

## Japan - TEST REPORT

Report Number : 4842022239100A Date of Issue: April 27, 2022

Model : CR3L

Product Type : WiFi-Bluetooth module

Applicant : Hangzhou Tuya Information Technology Co., Ltd.

Address : Room701, Building3, More Center, No.87 GuDun Road, 310000, Hangzhou, Zhejiang, PEOPLE'S REPUBLIC OF CHINA

Production Facility : Hangzhou Tuya Information Technology Co., Ltd.

Address : Room701, Building3, More Center, No.87 GuDun Road, 310000, Hangzhou, Zhejiang, PEOPLE'S REPUBLIC OF CHINA

Test Result : ☒ Positive ☐ Negative

Total pages including Appendices : 63



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## 1 General Information

### 1.1 Notes

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Prepared by  
Project Engineer

2022.04.27

Date

Dingpeng Xia

Name

*Dingpeng Xia*

Signature

Approved by  
Project Manager

2022.04.27

Date

Jun Bao

Name

*Jun Bao*

Signature

## 1.2 Testing Laboratory

### Address of Test Laboratory:

**Company name:** TÜV SÜD Certification and Testing (China) Co., Ltd. – EMC-Lab

**Company Address:** 10# Huaxia Road (M), Dongting, Wuxi, 214100 P. R. China

**Telephone:** +86 510 8820 3737

**Fax:** +86 510 8820 3636

## 1.3 Details of Applicant

**Applicant:** Hangzhou Tuya Information Technology Co., Ltd.

**Address:** Room701, Building3, More Center, No.87 GuDun Road, 310000, Hangzhou, Zhejiang, PEOPLE'S REPUBLIC OF CHINA

**Product Description:** WiFi-Bluetooth module

**Manufacturers Model No.:** CR3L

## 1.4 Application Details

**Date of receipt of order:** 2022.3.23

**Date of receipt of test item:** 2022.3.23

**Date of test:** 2022.3.23-2022.4.11

## 1.5 Test Item

**Refer to table 1**

## 1.6 Applied Standard

### APPLIED PRODUCT STANDARD

ARIB STD-T66 Version 3.7/2014-10  
Article 2 Paragraph 1 item(19): Ministry of Internal  
Affairs and Communications Notification Article 88  
Appendix 43

## 1.7 Test Summary

Table 1. Summary of results

| Conformance requirement according to ARIB<br>STD-T66 Version 3.7/2014-10 |                                                    | Article 88<br>Appendix 43 | Result |
|--------------------------------------------------------------------------|----------------------------------------------------|---------------------------|--------|
| Essential<br>parameter                                                   | Corresponding technical<br>requirements            |                           |        |
| Transmitter<br>requirements                                              | 3.2 (2) Antenna Power                              | 6                         | PASS   |
|                                                                          | 3.2 (3) Tolerances for Antenna<br>Power            | 6                         | PASS   |
|                                                                          | 3.2 (4) Frequency Tolerance                        | 3                         | PASS   |
|                                                                          | 3.2 (5) Transmission Rate                          | --                        | N/A*   |
|                                                                          | 3.2 (7) Occupied Frequency<br>Bandwidth            | 4                         | PASS   |
|                                                                          | 3.2 (8) Spread Bandwidth                           | 4                         | PASS   |
|                                                                          | 3.2 (9) Process gain                               | --                        | N/A**  |
|                                                                          | 3.2 (10) Number of Carriers                        | --                        | N/A*   |
|                                                                          | 3.2 (11) Dwell Time                                | --                        | N/A*   |
|                                                                          | 3.4 (1) Interference prevention<br>function        | 12                        | PASS   |
|                                                                          | 3.4 (3) Carrier sense                              | 8                         | PASS   |
|                                                                          | 3.2 (6) Spurious Emissions                         | 5                         | PASS   |
| Receiver<br>requirements                                                 | 3.3 (1) Secondary Radiated<br>Emissions (Receiver) | 7                         | PASS   |
|                                                                          | 3.5 (1) Secondary Radiated<br>Emissions            | 7                         | PASS   |

NOTE 1: Measurement taken is within the measurement uncertainty of measurement system.

NOTE 2: "\*" N/A is an abbreviation for Not Applicable.

Remark: It is compliance to the appropriate section of the Ordinance Article 2 paragraph 1 Item (19).

## 2 Equipment Specification

### 2.1 General Description

CR3L is a WiFi-Bluetooth module.

### 2.2 Technical Data

|                     |                                               |
|---------------------|-----------------------------------------------|
| Description         | WiFi-Bluetooth module                         |
| Model               | CR3L                                          |
| Operation frequency | 2400MHz-2483.5MHz                             |
| BT Antenna type     | Built-in antenna                              |
| Antenna gain        | 1.88 dBi                                      |
| Rated Input         | DC 3.3V                                       |
| Modulation          | DSSS_802.11b; OFDM_802.11g; OFDM_802.11n_HT20 |

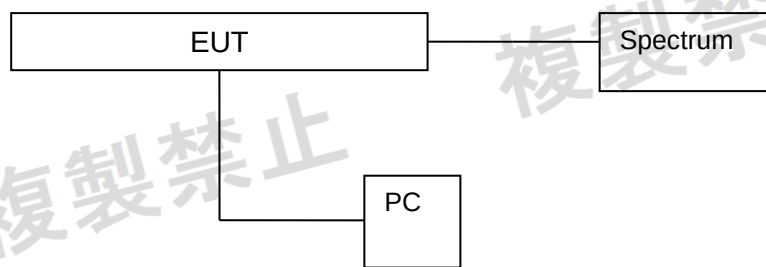
## 2.3 Test conditions and test Connections

### 2.3.1 Test Conditions

The EUT will be connected to test system in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

The EUT is supplied by an internal battery, so  $\pm 10\%$  of the rated voltage test is not required. All test items were performed at normal voltage.

### 2.3.2 Test Connections



Test Configuration

## 2.4 Auxiliary Equipment Used during Test

Table 3. Auxiliary Equipment Used during Test

| DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | CAL. DUE DATE |
|-------------|--------------|-----------|------------|---------------|
| PC          | Huawei       | MagicBook | ---        | ---           |

## 2.5 Lists of Test Instruments

Table 4. Lists of Test Instruments

| DESCRIPTION       | MANUFACTURER | MODEL NO. | SERIAL NO. | CAL. DUE DATE |
|-------------------|--------------|-----------|------------|---------------|
| Spectrum Analyzer | R&S          | FSV40     | 487/641405 | 2022/05/07    |
| RF test system    | R&S          | TS8997    | 487/391835 | 2022/12/11    |

## 2.6 Measurement Uncertainty (95% confidence levels, k=2)

| System Measurement Uncertainty                              |                                                                                    |
|-------------------------------------------------------------|------------------------------------------------------------------------------------|
| Test Items                                                  | Extended Uncertainty                                                               |
| Uncertainty for Radiated Spurious Emission<br>30MHz-1000MHz | $\pm 3.49\text{dB}$ (Horizontal),<br>$\pm 3.50\text{dB}$ (Vertical)                |
| Uncertainty for Conducted RF test                           | Power level test involved: 2.04dB<br>Frequency test involved: $1.1 \times 10^{-7}$ |

### 3 Measurements Result

#### 3.1 Antenna Power

##### 3.1.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | March 31, 2022                               |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

##### 3.1.2 Limit (ARIB STD-T66, Clause 3.2 (2)-b)

- The antenna power of a transmitting equipment (with a frequency band of 2,427 – 2,470.75 MHz, for spread spectrum systems using FH systems, hybrid systems of DS and FH, or hybrid systems of FH and OFDM) shall be such that the mean power within a bandwidth of 1 MHz is 3 mW or less in the case of modulation using a standard coding test signal with the same transmission rate as that of the modulation signal.
- The antenna power of a transmitting equipment using a spread spectrum system other than any of those in “a” and the OFDM system shall be such that the mean power within a bandwidth of 1 MHz is 10 mW or less in the case of modulation using a standard coding test signal with the same transmission rate as that of the modulation signal.

##### 3.1.3 Test result

802.11b

| Frequency (MHz) | Voltage (VDC) | Result (mW/MHz) | Limit (mW/MHz) |
|-----------------|---------------|-----------------|----------------|
| 2412            | 3.3VDC        | 9.12            | 10             |
| 2442            | 3.3VDC        | 8.75            | 10             |
| 2472            | 3.3VDC        | 9.68            | 10             |

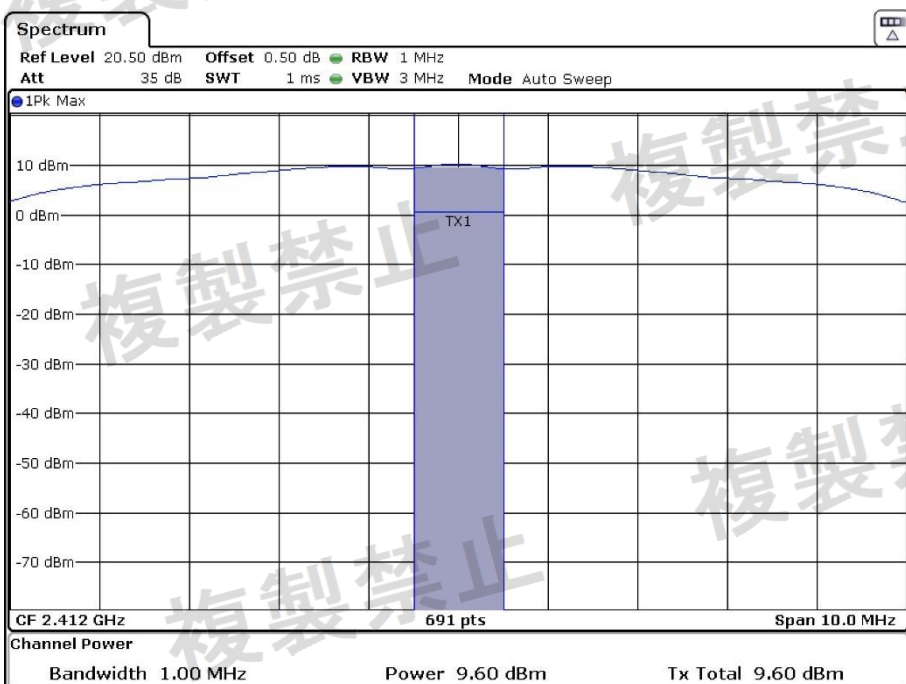
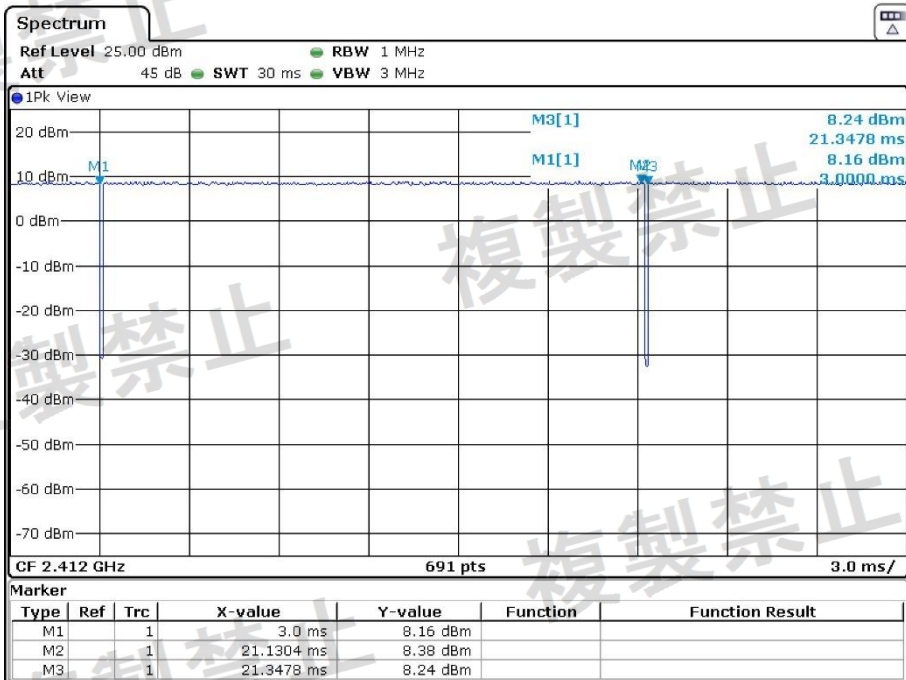
802.11g

| Frequency (MHz) | Voltage (VDC) | Result A (mW/MHz) | Limit (mW/MHz) |
|-----------------|---------------|-------------------|----------------|
| 2412            | 3.3VDC        | 6.70              | 10             |
| 2442            | 3.3VDC        | 6.03              | 10             |
| 2472            | 3.3VDC        | 7.60              | 10             |

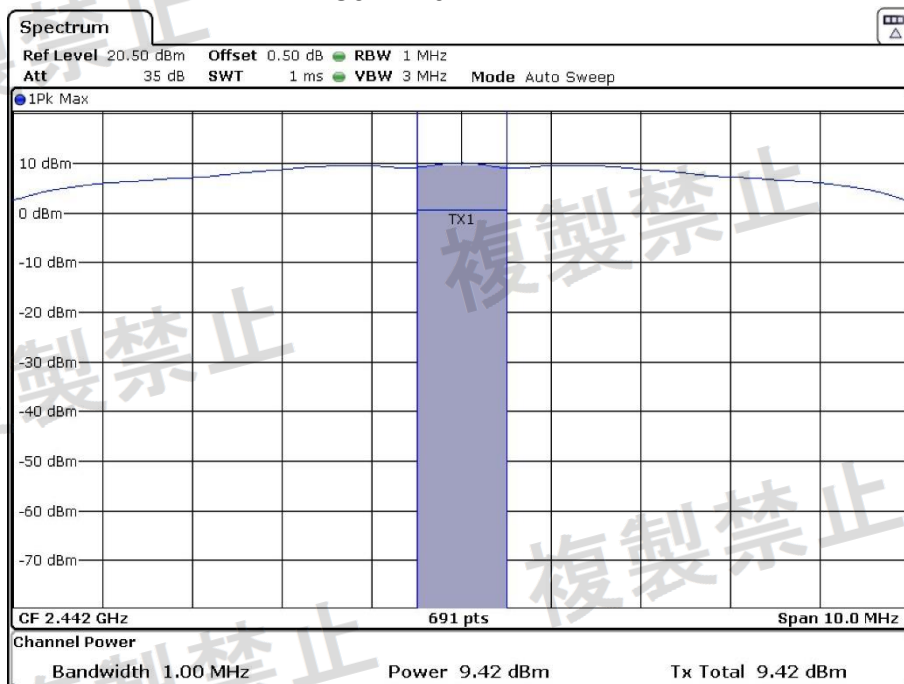
802.11n HT20

| Frequency<br>(MHz) | Voltage<br>(VDC) | Result<br>(mW/MHz) | Limit<br>(mW/MHz) |
|--------------------|------------------|--------------------|-------------------|
| 2412               | 3.3VDC           | 6.97               | 10                |
| 2442               | 3.3VDC           | 6.28               | 10                |
| 2472               | 3.3VDC           | 8.05               | 10                |

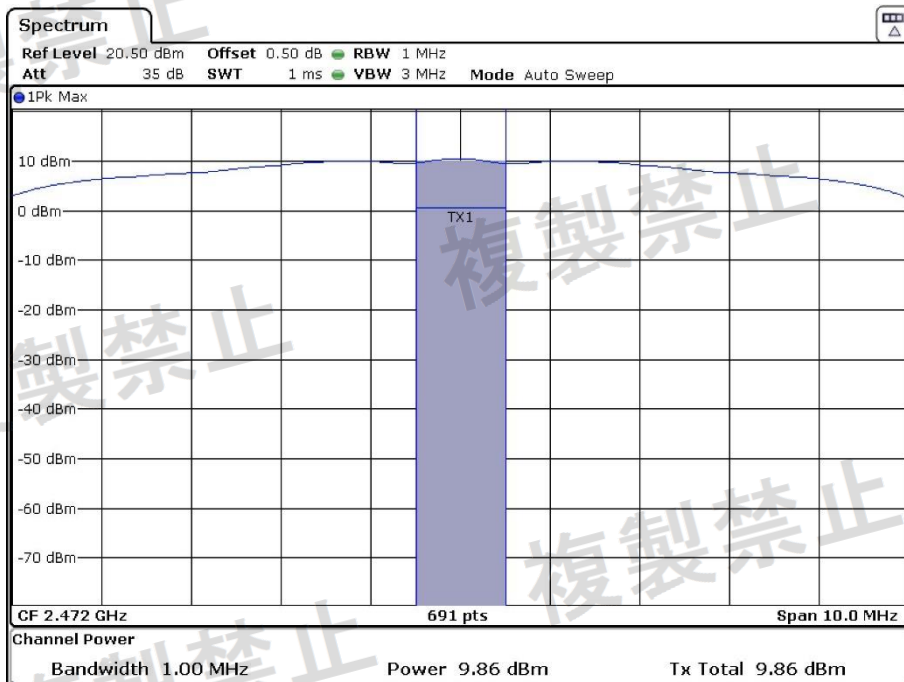
## 802.11b 2412MHz



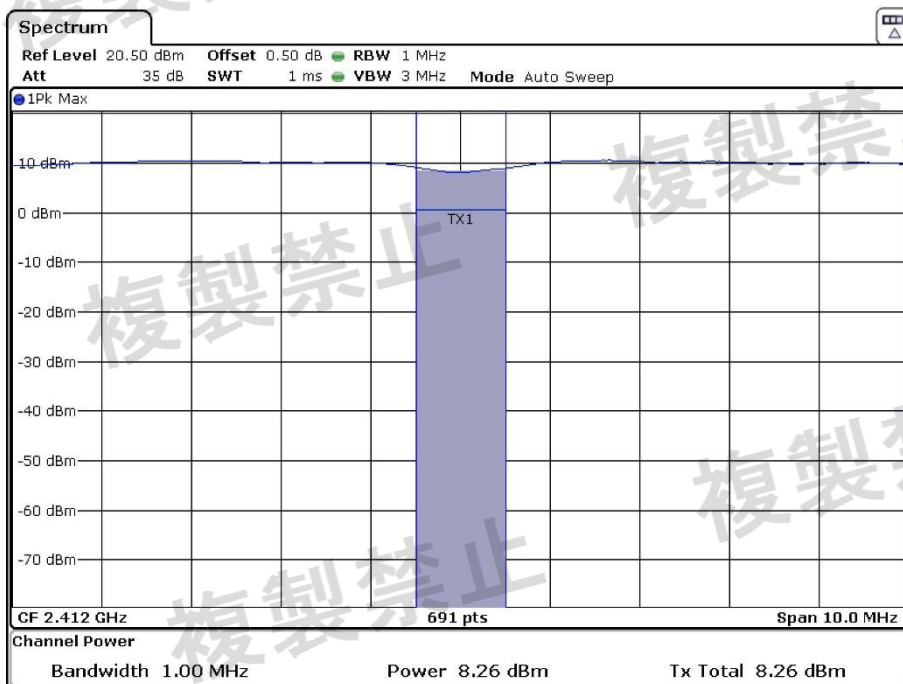
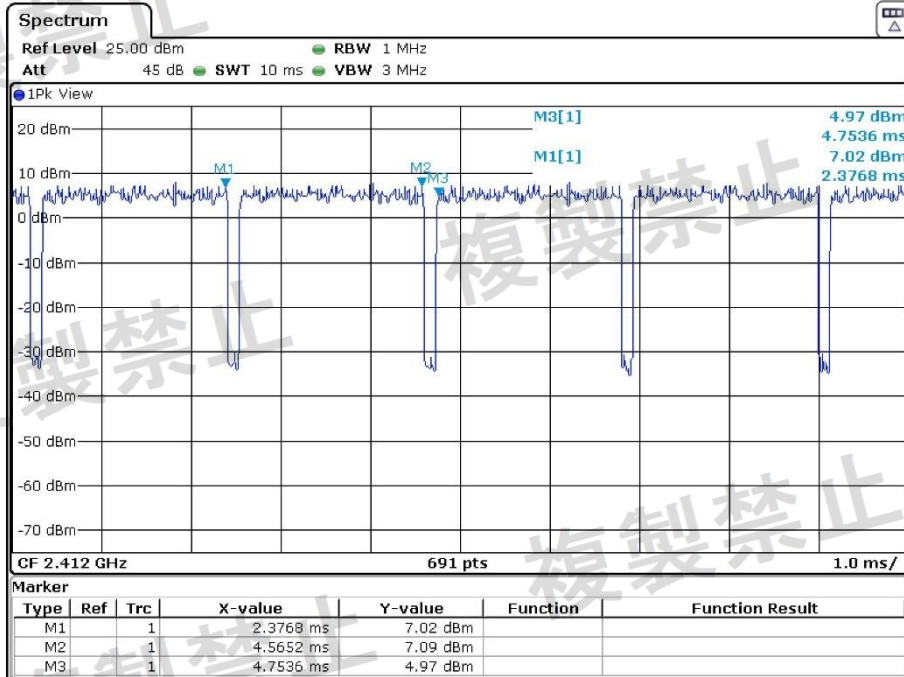
## 802.11b 2442MHz



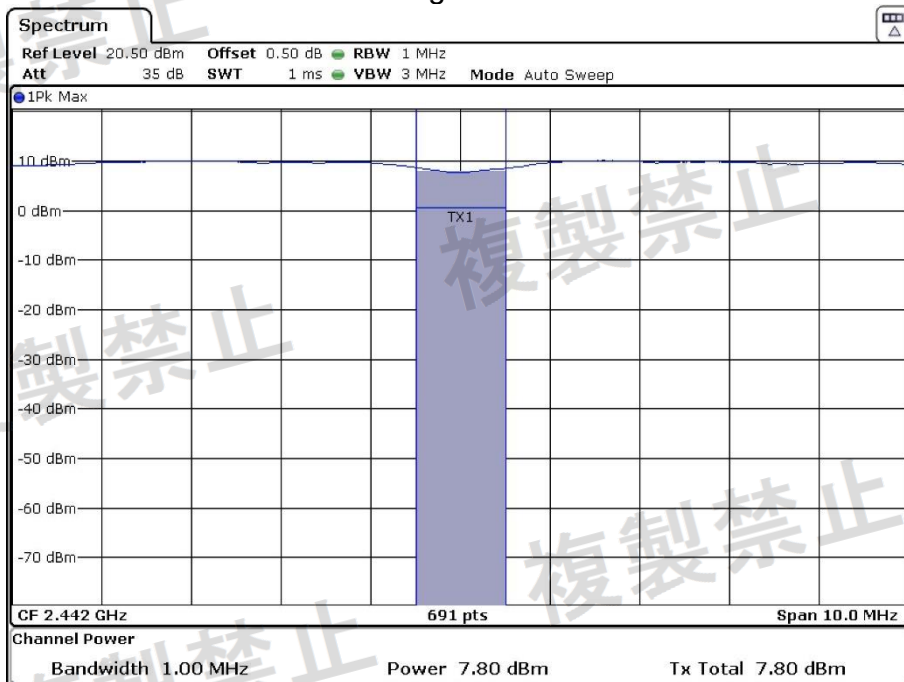
802.11b 2472MHz



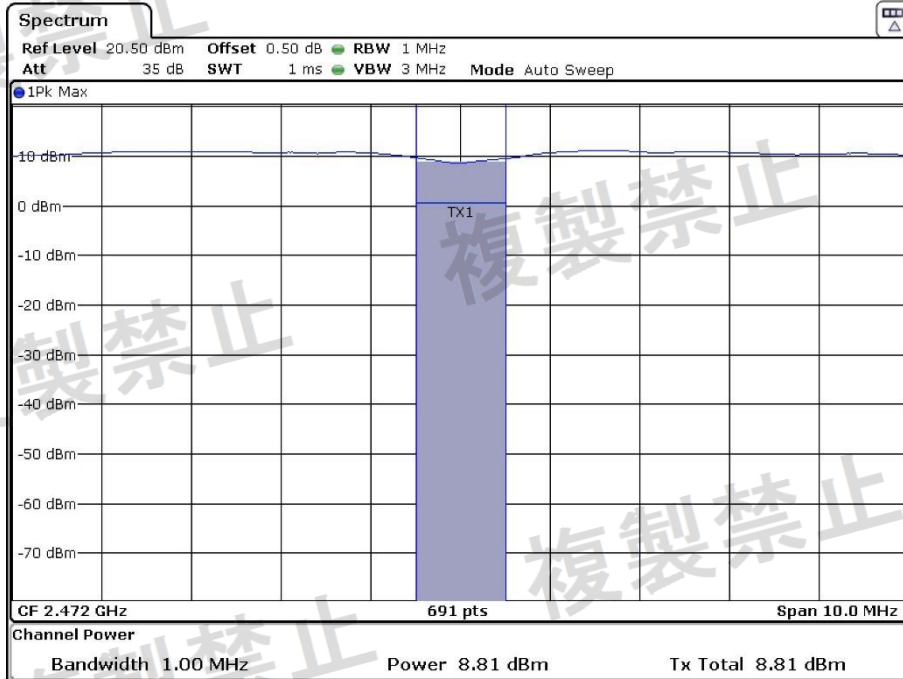
## 802.11g 2412MHz



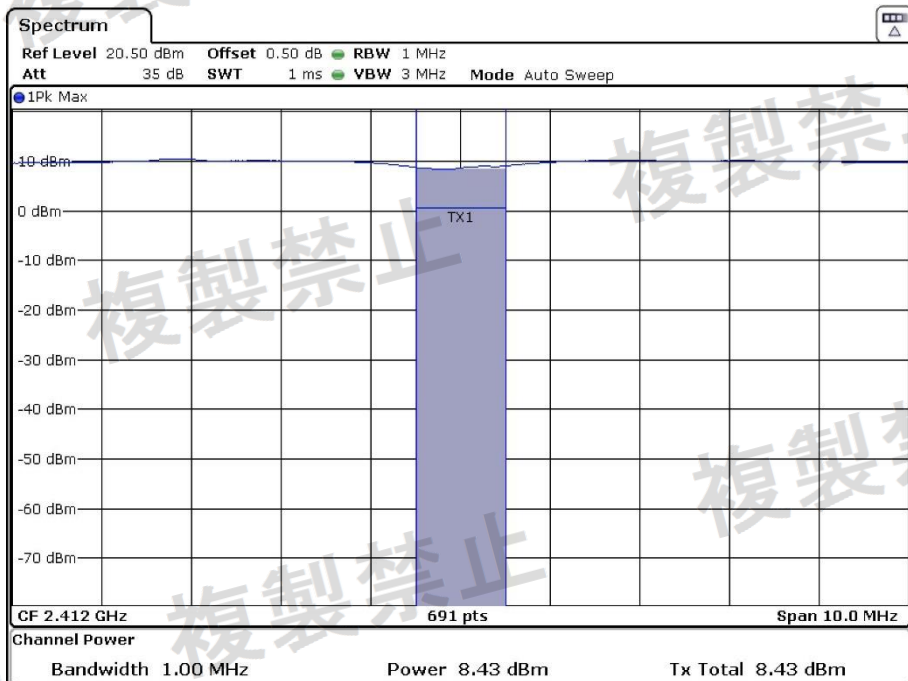
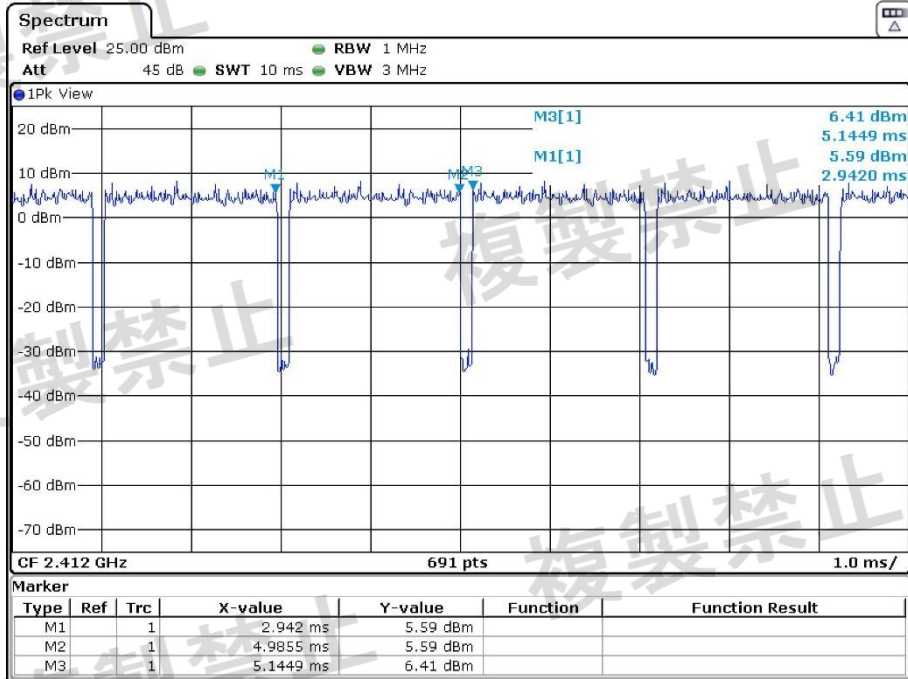
## 802.11g 2442MHz



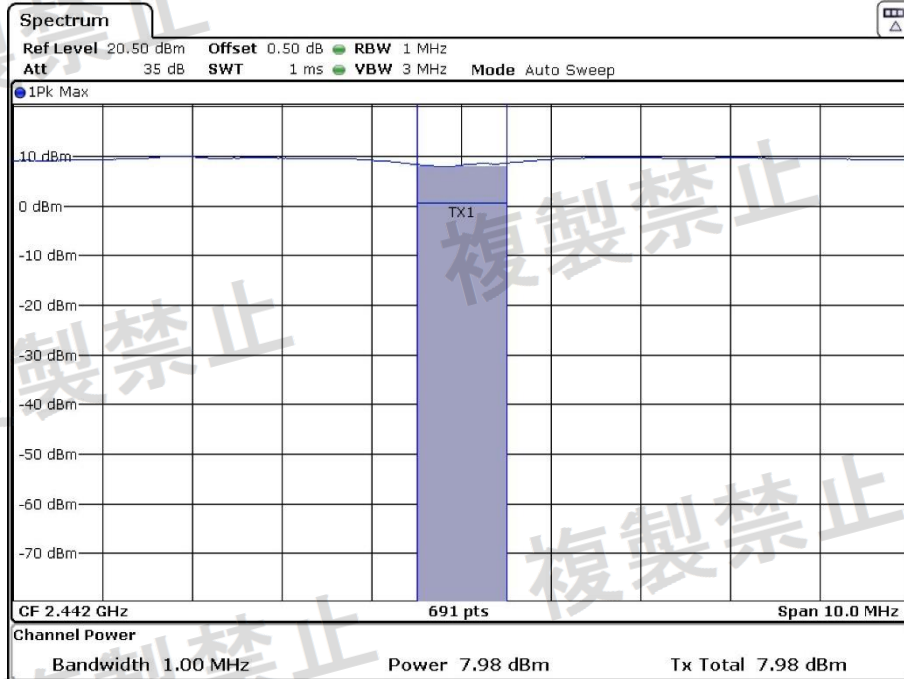
802.11g 2472MHz



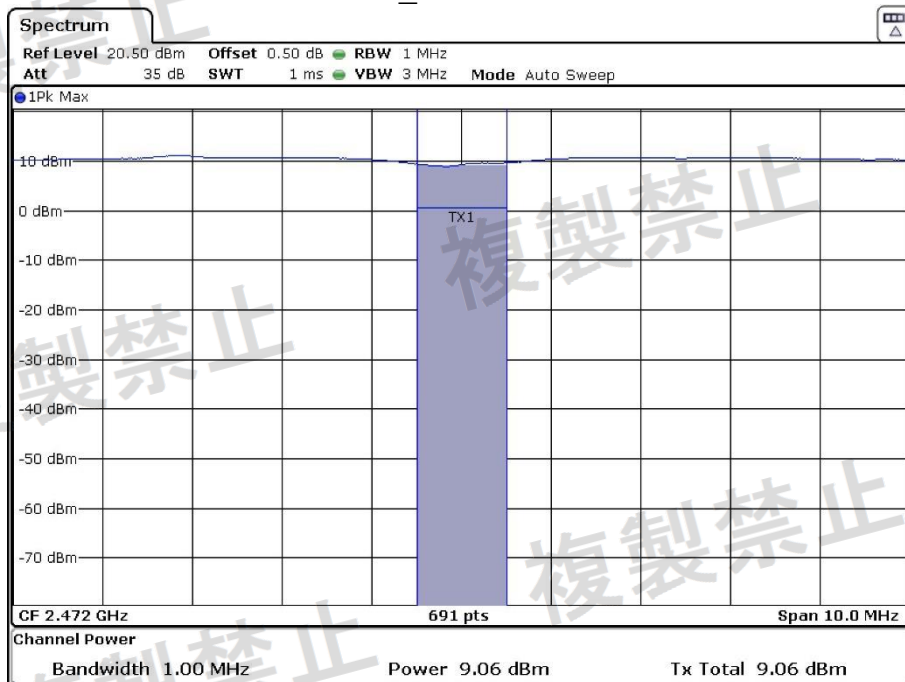
## 802.11n\_HT20 2412MHz



## 802.11n\_HT20 2442MHz



## 802.11n\_HT20 2472MHz



### 3.1.4 Result

The equipment met the requirement of this clause.

### 3.2 Tolerances for Antenna Power

#### 3.2.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | March 31, 2022                               |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.2.2 Limit (ARIB STD-T66, Clause 3.2 (3))

Upper and lower limits of the tolerance for antenna power shall be 20% and 80%, respectively. Note that they represent the tolerance for the maximum rated antenna power and that no upper and lower limits of the tolerance are regulated in the case of antenna power reduction for communications reasons.

#### 3.2.3 Test result

##### 802.11b

| Frequency (MHz)  | Voltage (VDC) | Declared Output Power (mW/MHz) | Result (mW/MHz) | Tolerances | Limit     |
|------------------|---------------|--------------------------------|-----------------|------------|-----------|
| 2412             | 3.3VDC        | 10                             | 9.12            | -8.80%     | +20%~-80% |
| 2442             | 3.3VDC        | 10                             | 8.75            | -12.50%    | +20%~-80% |
| 2472             | 3.3VDC        | 10                             | 9.68            | -3.20%     | +20%~-80% |
| Conclusion: PASS |               |                                |                 |            |           |

##### 802.11g

| Frequency (MHz)  | Voltage (VDC) | Declared Output Power (mW/MHz) | Result (mW/MHz) | Tolerances | Limit     |
|------------------|---------------|--------------------------------|-----------------|------------|-----------|
| 2412             | 3.3VDC        | 8                              | 6.70            | -16.25%    | +20%~-80% |
| 2442             | 3.3VDC        | 8                              | 6.03            | -24.63%    | +20%~-80% |
| 2472             | 3.3VDC        | 8                              | 7.60            | -5.00%     | +20%~-80% |
| Conclusion: PASS |               |                                |                 |            |           |

##### 802.11n\_HT20

| Frequency (MHz)  | Voltage (VDC) | Declared Output Power (mW/MHz) | Result (mW/MHz) | Tolerances | Limit     |
|------------------|---------------|--------------------------------|-----------------|------------|-----------|
| 2412             | 3.3VDC        | 8                              | 6.97            | -12.88%    | +20%~-80% |
| 2442             | 3.3VDC        | 8                              | 6.28            | -21.50%    | +20%~-80% |
| 2472             | 3.3VDC        | 8                              | 8.05            | 0.63%      | +20%~-80% |
| Conclusion: PASS |               |                                |                 |            |           |

#### 3.2.4 Result

The equipment met the requirement of this clause.

### 3.3 Frequency Tolerance

#### 3.3.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | April 7, 2022                                |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.3.2 Limit (ARIB STD-T66, Clause 3.2 (4))

Tolerance of frequency:  $\pm 50 \times 10^{-6}$ .

#### 3.3.3 Test Result

##### 802.11b

| Test Frequency (MHz) | Voltage (VDC) | Result (kHz) | Tolerance (kHz) | Tolerance (ppm) | Limit (ppm) |
|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 2412                 | 3.3VDC        | 2411971.61   | 28.39           | 11.77031509     | $\pm 50$    |
| 2442                 | 3.3VDC        | 2441973.25   | 26.75           | 10.95413595     | $\pm 50$    |
| 2472                 | 3.3VDC        | 2471971.75   | 28.25           | 11.42799353     | $\pm 50$    |
| Conclusion: PASS     |               |              |                 |                 |             |

##### 802.11g

| Test Frequency (MHz) | Voltage (VDC) | Result (kHz) | Tolerance (kHz) | Tolerance (ppm) | Limit (ppm) |
|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 2412                 | 3.3VDC        | 2411995.52   | 4.48            | 1.857379768     | $\pm 50$    |
| 2442                 | 3.3VDC        | 2441997.50   | 2.50            | 1.023751024     | $\pm 50$    |
| 2472                 | 3.3VDC        | 2471998.00   | 2.00            | 0.809061489     | $\pm 50$    |
| Conclusion: PASS     |               |              |                 |                 |             |

##### 802.11n HT20

| Test Frequency (MHz) | Voltage (VDC) | Result (kHz) | Tolerance (kHz) | Tolerance (ppm) | Limit (ppm) |
|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 2412                 | 3.3VDC        | 2411998.50   | 1.50            | 0.621890547     | $\pm 50$    |
| 2442                 | 3.3VDC        | 2441999.00   | 1.00            | 0.40950041      | $\pm 50$    |
| 2472                 | 3.3VDC        | 2471996.50   | 3.50            | 1.415857605     | $\pm 50$    |
| Conclusion: PASS     |               |              |                 |                 |             |

#### 3.3.4 Result

The equipment met the requirement of this clause.

### 3.4 Occupied Frequency Bandwidth

#### 3.4.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | April 7, 2022                                |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.4.2 Limit (ARIB STD-T66, Clause 3.2 (7))

Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a OFDM system is at most 38MHz; and for transmission devices using any other necessary frequency bandwidth is at most 26 MHz or less.

#### 3.4.3 Test Result

##### 802.11b

| Test Frequency (MHz) | Voltage (VDC) | Result (MHz) | Limit (MHz) |
|----------------------|---------------|--------------|-------------|
| 2412                 | 3.3VDC        | 14.110       | <26MHz      |
| 2442                 | 3.3VDC        | 14.110       | <26MHz      |
| 2472                 | 3.3VDC        | 14.110       | <26MHz      |

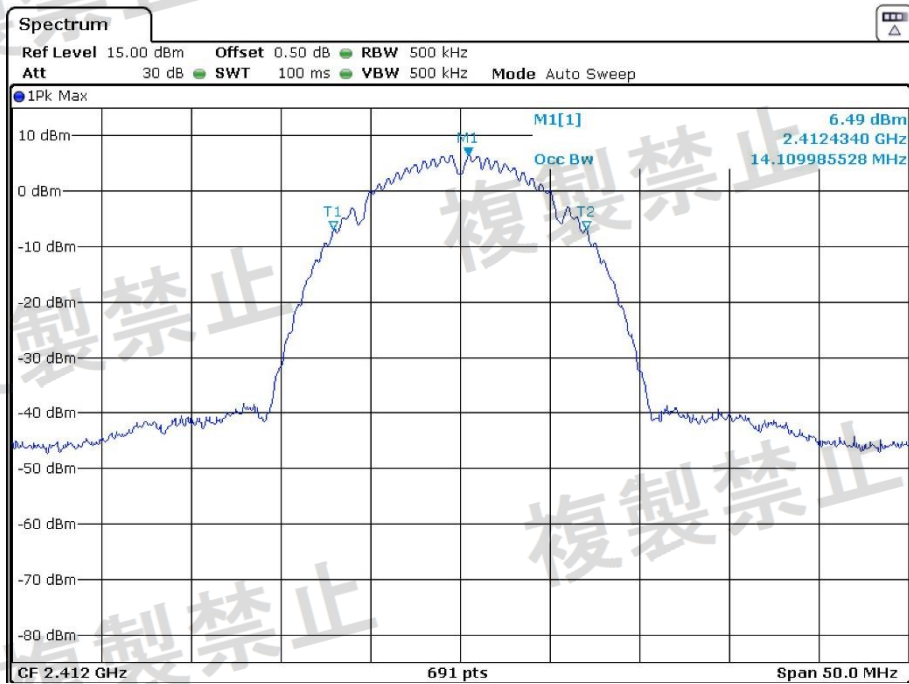
##### 802.11g

| Test Frequency (MHz) | Voltage (VDC) | Result (MHz) | Limit (MHz) |
|----------------------|---------------|--------------|-------------|
| 2412                 | 3.3VDC        | 17.366       | <26MHz      |
| 2442                 | 3.3VDC        | 17.294       | <26MHz      |
| 2472                 | 3.3VDC        | 17.366       | <26MHz      |

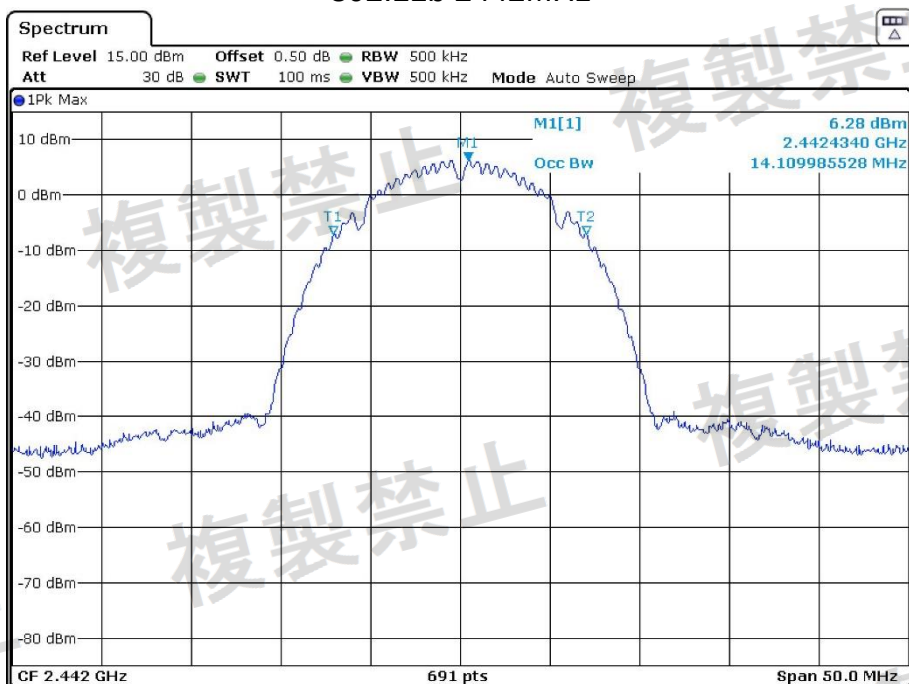
##### 802.11n\_HT20

| Test Frequency (MHz) | Voltage (VDC) | Result (MHz) | Limit (MHz) |
|----------------------|---------------|--------------|-------------|
| 2412                 | 3.3VDC        | 18.234       | <26MHz      |
| 2442                 | 3.3VDC        | 18.234       | <26MHz      |
| 2472                 | 3.3VDC        | 18.234       | <26MHz      |

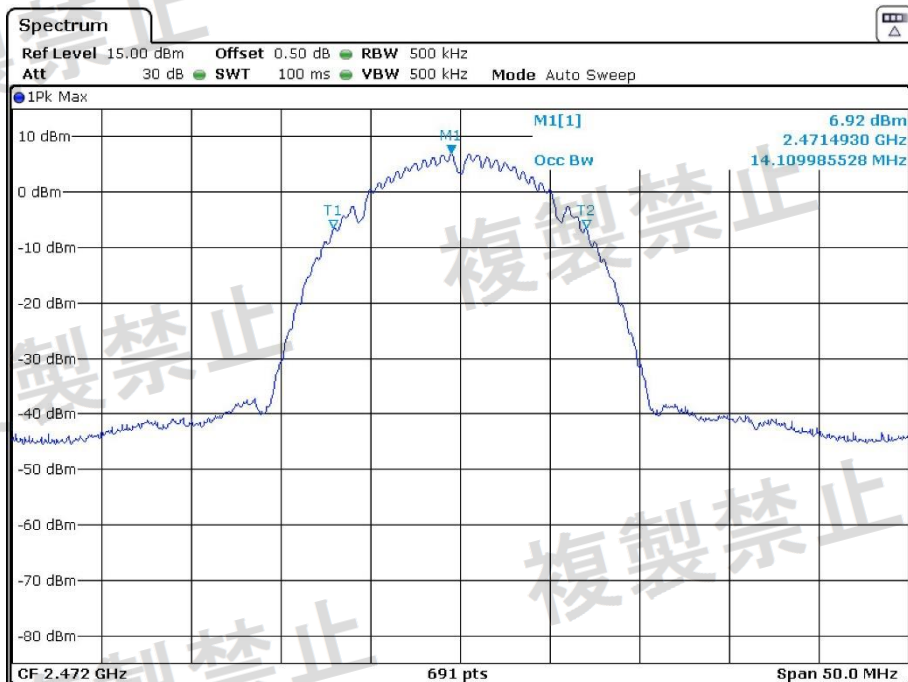
## 802.11b 2412MHz



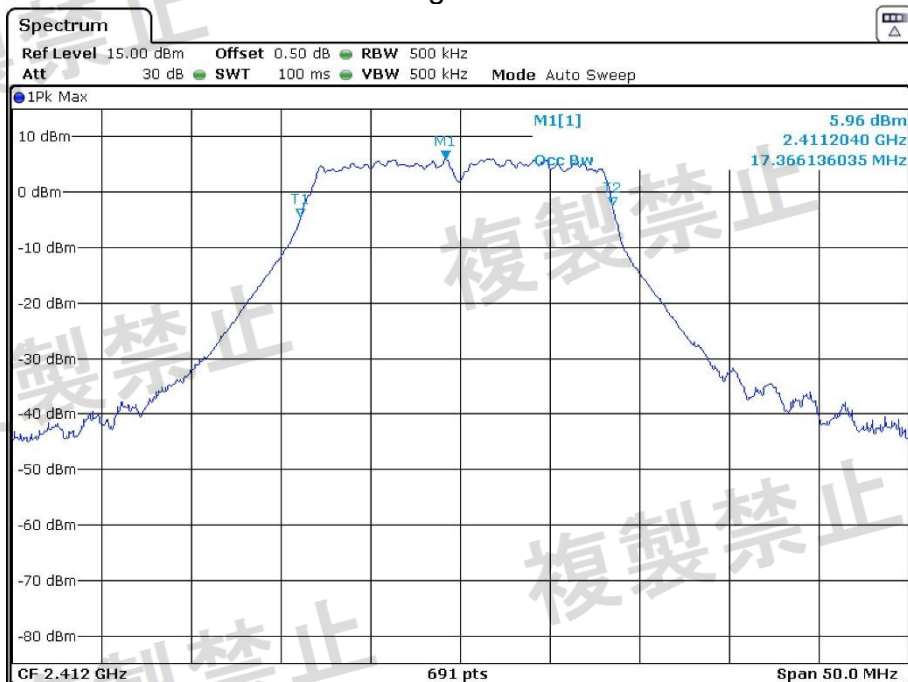
## 802.11b 2442MHz



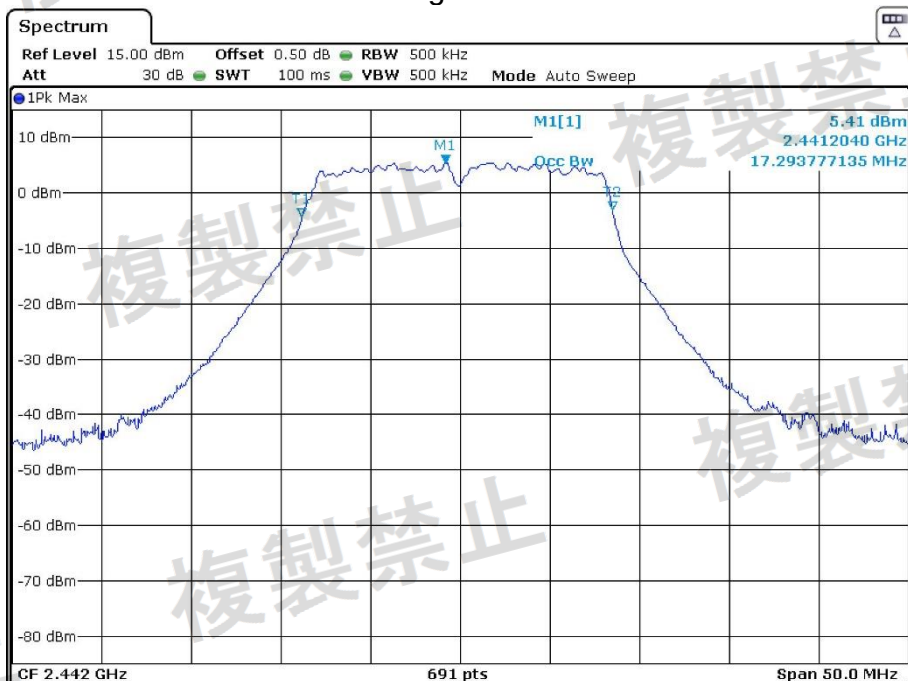
## 802.11b 2472MHz



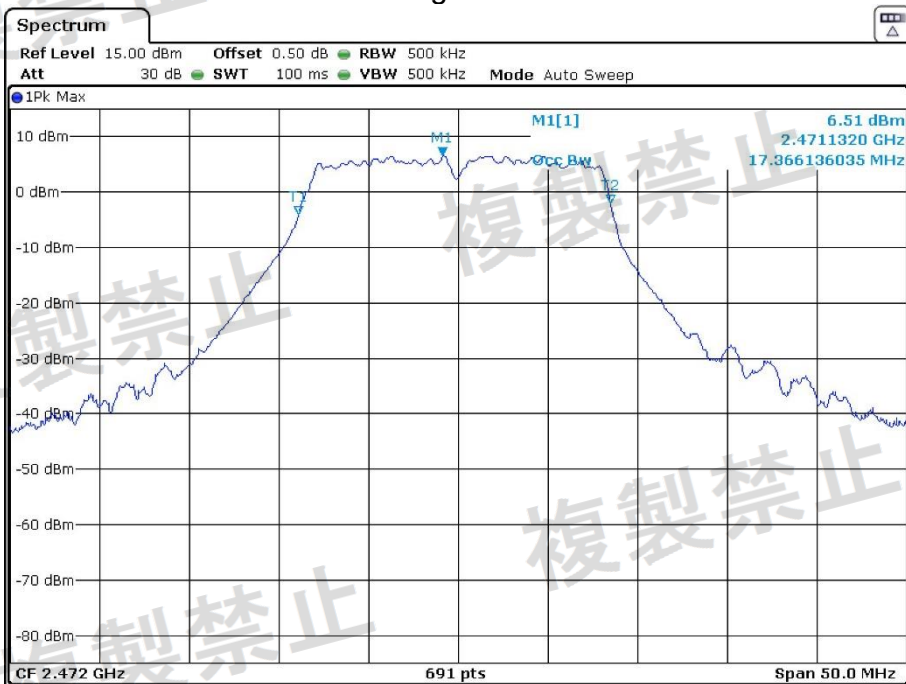
## 802.11g 2412MHz



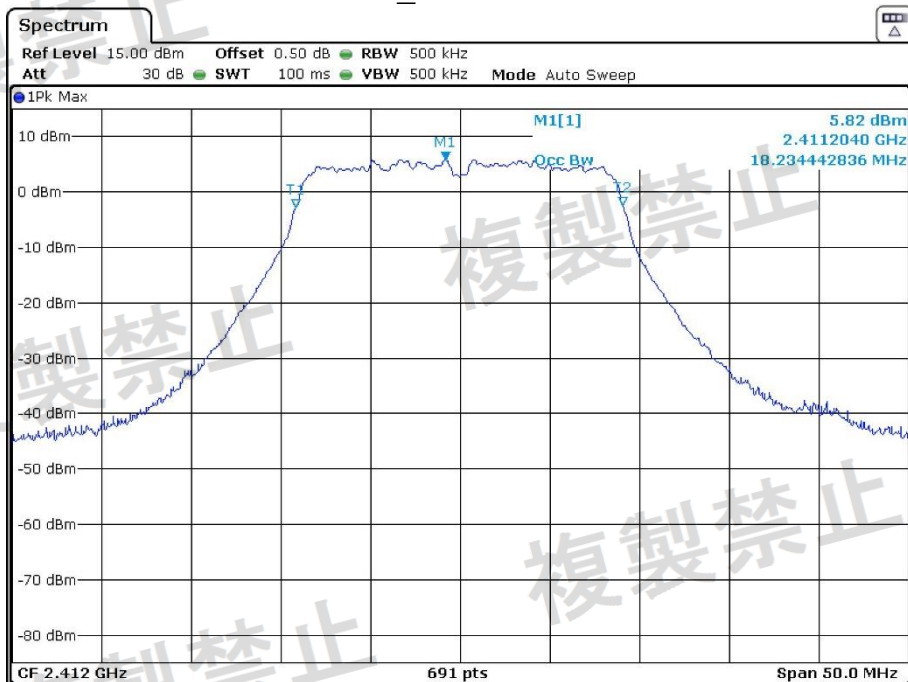
## 802.11g 2442MHz



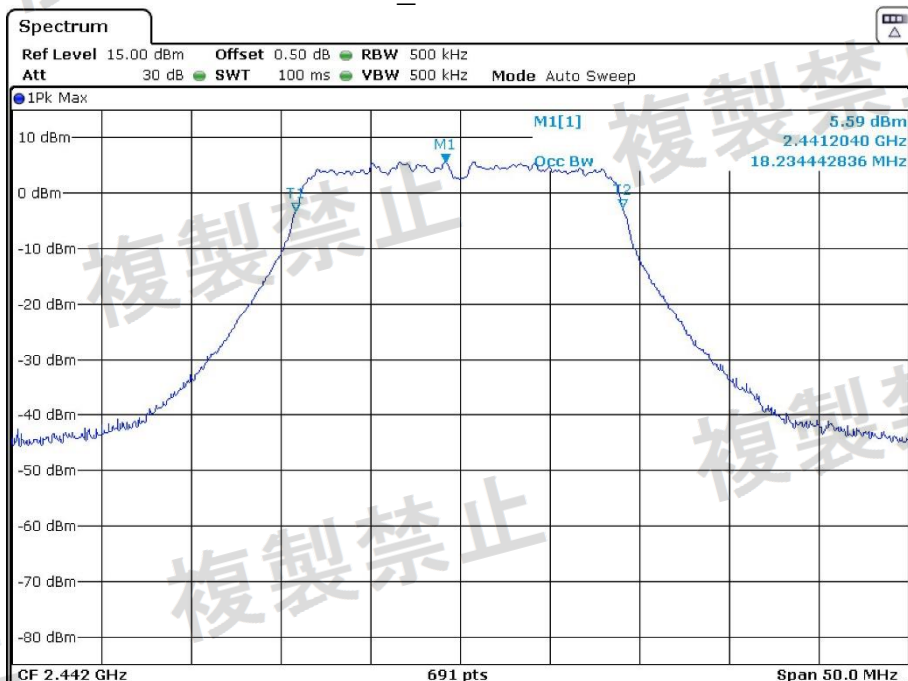
## 802.11g 2472MHz



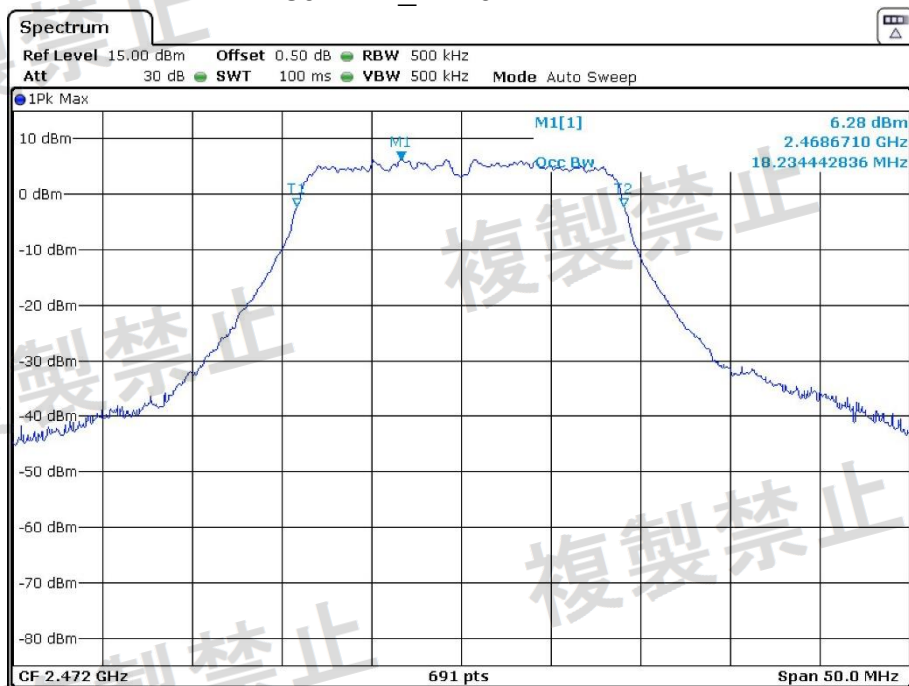
## 802.11n\_HT20 2412MHz



## 802.11n\_HT20 2442MHz



802.11n\_HT20 2472MHz



### 3.4.4 Result

The equipment met the requirement of this clause.

### 3.5 Spread Bandwidth

#### 3.5.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | April 7, 2022                                |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.5.2 Limit (ARIB STD-T66, Clause 3.2 (8))

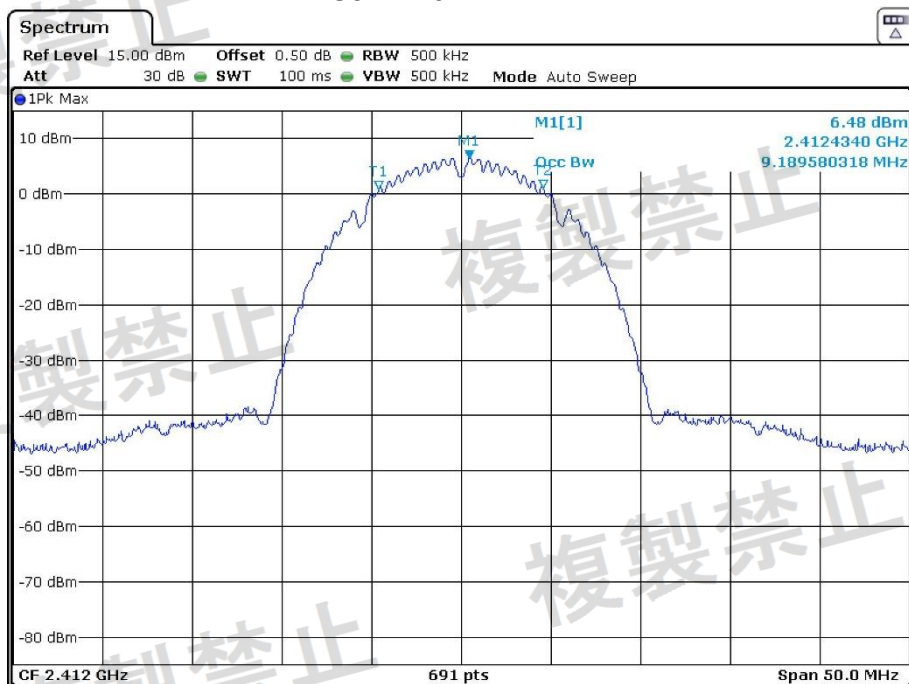
In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5 % of the total mean power radiated; this also applies hereafter) shall be 500 kHz or more.

#### 3.5.3 Test Result

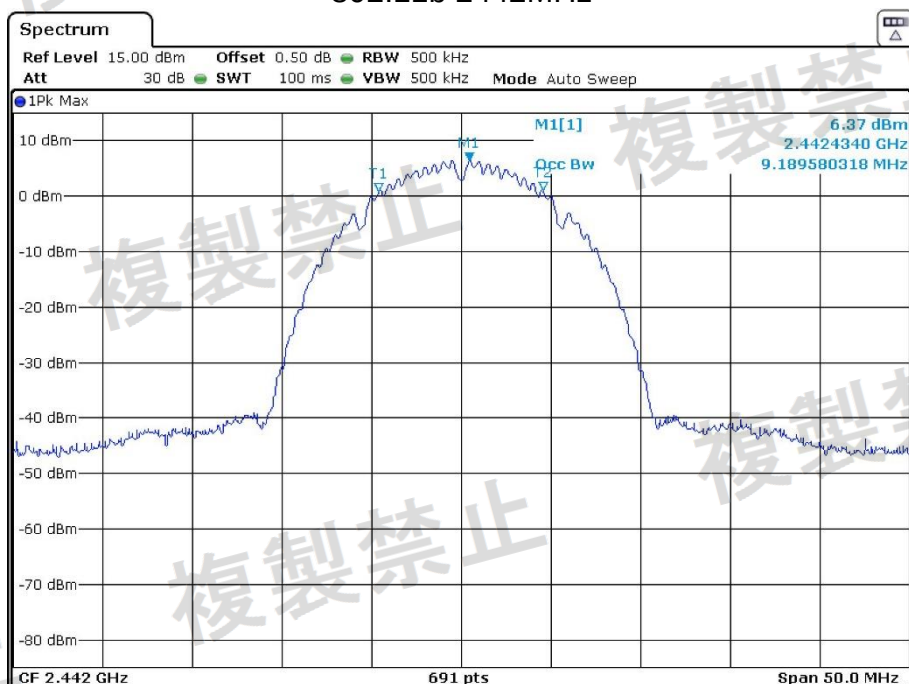
802.11b

| Test Frequency (MHz) | Voltage (VDC) | Result (MHz) | Limit (kHz) |
|----------------------|---------------|--------------|-------------|
| 2412                 | 3.3VDC        | 9.190        | >500        |
| 2442                 | 3.3VDC        | 9.190        | >500        |
| 2472                 | 3.3VDC        | 9.190        | >500        |

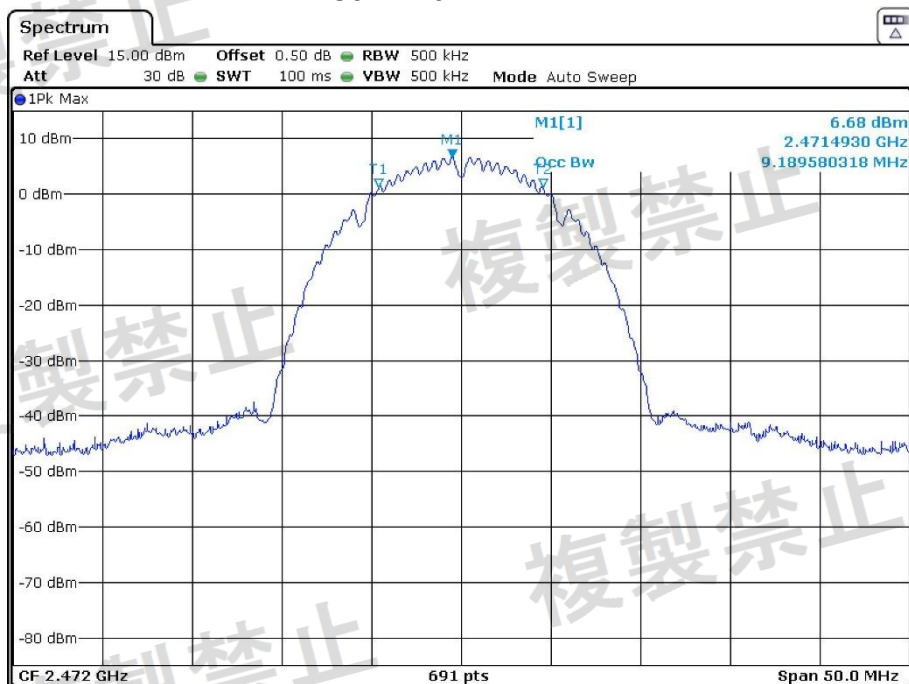
## 802.11b 2412MHz



## 802.11b 2442MHz



802.11b 2472MHz



### 3.5.4 Result

The equipment met the requirement of this clause

### 3.6 Transmitter Spurious Emissions (Conducted) (For transmitter)

#### 3.6.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | April 7, 2022                                |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Transmitting                                 |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.6.2 Limit (ARIB STD-T66, Clause 3.2 (6))

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency  $f$  other than frequency band used shall be as follows: a.  $2,387\text{MHz} \leq f \leq 2,400\text{MHz}$  and  $2,483.5\text{MHz} < f \leq 2,496.5\text{MHz}$  25  $\mu\text{W}$  or less b.  $2,387\text{MHz} > f$  and  $2,496.5\text{MHz} < f$  2.5  $\mu\text{W}$  or less

#### 3.6.3 Test Result

| Test Condition | Test Mode | Channel | Freq., Range  | Result | Limit | Verdict |
|----------------|-----------|---------|---------------|--------|-------|---------|
| NTNV           | 802.11b   | 2412    | 10~2387       | -40.79 | -36   | PASS    |
| NTNV           | 802.11b   | 2412    | 2387~2400     | -35.43 | -16   | PASS    |
| NTNV           | 802.11b   | 2412    | 2483.5~2496.5 | -49.10 | -16   | PASS    |
| NTNV           | 802.11b   | 2412    | 2496.5~12500  | -36.70 | -26   | PASS    |
| NTNV           | 802.11b   | 2442    | 10~2387       | -40.32 | -36   | PASS    |
| NTNV           | 802.11b   | 2442    | 2387~2400     | -47.57 | -16   | PASS    |
| NTNV           | 802.11b   | 2442    | 2483.5~2496.5 | -48.83 | -16   | PASS    |
| NTNV           | 802.11b   | 2442    | 2496.5~12500  | -37.36 | -26   | PASS    |
| NTNV           | 802.11b   | 2472    | 10~2387       | -39.06 | -36   | PASS    |
| NTNV           | 802.11b   | 2472    | 2387~2400     | -49.42 | -16   | PASS    |
| NTNV           | 802.11b   | 2472    | 2483.5~2496.5 | -38.33 | -16   | PASS    |
| NTNV           | 802.11b   | 2472    | 2496.5~12500  | -38.45 | -26   | PASS    |

| Test Condition | Test Mode | Channel | Freq., Range  | Result | Limit | Verdict |
|----------------|-----------|---------|---------------|--------|-------|---------|
| NTNV           | 802.11g   | 2412    | 10~2387       | -41.73 | -36   | PASS    |
| NTNV           | 802.11g   | 2412    | 2387~2400     | -16.68 | -16   | PASS    |
| NTNV           | 802.11g   | 2412    | 2483.5~2496.5 | -48.33 | -16   | PASS    |
| NTNV           | 802.11g   | 2412    | 2496.5~12500  | -40.28 | -26   | PASS    |
| NTNV           | 802.11g   | 2442    | 10~2387       | -43.35 | -36   | PASS    |
| NTNV           | 802.11g   | 2442    | 2387~2400     | -46.74 | -16   | PASS    |
| NTNV           | 802.11g   | 2442    | 2483.5~2496.5 | -48.35 | -16   | PASS    |
| NTNV           | 802.11g   | 2442    | 2496.5~12500  | -40.05 | -26   | PASS    |
| NTNV           | 802.11g   | 2472    | 10~2387       | -42.25 | -36   | PASS    |
| NTNV           | 802.11g   | 2472    | 2387~2400     | -46.74 | -16   | PASS    |
| NTNV           | 802.11g   | 2472    | 2483.5~2496.5 | -18.57 | -16   | PASS    |
| NTNV           | 802.11g   | 2472    | 2496.5~12500  | -43.62 | -26   | PASS    |

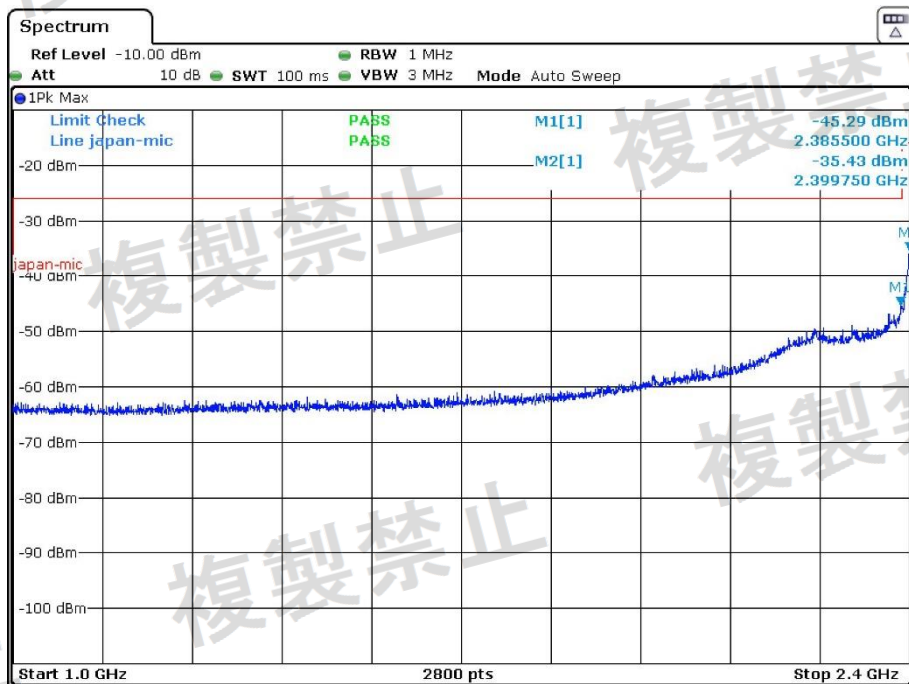
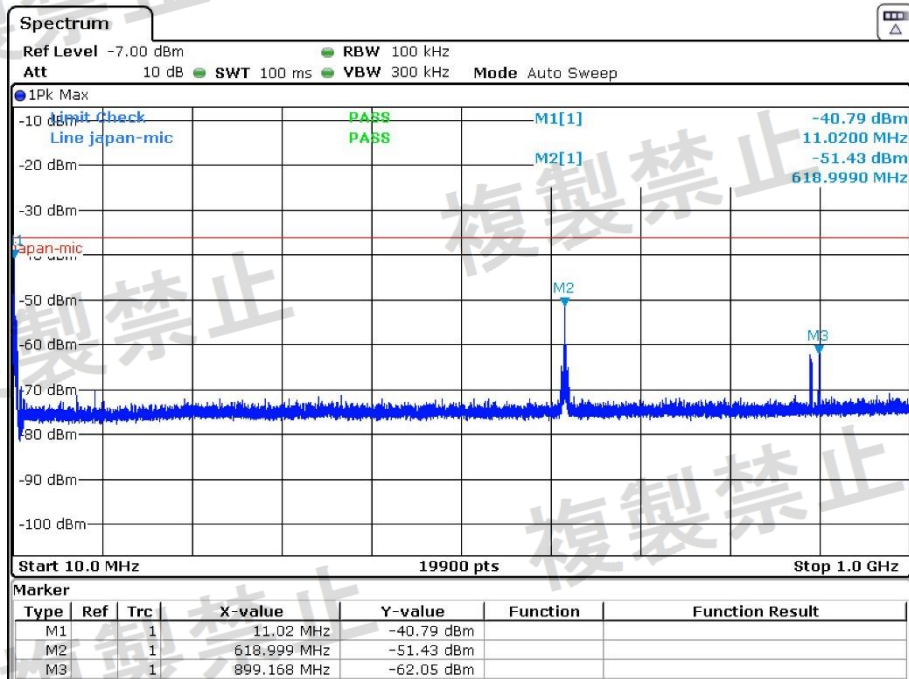
| Test Condition | Test Mode    | Channel | Freq., Range  | Result | Limit | Verdict |
|----------------|--------------|---------|---------------|--------|-------|---------|
| NTNV           | 802.11n HT20 | 2412    | 10~2387       | -42.16 | -36   | PASS    |
| NTNV           | 802.11n HT20 | 2412    | 2387~2400     | -18.10 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2412    | 2483.5~2496.5 | -47.57 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2412    | 2496.5~12500  | -37.79 | -26   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 10~2387       | -41.29 | -36   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 2387~2400     | -46.23 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 2483.5~2496.5 | -48.73 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 2496.5~12500  | -39.28 | -26   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 10~2387       | -40.49 | -36   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 2387~2400     | -49.72 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 2483.5~2496.5 | -17.58 | -16   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 2496.5~12500  | -42.54 | -26   | PASS    |

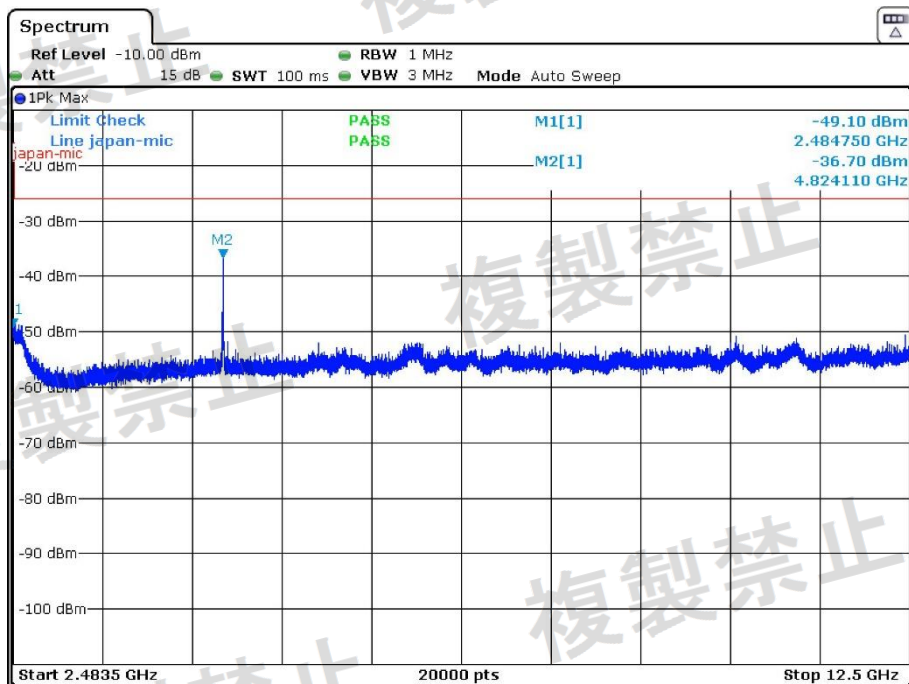
### 3.6.4 Result

The equipment met the requirement of this clause.

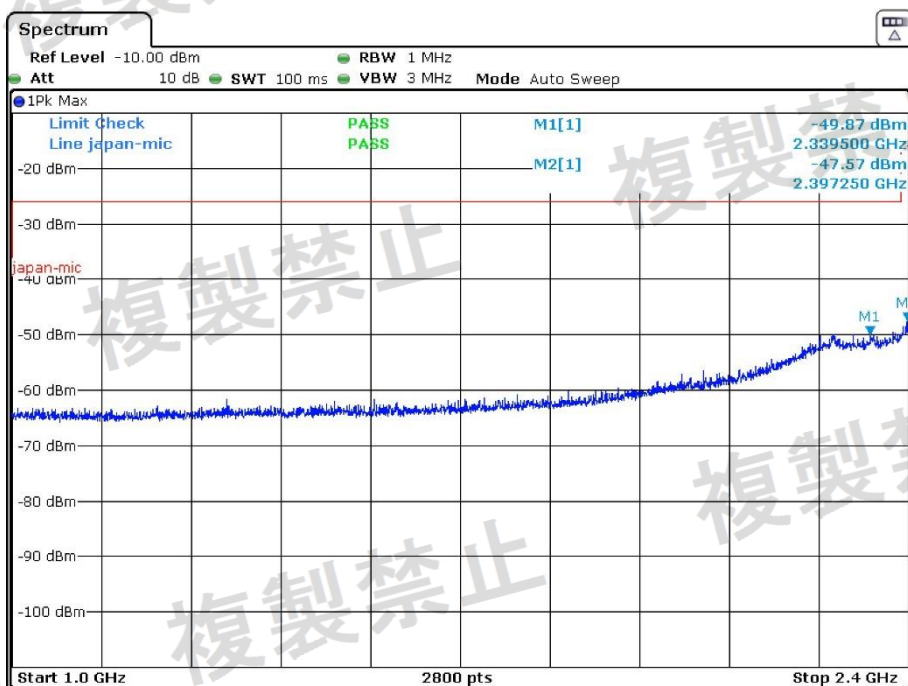
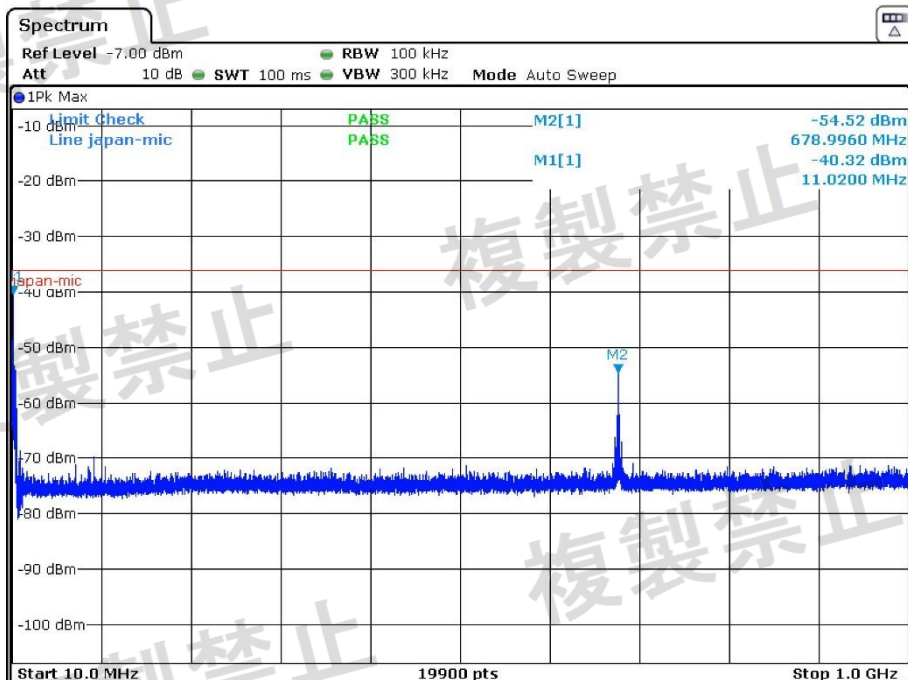
## 3.6.5 Test Graphs

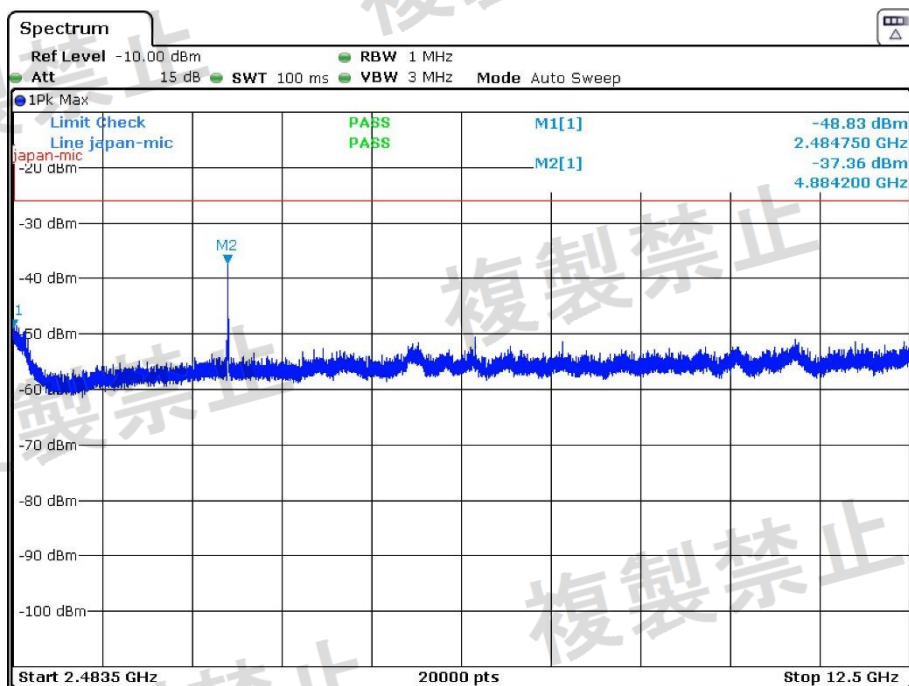
## 802.11b 2412



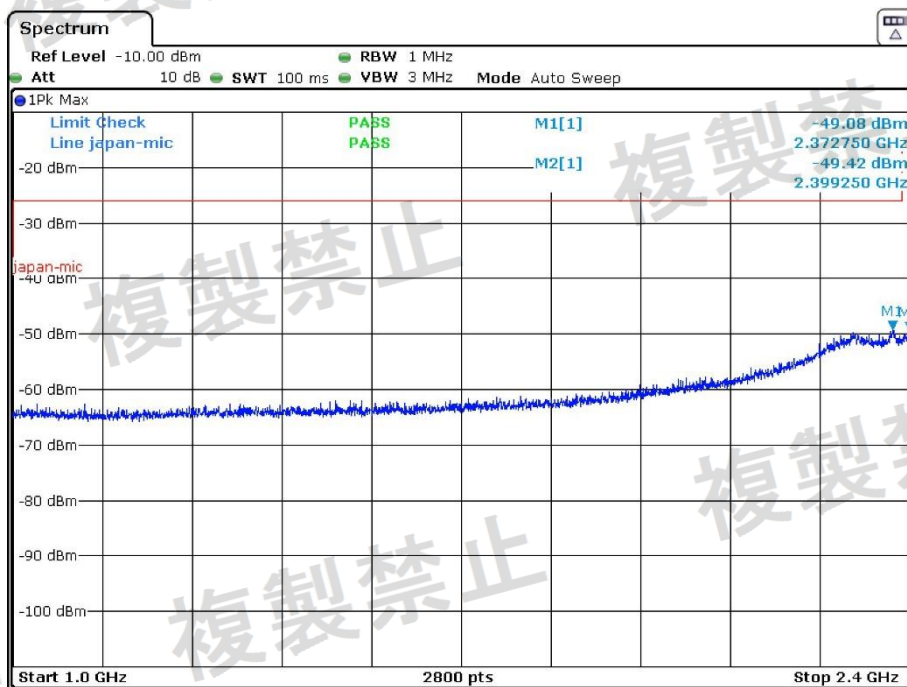
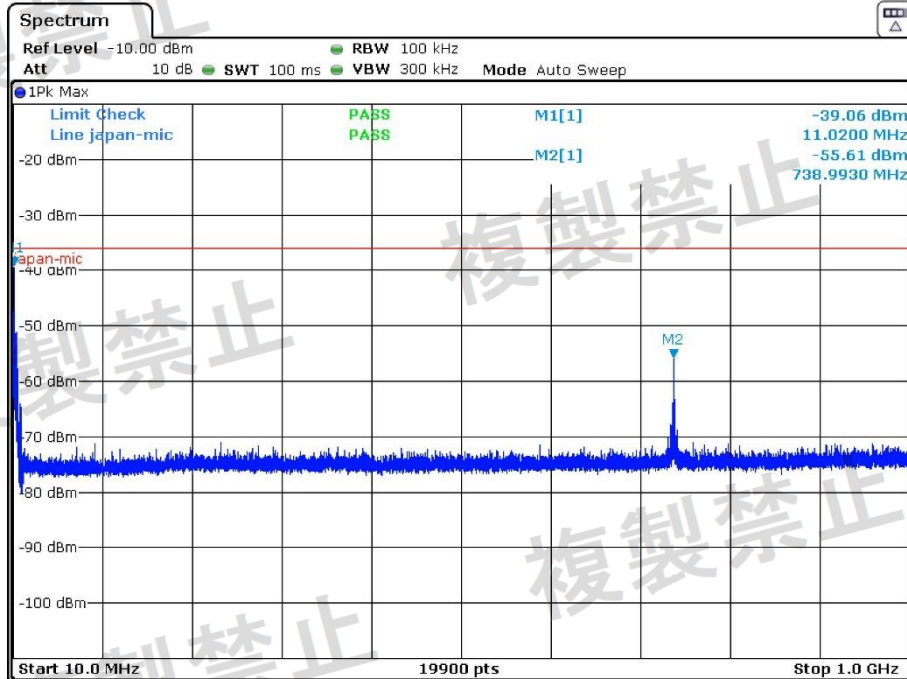


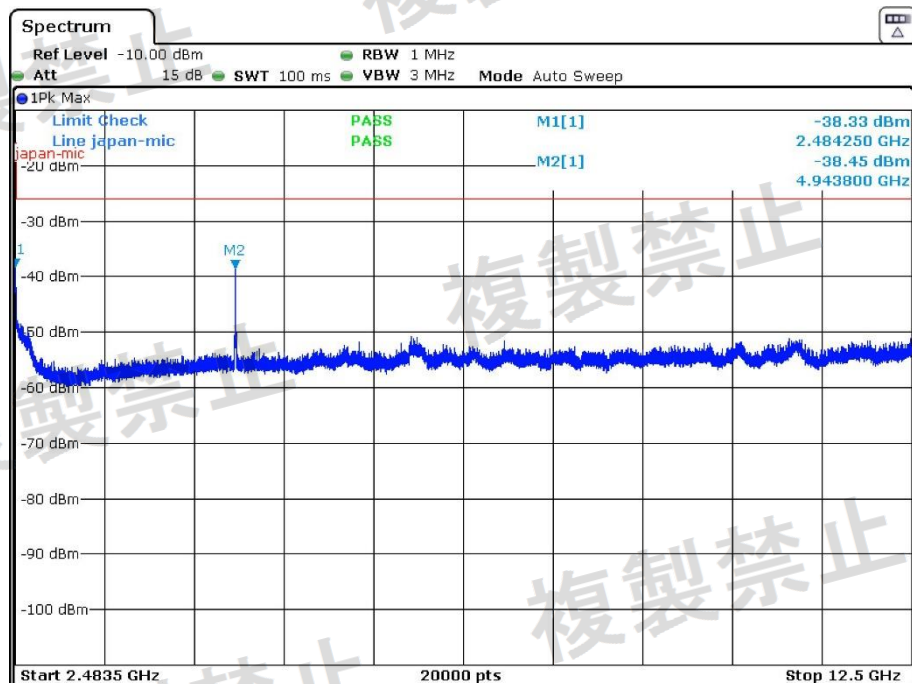
## 802.11b 2442



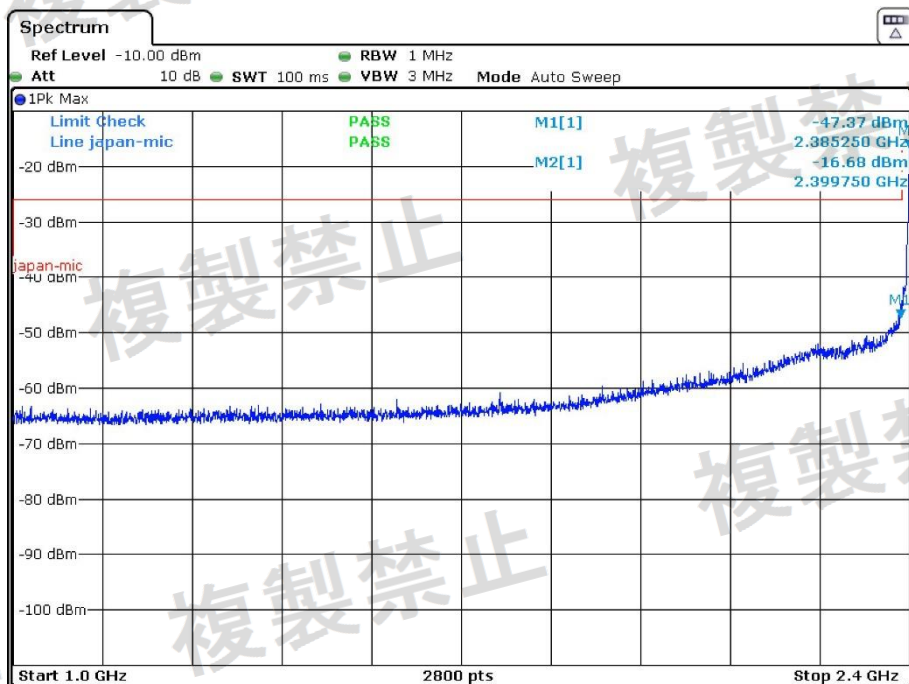
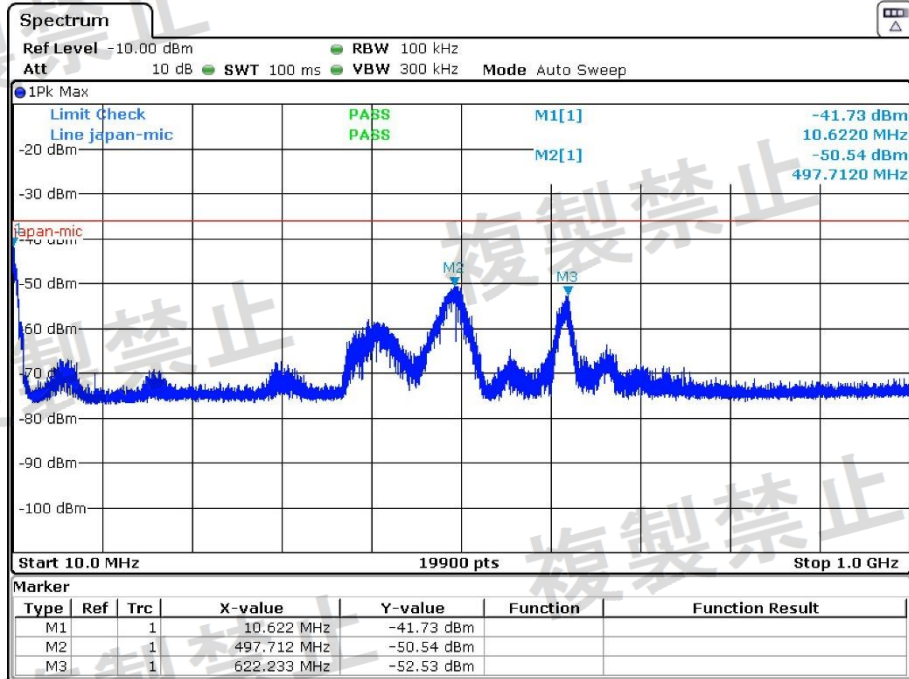


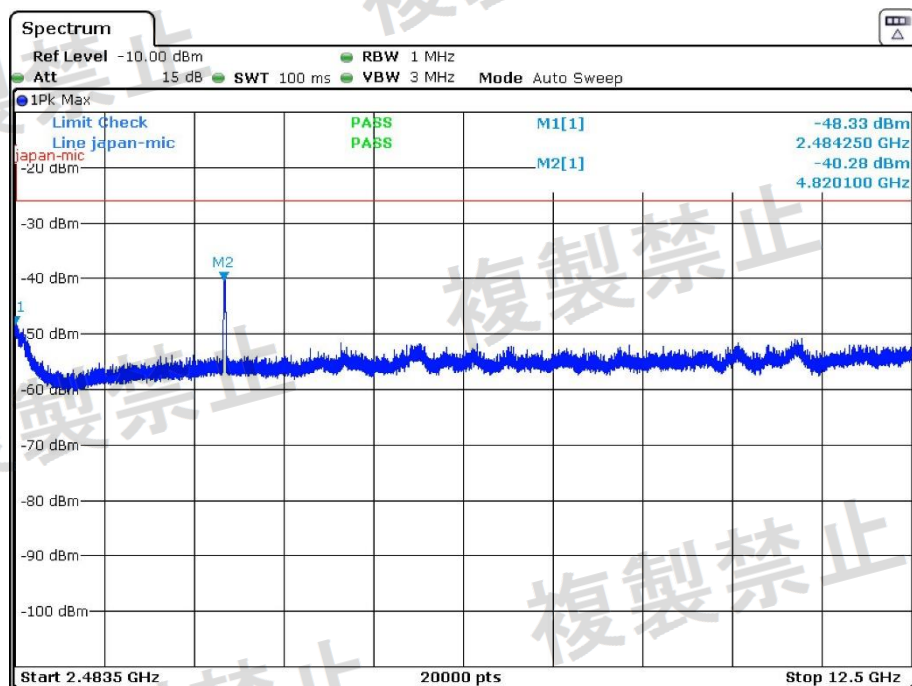
## 802.11b 2472



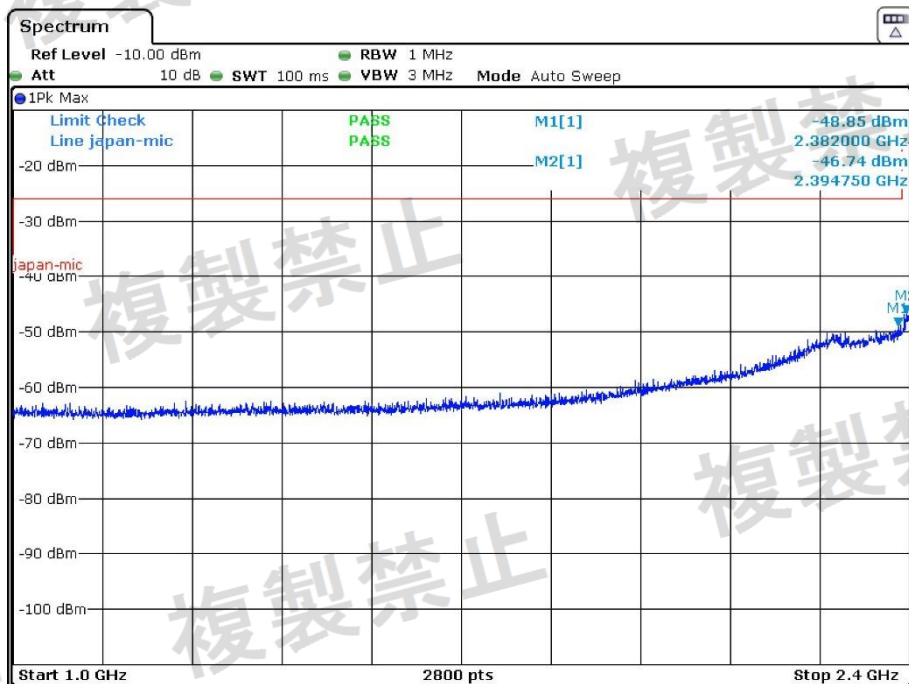
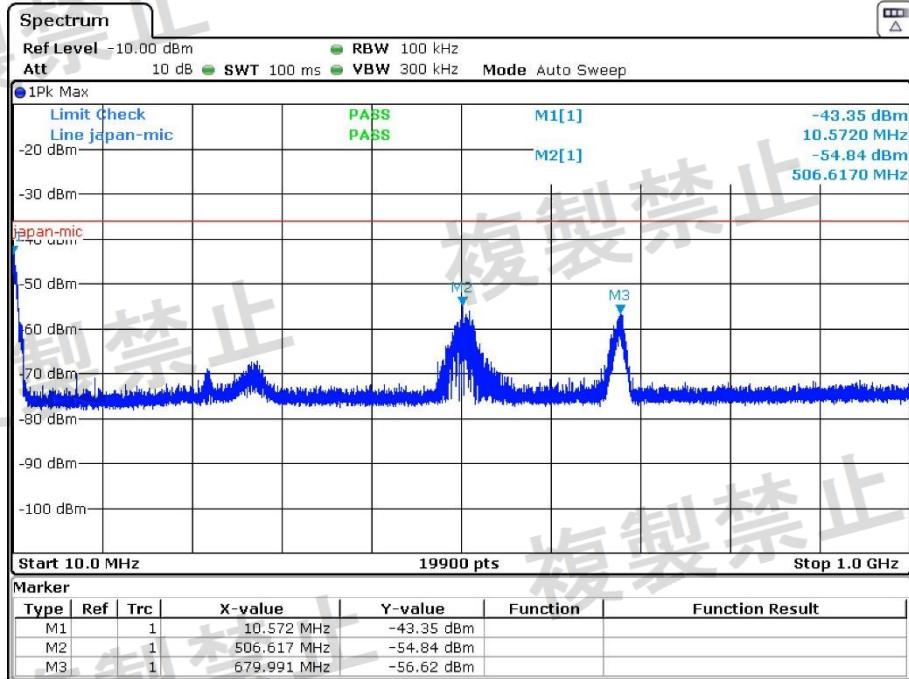


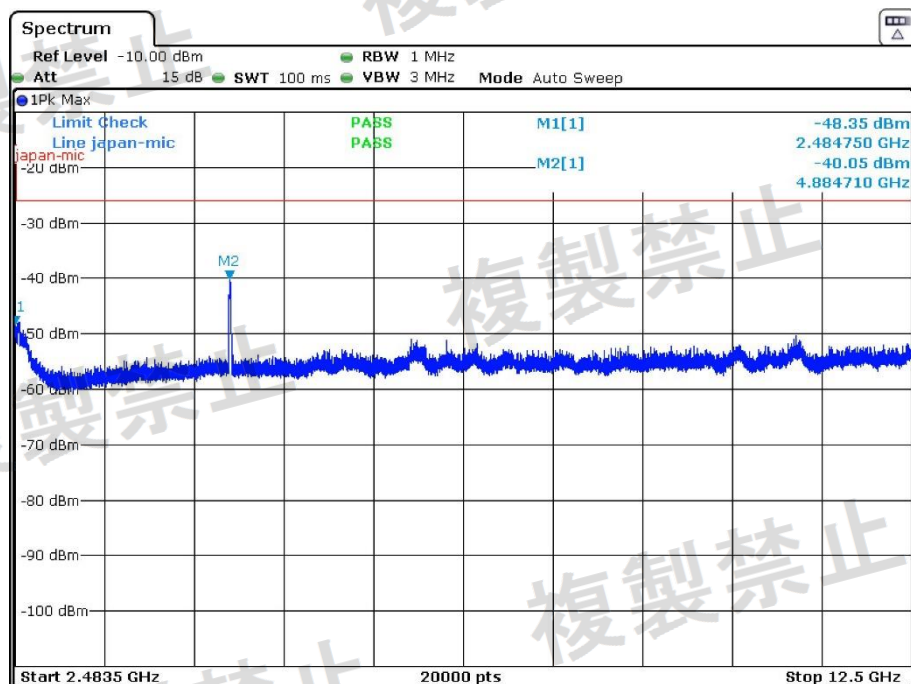
## 802.11g 2412



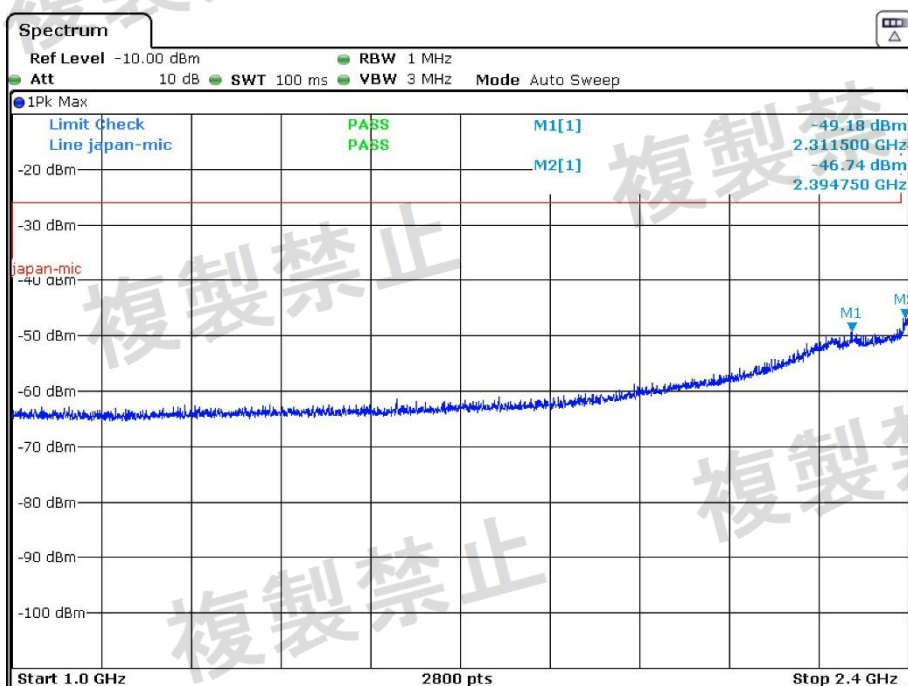
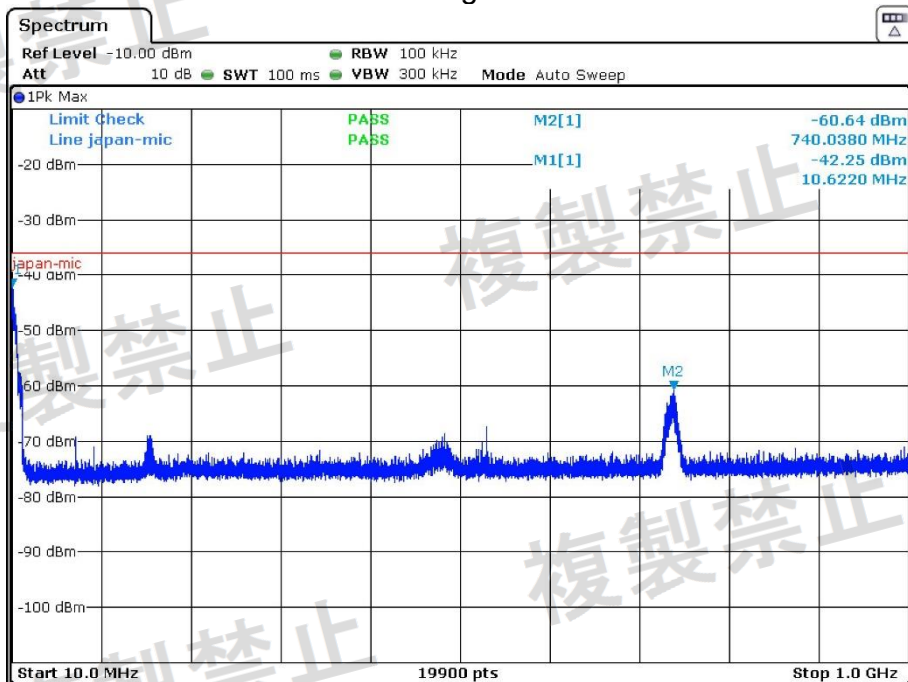


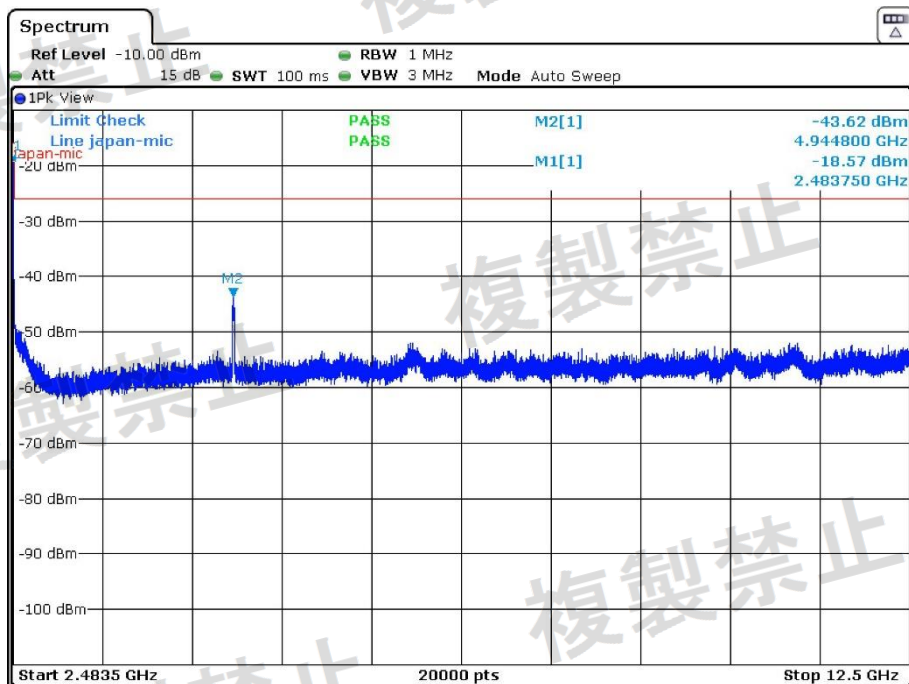
## 802.11g 2442



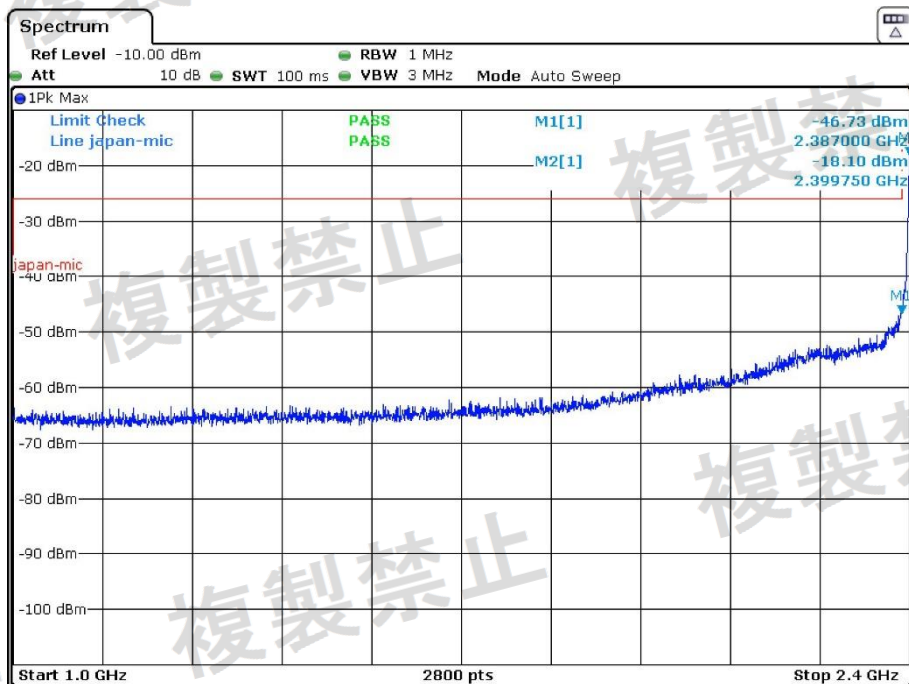
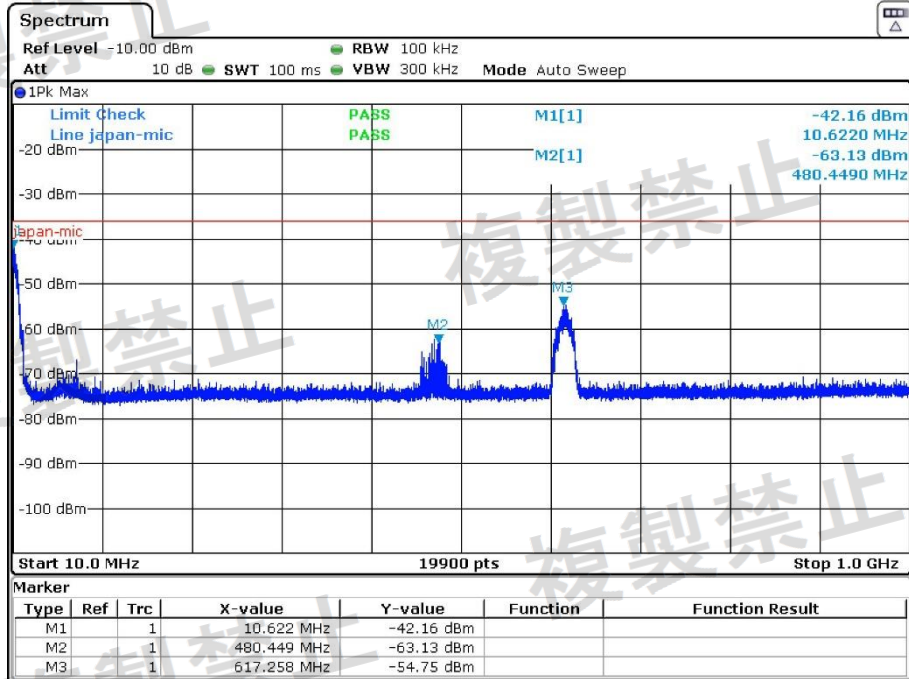


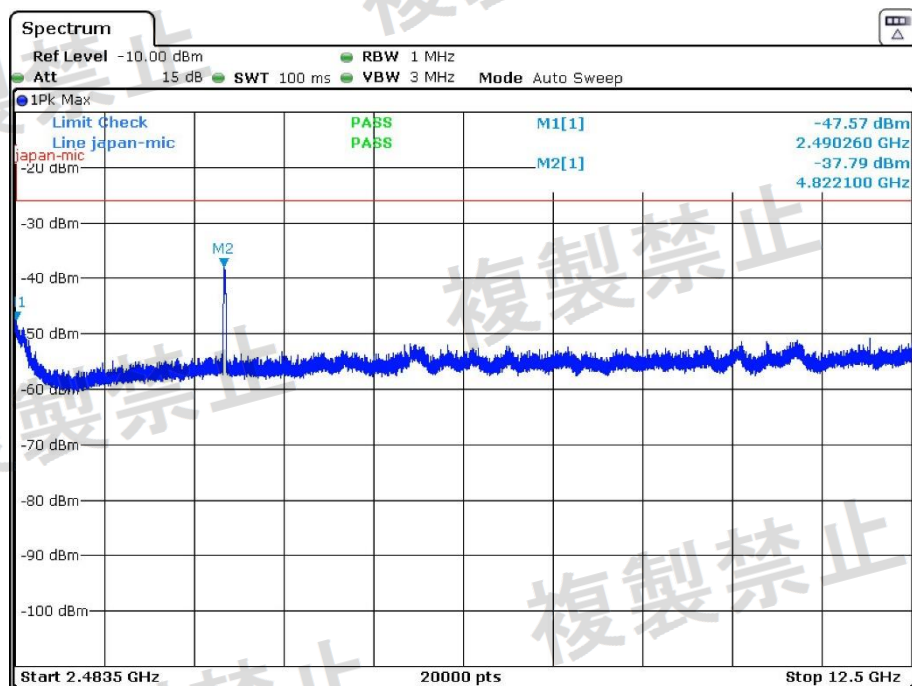
## 802.11g 2472



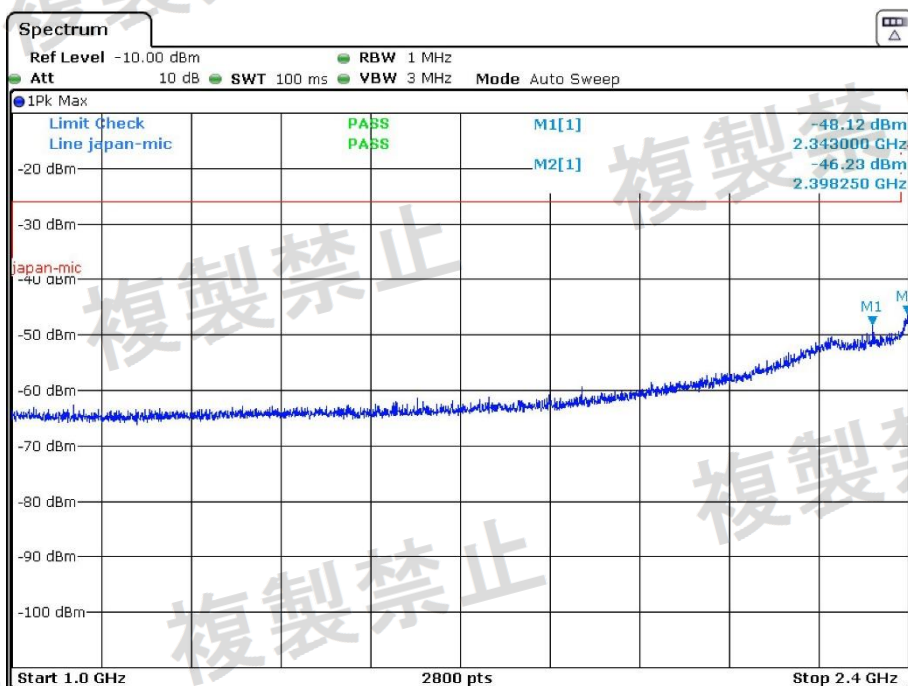
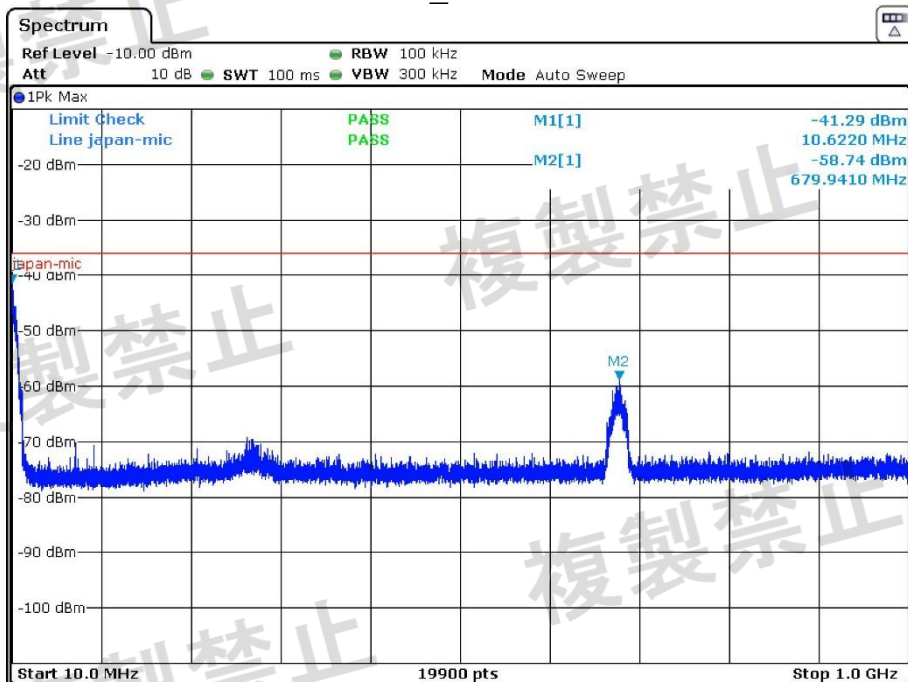


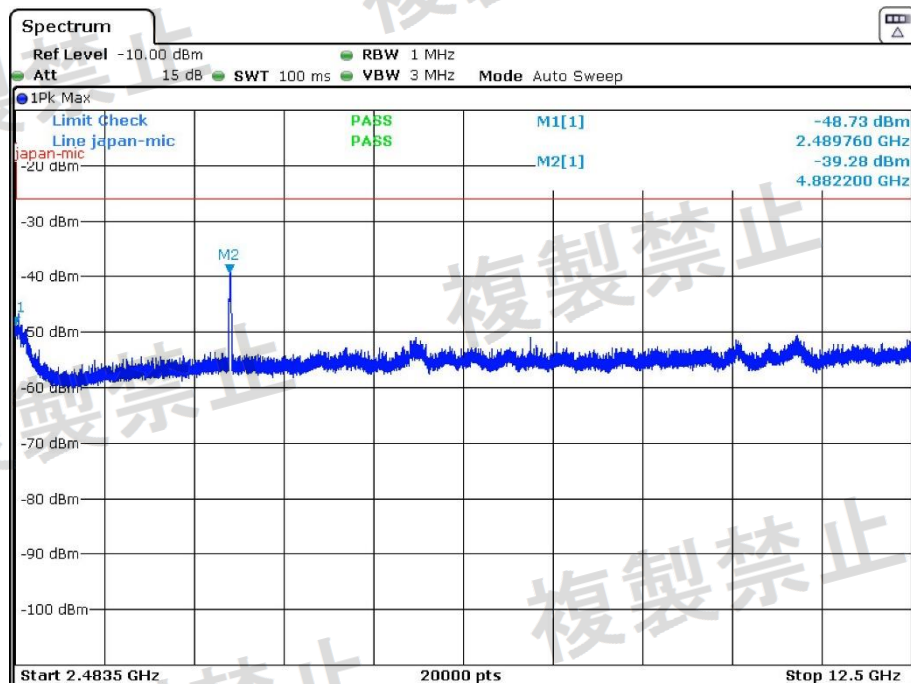
## 802.11n\_HT20 2412





## 802.11n\_HT20 2442





**Spectrum**

Ref Level -10.00 dBm

Att 10 dB

RBW 100 kHz

SWT 100 ms

VBW 300 kHz

Mode Auto Sweep

1PK Max

Limit Check

Line japan-mic

PASS

PASS

M1[1]

M2[1]

-40.49 dBm

10.6220 MHz

-59.06 dBm

740.2370 MHz

japan-mic

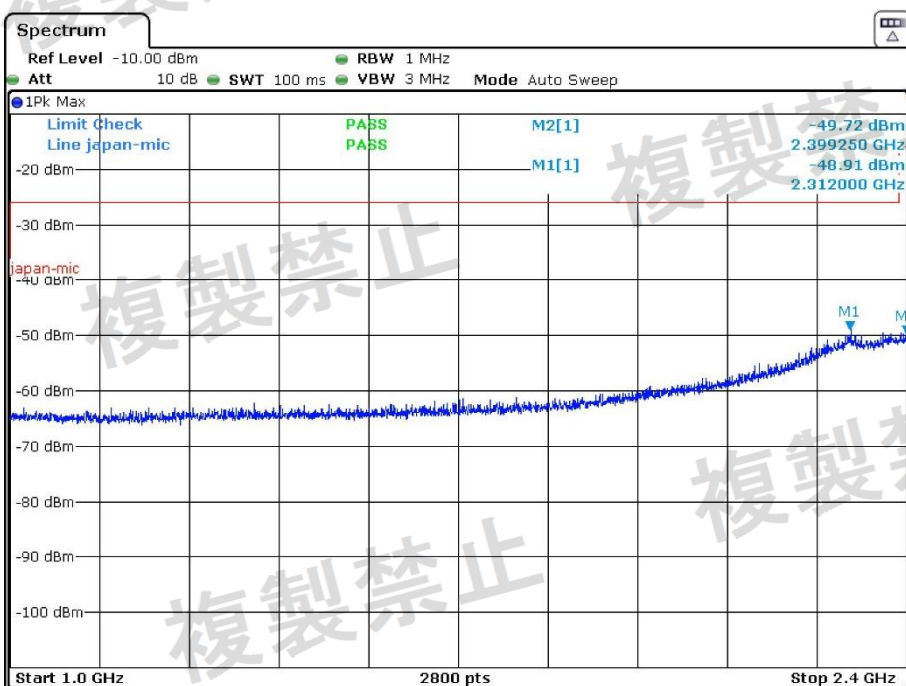
-40 dBm

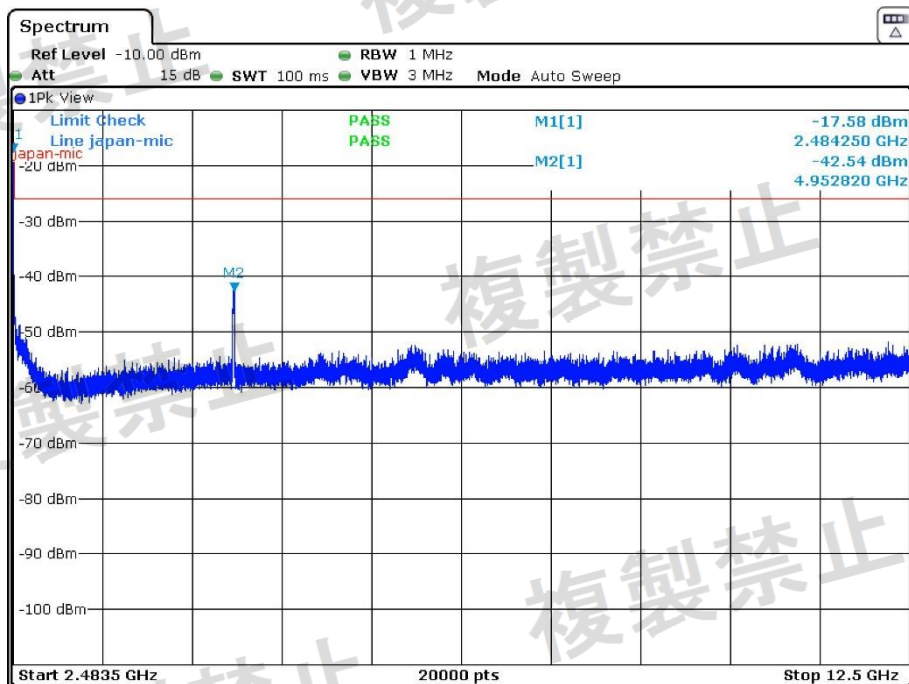
M2

Start 10.0 MHz

19900 pts

Stop 1.0 GHz





### 3.7 Secondary Radiated Emissions (Conducted) (For receiver)

#### 3.7.1 Test condition

|                      |                                              |
|----------------------|----------------------------------------------|
| Date of testing:     | April 7, 2022                                |
| Channel:             | Low: 2412MHz; Middle: 2442MHz; High: 2472MHz |
| Test position:       | Receiving                                    |
| Ambient temperature: | 25.5 °C                                      |
| Relative humidity:   | 55.6 %                                       |
| Atmosphere Pressure: | 105.5 KPa                                    |

#### 3.7.2 Limit (ARIB STD-T66, Clause 3.5 (1))

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW or less at a frequency below 1 GHz and 20 nW or less at a frequency of 1 GHz or higher as measured using the circuit.

#### 3.7.3 Test Result

| Test Condition | Test Mode | Channel | Freq., Range | Result | Limit | Verdict |
|----------------|-----------|---------|--------------|--------|-------|---------|
| NTNV           | 802.11b   | 2412    | 30~1000      | -66.40 | -54   | PASS    |
| NTNV           | 802.11b   | 2412    | 1000~12500   | -65.62 | -47   | PASS    |
| NTNV           | 802.11b   | 2442    | 30~1000      | -67.64 | -54   | PASS    |
| NTNV           | 802.11b   | 2442    | 1000~12500   | -66.20 | -47   | PASS    |
| NTNV           | 802.11b   | 2472    | 30~1000      | -67.16 | -54   | PASS    |
| NTNV           | 802.11b   | 2472    | 1000~12500   | -66.15 | -47   | PASS    |

| Test Condition | Test Mode | Channel | Freq., Range | Result | Limit | Verdict |
|----------------|-----------|---------|--------------|--------|-------|---------|
| NTNV           | 802.11g   | 2412    | 30~1000      | -67.63 | -54   | PASS    |
| NTNV           | 802.11g   | 2412    | 1000~12500   | -65.92 | -47   | PASS    |
| NTNV           | 802.11g   | 2442    | 30~1000      | -68.08 | -54   | PASS    |
| NTNV           | 802.11g   | 2442    | 1000~12500   | -66.26 | -47   | PASS    |
| NTNV           | 802.11g   | 2472    | 30~1000      | -68.22 | -54   | PASS    |
| NTNV           | 802.11g   | 2472    | 1000~12500   | -66.13 | -47   | PASS    |

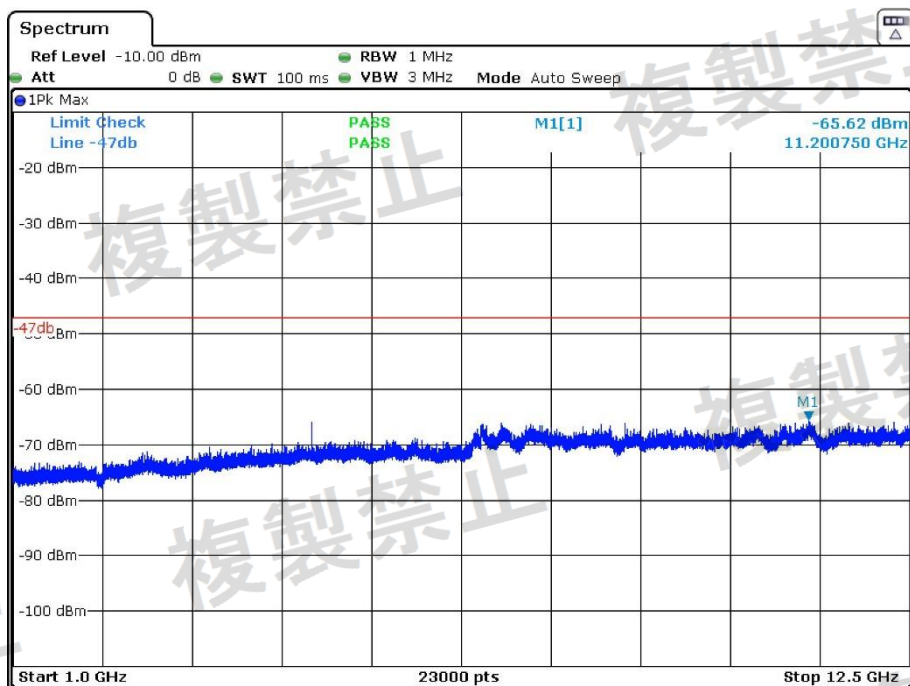
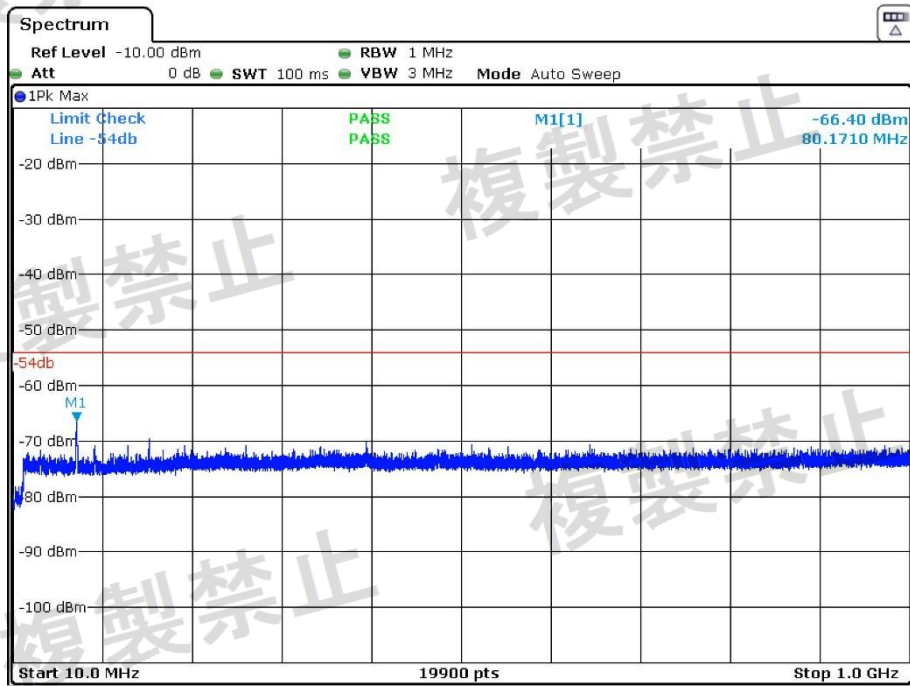
| Test Condition | Test Mode    | Channel | Freq., Range | Result | Limit | Verdict |
|----------------|--------------|---------|--------------|--------|-------|---------|
| NTNV           | 802.11n HT20 | 2412    | 30~1000      | -68.85 | -54   | PASS    |
| NTNV           | 802.11n HT20 | 2412    | 1000~12500   | -65.82 | -47   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 30~1000      | -69.03 | -54   | PASS    |
| NTNV           | 802.11n HT20 | 2442    | 1000~12500   | -66.85 | -47   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 30~1000      | -68.37 | -54   | PASS    |
| NTNV           | 802.11n HT20 | 2472    | 1000~12500   | -66.75 | -47   | PASS    |

#### 3.7.4 Result

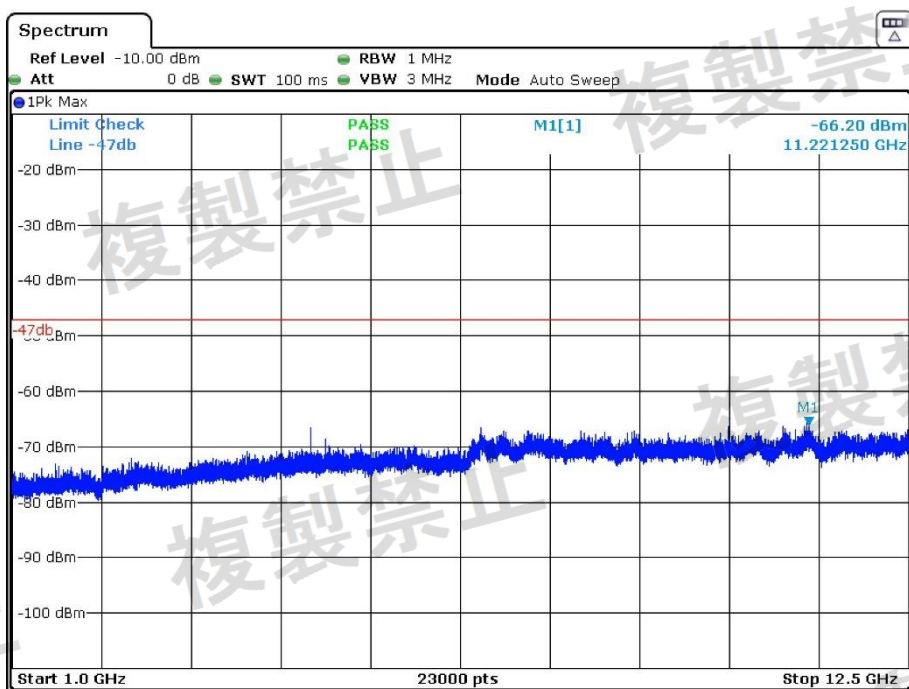
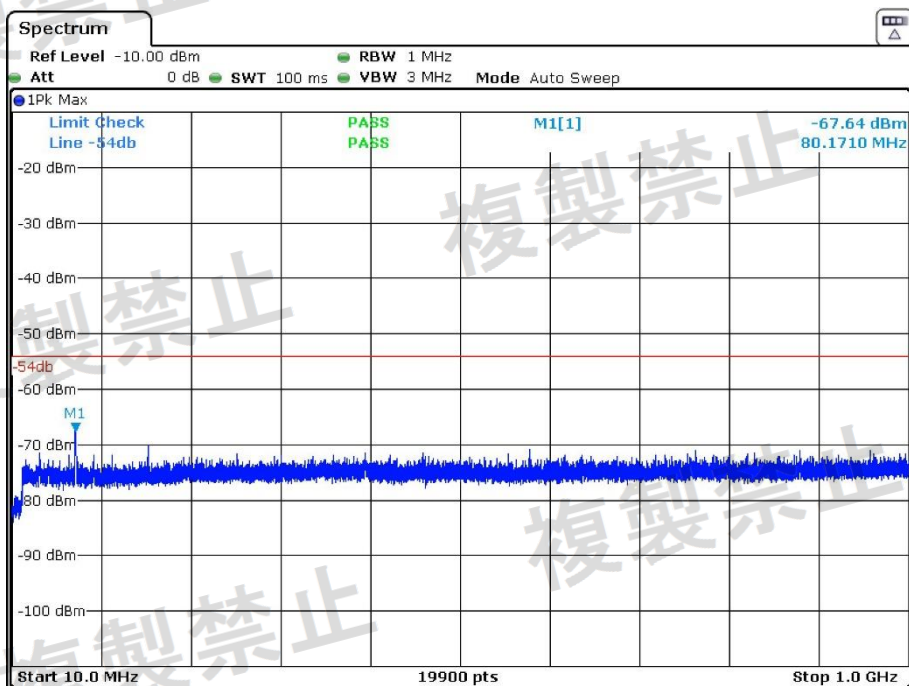
The equipment met the requirement of this clause.

## 3.7.5 Test Graphs

802.11b 2412



## 802.11b 2442



**Spectrum**

Ref Level -10.00 dBm RBW 1 MHz

Att 0 dB SWT 100 ms VBW 3 MHz Mode Auto Sweep

1Pk Max

Limit Check Line -54db

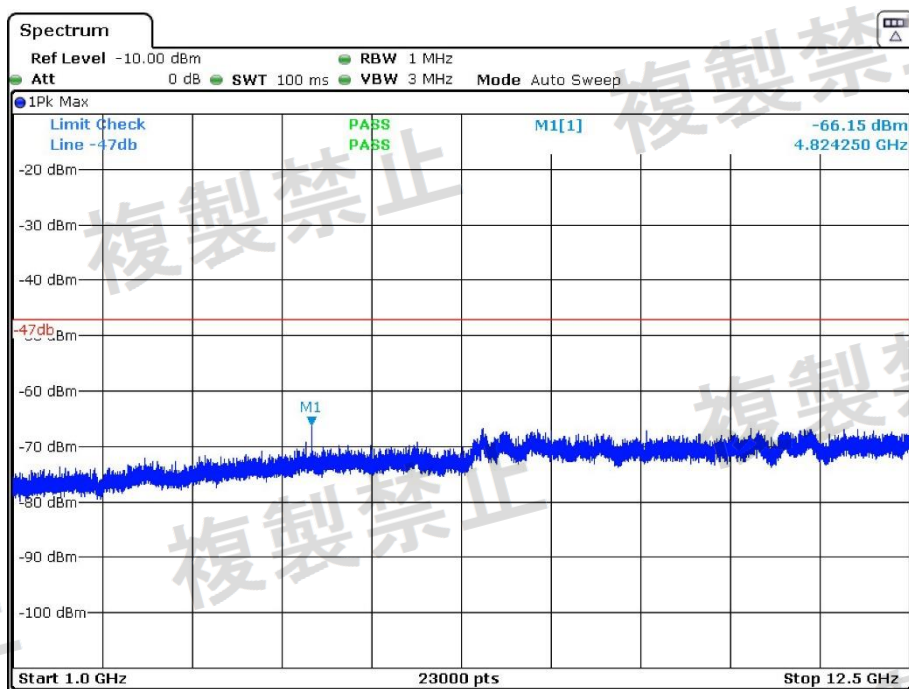
PASS PASS

M1[1]

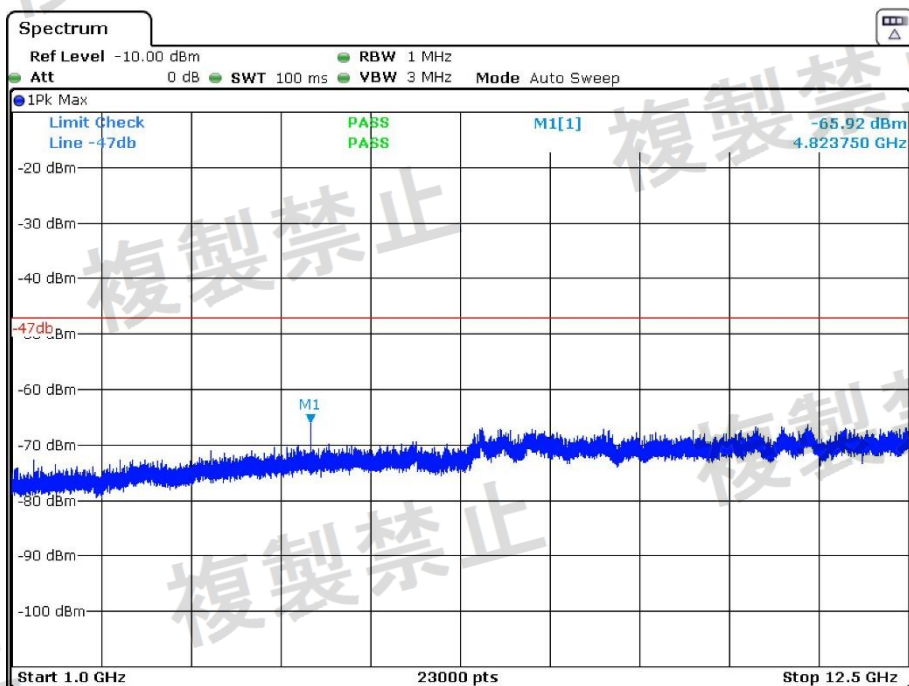
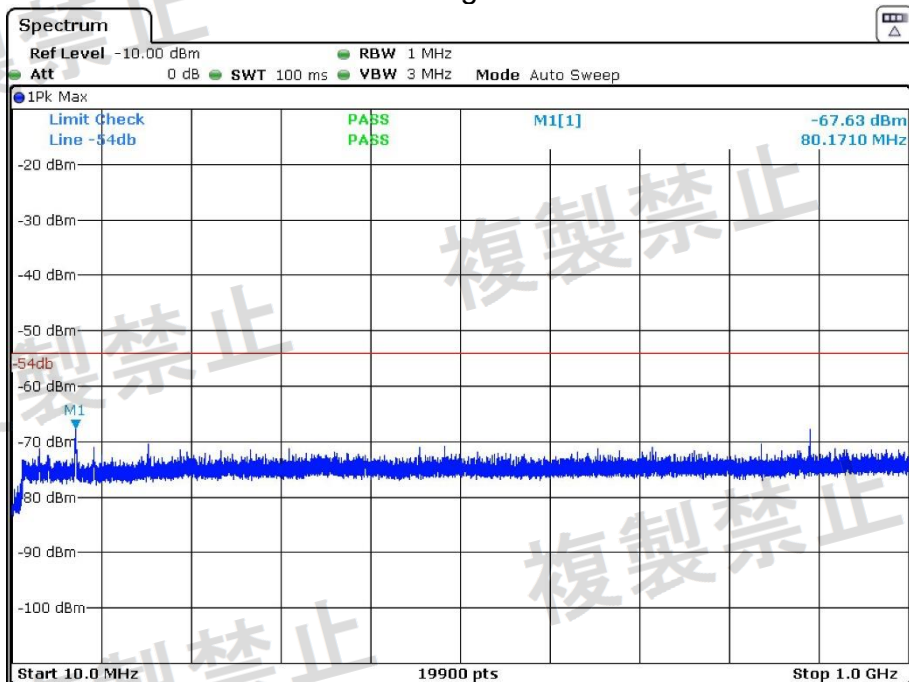
-67.16 dBm  
80.1710 MHz

M1

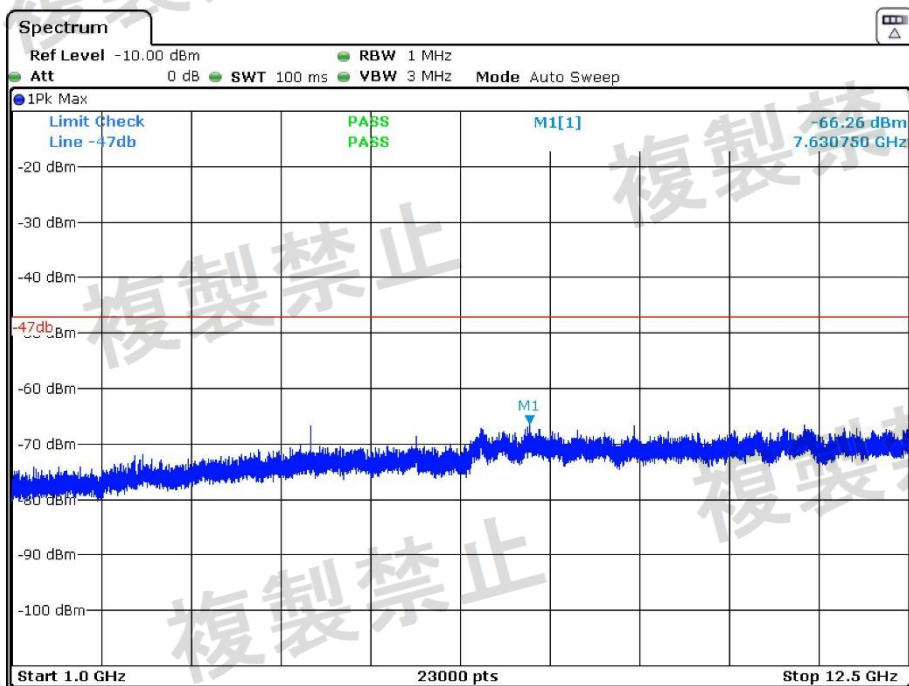
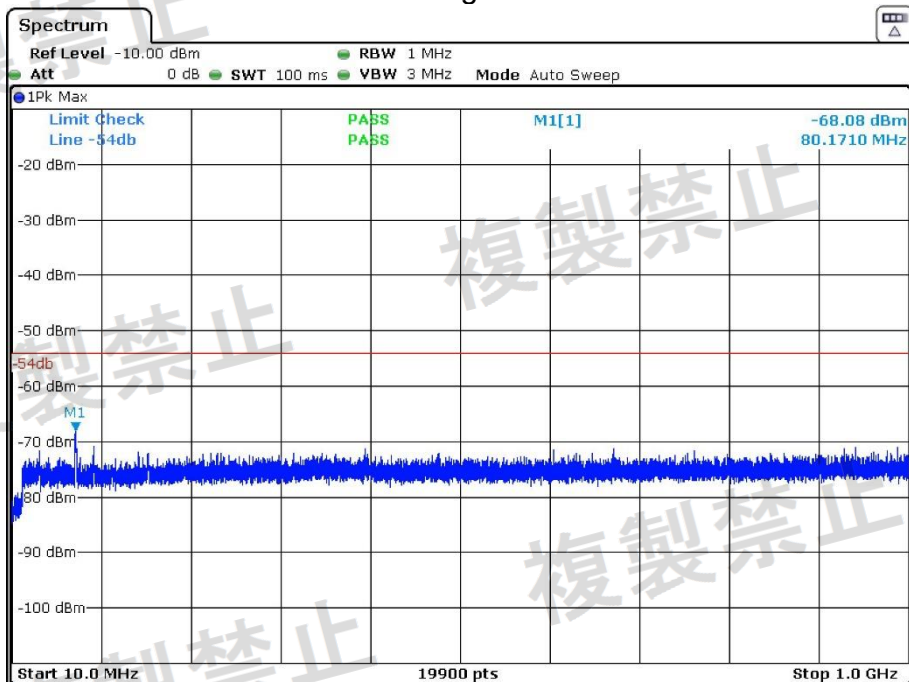
Start 10.0 MHz 19900 pts Stop 1.0 GHz



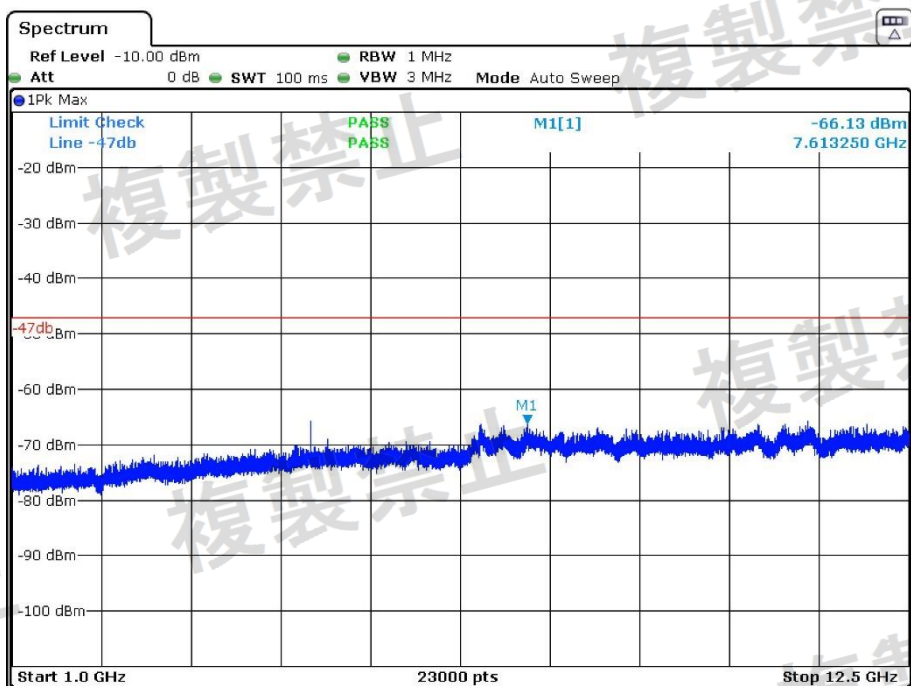
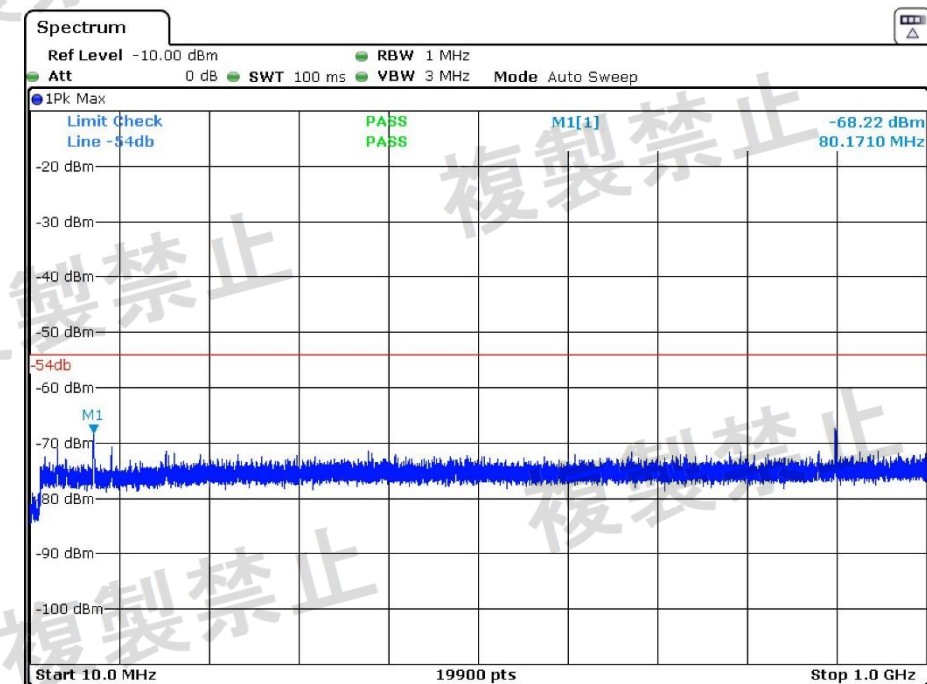
802.11g 2412



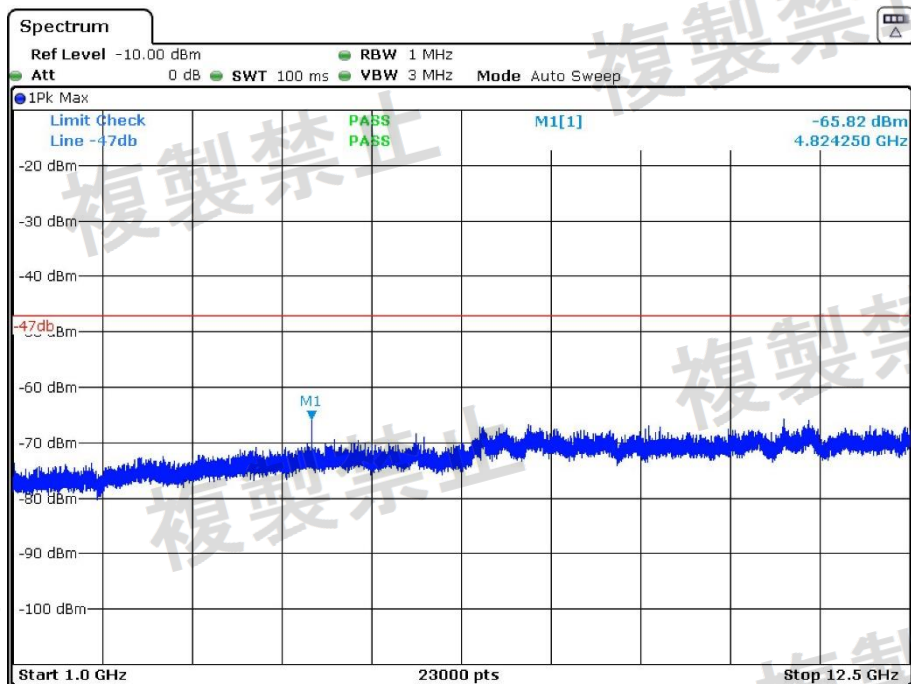
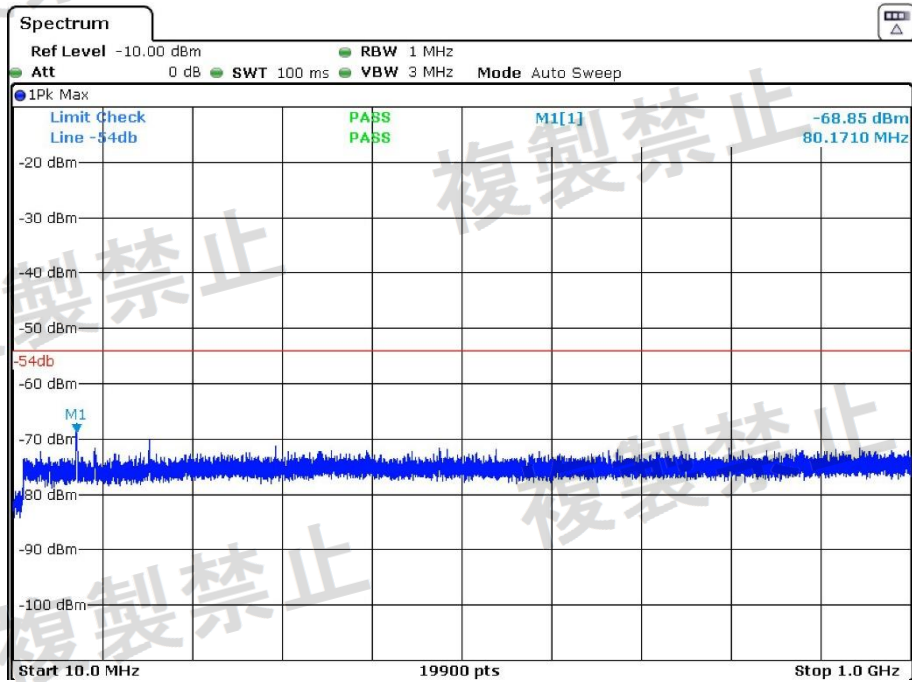
802.11g 2442



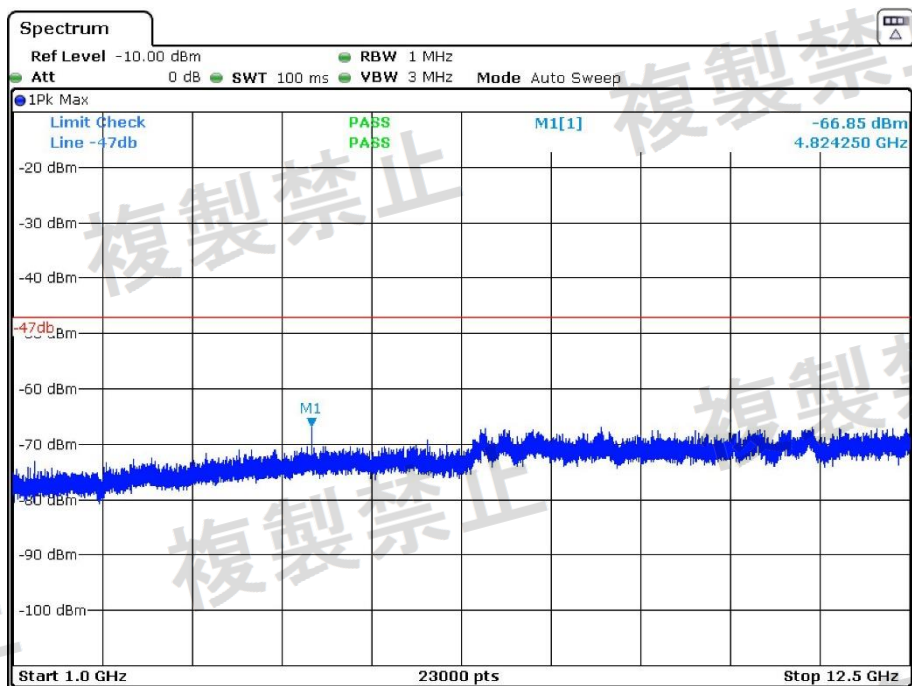
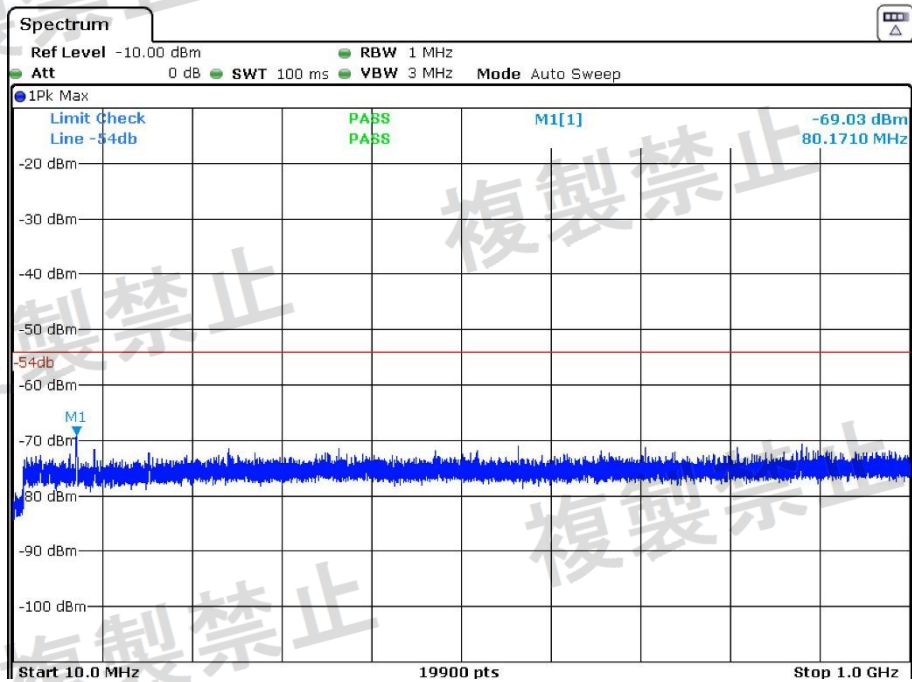
## 802.11g 2472



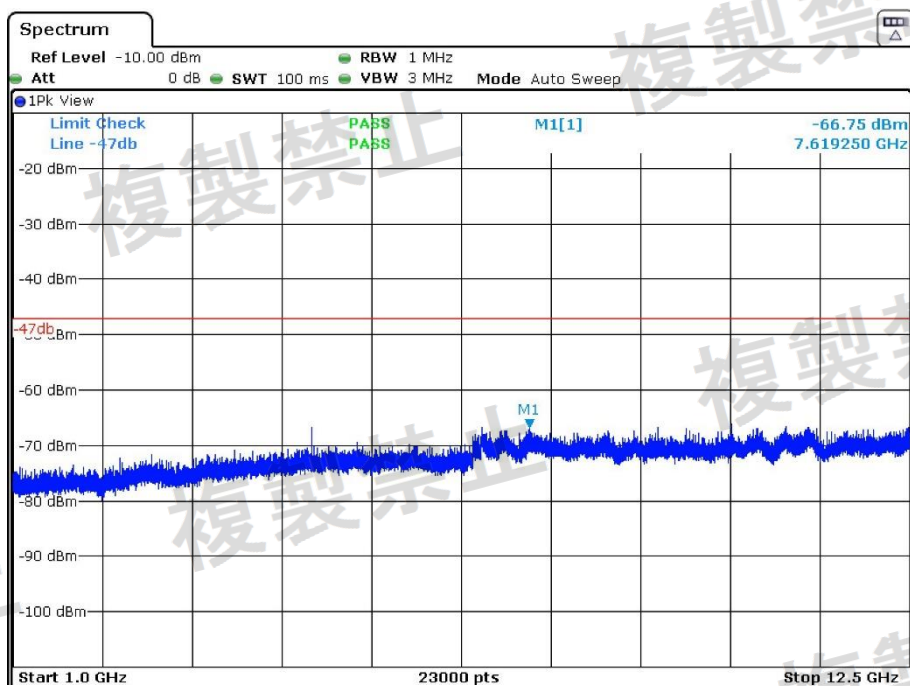
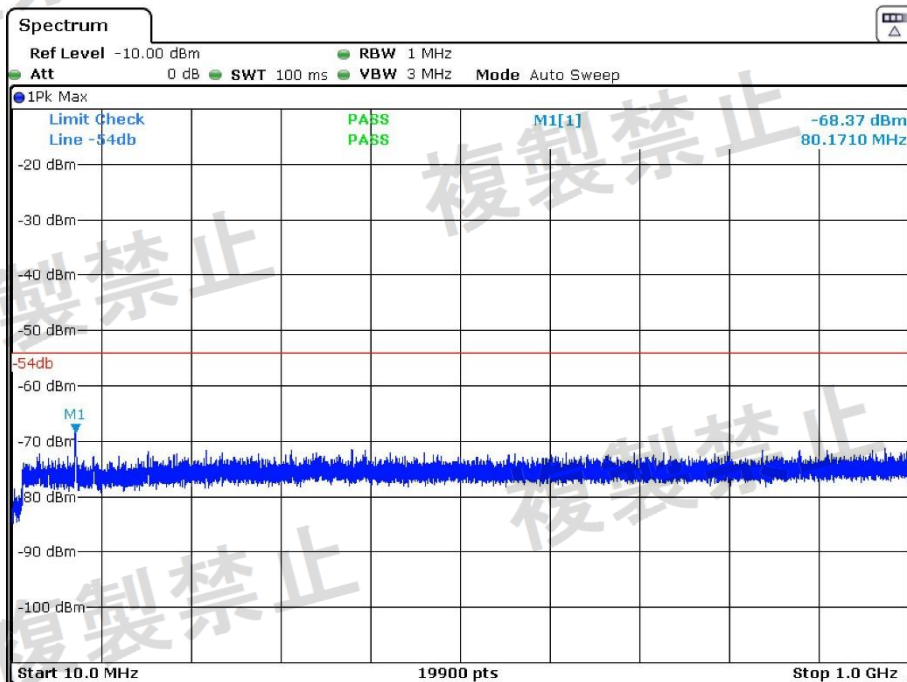
## 802.11n\_HT20 2412



## 802.11n\_HT20 2442



## 802.11n\_HT20 2472



### 3.8 Interference prevention function

#### 3.8.1 Test condition

|                      |                      |
|----------------------|----------------------|
| Date of testing:     | April 8, 2022        |
| Test position:       | Connecting with host |
| Ambient temperature: | 25.5 °C              |
| Relative humidity:   | 55.6 %               |
| Atmosphere Pressure: | 105.5 KPa            |

#### 3.8.2 Limit

| Item                | Limits   |
|---------------------|----------|
| Identification Code | ≥48 bits |

Measured Result:

**Complies.** EUT displayed a valid identification. In real life applications, the EUT is programmed to connect with specific host only.

|                                                                                              |
|----------------------------------------------------------------------------------------------|
| Device Information                                                                           |
| Manufacturer Name String<br>Manufacturer Name                                                |
| IEEE Regulatory Certification(2A2A)<br>{length = 14, bytes = 0xfe006578706572696d656e74616c} |
| PnP ID(2A50)<br>{length = 7, bytes = 0x0104050001001}                                        |
| UUID:1910                                                                                    |
| 2B11<br>特性: WriteWithoutResponse                                                             |
| 2B10<br>特性: Notify                                                                           |
| UUID:1827                                                                                    |
| 2ADB<br>特性: WriteWithoutResponse                                                             |
| 2ADC<br>特性: Notify                                                                           |
| UUID:7FDD                                                                                    |
| 2ADD<br>特性: WriteWithoutResponse                                                             |
| 2ADE<br>特性: Notify                                                                           |

#### 3.8.3 Result

The equipment met the requirement of this clause.

#### 4 Photographs of Test Set-ups

