

TEST REPORT

Report No.: 8326EU010206W2

Applicant: Woan Technology (Shenzhen) Co., Ltd.

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Haicheng Road, Mabu Community, Xixiang Sub-district,
Bao'an District, Shenzhen, Guangdong, P.R.China,
518100

Product Name: SwitchBot Lamp Controller

Model No.: W1702100 (refer to clause 2.4)

Trademark: SwitchBot

Test Standard(s): MIC Notice No.88 Appendix No.43
Ordinance of MPT No.37, 1981:
Article 2 paragraph 1 item (19)

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2 General Information

2.1 Applicant Information

Applicant	Woan Technology (Shenzhen) Co., Ltd.
Address	Room 1101, Qiancheng Commercial Center, No. 5 Haicheng Road, Mabu Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, P.R.China, 518100

2.2 Manufacturer Information

Manufacturer	Woan Technology (Shenzhen) Co., Ltd.
Address	Room 1101, Qiancheng Commercial Center, No. 5 Haicheng Road, Mabu Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, P.R.China, 518100

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description of E.U.T.

Product Name	SwitchBot Lamp Controller
Model No. Under Test	W1702100
List Model No.	W1702101, W1702102, W1702103, W1702104, W1702105, W1702106, W1702107, W1702108, W1702109, W1702110
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance color and model name. (this information provided by the customer)
Rating(s)	Input: 12V $\overline{\text{---}}$ 1.5A
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Test Sample No.	-1/2(Normal Sample), -2/2(Engineering Sample)
Hardware Version	V2.6
Software Version	V0.7
Remark	1) The above information are declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.5 Technical Information of E.U.T.

Network and Wireless Connectivity	Bluetooth (BLE) WiFi 2.4G: 802.11b, 802.11g, 802.11n(HT20)
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The requirement for the following technical information of the EUT was tested in this report:

Technology	WiFi 2.4G
Operation Mode	☒ b ☒ g ☒ n(HT20) ☐ n(HT40)
	☐ ac(VHT20) ☐ ac(VHT40) ☐ ax(HEW20) ☐ ax(HEW40)
Operating Frequency	802.11b/g/n(HT20): 2412MHz to 2472MHz
Number of Channels	802.11b/g/n(HT20): 11 Channels
Modulation Technology	DSSS, OFDM
Modulation Type	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM) 802.11n(HT20): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	PCB Antenna
Antenna Gain(Peak)	4.28 dBi
Antenna Impedance	50Ω
Rated output Power	802.11b: 2.80 mW/MHz 802.11g: 2.20 mW/MHz 802.11n 20: 2.00 mW/MHz
Remark	The above information are declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant.

All channels were listed on the following table:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	2412	05	2432	09	2452	13	2472
02	2417	06	2437	10	2457		
03	2422	07	2442	11	2462		
04	2427	08	2447	12	2467		

Modulation technology	Modulation Type	Transfer Rate (Mbps)
DSSS (802.11b)	DBPSK	1
	DQPSK	2
	CCK	5.5/11
OFDM (802.11g)	BPSK	6/9
	QPSK	12/18
	16QAM	24/36
	64QAM	48/54
OFDM (802.11n-20 MHz)	BPSK	6.5/7.2
	QPSK	13/19.5/14.4/21.7
	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2

3 Test Summary

3.1 Test Standard

The tests were performed according to following standards:

No.	Identity	Document Title
1	MIC Notice No.88 Appendix No.43 Ordinance of MPT No.37, 1981: Article 2 paragraph 1 item (19)	Low power data communications system in the 2.4GHz band

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission should be checked to ensure compliance has been maintained.

3.2 Test Verdict

No.	Description	Test Mode	Channel	Data Rate (Mbps)	Verdict	Remark
1	Frequency Tolerance	Modulation	13/7/1	/	Pass	--
2	Occupied Bandwidth	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
3	Antenna Power / EIRP Antenna Power	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
4	Spurious Emission Intensity	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
5	Secondary Radiated Emission	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
6	Spurious Emissions	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
7	Interference Prevention Function	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Pass	--
8	Transmission Radiated Angle Width (3dB Beam Bandwidth)	11b/11g/11n20	13/7/1	1/6/6.5Mbps	N/A	Note ²
9	Construction Protection Confirmation	11b/11g/11n20	13/7/1	1/6/6.5Mbps	Compliance	--
10	Carrier Sense Function	11b/11g/11n20	13/7/1	1/6/6.5Mbps	N/A	Note ³
11	Carrier Sense Function	11b/11g/11n20	13/7/1	1/6/6.5Mbps	N/A	Note ⁴

Note 1: The tests were performed according to the method of measurements prescribed in MIC Notice No.88 Appendix No.43.

Note 2: This test is not applicable for EIRP is less than 12.14dBm/MHz.

Note 3: Apply for 802.11n40 which the Occupied bandwidth within 26MHz-40MHz.

Note 4: Not apply to this device, since EIRP does not require compensation through Antenna Power.

The test channel corresponding to the frequency list:

Mode	Channel	Channel Number	Frequency (MHz)
11b	HIGH/LOW(H/L)	13/1	2472/2412
11g	HIGH/LOW(H/L)	13/1	2472/2412
11n20	HIGH/LOW(H/L)	13/1	2472/2412

3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China

4 Test Configuration

4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	53%	
Atmospheric Pressure	102 kPa	
Temperature	NT (Normal Temperature)	+26°C
Working Voltage of the EUT	NV (Normal Voltage)	12.0 V
	LV (Low Voltage)	10.8 V
	HV (High Voltage)	13.2 V

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input To EUT	DC 12.0V	DC 13.2V	DC 10.8V
Output To RF Module	DC 3.3V	DC 3.3V	DC 3.3V
Voltage Variation (%)	--	0.00%	0.00%

Note:

Voltage Variation (%)=(Output high or Low Voltage - Output Normal Voltage)/ Output Normal Voltage* 100%

For extreme voltage test, we have tested the relationship between the external power supply and RF IC power supply. Base on the test results, only the normal voltage was selected to perform all items.

4.2 Test Equipment

Radiated Emission and RF Test					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2025/01/08	2026/01/07
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023/01/14	2026/01/13
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2023/01/12	2026/01/11
Pre-amplifier	Agilent	8447D	EE-009	2025/01/08	2026/01/07
Pre-amplifier	Agilent	8449B	EE-010	2025/01/08	2026/01/07
MXA Signal Analyzer	Agilent	N9020A	EE-011	2025/01/08	2026/01/07
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2025/01/08	2026/01/07
Test Software	Farad	EZ-EMC	EE-015	N.C.R	N.C.R
MIMO Power Measurement Module	TSTPASS	TSPS 2023R	EE-016	2025/01/08	2026/01/07
RF Test Software	TSTPASS	TS32893 V2.0	EE-017	N.C.R	N.C.R
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	EE-402	2024/02/15	2025/02/14
Loop Antenna	TESEQ	HLA6121	EE-403	2024/02/15	2025/02/14
MXG RF Analog Signal Generator	Agilent	N5181A	EE-406	2024/02/15	2025/02/14
Constant Temperature Humidity Chamber	Guangxin	GXP-401	ES-002	2024/07/30	2025/07/29
DC Power Source	QJE	QJ3020E	ES-037	2024/07/30	2025/07/29
Note ¹ : Calibration Company: Shenzhen Academy Of Metrology& Quality inspection.					
Note ² : Calibration method: Calibration conducted in foreign countries, which is equivalent to calibration conducted by the NICT or a designated calibration agency under Article 102-18-1 and Article 24-2, Paragraph 4 of the Radio Act.					

4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	Notebook	Lenovo	Xiaoxin Air 14ALC 2021	EMC-PJ-052

4.4 Measurement Uncertainty

Parameters	Uncertainty
Frequency Error / 99% Bandwidth	$(3.2 \times f \times 10^{-6})$ Hz
Antenna Power	1.82 dB
TX-RX Spurious Emissions	1.84 dB
Transmission Antenna Gain	5.36 dB
Temperature	0.8 °C
Humidity	4 %
DC / AC Power Source	0.04%
Duty Cycle	0.05%
Noet: "f" is the nominal signal frequency in Hz.	

Note: This uncertainty represents as expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 Test Items

5.1 Frequency Tolerance Test

5.1.1 Test Requirement

Item	Limits
Frequency Tolerance	$\leq \pm 50$ ppm

5.1.2 Test Setup Diagram



5.1.3 Test Procedure

Test Frequency= test channel
RBW=VBW=10KHz
Span=1MHz
Sweep time=Auto
Detector mode=Positive peak
Indication mode=Max hold
EUT have transmitted unmodulated signal and fixed channelize. f is using the mark cursor to mark the peak frequency value, fc is declaring of channel frequency.

5.1.4 Test Deviation

There is no deviation with the original standard.

5.1.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, carrier mode.

5.1.6 Test Data

PASS.

Please refer to Annex E for details.

5.2 Occupied Bandwidth

5.2.1 Test Requirement

Item	Limits
Occupied Band Width	FHSS $\leq$ 83.5MHz; OFDM $\leq$ 40MHz, DSSS $\leq$ 26MHz; Others $\leq$ 26MHz

5.2.2 Test Setup Diagram



5.2.3 Test Procedure

- Set the spectrum analyzer as follows:
 Center frequency: Test frequency
 Span: Approximately 2 to 3.5 times nominal bandwidth
 Resolution bandwidth: Within 3% of the technical standard
 Video bandwidth: equivalent to resolvable bandwidth
 Sweep time: auto
 Sweep mode: Continuous sweep
 Detection: Positive peak
 Trace mode: Maximum hold
- After repeating sweeps until the display shows steady data, store the values at all data points into the computer array variables.
- Convert the dB values at all data points to antilogarithm on the power dimension.
- Obtain sum total of the power at all data points, and store it as "total power".

5.2.4 Test Deviation

There is no deviation with the original standard.

5.2.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.2.6 Test Data

PASS.

Please refer to Annex E for details.

5.3 Antenna Power / EIRP Antenna Power

5.3.1 Test Requirement

Item	Limits
Antenna Power Density	a) FH, FH+DS, or FH+OFDM form 2427 - 2470.75 MHz: ≤ 3 mW/MHz b) DS but other than a) from 2400~2483.5 MHz: ≤ 10 mW/MHz c) OFDM, but other than a): For OCB of 26MHz or less: ≤ 10 mW/MHz For OCB of over 26 MHz to 40 MHz: ≤ 5 mW/MHz d) Other than a), b) and c): ≤ 10 mW
Antenna Power Error	+20% (Base on manufacturer declare antenna power density)
EIRP Power	12.14 dBm/MHz

5.3.2 Test Setup Diagram



5.3.3 Test Procedure

The following table is the setting of the spectrum.

Spectrum Parameter	Setting
Span Frequency	0MHz
RB/VB	1MHz
Detector	Positive Peak
Trace	Max hold
Sweep Time	Auto

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s

1. Measure equivalent noise bandwidth at 1 MHz resolution bandwidth of the spectrum analyzer and obtain a correction value used for correcting the resolution bandwidth into 1 MHz equivalent bandwidth. However, in case that the spreading bandwidth is 1 MHz or less, correction using the measured equivalent noise bandwidth is not required.
2. The attenuator shall be adjusted to supply an optimum input level to the spectrum analyzer.
3. Set the spectrum analyzer as follows to search for frequency giving the maximum antenna power:
 - Centre Frequency: Test frequency
 - Frequency sweep width: Approximately twice the occupied bandwidth
 - Resolution bandwidth: 1MHz
 - Video bandwidth: Approximately 3 times the resolution bandwidth (e.g. 3 MHz)
 - Y-axis scale: 10 dB / div
 - Sweep time: Minimum time to ensure the measuring accuracy (In case of burst wave, one burst shall be included in one sample at least.)
 - Trigger condition: Free-run
 - Number of data points: 1001 points or more
 - Sweep mode: Continuous sweep

Detection mode: Positive peak
Indication mode: Maximum hold

4. Set the spectrum analyzer as follows to measure antenna power. Prior to the measurement, calibrate indication of the power meter for the indication at EUT output in the condition that the power meter is connected to IF output of the spectrum analyzer.

Center frequency: A frequency giving the maximum power (searched frequency);
Frequency sweep width: 0 Hz;
Resolution bandwidth: 1 MHz;
Sweep mode: Continuous sweep.

5. When using the calculation function of the spectrum analyzer to measure antenna power, the settings of the spectrum analyzer are as follows:

Centre Frequency: Equal to the frequency recorded in step 2.
Frequency sweep width: 10 MHz
Operation bandwidth: 1 MHz
Resolution bandwidth: 30 kHz to 300 kHz
Video bandwidth: Approximately 3 times the resolution bandwidth
Y-axis scale: 10 dB / div
Sweep time: Integer multiple of burst period per sample
Trigger condition: Free-run
Number of data points: 1001 points or more
Sweep mode: Continuous sweep
Detection mode: RMS
Indication mode: RMS power, about 10 on average.
Measuring procedures (Antenna power)

a. For orthogonal frequency division multiplexing system or spread spectrum system using direct sequence spreading:

(1) Set the spectrum analyzer according to 3.
(2) After repeating sweeps until spectrum fluctuation is not observed, measure the frequency giving the maximum power per 1 MHz.

(3) Set the spectrum analyzer according to 5.

(4) Antenna power shall be obtained as follows.

(a) For continuous wave; Values obtained from the operation of the spectrum analyzer.

(b) For burst wave; Mean power in burst that is calculated from the transmission time ratio and the values obtained from the operation in the same way as that for continuous wave:

Mean power in burst = values obtained from the operation of the spectrum analyzer / transmission time ratio where

Transmission time ratio = burst transmission time / burst repetition period

(5) When the EUT has plural modulation methods for sub-carriers in orthogonal frequency division multiplexing system, measure antenna power for each modulation method and use the maximum value as the measured value.

(6) When EUT has plural antenna terminals, conduct above measurement at each terminal.

b. For other systems

(1) Connect the power meter to the attenuator output and measure the total power (mW).

(2) Antenna power shall be obtained as follows.

(a) For continuous wave; Value obtained in (1)

(b) For burst wave; Mean power in burst that is calculated from the transmission time ratio and the value obtained in (1)

Mean power in burst = indicated value of power meter / transmission time ratio

(3) Measure antenna power per 1 MHz bandwidth (mW / MHz) in the same way as that in Measuring procedures a above.

(4) When EUT has plural antenna terminals, conduct above measurement at each terminal.

5.3.4 Test Deviation

There is no deviation with the original standard.

5.3.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.3.6 Test Data

PASS.

Please refer to Annex E for details.

5.4 Spurious Emissions Intensity Test

5.4.1 Test Requirement

Item	Limits
TX Spurious Emission	$\leq 2.5 \mu\text{W/MHz}$ ($30 \leq f \leq 1000 \text{ MHz}$),
	$\leq 2.5 \mu\text{W/MHz}$ ($1000 \text{ MHz} \leq f < 2387 \text{ MHz}$; $2496.5 \text{ MHz} < f$)
	$\leq 25 \mu\text{W}$ ($2387 \text{ MHz} \leq f < 2400 \text{ MHz}$) and ($2483.5 \text{ MHz} < f \leq 2496.5 \text{ MHz}$)

5.4.2 Test Setup Diagram



5.4.3 Test Procedure

Spectrum Parameter	Setting
Attenuation	Auto
RB	30-1000 MHz: 1 MHz/1 MHz
VB	Above 1GHz: 1 MHz/1 MHz
Detector	Peak
Trace	Max Hold
Sweep	Auto

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: RBW/VBW = 1MHz; / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. Setting of SA is following as 30 MHz and stop frequency 1000 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
4. Setting of SA is following as 1000 MHz and stop frequency 2387 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
5. SA adjusted to start frequency 2387 MHz and stop frequency 2400 MHz. Then to mark peak reading value + cable loss shall be less than 25 $\mu\text{W/MHz}$.
6. SA adjusted to start frequency 2483.5 MHz and stop frequency 2496.5 MHz Then to mark peak reading value + cable loss shall be less than 25 $\mu\text{W/MHz}$.
7. SA adjusted to start frequency 2496.5 MHz and stop frequency 12500 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

5.4.4 Test Deviation

There is no deviation with the original standard.

5.4.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.4.6 Test Data

PASS.

Please refer to Annex E for details.

5.5 Secondary Radiated Emissions Test

5.5.1 Test Requirement

Item	Limits
RX Spurious Emission	$\leq 4\text{nW}$ ($f < 1\text{GHz}$)
	$\leq 20\text{nW}$ ($1\text{GHz} \leq f$)

5.5.2 Test Setup Diagram



5.5.3 Test Procedure

Spectrum Parameter	Setting
Attenuation	Auto
RB	30-1000 MHz: 100KHz/100KHz
VB	Above 1GHz: 1 MHz/1 MHz
Detector	Peak
Trace	Max Hold
Sweep	Auto

1. EUT has the continuous reception mode and fixed only one channelize.
2. Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT:10 dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. SA set RB: 100 kHz and VB: 100 kHz. Then adjust to start frequency 30 MHz and stop frequency 1000 MHz. Search to mark peak reading value + cable loss shall be less than 4 nW.
4. SA set RB: 1 MHz and VB: 1 MHz. Then adjust to start frequency 1000 MHz and stop frequency 12500 MHz. Search to mark peak reading value + cable loss shall be less than 20 nW.
5. If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1\text{GHz}$, 2 nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

5.5.4 Test Deviation

There is no deviation with the original standard.

5.5.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.5.6 Test Data

PASS.

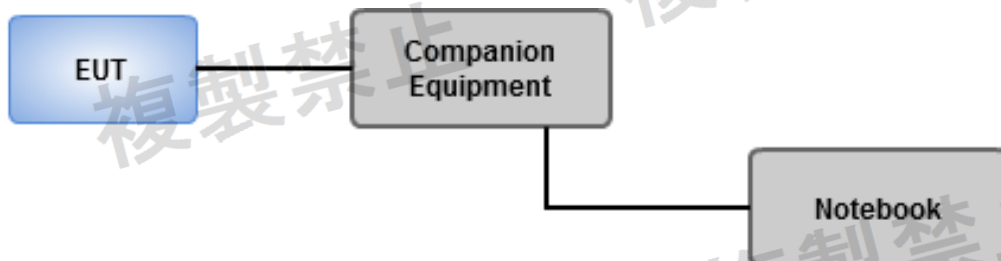
Please refer to Annex E for details.

5.6 Interference Prevention Function

5.6.1 Test Requirement

Item	Limits
Identification	≥ 48 bits

5.6.2 Test Setup Diagram



5.6.3 Test Procedure

1. In the case that the EUT has the function of automatically transmitting the identification code:
 - a. Transmit the predetermined identification codes from EUT.
 - b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code:
 - a. Transmit the predetermined identification codes from the counterpart.
 - b. Check if communication is normal.
 - c. Transmit the signals other than predetermined ID codes from the counterpart.
 - d. check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

5.6.4 Test Deviation

There is no deviation with the original standard.

5.6.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.6.6 Test Data

PASS.

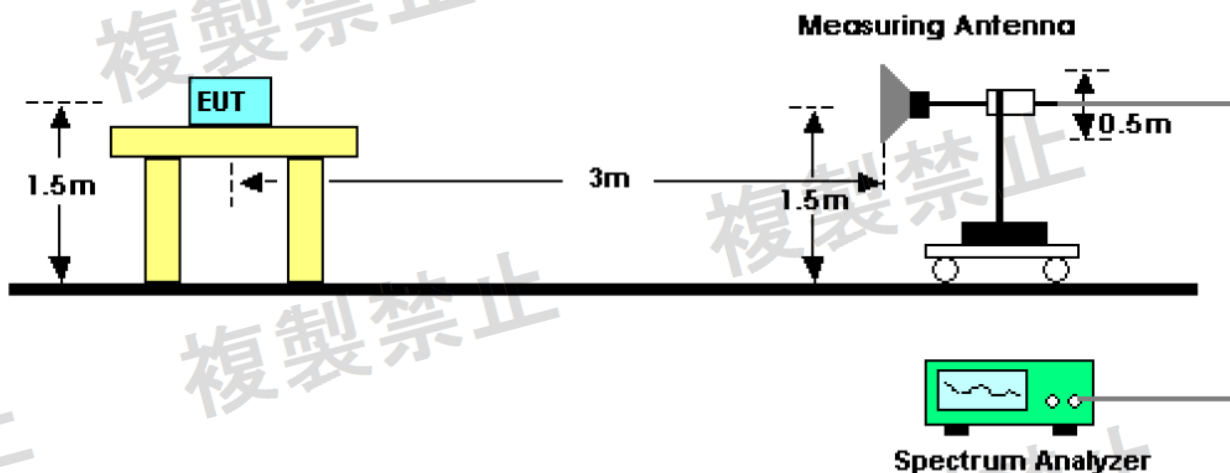
Mode	ID Code	Test Results
2.4G WiFi	25:F1:47:C4:18:39	Pass

5.7 Transmission Radiation Angle Width (3dB Beamwidth) Measurement

5.7.1 Test Requirement

Item	Limits
3dB antenna beam width	$360/A$ (If $A < 1$; then $A = 1$) $A = \{ \text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM} \}$ or $A = \{ \text{EIRP Power [mW]} / 4.9 \text{ for FH} \}$
Note: This test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less.	

5.7.2 Test Setup Diagram



5.7.3 Test Procedure

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with RBW=1 MHz, VBW=1 KHz, Y scale=5 dB, Detector=Peak, Trace mode=Max Hold, and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$). $A = \{ \text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM} \}$ or $A = \{ \text{EIRP Power [mW]} / 4.9 \text{ for FH} \}$

5.7.4 Test Deviation

There is no deviation with the original standard.

5.7.5 EUT Operation during Test

The EUT was programmed to be in continuous transmit, channel-selected mode.

5.7.6 Test Data

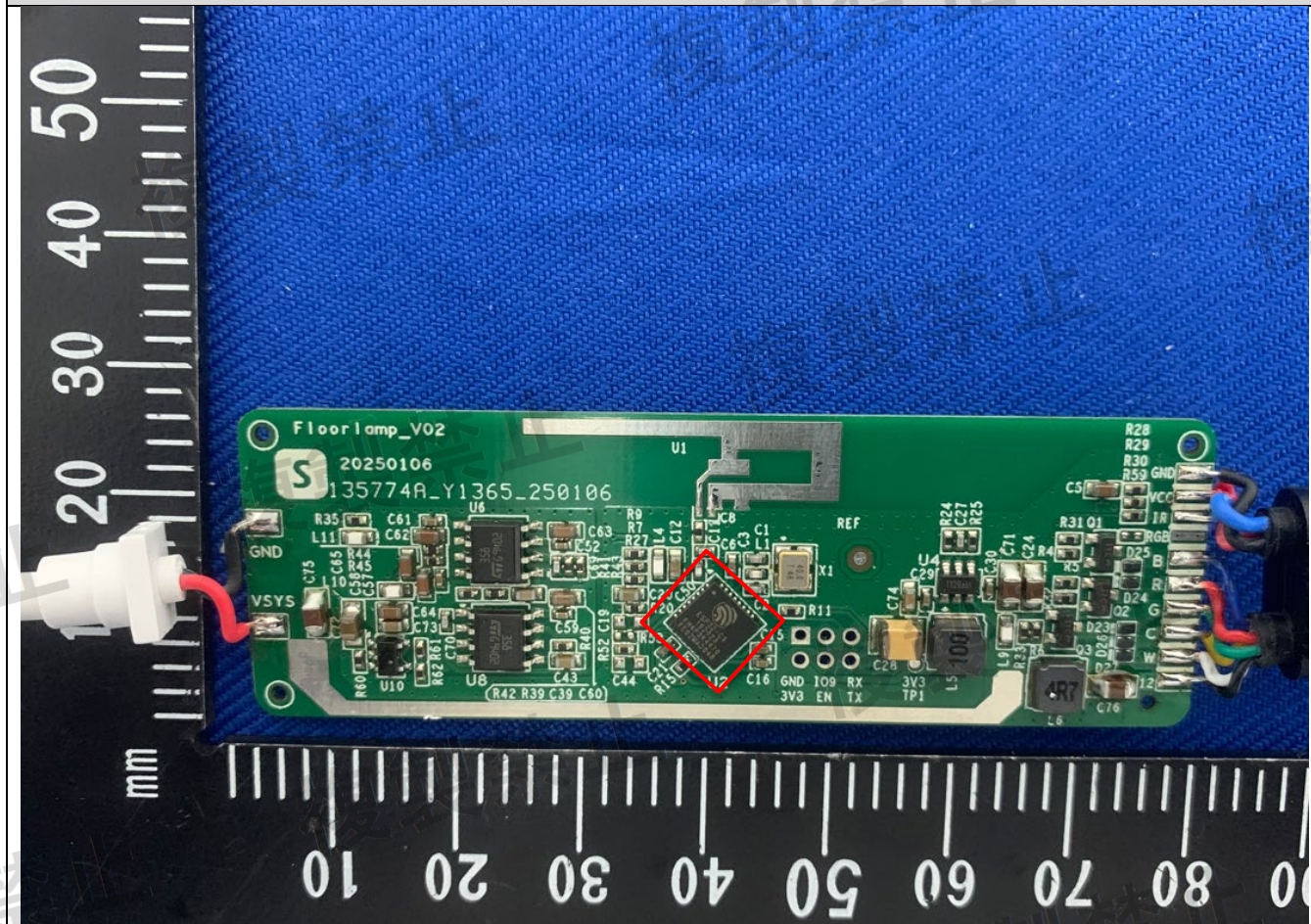
Note: Because the EIRP is less than 12.14dBm/MHz, this item is not applicable.

5.8 Construction Protection Confirmation Method

The RF and modulation portions are protected against illegal modification as following method:

Protected Method	Description
Structure protection	The terminal number is 33, terminal pitch is 1mm. it can't be easily opened and modified.

Reference Photo



ANNEX A TEST SETUP PHOTOS

Please refer to the document "8326EU010206W-AA.PDF"

ANNEX B EXTERNAL PHOTOS

Please refer to the document "8326EU010206W-AB.PDF"

ANNEX C INTERNAL PHOTOS

Please refer to the document "8326EU010206W-AC.PDF"

ANNEX D TEST DATA

Please refer to the document "8326EU010206W-AE.PDF"

--- End of Report ---

ANNEX E TEST DATA

For

Project No.:	8326EU010206W
Client:	Woan Technology (Shenzhen) Co., Ltd.
Product Name:	SwitchBot Lamp Controller
Model No.:	W1702100
Technology:	WiFi 2.4G
Test Engineer:	Mikoy zhu
Test Date:	2025-01-14

Test Summary

Item	Result
Duty Cycle	Pass
Frequency Error	Pass
Occupied Bandwidth	Pass
Antenna Power	Pass
Spurious Emission Intensity	Pass
Secondary Radiated Emission	Pass

1. Duty Cycle

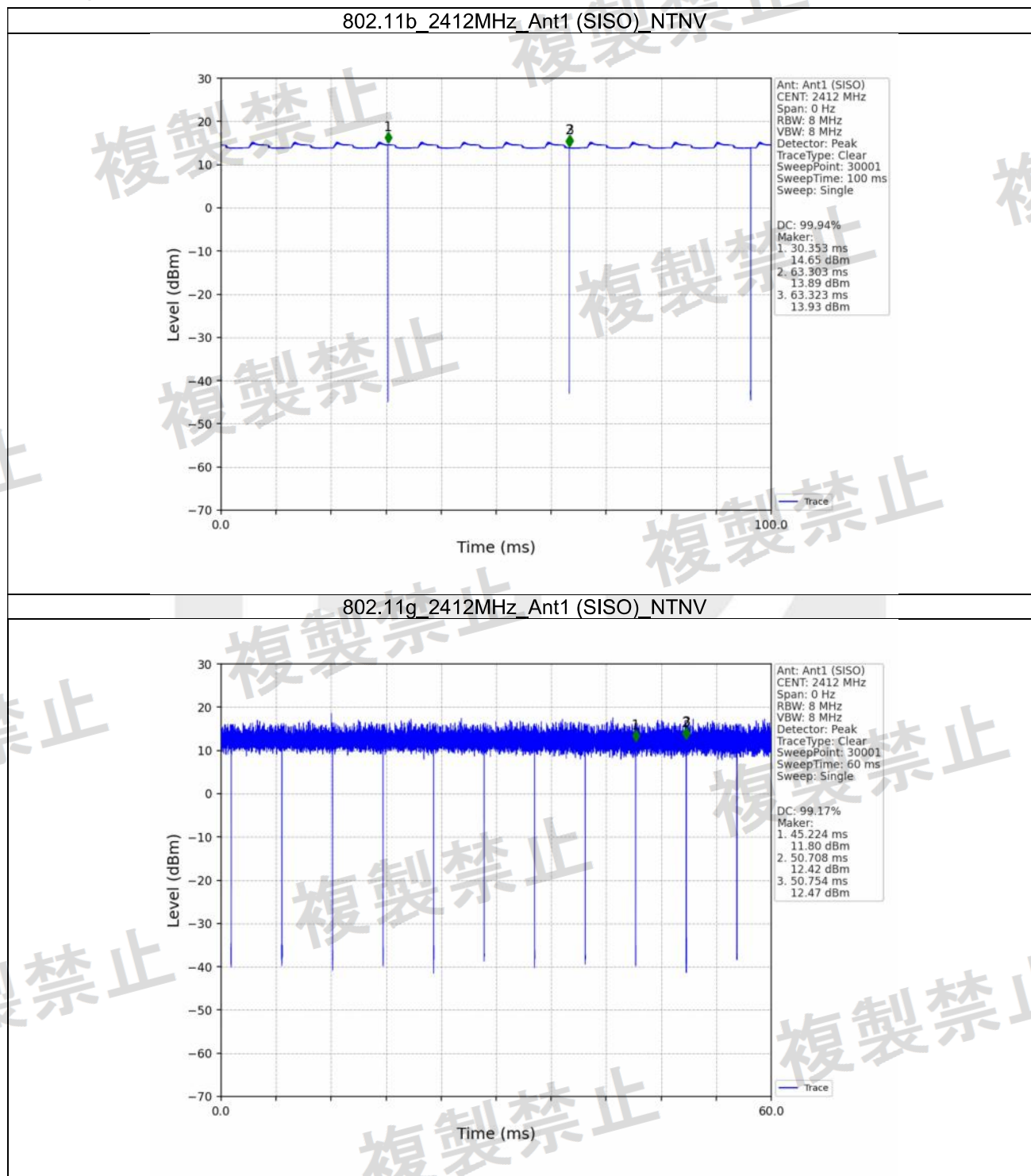
1.1 Test Result

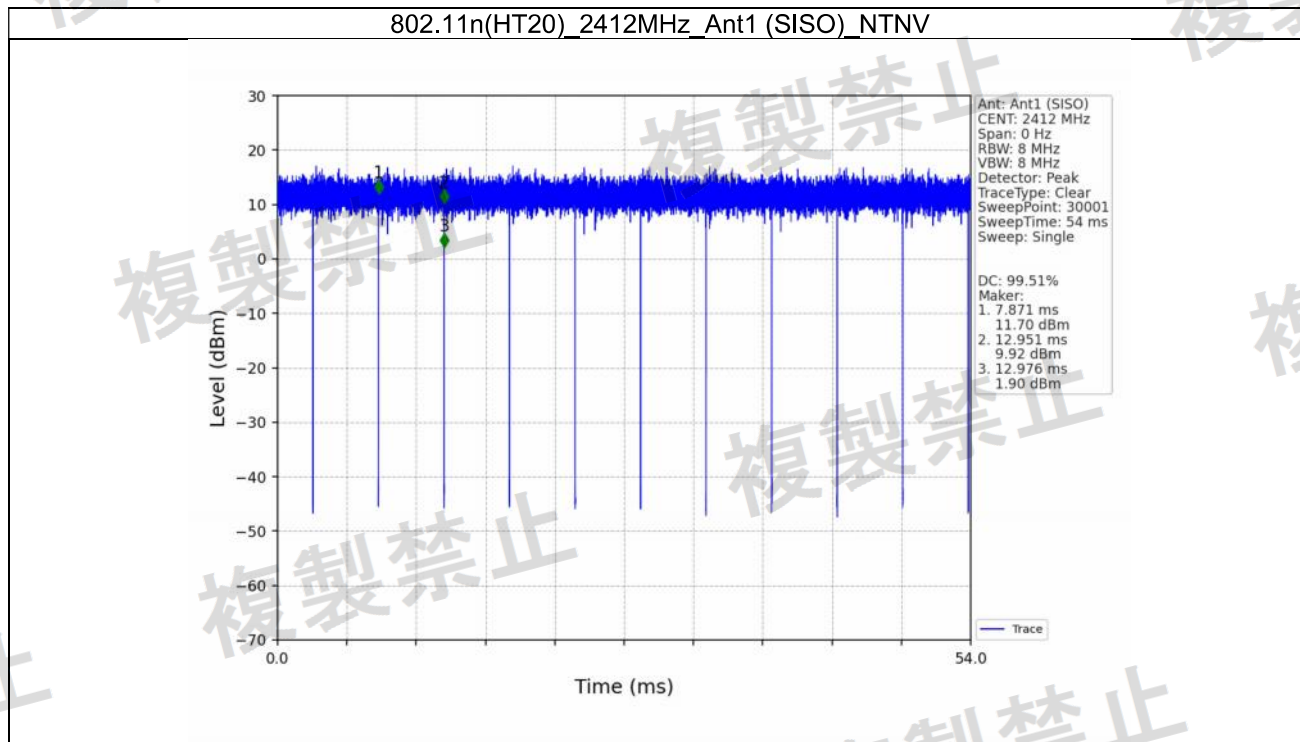
1.1.1 Ant1

Ant1								
ENV	Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
NTNV	802.11b	SISO	2412	32.950	32.970	99.94	0.00	0.00
	802.11g	SISO	2412	5.484	5.530	99.17	0.04	0.36
	802.11n (HT20)	SISO	2412	5.080	5.105	99.51	0.02	0.00

1.2 Test Graph

1.2.1 Ant1





2. Frequency Error

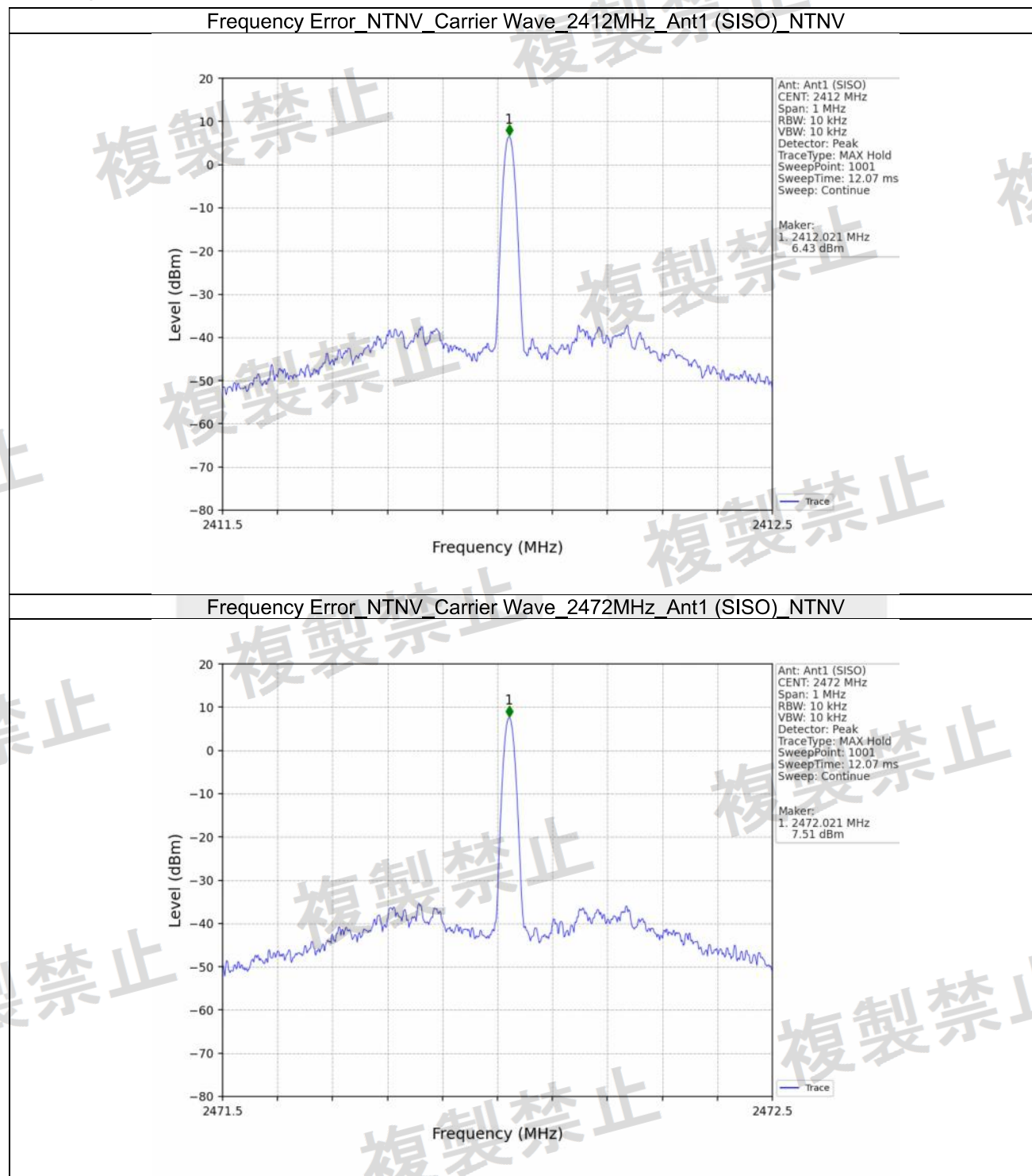
2.1 Test Result

2.1.1 Ant1

Ant1							
ENV	Mode	TX Type	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
					Result	Limit	
NTNV	Carrier Wave	SISO	2412	2412.021	8.71	-50 to 50	Pass
			2472	2472.021	8.50	-50 to 50	Pass

2.2 Test Graph

2.2.1 Ant1



3. Occupied Bandwidth

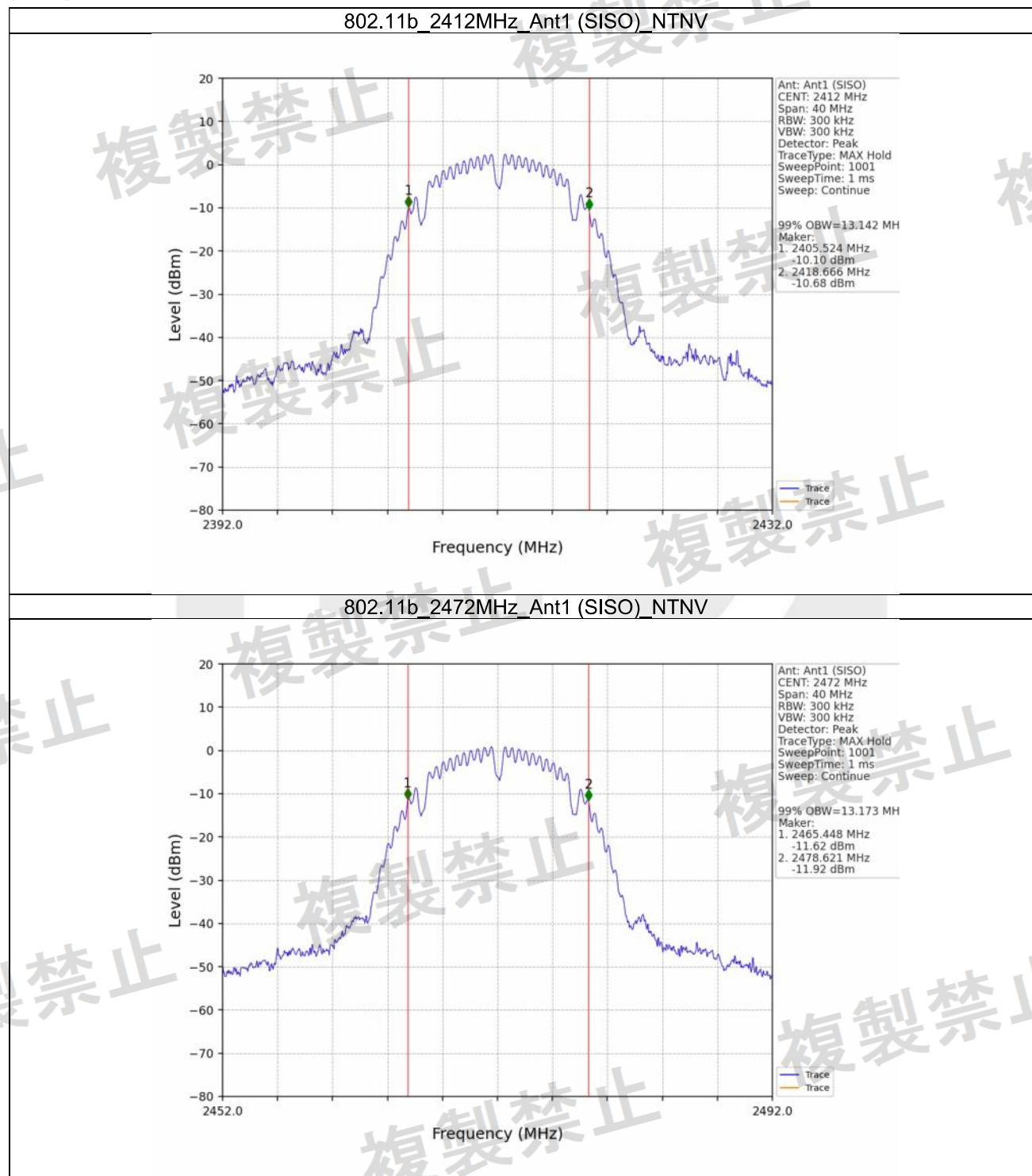
3.1 Test Result

3.1.1 OBW

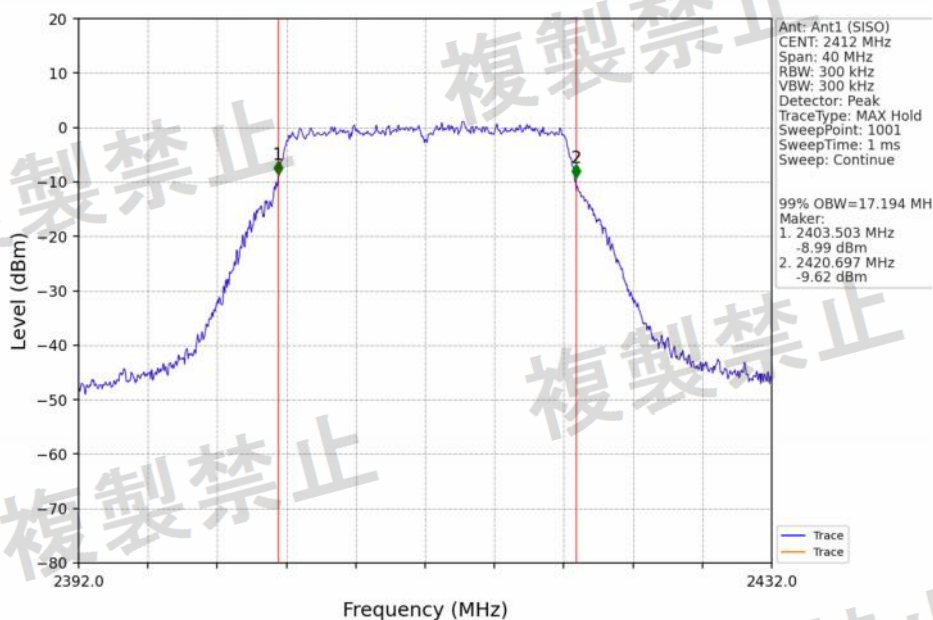
ENV	Mode	TX Type	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
				ANT1	Limit	
NTNV	802.11b	SISO	2412	13.142	≤ 26	Pass
			2472	13.173	≤ 26	Pass
	802.11g	SISO	2412	17.194	≤ 26	Pass
			2472	17.218	≤ 26	Pass
	802.11n (HT20)	SISO	2412	18.220	≤ 26	Pass
			2472	18.251	≤ 26	Pass

3.2 Test Graph

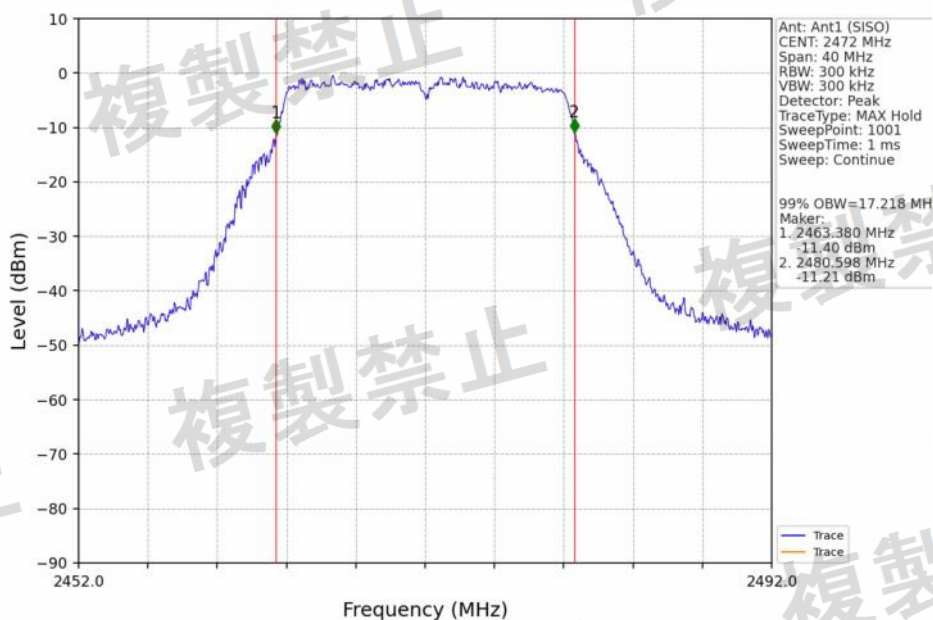
3.2.1 OBW



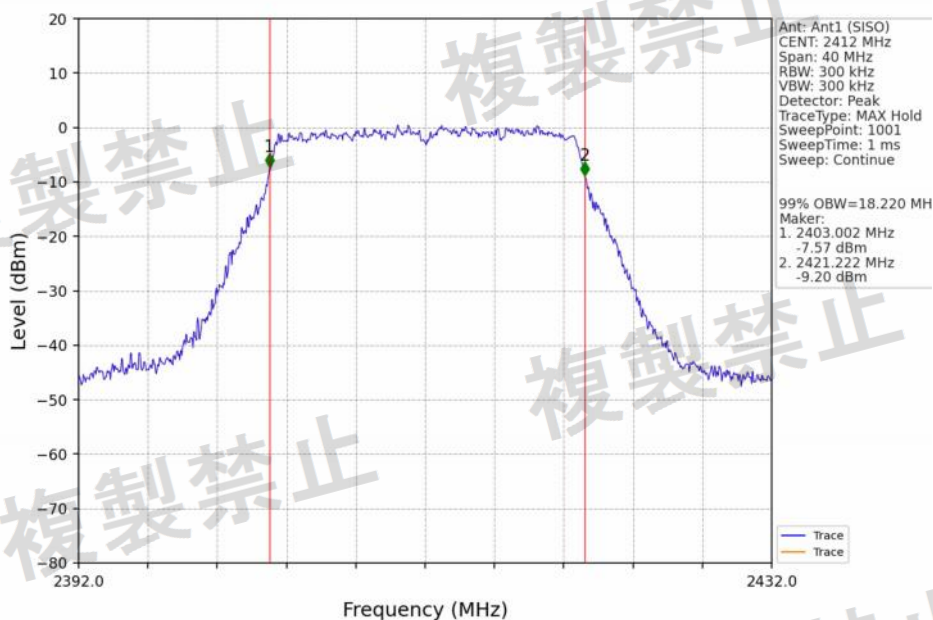
802.11g_2412MHz_Ant1 (SISO) NTVN



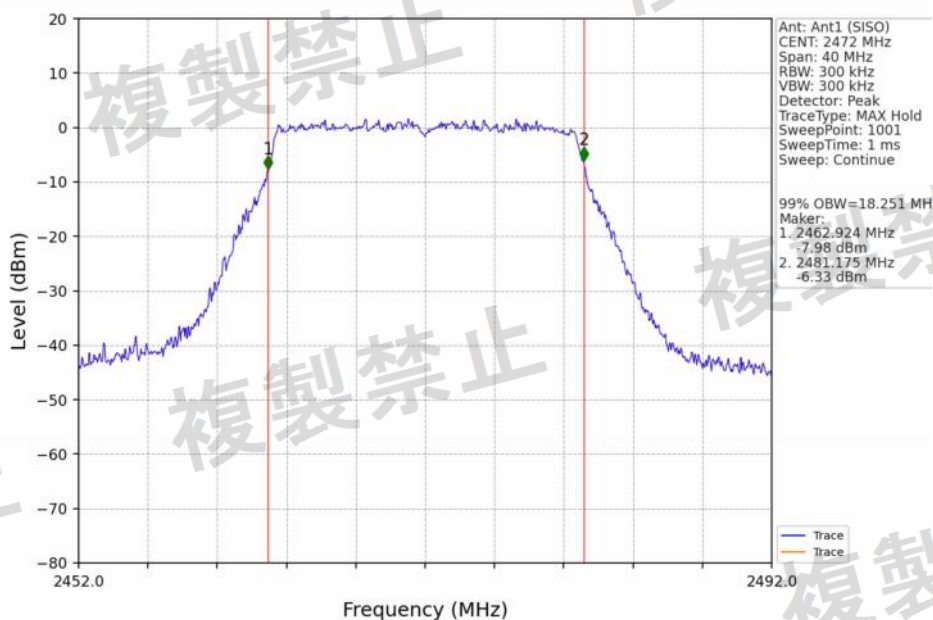
802.11g_2472MHz_Ant1 (SISO) NTVN



802.11n(HT20) 2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20) 2472MHz_Ant1 (SISO)_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	802.11b	SISO	2412	1	1.704	<=10.00	2.80	-39.14	<=20	Pass
			2472	1	1.197	<=10.00	2.80	-57.25	<=20	Pass
	802.11g	SISO	2412	1	0.711	<=10.00	2.20	-67.68	<=20	Pass
			2472	1	0.491	<=10.00	2.20	-77.68	<=20	Pass
	802.11n (HT20)	SISO	2412	1	0.541	<=10.00	2.00	-72.95	<=20	Pass
			2472	1	0.737	<=10.00	2.00	-63.15	<=20	Pass

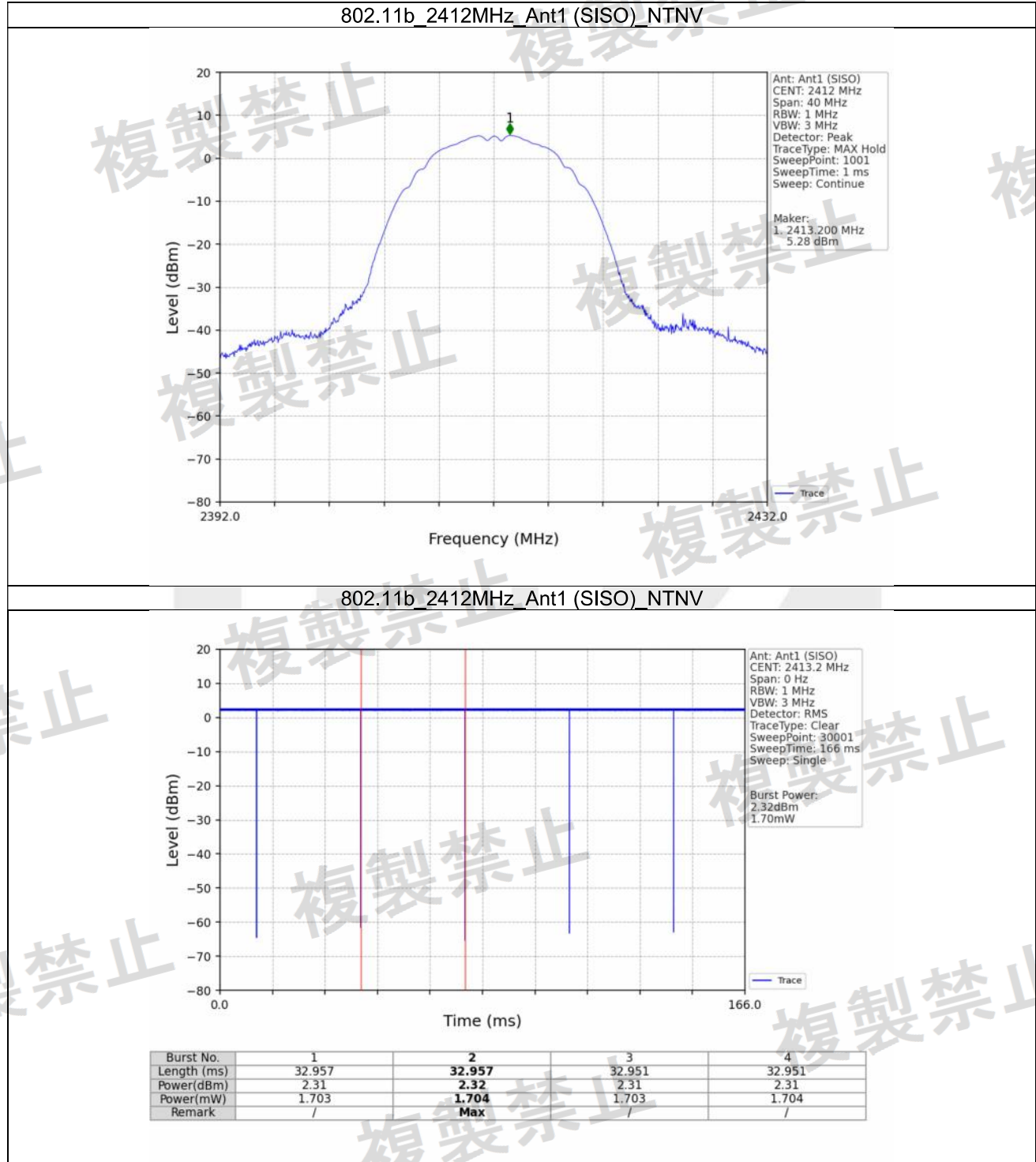
4.1.2 EIRP

ENV	Mode	TX Type	Frequency (MHz)	ANT	Gain (dBi)	Measured Power (dBm)	EIRP (dBm/MHz)		Verdict
							Result	Limit	
NTNV	802.11b	SISO	2412	1	4.28	2.315	6.595	12.14	Pass
			2472	1	4.28	0.781	5.061	12.14	Pass
	802.11g	SISO	2412	1	4.28	-1.481	2.799	12.14	Pass
			2472	1	4.28	-3.089	1.191	12.14	Pass
	802.11n (HT20)	SISO	2412	1	4.28	-2.668	1.612	12.14	Pass
			2472	1	4.28	-1.325	2.955	12.14	Pass

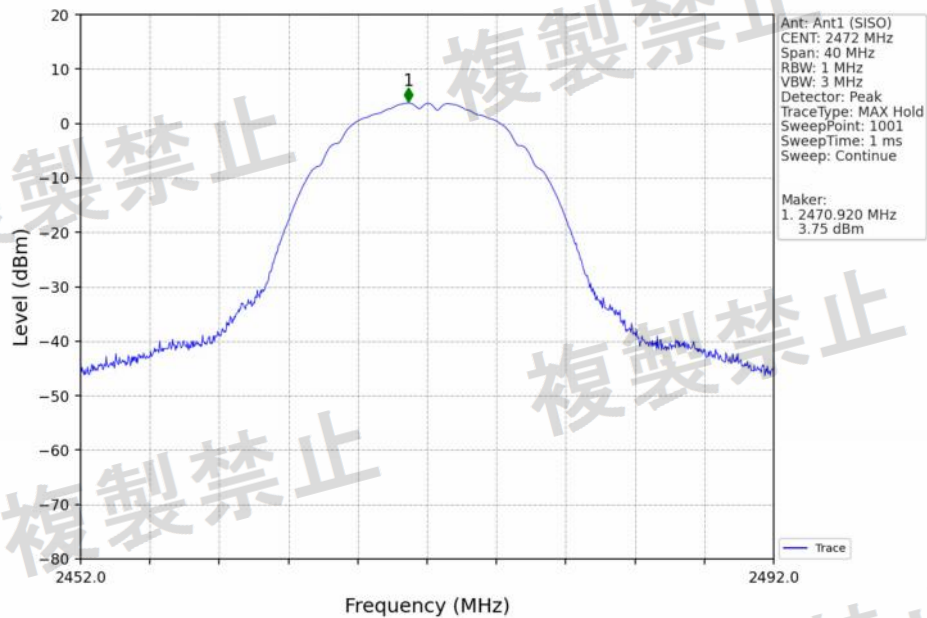
Note: E.I.R.P = Measured Power + Antenna Gain

4.2 Test Graph

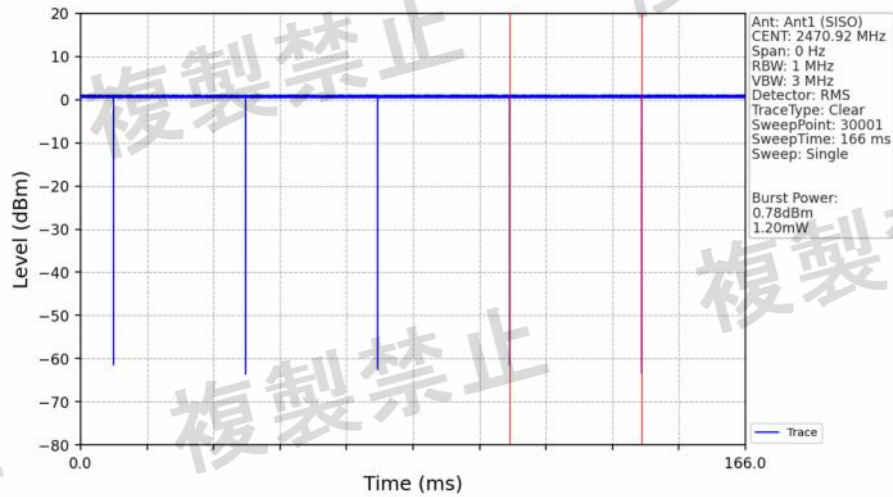
4.2.1 Power



802.11b_2472MHz_Ant1 (SISO) NTN

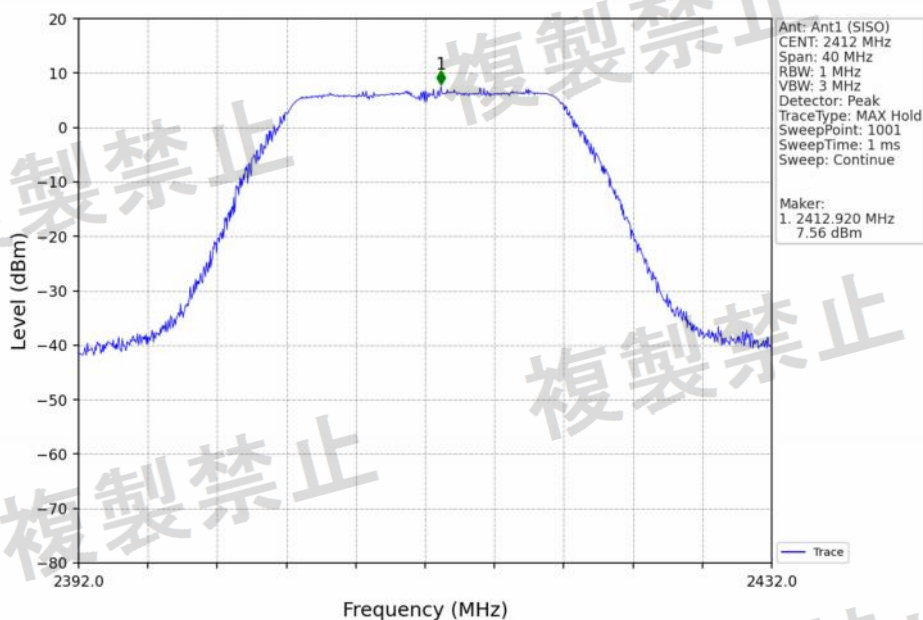


802.11b_2472MHz_Ant1 (SISO) NTN

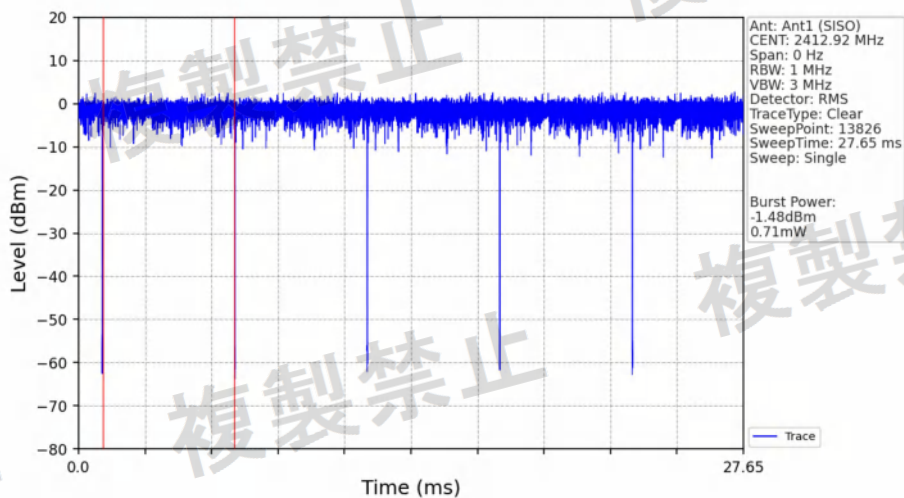


Burst No.	1	2	3	4
Length (ms)	32.957	32.951	32.951	32.951
Power(dBm)	0.77	0.78	0.78	0.78
Power(mW)	1.195	1.196	1.196	1.197
Remark	/	/	/	Max

802.11g_2412MHz_Ant1 (SISO) NTN

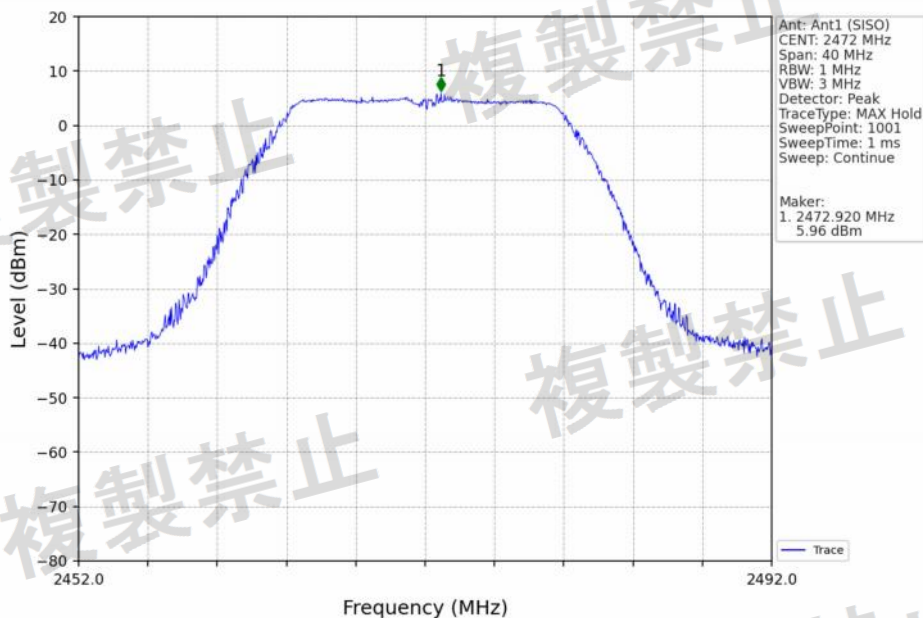


802.11g_2412MHz_Ant1 (SISO) NTN

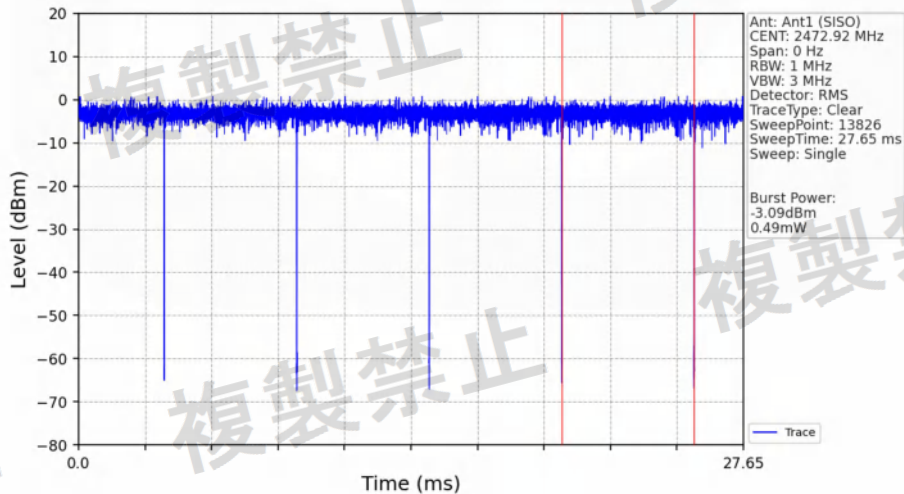


Burst No.	1	2	3	4
Length (ms)	5.484	5.484	5.484	5.484
Power(dBm)	-1.48	-1.48	-1.49	-1.48
Power(mW)	0.711	0.711	0.710	0.710
Remark	Max	/	/	/

802.11g_2472MHz_Ant1 (SISO) NTN

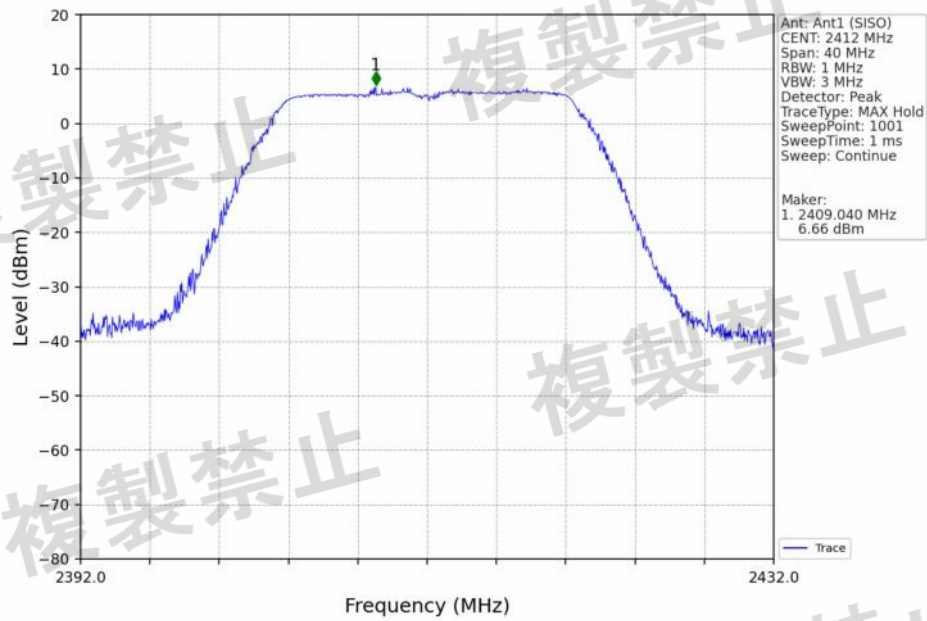


802.11g_2472MHz_Ant1 (SISO) NTN

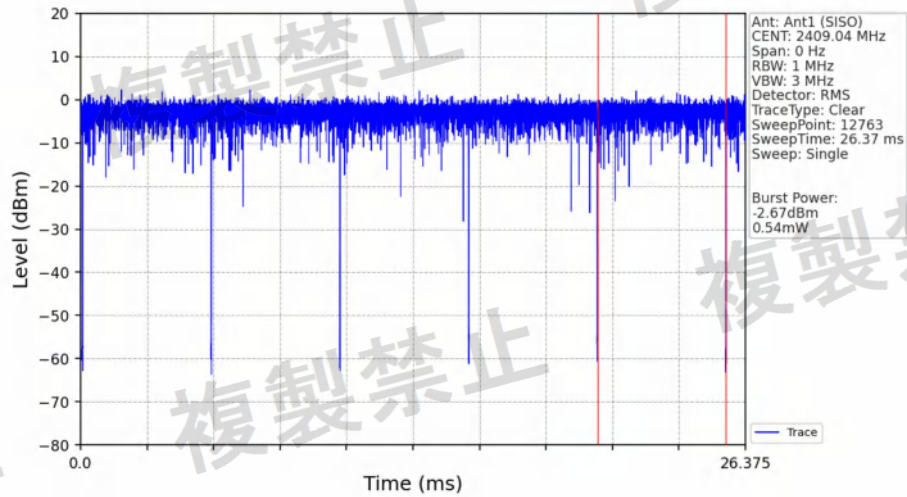


Burst No.	1	2	3	4
Length (ms)	5.486	5.486	5.486	5.484
Power(dBm)	-3.09	-3.10	-3.10	-3.09
Power(mW)	0.491	0.490	0.490	0.491
Remark	/	/	/	Max

802.11n(HT20) 2412MHz_Ant1 (SISO)_NTNV

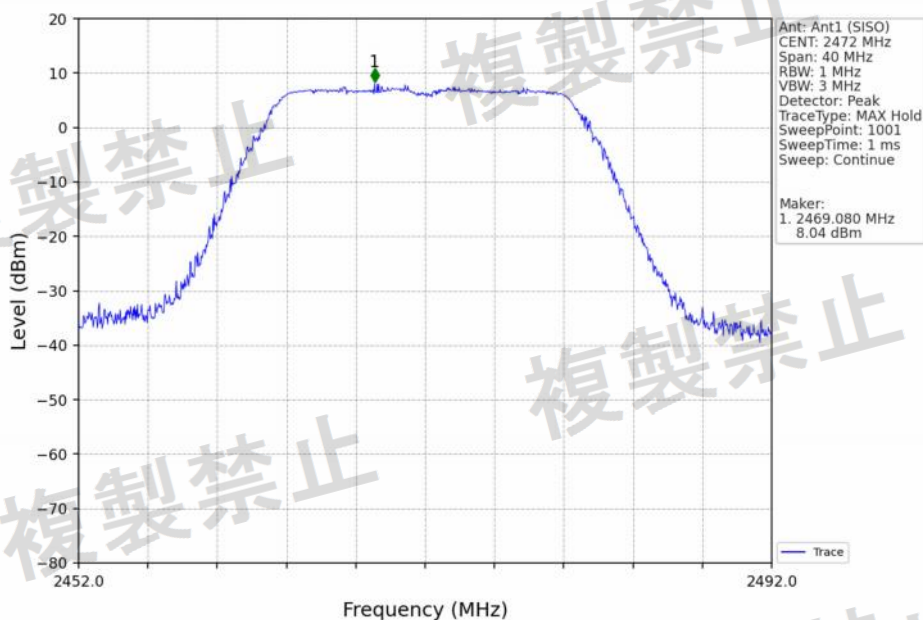


802.11n(HT20) 2412MHz_Ant1 (SISO)_NTNV

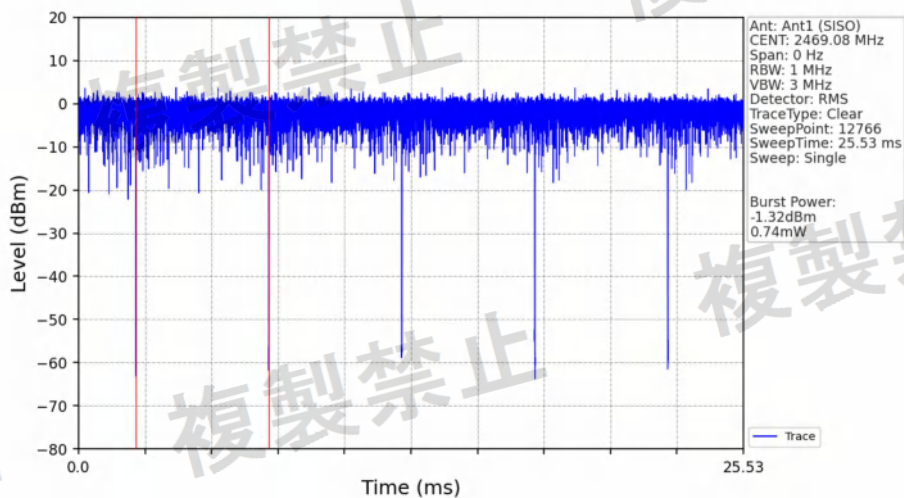


Burst No.	1	2	3	4	5
Length (ms)	5.082	5.080	5.082	5.082	5.080
Power(dBm)	-2.67	-2.67	-2.67	-2.67	-2.67
Power(mW)	0.541	0.541	0.541	0.541	0.541
Remark	/	/	/	/	Max

802.11n(HT20)_2472MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_2472MHz_Ant1 (SISO)_NTNV



Burst No.	1	2	3	4
Length (ms)	5.082	5.082	5.082	5.082
Power(dBm)	-1.32	-1.32	-1.32	-1.32
Power(mW)	0.737	0.737	0.737	0.737
Remark	Max	/	/	/

5. Spurious Emission Intensity

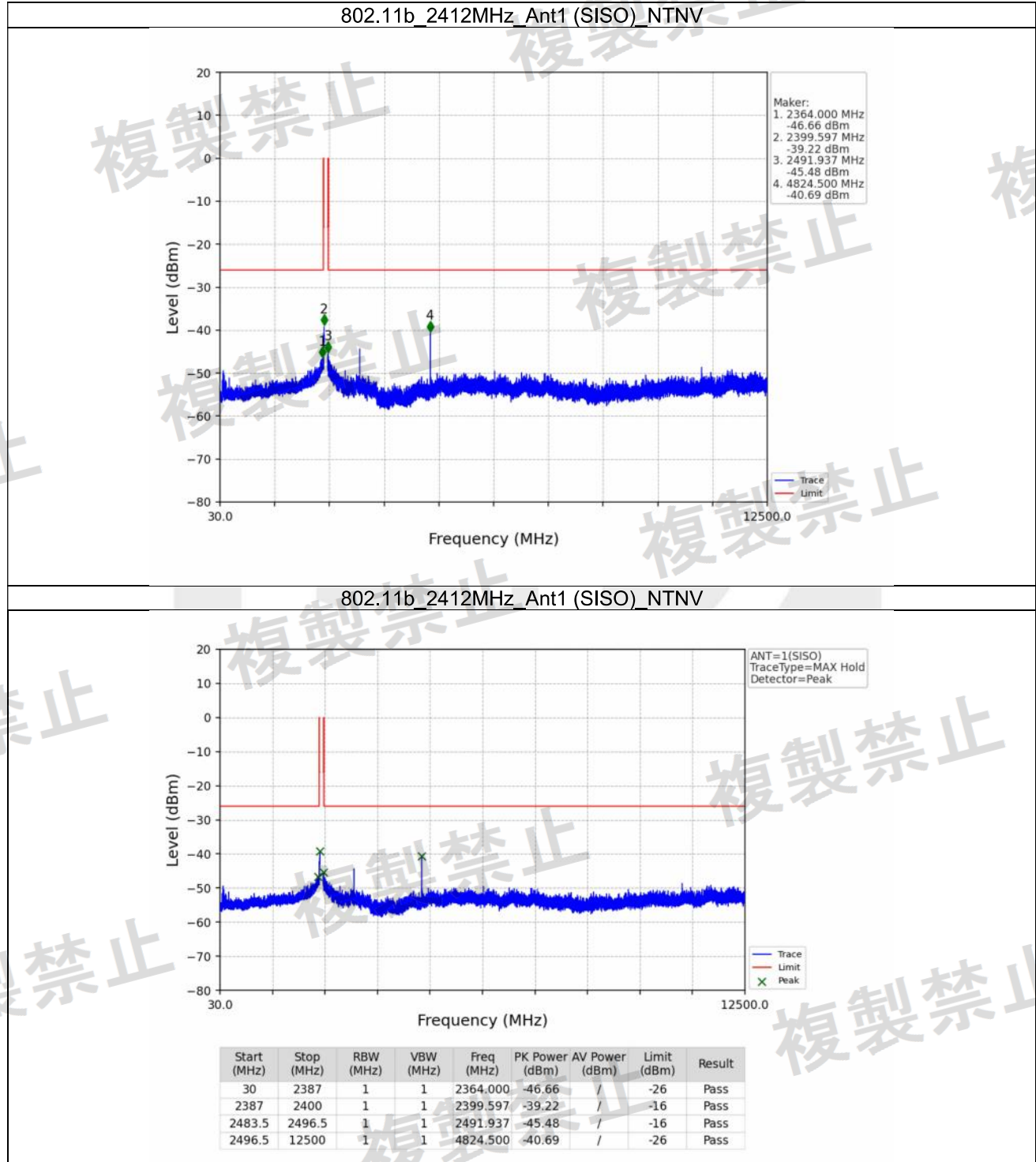
5.1 Test Result

5.1.1 TxSe_NTNV

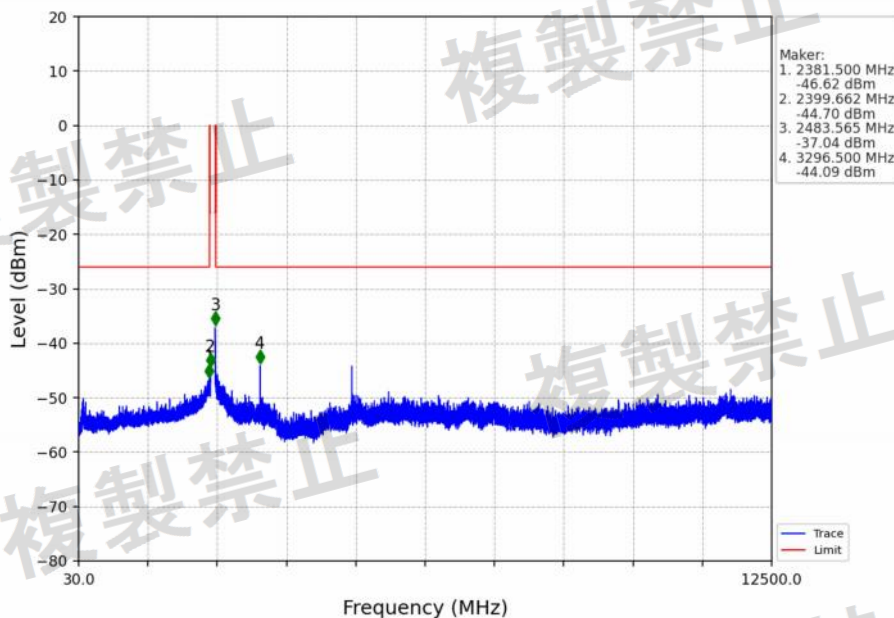
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
802.11b	SISO	2412	1	30	2387	2364	-46.66	0.022	/	/	2.5	Pass
				2387	2400	2399.597	-39.22	0.120	/	/	25	Pass
				2483.5	2496.5	2491.937	-45.48	0.028	/	/	25	Pass
				2496.5	12500	4824.5	-40.69	0.085	/	/	2.5	Pass
	SISO	2472	1	30	2387	2381.5	-46.62	0.022	/	/	2.5	Pass
				2387	2400	2399.662	-44.70	0.034	/	/	25	Pass
				2483.5	2496.5	2483.565	-37.04	0.198	/	/	25	Pass
				2496.5	12500	3296.5	-44.09	0.039	/	/	2.5	Pass
802.11g	SISO	2412	1	30	2387	2385	-44.12	0.039	/	/	2.5	Pass
				2387	2400	2399.948	-20.65	8.610	/	/	25	Pass
				2483.5	2496.5	2493.731	-43.16	0.048	/	/	25	Pass
				2496.5	12500	3217	-41.08	0.078	/	/	2.5	Pass
	SISO	2472	1	30	2387	2371.5	-46.47	0.023	/	/	2.5	Pass
				2387	2400	2399.974	-44.45	0.036	/	/	25	Pass
				2483.5	2496.5	2483.539	-18.44	14.322	-35.10	0.309	25	Pass
				2496.5	12500	3296.5	-42.71	0.054	/	/	2.5	Pass
802.11n (HT20)	SISO	2412	1	30	2387	2382.5	-43.93	0.040	/	/	2.5	Pass
				2387	2400	2399.896	-18.28	14.859	-36.13	0.244	25	Pass
				2483.5	2496.5	2488.518	-42.15	0.061	/	/	25	Pass
				2496.5	12500	4824.5	-41.49	0.071	/	/	2.5	Pass
	SISO	2472	1	30	2387	2359.5	-44.19	0.038	/	/	2.5	Pass
				2387	2400	2399.935	-42.46	0.057	/	/	25	Pass
				2483.5	2496.5	2483.552	-13.39	45.814	-30.17	0.962	25	Pass
				2496.5	12500	3297	-41.56	0.070	/	/	2.5	Pass

5.2 Test Graph

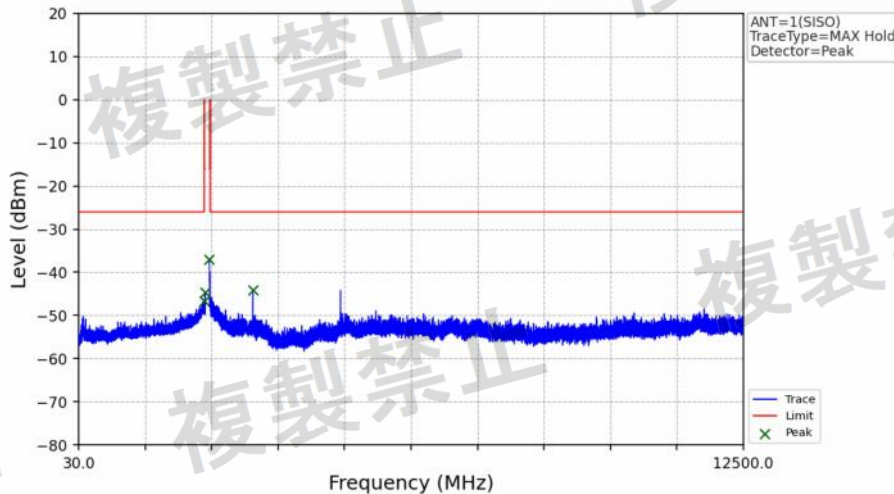
5.2.1 TxSe_NTNV



802.11b_2472MHz_Ant1 (SISO) NTVN

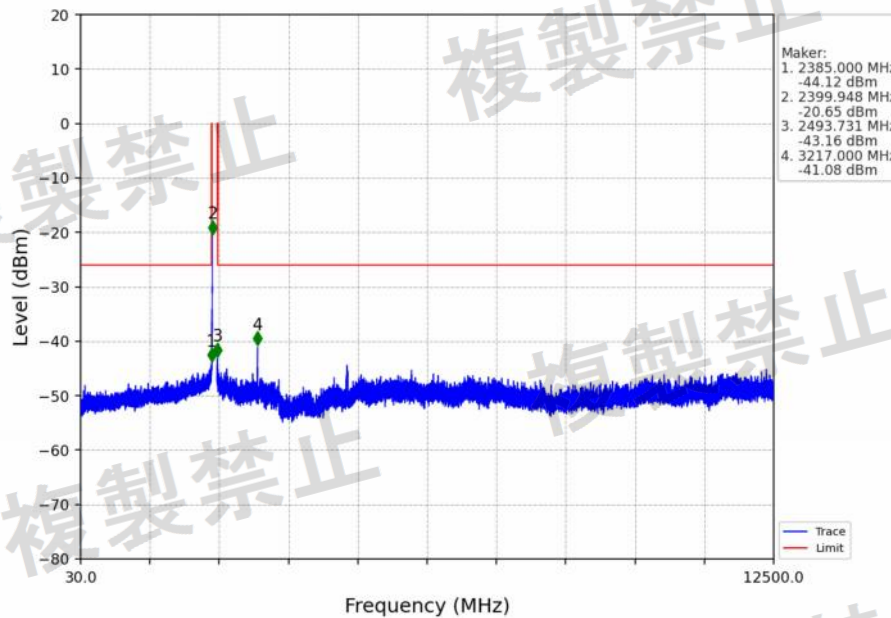


802.11b_2472MHz_Ant1 (SISO) NTVN

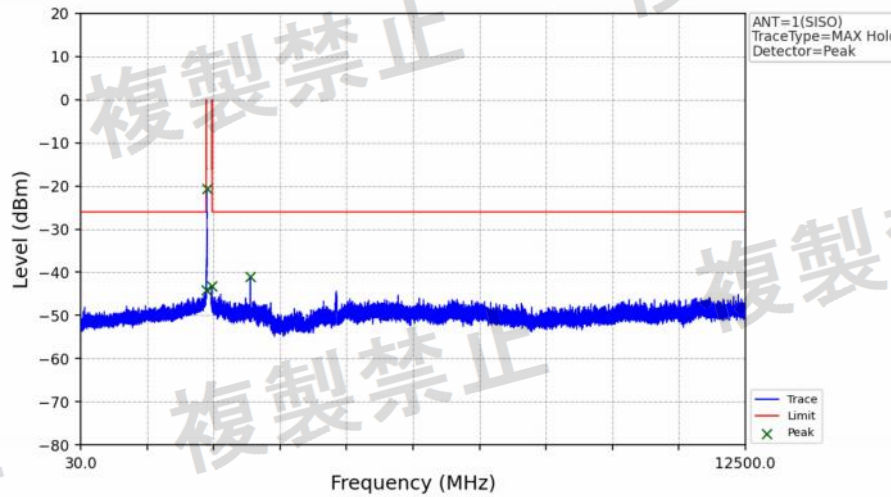


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2381.500	-46.62	/	-26	Pass
2387	2400	1	1	2399.662	-44.70	/	-16	Pass
2483.5	2496.5	1	1	2483.565	-37.04	/	-16	Pass
2496.5	12500	1	1	3296.500	-44.09	/	-26	Pass

802.11g_2412MHz_Ant1 (SISO) NTNV

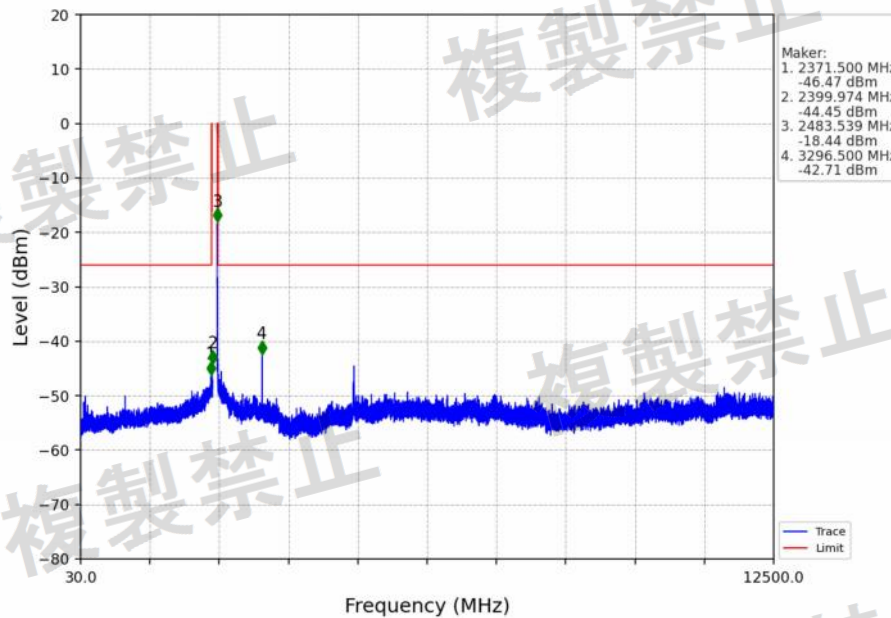


802.11g_2412MHz_Ant1 (SISO) NTNV

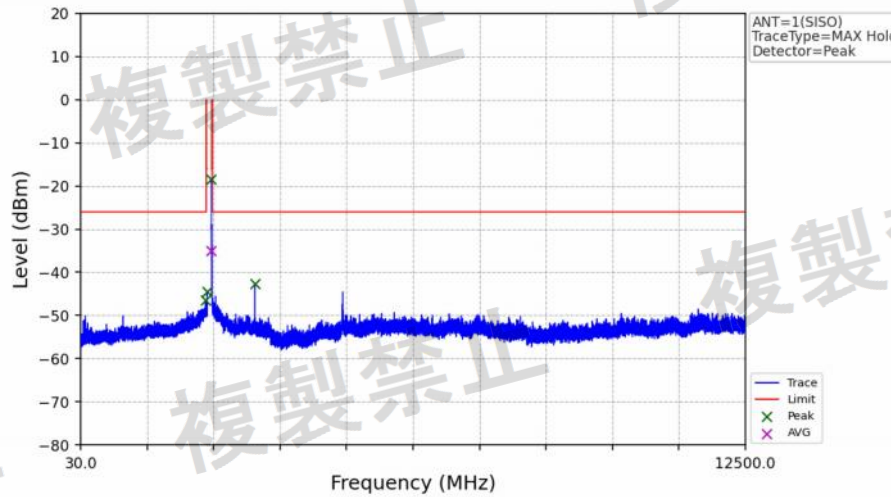


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2385.000	-44.12	/	-26	Pass
2387	2400	1	1	2399.948	-20.65	/	-16	Pass
2483.5	2496.5	1	1	2493.731	-43.16	/	-16	Pass
2496.5	12500	1	1	3217.000	-41.08	/	-26	Pass

802.11g_2472MHz_Ant1 (SISO) NTNV

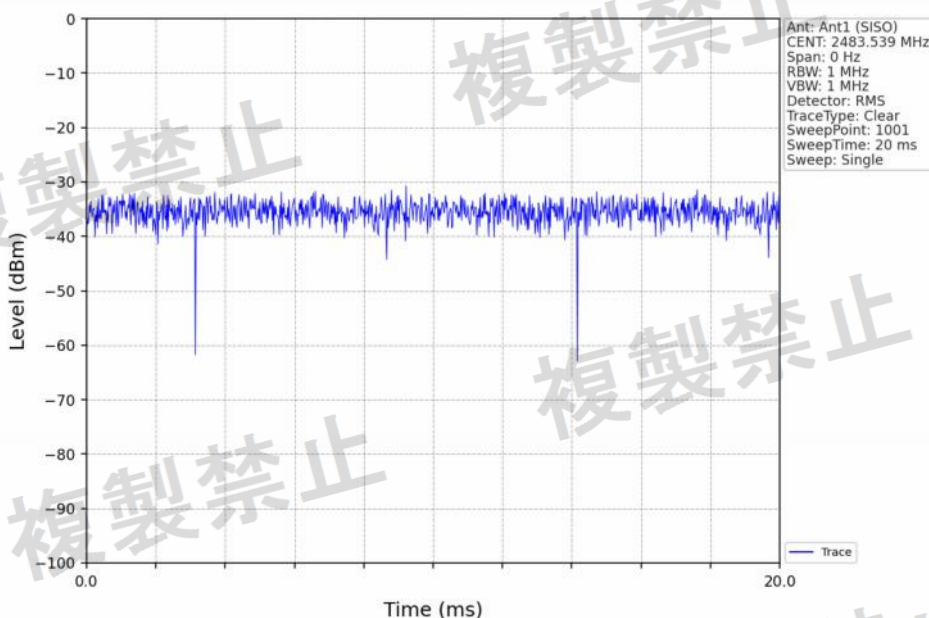


802.11g_2472MHz_Ant1 (SISO) NTNV

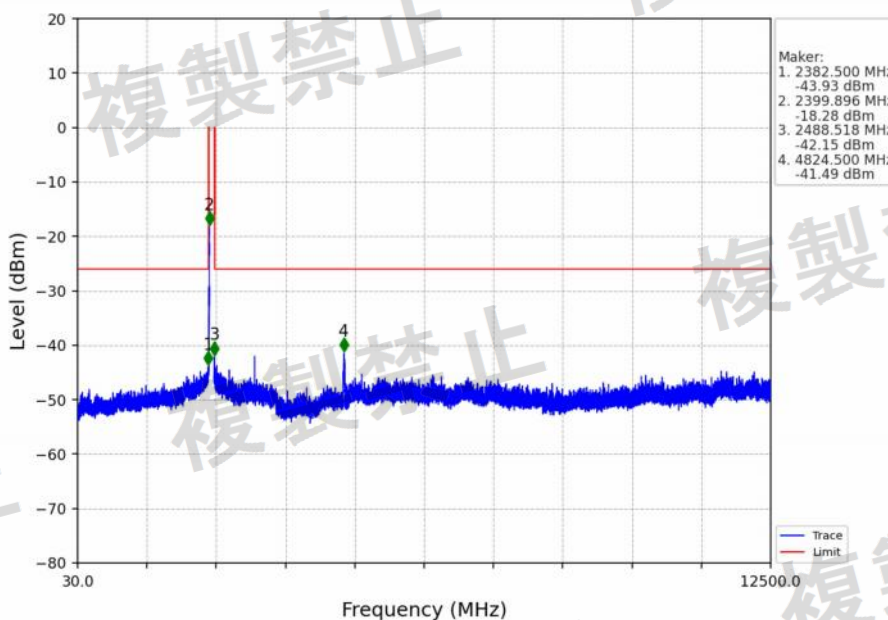


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2371.500	-46.47	/	-26	Pass
2387	2400	1	1	2399.974	-44.45	/	-16	Pass
2483.5	2496.5	1	1	2483.539	-18.44	-35.10	-16	Pass
2496.5	12500	1	1	3296.500	-42.71	/	-26	Pass

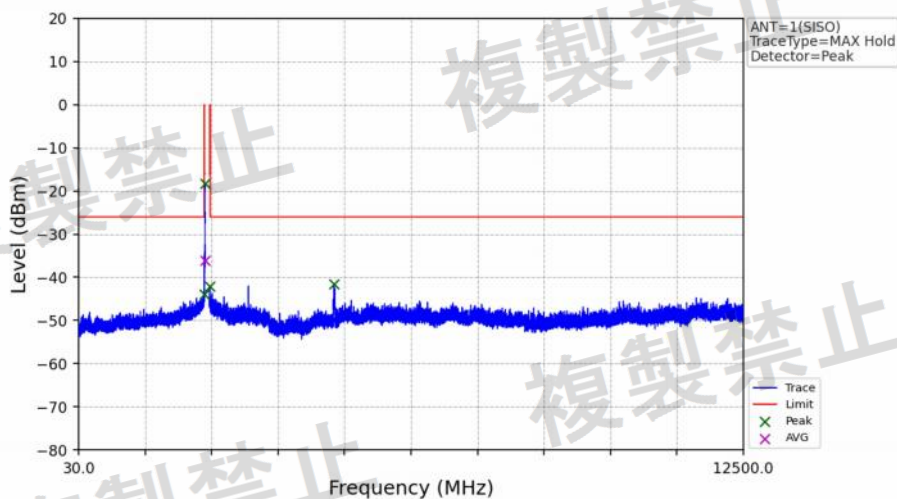
802.11g_2472MHz_Ant1 (SISO) NTN



802.11n(HT20)_2412MHz_Ant1 (SISO) NTN

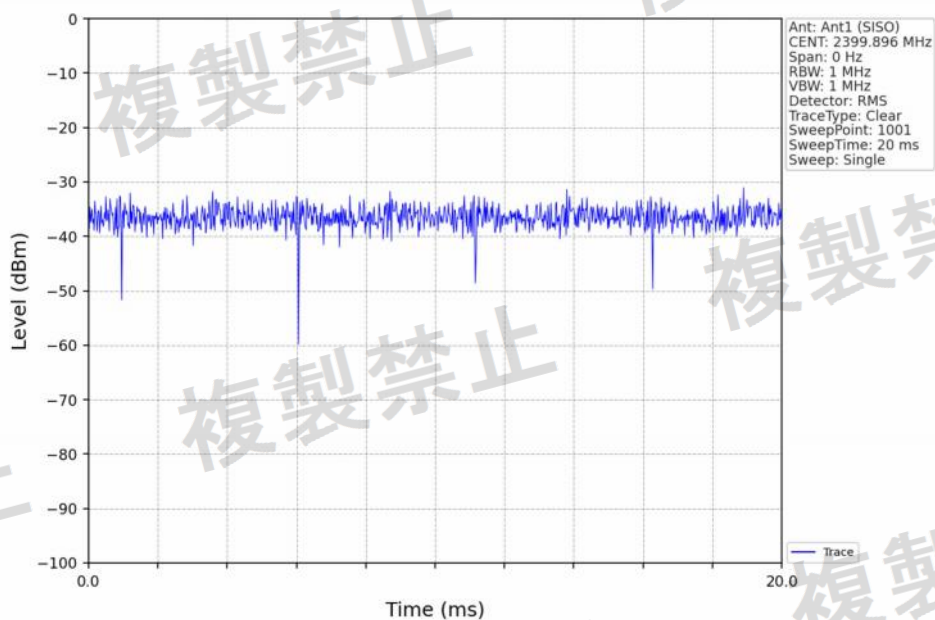


802.11n(HT20)_2412MHz_Ant1 (SISO)_NTNV

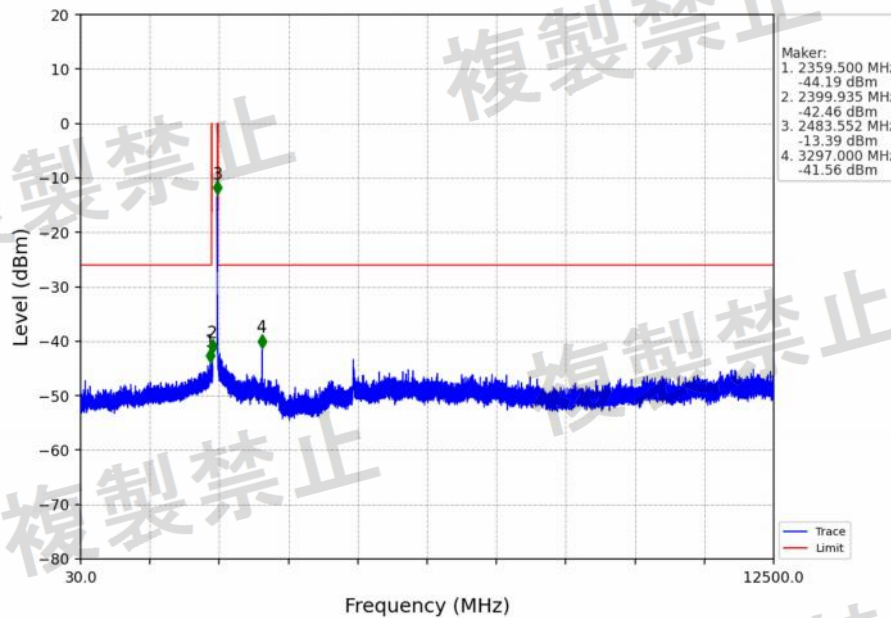


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2382.500	-43.93	/	-26	Pass
2387	2400	1	1	2399.896	-18.28	-36.13	-16	Pass
2483.5	2496.5	1	1	2488.518	-42.15	/	-16	Pass
2496.5	12500	1	1	4824.500	-41.49	/	-26	Pass

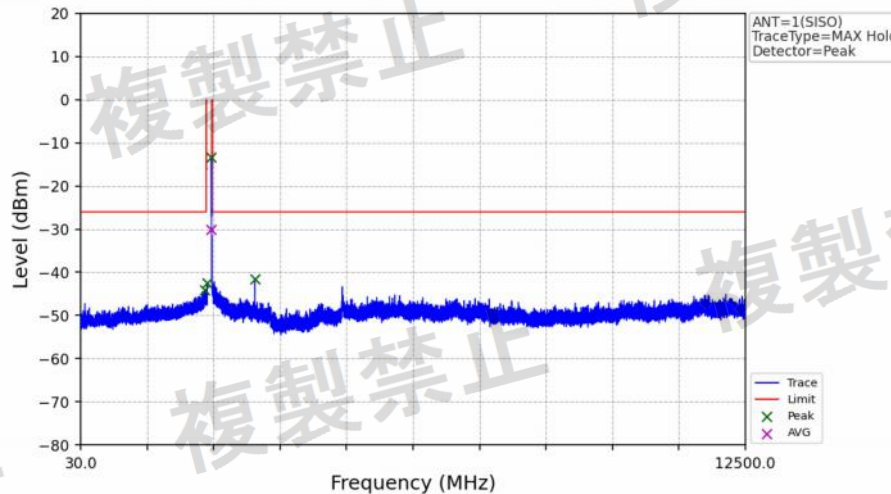
802.11n(HT20)_2412MHz_Ant1 (SISO)_NTNV



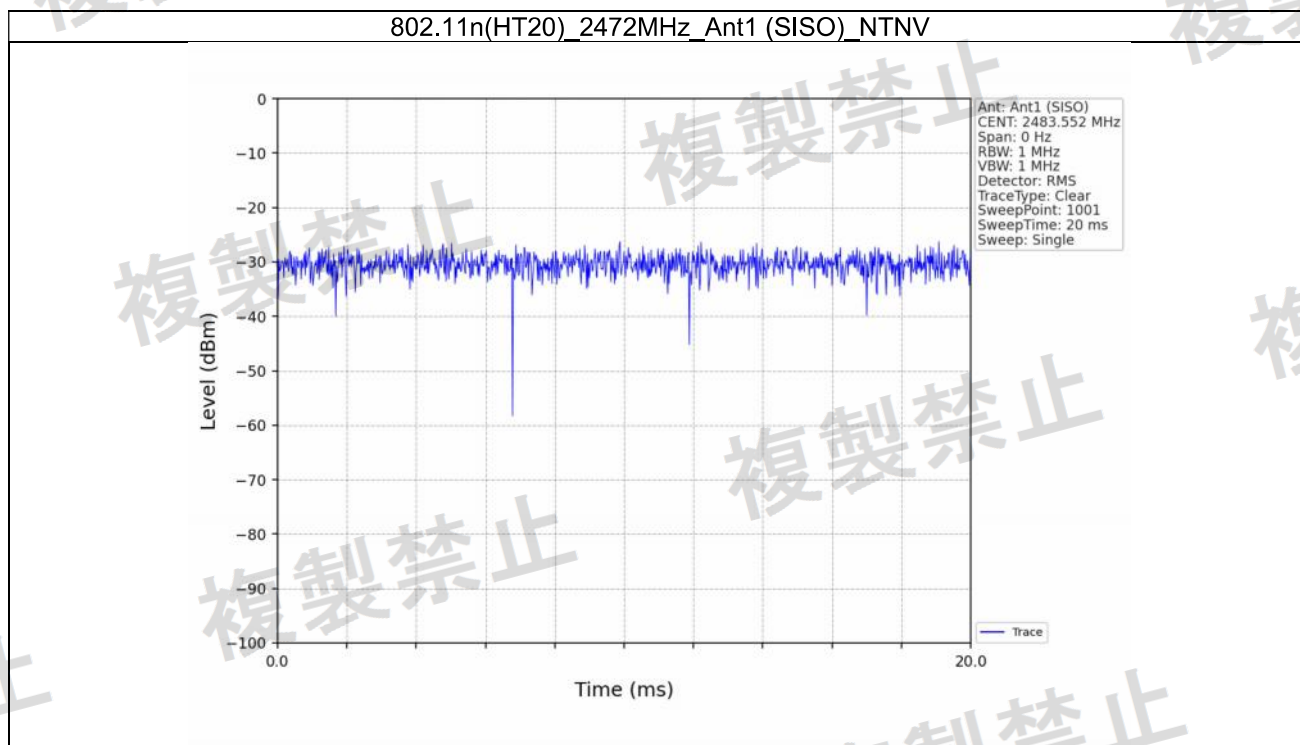
802.11n(HT20)_2472MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_2472MHz_Ant1 (SISO)_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2359.500	-44.19	/	-26	Pass
2387	2400	1	1	2399.935	-42.46	/	-16	Pass
2483.5	2496.5	1	1	2483.552	-13.39	-30.17	-16	Pass
2496.5	12500	1	1	3297.000	-41.56	/	-26	Pass



6. Secondary Radiated Emission

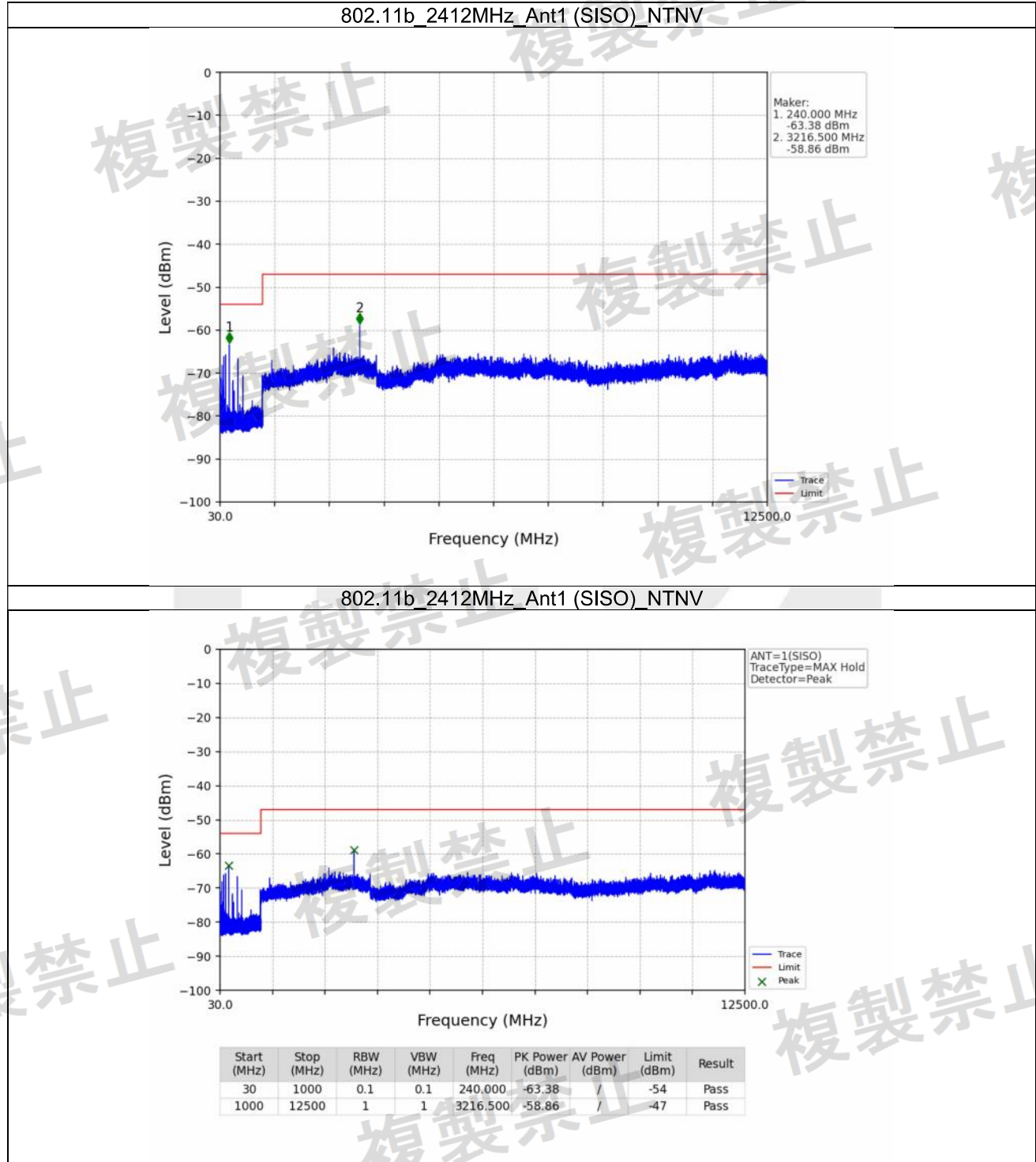
6.1 Test Result

6.1.1 RxSe_NTNV

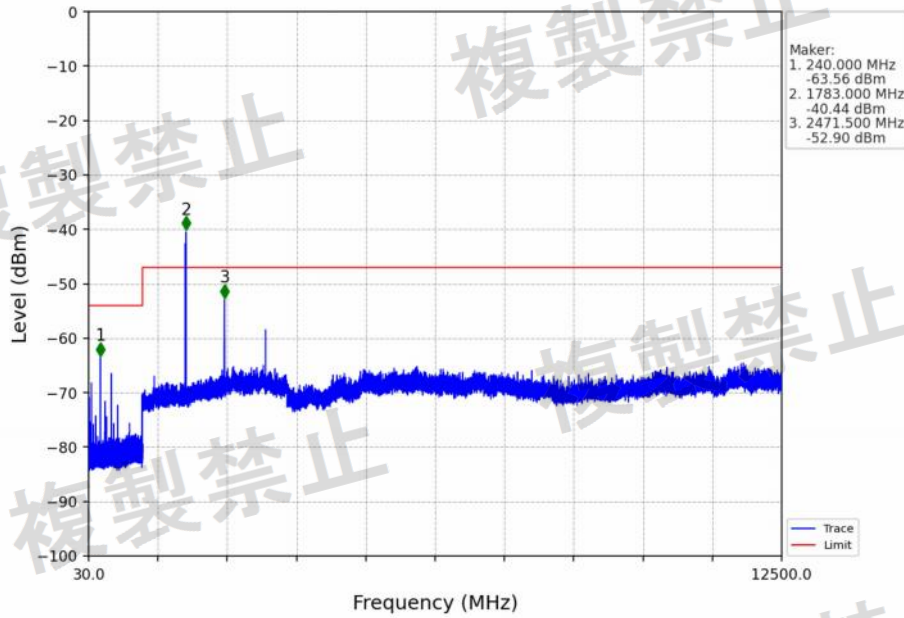
NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
802.11b	SISO	2412	1	30	1000	240	-63.38	0.459	/	/	4	Pass
				1000	12500	3216.5	-58.86	1.300	/	/	20	Pass
		2472	1	30	1000	240	-63.56	0.441	/	/	4	Pass
				1000	12500	1783	-40.44	90.365	-79.57	0.011	20	Pass
						2471.5	-52.90	5.129	-77.78	0.017	20	Pass
802.11g	SISO	2412	1	30	1000	160	-66.04	0.249	/	/	4	Pass
				1000	12500	3217	-58.65	1.365	/	/	20	Pass
		2472	1	30	1000	160	-65.25	0.299	/	/	4	Pass
				1000	12500	3217	-58.44	1.432	/	/	20	Pass
802.11n (HT20)	SISO	2412	1	30	1000	240	-62.48	0.565	/	/	4	Pass
				1000	12500	2403	-56.67	2.153	/	/	20	Pass
		2472	1	30	1000	240	-63.40	0.457	/	/	4	Pass
				1000	12500	2402.5	-56.92	2.032	/	/	20	Pass

6.2 Test Graph

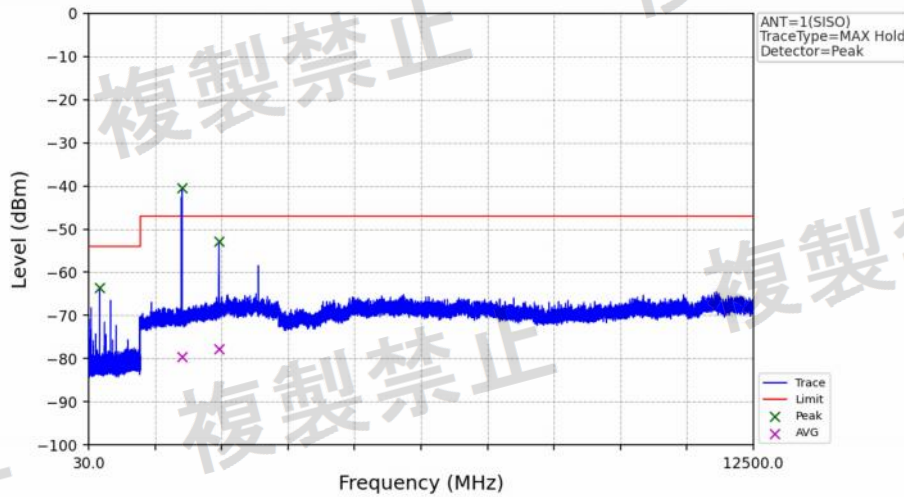
6.2.1 RxSe_NTNV



802.11b_2472MHz_Ant1 (SISO) NTN

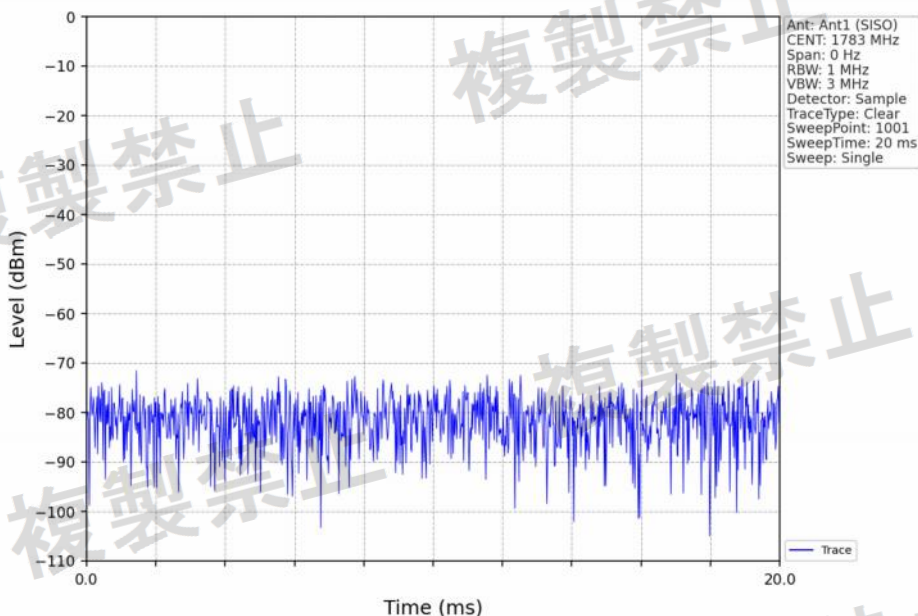


802.11b_2472MHz_Ant1 (SISO) NTN

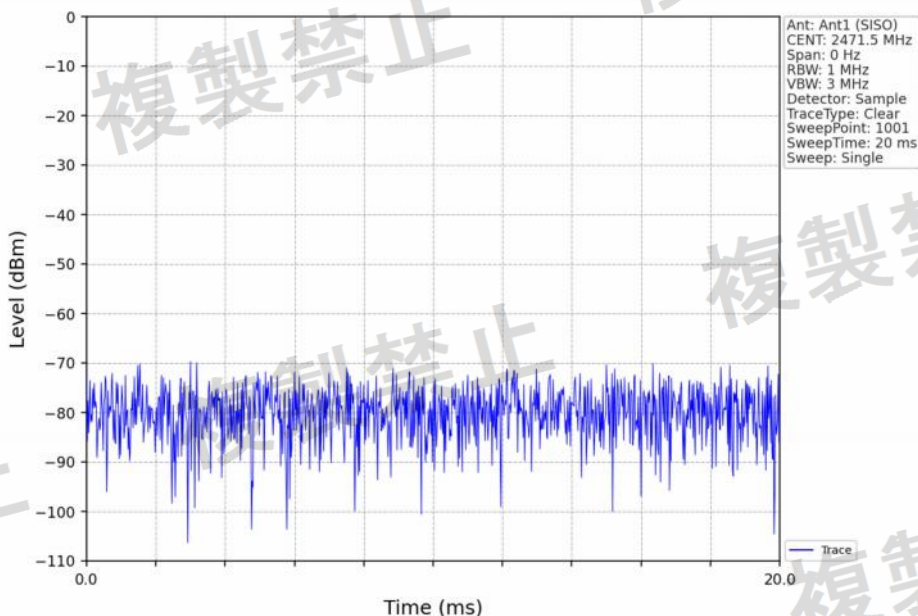


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	240.000	-63.56	/	-54	Pass
1000	12500	1	1	1783.000	-40.44	-79.57	-47	Pass
1000	12500	1	1	2471.500	-52.90	-77.78	-47	Pass

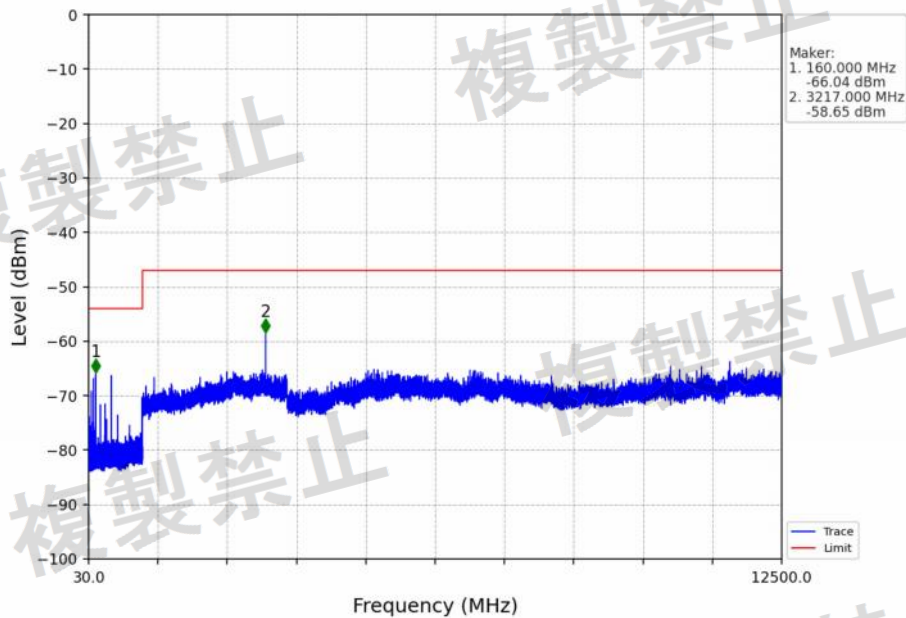
802.11b_2472MHz_Ant1 (SISO) NTN



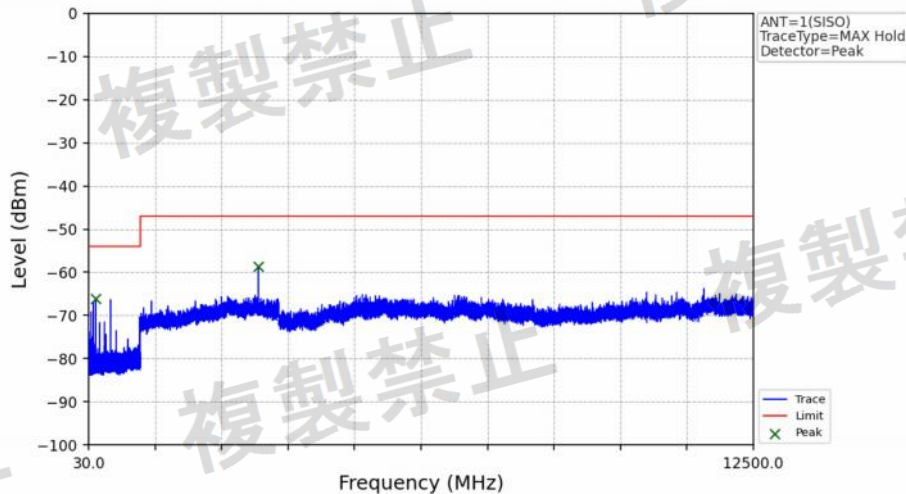
802.11b_2472MHz_Ant1 (SISO) NTN



802.11g_2412MHz_Ant1 (SISO) NTN

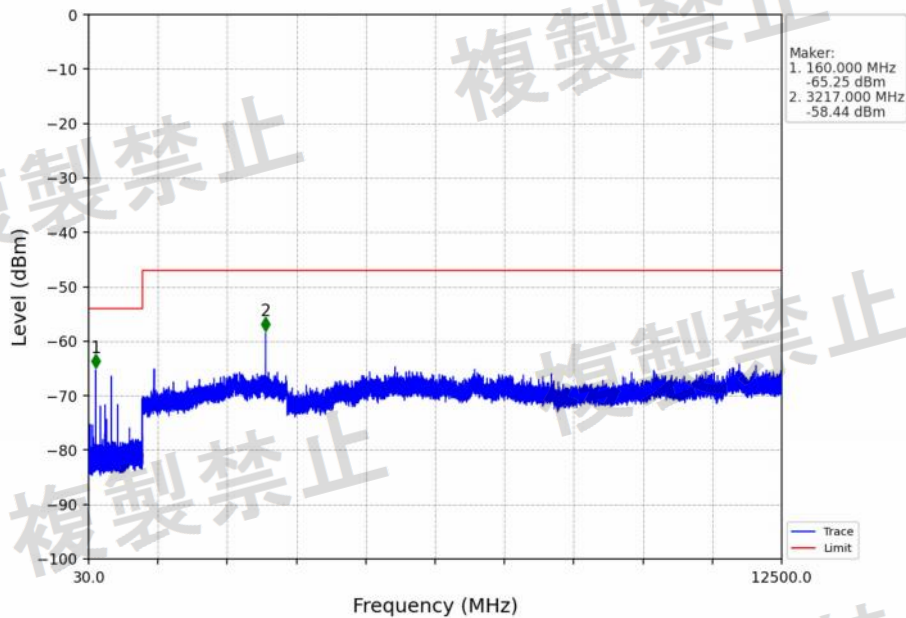


802.11g_2412MHz_Ant1 (SISO) NTN

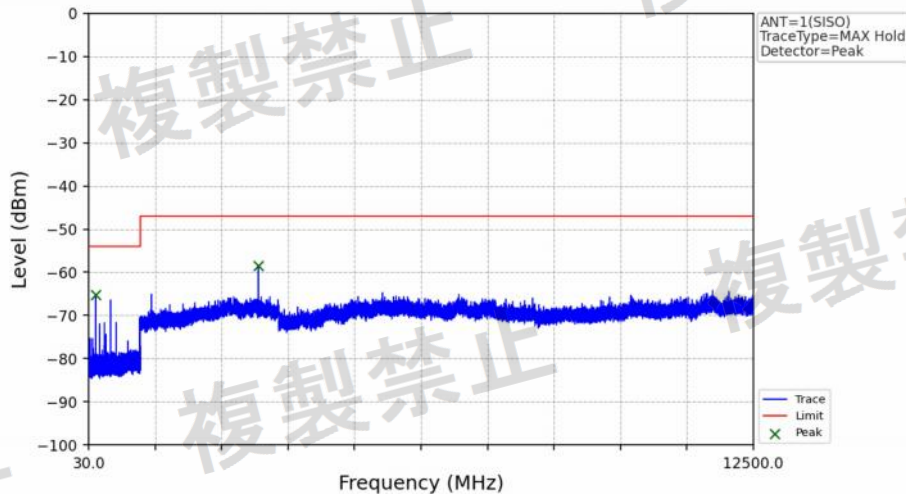


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	160.000	-66.04	/	-54	Pass
1000	12500	1	1	3217.000	-58.65	/	-47	Pass

802.11g_2472MHz_Ant1 (SISO) NTN

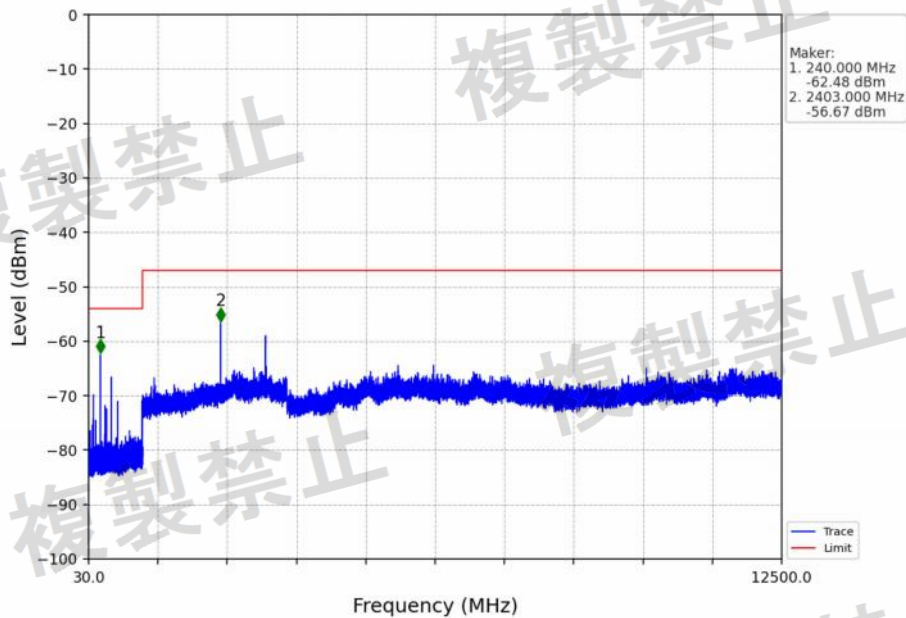


802.11g_2472MHz_Ant1 (SISO) NTN

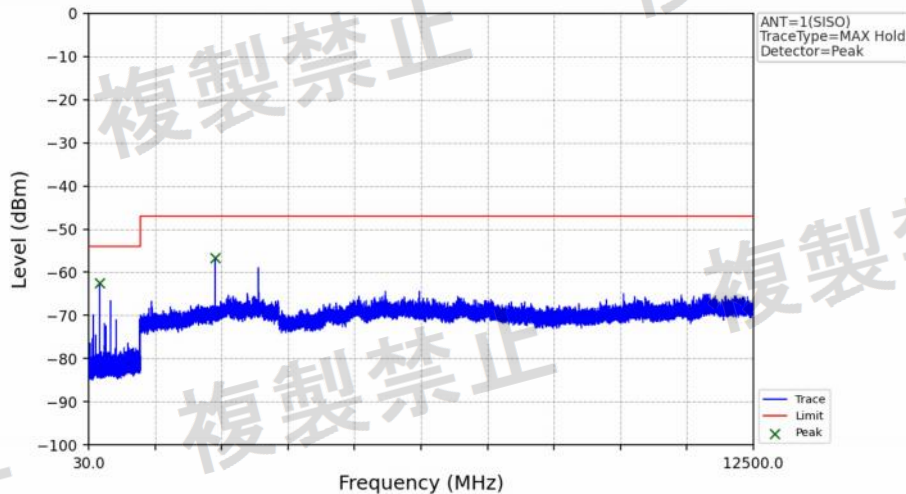


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	160.000	-65.25	/	-54	Pass
1000	12500	1	1	3217.000	-58.44	/	-47	Pass

802.11n(HT20)_2412MHz_Ant1 (SISO)_NTNV

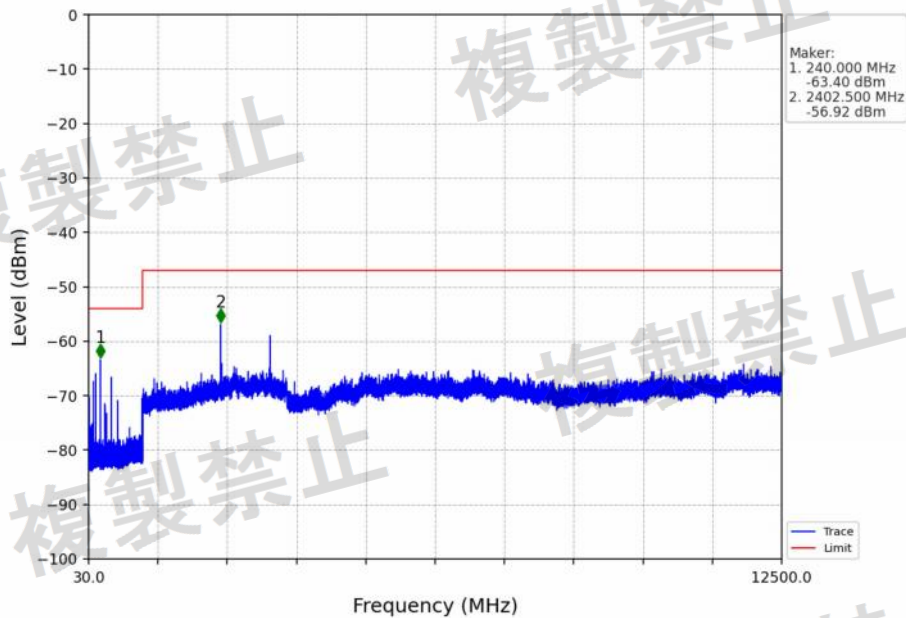


802.11n(HT20)_2412MHz_Ant1 (SISO)_NTNV

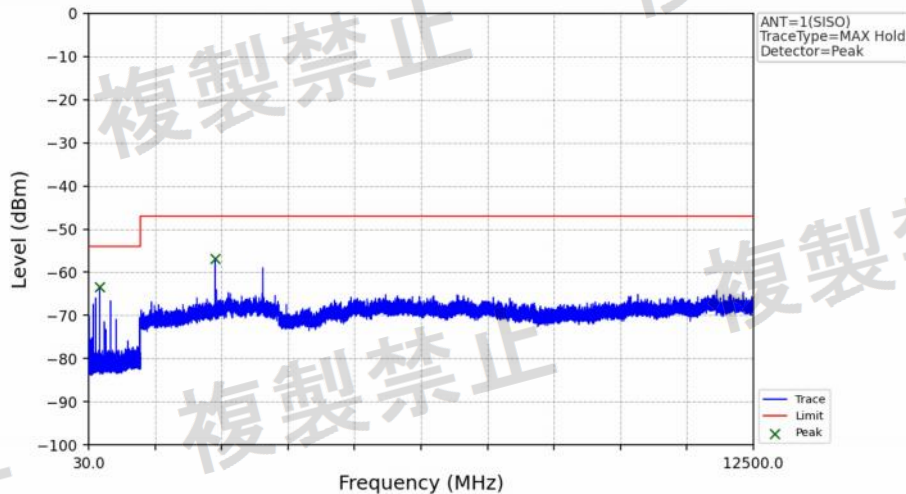


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	240.000	-62.48	/	-54	Pass
1000	12500	1	1	2403.000	-56.67	/	-47	Pass

802.11n(HT20) 2472MHz_Ant1 (SISO)_NTNV



802.11n(HT20) 2472MHz_Ant1 (SISO)_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	240.000	-63.40	/	-54	Pass
1000	12500	1	1	2402.500	-56.92	/	-47	Pass

----- End of Report -----

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