

Appendix RF test data for BLE

1. Frequency Error

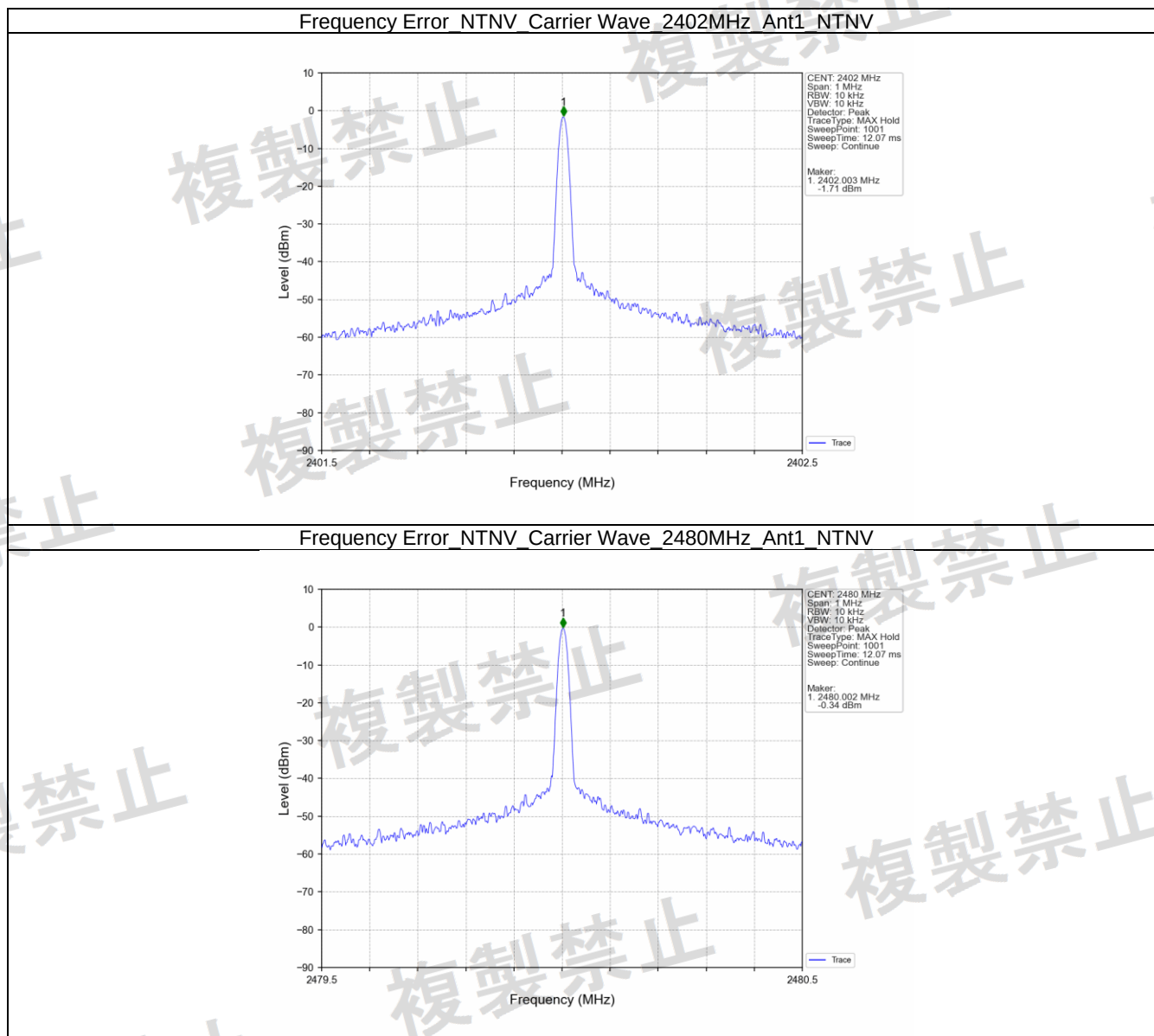
1.1 Test Result

1.1.1 Ant1

Ant1							
ENV	Mode	TX Type	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	SISO	2402	2402.003	1.25	-50 to 50	Pass
			2480	2480.002	0.81	-50 to 50	Pass

1.2 Test Graph

1.2.1 Ant1



2. Occupied Bandwidth

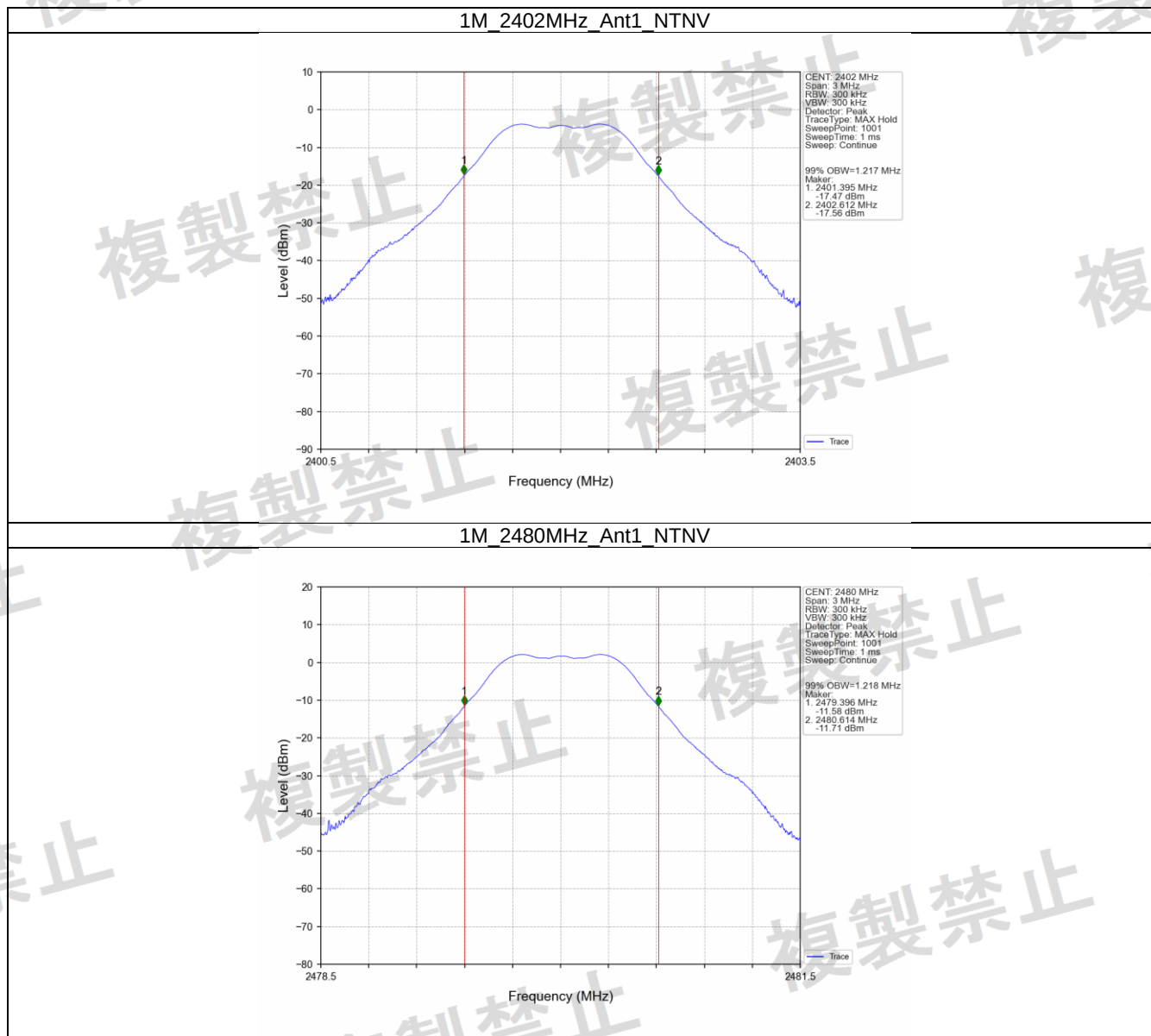
2.1 Test Result

2.1.1 OBW

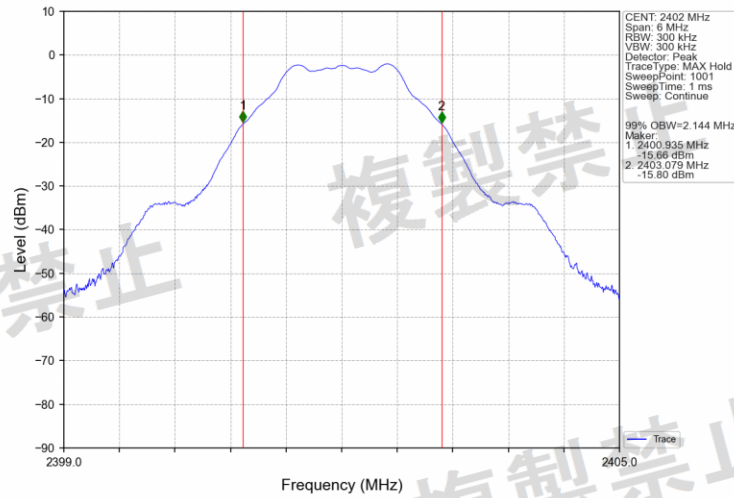
ENV	Mode	TX Type	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
				ANT1	Limit	
NTNV	1M	SISO	2402	1.217	≤ 26	Pass
			2480	1.218	≤ 26	Pass
	2M	SISO	2402	2.144	≤ 26	Pass
			2480	2.143	≤ 26	Pass

2.2 Test Graph

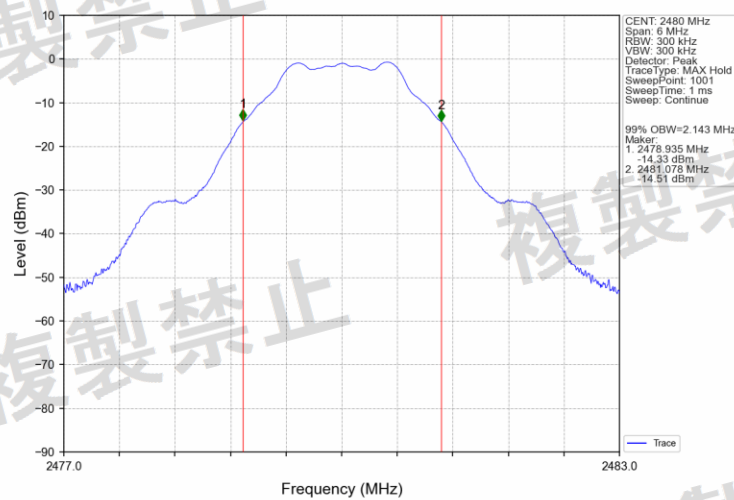
2.2.1 OBW



2M 2402MHz Ant1 NTNV



2M 2480MHz Ant1 NTNV



3. Antenna Power

3.1 Test Result

3.1.1 Power

ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (dBm)	Antenna Power (mW)		Nominal Power (mW)	Tolerance (%)		Verdict
						Measured	Limit		Measured	Limit	
NTNV	1M	SISO	2402	1	-4.353	0.367	<=10.00	1.5	-75.53%	<=20	Pass
			2480	1	1.461	1.400	<=10.00	1.5	-6.67%	<=20	Pass
	2M	SISO	2402	1	-2.434	0.571	<=10.00	1.5	-61.93%	<=20	Pass
			2480	1	-1.180	0.762	<=10.00	1.5	-49.20%	<=20	Pass

3.1.2 EIRP

ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (dBm)	Gain (dBi)	EIRP (dBm)		Verdict
							Result	Limit	
NTNV	1M	SISO	2402	1	-4.353	3.25	-1.103	<=12.14	Pass
			2480	1	1.461	3.25	4.711	<=12.14	Pass
	2M	SISO	2402	1	-2.434	3.25	0.816	<=12.14	Pass
			2480	1	-1.180	3.25	2.070	<=12.14	Pass

4. Spurious Emission Intensity

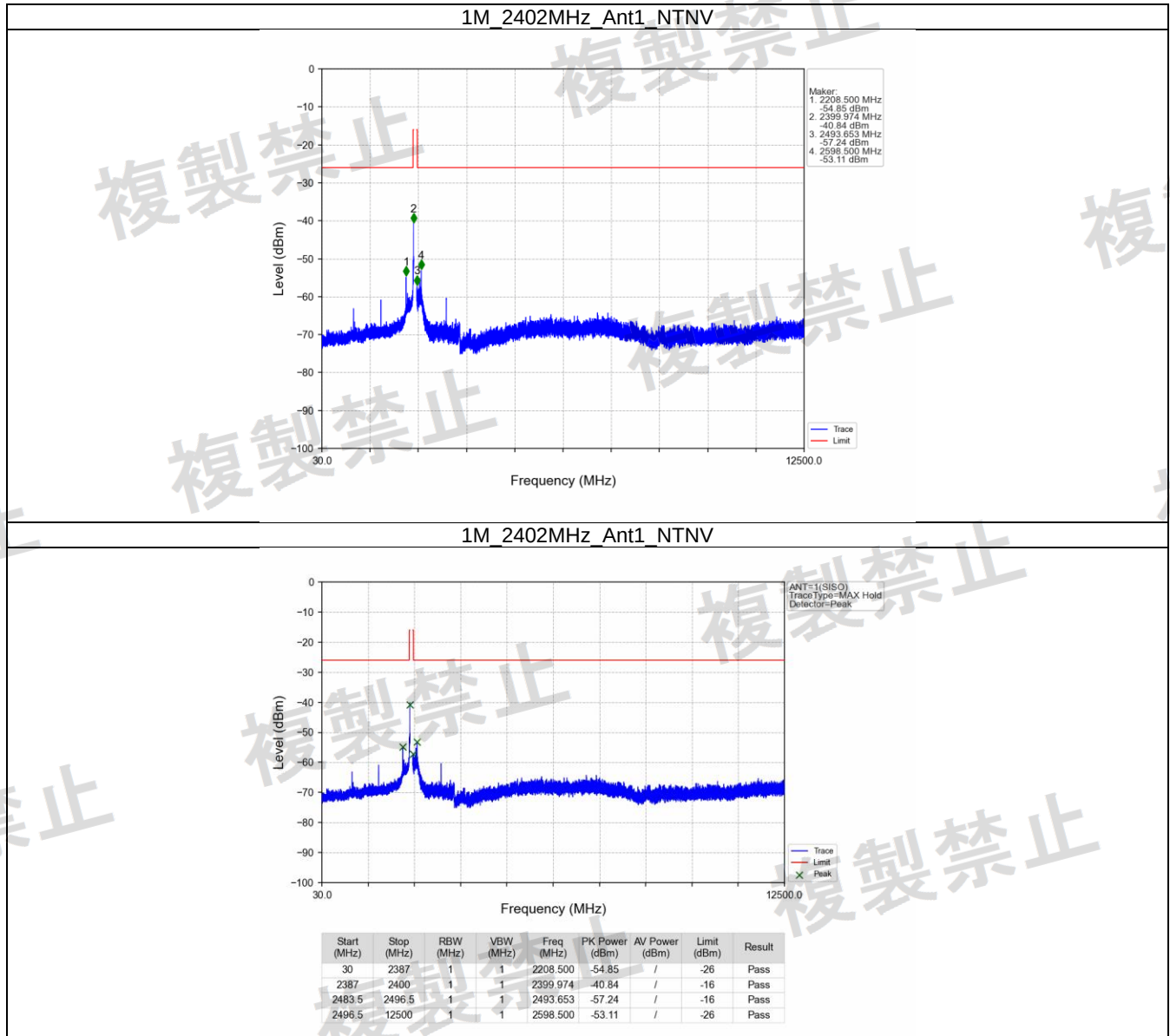
4.1 Test Result

4.1.1 TxSe_NTNV

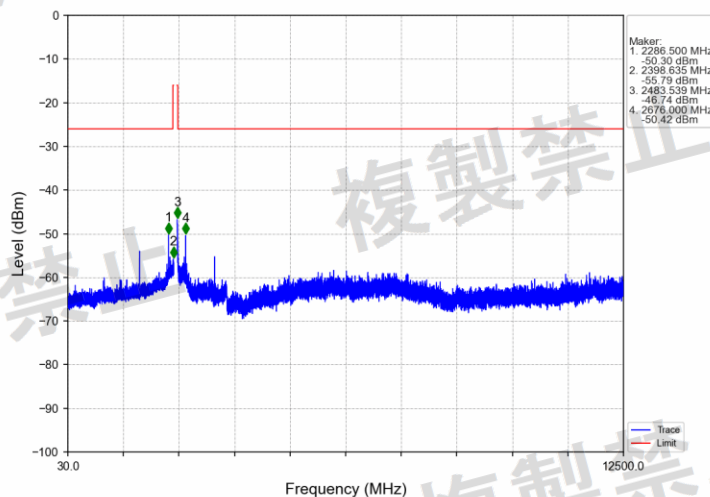
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
1M	SISO	2402	1	30	2387	2208.5	-54.85	0.003	/	/	2.5	Pass
				2387	2400	2399.974	-40.84	0.082	/	/	25	Pass
				2483.5	2496.5	2493.653	-57.24	0.002	/	/	25	Pass
				2496.5	12500	2598.5	-53.11	0.005	/	/	2.5	Pass
		2480	1	30	2387	2286.5	-50.30	0.009	/	/	2.5	Pass
				2387	2400	2398.635	-55.79	0.003	/	/	25	Pass
				2483.5	2496.5	2483.539	-46.74	0.021	/	/	25	Pass
				2496.5	12500	2676	-50.42	0.009	/	/	2.5	Pass
2M	SISO	2402	1	30	2387	2209	-51.71	0.007	/	/	2.5	Pass
				2387	2400	2399.987	-24.95	3.199	/	/	25	Pass
				2483.5	2496.5	2487.634	-55.66	0.003	/	/	25	Pass
				2496.5	12500	2597.5	-51.50	0.007	/	/	2.5	Pass
		2480	1	30	2387	2287	-51.40	0.007	/	/	2.5	Pass
				2387	2400	2389.86	-56.64	0.002	/	/	25	Pass
				2483.5	2496.5	2483.539	-47.93	0.016	/	/	25	Pass
				2496.5	12500	2676.5	-51.84	0.007	/	/	2.5	Pass

4.2 Test Graph

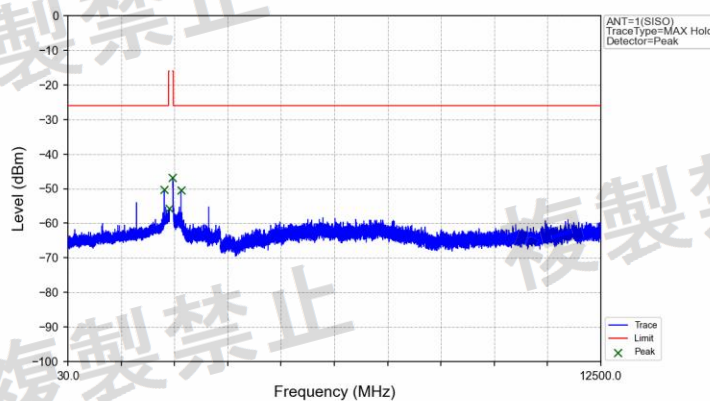
4.2.1 TxSe_NTNV



1M 2480MHz Ant1 NTVN

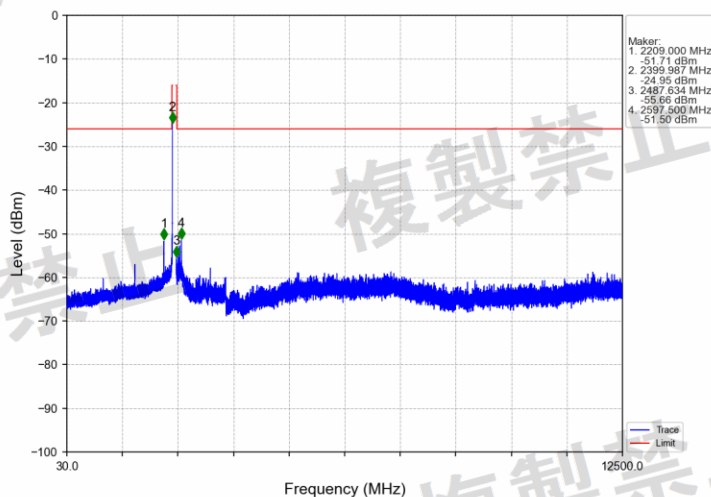


1M 2480MHz Ant1 NTVN

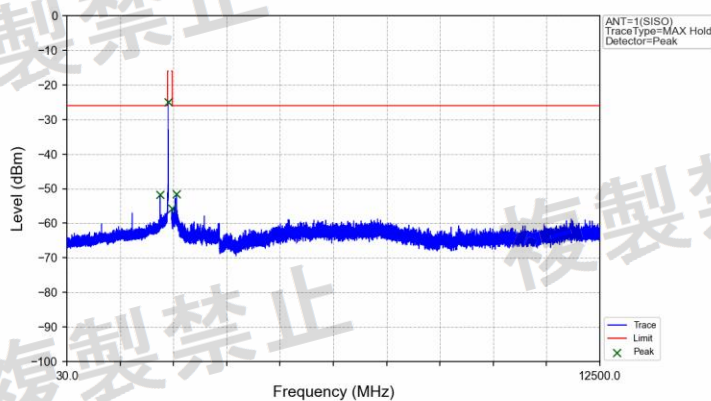


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2286.500	-50.30	/	-26	Pass
2387	2400	1	1	2398.635	-55.79	/	-16	Pass
2483.5	2496.5	1	1	2483.539	-46.74	/	-16	Pass
2496.5	12500	1	1	2676.000	-50.42	/	-26	Pass

2M 2402MHz Ant1 NTVN

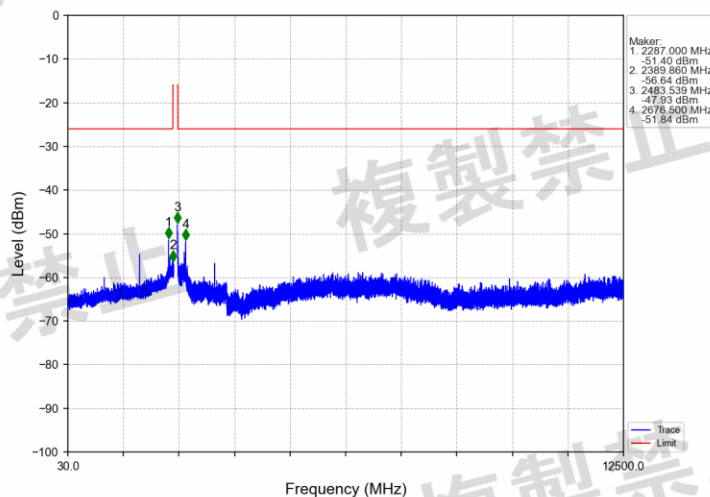


2M 2402MHz Ant1 NTVN

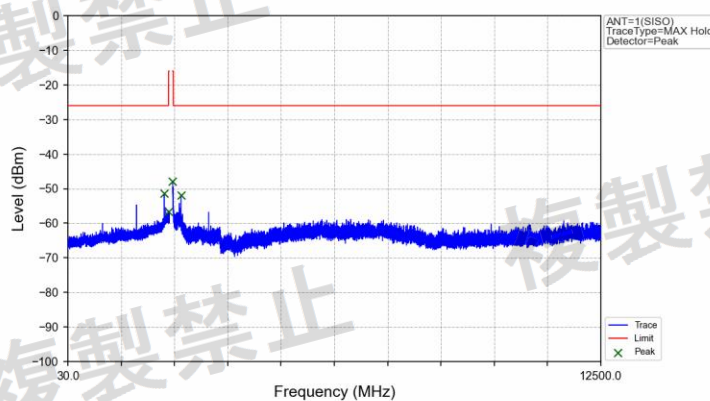


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2209.000	-51.71	/	-26	Pass
2387	2400	1	1	2399.987	-24.95	/	-16	Pass
2483.5	2496.5	1	1	2487.634	-55.66	/	-16	Pass
2496.5	12500	1	1	2597.500	-51.50	/	-26	Pass

2M 2480MHz Ant1 NTV



2M 2480MHz Ant1 NTV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2287.000	-51.40	/	-26	Pass
2387	2400	1	1	2389.860	-56.64	/	-16	Pass
2483.5	2496.5	1	1	2483.539	-47.93	/	-16	Pass
2496.5	12500	1	1	2676.500	-51.84	/	-26	Pass

5. Secondary Radiated Emission

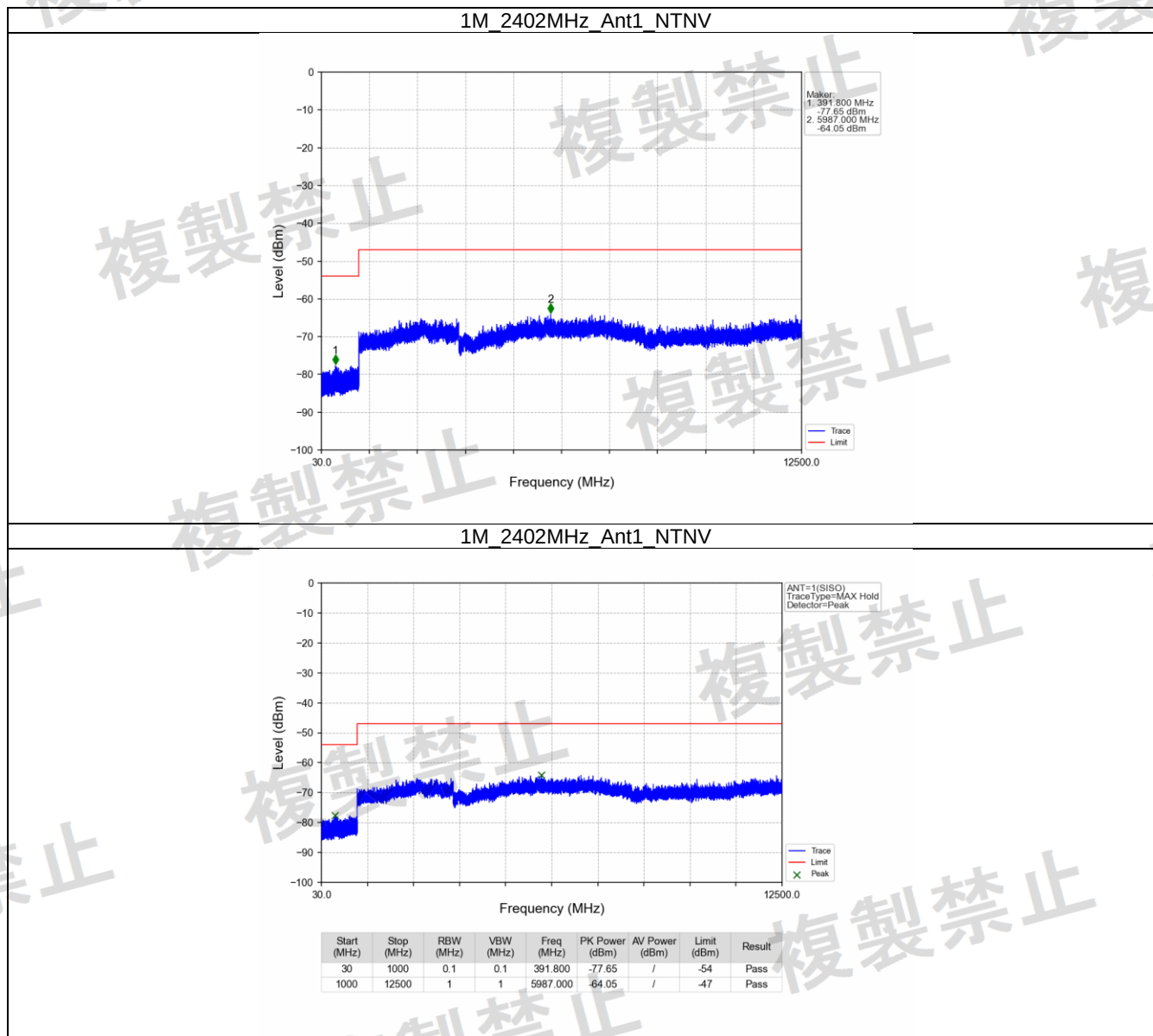
5.1 Test Result

5.1.1 RxSe_NTNV

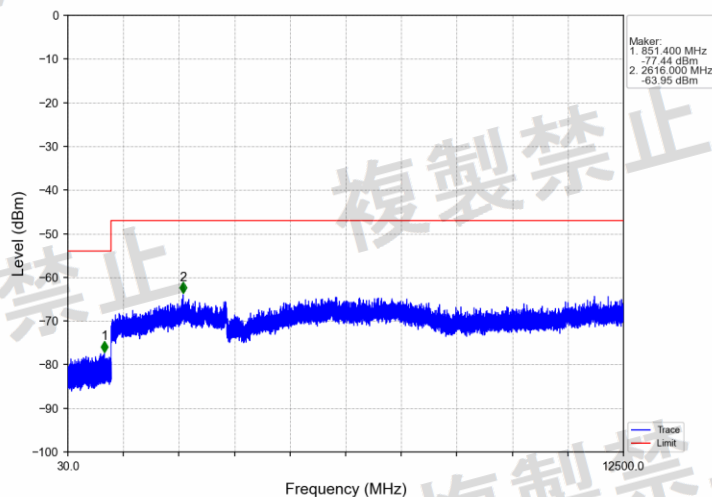
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
1M	SISO	2402	1	30	1000	391.8	-77.65	0.017	/	/	4	Pass
				1000	12500	5987	-64.05	0.394	/	/	20	Pass
		2480	1	30	1000	851.4	-77.44	0.018	/	/	4	Pass
				1000	12500	2616	-63.95	0.403	/	/	20	Pass
2M	SISO	2402	1	30	1000	860.1	-77.75	0.017	/	/	4	Pass
				1000	12500	5958	-64.23	0.378	/	/	20	Pass
		2480	1	30	1000	910.5	-76.97	0.020	/	/	4	Pass
				1000	12500	6881.5	-63.75	0.422	/	/	20	Pass

5.2 Test Graph

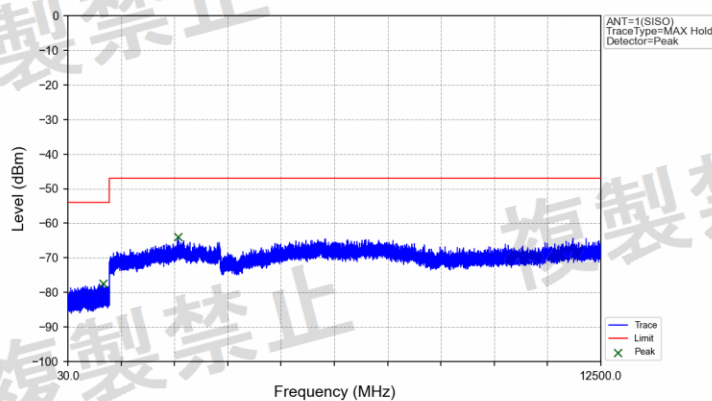
5.2.1 RxSe_NTNV



1M 2480MHz Ant1 NTVN

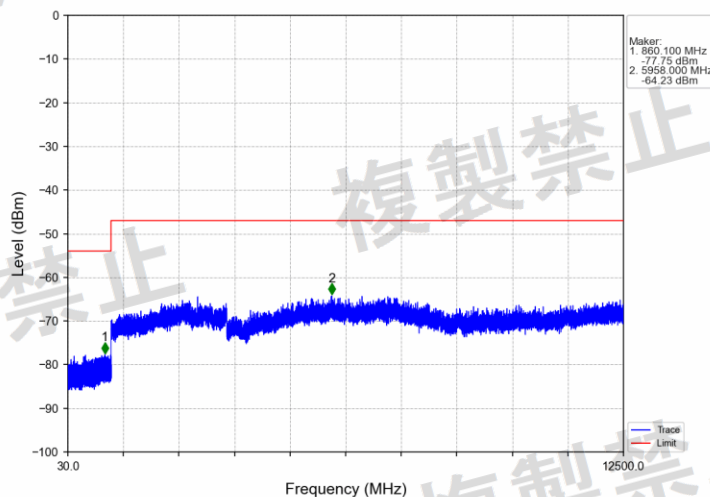


1M 2480MHz Ant1 NTVN

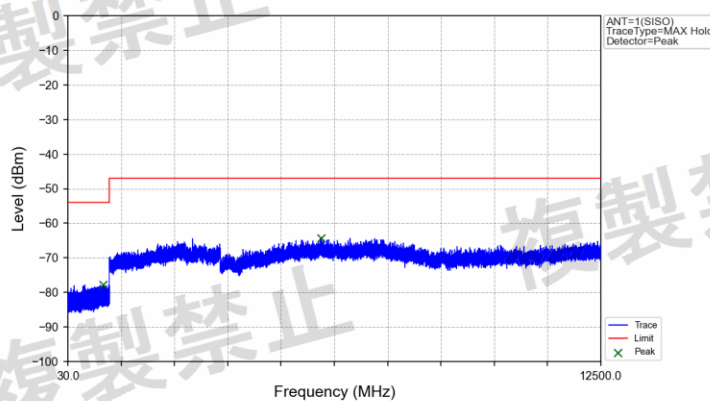


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	851.400	-77.44	/	-54	Pass
1000	12500	1	1	2616.000	-63.95	/	-47	Pass

2M 2402MHz Ant1 NTV

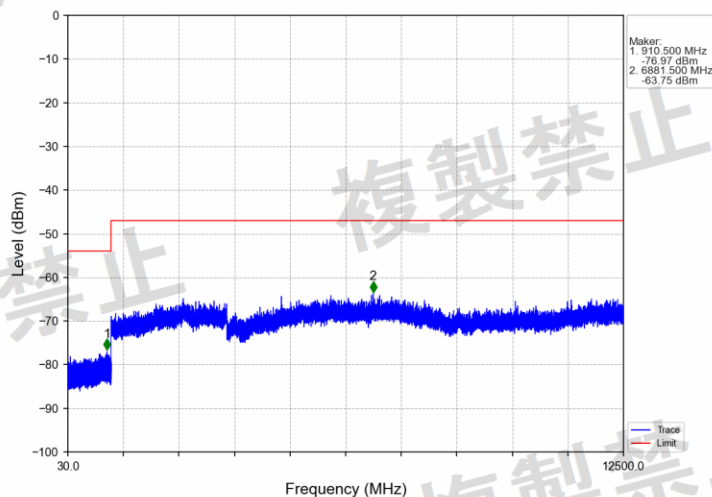


2M 2402MHz Ant1 NTV

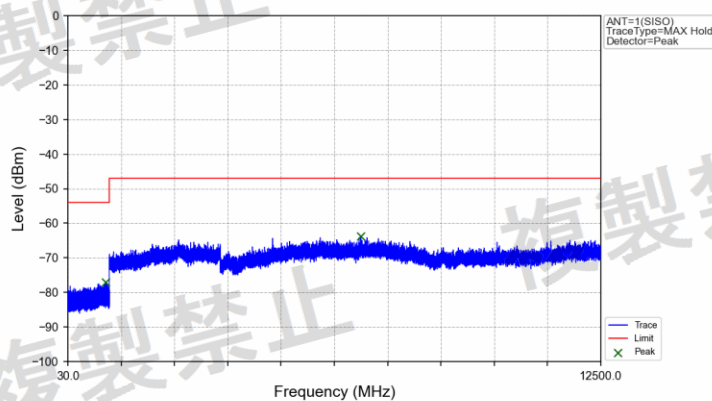


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	860.100	-77.75	/	-54	Pass
1000	12500	1	1	5958.000	-64.23	/	-47	Pass

2M 2480MHz Ant1 NTV



2M 2480MHz Ant1 NTV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	910.500	-76.97	/	-54	Pass
1000	12500	1	1	6881.500	-63.75	/	-47	Pass