



Shenzhen BANTEK Testing Co., Ltd.

Report No.: BTEK251117001A01E0102

RF Test Report

For BTEK251117001A01E01

Project No.:	BTEK251117001A01E0102
Product Description:	22.7℃, 50%, 102.9kPa
Test Engineer:	Zora
Test Date:	2025-12-17~2025-12-19



Shenzhen BANTEK Testing Co., Ltd.

Report No.: BTEK251117001A01E0102

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

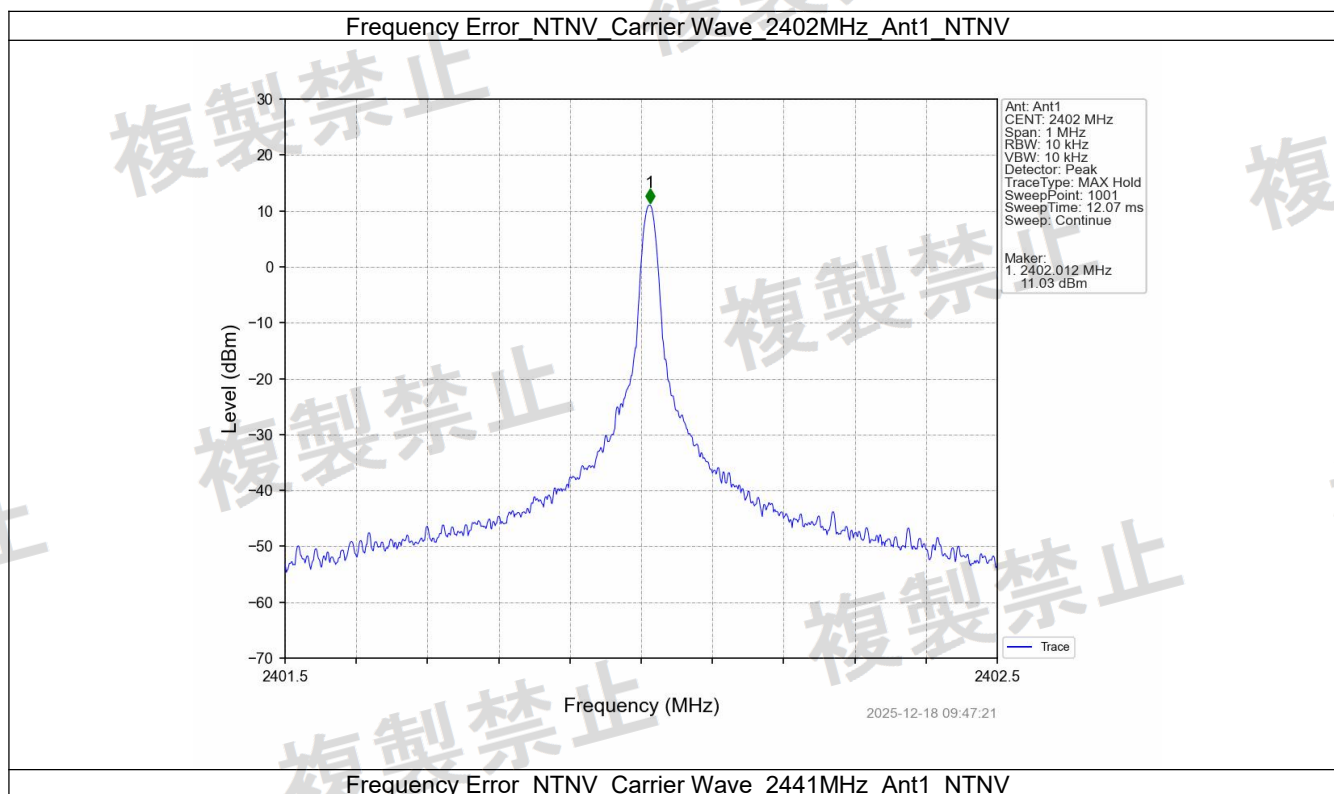
1.1.1 Ant1

Ant1								
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
						Result	Limit	
NTNV	Carrier Wave	SISO	2402	DH5	2402.012	5.00	-50 to 50	Pass
			2441	DH5	2441.012	4.92	-50 to 50	Pass
			2480	DH5	2480.011	4.44	-50 to 50	Pass



1.2 Test Graph

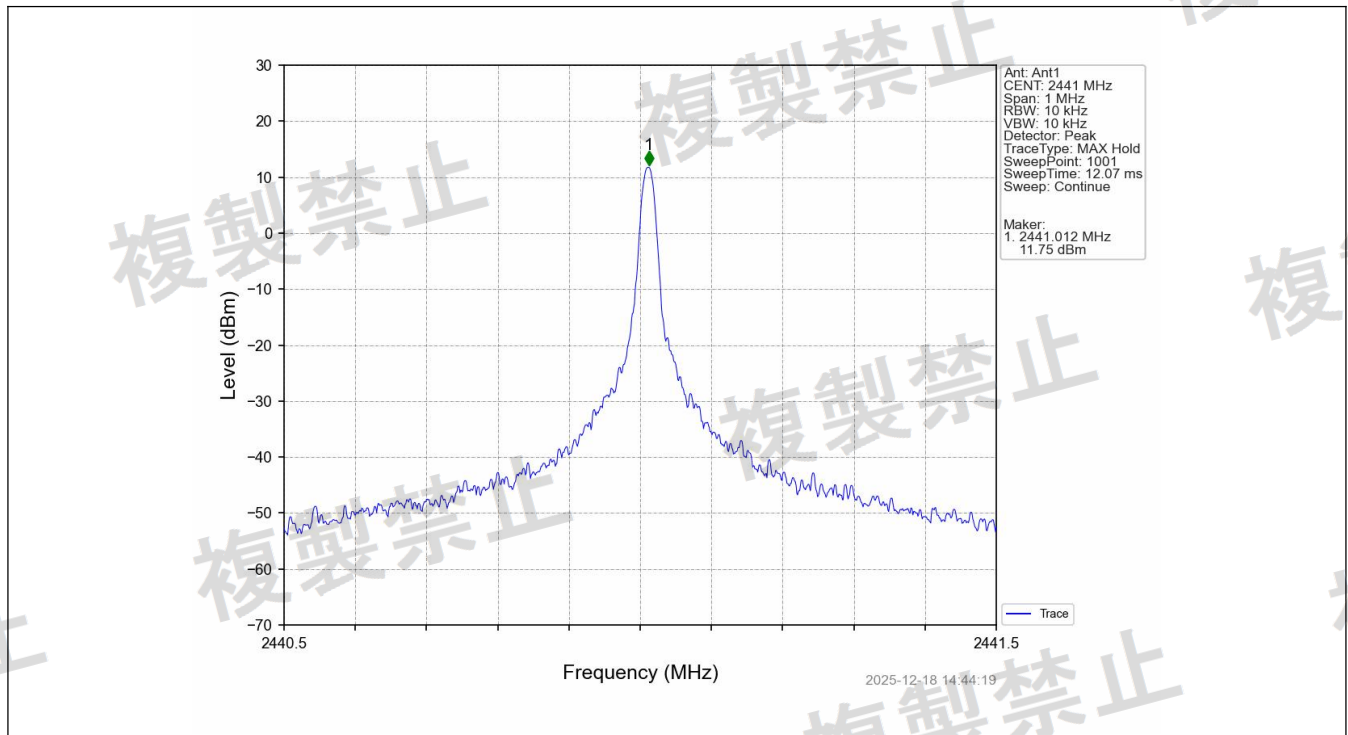
1.2.1 Ant1

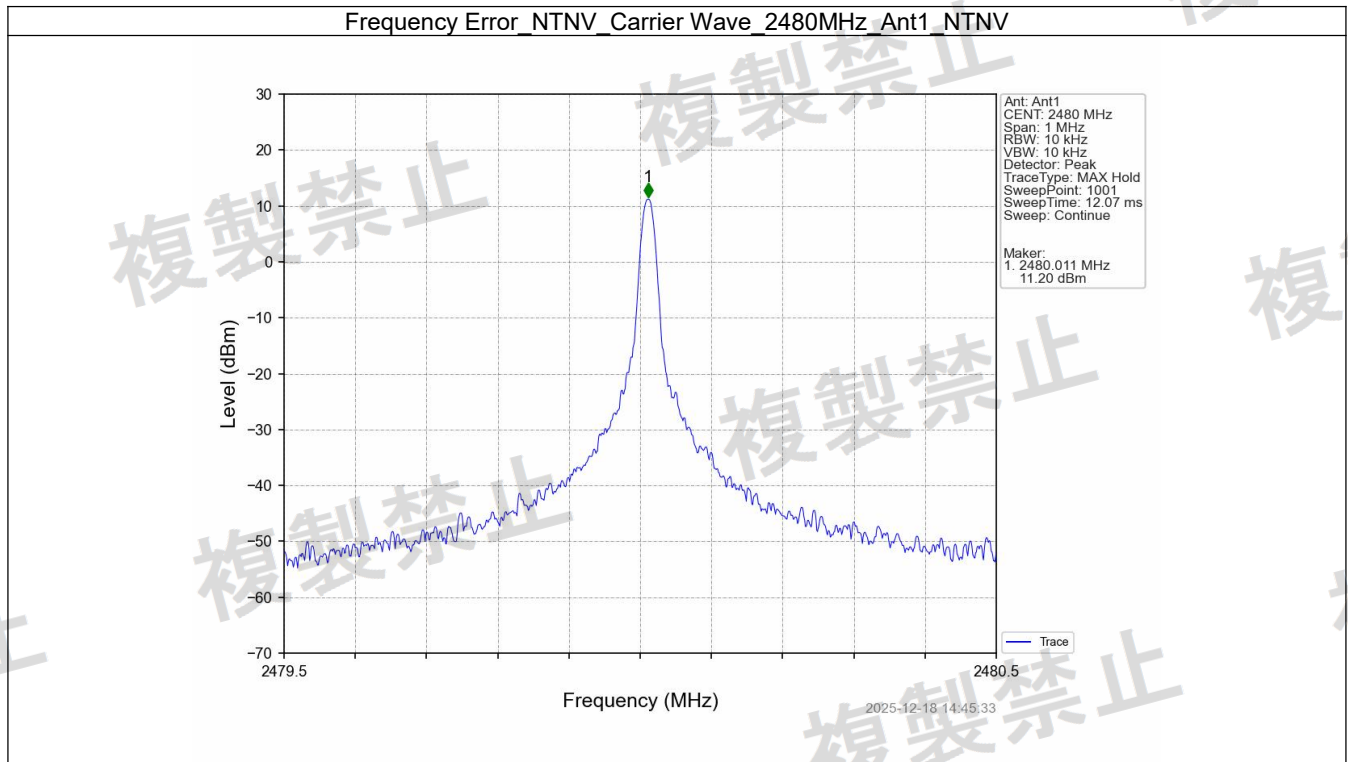




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2. Occupied Bandwidth

2.1 Test Result

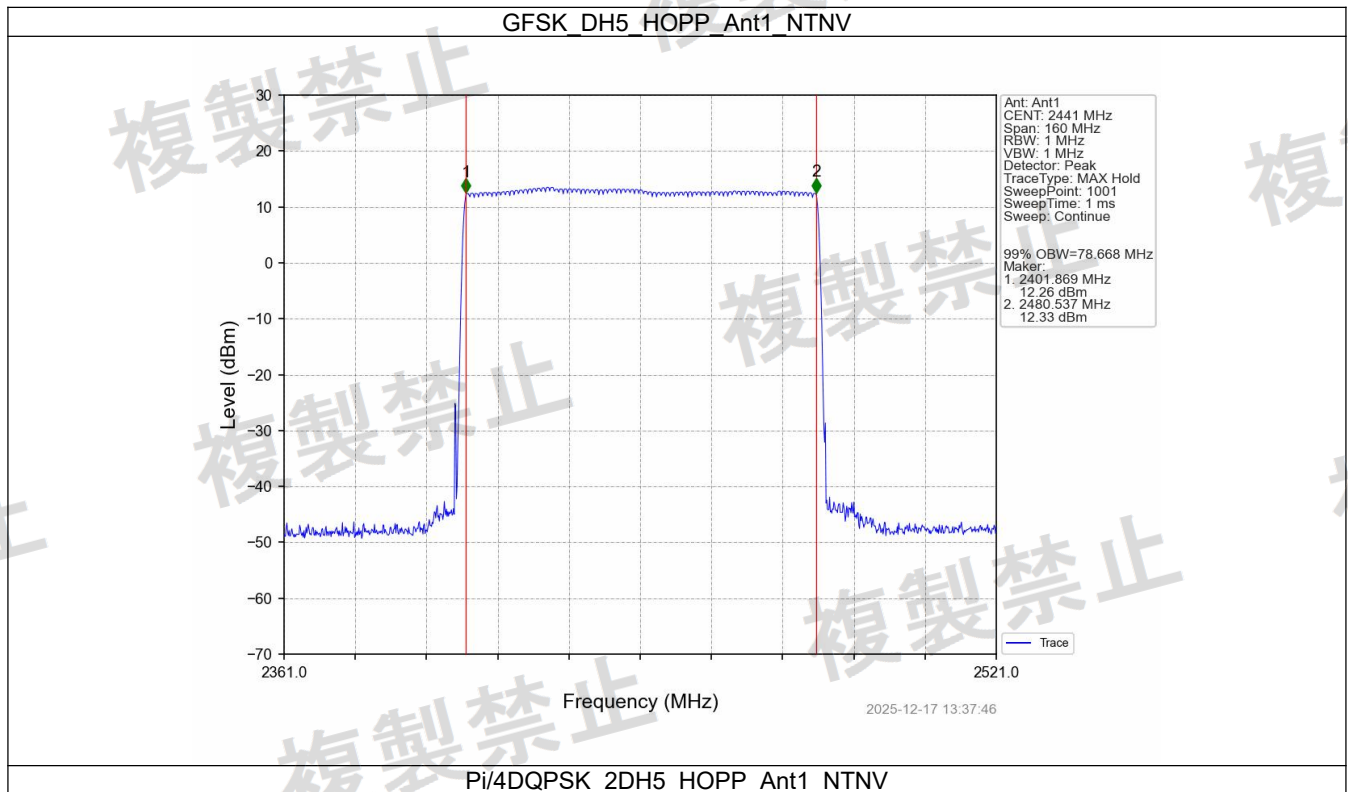
2.1.1 OBW

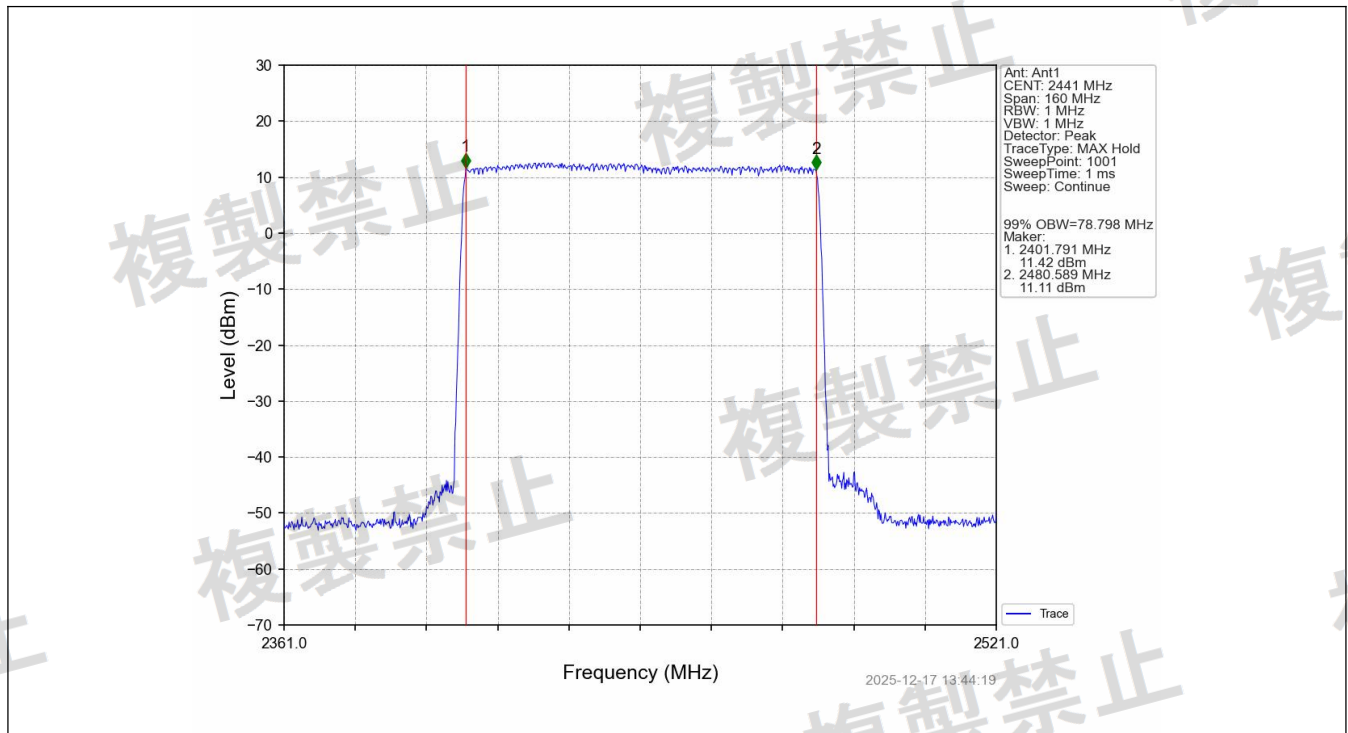
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	99% Occupied Bandwidth (MHz)		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	78.668	<=83.5	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	78.798	<=83.5	Pass
	8DPSK	SISO	HOPP	3DH5	78.808	<=83.5	Pass

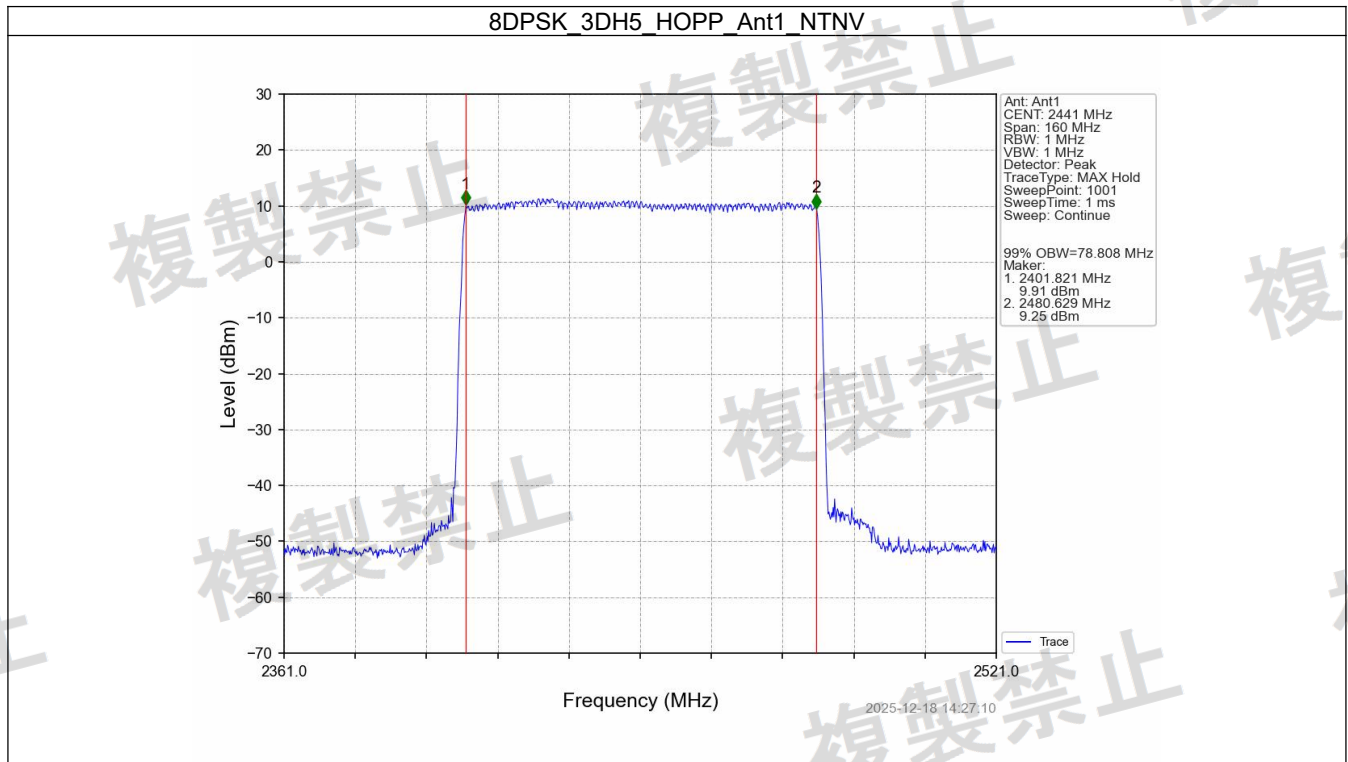


2.2 Test Graph

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	70.886	/	Only For Report
	Pi/4DQPSK	SISO	HOPP	2DH5	71.030	/	Only For Report
	8DPSK	SISO	HOPP	3DH5	71.057	/	Only For Report

3.1.2 SpreadFactor

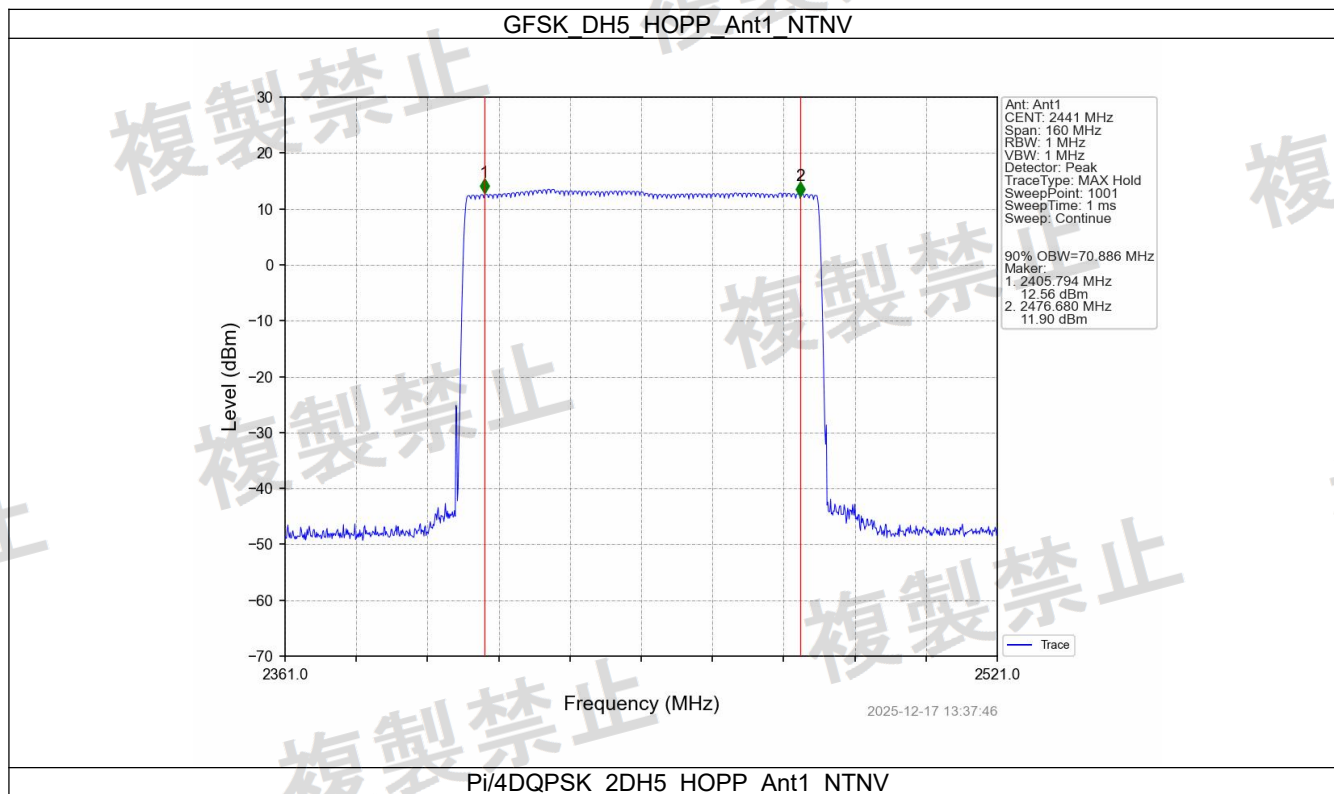
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spread Factor		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	70.886	≥ 5	Only For Report
	Pi/4DQPSK	SISO	HOPP	2DH5	71.030	≥ 5	Only For Report
	8DPSK	SISO	HOPP	3DH5	71.057	≥ 5	Only For Report

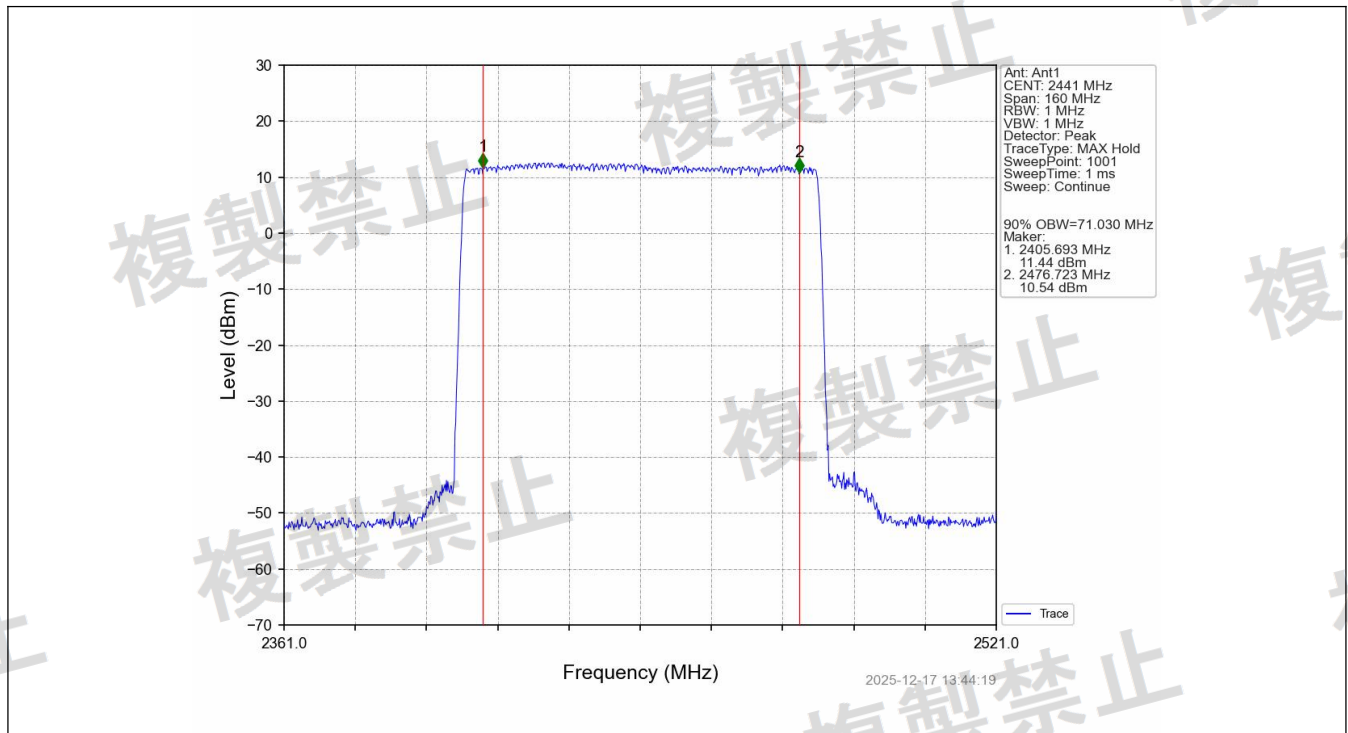
Note1: Spread Factor = Spread Bandwidth / Symbol Rate, For Bluetooth, Symbol Rate = 1

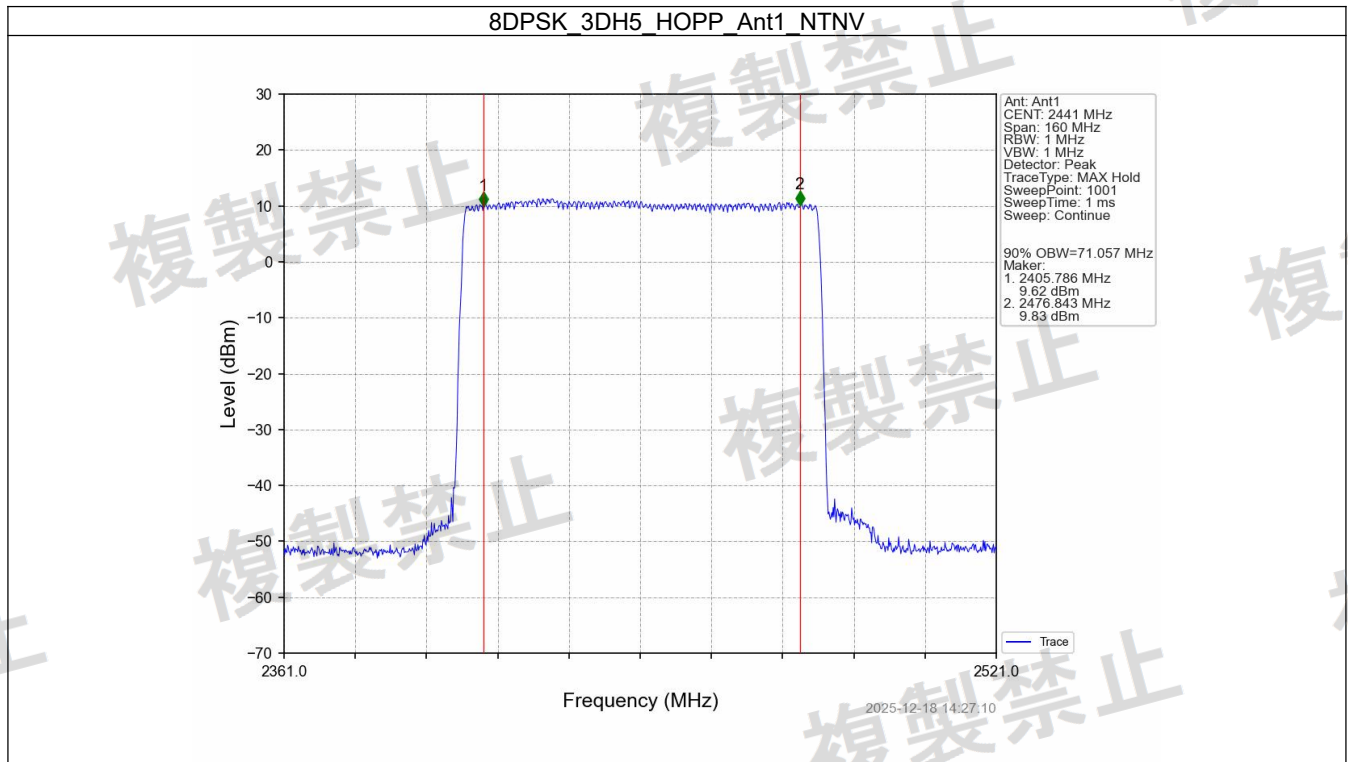


3.2 Test Graph

3.2.1 SPBW









4. Antenna Power

4.1 Test Result

4.1.1 Power

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Burst Power		Spread BW(MHZ)	Antenna Power(mW/MHz)
						(dBm)	(mW)		
NTNV	GFSK	SISO	HOPP	DH5	1	13.3	21.39	70.886	0.302
	Pi/4DQPSK	SISO	HOPP	2DH5	1	9.57	9.07	71.030	0.128
	8DPSK	SISO	HOPP	3DH5	1	7.85	6.09	71.057	0.086

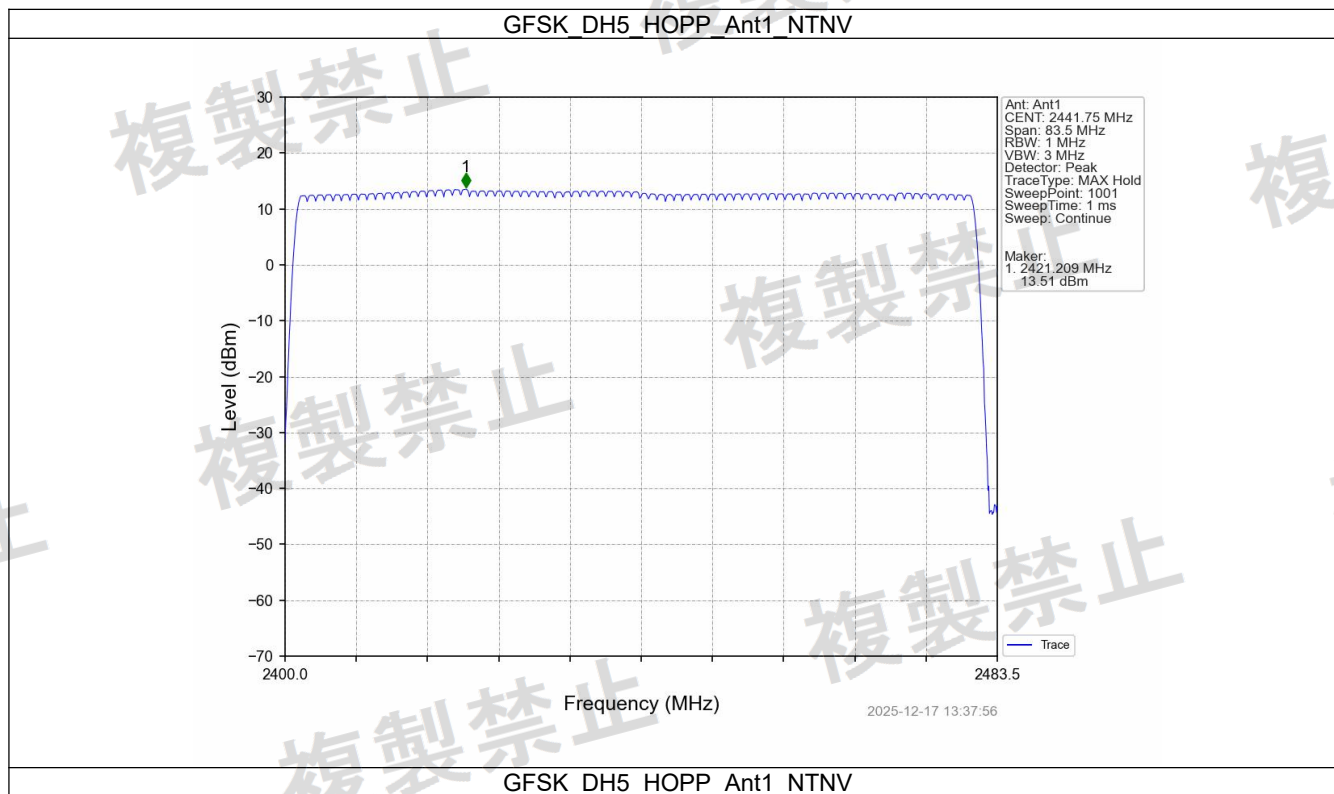
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Antenna Power (mW/MHz)		Nominal Power (mW/MHz)	Tolerance (%)		Verdict
						Measured	Limit		Measured	Limit	
NTNV	GFSK	SISO	HOPP	DH5	1	0.302	<=3.00	0.300	0.67	-80 to 20	PASS
	Pi/4DQPSK	SISO	HOPP	2DH5	1	0.128	<=3.00	0.130	-1.54	-80 to 20	PASS
	8DPSK	SISO	HOPP	3DH5	1	0.086	<=3.00	0.086	0.00	-80 to 20	PASS

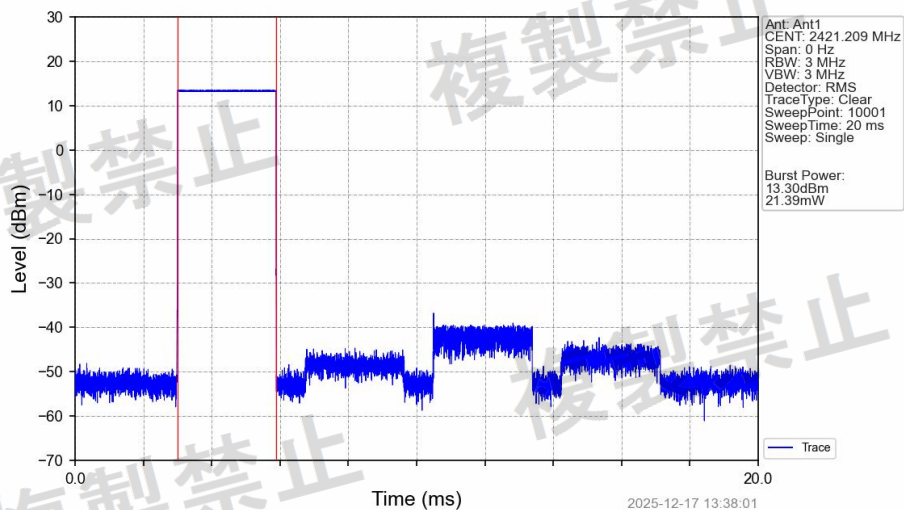
NTNV								
Mode	TX Type	Frequency (MHz)	ANT	Gain (dBi)	Antenna Power (dBm)	EIRP (dBm/MHz)		Verdict
						Result	Limit	
GFSK	SISO	HOPP	1	-0.30	-5.20	-5.50	<=6.91	Pass
Pi/4DQPSK		HOPP	1	-0.30	-8.93	-9.23	<=6.91	Pass
8DPSK		HOPP	1	-0.30	-10.66	-10.96	<=6.91	Pass



4.2 Test Graph

4.2.1 Power

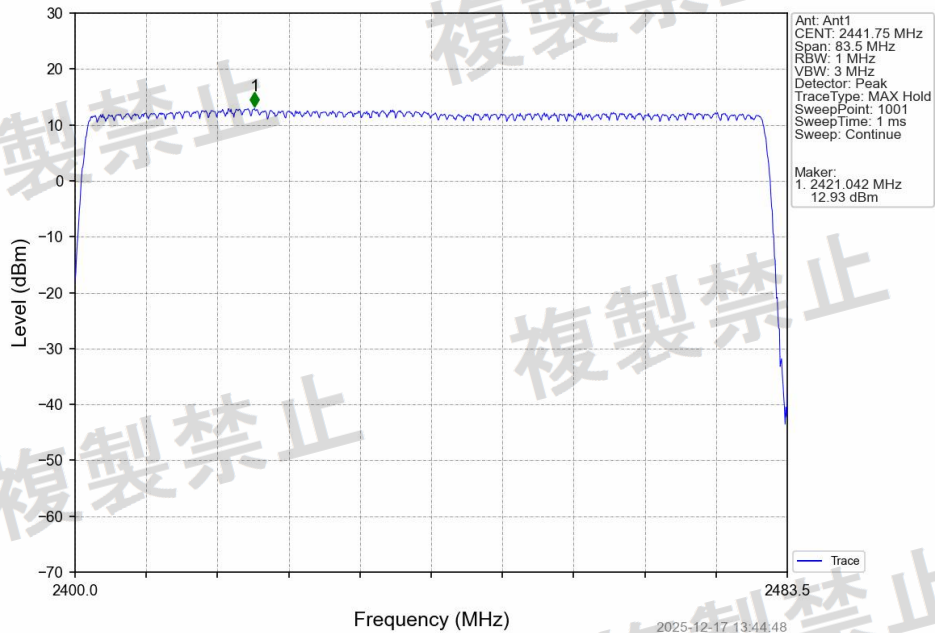




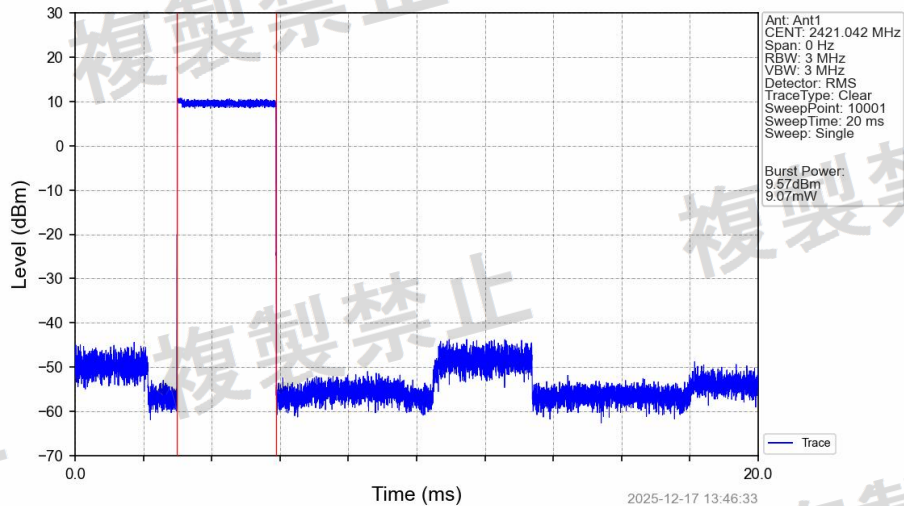
Burst No.	1
Length (ms)	2.894
Power(dBm)	13.30
Power(mW)	21.390
Remark	Max



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



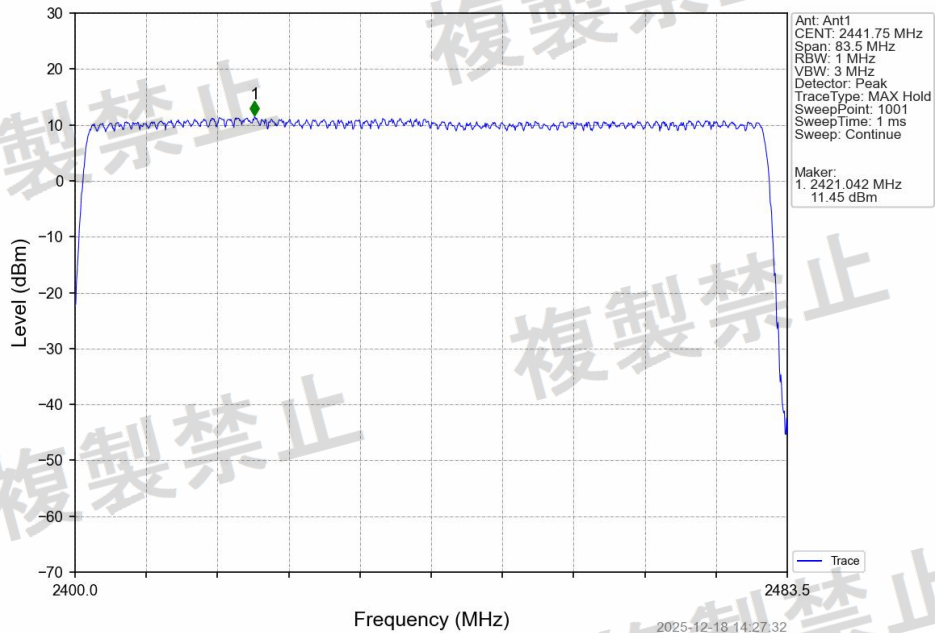
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



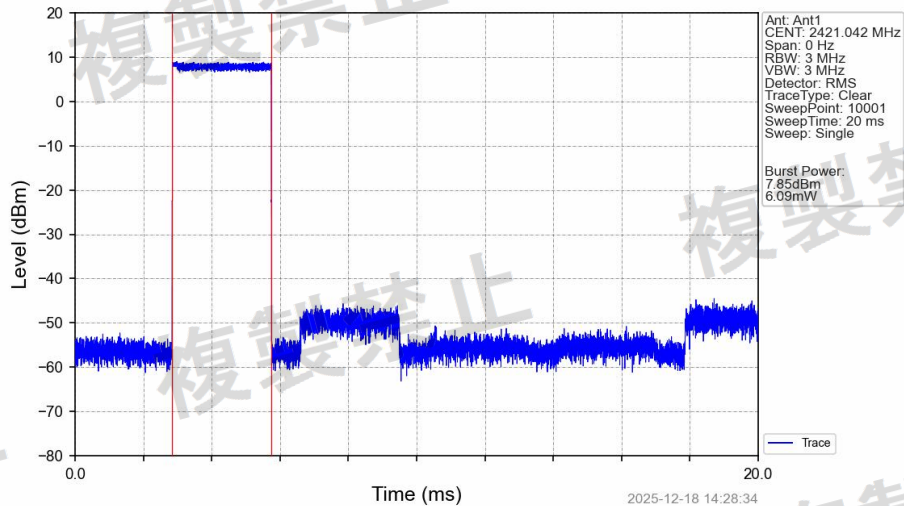
Burst No.	1
Length (ms)	2.910
Power(dBm)	9.57
Power(mW)	9.067
Remark	Max



8DPSK 3DH5 HOPP_Ant1_NTNV



8DPSK 3DH5 HOPP_Ant1_NTNV



Burst No.	1
Length (ms)	2.912
Power(dBm)	7.85
Power(mW)	6.089
Remark	Max



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5. Dwell Time

5.1 Test Result

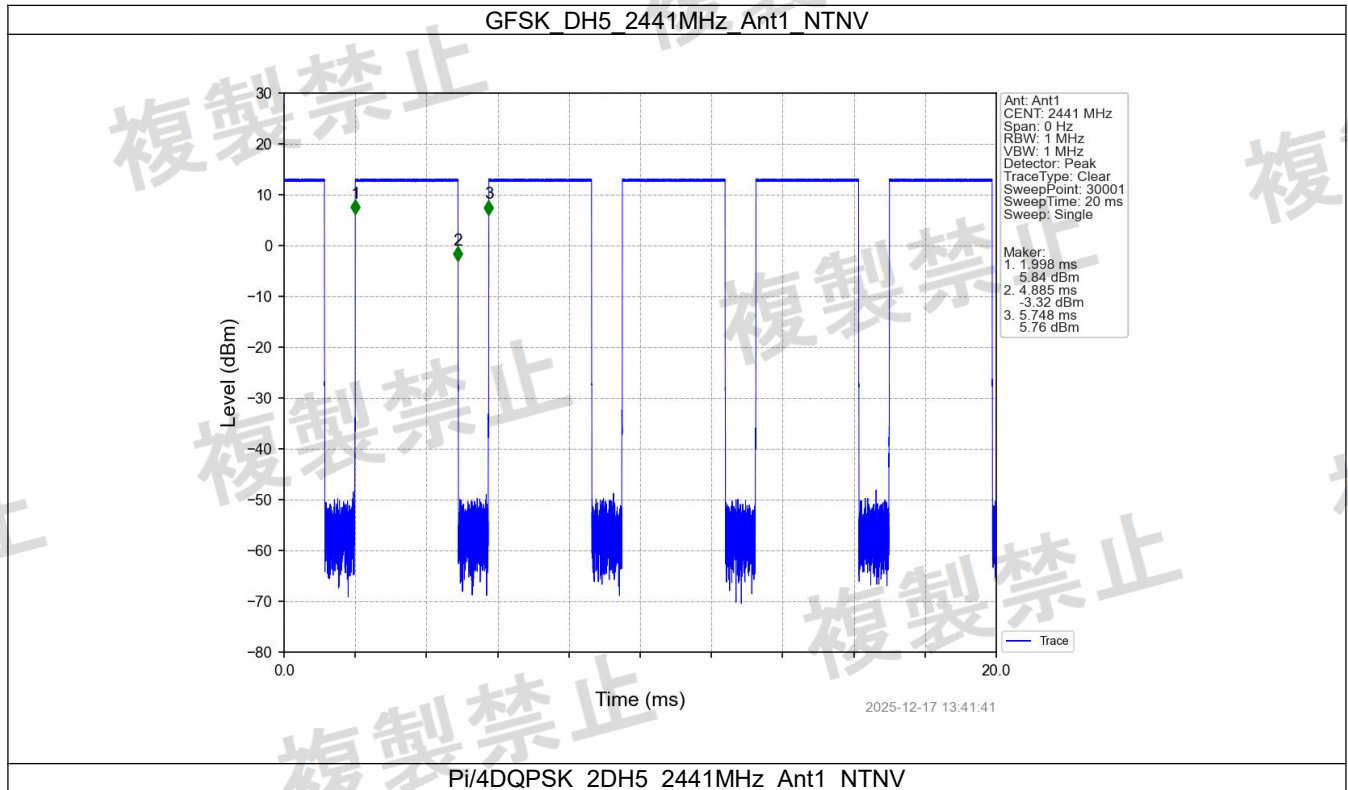
5.1.1 Ant1

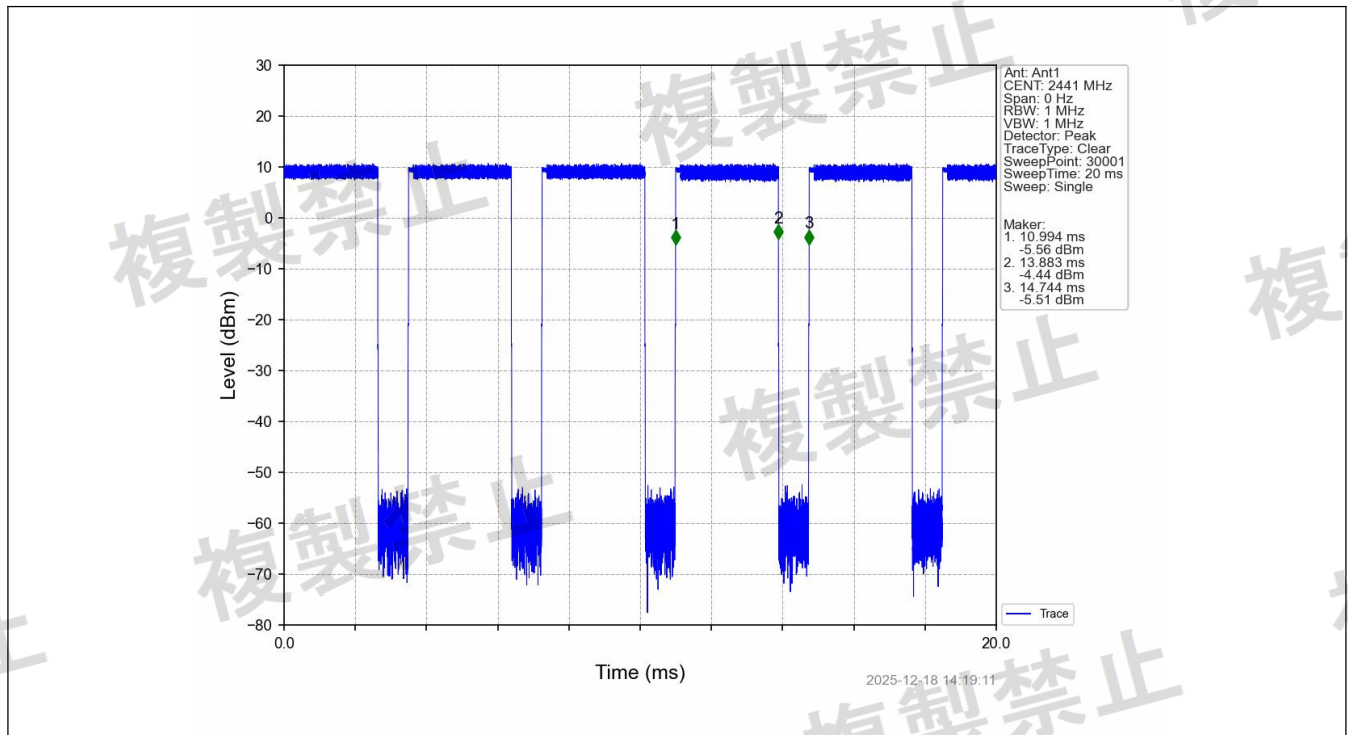
Ant1											
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spreading Rate	T_on (ms)	Period (ms)	Hopp Number	Dwell Time (ms)		Verdict
									Result	Limit	
NTNV	GFSK	SISO	2441	DH5	70.886	2.887	3.750	79	276.318	<=400	Pass
	PI/4DQPSK	SISO	2441	2DH5	71.030	2.889	3.750	79	277.071	<=400	Pass
	8DPSK	SISO	2441	3DH5	71.057	2.891	3.750	79	277.368	<=400	Pass

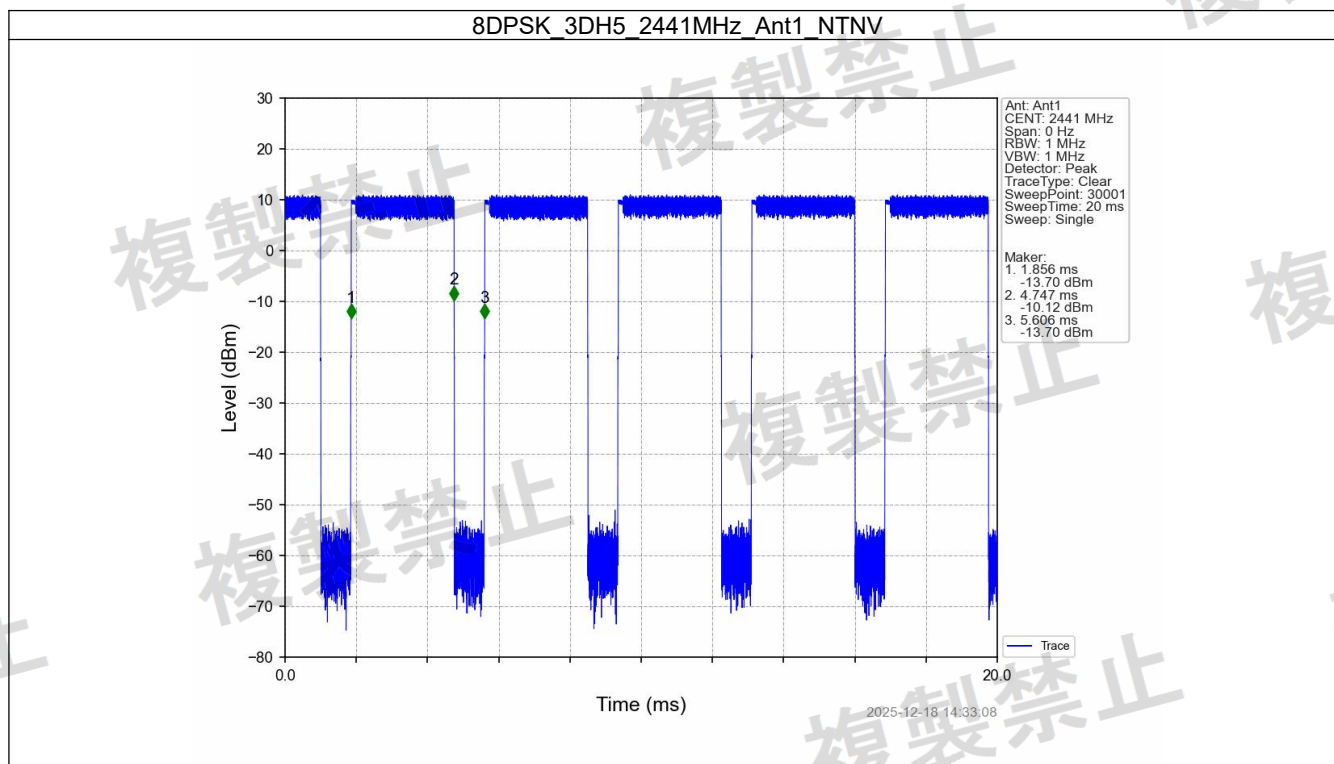


5.2 Test Graph

5.2.1 Ant1









6. Spurious Emission Intensity

6.1 Test Result

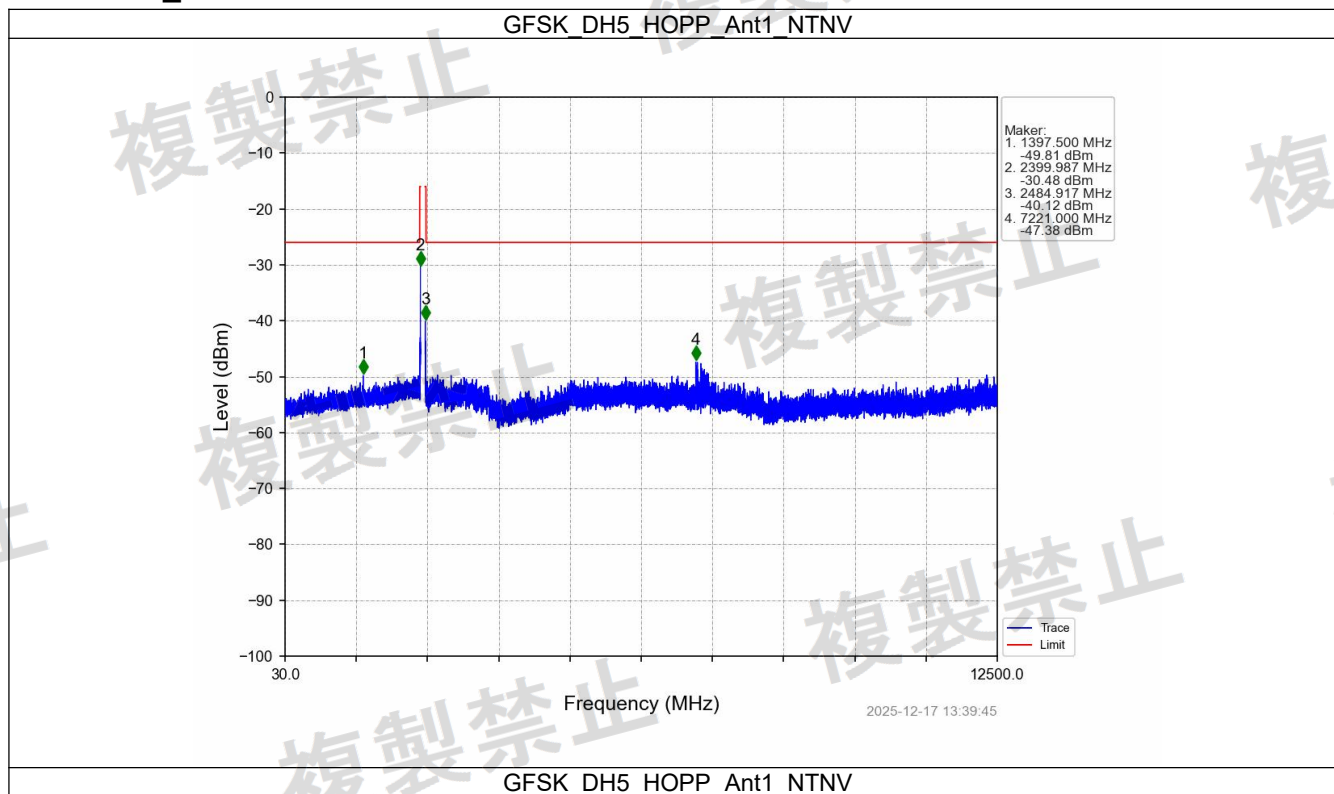
6.1.1 TxSe_NTNV

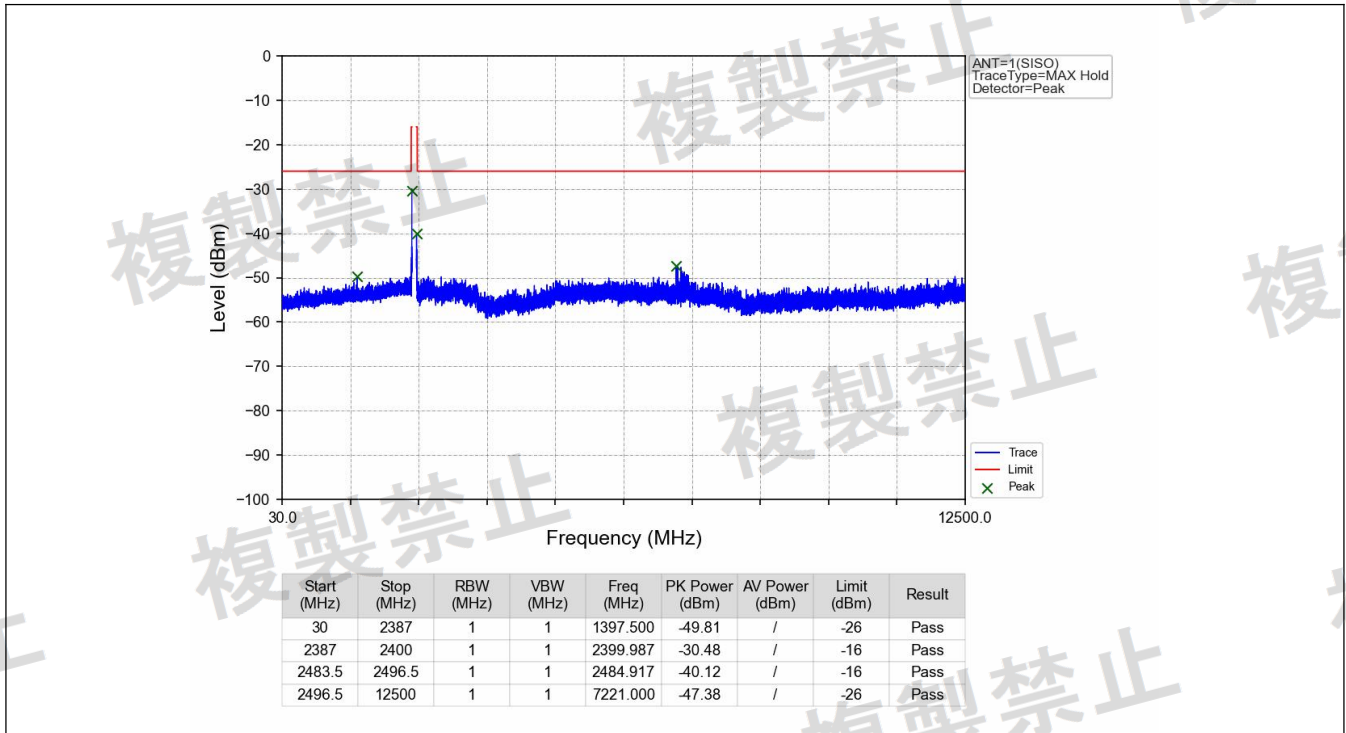
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
GFSK	SISO	HOPP	1	30	2387	1397.5	-49.81	0.010	/	/	2.5	Pass
				2387	2400	2399.987	-30.48	0.895	/	/	25	Pass
				2483.5	2496.5	2484.917	-40.12	0.097	/	/	25	Pass
				2496.5	12500	7221	-47.38	0.018	/	/	2.5	Pass
Pi/4DQPSK	SISO	HOPP	1	30	2387	2233	-50.09	0.010	/	/	2.5	Pass
				2387	2400	2399.935	-20.55	8.810	/	/	25	Pass
				2483.5	2496.5	2488.401	-42.25	0.060	/	/	25	Pass
				2496.5	12500	7212	-48.44	0.014	/	/	2.5	Pass
8DPSK	SISO	HOPP	1	30	2387	1939.5	-50.13	0.010	/	/	2.5	Pass
				2387	2400	2399.909	-18.05	15.668	-29.39	1.151	25	Pass
				2483.5	2496.5	2483.786	-39.28	0.118	/	/	25	Pass
				2496.5	12500	6073.5	-49.12	0.012	/	/	2.5	Pass



6.2 Test Graph

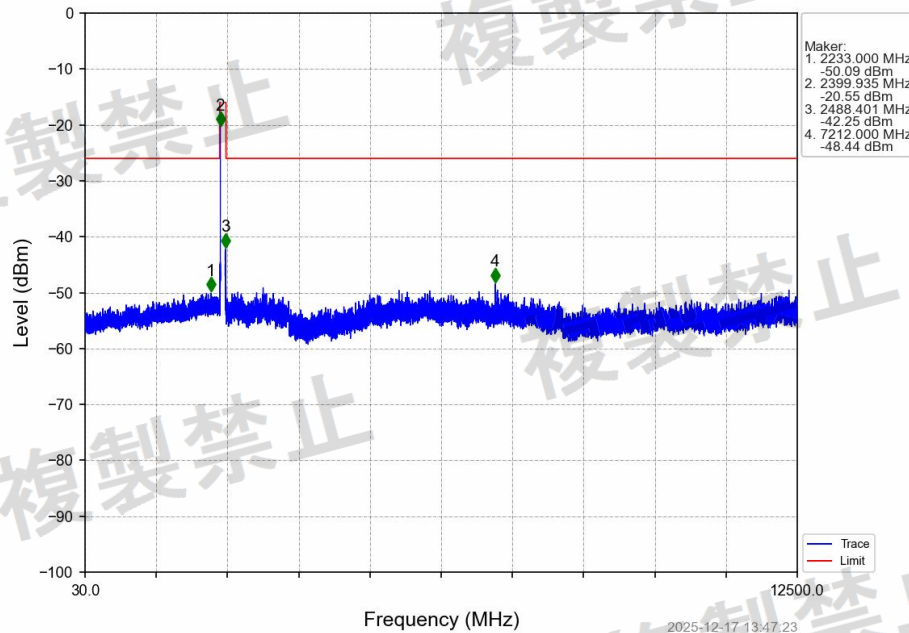
6.2.1 TxSe_NTNV



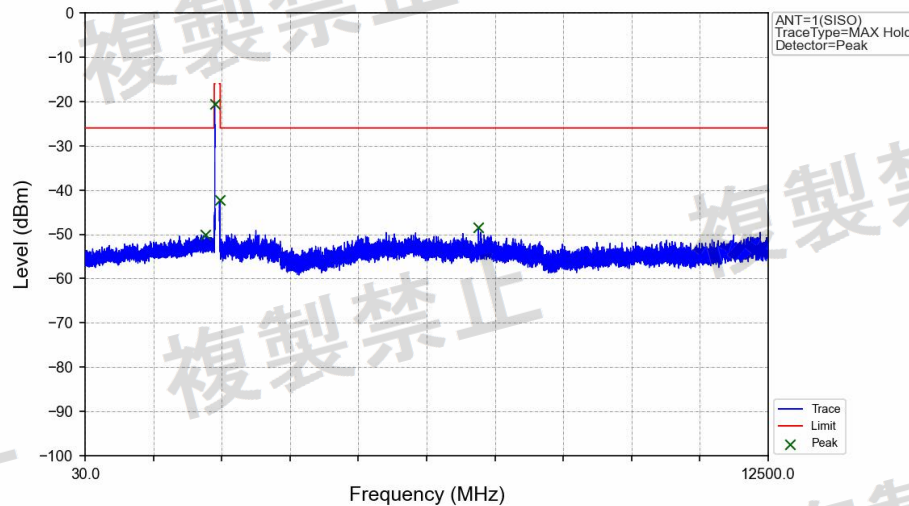




Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



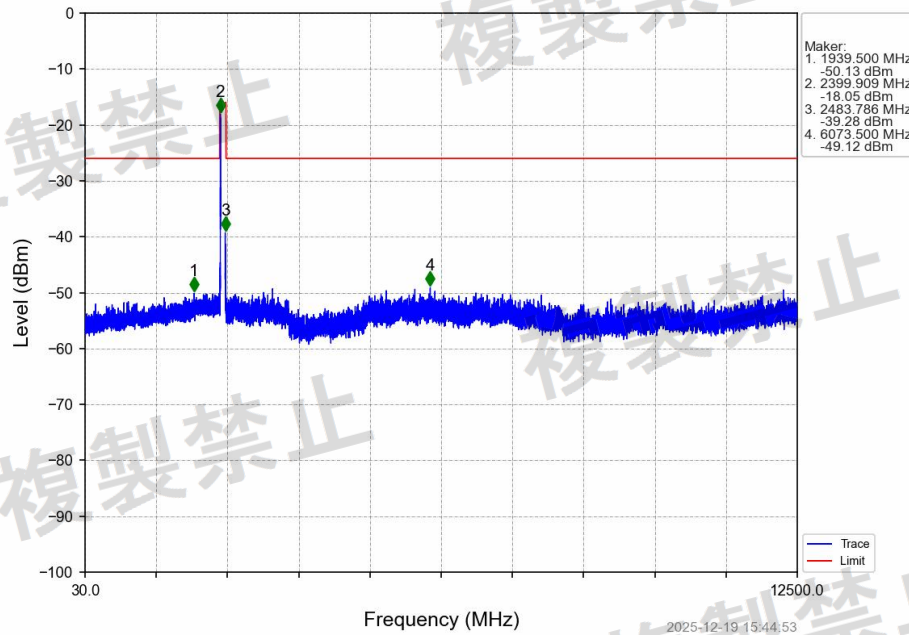
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



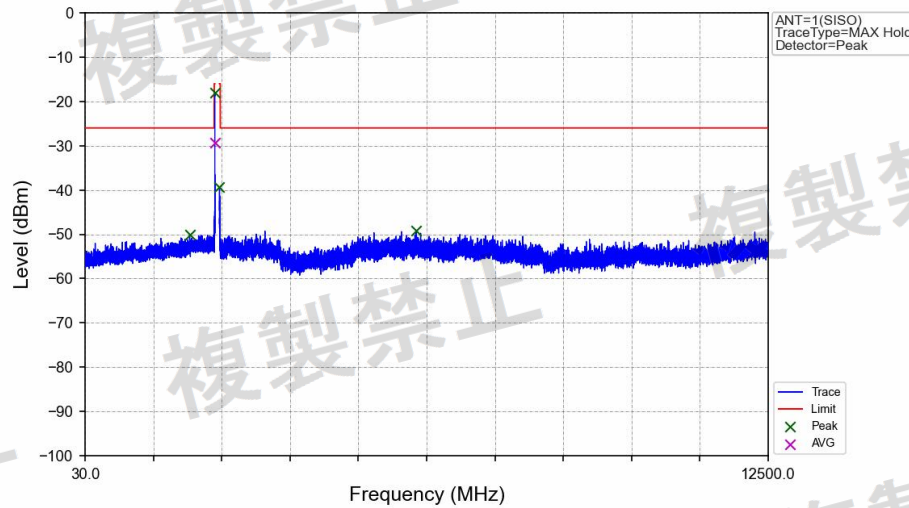
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2233.000	-50.09	/	-26	Pass
2387	2400	1	1	2399.935	-20.55	/	-16	Pass
2483.5	2496.5	1	1	2488.401	-42.25	/	-16	Pass
2496.5	12500	1	1	7212.000	-48.44	/	-26	Pass



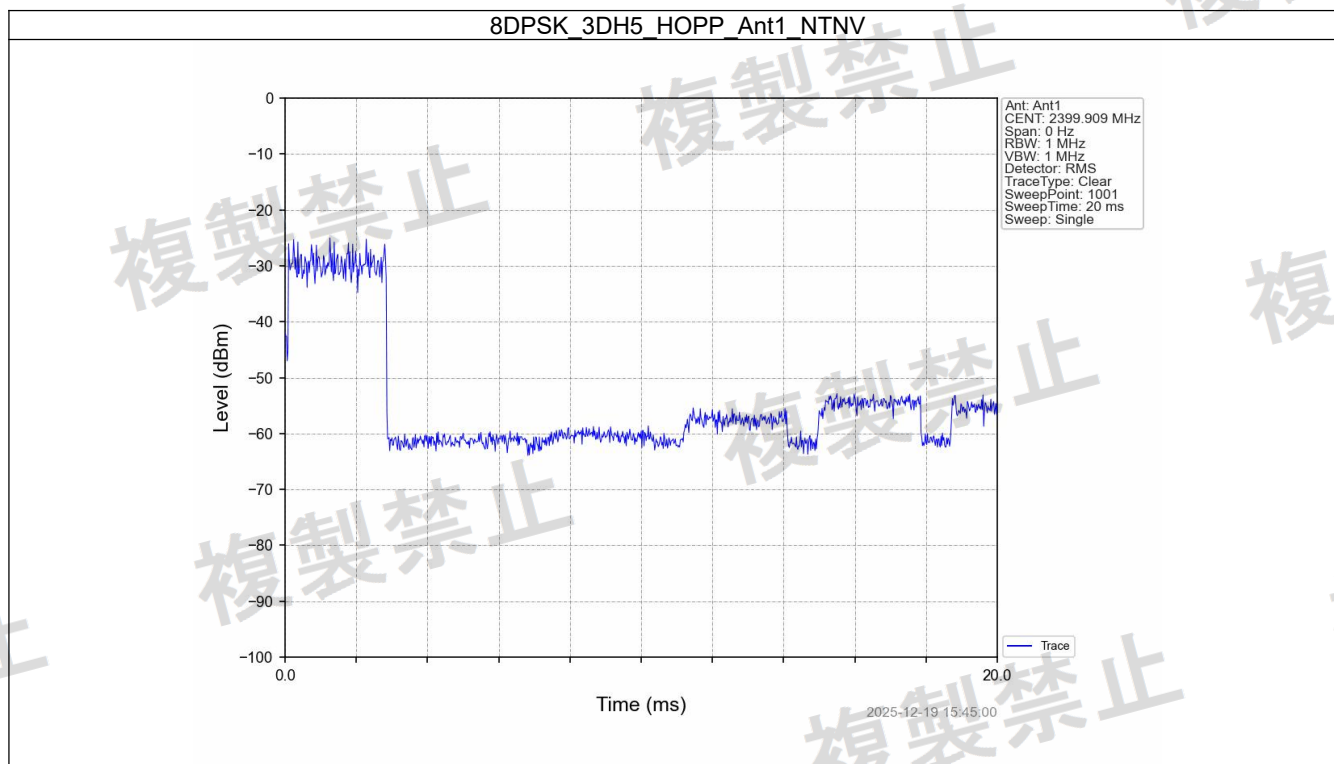
8DPSK 3DH5 HOPP_Ant1_NTNV



8DPSK 3DH5 HOPP_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1939.500	-50.13	/	-26	Pass
2387	2400	1	1	2399.909	-18.05	-29.39	-16	Pass
2483.5	2496.5	1	1	2483.786	-39.28	/	-16	Pass
2496.5	12500	1	1	6073.500	-49.12	/	-26	Pass





7. Secondary Radiated Emission

7.1 Test Result

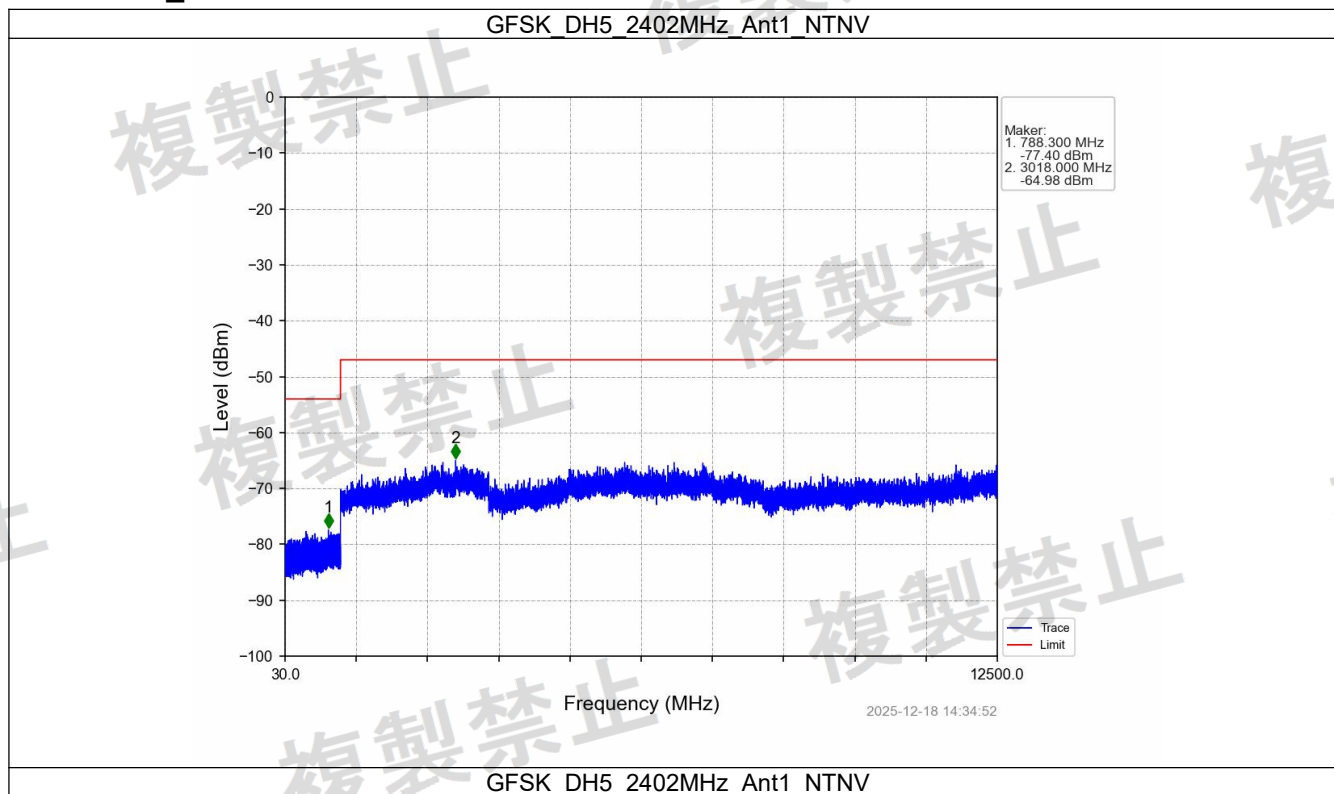
7.1.1 RxSe_NTNV

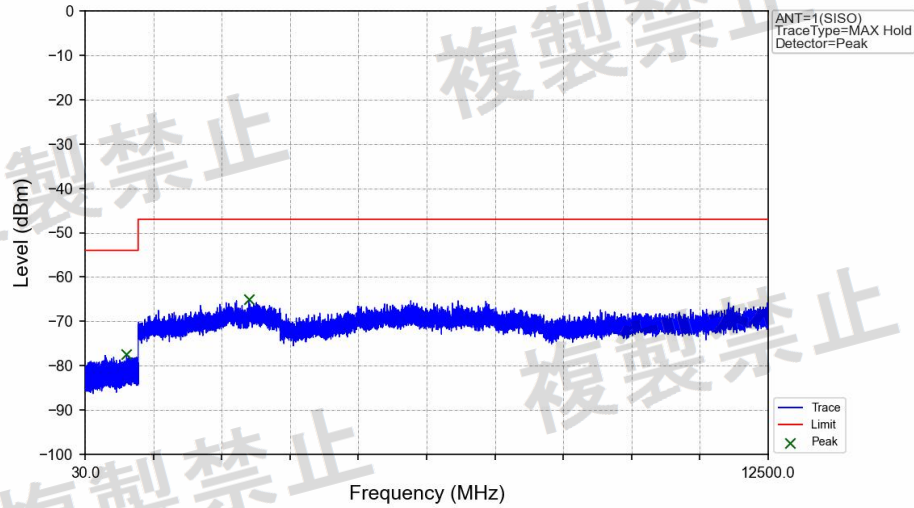
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
GFSK	SISO	2402	1	30	1000	788.3	-77.40	0.018	/	/	4	Pass
				1000	12500	3018	-64.98	0.318	/	/	20	Pass
		2441	1	30	1000	523.45	-77.76	0.017	/	/	4	Pass
				1000	12500	12442.5	-64.18	0.382	/	/	20	Pass
		2480	1	30	1000	241.75	-77.32	0.019	/	/	4	Pass
				1000	12500	2645.5	-64.76	0.334	/	/	20	Pass
Pi/4DQPSK	SISO	2402	1	30	1000	804.15	-77.38	0.018	/	/	4	Pass
				1000	12500	5423.5	-64.73	0.337	/	/	20	Pass
		2441	1	30	1000	942.45	-77.14	0.019	/	/	4	Pass
				1000	12500	3129.5	-65.45	0.285	/	/	20	Pass
		2480	1	30	1000	888.1	-77.67	0.017	/	/	4	Pass
				1000	12500	5857.5	-64.50	0.355	/	/	20	Pass
8DPSK	SISO	2402	1	30	1000	731.4	-76.94	0.020	/	/	4	Pass
				1000	12500	2608	-65.12	0.308	/	/	20	Pass
		2441	1	30	1000	880.2	-76.75	0.021	/	/	4	Pass
				1000	12500	6086.5	-64.65	0.343	/	/	20	Pass
		2480	1	30	1000	844.05	-77.22	0.019	/	/	4	Pass
				1000	12500	3181	-64.77	0.333	/	/	20	Pass



7.2 Test Graph

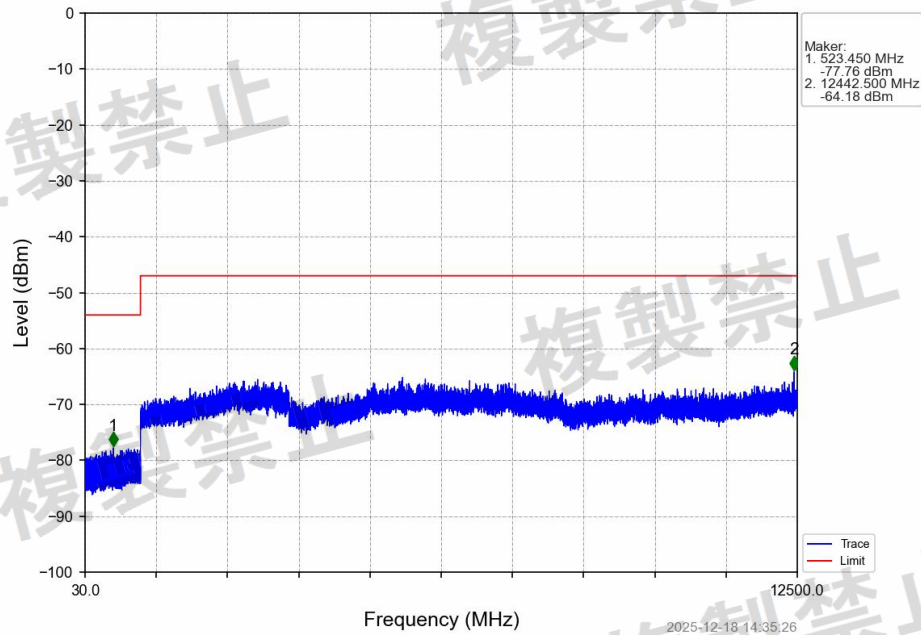
7.2.1 RxSe_NTNV



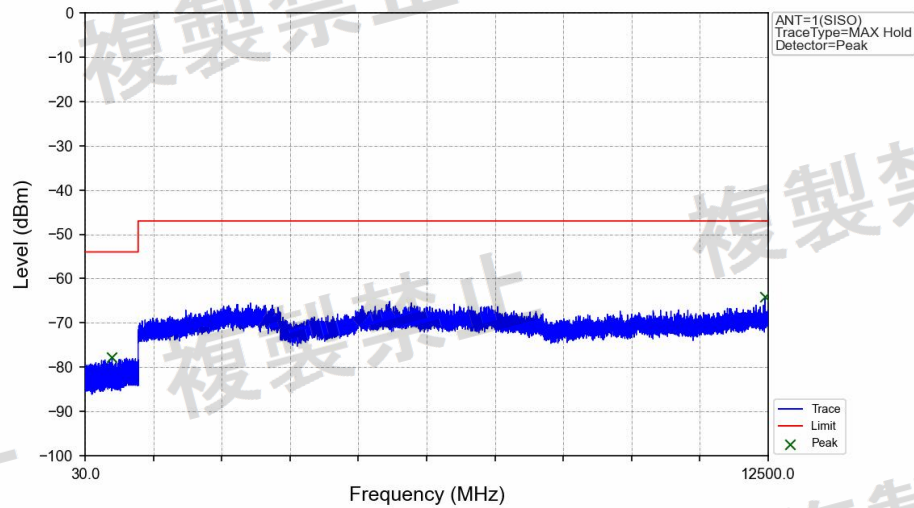


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	788.300	-77.40	/	-54	Pass
1000	12500	1	1	3018.000	-64.98	/	-47	Pass

GFSK DH5 2441MHz Ant1 NTN



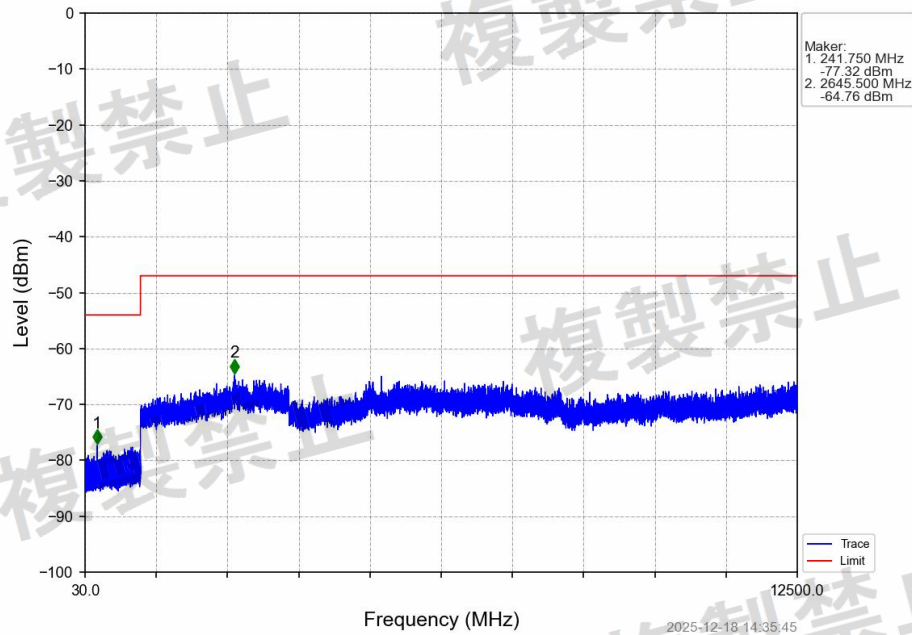
GFSK DH5 2441MHz Ant1 NTN



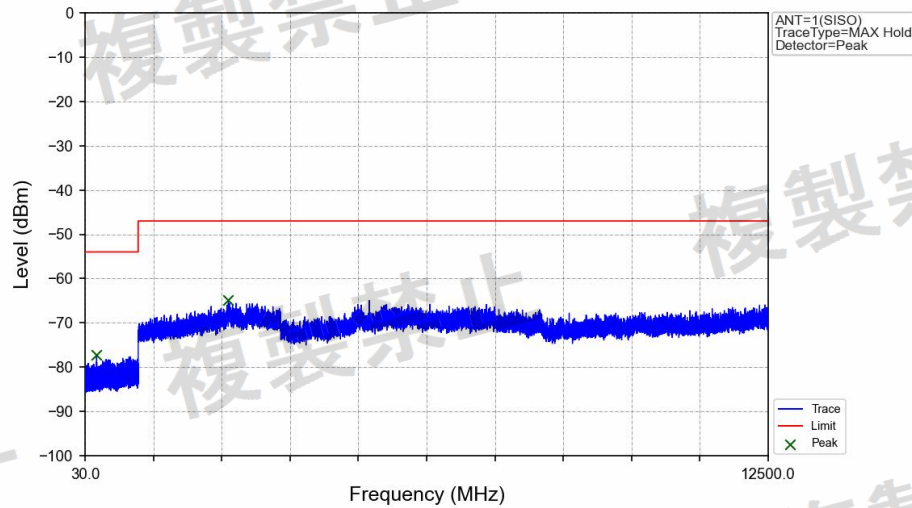
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	523.450	-77.76	/	-54	Pass
1000	12500	1	1	12442.500	-64.18	/	-47	Pass



GFSK DH5 2480MHz Ant1 NTN



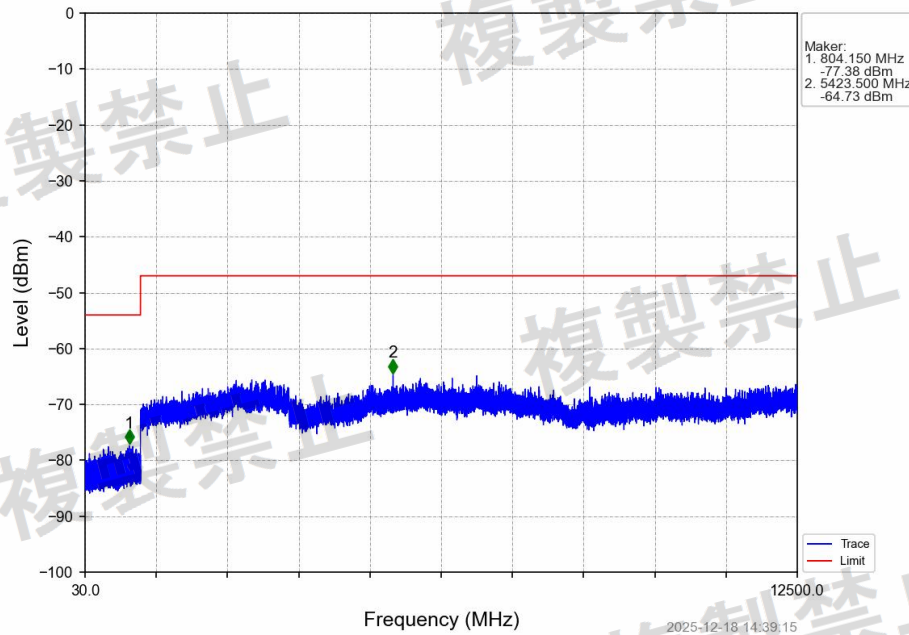
GFSK DH5 2480MHz Ant1 NTN



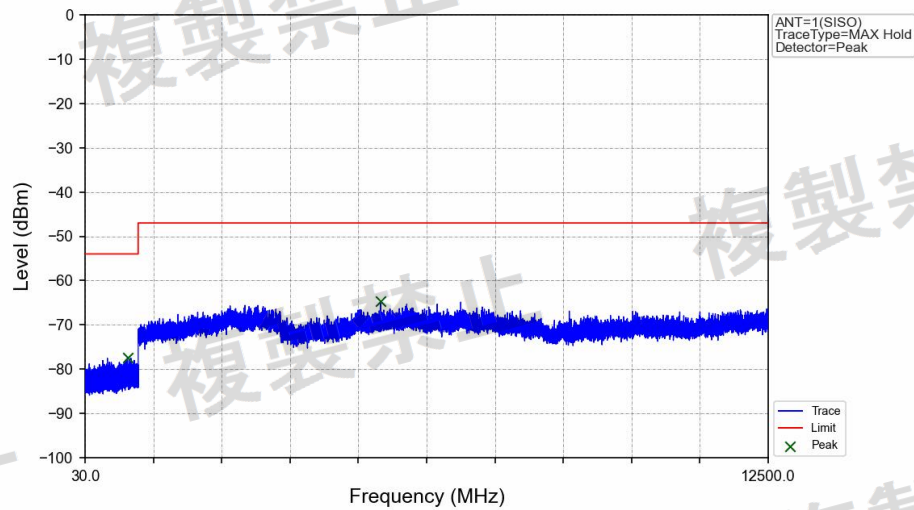
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	241.750	-77.32	/	-54	Pass
1000	12500	1	1	2645.500	-64.76	/	-47	Pass



Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV

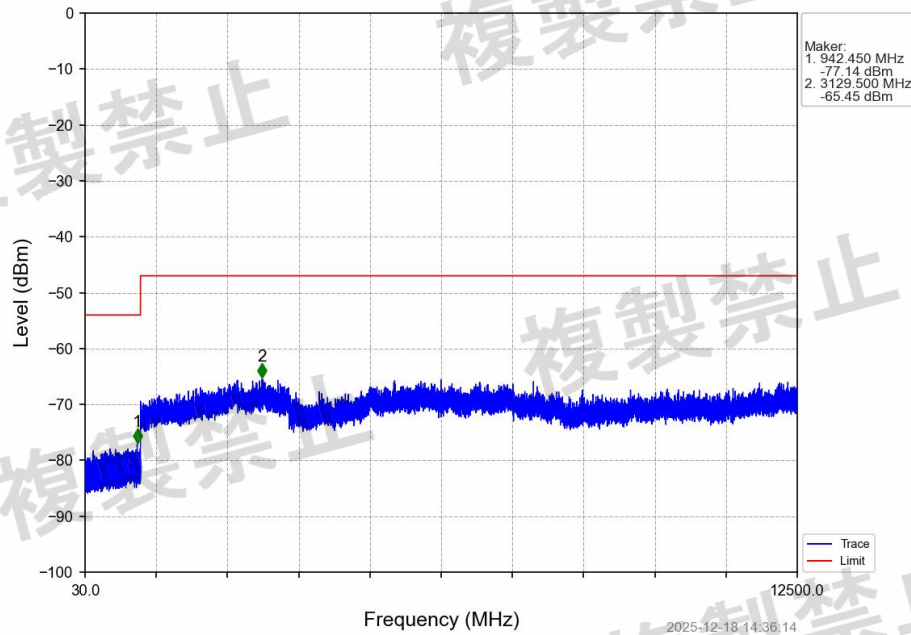


Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV

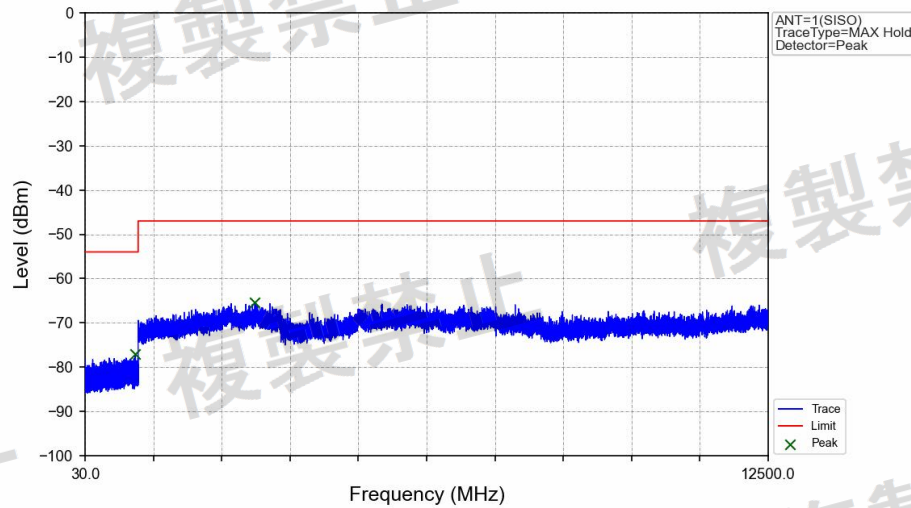


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	804.150	-77.38	/	-54	Pass
1000	12500	1	1	5423.500	-64.73	/	-47	Pass

Pi/4DQPSK_2DH5_2441MHz_Ant1_NTNV



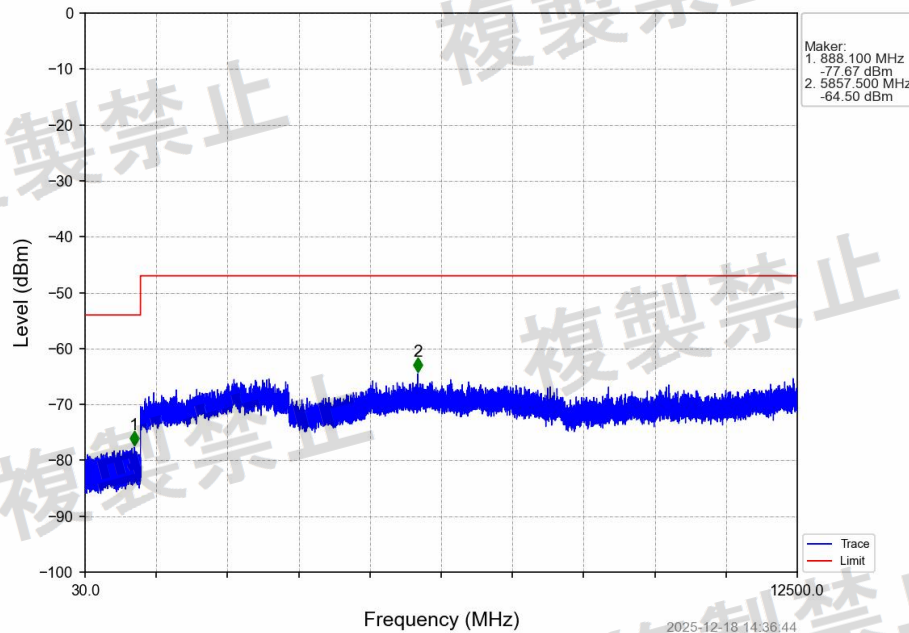
Pi/4DQPSK_2DH5_2441MHz_Ant1_NTNV



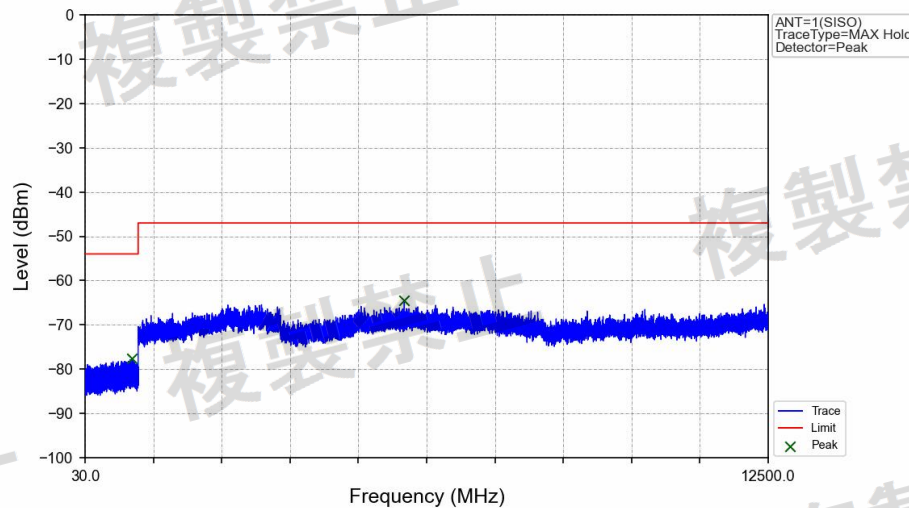
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	942.450	-77.14	/	-54	Pass
1000	12500	1	1	3129.500	-65.45	/	-47	Pass



Pi/4DQPSK_2DH5_2480MHz_Ant1_NTNV



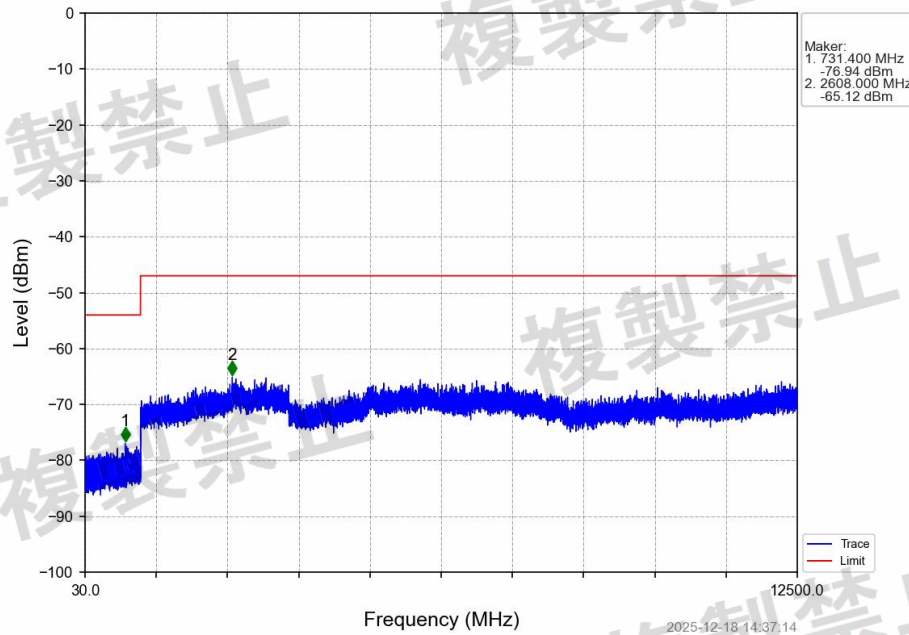
Pi/4DQPSK_2DH5_2480MHz_Ant1_NTNV



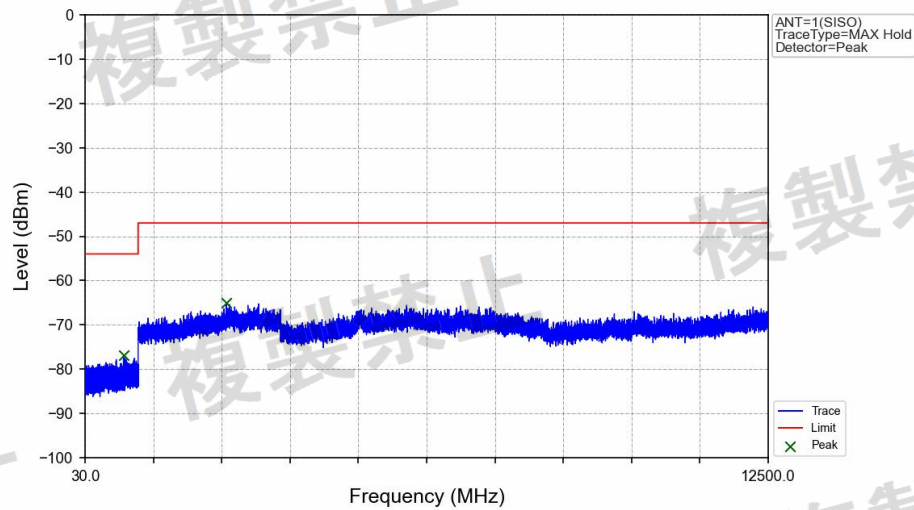
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	888.100	-77.67	/	-54	Pass
1000	12500	1	1	5857.500	-64.50	/	-47	Pass



8DPSK 3DH5 2402MHz_Ant1_NTNV



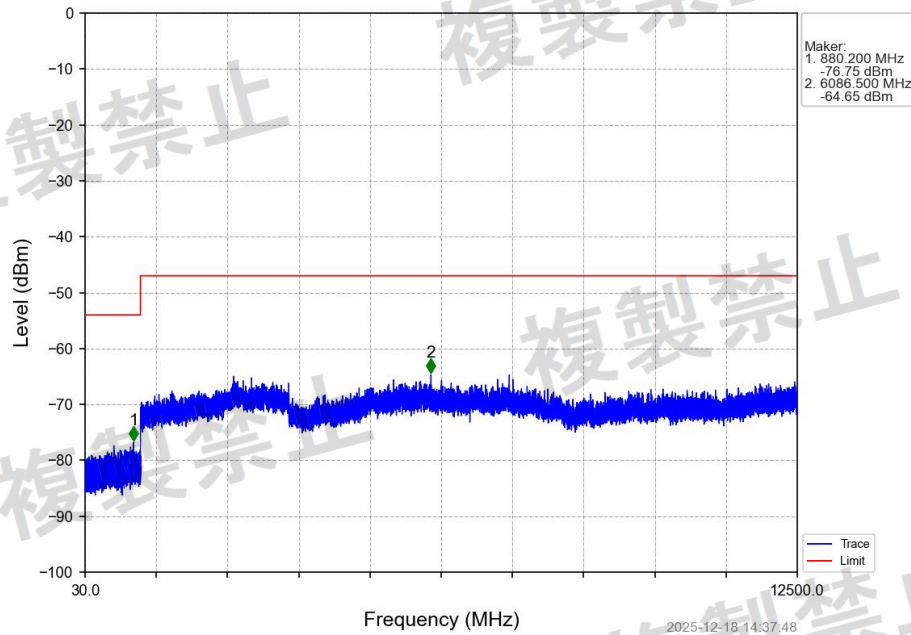
8DPSK 3DH5 2402MHz_Ant1_NTNV



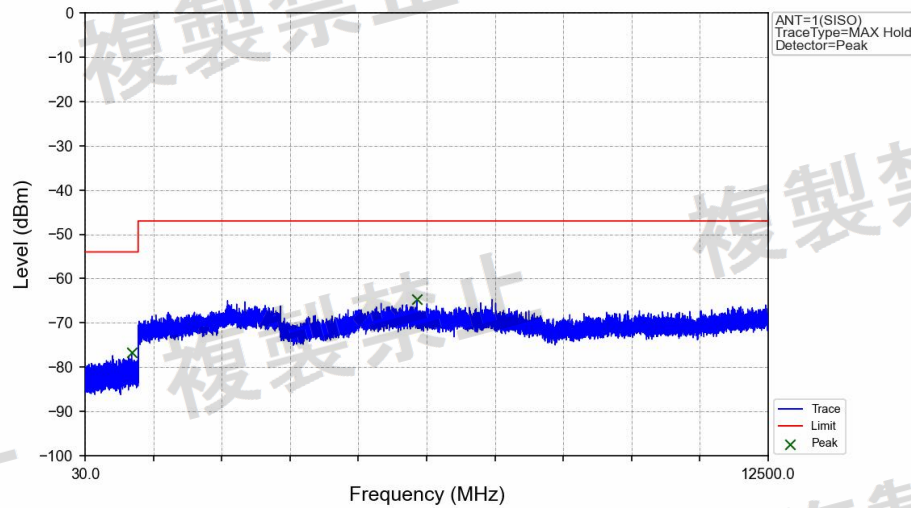
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	731.400	-76.94	/	-54	Pass
1000	12500	1	1	2608.000	-65.12	/	-47	Pass



8DPSK 3DH5 2441MHz Ant1_NTNV



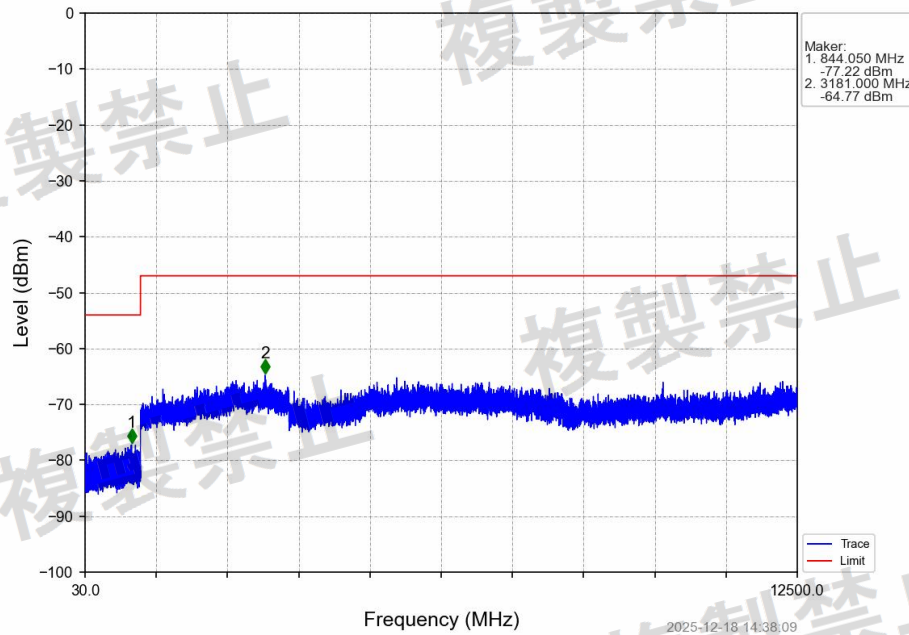
8DPSK 3DH5 2441MHz Ant1_NTNV



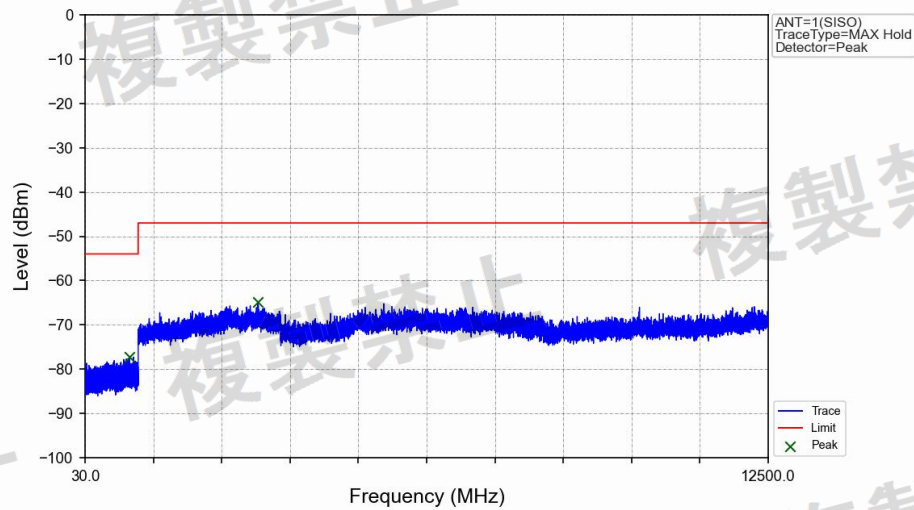
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	880.200	-76.75	/	-54	Pass
1000	12500	1	1	6086.500	-64.65	/	-47	Pass



8DPSK 3DH5 2480MHz_Ant1_NTNV



8DPSK 3DH5 2480MHz_Ant1_NTNV



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	844.050	-77.22	/	-54	Pass
1000	12500	1	1	3181.000	-64.77	/	-47	Pass