



RF Test Data

For

Project No.:	ZKT-251126L28095E-1
Client:	Autel Robotics Co., Ltd.
Manufacturer:	Autel Robotics Co., Ltd.
Product Description:	Dragonfish Repeater
Test Model:	DFRP
Test Engineer:	Jim Liu
Test Date:	2026-01-22

Test Summary

Item	Result
Frequency Error	Pass
Occupied Bandwidth	Pass
Spread Bandwidth	Pass
Antenna Power	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)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	MIMO	2412.5	2412.516	6.63	-50 to 50	Pass
			2437.5	2437.516	6.56	-50 to 50	Pass
			2462.5	2462.516	6.50	-50 to 50	Pass

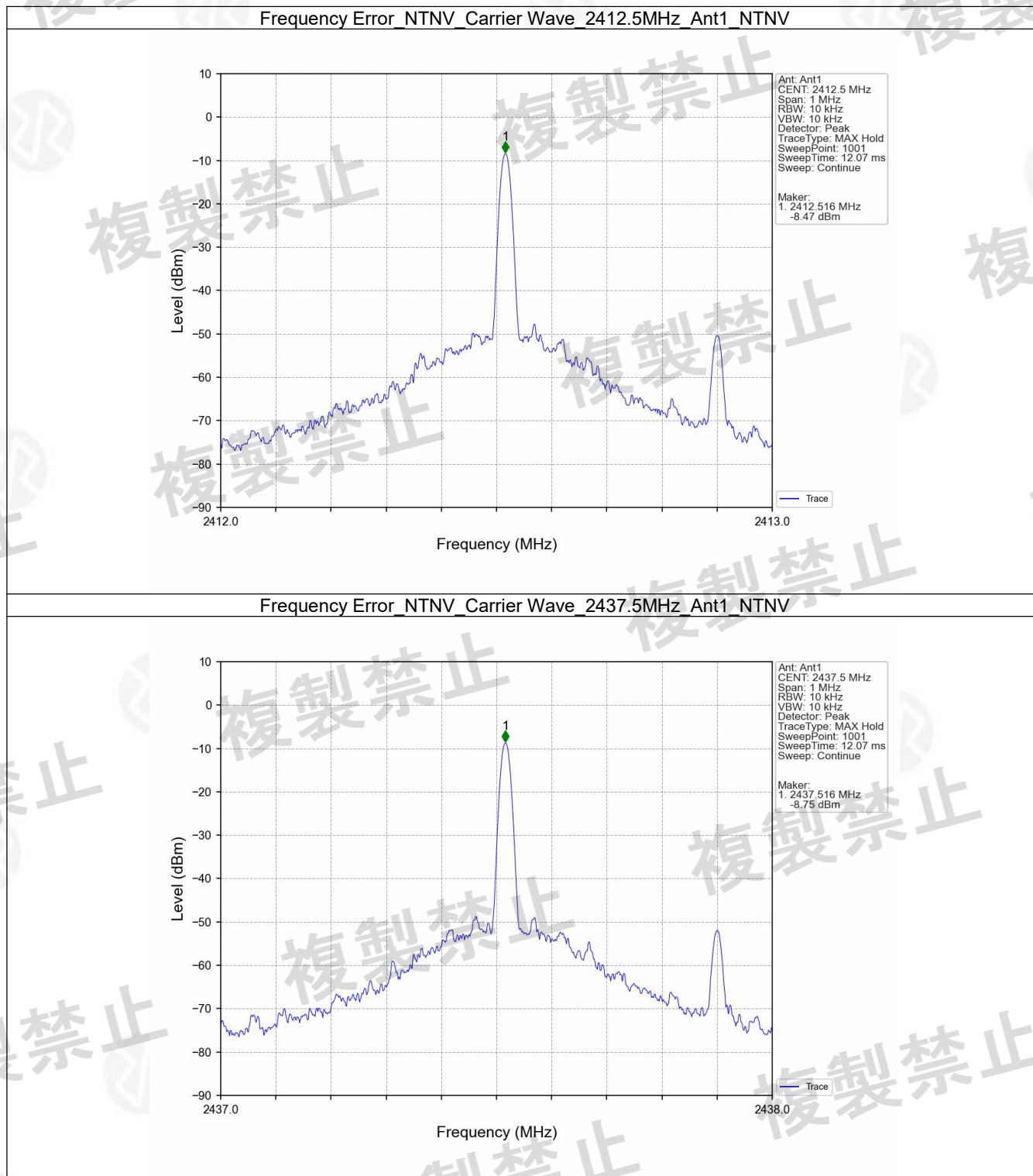
1.1.2 Ant2

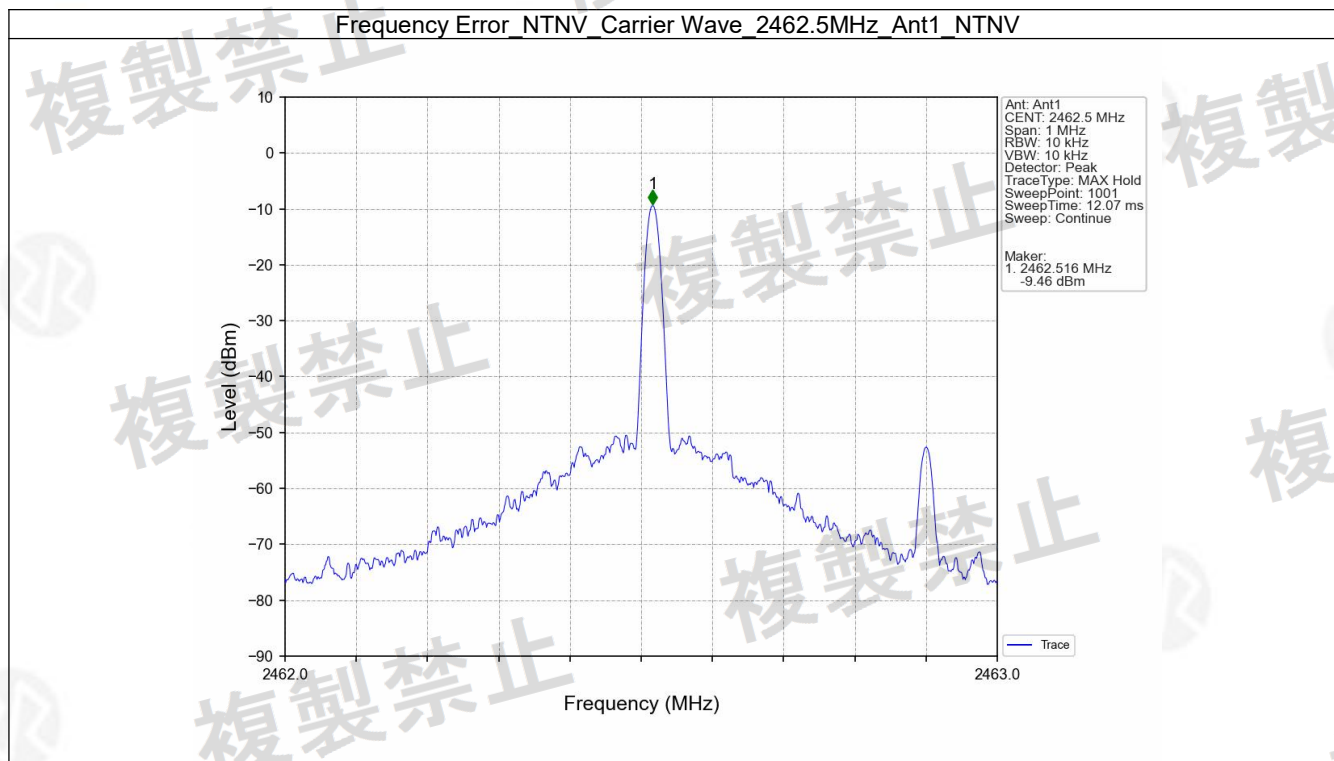
Ant2							
ENV	Mode	TX Type	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	MIMO	2412.5	2412.516	6.63	-50 to 50	Pass
			2437.5	2437.516	6.56	-50 to 50	Pass
			2462.5	2462.516	6.50	-50 to 50	Pass



1.2 Test Graph

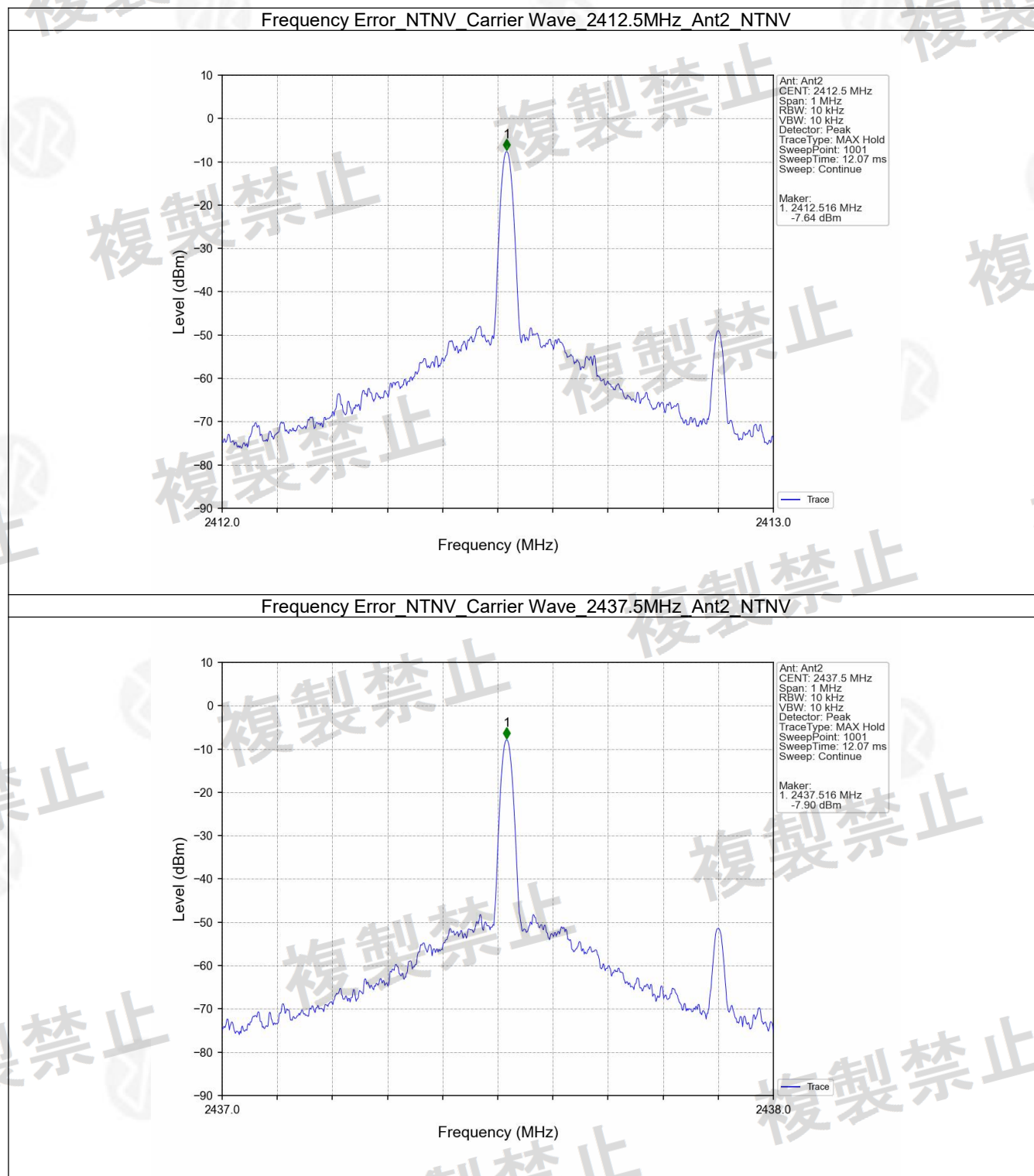
1.2.1 Ant1

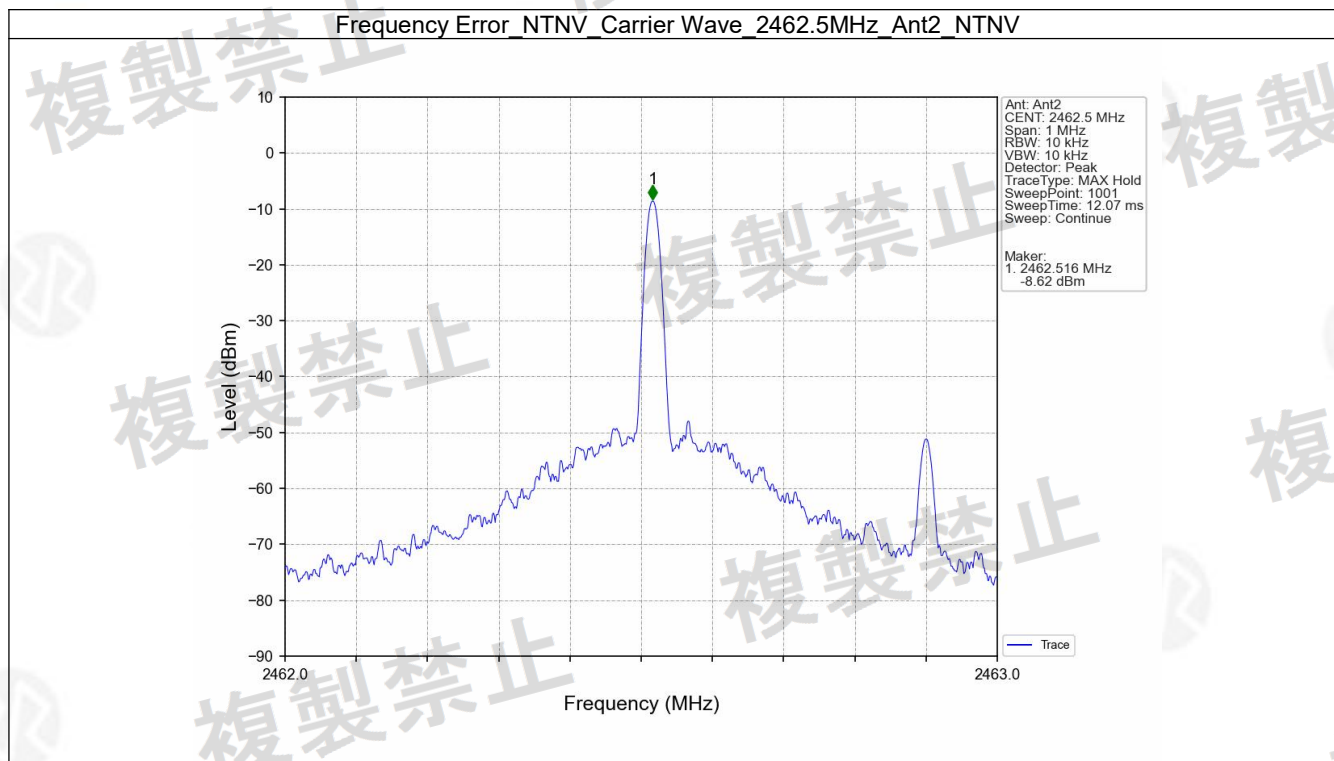






1.2.2 Ant2







2. Occupied Bandwidth

2.1 Test Result

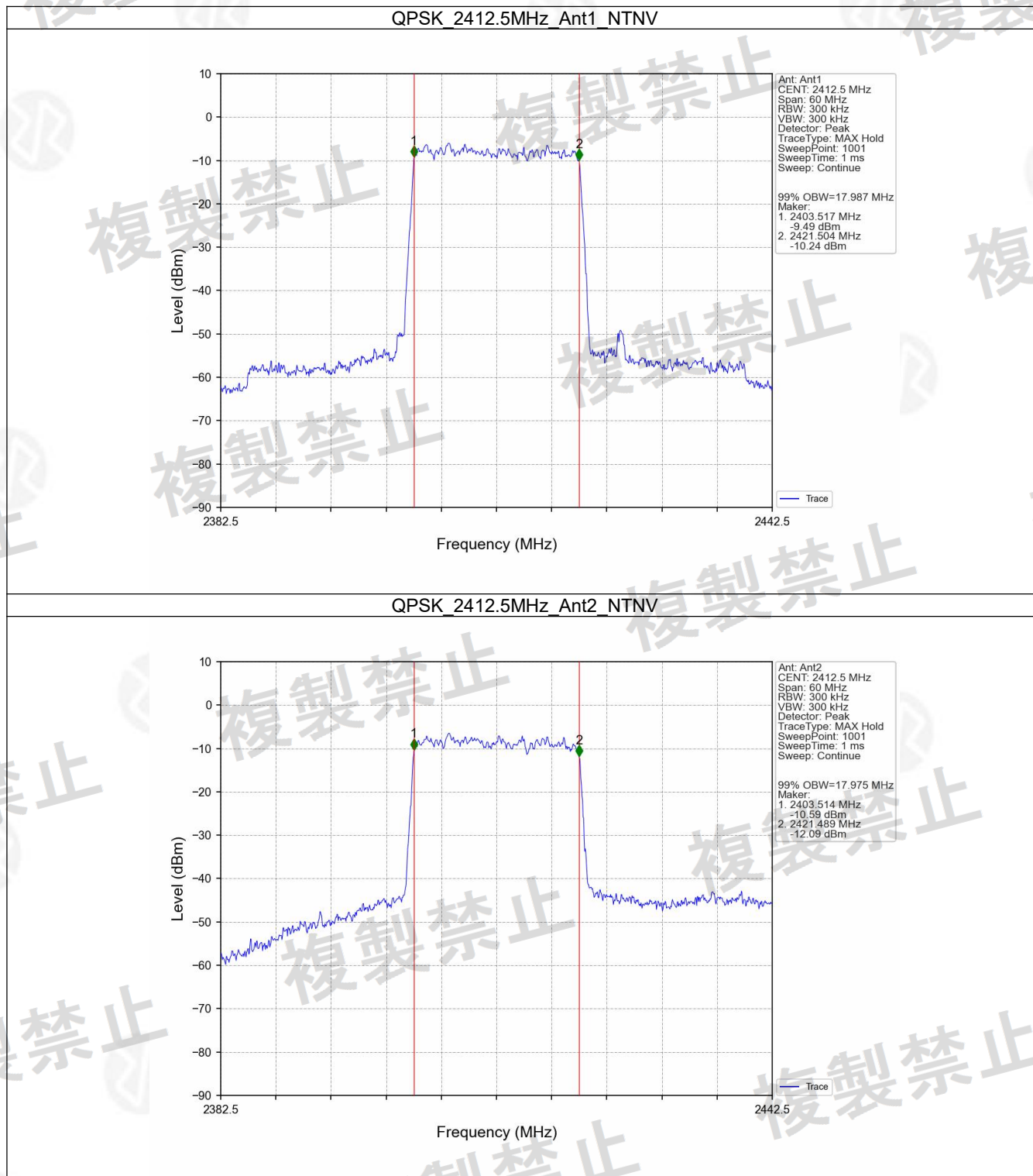
2.1.1 OBW

ENV	Mode	TX Type	Frequency (MHz)	99% Occupied Bandwidth (MHz)			Verdict
				ANT1	ANT2	Limit	
NTNV	QPSK	MIMO	2412.5	17.987	17.975	<=26	Pass
			2437.5	17.999	17.967	<=26	Pass
			2462.5	17.994	17.976	<=26	Pass
	16QAM	MIMO	2412.5	17.989	17.987	<=26	Pass
			2437.5	17.987	17.964	<=26	Pass
			2462.5	17.971	17.950	<=26	Pass



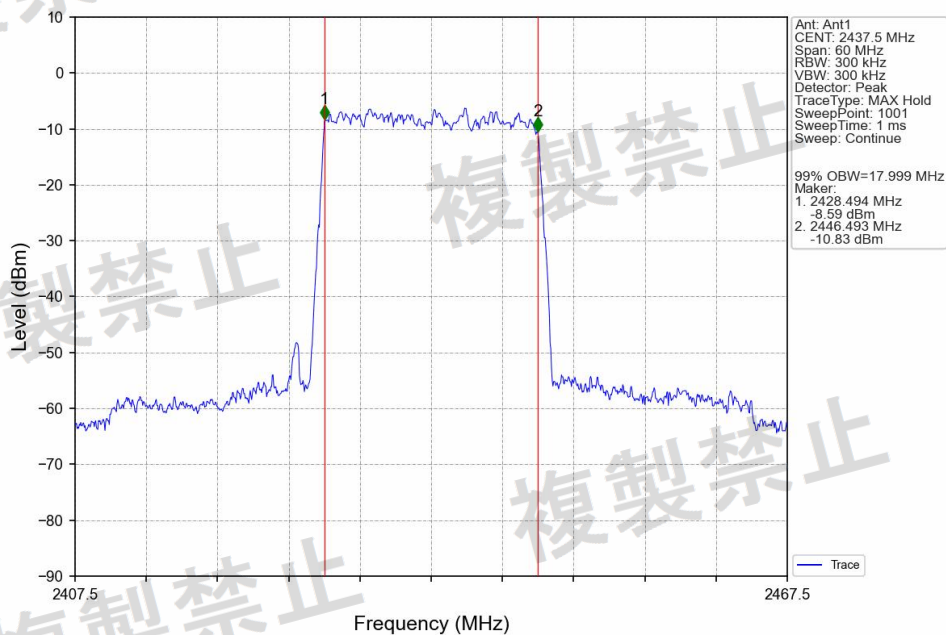
2.2 Test Graph

2.2.1 OBW

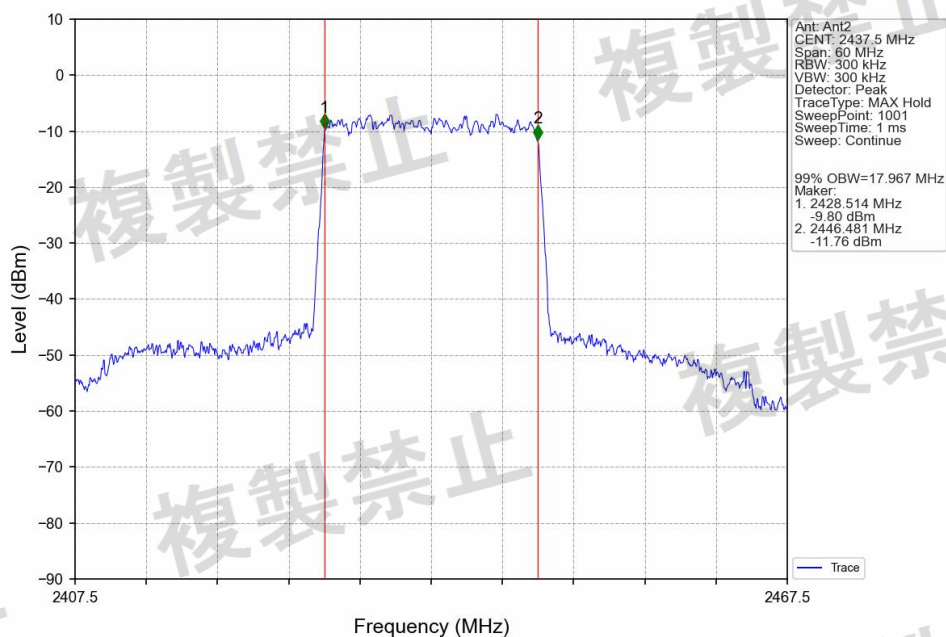




QPSK_2437.5MHz_Ant1_NTNV

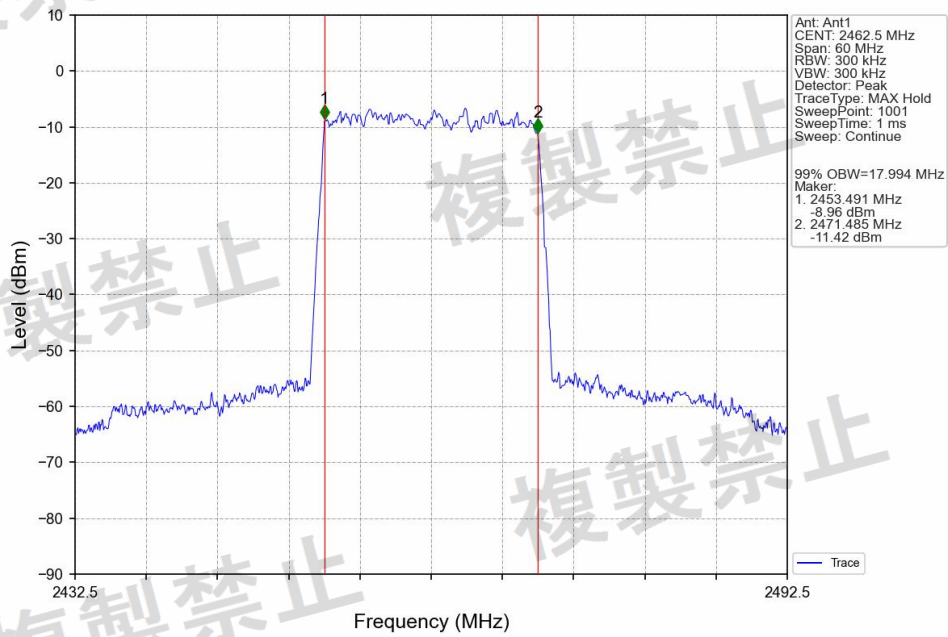


QPSK_2437.5MHz_Ant2_NTNV

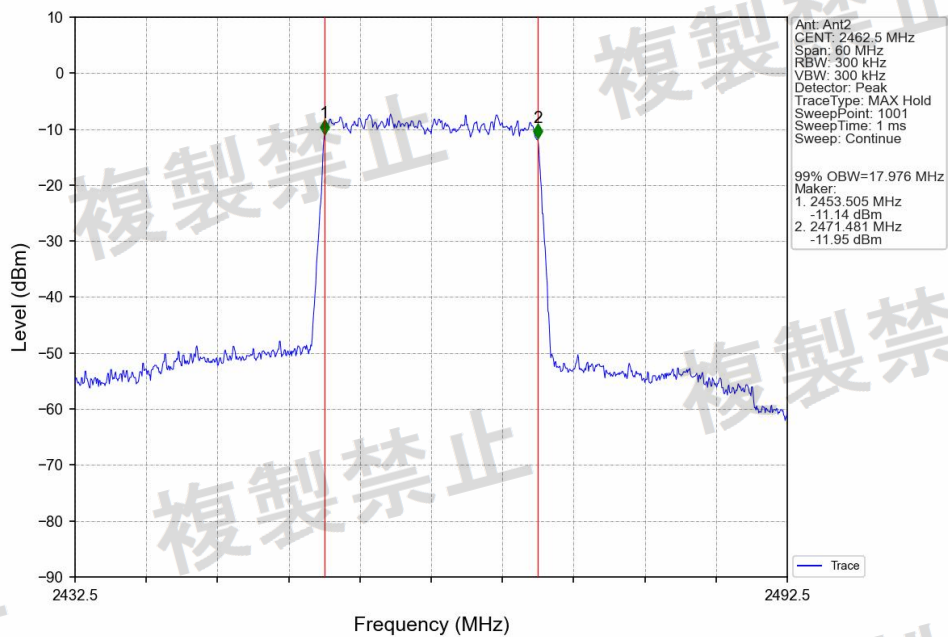




QPSK_2462.5MHz_Ant1_NTNV

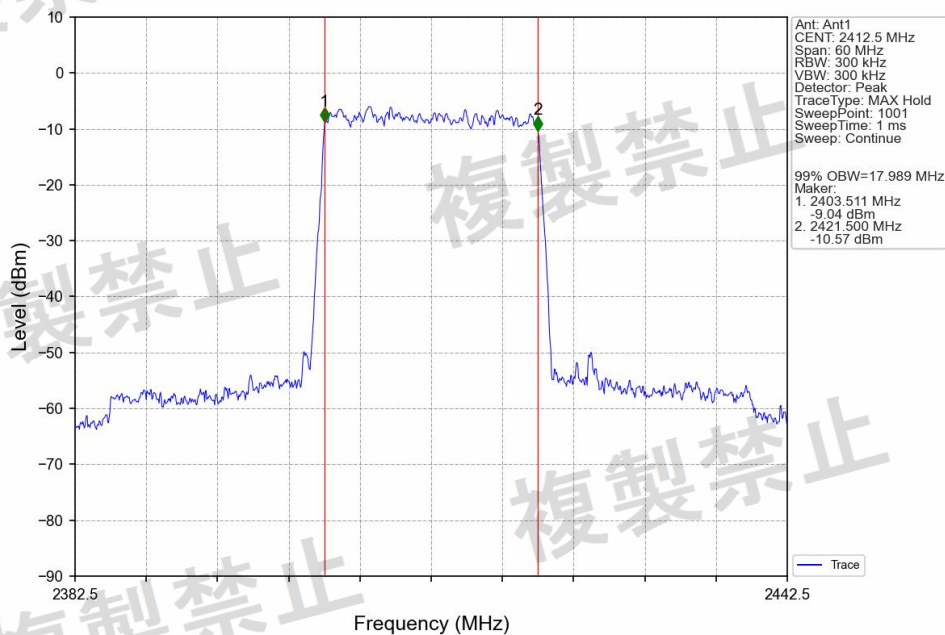


QPSK_2462.5MHz_Ant2_NTNV

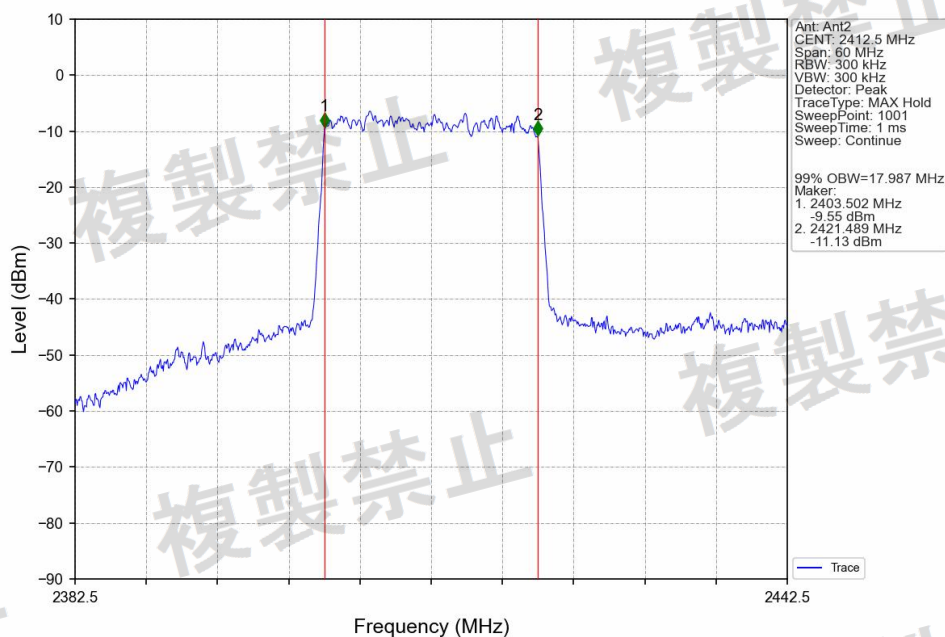




16QAM_2412.5MHz_Ant1_NTNV

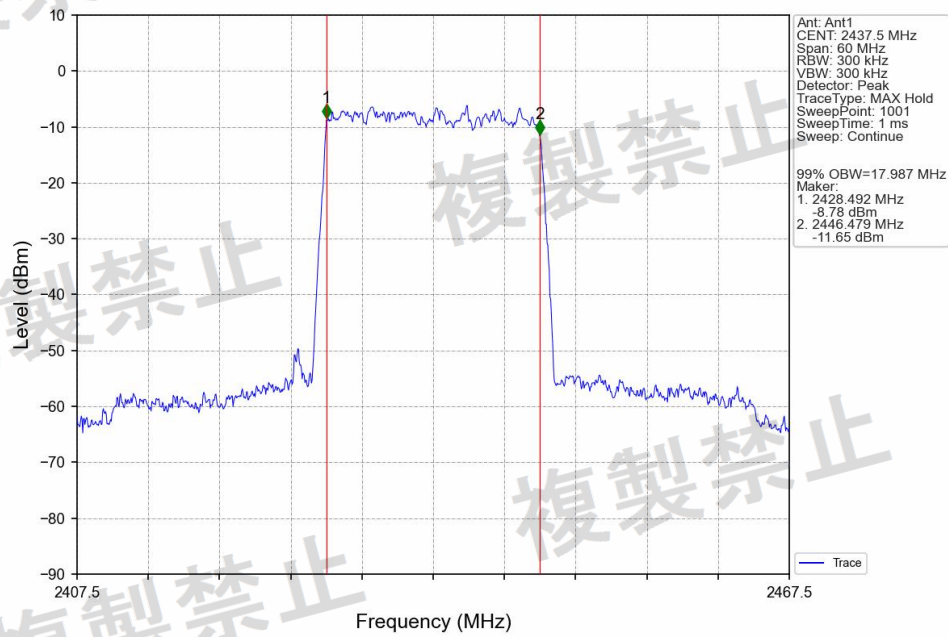


16QAM_2412.5MHz_Ant2_NTNV

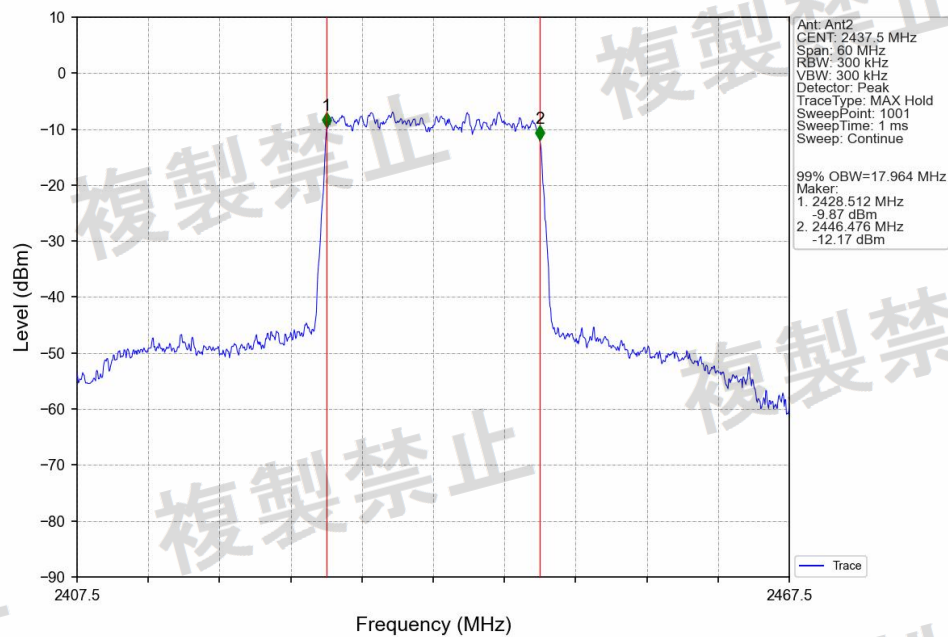




16QAM_2437.5MHz_Ant1_NTNV

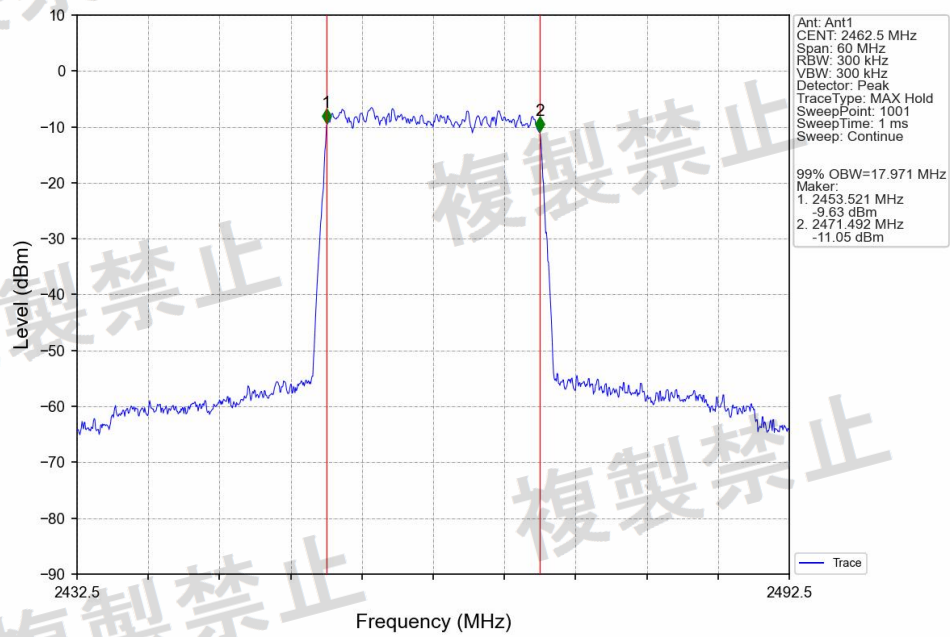


16QAM_2437.5MHz_Ant2_NTNV

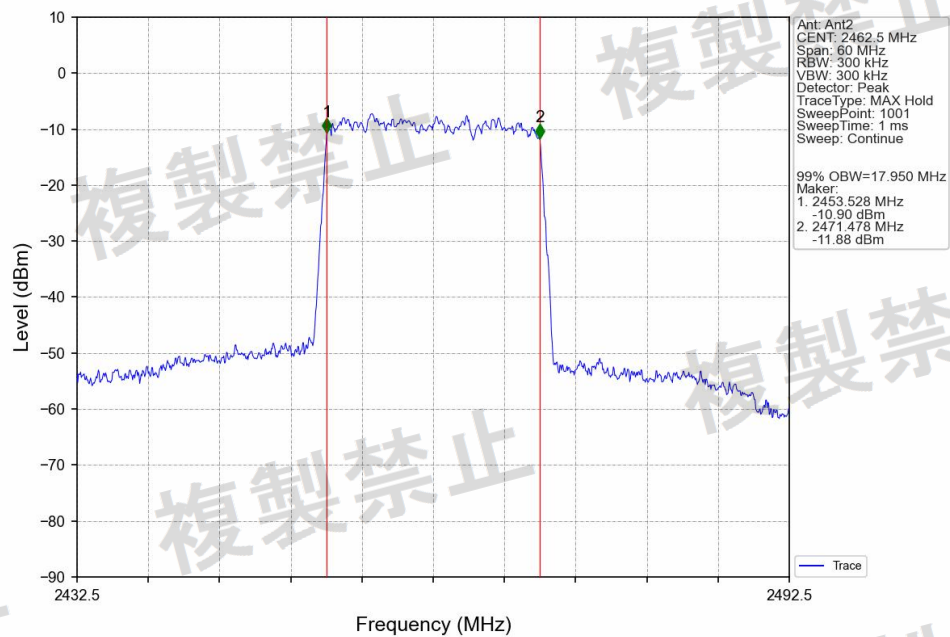




16QAM_2462.5MHz_Ant1_NTNV



16QAM_2462.5MHz_Ant2_NTNV





3. Spread Bandwidth

3.1 Test Result

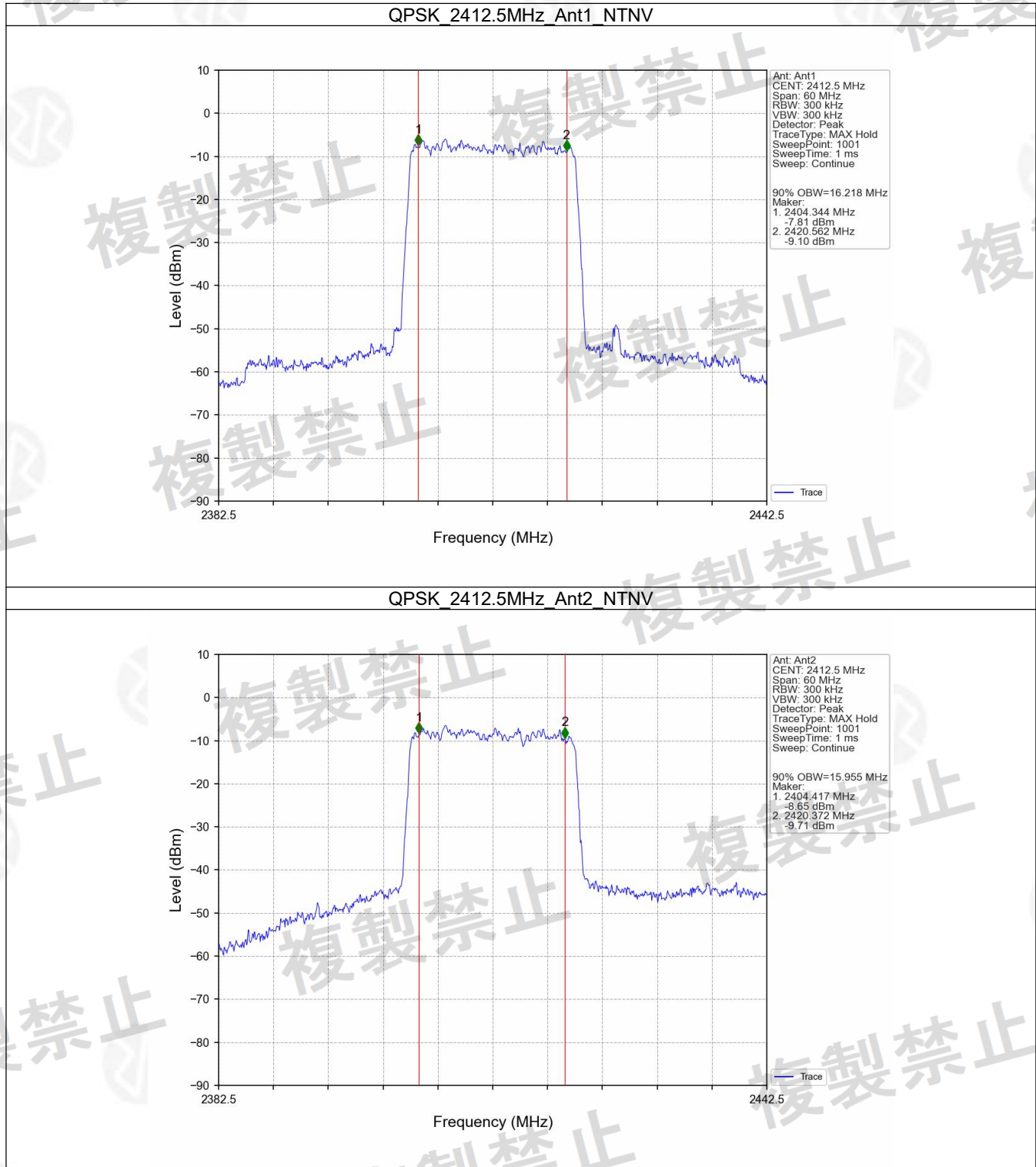
3.1.1 SPBW

ENV	Mode	TX Type	Frequency (MHz)	Spread Bandwidth (MHz)			Verdict
				ANT1	ANT2	Limit	
NTNV	QPSK	MIMO	2412.5	16.218	15.955	≥ 0.5	Pass
			2437.5	16.090	16.144	≥ 0.5	Pass
			2462.5	15.992	16.194	≥ 0.5	Pass
	16QAM	MIMO	2412.5	16.247	15.969	≥ 0.5	Pass
			2437.5	16.058	16.161	≥ 0.5	Pass
			2462.5	16.188	15.880	≥ 0.5	Pass



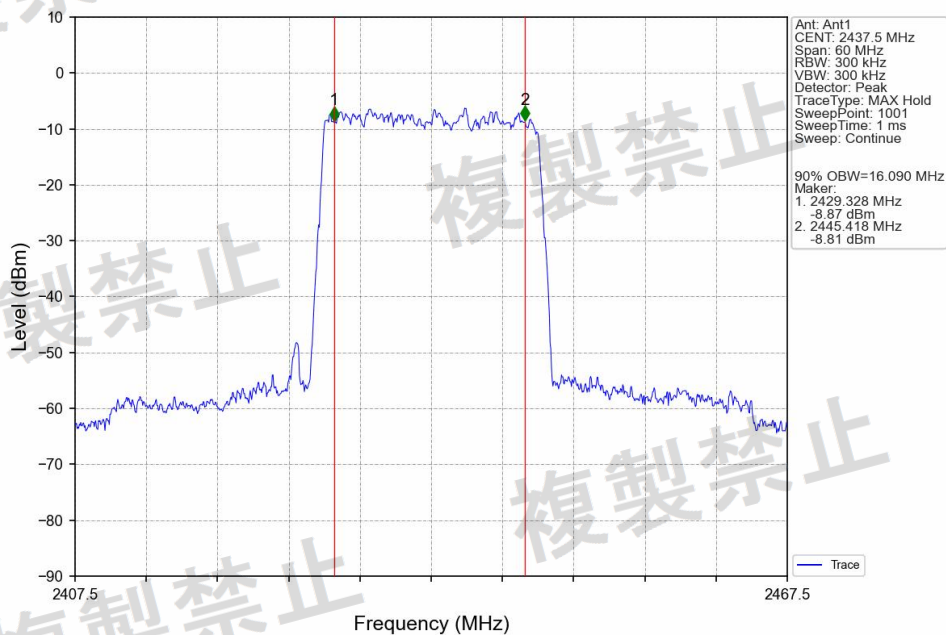
3.2 Test Graph

3.2.1 SPBW

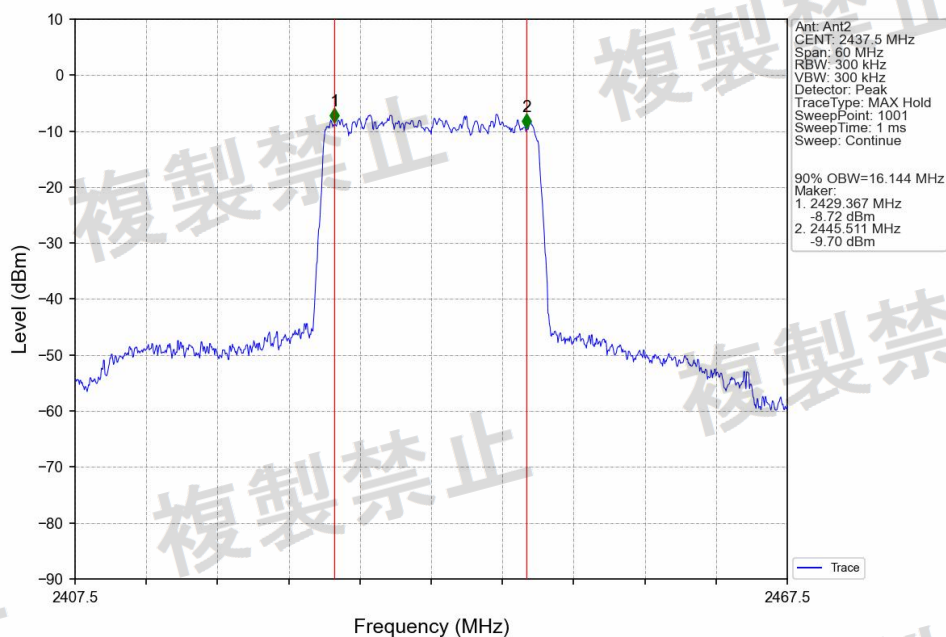




QPSK_2437.5MHz_Ant1_NTNV

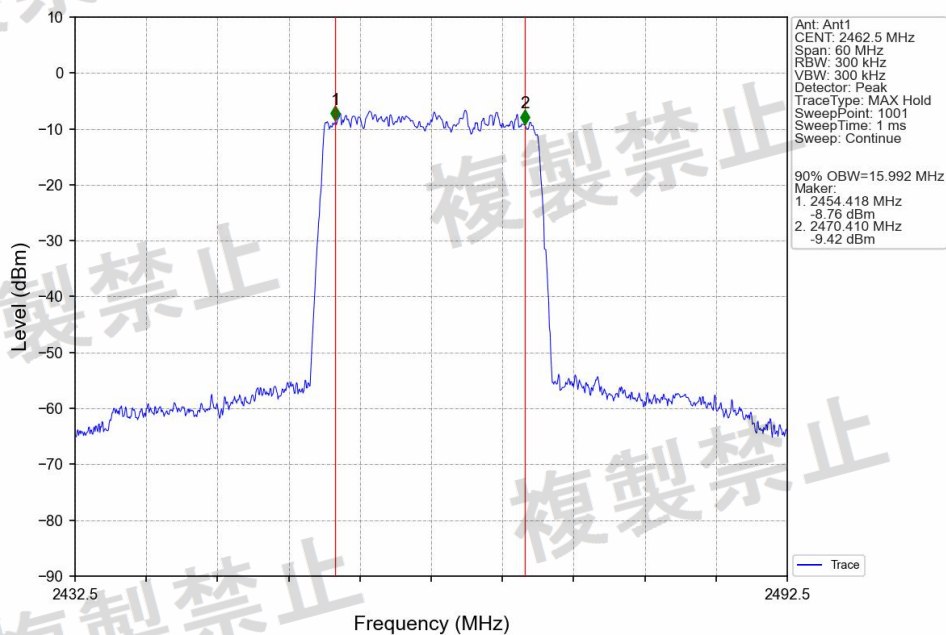


QPSK_2437.5MHz_Ant2_NTNV

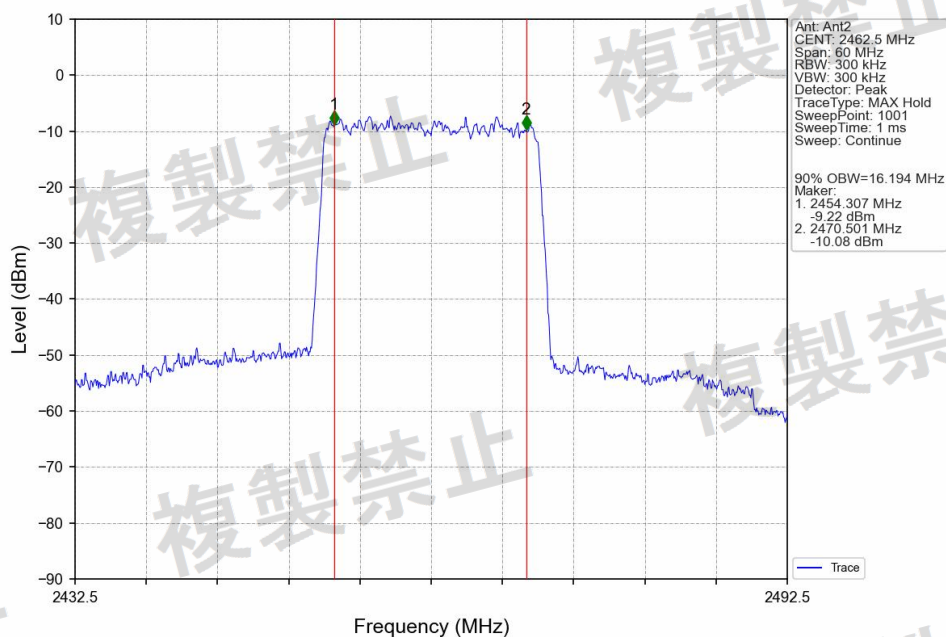




QPSK_2462.5MHz_Ant1_NTNV

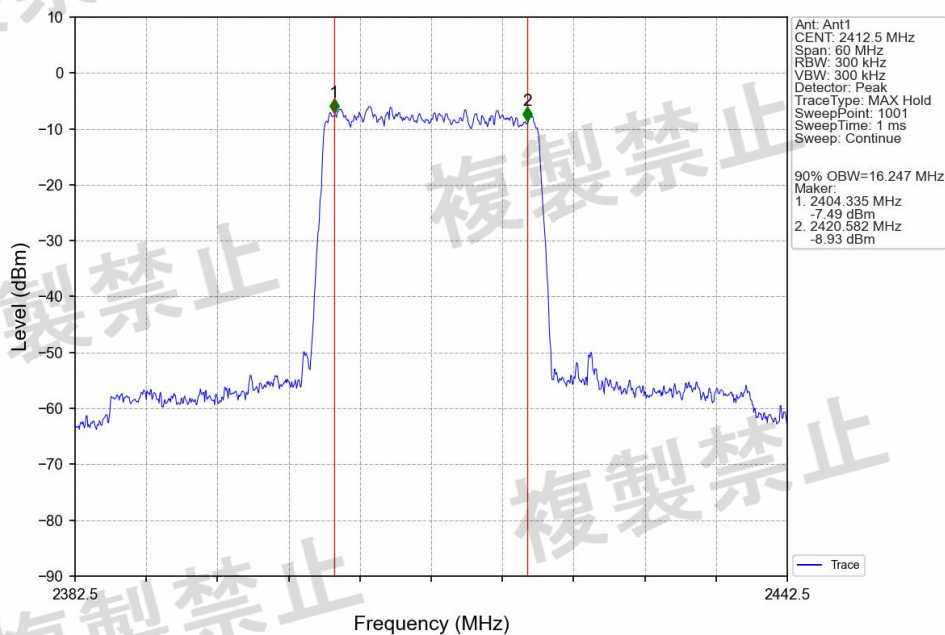


QPSK_2462.5MHz_Ant2_NTNV

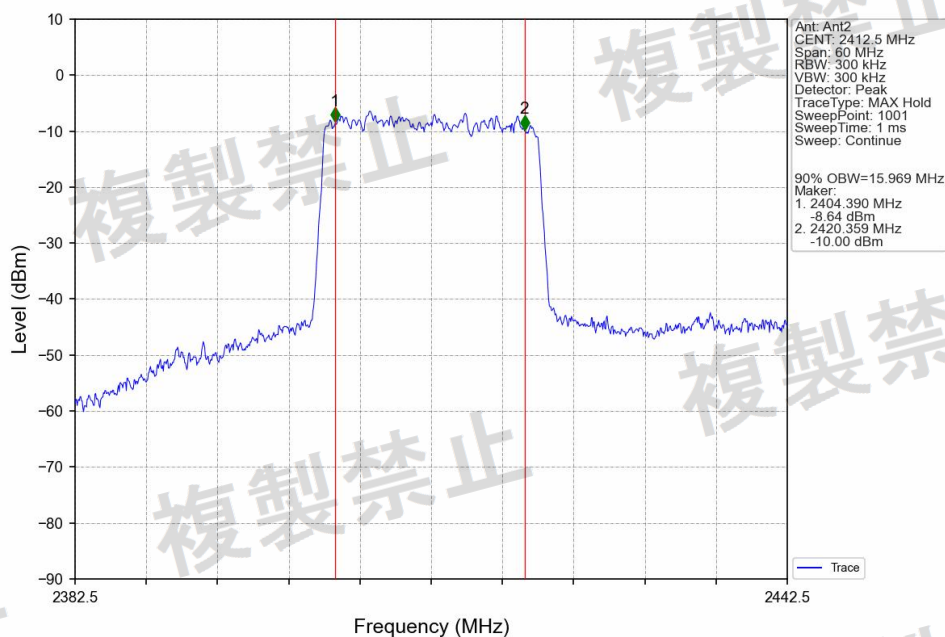




16QAM_2412.5MHz_Ant1_NTNV

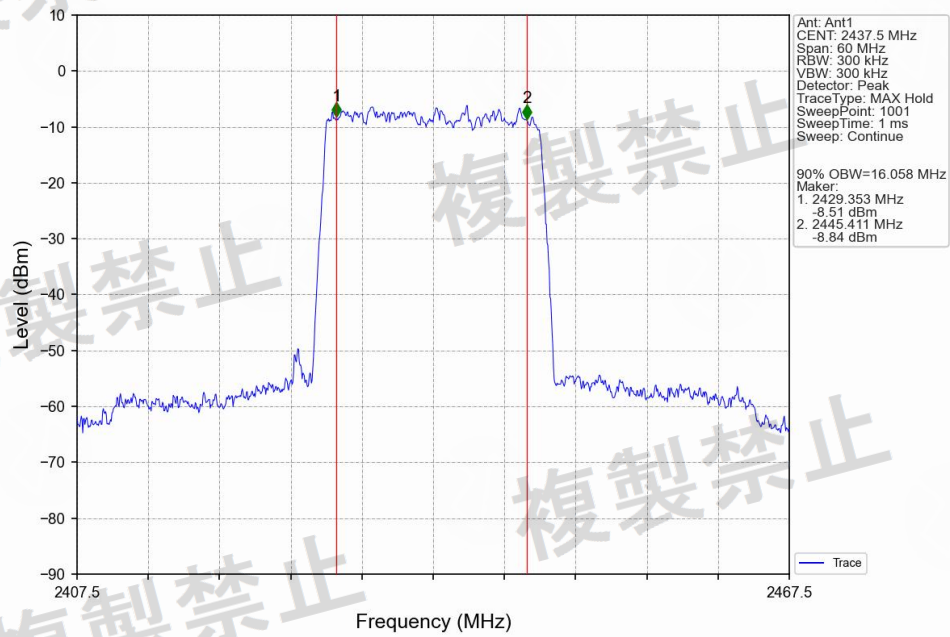


16QAM_2412.5MHz_Ant2_NTNV

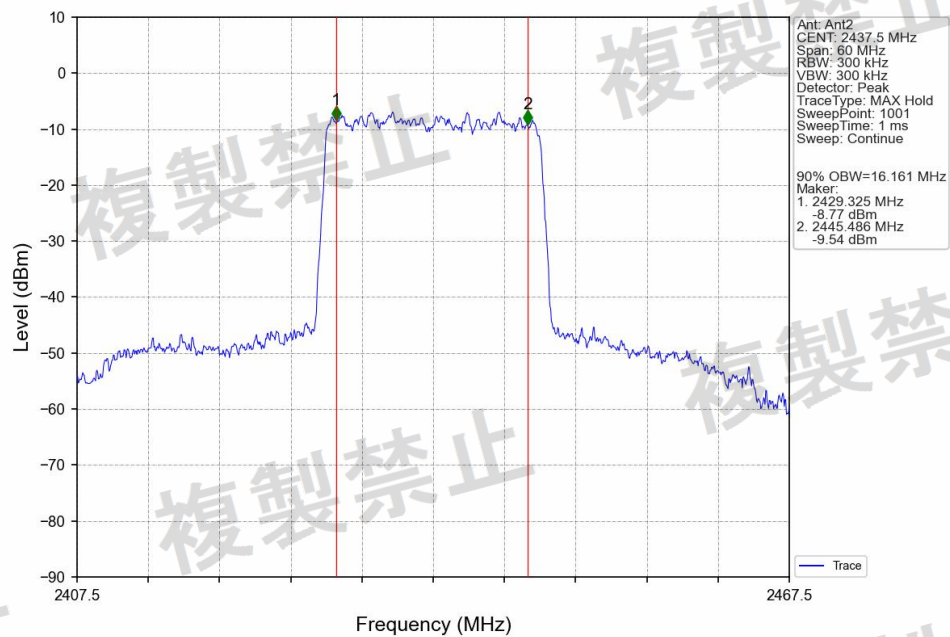




16QAM_2437.5MHz_Ant1_NTNV

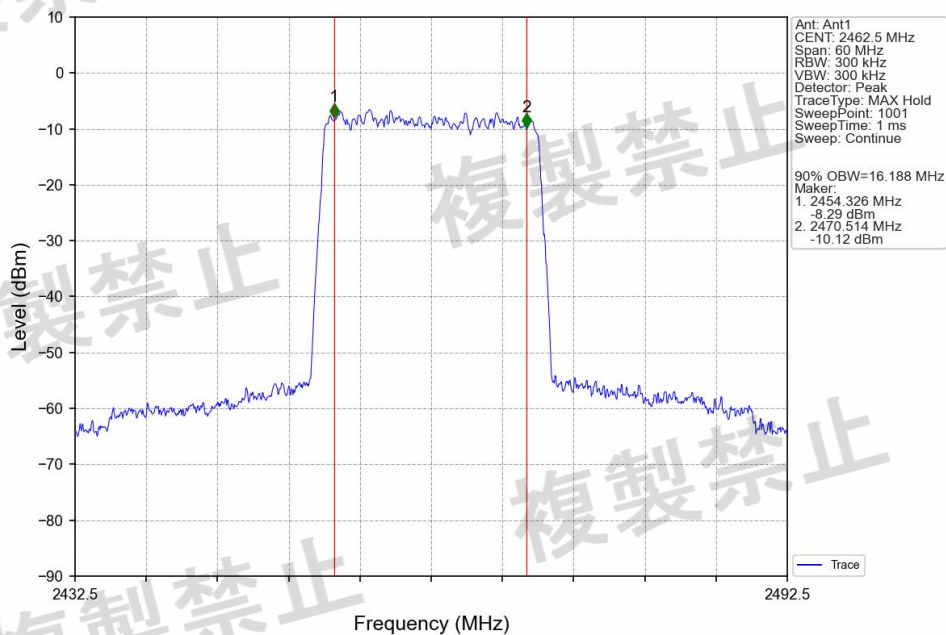


16QAM_2437.5MHz_Ant2_NTNV

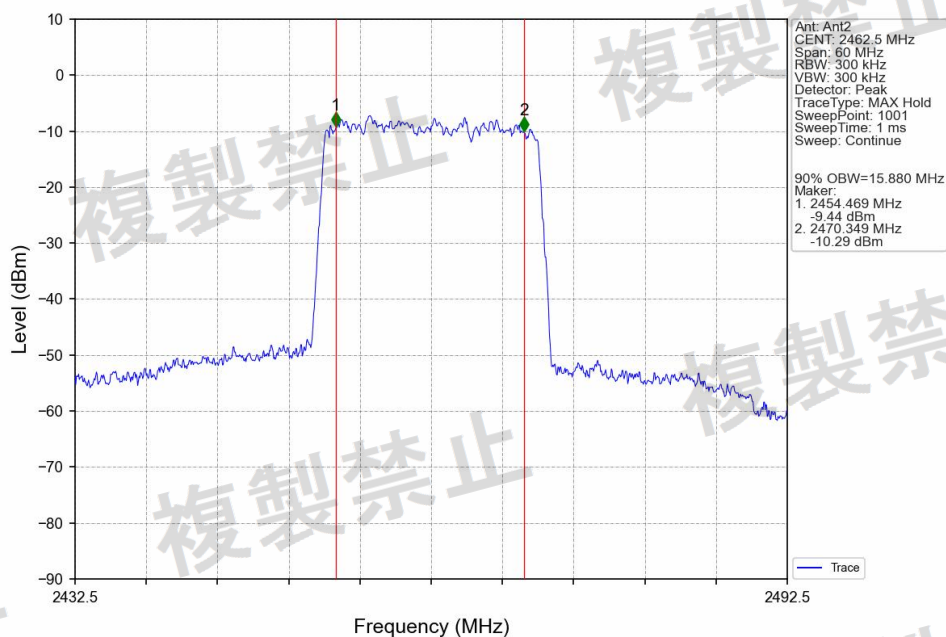




16QAM_2462.5MHz_Ant1_NTNV



16QAM_2462.5MHz_Ant2_NTNV





4. Antenna Power

4.1 Test Result

4.1.1 Power

ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (mW/MHz)		Nominal Power (mW/MHz)	Tolerance (%)		Verdict
					Measured	Limit		Measured	Limit	
NTNV	QPSK	MIMO	2412.5	1	0.537	<=10.00	1.200	-55.25	20	Pass
				2	0.479	<=10.00	1.200	-60.08	20	Pass
				MIMO	1.016	<=10.00	1.200	-15.33	20	Pass
			2437.5	1	0.515	<=10.00	1.200	-57.08	20	Pass
				2	0.448	<=10.00	1.200	-62.67	20	Pass
				MIMO	0.963	<=10.00	1.200	-19.75	20	Pass
			2462.5	1	0.470	<=10.00	1.200	-60.83	20	Pass
				2	0.382	<=10.00	1.200	-68.17	20	Pass
				MIMO	0.852	<=10.00	1.200	-29.00	20	Pass
	16QAM	MIMO	2412.5	1	0.508	<=10.00	1.100	-53.82	20	Pass
				2	0.484	<=10.00	1.100	-56.00	20	Pass
				MIMO	0.992	<=10.00	1.100	-9.82	20	Pass
			2437.5	1	0.514	<=10.00	1.100	-53.27	20	Pass
				2	0.418	<=10.00	1.100	-62.00	20	Pass
				MIMO	0.932	<=10.00	1.100	-15.27	20	Pass
			2462.5	1	0.473	<=10.00	1.100	-57.00	20	Pass
				2	0.399	<=10.00	1.100	-63.73	20	Pass
				MIMO	0.872	<=10.00	1.100	-20.73	20	Pass

4.1.2 EIRP

ENV	Mode	TX Type	Frequency (MHz)	ANT	Antenna Power (dBm/MHz)	EIRP (dBm/MHz)		Verdict
						Result	Limit	
NTNV	QPSK	MIMO	2412.5	1	-2.70	7.04	<=12.14	Pass
				2	-3.18	6.56	<=12.14	Pass
				MIMO	0.05	9.80	<=12.14	Pass
			2437.5	1	-2.88	6.86	<=12.14	Pass
				2	-3.47	6.27	<=12.14	Pass
				MIMO	-0.16	9.58	<=12.14	Pass
			2462.5	1	-3.26	6.48	<=12.14	Pass
				2	-4.16	5.58	<=12.14	Pass
				MIMO	-0.68	9.05	<=12.14	Pass
	16QAM	MIMO	2412.5	1	-2.94	6.8	<=12.14	Pass
				2	-3.15	6.59	<=12.14	Pass
				MIMO	-0.03	9.70	<=12.14	Pass
			2437.5	1	-2.89	6.85	<=12.14	Pass
				2	-3.77	5.97	<=12.14	Pass
				MIMO	-0.29	9.43	<=12.14	Pass
			2462.5	1	-3.25	6.49	<=12.14	Pass
				2	-3.99	5.74	<=12.14	Pass
				MIMO	-0.59	9.13	<=12.14	Pass

Note : ANT 1: 9.74dBi; ANT 2: 9.74dBi

EIRP(dBm/MHz)=Antenna Power (dBm/MHz)+Gain (dBi)



5. Spurious Emission Intensity

5.1 Test Result

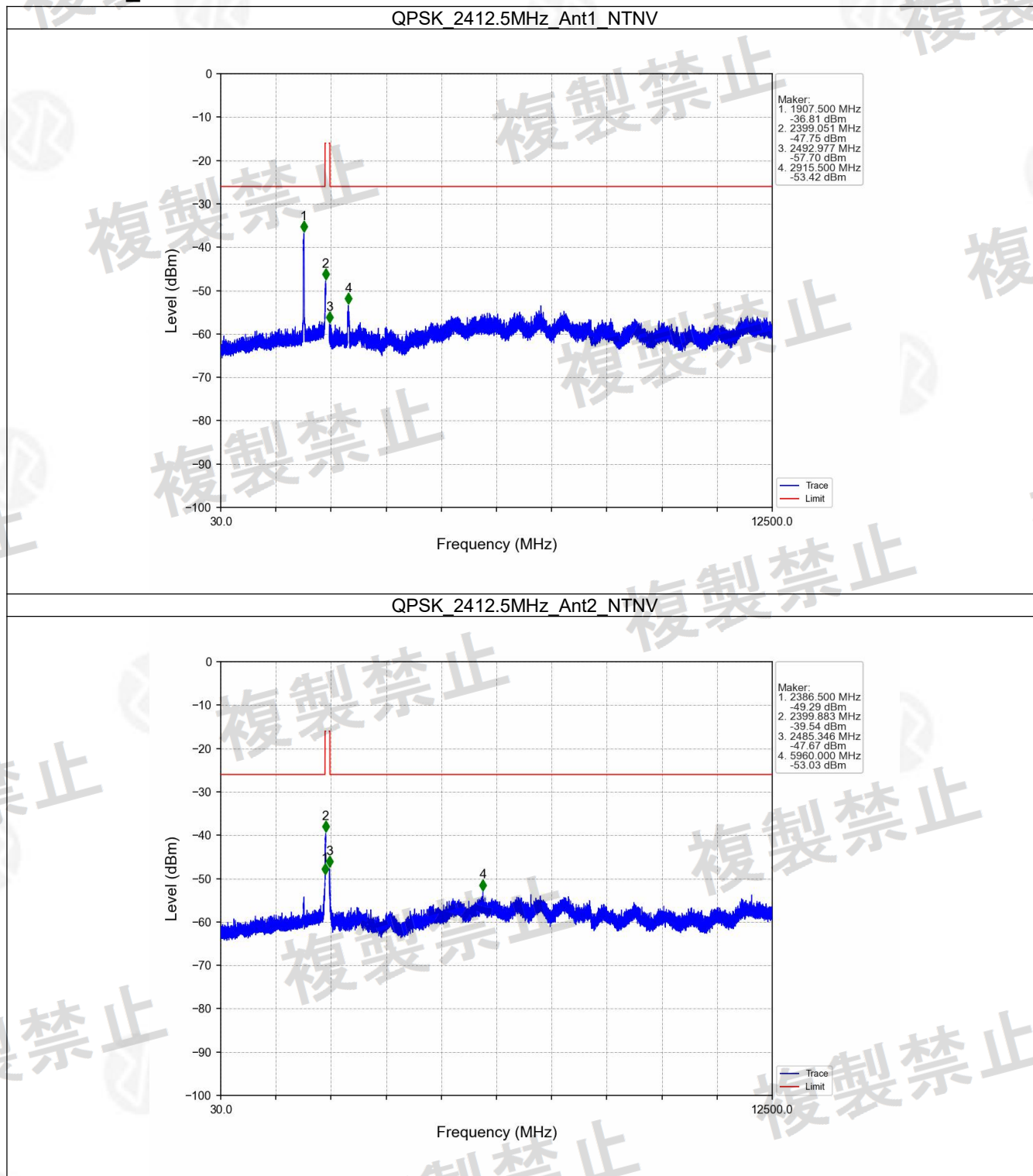
5.1.1 TxSe_NTNV

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)		
QPSK	MIMO	2412.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1907.5	-27.96	1.600	-37.72	0.169	2.5	Pass
				2387	2400	2399.883	-31.04	0.787	/	/	25	Pass
				2483.5	2496.5	2485.346	-39.40	0.115	/	/	25	Pass
				2496.5	12500	7267	-42.71	0.054	/	/	2.5	Pass
		2437.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1880	-28.33	1.469	-38.64	0.137	2.5	Pass
				2387	2400	2398.7	-39.94	0.101	/	/	25	Pass
				2483.5	2496.5	2494.849	-45.43	0.029	/	/	25	Pass
				2496.5	12500	7761.5	-43.25	0.047	/	/	2.5	Pass
		2462.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1859.5	-29.72	1.067	/	/	2.5	Pass
				2387	2400	2398.18	-27.94	1.607	/	/	25	Pass
				2483.5	2496.5	2484.163	-37.83	0.165	/	/	25	Pass
				2496.5	12500	5329	-43.21	0.048	/	/	2.5	Pass
16QAM	MIMO	2412.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1907.5	-27.66	1.714	-37.66	0.172	2.5	Pass
				2387	2400	2399.961	-30.99	0.796	/	/	25	Pass
				2483.5	2496.5	2486.243	-39.04	0.125	/	/	25	Pass
				2496.5	12500	2497	-42.52	0.056	/	/	2.5	Pass
		2437.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1883	-29.25	1.189	/	/	2.5	Pass
				2387	2400	2398.648	-39.96	0.101	/	/	25	Pass
				2483.5	2496.5	2485.58	-46.20	0.024	/	/	25	Pass
				2496.5	12500	7817.5	-43.67	0.043	/	/	2.5	Pass
		2462.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	2387	1859.5	-28.81	1.315	-39.24	0.119	2.5	Pass
				2387	2400	2396.841	-31.14	0.769	/	/	25	Pass
				2483.5	2496.5	2483.695	-37.45	0.180	/	/	25	Pass
				2496.5	12500	7828	-42.85	0.052	/	/	2.5	Pass



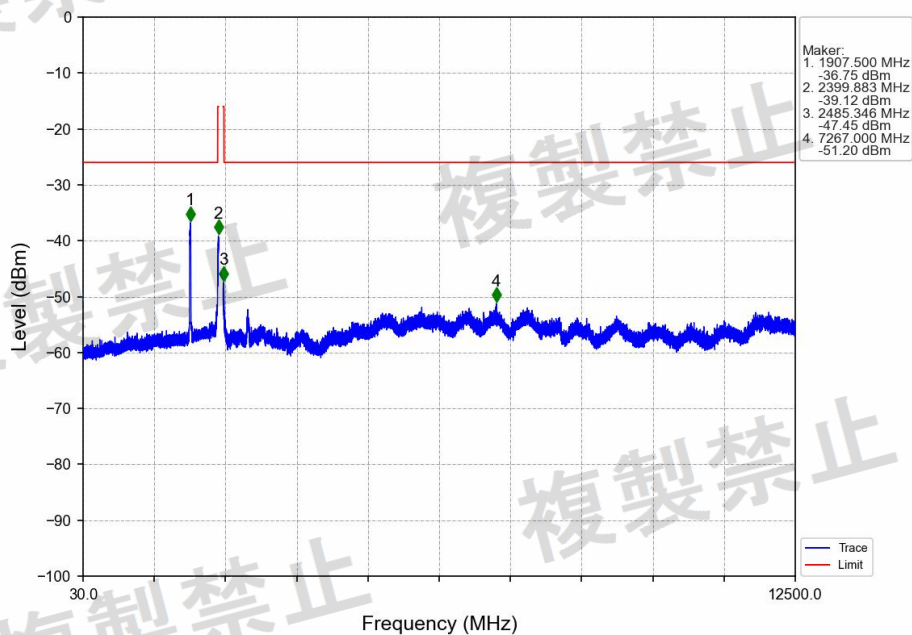
5.2 Test Graph

5.2.1 TxSe_NTNV

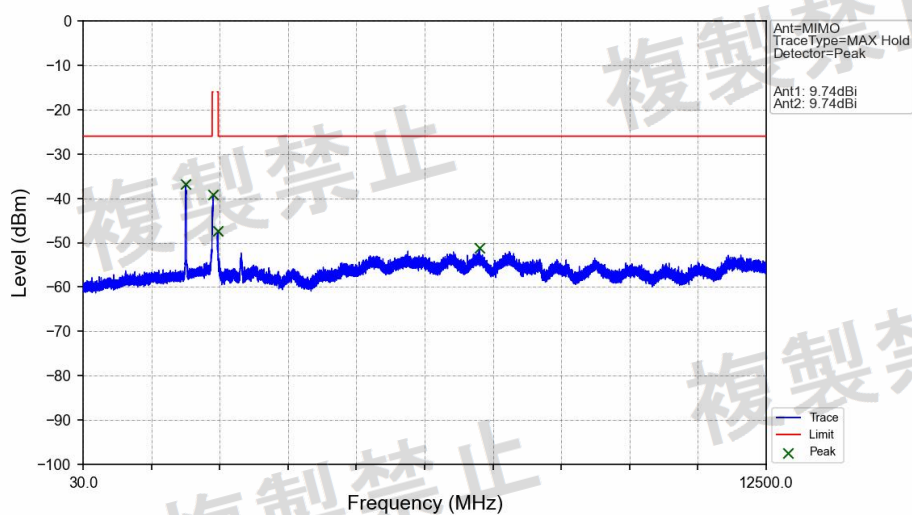




QPSK_2412.5MHz_MIMO_NTNV



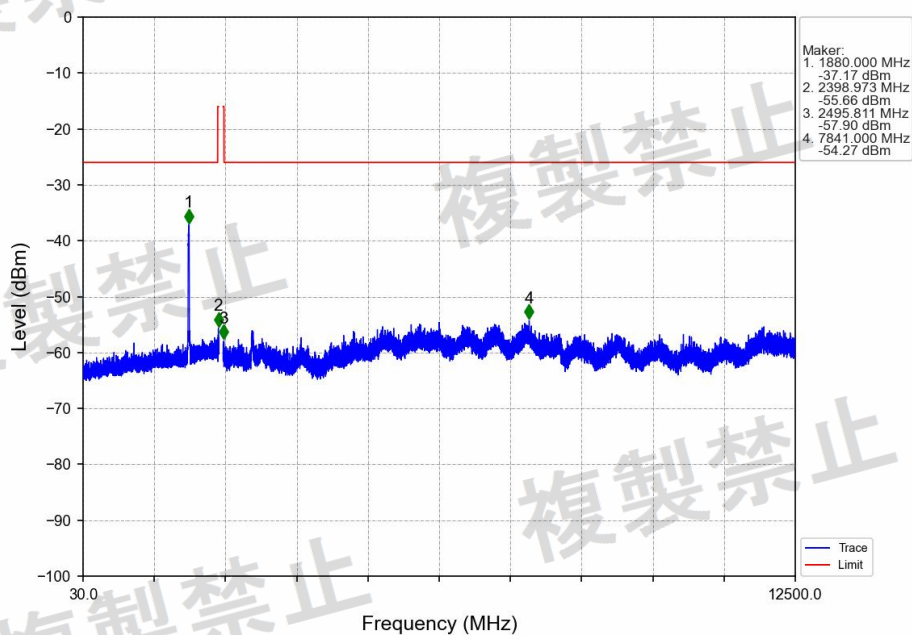
QPSK_2412.5MHz_MIMO_NTNV



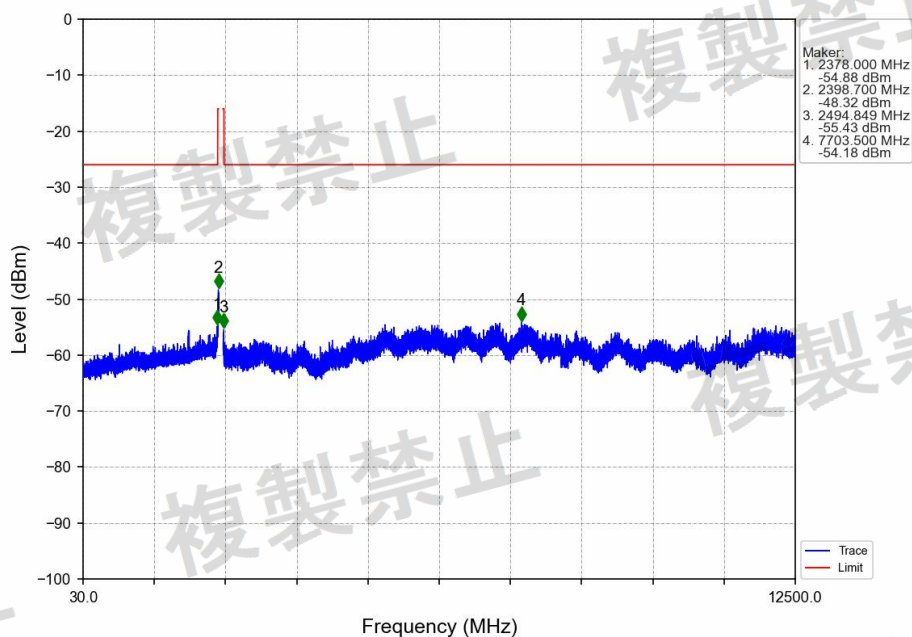
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1907.500	-36.75	/	-26	Pass
2387	2400	1	1	2399.883	-39.12	/	-16	Pass
2483.5	2496.5	1	1	2485.346	-47.45	/	-16	Pass
2496.5	12500	1	1	7267.000	-51.20	/	-26	Pass



QPSK_2437.5MHz_Ant1_NTNV

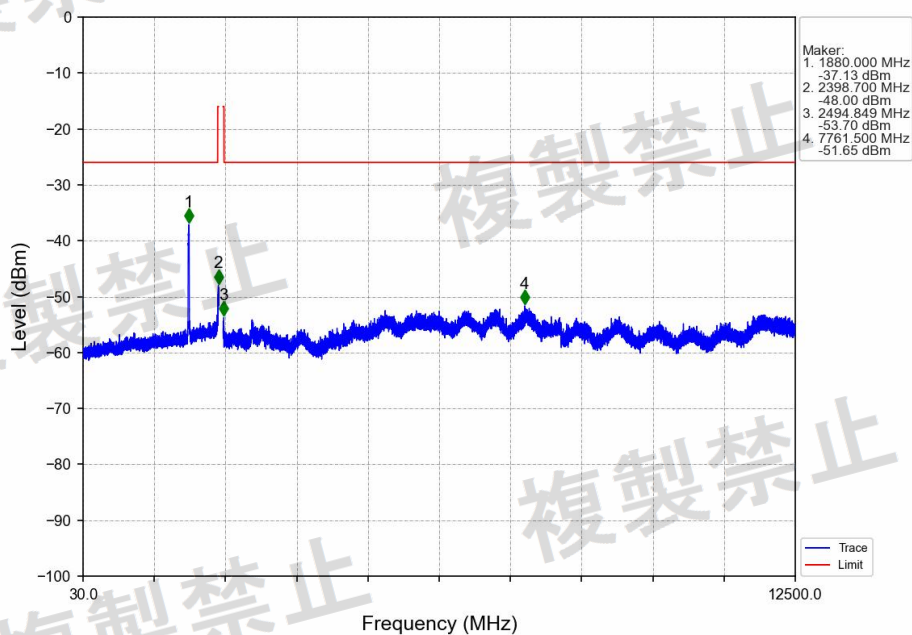


QPSK_2437.5MHz_Ant2_NTNV

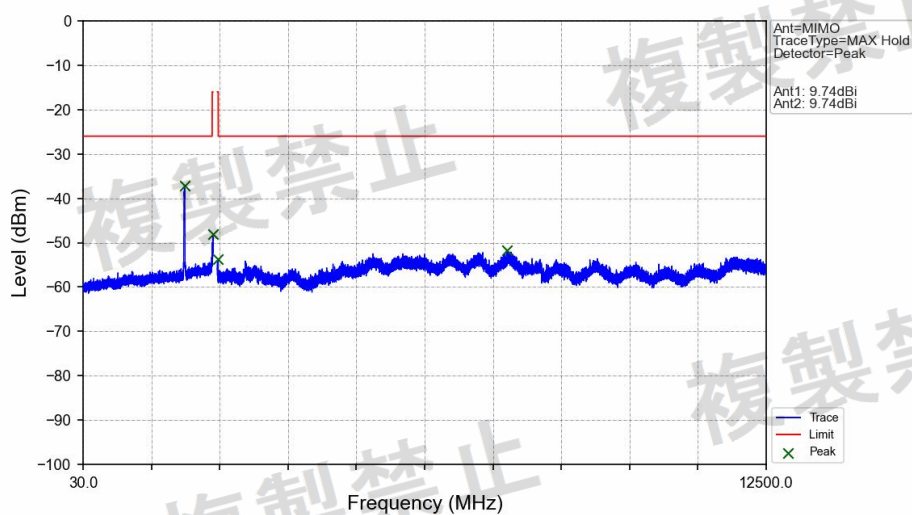




QPSK_2437.5MHz_MIMO_NTNV



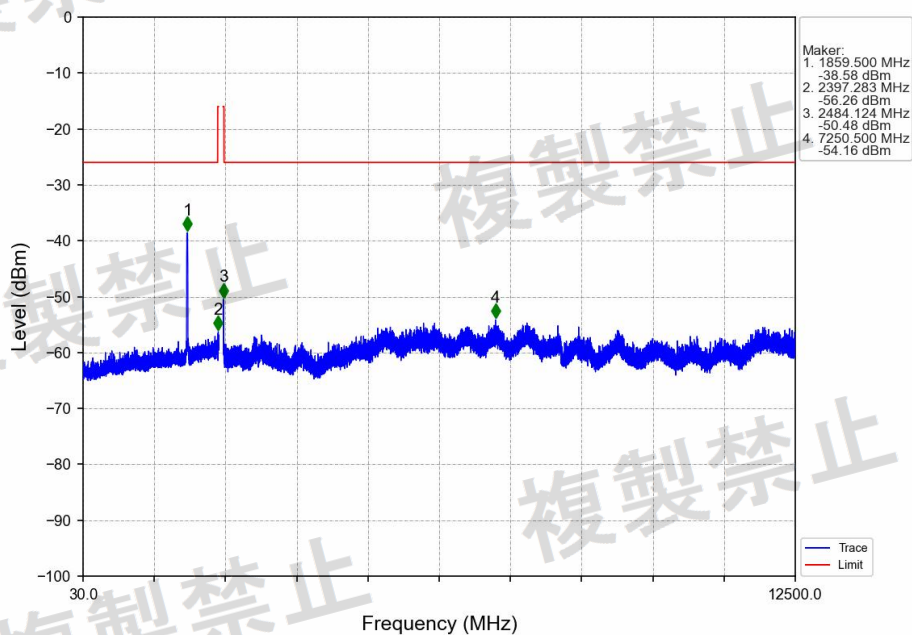
QPSK_2437.5MHz_MIMO_NTNV



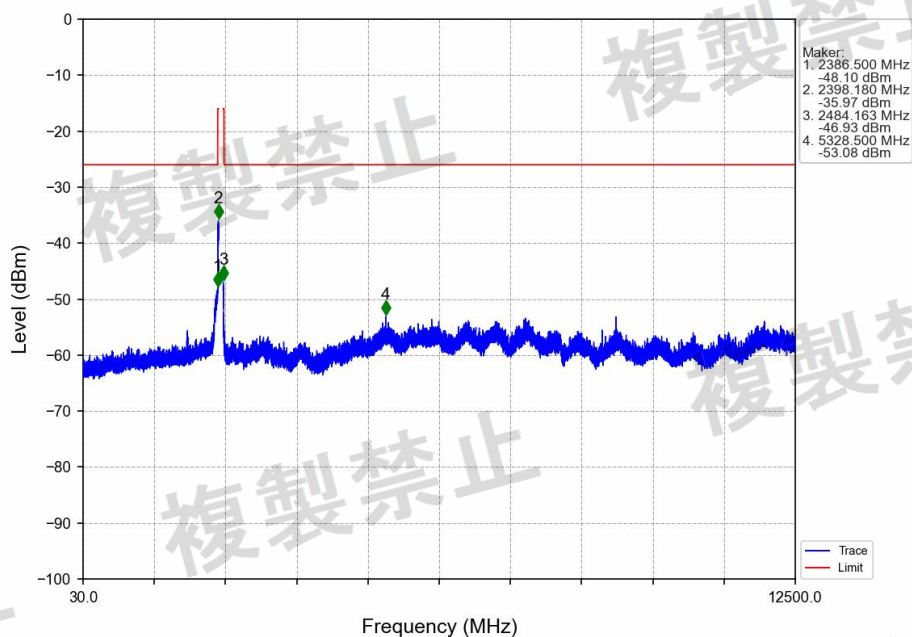
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1880.000	-37.13	/	-26	Pass
2387	2400	1	1	2398.700	-48.00	/	-16	Pass
2483.5	2496.5	1	1	2494.849	-53.70	/	-16	Pass
2496.5	12500	1	1	7761.500	-51.65	/	-26	Pass



QPSK_2462.5MHz_Ant1_NTNV

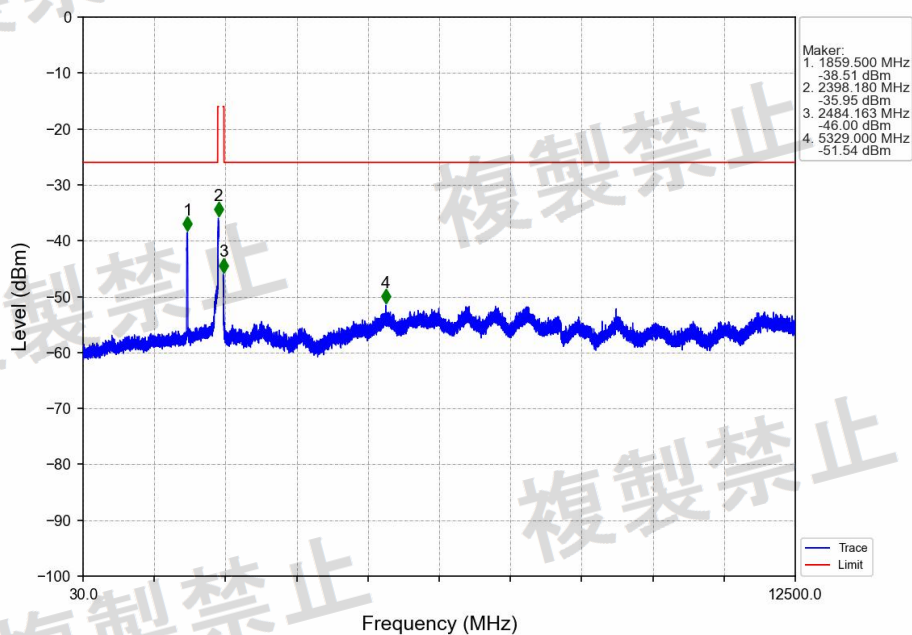


QPSK_2462.5MHz_Ant2_NTNV

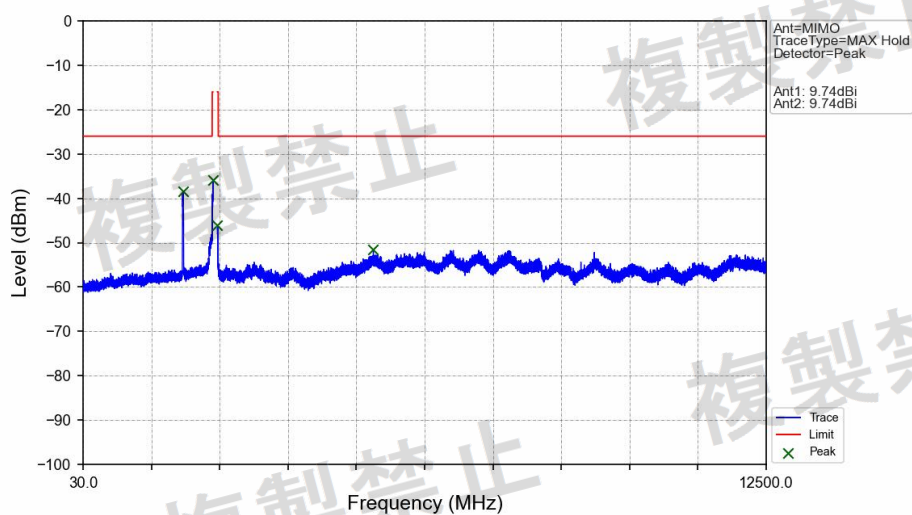




QPSK_2462.5MHz_MIMO_NTNV



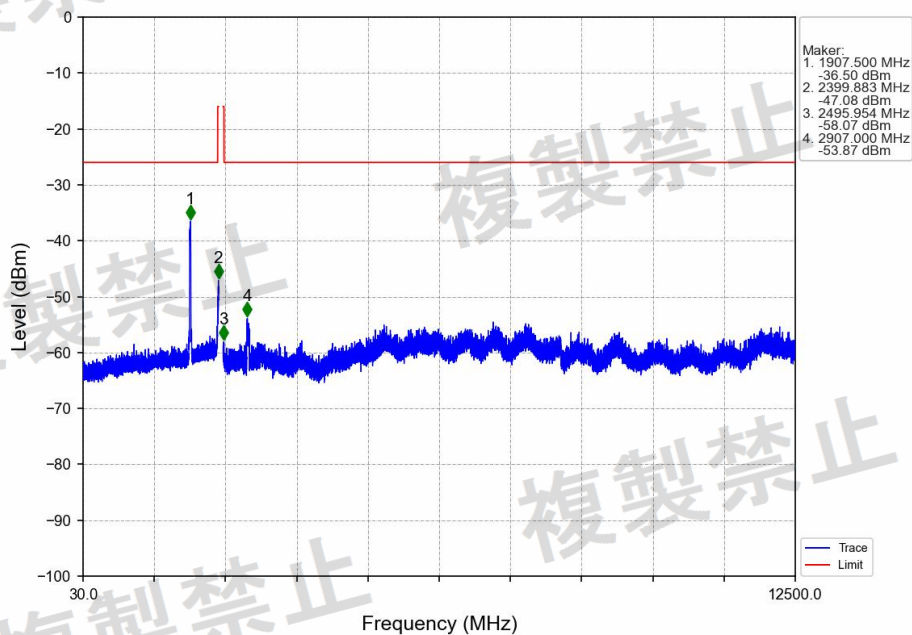
QPSK_2462.5MHz_MIMO_NTNV



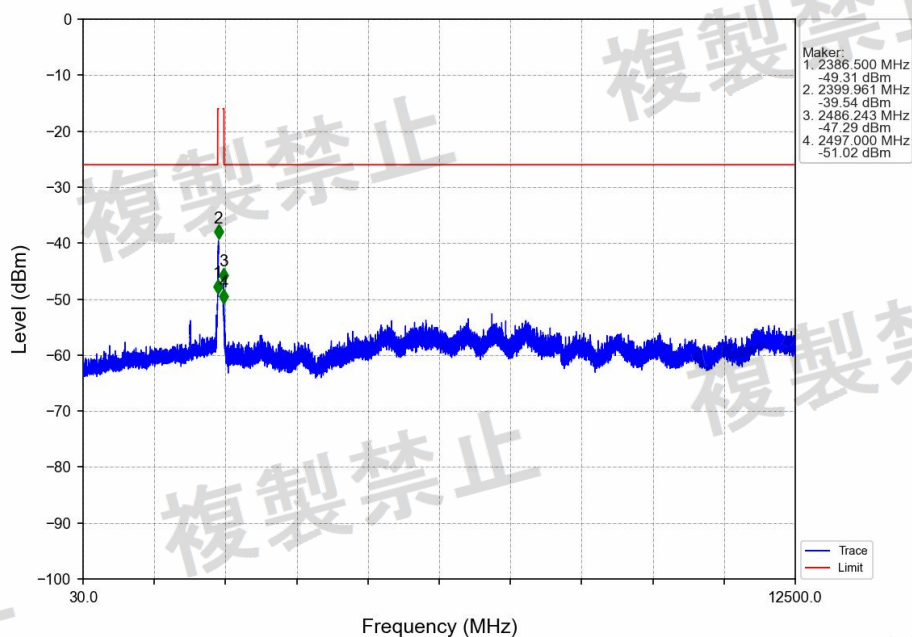
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1859.500	-38.51	/	-26	Pass
2387	2400	1	1	2398.180	-35.95	/	-16	Pass
2483.5	2496.5	1	1	2484.163	-46.00	/	-16	Pass
2496.5	12500	1	1	5329.000	-51.54	/	-26	Pass



16QAM_2412.5MHz_Ant1_NTNV

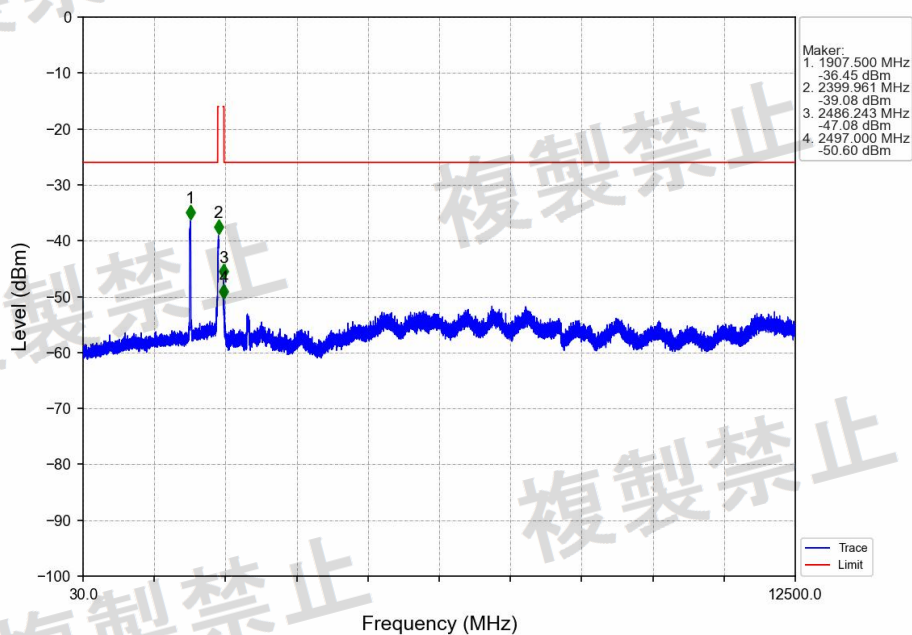


16QAM_2412.5MHz_Ant2_NTNV

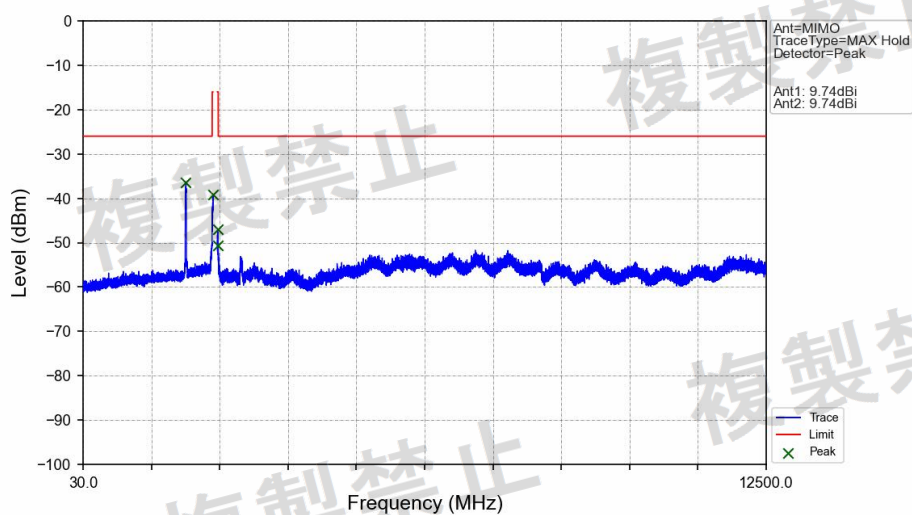




16QAM_2412.5MHz_MIMO_NTNV



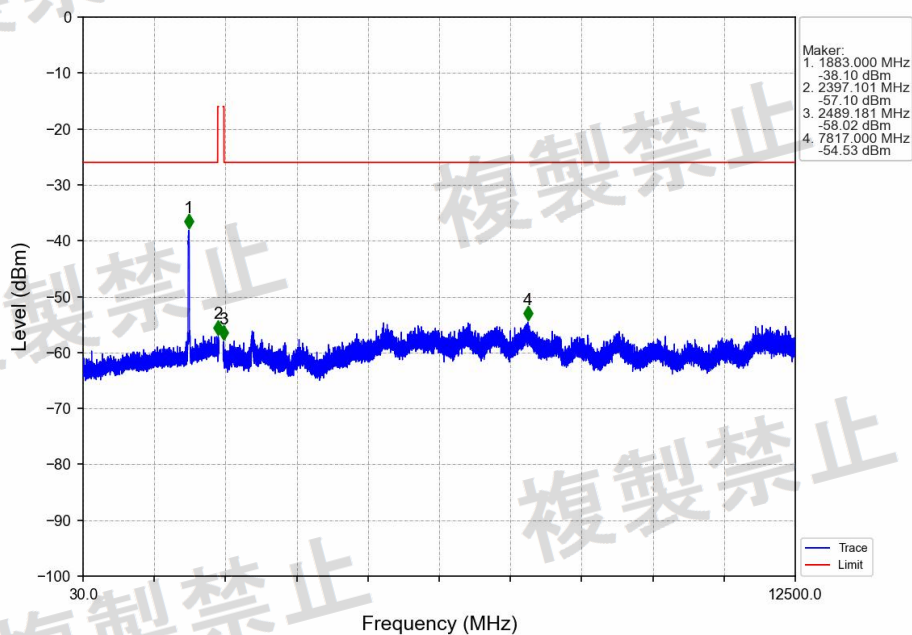
16QAM_2412.5MHz_MIMO_NTNV



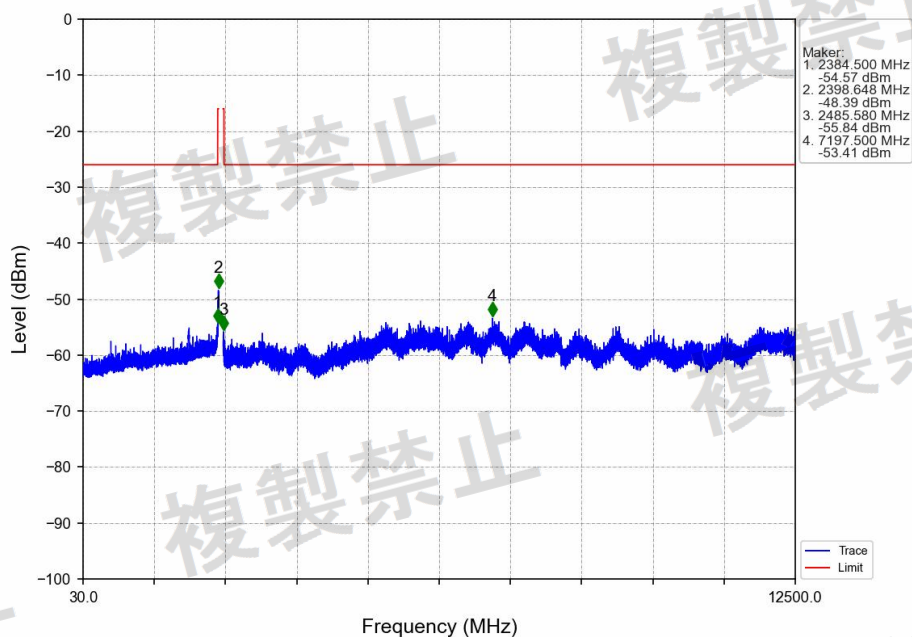
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1907.500	-36.45	/	-26	Pass
2387	2400	1	1	2399.961	-39.08	/	-16	Pass
2483.5	2496.5	1	1	2486.243	-47.08	/	-16	Pass
2496.5	12500	1	1	2497.000	-50.60	/	-26	Pass



16QAM_2437.5MHz_Ant1_NTNV

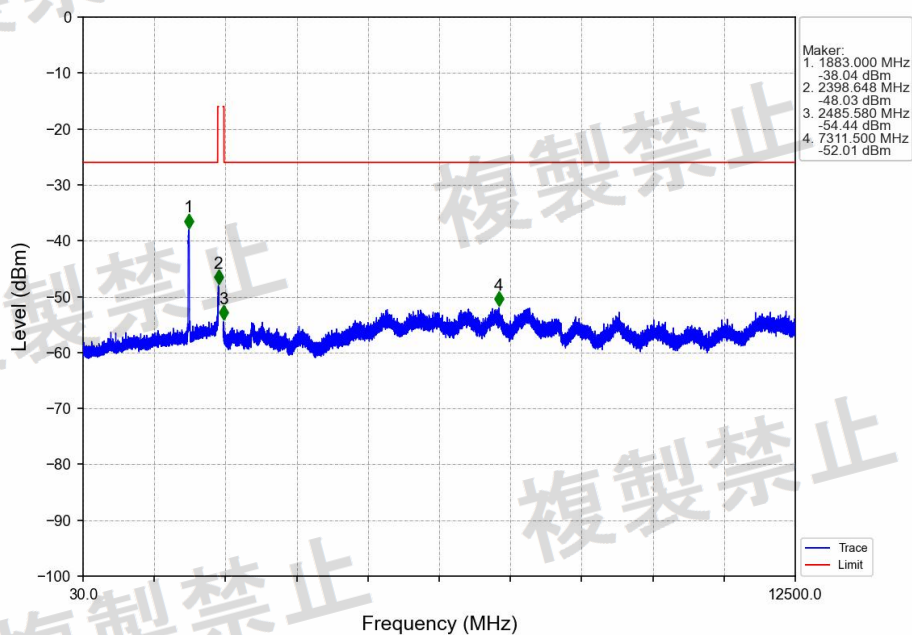


16QAM_2437.5MHz_Ant2_NTNV

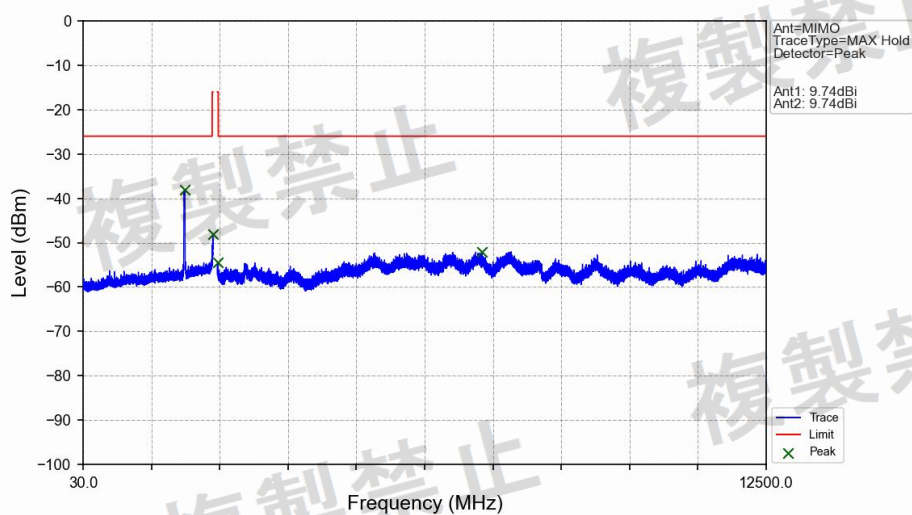




16QAM_2437.5MHz_MIMO_NTNV



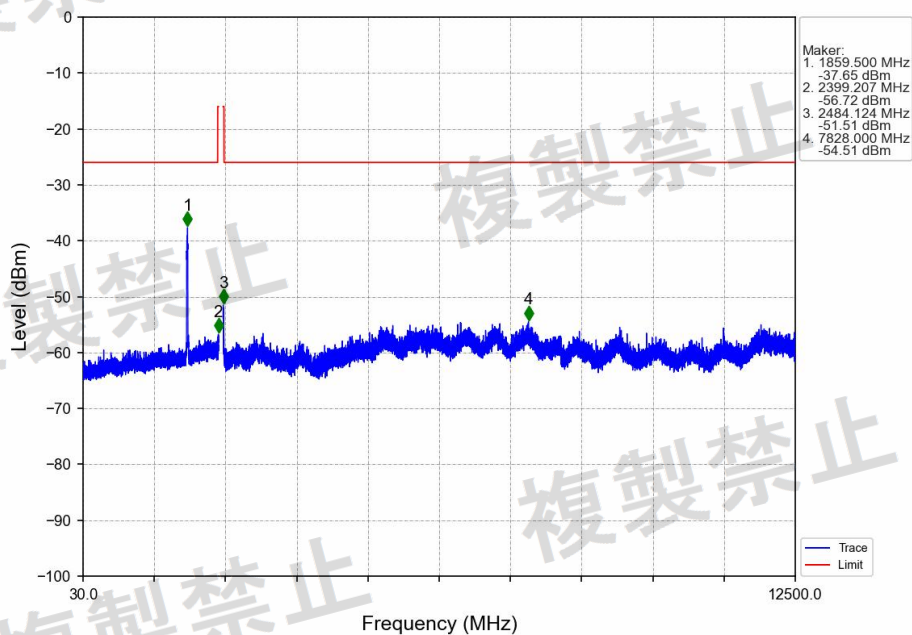
16QAM_2437.5MHz_MIMO_NTNV



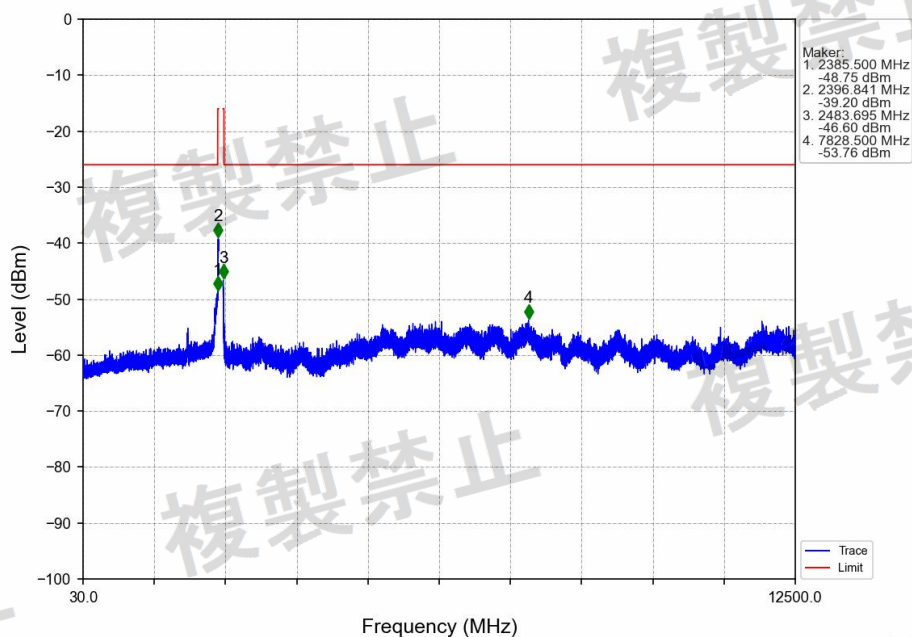
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1883.000	-38.04	/	-26	Pass
2387	2400	1	1	2398.648	-48.03	/	-16	Pass
2483.5	2496.5	1	1	2485.580	-54.44	/	-16	Pass
2496.5	12500	1	1	7311.500	-52.01	/	-26	Pass



16QAM_2462.5MHz_Ant1_NTNV

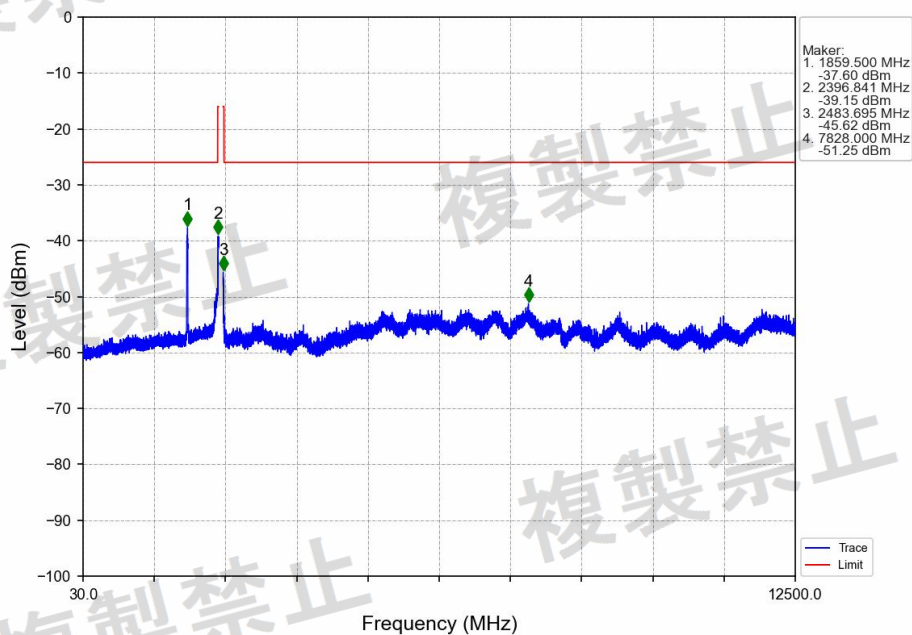


16QAM_2462.5MHz_Ant2_NTNV

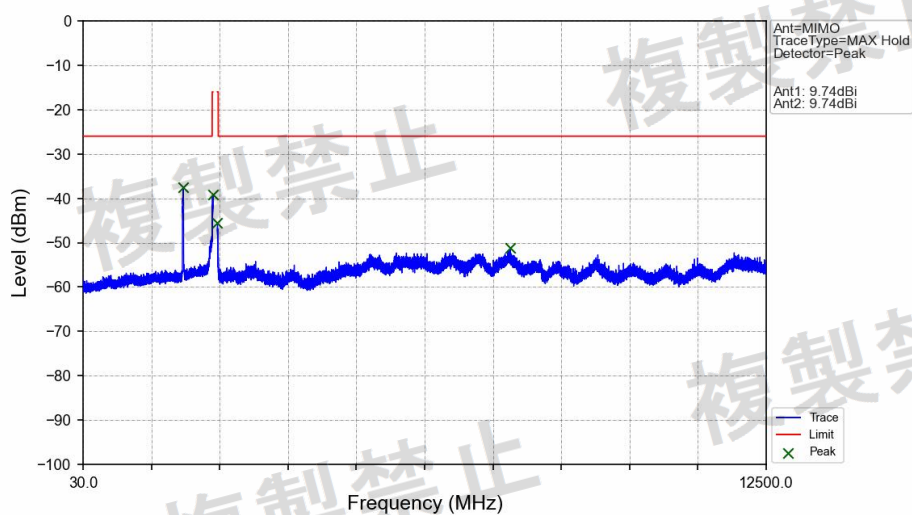




16QAM_2462.5MHz_MIMO_NTNV



16QAM_2462.5MHz_MIMO_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1859.500	-37.60	/	-26	Pass
2387	2400	1	1	2396.841	-39.15	/	-16	Pass
2483.5	2496.5	1	1	2483.695	-45.62	/	-16	Pass
2496.5	12500	1	1	7828.000	-51.25	/	-26	Pass



6. Secondary Radiated Emission

6.1 Test Result

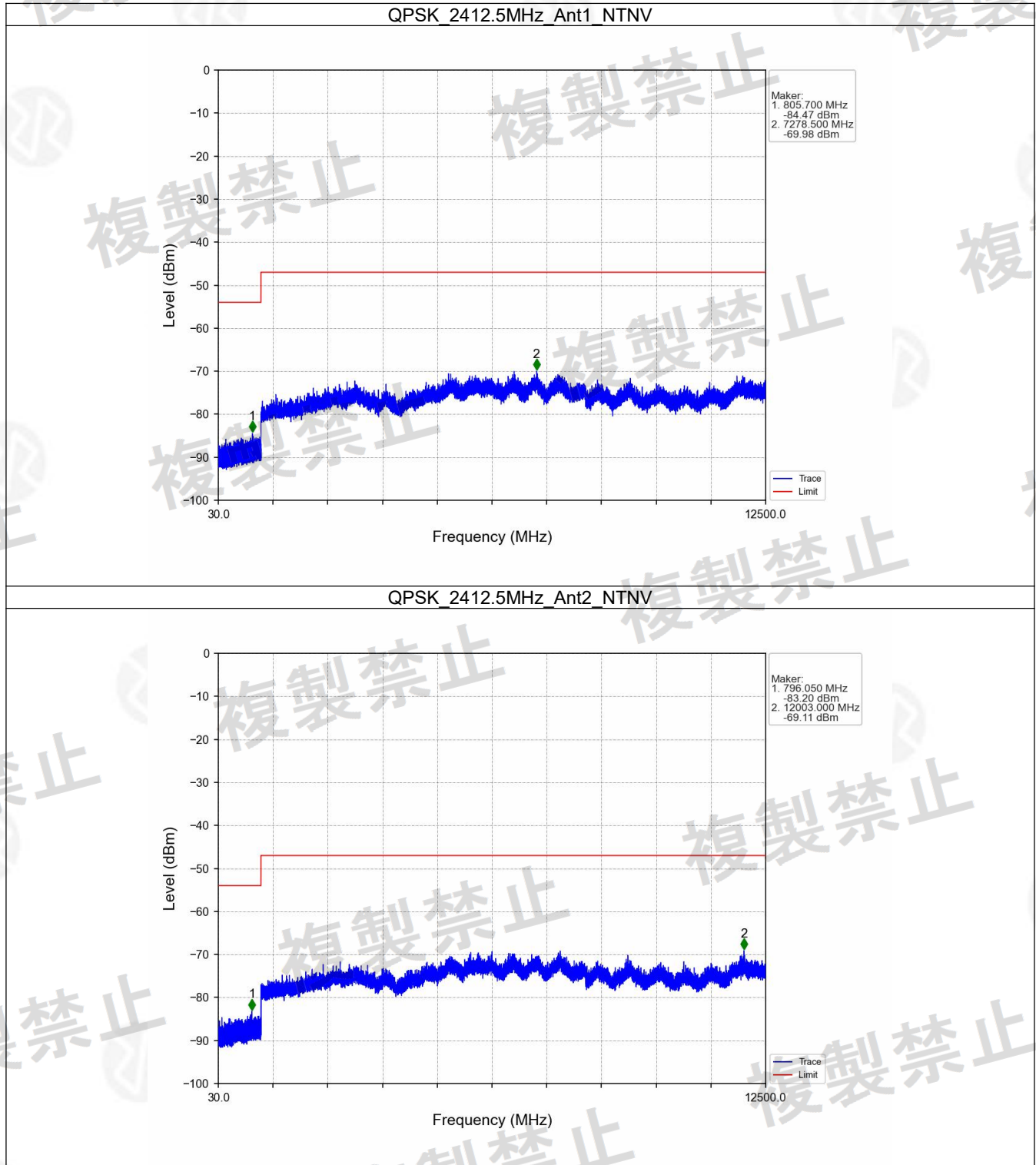
6.1.1 RxSe_NTNV

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)		
QPSK	MIMO	2412.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	796.05	-82.10	0.006	/	/	4	Pass
				1000	12500	12003	-67.43	0.181	/	/	20	Pass
		2437.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	871.1	-82.22	0.006	/	/	4	Pass
				1000	12500	7801	-67.22	0.190	/	/	20	Pass
		2462.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	820.75	-82.02	0.006	/	/	4	Pass
				1000	12500	7819	-67.43	0.181	/	/	20	Pass
16QAM	MIMO	2412.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	934.95	-82.46	0.006	/	/	4	Pass
				1000	12500	5931.5	-67.58	0.175	/	/	20	Pass
		2437.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	960.9	-81.74	0.007	/	/	4	Pass
				1000	12500	7249.5	-67.19	0.191	/	/	20	Pass
		2462.5	1	/	/	/	/	/	/	/	/	Pass
			2	/	/	/	/	/	/	/	/	Pass
			MIMO	30	1000	822.5	-82.65	0.005	/	/	4	Pass
				1000	12500	7195	-67.08	0.196	/	/	20	Pass



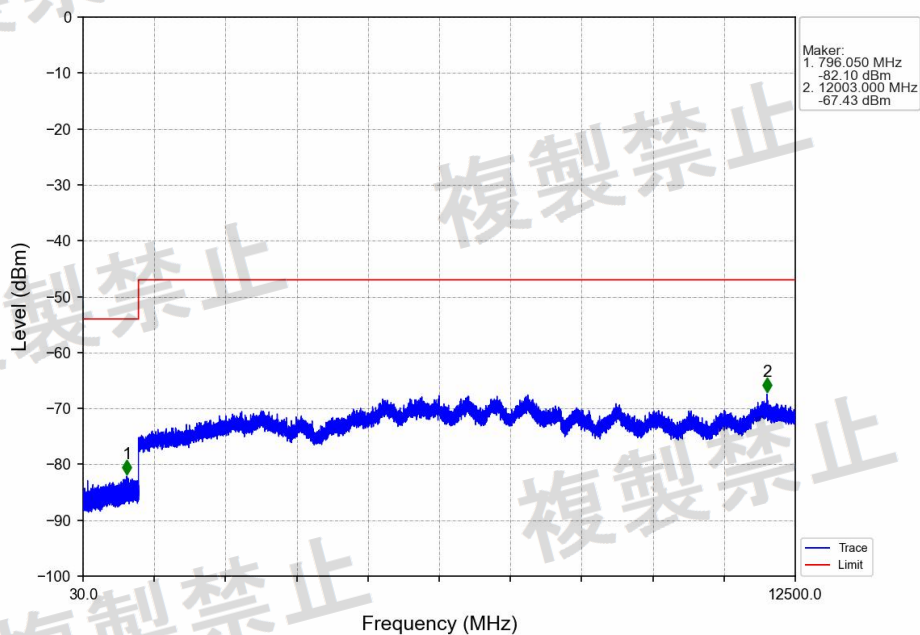
6.2 Test Graph

6.2.1 RxSe_NTNV

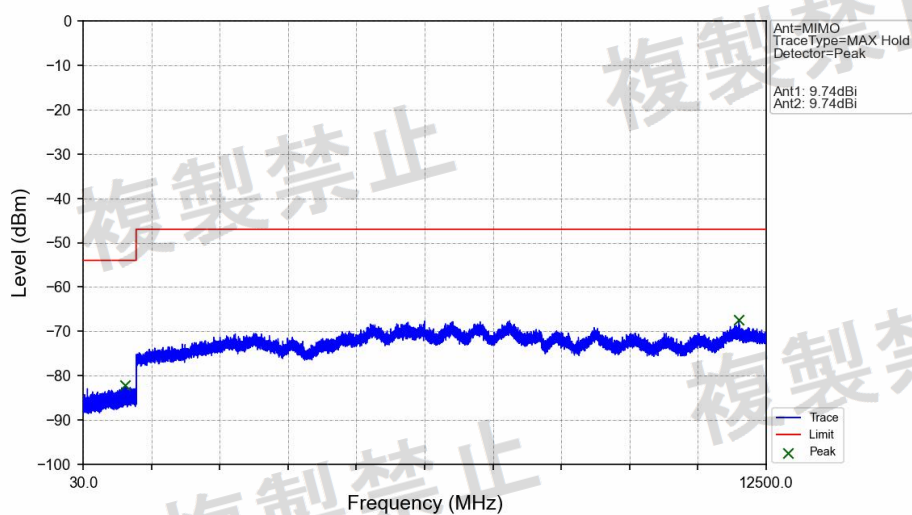




QPSK_2412.5MHz_MIMO_NTNV



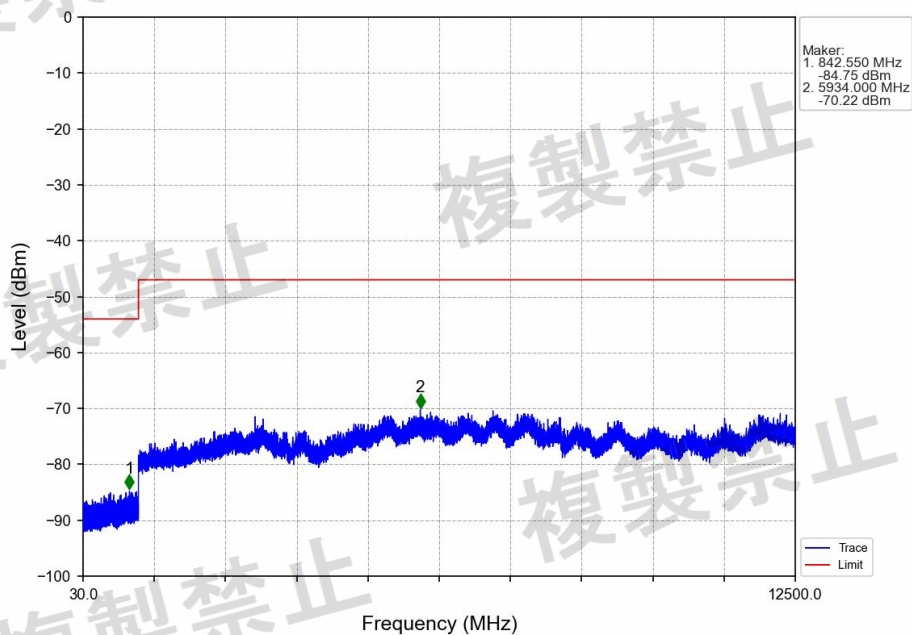
QPSK_2412.5MHz_MIMO_NTNV



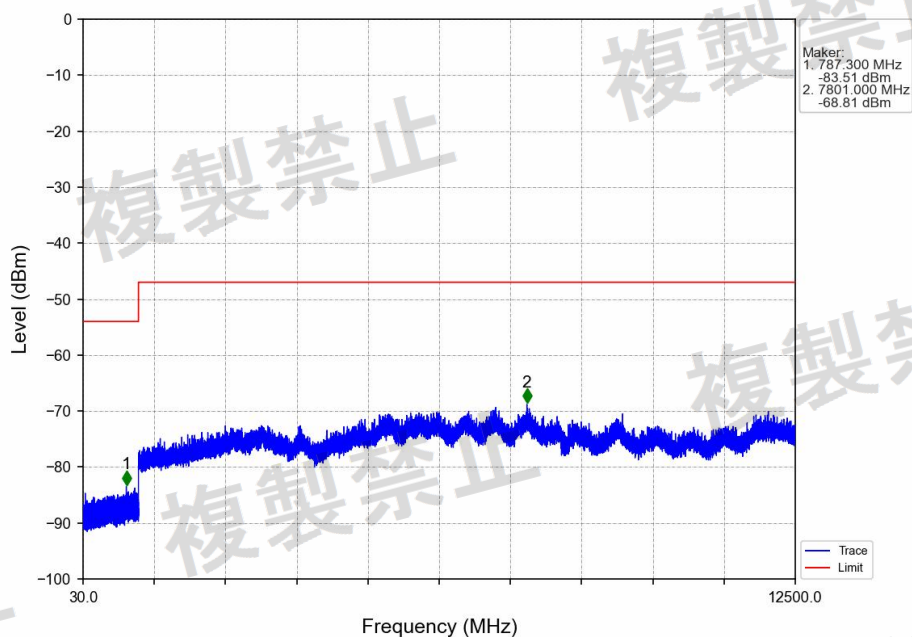
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	796.050	-82.10	/	-54	Pass
1000	12500	1	1	12003.000	-67.43	/	-47	Pass



QPSK_2437.5MHz_Ant1_NTNV

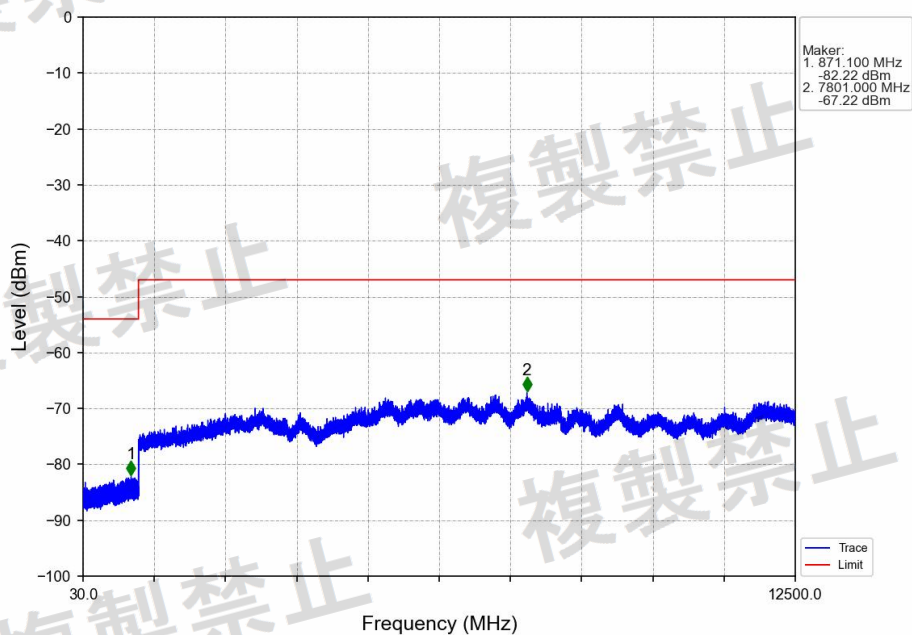


QPSK_2437.5MHz_Ant2_NTNV

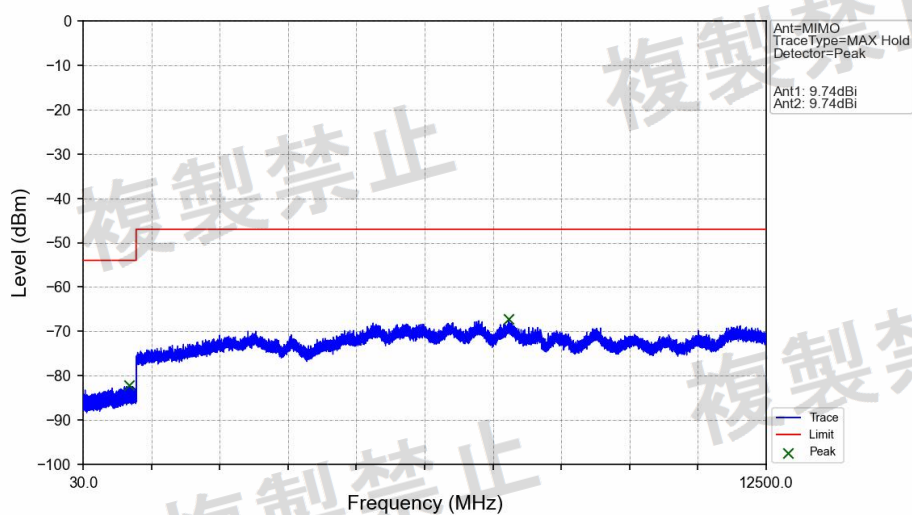




QPSK_2437.5MHz_MIMO_NTNV



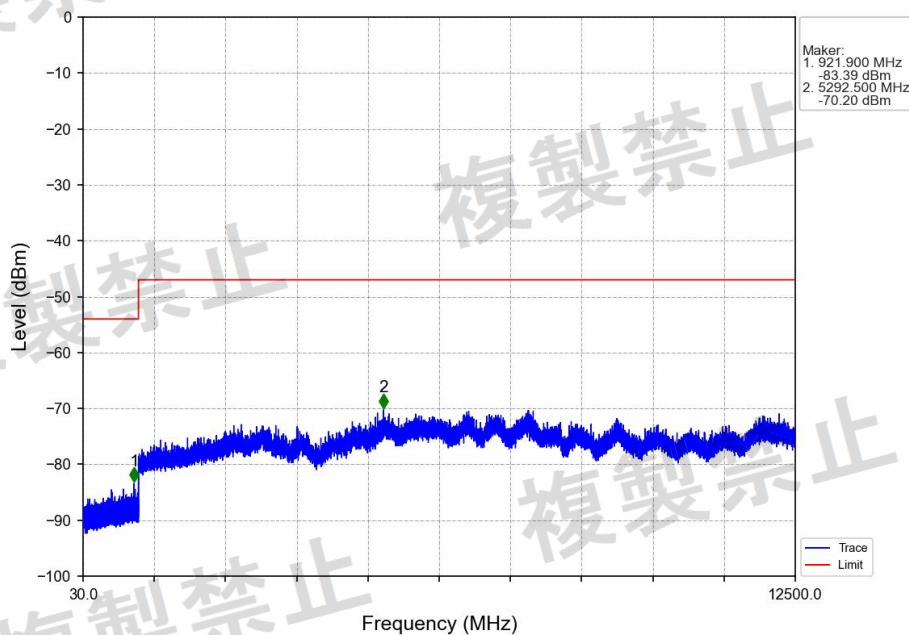
QPSK_2437.5MHz_MIMO_NTNV



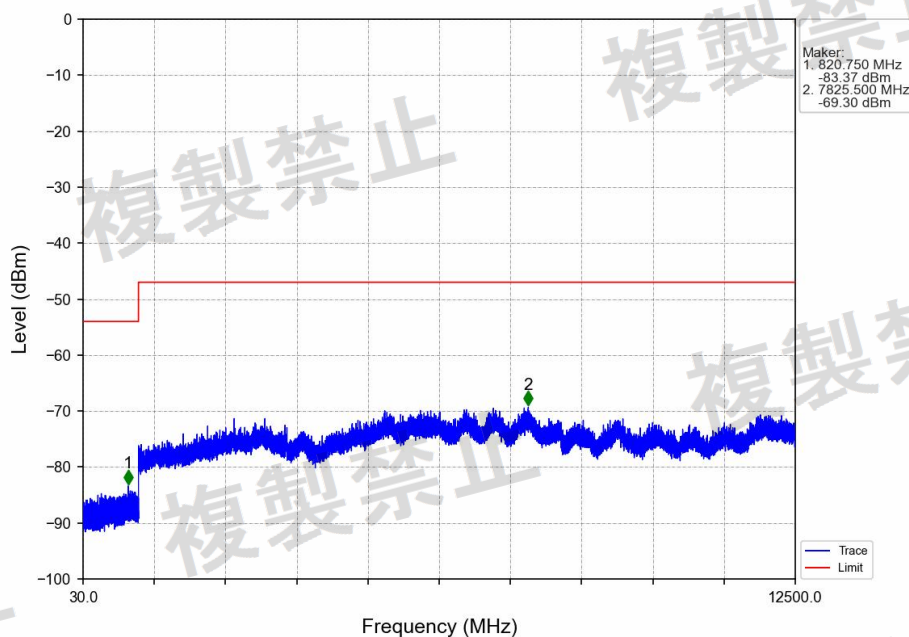
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	871.100	-82.22	/	-54	Pass
1000	12500	1	1	7801.000	-67.22	/	-47	Pass



QPSK_2462.5MHz_Ant1_NTNV

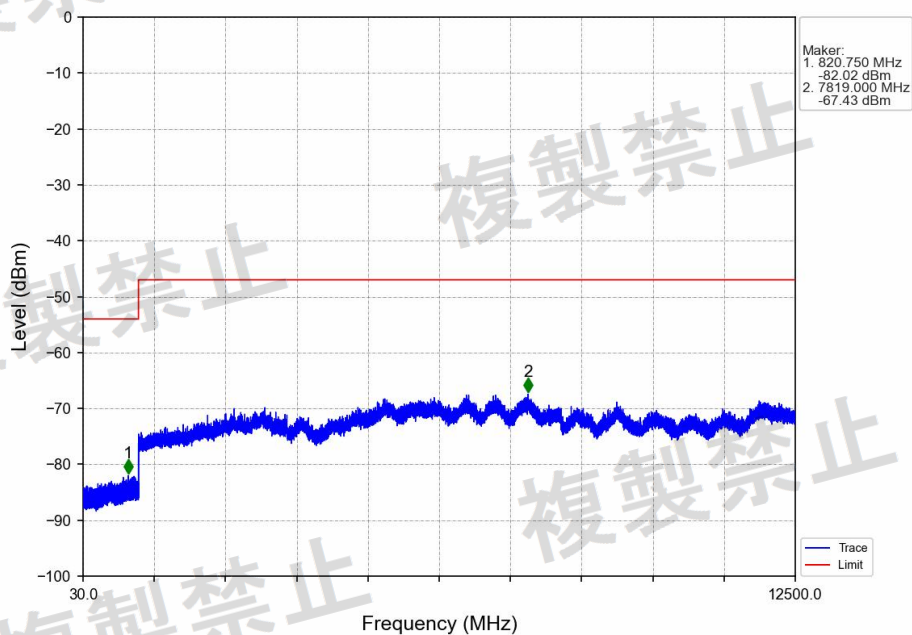


QPSK_2462.5MHz_Ant2_NTNV

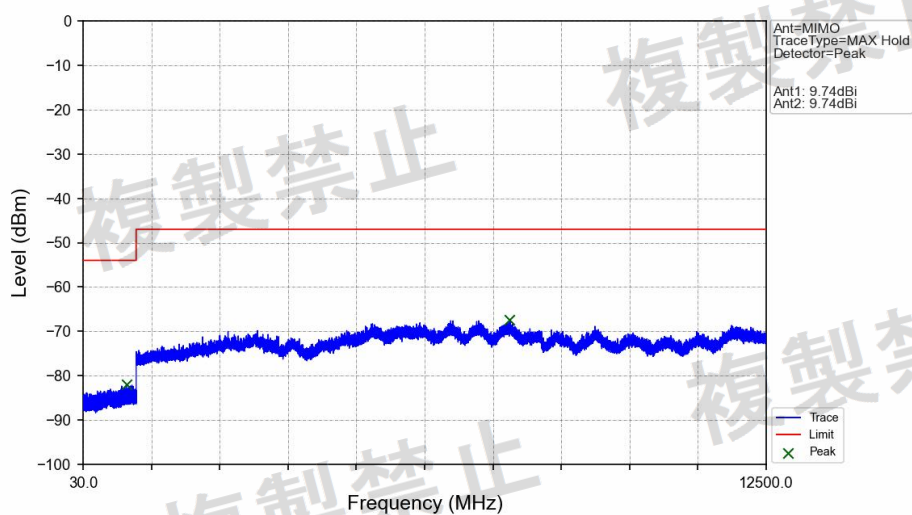




QPSK_2462.5MHz_MIMO_NTNV



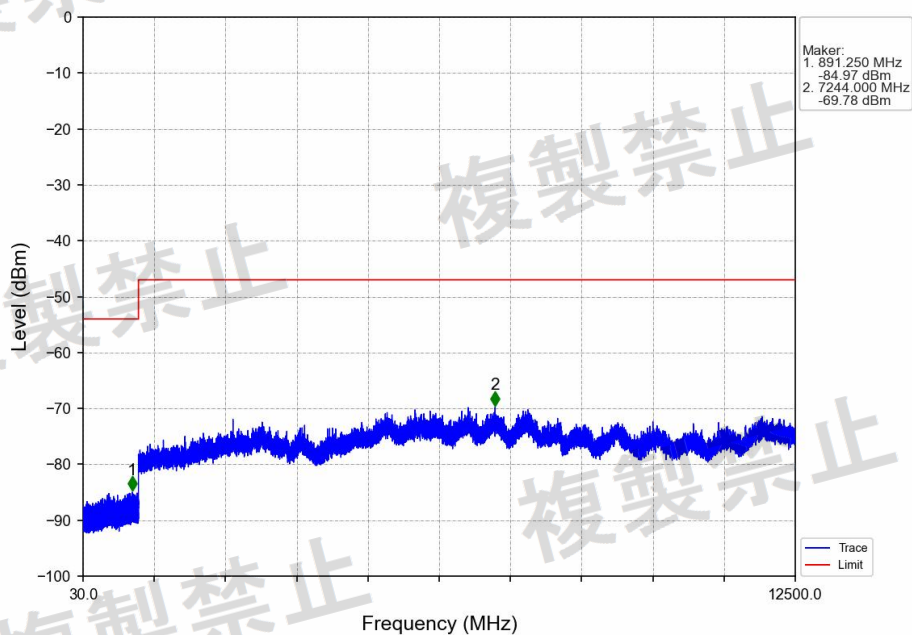
QPSK_2462.5MHz_MIMO_NTNV



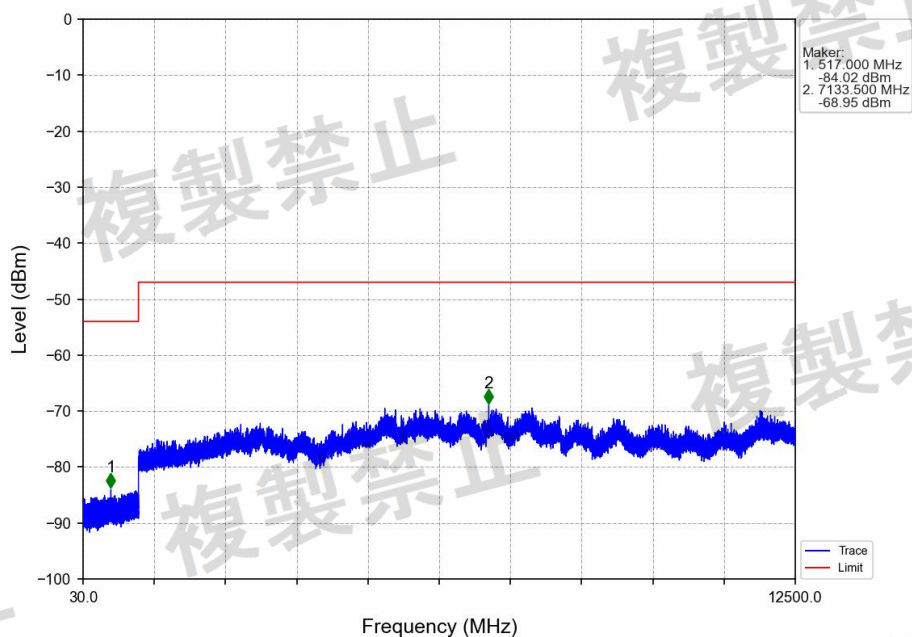
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	820.750	-82.02	/	-54	Pass
1000	12500	1	1	7819.000	-67.43	/	-47	Pass



16QAM_2412.5MHz_Ant1_NTNV

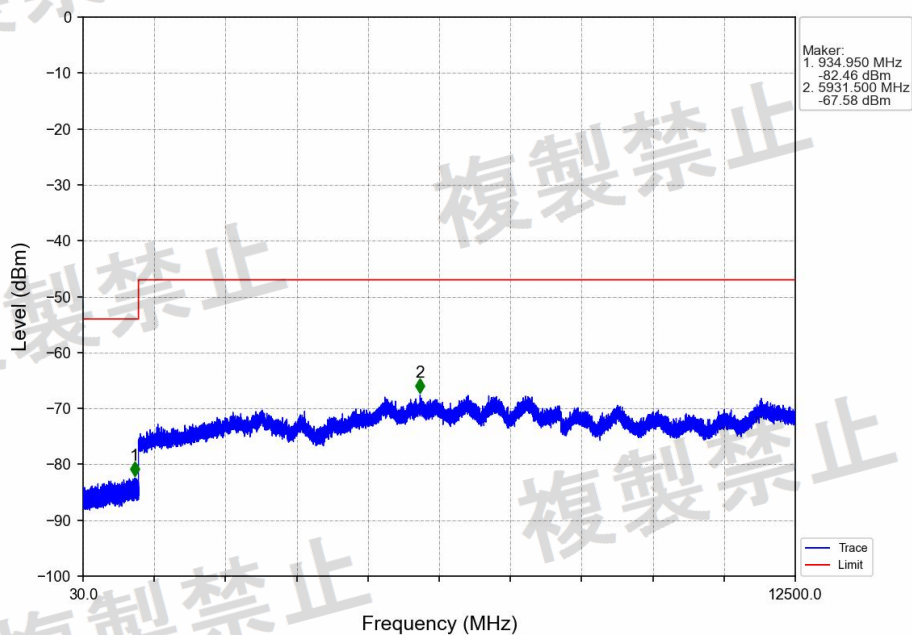


16QAM_2412.5MHz_Ant2_NTNV

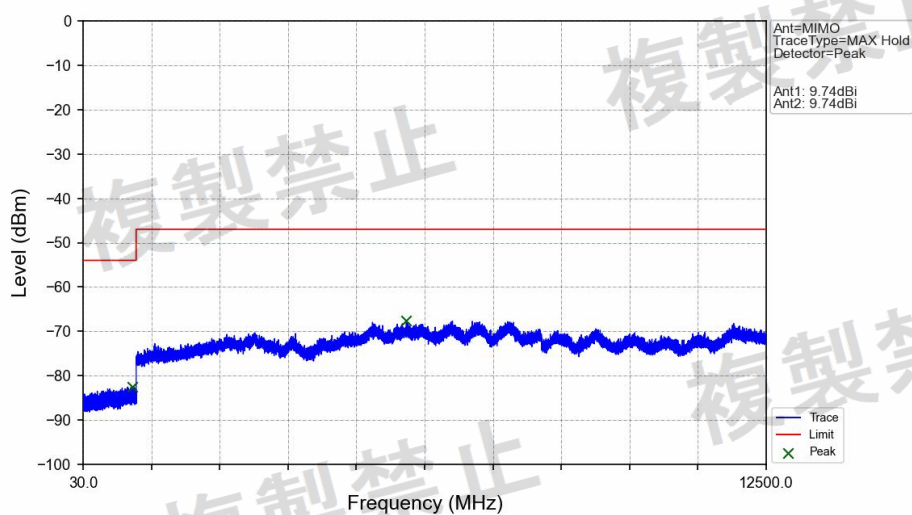




16QAM_2412.5MHz_MIMO_NTNV



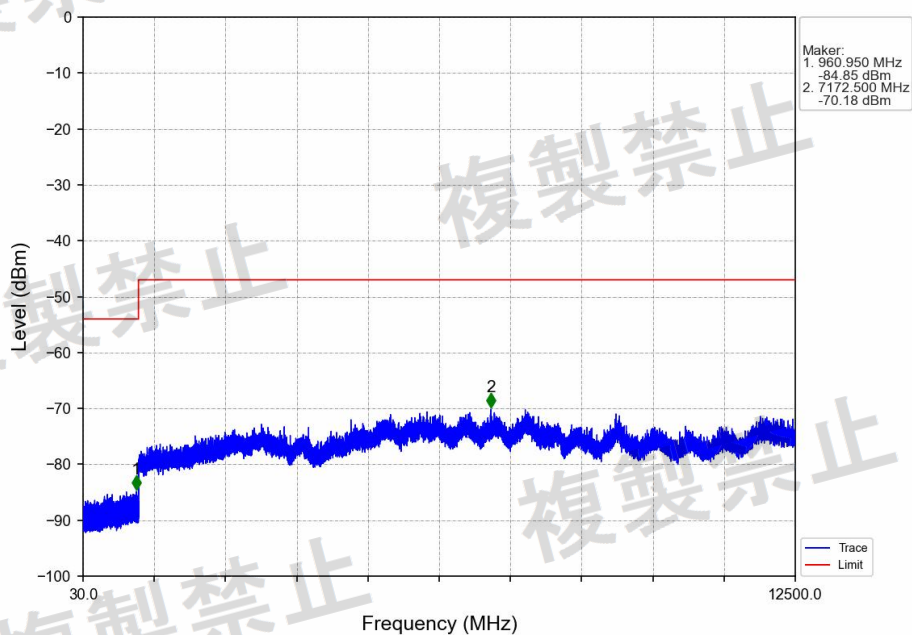
16QAM_2412.5MHz_MIMO_NTNV



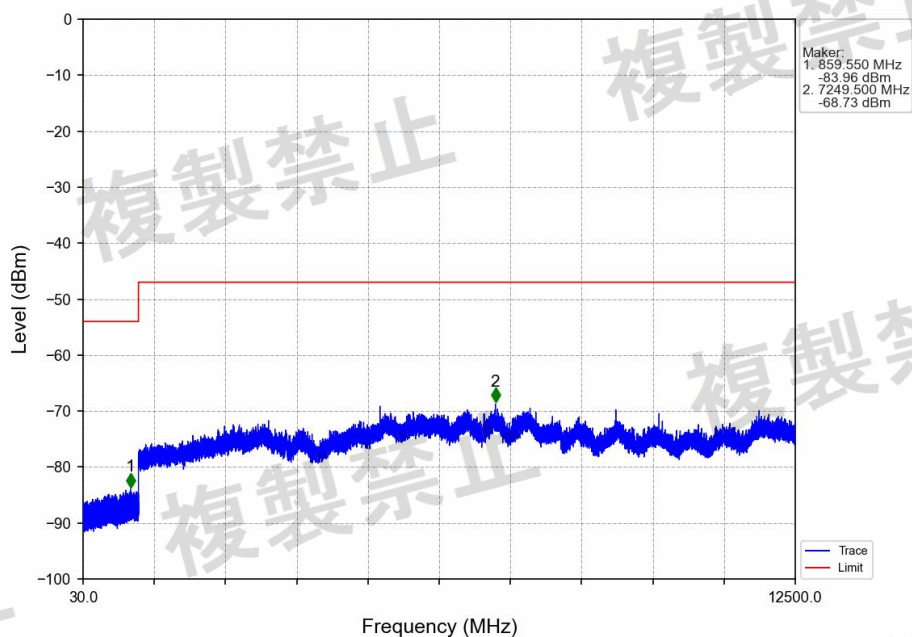
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	934.950	-82.46	/	-54	Pass
1000	12500	1	1	5931.500	-67.58	/	-47	Pass



16QAM_2437.5MHz_Ant1_NTNV

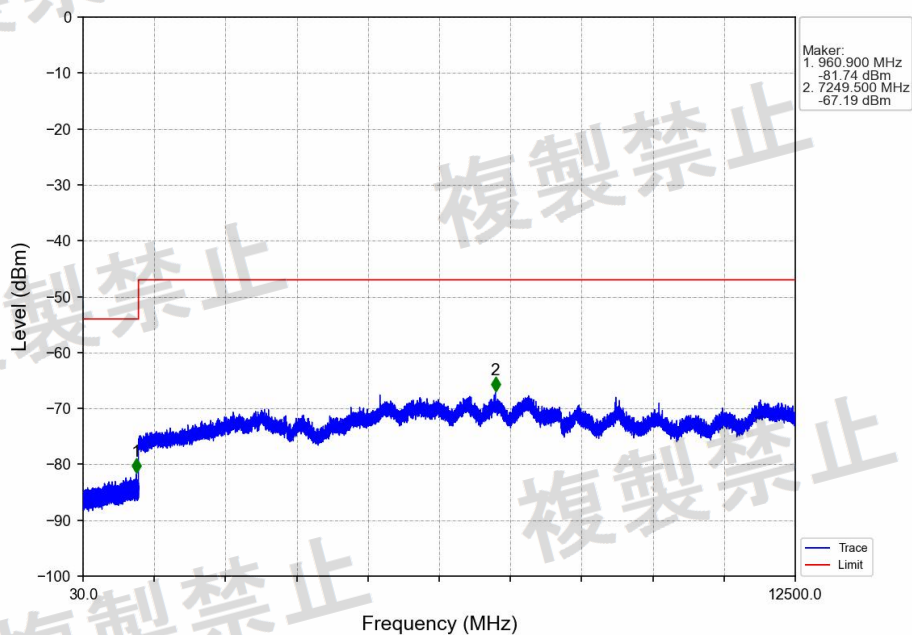


16QAM_2437.5MHz_Ant2_NTNV

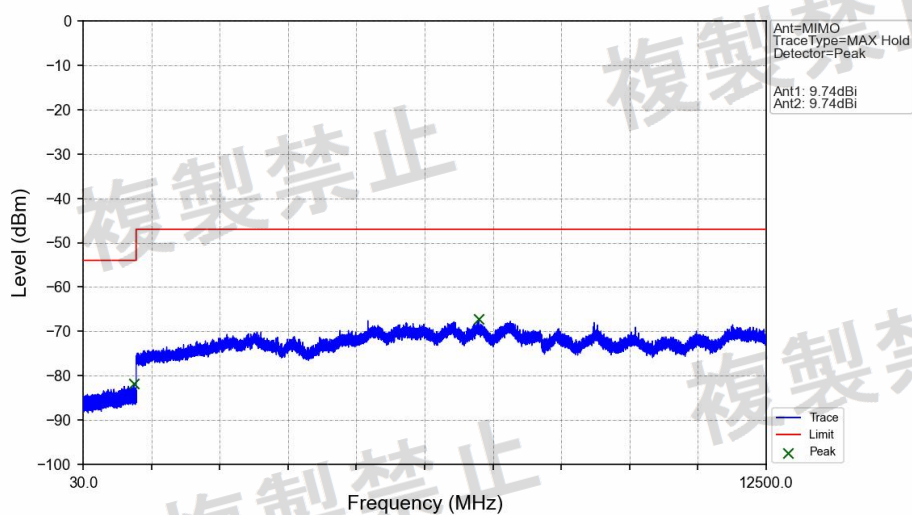




16QAM_2437.5MHz_MIMO_NTNV



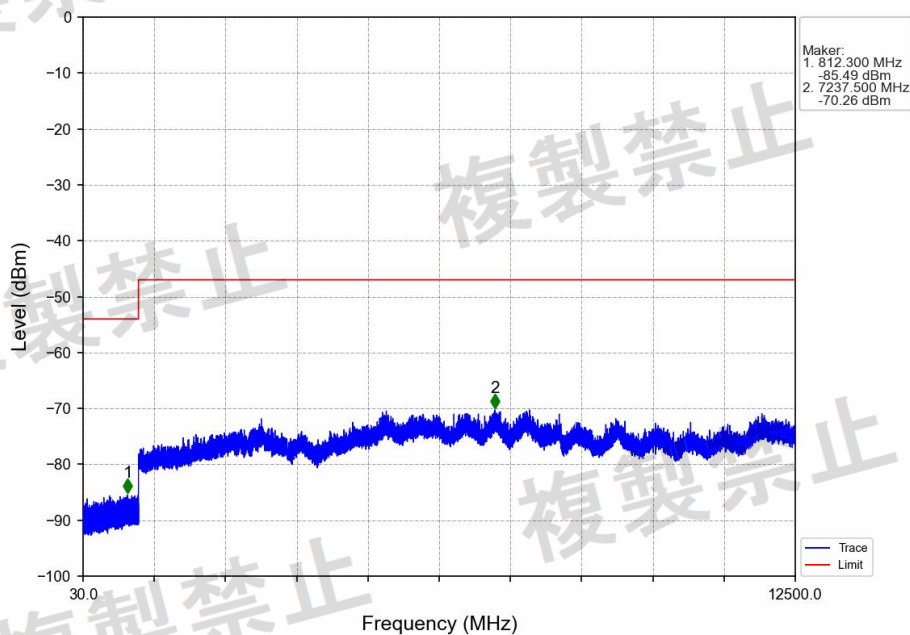
16QAM_2437.5MHz_MIMO_NTNV



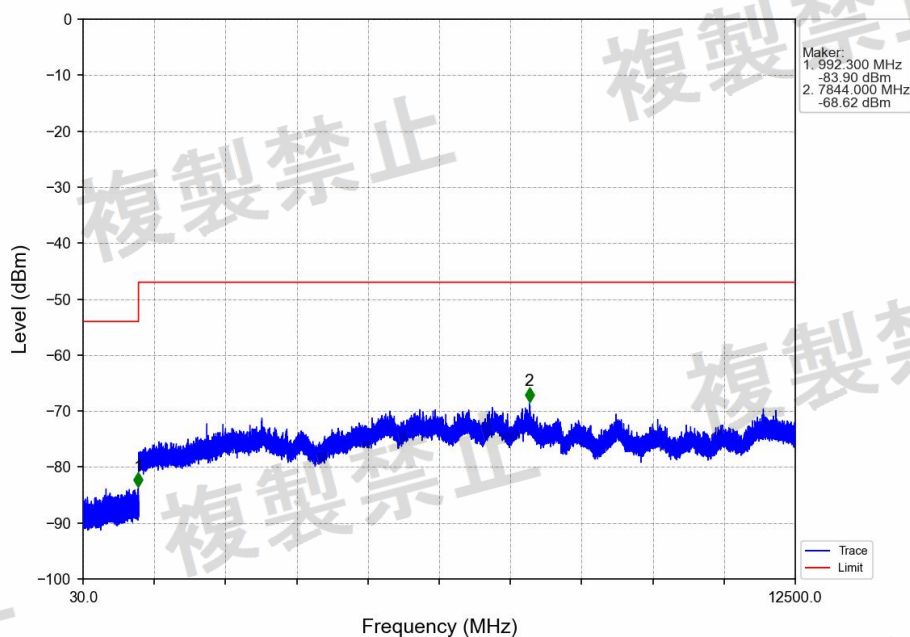
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	960.900	-81.74	/	-54	Pass
1000	12500	1	1	7249.500	-67.19	/	-47	Pass



16QAM_2462.5MHz_Ant1_NTNV

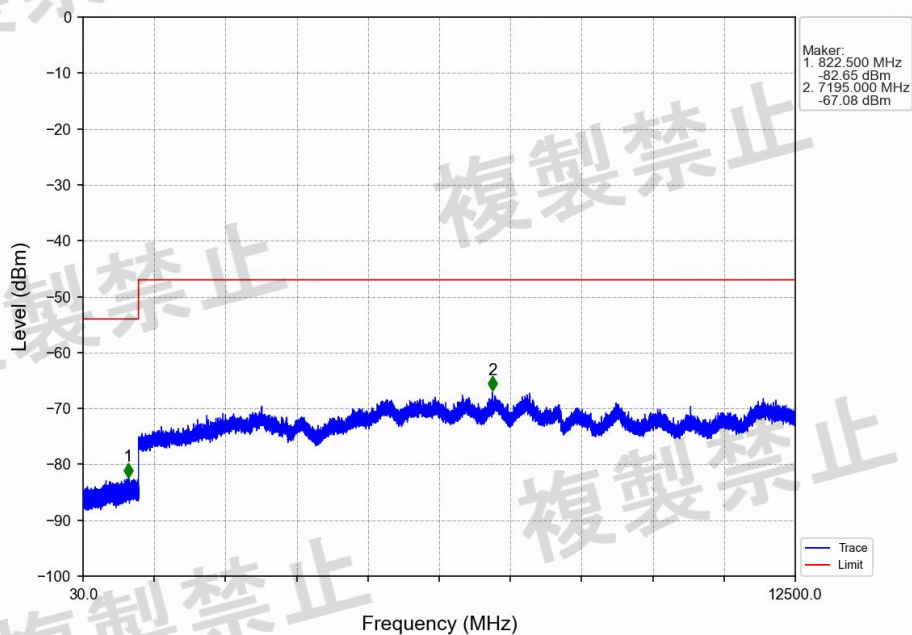


16QAM_2462.5MHz_Ant2_NTNV

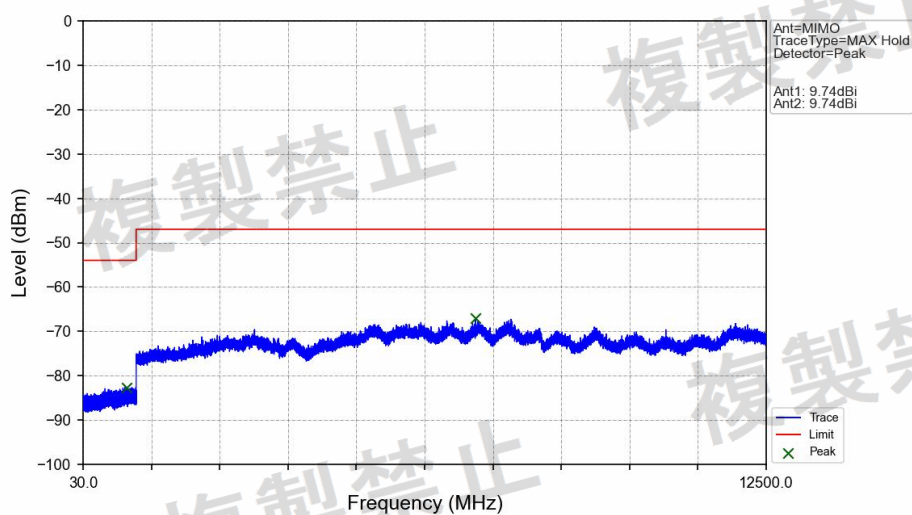




16QAM_2462.5MHz_MIMO_NTNV



16QAM_2462.5MHz_MIMO_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	822.500	-82.65	/	-54	Pass
1000	12500	1	1	7195.000	-67.08	/	-47	Pass