



Shenzhen BANTEK Testing Co., Ltd.

Report No.: BTEK250820095A01E02

RF Test Report

For BTEK250820095A01-T07

Project No.:	BTEK250820095A01E02
Product Description:	25.0°C, 62%, 101.3kPa
Test Engineer:	Zora
Test Date:	2025-09-20



Test Summary

Item	Result
Frequency Error	Pass
Occupied Bandwidth	Pass
Spread Bandwidth	Pass
Antenna Power	Pass
Dwell Time	Pass
Spurious Emission Intensity	Pass
Secondary Radiated Emission	Pass



1. Frequency Error

1.1 Test Result

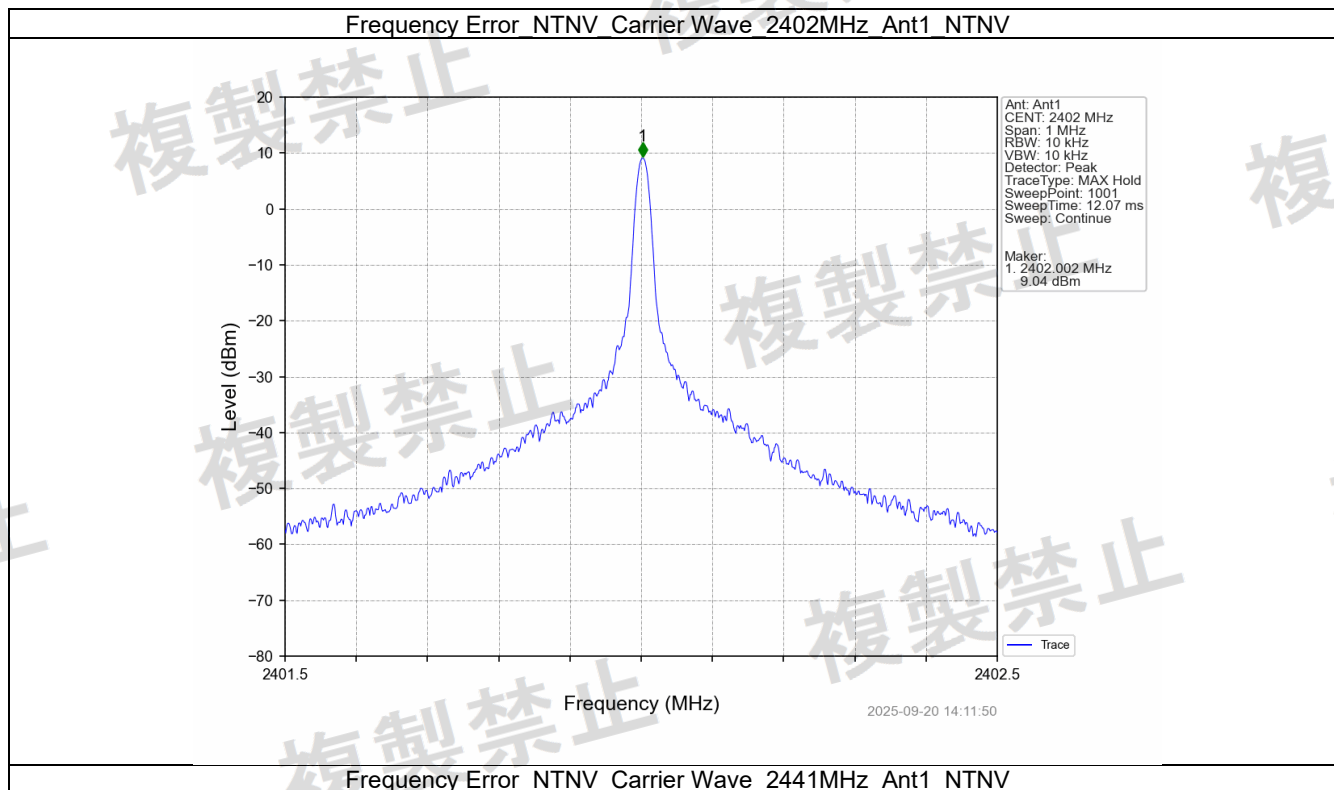
1.1.1 Ant1

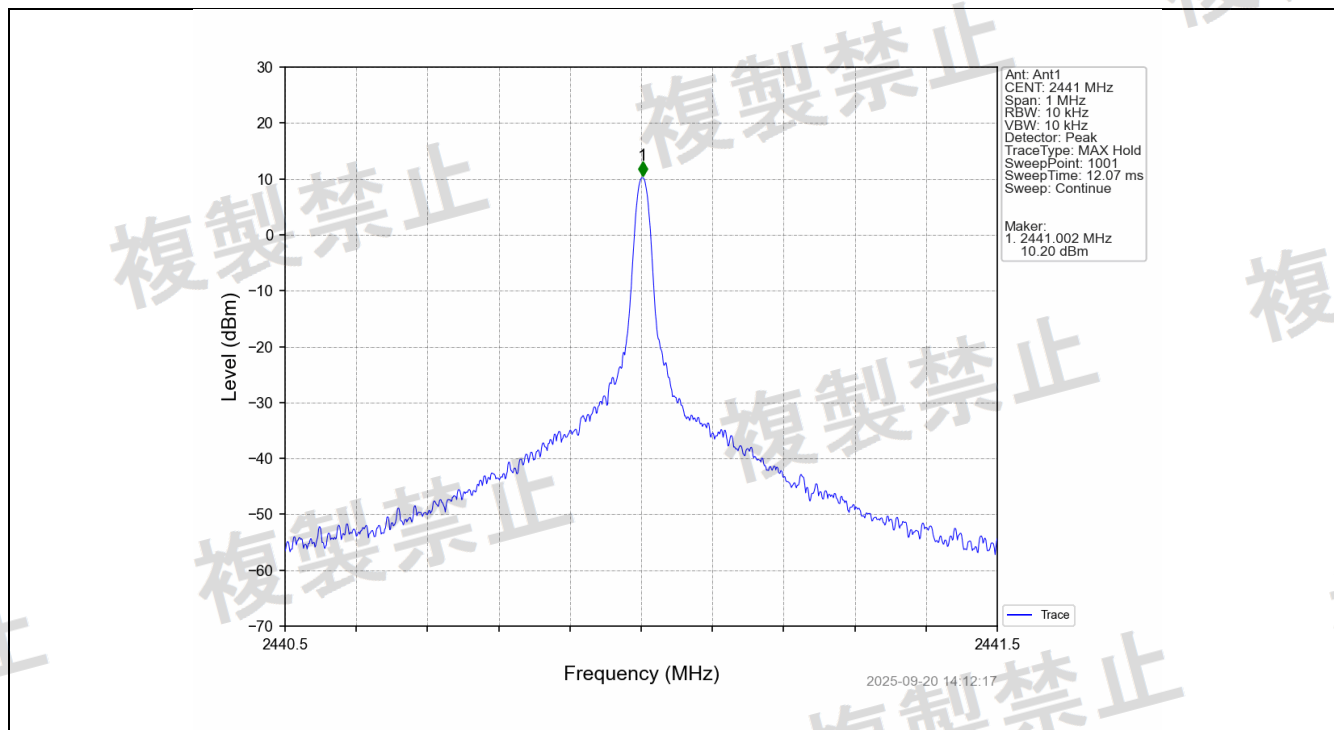
Ant1								
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
						Result	Limit	
NTNV	Carrier Wave	SISO	2402	DH5	2402.002	0.83	-50 to 50	Pass
			2441	DH5	2441.002	0.82	-50 to 50	Pass
			2480	DH5	2480.001	0.40	-50 to 50	Pass

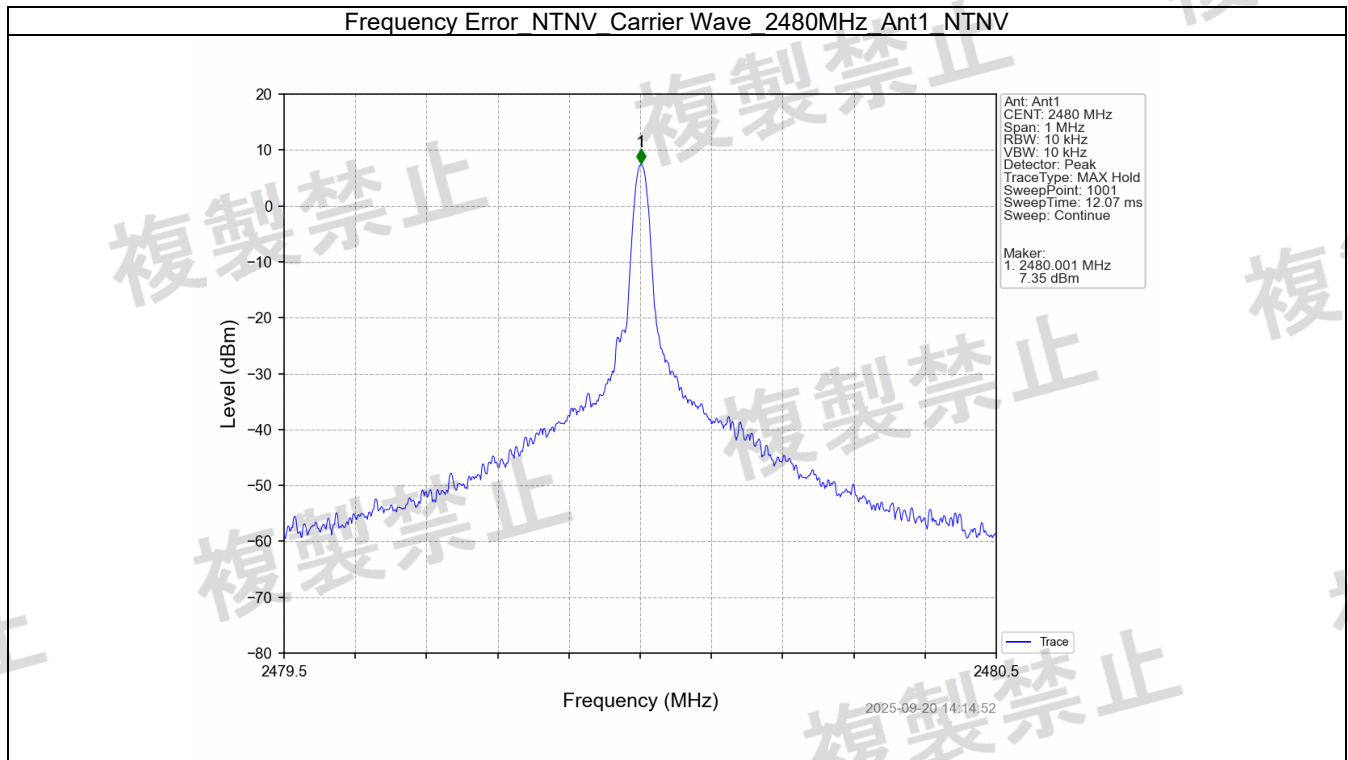


1.2 Test Graph

1.2.1 Ant1









2. Occupied Bandwidth

2.1 Test Result

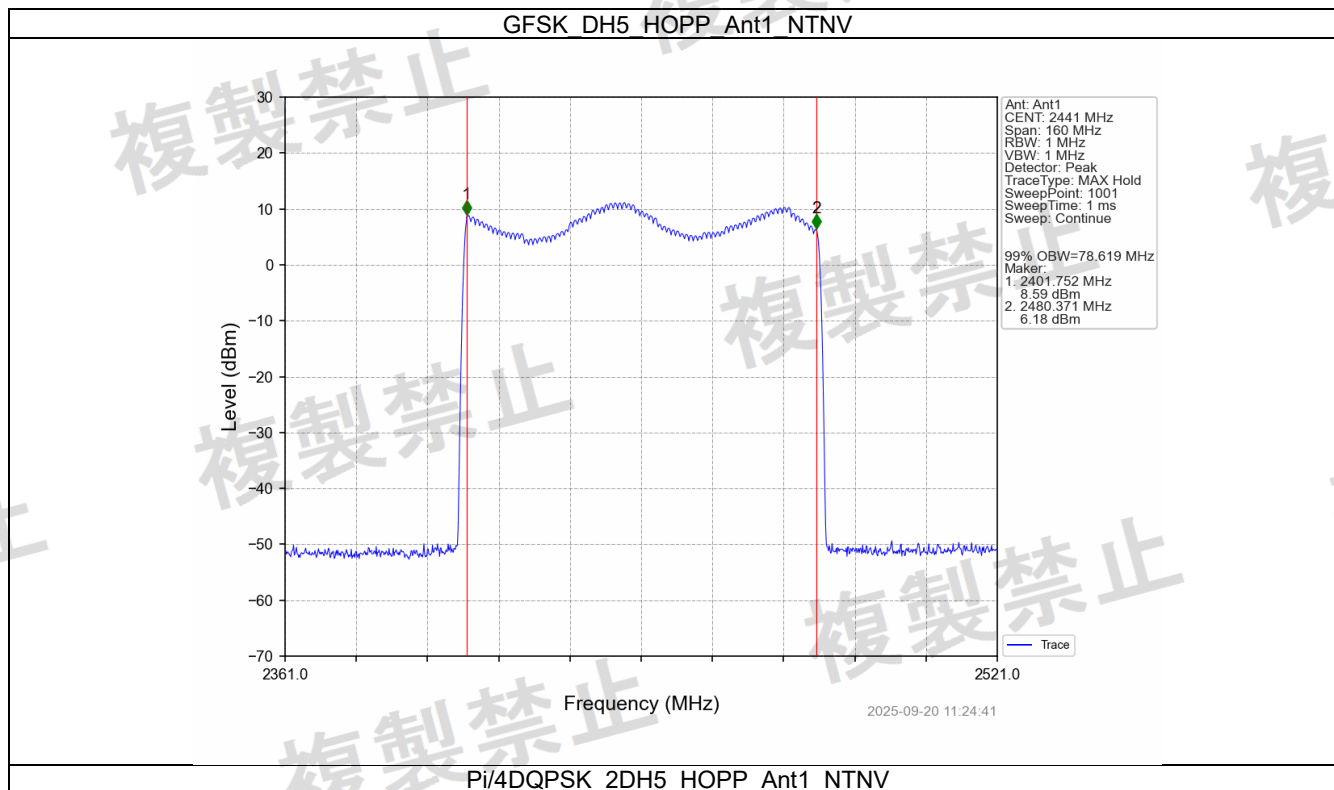
2.1.1 OBW

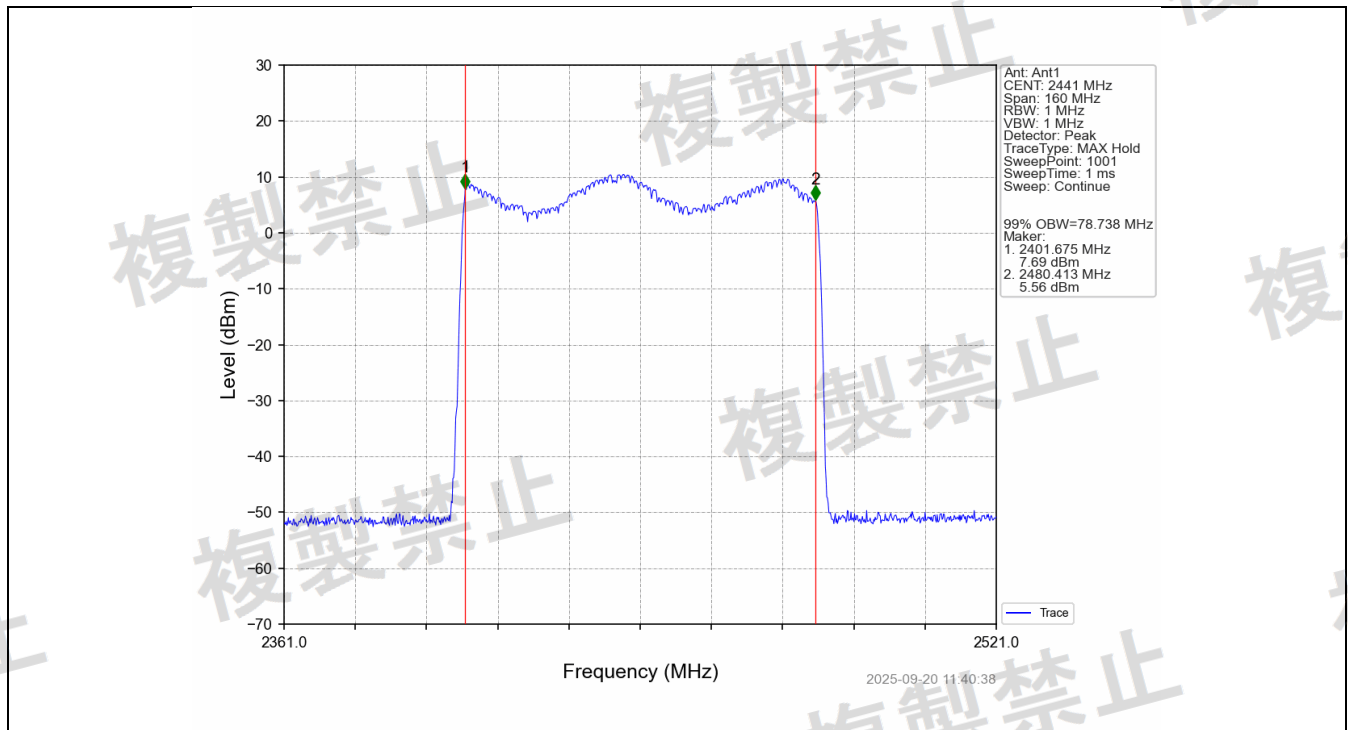
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	99% Occupied Bandwidth (MHz)		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	78.619	<=83.5	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	78.738	<=83.5	Pass
	8DPSK	SISO	HOPP	3DH5	78.750	<=83.5	Pass

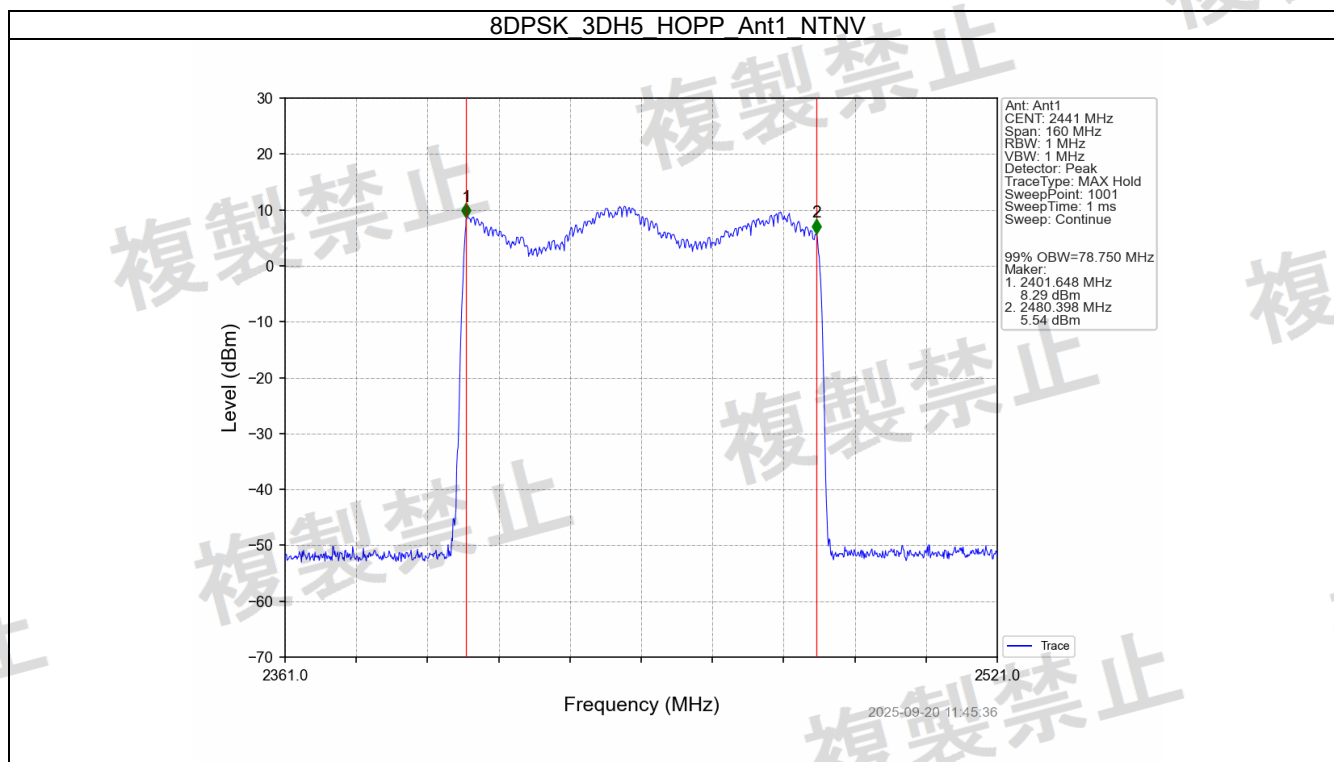


2.2 Test Graph

2.2.1 OBW









3. Spread Bandwidth

3.1 Test Result

3.1.1 SPBW

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spread Bandwidth (MHz)		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	77.709	/	Only For Report
	Pi/4DQPSK	SISO	HOPP	2DH5	71.872	/	Only For Report
	8DPSK	SISO	HOPP	3DH5	72.101	/	Only For Report

3.1.2 SpreadFactor

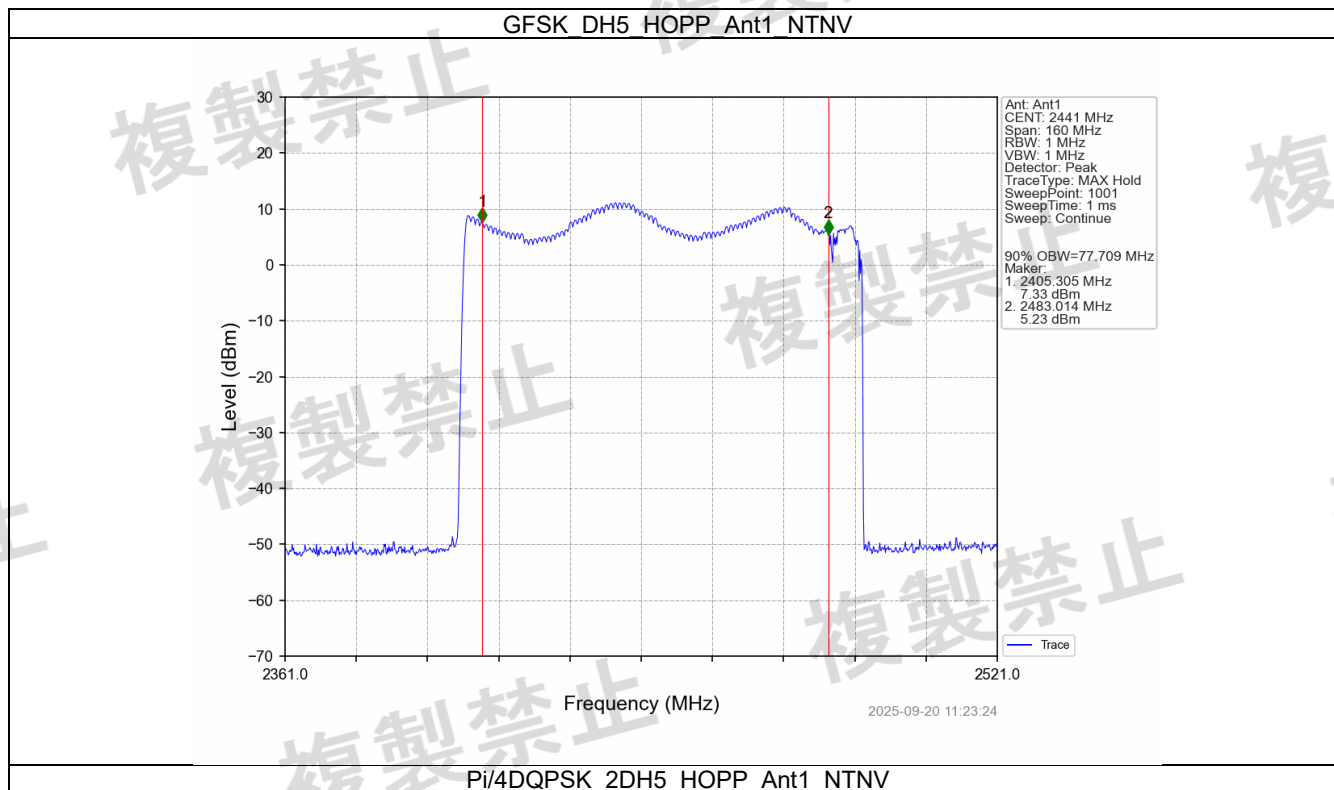
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spread Factor		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	77.709	≥ 5	Only For Report
	Pi/4DQPSK	SISO	HOPP	2DH5	71.872	≥ 5	Only For Report
	8DPSK	SISO	HOPP	3DH5	72.101	≥ 5	Only For Report

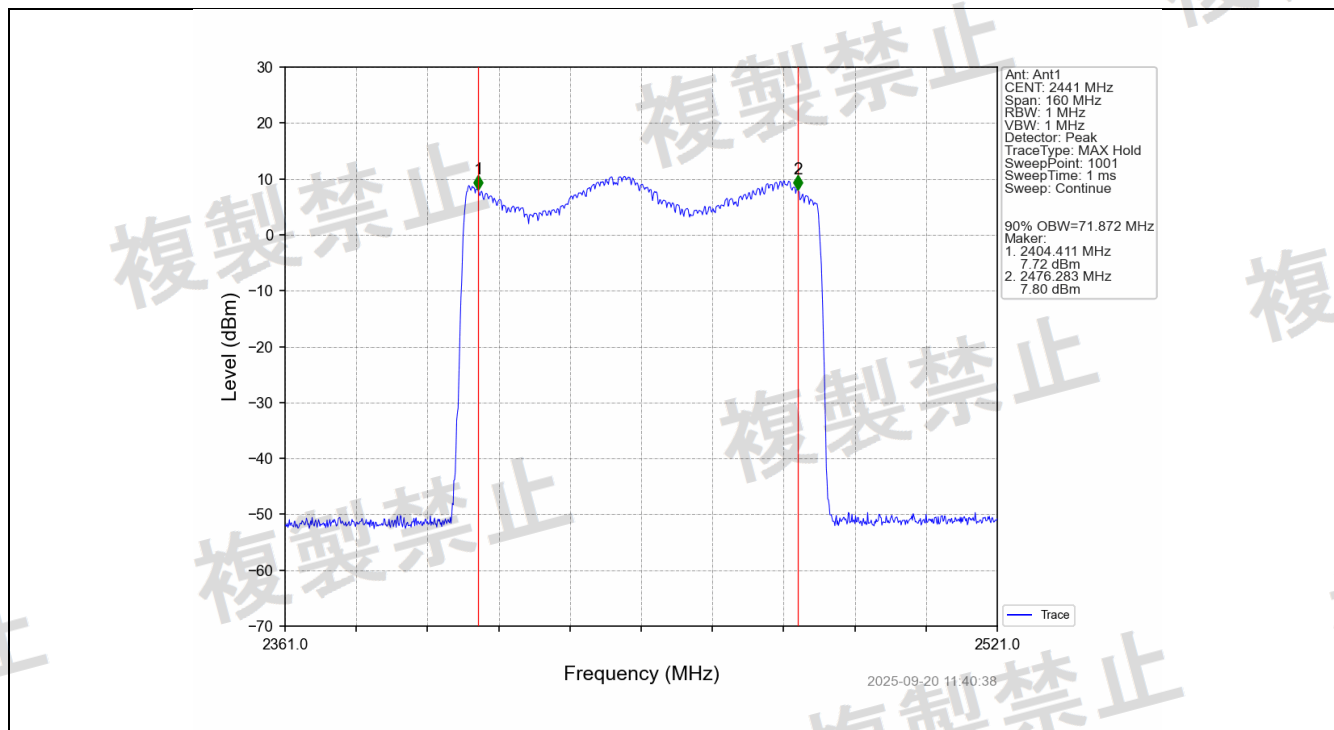
Note1: Spread Factor = Spread Bandwidth / Symbol Rate, For Bluetooth, Symbol Rate = 1

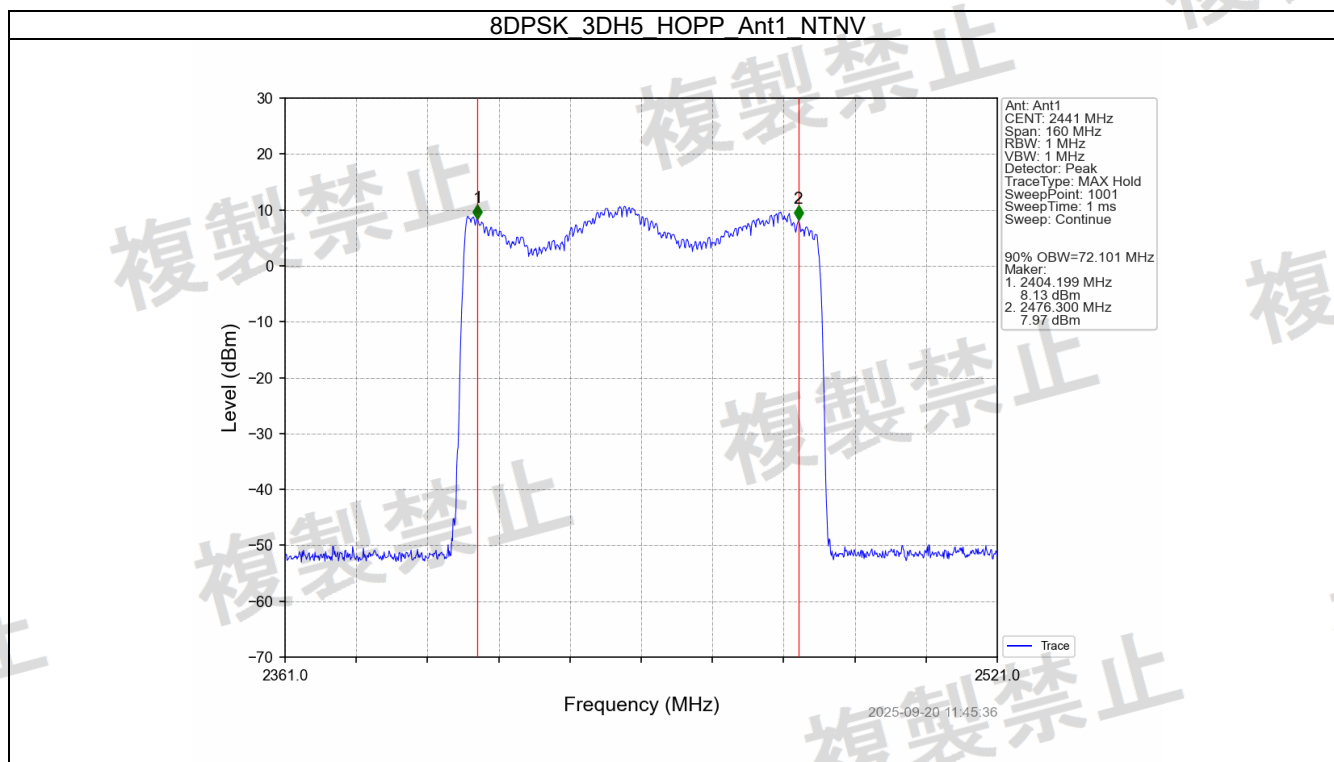


3.2 Test Graph

3.2.1 SPBW









4. Antenna Power

4.1 Test Result

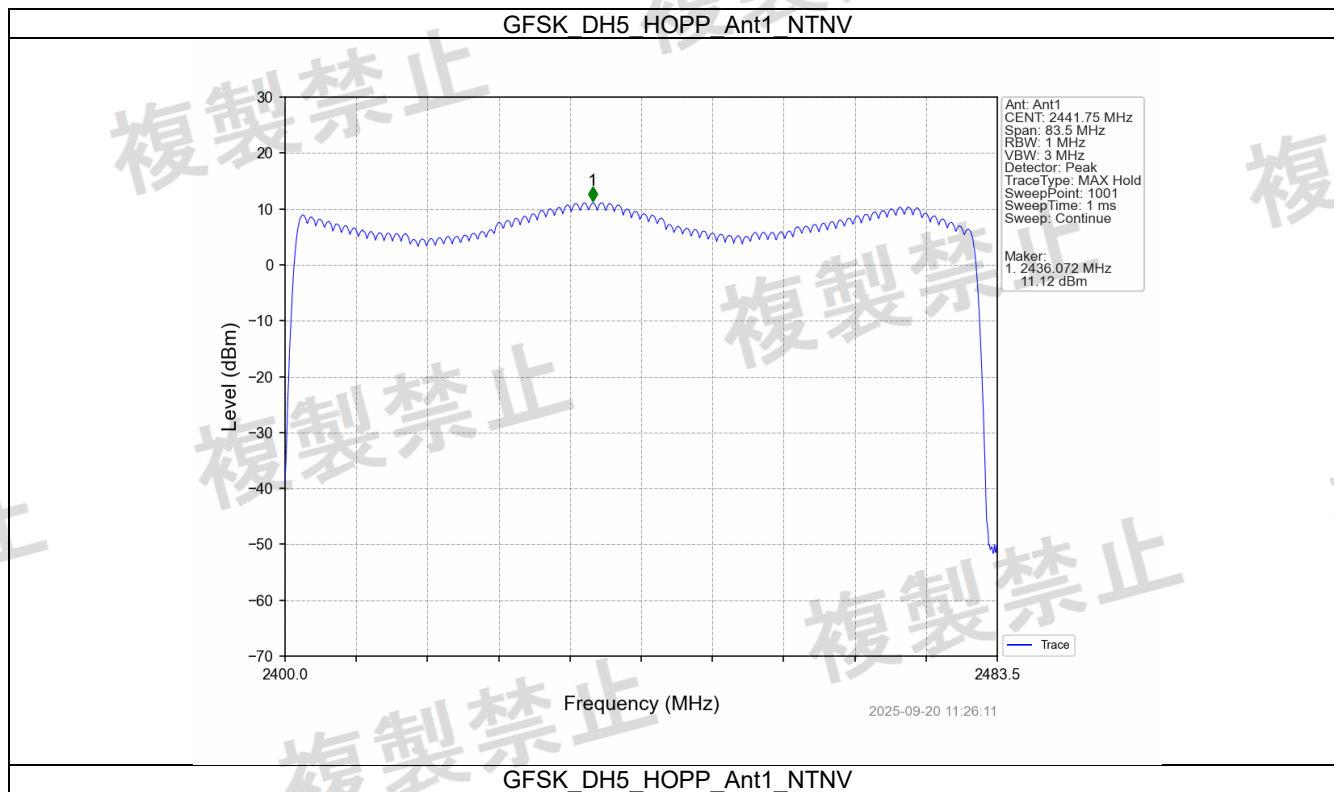
4.1.1 Power

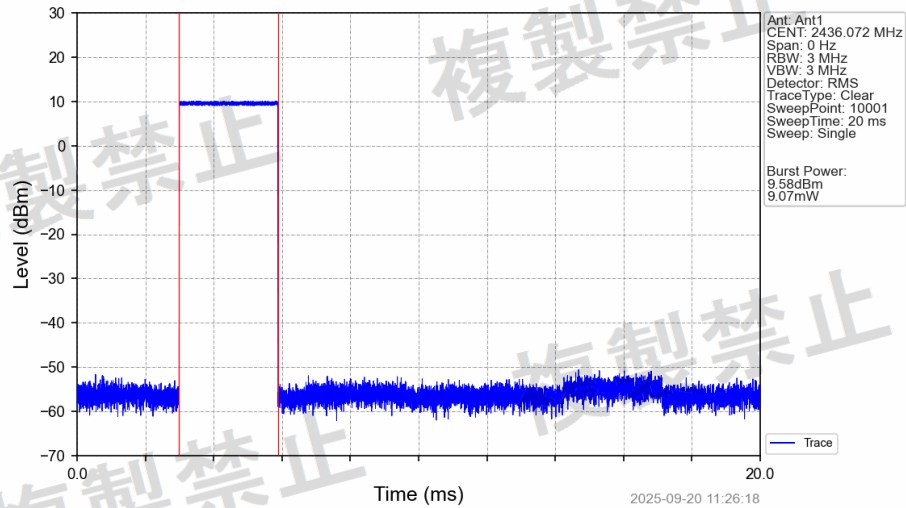
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Antenna Power (mW/MHz)		Nominal Power (mW/MHz)	Tolerance (%)		Verdict
						Measured	Limit		Measured	Limit	
NTNV	GFSK	SISO	HOPP	DH5	1	0.117	≤ 3.00	0.120	-2.50	-80 to 20	Pass
	PI/4DQPSK	SISO	HOPP	2DH5	1	0.087	≤ 3.00	0.087	0.00	-80 to 20	Pass
	8DPSK	SISO	HOPP	3DH5	1	0.062	≤ 3.00	0.062	0.00	-80 to 20	Pass



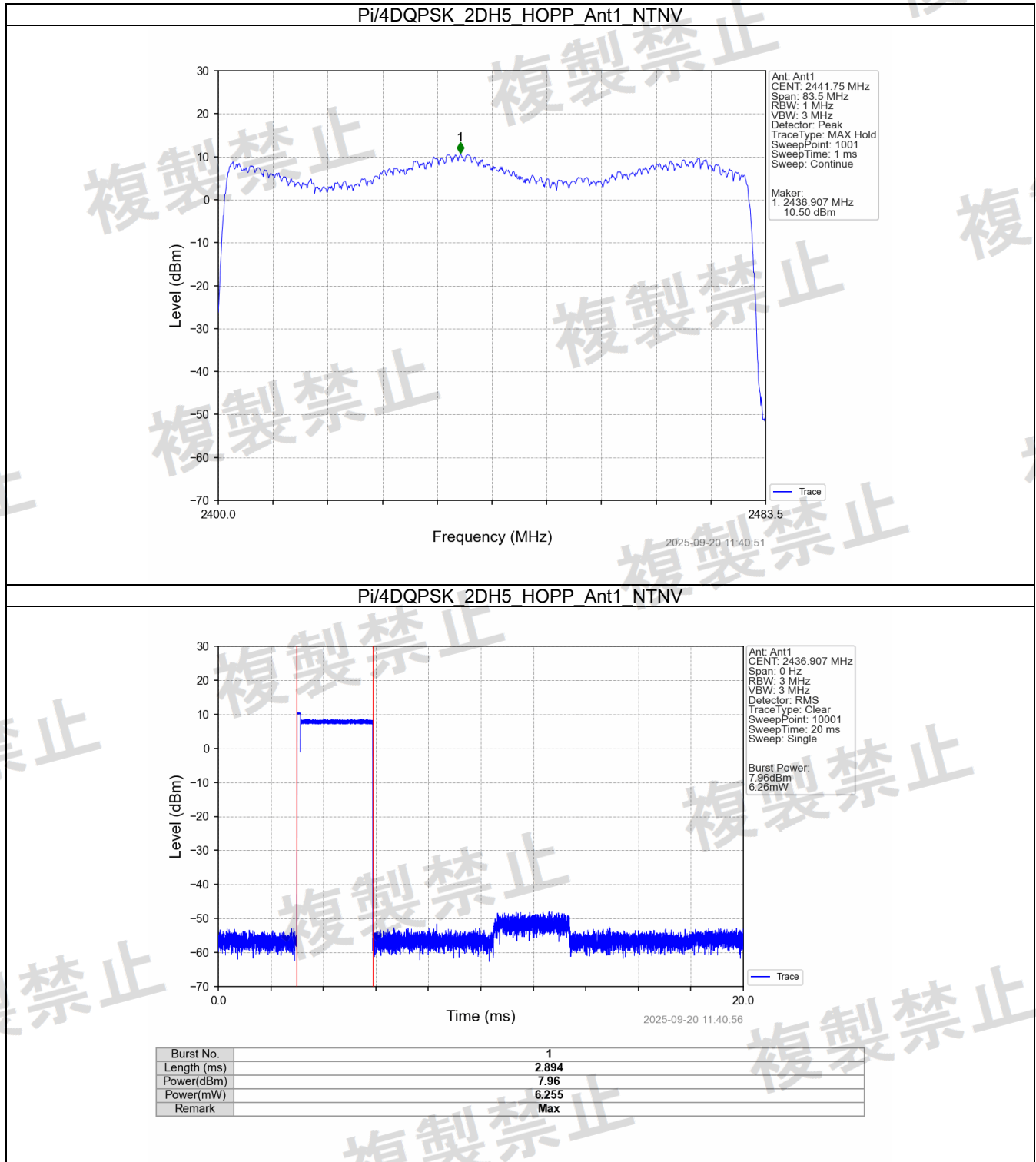
4.2 Test Graph

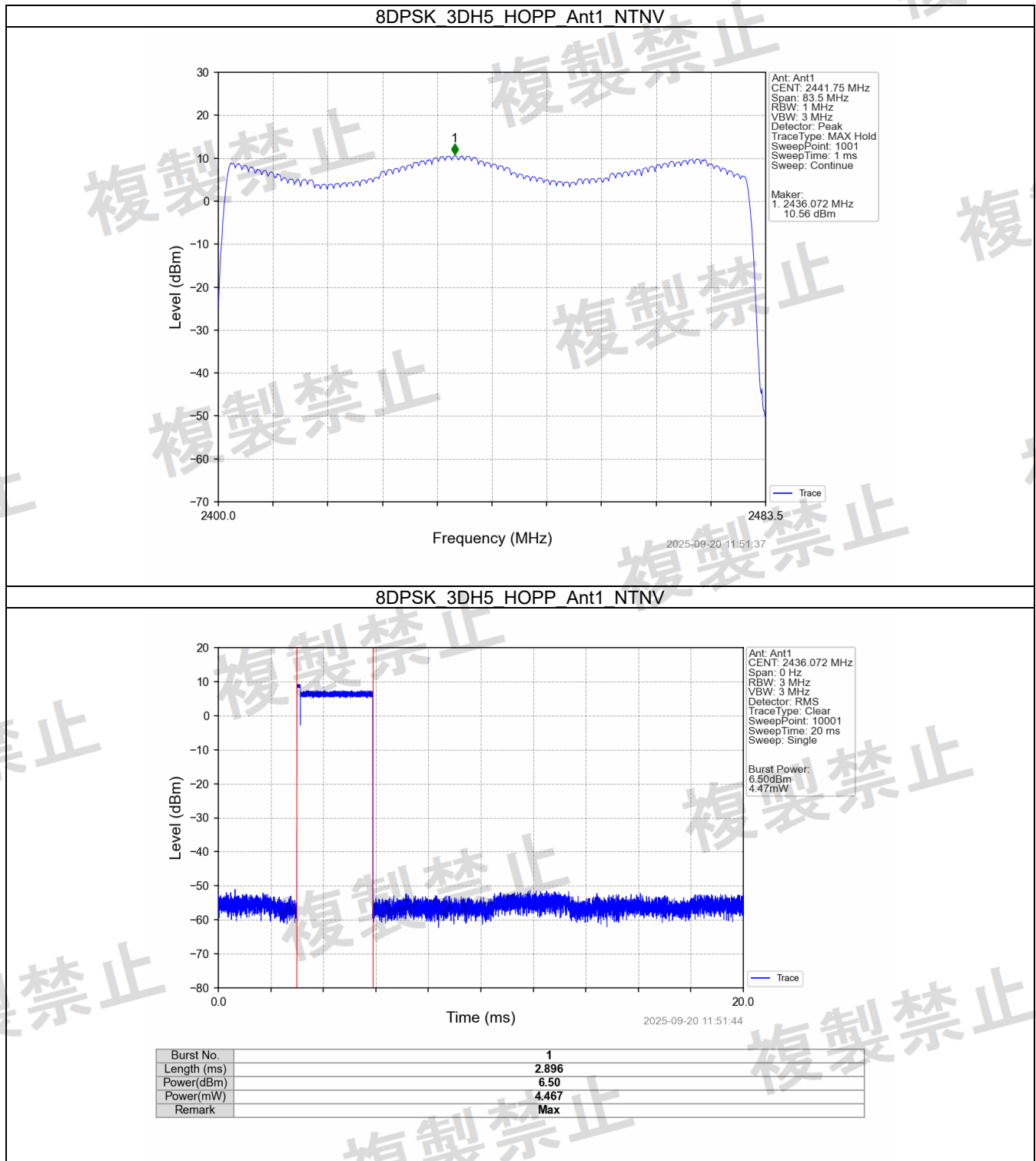
4.2.1 Power





Burst No.	1
Length (ms)	2.890
Power(dBm)	9.58
Power(mW)	9.069
Remark	Max







5. Dwell Time

5.1 Test Result

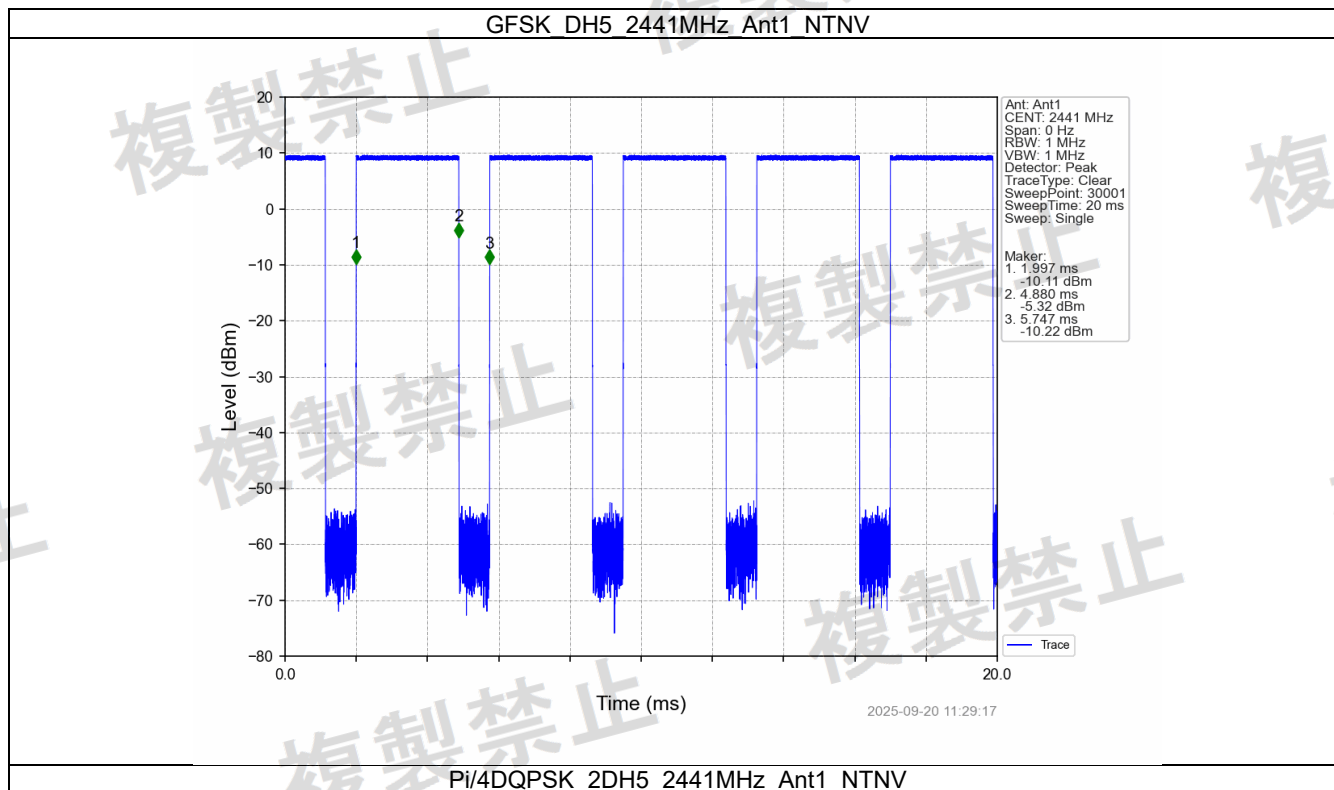
5.1.1 Ant1

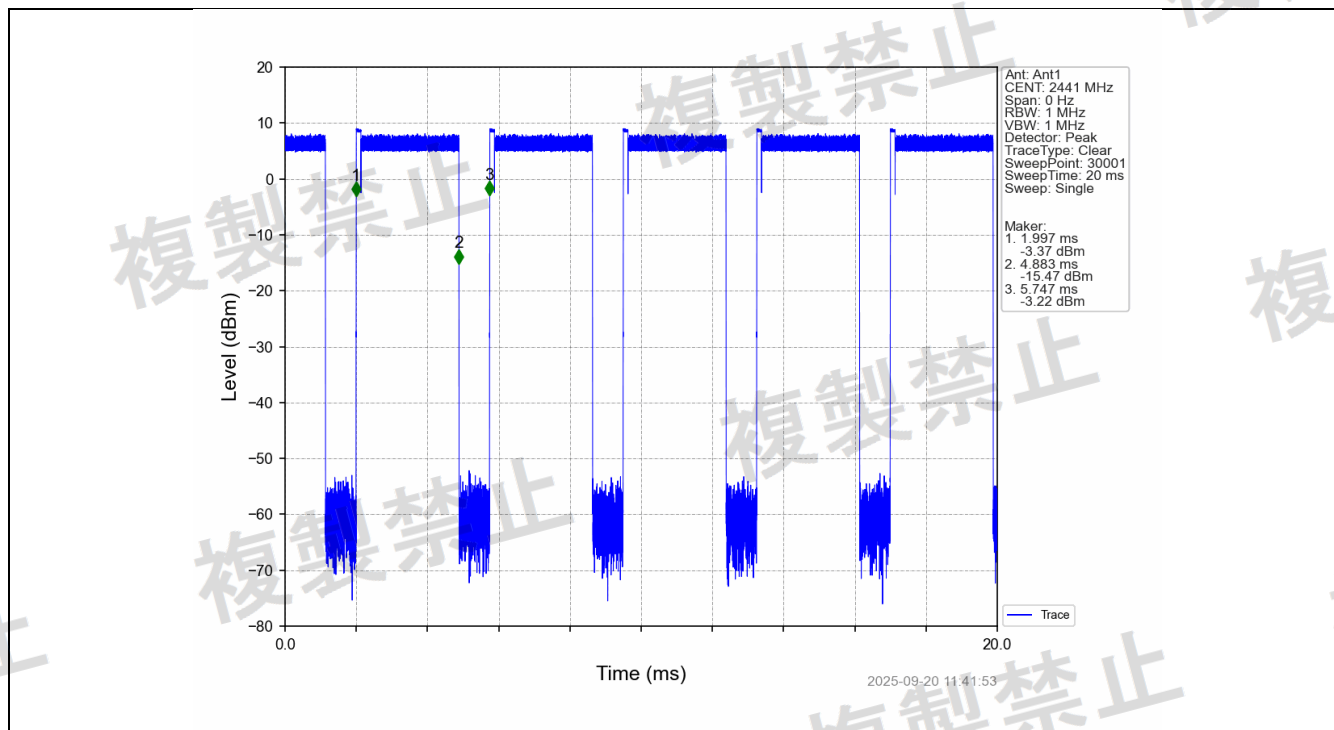
Ant1											
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spreading Rate	T_on (ms)	Period (ms)	Hopp Number	Dwell Time (ms)		Verdict
									Result	Limit	
NTNV	GFSK	SISO	2441	DH5	77.709	2.883	3.750	79	302.495	<=400	Pass
	PI/4DQPSK	SISO	2441	2DH5	71.872	2.886	3.750	79	280.064	<=400	Pass
	8DPSK	SISO	2441	3DH5	72.101	2.889	3.750	79	281.249	<=400	Pass

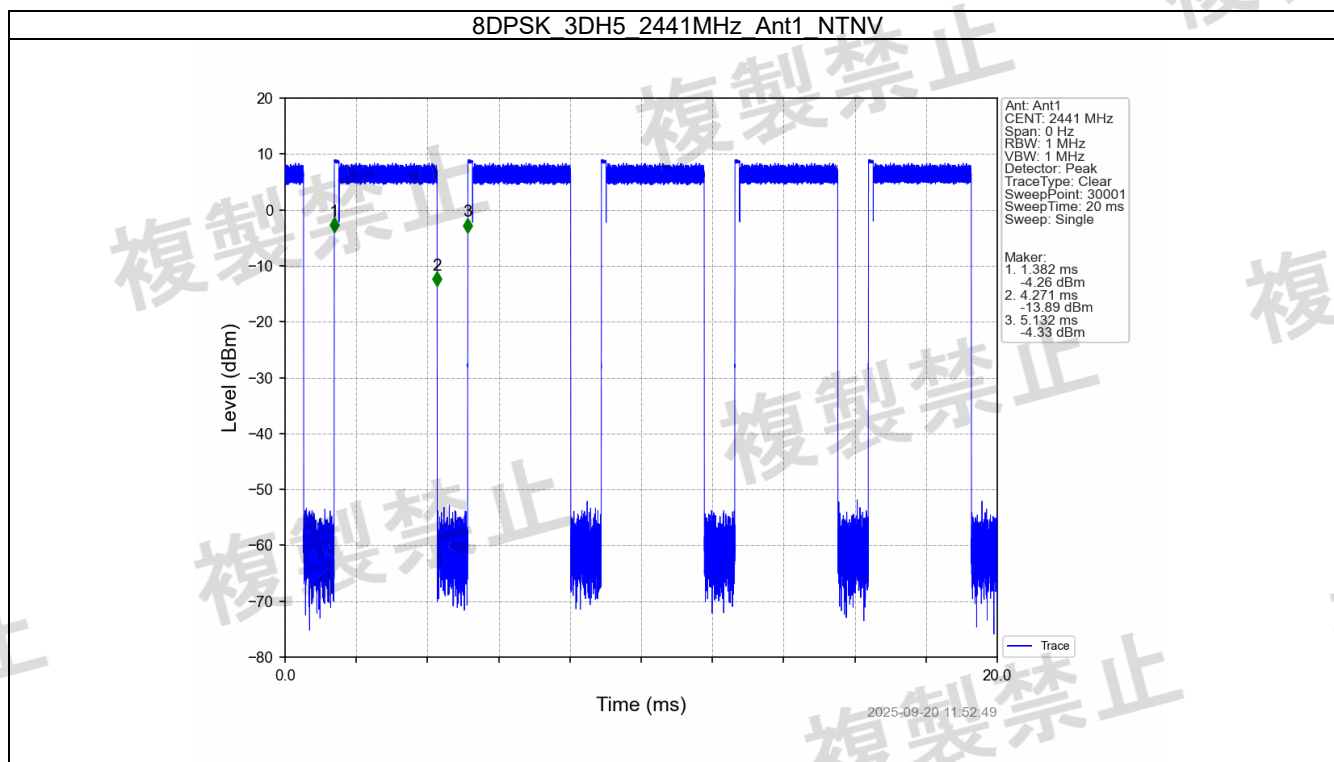


5.2 Test Graph

5.2.1 Ant1









6. Spurious Emission Intensity

6.1 Test Result

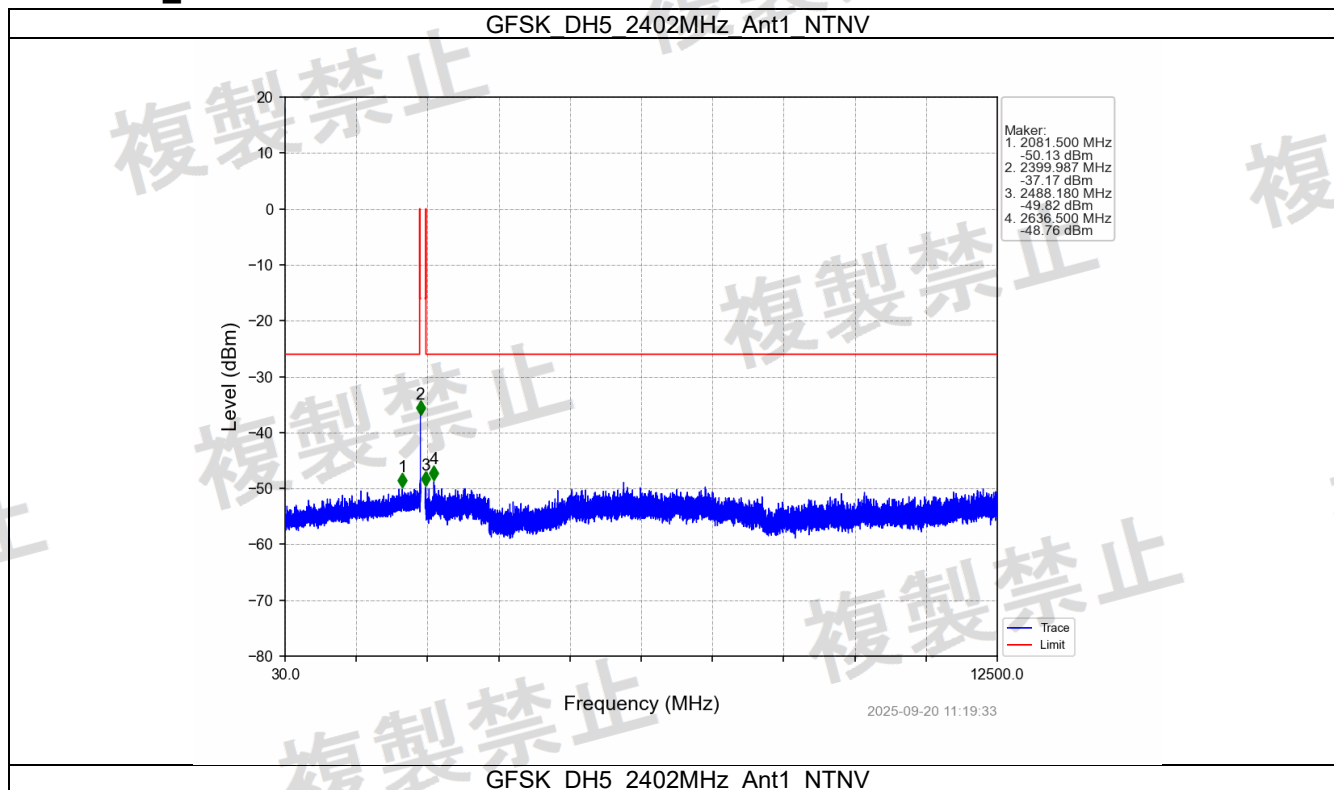
6.1.1 TxSe_NTNV

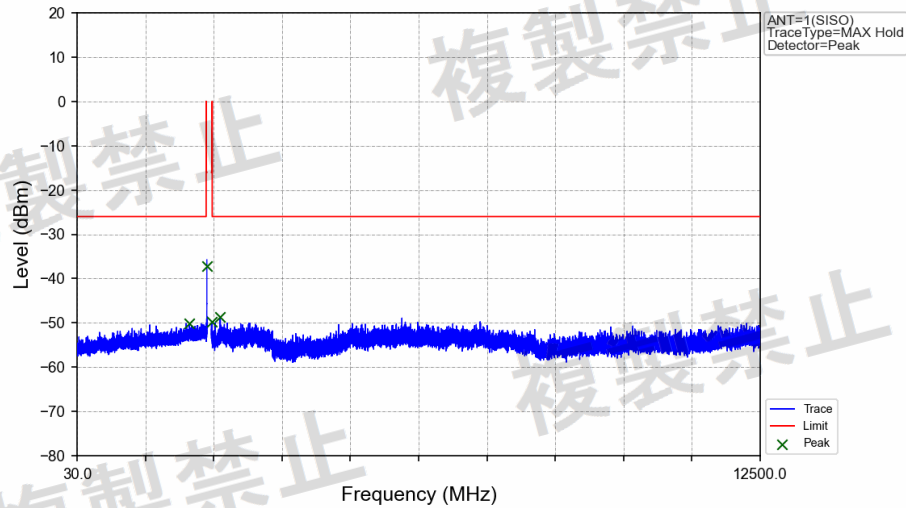
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
GFSK	SISO	2402	1	30	2387	2081.5	-50.13	0.010	/	/	2.5	Pass
				2387	2400	2399.987	-37.17	0.192	/	/	25	Pass
				2483.5	2496.5	2488.18	-49.82	0.010	/	/	25	Pass
				2496.5	12500	2636.5	-48.76	0.013	/	/	2.5	Pass
		2441	1	30	2387	2166.5	-50.08	0.010	/	/	2.5	Pass
				2387	2400	2398.752	-49.44	0.011	/	/	25	Pass
				2483.5	2496.5	2488.362	-49.36	0.012	/	/	25	Pass
				2496.5	12500	6952	-49.86	0.010	/	/	2.5	Pass
		2480	1	30	2387	2294.5	-56.14	0.002	/	/	2.5	Pass
				2387	2400	2398.739	-56.25	0.002	/	/	25	Pass
				2483.5	2496.5	2483.591	-52.01	0.006	/	/	25	Pass
				2496.5	12500	4961	-52.74	0.005	/	/	2.5	Pass
Pi/4DQPSK	SISO	2402	1	30	2387	2071	-50.32	0.009	/	/	2.5	Pass
				2387	2400	2399.987	-23.64	4.325	/	/	25	Pass
				2483.5	2496.5	2484.774	-50.08	0.010	/	/	25	Pass
				2496.5	12500	6807.5	-49.07	0.012	/	/	2.5	Pass
		2441	1	30	2387	2305	-48.95	0.013	/	/	2.5	Pass
				2387	2400	2392.512	-50.45	0.009	/	/	25	Pass
				2483.5	2496.5	2490.052	-50.12	0.010	/	/	25	Pass
				2496.5	12500	6511	-48.46	0.014	/	/	2.5	Pass
		2480	1	30	2387	2211	-55.43	0.003	/	/	2.5	Pass
				2387	2400	2390.887	-56.44	0.002	/	/	25	Pass
				2483.5	2496.5	2483.721	-52.69	0.005	/	/	25	Pass
				2496.5	12500	4961	-54.09	0.004	/	/	2.5	Pass
8DPSK	SISO	2402	1	30	2387	1936.5	-49.74	0.011	/	/	2.5	Pass
				2387	2400	2399.987	-23.11	4.887	/	/	25	Pass
				2483.5	2496.5	2491.365	-49.84	0.010	/	/	25	Pass
				2496.5	12500	2700	-48.86	0.013	/	/	2.5	Pass
		2441	1	30	2387	2351	-49.42	0.011	/	/	2.5	Pass
				2387	2400	2392.642	-50.00	0.010	/	/	25	Pass
				2483.5	2496.5	2493.263	-49.16	0.012	/	/	25	Pass
				2496.5	12500	2663	-48.69	0.014	/	/	2.5	Pass
		2480	1	30	2387	2348.5	-56.04	0.002	/	/	2.5	Pass
				2387	2400	2399.311	-56.24	0.002	/	/	25	Pass
				2483.5	2496.5	2483.539	-52.05	0.006	/	/	25	Pass
				2496.5	12500	4961	-54.81	0.003	/	/	2.5	Pass



6.2 Test Graph

6.2.1 TxSe_NTNV

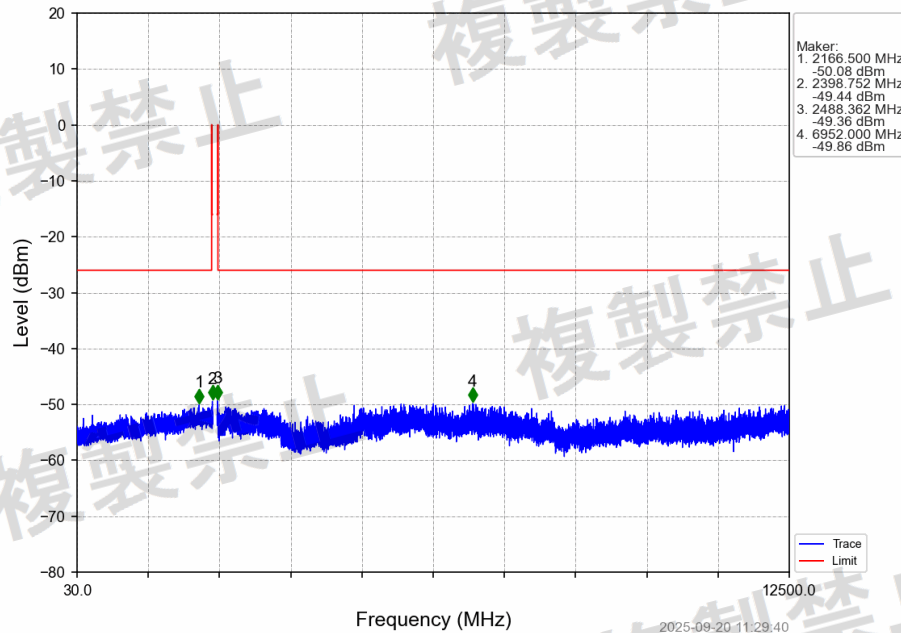




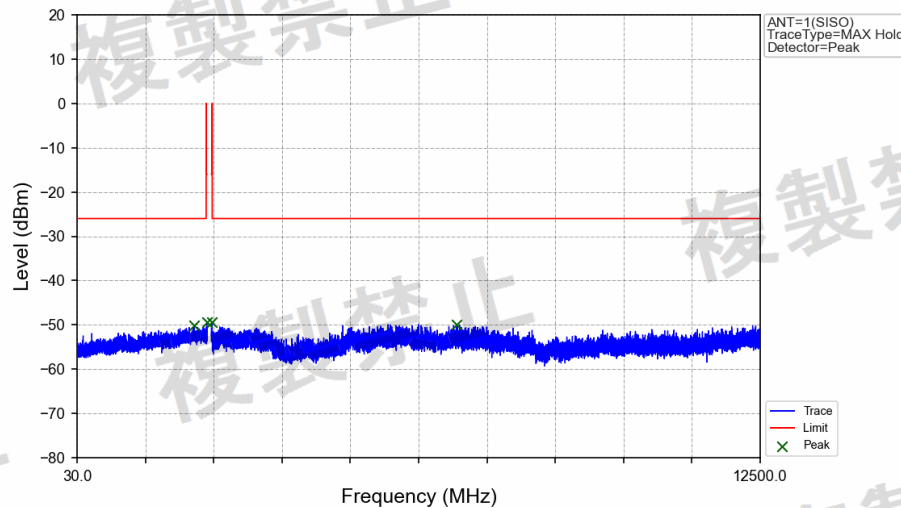
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2081.500	-50.13	/	-26	Pass
2387	2400	1	1	2399.987	-37.17	/	-16	Pass
2483.5	2496.5	1	1	2488.180	-49.82	/	-16	Pass
2496.5	12500	1	1	2636.500	-48.76	/	-26	Pass



GFSK DH5 2441MHz Ant1 NTN



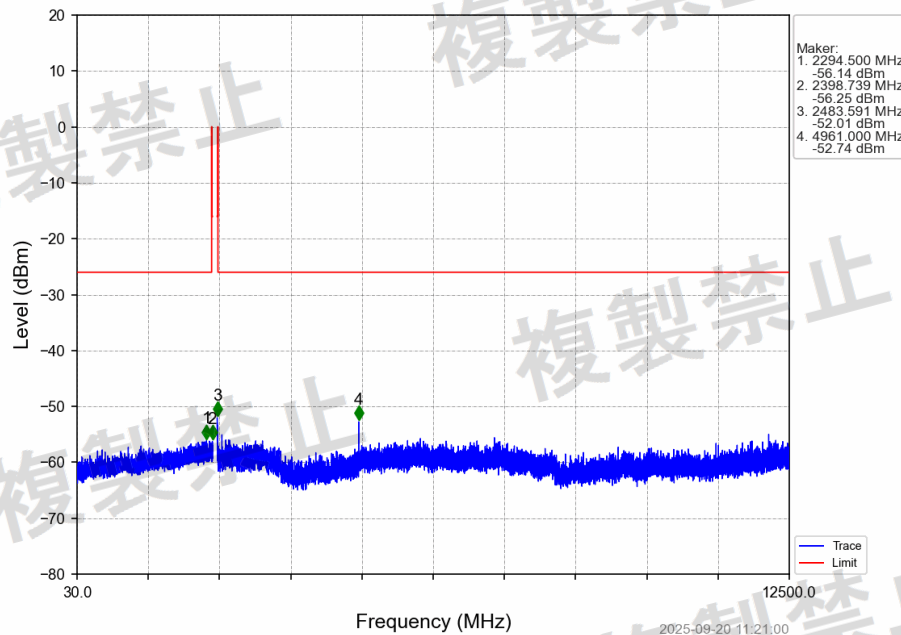
GFSK DH5 2441MHz Ant1 NTN



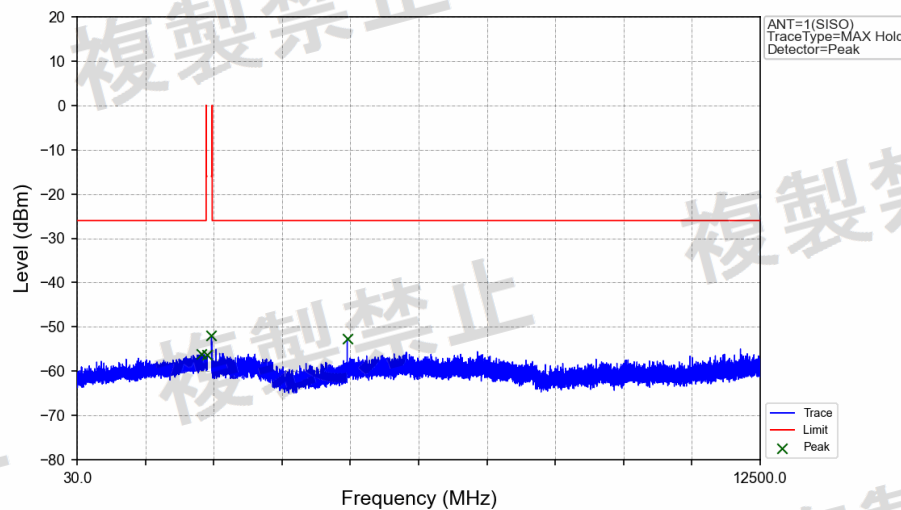
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2166.500	-50.08	/	-26	Pass
2387	2400	1	1	2398.752	-49.44	/	-16	Pass
2483.5	2496.5	1	1	2488.362	-49.36	/	-16	Pass
2496.5	12500	1	1	6952.000	-49.86	/	-26	Pass



GFSK DH5 2480MHz Ant1 NTN



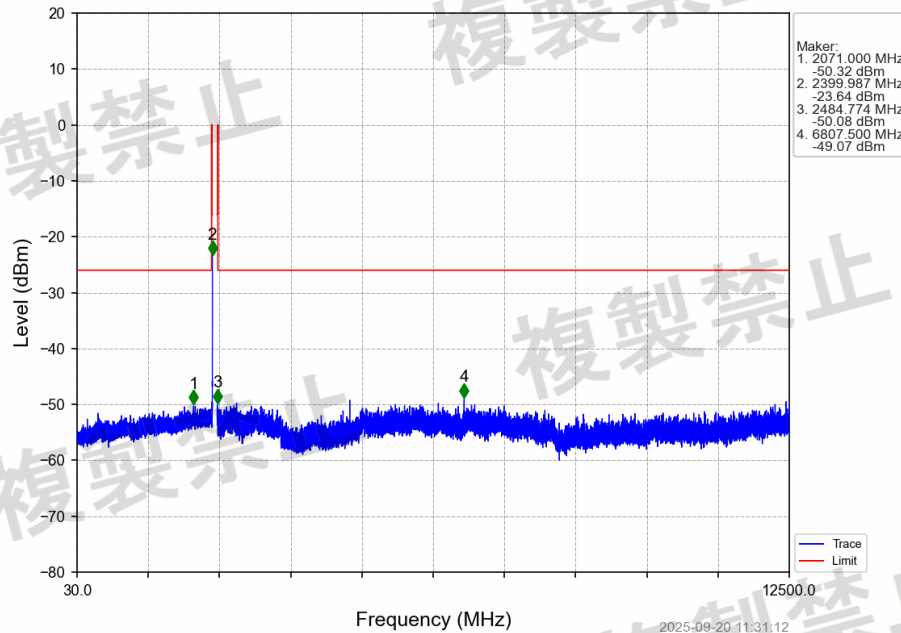
GFSK DH5 2480MHz Ant1 NTN



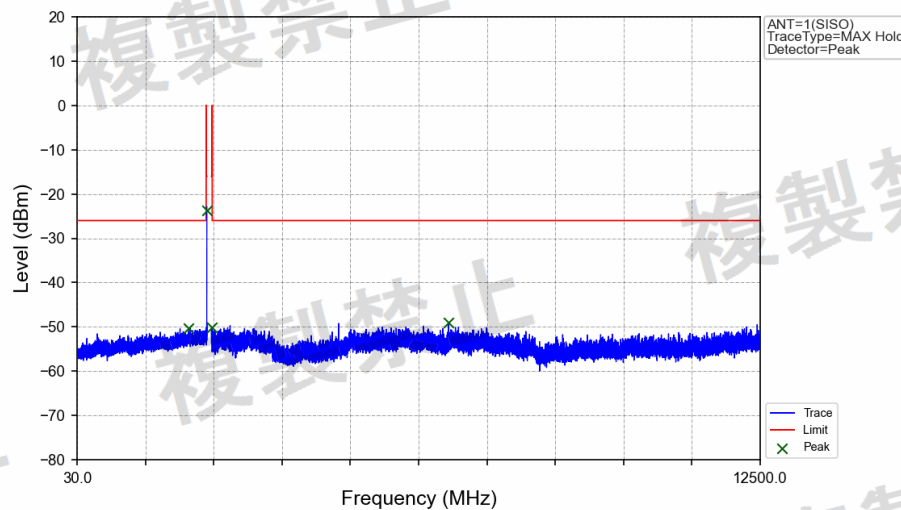
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2294.500	-56.14	/	-26	Pass
2387	2400	1	1	2398.739	-56.25	/	-16	Pass
2483.5	2496.5	1	1	2483.591	-52.01	/	-16	Pass
2496.5	12500	1	1	4961.000	-52.74	/	-26	Pass



Pi/4DQPSK 2DH5 2402MHz Ant1 NTN



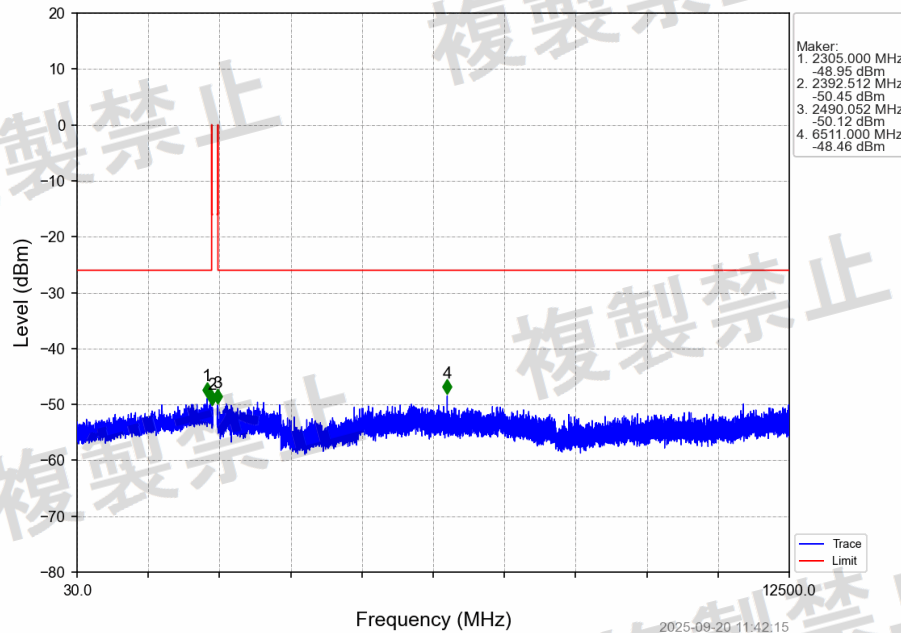
Pi/4DQPSK 2DH5 2402MHz Ant1 NTN



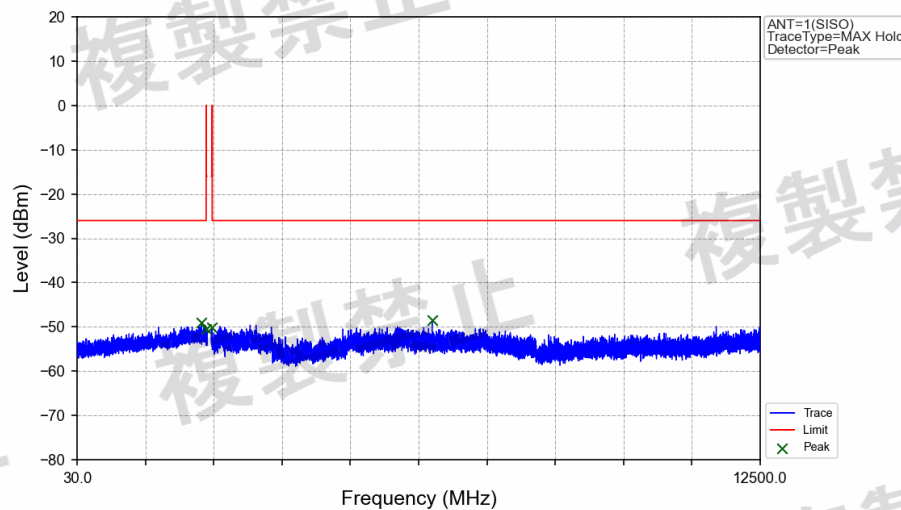
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2071.000	-50.32	/	-26	Pass
2387	2400	1	1	2399.987	-23.64	/	-16	Pass
2483.5	2496.5	1	1	2484.774	-50.08	/	-16	Pass
2496.5	12500	1	1	6807.500	-49.07	/	-26	Pass



Pi/4DQPSK 2DH5 2441MHz Ant1 NTN



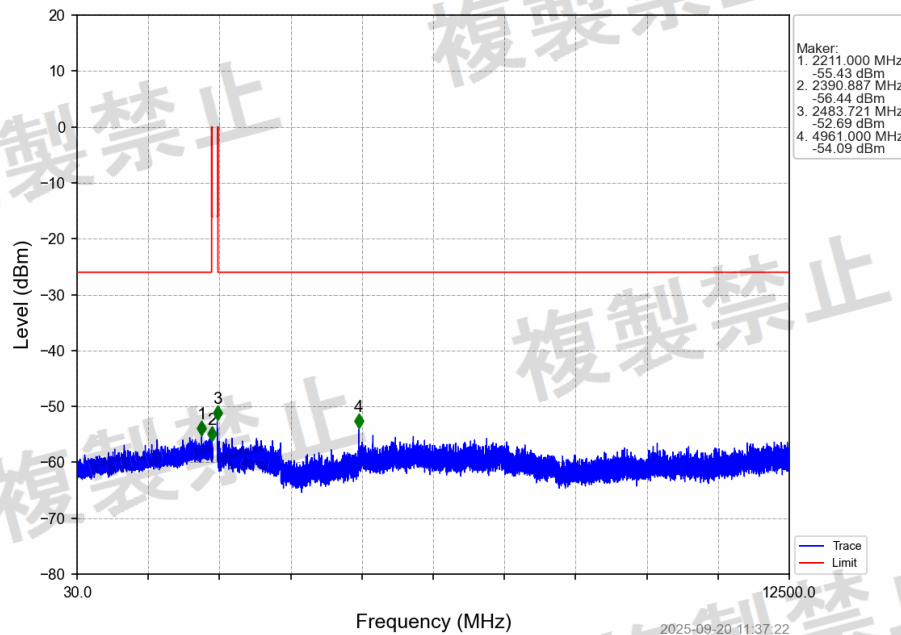
Pi/4DQPSK 2DH5 2441MHz Ant1 NTN



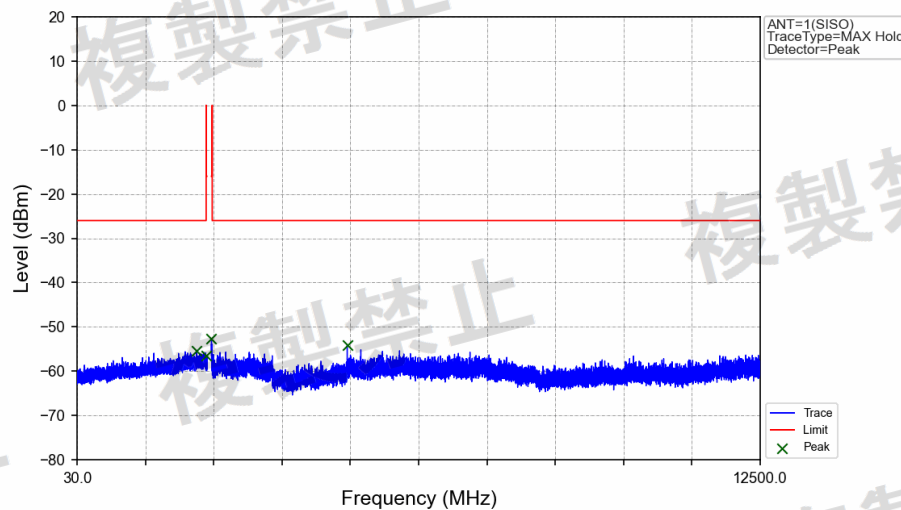
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2305.000	-48.95	/	-26	Pass
2387	2400	1	1	2392.512	-50.45	/	-16	Pass
2483.5	2496.5	1	1	2490.052	-50.12	/	-16	Pass
2496.5	12500	1	1	6511.000	-48.46	/	-26	Pass



Pi/4DQPSK 2DH5 2480MHz Ant1 NTN



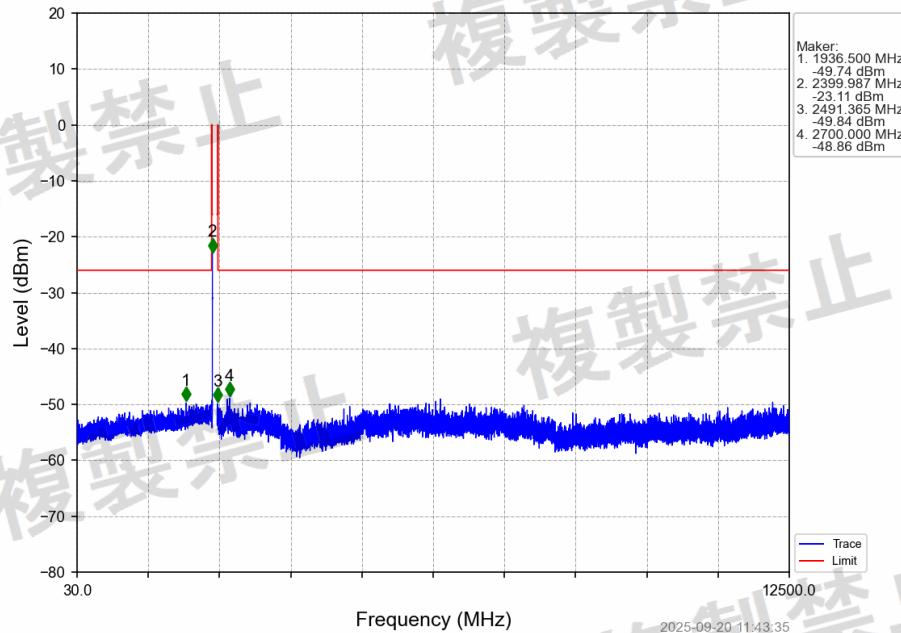
Pi/4DQPSK 2DH5 2480MHz Ant1 NTN



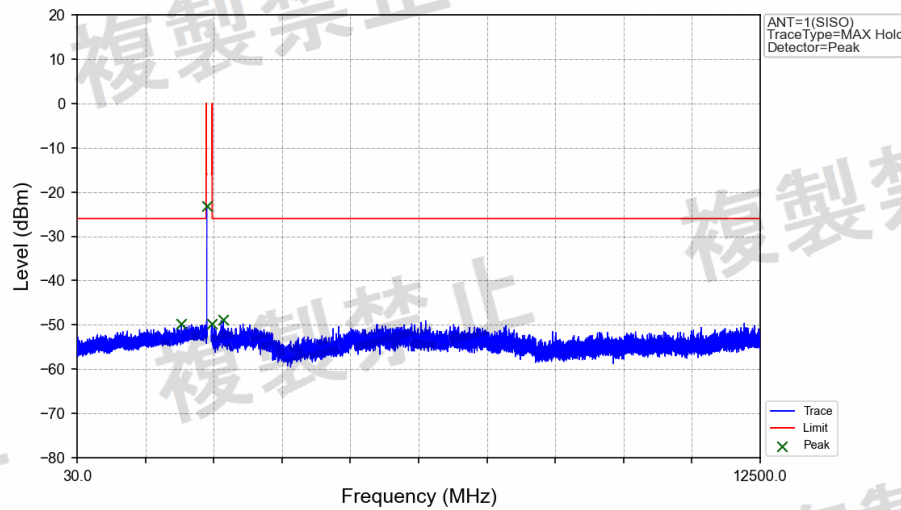
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2211.000	-55.43	/	-26	Pass
2387	2400	1	1	2390.887	-56.44	/	-16	Pass
2483.5	2496.5	1	1	2483.721	-52.69	/	-16	Pass
2496.5	12500	1	1	4961.000	-54.09	/	-26	Pass



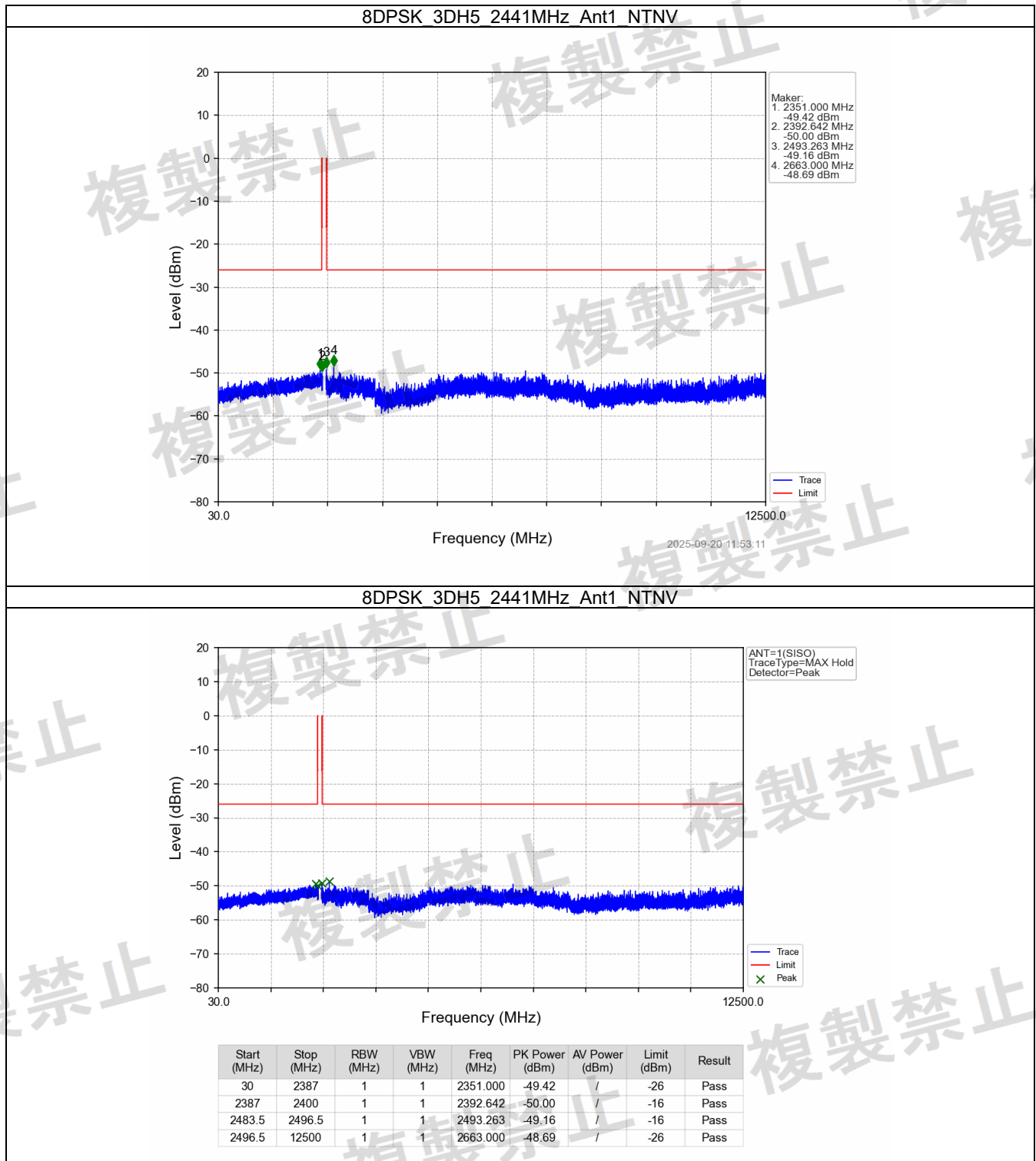
8DPSK 3DH5 2402MHz Ant1 NTN



8DPSK 3DH5 2402MHz Ant1 NTN

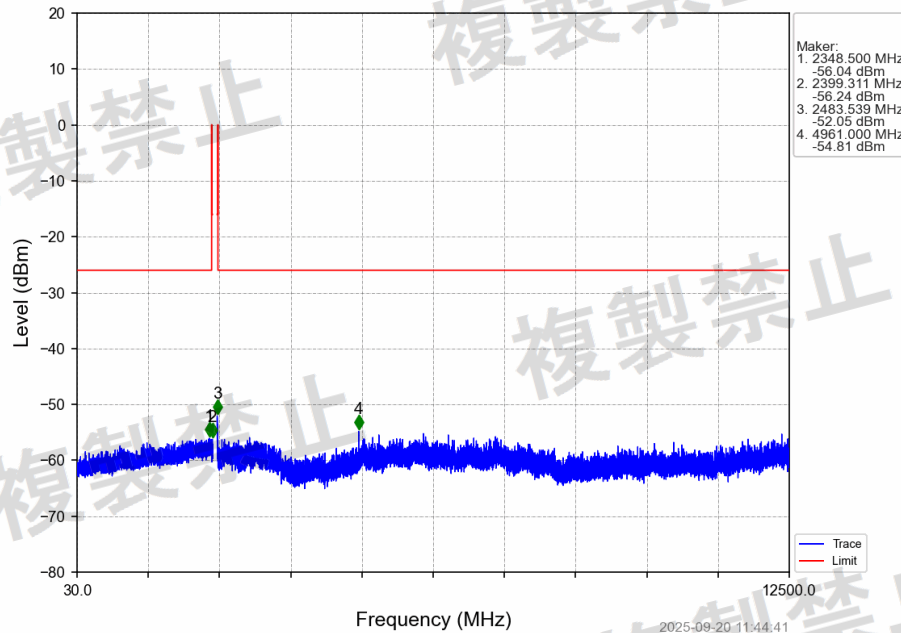


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1936.500	-49.74	/	-26	Pass
2387	2400	1	1	2399.987	-23.11	/	-16	Pass
2483.5	2496.5	1	1	2491.365	-49.84	/	-16	Pass
2496.5	12500	1	1	2700.000	-48.86	/	-26	Pass

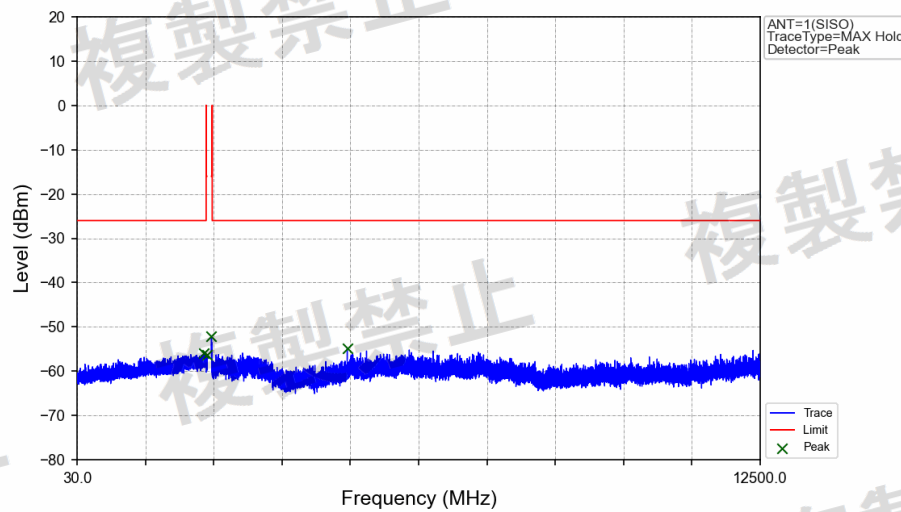




8DPSK 3DH5 2480MHz Ant1 NTN



8DPSK 3DH5 2480MHz Ant1 NTN



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2348.500	-56.04	/	-26	Pass
2387	2400	1	1	2399.311	-56.24	/	-16	Pass
2483.5	2496.5	1	1	2483.539	-52.05	/	-16	Pass
2496.5	12500	1	1	4961.000	-54.81	/	-26	Pass



7. Secondary Radiated Emission

7.1 Test Result

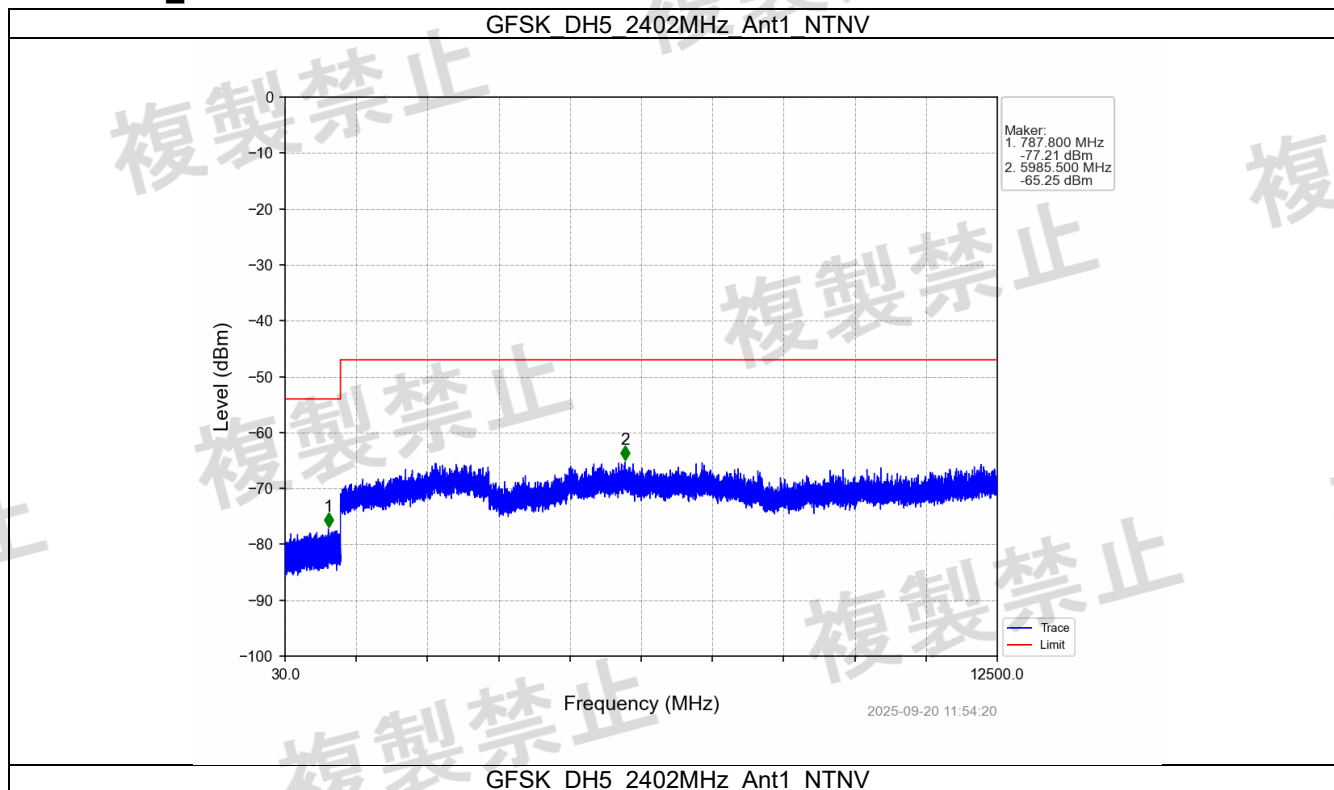
7.1.1 RxSe_NTNV

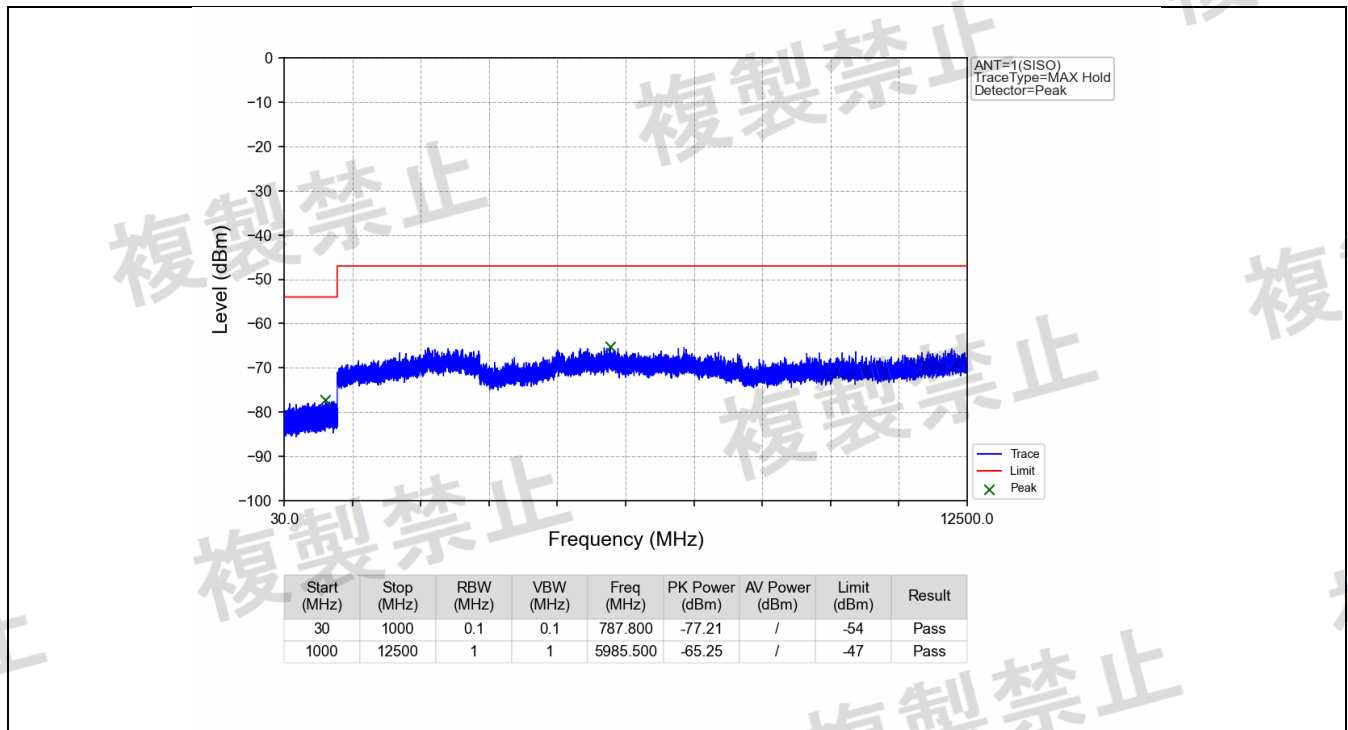
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
GFSK	SISO	2402	1	30	1000	787.8	-77.21	0.019	/	/	4	Pass
				1000	12500	5985.5	-65.25	0.299	/	/	20	Pass
		2441	1	30	1000	918.1	-77.30	0.019	/	/	4	Pass
				1000	12500	3420	-50.94	8.054	-77.08	0.020	20	Pass
		2480	1	30	1000	780.9	-77.14	0.019	/	/	4	Pass
				1000	12500	2469	-63.57	0.440	/	/	20	Pass
Pi/4DQPSK	SISO	2402	1	30	1000	907.55	-77.07	0.020	/	/	4	Pass
				1000	12500	2622.5	-64.25	0.376	/	/	20	Pass
		2441	1	30	1000	412.6	-77.04	0.020	/	/	4	Pass
				1000	12500	5935	-63.93	0.405	/	/	20	Pass
		2480	1	30	1000	750.05	-76.82	0.021	/	/	4	Pass
				1000	12500	2464.5	-64.25	0.376	/	/	20	Pass
8DPSK	SISO	2402	1	30	1000	762.35	-76.71	0.021	/	/	4	Pass
				1000	12500	6119.5	-64.83	0.329	/	/	20	Pass
		2441	1	30	1000	943.05	-76.58	0.022	/	/	4	Pass
				1000	12500	5697	-65.38	0.290	/	/	20	Pass
		2480	1	30	1000	757.8	-77.09	0.020	/	/	4	Pass
				1000	12500	3177	-64.89	0.324	/	/	20	Pass

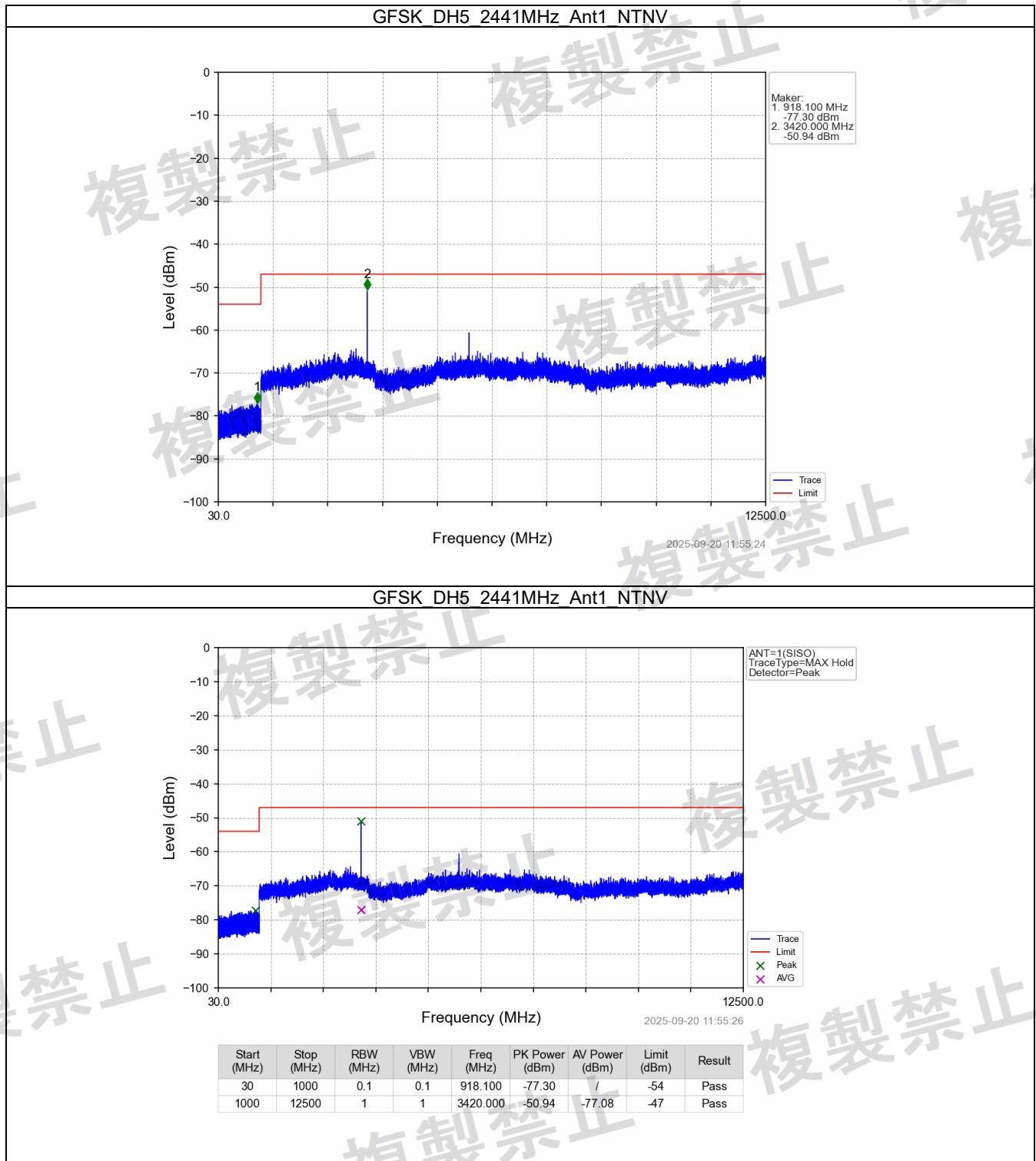


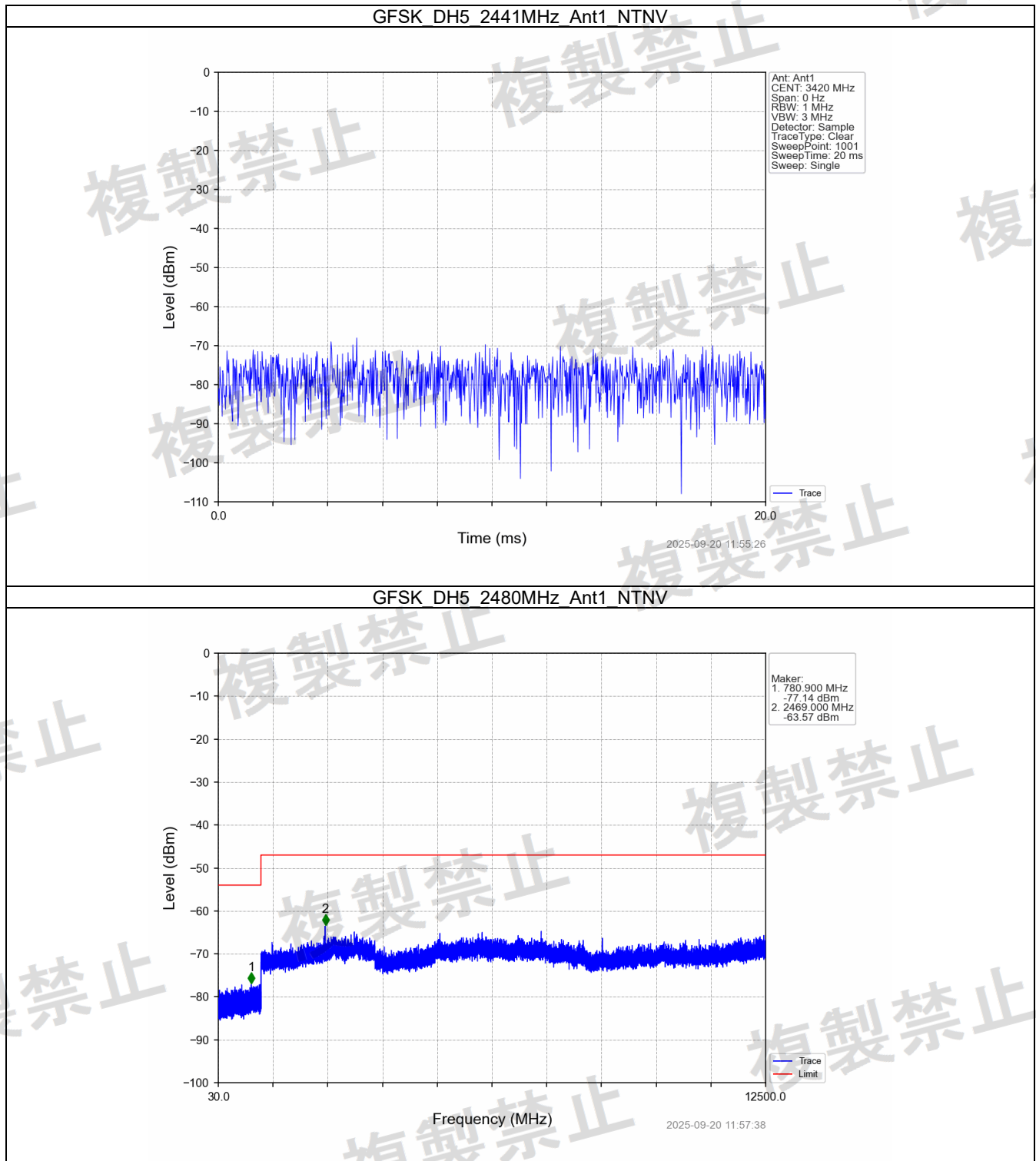
7.2 Test Graph

7.2.1 RxSe_NTNV



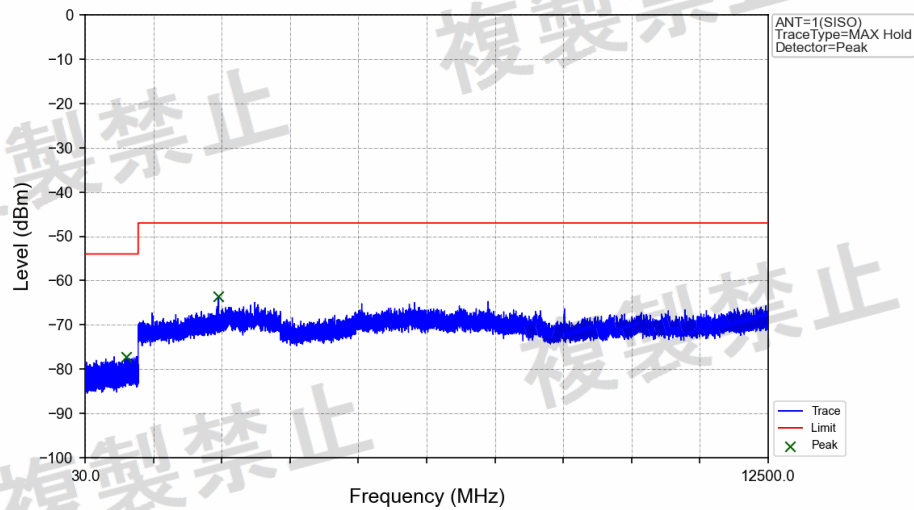






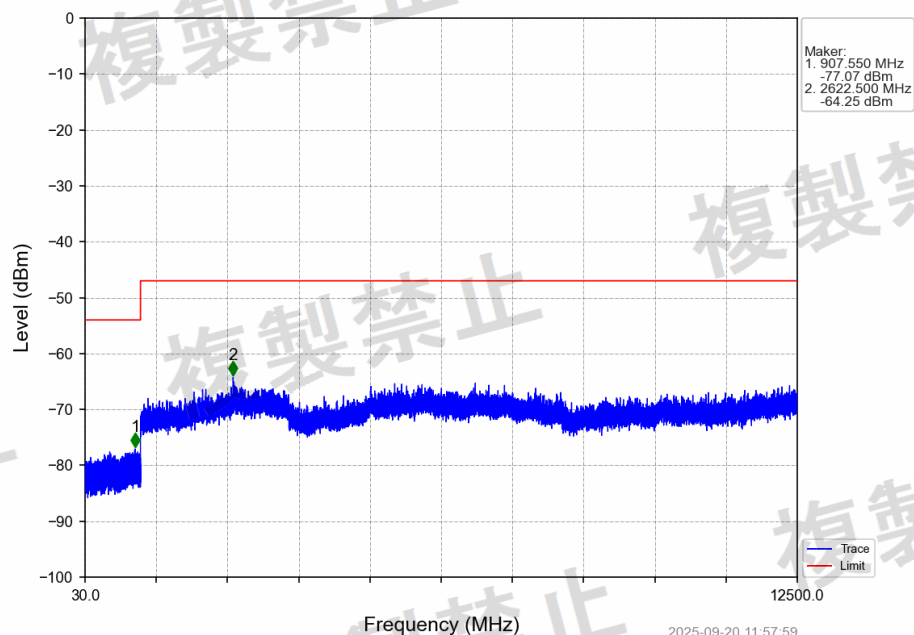


GFSK DH5 2480MHz Ant1 NTN



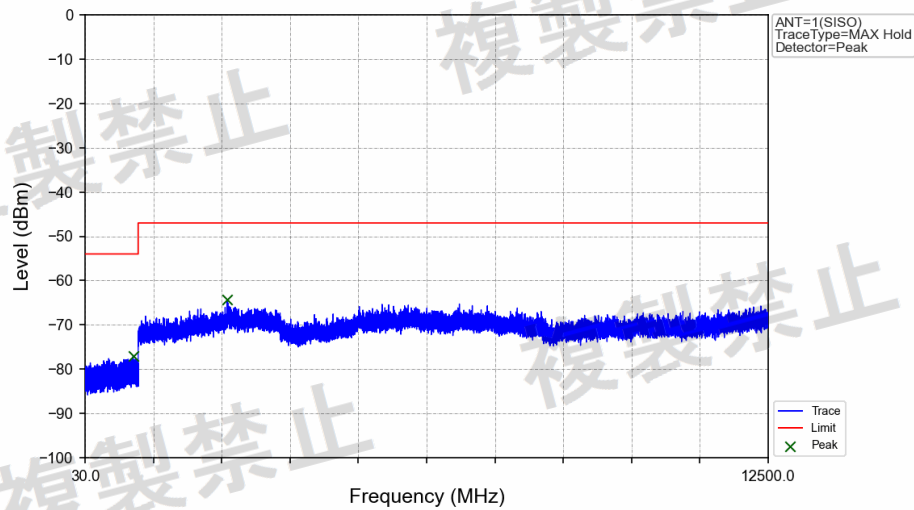
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	780.900	-77.14	/	-54	Pass
1000	12500	1	1	2469.000	-63.57	/	-47	Pass

Pi/4DQPSK 2DH5 2402MHz Ant1 NTN



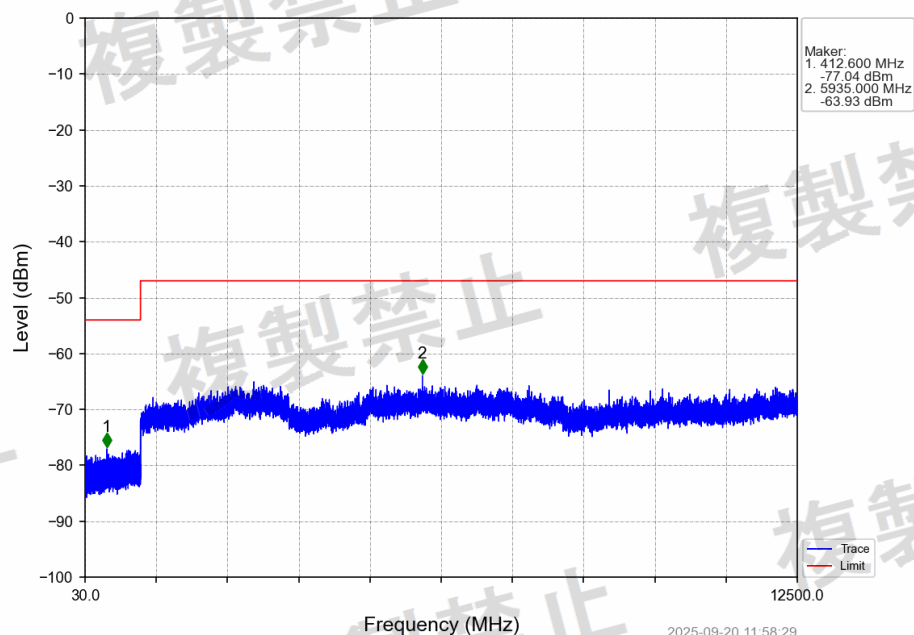


Pi/4DQPSK 2DH5 2402MHz Ant1 NTN



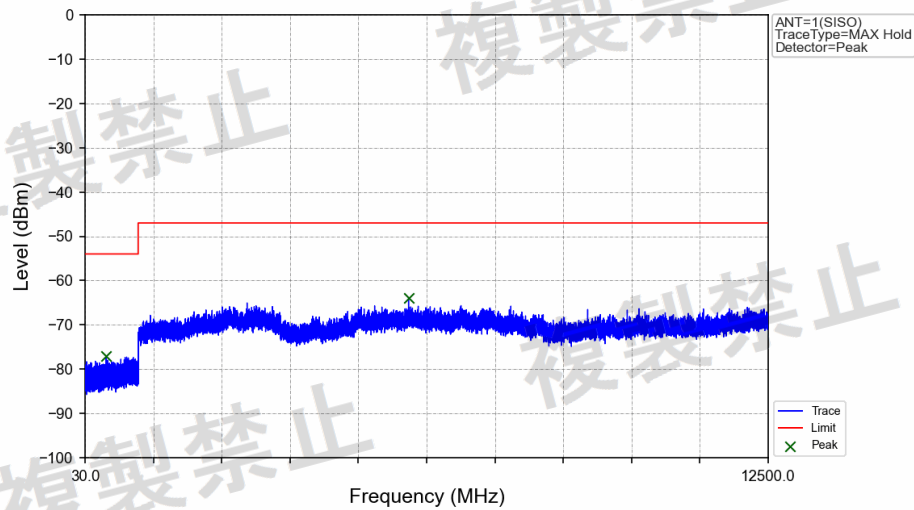
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	907.550	-77.07	/	-54	Pass
1000	12500	1	1	2622.500	-64.25	/	-47	Pass

Pi/4DQPSK 2DH5 2441MHz Ant1 NTN



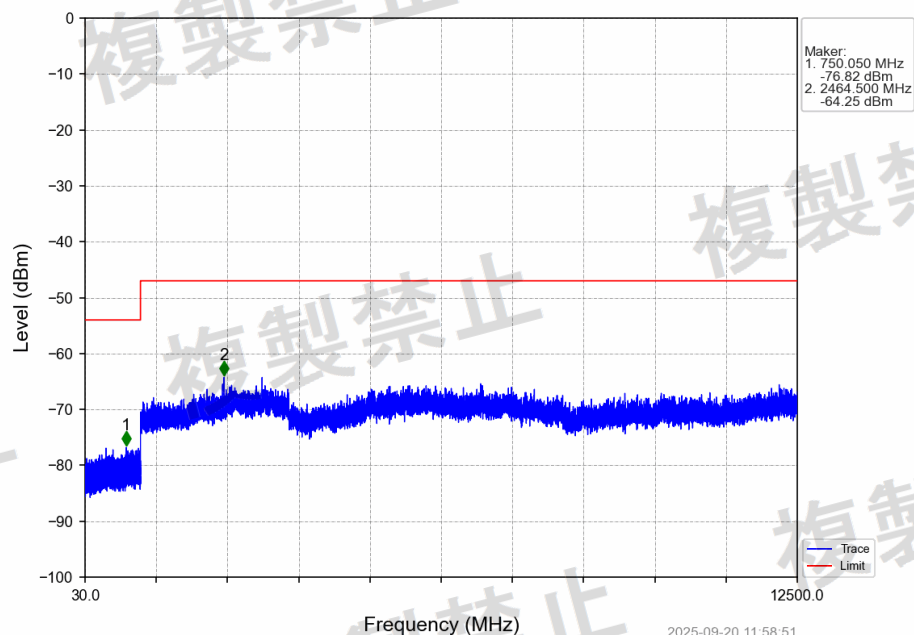


Pi/4DQPSK 2DH5 2441MHz Ant1 NTN



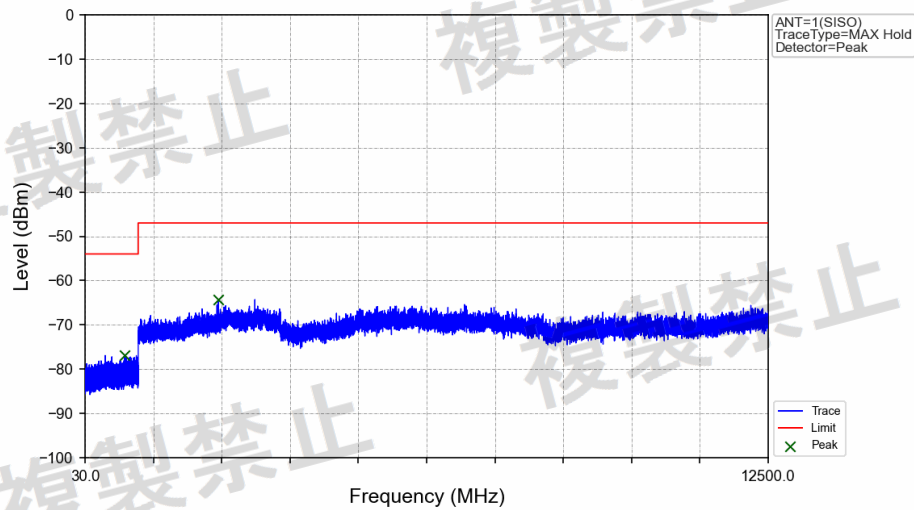
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	412.600	-77.04	/	-54	Pass
1000	12500	1	1	5935.000	-63.93	/	-47	Pass

Pi/4DQPSK 2DH5 2480MHz Ant1 NTN



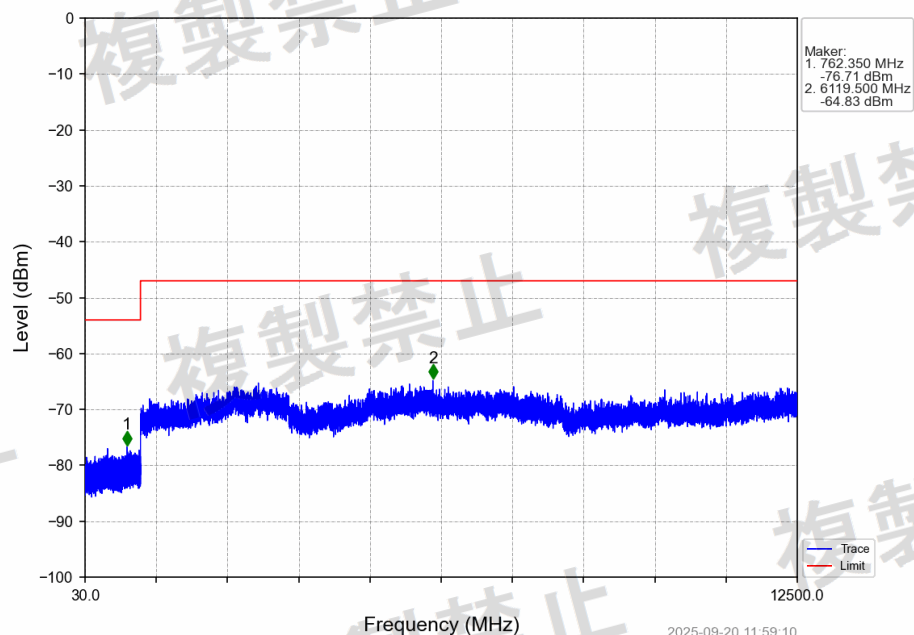


Pi/4DQPSK 2DH5 2480MHz Ant1 NTV



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	750.050	-76.82	/	-54	Pass
1000	12500	1	1	2464.500	-64.25	/	-47	Pass

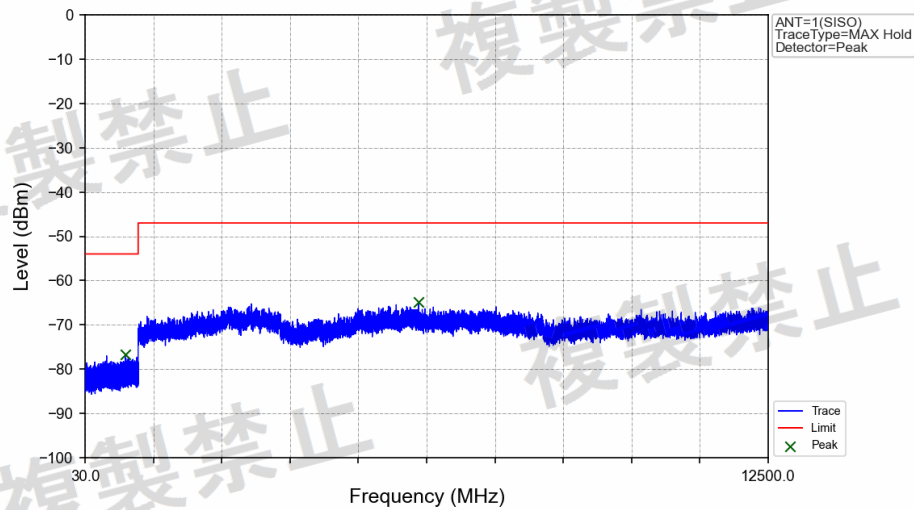
8DPSK 3DH5 2402MHz Ant1 NTV



2025-09-20 11:59:10

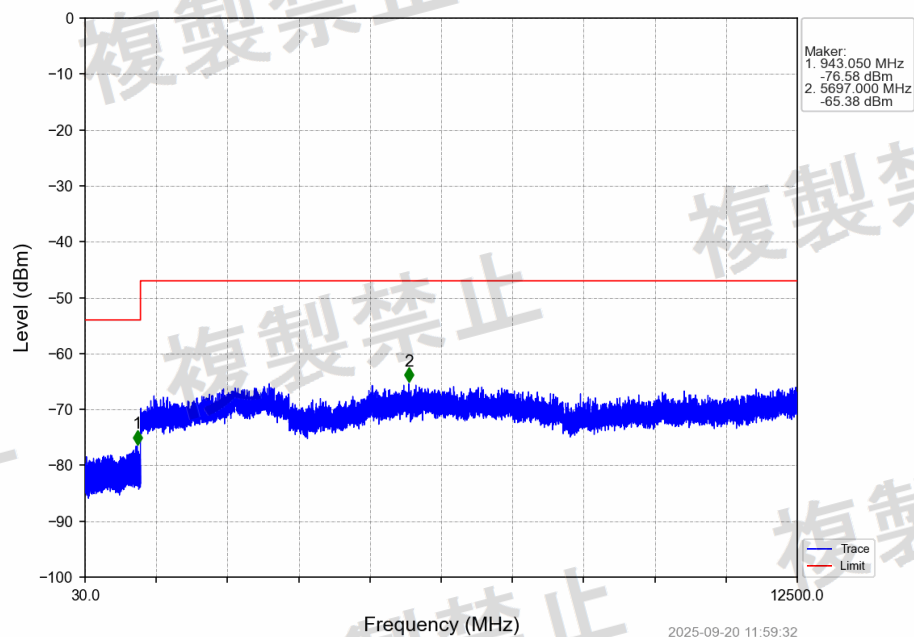


8DPSK 3DH5 2402MHz Ant1 NTV



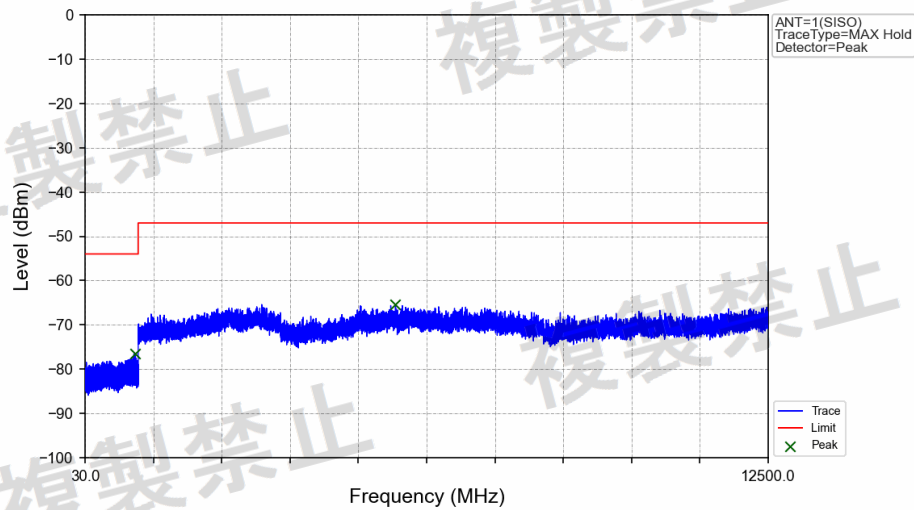
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	762.350	-76.71	/	-54	Pass
1000	12500	1	1	6119.500	-64.83	/	-47	Pass

8DPSK 3DH5 2441MHz Ant1 NTV





8DPSK 3DH5 2441MHz 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	943.050	-76.58	/	-54	Pass
1000	12500	1	1	5697.000	-65.38	/	-47	Pass

8DPSK 3DH5 2480MHz Ant1 NTV

