

Appendix: Bluetooth Classic

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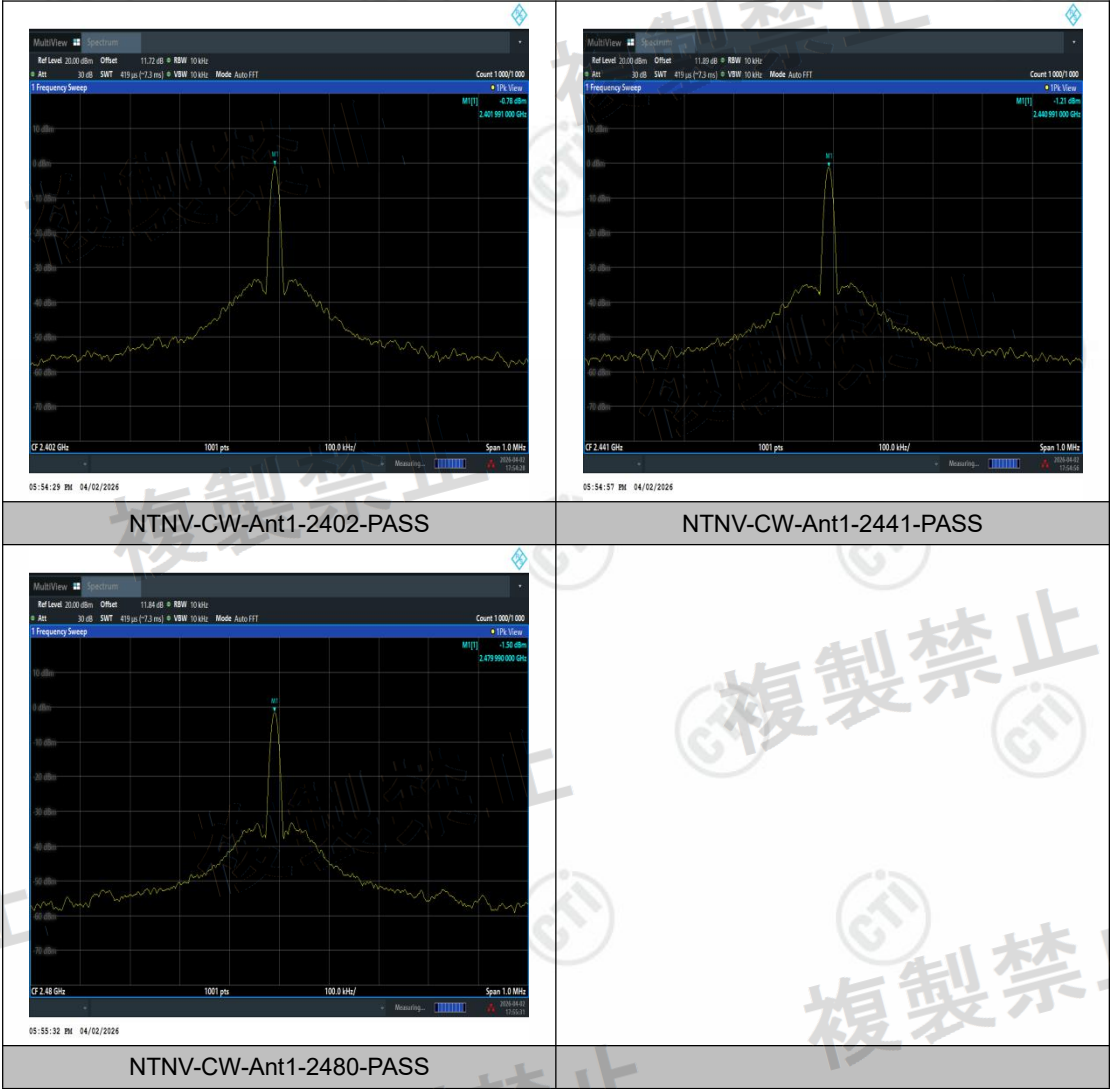
Appendix A: Frequency_Error

Test Result

Test Condition	Test Mode	Antenna	Frequency[MHz]	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	CW	Ant1	2402	2401.991	-3.74688	±50	PASS
NTNV	CW	Ant1	2441	2440.991	-3.68701	±50	PASS
NTNV	CW	Ant1	2480	2479.99	-4.03226	±50	PASS

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

Test Graphs



Appendix B: Antenna Power

Test Result

Test Condition	Test Mode	Antenna	Frequency	Conducted Sensor power[dBm]	SpreadBW [MHz]	Duty Cycle	Result [mW/MHz]	Limit [mW/MHz]	Verdict
NTNV	DH5	Ant1	Hop	10.48	71.316	76.53	0.20	≤3	PASS
NTNV	2DH5	Ant1	Hop	8.14	71.522	76.8	0.12	≤3	PASS
NTNV	3DH5	Ant1	Hop	9.91	72.028	76.8	0.18	≤3	PASS

Note: Antenna Power(mW/MHz)=Power(mW)/Spread Bandwidth(MHz)/Duty Cycle(%)*100;

Test Condition	Test Mode	Antenna	Freq(MHz)	Power [mW/MHz]	RatedPower [mW/MHz]	Result (%)	Limit (%)	Verdict
NTNV	DH5	Ant1	Hop	0.20	0.2	0.00	NA, +20	PASS
NTNV	2DH5	Ant1	Hop	0.12	0.2	-40.00	NA, +20	PASS
NTNV	3DH5	Ant1	Hop	0.18	0.2	-10.00	NA, +20	PASS

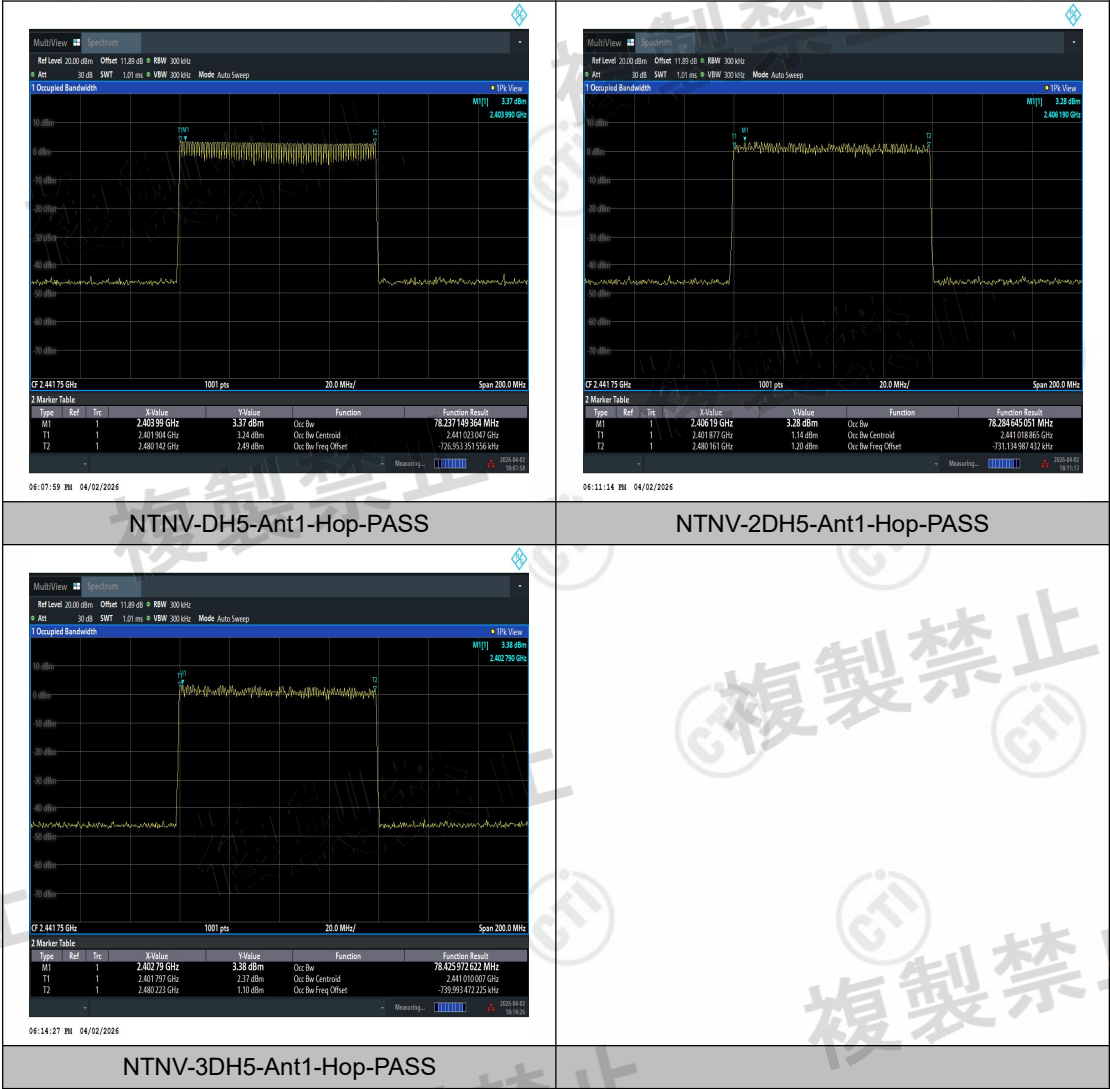
Test Condition	Test Mode	Antenna	Freq(MHz)	Result(dBm/MHz)	Gain(dBi)	EIRP(dBm/MHz)	Limit(dBm/MHz)	Verdict
NTNV	DH5	Ant1	Hop	-6.890	-0.63	-7.520	≤6.91	PASS
NTNV	2DH5	Ant1	Hop	-9.258	-0.63	-9.888	≤6.91	PASS
NTNV	3DH5	Ant1	Hop	-7.519	-0.63	-8.149	≤6.91	PASS

Appendix C: Occupied Bandwidth

Test Result

Test Condition	Test Mode	Antenna	Frequency[MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	78.237	≤83.5	PASS
NTNV	2DH5	Ant1	Hop	78.285	≤83.5	PASS
NTNV	3DH5	Ant1	Hop	78.426	≤83.5	PASS

Test Graphs



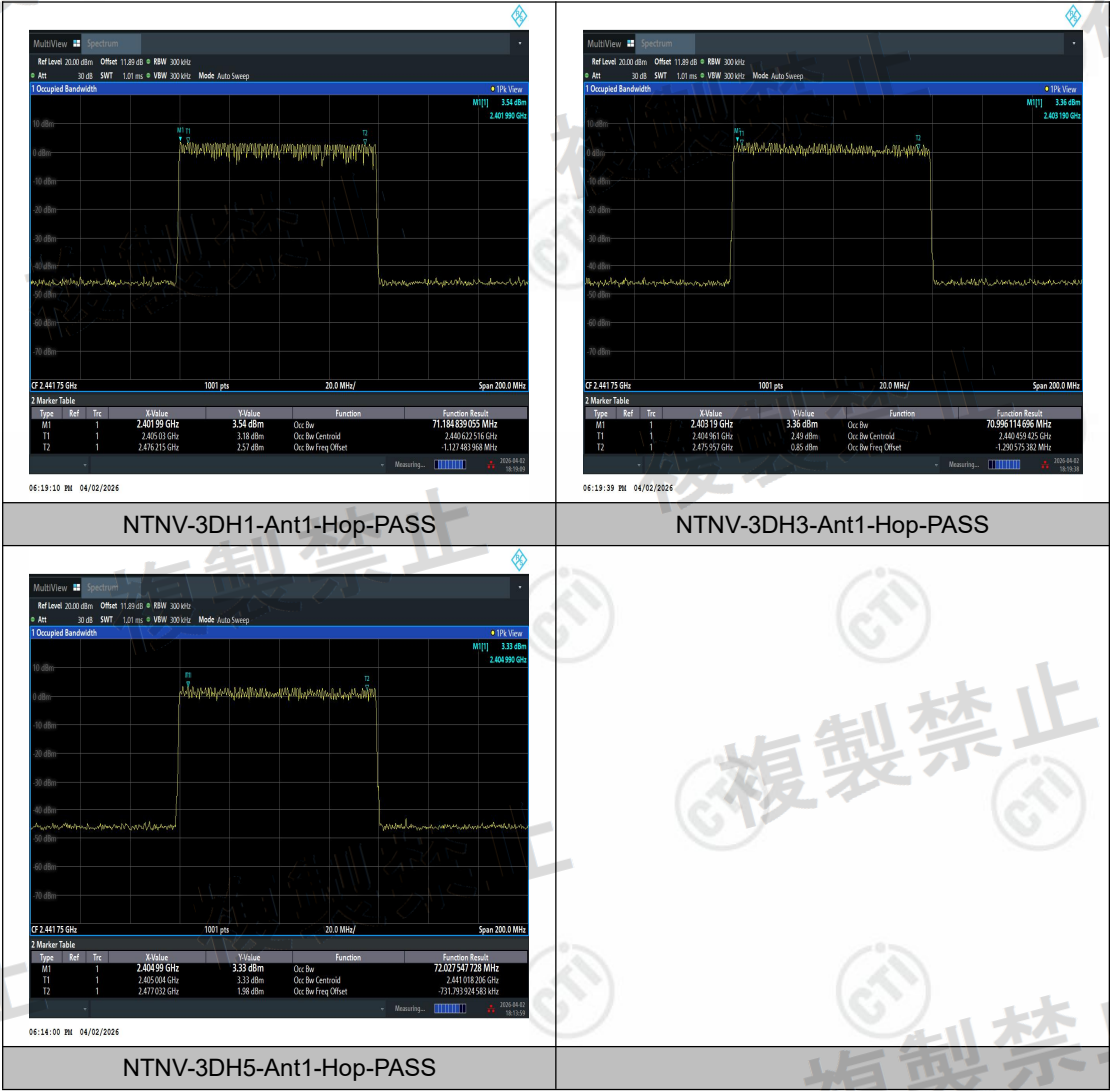
Appendix D: Spread Bandwidth

Test Result

Test Condition	Test Mode	Antenna	Frequency[MHz]	Result [MHz]
NTNV	DH1	Ant1	Hop	71.369
NTNV	DH3	Ant1	Hop	71.246
NTNV	DH5	Ant1	Hop	71.316
NTNV	2DH1	Ant1	Hop	71.146
NTNV	2DH3	Ant1	Hop	71.326
NTNV	2DH5	Ant1	Hop	71.522
NTNV	3DH1	Ant1	Hop	71.185
NTNV	3DH3	Ant1	Hop	70.996
NTNV	3DH5	Ant1	Hop	72.028

Test Graphs





Appendix E: Unwanted Emission Strength

Test Result

Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Freq [MHz]	Result [dBm/MHz]	Result [μ W/MHz]	Limit [μ W/MHz]	Verdict
NTNV	DH5	Ant1	2402	30~1000	35.34	-57.85	0.00164	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	1000~2387	2337.41	-32.68	0.53951	≤ 2.5	PASS
NTNV	DH5	Ant1	2402	2387~2400	2400.00	-30.60	0.87096	≤ 25	PASS
NTNV	DH5	Ant1	2402	2483.5~2496.5	2493.76	-37.74	0.16827	≤ 25	PASS
NTNV	DH5	Ant1	2402	2496.5~13000	7206.27	-35.55	0.27861	≤ 2.5	PASS
NTNV	DH5	Ant1	2441	30~1000	34.85	-57.57	0.00175	≤ 2.5	PASS
NTNV	DH5	Ant1	2441	1000~2387	2113.76	-32.36	0.58076	≤ 2.5	PASS
NTNV	DH5	Ant1	2441	2387~2400	2394.27	-37.40	0.18197	≤ 25	PASS
NTNV	DH5	Ant1	2441	2483.5~2496.5	2487.66	-36.11	0.24491	≤ 25	PASS
NTNV	DH5	Ant1	2441	2496.5~13000	7322.86	-33.89	0.40832	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	30~1000	116.09	-58.09	0.00155	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	1000~2387	2357.53	-32.79	0.52602	≤ 2.5	PASS
NTNV	DH5	Ant1	2480	2387~2400	2387.39	-37.43	0.18072	≤ 25	PASS
NTNV	DH5	Ant1	2480	2483.5~2496.5	2486.47	-37.06	0.19679	≤ 25	PASS
NTNV	DH5	Ant1	2480	2496.5~13000	7439.97	-35.22	0.30061	≤ 2.5	PASS
NTNV	DH5	Ant1	Hop	30~1000	152.71	-69.41	0.00011	≤ 2.5	PASS
NTNV	DH5	Ant1	Hop	1000~2387	2300.31	-36.25	0.23714	≤ 2.5	PASS
NTNV	DH5	Ant1	Hop	2387~2400	2399.98	-42.74	0.05321	≤ 25	PASS
NTNV	DH5	Ant1	Hop	2483.5~2496.5	2487.64	-44.29	0.03724	≤ 25	PASS
NTNV	DH5	Ant1	Hop	2496.5~13000	7383.25	-45.64	0.02729	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	30~1000	34.37	-58.49	0.00142	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	1000~2387	2251.07	-32.59	0.55081	≤ 2.5	PASS
NTNV	2DH5	Ant1	2402	2387~2400	2399.99	-23.79	4.17830	≤ 25	PASS
NTNV	2DH5	Ant1	2402	2483.5~2496.5	2492.59	-37.62	0.17298	≤ 25	PASS
NTNV	2DH5	Ant1	2402	2496.5~13000	7206.27	-36.24	0.23768	≤ 2.5	PASS
NTNV	2DH5	Ant1	2441	30~1000	32.18	-57.29	0.00187	≤ 2.5	PASS
NTNV	2DH5	Ant1	2441	1000~2387	2208.08	-32.49	0.56364	≤ 2.5	PASS
NTNV	2DH5	Ant1	2441	2387~2400	2398.19	-37.80	0.16596	≤ 25	PASS
NTNV	2DH5	Ant1	2441	2483.5~2496.5	2494.36	-36.91	0.20370	≤ 25	PASS
NTNV	2DH5	Ant1	2441	2496.5~13000	7322.86	-33.07	0.49317	≤ 2.5	PASS
NTNV	2DH5	Ant1	2480	30~1000	162.41	-58.26	0.00149	≤ 2.5	PASS
NTNV	2DH5	Ant1	2480	1000~2387	2238.59	-32.60	0.54954	≤ 2.5	PASS
NTNV	2DH5	Ant1	2480	2387~2400	2387.77	-37.73	0.16866	≤ 25	PASS

NTNV	2DH5	Ant1	2480	2483.5~2496.5	2493.53	-37.30	0.18621	≤25	PASS
NTNV	2DH5	Ant1	2480	2496.5~13000	7439.97	-34.68	0.34041	≤2.5	PASS
NTNV	2DH5	Ant1	Hop	30~1000	37.76	-69.09	0.00012	≤2.5	PASS
NTNV	2DH5	Ant1	Hop	1000~2387	2300.31	-35.51	0.28119	≤2.5	PASS
NTNV	2DH5	Ant1	Hop	2387~2400	2400.00	-36.05	0.24831	≤25	PASS
NTNV	2DH5	Ant1	Hop	2483.5~2496.5	2490.18	-44.58	0.03483	≤25	PASS
NTNV	2DH5	Ant1	Hop	2496.5~13000	7341.24	-45.73	0.02673	≤2.5	PASS
NTNV	3DH5	Ant1	2402	30~1000	34.37	-57.85	0.00164	≤2.5	PASS
NTNV	3DH5	Ant1	2402	1000~2387	2253.50	-32.69	0.53827	≤2.5	PASS
NTNV	3DH5	Ant1	2402	2387~2400	2400.00	-24.71	3.38065	≤25	PASS
NTNV	3DH5	Ant1	2402	2483.5~2496.5	2494.21	-38.08	0.15560	≤25	PASS
NTNV	3DH5	Ant1	2402	2496.5~13000	7206.27	-35.05	0.31261	≤2.5	PASS
NTNV	3DH5	Ant1	2441	30~1000	34.37	-58.14	0.00153	≤2.5	PASS
NTNV	3DH5	Ant1	2441	1000~2387	2350.24	-32.28	0.59156	≤2.5	PASS
NTNV	3DH5	Ant1	2441	2387~2400	2387.73	-37.68	0.17061	≤25	PASS
NTNV	3DH5	Ant1	2441	2483.5~2496.5	2487.70	-37.34	0.18450	≤25	PASS
NTNV	3DH5	Ant1	2441	2496.5~13000	7323.38	-33.67	0.42954	≤2.5	PASS
NTNV	3DH5	Ant1	2480	30~1000	32.43	-58.17	0.00152	≤2.5	PASS
NTNV	3DH5	Ant1	2480	1000~2387	2232.35	-31.65	0.68391	≤2.5	PASS
NTNV	3DH5	Ant1	2480	2387~2400	2394.05	-37.30	0.18621	≤25	PASS
NTNV	3DH5	Ant1	2480	2483.5~2496.5	2492.16	-37.35	0.18408	≤25	PASS
NTNV	3DH5	Ant1	2480	2496.5~13000	7439.97	-34.42	0.36141	≤2.5	PASS
NTNV	3DH5	Ant1	Hop	30~1000	46.73	-68.94	0.00013	≤2.5	PASS
NTNV	3DH5	Ant1	Hop	1000~2387	2299.97	-35.89	0.25763	≤2.5	PASS
NTNV	3DH5	Ant1	Hop	2387~2400	2400.00	-36.09	0.24604	≤25	PASS
NTNV	3DH5	Ant1	Hop	2483.5~2496.5	2483.54	-43.26	0.04721	≤25	PASS
NTNV	3DH5	Ant1	Hop	2496.5~13000	7368.02	-45.70	0.02692	≤2.5	PASS

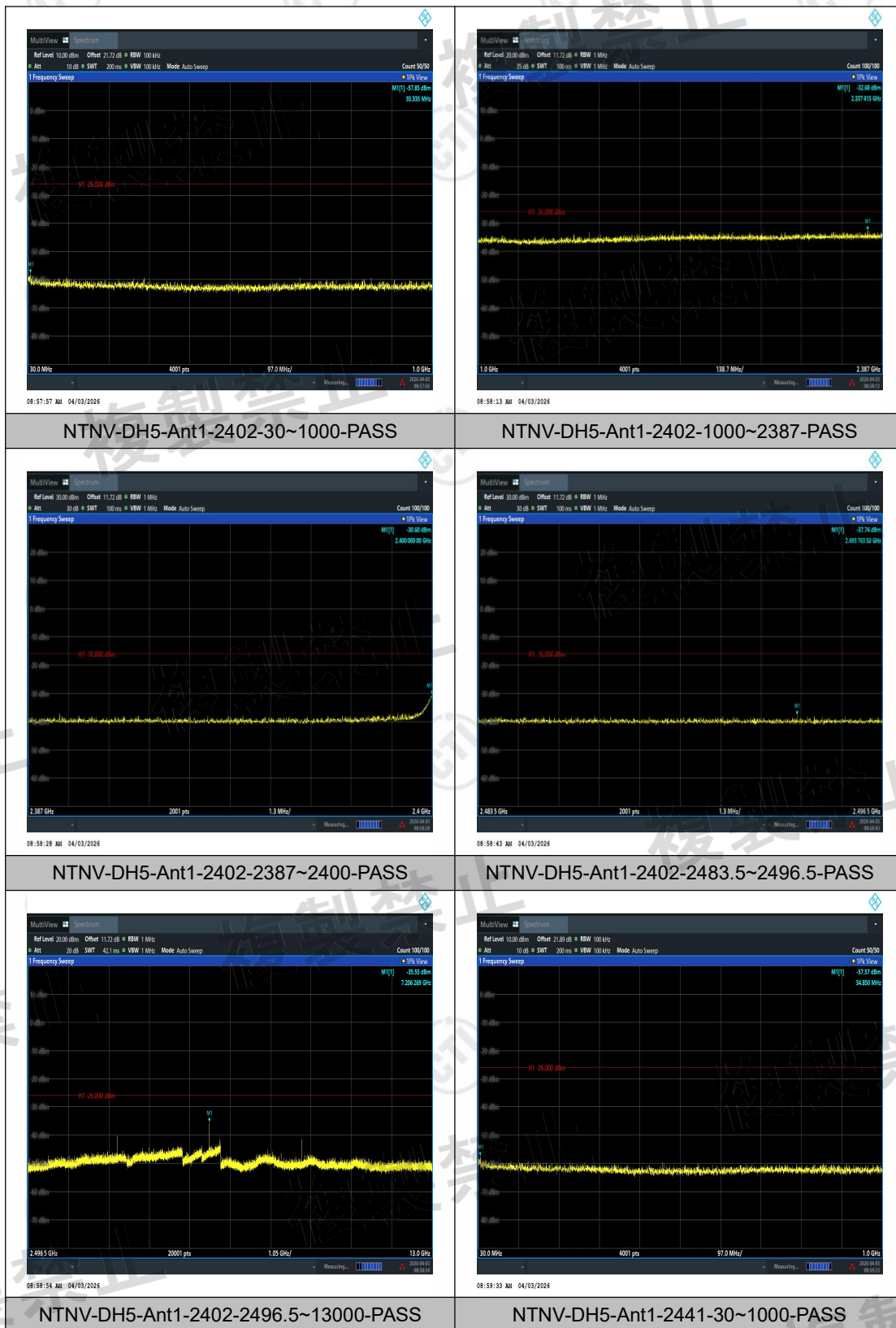
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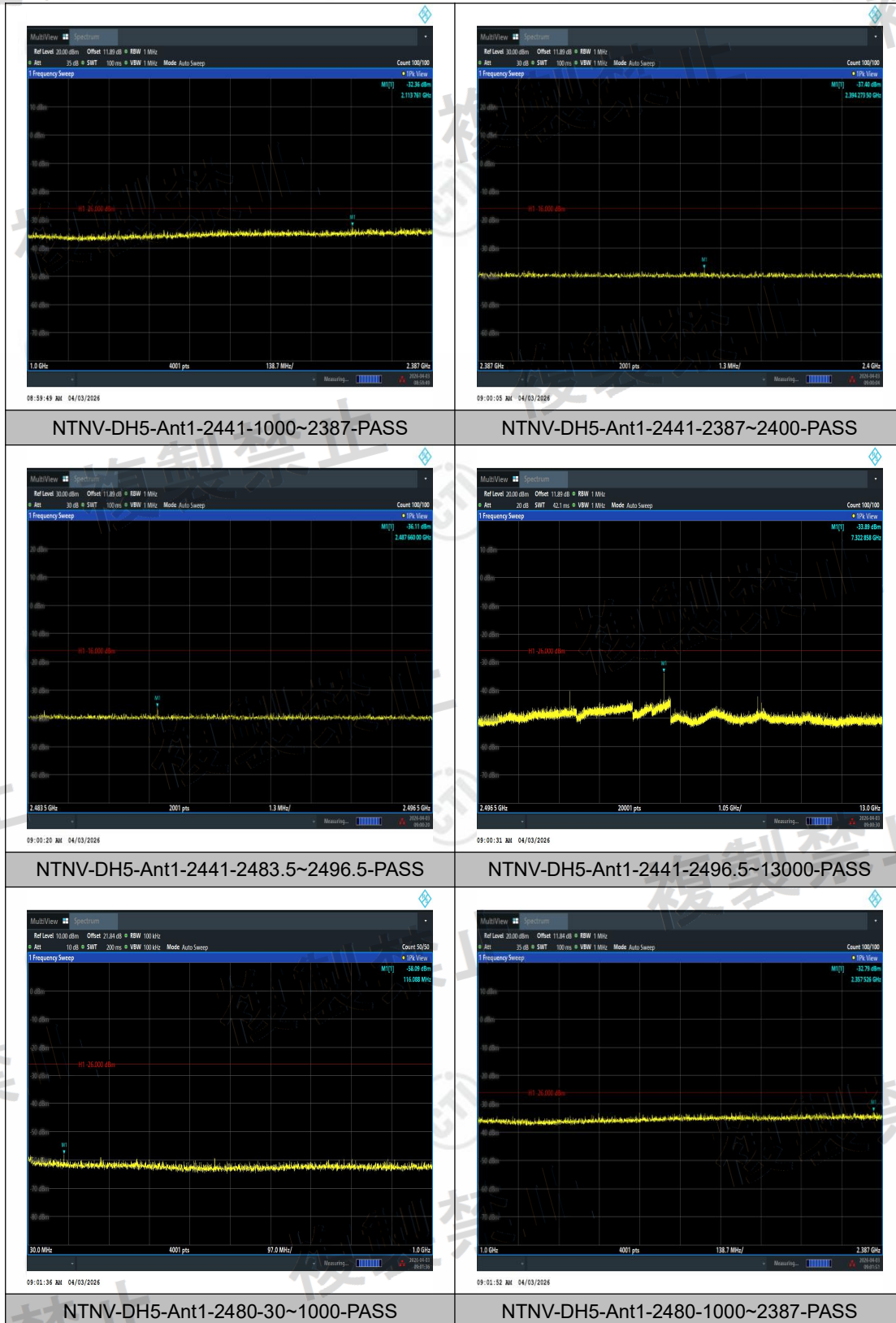
$\text{dBm}/1\text{MHz} = \text{dBm}/100\text{kHz} + 10 \times \log_{10} (1\text{MHz}/100\text{KHz})$

$\text{dBm}/1\text{MHz} = \text{dBm}/100\text{kHz} + 10$

During the 30M-1000M testing process, a 10 dB factor was added for the test.

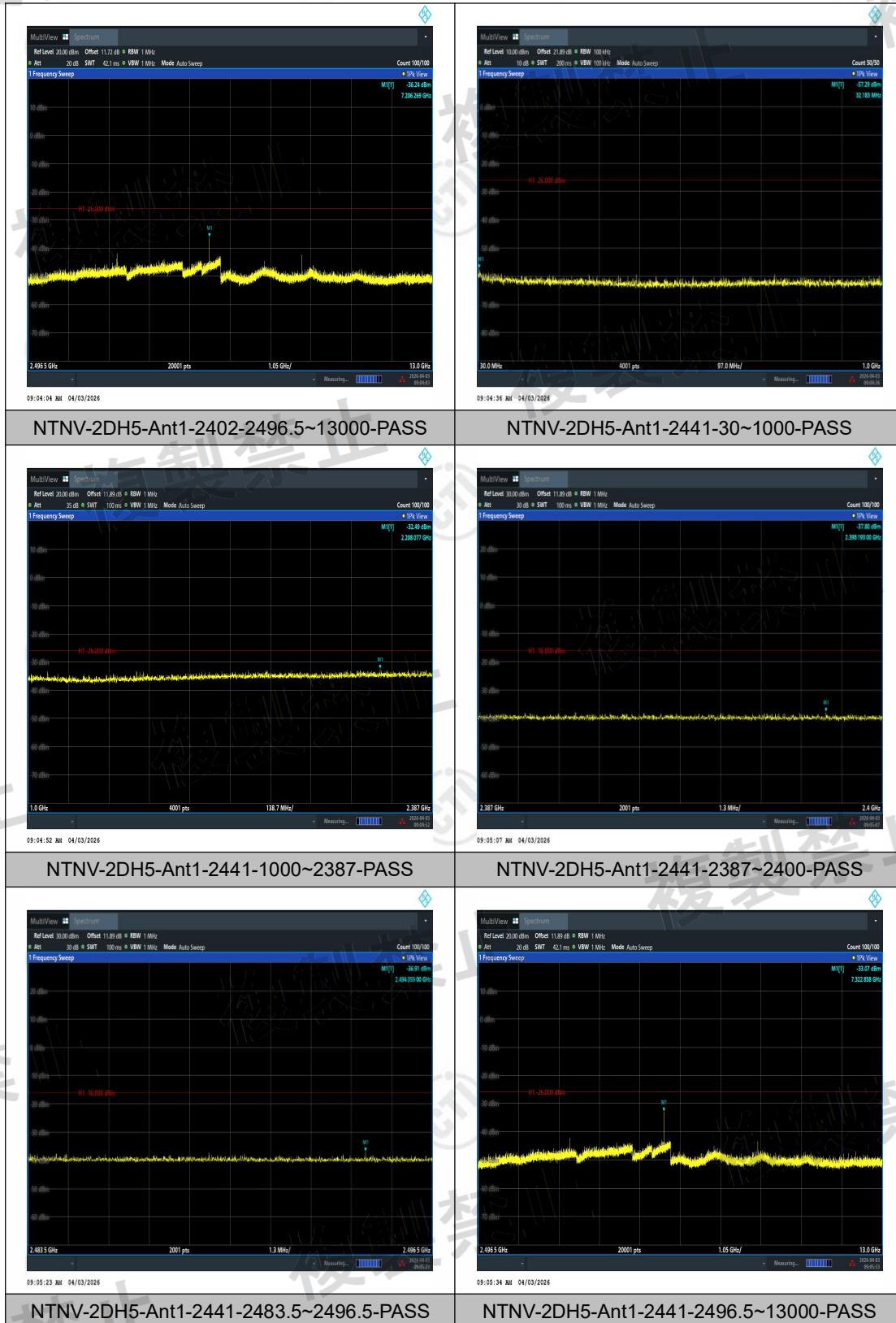
Test Graphs



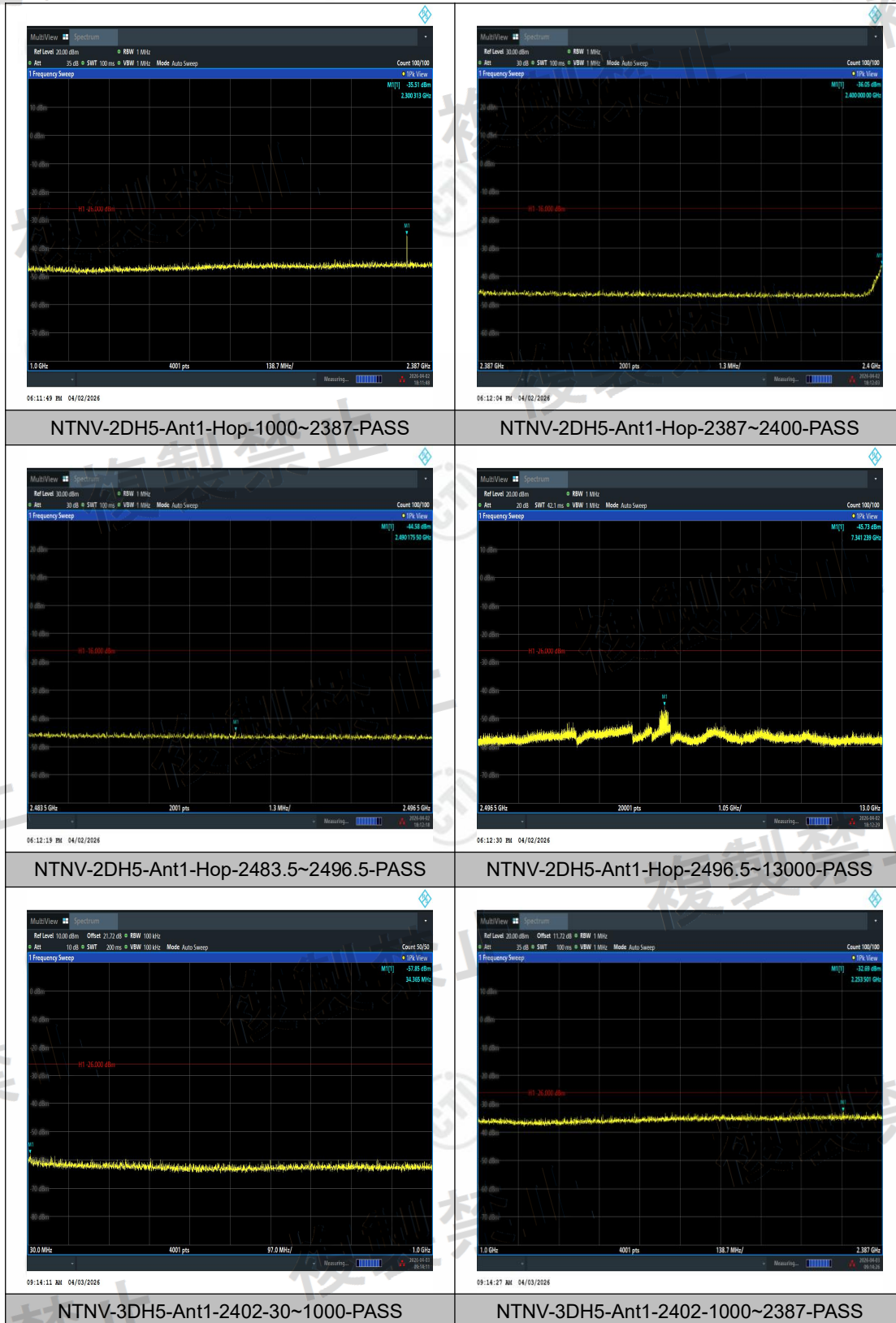


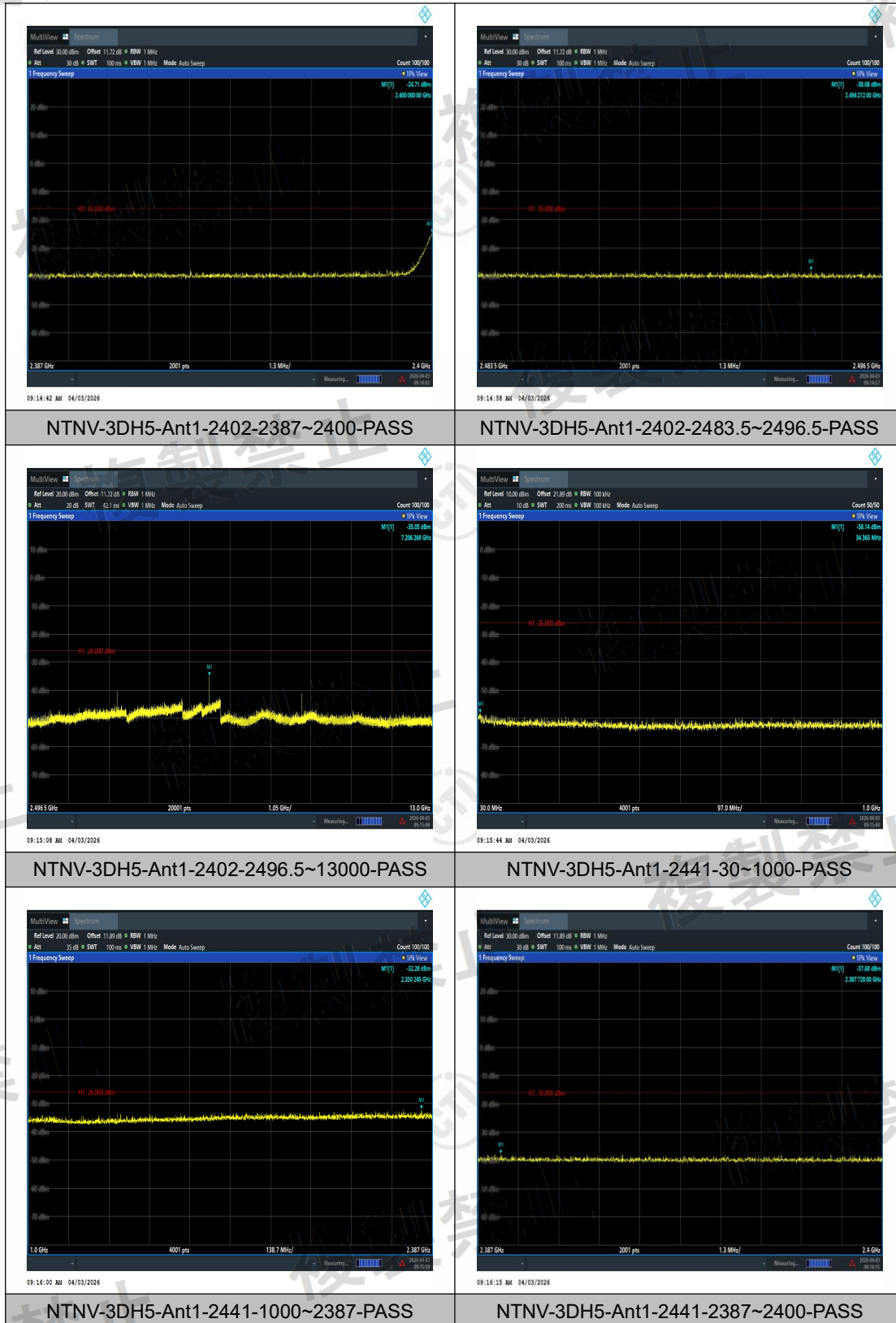


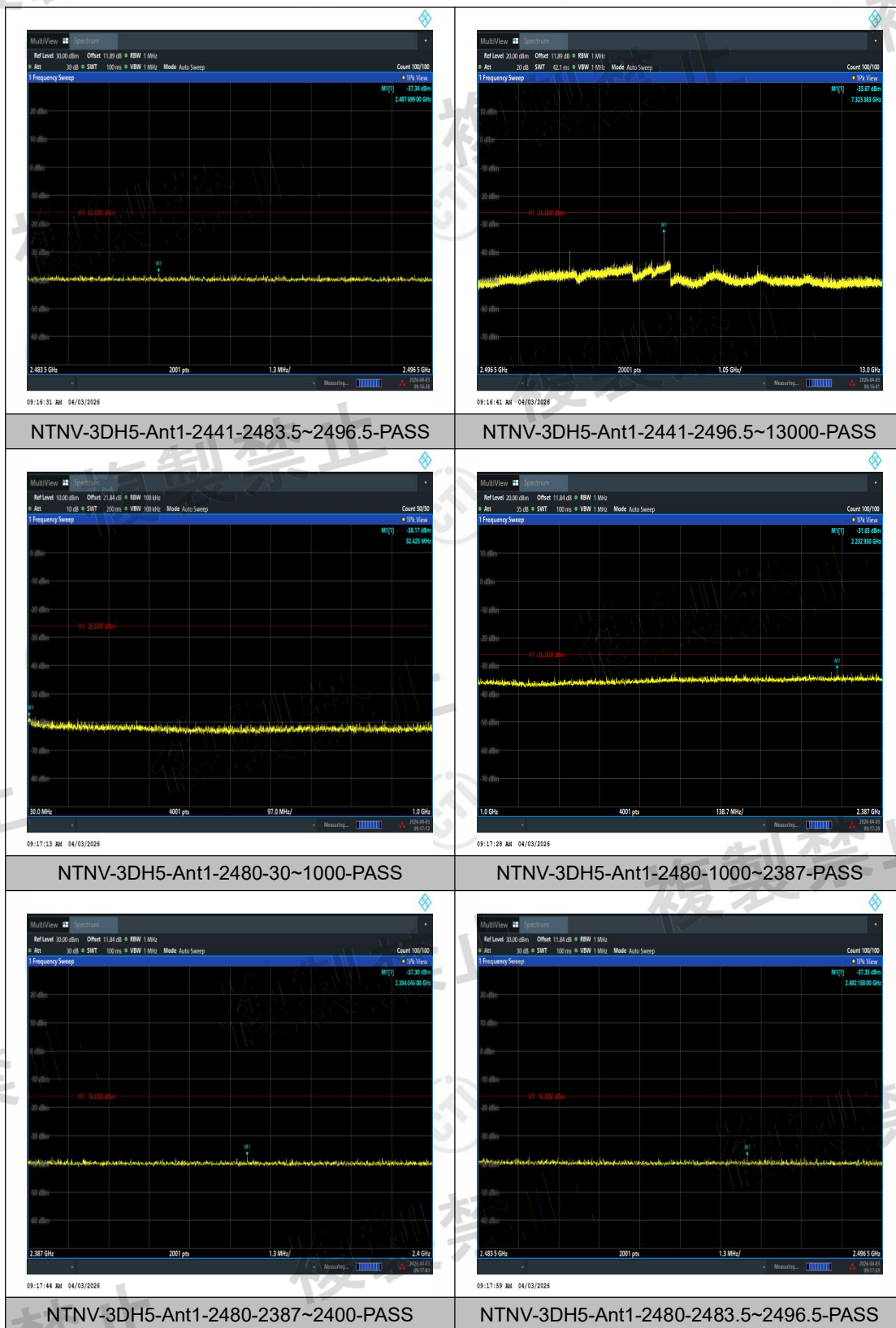


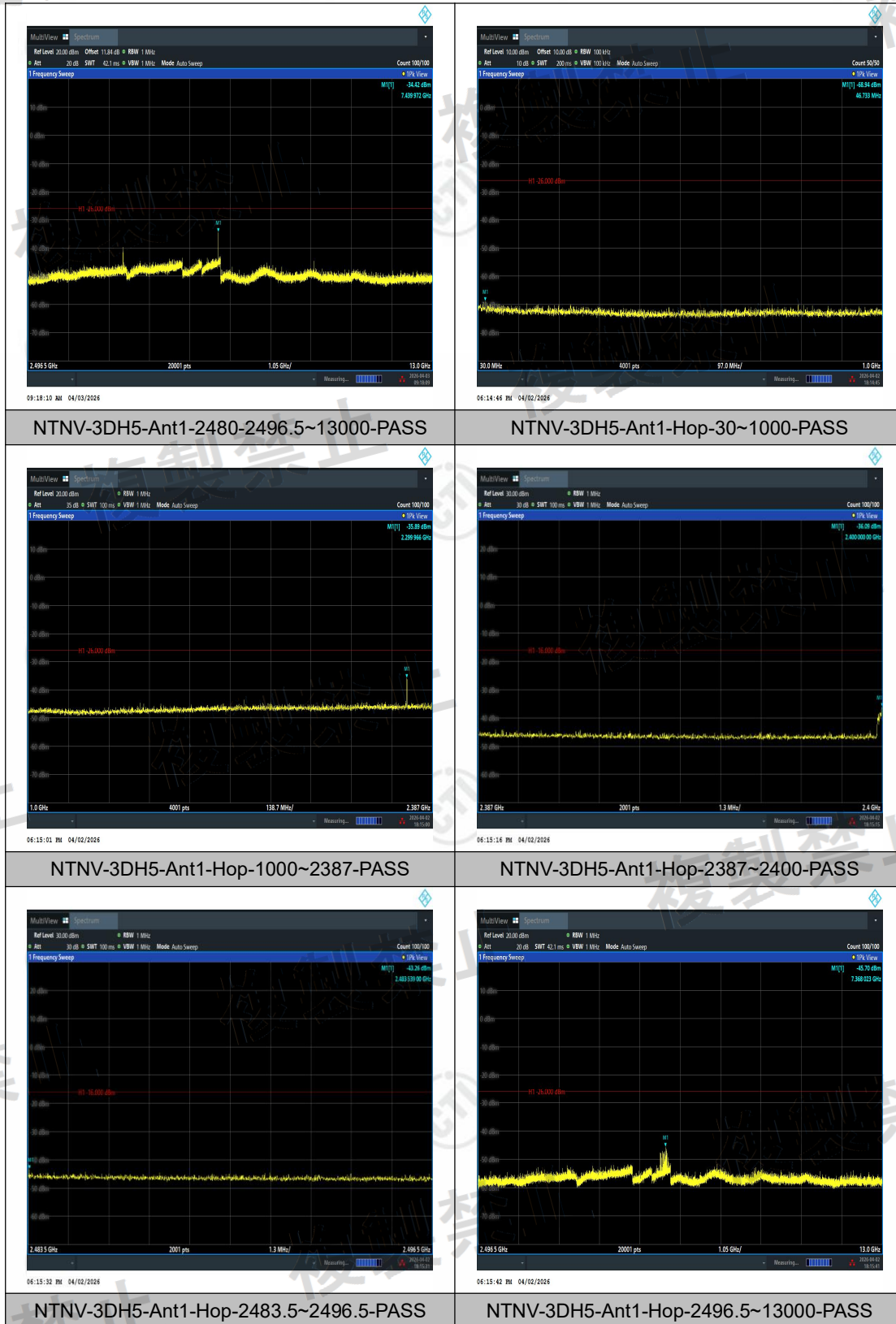










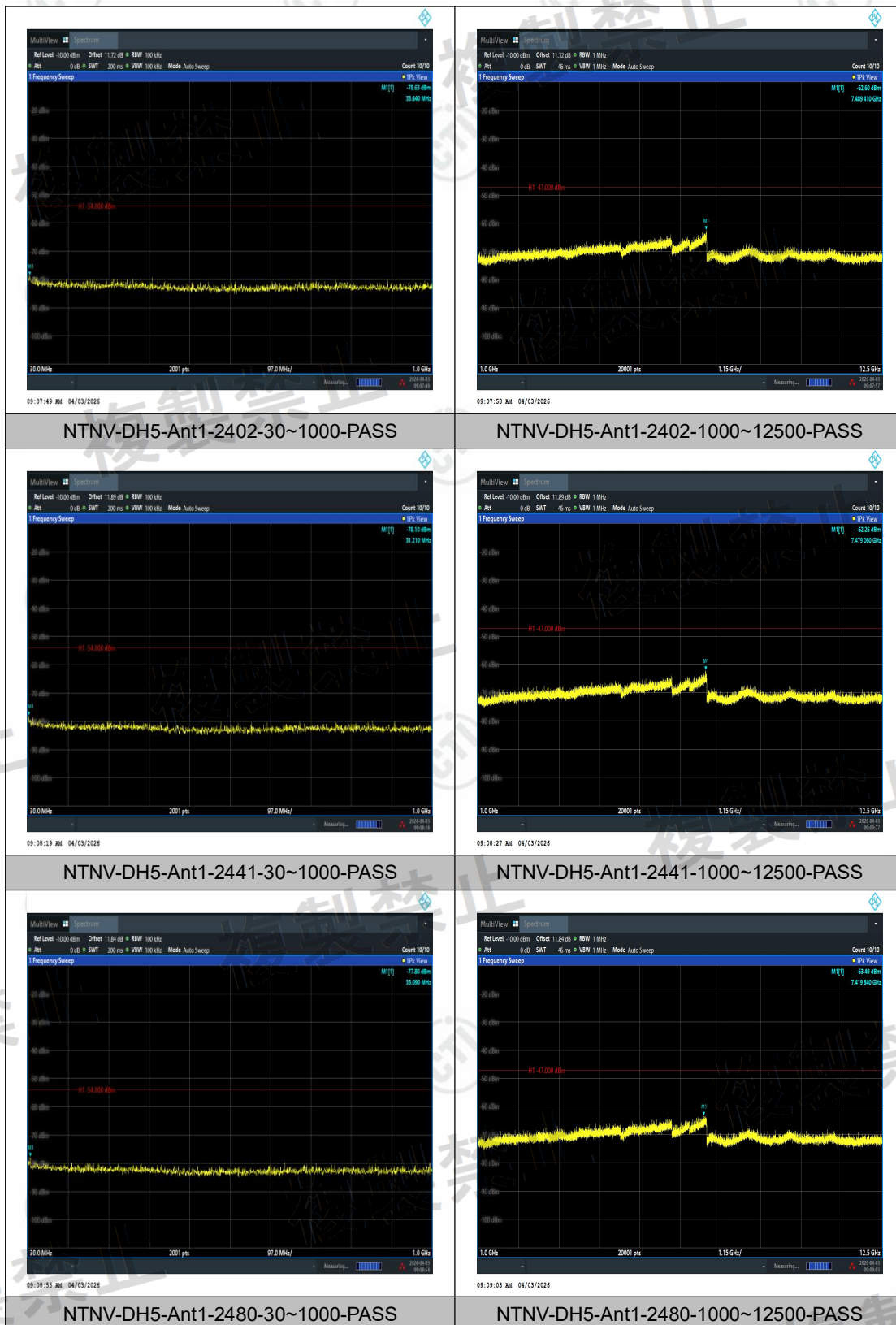


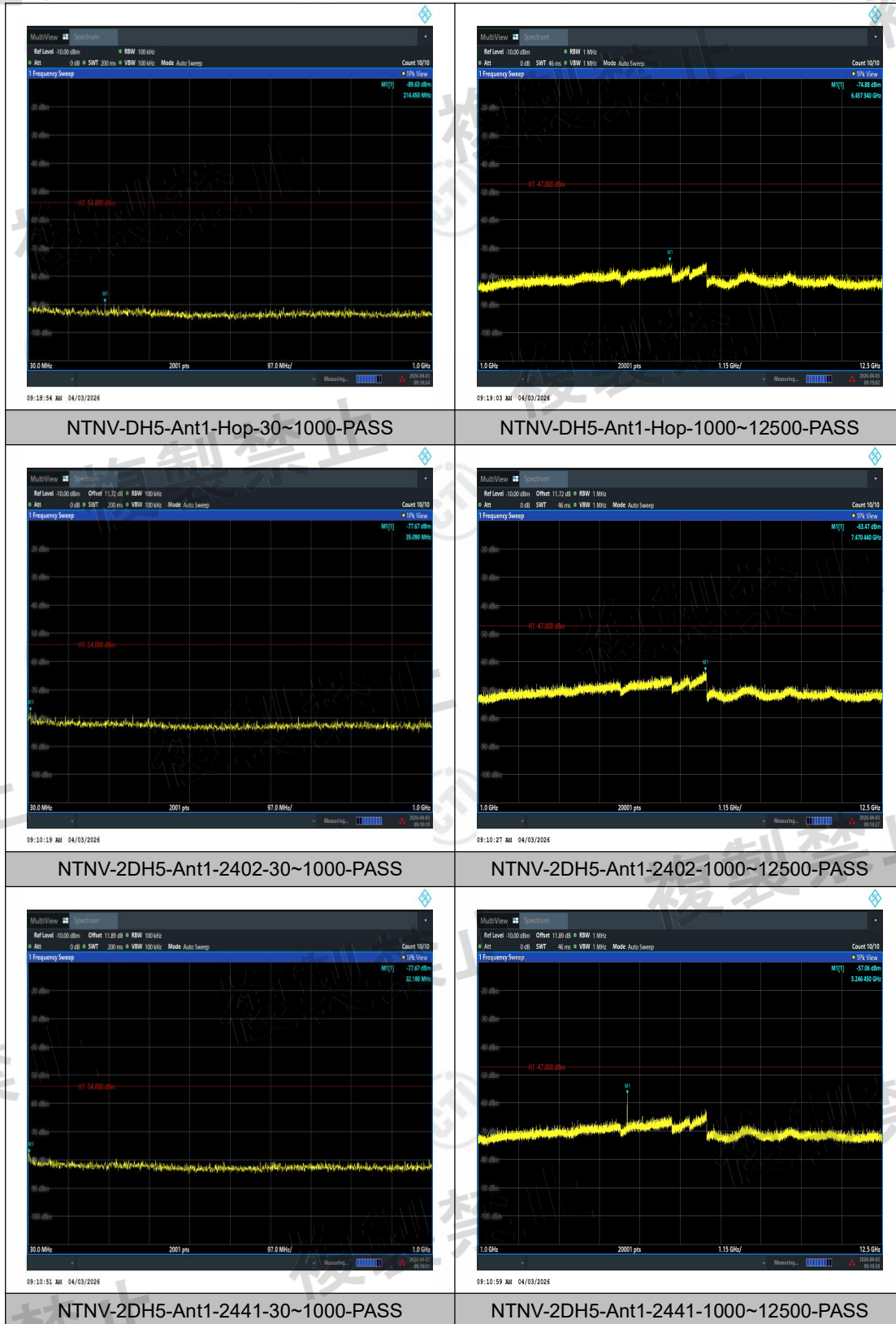
Appendix F: Secondary Radiated Emission Strength

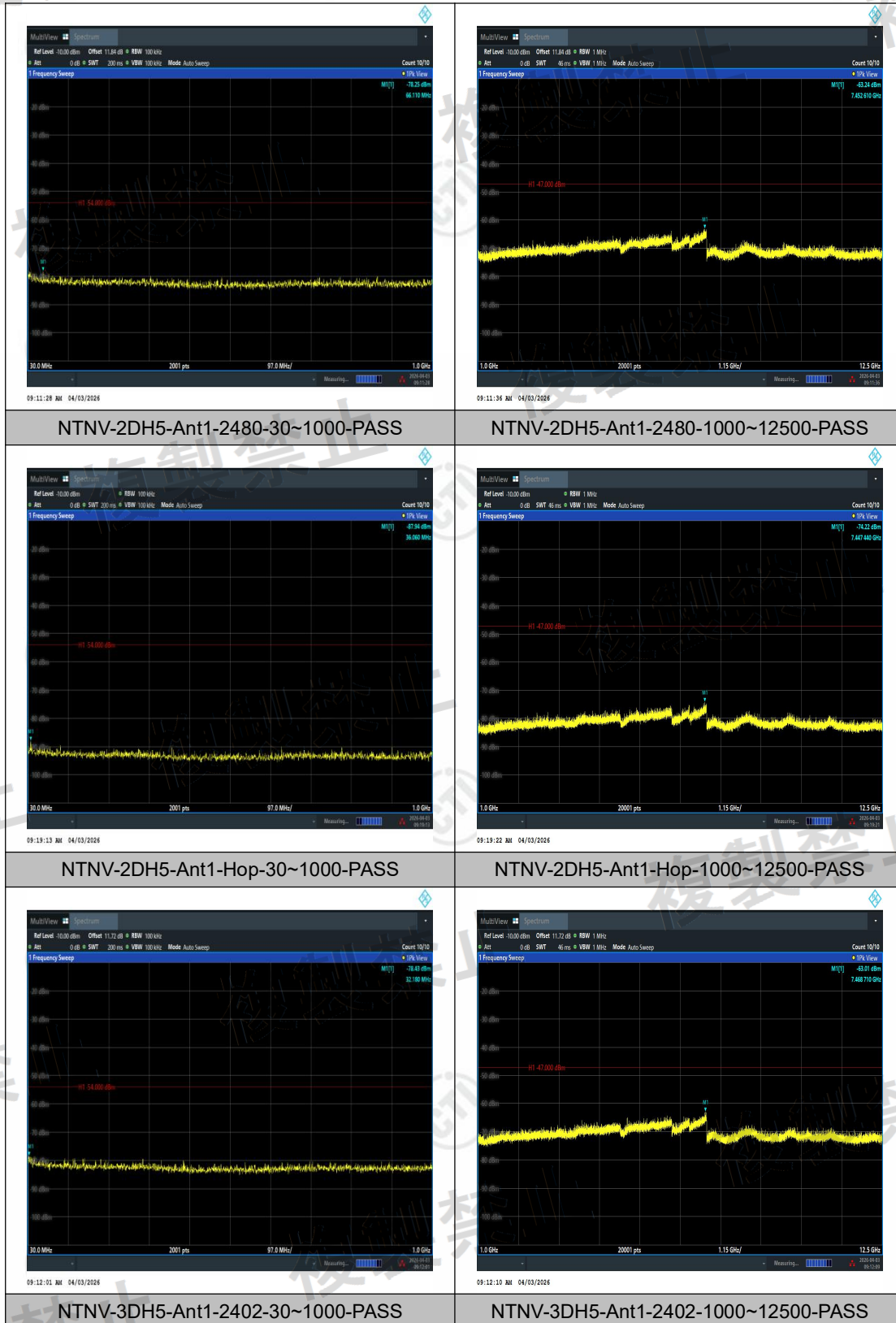
Test Result

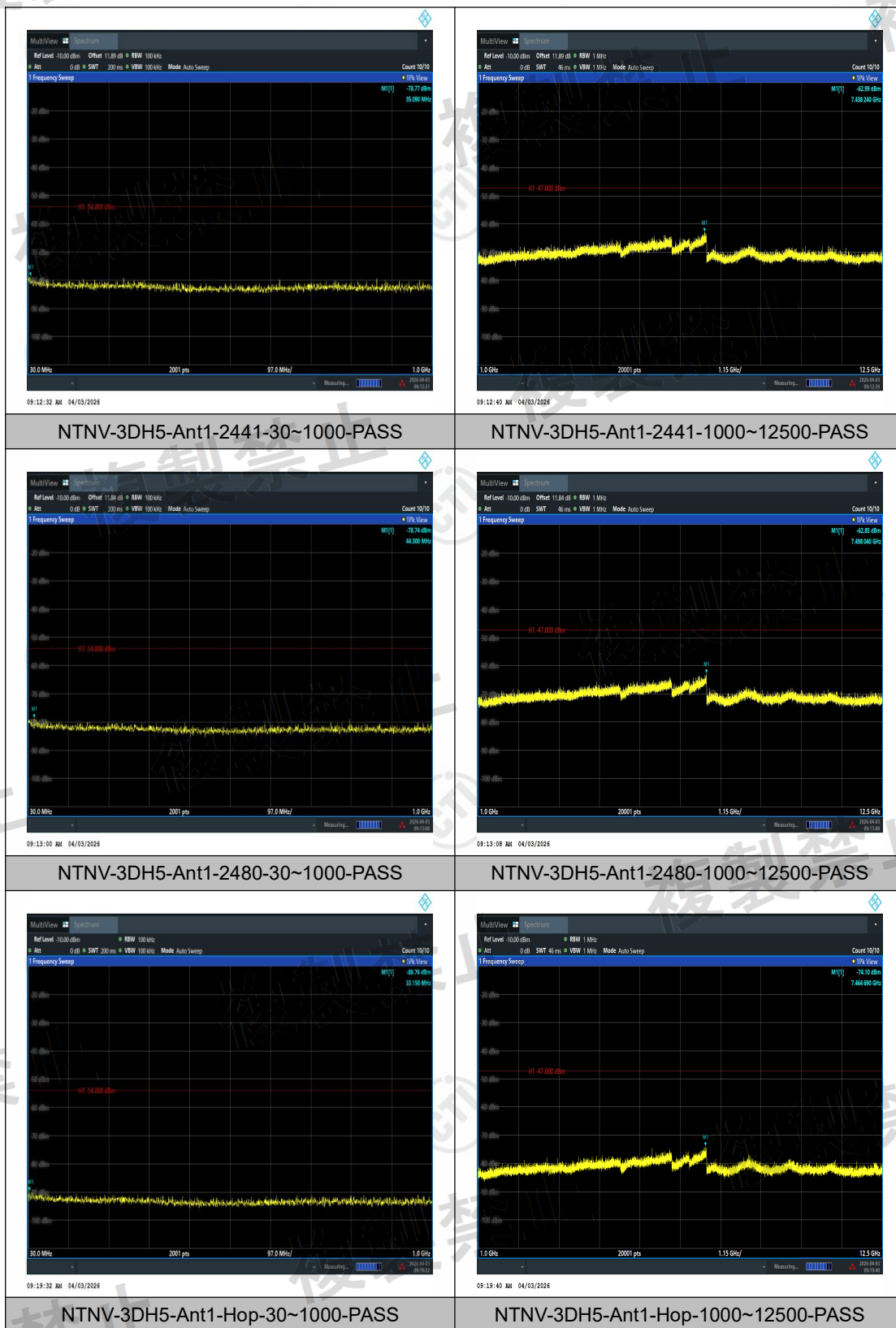
Test Condition	Test Mode	Antenna	Frequency [MHz]	Freq. Range [MHz]	Freq [MHz]	Result [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	DH5	Ant1	2402	30~1000	33.64	-78.63	0.01371	≤4	PASS
NTNV	DH5	Ant1	2402	1000~12500	7489.41	-62.60	0.54954	≤20	PASS
NTNV	DH5	Ant1	2441	30~1000	31.21	-78.10	0.01549	≤4	PASS
NTNV	DH5	Ant1	2441	1000~12500	7479.06	-62.26	0.59429	≤20	PASS
NTNV	DH5	Ant1	2480	30~1000	35.09	-77.80	0.01660	≤4	PASS
NTNV	DH5	Ant1	2480	1000~12500	7419.84	-63.49	0.44771	≤20	PASS
NTNV	DH5	Ant1	Hop	30~1000	214.45	-89.63	0.00109	≤4	PASS
NTNV	DH5	Ant1	Hop	1000~12500	6457.34	-74.88	0.03251	≤20	PASS
NTNV	2DH5	Ant1	2402	30~1000	35.09	-77.67	0.01710	≤4	PASS
NTNV	2DH5	Ant1	2402	1000~12500	7470.44	-63.47	0.44978	≤20	PASS
NTNV	2DH5	Ant1	2441	30~1000	32.18	-77.67	0.01710	≤4	PASS
NTNV	2DH5	Ant1	2441	1000~12500	5246.45	-57.06	1.96789	≤20	PASS
NTNV	2DH5	Ant1	2480	30~1000	66.11	-78.25	0.01496	≤4	PASS
NTNV	2DH5	Ant1	2480	1000~12500	7452.61	-63.24	0.47424	≤20	PASS
NTNV	2DH5	Ant1	Hop	30~1000	36.06	-87.94	0.00161	≤4	PASS
NTNV	2DH5	Ant1	Hop	1000~12500	7447.44	-74.22	0.03784	≤20	PASS
NTNV	3DH5	Ant1	2402	30~1000	32.18	-78.43	0.01435	≤4	PASS
NTNV	3DH5	Ant1	2402	1000~12500	7468.71	-63.01	0.50003	≤20	PASS
NTNV	3DH5	Ant1	2441	30~1000	35.09	-78.77	0.01327	≤4	PASS
NTNV	3DH5	Ant1	2441	1000~12500	7438.24	-62.99	0.50234	≤20	PASS
NTNV	3DH5	Ant1	2480	30~1000	44.30	-78.74	0.01337	≤4	PASS
NTNV	3DH5	Ant1	2480	1000~12500	7498.04	-62.85	0.51880	≤20	PASS
NTNV	3DH5	Ant1	Hop	30~1000	33.15	-89.76	0.00106	≤4	PASS
NTNV	3DH5	Ant1	Hop	1000~12500	7464.69	-74.10	0.03890	≤20	PASS

Test Graphs









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	0.37	1.25	71.369	79	106.96	400	Pass
NTNV	DH3	Ant1	2441	1.61	2.5	71.246	79	232.32	400	Pass
NTNV	DH5	Ant1	2441	2.87	3.75	71.316	79	276.36	400	Pass
NTNV	2DH1	Ant1	2441	0.38	1.25	71.146	79	109.51	400	Pass
NTNV	2DH3	Ant1	2441	1.63	2.5	71.326	79	235.47	400	Pass
NTNV	2DH5	Ant1	2441	2.88	3.75	71.522	79	278.12	400	Pass
NTNV	3DH1	Ant1	2441	0.38	1.25	71.185	79	109.57	400	Pass
NTNV	3DH3	Ant1	2441	1.63	2.5	70.996	79	234.38	400	Pass
NTNV	3DH5	Ant1	2441	2.88	3.75	72.028	79	280.09	400	Pass

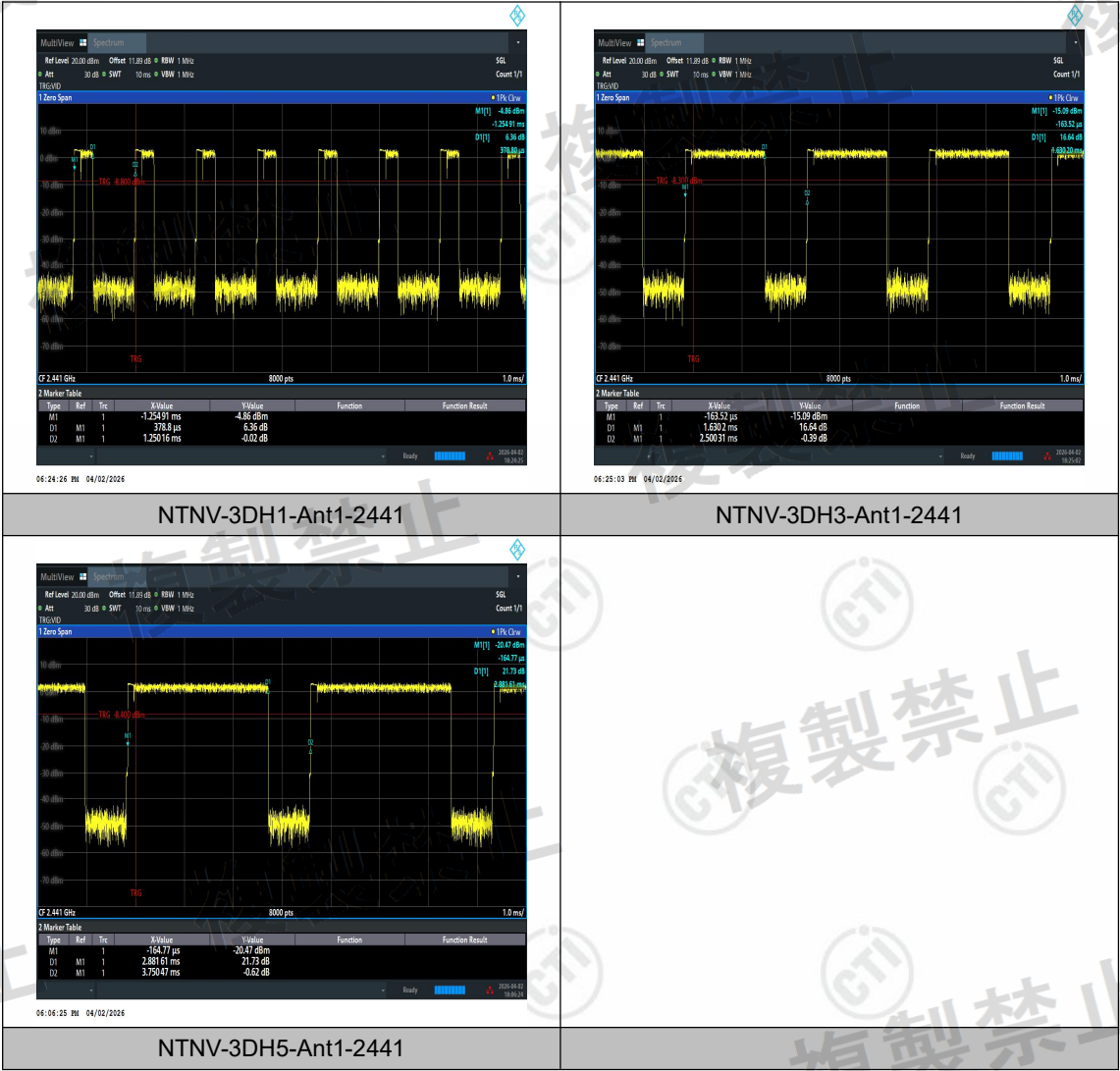
Note:

Dwell time=(0.4(s)*[Spreading rate]*[Transmission time of 1 burst(s)])/([Burst cycle(s)]*[No. of hopping channel]);

Note: Spreading rate=[Spread bandwidth(actual measurement value)]/[Transmission rate];

Test Graphs





*** End of Report ***