



Appendix B for 2.4GWIFI Test Data

Product Name: Hiking Energy Saver

Test Model: Dnsys X1

Environmental Conditions

Temperature:	23.6° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Billy Yu
Supervised by:	Can Kun



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B.1 Frequency Error

Test Result

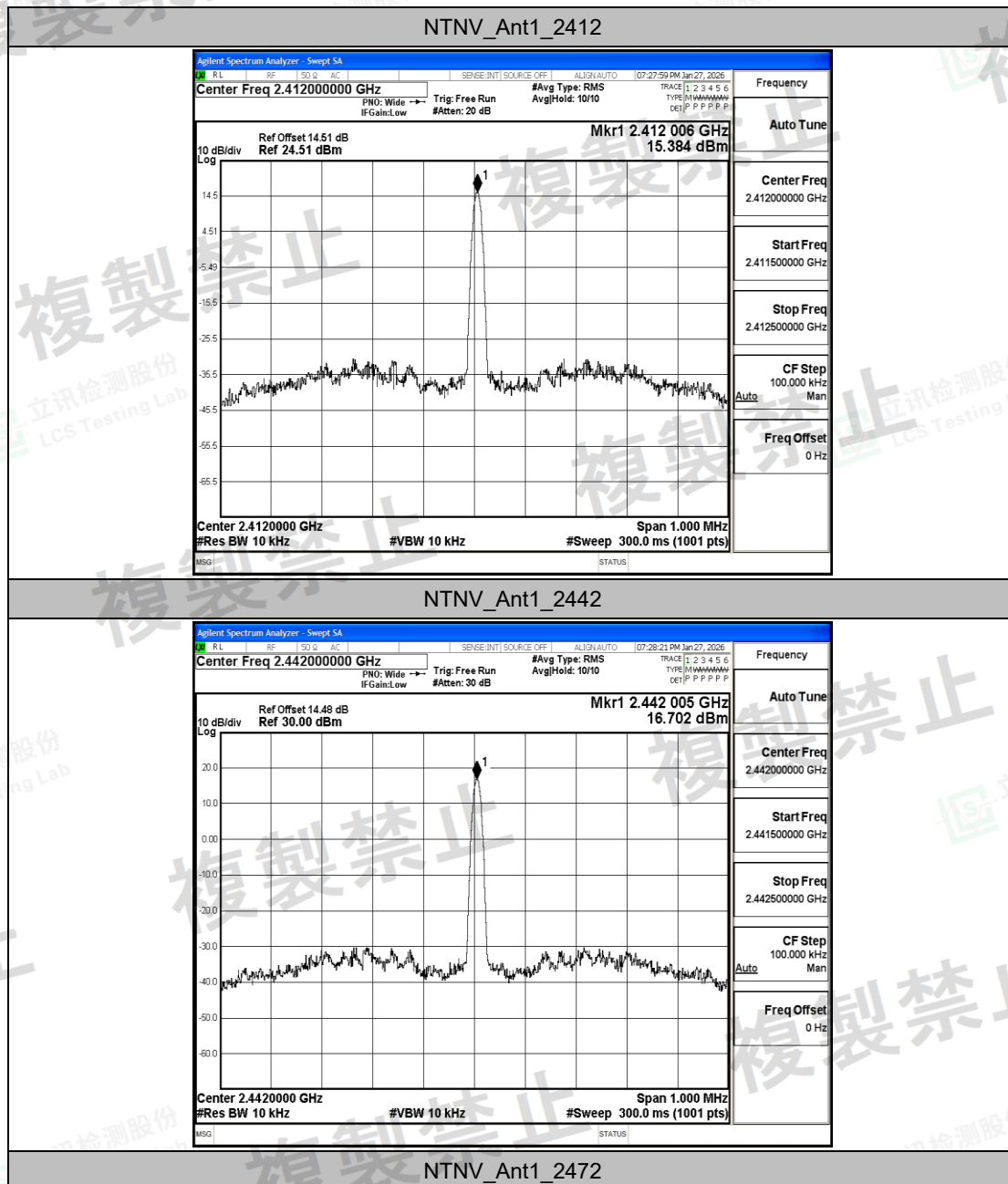
TestCondition	TestMode	Antenna	Frequency [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	Frequency Error	Ant1	2412	2.48756	±50	PASS
			2442	2.04750	±50	PASS
			2472	2.02265	±50	PASS
		Ant1	2422	1.65153	±50	PASS
			2462	2.03087	±50	PASS

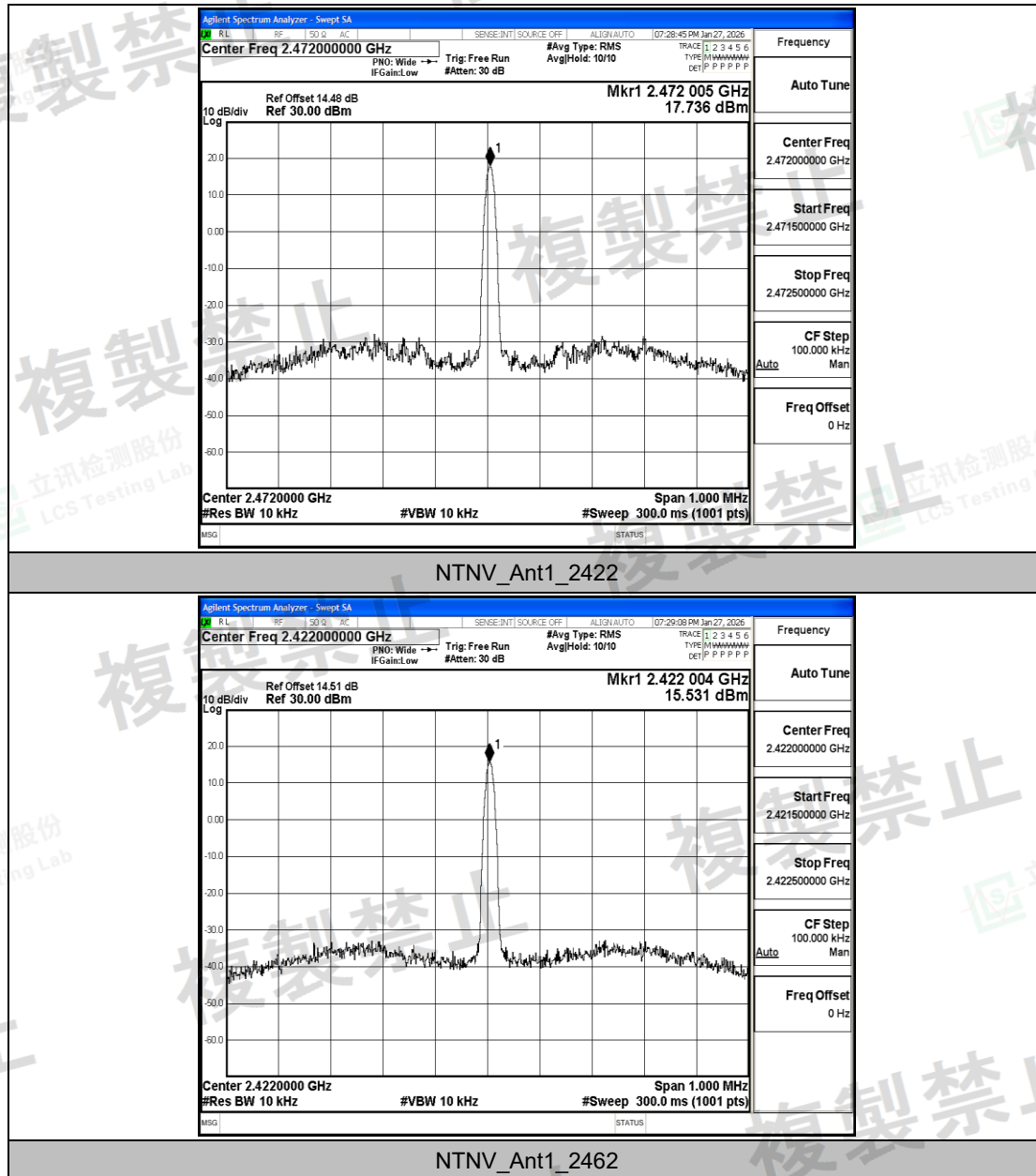


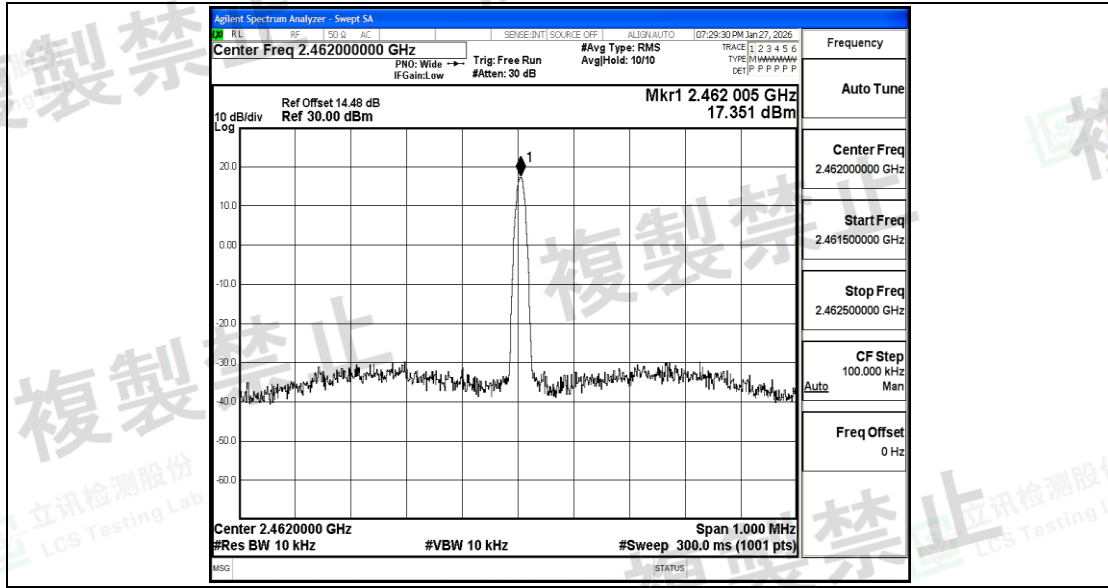
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Test Graphs







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B.2 Antenna Power & E.I.R.P

Test Result

Antenna Power							
Test Condition	Test Mode	Antenna	Frequency [MHz]	Measured power [dBm/MHz]	Result [mW/MHz]	Limit [mW/MHz]	Verdict
NTNV	11B	Ant1	2412	5.07	3.2137	≤10	PASS
			2442	5.24	3.3420	≤10	PASS
			2472	5.44	3.4995	≤10	PASS
	11G	Ant1	2412	5.12	3.2509	≤10	PASS
			2442	5.26	3.3574	≤10	PASS
			2472	5.30	3.3884	≤10	PASS
	11N20SISO	Ant1	2412	5.07	3.2137	≤10	PASS
			2442	5.40	3.4674	≤10	PASS
			2472	5.20	3.3113	≤10	PASS
	11N40SISO	Ant1	2422	0.70	1.1749	≤5	PASS
			2442	0.57	1.1402	≤5	PASS
			2462	0.71	1.1776	≤5	PASS

Tolerance								
Test Condition	Test Mode	Antenna	Frequency [MHz]	Power [mW/MHz]	RatedPower [mW/MHz]	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	3.2137	3.5	-8.18	+20	PASS
			2442	3.3420	3.5	-4.51	+20	PASS
			2472	3.4995	3.5	-0.01	+20	PASS
	11G	Ant1	2412	3.2509	3.5	-7.12	+20	PASS
			2442	3.3574	3.5	-4.07	+20	PASS
			2472	3.3884	3.5	-3.19	+20	PASS
	11N20SISO	Ant1	2412	3.2137	3.5	-8.18	+20	PASS
			2442	3.4674	3.5	-0.93	+20	PASS
			2472	3.3113	3.5	-5.39	+20	PASS
	11N40SISO	Ant1	2422	1.1749	1.2	-2.09	+20	PASS
			2442	1.1402	1.2	-4.98	+20	PASS
			2462	1.1776	1.2	-1.87	+20	PASS





EIRP								
Test Condition	Test Mode	Antenna	Frequency [MHz]	Measured Power (dBm/MHz)	Antenna Gain (dBi)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Verdict
NTNV	11B	Ant1	2412	6.46	3.37	9.83	≤12.14	PASS
			2442	6.54	3.37	9.91	≤12.14	PASS
			2472	6.43	3.37	9.80	≤12.14	PASS
	11G	Ant1	2412	6.74	3.37	10.11	≤12.14	PASS
			2442	6.52	3.37	9.89	≤12.14	PASS
			2472	6.47	3.37	9.84	≤12.14	PASS
	11N20SISO	Ant1	2412	6.34	3.37	9.71	≤12.14	PASS
			2442	6.48	3.37	9.85	≤12.14	PASS
			2472	6.68	3.37	10.05	≤12.14	PASS
	11N40SISO	Ant1	2422	3.26	3.37	6.63	≤9.13	PASS
			2442	3.17	3.37	6.54	≤9.13	PASS
			2462	3.10	3.37	6.47	≤9.13	PASS



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B.3 Occupied Bandwidth

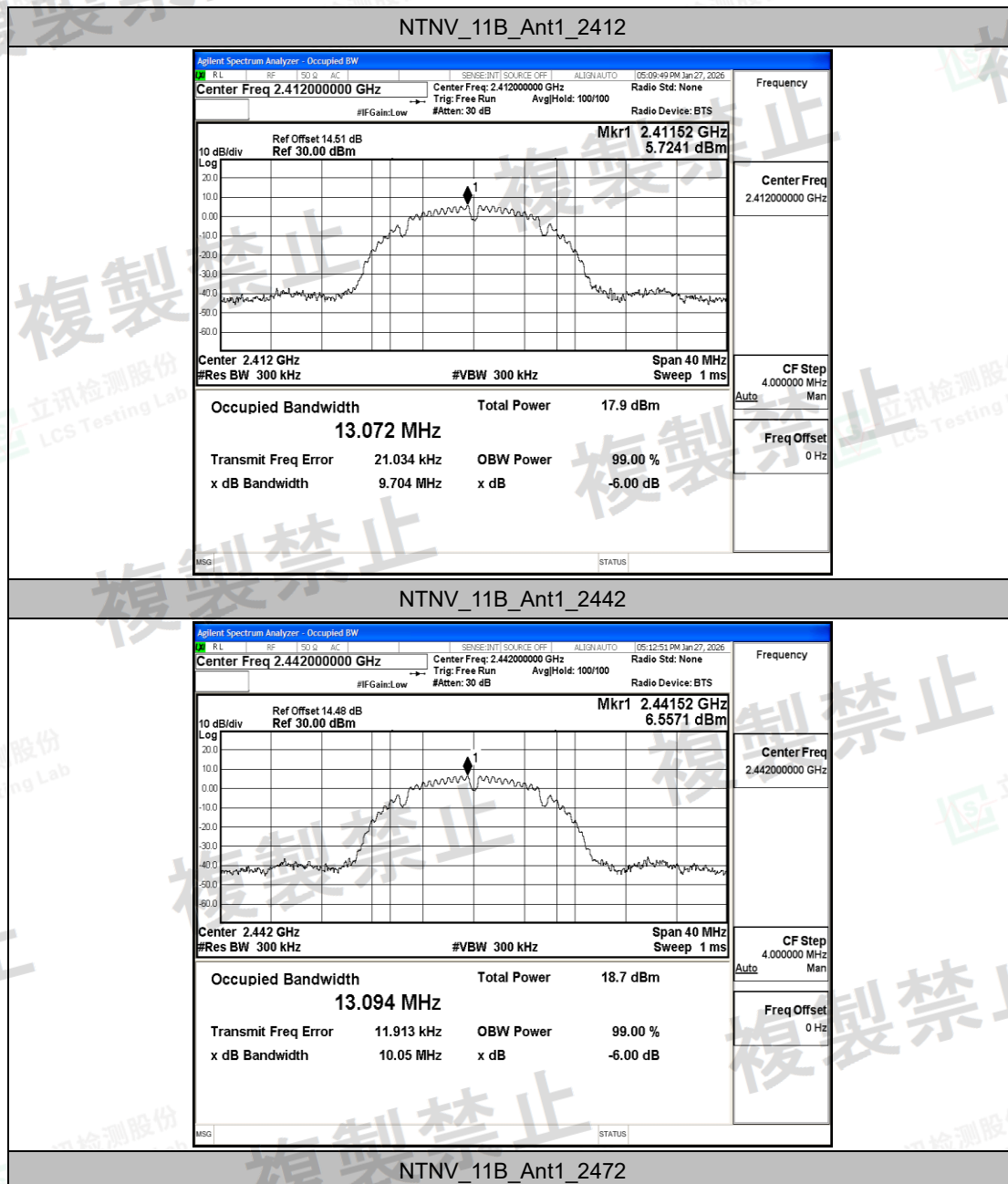
Test Result

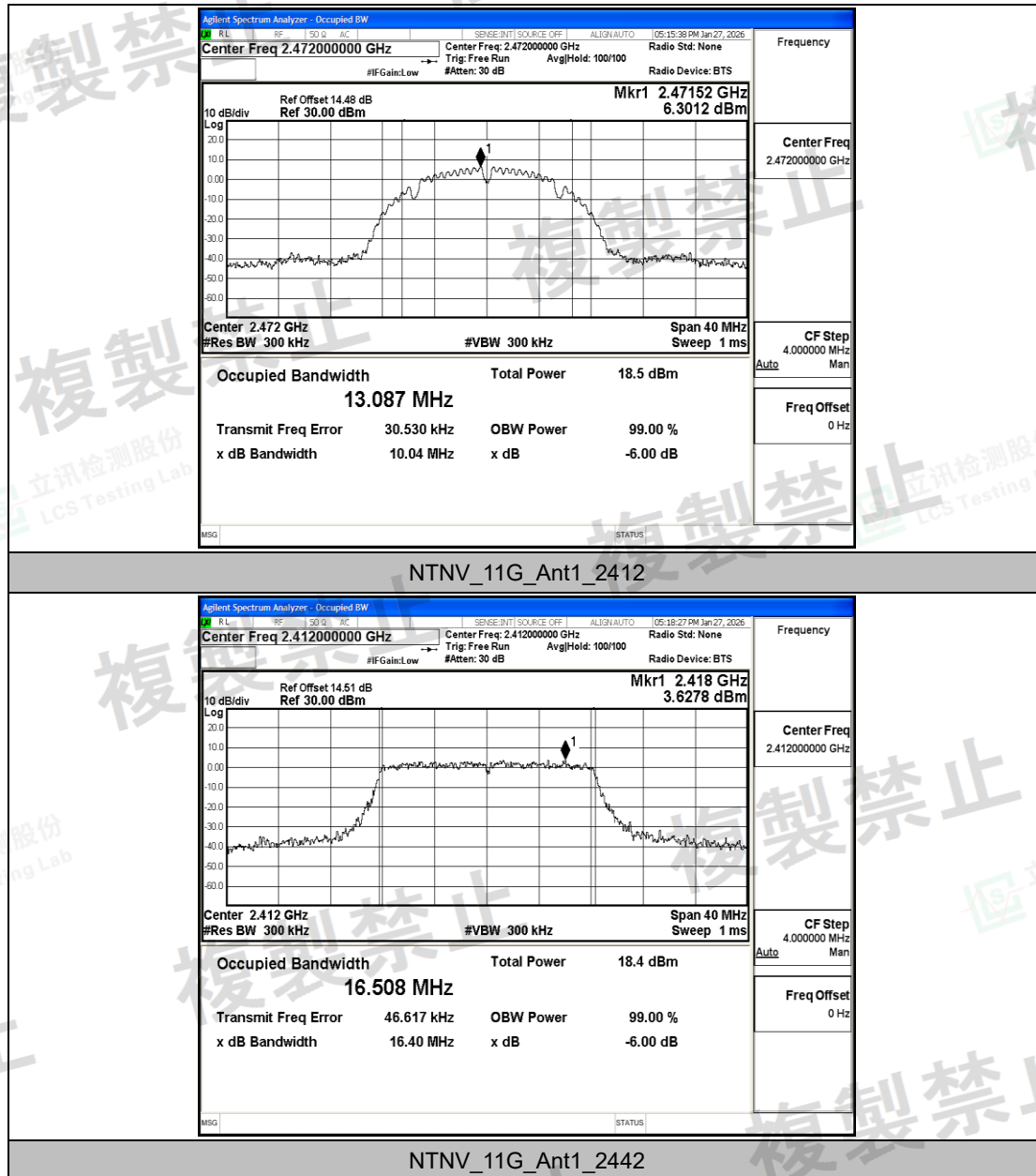
TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	13.072	≤26	PASS
			2442	13.094	≤26	PASS
			2472	13.087	≤26	PASS
	11G	Ant1	2412	16.508	≤26	PASS
			2442	16.504	≤26	PASS
			2472	16.558	≤26	PASS
	11N20SISO	Ant1	2412	17.373	≤26	PASS
			2442	17.412	≤26	PASS
			2472	17.399	≤26	PASS
	11N40SISO	Ant1	2422	35.724	26-40	PASS
			2442	35.680	26-40	PASS
			2462	35.622	26-40	PASS

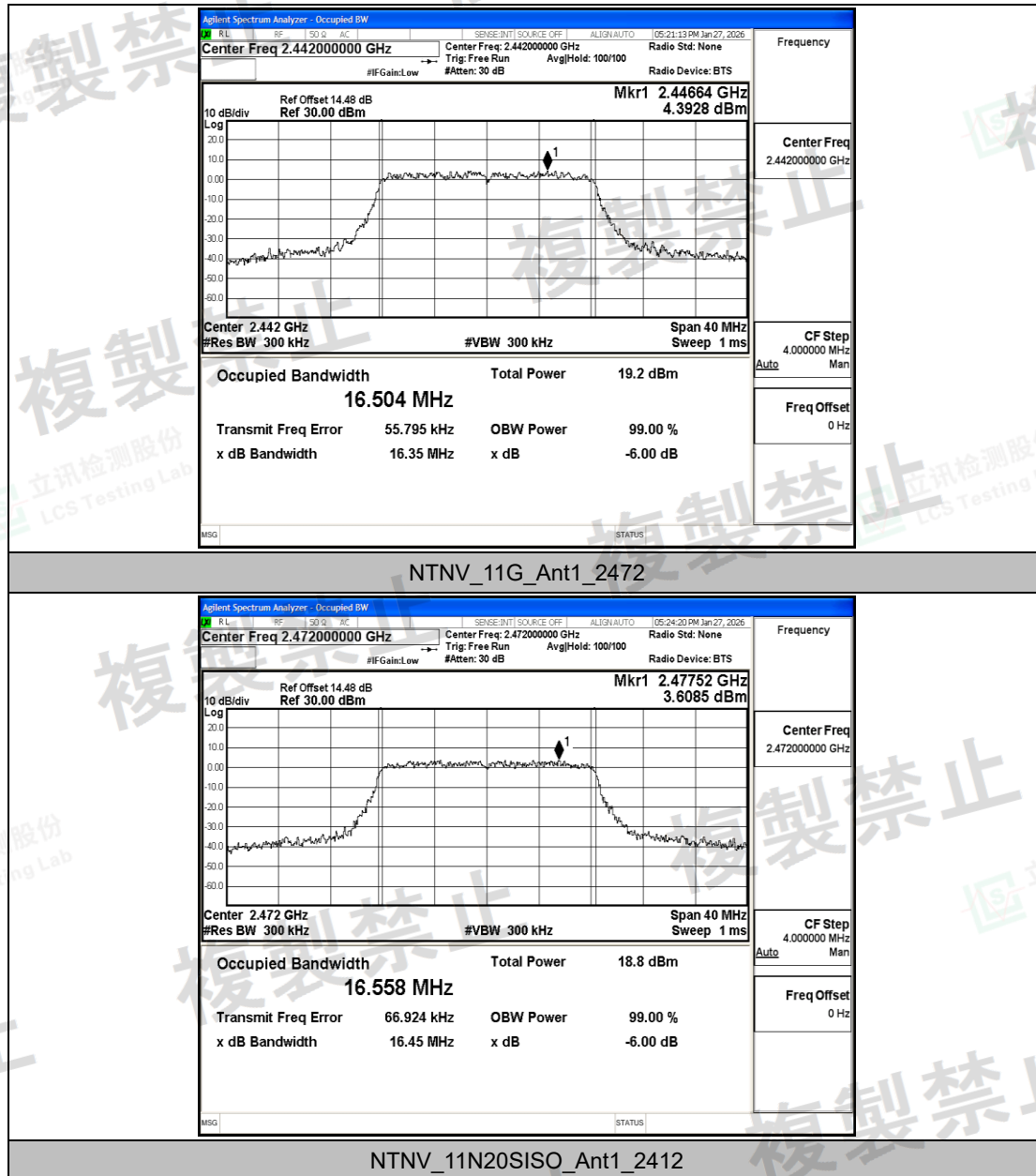


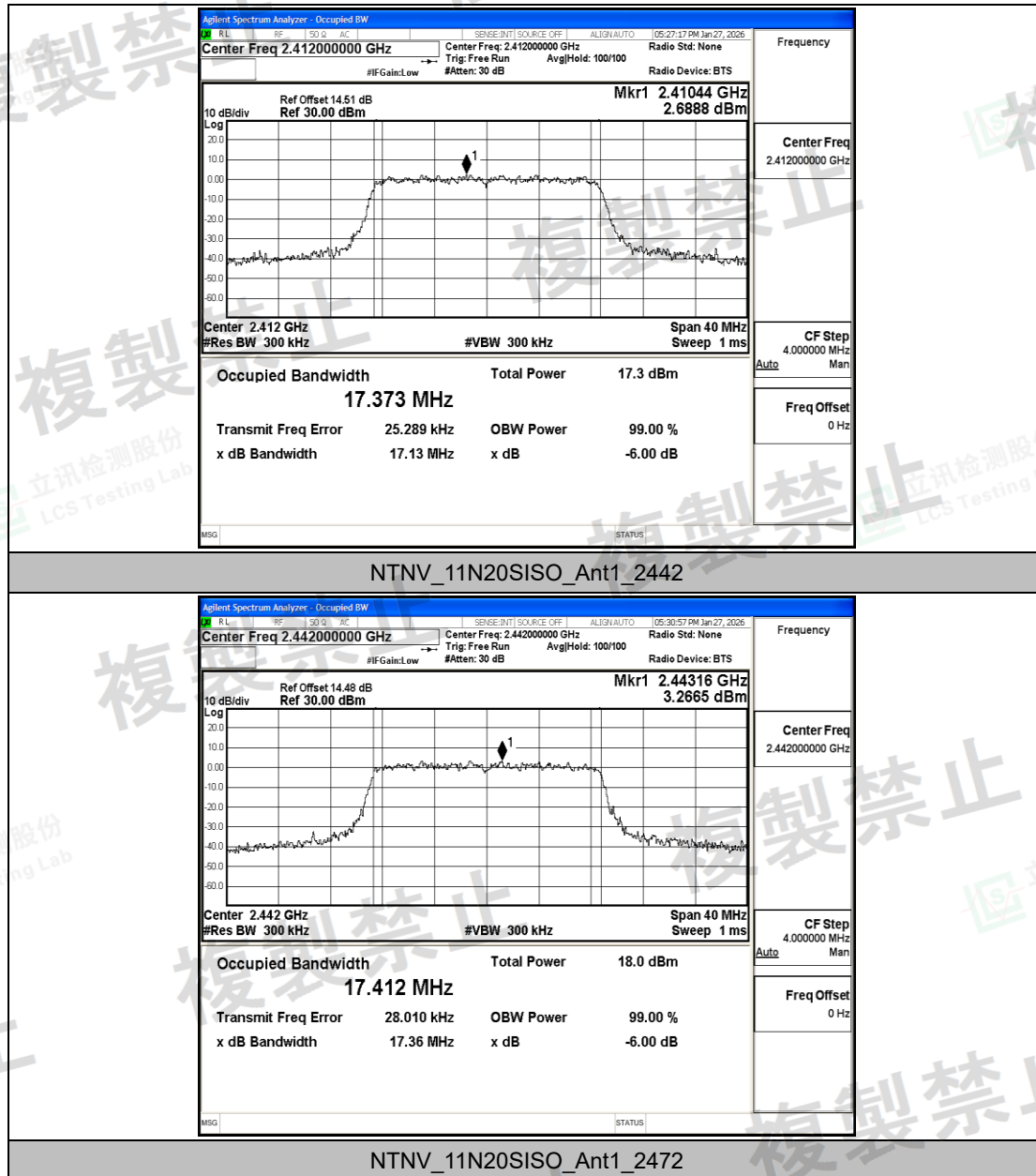


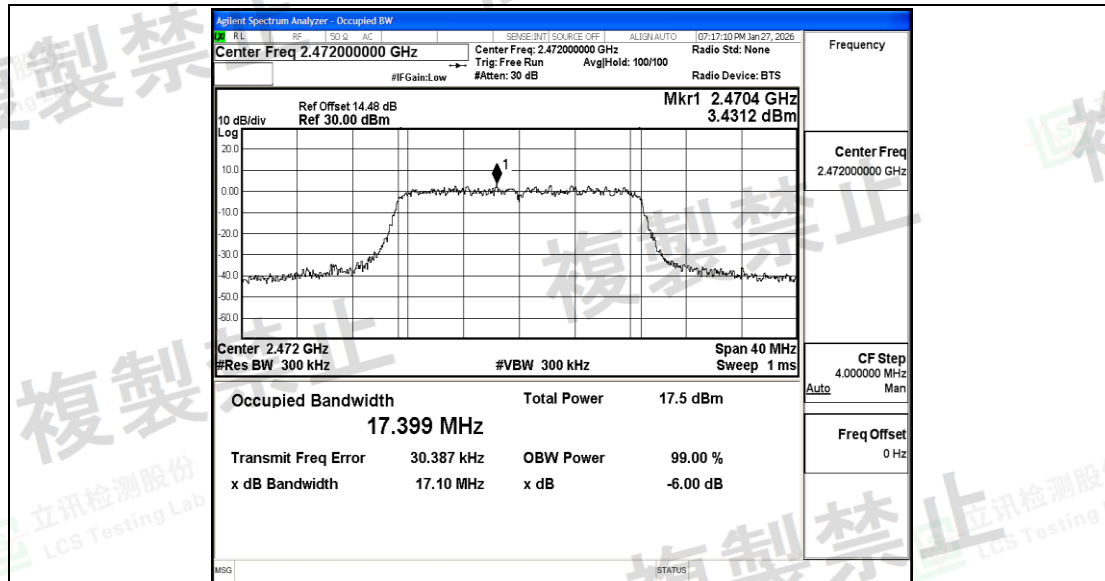
Test Graphs



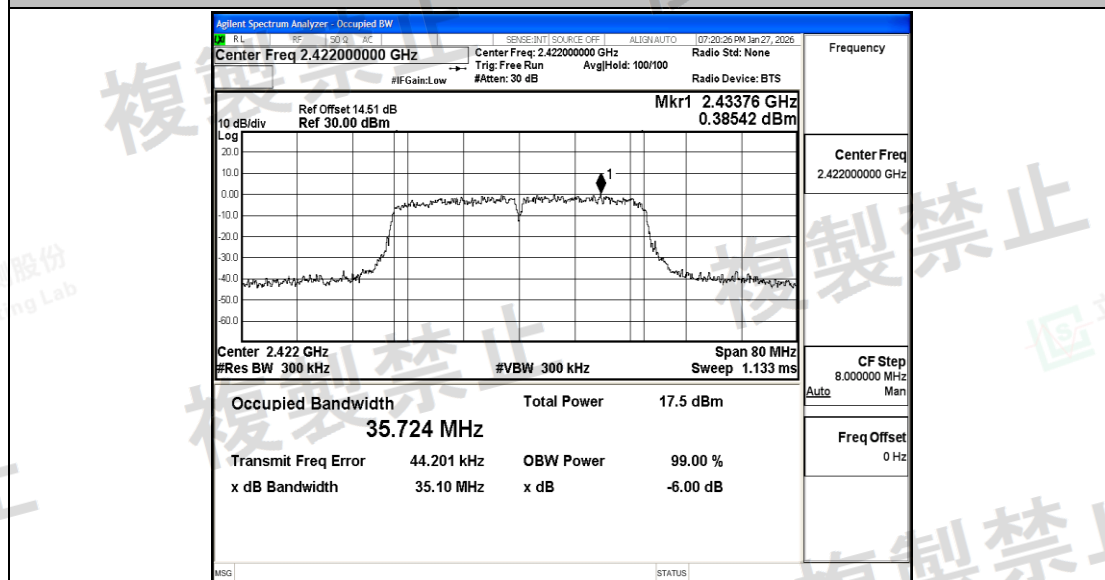






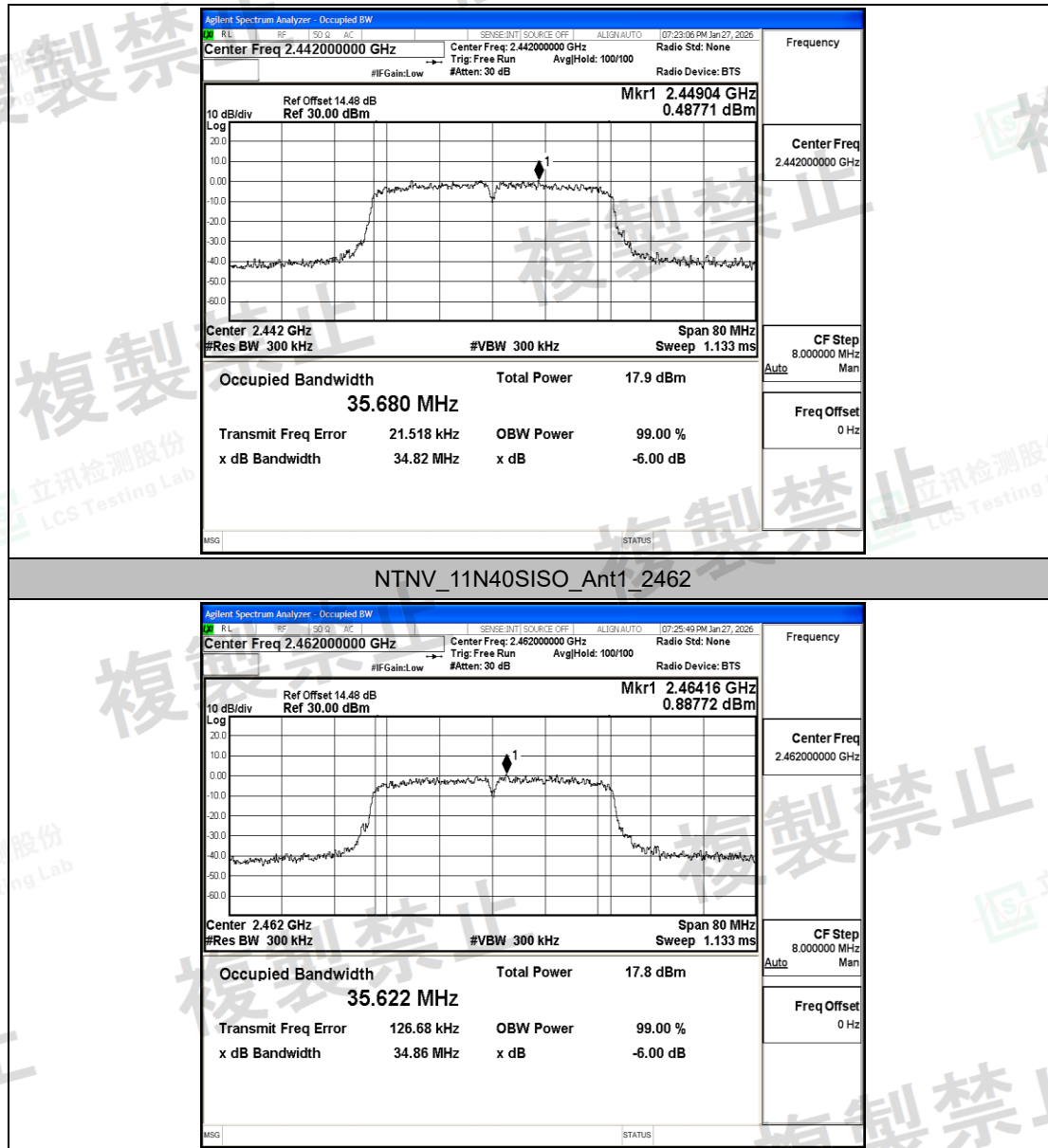


NTNV_11N40SISO_Ant1_2422



NTNV_11N40SISO_Ant1_2442







B.4 Spread Bandwidth

Test Result

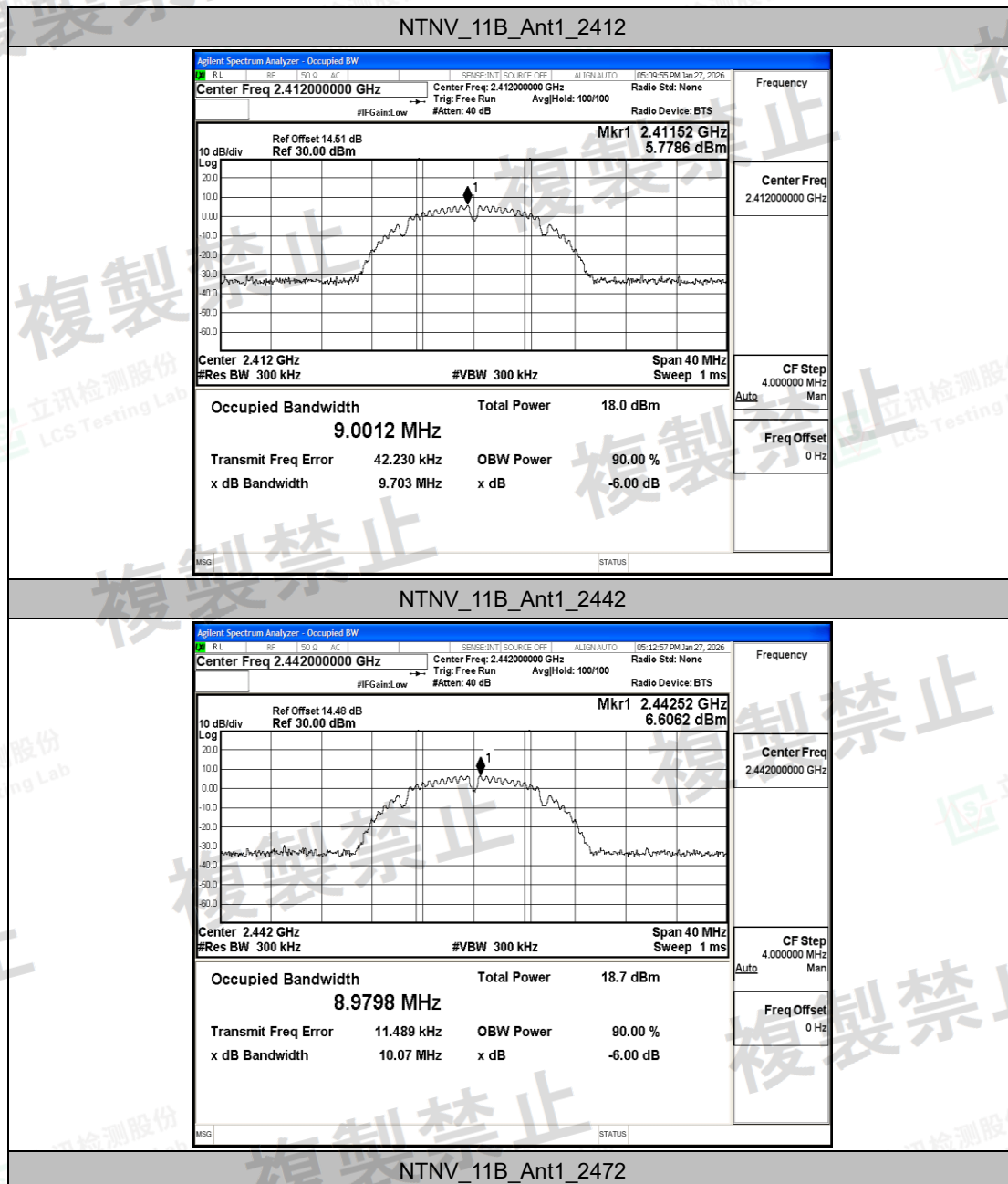
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NTNV	11B	Ant1	2412	9.001	---	PASS
			2442	8.980	---	PASS
			2472	9.004	---	PASS
	11G	Ant1	2412	14.692	---	PASS
			2442	14.596	---	PASS
			2472	14.566	---	PASS
	11N20SISO	Ant1	2412	15.199	---	PASS
			2442	15.182	---	PASS
			2472	15.115	---	PASS
	11N40SISO	Ant1	2422	30.556	---	PASS
			2442	30.262	---	PASS
			2462	30.725	---	PASS

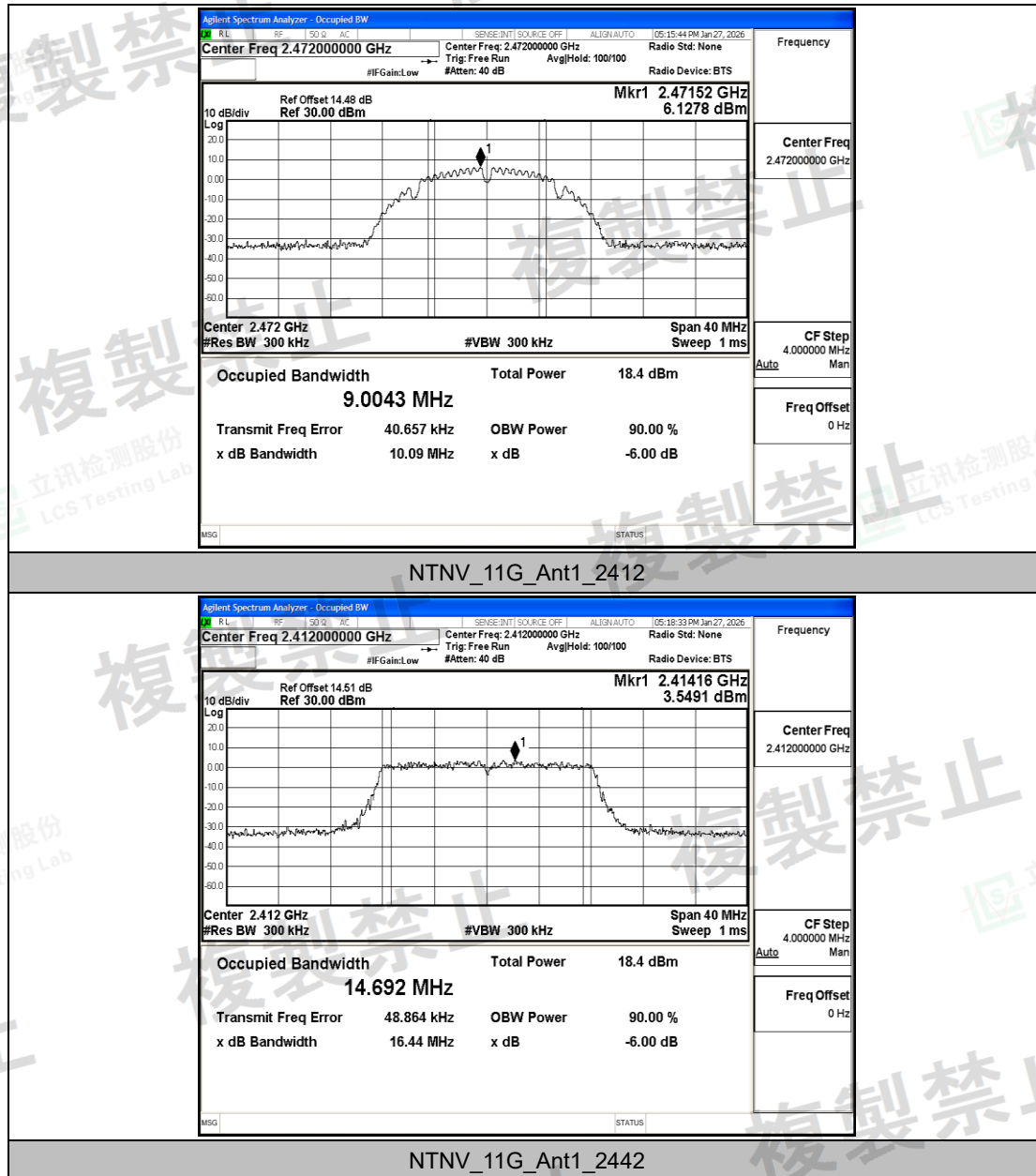


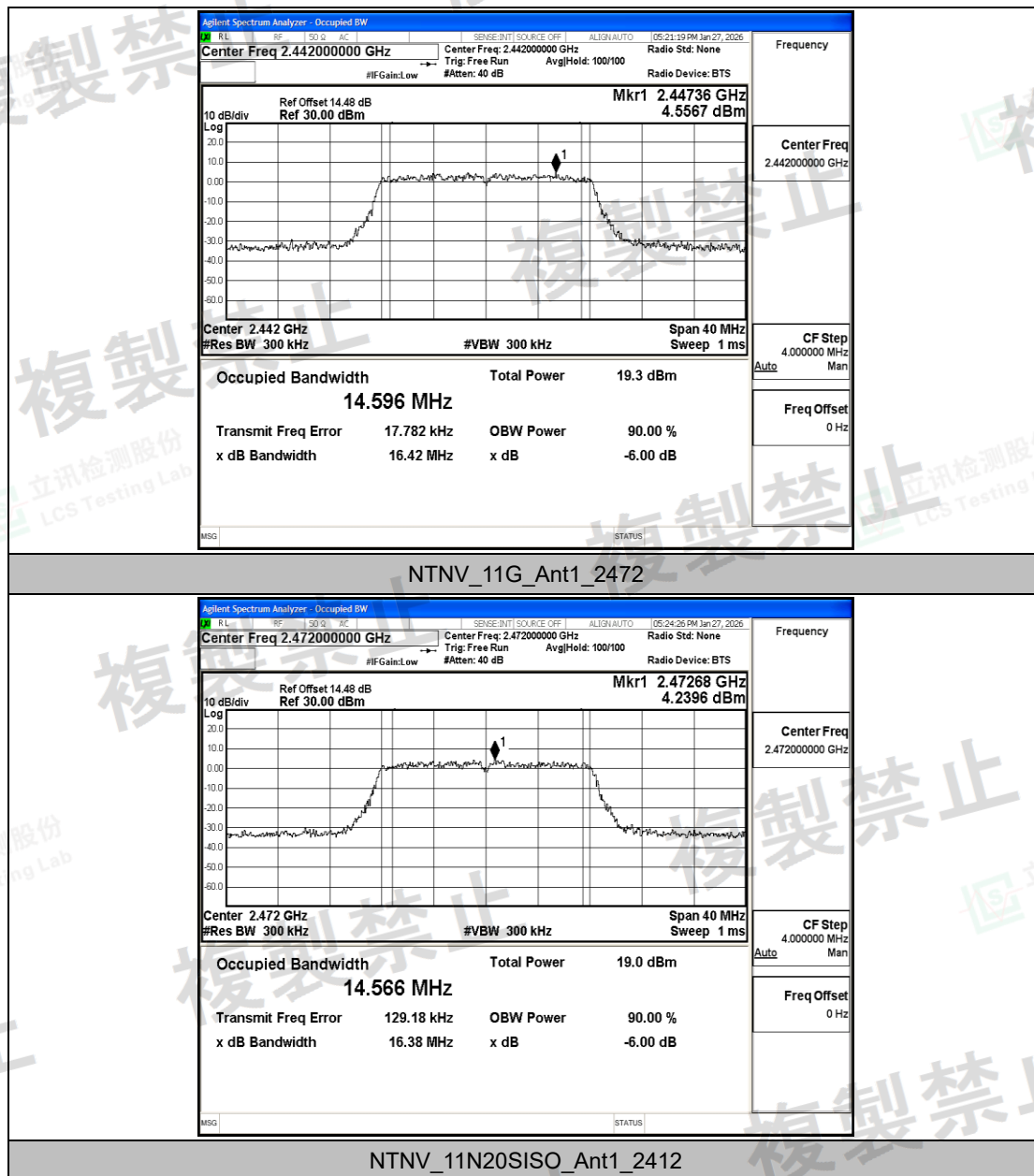
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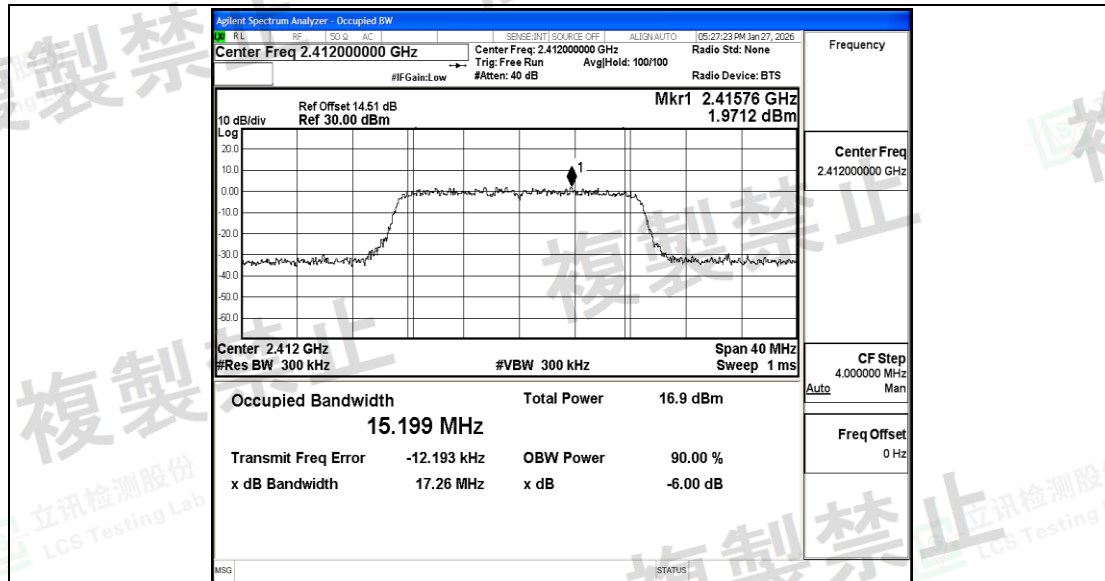


Test Graphs

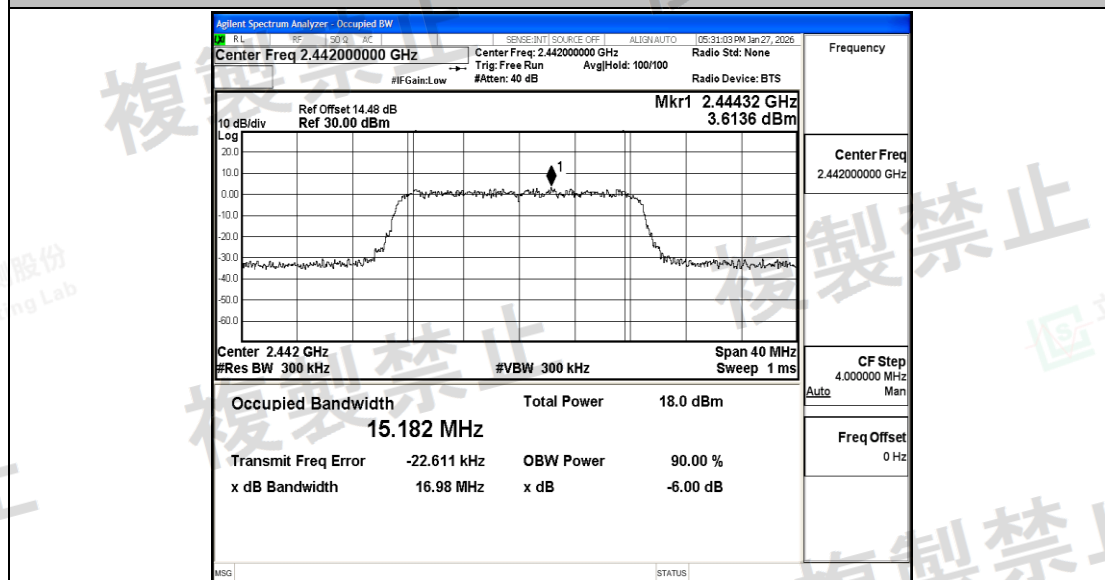






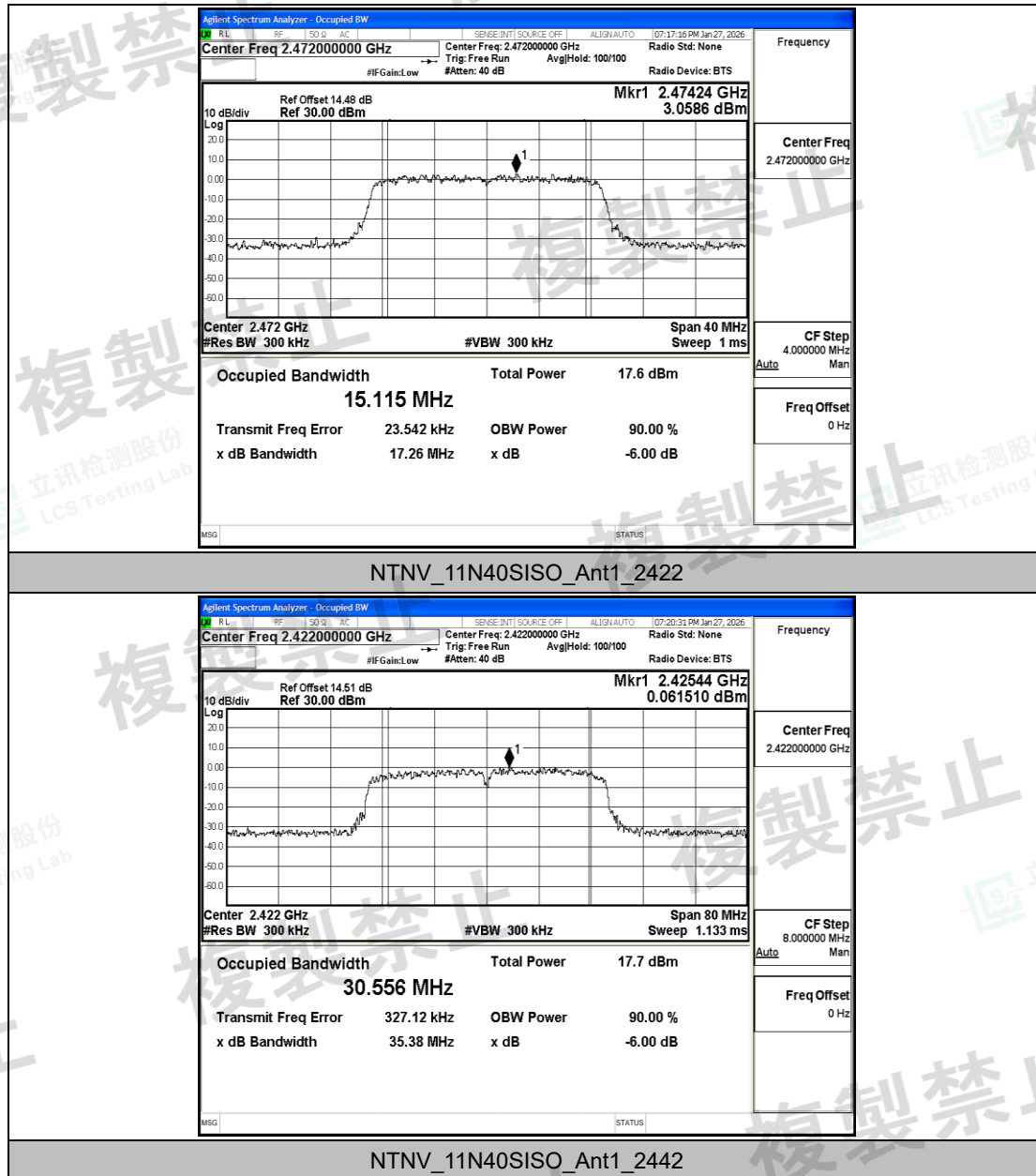


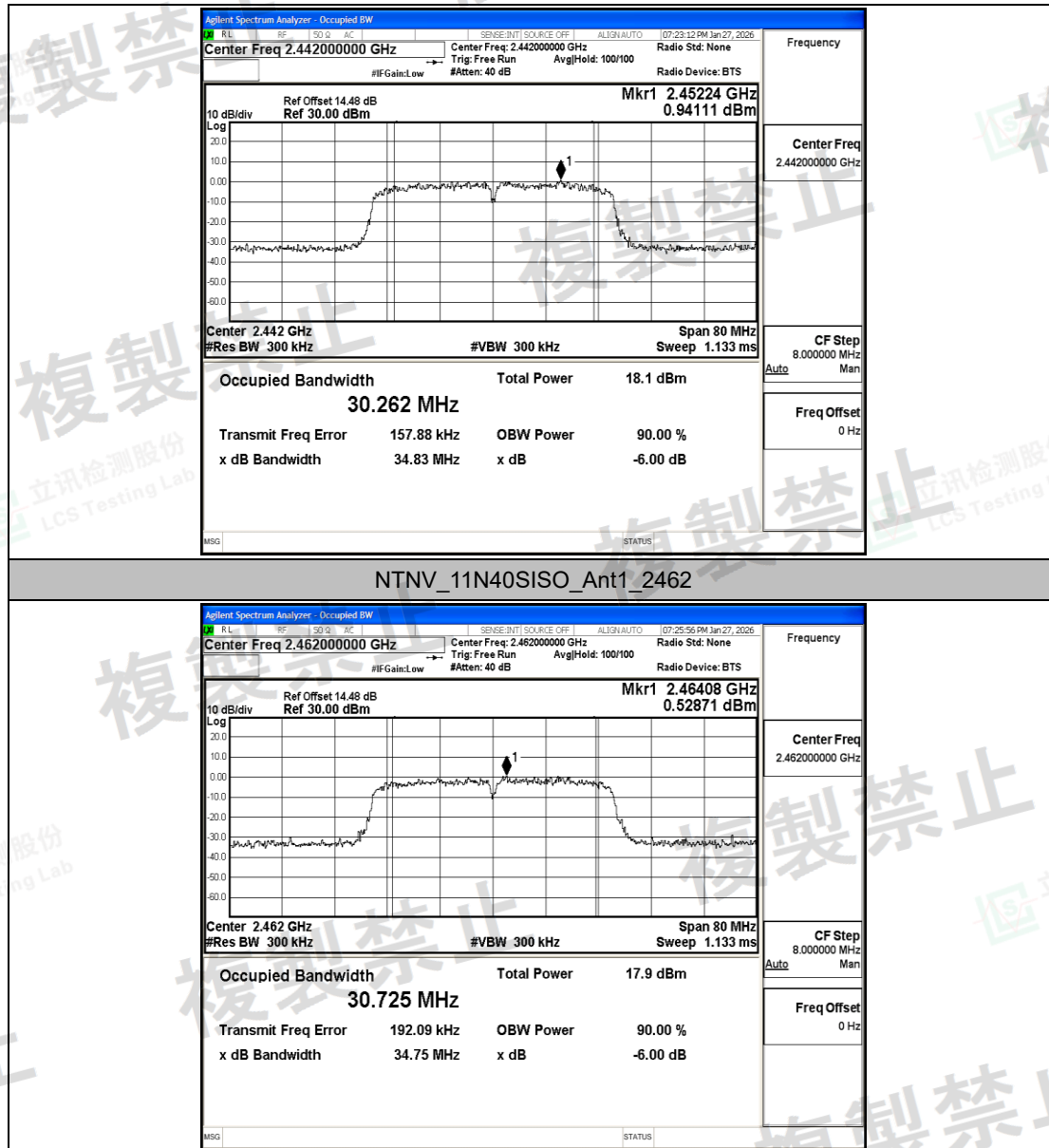
NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472









B.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	-51.76	≤-26	0.00667	≤2.5	PASS
				1000~2387	-36.23	≤-26	0.23823	≤2.5	PASS
				2387~2400	-38.67	≤-16	0.13583	≤25	PASS
				2483.5~2496.5	-42.71	≤-16	0.05358	≤25	PASS
				2496.5~13000	-44.82	≤-26	0.03296	≤2.5	PASS
			2442	30~1000	-51.89	≤-26	0.00647	≤2.5	PASS
				1000~2387	-34.95	≤-26	0.31989	≤2.5	PASS
				2387~2400	-42.67	≤-16	0.05408	≤25	PASS
				2483.5~2496.5	-42.69	≤-16	0.05383	≤25	PASS
				2496.5~13000	-45.30	≤-26	0.02951	≤2.5	PASS
			2472	30~1000	-52.27	≤-26	0.00593	≤2.5	PASS
				1000~2387	-33.88	≤-26	0.40926	≤2.5	PASS
				2387~2400	-42.93	≤-16	0.05093	≤25	PASS
				2483.5~2496.5	-37.99	≤-16	0.15885	≤25	PASS
				2496.5~13000	-45.52	≤-26	0.02805	≤2.5	PASS
	11G	Ant1	2412	30~1000	-52.17	≤-26	0.00607	≤2.5	PASS
				1000~2387	-37.60	≤-26	0.17378	≤2.5	PASS
				2387~2400	-34.93	≤-16	0.32137	≤25	PASS
				2483.5~2496.5	-42.66	≤-16	0.05420	≤25	PASS
				2496.5~13000	-45.07	≤-26	0.03112	≤2.5	PASS
			2442	30~1000	-51.80	≤-26	0.00661	≤2.5	PASS
				1000~2387	-29.13	≤-26	1.22180	≤2.5	PASS
				2387~2400	-42.58	≤-16	0.05521	≤25	PASS
				2483.5~2496.5	-42.56	≤-16	0.05546	≤25	PASS
				2496.5~13000	-45.12	≤-26	0.03076	≤2.5	PASS
			2472	30~1000	-52.01	≤-26	0.00630	≤2.5	PASS
				1000~2387	-29.36	≤-26	1.15878	≤2.5	PASS
				2387~2400	-43.00	≤-16	0.05012	≤25	PASS
				2483.5~2496.5	-33.17	≤-16	0.48195	≤25	PASS
				2496.5~13000	-39.18	≤-26	0.12078	≤2.5	PASS
	11N20SISO	Ant1	2412	30~1000	-52.43	≤-26	0.00571	≤2.5	PASS
				1000~2387	-50.54	≤-26	0.00883	≤2.5	PASS
				2387~2400	-36.57	≤-16	0.22029	≤25	PASS
				2483.5~2496.5	-42.98	≤-16	0.05035	≤25	PASS
				2496.5~13000	-45.43	≤-26	0.02864	≤2.5	PASS



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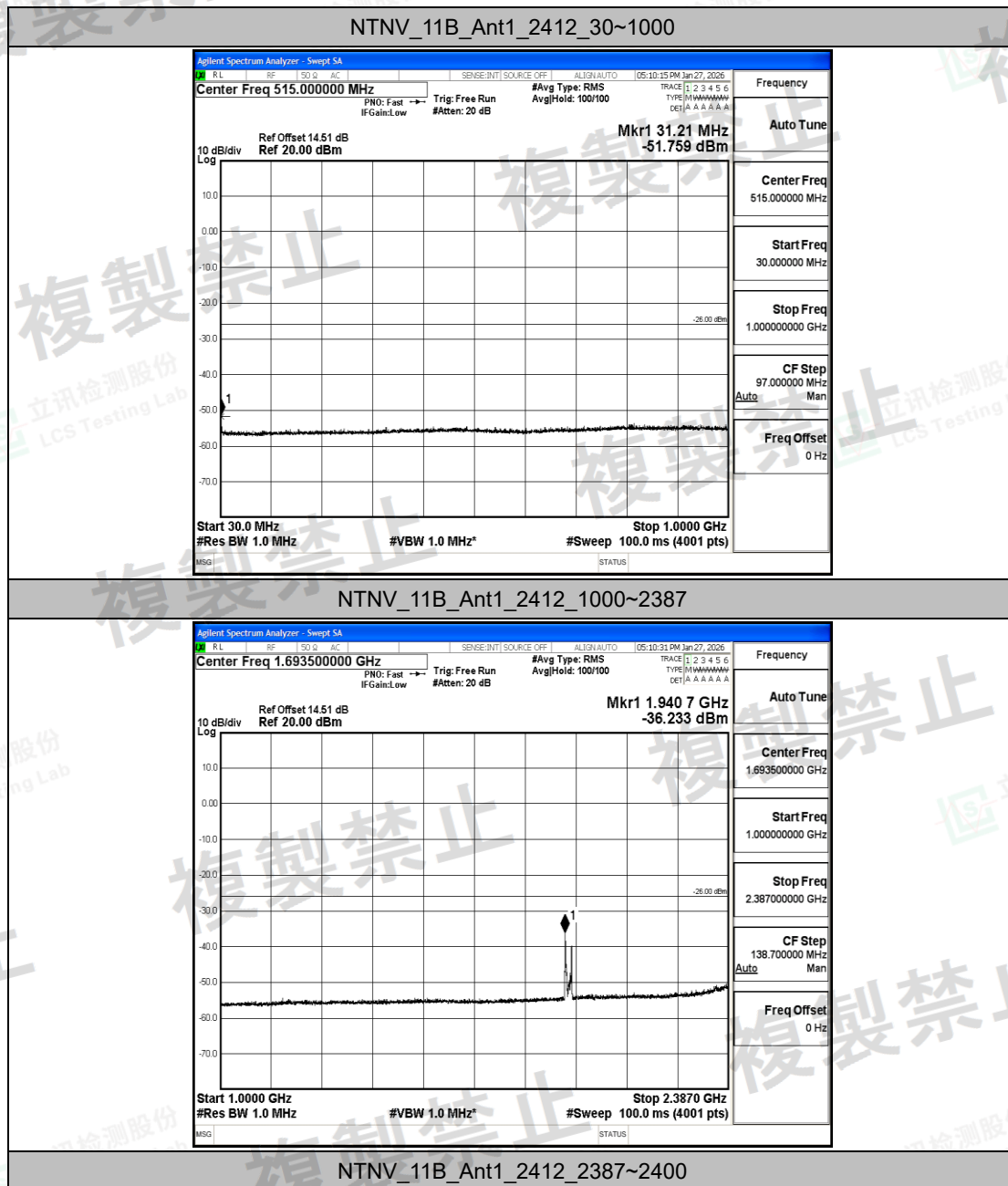


			2442	30~1000	-52.26	≤-26	0.00594	≤2.5	PASS
				1000~2387	-33.85	≤-26	0.41210	≤2.5	PASS
				2387~2400	-42.91	≤-16	0.05117	≤25	PASS
				2483.5~2496.5	-42.94	≤-16	0.05082	≤25	PASS
				2496.5~13000	-37.96	≤-26	0.15996	≤2.5	PASS
			2472	30~1000	-52.53	≤-26	0.00558	≤2.5	PASS
				1000~2387	-38.90	≤-26	0.12882	≤2.5	PASS
				2387~2400	-43.19	≤-16	0.04797	≤25	PASS
				2483.5~2496.5	-35.15	≤-16	0.30549	≤25	PASS
				2496.5~13000	-45.73	≤-26	0.02673	≤2.5	PASS
	11N40SISO	Ant1	2422	30~1000	-51.81	≤-26	0.00659	≤2.5	PASS
				1000~2387	-34.98	≤-26	0.31769	≤2.5	PASS
				2387~2400	-36.95	≤-16	0.20184	≤25	PASS
				2483.5~2496.5	-43.17	≤-16	0.04819	≤25	PASS
				2496.5~13000	-45.46	≤-26	0.02844	≤2.5	PASS
			2442	30~1000	-51.57	≤-26	0.00697	≤2.5	PASS
				1000~2387	-36.40	≤-26	0.22909	≤2.5	PASS
				2387~2400	-42.19	≤-16	0.06039	≤25	PASS
				2483.5~2496.5	-42.46	≤-16	0.05675	≤25	PASS
				2496.5~13000	-45.18	≤-26	0.03034	≤2.5	PASS
			2462	30~1000	-52.18	≤-26	0.00605	≤2.5	PASS
				1000~2387	-31.45	≤-26	0.71614	≤2.5	PASS
				2387~2400	-42.79	≤-16	0.05260	≤25	PASS
				2483.5~2496.5	-34.39	≤-16	0.36392	≤25	PASS
				2496.5~13000	-41.44	≤-26	0.07178	≤2.5	PASS

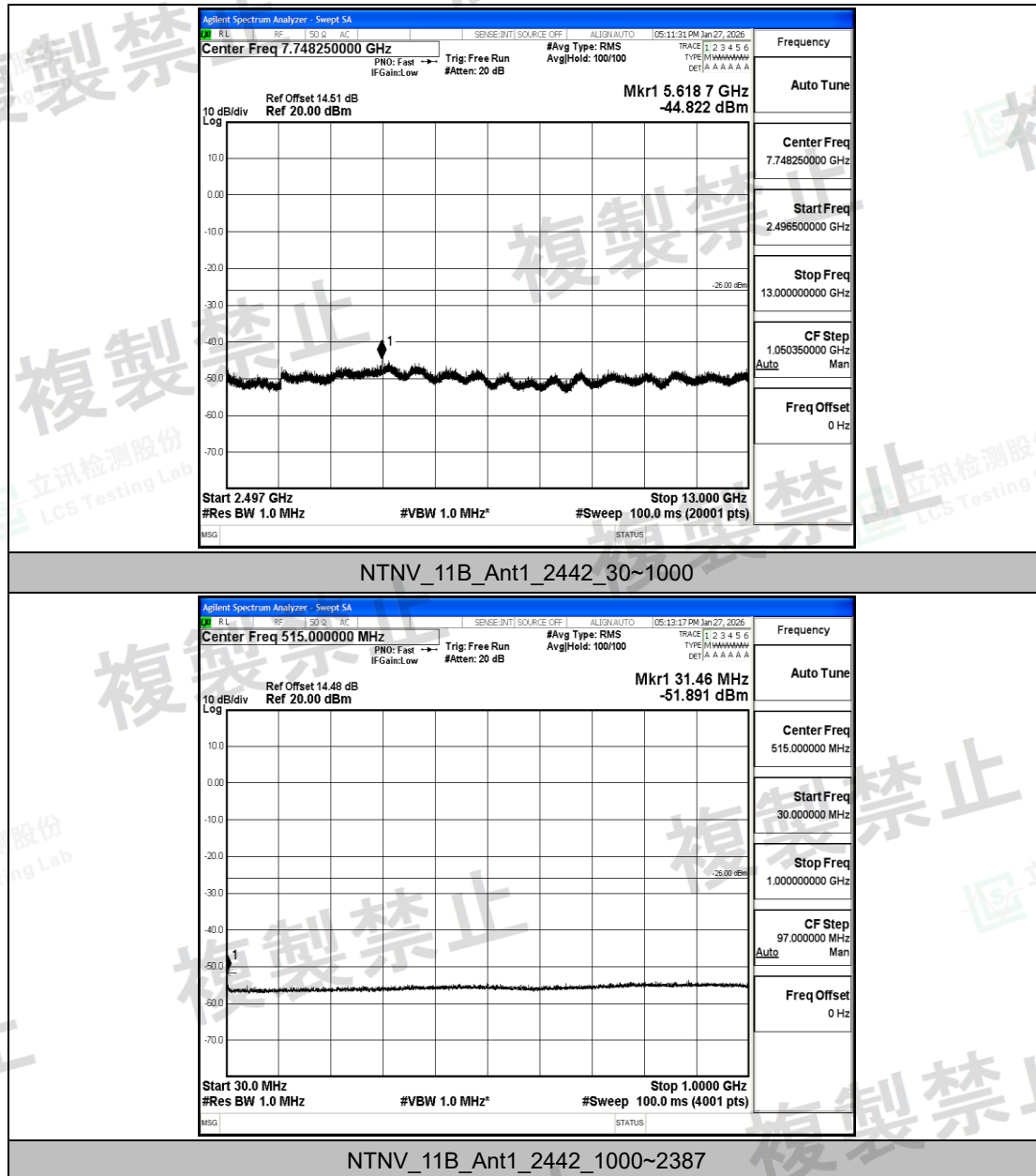




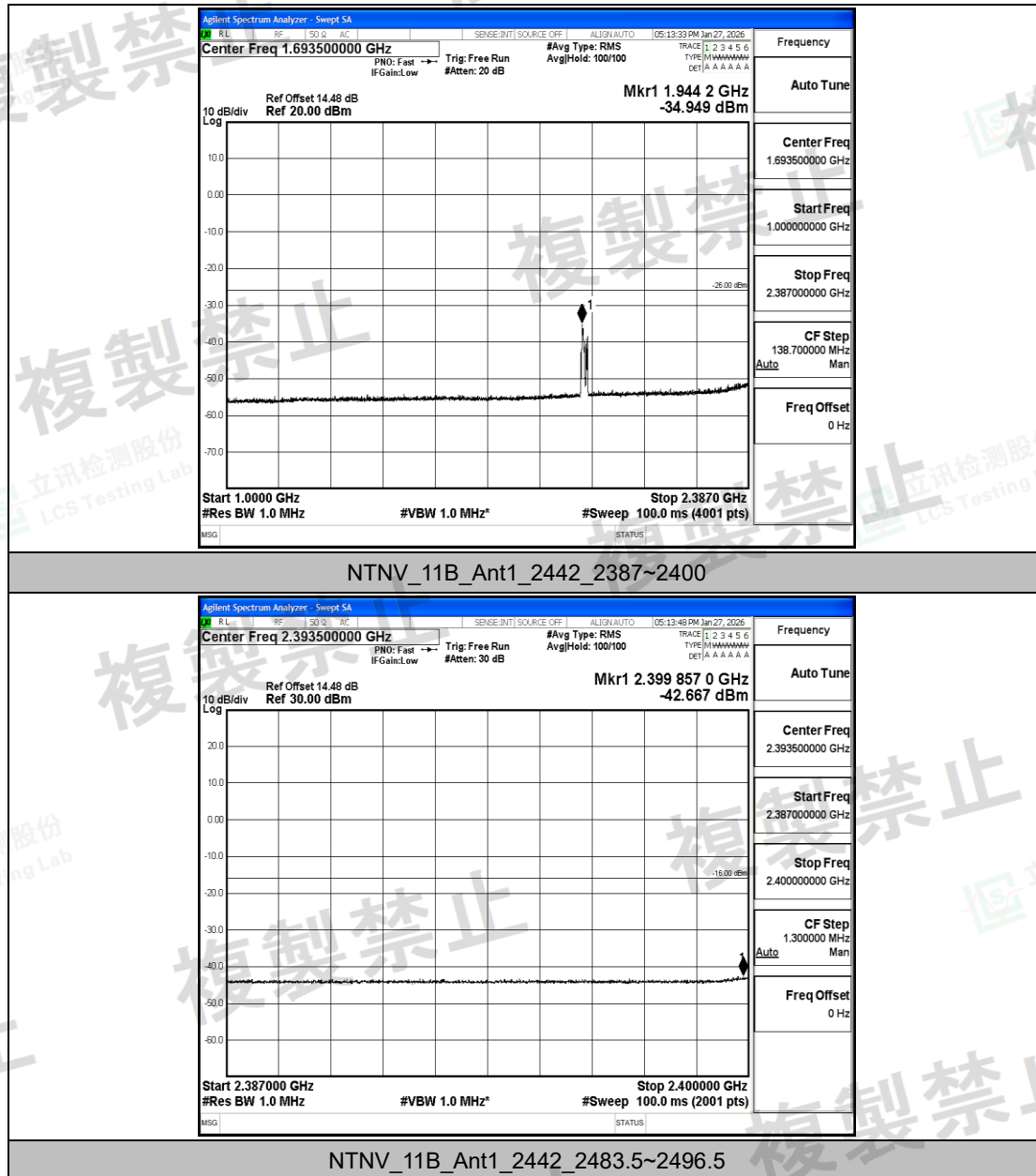
Test Graphs



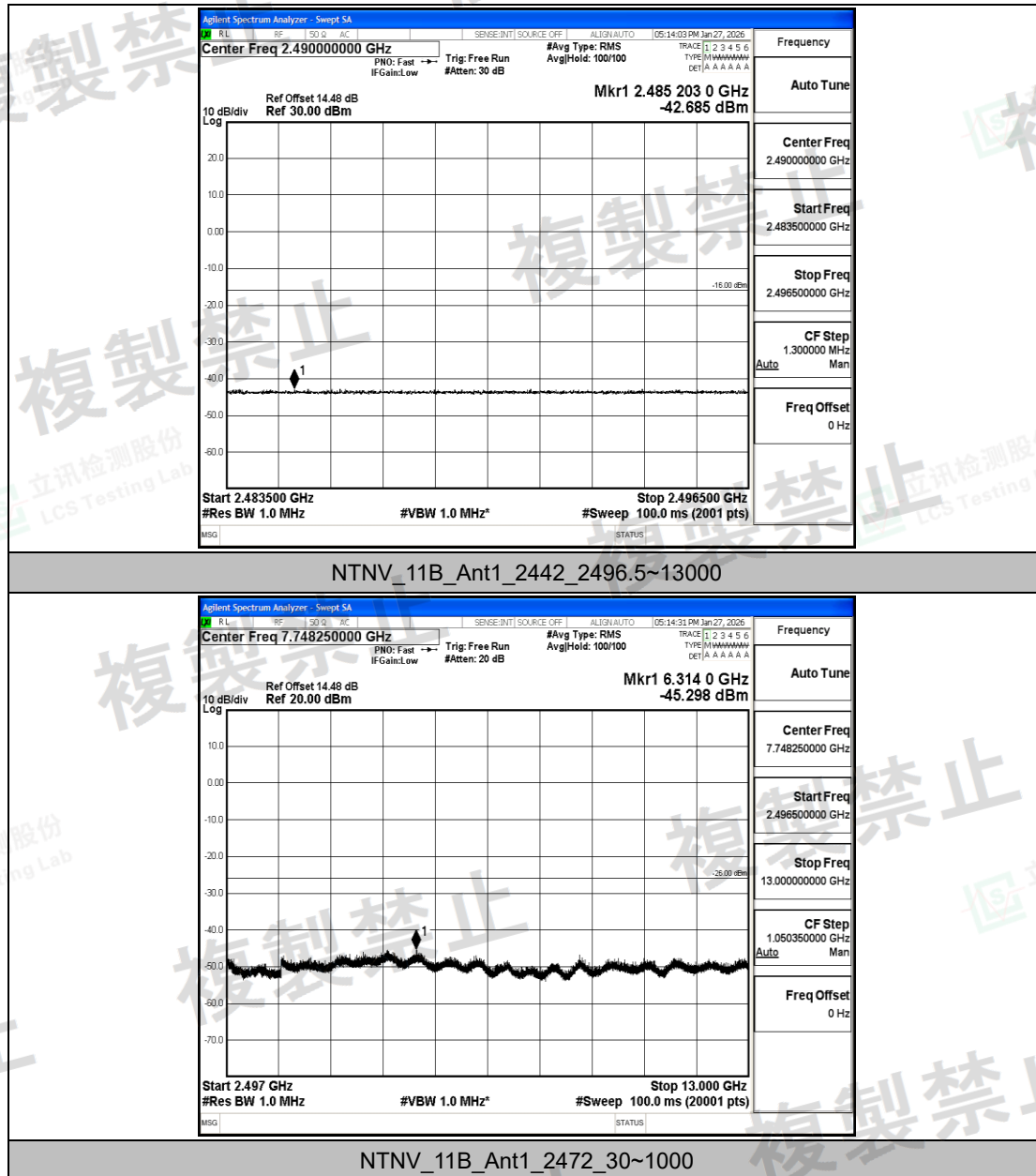


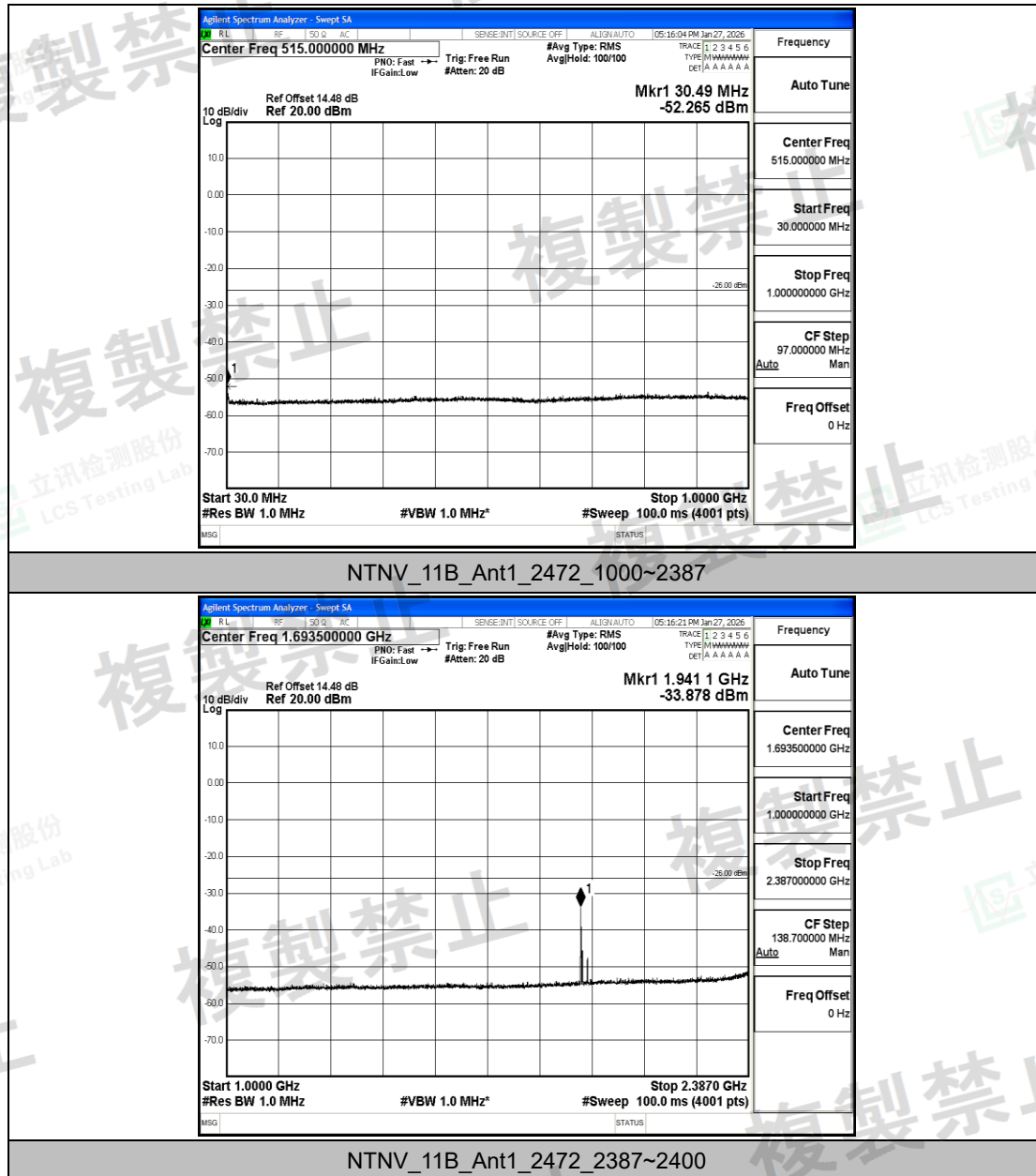


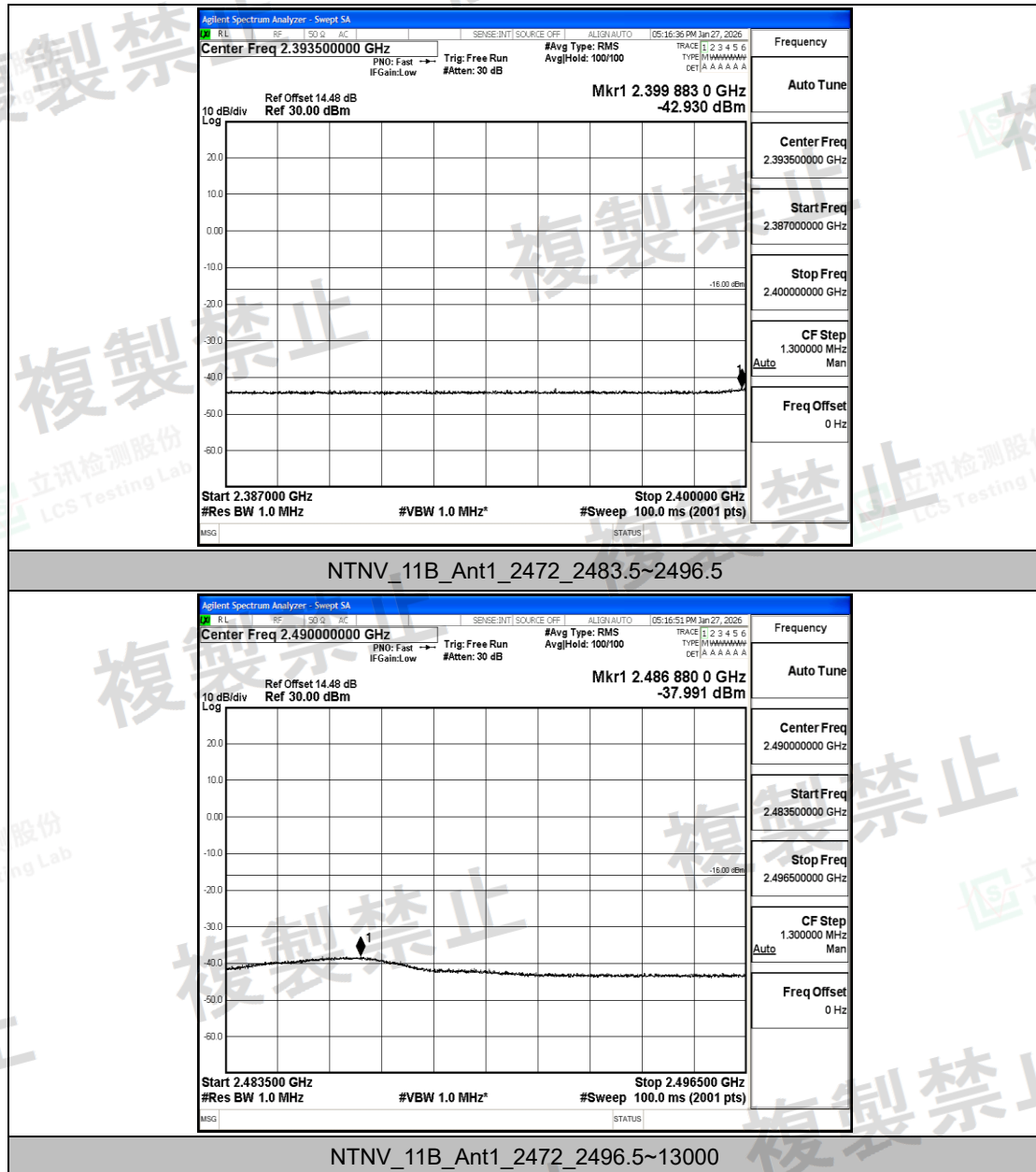
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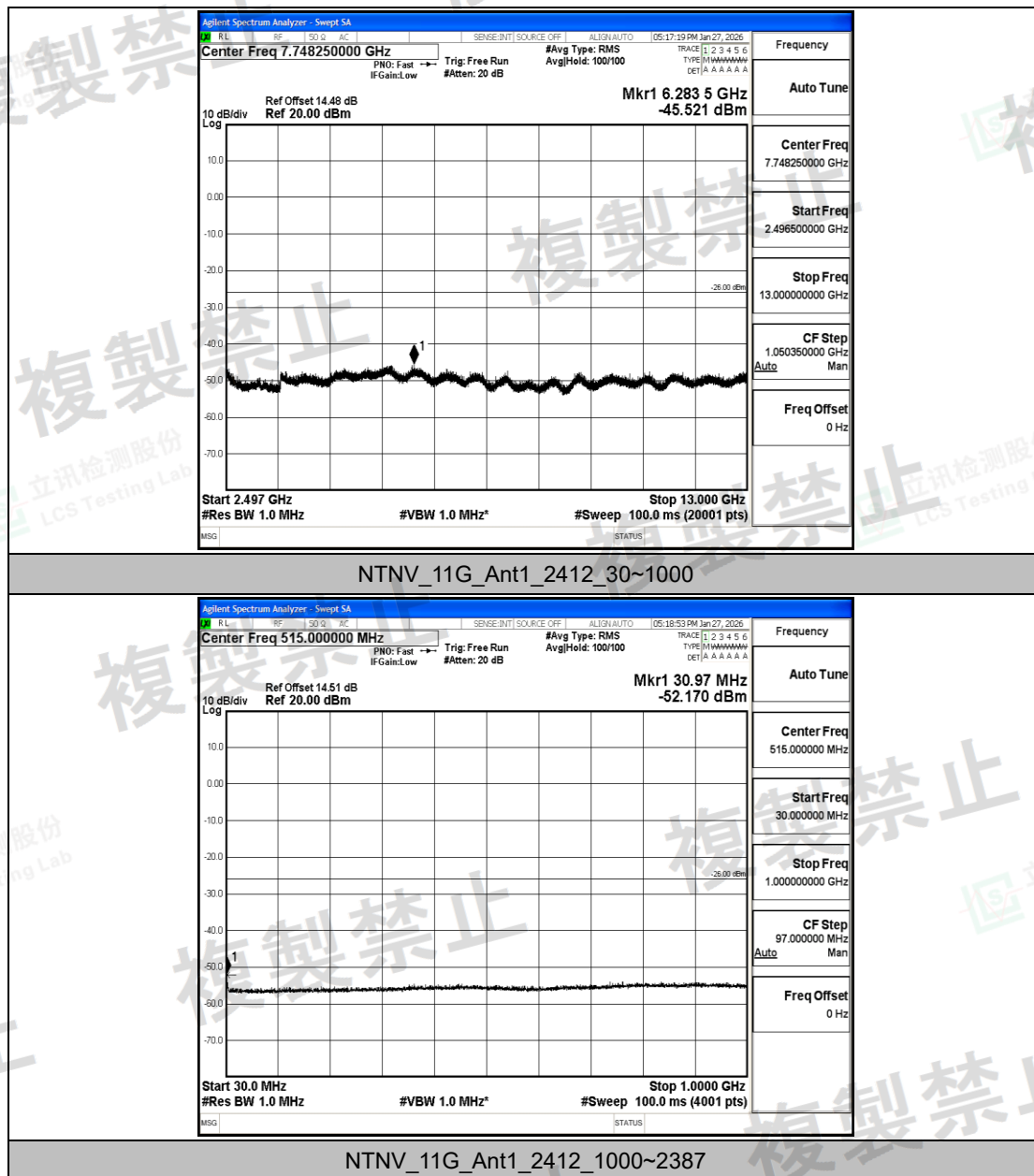
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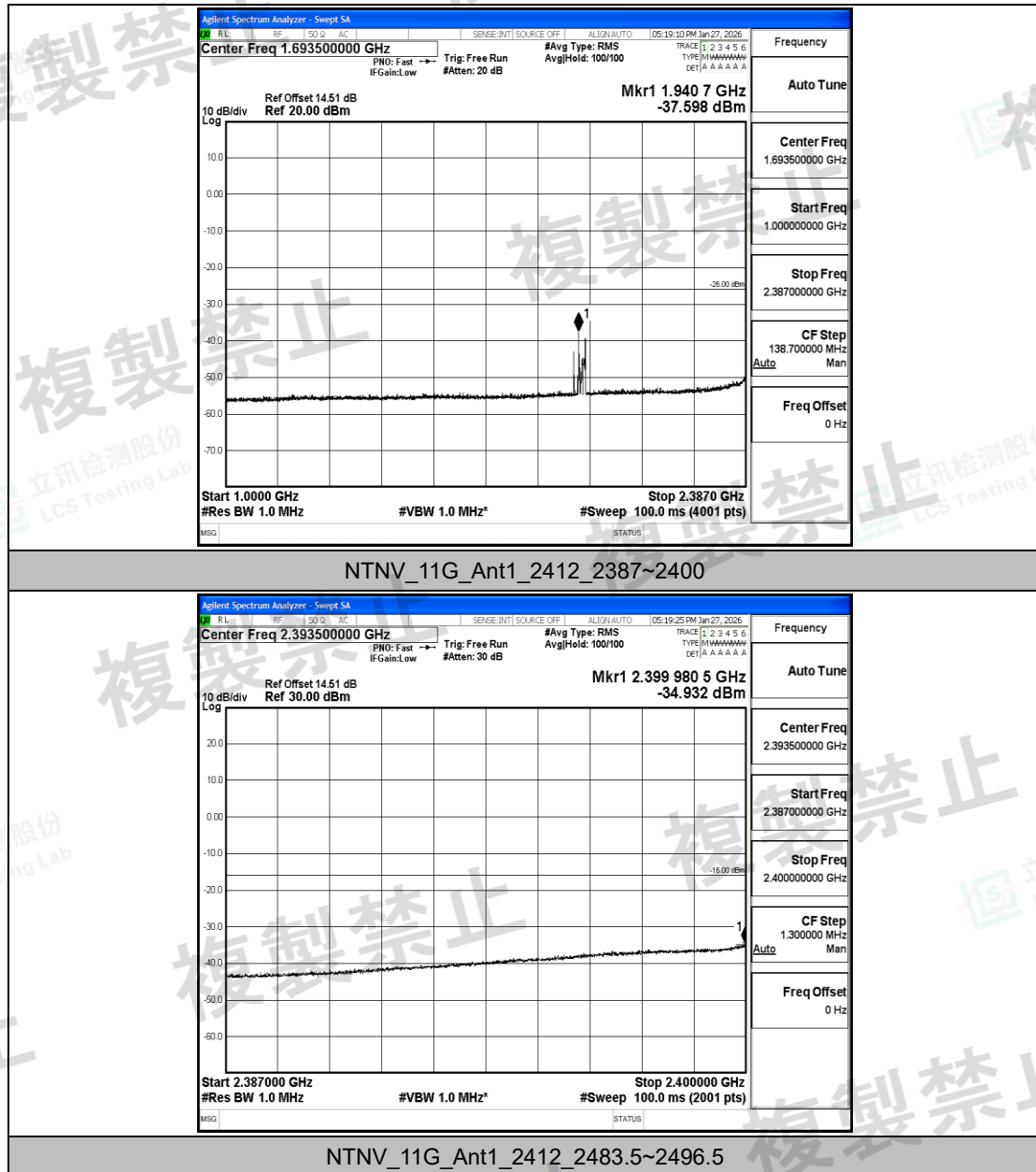


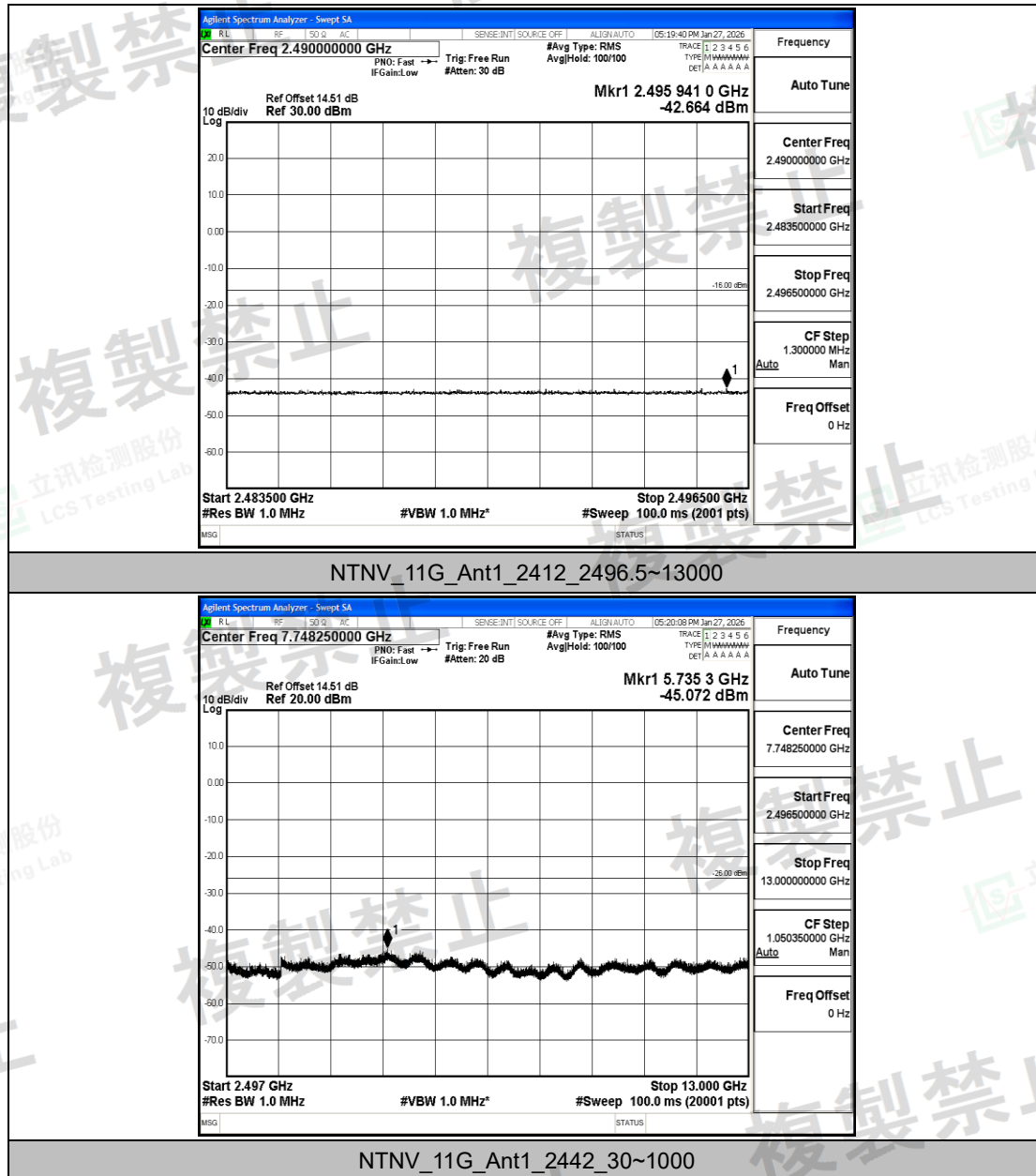


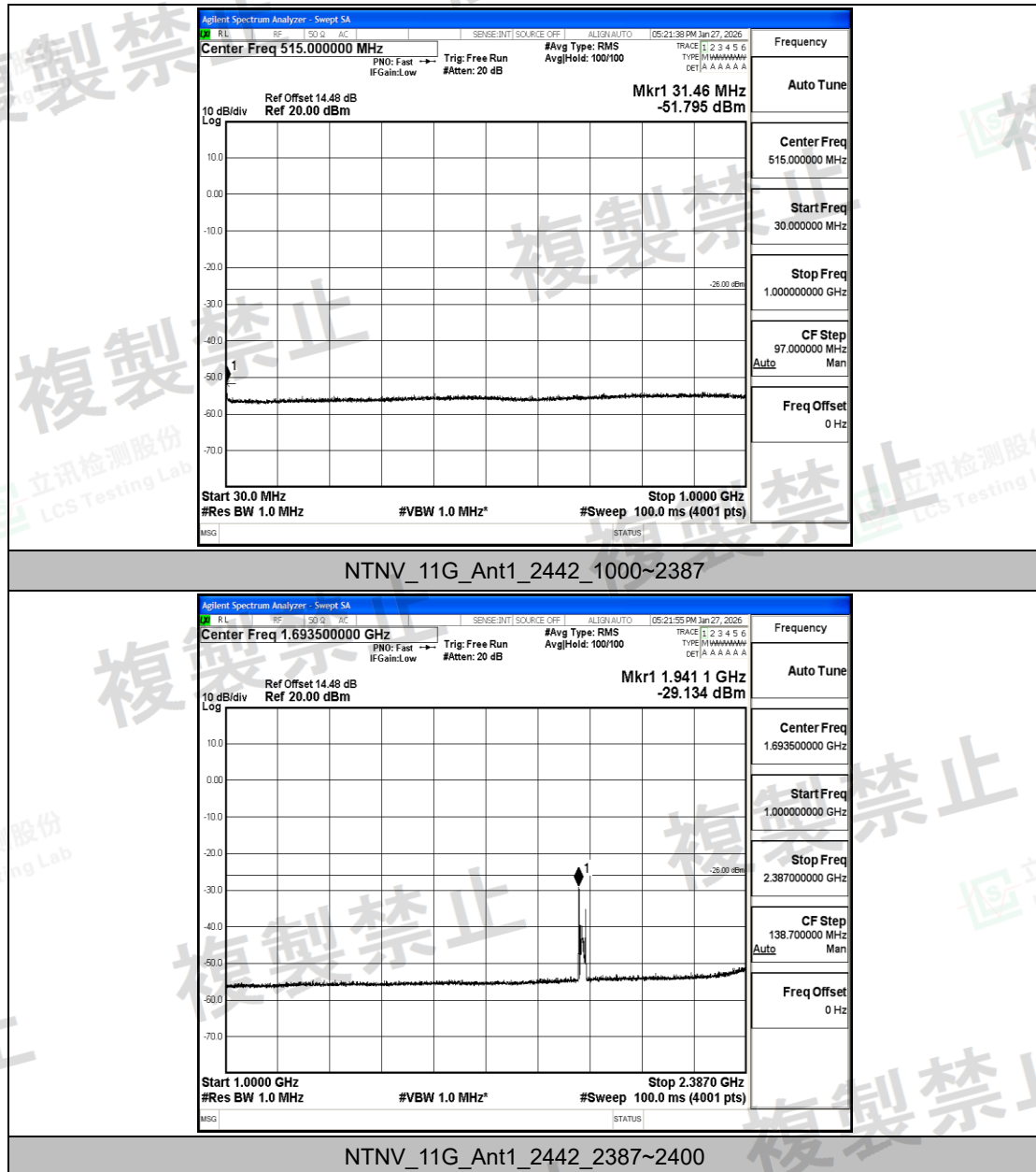


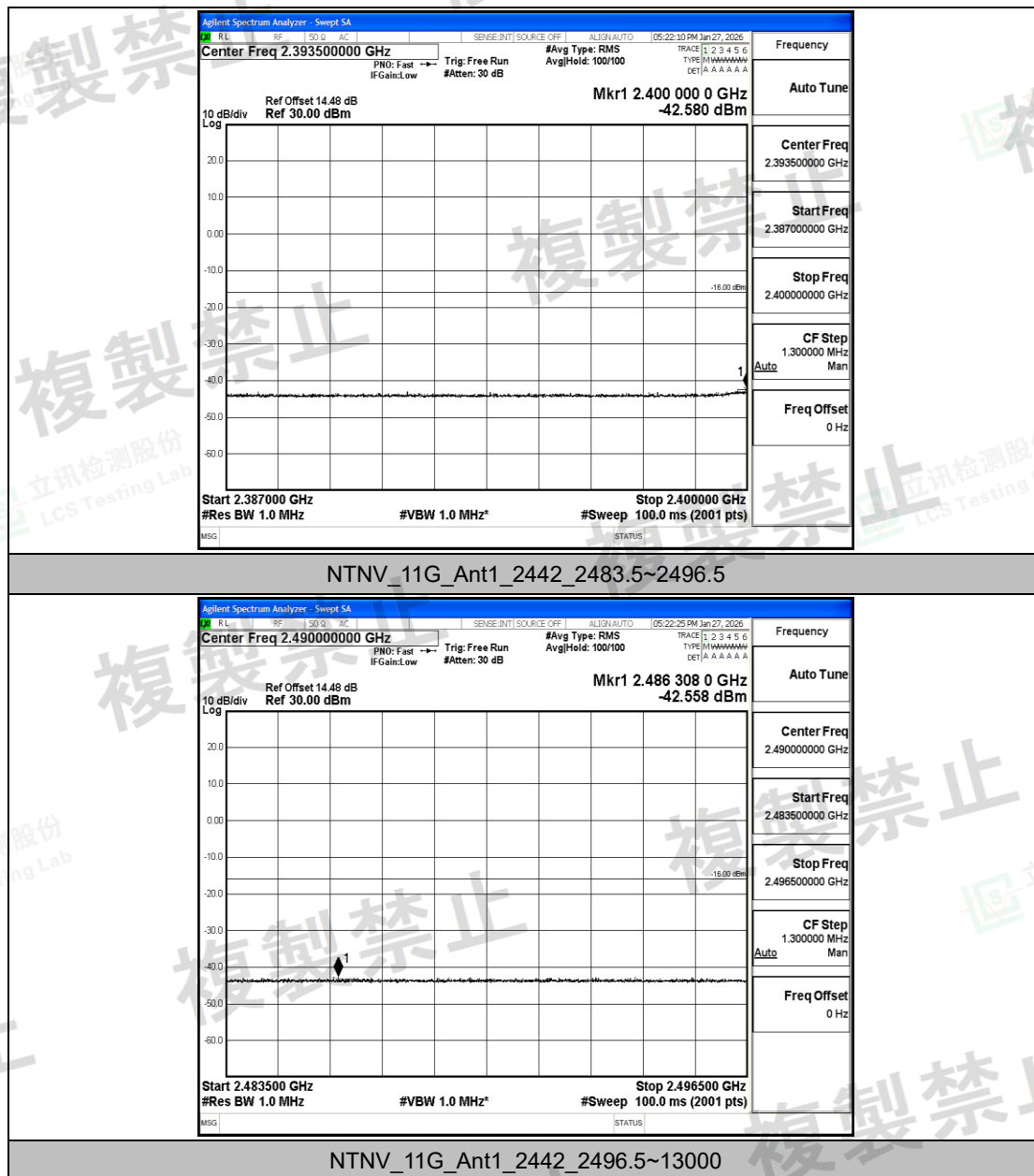
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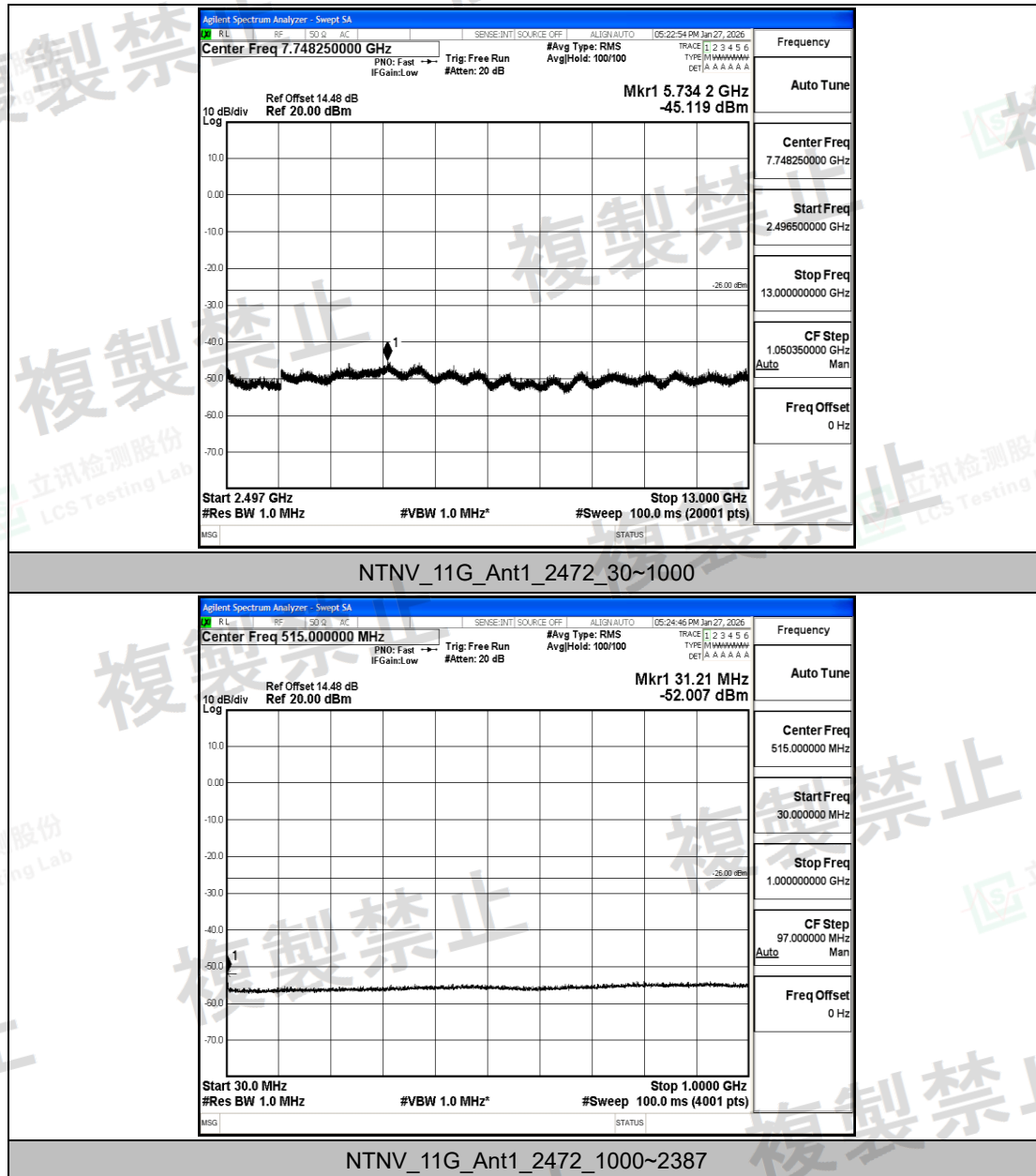


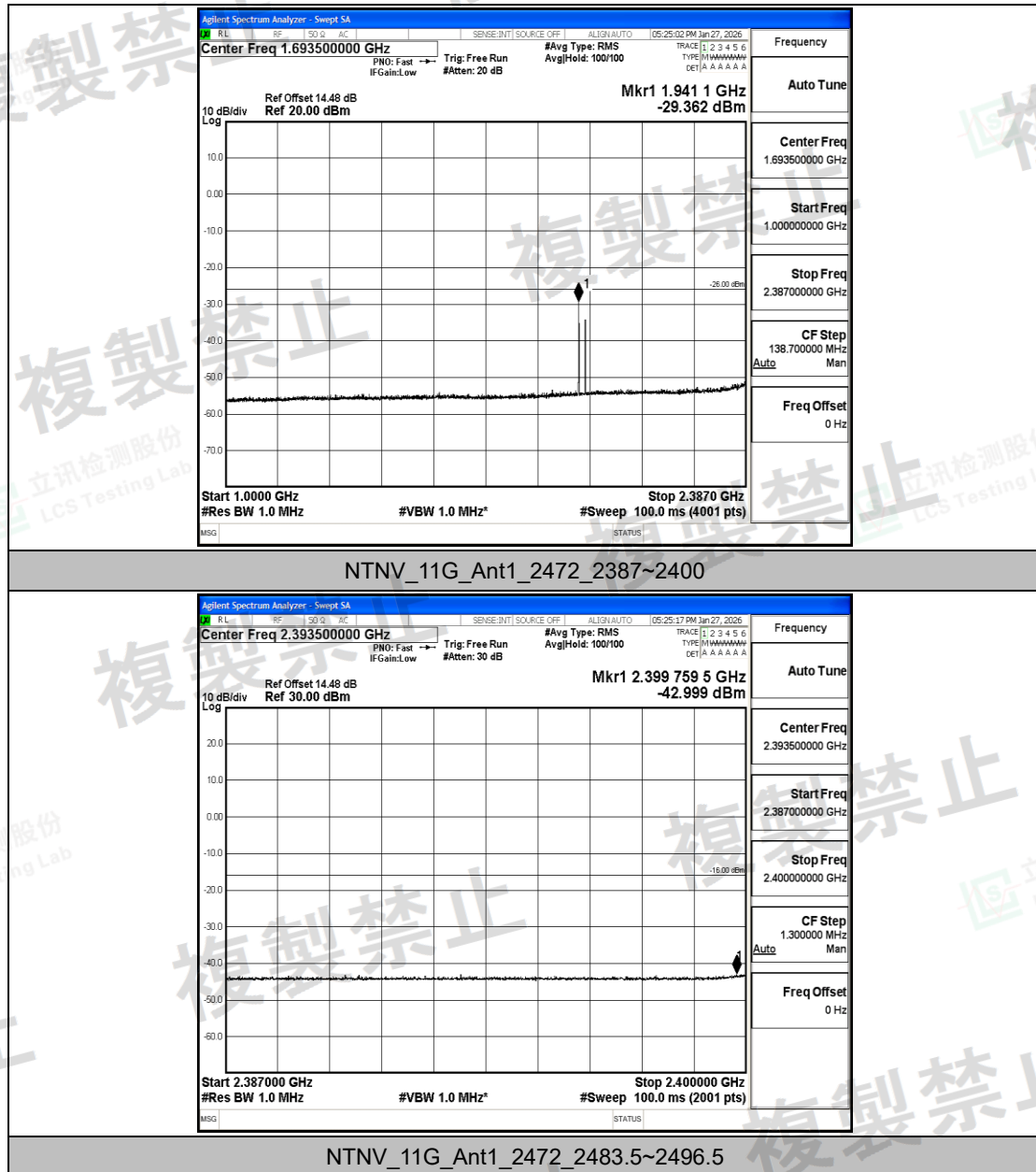


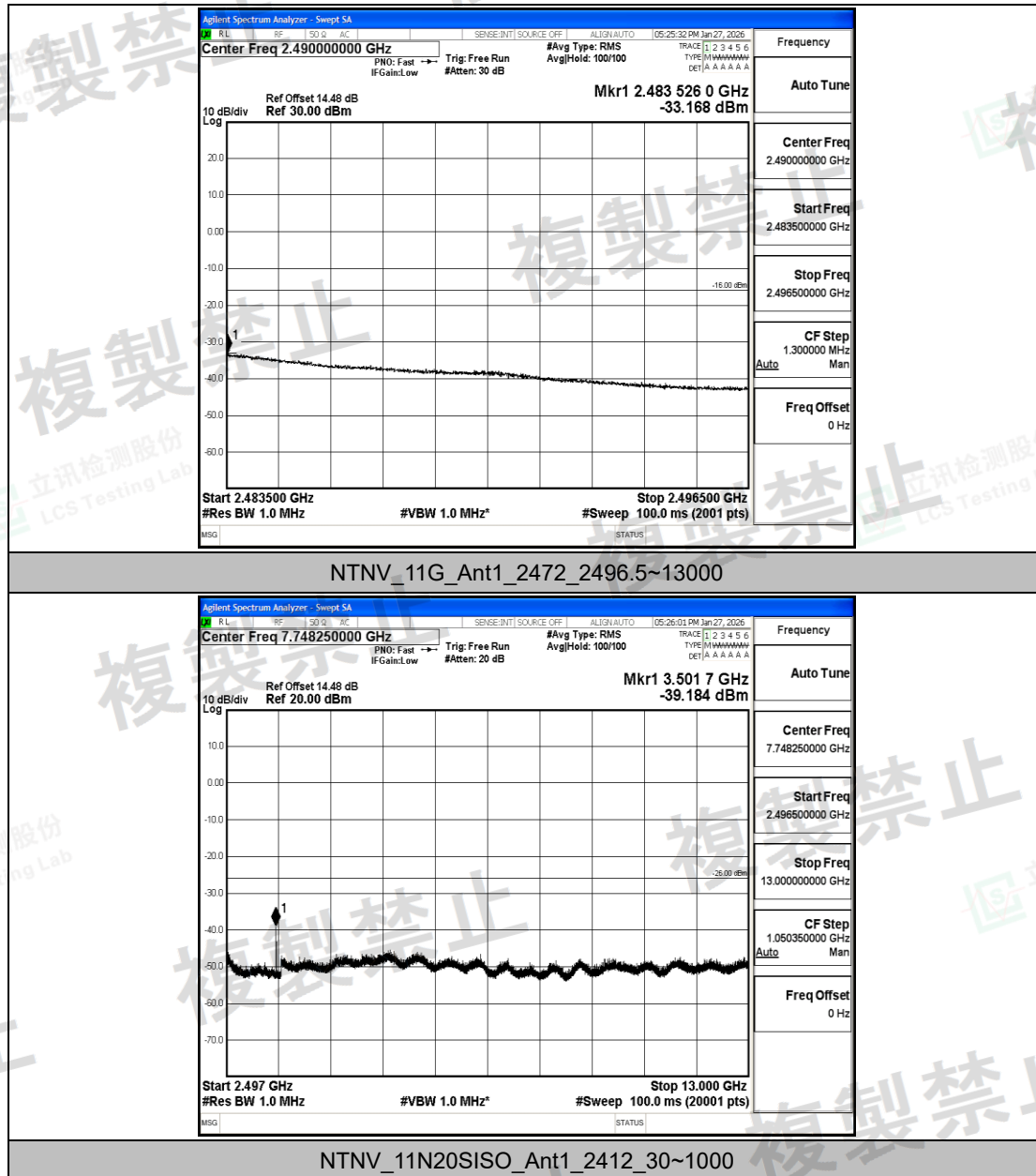


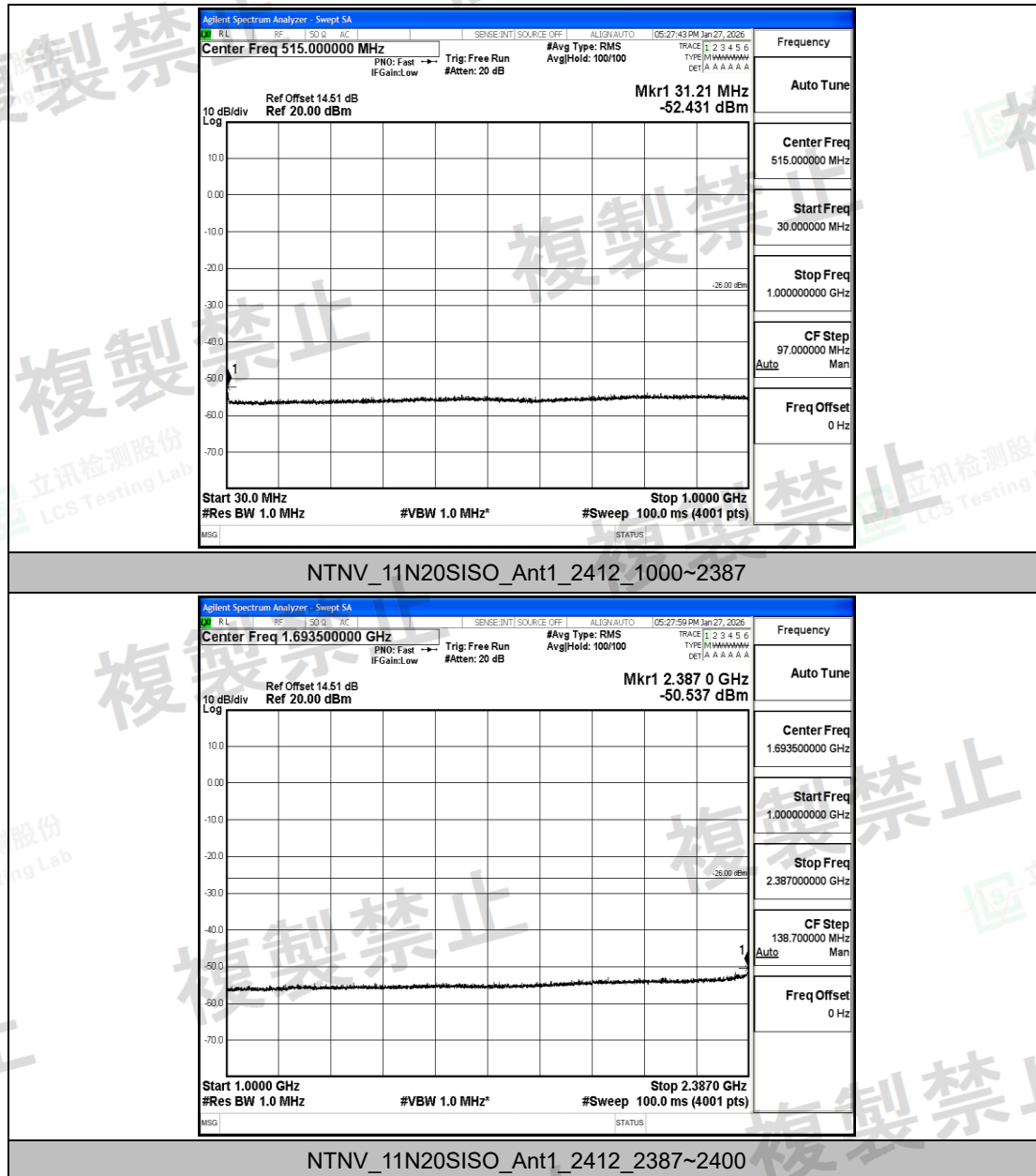


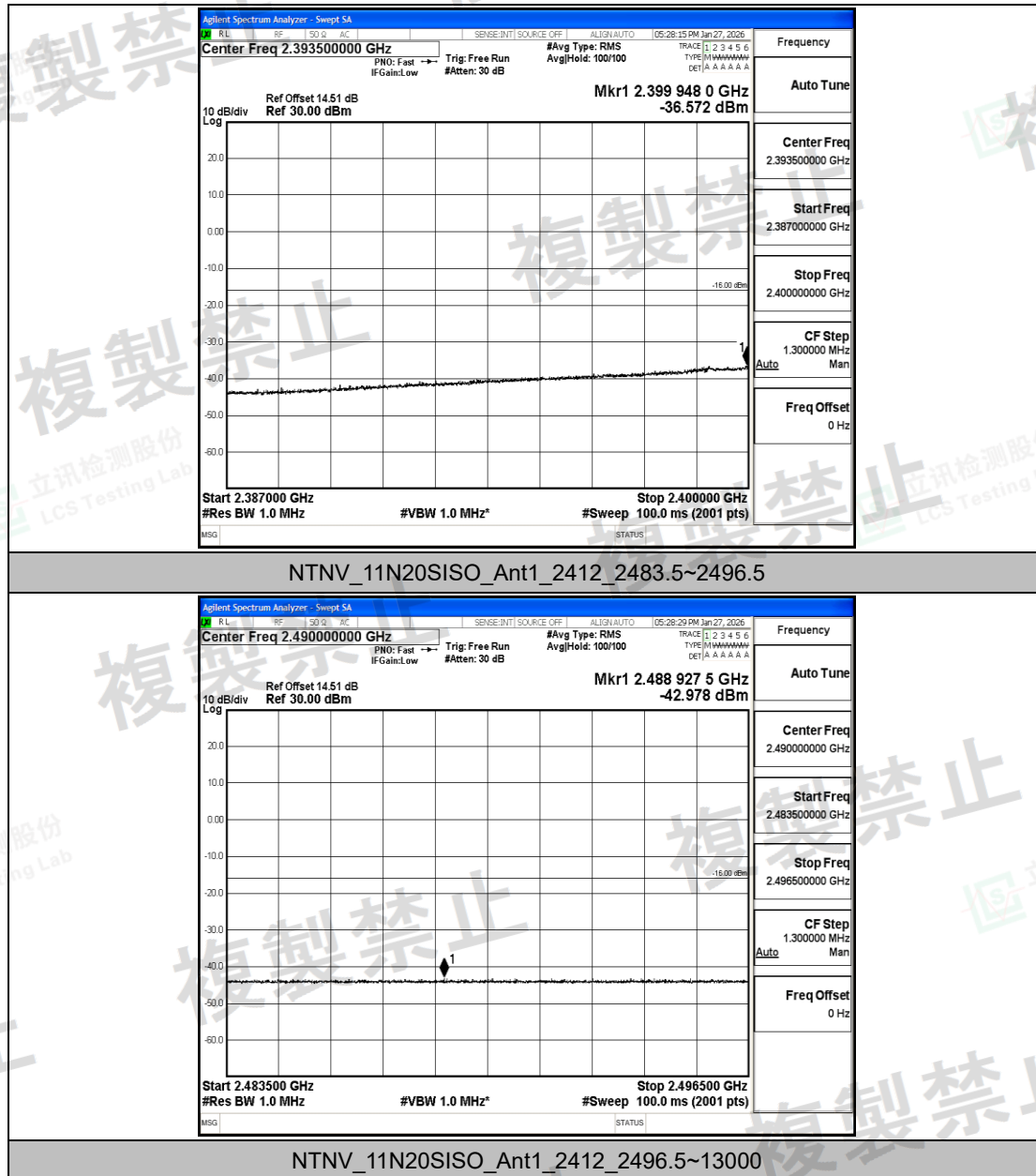




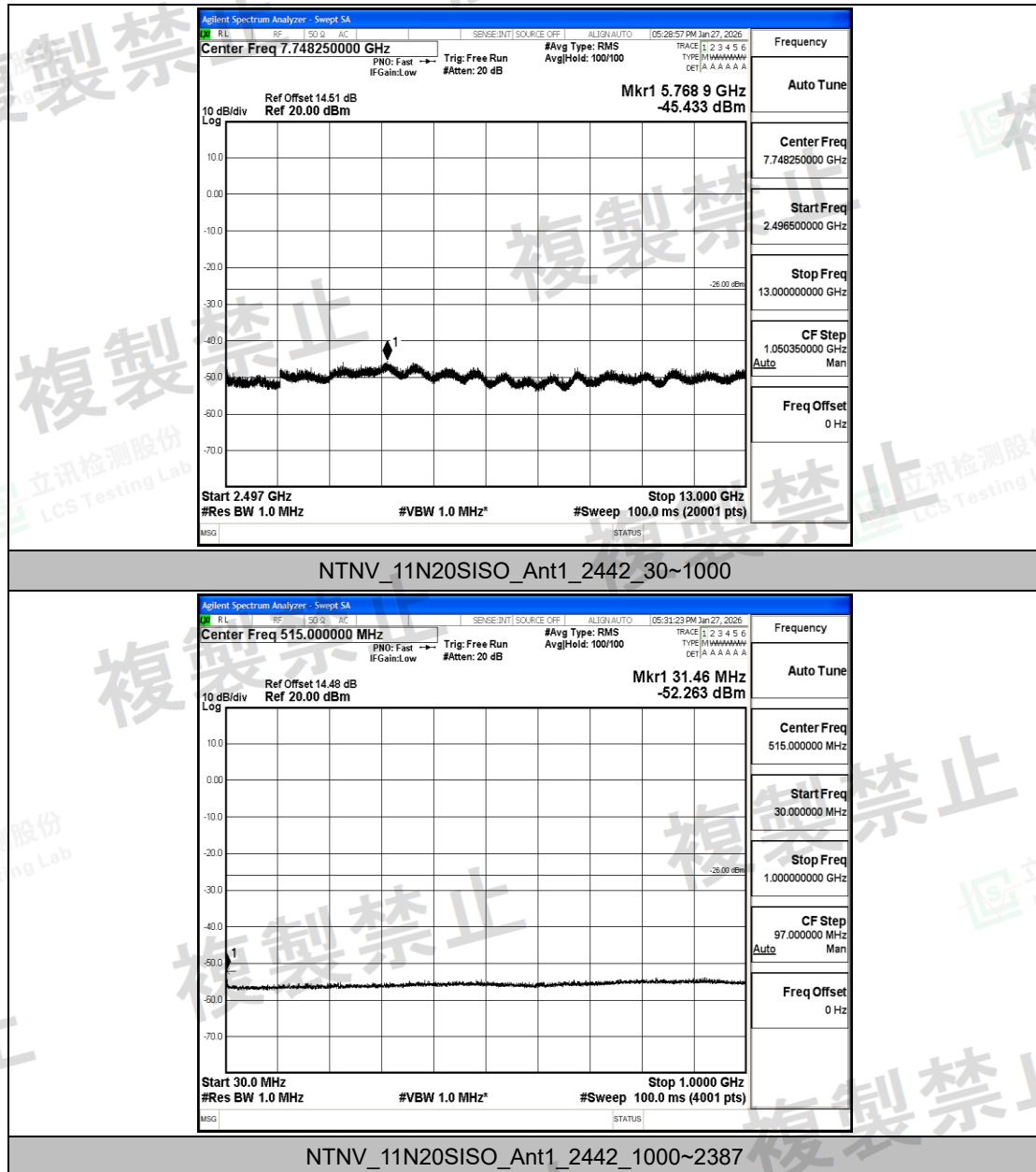


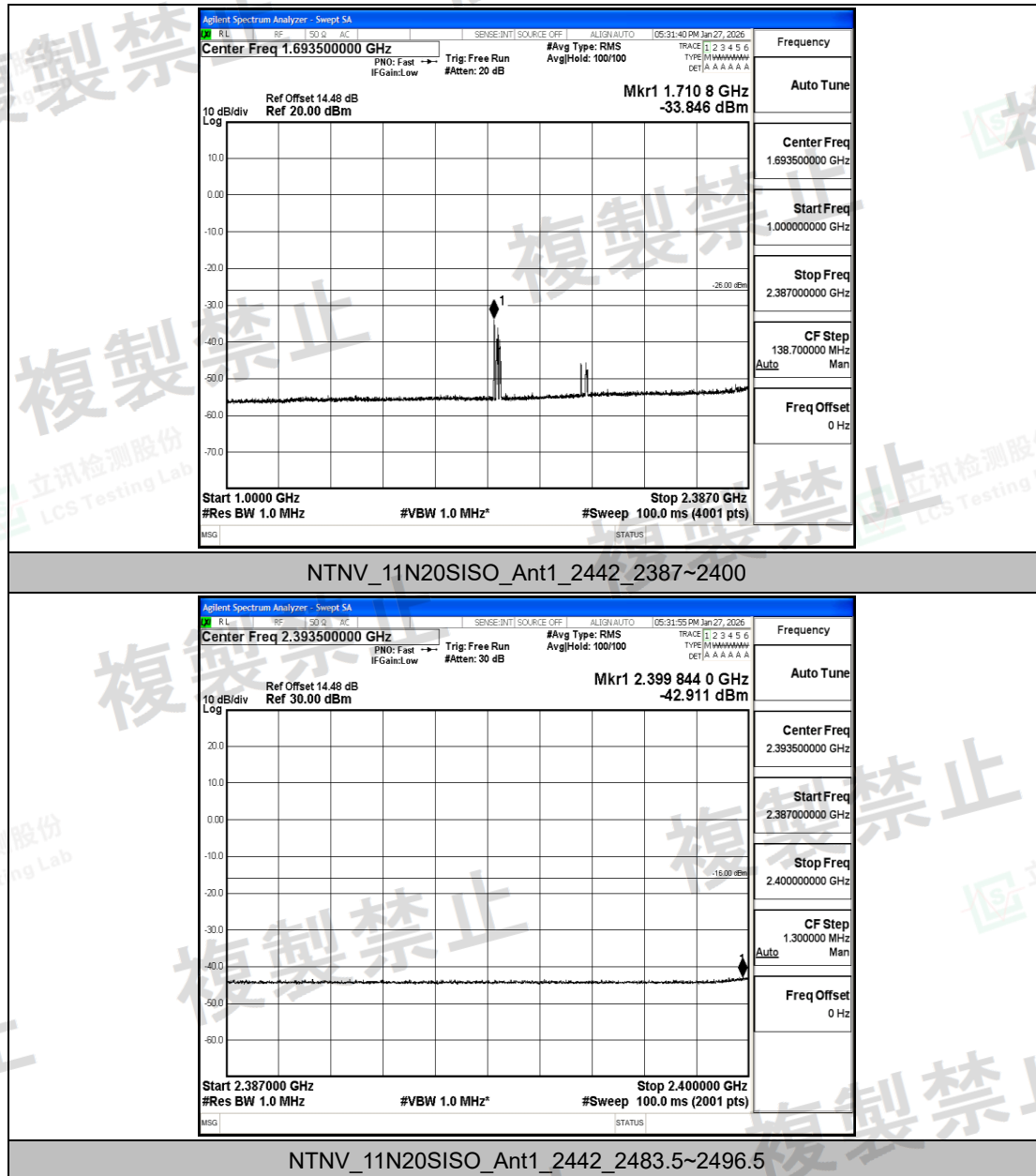


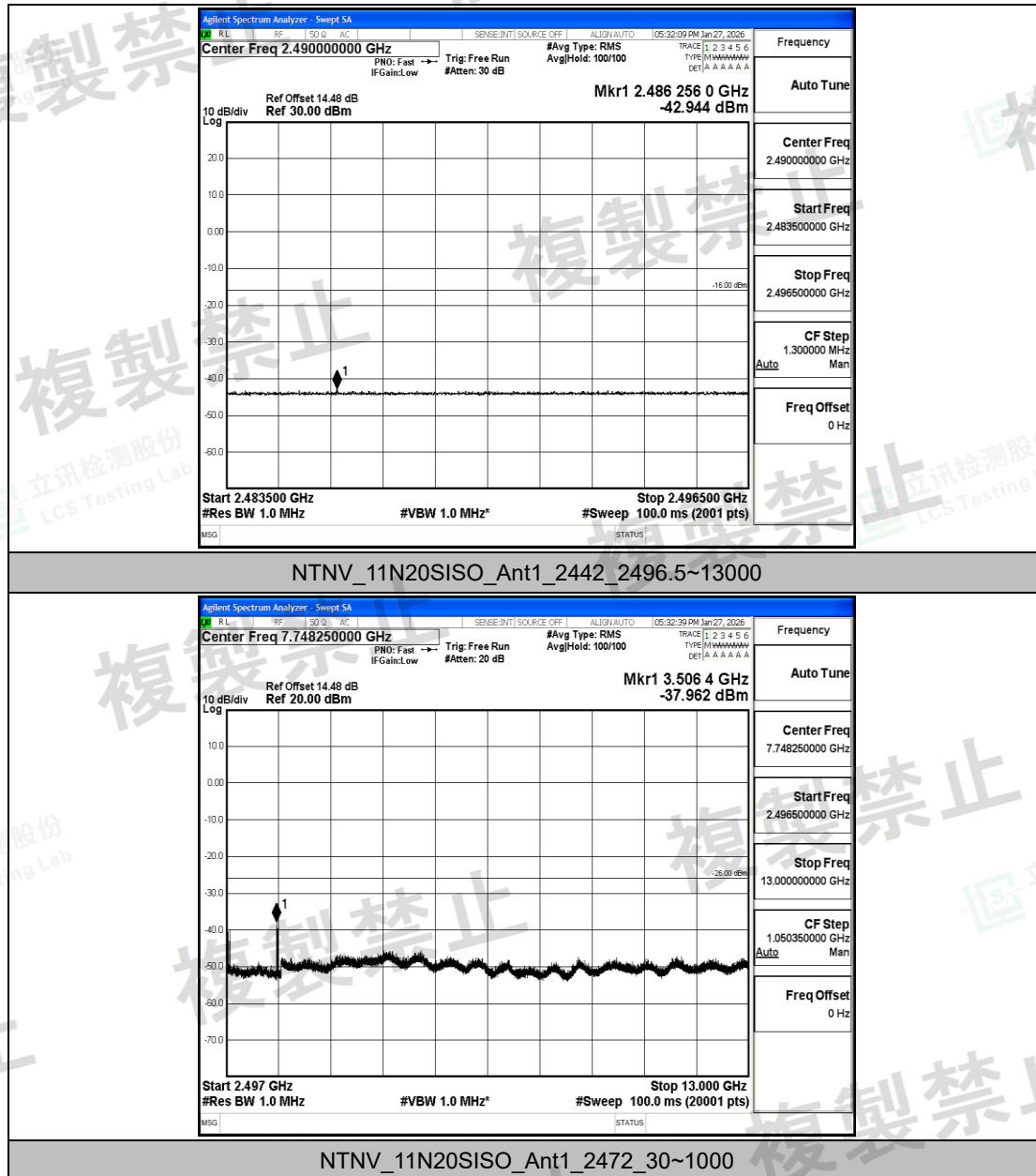


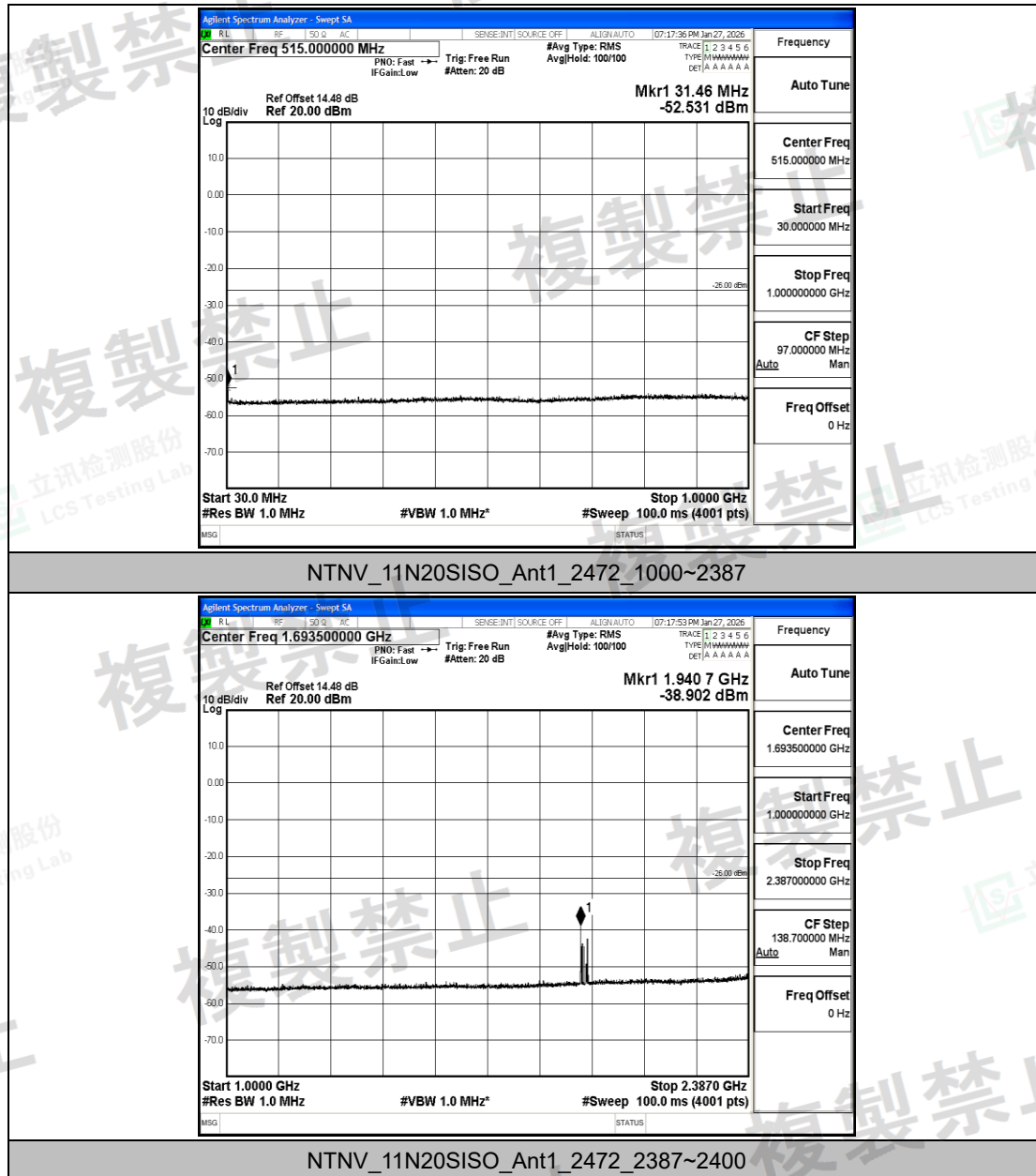


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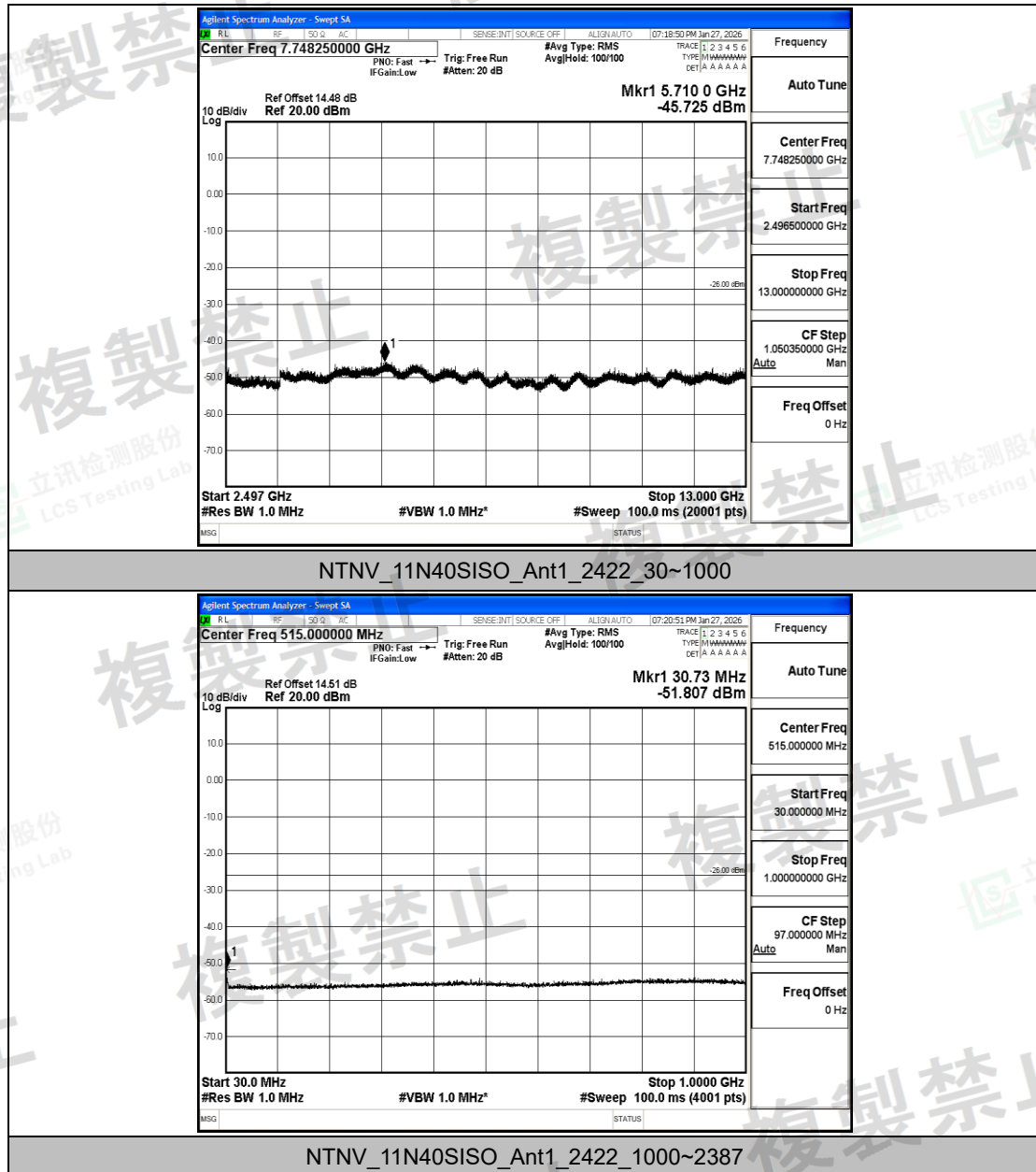


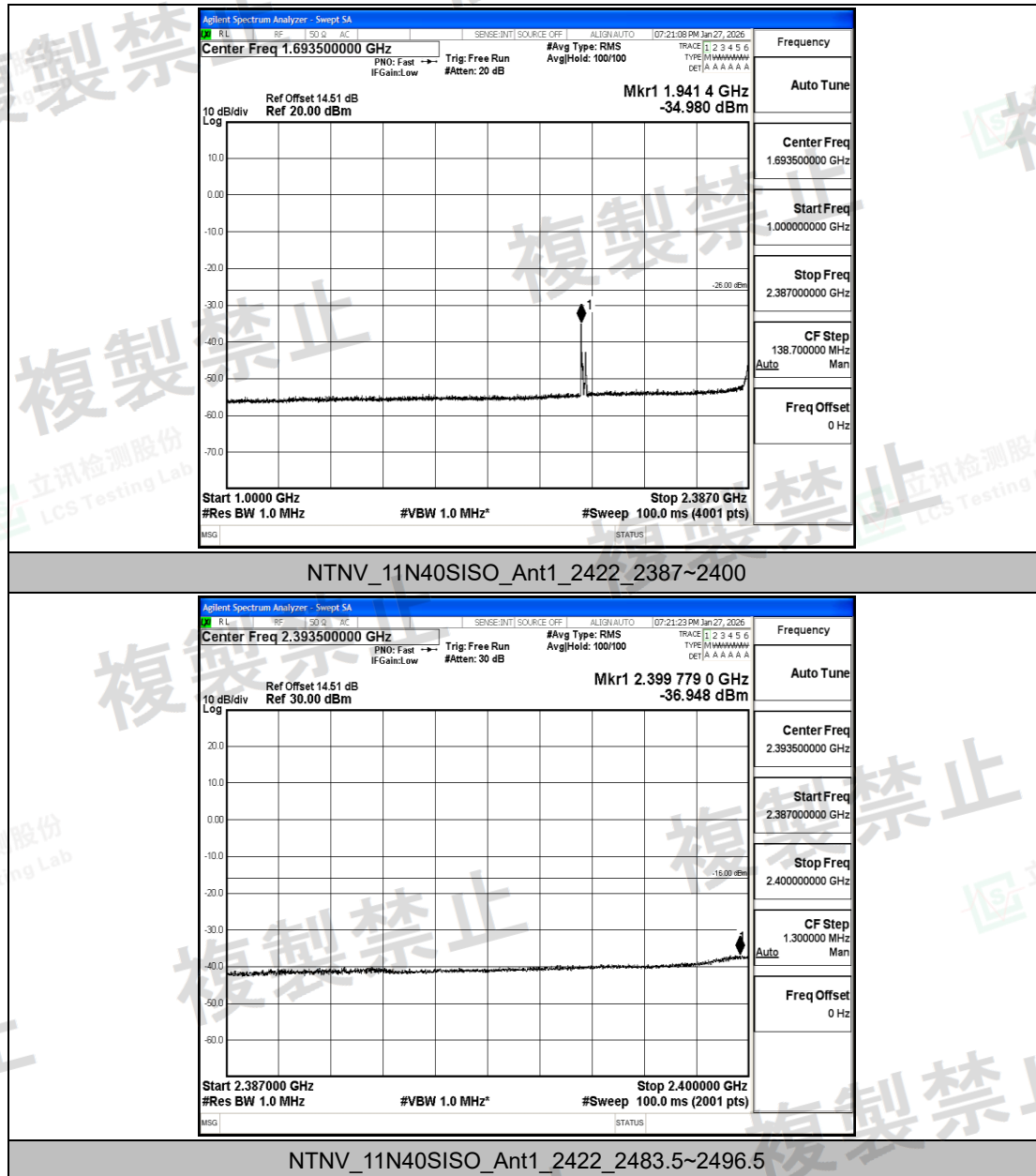


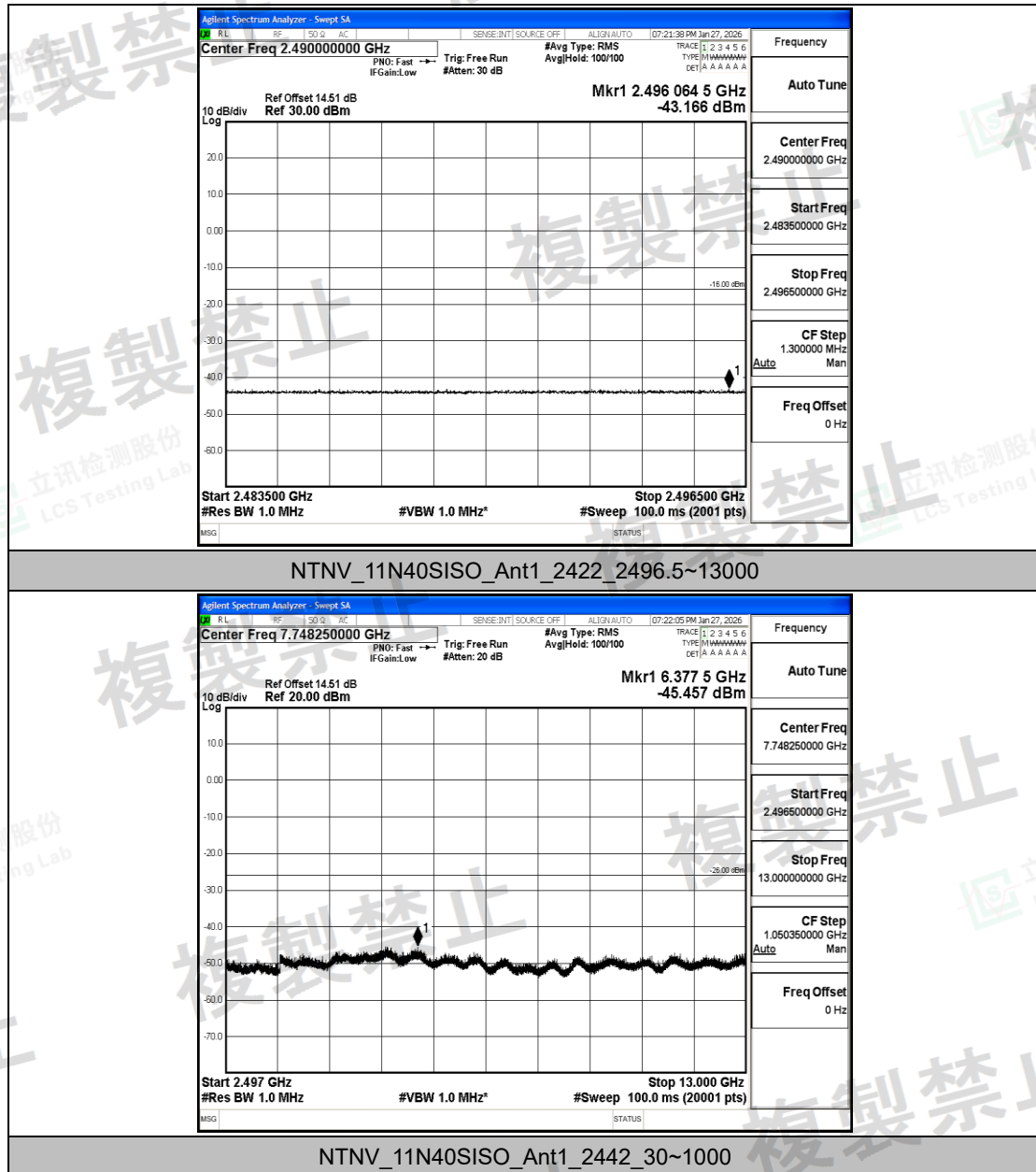


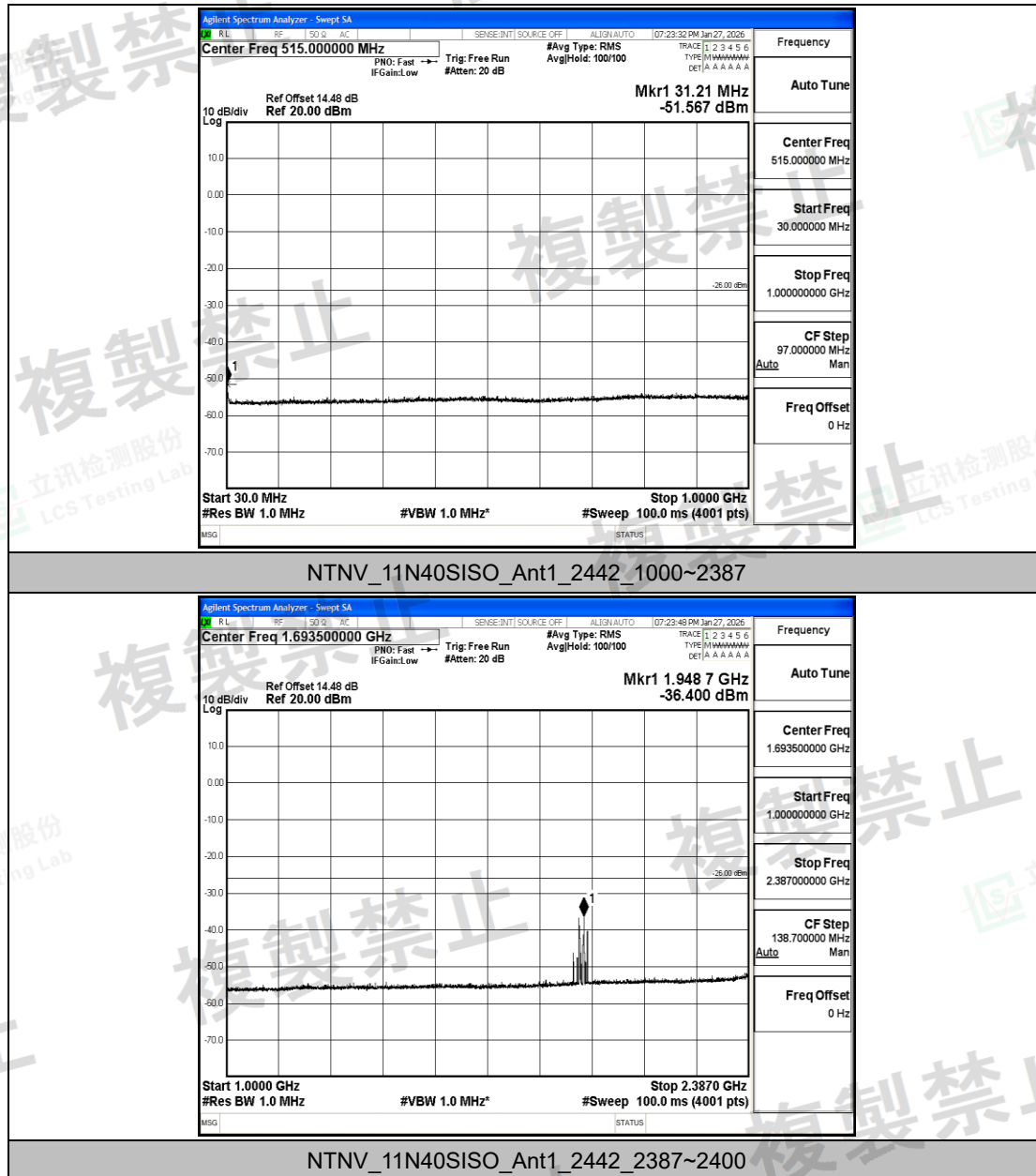


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Scan code to check authenticity



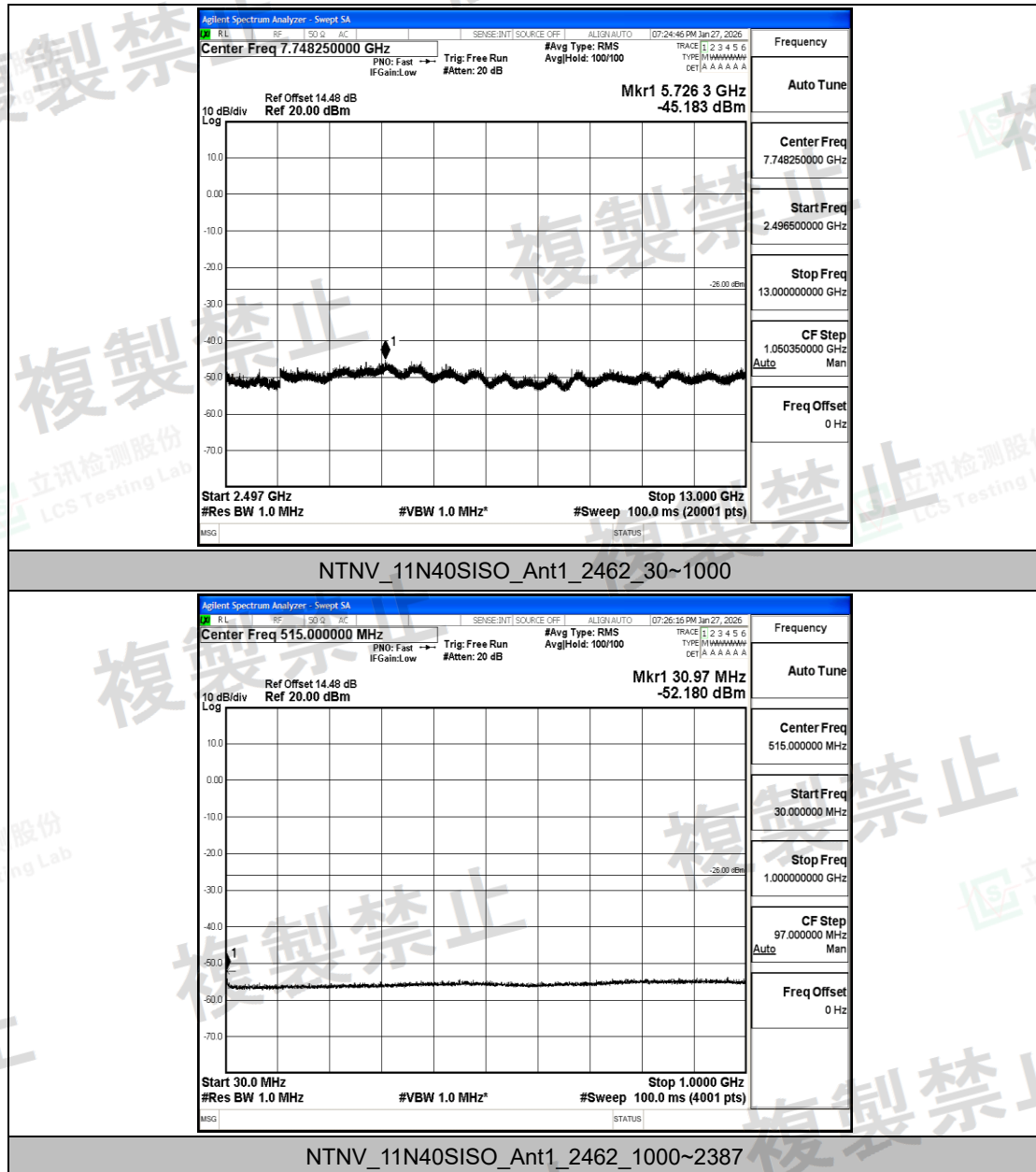


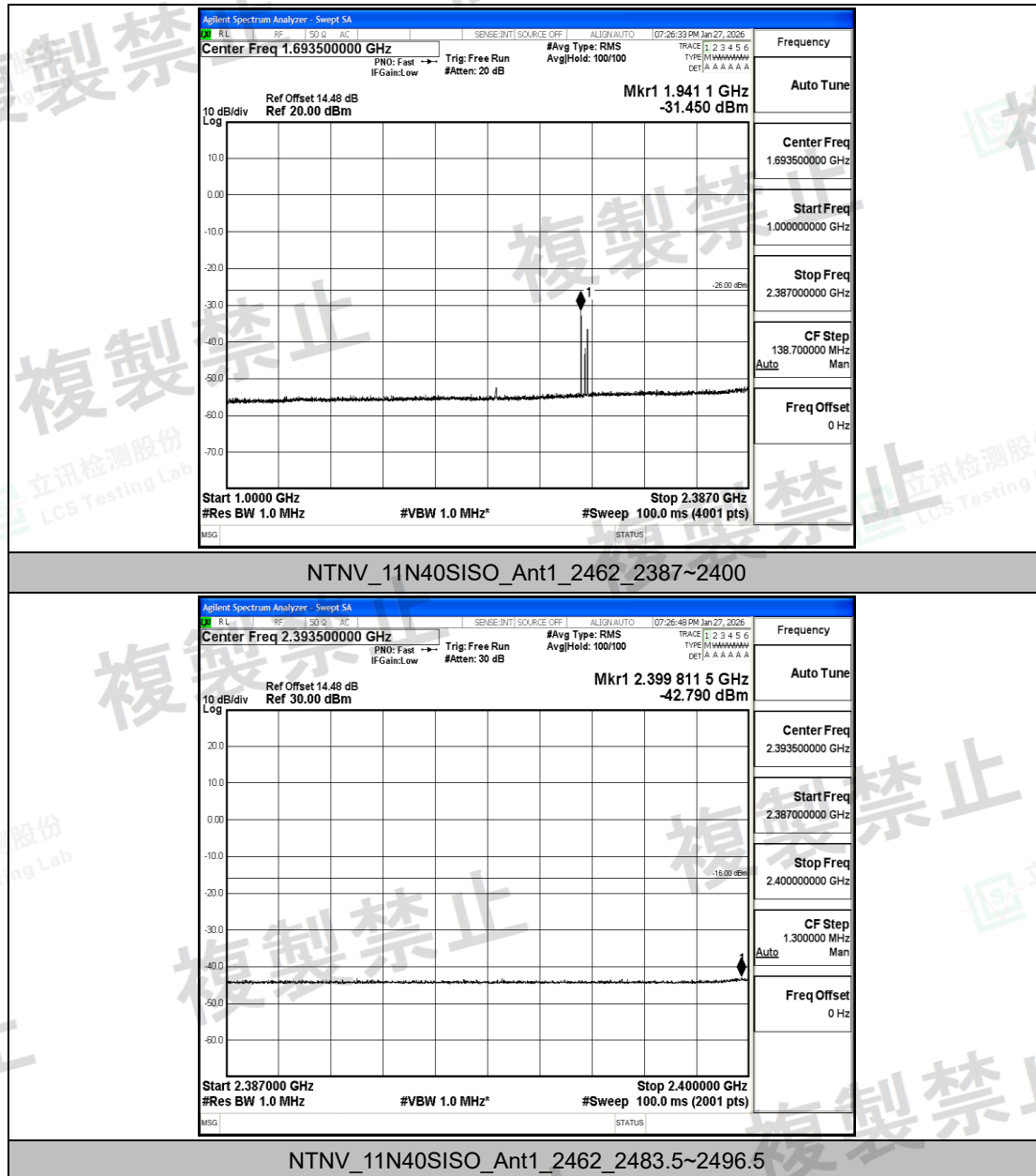


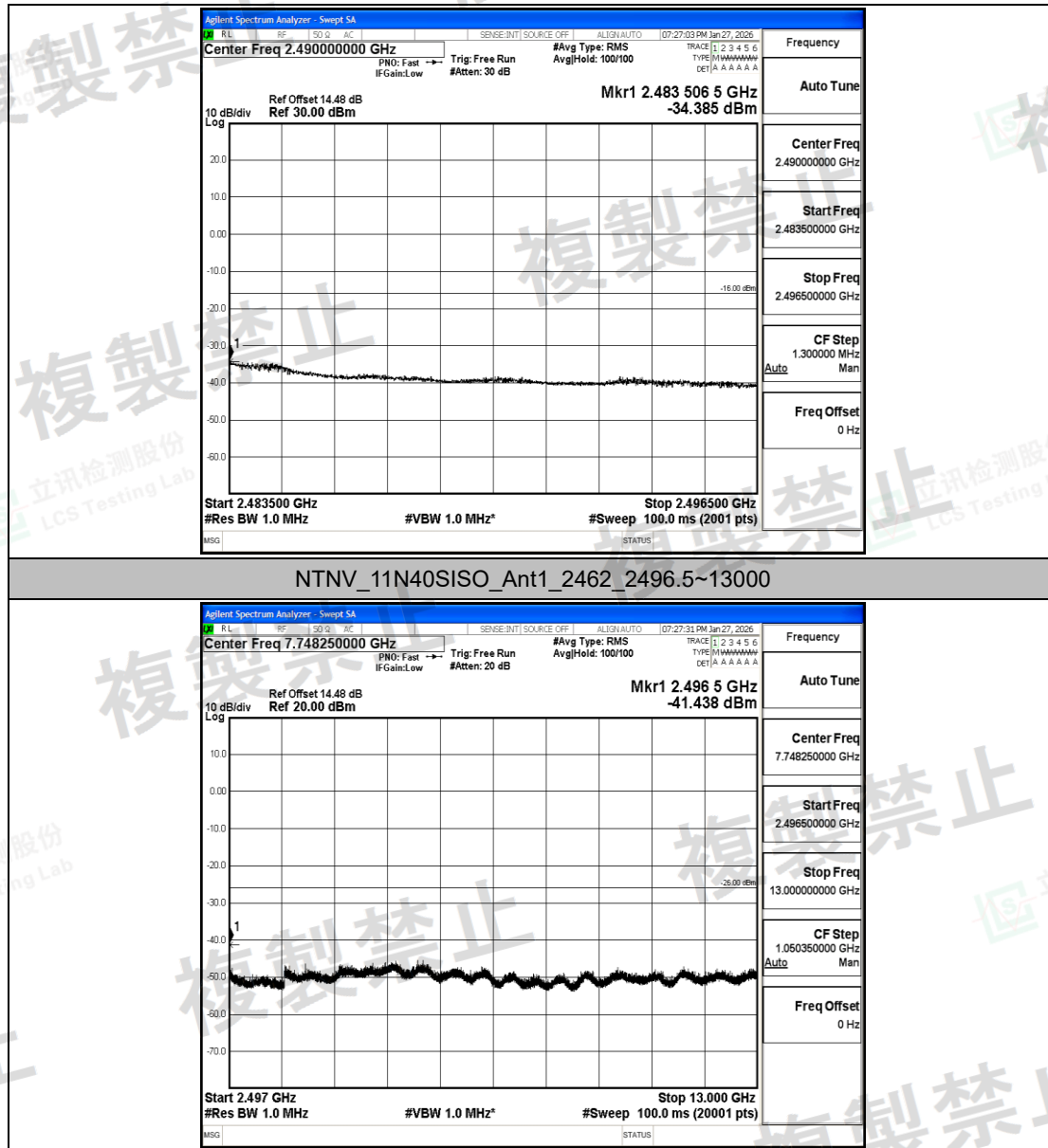




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B.6 Spurious Emission of RX

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	-84.13	≤-54	0.00386	≤4	PASS
				1000~12500	-66.92	≤-47	0.20324	≤20	PASS
			2442	30~1000	-84.16	≤-54	0.00384	≤4	PASS
				1000~12500	-66.93	≤-47	0.20277	≤20	PASS
			2472	30~1000	-83.98	≤-54	0.00400	≤4	PASS
				1000~12500	-66.95	≤-47	0.20184	≤20	PASS
	11G	Ant1	2412	30~1000	-83.95	≤-54	0.00403	≤4	PASS
				1000~12500	-67.12	≤-47	0.19409	≤20	PASS
			2442	30~1000	-83.91	≤-54	0.00406	≤4	PASS
				1000~12500	-67.12	≤-47	0.19409	≤20	PASS
			2472	30~1000	-83.85	≤-54	0.00412	≤4	PASS
				1000~12500	-66.37	≤-47	0.23067	≤20	PASS
	11N20SISO	Ant1	2412	30~1000	-84.29	≤-54	0.00372	≤4	PASS
				1000~12500	-67.07	≤-47	0.19634	≤20	PASS
			2442	30~1000	-83.84	≤-54	0.00413	≤4	PASS
				1000~12500	-66.73	≤-47	0.21232	≤20	PASS
			2472	30~1000	-84.29	≤-54	0.00372	≤4	PASS
				1000~12500	-67.39	≤-47	0.18239	≤20	PASS
	11N40SISO	Ant1	2422	30~1000	-84.2	≤-54	0.00380	≤4	PASS
				1000~12500	-66.92	≤-47	0.20324	≤20	PASS
			2442	30~1000	-84	≤-54	0.00398	≤4	PASS
				1000~12500	-66.91	≤-47	0.20370	≤20	PASS
			2462	30~1000	-84.28	≤-54	0.00373	≤4	PASS
				1000~12500	-66.79	≤-47	0.20941	≤20	PASS





Test Graphs

