



Appendix D

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: Smartphone

Test Model: Hyline Pro

Environmental Conditions

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





D.1 Emission Bandwidth

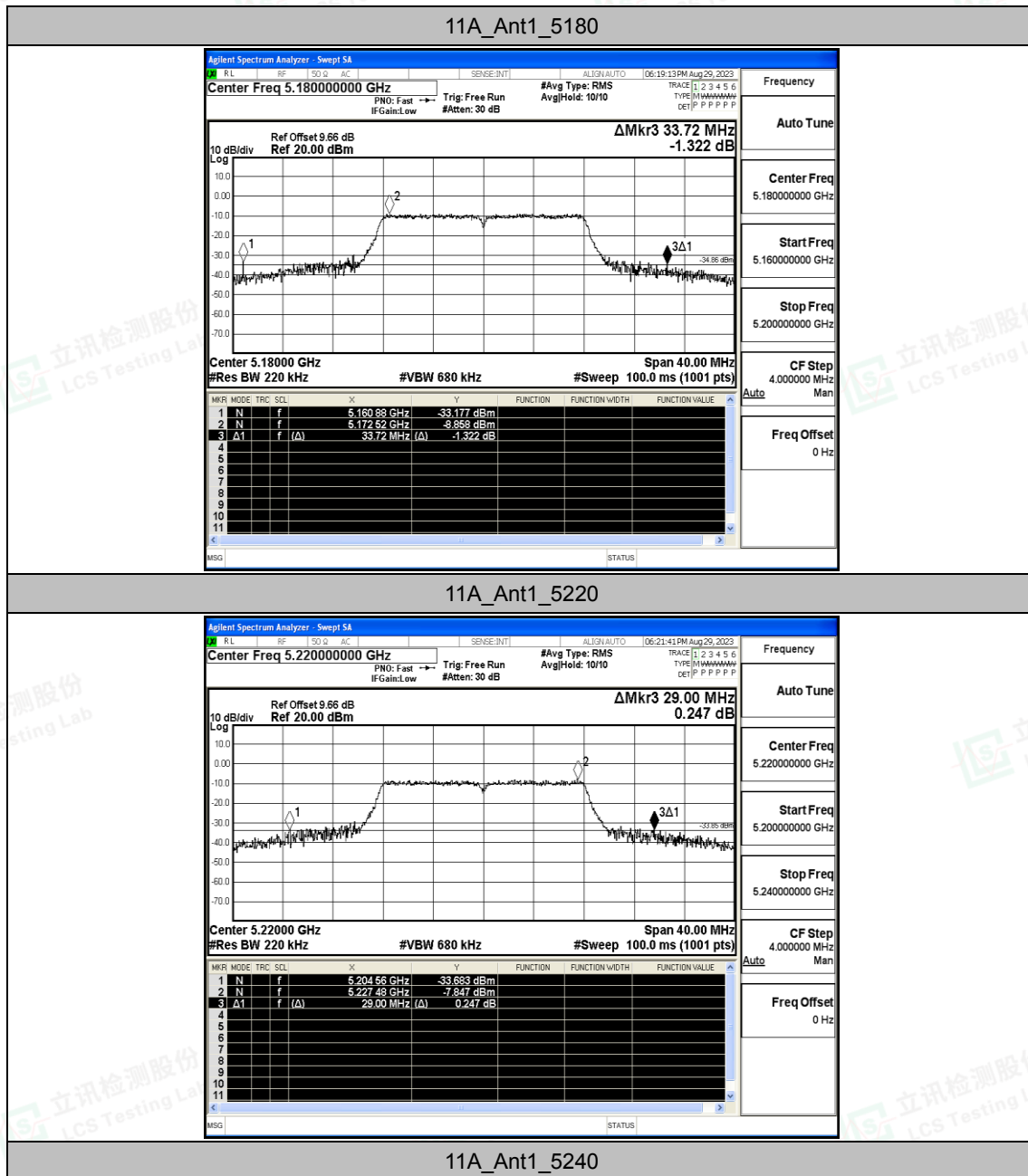
Test Result

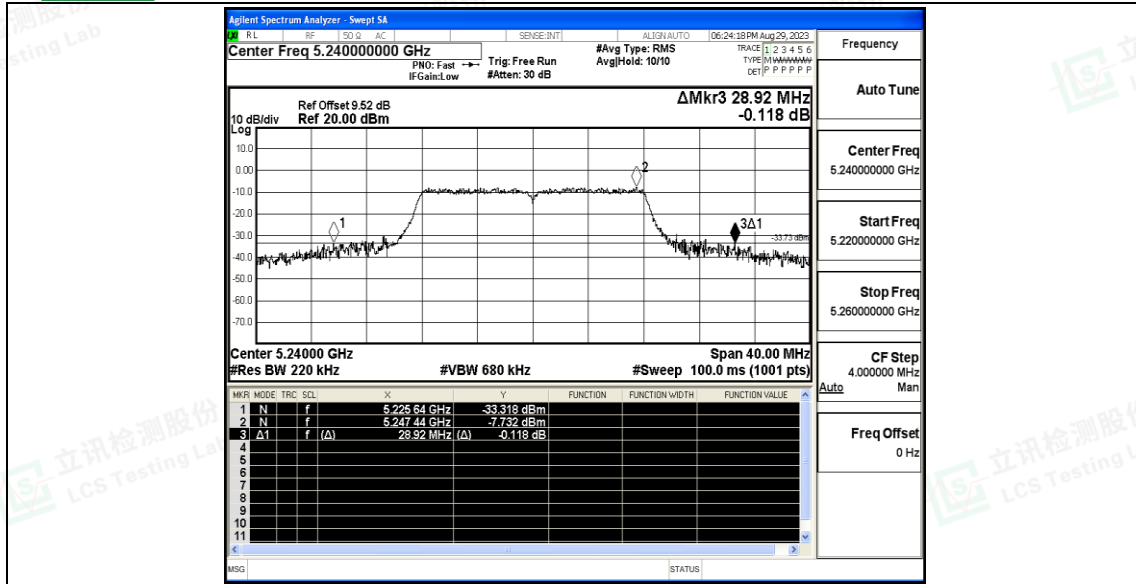
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	33.720	5160.880	5194.600	---	---
		5220	29.000	5204.560	5233.560	---	---
		5240	28.920	5225.640	5254.560	---	---
11N20SISO	Ant1	5180	28.560	5163.960	5192.520	---	---
		5220	28.680	5205.800	5234.480	---	---
		5240	28.680	5226.400	5255.080	---	---
11N40SISO	Ant1	5190	49.120	5165.440	5214.560	---	---
		5230	49.120	5206.800	5255.920	---	---



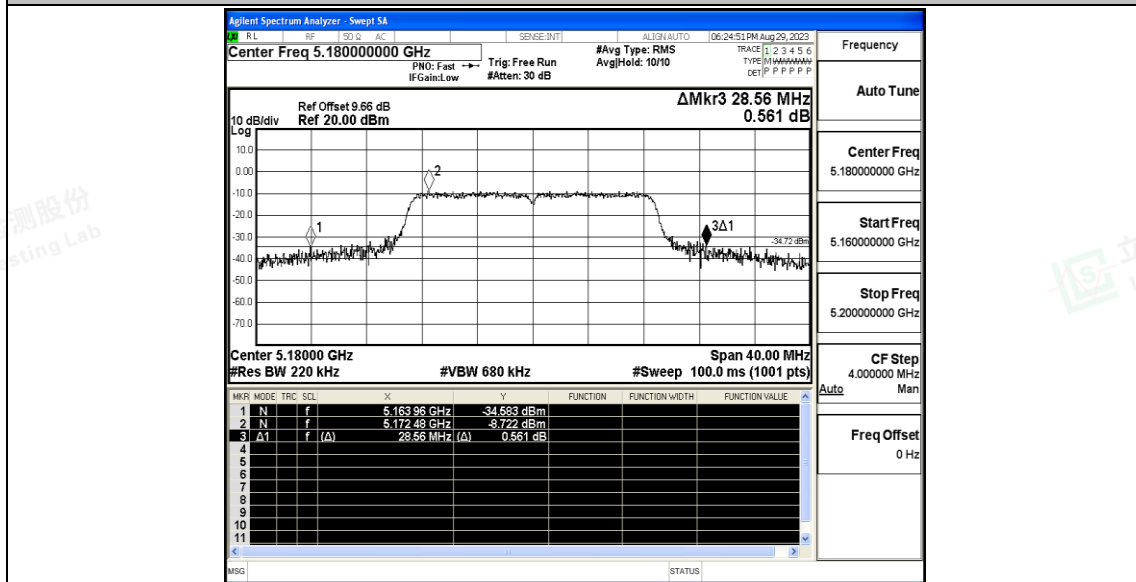


Test Graphs



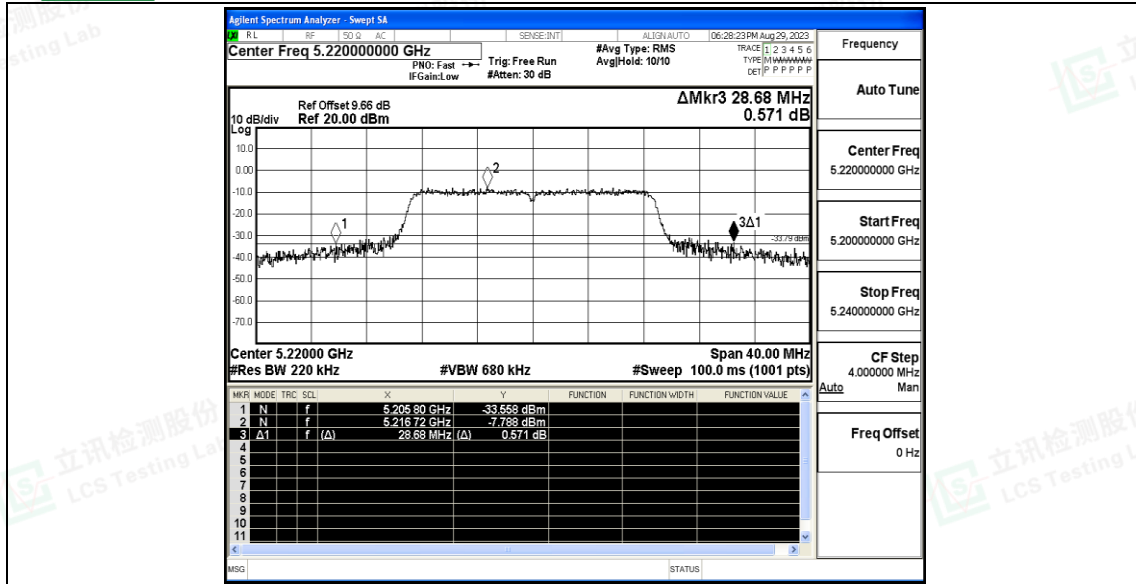


11N20SISO_Ant1_5180

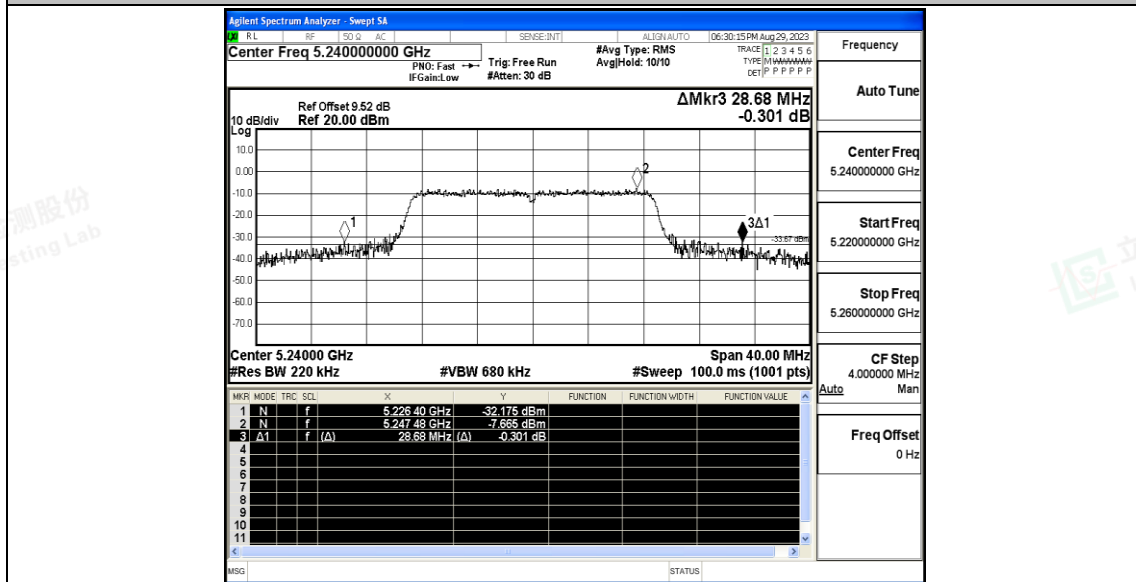


11N20SISO_Ant1_5220



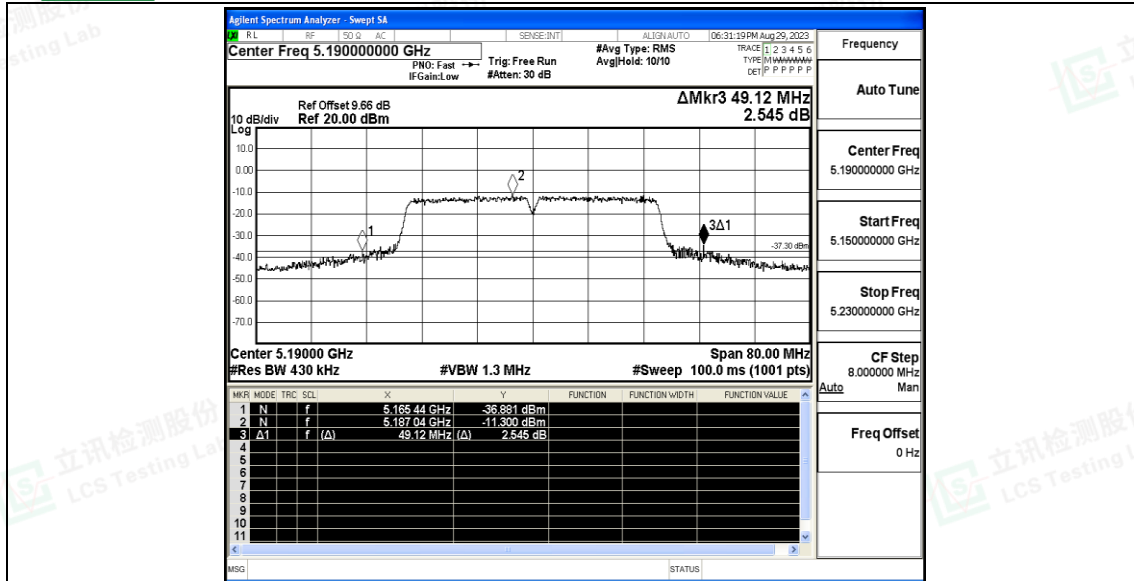


11N20SISO_Ant1_5240

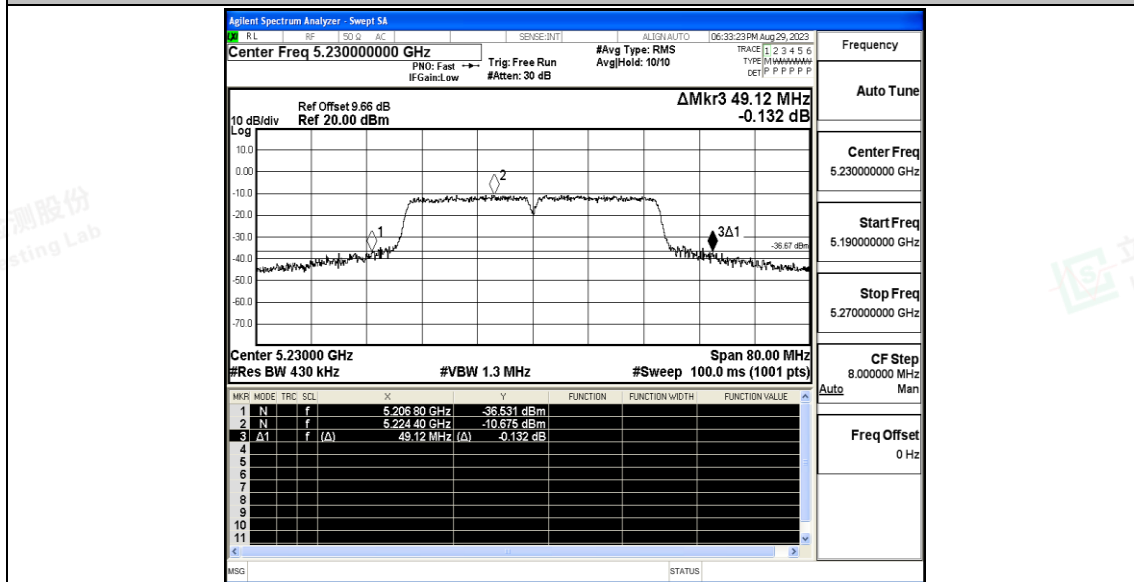


11N40SISO_Ant1_5190





11N40SISO_Ant1_5230





D.2 Maximum conducted output power

Test Result Channel Power

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	10.43	≤24	PASS
		5220	10.32	≤24	PASS
		5240	10.13	≤24	PASS
11N20SISO	Ant1	5180	10.48	≤24	PASS
		5220	10.37	≤24	PASS
		5240	10.15	≤24	PASS
11N40SISO	Ant1	5190	10.87	≤24	PASS
		5230	10.65	≤24	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	-2.16	≤11.00	PASS
		5220	-2.34	≤11.00	PASS
		5240	-2.08	≤11.00	PASS
11N20SISO	Ant1	5180	-2.68	≤11.00	PASS
		5220	-2.27	≤11.00	PASS
		5240	-2.2	≤11.00	PASS
11N40SISO	Ant1	5190	-5.35	≤11.00	PASS
		5230	-4.87	≤11.00	PASS

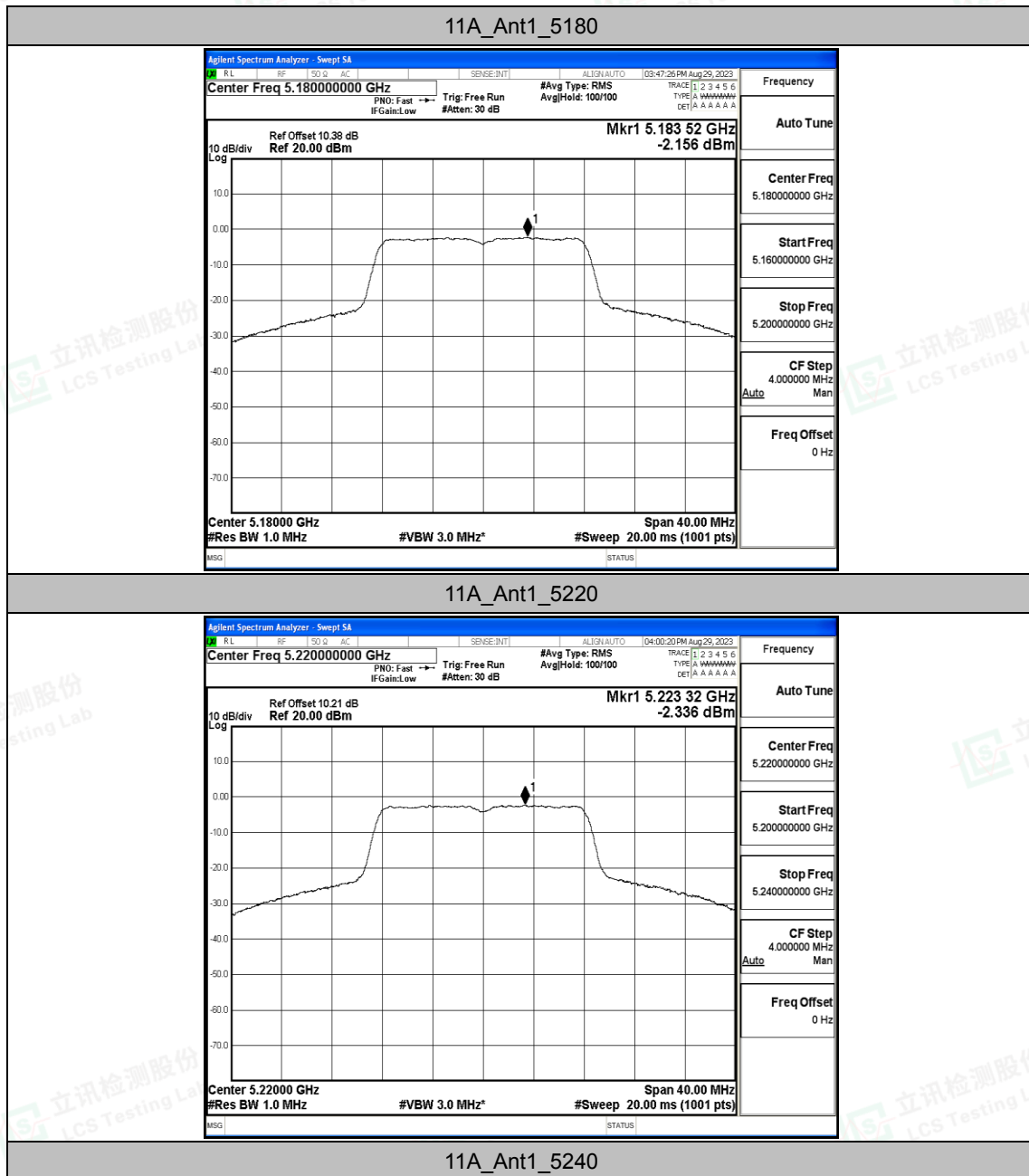
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

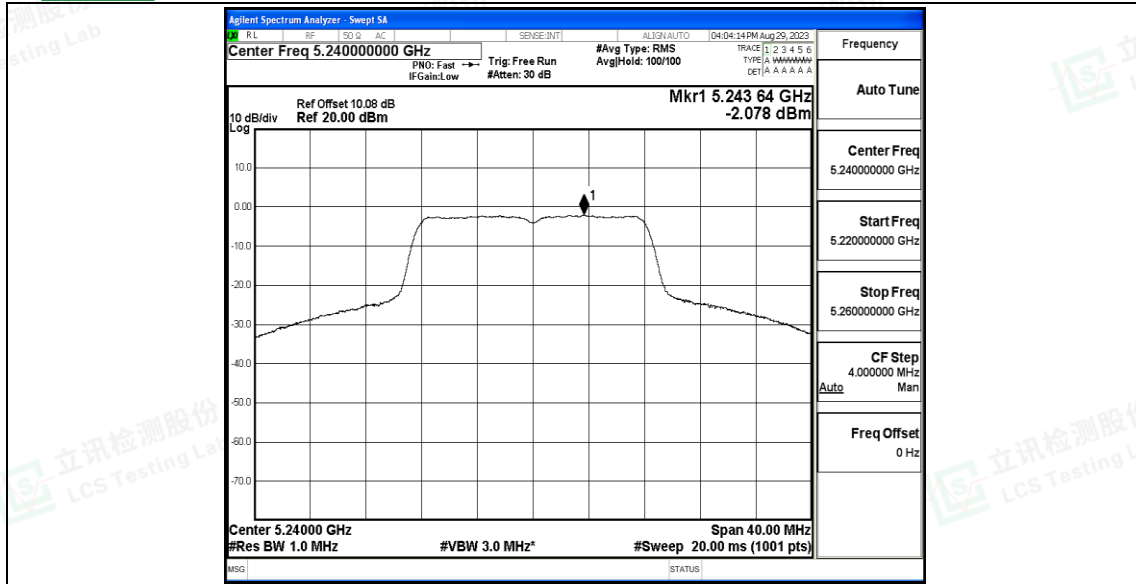
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.



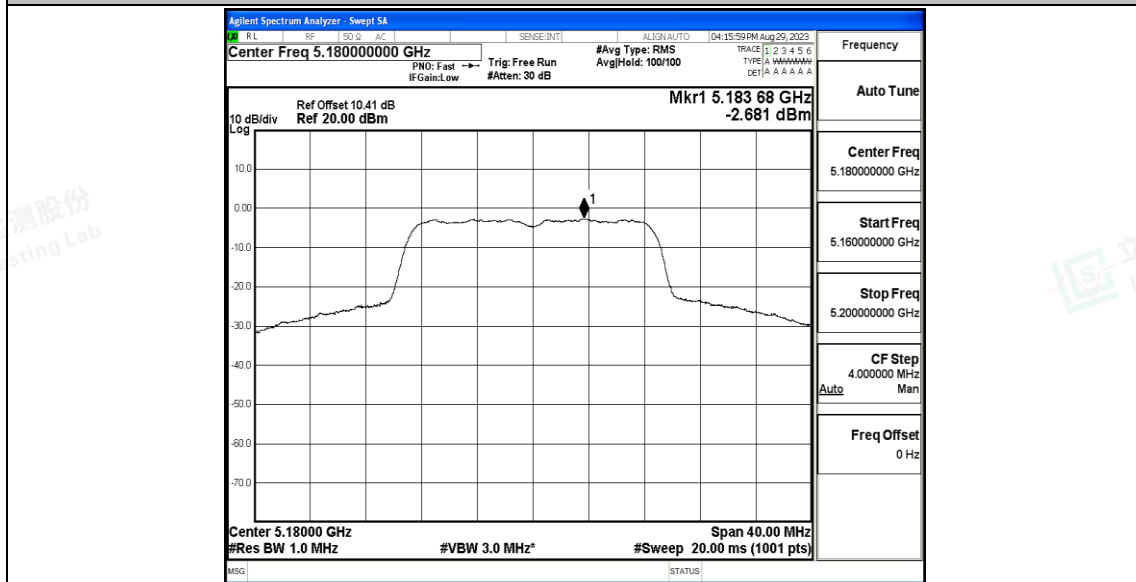


Test Graphs



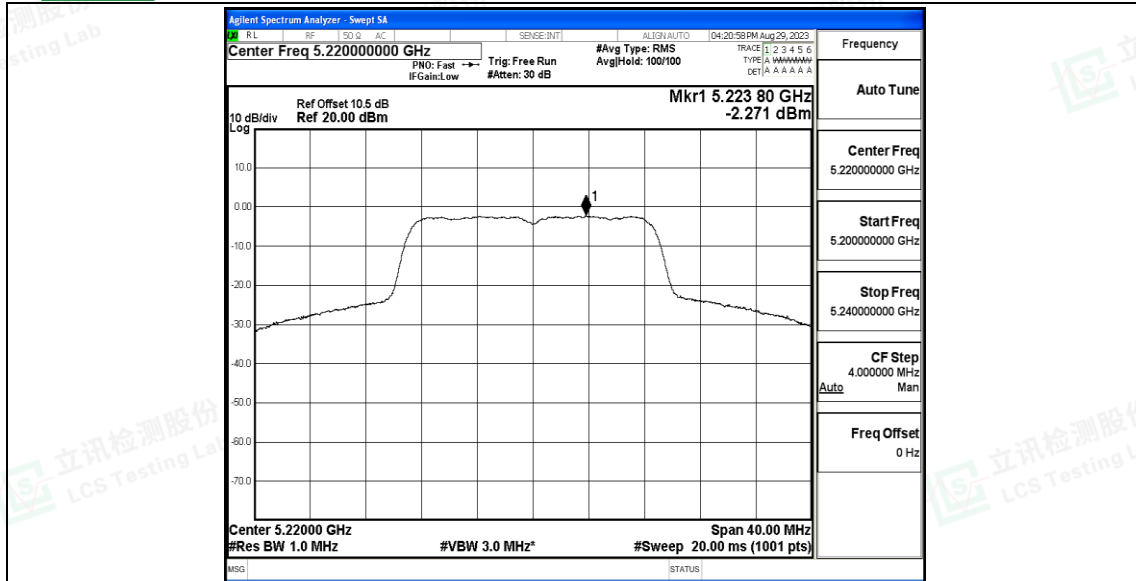


11N20SISO_Ant1_5180

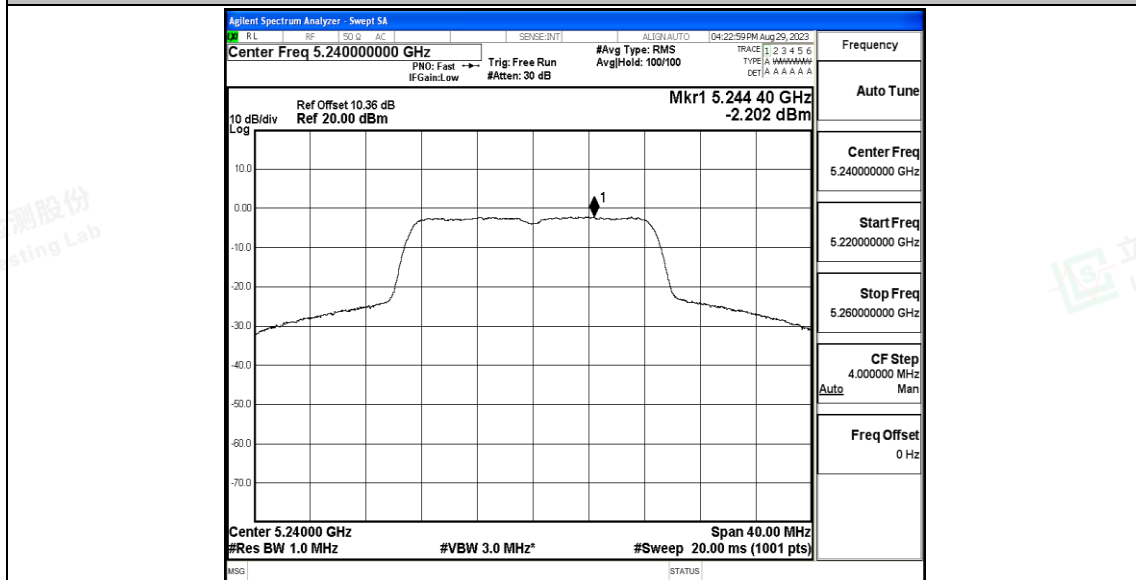


11N20SISO_Ant1_5220



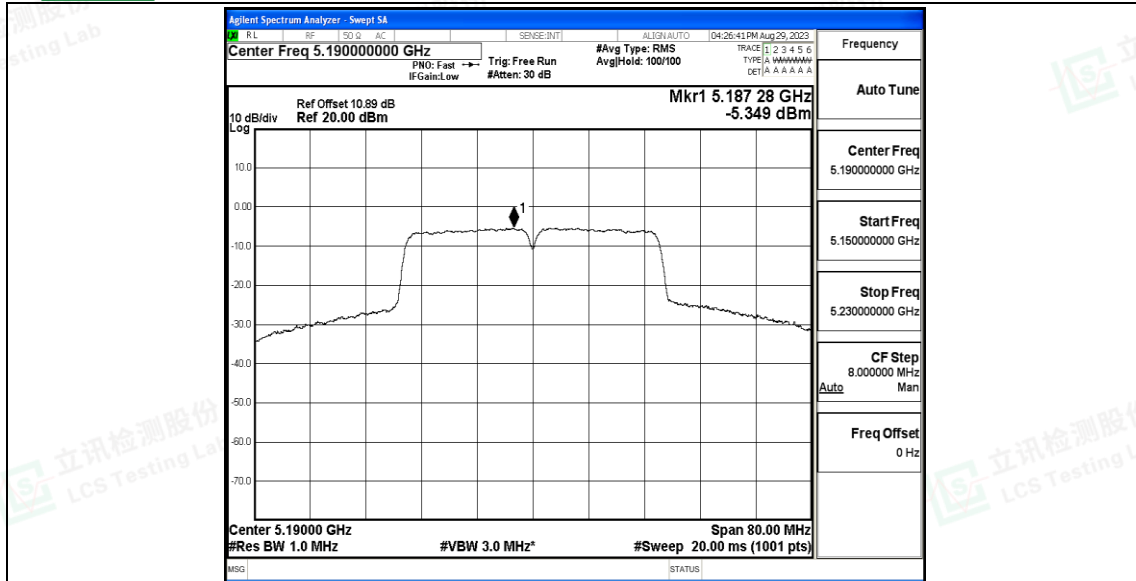


11N20SISO_Ant1_5240

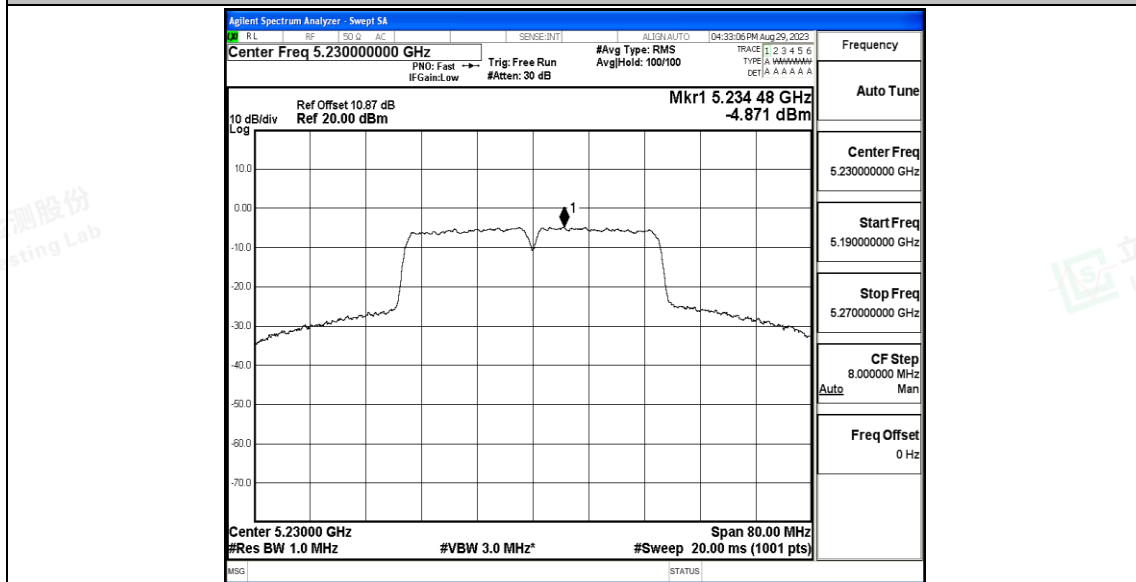


11N40SISO_Ant1_5190





11N40SISO_Ant1_5230





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	-57.88	≤-41.20	37.32	≤54	PASS
				AV	5149.600	-55.38	≤-41.20	39.82	≤54	PASS
				AV	5150.000	-55.16	≤-41.20	40.04	≤54	PASS
				Peak	4500.000	-51.34	≤-21.20	43.86	≤74	PASS
				Peak	5149.600	-46.22	≤-21.20	48.98	≤74	PASS
				Peak	5150.000	-47.74	≤-21.20	47.46	≤74	PASS
		High	5240	AV	5350.000	-56.24	≤-41.20	38.96	≤54	PASS
				AV	5350.800	-56.18	≤-41.20	39.02	≤54	PASS
				AV	5460.000	-57.15	≤-41.20	38.05	≤54	PASS
				Peak	5350.000	-50.01	≤-21.20	45.19	≤74	PASS
				Peak	5368.800	-47.72	≤-21.20	47.48	≤74	PASS
				Peak	5460.000	-52.35	≤-21.20	42.85	≤74	PASS
11N20SIS O	Ant1	Low	5180	AV	4500.000	-57.87	≤-41.20	37.33	≤54	PASS
				AV	5149.600	-53.17	≤-41.20	42.03	≤54	PASS
				AV	5150.000	-52.42	≤-41.20	42.78	≤54	PASS
				Peak	4500.000	-51.68	≤-21.20	43.52	≤74	PASS
				Peak	5144.000	-44.76	≤-21.20	50.44	≤74	PASS
				Peak	5150.000	-44.86	≤-21.20	50.34	≤74	PASS
		High	5240	AV	5350.000	-56.36	≤-41.20	38.84	≤54	PASS
				AV	5351.760	-56.19	≤-41.20	39.01	≤54	PASS
				AV	5460.000	-57.12	≤-41.20	38.08	≤54	PASS
				Peak	5350.000	-50.86	≤-21.20	44.34	≤74	PASS
				Peak	5390.400	-47.35	≤-21.20	47.85	≤74	PASS
				Peak	5460.000	-52.46	≤-21.20	42.74	≤74	PASS
11N40SIS O	Ant1	Low	5190	AV	4500.000	-57.56	≤-41.20	37.64	≤54	PASS
				AV	5149.600	-53.86	≤-41.20	41.34	≤54	PASS
				AV	5150.000	-53.37	≤-41.20	41.83	≤54	PASS
				Peak	4500.000	-53.55	≤-21.20	41.65	≤74	PASS
				Peak	4913.700	-46.72	≤-21.20	48.48	≤74	PASS
				Peak	5150.000	-48.06	≤-21.20	47.14	≤74	PASS
		High	5230	AV	5350.000	-55.66	≤-41.20	39.54	≤54	PASS
				AV	5350.280	-55.54	≤-41.20	39.66	≤54	PASS
				AV	5460.000	-56.55	≤-41.20	38.65	≤54	PASS
				Peak	5350.000	-49.94	≤-21.20	45.26	≤74	PASS
				Peak	5389.280	-47.53	≤-21.20	47.67	≤74	PASS
				Peak	5389.280	-47.53	≤-21.20	47.67	≤74	PASS



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				Peak	5460.000	-50.11	≤-21.20	45.09	≤74	PASS
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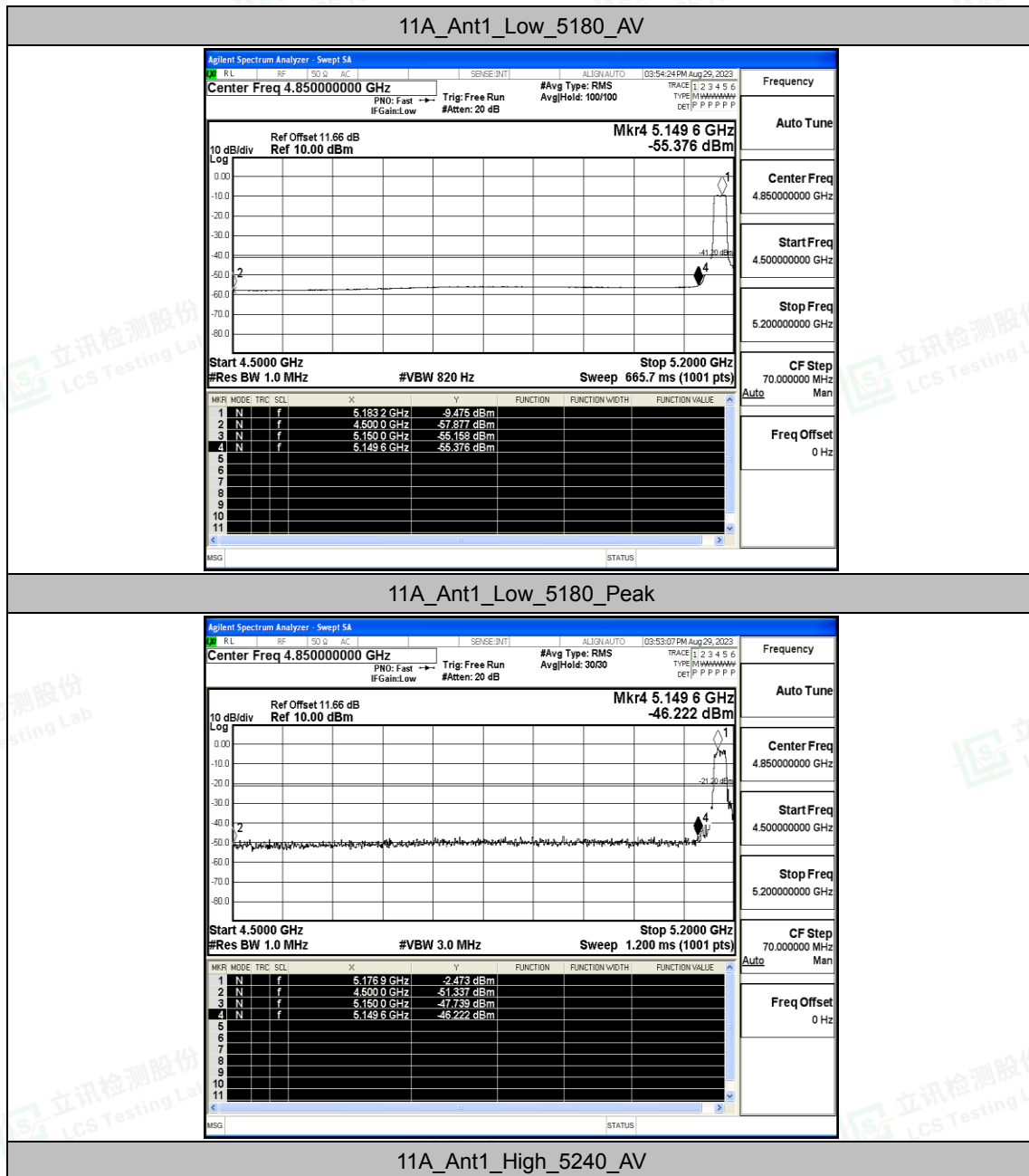
Note:

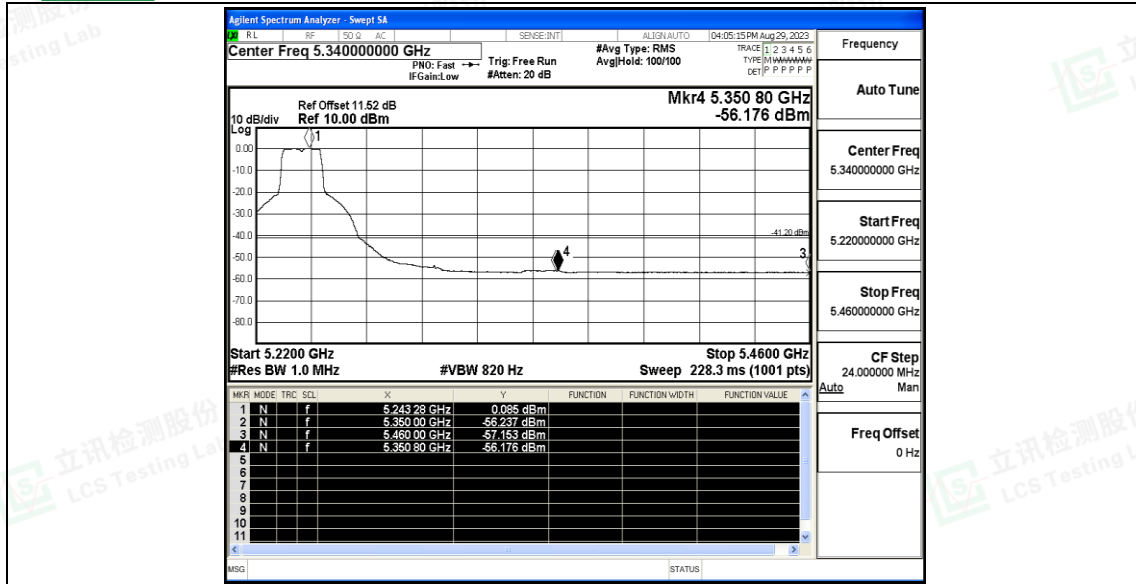
- 1. The Antenna Gain is compensated in the graph.
- 2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in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



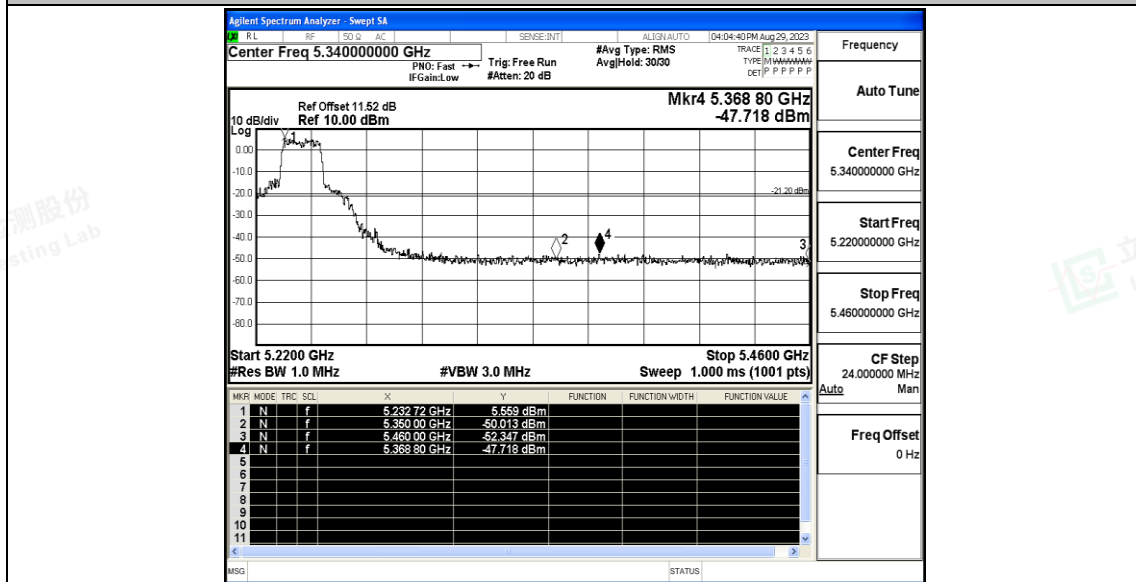


Test Graphs



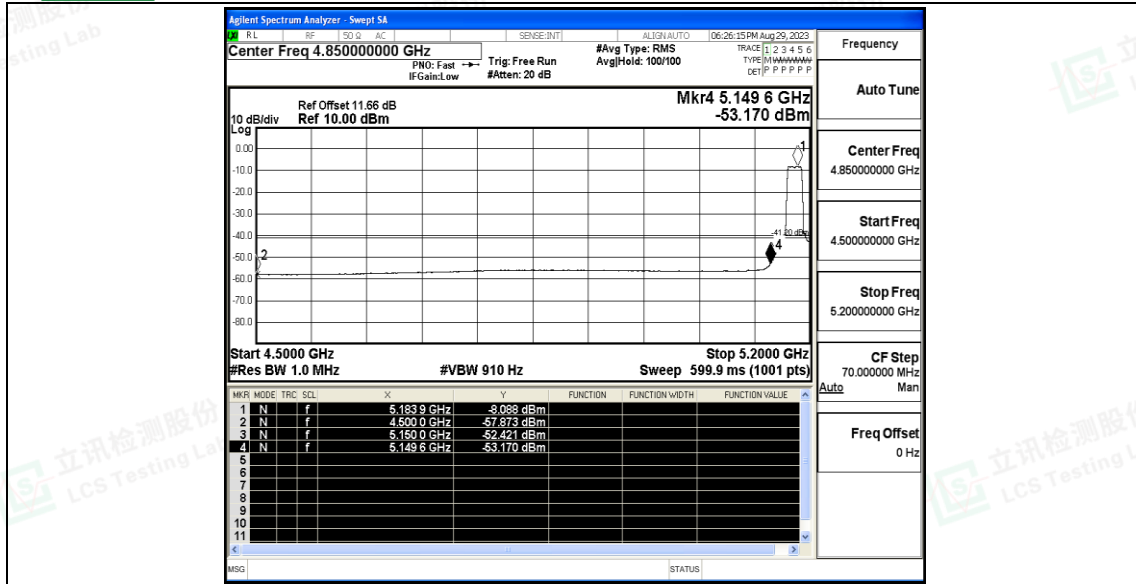


11A_Ant1_High_5240_Peak

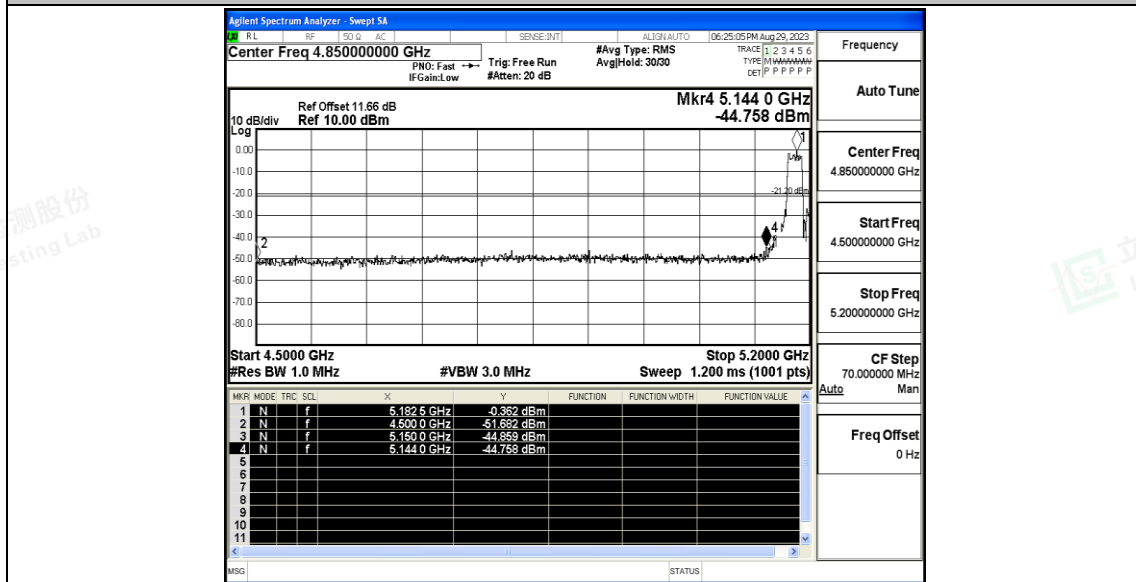


11N20SISO_Ant1_Low_5180_AV



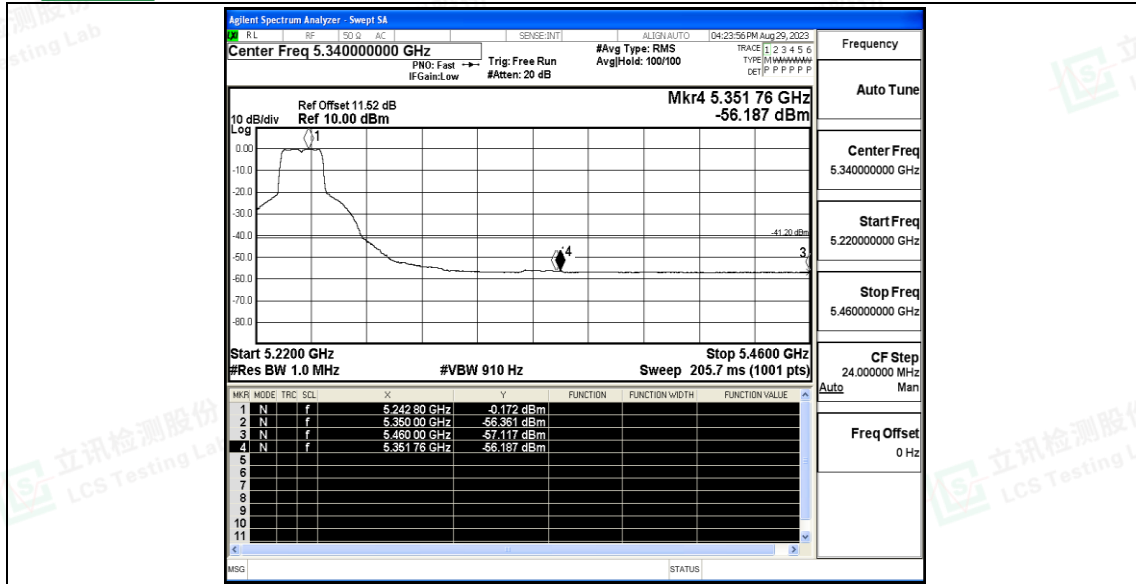


11N20SISO_Ant1_Low_5180_Peak

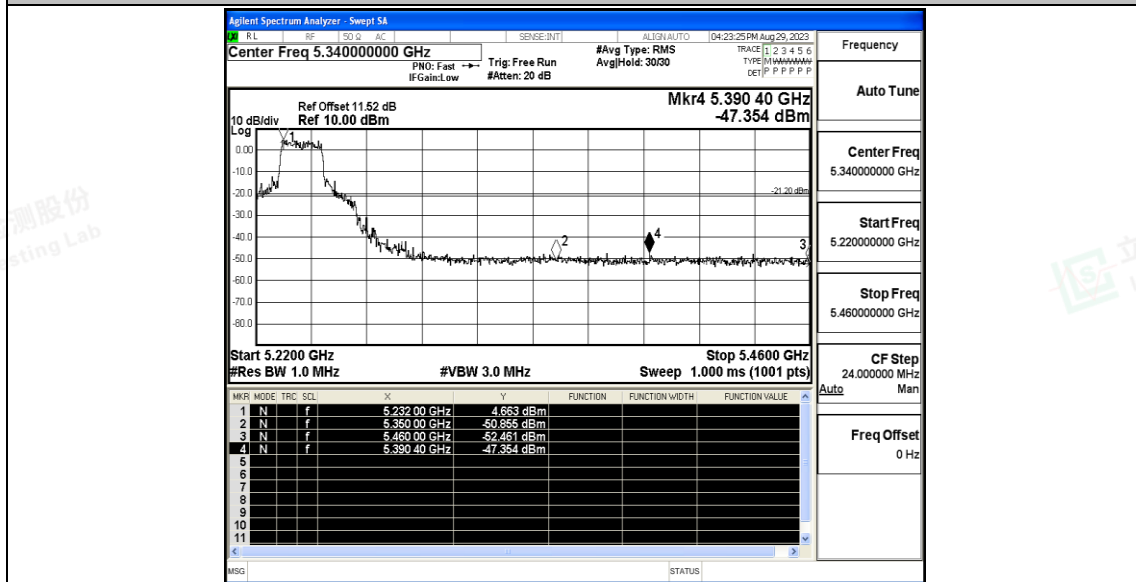


11N20SISO_Ant1_High_5240_AV



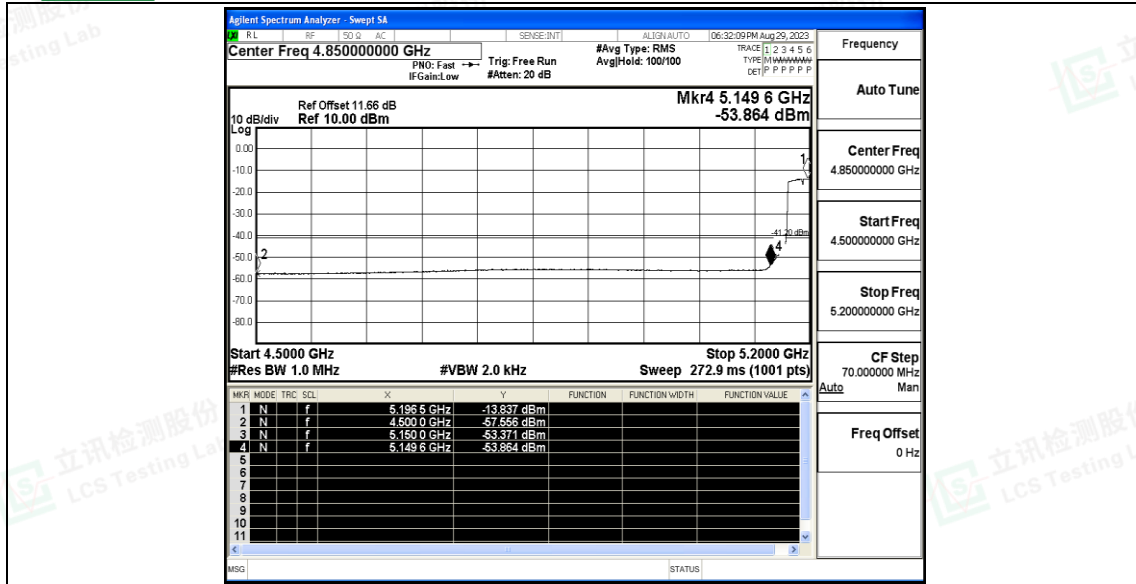


11N20SISO_Ant1_High_5240_Peak

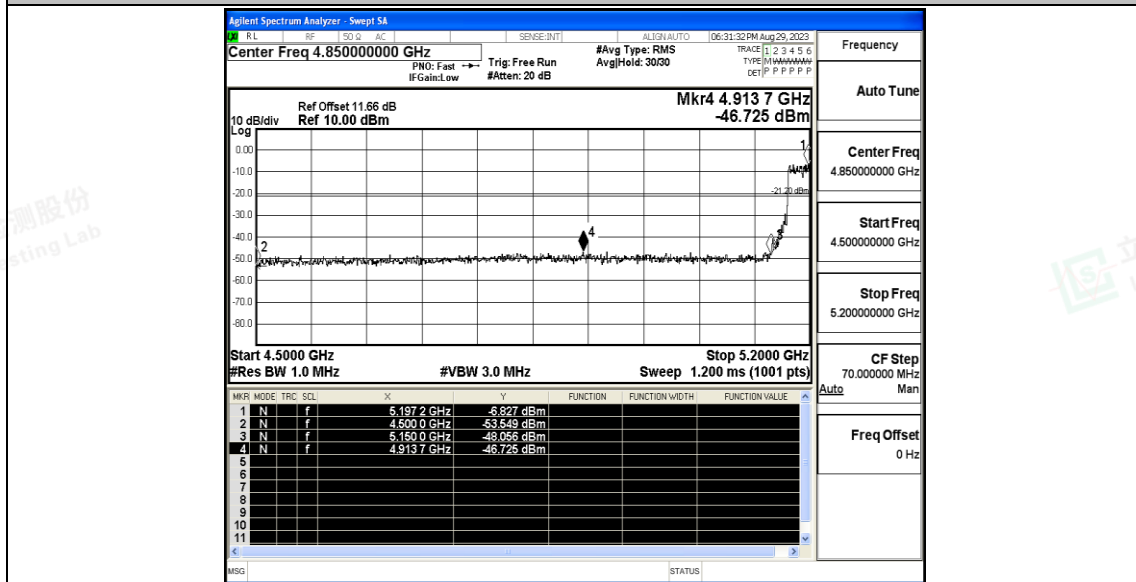


11N40SISO_Ant1_Low_5190_AV



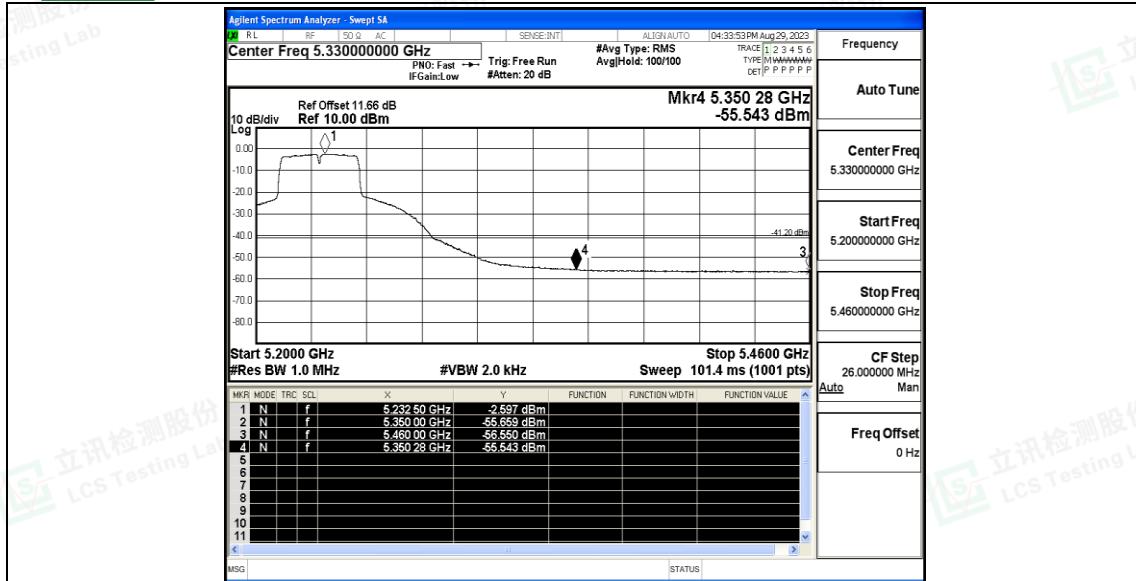


11N40SISO_Ant1_Low_5190_Peak

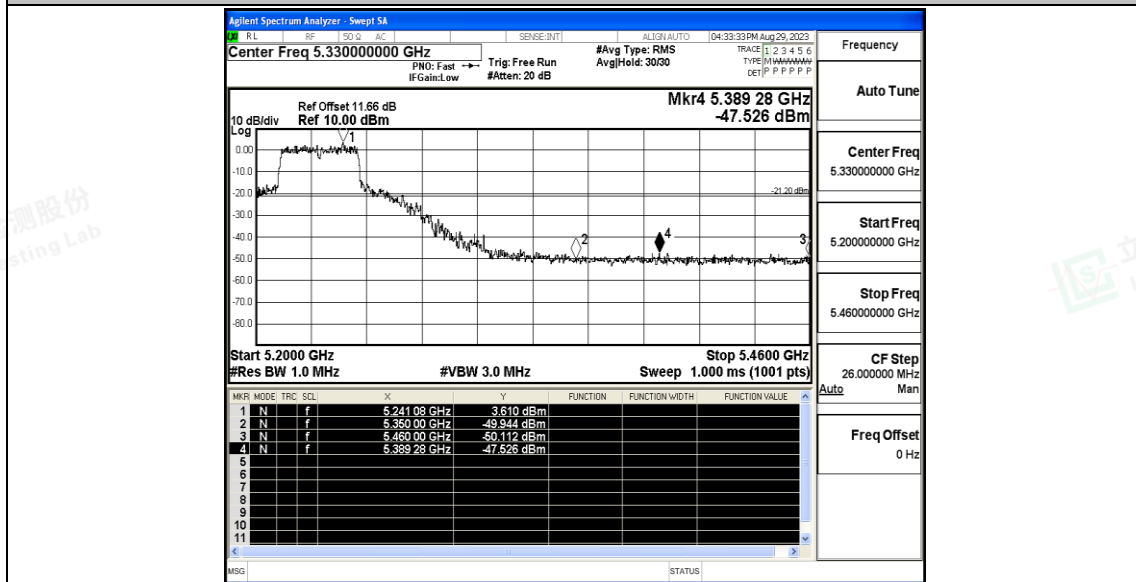


11N40SISO_Ant1_High_5230_AV





11N40SISO_Ant1_High_5230_Peak





D.5 Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Frequen cy[MHz]	Voltage [Vdc]	Temper ature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-20000.00	-3.861004	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.861004	20	PASS
		5220	NV	NT	-20000.00	-3.831418	20	PASS
			LV	NT	-20000.00	-3.831418	20	PASS
			HV	NT	-20000.00	-3.831418	20	PASS
		5240	NV	NT	-20000.00	-3.816794	20	PASS
			LV	NT	-20000.00	-3.816794	20	PASS
			HV	NT	-20000.00	-3.816794	20	PASS
11N40SI SO	Ant1	5190	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-7.707129	20	PASS
			HV	NT	-40000.00	-7.707129	20	PASS
		5230	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-7.648184	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
11A	Ant1	5180	NV	-30	0.00	0.000000	20	PASS
			NV	-20	-20000.00	-3.861004	20	PASS
			NV	-10	-20000.00	-3.861004	20	PASS
			NV	0	0.00	0.000000	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	0.00	0.000000	20	PASS
		5220	NV	-30	-20000.00	-3.831418	20	PASS
			NV	-20	-20000.00	-3.831418	20	PASS
			NV	-10	-20000.00	-3.831418	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	-20000.00	-3.831418	20	PASS
			NV	20	-20000.00	-3.831418	20	PASS



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		5240	NV	30	-20000.00	-3.831418	20	PASS
			NV	40	-20000.00	-3.831418	20	PASS
			NV	50	-20000.00	-3.831418	20	PASS
			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	-20000.00	-3.816794	20	PASS
			NV	10	-20000.00	-3.816794	20	PASS
			NV	20	-20000.00	-3.816794	20	PASS
			NV	30	-20000.00	-3.816794	20	PASS
			NV	40	-20000.00	-3.816794	20	PASS
			NV	50	-20000.00	-3.816794	20	PASS
11N40SI SO	Ant1	5190	NV	-30	-40000.00	-7.707129	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-40000.00	-7.707129	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
		5230	NV	50	-40000.00	-7.707129	20	PASS
			NV	-30	0.00	0.000000	20	PASS
			NV	-20	-40000.00	-7.648184	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	-40000.00	-7.648184	20	PASS
			NV	20	-40000.00	-7.648184	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	40000.00	7.648184	20	PASS
			NV	50	0.00	0.000000	20	PASS





D.6 Duty Cycle

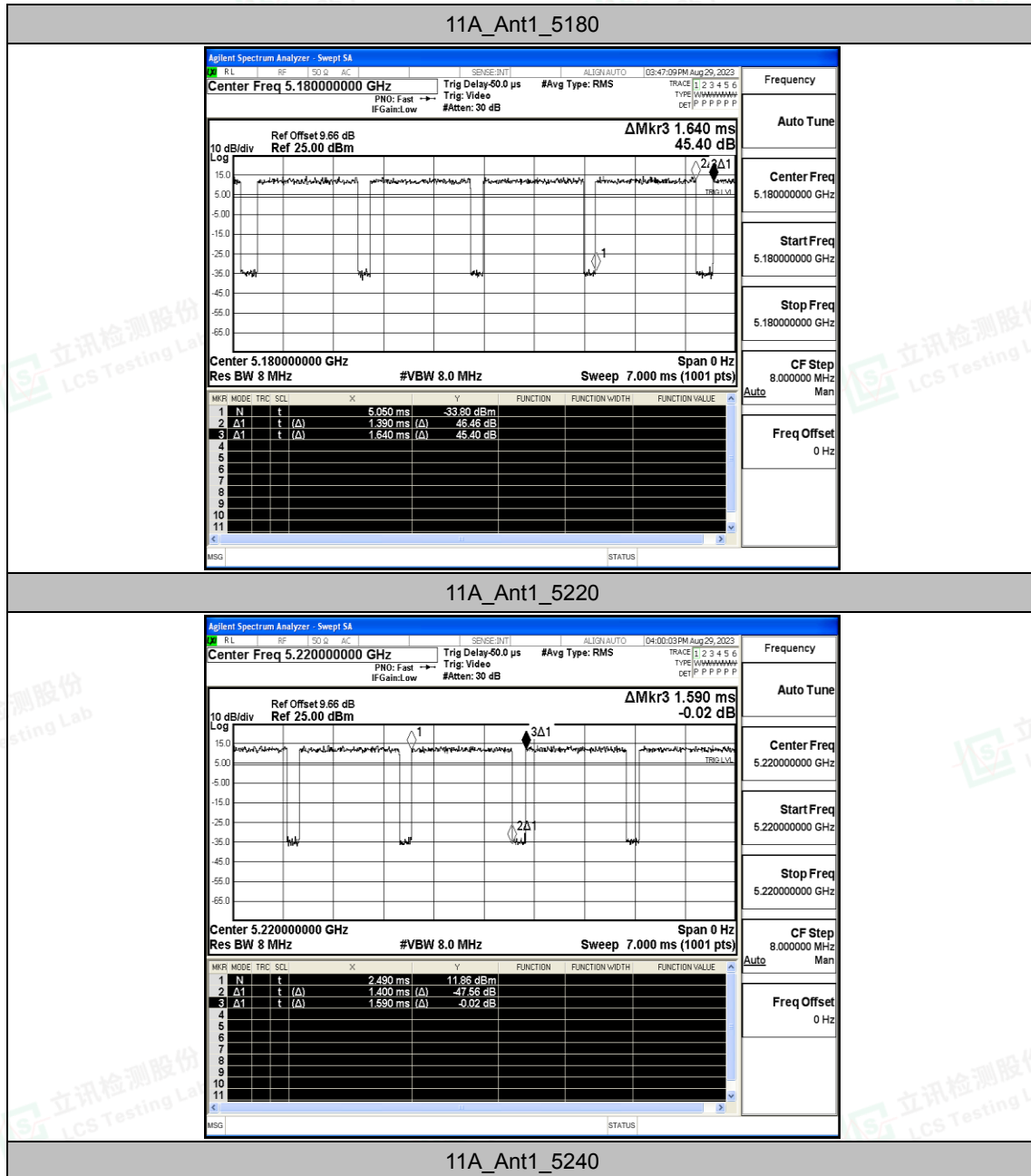
Test Result

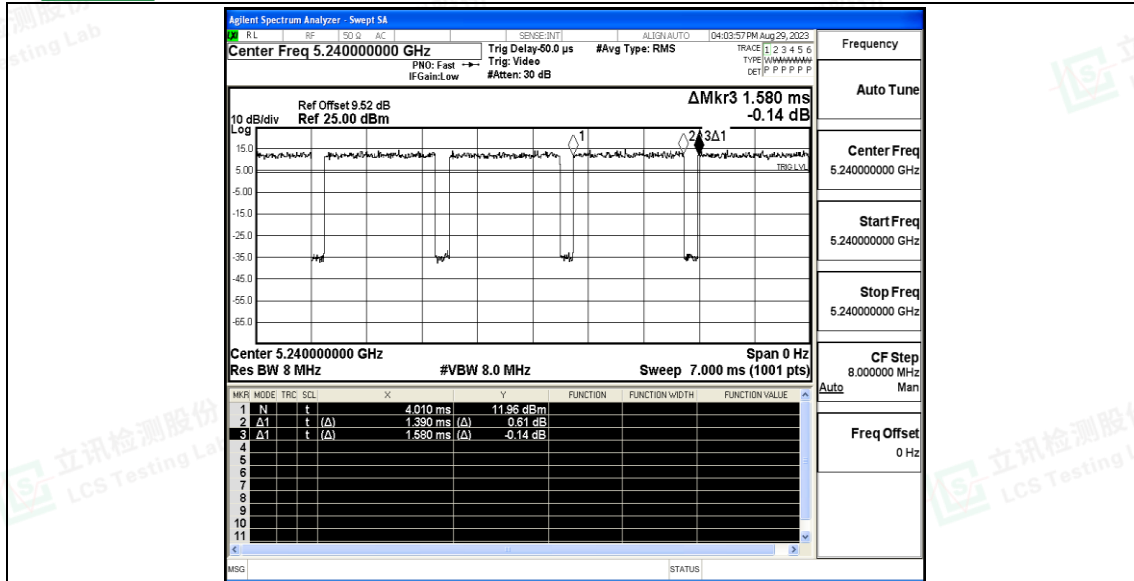
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	1.39	1.64	84.76
		5220	1.40	1.59	88.05
		5240	1.39	1.58	87.97
11N20SISO	Ant1	5180	1.17	1.39	84.17
		5220	1.17	1.42	82.39
		5240	1.17	1.42	82.39
11N40SISO	Ant1	5190	0.58	0.77	75.32
		5230	0.59	0.78	75.64



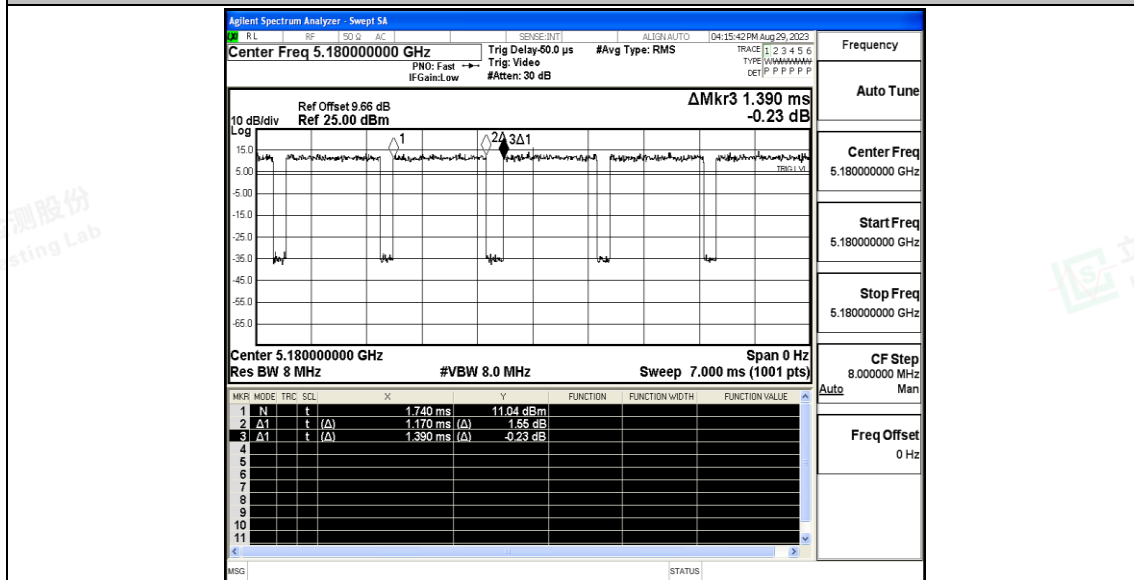


Test Graphs



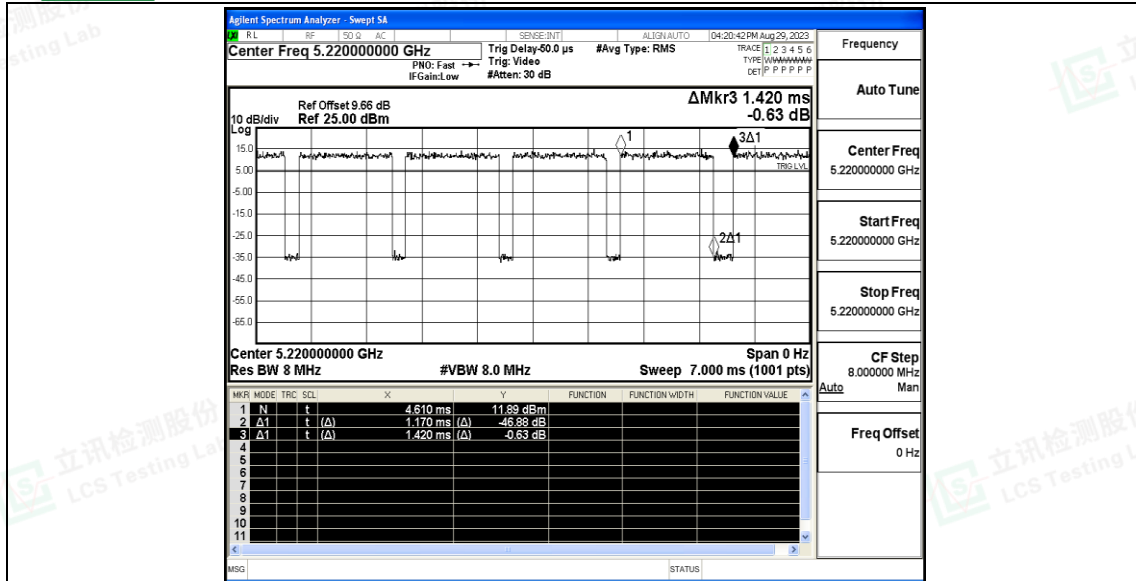


11N20SISO_Ant1_5180

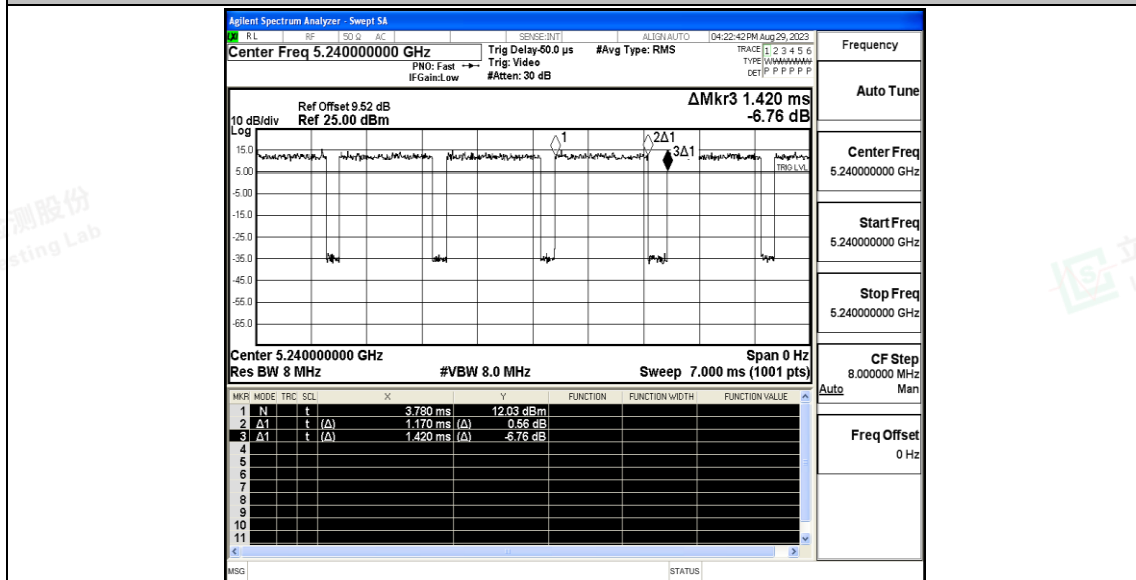


11N20SISO_Ant1_5220



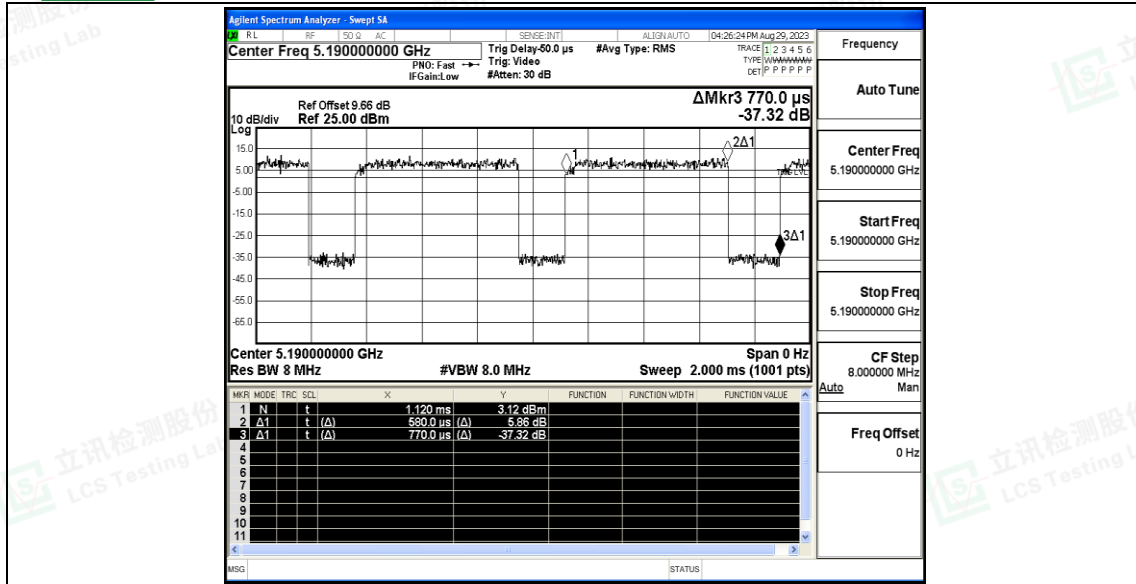


11N20SISO_Ant1_5240



11N40SISO_Ant1_5190





11N40SISO_Ant1_5230

