

**Japan - TEST REPORT**

Report Number : **68.910.23.0058.01** Date of Issue: 2023-10-18

Model : **X450, V3x**

Product Type : Robotic Vacuum Cleaner

Applicant : Zhiyi (Zhongshan) Technology Co., Ltd.

Address : No. 39, Donghui Road, Cuiheng New District, 528400 Zhongshan,  
Guangdong, PEOPLE'S REPUBLIC OF CHINA

Manufacturer : Zhiyi (Zhongshan) Technology Co., Ltd.

Address : No. 39, Donghui Road, Cuiheng New District, 528400 Zhongshan,  
Guangdong, PEOPLE'S REPUBLIC OF CHINA

Production Facility : Zhiyi (Zhongshan) Technology Co., Ltd.

Address : No. 39, Donghui Road, Cuiheng New District, 528400 Zhongshan,  
Guangdong, PEOPLE'S REPUBLIC OF CHINA

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including  
Appendices : **154**

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## 1 General Information

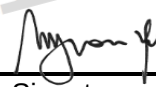
### 1.1 Notes

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details, please see testing and certification regulation, chapter A-3.4.

Prepared By  
Project Engineer

2023-10-18  
Date

Myron Yu  
Name

  
Signature



Approved By  
Project Manager

2023-10-18  
Date

Jessie He  
Name

  
Signature

## 1.2 Testing Laboratory

Site 1

Company name:

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch

Building 12&13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District, Shenzhen, 518052 China

Telephone:

86 755 8828 6998

Fax:

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## 1.3 Details of Applicant

Client:

Zhiyi (Zhongshan) Technology Co., Ltd.

Address:

No. 39, Donghui Road, Cuiheng New District, 528400 Zhongshan, Guangdong, PEOPLE'S REPUBLIC OF CHINA

Product Description:

Robotic Vacuum Cleaner

Submitted Model No.:

X450, V3x

Trade Mark:



## 1.4 Application Details

Date of receipt of order:

2023-08-22

Date of receipt of test item:

2023-08-31

Date of test:

2023-09-06 to 2023-10-16

## 1.5 Test Item

Refer to table 1

## 1.6 Applied Standard

APPLIED PRODUCT STANDARD

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 Article 88 Appendix 43 |                                       | Result | Test Site |
|-------------------------------------------------------------|---------------------------------------|--------|-----------|
| Essential parameter                                         | Corresponding technical requirements  |        |           |
| Transmitter requirements                                    | RF Output Power                       | PASS   | Site 1    |
|                                                             | RF Output Power Tolerance             | PASS   | Site 1    |
|                                                             | Frequency Tolerance                   | PASS   | Site 1    |
|                                                             | Occupied Bandwidth                    | PASS   | Site 1    |
|                                                             | Spread Bandwidth                      | PASS   | Site 1    |
|                                                             | Spreading Factor                      | PASS   | Site 1    |
|                                                             | Carrier sense                         | N/A*   | ---       |
|                                                             | Interference prevention function      | PASS   | Site 1    |
|                                                             | Unwanted (Spurious) Emission Strength | PASS   | Site 1    |
| Receiver requirements                                       | Secondary Emitted Radio Wave Strength | PASS   | Site 1    |

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

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

NOTE 2: "\*" N/A is an abbreviation for Not Applicable, this test is applied for transmission devices with an OFDM system that occupies frequency bandwidths over 26MHz and below or equal to 38MHz (barring FH-OFDM hybrid systems), include the carrier sense function.

## 2 Equipment Specification

### 2.1 General Description

This Equipment Under Test is a Robotic Vacuum Cleaner with 2.4GHz Wi-Fi function. The TX and RX range of 2.4GHz Wi-Fi is 2412MHz-2472MHz.

### 2.2 Technical Data

|                            |                                                                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Product Type:              | Robotic Vacuum Cleaner                                                                                                                |
| Model(s):                  | X450, V3x                                                                                                                             |
| Ratings:                   | 19.0VDC, 0.6A (for Robotic Vacuum Cleaner);<br>100-240VAC, 50/60Hz, 0.5A Max (for AC ADAPTER);<br>14.4VDC, 2900mAh (for Battery pack) |
| Transmit Frequency:        | 2412MHz-2472MHz for 802.11b/g/n_HT20                                                                                                  |
| Receiver Frequency:        | 2412MHz-2472MHz for 802.11b/g/n_HT20                                                                                                  |
| Antenna Gain:              | 0.86 dBi Max. (for PCB antenna)                                                                                                       |
| Maximum RF Transmit Power: | 7.77 mW/MHz                                                                                                                           |



V3x

## 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).

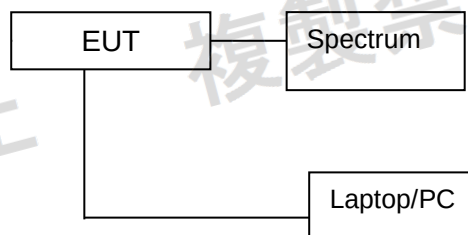
All test items were performed at nominal voltage, lower extreme test voltage and upper extreme test voltage.

VN= nominal voltage: 3.3VDC (for Wi-Fi module),

VL= lower extreme test voltage: 3.0VDC (for Wi-Fi module)

VH= upper extreme test voltage low voltage: 3.6VDC (for Wi-Fi module).

### 2.3.2 Test Connections



Test Configuration

## 2.4 Auxiliary Equipment Used during Test

Table 2. Auxiliary Equipment Used during Test

| Description | Manufacturer | Model no. | Serial no. | Cal. Due Date |
|-------------|--------------|-----------|------------|---------------|
| Laptop      | X220         | Thinkpad  | ---        | ---           |

## 2.5 Lists of Test Instruments

Table 3. Lists of Test Instruments

| DESCRIPTION     | MANUFACTURER    | MODEL NO.          | EQUIPMENT ID       | SERIAL NO.          | CAL INTERVAL (YEAR) | CAL. DUE DATE |
|-----------------|-----------------|--------------------|--------------------|---------------------|---------------------|---------------|
| Signal Analyzer | Rohde & Schwarz | FSV40              | 68-4-74-14-004     | 101030              | 1                   | 2024-5-19     |
| Test software   | Tonscend        | System for BT/WIFI | 68-4-74-14-006-A13 | Version 2.6.77.0518 | N/A                 | N/A           |
| Shielding Room  | TDK             | TS8997             | 68-4-90-19-003     | ---                 | 3                   | 2025-10-15    |

## 2.6 Measurement Uncertainty

For the test methods, according to the harmonized standard and conformance testing standard, the measurement uncertainty figures shall be calculated in accordance with TR 100 028 and shall correspond to an expansion factor (coverage factor)  $k = 1.96$  (which provides a confidence level of 95 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

| System Measurement Uncertainty                 |                                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| Test Items                                     | Extended Uncertainty                                                                 |
| Uncertainty for Conducted RF test with TS 8997 | RF Power Conducted: 1.31dB<br>Frequency test involved:<br>$0.6 \times 10^{-8}$ or 1% |

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, clause 4.4.3 and 4.5.1.



### 3 Measurements Result

#### 3.1 RF Output Power

##### 3.1.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-09-19, 2023-10-16          |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

##### 3.1.2 Limit

- 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

| Modulation       | Frequency [MHz] | Voltage [VDC] | Measured Output Power [mW/MHz] | Average Power [mW/MHz] | Limit Output Power [mW/MHz] |
|------------------|-----------------|---------------|--------------------------------|------------------------|-----------------------------|
| 802.11b          | 2412            | 3.3           | 5.61                           | 7.36                   | 10.00                       |
|                  | 2442            | 3.3           | 5.77                           | 7.50                   | 10.00                       |
|                  | 2472            | 3.3           | 5.96                           | 7.77                   | 10.00                       |
| 802.11g          | 2412            | 3.3           | 1.72                           | 2.47                   | 10.00                       |
|                  | 2442            | 3.3           | 1.79                           | 2.57                   | 10.00                       |
|                  | 2472            | 3.3           | 1.79                           | 2.60                   | 10.00                       |
| 802.11n_HT 20    | 2412            | 3.3           | 1.64                           | 2.41                   | 10.00                       |
|                  | 2442            | 3.3           | 1.77                           | 2.62                   | 10.00                       |
|                  | 2472            | 3.3           | 1.94                           | 2.85                   | 10.00                       |
| Conclusion: PASS |                 |               |                                |                        |                             |

| Modulation       | Frequency [MHz] | Voltage [VDC] | Measured Output Power [mW/MHz] | Average Power [mW/MHz] | Limit Output Power [mW/MHz] |
|------------------|-----------------|---------------|--------------------------------|------------------------|-----------------------------|
| 802.11b          | 2412            | 3.0           | 5.61                           | 7.36                   | 10.00                       |
|                  | 2442            | 3.0           | 5.52                           | 7.18                   | 10.00                       |
|                  | 2472            | 3.0           | 5.83                           | 7.61                   | 10.00                       |
| 802.11g          | 2412            | 3.0           | 1.71                           | 2.46                   | 10.00                       |
|                  | 2442            | 3.0           | 1.74                           | 2.50                   | 10.00                       |
|                  | 2472            | 3.0           | 1.78                           | 2.58                   | 10.00                       |
| 802.11n_HT 20    | 2412            | 3.0           | 1.63                           | 2.39                   | 10.00                       |
|                  | 2442            | 3.0           | 1.76                           | 2.60                   | 10.00                       |
|                  | 2472            | 3.0           | 1.92                           | 2.83                   | 10.00                       |
| Conclusion: PASS |                 |               |                                |                        |                             |

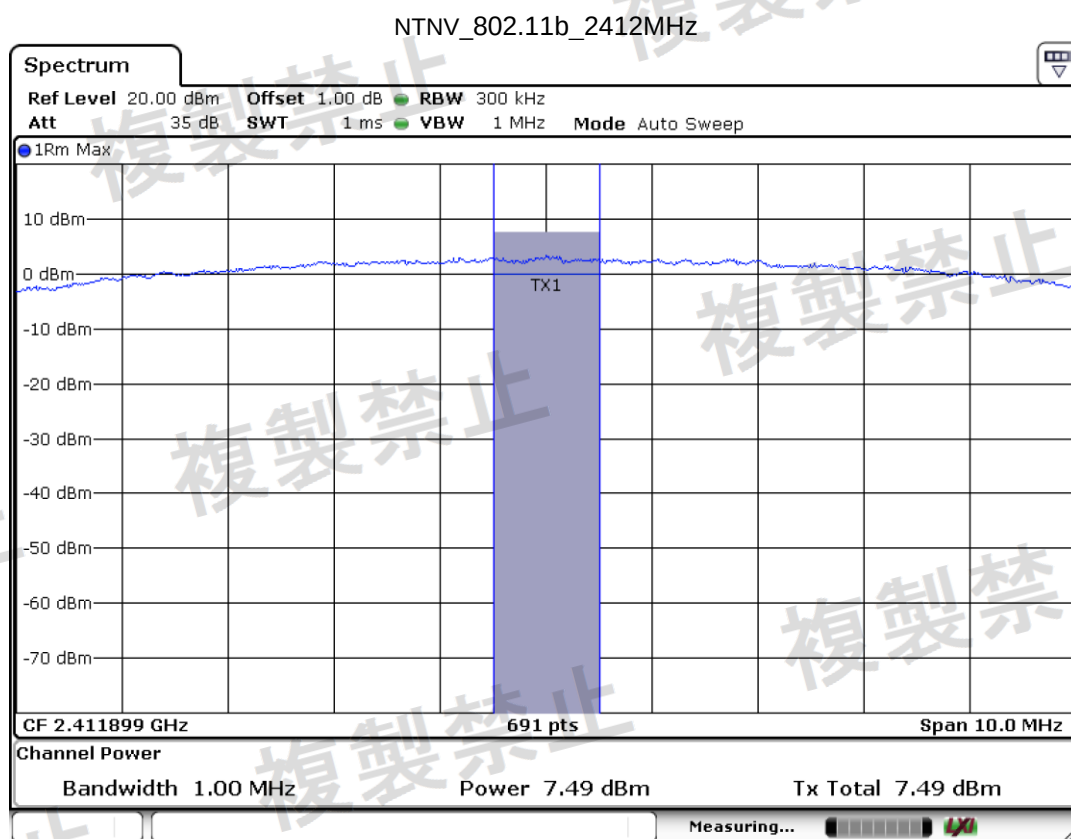


| Modulation       | Frequency [MHz] | Voltage [VDC] | Measured Output Power [mW/MHz] | Average Power [mW/MHz] | Limit Output Power [mW/MHz] |
|------------------|-----------------|---------------|--------------------------------|------------------------|-----------------------------|
| 802.11b          | 2412            | 3.6           | 5.58                           | 7.32                   | 10.00                       |
|                  | 2442            | 3.6           | 5.69                           | 7.40                   | 10.00                       |
|                  | 2472            | 3.6           | 5.96                           | 7.77                   | 10.00                       |
| 802.11g          | 2412            | 3.6           | 1.72                           | 2.47                   | 10.00                       |
|                  | 2442            | 3.6           | 1.79                           | 2.58                   | 10.00                       |
|                  | 2472            | 3.6           | 1.76                           | 2.55                   | 10.00                       |
| 802.11n_HT 20    | 2412            | 3.6           | 1.63                           | 2.39                   | 10.00                       |
|                  | 2442            | 3.6           | 1.77                           | 2.61                   | 10.00                       |
|                  | 2472            | 3.6           | 1.92                           | 2.82                   | 10.00                       |
| Conclusion: PASS |                 |               |                                |                        |                             |

Remark:

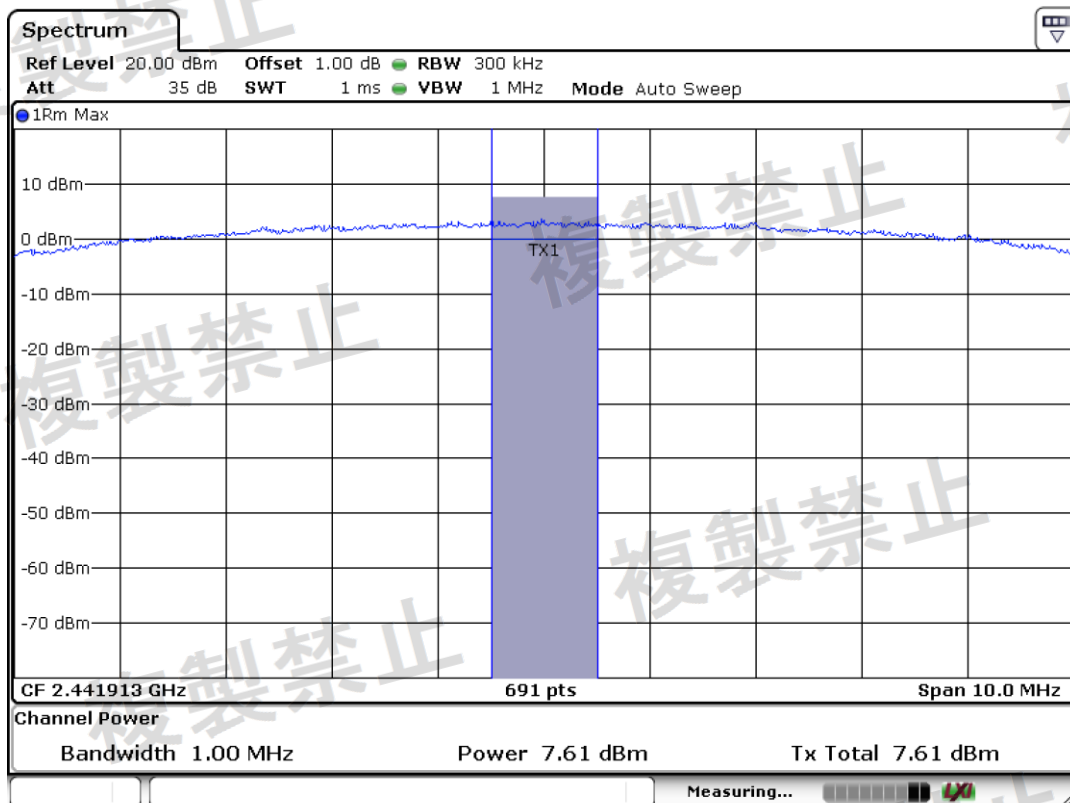
Average power in a burst = Measured Output Power / Transmission time rate;

Transmission time rate = Burst transmission time / Burst repetition period



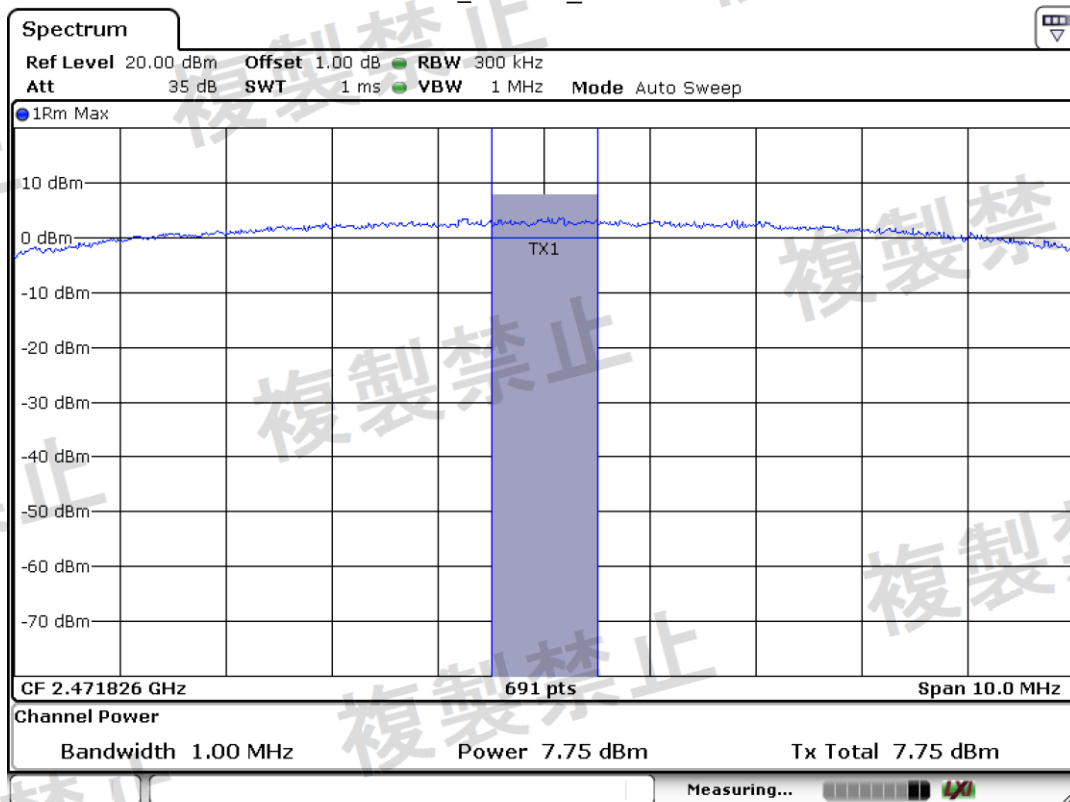
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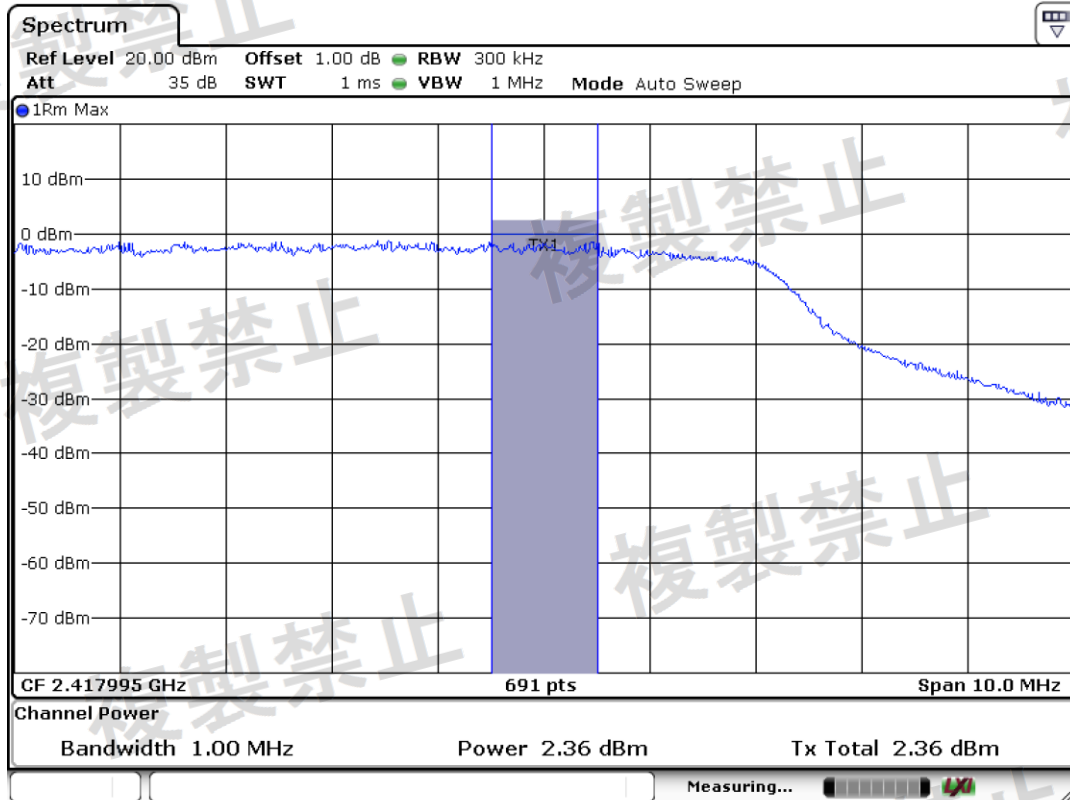
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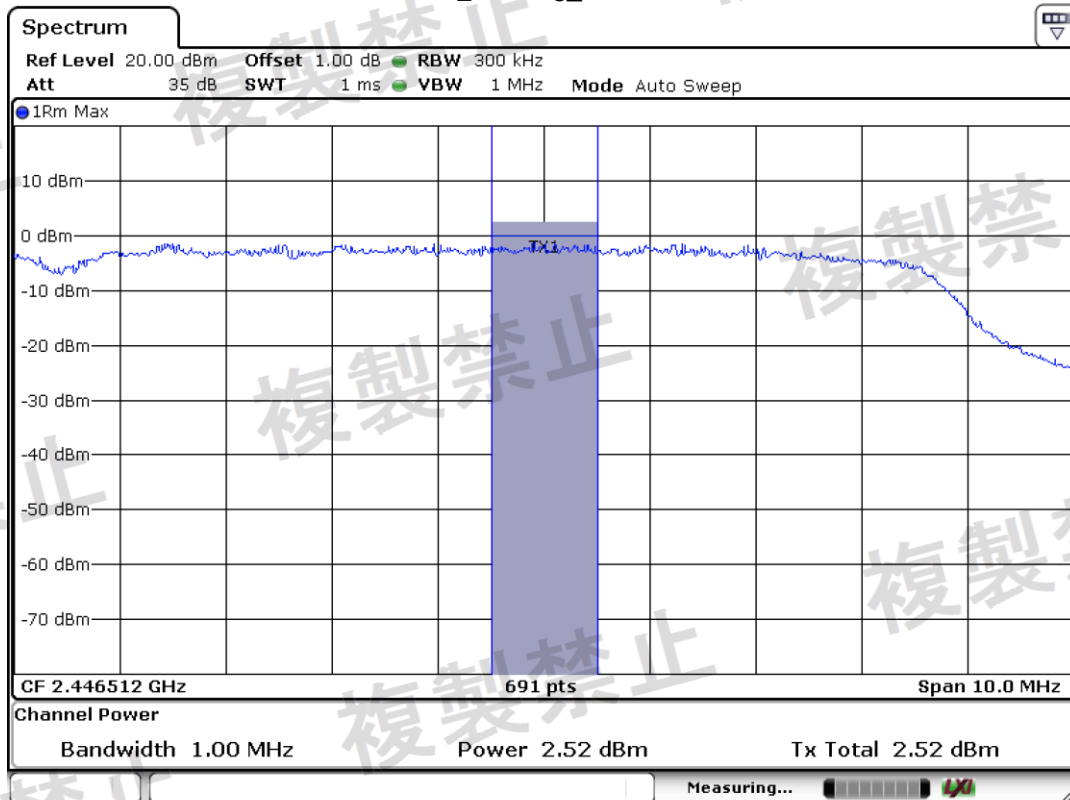
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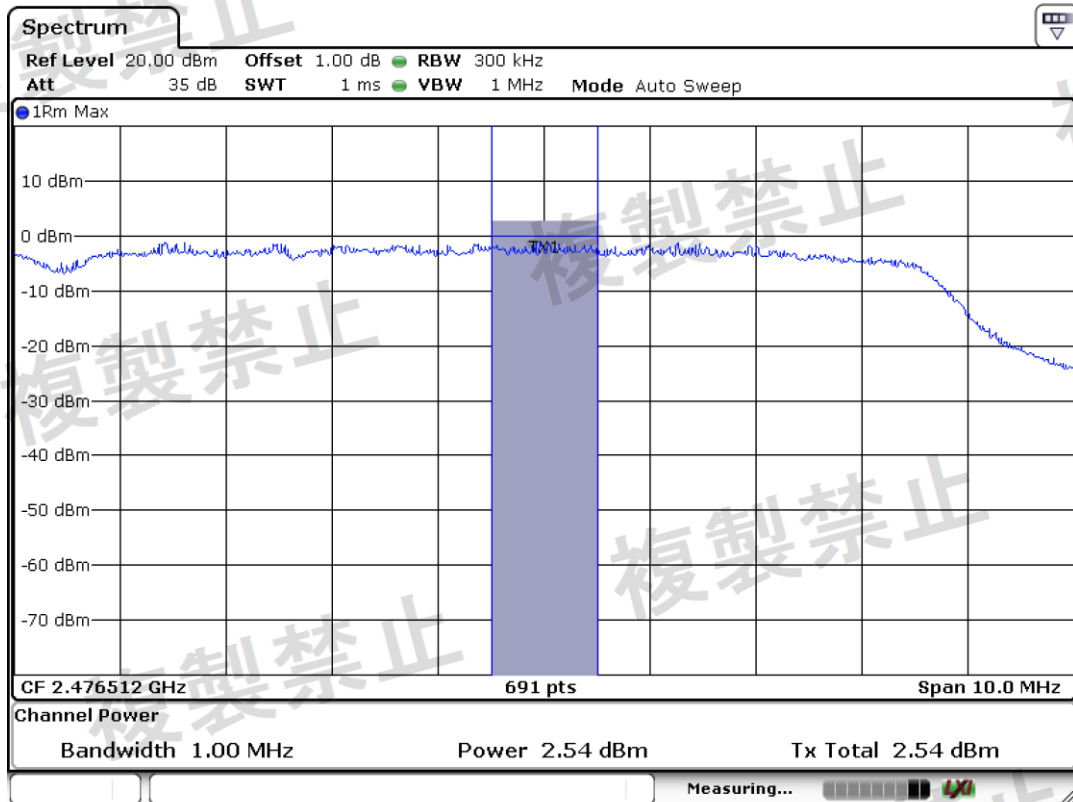
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## NTNV\_802.11g\_2442MHz



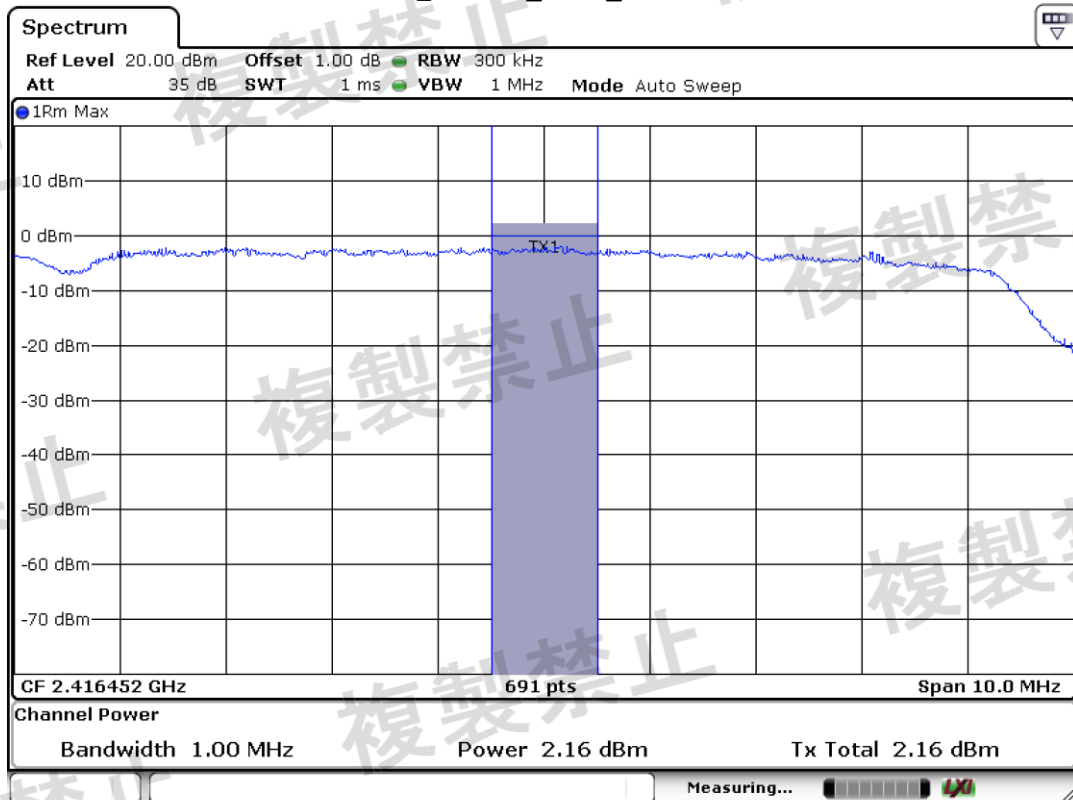
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## NTNV\_802.11g\_2472MHz



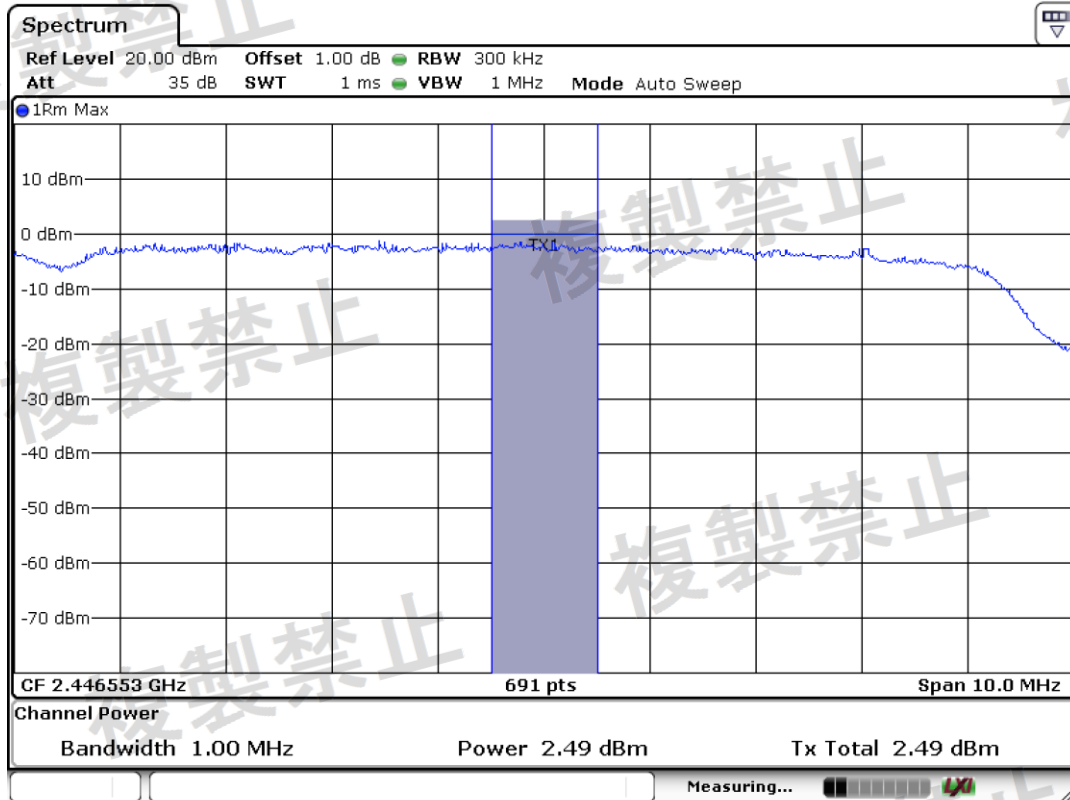
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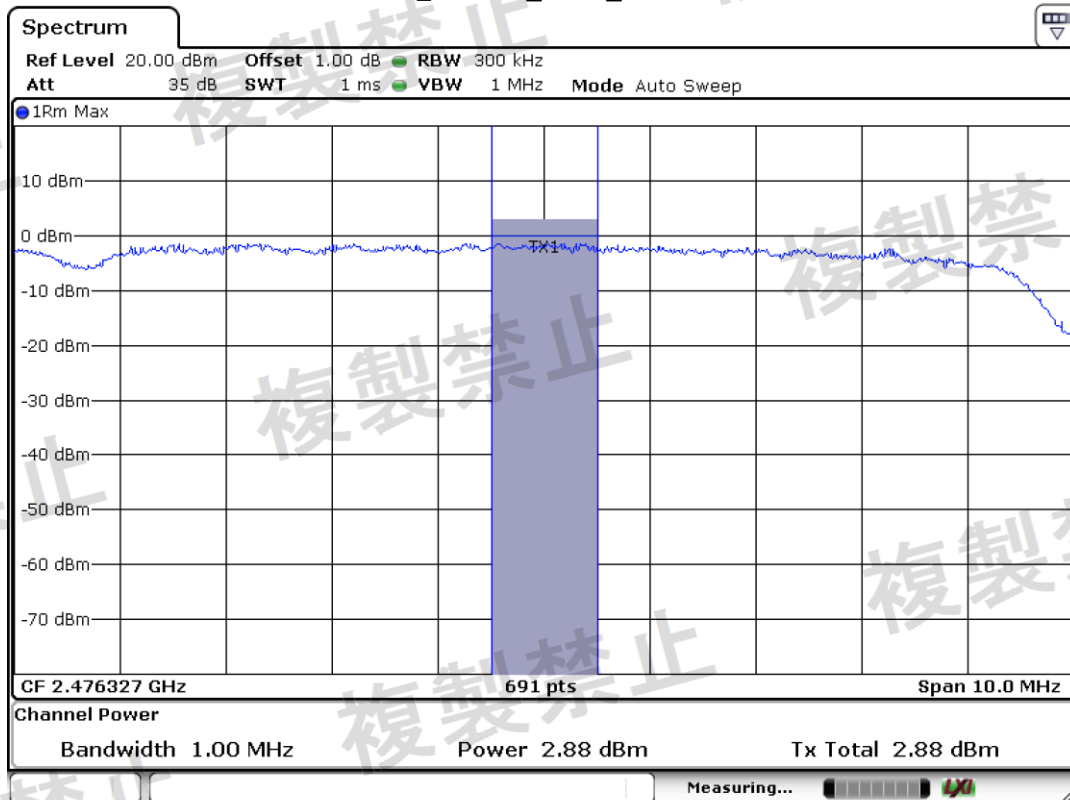
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## NTNV\_802.11n\_HT20\_2442MHz



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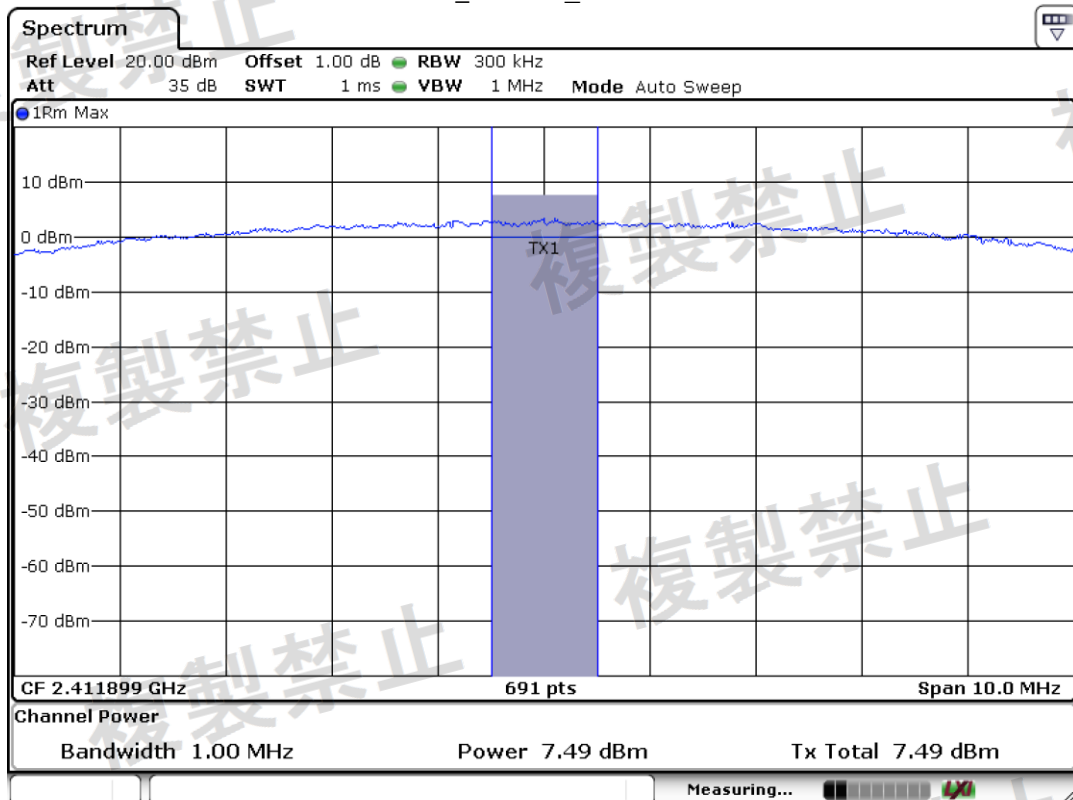
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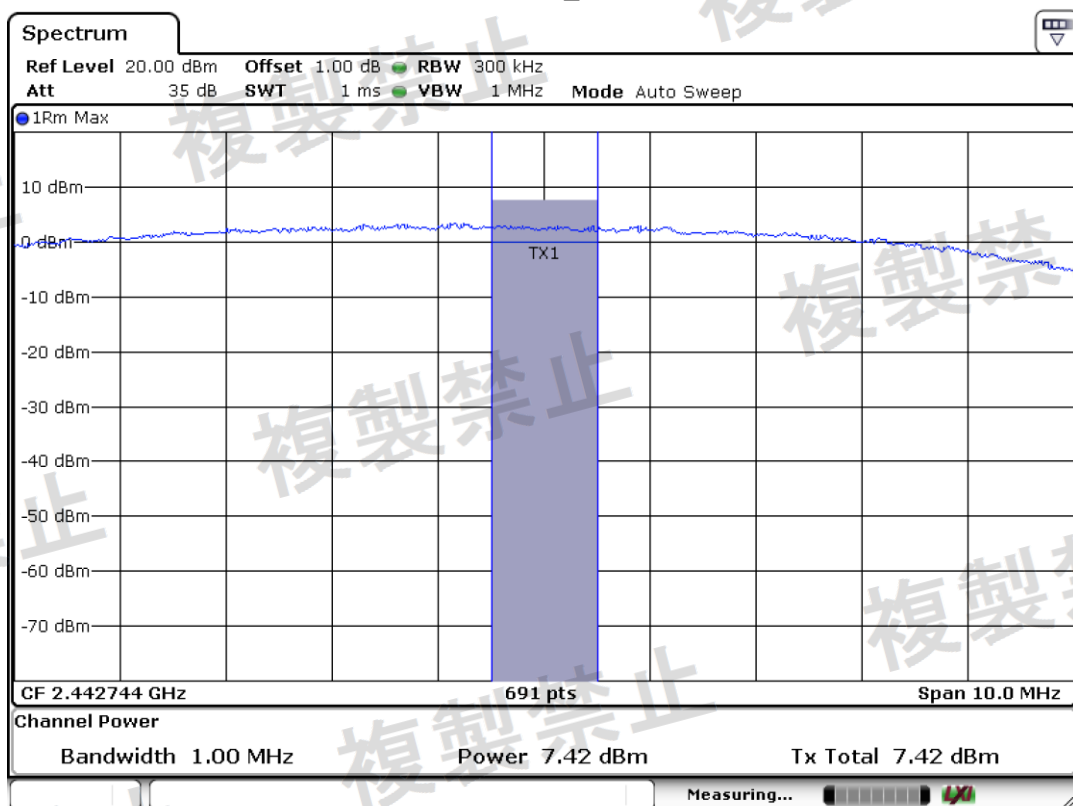


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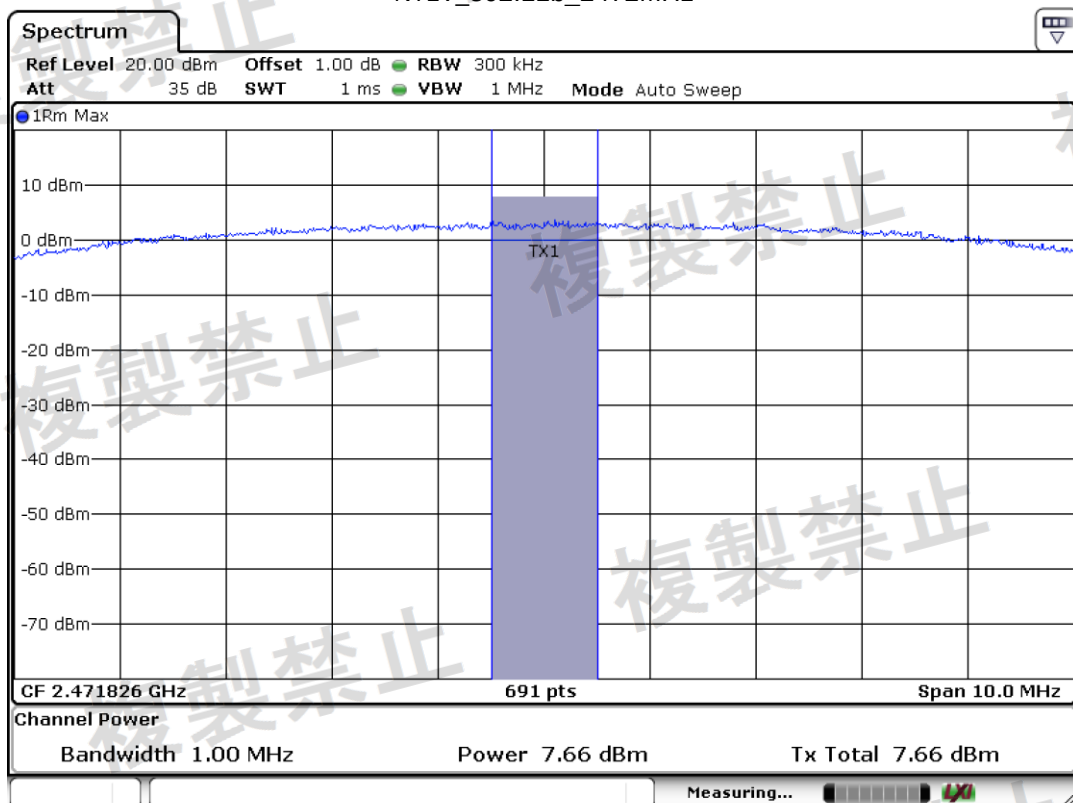
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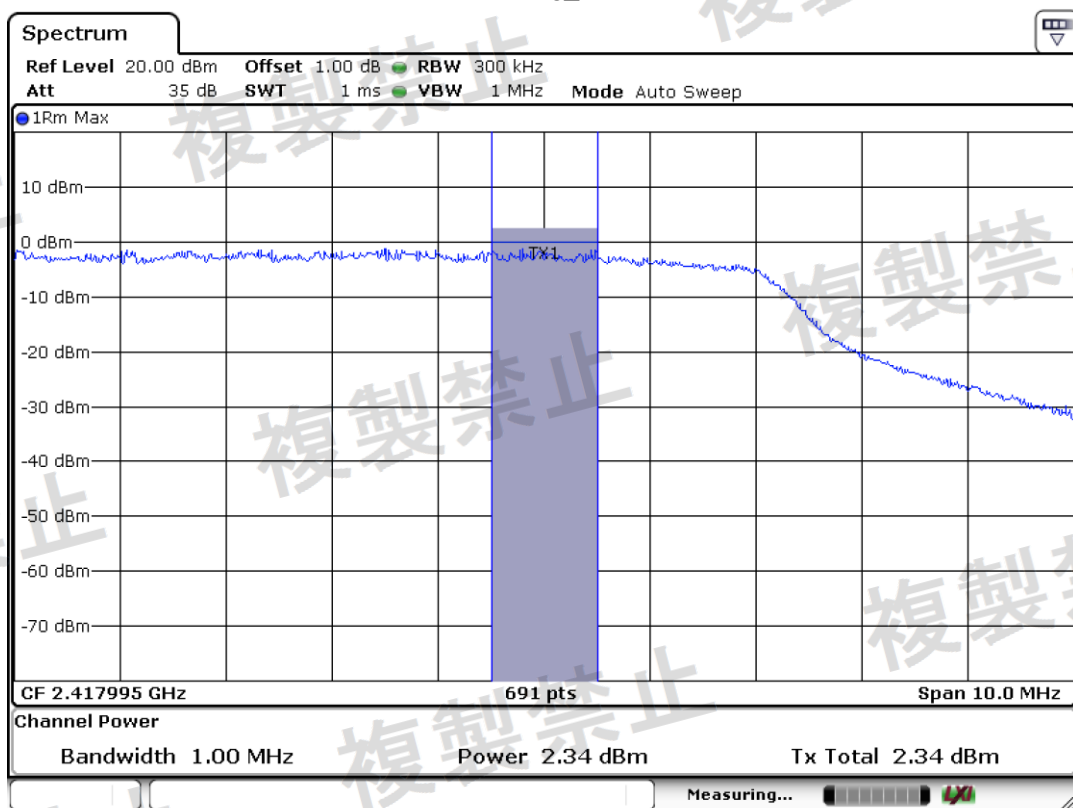
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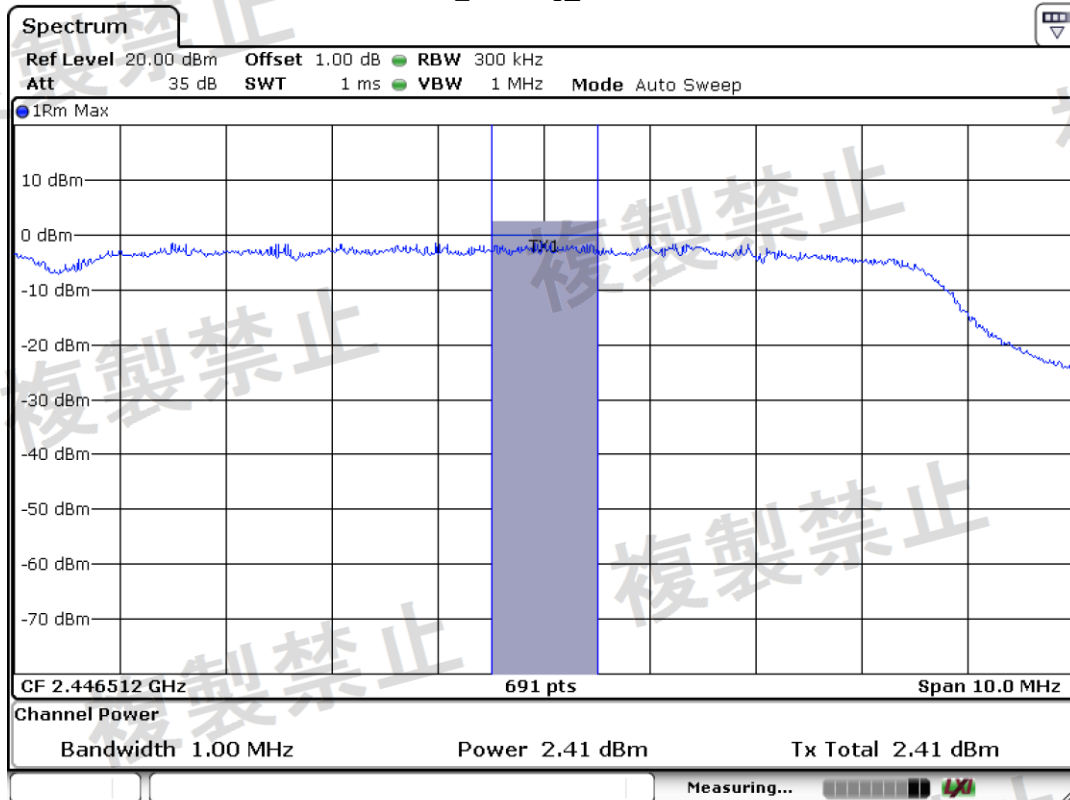
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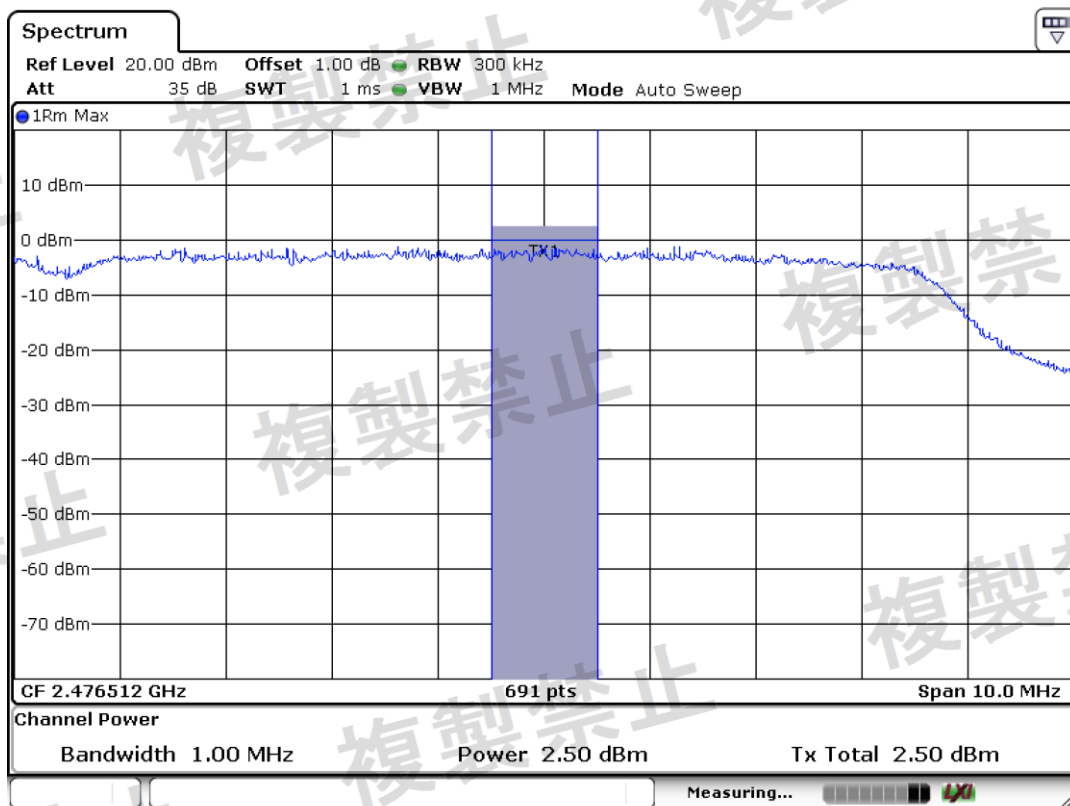
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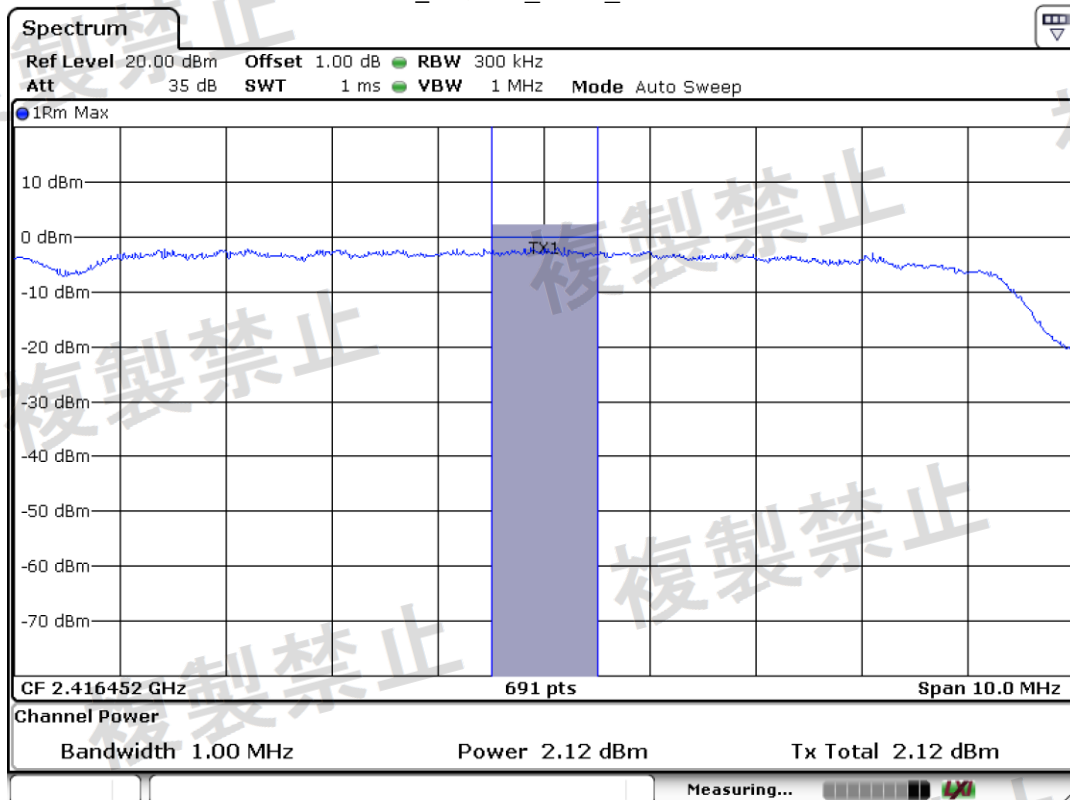
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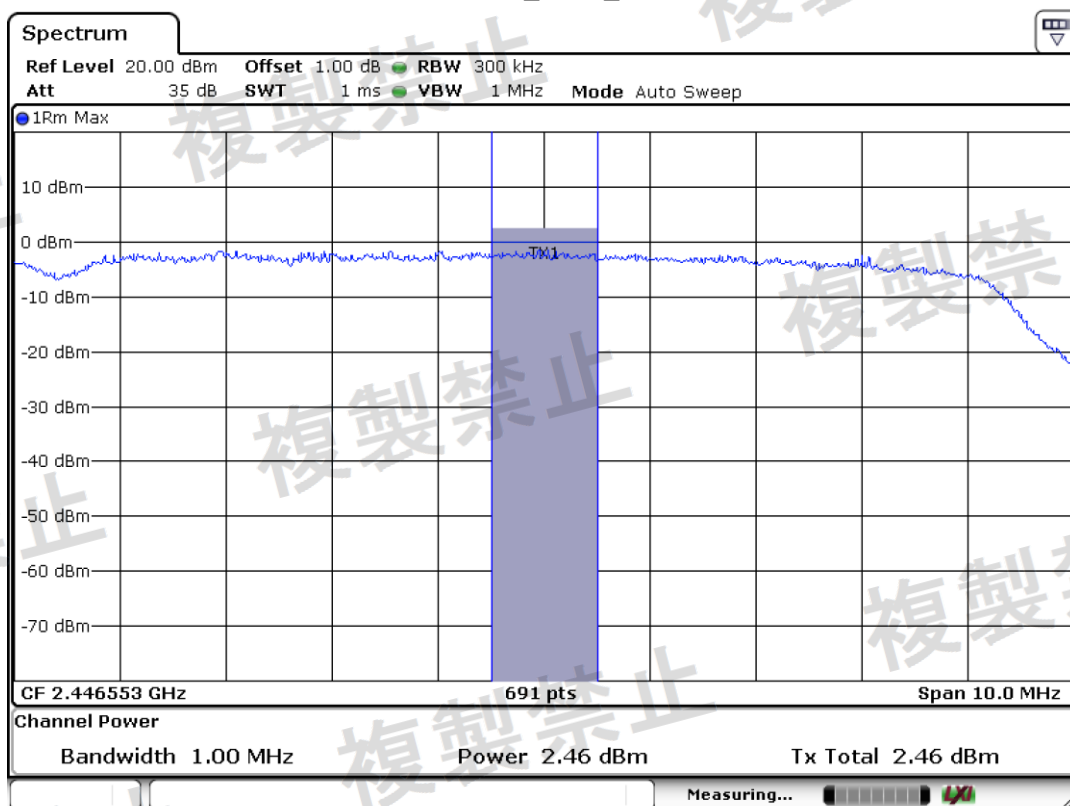
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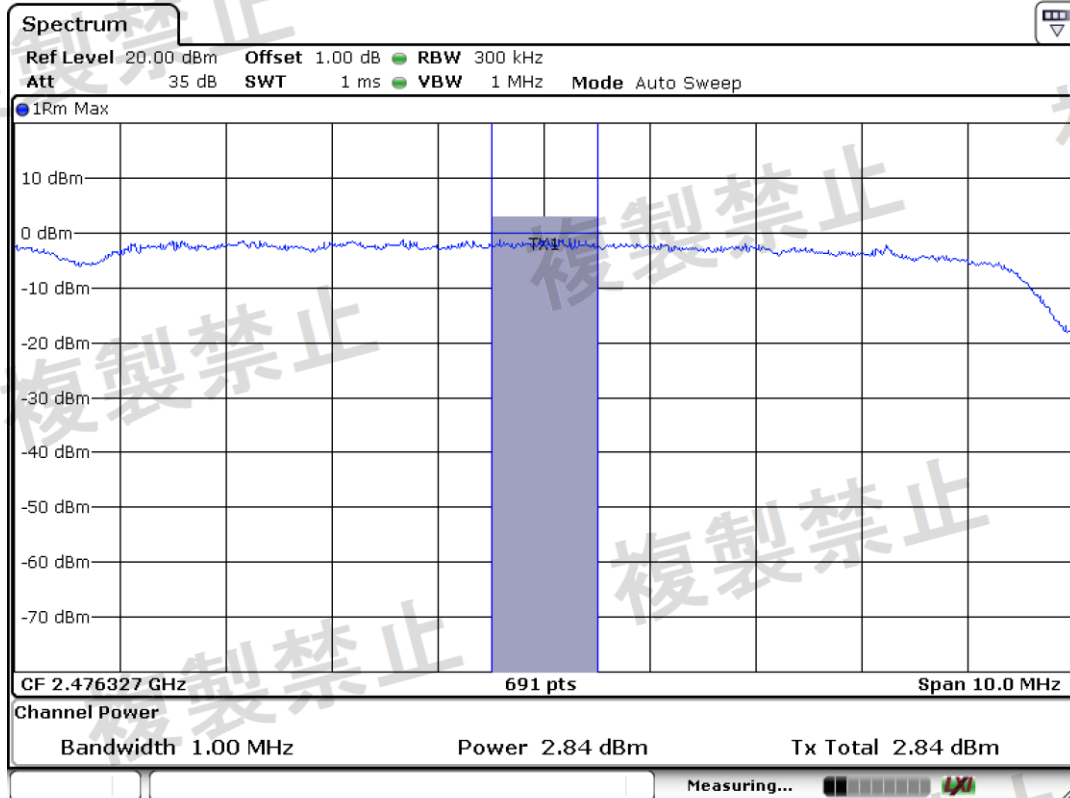
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## NTLV\_802.11n\_HT20\_2442MHz



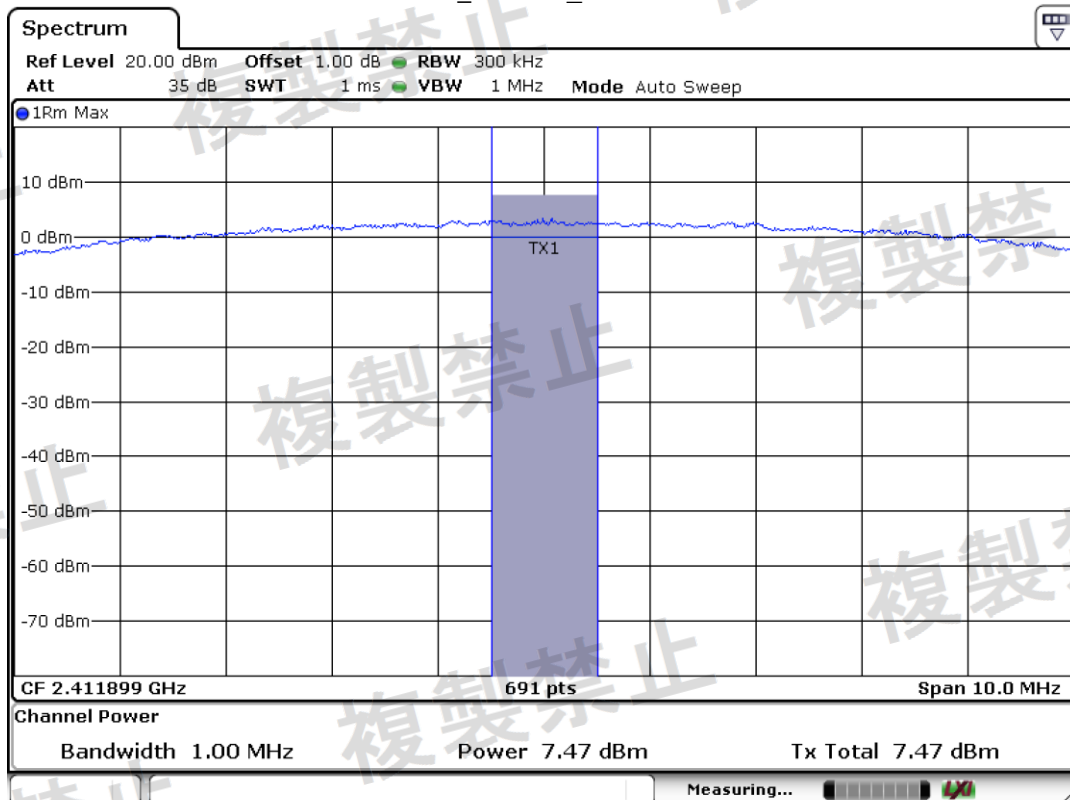
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## NTLV\_802.11n\_HT20\_2472MHz



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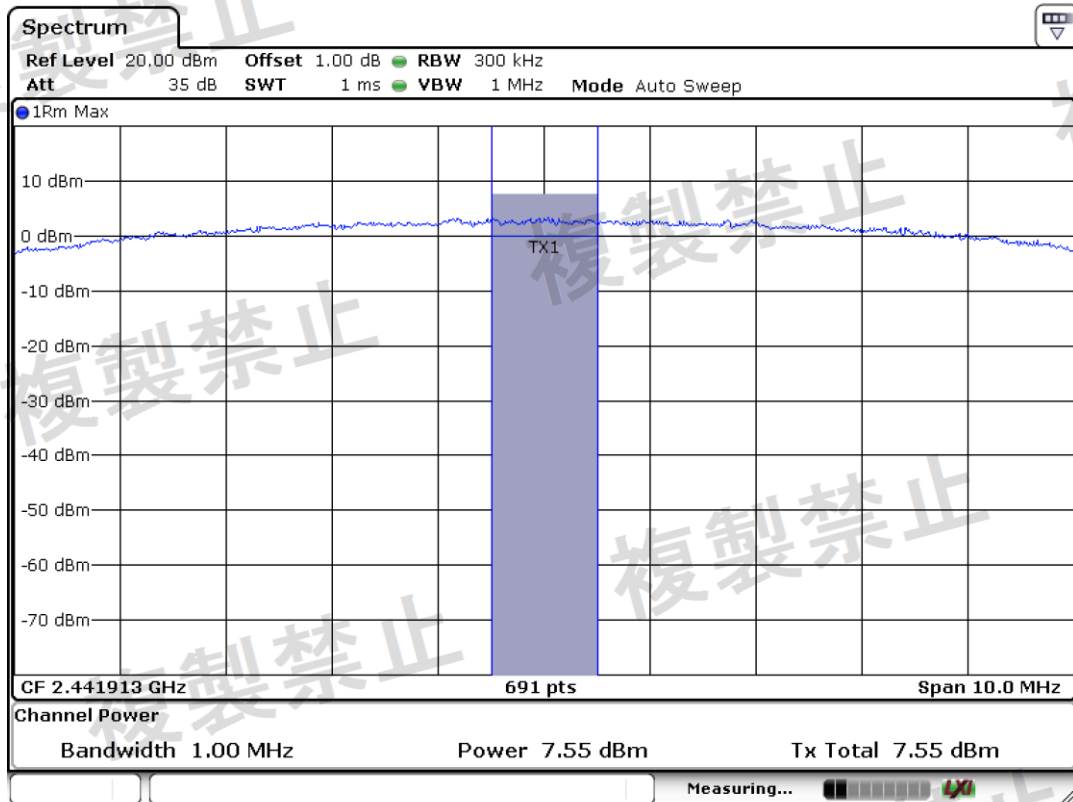
## NTHV\_802.11b\_2412MHz



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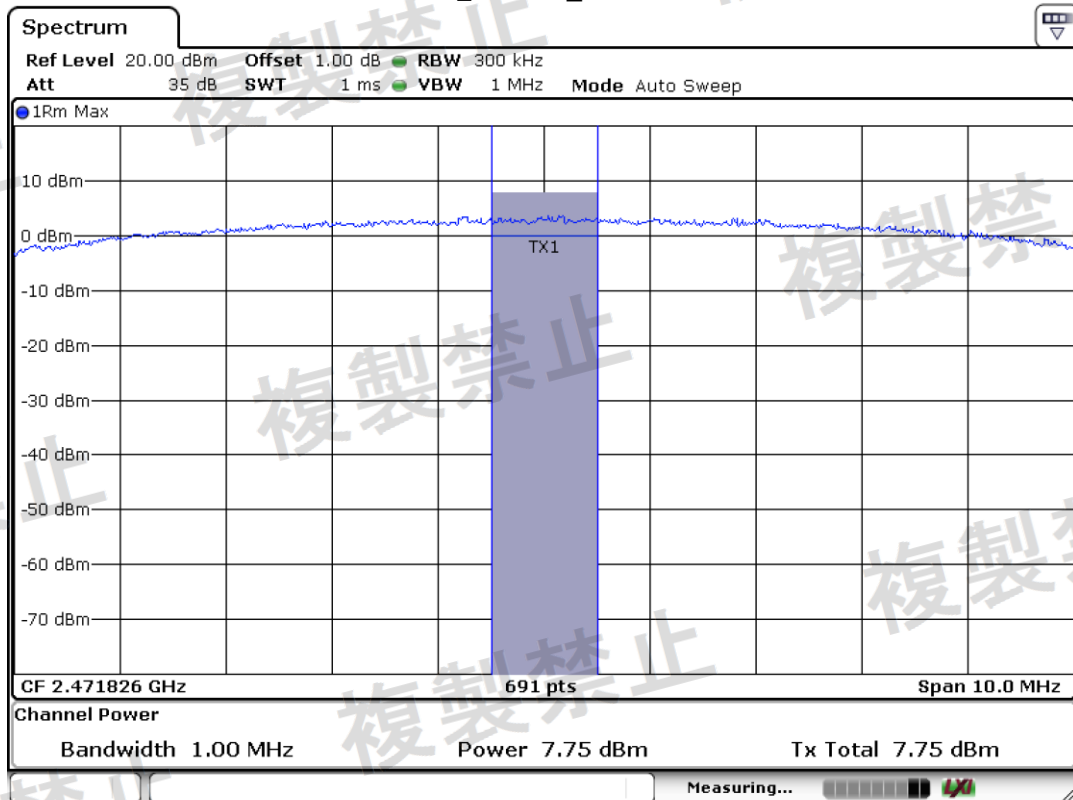


## NTHV\_802.11b\_2442MHz



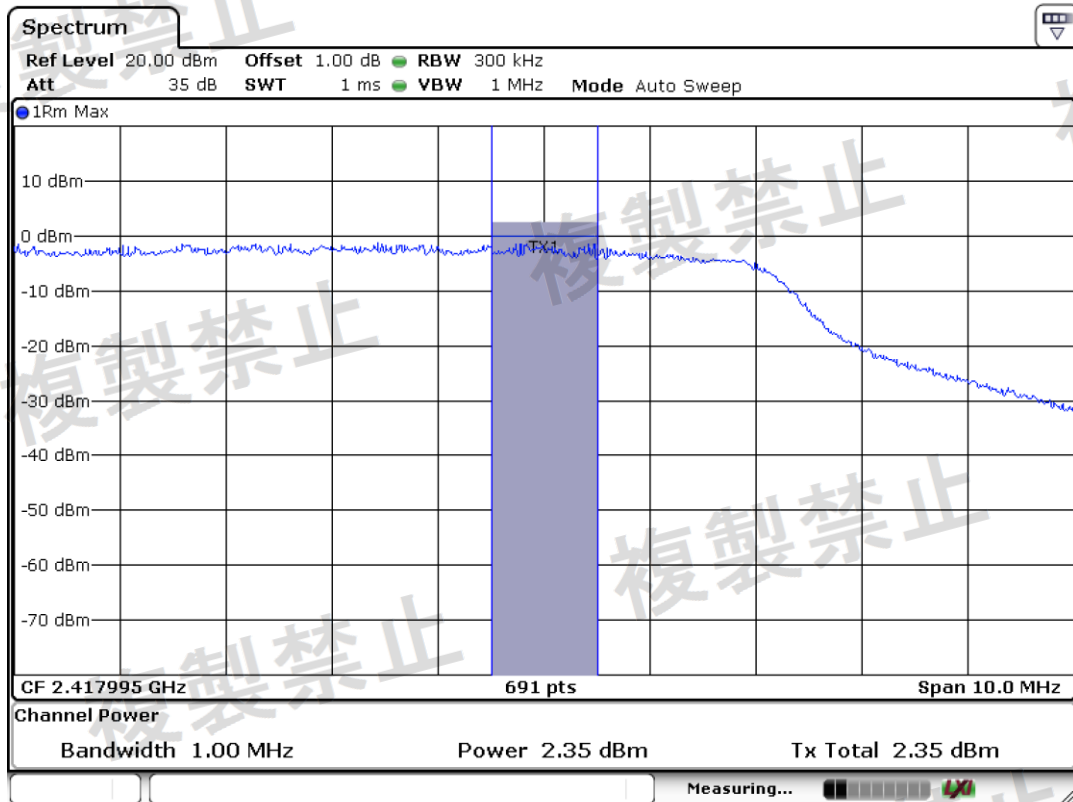
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## NTHV\_802.11b\_2472MHz



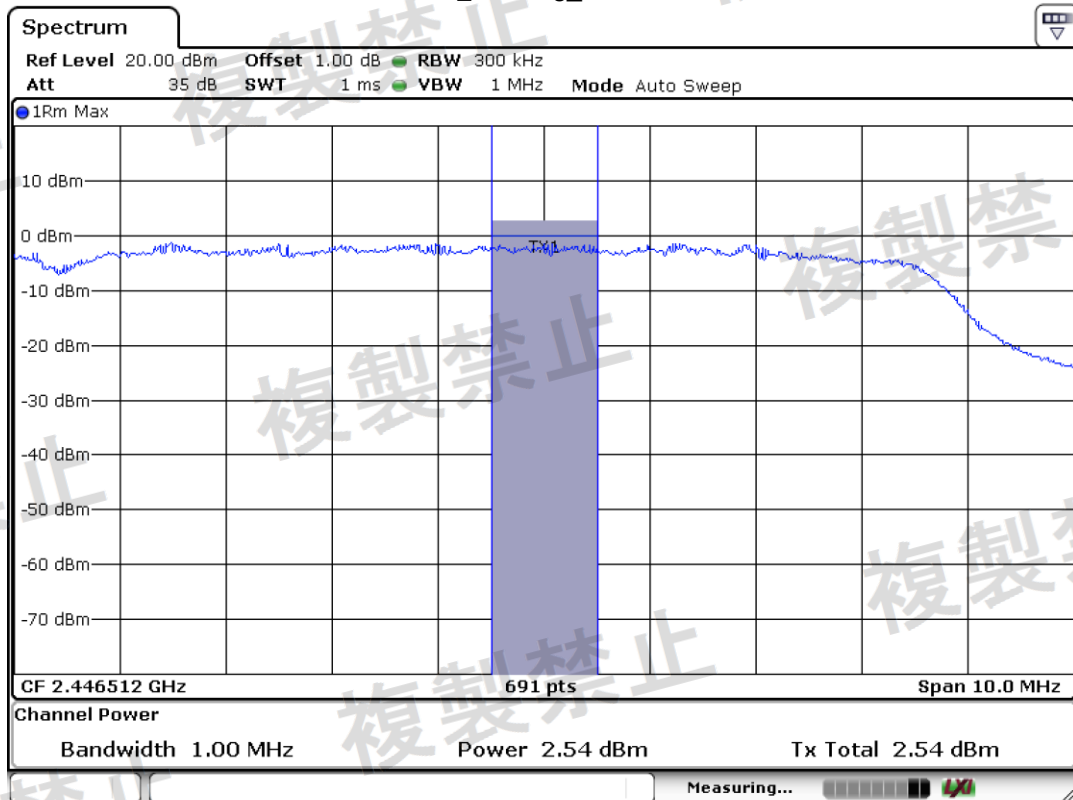
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## NTHV\_802.11g\_2412MHz



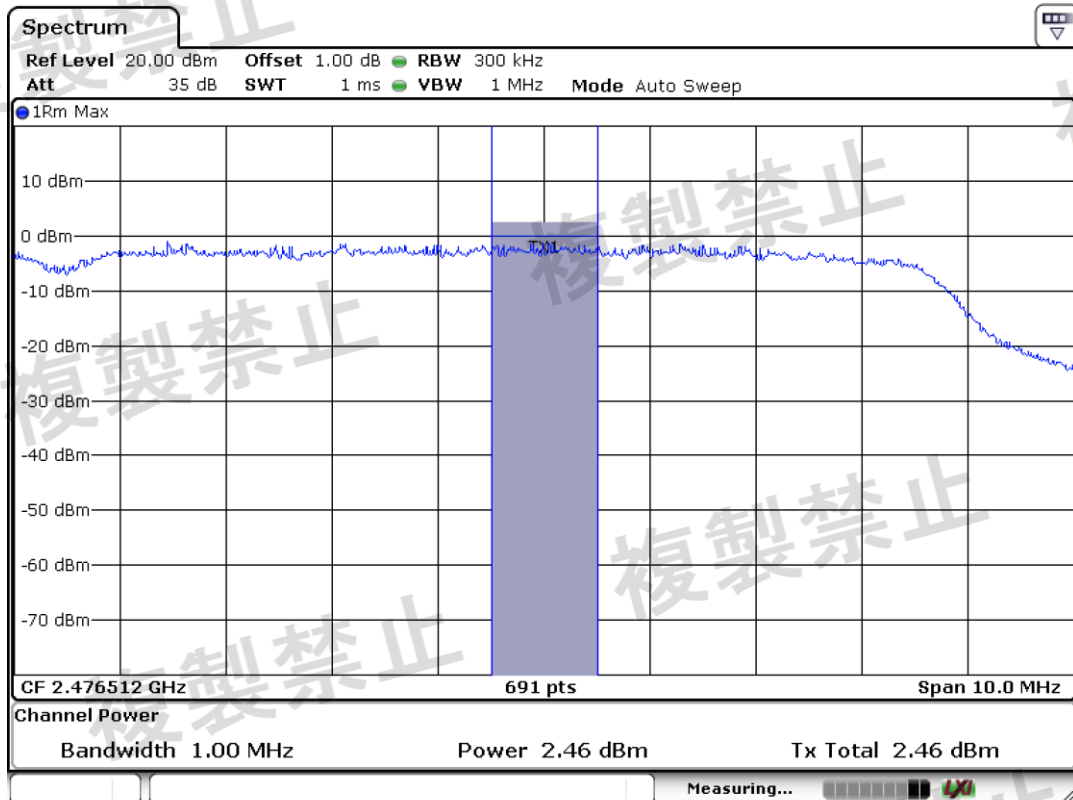
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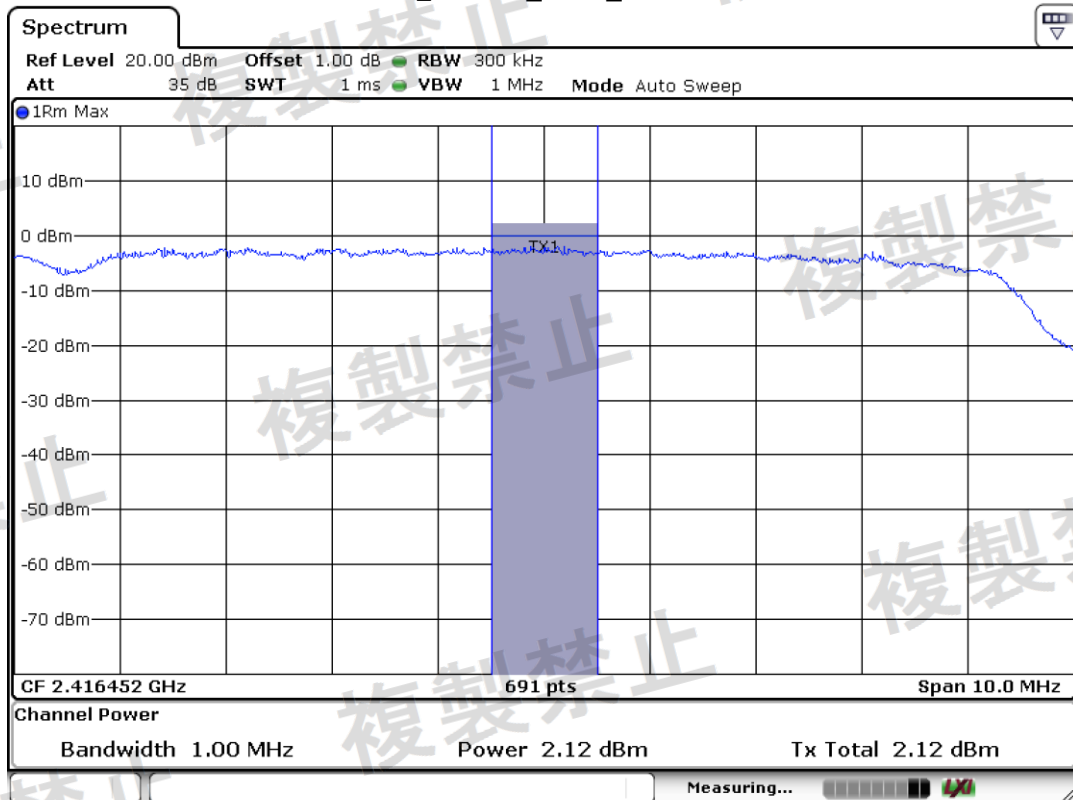
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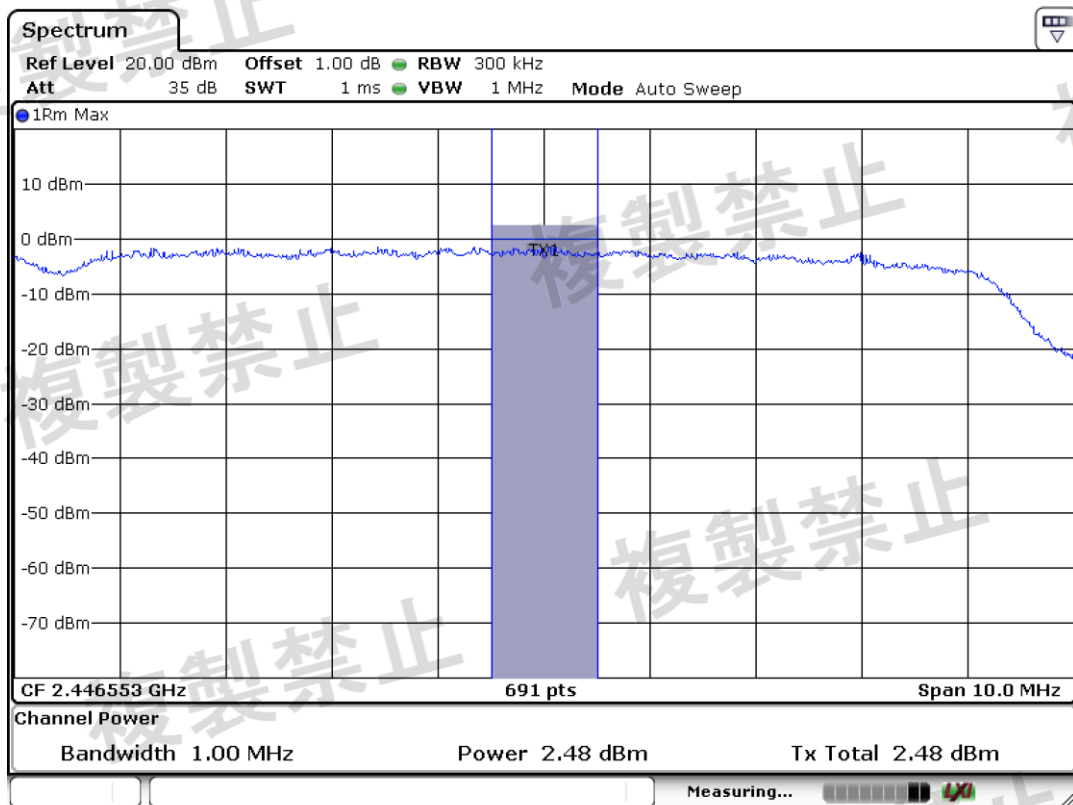
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## NTHV\_802.11n\_HT20\_2412MHz



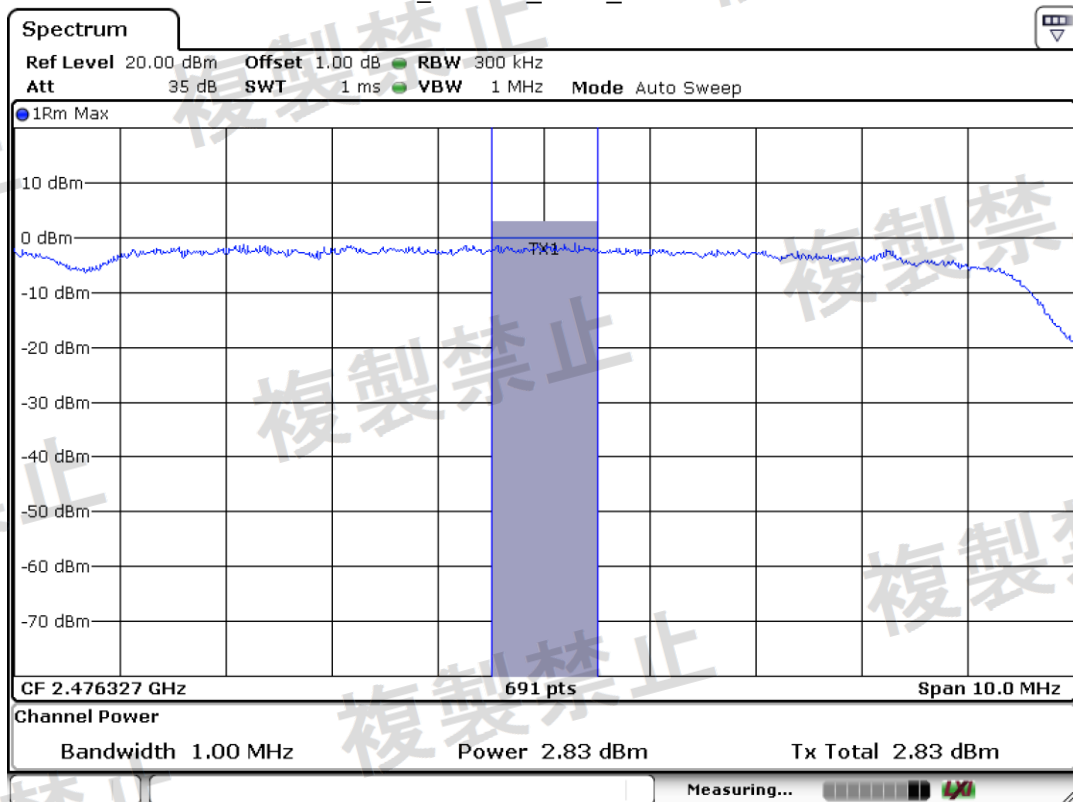
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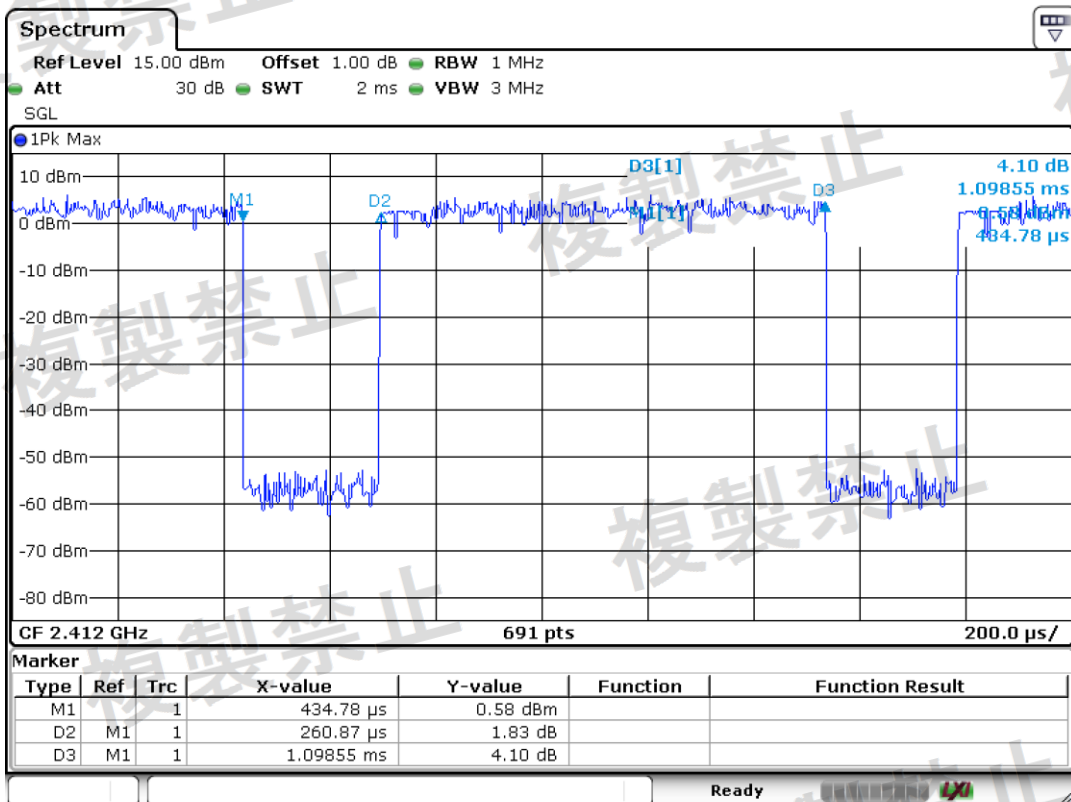
## NTHV\_802.11n\_HT20\_2472MHz



Date: 16.OCT.2023 18:42:20

802.11b\_2412MHz

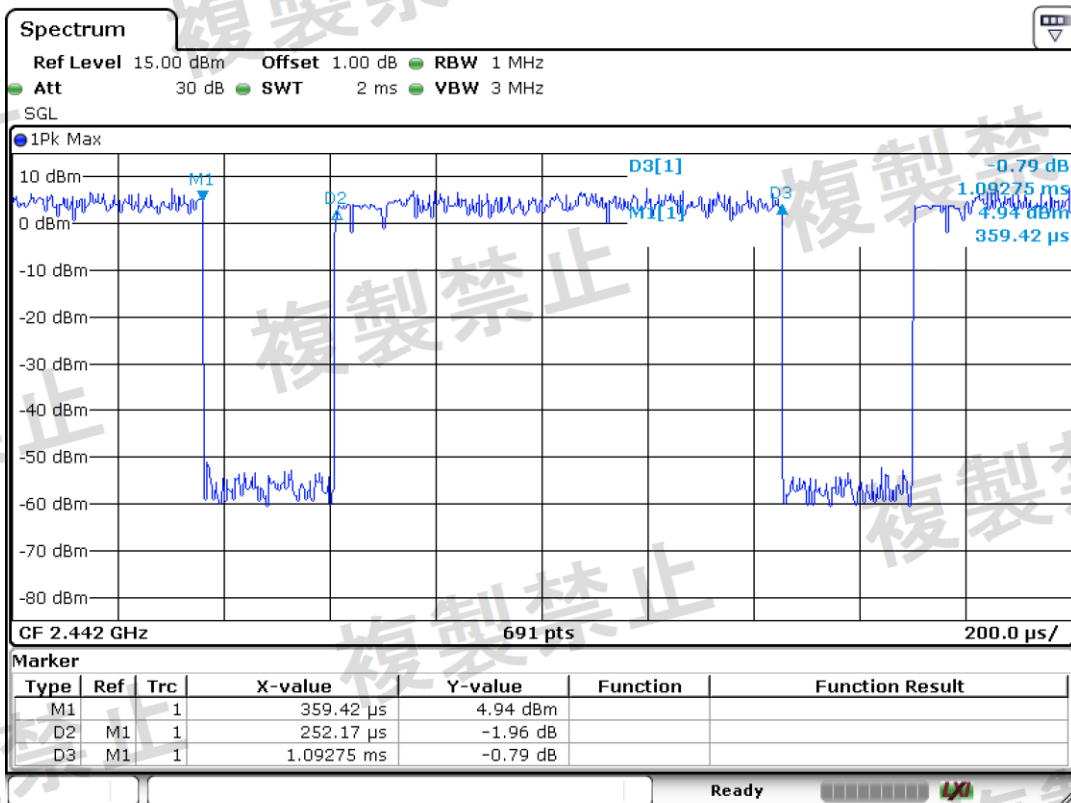
Transmission time rate = Burst transmission time / Burst repetition period=76.25%



Date: 19.SEP.2023 11:03:21

802.11b\_2442MHz

Transmission time rate = Burst transmission time / Burst repetition period=76.92%

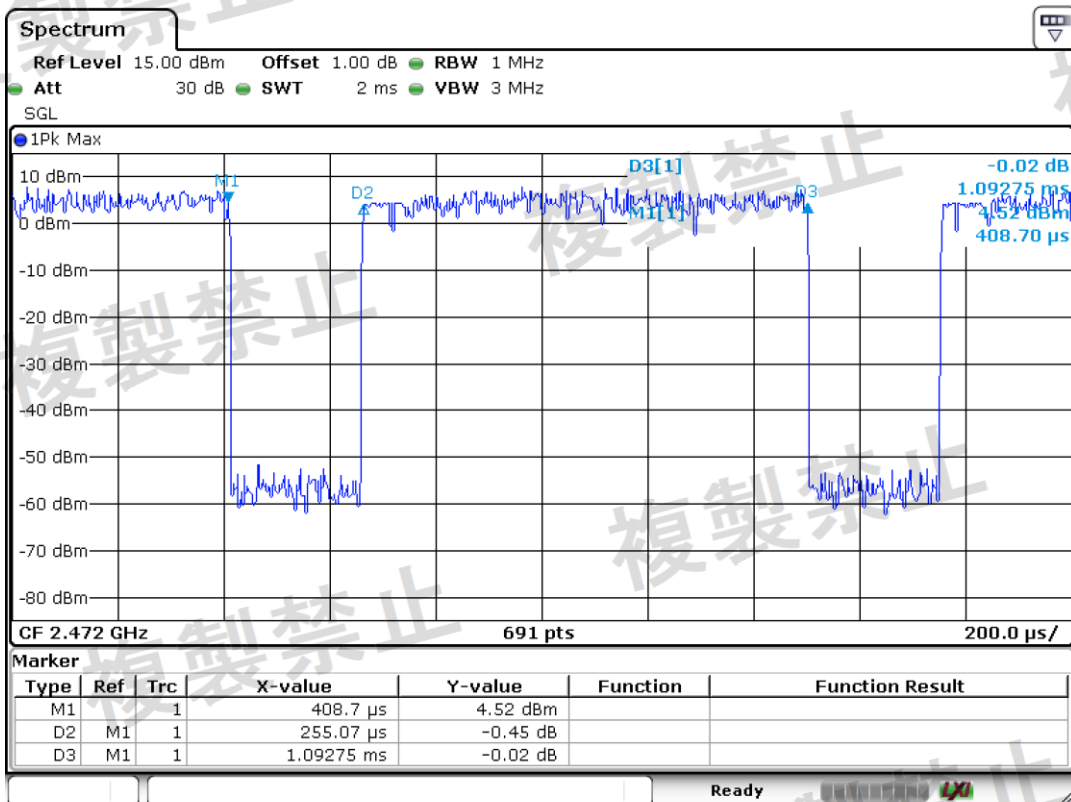


Date: 19.SEP.2023 11:04:12



## 802.11b\_2472MHz

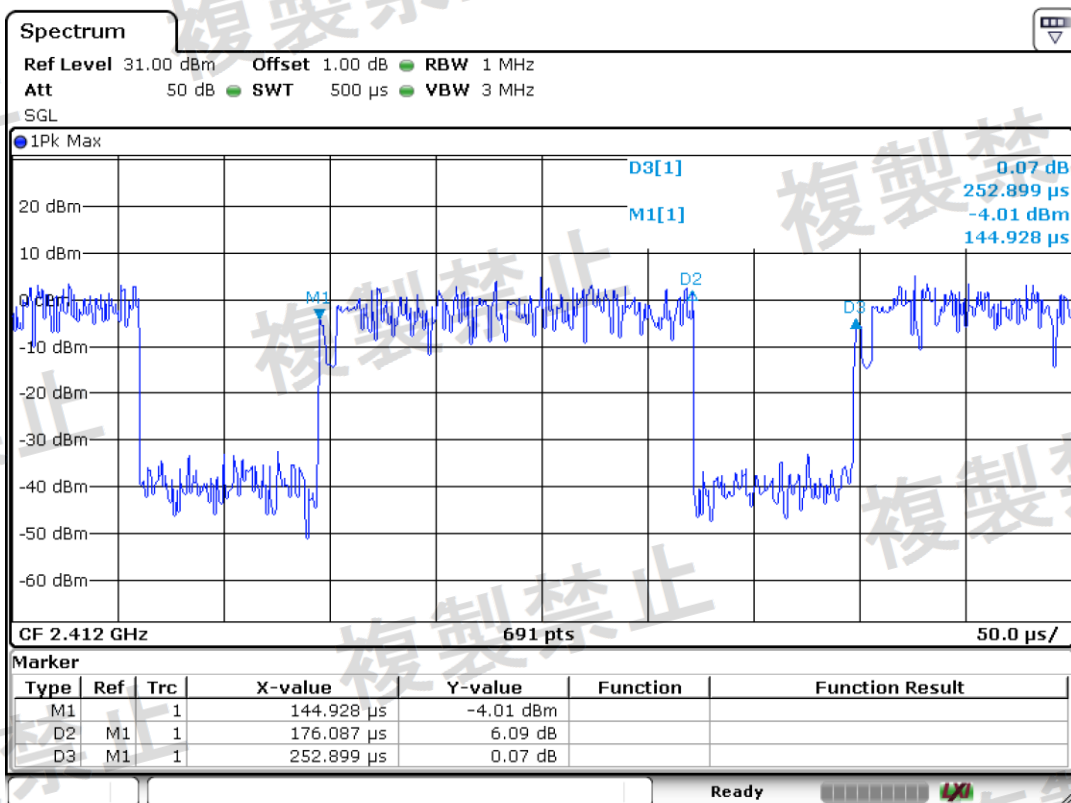
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## 802.11g\_2412MHz

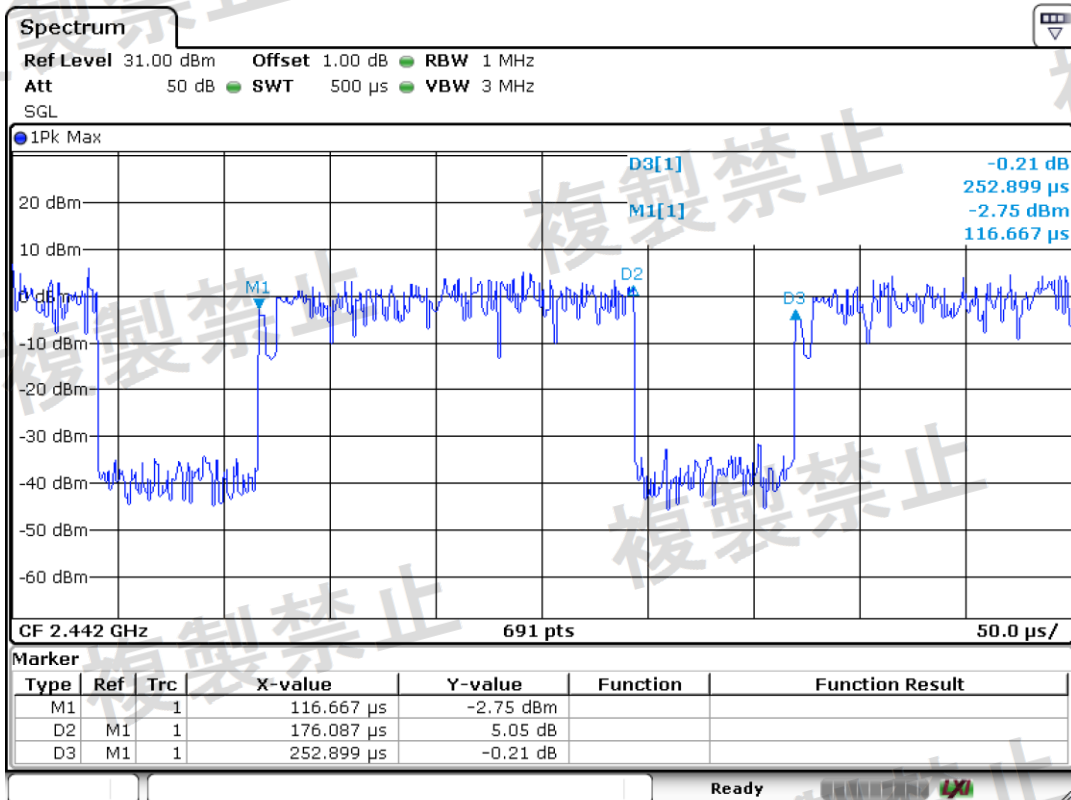
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Date: 18.SEP.2023 17:44:38

802.11g\_2442MHz

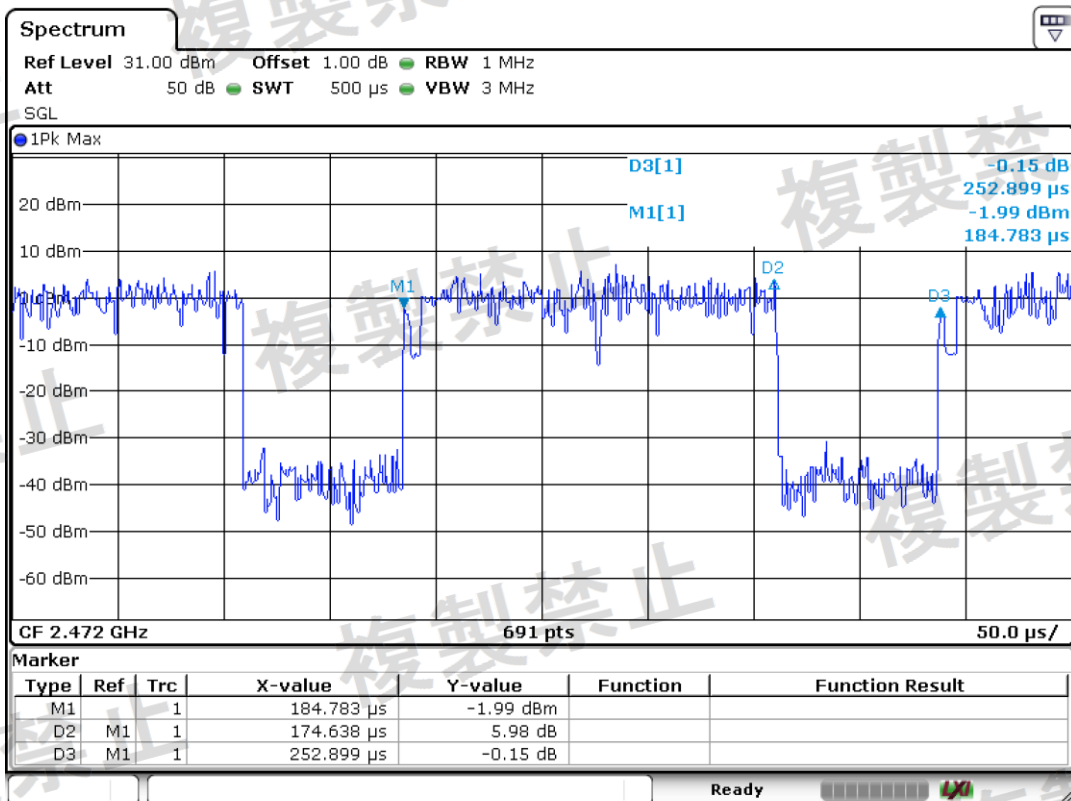
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Date: 18.SEP.2023 17:45:13

802.11g\_2472MHz

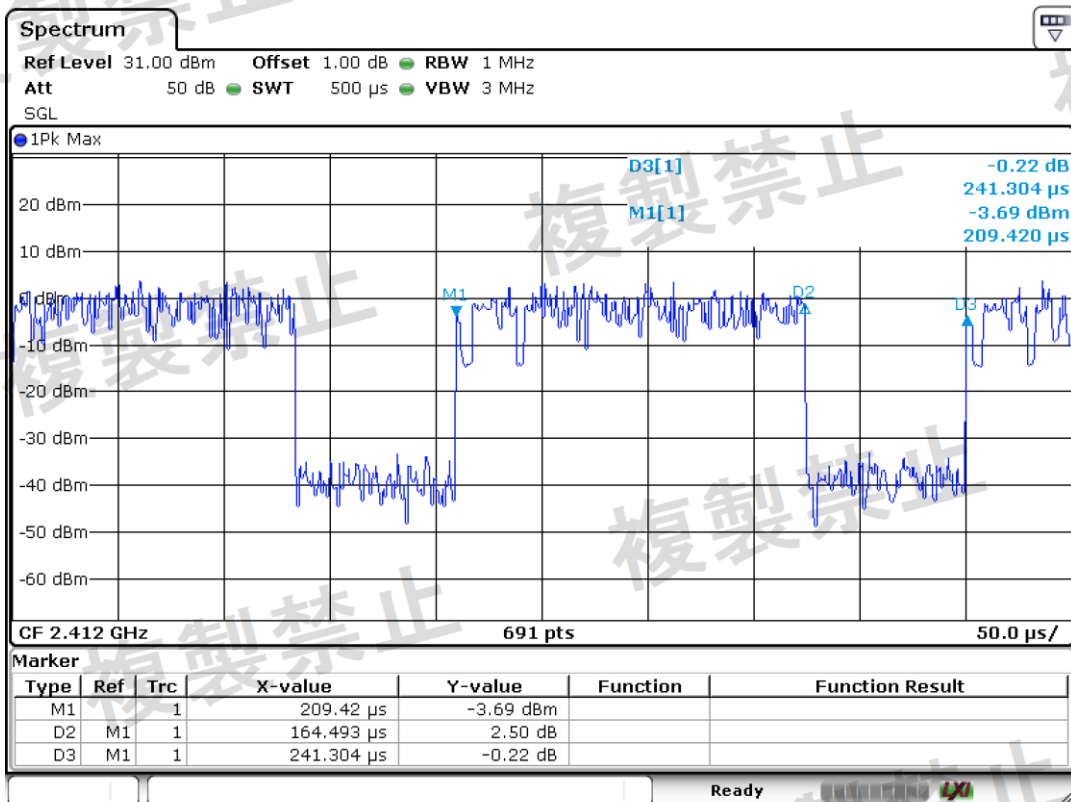
Transmission time rate = Burst transmission time / Burst repetition period=69.05%



Date: 18.SEP.2023 17:45:45

## 802.11n\_HT20\_2412MHz

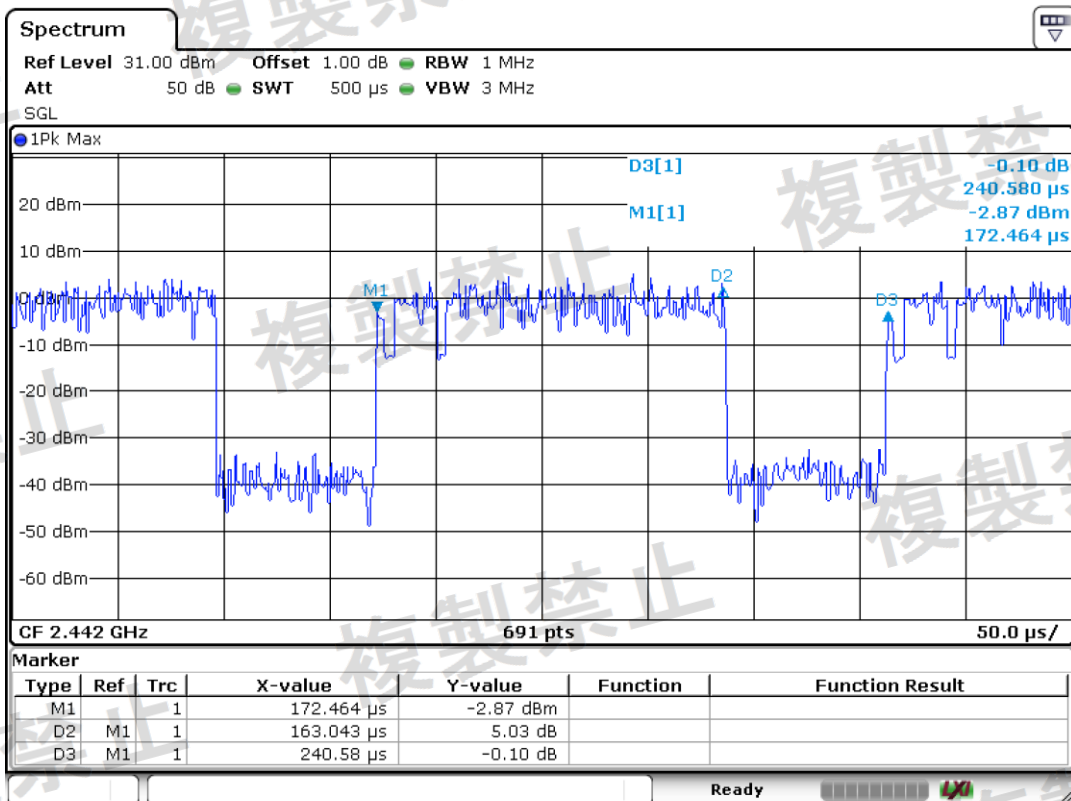
Transmission time rate = Burst transmission time / Burst repetition period=68.17%



Date: 18.SEP.2023 17:43:49

## 802.11n\_HT20\_2442MHz

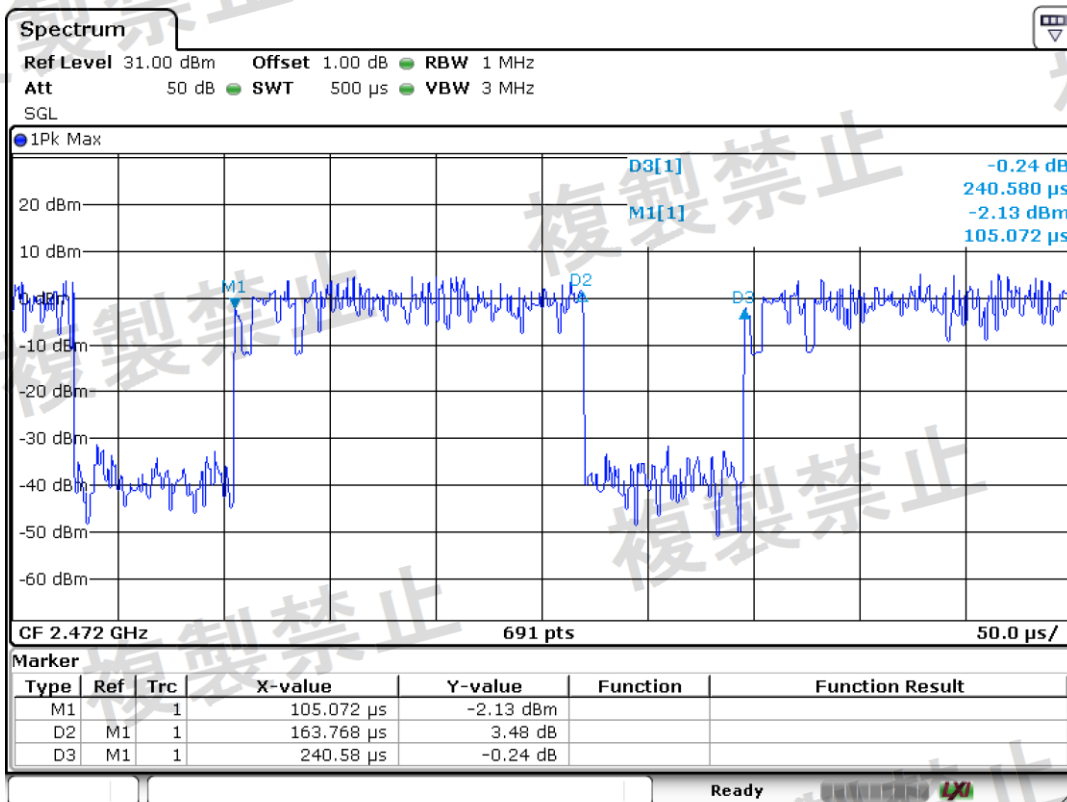
Transmission time rate = Burst transmission time / Burst repetition period=67.77%



Date: 18.SEP.2023 17:43:17

802.11n\_HT20\_2472MHz

Transmission time rate = Burst transmission time / Burst repetition period=68.07%



Date: 18.SEP.2023 17:42:11

### 3.1.4 Result

The equipment met the requirement of this clause.

### 3.2 RF Output Power Tolerance

#### 3.2.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-16                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.2.2 Limit

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

| Modulation       | Frequency [MHz] | Voltage [VDC] | Declared Output Power [mW/MHz] | Result [mW/MHz] | Tolerances [%] | Limit [%] |
|------------------|-----------------|---------------|--------------------------------|-----------------|----------------|-----------|
| 802.11b          | 2412            | 3.3           | 8.5                            | 7.36            | -15.52%        | +20%~-80% |
|                  | 2442            | 3.3           | 8.5                            | 7.50            | -13.36%        | +20%~-80% |
|                  | 2472            | 3.3           | 8.5                            | 7.77            | -9.39%         | +20%~-80% |
| 802.11g          | 2412            | 3.3           | 3.0                            | 2.47            | -21.32%        | +20%~-80% |
|                  | 2442            | 3.3           | 3.0                            | 2.57            | -16.93%        | +20%~-80% |
|                  | 2472            | 3.3           | 3.0                            | 2.60            | -15.42%        | +20%~-80% |
| 802.11n_HT20     | 2412            | 3.3           | 3.0                            | 2.41            | -24.37%        | +20%~-80% |
|                  | 2442            | 3.3           | 3.0                            | 2.62            | -14.59%        | +20%~-80% |
|                  | 2472            | 3.3           | 3.0                            | 2.85            | -5.21%         | +20%~-80% |
| Conclusion: PASS |                 |               |                                |                 |                |           |

| Modulation       | Frequency [MHz] | Voltage [VDC] | Declared Output Power [mW/MHz] | Result [mW/MHz] | Tolerances [%] | Limit [%] |
|------------------|-----------------|---------------|--------------------------------|-----------------|----------------|-----------|
| 802.11b          | 2412            | 3.0           | 8.5                            | 7.36            | -15.52%        | +20%~-80% |
|                  | 2442            | 3.0           | 8.5                            | 7.18            | -18.43%        | +20%~-80% |
|                  | 2472            | 3.0           | 8.5                            | 7.61            | -11.68%        | +20%~-80% |
| 802.11g          | 2412            | 3.0           | 3.0                            | 2.46            | -21.88%        | +20%~-80% |
|                  | 2442            | 3.0           | 3.0                            | 2.50            | -19.93%        | +20%~-80% |
|                  | 2472            | 3.0           | 3.0                            | 2.58            | -16.49%        | +20%~-80% |
| 802.11n_HT20     | 2412            | 3.0           | 3.0                            | 2.39            | -25.52%        | +20%~-80% |
|                  | 2442            | 3.0           | 3.0                            | 2.60            | -15.39%        | +20%~-80% |
|                  | 2472            | 3.0           | 3.0                            | 2.83            | -6.19%         | +20%~-80% |
| Conclusion: PASS |                 |               |                                |                 |                |           |



| Modulation       | Frequency [MHz] | Voltage [VDC] | Declared Output Power [mW/MHz] | Result [mW/MHz] | Tolerances [%] | Limit [%] |
|------------------|-----------------|---------------|--------------------------------|-----------------|----------------|-----------|
| 802.11b          | 2412            | 3.6           | 8.5                            | 7.32            | -16.05%        | +20%~-80% |
|                  | 2442            | 3.6           | 8.5                            | 7.40            | -14.94%        | +20%~-80% |
|                  | 2472            | 3.6           | 8.5                            | 7.77            | -9.39%         | +20%~-80% |
| 802.11g          | 2412            | 3.6           | 3.0                            | 2.47            | -21.60%        | +20%~-80% |
|                  | 2442            | 3.6           | 3.0                            | 2.58            | -16.39%        | +20%~-80% |
|                  | 2472            | 3.6           | 3.0                            | 2.55            | -17.57%        | +20%~-80% |
| 802.11n_HT20     | 2412            | 3.6           | 3.0                            | 2.39            | -25.52%        | +20%~-80% |
|                  | 2442            | 3.6           | 3.0                            | 2.61            | -14.86%        | +20%~-80% |
|                  | 2472            | 3.6           | 3.0                            | 2.82            | -6.43%         | +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:     | 2023-10-12                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.3.2 Limit

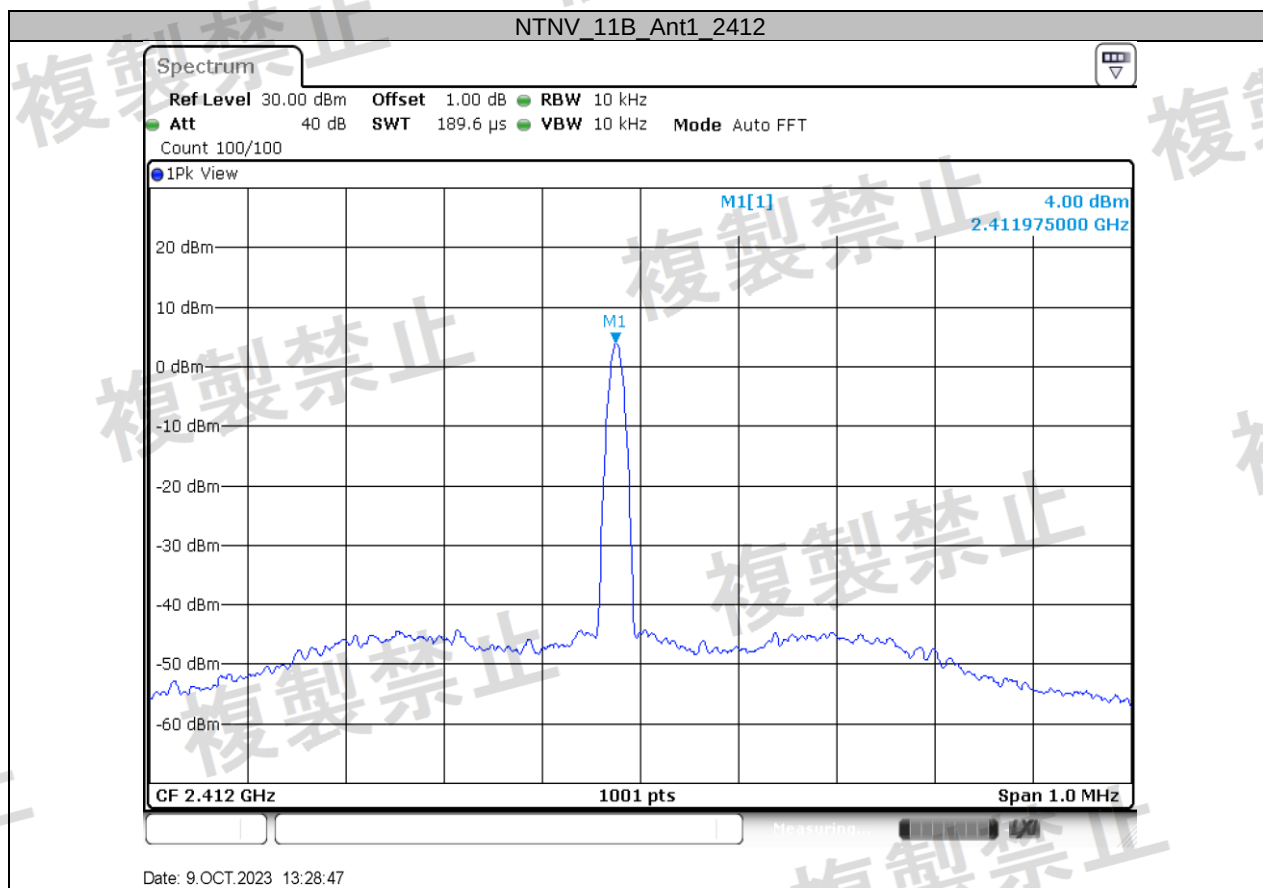
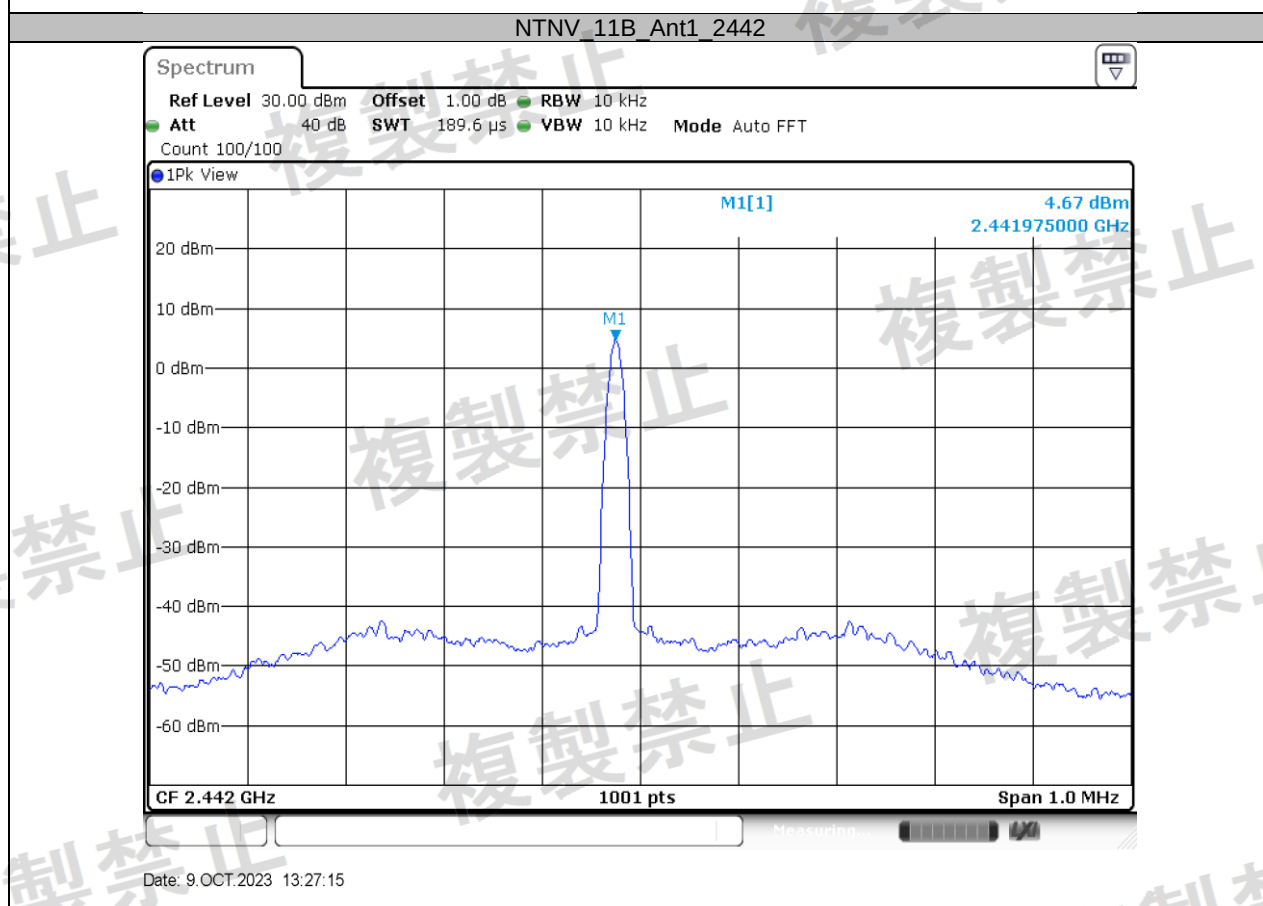
Tolerance of frequency:  $\pm 50 \times 10^{-6}$ .

#### 3.3.3 Test Result

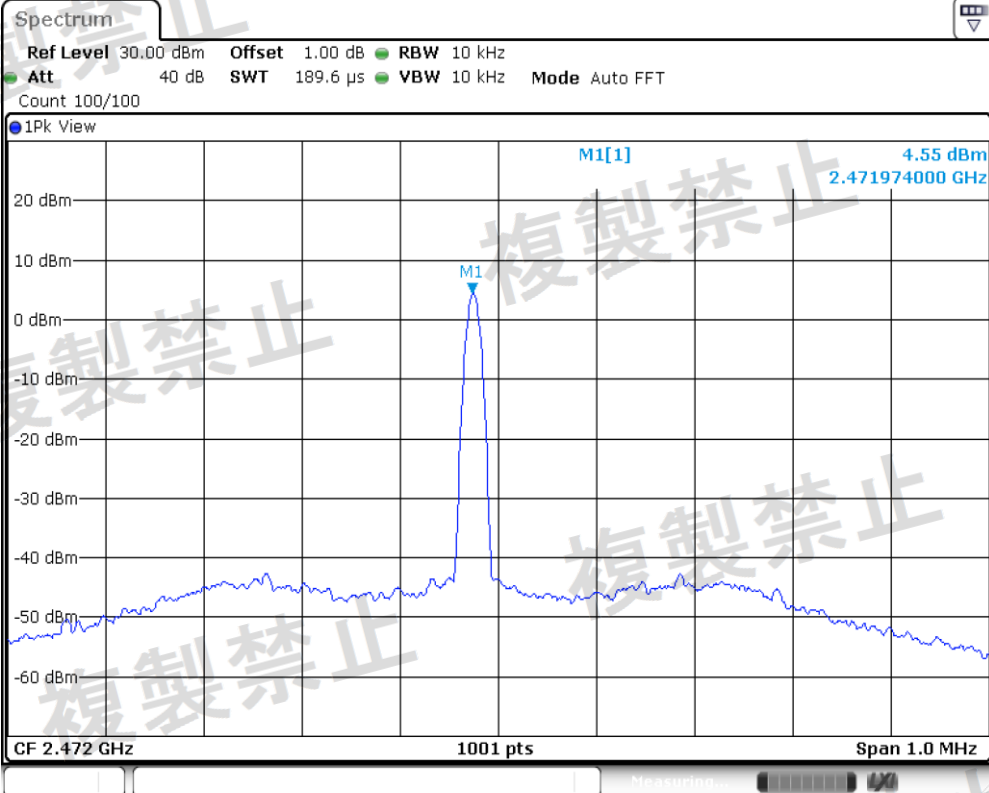
| Modulation       | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Tolerance [kHz] | Tolerance [ppm] | Limit [ppm] |
|------------------|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 802.11b          | 2412                 | 3.3           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.3           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.3           | 2471.974     | 26              | -10.51780       | $\pm 50$    |
| 802.11g          | 2412                 | 3.3           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.3           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.3           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| 802.11n_HT20     | 2412                 | 3.3           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.3           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.3           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| Conclusion: PASS |                      |               |              |                 |                 |             |

| Modulation       | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Tolerance [kHz] | Tolerance [ppm] | Limit [ppm] |
|------------------|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 802.11b          | 2412                 | 3.0           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.0           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.0           | 2471.974     | 26              | -10.51780       | $\pm 50$    |
| 802.11g          | 2412                 | 3.0           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.0           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.0           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| 802.11n_HT20     | 2412                 | 3.0           | 2411.976     | 24              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.0           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.0           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| Conclusion: PASS |                      |               |              |                 |                 |             |

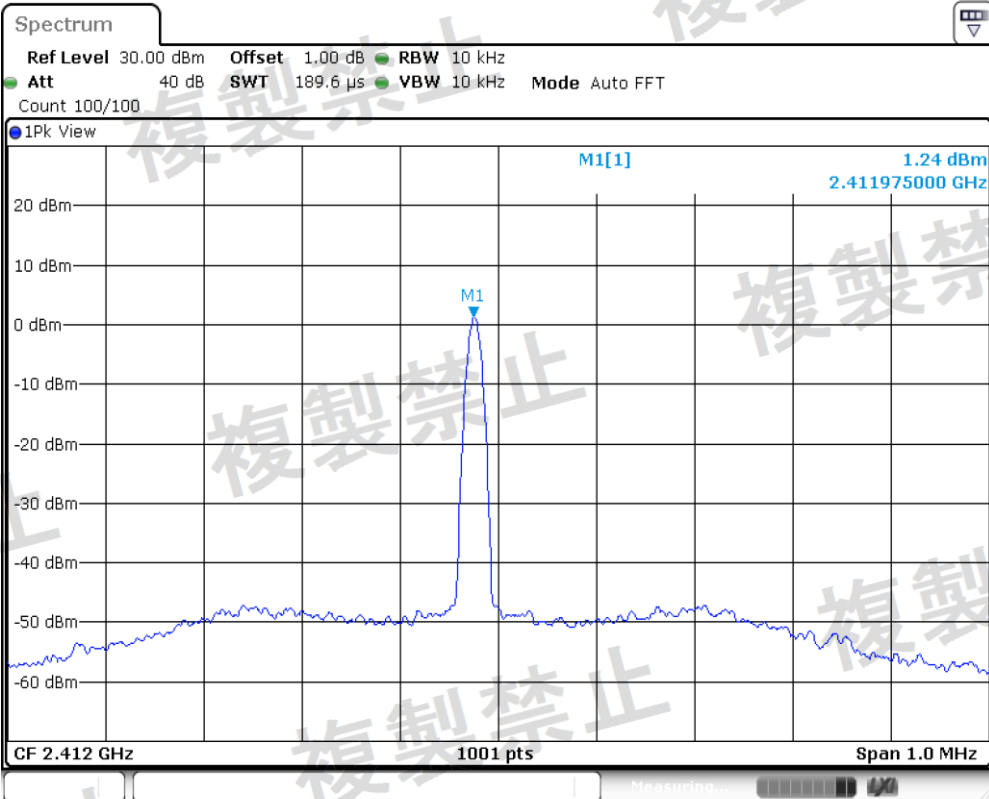
| Modulation       | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Tolerance [kHz] | Tolerance [ppm] | Limit [ppm] |
|------------------|----------------------|---------------|--------------|-----------------|-----------------|-------------|
| 802.11b          | 2412                 | 3.6           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.6           | 2441.975     | 25              | -10.64701       | $\pm 50$    |
|                  | 2472                 | 3.6           | 2471.974     | 26              | -10.51780       | $\pm 50$    |
| 802.11g          | 2412                 | 3.6           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.6           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.6           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| 802.11n_HT20     | 2412                 | 3.6           | 2411.975     | 25              | -10.36484       | $\pm 50$    |
|                  | 2442                 | 3.6           | 2441.975     | 25              | -10.23751       | $\pm 50$    |
|                  | 2472                 | 3.6           | 2471.975     | 25              | -10.11327       | $\pm 50$    |
| Conclusion: PASS |                      |               |              |                 |                 |             |

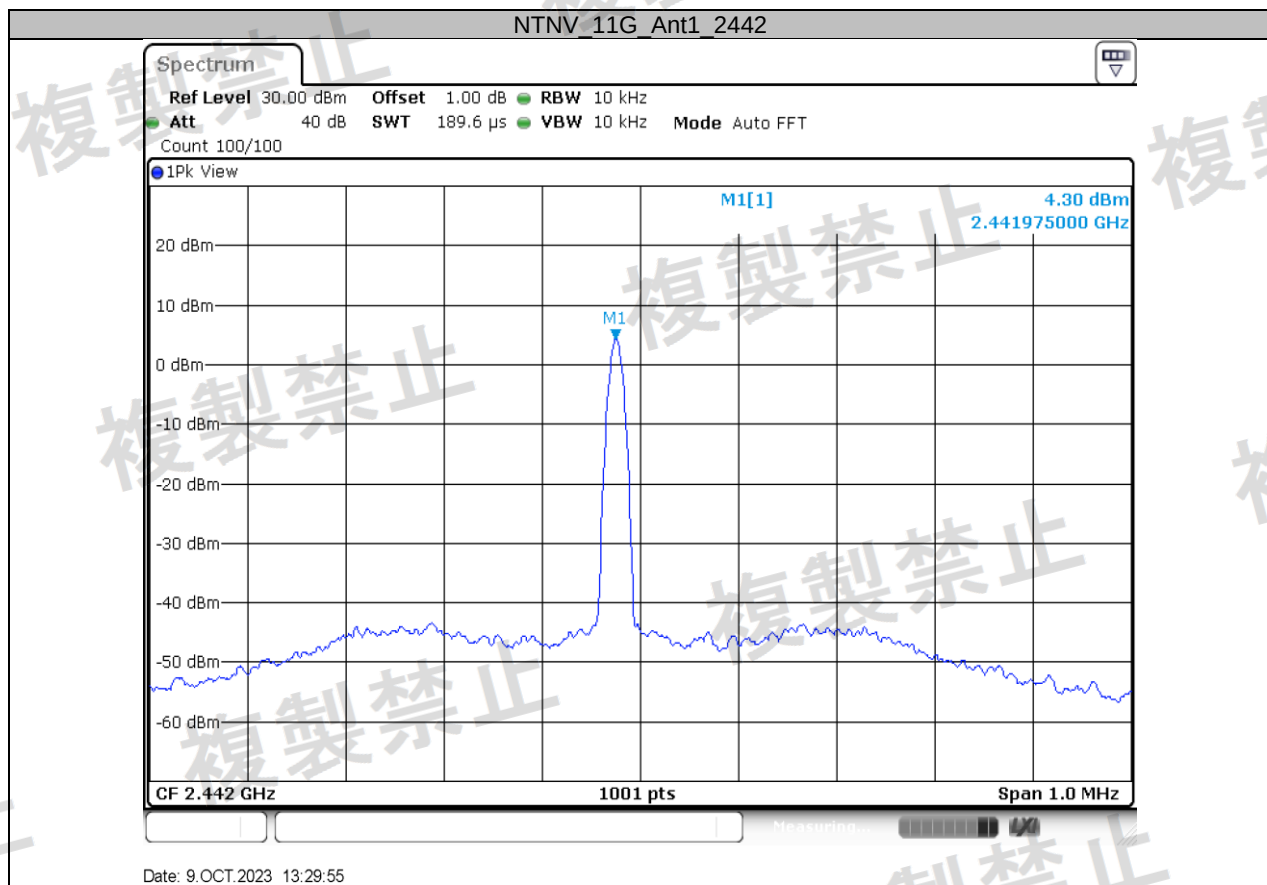
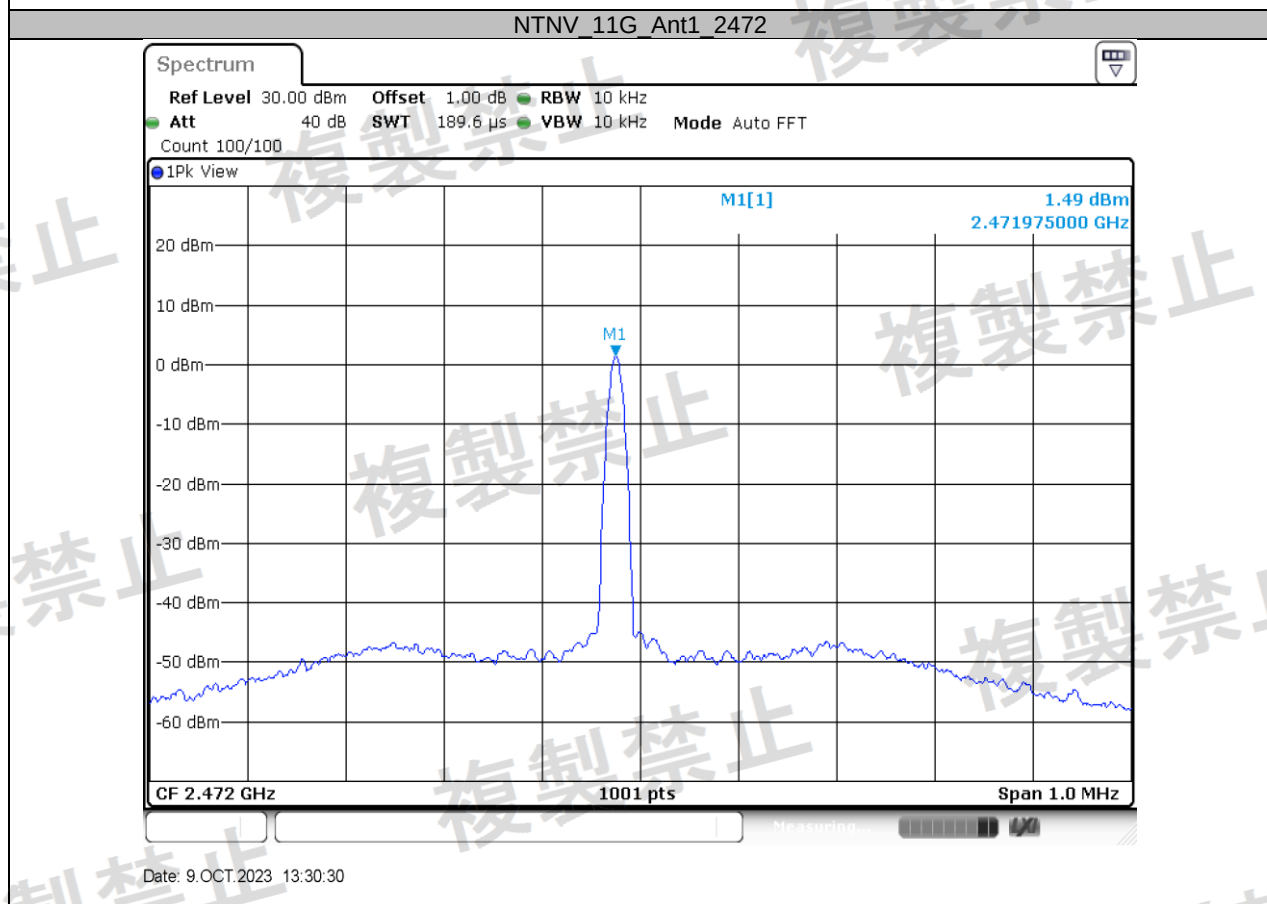


## NTNV\_11B\_Ant1\_2472



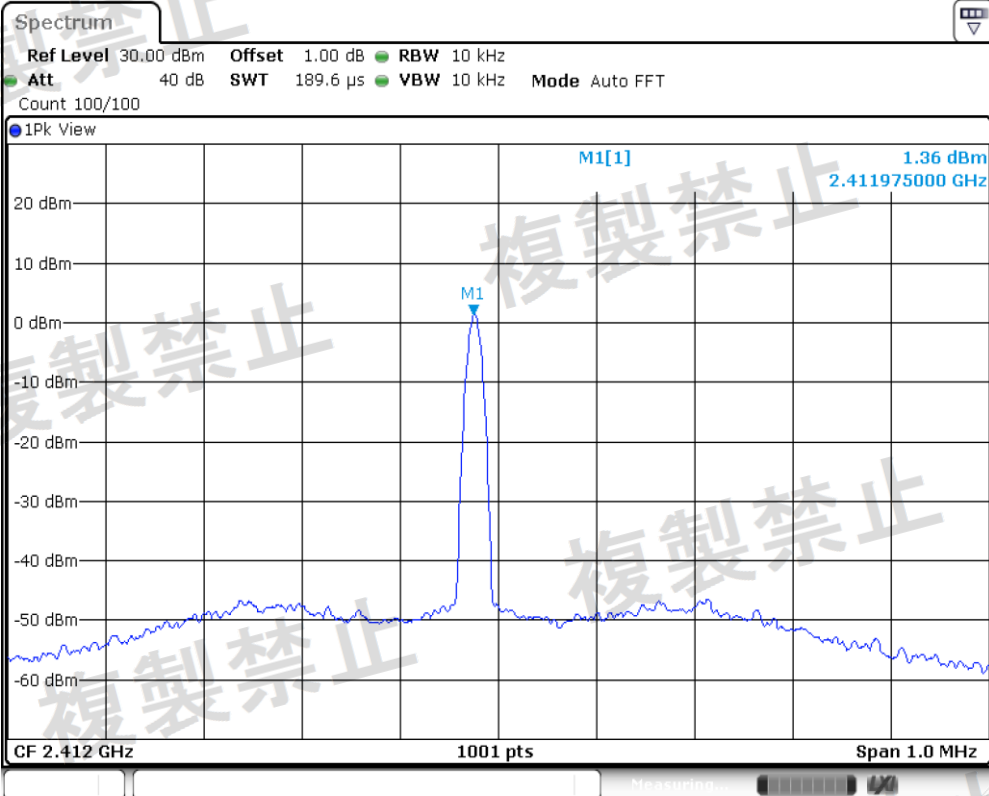
## NTNV\_11G\_Ant1\_2412



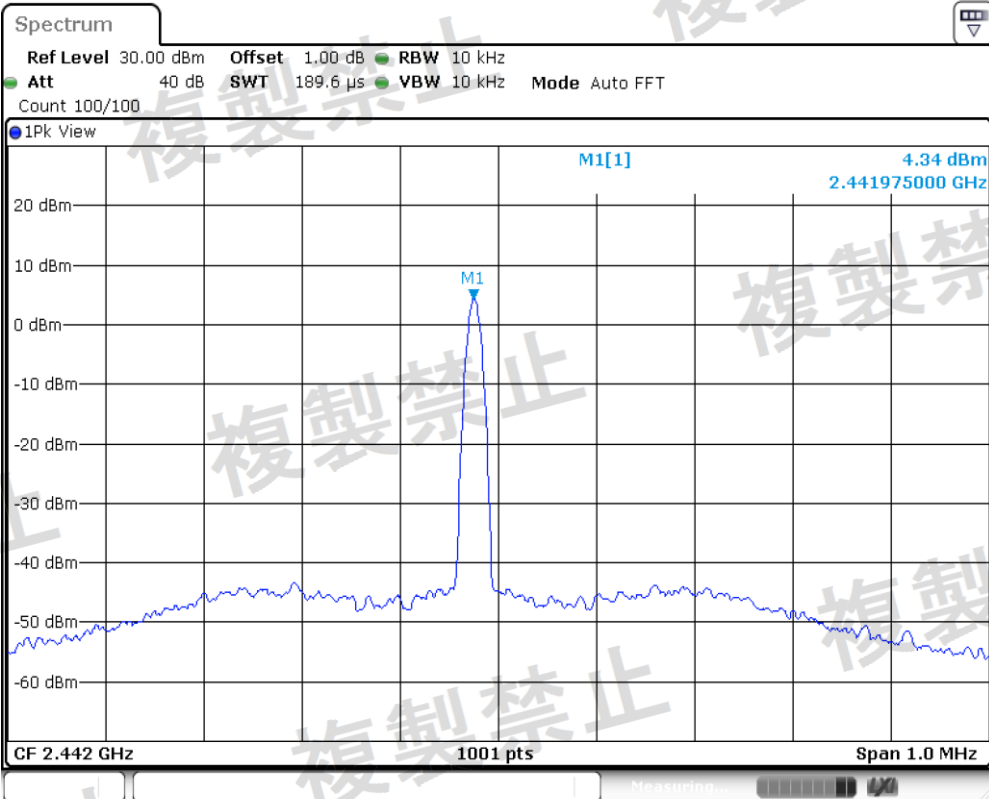




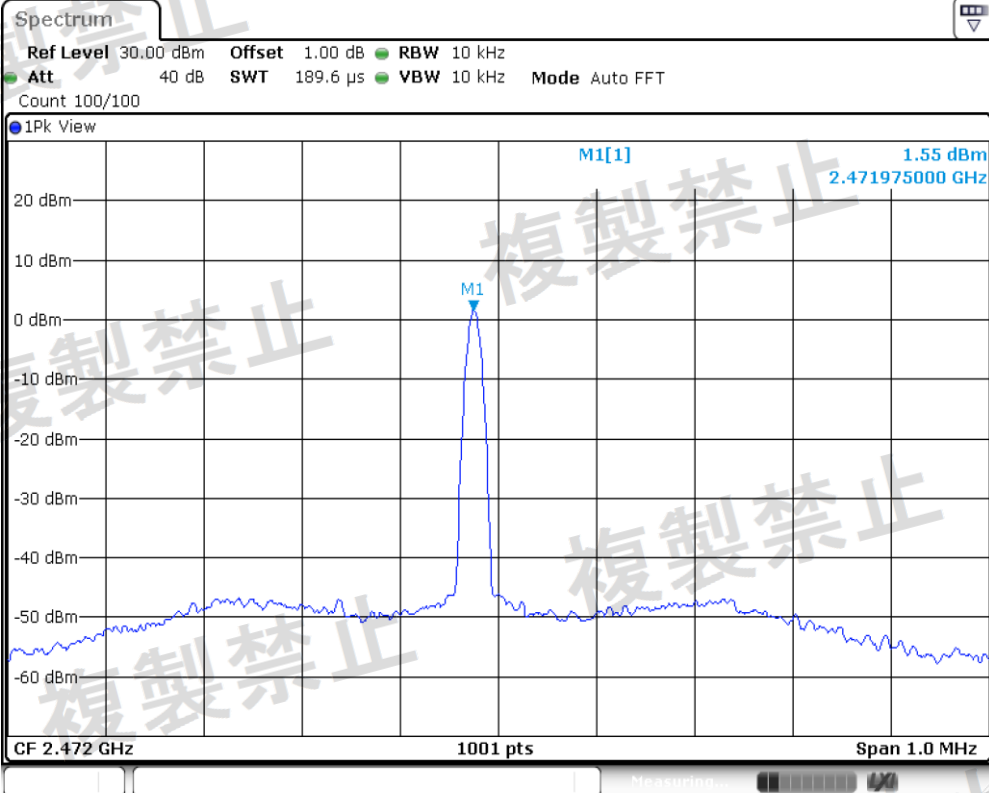
## NTNV\_11N20SISO\_Ant1\_2412



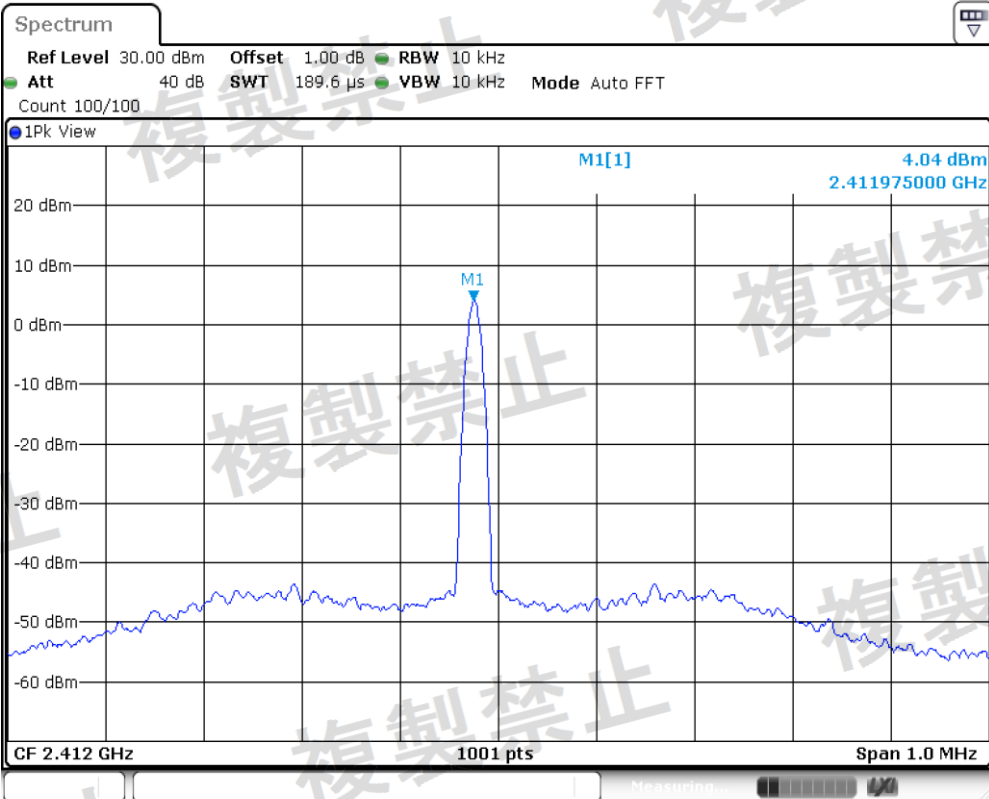
## NTNV\_11N20SISO\_Ant1\_2442



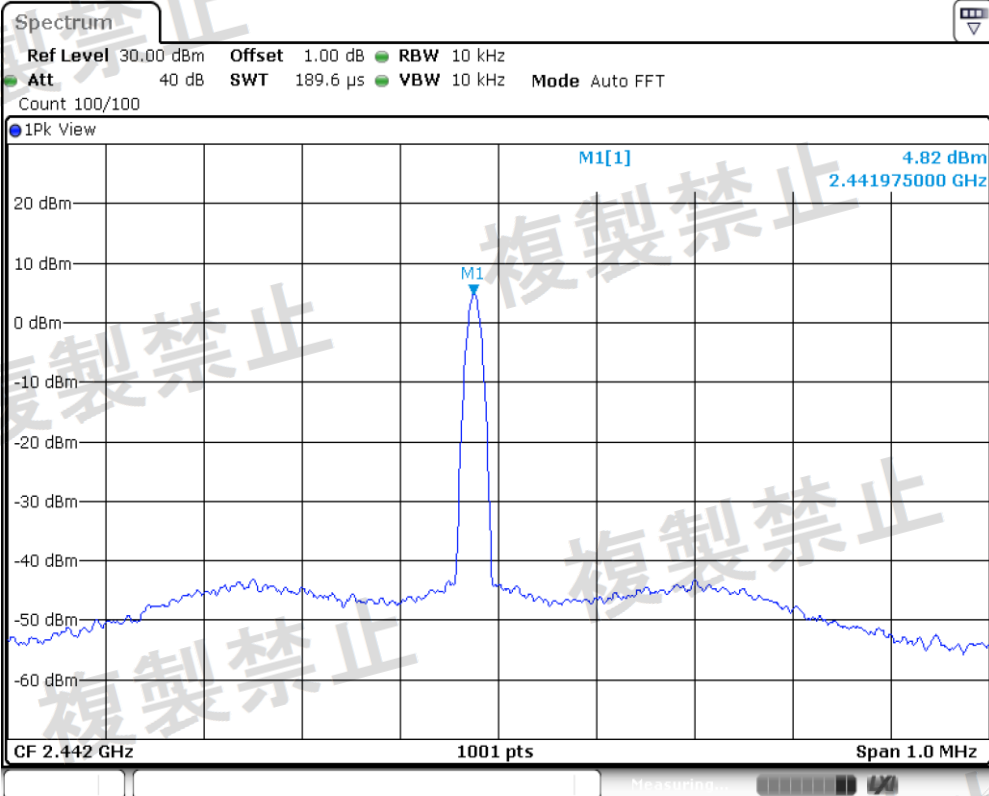
## NTNV\_11N20SISO\_Ant1\_2472



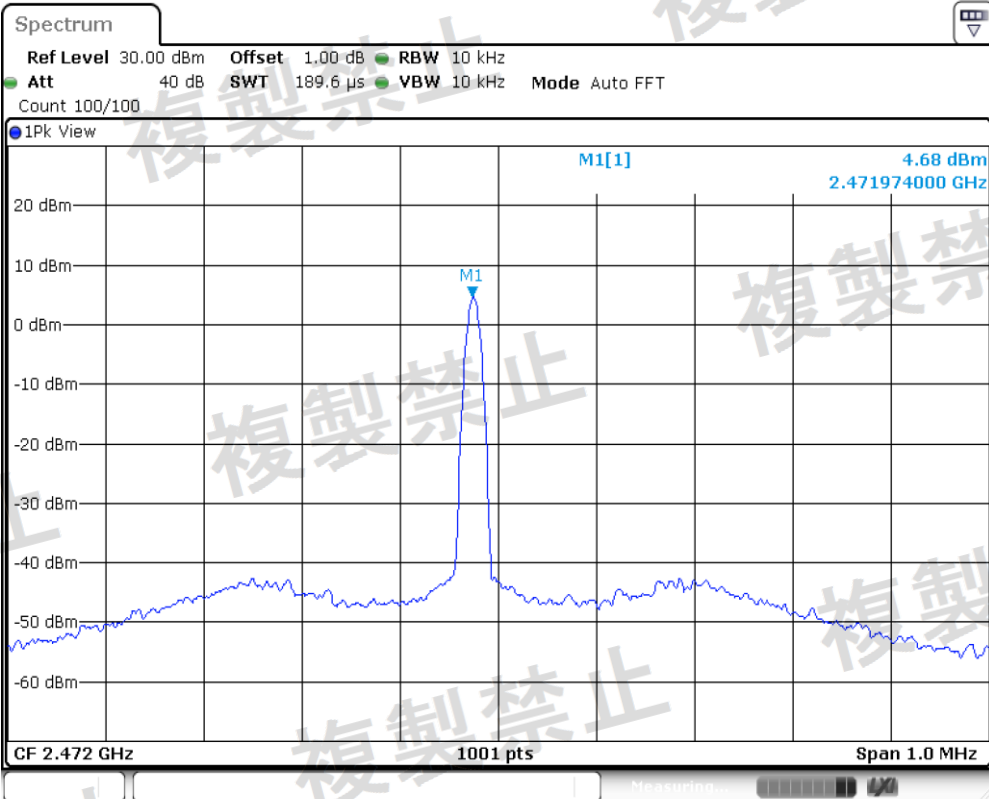
## NTLV\_11B\_Ant1\_2412



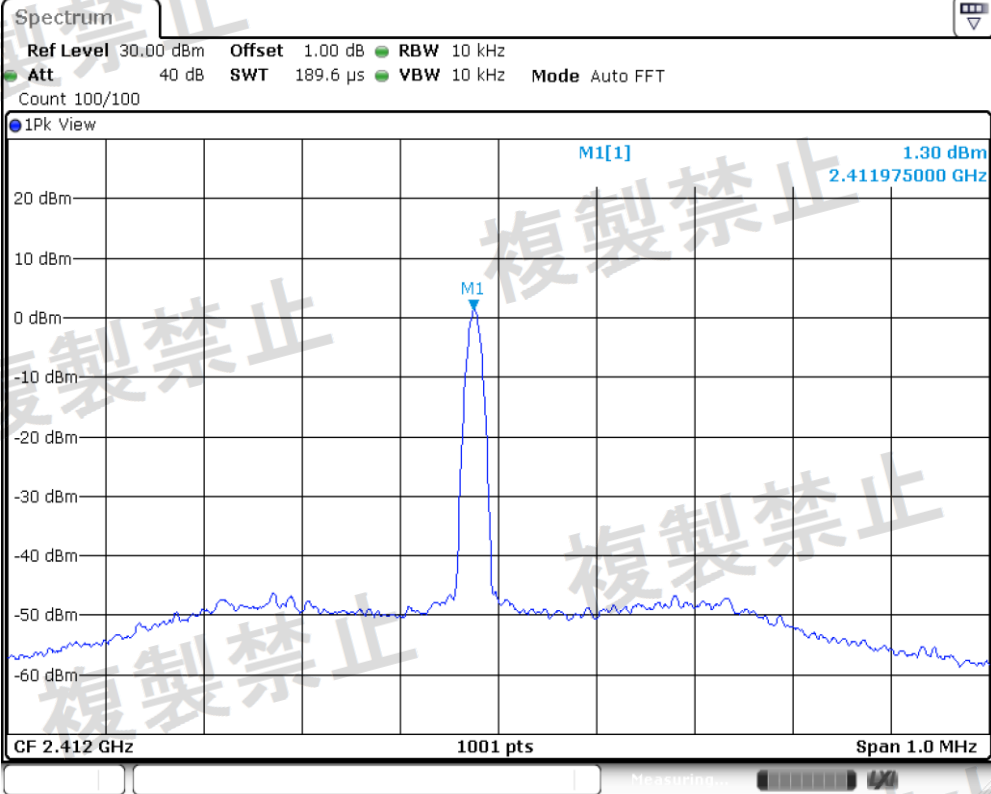
NTLV\_11B\_Ant1\_2442



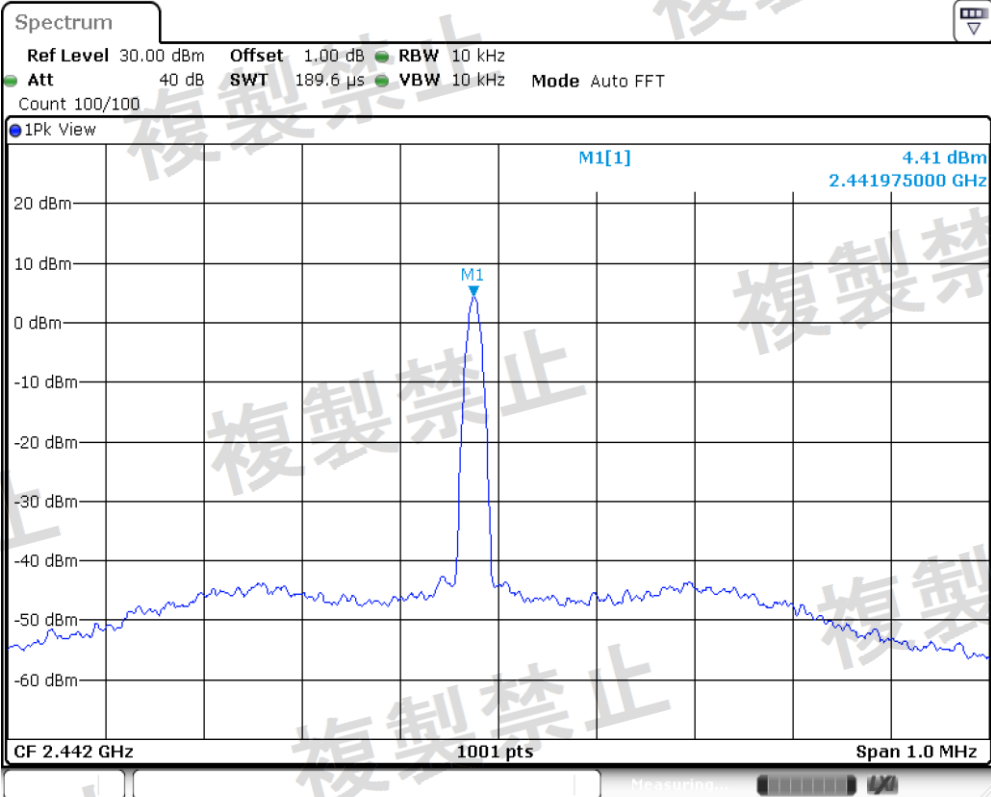
NTLV\_11B\_Ant1\_2472



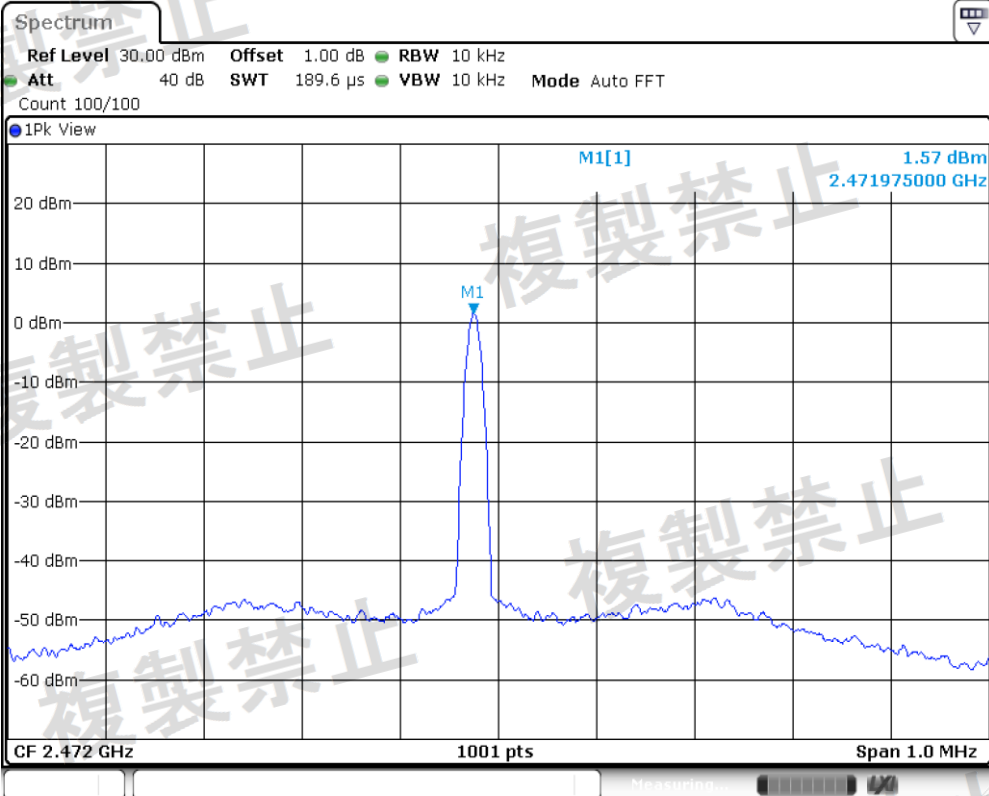
## NTLV\_11G\_Ant1\_2412



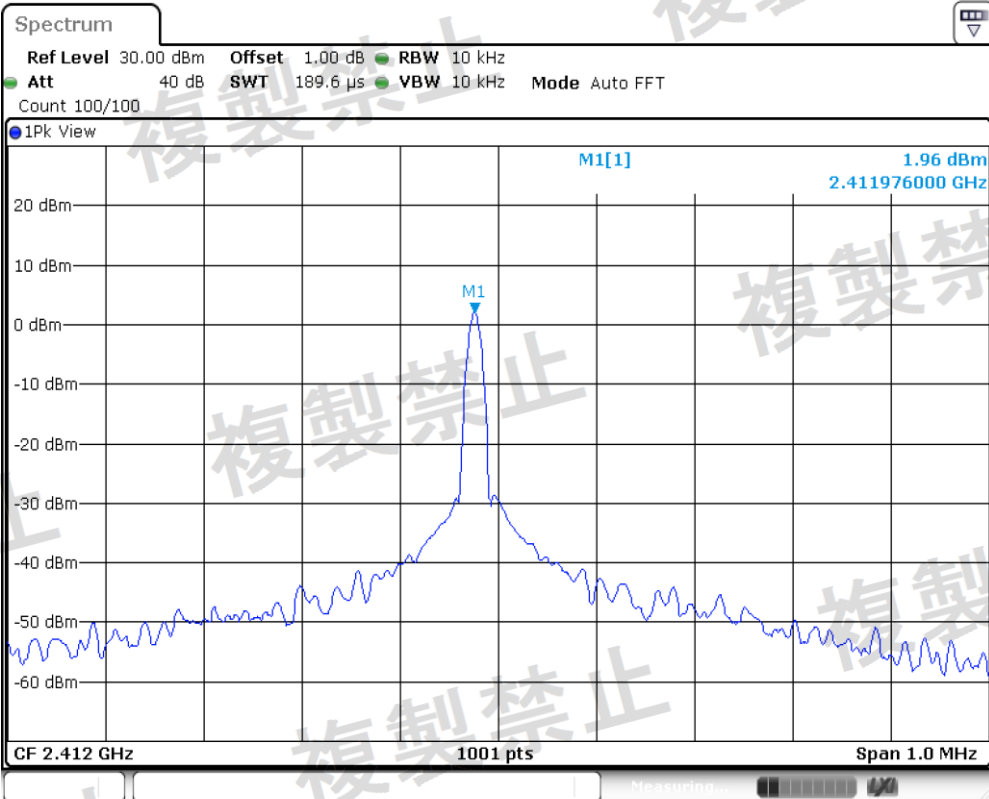
## NTLV\_11G\_Ant1\_2442



## NTLV\_11G\_Ant1\_2472

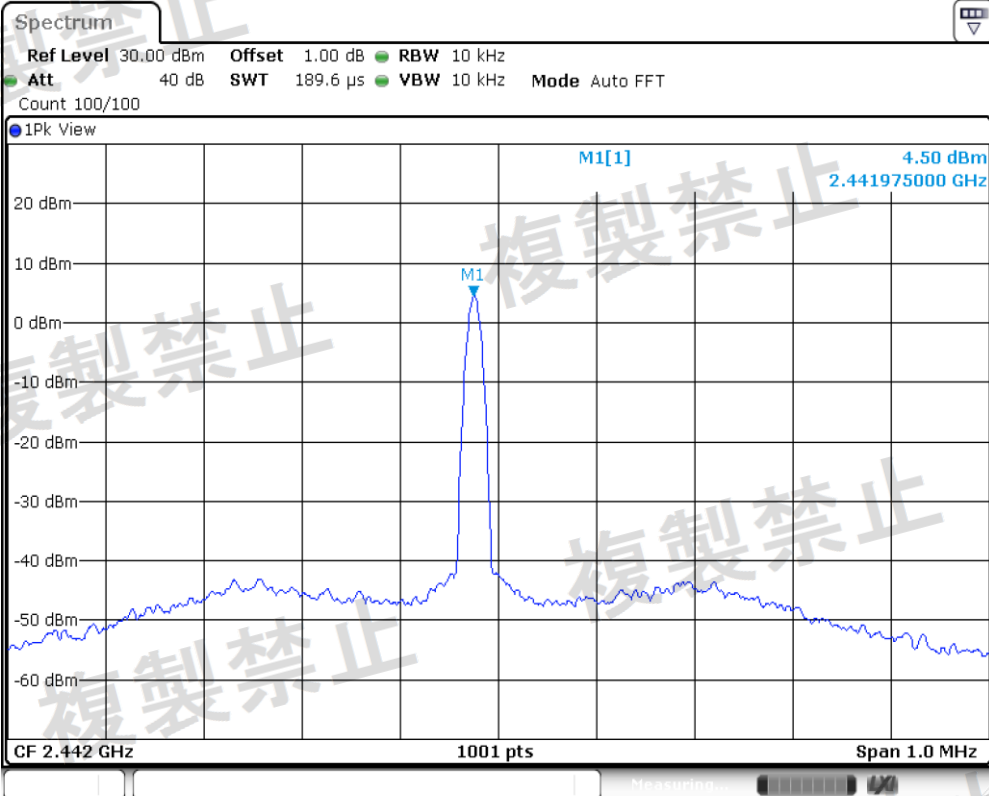


## NTLV\_11N20SISO\_Ant1\_2412

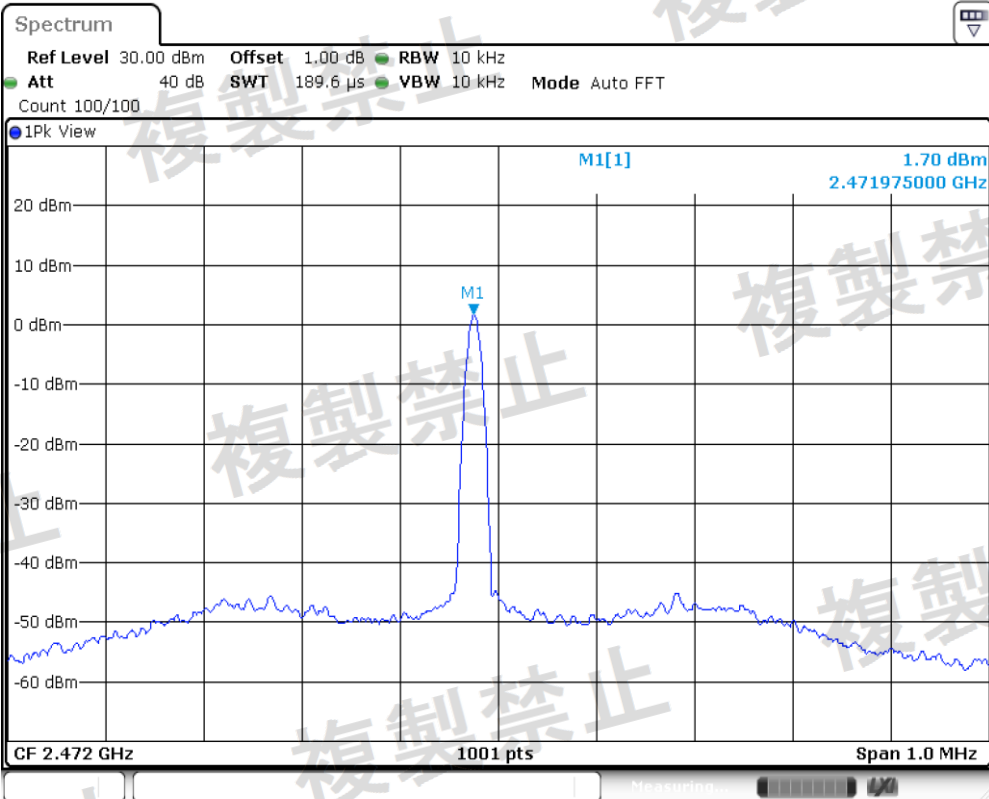




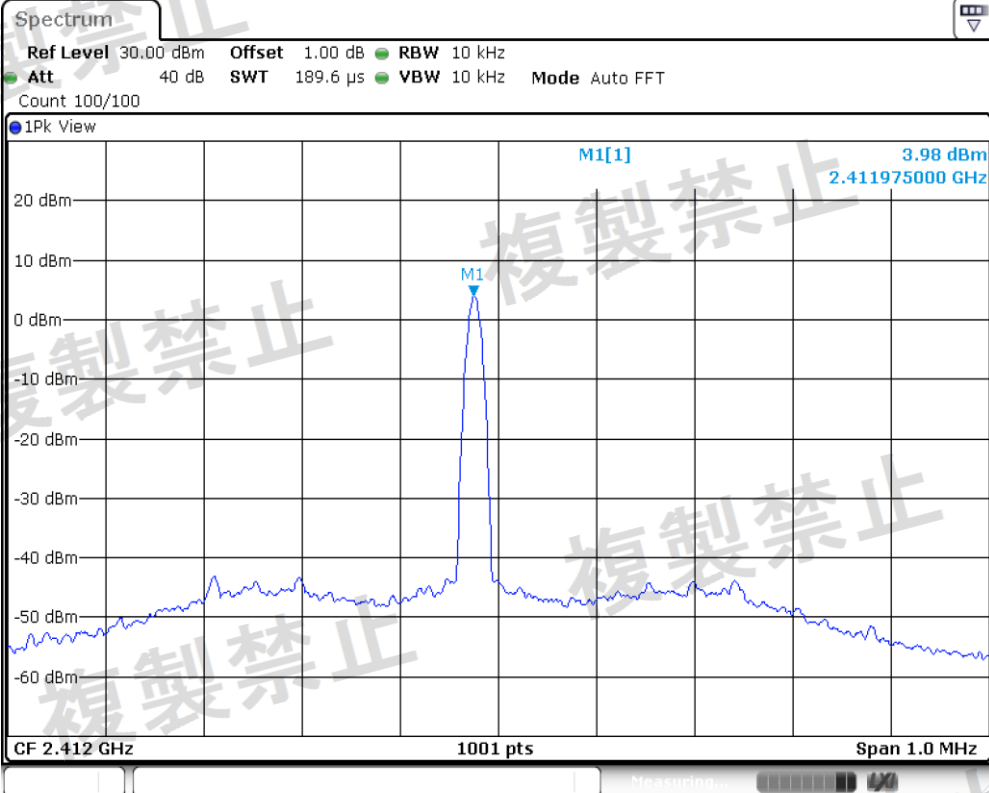
NTLV 11N20SISO Ant1 2442



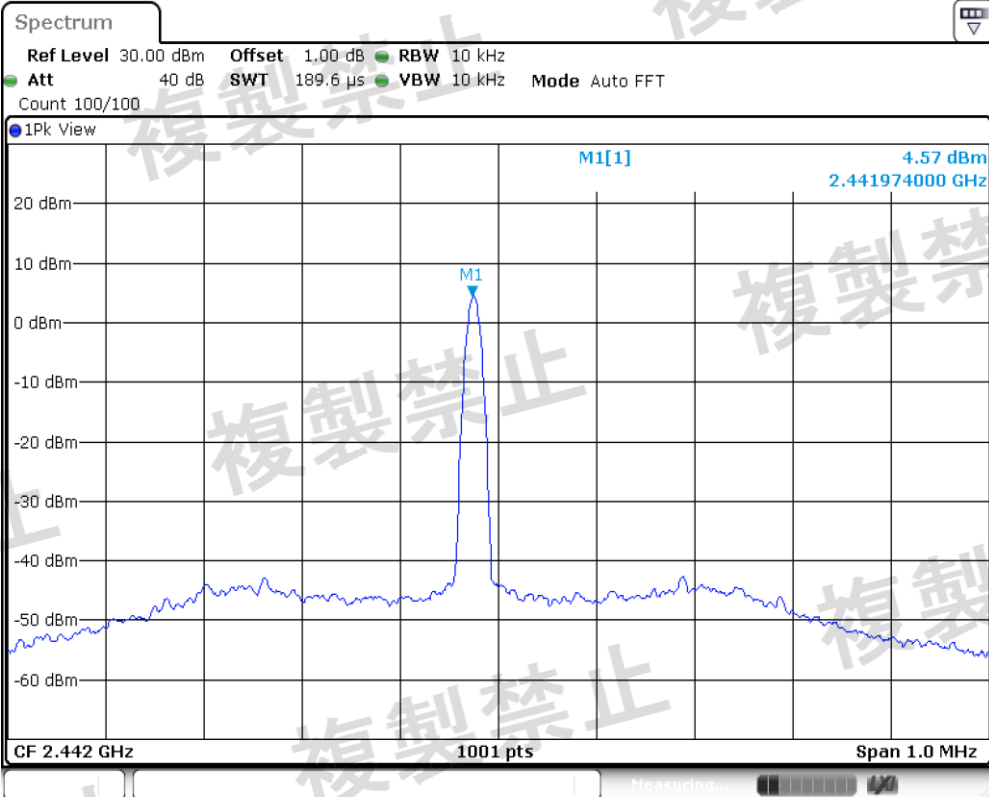
NTLV 11N20SISO Ant1 2472



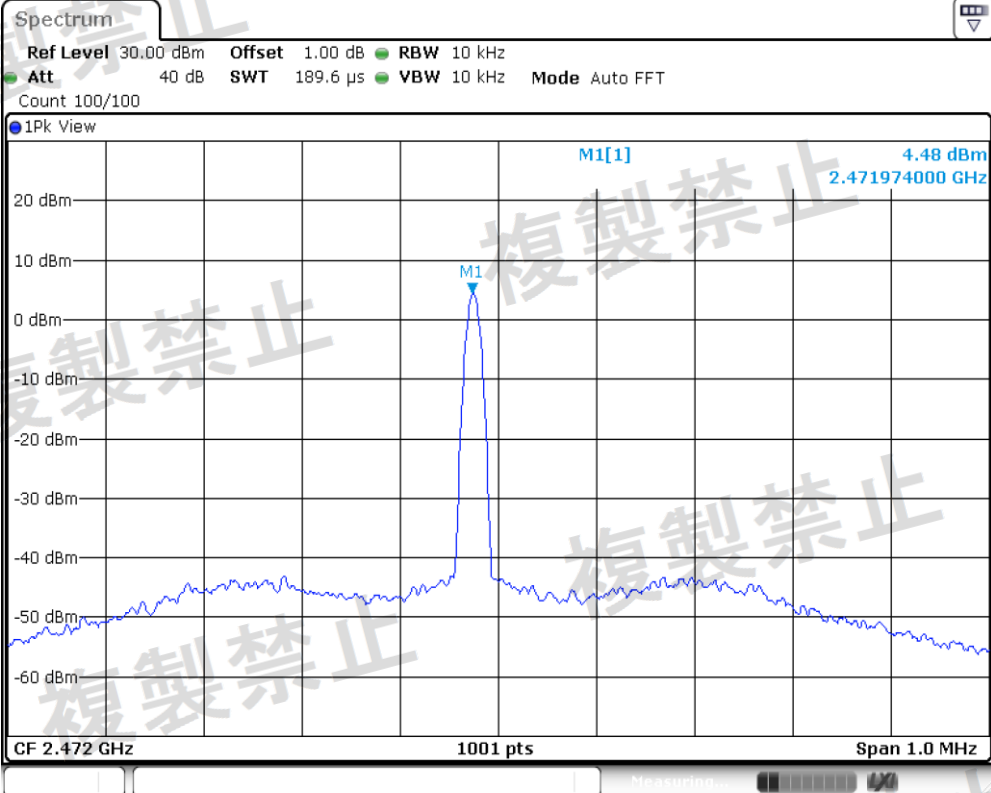
## NTHV\_11B\_Ant1\_2412



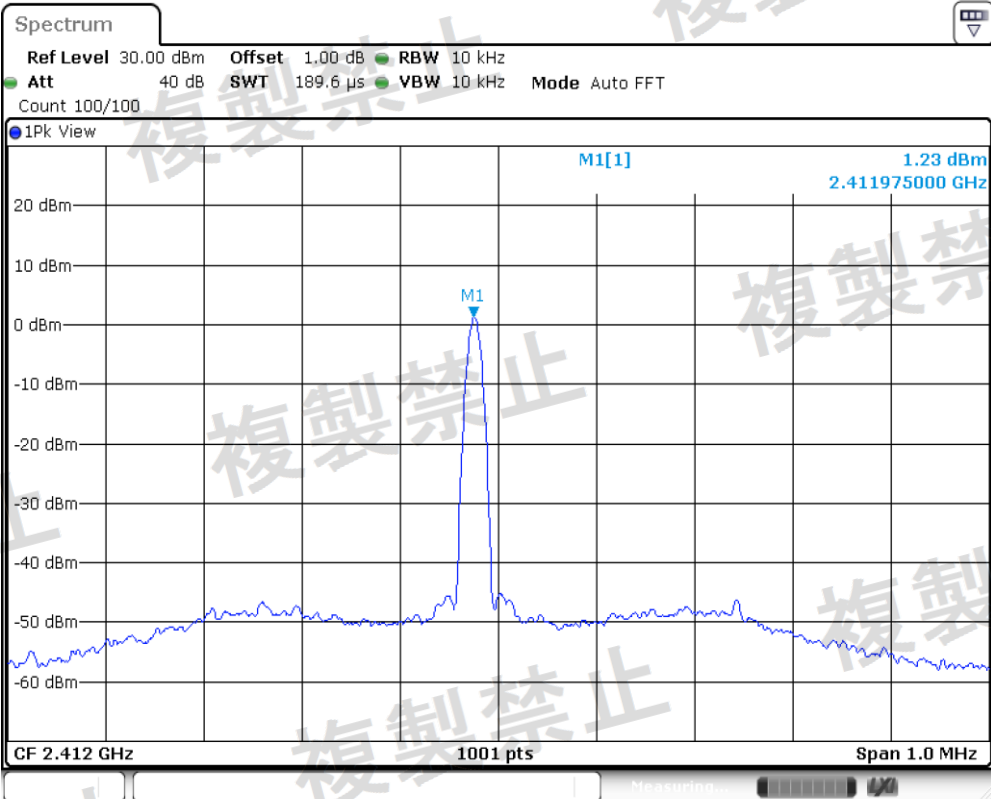
## NTHV\_11B\_Ant1\_2442



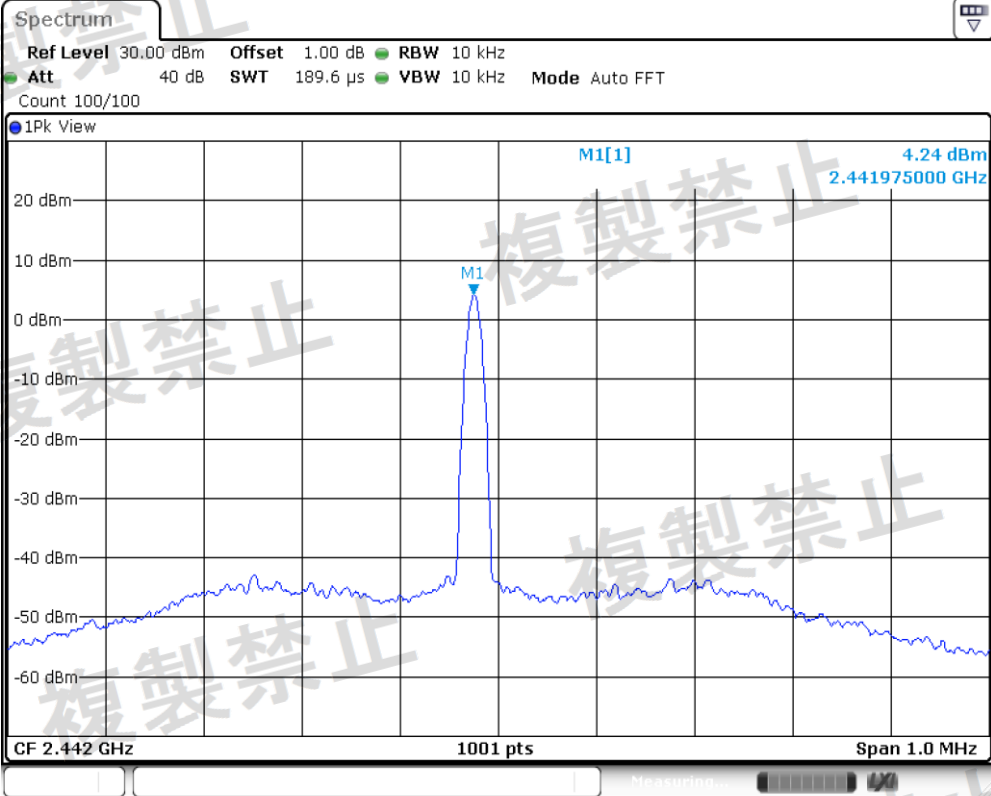
## NTHV\_11B\_Ant1\_2472



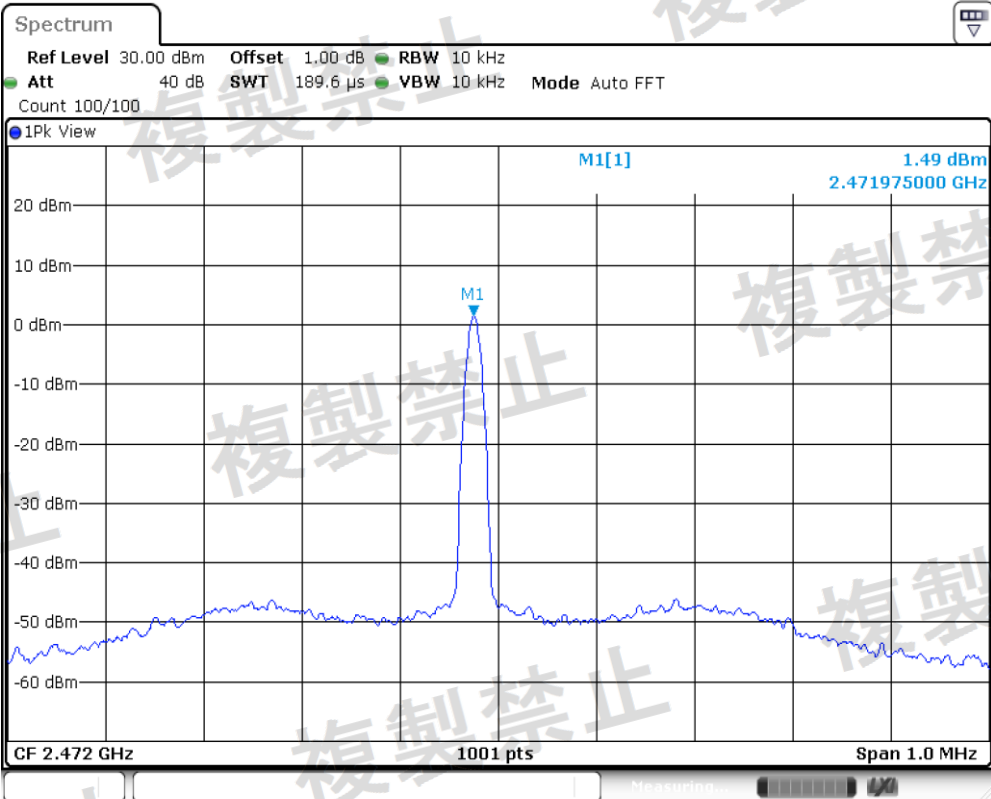
## NTHV\_11G\_Ant1\_2412



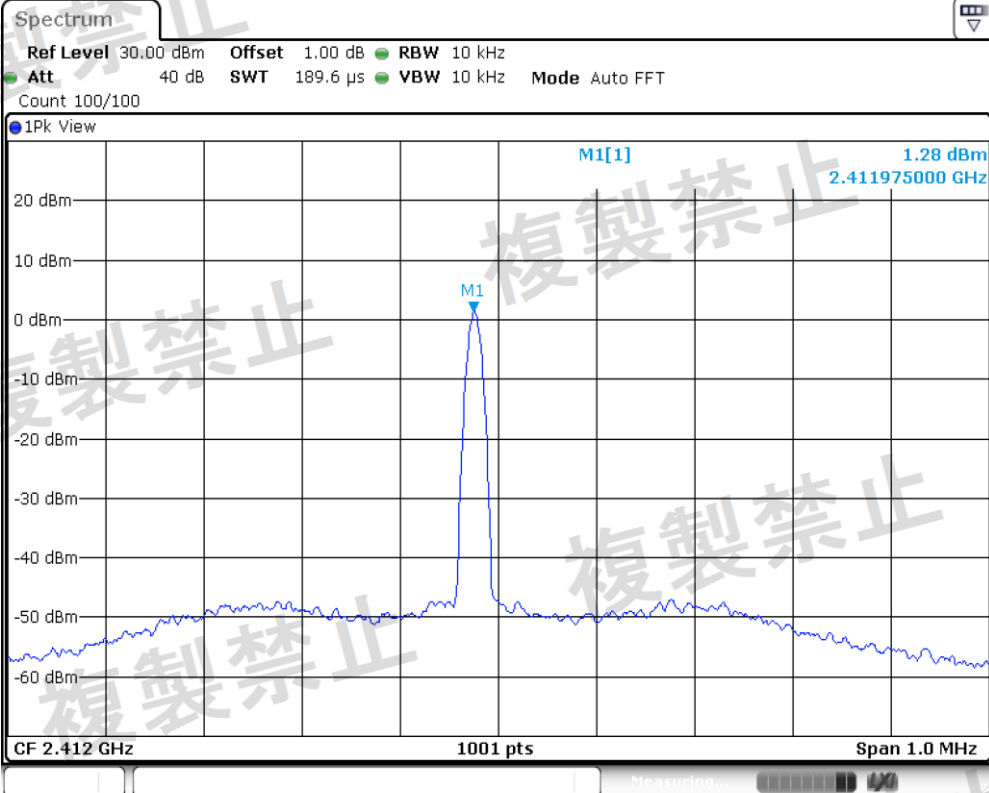
NTHV\_11G\_Ant1\_2442



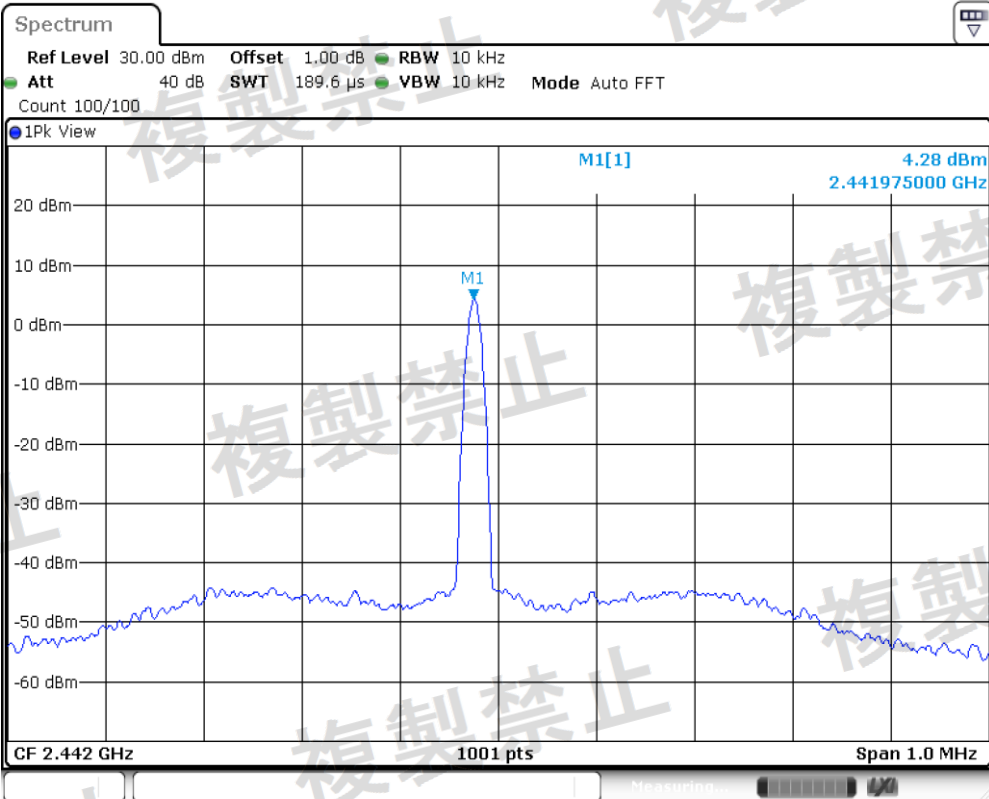
NTHV\_11G\_Ant1\_2472



## NTHV\_11N20SISO\_Ant1\_2412



## NTHV\_11N20SISO\_Ant1\_2442







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### 3.4 Occupied Bandwidth

#### 3.4.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-09                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.4.2 Limit

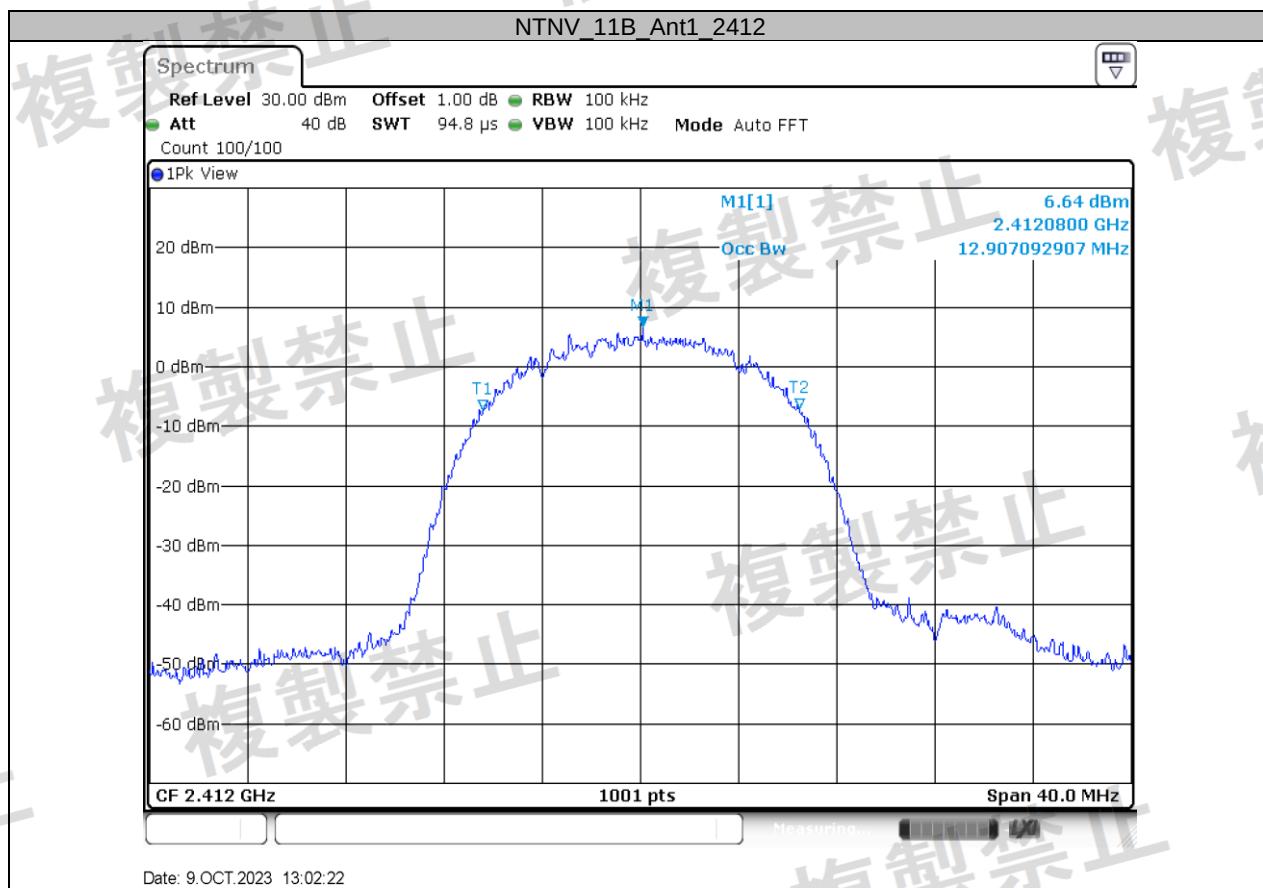
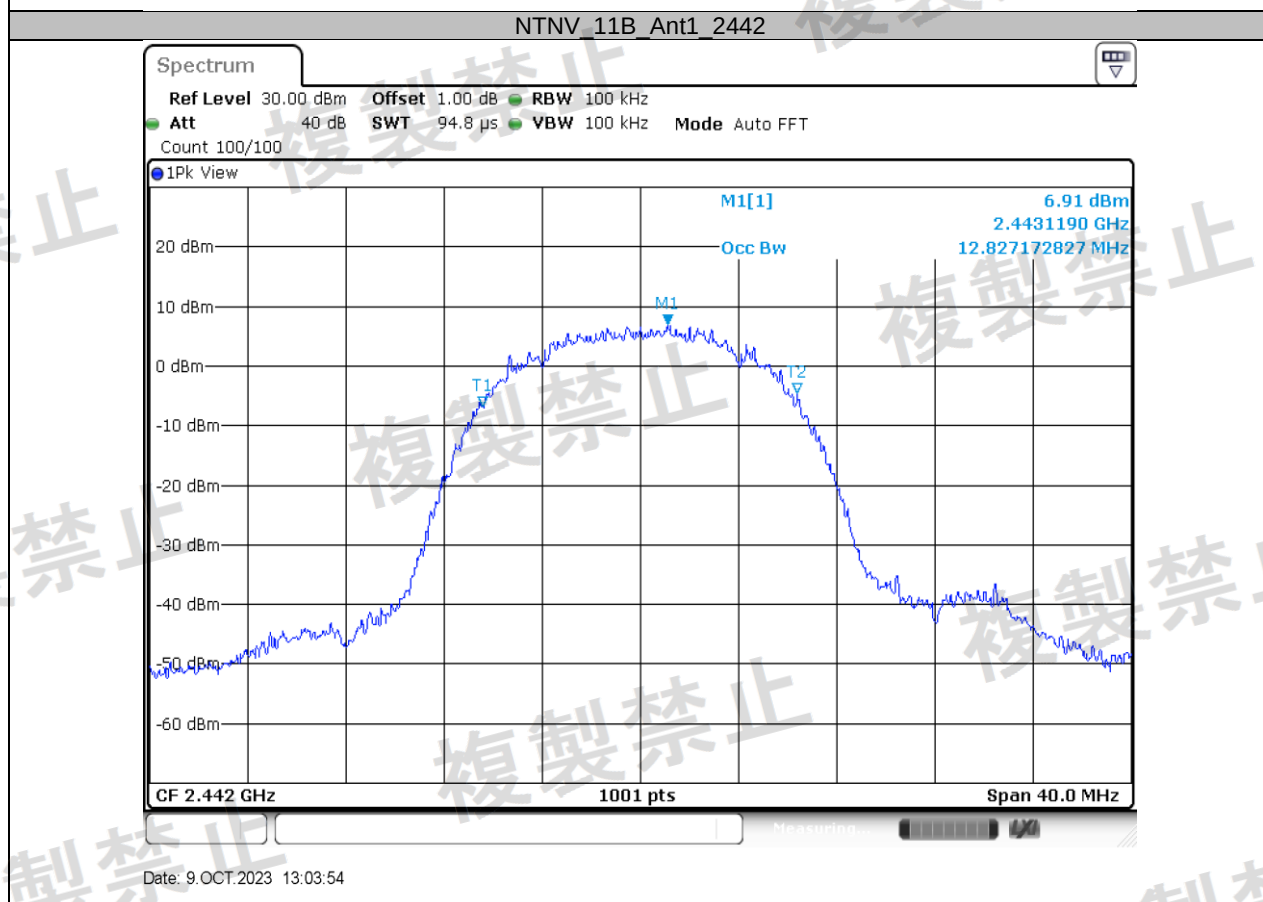
Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a OFDM system is at most 40MHz; and for transmission devices using any other necessary frequency bandwidth is at most 26 MHz or less.

#### 3.4.3 Test Result

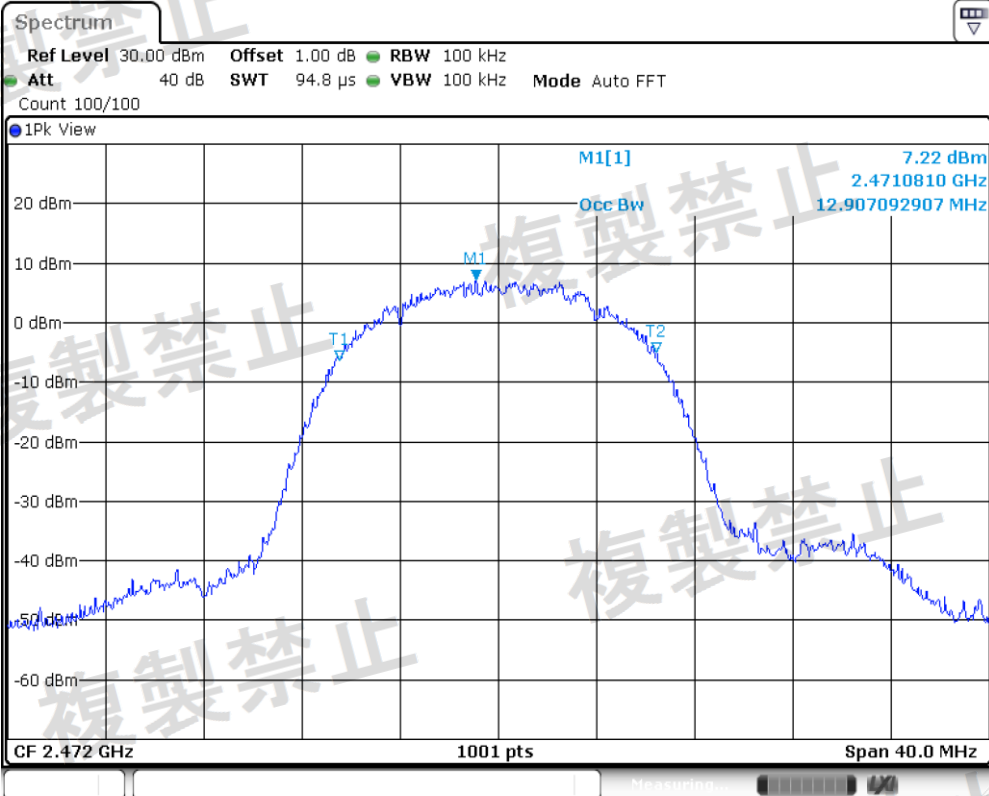
| Modulation   | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|--------------|----------------------|---------------|--------------|-------------|
| 802.11b      | 2412                 | 3.3           | 12.907       | <26MHz      |
|              | 2442                 | 3.3           | 12.827       | <26MHz      |
|              | 2472                 | 3.3           | 12.907       | <26MHz      |
| 802.11g      | 2412                 | 3.3           | 16.344       | <40MHz      |
|              | 2442                 | 3.3           | 16.344       | <40MHz      |
|              | 2472                 | 3.3           | 16.344       | <40MHz      |
| 802.11n_HT20 | 2412                 | 3.3           | 17.502       | <40MHz      |
|              | 2442                 | 3.3           | 17.502       | <40MHz      |
|              | 2472                 | 3.3           | 17.502       | <40MHz      |

| Modulation   | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|--------------|----------------------|---------------|--------------|-------------|
| 802.11b      | 2412                 | 3.0           | 12.827       | <26MHz      |
|              | 2442                 | 3.0           | 12.827       | <26MHz      |
|              | 2472                 | 3.0           | 12.827       | <26MHz      |
| 802.11g      | 2412                 | 3.0           | 16.344       | <40MHz      |
|              | 2442                 | 3.0           | 16.344       | <40MHz      |
|              | 2472                 | 3.0           | 16.344       | <40MHz      |
| 802.11n_HT20 | 2412                 | 3.0           | 17.502       | <40MHz      |
|              | 2442                 | 3.0           | 17.542       | <40MHz      |
|              | 2472                 | 3.0           | 17.542       | <40MHz      |

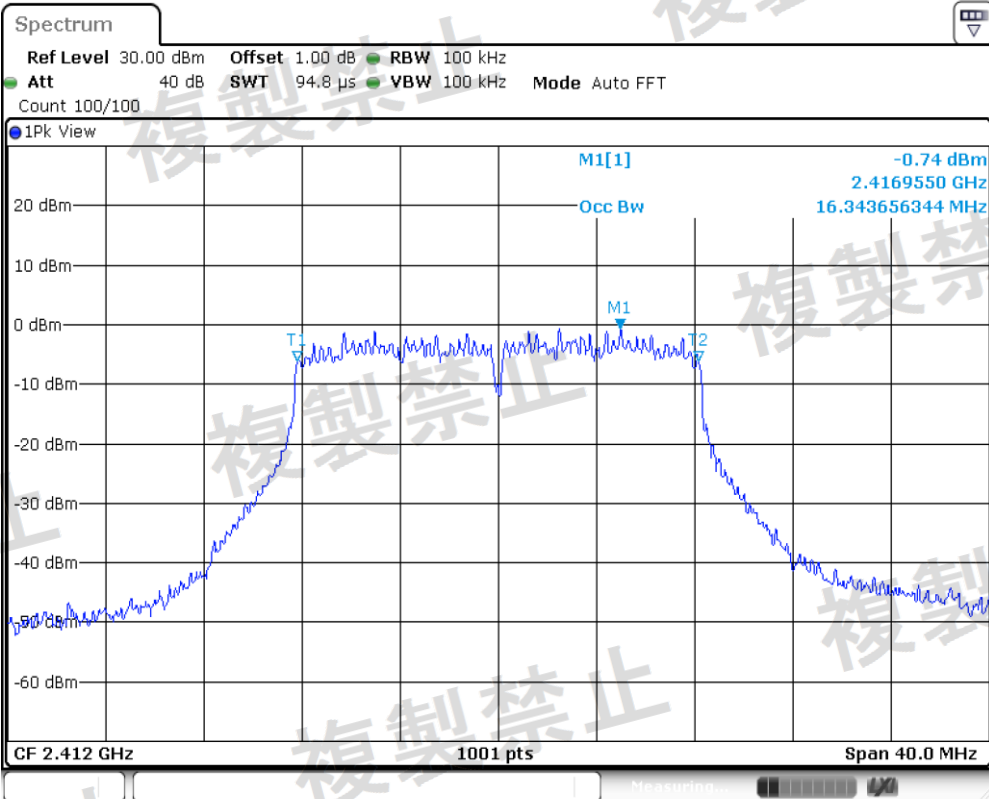
| Modulation   | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|--------------|----------------------|---------------|--------------|-------------|
| 802.11b      | 2412                 | 3.6           | 12.867       | <26MHz      |
|              | 2442                 | 3.6           | 12.867       | <26MHz      |
|              | 2472                 | 3.6           | 12.867       | <26MHz      |
| 802.11g      | 2412                 | 3.6           | 16.344       | <40MHz      |
|              | 2442                 | 3.6           | 16.384       | <40MHz      |
|              | 2472                 | 3.6           | 16.344       | <40MHz      |
| 802.11n_HT20 | 2412                 | 3.6           | 17.502       | <40MHz      |
|              | 2442                 | 3.6           | 17.502       | <40MHz      |
|              | 2472                 | 3.6           | 17.463       | <40MHz      |

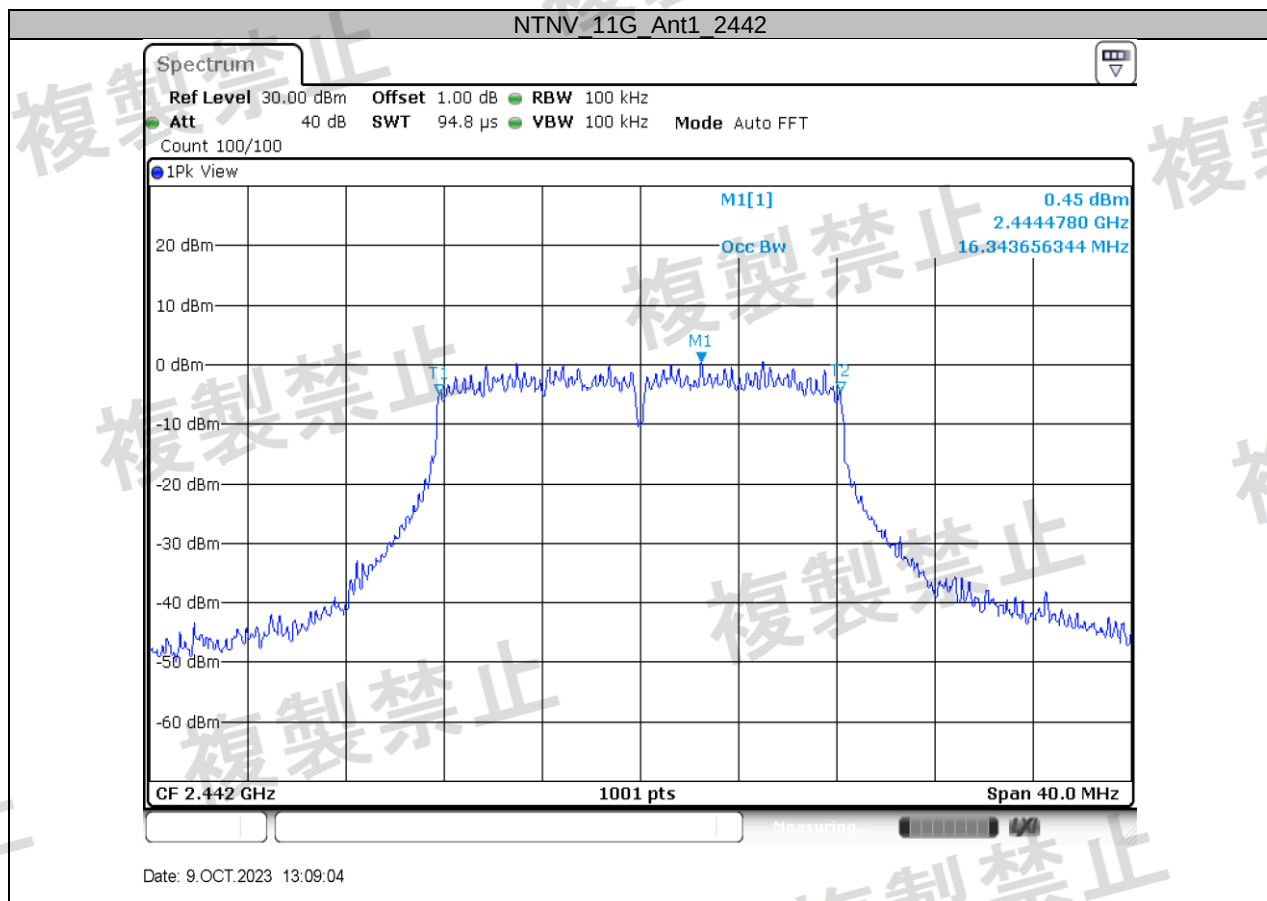
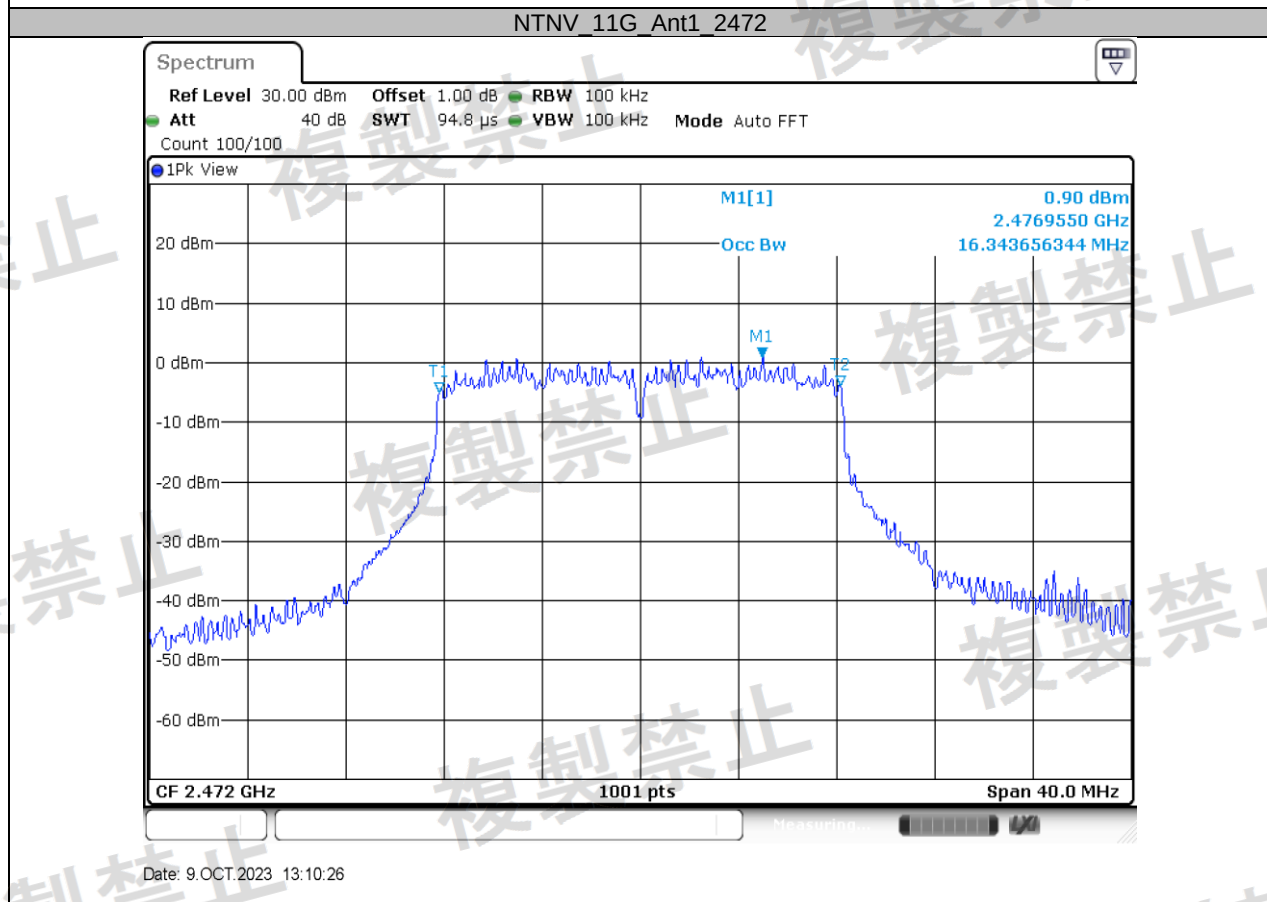


## NTNV\_11B\_Ant1\_2472



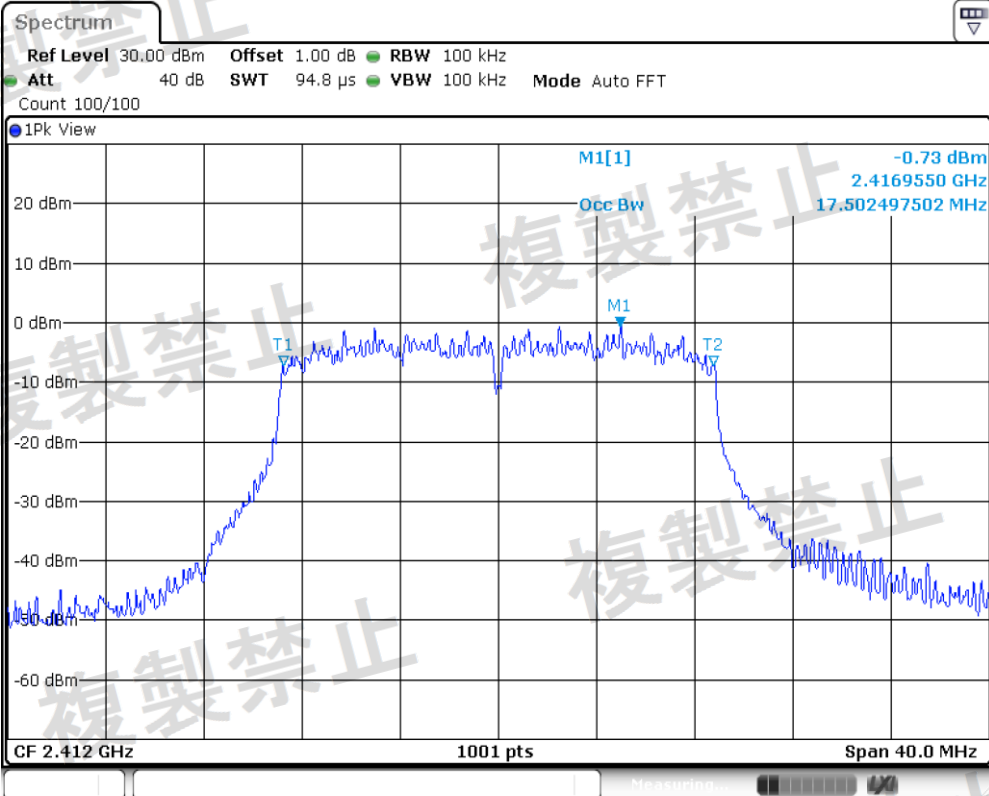
## NTNV\_11G\_Ant1\_2412



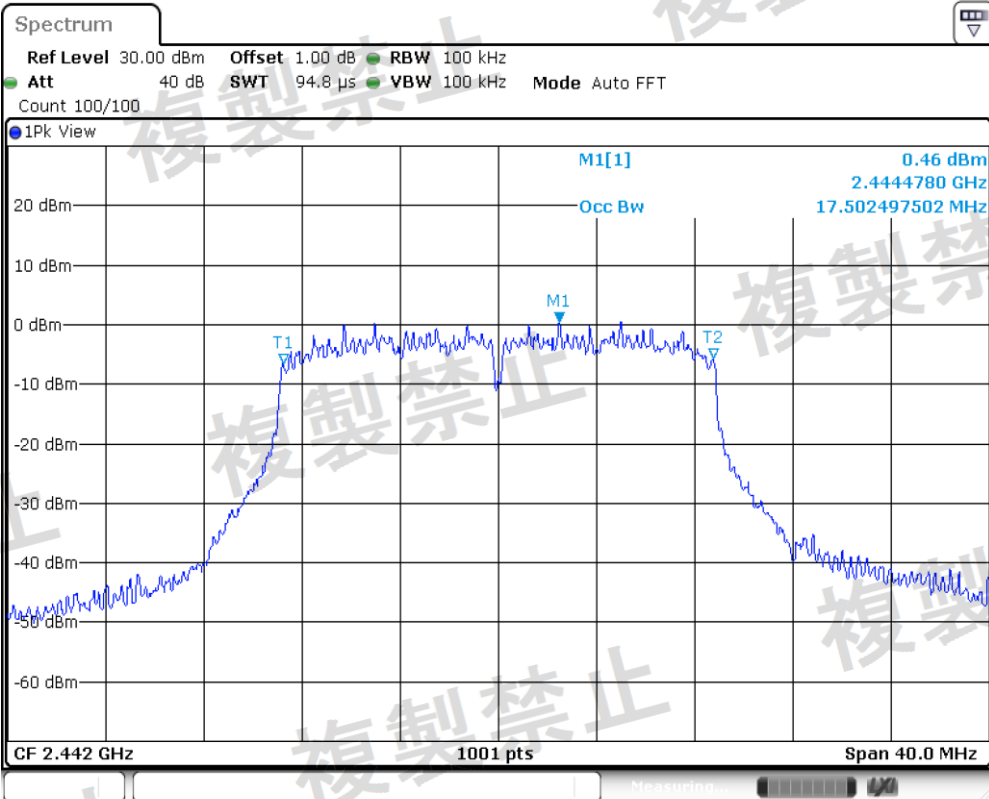


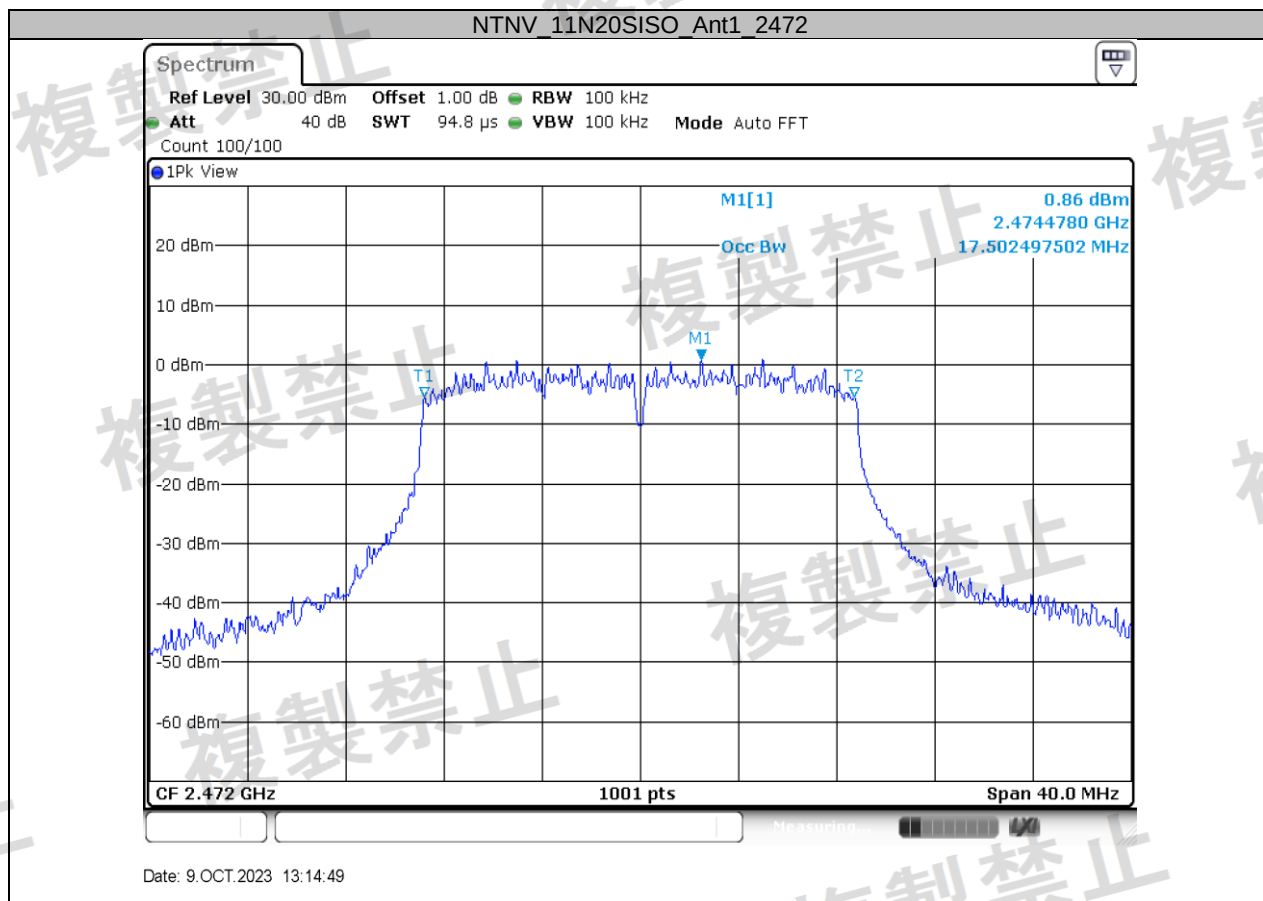
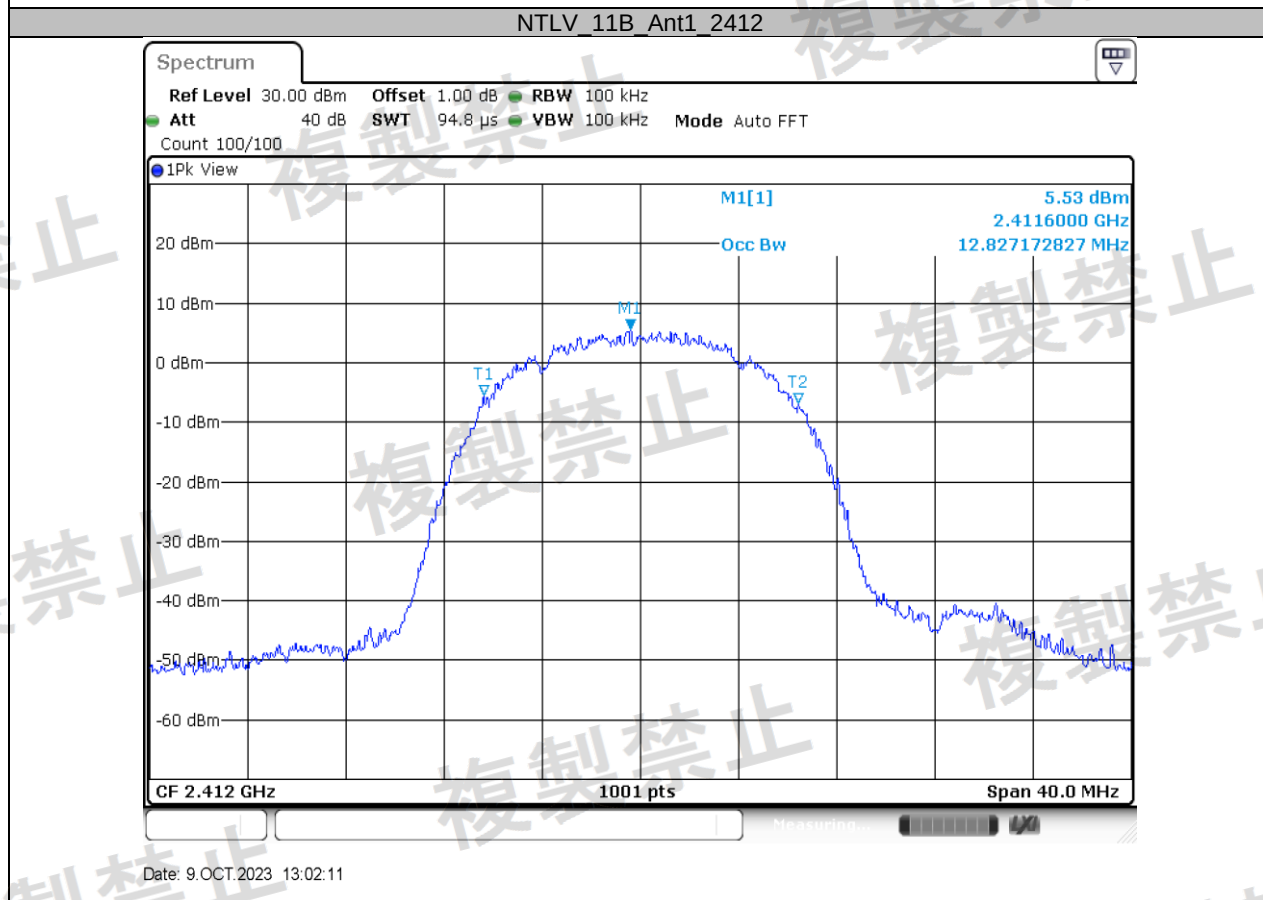


## NTNV\_11N20SISO\_Ant1\_2412

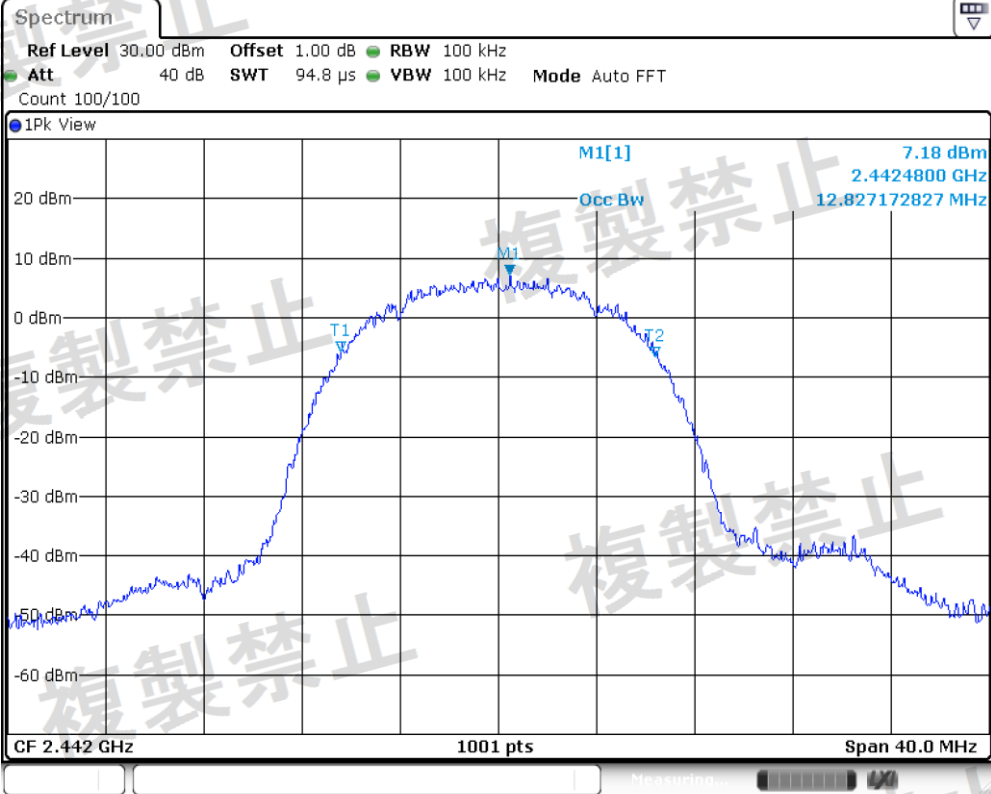


## NTNV\_11N20SISO\_Ant1\_2442

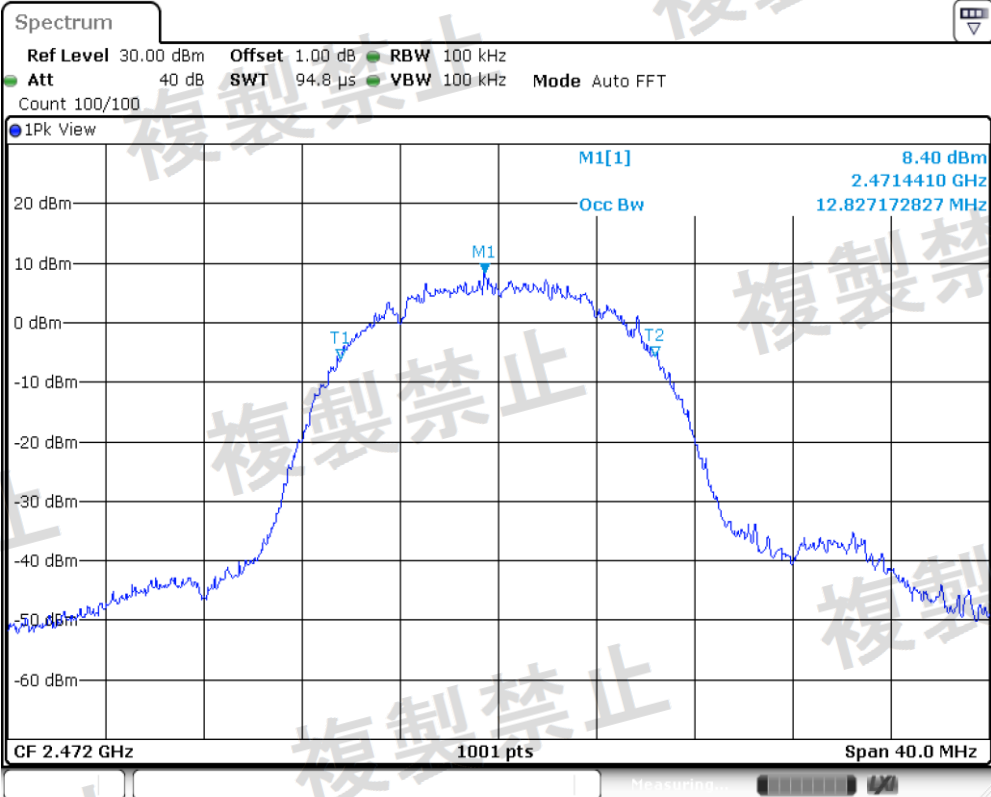




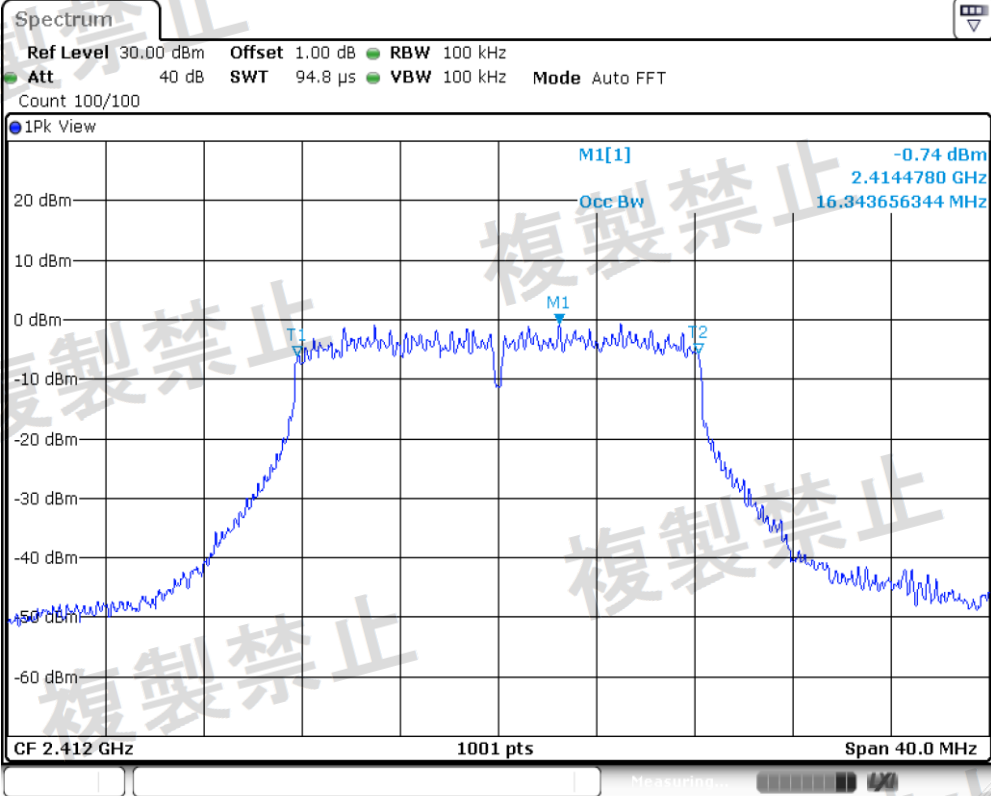
## NTLV\_11B\_Ant1\_2442



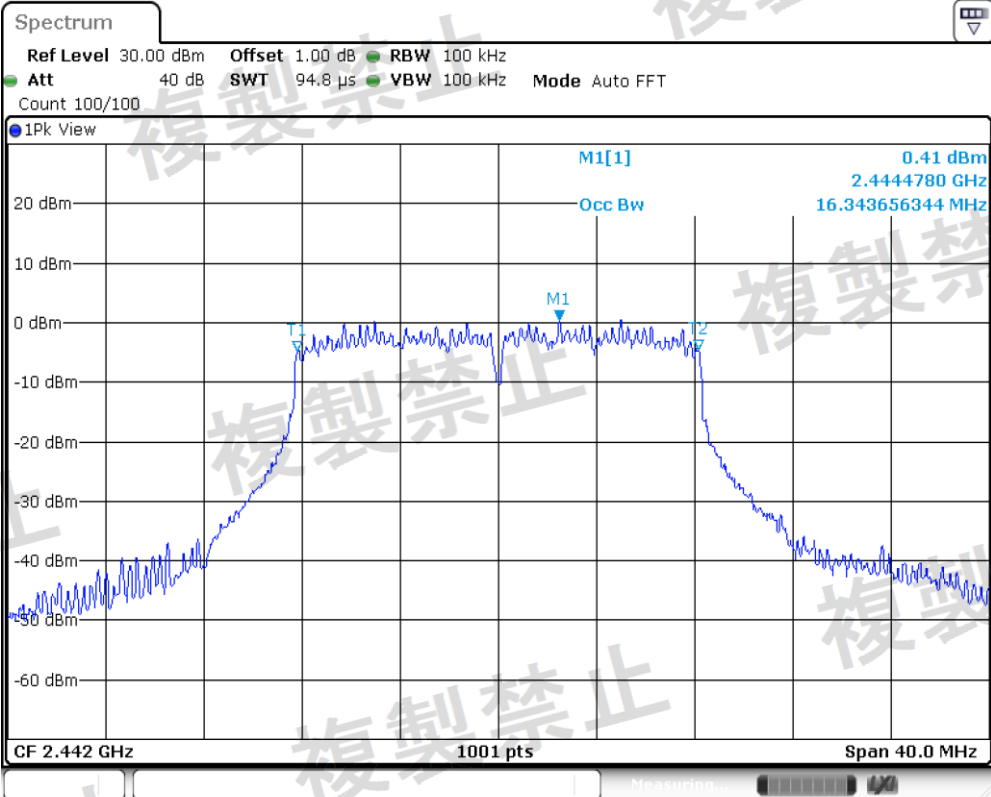
## NTLV\_11B\_Ant1\_2472



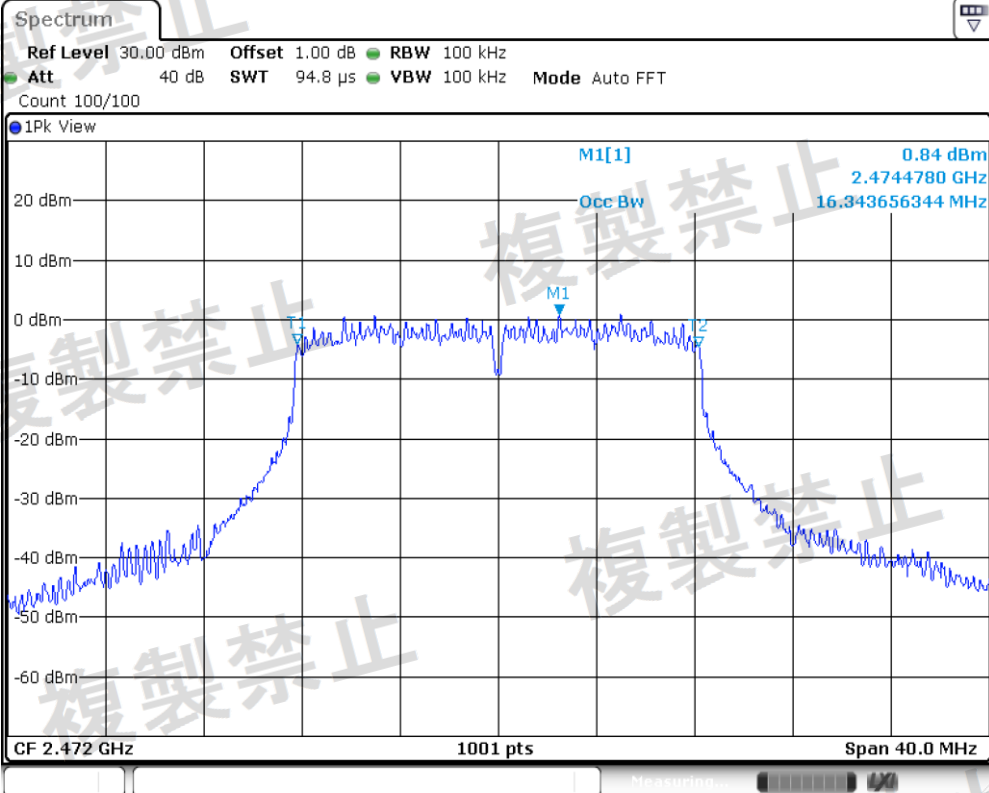
## NTLV\_11G\_Ant1\_2412



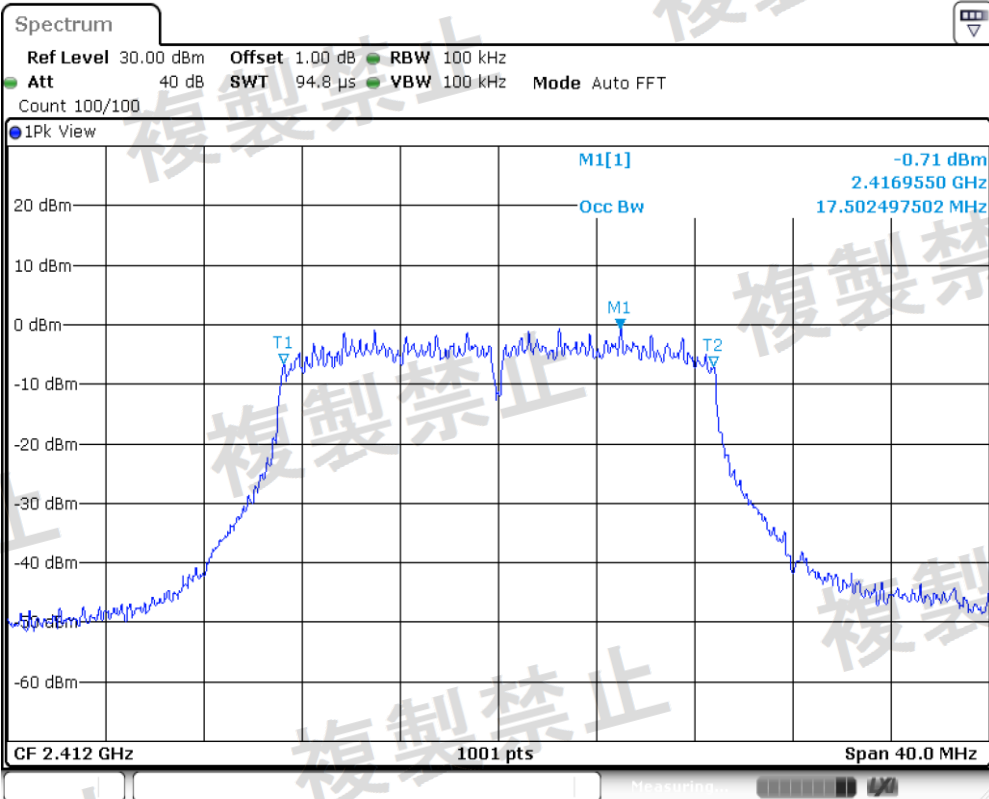
## NTLV\_11G\_Ant1\_2442



## NTLV\_11G\_Ant1\_2472

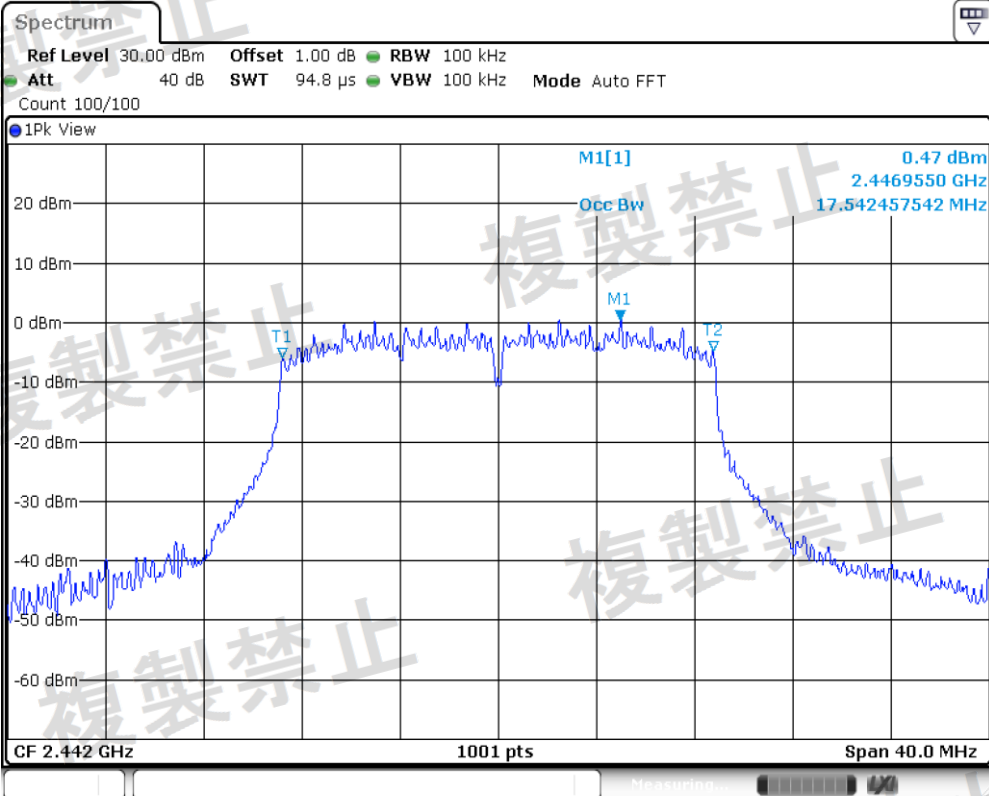


## NTLV\_11N20SISO\_Ant1\_2412

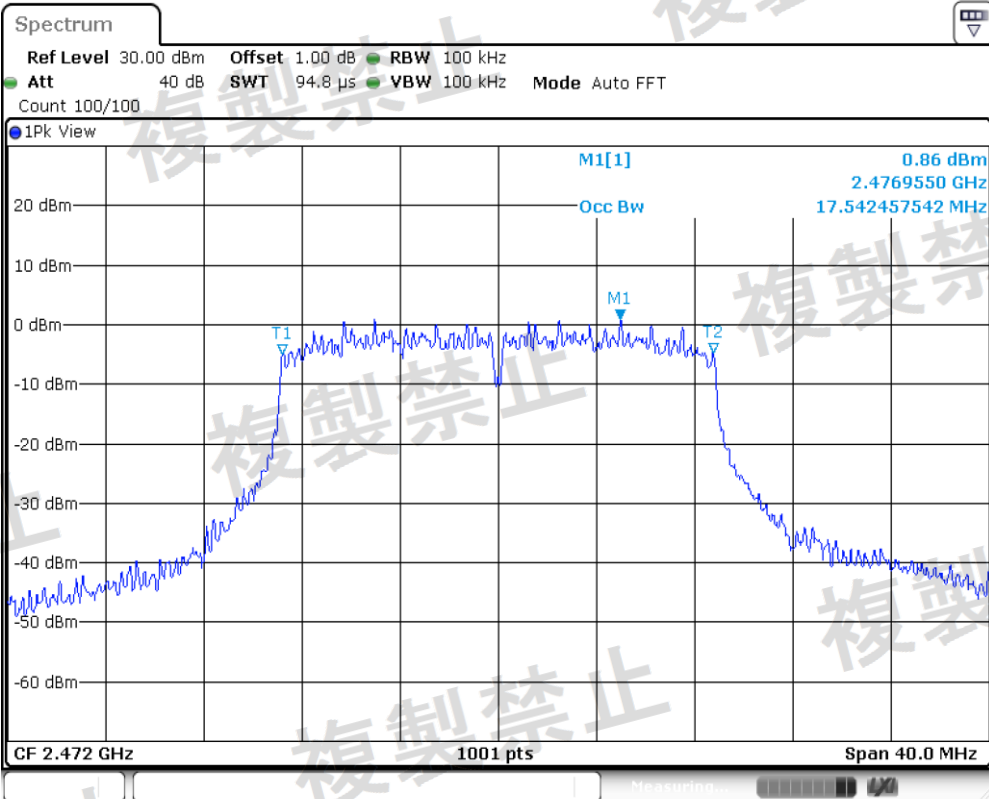




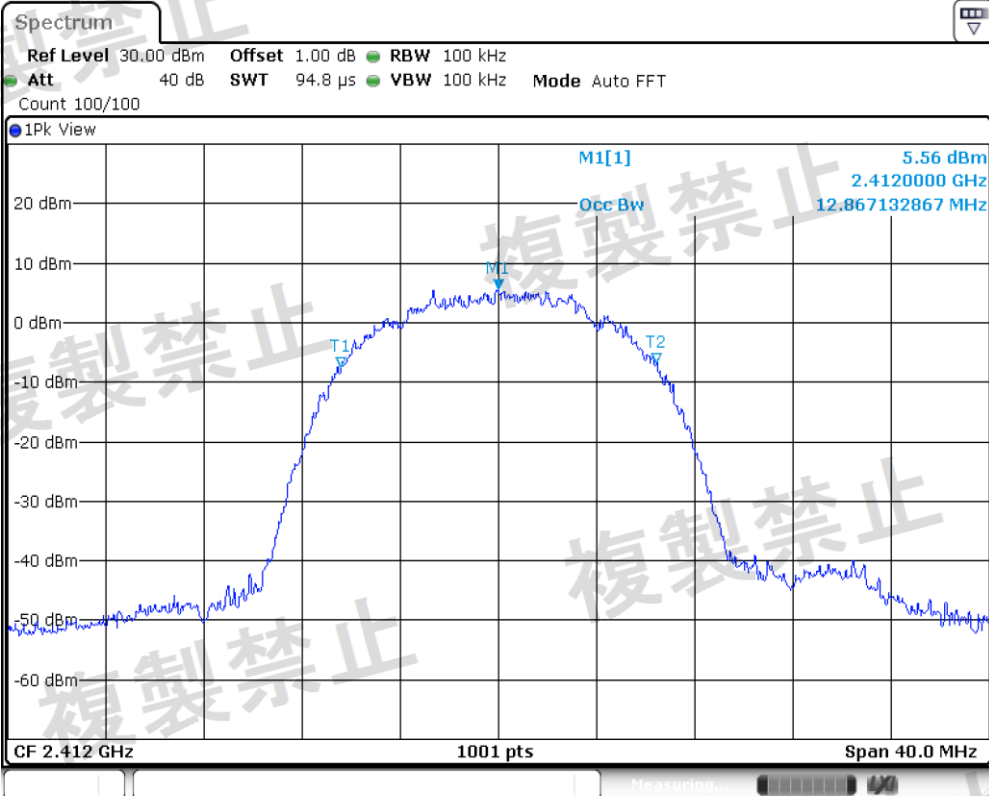
## NTLV 11N20SISO Ant1 2442



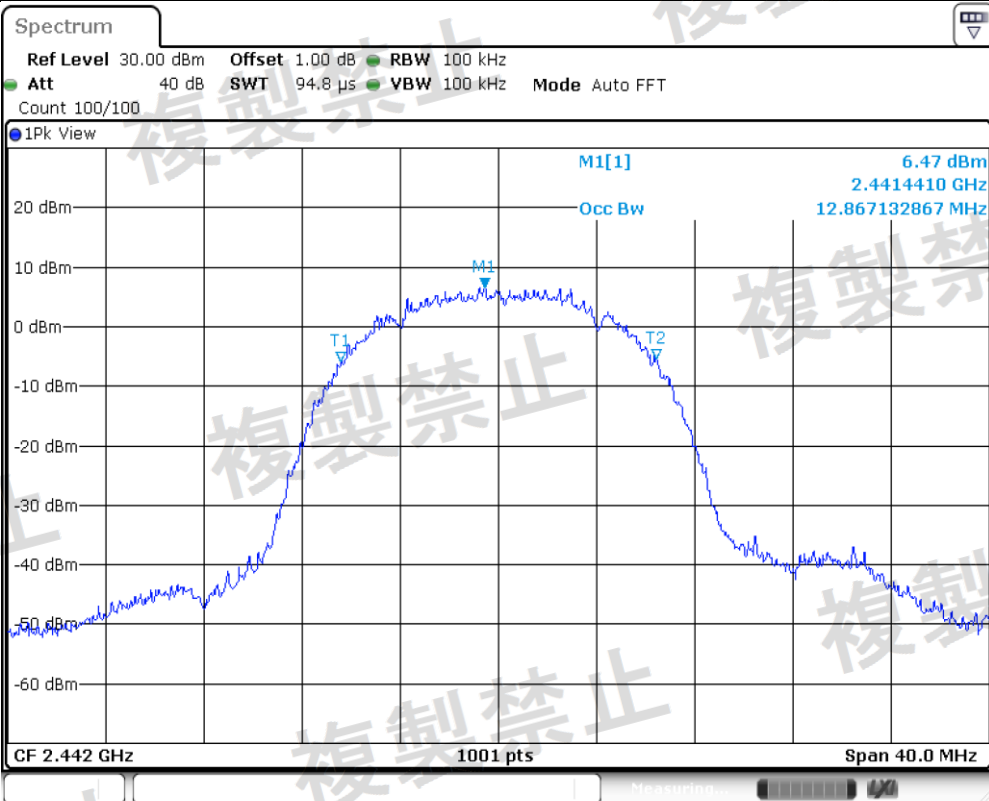
## NTLV 11N20SISO Ant1 2472



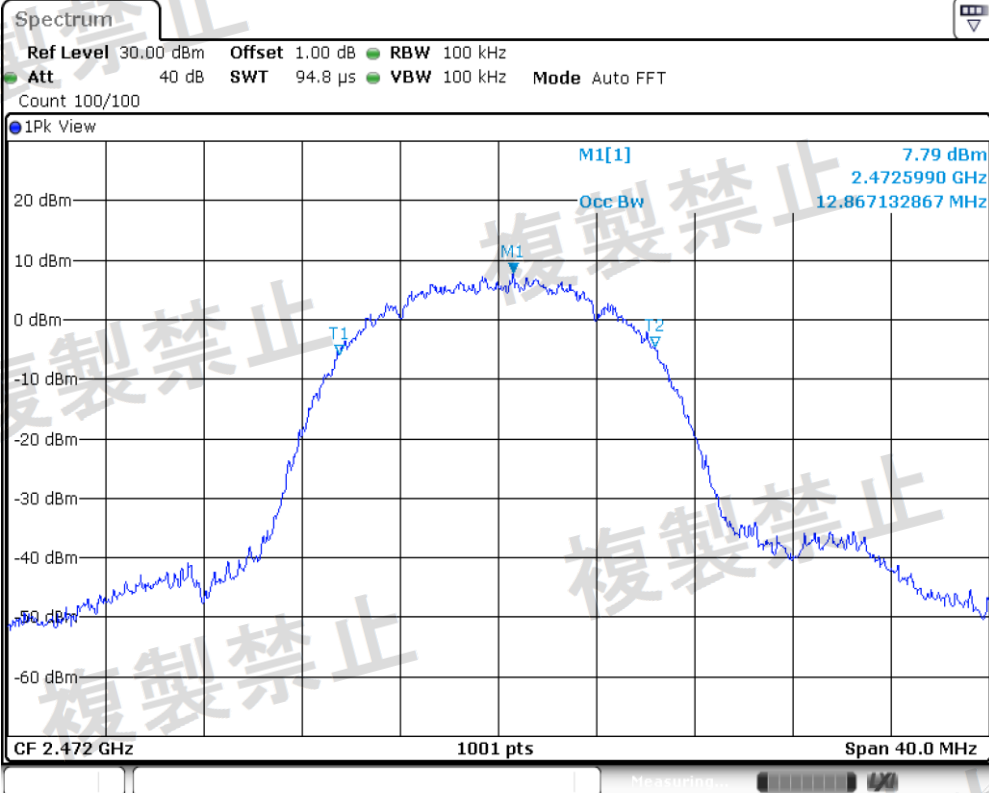
## NTHV\_11B\_Ant1\_2412



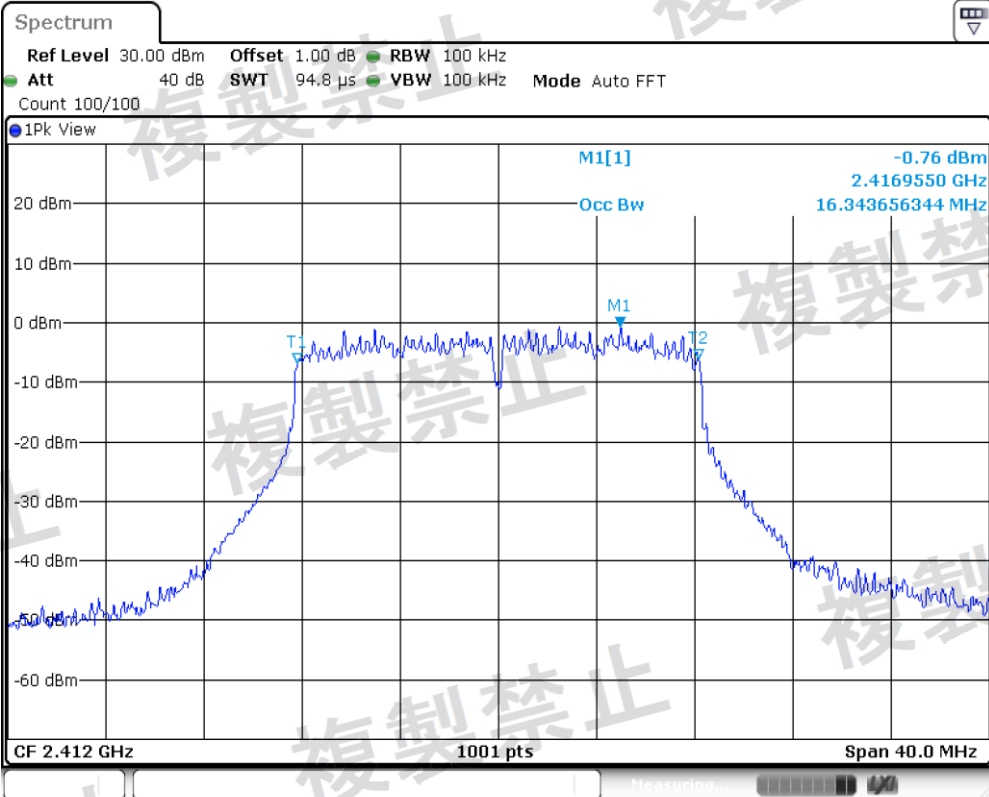
## NTHV\_11B\_Ant1\_2442

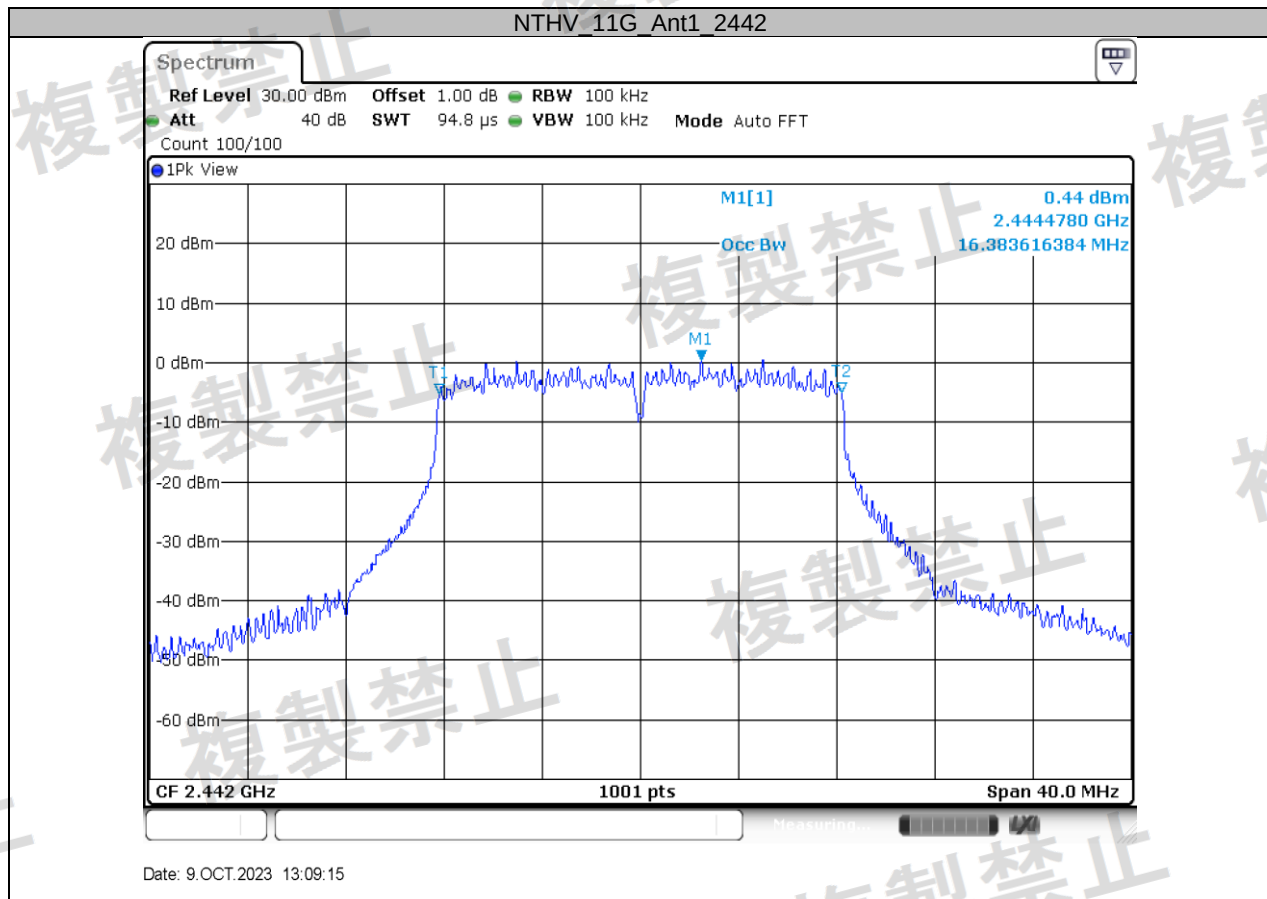
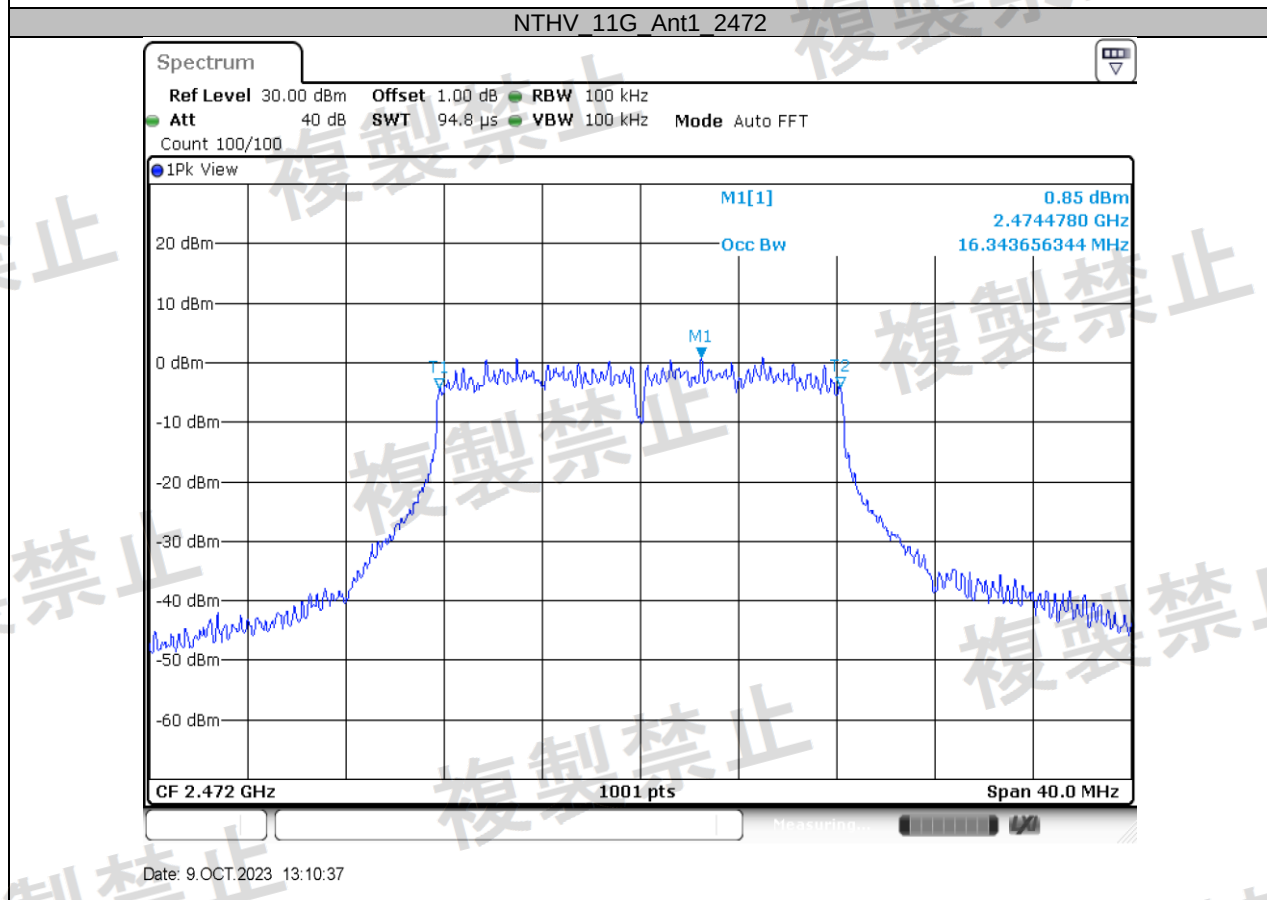


## NTHV\_11B\_Ant1\_2472

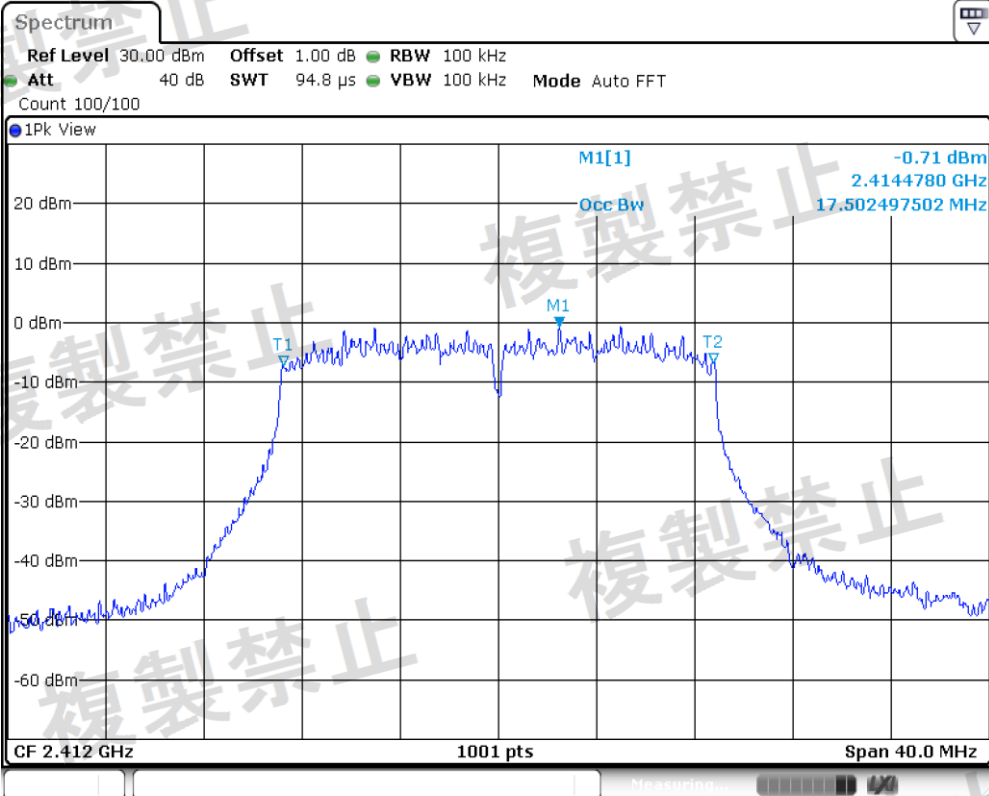


## NTHV\_11G\_Ant1\_2412

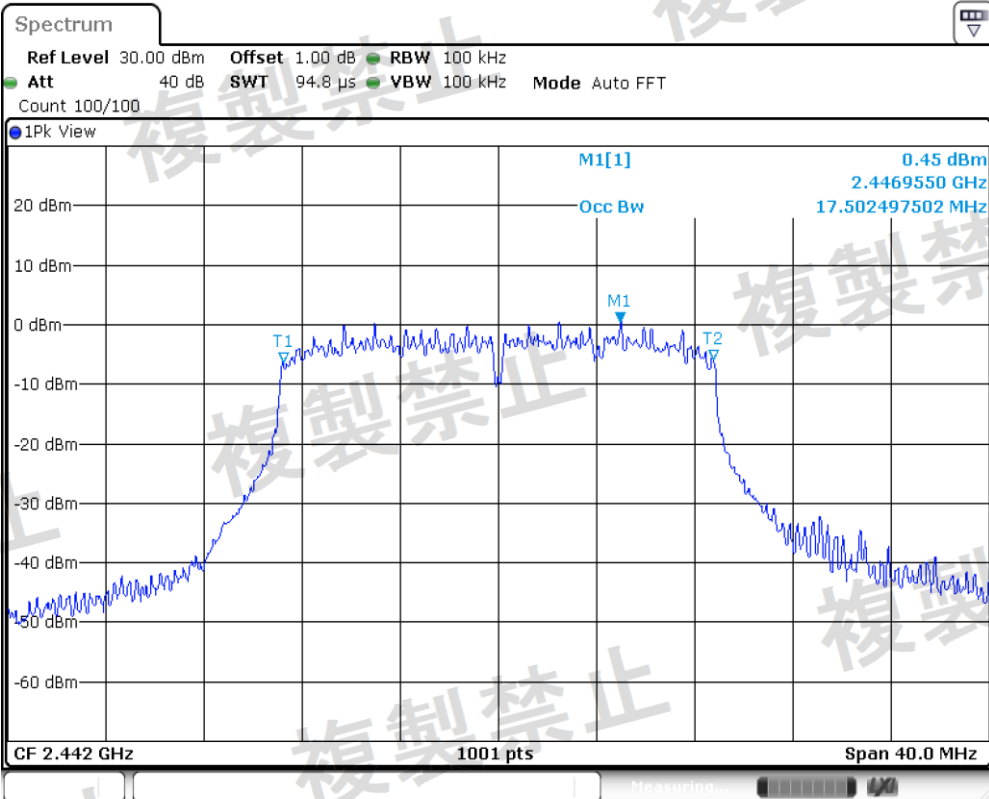




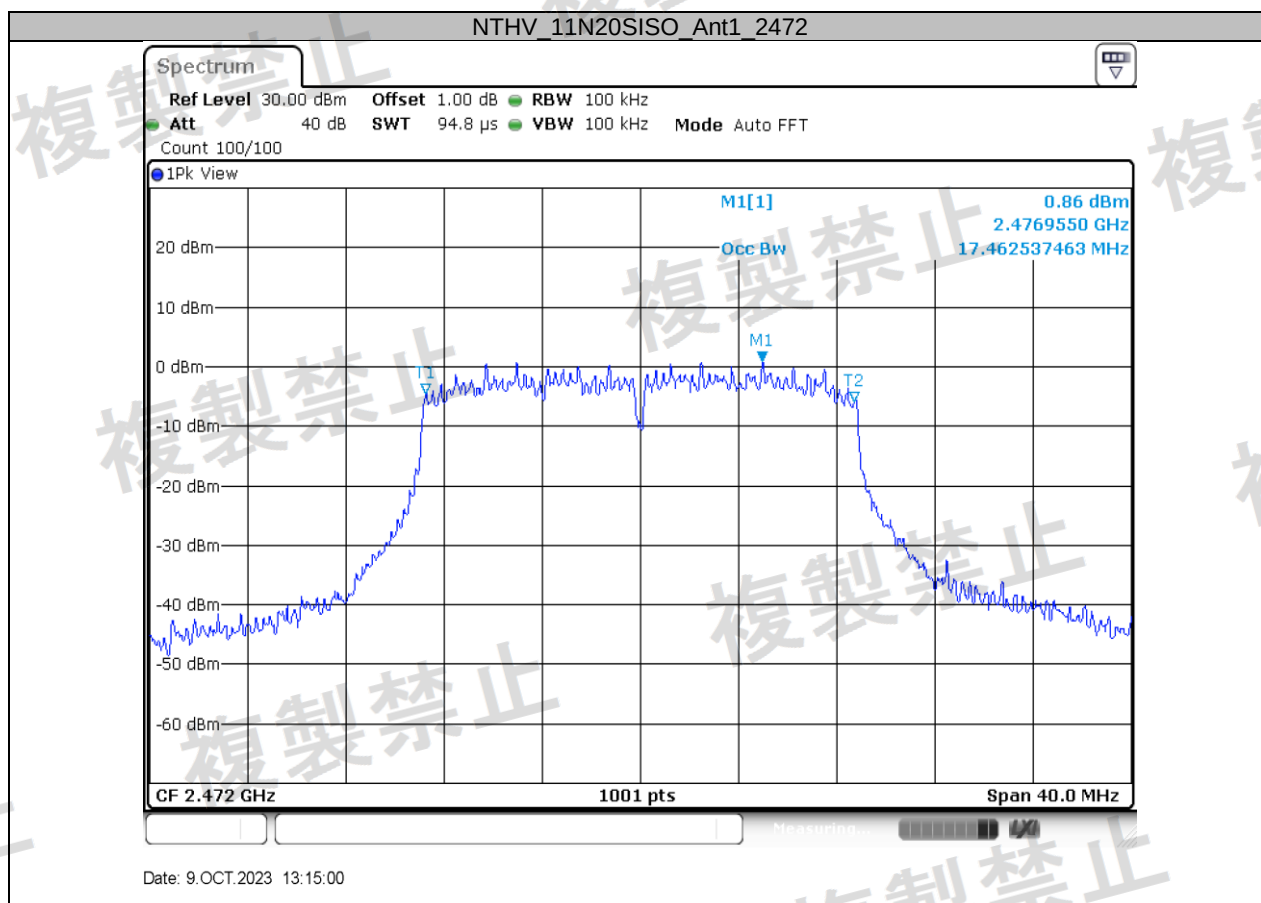
## NTHV\_11N20SISO\_Ant1\_2412



## NTHV\_11N20SISO\_Ant1\_2442







### 3.4.4 Result

The equipment met the requirement of this clause.

### 3.5 Spread Bandwidth

#### 3.5.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-09                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.5.2 Limit

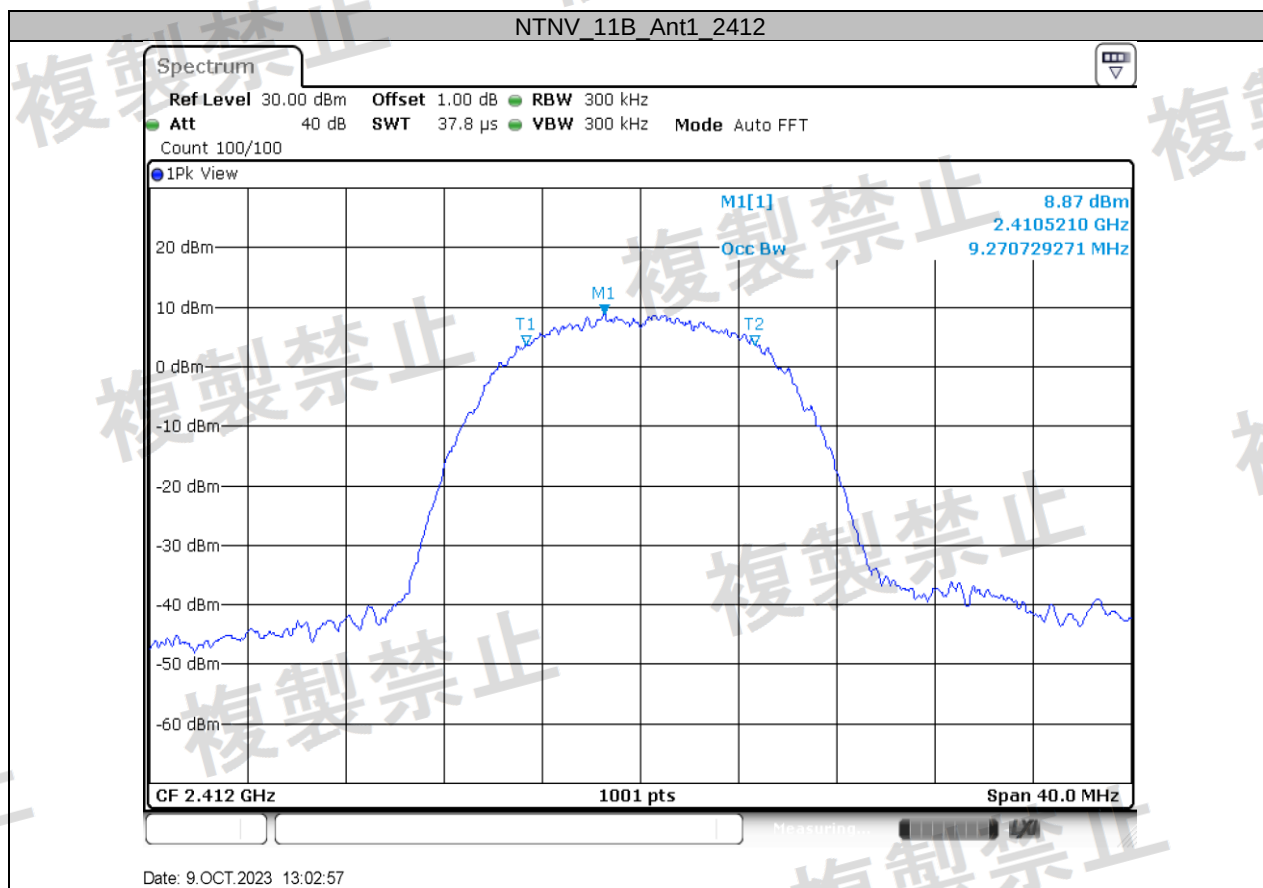
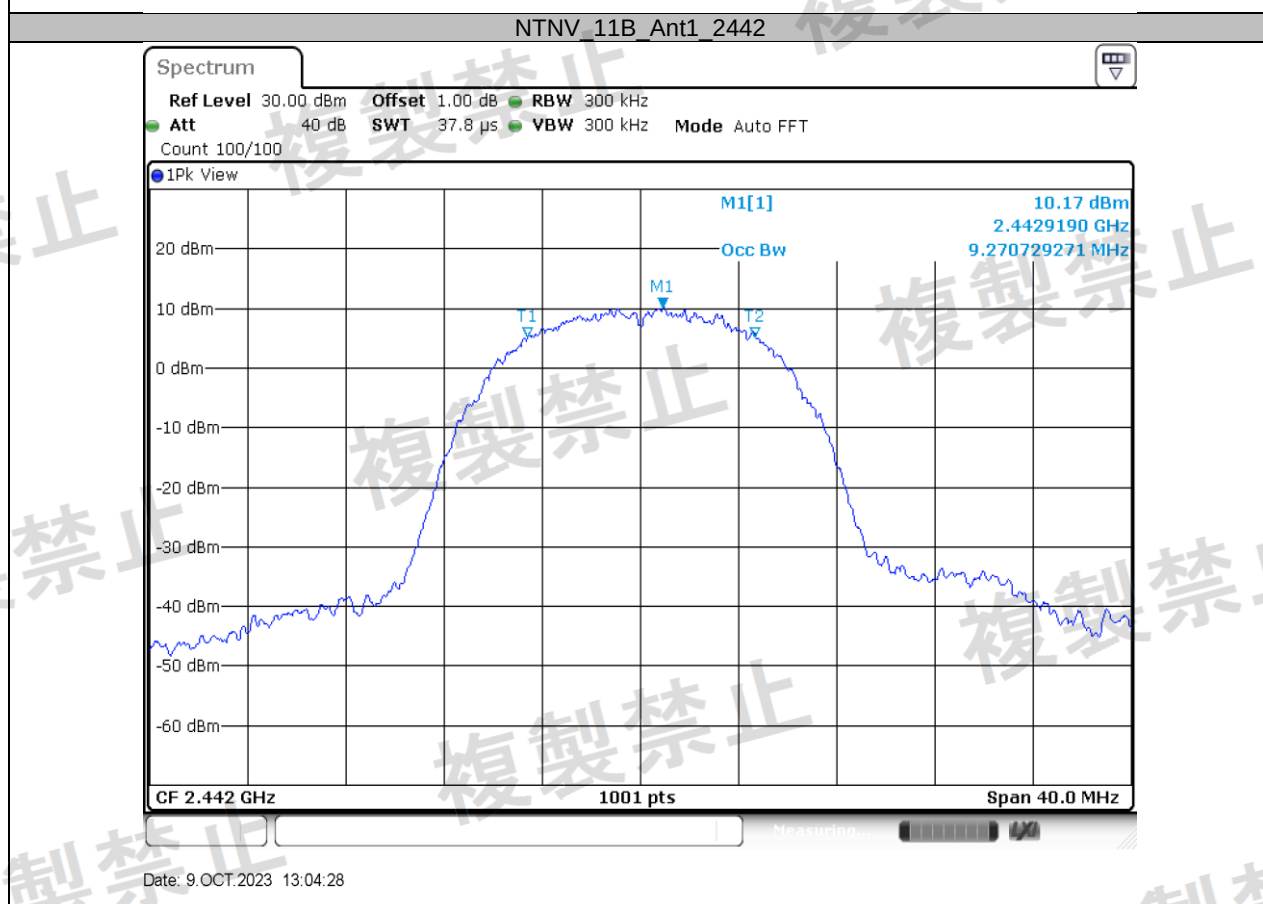
In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5 % of the total mean power radiated; this also applies hereafter)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

#### 3.5.3 Test Result

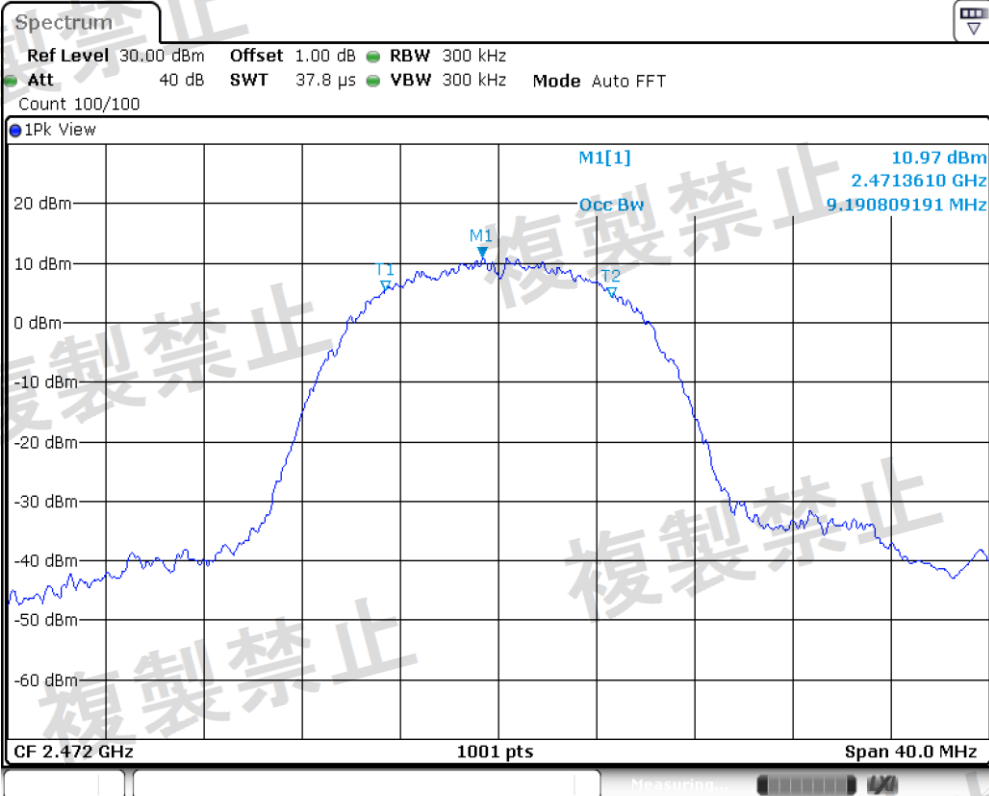
| Modulation | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|------------|----------------------|---------------|--------------|-------------|
| 802.11b    | 2412                 | 3.3           | 9.271        | >0.5        |
|            | 2442                 | 3.3           | 9.271        | >0.5        |
|            | 2472                 | 3.3           | 9.191        | >0.5        |

| Modulation | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|------------|----------------------|---------------|--------------|-------------|
| 802.11b    | 2412                 | 3.0           | 9.231        | >0.5        |
|            | 2442                 | 3.0           | 9.271        | >0.5        |
|            | 2472                 | 3.0           | 9.311        | >0.5        |

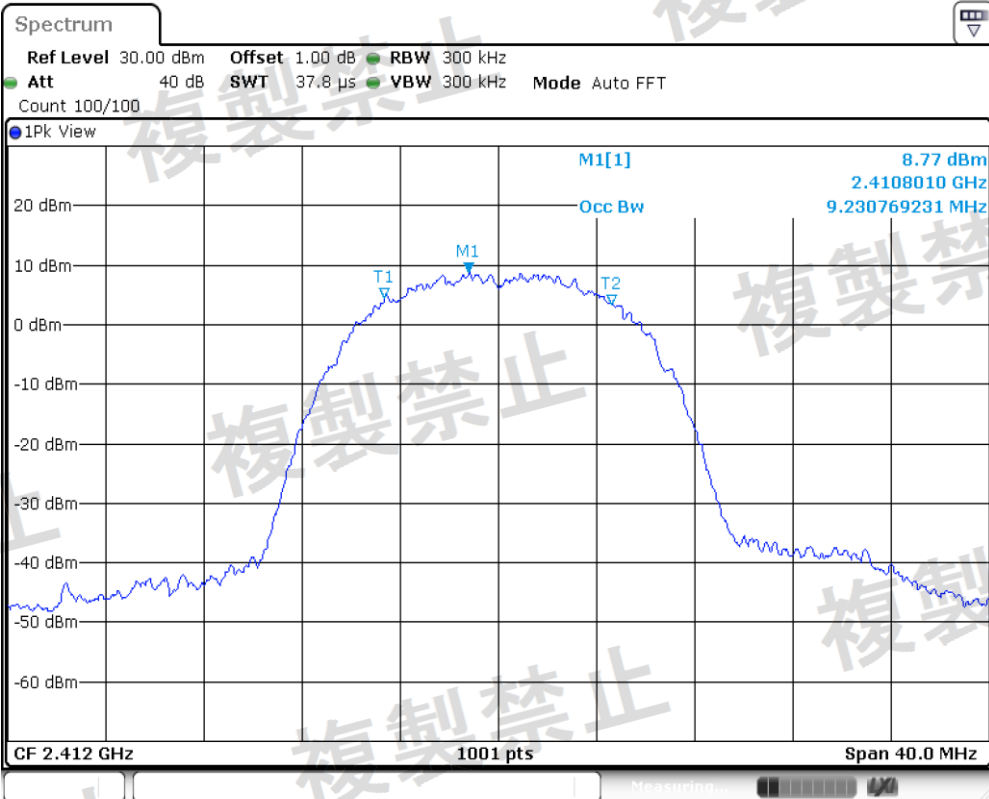
| Modulation | Test Frequency [MHz] | Voltage [VDC] | Result [MHz] | Limit [MHz] |
|------------|----------------------|---------------|--------------|-------------|
| 802.11b    | 2412                 | 3.6           | 9.271        | >0.5        |
|            | 2442                 | 3.6           | 9.231        | >0.5        |
|            | 2472                 | 3.6           | 9.271        | >0.5        |



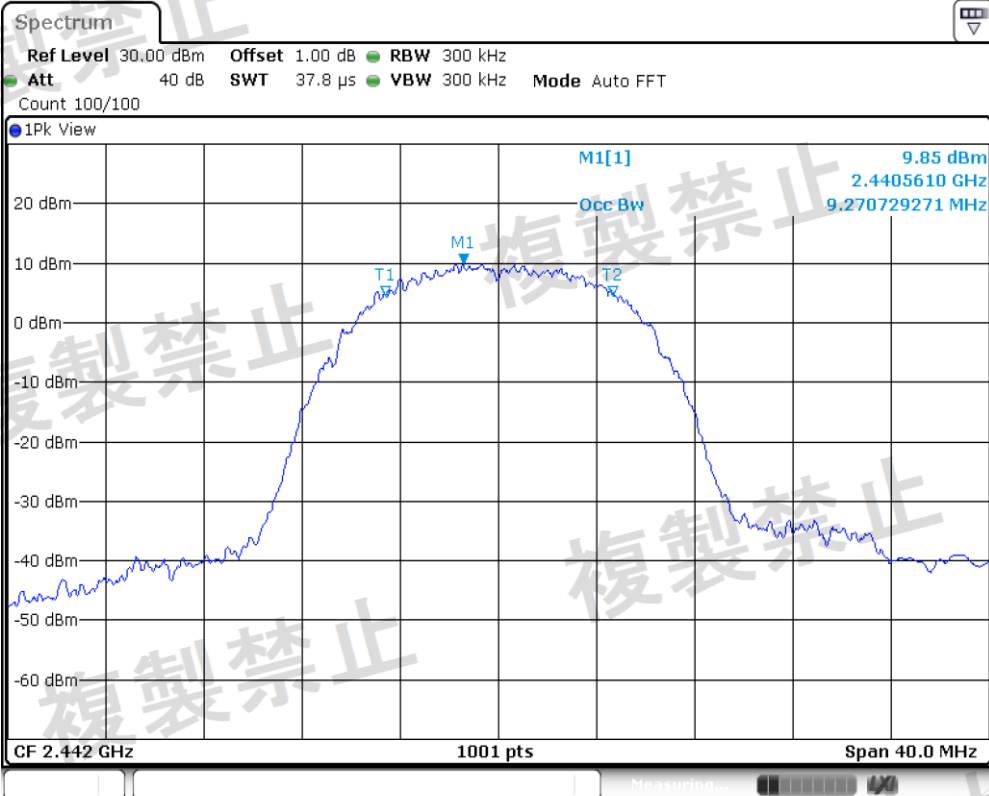
## NTNV\_11B\_Ant1\_2472



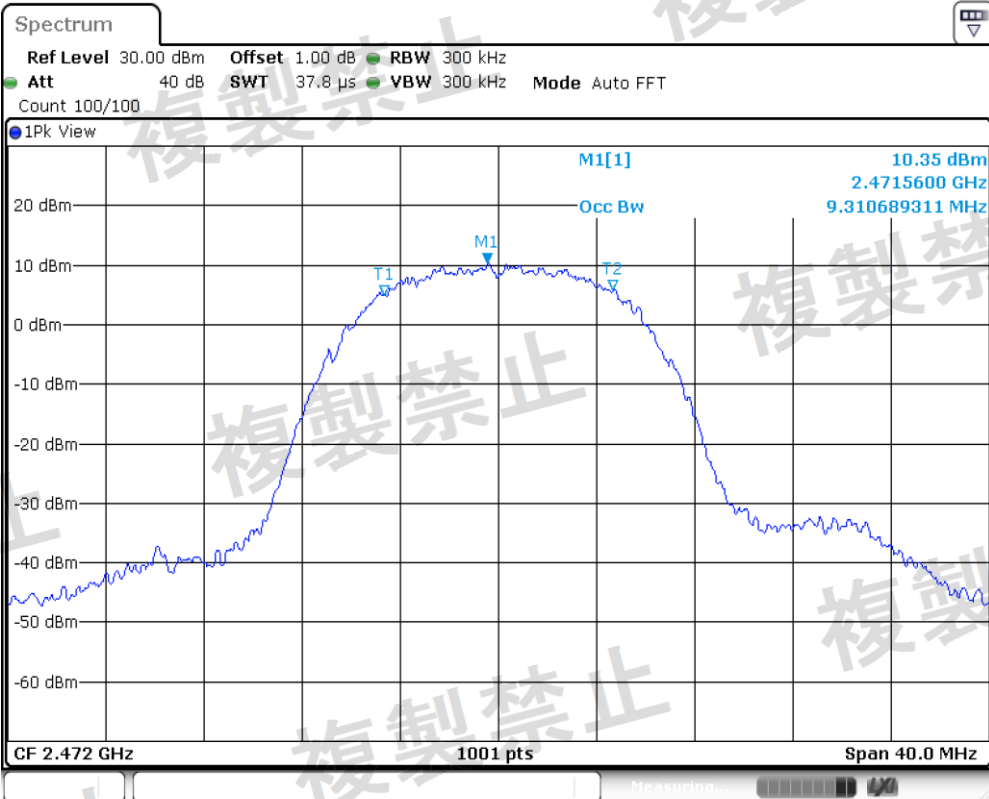
## NTLV\_11B\_Ant1\_2412



## NTLV\_11B\_Ant1\_2442

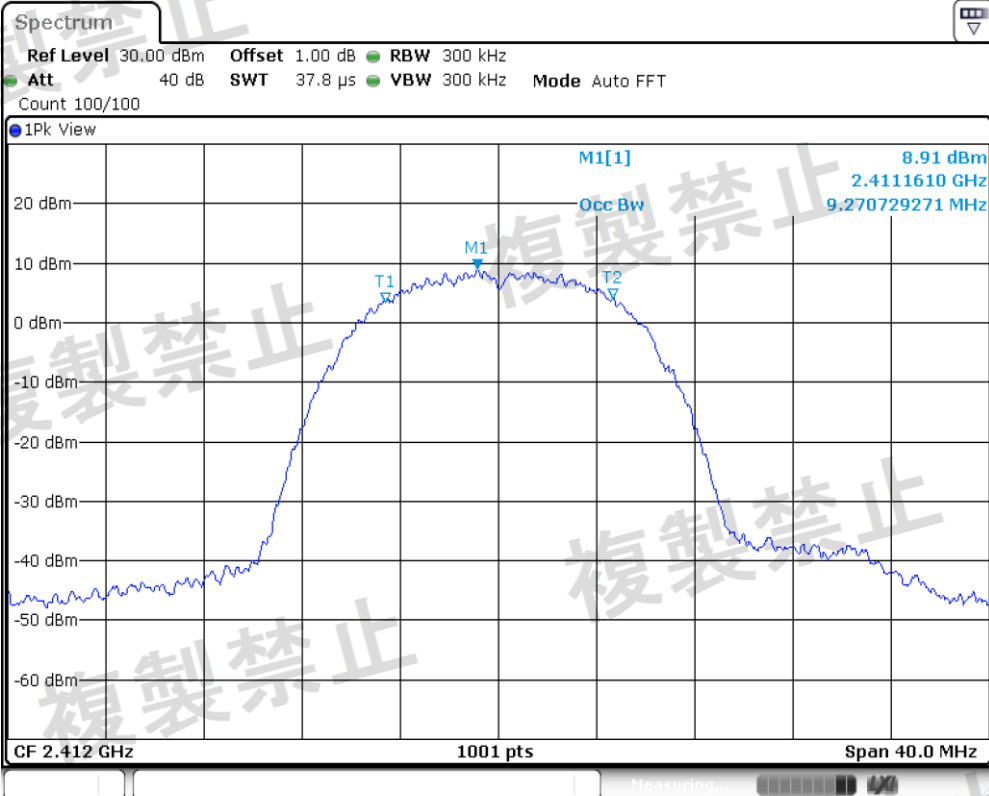


## NTLV\_11B\_Ant1\_2472

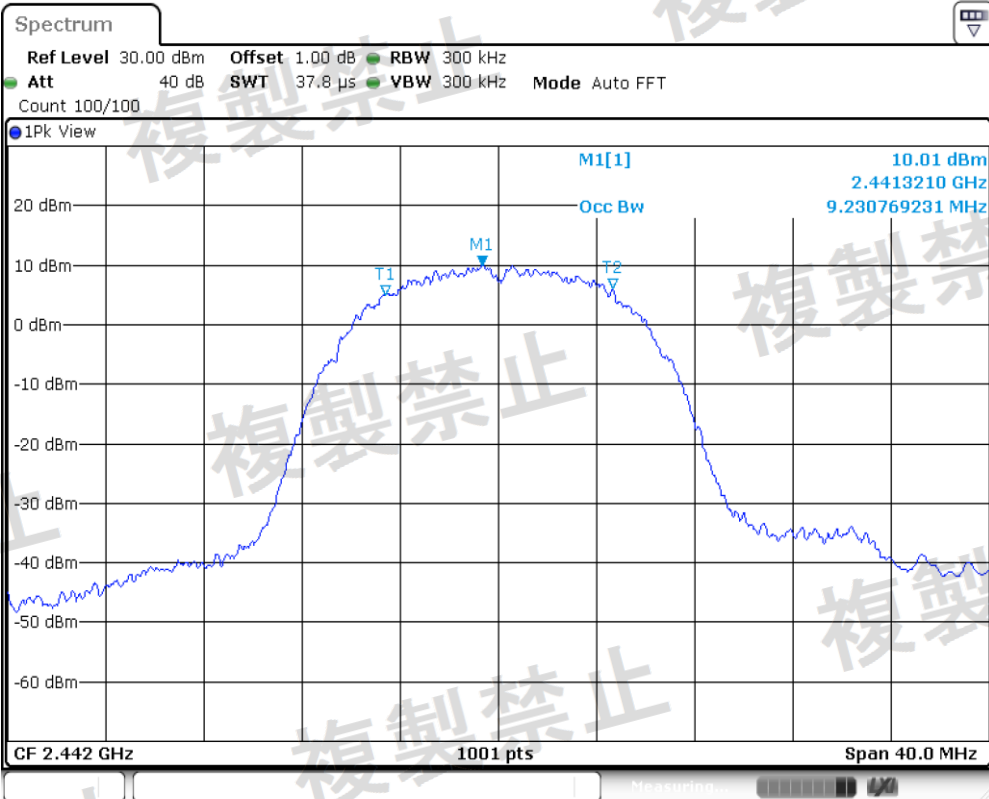


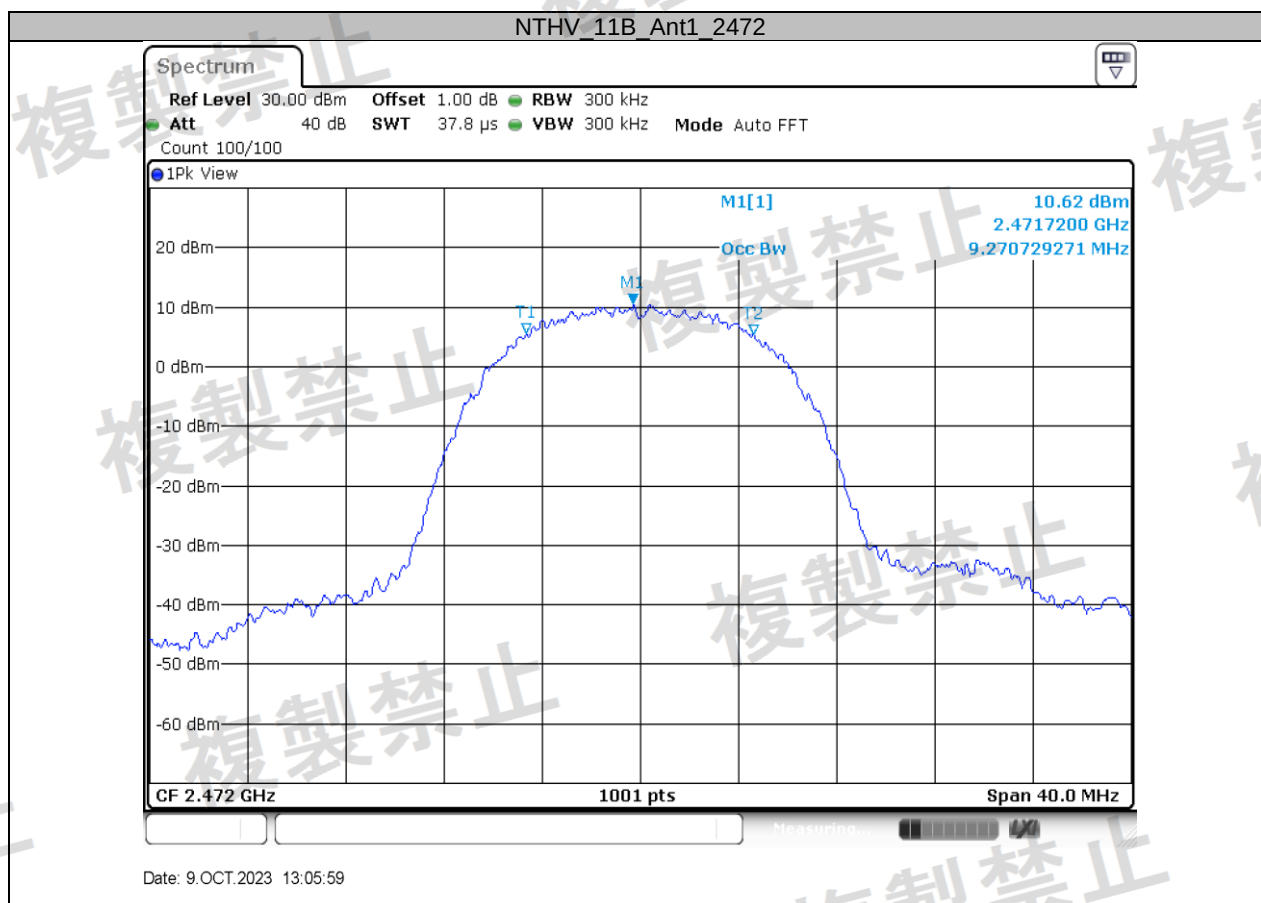


## NTHV\_11B\_Ant1\_2412



## NTHV\_11B\_Ant1\_2442





### 3.5.4 Result

The equipment met the requirement of this clause

### 3.6 Spreading Factor

#### 3.6.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-09                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.6.2 Limit

Process gain (value obtained by dividing the spread bandwidth by a frequency equal to the transmission rate of the modulation signal; this also applies hereafter) in the spread spectrum system shall be 5 or more.

#### 3.6.3 Test Result

| Modulation | Channel [MHz] | Voltage [VDC] | Spread Bandwidth [MHz] | Symbol rate [Mbps] | Result | Limit |
|------------|---------------|---------------|------------------------|--------------------|--------|-------|
| 802.11b    | 2412          | 3.3           | 9.271                  | 1.375              | 6.743  | ≥5    |
|            | 2442          | 3.3           | 9.271                  | 1.375              | 6.743  | ≥5    |
|            | 2472          | 3.3           | 9.191                  | 1.375              | 6.684  | ≥5    |

| Modulation | Channel [MHz] | Voltage [VDC] | Spread Bandwidth [MHz] | Symbol rate [Mbps] | Result | Limit |
|------------|---------------|---------------|------------------------|--------------------|--------|-------|
| 802.11b    | 2412          | 3.0           | 9.231                  | 1.375              | 6.713  | ≥5    |
|            | 2442          | 3.0           | 9.271                  | 1.375              | 6.743  | ≥5    |
|            | 2472          | 3.0           | 9.311                  | 1.375              | 6.772  | ≥5    |

| Modulation | Channel [MHz] | Voltage [VDC] | Spread Bandwidth [MHz] | Symbol rate [Mbps] | Result | Limit |
|------------|---------------|---------------|------------------------|--------------------|--------|-------|
| 802.11b    | 2412          | 3.6           | 9.271                  | 1.375              | 6.743  | ≥5    |
|            | 2442          | 3.6           | 9.231                  | 1.375              | 6.713  | ≥5    |
|            | 2472          | 3.6           | 9.271                  | 1.375              | 6.743  | ≥5    |

#### 3.6.4 Result

The equipment met the requirement of this clause.

### 3.7 Unwanted (Spurious) Emissions Strength

#### 3.7.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-09                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.7.2 Limit

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.

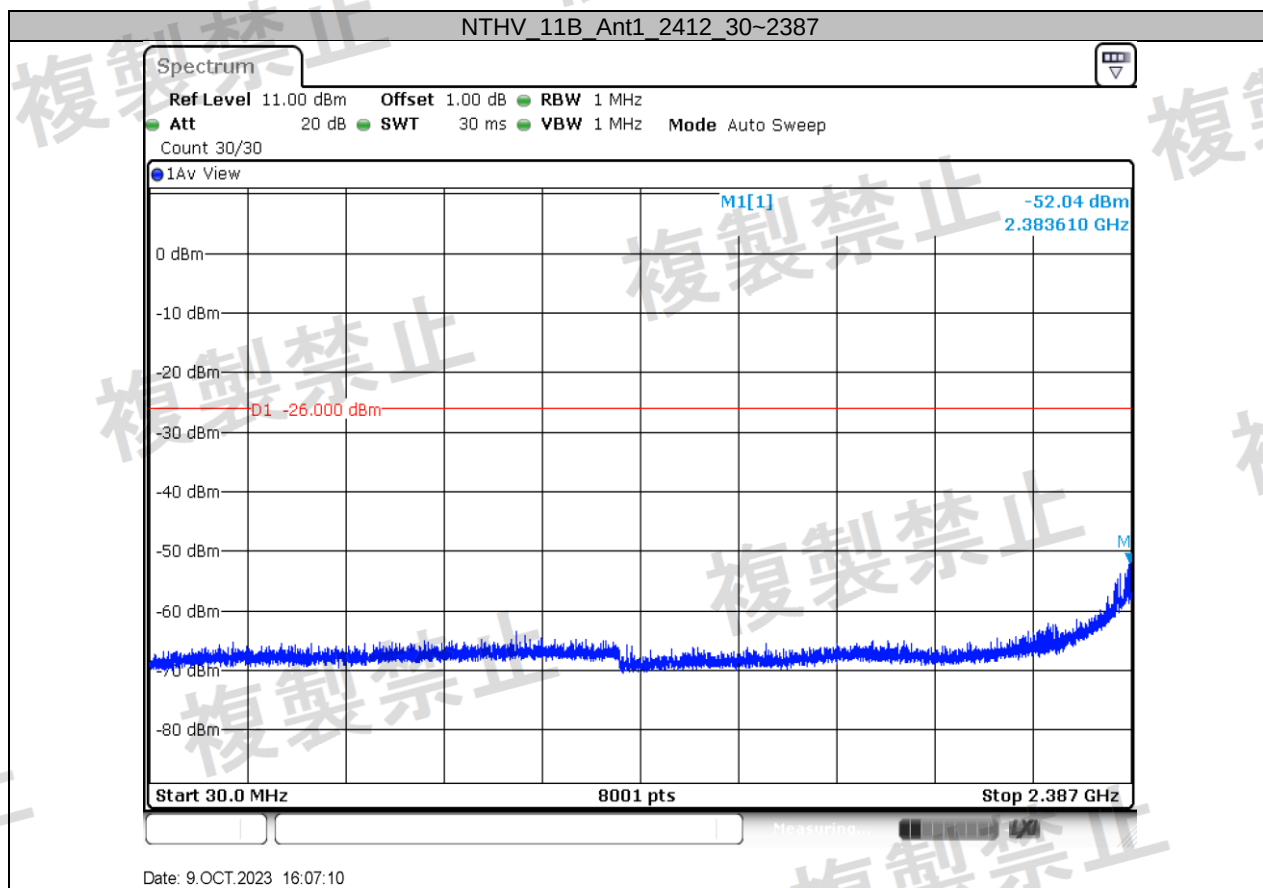
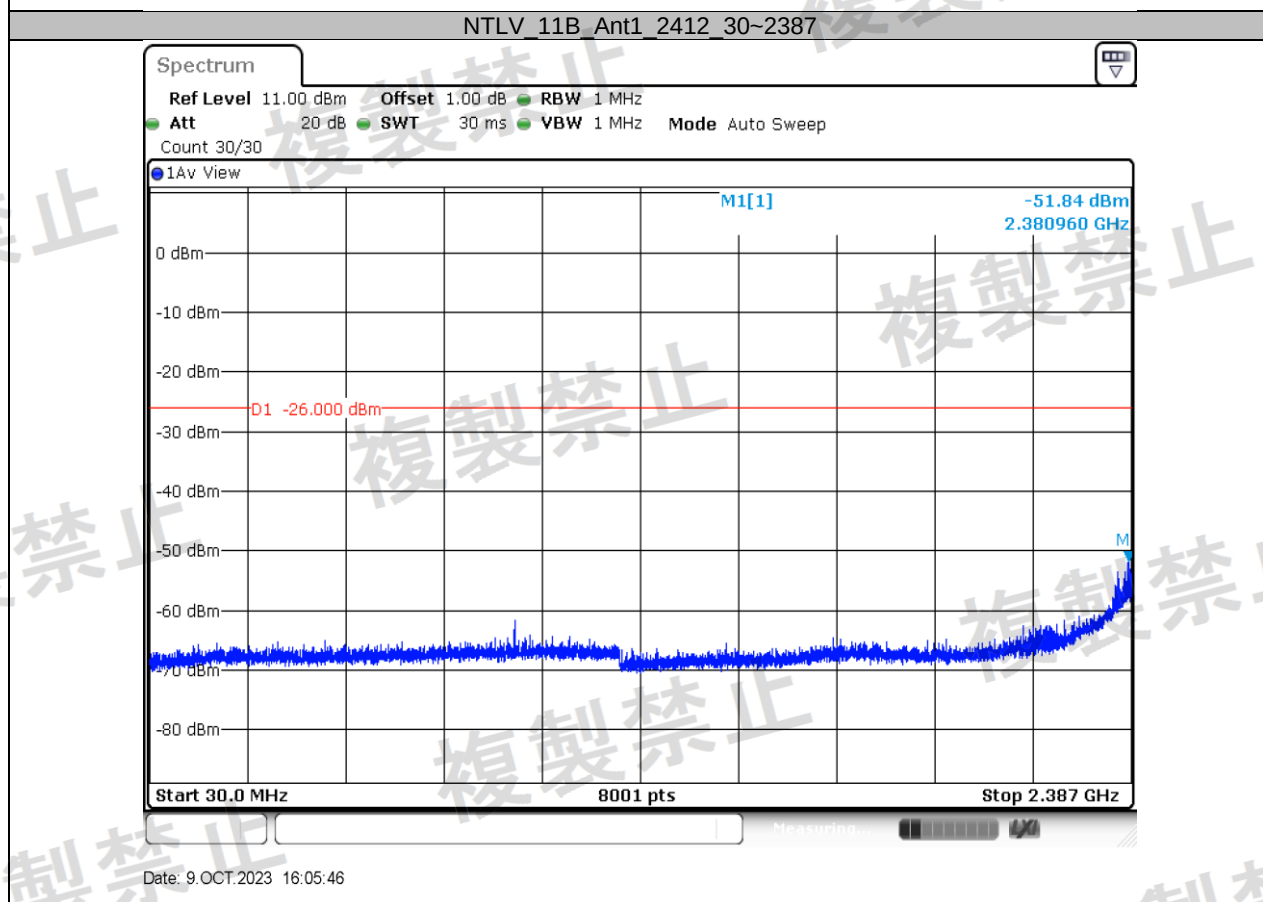
#### 3.7.3 Test Result

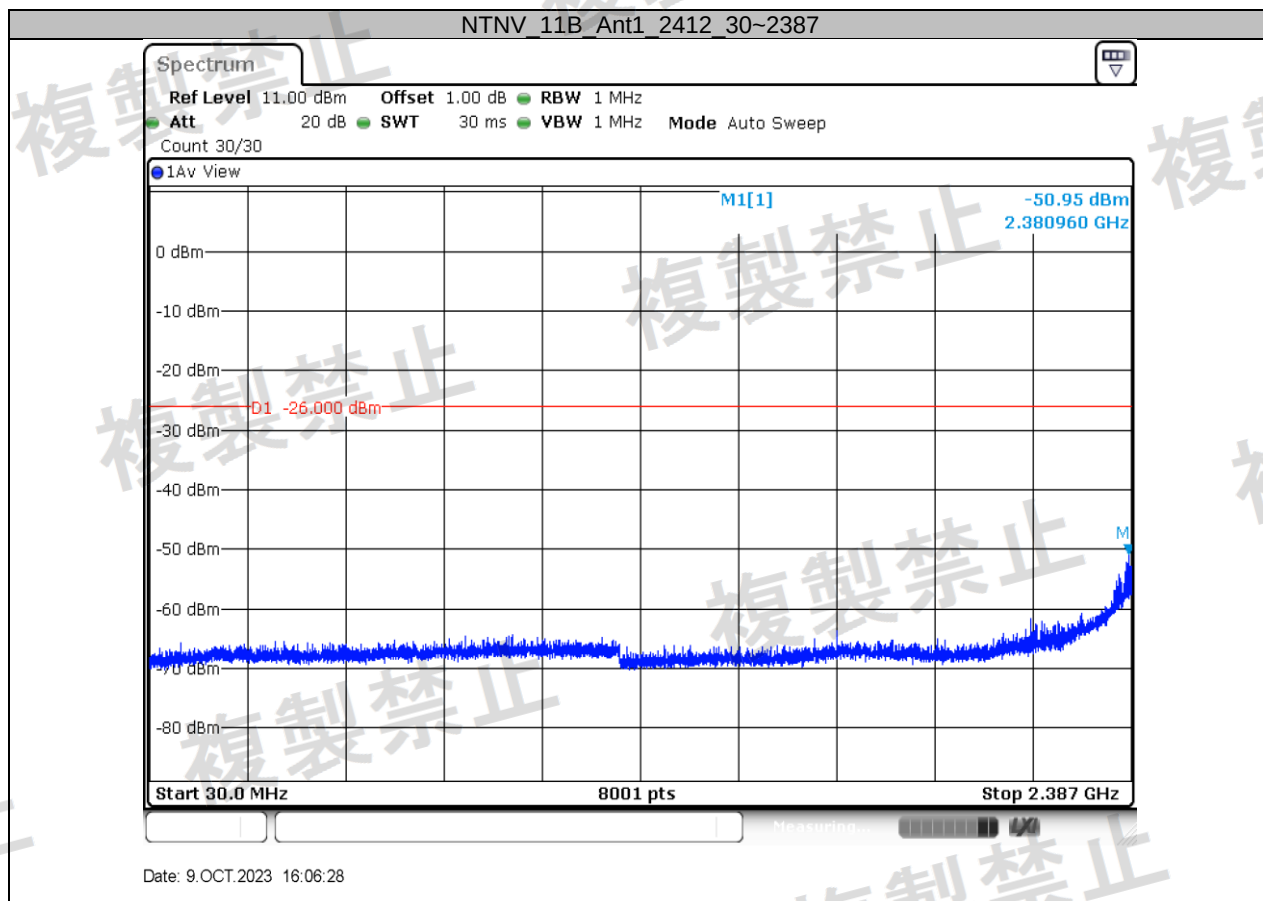
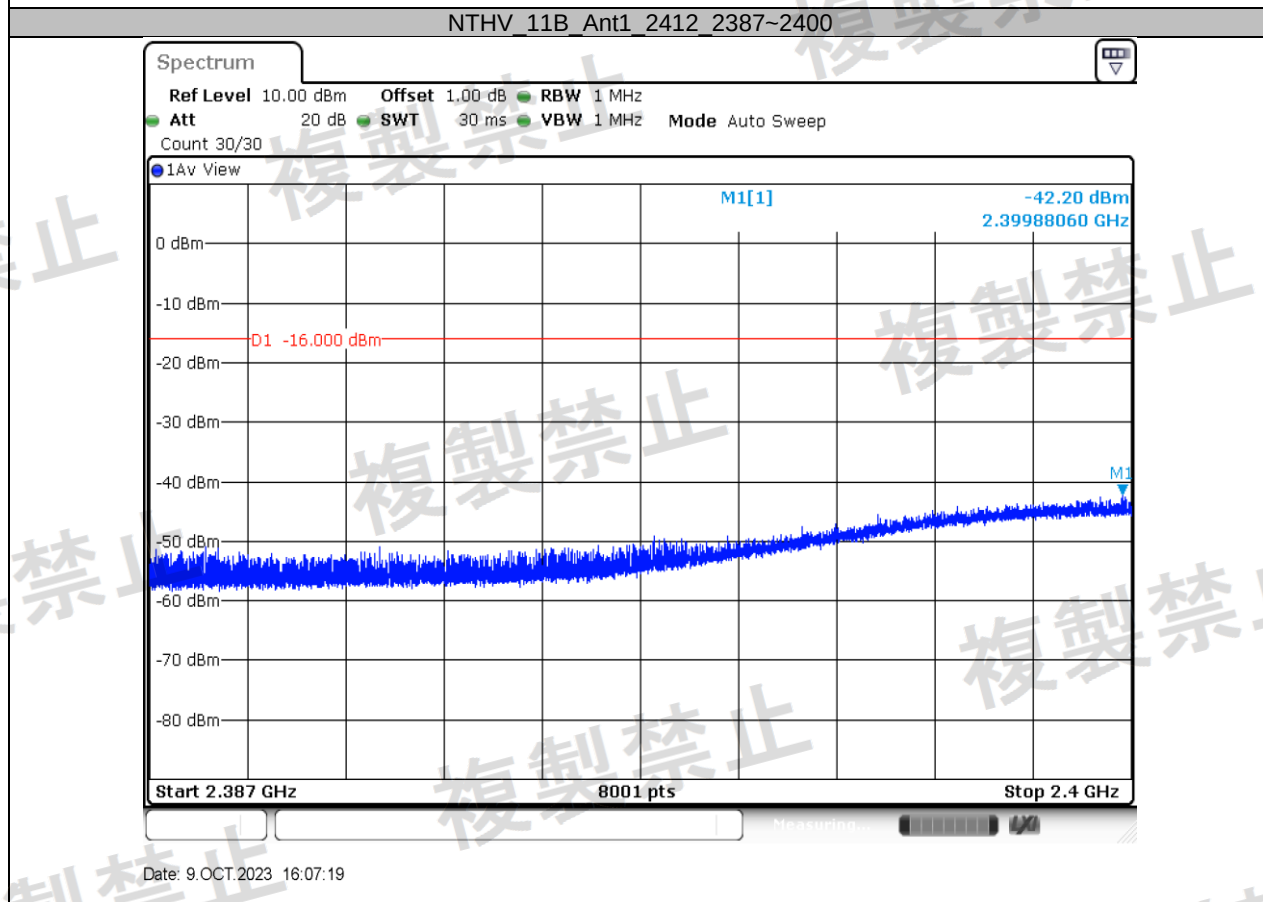
| Test Condition | Test Mode | Antenna | Channel [MHz] | Freq.Range [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|----------------|-----------|---------|---------------|------------------|--------------|-------------|---------|
| NTHV           | 11B       | Ant1    | 2412          | 30~2387          | -52.04       | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2412          | 30~2387          | -51.84       | $\leq -26$  | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 30~2387          | -50.95       | $\leq -26$  | PASS    |
| NTHV           | 11B       | Ant1    | 2412          | 2387~2400        | -42.2        | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 2387~2400        | -42.25       | $\leq -16$  | PASS    |
| NTLV           | 11B       | Ant1    | 2412          | 2387~2400        | -42.86       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 2483.5~2496.5    | -51.75       | $\leq -16$  | PASS    |
| NTLV           | 11B       | Ant1    | 2412          | 2483.5~2496.5    | -51.48       | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2412          | 2483.5~2496.5    | -51.31       | $\leq -16$  | PASS    |
| NTLV           | 11B       | Ant1    | 2412          | 2496.5~13000     | -33.05       | $\leq -26$  | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 2496.5~13000     | -33.43       | $\leq -26$  | PASS    |
| NTHV           | 11B       | Ant1    | 2412          | 2496.5~13000     | -33.68       | $\leq -26$  | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 30~2387          | -53.06       | $\leq -26$  | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 30~2387          | -53.58       | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2442          | 30~2387          | -53.54       | $\leq -26$  | PASS    |
|                |           |         |               | 2387~2400        | -52.11       | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 2387~2400        | -51.78       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 2387~2400        | -52.22       | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 2483.5~2496.5    | -46.74       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 2483.5~2496.5    | -46.92       | $\leq -16$  | PASS    |
| NTLV           | 11B       | Ant1    | 2442          | 2483.5~2496.5    | -46.76       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 2496.5~13000     | -34.48       | $\leq -26$  | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 2496.5~13000     | -34.3        | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2442          | 2496.5~13000     | -34.1        | $\leq -26$  | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 30~2387          | -58.15       | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 30~2387          | -57.65       | $\leq -26$  | PASS    |
| NTNV           | 11B       | Ant1    | 2472          | 30~2387          | -58.06       | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 2387~2400        | -55.45       | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 2387~2400        | -55.38       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2472          | 2387~2400        | -56.06       | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 2483.5~2496.5    | -30.94       | $\leq -16$  | PASS    |
| NTNV           | 11B       | Ant1    | 2472          | 2483.5~2496.5    | -31.33       | $\leq -16$  | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 2483.5~2496.5    | -31.3        | $\leq -16$  | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 2496.5~13000     | -34.22       | $\leq -26$  | PASS    |
| NTNV           | 11B       | Ant1    | 2472          | 2496.5~13000     | -33.73       | $\leq -26$  | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 2496.5~13000     | -34.07       | $\leq -26$  | PASS    |
|                | 11G       | Ant1    | 2412          | 30~2387          | -51.29       | $\leq -26$  | PASS    |
| NTHV           | 11G       | Ant1    | 2412          | 30~2387          | -50.53       | $\leq -26$  | PASS    |
| NTNV           | 11G       | Ant1    | 2412          | 30~2387          | -50.83       | $\leq -26$  | PASS    |
|                |           |         |               | 2387~2400        | -34.83       | $\leq -16$  | PASS    |
| NTLV           | 11G       | Ant1    | 2412          | 2387~2400        | -34.72       | $\leq -16$  | PASS    |

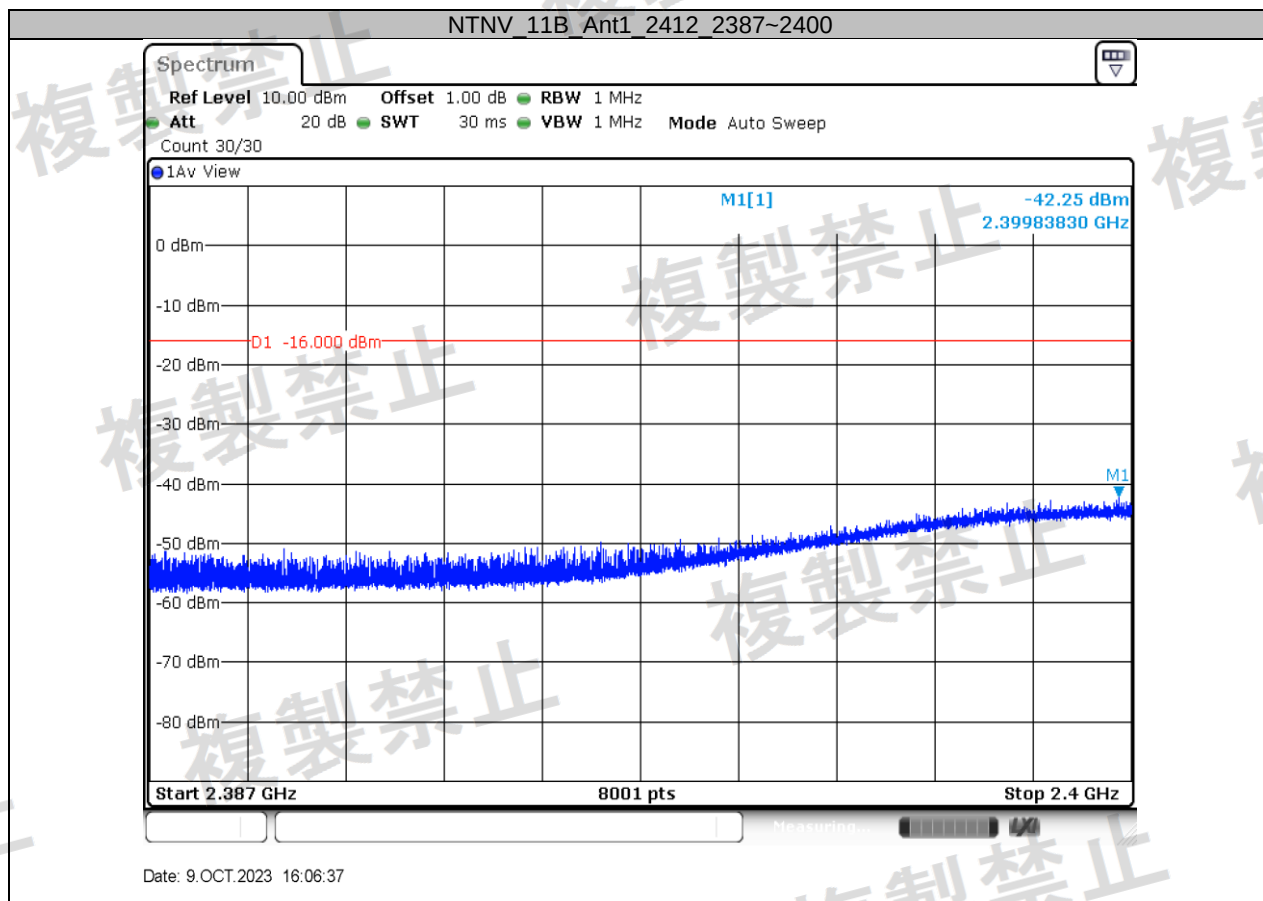
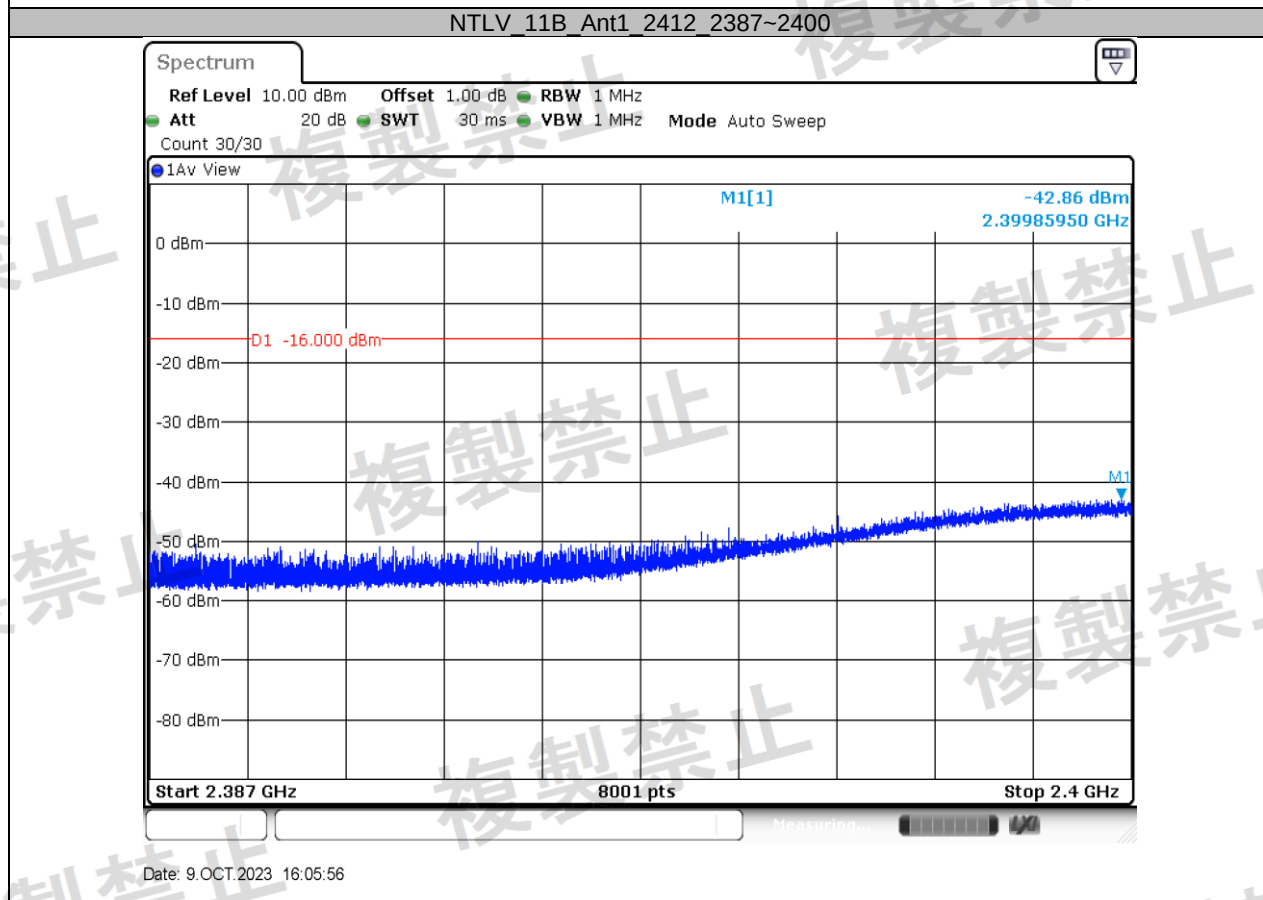


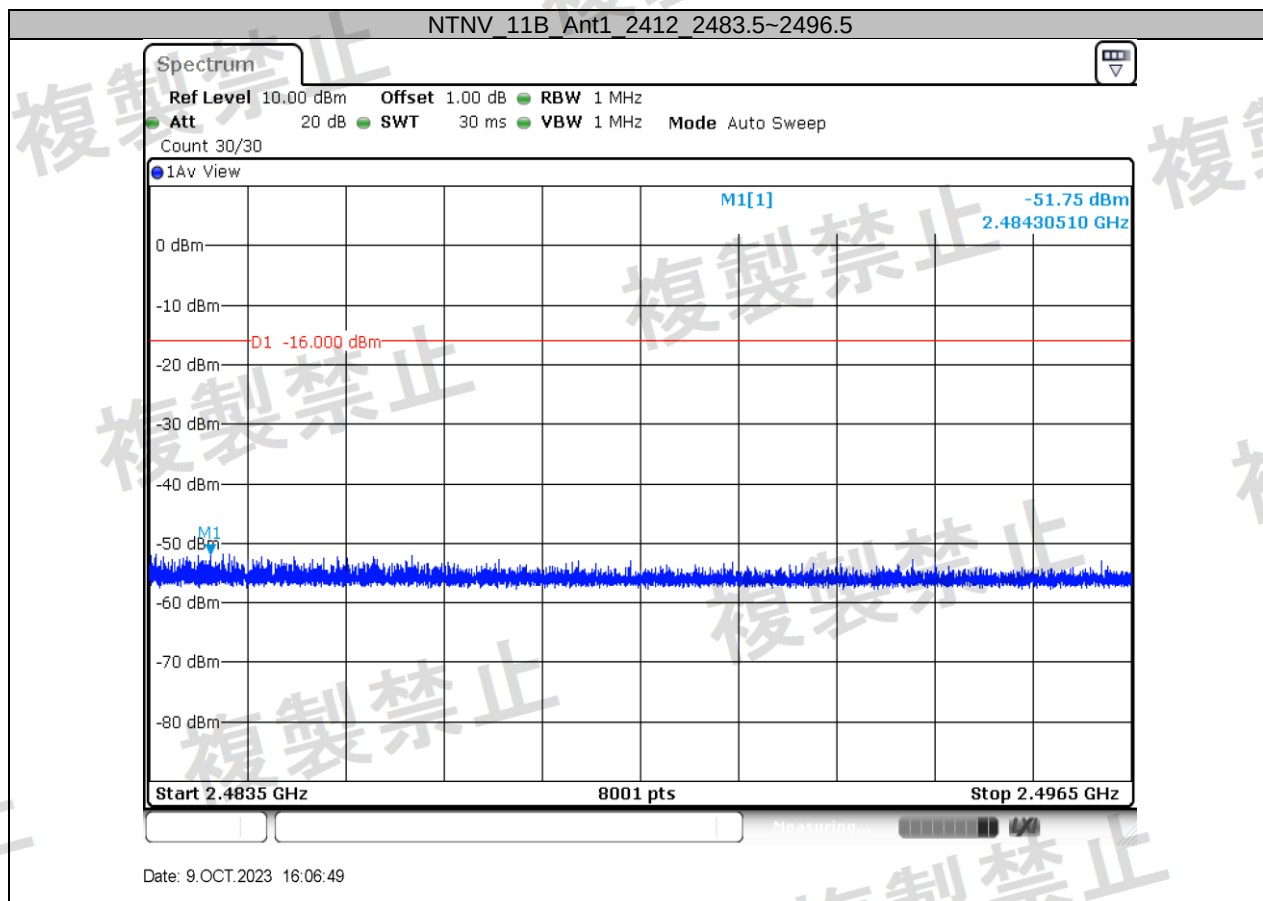
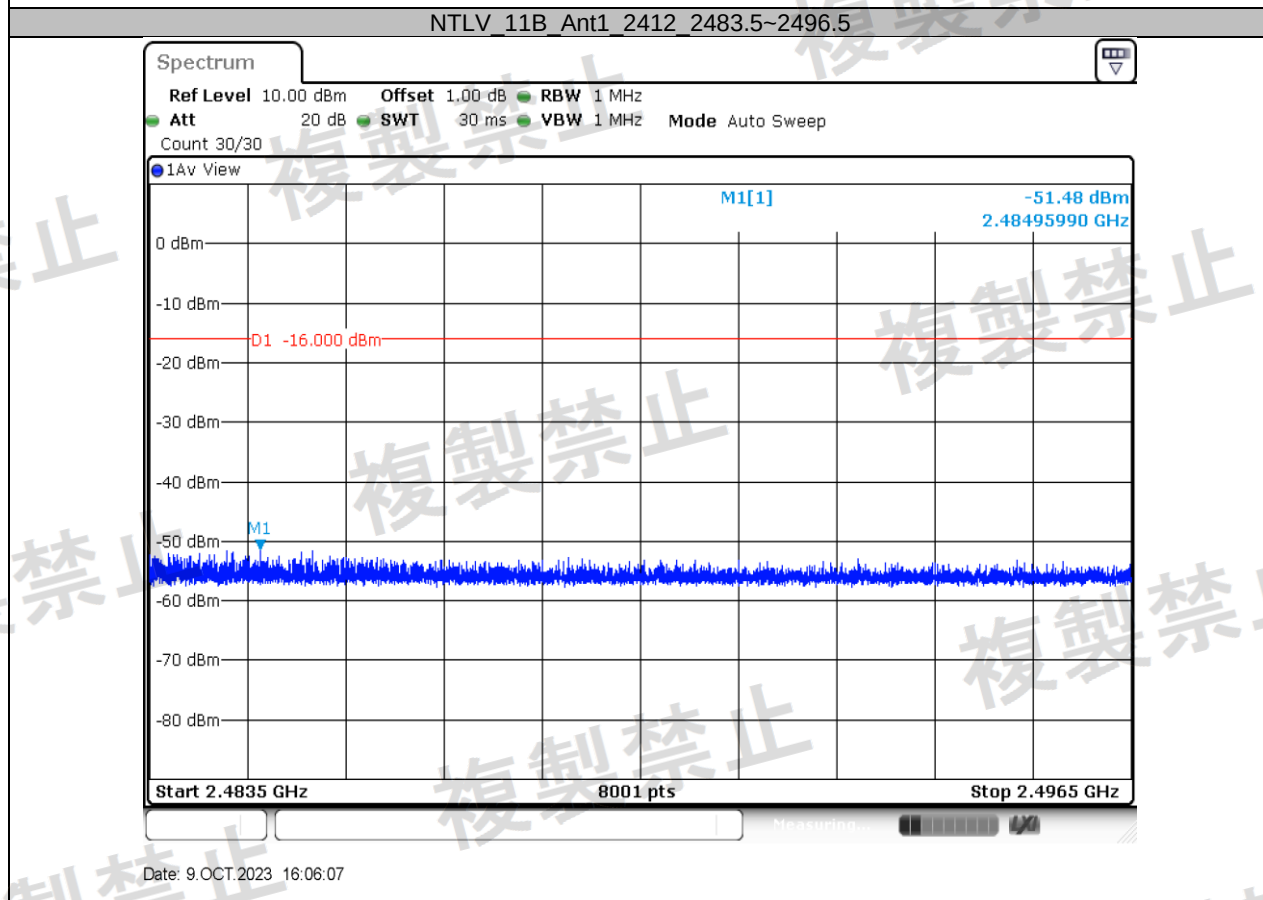
|      |           |      |      |               |        |       |      |
|------|-----------|------|------|---------------|--------|-------|------|
| NTHV | 11G       | Ant1 | 2412 | 2387~2400     | -34.98 | <=-16 | PASS |
|      |           |      |      | 2483.5~2496.5 | -50.63 | <=-16 | PASS |
| NTNV | 11G       | Ant1 | 2412 | 2483.5~2496.5 | -51.07 | <=-16 | PASS |
|      |           |      |      | 2483.5~2496.5 | -50.85 | <=-16 | PASS |
| NTLV | 11G       | Ant1 | 2412 | 2496.5~13000  | -46.11 | <=-26 | PASS |
|      |           |      |      | 2496.5~13000  | -46.01 | <=-26 | PASS |
| NTHV | 11G       | Ant1 | 2412 | 2496.5~13000  | -45.08 | <=-26 | PASS |
| NTNV | 11G       | Ant1 | 2412 | 2496.5~13000  | -45.08 | <=-26 | PASS |
| NTLV | 11G       | Ant1 | 2442 | 30~2387       | -54.06 | <=-26 | PASS |
| NTNV | 11G       | Ant1 | 2442 | 30~2387       | -53.9  | <=-26 | PASS |
| NTHV | 11G       | Ant1 | 2442 | 30~2387       | -54.56 | <=-26 | PASS |
| NTNV | 11G       | Ant1 | 2442 | 2387~2400     | -49.75 | <=-16 | PASS |
| NTLV | 11G       | Ant1 | 2442 | 2387~2400     | -50.15 | <=-16 | PASS |
| NTHV | 11G       | Ant1 | 2442 | 2387~2400     | -49.17 | <=-16 | PASS |
| NTLV | 11G       | Ant1 | 2442 | 2483.5~2496.5 | -47.05 | <=-16 | PASS |
| NTHV | 11G       | Ant1 | 2442 | 2483.5~2496.5 | -47.06 | <=-16 | PASS |
| NTNV | 11G       | Ant1 | 2442 | 2483.5~2496.5 | -46.91 | <=-16 | PASS |
|      |           |      |      | 2496.5~13000  | -46.85 | <=-26 | PASS |
| NTLV | 11G       | Ant1 | 2442 | 2496.5~13000  | -47.01 | <=-26 | PASS |
| NTHV | 11G       | Ant1 | 2442 | 2496.5~13000  | -44.25 | <=-26 | PASS |
| NTNV | 11G       | Ant1 | 2472 | 30~2387       | -57.03 | <=-26 | PASS |
| NTLV | 11G       | Ant1 | 2472 | 30~2387       | -58.44 | <=-26 | PASS |
| NTHV | 11G       | Ant1 | 2472 | 30~2387       | -57.15 | <=-26 | PASS |
|      |           |      |      | 2387~2400     | -53.27 | <=-16 | PASS |
| NTNV | 11G       | Ant1 | 2472 | 2387~2400     | -53.75 | <=-16 | PASS |
| NTLV | 11G       | Ant1 | 2472 | 2387~2400     | -53.7  | <=-16 | PASS |
|      |           |      |      | 2483.5~2496.5 | -27.32 | <=-16 | PASS |
| NTHV | 11G       | Ant1 | 2472 | 2483.5~2496.5 | -27.8  | <=-16 | PASS |
| NTNV | 11G       | Ant1 | 2472 | 2483.5~2496.5 | -27.03 | <=-16 | PASS |
|      |           |      |      | 2496.5~13000  | -44.95 | <=-26 | PASS |
| NTLV | 11G       | Ant1 | 2472 | 2496.5~13000  | -42.27 | <=-26 | PASS |
| NTHV | 11G       | Ant1 | 2472 | 2496.5~13000  | -43.2  | <=-26 | PASS |
|      |           |      |      | 2496.5~13000  | -43.2  | <=-26 | PASS |
| NTNV | 11N20SISO | Ant1 | 2412 | 30~2387       | -51.56 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2412 | 30~2387       | -49.51 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2412 | 30~2387       | -50.99 | <=-26 | PASS |
| NTHV | 11N20SISO | Ant1 | 2412 | 2387~2400     | -34.58 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2412 | 2387~2400     | -34.75 | <=-16 | PASS |
| NTLV | 11N20SISO | Ant1 | 2412 | 2387~2400     | -35.51 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2412 | 2483.5~2496.5 | -51.05 | <=-16 | PASS |
| NTLV | 11N20SISO | Ant1 | 2412 | 2483.5~2496.5 | -50.79 | <=-16 | PASS |
| NTHV | 11N20SISO | Ant1 | 2412 | 2483.5~2496.5 | -50.77 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2412 | 2496.5~13000  | -46.72 | <=-26 | PASS |
| NTHV | 11N20SISO | Ant1 | 2412 | 2496.5~13000  | -46.08 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2412 | 2496.5~13000  | -45.33 | <=-26 | PASS |
| NTHV | 11N20SISO | Ant1 | 2442 | 30~2387       | -54.85 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 30~2387       | -54.22 | <=-26 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 30~2387       | -53.7  | <=-26 | PASS |
| NTHV | 11N20SISO | Ant1 | 2442 | 2387~2400     | -50.08 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 2387~2400     | -49.71 | <=-16 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 2387~2400     | -49.77 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 2483.5~2496.5 | -46.85 | <=-16 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 2483.5~2496.5 | -46.61 | <=-16 | PASS |
| NTHV | 11N20SISO | Ant1 | 2442 | 2483.5~2496.5 | -46.88 | <=-16 | PASS |
|      |           |      |      | 2496.5~13000  | -47.29 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 2496.5~13000  | -45.27 | <=-26 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 2496.5~13000  | -45.93 | <=-26 | PASS |
| NTLV | 11N20SISO | Ant1 | 2472 | 30~2387       | -57.99 | <=-26 | PASS |
| NTNV | 11N20SISO | Ant1 | 2472 | 30~2387       | -58.2  | <=-26 | PASS |
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| NTNV | 11N20SISO | Ant1 | 2472 | 2387~2400     | -53.42 | <=-16 | PASS |
| NTHV | 11N20SISO | Ant1 | 2472 | 2483.5~2496.5 | -26.85 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2472 | 2483.5~2496.5 | -27.73 | <=-16 | PASS |
| NTLV | 11N20SISO | Ant1 | 2472 | 2483.5~2496.5 | -27.62 | <=-16 | PASS |
| NTNV | 11N20SISO | Ant1 | 2472 | 2496.5~13000  | -42.89 | <=-26 | PASS |
| NTHV | 11N20SISO | Ant1 | 2472 | 2496.5~13000  | -43.96 | <=-26 | PASS |
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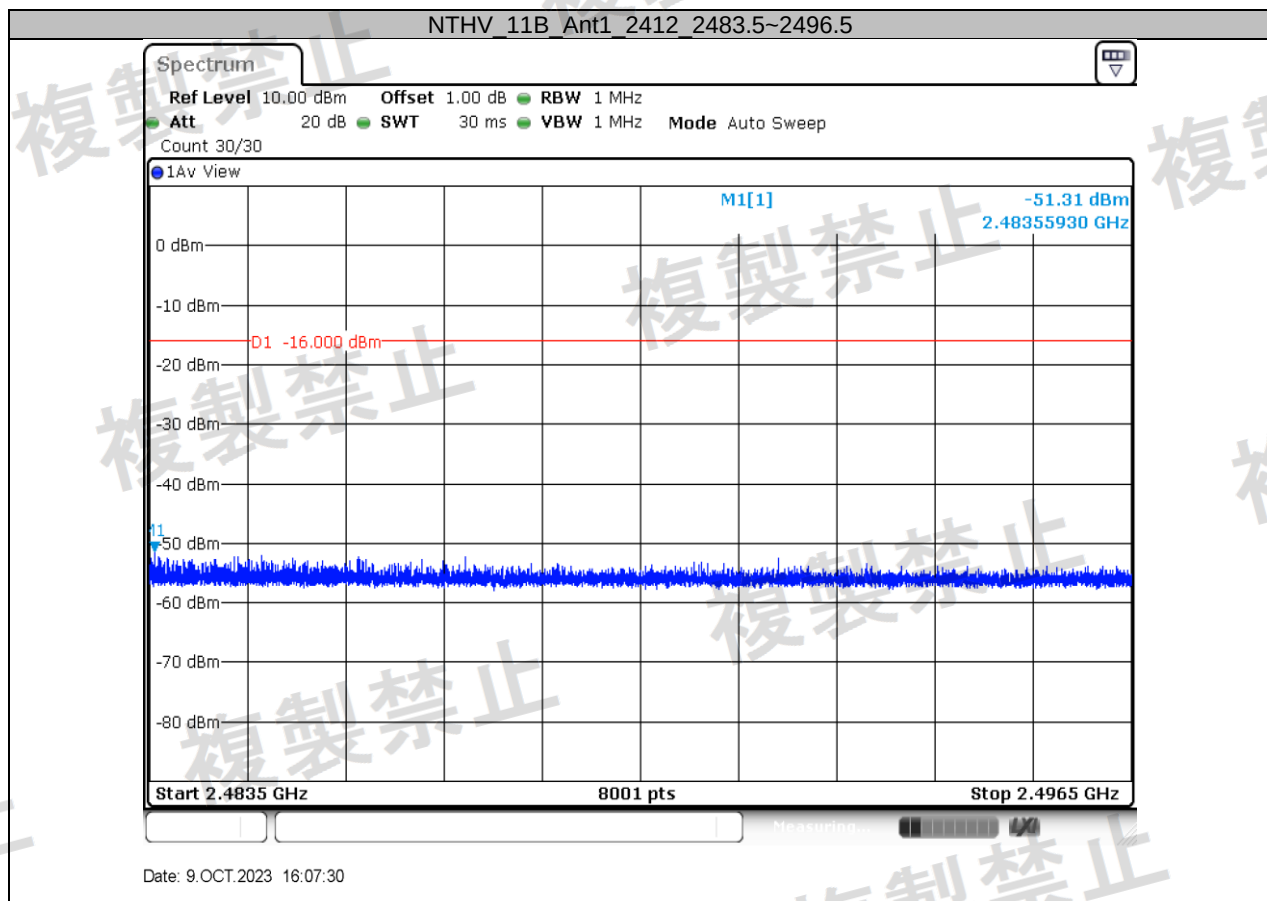
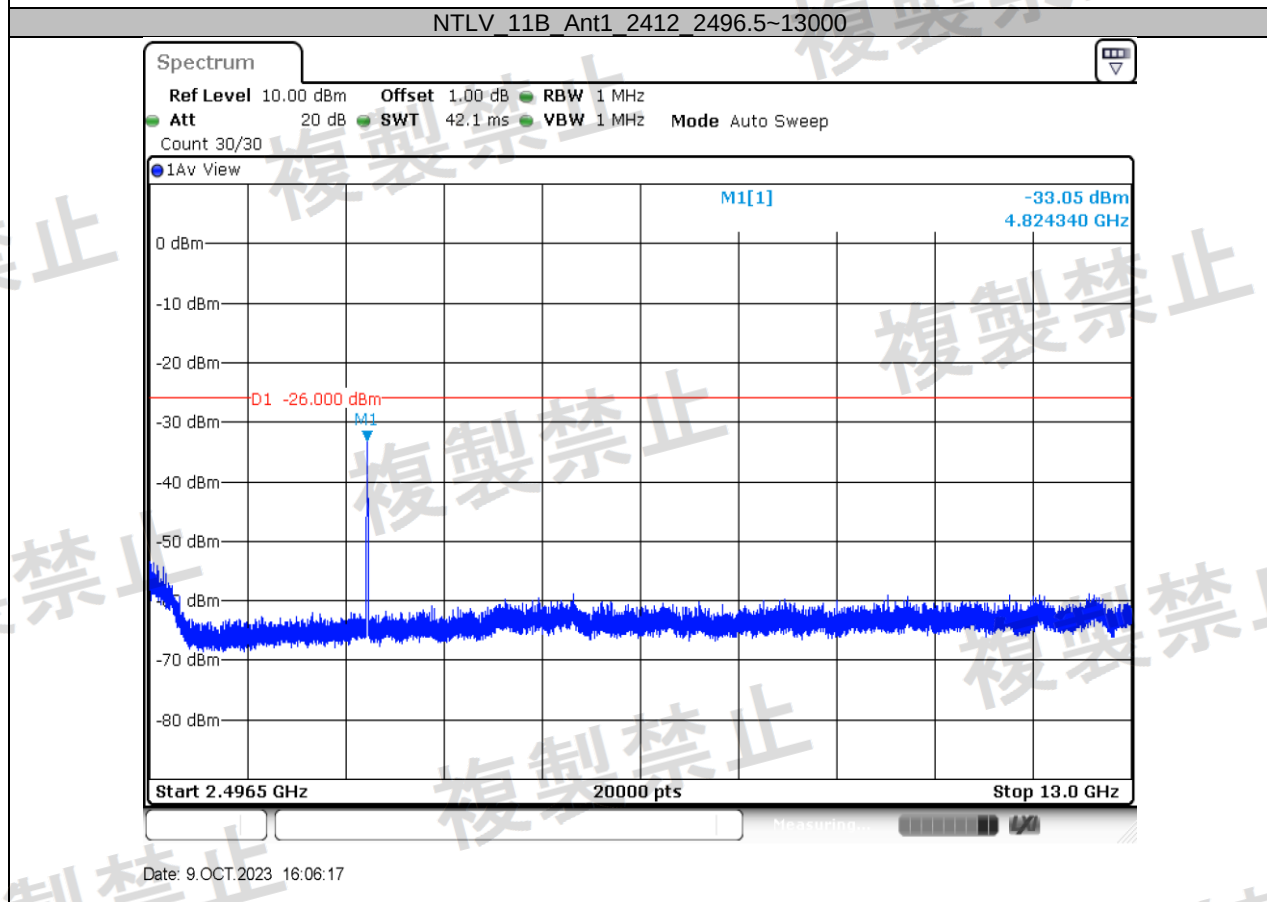




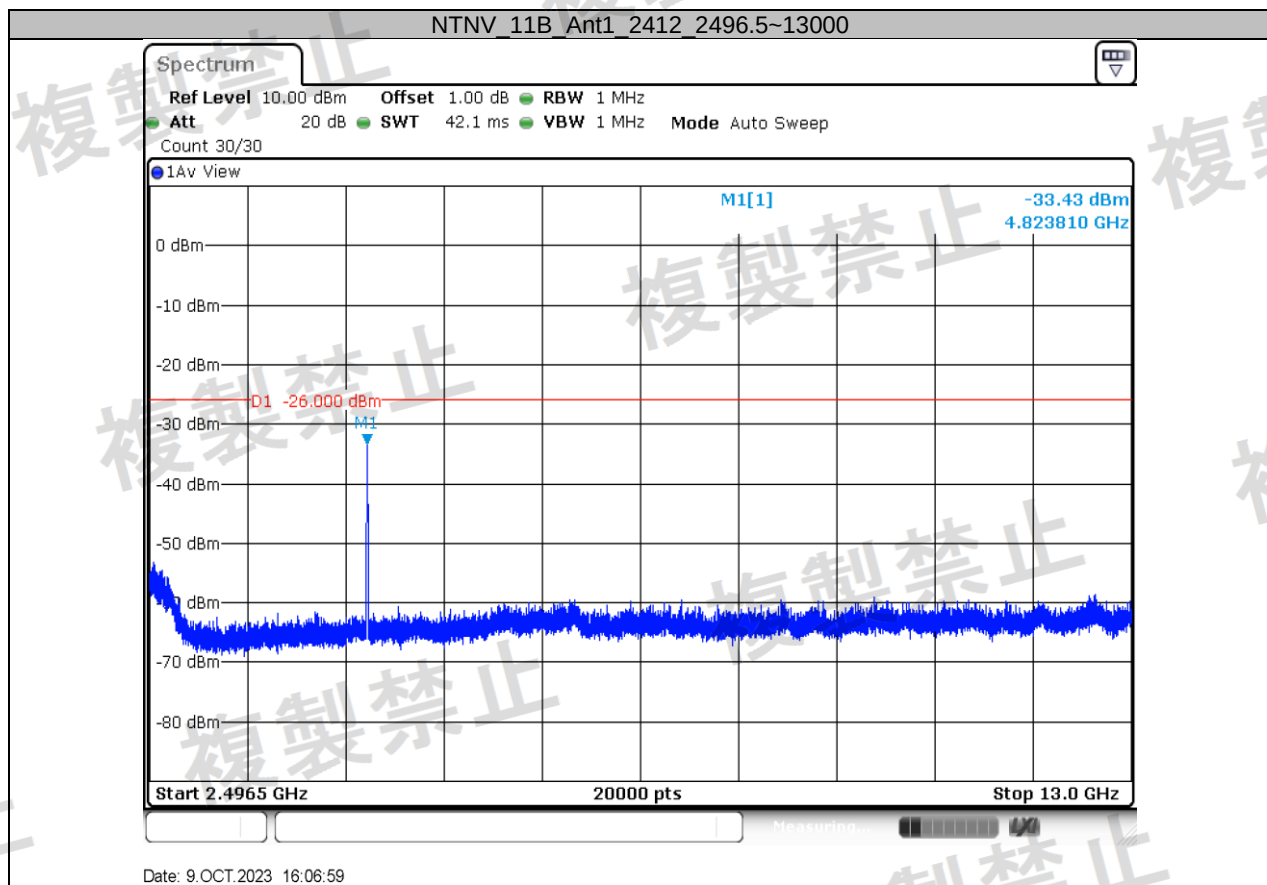
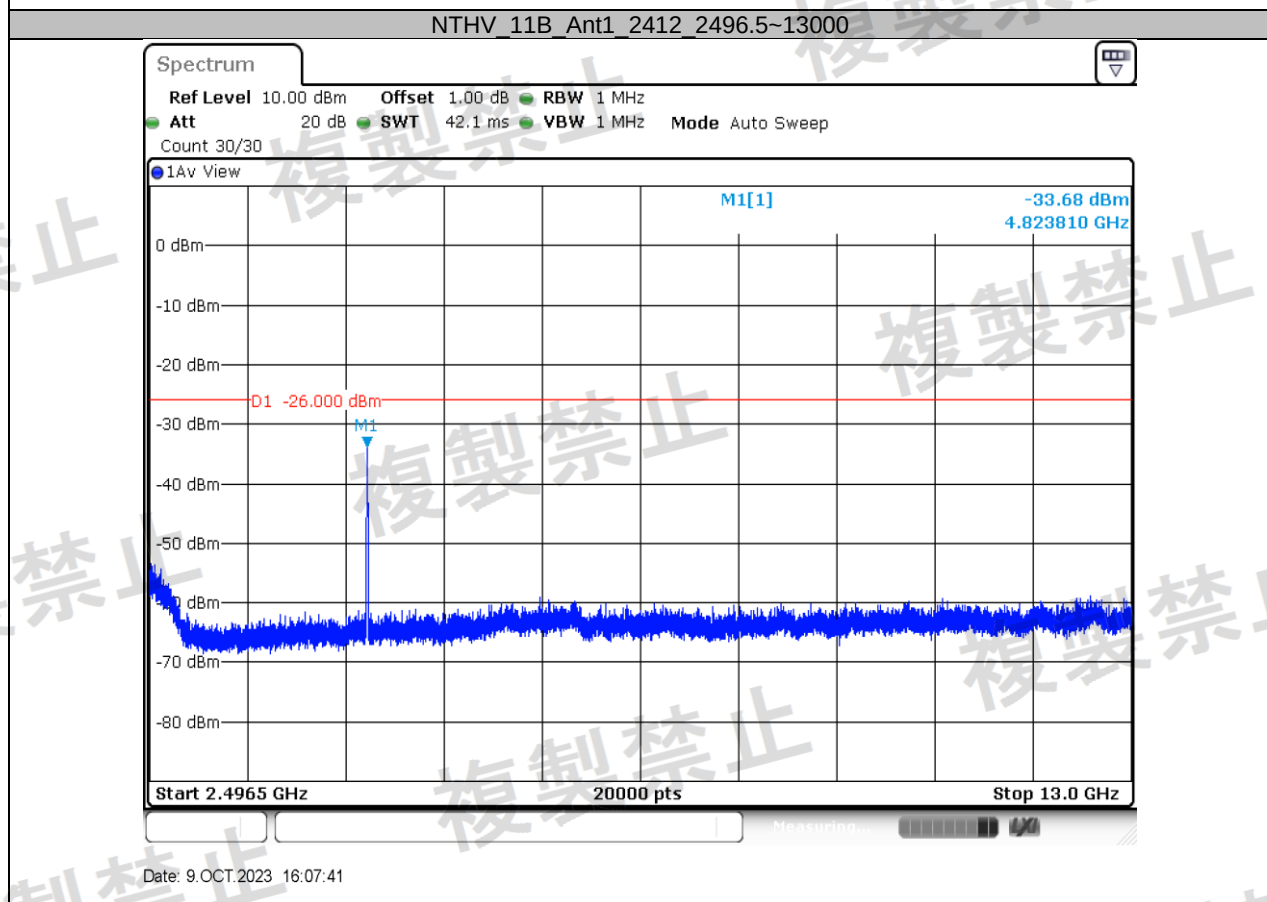


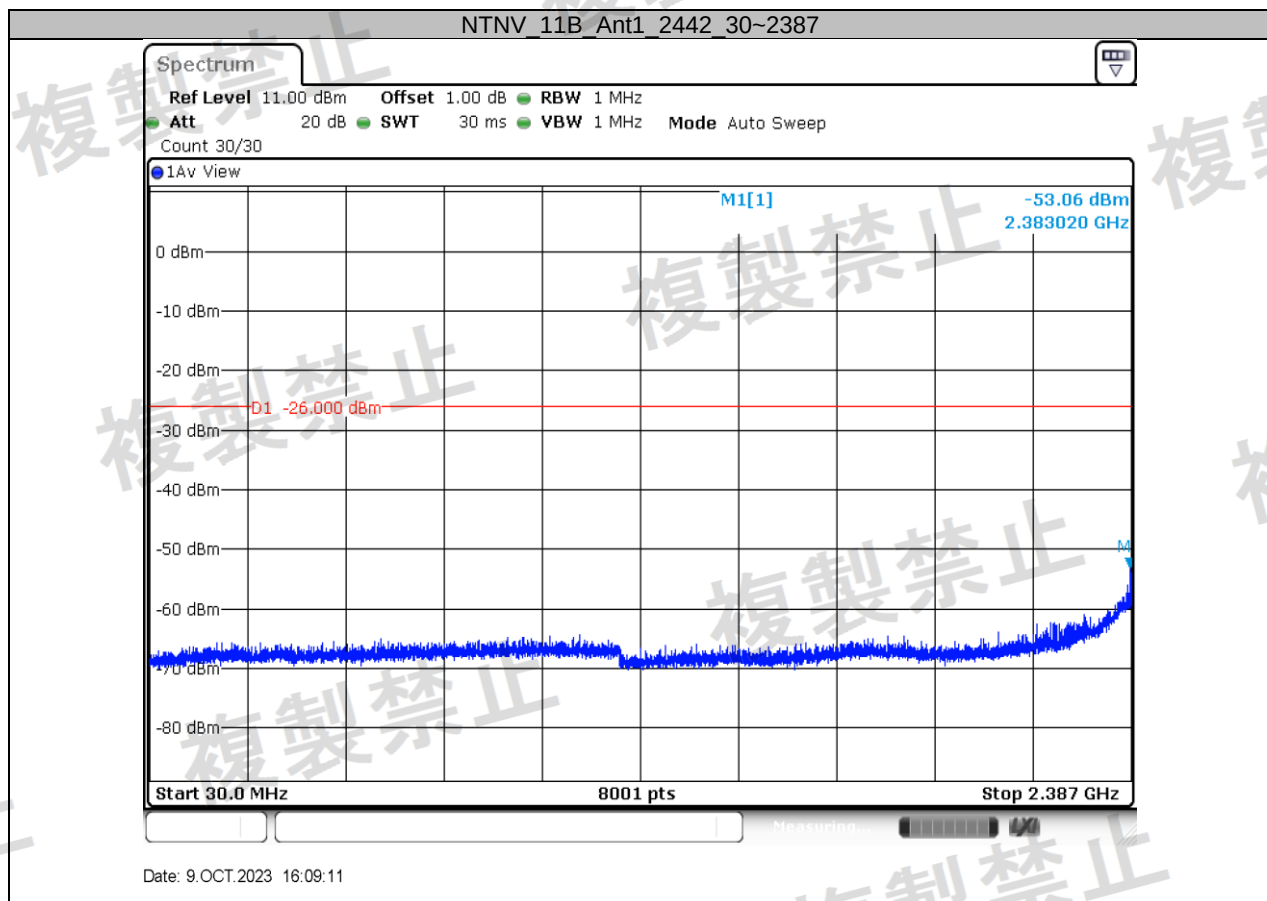
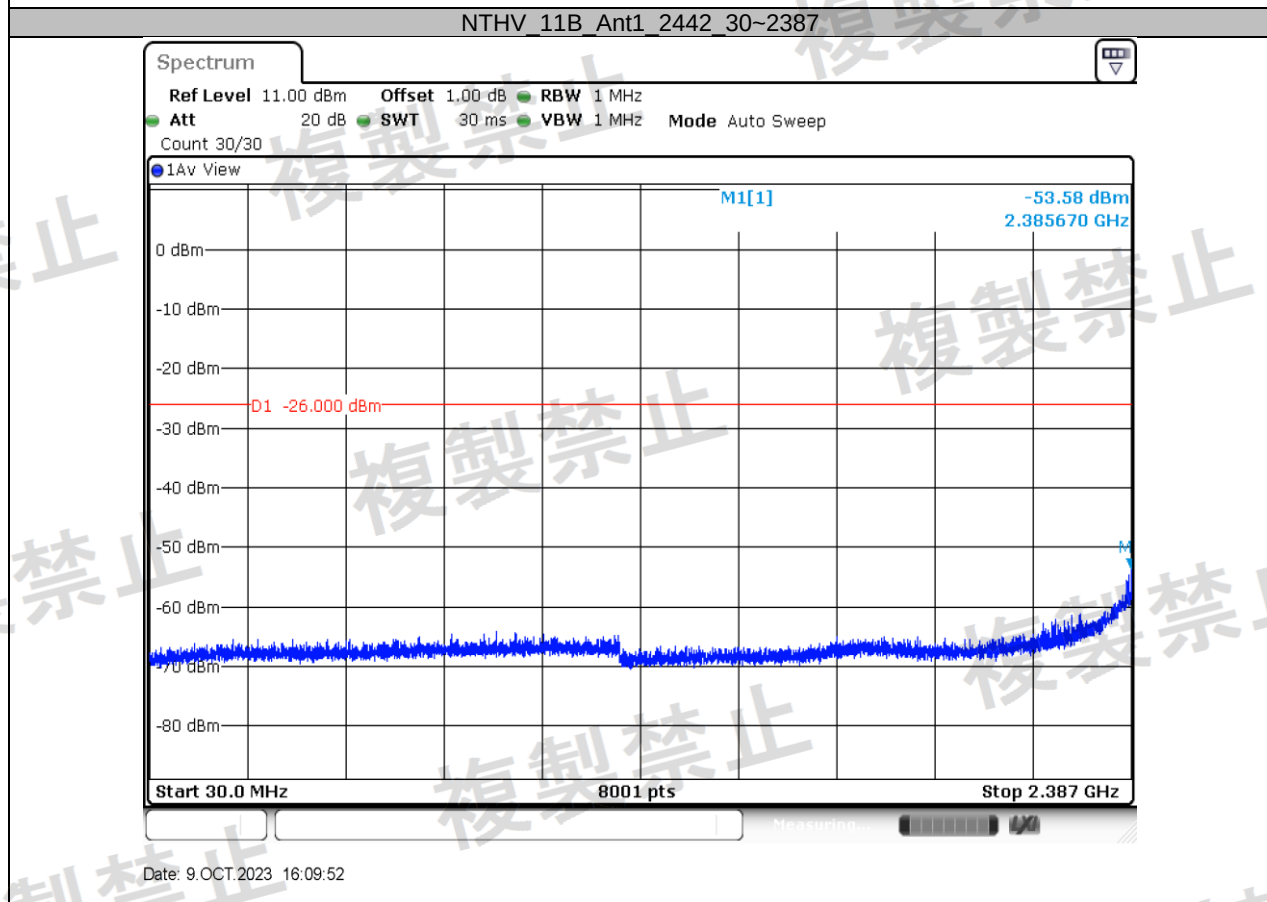


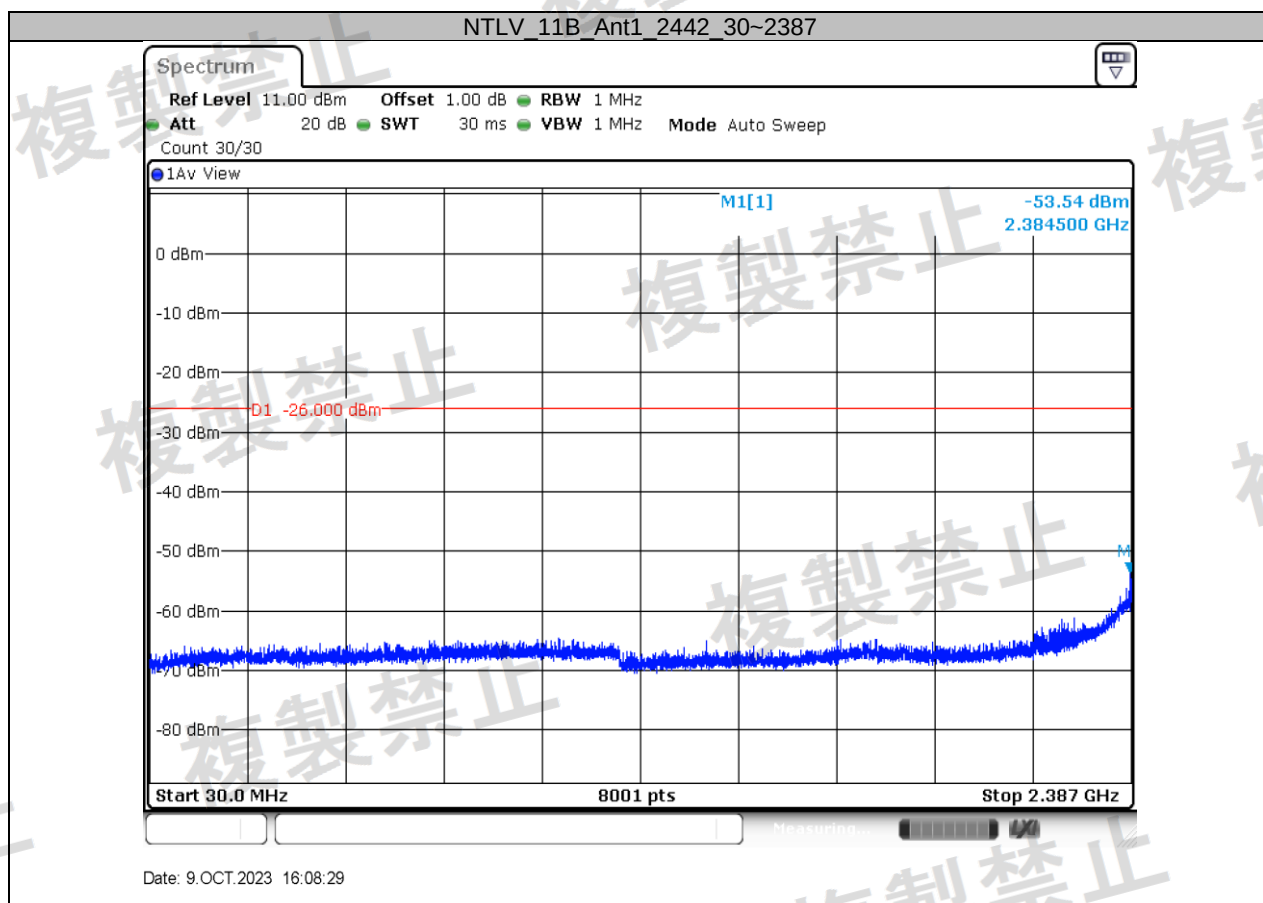
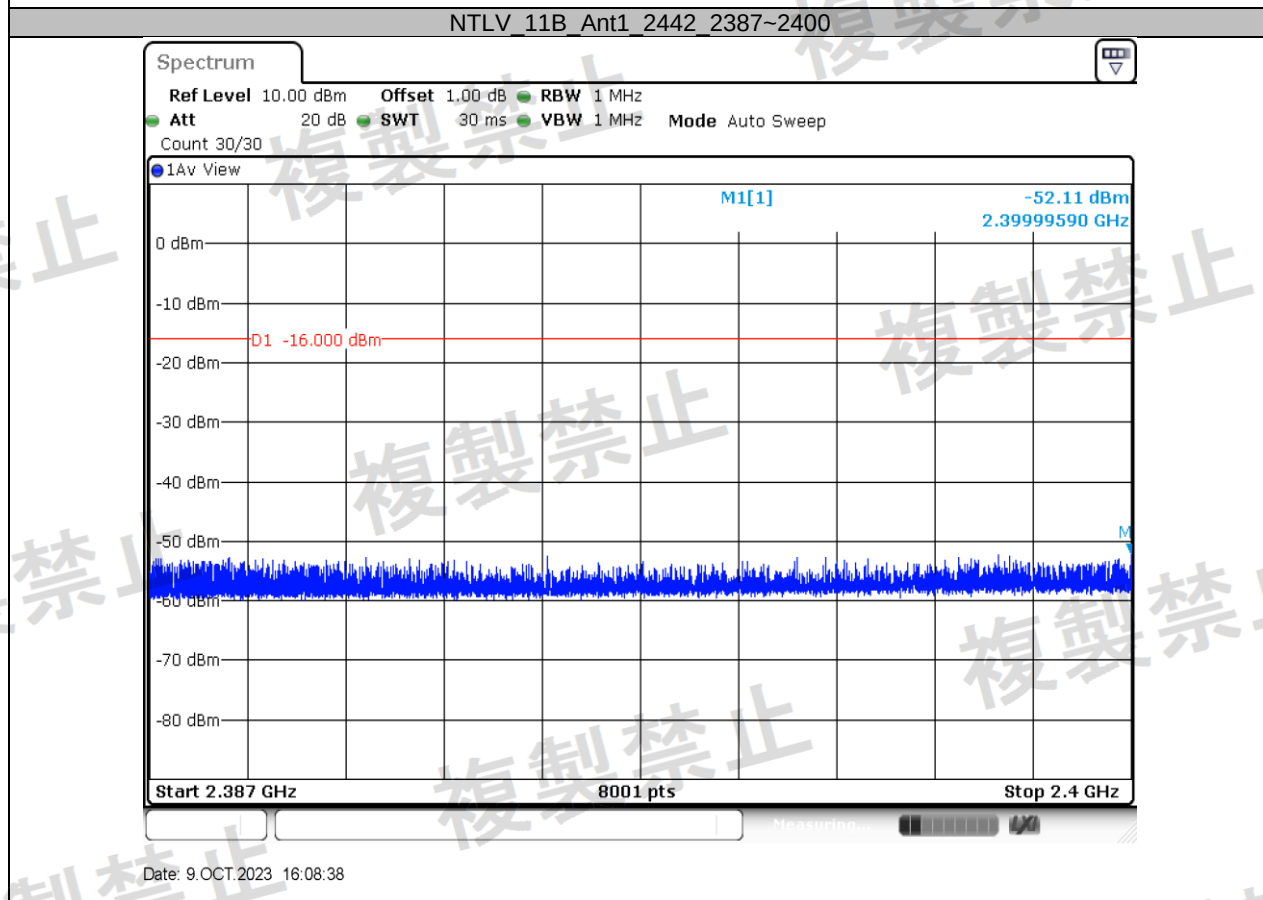




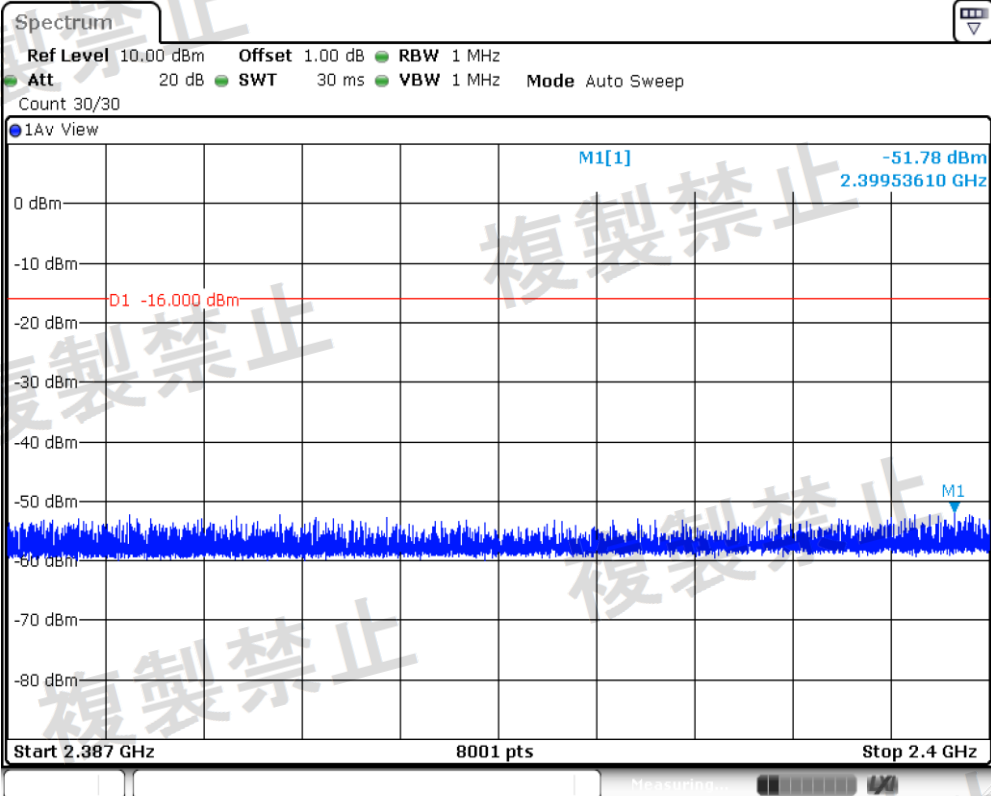




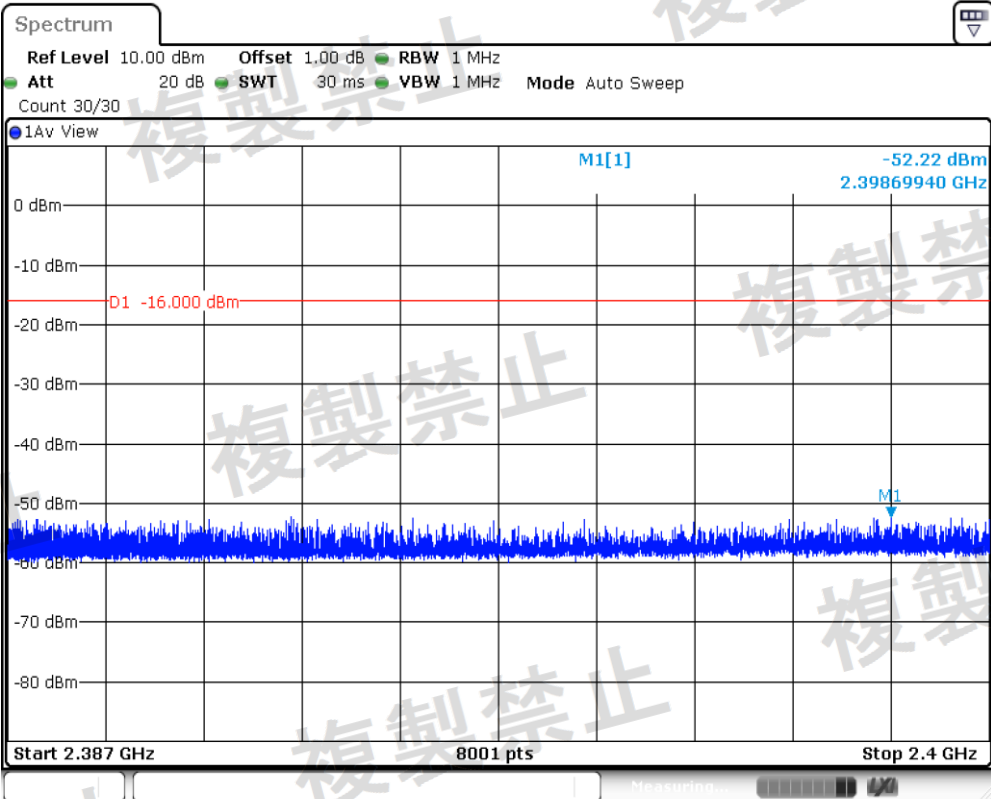


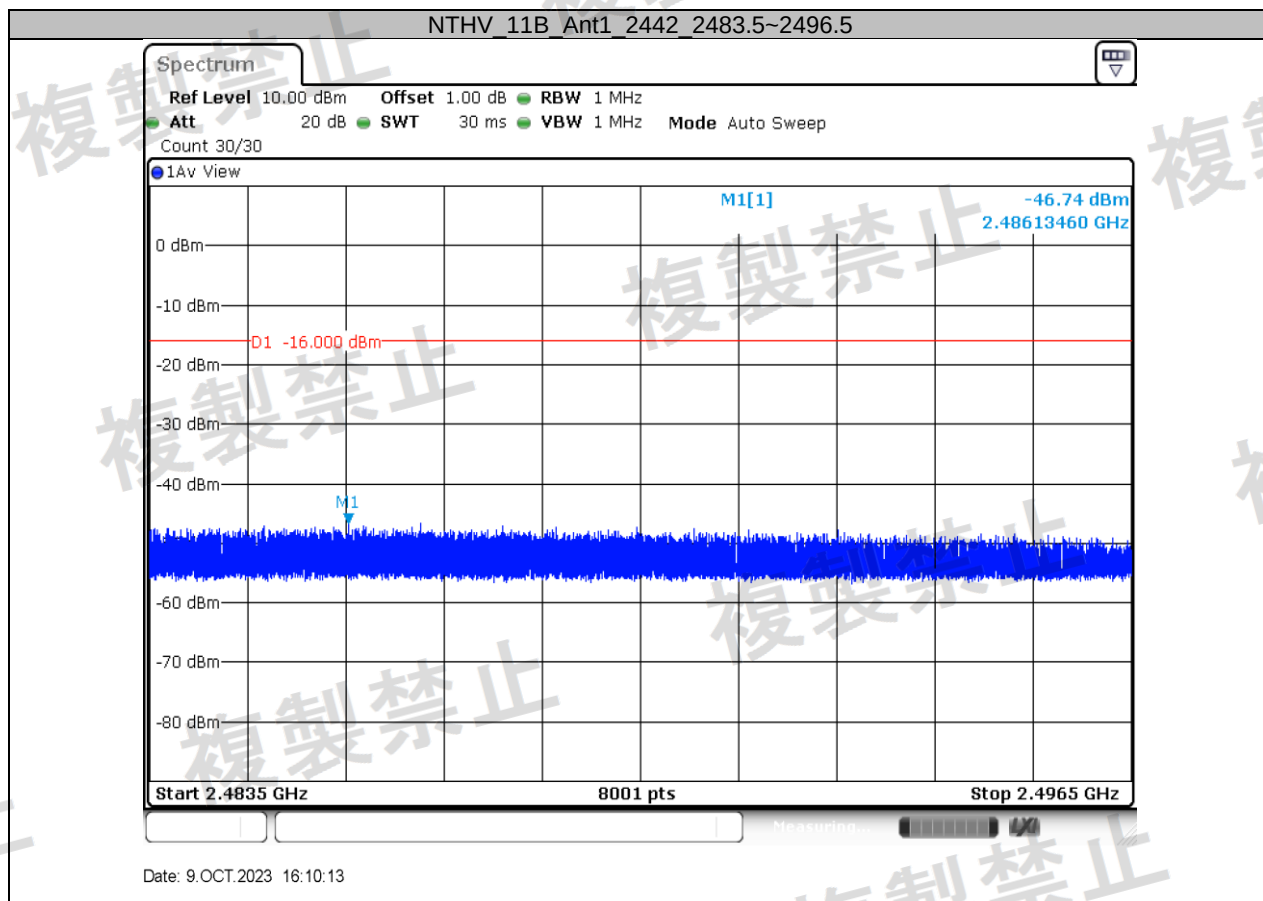
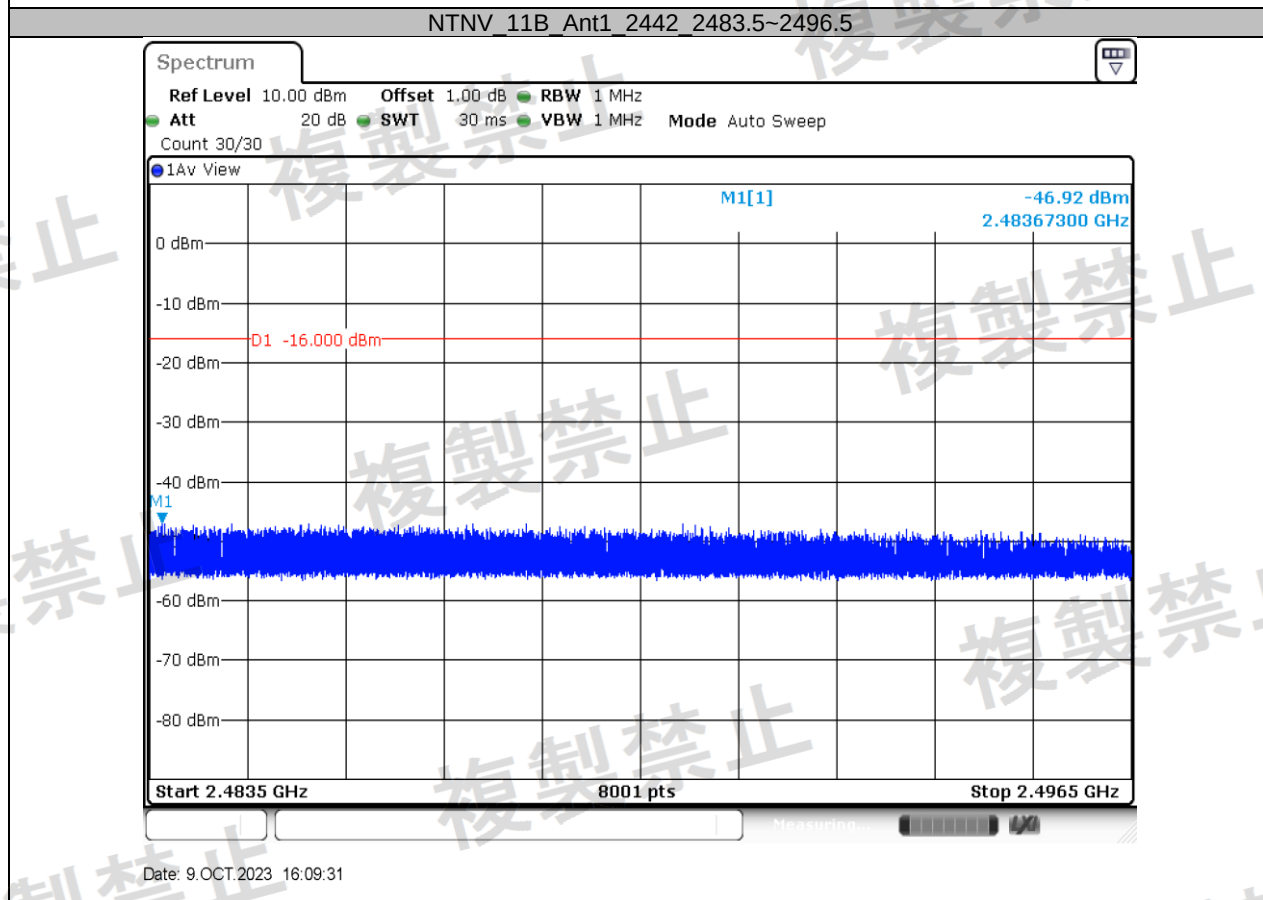


NTHV\_11B\_Ant1\_2442\_2387~2400



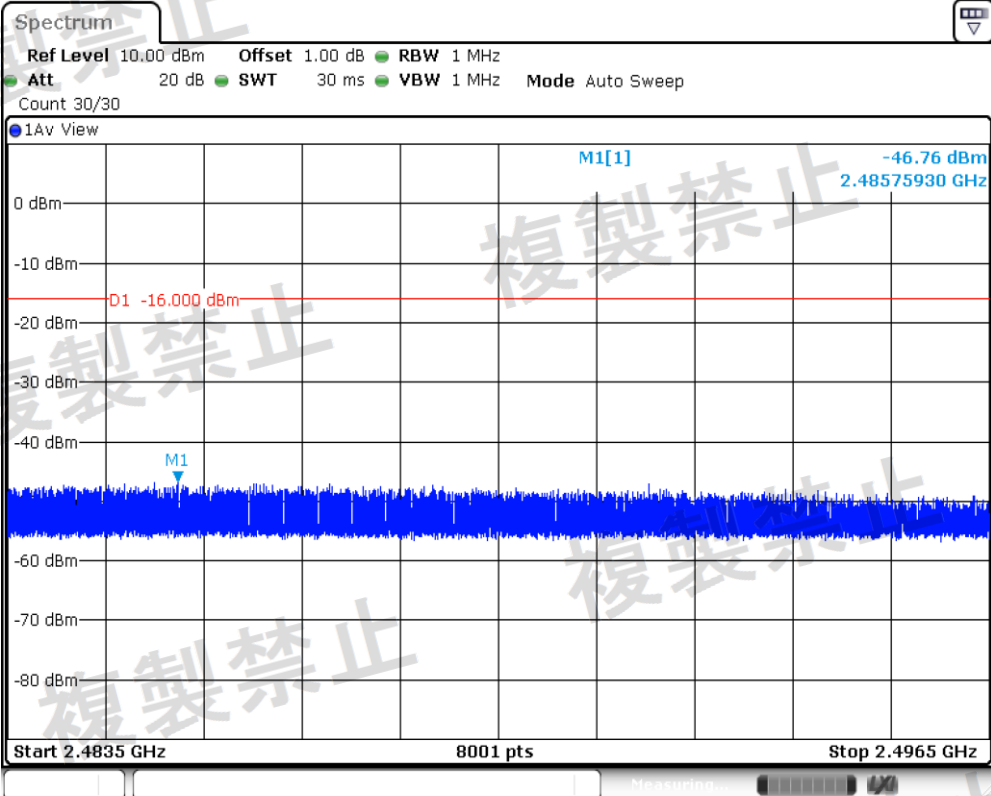
NTNV\_11B\_Ant1\_2442\_2387~2400



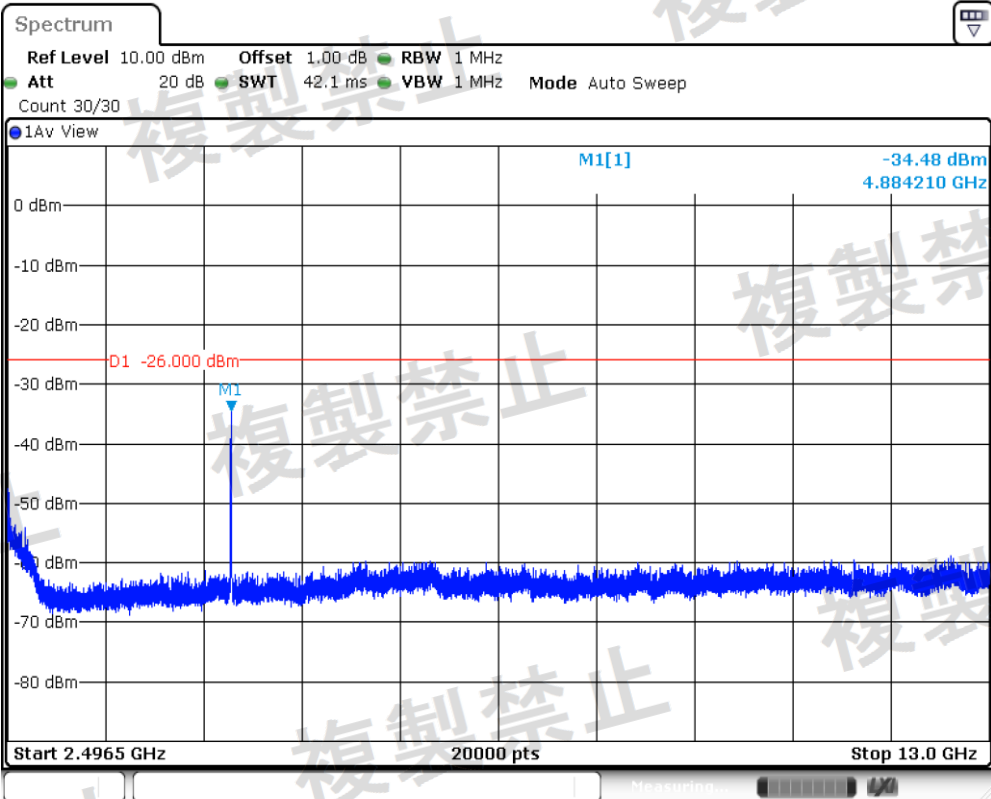


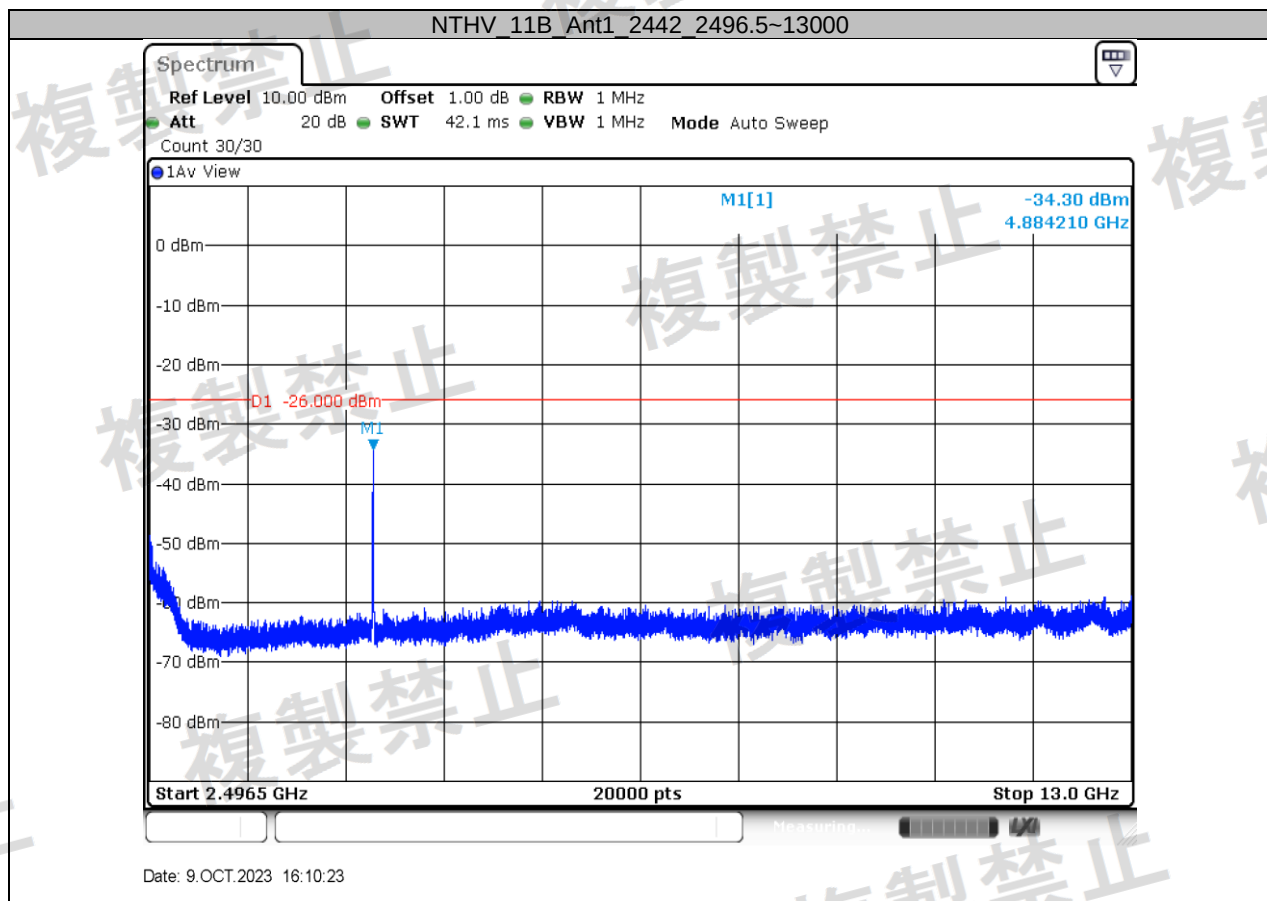
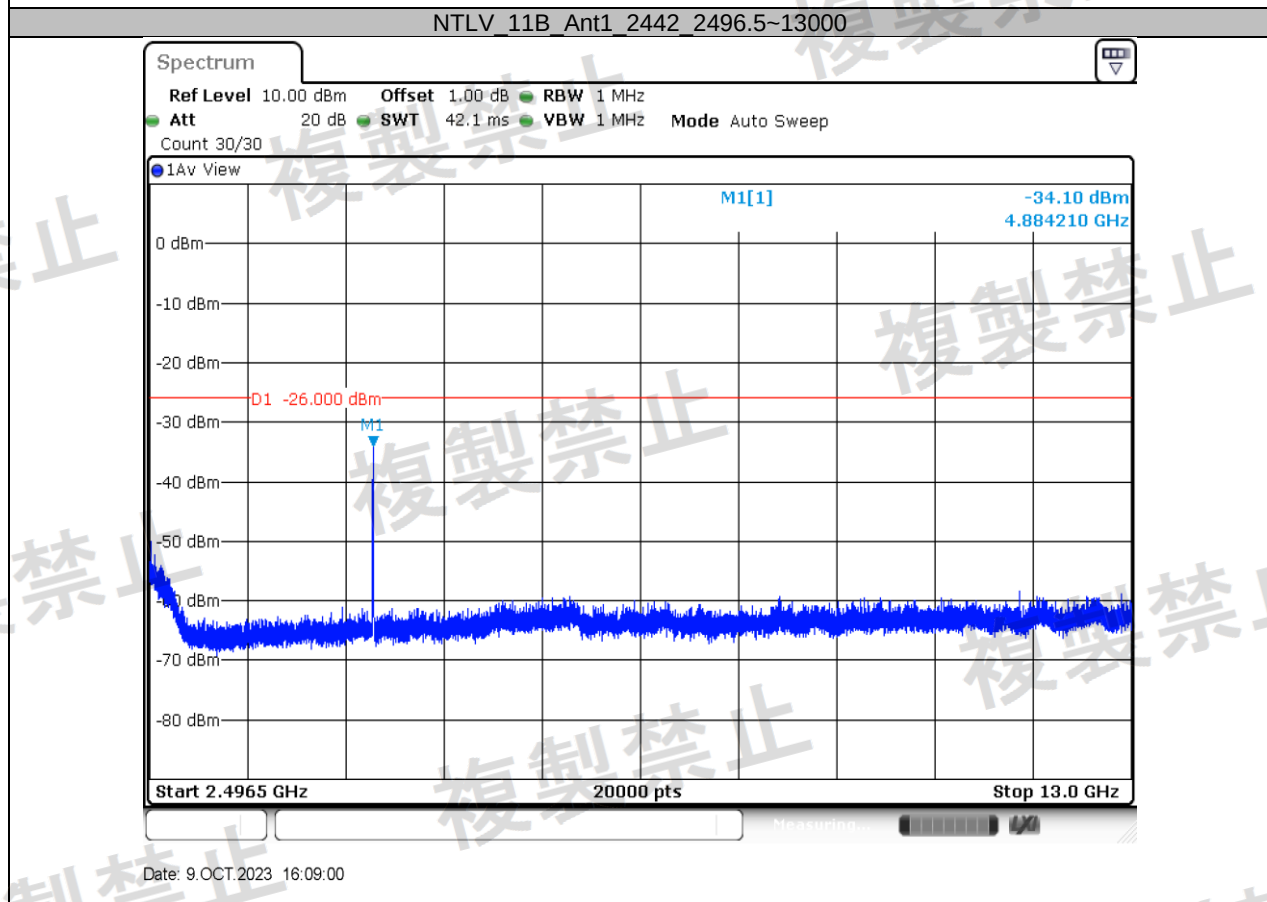


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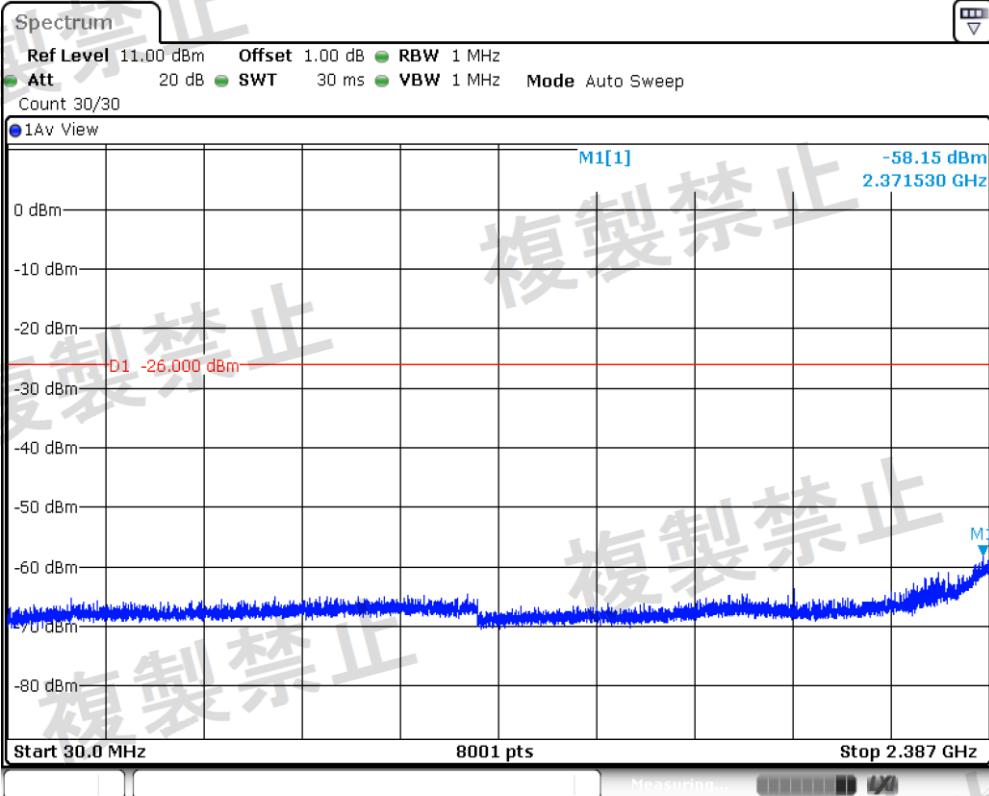


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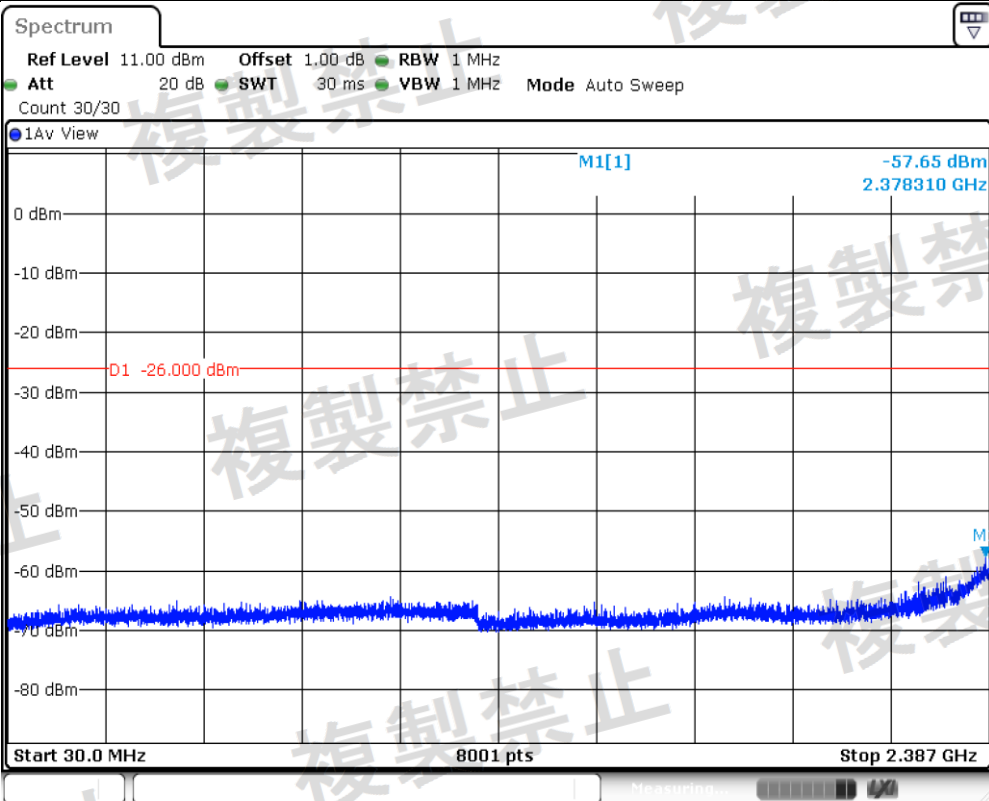


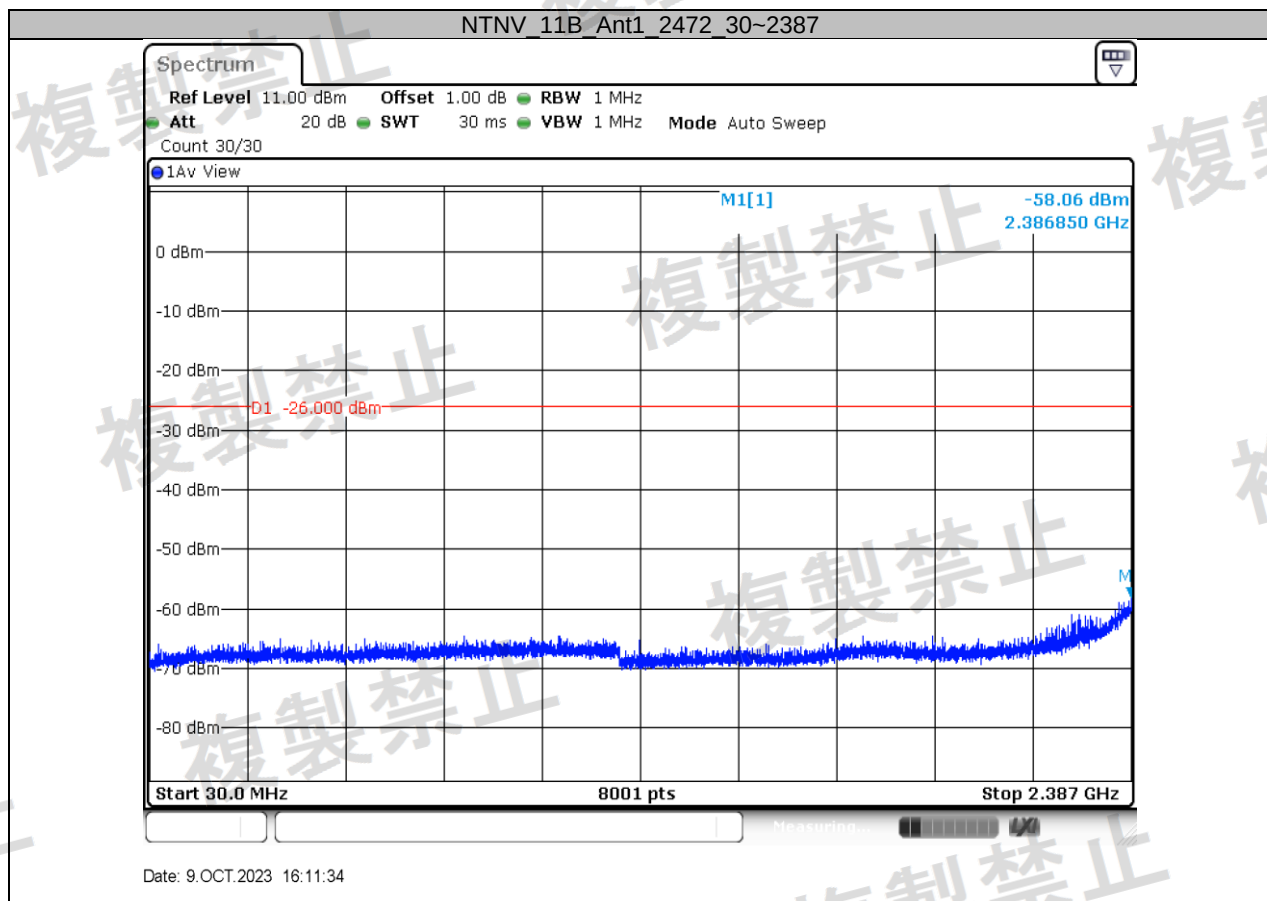
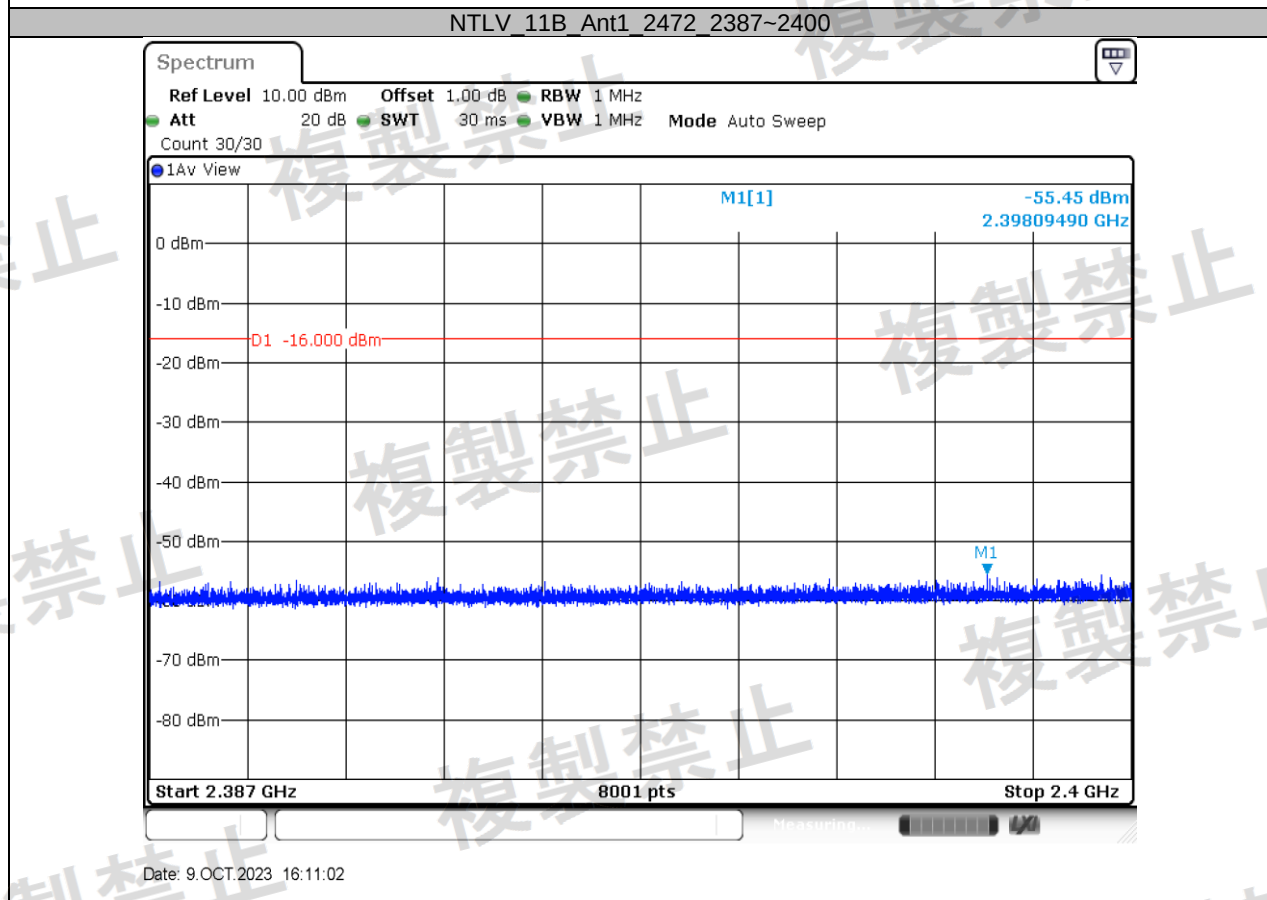


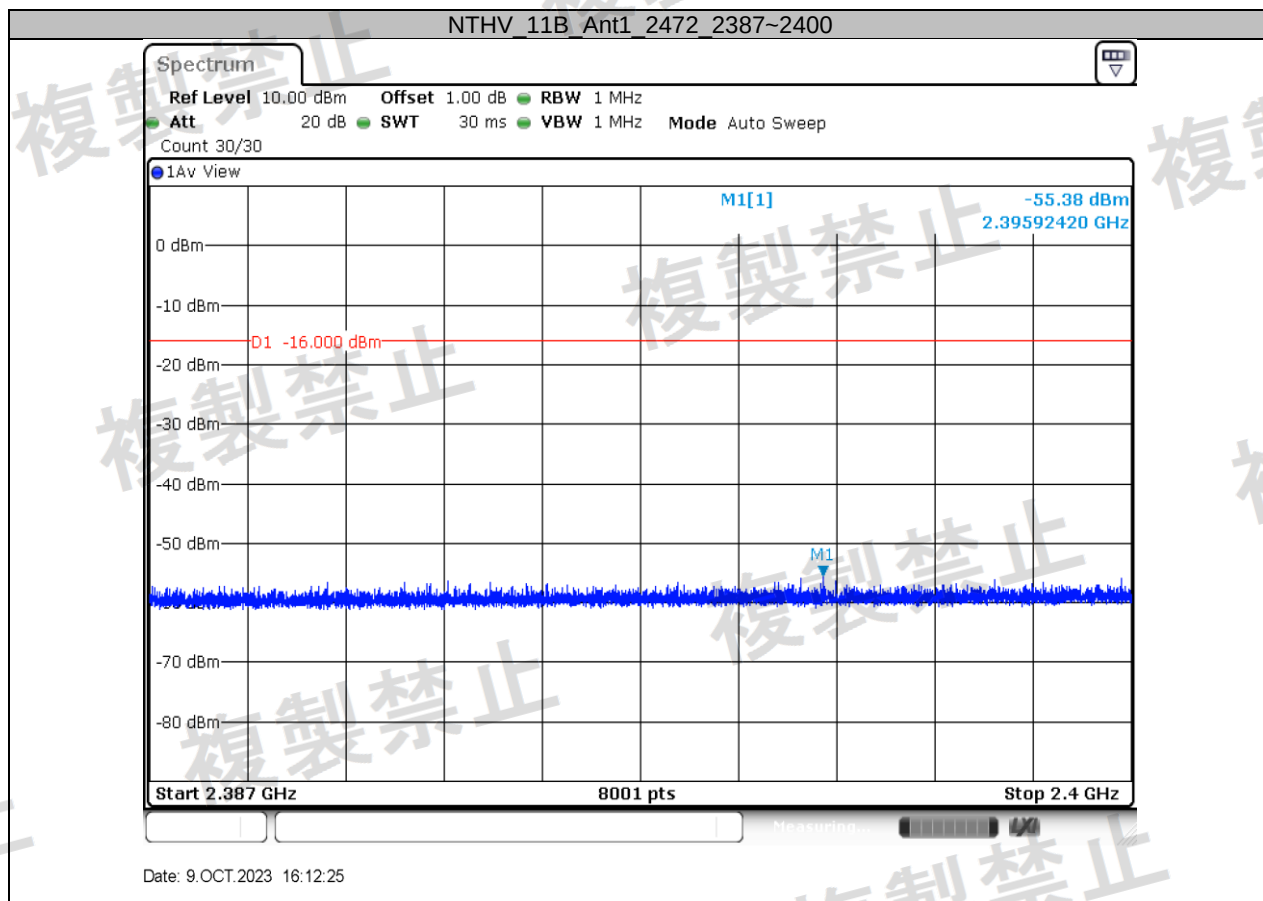
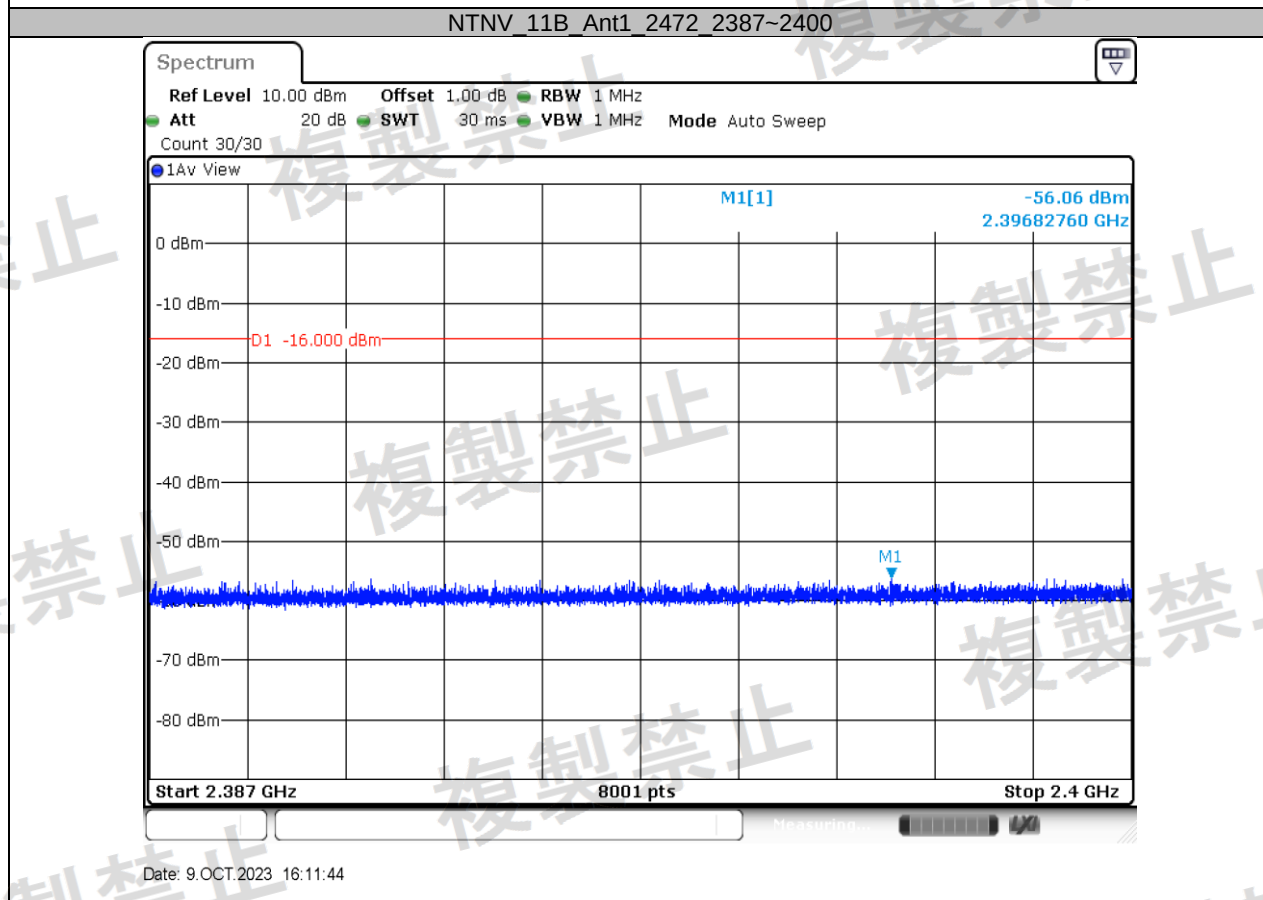
NTHV\_11B\_Ant1\_2472\_30~2387



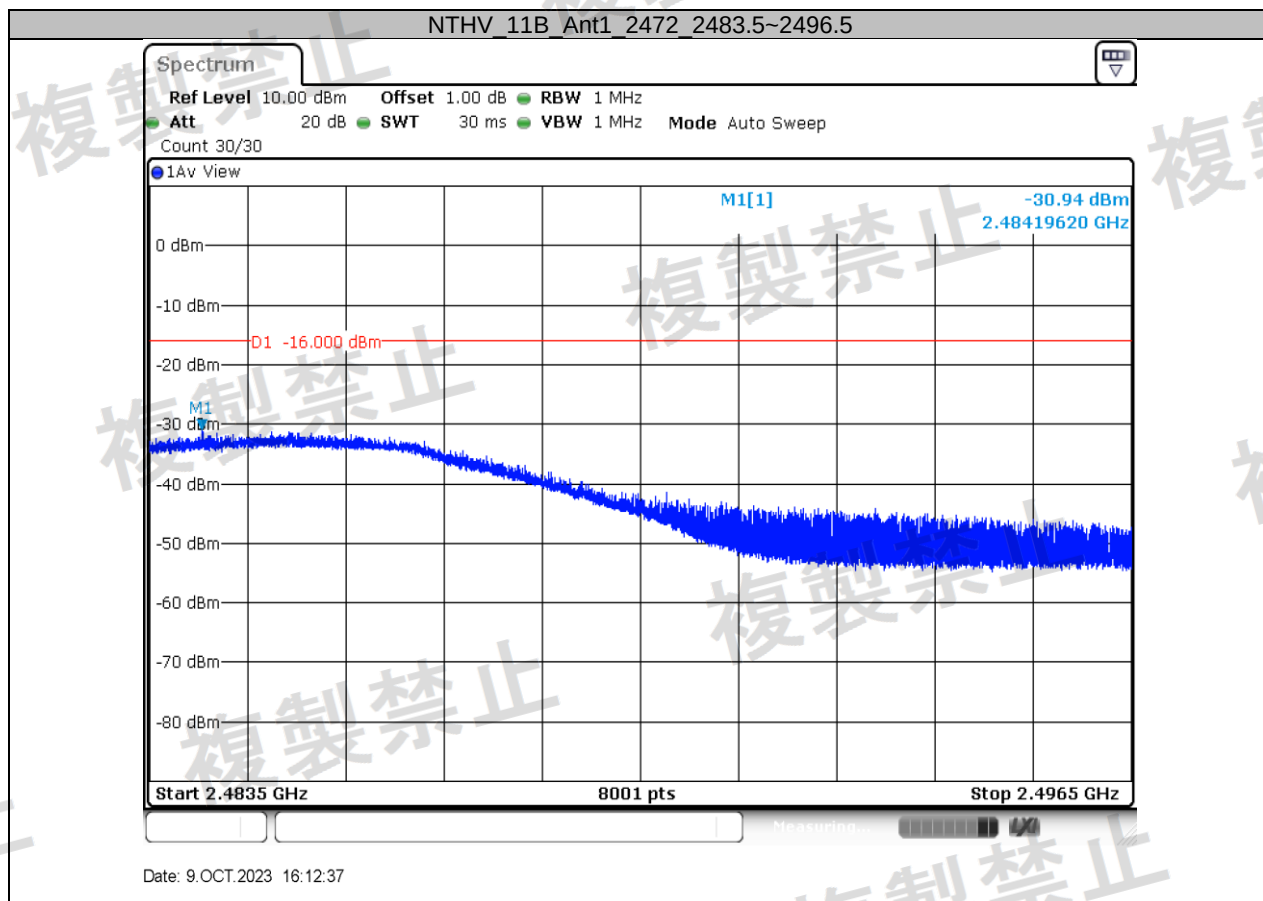
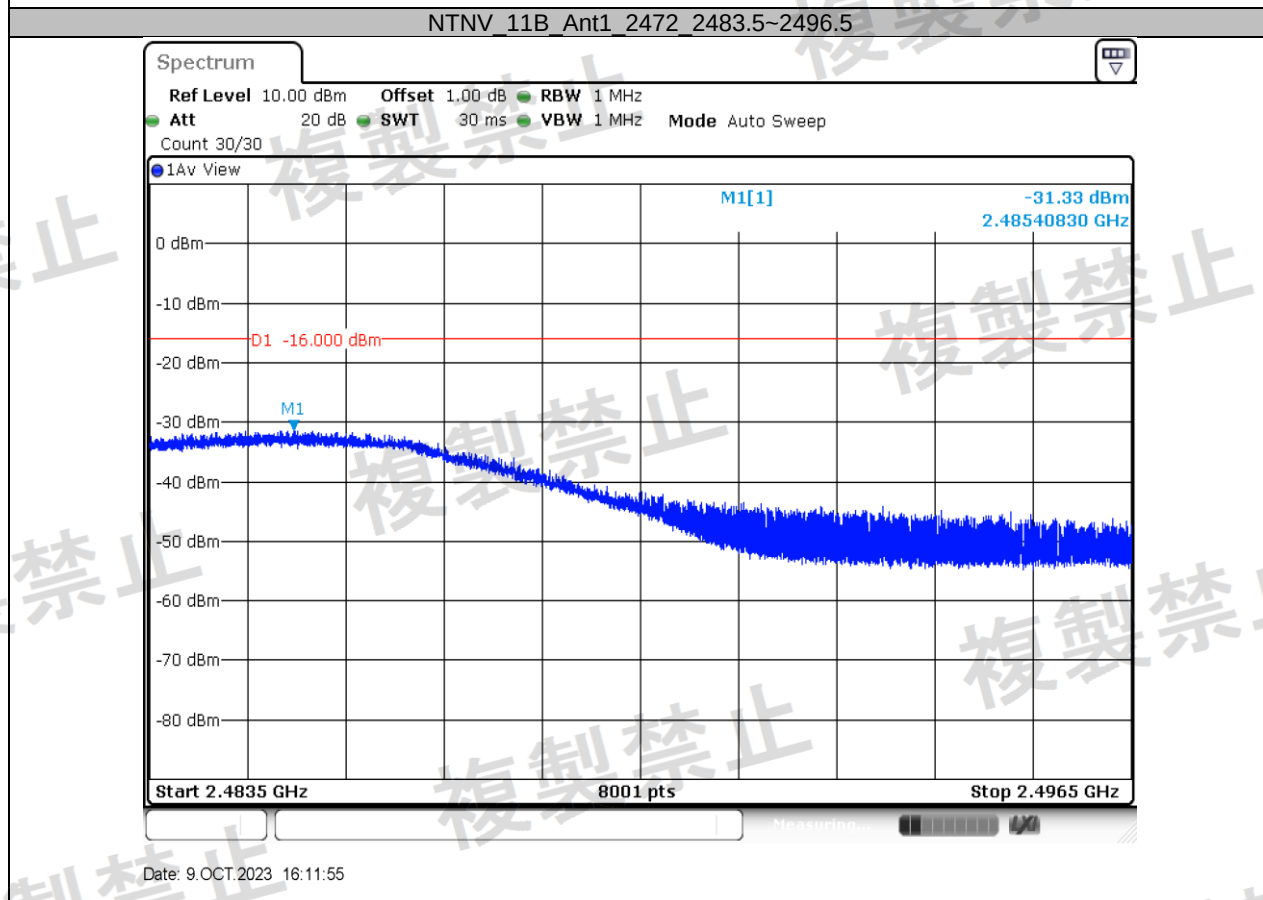
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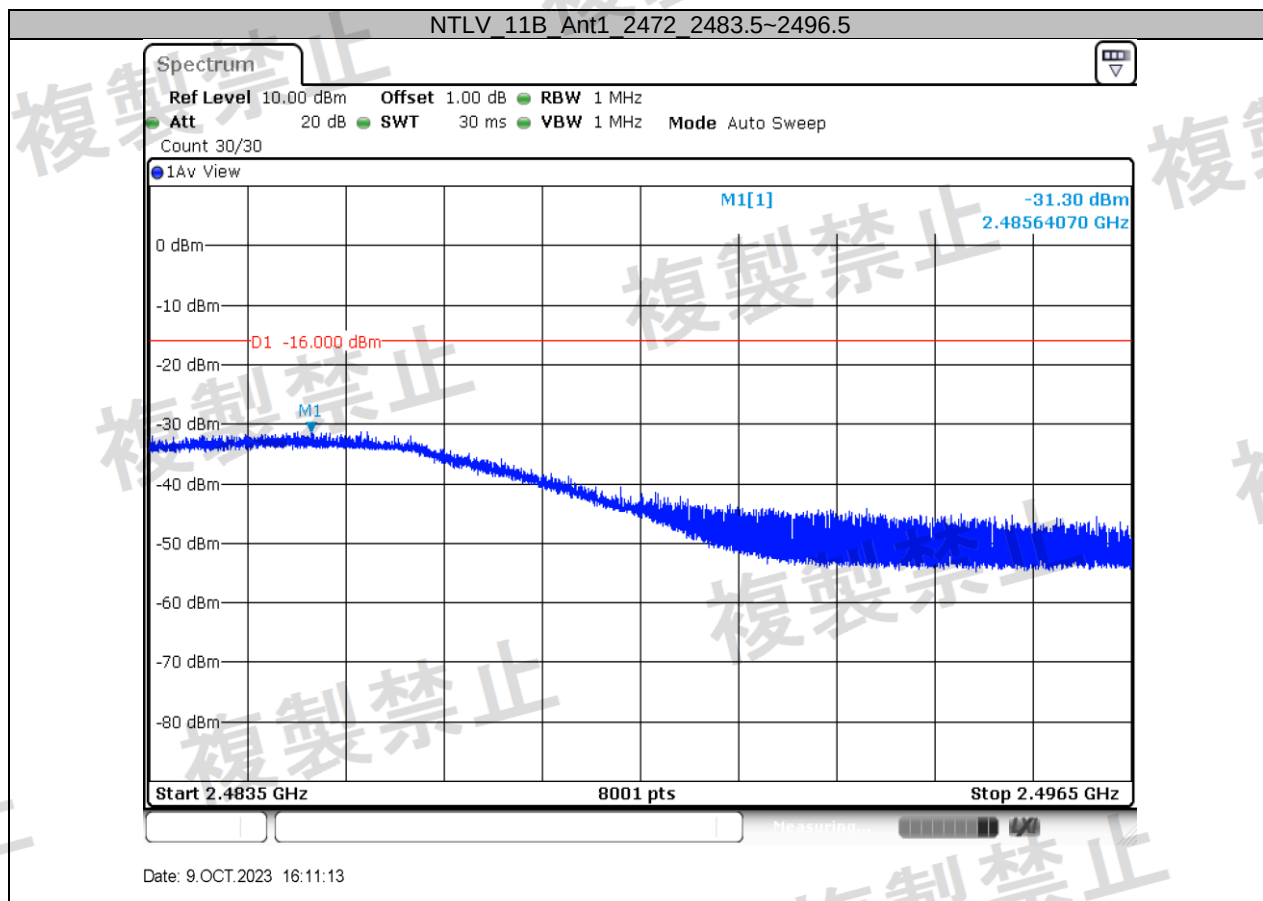
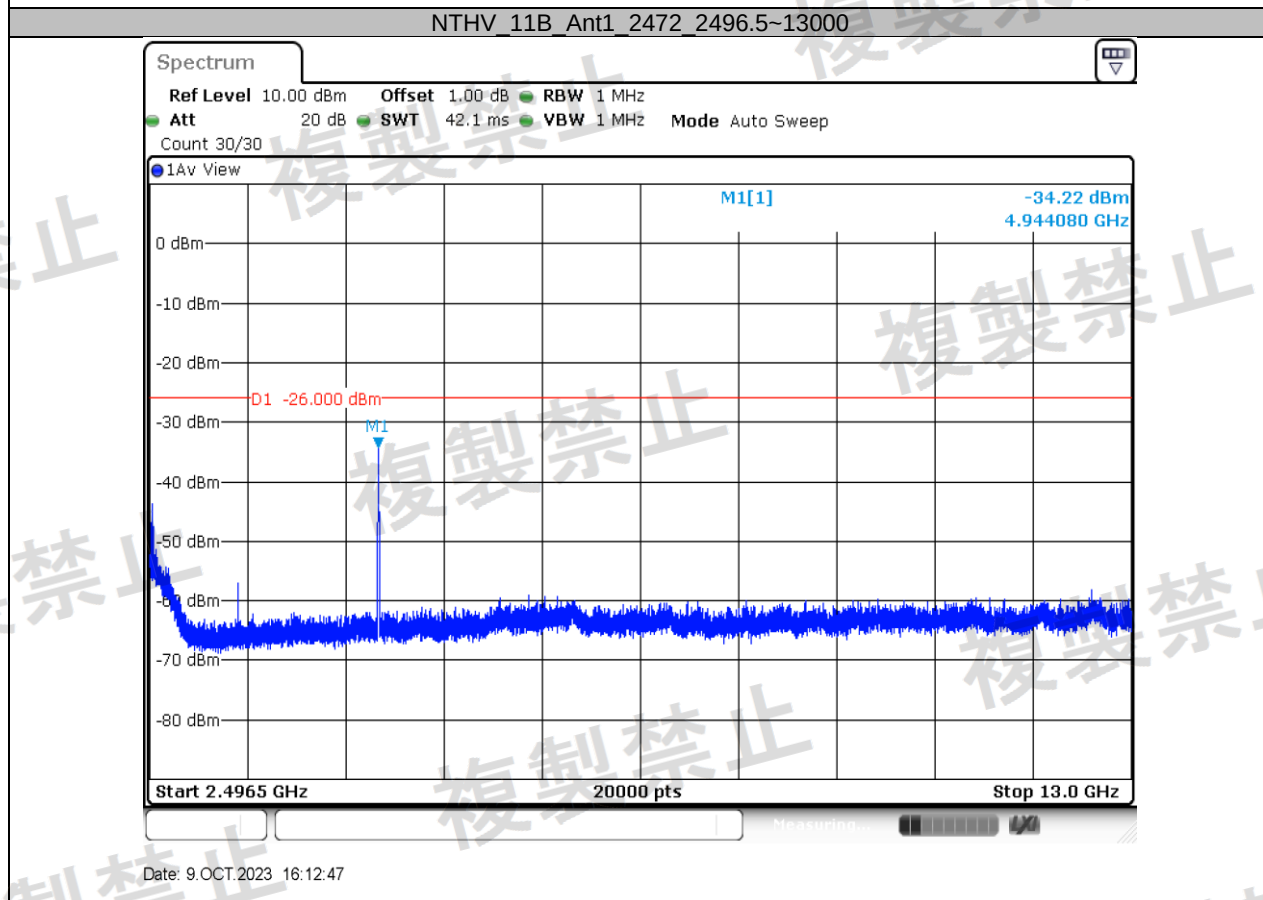


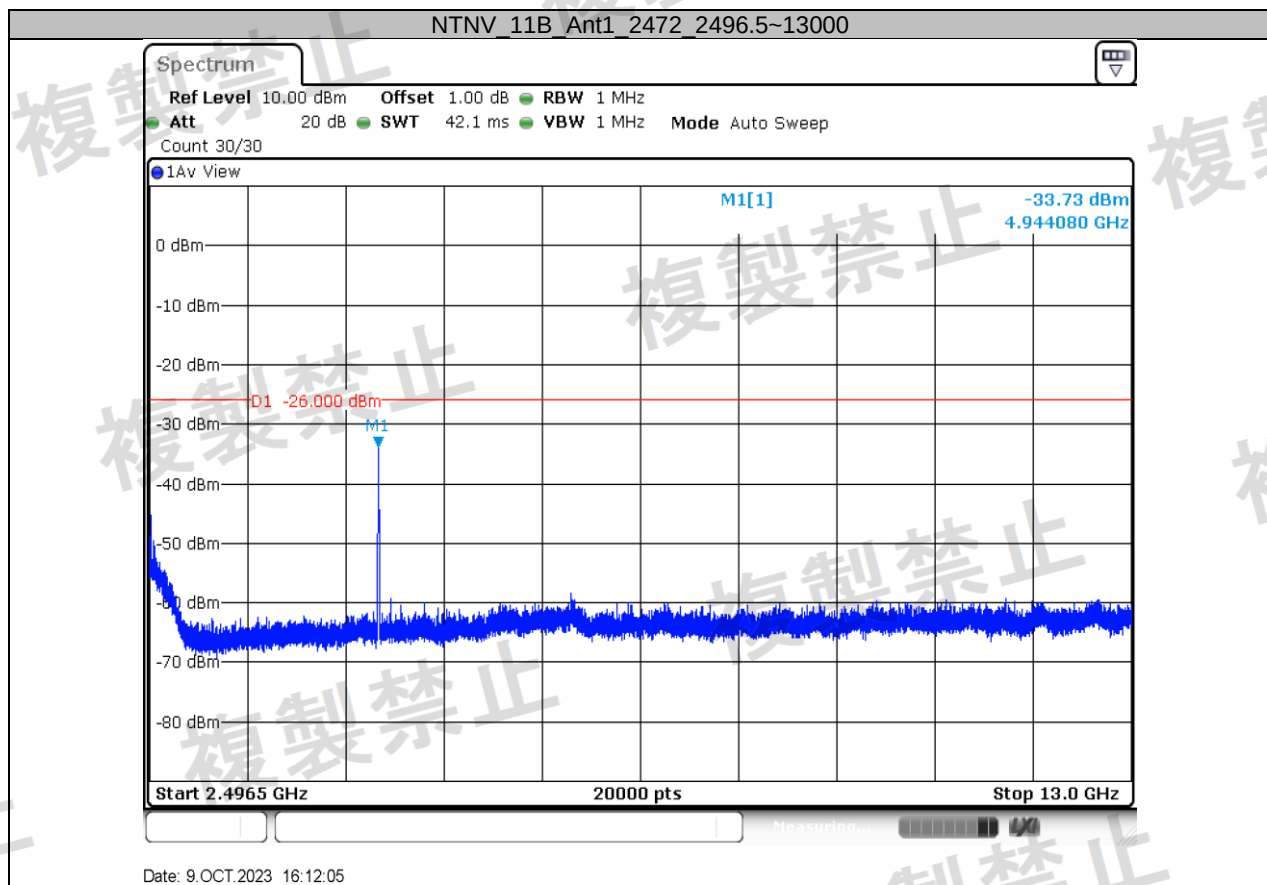
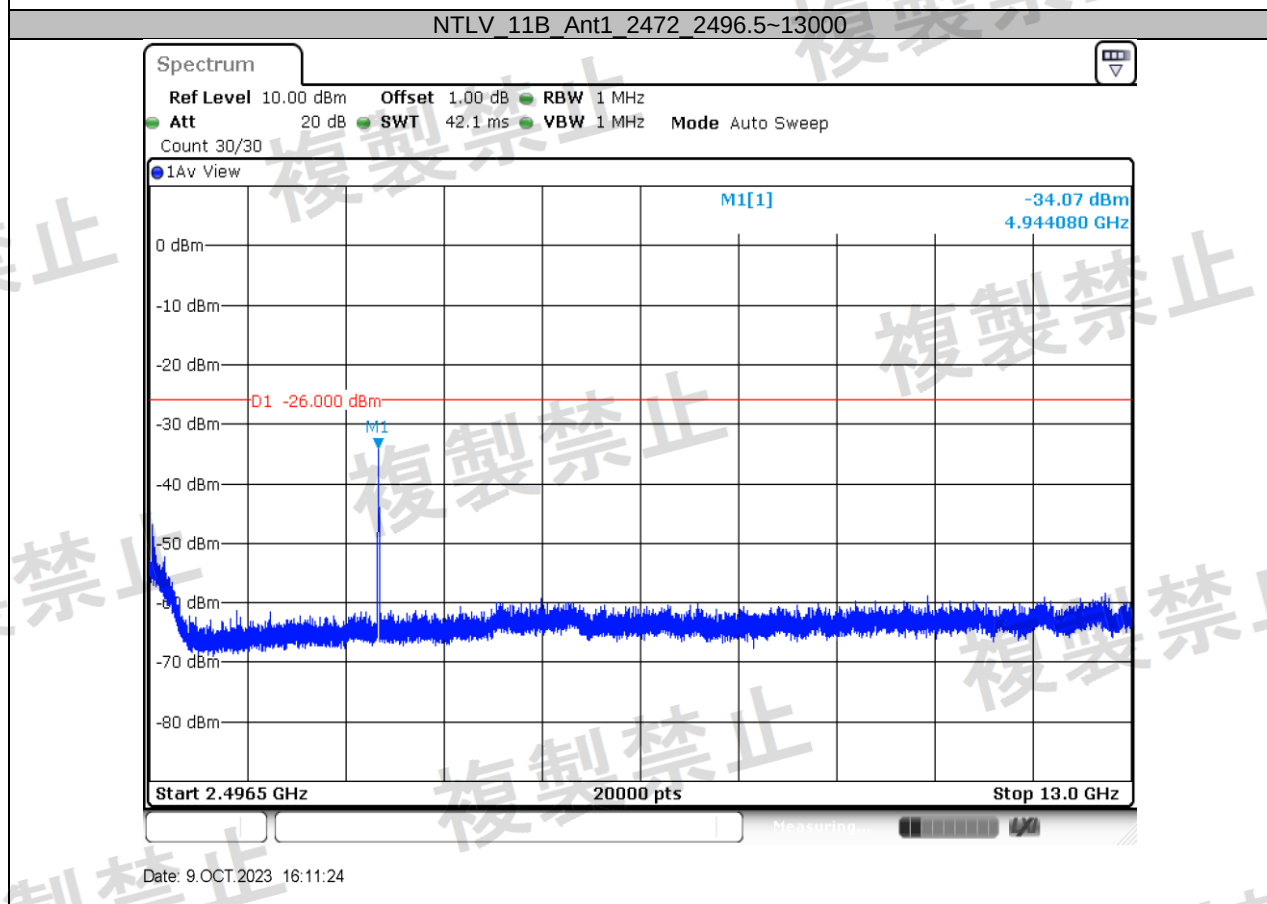




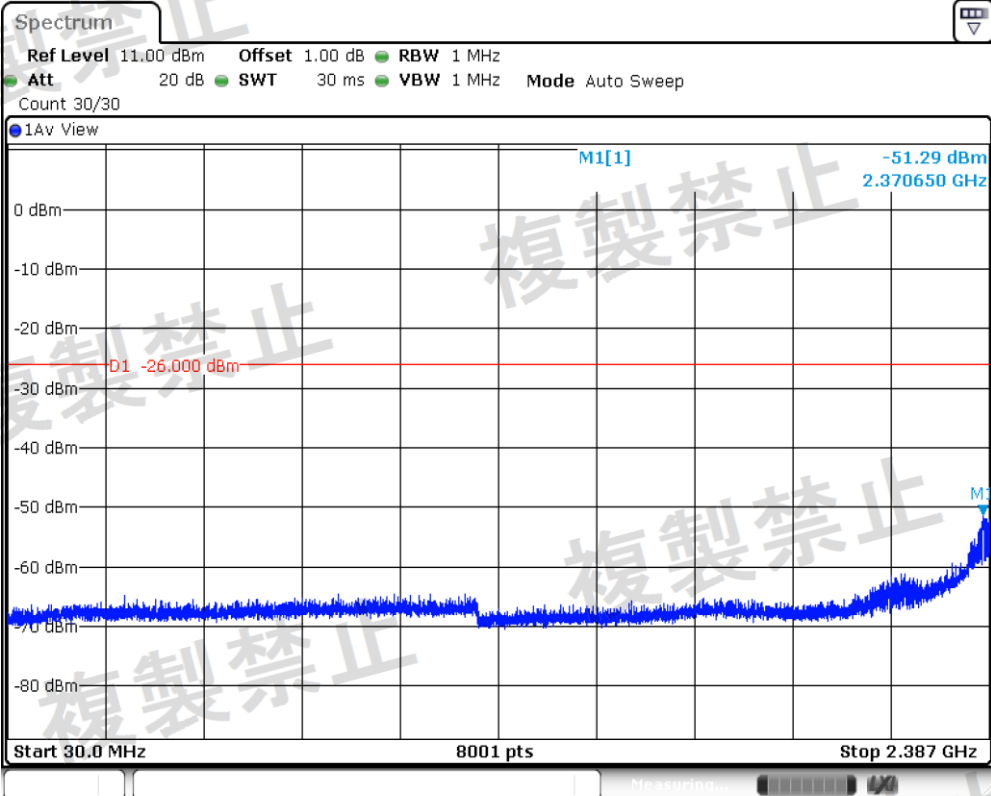




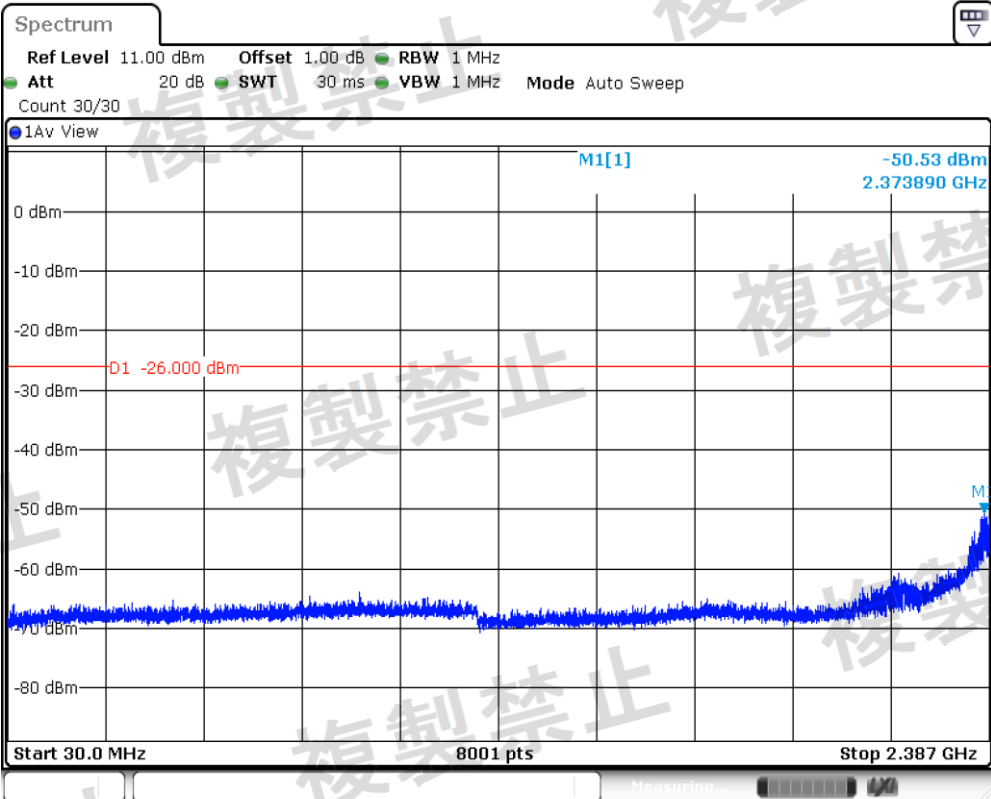


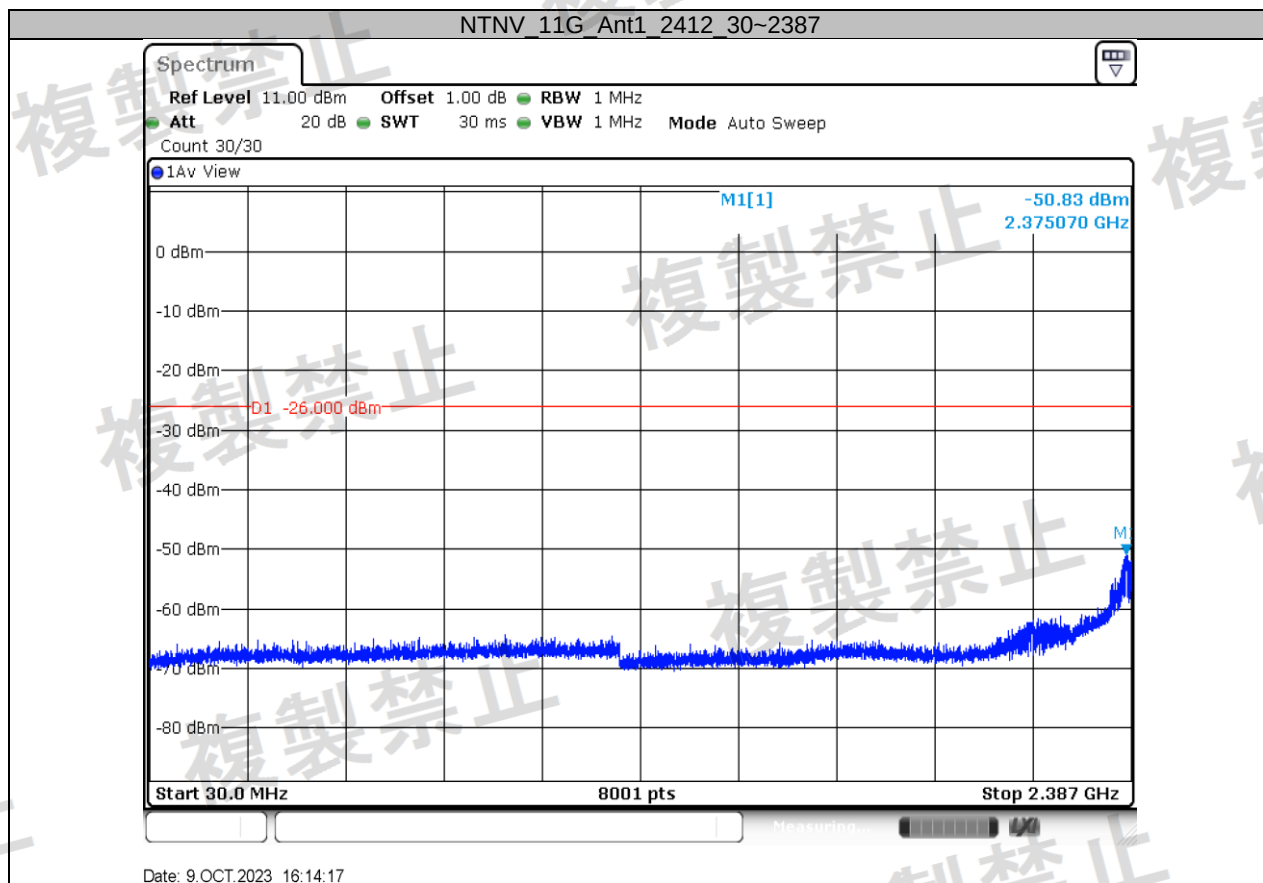
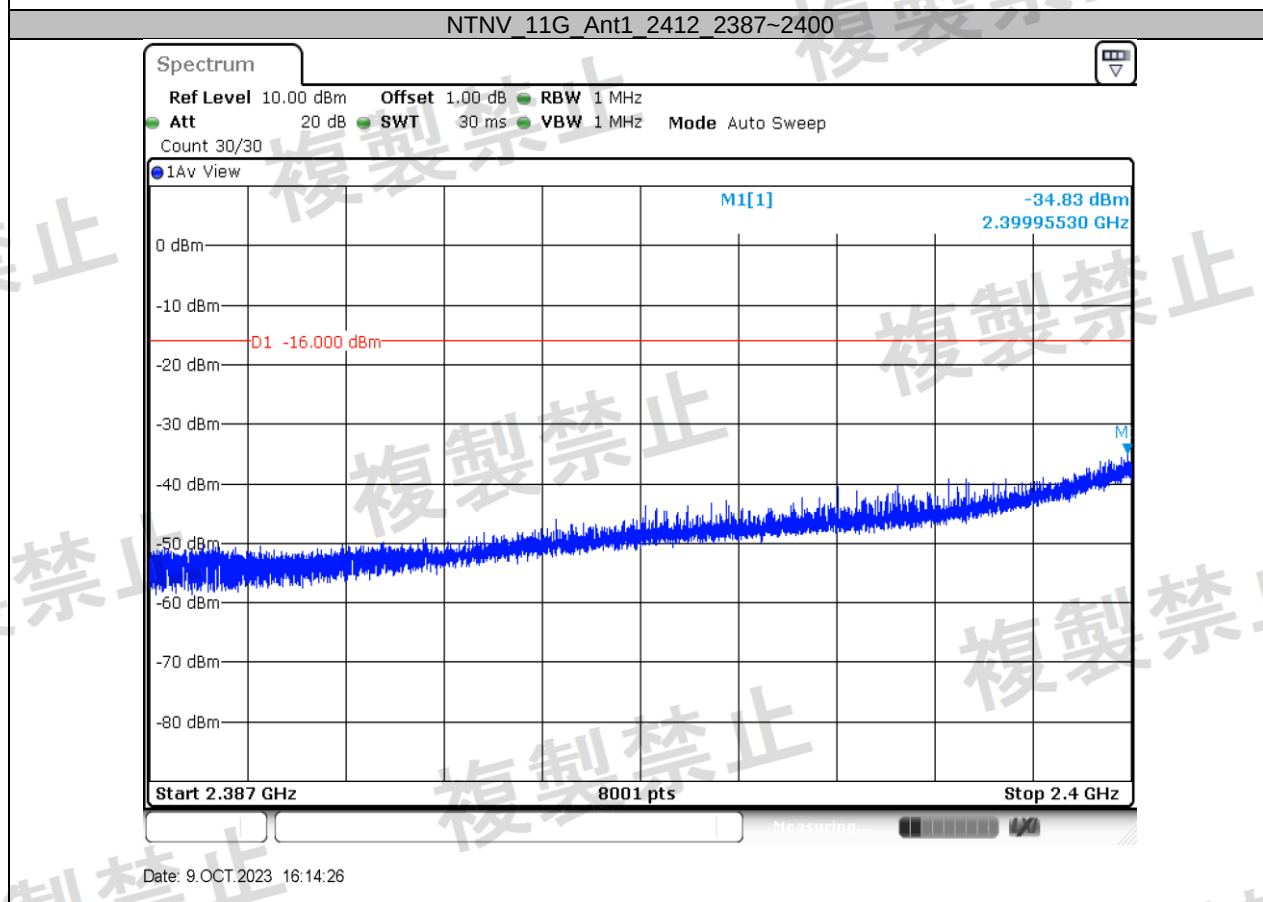


NTLV\_11G\_Ant1\_2412\_30~2387

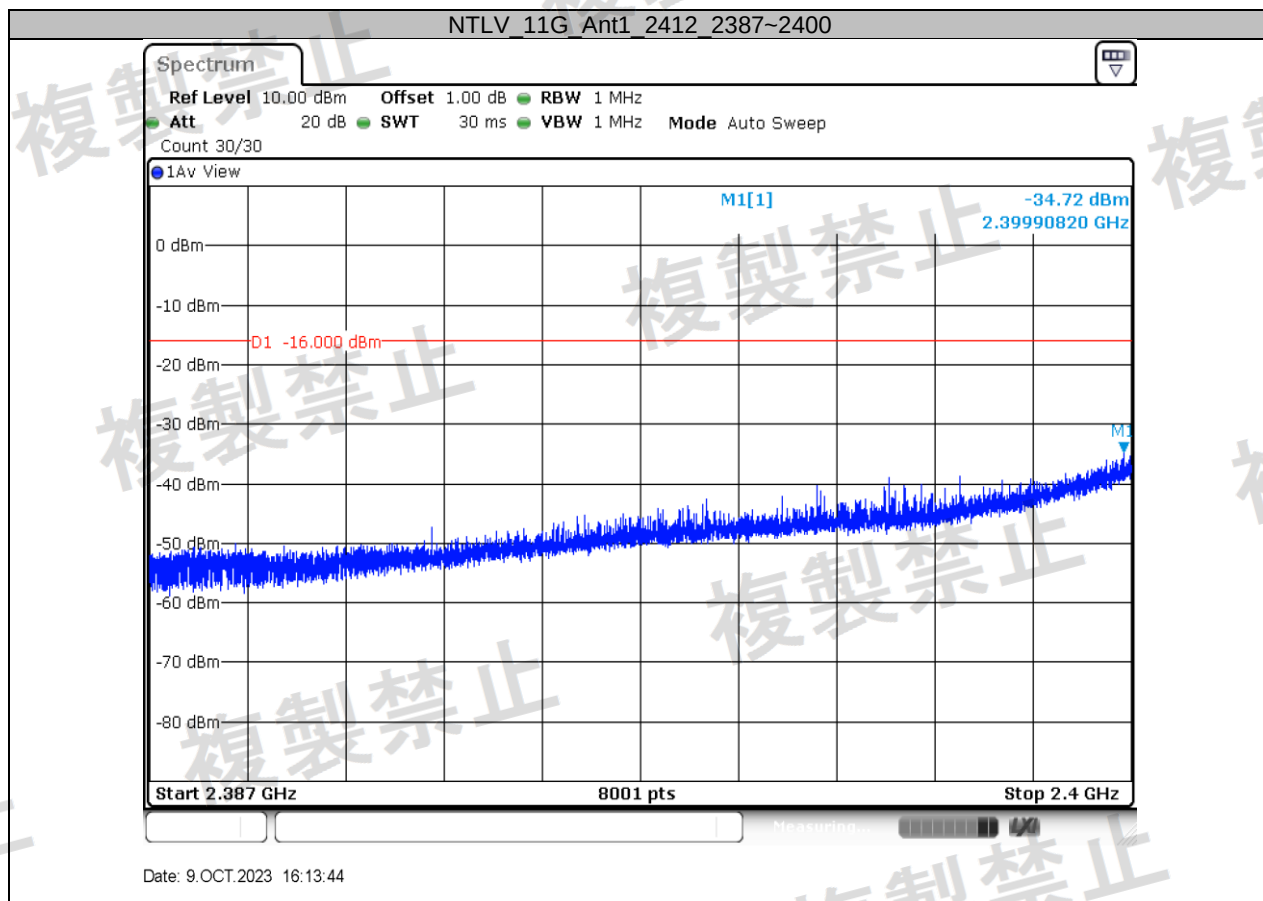
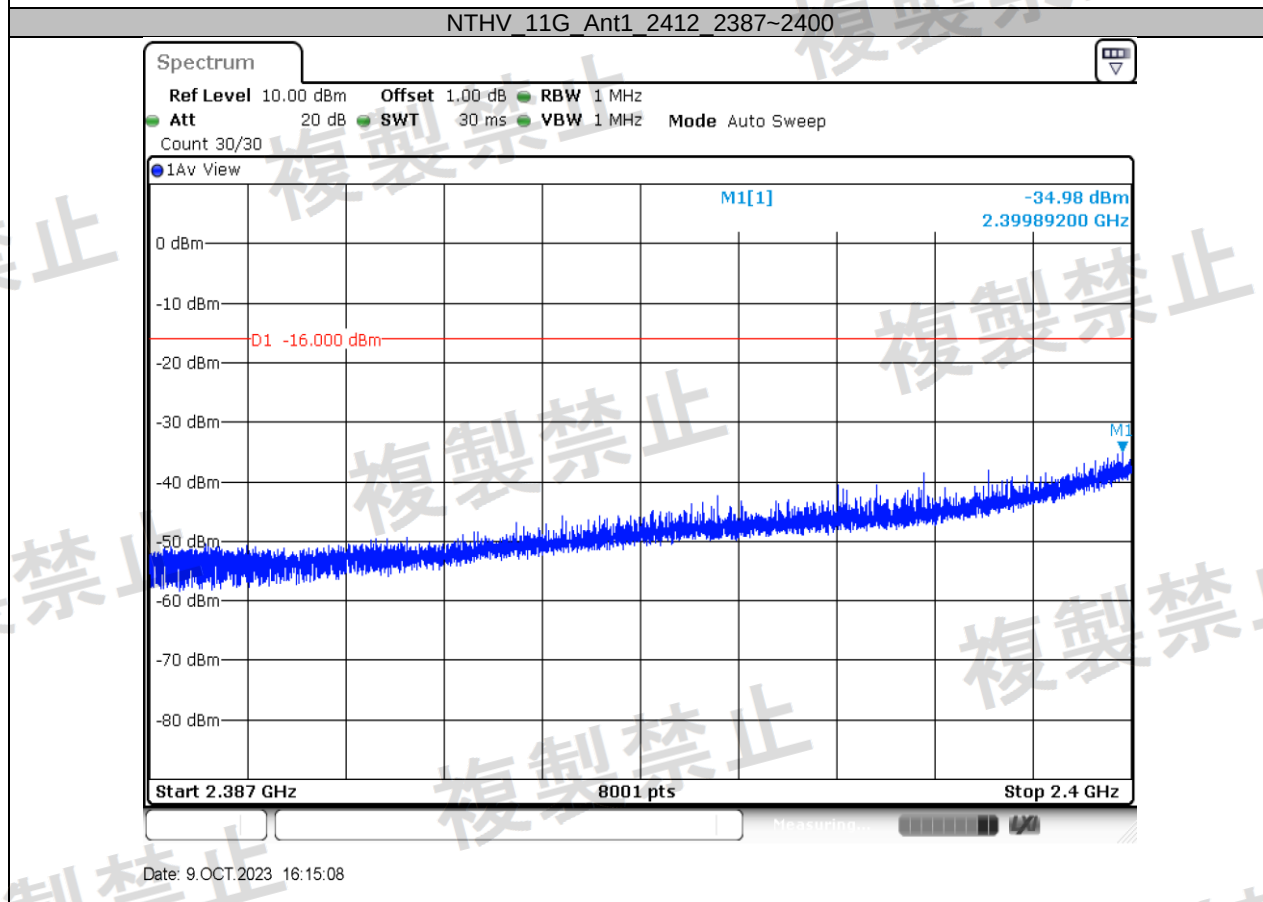


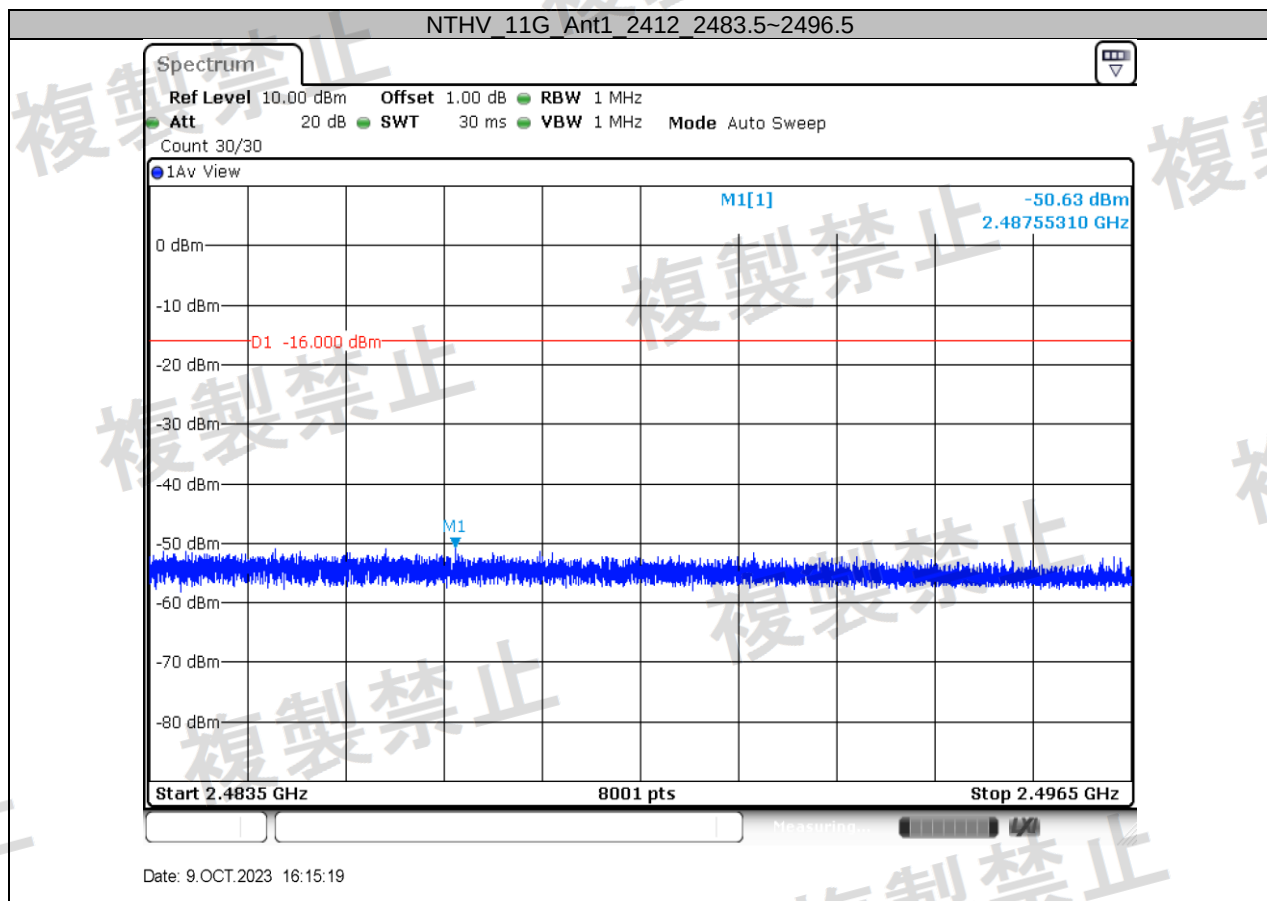
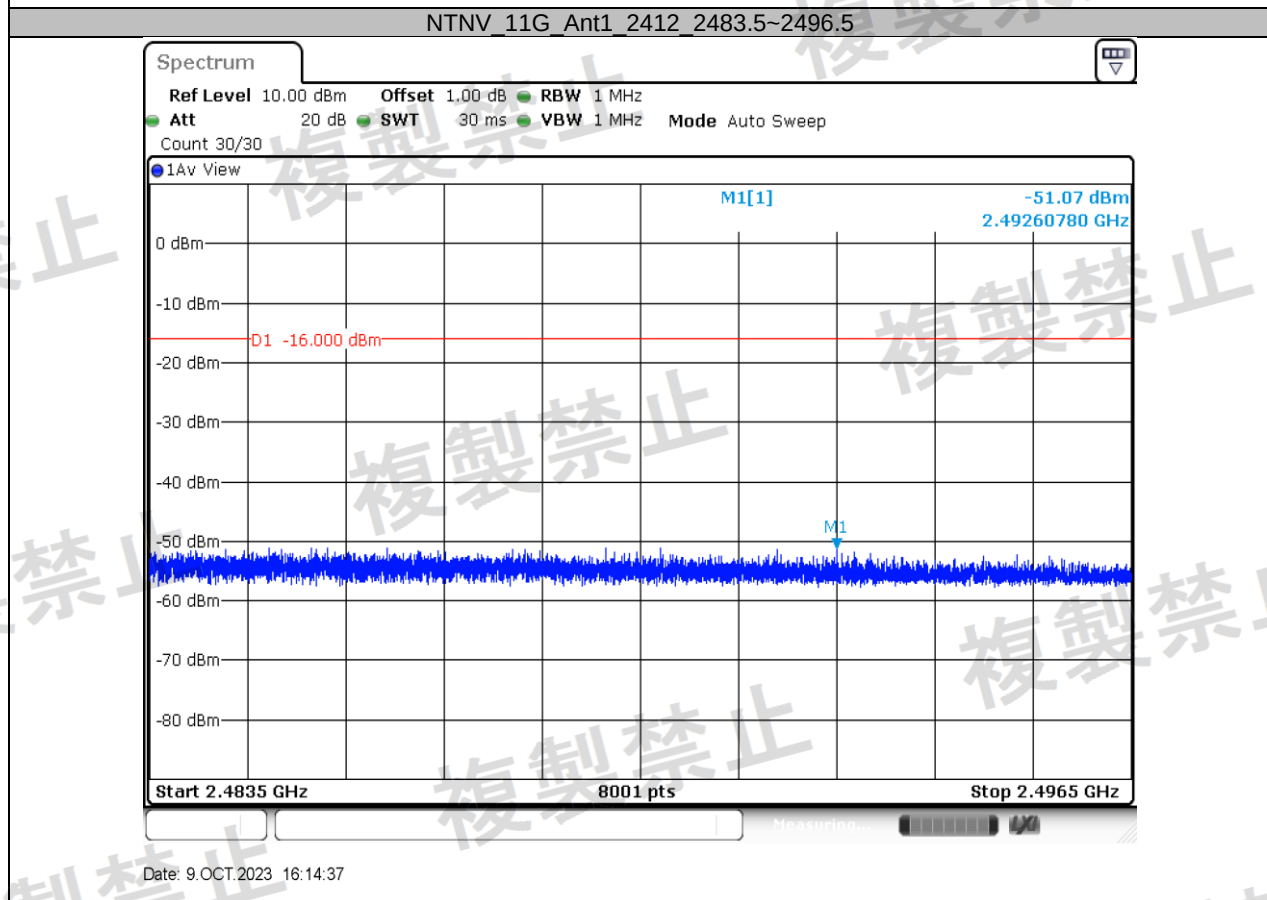
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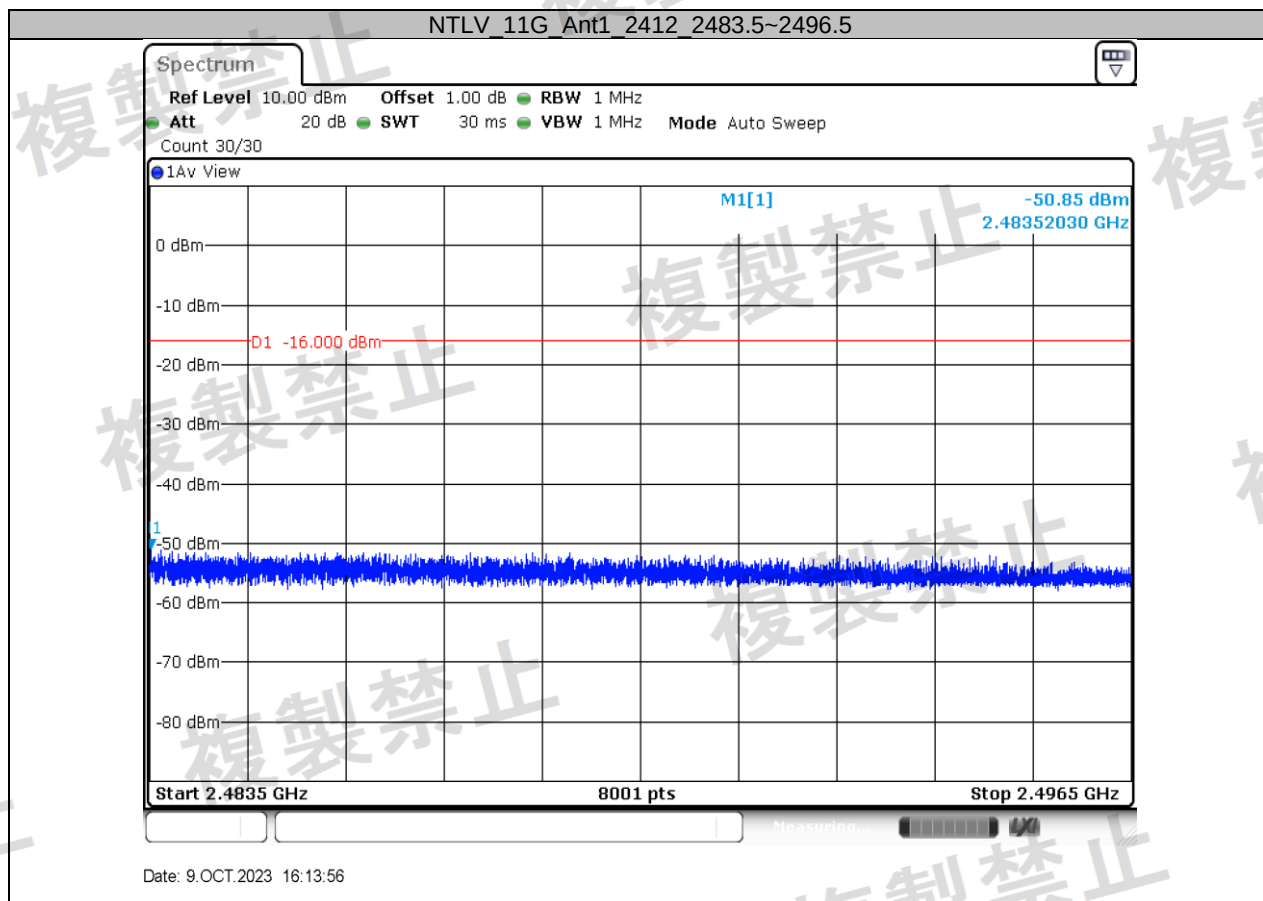
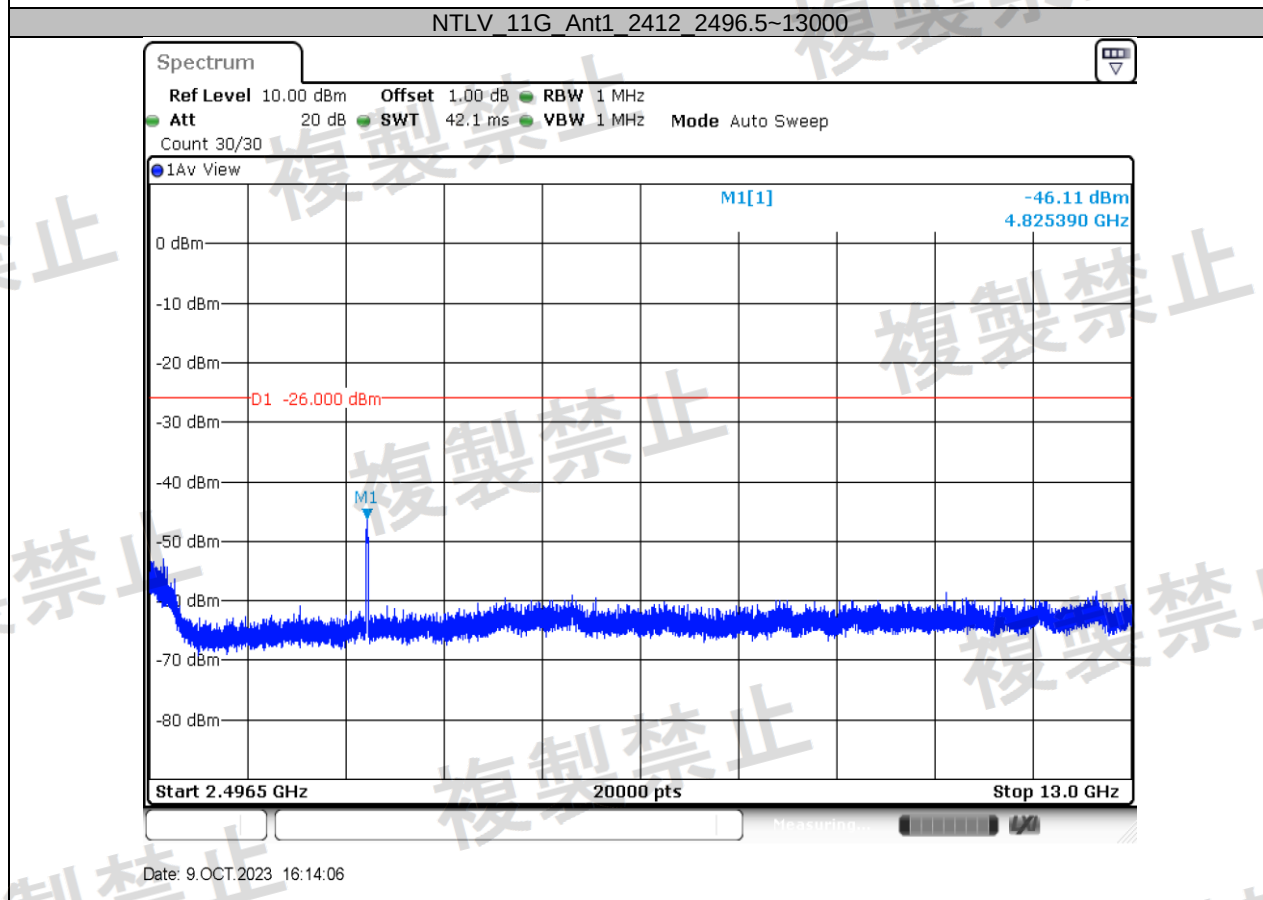


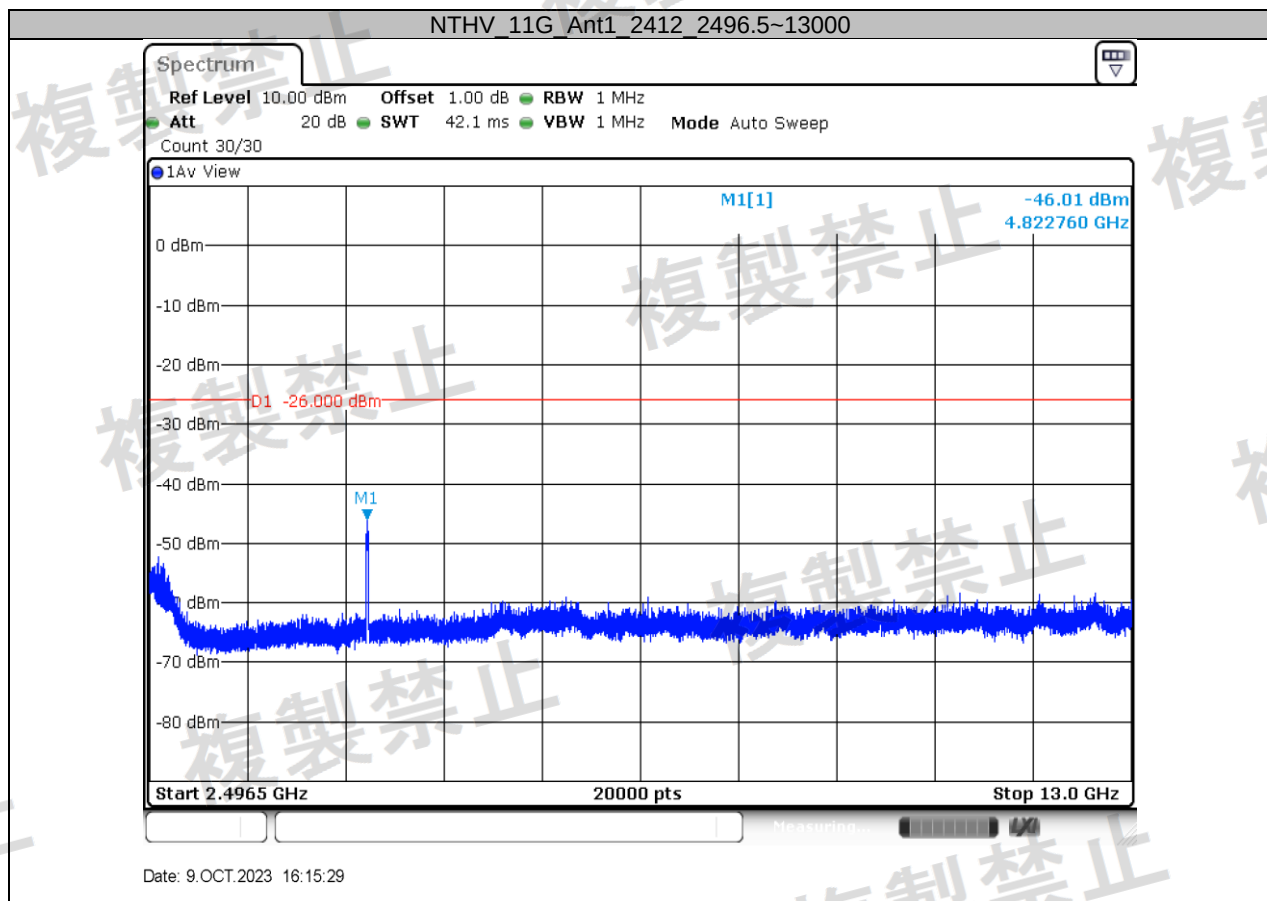
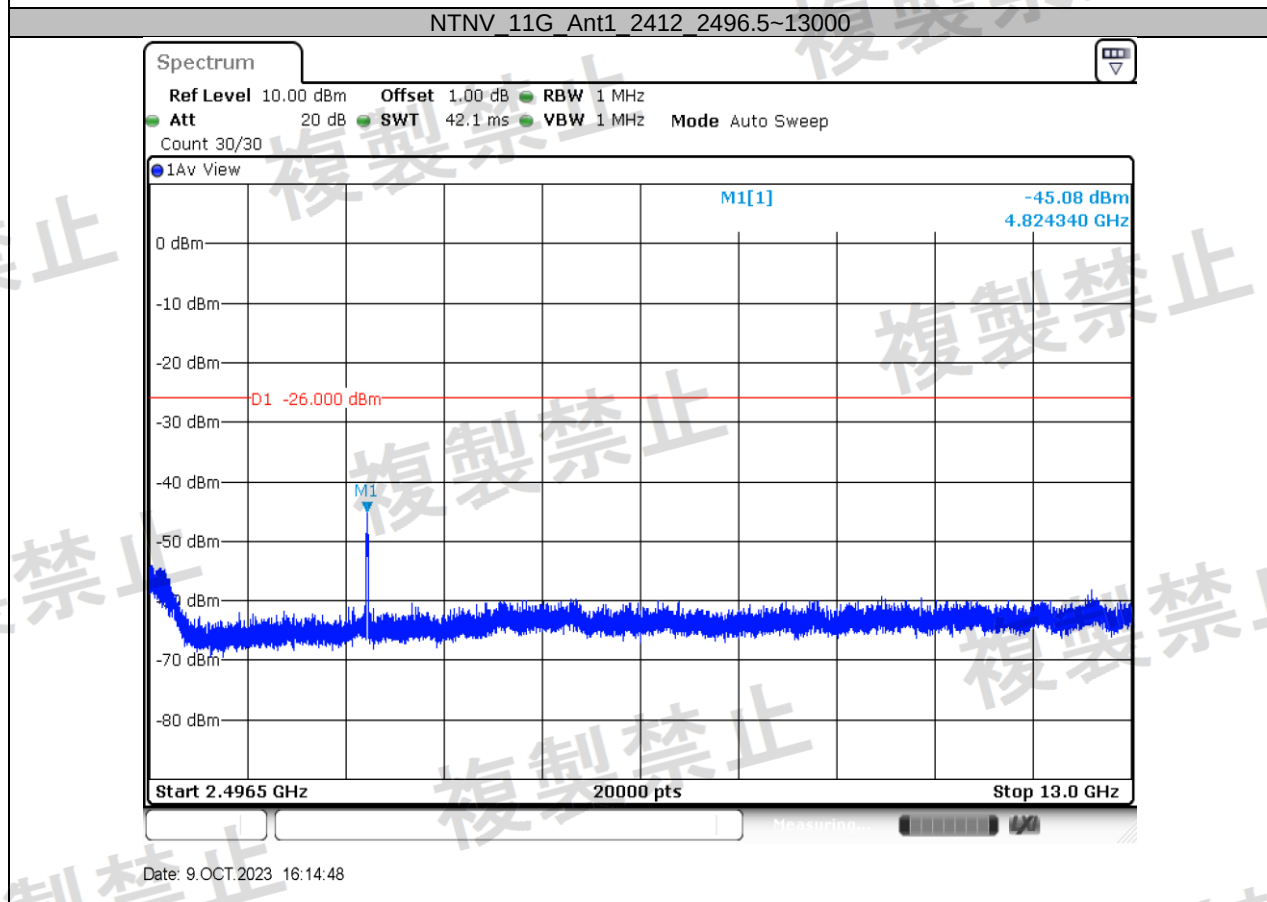


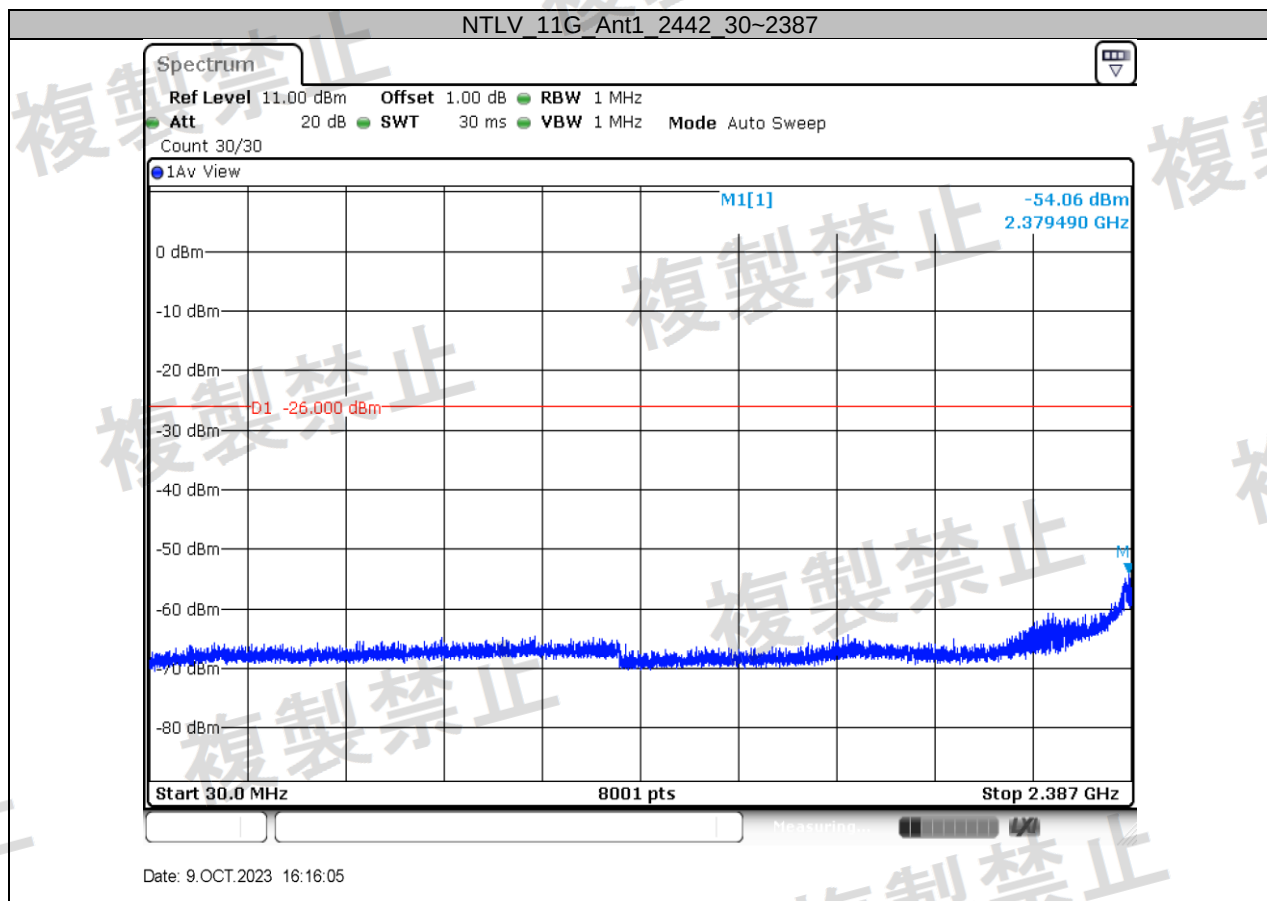
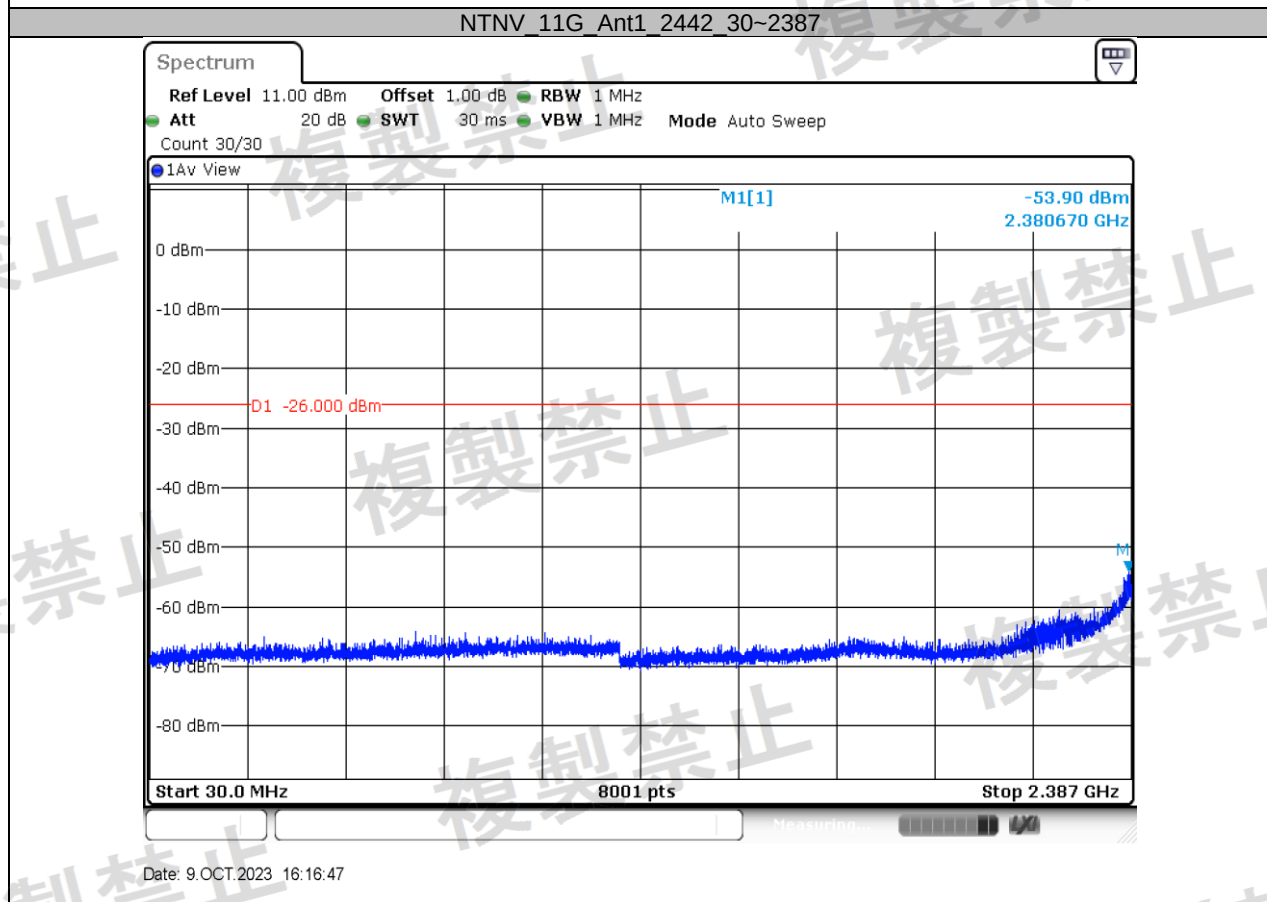






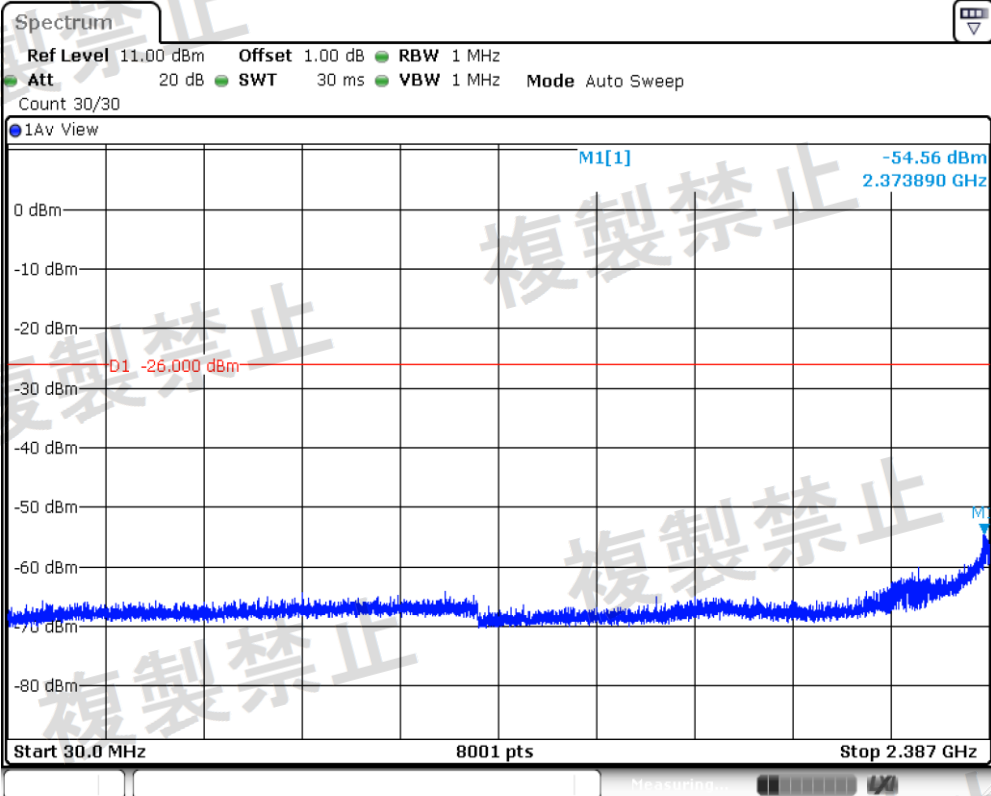




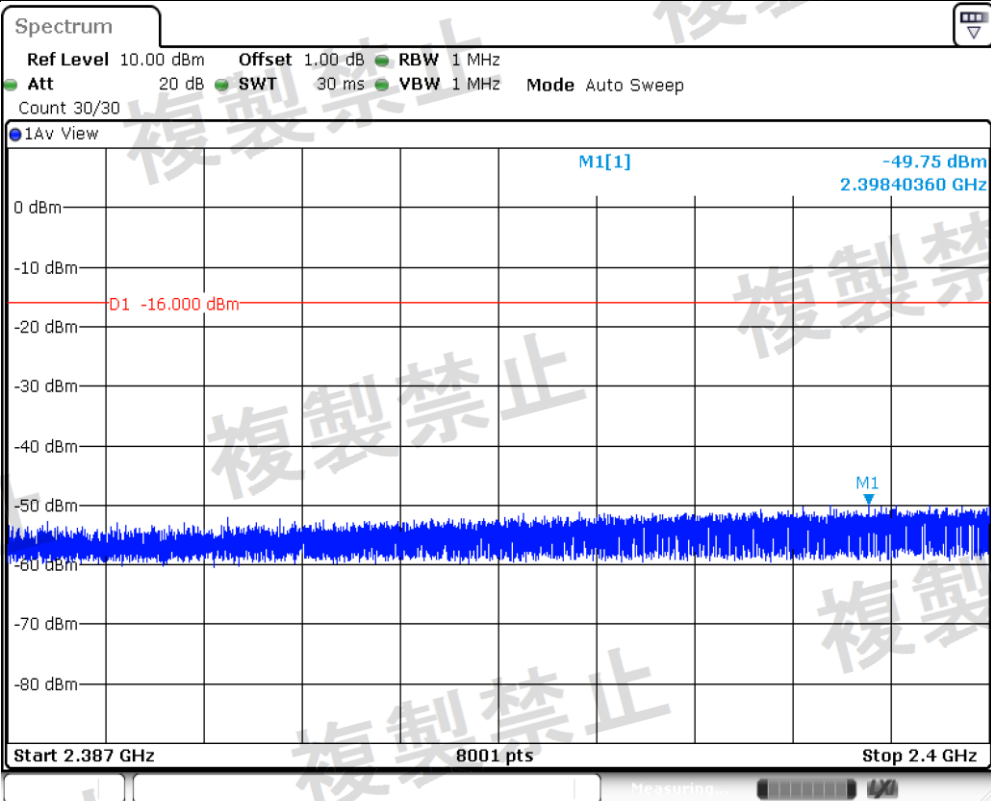




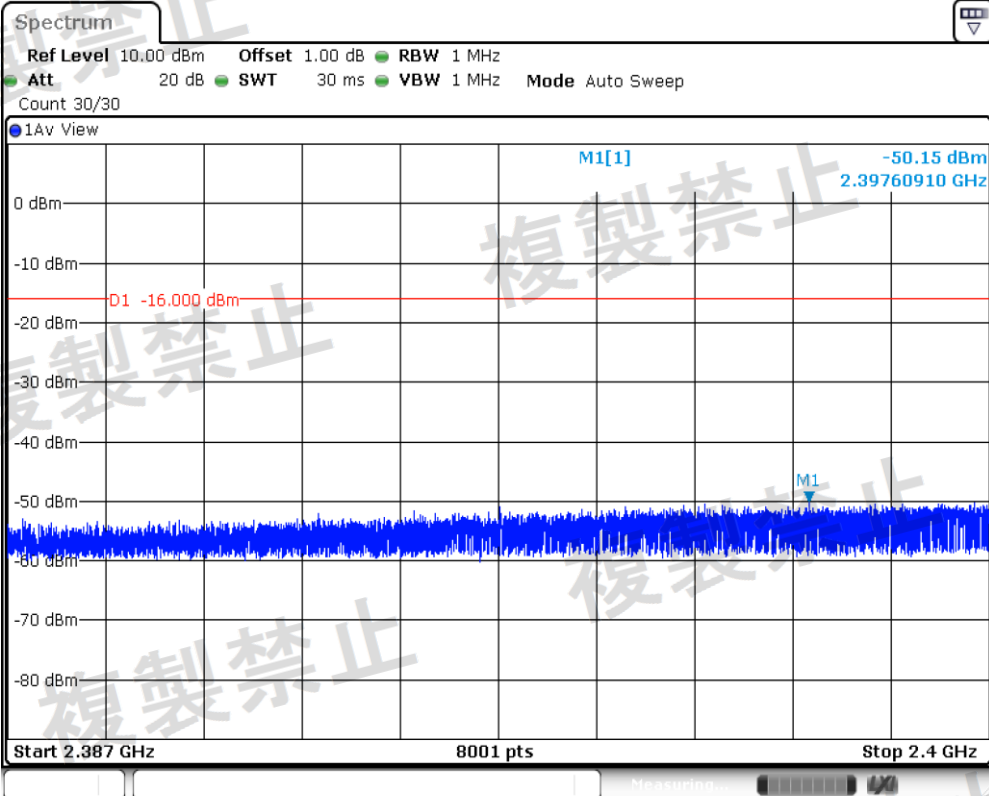
## NTHV\_11G\_Ant1\_2442\_30~2387



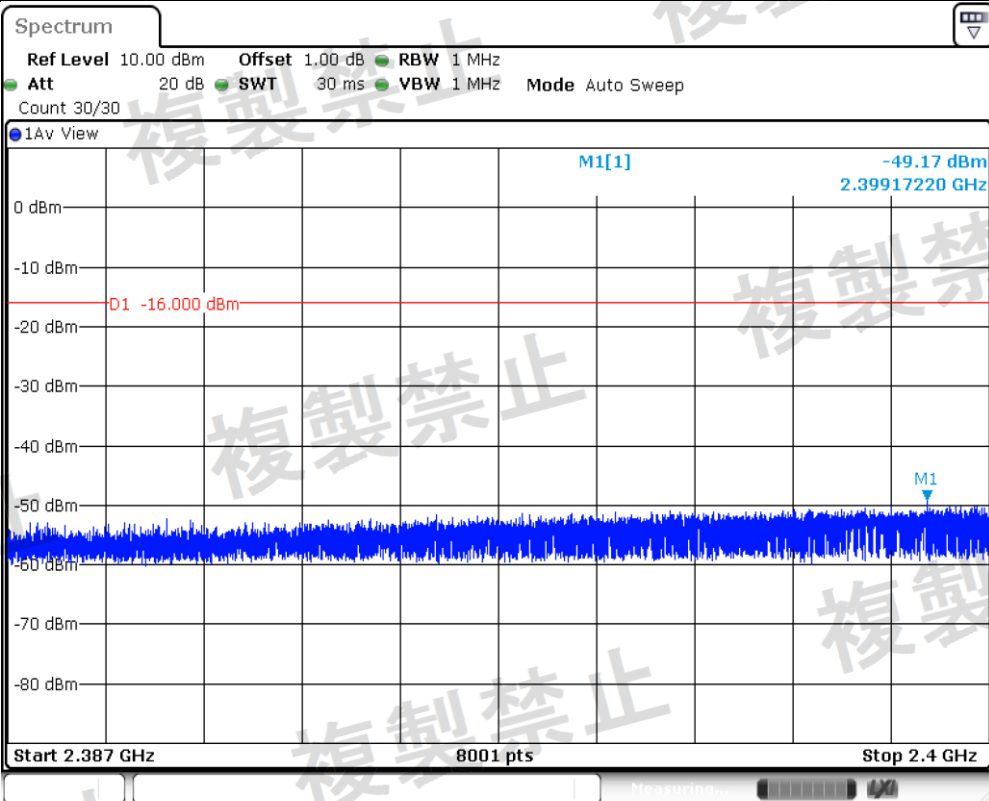
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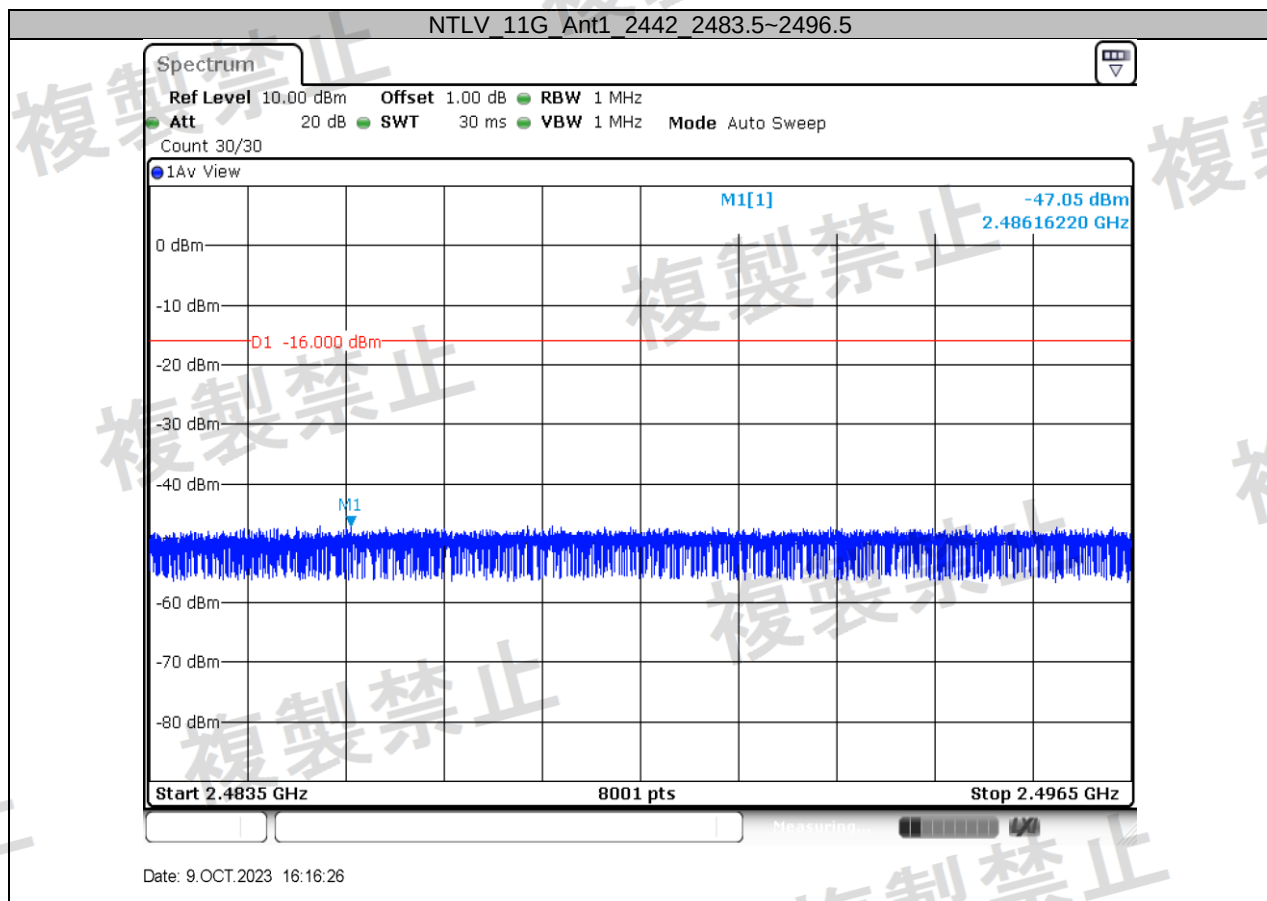
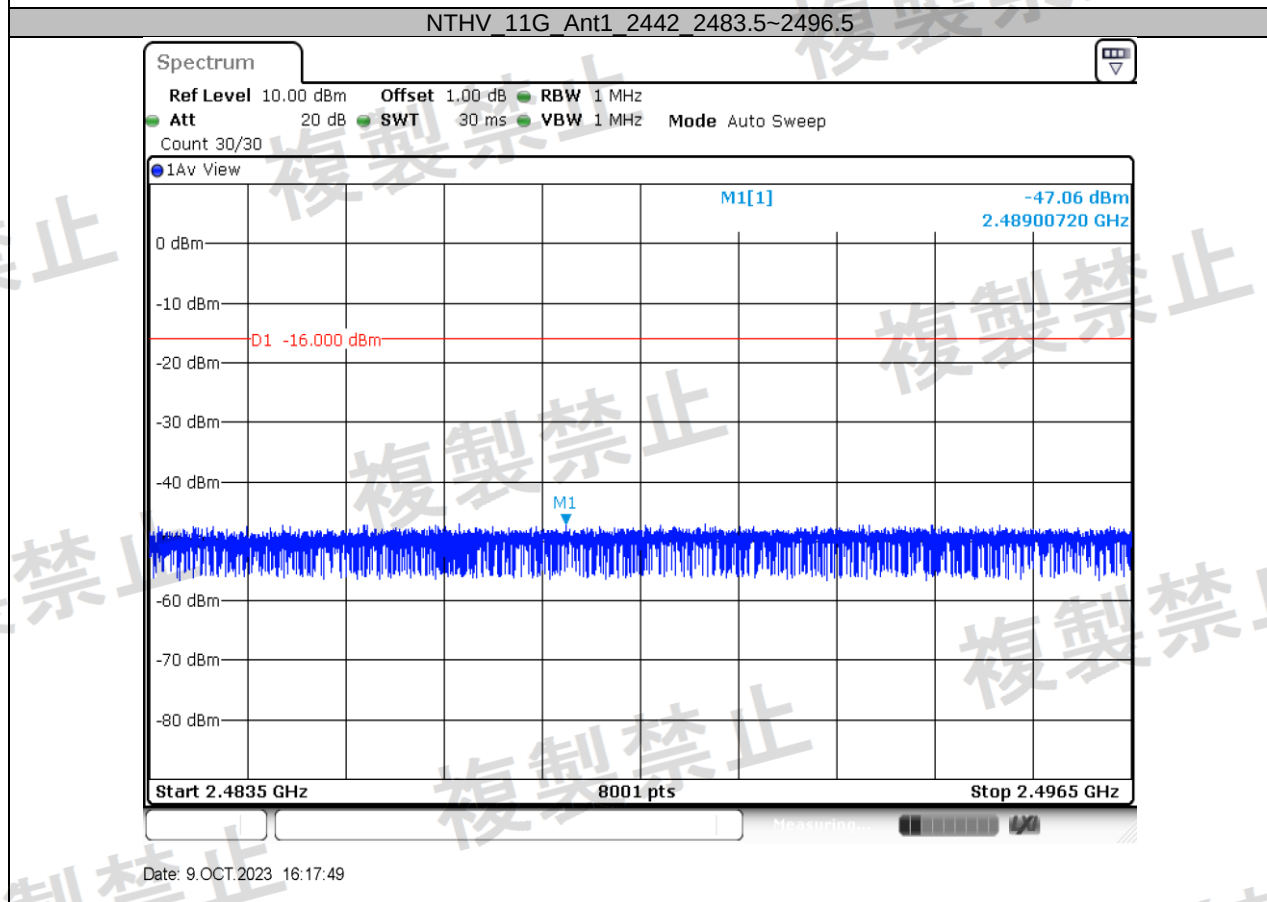


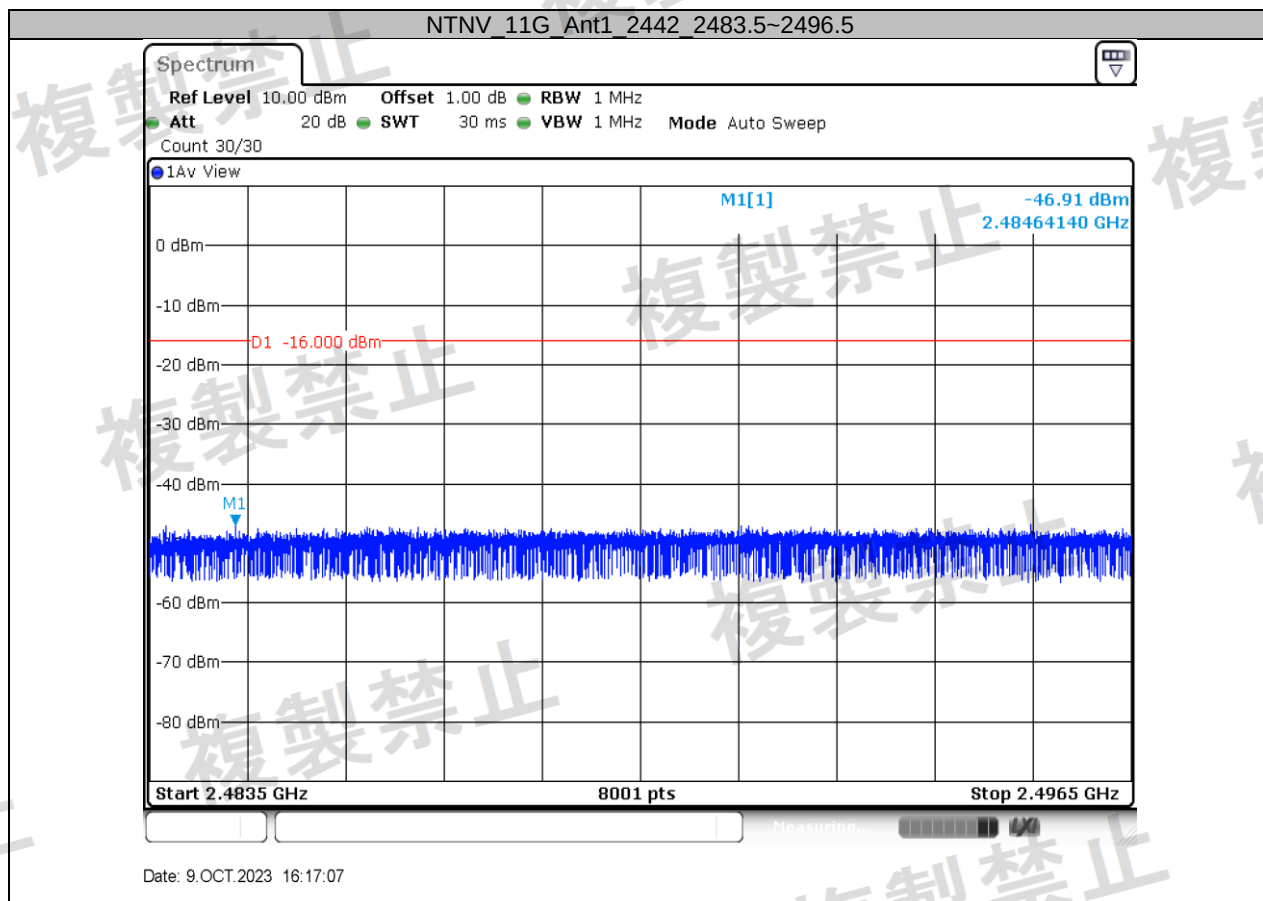
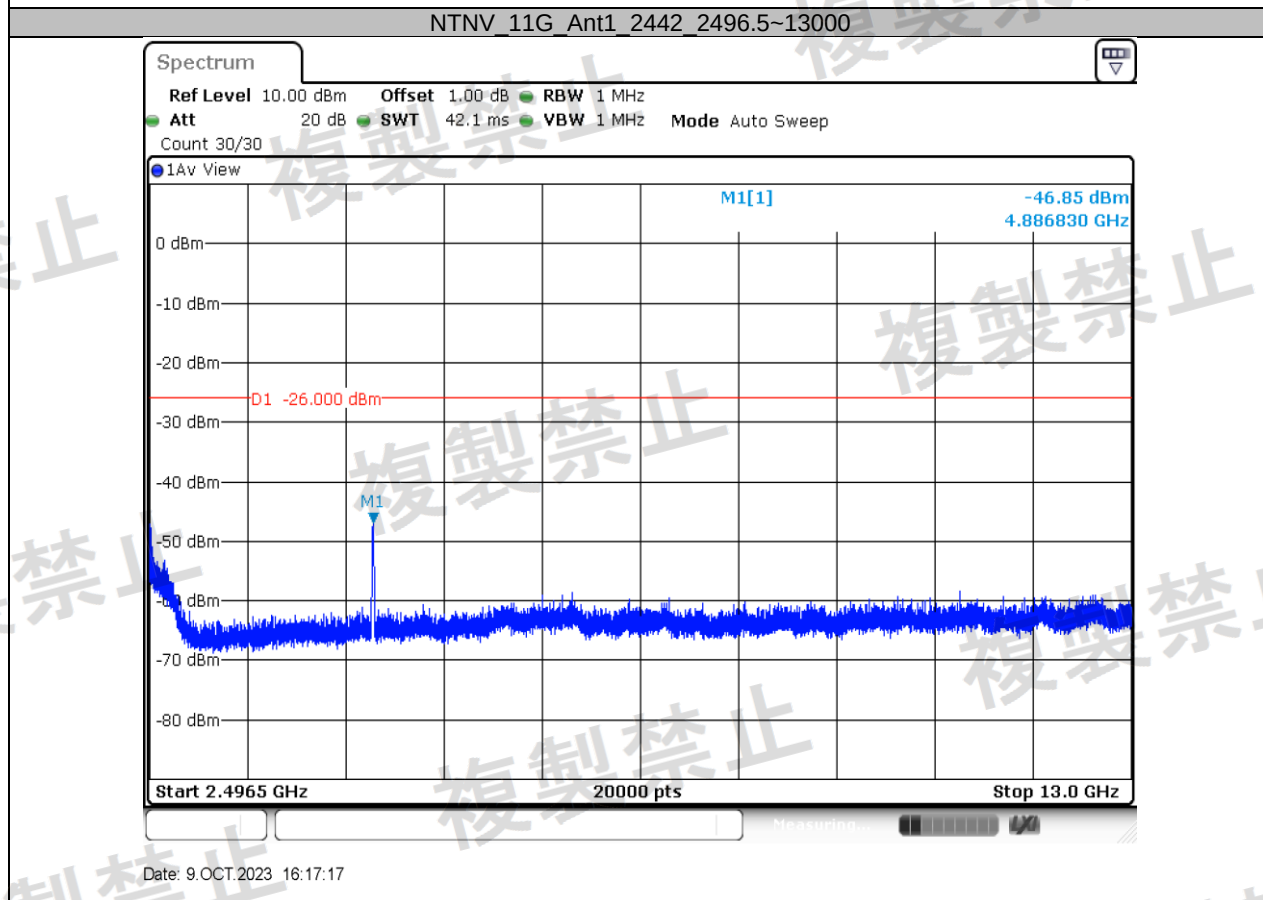
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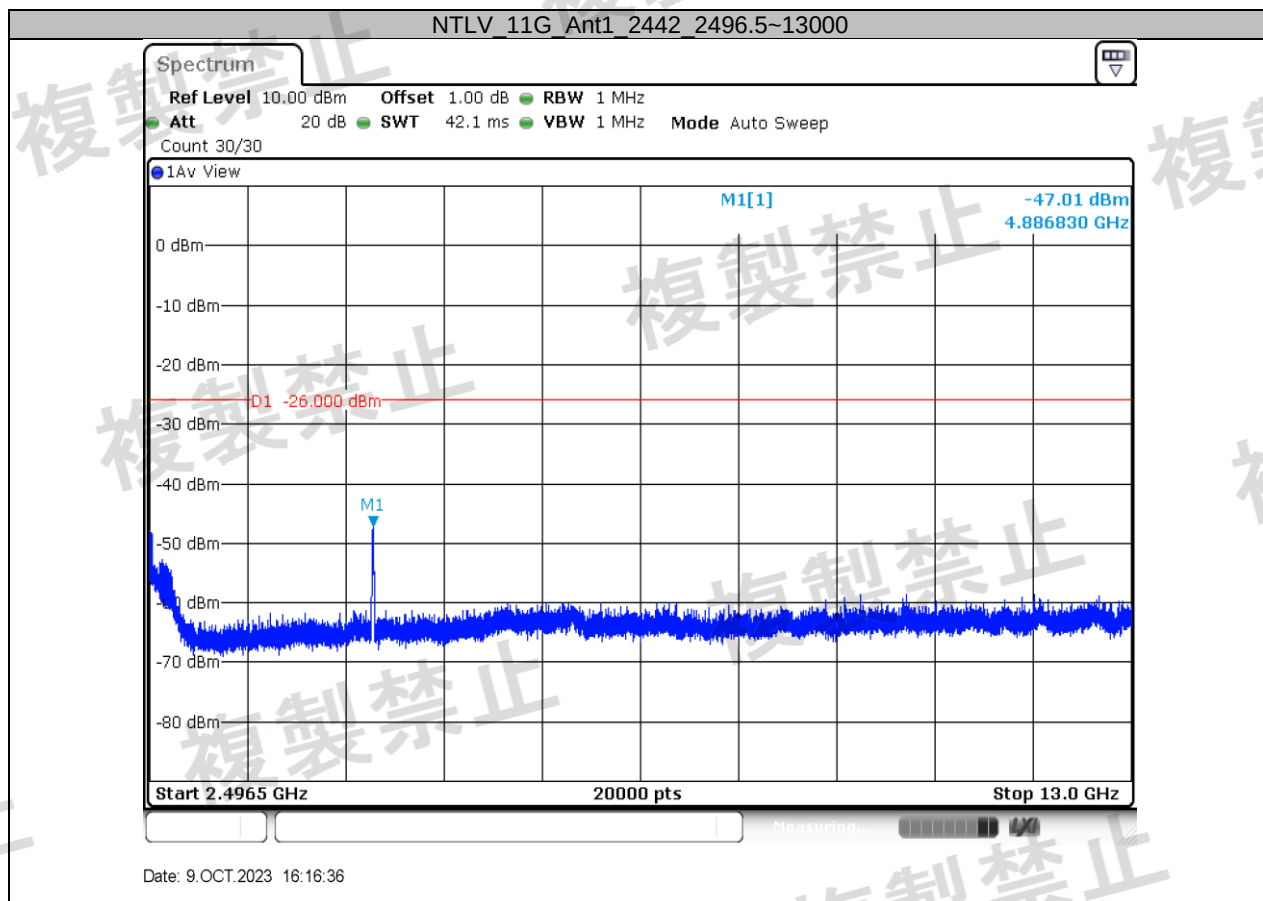
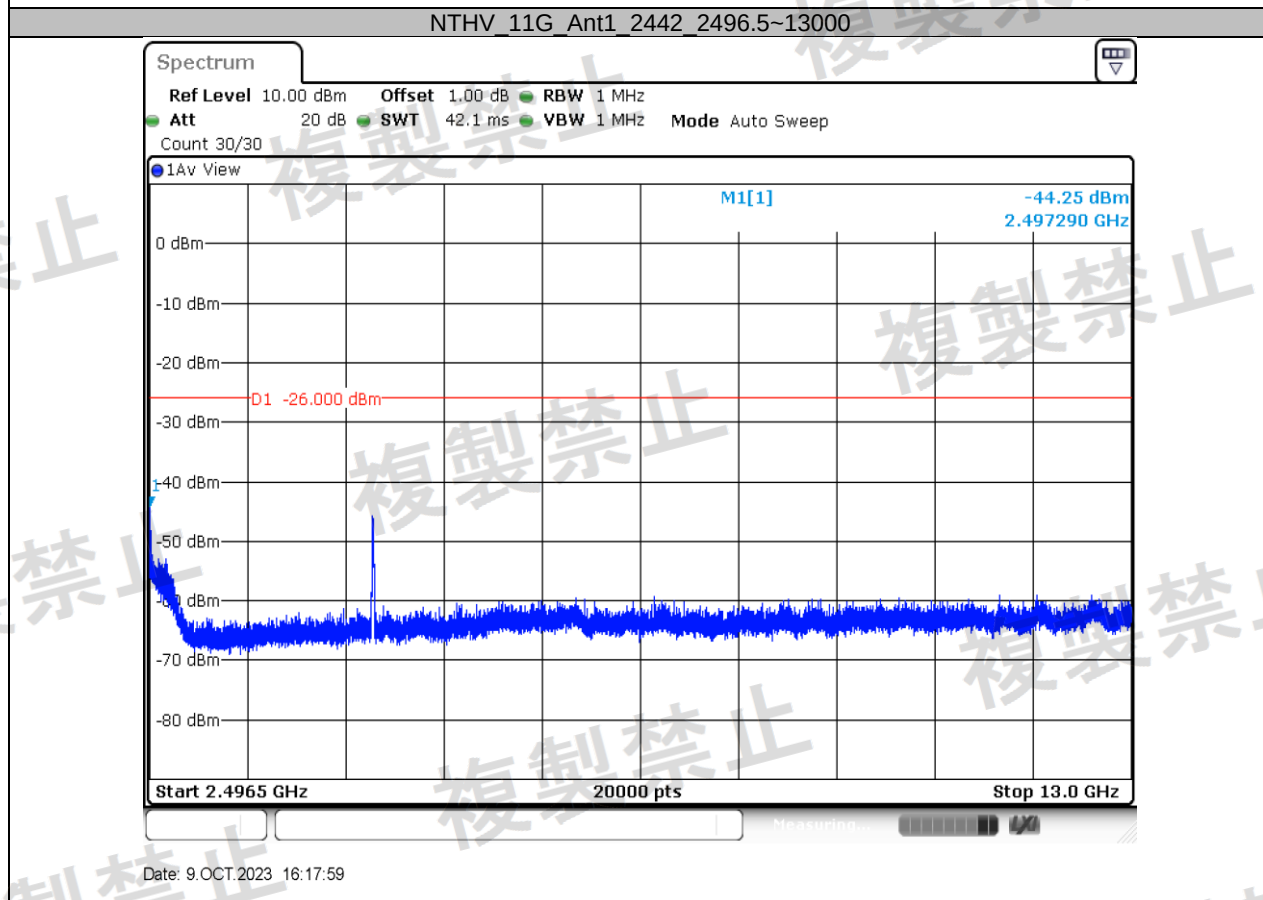


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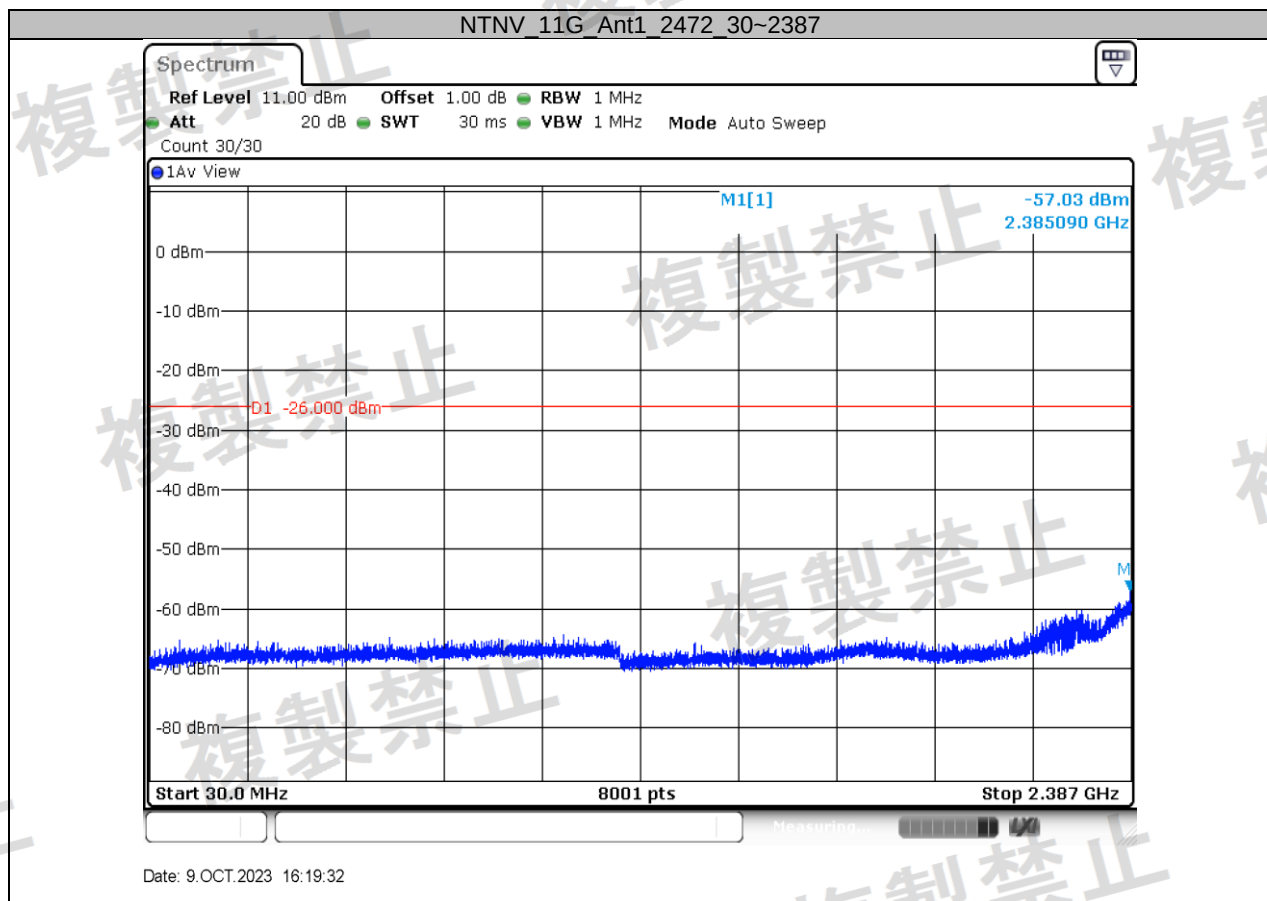
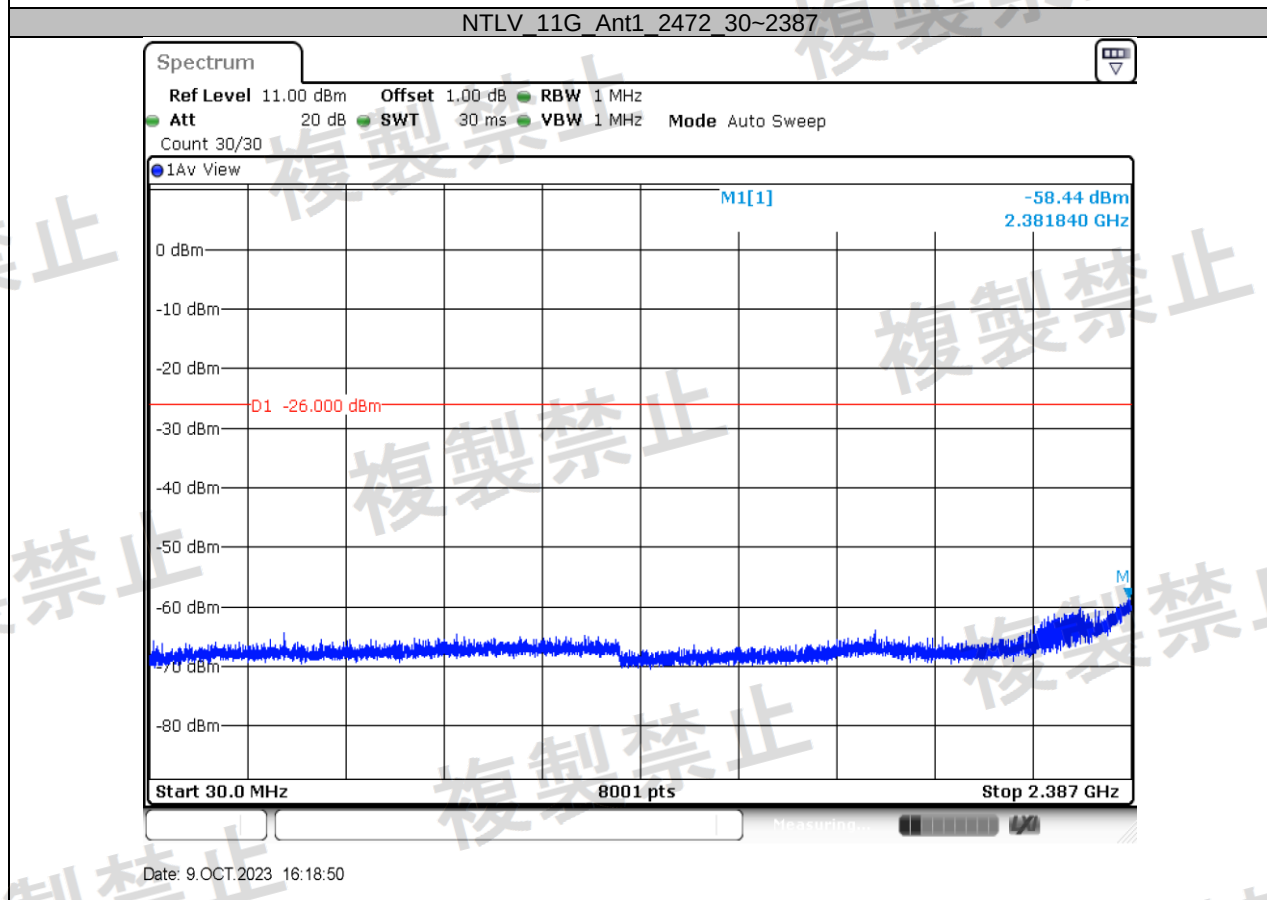


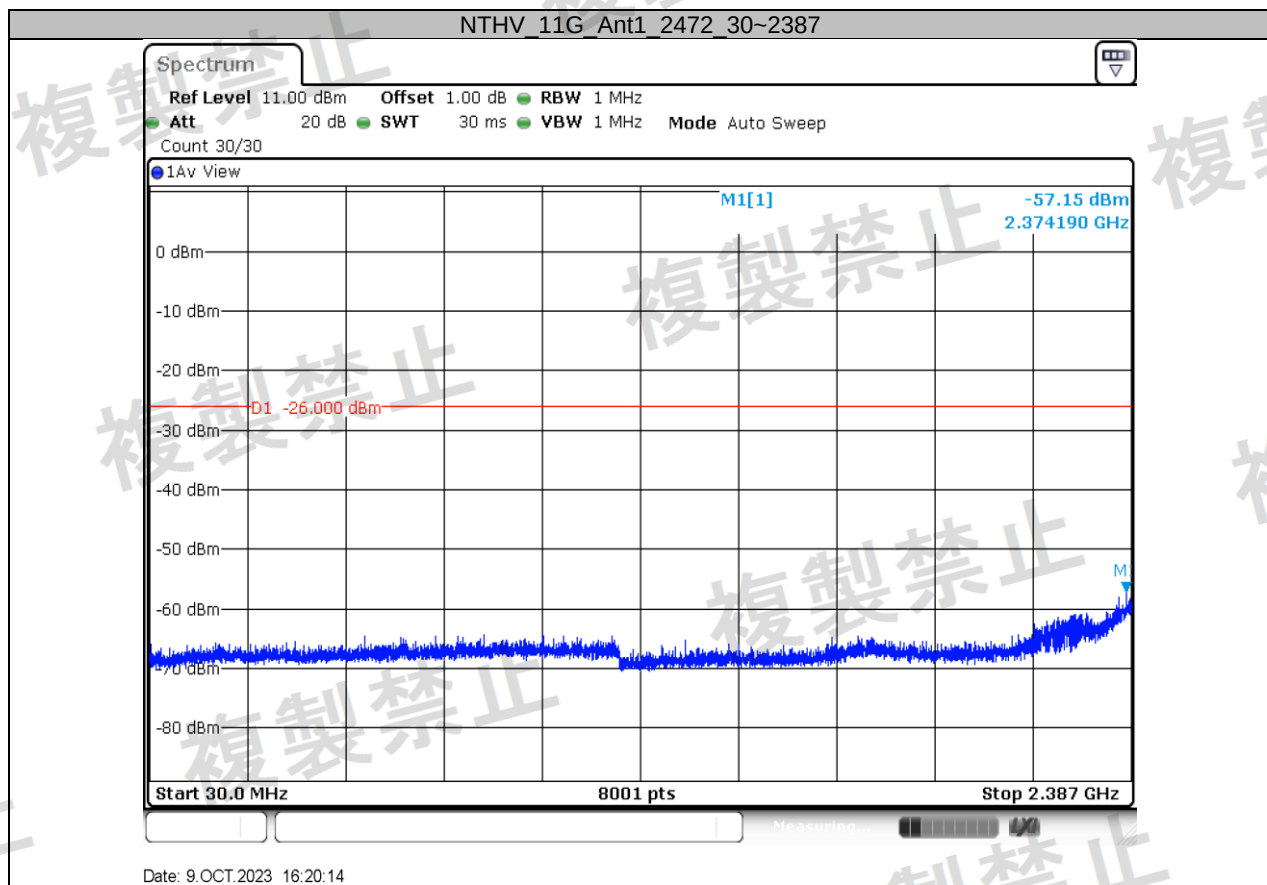
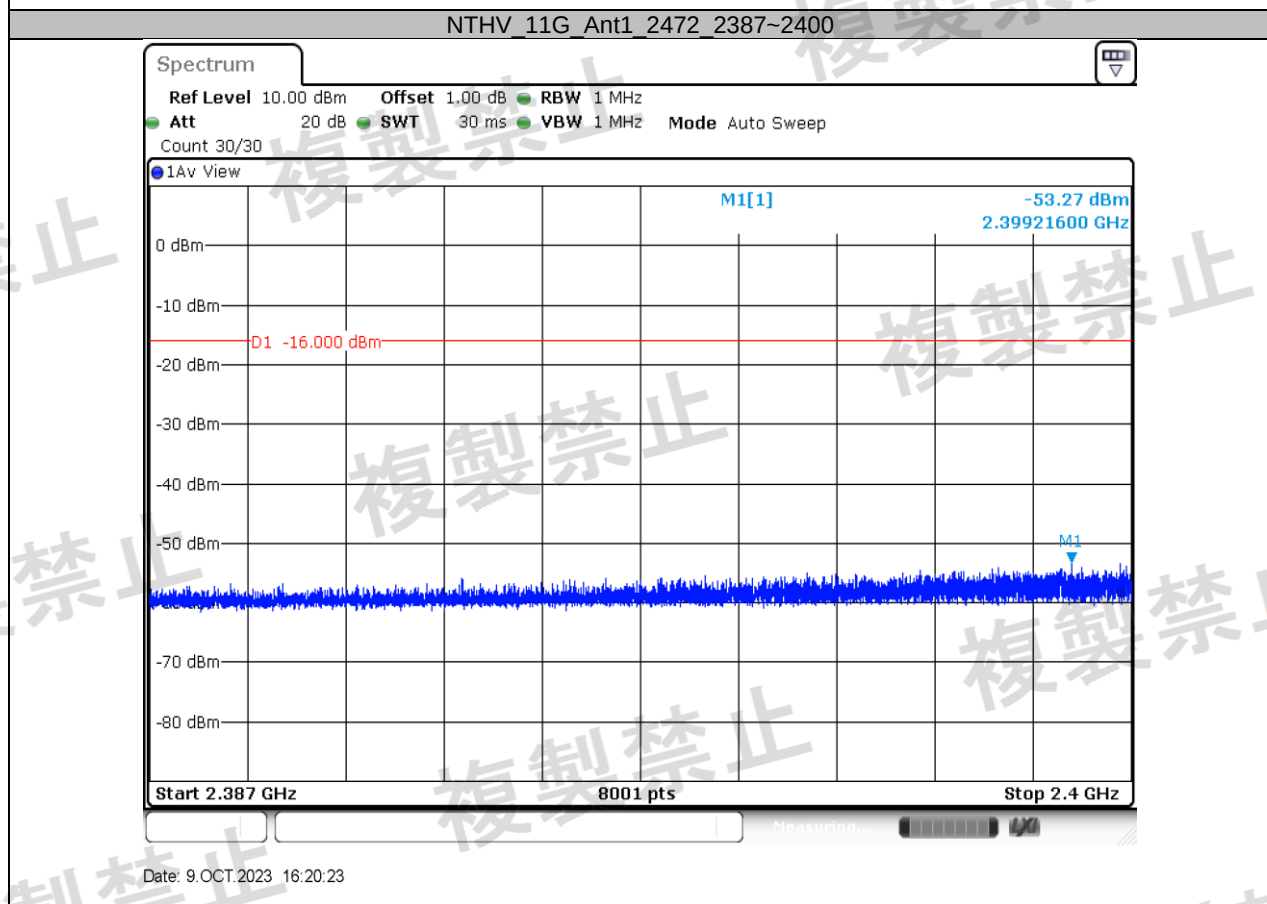




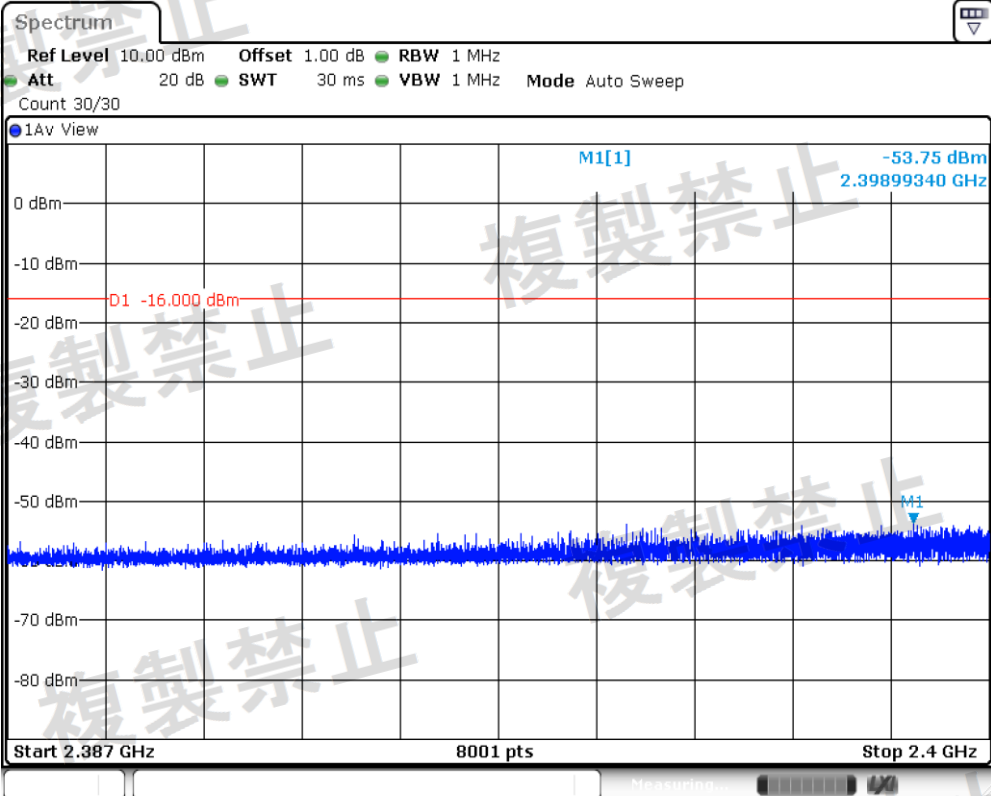






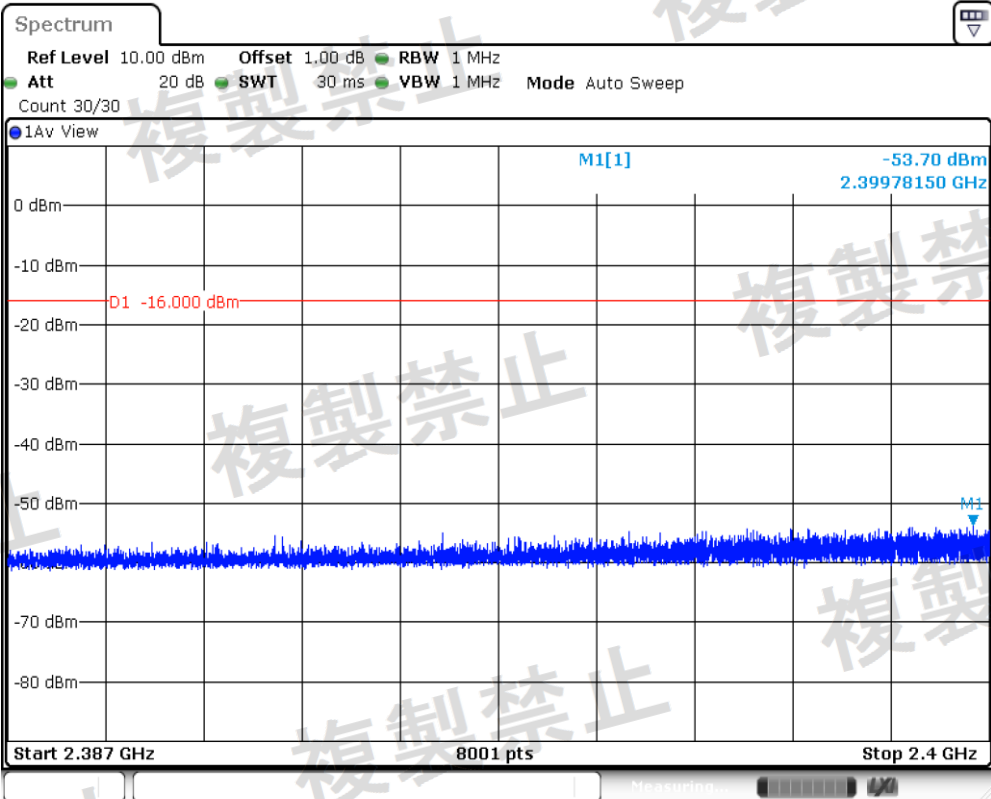


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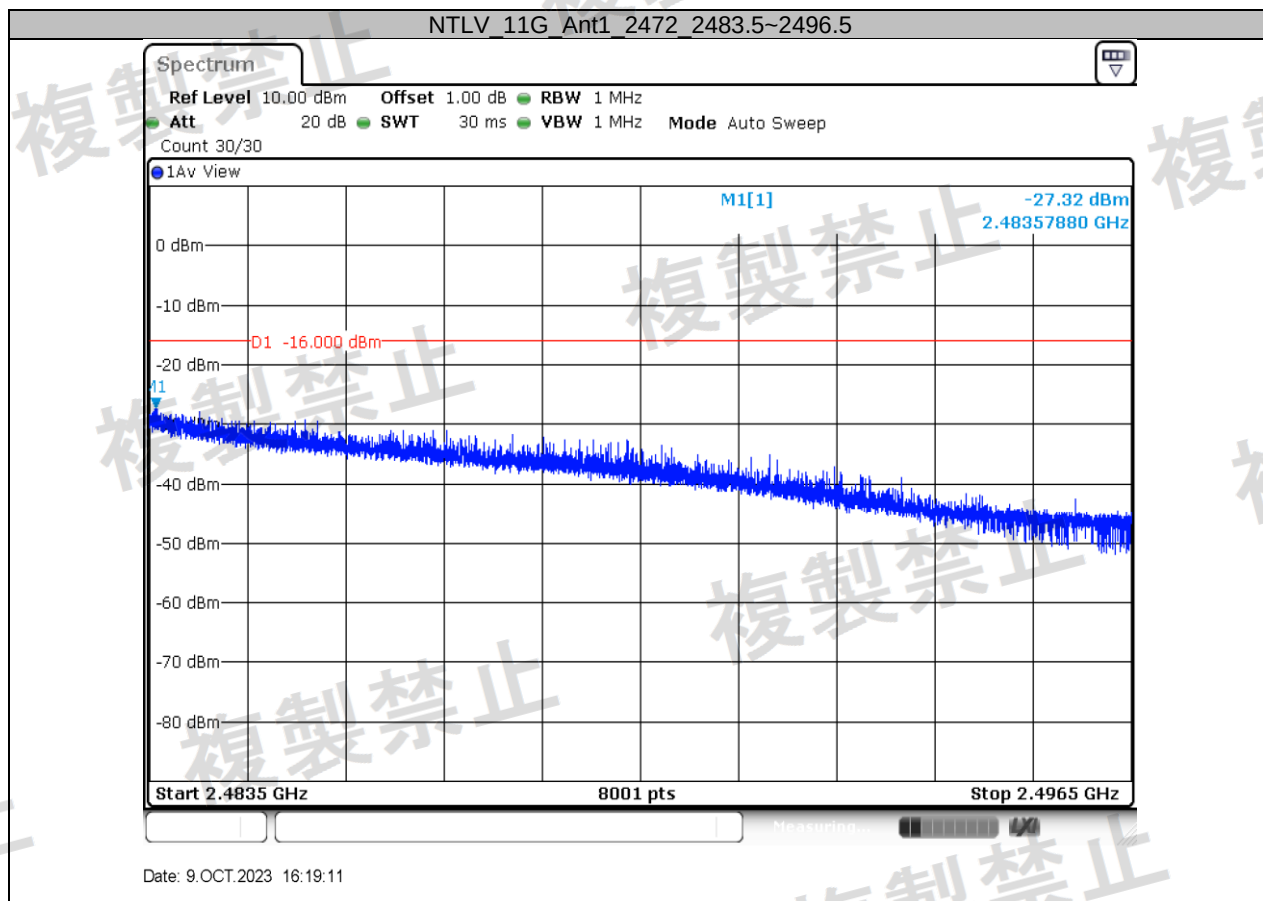
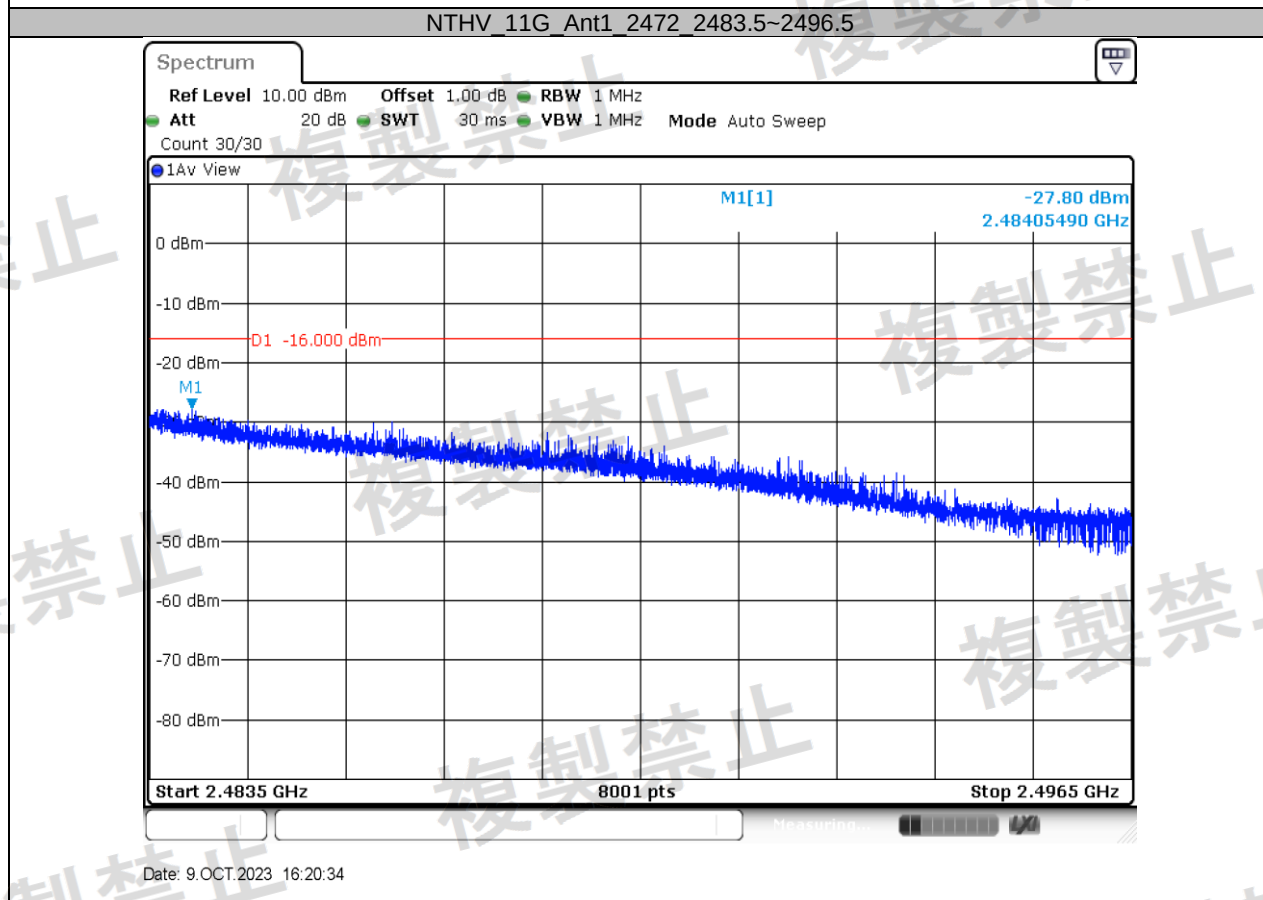


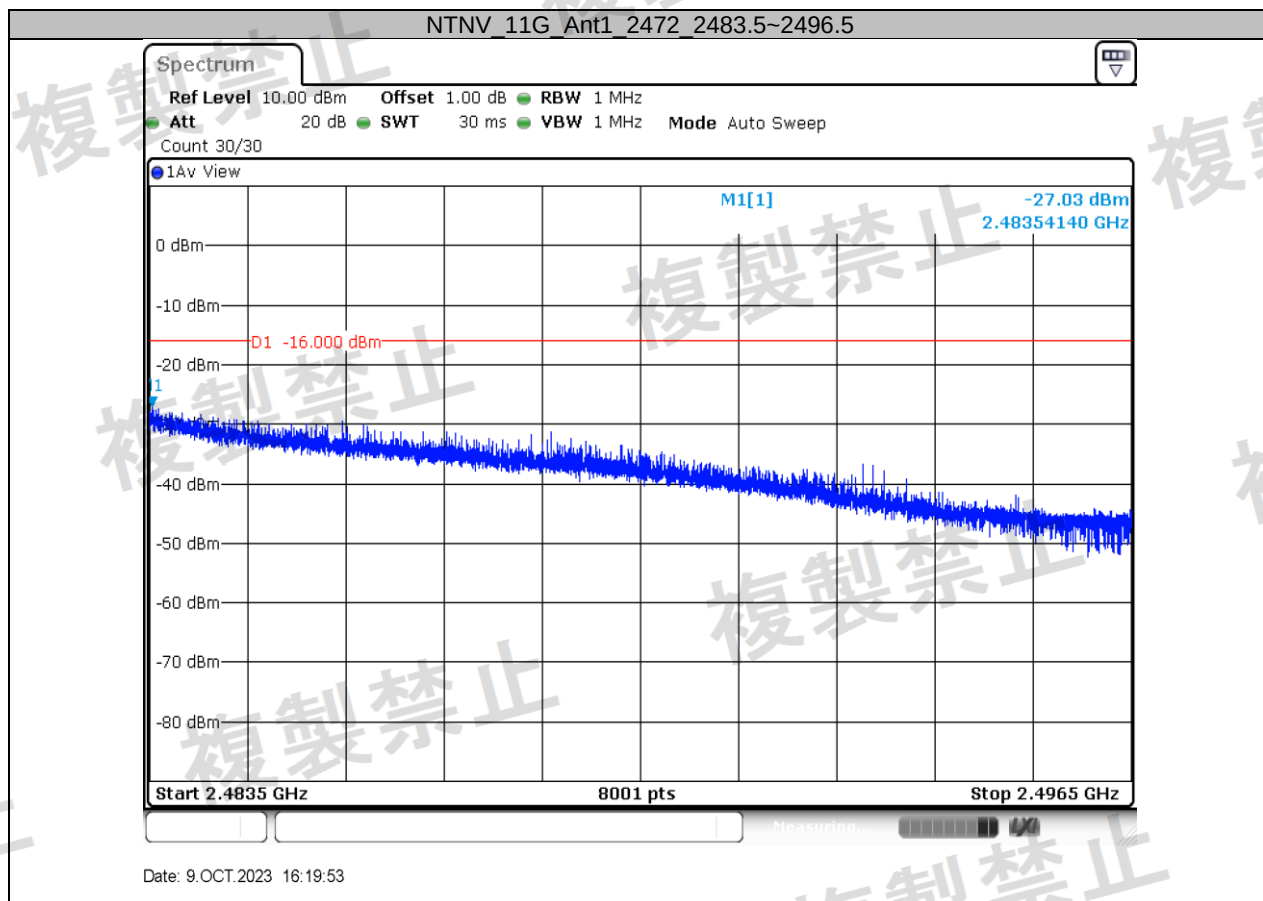
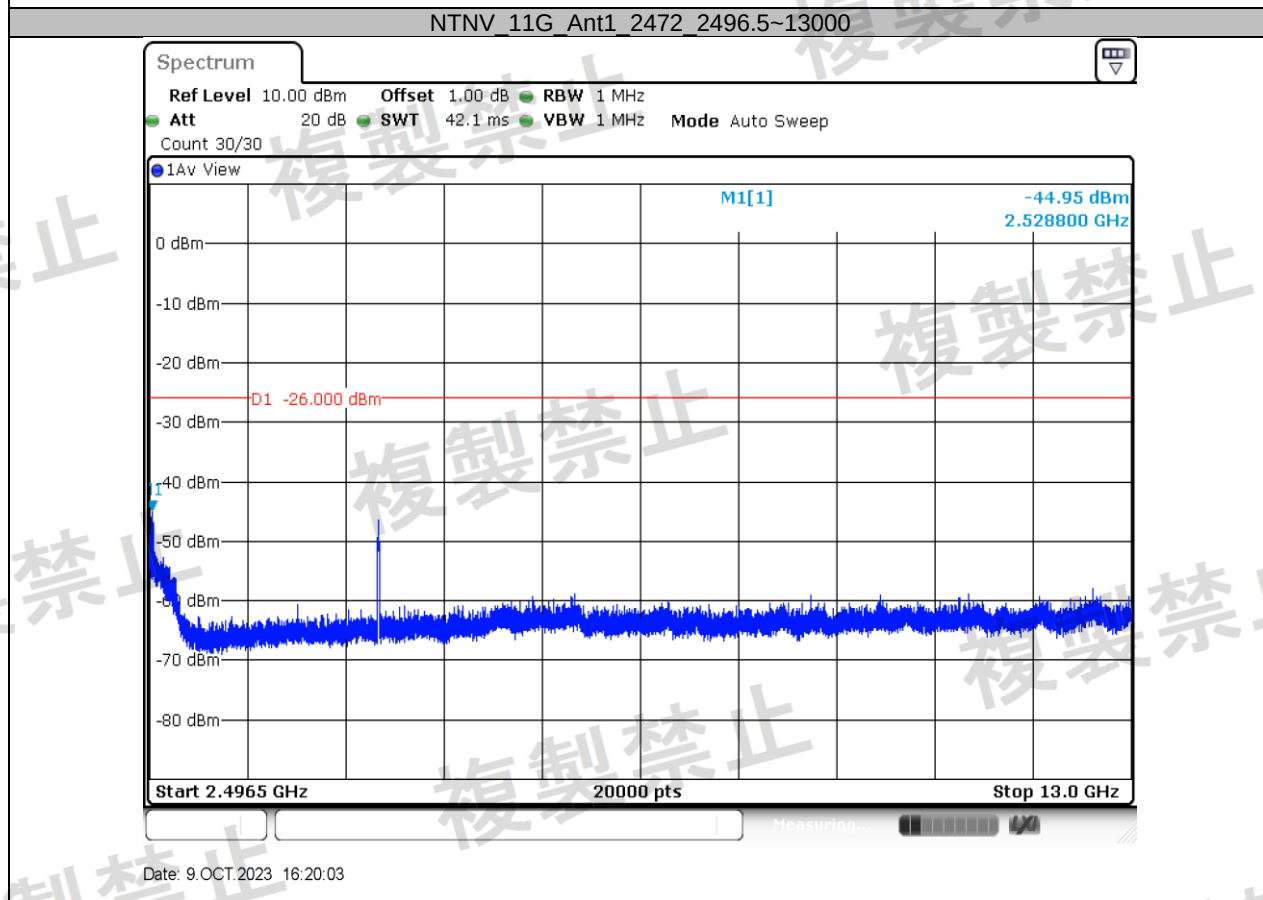
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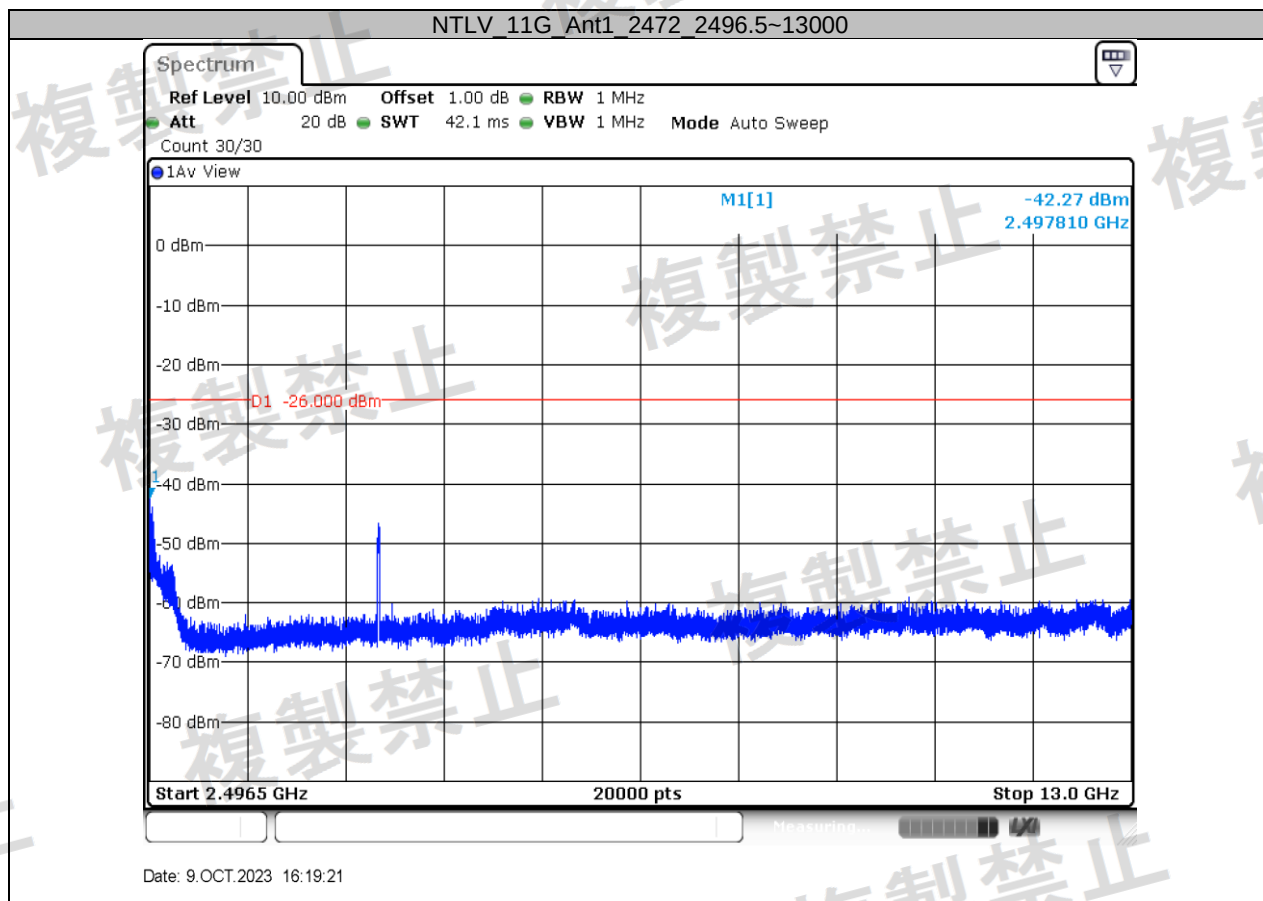
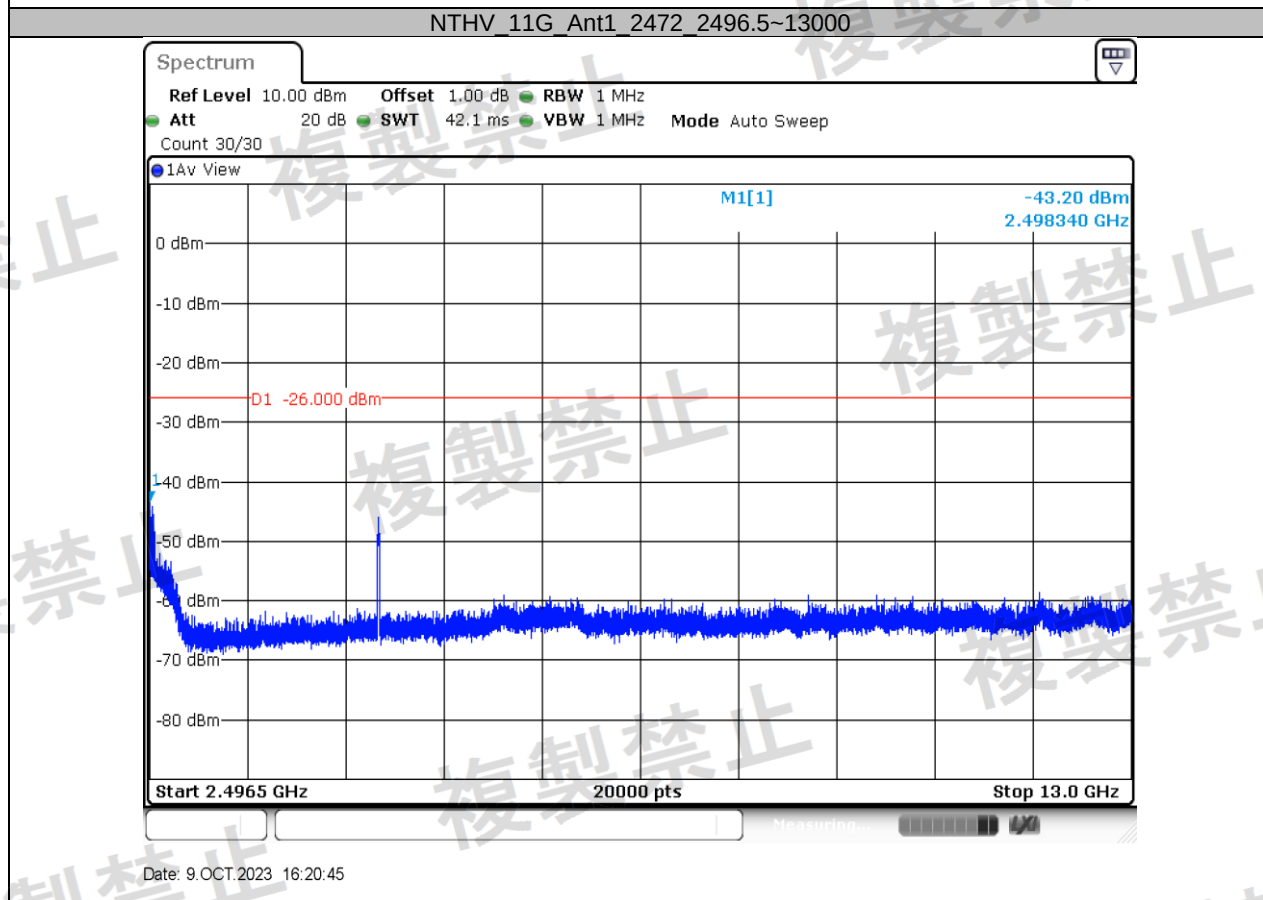


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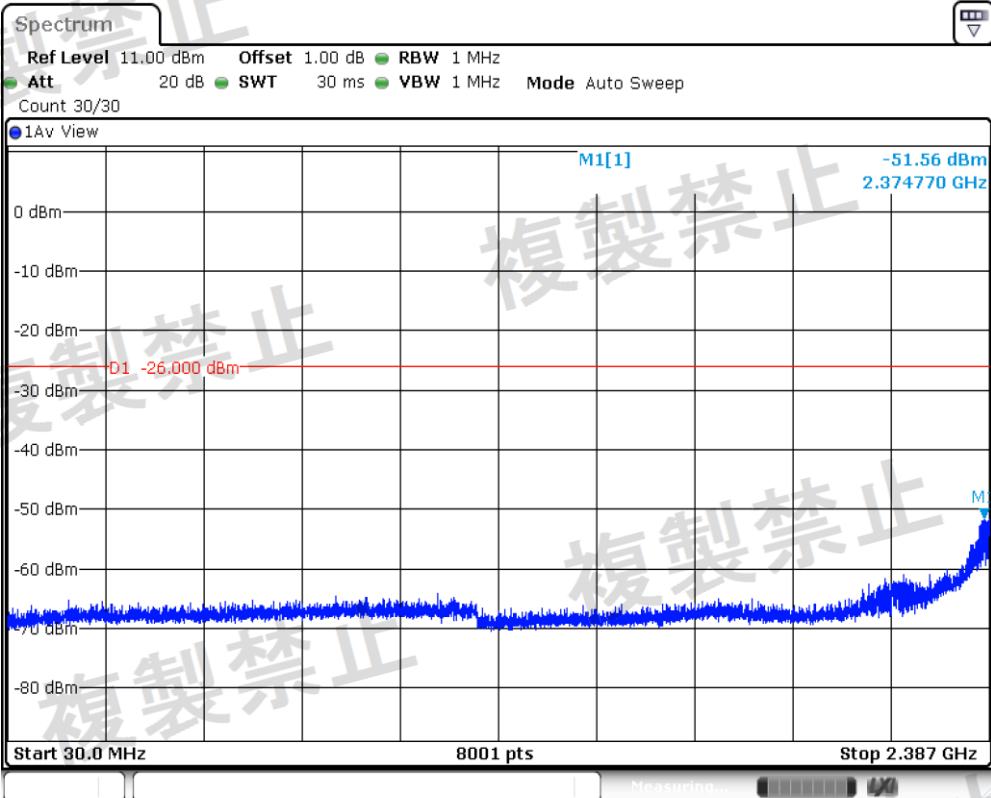




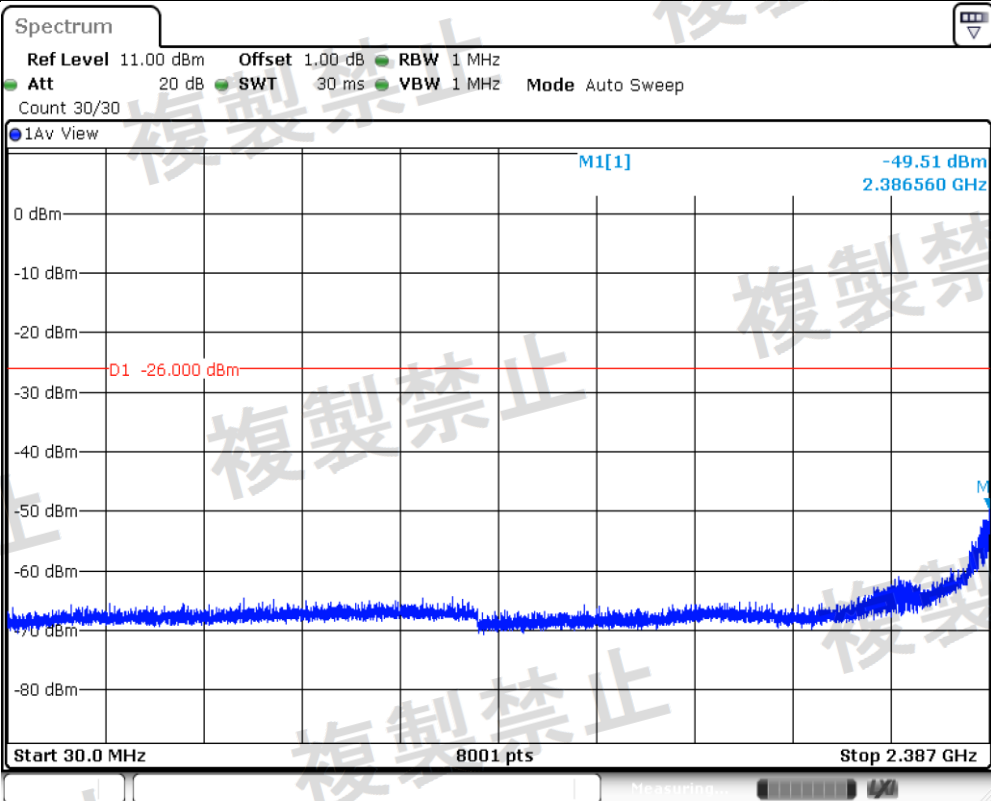




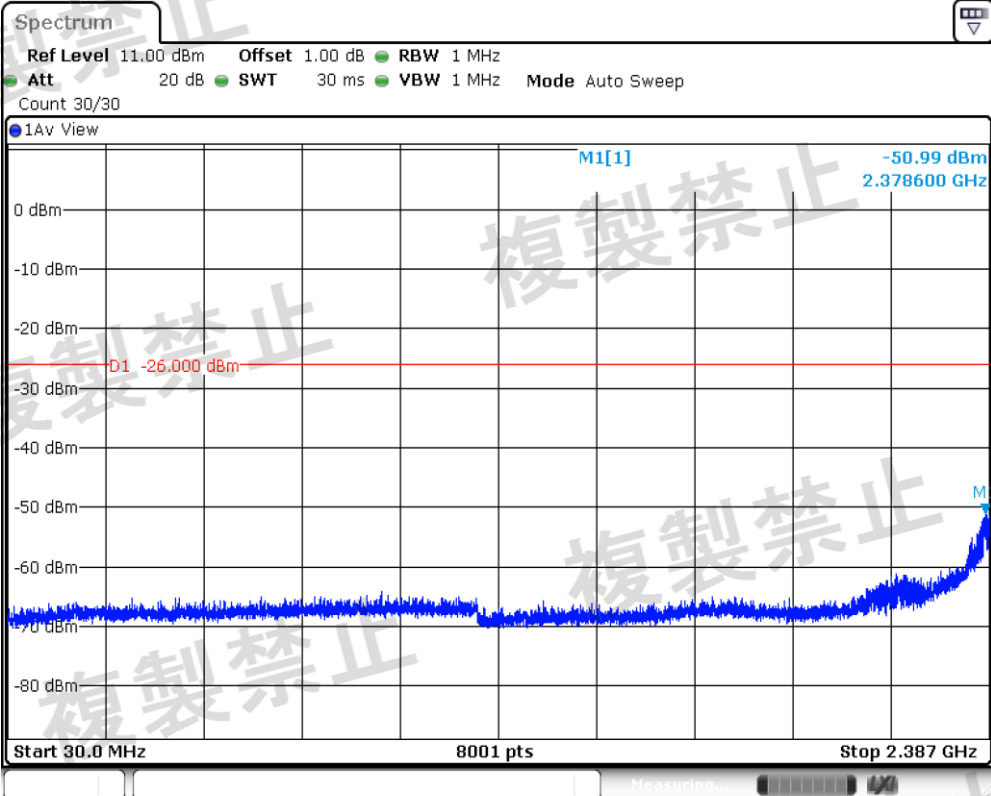
NTHV\_11N20SISO\_Ant1\_2412\_30~2387



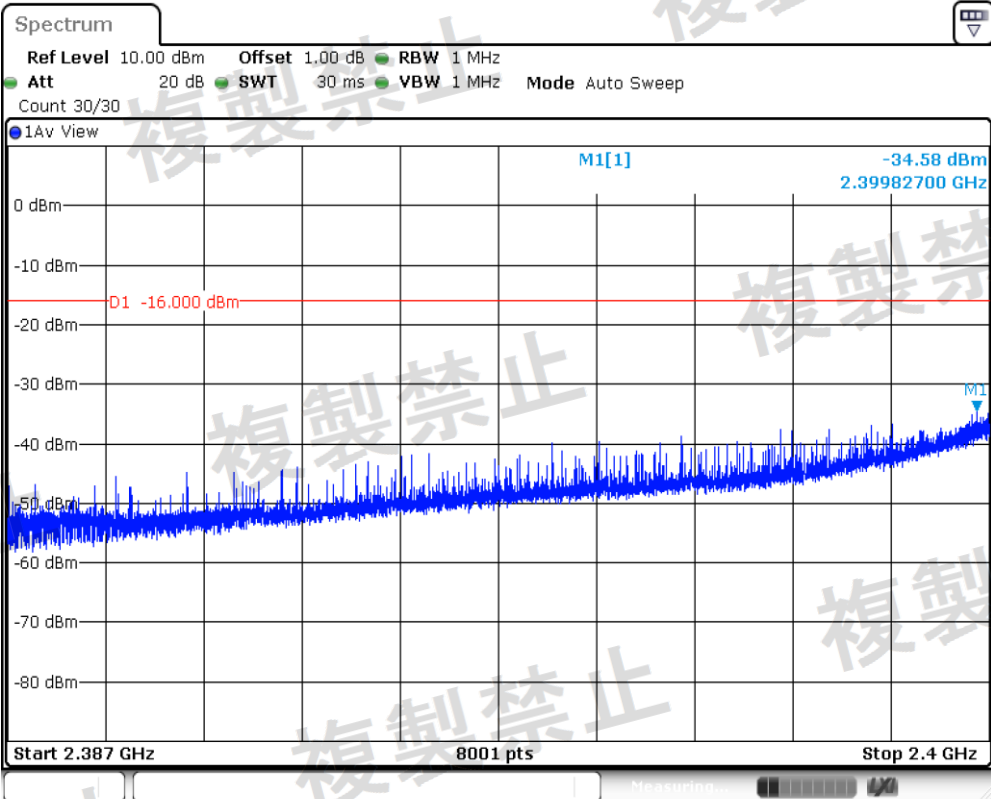
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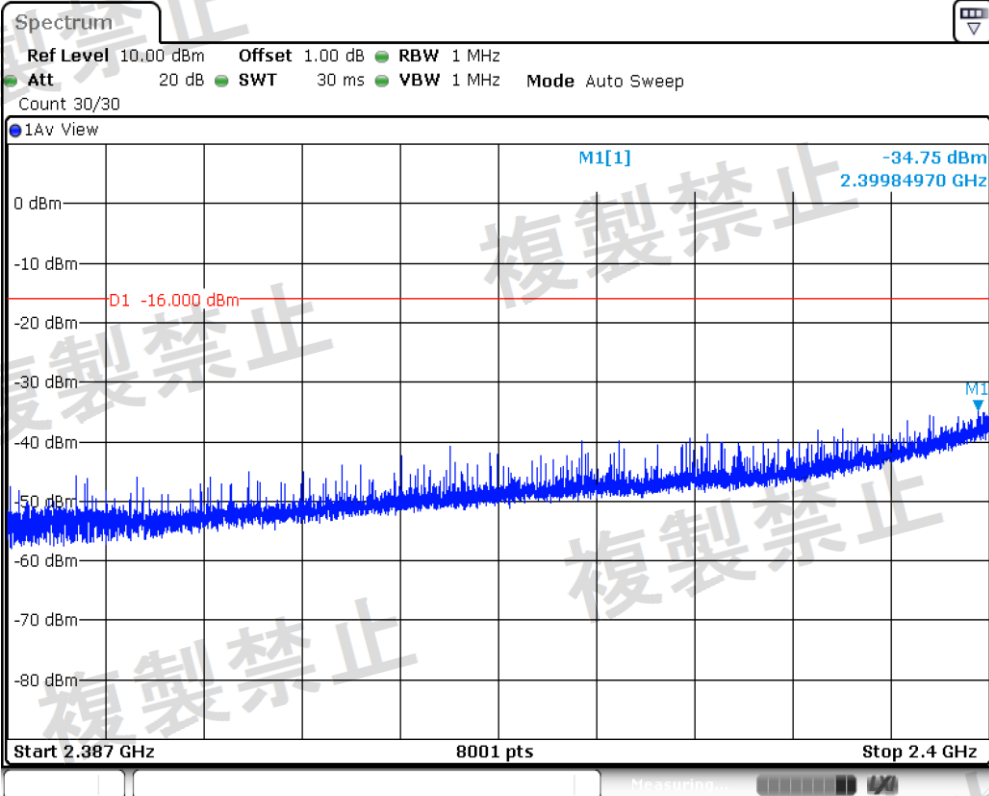
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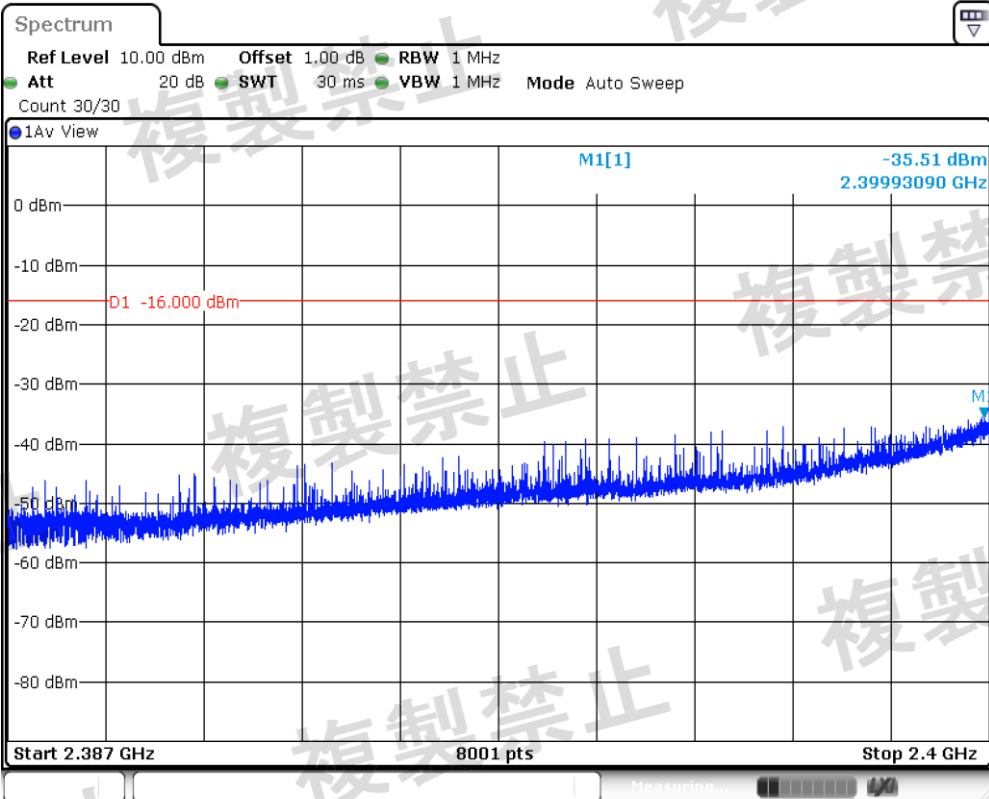
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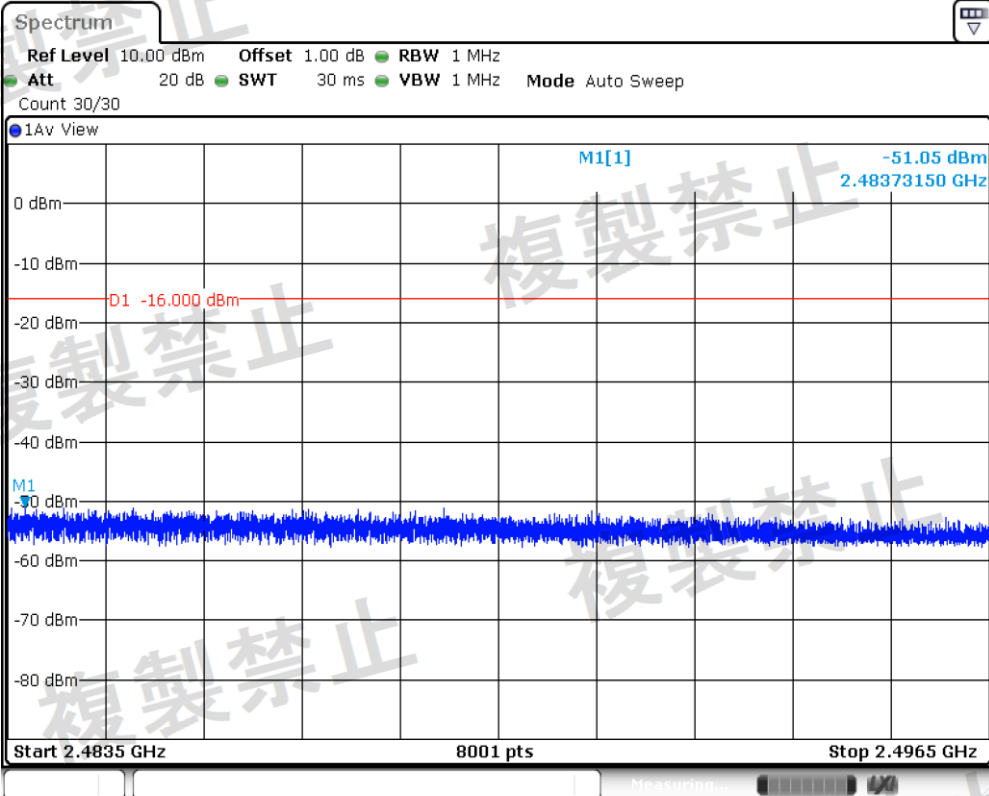
## NTNV 11N20SISO Ant1 2412 2387~2400



## NTLV 11N20SISO Ant1 2412 2387~2400

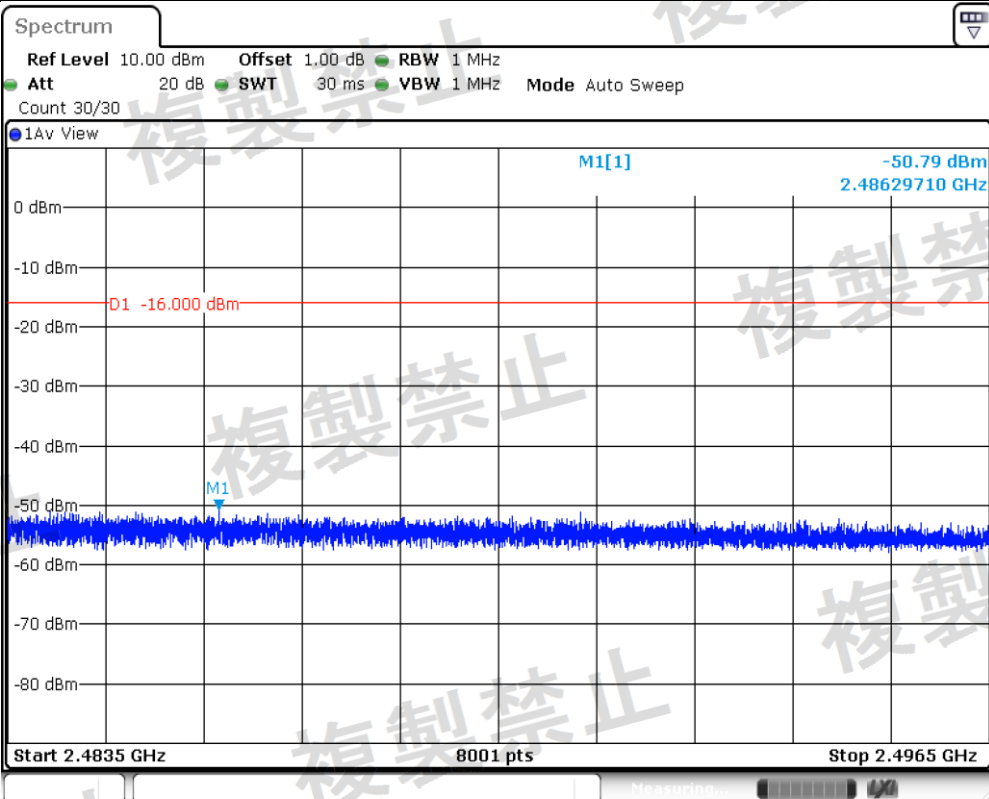


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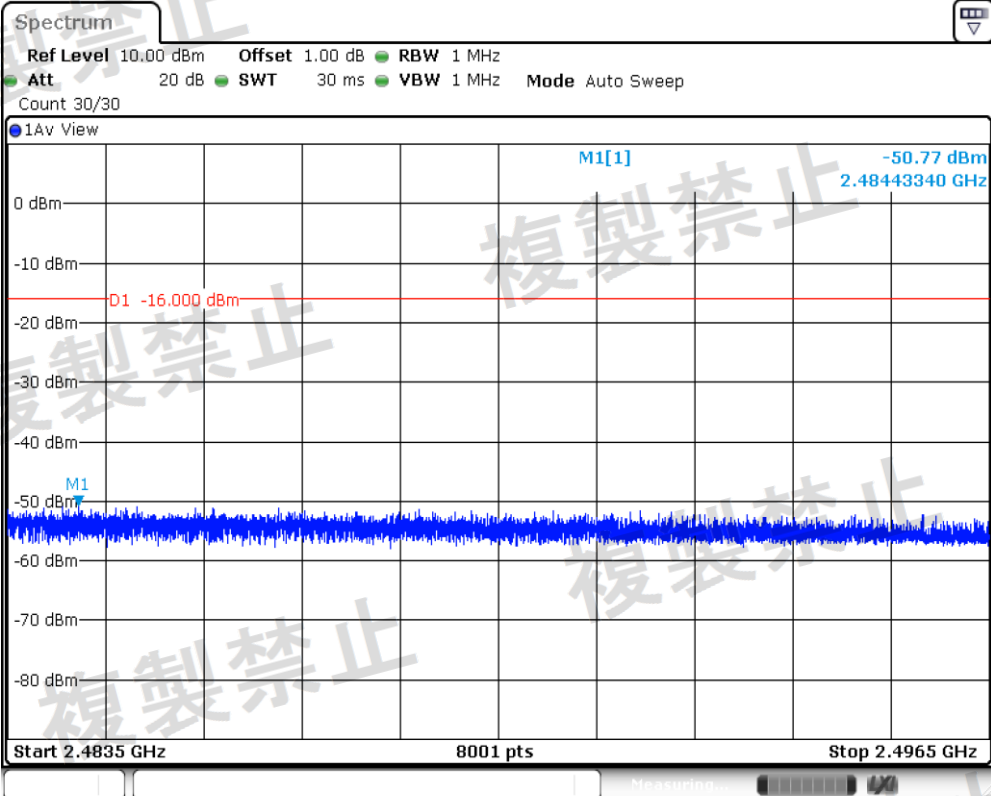
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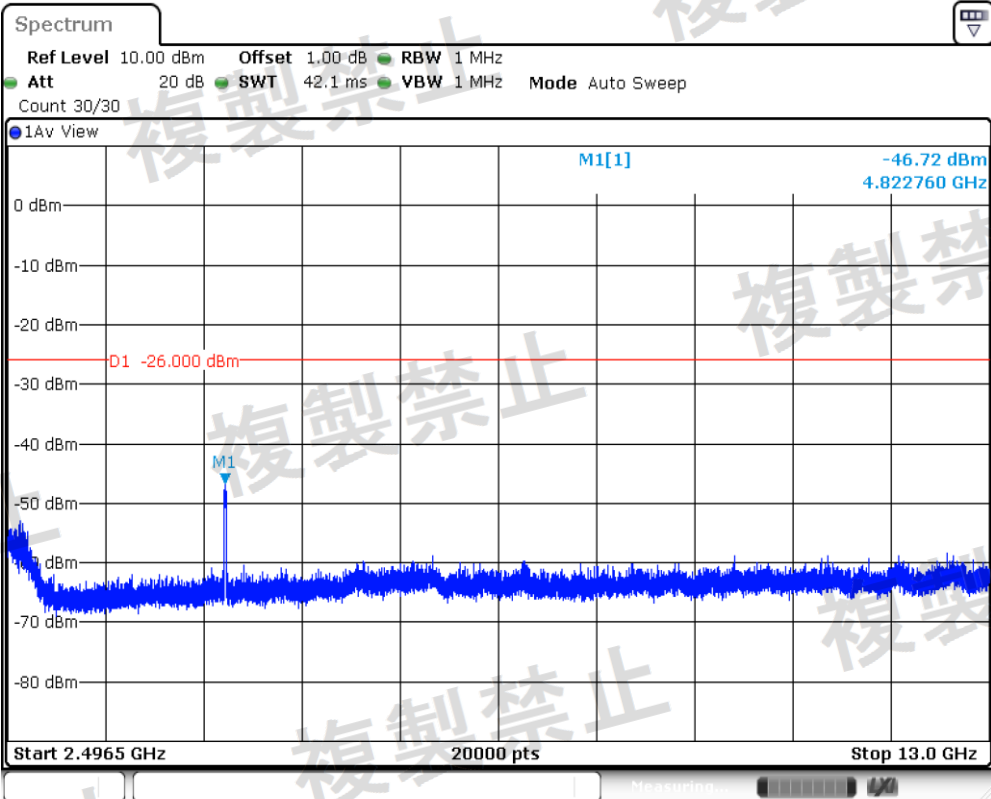


NTHV\_11N20SISO\_Ant1\_2412\_2483.5~2496.5



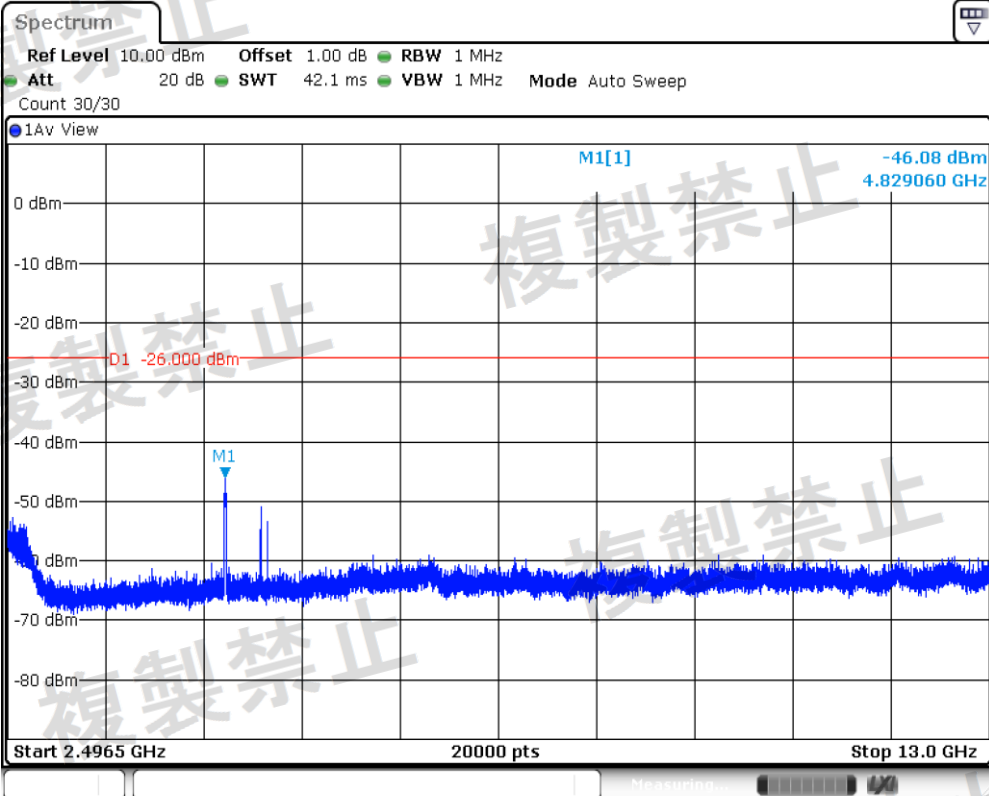
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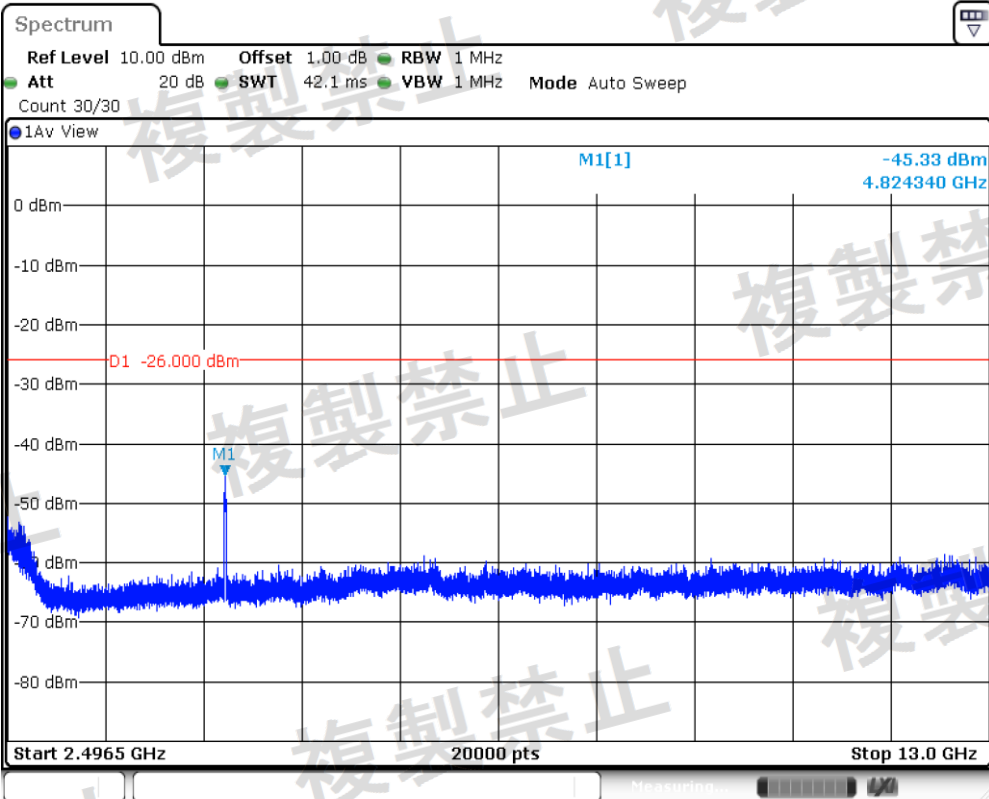
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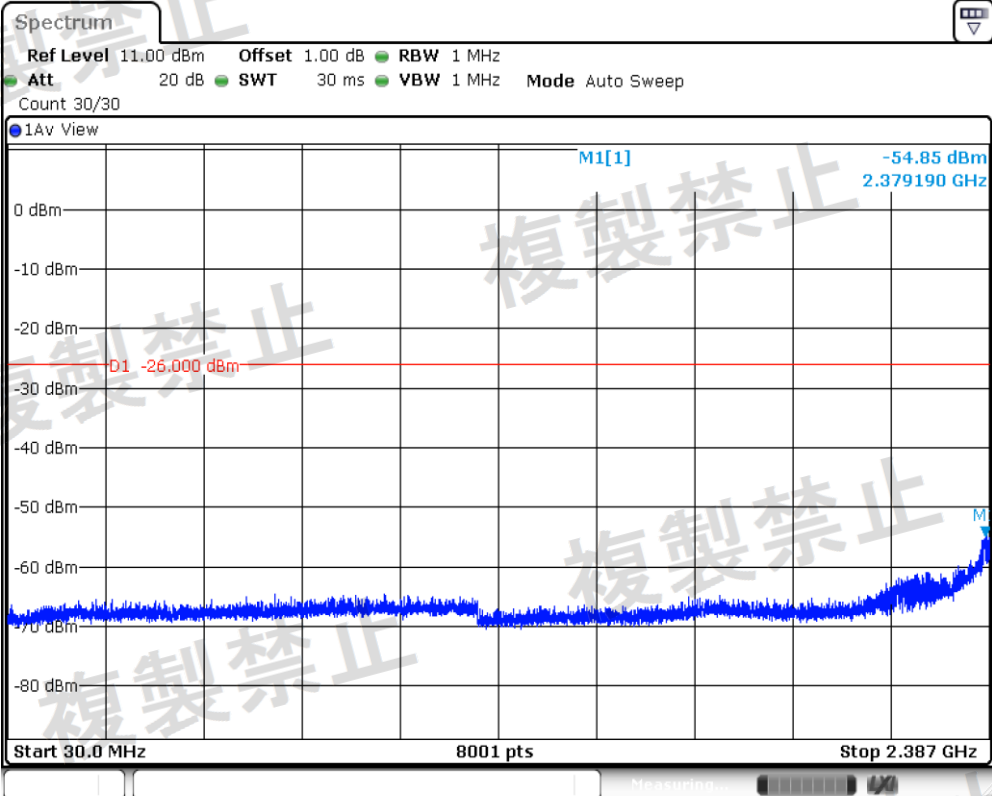
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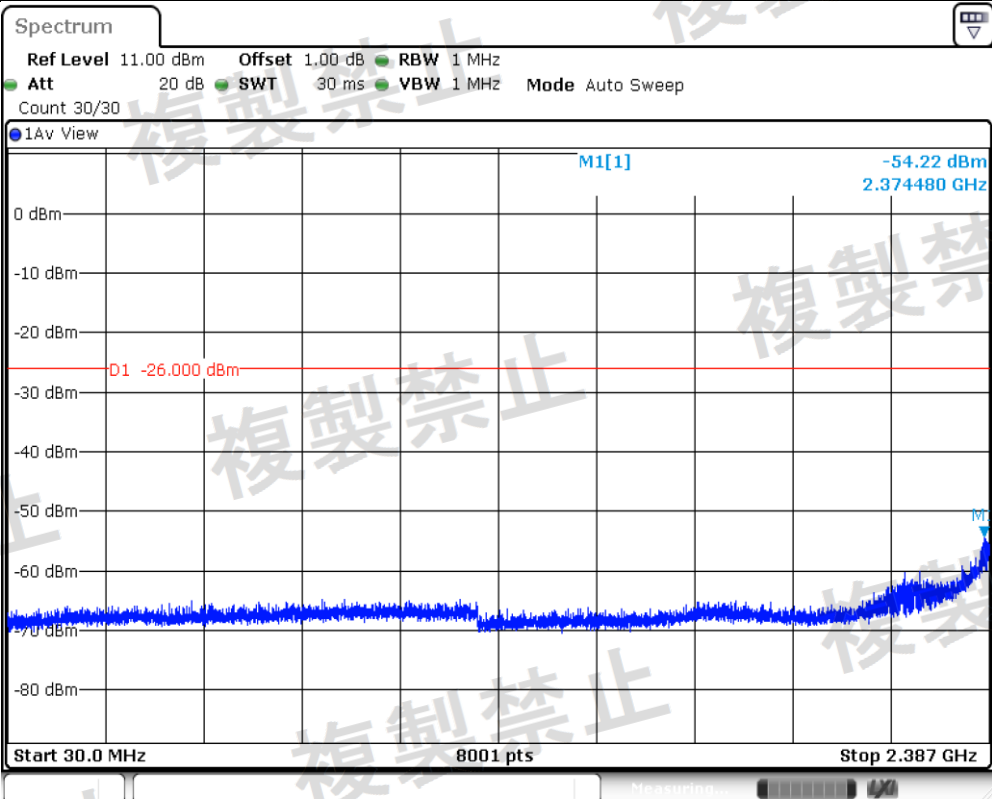
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NTHV\_11N20SISO\_Ant1\_2442\_30~2387



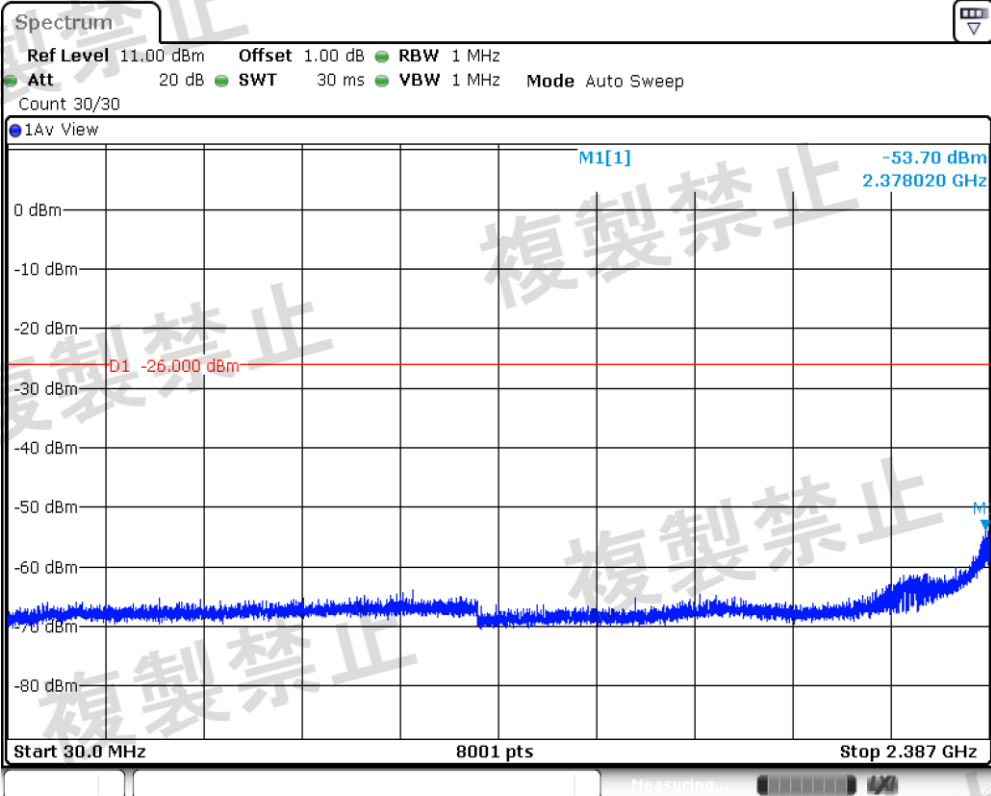
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NTLV\_11N20SISO\_Ant1\_2442\_30~2387

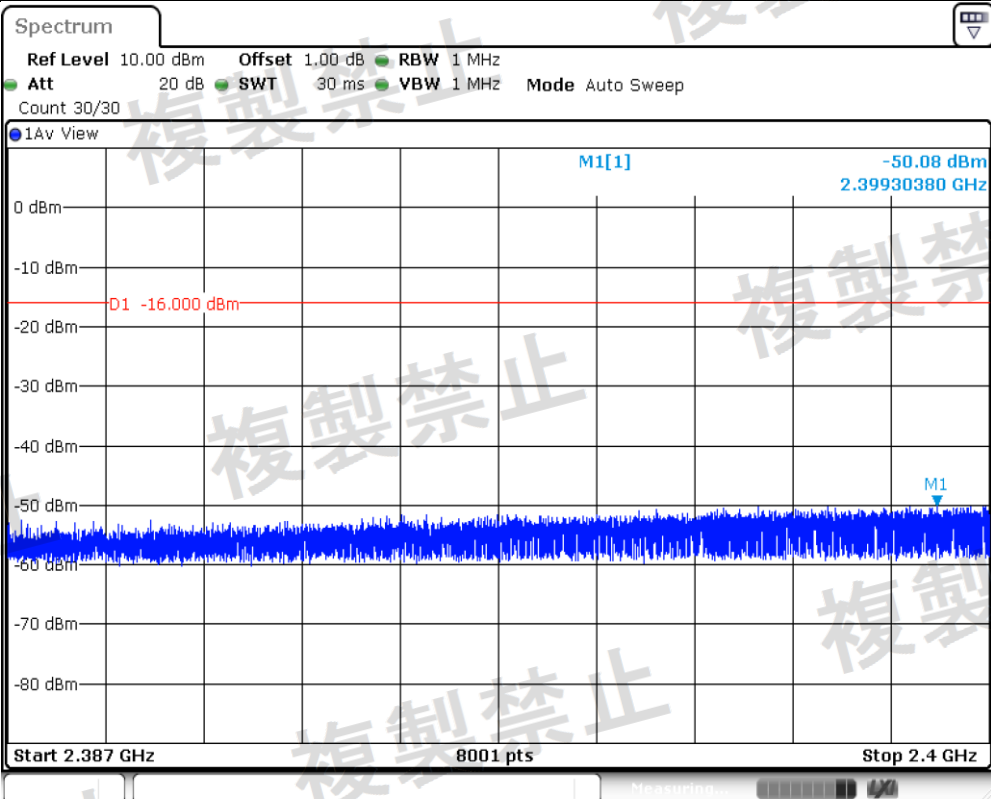


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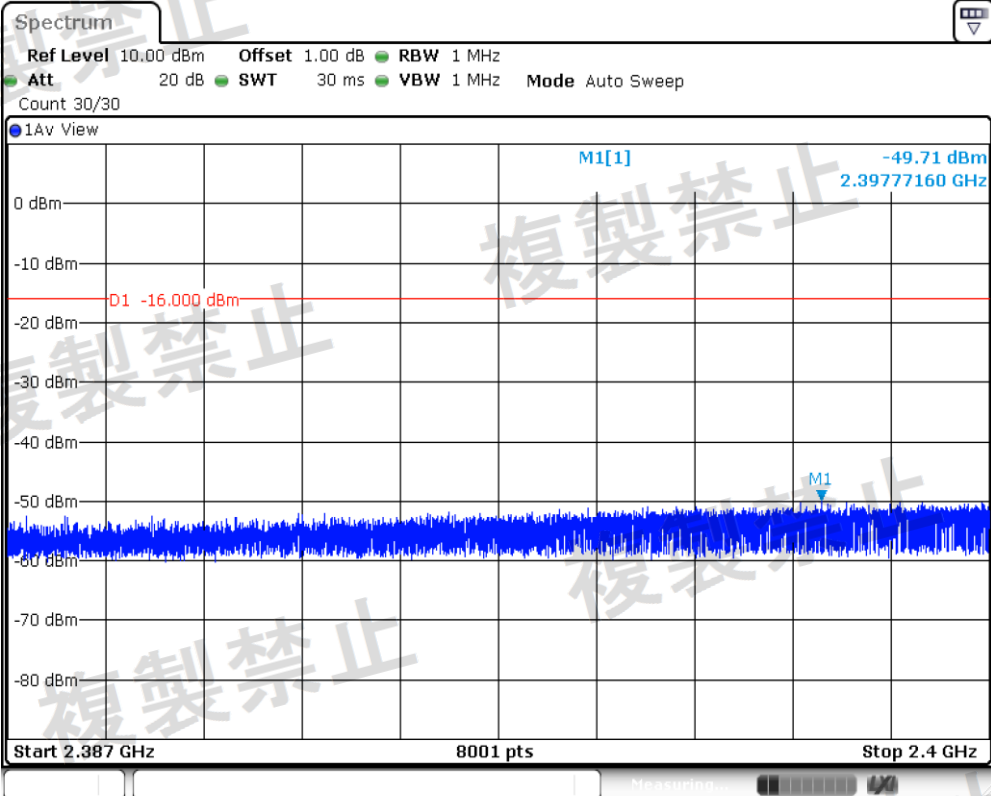
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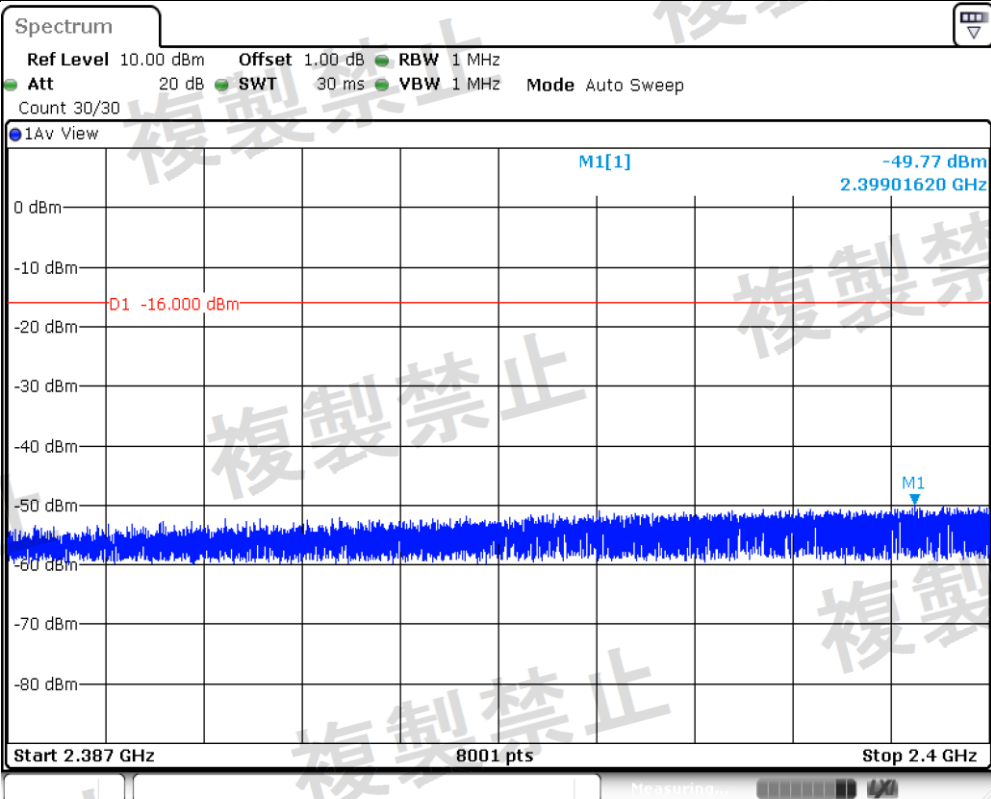
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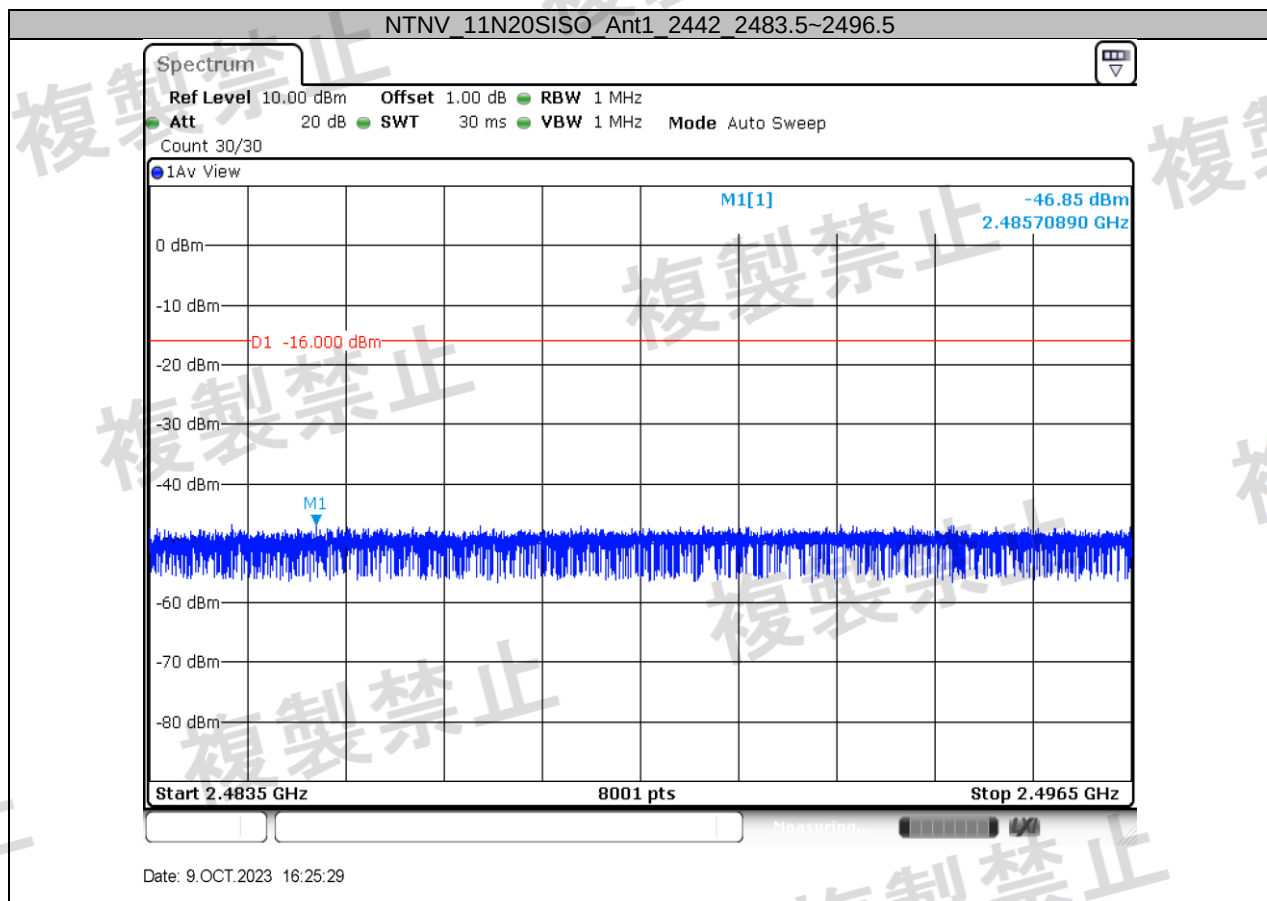
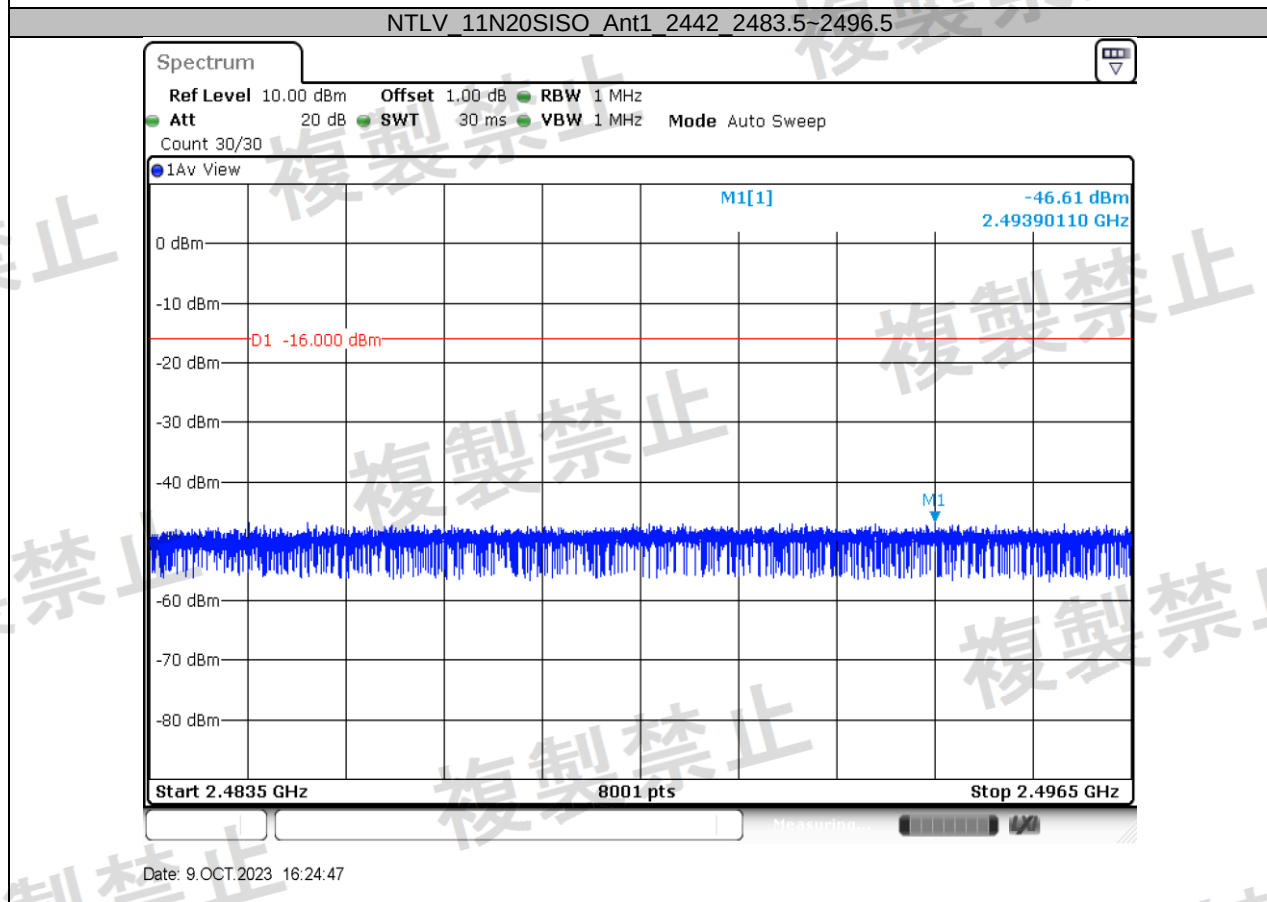
NTNV 11N20SISO Ant1 2442 2387~2400



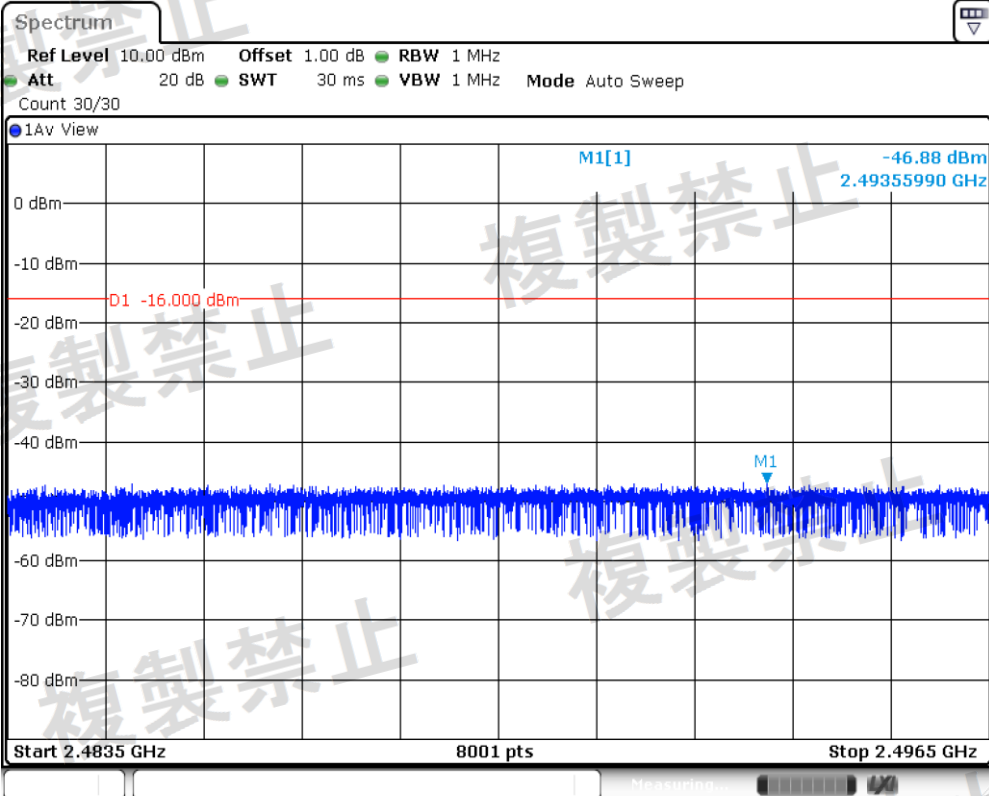
NTLV 11N20SISO Ant1 2442 2387~2400



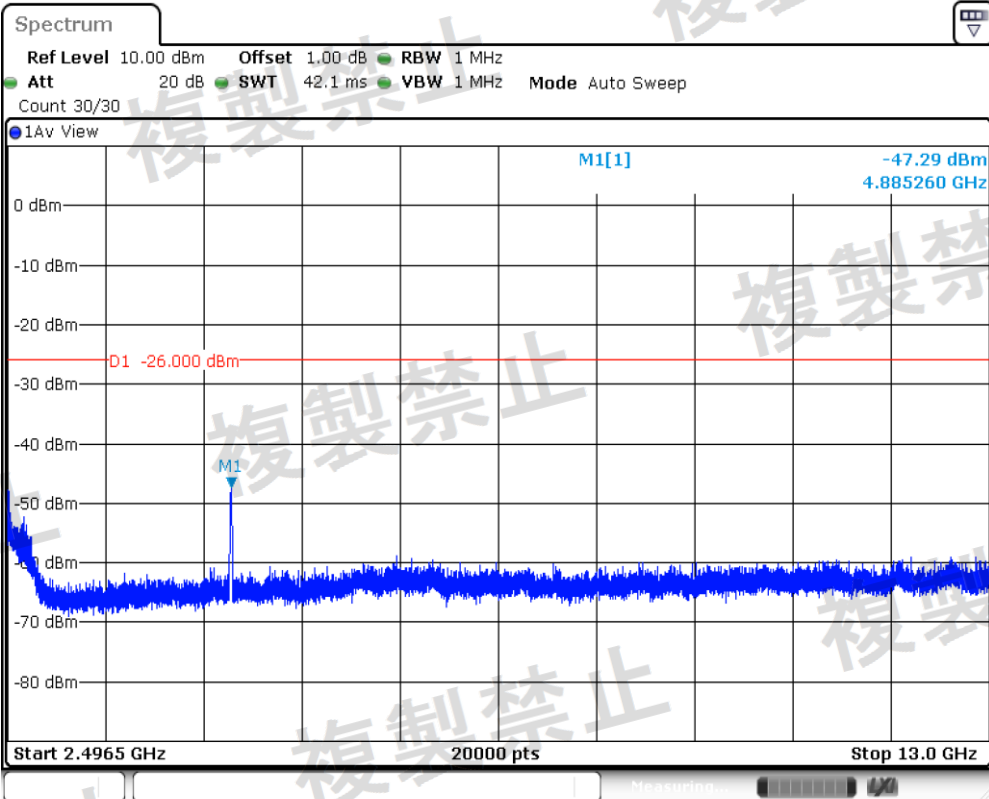


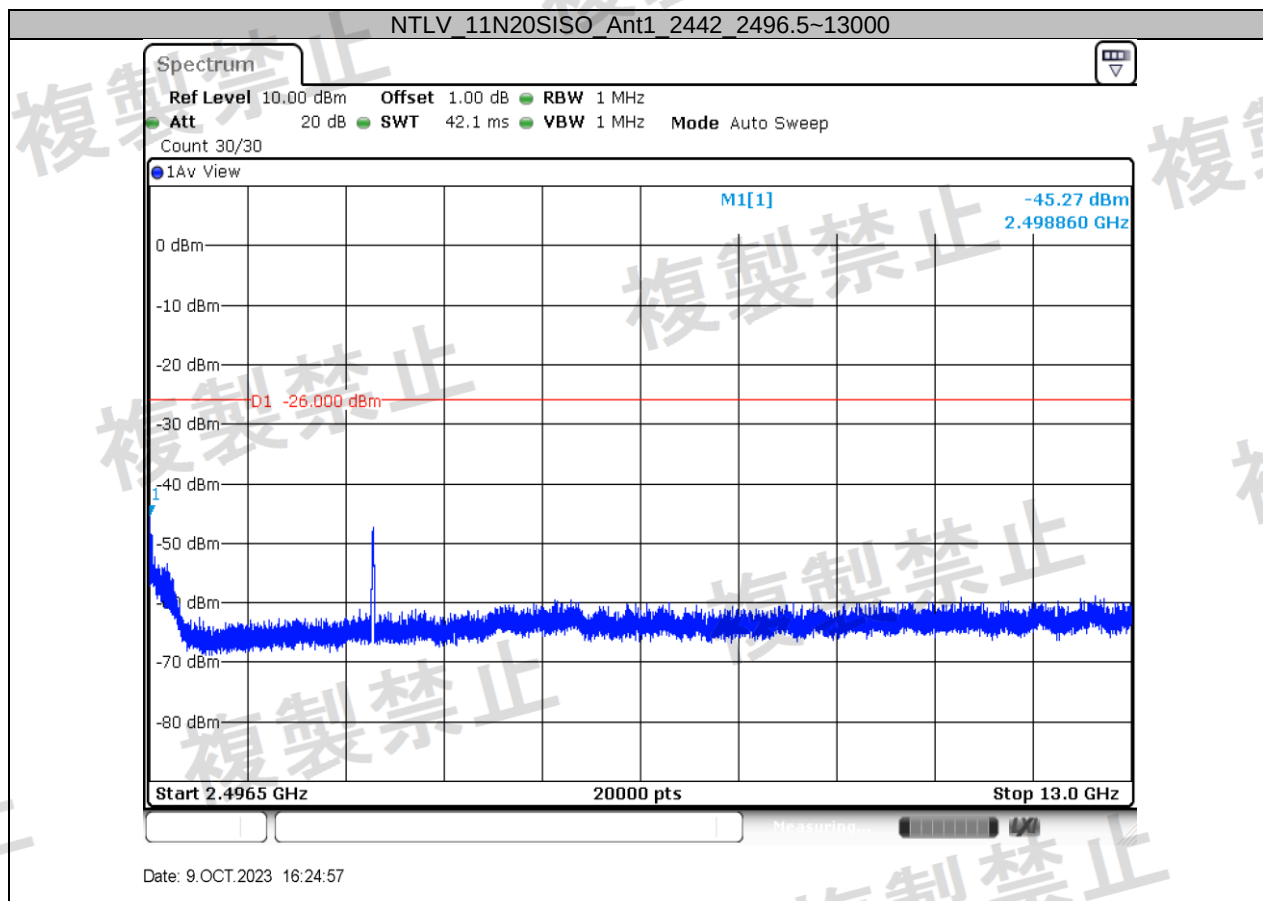
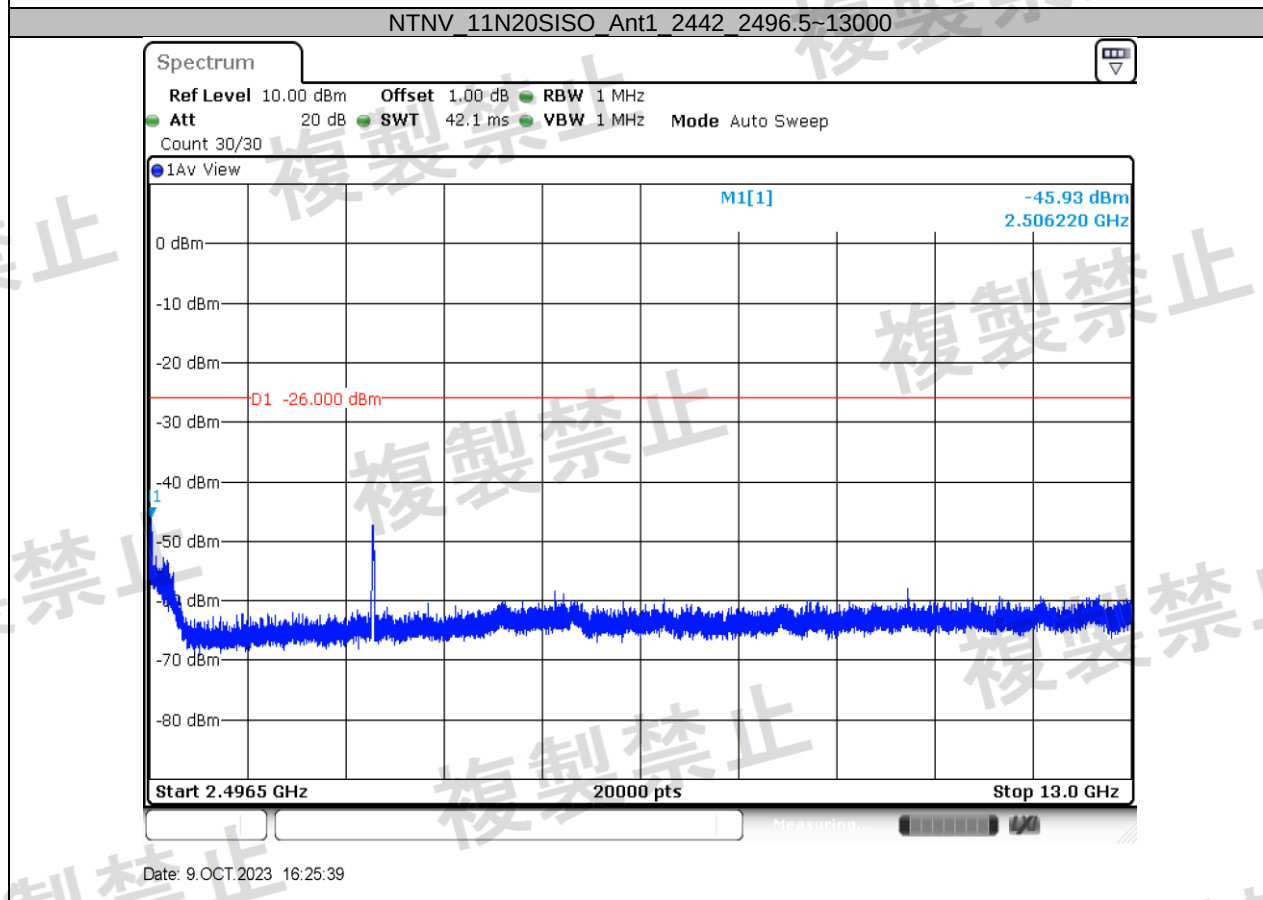


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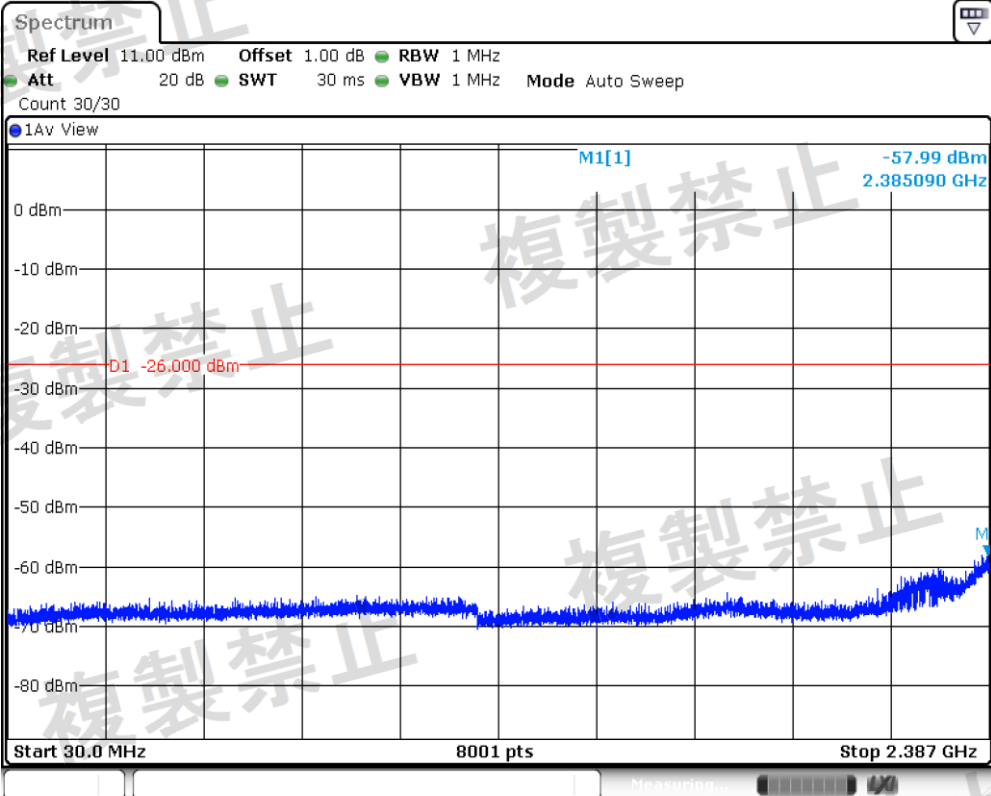


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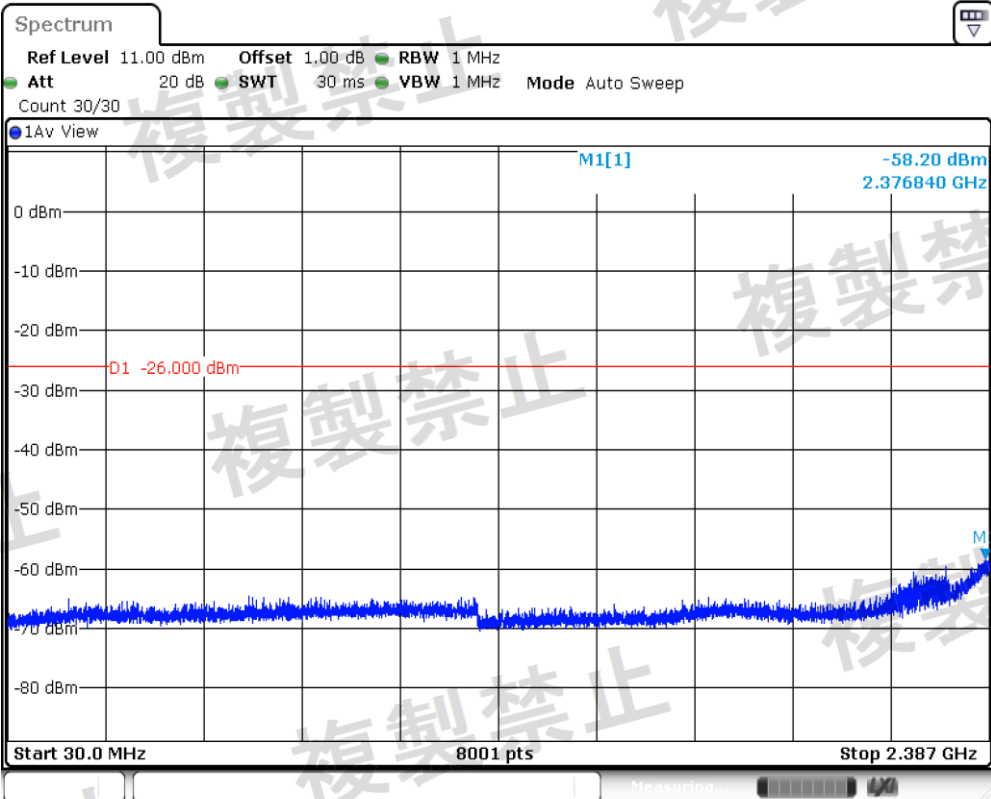


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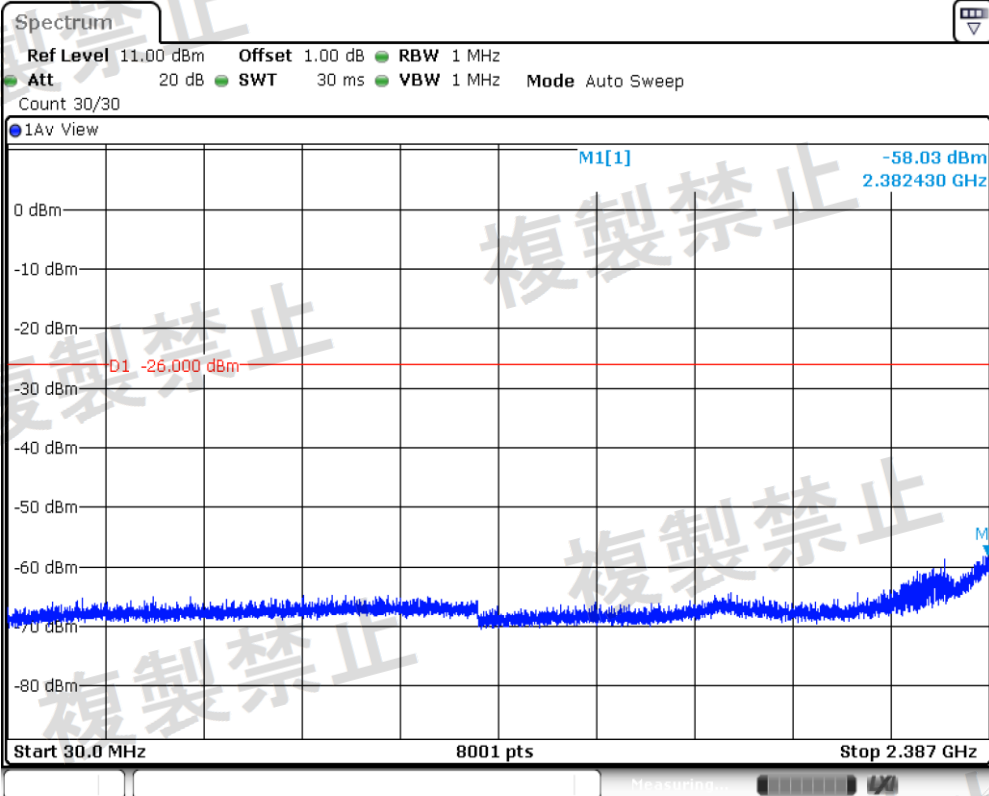
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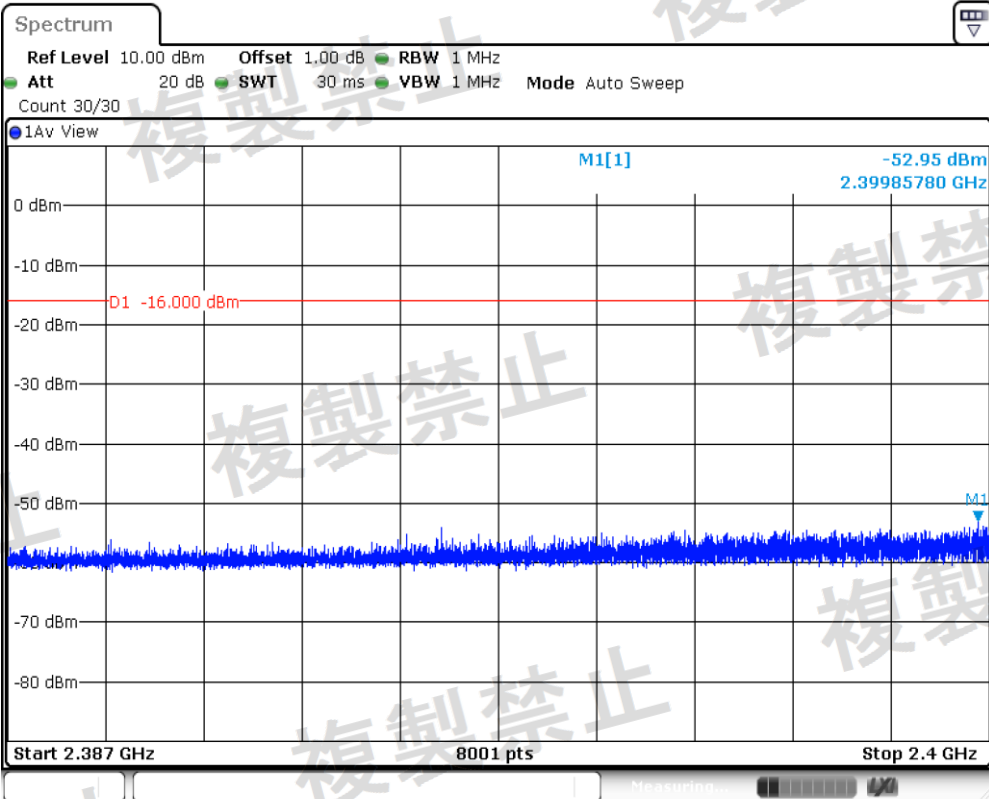


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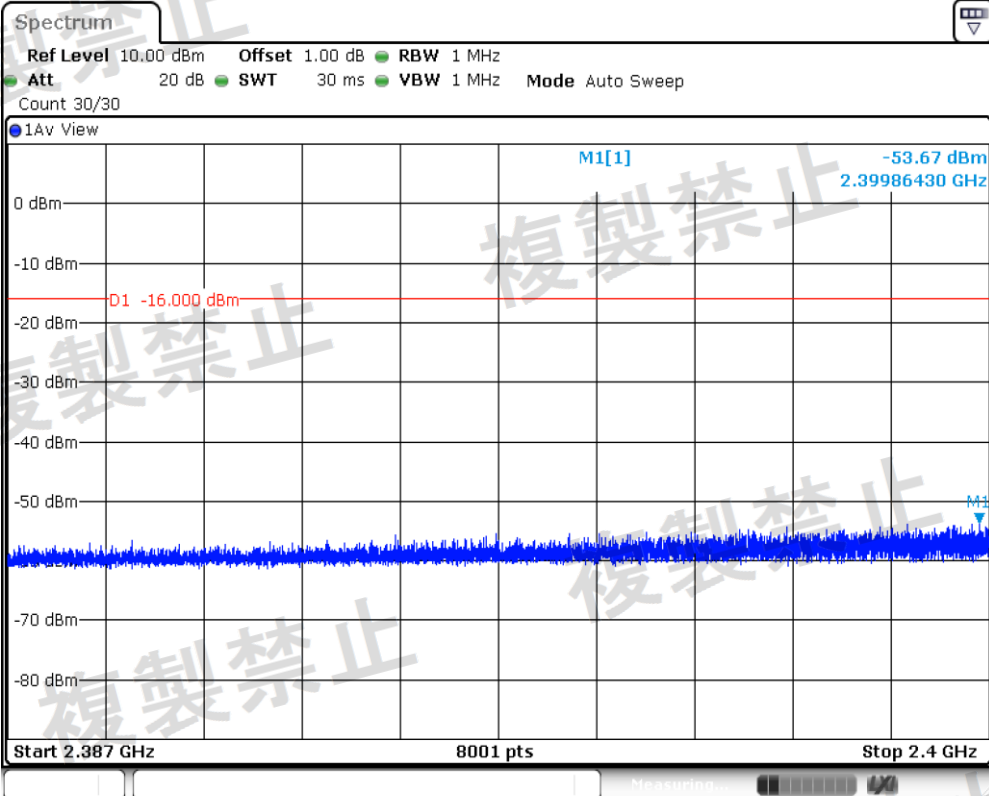


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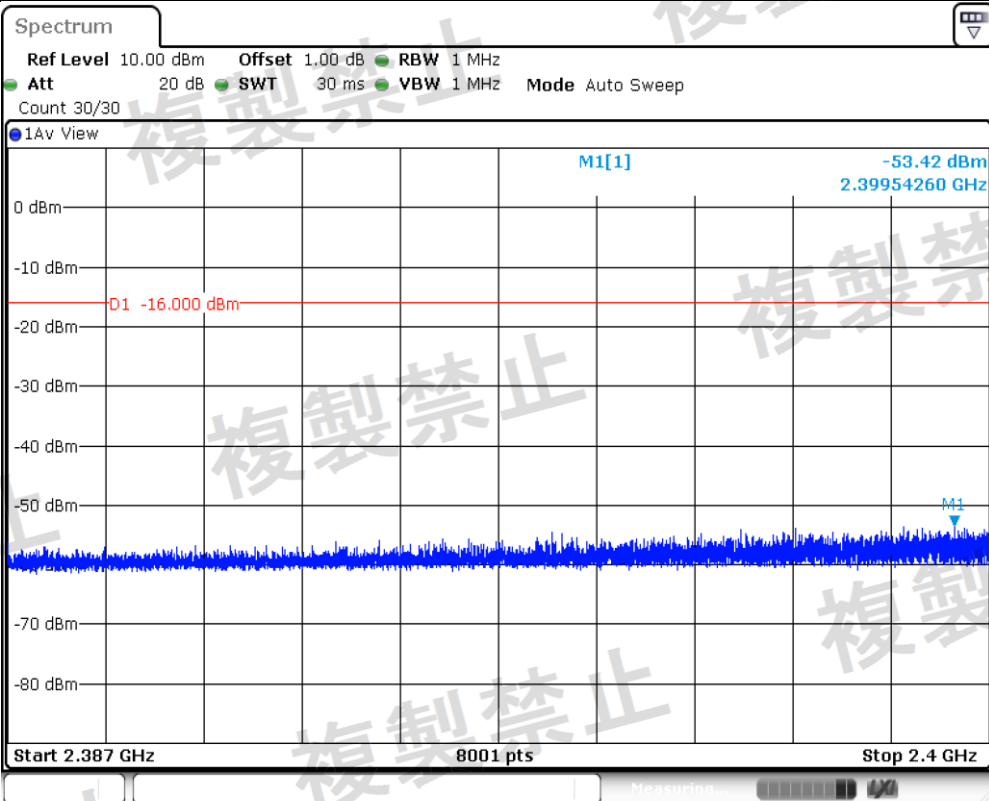




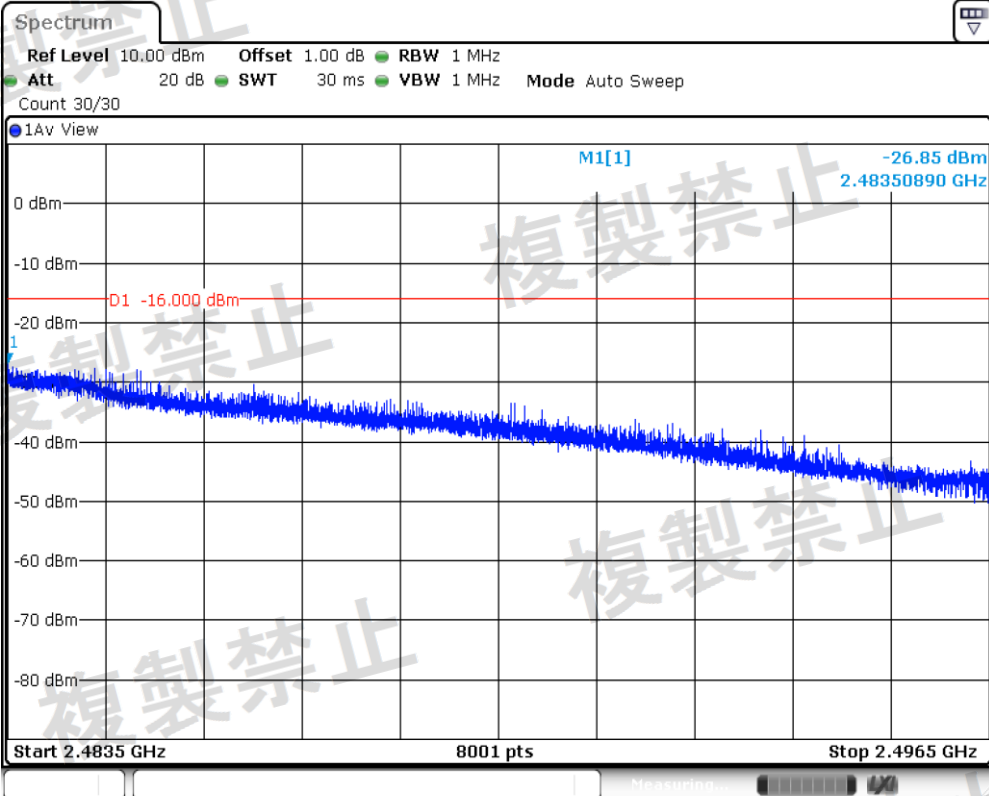
## NTHV 11N20SISO Ant1 2472 2387~2400



## NTNV 11N20SISO Ant1 2472 2387~2400

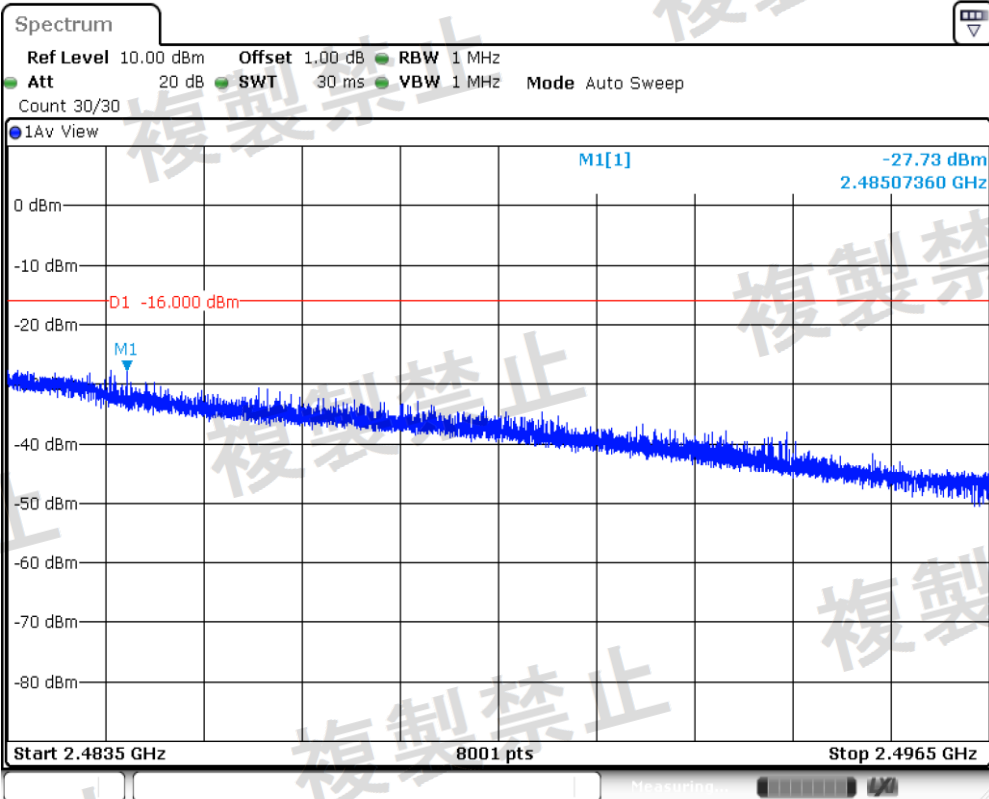


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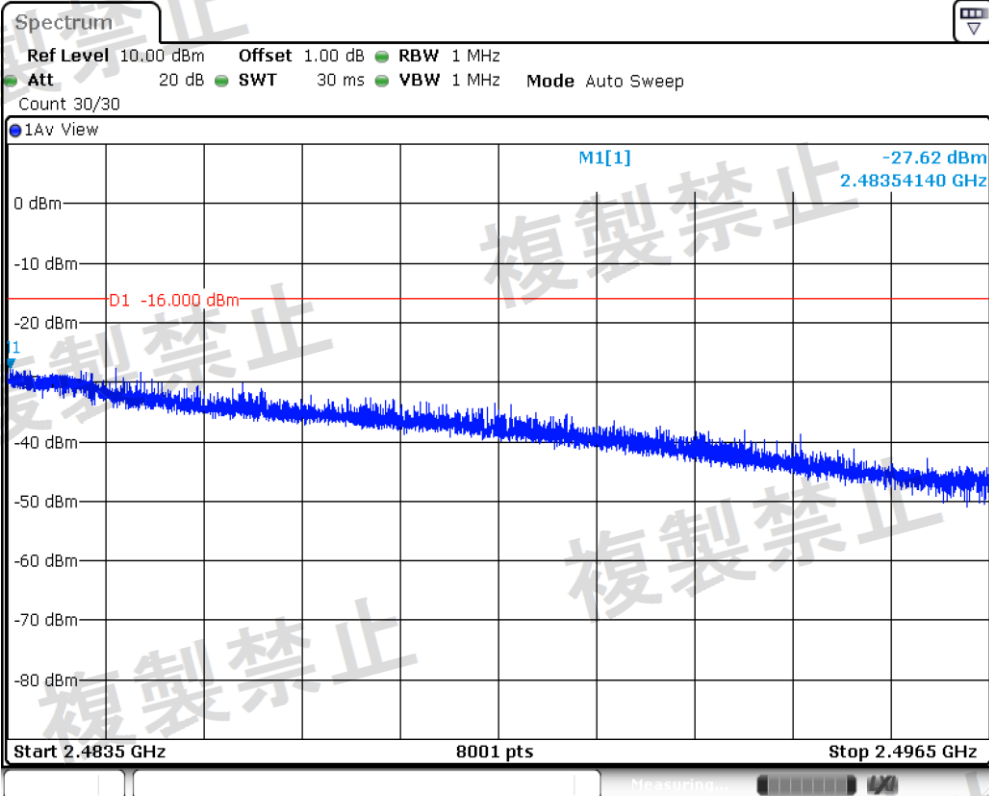
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NTNV\_11N20SISO\_Ant1\_2472\_2483.5~2496.5



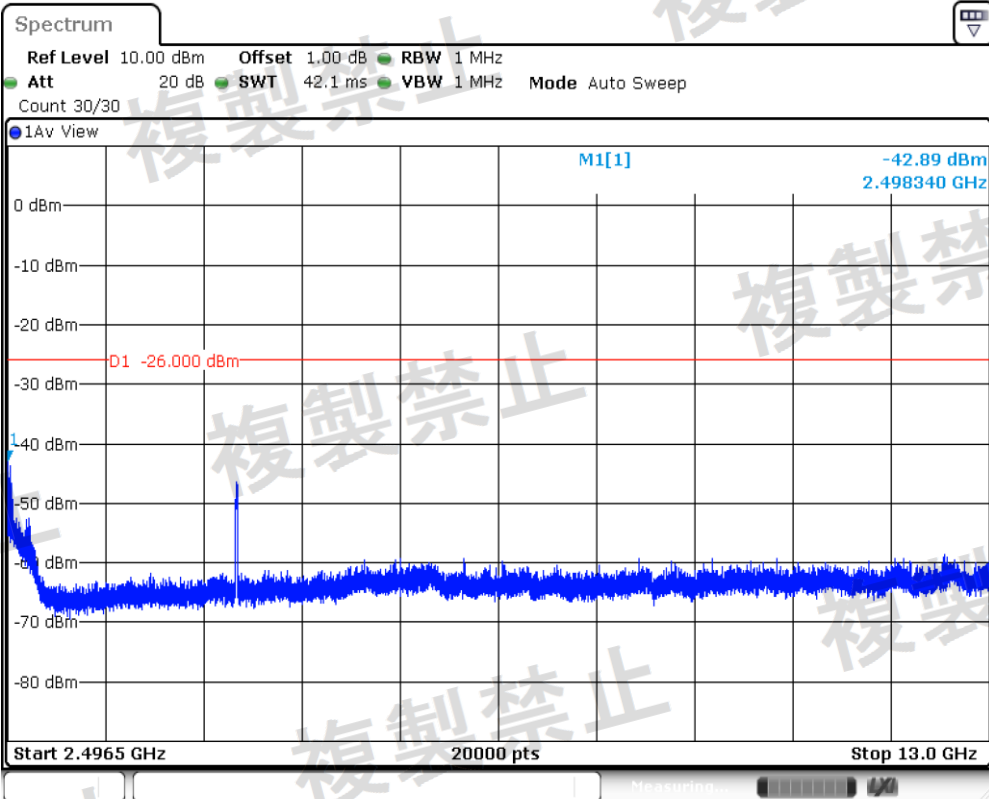
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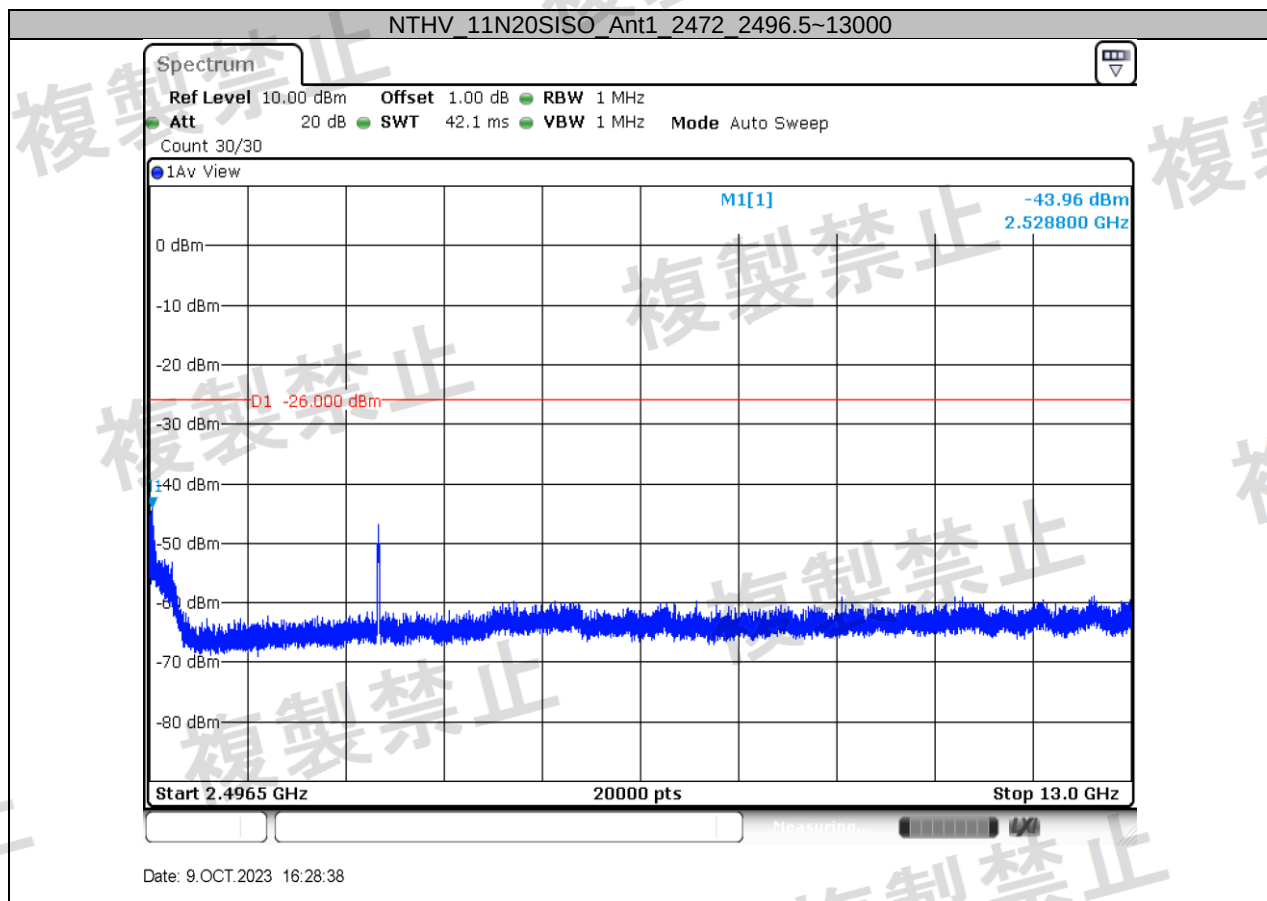
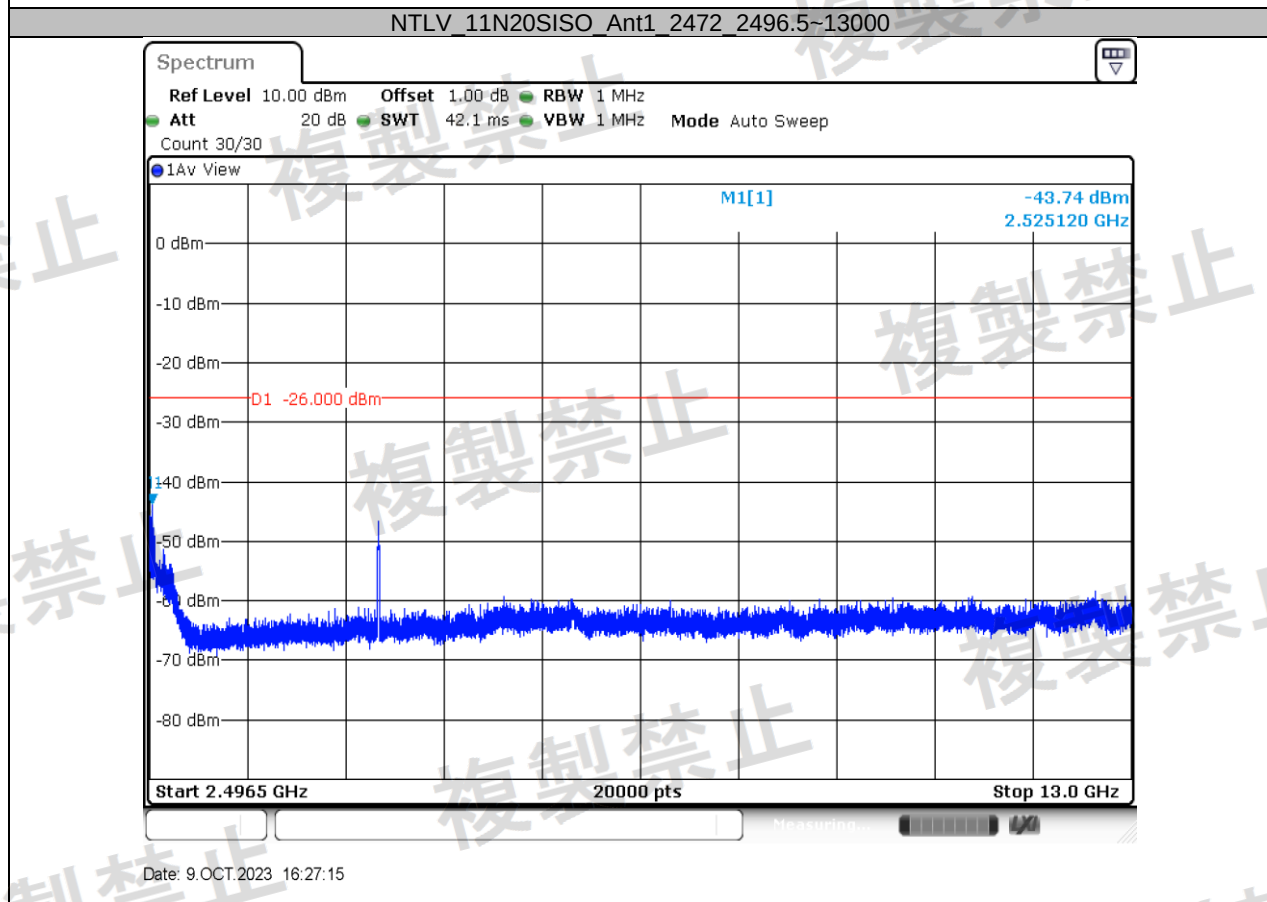


Date: 9.OCT.2023 16:27:04

## NTNV\_11N20SISO\_Ant1\_2472\_2496.5~13000



Date: 9.OCT.2023 16:27:56



### 3.7.4 Result

The equipment met the requirement of this clause.

### 3.8 Secondary Emitted Radio Wave Strength

#### 3.8.1 Test condition

|                      |                              |
|----------------------|------------------------------|
| Date of testing:     | 2023-10-09                   |
| Test mode:           | Receiving (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                       |
| Relative humidity:   | 50.7 %                       |
| Atmosphere Pressure: | 100.9 kPa                    |

#### 3.8.2 Limit

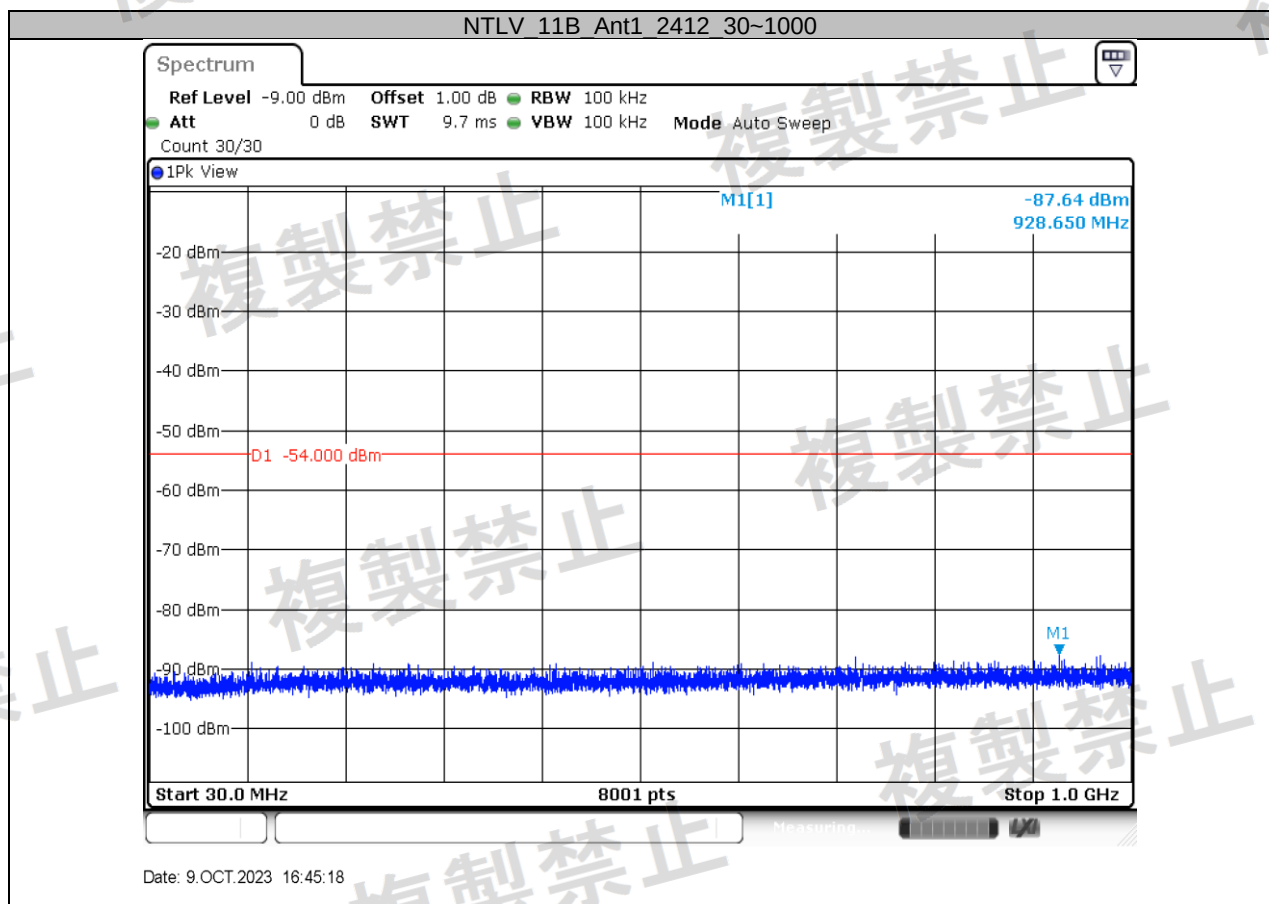
The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW or less at a frequency below 1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

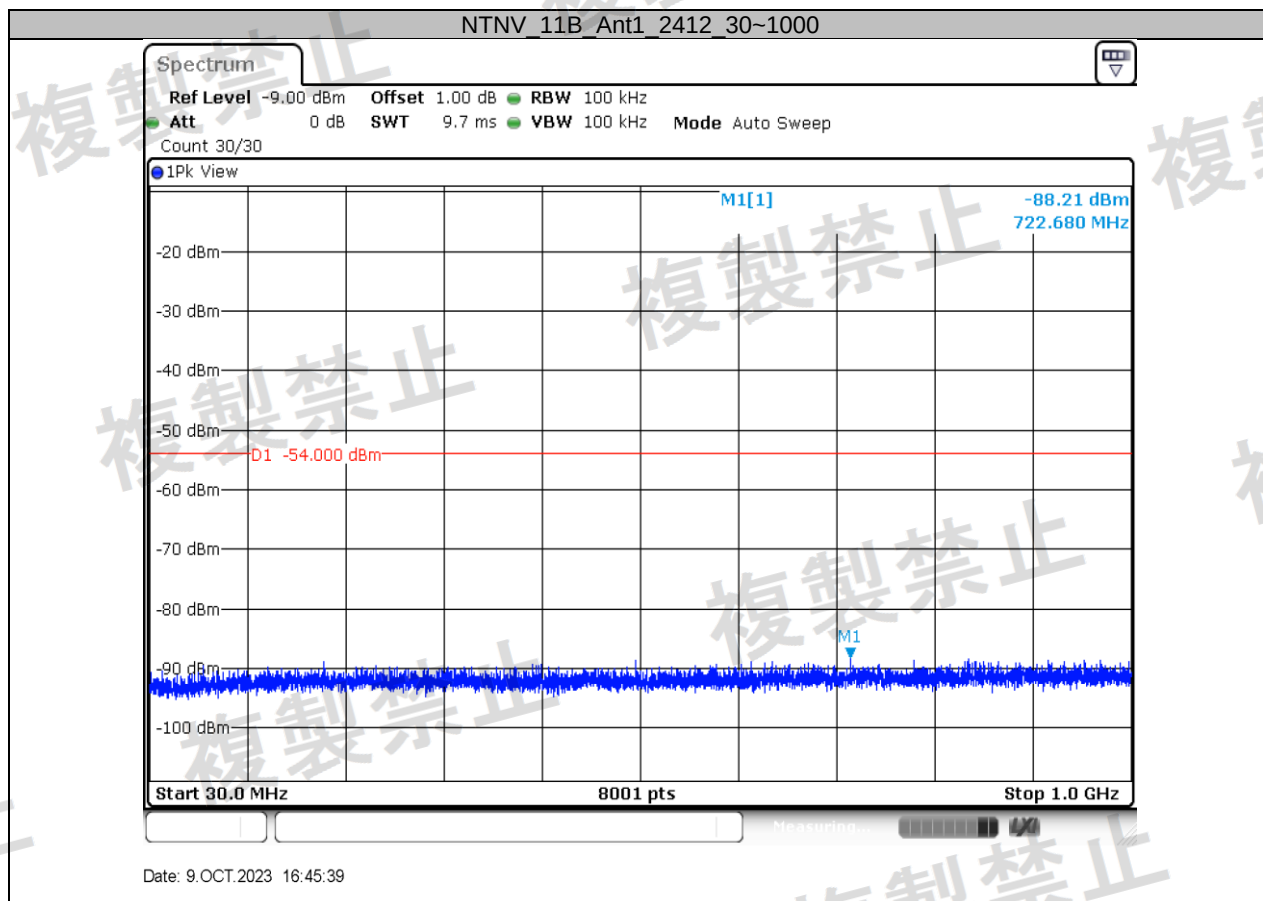
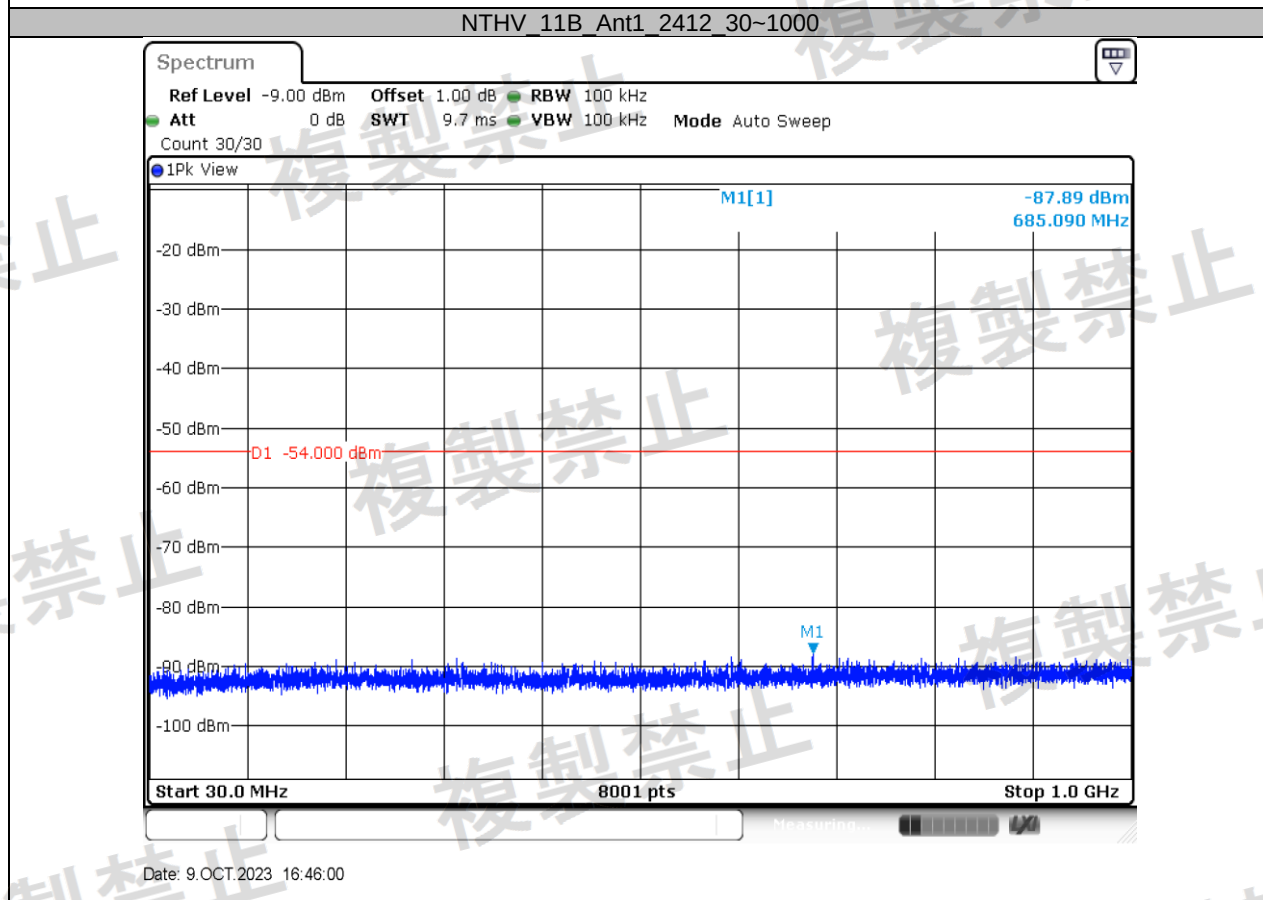
#### 3.8.3 Test Result

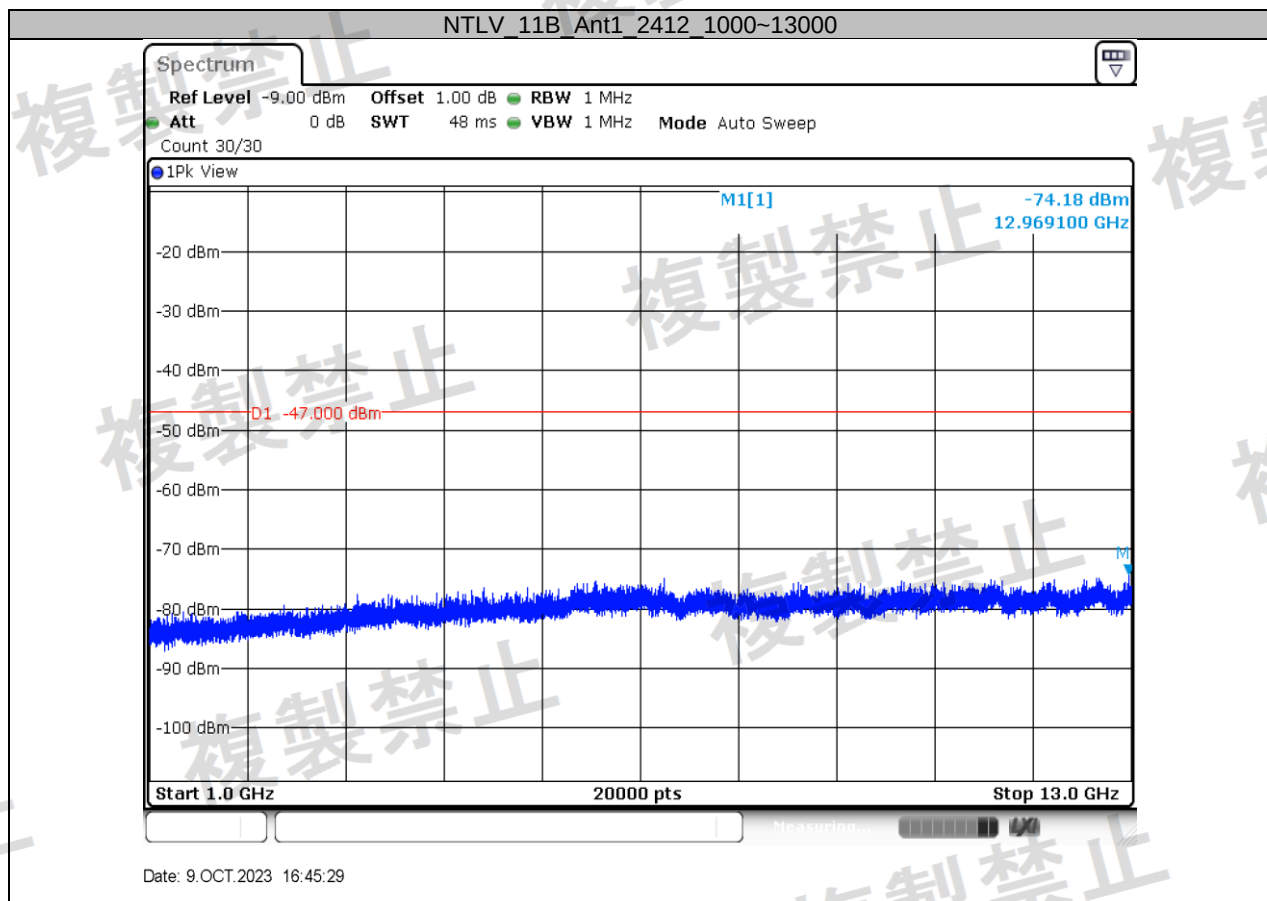
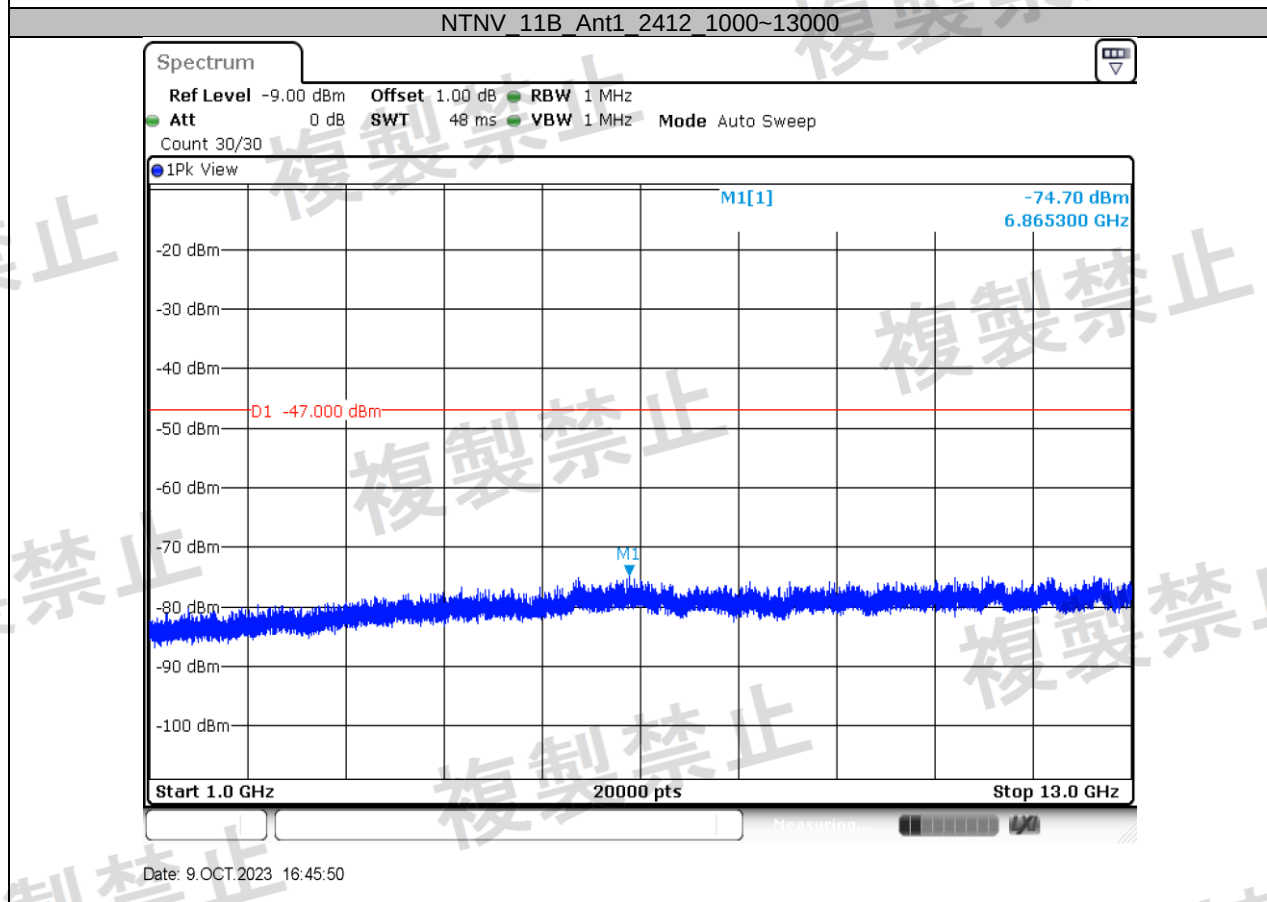
| Test Condition | Test Mode | Antenna | Channel [MHz] | Freq. Range [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|----------------|-----------|---------|---------------|-------------------|--------------|-------------|---------|
| NTLV           | 11B       | Ant1    | 2412          | 30~1000           | -87.64       | <=-54       | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 30~1000           | -88.21       | <=-54       | PASS    |
| NTHV           | 11B       | Ant1    | 2412          | 30~1000           | -87.89       | <=-54       | PASS    |
| NTLV           | 11B       | Ant1    | 2412          | 1000~13000        | -74.18       | <=-47       | PASS    |
| NTNV           | 11B       | Ant1    | 2412          | 1000~13000        | -74.7        | <=-47       | PASS    |
| NTHV           | 11B       | Ant1    | 2412          | 1000~13000        | -73.31       | <=-47       | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 30~1000           | -87.75       | <=-54       | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 30~1000           | -87.67       | <=-54       | PASS    |
| NTLV           | 11B       | Ant1    | 2442          | 30~1000           | -87.19       | <=-54       | PASS    |
| NTHV           | 11B       | Ant1    | 2442          | 1000~13000        | -74.59       | <=-47       | PASS    |
| NTLV           | 11B       | Ant1    | 2442          | 1000~13000        | -74.6        | <=-47       | PASS    |
| NTNV           | 11B       | Ant1    | 2442          | 1000~13000        | -74.23       | <=-47       | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 30~1000           | -87.9        | <=-54       | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 30~1000           | -88          | <=-54       | PASS    |
| NTNV           | 11B       | Ant1    | 2472          | 30~1000           | -87.32       | <=-54       | PASS    |
|                |           |         |               | 1000~13000        | -74.33       | <=-47       | PASS    |
| NTHV           | 11B       | Ant1    | 2472          | 1000~13000        | -74.62       | <=-47       | PASS    |
| NTLV           | 11B       | Ant1    | 2472          | 1000~13000        | -74.52       | <=-47       | PASS    |
| NTHV           | 11G       | Ant1    | 2412          | 30~1000           | -88.07       | <=-54       | PASS    |
| NTNV           | 11G       | Ant1    | 2412          | 30~1000           | -87.49       | <=-54       | PASS    |
| NTLV           | 11G       | Ant1    | 2412          | 30~1000           | -88.11       | <=-54       | PASS    |
|                |           |         |               | 1000~13000        | -73.33       | <=-47       | PASS    |
| NTHV           | 11G       | Ant1    | 2412          | 1000~13000        | -74.08       | <=-47       | PASS    |
| NTNV           | 11G       | Ant1    | 2412          | 1000~13000        | -73.79       | <=-47       | PASS    |
| NTHV           | 11G       | Ant1    | 2442          | 30~1000           | -87.8        | <=-54       | PASS    |
| NTLV           | 11G       | Ant1    | 2442          | 30~1000           | -87.49       | <=-54       | PASS    |
| NTNV           | 11G       | Ant1    | 2442          | 30~1000           | -87.58       | <=-54       | PASS    |
| NTLV           | 11G       | Ant1    | 2442          | 1000~13000        | -74.63       | <=-47       | PASS    |
| NTHV           | 11G       | Ant1    | 2442          | 1000~13000        | -74.31       | <=-47       | PASS    |
| NTNV           | 11G       | Ant1    | 2442          | 1000~13000        | -74.86       | <=-47       | PASS    |
| NTLV           | 11G       | Ant1    | 2472          | 30~1000           | -87.61       | <=-54       | PASS    |
| NTNV           | 11G       | Ant1    | 2472          | 30~1000           | -87.7        | <=-54       | PASS    |
| NTHV           | 11G       | Ant1    | 2472          | 30~1000           | -86.92       | <=-54       | PASS    |
| NTLV           | 11G       | Ant1    | 2472          | 1000~13000        | -74.42       | <=-47       | PASS    |
| NTNV           | 11G       | Ant1    | 2472          | 1000~13000        | -74.07       | <=-47       | PASS    |
| NTHV           | 11G       | Ant1    | 2472          | 1000~13000        | -74.24       | <=-47       | PASS    |
| NTLV           | 11N20SISO | Ant1    | 2412          | 30~1000           | -87.32       | <=-54       | PASS    |
| NTNV           | 11N20SISO | Ant1    | 2412          | 30~1000           | -88.19       | <=-54       | PASS    |
| NTHV           | 11N20SISO | Ant1    | 2412          | 30~1000           | -87.97       | <=-54       | PASS    |
|                |           |         |               | 1000~13000        | -74.64       | <=-47       | PASS    |
| NTLV           | 11N20SISO | Ant1    | 2412          | 1000~13000        | -73.79       | <=-47       | PASS    |

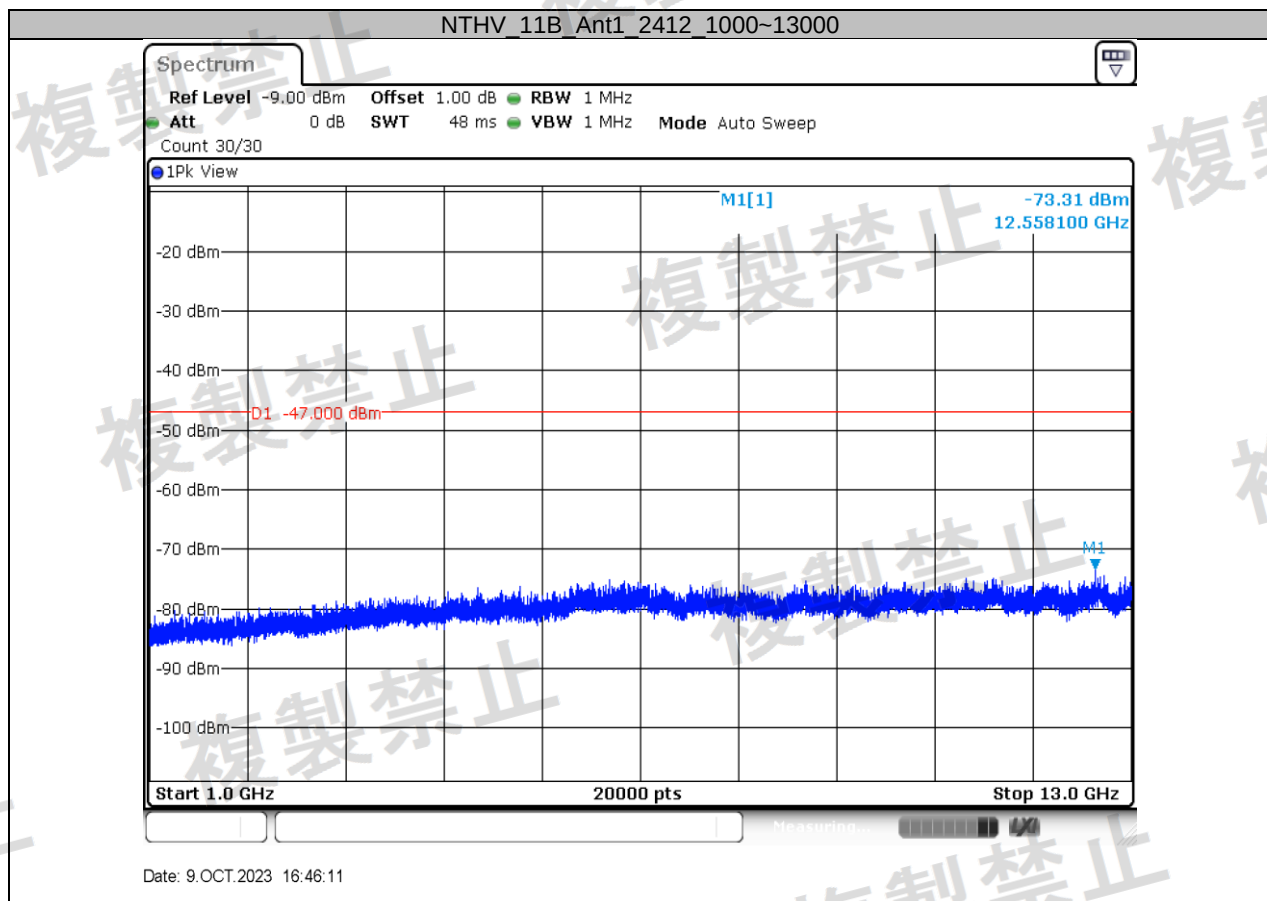
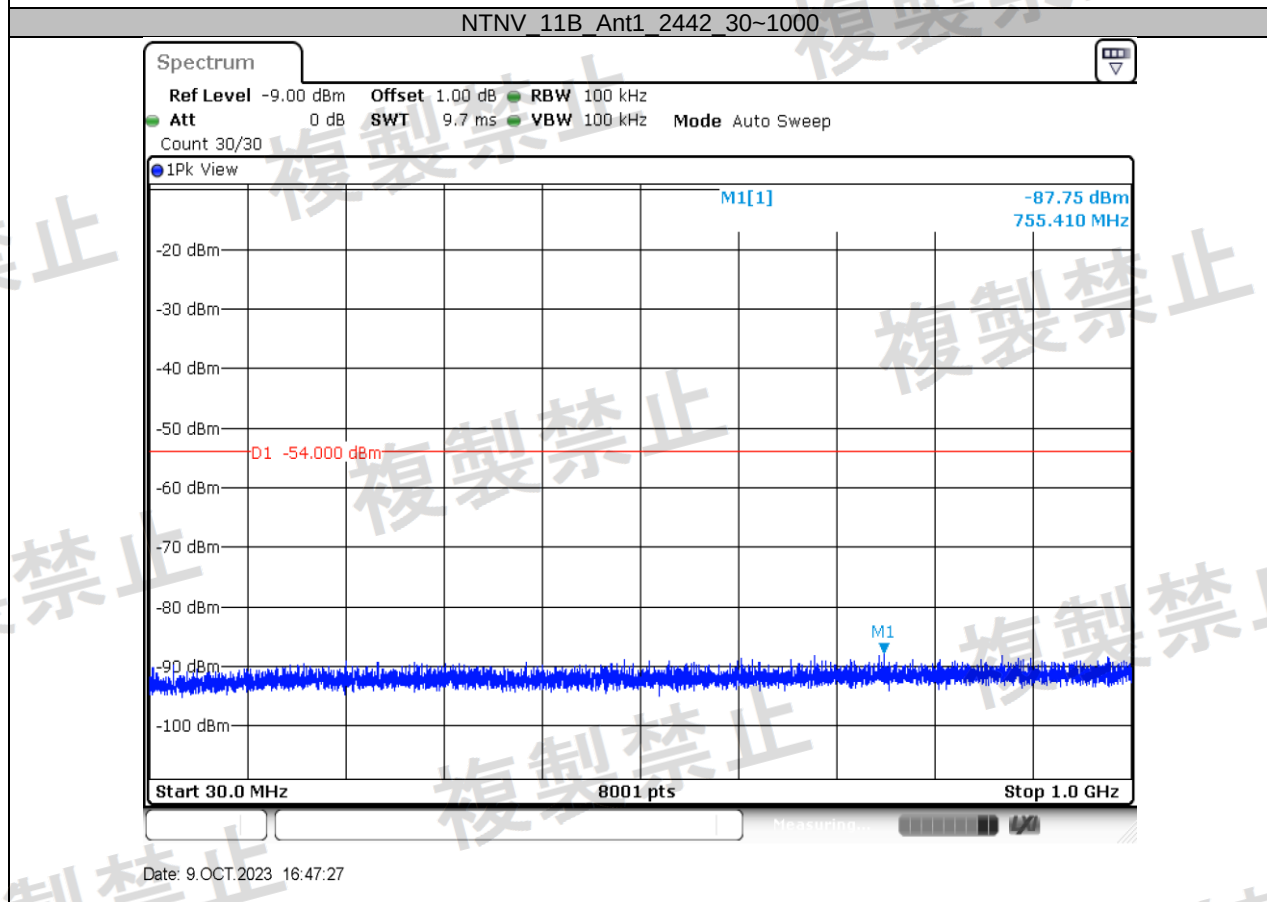


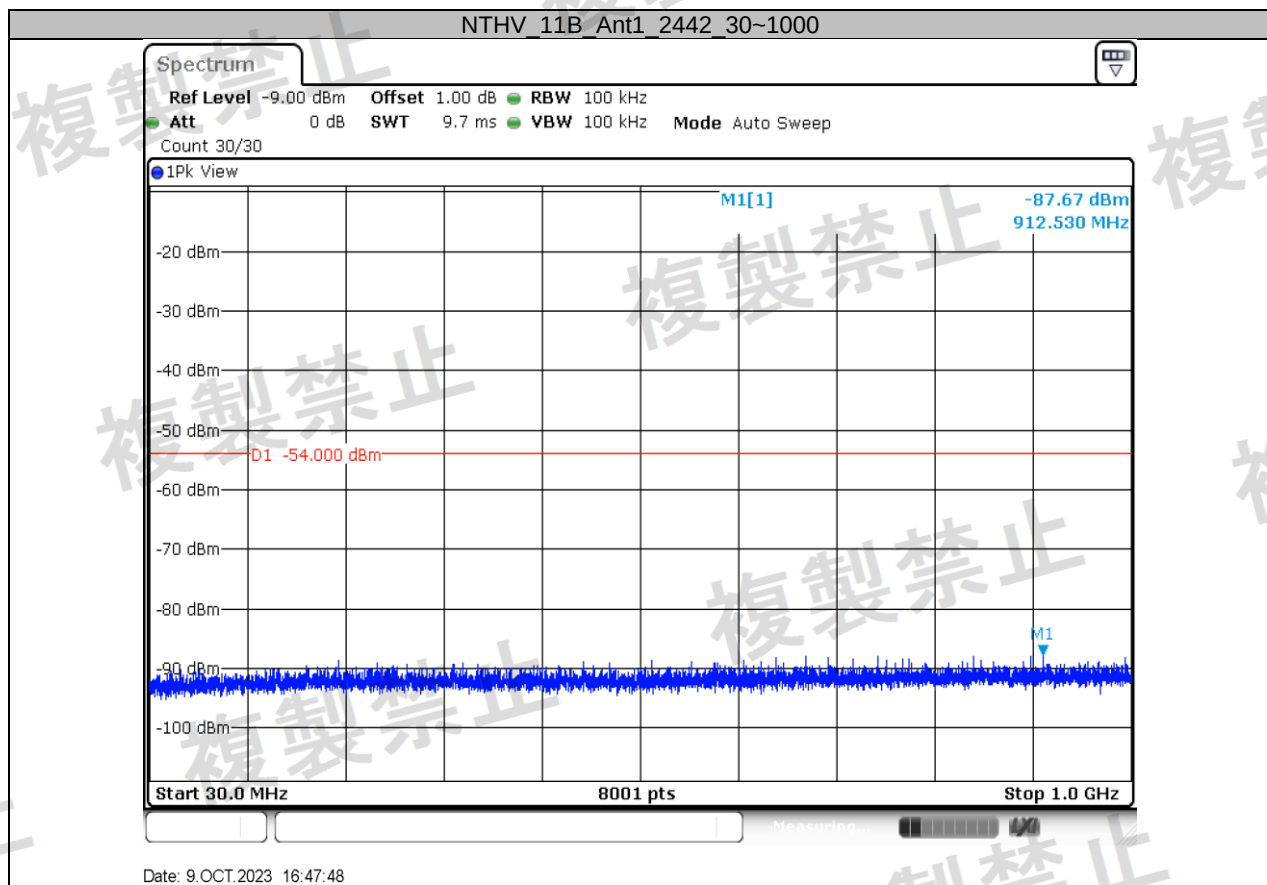
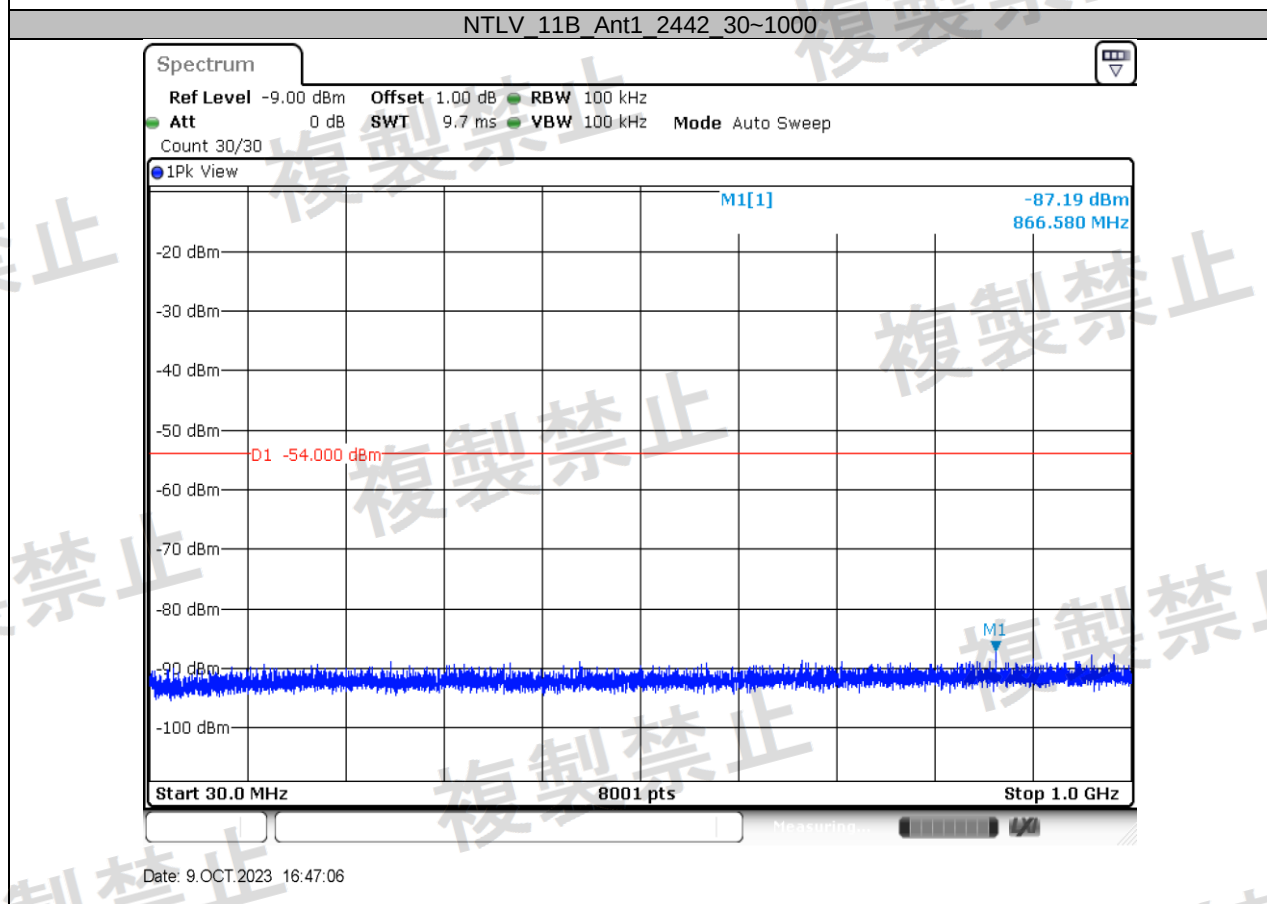
|      |           |      |      |            |        |       |      |
|------|-----------|------|------|------------|--------|-------|------|
| NTNV | 11N20SISO | Ant1 | 2412 | 1000~13000 | -74.44 | <=-47 | PASS |
| NTHV | 11N20SISO | Ant1 | 2442 | 30~1000    | -87.1  | <=-54 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 30~1000    | -88.03 | <=-54 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 30~1000    | -88.17 | <=-54 | PASS |
| NTNV | 11N20SISO | Ant1 | 2442 | 1000~13000 | -74.81 | <=-47 | PASS |
| NTHV | 11N20SISO | Ant1 | 2442 | 1000~13000 | -74.65 | <=-47 | PASS |
| NTLV | 11N20SISO | Ant1 | 2442 | 1000~13000 | -73.64 | <=-47 | PASS |
|      |           |      | 2472 | 30~1000    | -87.28 | <=-54 | PASS |
| NTNV | 11N20SISO | Ant1 | 2472 | 30~1000    | -87.5  | <=-54 | PASS |
| NTHV | 11N20SISO | Ant1 | 2472 | 30~1000    | -87.67 | <=-54 | PASS |
| NTLV | 11N20SISO | Ant1 | 2472 | 1000~13000 | -74.12 | <=-47 | PASS |
| NTNV | 11N20SISO | Ant1 | 2472 | 1000~13000 | -74.74 | <=-47 | PASS |
| NTHV | 11N20SISO | Ant1 | 2472 | 1000~13000 | -74.61 | <=-47 | PASS |



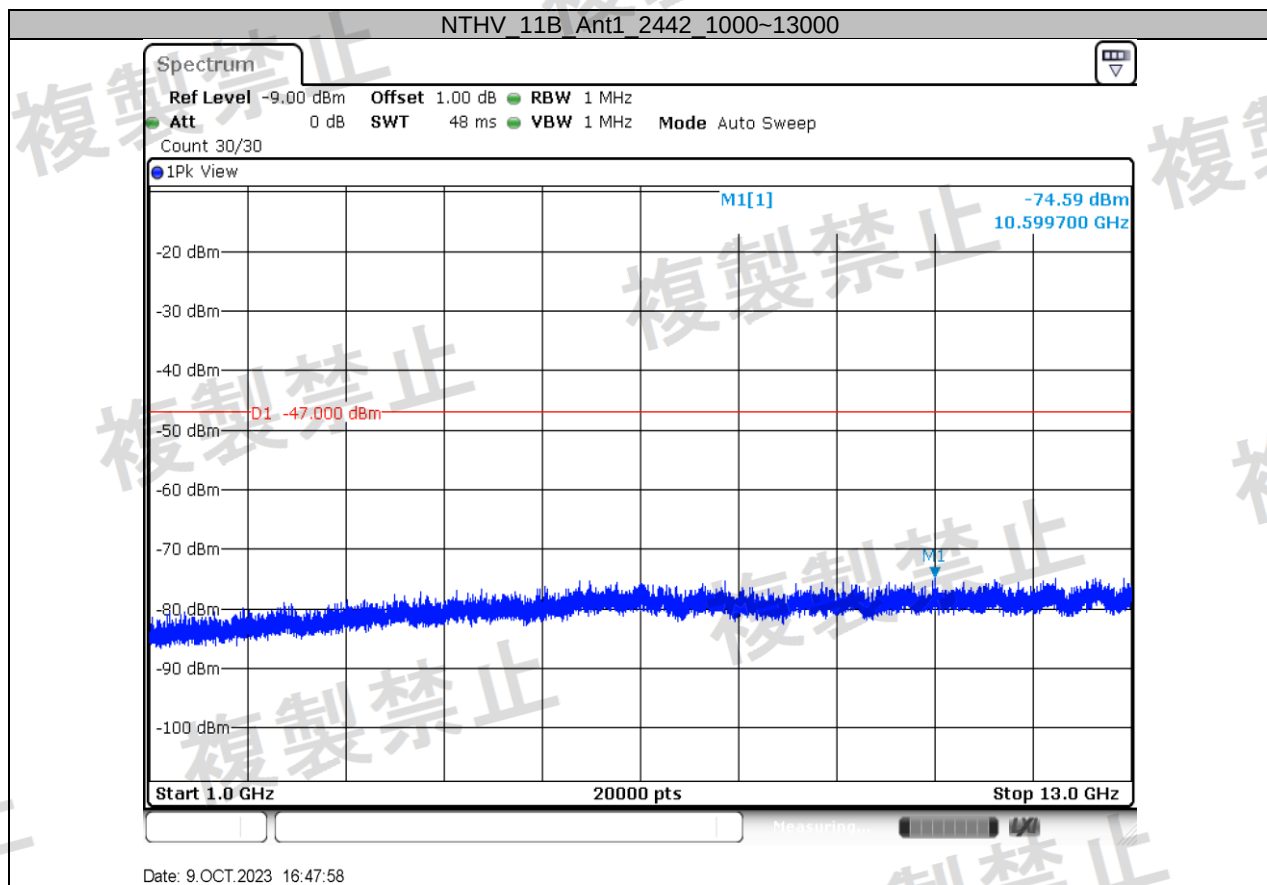
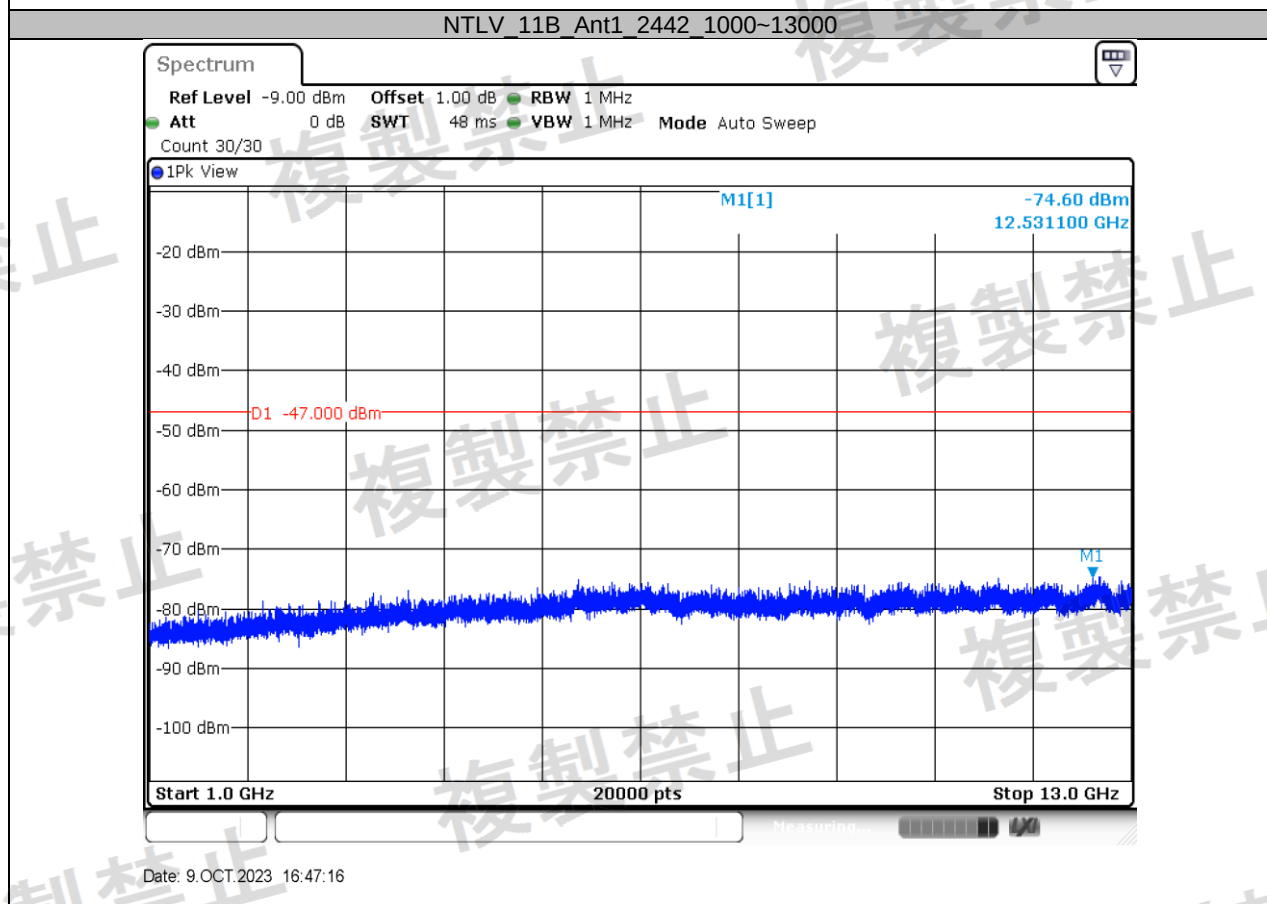


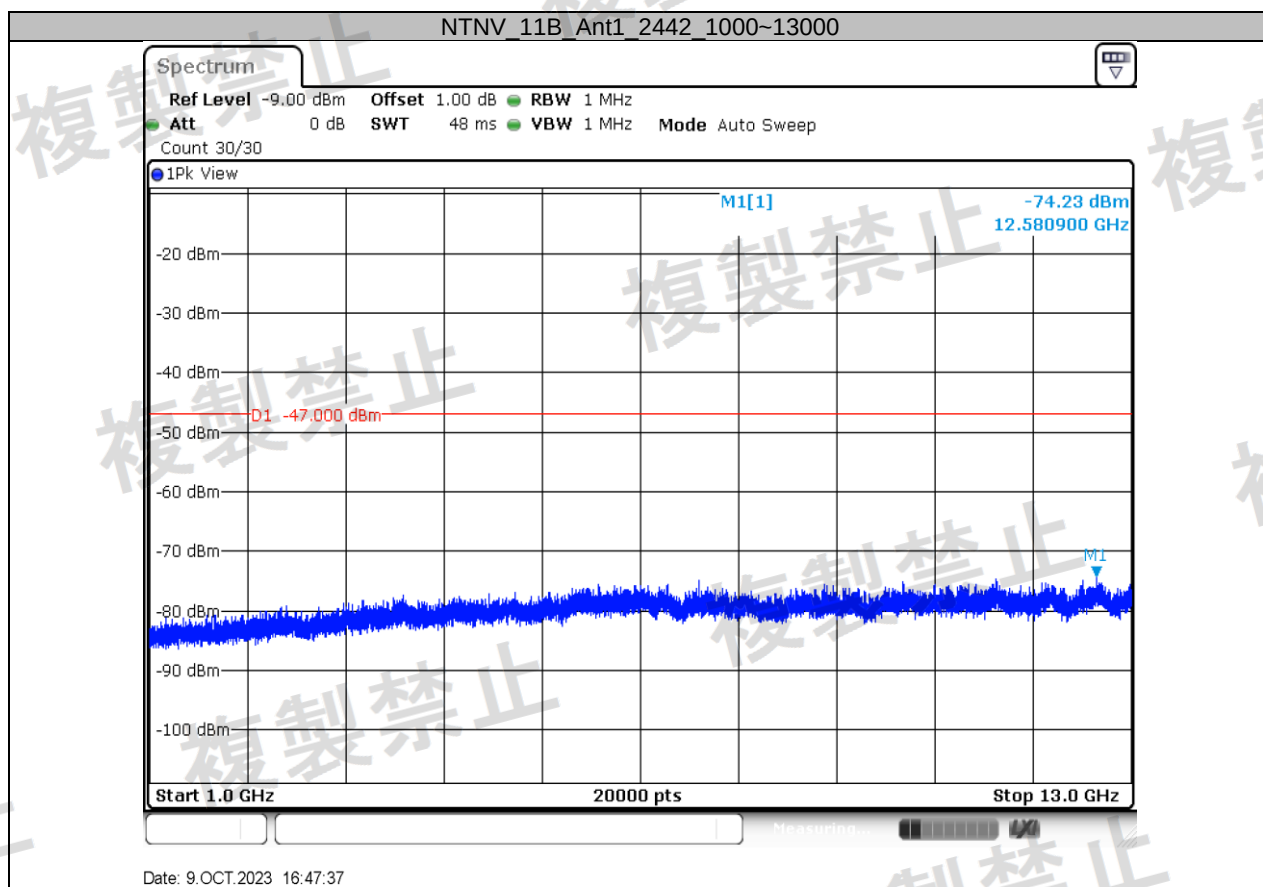
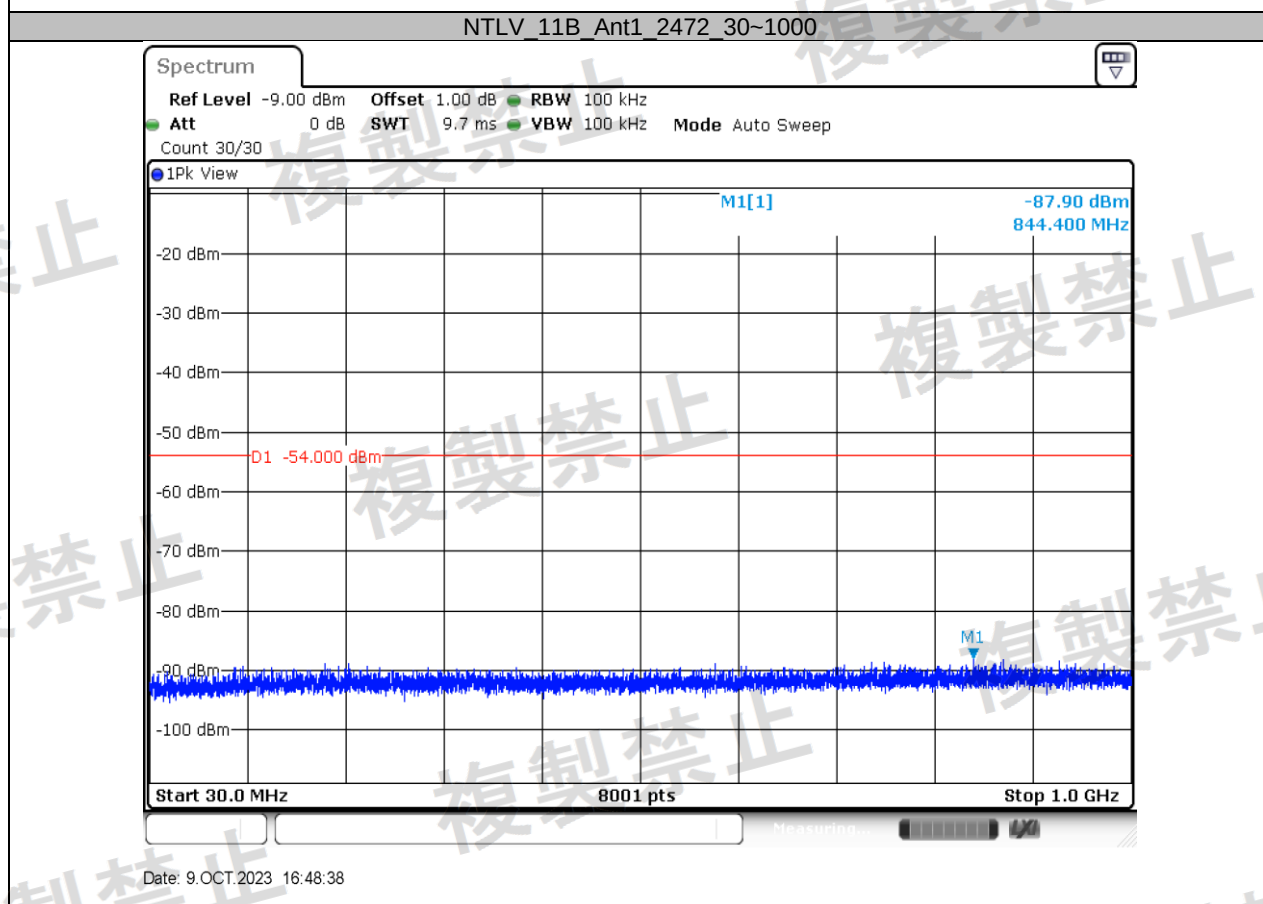


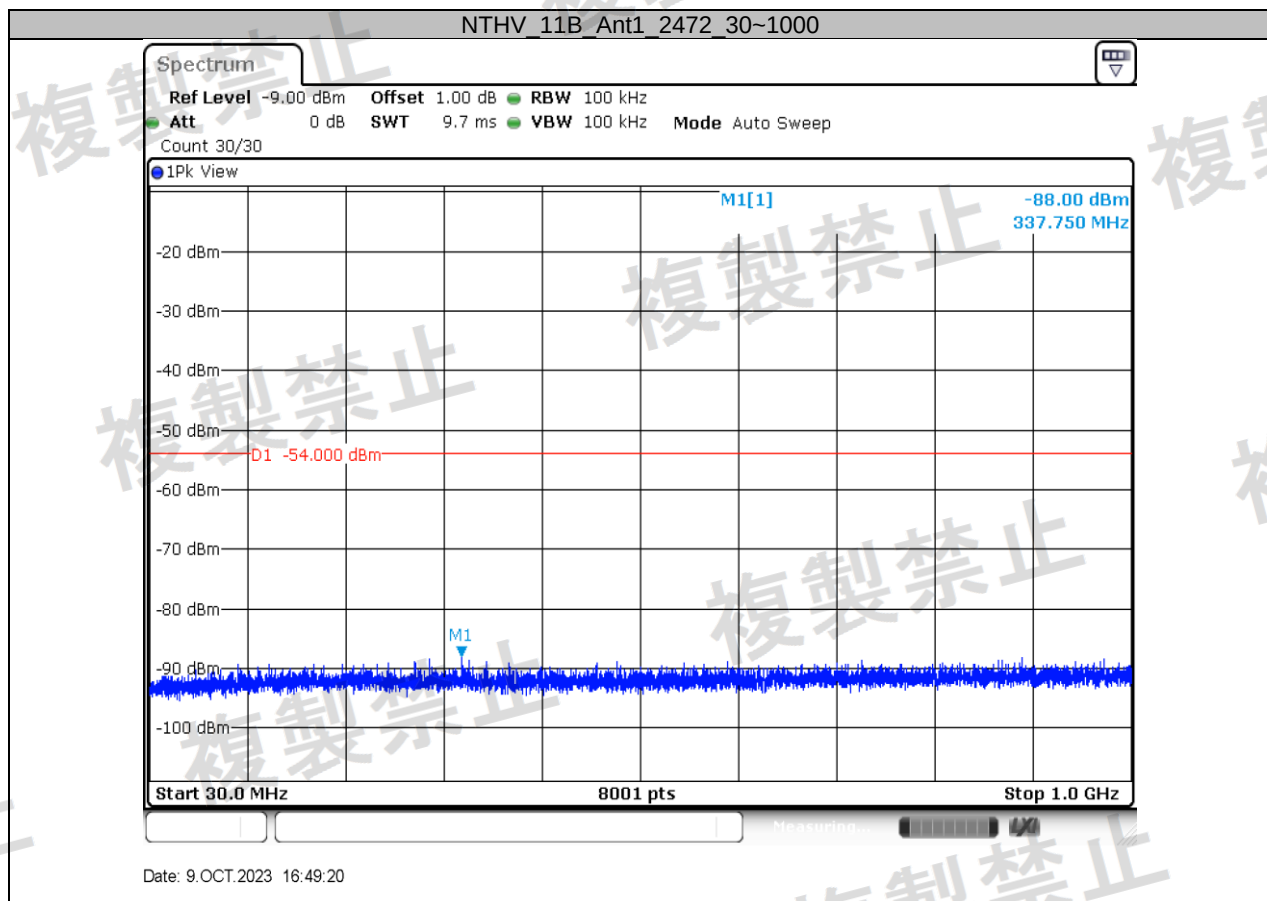
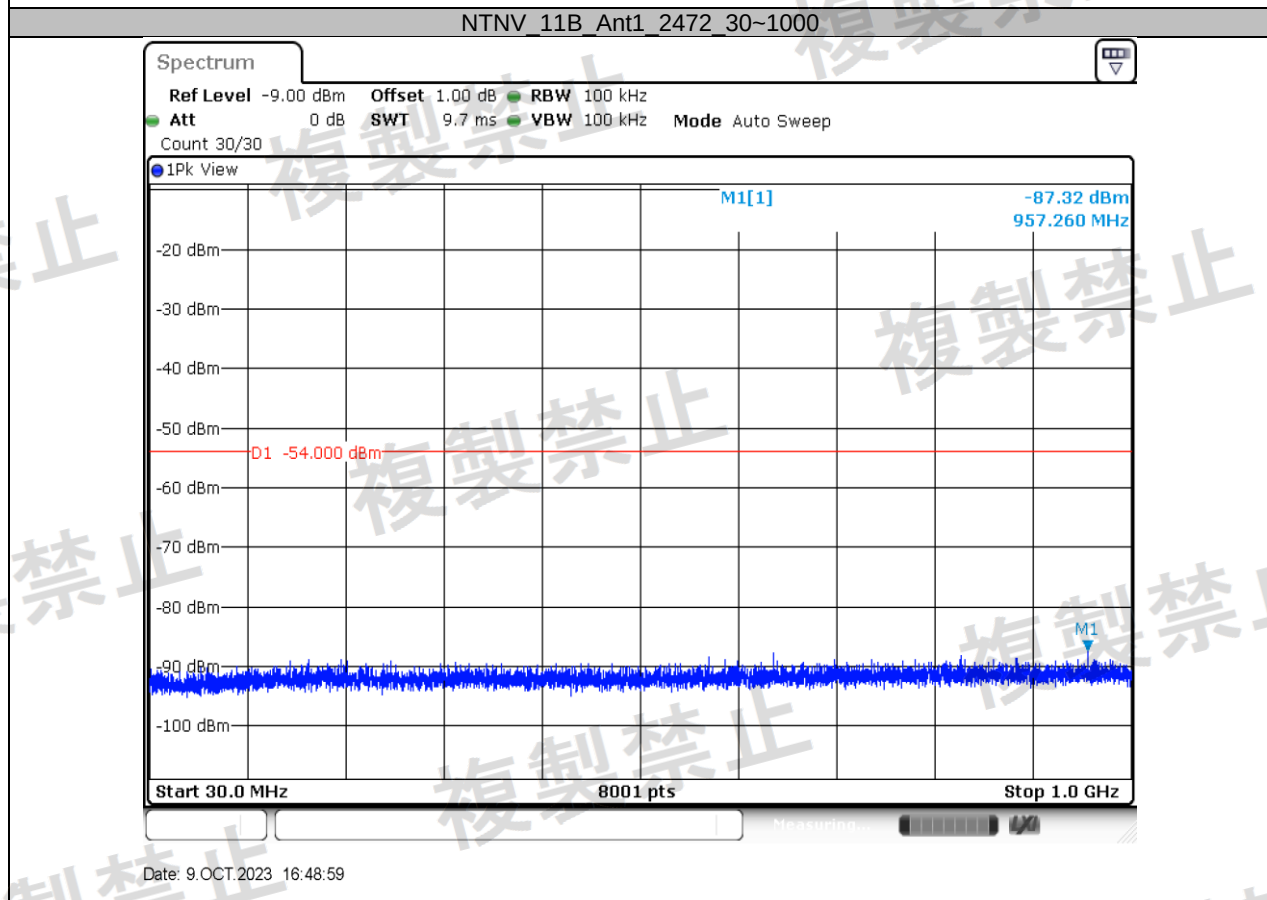


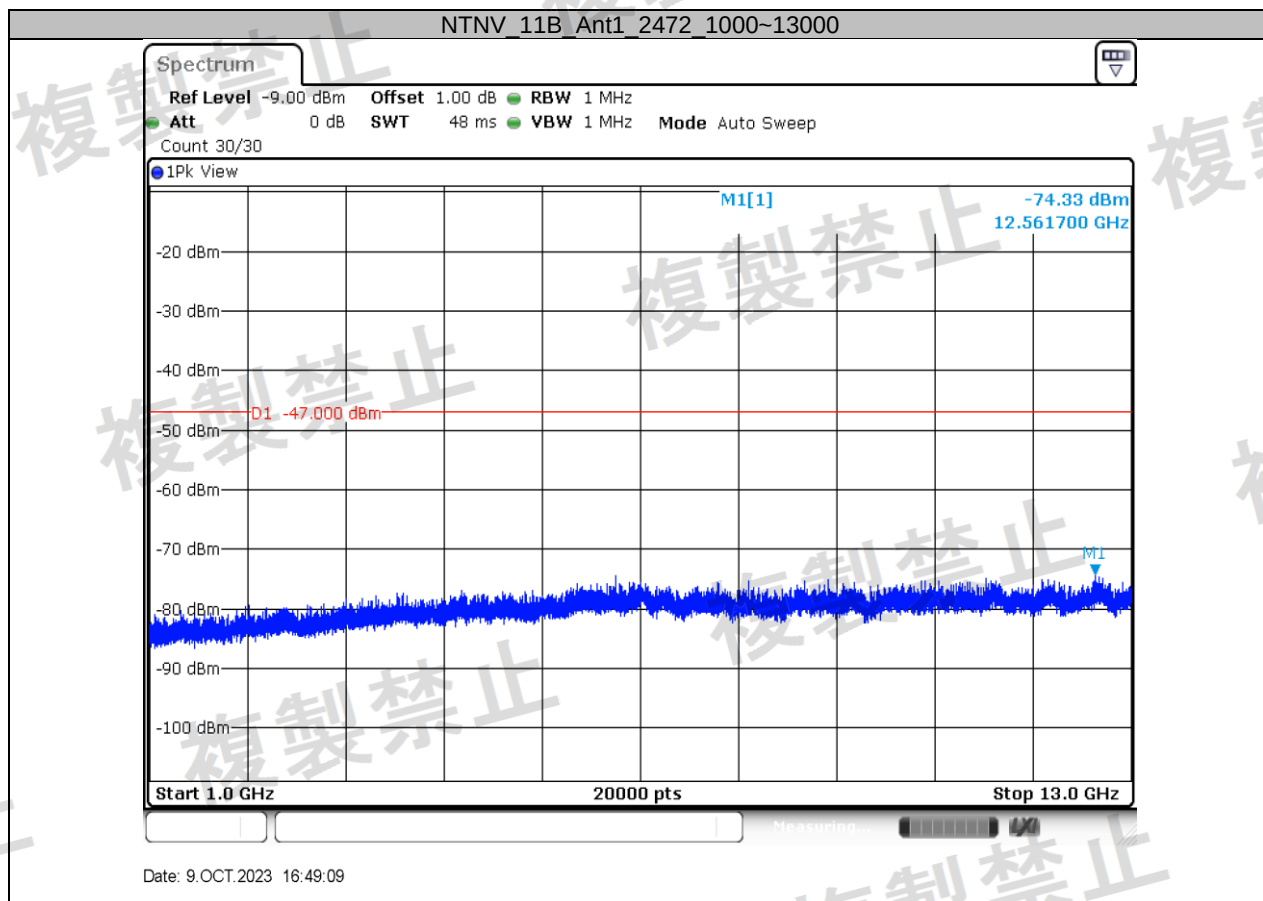
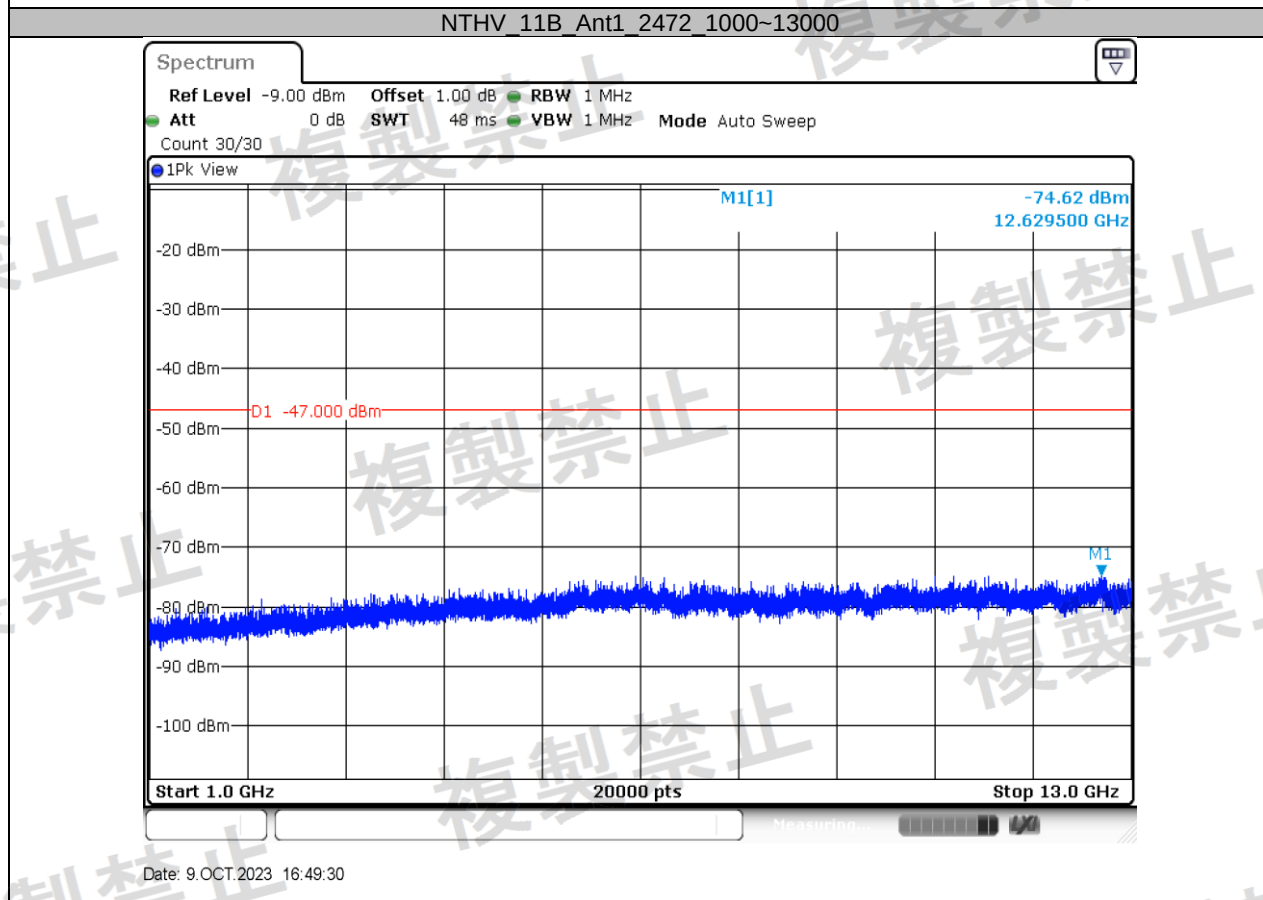


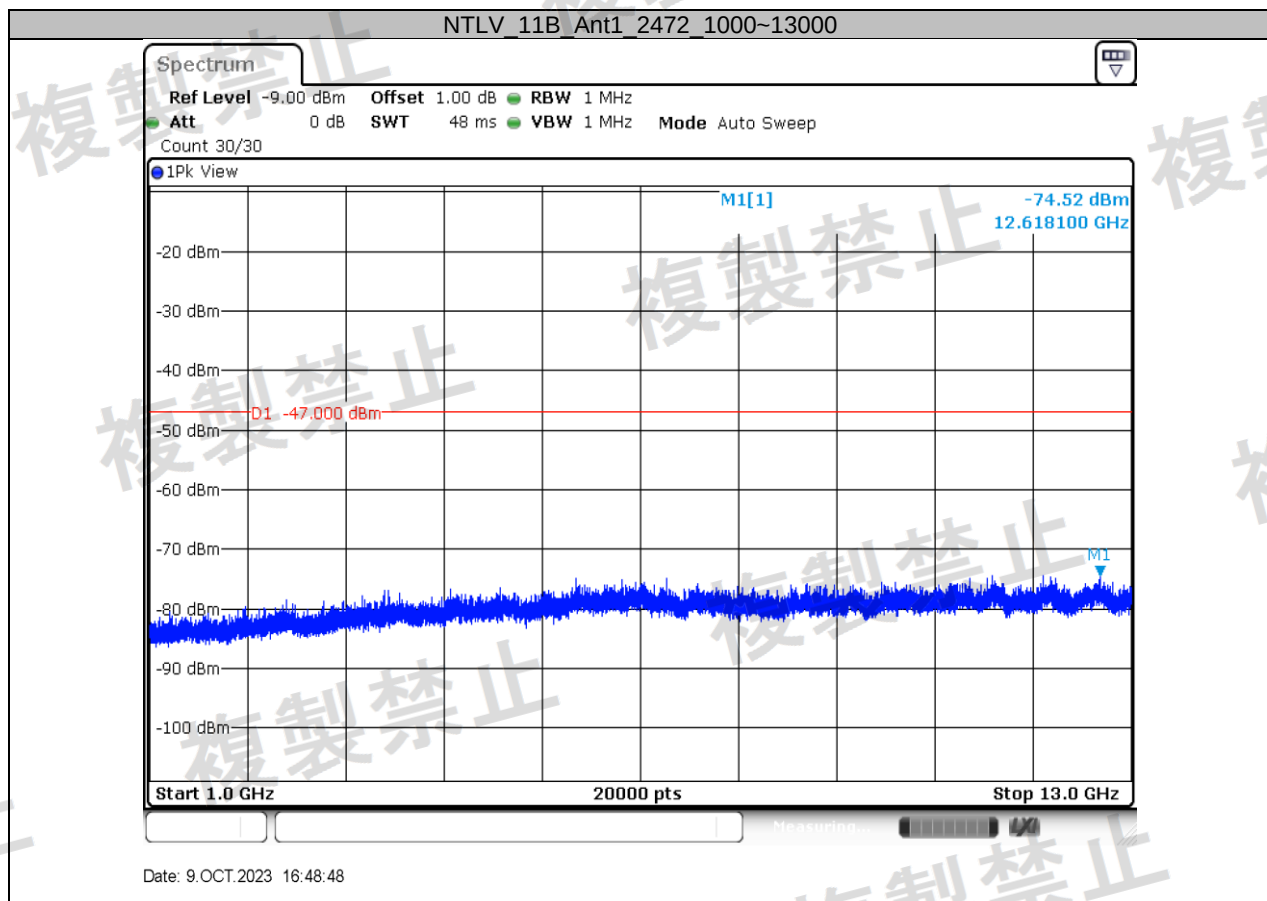
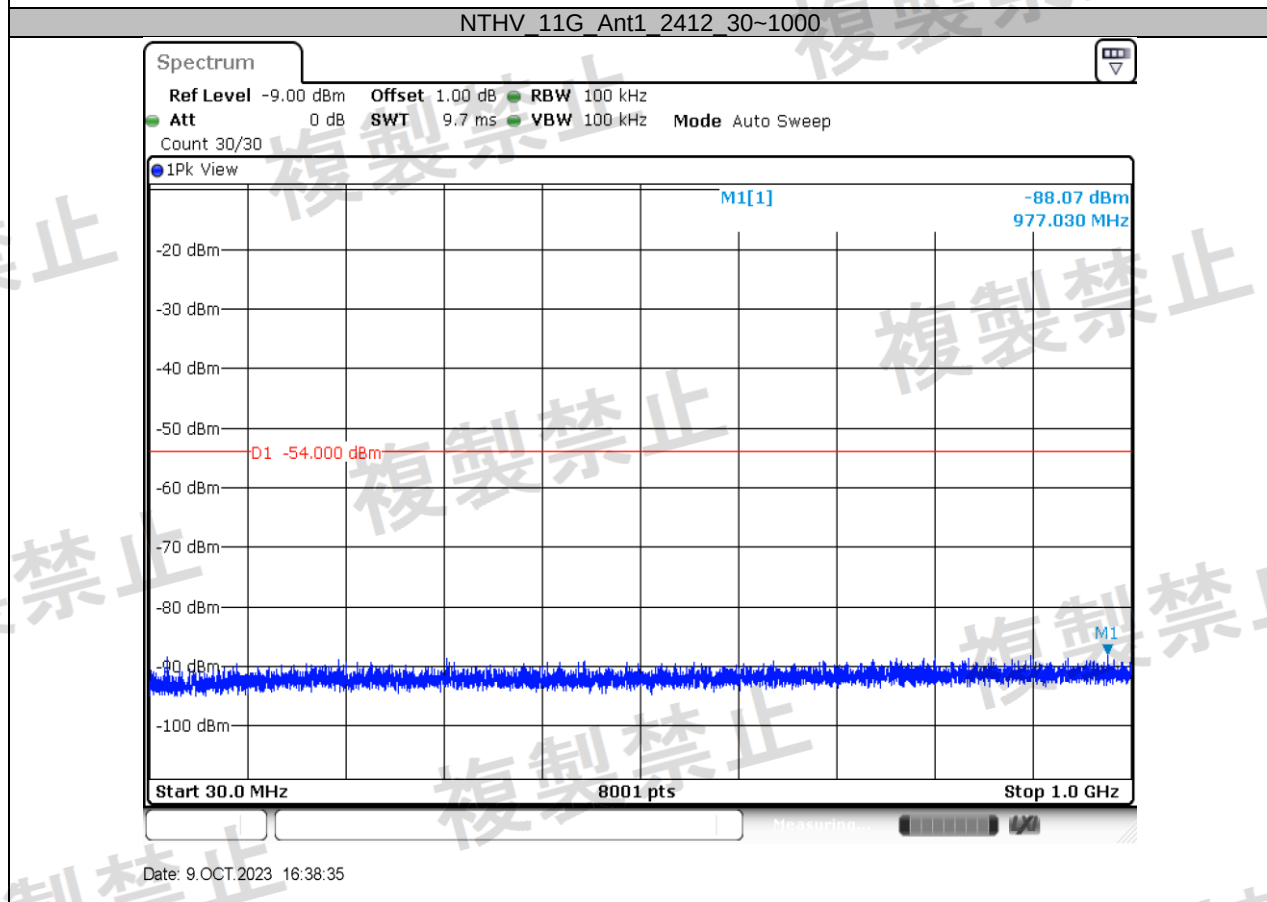




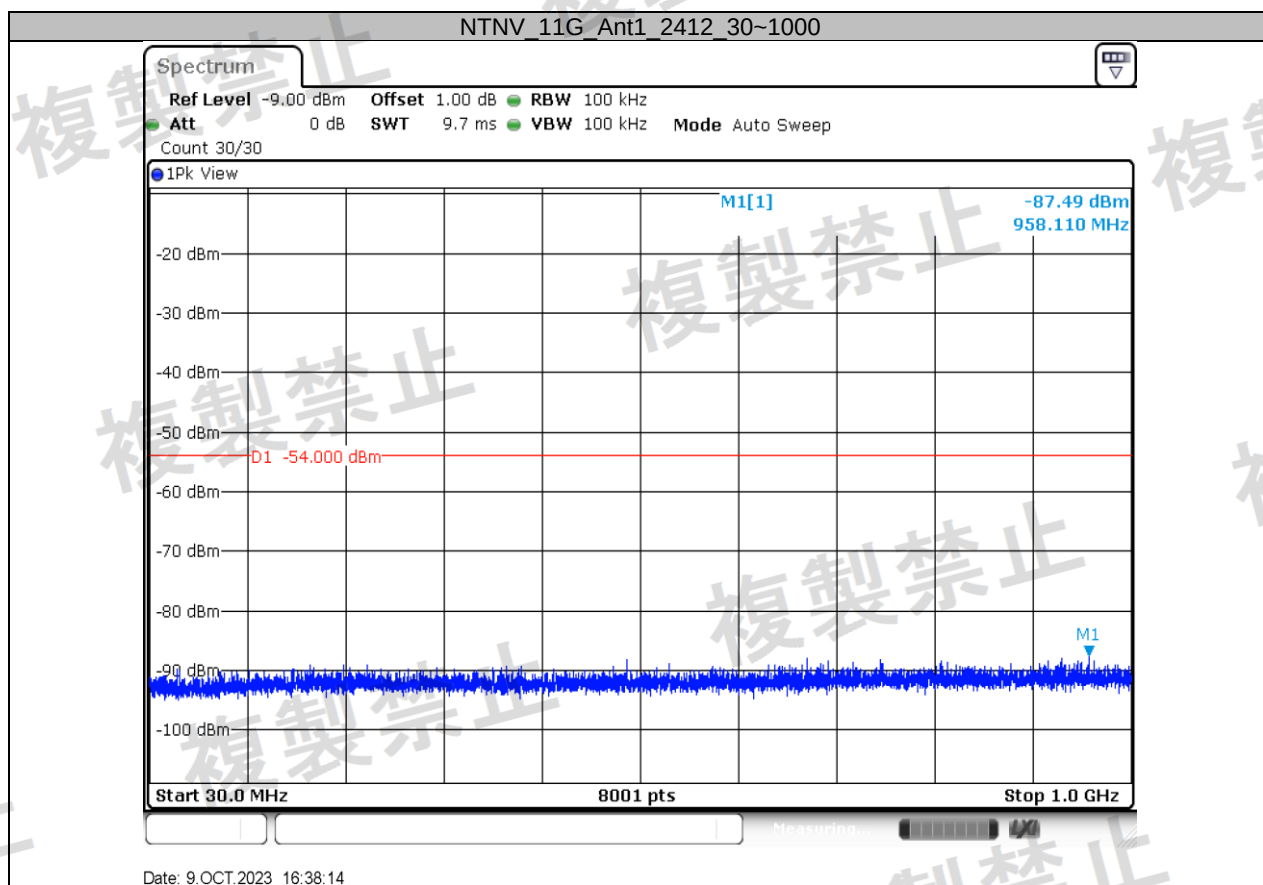
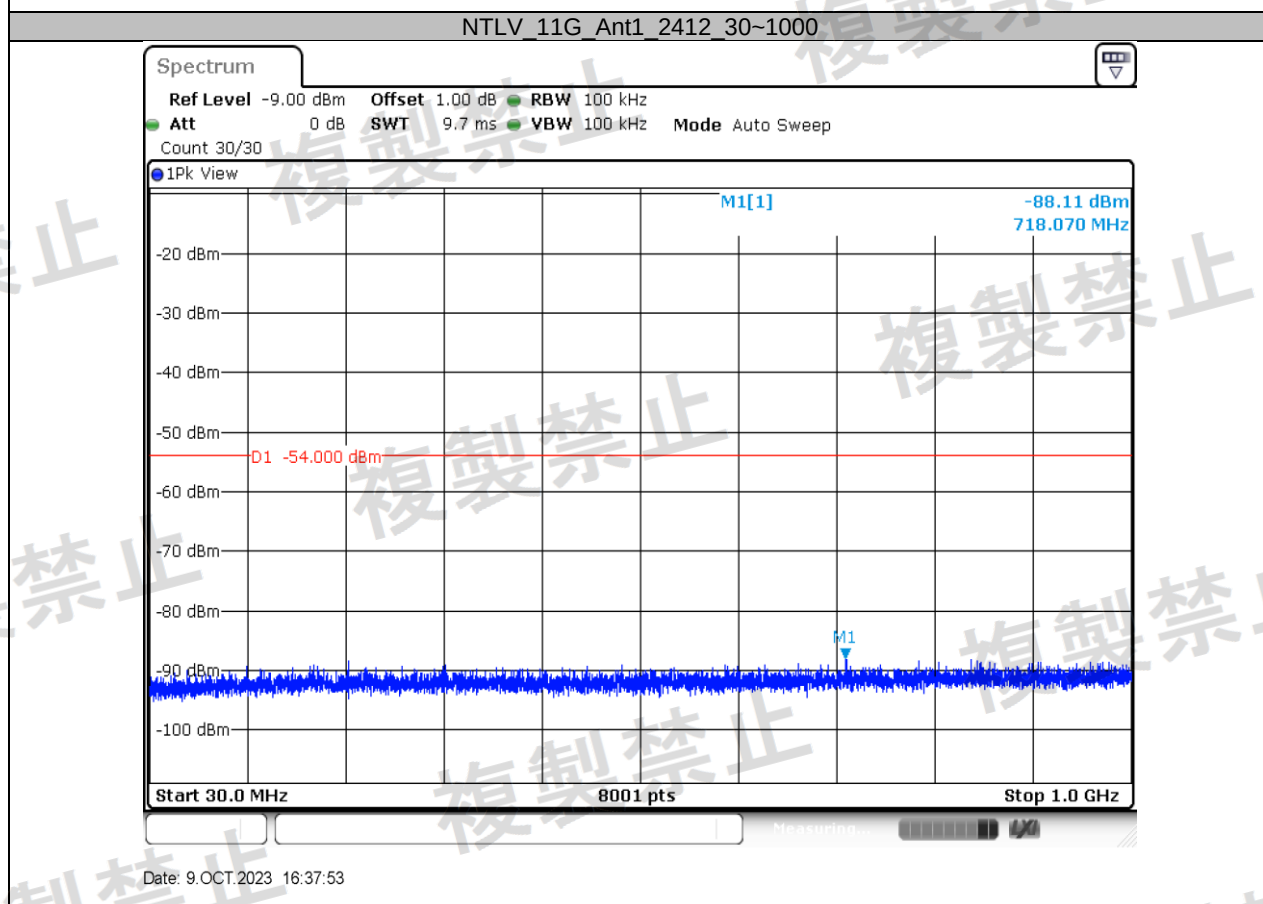


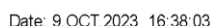


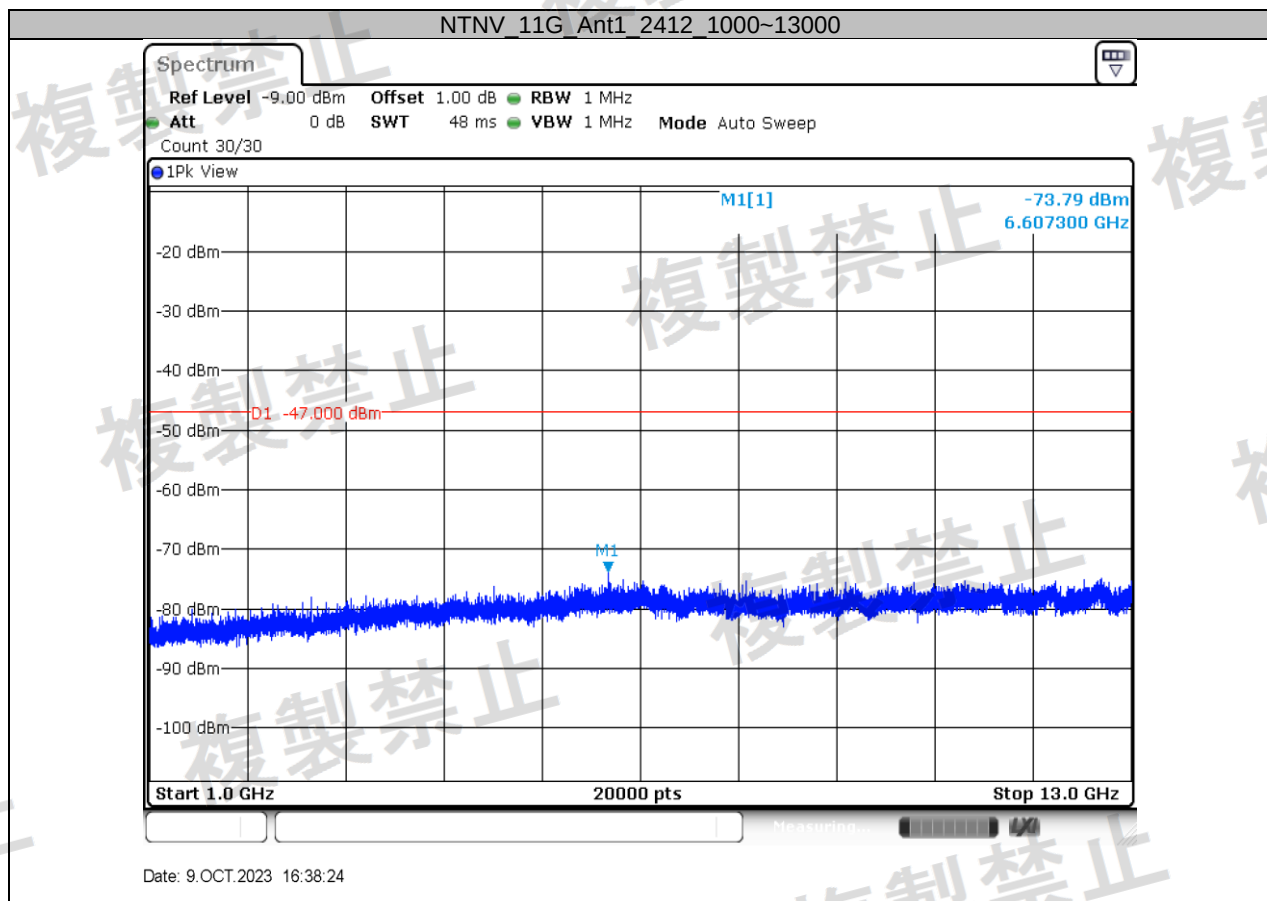
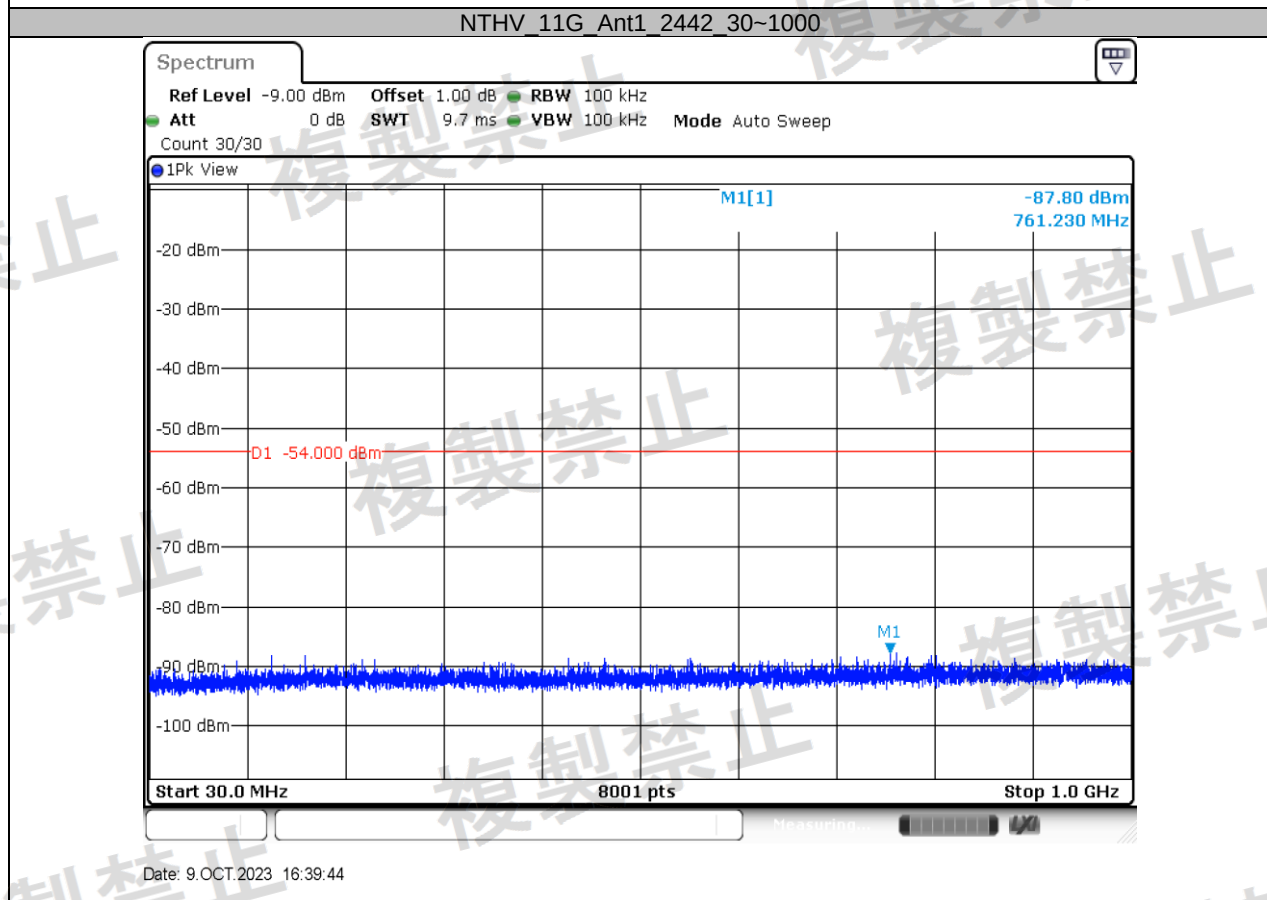


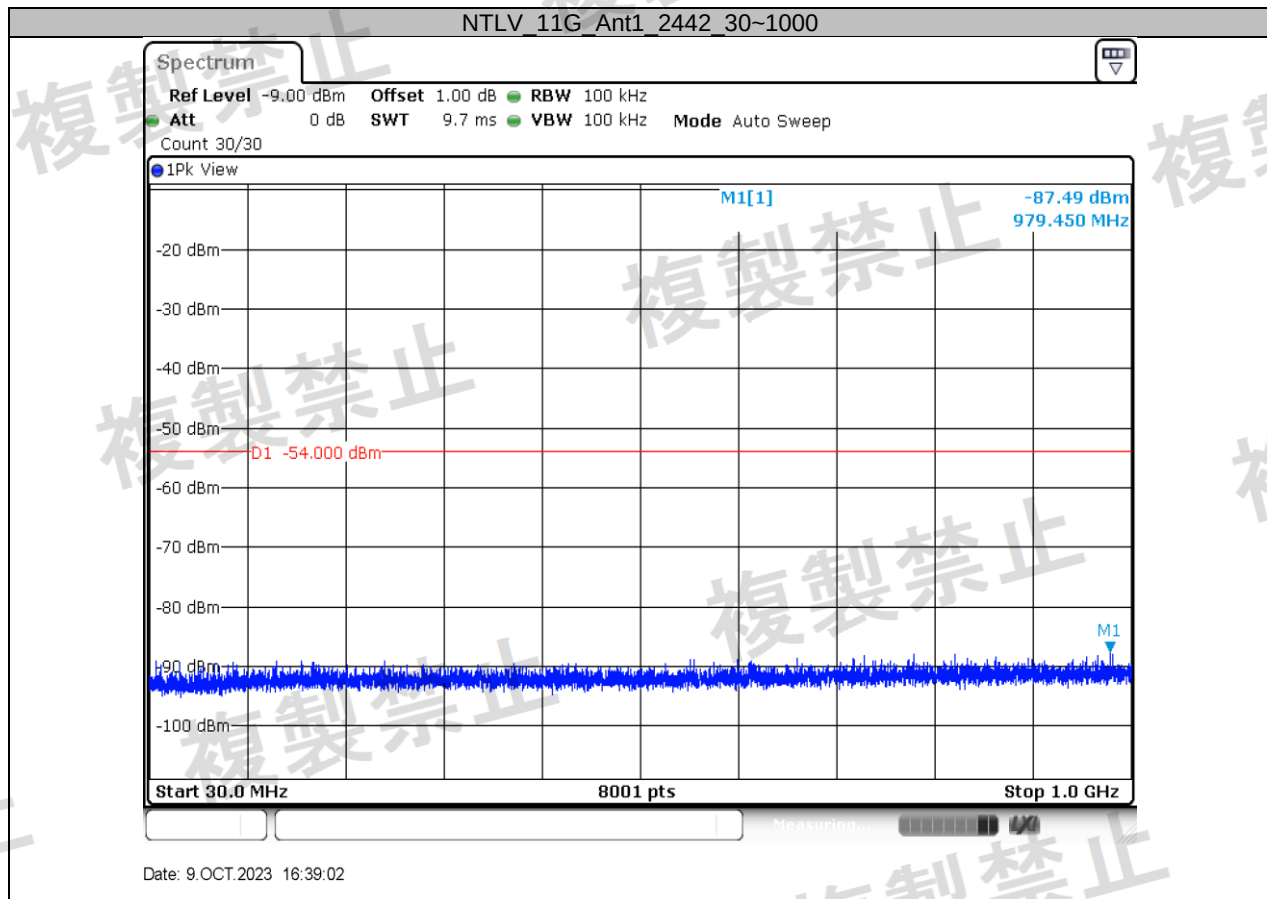
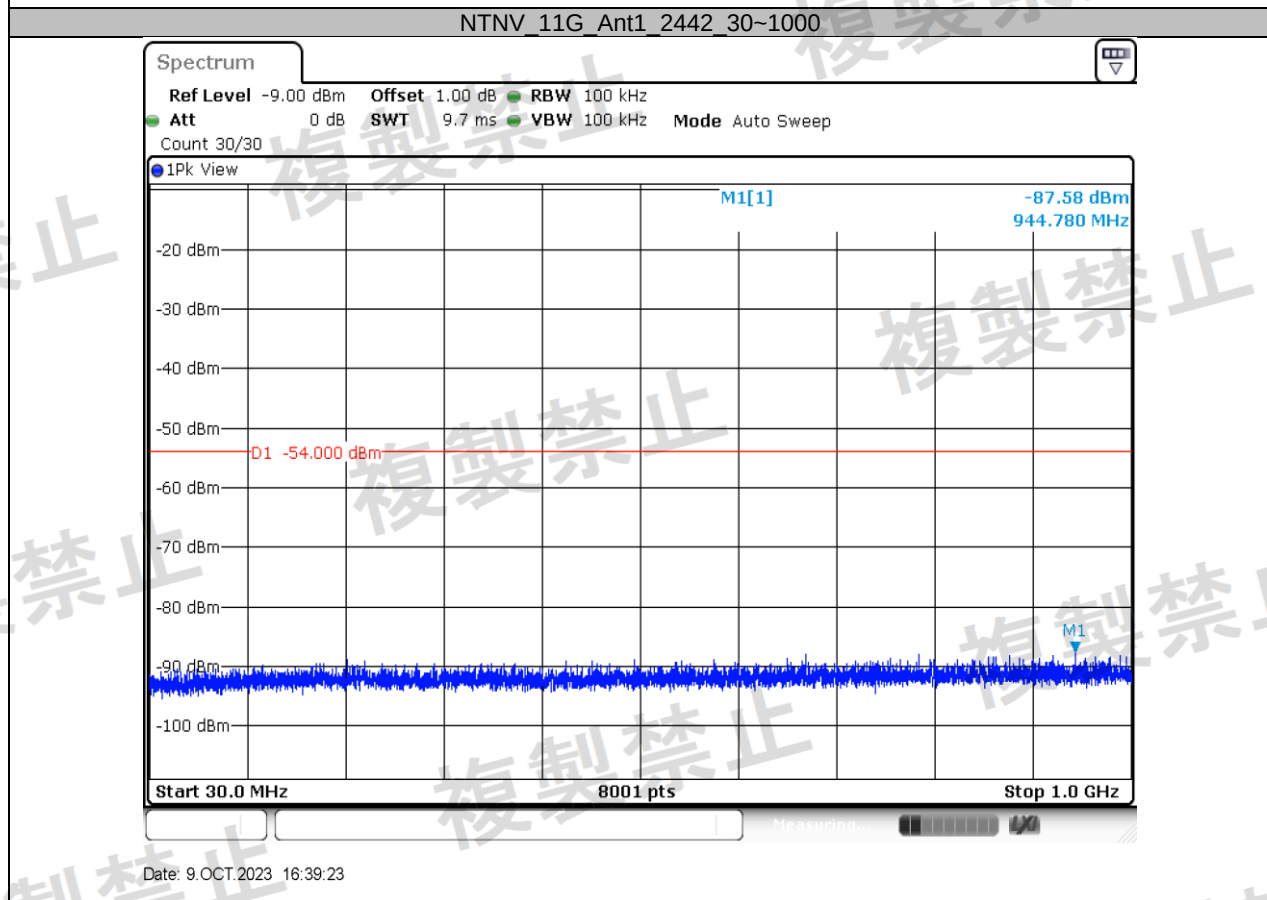


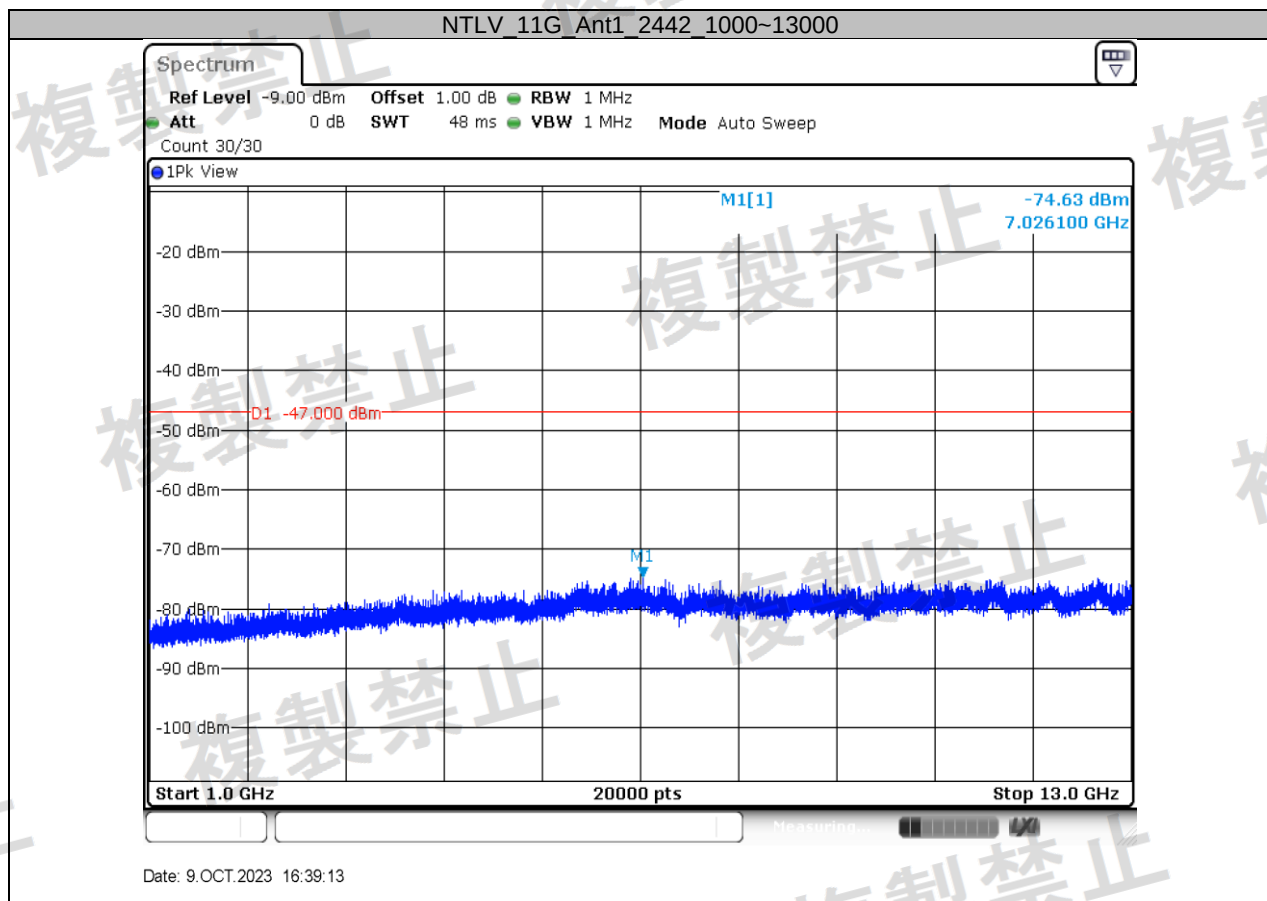
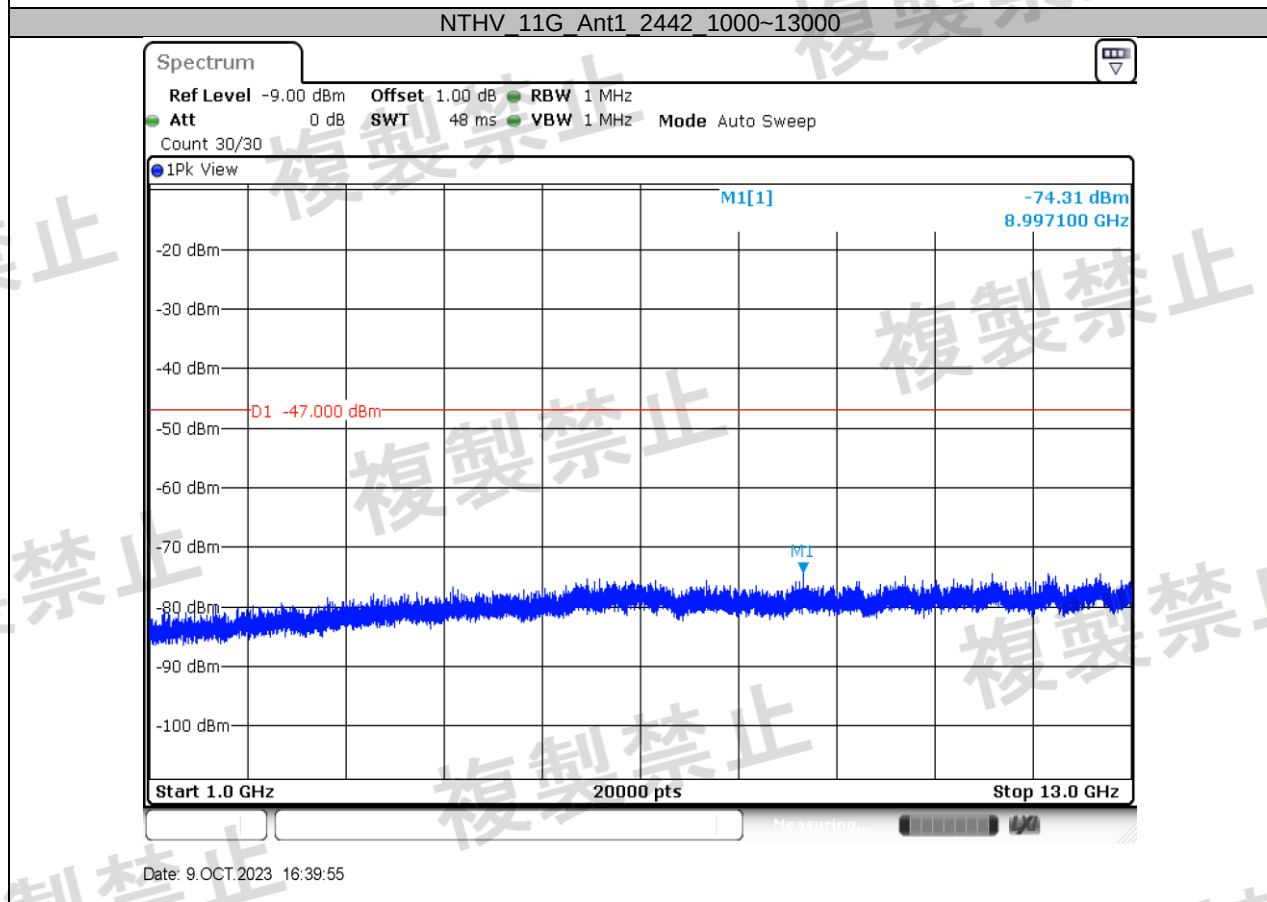




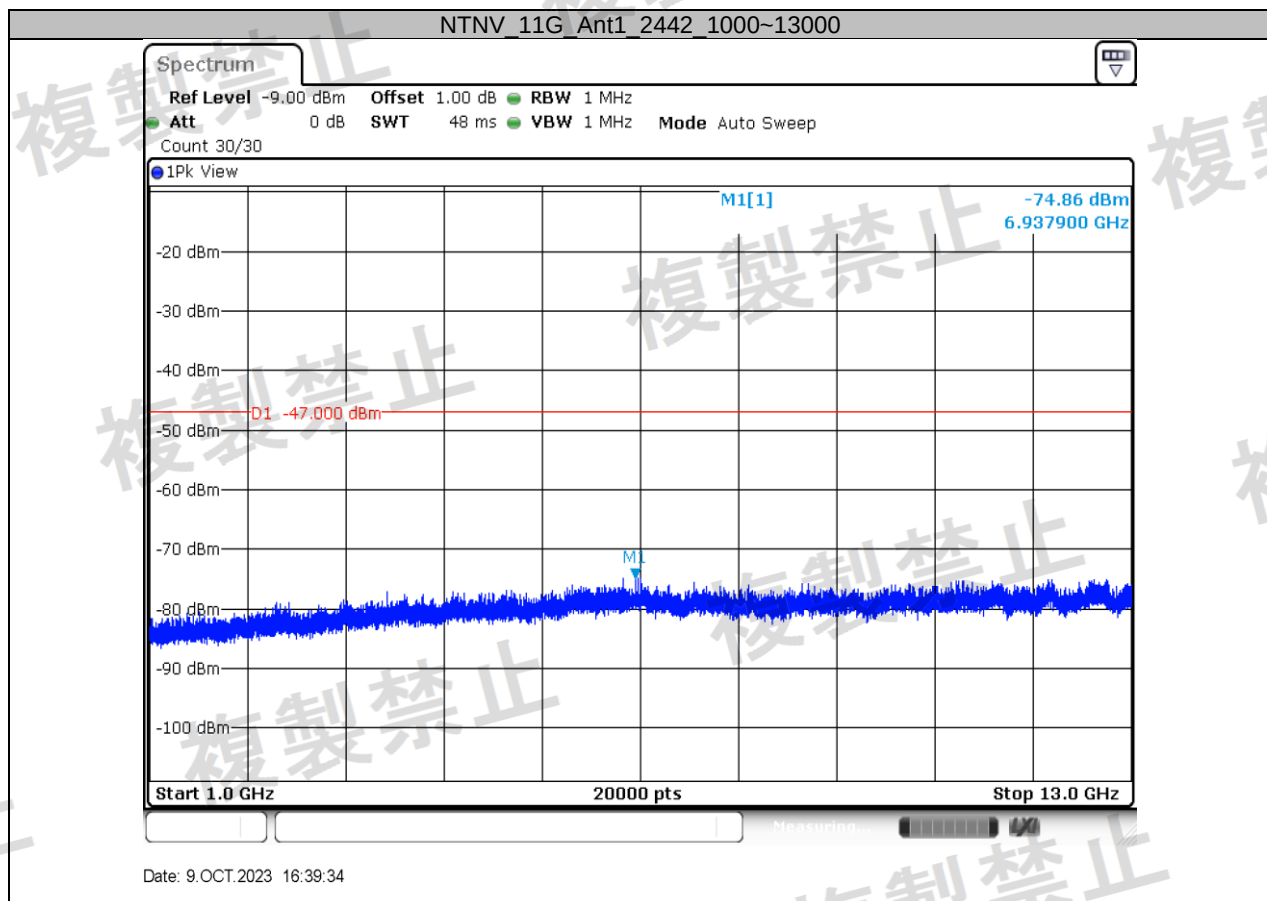
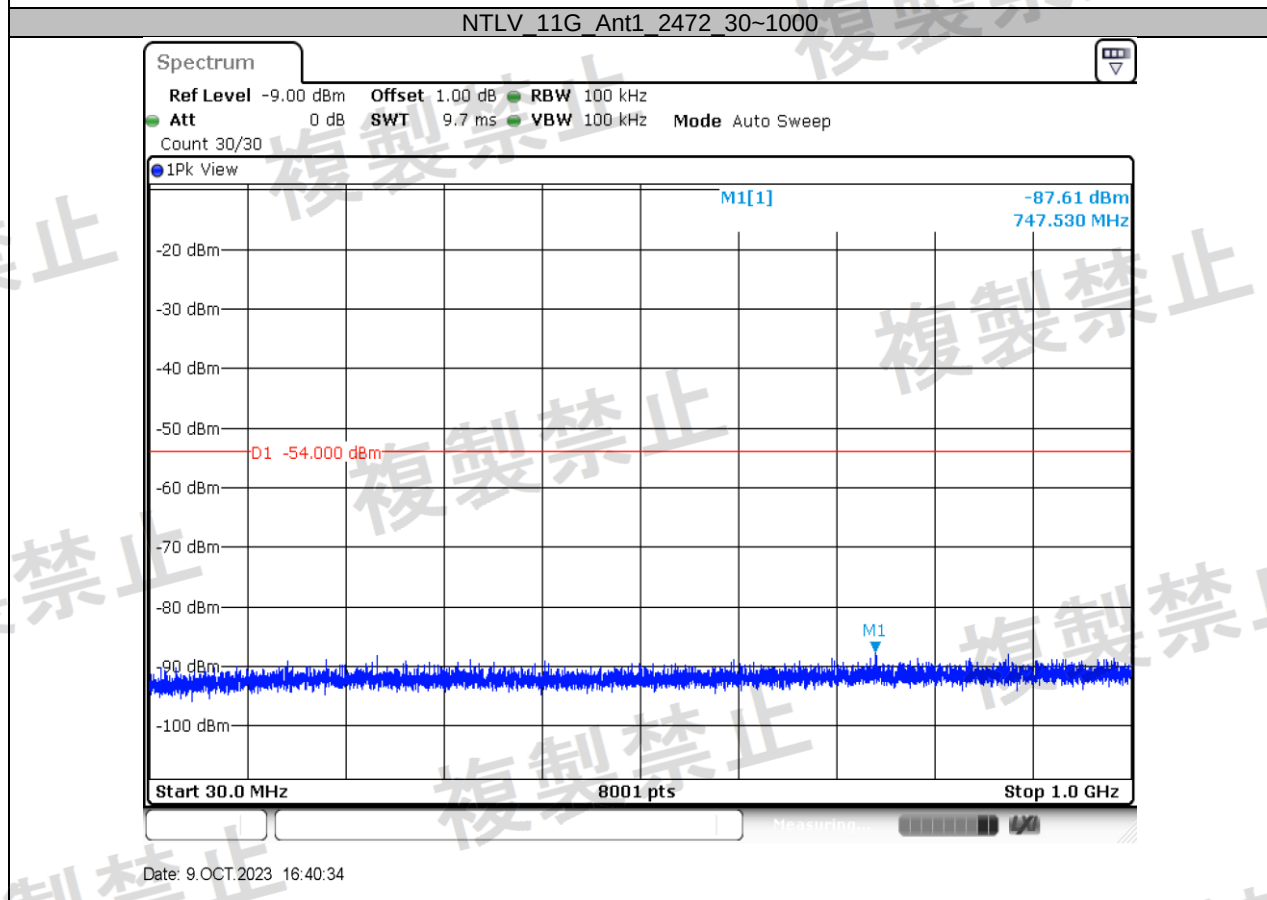


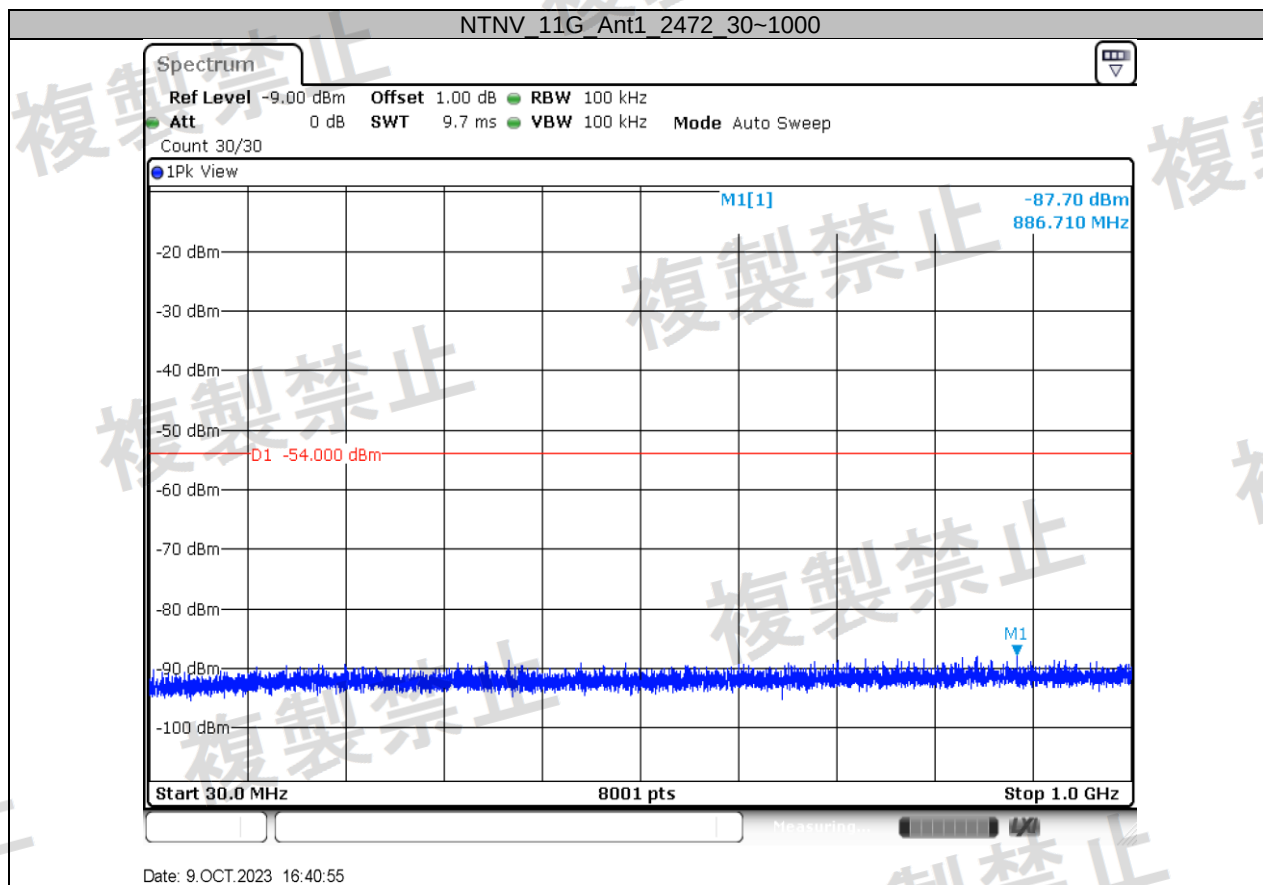
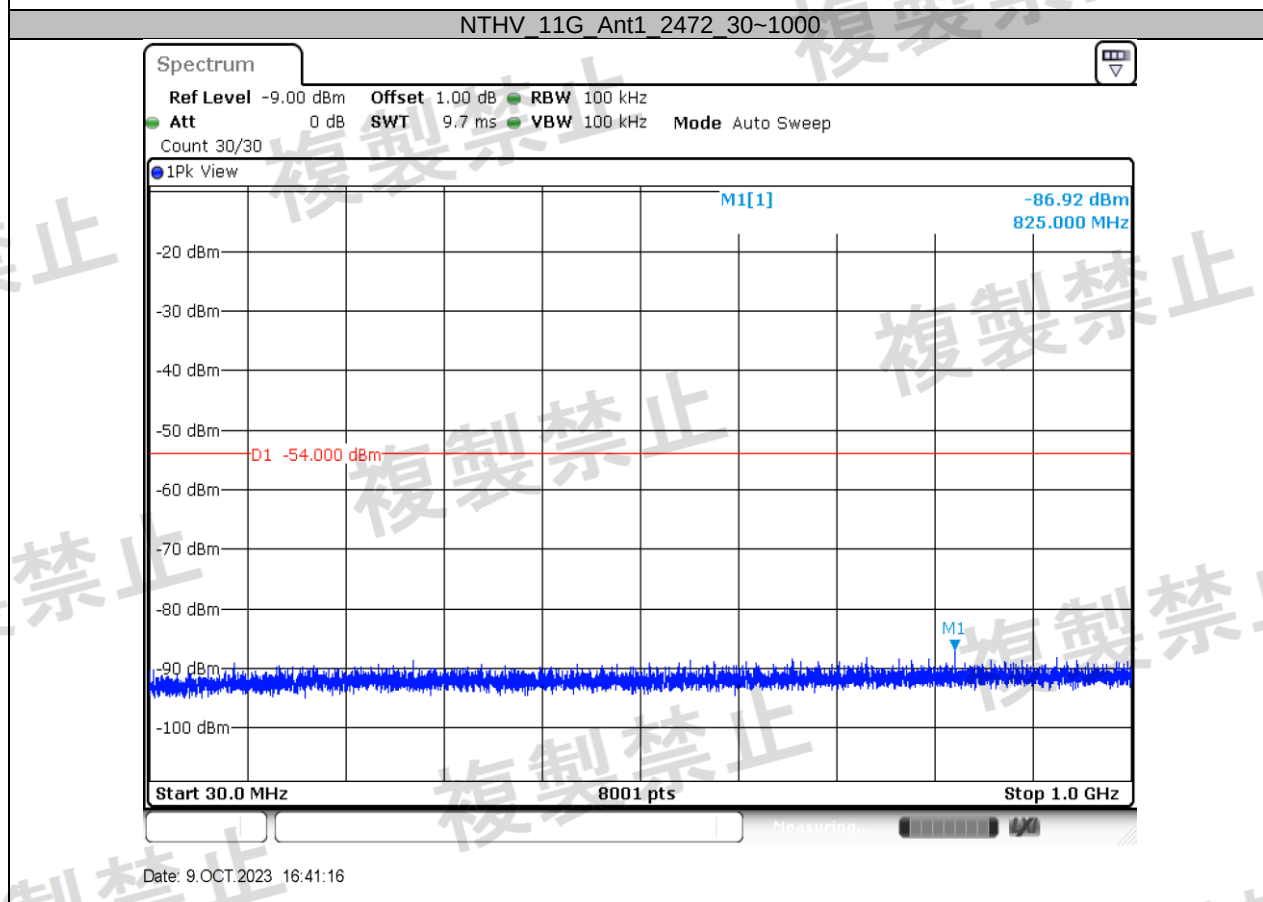


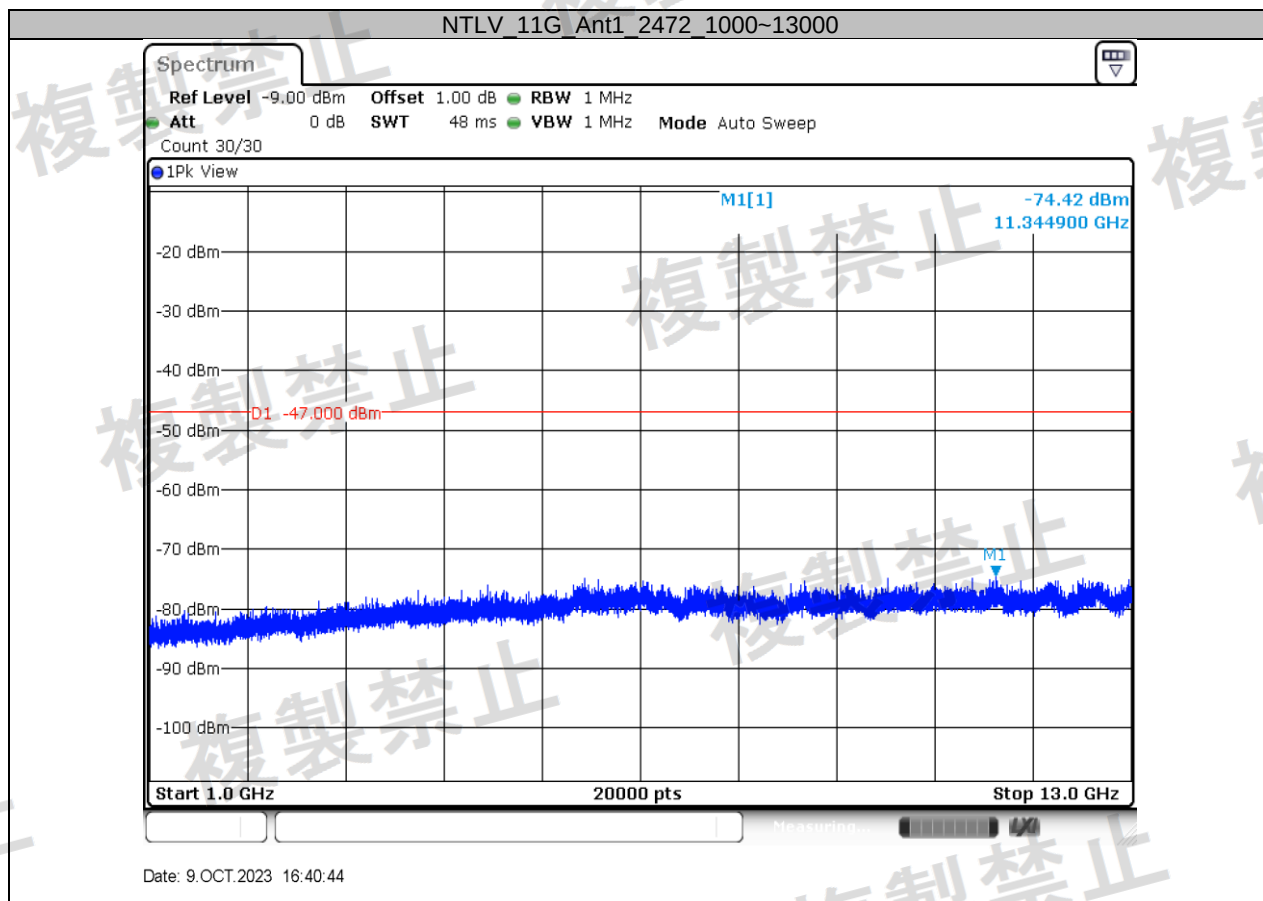
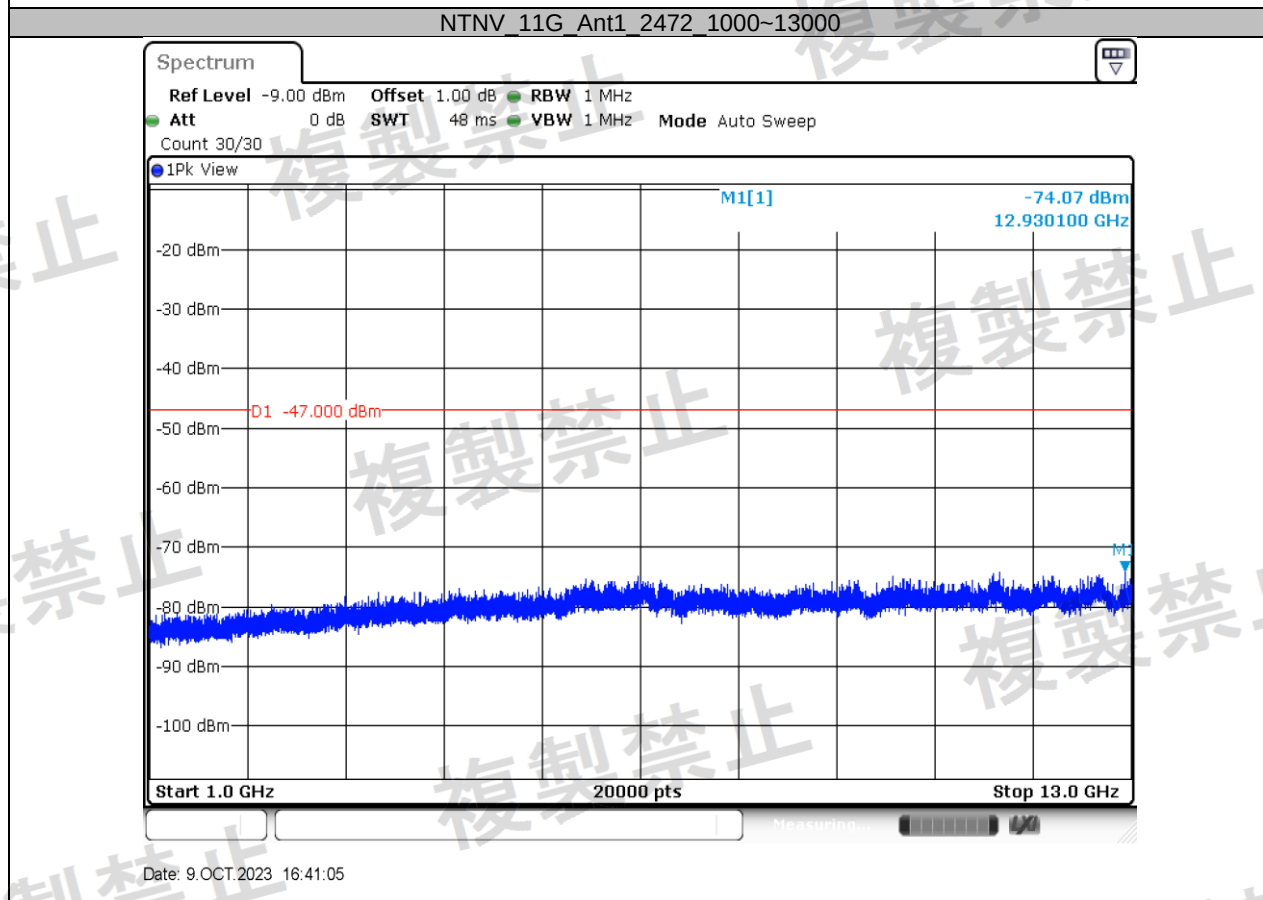


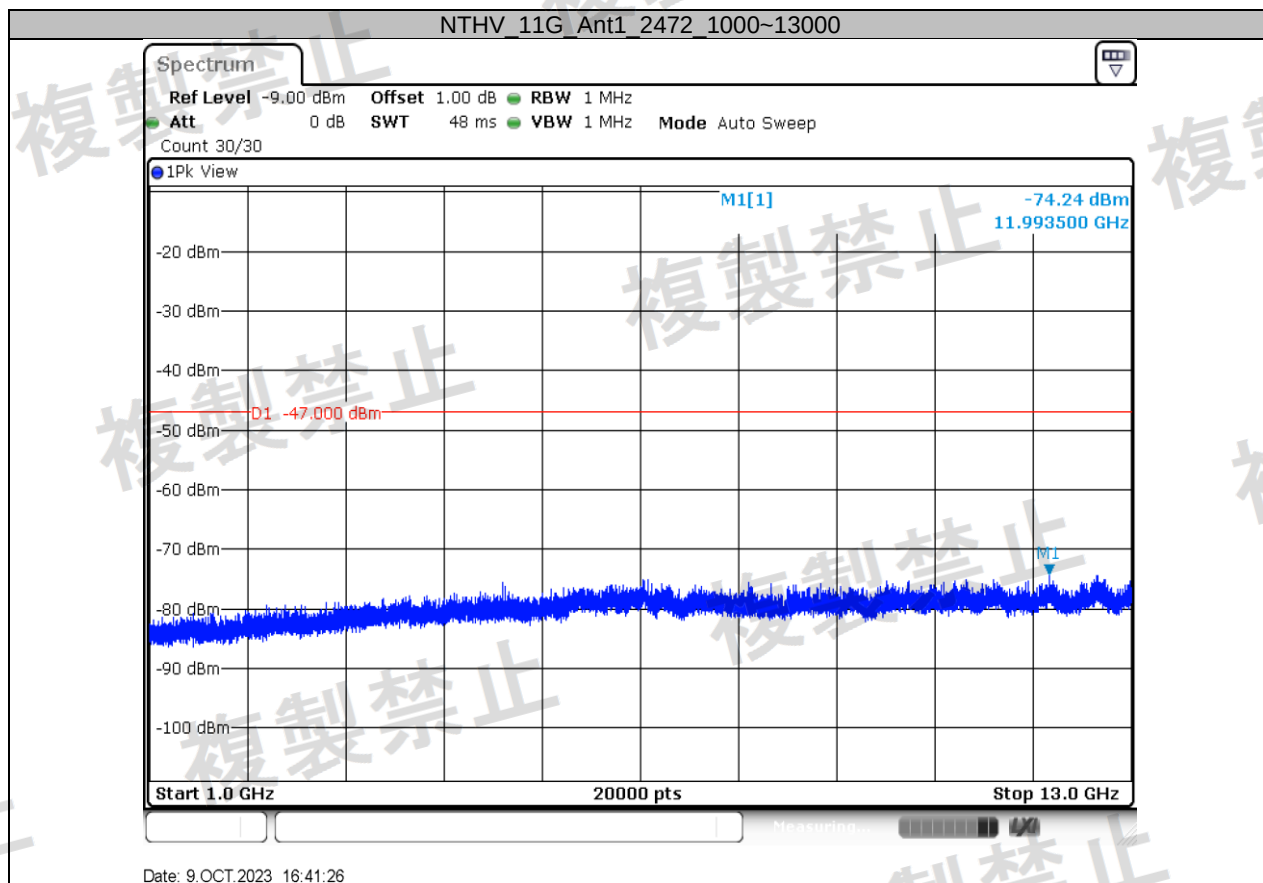
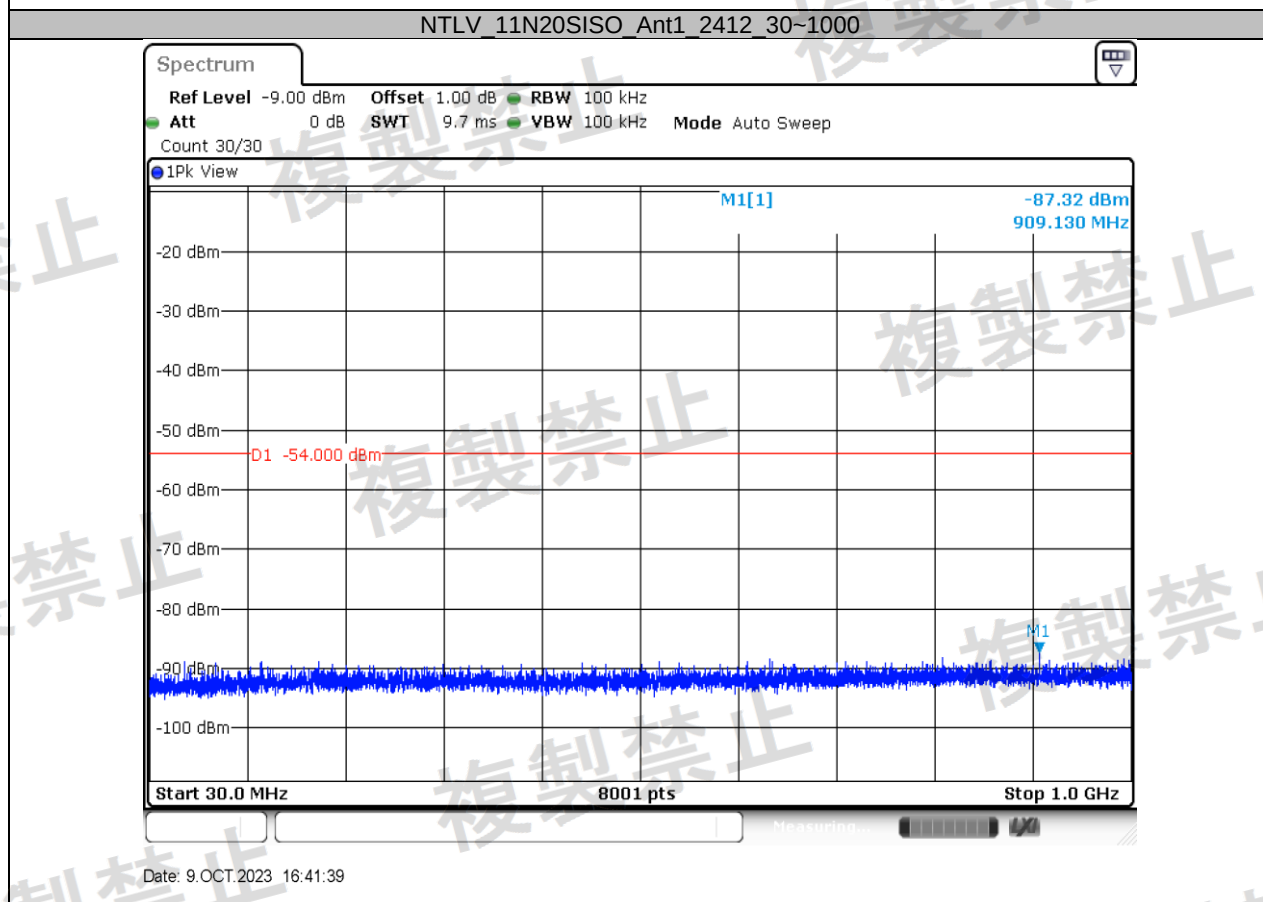


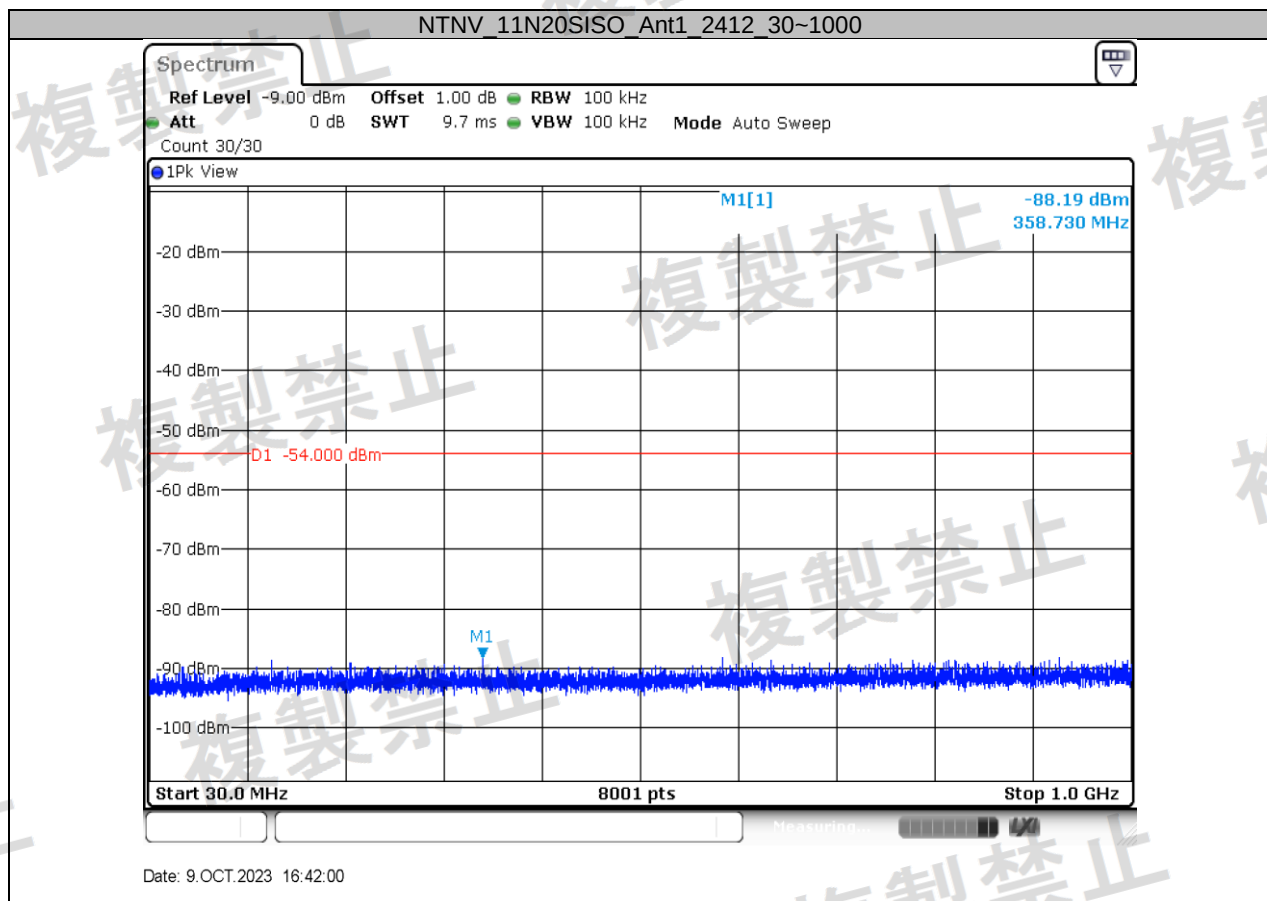
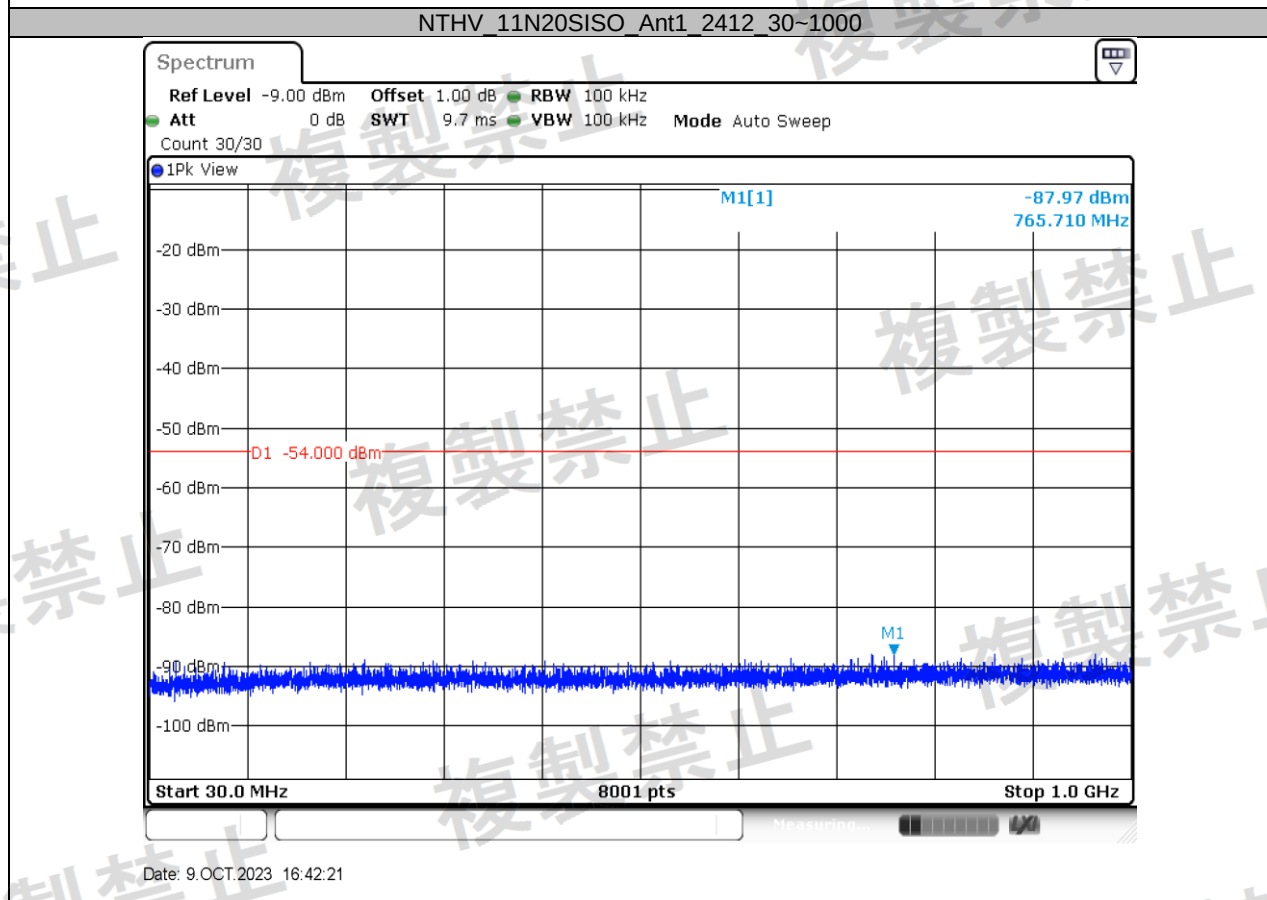




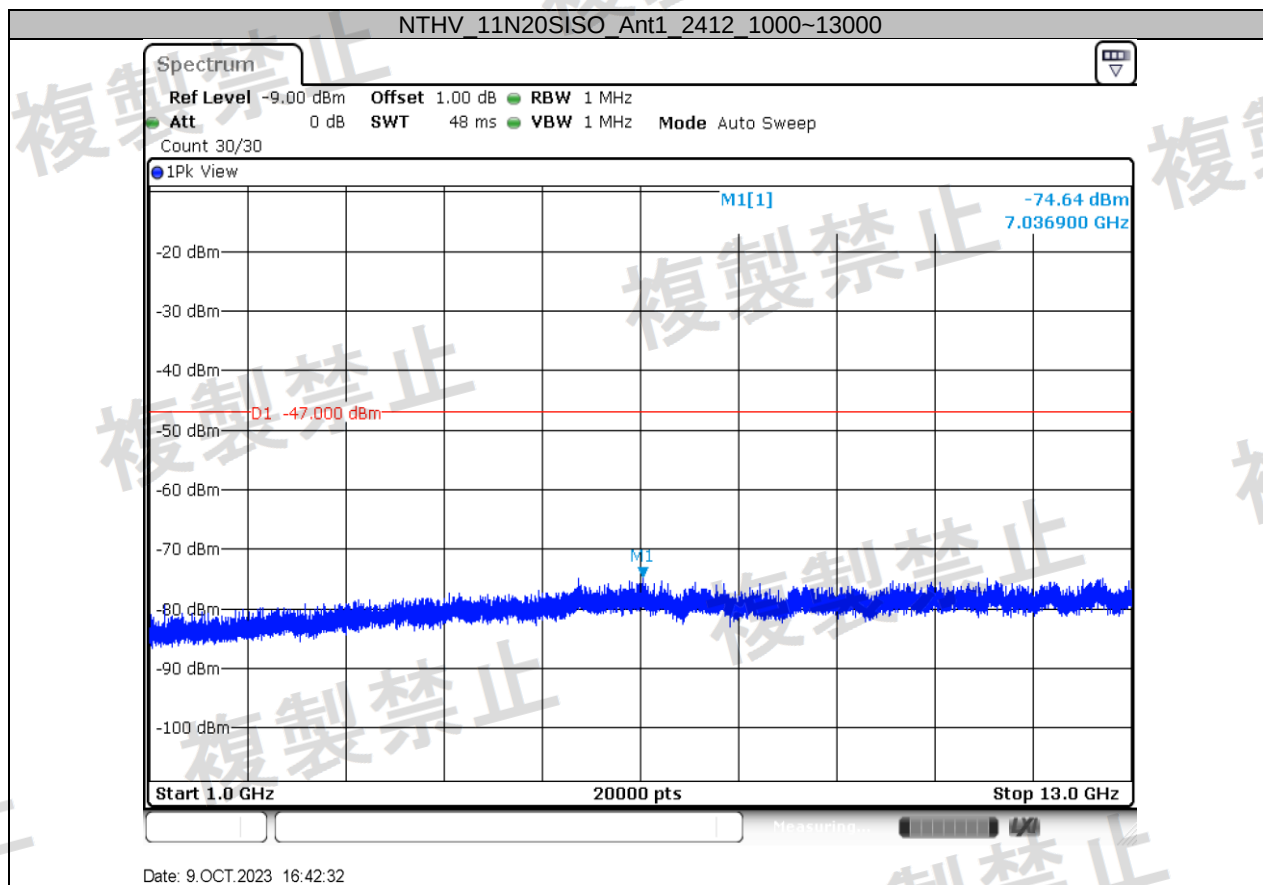
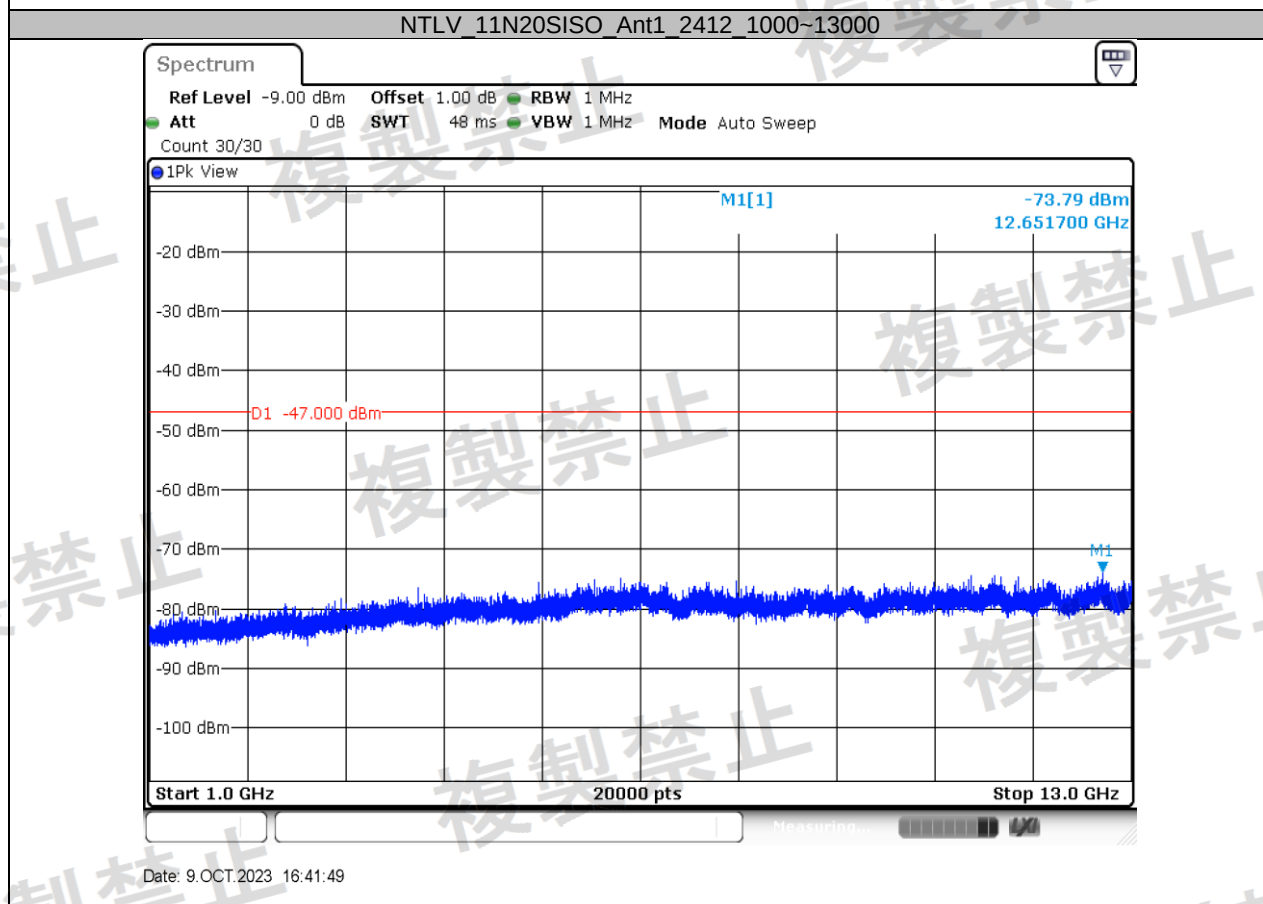


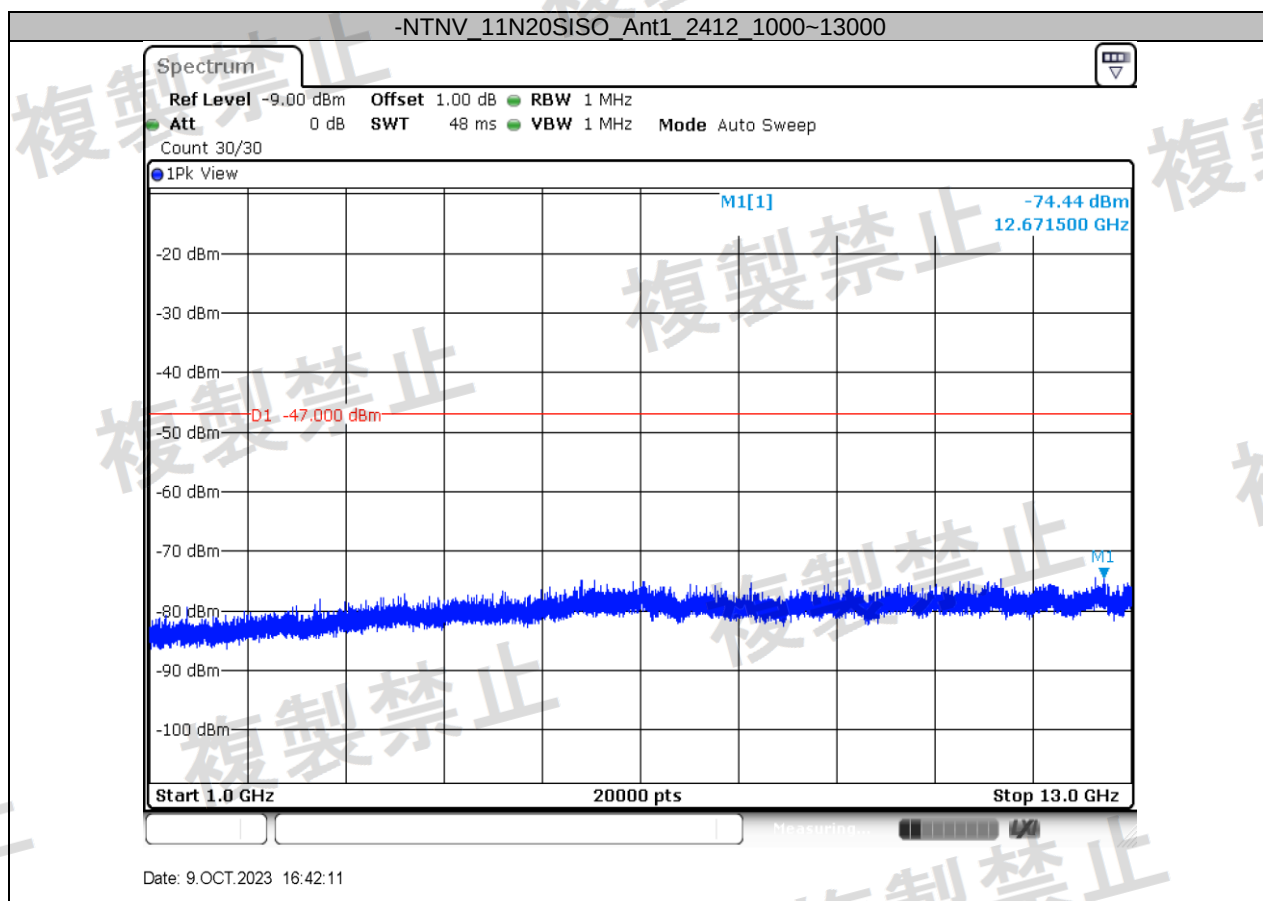
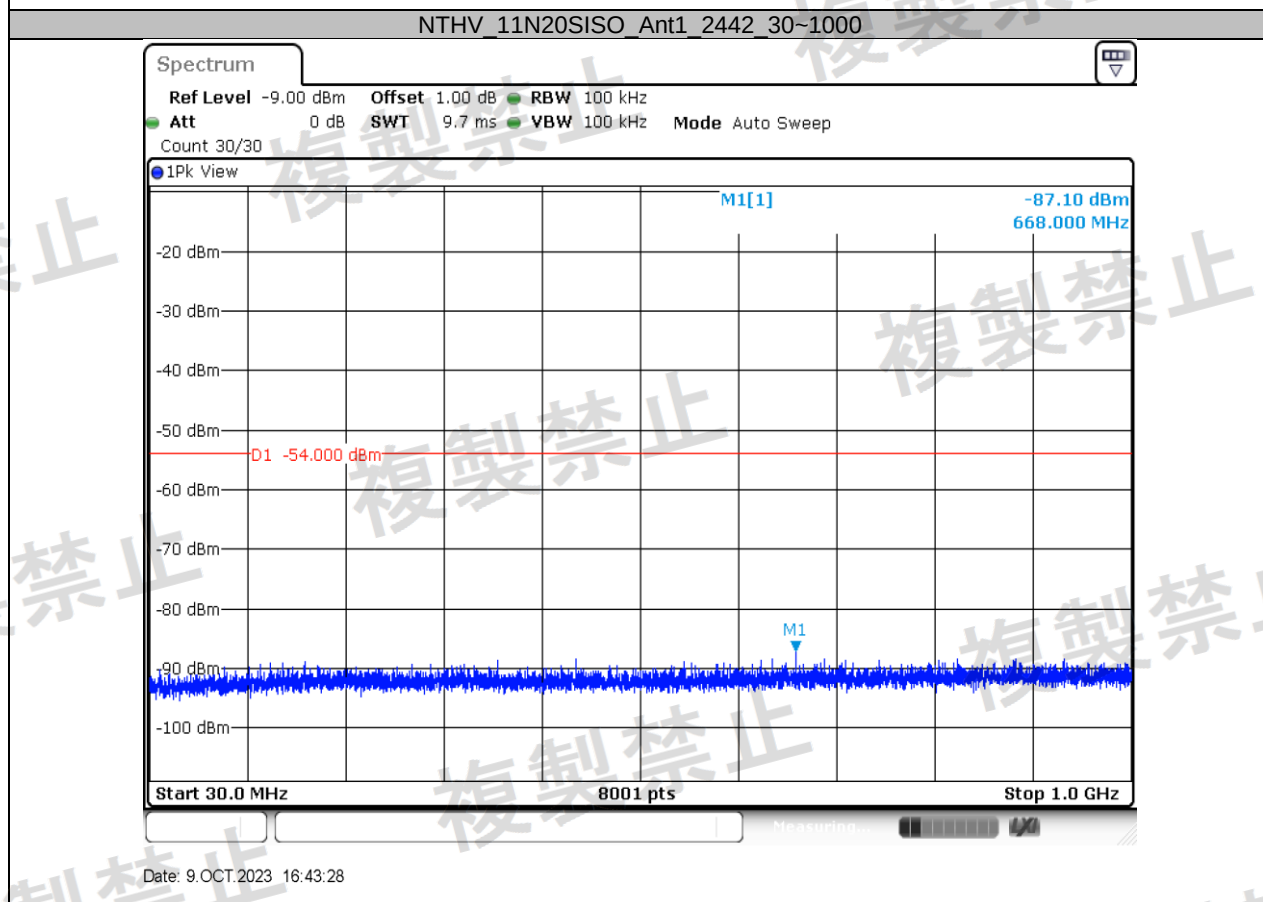


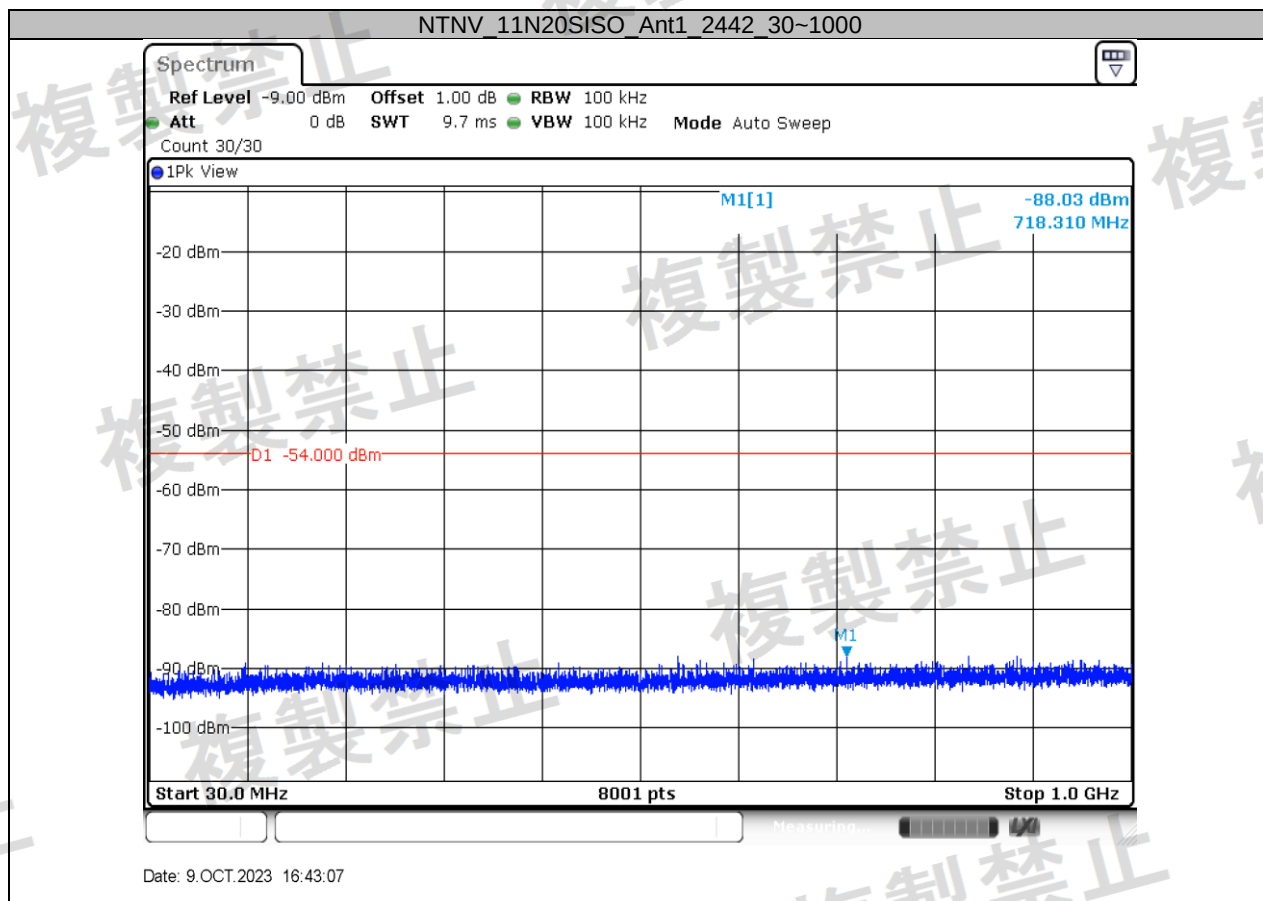
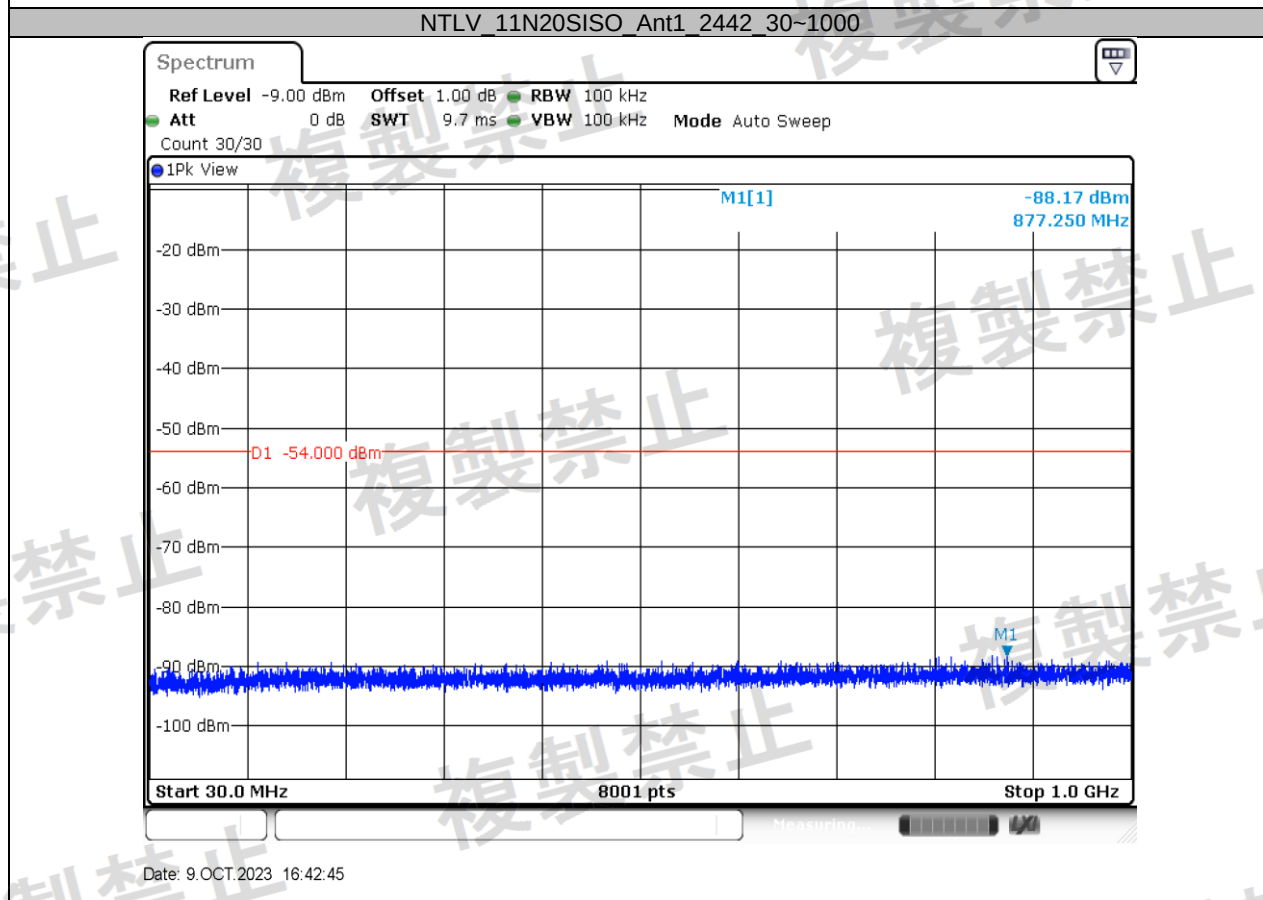


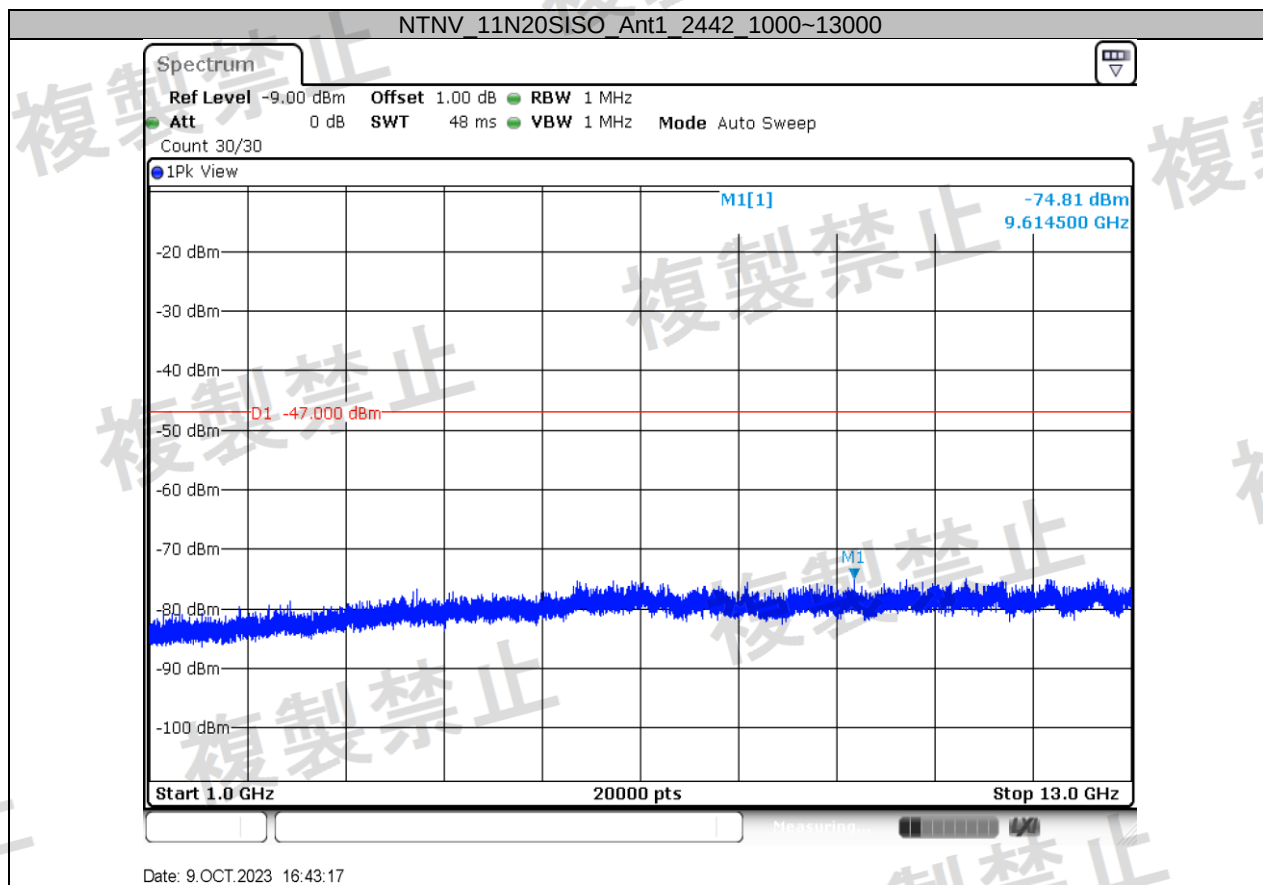
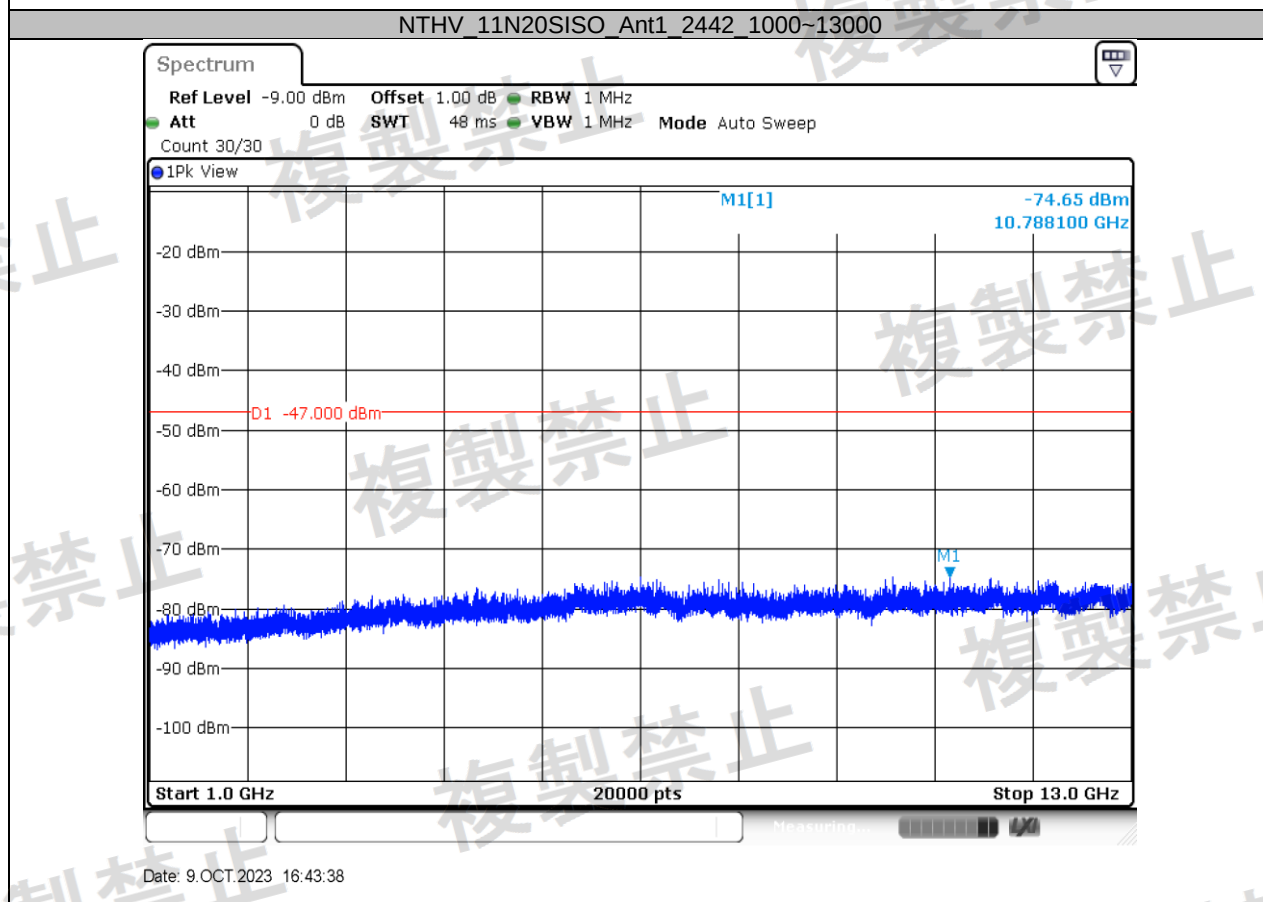


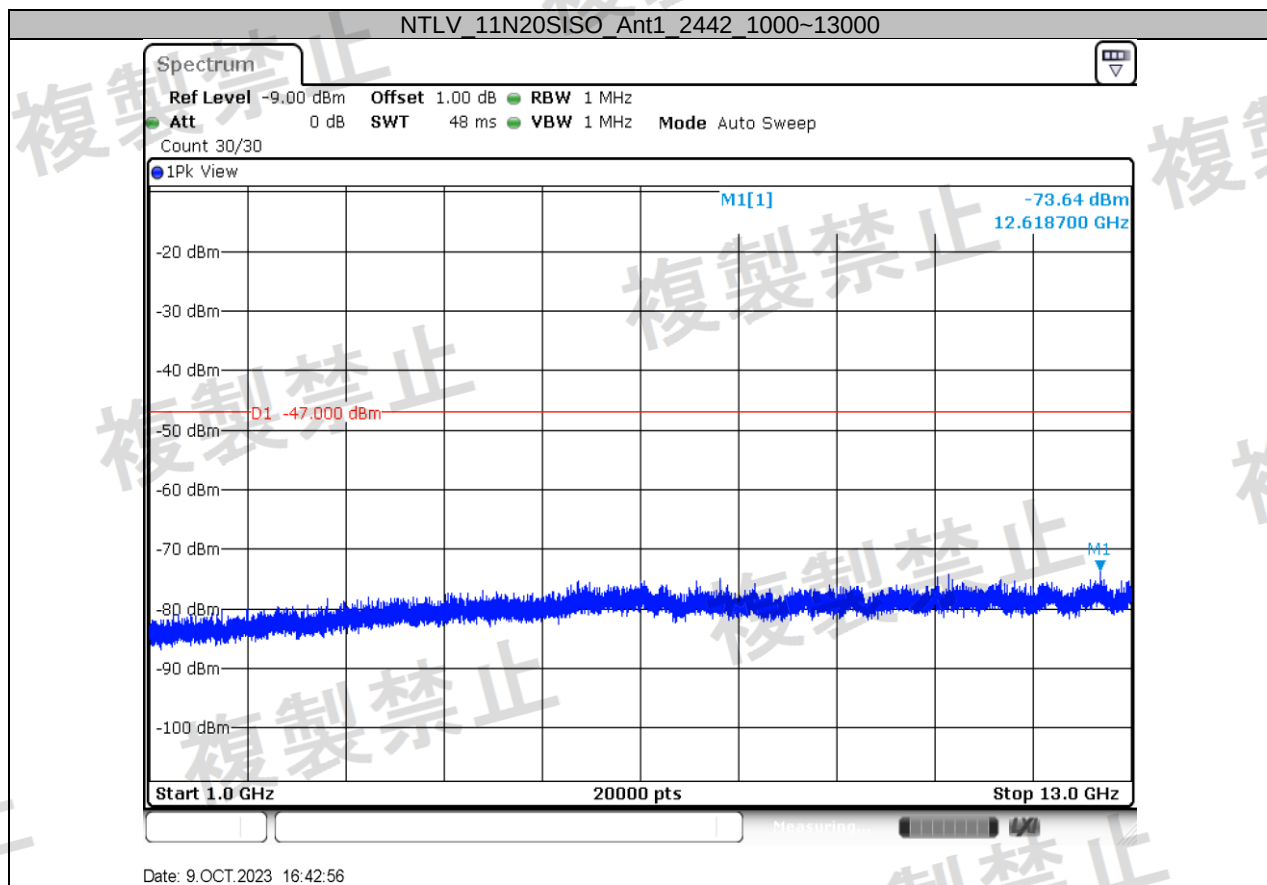
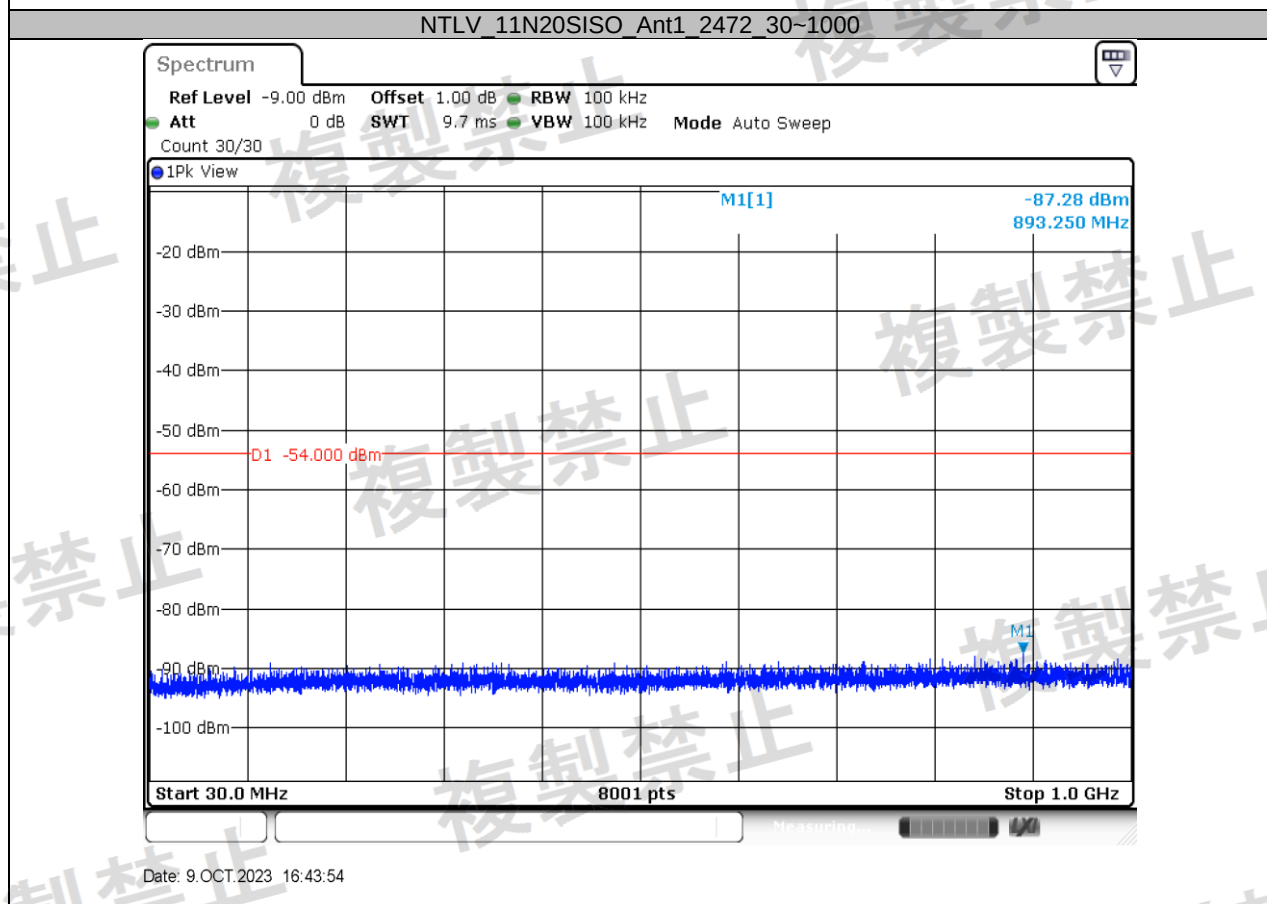




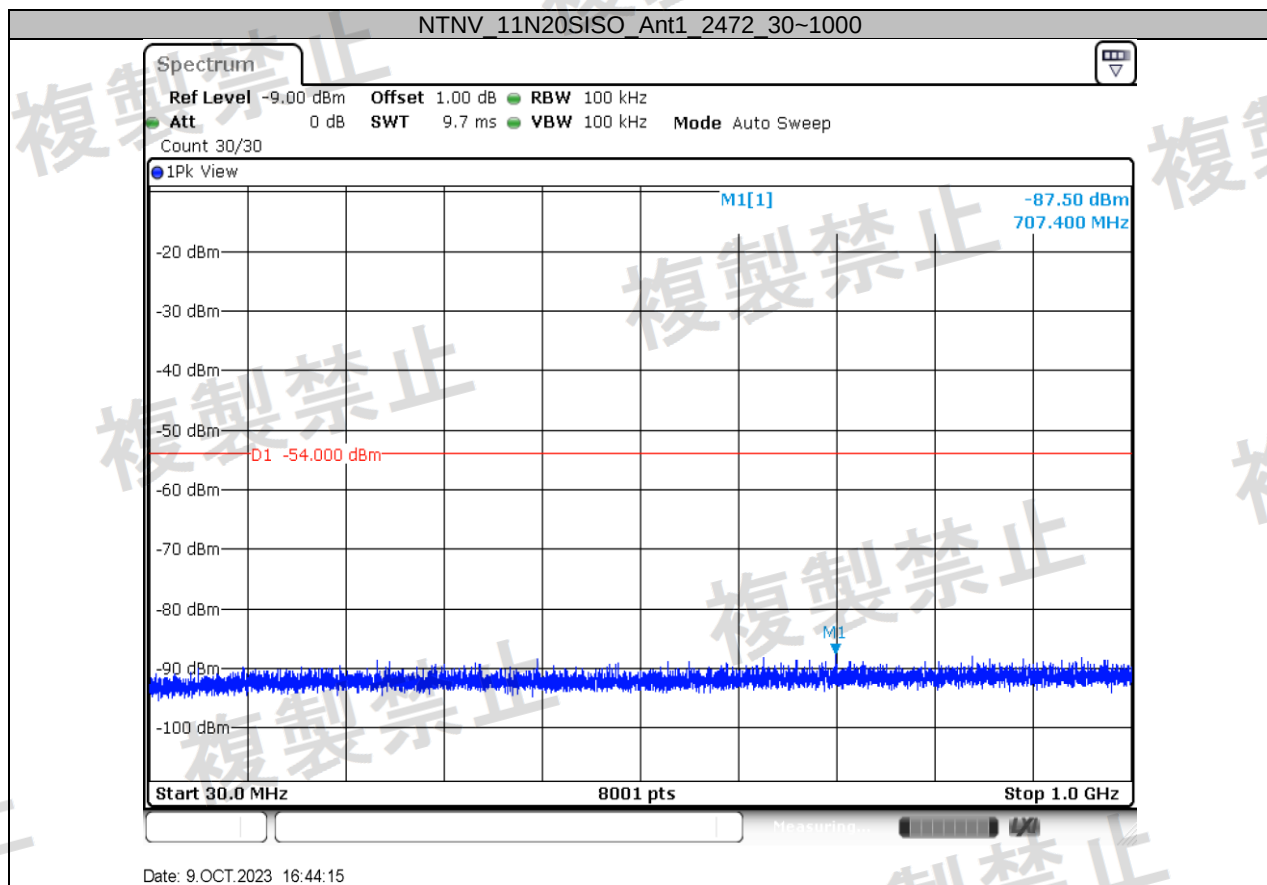
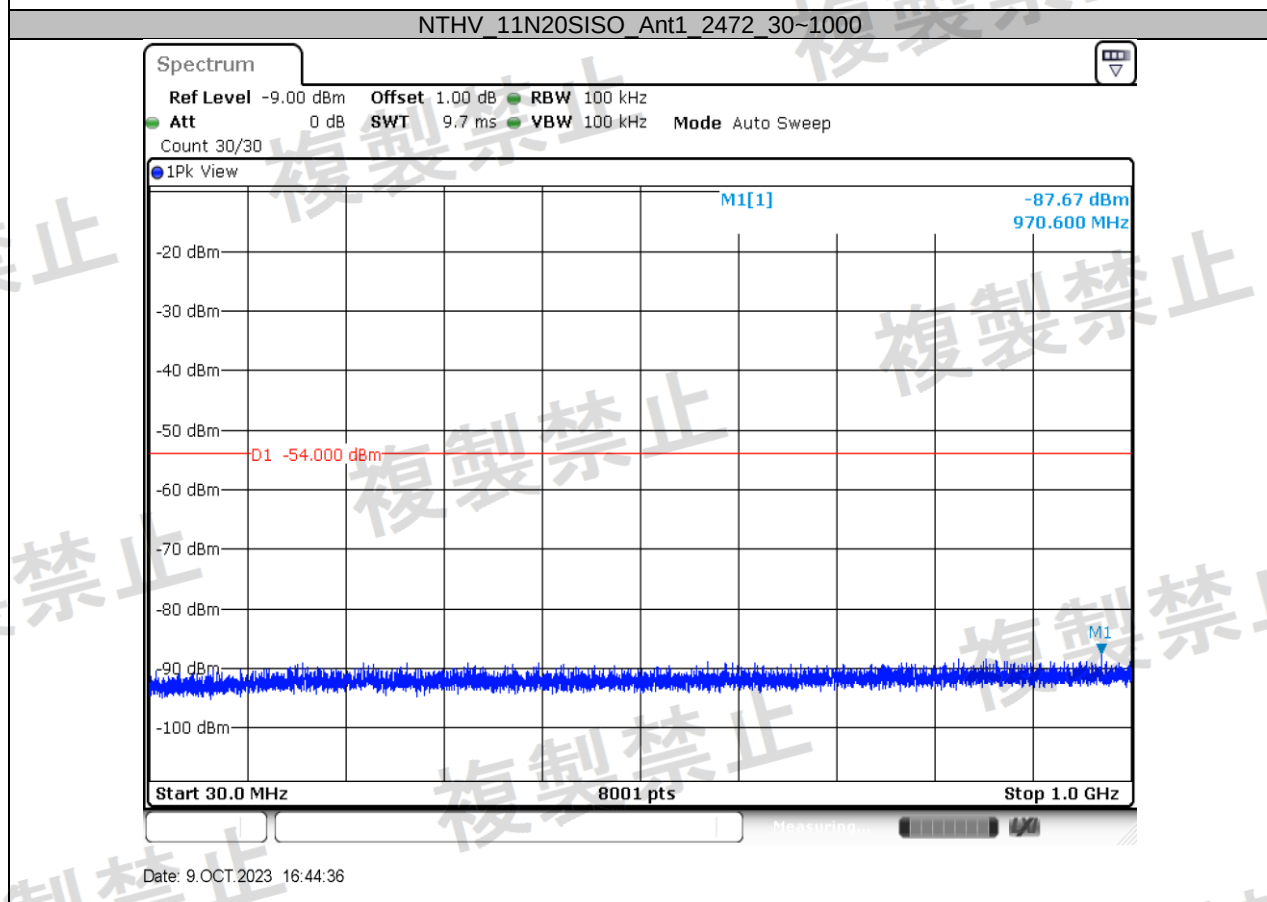


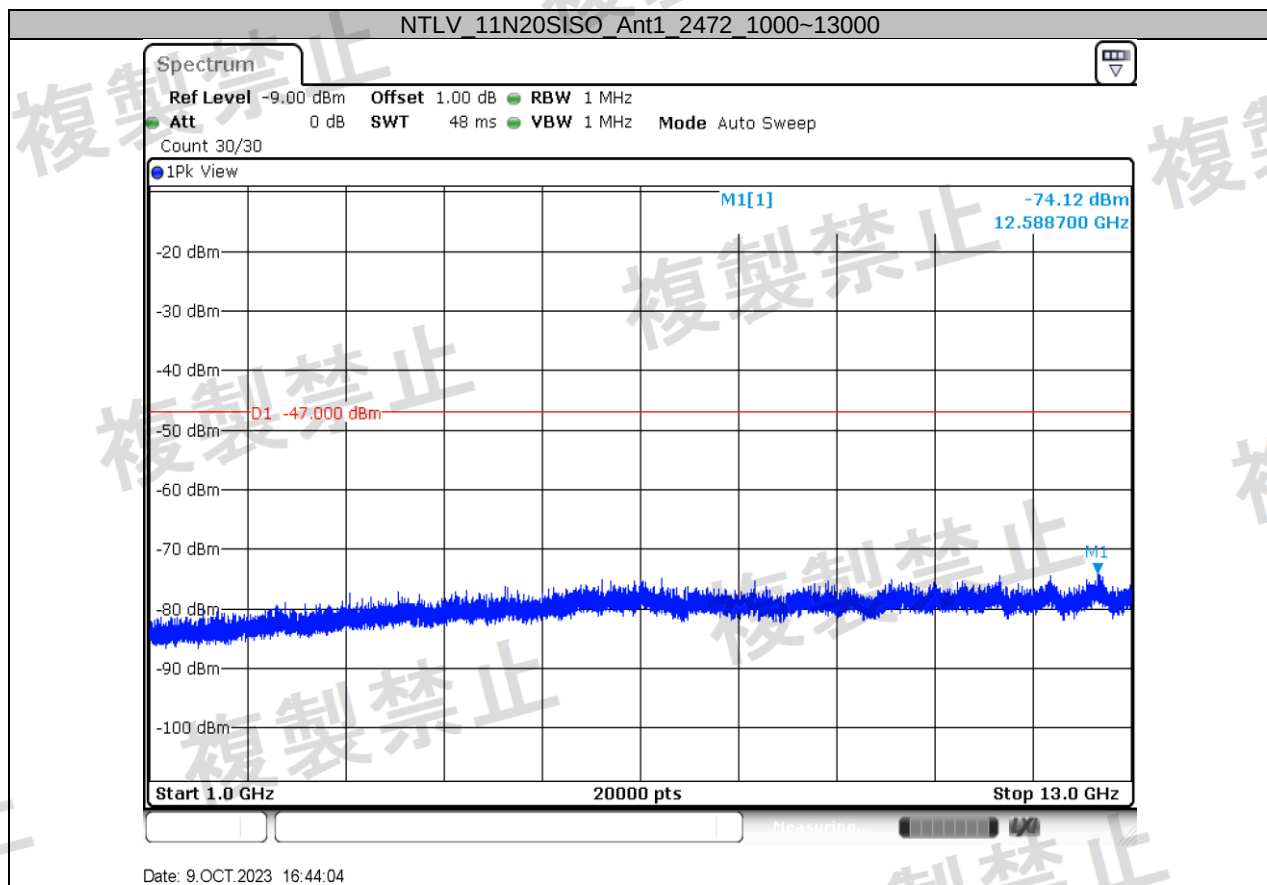
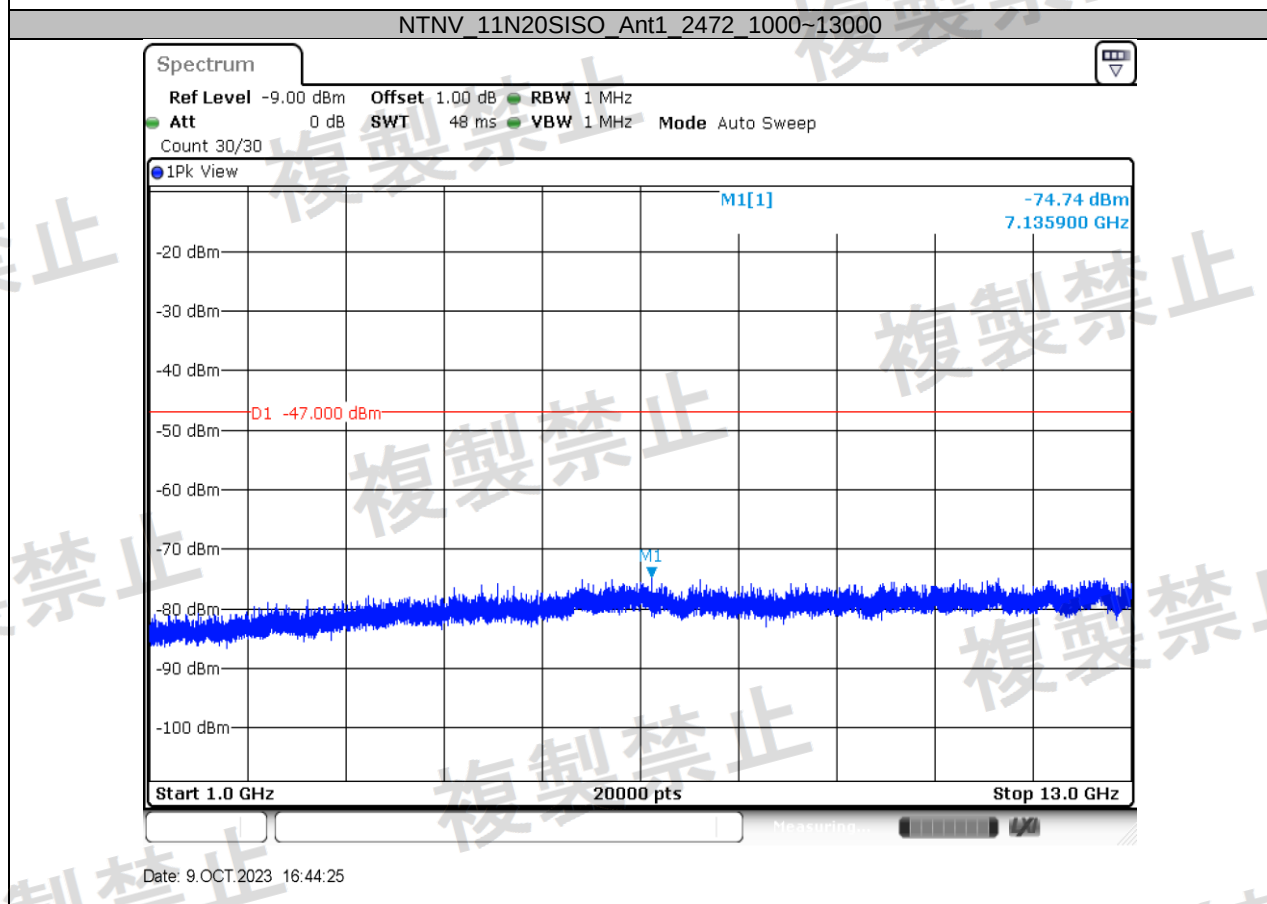


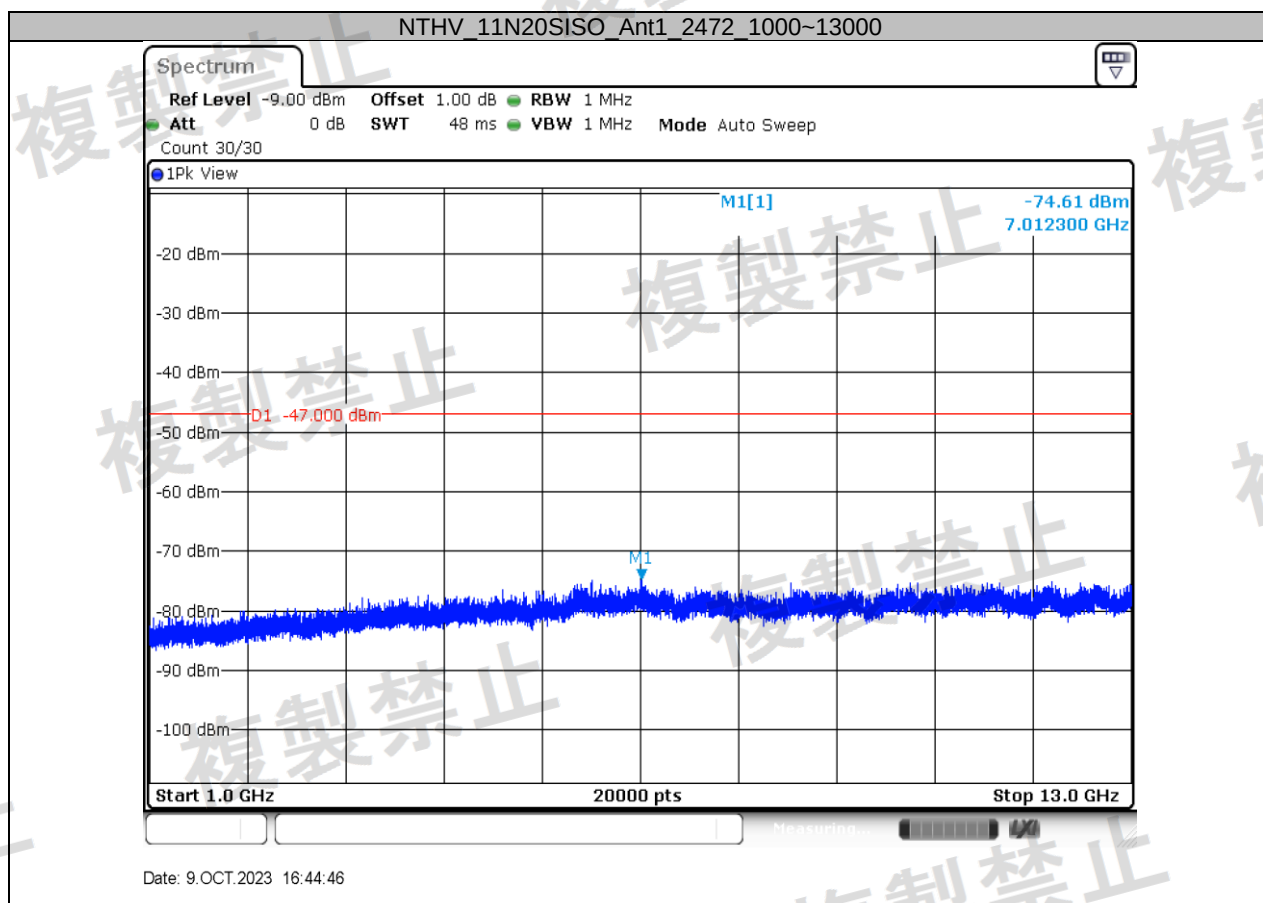












### 3.8.4 Result

The equipment met the requirement of this clause.

### 3.9 Interference prevention function

#### 3.9.1 Test condition

|                      |                                 |
|----------------------|---------------------------------|
| Date of testing:     | 2023-10-09                      |
| Test mode:           | Transmitting (CH_L, CH_M, CH_H) |
| Ambient temperature: | 22.8°C                          |
| Relative humidity:   | 50.7 %                          |
| Atmosphere Pressure: | 100.9 kPa                       |

#### 3.9.2 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.

#### 3.9.3 Result

The equipment met the requirement of this clause.

#### 4 Photographs of Test Set-ups



---END OF TEST REPORT---