

Appendix C for 2.4GWIFI Test Data

Product Name: Wireless Carplay

Test Model: Z2

Environmental Conditions

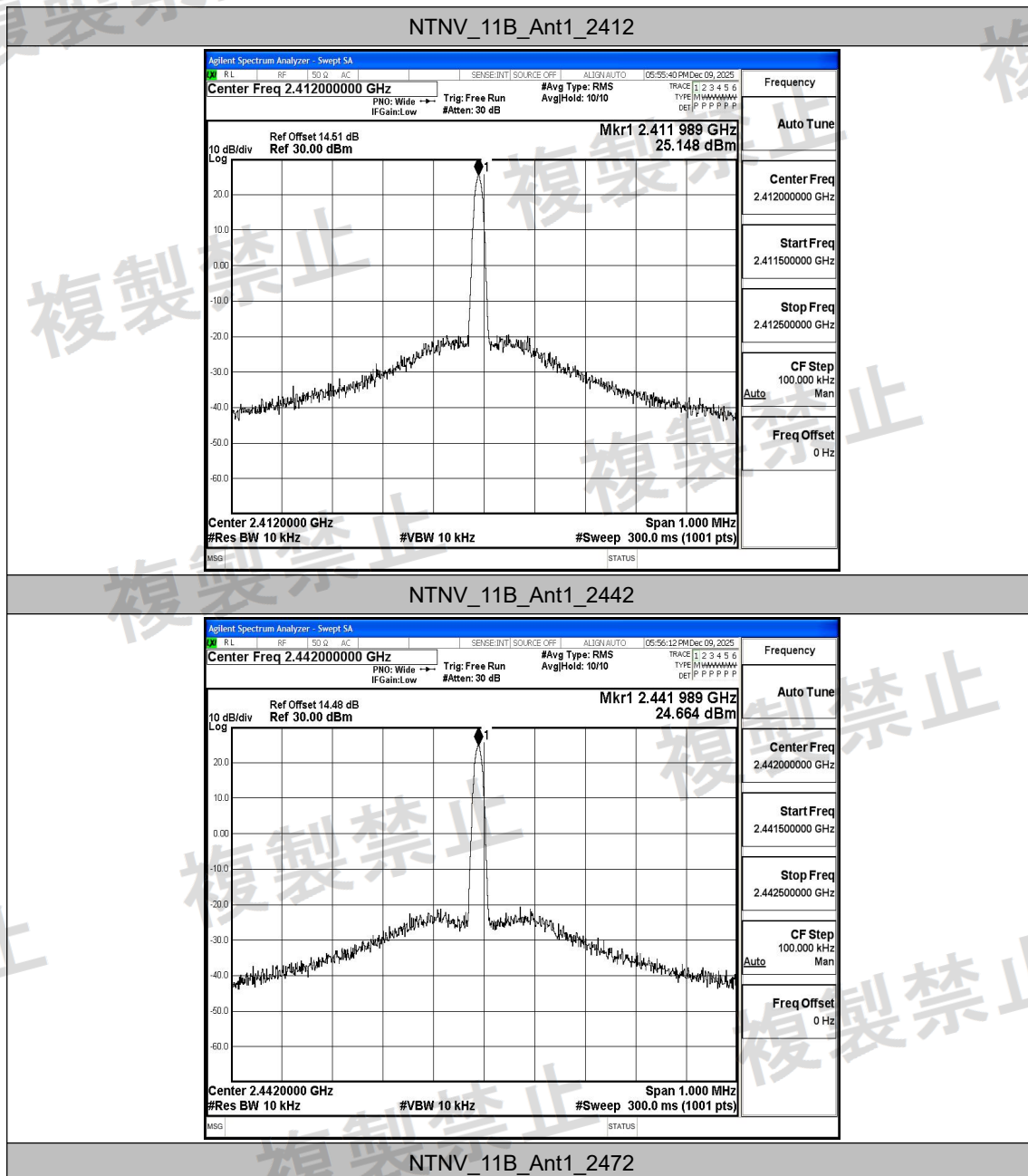
Temperature:	23.6°C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Yongzhou Huang
Supervised by:	Fengliu Tang

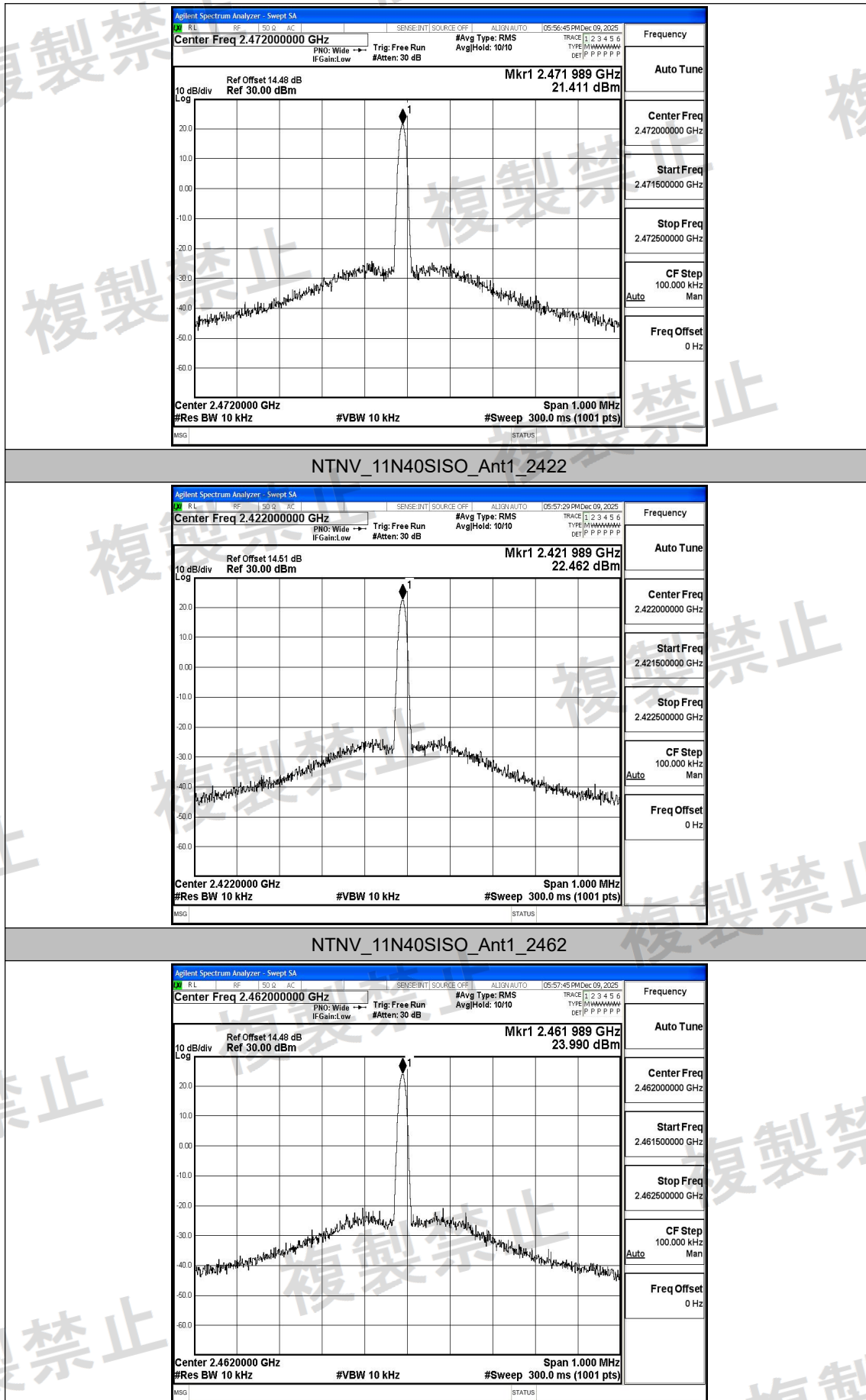
C.1 Frequency Error

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	Frequency Error	Ant1	2412	-4.56053	±50	PASS
			2442	-4.50451	±50	PASS
			2472	-4.44984	±50	PASS
		Ant1	2422	-4.54170	±50	PASS
			2462	-4.46791	±50	PASS

Test Graphs





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C.2 Antenna Power

Test Result

Antenna Power							
TestCondition	TestMode	Antenna	Frequency [MHz]	Measured Power (dBm/MHz)	Result (mW/MHz)	Limit (mW/MHz)	Verdict
NTNV	11B	Ant1	2412	5.51	3.5563	≤10	PASS
			2442	5.43	3.4914	≤10	PASS
			2472	5.35	3.4277	≤10	PASS
	11G	Ant1	2412	5.19	3.3037	≤10	PASS
			2442	5.21	3.3189	≤10	PASS
			2472	5.10	3.2359	≤10	PASS
	11N20SISO	Ant1	2412	5.02	3.1769	≤10	PASS
			2442	4.86	3.0620	≤10	PASS
			2472	5.04	3.1915	≤10	PASS
	11N40SISO	Ant1	2422	2.00	1.5849	≤5	PASS
			2442	1.69	1.4757	≤5	PASS
			2462	1.89	1.5453	≤5	PASS

Tolerance								
Test Condition	Test Mode	Antenna	Frequency [MHz]	Power (mW/MHz)	Rated Power (mW/MHz)	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	3.5563	4.0	-11.09	+20	PASS
			2442	3.4914	4.0	-12.72	+20	PASS
			2472	3.4277	4.0	-14.31	+20	PASS
	11G	Ant1	2412	3.3037	4.0	-17.41	+20	PASS
			2442	3.3189	4.0	-17.03	+20	PASS
			2472	3.2359	4.0	-19.10	+20	PASS
	11N20SISO	Ant1	2412	3.1769	3.0	5.90	+20	PASS
			2442	3.0620	3.0	2.07	+20	PASS
			2472	3.1915	3.0	6.38	+20	PASS
	11N40SISO	Ant1	2422	1.5849	2.0	-20.76	+20	PASS
			2442	1.4757	2.0	-26.22	+20	PASS
			2462	1.5453	2.0	-22.74	+20	PASS

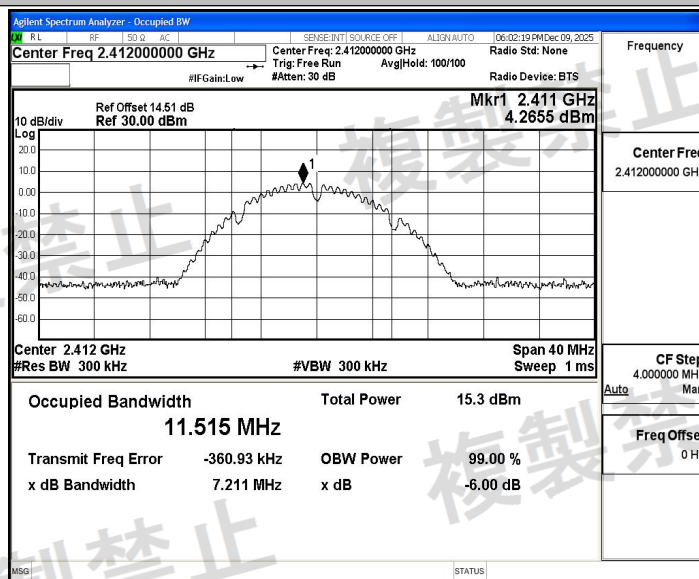
Test Condition	TestMode	Antenna	Frequency [MHz]	Measured Power (dBm/MHz)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Verdict
NTNV	11B	Ant1	2412	5.51	4.29	9.80	≤12.14	PASS
			2442	5.43	4.29	9.72	≤12.14	PASS
			2472	5.35	4.29	9.64	≤12.14	PASS
	11G	Ant1	2412	5.19	4.29	9.48	≤12.14	PASS
			2442	5.21	4.29	9.50	≤12.14	PASS
			2472	5.10	4.29	9.39	≤12.14	PASS
	11N20SISO	Ant1	2412	5.02	4.29	9.31	≤12.14	PASS
			2442	4.86	4.29	9.15	≤12.14	PASS
			2472	5.04	4.29	9.33	≤12.14	PASS
	11N40SISO	Ant1	2422	2.00	4.29	6.29	≤9.13	PASS
			2442	1.69	4.29	5.98	≤9.13	PASS
			2462	1.89	4.29	6.18	≤9.13	PASS

C.3 Occupied Bandwidth

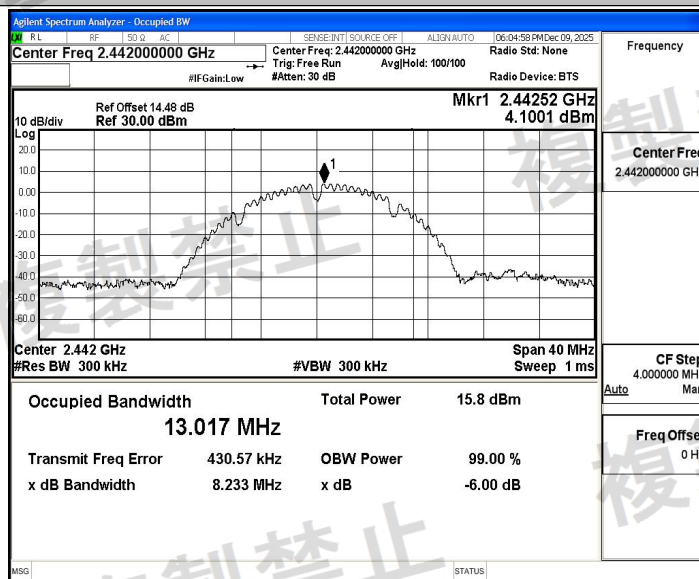
Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	11.515	≤26	PASS
			2442	13.017	≤26	PASS
			2472	14.501	≤26	PASS
	11G	Ant1	2412	16.056	≤26	PASS
			2442	16.780	≤26	PASS
			2472	17.002	≤26	PASS
	11N20SISO	Ant1	2412	17.133	≤26	PASS
			2442	17.807	≤26	PASS
			2472	17.954	≤26	PASS
	11N40SISO	Ant1	2422	35.673	26-40	PASS
			2442	35.750	26-40	PASS
			2462	34.634	26-40	PASS

NTNV 11B Ant1 2412



NTNV 11B Ant1 2442



NTNV 11B Ant1 2472

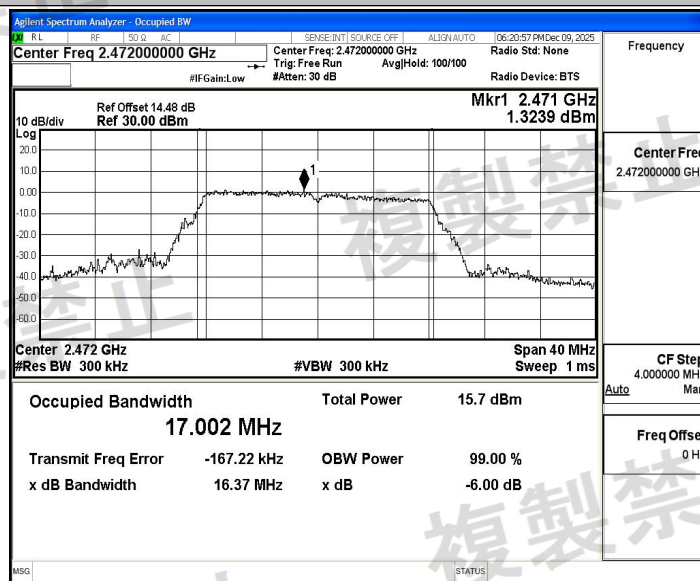


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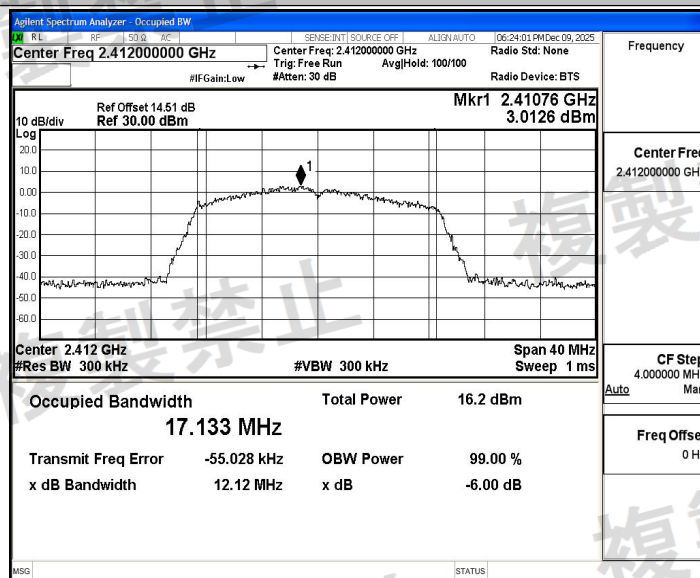
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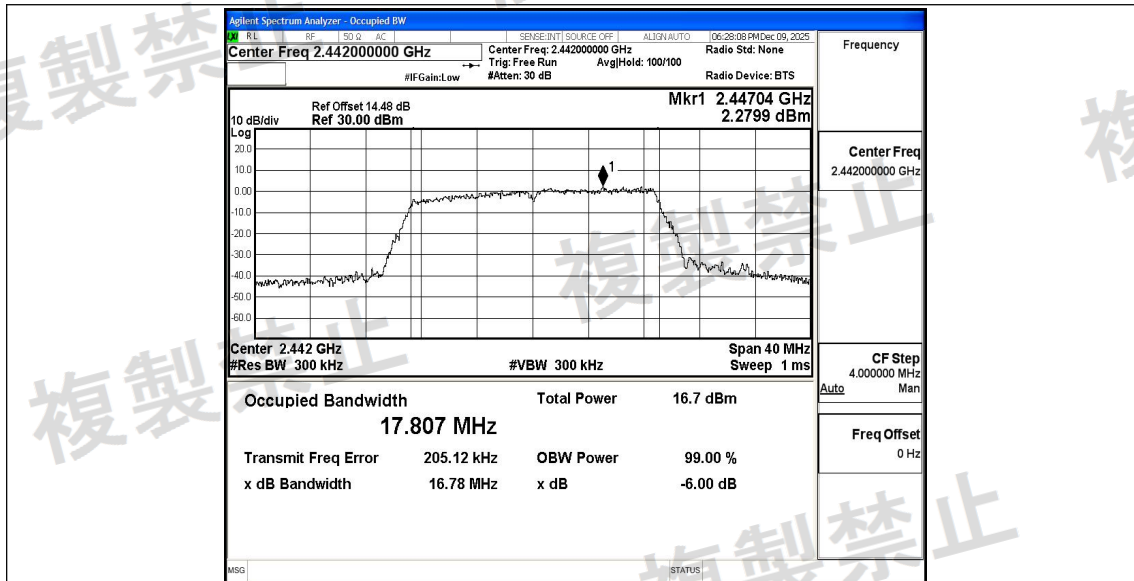
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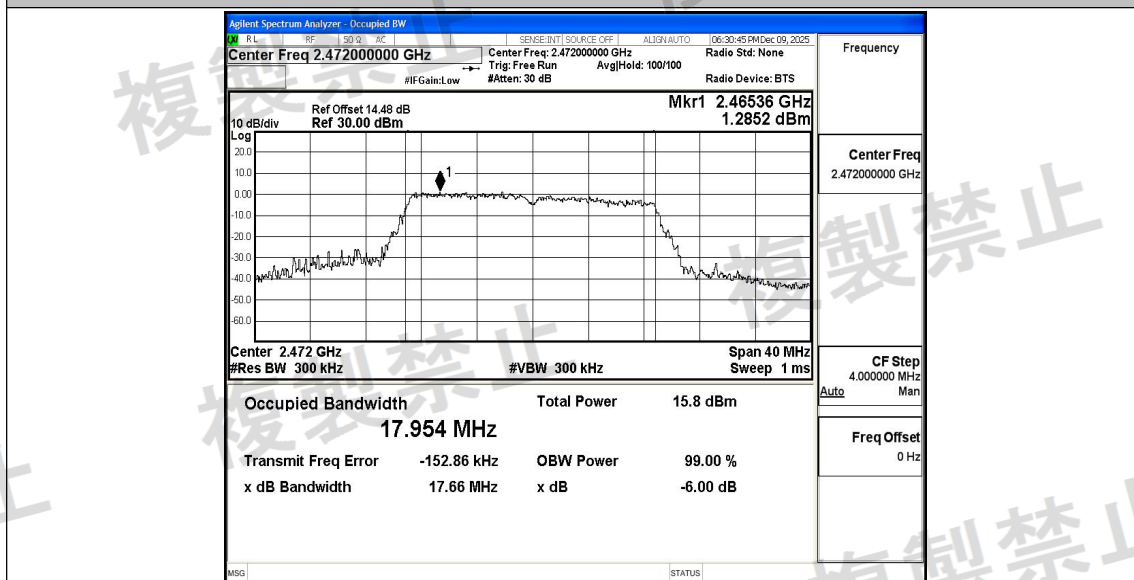
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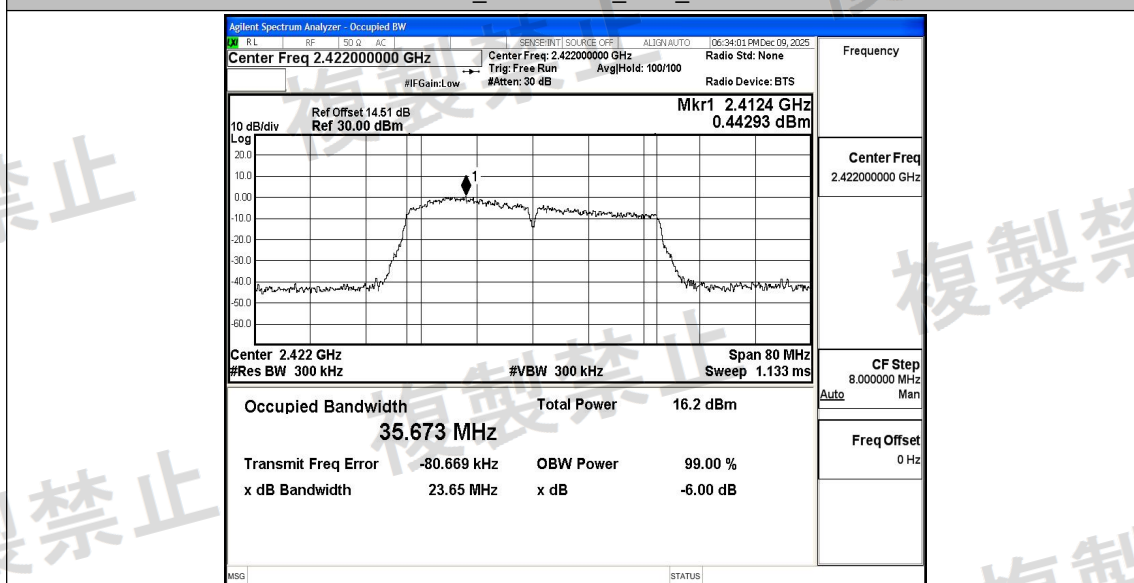
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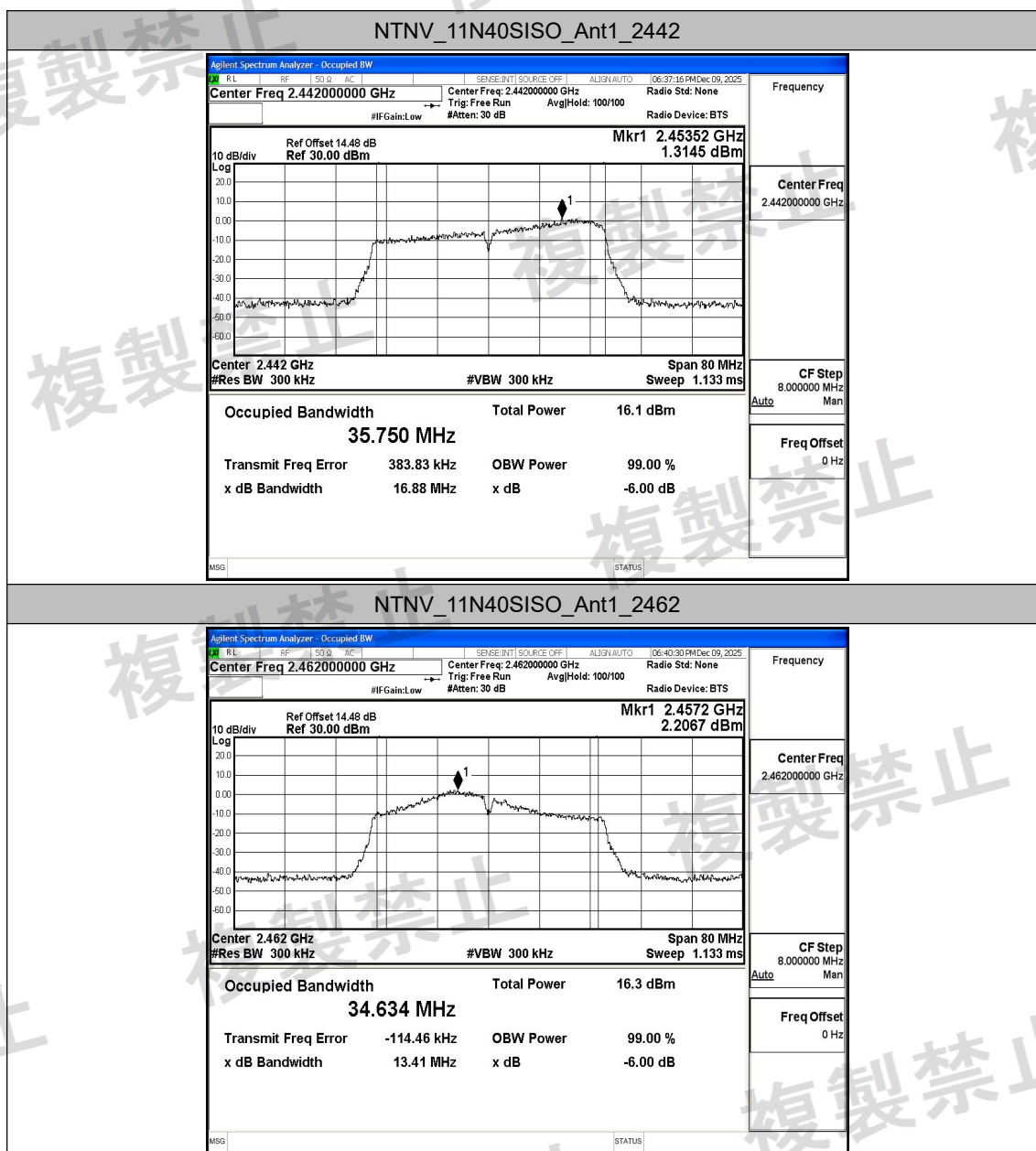


NTNV_11N20SISO_Ant1_2472



NTNV_11N40SISO_Ant1_2422



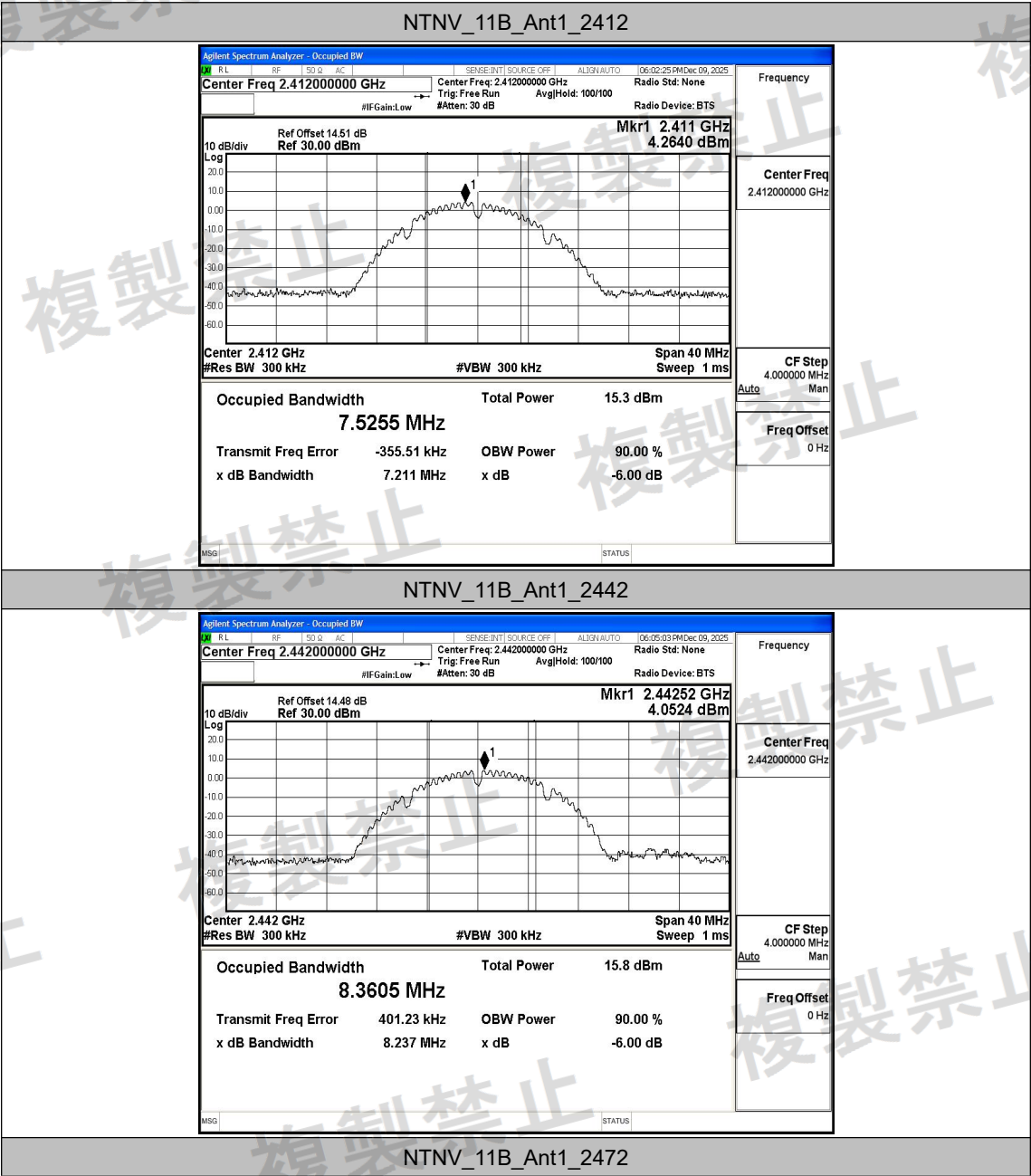


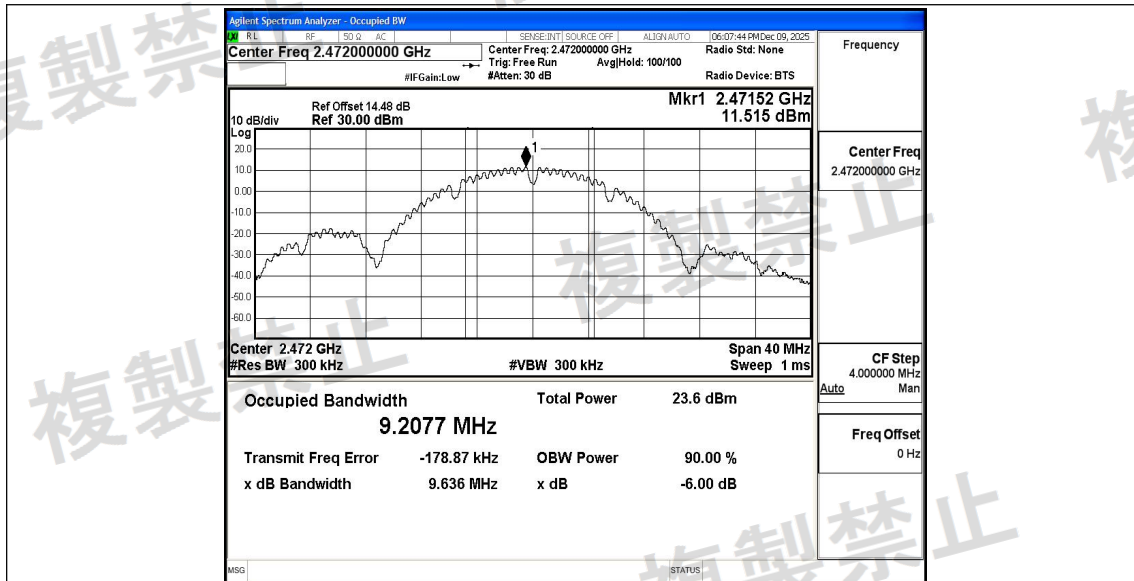
C.4 Spread Bandwidth

Test Result

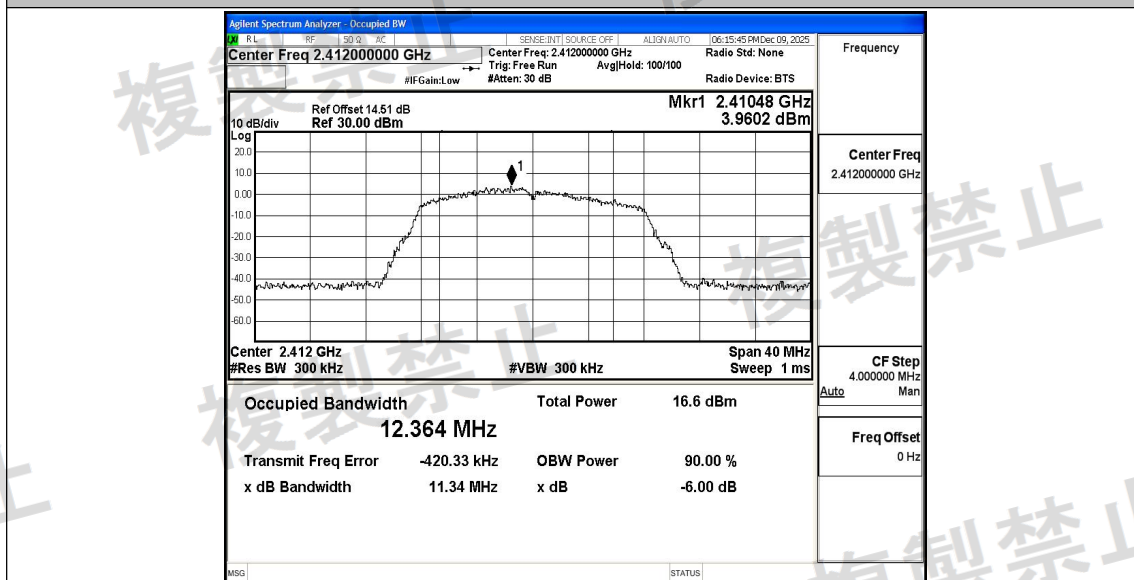
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NTNV	11B	Ant1	2412	7.526	≥0.5	PASS
			2442	8.361	≥0.5	PASS
			2472	9.208	≥0.5	PASS
	11G	Ant1	2412	12.364	≥0.5	PASS
			2442	14.101	≥0.5	PASS
			2472	14.622	≥0.5	PASS
	11N20SISO	Ant1	2412	12.999	≥0.5	PASS
			2442	15.058	≥0.5	PASS
			2472	15.708	≥0.5	PASS
	11N40SISO	Ant1	2422	29.422	≥0.5	PASS
			2442	28.476	≥0.5	PASS
			2462	22.333	≥0.5	PASS

Test Graphs

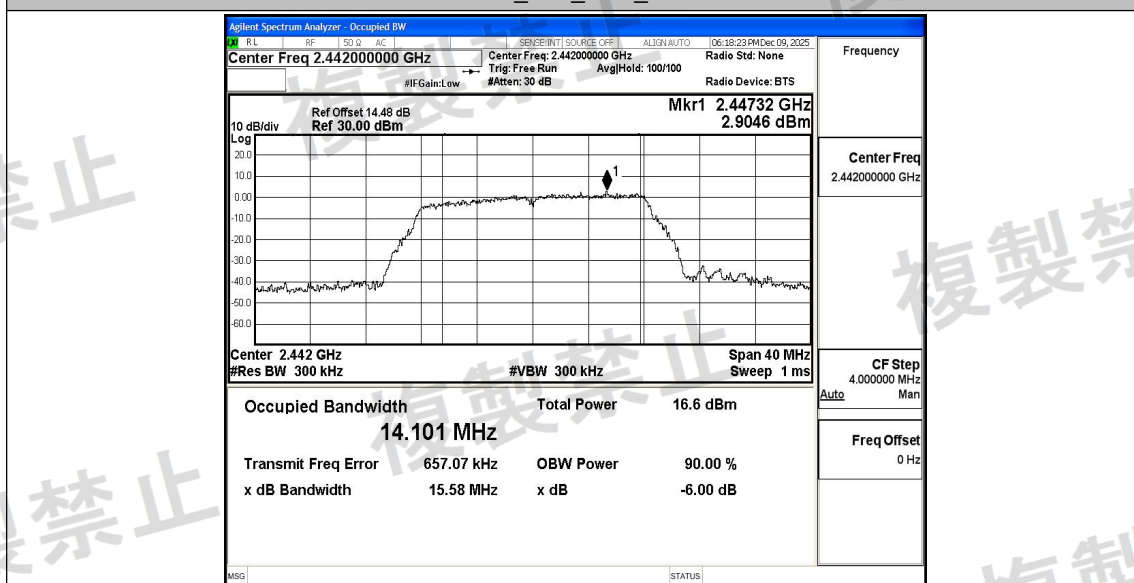




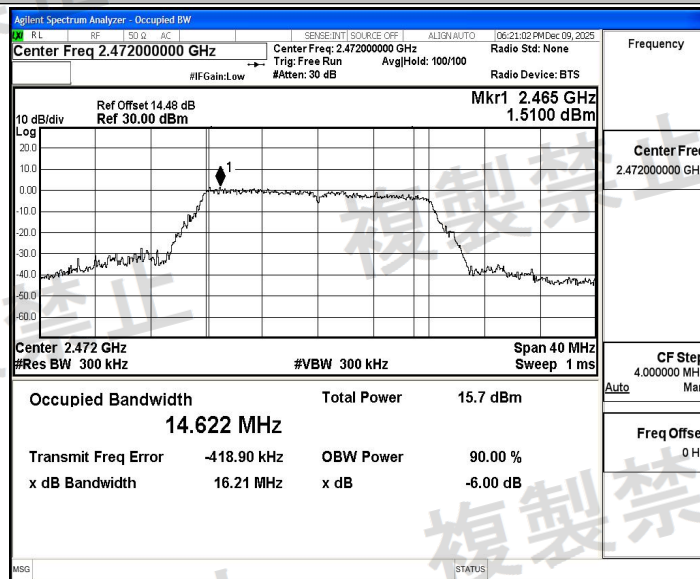
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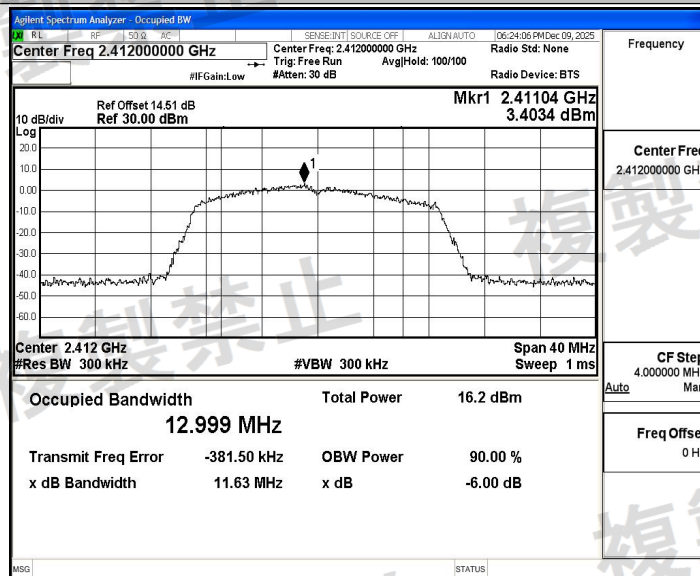
NTNV_11G_Ant1_2442



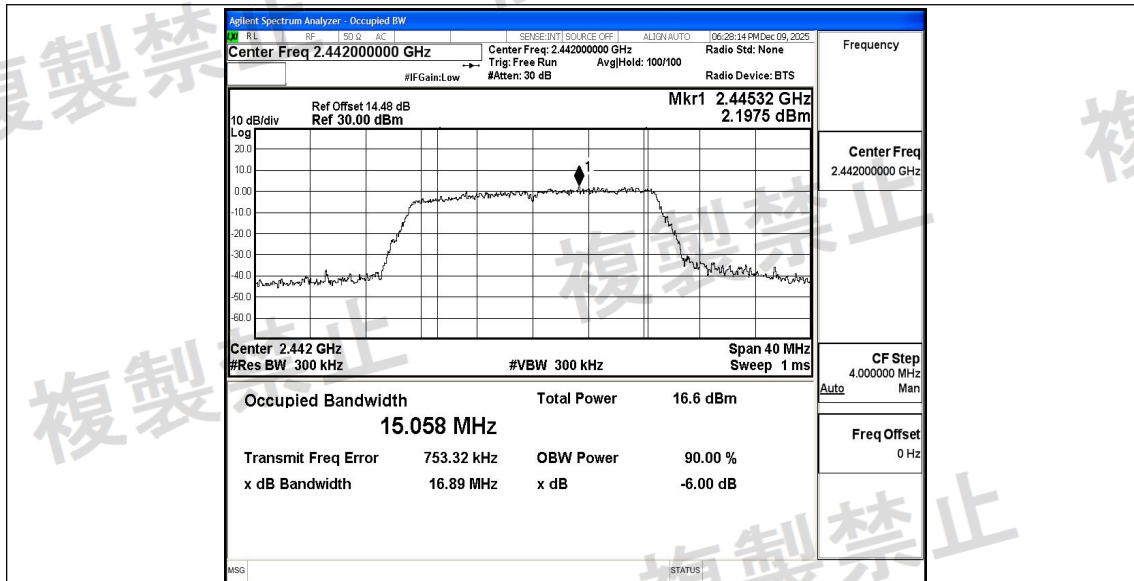
NTNV_11G_Ant1_2472



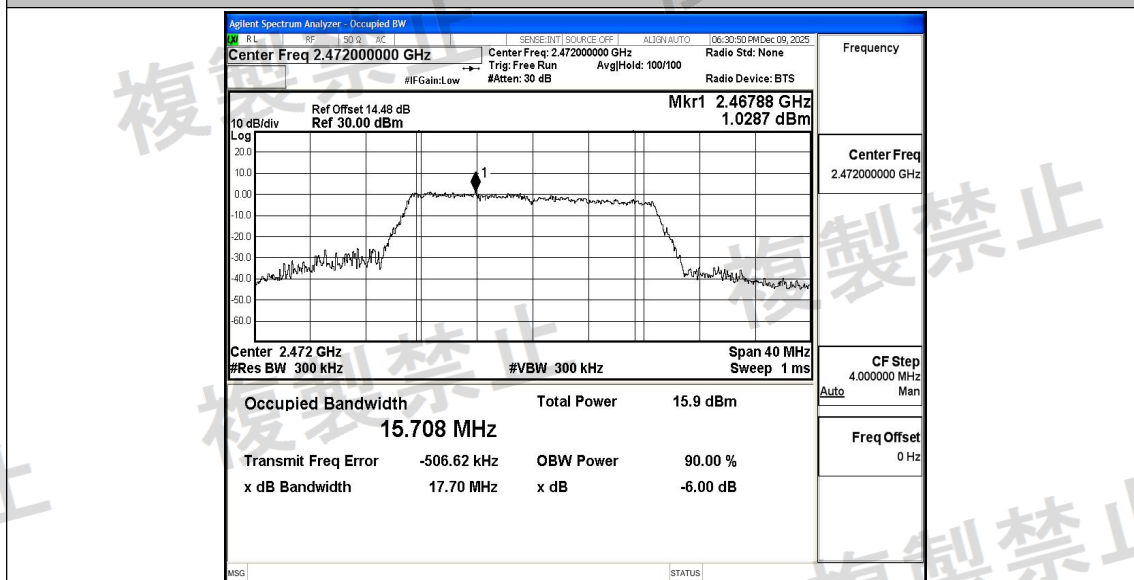
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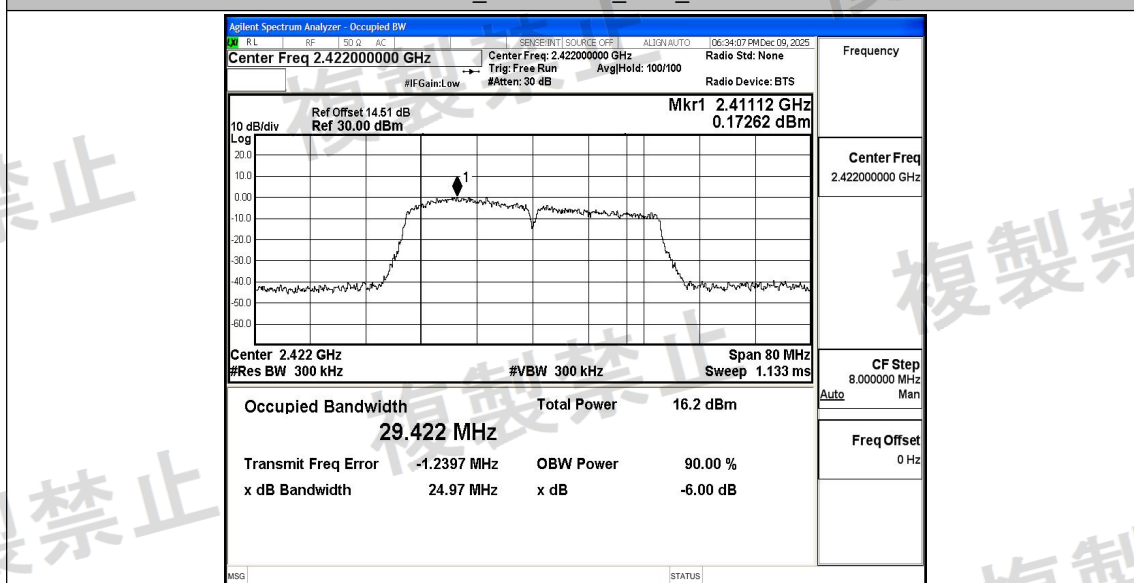
NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



NTNV_11N40SISO_Ant1_2422





C.5 Spurious Emission of TX

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11B	Ant1	2412	30~1000	-43.99	≤-26	0.03990	≤2.5	PASS
				1000~2387	-35.95	≤-26	0.25410	≤2.5	PASS
				2387~2400	-43.27	≤-16	0.04710	≤25	PASS
				2483.5~2496.5	-43.25	≤-16	0.04732	≤25	PASS
				2496.5~13000	-45.29	≤-26	0.02958	≤2.5	PASS
		Ant1	2442	30~1000	-53.92	≤-26	0.00406	≤2.5	PASS
				1000~2387	-52.36	≤-26	0.00581	≤2.5	PASS
				2387~2400	-42.98	≤-16	0.05035	≤25	PASS
				2483.5~2496.5	-42.52	≤-16	0.05598	≤25	PASS
				2496.5~13000	-37.96	≤-26	0.15996	≤2.5	PASS
		Ant1	2472	30~1000	-53.70	≤-26	0.00427	≤2.5	PASS
				1000~2387	-52.64	≤-26	0.00545	≤2.5	PASS
				2387~2400	-43.23	≤-16	0.04753	≤25	PASS
				2483.5~2496.5	-26.02	≤-16	2.50035	≤25	PASS
				2496.5~13000	-37.70	≤-26	0.16982	≤2.5	PASS
	11G	Ant1	2412	30~1000	-53.88	≤-26	0.00409	≤2.5	PASS
				1000~2387	-52.75	≤-26	0.00531	≤2.5	PASS
				2387~2400	-42.58	≤-16	0.05521	≤25	PASS
				2483.5~2496.5	-43.12	≤-16	0.04875	≤25	PASS
				2496.5~13000	-45.48	≤-26	0.02831	≤2.5	PASS
		Ant1	2442	30~1000	-53.63	≤-26	0.00434	≤2.5	PASS
				1000~2387	-52.82	≤-26	0.00522	≤2.5	PASS
				2387~2400	-43.13	≤-16	0.04864	≤25	PASS
				2483.5~2496.5	-43.01	≤-16	0.05000	≤25	PASS
				2496.5~13000	-39.13	≤-26	0.12218	≤2.5	PASS
		Ant1	2472	30~1000	-53.69	≤-26	0.00428	≤2.5	PASS
				1000~2387	-52.86	≤-26	0.00518	≤2.5	PASS
				2387~2400	-43.60	≤-16	0.04365	≤25	PASS
				2483.5~2496.5	-37.48	≤-16	0.17865	≤25	PASS
				2496.5~13000	-45.65	≤-26	0.02723	≤2.5	PASS
	11N20SISO	Ant1	2412	30~1000	-53.81	≤-26	0.00416	≤2.5	PASS
				1000~2387	-36.66	≤-26	0.21577	≤2.5	PASS
				2387~2400	-42.32	≤-16	0.05861	≤25	PASS
				2483.5~2496.5	-43.20	≤-16	0.04786	≤25	PASS
				2496.5~13000	-39.30	≤-26	0.11749	≤2.5	PASS
		Ant1	2442	30~1000	-53.72	≤-26	0.00425	≤2.5	PASS
				1000~2387	-52.60	≤-26	0.00550	≤2.5	PASS

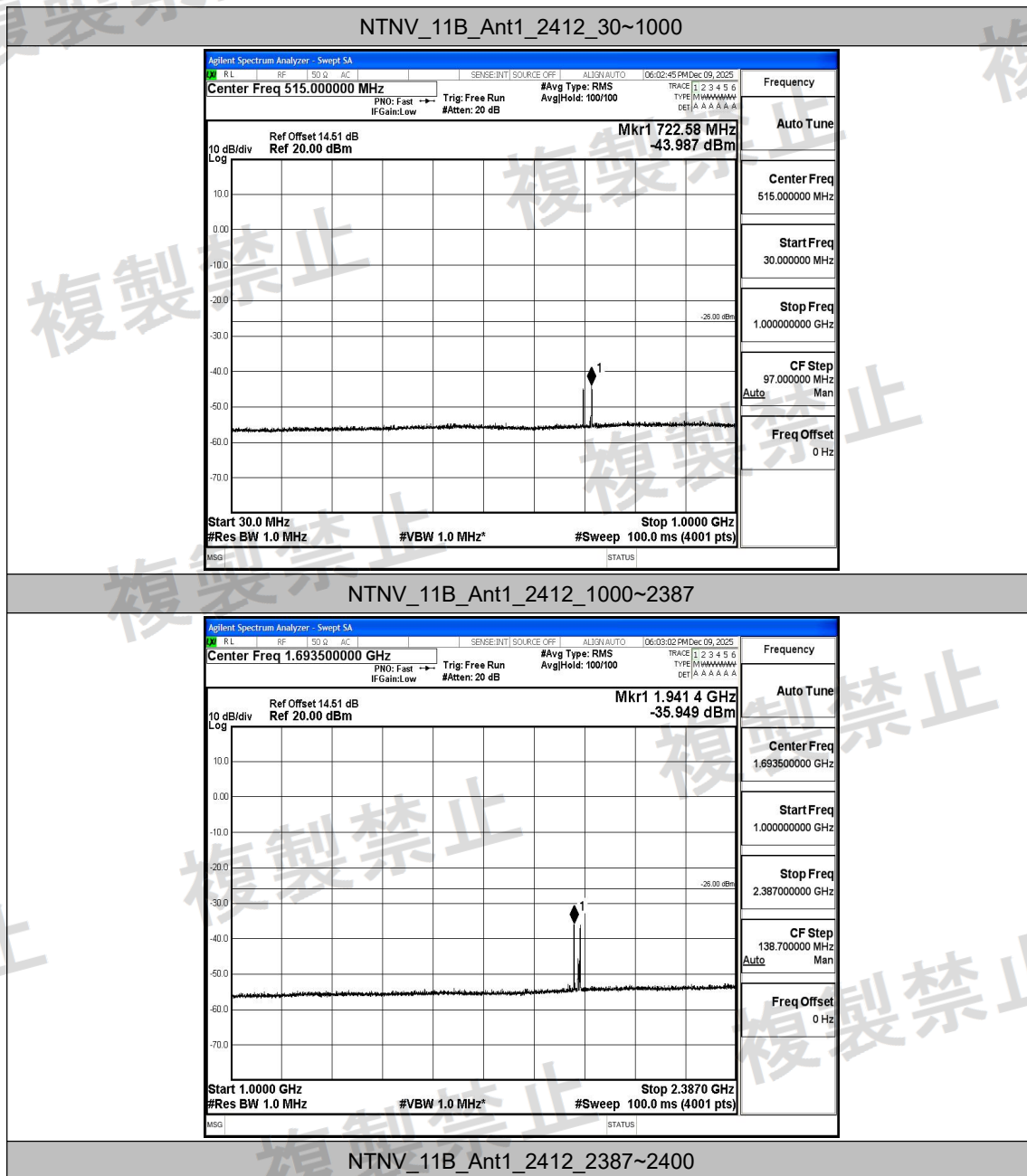
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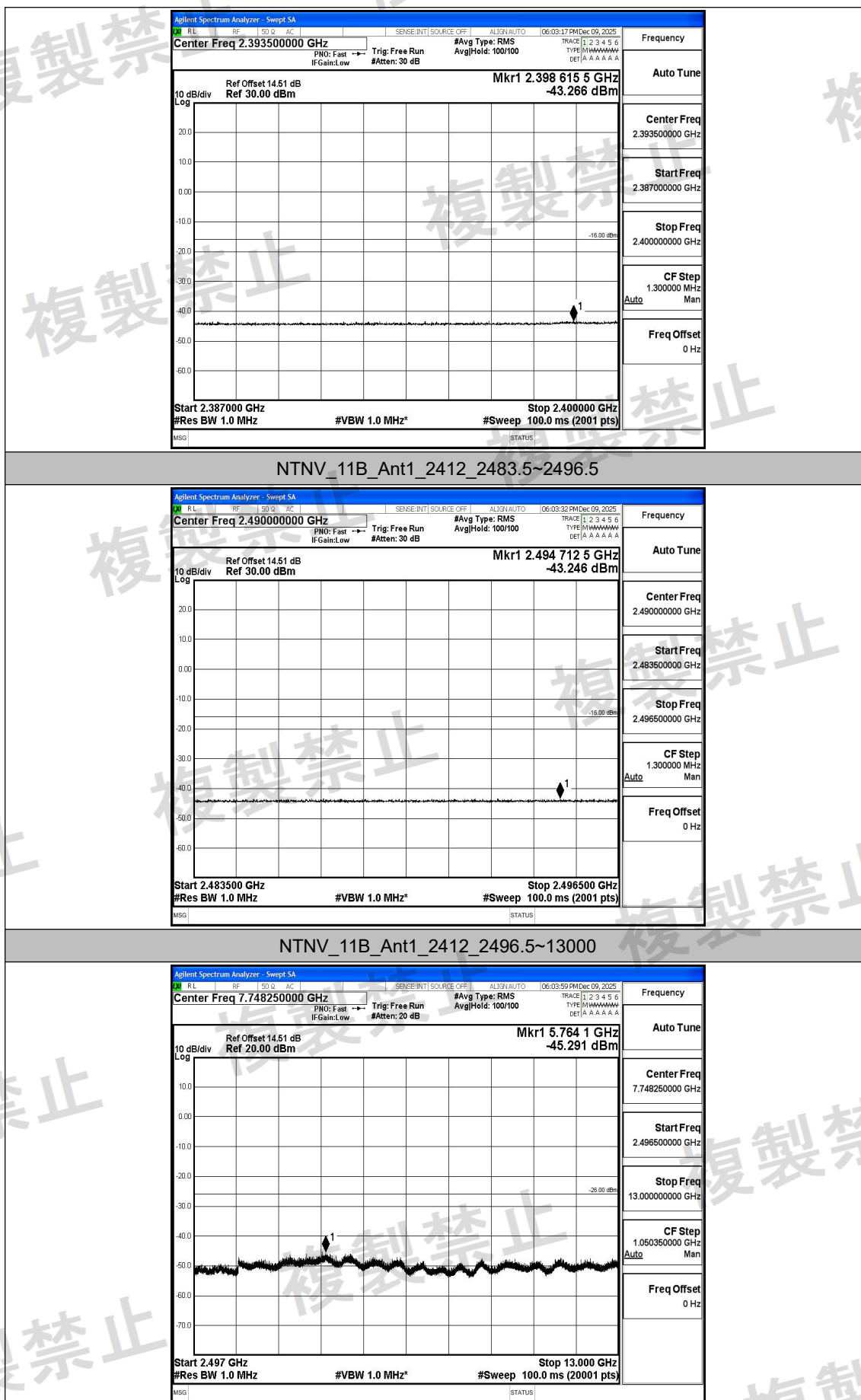
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	11N40SISO	Ant1		2387~2400	-43.34	≤-16	0.04634	≤25	PASS
				2483.5~2496.5	-42.81	≤-16	0.05236	≤25	PASS
				2496.5~13000	-40.53	≤-26	0.08851	≤2.5	PASS
			2472	30~1000	-53.97	≤-26	0.00401	≤2.5	PASS
				1000~2387	-34.51	≤-26	0.35400	≤2.5	PASS
				2387~2400	-43.15	≤-16	0.04842	≤25	PASS
				2483.5~2496.5	-36.69	≤-16	0.21429	≤25	PASS
				2496.5~13000	-45.56	≤-26	0.02780	≤2.5	PASS
			2422	30~1000	-54.04	≤-26	0.00394	≤2.5	PASS
				1000~2387	-51.82	≤-26	0.00658	≤2.5	PASS
				2387~2400	-41.70	≤-16	0.06761	≤25	PASS
				2483.5~2496.5	-43.03	≤-16	0.04977	≤25	PASS
				2496.5~13000	-33.95	≤-26	0.40272	≤2.5	PASS
			2442	30~1000	-53.86	≤-26	0.00411	≤2.5	PASS
				1000~2387	-52.29	≤-26	0.00590	≤2.5	PASS
				2387~2400	-43.50	≤-16	0.04467	≤25	PASS
				2483.5~2496.5	-43.20	≤-16	0.04786	≤25	PASS
				2496.5~13000	-39.43	≤-26	0.11402	≤2.5	PASS
			2462	30~1000	-53.77	≤-26	0.00420	≤2.5	PASS
				1000~2387	-51.73	≤-26	0.00671	≤2.5	PASS
				2387~2400	-43.37	≤-16	0.04603	≤25	PASS
				2483.5~2496.5	-40.30	≤-16	0.09333	≤25	PASS
				2496.5~13000	-45.68	≤-26	0.02704	≤2.5	PASS

Test Graphs

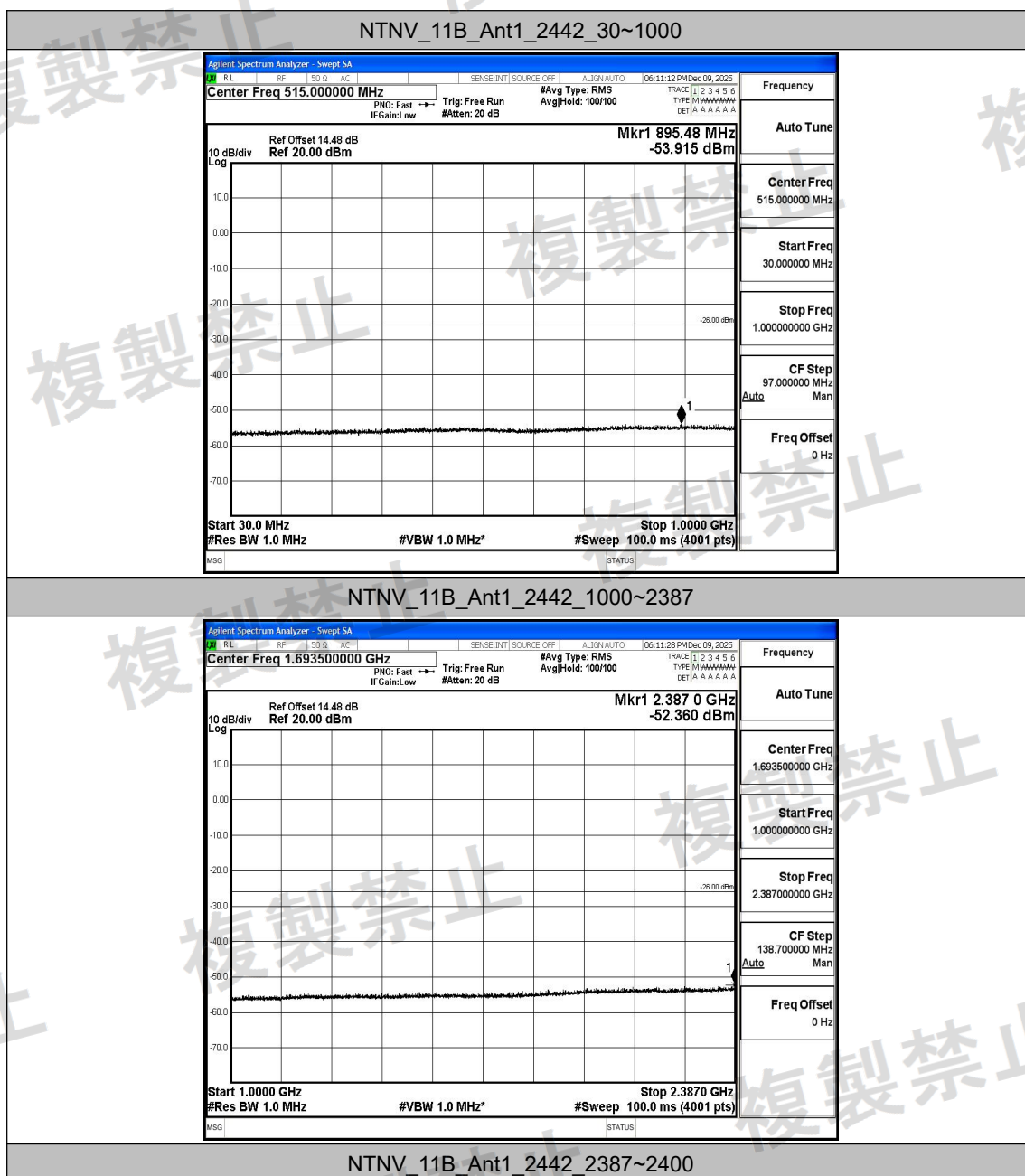


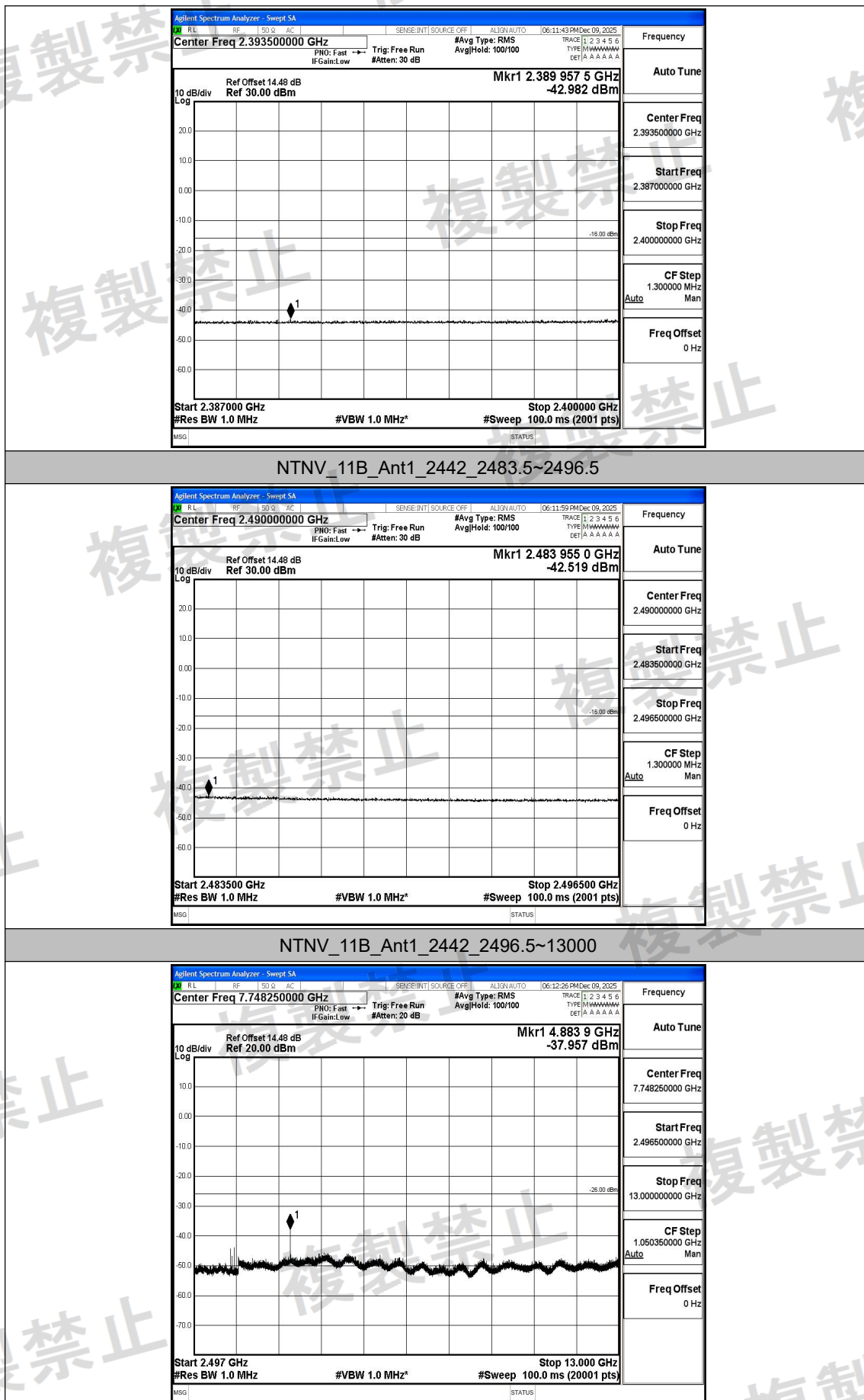


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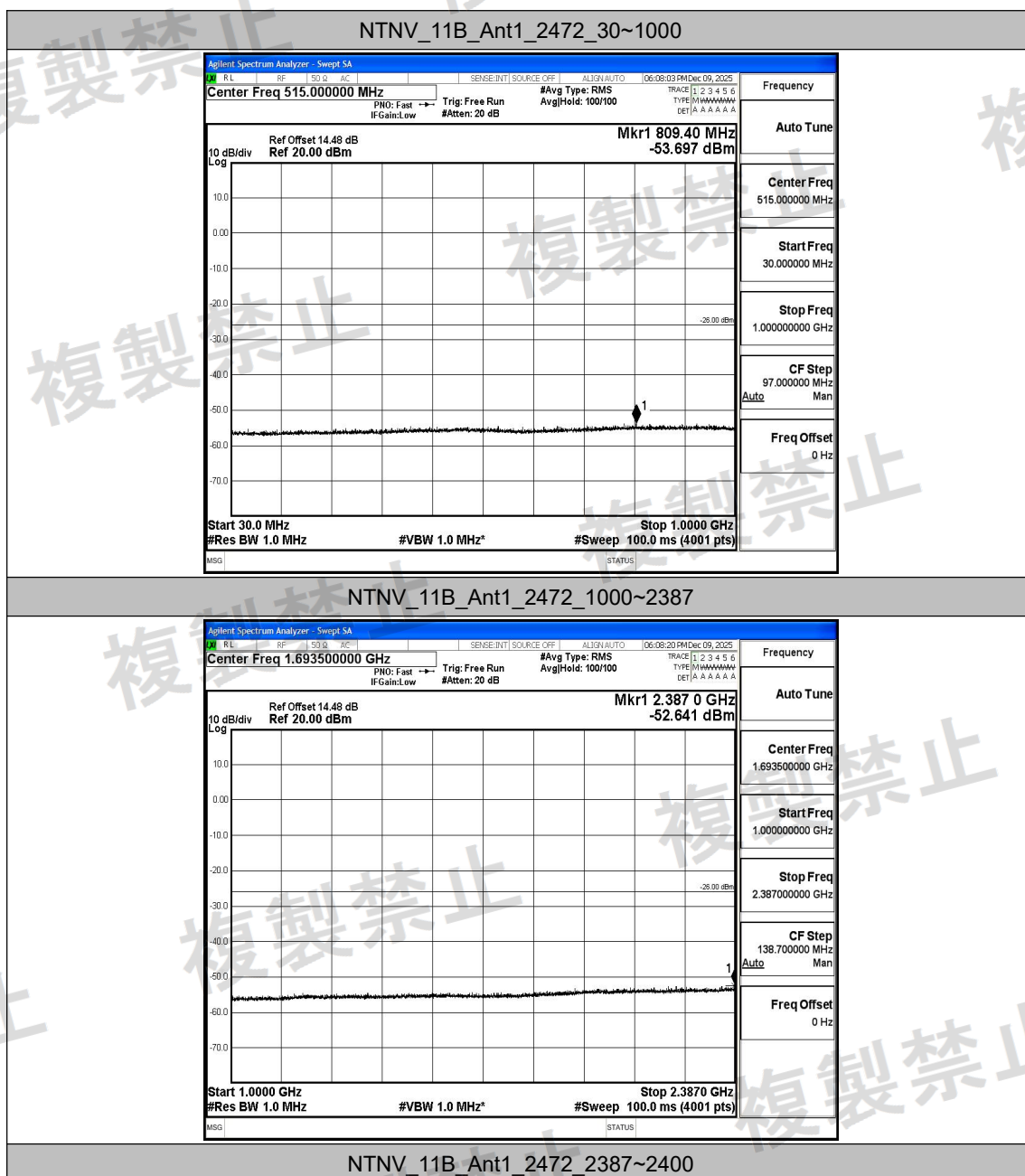


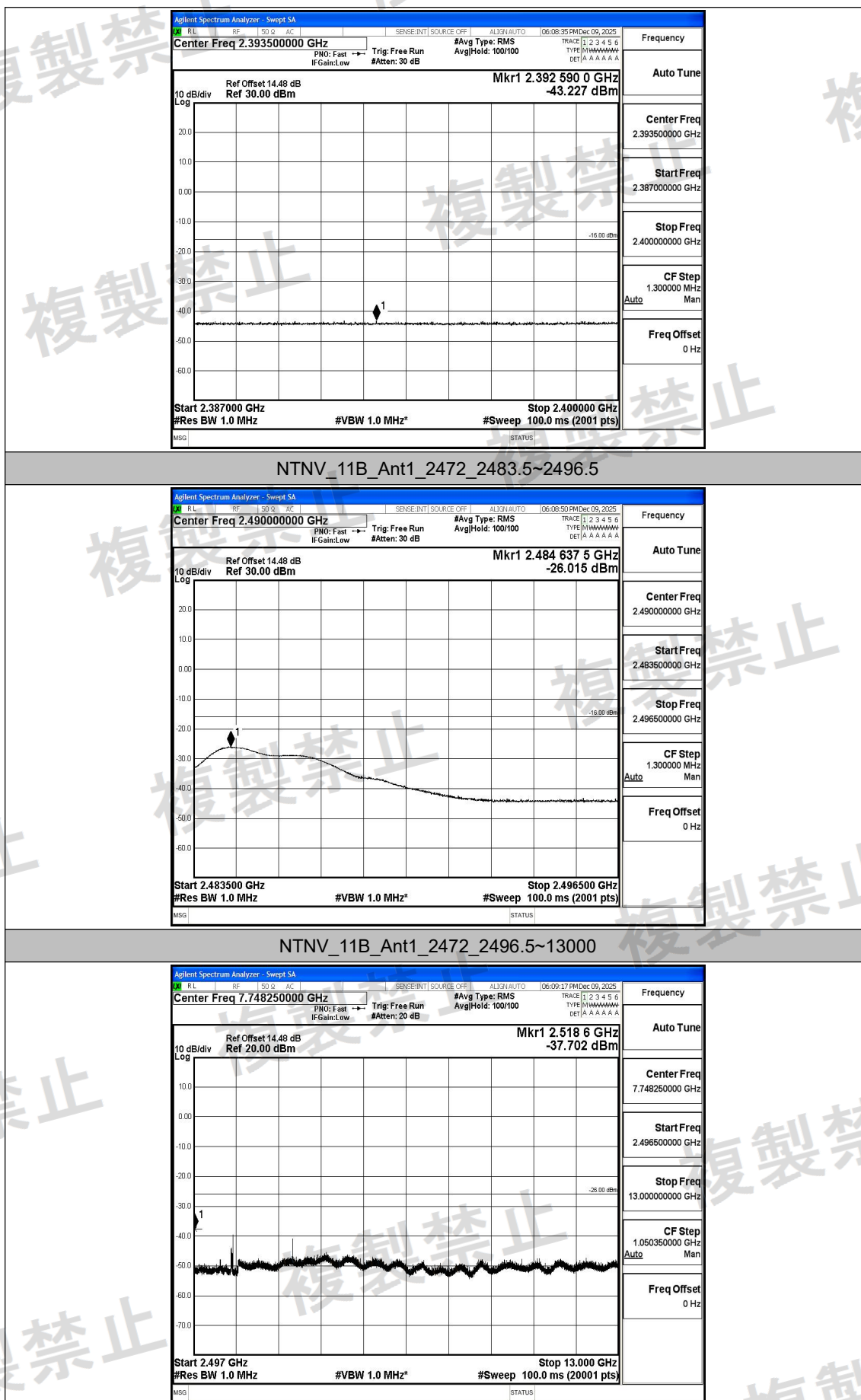


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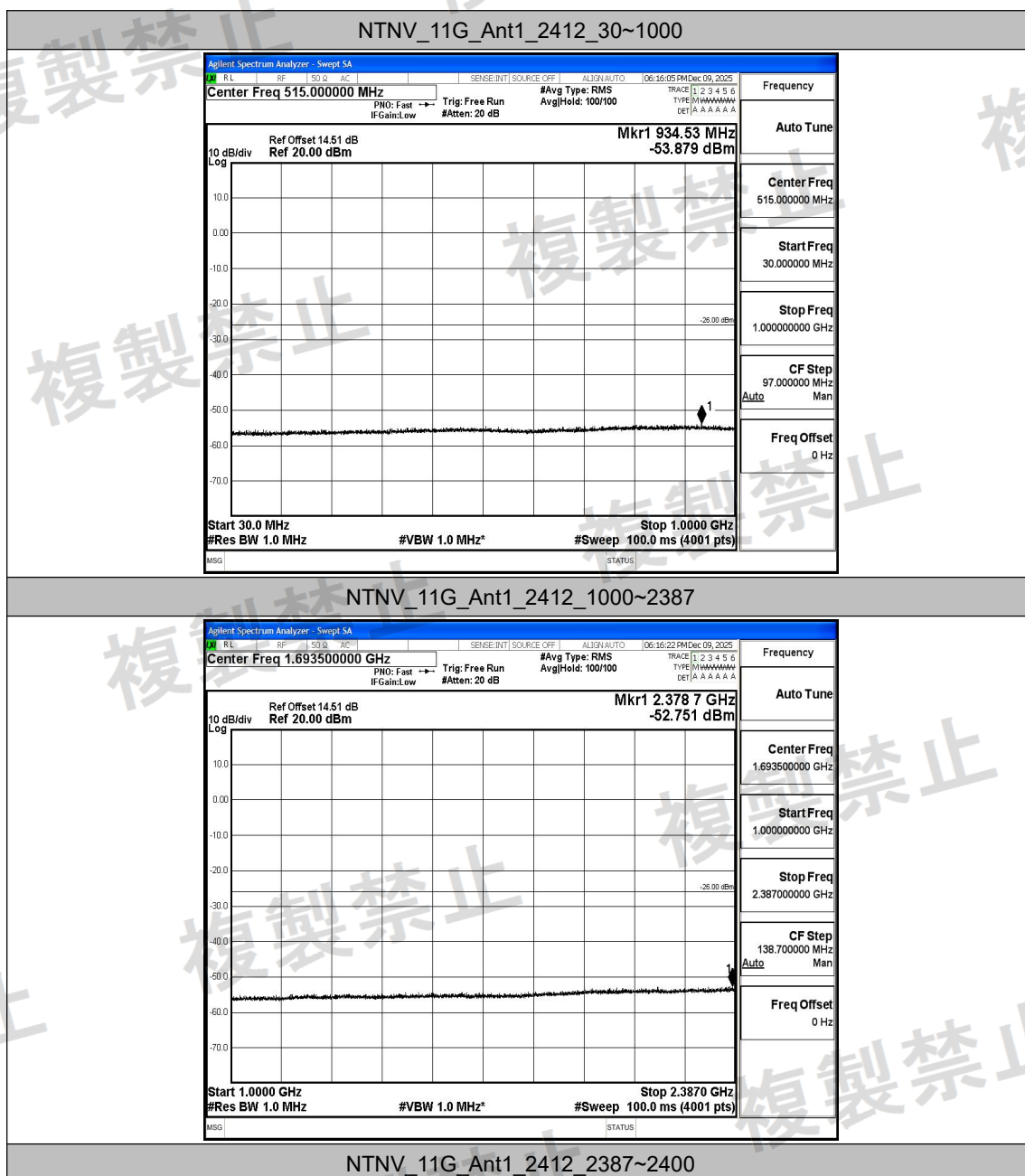


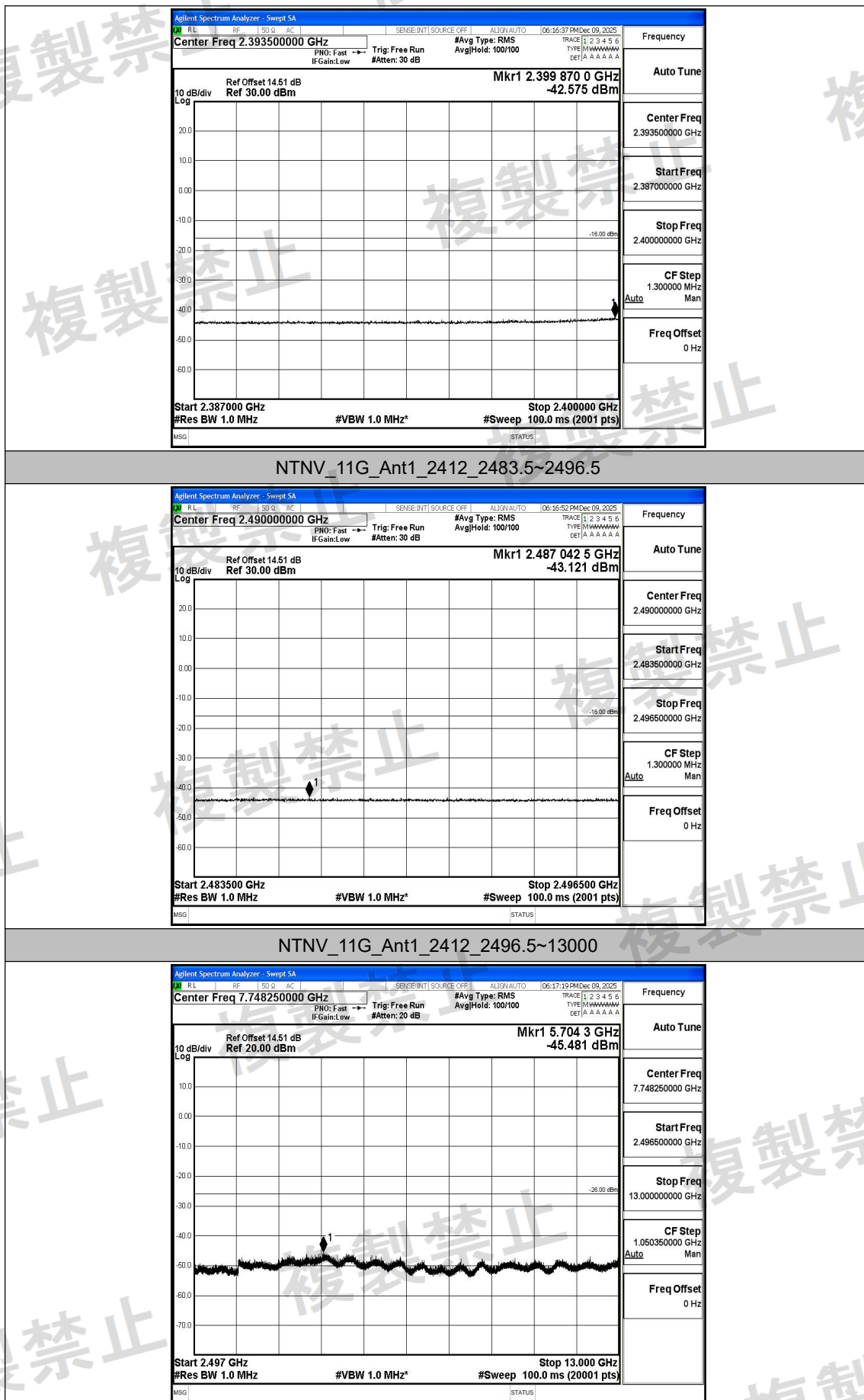


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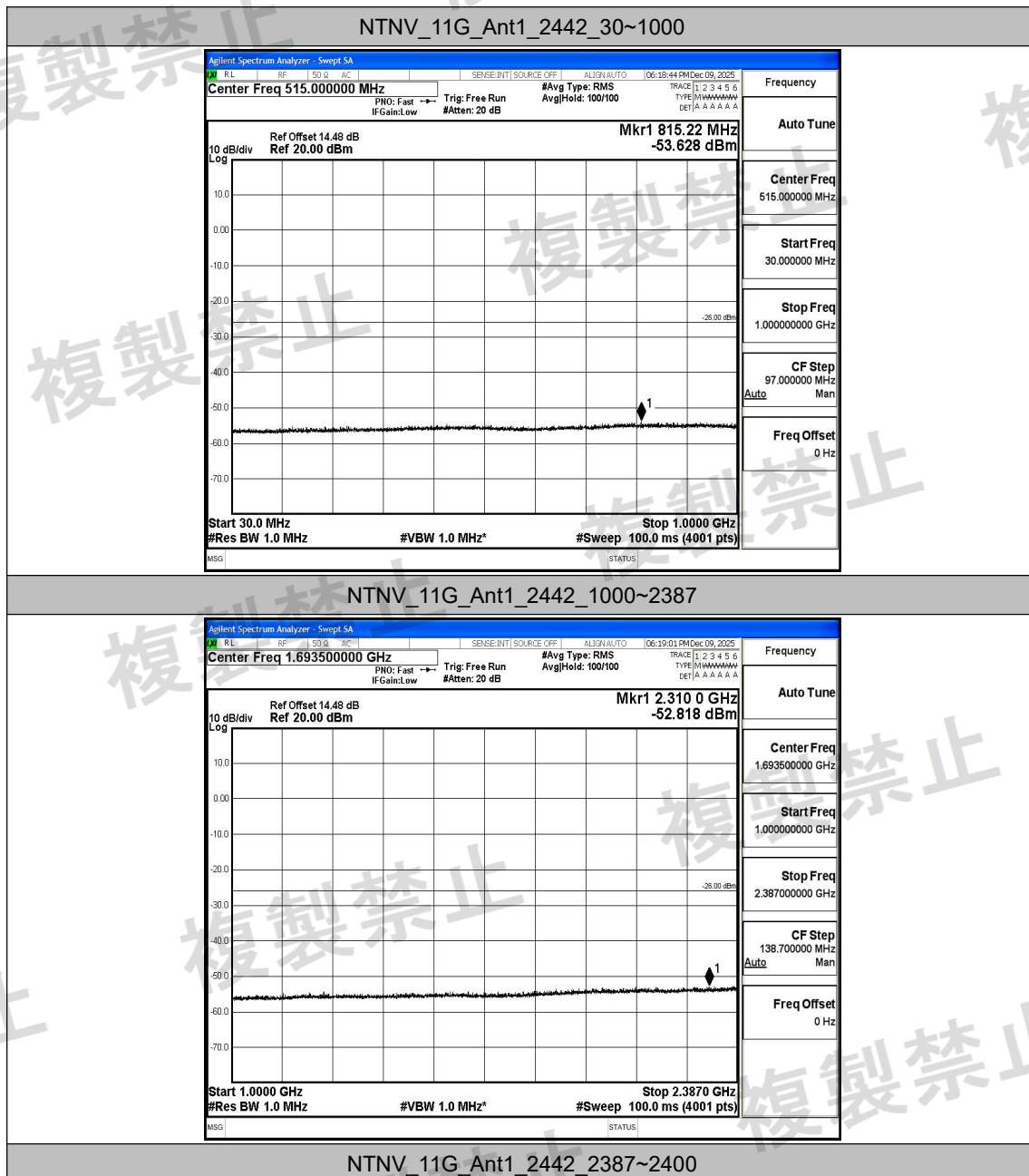


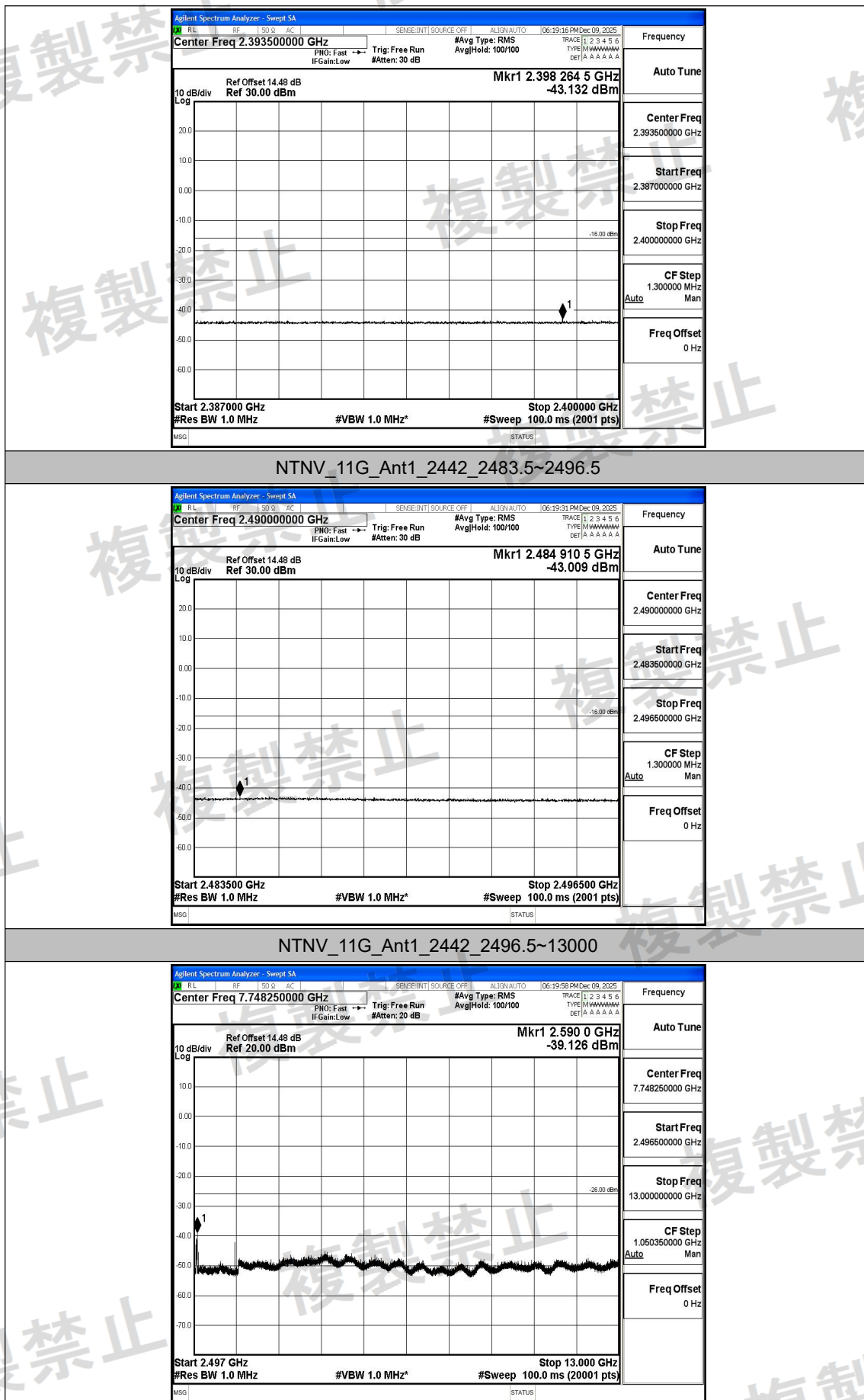


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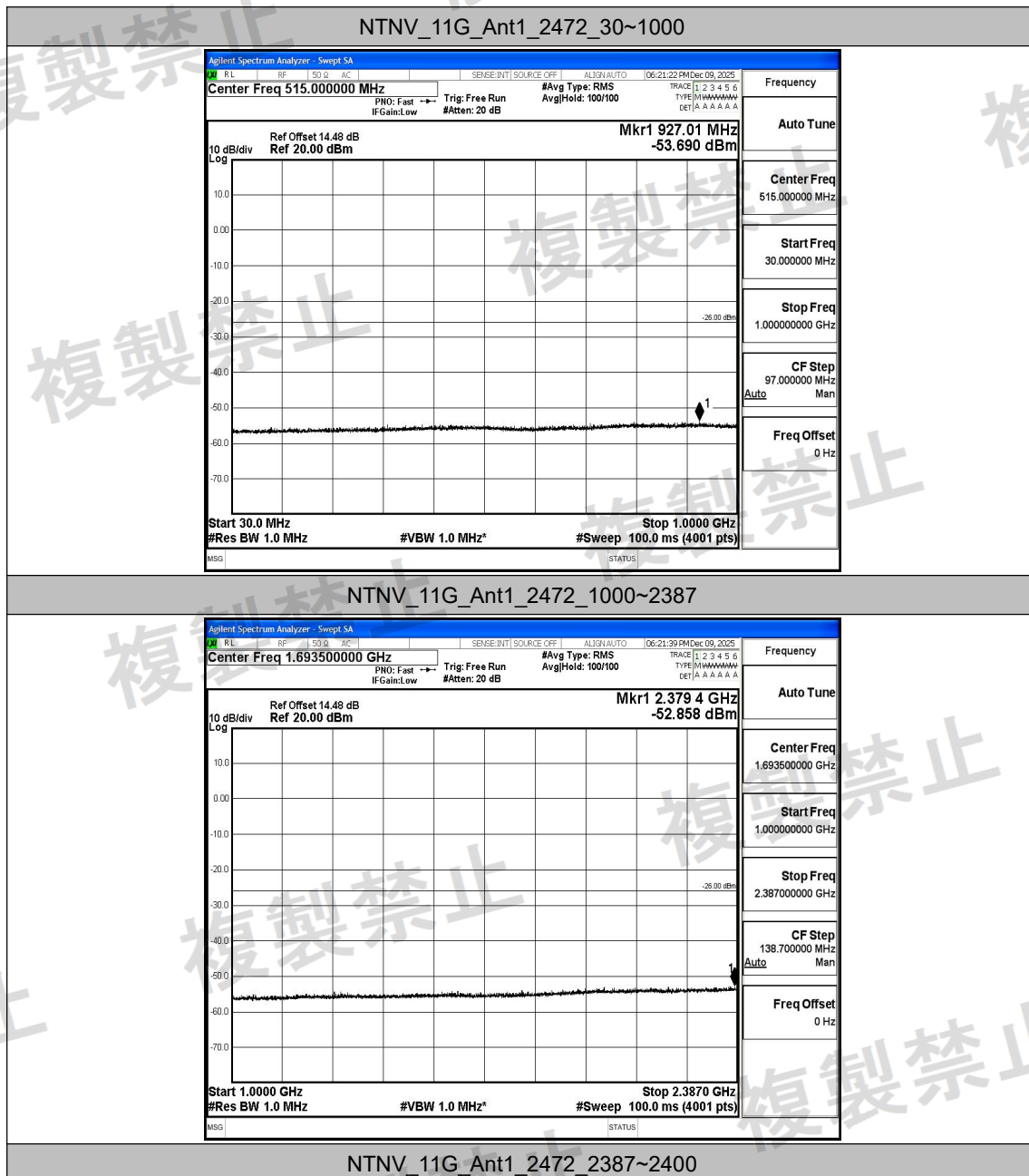


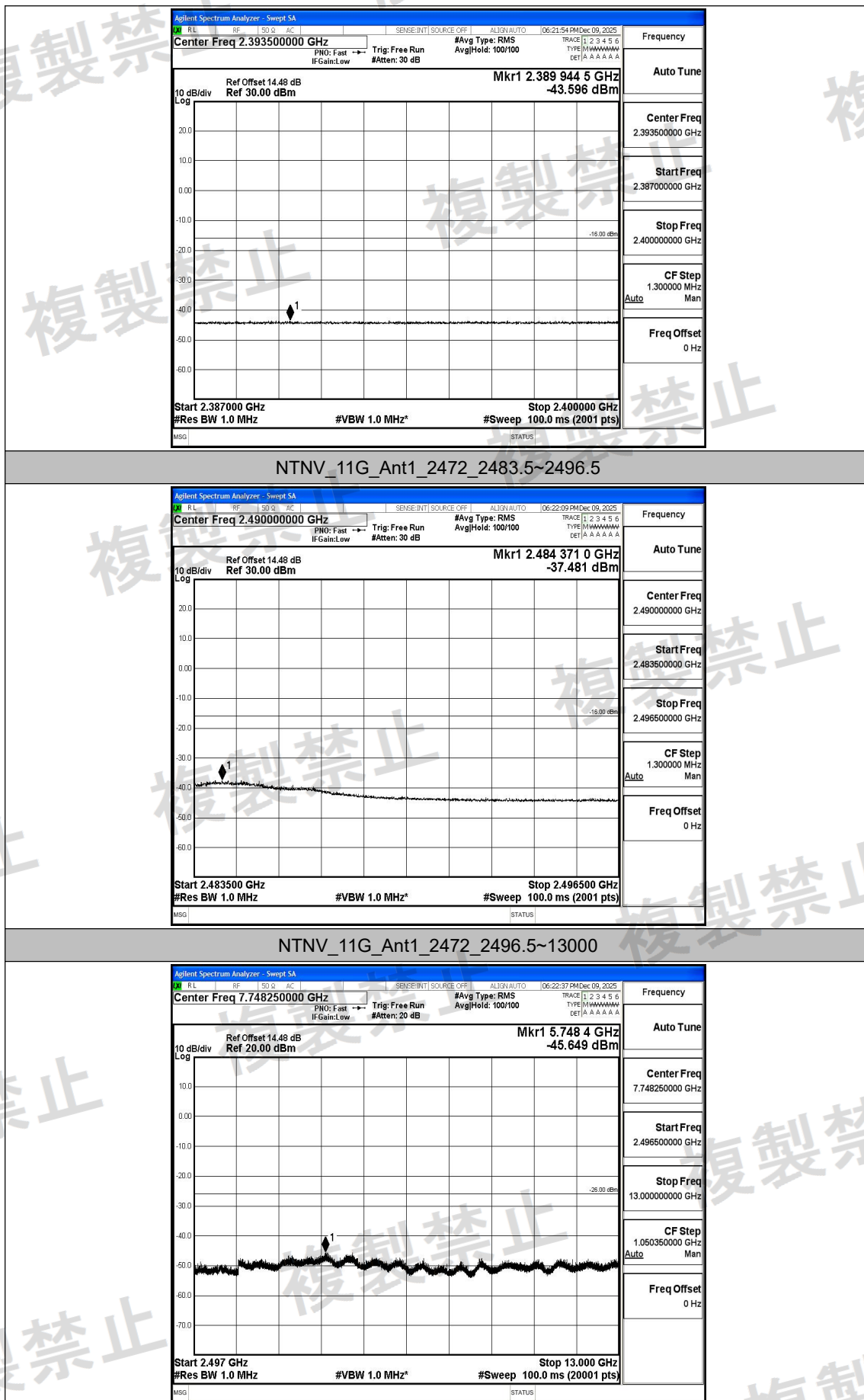


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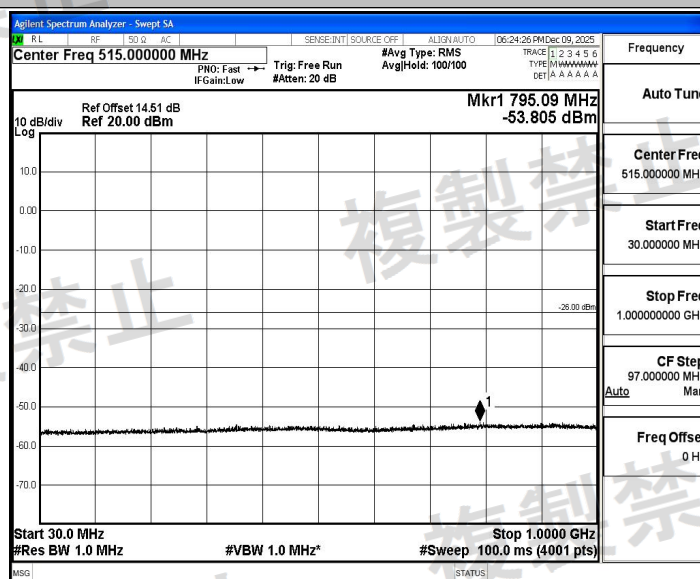


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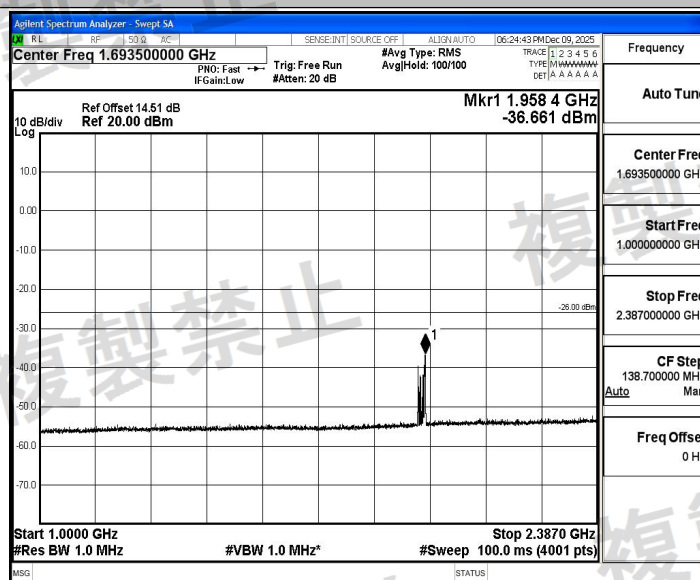
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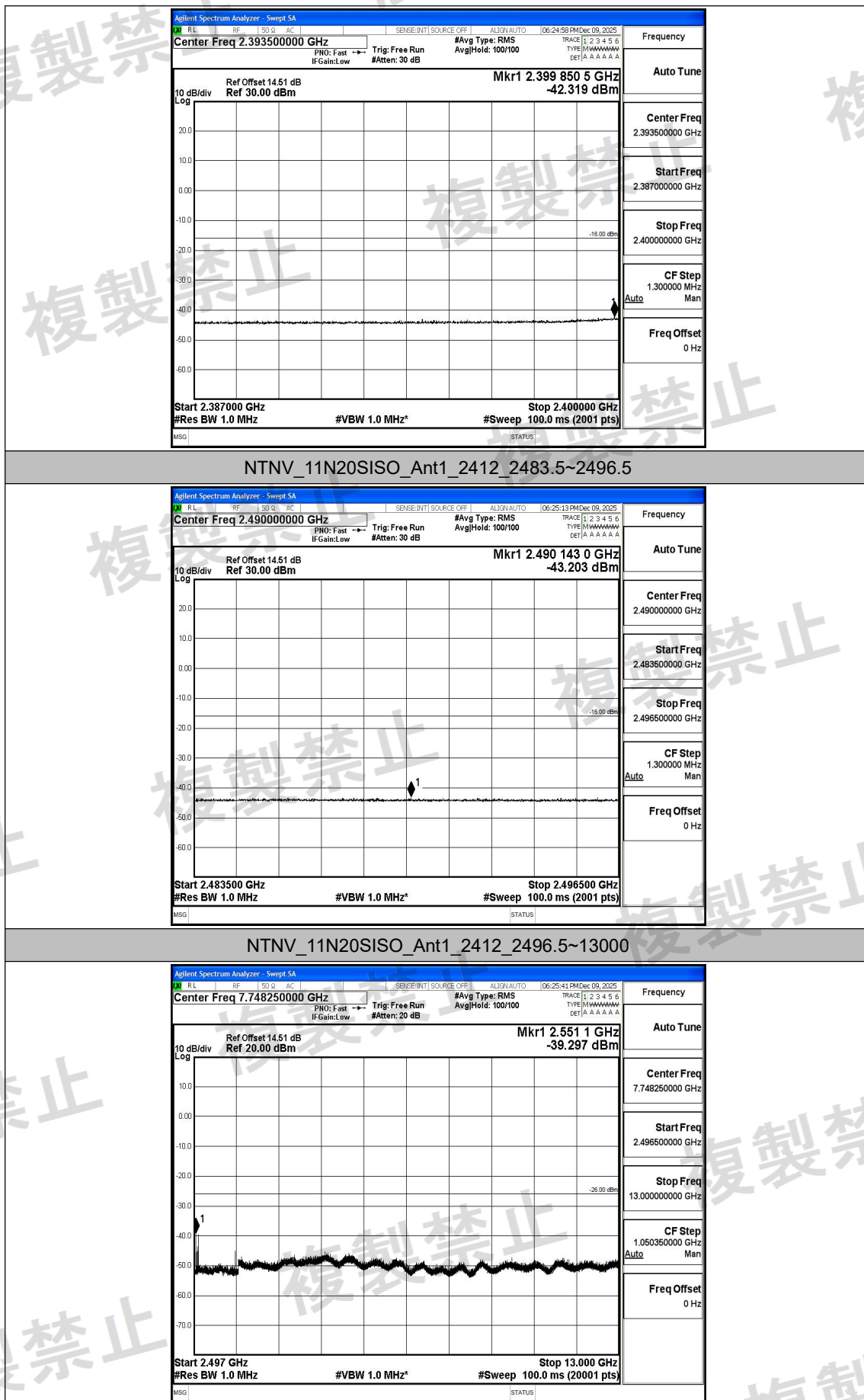
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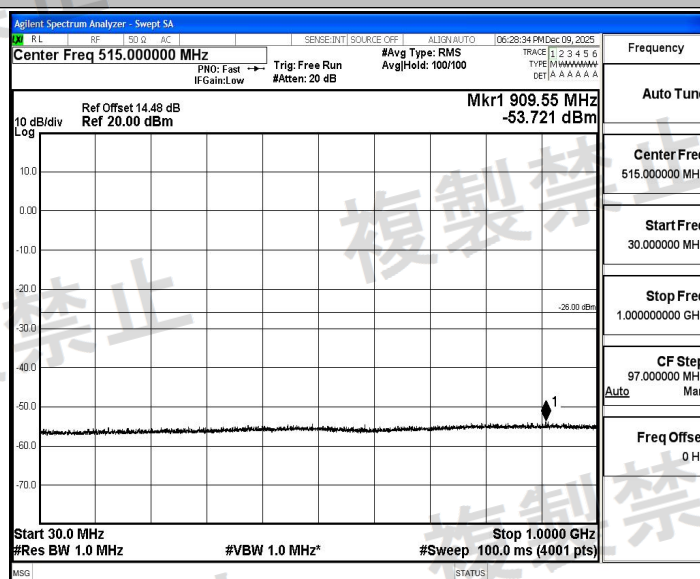


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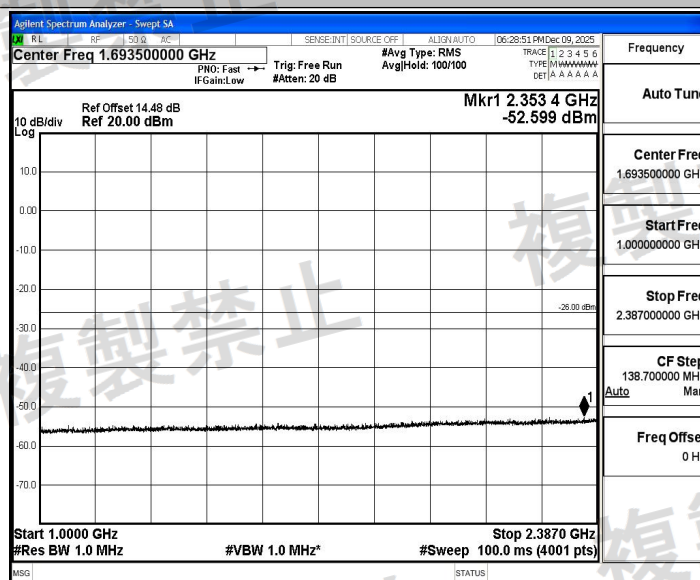
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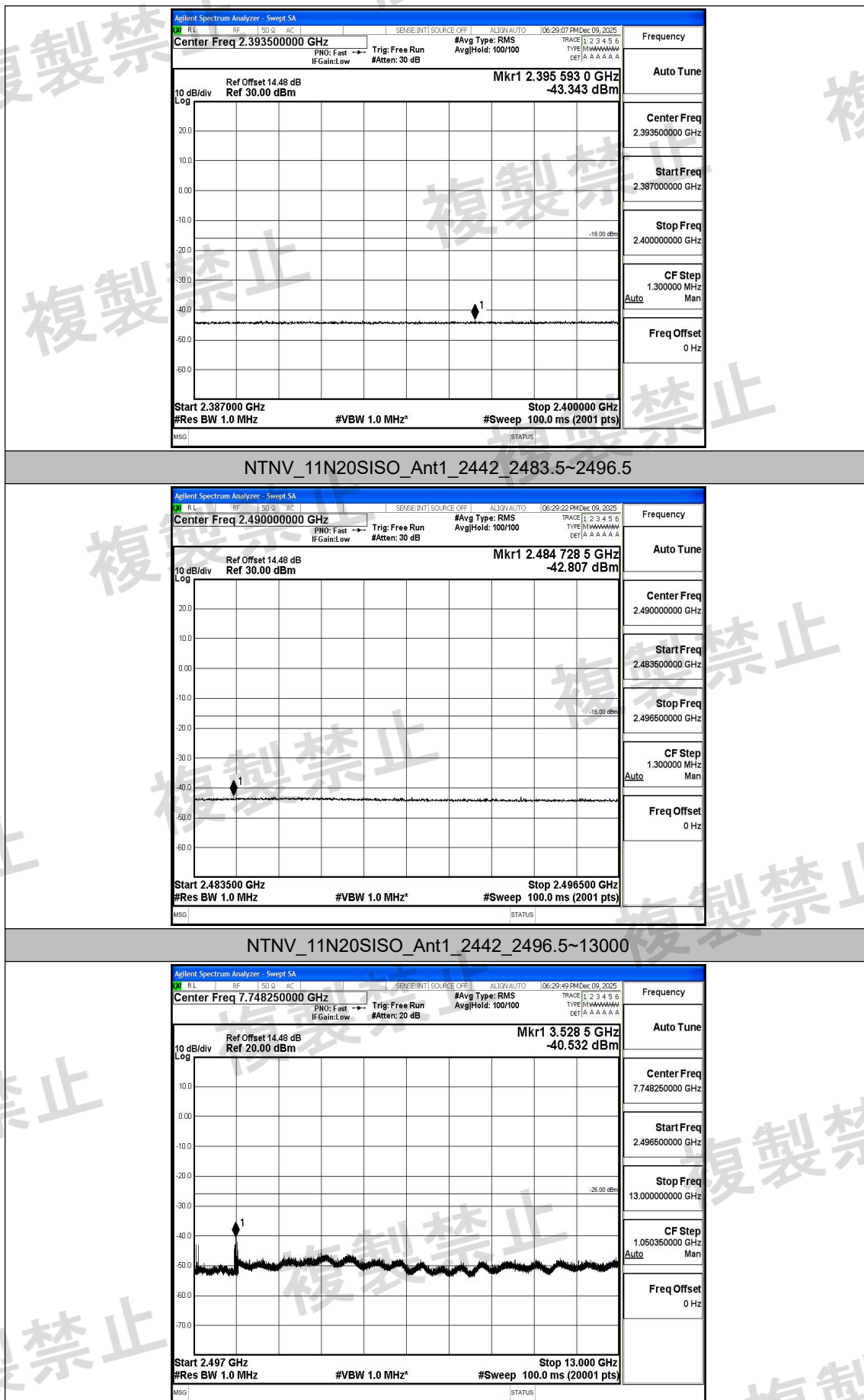
NTNV_11N20SISO_Ant1_2442_30~1000



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NTNV_11N20SISO_Ant1_2442_2387~2400

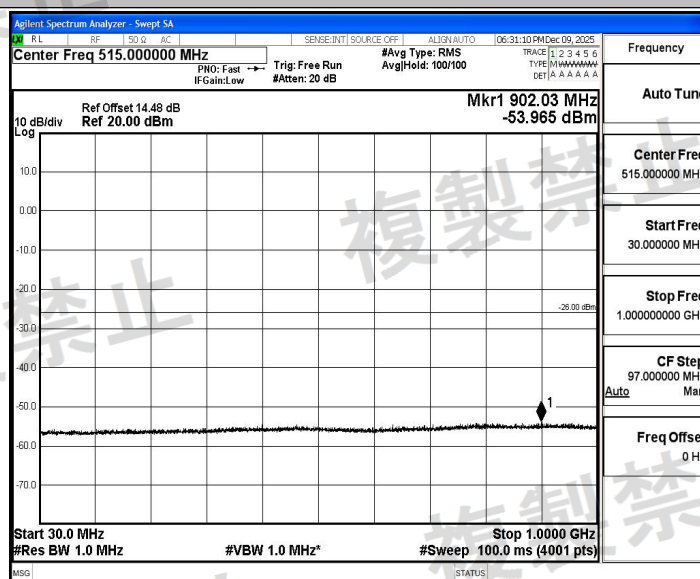


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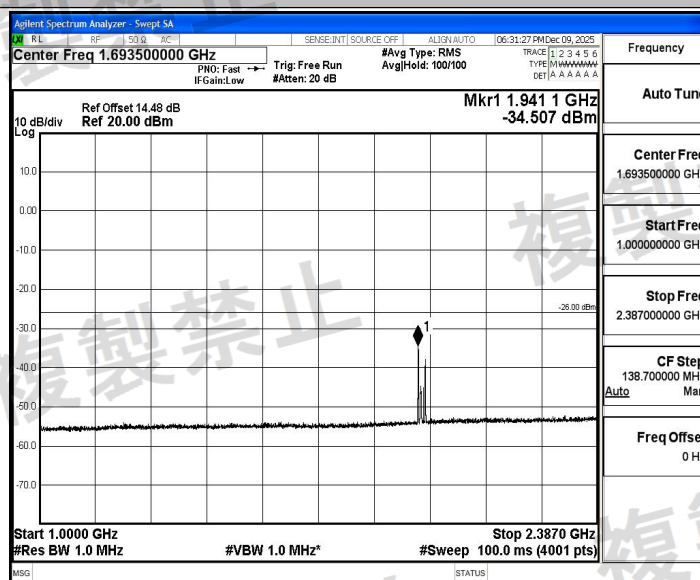
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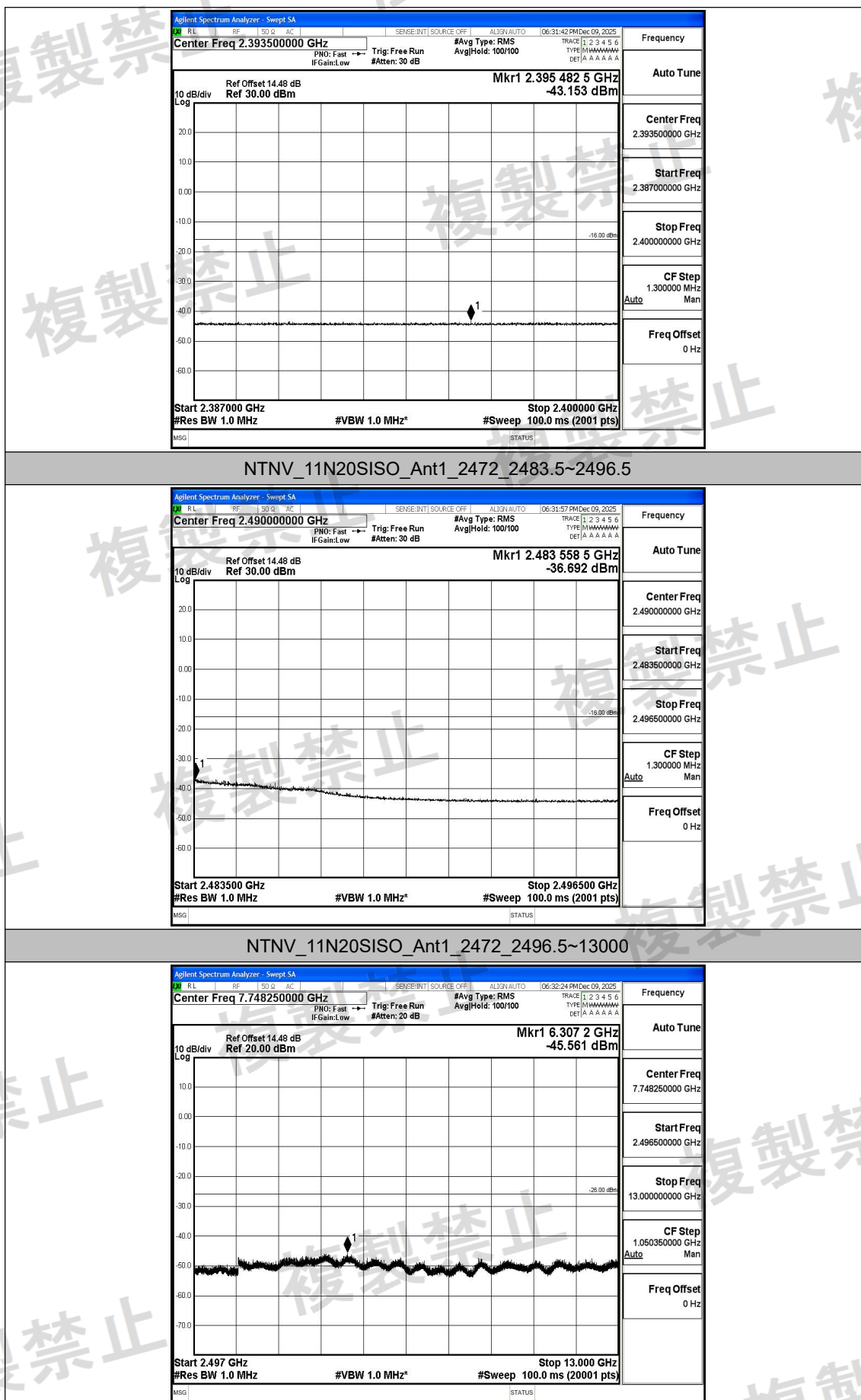
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NTNV_11N20SISO_Ant1_2472_1000~2387



NTNV_11N20SISO_Ant1_2472_2387~2400

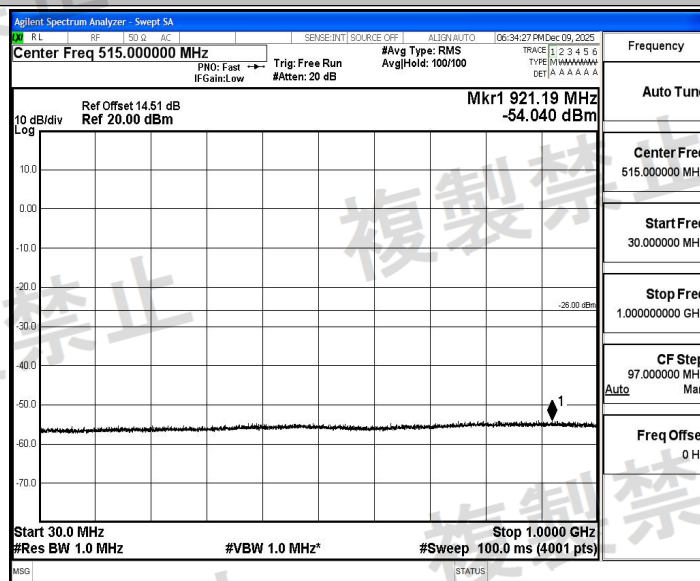


Guangzhou LCS Compliance Testing Laboratory Ltd.

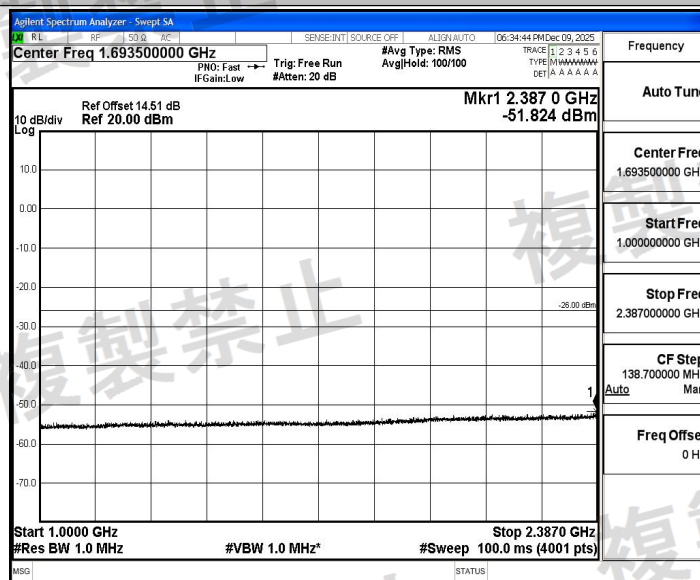
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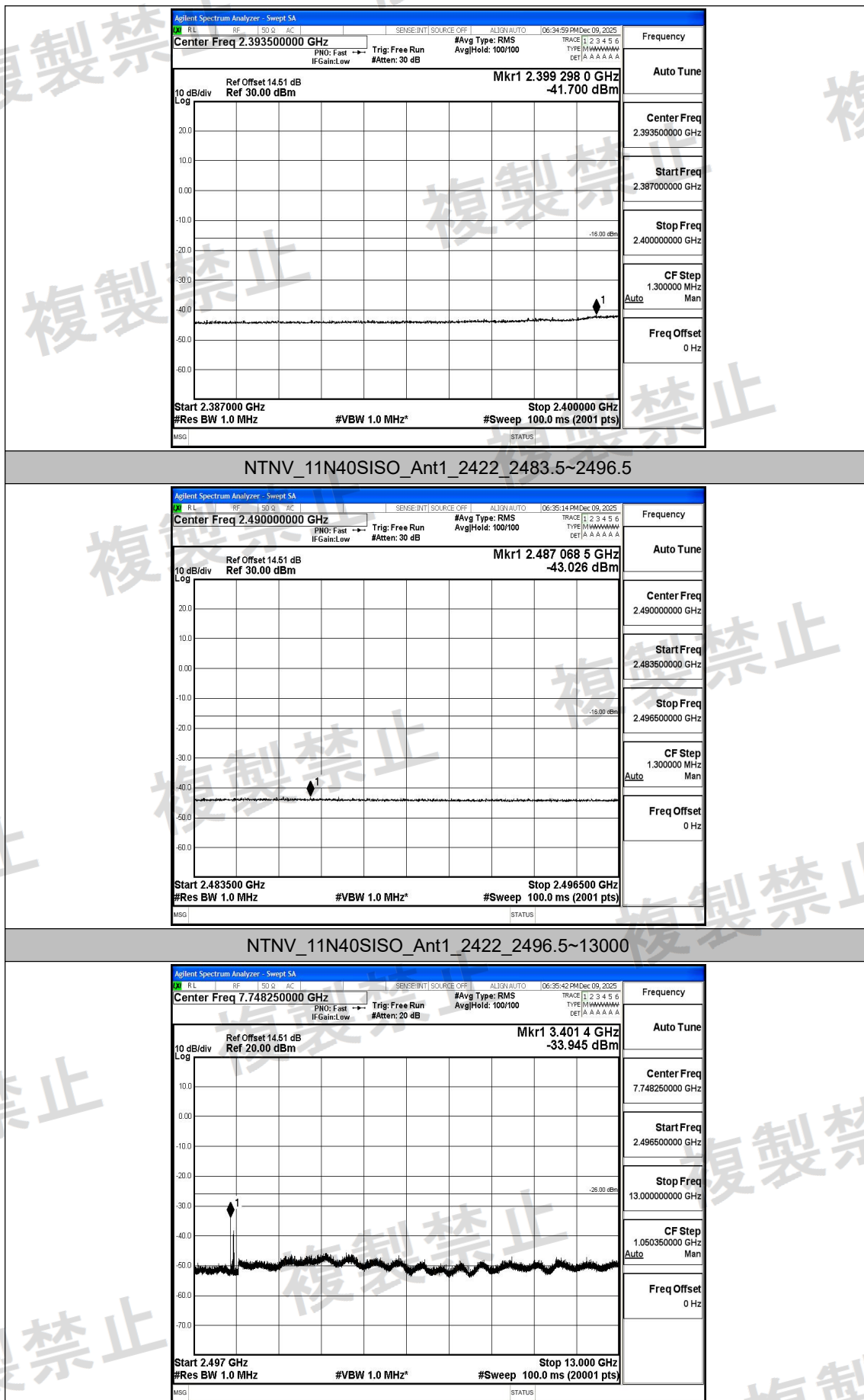
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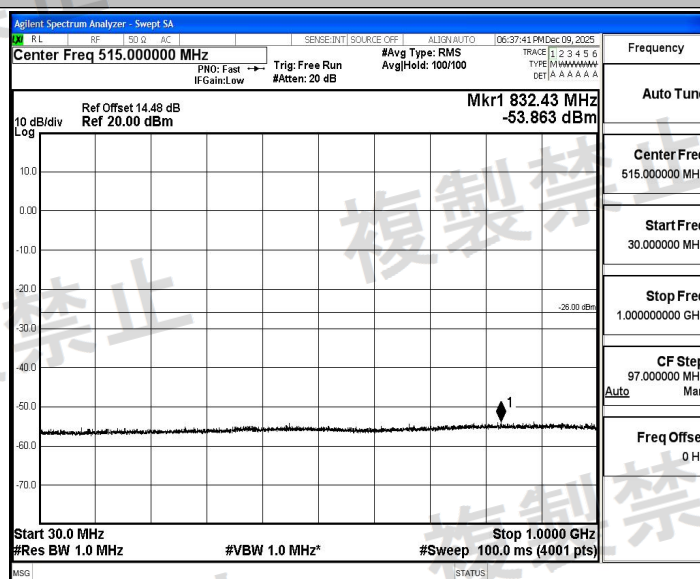


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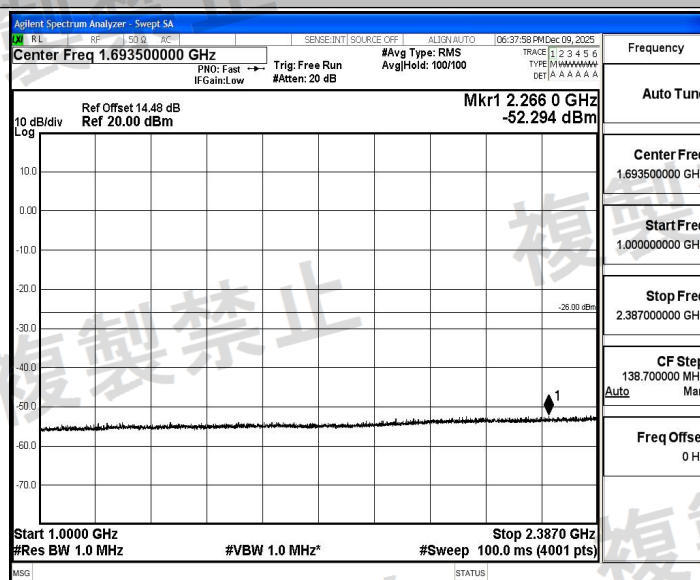
Add: No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

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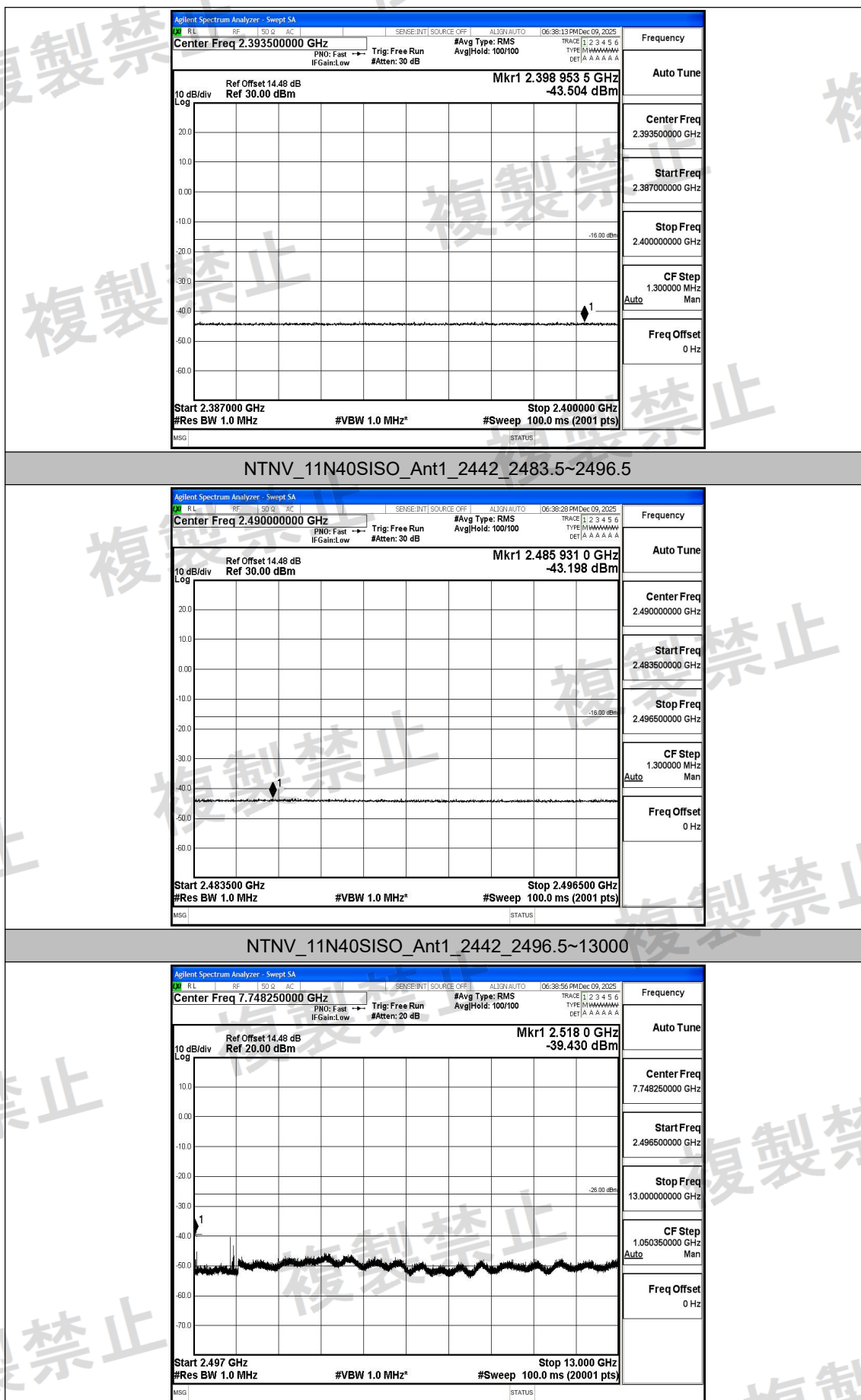
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NTNV_11N40SISO_Ant1_2442_2387~2400

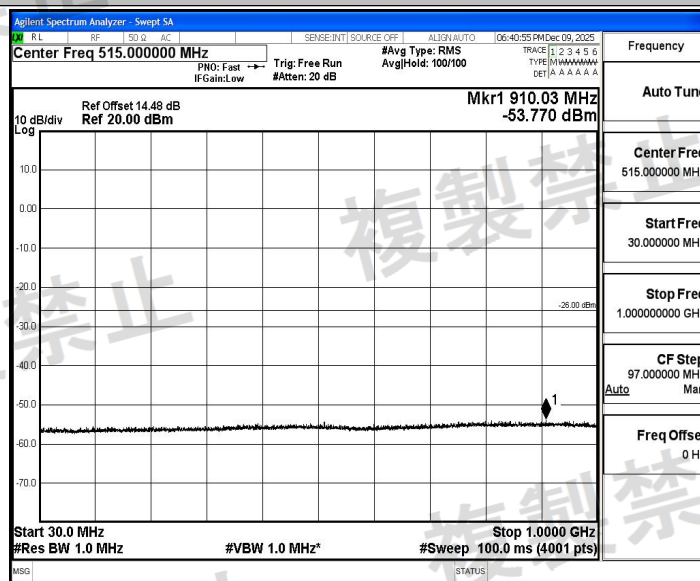


Guangzhou LCS Compliance Testing Laboratory Ltd.

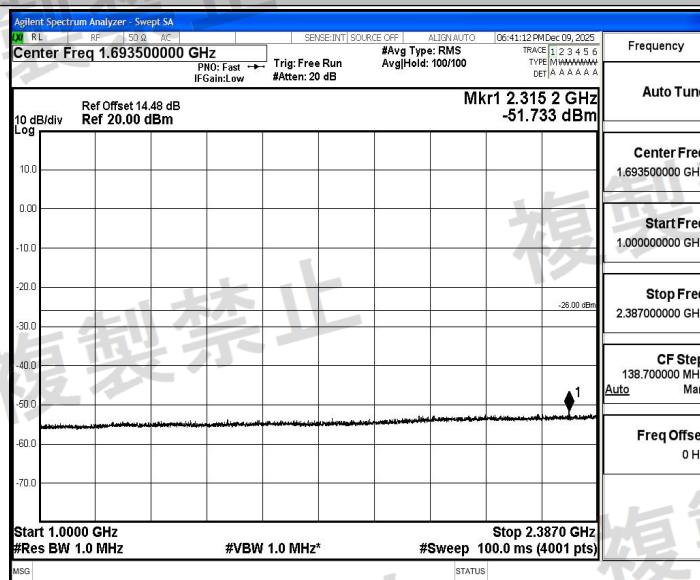
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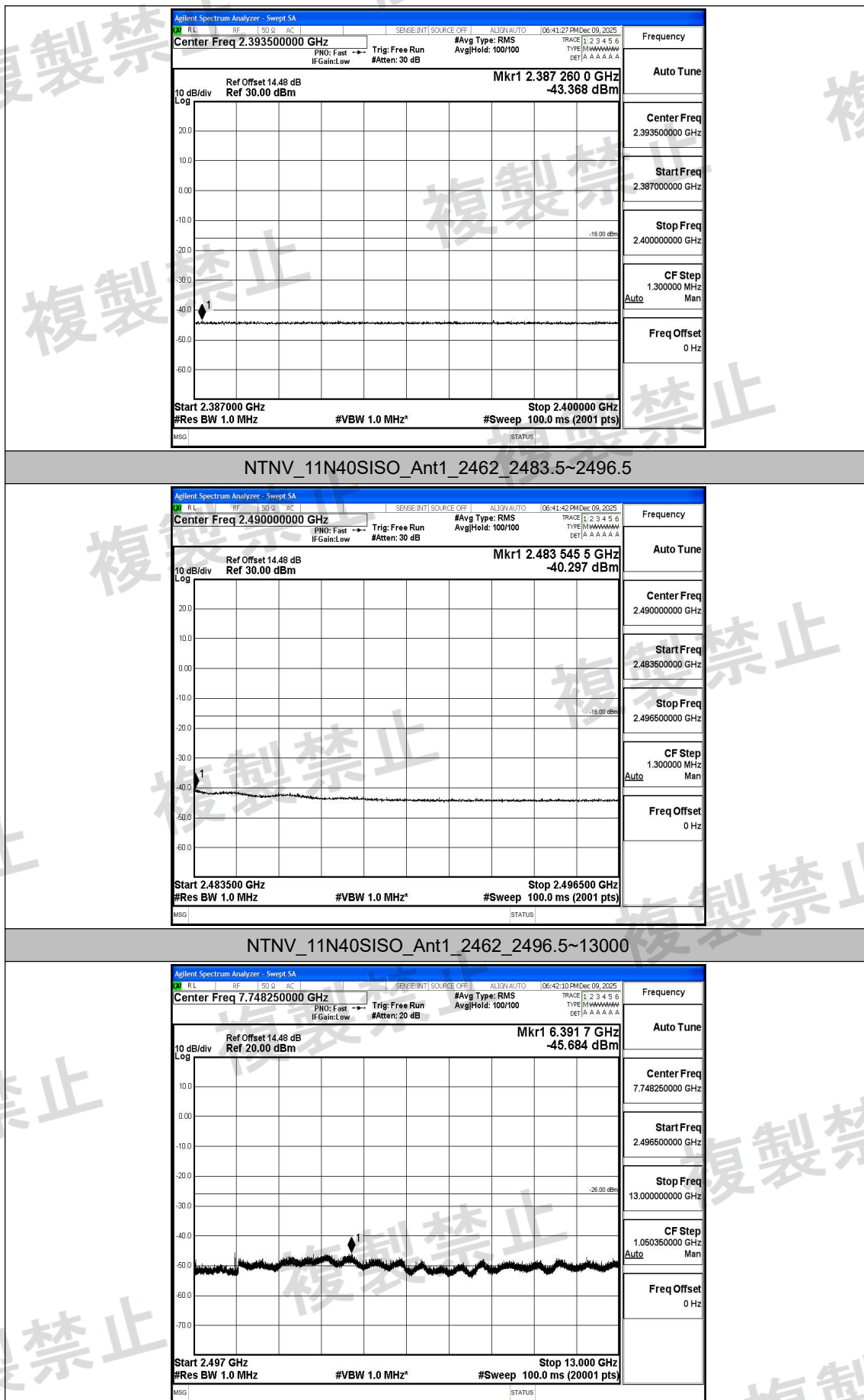
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NTNV_11N40SISO_Ant1_2462_1000~2387



NTNV_11N40SISO_Ant1_2462_2387~2400



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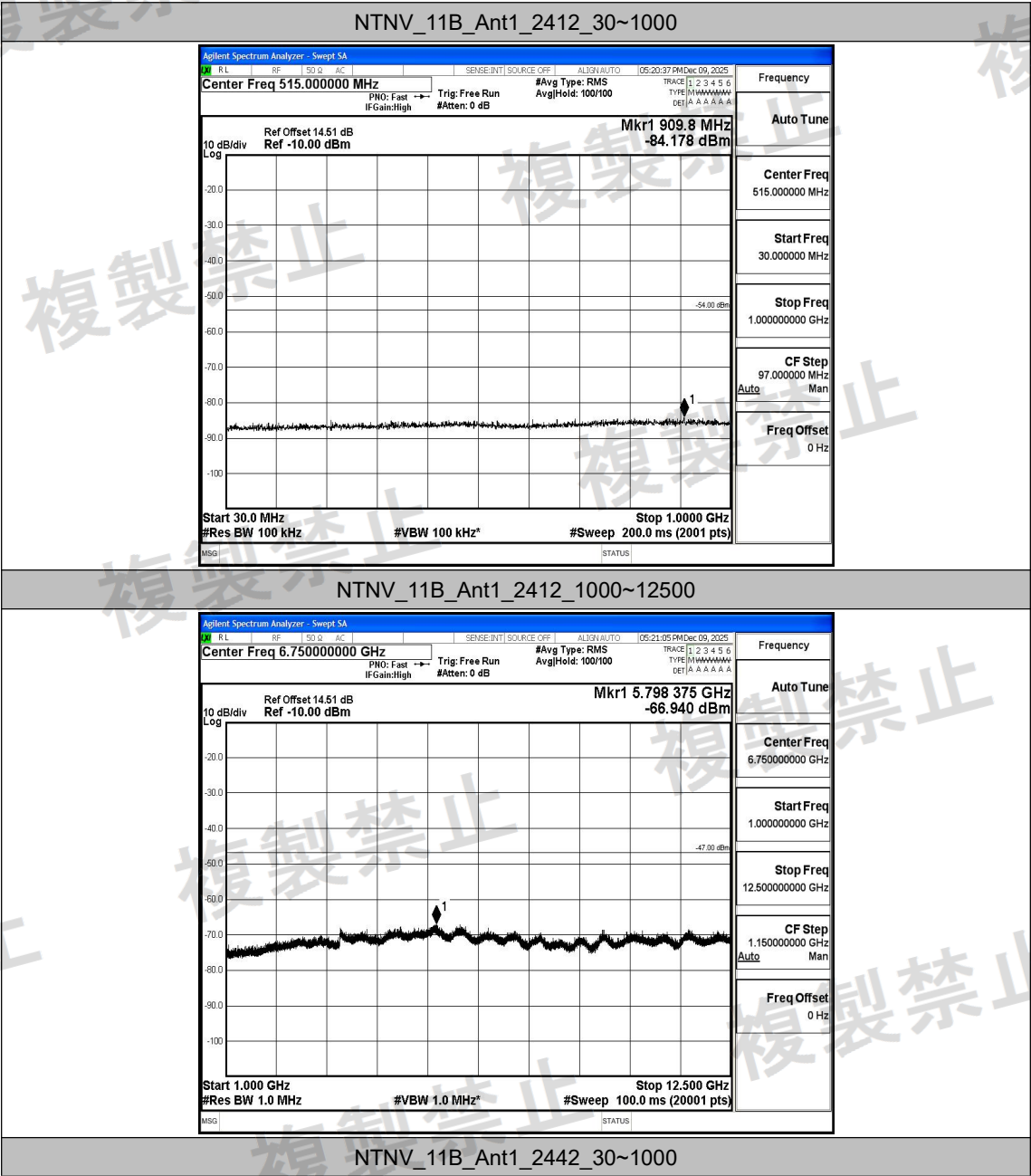
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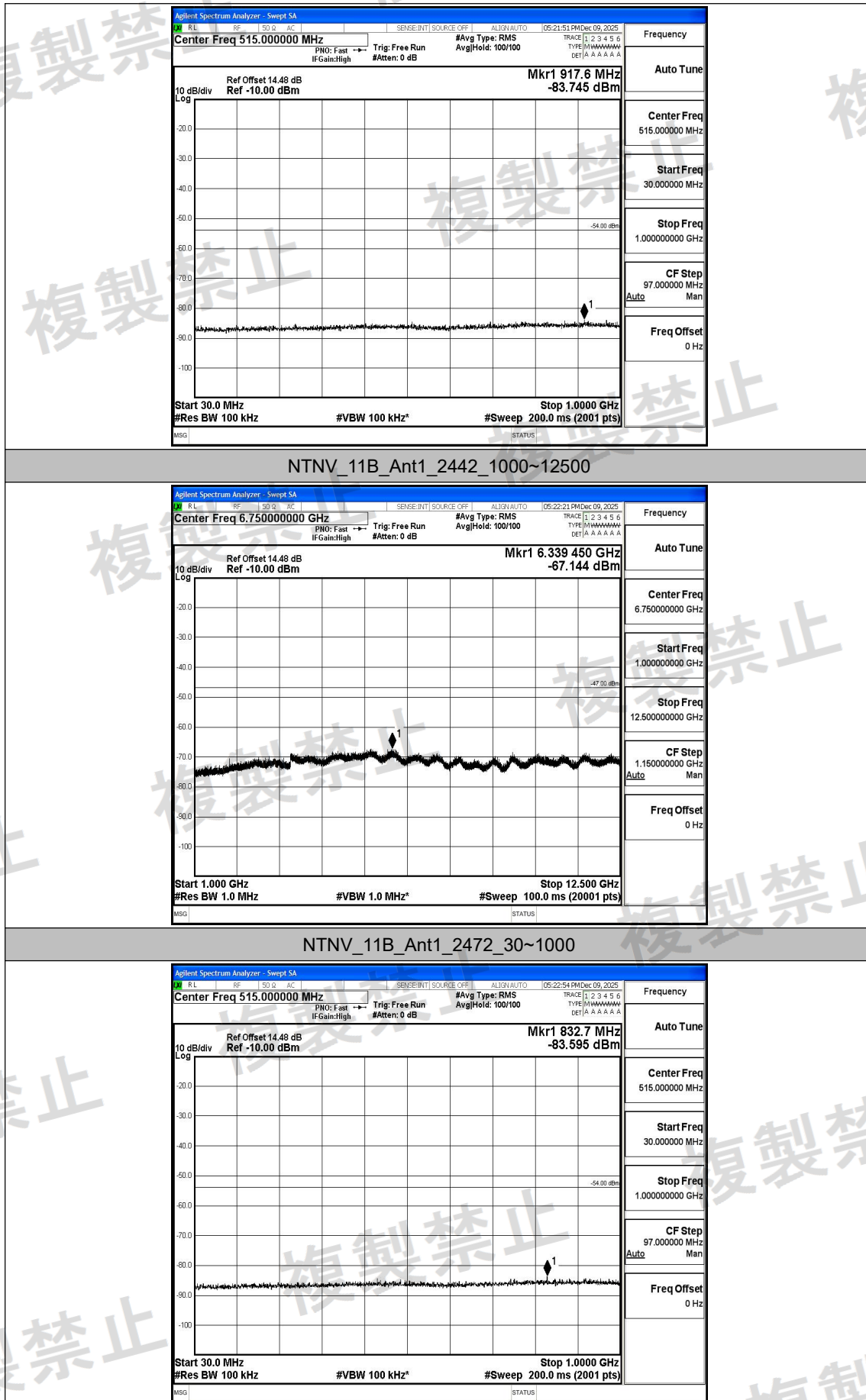
C.6 Spurious Emission of RX

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	11B	Ant1	2412	30~1000	-84.18	≤-54	0.00382	≤4	PASS
				1000~12500	-66.94	≤-47	0.20230	≤20	PASS
			2442	30~1000	-83.75	≤-54	0.00422	≤4	PASS
				1000~12500	-67.14	≤-47	0.19320	≤20	PASS
			2472	30~1000	-83.6	≤-54	0.00437	≤4	PASS
				1000~12500	-62.58	≤-47	0.55208	≤20	PASS
	11G	Ant1	2412	30~1000	-83.84	≤-54	0.00413	≤4	PASS
				1000~12500	-66.93	≤-47	0.20277	≤20	PASS
			2442	30~1000	-84.19	≤-54	0.00381	≤4	PASS
				1000~12500	-66.96	≤-47	0.20137	≤20	PASS
			2472	30~1000	-83.72	≤-54	0.00425	≤4	PASS
				1000~12500	-66.85	≤-47	0.20654	≤20	PASS
	11N20SISO	Ant1	2412	30~1000	-84.3	≤-54	0.00372	≤4	PASS
				1000~12500	-67.01	≤-47	0.19907	≤20	PASS
			2442	30~1000	-83.84	≤-54	0.00413	≤4	PASS
				1000~12500	-67.04	≤-47	0.19770	≤20	PASS
			2472	30~1000	-83.96	≤-54	0.00402	≤4	PASS
				1000~12500	-67.33	≤-47	0.18493	≤20	PASS
	11N40SISO	Ant1	2422	30~1000	-82.77	≤-54	0.00528	≤4	PASS
				1000~12500	-66.84	≤-47	0.20701	≤20	PASS
			2442	30~1000	-84.38	≤-54	0.00365	≤4	PASS
				1000~12500	-67.34	≤-47	0.18450	≤20	PASS
			2462	30~1000	-84.32	≤-54	0.00370	≤4	PASS
				1000~12500	-66.68	≤-47	0.21478	≤20	PASS

Test Graphs



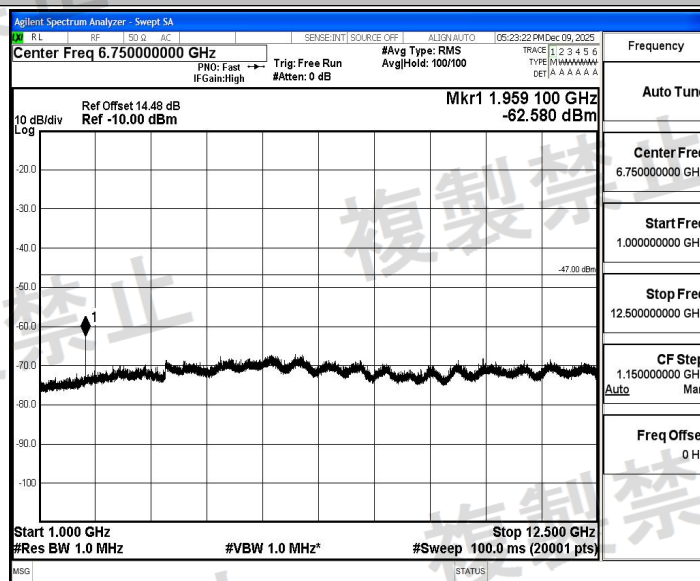


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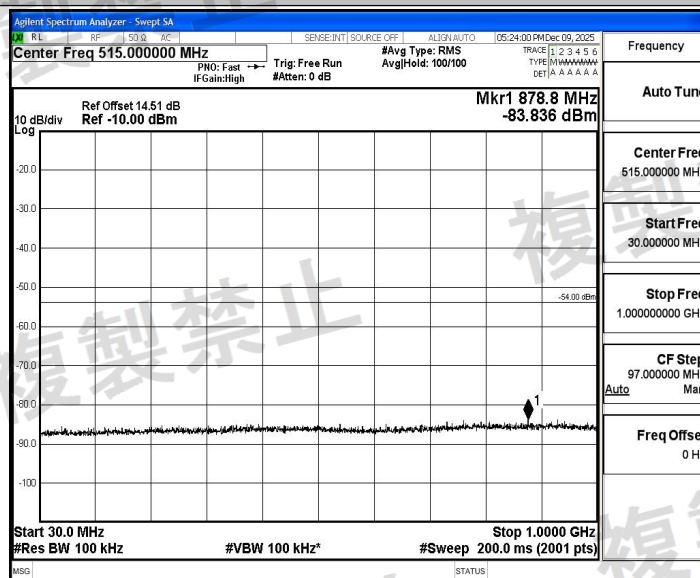
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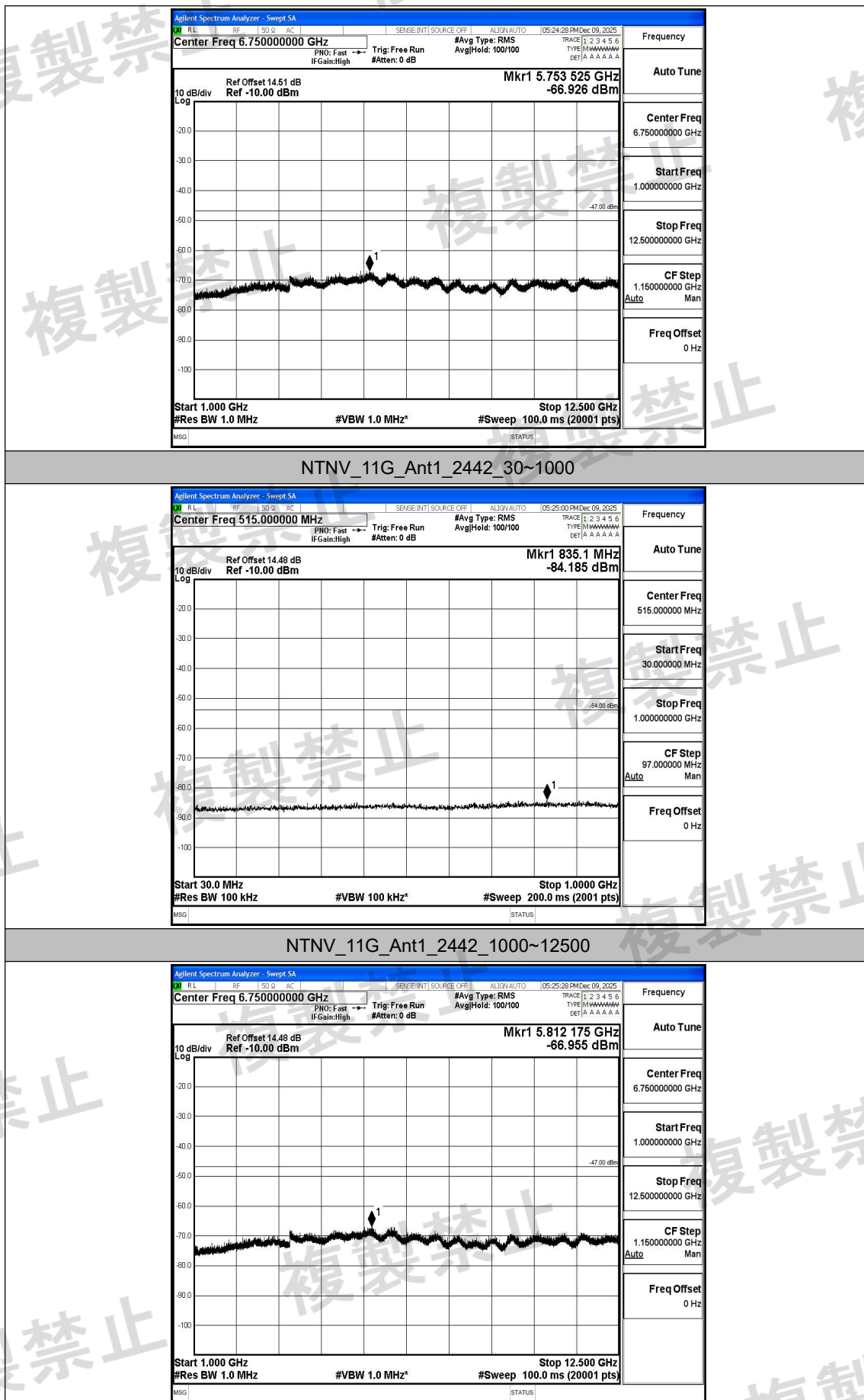
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NTNV_11G_Ant1_2412_30~1000



NTNV_11G_Ant1_2412_1000~12500

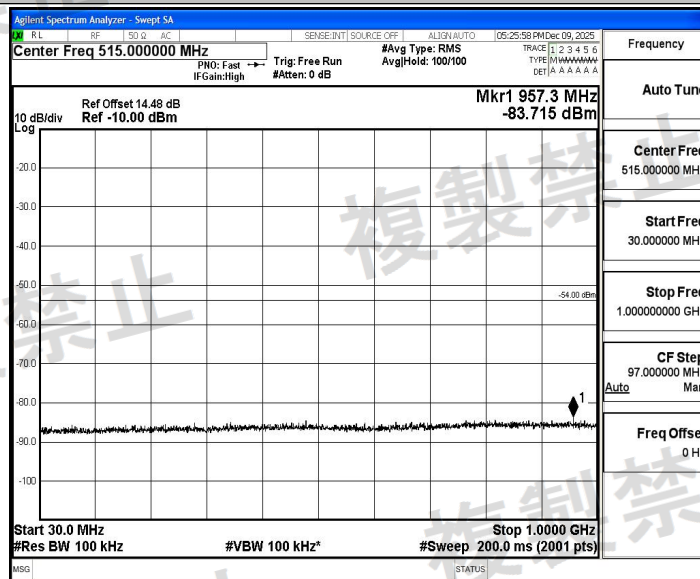


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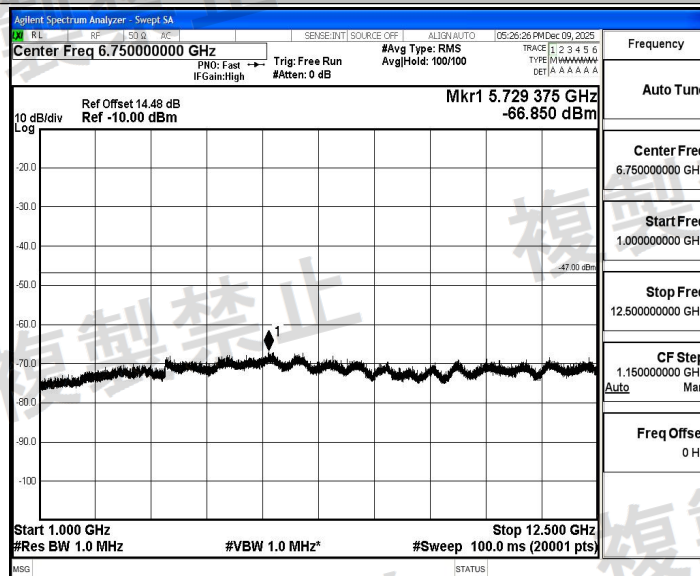
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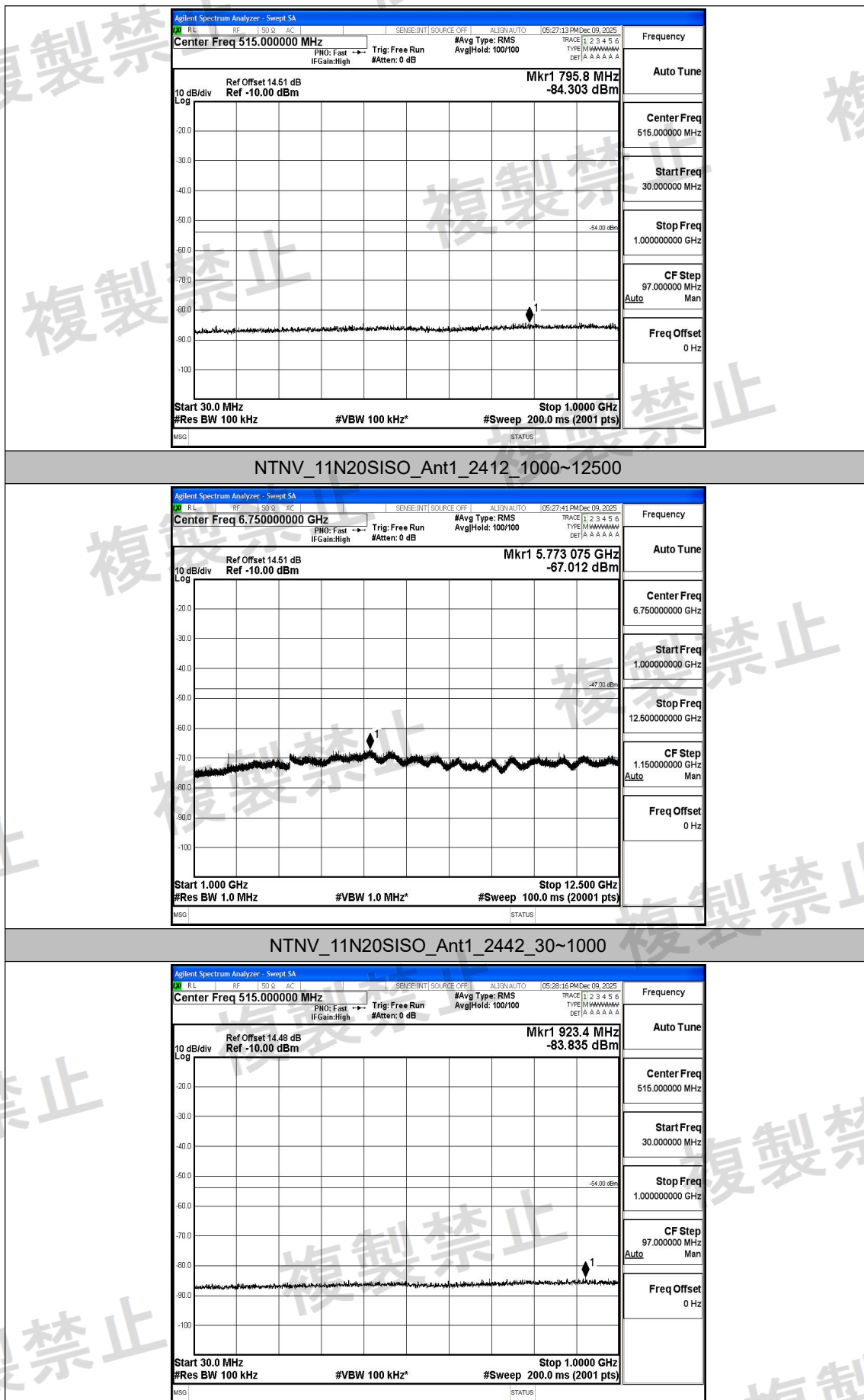
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NTNV_11G_Ant1_2472_1000~12500



NTNV_11N20SISO_Ant1_2412_30~1000

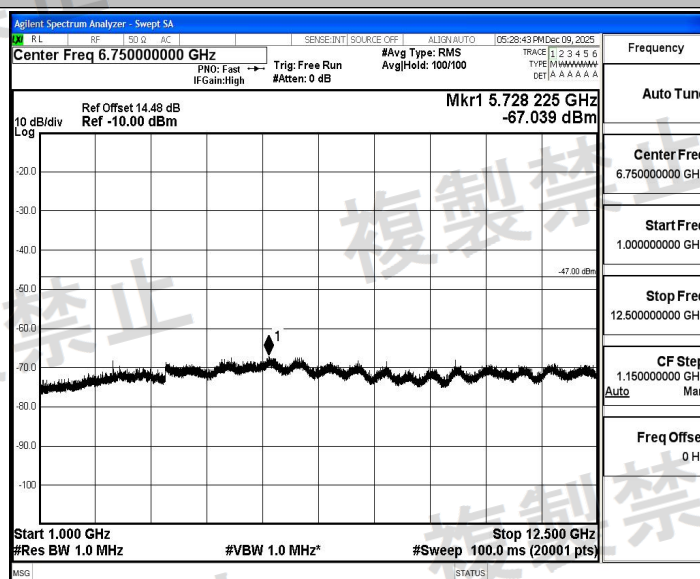


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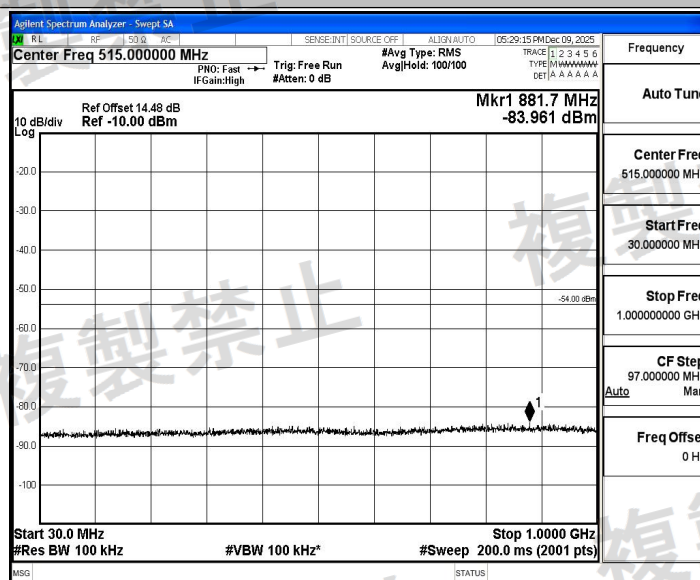
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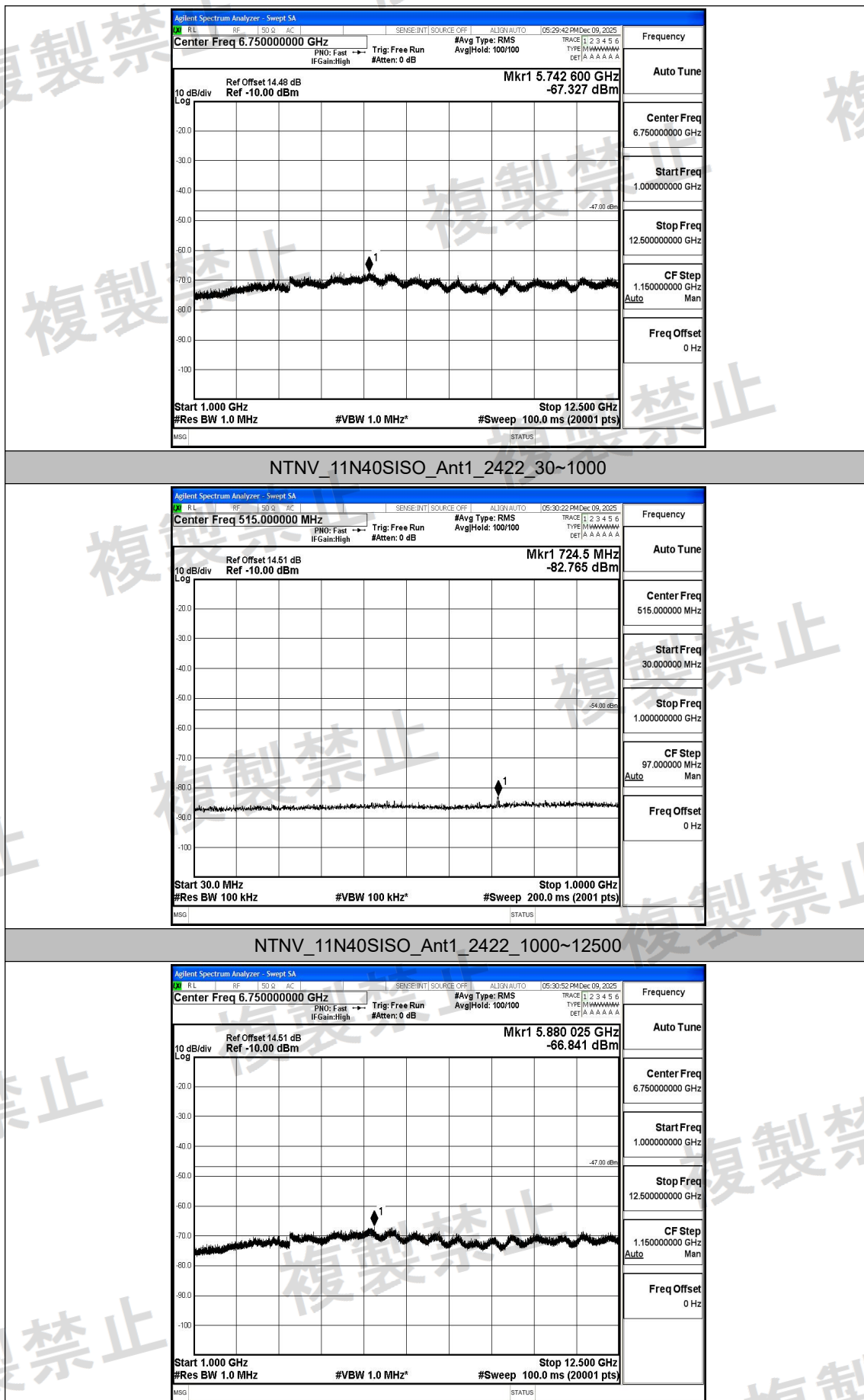
NTNV_11N20SISO_Ant1_2442_1000~12500



NTNV_11N20SISO_Ant1_2472_30~1000



NTNV_11N20SISO_Ant1_2472_1000~12500

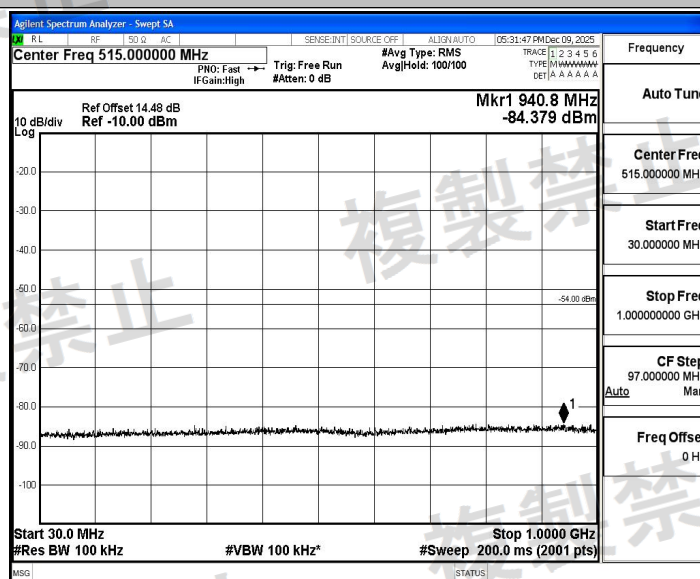


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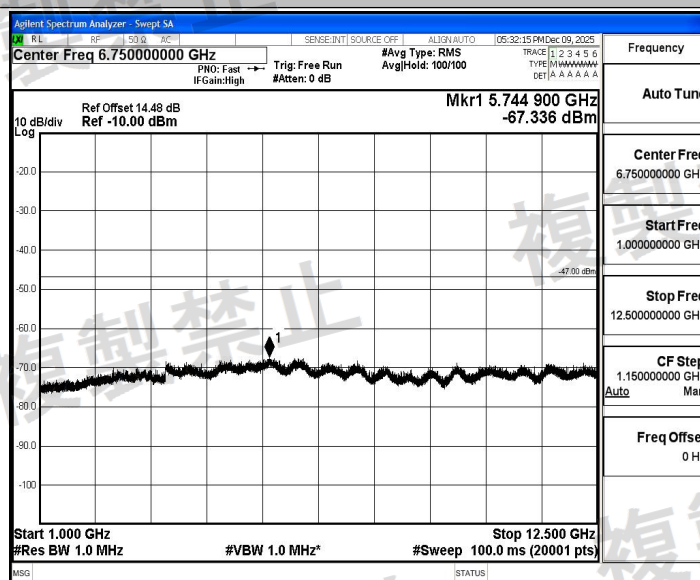
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NTNV_11N40SISO_Ant1_2442_30~1000



NTNV_11N40SISO_Ant1_2442_1000~12500



NTNV_11N40SISO_Ant1_2462_30~1000

