

Appendix: Bluetooth Classic

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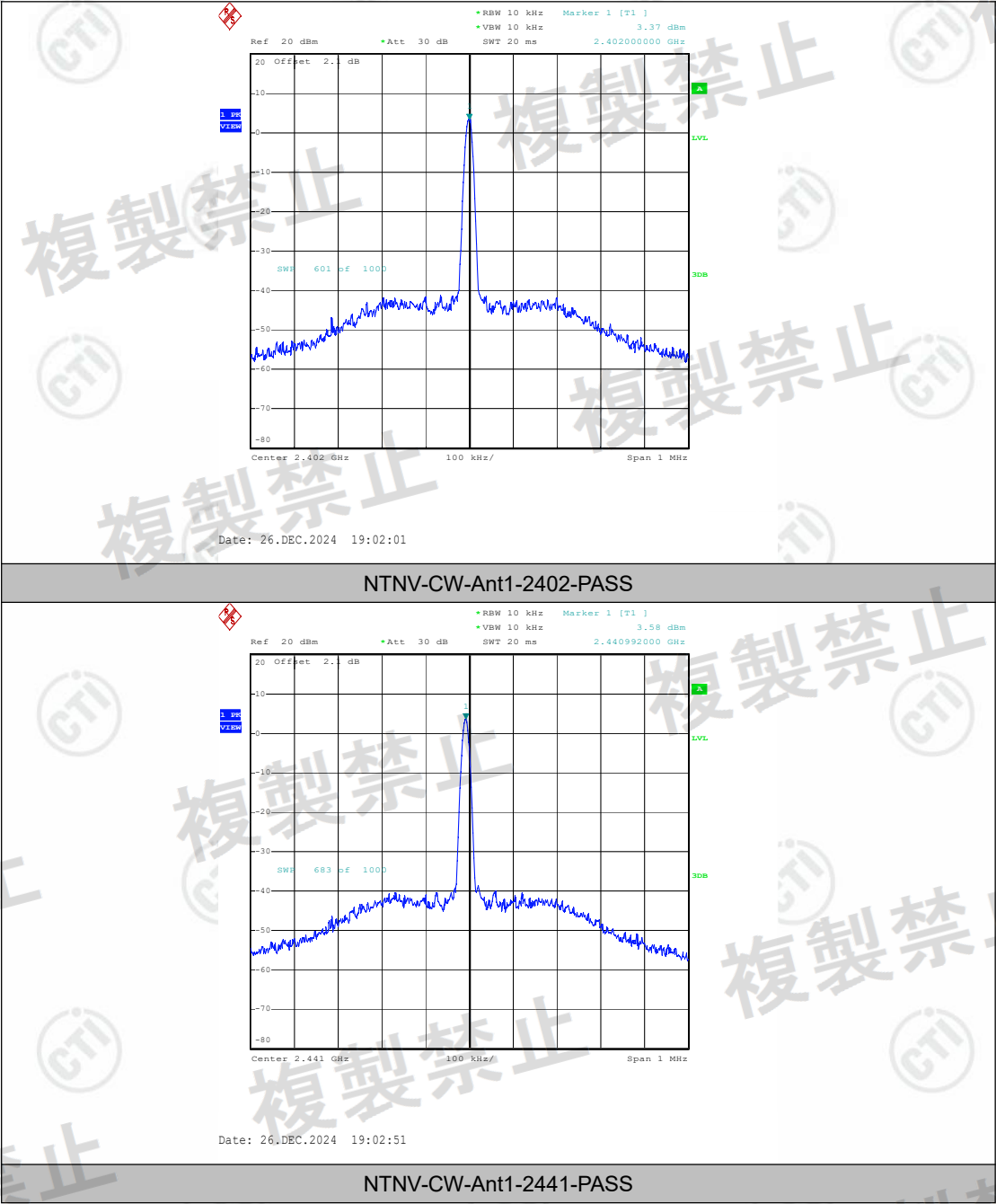
Appendix A: Frequency Error

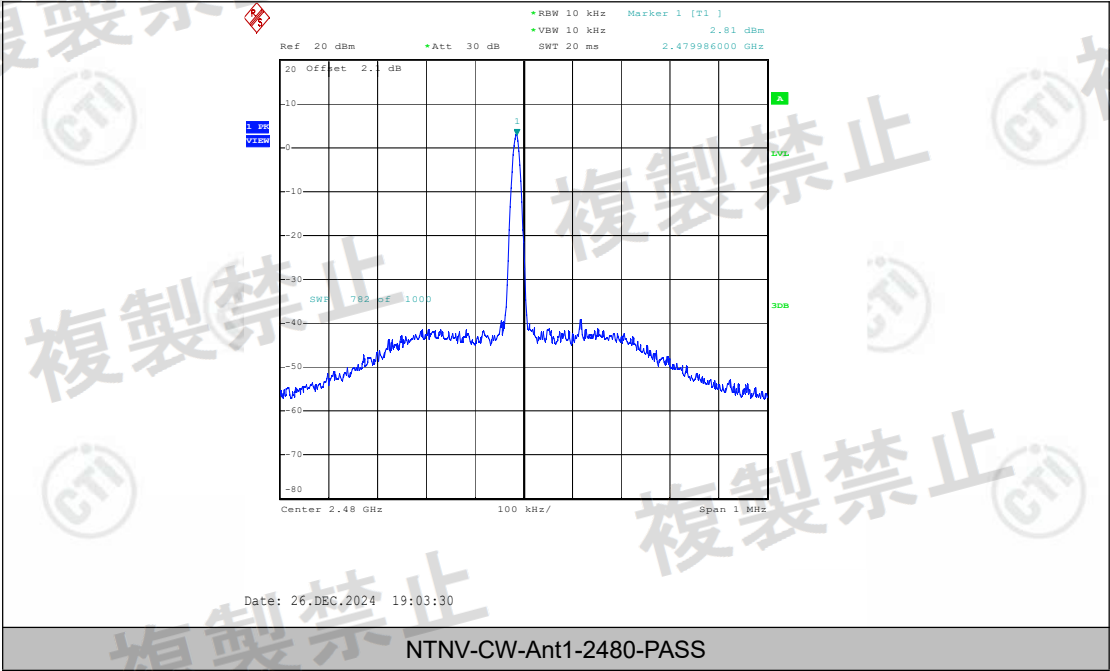
Test Result

Test Condition	Test Mode	Antenna	Frequency[MHz]	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	CW	Ant1	2402	2402	0.00000	±50	PASS
NTNV	CW	Ant1	2441	2440.992	-3.27735	±50	PASS
NTNV	CW	Ant1	2480	2479.986	-5.64516	±50	PASS

Note: Result[ppm]= (CenterFreq - Channel)/Channel*1000000

Test Graphs





Appendix B: Antenna Power

Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Sensor power [dBm]	SpreadBW [MHz]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Hop	5.79	70.2	0.070	≤3	PASS
2DH5	Ant1	Hop	4.33	70.4	0.050	≤3	PASS
3DH5	Ant1	Hop	4.36	70.4	0.050	≤3	PASS

Test Condition	Test Mode	Antenna	Freq (MHz)	Power (mW/MHz)	Rated Power (mW/MHz)	Result (%)	Limit (%)	Verdict
NTNV	DH5	Ant1	Hop	0.07	0.08	-12.50	N/A, +20	PASS
NTNV	2DH5	Ant1	Hop	0.05	0.06	-16.67	N/A, +20	PASS
NTNV	3DH5	Ant1	Hop	0.05	0.06	-16.67	N/A, +20	PASS

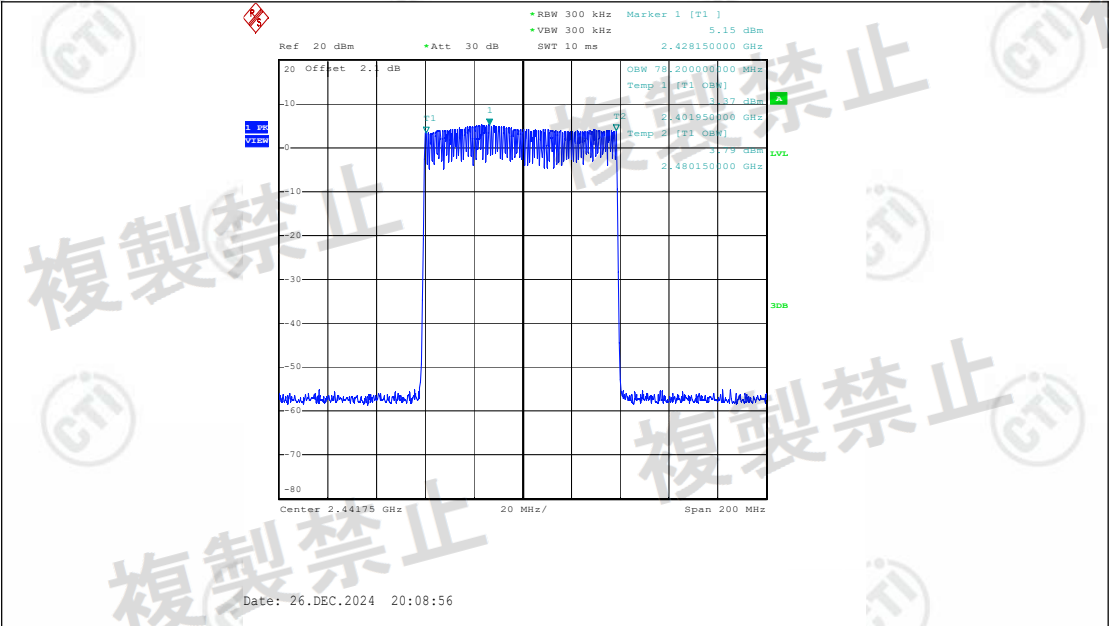
Test Condition	Test Mode	Antenna	Freq (MHz)	Result (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
NTNV	DH5	Ant1	Hop	5.79	4.73	≤6.91	PASS
NTNV	2DH5	Ant1	Hop	4.33	3.27	≤6.91	PASS
NTNV	3DH5	Ant1	Hop	4.36	3.3	≤6.91	PASS

Appendix C: Occupied Bandwidth

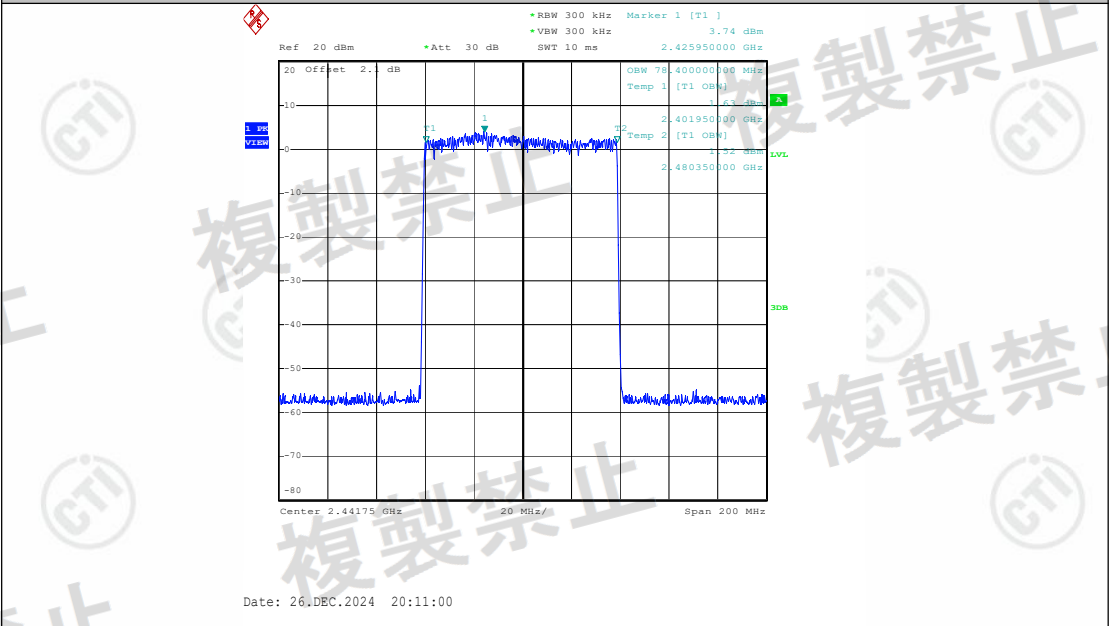
Test Result

Test Condition	Test Mode	Antenna	Frequency[MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	78.200	≤83.5	PASS
NTNV	2DH5	Ant1	Hop	78.400	≤83.5	PASS
NTNV	3DH5	Ant1	Hop	78.400	≤83.5	PASS

Test Graphs



NTNV-DH5-Ant1-Hop-PASS



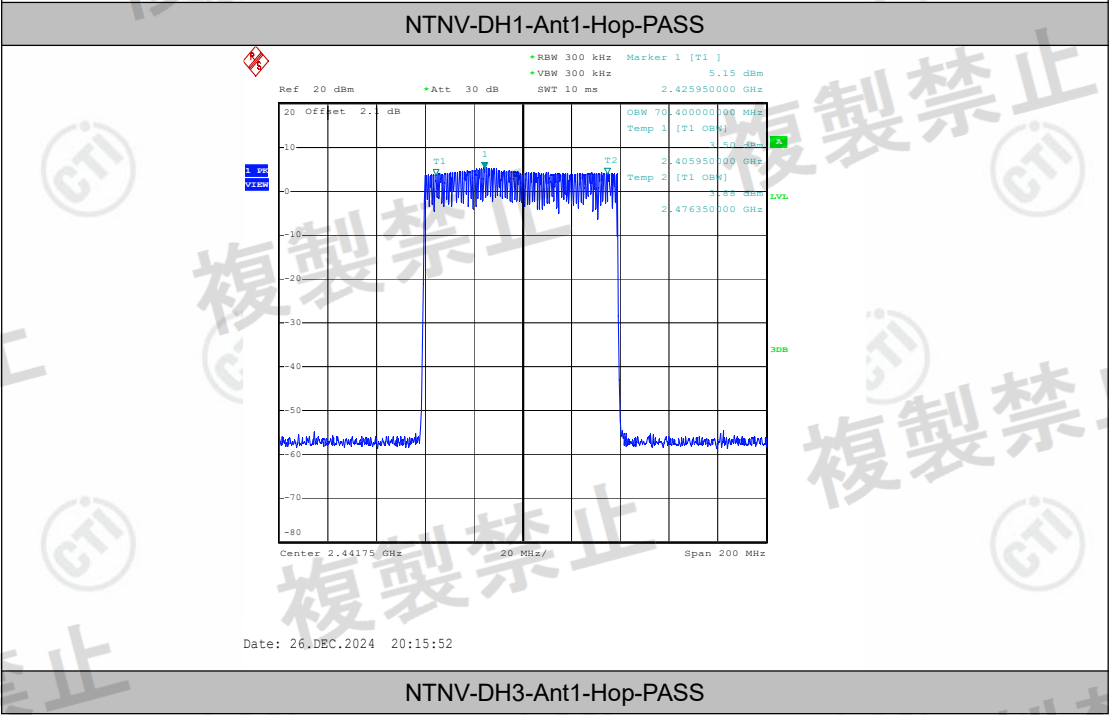
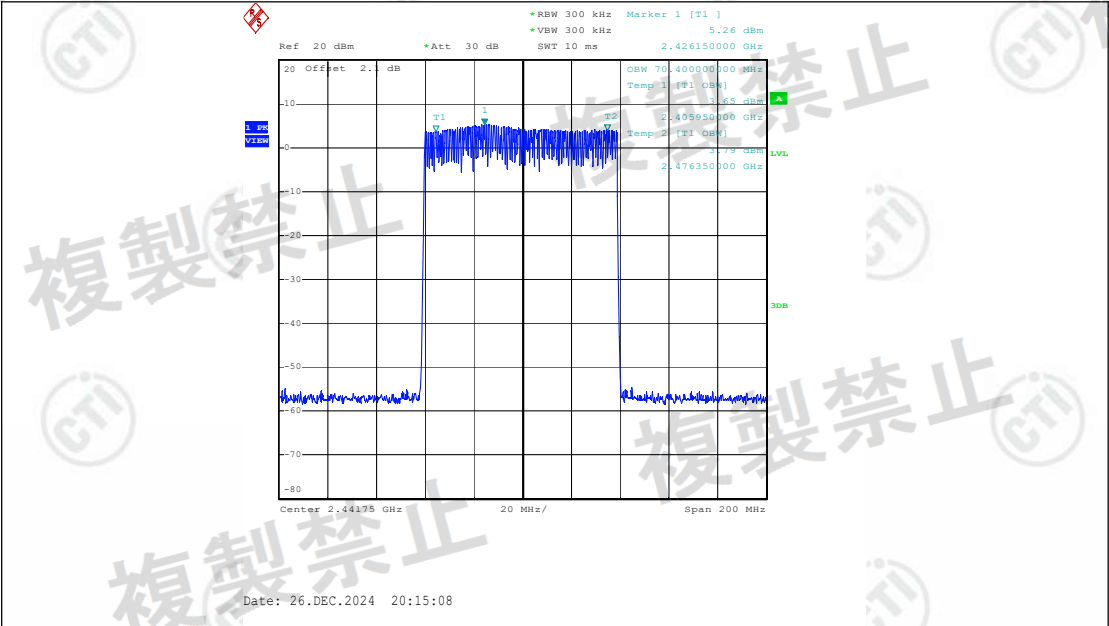
NTNV-2DH5-Ant1-Hop-PASS

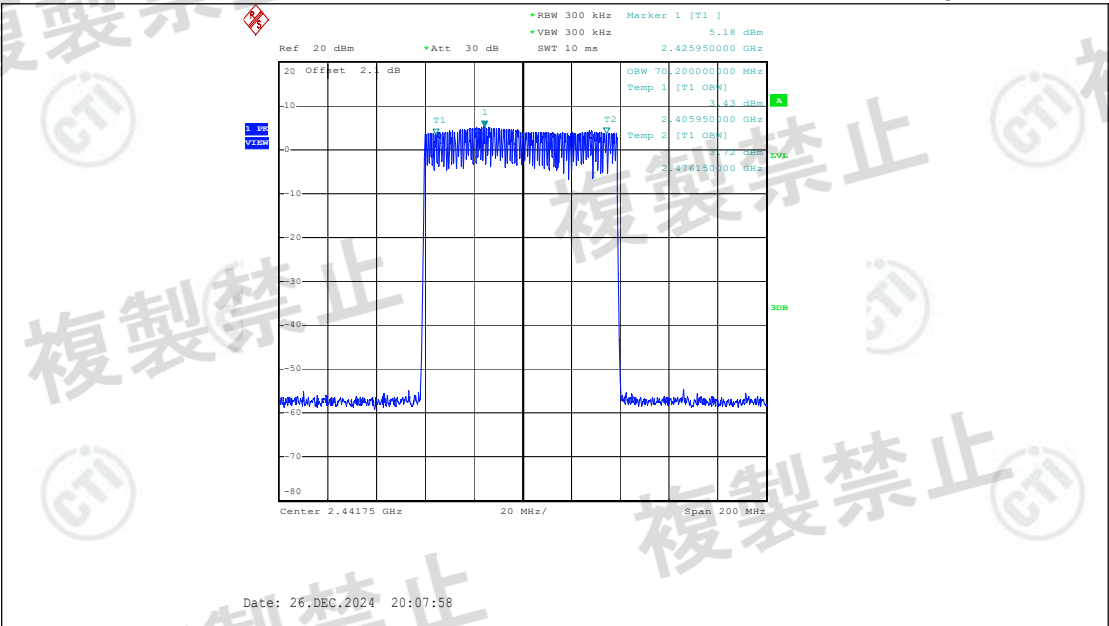
Appendix D: Spread Bandwidth

Test Result

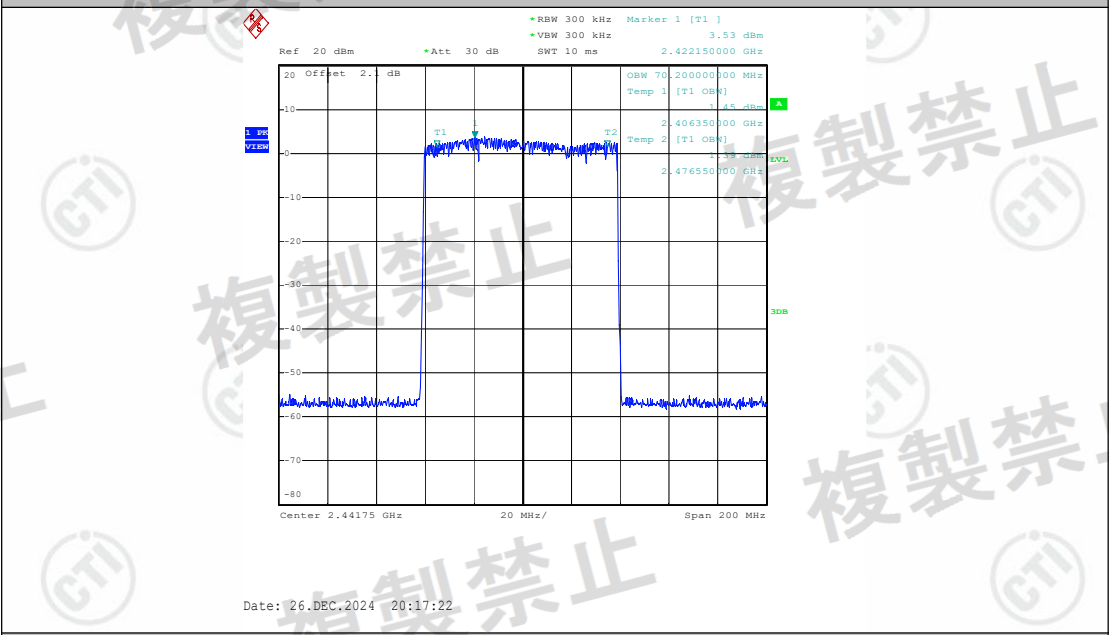
Test Condition	Test Mode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Spread Factor	Limit	Verdict
NTNV	DH1	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS
NTNV	DH3	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS
NTNV	DH5	Ant1	Hop	70.200	≥ 0.5	70.200	>5	PASS
NTNV	2DH1	Ant1	Hop	70.200	≥ 0.5	70.200	>5	PASS
NTNV	2DH3	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS
NTNV	2DH5	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS
NTNV	3DH1	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS
NTNV	3DH3	Ant1	Hop	70.200	≥ 0.5	70.200	>5	PASS
NTNV	3DH5	Ant1	Hop	70.400	≥ 0.5	70.400	>5	PASS

Test Graphs

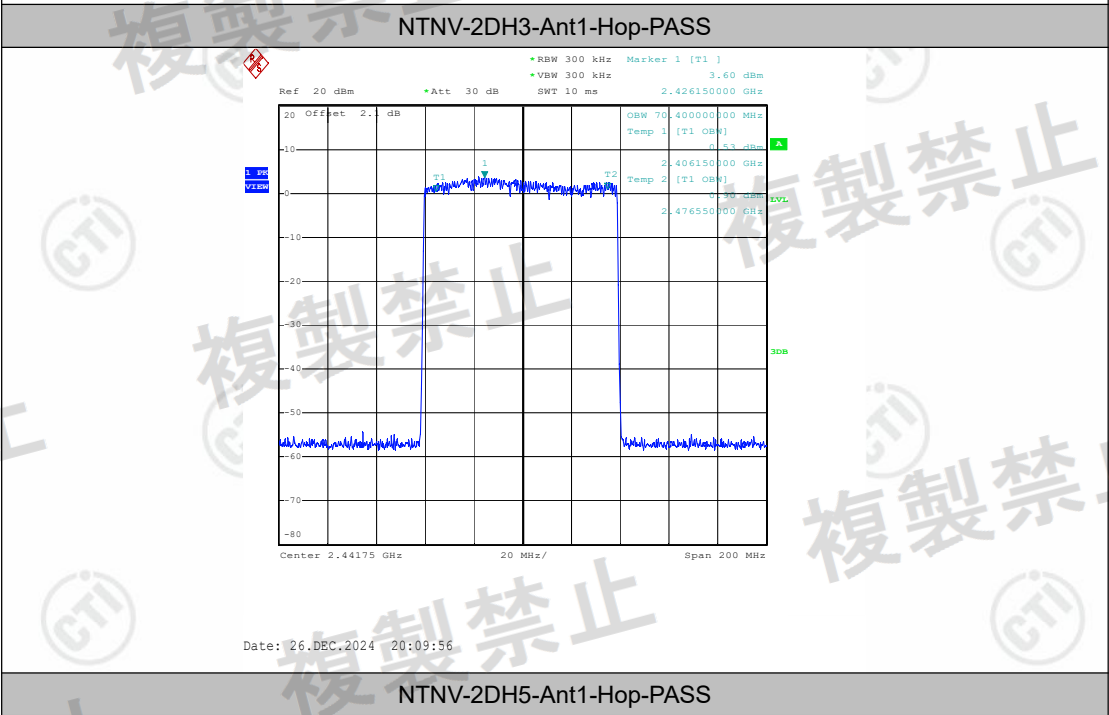
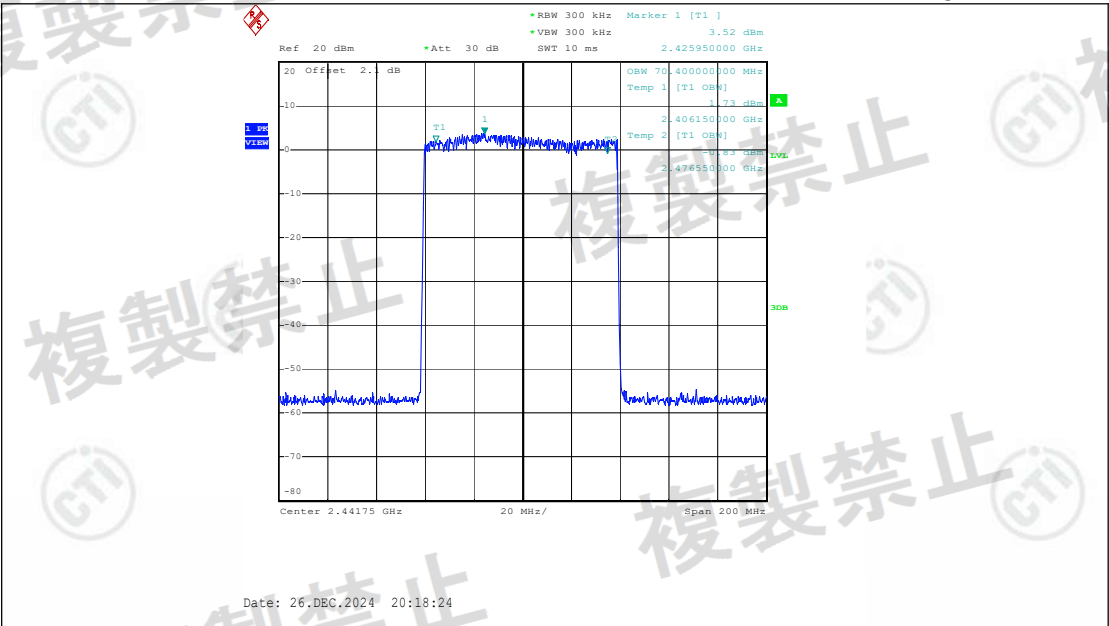


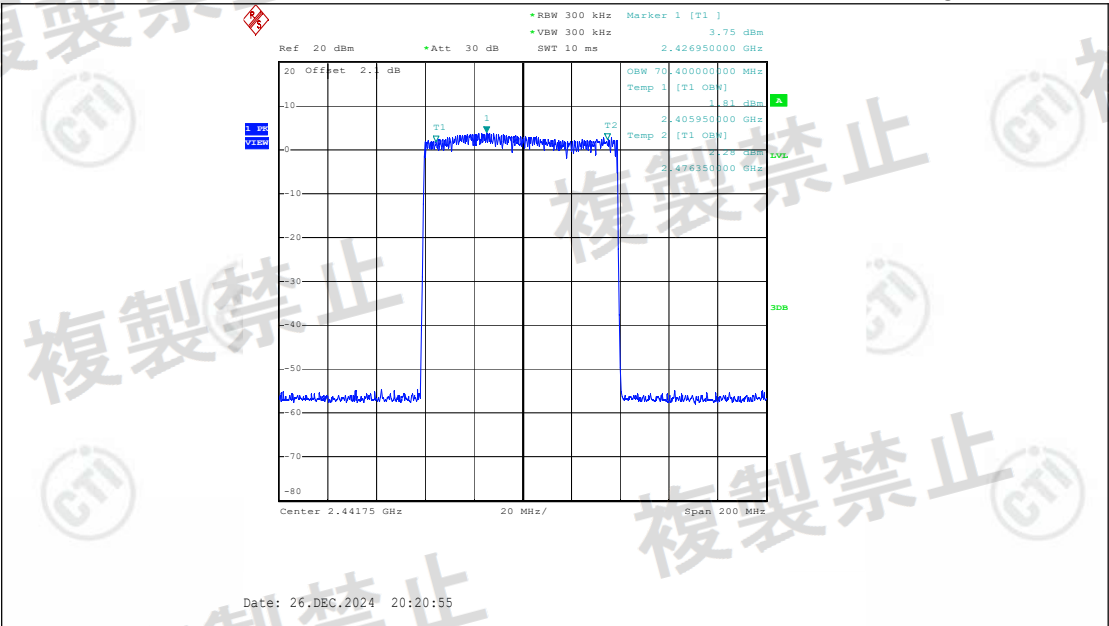


NTNV-DH5-Ant1-Hop-PASS

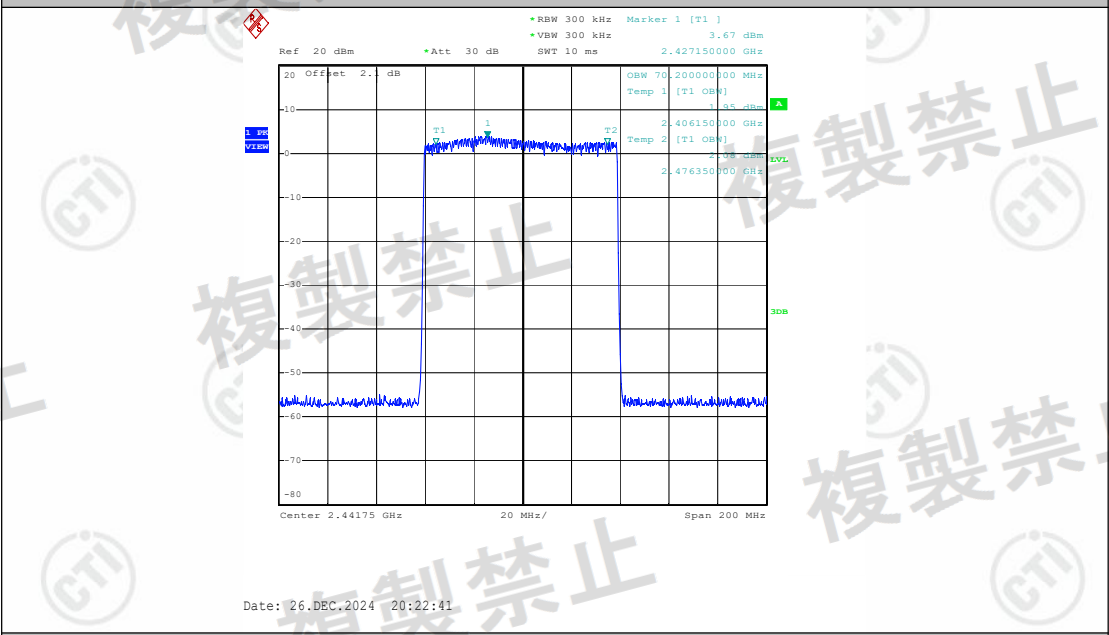


NTNV-2DH1-Ant1-Hop-PASS

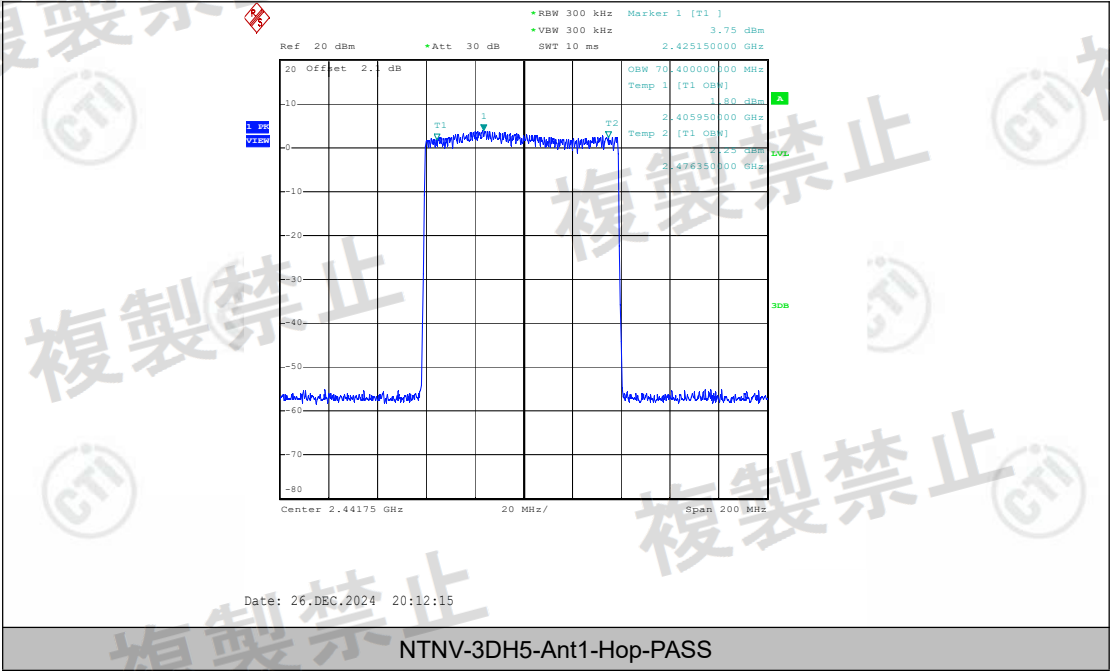




NTVN-3DH1-Ant1-Hop-PASS



NTVN-3DH3-Ant1-Hop-PASS



Appendix E: Spurious Emission of TX

Test Result

Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Freq [MHz]	Result [dBm]	Result [μ W/MHz]	Limit [μ W/MHz]	Verdict
NTLV	DH5	Ant1	2402	30~1000	663.65	-57.18	0.01914	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	30~1000	663.9	-41.65	0.68391	≤ 2.5	See table below
NTLV	DH5	Ant1	2402	1000~2387	2001.76	-56.00	0.00251	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	1000~2387	2001.76	-48.77	0.01327	≤ 2.5	PASS
NTLV	DH5	Ant1	2402	2387~2400	2400.00	-28.48	1.41906	≤ 25	PASS
NTNV	DH5	Ant1	2402	2387~2400	2400	-19.89	10.25652	≤ 25	See table below
NTLV	DH5	Ant1	2402	2483.5~2496.5	2488.46	-50.42	0.00908	≤ 25	PASS
NTNV	DH5	Ant1	2402	2483.5~2496.5	2486.43	-50.16	0.00964	≤ 25	PASS
NTLV	DH5	Ant1	2402	2496.5~13000	3200.23	-52.17	0.00607	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	2496.5~13000	3200.23	-46.19	0.02404	≤ 2.5	PASS
NTNV	DH5	Ant1	2441	30~1000	702.94	-39.85	1.03514	≤ 2.5	See table below
NTNV	DH5	Ant1	2441	1000~2387	2034.36	-48.13	0.01538	≤ 2.5	PASS
NTNV	DH5	Ant1	2441	2387~2400	2392.40	-50.00	0.01000	≤ 25	PASS
NTNV	DH5	Ant1	2441	2483.5~2496.5	2495.23	-50.45	0.00902	≤ 25	PASS
NTNV	DH5	Ant1	2441	2496.5~13000	3252.75	-45.35	0.02917	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	30~1000	741.98	-38.84	1.30617	≤ 2.5	See table below
NTNV	DH5	Ant1	2480	1000~2387	2066.60	-47.36	0.01837	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	2387~2400	2390.45	-50.36	0.00920	≤ 25	PASS
NTNV	DH5	Ant1	2480	2483.5~2496.5	2483.50	-36.11	0.24491	≤ 25	PASS
NTNV	DH5	Ant1	2480	2496.5~13000	3305.27	-46.45	0.02265	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	30~1000	663.65	-46.67	0.21528	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	1000~2387	2001.76	-48.64	0.01368	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	2387~2400	2400	-17.96	15.99558	≤ 25	See table below
NTNV	2DH5	Ant1	2402	2483.5~2496.5	2488.06	-50.46	0.00899	≤ 25	PASS
NTNV	2DH5	Ant1	2402	2496.5~13000	3200.23	-45.18	0.03034	≤ 2.5	PASS
NTNV	2DH5	Ant1	2441	30~1000	702.94	-43.98	0.39994	≤ 2.5	See table below
NTNV	2DH5	Ant1	2441	1000~2387	2034.36	-47.60	0.01738	≤ 2.5	PASS
NTNV	2DH5	Ant1	2441	2387~2400	2393.71	-49.74	0.01062	≤ 25	PASS
NTNV	2DH5	Ant1	2441	2483.5~2496.5	2487.45	-49.97	0.01007	≤ 25	PASS

NTNV	2DH5	Ant1	2441	2496.5~13000	3252.75	-44.72	0.03373	≤2.5	PASS
NTNV	2DH5	Ant1	2480	30~1000	741.98	-42.37	0.57943	≤2.5	See table below
NTNV	2DH5	Ant1	2480	1000~2387	2066.60	-47.27	0.01875	≤2.5	PASS
NTNV	2DH5	Ant1	2480	2387~2400	2395.28	-50.43	0.00906	≤25	PASS
NTNV	2DH5	Ant1	2480	2483.5~2496.5	2483.51	-35.11	0.30832	≤25	PASS
NTNV	2DH5	Ant1	2480	2496.5~13000	3305.27	-46.01	0.02506	≤2.5	PASS
NTNV	3DH5	Ant1	2402	30~1000	663.90	-47.25	0.18836	≤2.5	PASS
NTNV	3DH5	Ant1	2402	1000~2387	2001.76	-48.40	0.01445	≤2.5	PASS
NTNV	3DH5	Ant1	2402	2387~2400	2400	-17.97	15.95879	≤25	See table below
NTNV	3DH5	Ant1	2402	2483.5~2496.5	2494.75	-49.97	0.01007	≤25	PASS
NTNV	3DH5	Ant1	2402	2496.5~13000	3200.23	-45.78	0.02642	≤2.5	PASS
NTNV	3DH5	Ant1	2441	30~1000	702.94	-43.32	0.46559	≤2.5	See table below
NTNV	3DH5	Ant1	2441	1000~2387	2034.01	-47.88	0.01629	≤2.5	PASS
NTNV	3DH5	Ant1	2441	2387~2400	2394.85	-50.23	0.00948	≤25	PASS
NTNV	3DH5	Ant1	2441	2483.5~2496.5	2490.61	-50.35	0.00923	≤25	PASS
NTNV	3DH5	Ant1	2441	2496.5~13000	3252.75	-44.71	0.03381	≤2.5	PASS
NTNV	3DH5	Ant1	2480	30~1000	741.74	-43.49	0.44771	≤2.5	See table below
NTNV	3DH5	Ant1	2480	1000~2387	2066.95	-46.98	0.02004	≤2.5	PASS
NTNV	3DH5	Ant1	2480	2387~2400	2394.92	-50.42	0.00908	≤25	PASS
NTNV	3DH5	Ant1	2480	2483.5~2496.5	2483.50	-35.15	0.30549	≤25	PASS
NTNV	3DH5	Ant1	2480	2496.5~13000	3305.27	-45.38	0.02897	≤2.5	PASS

Note:

① $1\text{mW}/100\text{kHz}=10^{((1\text{dBm}/100\text{kHz})/10)}$;

② $1\text{mW}/\text{MHz}=(1\text{mW}/100\text{kHz})/1000$;

③ $1\text{uW}/\text{MHz}=(1\text{mW}/\text{MHz})\times1000$;

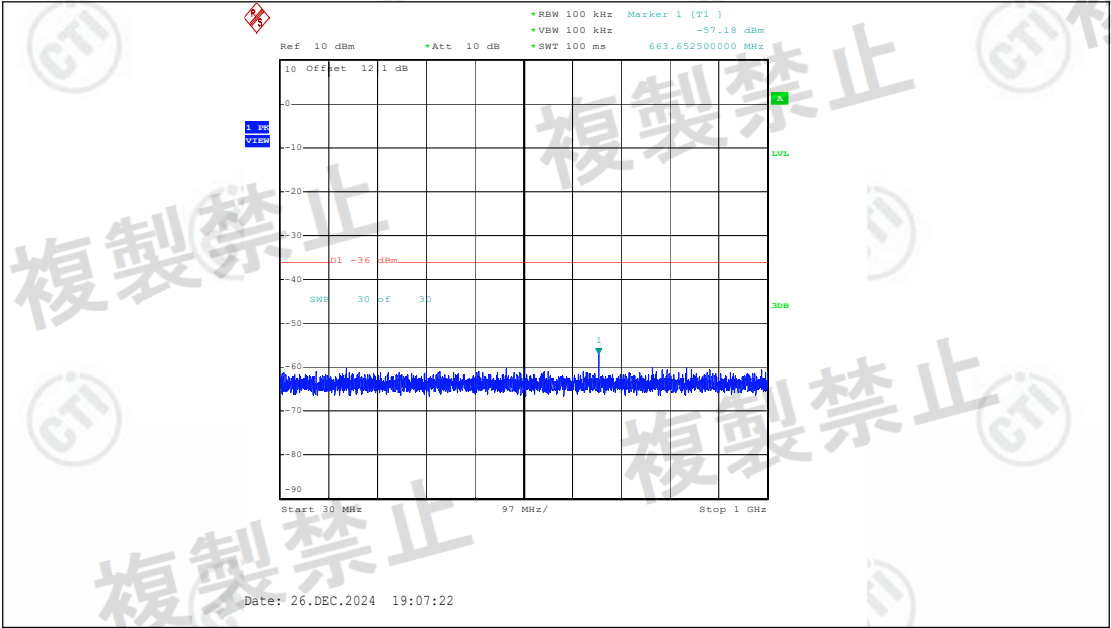
Test Result_Step2

Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μ W]	Limit [μ W]	Verdict
NTNV	DH5	Ant1	2402	663.95	-57.48	≤ -36	0.01786	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	2400.00	-22.36	≤ -16	5.80764	≤ 25	PASS
NTNV	DH5	Ant1	2441	702.79	-54.30	≤ -36	0.03715	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	741.96	-57.21	≤ -36	0.01901	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	2400.00	-22.49	≤ -16	5.63638	≤ 25	PASS
NTNV	2DH5	Ant1	2441	702.92	-60.89	≤ -36	0.00815	≤ 2.5	PASS
NTNV	2DH5	Ant1	2480	741.81	-58.16	≤ -36	0.01528	≤ 2.5	PASS
NTNV	3DH5	Ant1	2402	2400.00	-22.48	≤ -16	5.64937	≤ 25	PASS
NTNV	3DH5	Ant1	2441	702.79	-57.30	≤ -36	0.01862	≤ 2.5	PASS
NTNV	3DH5	Ant1	2480	741.79	-57.03	≤ -36	0.01982	≤ 2.5	PASS

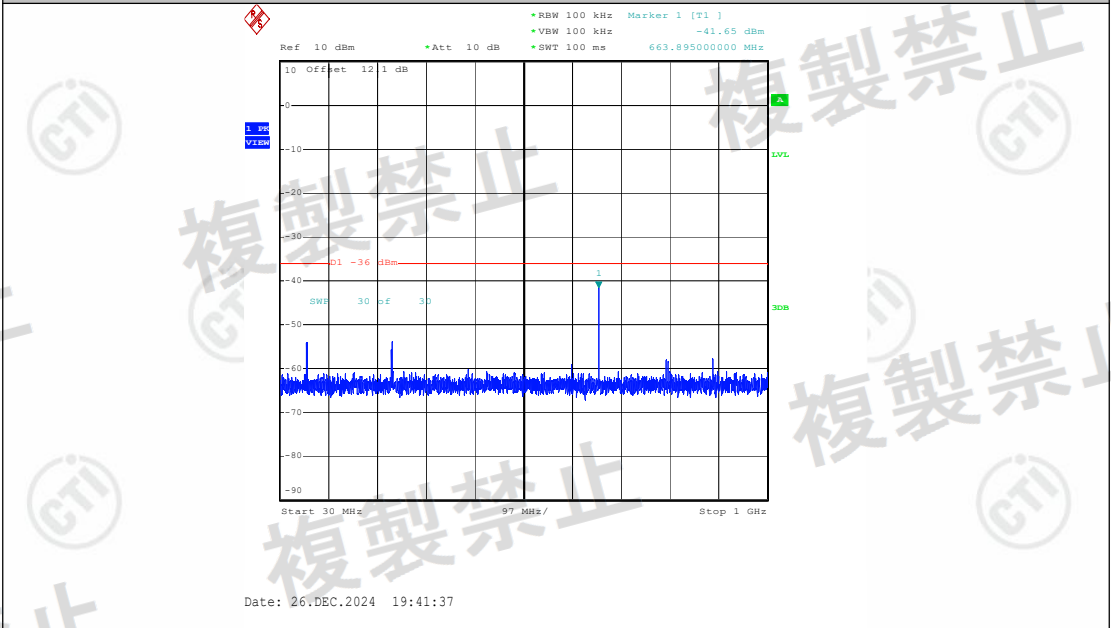
Note:

① $1\text{mW}/100\text{kHz}=10^{((1\text{dBm}/100\text{kHz})/10)}$;② $1\text{mW}/\text{MHz}=(1\text{mW}/100\text{kHz})/1000$;③ $1\mu\text{W}/\text{MHz}=(1\text{mW}/\text{MHz})\times 1000$;

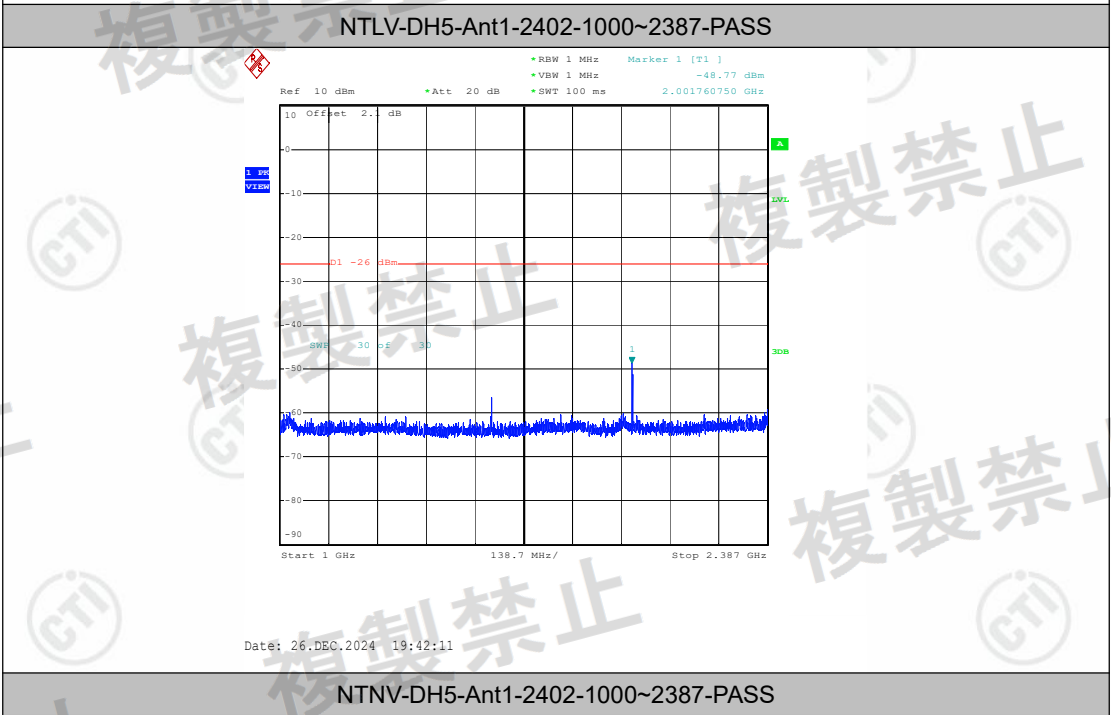
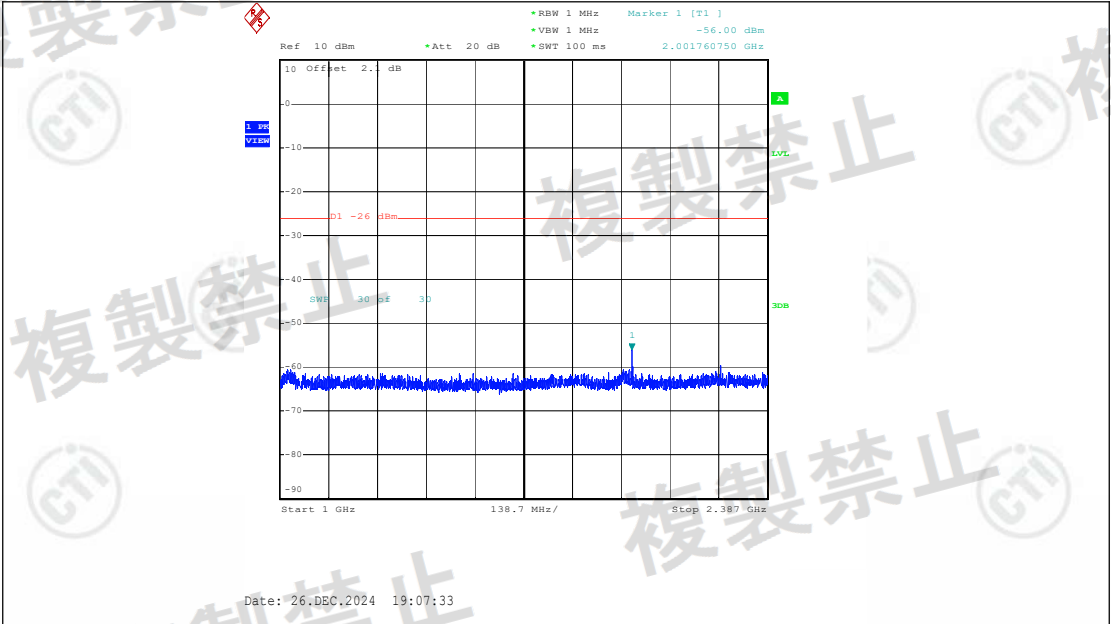
Test Graphs

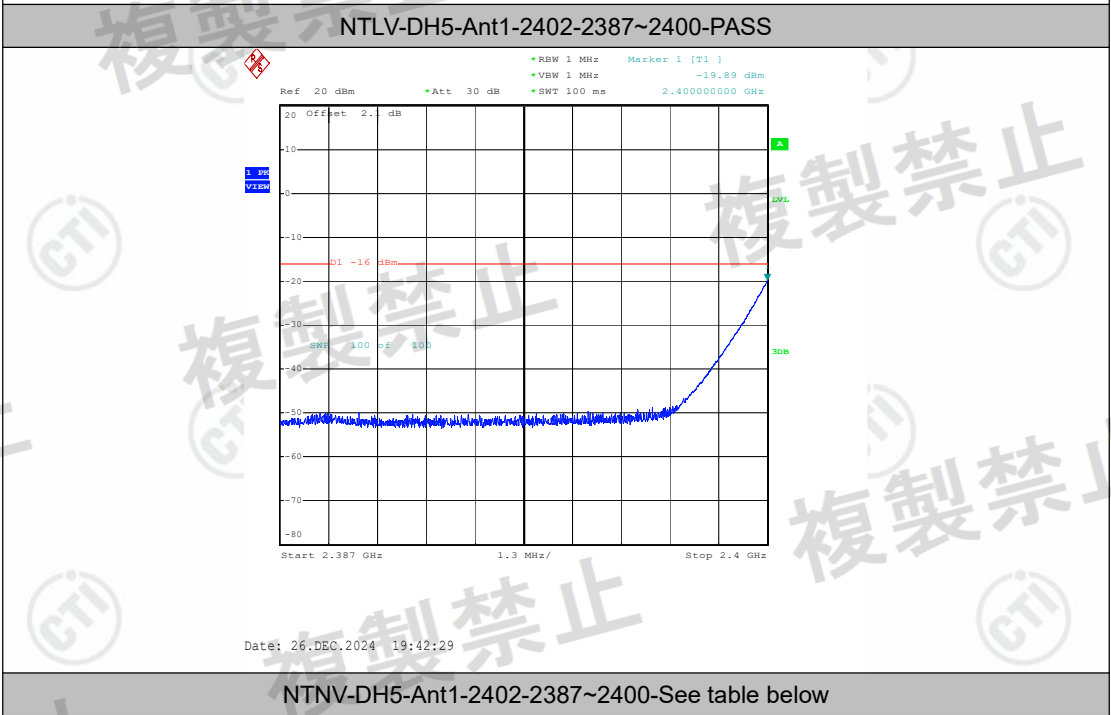
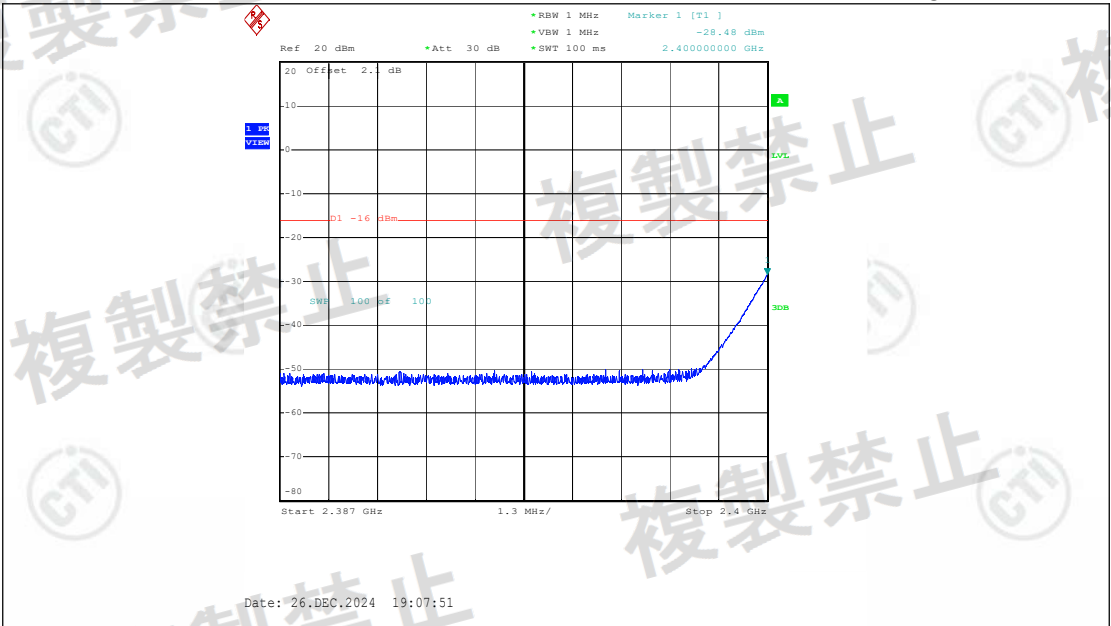


NTLV-DH5-Ant1-2402-30~1000-PASS

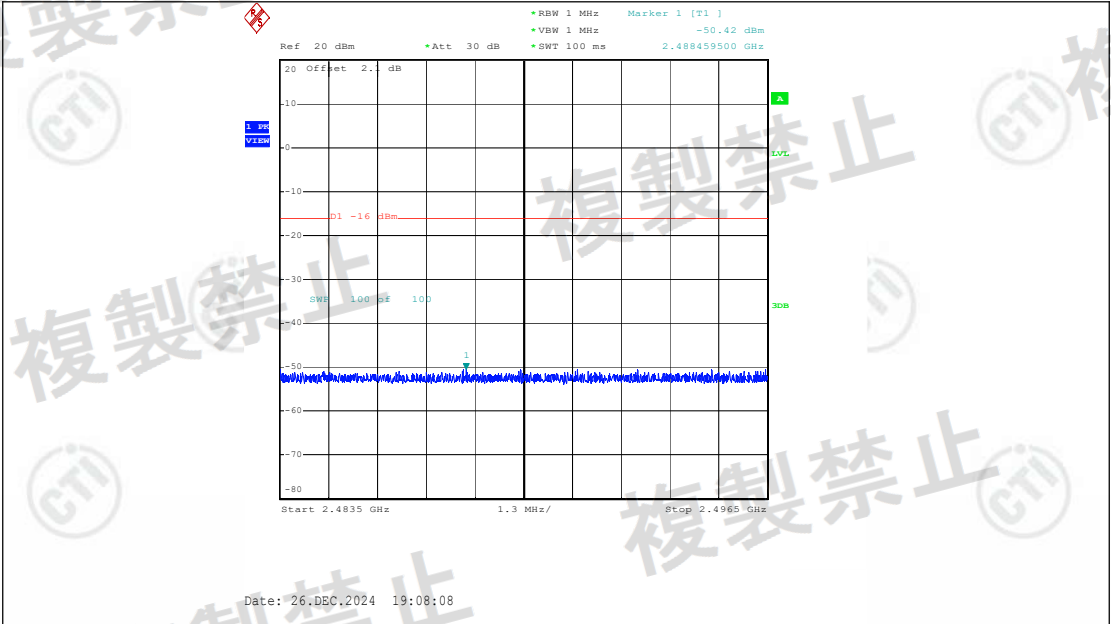


NTNV-DH5-Ant1-2402-30~1000-See table below

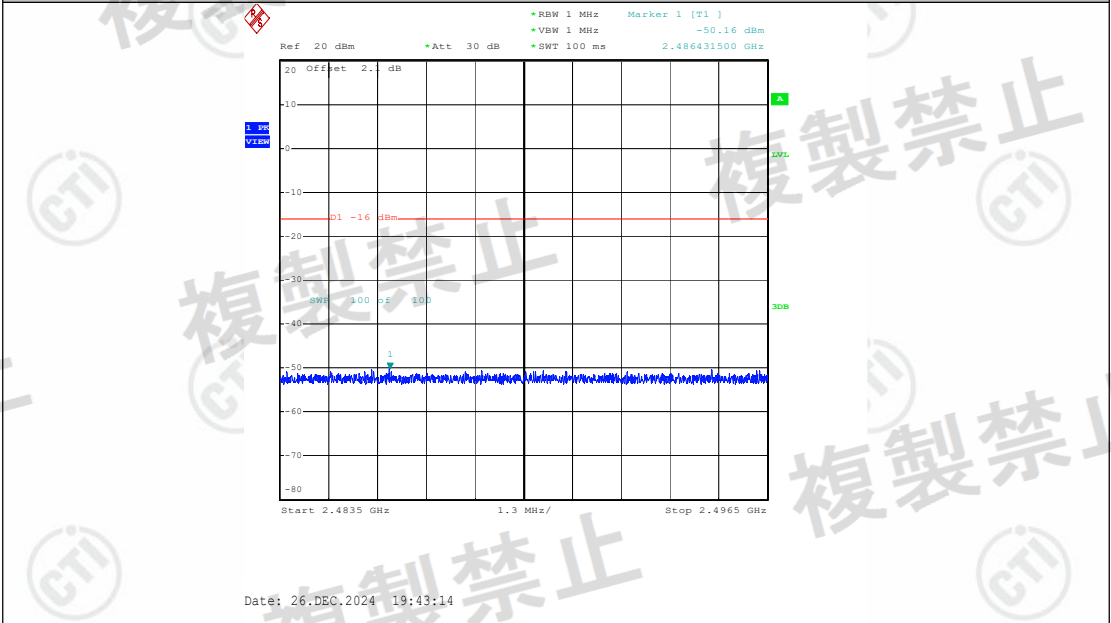




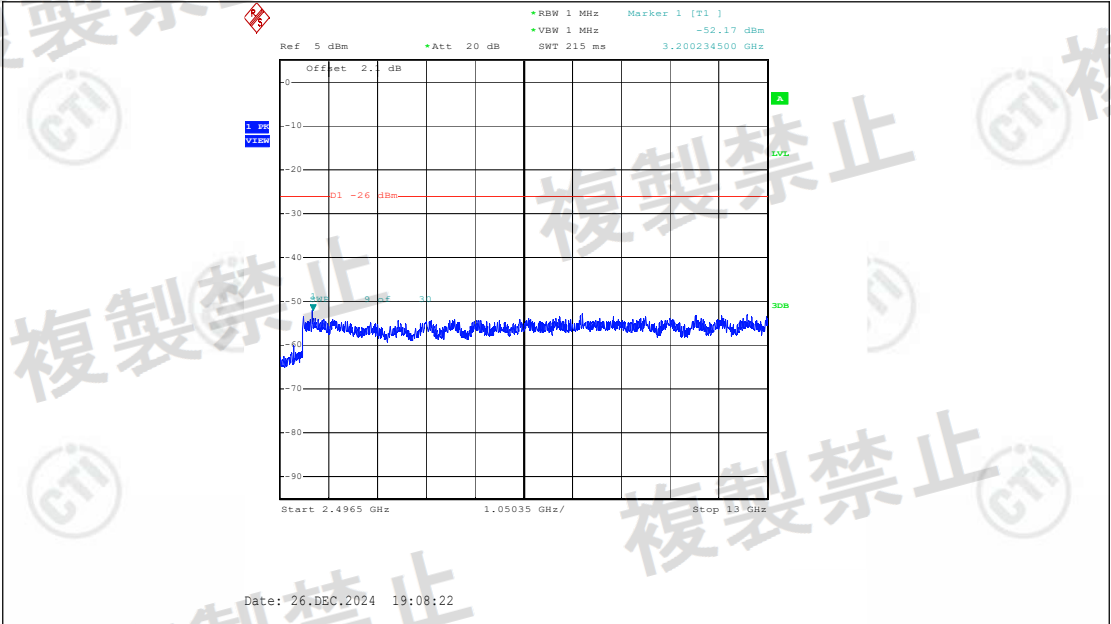
NTNV-DH5-Ant1-2402-2387~2400-See table below



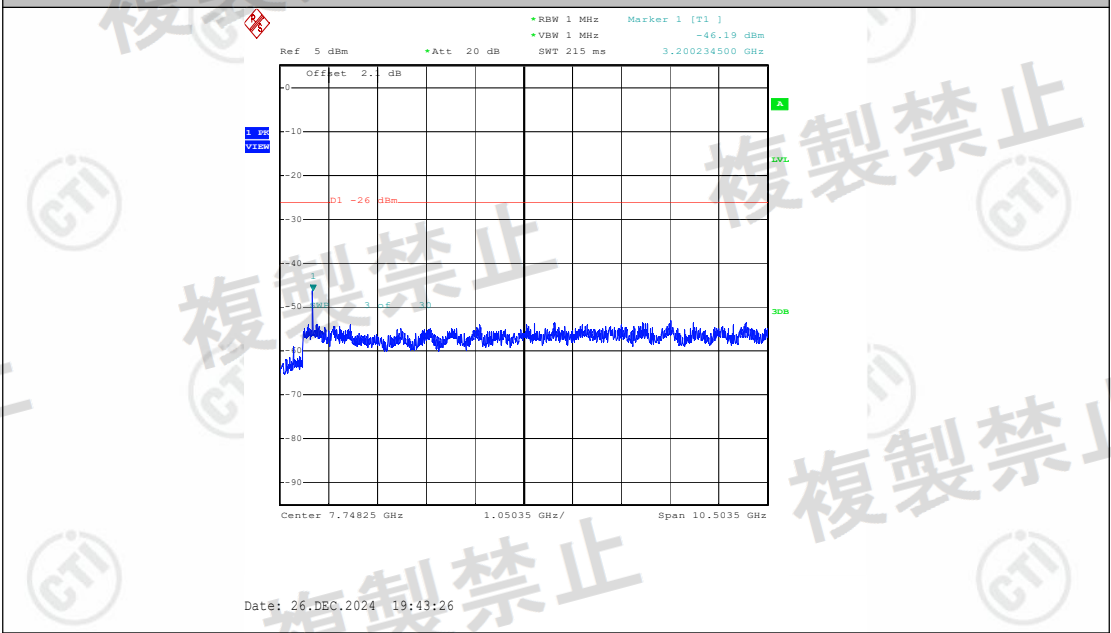
NTLV-DH5-Ant1-2402-2483.5~2496.5-PASS



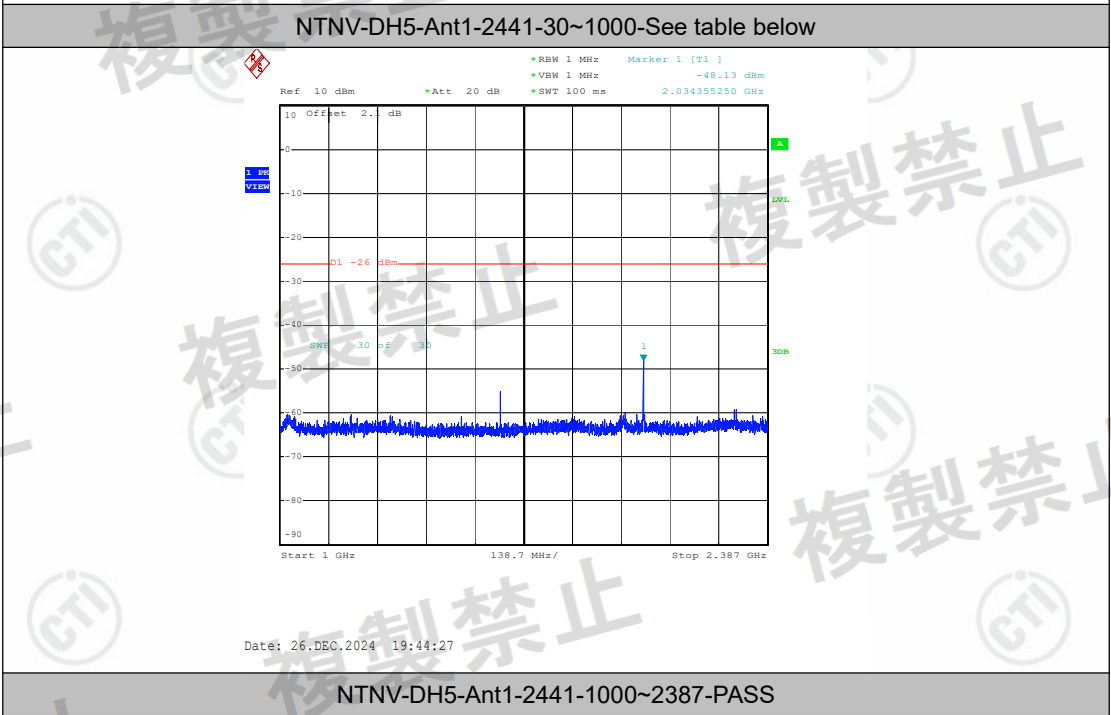
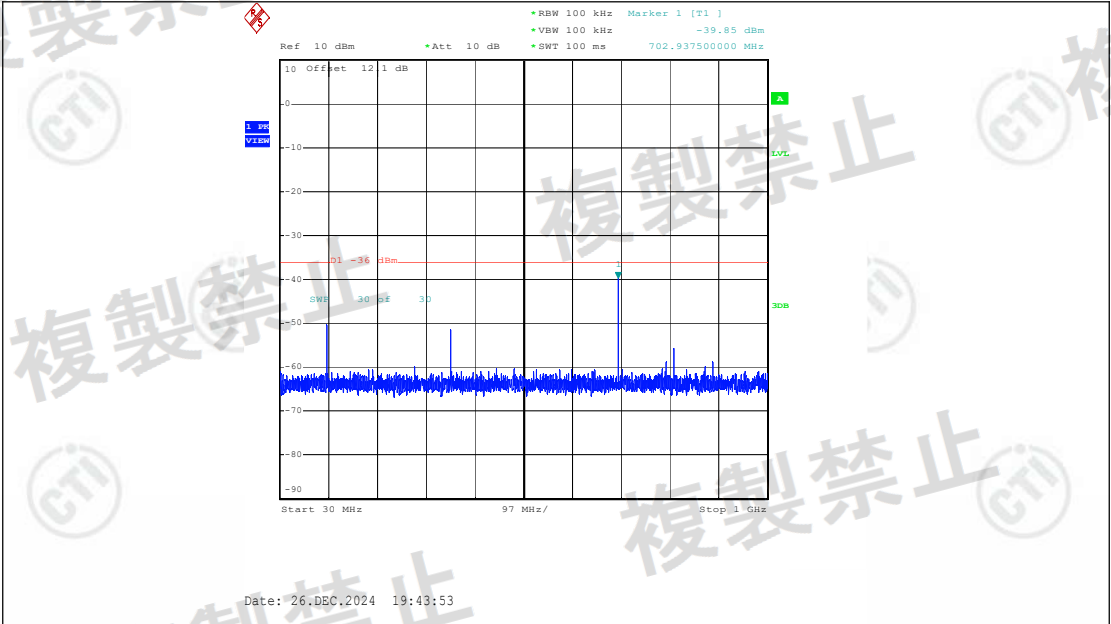
NTLV-DH5-Ant1-2402-2483.5~2496.5-PASS

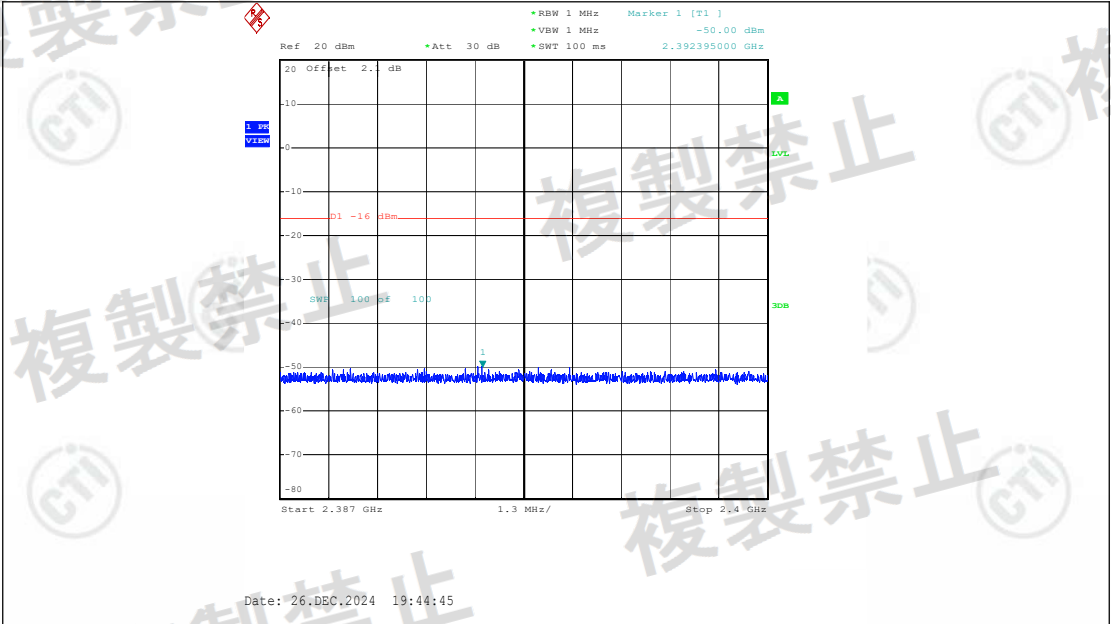


NTLV-DH5-Ant1-2402-2496.5~13000-PASS

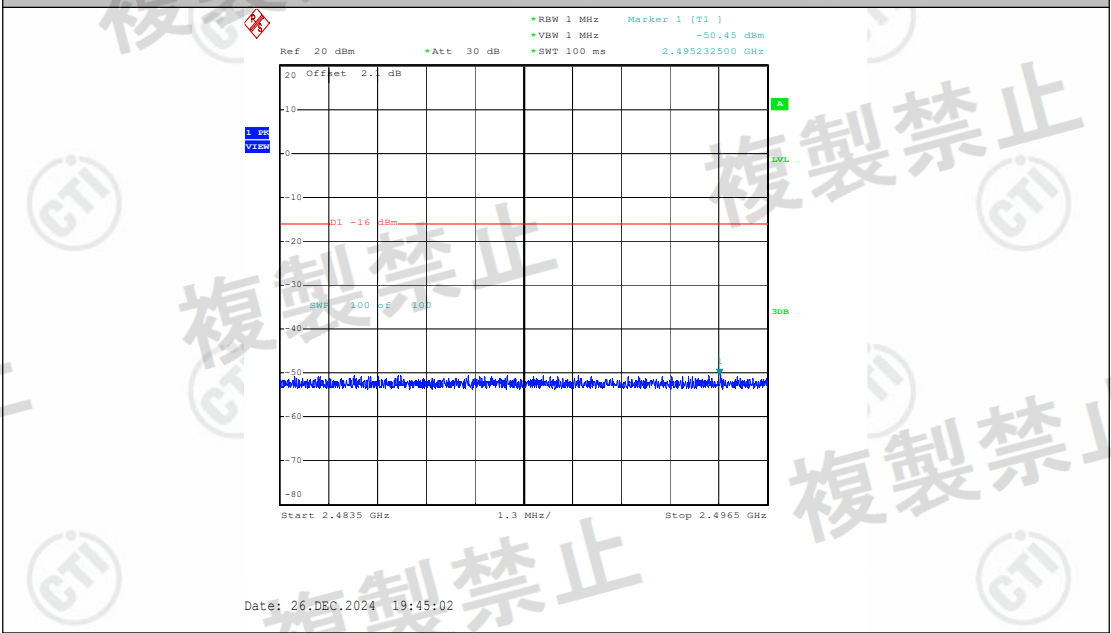


NTNV-DH5-Ant1-2402-2496.5~13000-PASS

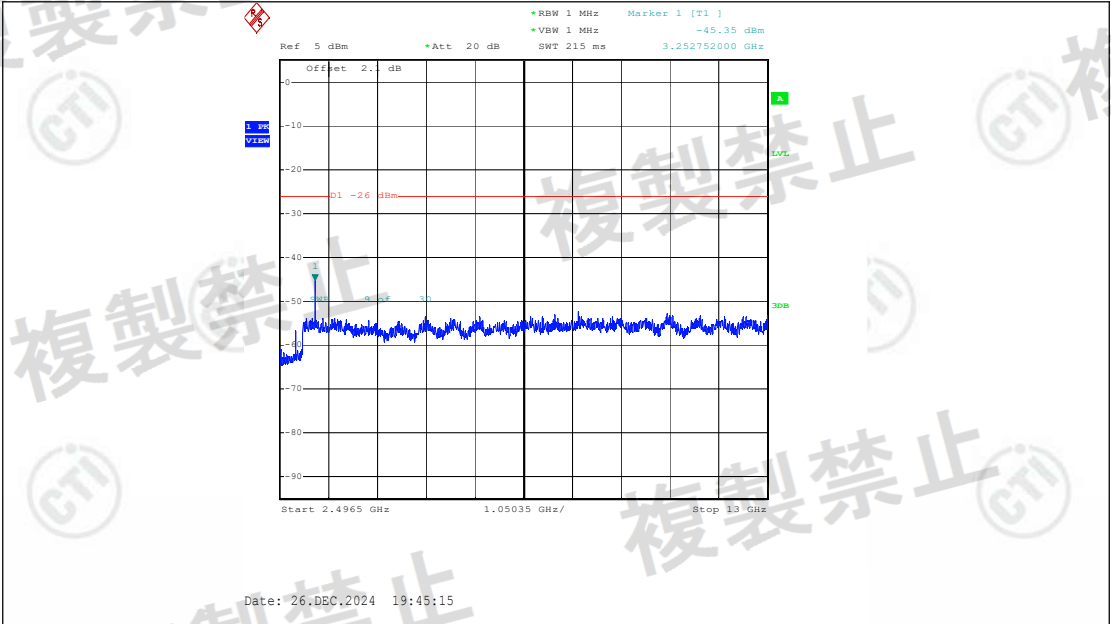




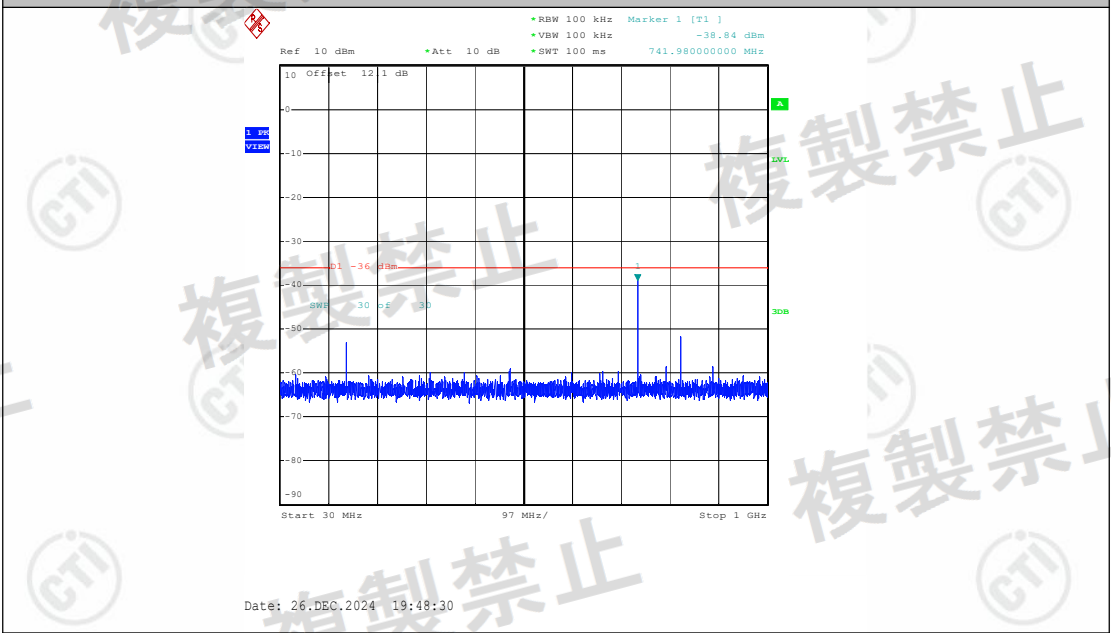
NTNV-DH5-Ant1-2441-2387~2400-PASS



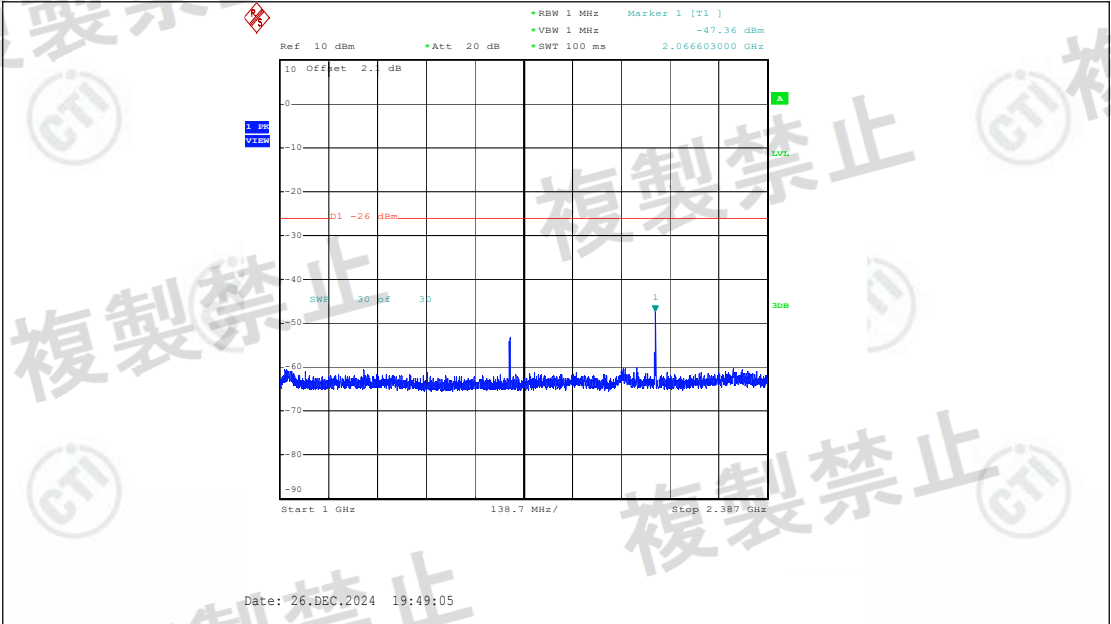
NTNV-DH5-Ant1-2441-2483.5~2496.5-PASS



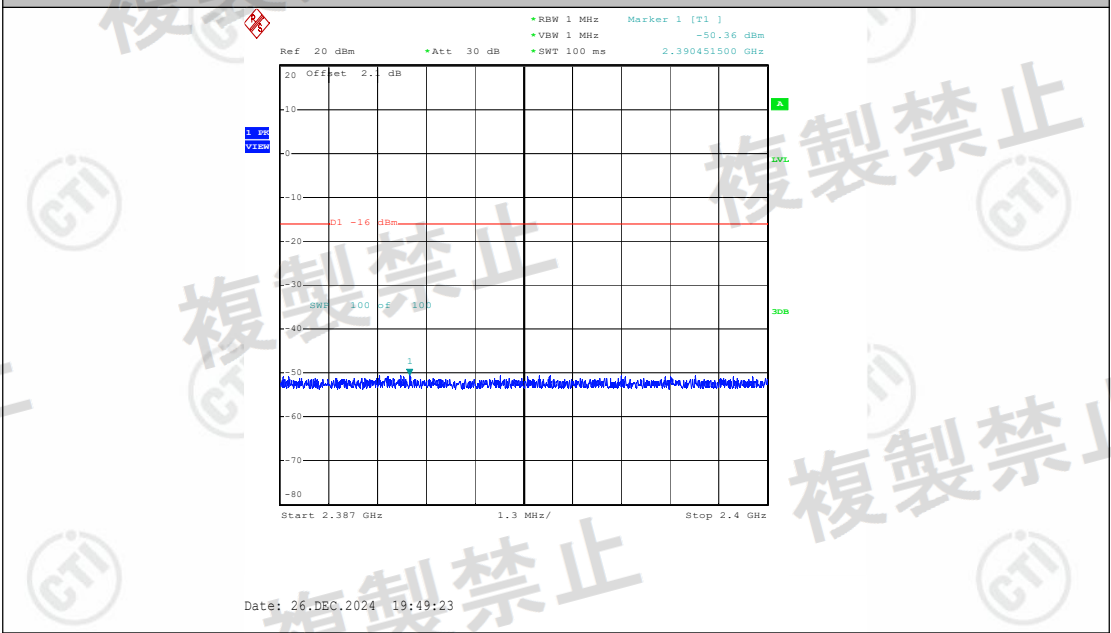
NTNV-DH5-Ant1-2441-2496.5~13000-PASS



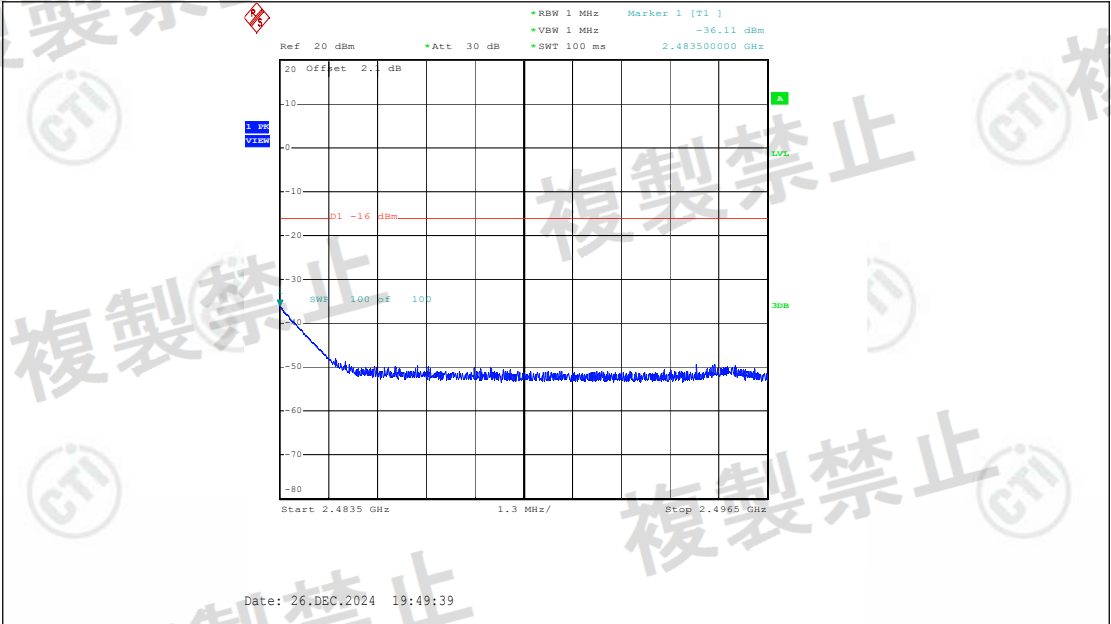
NTNV-DH5-Ant1-2480-30~1000-See table below



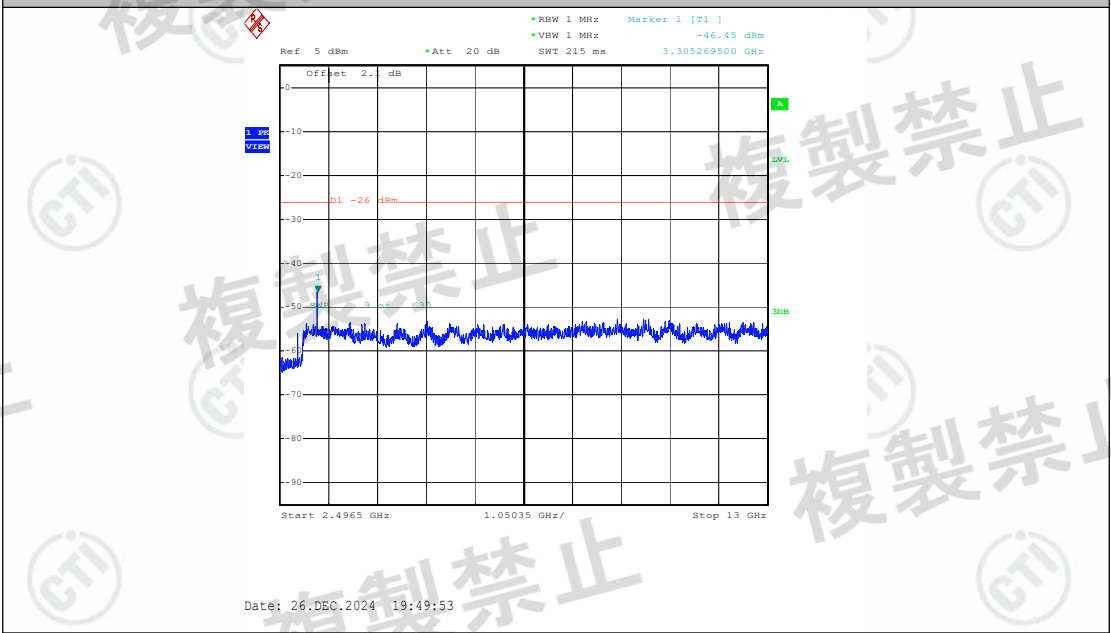
NTNV-DH5-Ant1-2480-1000~2387-PASS



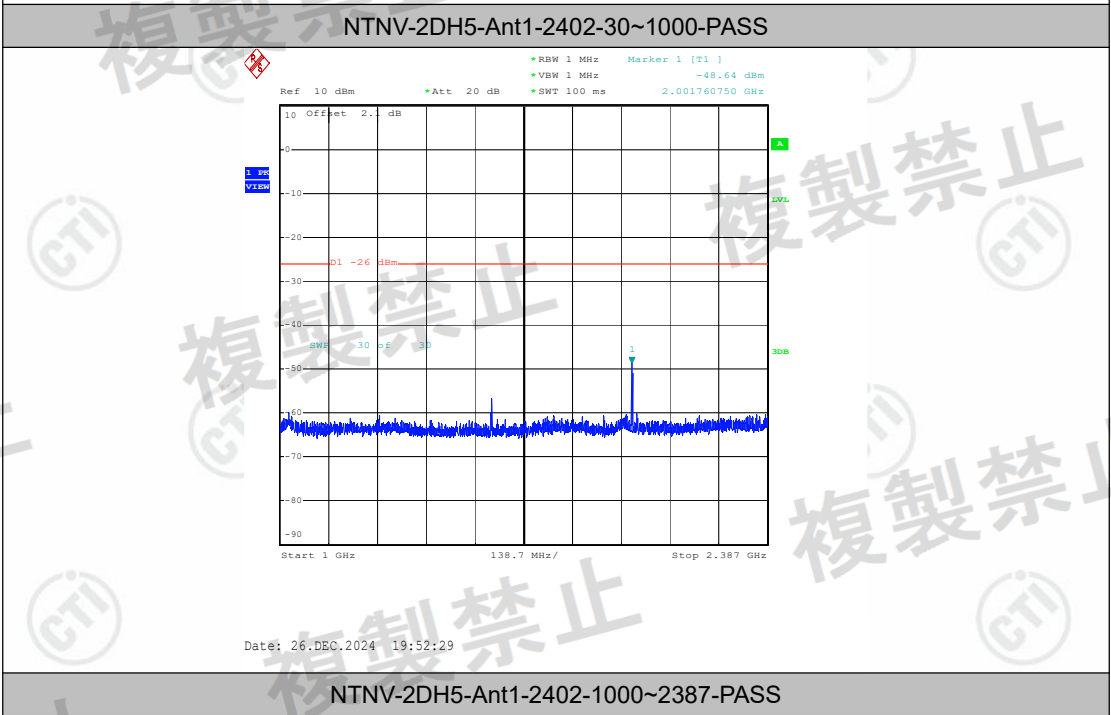
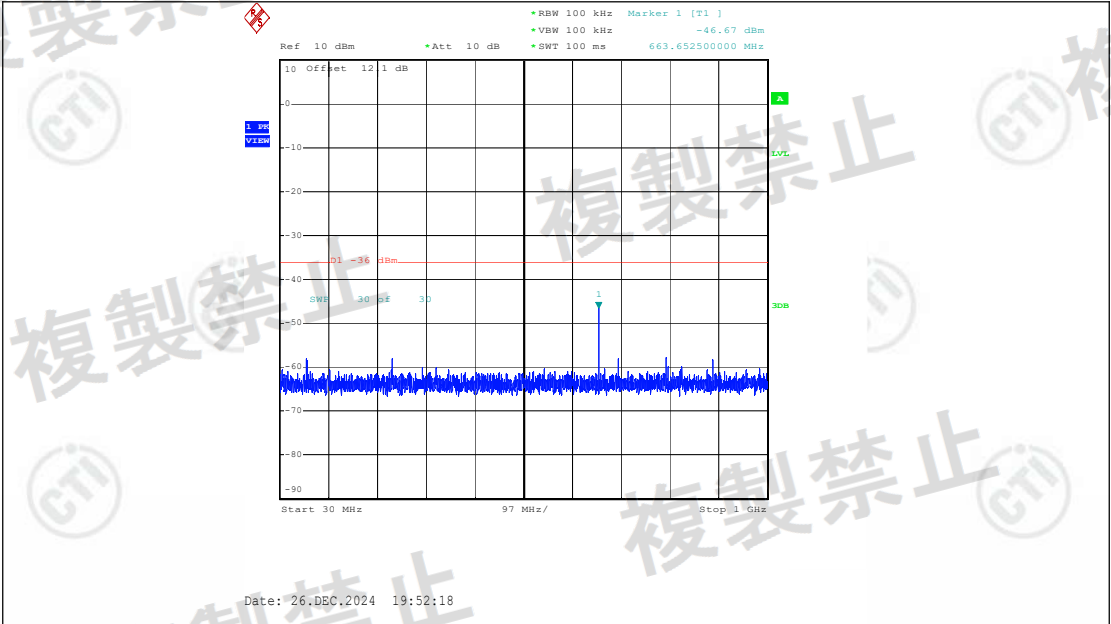
NTNV-DH5-Ant1-2480-2387~2400-PASS

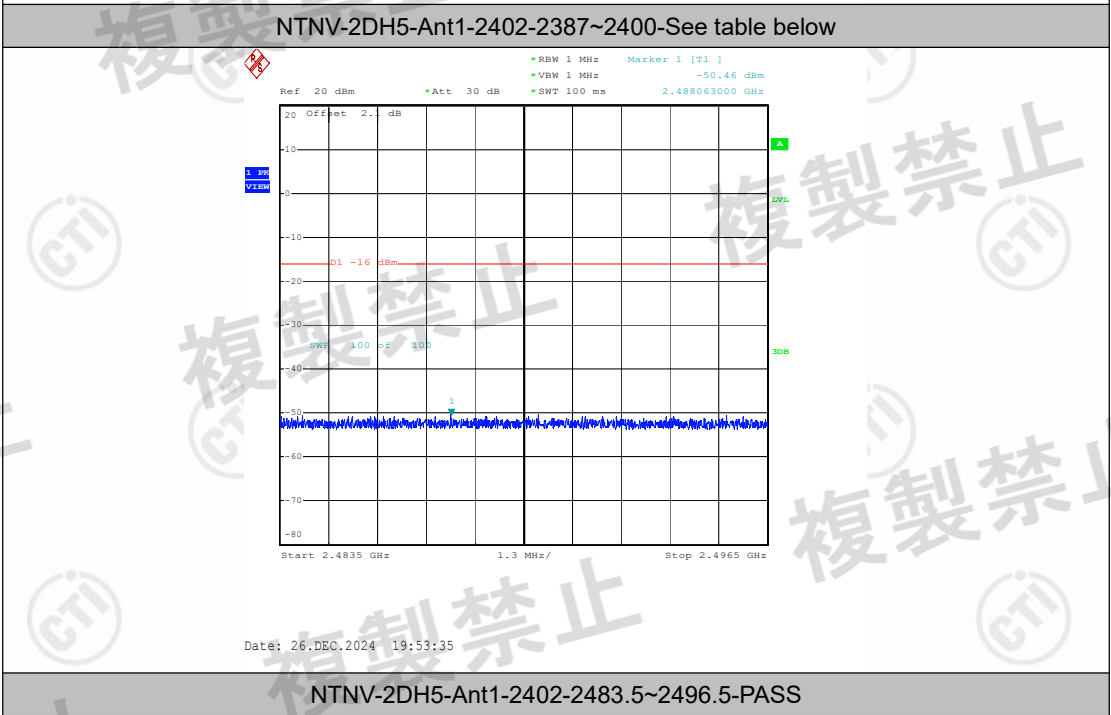
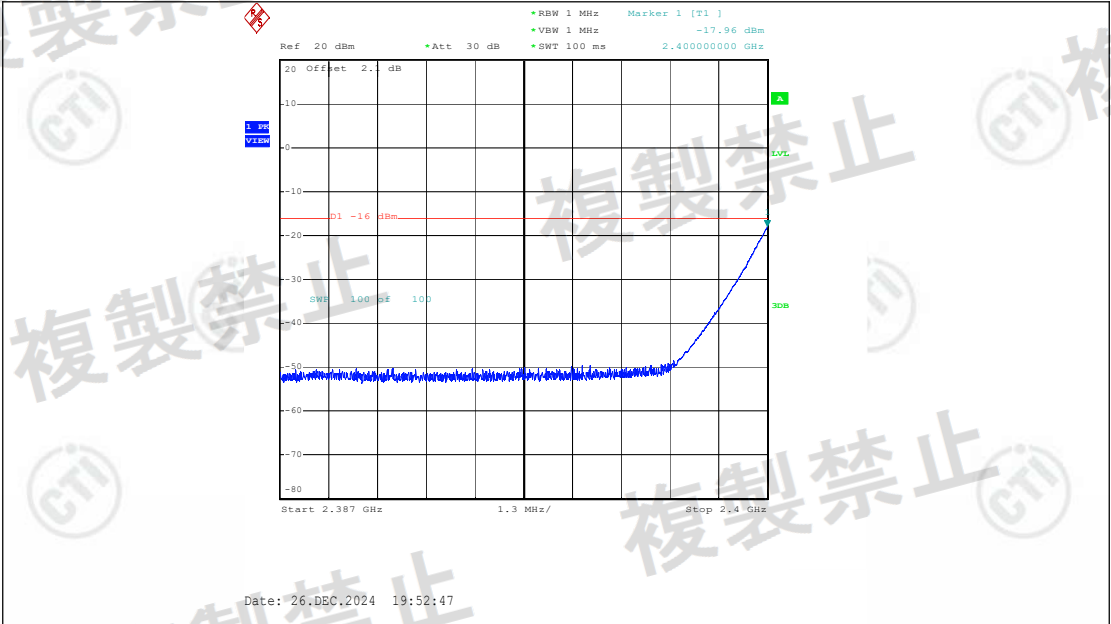


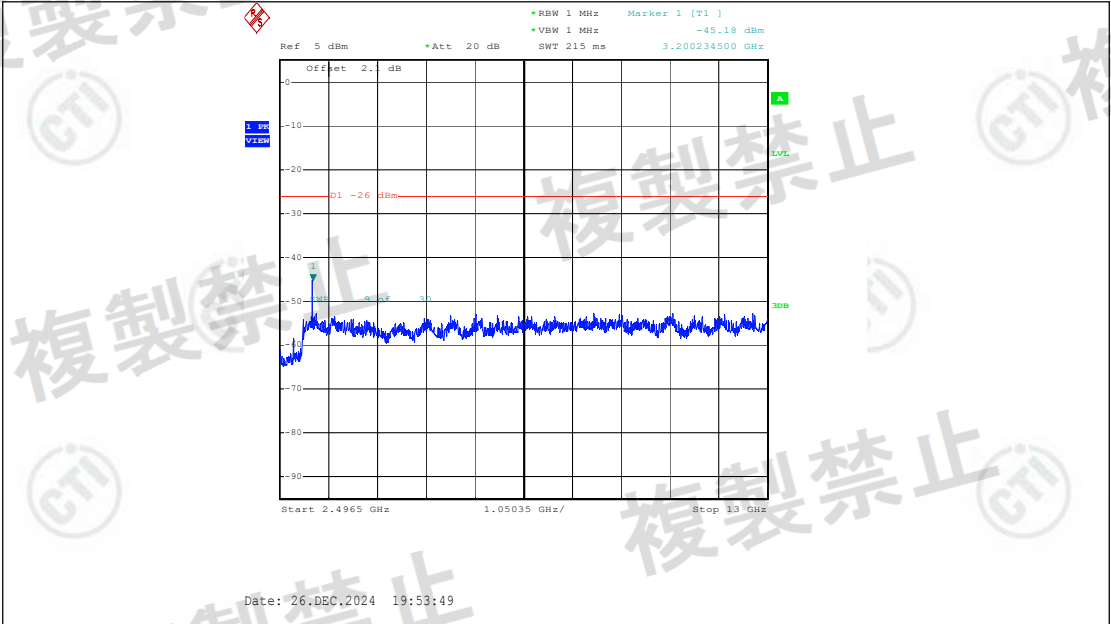
NTNV-DH5-Ant1-2480-2483.5~2496.5-PASS



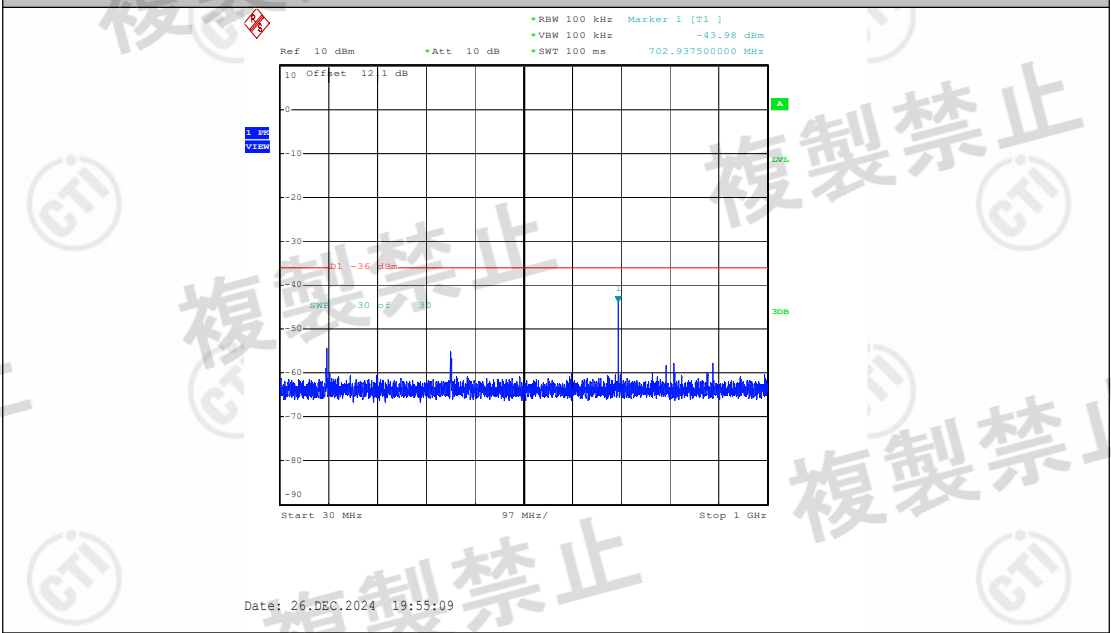
NTNV-DH5-Ant1-2480-2496.5~13000-PASS



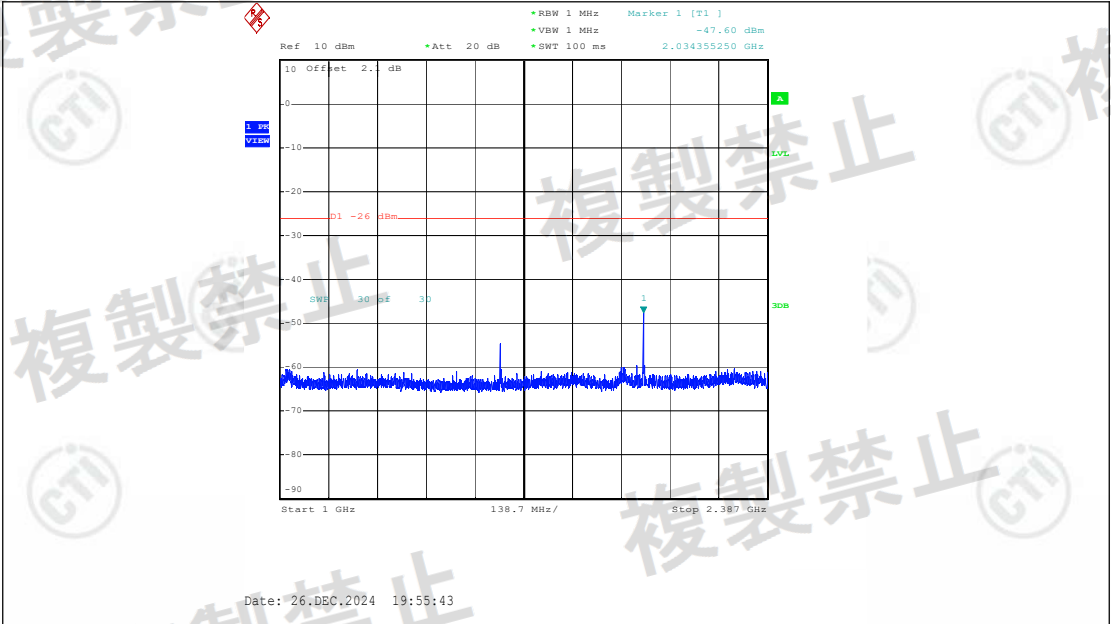




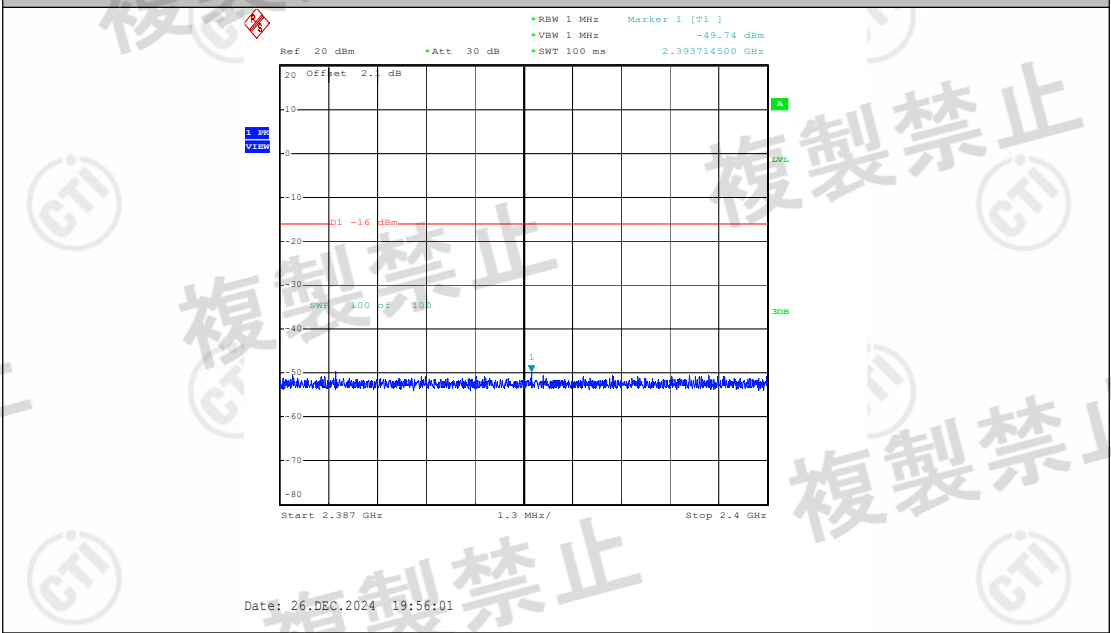
NTNV-2DH5-Ant1-2402-2496.5~13000-PASS



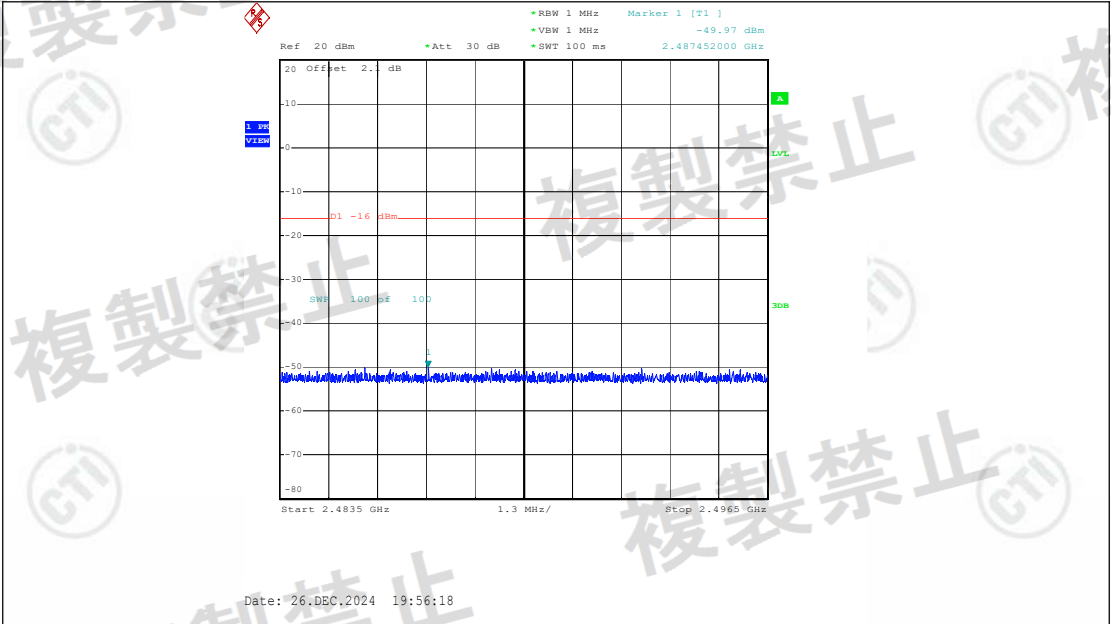
NTNV-2DH5-Ant1-2441-30~1000-See table below



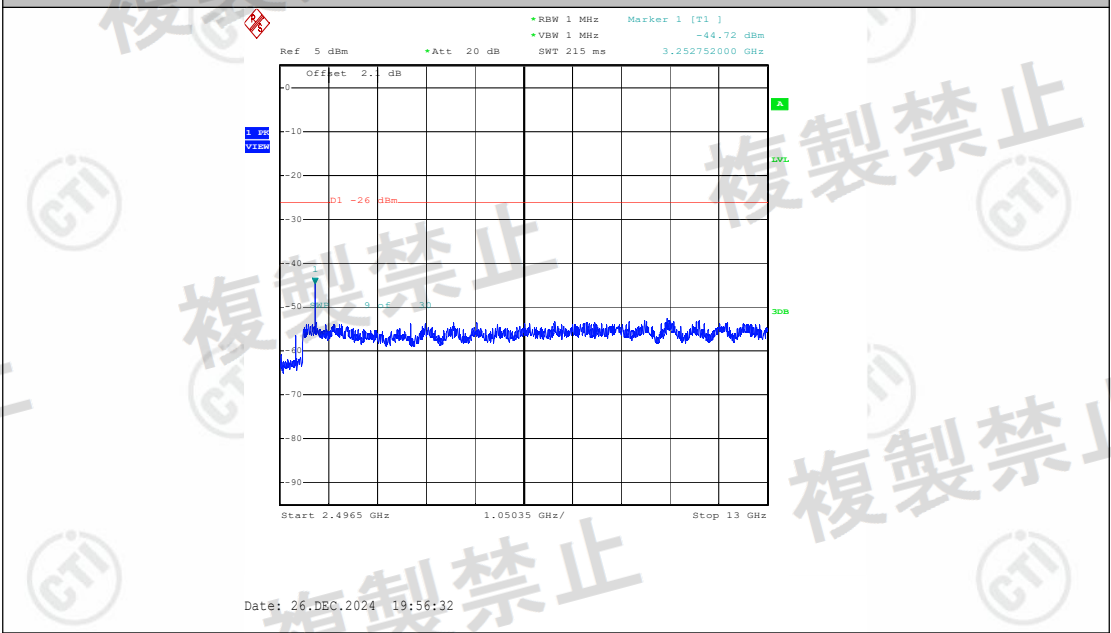
NTNV-2DH5-Ant1-2441-1000~2387-PASS



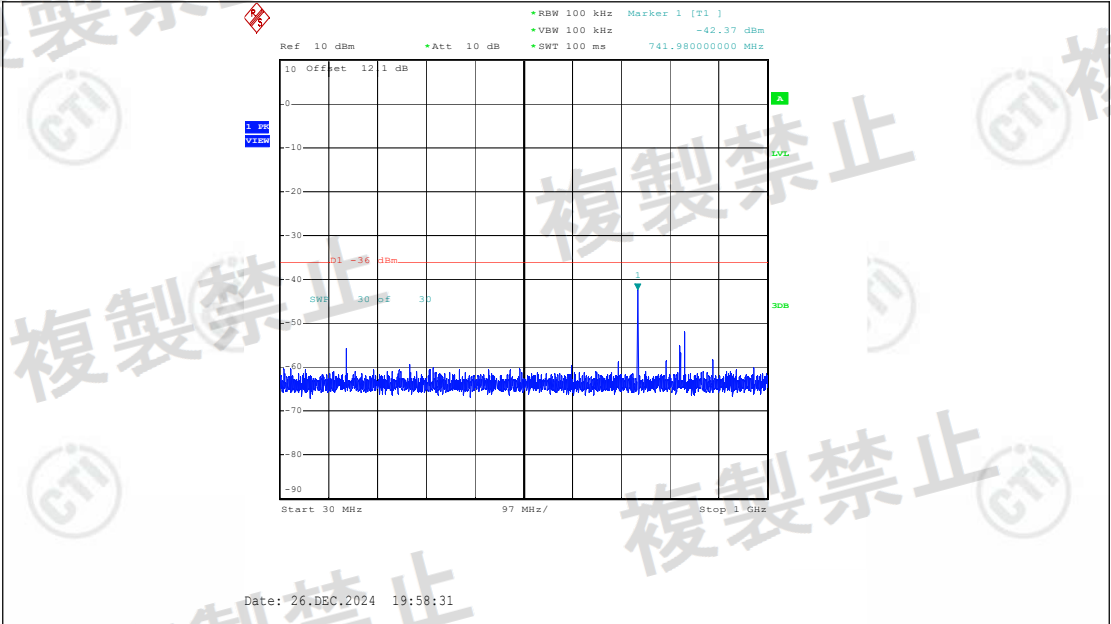
NTNV-2DH5-Ant1-2441-2387~2400-PASS



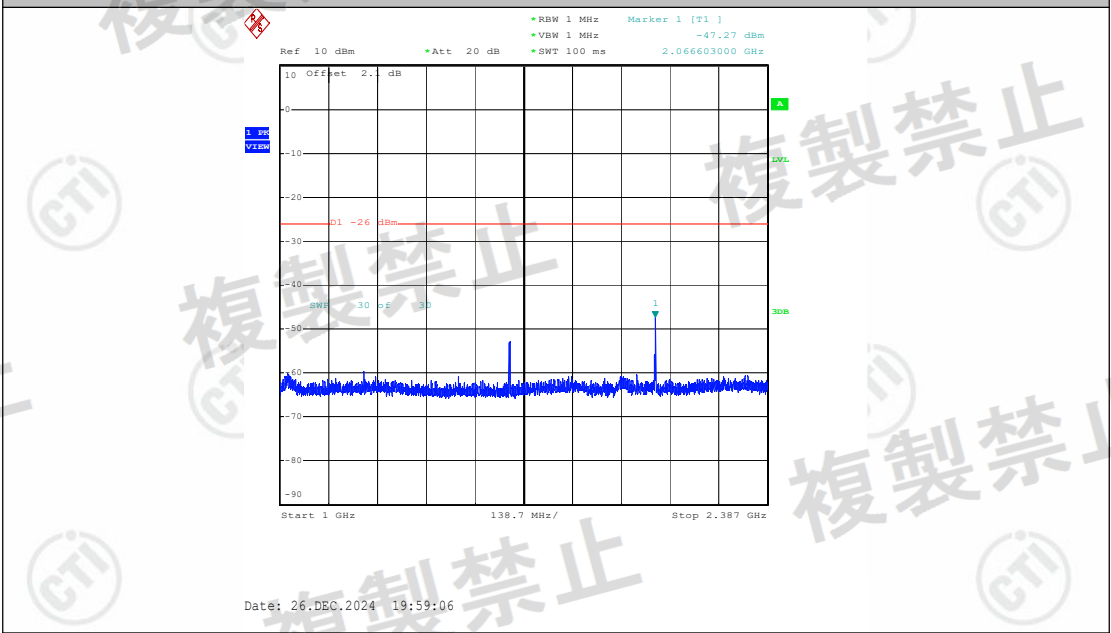
NTNV-2DH5-Ant1-2441-2483.5~2496.5-PASS



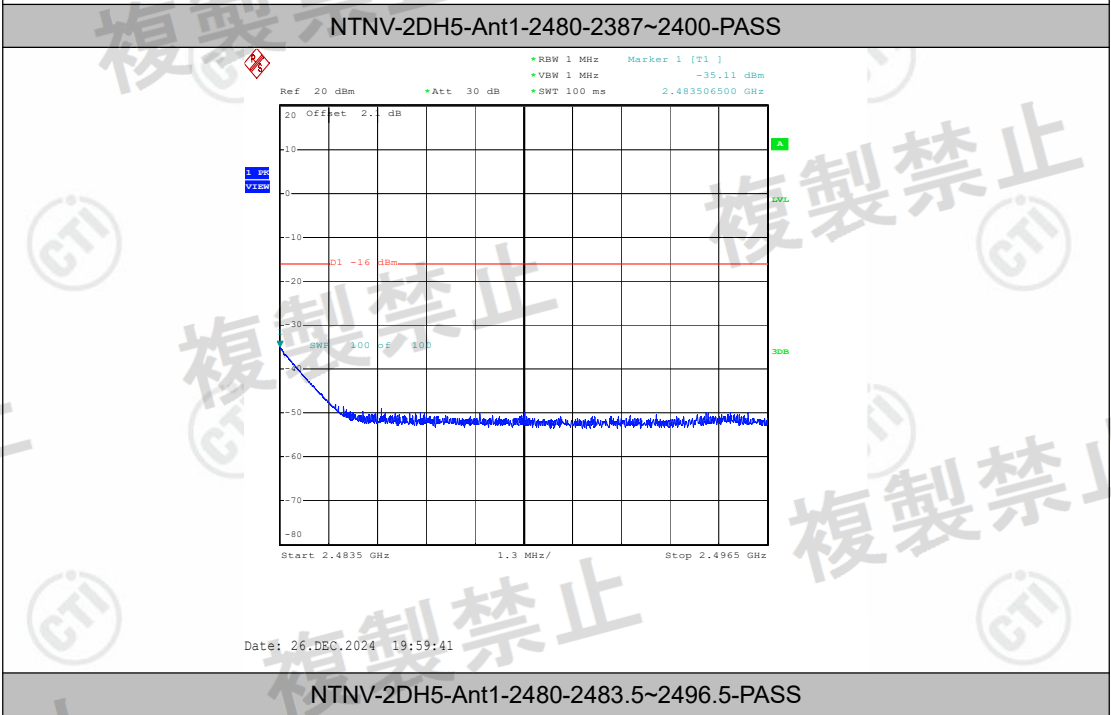
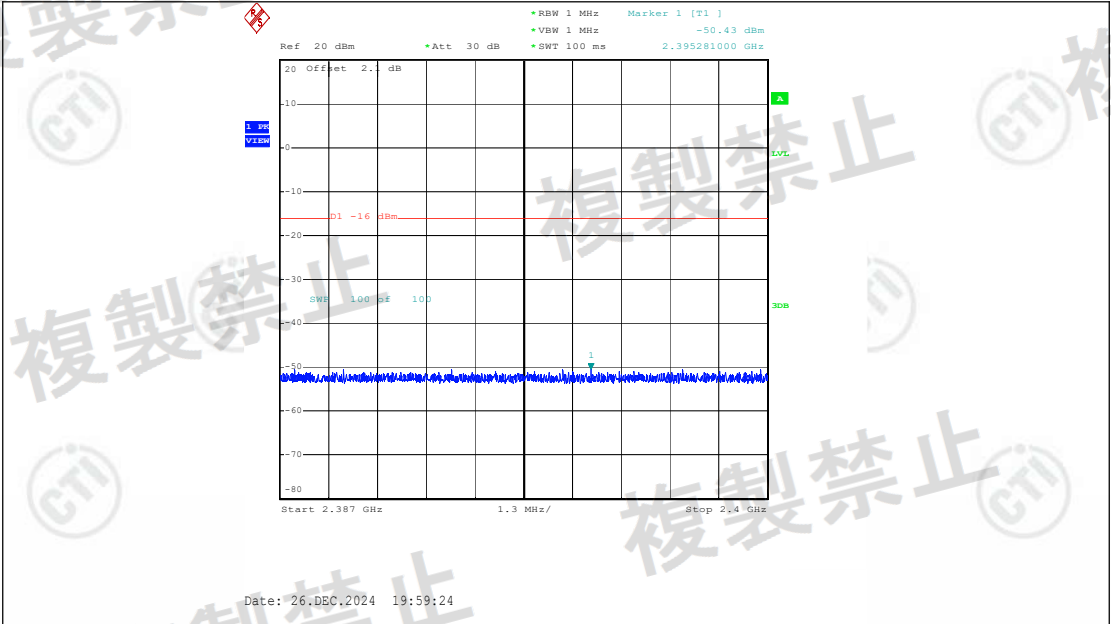
NTNV-2DH5-Ant1-2441-2496.5~13000-PASS

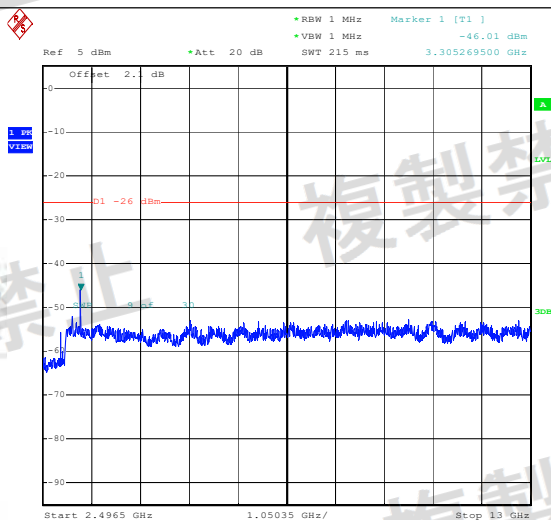


NTNV-2DH5-Ant1-2480-30~1000-See table below



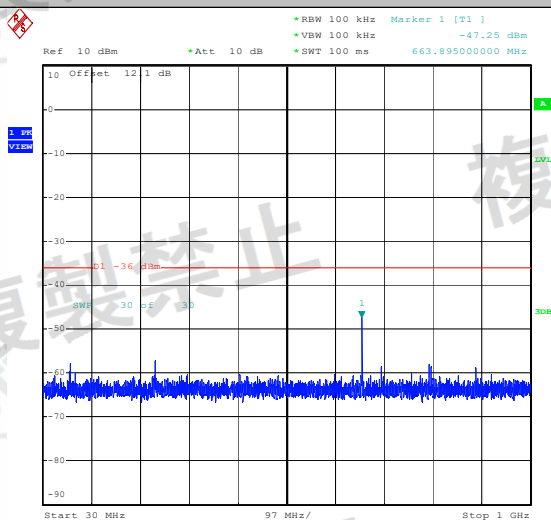
NTNV-2DH5-Ant1-2480-1000~2387-PASS





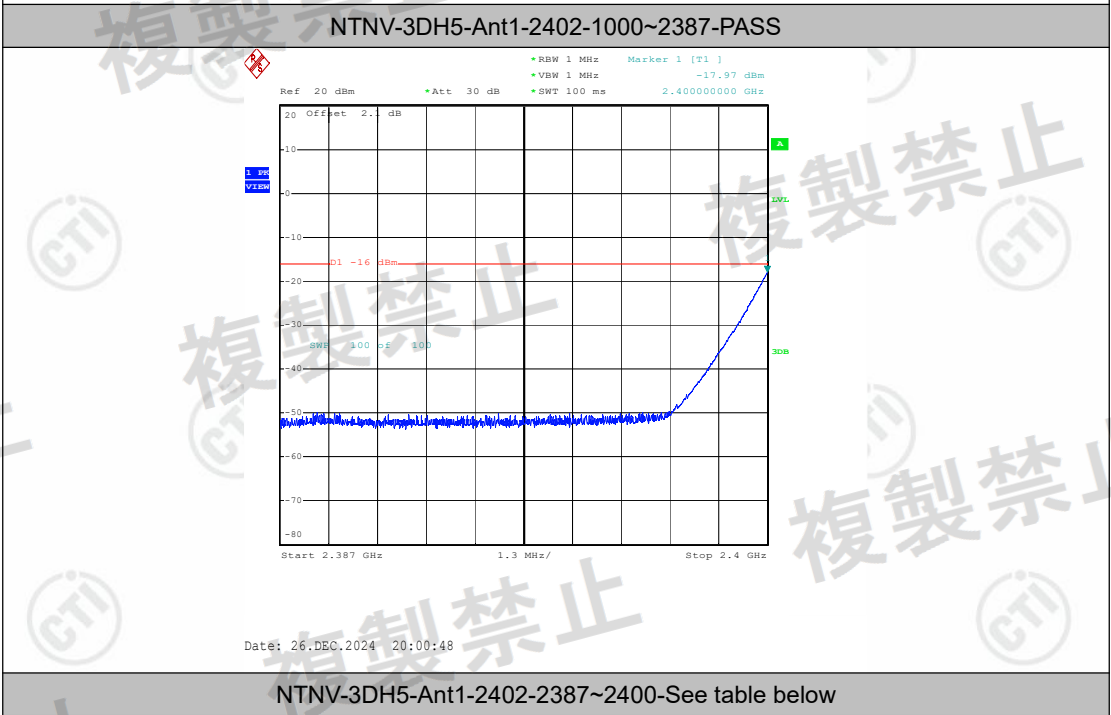
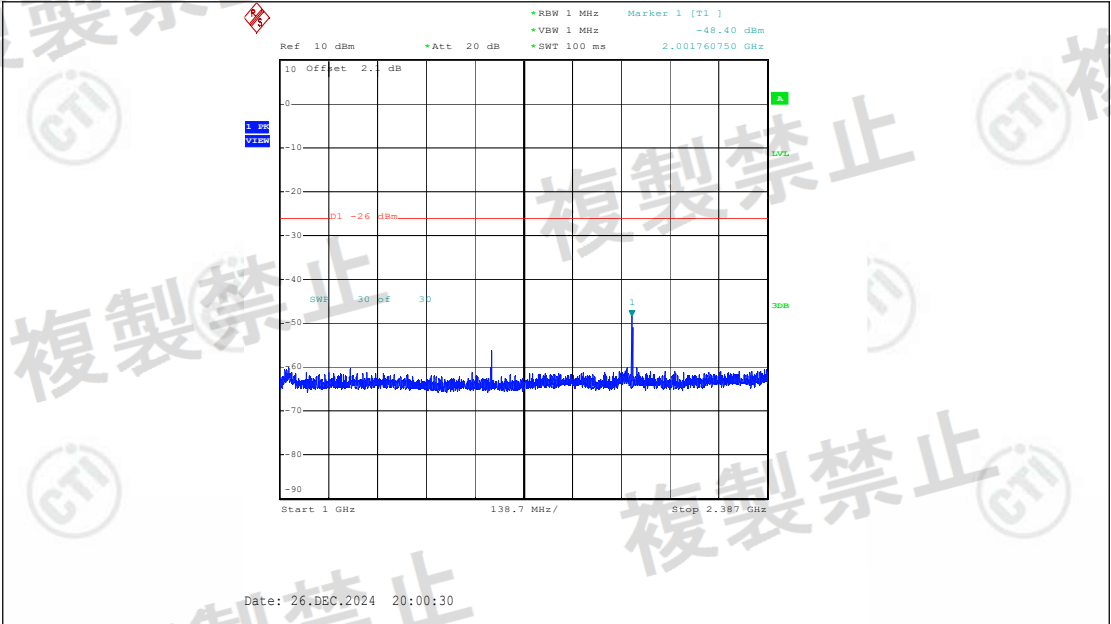
Date: 26.DEC.2024 19:59:55

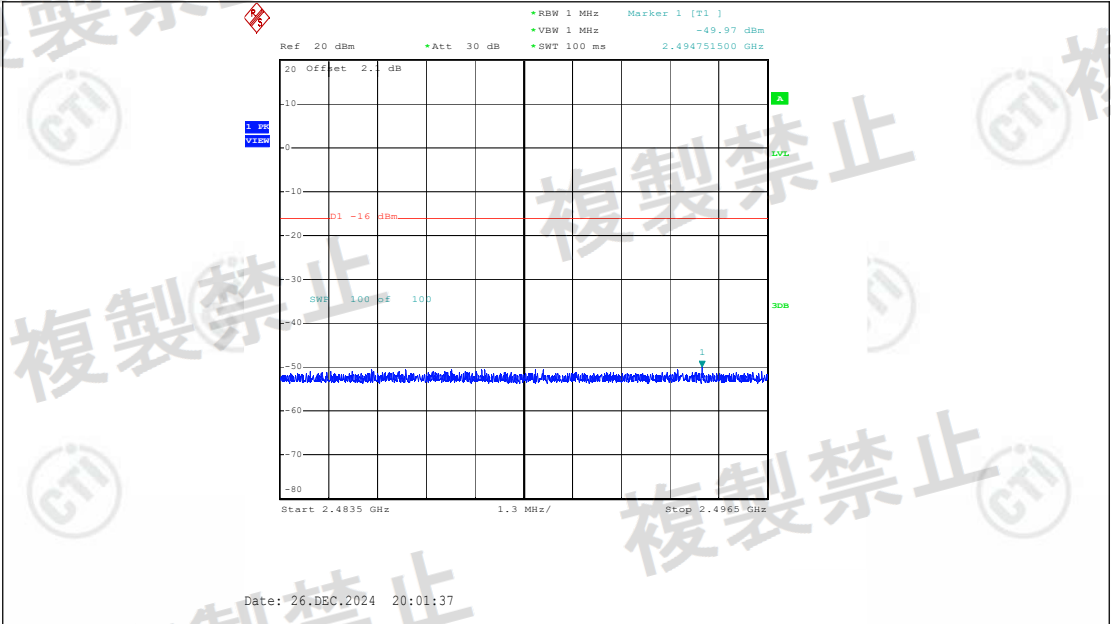
NTNV-2DH5-Ant1-2480-2496.5~13000-PASS



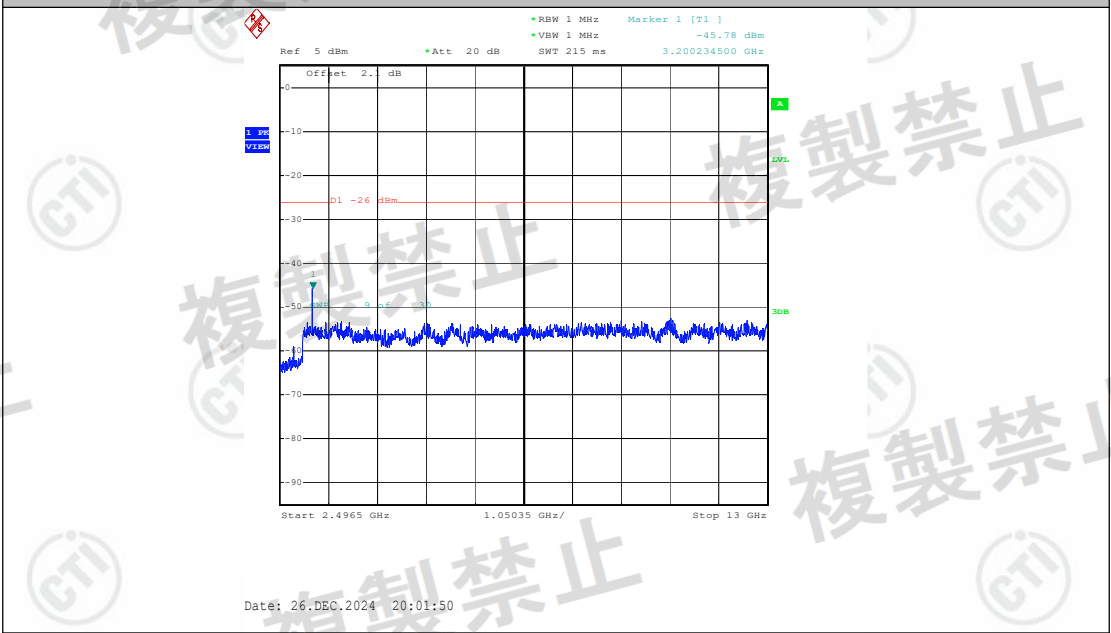
Date: 26.DEC.2024 20:00:20

NTNV-3DH5-Ant1-2402-30~1000-PASS

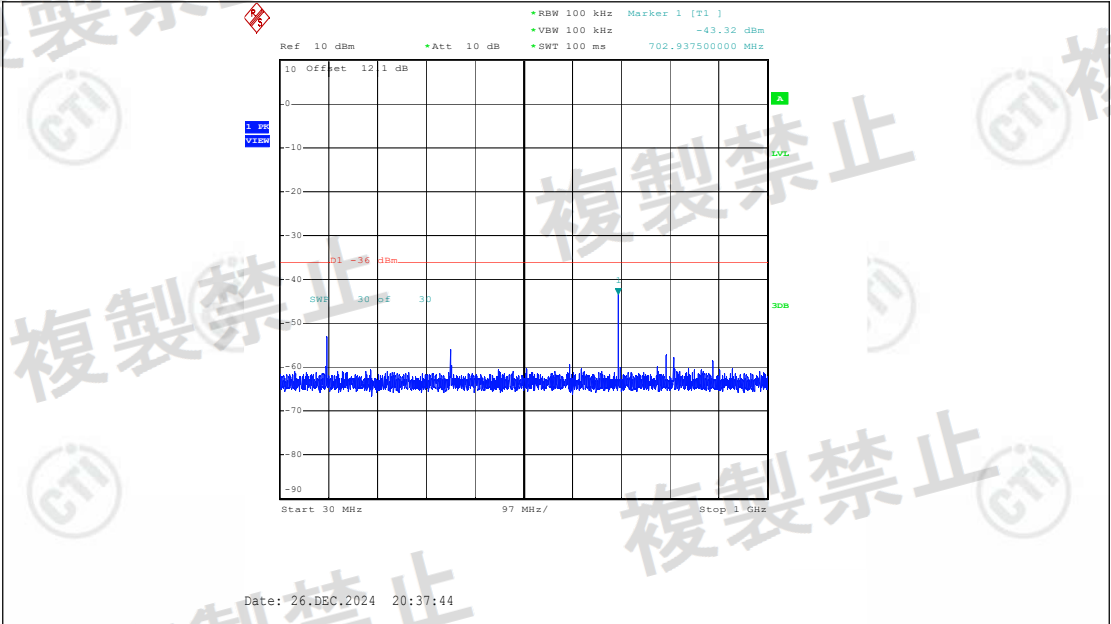




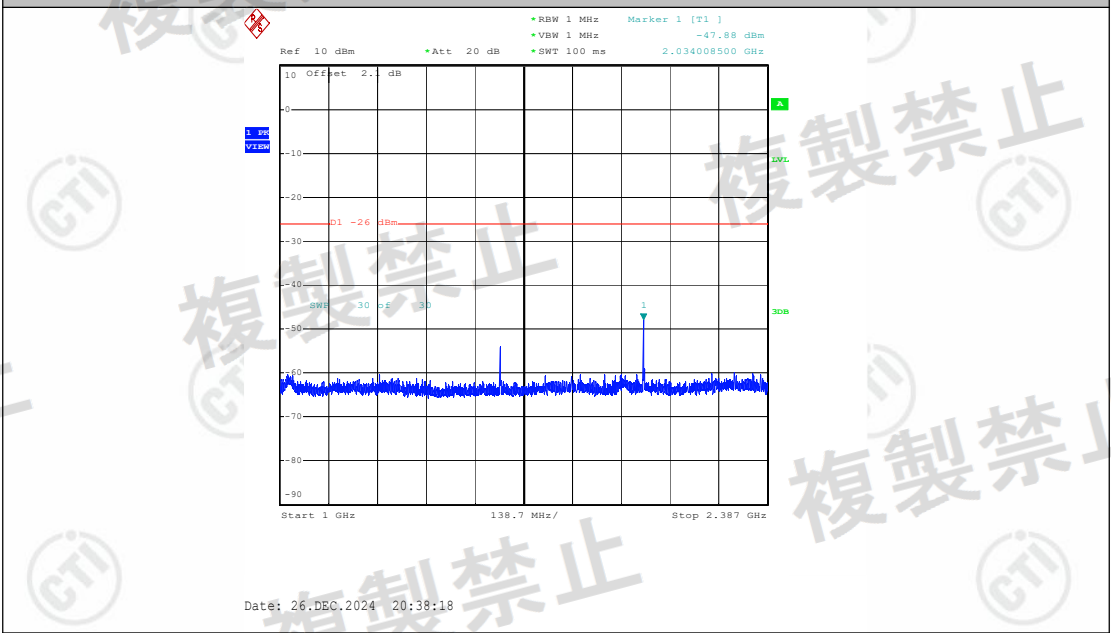
NTNV-3DH5-Ant1-2402-2483.5~2496.5-PASS



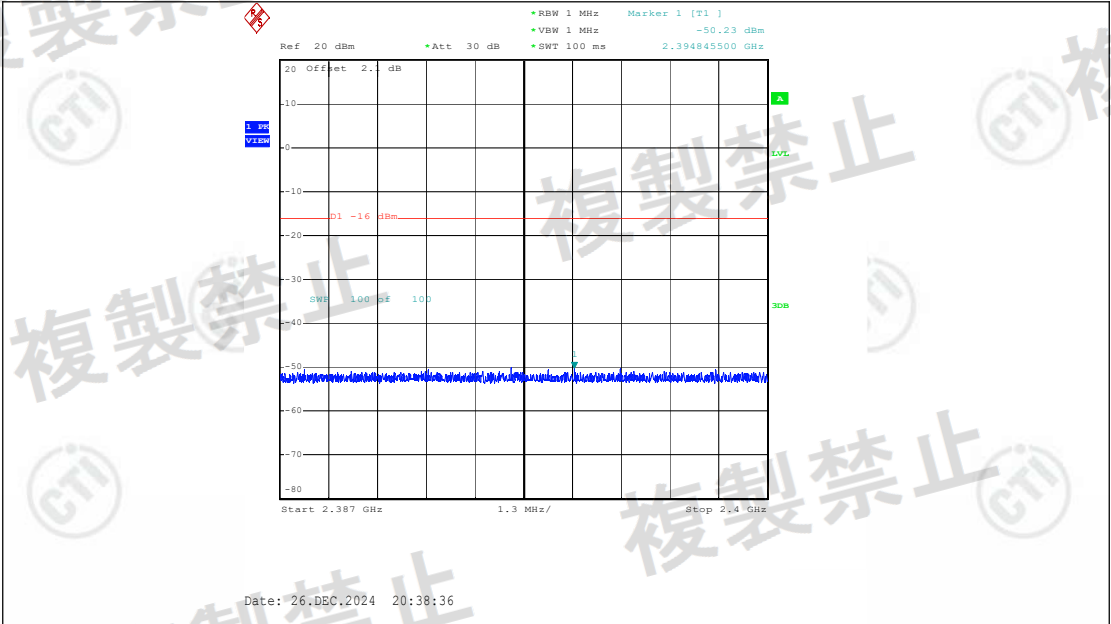
NTNV-3DH5-Ant1-2402-2496.5~13000-PASS



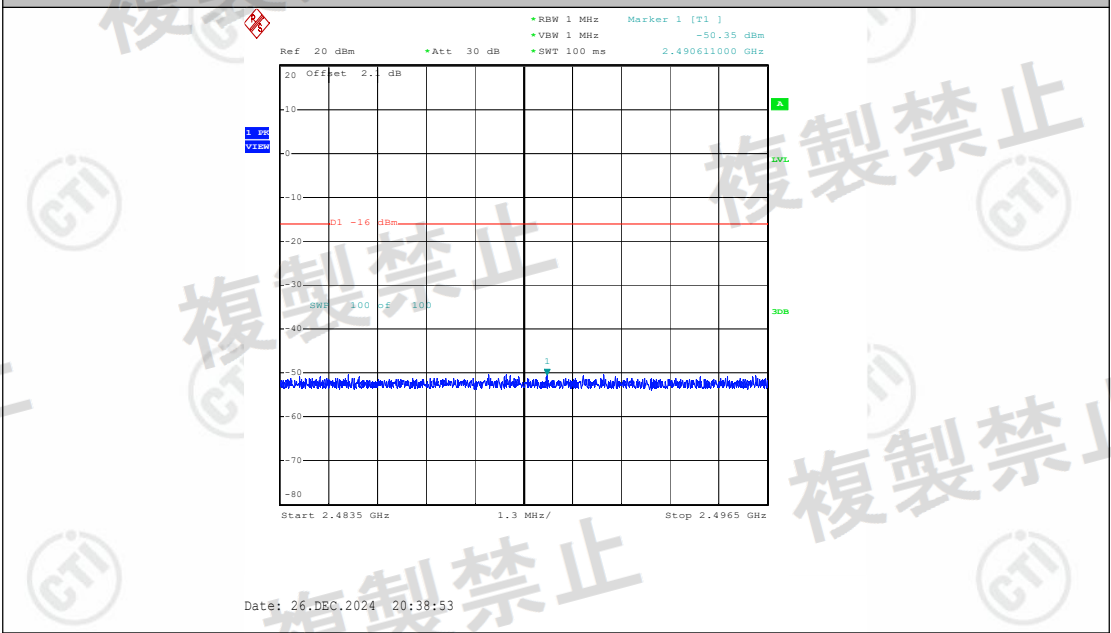
NTNV-3DH5-Ant1-2441-30~1000-See table below



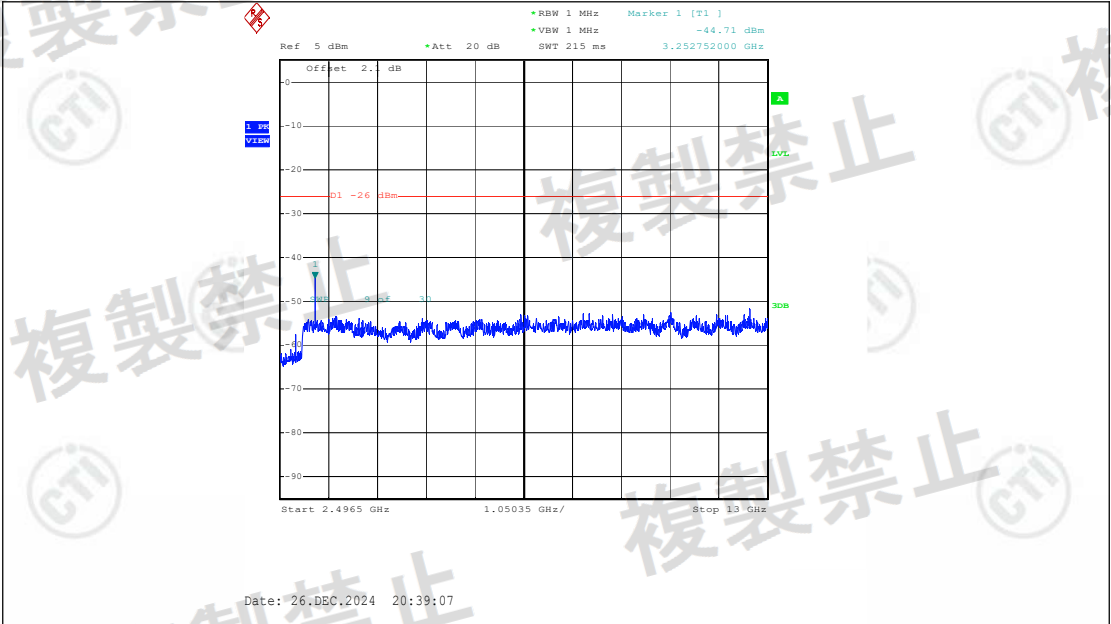
NTNV-3DH5-Ant1-2441-1000~2387-PASS



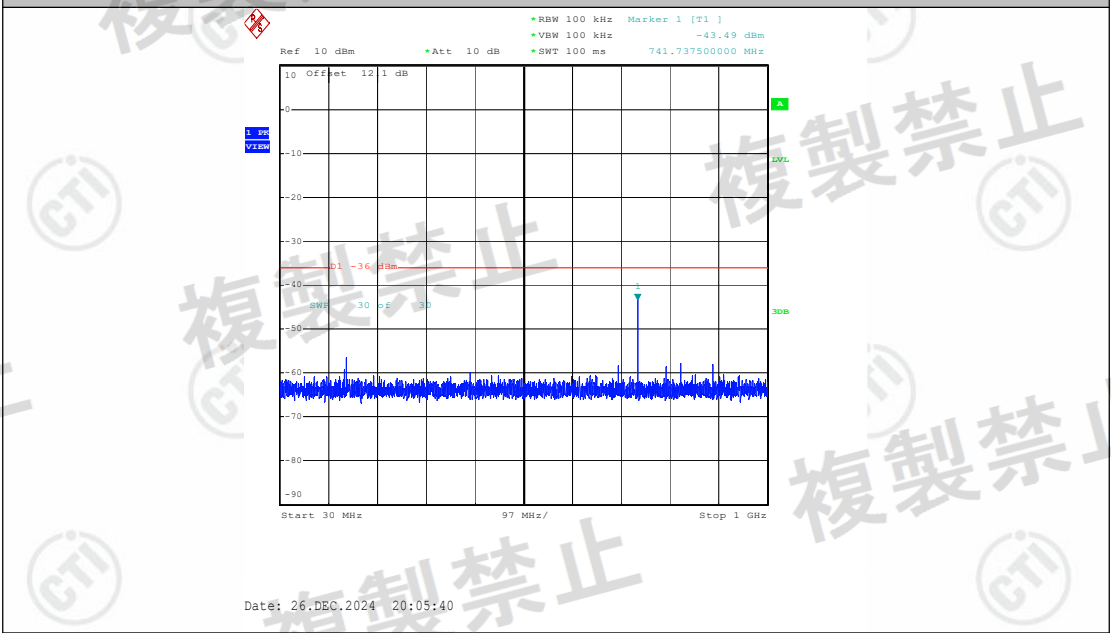
NTVN-3DH5-Ant1-2441-2387~2400-PASS



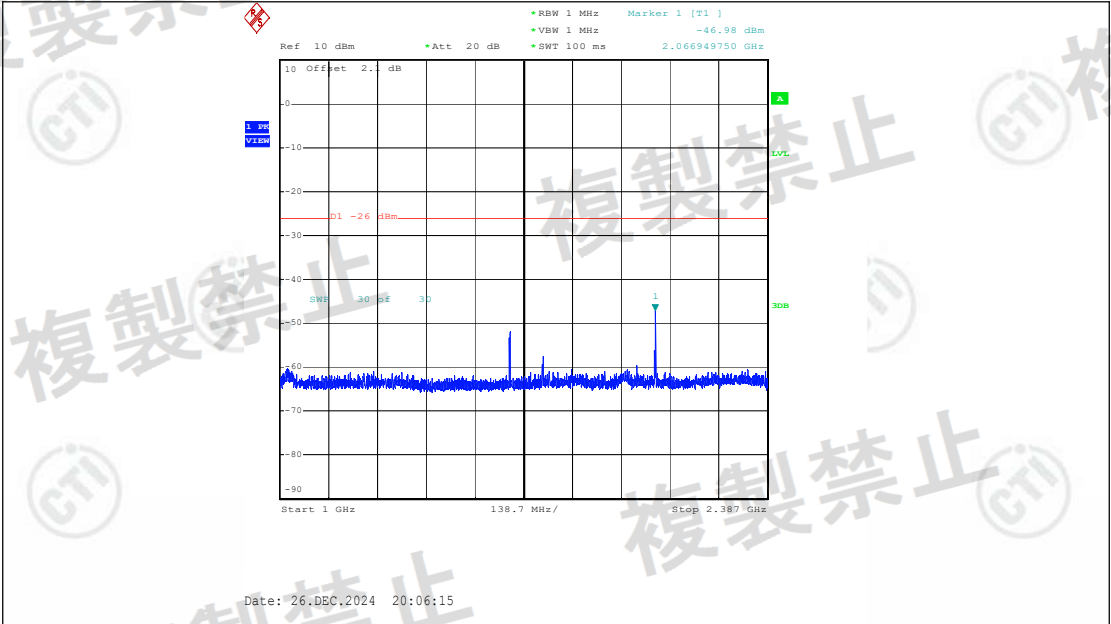
NTVN-3DH5-Ant1-2441-2483.5~2496.5-PASS



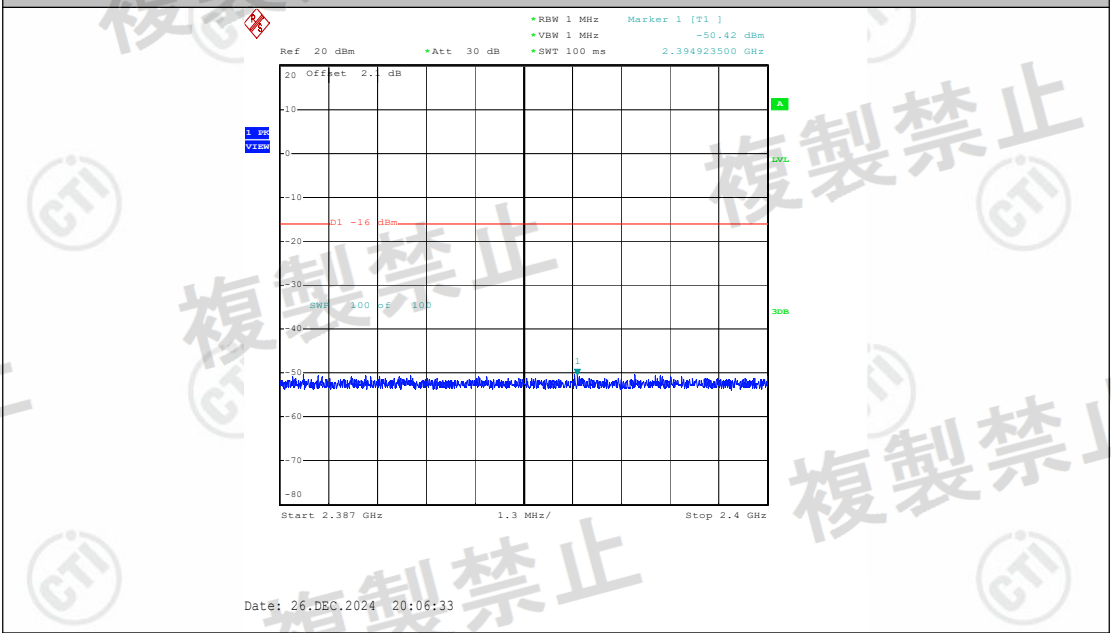
NTNV-3DH5-Ant1-2441-2496.5~13000-PASS



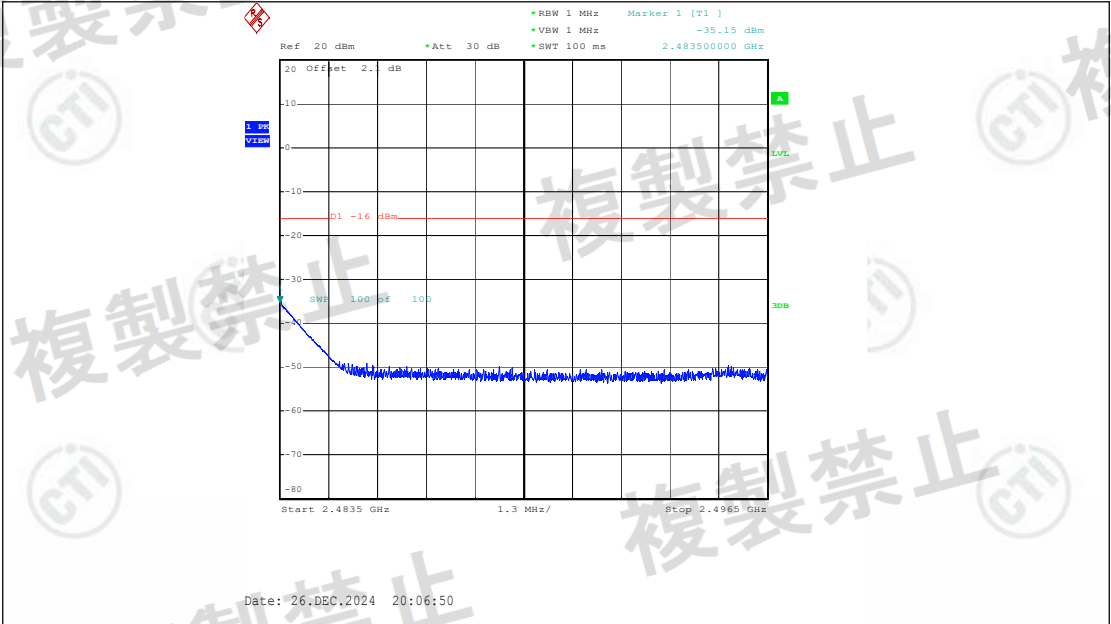
NTNV-3DH5-Ant1-2480-30~1000-See table below



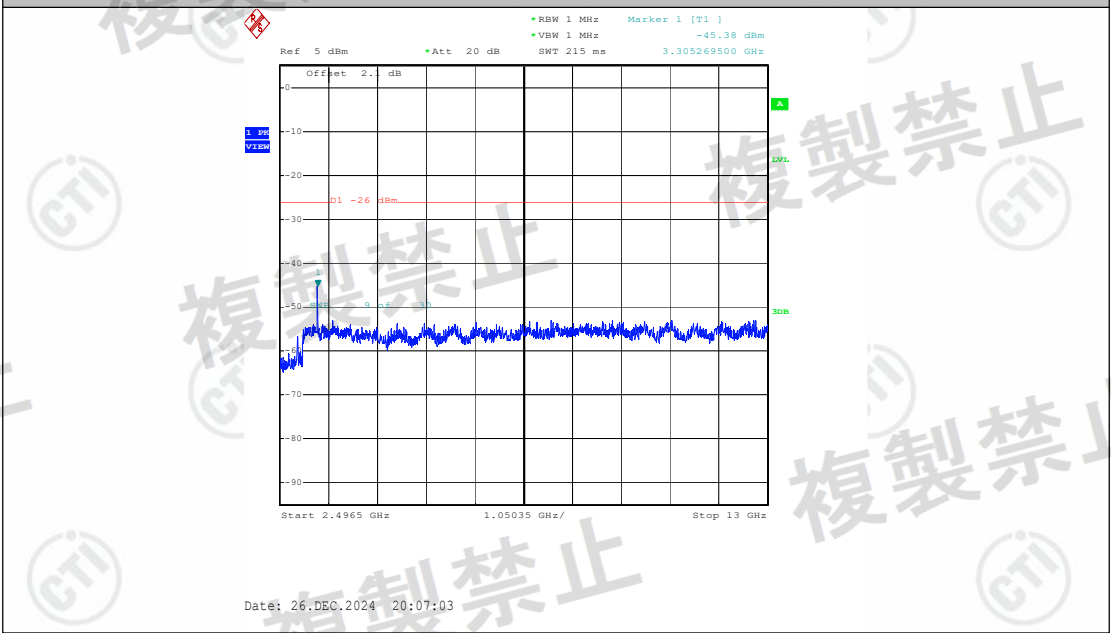
NTNV-3DH5-Ant1-2480-1000~2387-PASS



NTNV-3DH5-Ant1-2480-2387~2400-PASS

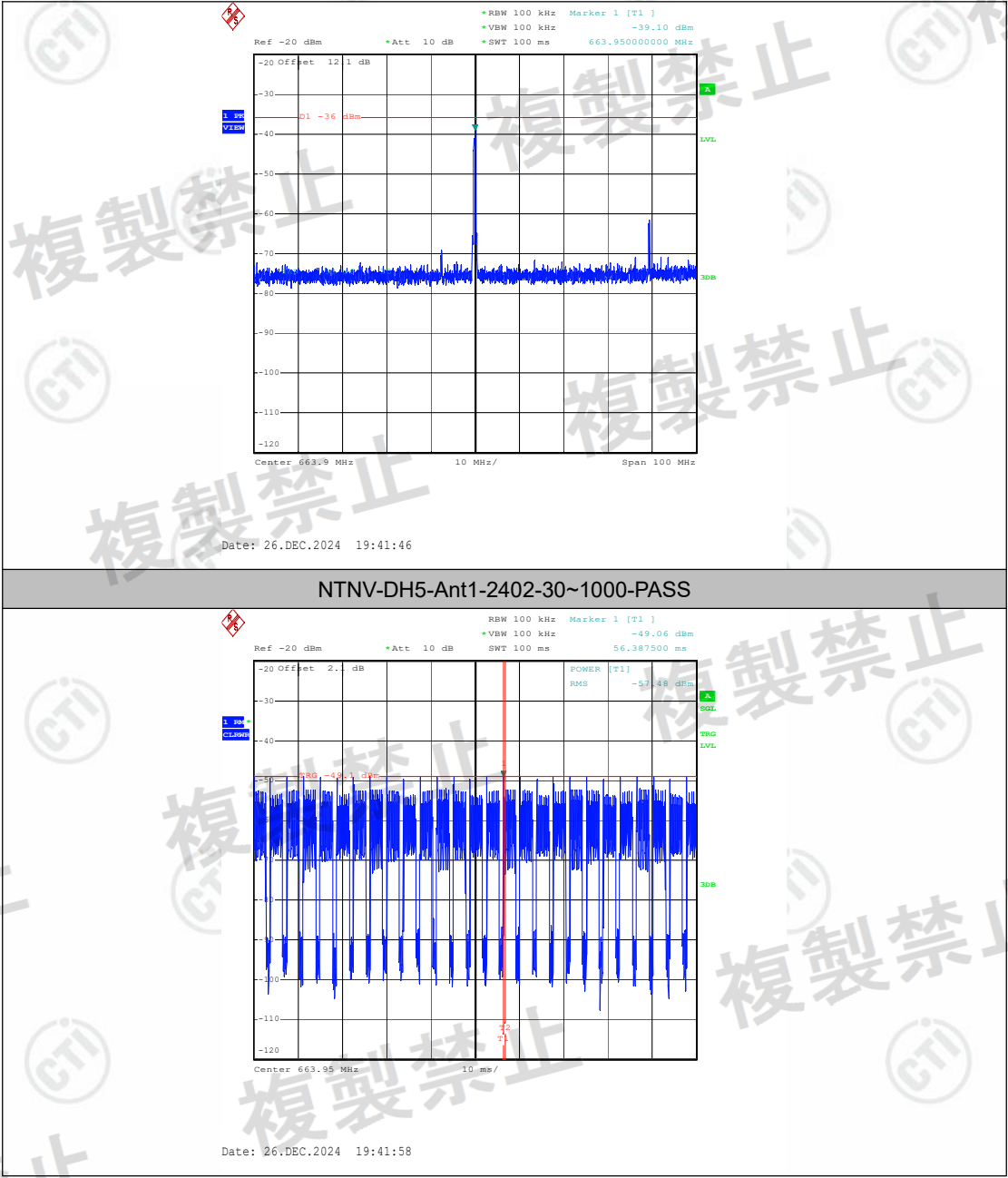


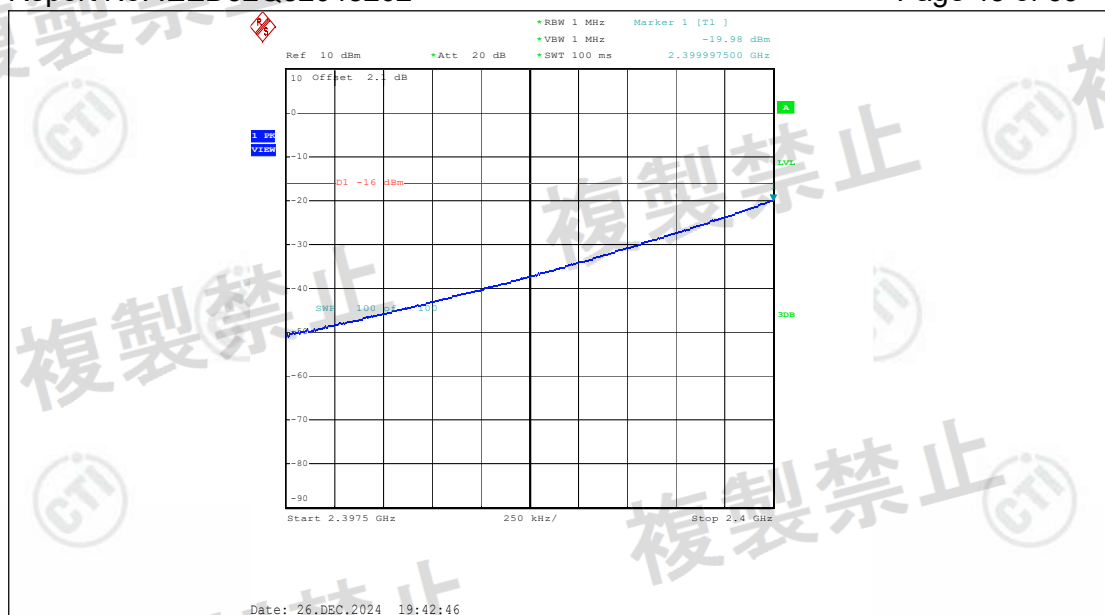
NTNV-3DH5-Ant1-2480-2483.5~2496.5-PASS



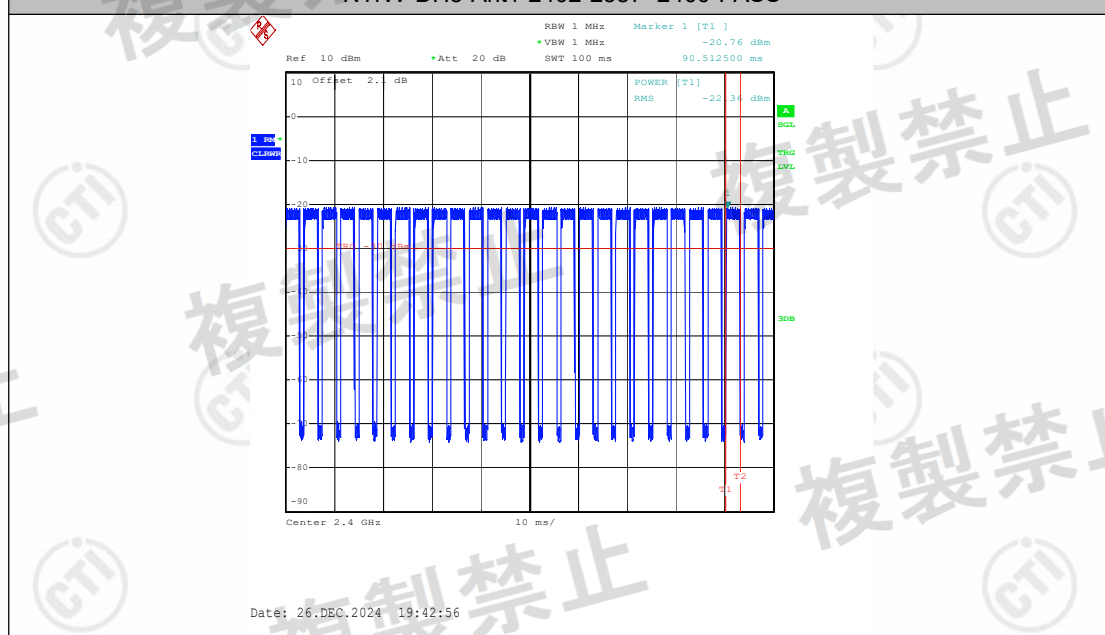
NTNV-3DH5-Ant1-2480-2496.5~13000-PASS

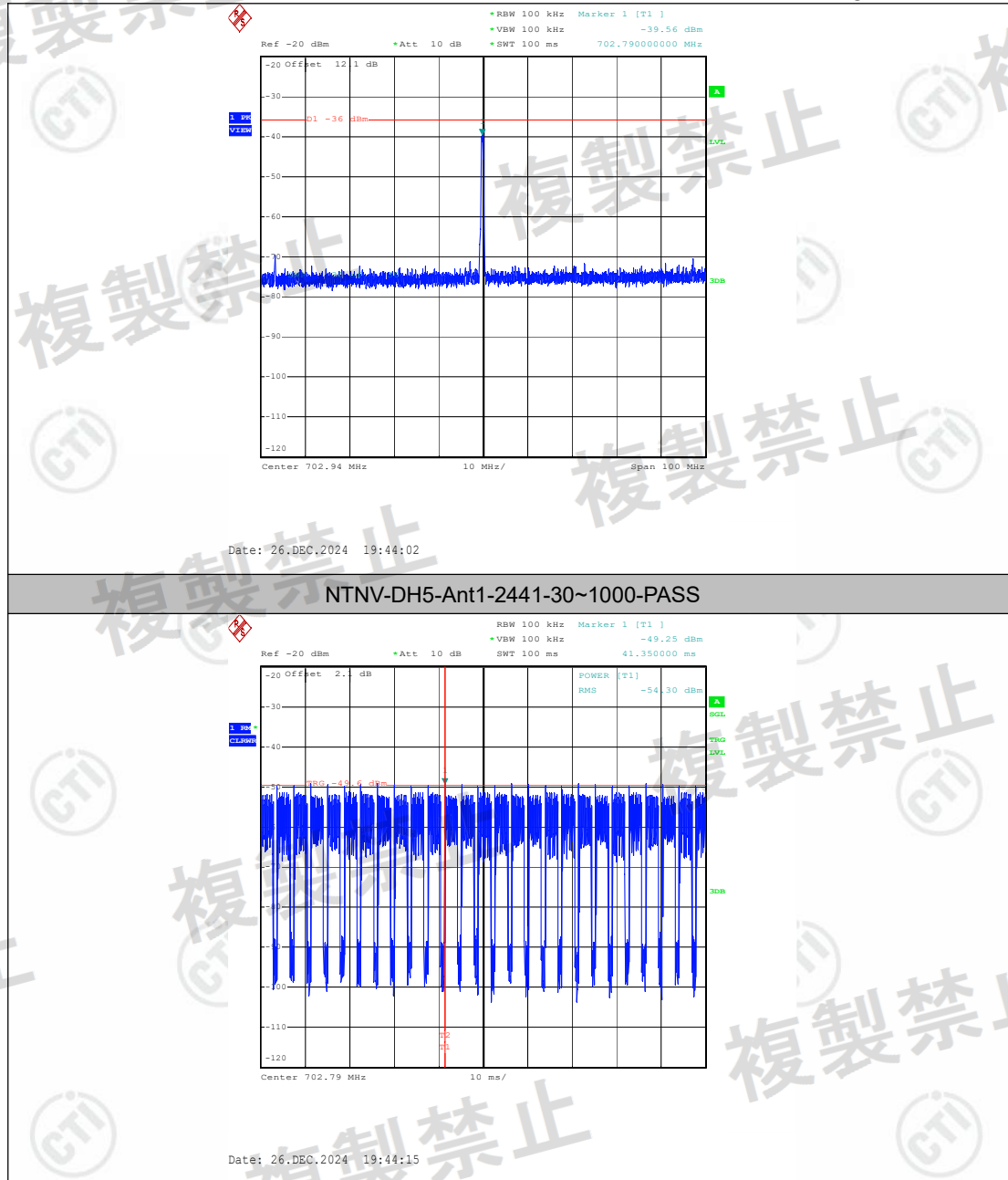
Test Graphs_Step2

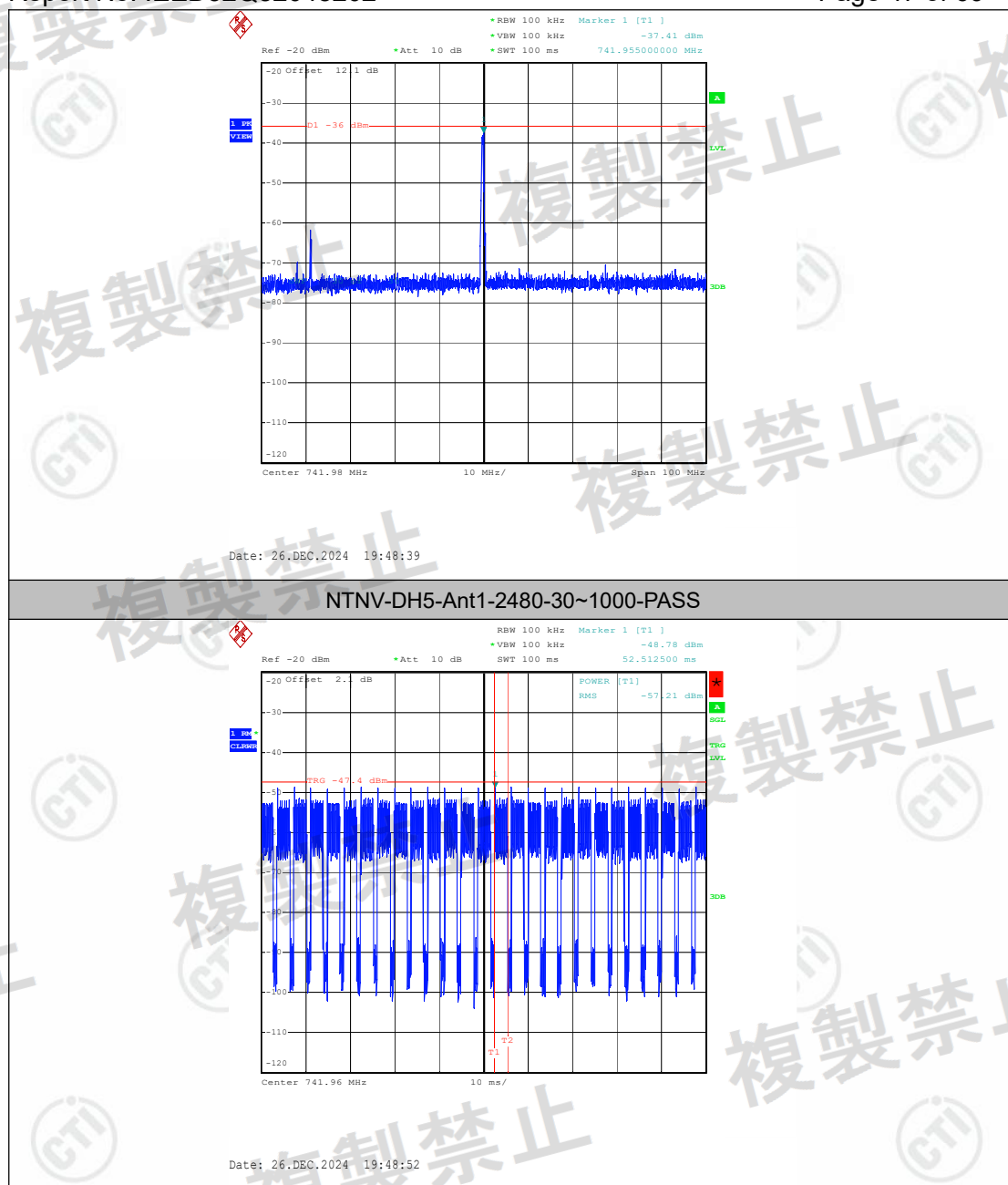


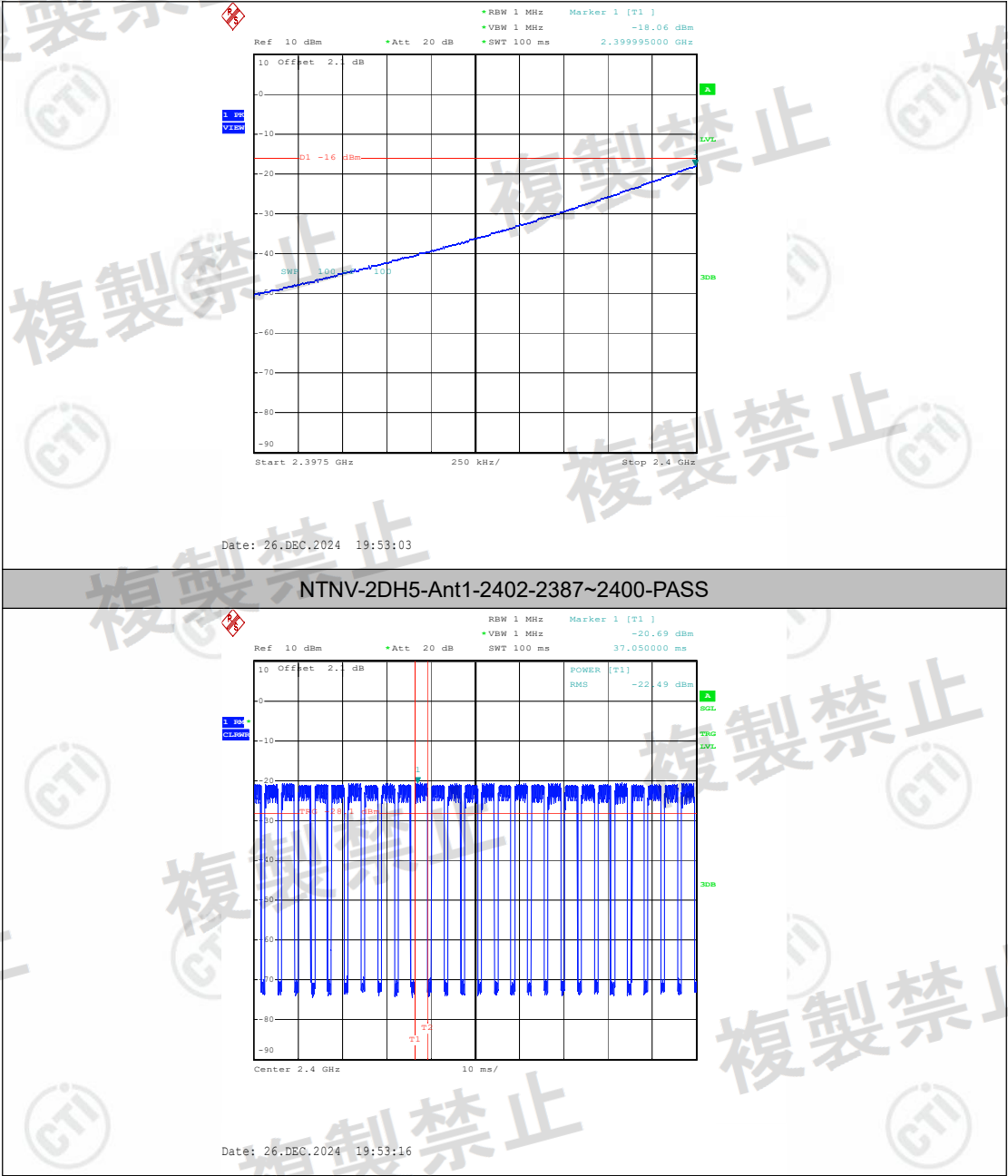


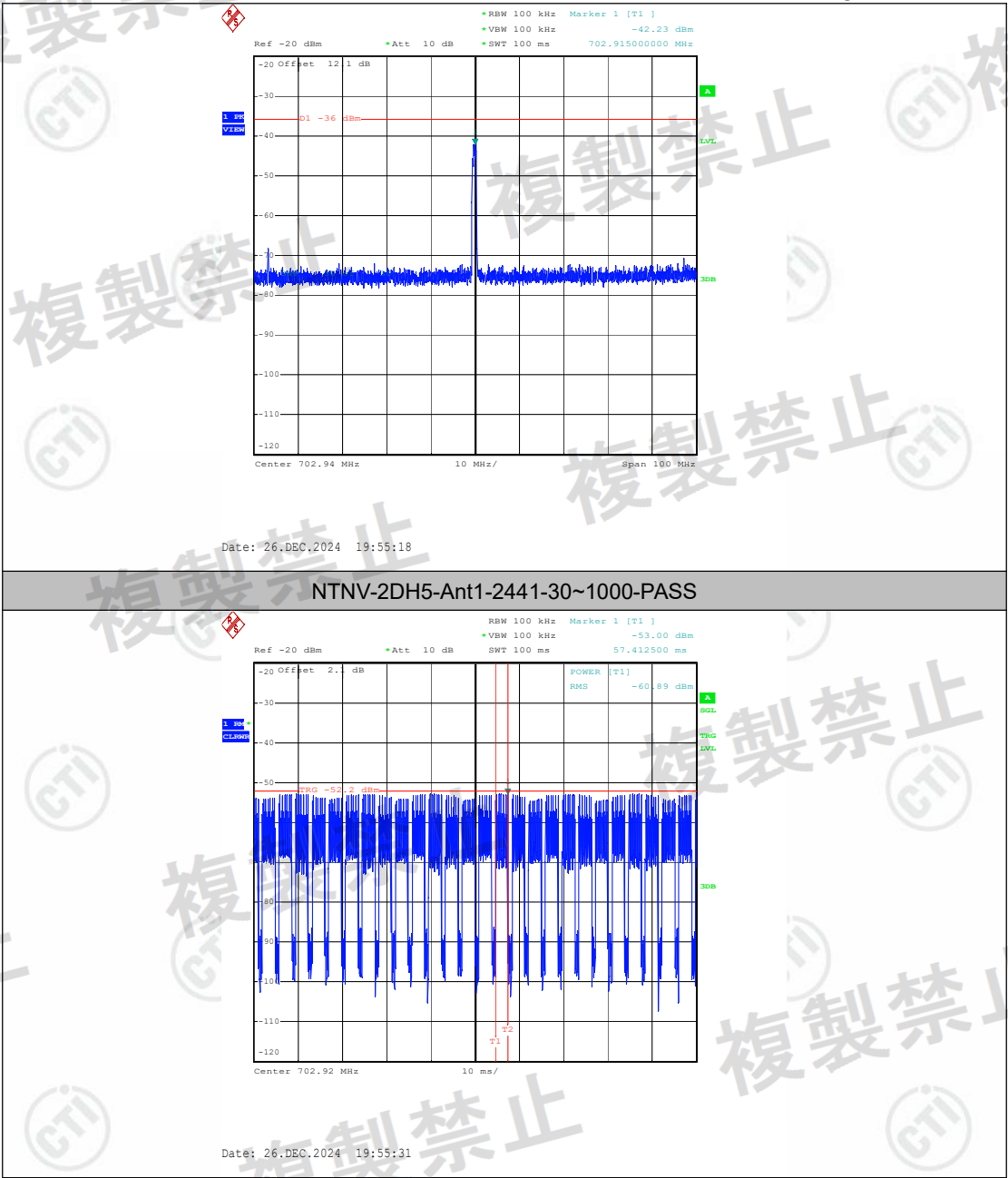
NTNV-DH5-Ant1-2402-2387~2400-PASS

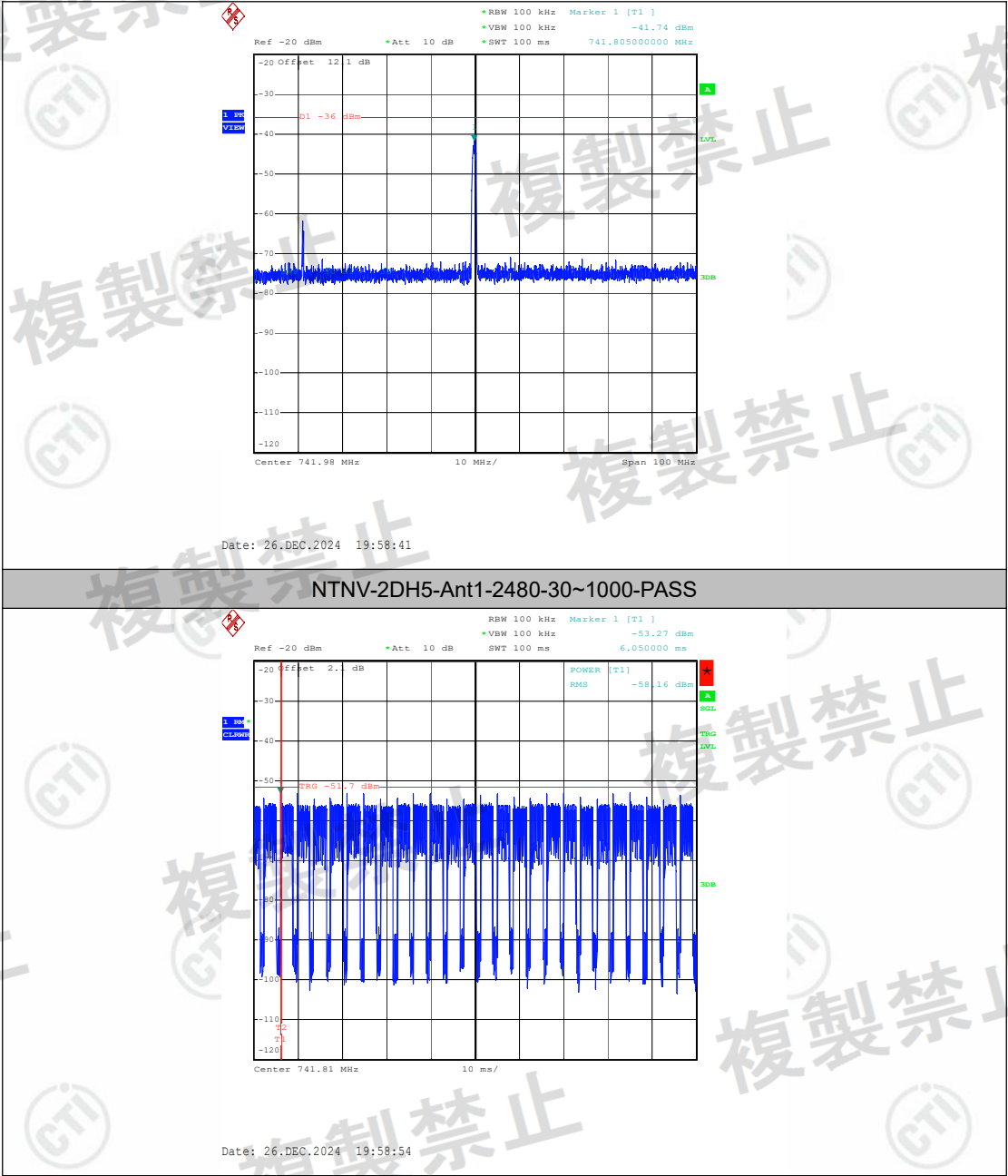


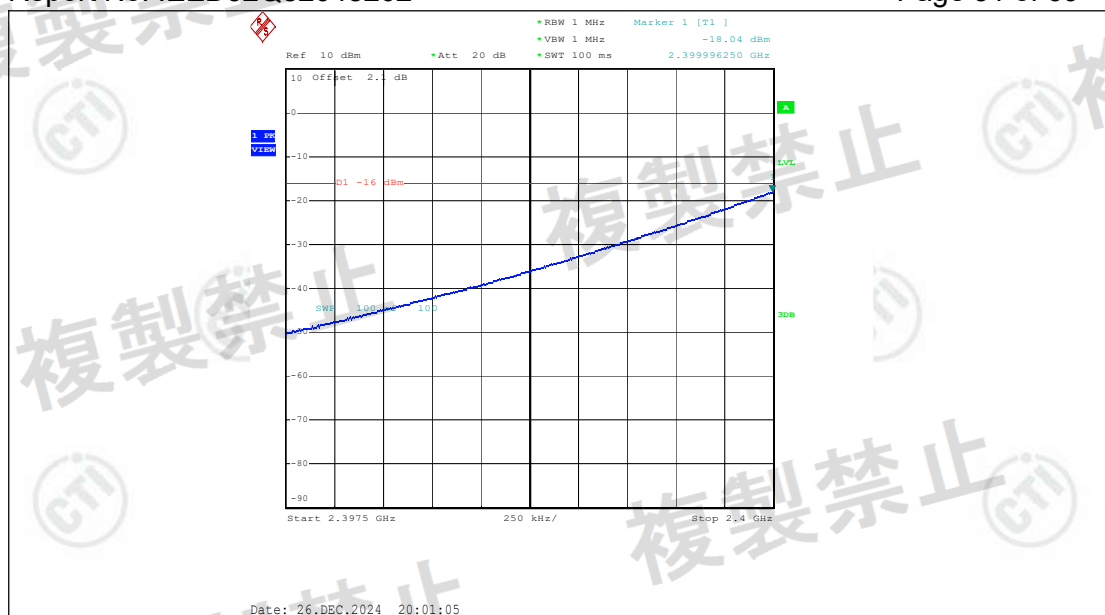




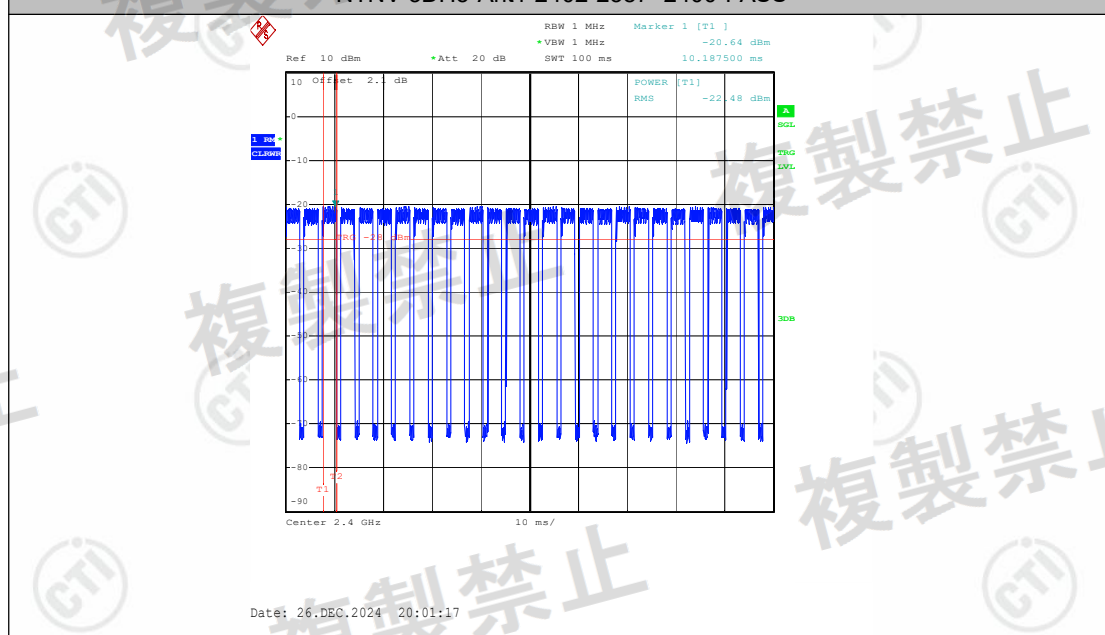


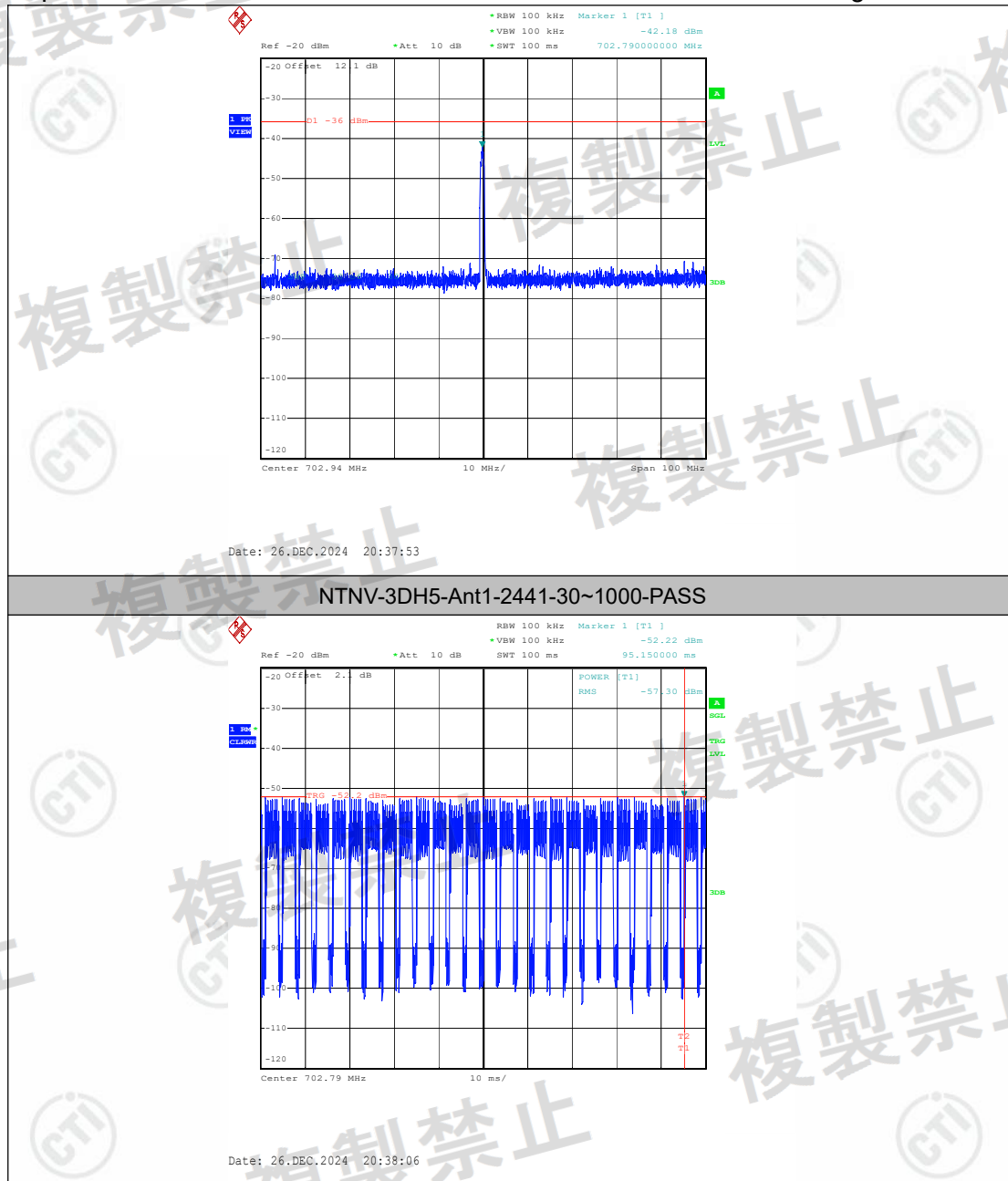


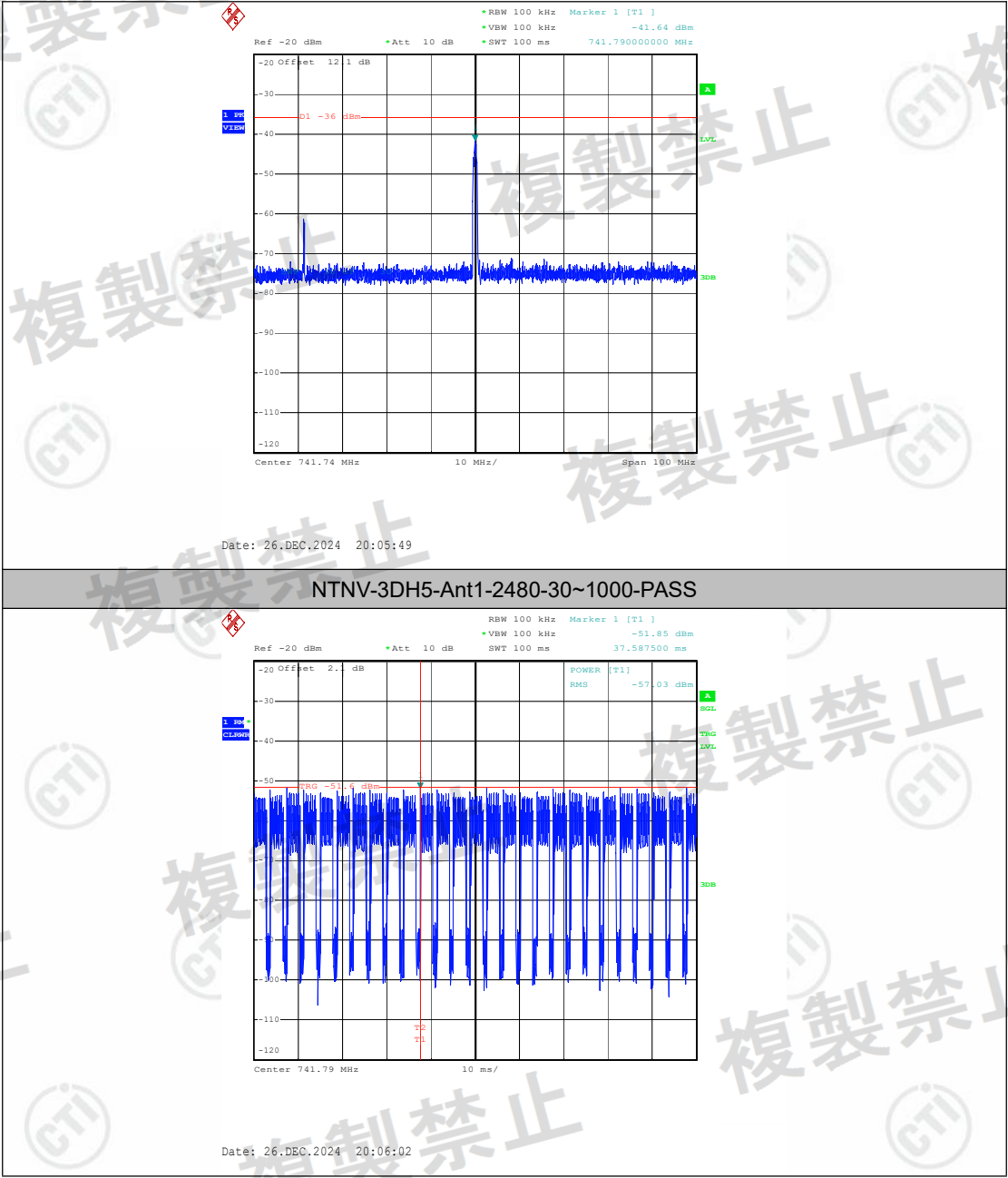




NTNV-3DH5-Ant1-2402-2387~2400-PASS





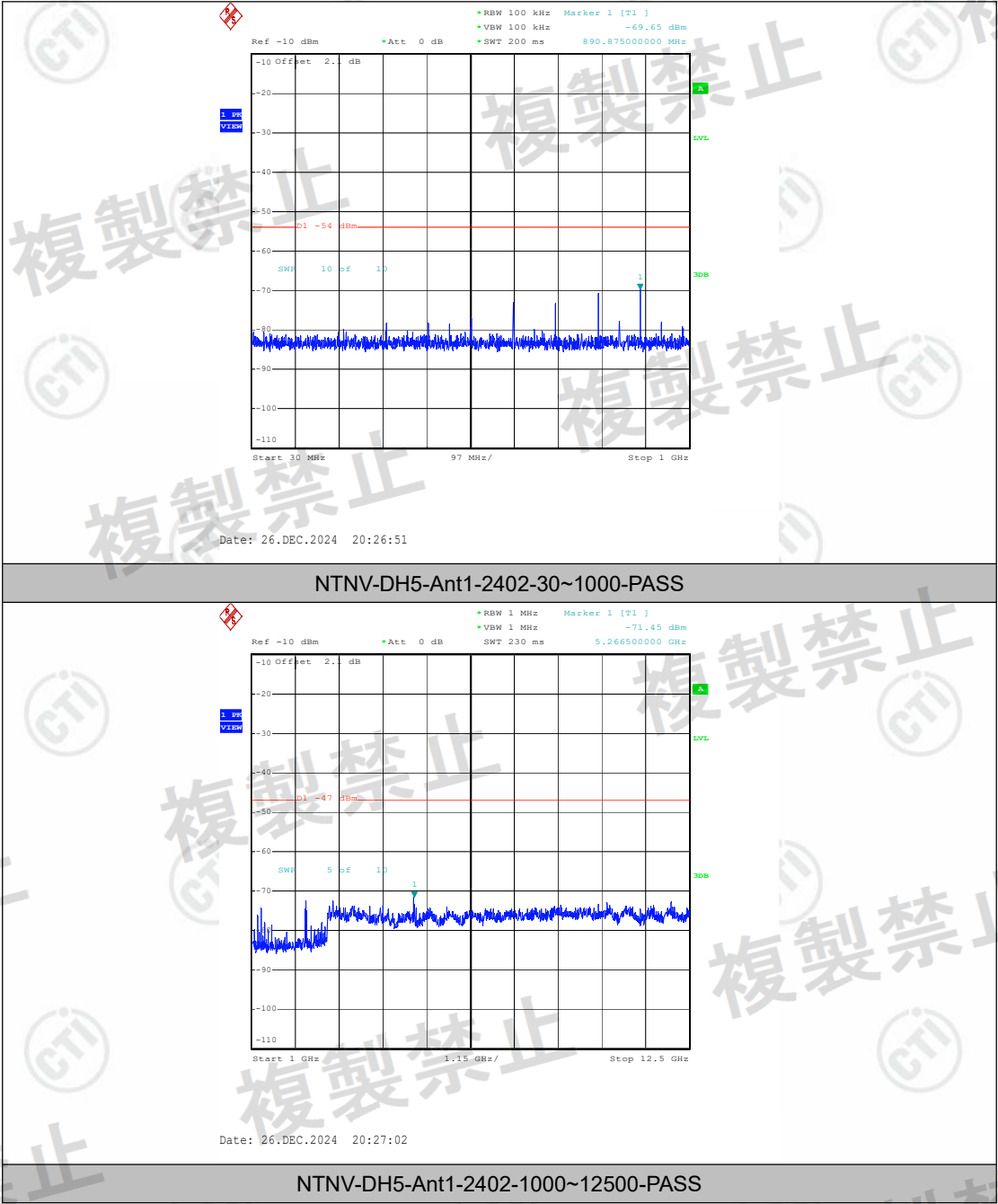


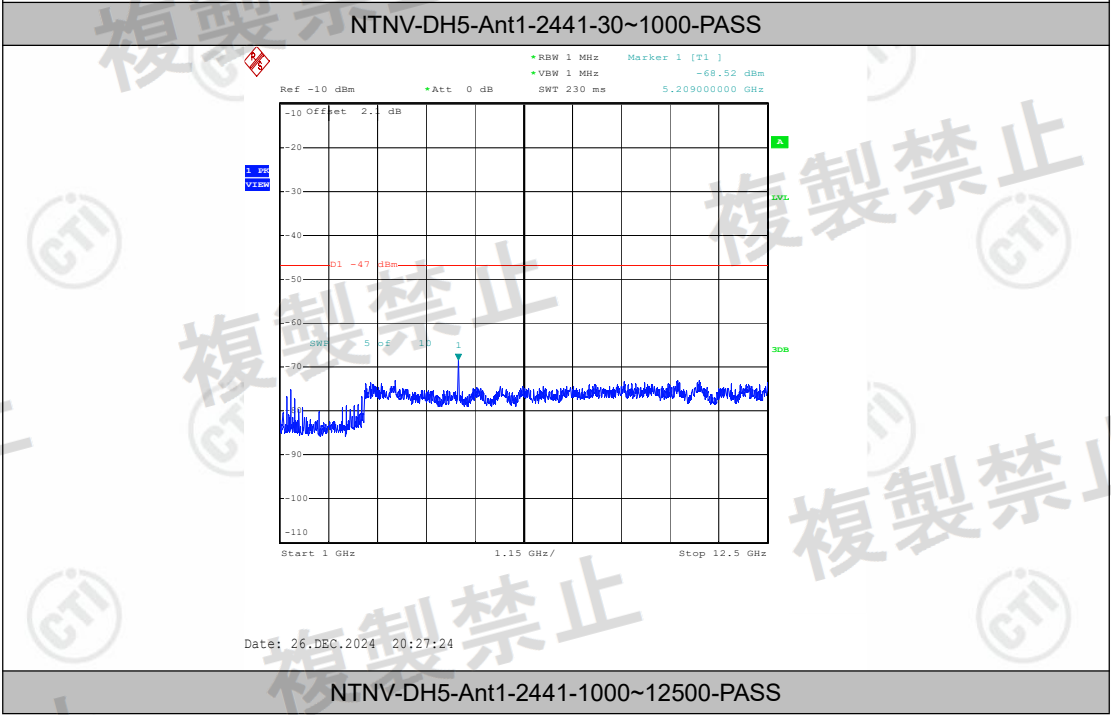
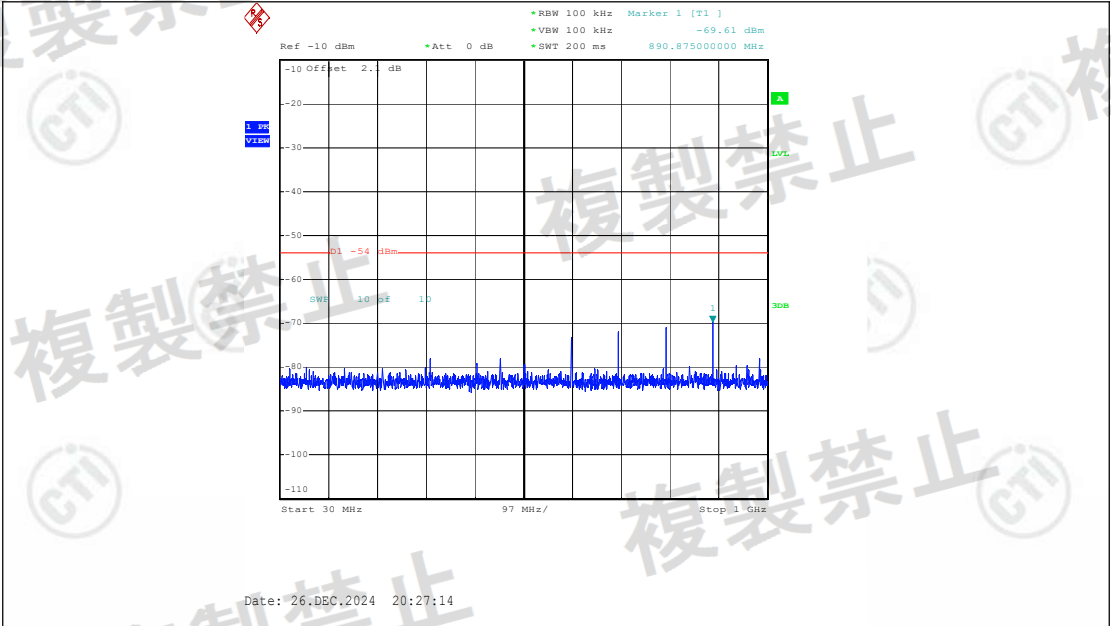
Appendix F: Spurious Emission of RX

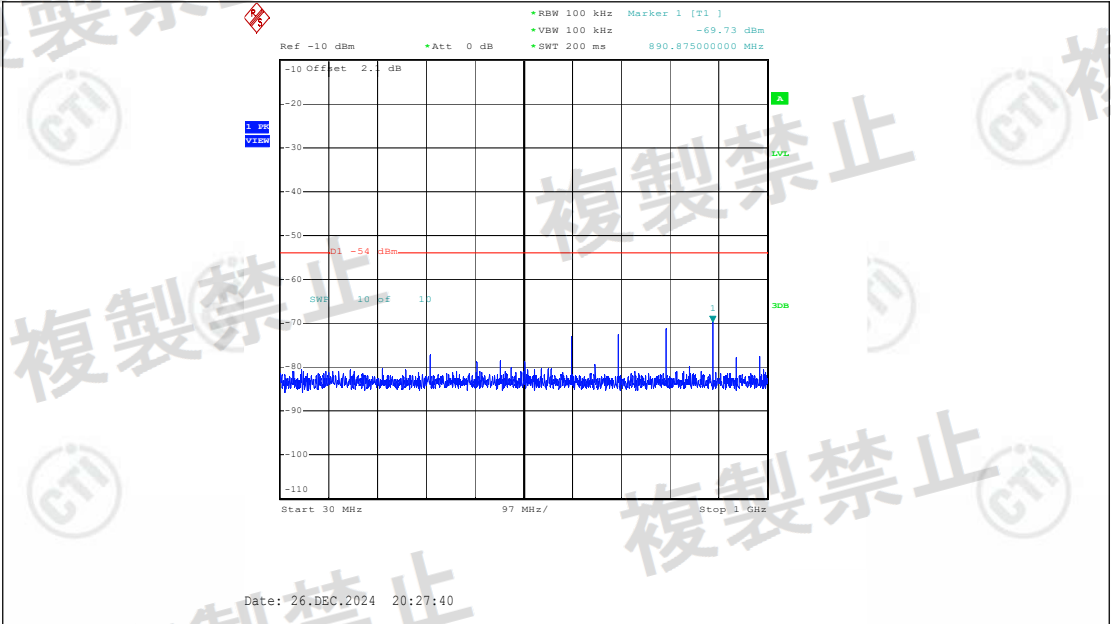
Test Result

Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Freq [MHz]	Result [dBm]	Result [μ W]	Limit [μ W]	Verdict
NTNV	DH5	Ant1	2402	30~1000	890.88	-69.65	0.10839	≤ 4	PASS
NTNV	DH5	Ant1	2402	1000~12500	5266.50	-71.45	0.07161	≤ 20	PASS
NTNV	DH5	Ant1	2441	30~1000	890.88	-69.61	0.10940	≤ 4	PASS
NTNV	DH5	Ant1	2441	1000~12500	5209.00	-68.52	0.14060	≤ 20	PASS
NTNV	DH5	Ant1	2480	30~1000	890.88	-69.73	0.10641	≤ 4	PASS
NTNV	DH5	Ant1	2480	1000~12500	5312.50	-70.83	0.08260	≤ 20	PASS
NTNV	2DH5	Ant1	2402	30~1000	890.88	-69.91	0.10209	≤ 4	PASS
NTNV	2DH5	Ant1	2402	1000~12500	2408.75	-62.31	0.58749	≤ 20	PASS
NTNV	2DH5	Ant1	2441	30~1000	890.88	-69.94	0.10139	≤ 4	PASS
NTNV	2DH5	Ant1	2441	1000~12500	5306.75	-71.21	0.07568	≤ 20	PASS
NTNV	2DH5	Ant1	2480	30~1000	890.88	-70.17	0.09616	≤ 4	PASS
NTNV	2DH5	Ant1	2480	1000~12500	2408.75	-72.14	0.06109	≤ 20	PASS
NTNV	3DH5	Ant1	2402	30~1000	890.88	-69.88	0.10280	≤ 4	PASS
NTNV	3DH5	Ant1	2402	1000~12500	5605.75	-72.43	0.05715	≤ 20	PASS
NTNV	3DH5	Ant1	2441	30~1000	890.88	-69.95	0.10116	≤ 4	PASS
NTNV	3DH5	Ant1	2441	1000~12500	10361.00	-72.47	0.05662	≤ 20	PASS
NTNV	3DH5	Ant1	2480	30~1000	890.88	-69.77	0.10544	≤ 4	PASS
NTNV	3DH5	Ant1	2480	1000~12500	2408.75	-67.79	0.16634	≤ 20	PASS

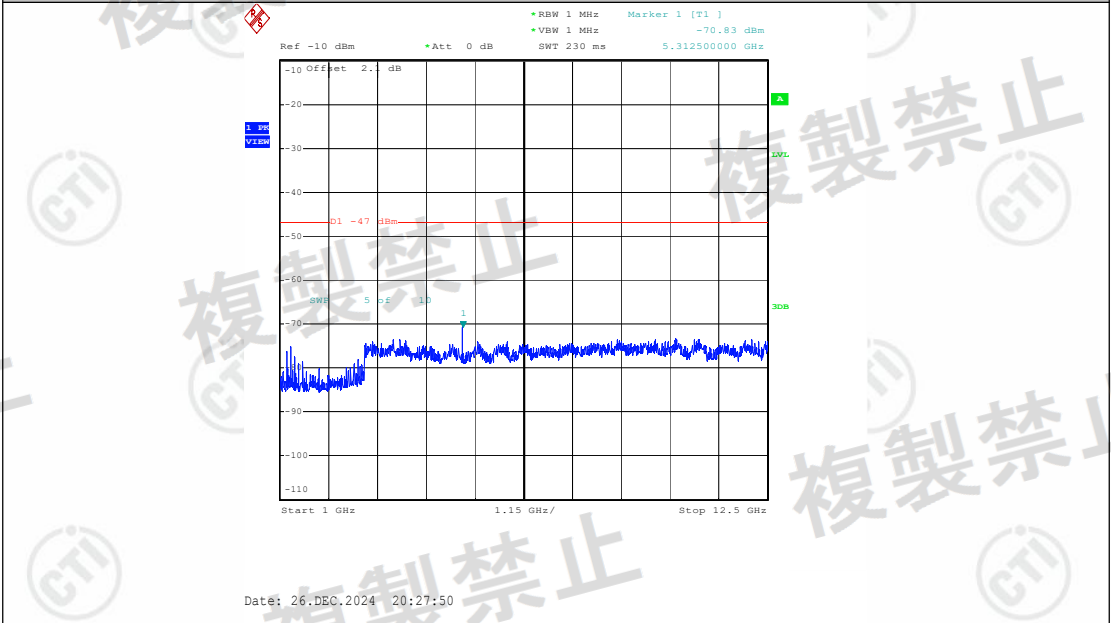
Test Graphs



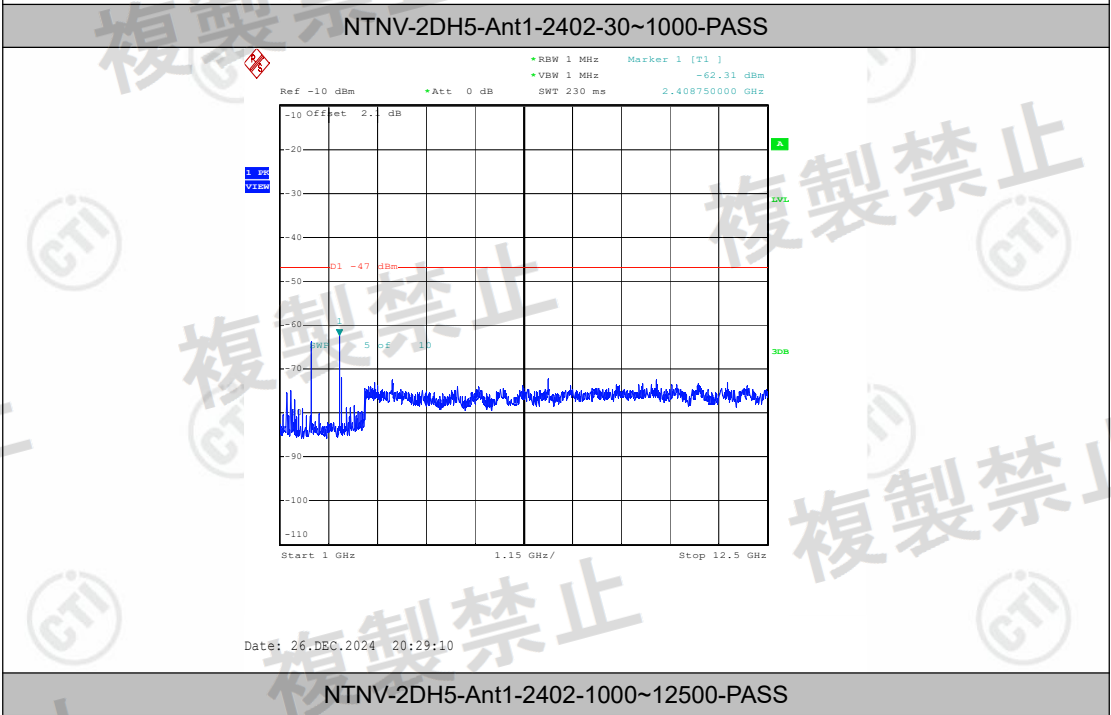
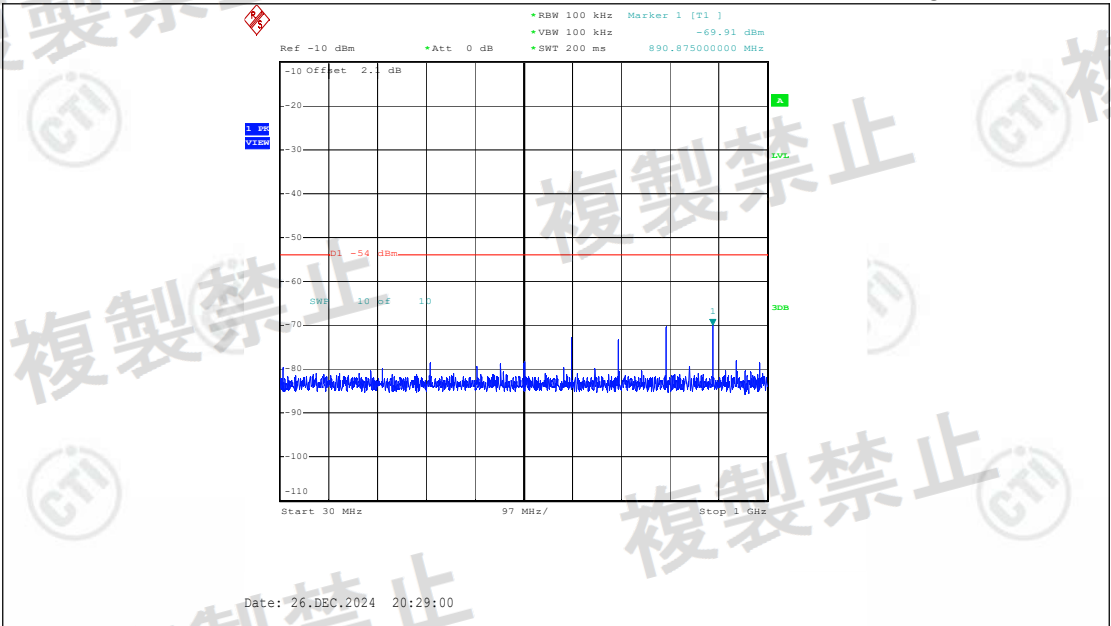


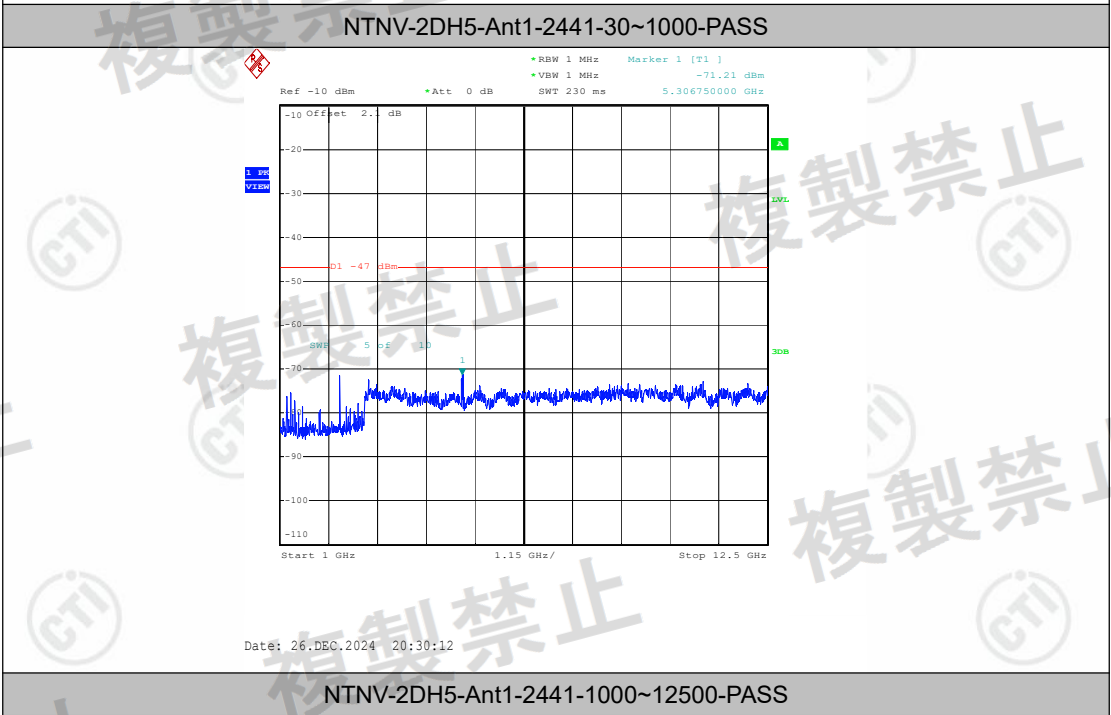
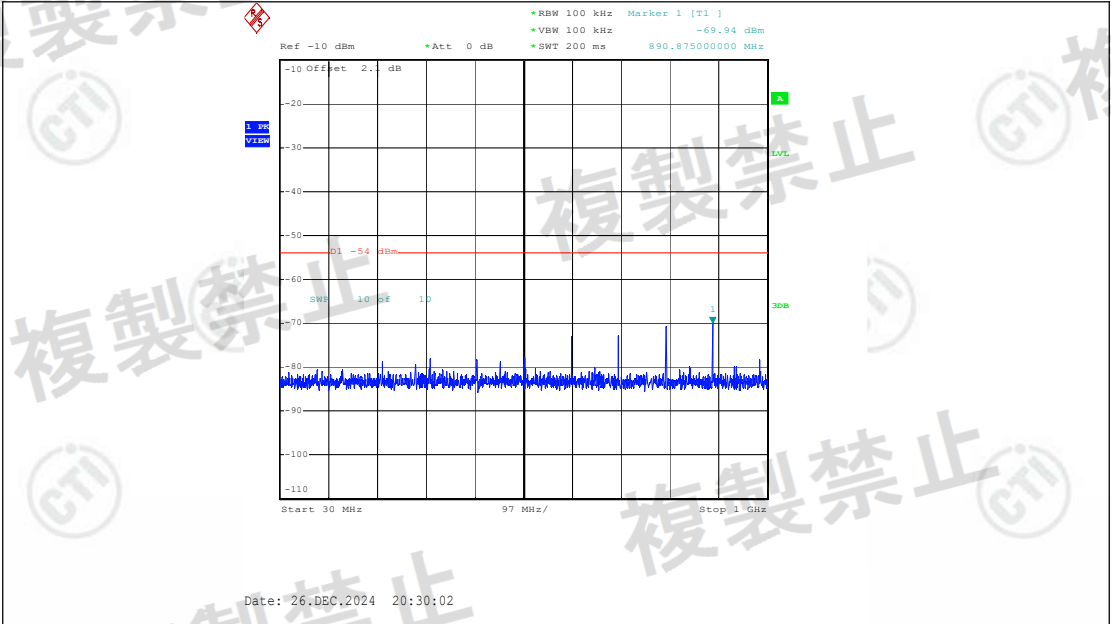


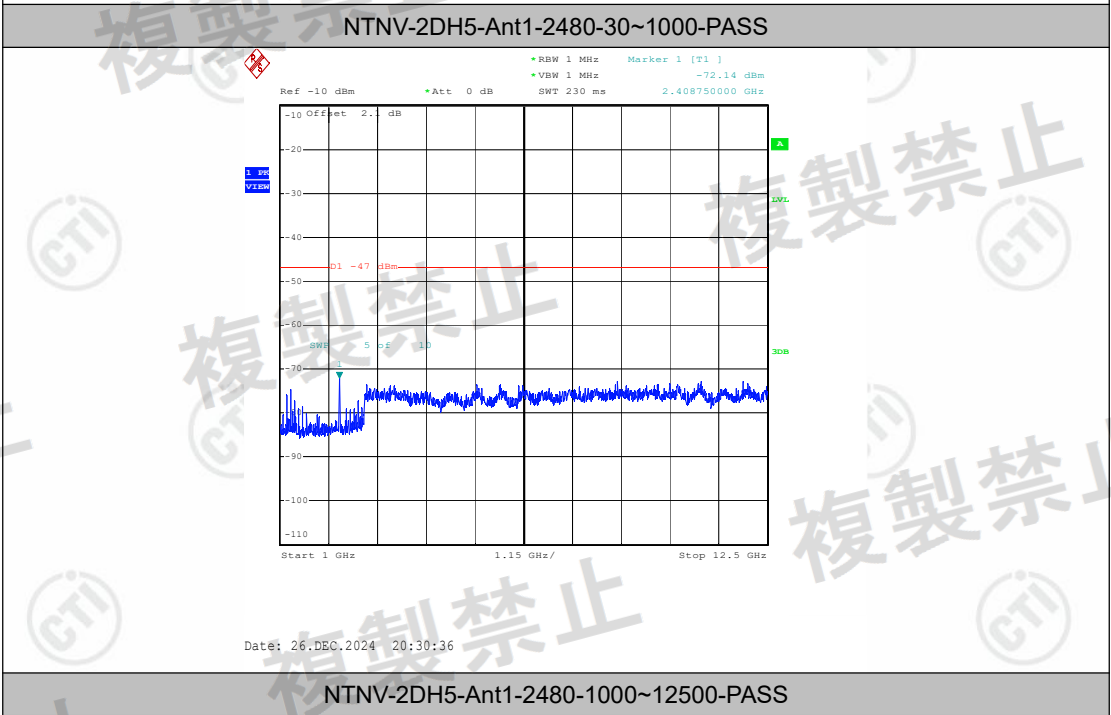
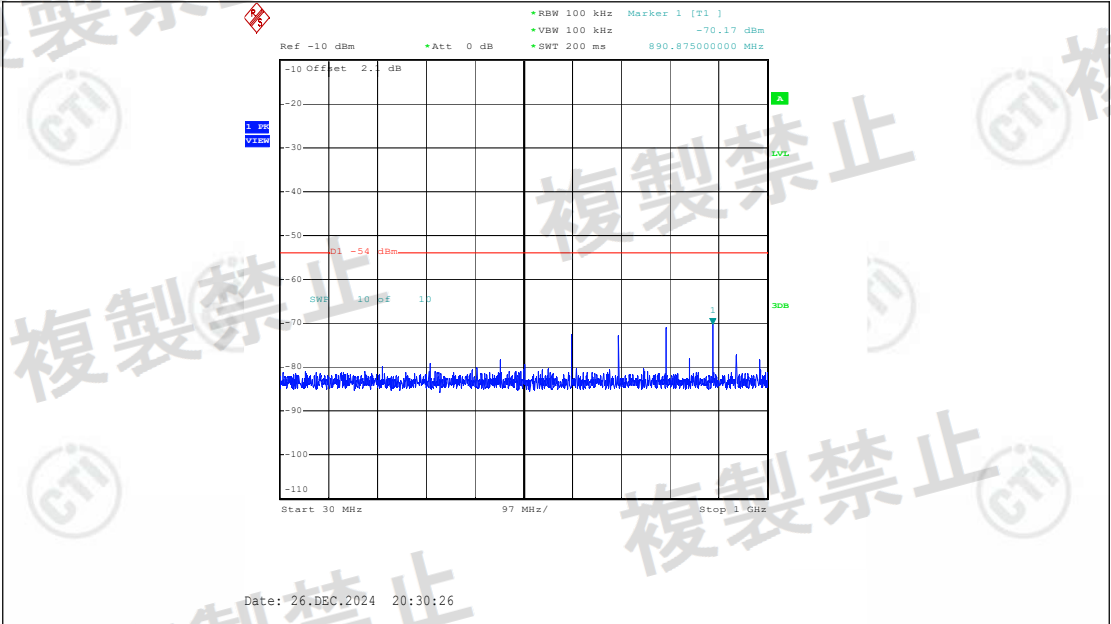
NTNV-DH5-Ant1-2480-30~1000-PASS

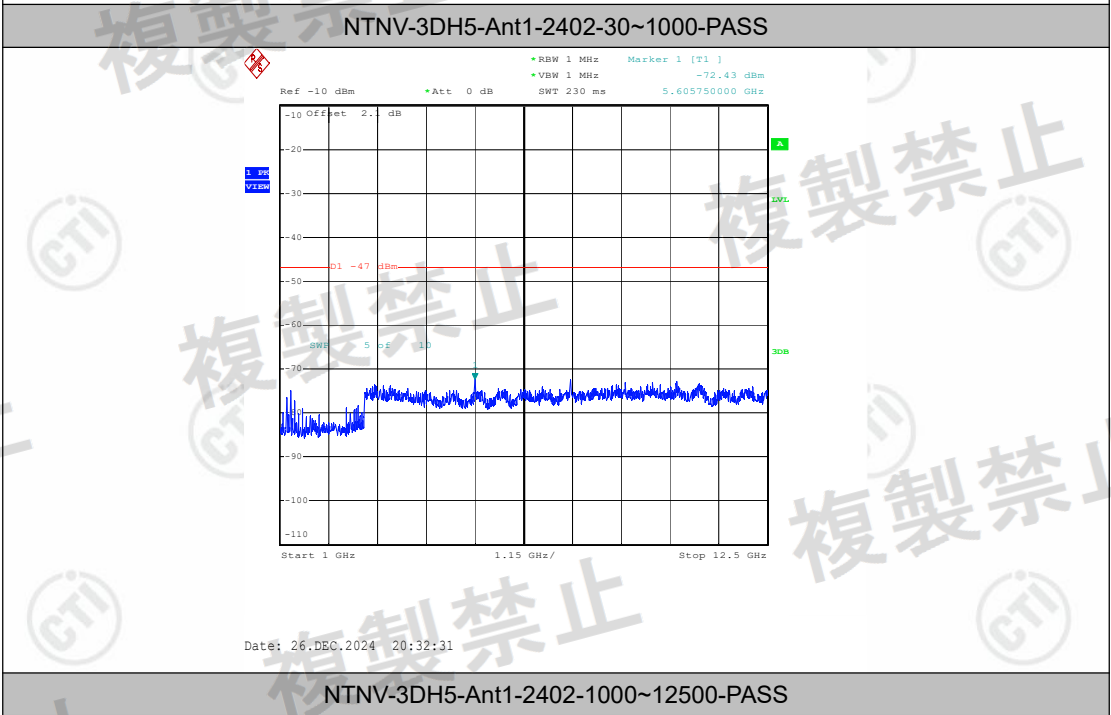
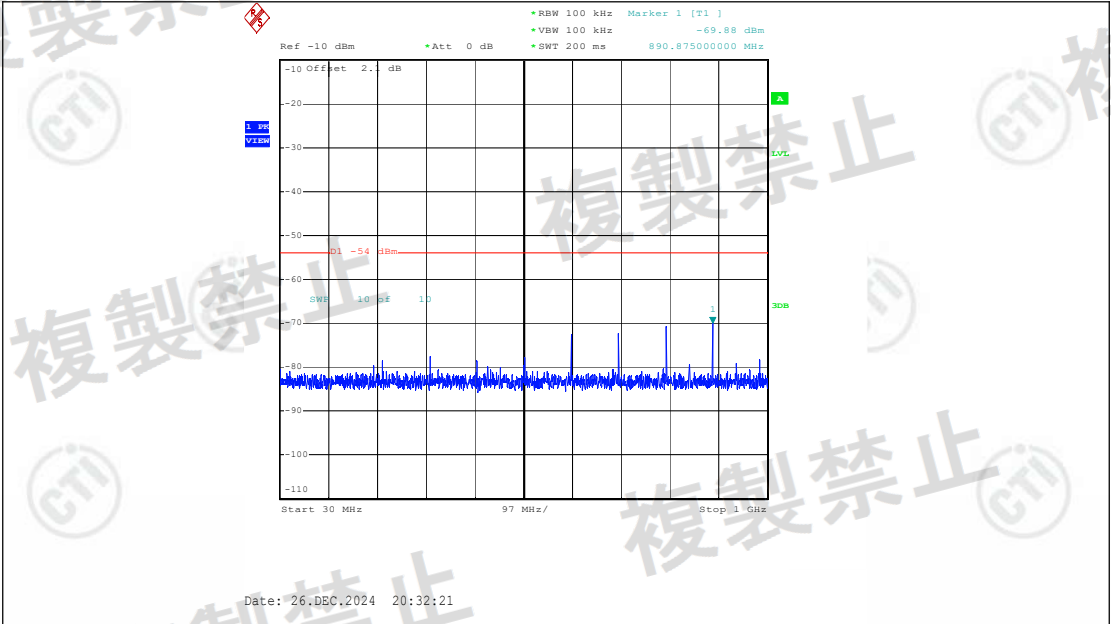


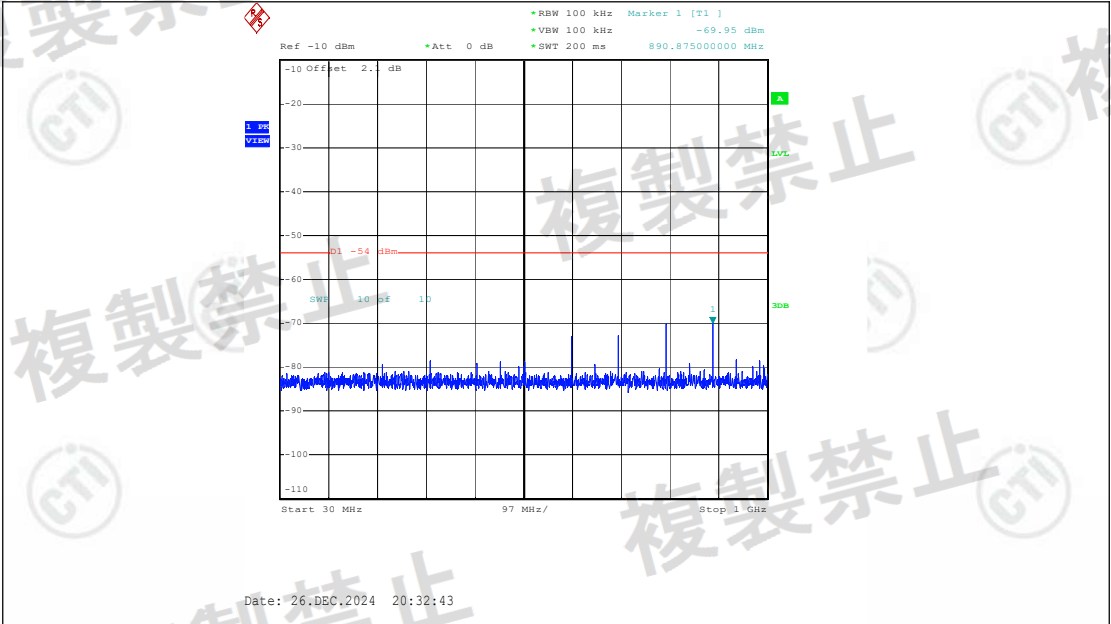
NTNV-DH5-Ant1-2480-1000~12500-PASS



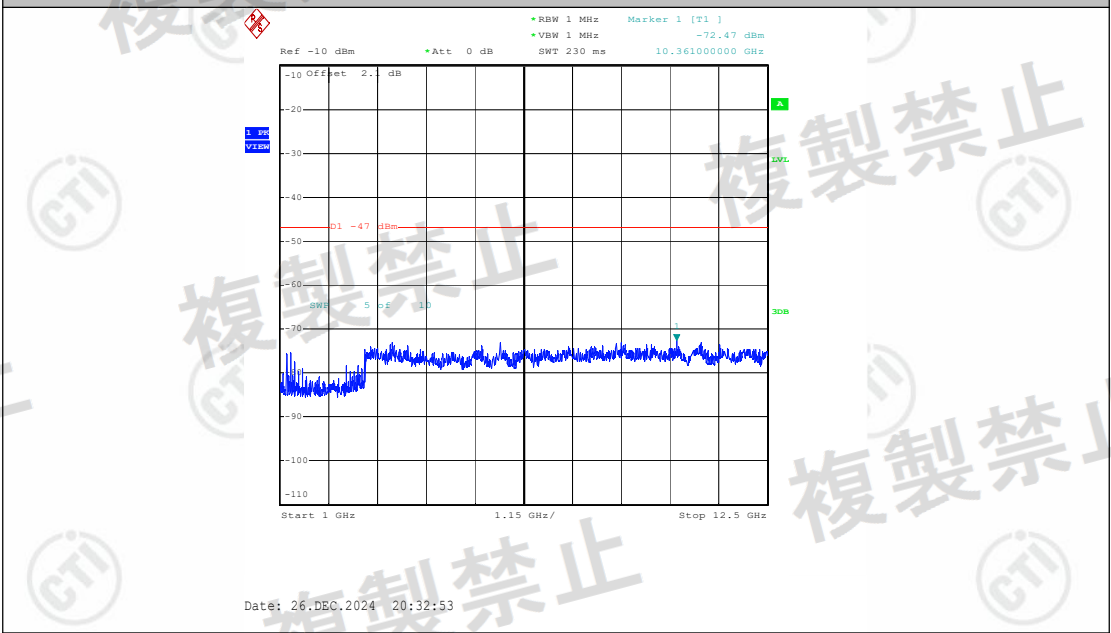




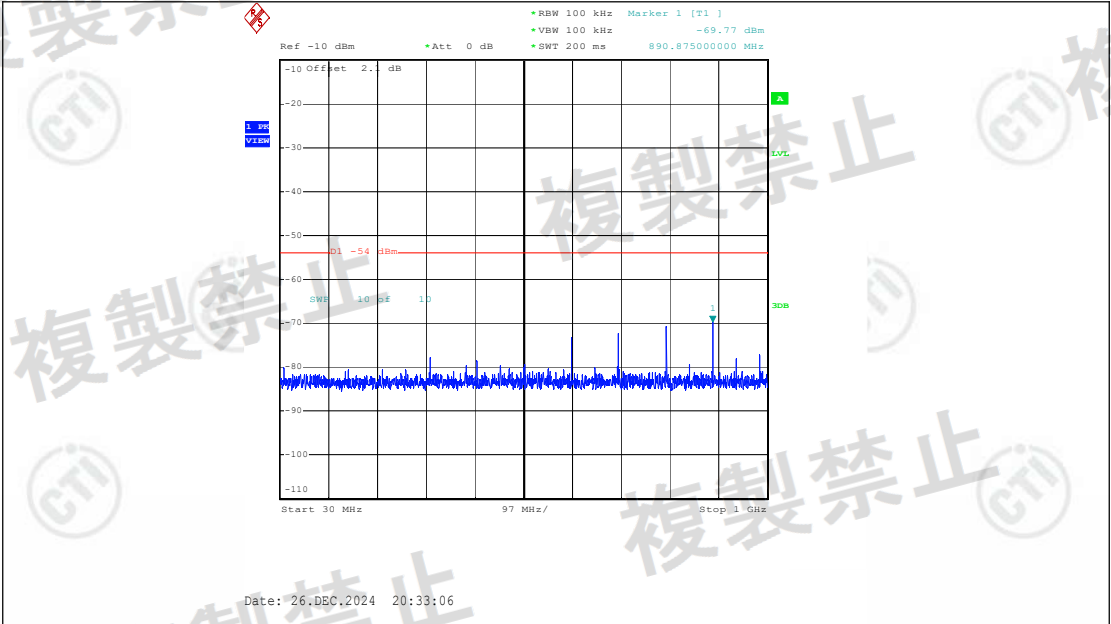




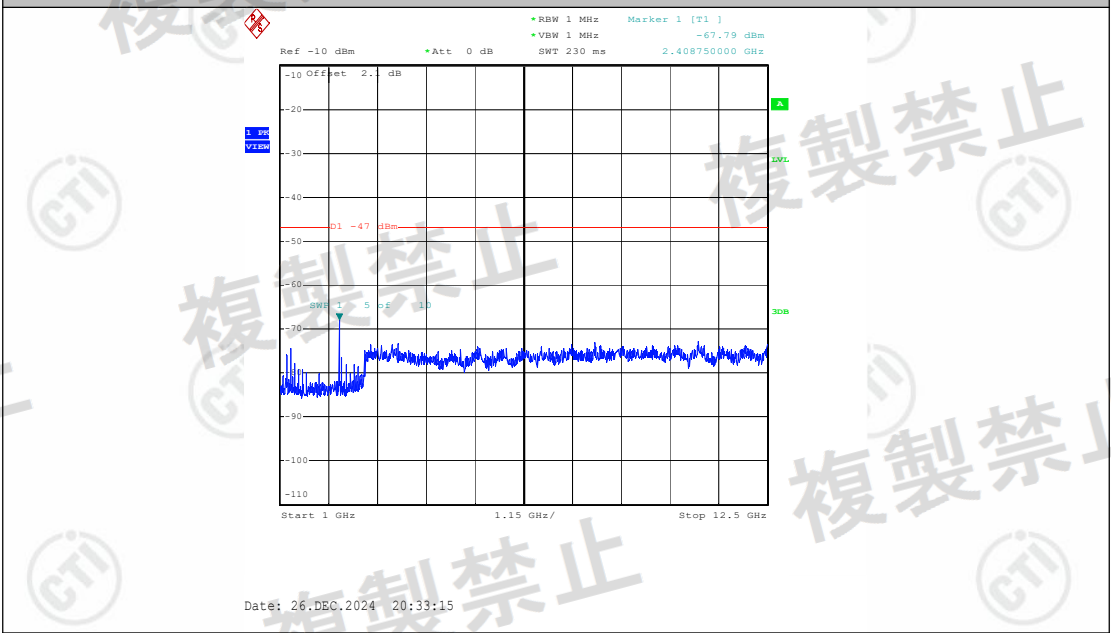
NTVN-3DH5-Ant1-2441-30~1000-PASS



NTVN-3DH5-Ant1-2441-1000~12500-PASS



NTVN-3DH5-Ant1-2480-30~1000-PASS



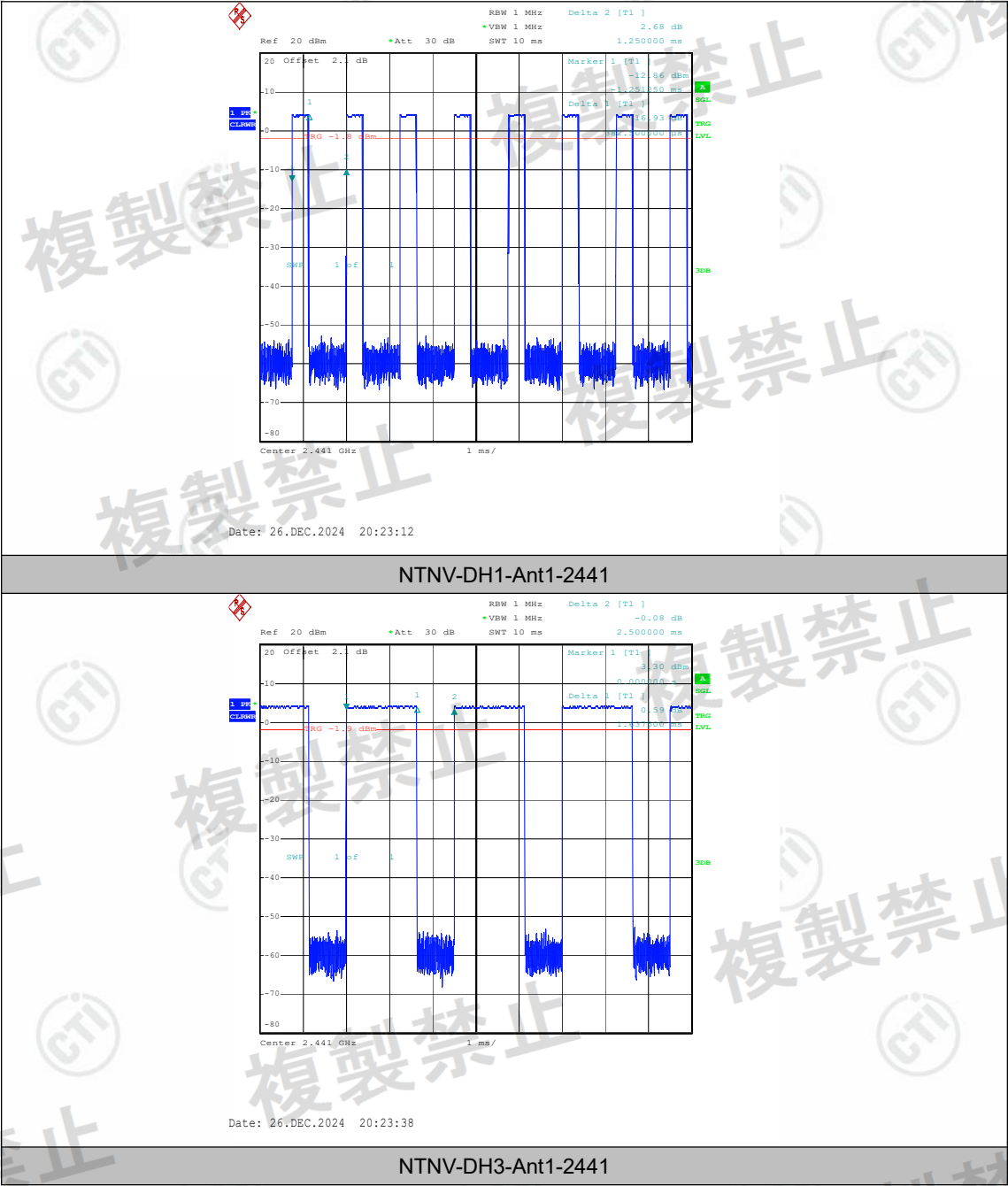
NTVN-3DH5-Ant1-2480-1000~12500-PASS

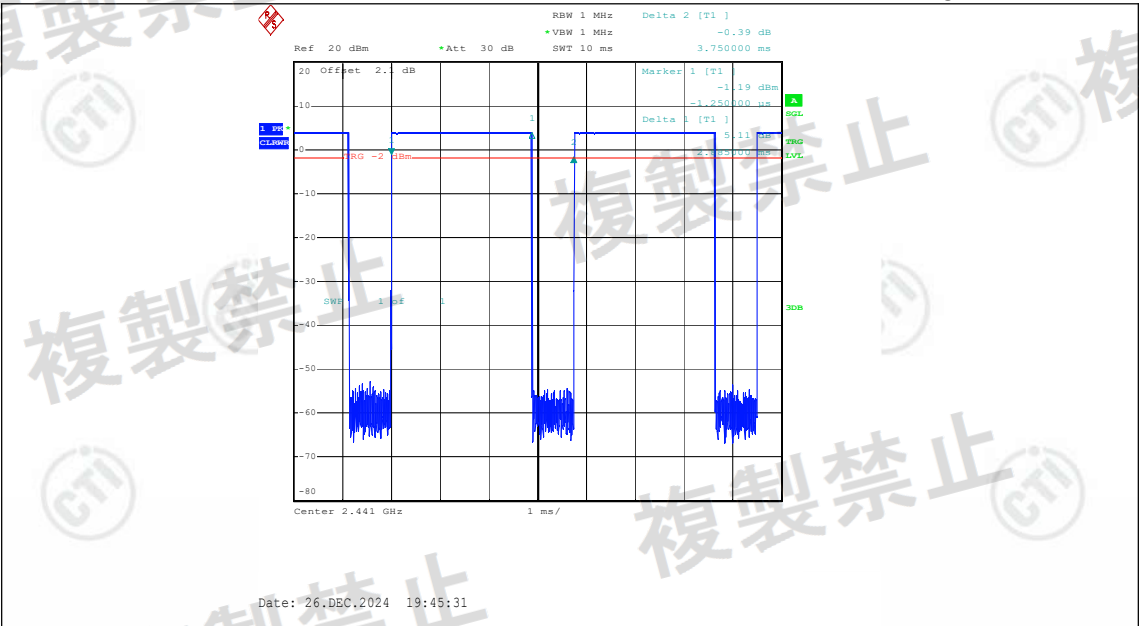
Appendix G: Dwell Time

Test Result

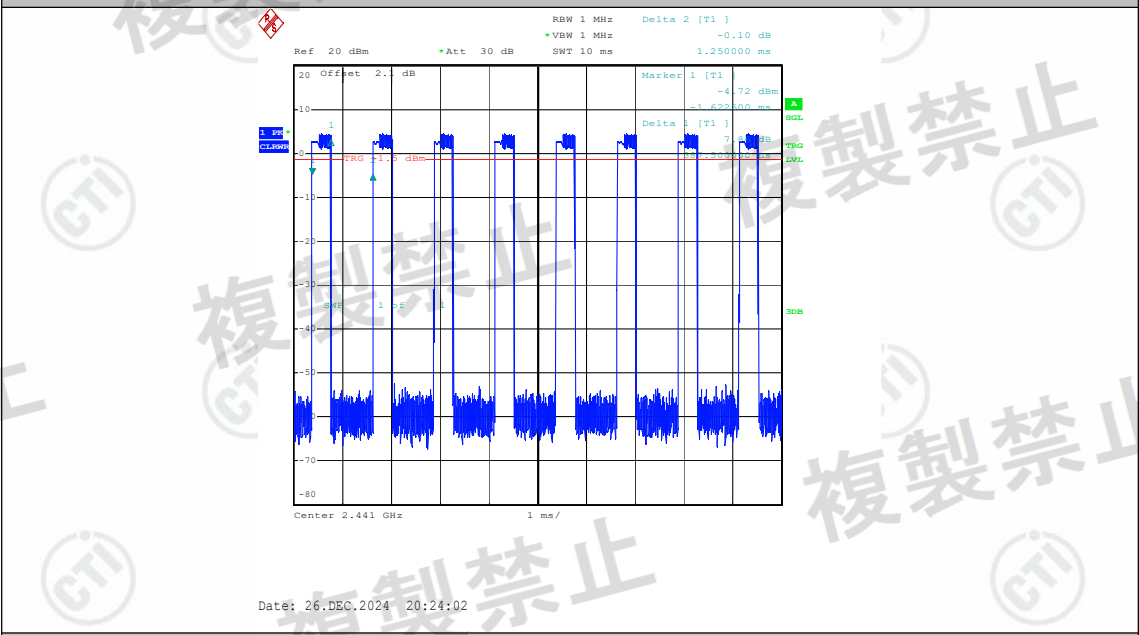
Condition	Mode	Frequency (MHz)	Antenna	T_on(ms)	Period(ms)	Spreading Rate	Hop Number	Dwell Time (ms)	Limit (ms)	Verdict
NTNV	DH1	Ant1	2441	0.38	1.25	70.4	79	108.36	400	Pass
NTNV	DH3	Ant1	2441	1.64	2.5	70.4	79	233.83	400	Pass
NTNV	DH5	Ant1	2441	2.89	3.75	70.2	79	273.93	400	Pass
NTNV	2DH1	Ant1	2441	0.39	1.25	70.2	79	110.90	400	Pass
NTNV	2DH3	Ant1	2441	1.64	2.5	70.4	79	233.83	400	Pass
NTNV	2DH5	Ant1	2441	2.89	3.75	70.4	79	274.71	400	Pass
NTNV	3DH1	Ant1	2441	0.39	1.25	70.4	79	111.21	400	Pass
NTNV	3DH3	Ant1	2441	1.64	2.5	70.2	79	233.17	400	Pass
NTNV	3DH5	Ant1	2441	2.89	3.75	70.4	79	274.71	400	Pass

Test Graphs

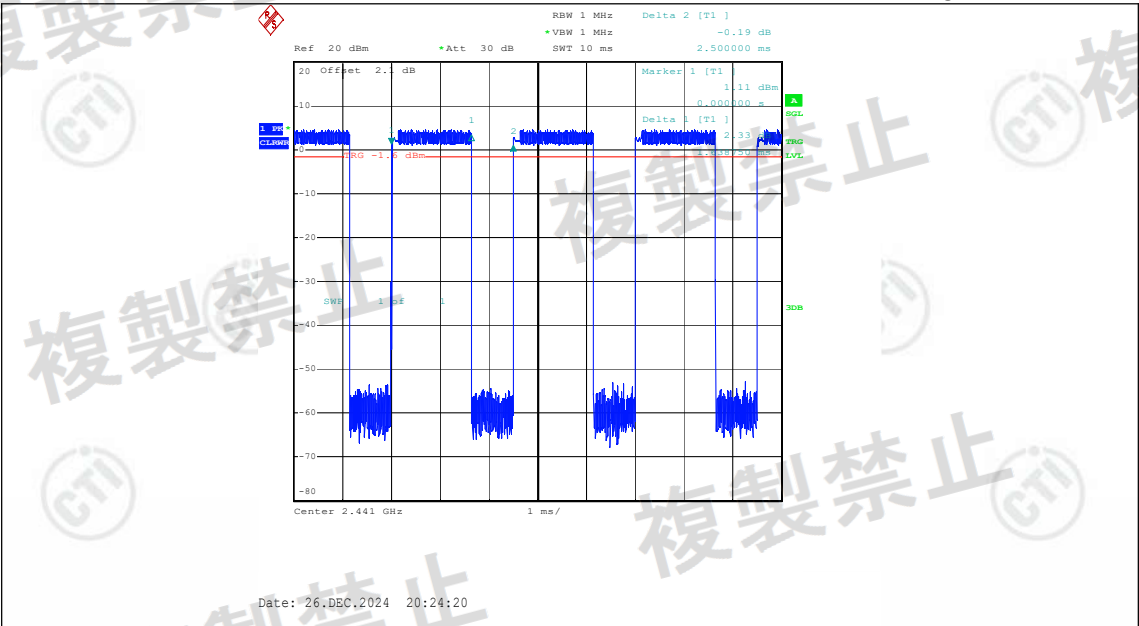




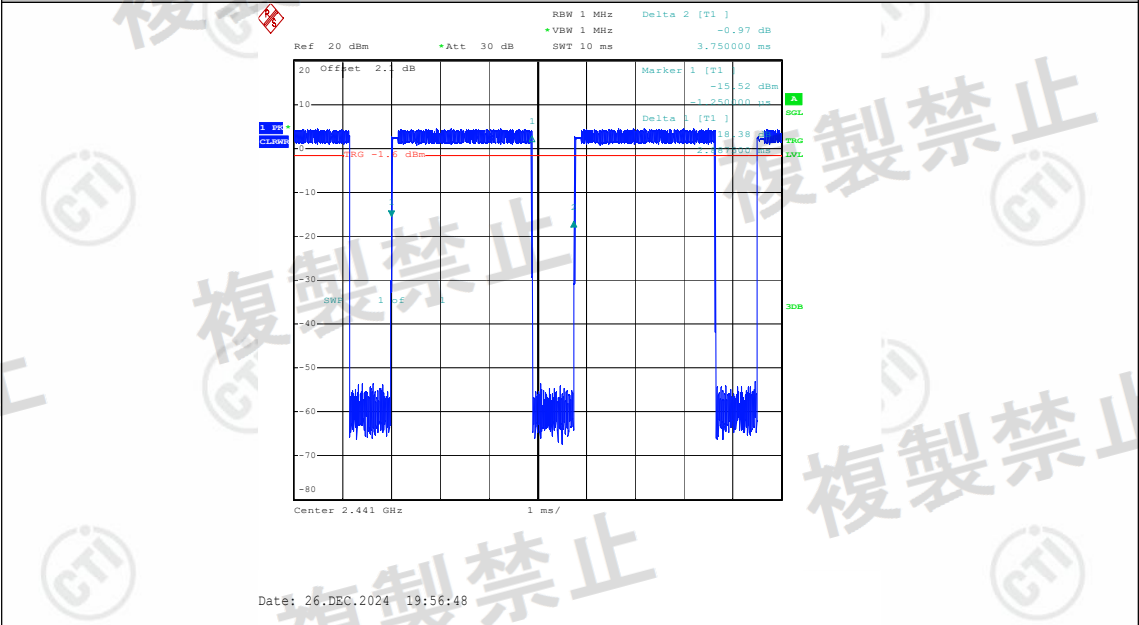
NTVN-DH5-Ant1-2441



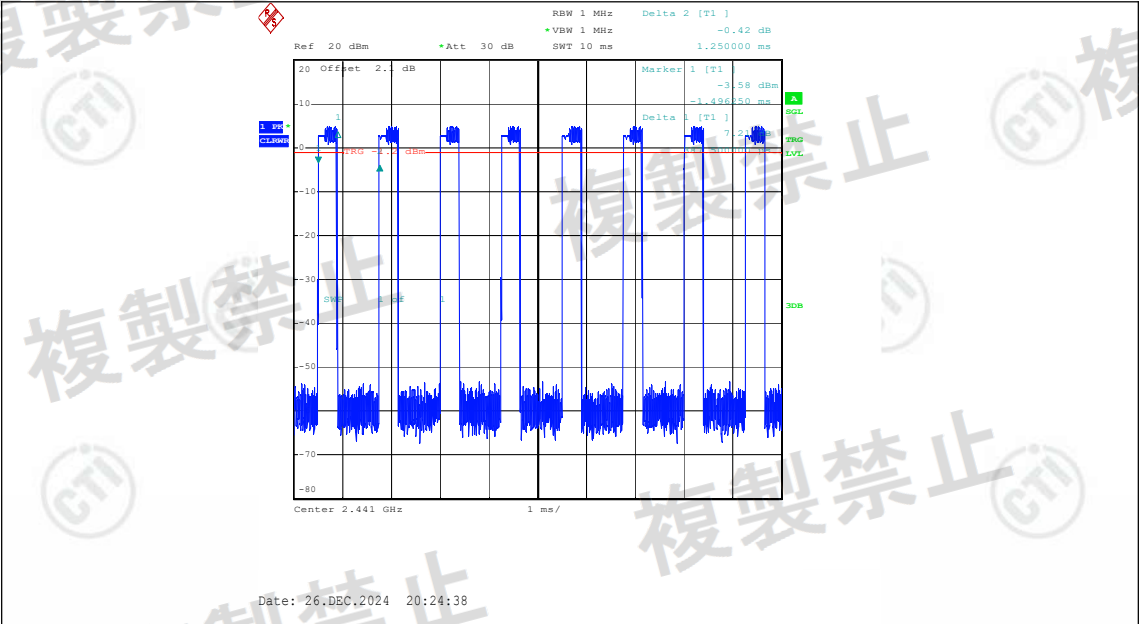
NTVN-2DH1-Ant1-2441



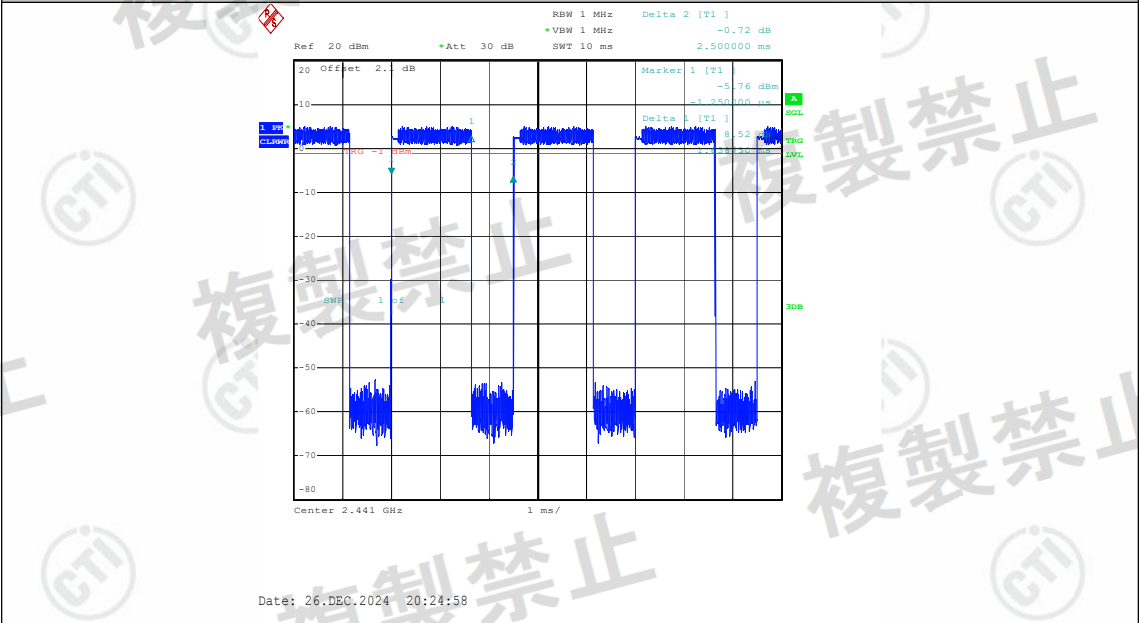
NTVN-2DH3-Ant1-2441



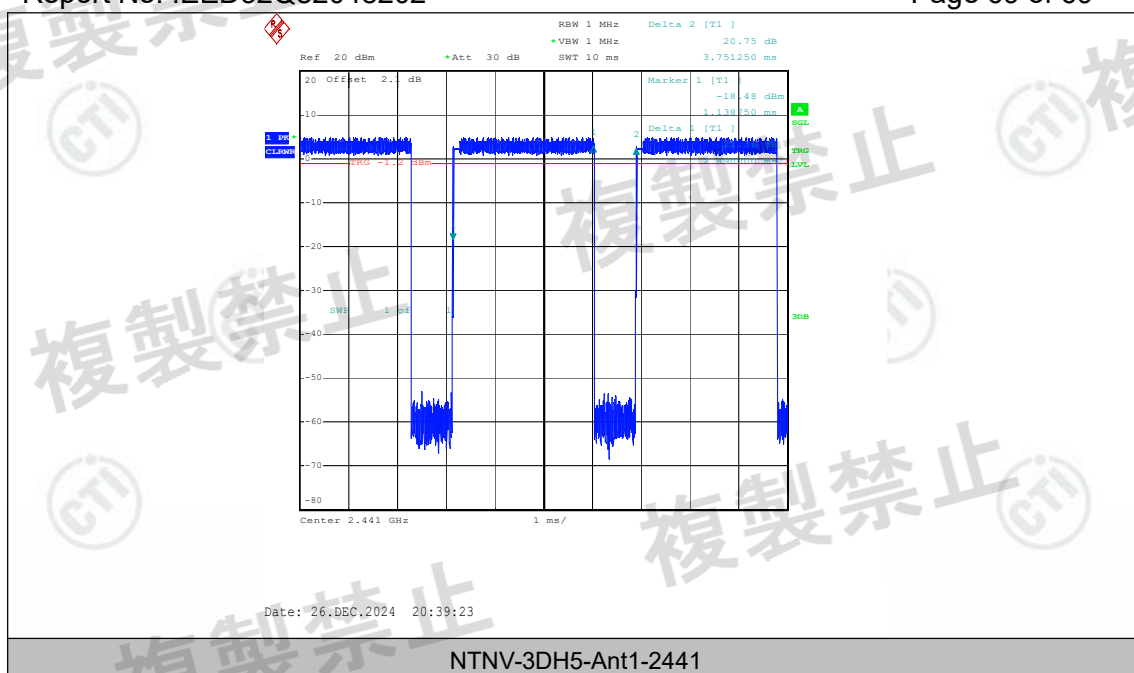
NTVN-2DH5-Ant1-2441



NTVN-3DH1-Ant1-2441



NTVN-3DH3-Ant1-2441



END OF REPORT