

Appendix RF test data for BLE

1. Frequency Error

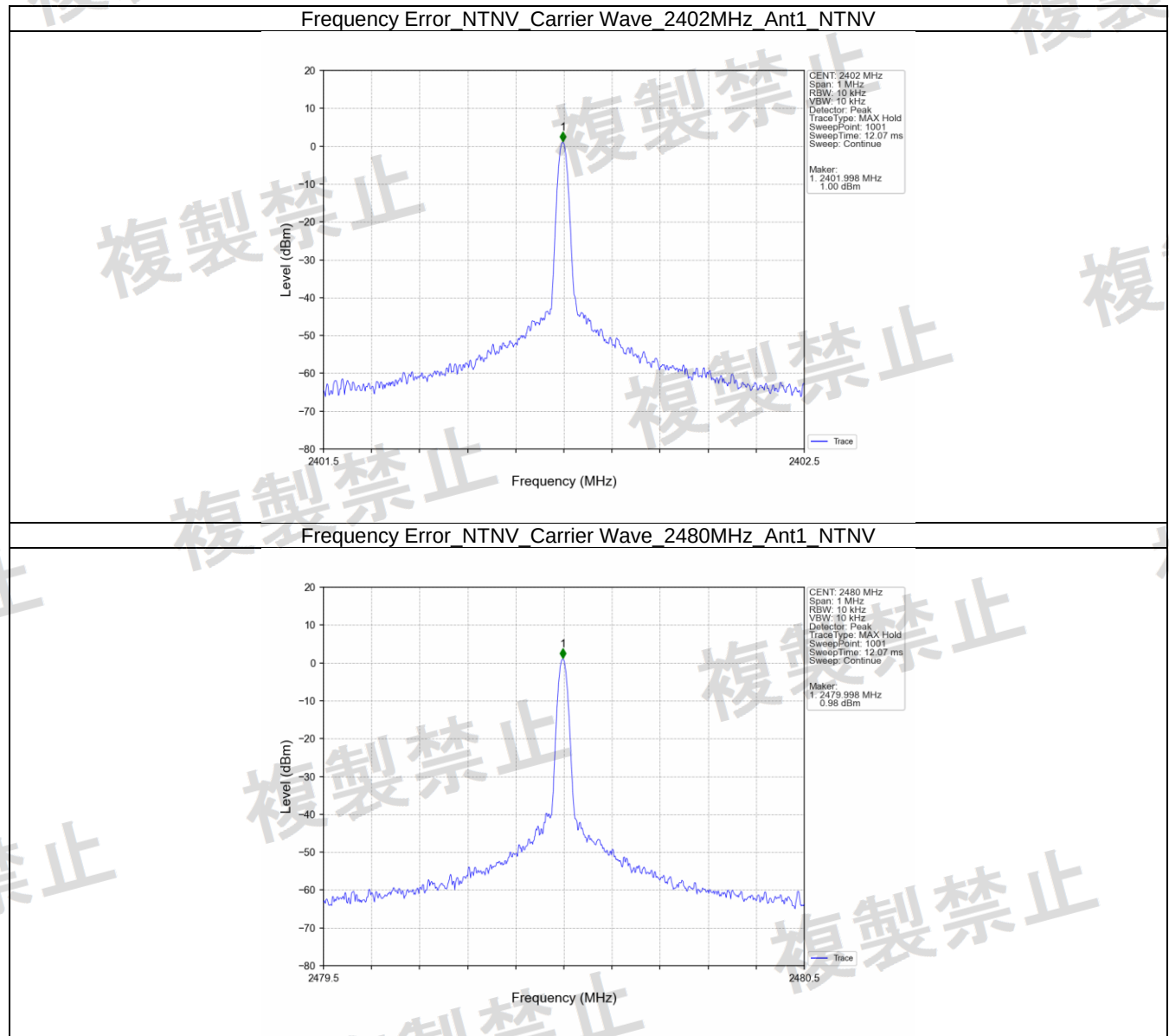
1.1 Test Result

1.1.1 Ant1

Ant1							
ENV	Mode	TX Type	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	SISO	2402	2401.998	-0.83	-50 to 50	Pass
			2480	2479.998	-0.81	-50 to 50	Pass

1.2 Test Graph

1.2.1 Ant1



2. Occupied Bandwidth

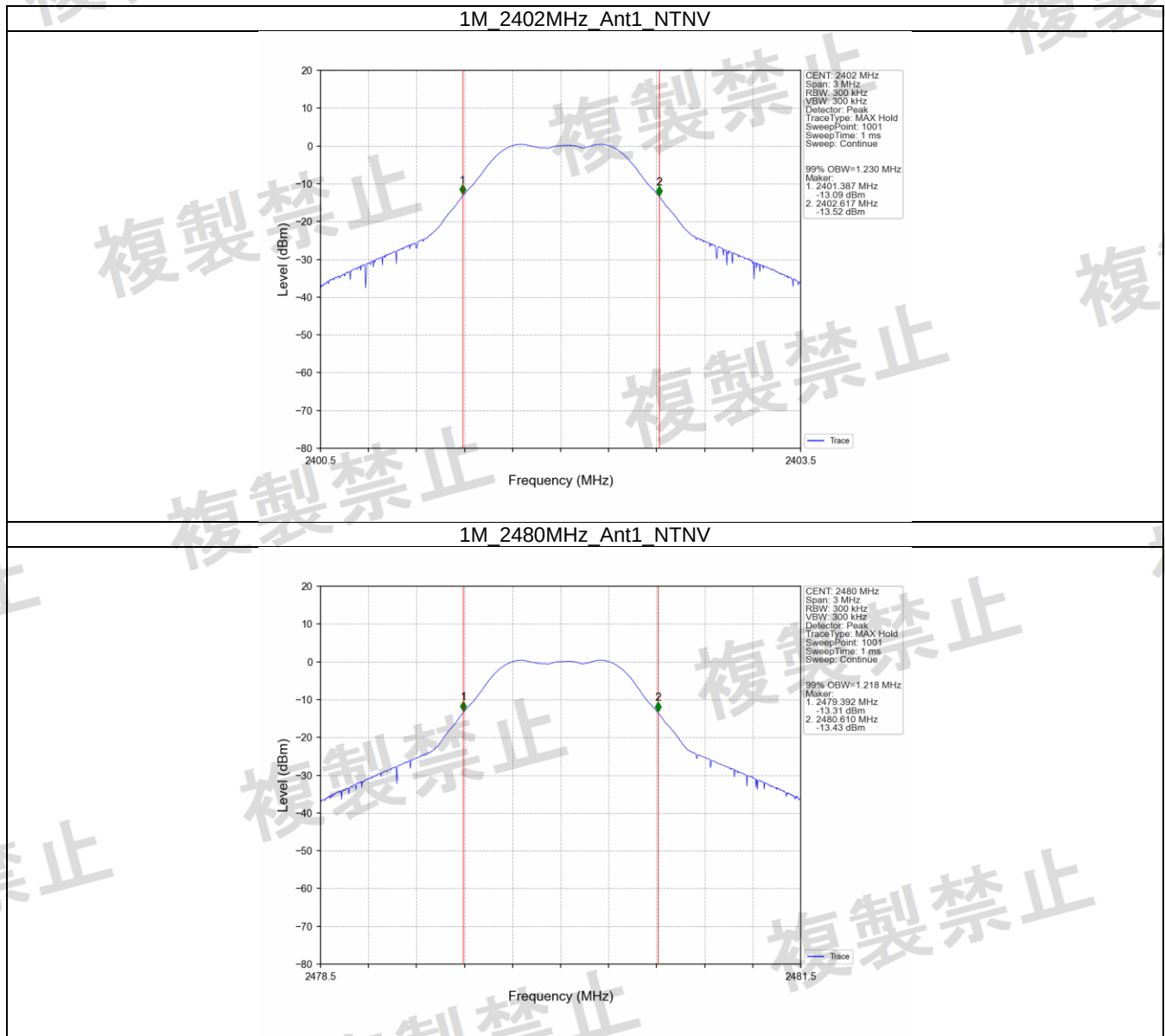
2.1 Test Result

2.1.1 OBW

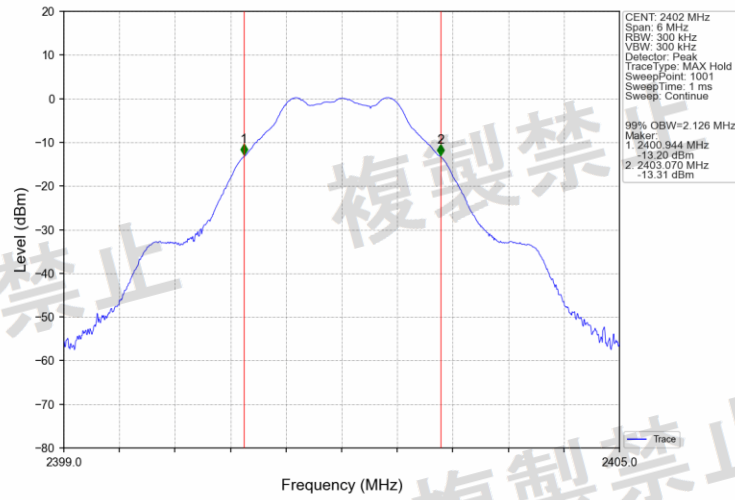
ENV	Mode	TX Type	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
				ANT1	Limit	
NTNV	1M	SISO	2402	1.230	≤ 26	Pass
			2480	1.218	≤ 26	Pass
	2M	SISO	2402	2.126	≤ 26	Pass
			2480	2.112	≤ 26	Pass

2.2 Test Graph

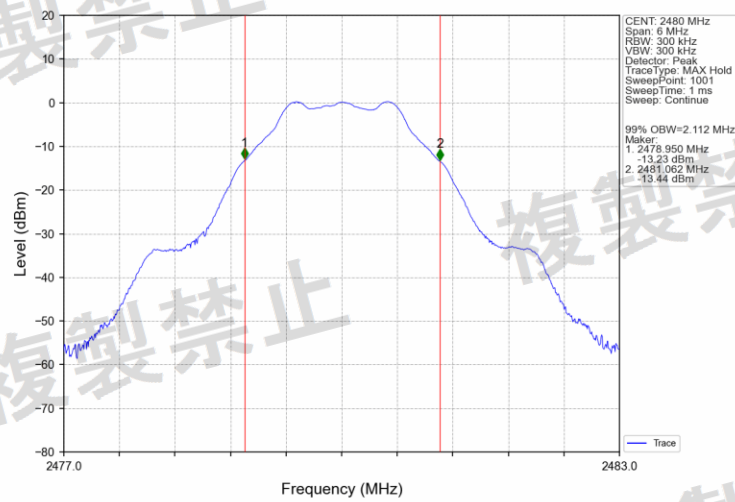
2.2.1 OBW



2M 2402MHz Ant1 NTV



2M 2480MHz Ant1 NTV



3. Antenna Power

3.1 Test Result

3.1.1 Power

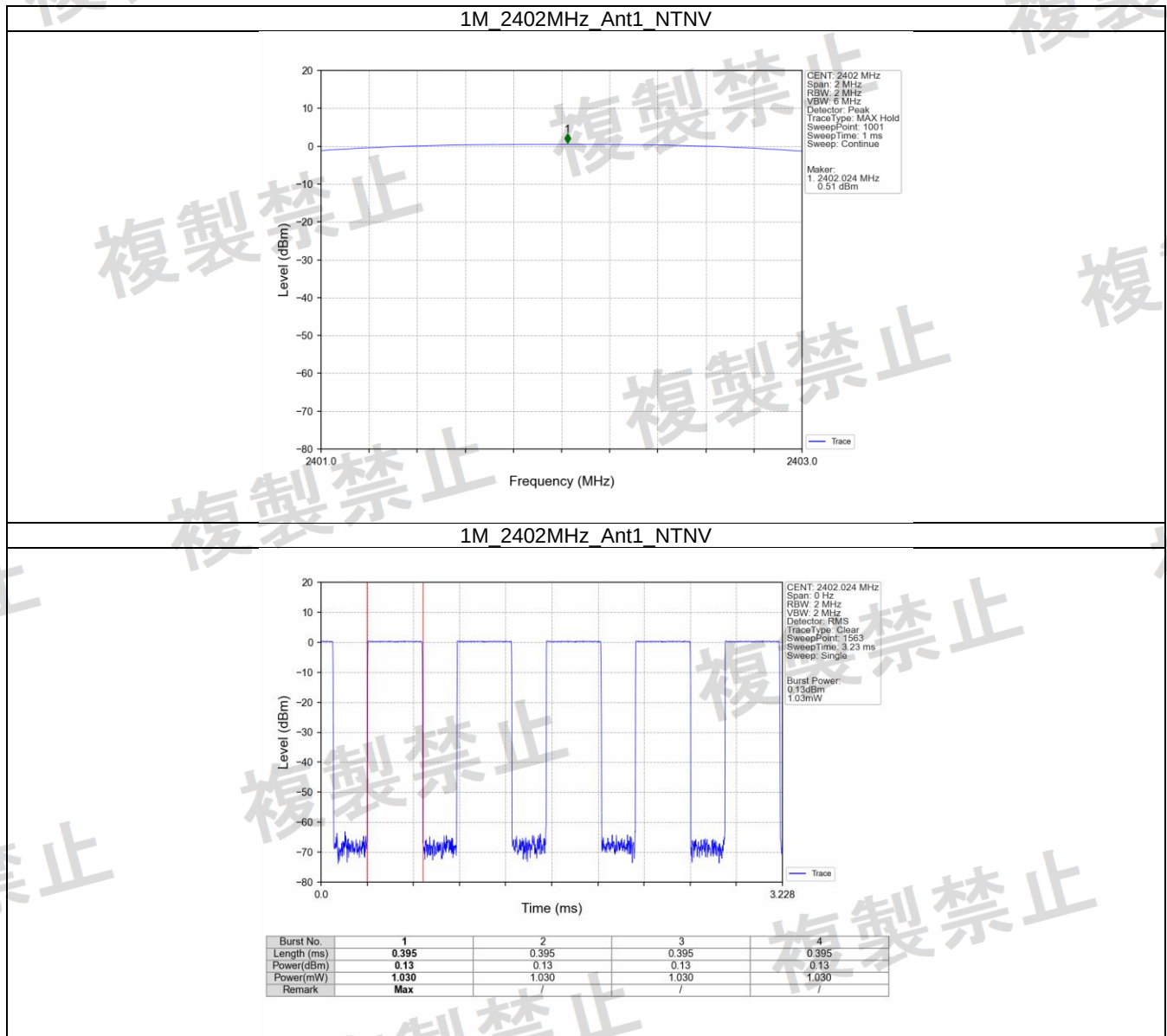
ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (mW)		Nominal Power (mW)	Tolerance (%)		Verdict
					Measured	Limit		Measured	Limit	
NTNV	1M	SISO	2402	1	1.030	<=10.00	1.000	3.00	<=20	Pass
			2480	1	1.047	<=10.00	1.000	4.70	<=20	Pass
	2M	SISO	2402	1	1.043	<=10.00	1.000	4.30	<=20	Pass
			2480	1	1.047	<=10.00	1.000	4.70	<=20	Pass

3.1.2 EIRP

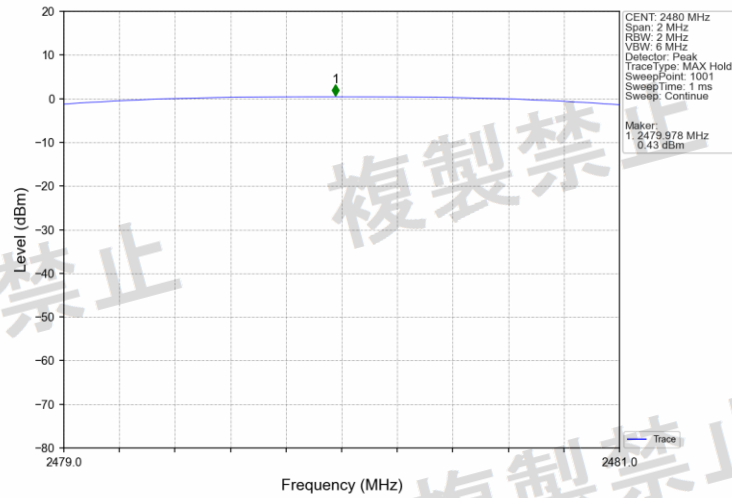
ENV	Mode	TX Type	Frequency (MHz)	ANT	Gain (dBi)	EIRP (dBm)		Verdict
						Result	Limit	
NTNV	1M	SISO	2402	1	2.70	2.83	<=12.14	Pass
			2480	1	2.70	2.90	<=12.14	Pass
	2M	SISO	2402	1	2.70	2.88	<=12.14	Pass
			2480	1	2.70	2.90	<=12.14	Pass

3.2 Test Graph

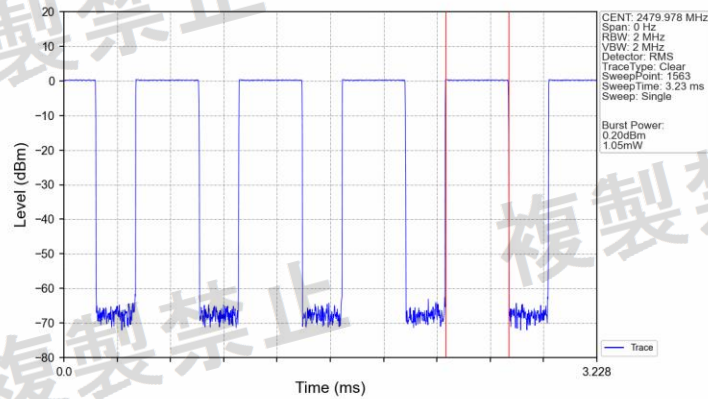
3.2.1 Power



1M 2480MHz Ant1 NTV

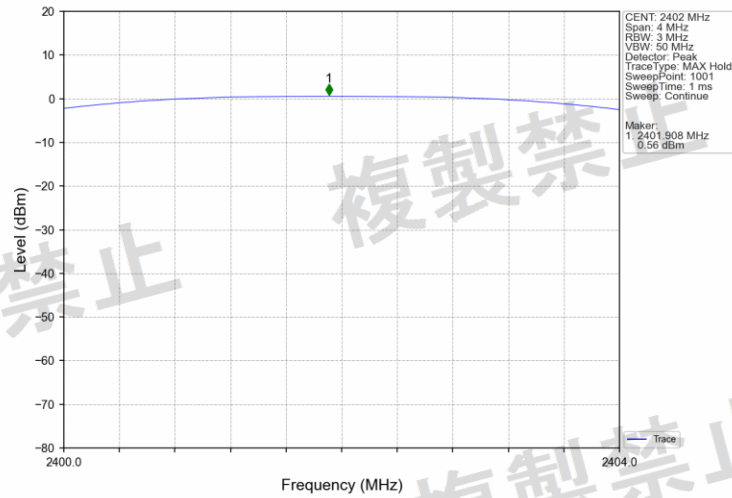


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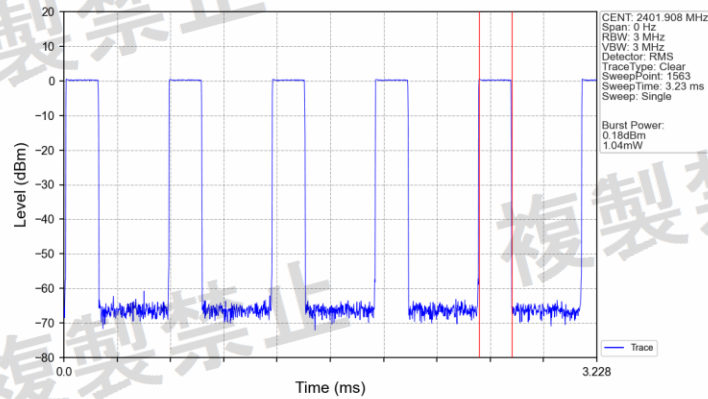


Burst No.	1	2	3	4
Length (ms)	0.384	0.384	0.384	0.384
Power (dBm)	0.20	0.19	0.20	0.20
Power (mW)	1.046	1.046	1.046	1.047
Remark	/	/	/	Max

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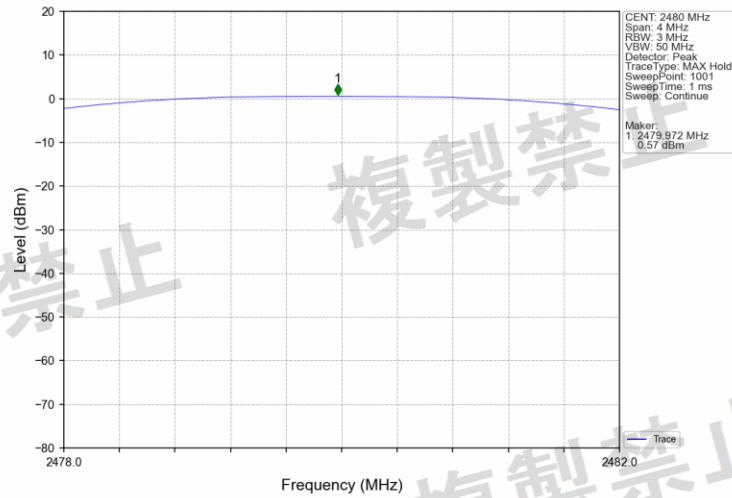


2M 2402MHz Ant1 NTV

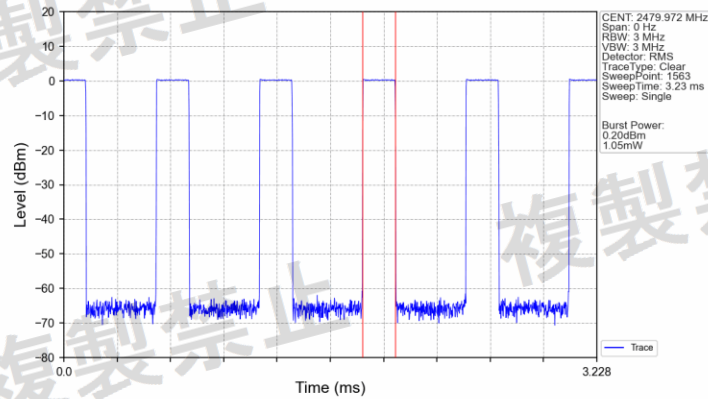


Burst No	1	2	3	4	5
Length (ms)	0.198	0.198	0.198	0.200	0.198
Power (dBm)	0.18	0.18	0.18	0.13	0.18
Power (mW)	1.042	1.042	1.041	1.031	1.043
Remark	/	/	/	/	Max

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Burst No.	1	2	3	4
Length (ms)	0.200	0.198	0.198	0.198
Power (dBm)	0.15	0.19	0.20	0.19
Power (mW)	1.035	1.046	1.047	1.046
Remark	/	/	Max	/

4. Spurious Emission Intensity

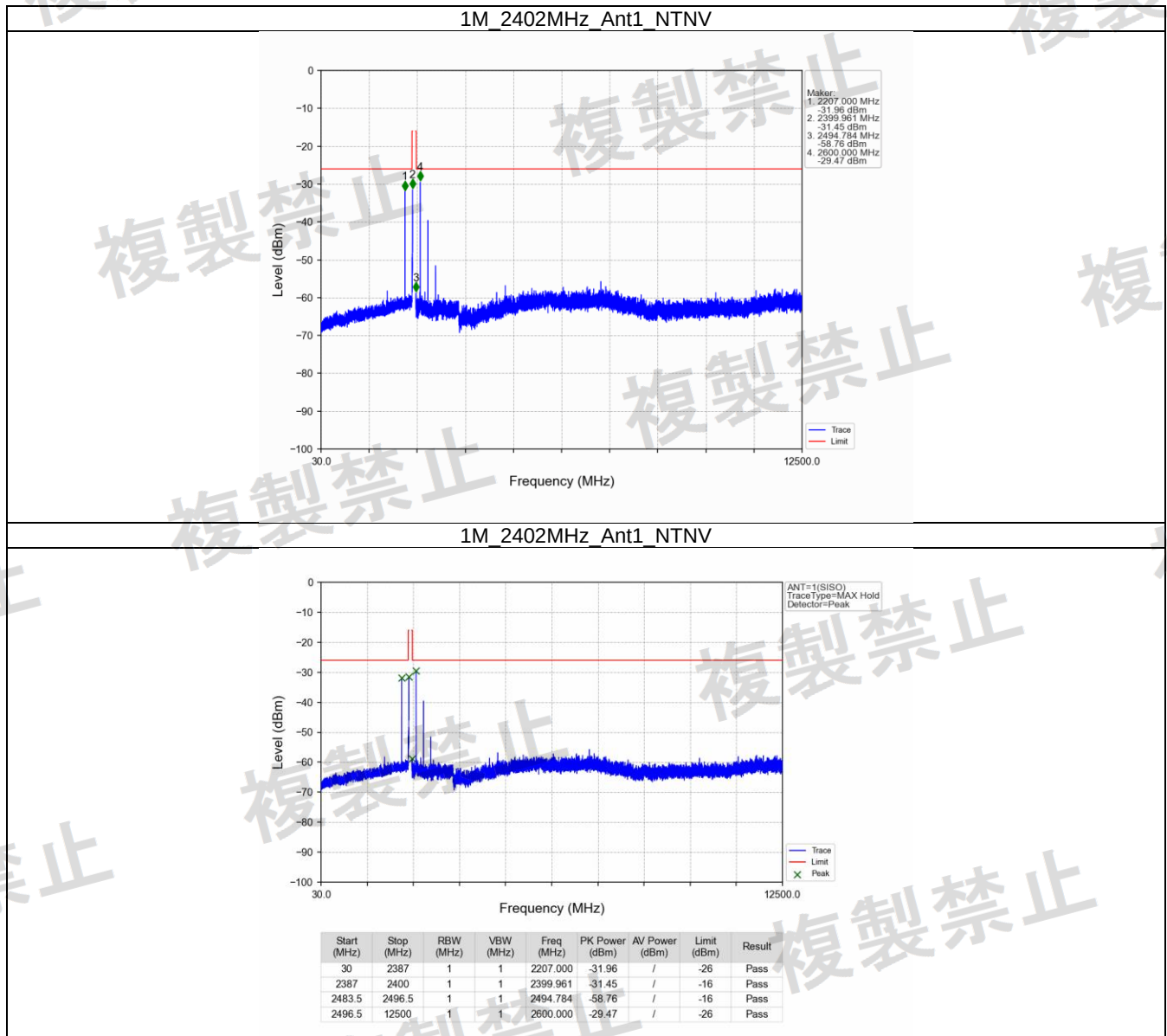
4.1 Test Result

4.1.1 TxSe_NTNV

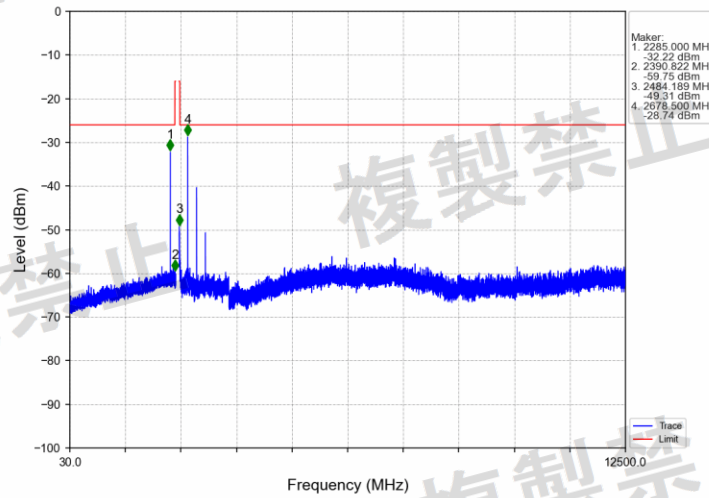
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
1M	SISO	2402	1	30	2387	2207	-31.96	0.637	/	/	2.5	Pass
				2387	2400	2399.961	-31.45	0.716	/	/	25	Pass
				2483.5	2496.5	2494.784	-58.76	0.001	/	/	25	Pass
				2496.5	12500	2600	-29.47	1.130	/	/	2.5	Pass
		2480	1	30	2387	2285	-32.22	0.600	/	/	2.5	Pass
				2387	2400	2390.822	-59.75	0.001	/	/	25	Pass
				2483.5	2496.5	2484.189	-49.31	0.012	/	/	25	Pass
				2496.5	12500	2678.5	-28.74	1.337	-41.38	0.073	2.5	Pass
2M	SISO	2402	1	30	2387	2207	-32.27	0.593	/	/	2.5	Pass
				2387	2400	2399.987	-23.17	4.819	/	/	25	Pass
				2483.5	2496.5	2491.04	-57.79	0.002	/	/	25	Pass
				2496.5	12500	2600.5	-30.03	0.993	/	/	2.5	Pass
		2480	1	30	2387	1747	-49.71	0.011	/	/	2.5	Pass
				2387	2400	2388.534	-59.40	0.001	/	/	25	Pass
				2483.5	2496.5	2483.526	-49.18	0.012	/	/	25	Pass
				2496.5	12500	2678.5	-30.50	0.891	/	/	2.5	Pass

4.2 Test Graph

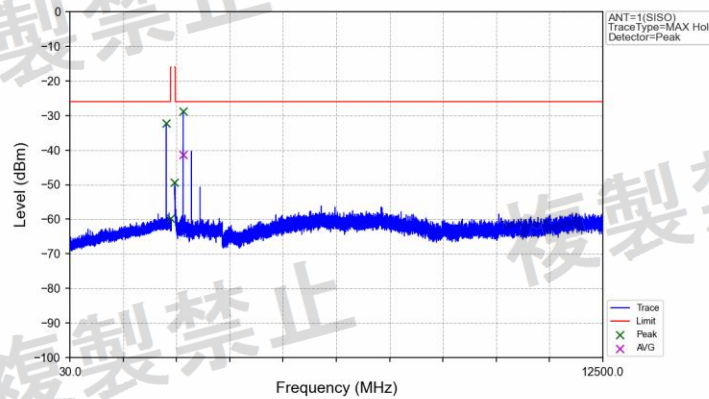
4.2.1 TxSe_NTNV



1M 2480MHz Ant1 NTV

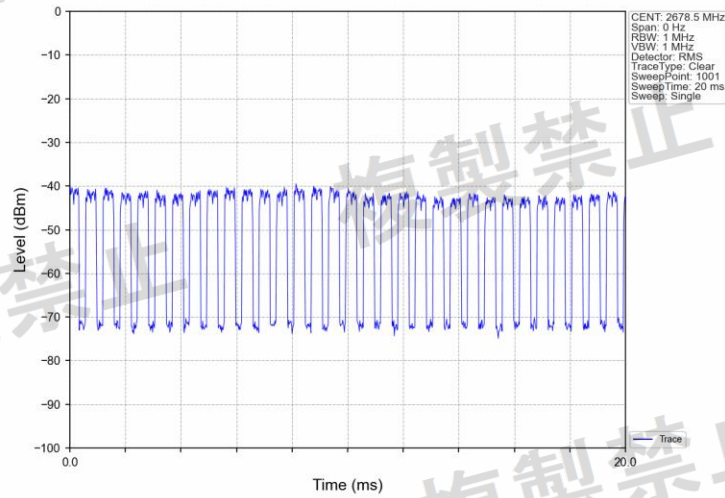


1M 2480MHz Ant1 NTV

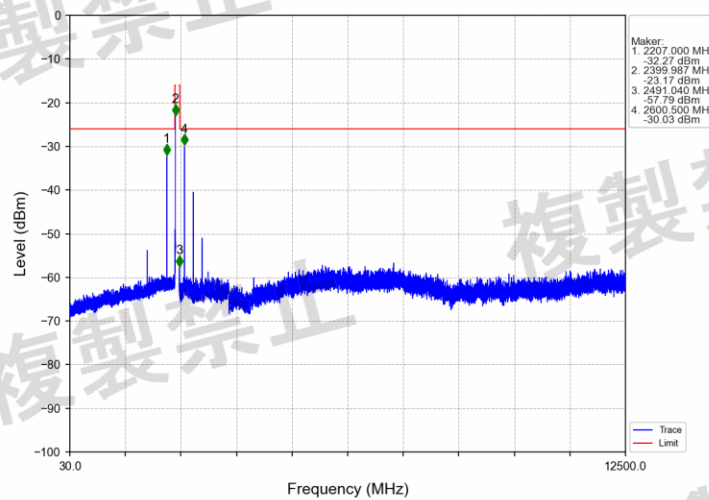


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2285.000	-32.22	/	-26	Pass
2387	2400	1	1	2390.822	-59.75	/	-16	Pass
2483.5	2496.5	1	1	2484.189	-49.31	/	-16	Pass
2496.5	12500	1	1	2678.500	-28.74	-41.38	-26	Pass

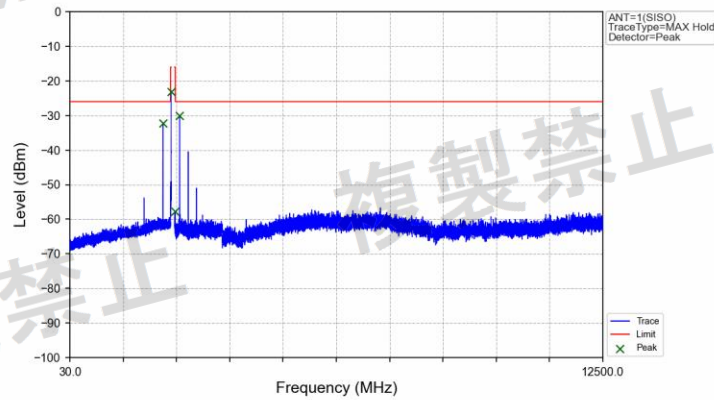
1M 2480MHz Ant1 NTV



2M 2402MHz Ant1 NTV

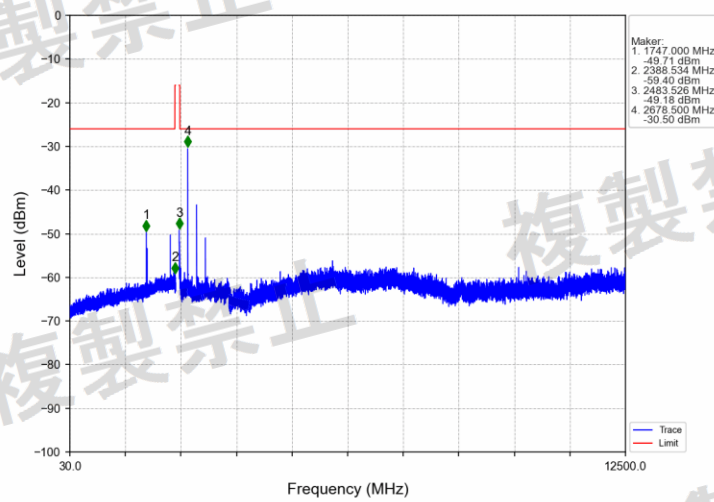


2M 2402MHz Ant1 NTV

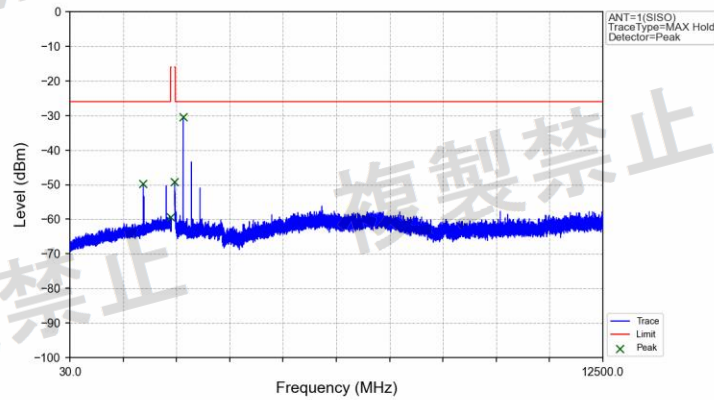


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	A/V Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2207.000	-32.27	/	-26	Pass
2387	2400	1	1	2399.987	-23.17	/	-16	Pass
2483.5	2496.5	1	1	2491.040	-57.79	/	-16	Pass
2496.5	12500	1	1	2600.500	-30.03	/	-26	Pass

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2M 2480MHz Ant1 NTV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	A/V Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1747.000	-49.71	/	-26	Pass
2387	2400	1	1	2388.534	-59.40	/	-16	Pass
2483.5	2496.5	1	1	2483.526	-49.18	/	-16	Pass
2496.5	12500	1	1	2678.500	-30.50	/	-26	Pass

5. Secondary Radiated Emission

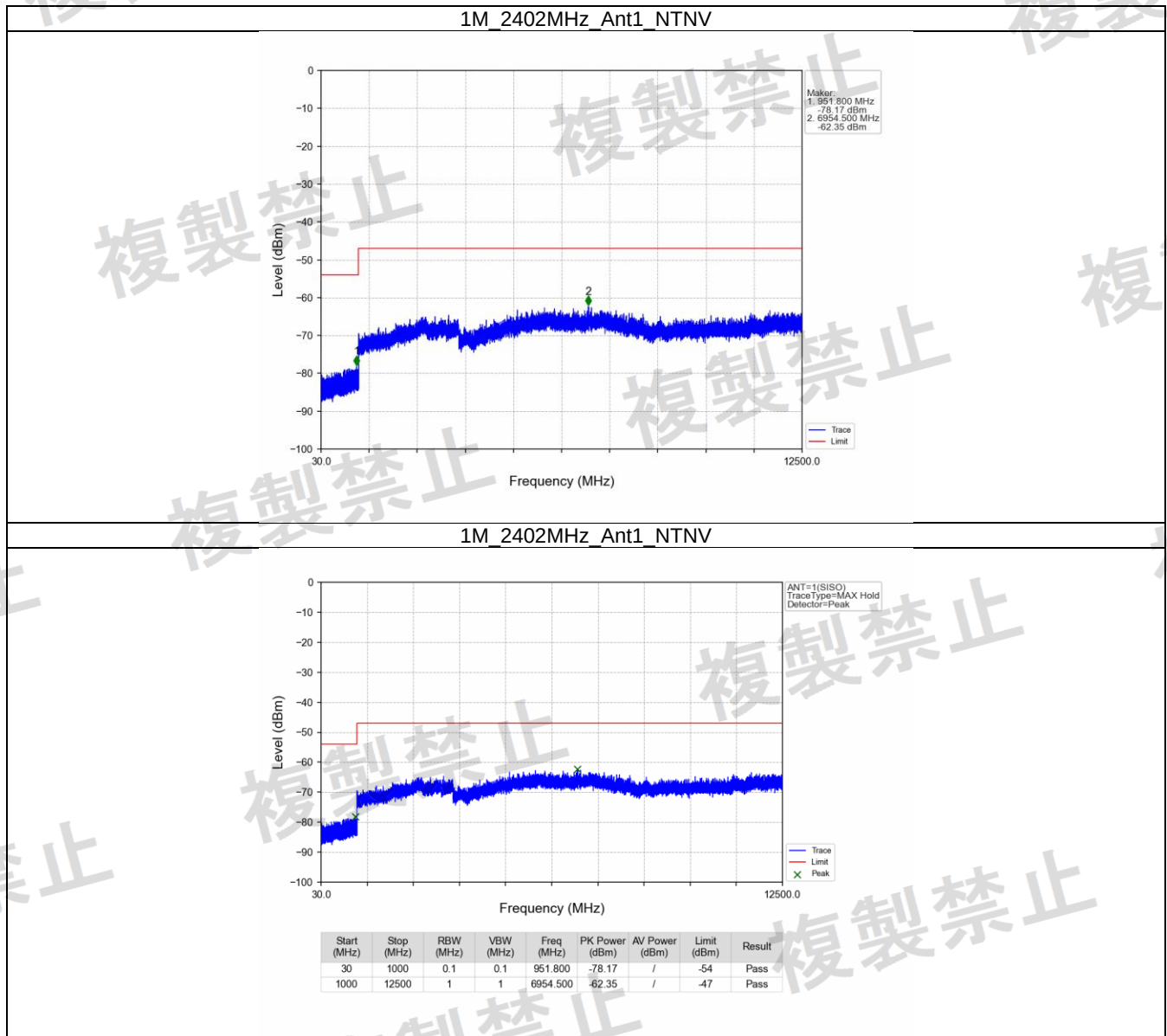
5.1 Test Result

5.1.1 RxSe_NTNV

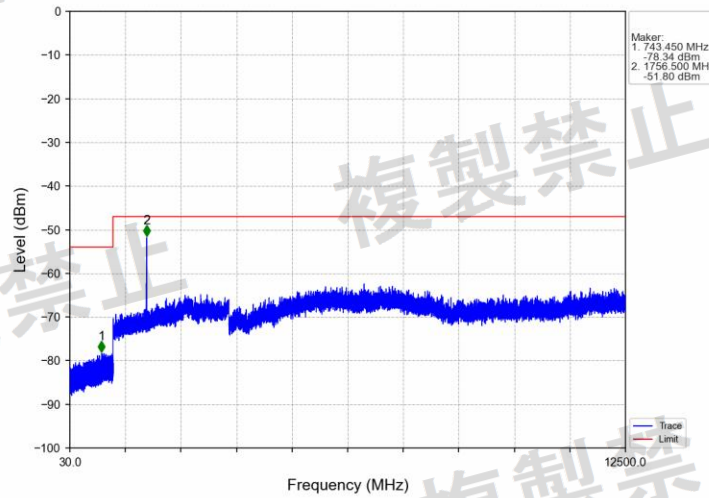
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
1M	SISO	2402	1	30	1000	951.8	-78.17	0.015	/	/	4	Pass
				1000	12500	6954.5	-62.35	0.582	/	/	20	Pass
		2480	1	30	1000	743.45	-78.34	0.015	/	/	4	Pass
				1000	12500	1756.5	-51.80	6.607	-79.25	0.012	20	Pass
2M	SISO	2402	1	30	1000	927.7	-77.16	0.019	/	/	4	Pass
				1000	12500	1749	-52.63	5.458	-81.01	0.008	20	Pass
		2480	1	30	1000	809	-77.93	0.016	/	/	4	Pass
				1000	12500	5905.5	-62.52	0.560	/	/	20	Pass

5.2 Test Graph

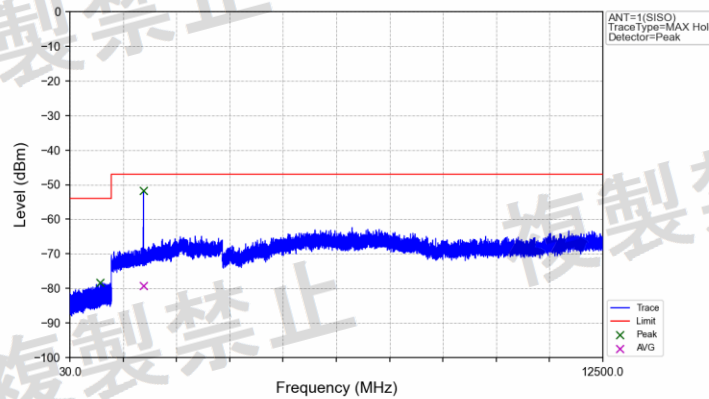
5.2.1 RxSe_NTNV



1M 2480MHz Ant1 NTV

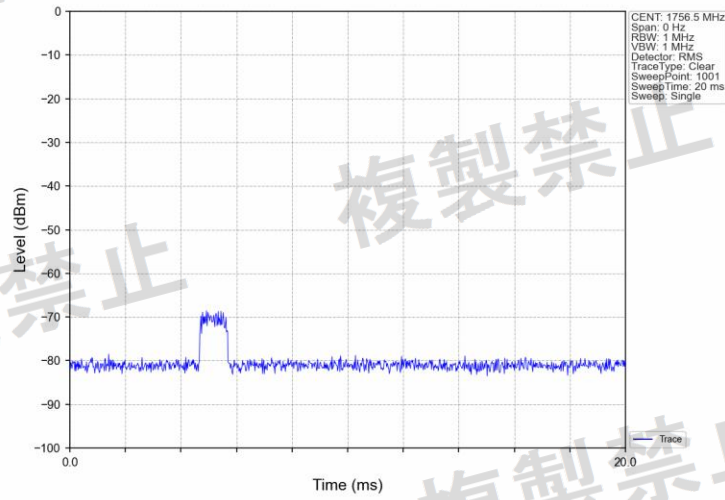


1M 2480MHz Ant1 NTV

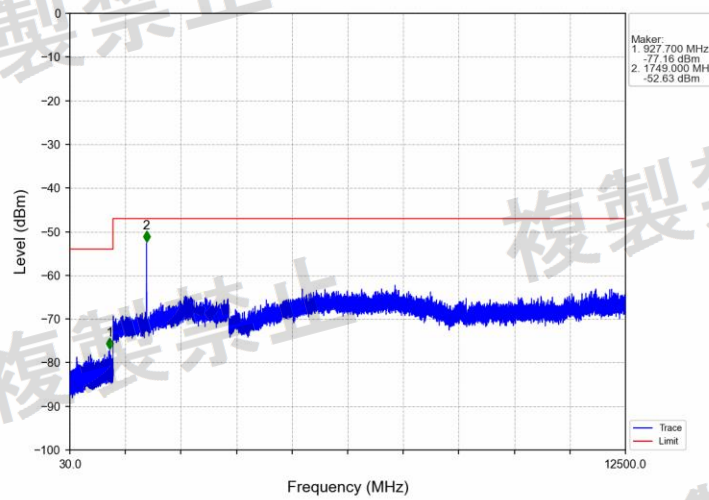


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	743.450	-78.34	/	-54	Pass
1000	12500	1	1	1756.500	-51.80	-79.25	-47	Pass

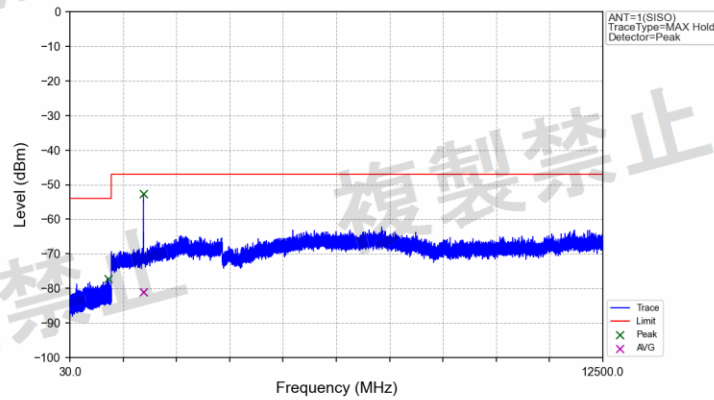
1M 2480MHz Ant1 NTVN



2M 2402MHz Ant1 NTVN

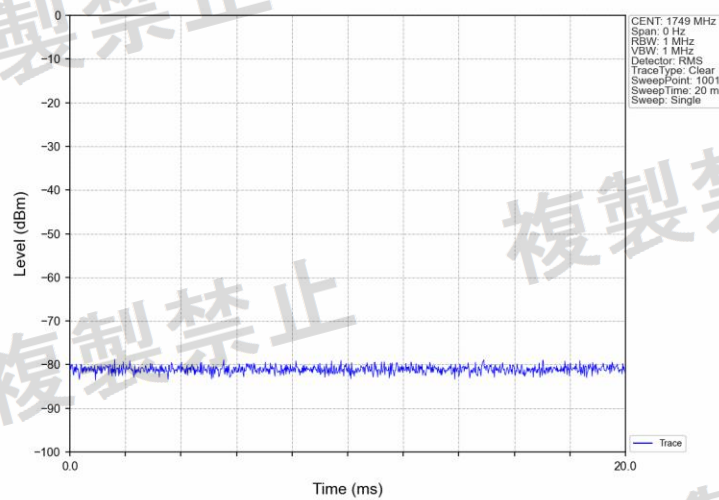


2M 2402MHz Ant1 NTV

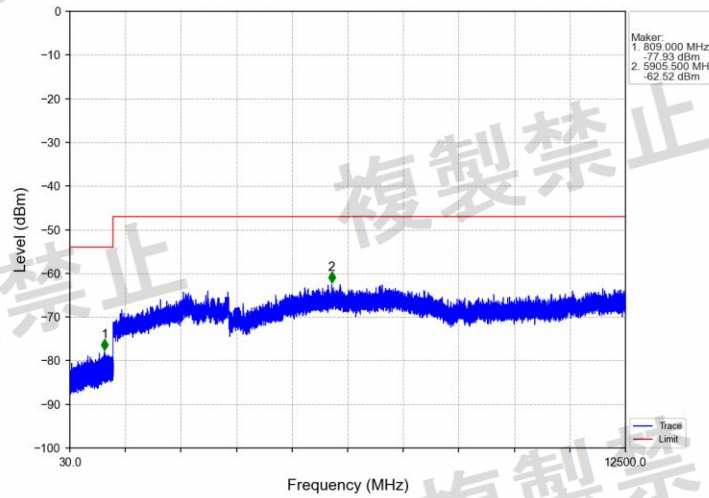


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	A/V Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	927.700	-77.16	/	-54	Pass
1000	12500	1	1	1749.000	-52.63	-81.01	-47	Pass

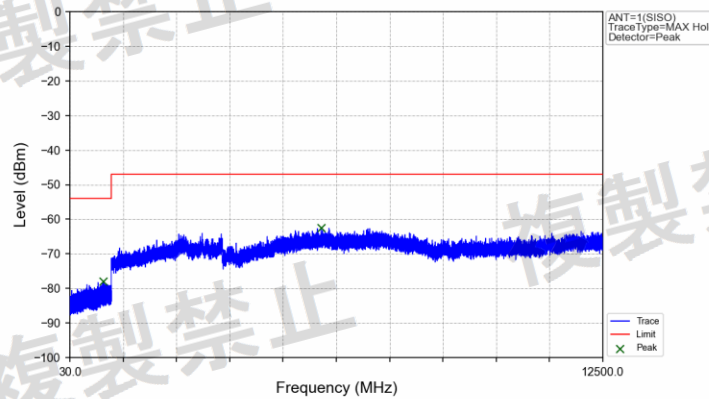
2M 2402MHz Ant1 NTV



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	809.000	-77.93	/	-54	Pass
1000	12500	1	1	5905.500	-62.52	/	-47	Pass

***** End of Report *****