

Annex for 2.4G WIFI

Test Report No. : GML2605188022-MIC

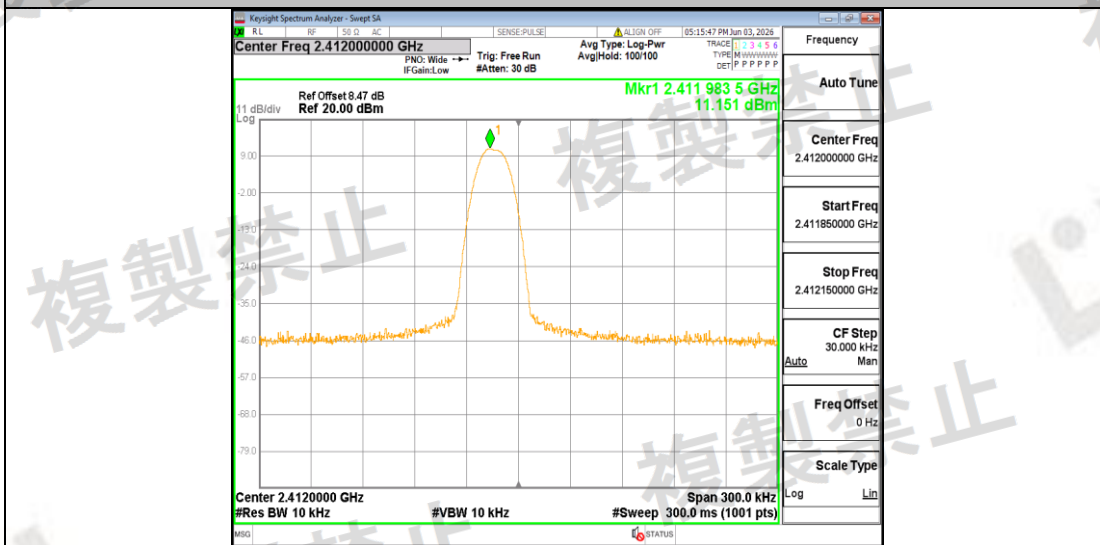
Appendix A: Frequency Error

Test Result

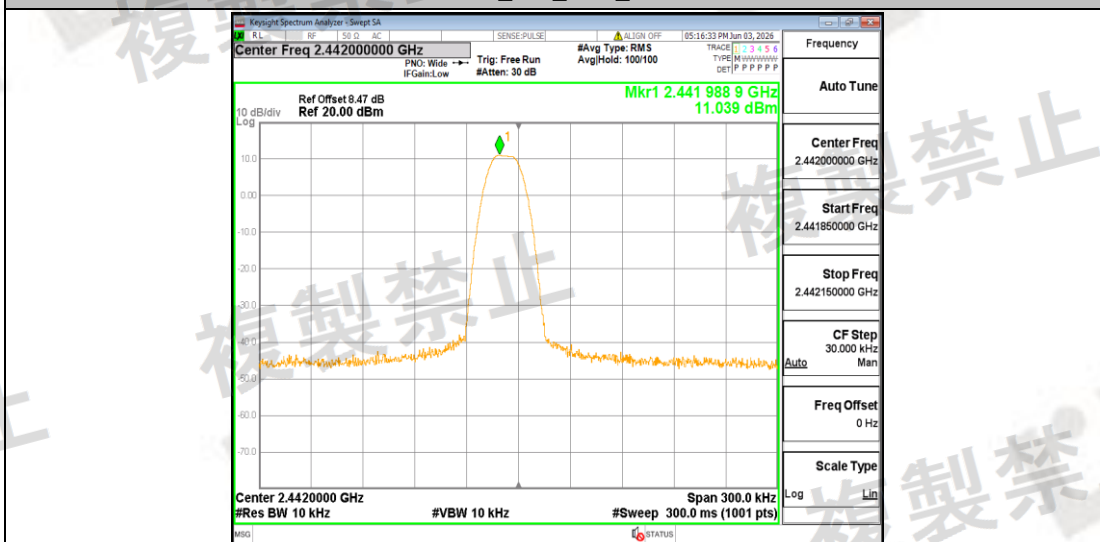
TestCondition	TestMode	Antenna	Frequency [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	11B	Ant1	2412	-6.840796	±50	PASS
			2442	-4.545455	±50	PASS
			2472	-2.912621	±50	PASS

Test Graphs

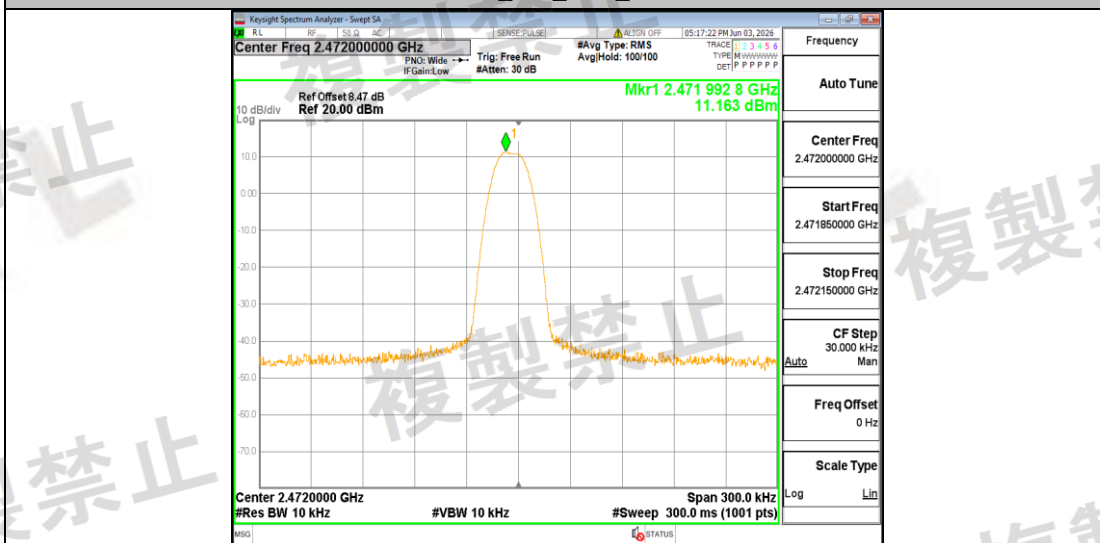
NTNV_11B_Ant1_2412



NTNV_11B_Ant1_2442



NTNV_11B_Ant1_2472



Appendix B: Antenna Power

Test Result

Antenna Power									
Test Condition	Test Mode	Antenna	Frequency [MHz]	Test Data (dBm/MHz)	Duty Cycle Factor (dB)	Result (dBm/MHz)	Result (mw/MHz)	Limit (mw/MHz)	Verdict
NTNV	11B	Ant1	2412	5.72	0.00	5.72	3.7325	≤10	PASS
			2442	5.85	0.00	5.85	3.8459	≤10	PASS
			2472	5.78	0.00	5.78	3.7844	≤10	PASS
	11G	Ant1	2412	1.67	0.06	1.73	1.4894	≤10	PASS
			2442	1.51	0.06	1.57	1.4355	≤10	PASS
			2472	1.86	0.09	1.95	1.5668	≤10	PASS
	11N20SI SO	Ant1	2412	1.19	0.10	1.29	1.3459	≤10	PASS
			2442	1.26	0.10	1.36	1.3677	≤10	PASS
			2472	1.42	0.10	1.52	1.4191	≤10	PASS
	11AX20S ISO	Ant1	2412	1.29	0.09	1.38	1.3740	≤10	PASS
			2442	1.17	0.13	1.30	1.3490	≤10	PASS
			2472	1.23	0.09	1.32	1.3552	≤10	PASS

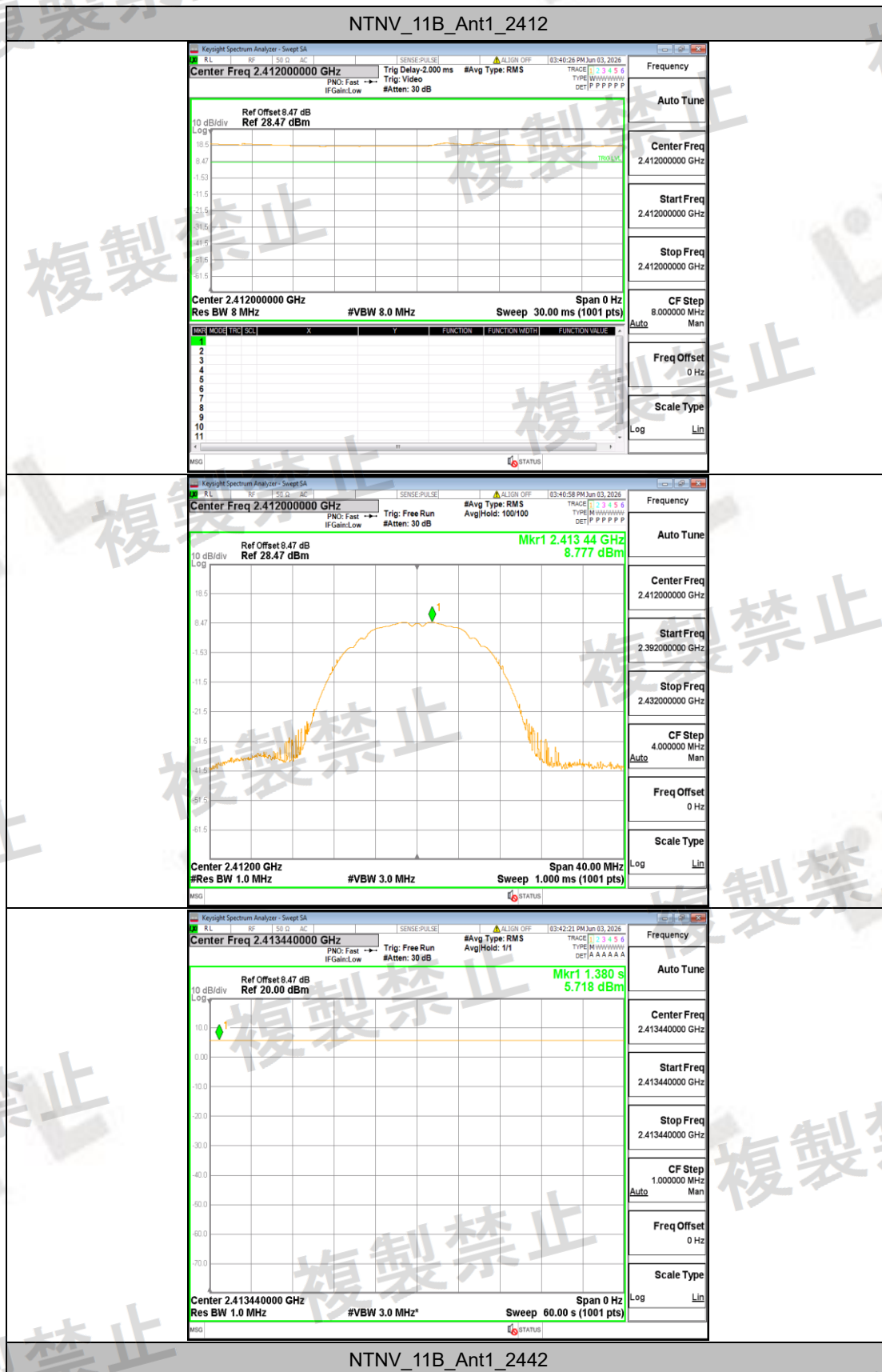
Tolerance								
Test Condition	Test Mode	Antenna	Frequency [MHz]	Power (mw/MHz)	Rated Power (mw/MHz)	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	3.7325	10	-62.68	-∞ to +20	PASS
			2442	3.8459	10	-61.54	-∞ to +20	PASS
			2472	3.7844	10	-62.16	-∞ to +20	PASS
	11G	Ant1	2412	1.4894	10	-85.11	-∞ to +20	PASS
			2442	1.4355	10	-85.65	-∞ to +20	PASS
			2472	1.5668	10	-84.33	-∞ to +20	PASS
	11N20SIS O	Ant1	2412	1.3459	10	-86.54	-∞ to +20	PASS
			2442	1.3677	10	-86.32	-∞ to +20	PASS
			2472	1.4191	10	-85.81	-∞ to +20	PASS
	11AX20SIS O	Ant1	2412	1.3740	10	-86.26	-∞ to +20	PASS
			2442	1.3490	10	-86.51	-∞ to +20	PASS
			2472	1.3552	10	-86.45	-∞ to +20	PASS

EIRP								
Test Condition	Test Mode	Antenna	Frequency [MHz]	Result (dBm/MHz)	Antenna gain (dBi)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Verdict
NTNV	11B	Ant1	2412	5.72	3.12	8.84	≤12.14	PASS

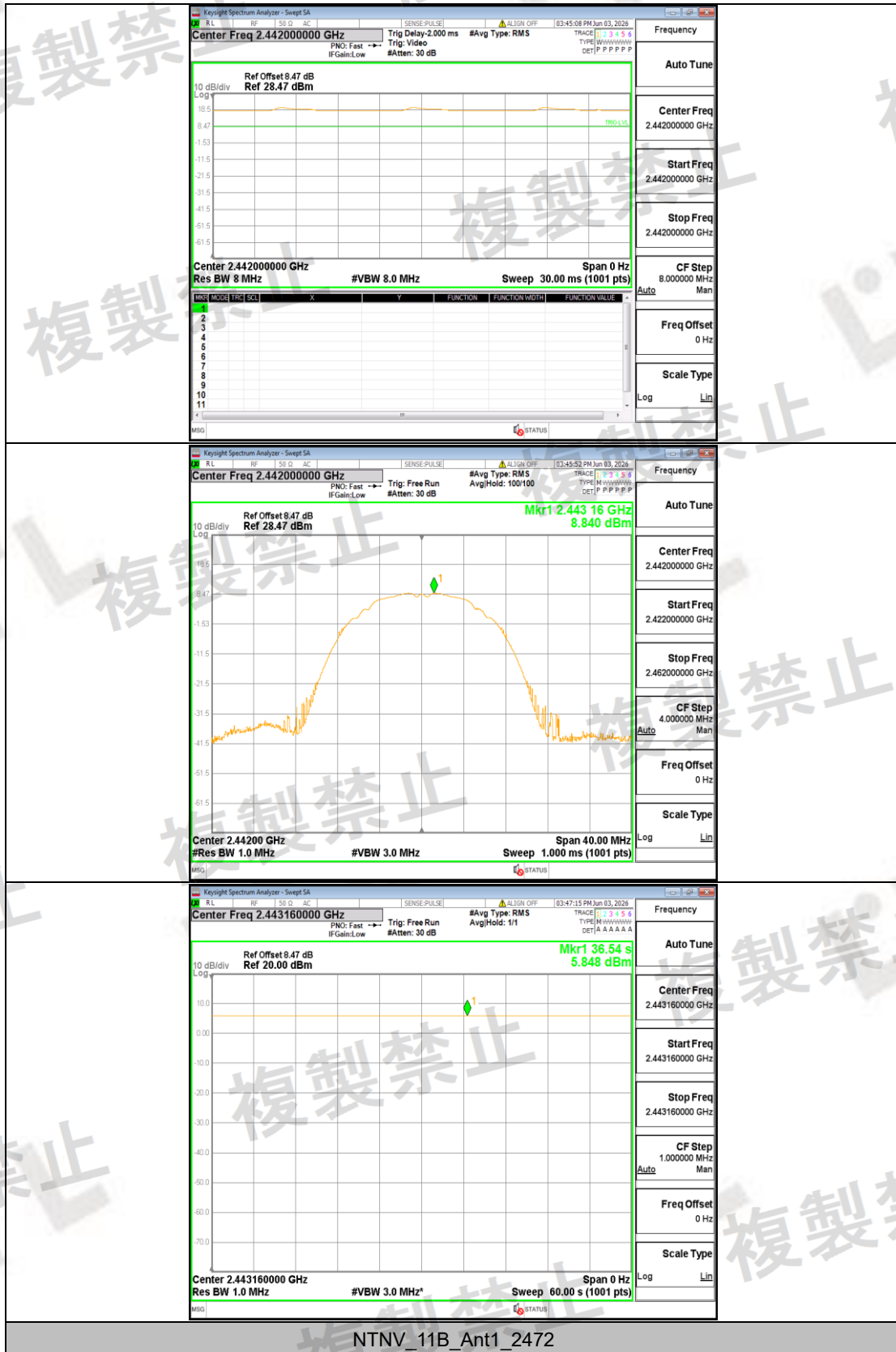
	11G	Ant1	2442	5.85	3.12	8.97	≤12.14	PASS
			2472	5.78	3.12	8.90	≤12.14	PASS
			2412	1.73	3.12	4.85	≤12.14	PASS
			2442	1.57	3.12	4.69	≤12.14	PASS
			2472	1.95	3.12	5.07	≤12.14	PASS
	11N20SISO	Ant1	2412	1.29	3.12	4.41	≤12.14	PASS
			2442	1.36	3.12	4.48	≤12.14	PASS
			2472	1.52	3.12	4.64	≤12.14	PASS
	11AX20SISO	Ant1	2412	1.38	3.12	4.50	≤12.14	PASS
			2442	1.30	3.12	4.42	≤12.14	PASS
			2472	1.32	3.12	4.44	≤12.14	PASS

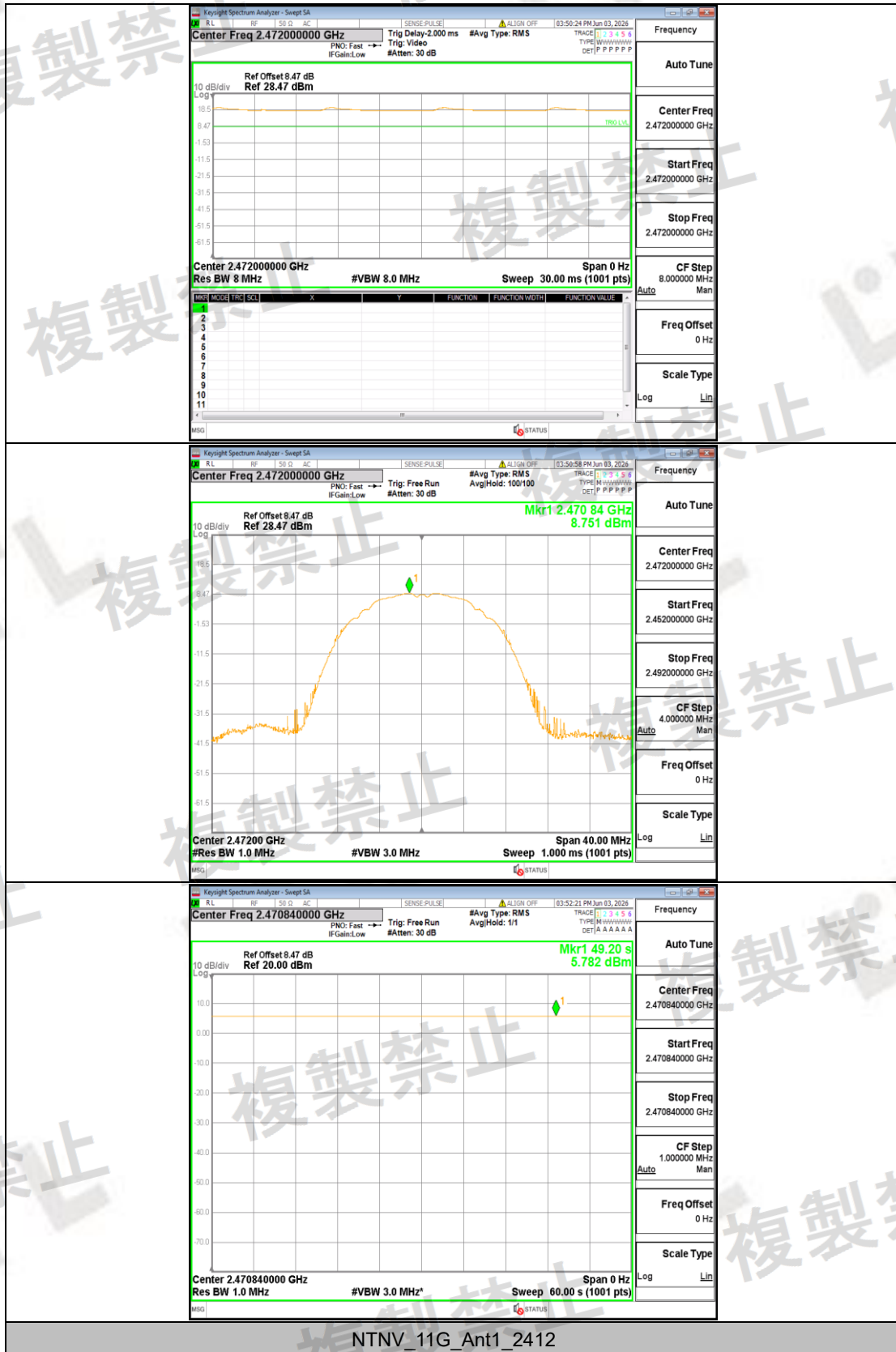
For SISO: EIRP= Antenna Power + Antenna gain

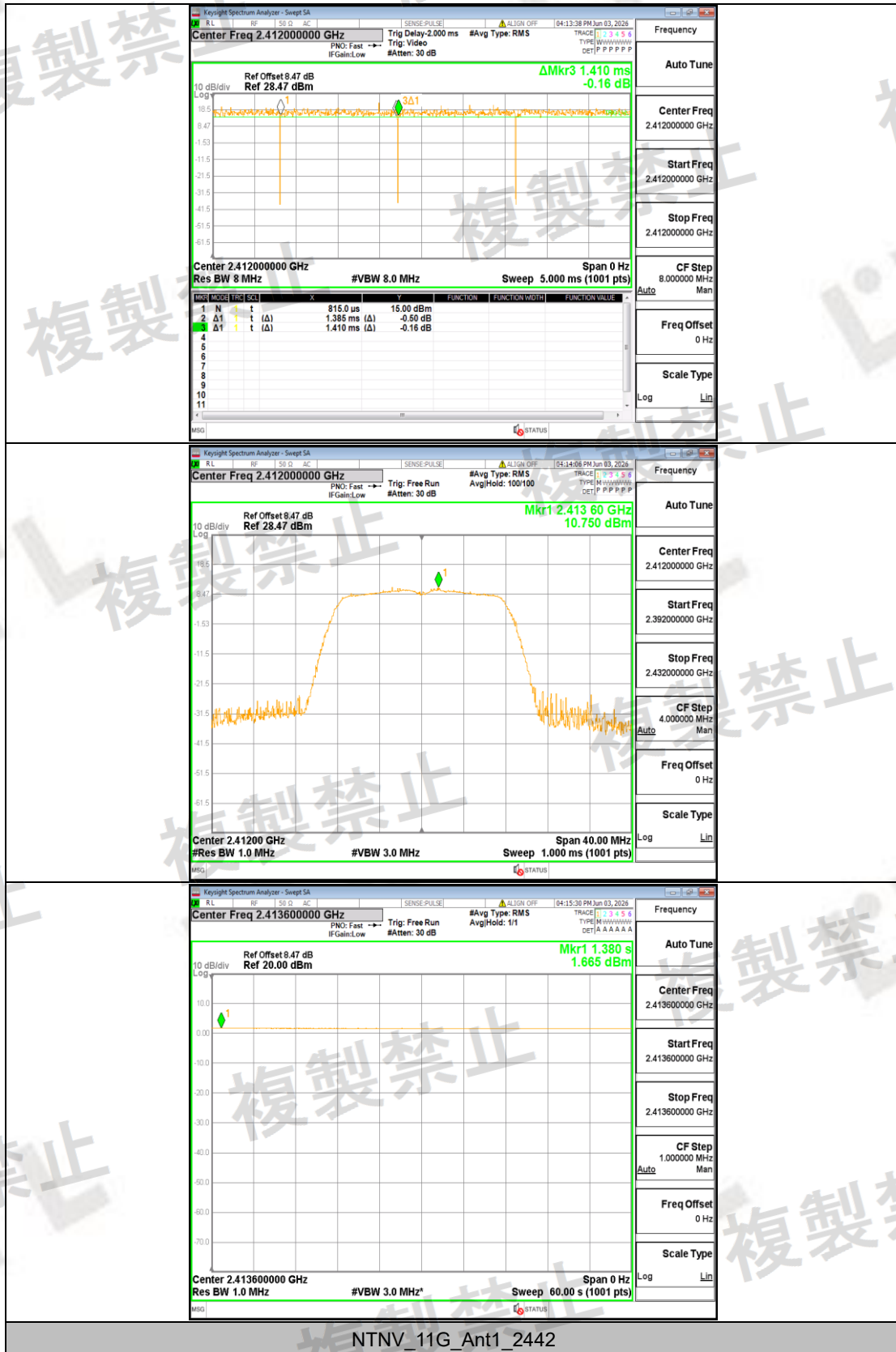
Test Graphs

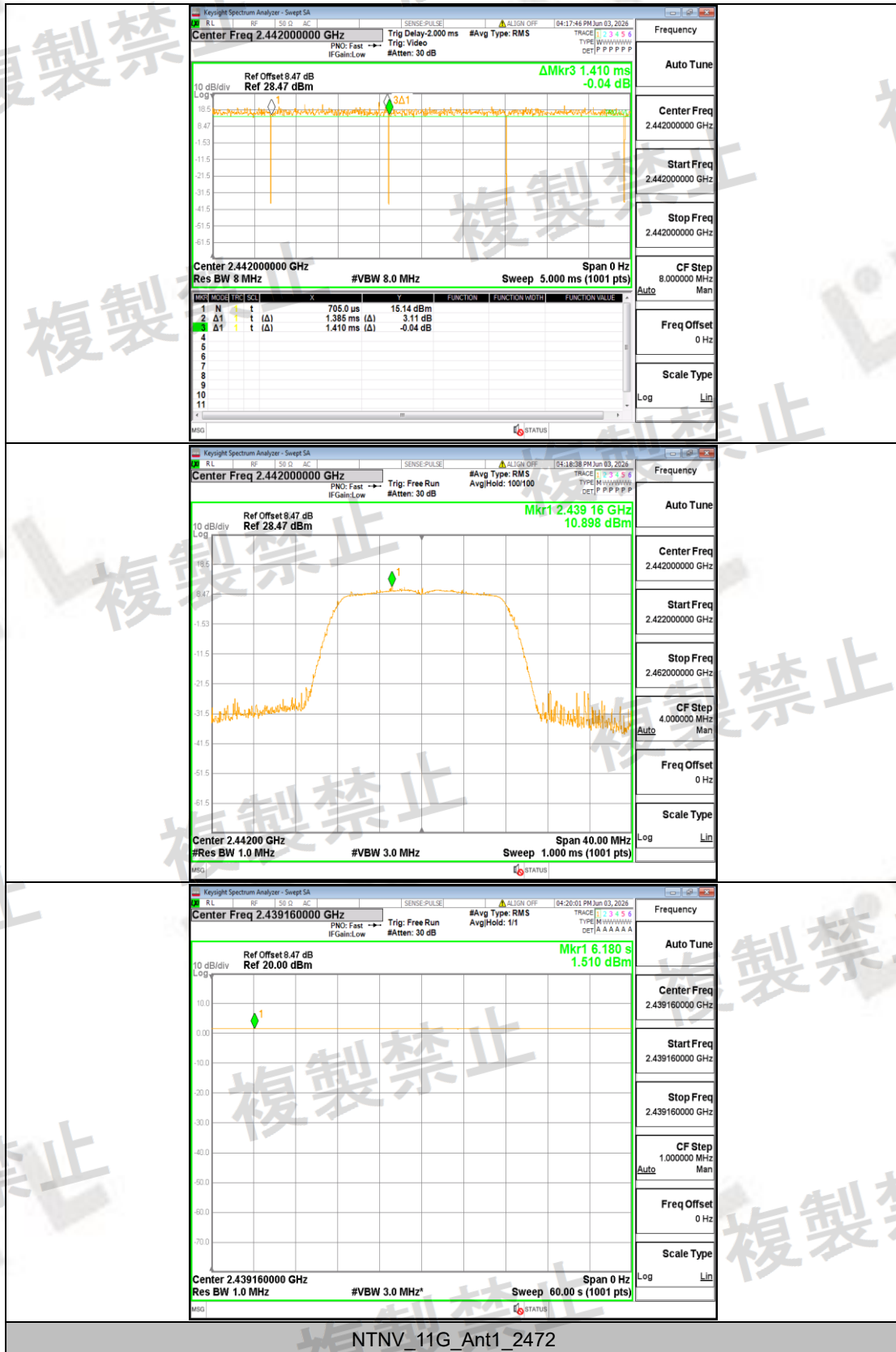


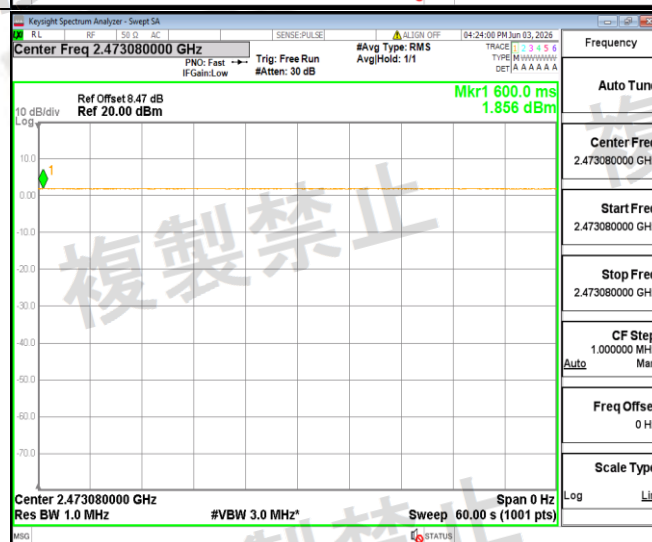
NTNV_11B_Ant1_2442

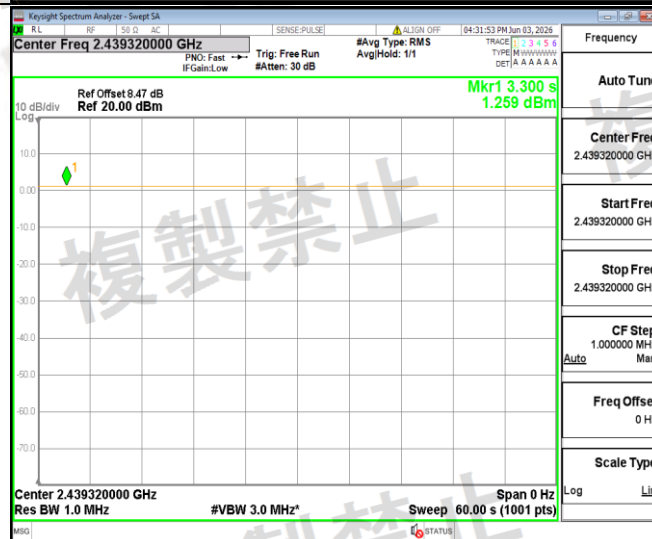


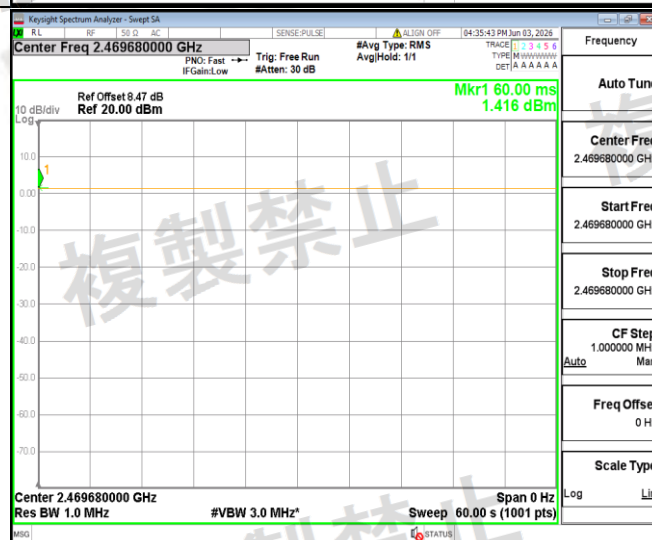


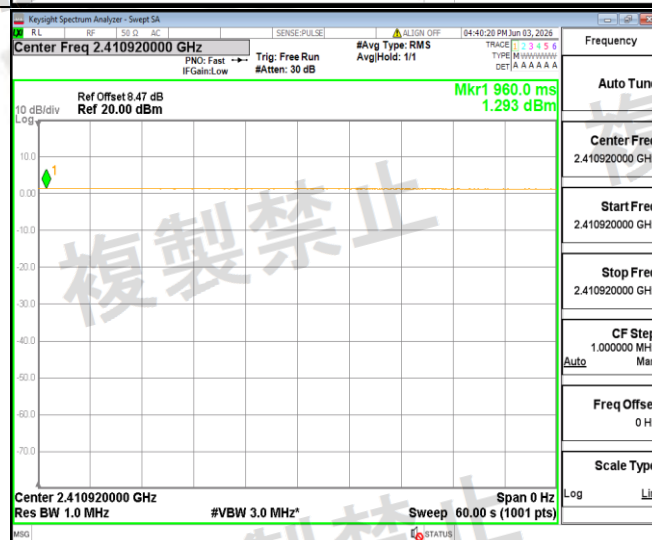


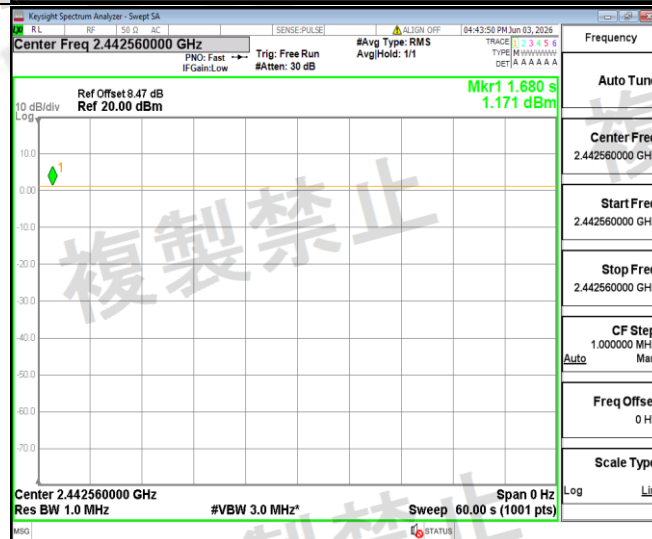














Appendix C: Occupied Bandwidth

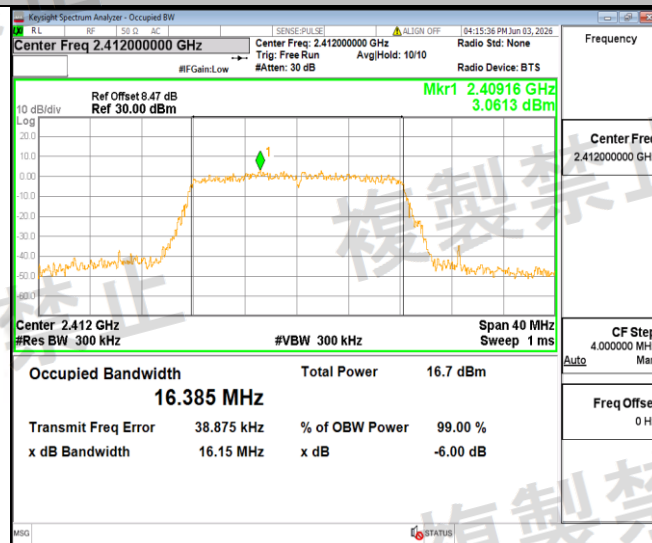
Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	14.773	≤26	PASS
			2442	14.780	≤26	PASS
			2472	14.795	≤26	PASS
	11G	Ant1	2412	16.385	≤26	PASS
			2442	16.428	≤26	PASS
			2472	16.336	≤26	PASS
	11N20SI SO	Ant1	2412	17.502	≤26	PASS
			2442	17.548	≤26	PASS
			2472	17.549	≤26	PASS
	11AX20S ISO	Ant1	2412	18.871	≤26	PASS
			2442	18.813	≤26	PASS
			2472	18.846	≤26	PASS

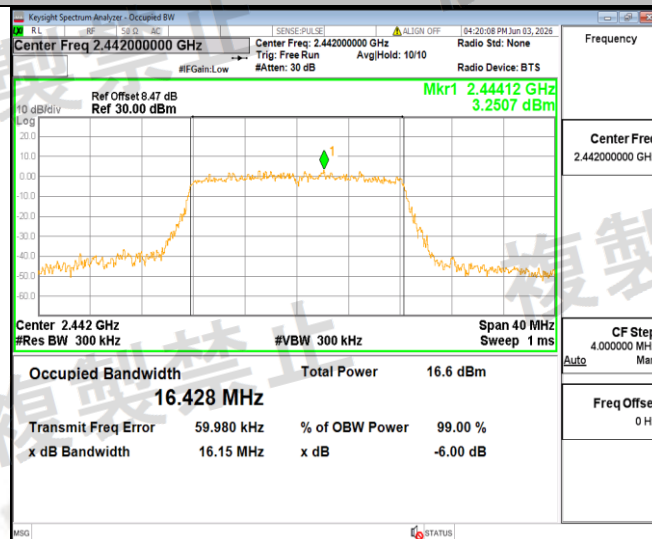
Test Graphs



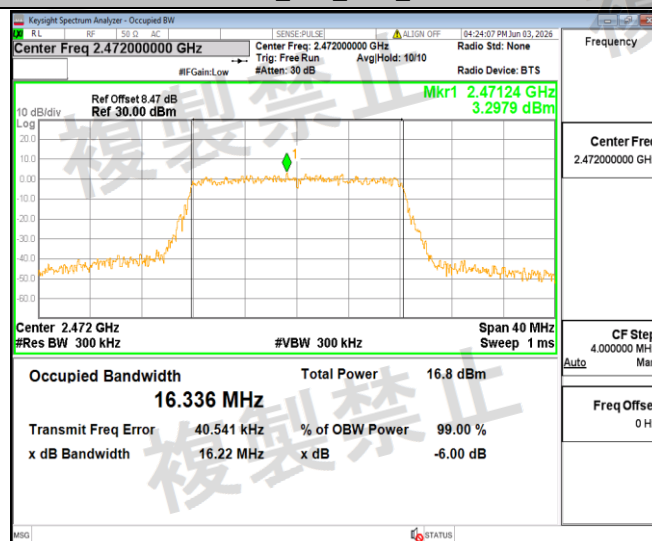
NTNV_11G_Ant1_2412



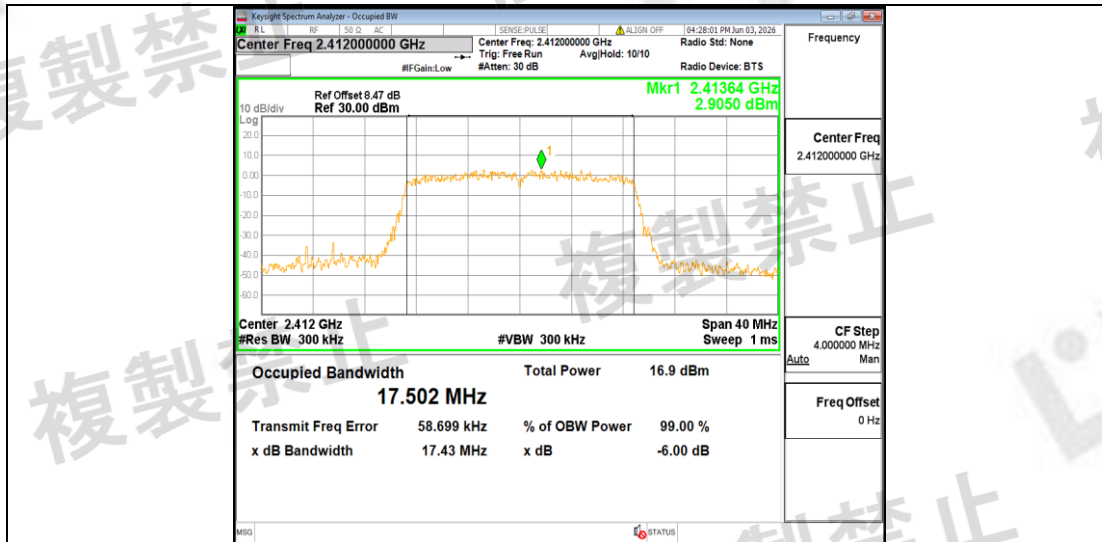
NTNV_11G_Ant1_2442



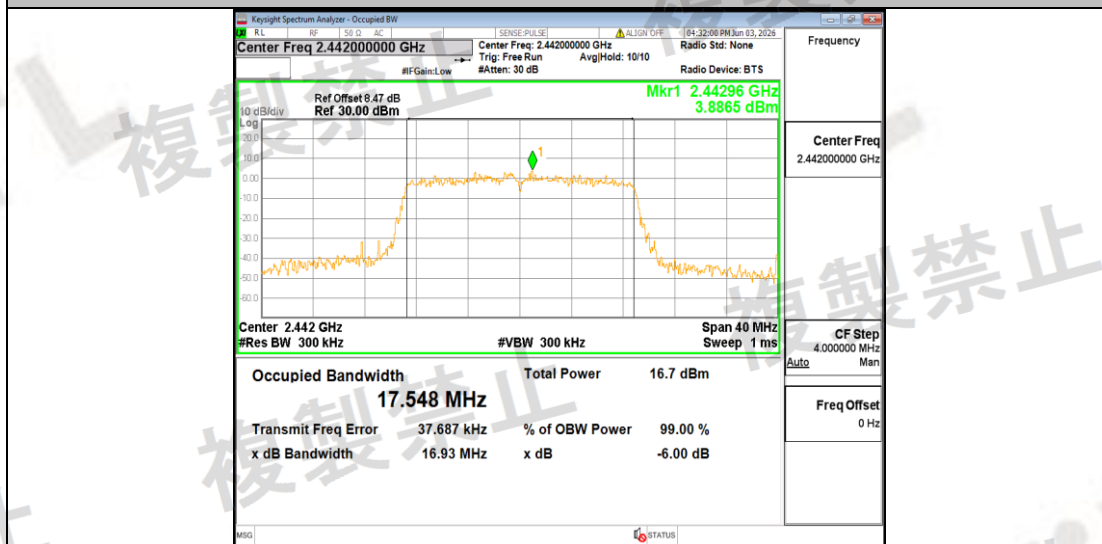
NTNV_11G_Ant1_2472



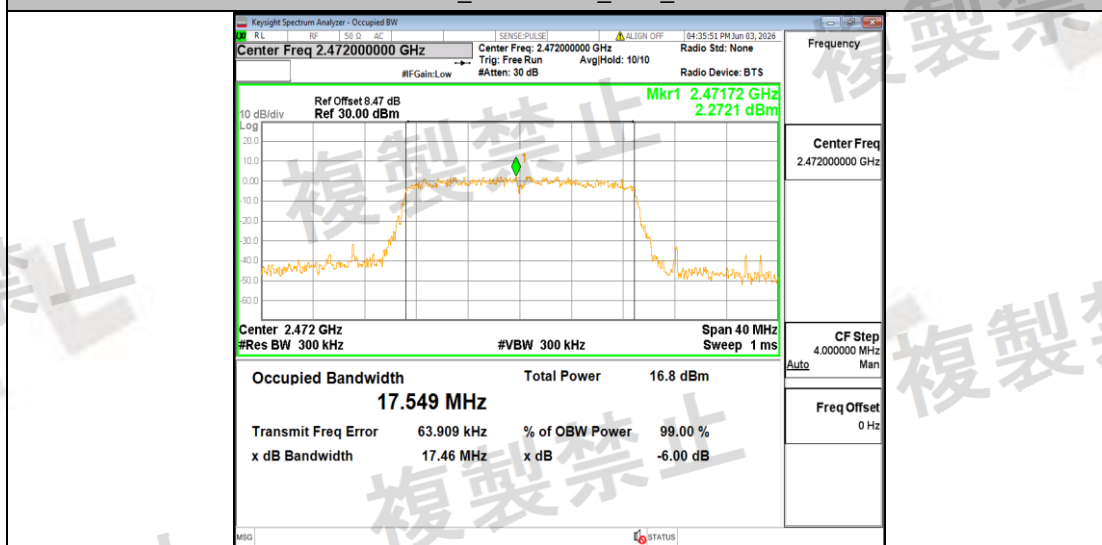
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



NTNV_11AX20SISO_Ant1_2412



Appendix D: Spread Bandwidth

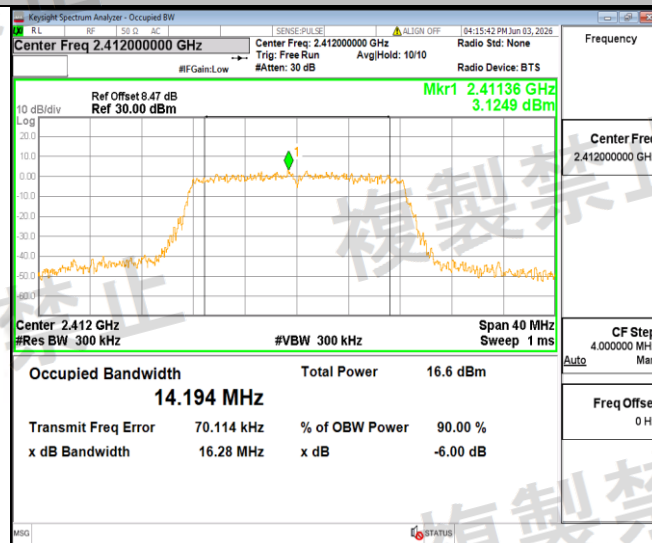
Test Result

TestCondition	TestMode	Antenna	Frequenc y[MHz]	Result [MHz]	Limit [MHz]	Spread Factor	Limit	Verdict
NTNV	11B	Ant1	2412	9.925	≥ 0.5	7.218	>5	PASS
			2442	9.997	≥ 0.5	7.271	>5	PASS
			2472	9.928	≥ 0.5	7.220	>5	PASS
	11G	Ant1	2412	14.194	≥ 0.5	---	---	PASS
			2442	14.080	≥ 0.5	---	---	PASS
			2472	14.199	≥ 0.5	---	---	PASS
	11N20SI SO	Ant1	2412	15.451	≥ 0.5	---	---	PASS
			2442	15.063	≥ 0.5	---	---	PASS
			2472	15.226	≥ 0.5	---	---	PASS
	11AX20S ISO	Ant1	2412	16.304	≥ 0.5	---	---	PASS
			2442	16.246	≥ 0.5	---	---	PASS
			2472	16.366	≥ 0.5	---	---	PASS

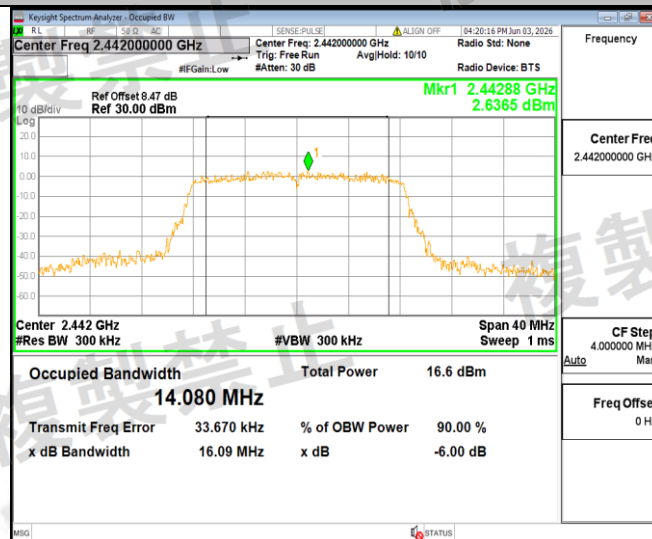
Test Graphs



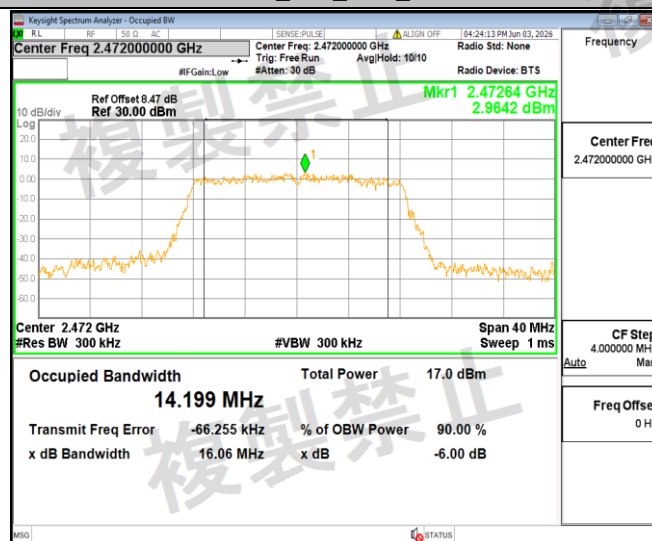
NTNV_11G_Ant1_2412



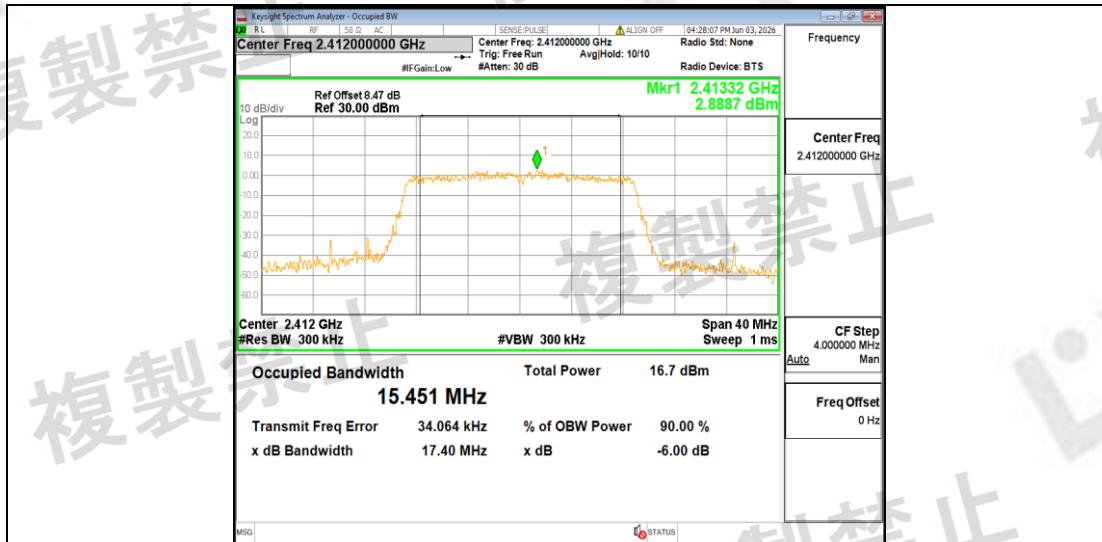
NTNV_11G_Ant1_2442



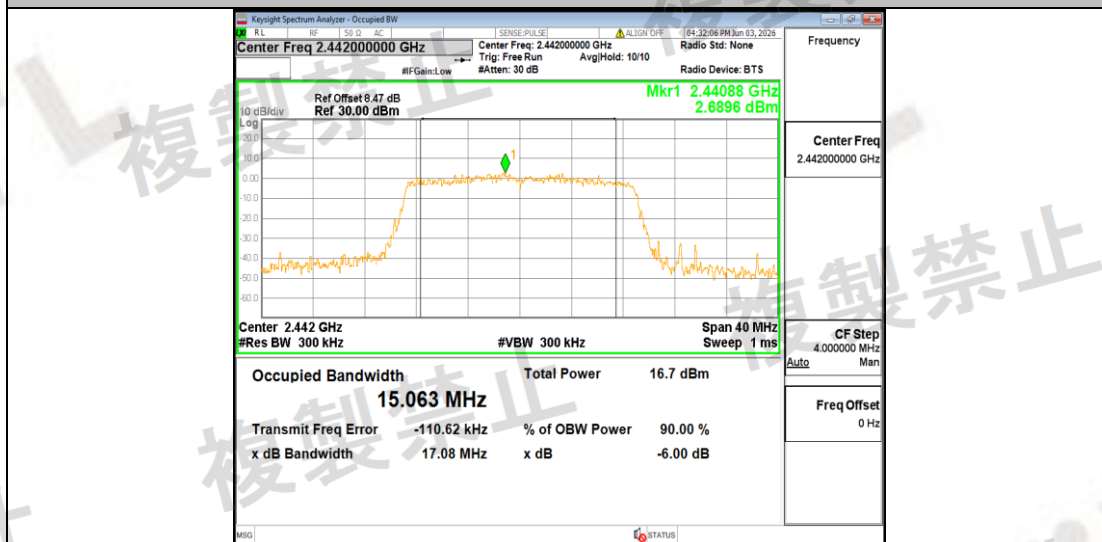
NTNV_11G_Ant1_2472



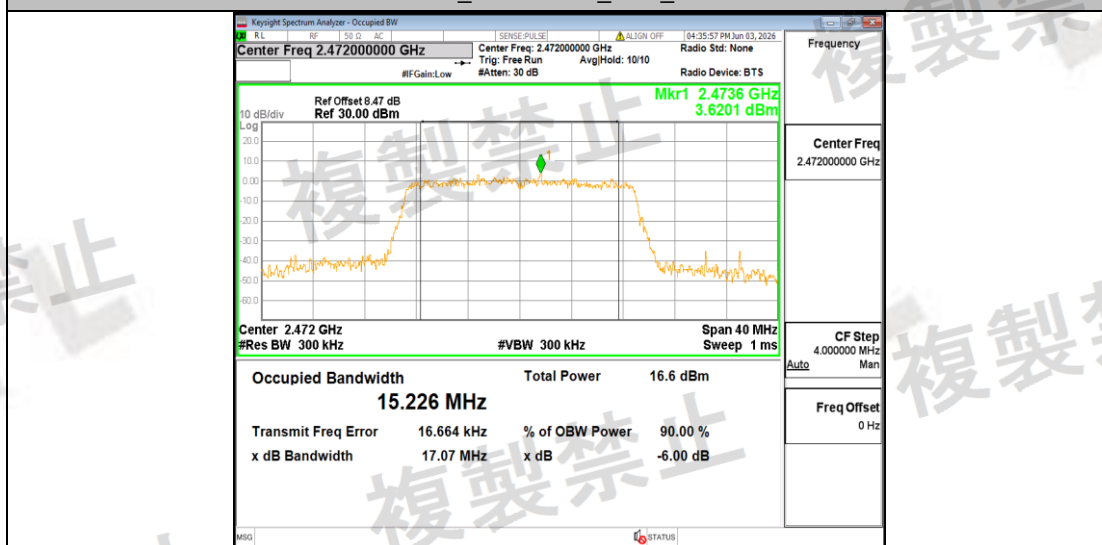
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



NTNV_11AX20SISO_Ant1_2412



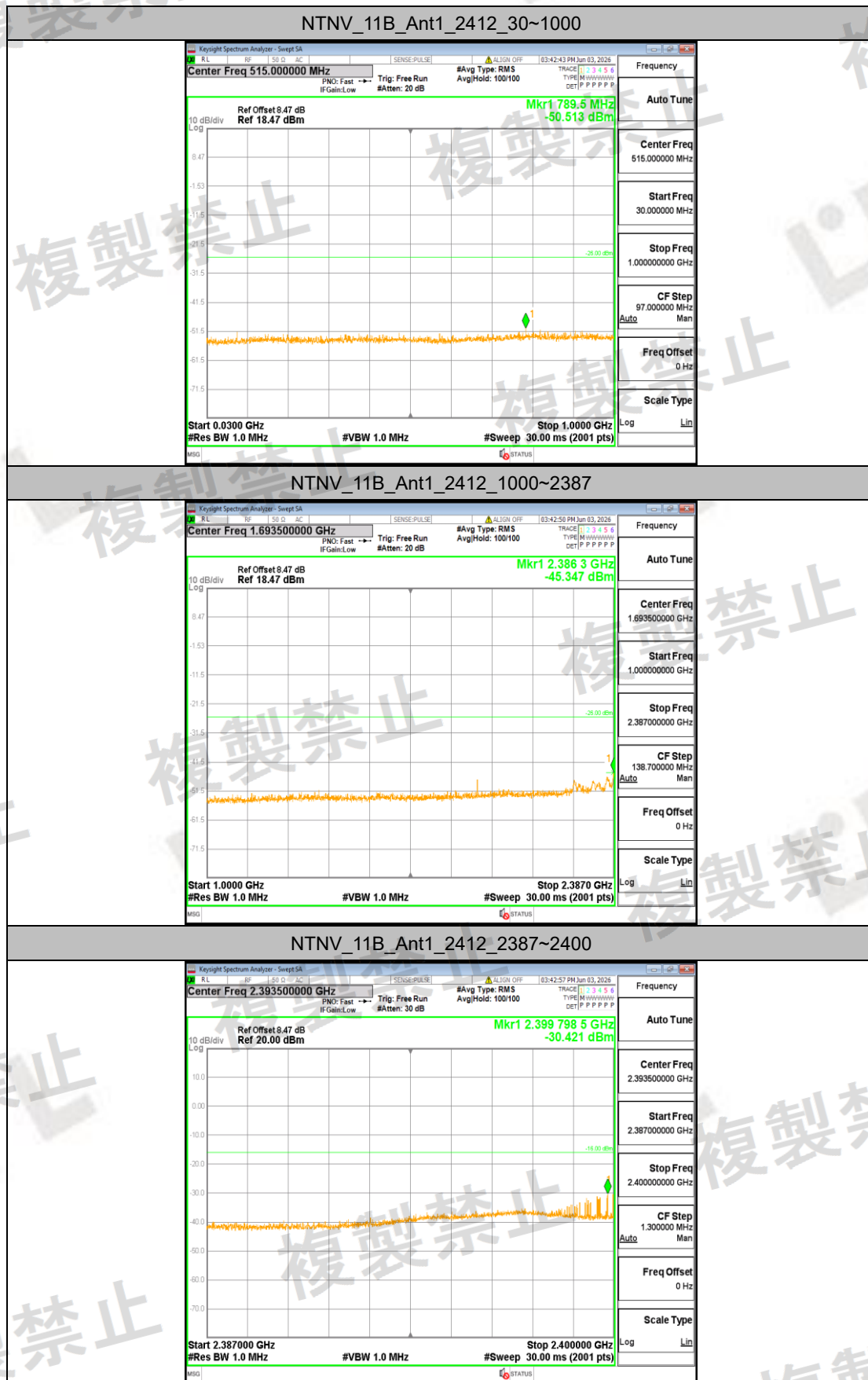
Appendix E: Spurious Emission of TX

Test Result

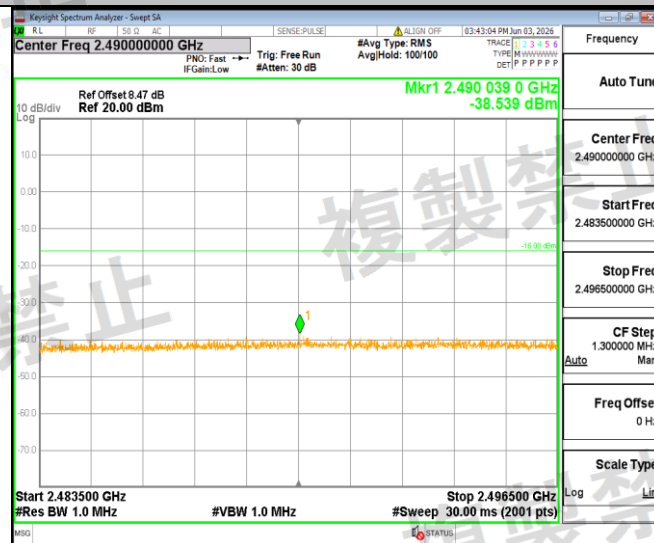
TestCondition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11B	Ant1	2412	30~1000	-50.51	≤-26	0.00889	≤2.5	PASS
				1000~2387	-45.35	≤-26	0.02917	≤2.5	PASS
				2387~2400	-30.42	≤-16	0.90782	≤25	PASS
				2483.5~2496.5	-38.54	≤-16	0.13996	≤25	PASS
				2496.5~12750	-45.16	≤-26	0.03048	≤2.5	PASS
			2442	30~1000	-51.43	≤-26	0.00719	≤2.5	PASS
				1000~2387	-47.23	≤-26	0.01892	≤2.5	PASS
				2387~2400	-39.06	≤-16	0.12417	≤25	PASS
				2483.5~2496.5	-39.07	≤-16	0.12388	≤25	PASS
				2496.5~12750	-45.55	≤-26	0.02786	≤2.5	PASS
			2472	30~1000	-50.75	≤-26	0.00841	≤2.5	PASS
				1000~2387	-46.92	≤-26	0.02032	≤2.5	PASS
				2387~2400	-39.45	≤-16	0.11350	≤25	PASS
				2483.5~2496.5	-29.58	≤-16	1.10154	≤25	PASS
				2496.5~12750	-45.08	≤-26	0.03105	≤2.5	PASS
	11G	Ant1	2412	30~1000	-51.35	≤-26	0.00733	≤2.5	PASS
				1000~2387	-40.02	≤-26	0.09954	≤2.5	PASS
				2387~2400	-22.17	≤-16	6.06736	≤25	PASS
				2483.5~2496.5	-39.50	≤-16	0.11220	≤25	PASS
				2496.5~12750	-43.78	≤-26	0.04188	≤2.5	PASS
			2442	30~1000	-41.08	≤-26	0.07798	≤2.5	PASS
				1000~2387	-47.52	≤-26	0.01770	≤2.5	PASS
				2387~2400	-39.46	≤-16	0.11324	≤25	PASS
				2483.5~2496.5	-39.12	≤-16	0.12246	≤25	PASS
				2496.5~12750	-45.33	≤-26	0.02931	≤2.5	PASS
			2472	30~1000	-51.51	≤-26	0.00706	≤2.5	PASS
				1000~2387	-43.51	≤-26	0.04457	≤2.5	PASS
				2387~2400	-40.03	≤-16	0.09931	≤25	PASS
				2483.5~2496.5	-22.85	≤-16	5.18800	≤25	PASS
				2496.5~12750	-40.75	≤-26	0.08414	≤2.5	PASS
	11N20SI SO	Ant1	2412	30~1000	-51.82	≤-26	0.00658	≤2.5	PASS
				1000~2387	-37.65	≤-26	0.17179	≤2.5	PASS
				2387~2400	-20.23	≤-16	9.48418	≤25	PASS
				2483.5~2496.5	-39.20	≤-16	0.12023	≤25	PASS
				2496.5~12750	-44.58	≤-26	0.03483	≤2.5	PASS
			2442	30~1000	-50.91	≤-26	0.00811	≤2.5	PASS
				1000~2387	-43.88	≤-26	0.04093	≤2.5	PASS

複製禁止	11AX20S ISO	Ant1		2387~2400	-39.54	≤-16	0.11117	≤25	PASS
				2483.5~2496.5	-38.45	≤-16	0.14289	≤25	PASS
				2496.5~12750	-43.56	≤-26	0.04406	≤2.5	PASS
			2472	30~1000	-51.14	≤-26	0.00769	≤2.5	PASS
				1000~2387	-46.87	≤-26	0.02056	≤2.5	PASS
				2387~2400	-40.17	≤-16	0.09616	≤25	PASS
				2483.5~2496.5	-21.68	≤-16	6.79204	≤25	PASS
				2496.5~12750	-34.04	≤-26	0.39446	≤2.5	PASS
			2412	30~1000	-40.72	≤-26	0.08472	≤2.5	PASS
				1000~2387	-37.71	≤-26	0.16943	≤2.5	PASS
	2387~2400	-22.80		≤-16	5.24807	≤25	PASS		
	2483.5~2496.5	-39.56		≤-16	0.11066	≤25	PASS		
	2496.5~12750	-44.07		≤-26	0.03917	≤2.5	PASS		
	2442	30~1000	-51.43	≤-26	0.00719	≤2.5	PASS		
		1000~2387	-46.76	≤-26	0.02109	≤2.5	PASS		
		2387~2400	-39.65	≤-16	0.10839	≤25	PASS		
		2483.5~2496.5	-39.38	≤-16	0.11535	≤25	PASS		
		2496.5~12750	-39.72	≤-26	0.10666	≤2.5	PASS		
	2472	30~1000	-51.62	≤-26	0.00689	≤2.5	PASS		
		1000~2387	-45.58	≤-26	0.02767	≤2.5	PASS		
		2387~2400	-40.13	≤-16	0.09705	≤25	PASS		
		2483.5~2496.5	-23.73	≤-16	4.23643	≤25	PASS		
		2496.5~12750	-40.35	≤-26	0.09226	≤2.5	PASS		

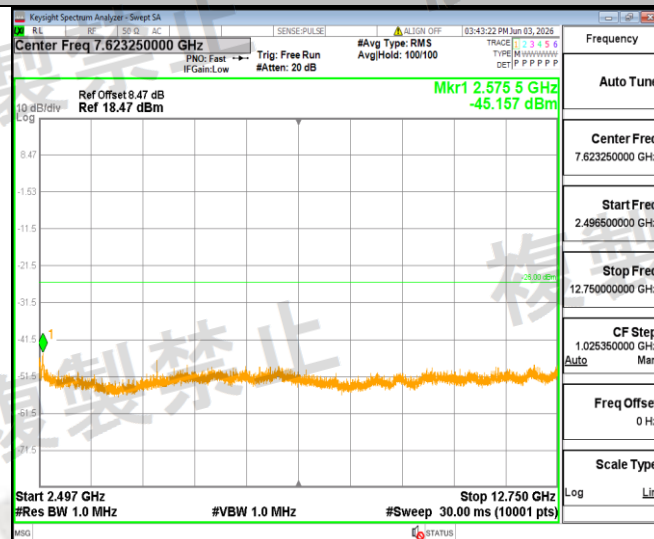
Test Graphs



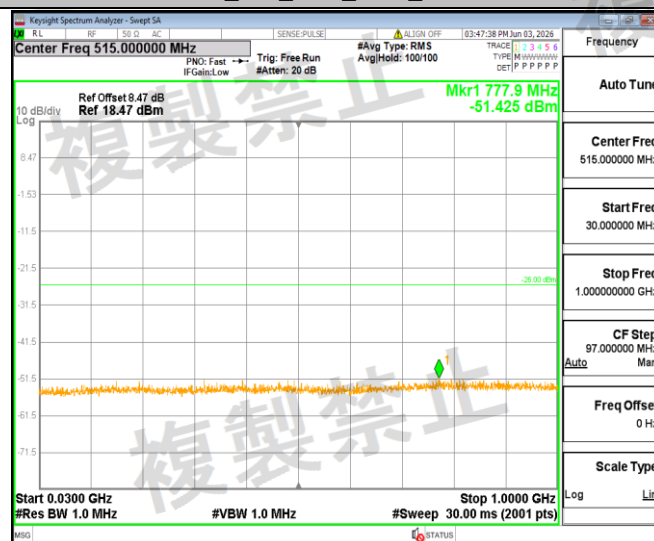
NTNV_11B_Ant1_2412_2483.5~2496.5



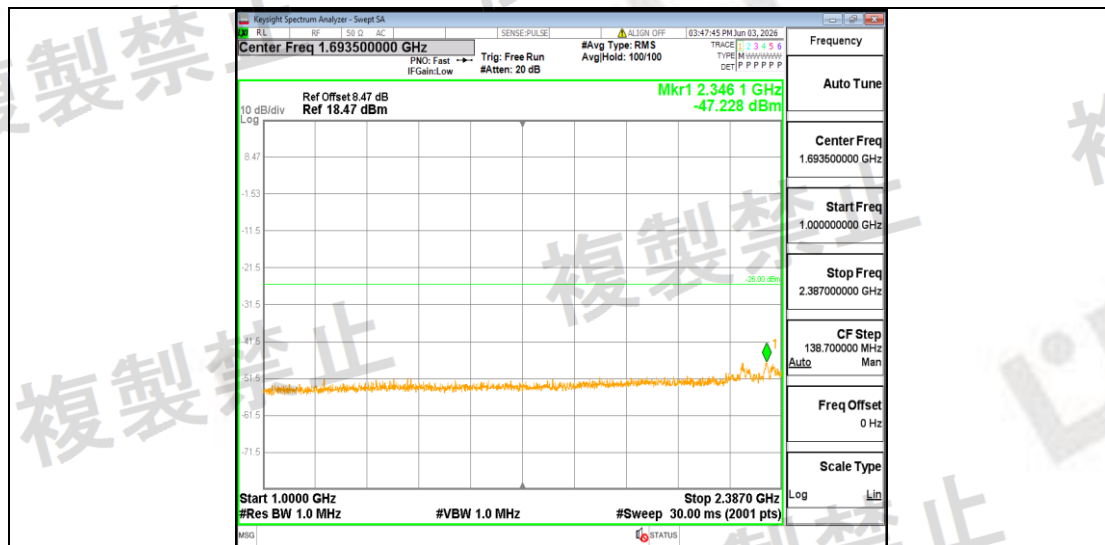
NTNV_11B_Ant1_2412_2496.5~12750



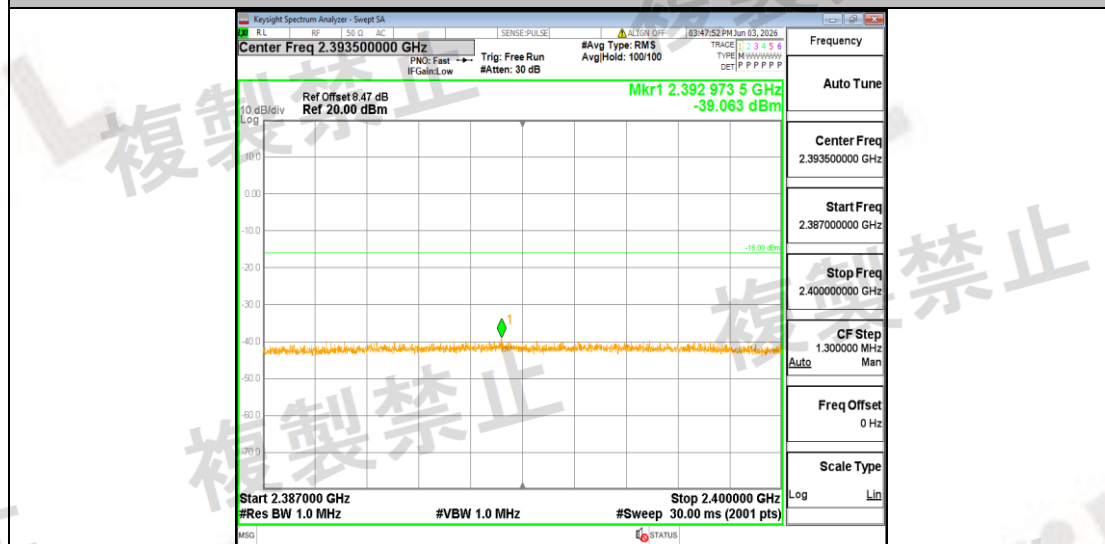
NTNV_11B_Ant1_2442_30~1000



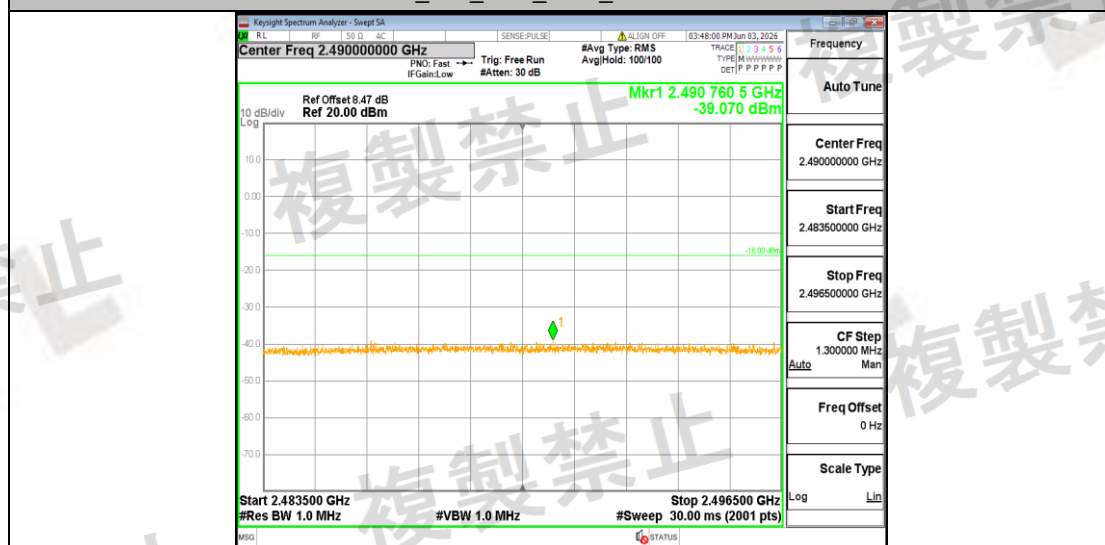
NTNV_11B_Ant1_2442_1000~2387



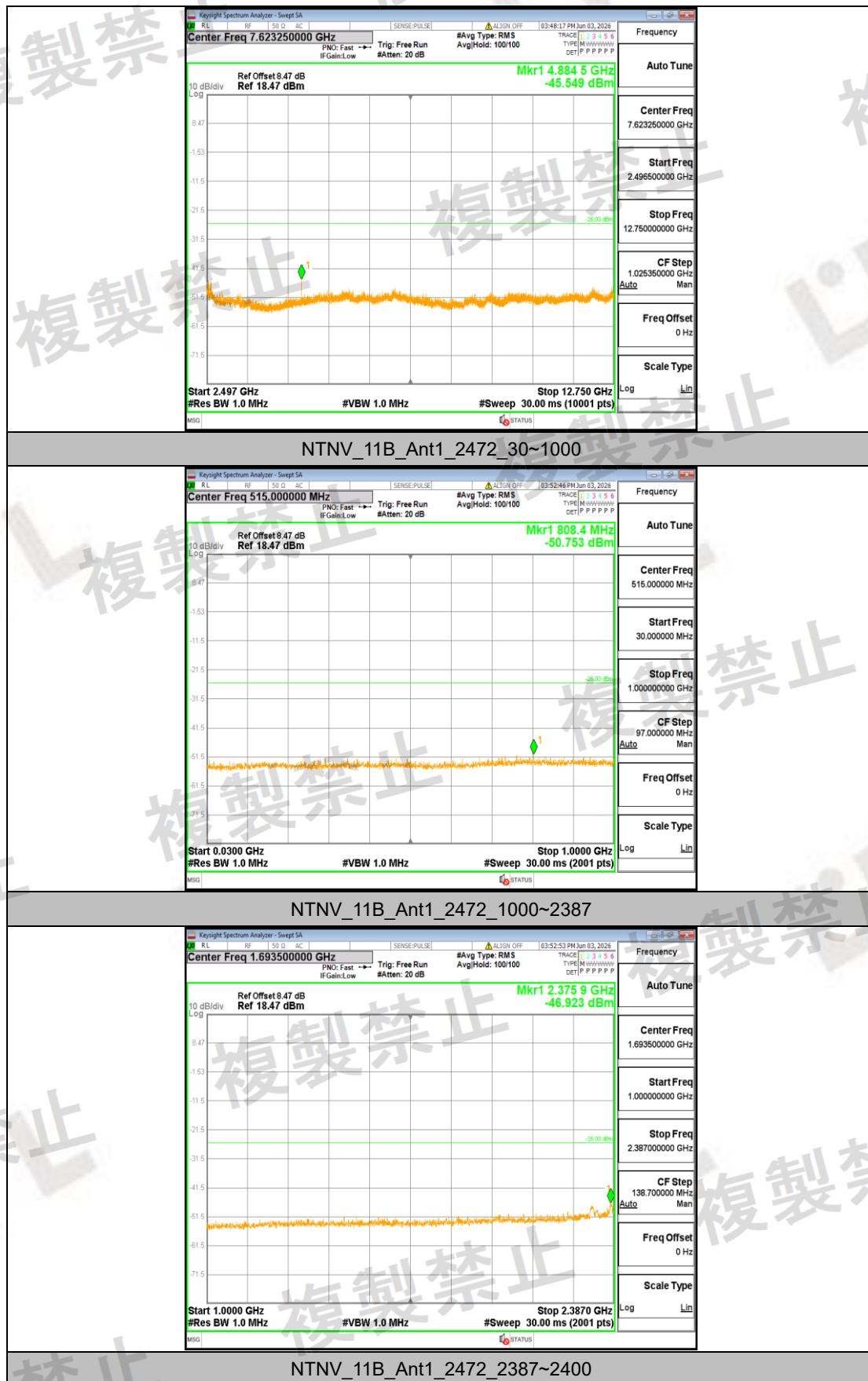
NTNV_11B_Ant1_2442_2387~2400

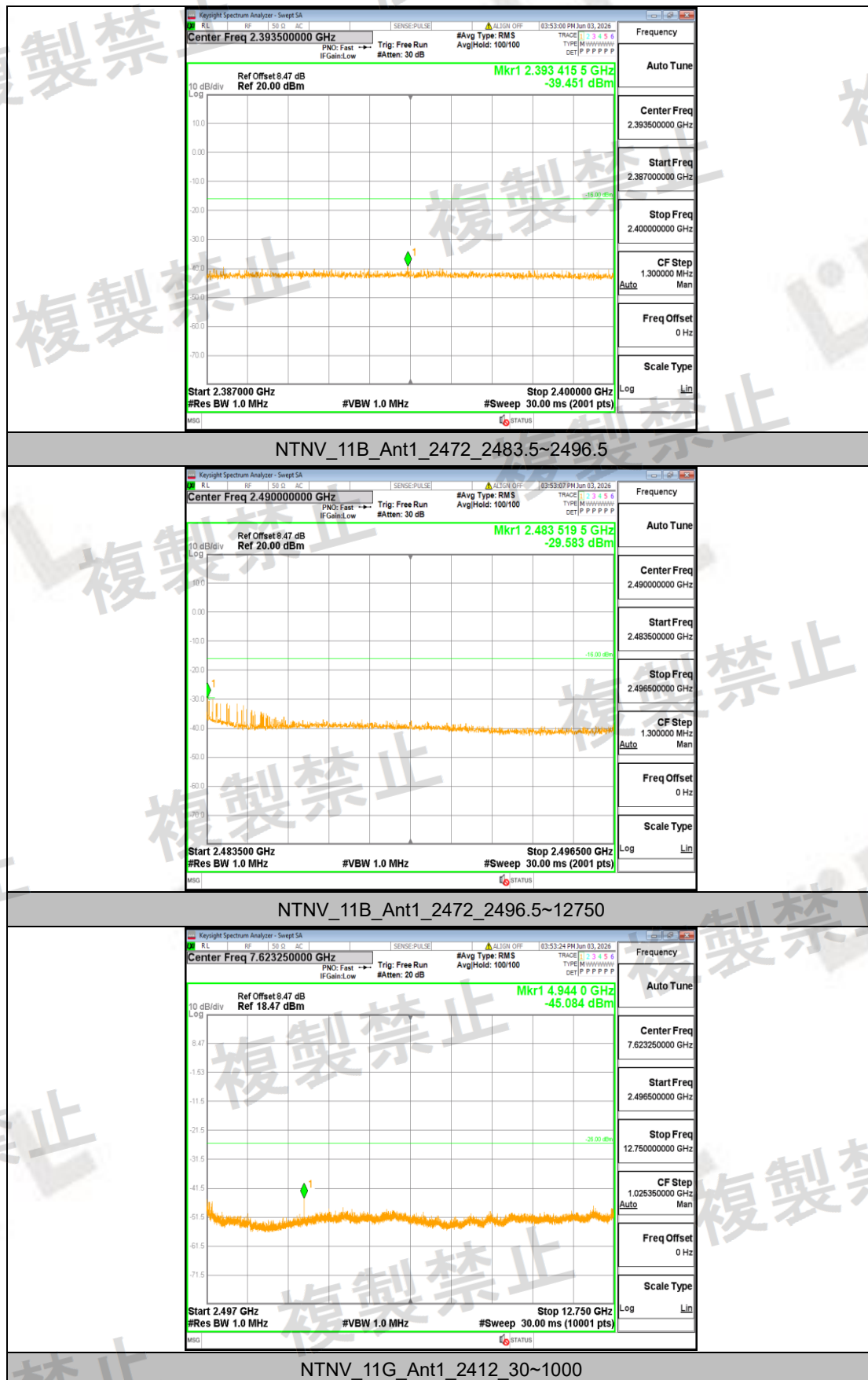


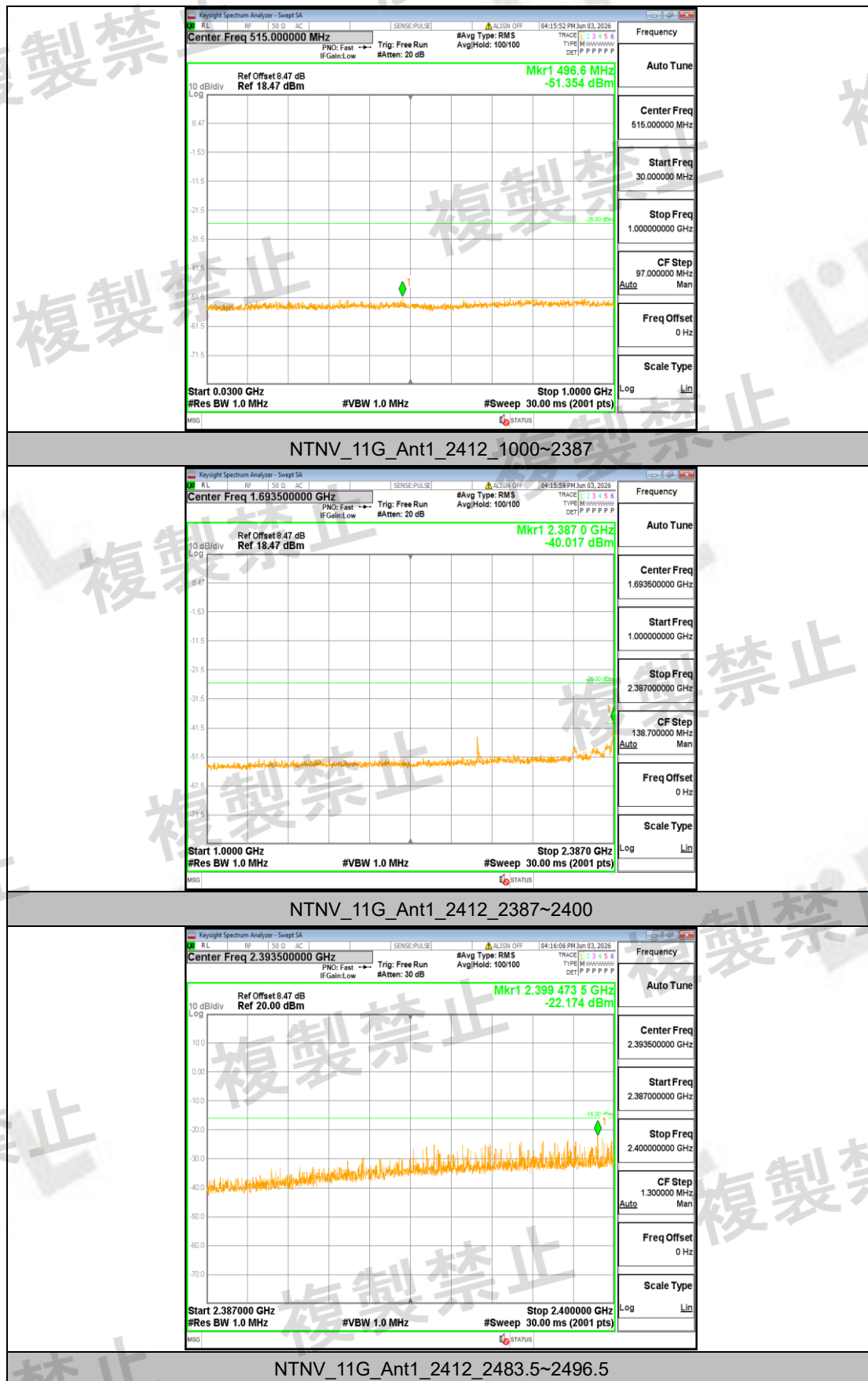
NTNV_11B_Ant1_2442_2483.5~2496.5

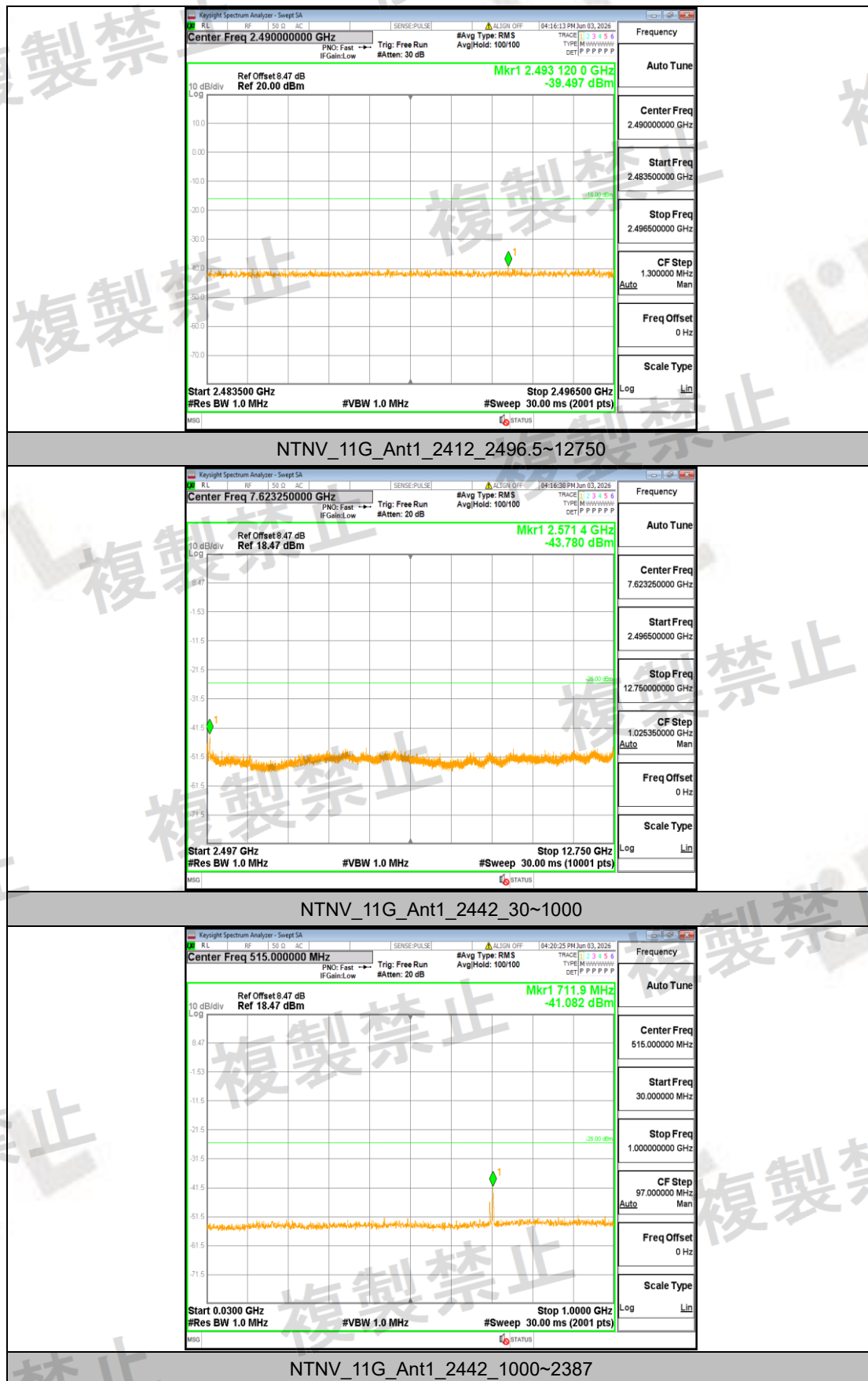


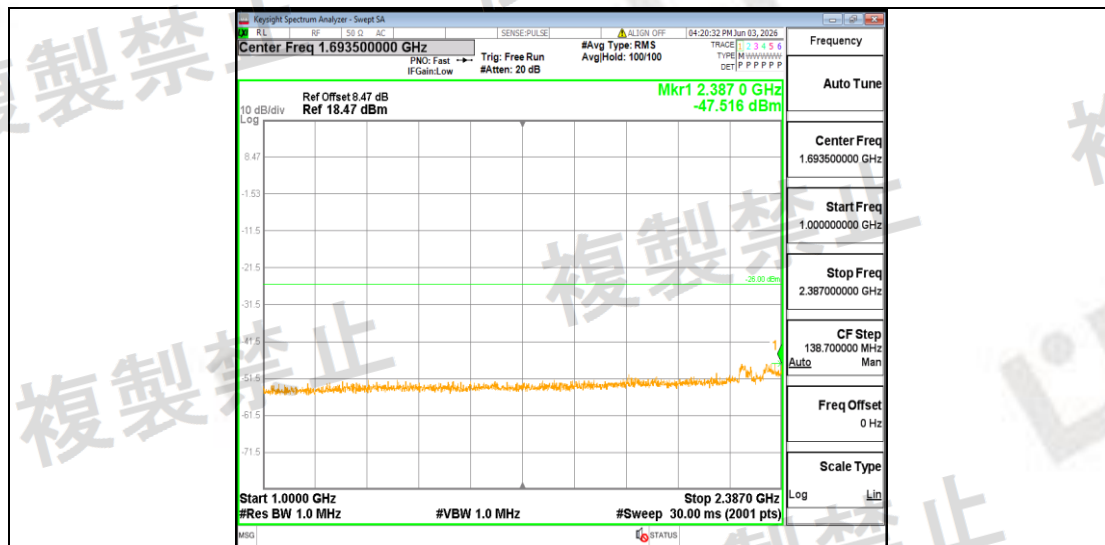
NTNV_11B_Ant1_2442_2496.5~12750



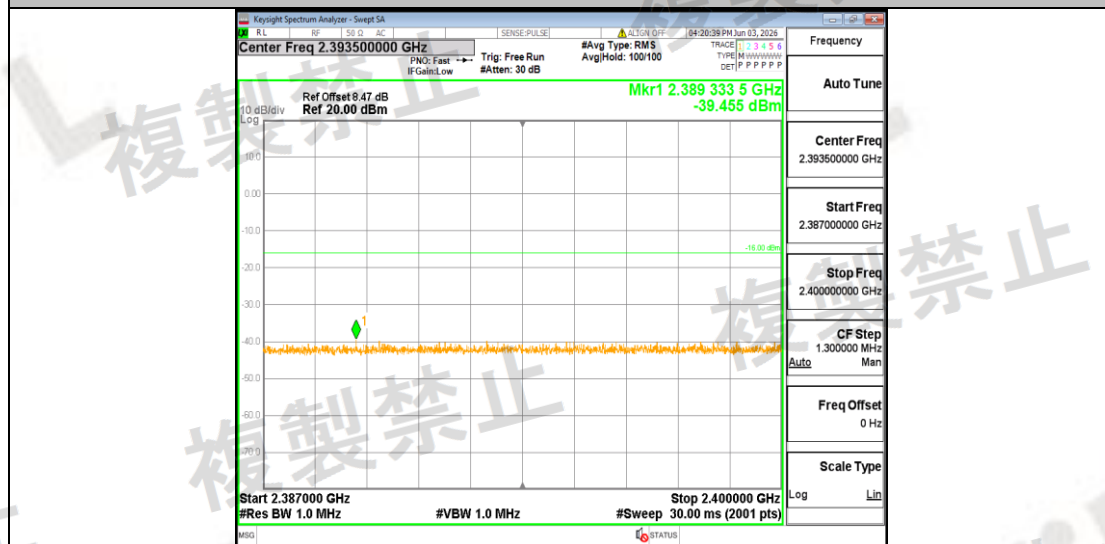




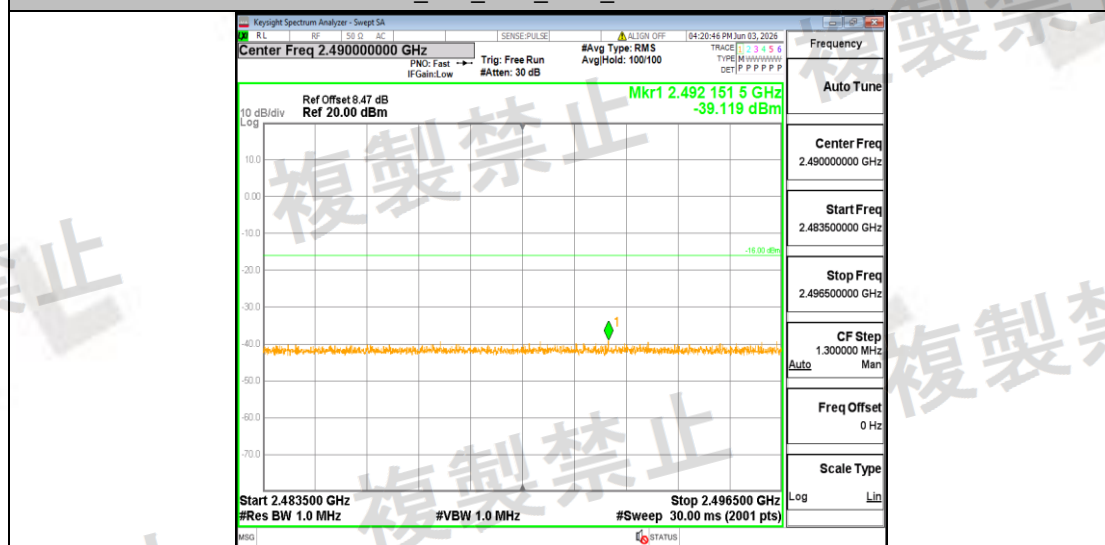




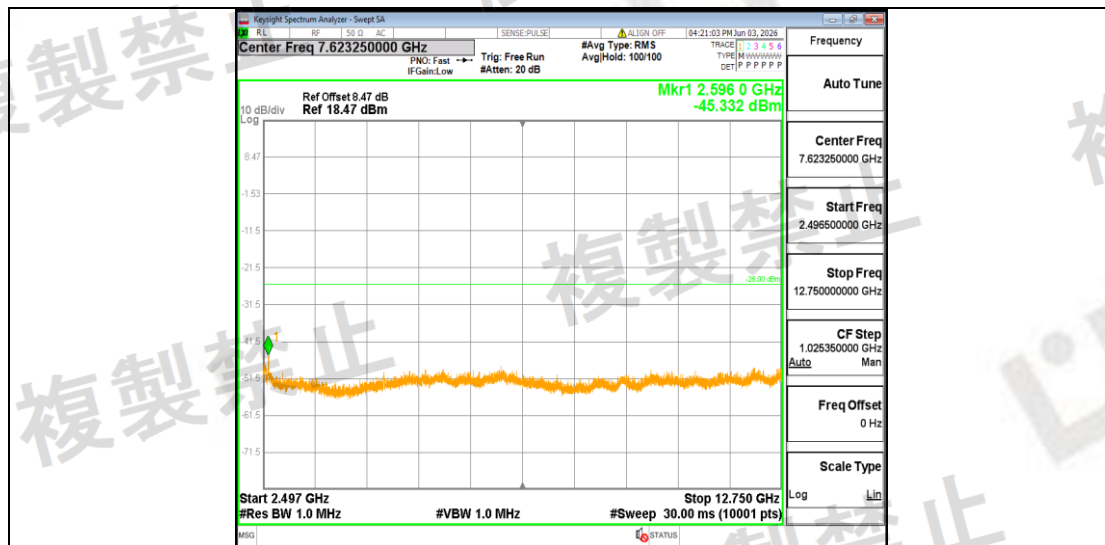
NTNV_11G_Ant1_2442_2387~2400



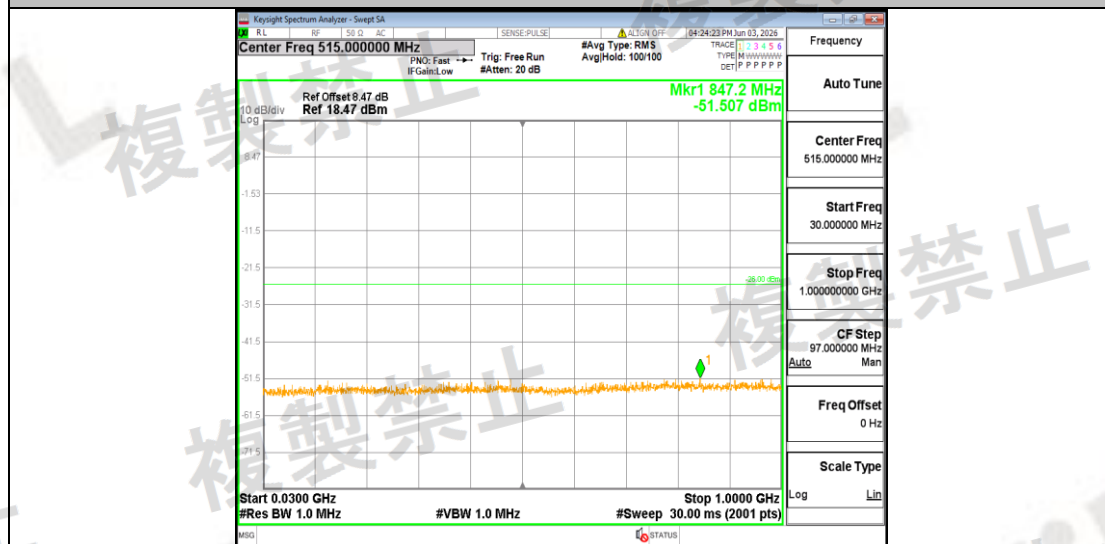
NTNV_11G_Ant1_2442_2483.5~2496.5



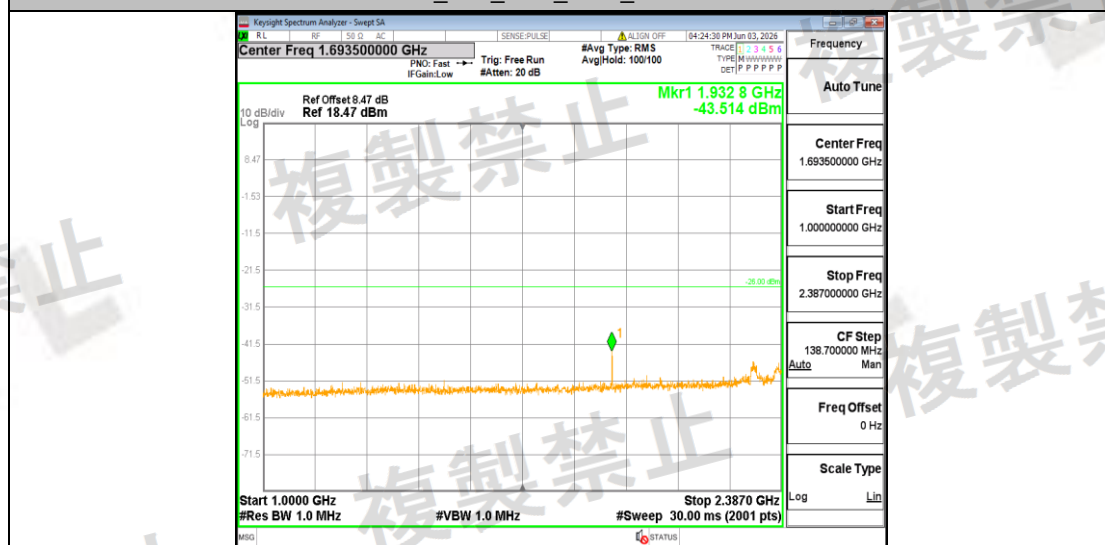
NTNV_11G_Ant1_2442_2496.5~12750



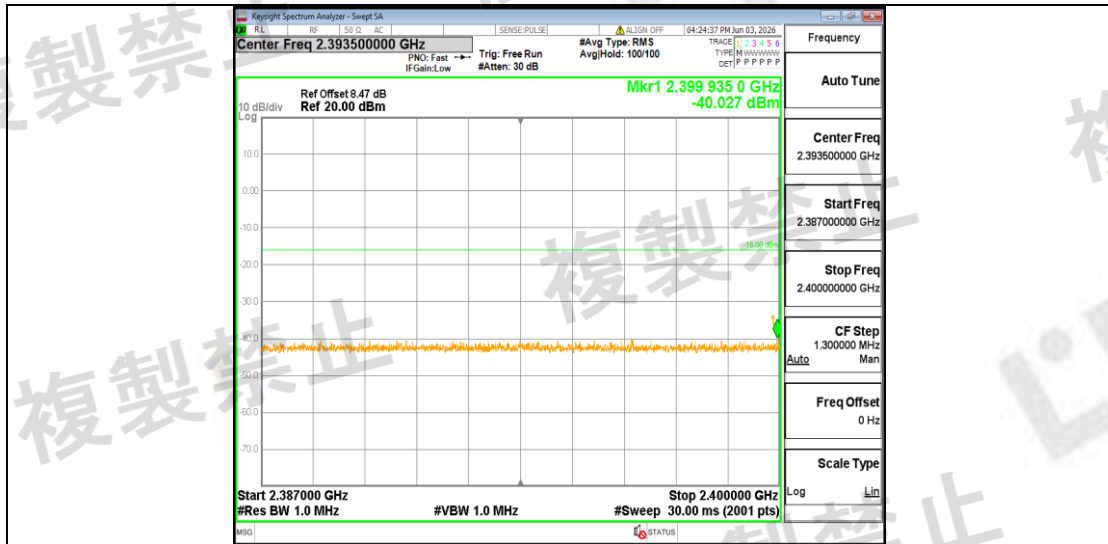
NTNV_11G_Ant1_2472_30~1000



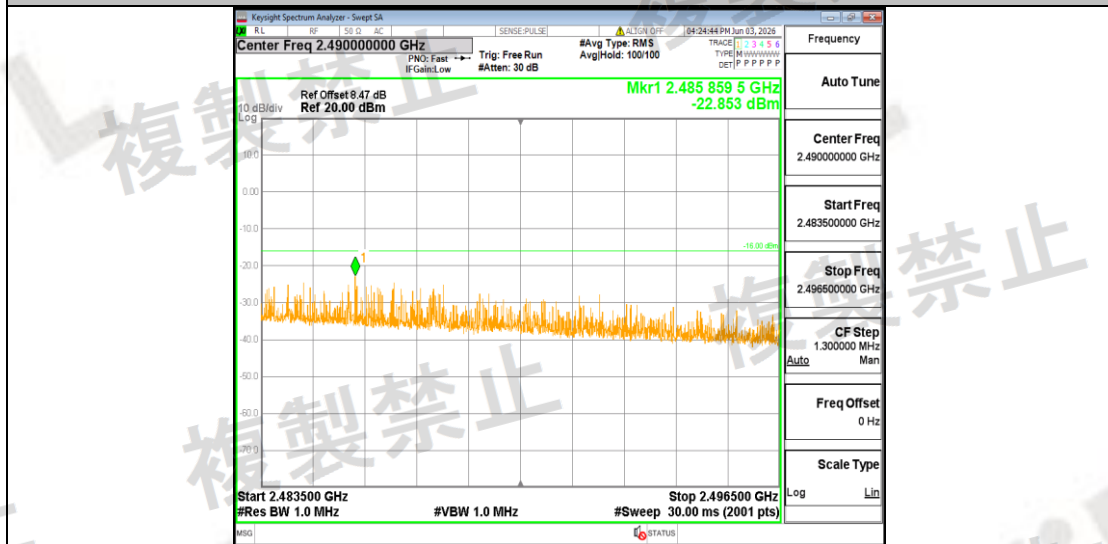
NTNV_11G_Ant1_2472_1000~2387



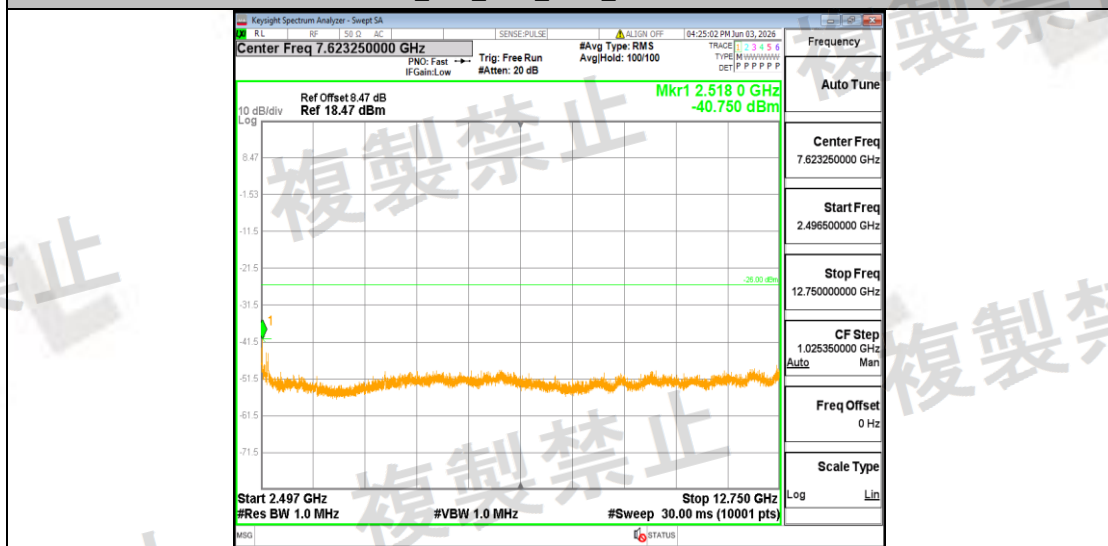
NTNV_11G_Ant1_2472_2387~2400



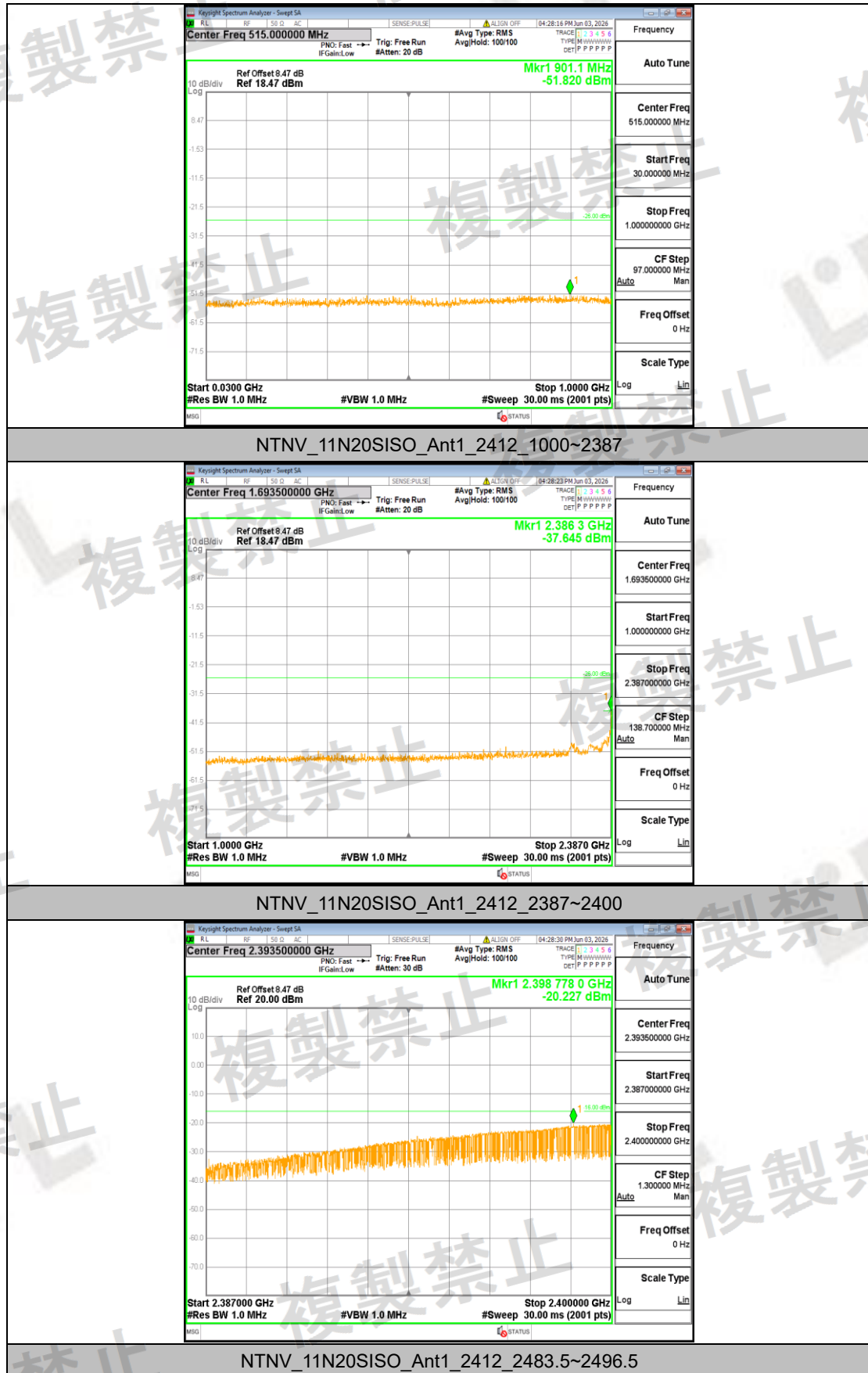
NTNV_11G_Ant1_2472_2483.5~2496.5

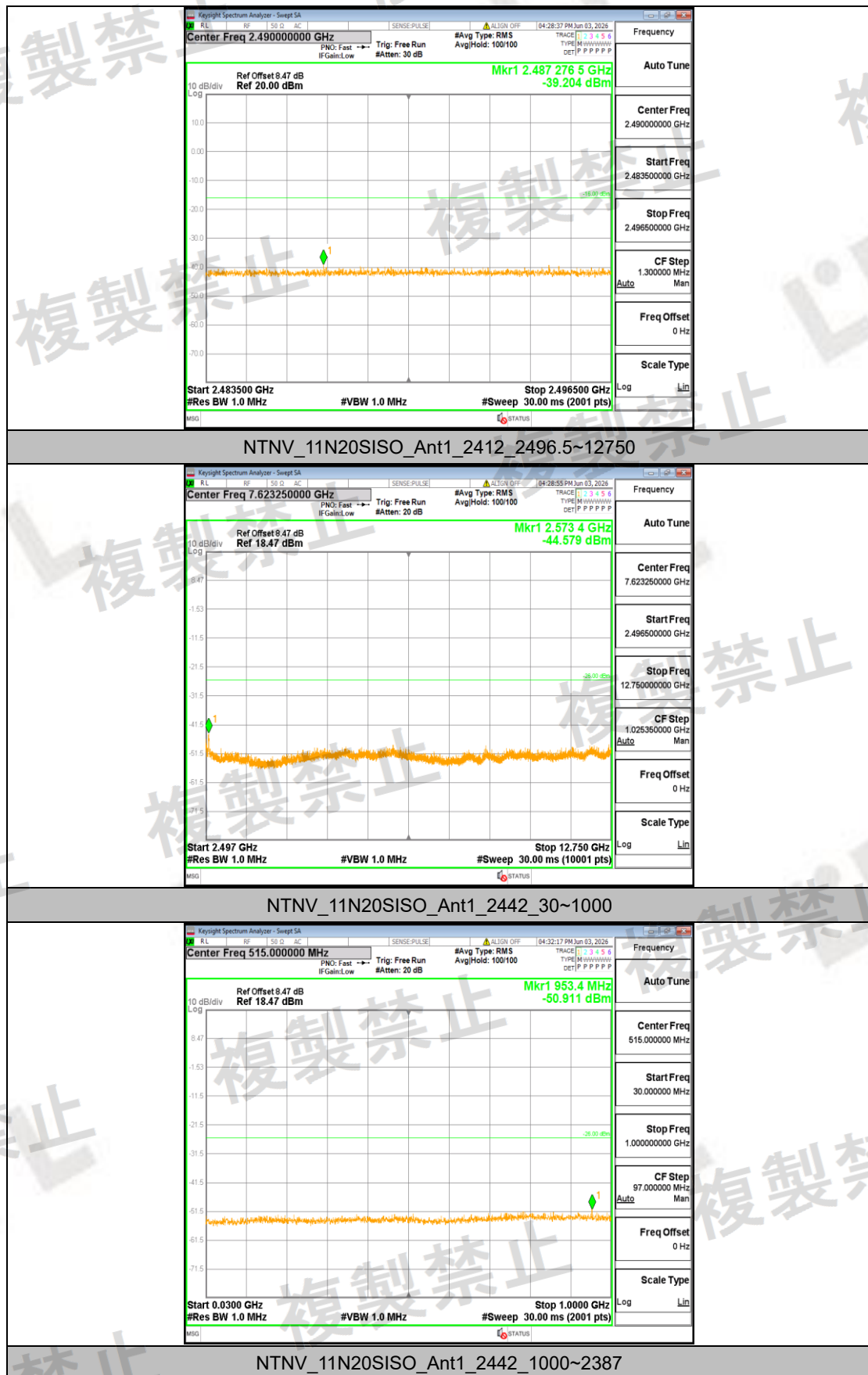


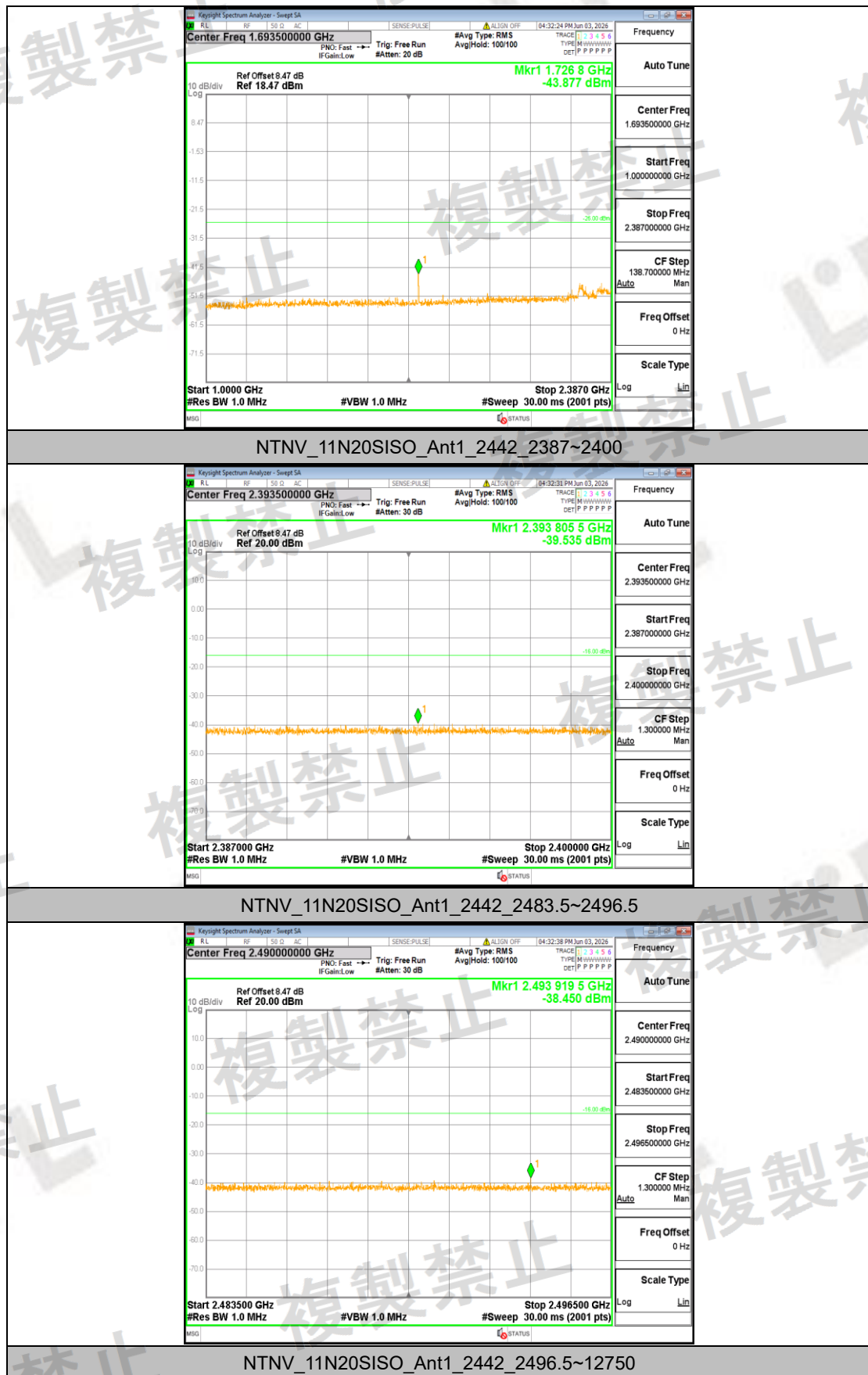
NTNV_11G_Ant1_2472_2496.5~12750

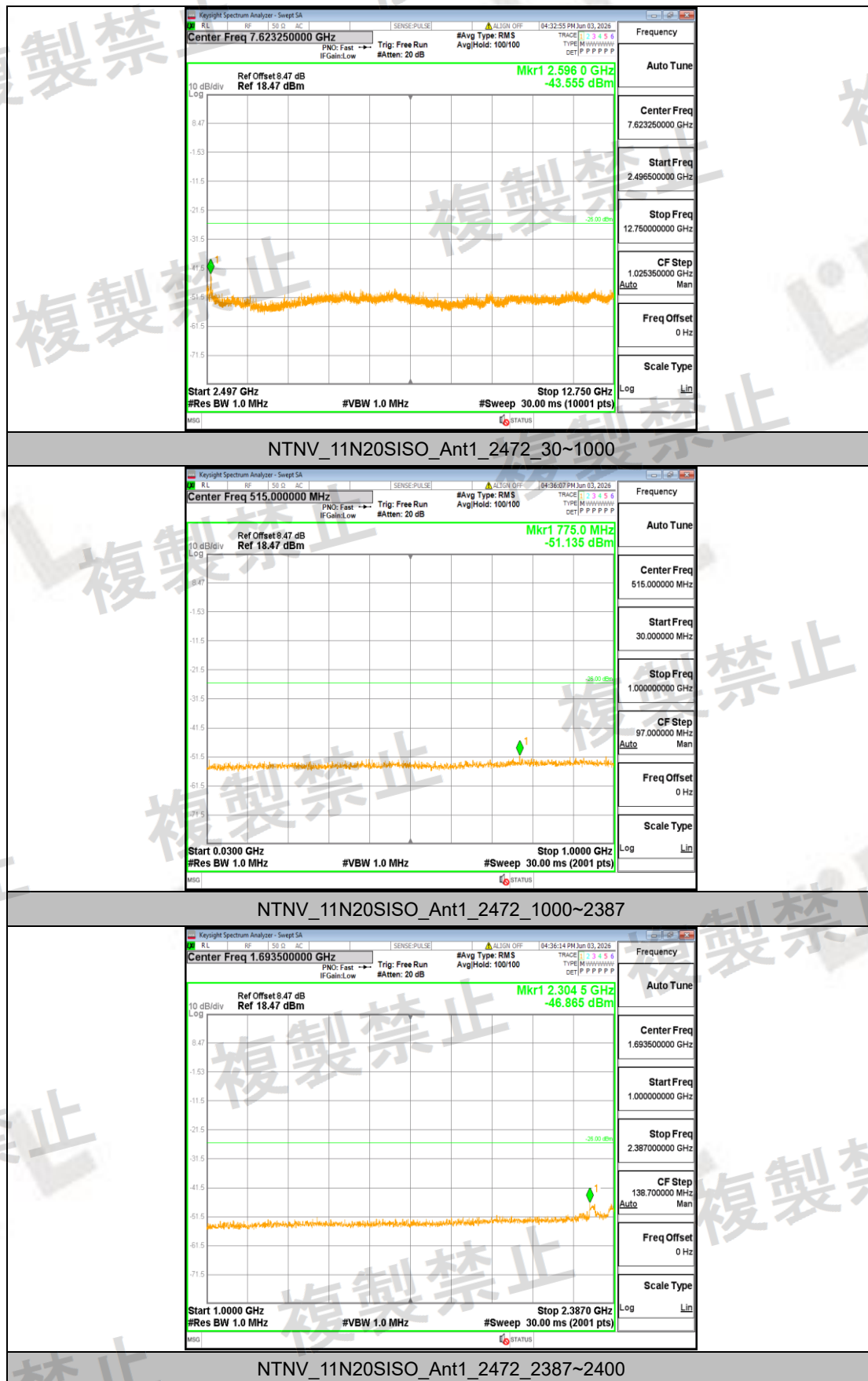


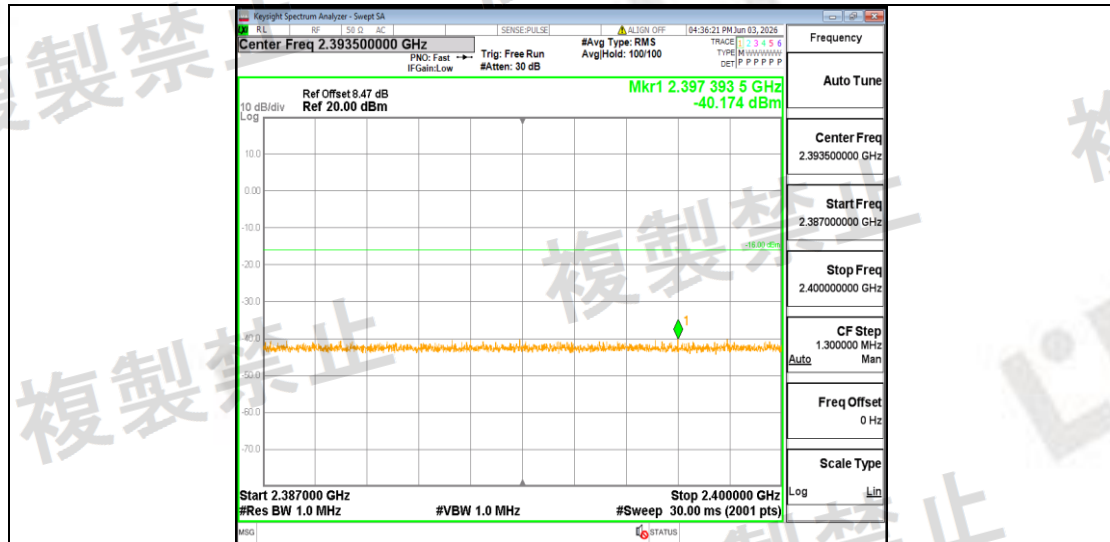
NTNV_11N20SISO_Ant1_2412_30~1000



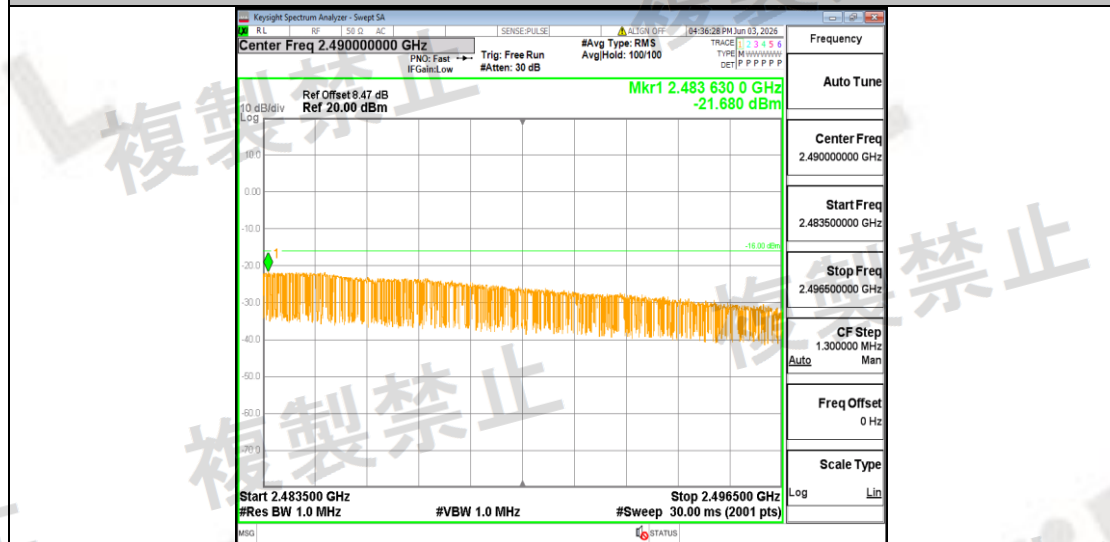




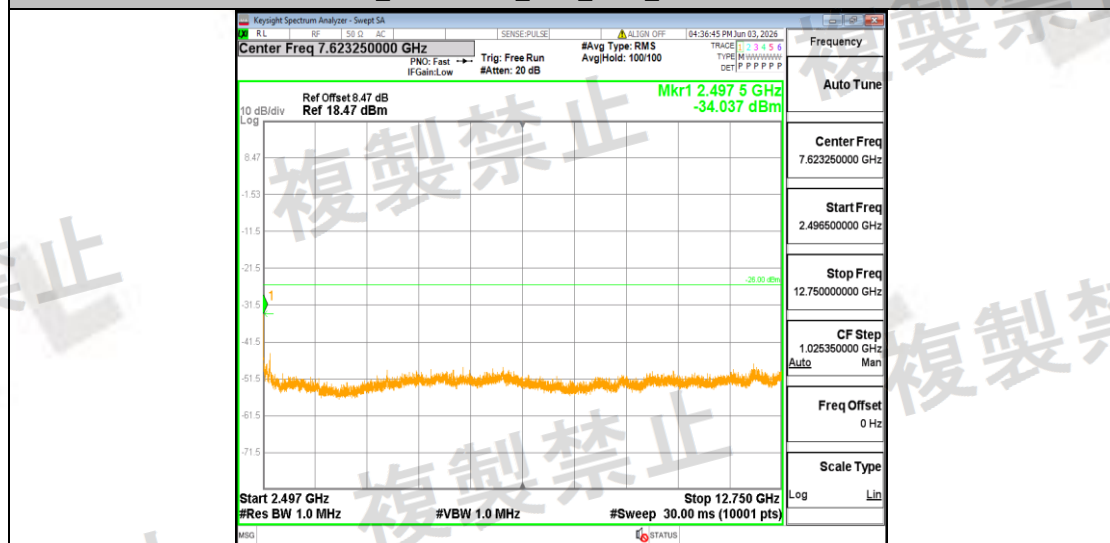




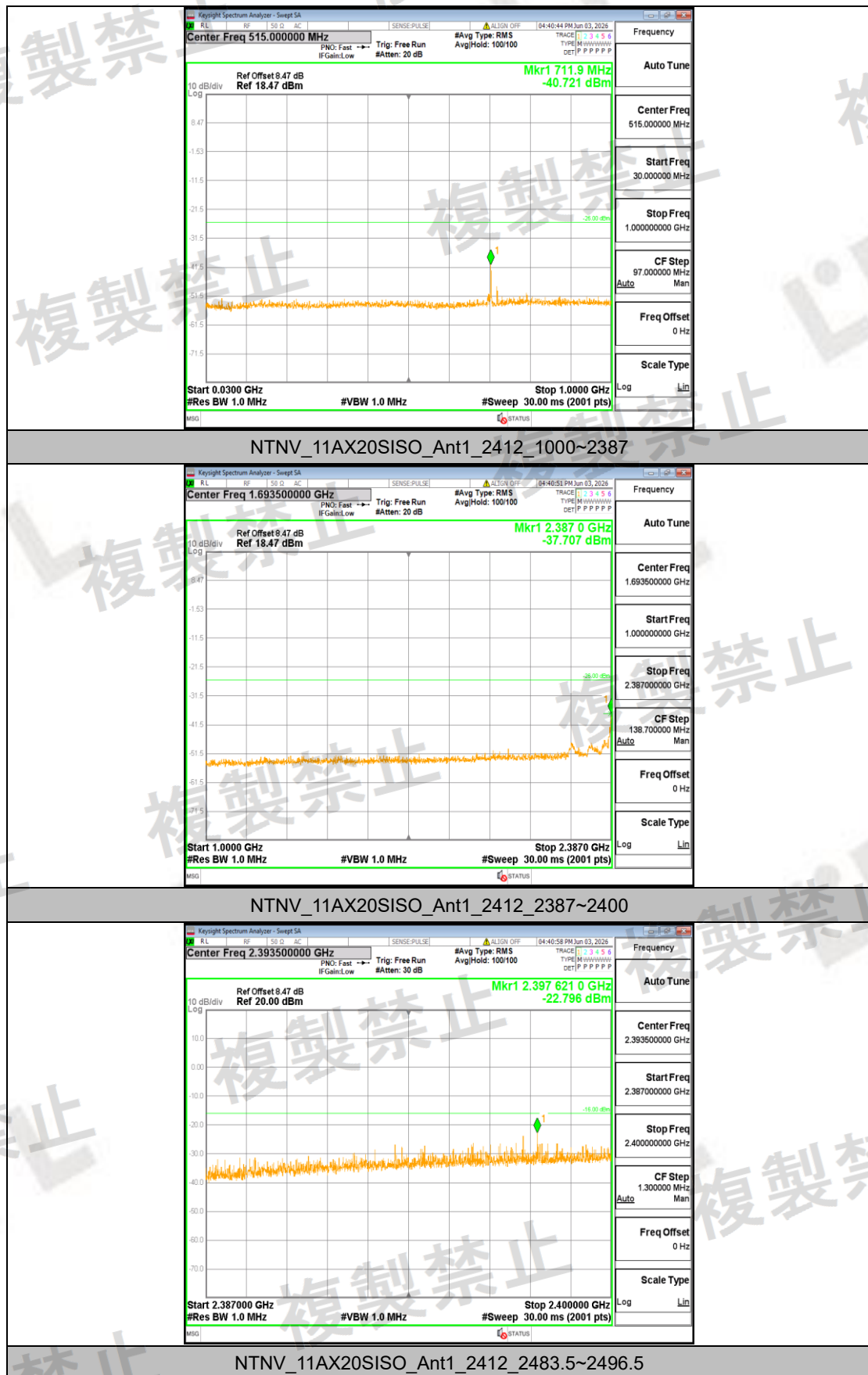
NTVN_11N20SISO_Ant1_2472_2483.5~2496.5

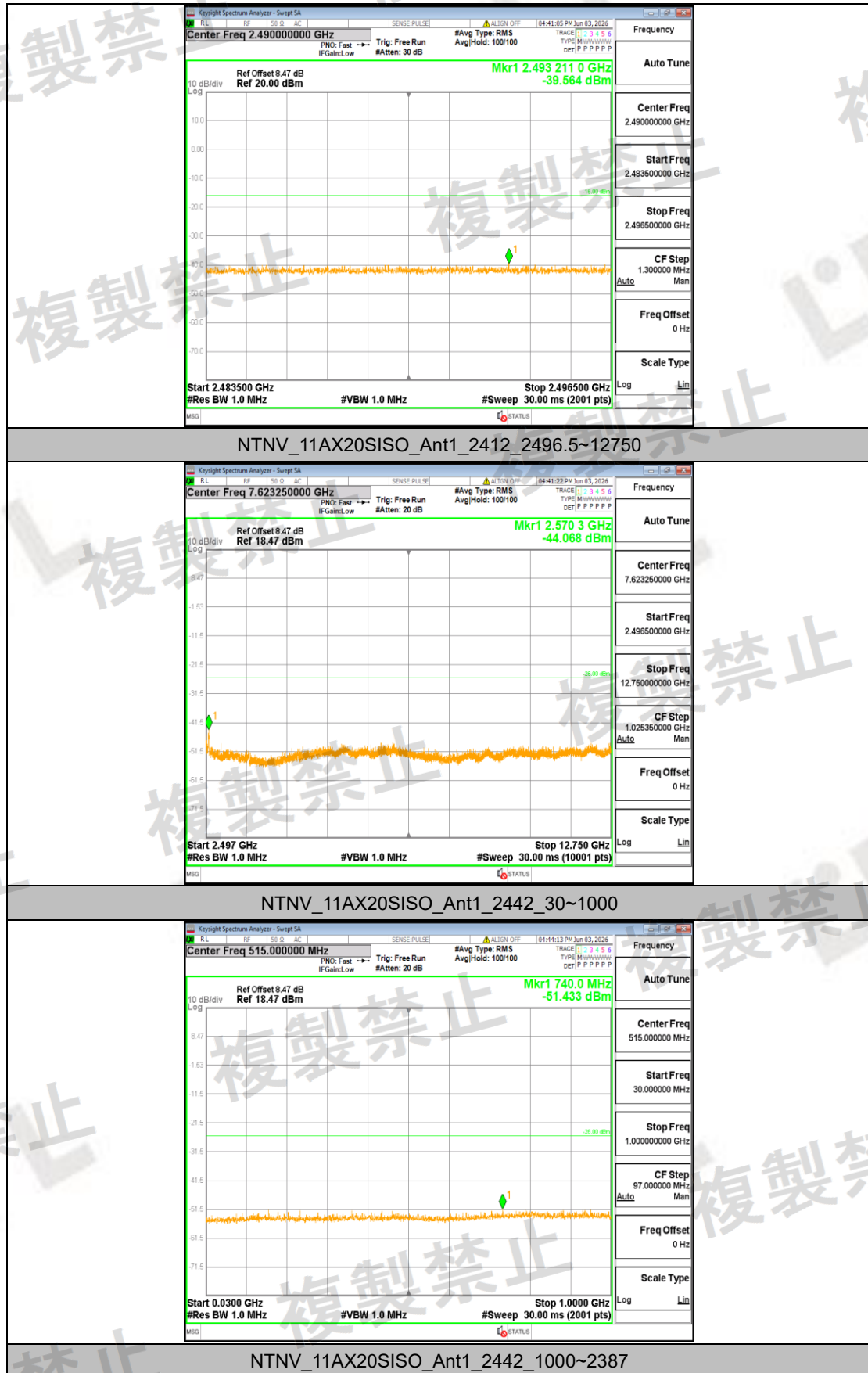


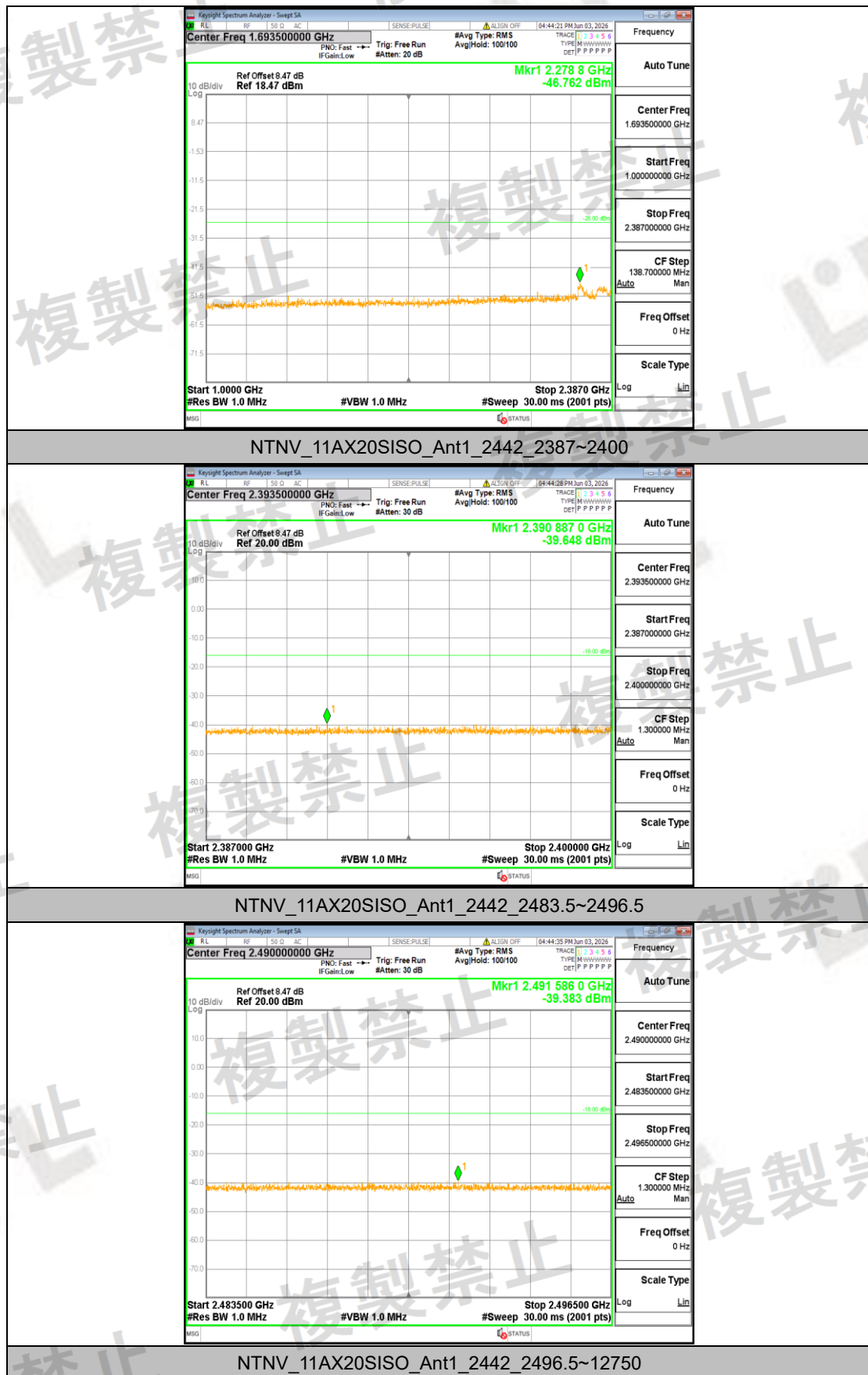
NTVN_11N20SISO_Ant1_2472_2496.5~12750

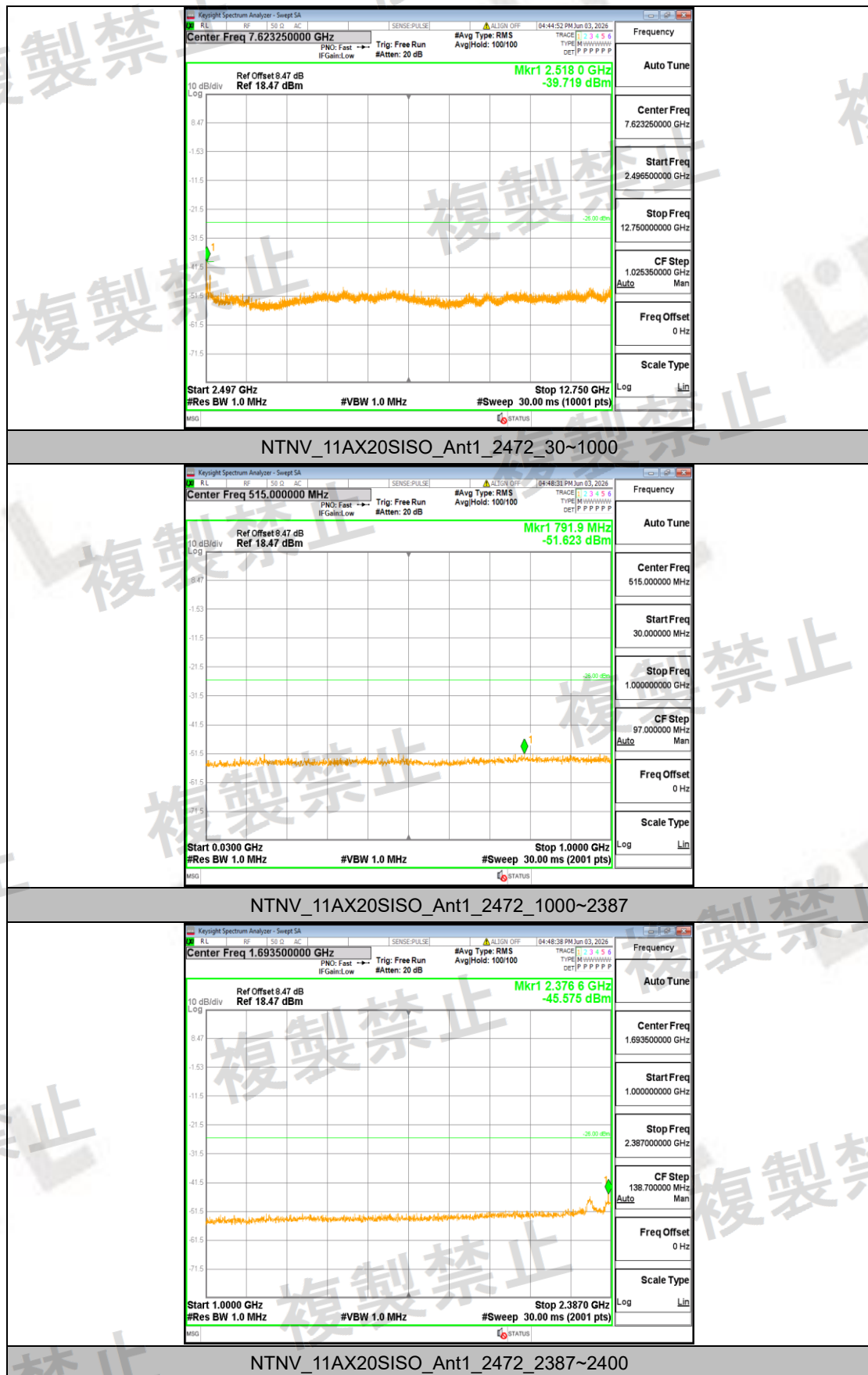


NTVN_11AX20SISO_Ant1_2412_30~1000











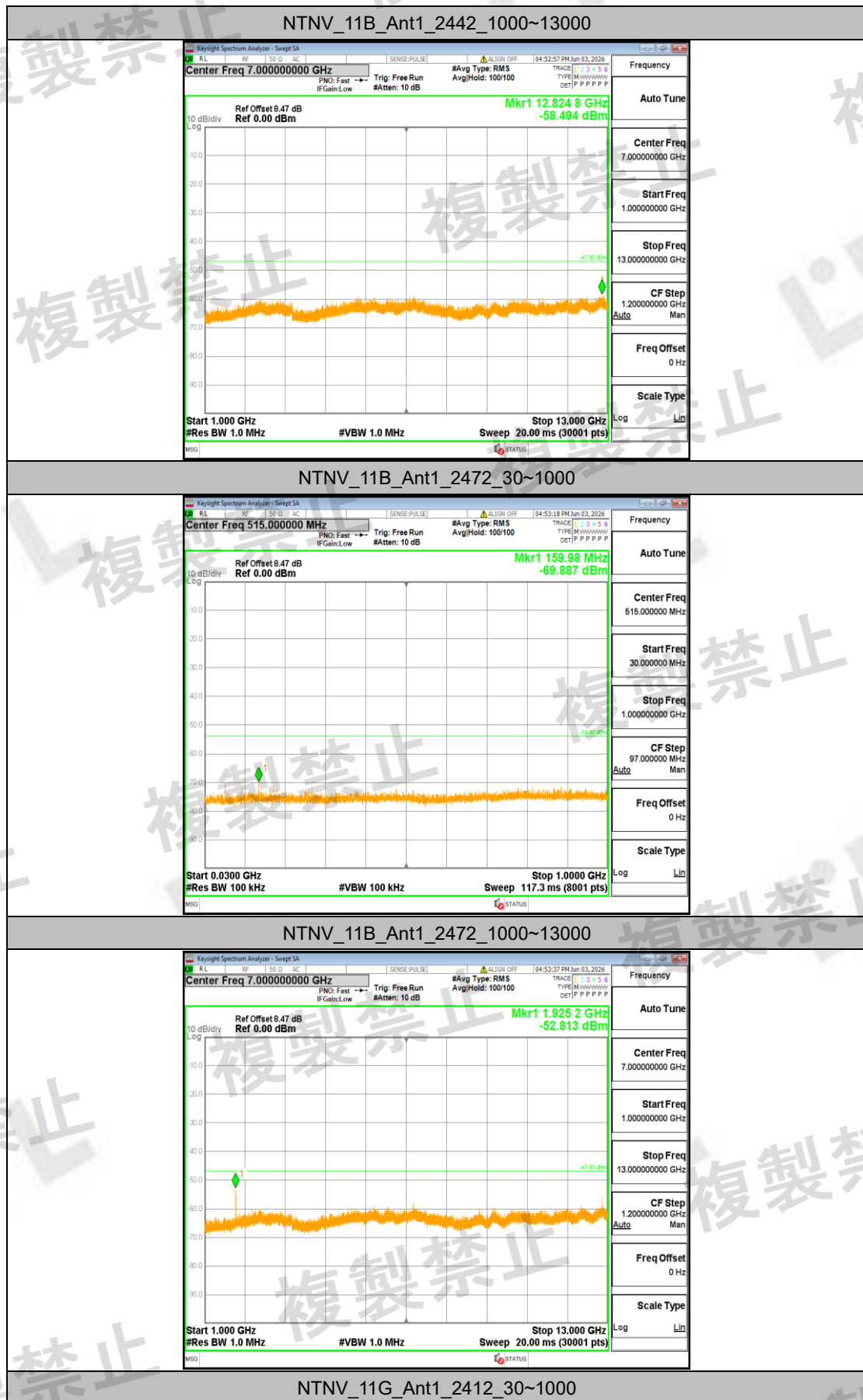
Appendix F: Spurious Emission of RX

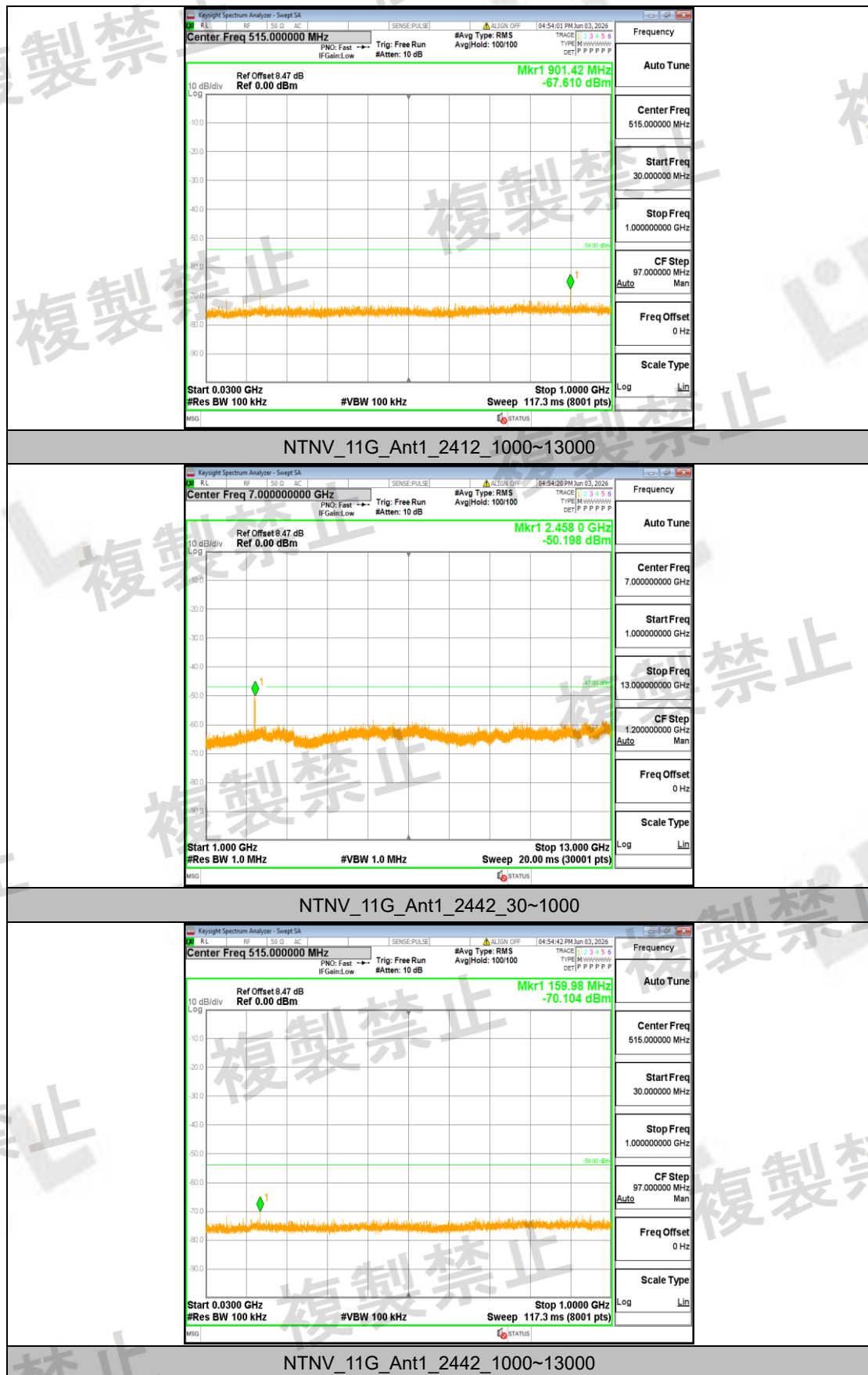
Test Result

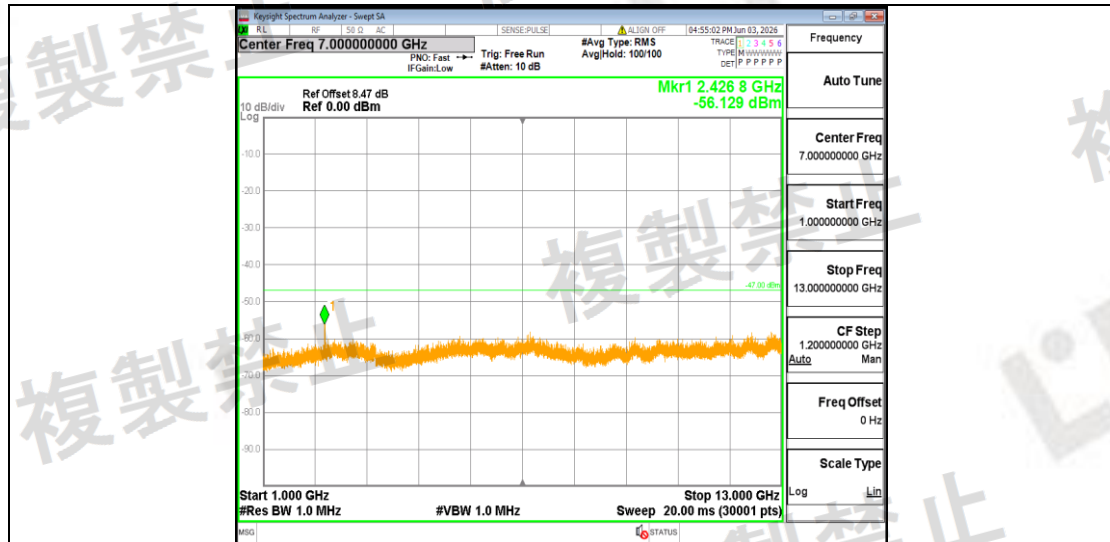
TestCondition	TestMode	Antenna	Frequen cy[MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	11B	Ant1	2412	30~1000	-70.48	≤-54	0.08954	≤4	PASS
				1000~13000	-50.94	≤-47	8.05378	≤20	PASS
			2442	30~1000	-68.98	≤-54	0.12647	≤4	PASS
				1000~13000	-58.49	≤-47	1.41579	≤20	PASS
			2472	30~1000	-69.89	≤-54	0.10257	≤4	PASS
				1000~13000	-52.81	≤-47	5.23600	≤20	PASS
	11G	Ant1	2412	30~1000	-67.61	≤-54	0.17338	≤4	PASS
				1000~13000	-50.20	≤-47	9.54993	≤20	PASS
			2442	30~1000	-70.10	≤-54	0.09772	≤4	PASS
				1000~13000	-56.13	≤-47	2.43781	≤20	PASS
			2472	30~1000	-67.74	≤-54	0.16827	≤4	PASS
				1000~13000	-56.10	≤-47	2.45471	≤20	PASS
	11N20SI SO	Ant1	2412	30~1000	-68.98	≤-54	0.12647	≤4	PASS
				1000~13000	-48.57	≤-47	13.89953	≤20	PASS
			2442	30~1000	-69.85	≤-54	0.10351	≤4	PASS
				1000~13000	-54.03	≤-47	3.95367	≤20	PASS
			2472	30~1000	-70.18	≤-54	0.09594	≤4	PASS
				1000~13000	-56.45	≤-47	2.26464	≤20	PASS
	11AX20S ISO	Ant1	2412	30~1000	-69.26	≤-54	0.11858	≤4	PASS
				1000~13000	-57.43	≤-47	1.80717	≤20	PASS
			2442	30~1000	-70.27	≤-54	0.09397	≤4	PASS
				1000~13000	-51.51	≤-47	7.06318	≤20	PASS
			2472	30~1000	-69.99	≤-54	0.10023	≤4	PASS
				1000~13000	-56.43	≤-47	2.27510	≤20	PASS

Test Graphs

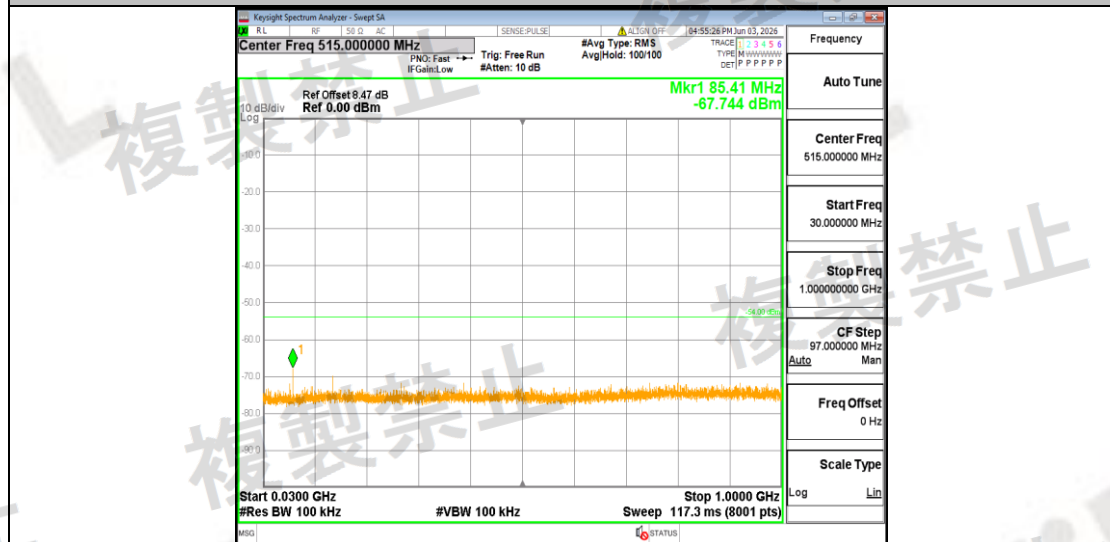




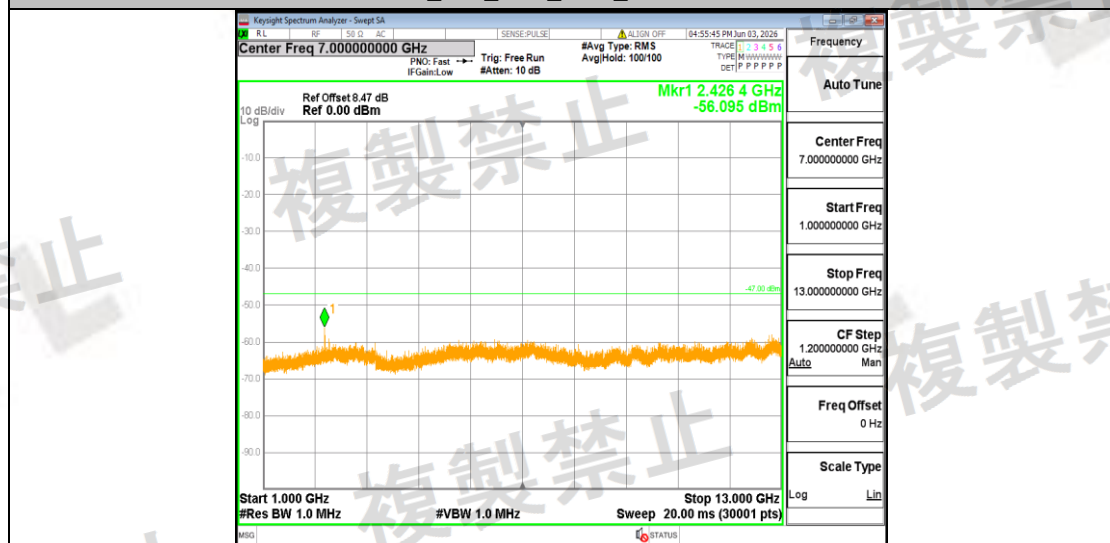




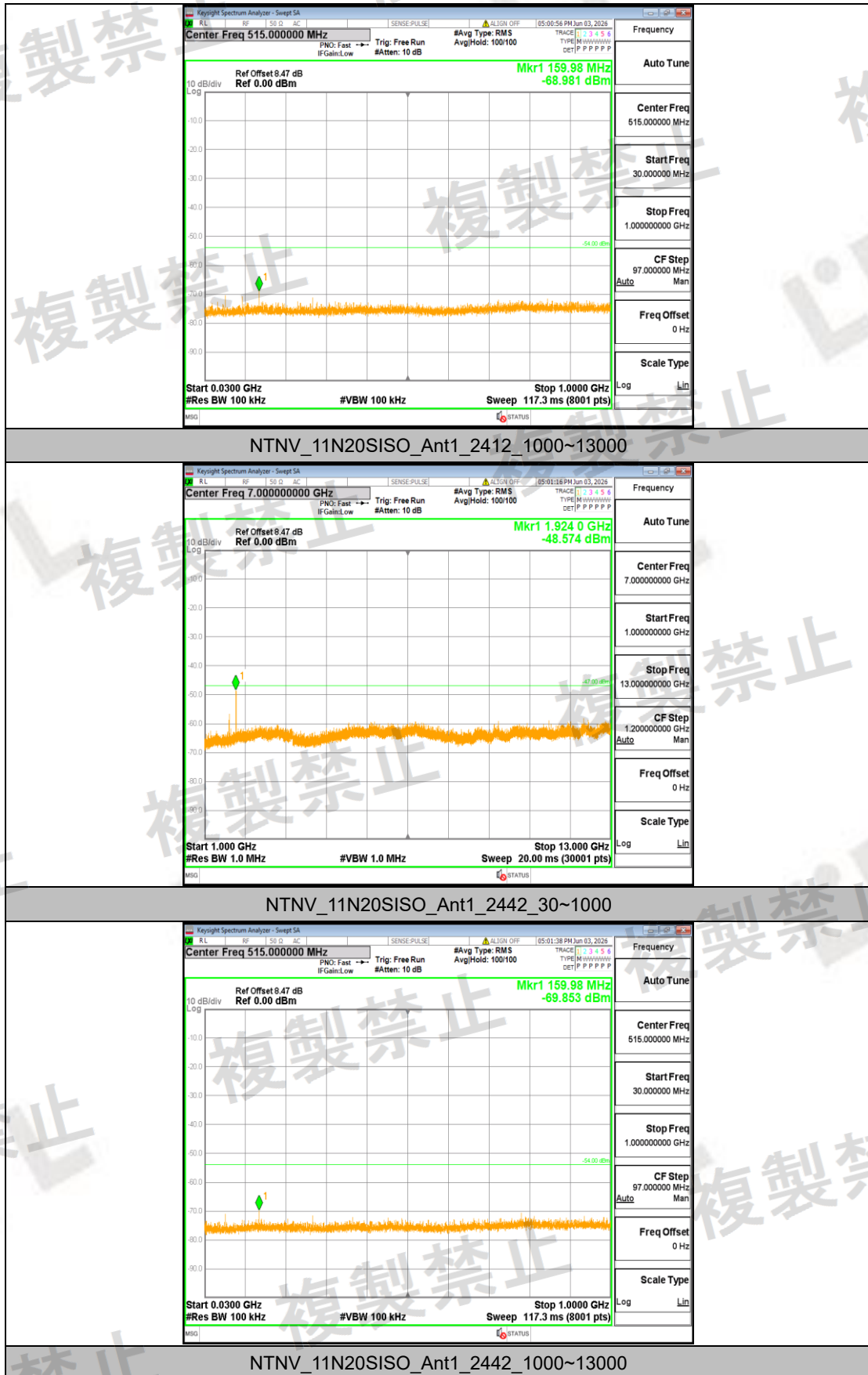
NTNV_11G_Ant1_2472_30~1000

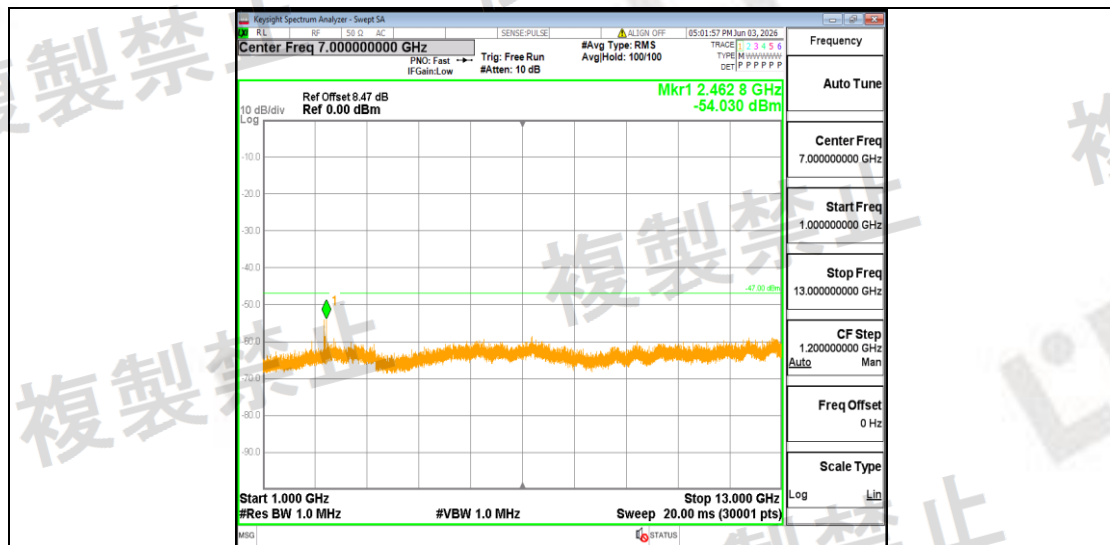


NTNV_11G_Ant1_2472_1000~13000

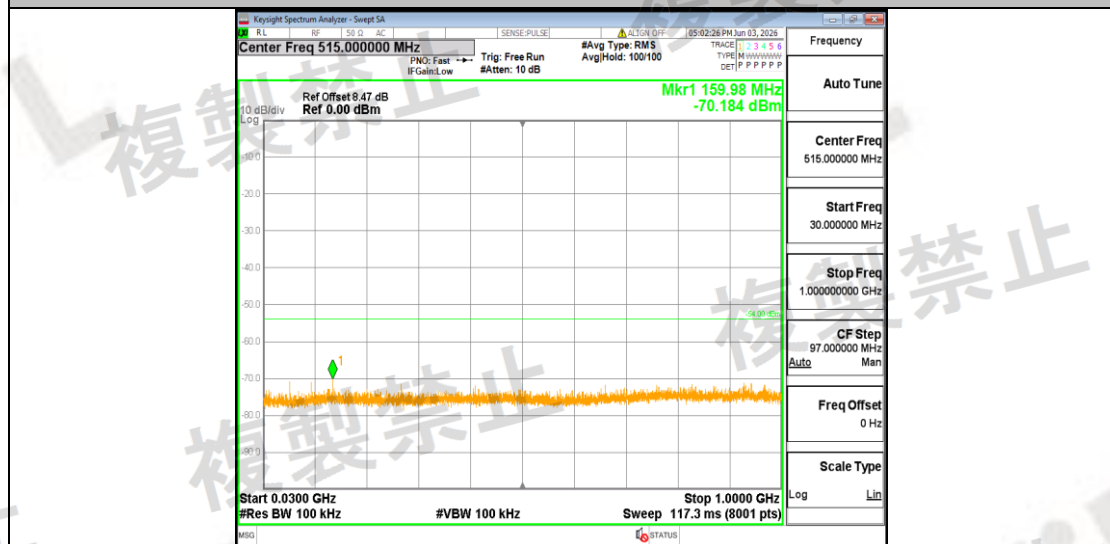


NTNV_11N20SISO_Ant1_2412_30~1000

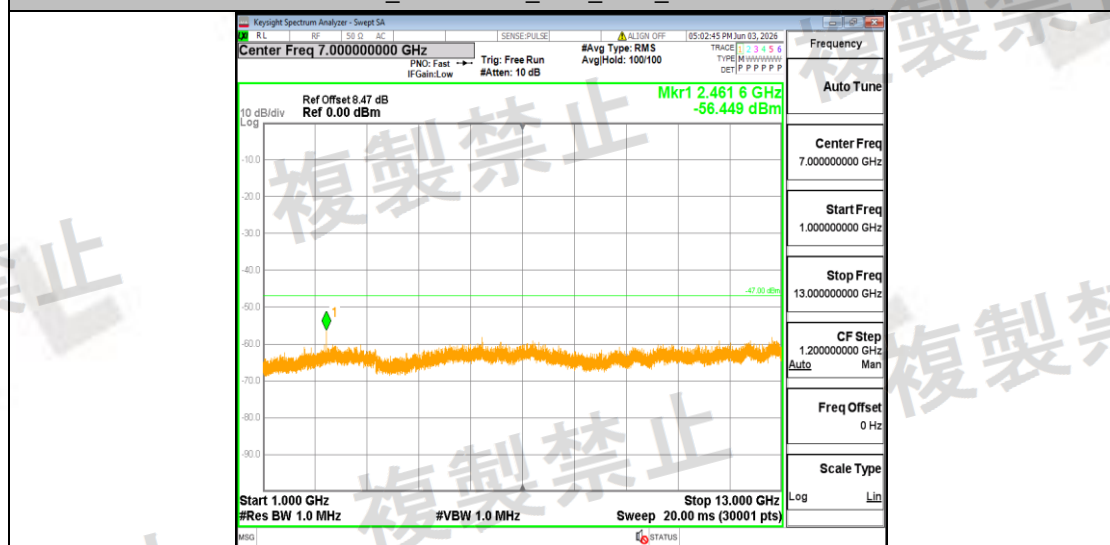




NTNV_11N20SISO_Ant1_2472_30~1000



NTNV_11N20SISO_Ant1_2472_1000~13000



NTNV_11AX20SISO_Ant1_2412_30~1000

