



## Appendix D

### RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: LED PROJECTOR

Test Model: L005A

#### Environmental Conditions

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





### D.1 Emission Bandwidth

#### Test Result

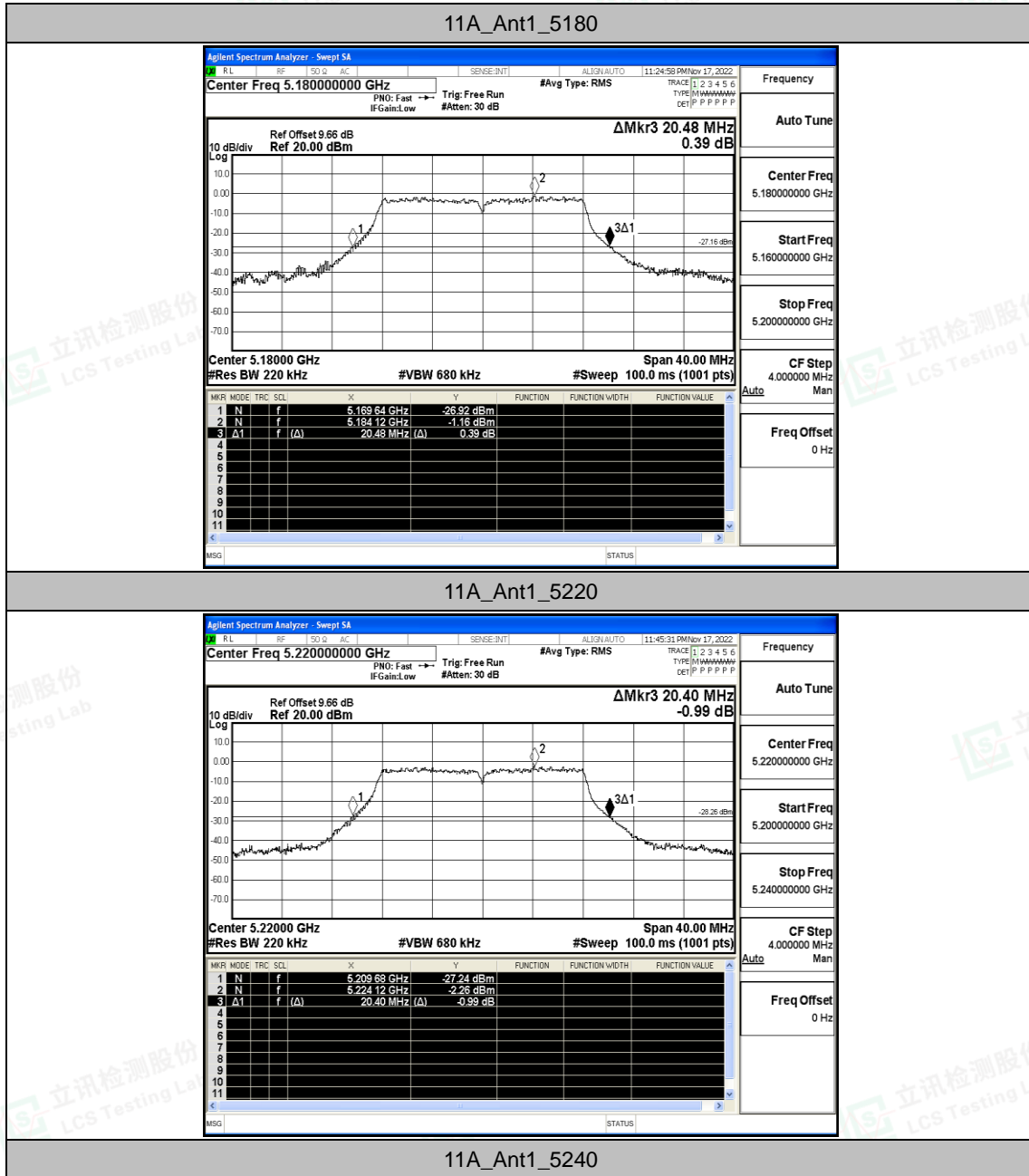
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	20.480	5169.640	5190.120	---	---
		5220	20.400	5209.680	5230.080	---	---
		5240	20.560	5229.600	5250.160	---	---
11N20SISO	Ant1	5180	21.200	5169.320	5190.520	---	---
		5220	21.240	5209.240	5230.480	---	---
		5240	21.280	5229.160	5250.440	---	---
11N40SISO	Ant1	5190	41.840	5169.280	5211.120	---	---
		5230	41.920	5208.960	5250.880	---	---
11AC20SISO	Ant1	5180	21.200	5169.360	5190.560	---	---
		5220	21.280	5209.240	5230.520	---	---
		5240	21.240	5229.280	5250.520	---	---
11AC40SISO	Ant1	5190	41.520	5169.360	5210.880	---	---
		5230	42.240	5208.880	5251.120	---	---
11AC80SISO	Ant1	5210	82.400	5169.200	5251.600	---	---

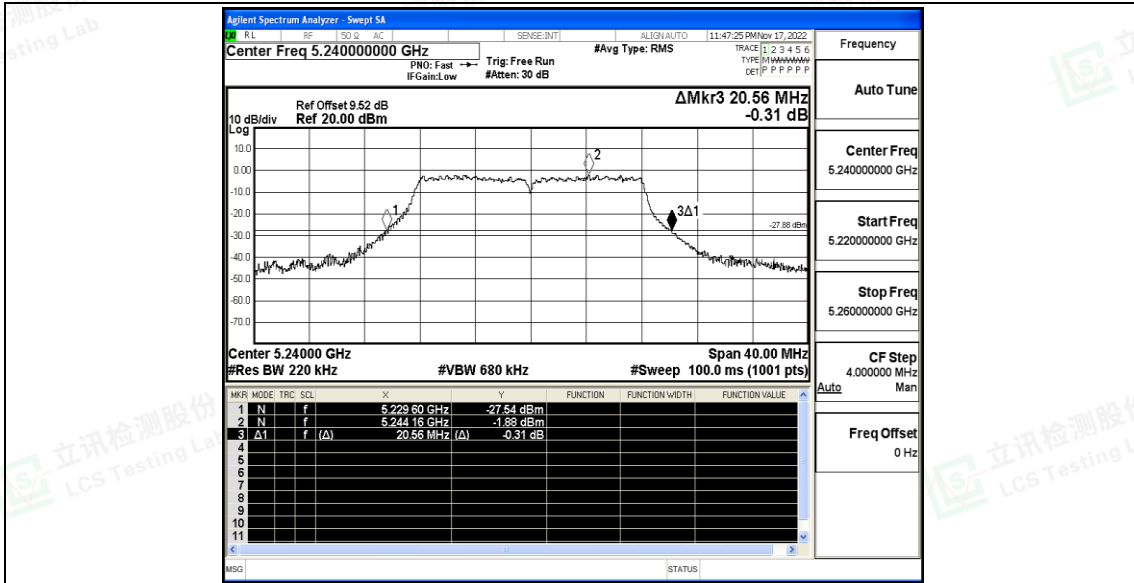


Shenzhen LCS Compliance Testing Laboratory Ltd.  
 Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity

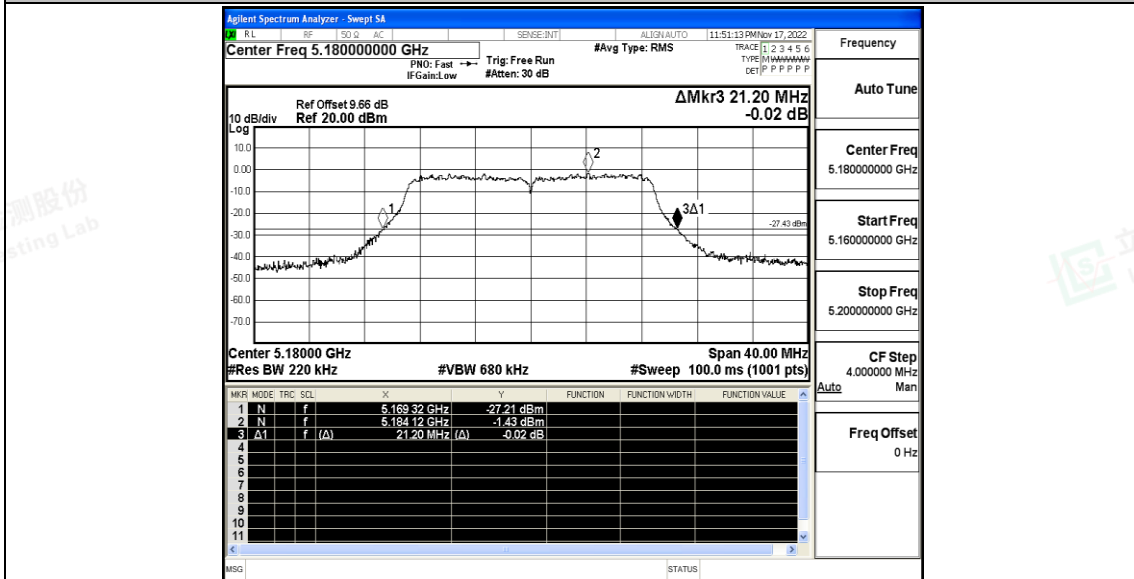


### Test Graphs



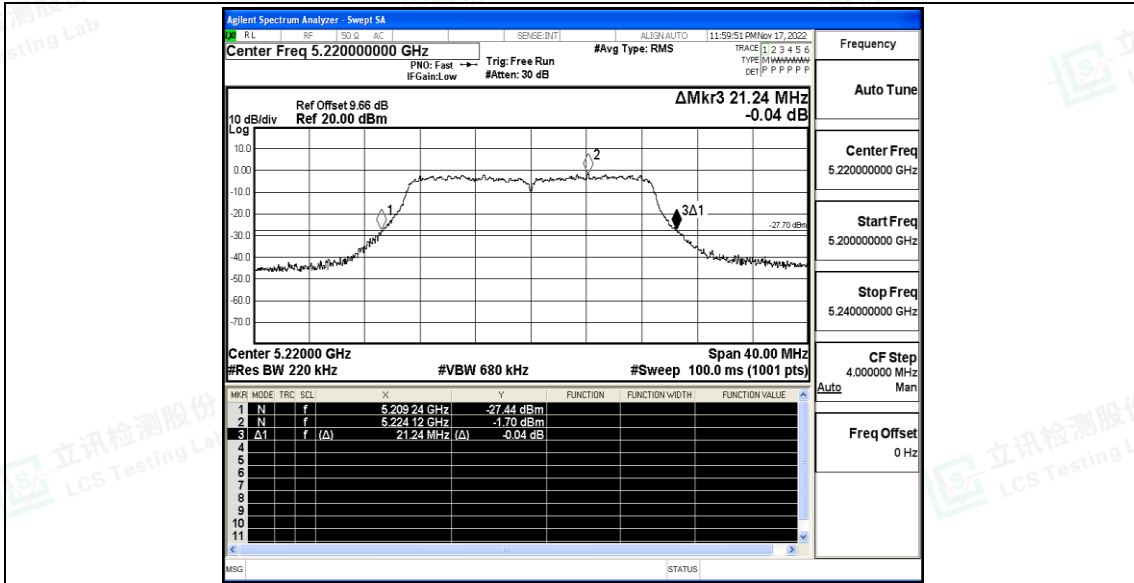


11N20SISO\_Ant1\_5180

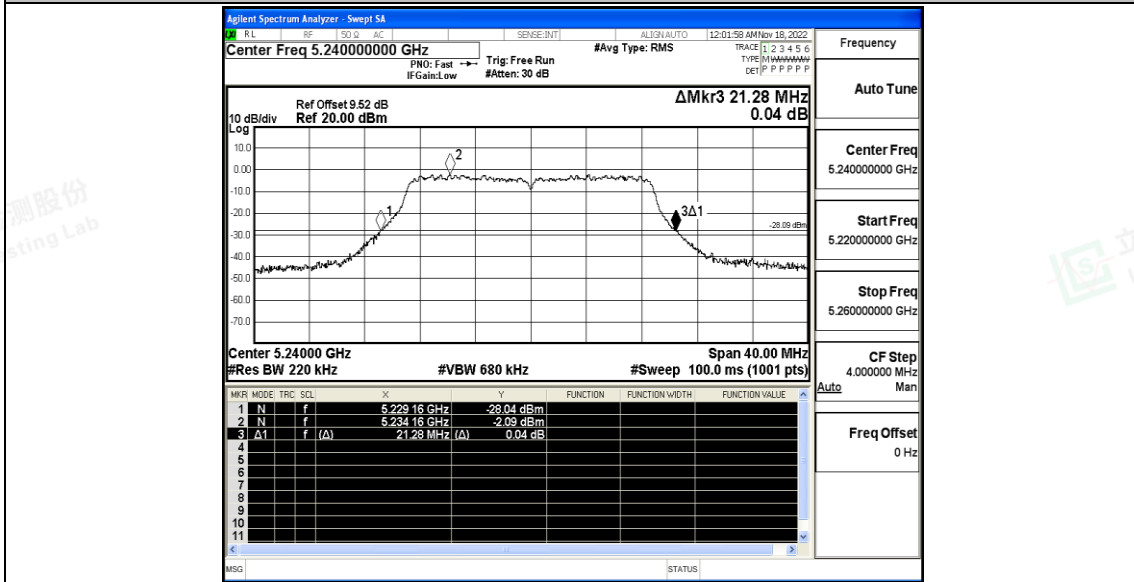


11N20SISO\_Ant1\_5220



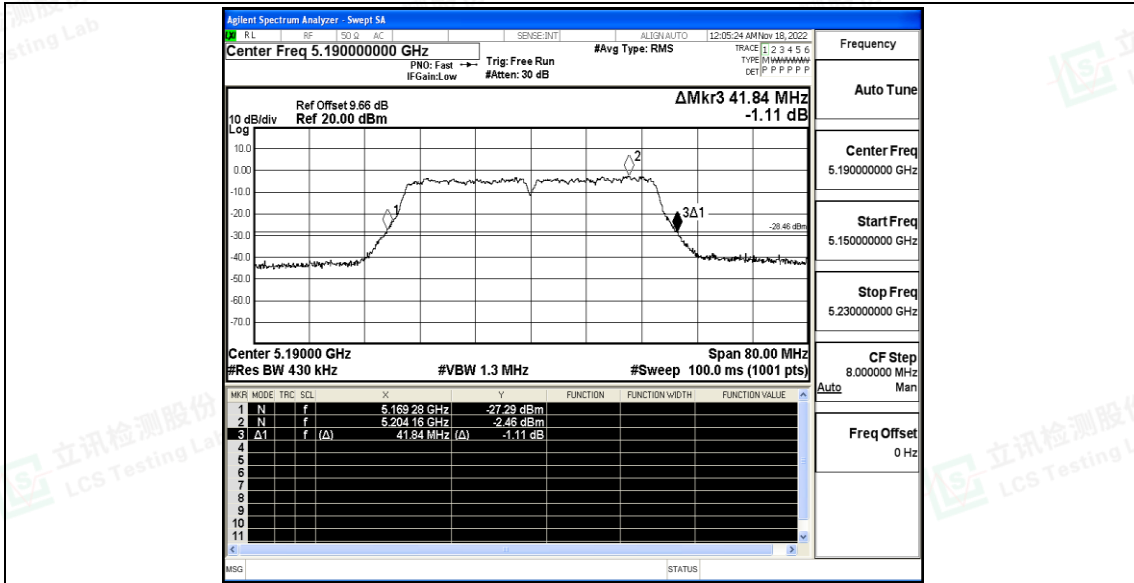


11N20SISO\_Ant1\_5240

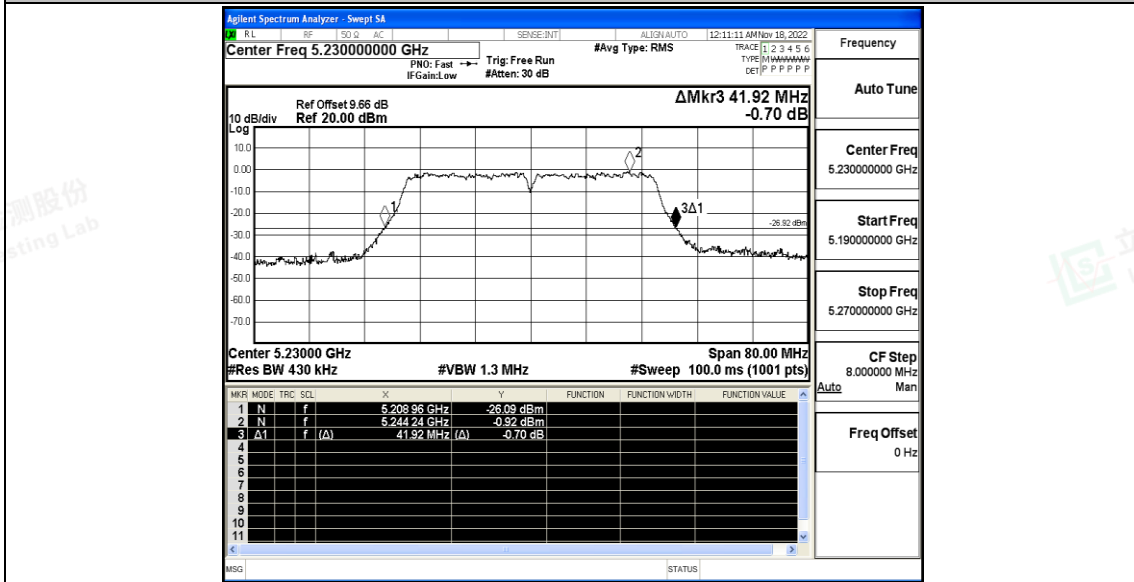


11N40SISO\_Ant1\_5190



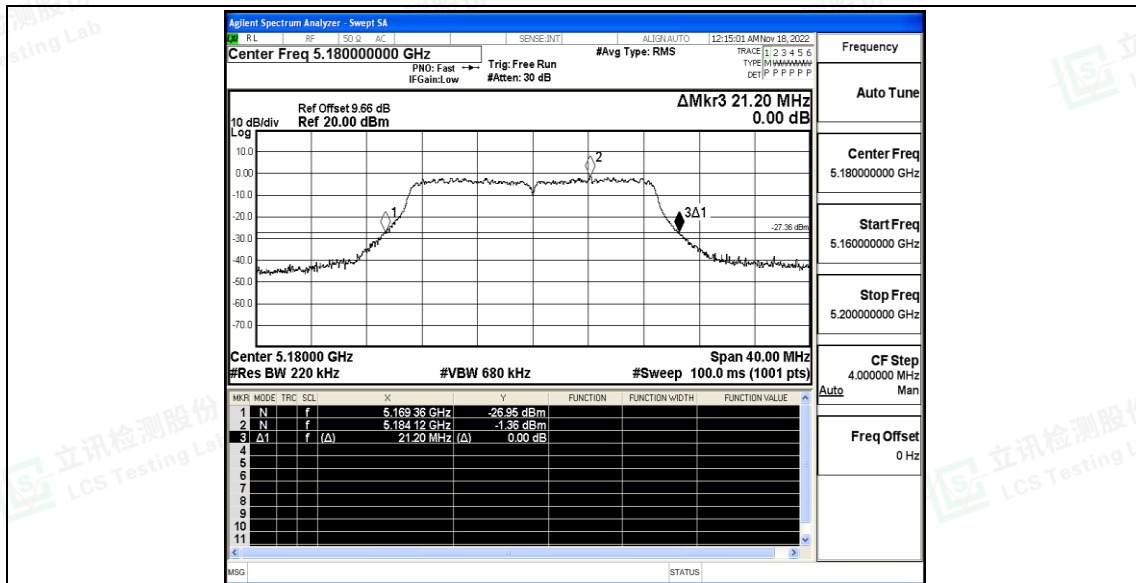


11N40SISO\_Ant1\_5230

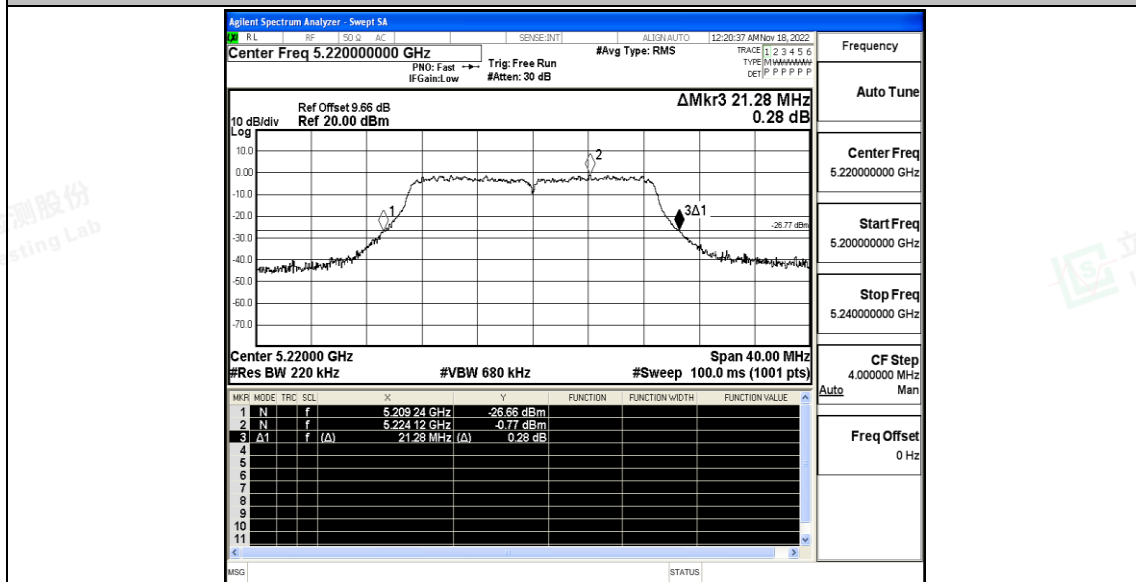


11AC20SISO\_Ant1\_5180



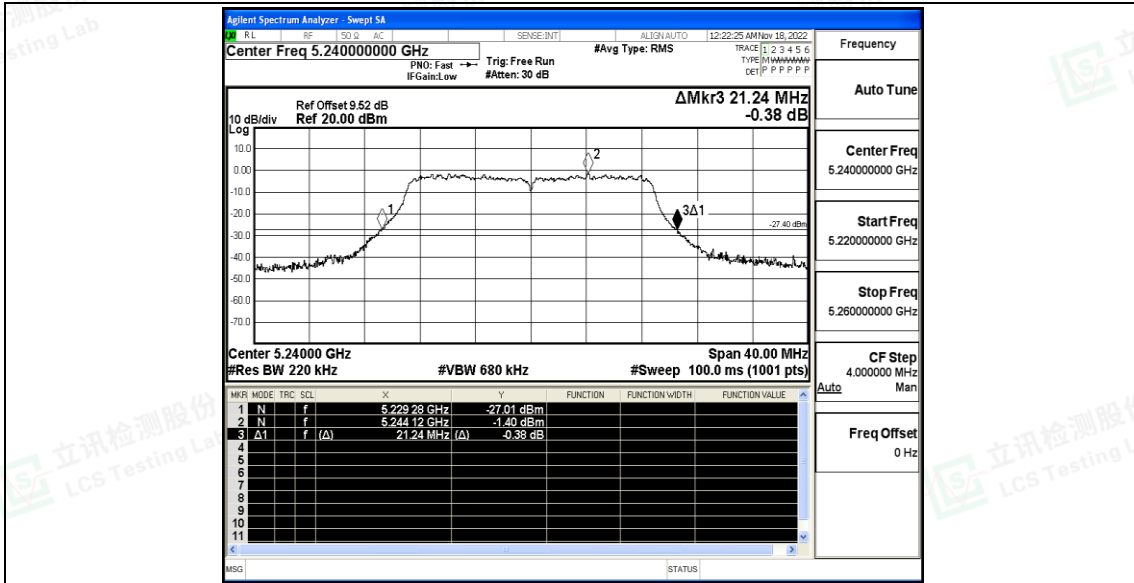


11AC20SISO\_Ant1\_5220

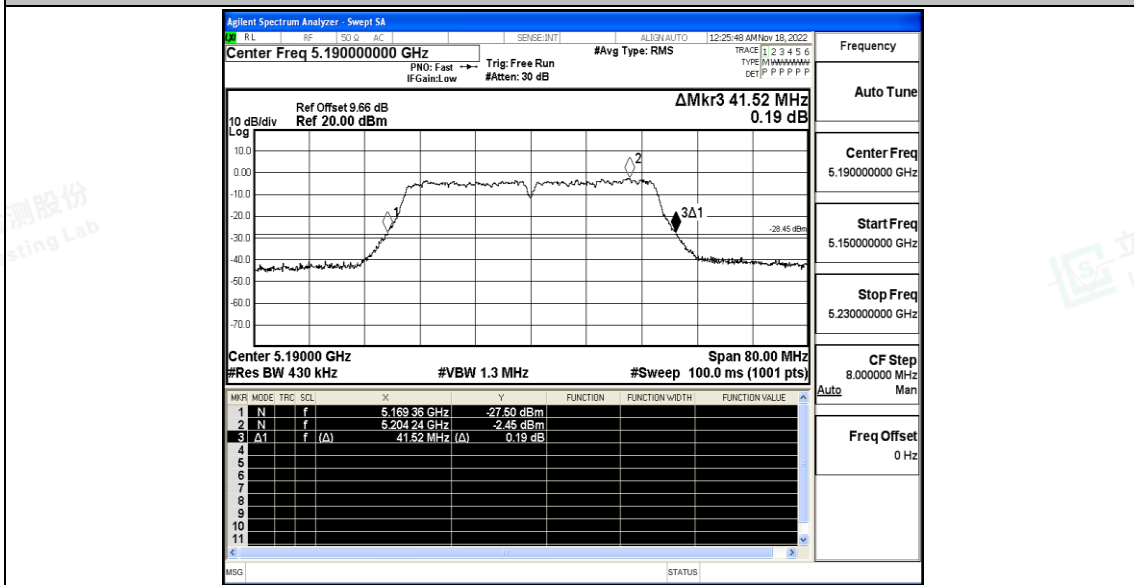


11AC20SISO\_Ant1\_5240





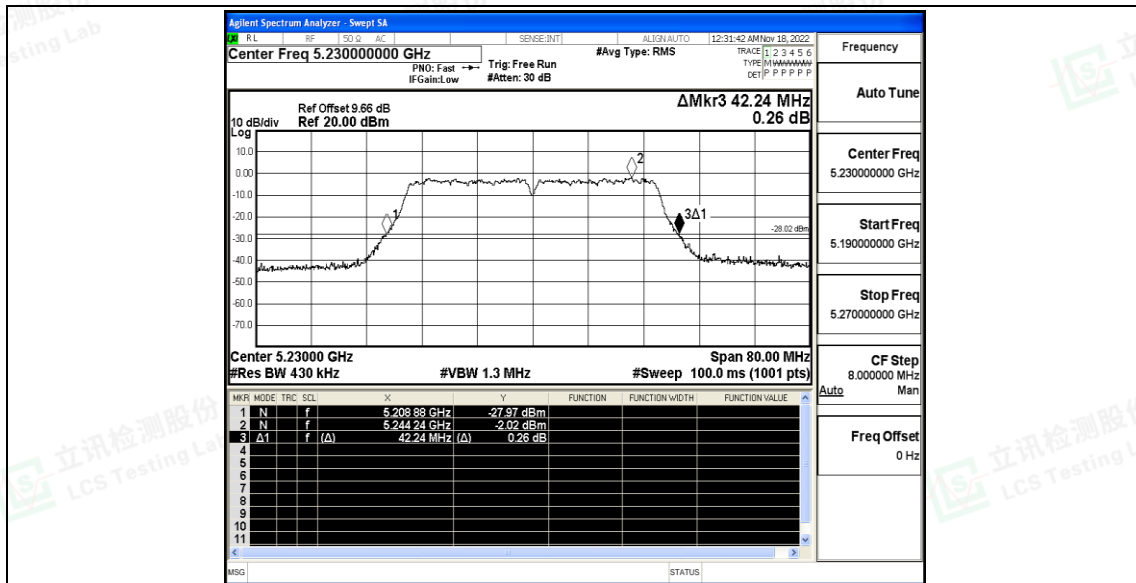
11AC40SISO\_Ant1\_5190



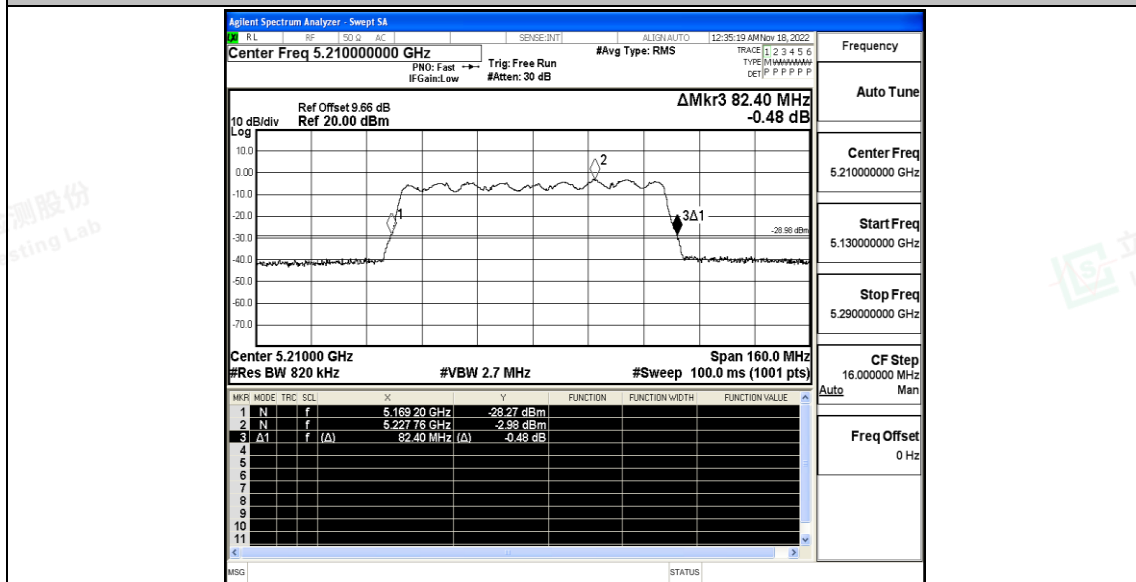
11AC40SISO\_Ant1\_5230







11AC80SISO\_Ant1\_5210





## D.2 Maximum conducted output power

### Test Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	9.12	≤23.98	PASS
		5220	8.18	≤23.98	PASS
		5240	8.78	≤23.98	PASS
11N20SISO	Ant1	5180	9.08	≤23.98	PASS
		5220	9.37	≤23.98	PASS
		5240	9.04	≤23.98	PASS
11N40SISO	Ant1	5190	9.70	≤23.98	PASS
		5230	9.00	≤23.98	PASS
11AC20SISO	Ant1	5180	9.06	≤23.98	PASS
		5220	9.88	≤23.98	PASS
		5240	9.59	≤23.98	PASS
11AC40SISO	Ant1	5190	9.75	≤23.98	PASS
		5230	8.89	≤23.98	PASS
11AC80SISO	Ant1	5210	10.54	≤23.98	PASS

Note: The Duty Cycle Factor is compensated in the graph.





### D.3 Maximum power spectral density

#### Test Result

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-2.08	≤11.00	PASS
		5220	-3.19	≤11.00	PASS
		5240	-2.73	≤11.00	PASS
11N20SISO	Ant1	5180	-2.41	≤11.00	PASS
		5220	-2.25	≤11.00	PASS
		5240	-2.69	≤11.00	PASS
11N40SISO	Ant1	5190	-4.74	≤11.00	PASS
		5230	-5.9	≤11.00	PASS
11AC20SISO	Ant1	5180	-2.42	≤11.00	PASS
		5220	-1.74	≤11.00	PASS
		5240	-2.15	≤11.00	PASS
11AC40SISO	Ant1	5190	-4.76	≤11.00	PASS
		5230	-5.86	≤11.00	PASS
11AC80SISO	Ant1	5210	-5.74	≤11.00	PASS

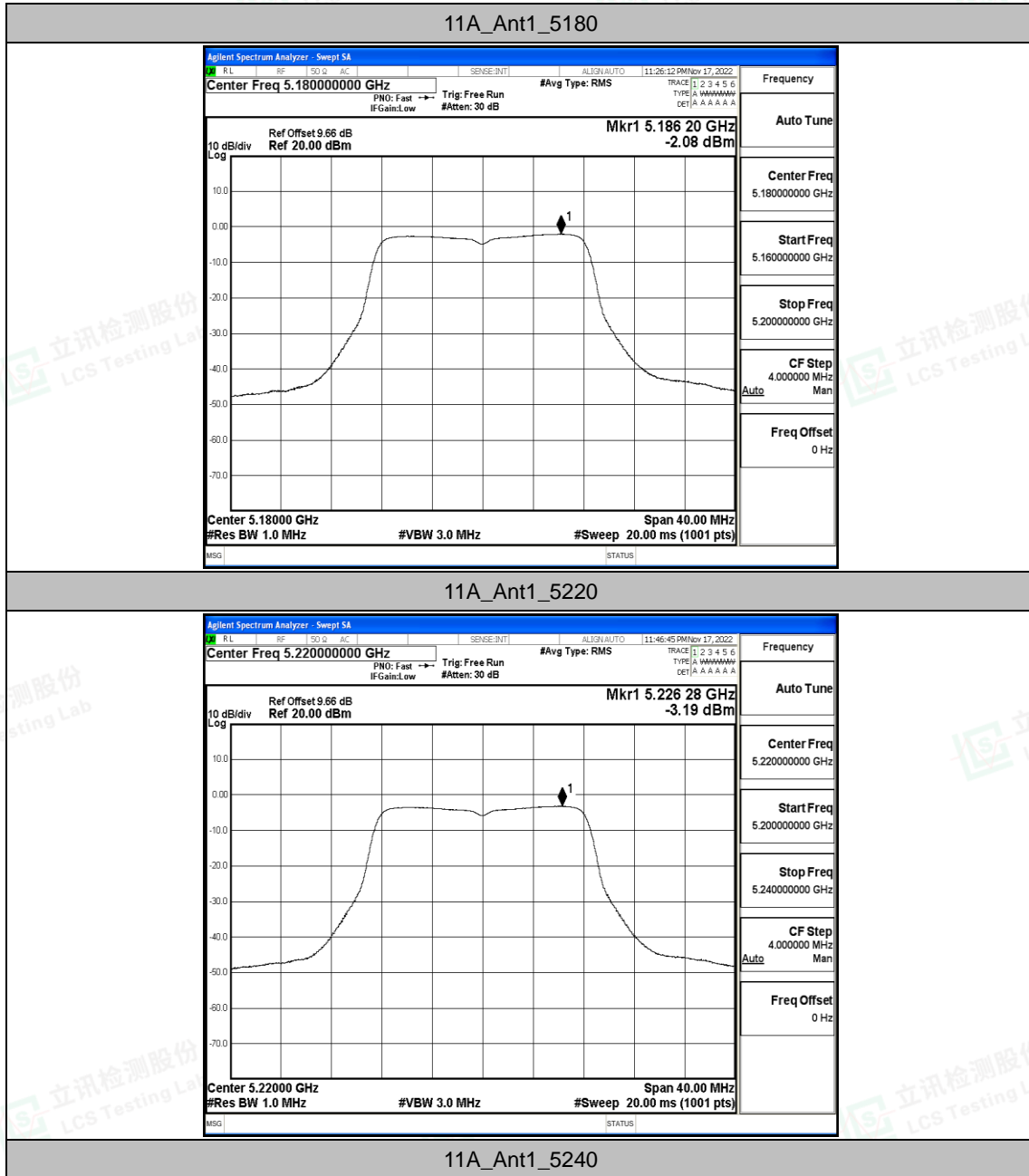
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

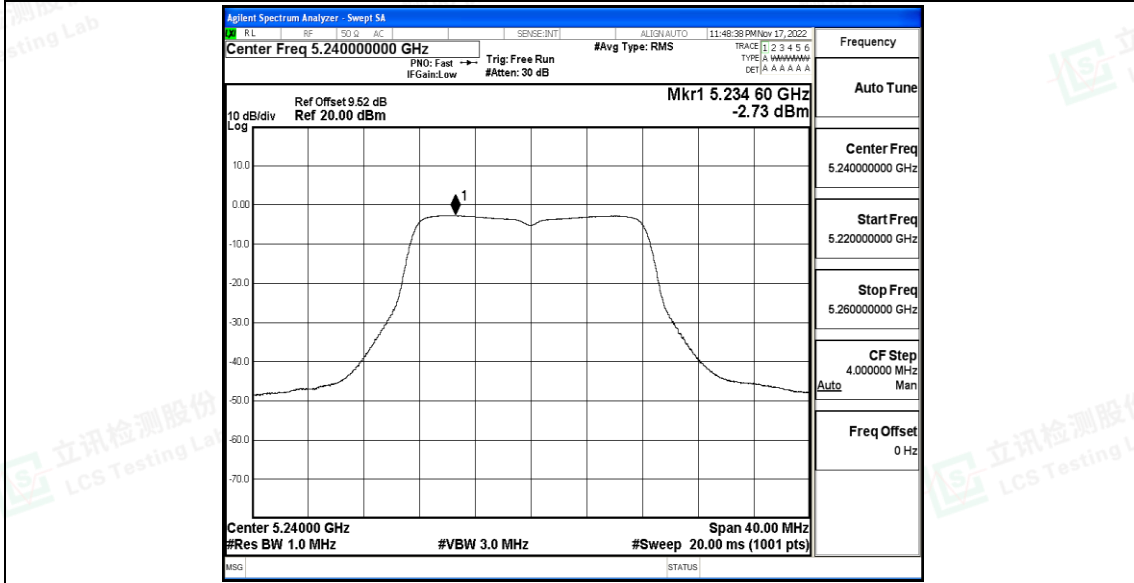
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.



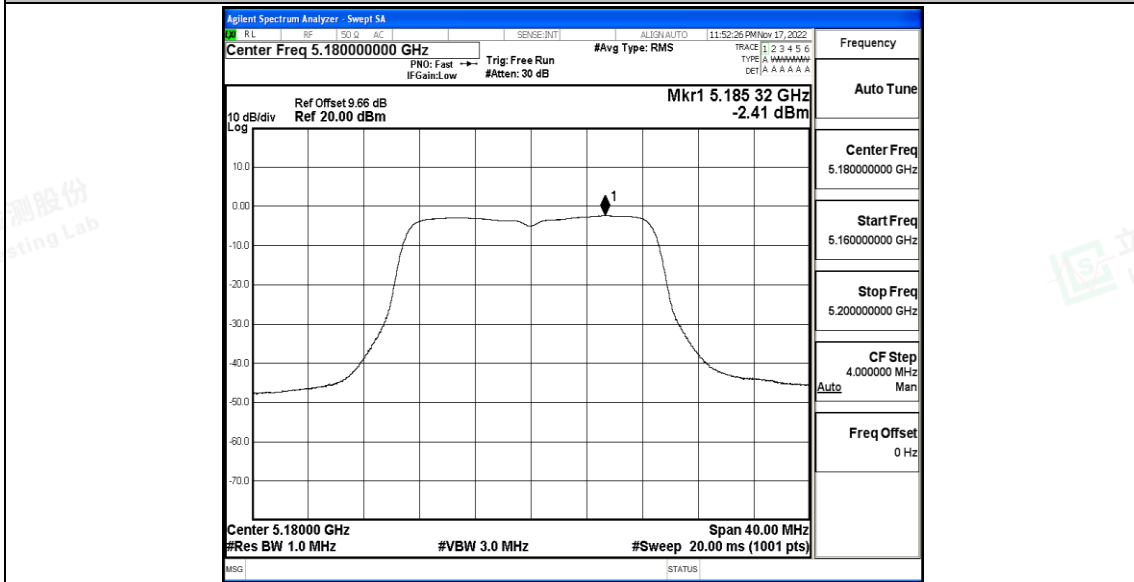


### Test Graphs



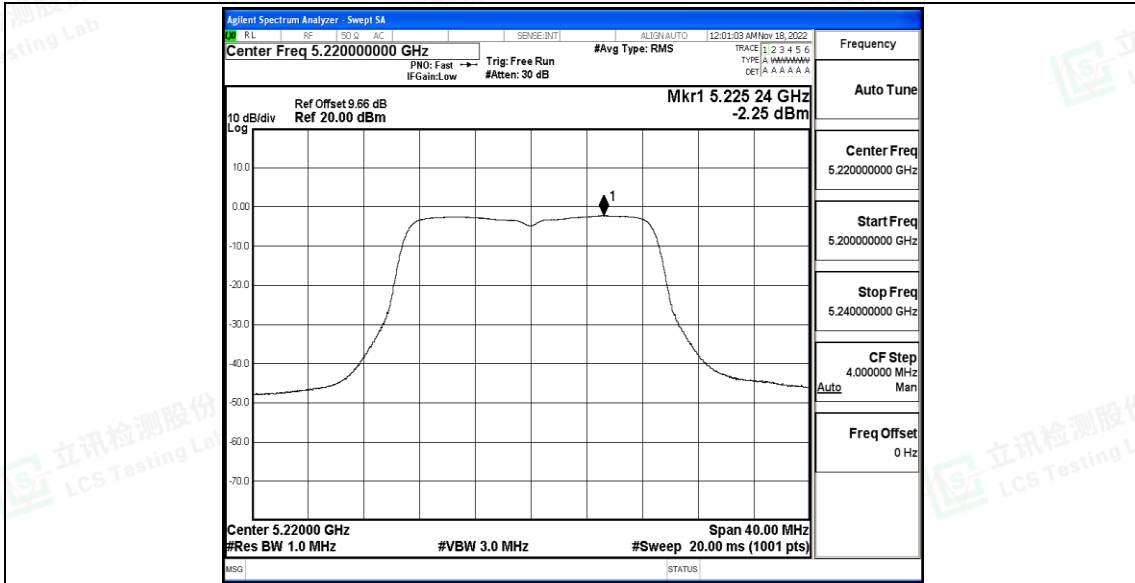


11N20SISO\_Ant1\_5180

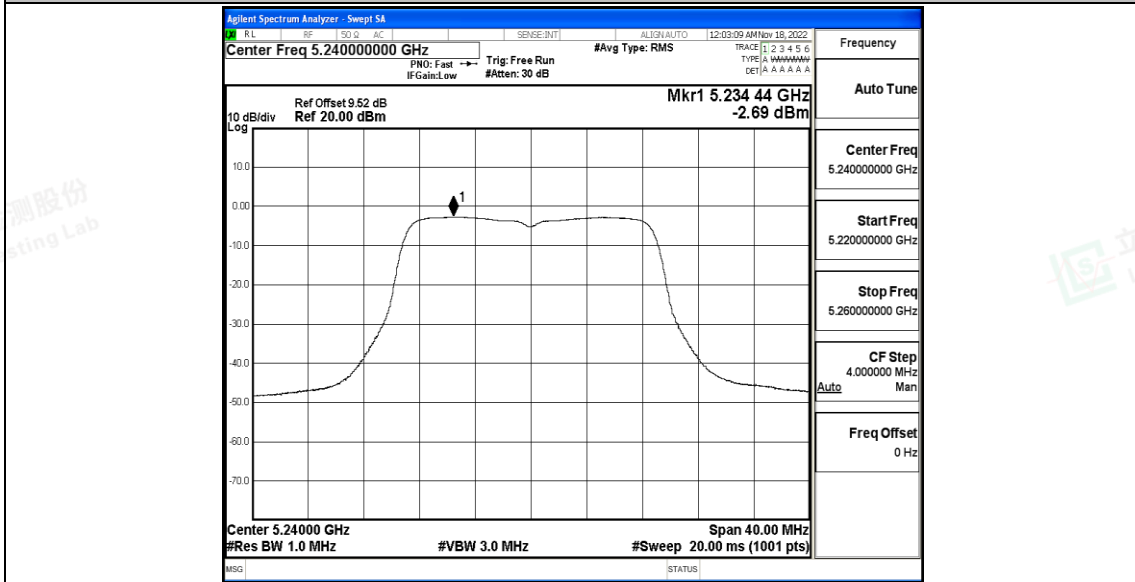


11N20SISO\_Ant1\_5220



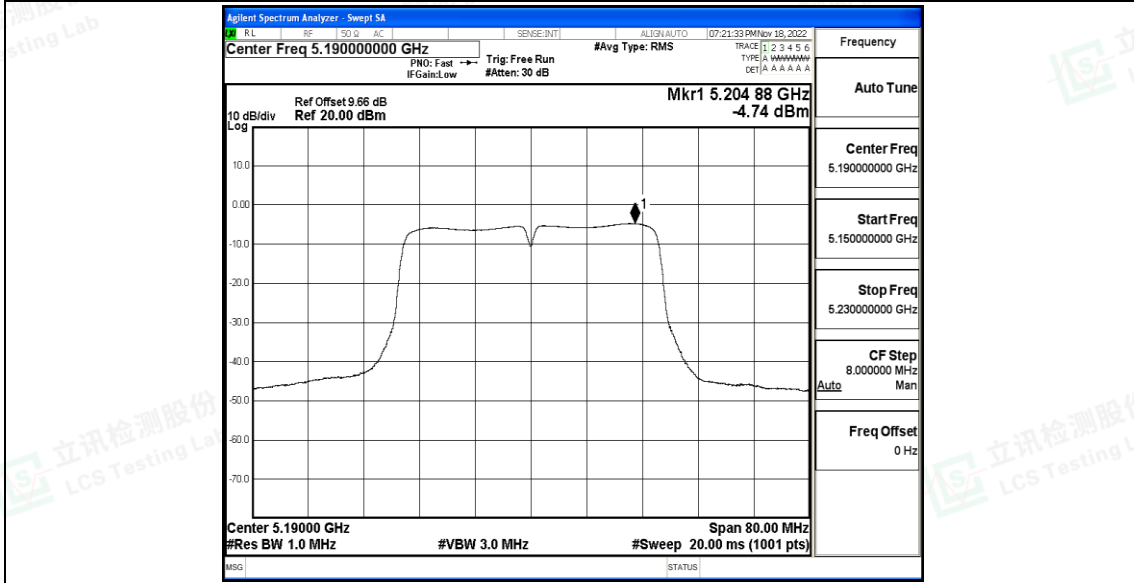


11N20SISO\_Ant1\_5240

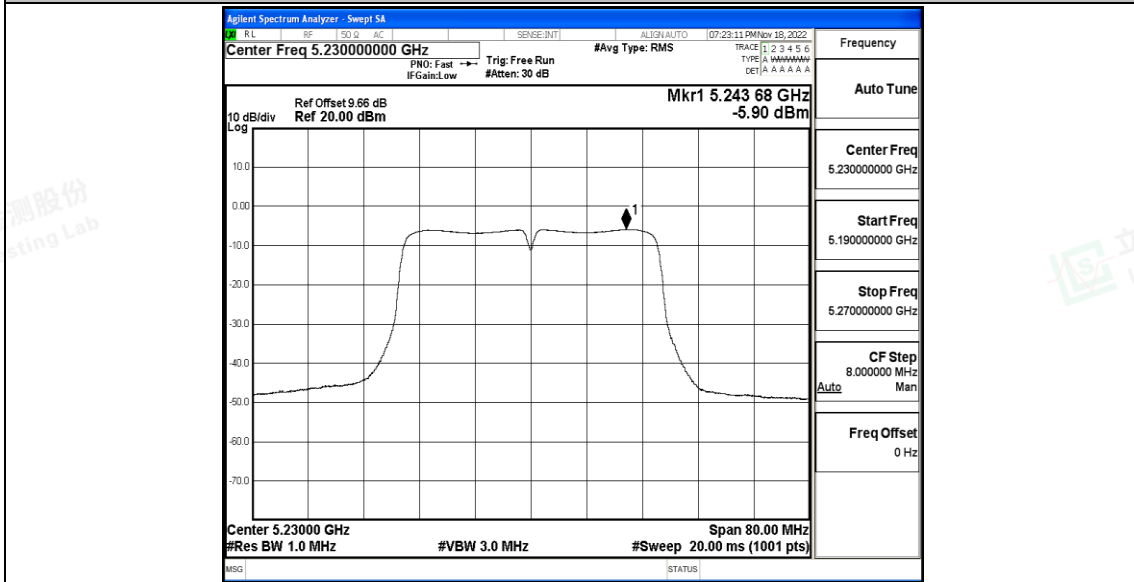


11N40SISO\_Ant1\_5190



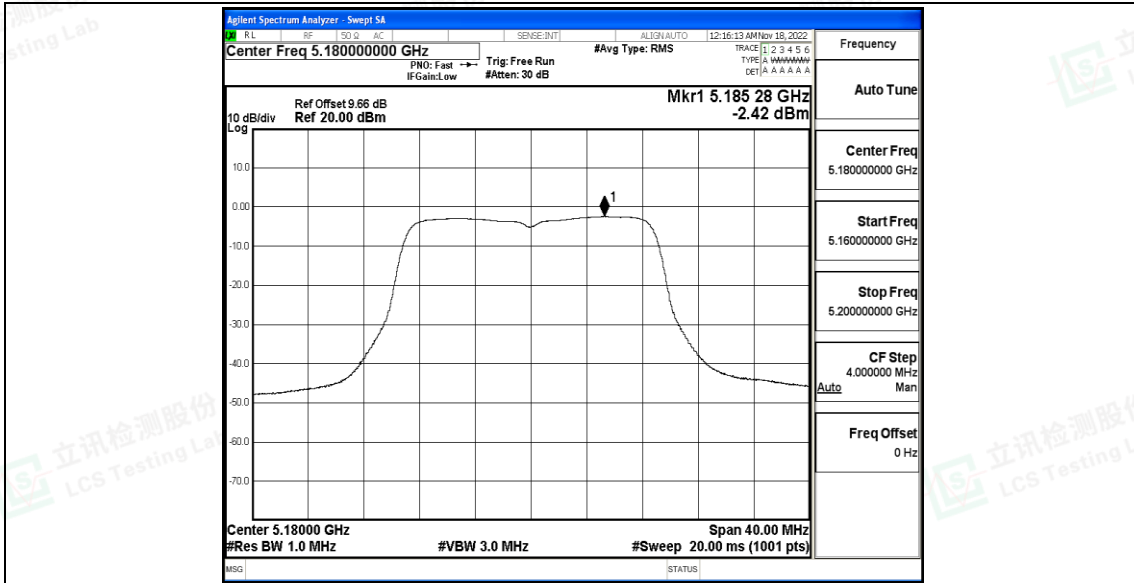


11N40SISO\_Ant1\_5230

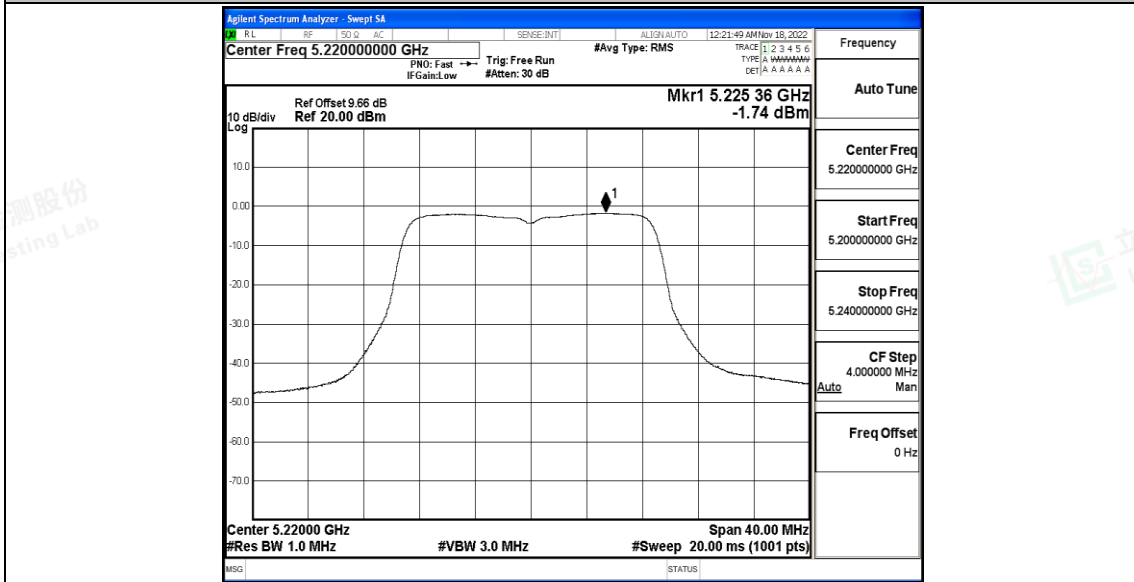


11AC20SISO\_Ant1\_5180





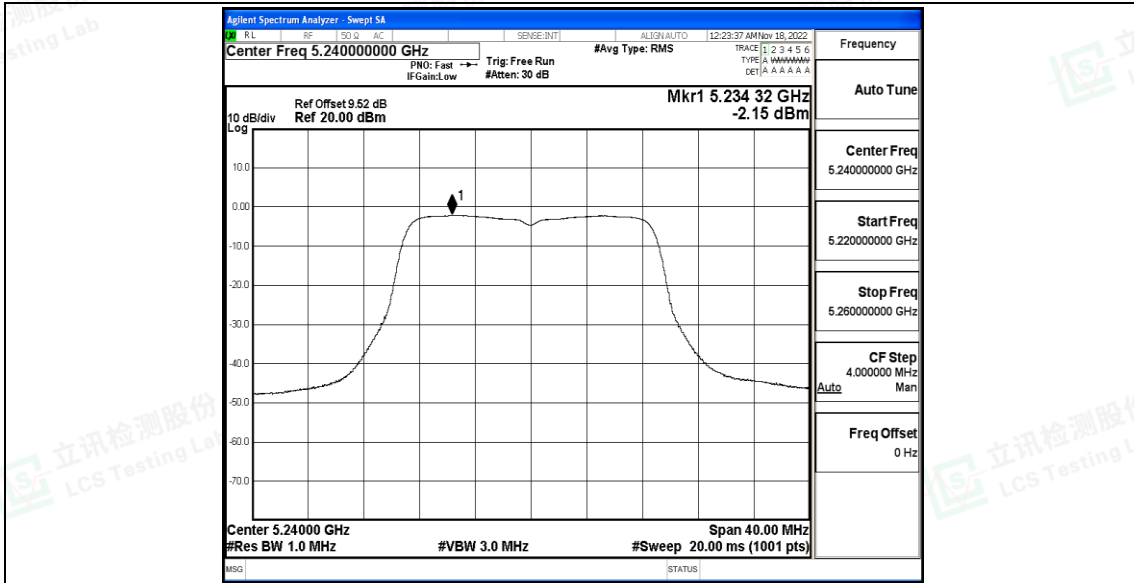
11AC20SISO\_Ant1\_5220



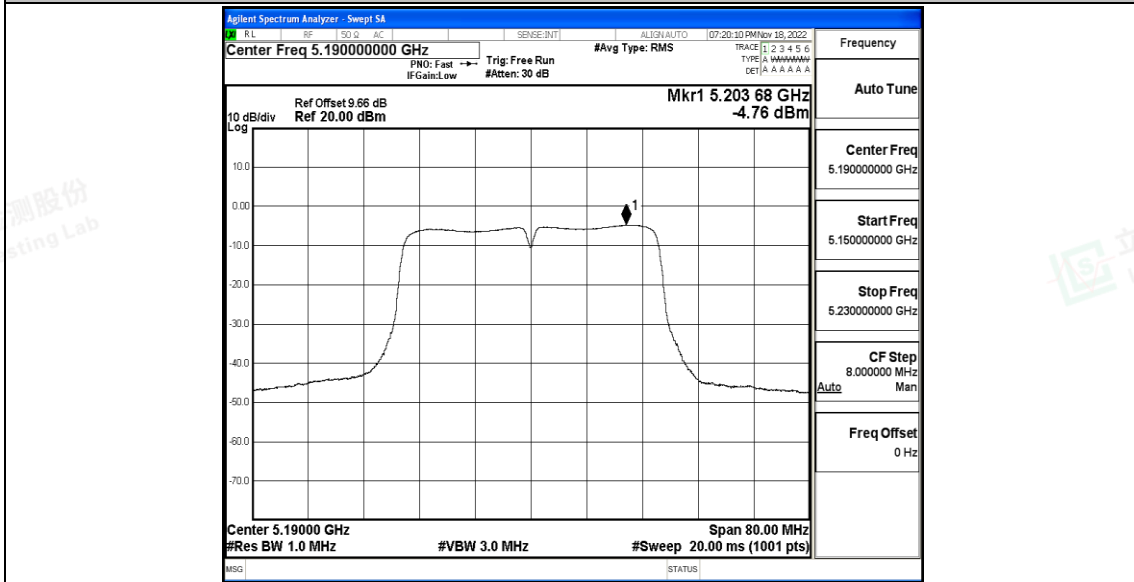
11AC20SISO\_Ant1\_5240





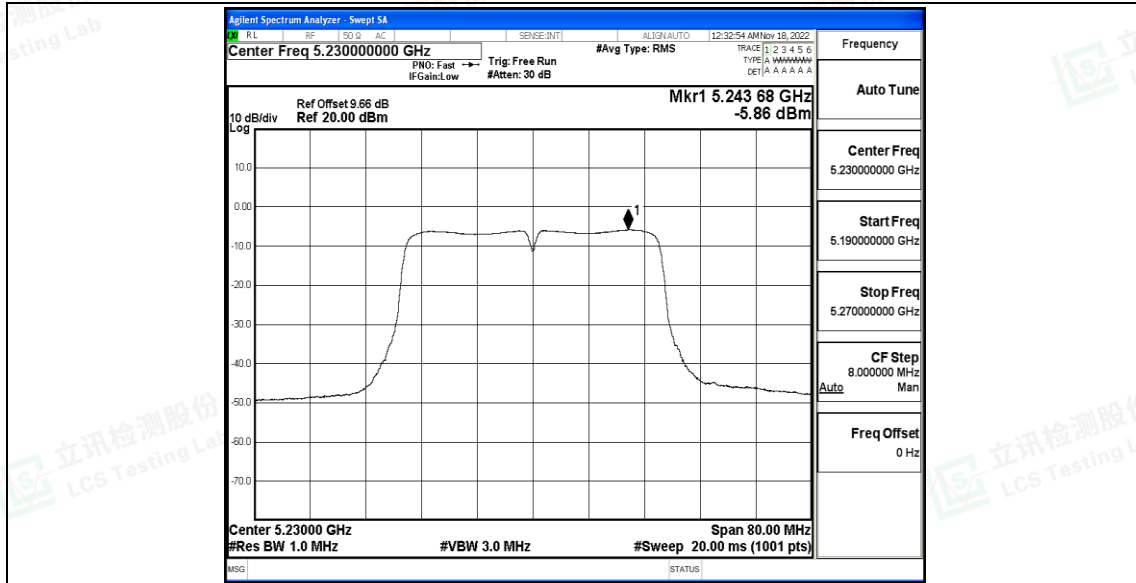


11AC40SISO\_Ant1\_5190

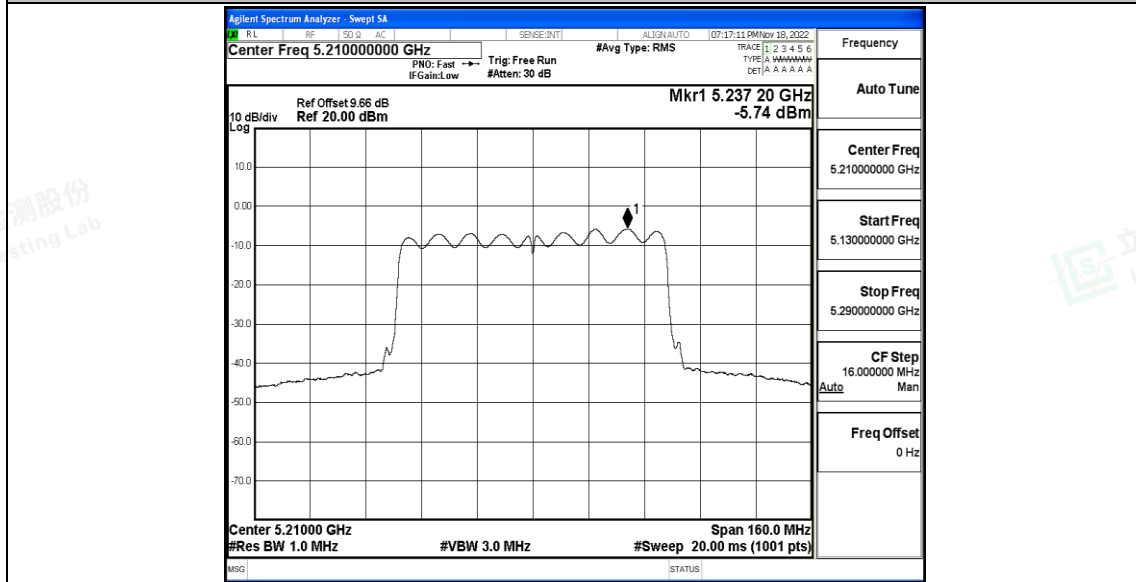


11AC40SISO\_Ant1\_5230





11AC80SISO\_Ant1\_5210





### D.4 Emissions in Restricted Bands

#### Test Result

TestMode	Antenna	ChName	Frequenc y[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	Ant1	Low	5180	AV	4500.000	-49.2	≤-41.20	46.00	≤54	PASS
				AV	4934.700	-47.31	≤-41.20	47.89	≤54	PASS
				AV	5150.000	-47.29	≤-41.20	47.91	≤54	PASS
				Peak	4500.000	-43.45	≤-21.20	51.75	≤68.2	PASS
				Peak	4782.800	-38.51	≤-21.20	56.69	≤68.2	PASS
				Peak	5150.000	-44.4	≤-21.20	50.80	≤68.2	PASS
		High	5240	AV	5350.000	-47.64	≤-41.20	47.56	≤54	PASS
				AV	5399.520	-47.51	≤-41.20	47.69	≤54	PASS
				AV	5460.000	-47.58	≤-41.20	47.62	≤54	PASS
				Peak	5350.000	-46.33	≤-21.20	48.87	≤68.2	PASS
				Peak	5421.840	-36.82	≤-21.20	58.38	≤68.2	PASS
				Peak	5460.000	-43.47	≤-21.20	51.73	≤68.2	PASS
11N20SIS O	Ant1	Low	5180	AV	4500.000	-49.23	≤-41.20	45.97	≤54	PASS
				AV	5149.600	-47.24	≤-41.20	47.96	≤54	PASS
				AV	5150.000	-47.15	≤-41.20	48.05	≤54	PASS
				Peak	4500.000	-44.93	≤-21.20	50.27	≤68.2	PASS
				Peak	5042.500	-38.65	≤-21.20	56.55	≤68.2	PASS
				Peak	5150.000	-44.75	≤-21.20	50.45	≤68.2	PASS
		High	5240	AV	5350.000	-47.64	≤-41.20	47.56	≤54	PASS
				AV	5393.040	-47.51	≤-41.20	47.69	≤54	PASS
				AV	5460.000	-47.58	≤-41.20	47.62	≤54	PASS
				Peak	5350.000	-43.16	≤-21.20	52.04	≤68.2	PASS
				Peak	5388.480	-37.84	≤-21.20	57.36	≤68.2	PASS
				Peak	5460.000	-47.15	≤-21.20	48.05	≤68.2	PASS
11N40SIS O	Ant1	Low	5190	AV	4500.000	-49.23	≤-41.20	45.97	≤54	PASS
				AV	5149.600	-46.79	≤-41.20	48.41	≤54	PASS
				AV	5150.000	-46.62	≤-41.20	48.58	≤54	PASS
				Peak	4500.000	-43.91	≤-21.20	51.29	≤68.2	PASS
				Peak	4952.200	-38.51	≤-21.20	56.69	≤68.2	PASS
				Peak	5150.000	-44.9	≤-21.20	50.30	≤68.2	PASS
		High	5230	AV	5350.000	-47.47	≤-41.20	47.73	≤54	PASS
				AV	5456.620	-47.4	≤-41.20	47.80	≤54	PASS
				AV	5460.000	-47.46	≤-41.20	47.74	≤54	PASS
				Peak	5350.000	-42.65	≤-21.20	52.55	≤68.2	PASS





11AC20SI SO	Ant1	Low	5180	Peak	5453.240	-39.01	≤-21.20	56.19	≤68.2	PASS
				Peak	5460.000	-43.51	≤-21.20	51.69	≤68.2	PASS
				AV	4500.000	-49.23	≤-41.20	45.97	≤54	PASS
				AV	5149.600	-47.24	≤-41.20	47.96	≤54	PASS
				AV	5150.000	-47.15	≤-41.20	48.05	≤54	PASS
				Peak	4500.000	-47.07	≤-21.20	48.13	≤68.2	PASS
				Peak	4936.800	-38.44	≤-21.20	56.76	≤68.2	PASS
		High	5240	Peak	5150.000	-42.32	≤-21.20	52.88	≤68.2	PASS
				AV	5350.000	-47.65	≤-41.20	47.55	≤54	PASS
				AV	5449.920	-47.52	≤-41.20	47.68	≤54	PASS
				AV	5460.000	-47.58	≤-41.20	47.62	≤54	PASS
				Peak	5350.000	-43.03	≤-21.20	52.17	≤68.2	PASS
				Peak	5388.720	-38.8	≤-21.20	56.40	≤68.2	PASS
				Peak	5460.000	-41.35	≤-21.20	53.85	≤68.2	PASS
11AC40SI SO	Ant1	Low	5190	AV	4500.000	-49.2	≤-41.20	46.00	≤54	PASS
				AV	5149.600	-46.77	≤-41.20	48.43	≤54	PASS
				AV	5150.000	-46.64	≤-41.20	48.56	≤54	PASS
				Peak	4500.000	-47.14	≤-21.20	48.06	≤68.2	PASS
				Peak	4805.200	-37.78	≤-21.20	57.42	≤68.2	PASS
				Peak	5150.000	-42.94	≤-21.20	52.26	≤68.2	PASS
				AV	5350.000	-47.51	≤-41.20	47.69	≤54	PASS
		High	5230	AV	5419.180	-47.4	≤-41.20	47.80	≤54	PASS
				AV	5460.000	-47.47	≤-41.20	47.73	≤54	PASS
				Peak	5350.000	-42.12	≤-21.20	53.08	≤68.2	PASS
				Peak	5452.200	-38.38	≤-21.20	56.82	≤68.2	PASS
				Peak	5460.000	-45.44	≤-21.20	49.76	≤68.2	PASS
				AV	4500.000	-49.22	≤-41.20	45.98	≤54	PASS
				AV	5145.750	-47.04	≤-41.20	48.16	≤54	PASS
11AC80SI SO	Ant1	Low	5210	AV	5150.000	-47.06	≤-41.20	48.14	≤54	PASS
				Peak	4500.000	-45.22	≤-21.20	49.98	≤68.2	PASS
				Peak	4792.500	-38.44	≤-21.20	56.76	≤68.2	PASS
				Peak	5150.000	-41.54	≤-21.20	53.66	≤68.2	PASS
				AV	5350.000	-47.5	≤-41.20	47.70	≤54	PASS
				AV	5433.680	-47.4	≤-41.20	47.80	≤54	PASS
				AV	5460.000	-47.45	≤-41.20	47.75	≤54	PASS
		High	5210	Peak	5350.000	-44.83	≤-21.20	50.37	≤68.2	PASS
				Peak	5442.080	-38.27	≤-21.20	56.93	≤68.2	PASS
				Peak	5460.000	-45.06	≤-21.20	50.14	≤68.2	PASS

Note:



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

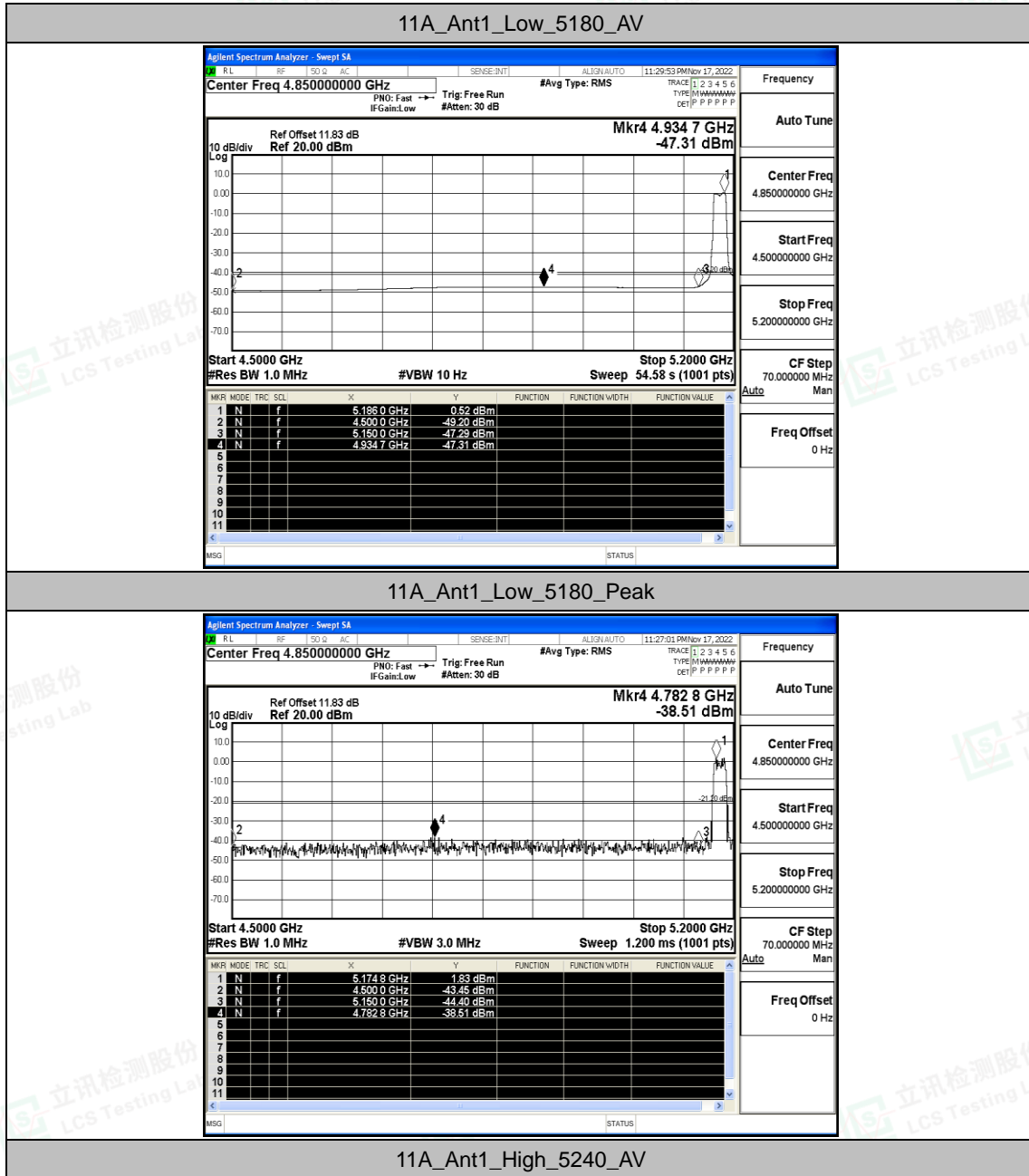


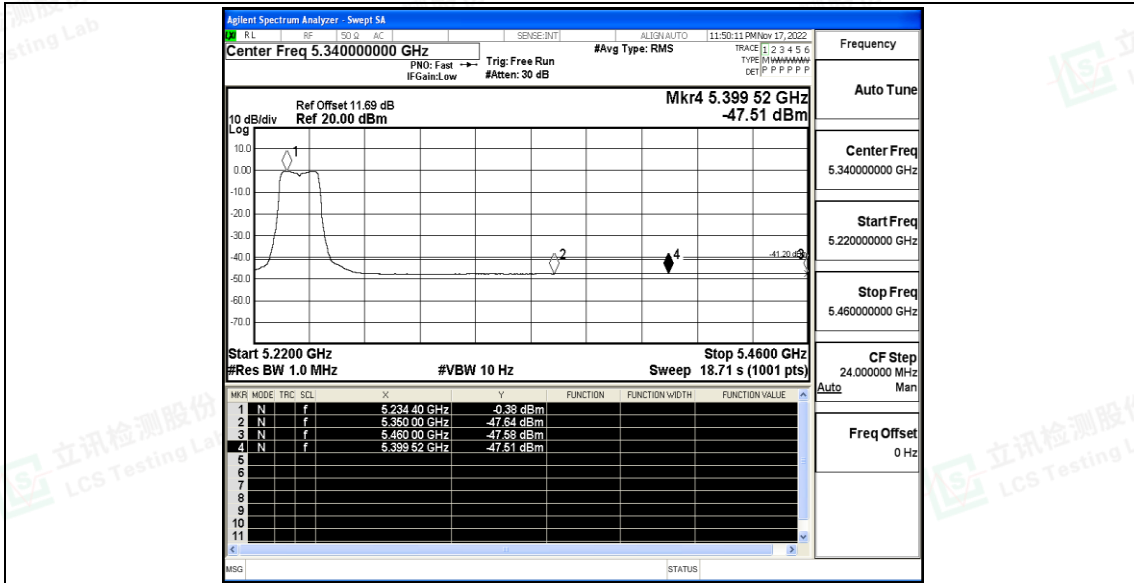
1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



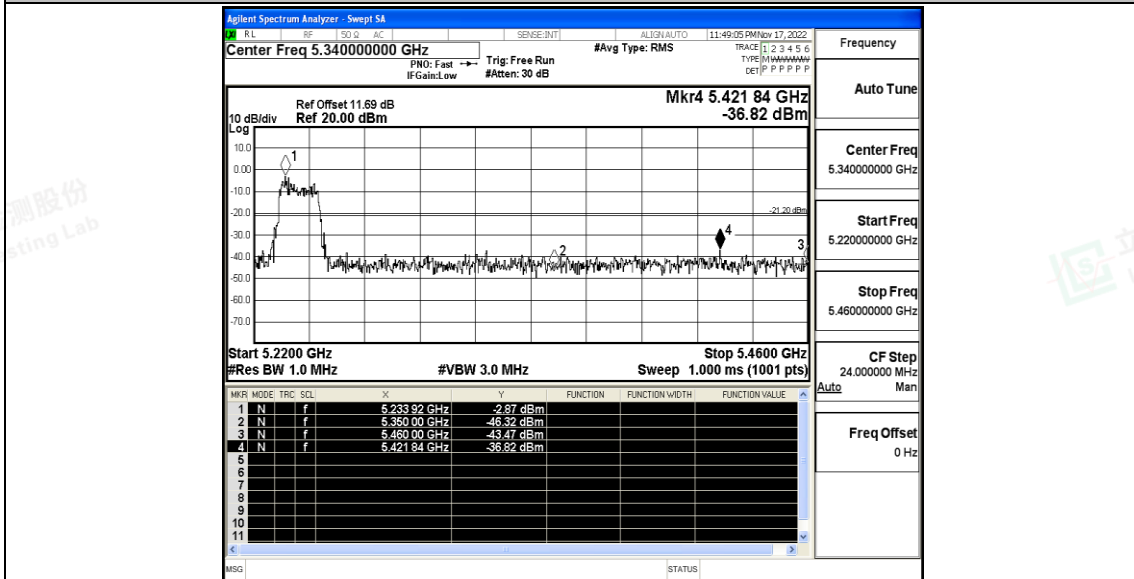


### Test Graphs



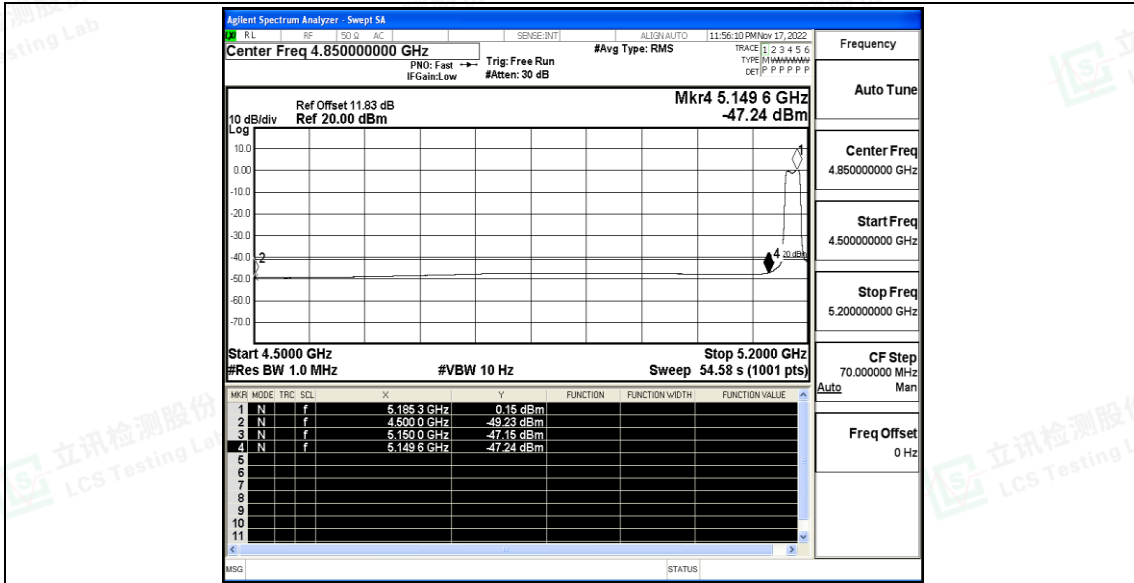


11A\_Ant1\_High\_5240\_Peak

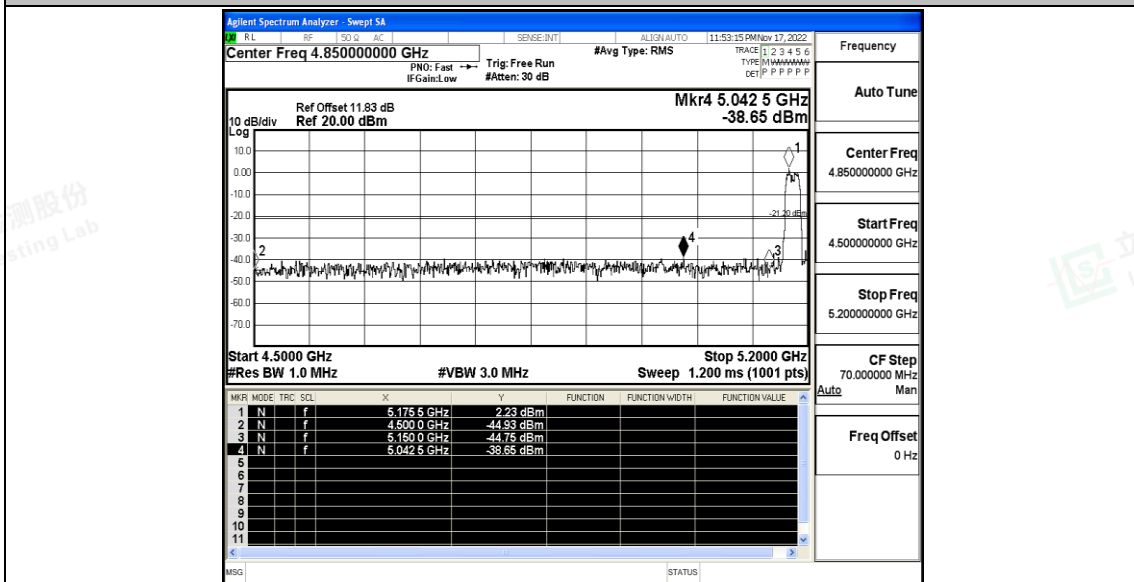


11N20SISO\_Ant1\_Low\_5180\_AV





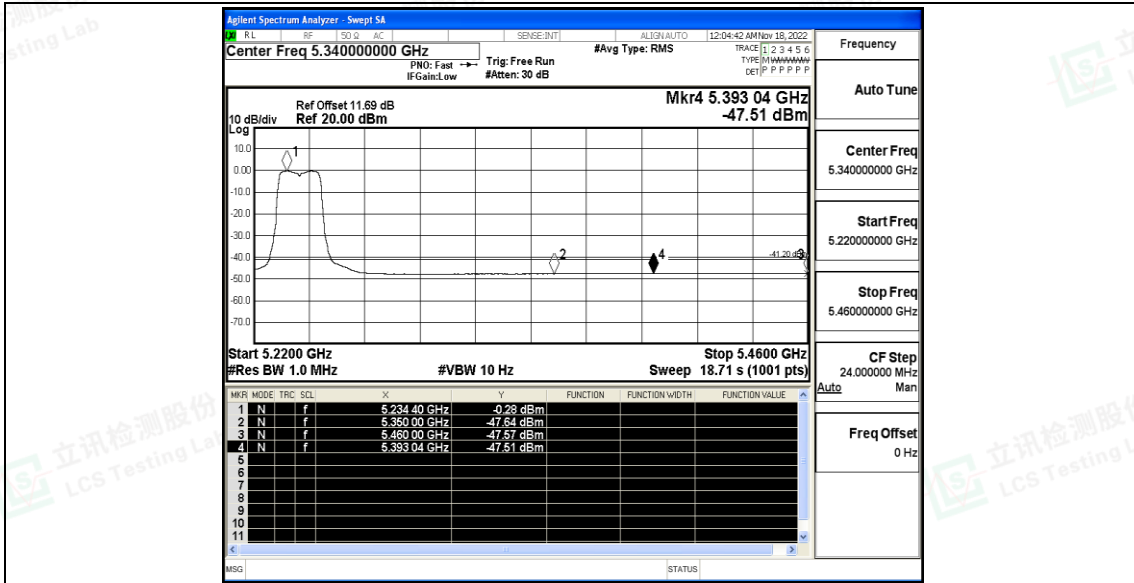
11N20SISO\_Ant1\_Low\_5180\_Peak



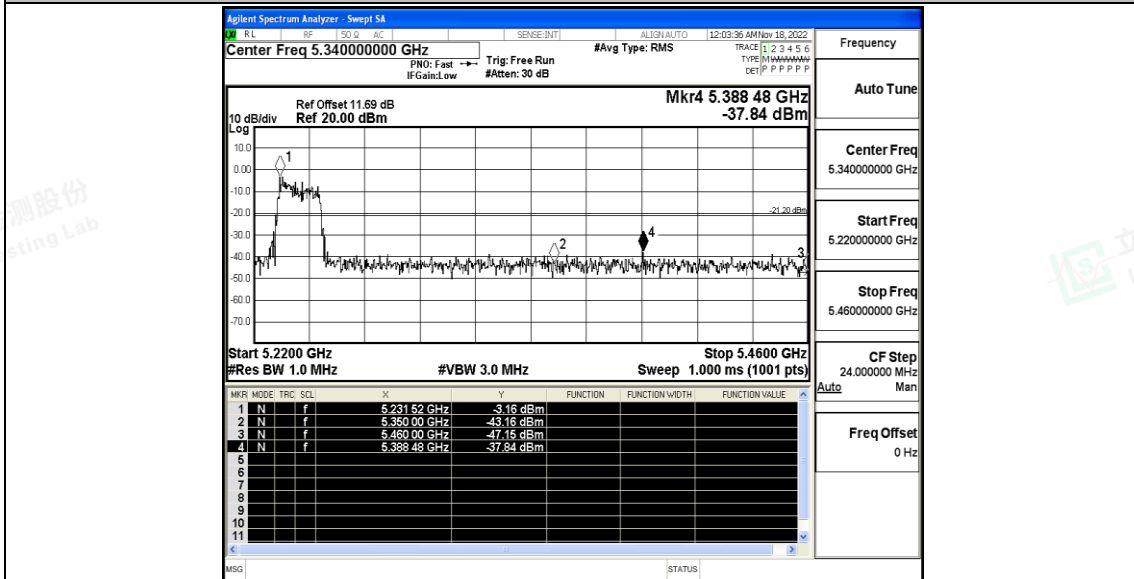
11N20SISO\_Ant1\_High\_5240\_AV





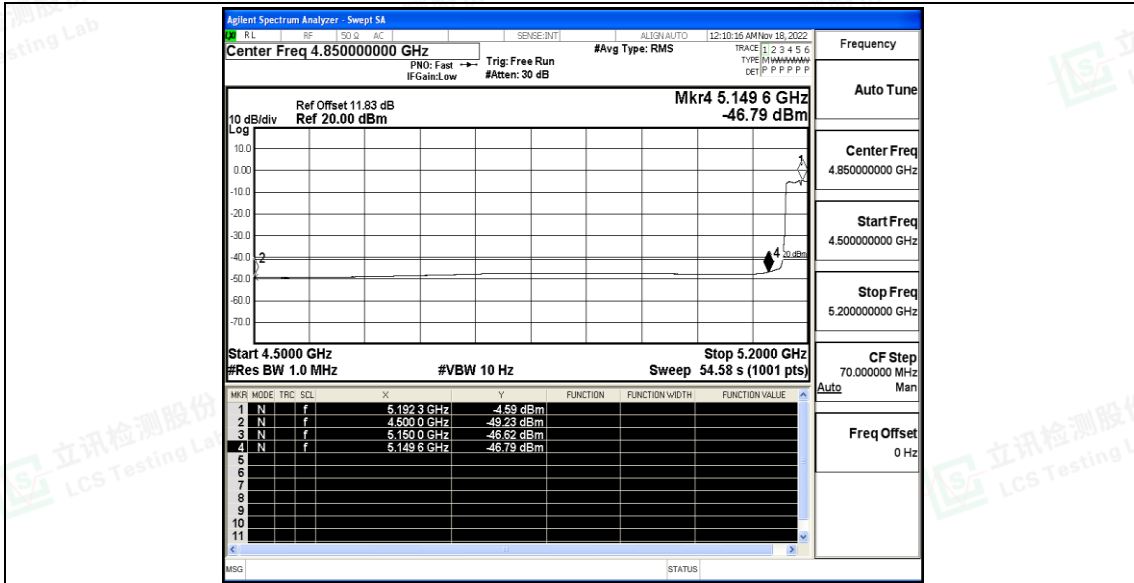


11N20SISO\_Ant1\_High\_5240\_Peak

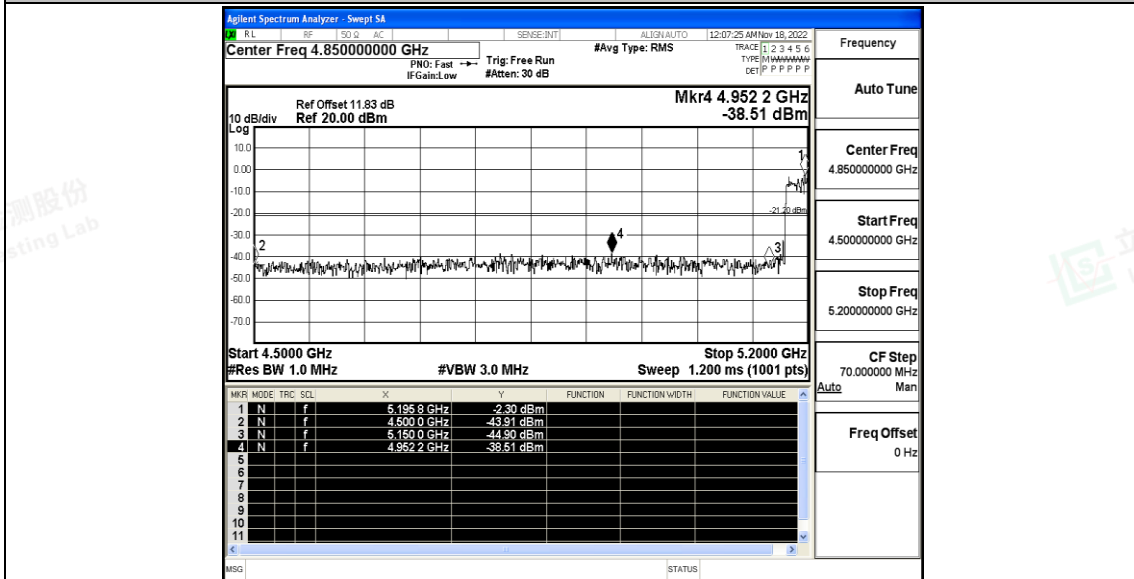


11N40SISO\_Ant1\_Low\_5190\_AV



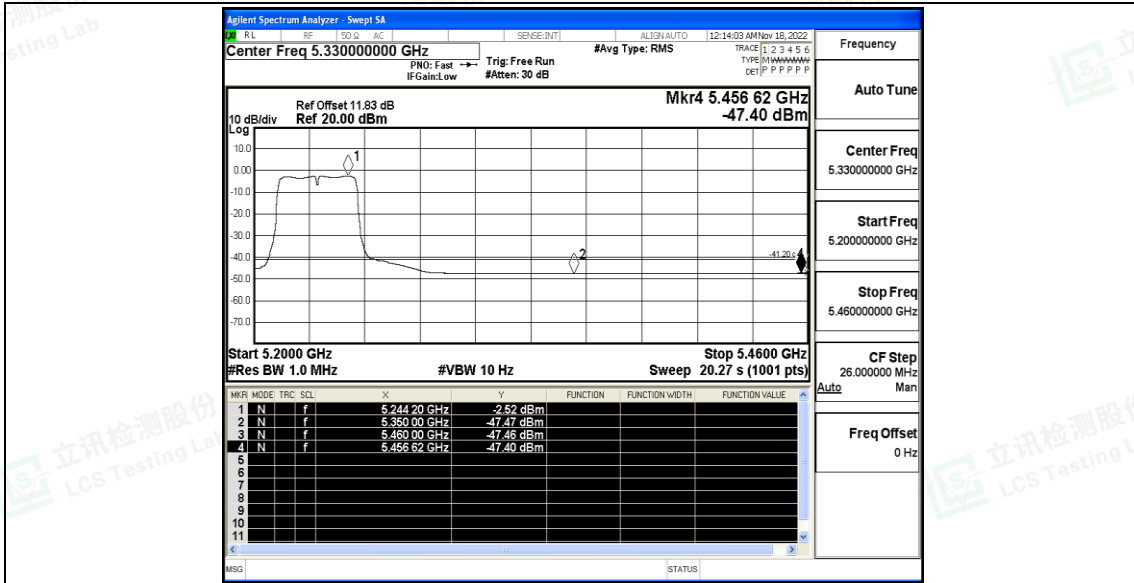


11N40SISO\_Ant1\_Low\_5190\_Peak

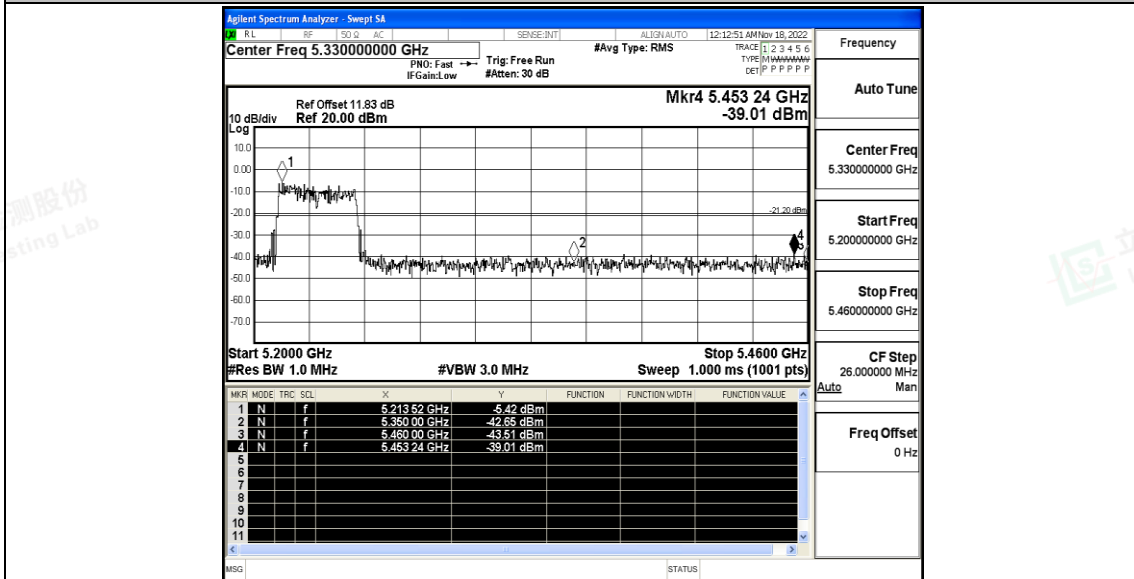


11N40SISO\_Ant1\_High\_5230\_AV



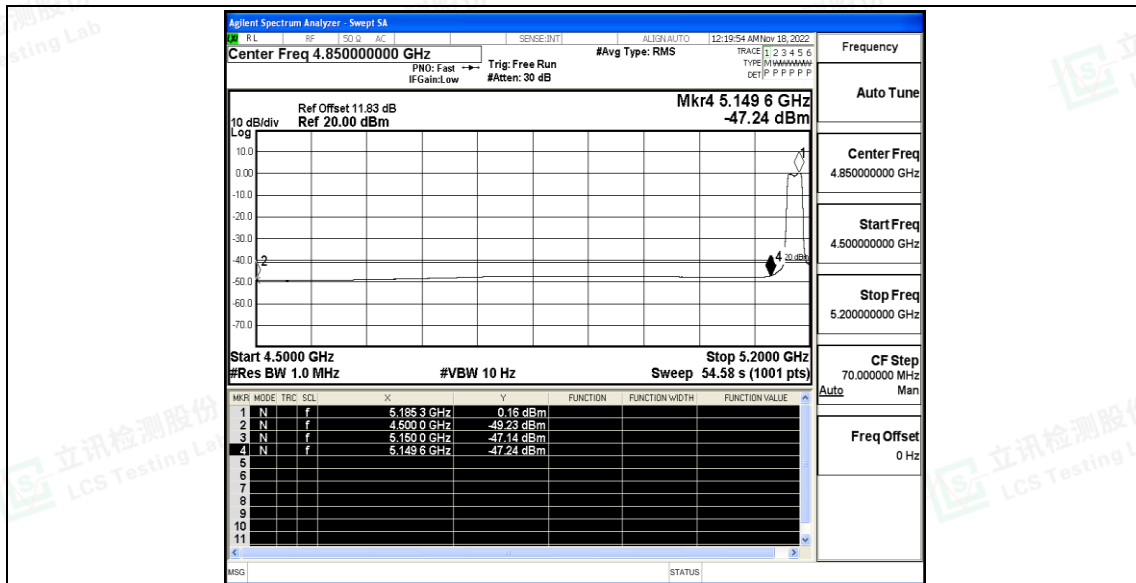


11N40SISO\_Ant1\_High\_5230\_Peak

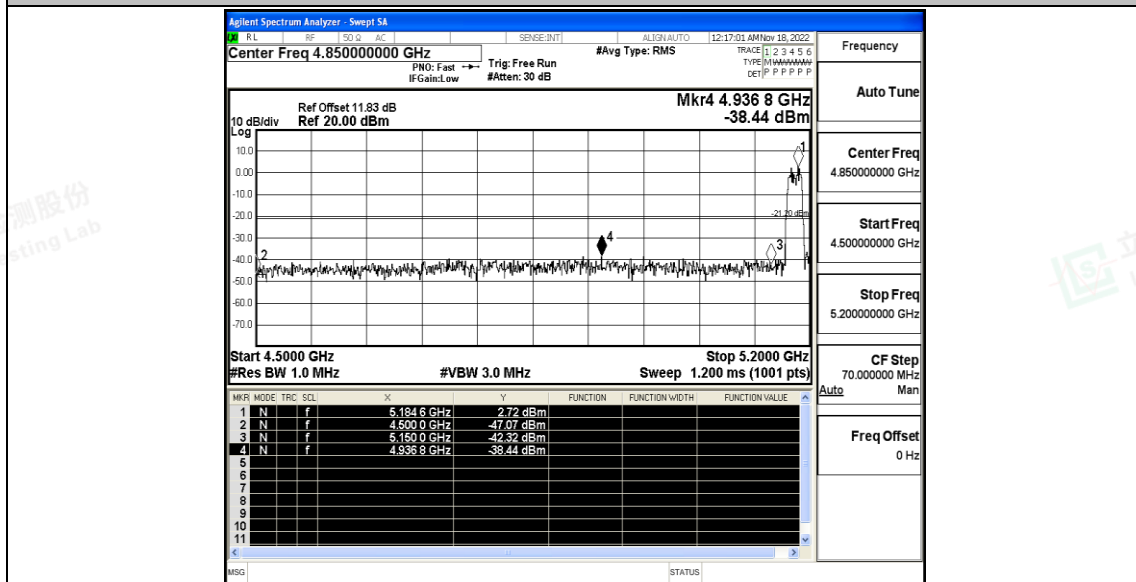


11AC20SISO\_Ant1\_Low\_5180\_AV



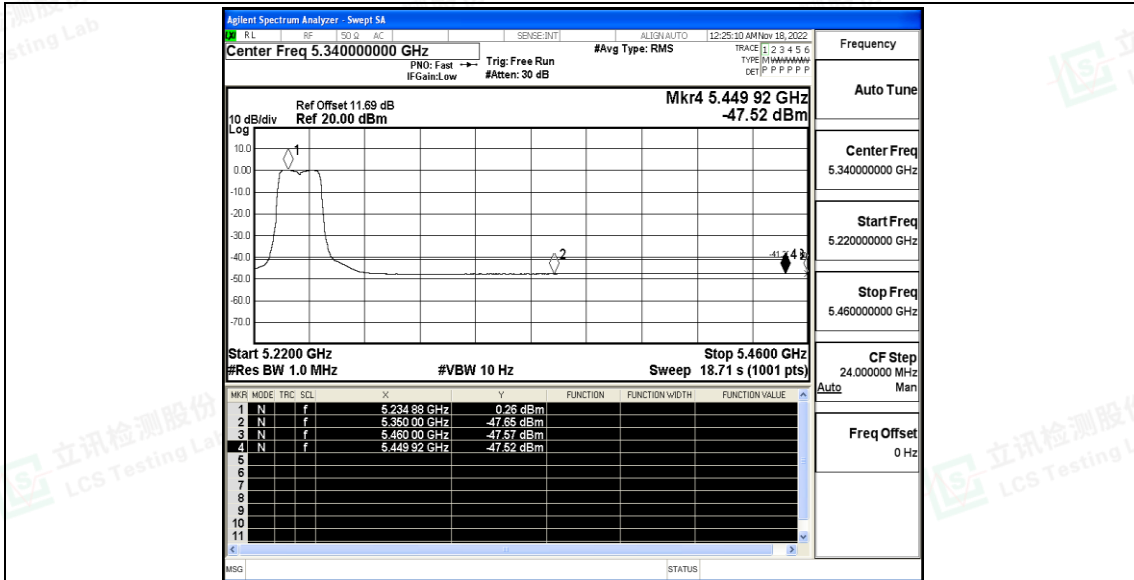


11AC20SISO\_Ant1\_Low\_5180\_Peak

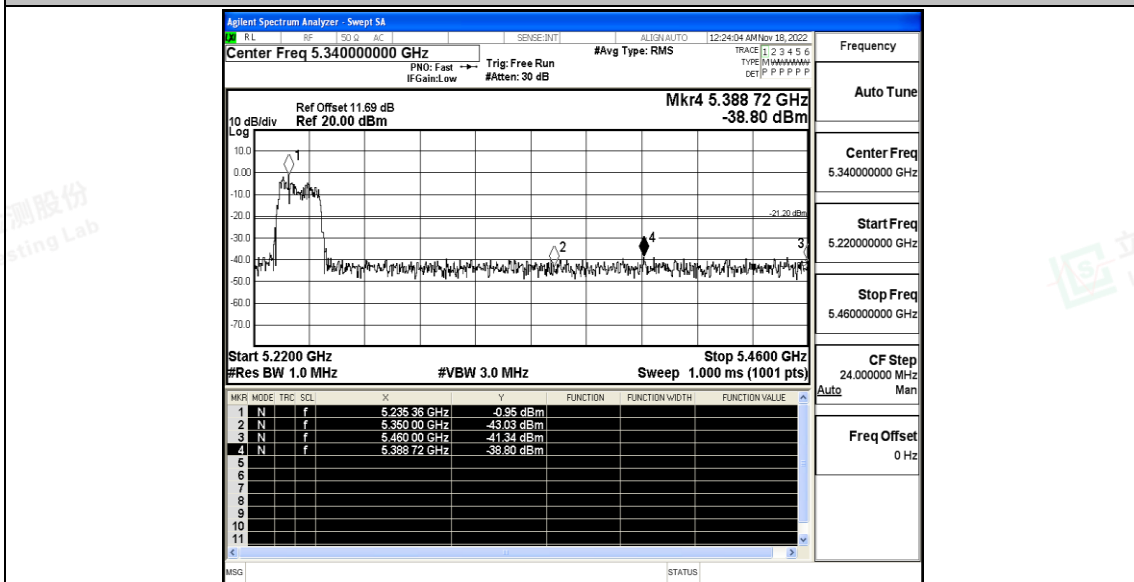


11AC20SISO\_Ant1\_High\_5240\_AV



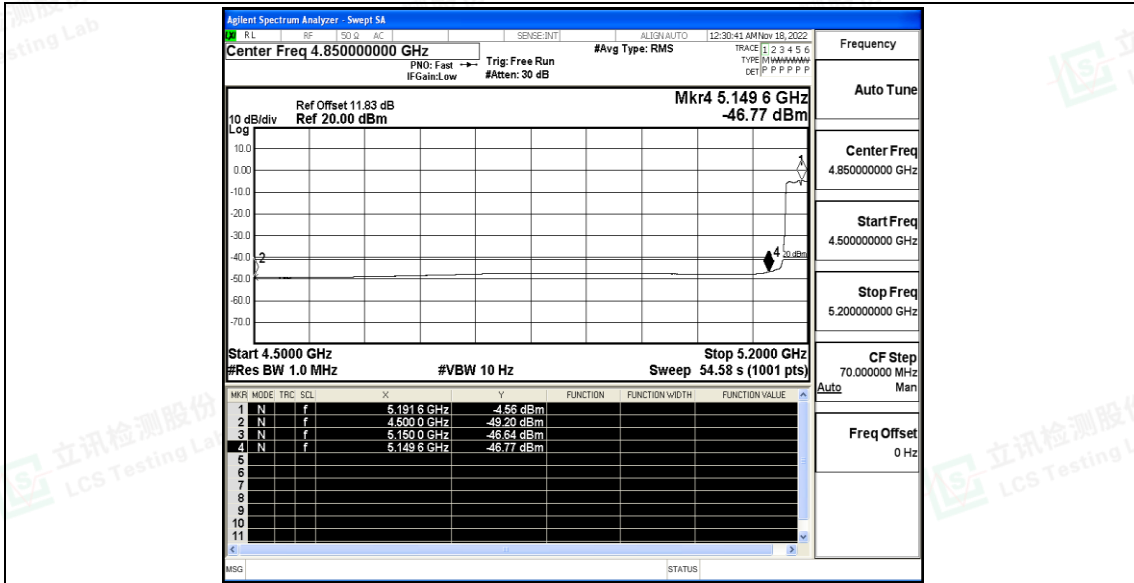


11AC20SISO\_Ant1\_High\_5240\_Peak

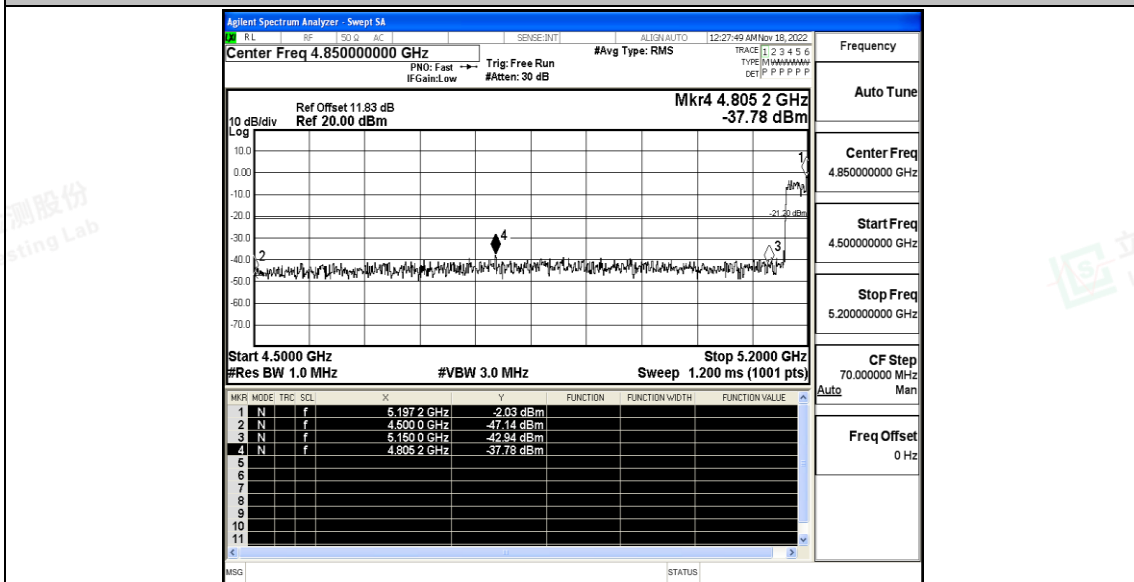


11AC40SISO\_Ant1\_Low\_5190\_AV



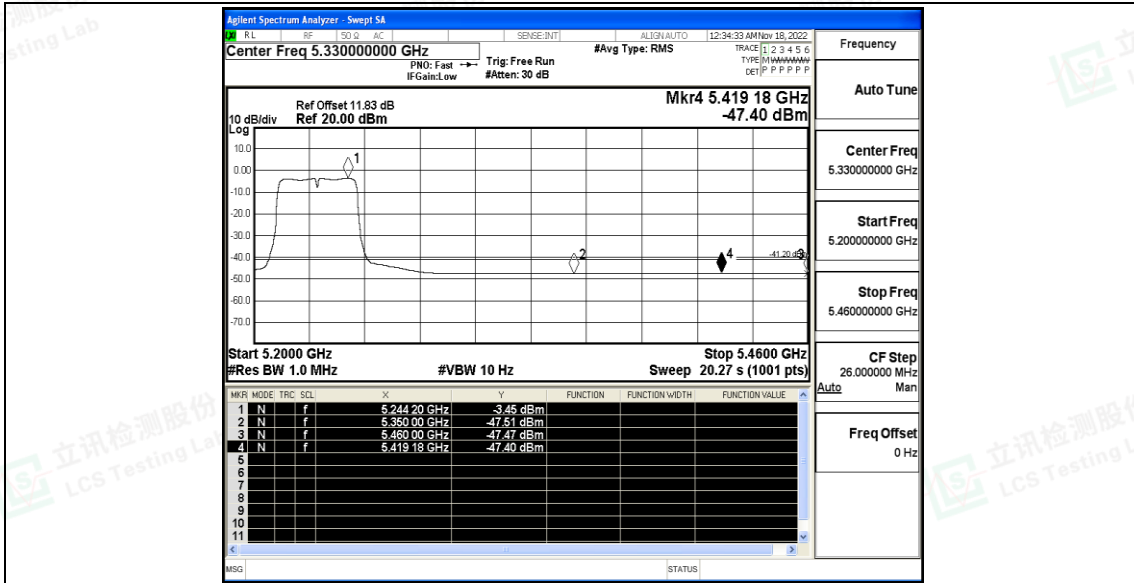


11AC40SISO\_Ant1\_Low\_5190\_Peak

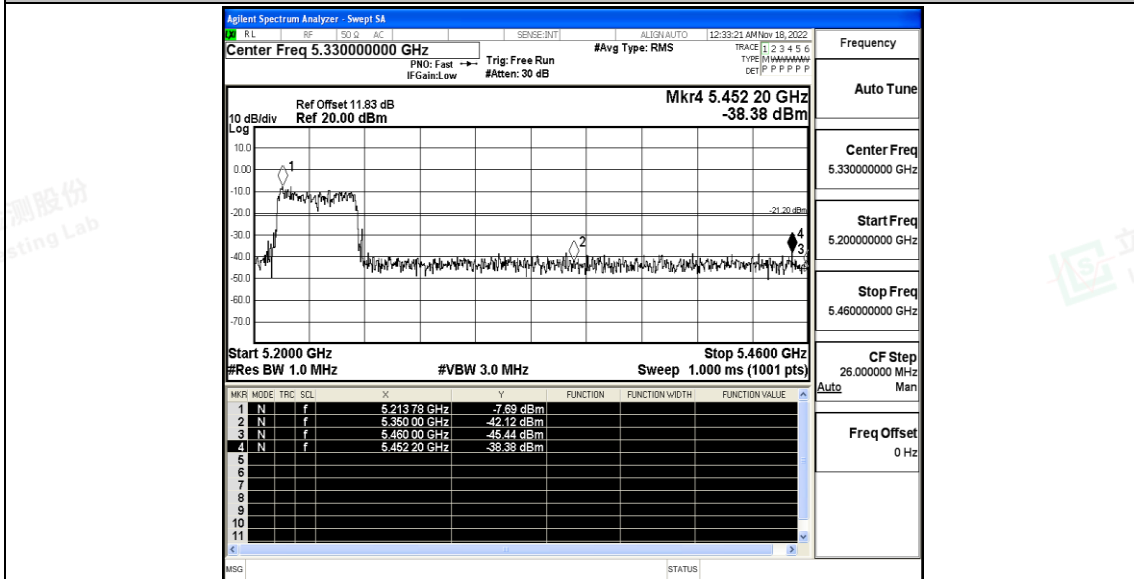


11AC40SISO\_Ant1\_High\_5230\_AV



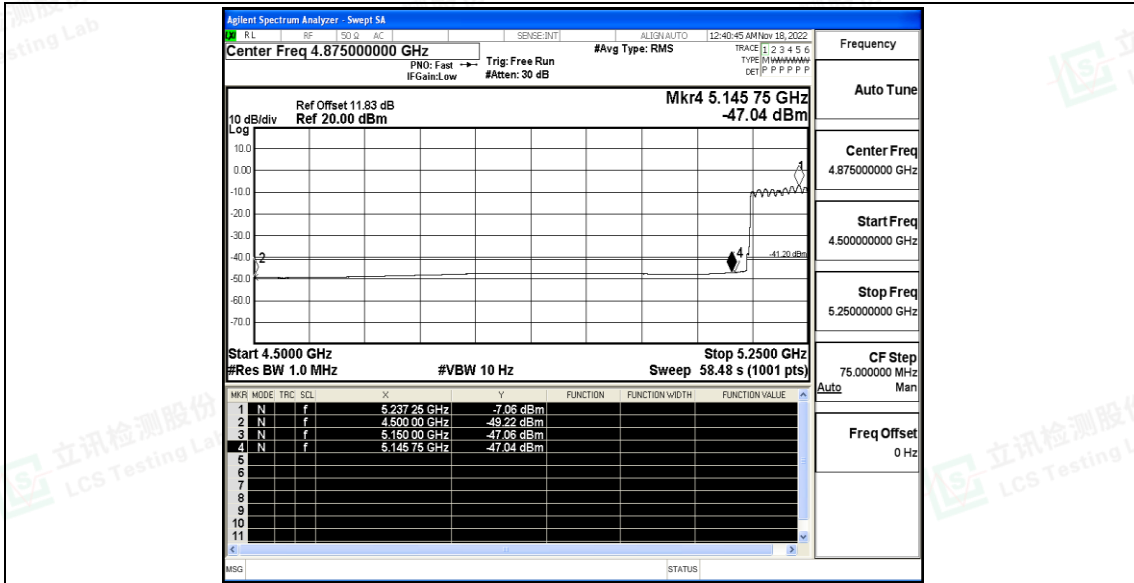


11AC40SISO\_Ant1\_High\_5230\_Peak

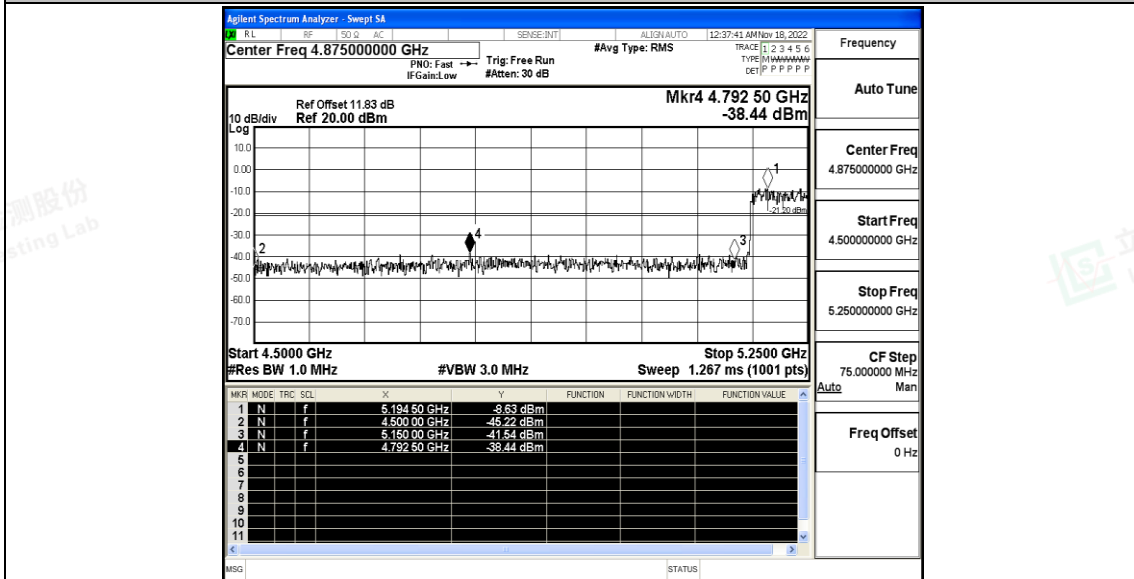


11AC80SISO\_Ant1\_Low\_5210\_AV





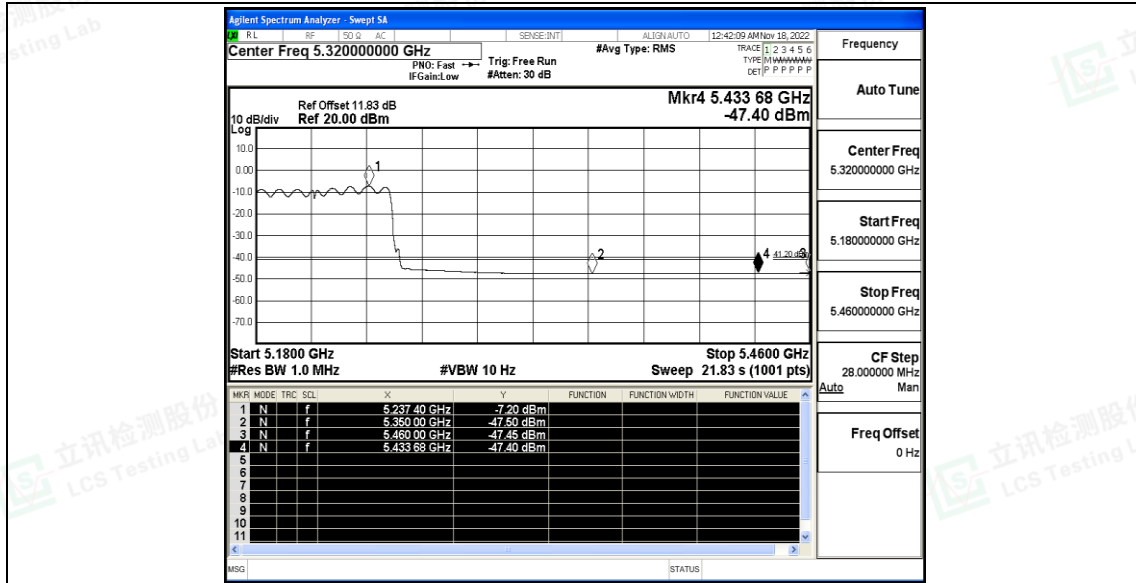
11AC80SISO\_Ant1\_Low\_5210\_Peak



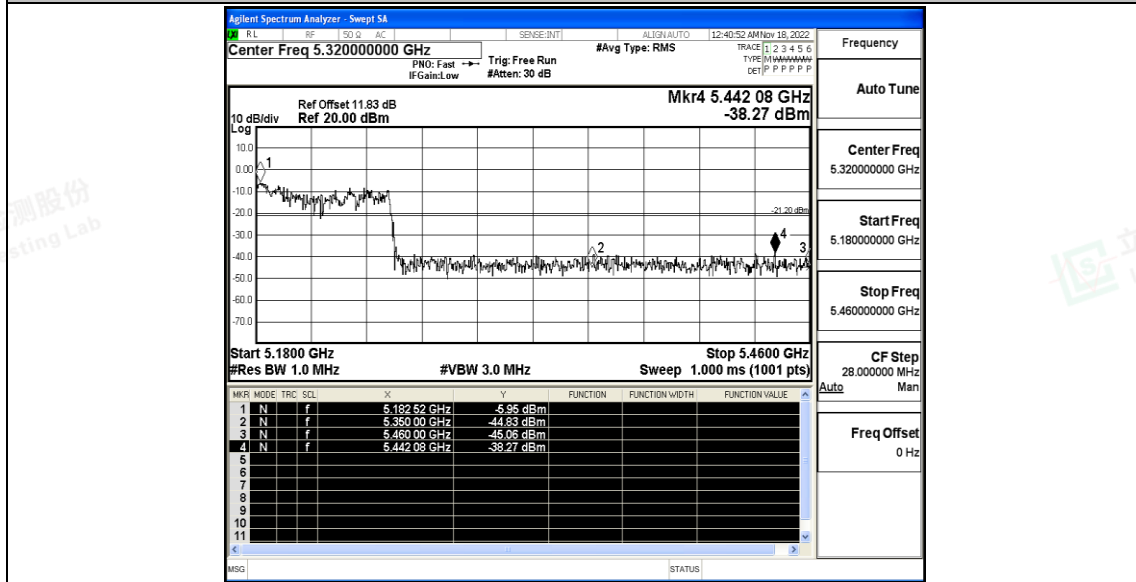
11AC80SISO\_Ant1\_High\_5210\_AV







11AC80SISO\_Ant1\_High\_5210\_Peak





### D.5 Frequency Stability

#### Test Result

Voltage								
TestMode	Antenna	Frequen cy[MHz]	Voltage [Vdc]	Temper ature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20S ISO	Ant1	5180	NV	NT	-40000.00	-7.722008	20	PASS
			LV	NT	-20000.00	-3.861004	20	PASS
			HV	NT	-20000.00	-3.861004	20	PASS
		5220	NV	NT	-40000.00	-7.662835	20	PASS
			LV	NT	-20000.00	-3.831418	20	PASS
			HV	NT	-20000.00	-3.831418	20	PASS
		5240	NV	NT	-40000.00	-7.633588	20	PASS
			LV	NT	-40000.00	-7.633588	20	PASS
			HV	NT	-20000.00	-3.816794	20	PASS
11AC40S ISO	Ant1	5190	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5230	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
11AC80S ISO	Ant1	5210	NV	NT	80000.00	15.355086	20	PASS
			LV	NT	80000.00	15.355086	20	PASS
			HV	NT	0.00	0.000000	20	PASS

Temperature								
TestMode	Antenna	Frequen cy[MHz]	Voltage [Vdc]	Temper ature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20S ISO	Ant1	5180	NV	-30	-40000.00	-7.722008	20	PASS
			NV	-20	-40000.00	-7.722008	20	PASS
			NV	-10	-20000.00	-3.861004	20	PASS
			NV	0	-40000.00	-7.722008	20	PASS
			NV	10	-20000.00	-3.861004	20	PASS
			NV	20	-20000.00	-3.861004	20	PASS
			NV	30	-20000.00	-3.861004	20	PASS
			NV	40	-20000.00	-3.861004	20	PASS
			NV	50	-20000.00	-3.861004	20	PASS
		5220	NV	-30	-40000.00	-7.662835	20	PASS
NV	-20		-20000.00	-3.831418	20	PASS		





			NV	-10	-20000.00	-3.831418	20	PASS		
			NV	0	-20000.00	-3.831418	20	PASS		
			NV	10	-40000.00	-7.662835	20	PASS		
			NV	20	-20000.00	-3.831418	20	PASS		
			NV	30	-40000.00	-7.662835	20	PASS		
			NV	40	-20000.00	-3.831418	20	PASS		
			NV	50	-40000.00	-7.662835	20	PASS		
		5240	NV	-30	-20000.00	-3.816794	20	PASS		
			NV	-20	-20000.00	-3.816794	20	PASS		
			NV	-10	-40000.00	-7.633588	20	PASS		
			NV	0	-40000.00	-7.633588	20	PASS		
			NV	10	-40000.00	-7.633588	20	PASS		
			NV	20	-20000.00	-3.816794	20	PASS		
			NV	30	-20000.00	-3.816794	20	PASS		
		11AC40S ISO	Ant1	5190	NV	-30	0.00	0.000000	20	PASS
					NV	-20	0.00	0.000000	20	PASS
					NV	-10	0.00	0.000000	20	PASS
					NV	0	-40000.00	-7.707129	20	PASS
NV	10				0.00	0.000000	20	PASS		
NV	20				-40000.00	-7.707129	20	PASS		
NV	30				-40000.00	-7.707129	20	PASS		
5230	NV			40	0.00	0.000000	20	PASS		
	NV			50	-40000.00	-7.707129	20	PASS		
	NV			-30	-40000.00	-7.648184	20	PASS		
	NV			-20	0.00	0.000000	20	PASS		
	NV			-10	0.00	0.000000	20	PASS		
	NV			0	-40000.00	-7.648184	20	PASS		
	NV			10	0.00	0.000000	20	PASS		
11AC80S ISO	Ant1	5210	NV	20	-40000.00	-7.648184	20	PASS		
			NV	30	-40000.00	-7.648184	20	PASS		
			NV	40	-40000.00	-7.648184	20	PASS		
			NV	50	-40000.00	-7.648184	20	PASS		
			NV	-30	0.00	0.000000	20	PASS		
			NV	-20	-80000.00	-15.355086	20	PASS		
			NV	-10	0.00	0.000000	20	PASS		
			NV	0	0.00	0.000000	20	PASS		
			NV	10	-80000.00	-15.355086	20	PASS		
			NV	20	0.00	0.000000	20	PASS		
			NV	-30	0.00	0.000000	20	PASS		
			NV	-20	-80000.00	-15.355086	20	PASS		





		NV	30	0.00	0.000000	20	PASS
		NV	40	0.00	0.000000	20	PASS
		NV	50	-80000.00	-15.355086	20	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



### D.6 Duty Cycle

#### Test Result

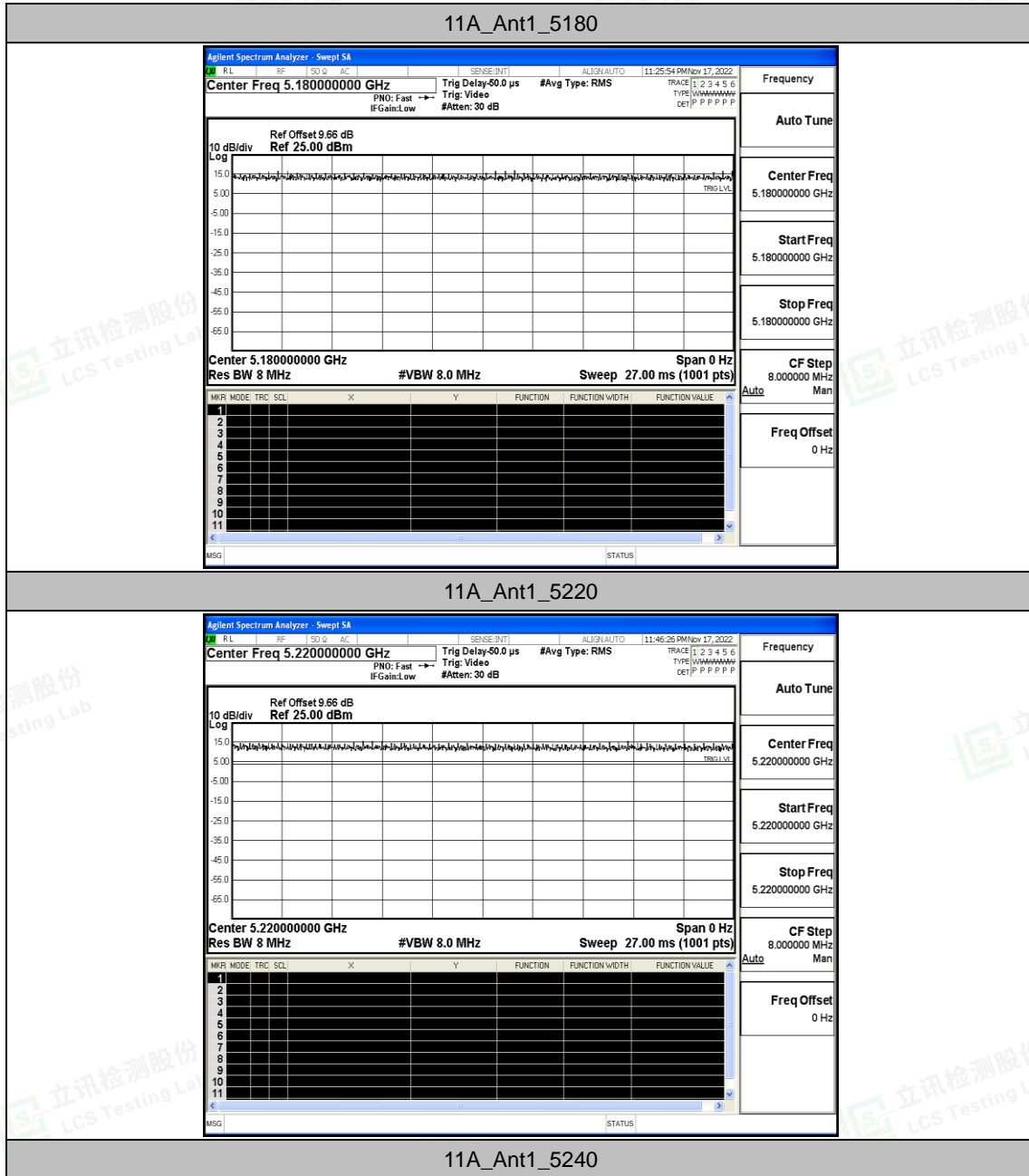
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T(kHz)
11A	Ant1	5180	27.00	27.00	100.00	0.01
		5220	27.00	27.00	100.00	0.01
		5240	27.00	27.00	100.00	0.01
11N20SISO	Ant1	5180	27.00	27.00	100.00	0.01
		5220	27.00	27.00	100.00	0.01
		5240	27.00	27.00	100.00	0.01
11N40SISO	Ant1	5190	27.00	27.00	100.00	0.01
		5230	27.00	27.00	100.00	0.01
11AC20SISO	Ant1	5180	27.00	27.00	100.00	0.01
		5220	27.00	27.00	100.00	0.01
		5240	27.00	27.00	100.00	0.01
11AC40SISO	Ant1	5190	27.00	27.00	100.00	0.01
		5230	27.00	27.00	100.00	0.01
11AC80SISO	Ant1	5210	27.00	27.00	100.00	0.01

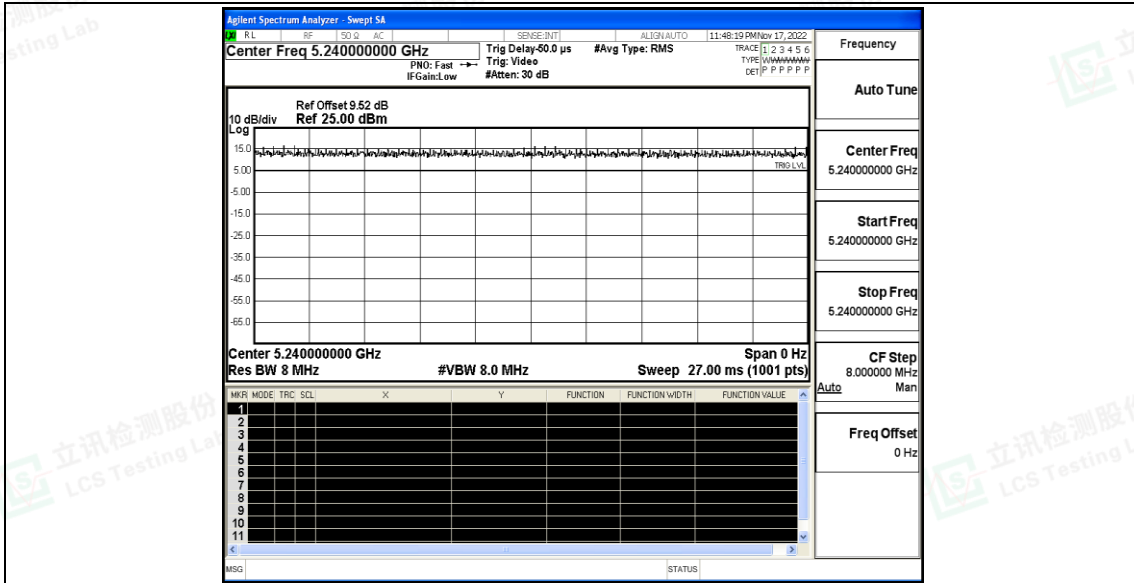


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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity

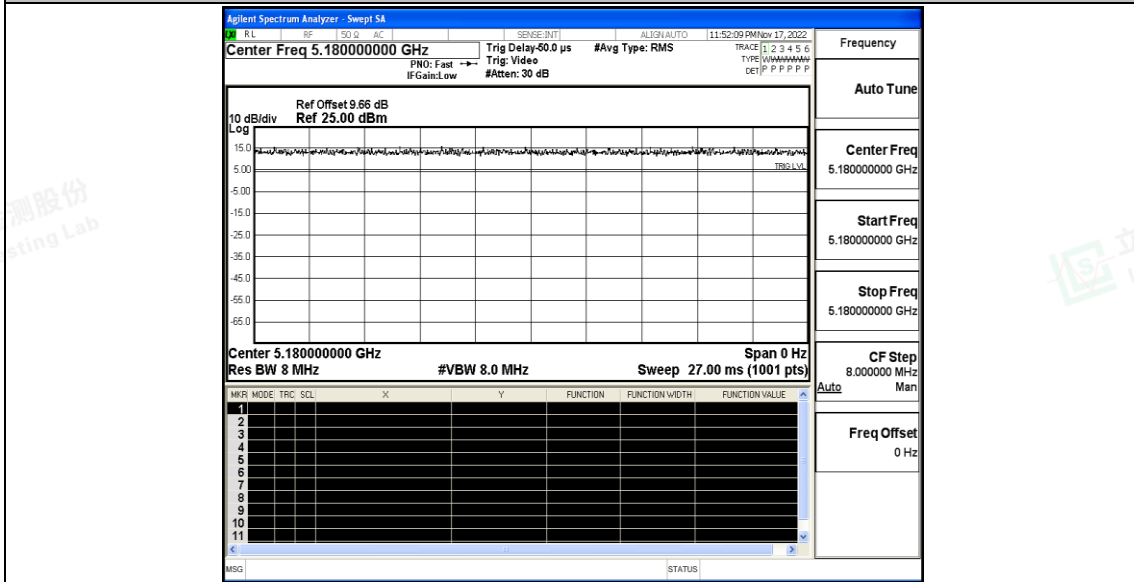


### Test Graphs



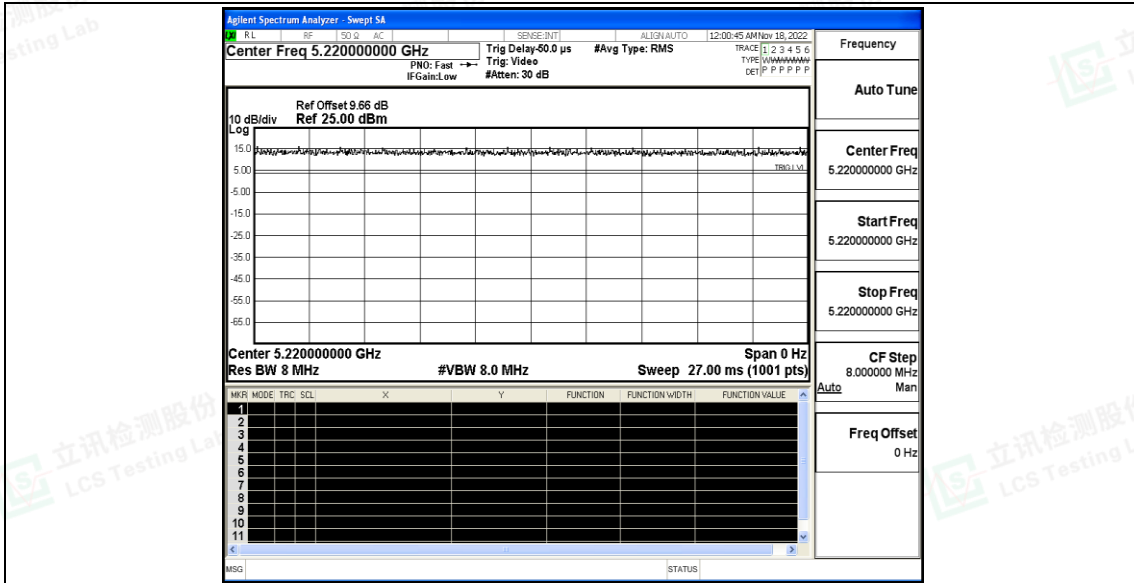


11N20SISO\_Ant1\_5180

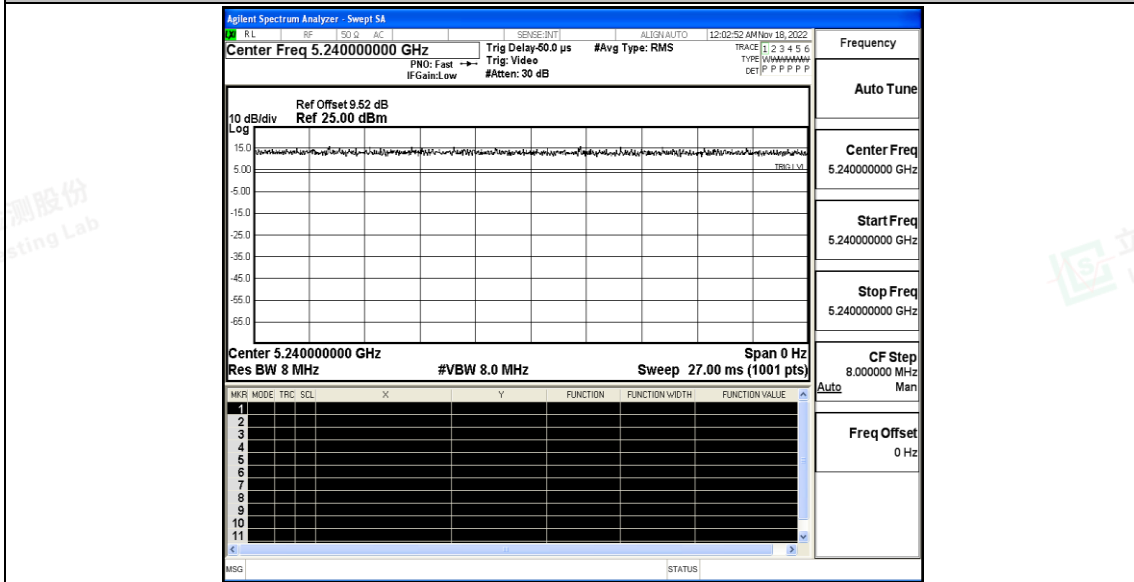


11N20SISO\_Ant1\_5220





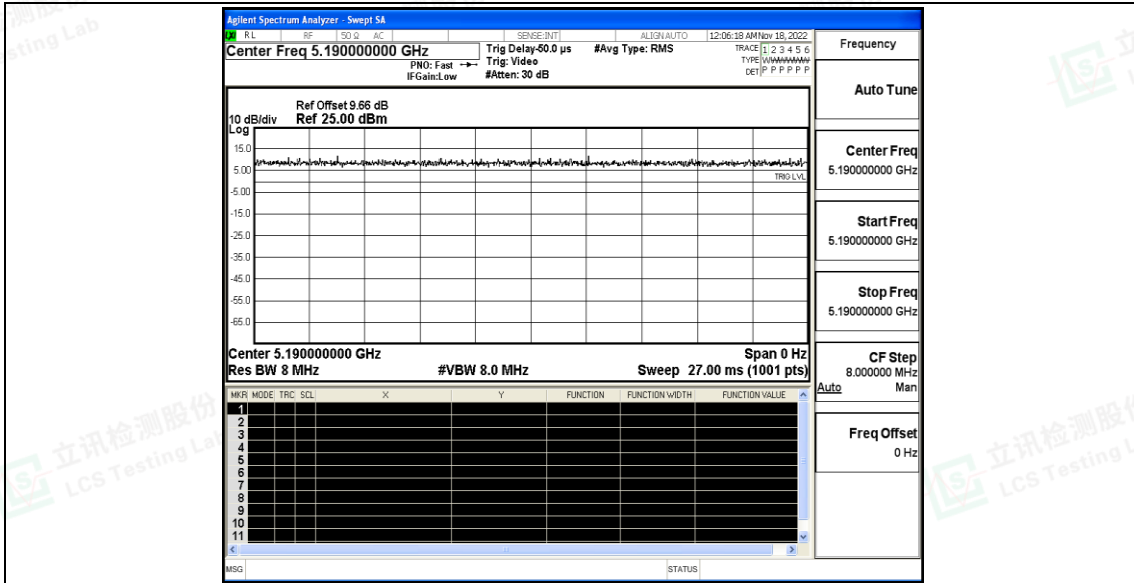
11N20SISO\_Ant1\_5240



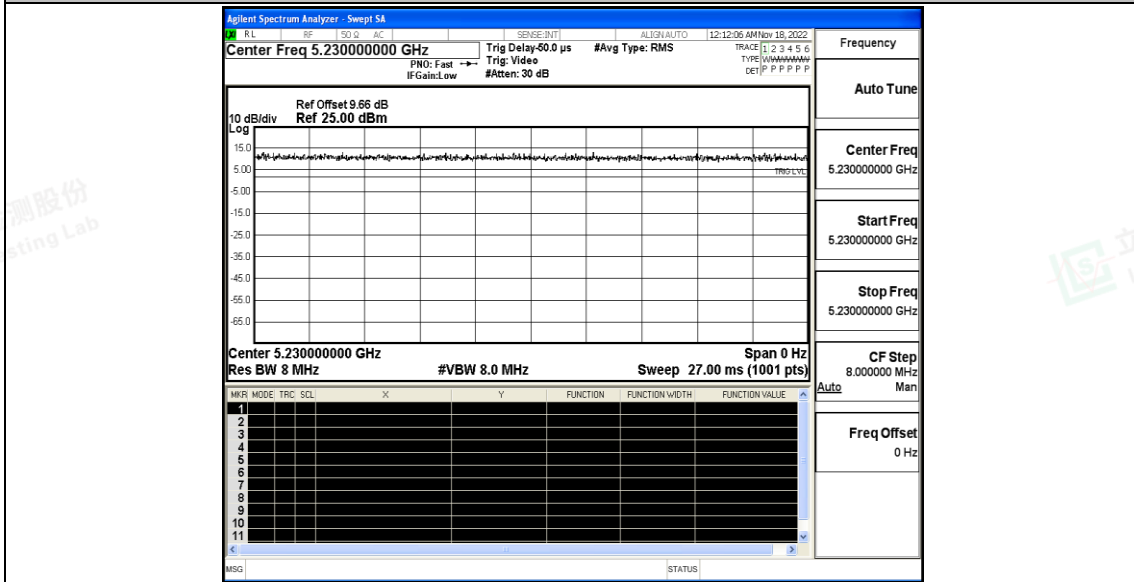
11N40SISO\_Ant1\_5190





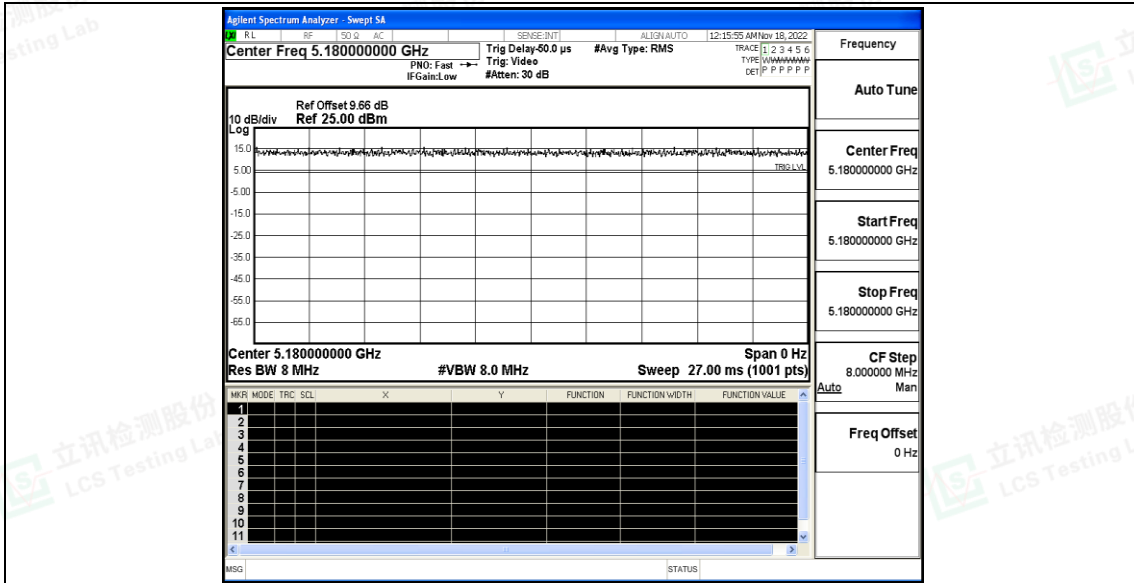


11N40SISO\_Ant1\_5230

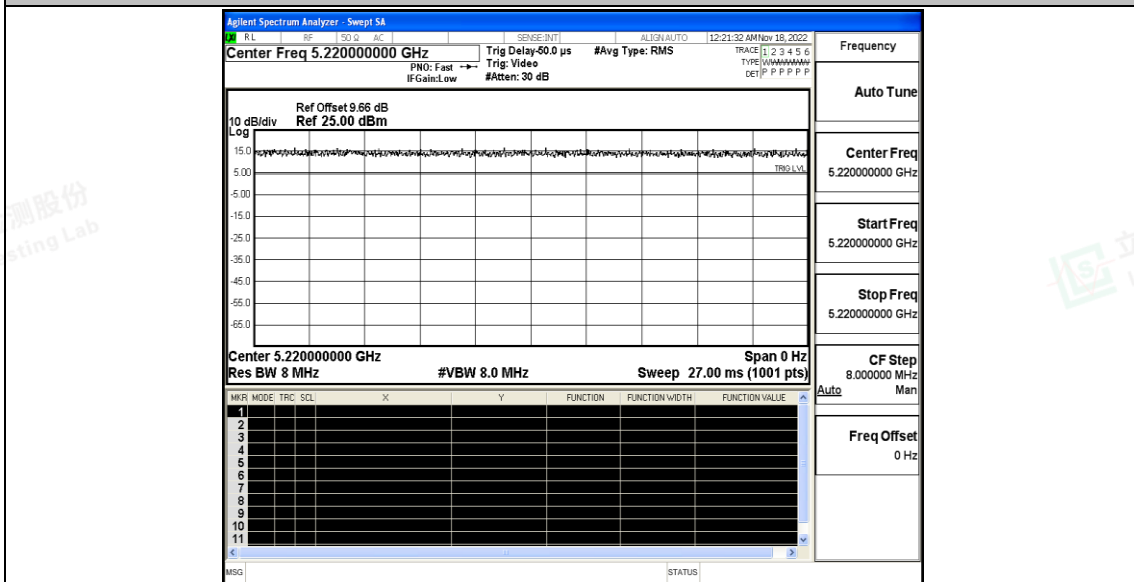


11AC20SISO\_Ant1\_5180



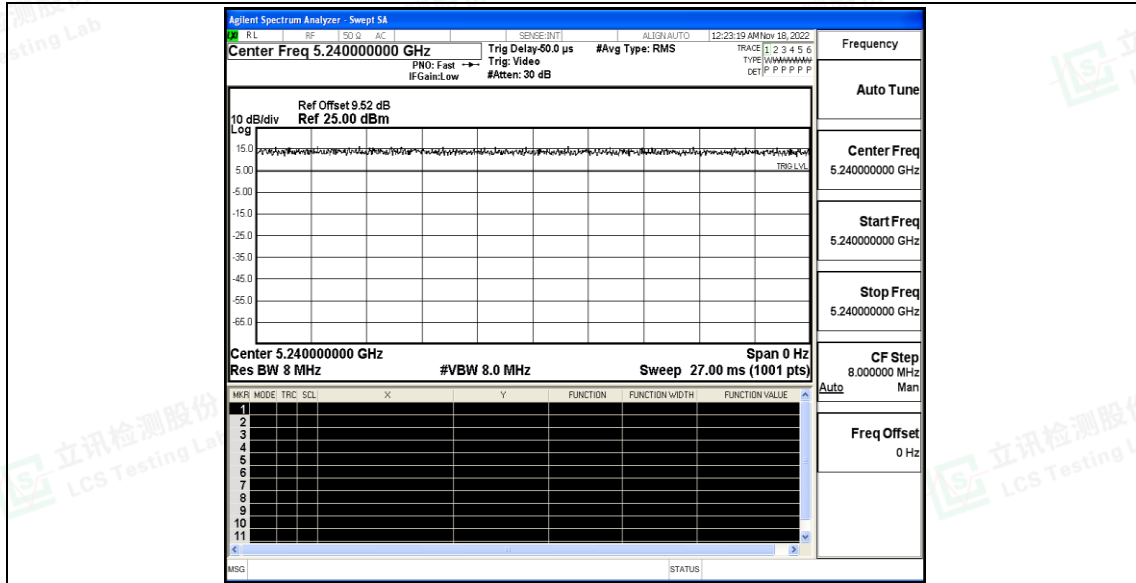


11AC20SISO\_Ant1\_5220

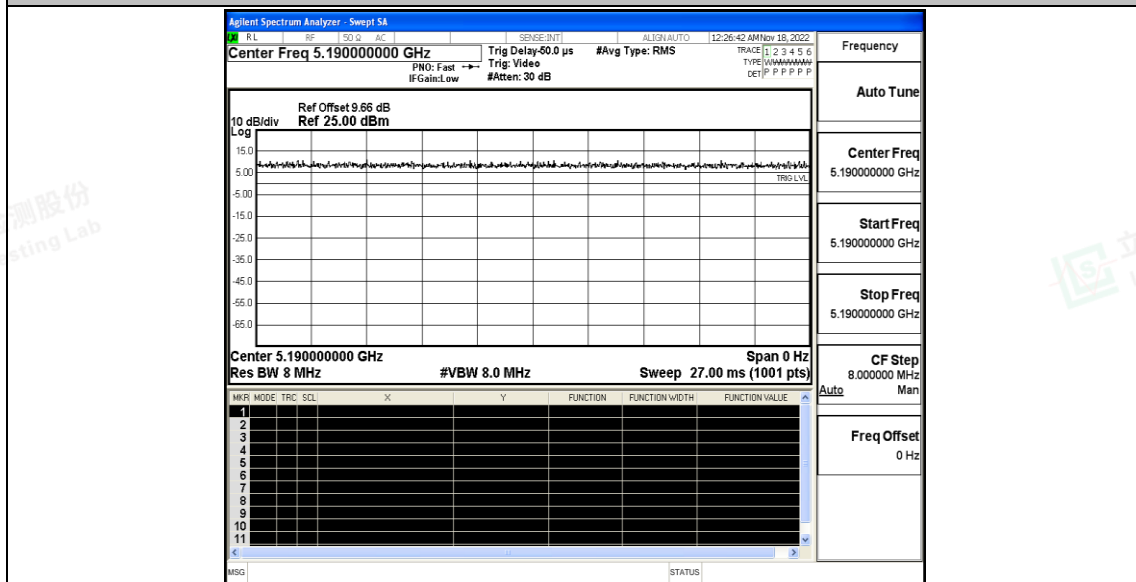


11AC20SISO\_Ant1\_5240



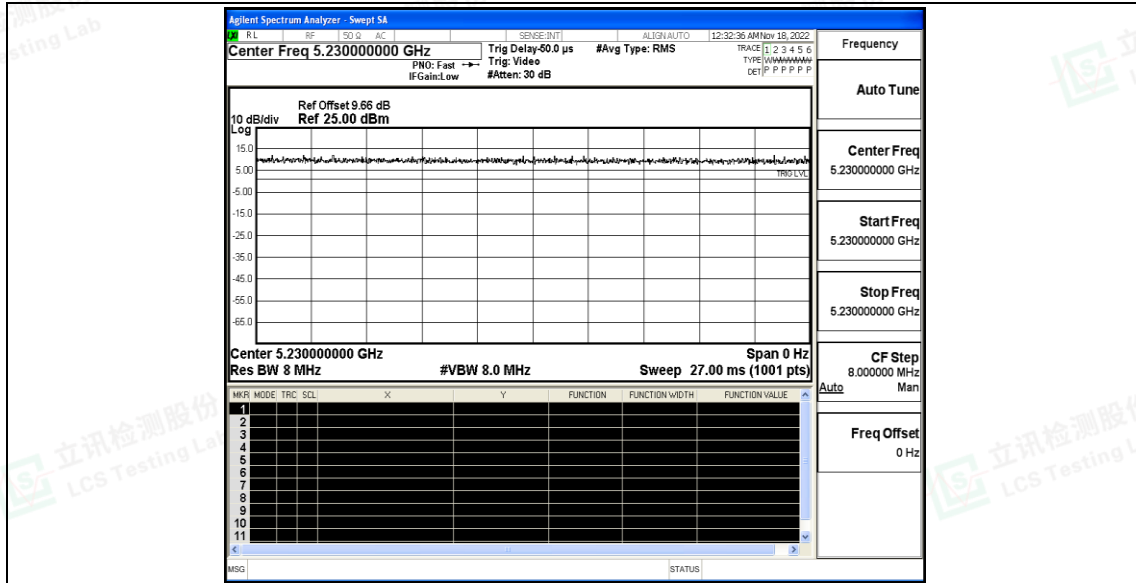


11AC40SISO\_Ant1\_5190



11AC40SISO\_Ant1\_5230





11AC80SISO\_Ant1\_5210

