

Appendix A for 2.4GWIFI Test Data

Product Name: Dash Camera

Test Model: D1

Environmental Conditions

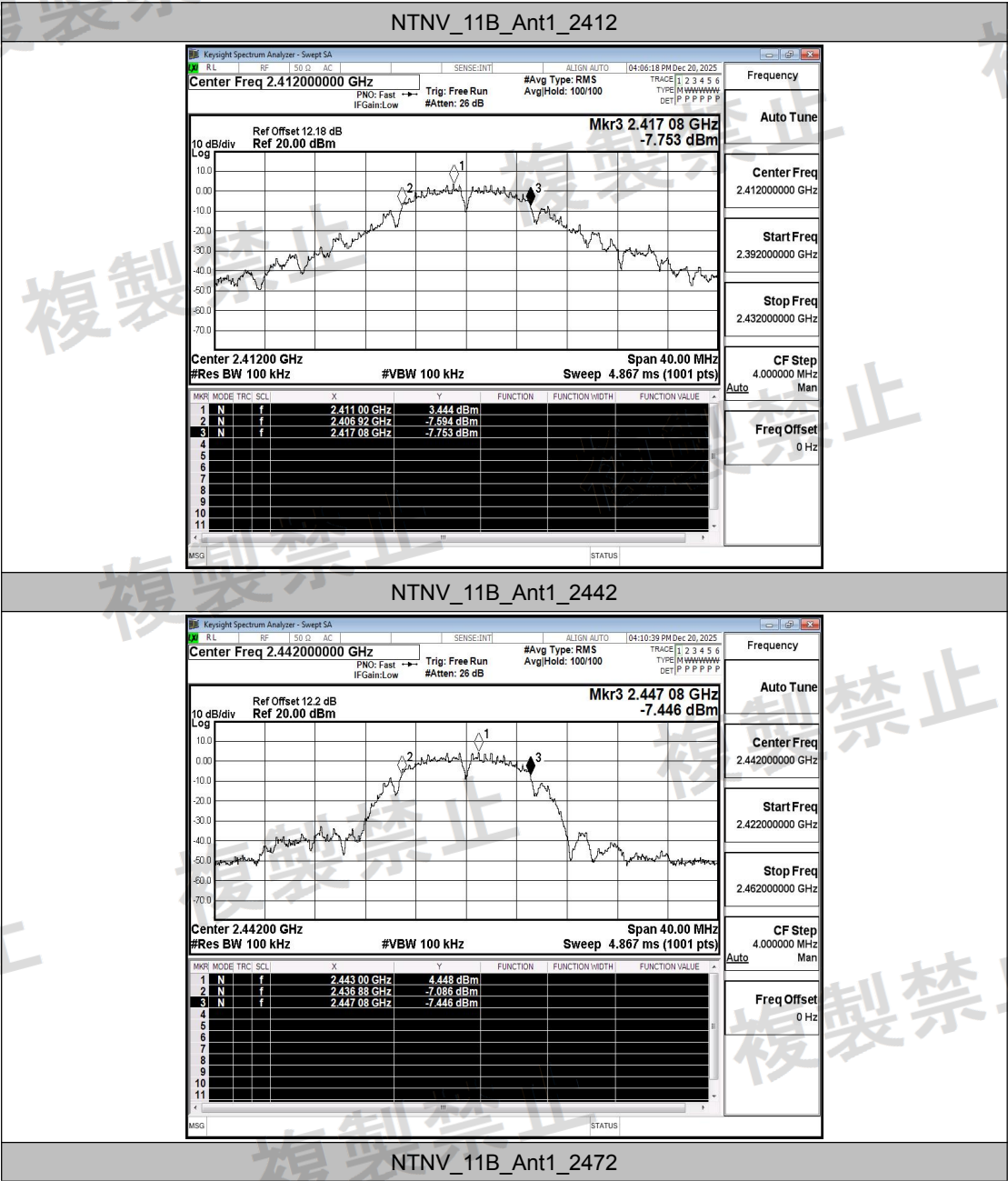
Temperature:	23.6° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

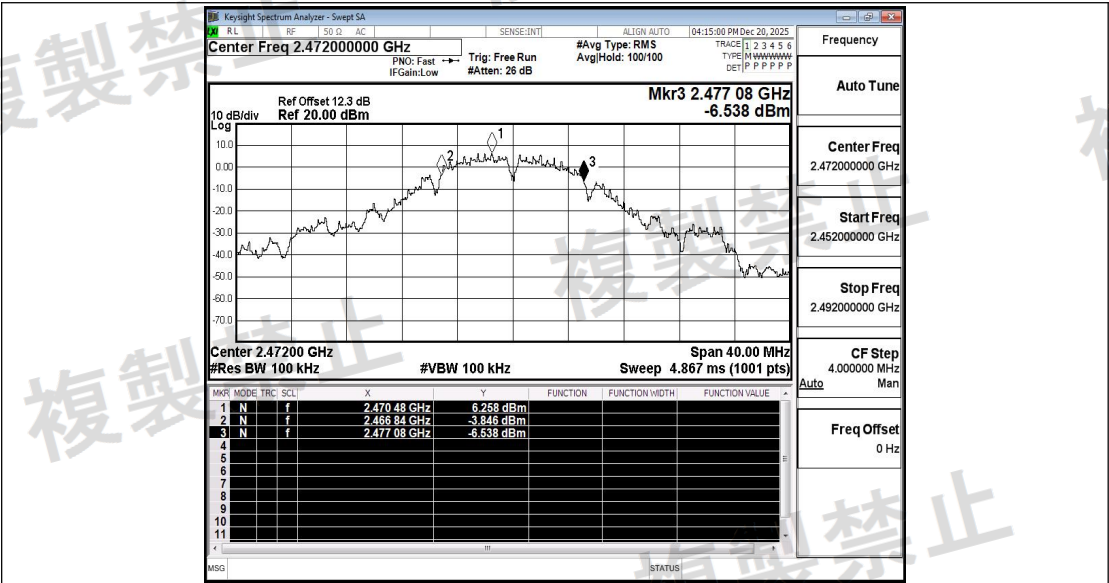
A.1 Frequency Error

Test Result

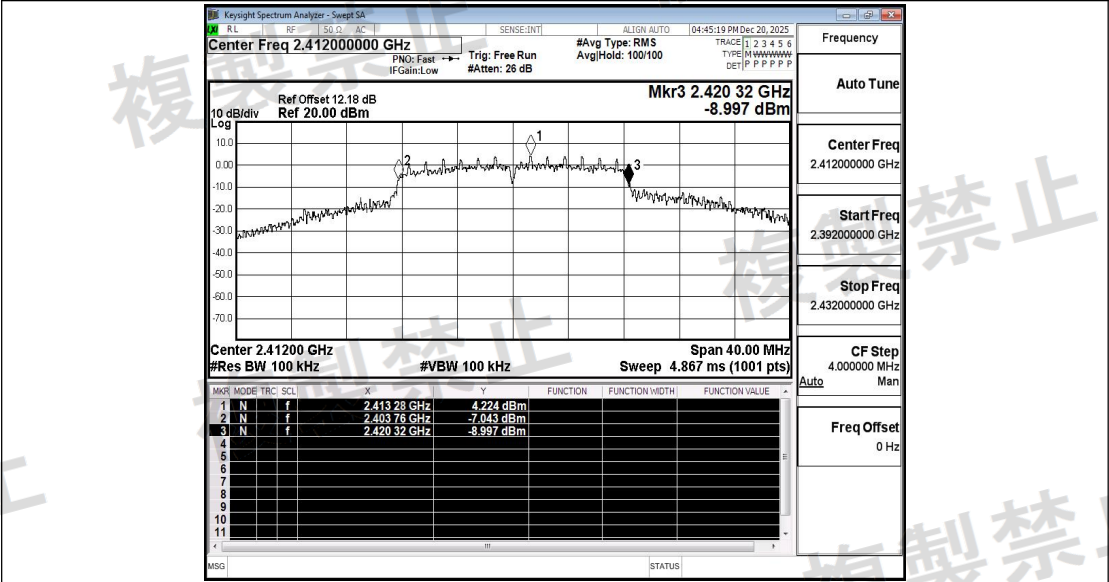
TestCondition	TestMode	Antenna	Freq(MHz)	CenterFrequency [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	11B	Ant1	2412	2412	0.00000	±50	PASS
			2442	2441.98	-8.19001	±50	PASS
			2472	2471.96	-16.18123	±50	PASS
	11G	Ant1	2412	2412.04	16.58375	±50	PASS
			2442	2442	0.00000	±50	PASS
			2472	2471.94	-24.27185	±50	PASS
	11N20SISO	Ant1	2412	2412.04	16.58375	±50	PASS
			2442	2441.96	-16.38002	±50	PASS
			2472	2471.9	-40.45307	±50	PASS

Test Graphs

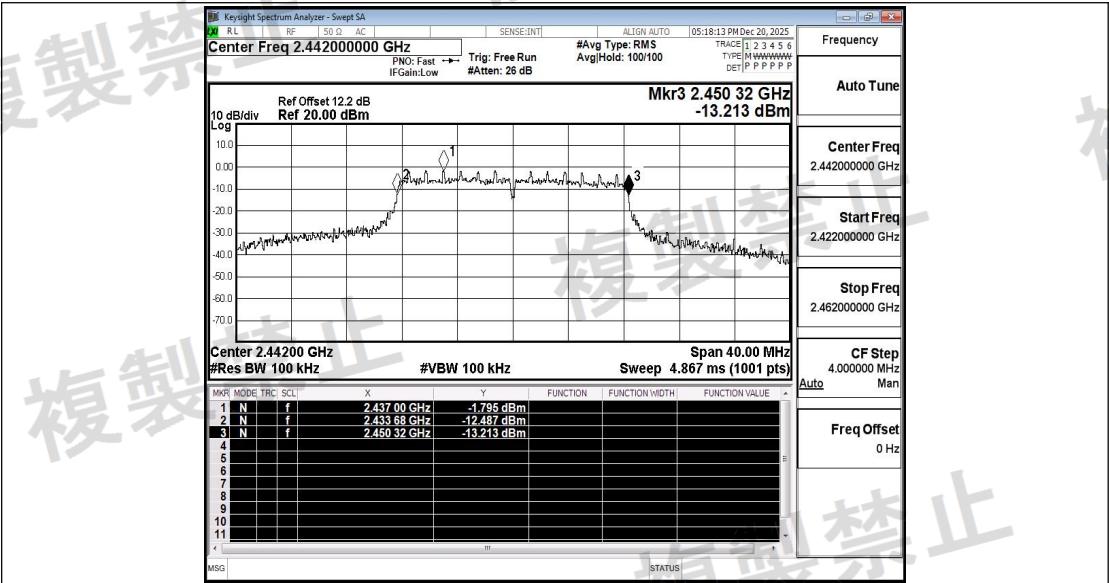




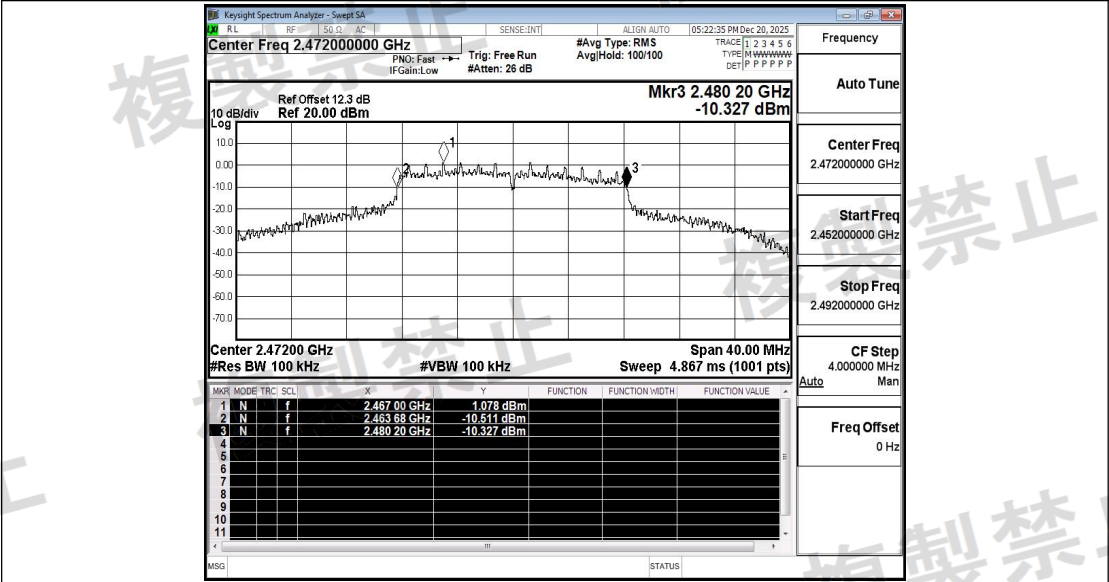
NTNV_11G_Ant1_2412



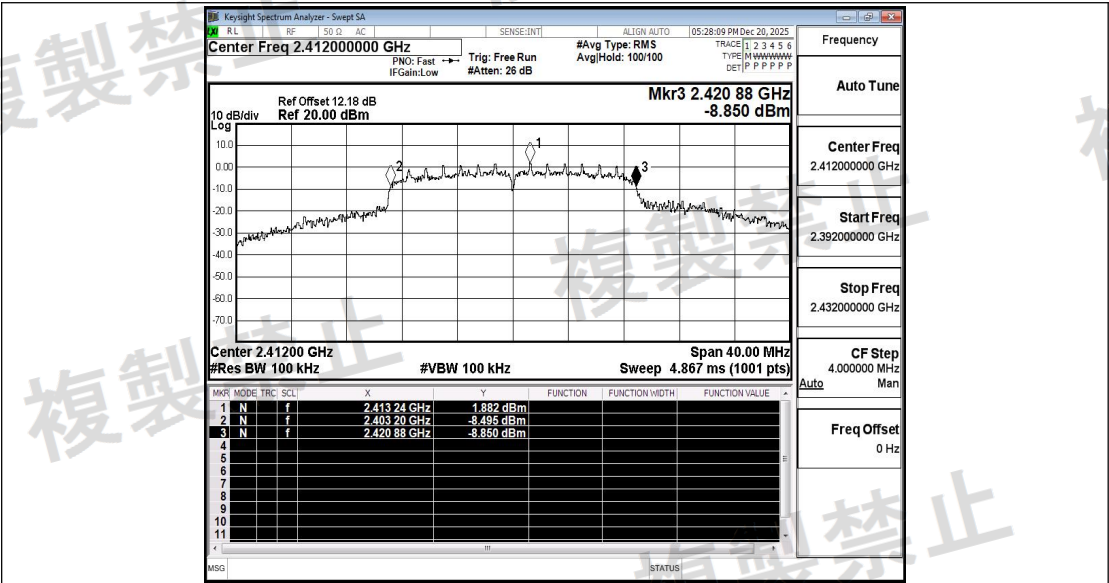
NTNV_11G_Ant1_2442



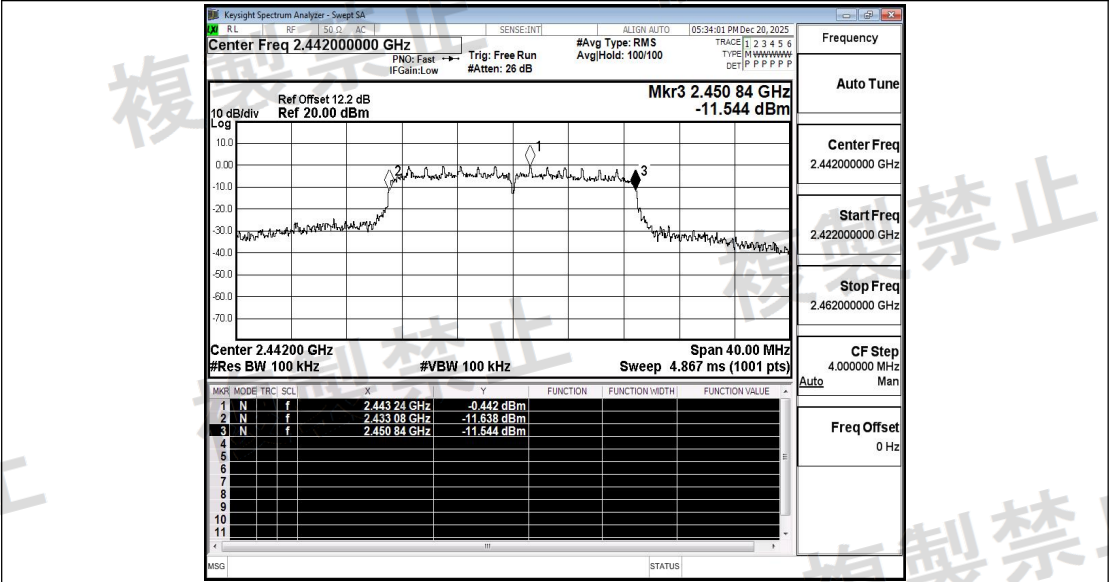
NTNV_11G_Ant1_2472



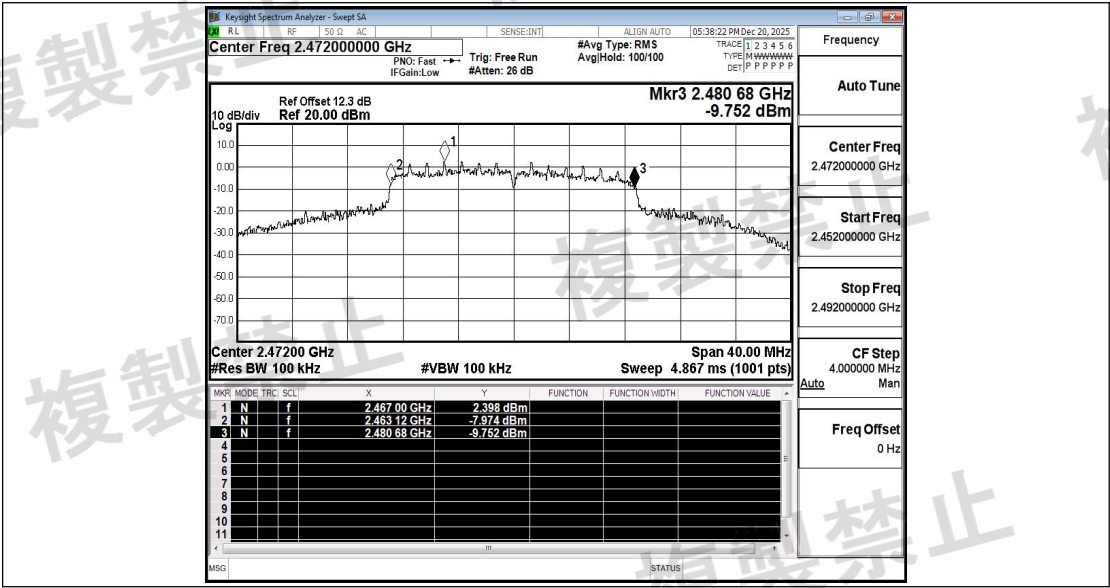
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



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

Antenna Power							
Test Condition	Test Mode	Antenna	Freq (MHz)	Measured power [dBm/MHz]	Result [mW/MHz]	Limit [mW/MHz]	Verdict
NTNV	11B	Ant1	2412	3.55	2.26	≤10	PASS
			2442	4.56	2.86	≤10	PASS
			2472	5.10	3.24	≤10	PASS
	11G	Ant1	2412	0.77	1.19	≤10	PASS
			2442	-1.70	0.68	≤10	PASS
			2472	0.63	1.16	≤10	PASS
	11N20SI SO	Ant1	2412	1.33	1.36	≤10	PASS
			2442	-1.01	0.79	≤10	PASS
			2472	1.74	1.49	≤10	PASS

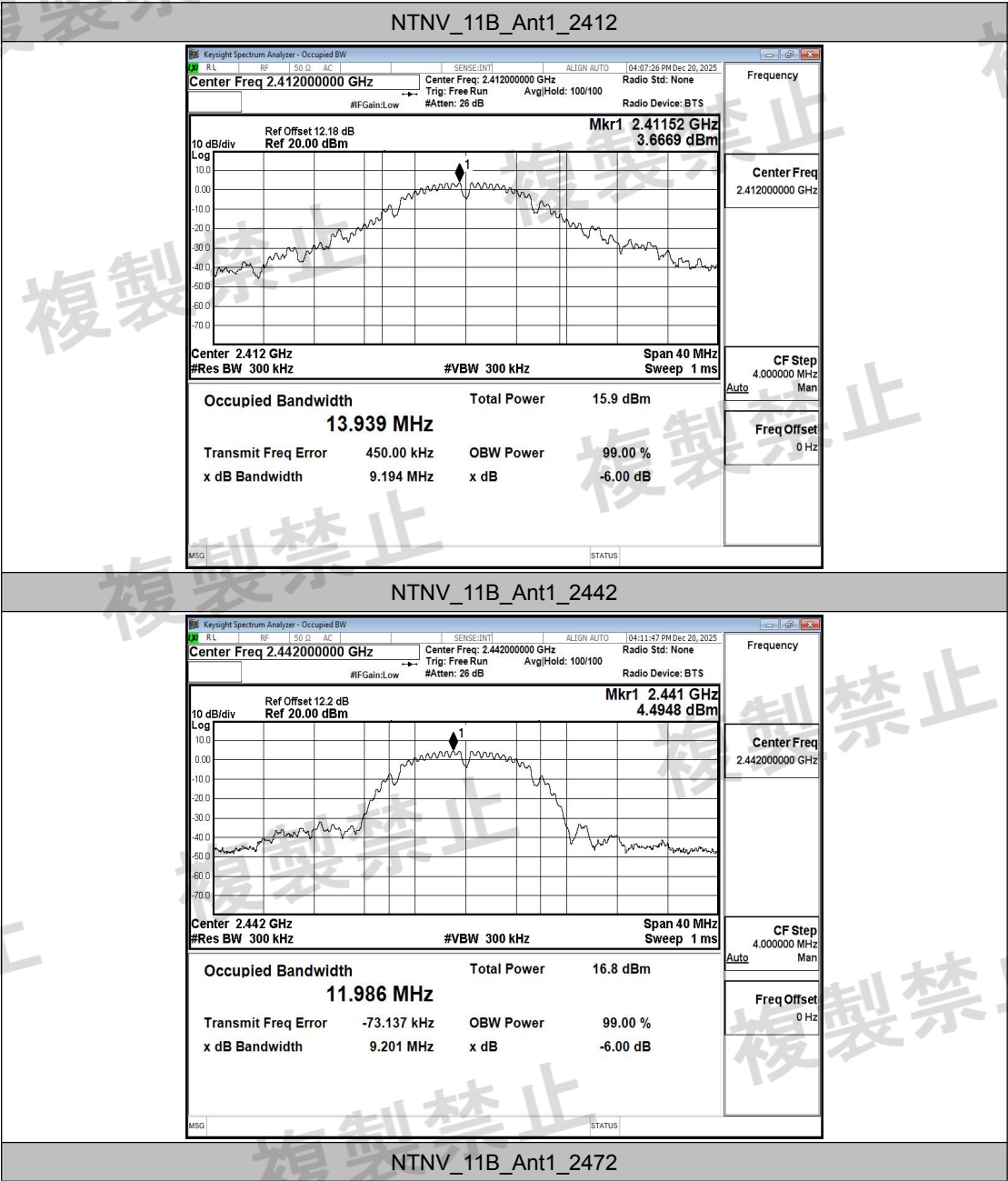
Tolerance								
Test Condition	Test Mode	Antenna	Frequency[MHz]	Power (mW/MHz)	RatedPower (mW/MHz)	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	2.26	3.0	-24.67	+20	PASS
			2442	2.86	3.0	-4.67	+20	PASS
			2472	3.24	3.0	8.00	+20	PASS
	11G	Ant1	2412	1.19	1.0	19.00	+20	PASS
			2442	0.68	1.0	-32.00	+20	PASS
			2472	1.16	1.0	16.00	+20	PASS
	11N20SISO	Ant1	2412	1.36	1.5	-9.33	+20	PASS
			2442	0.79	1.5	-47.33	+20	PASS
			2472	1.49	1.5	-0.67	+20	PASS

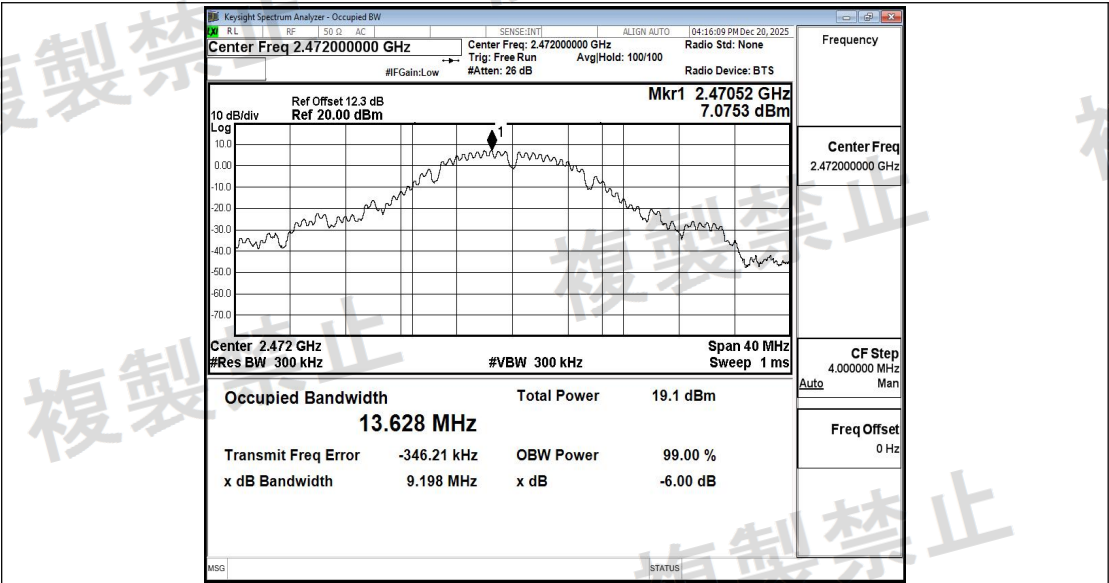
A.3 Occupied Bandwidth

Test Result

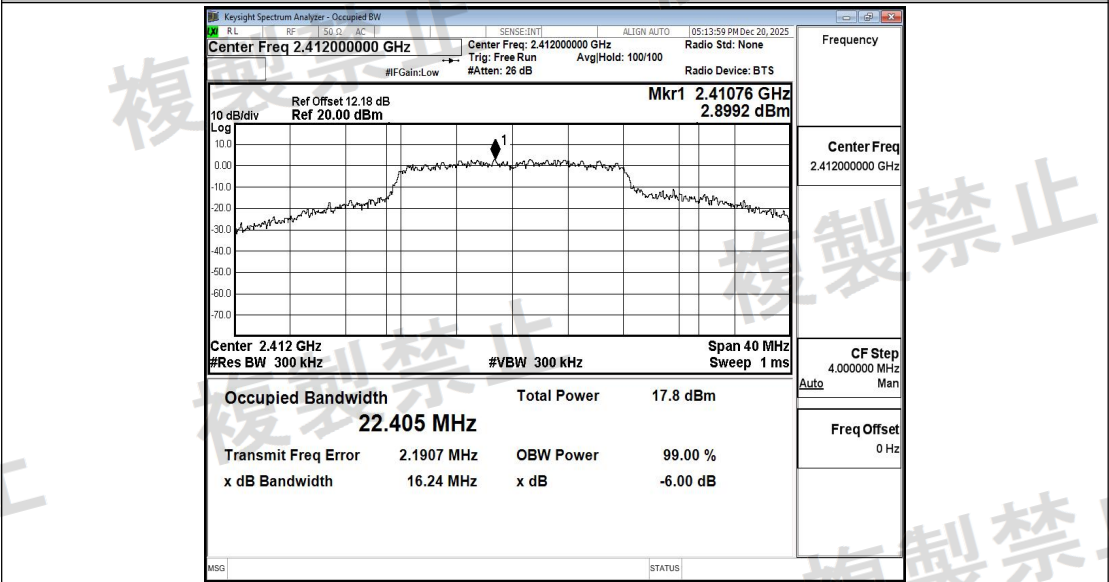
TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	13.939	≤26	PASS
			2442	11.986	≤26	PASS
			2472	13.628	≤26	PASS
	11G	Ant1	2412	22.405	≤26	PASS
			2442	16.717	≤26	PASS
			2472	19.259	≤26	PASS
	11N20SI SO	Ant1	2412	22.844	≤26	PASS
			2442	17.749	≤26	PASS
			2472	19.804	≤26	PASS

Test Graphs

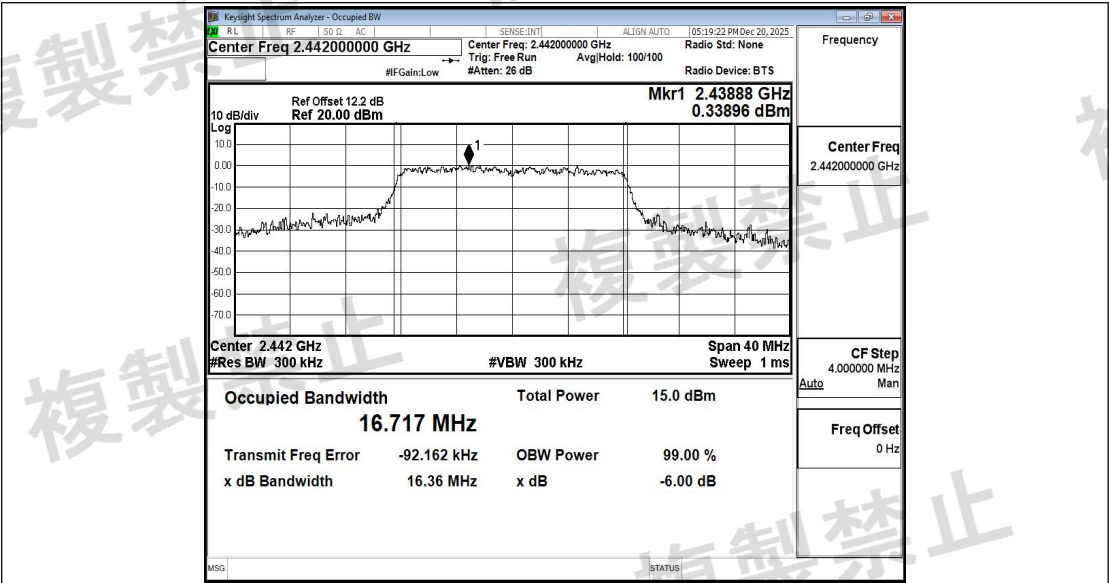




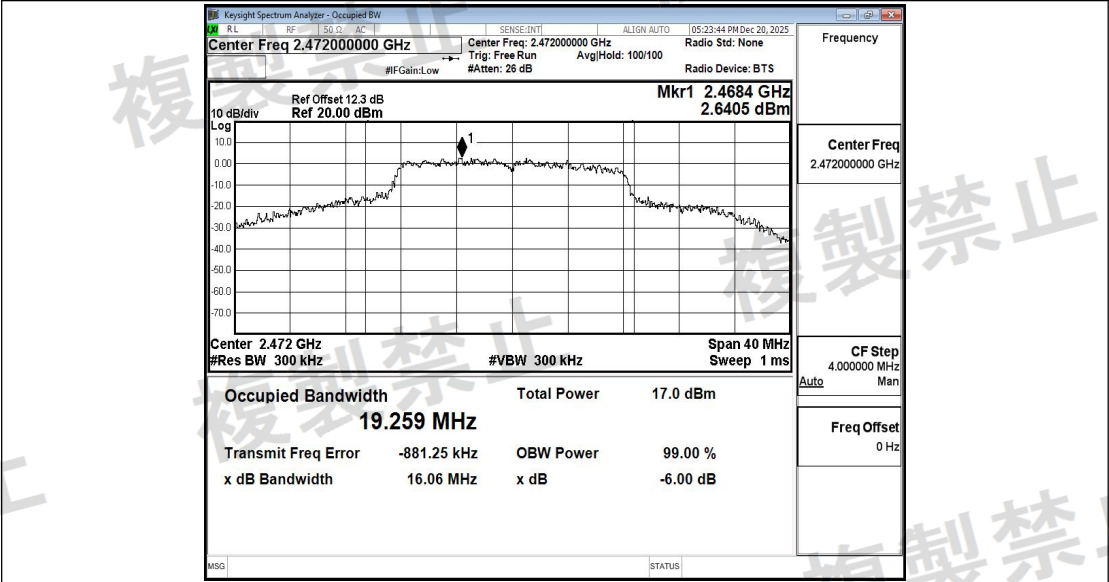
NTNV_11G_Ant1_2412



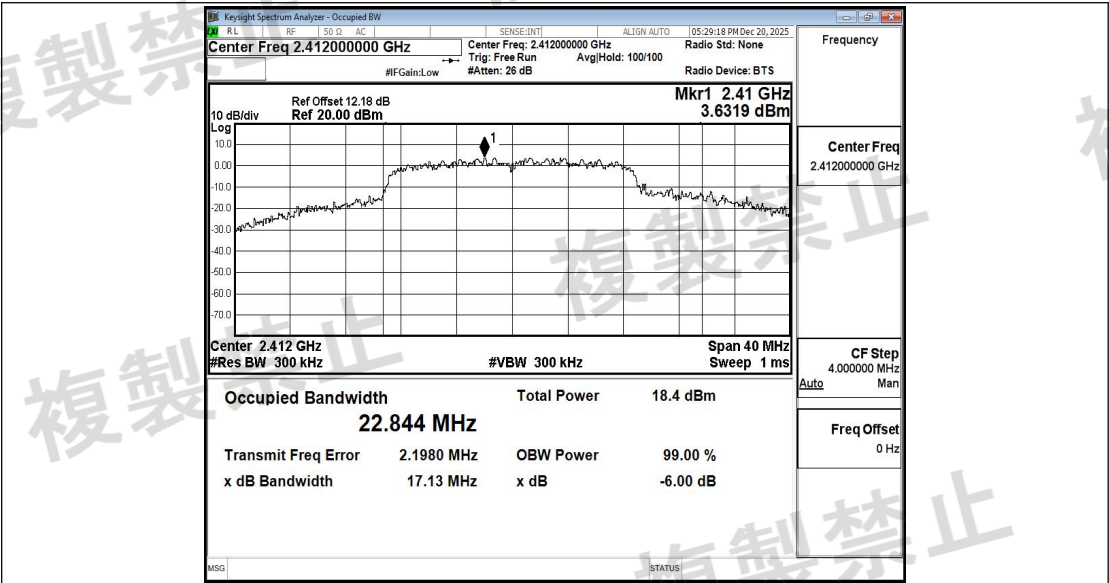
NTNV_11G_Ant1_2442



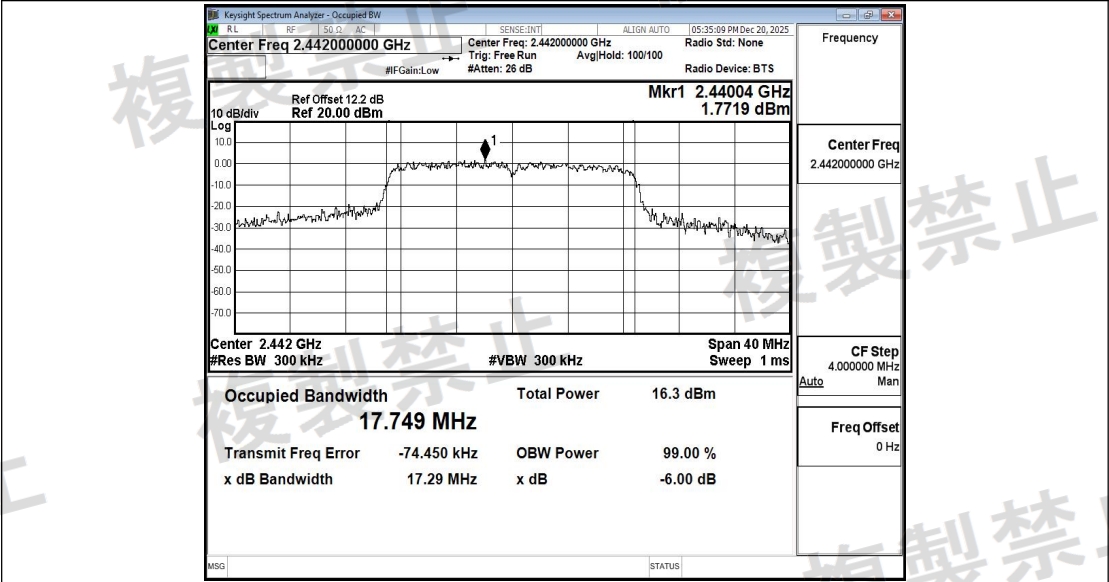
NTNV_11G_Ant1_2472



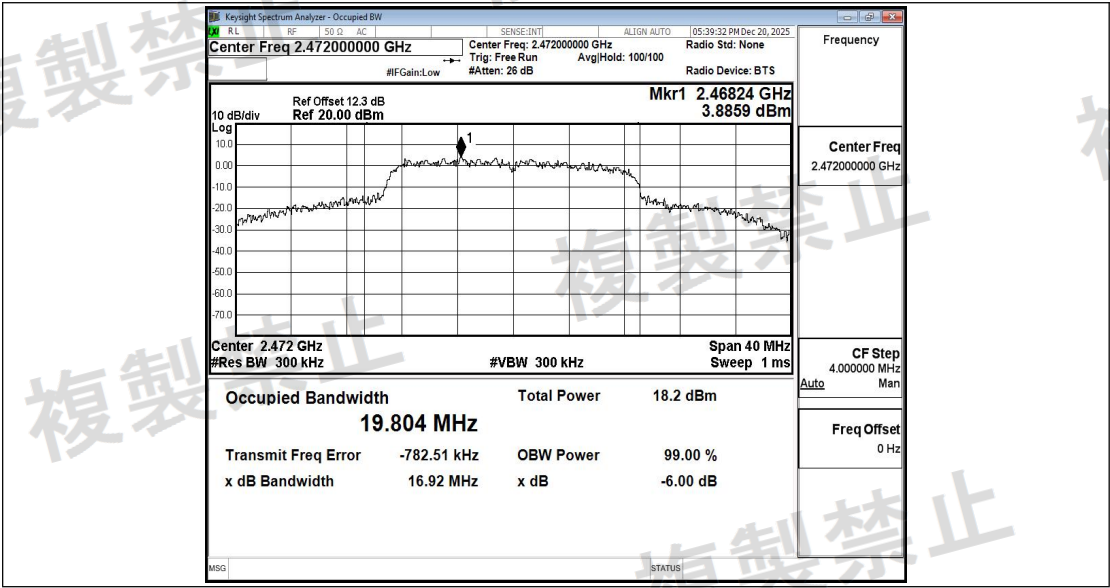
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



A.4 Spread Bandwidth

Test Result

TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Spread Factor	Limit	Verdict
NTNV	11B	Ant1	2412	8.701	---	---	---	PASS
			2442	8.310	---	---	---	PASS
			2472	8.766	---	---	---	PASS
	11G	Ant1	2412	14.705	---	---	---	PASS
			2442	14.684	---	---	---	PASS
			2472	14.228	---	---	---	PASS
	11N20SI SO	Ant1	2412	15.225	---	---	---	PASS
			2442	15.358	---	---	---	PASS
			2472	15.002	---	---	---	PASS

NTNV_11B_Ant1_2412

Keysight Spectrum Analyzer - Occupied BW

Center Freq 2.41200000 GHz

Center Freq: 2.41200000 GHz

Trig: Free Run

Avg/Hold: 100/100

Radio Std: None

Radio Device: BTS

Ref Offset 12.18 dB

Ref 20.00 dBm

Mkr1 2.41152 GHz

3.6772 dBm

Log

10 dB/div

Center 2.412 GHz

#Res BW 300 kHz

#VBW 300 kHz

Span 40 MHz

Sweep 1 ms

Occupied Bandwidth

8.7007 MHz

Total Power

15.9 dBm

Transmit Freq Error

215.07 kHz

OBW Power

90.00 %

x dB Bandwidth

9.191 MHz

x dB

-6.00 dB

Frequency

Center Freq

2.41200000 GHz

CF Step

4.000000 MHz

Auto

Man

Freq Offset

0 Hz

STATUS

NTNV_11B_Ant1_2442

Keysight Spectrum Analyzer - Occupied BW

Center Freq 2.44200000 GHz

Center Freq: 2.44200000 GHz

Trig: Free Run

Avg/Hold: 100/100

Radio Std: None

Radio Device: BTS

Ref Offset 12.2 dB

Ref 20.00 dBm

Mkr1 2.44152 GHz

4.5903 dBm

Log

10 dB/div

Center 2.442 GHz

#Res BW 300 kHz

#VBW 300 kHz

Span 40 MHz

Sweep 1 ms

Occupied Bandwidth

8.3104 MHz

Total Power

16.8 dBm

Transmit Freq Error

-105.32 kHz

OBW Power

90.00 %

x dB Bandwidth

9.194 MHz

x dB

-6.00 dB

Frequency

Center Freq

2.44200000 GHz

CF Step

4.000000 MHz

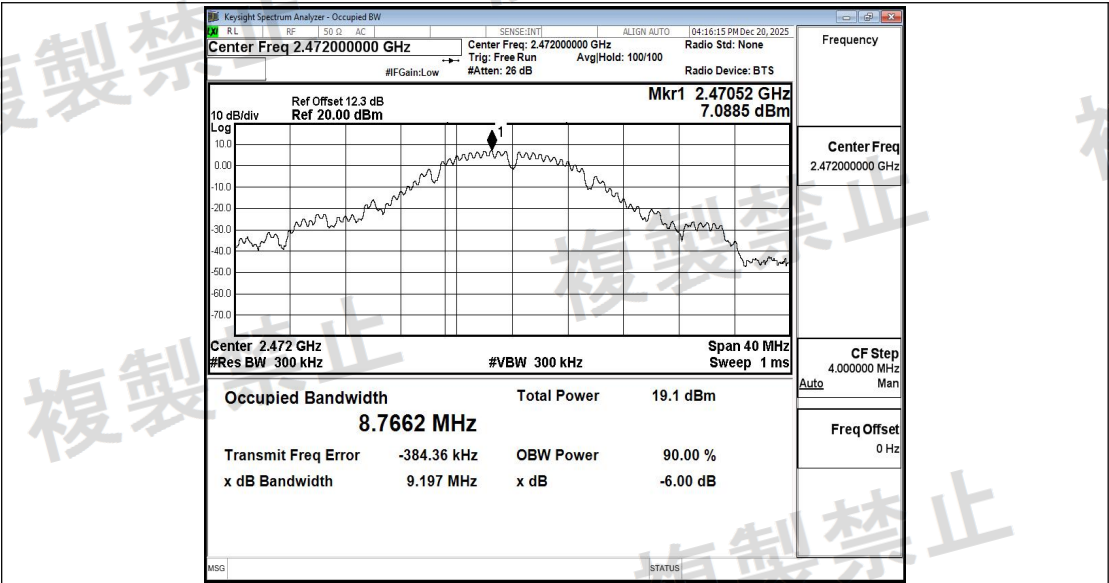
Auto

Man

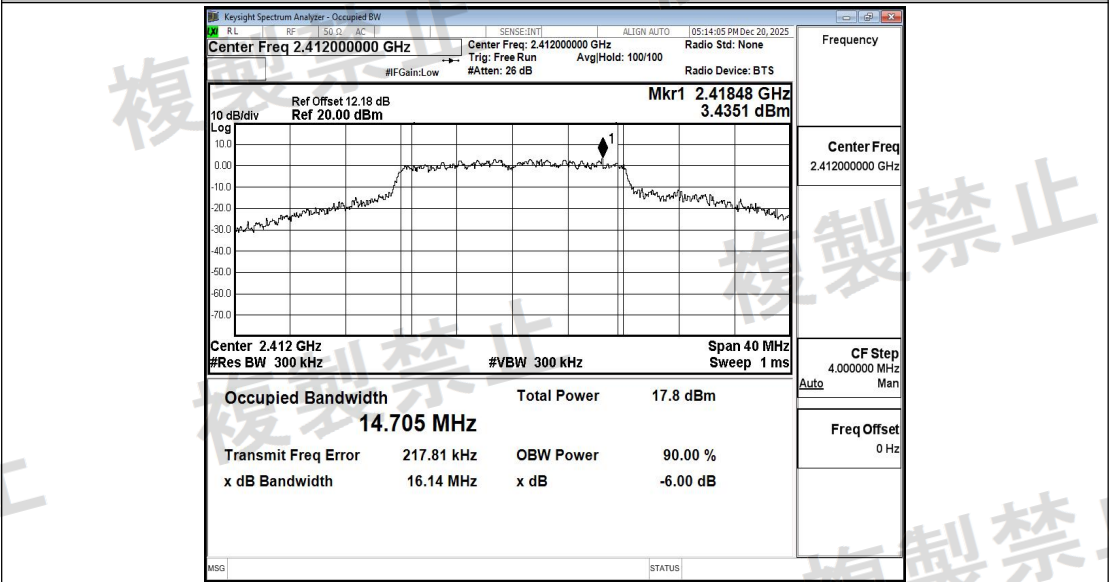
Freq Offset

0 Hz

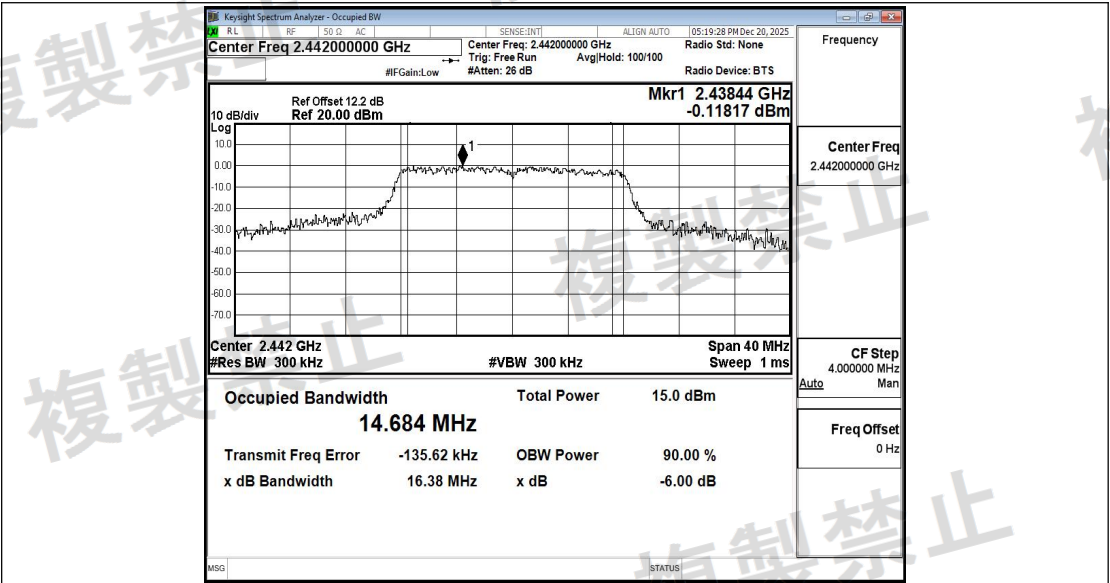
STATUS



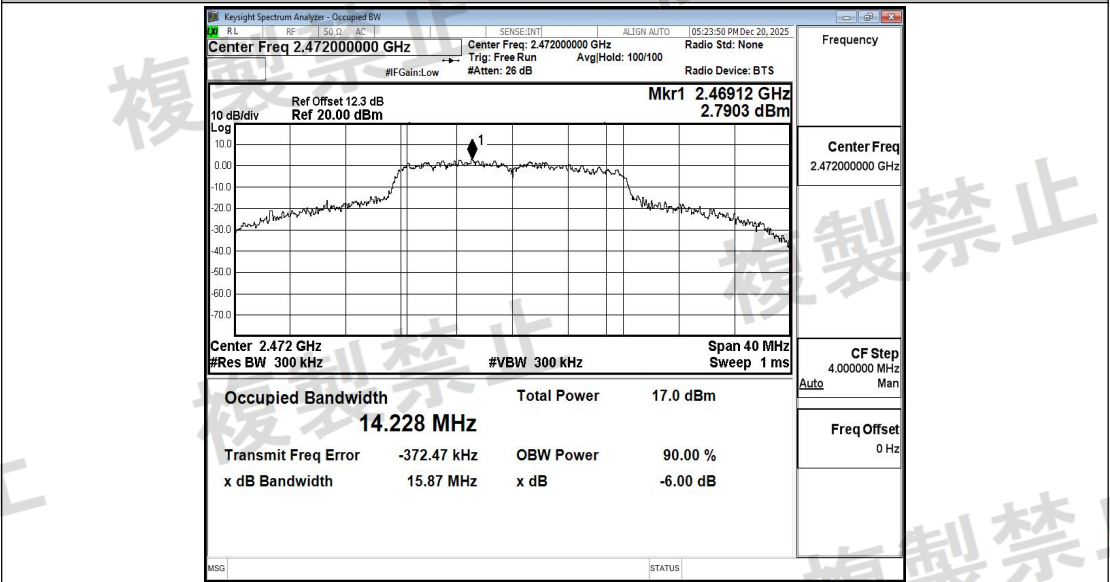
NTNV_11G_Ant1_2412



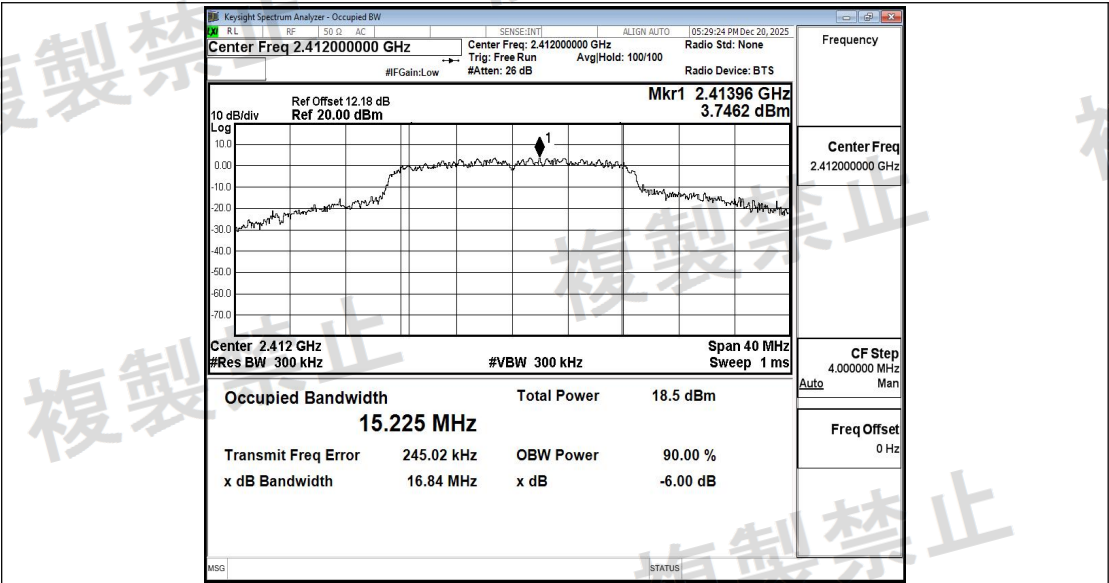
NTNV_11G_Ant1_2442



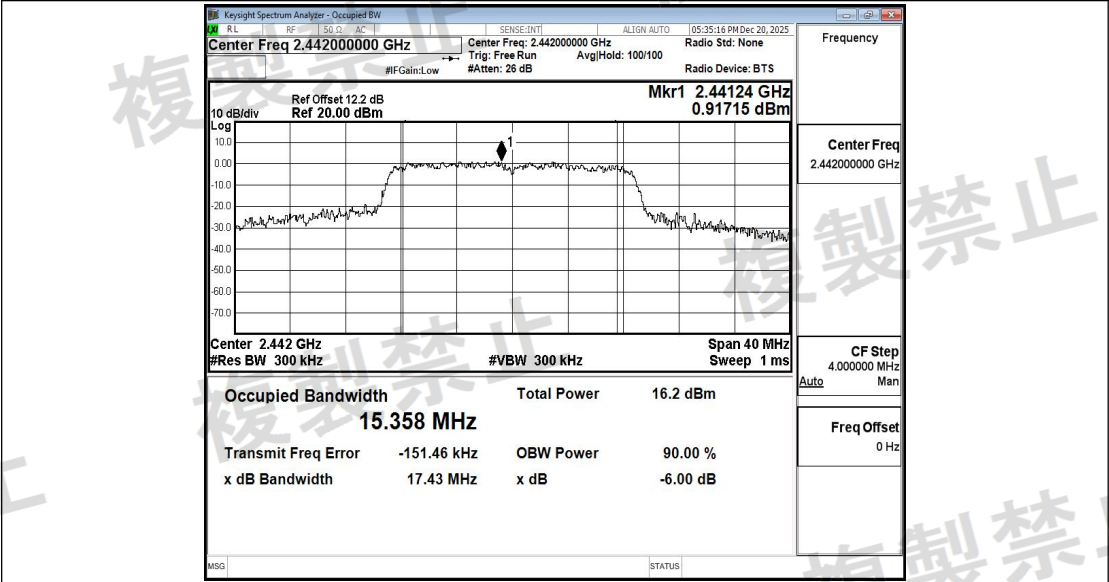
NTNV_11G_Ant1_2472



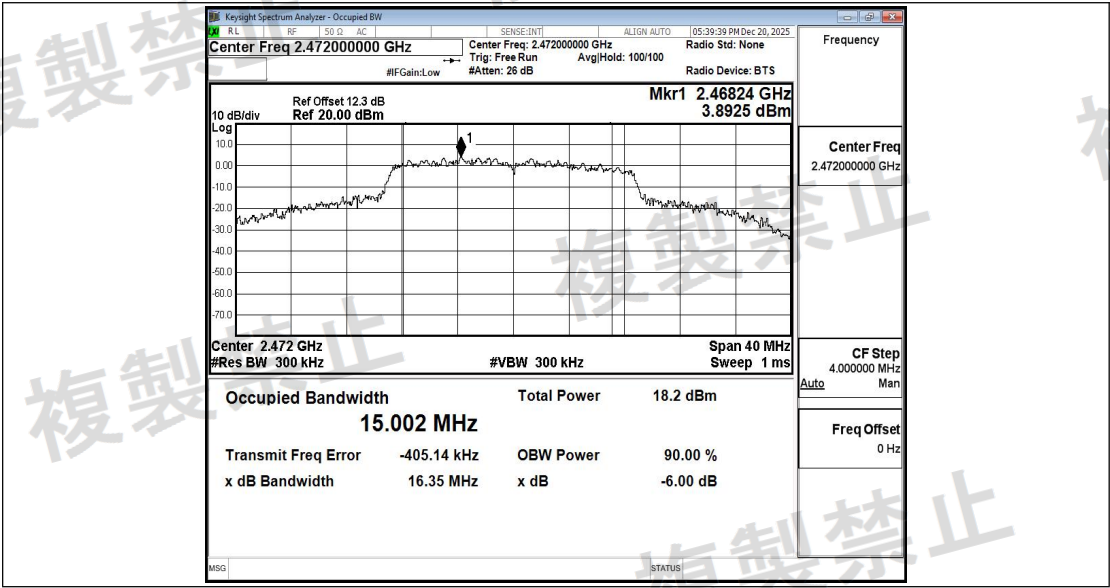
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



A.5 Spurious Emission of TX

Test Result

TestCondition	Test Mode	Antenna	Channel (MHz)	Freq.Range [MHz]	Freq (MHz)	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11B	Ant1	2412	30~1000	30.00	-42.52	≤-26	0.05598	≤2.5	PASS
				1000~2387	2387.00	-43.11	≤-26	0.04887	≤2.5	PASS
				2387~2400	2400.00	-25.02	≤-16	3.14775	≤25	PASS
				2483.5~2496.5	2495.64	-34.55	≤-16	0.35075	≤25	PASS
				2496.5~13000	2678.21	-44.18	≤-26	0.03819	≤2.5	PASS
			2442	30~1000	254.80	-31.75	≤-26	0.66834	≤2.5	PASS
				1000~2387	2369.32	-44.60	≤-26	0.03467	≤2.5	PASS
				2387~2400	2389.70	-34.30	≤-16	0.37154	≤25	PASS
				2483.5~2496.5	2487.31	-34.47	≤-16	0.35727	≤25	PASS
				2496.5~13000	12485.85	-43.75	≤-26	0.04217	≤2.5	PASS
		2472		30~1000	773.75	-44.16	≤-26	0.03837	≤2.5	PASS
				1000~2387	1917.15	-44.80	≤-26	0.03311	≤2.5	PASS
				2387~2400	2394.06	-34.48	≤-16	0.35645	≤25	PASS
				2483.5~2496.5	2483.57	-21.68	≤-16	6.79204	≤25	PASS
				2496.5~13000	3062.64	-43.70	≤-26	0.04266	≤2.5	PASS
	11G	Ant1	2412	30~1000	50.61	-37.52	≤-26	0.17701	≤2.5	PASS
				1000~2387	2387.00	-30.16	≤-26	0.96383	≤2.5	PASS
				2387~2400	2399.95	-9.03	≤-16	125.02590	≤25	See table below
				2483.5~2496.5	2492.52	-34.22	≤-16	0.37844	≤25	PASS
				2496.5~13000	2690.29	-43.29	≤-26	0.04688	≤2.5	PASS
			2442	30~1000	45.76	-37.60	≤-26	0.17378	≤2.5	PASS
				1000~2387	2207.04	-45.05	≤-26	0.03126	≤2.5	PASS
				2387~2400	2390.60	-34.62	≤-16	0.34514	≤25	PASS
				2483.5~2496.5	2491.40	-34.22	≤-16	0.37844	≤25	PASS
				2496.5~13000	3047.93	-43.67	≤-26	0.04295	≤2.5	PASS

Guangzhou LCS Compliance Testing Laboratory Ltd.

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

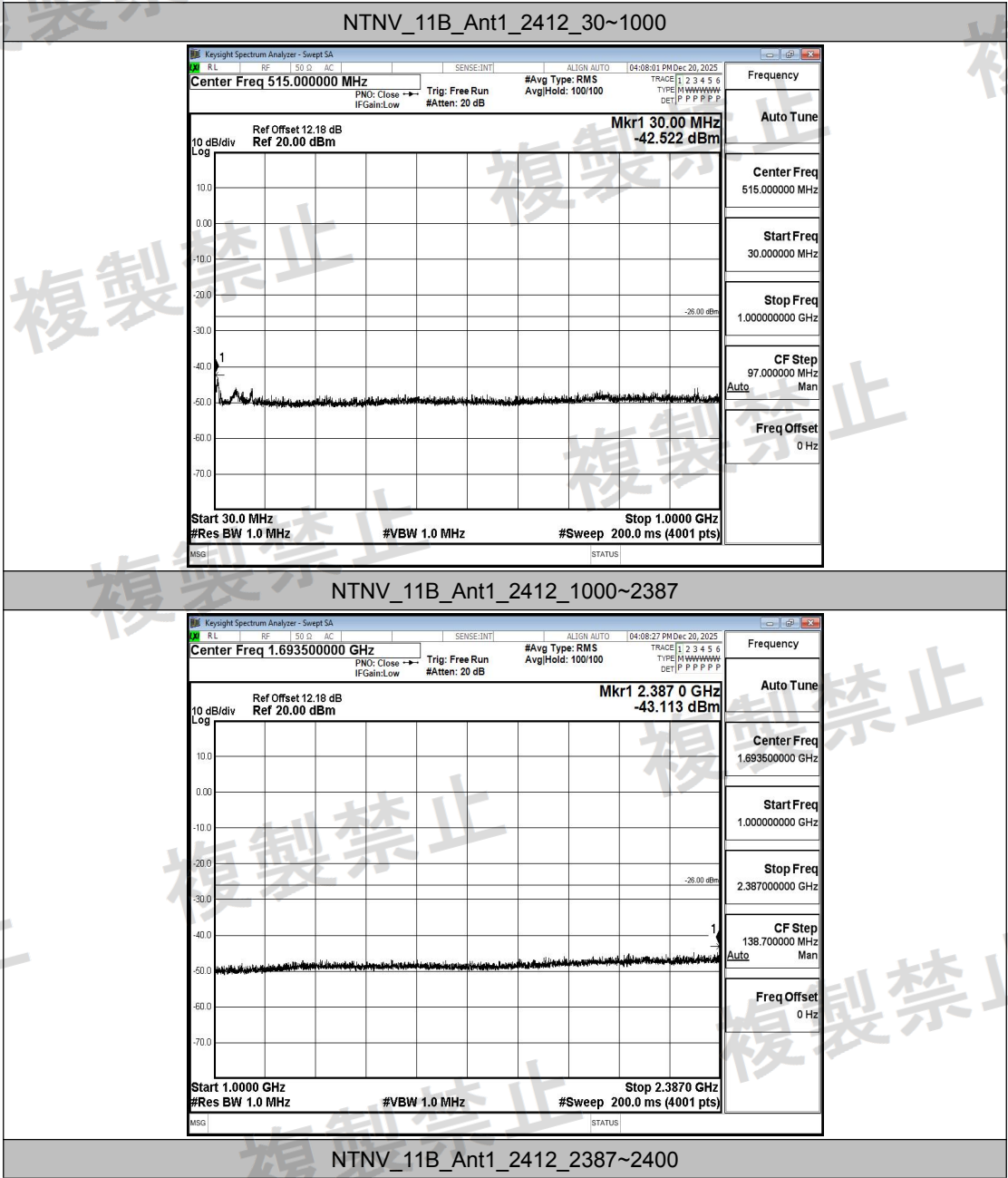
Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

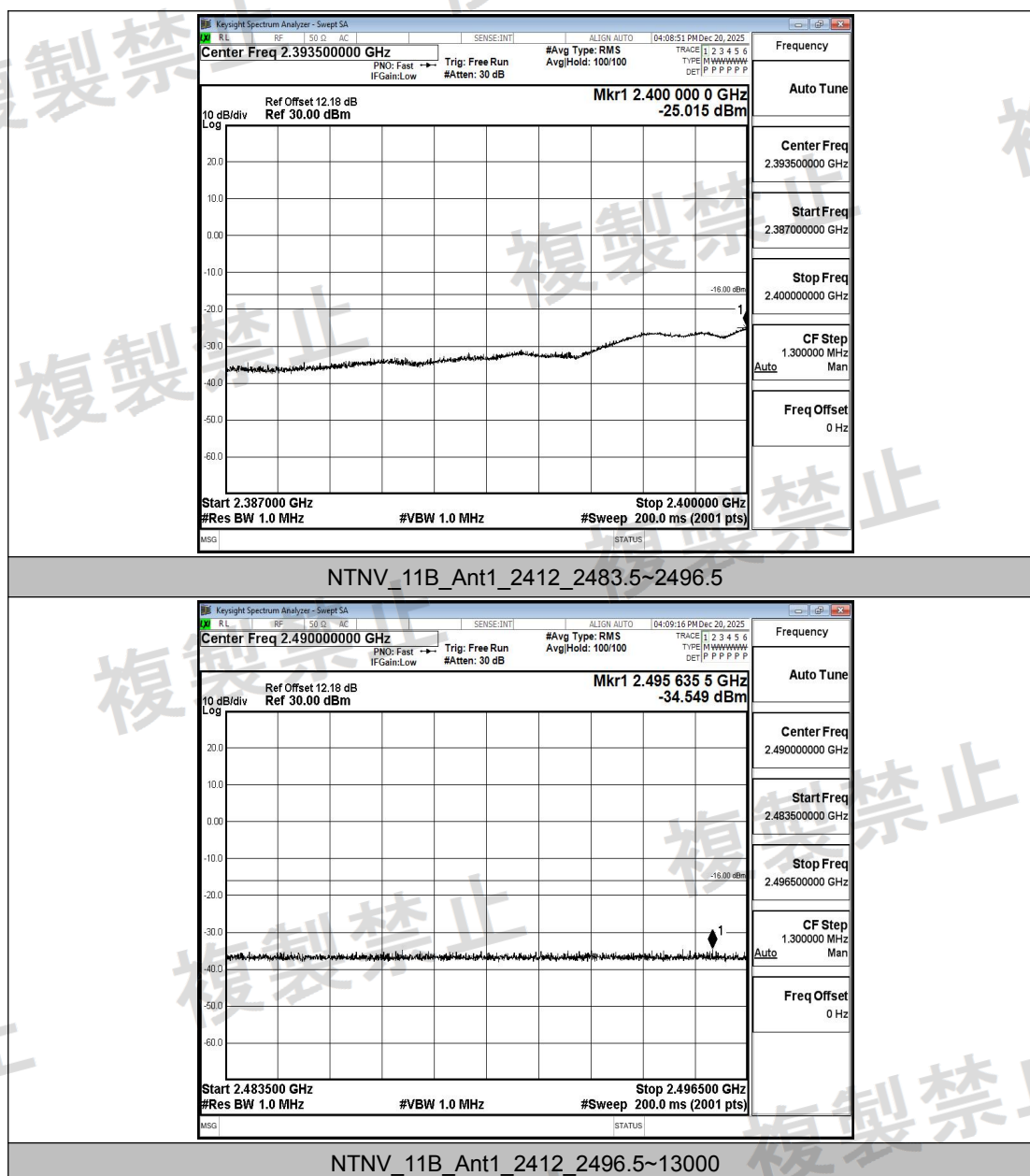
				00						
				30~1000	46.25	-37.40	≤-26	0.18197	≤2.5	PASS
				1000~2387	2341.58	-44.85	≤-26	0.03273	≤2.5	PASS
				2387~2400	2397.58	-34.26	≤-16	0.37497	≤25	PASS
			2472	2483.5~249 6.5	2483.52	-9.33	≤-16	116.680 96	≤25	See table below
				2496.5~130 00	2496.50	-42.12	≤-26	0.06138	≤2.5	PASS
				30~1000	47.22	-37.13	≤-26	0.19364	≤2.5	PASS
				1000~2387	2387	-25.60	≤-26	2.75423	≤2.5	See table below
			2412	2387~2400	2399.94	-7.27	≤-16	187.499 45	≤25	See table below
				2483.5~249 6.5	2487.73	-34.33	≤-16	0.36898	≤25	PASS
				2496.5~130 00	2641.45	-43.84	≤-26	0.04130	≤2.5	PASS
				30~1000	44.55	-38.62	≤-26	0.13740	≤2.5	PASS
				1000~2387	2291.99	-45.23	≤-26	0.02999	≤2.5	PASS
				2387~2400	2399.50	-34.91	≤-16	0.32285	≤25	PASS
			2442	2483.5~249 6.5	2496.14	-34.45	≤-16	0.35892	≤25	PASS
				2496.5~130 00	2586.30	-43.49	≤-26	0.04477	≤2.5	PASS
				30~1000	61.77	-36.13	≤-26	0.24378	≤2.5	PASS
				1000~2387	1746.21	-25.20	≤-26	3.01995	≤2.5	See table below
				2387~2400	2390.02	-34.55	≤-16	0.35075	≤25	PASS
			2472	2483.5~249 6.5	2483.77	-7.85	≤-16	164.058 98	≤25	See table below
				2496.5~130 00	2693.97	-42.11	≤-26	0.06152	≤2.5	PASS

Test Result_Step2

TestCondition	TestMode	PreScan In Ant	Channel	Ant	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11G	Ant1	2412	Ant1	2399.76	-21.09	≤-16	7.78037	≤25	PASS
			2472	Ant1	2485.16	-23.31	≤-16	4.66659	≤25	PASS
	11N20SI SO	Ant1	2412	Ant1	2386.99	-40.25	≤-26	0.09441	≤2.5	PASS
				Ant1	2399.91	-19.77	≤-16	10.54387	≤25	PASS
			2472	Ant1	1746.02	-34.91	≤-26	0.32285	≤2.5	PASS
				Ant1	2484.48	-21.58	≤-16	6.95024	≤25	PASS

Test Graphs

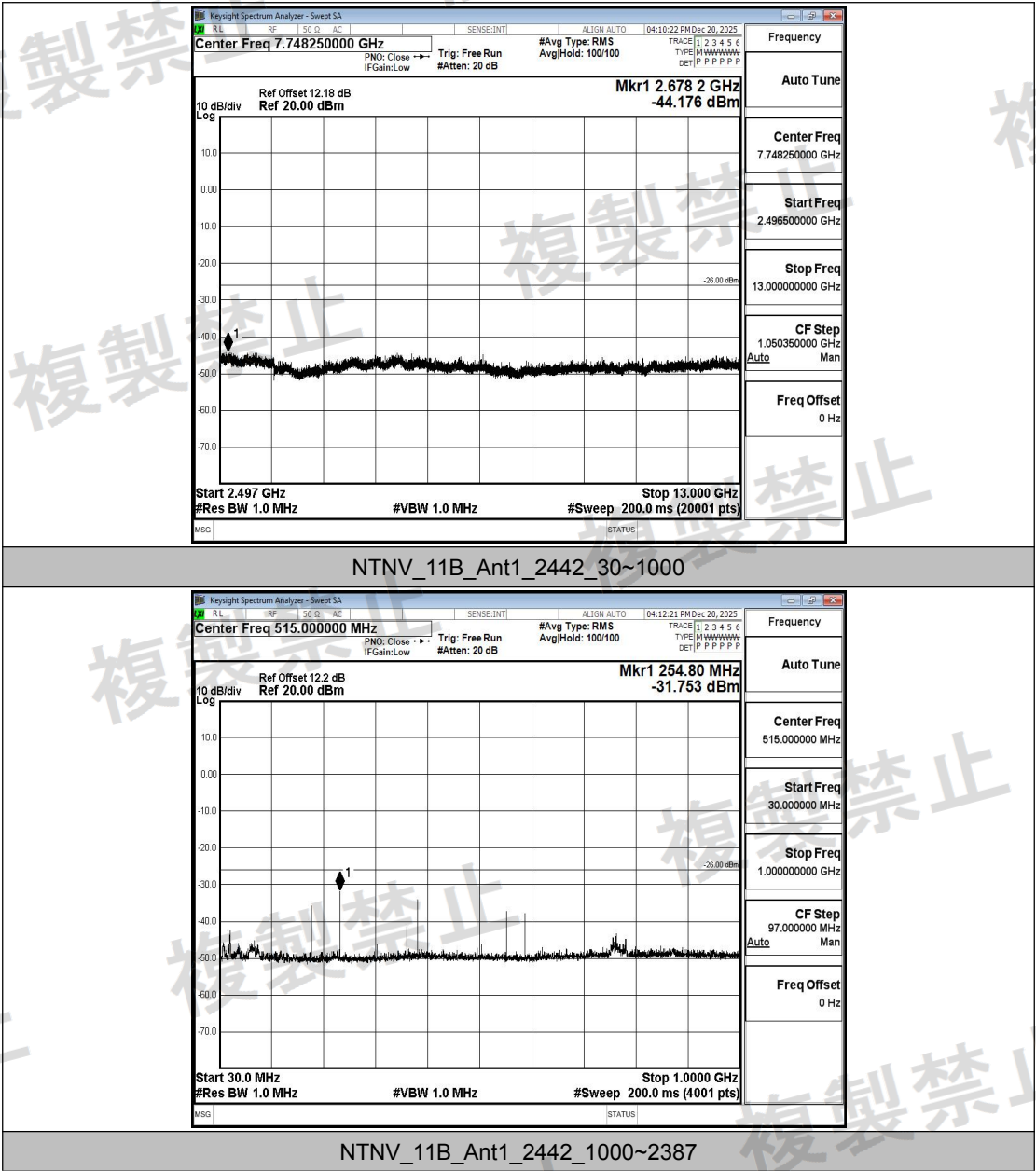


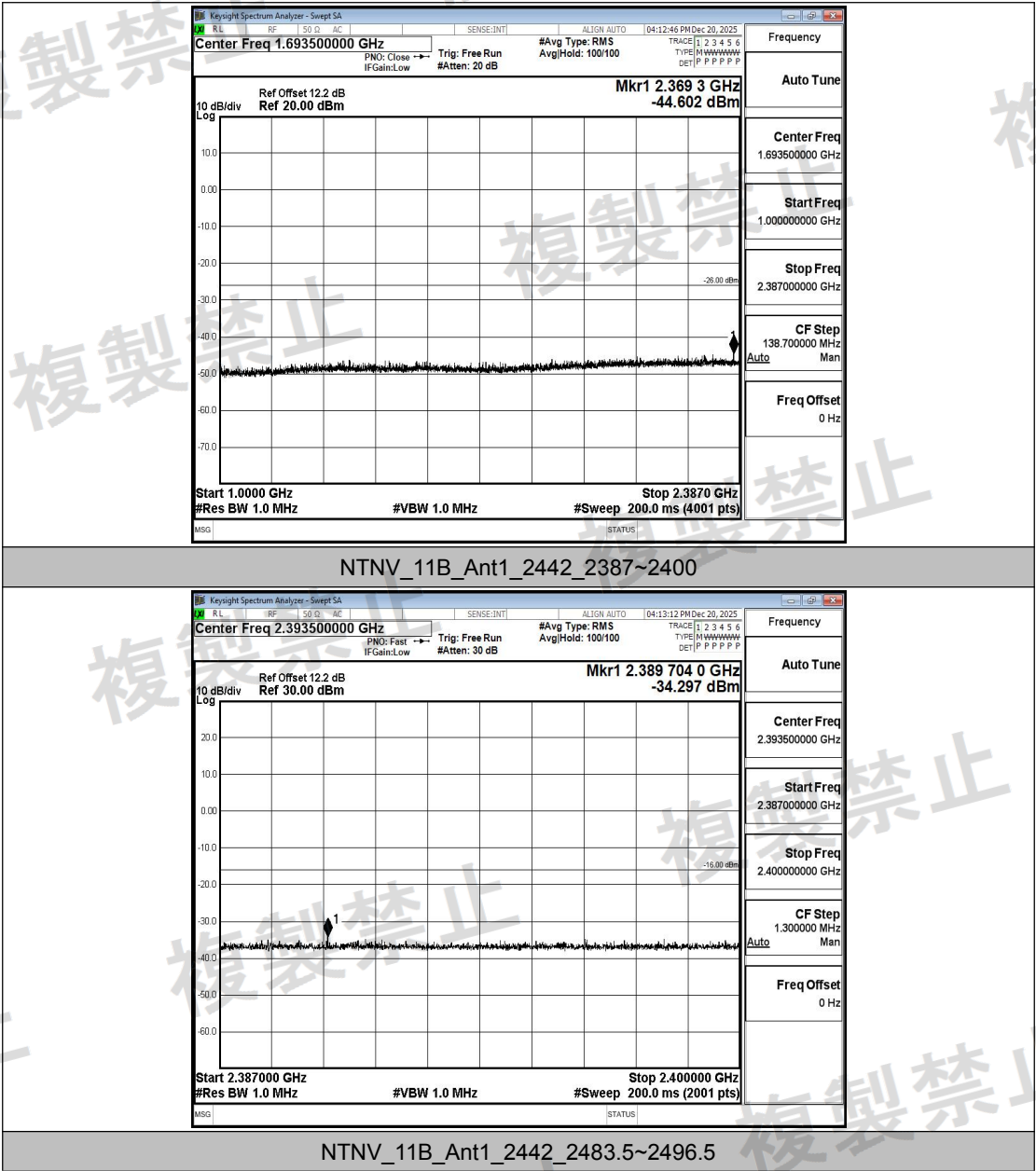


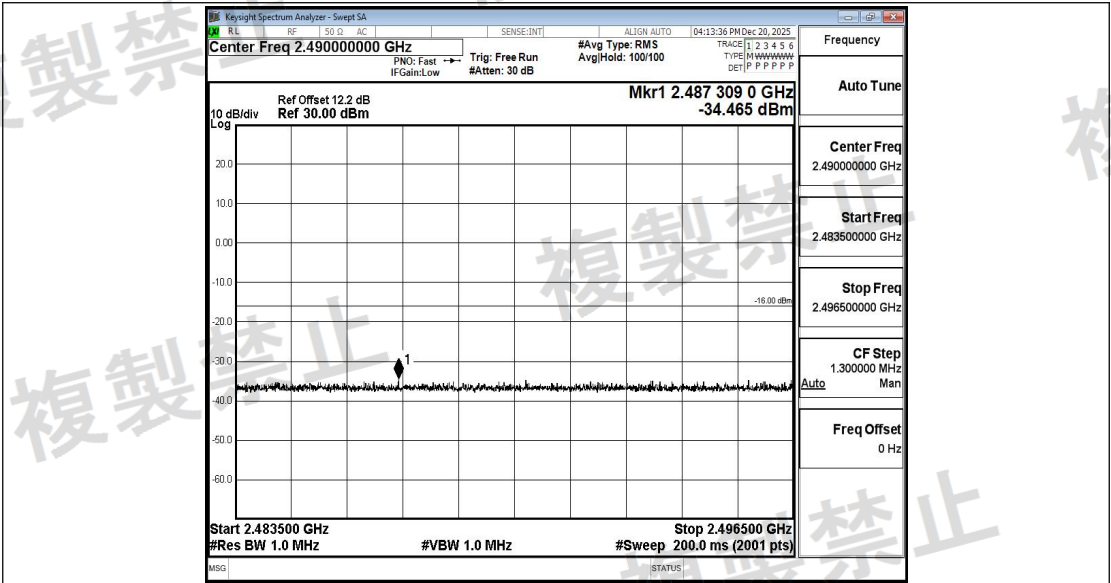
Guangzhou LCS Compliance Testing Laboratory Ltd.

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

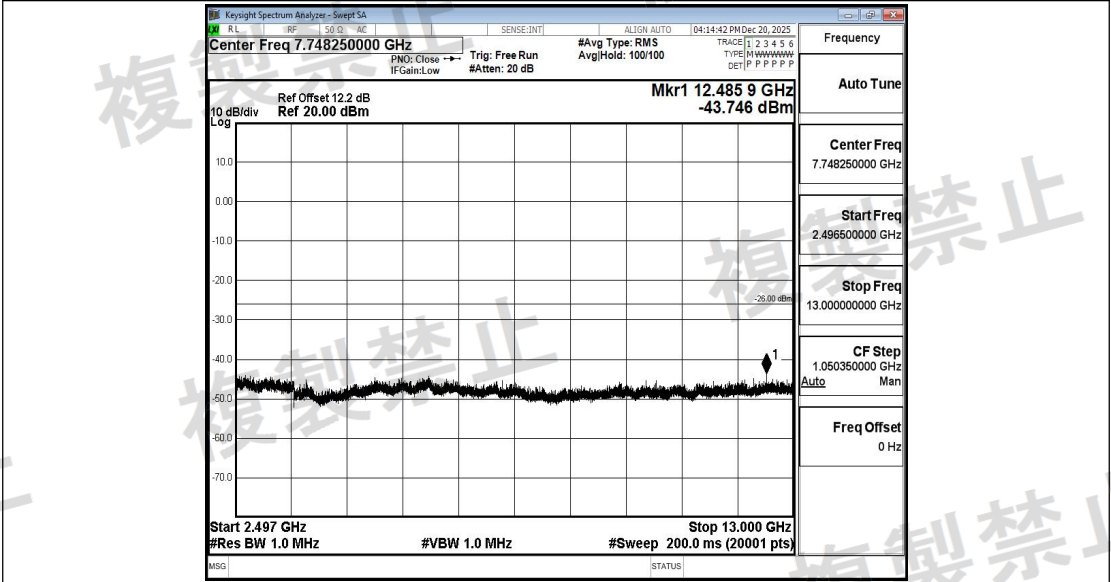
Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com



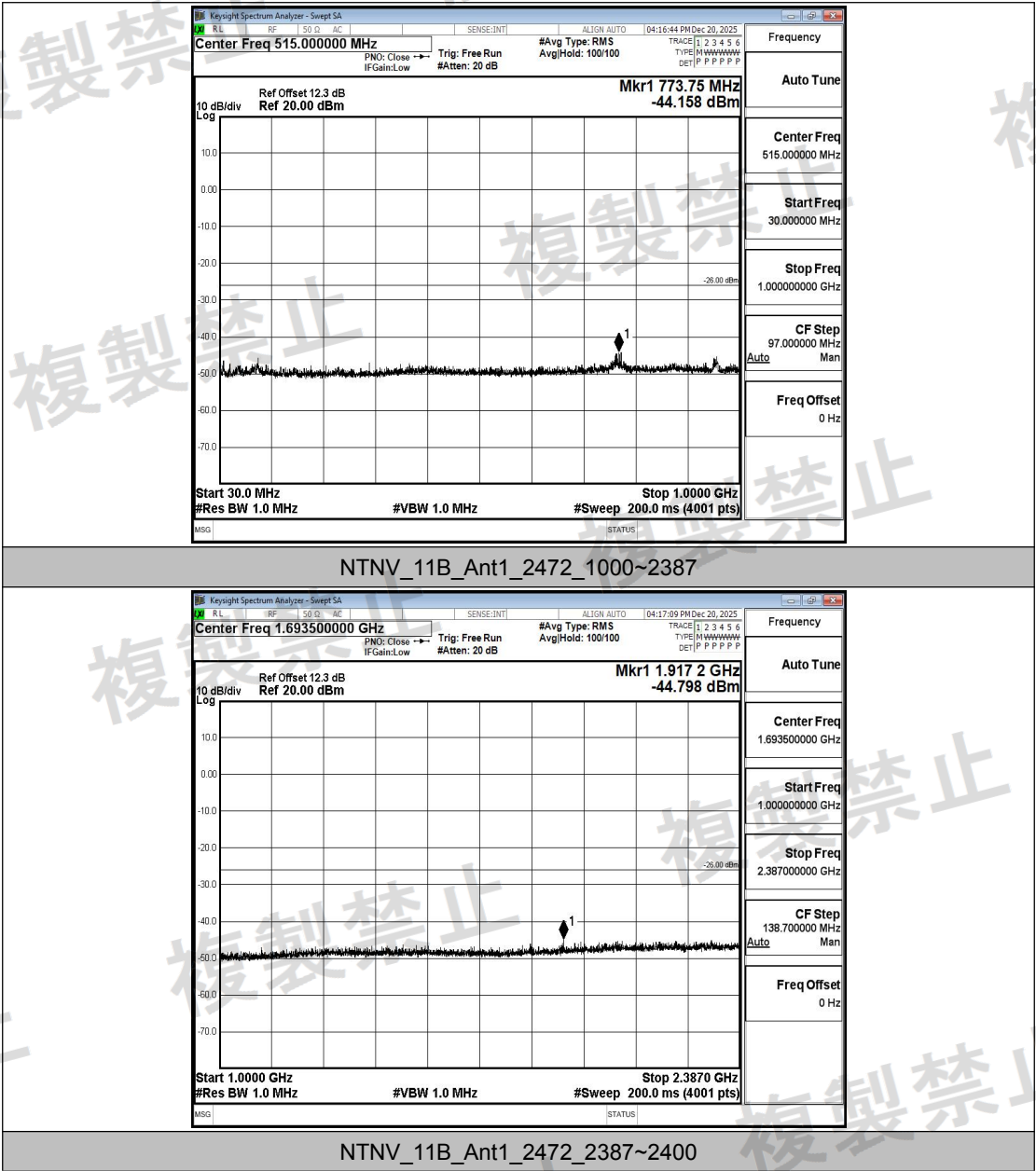


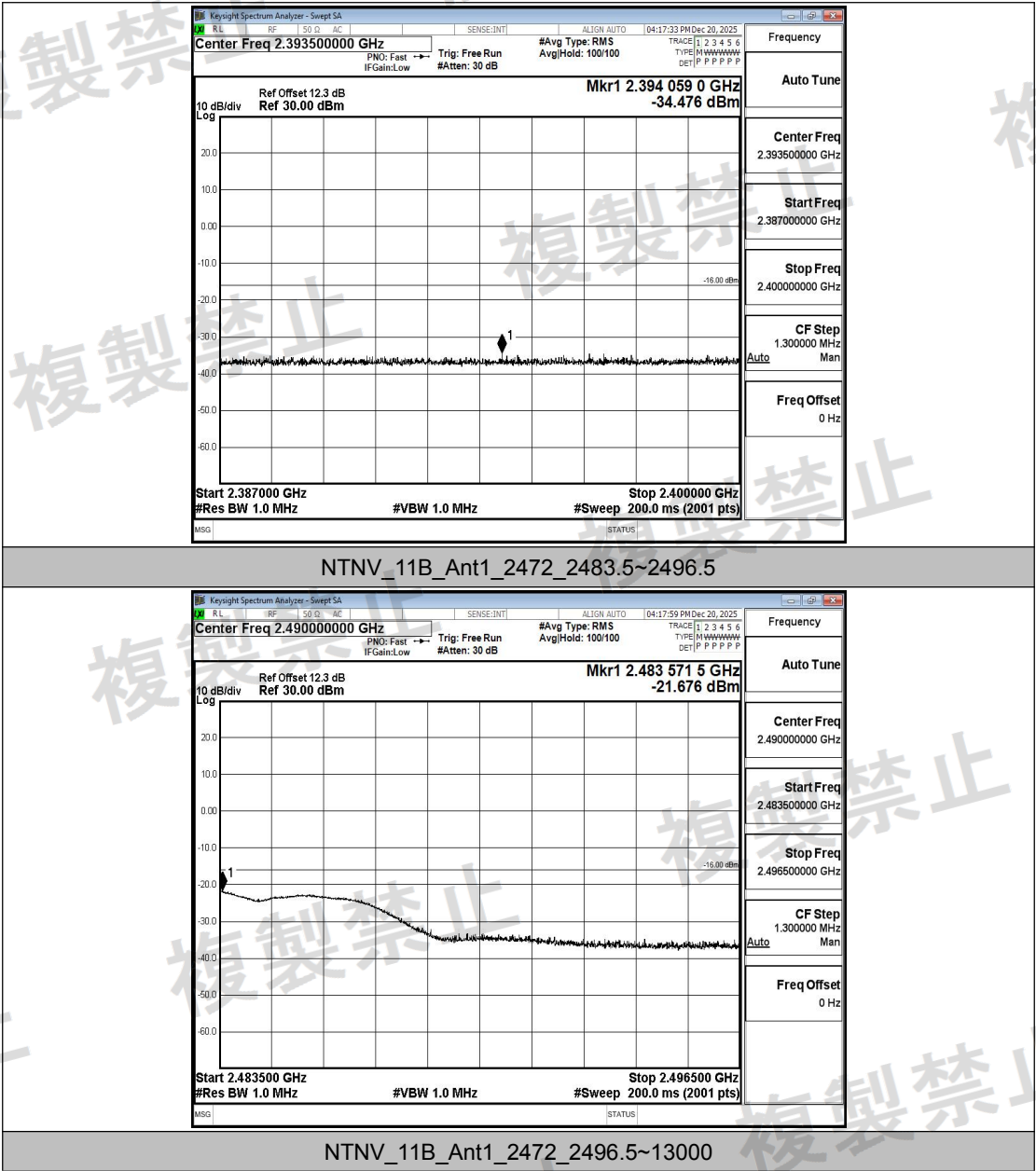


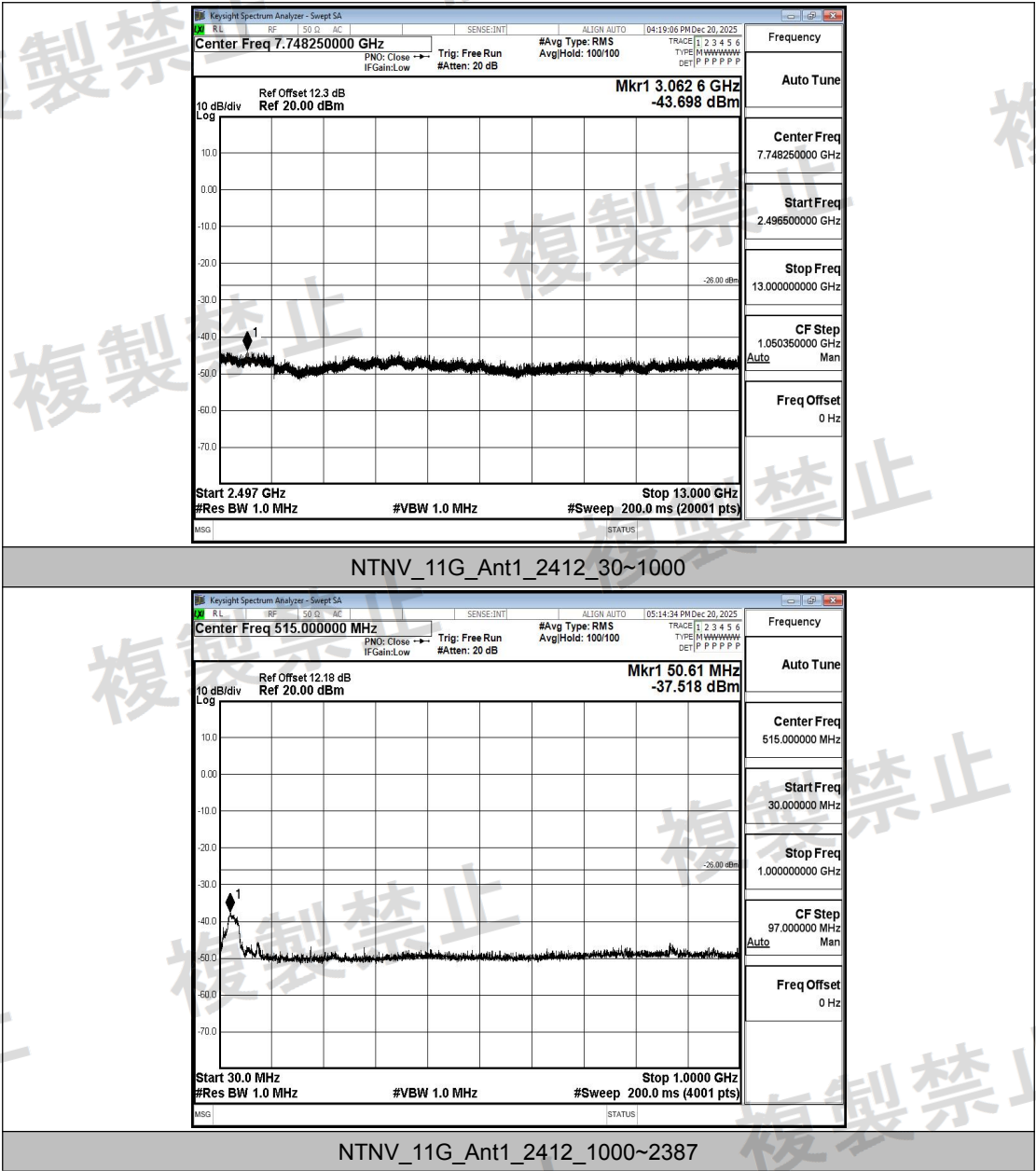
NTNV_11B_Ant1_2442_2496.5~13000

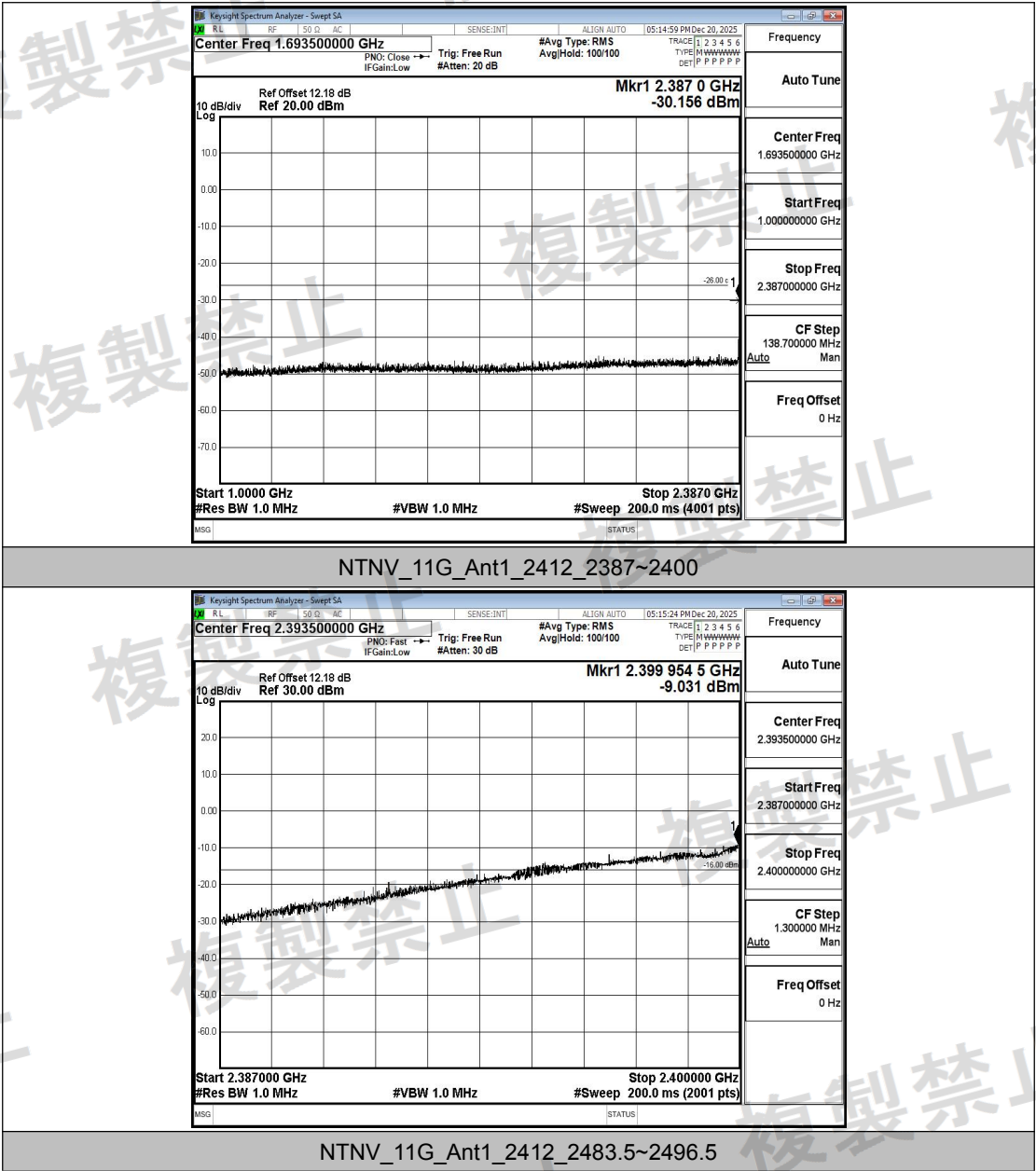


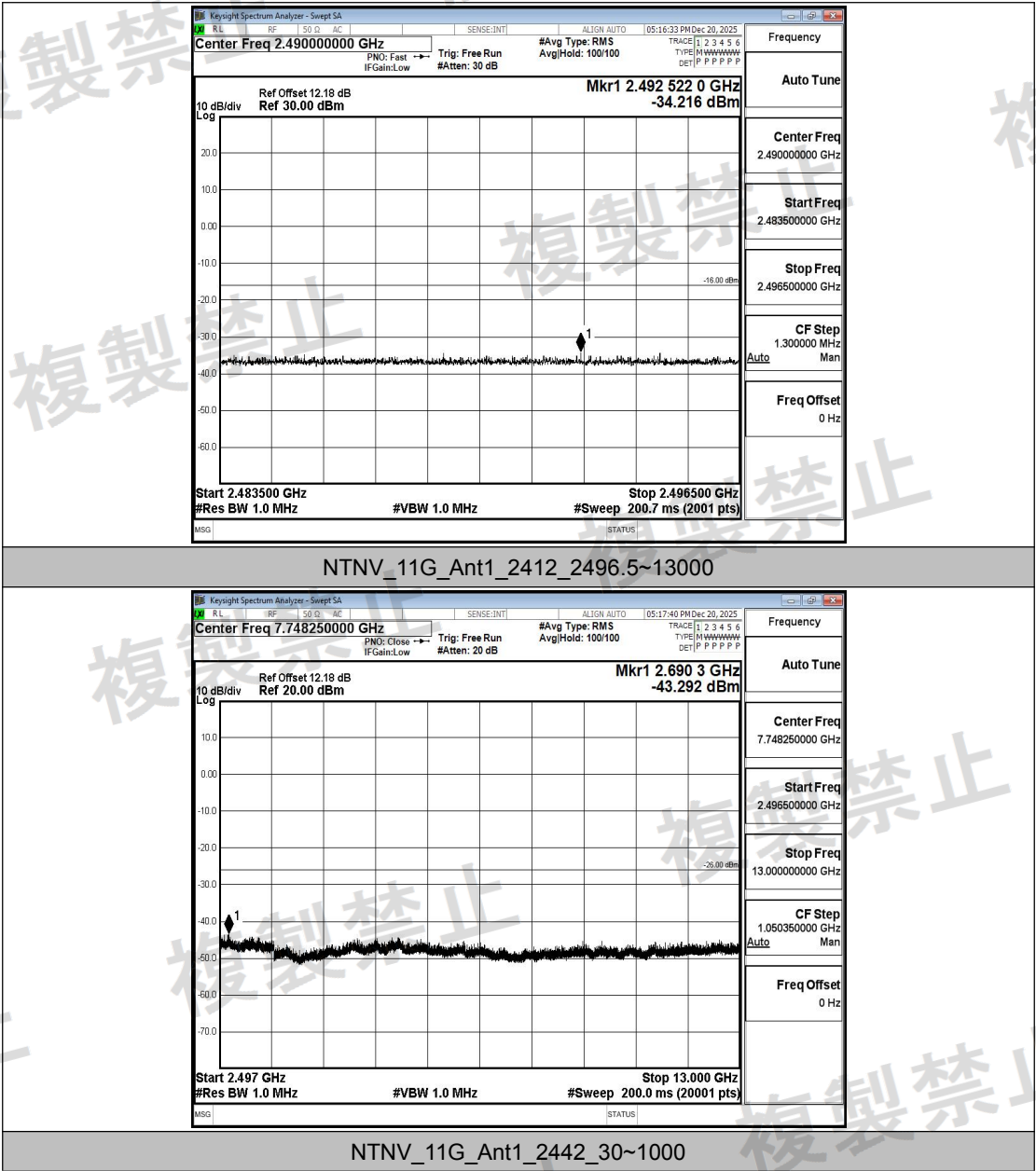
NTNV_11B_Ant1_2472_30~1000

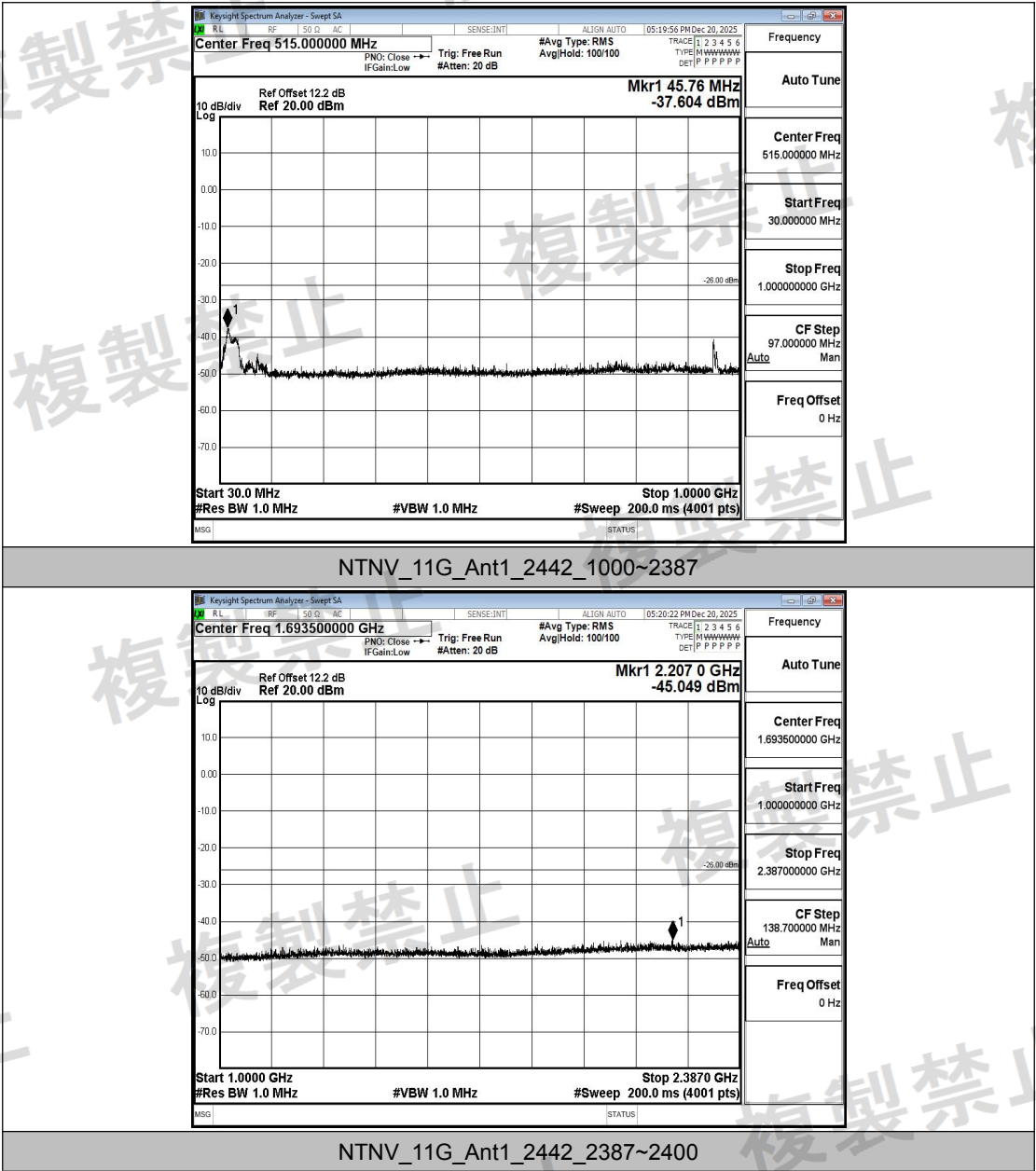


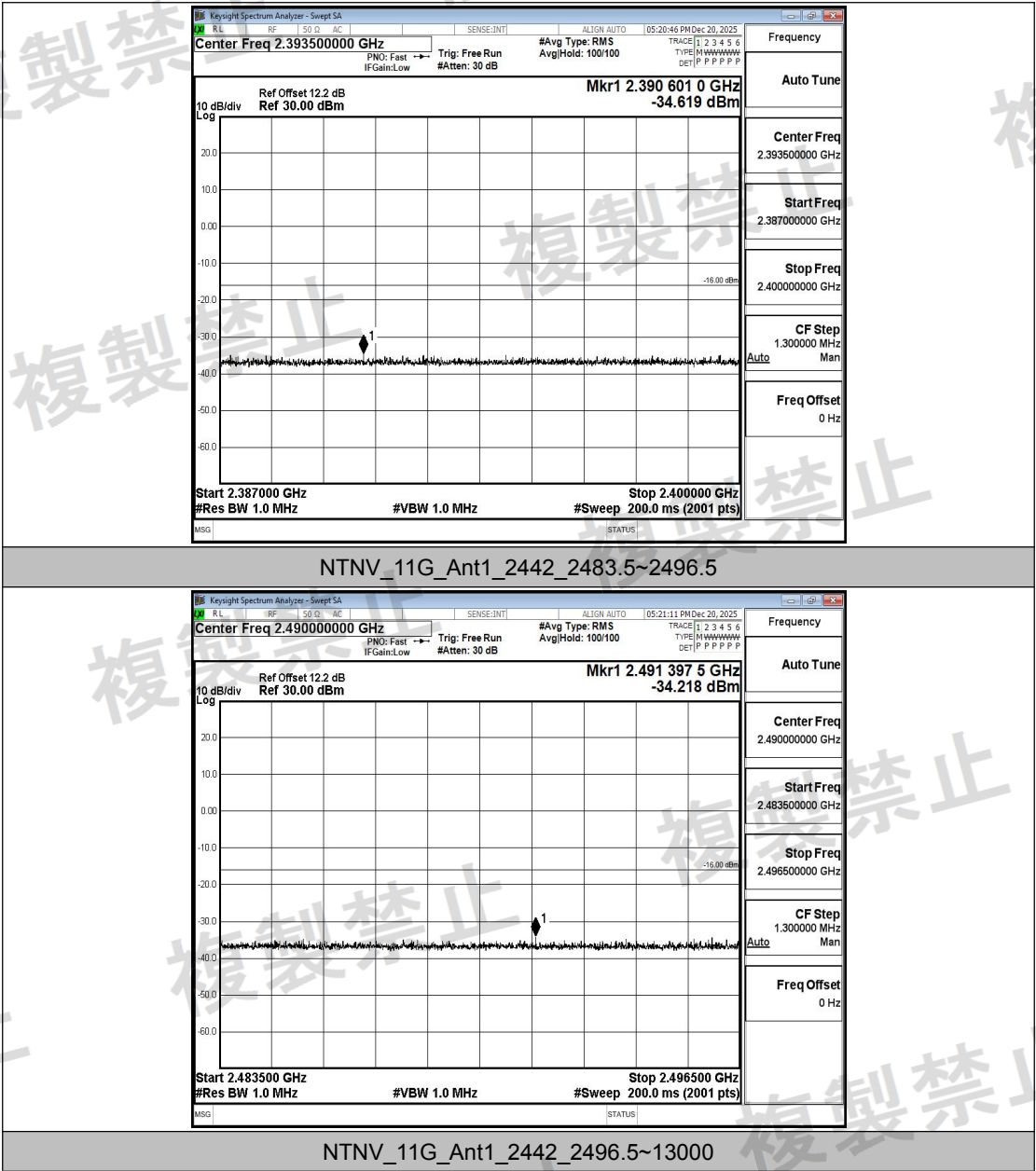


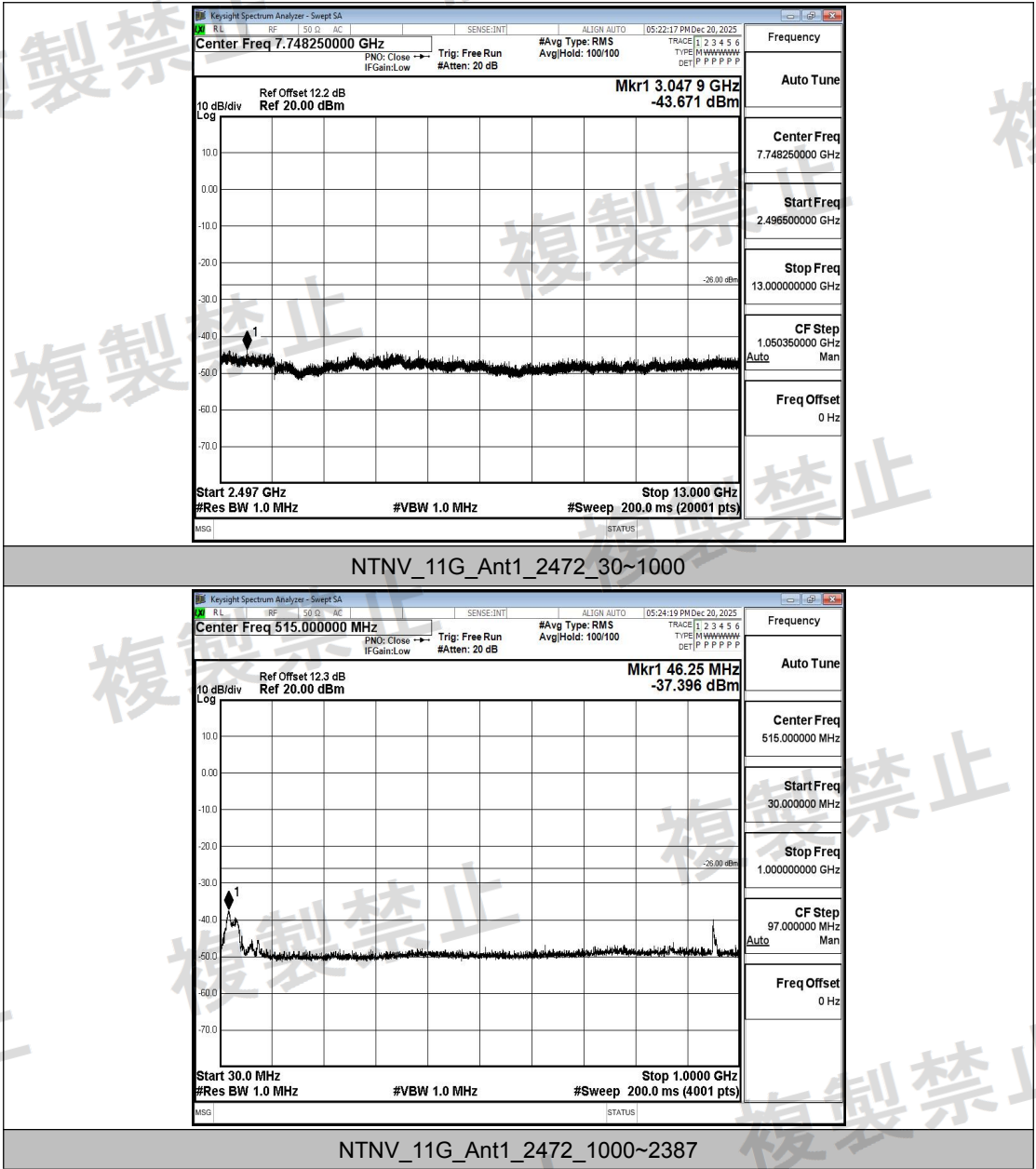


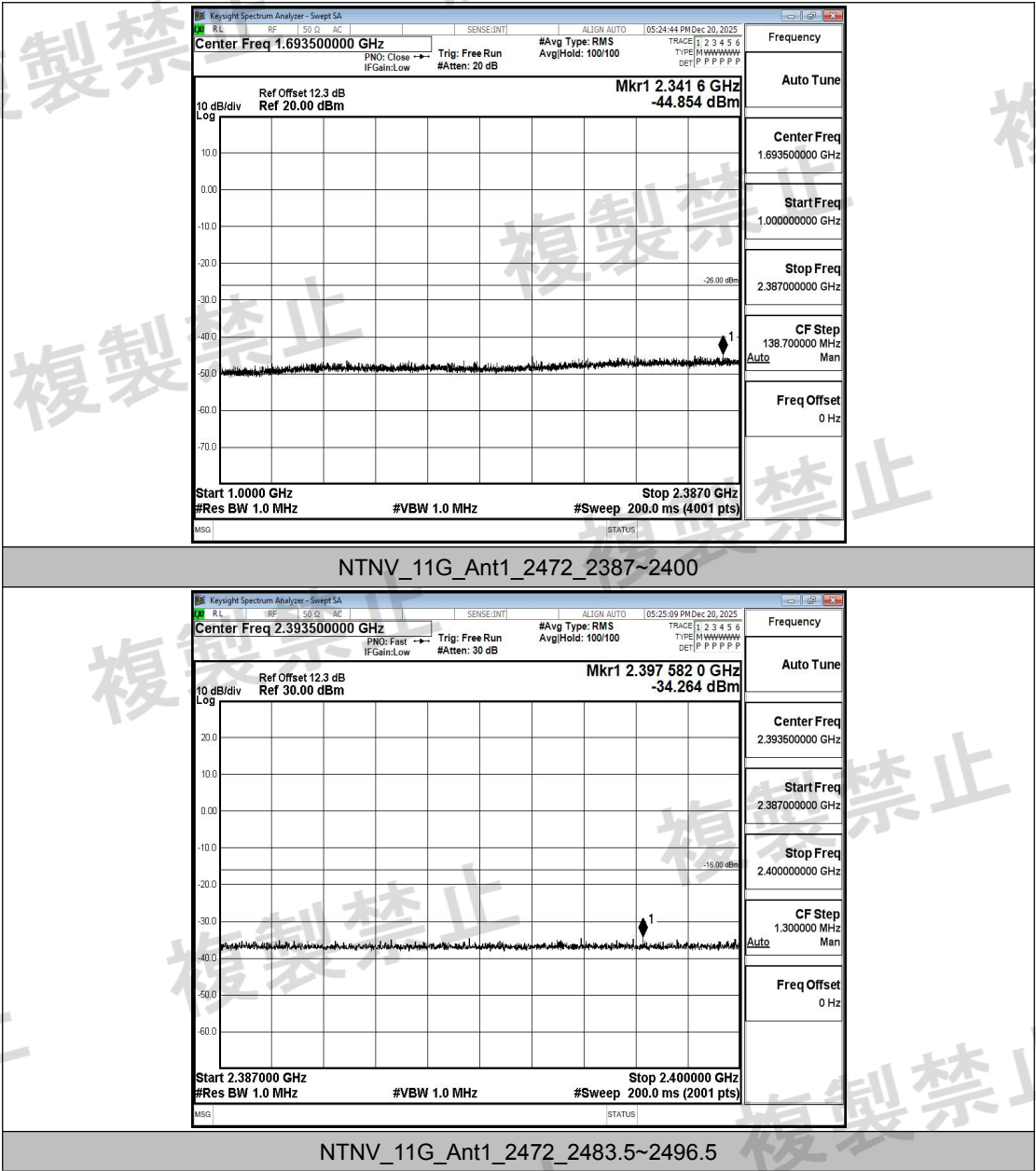


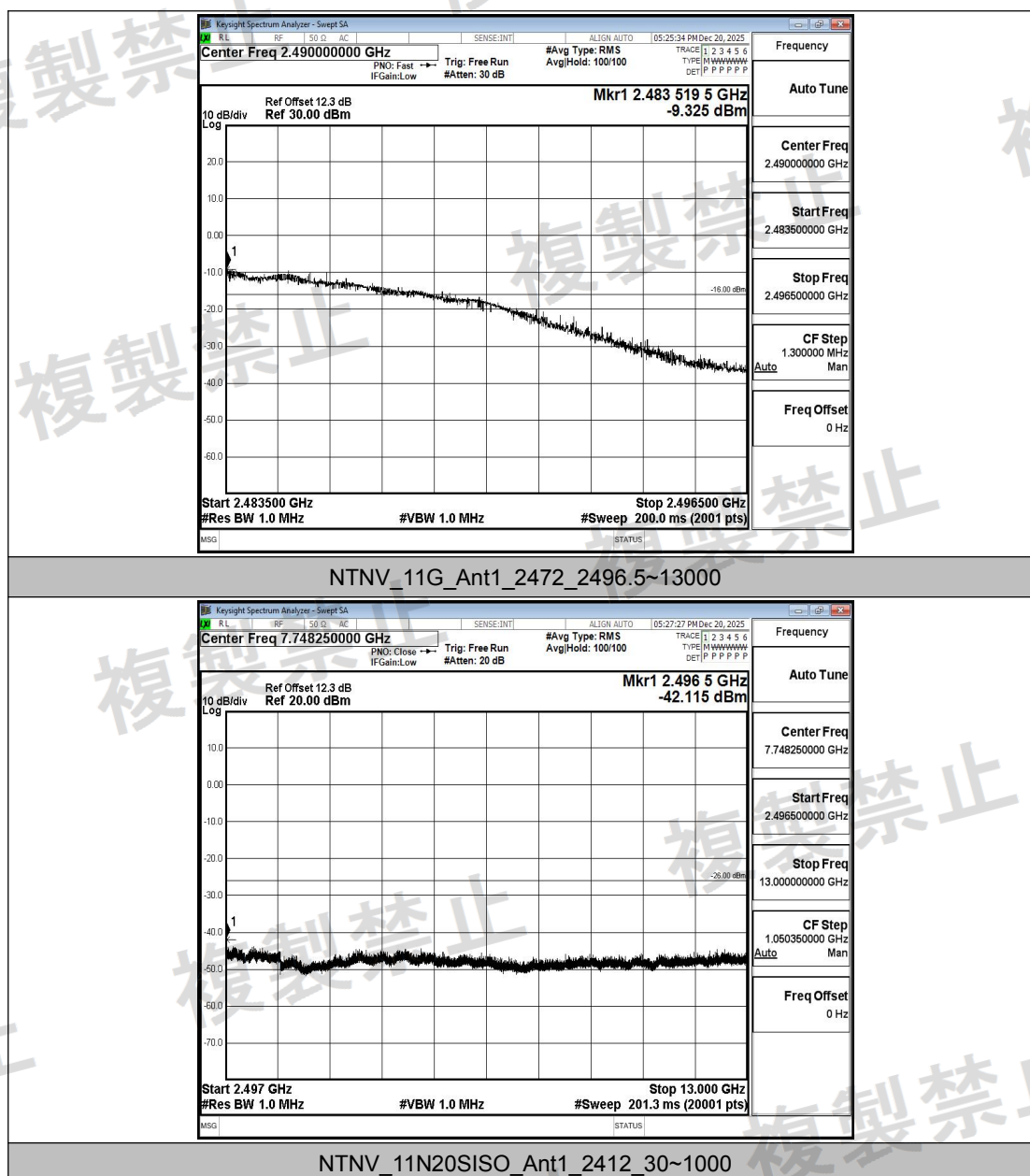


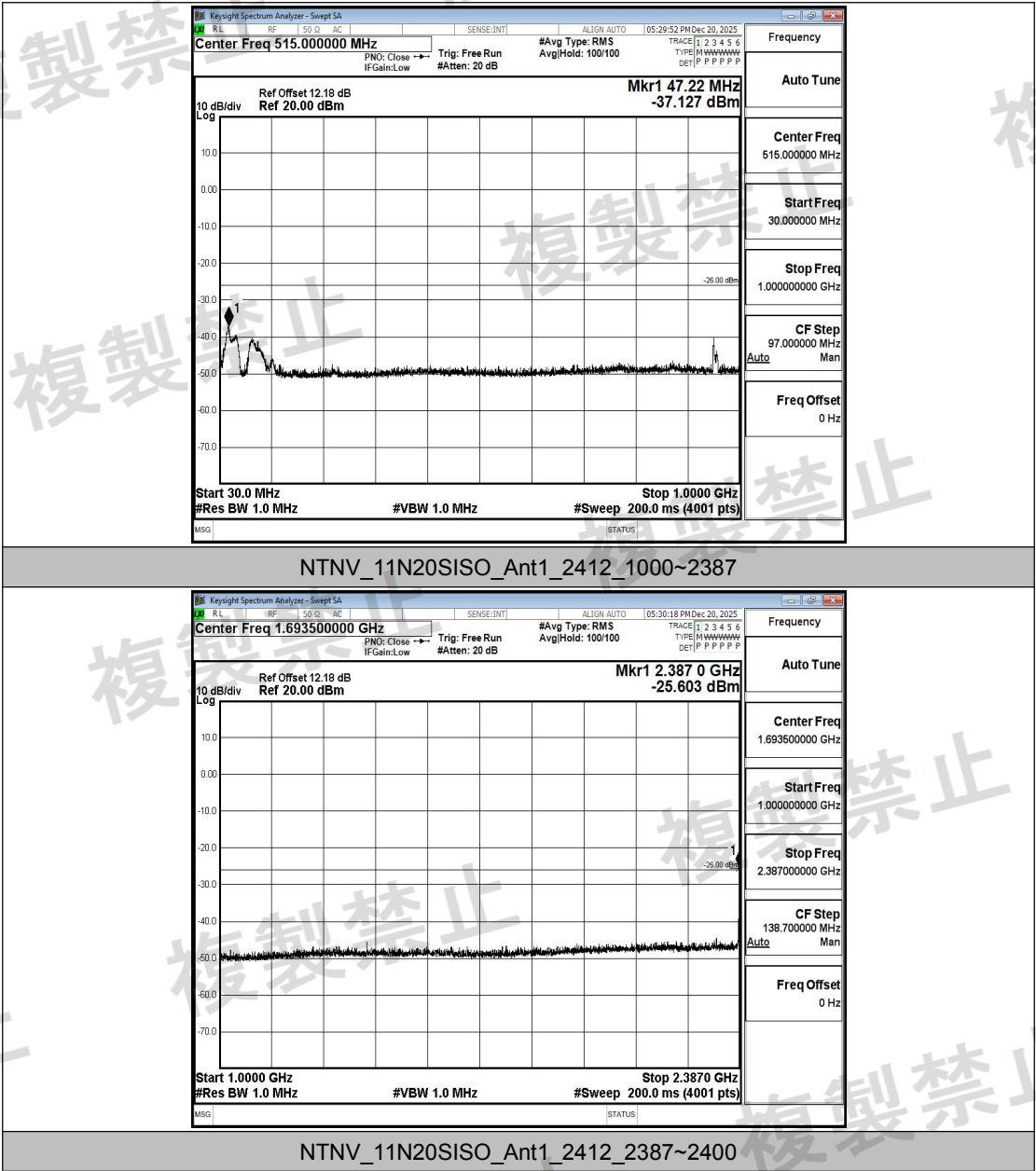


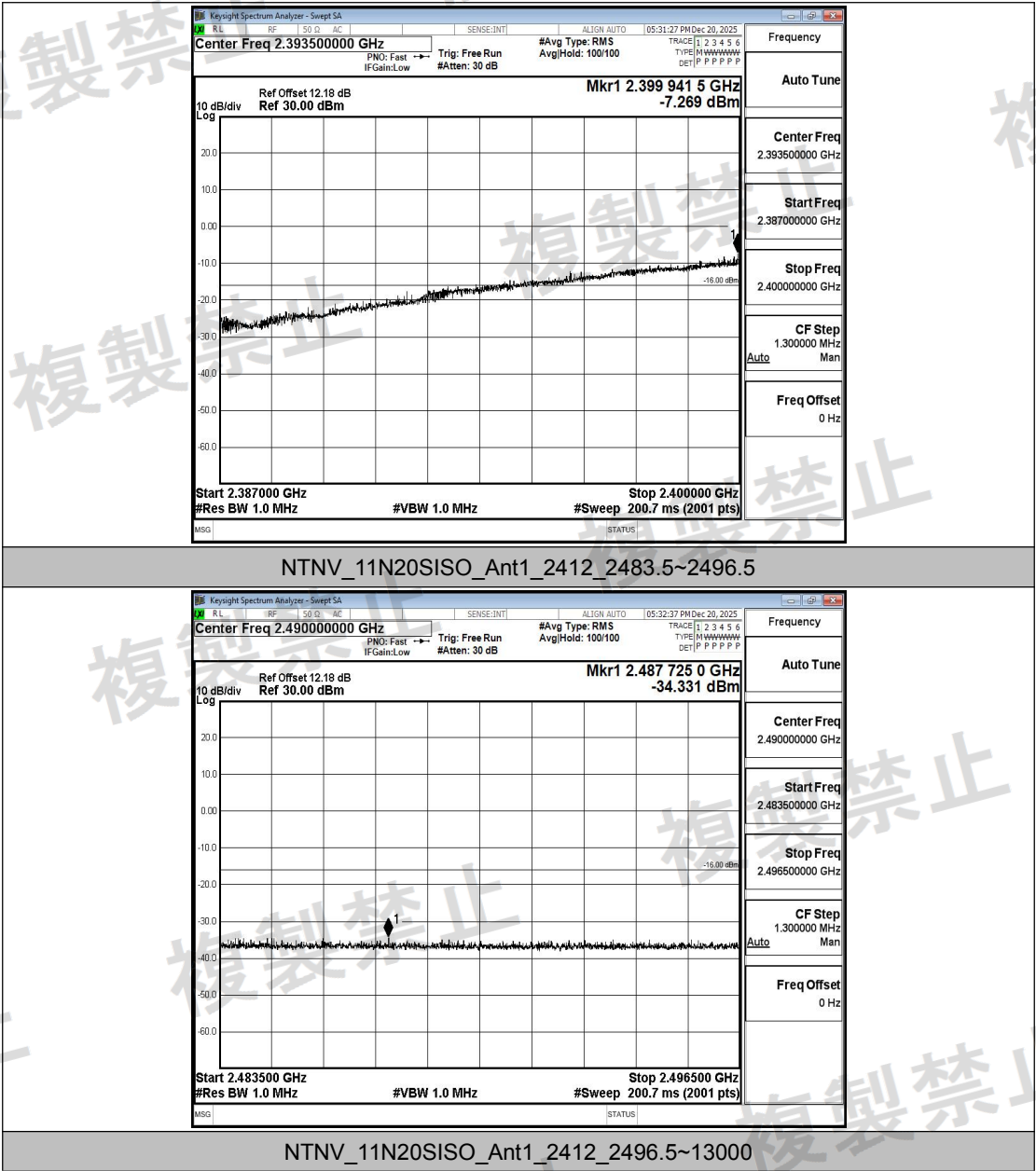


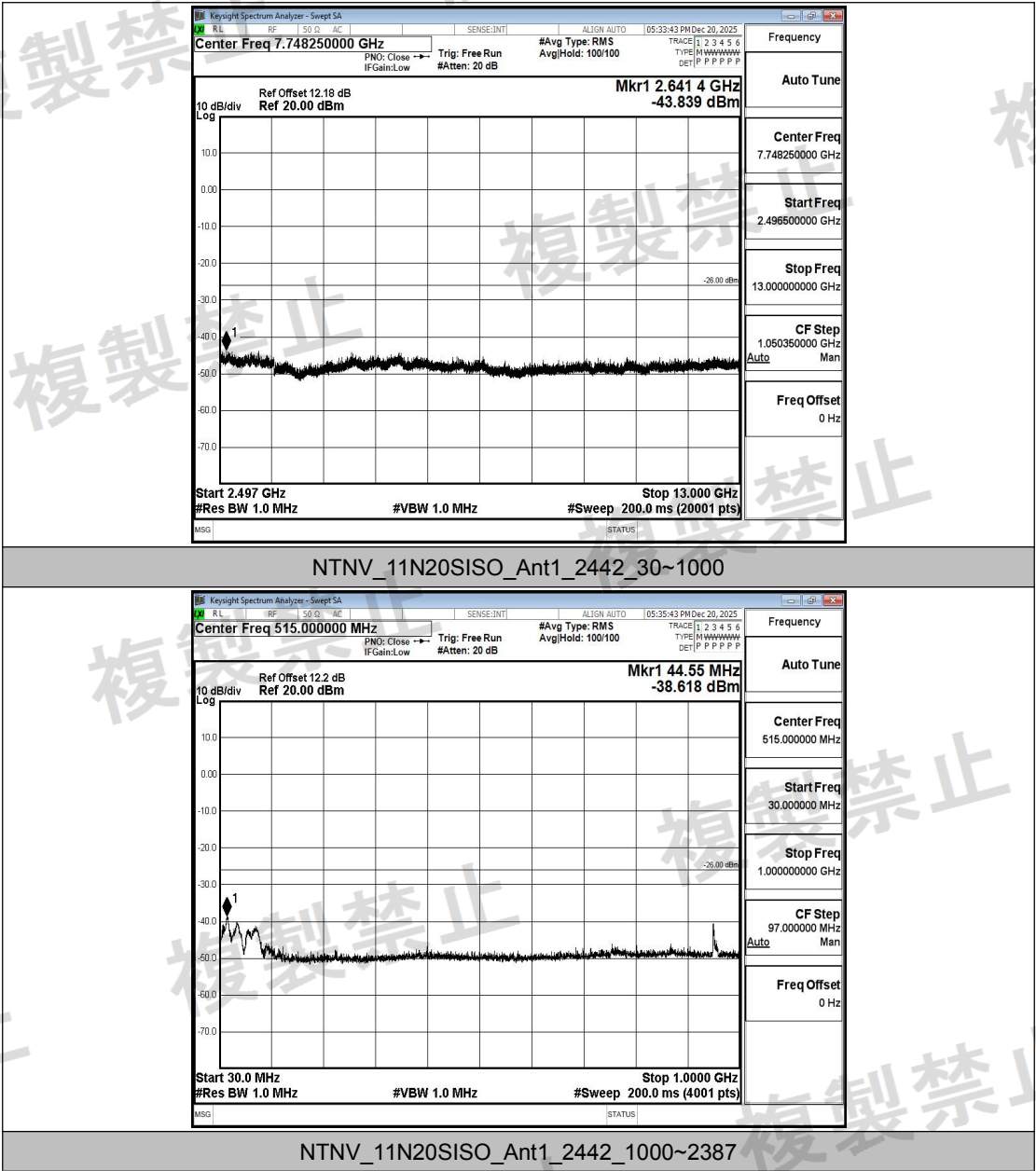


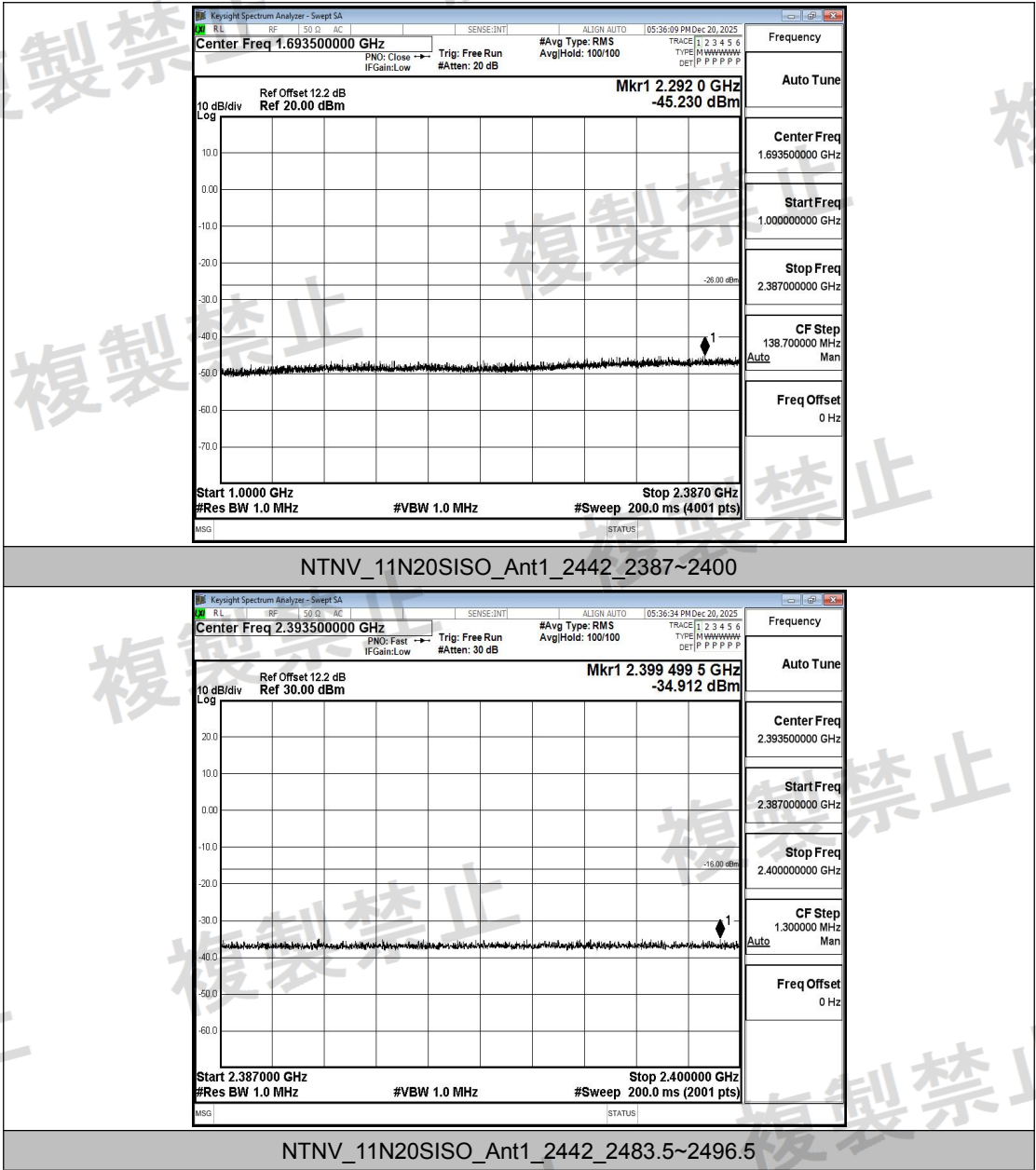


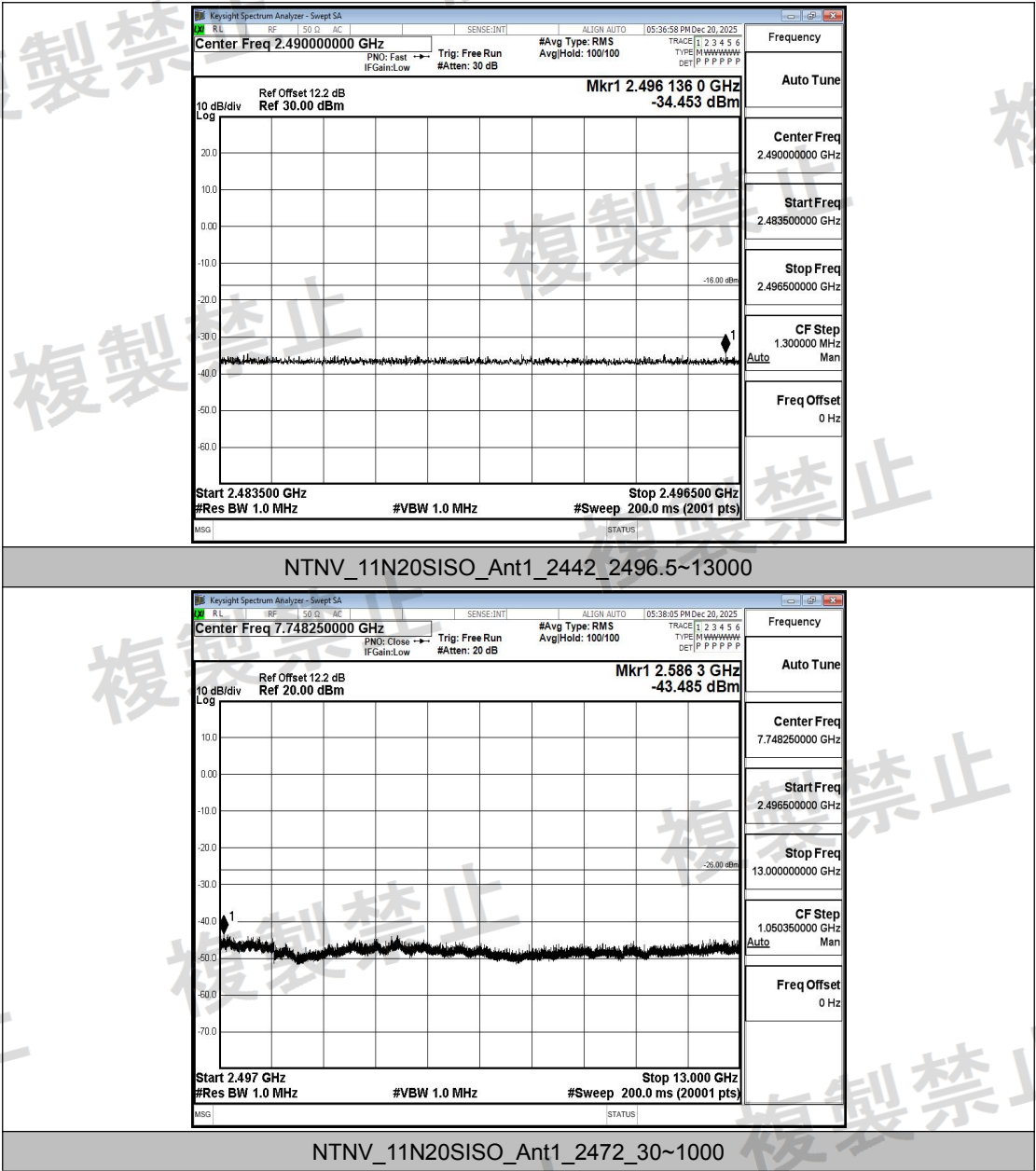


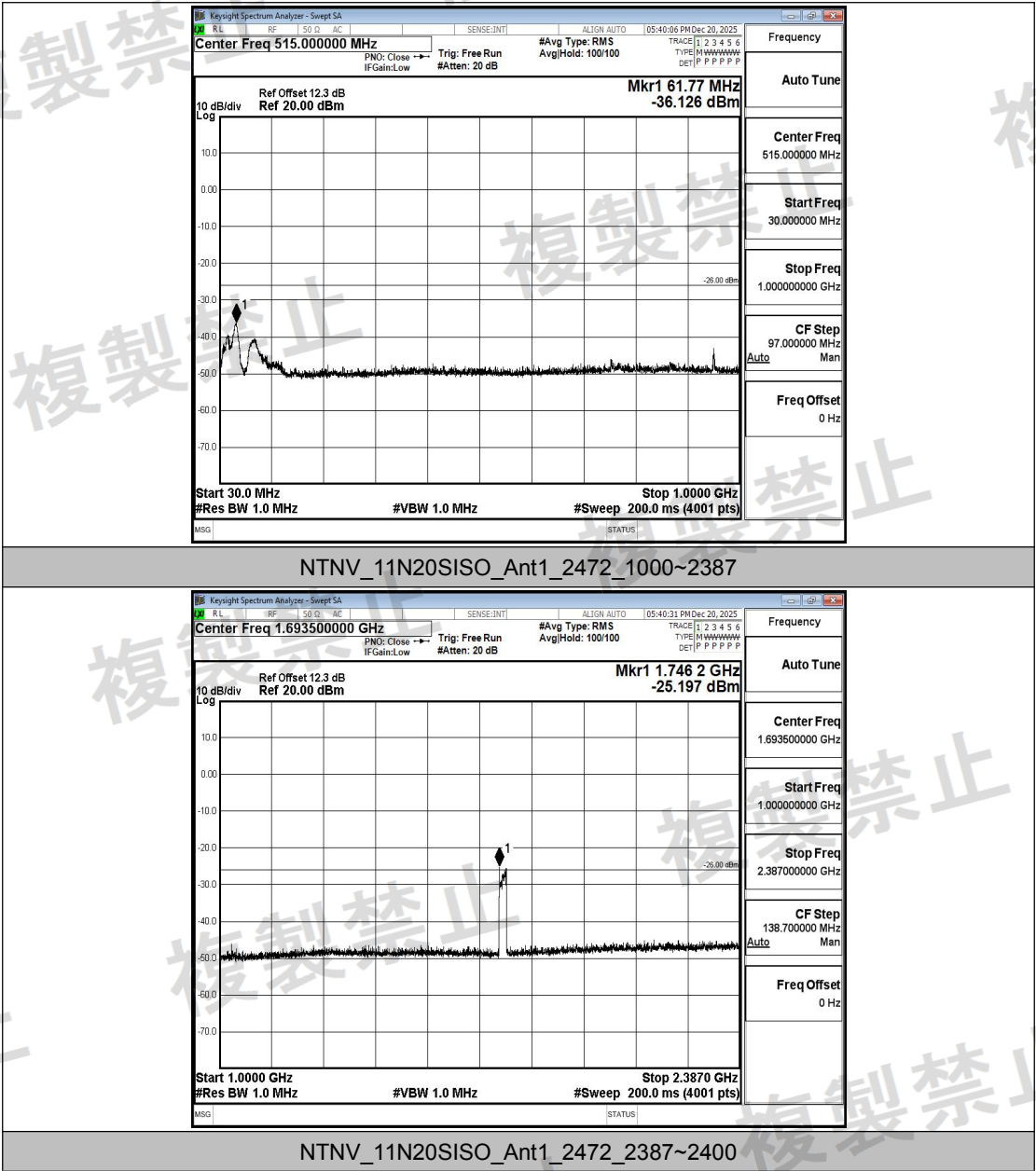


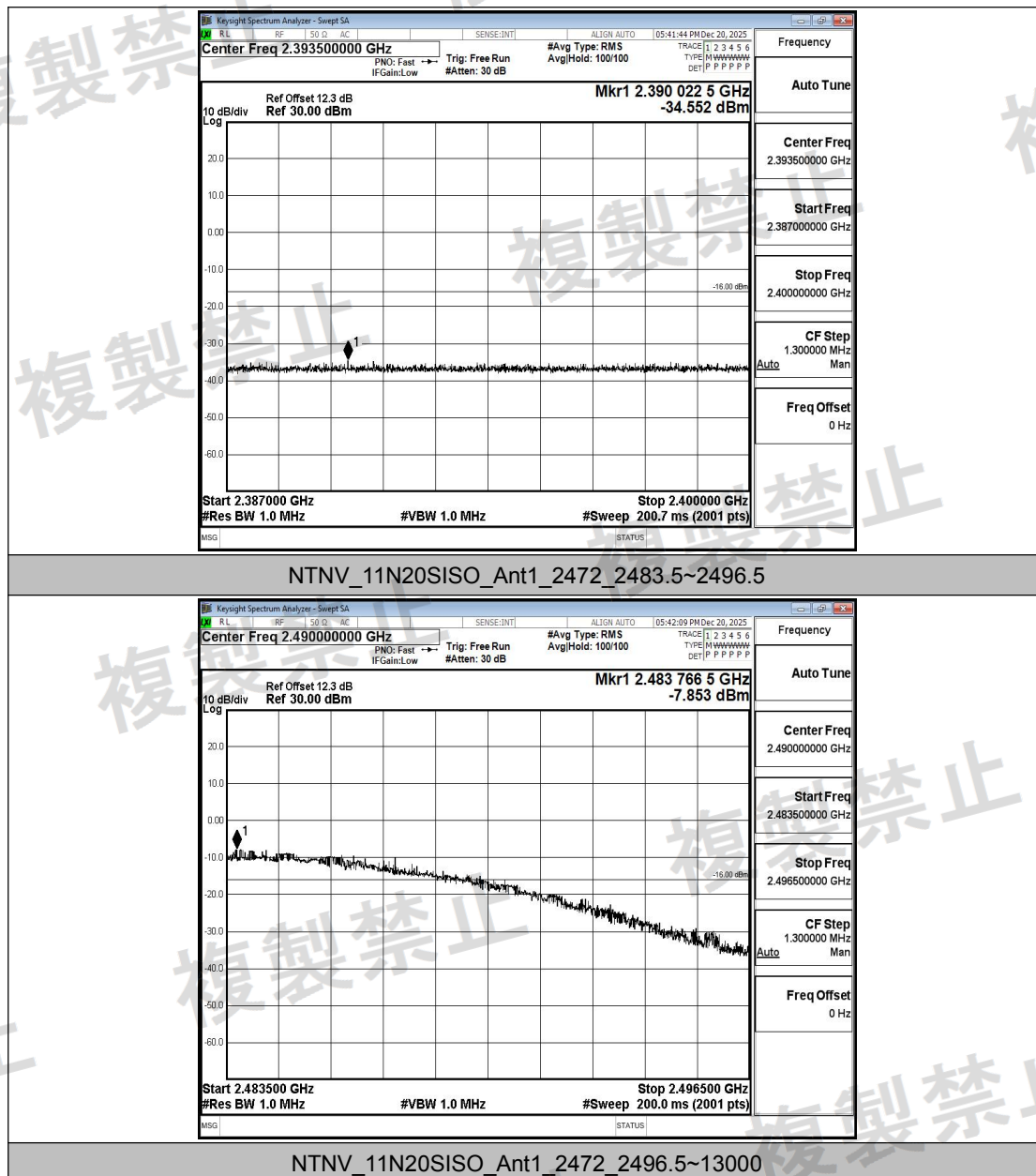








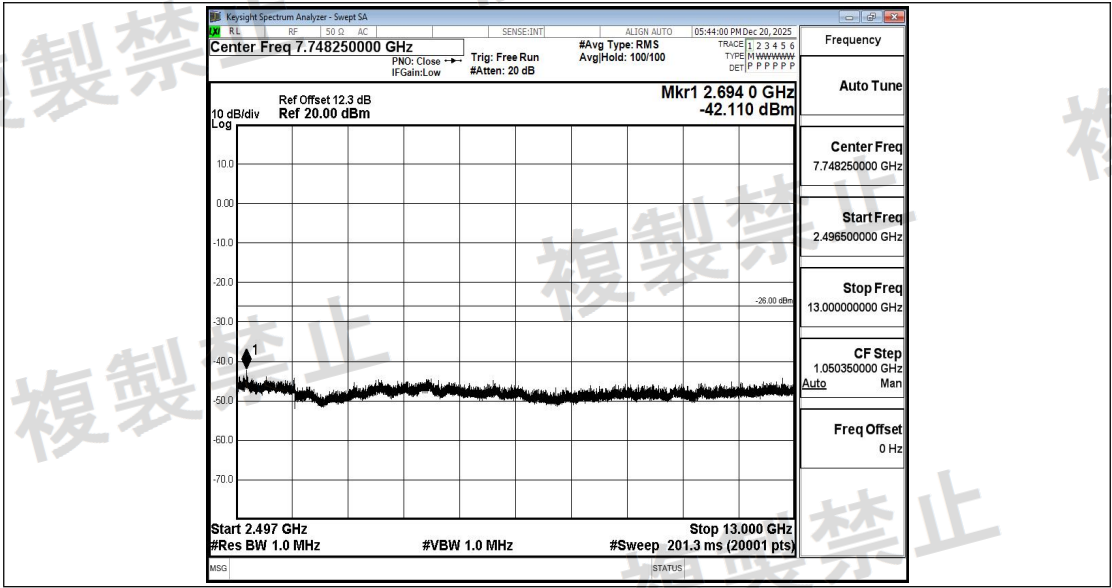




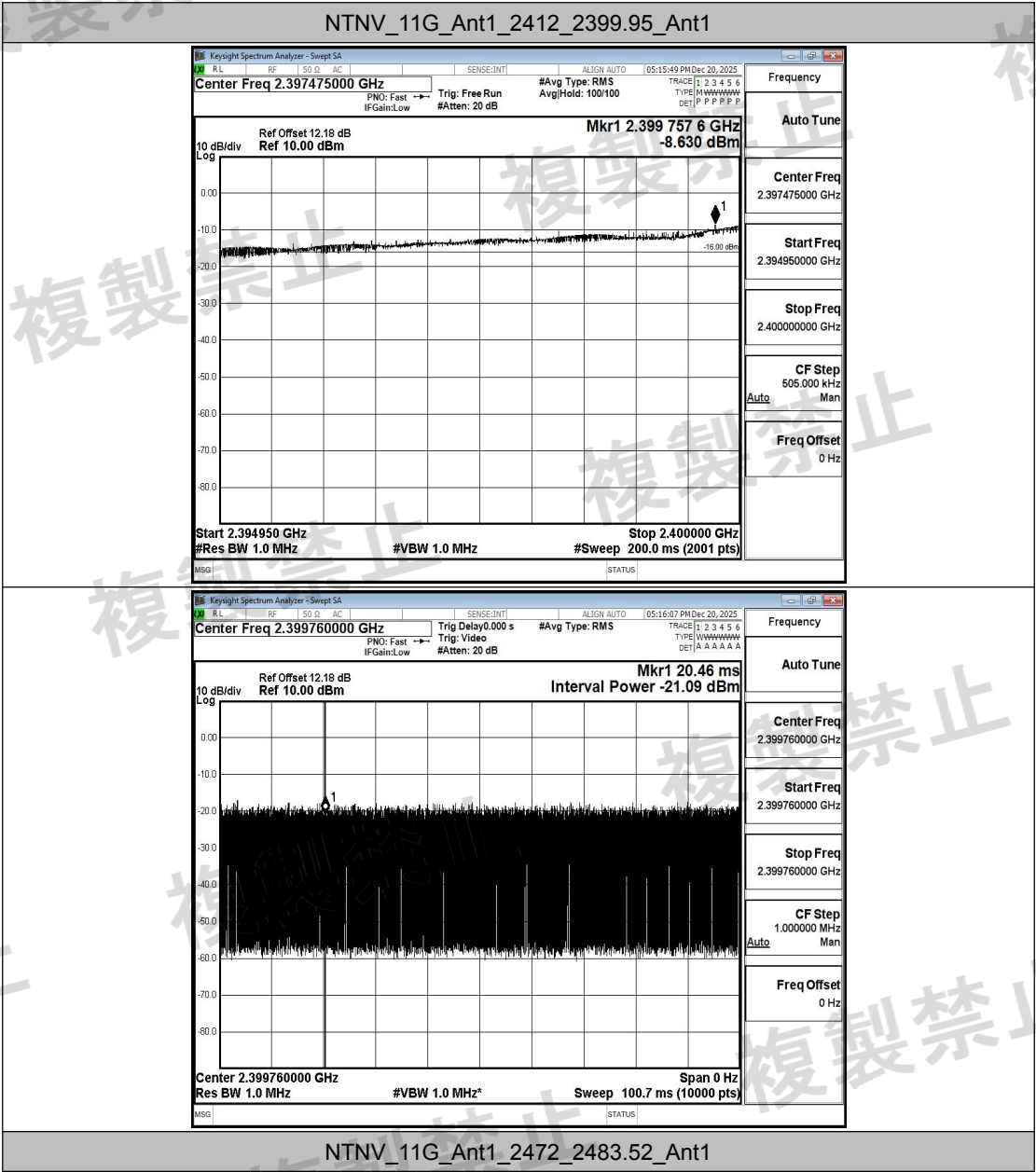
Guangzhou LCS Compliance Testing Laboratory Ltd.

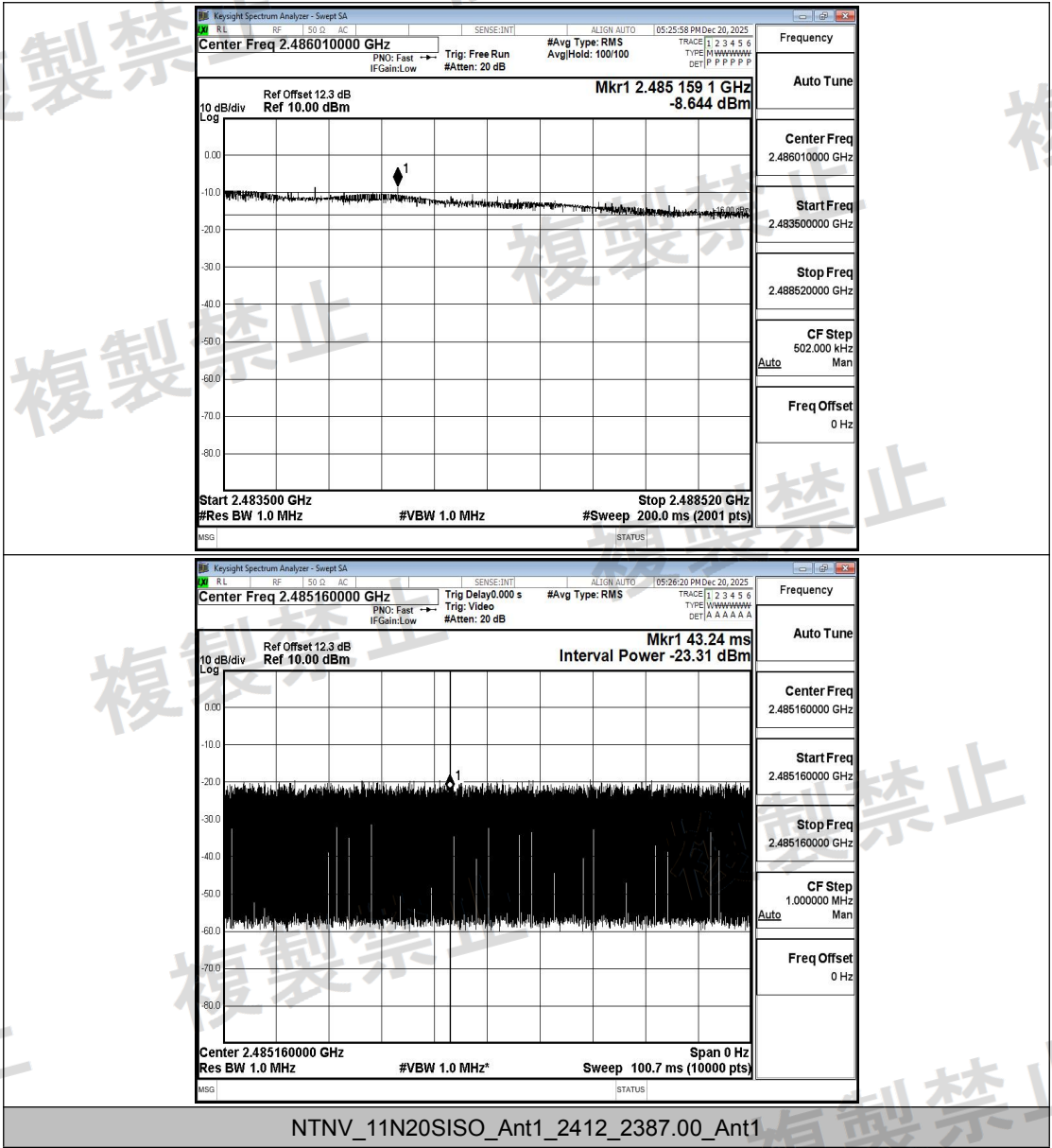
Add: No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

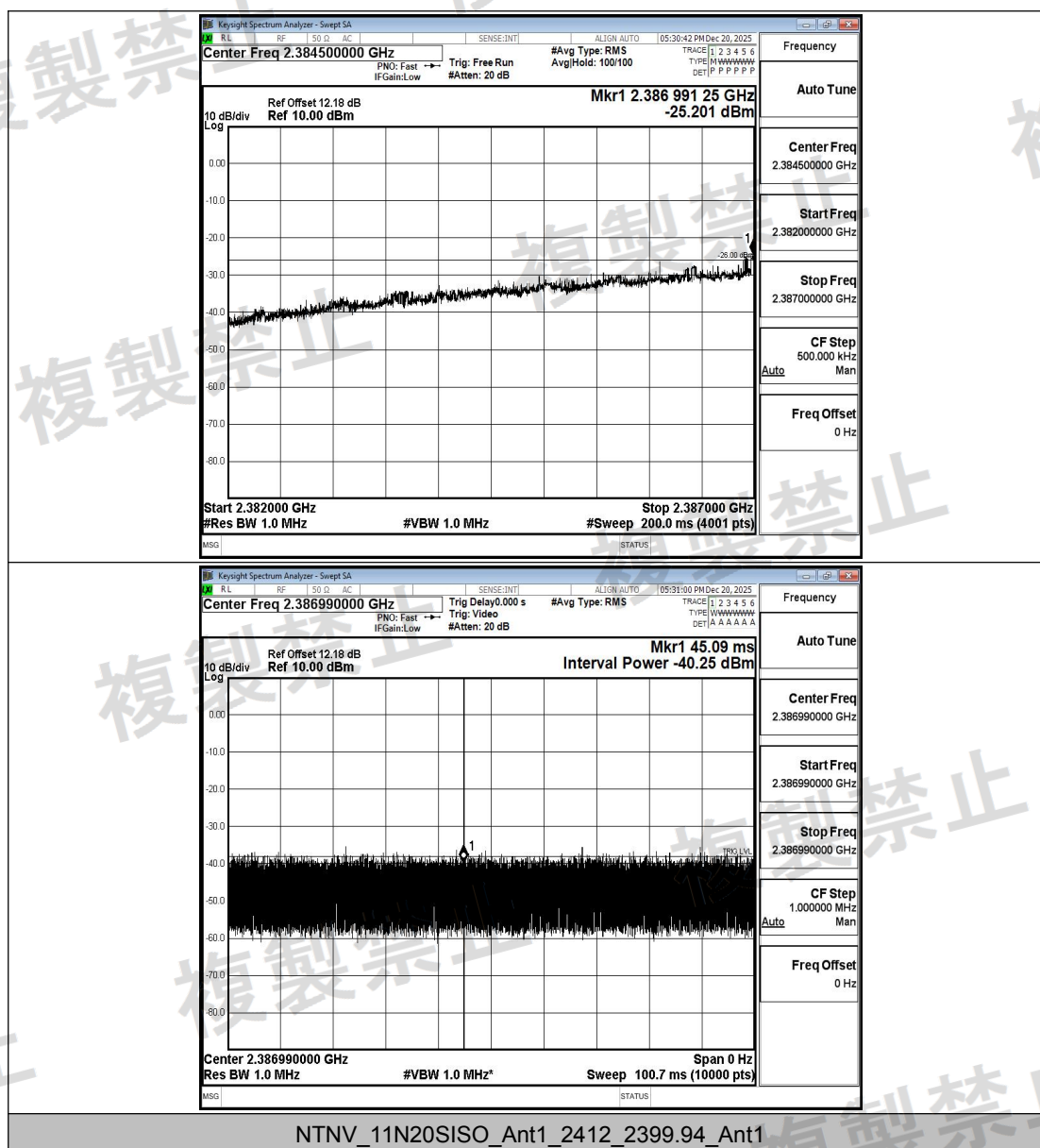
Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com



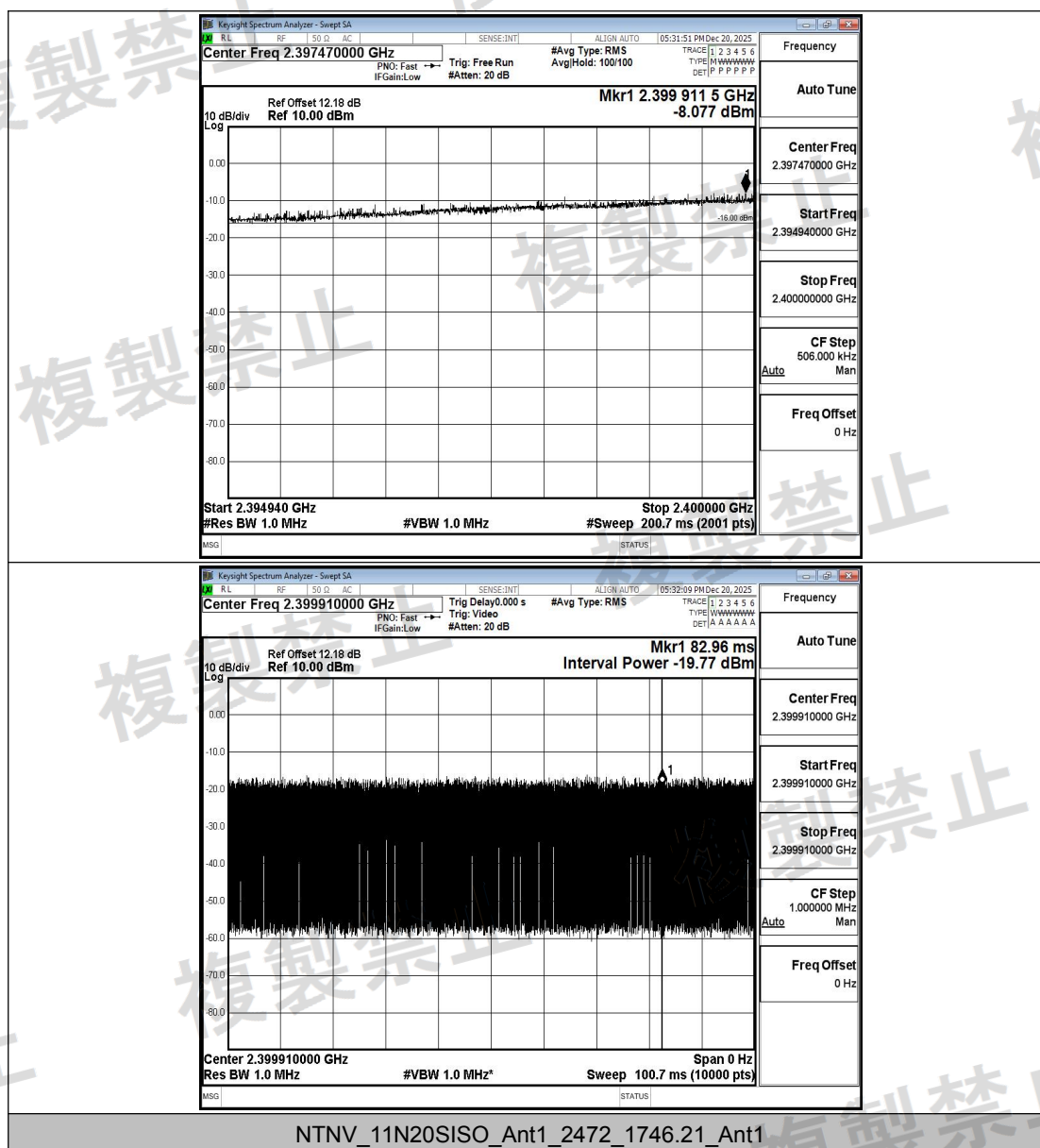
Test Graphs_Step2



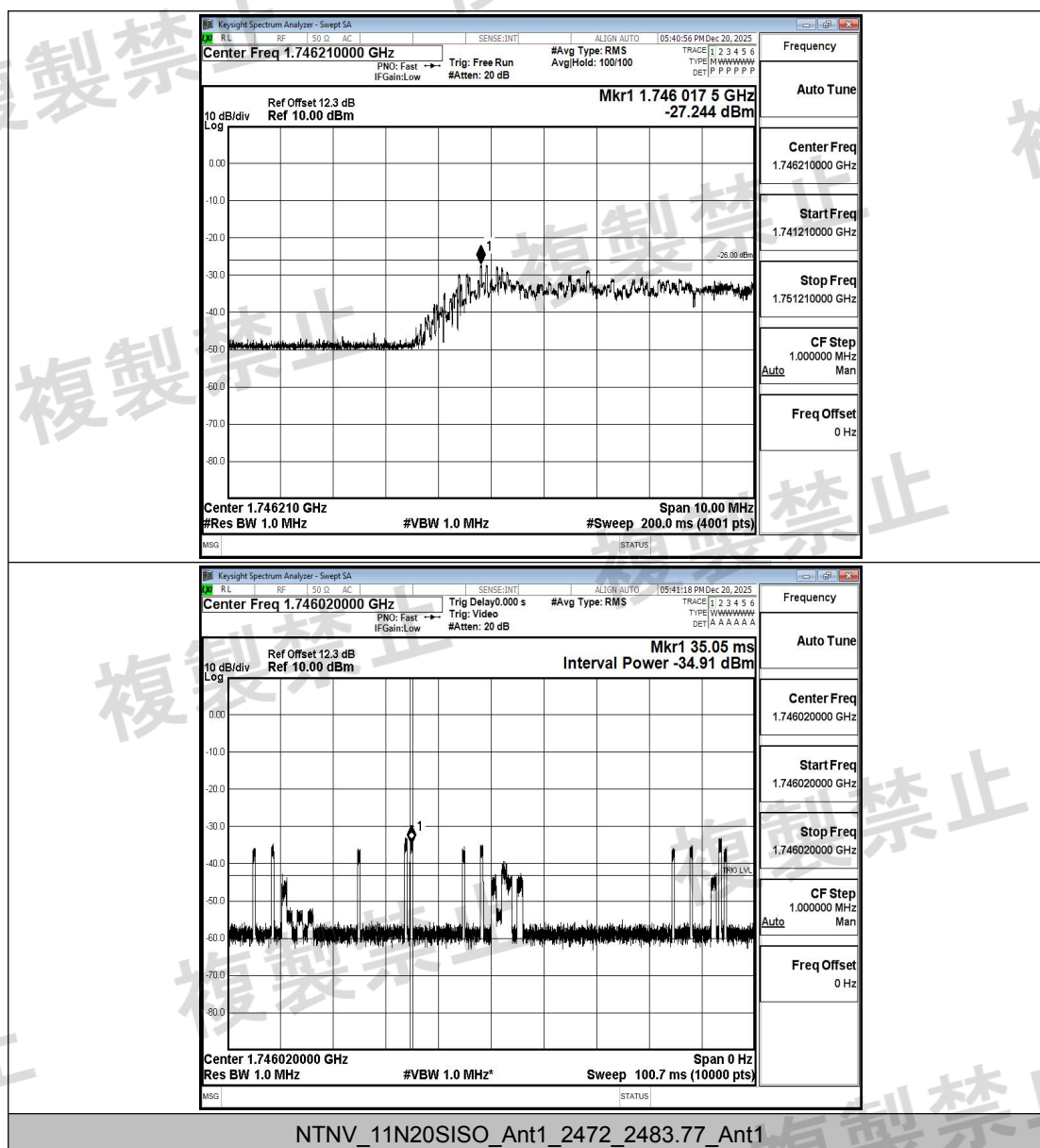


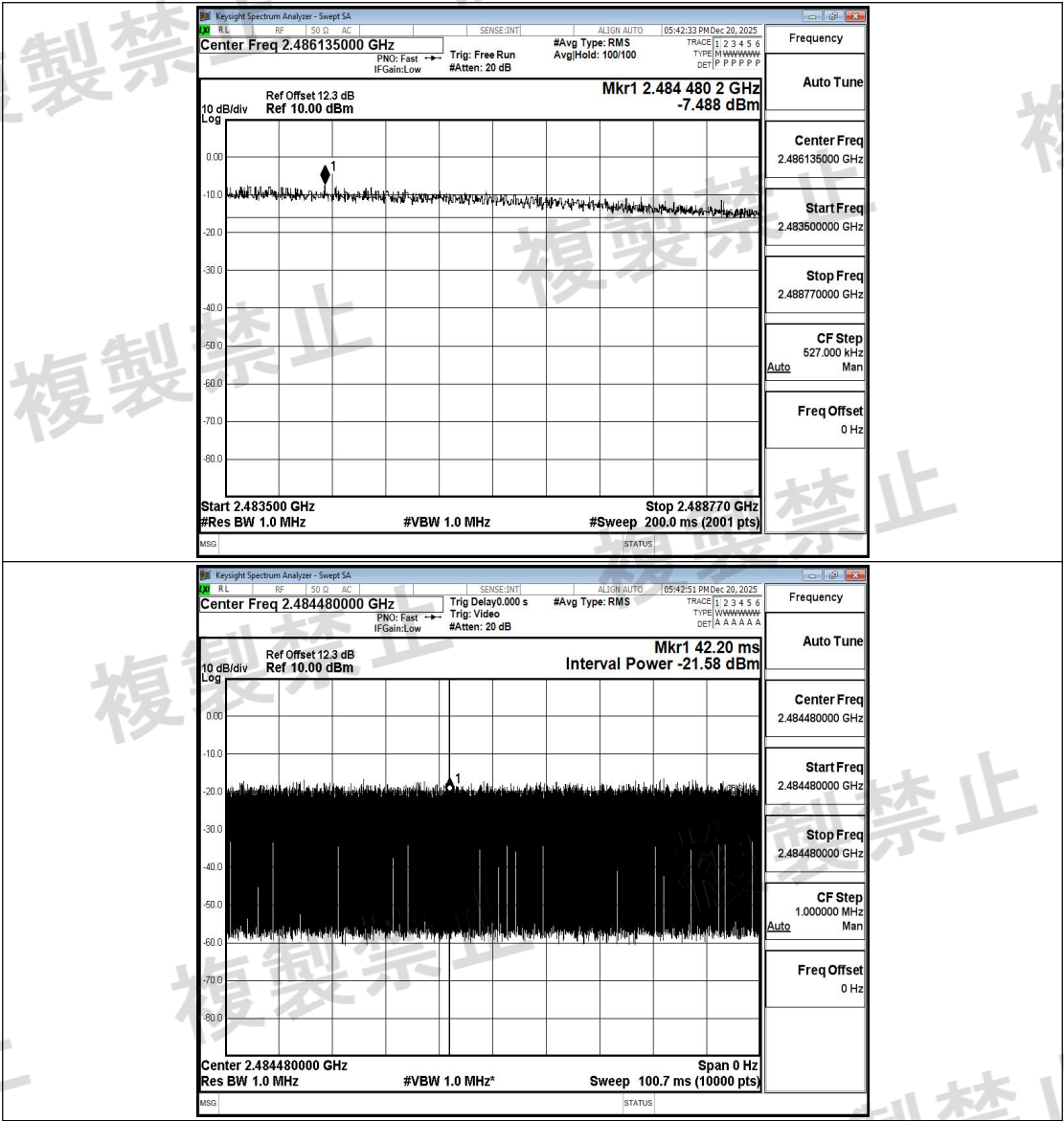


NTNV_11N20SISO_Ant1_2412_2399.94_Ant1



NTNV_11N20SISO_Ant1_2472_1746.21_Ant1





A.6 Spurious Emission of RX

Test Result

TestCondition	TestMode	Antenna	Channel (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11B	Ant1	2412	30~1000	798.24	-77.85	≤-54	0.01641	≤4	PASS
				1000~12500	2570.90	-64.66	≤-47	0.34198	≤20	PASS
			2442	30~1000	895.73	-77.81	≤-54	0.01656	≤4	PASS
				1000~12500	5992.73	-65.48	≤-47	0.28314	≤20	PASS
			2472	30~1000	898.15	-78.33	≤-54	0.01469	≤4	PASS
				1000~12500	3153.95	-64.84	≤-47	0.32810	≤20	PASS
	11G	Ant1	2412	30~1000	660.99	-78.75	≤-54	0.01334	≤4	PASS
				1000~12500	6122.68	-64.98	≤-47	0.31769	≤20	PASS
			2442	30~1000	687.18	-78.14	≤-54	0.01535	≤4	PASS
				1000~12500	2631.28	-65.18	≤-47	0.30339	≤20	PASS
			2472	30~1000	451.47	-78.19	≤-54	0.01517	≤4	PASS
				1000~12500	2680.73	-64.99	≤-47	0.31696	≤20	PASS
	11N20SI SO	Ant1	2412	30~1000	487.36	-78.48	≤-54	0.01419	≤4	PASS
				1000~12500	2558.25	-65.23	≤-47	0.29992	≤20	PASS
			2442	30~1000	441.77	-78.45	≤-54	0.01429	≤4	PASS
				1000~12500	2662.90	-65.34	≤-47	0.29242	≤20	PASS
			2472	30~1000	899.61	-78.23	≤-54	0.01503	≤4	PASS
				1000~12500	2507.08	-64.53	≤-47	0.35237	≤20	PASS

Test Graphs

