

Appendix - BLE

1. Duty Cycle

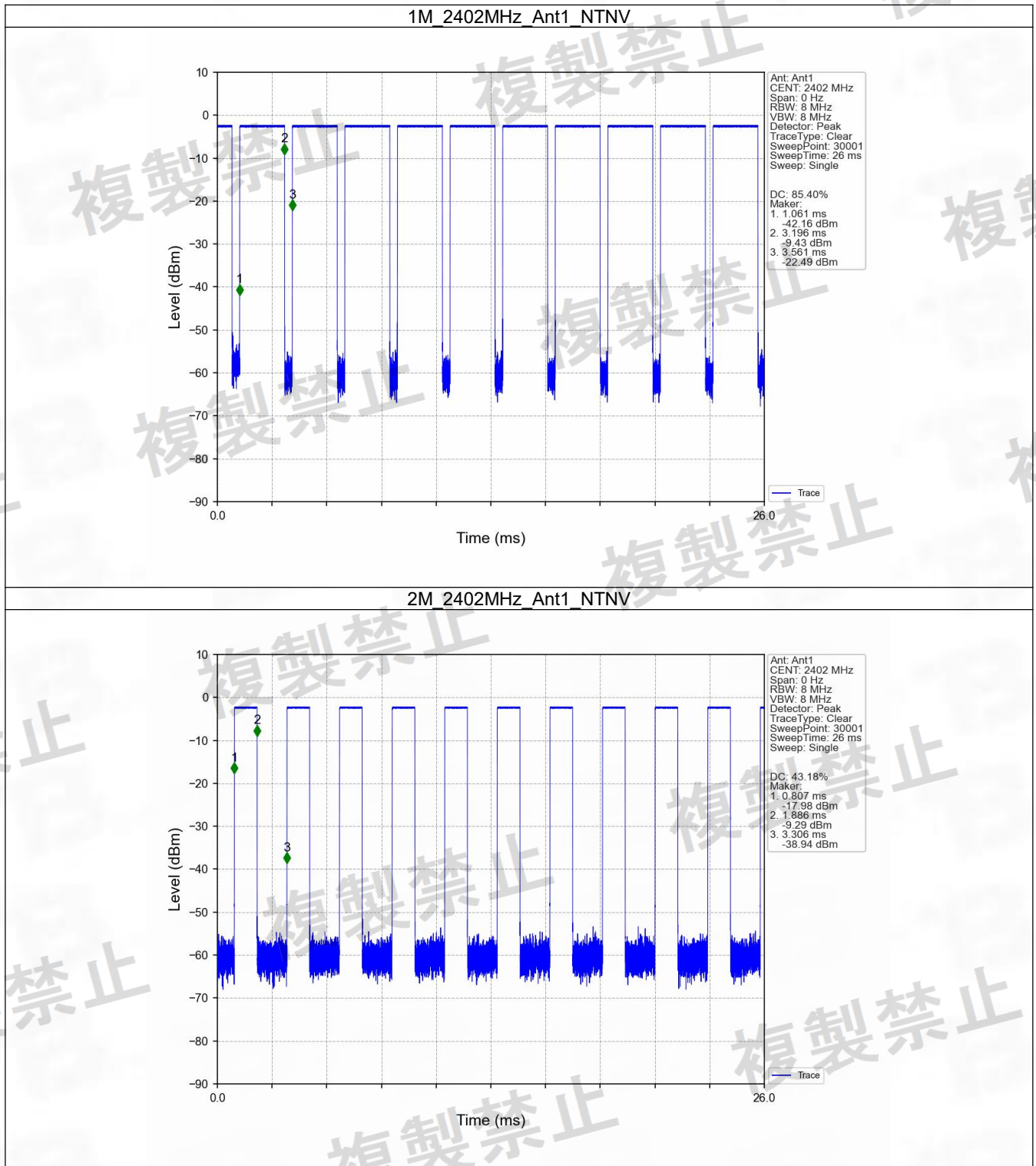
1.1 Test Result

1.1.1 Ant1

Ant1								
ENV	Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
NTNV	1M	SISO	2402	2.135	2.500	85.40	0.69	0.03
	2M	SISO	2402	1.079	2.499	43.18	3.65	0.03

1.2 Test Graph

1.2.1 Ant1



2. Frequency Error

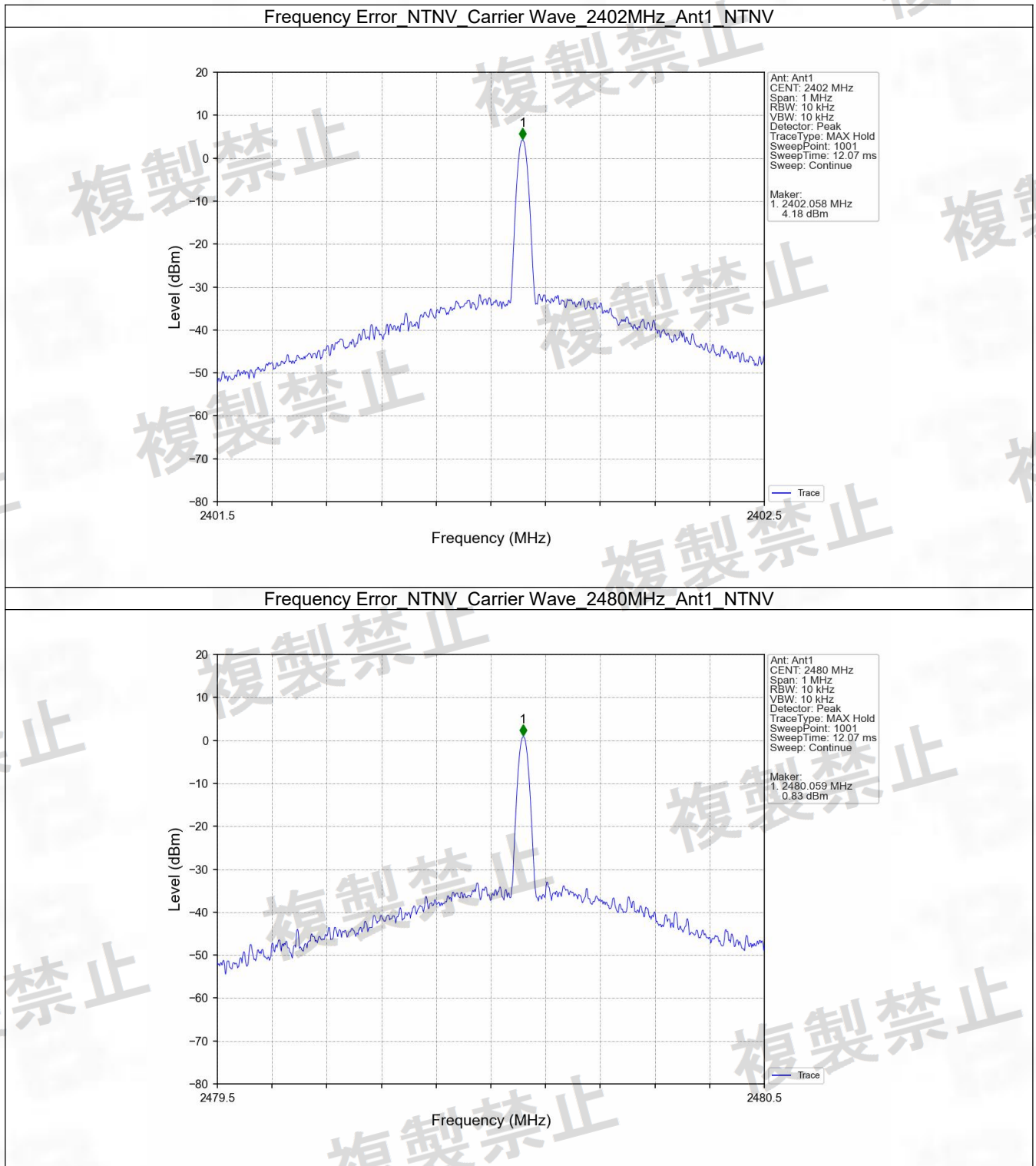
2.1 Test Result

2.1.1 Ant1

Ant1							
ENV	Mode	TX Type	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	SISO	2402	2402.058	24.15	-50 to 50	Pass
			2480	2480.059	23.79	-50 to 50	Pass

2.2 Test Graph

2.2.1 Ant1



3. Occupied Bandwidth

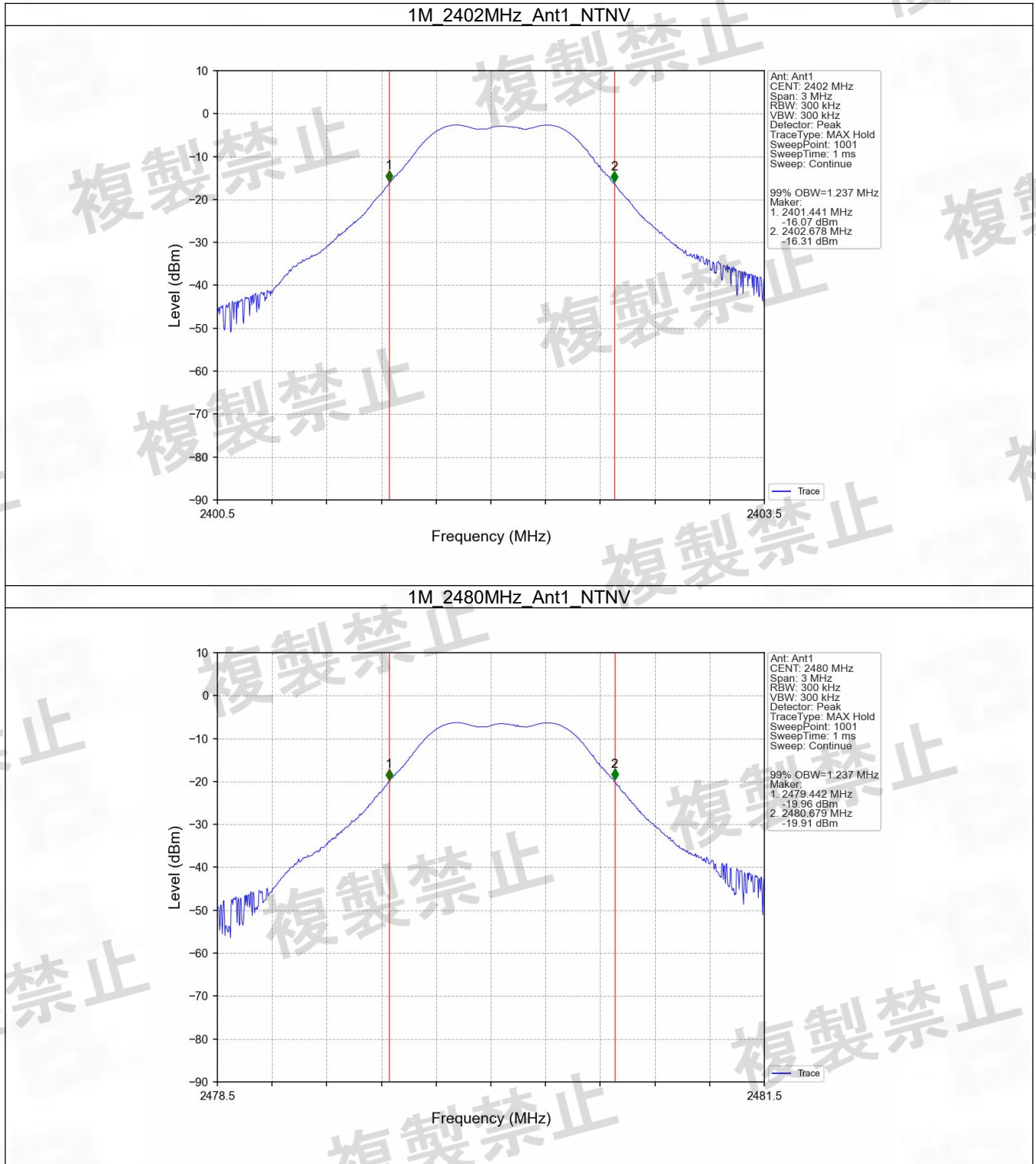
3.1 Test Result

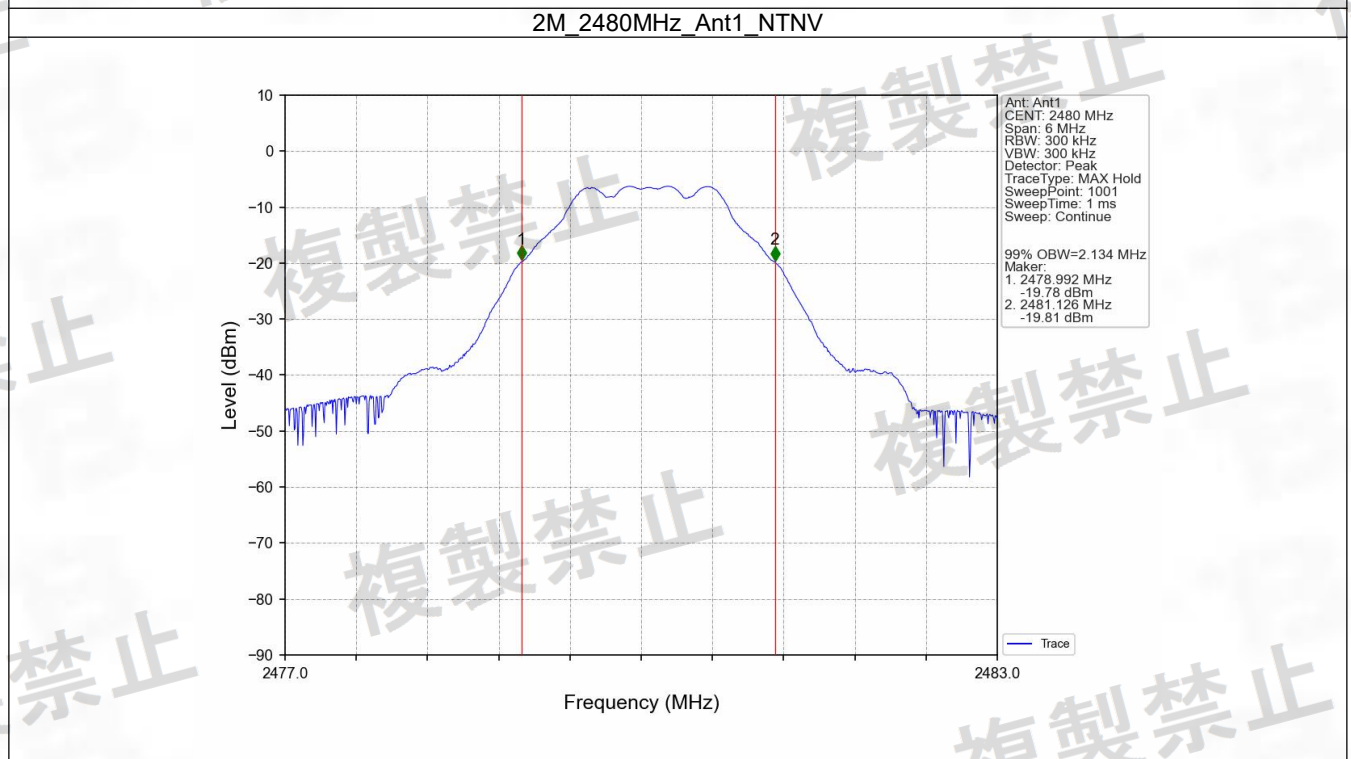
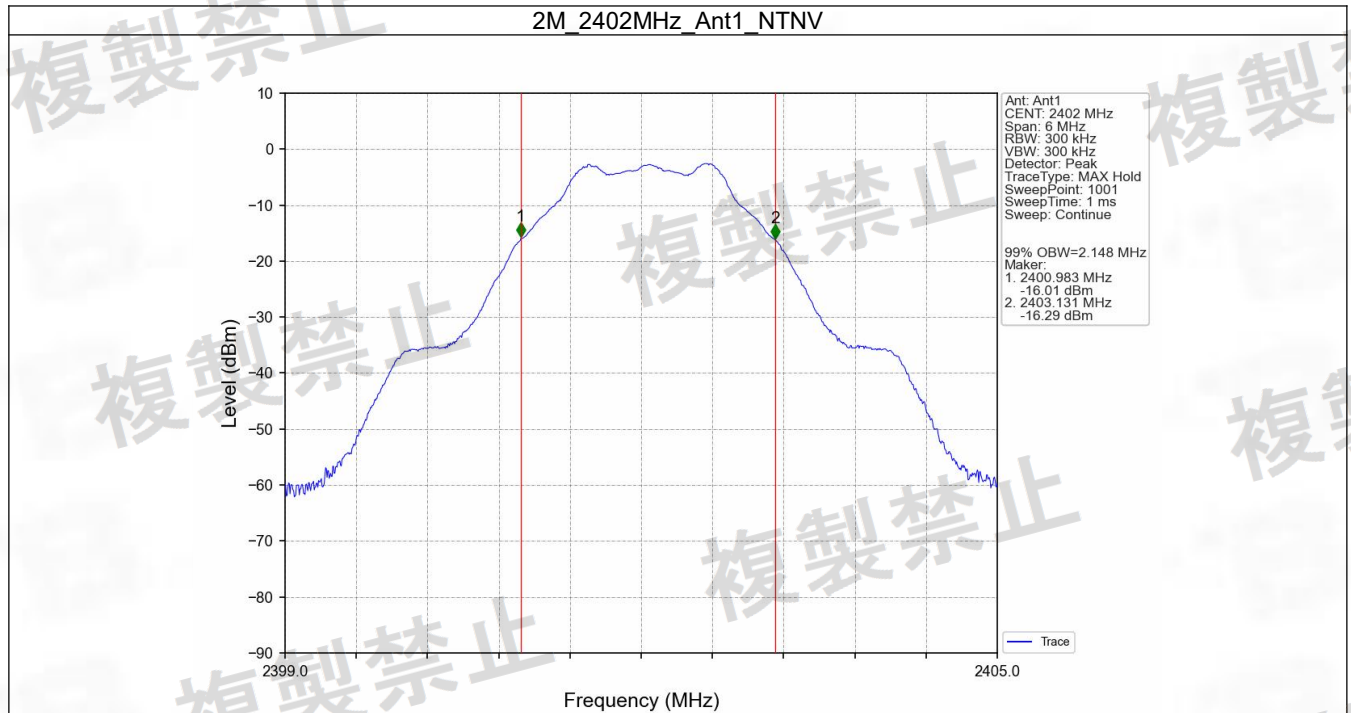
3.1.1 OBW

ENV	Mode	TX Type	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
				ANT1	Limit	
NTNV	1M	SISO	2402	1.237	≤ 26	Pass
			2480	1.237	≤ 26	Pass
	2M	SISO	2402	2.148	≤ 26	Pass
			2480	2.134	≤ 26	Pass

3.2 Test Graph

3.2.1 OBW





4. Antenna Power

4.1 Test Result

4.1.1 Power

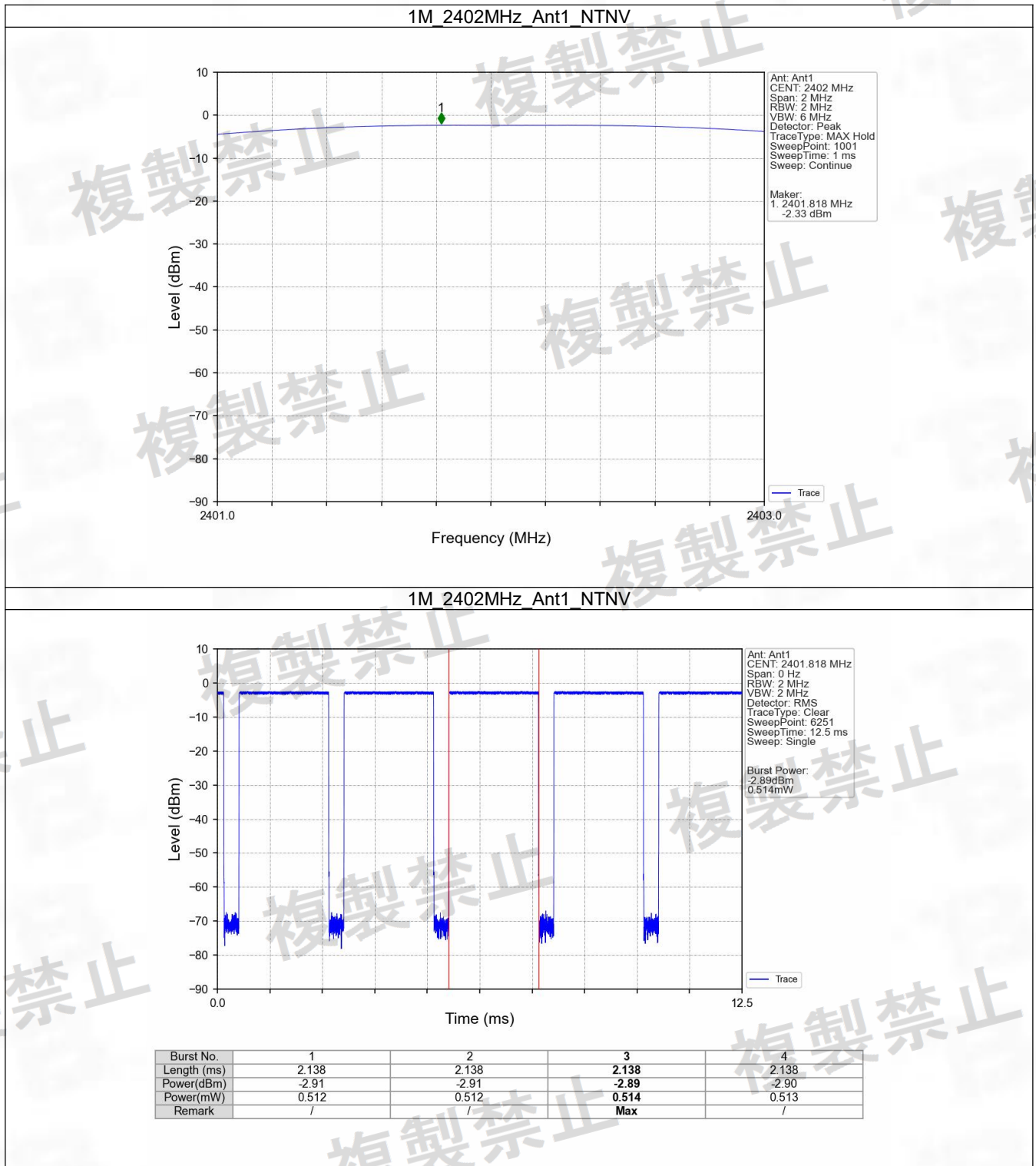
ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (mW)			Nominal Power (mW)	Tolerance (%)		Verdict
					Measured		Limit		Measured	Limit	
					dBm	mW					
NTNV	1M	SISO	2402	1	-2.89	0.514	<=10.00	0.514	0	<=20	Pass
			2480	1	-6.53	0.222	<=10.00	0.514	-56.81	<=20	Pass
	2M	SISO	2402	1	-3.01	0.500	<=10.00	0.514	-2.72	<=20	Pass
			2480	1	-6.81	0.208	<=10.00	0.514	-59.53	<=20	Pass

4.1.2 EIRP

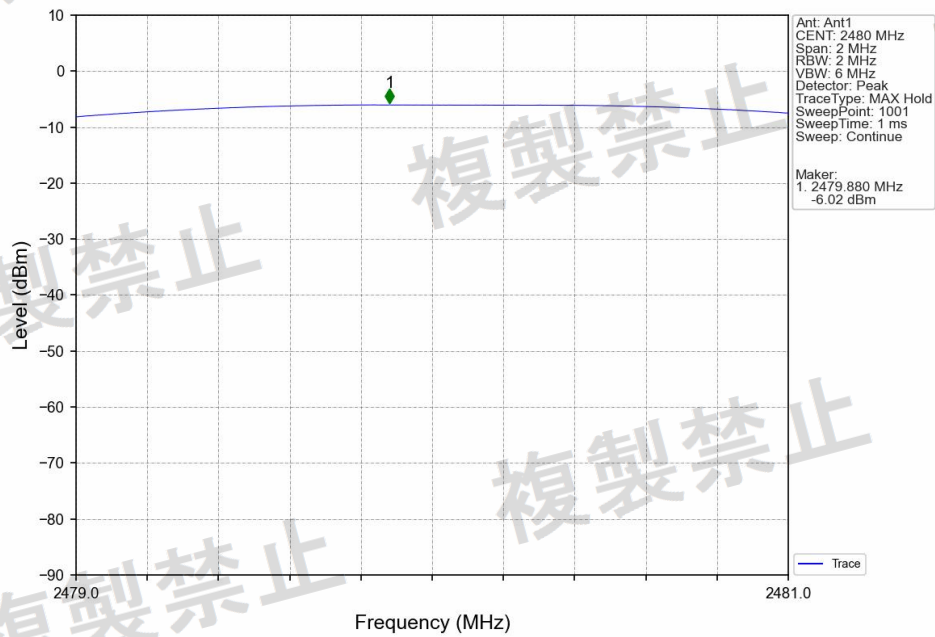
ENV	Mode	TX Type	Frequency (MHz)	ANT	Gain (dBi)	EIRP (dBm)		Verdict
						Result	Limit	
NTNV	1M	SISO	2402	1	2.50	-0.39	<=12.14	Pass
			2480	1	2.50	-4.03	<=12.14	Pass
	2M	SISO	2402	1	2.50	-0.51	<=12.14	Pass
			2480	1	2.50	-4.31	<=12.14	Pass

4.2 Test Graph

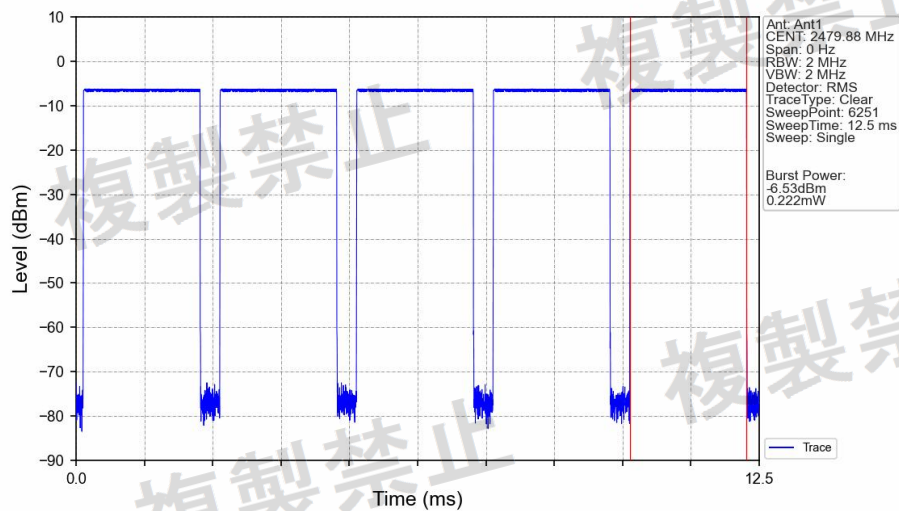
4.2.1 Power



1M_2480MHz_Ant1_NTNV

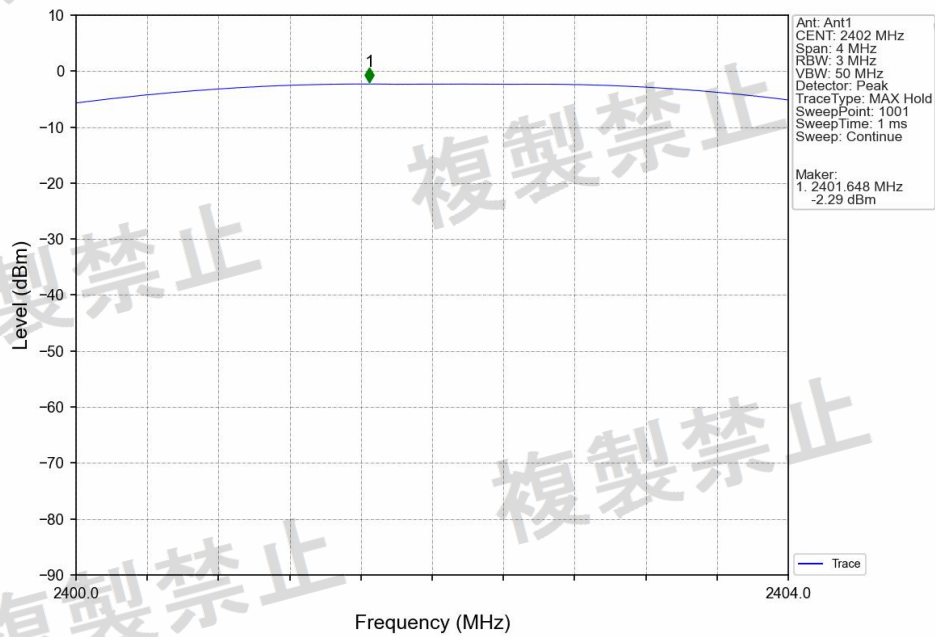


1M_2480MHz_Ant1_NTNV

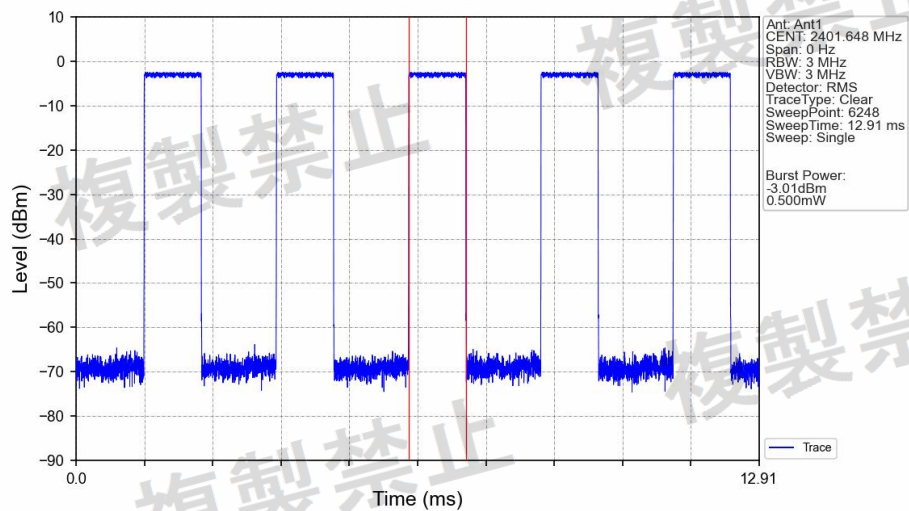


Burst No.	1	2	3	4	5
Length (ms)	2.138	2.138	2.138	2.138	2.138
Power(dBm)	-6.53	-6.54	-6.53	-6.53	-6.53
Power(mW)	0.222	0.222	0.222	0.222	0.222
Remark	/	/	/	/	Max

2M_2402MHz_Ant1_NTNV

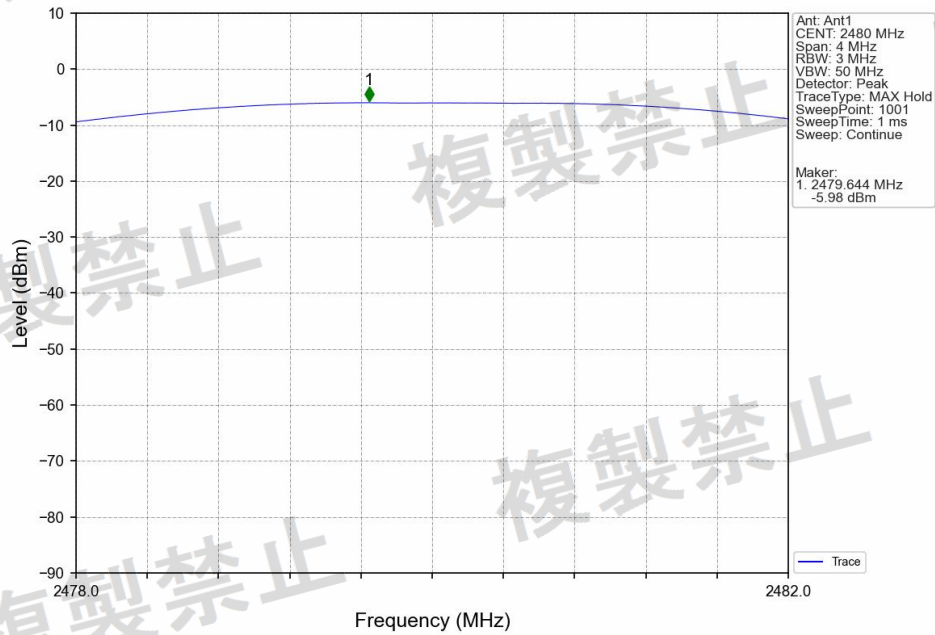


2M_2402MHz_Ant1_NTNV

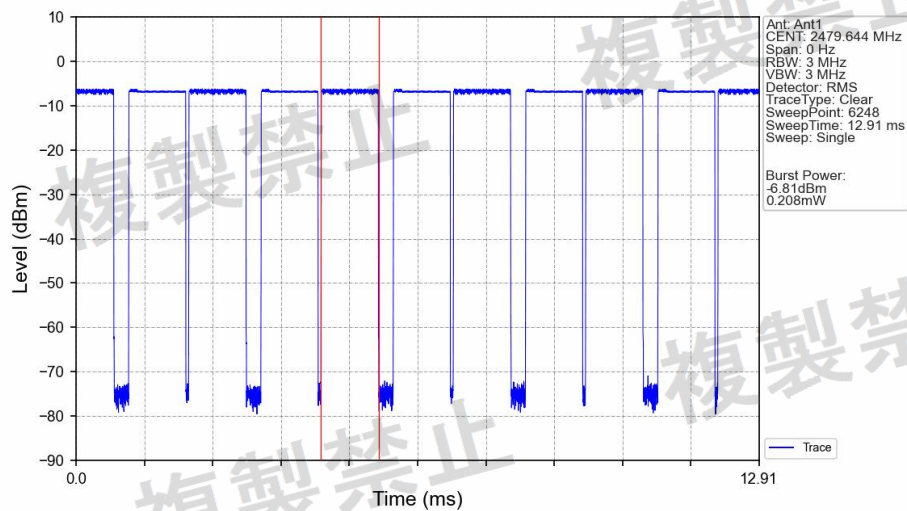


Burst No.	1	2	3	4	5
Length (ms)	1.083	1.083	1.081	1.083	1.083
Power(dBm)	-3.02	-3.02	-3.01	-3.02	-3.02
Power(mW)	0.499	0.499	0.500	0.499	0.499
Remark	/	/	Max	/	/

2M_2480MHz_Ant1_NTNV



2M_2480MHz_Ant1_NTNV



Burst No.	1	2	3	4	5	6	7	8	9
Length (ms)	1.087	1.091	1.085	1.091	1.087	1.091	1.085	1.091	1.085
Power(dBm)	-6.88	-6.82	-6.87	-6.81	-6.88	-6.82	-6.87	-6.82	-6.87
Power(mW)	0.205	0.208	0.206	0.208	0.205	0.208	0.206	0.208	0.206
Remark	/	/	/	Max	/	/	/	/	/

5. Spurious Emission Intensity

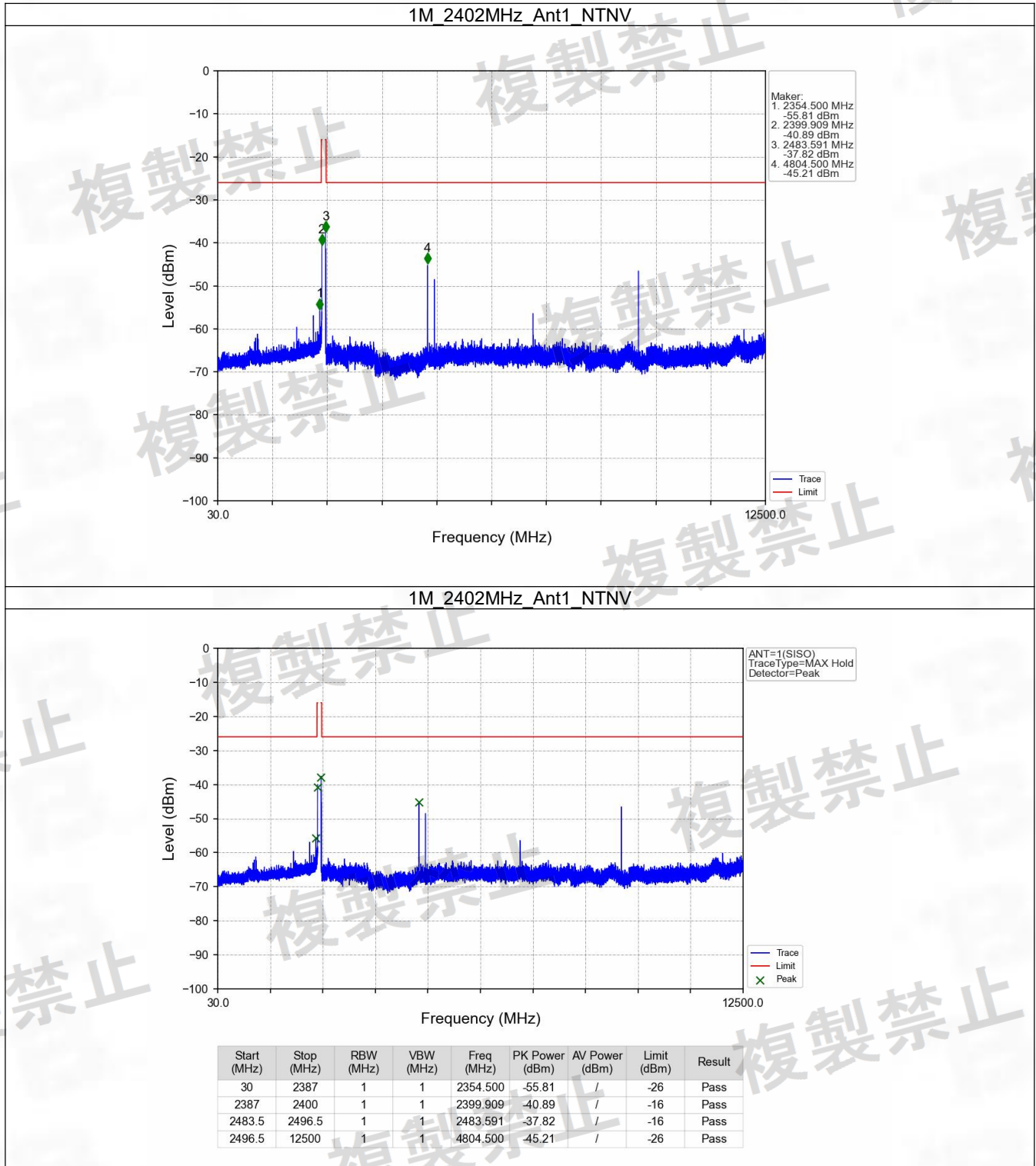
5.1 Test Result

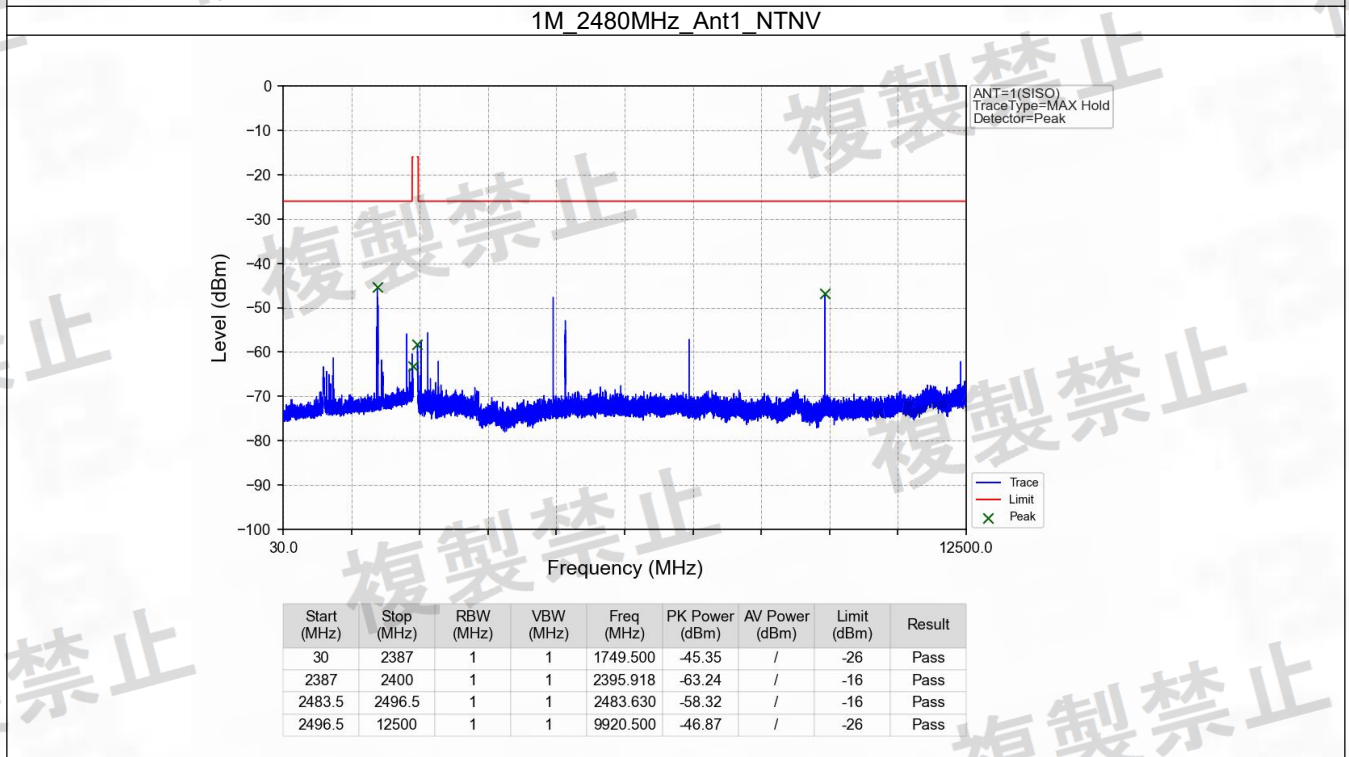
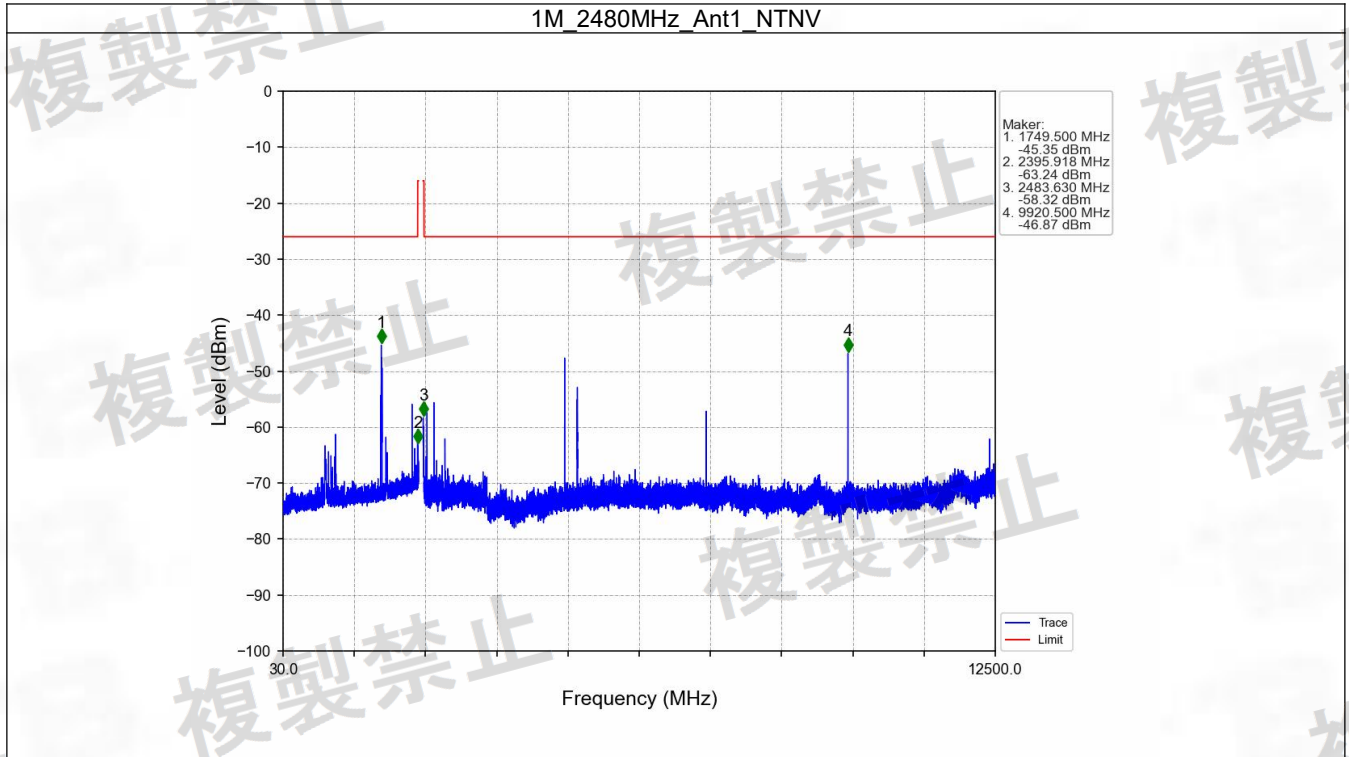
5.1.1 TxSe_NTNV

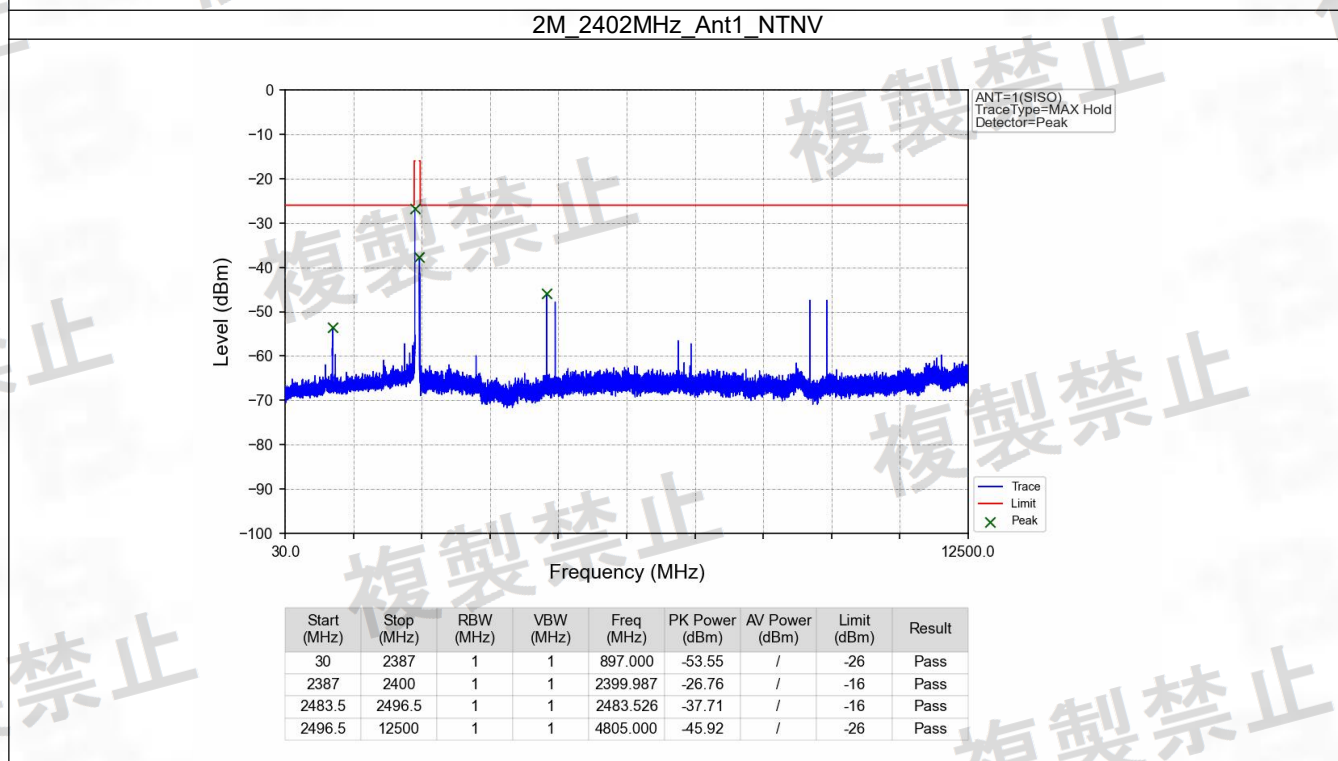
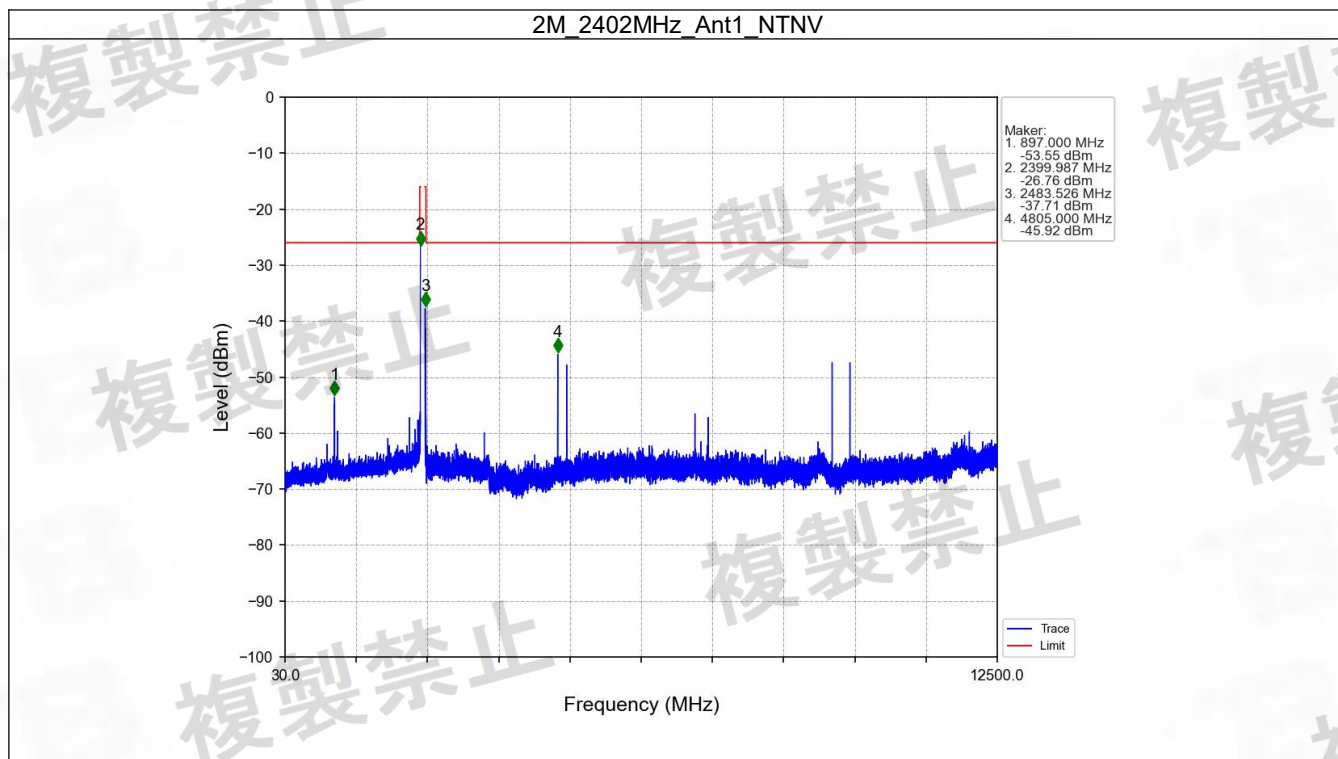
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
1M	SISO	2402	1	30	2387	2354.5	-55.81	0.003	/	/	2.5	Pass
				2387	2400	2399.909	-40.89	0.081	/	/	25	Pass
				2483.5	2496.5	2483.591	-37.82	0.165	/	/	25	Pass
				2496.5	12500	4804.5	-45.21	0.030	/	/	2.5	Pass
		2480	1	30	2387	1749.5	-45.35	0.029	/	/	2.5	Pass
				2387	2400	2395.918	-63.24	0.000	/	/	25	Pass
				2483.5	2496.5	2483.63	-58.32	0.001	/	/	25	Pass
				2496.5	12500	9920.5	-46.87	0.021	/	/	2.5	Pass
2M	SISO	2402	1	30	2387	897	-53.55	0.004	/	/	2.5	Pass
				2387	2400	2399.987	-26.76	2.109	/	/	25	Pass
				2483.5	2496.5	2483.526	-37.71	0.169	/	/	25	Pass
				2496.5	12500	4805	-45.92	0.026	/	/	2.5	Pass
		2480	1	30	2387	1751	-44.35	0.037	/	/	2.5	Pass
				2387	2400	2396.321	-63.10	0.000	/	/	25	Pass
				2483.5	2496.5	2483.526	-38.08	0.156	/	/	25	Pass
				2496.5	12500	2613.5	-42.18	0.061	/	/	2.5	Pass

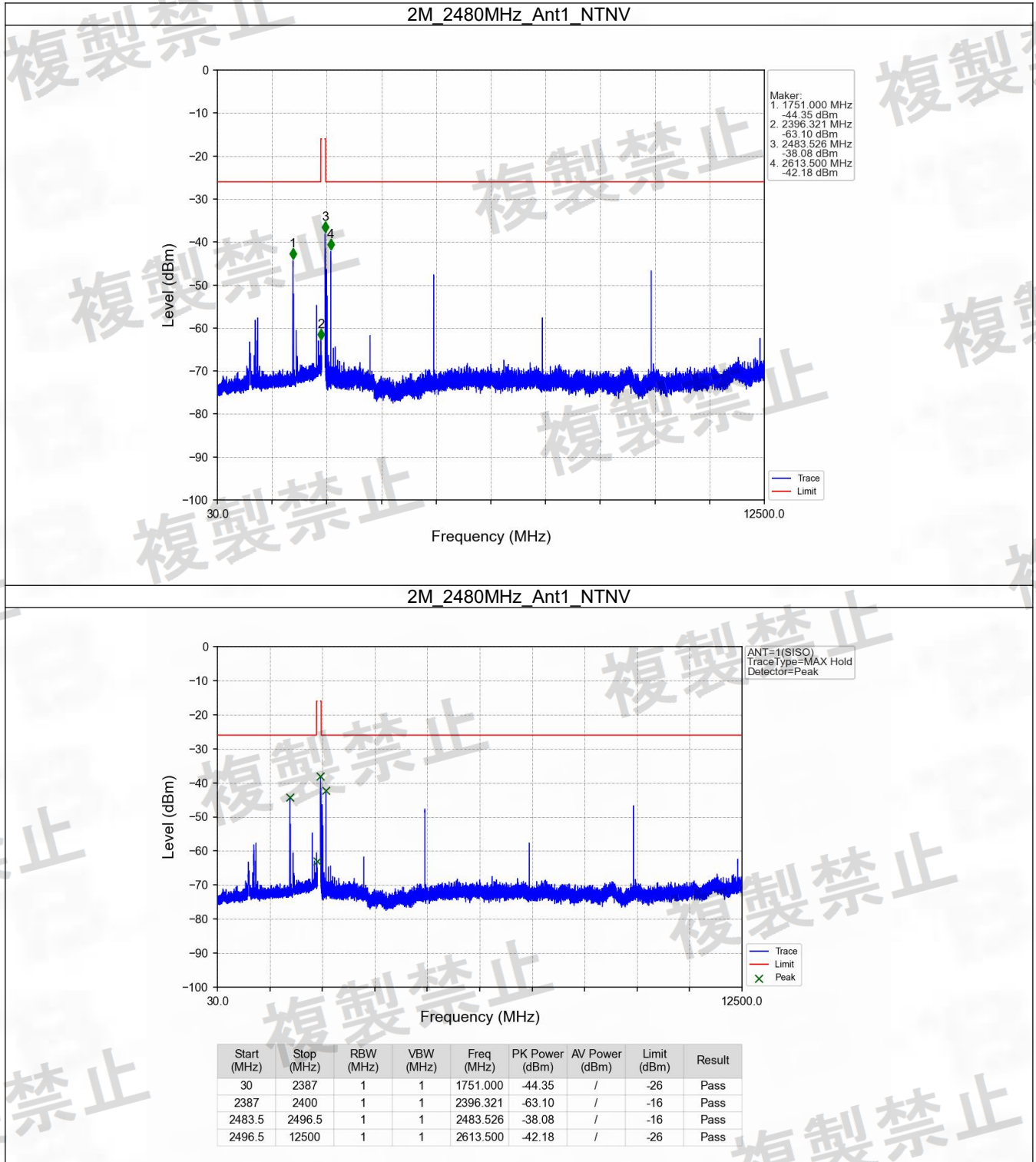
5.2 Test Graph

5.2.1 TxSe_NTNV









6. Secondary Radiated Emission

6.1 Test Result

6.1.1 RxSe_NTNV

NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
1M	SISO	2402	1	30	1000	695.95	-80.04	0.010	/	/	4	Pass
				1000	12500	12236	-66.38	0.230	/	/	20	Pass
		2480	1	30	1000	901.65	-79.90	0.010	/	/	4	Pass
				1000	12500	12387.5	-66.70	0.214	/	/	20	Pass
2M	SISO	2402	1	30	1000	958.9	-78.95	0.013	/	/	4	Pass
				1000	12500	12365	-66.89	0.205	/	/	20	Pass
		2480	1	30	1000	909.75	-80.08	0.010	/	/	4	Pass
				1000	12500	11888	-66.32	0.233	/	/	20	Pass

6.2 Test Graph

6.2.1 RxSe_NTNV

