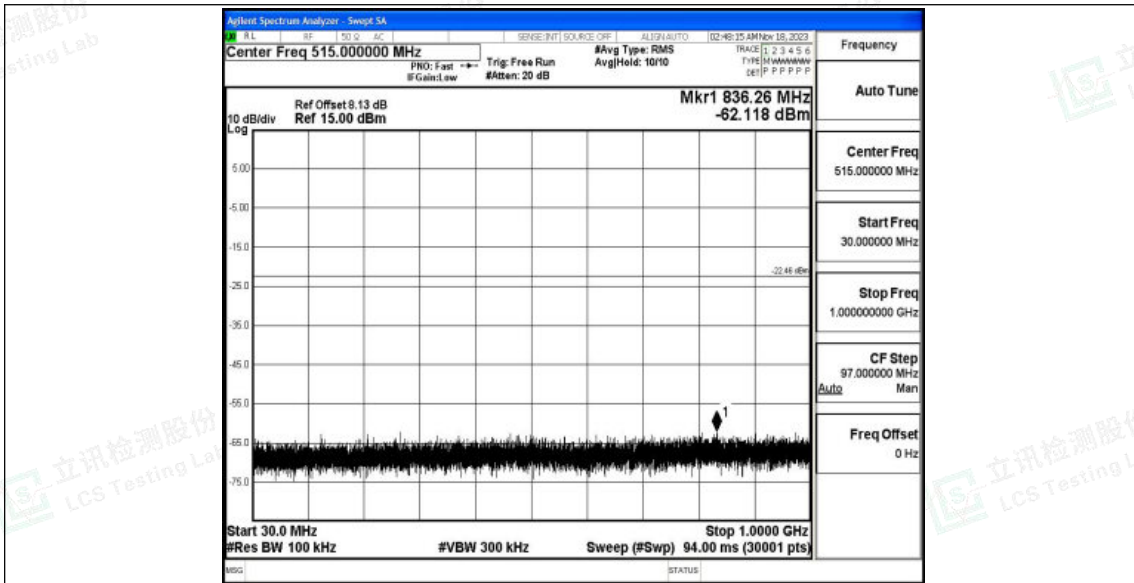


11N20SISO\_Ant1\_2437\_1000~26500

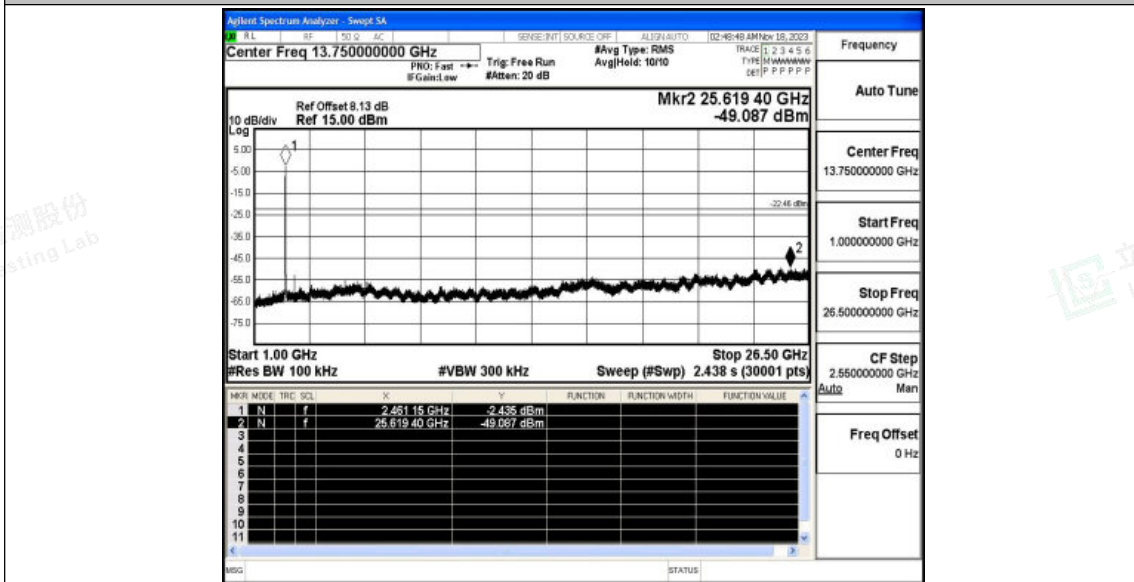


11N20SISO\_Ant1\_2462\_30~1000



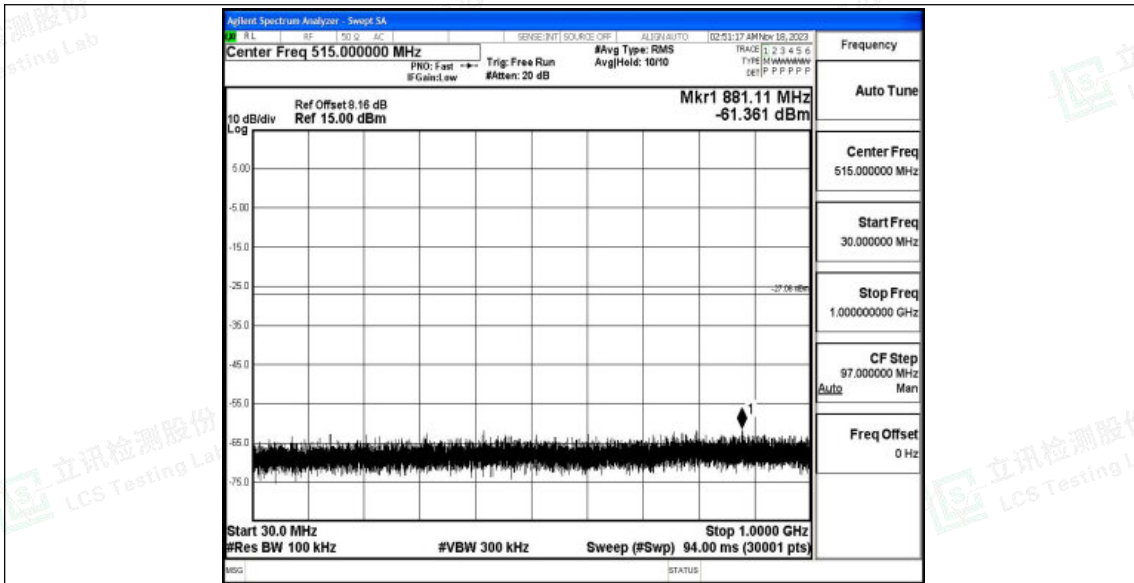


11N20SISO\_Ant1\_2462\_1000~26500

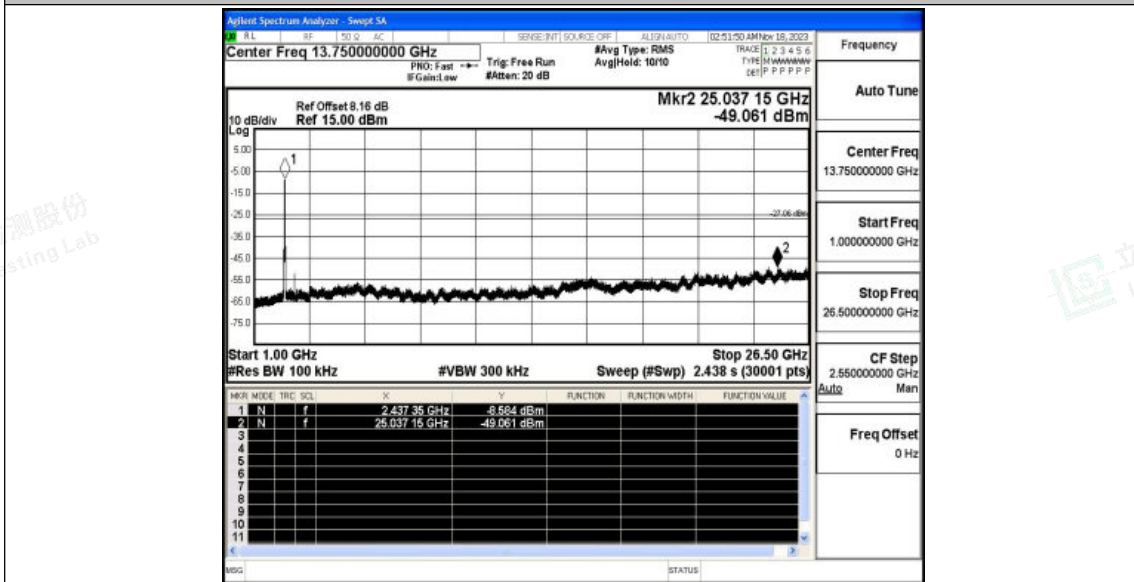


11N40SISO\_Ant1\_2422\_30~1000





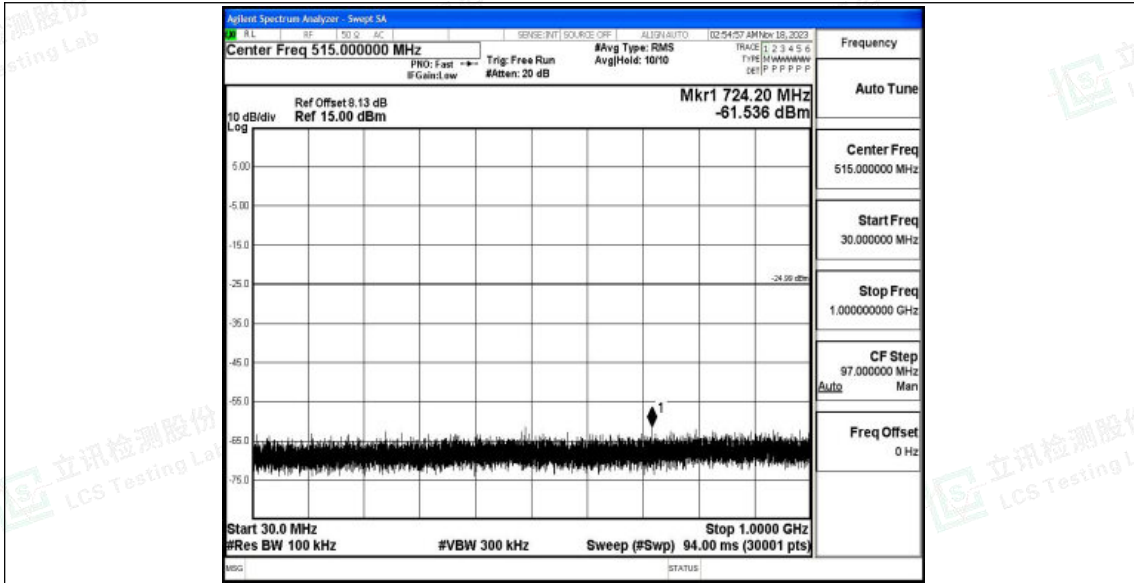
11N40SISO\_Ant1\_2422\_1000~26500



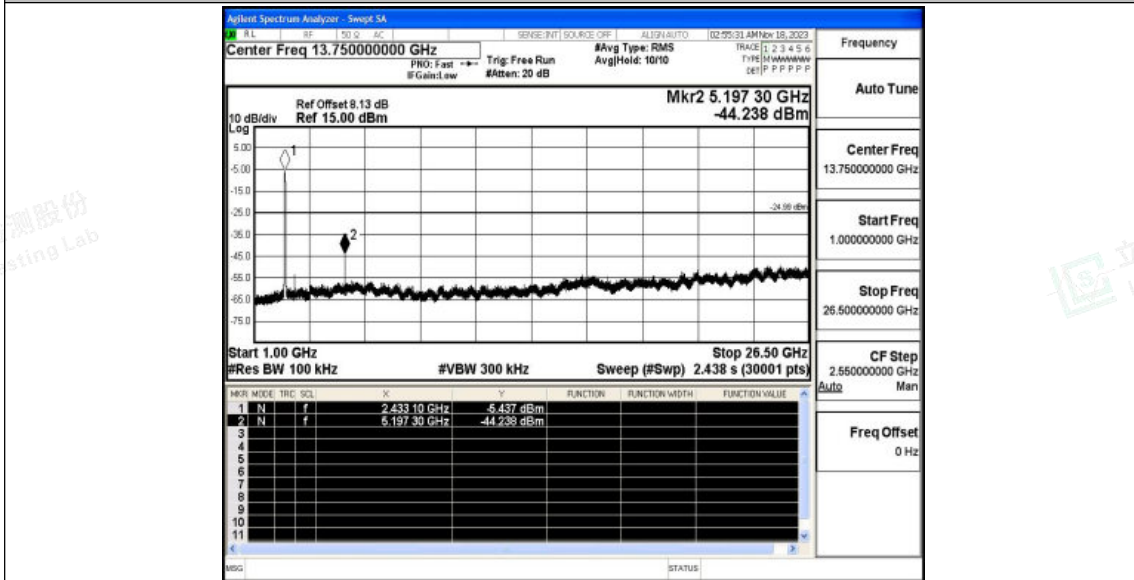
11N40SISO\_Ant1\_2437\_30~1000





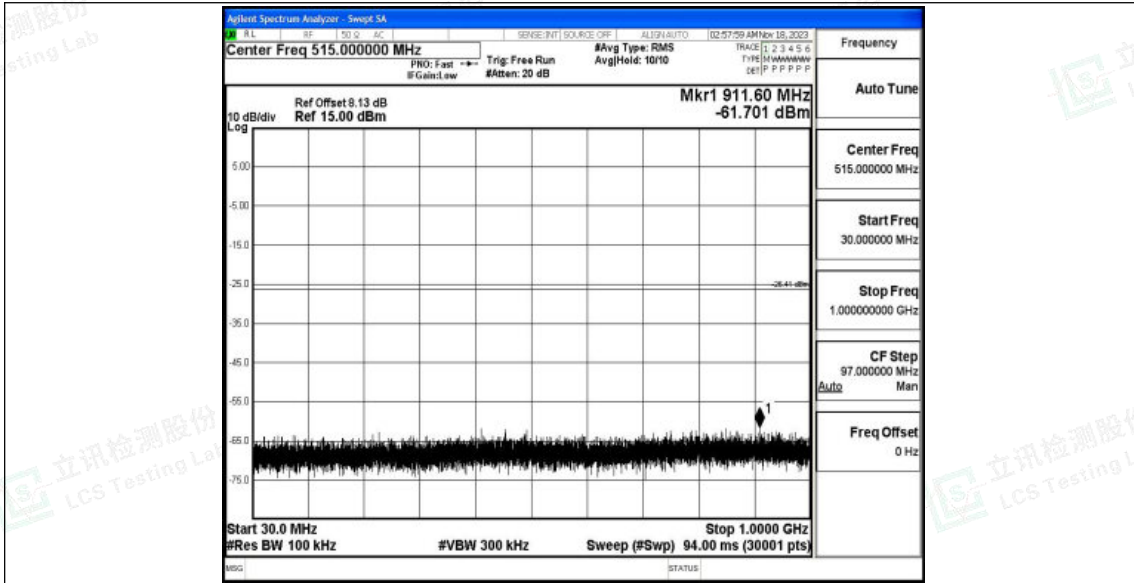


11N40SISO\_Ant1\_2437\_1000~26500

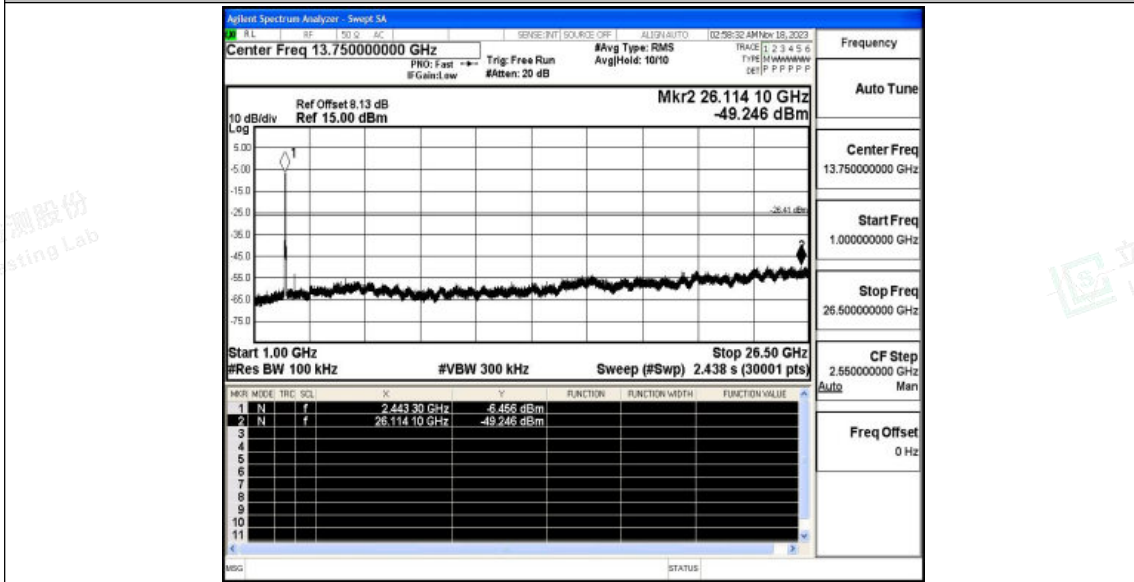


11N40SISO\_Ant1\_2452\_30~1000





11N40SISO\_Ant1\_2452\_1000~26500





### B.6 Duty Cycle

#### Test Result

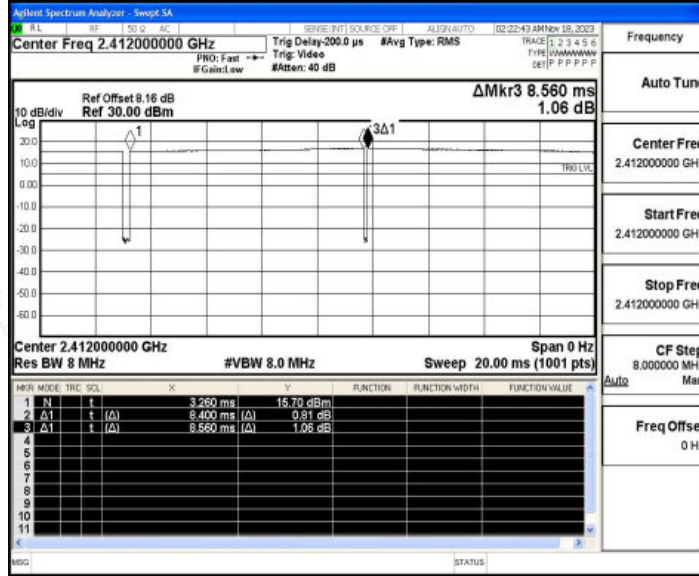
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor	Verdict
11B	Ant1	2412	8.40	8.56	98.13	0.08	---
		2437	8.38	8.58	97.67	0.10	---
		2462	8.40	8.56	98.13	0.08	---
11G	Ant1	2412	1.39	1.57	88.54	0.53	---
		2437	1.39	1.56	89.10	0.50	---
		2462	1.40	1.58	88.61	0.53	---
11N20SISO	Ant1	2412	1.18	1.35	87.41	0.58	---
		2437	1.17	1.35	86.67	0.62	---
		2462	1.17	1.45	80.69	0.93	---
11N40SISO	Ant1	2422	0.59	0.78	75.64	1.21	---
		2437	0.59	0.84	70.24	1.53	---
		2452	0.59	0.78	75.64	1.21	---



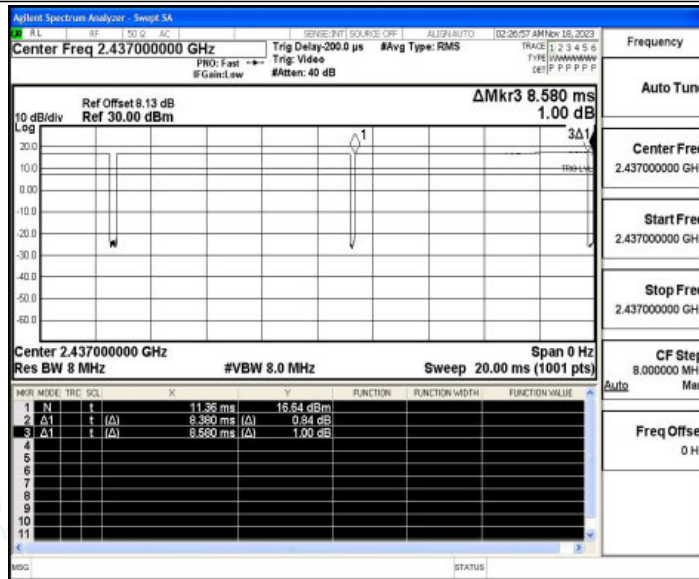


### Test Graphs

11B\_Ant1\_2412

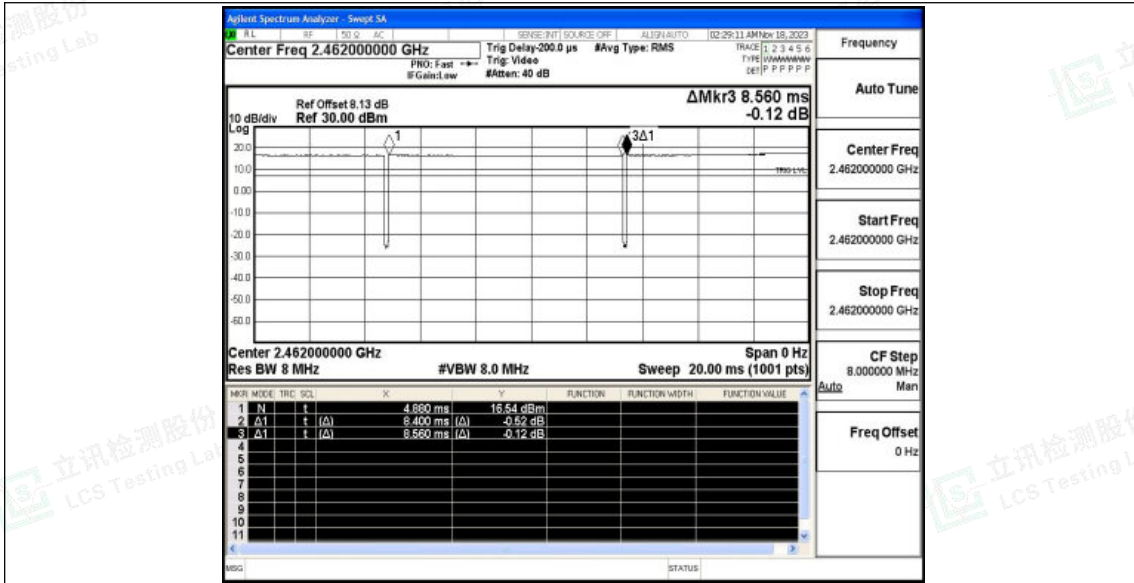


11B\_Ant1\_2437

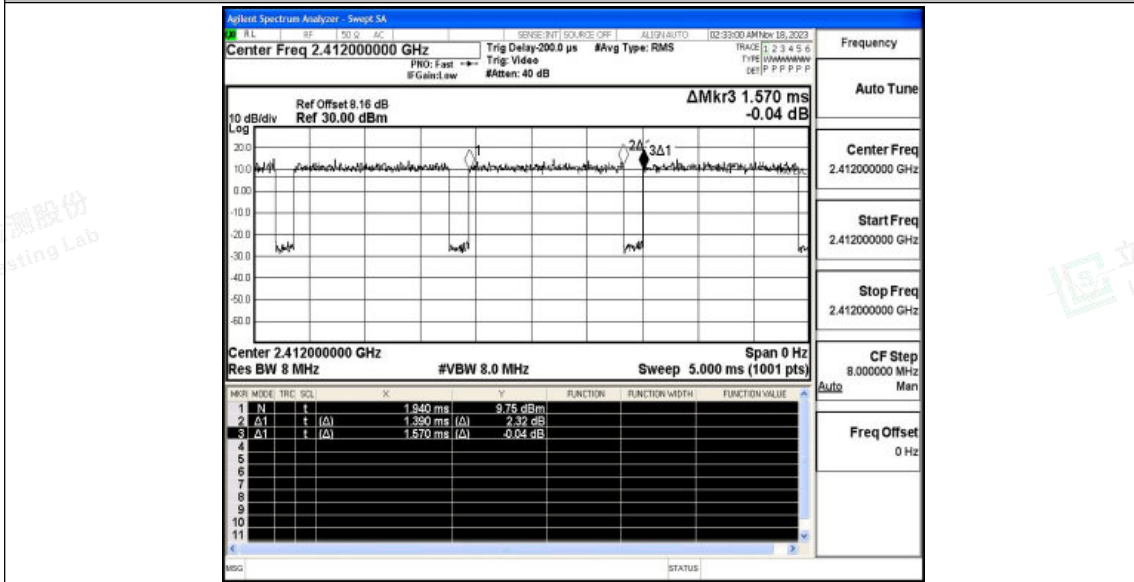


11B\_Ant1\_2462



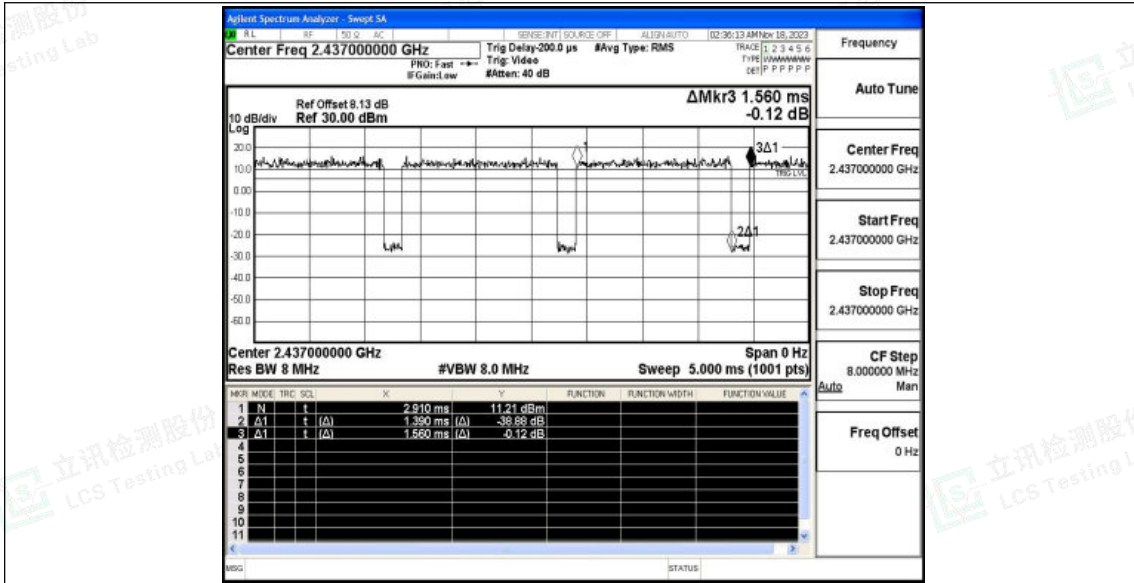


11G\_Ant1\_2412

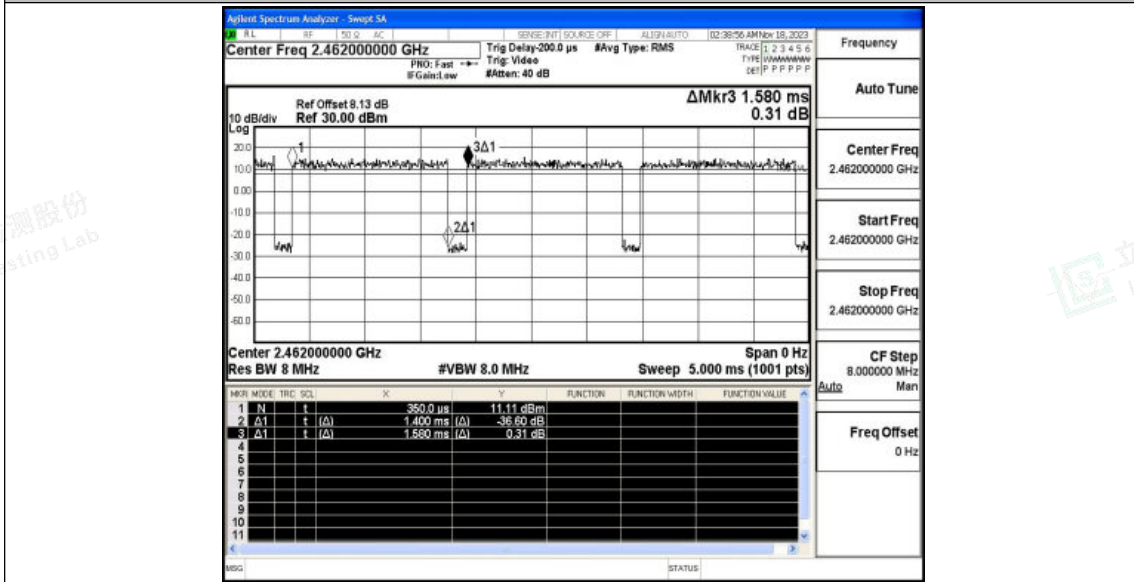


11G\_Ant1\_2437



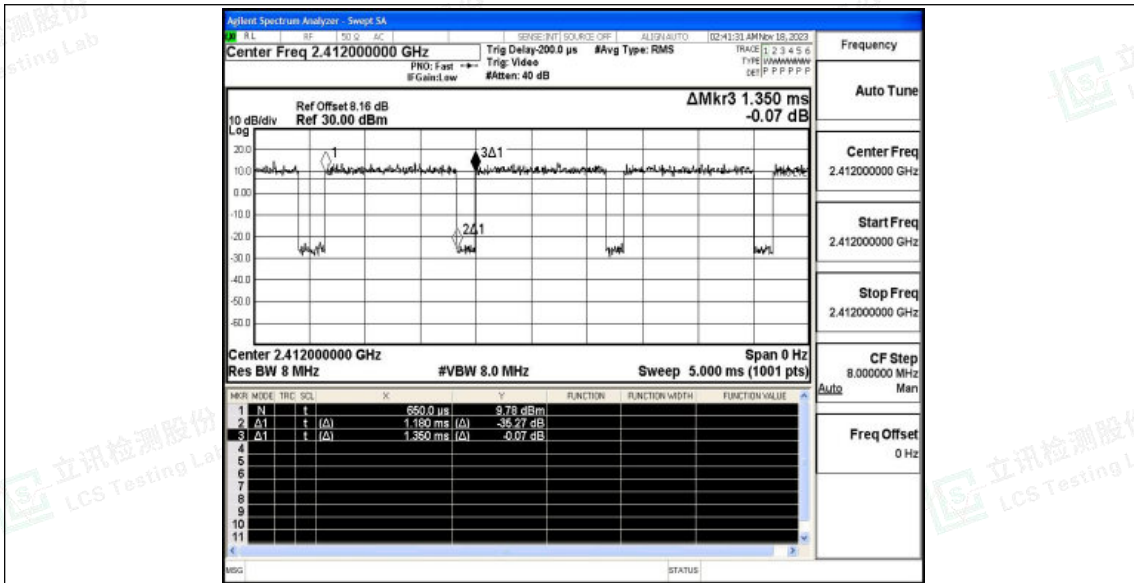


11G\_Ant1\_2462

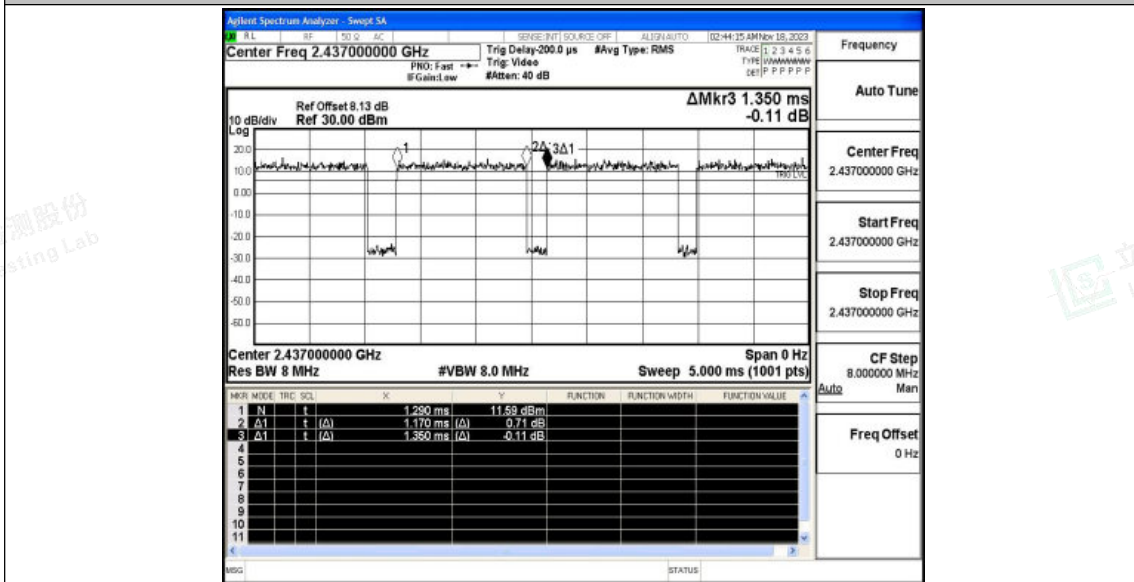


11N20SISO\_Ant1\_2412





11N20SISO\_Ant1\_2437

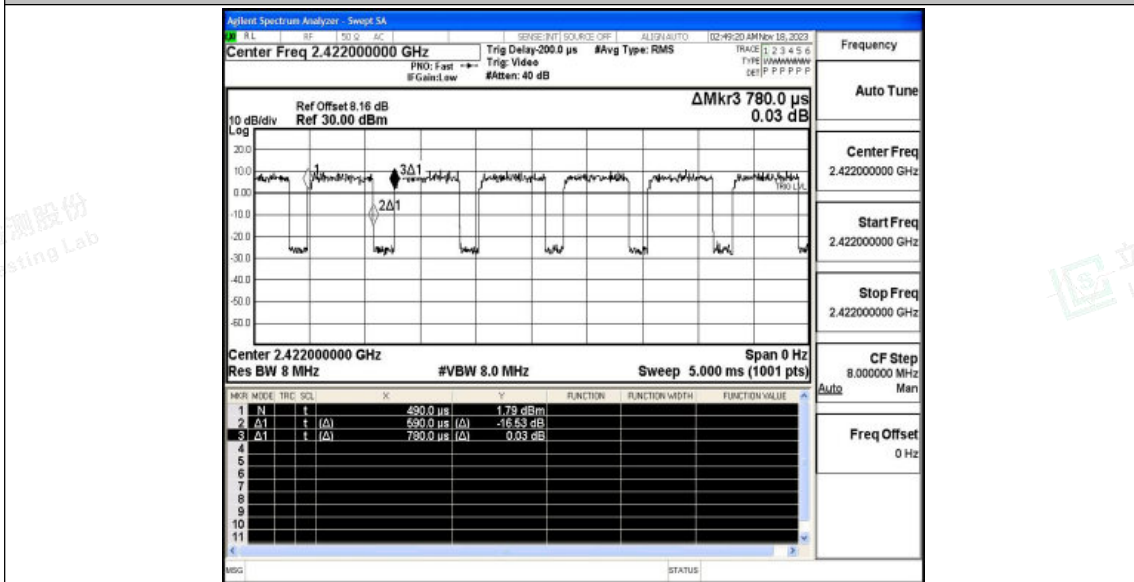


11N20SISO\_Ant1\_2462





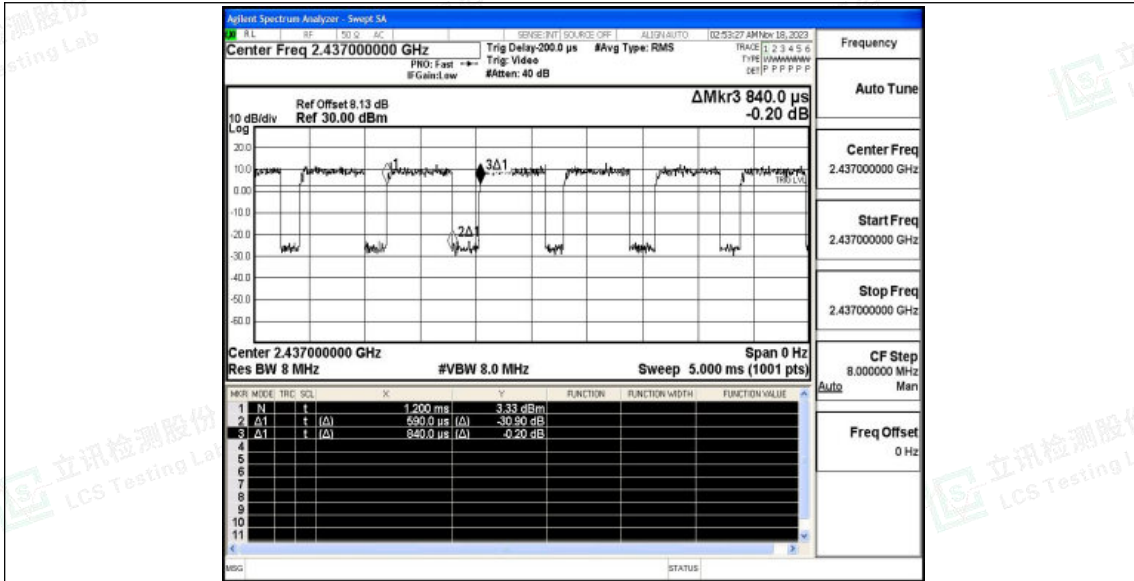
11N40SISO\_Ant1\_2422



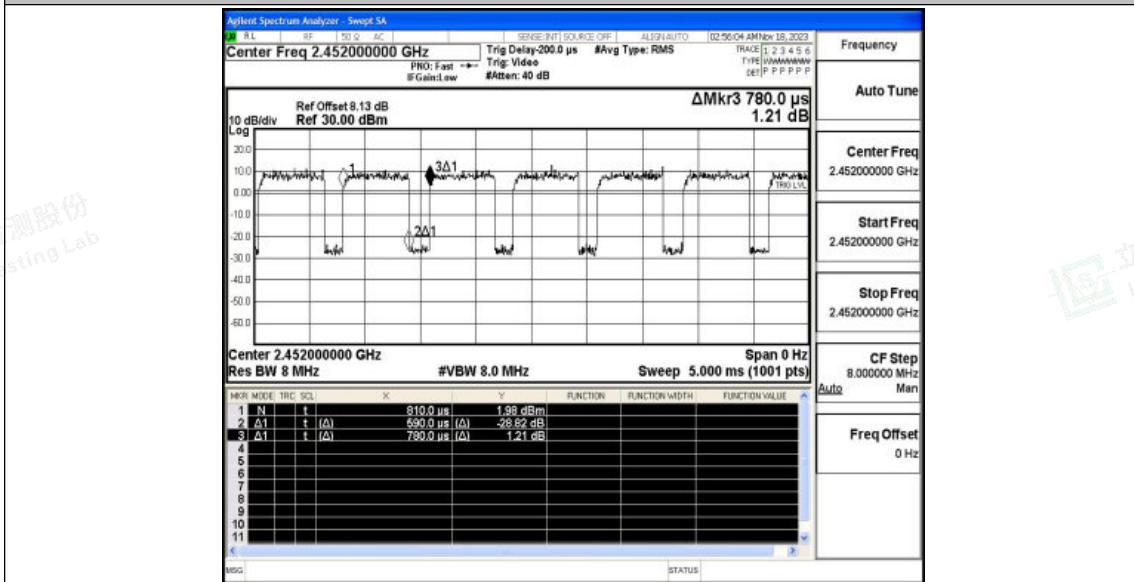
11N40SISO\_Ant1\_2437







11N40SISO\_Ant1\_2452





## 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	Ant1	Low	2412	AV	2310.000	-49.39	≤-41.20	45.81	≤54	PASS
				AV	2382.550	-45.67	≤-41.20	49.53	≤54	PASS
				AV	2390.000	-47.46	≤-41.20	47.74	≤54	PASS
				Peak	2310.000	-42.69	≤-21.20	52.51	≤74	PASS
				Peak	2382.680	-38.02	≤-21.20	57.18	≤74	PASS
				Peak	2390.000	-42.35	≤-21.20	52.85	≤74	PASS
		High	2462	AV	2483.500	-47.36	≤-41.20	47.84	≤54	PASS
				AV	2491.370	-45.23	≤-41.20	49.97	≤54	PASS
				AV	2500.000	-47.47	≤-41.20	47.73	≤54	PASS
				Peak	2483.500	-40.96	≤-21.20	54.24	≤74	PASS
				Peak	2499.730	-37.83	≤-21.20	57.37	≤74	PASS
				Peak	2500.000	-44.4	≤-21.20	50.80	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-48.99	≤-41.20	46.21	≤54	PASS
				AV	2389.960	-45.81	≤-41.20	49.39	≤54	PASS
				AV	2390.000	-45.81	≤-41.20	49.39	≤54	PASS
				Peak	2310.000	-42.7	≤-21.20	52.50	≤74	PASS
				Peak	2389.310	-35.46	≤-21.20	59.74	≤74	PASS
				Peak	2390.000	-42.4	≤-21.20	52.80	≤74	PASS
		High	2462	AV	2483.500	-45.28	≤-41.20	49.92	≤54	PASS
				AV	2483.560	-45.26	≤-41.20	49.94	≤54	PASS
				AV	2500.000	-48.5	≤-41.20	46.70	≤54	PASS
				Peak	2483.500	-36.57	≤-21.20	58.63	≤74	PASS
				Peak	2485.100	-34.7	≤-21.20	60.50	≤74	PASS
				Peak	2500.000	-43.06	≤-21.20	52.14	≤74	PASS
11N20SIS O	Ant1	Low	2412	AV	2310.000	-48.89	≤-41.20	46.31	≤54	PASS
				AV	2389.570	-45.77	≤-41.20	49.43	≤54	PASS
				AV	2390.000	-45.79	≤-41.20	49.41	≤54	PASS
				Peak	2310.000	-41.93	≤-21.20	53.27	≤74	PASS
				Peak	2388.530	-31.92	≤-21.20	63.28	≤74	PASS
				Peak	2390.000	-37.64	≤-21.20	57.56	≤74	PASS
		High	2462	AV	2483.500	-43.35	≤-41.20	51.85	≤54	PASS
				AV	2483.670	-44.1	≤-41.20	51.10	≤54	PASS
				AV	2500.000	-48.42	≤-41.20	46.78	≤54	PASS
				Peak	2483.500	-41.05	≤-21.20	54.15	≤74	PASS
				Peak	2484.660	-28.3	≤-21.20	66.90	≤74	PASS



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11N40SIS O	Ant1	Low	2422	Peak	2500.000	-42.93	≤-21.20	52.27	≤74	PASS
				AV	2310.000	-48.74	≤-41.20	46.46	≤54	PASS
				AV	2389.700	-41.87	≤-41.20	53.33	≤54	PASS
				AV	2390.000	-42.1	≤-41.20	53.10	≤54	PASS
				Peak	2310.000	-44.3	≤-21.20	50.90	≤74	PASS
				Peak	2387.490	-32.37	≤-21.20	62.83	≤74	PASS
		High	2452	AV	2483.500	-41.44	≤-41.20	53.76	≤54	PASS
				AV	2484.440	-41.55	≤-41.20	53.65	≤54	PASS
				AV	2500.000	-48.06	≤-41.20	47.14	≤54	PASS
				Peak	2483.500	-33.81	≤-21.20	61.39	≤74	PASS
				Peak	2487.410	-29.04	≤-21.20	66.16	≤74	PASS
				Peak	2500.000	-42.55	≤-21.20	52.65	≤74	PASS

Note:

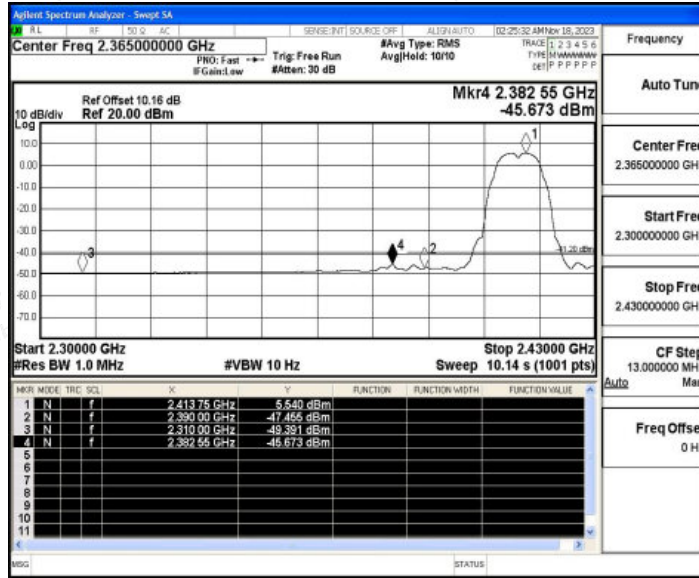
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



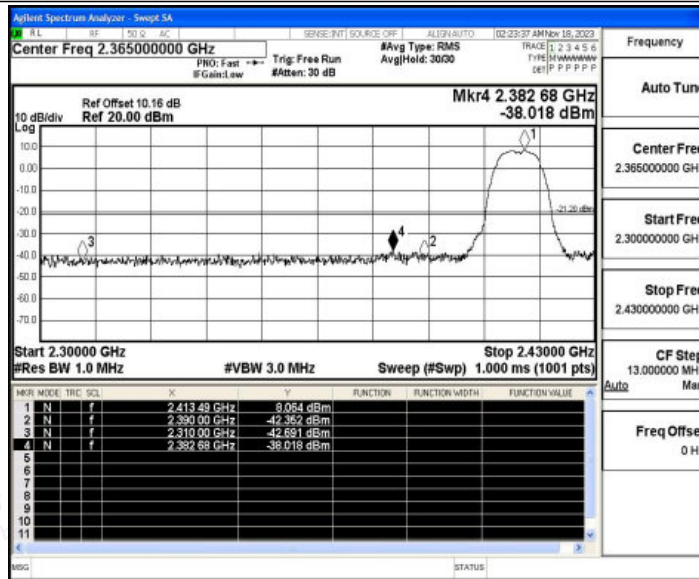


### Test Graphs

#### 11B\_Ant1\_Low\_2412\_AV

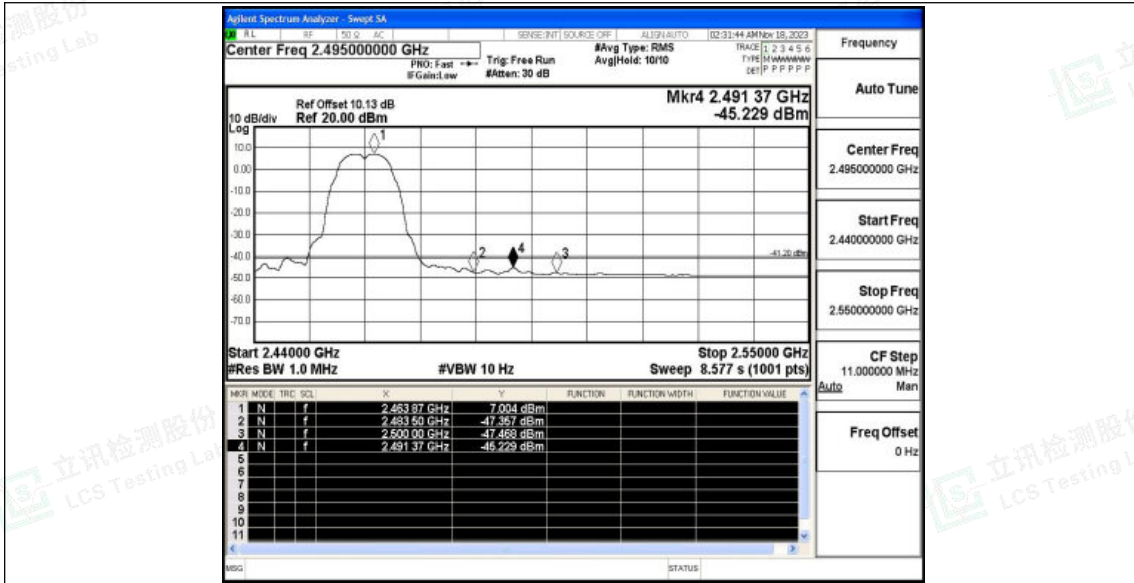


#### 11B\_Ant1\_Low\_2412\_Peak

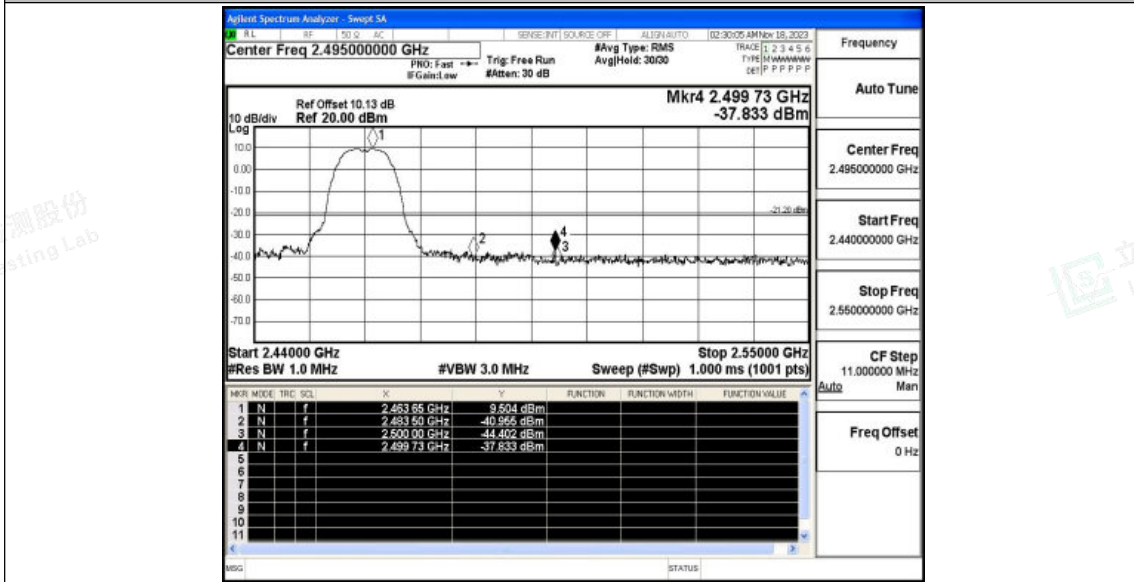


#### 11B\_Ant1\_High\_2462\_AV



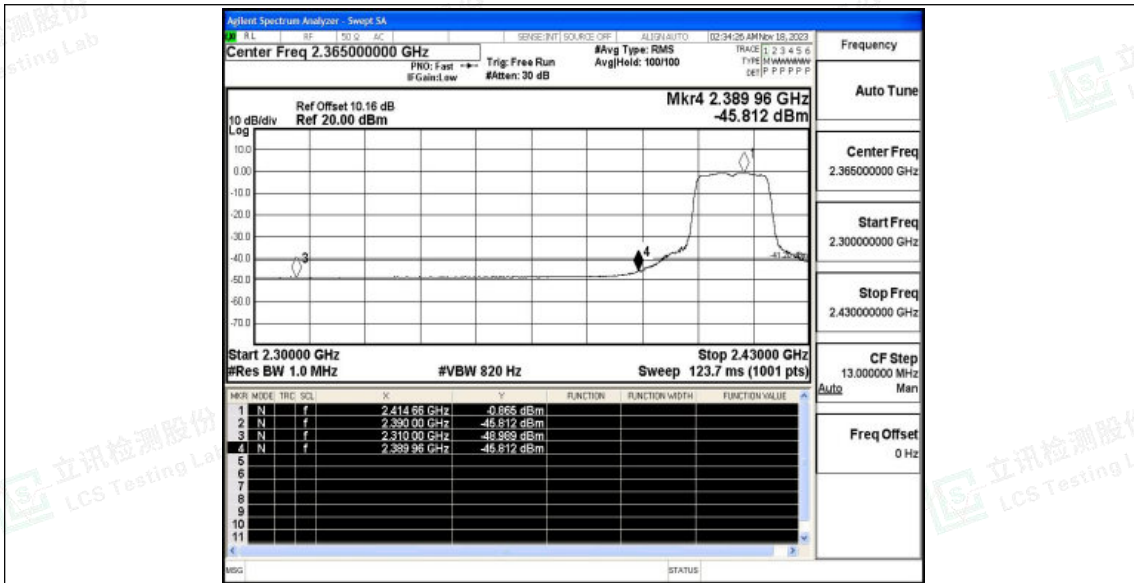


11B\_Ant1\_High\_2462\_Peak

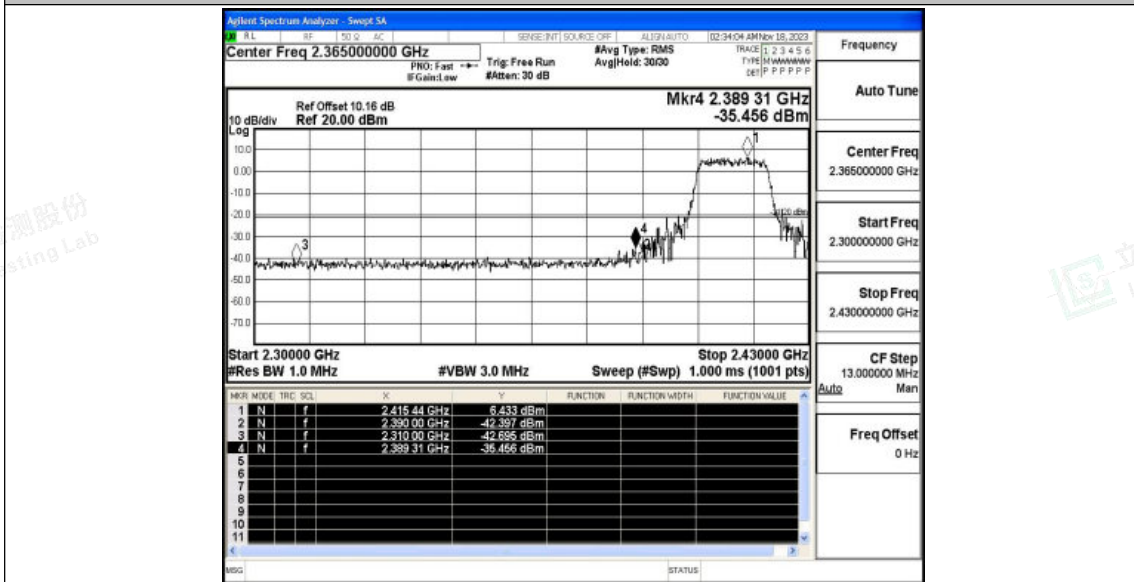


11G\_Ant1\_Low\_2412\_AV



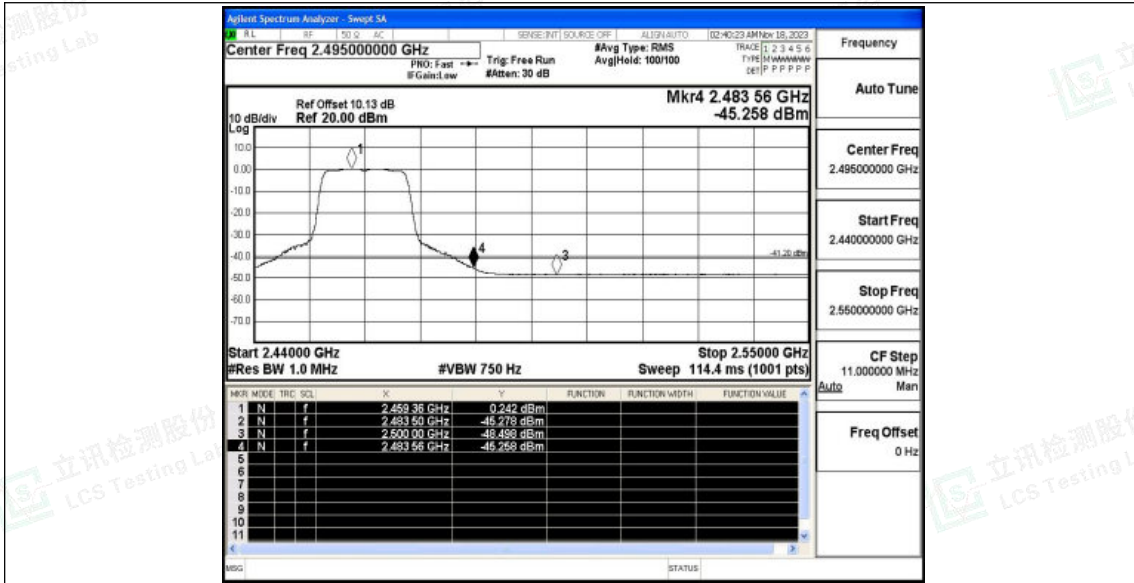


11G\_Ant1\_Low\_2412\_Peak

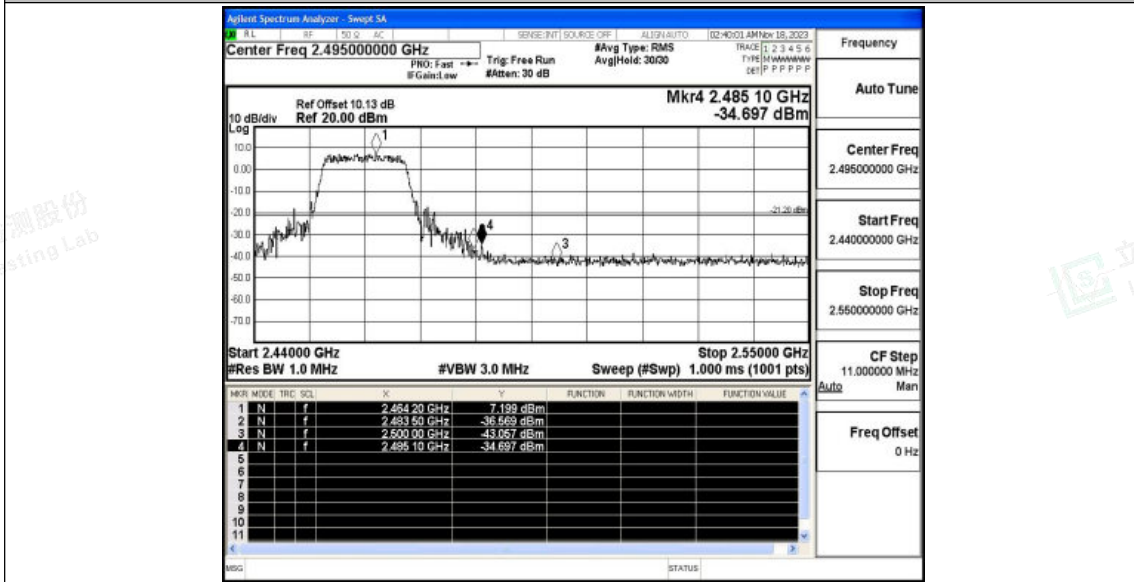


11G\_Ant1\_High\_2462\_AV



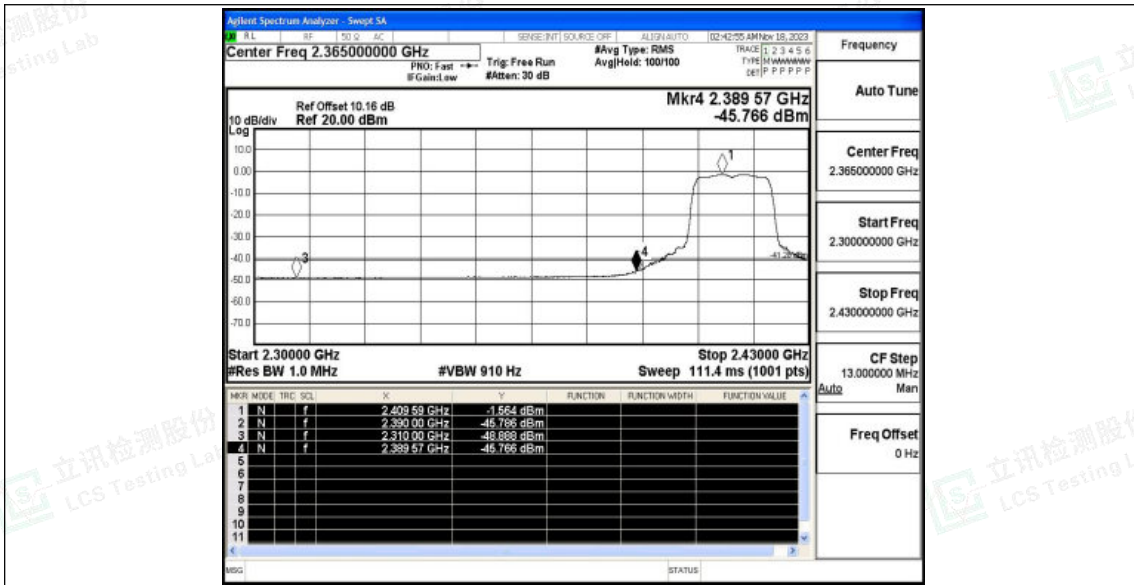


11G\_Ant1\_High\_2462\_Peak

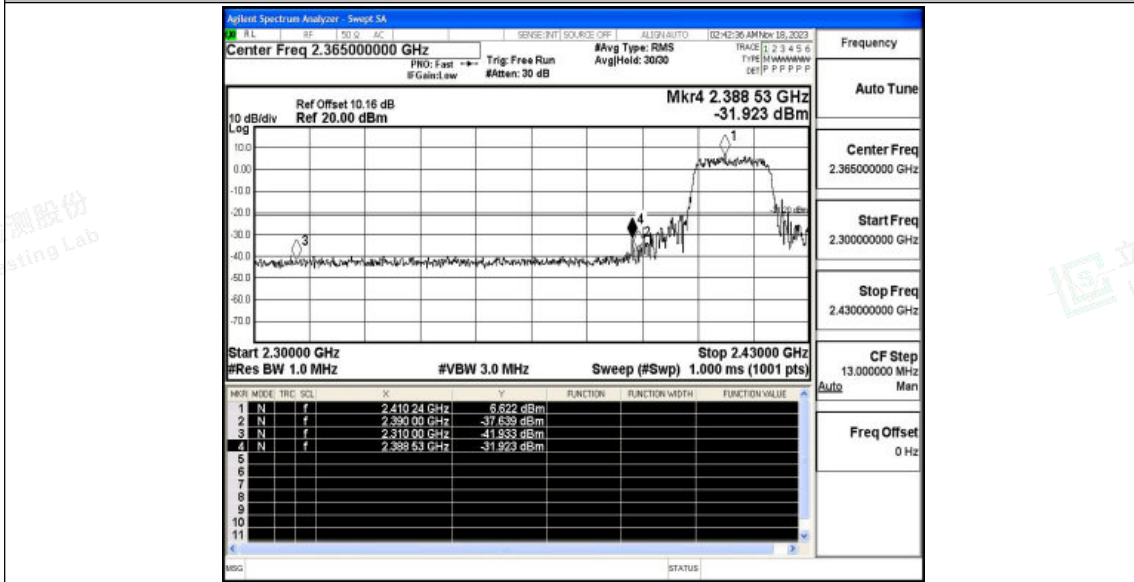


11N20SISO\_Ant1\_Low\_2412\_AV





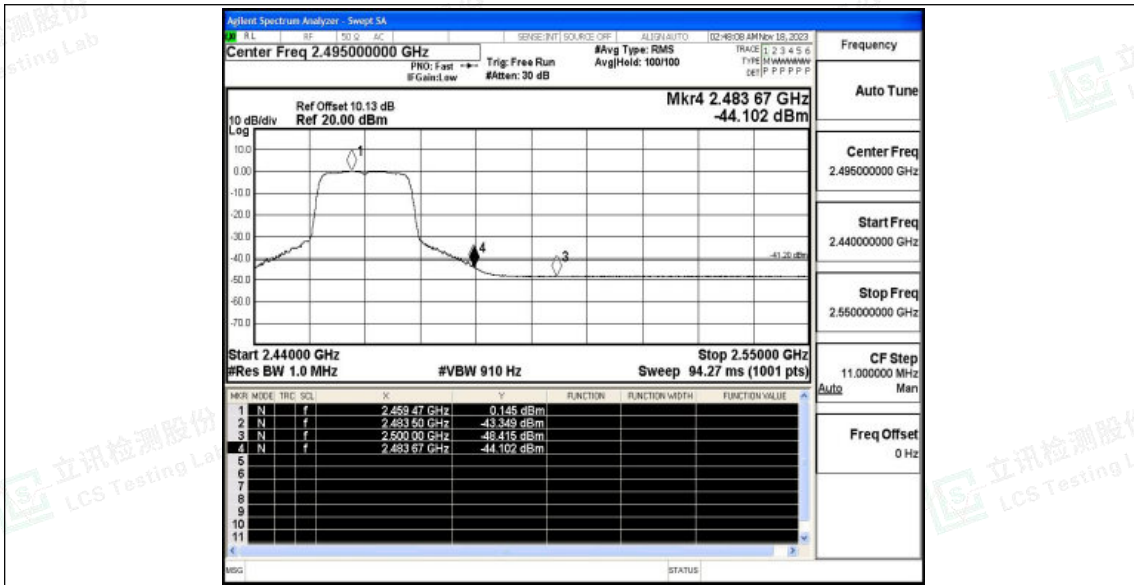
11N20SISO\_Ant1\_Low\_2412\_Peak



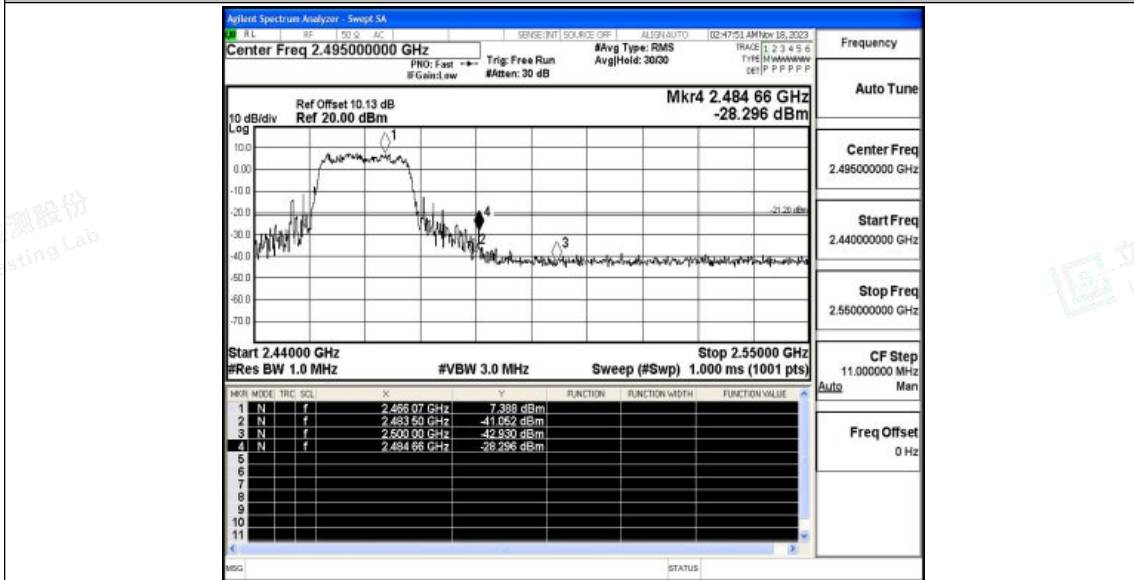
11N20SISO\_Ant1\_High\_2462\_AV





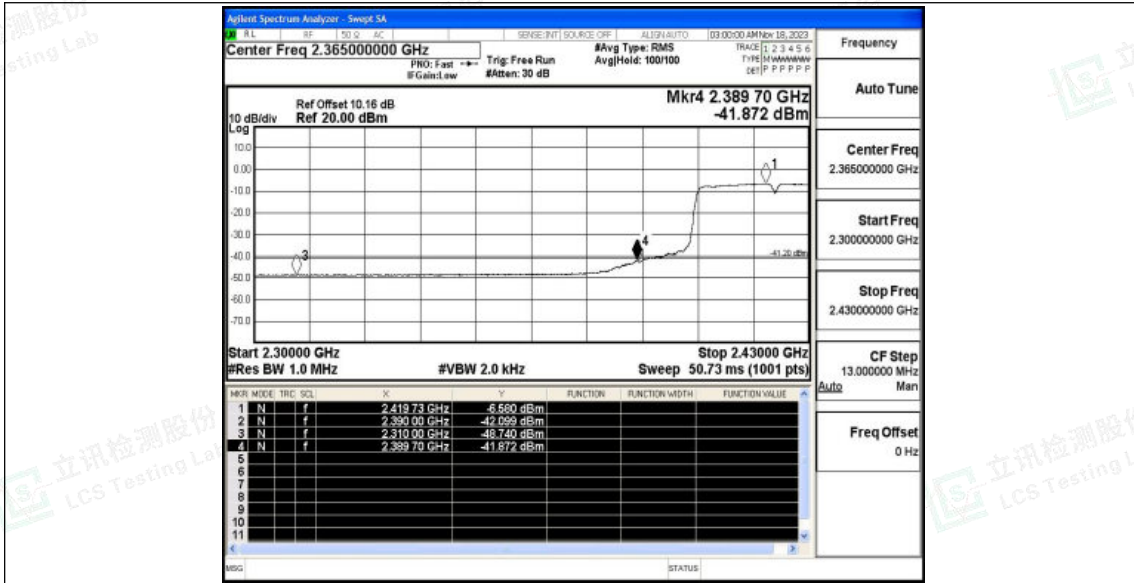


11N20SISO\_Ant1\_High\_2462\_Peak

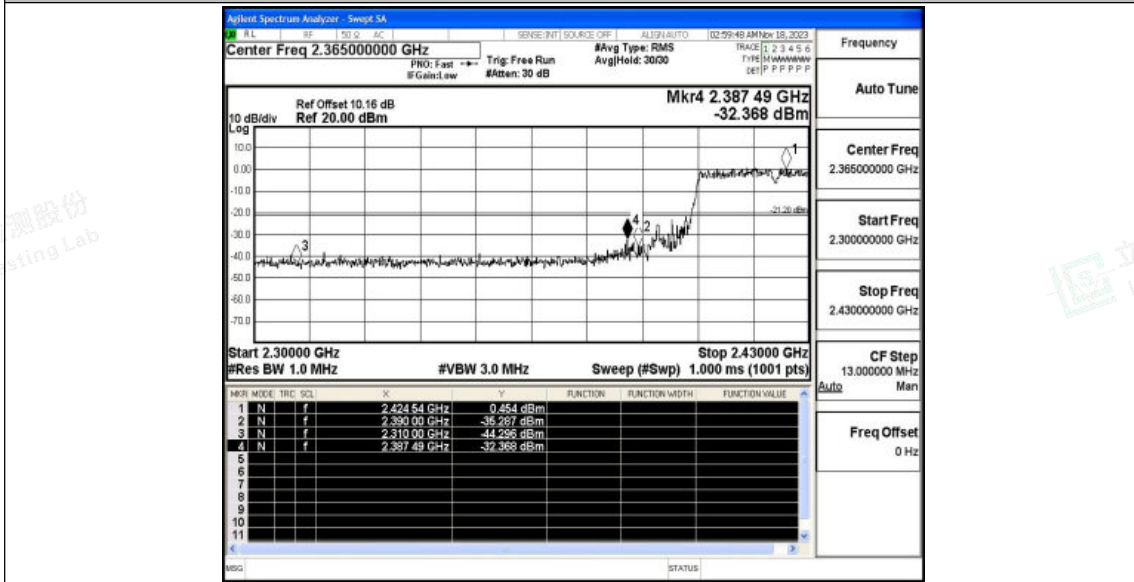


11N40SISO\_Ant1\_Low\_2422\_AV



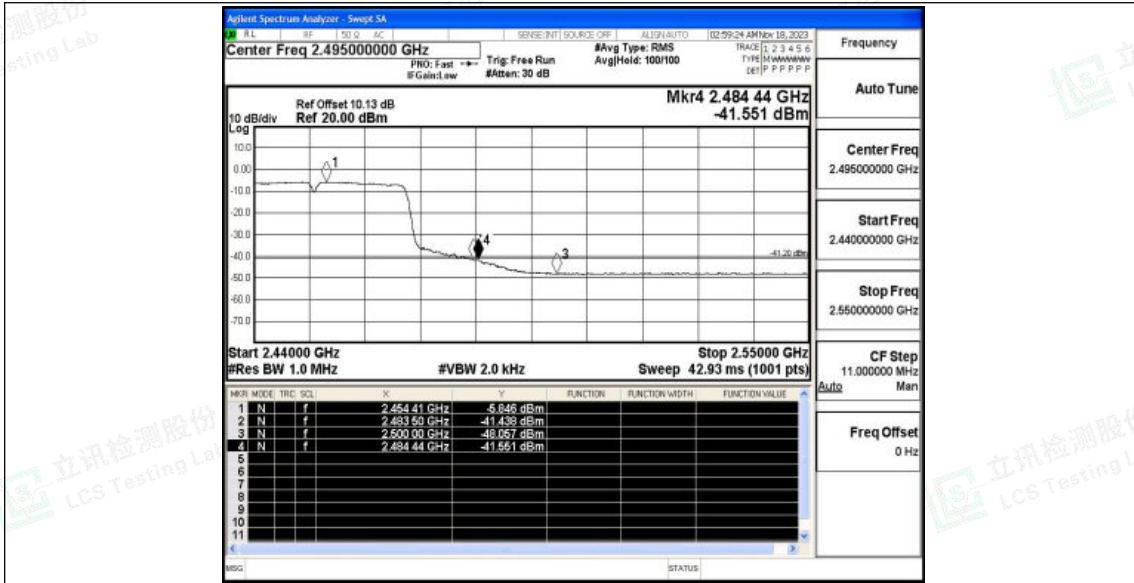


11N40SISO\_Ant1\_Low\_2422\_Peak



11N40SISO\_Ant1\_High\_2452\_AV





11N40SISO\_Ant1\_High\_2452\_Peak

