

## 7.4 SPURIOUS EMISSIONS OF Tx

### 7.4.1 Applicable Standard

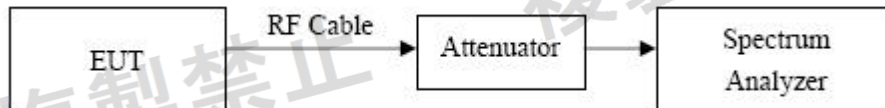
According to Item 19 of Article 2 Paragraph 1.

### 7.4.2 Conformance 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:

- (1) Below 2387MHz: 2.5 $\mu$ W/MHz (-26dB)
- (2) 2387 to 2400MHz: 25 $\mu$ W/MHz (-16dB)
- (3) 2483.5 through 2496.5MHz: 25 $\mu$ W/MHz (-16dB)
- (4) Over 2496.5MHz: 2.5 $\mu$ W/MHz (-26dB)

### 7.4.3 Test Setup Block Diagram



### 7.4.4 Test Procedure

(1) Spectrum analyzer for seeking the spurious emission is set as below

|                      |                                                                                                        |
|----------------------|--------------------------------------------------------------------------------------------------------|
| Sweeping Bandwidth   | For seeking the spurious emission, from frequency lowest possible to the 5 times the carrier frequency |
| Resolution Bandwidth | 1 MHz                                                                                                  |
| Video Bandwidth      | Approx. As same as Resolution bandwidth (1 MHz)                                                        |
| Y-Axis Scale         | 10 dB/Div                                                                                              |
| Input Level          | Value of maximum dynamic range                                                                         |
| Sweep Time           | Minimum time to assure the measurement accuracy (Note 1)                                               |
| Sweep Mode           | Single sweep                                                                                           |
| Phase-Detection Mode | Positive peak                                                                                          |

(2) The settings of the spectrum analyzer while conducting spurious amplitude measurements are as follows:

- Central Frequency: Acquired spurious frequencies in (1)
- Sweep Frequency 0 Hz
- Resolution Bandwidth 1 MHz
- Video Bandwidth same as Resolution Bandwidth
- Note: take into account that the requirement limits the power in a bandwidth of 1 MHz.
- If the measurement is carried out with a bandwidth of 100 kHz (for frequencies below 1 GHz), the limit shall be reduced with 10 dB.
- For example 2.5  $\mu$ W in 1 MHz = -26 dBm limit, becomes -36 dBm for 100 kHz bandwidth.
- Y-Axis Scale 10 dB/Div
- Input Level: choose input level within the linear range of the SA mixer (so that no additional spurious are generated by the mixer)
- Sweep Time: Minimum amount of time to ensure measurement accuracy. However, in the case of burst waves, time exceeds duration of 1 burst.
- Data Points Over 400 points
- Sweep Mode: Single sweep

- Detection Mode Sample (BIN-Width  $\ll$  RBW, so that all spurious emissions are captured) [BIN-width is the frequency difference between 2 adjacent sample points on the display]

(3) Set EUT as occupied bandwidth is measure. That is, Set the EUT on the test frequency and the continuous TX mode or continuous (constant period, constant burst length) burst TX mode. In case of spreading code

used, set on the test spreading code, then the modulation is performed with standard coding test signal. The spectrum analyzer is set as 2 (1). Seek the spurious emission. If the amplitude of the sought spurious emission satisfies the specified value (in case of 2 (2) Note 1, the specified value is -3dB), the measurement of 2 (2) is not performed, then the estimated value is employed as the measured value.

In case the sought spurious emission amplitude exceeds the specified value, seek the spurious frequency by narrowing the sweeping band sequentially as 100 MHz, 10 MHz, 1 MHz for the purpose of higher accuracy of the spectrum analyzer. Set the spectrum analyzer as 2 (2). Estimate the mean value of the spurious amplitude, then employ it as the measured value (In case DSSS as well as OFDM with burst wave, the mean inside of the burst).

Sweep Bandwidth: 30MHz~2387MHz, 2483.5MHz~2496.5MHz, 2496.5MHz~12500MHz

Respectively mark the maximum results in the above sweep bandwidth.

#### 7.4.5 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 21.3°C    |
| Relative Humidity: | 55%       |
| ATM Pressure:      | 1011 mbar |

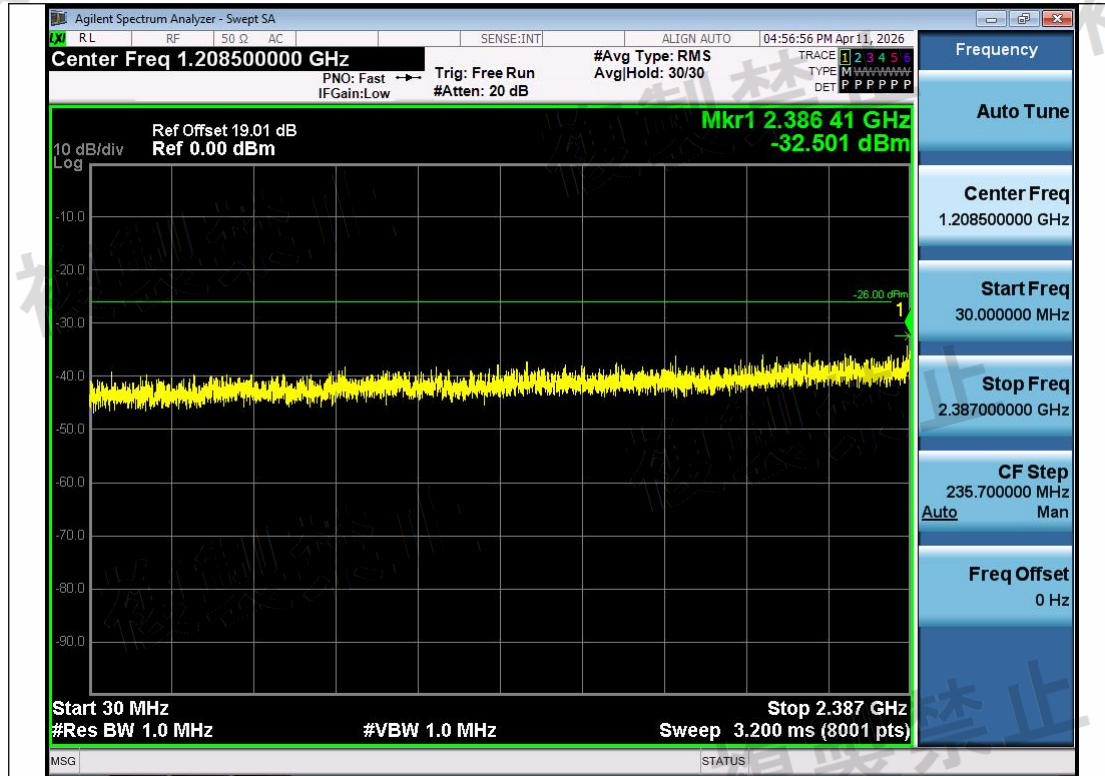
#### 7.4.6 Test Results

| TestCondition | TestMode      | Antenna | Frequen<br>cy[MHz] | Freq.Range<br>[MHz] | Freq.<br>[MHz] | Result<br>[dBm] | Limit<br>[dBm] | Result<br>[μW] | Limit<br>[μW] | Verdict               |
|---------------|---------------|---------|--------------------|---------------------|----------------|-----------------|----------------|----------------|---------------|-----------------------|
| NTNV          | 11B           | Ant1    | 2412               | 30~2387             | 2386.41        | -32.50          | ≤-26           | 0.56234        | ≤2.5          | PASS                  |
| NTNV          | 11B           | Ant1    | 2412               | 2387~2400           | 2397.32        | -26.69          | ≤-16           | 2.14289        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2412               | 2483.5~2496.5       | 2489.77        | -37.18          | ≤-16           | 0.19143        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2412               | 2496.5~13000        | 6125.12        | -34.04          | ≤-26           | 0.39446        | ≤2.5          | PASS                  |
| NTNV          | 11B           | Ant1    | 2442               | 30~2387             | 2059.38        | -36.09          | ≤-26           | 0.24604        | ≤2.5          | PASS                  |
| NTNV          | 11B           | Ant1    | 2442               | 2387~2400           | 2392.28        | -37.60          | ≤-16           | 0.17378        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2442               | 2483.5~2496.5       | 2490.65        | -37.14          | ≤-16           | 0.19320        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2442               | 2496.5~13000        | 5863.57        | -34.43          | ≤-26           | 0.36058        | ≤2.5          | PASS                  |
| NTNV          | 11B           | Ant1    | 2472               | 30~2387             | 2354.00        | -34.50          | ≤-26           | 0.35481        | ≤2.5          | PASS                  |
| NTNV          | 11B           | Ant1    | 2472               | 2387~2400           | 2393.12        | -37.24          | ≤-16           | 0.18880        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2472               | 2483.5~2496.5       | 2486.65        | -25.73          | ≤-16           | 2.67301        | ≤25           | PASS                  |
| NTNV          | 11B           | Ant1    | 2472               | 2496.5~13000        | 6020.08        | -33.44          | ≤-26           | 0.45290        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2412               | 30~2387             | 2386.41        | -33.72          | ≤-26           | 0.42462        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2412               | 2387~2400           | 2399.95        | -16.51          | ≤-16           | 22.3357<br>2   | ≤25           | See<br>table<br>below |
| NTNV          | 11G           | Ant1    | 2412               | 2483.5~2496.5       | 2488.49        | -37.30          | ≤-16           | 0.18621        | ≤25           | PASS                  |
| NTNV          | 11G           | Ant1    | 2412               | 2496.5~13000        | 5552.12        | -34.24          | ≤-26           | 0.37670        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2442               | 30~2387             | 1746.19        | -30.27          | ≤-26           | 0.93972        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2442               | 2387~2400           | 2396.35        | -37.41          | ≤-16           | 0.18155        | ≤25           | PASS                  |
| NTNV          | 11G           | Ant1    | 2442               | 2483.5~2496.5       | 2488.95        | -36.95          | ≤-16           | 0.20184        | ≤25           | PASS                  |
| NTNV          | 11G           | Ant1    | 2442               | 2496.5~13000        | 5346.24        | -33.91          | ≤-26           | 0.40644        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2472               | 30~2387             | 2283.88        | -35.30          | ≤-26           | 0.29512        | ≤2.5          | PASS                  |
| NTNV          | 11G           | Ant1    | 2472               | 2387~2400           | 2390.69        | -37.90          | ≤-16           | 0.16218        | ≤25           | PASS                  |
| NTNV          | 11G           | Ant1    | 2472               | 2483.5~2496.5       | 2483.65        | -17.86          | ≤-16           | 16.3681<br>7   | ≤25           | See<br>table<br>below |
| NTNV          | 11G           | Ant1    | 2472               | 2496.5~13000        | 5957.58        | -32.93          | ≤-26           | 0.50933        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2412               | 30~2387             | 2386.41        | -34.67          | ≤-26           | 0.34119        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2412               | 2387~2400           | 2399.87        | -17.19          | ≤-16           | 19.0985<br>3   | ≤25           | See<br>table<br>below |
| NTNV          | 11N20SI<br>SO | Ant1    | 2412               | 2483.5~2496.5       | 2483.81        | -37.54          | ≤-16           | 0.17620        | ≤25           | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2412               | 2496.5~13000        | 5992.24        | -34.12          | ≤-26           | 0.38726        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2442               | 30~2387             | 2234.09        | -35.64          | ≤-26           | 0.27290        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2442               | 2387~2400           | 2399.18        | -37.70          | ≤-16           | 0.16982        | ≤25           | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2442               | 2483.5~2496.5       | 2492.25        | -37.60          | ≤-16           | 0.17378        | ≤25           | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2442               | 2496.5~13000        | 12651.27       | -33.77          | ≤-26           | 0.41976        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2472               | 30~2387             | 2198.73        | -35.27          | ≤-26           | 0.29717        | ≤2.5          | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2472               | 2387~2400           | 2398.50        | -37.81          | ≤-16           | 0.16558        | ≤25           | PASS                  |
| NTNV          | 11N20SI<br>SO | Ant1    | 2472               | 2483.5~2496.5       | 2483.53        | -16.03          | ≤-16           | 24.9459<br>5   | ≤25           | See<br>table<br>below |
| NTNV          | 11N20SI<br>SO | Ant1    | 2472               | 2496.5~13000        | 5971.76        | -33.05          | ≤-26           | 0.49545        | ≤2.5          | PASS                  |
| NTNV          | 11N40SI<br>SO | Ant1    | 2422               | 30~2387             | 2386.71        | -33.43          | ≤-26           | 0.45394        | ≤2.5          | PASS                  |
| NTNV          | 11N40SI<br>SO | Ant1    | 2422               | 2387~2400           | 2399.98        | -24.07          | ≤-16           | 3.91742        | ≤25           | PASS                  |
| NTNV          | 11N40SI       | Ant1    | 2422               | 2483.5~2496.5       | 2488.08        | -37.39          | ≤-16           | 0.18239        | ≤25           | PASS                  |

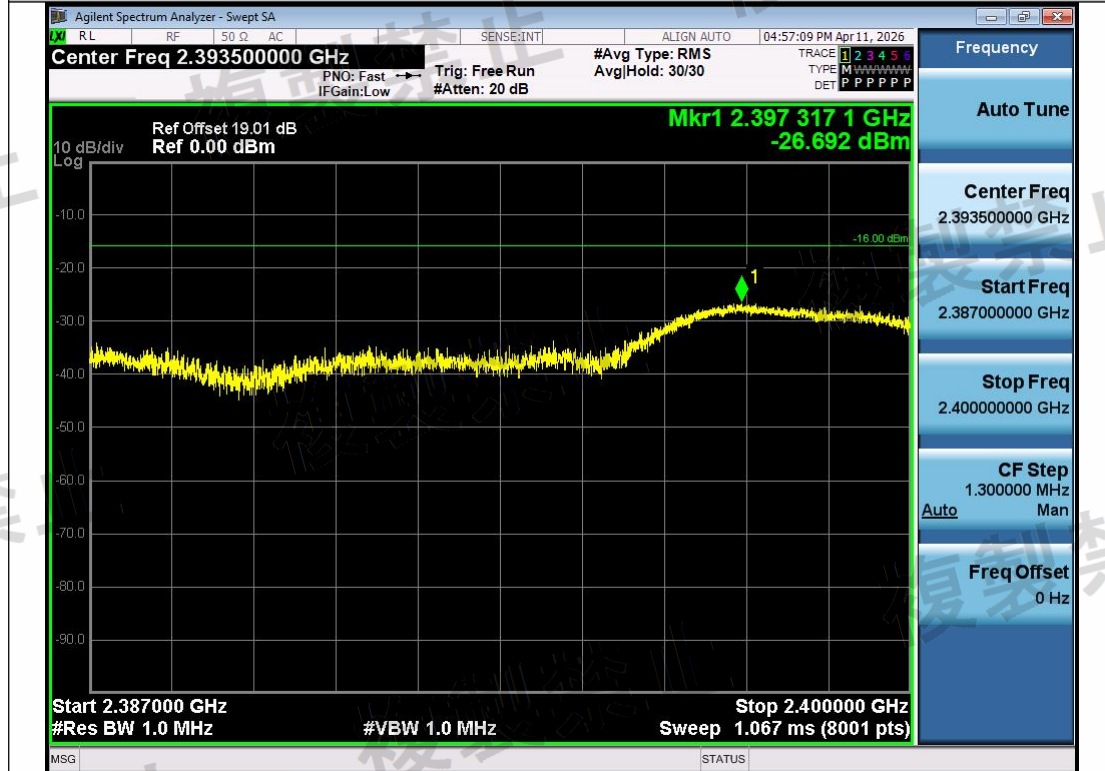
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|------|----------------|------|------|---------------|----------|--------|------|--------------|------|-----------------------|
|      | SO             |      |      |               |          |        |      |              |      |                       |
| NTNV | 11N40SI<br>SO  | Ant1 | 2422 | 2496.5~13000  | 5320.51  | -33.51 | ≤-26 | 0.44566      | ≤2.5 | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2442 | 30~2387       | 2172.51  | -34.70 | ≤-26 | 0.33884      | ≤2.5 | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2442 | 2387~2400     | 2399.77  | -34.34 | ≤-16 | 0.36813      | ≤25  | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2442 | 2483.5~2496.5 | 2486.51  | -33.69 | ≤-16 | 0.42756      | ≤25  | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2442 | 2496.5~13000  | 6179.74  | -34.35 | ≤-26 | 0.36728      | ≤2.5 | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2462 | 30~2387       | 1749.14  | -32.16 | ≤-26 | 0.60814      | ≤2.5 | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2462 | 2387~2400     | 2399.33  | -37.16 | ≤-16 | 0.19231      | ≤25  | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2462 | 2483.5~2496.5 | 2483.55  | -21.90 | ≤-16 | 6.45654      | ≤25  | PASS                  |
| NTNV | 11N40SI<br>SO  | Ant1 | 2462 | 2496.5~13000  | 11511.05 | -34.02 | ≤-26 | 0.39628      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2412 | 30~2387       | 2285.94  | -35.27 | ≤-26 | 0.29717      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2412 | 2387~2400     | 2399.99  | -17.70 | ≤-16 | 16.9824<br>4 | ≤25  | See<br>table<br>below |
| NTNV | 11AX20S<br>ISO | Ant1 | 2412 | 2483.5~2496.5 | 2494.53  | -38.13 | ≤-16 | 0.15382      | ≤25  | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2412 | 2496.5~13000  | 6086.78  | -33.73 | ≤-26 | 0.42364      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 30~2387       | 2170.75  | -35.20 | ≤-26 | 0.30200      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 2387~2400     | 2397.70  | -37.71 | ≤-16 | 0.16943      | ≤25  | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 2483.5~2496.5 | 2486.81  | -37.73 | ≤-16 | 0.16866      | ≤25  | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 2496.5~13000  | 7149.26  | -33.66 | ≤-26 | 0.43053      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 30~2387       | 2279.46  | -35.21 | ≤-26 | 0.30130      | ≤2.5 | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 2387~2400     | 2396.81  | -37.33 | ≤-16 | 0.18493      | ≤25  | PASS                  |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 2483.5~2496.5 | 2483.6   | -18.70 | ≤-16 | 13.4896<br>3 | ≤25  | See<br>table<br>below |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 2496.5~13000  | 3501.74  | -30.25 | ≤-26 | 0.94406      | ≤2.5 | PASS                  |

## Step2

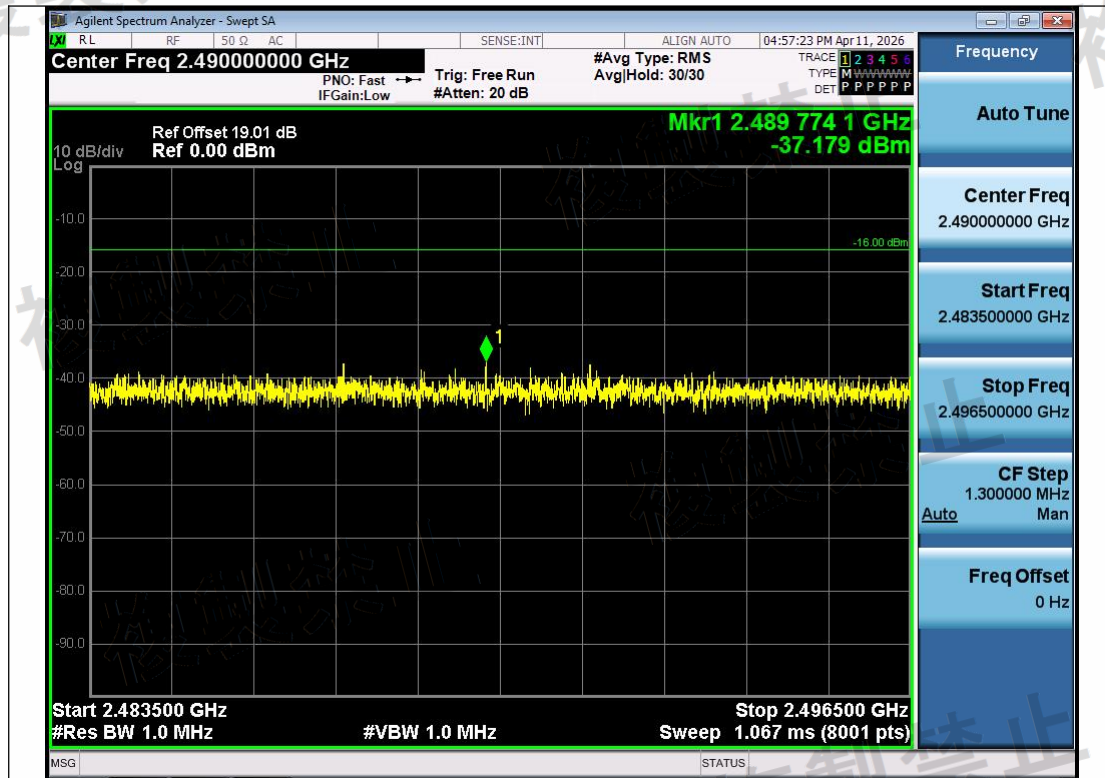
| TestCondition | TestMode       | Antenna | Frequen<br>cy[MHz] | Freq.<br>[MHz] | Result<br>[dBm] | Gain<br>[dBi] | EIRP<br>Result<br>[dBm] | Result<br>[μW] | Limit<br>[μW] | Verdict |
|---------------|----------------|---------|--------------------|----------------|-----------------|---------------|-------------------------|----------------|---------------|---------|
| NTNV          | 11G            | Ant1    | 2412               | 2399.93        | -29.71          | 0             | -29.71                  | 1.06905        | ≤25           | PASS    |
| NTNV          | 11G            | Ant1    | 2472               | 2483.53        | -32.39          | 0             | -32.39                  | 0.57677        | ≤25           | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2412               | 2399.97        | -32.55          | 0             | -32.55                  | 0.55590        | ≤25           | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2472               | 2483.54        | -31.28          | 0             | -31.28                  | 0.74473        | ≤25           | PASS    |
| NTNV          | 11AX20S<br>ISO | Ant1    | 2412               | 2399.89        | -35.09          | 0             | -35.09                  | 0.30974        | ≤25           | PASS    |
| NTNV          | 11AX20S<br>ISO | Ant1    | 2472               | 2483.52        | -35.33          | 0             | -35.33                  | 0.29309        | ≤25           | PASS    |



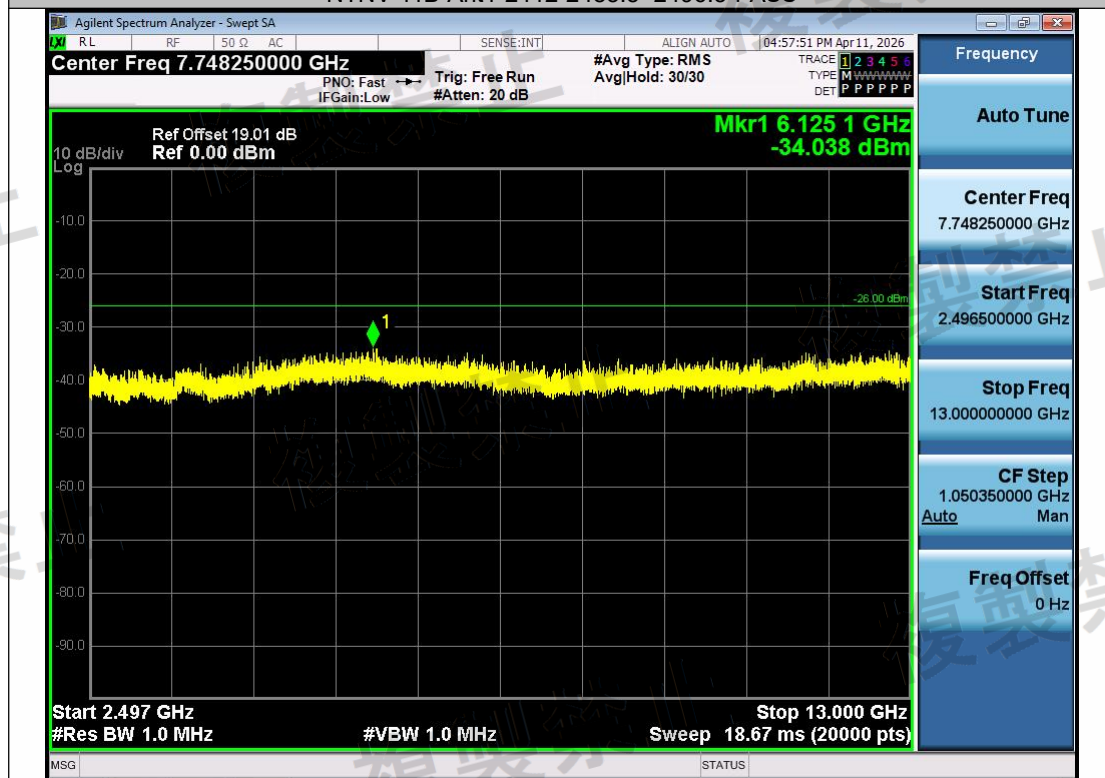
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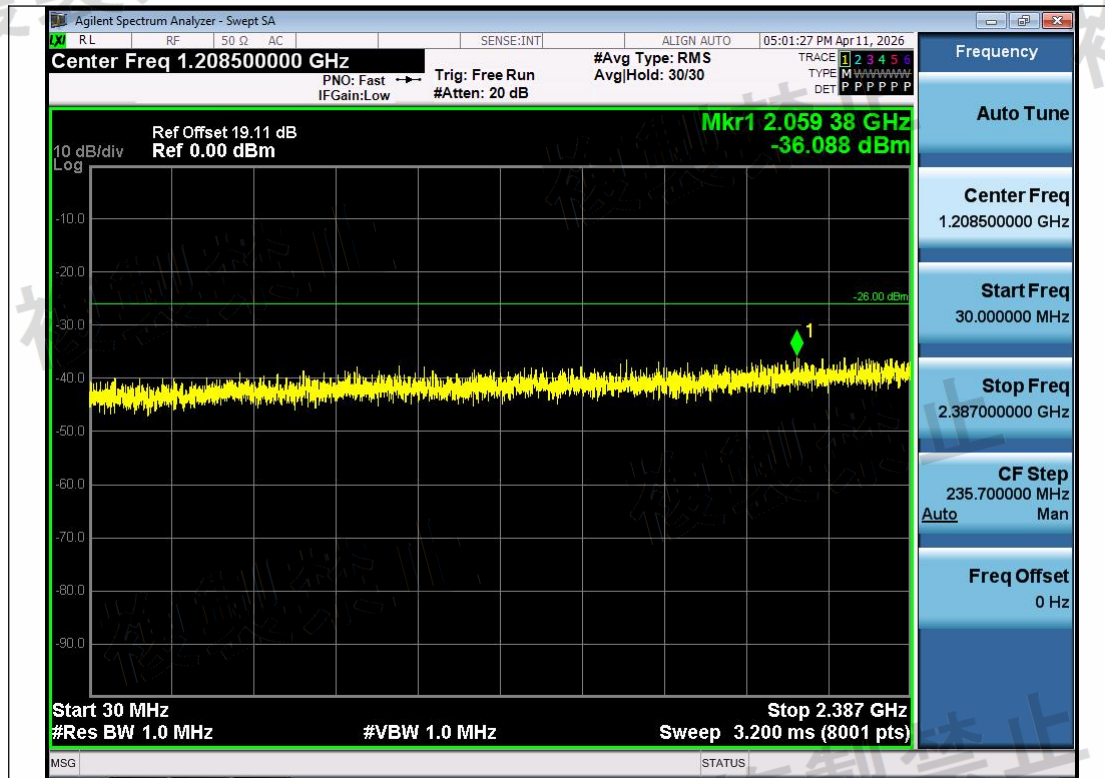
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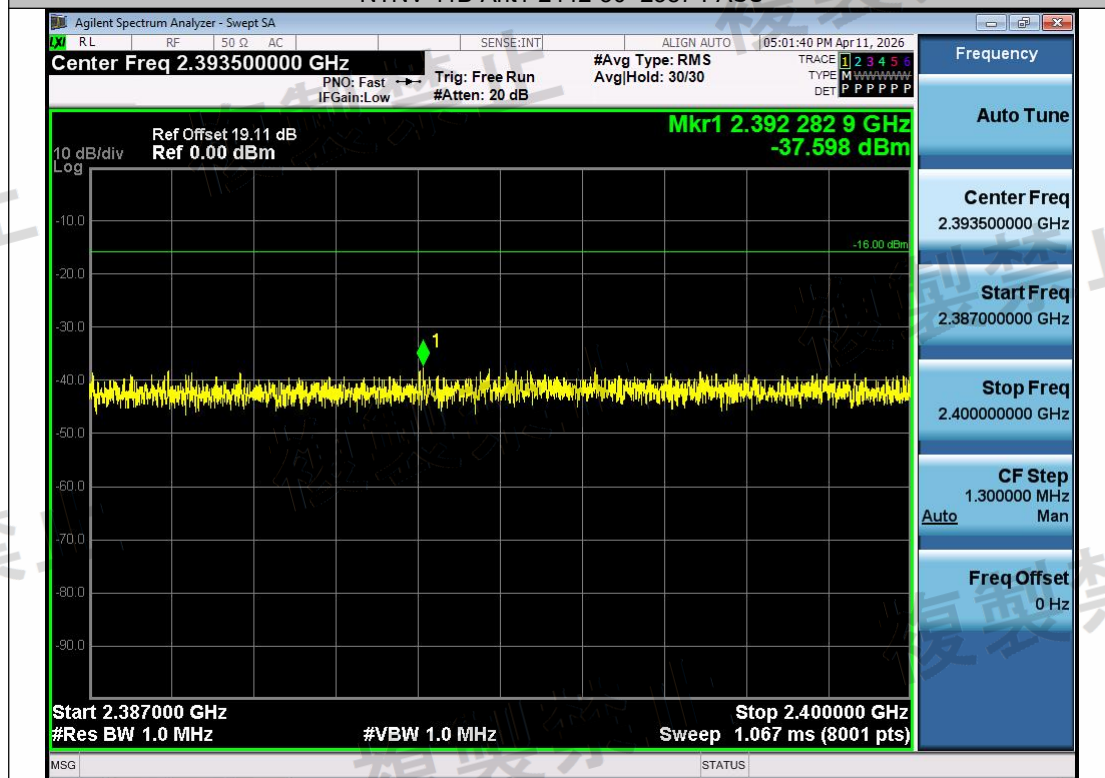
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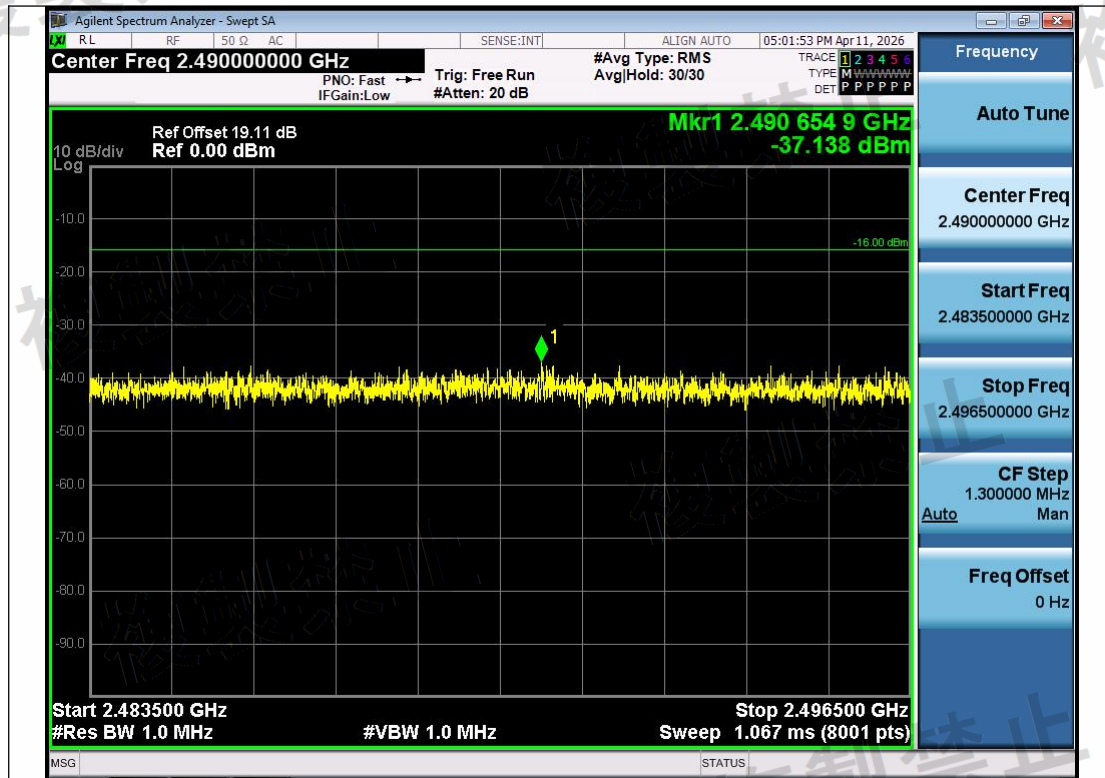
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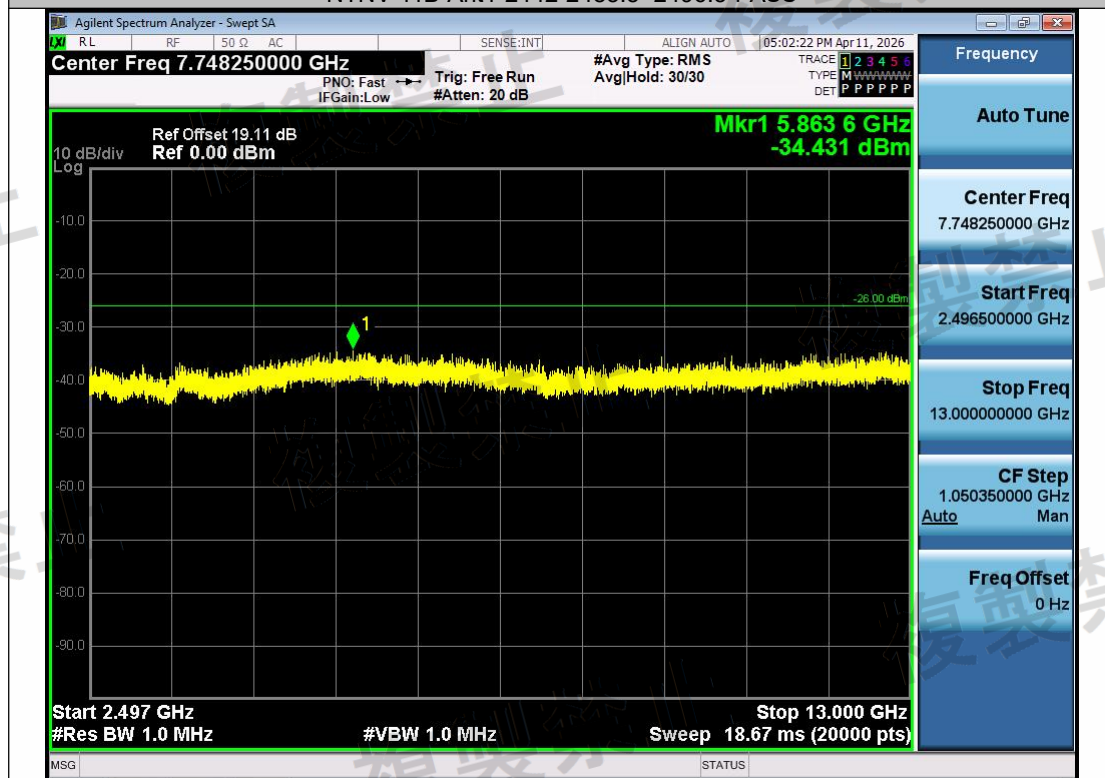
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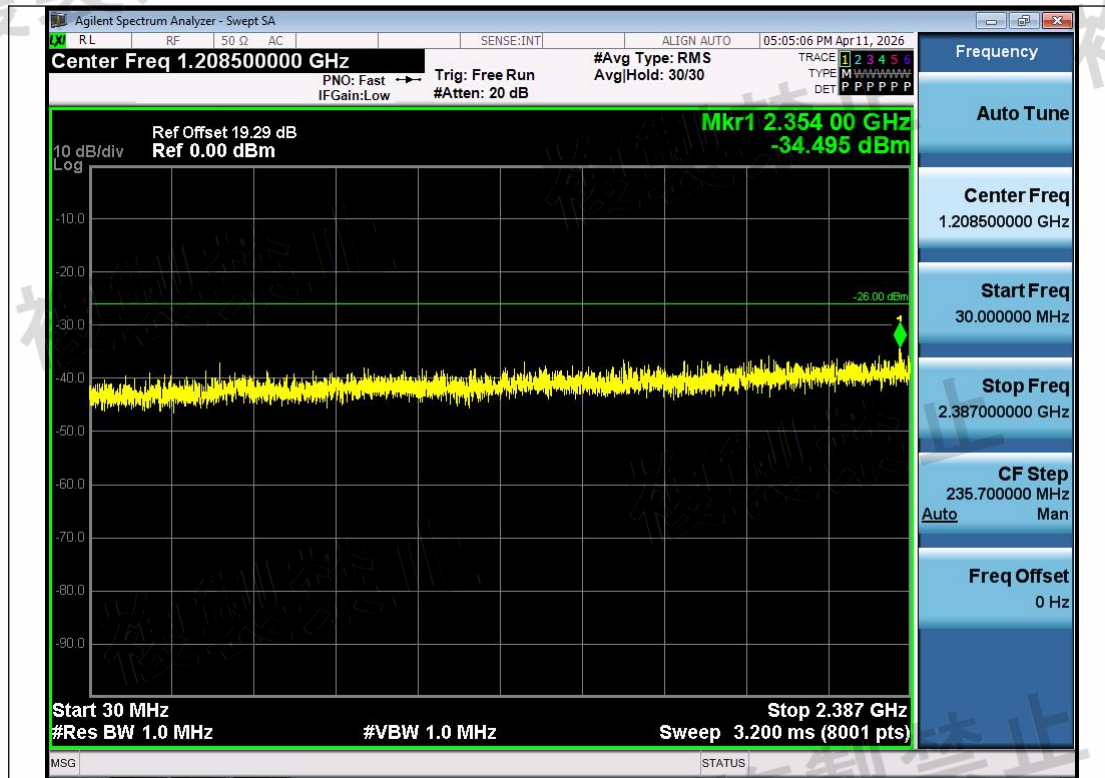
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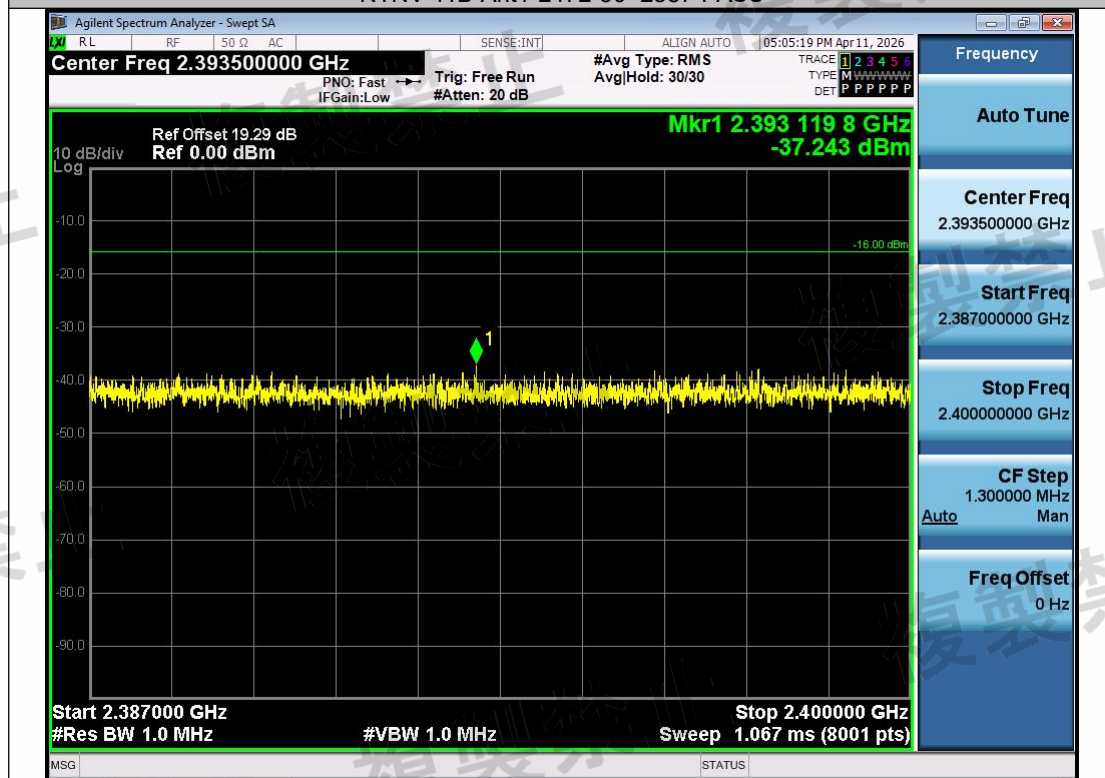
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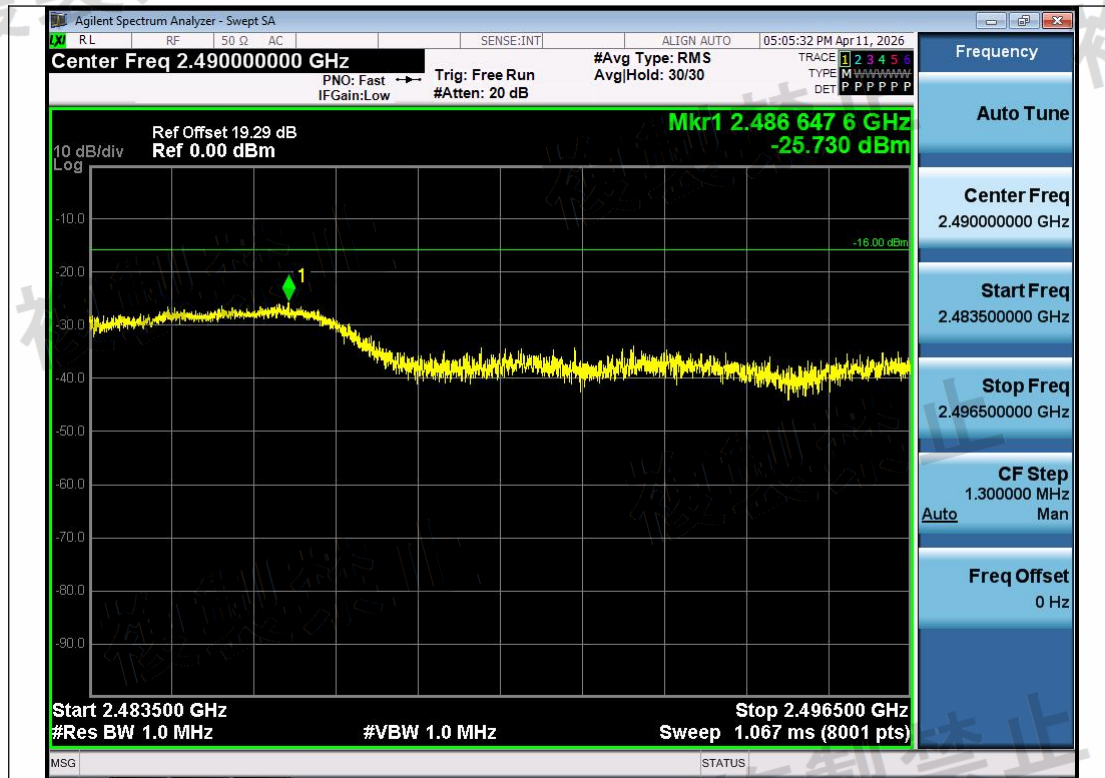
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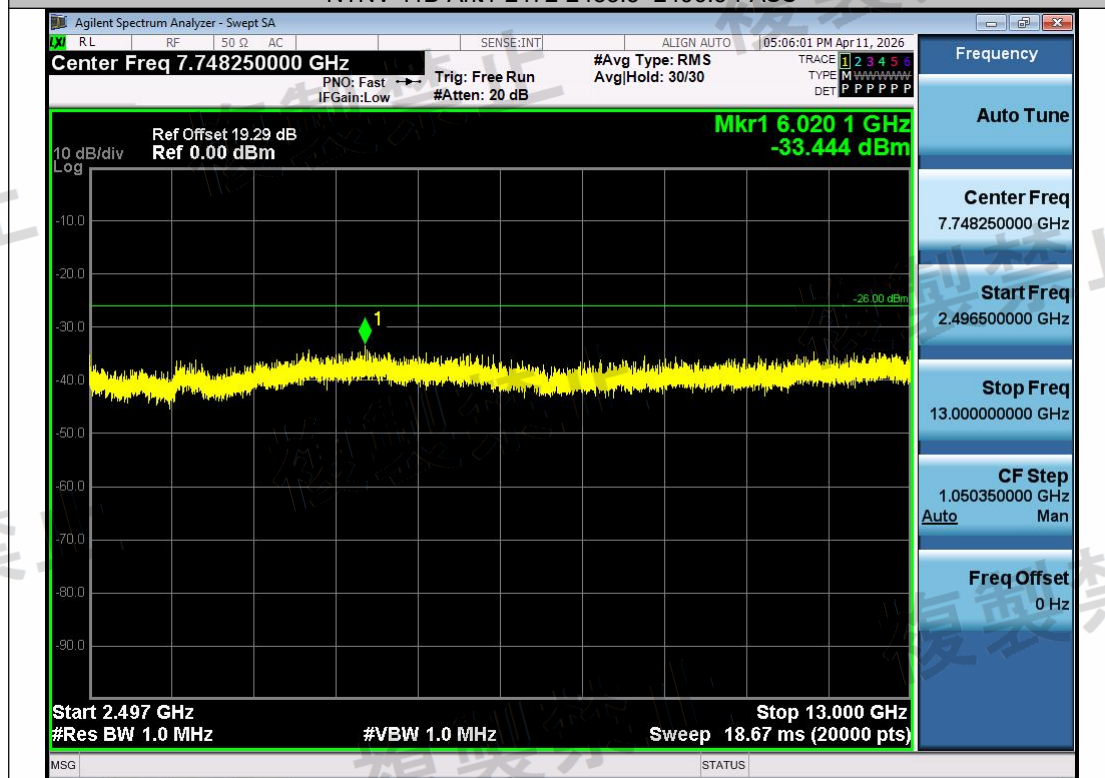
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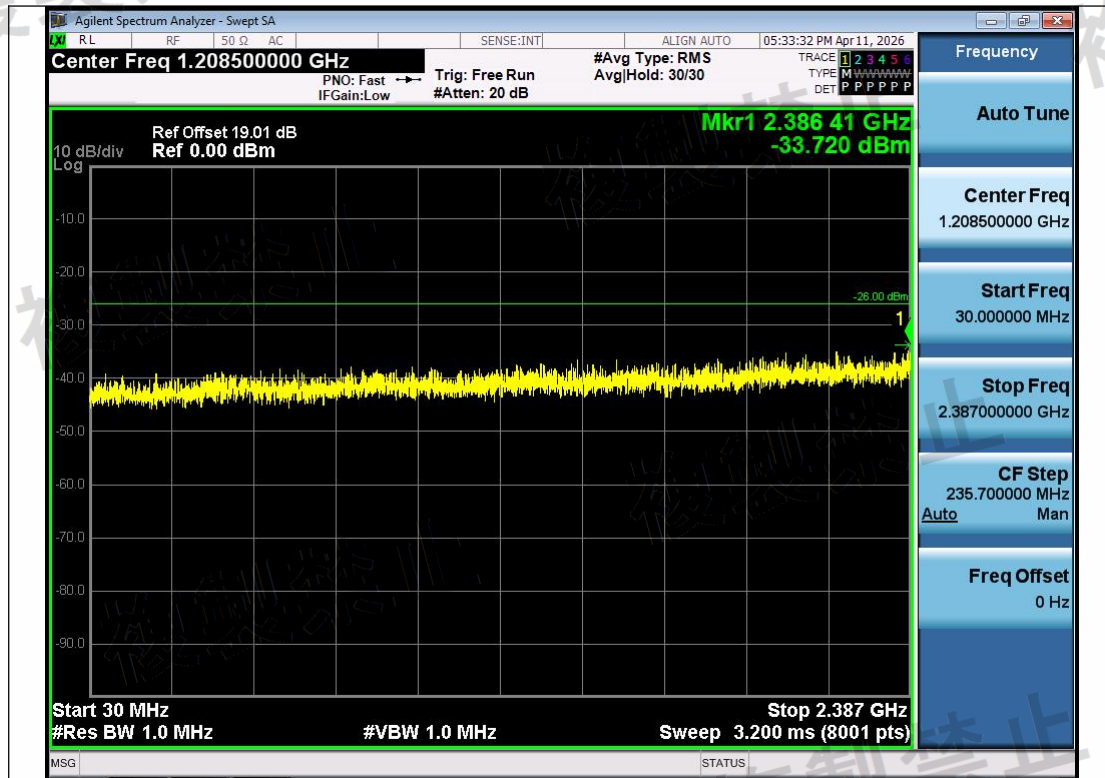
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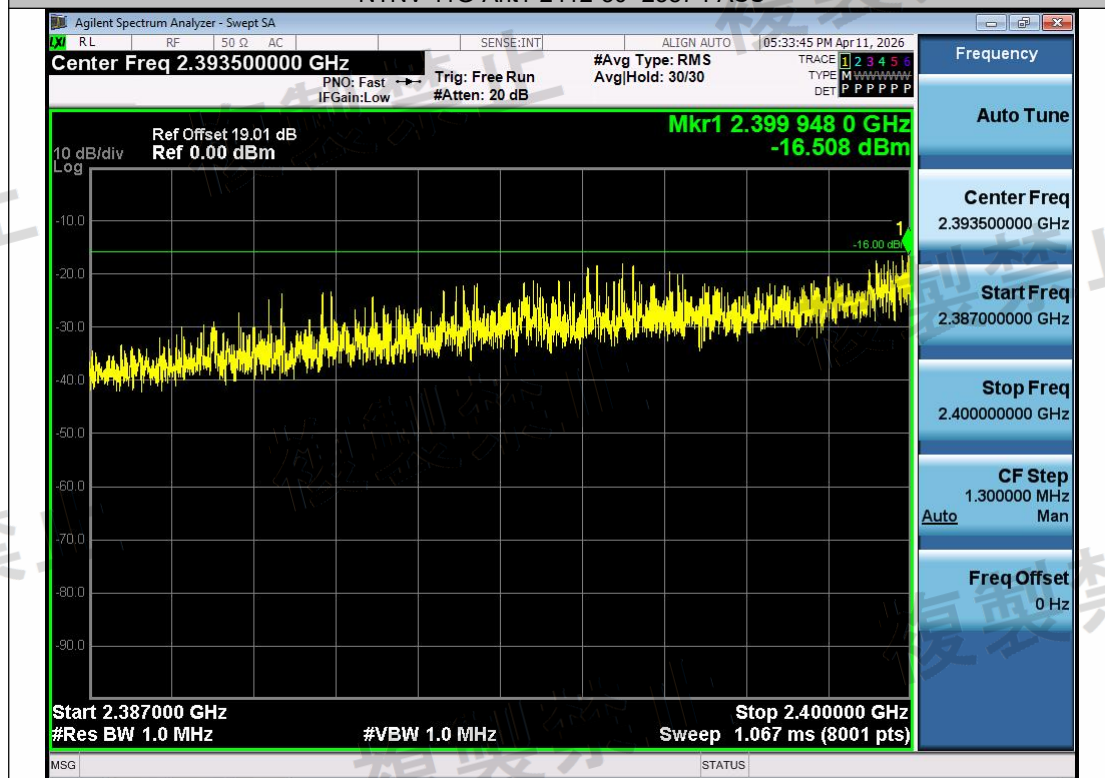
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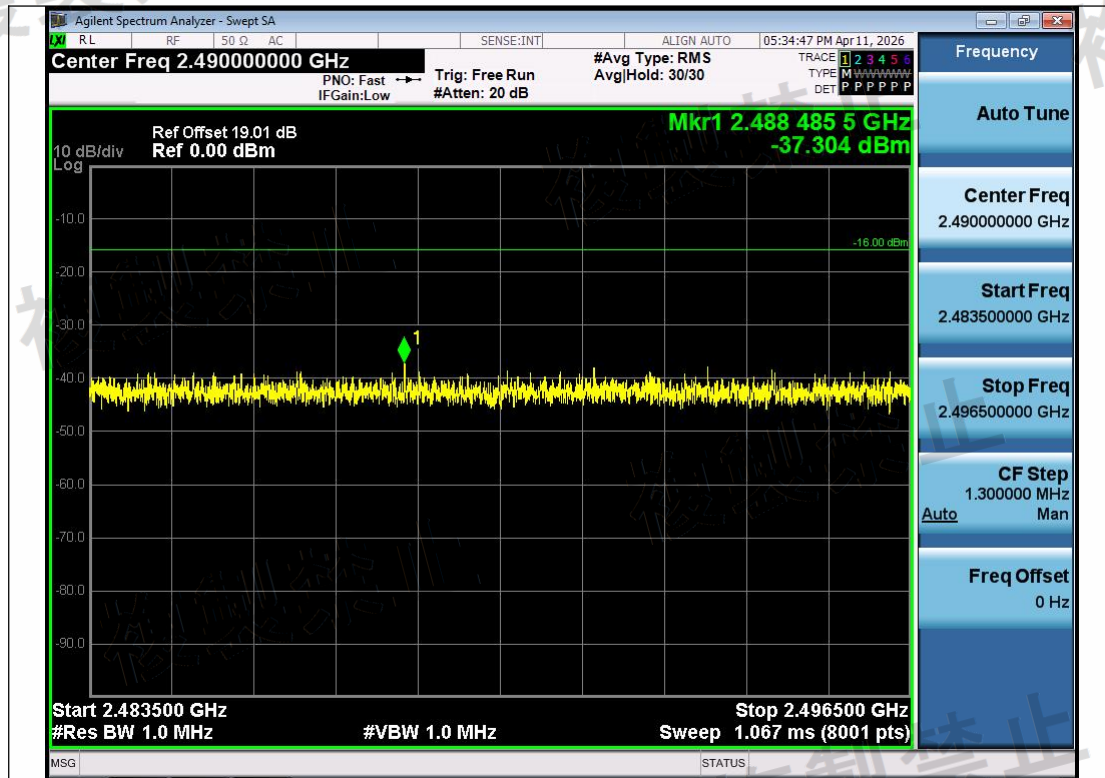
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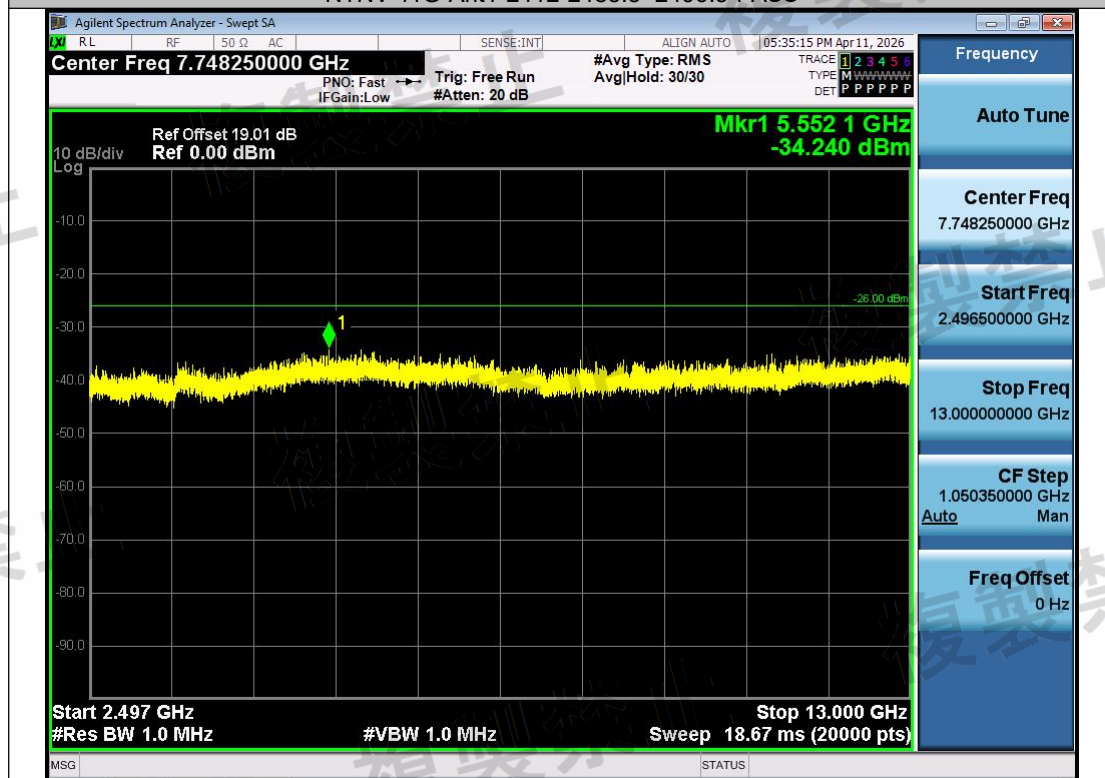
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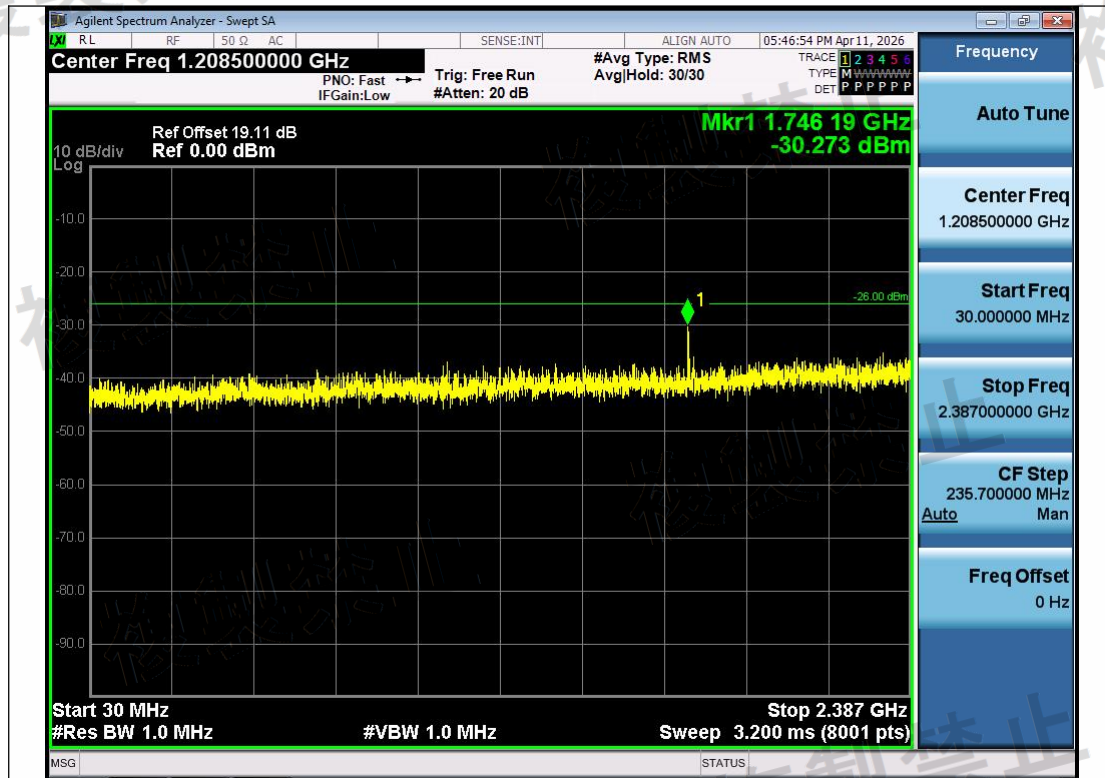
NTNV-11G-Ant1-2412-2387~2400-See table below



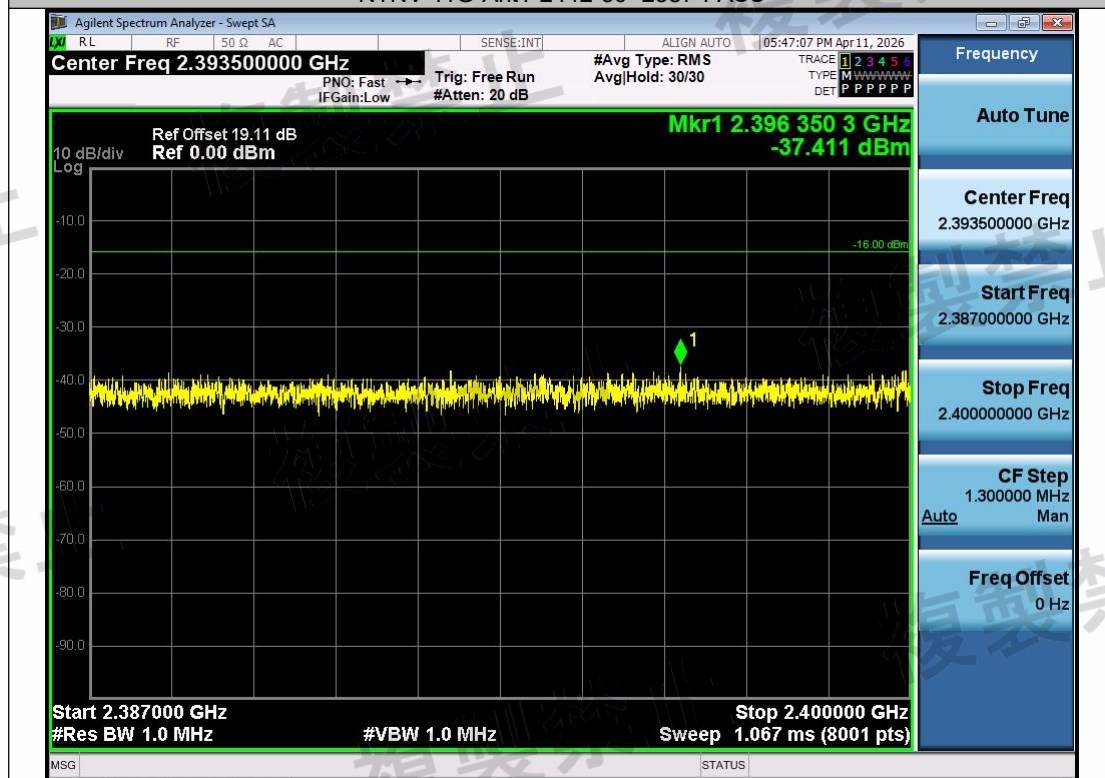
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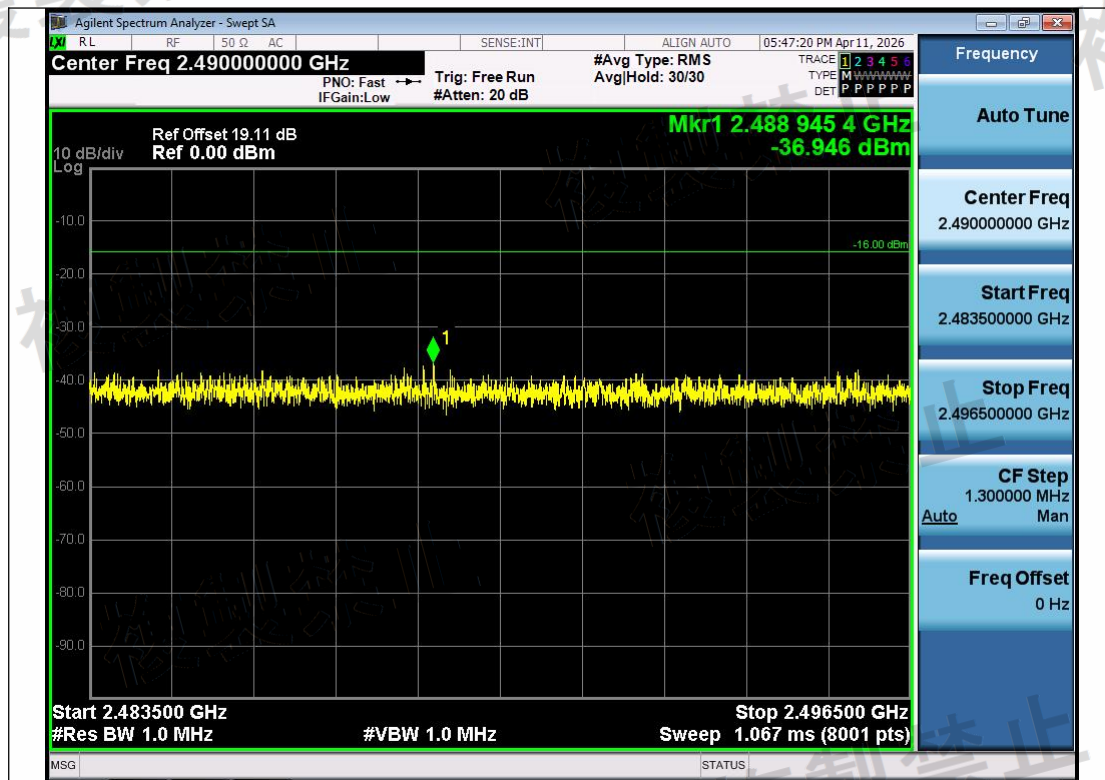
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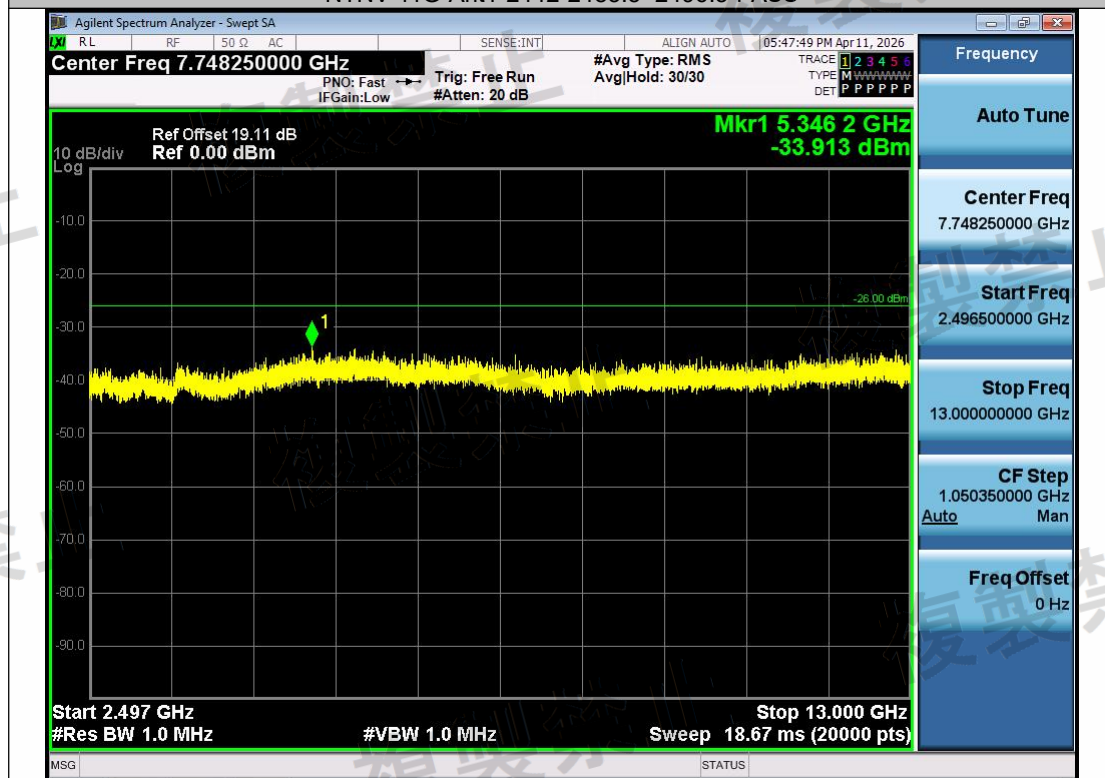
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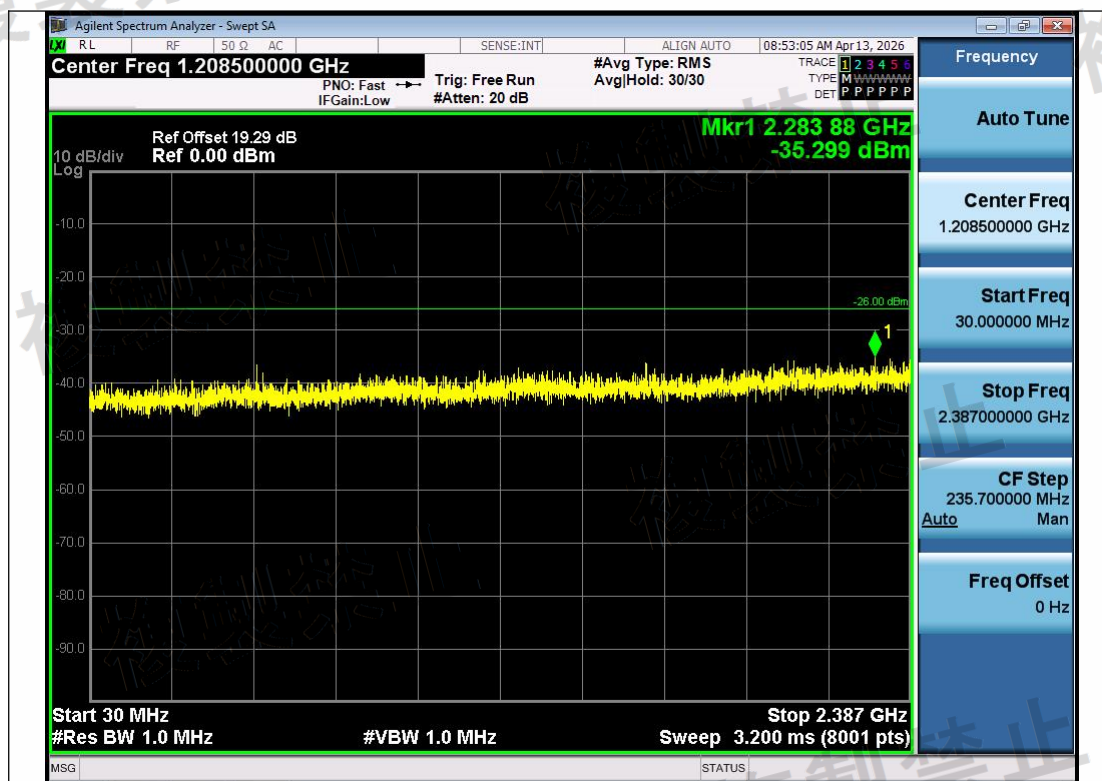
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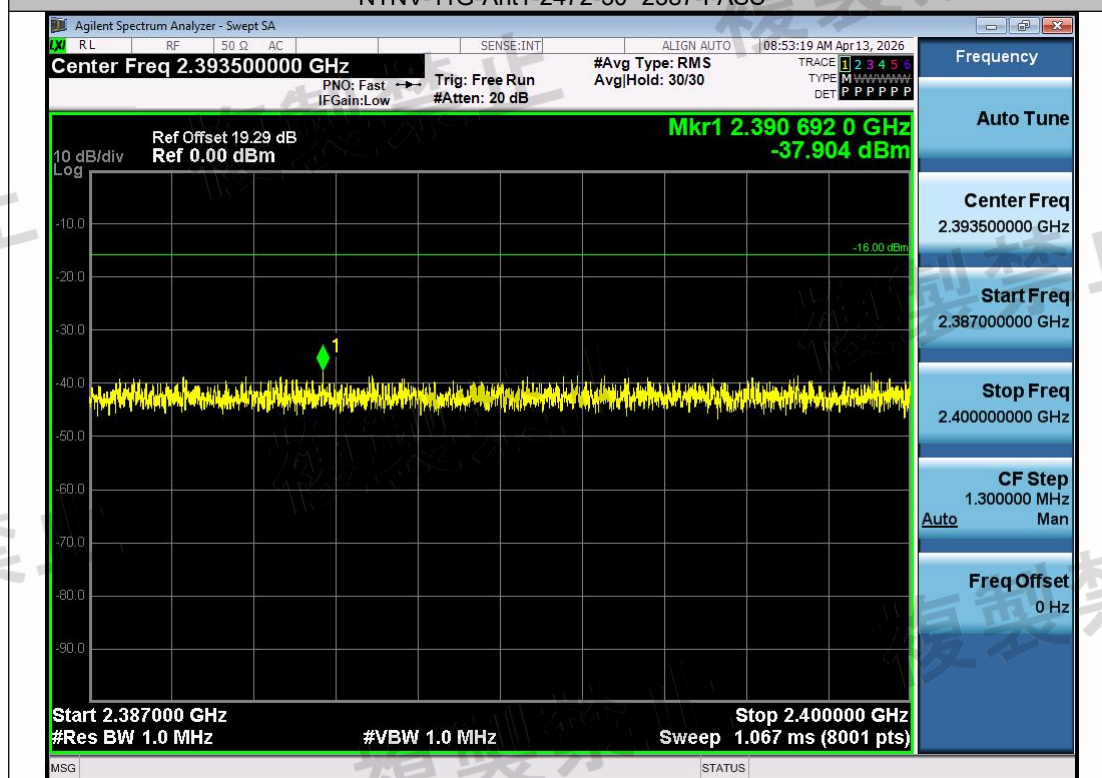
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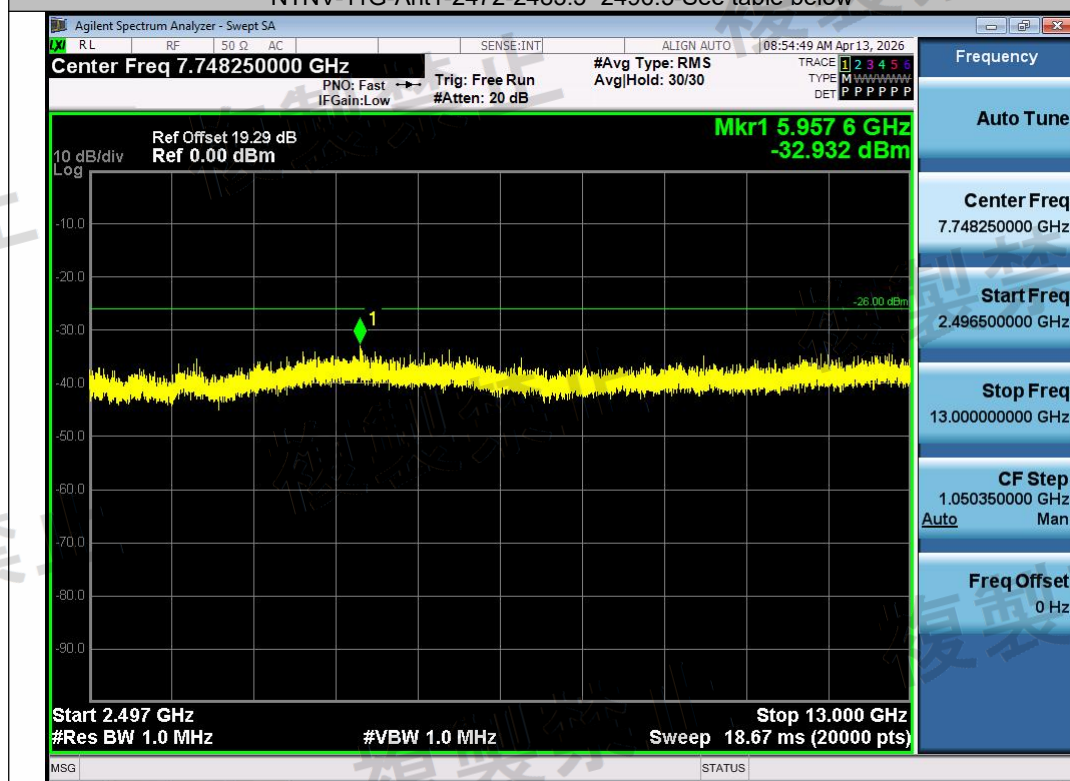
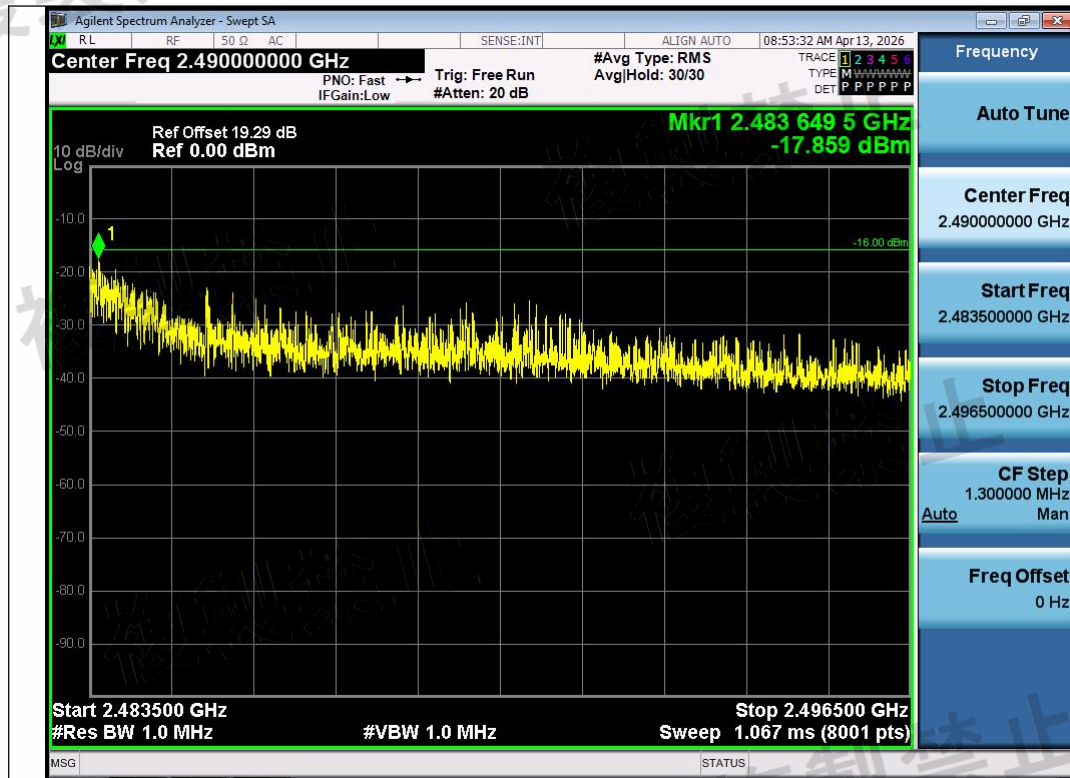
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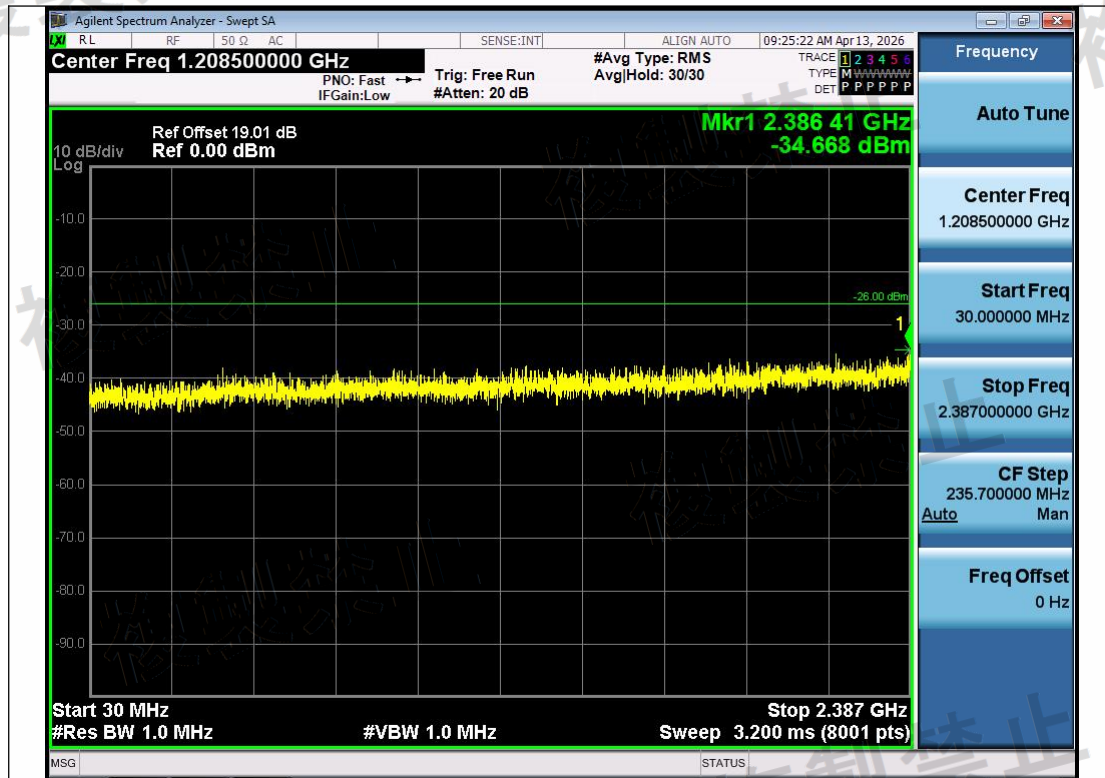


NTNV-11G-Ant1-2472-30~2387-PASS

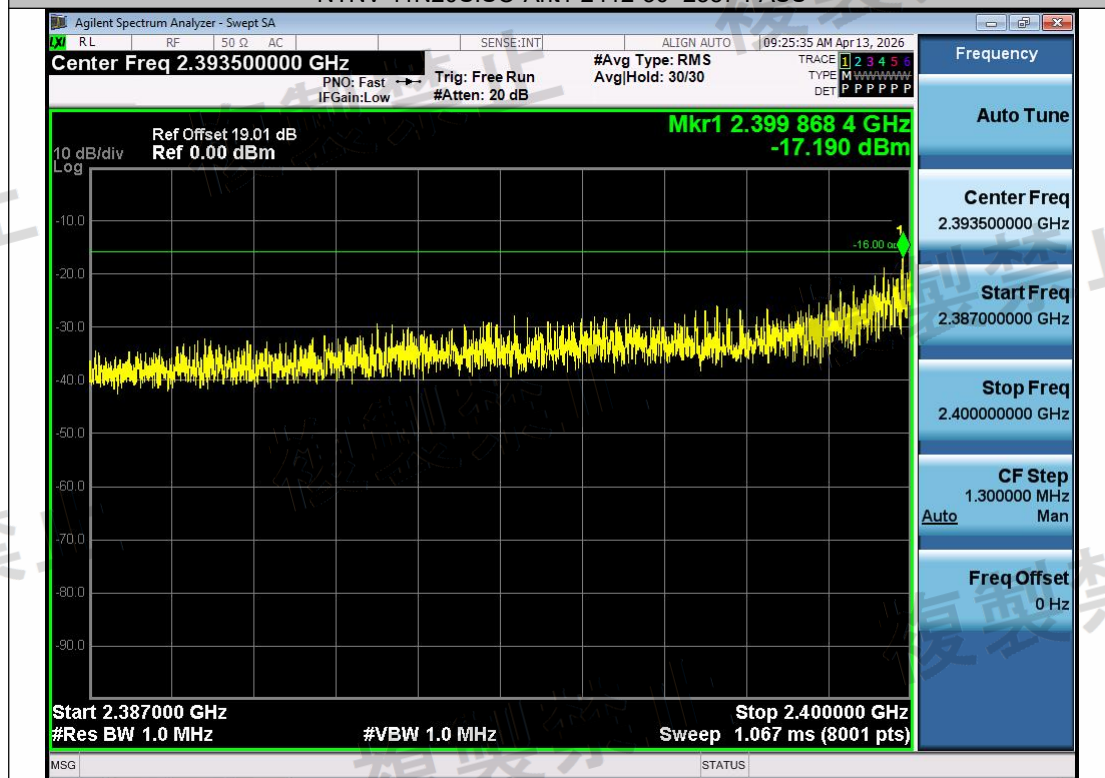


NTNV-11G-Ant1-2472-2387~2400-PASS

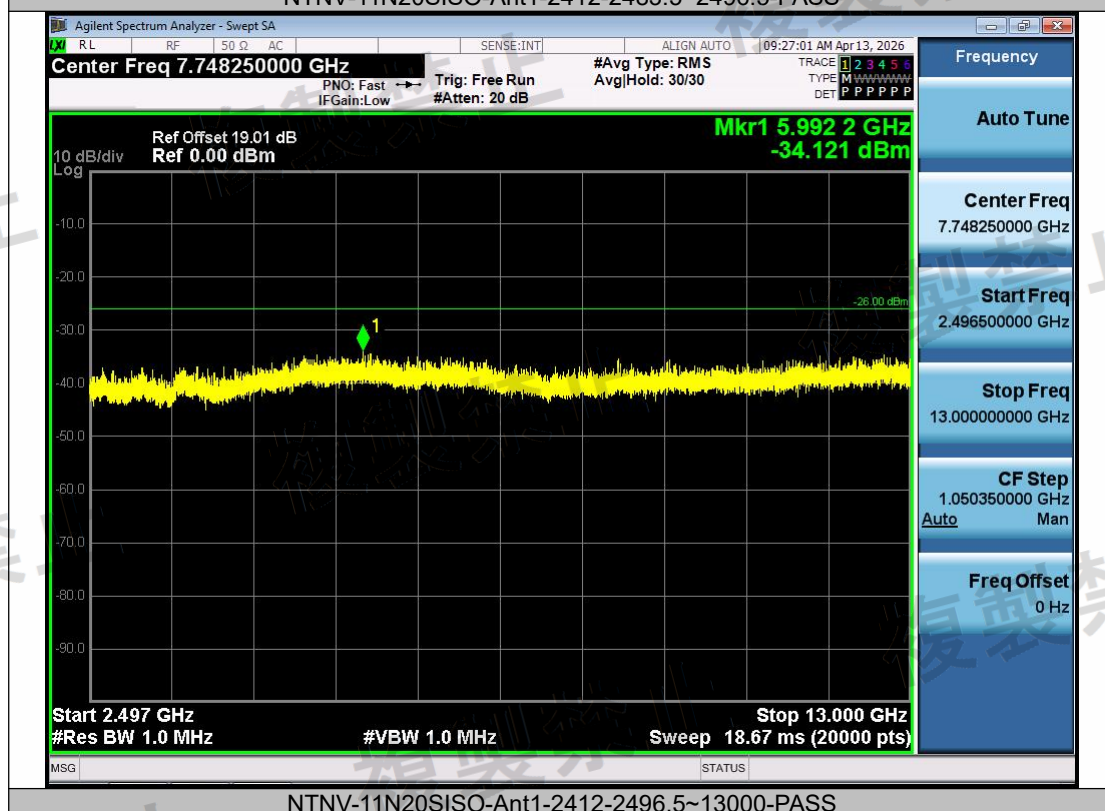
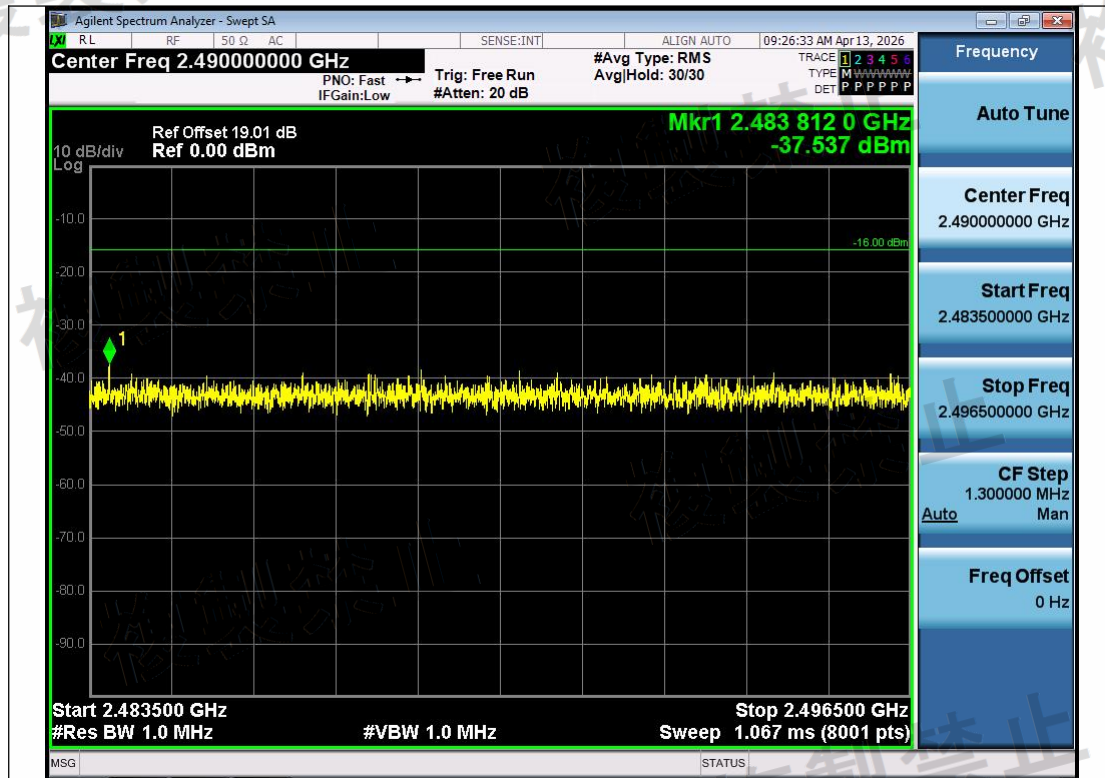


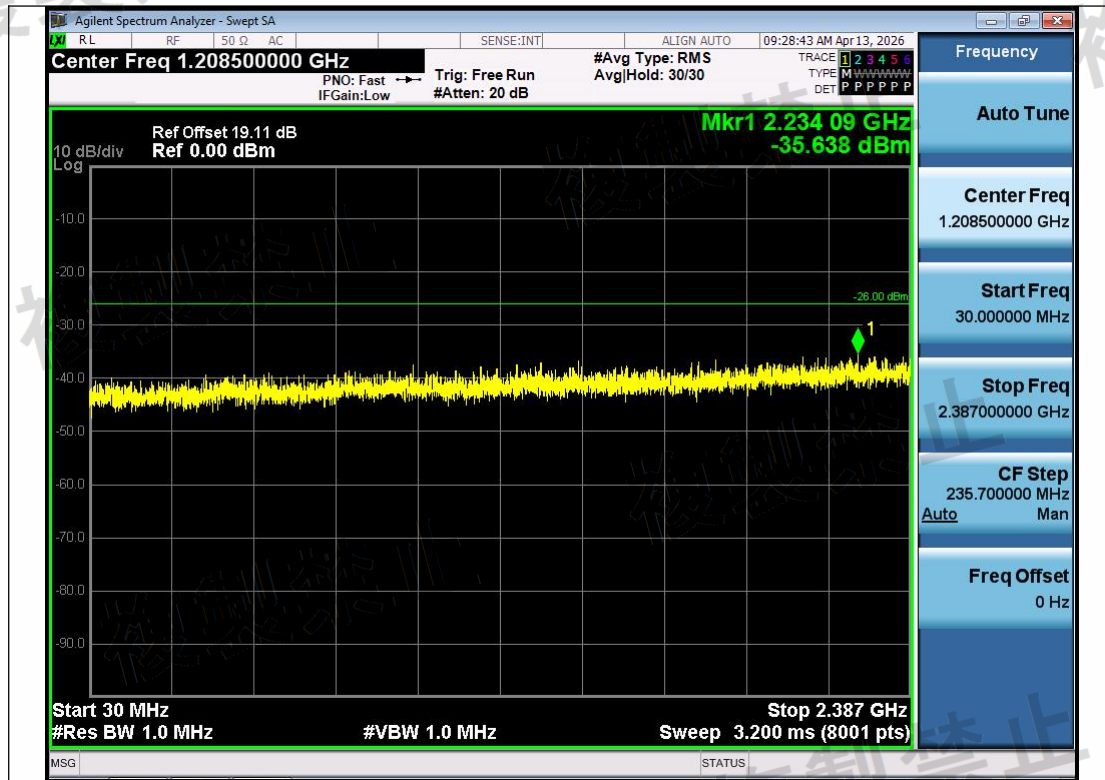


NTNV-11N20SISO-Ant1-2412-30~2387-PASS

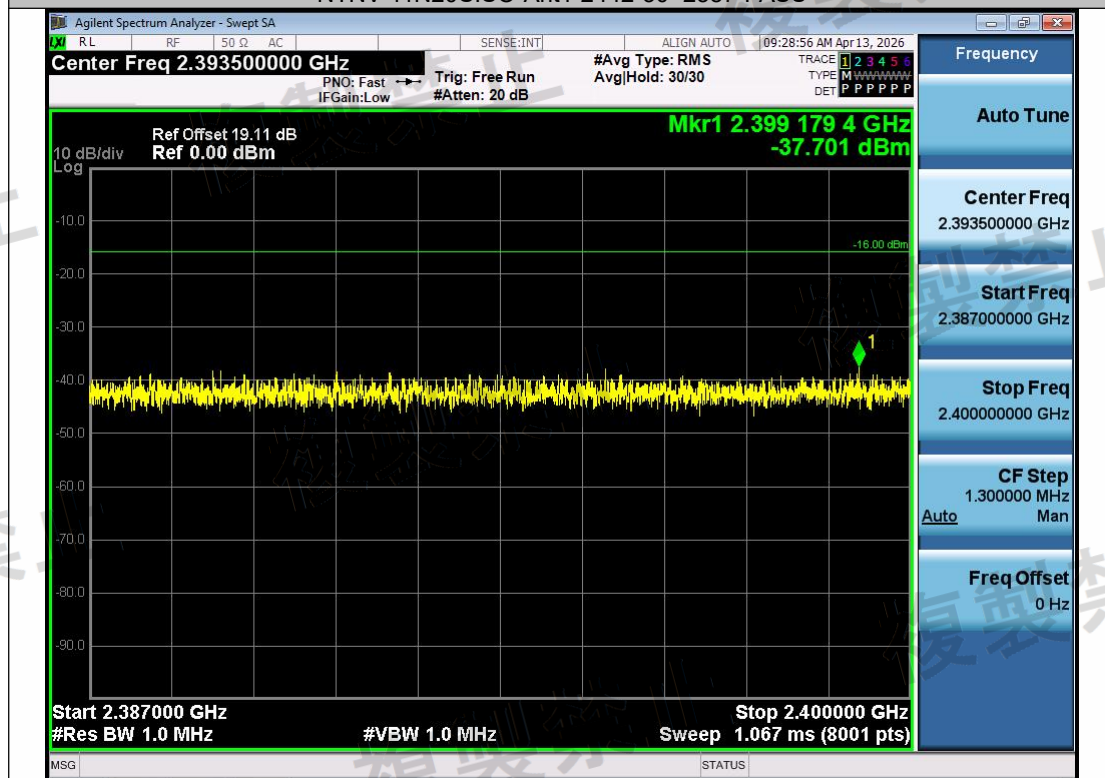


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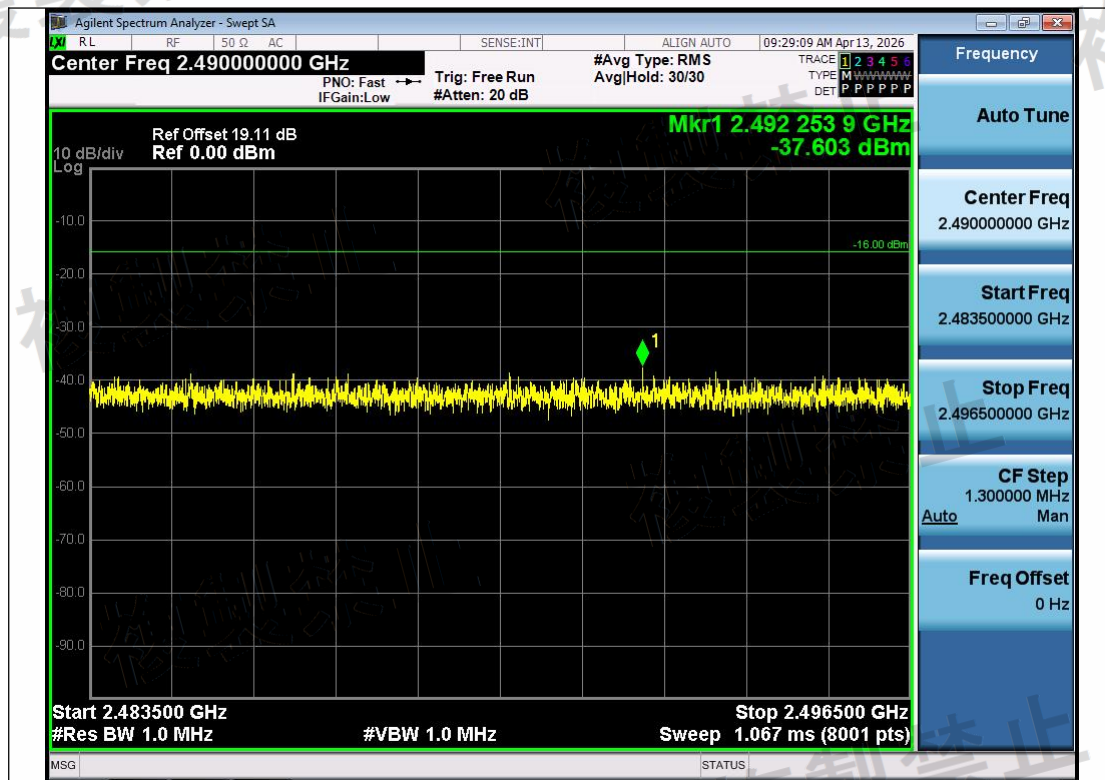




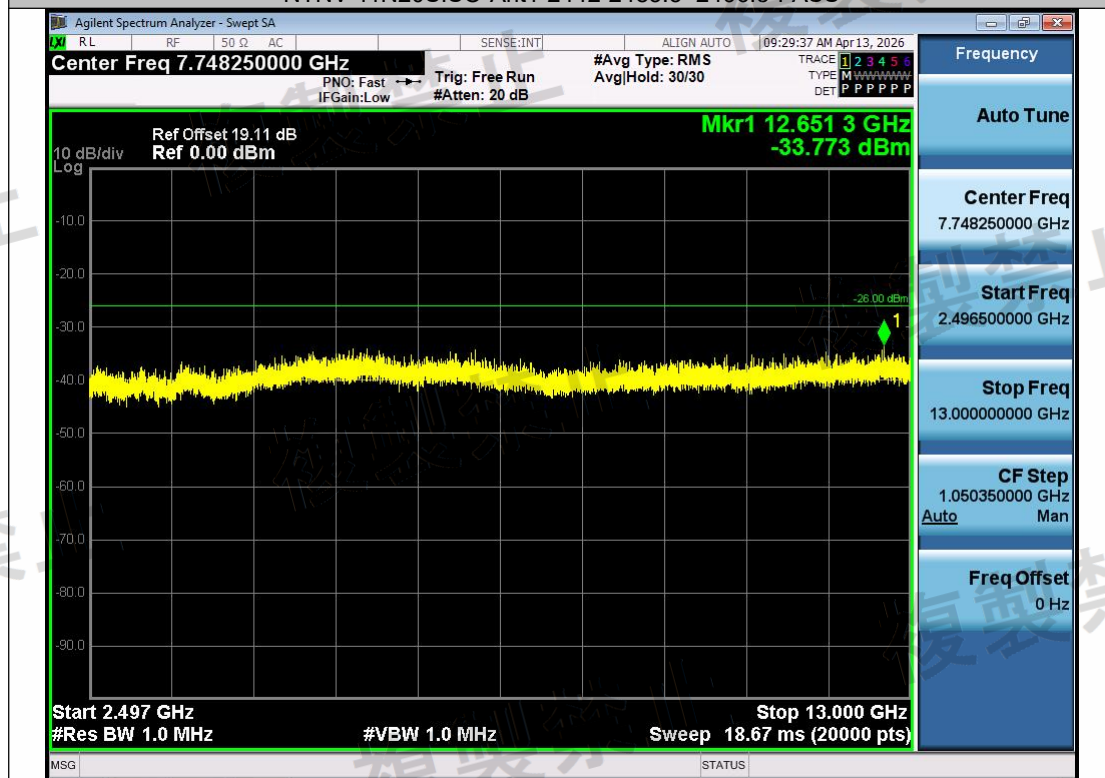
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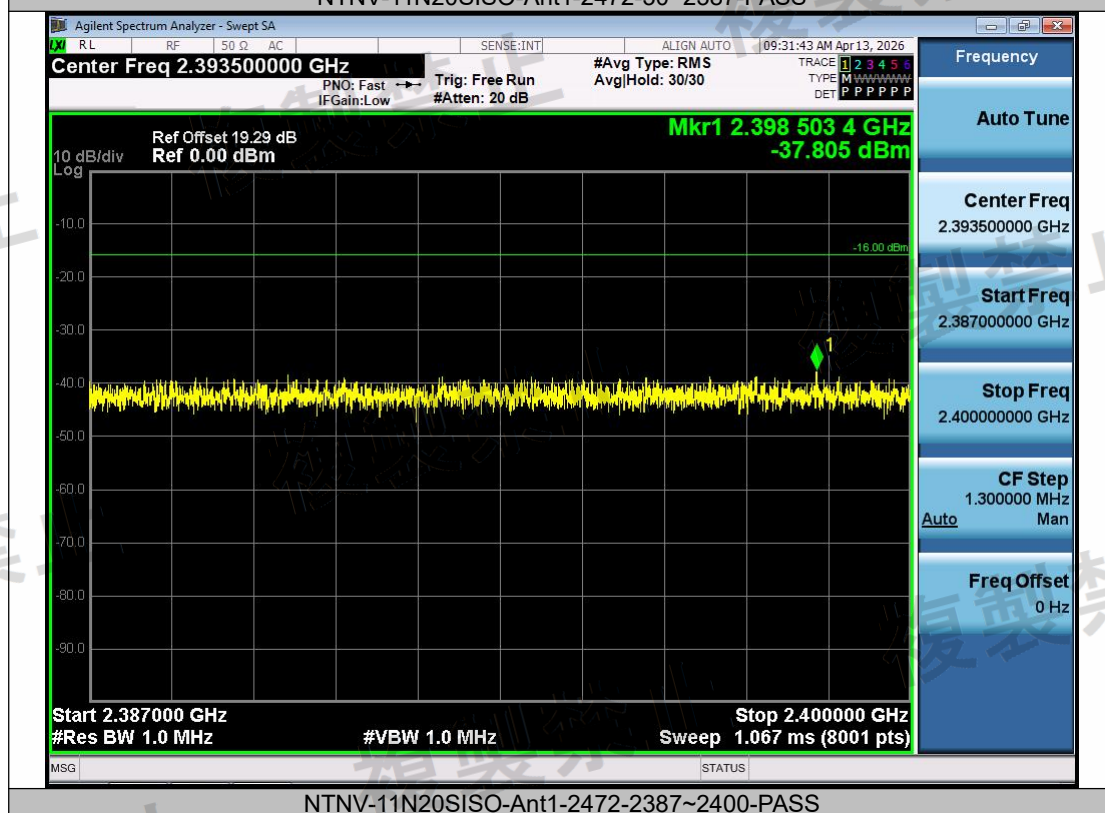
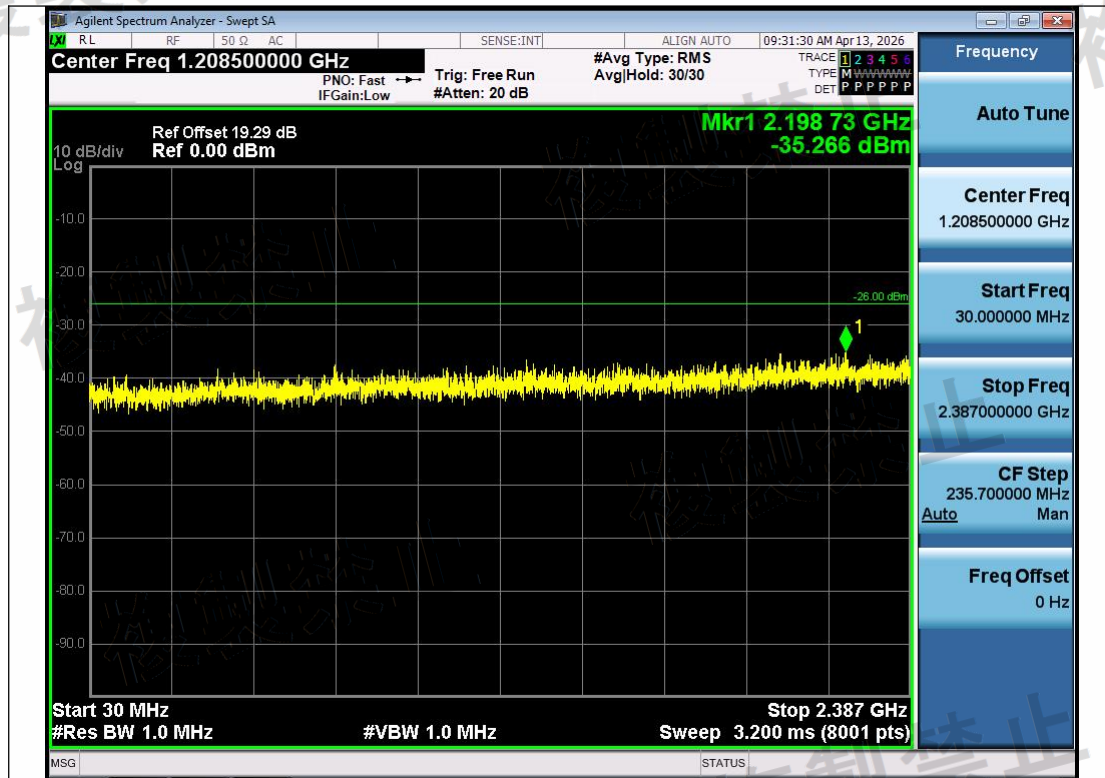
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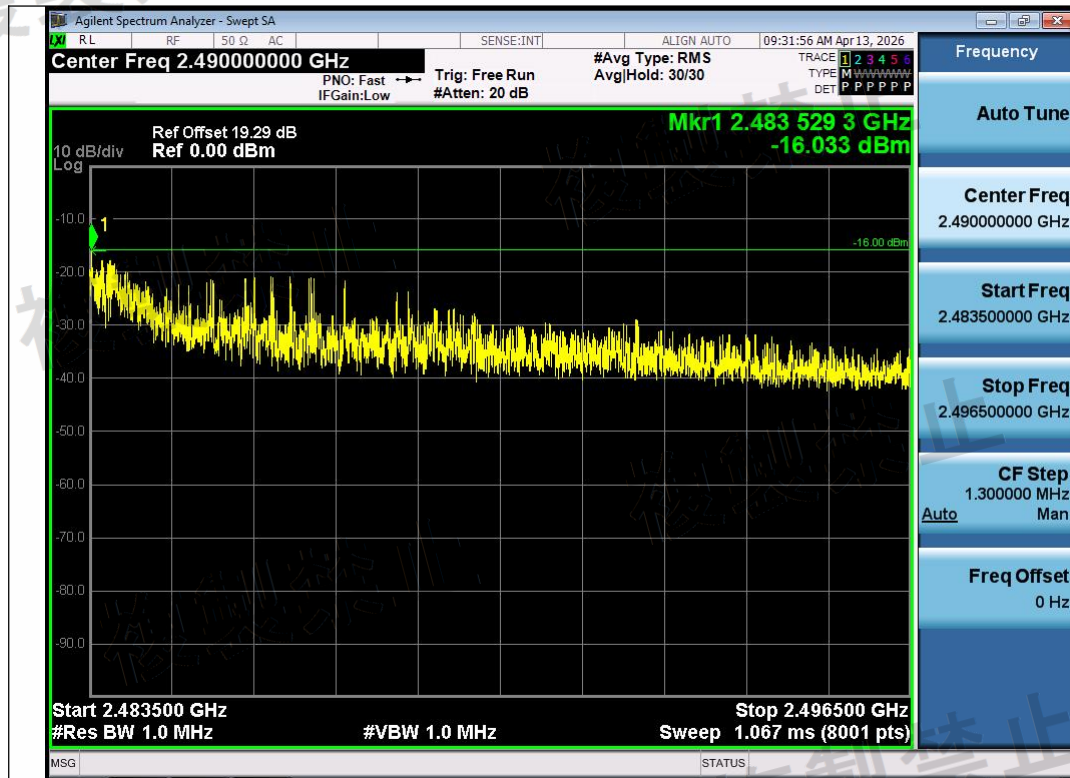


NTNV-11N20SISO-Ant1-2442-2483.5~2496.5-PASS

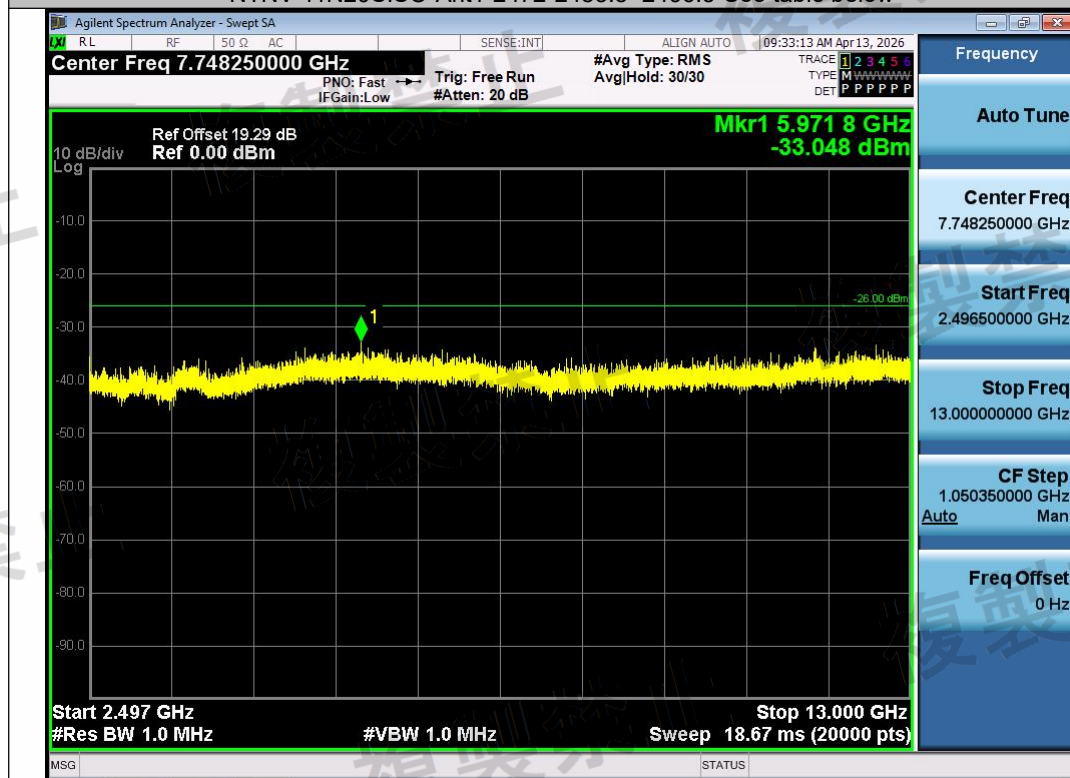


NTNV-11N20SISO-Ant1-2442-2496.5~13000-PASS

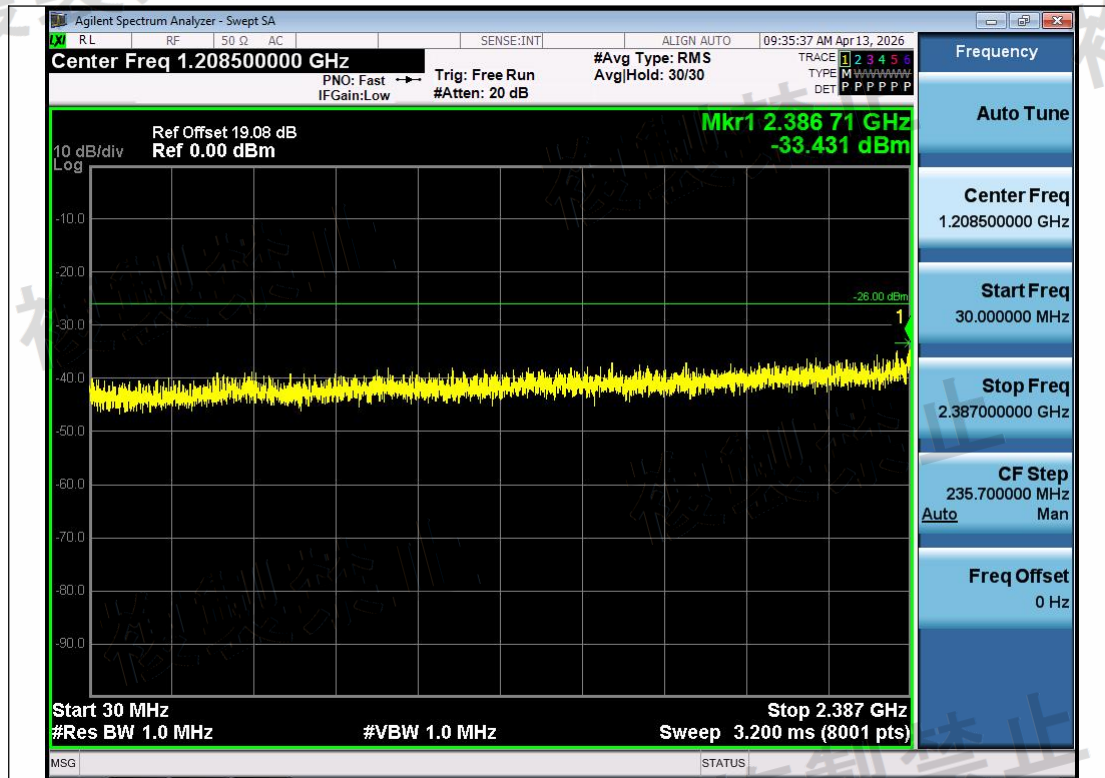




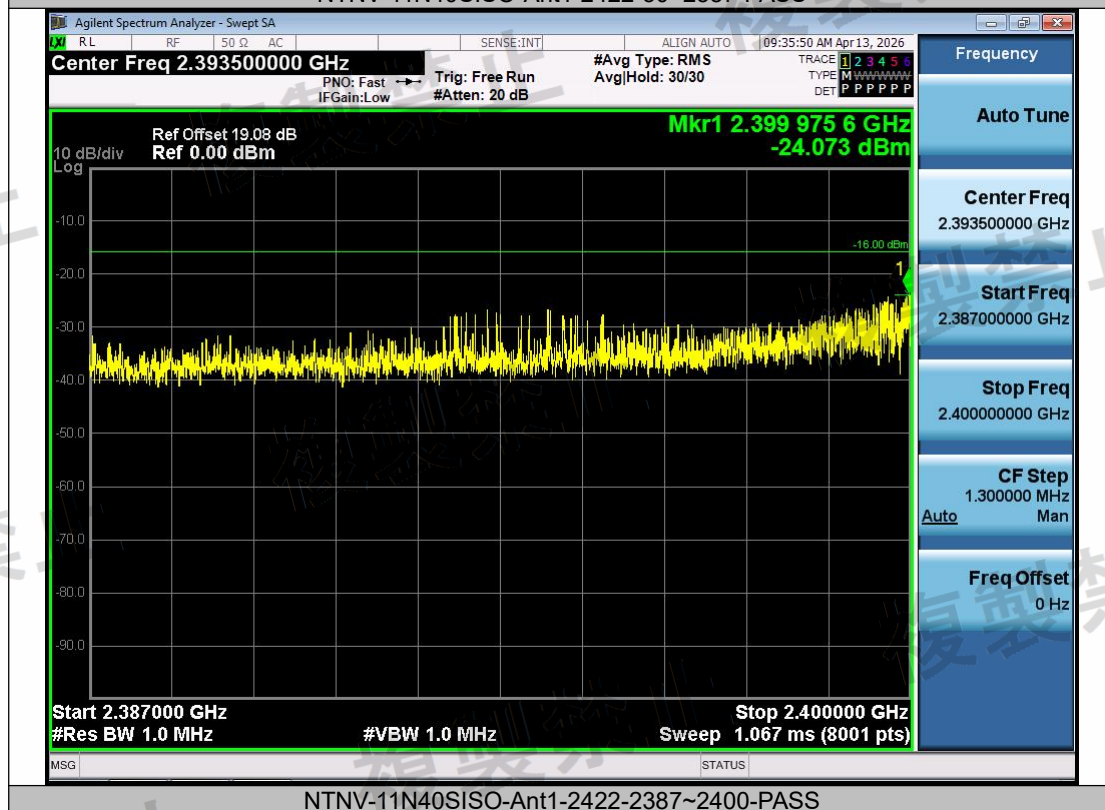
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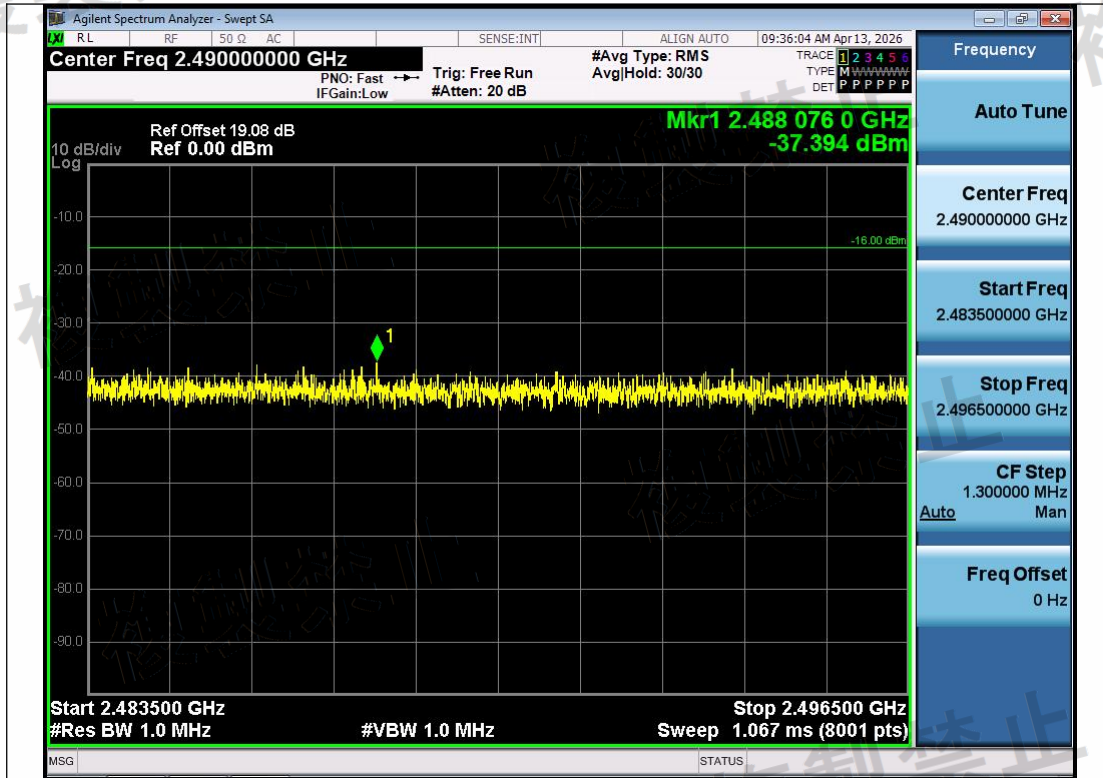
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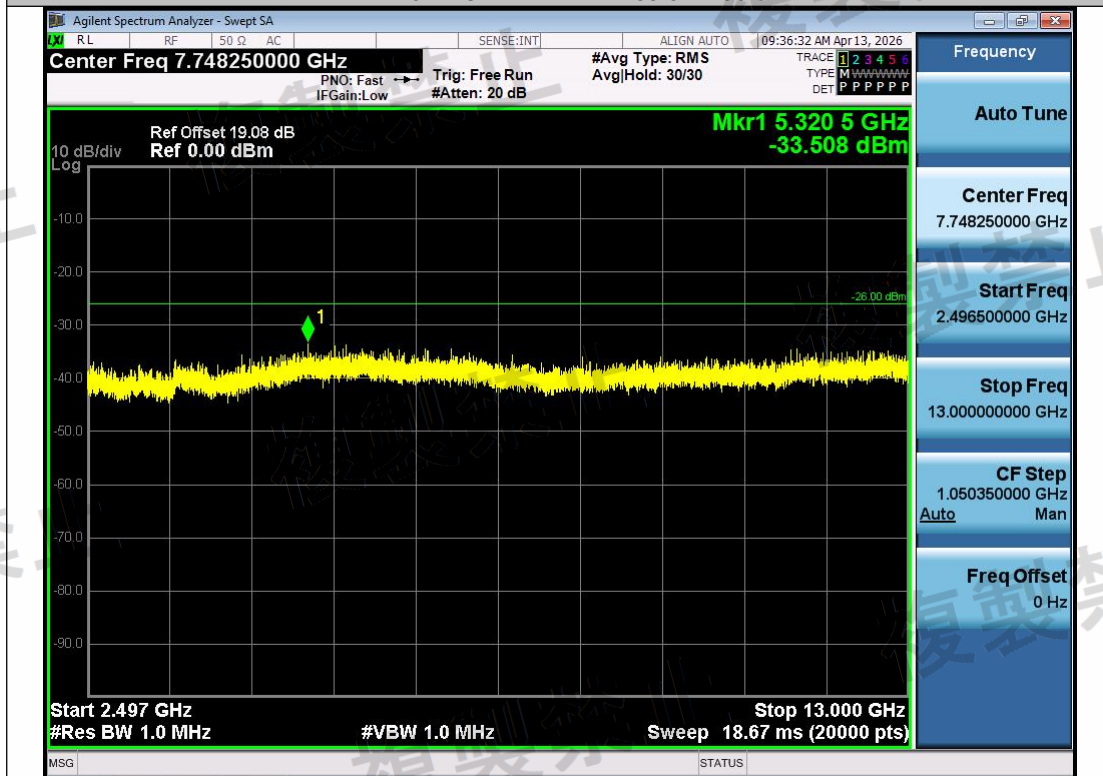
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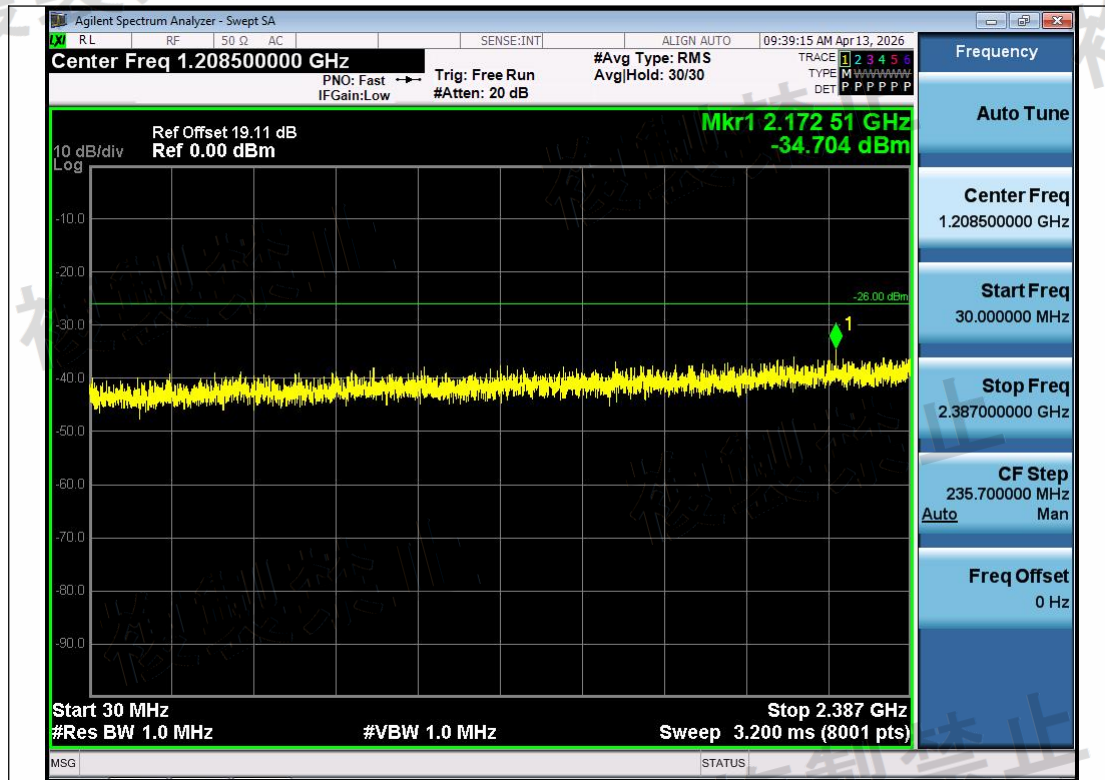
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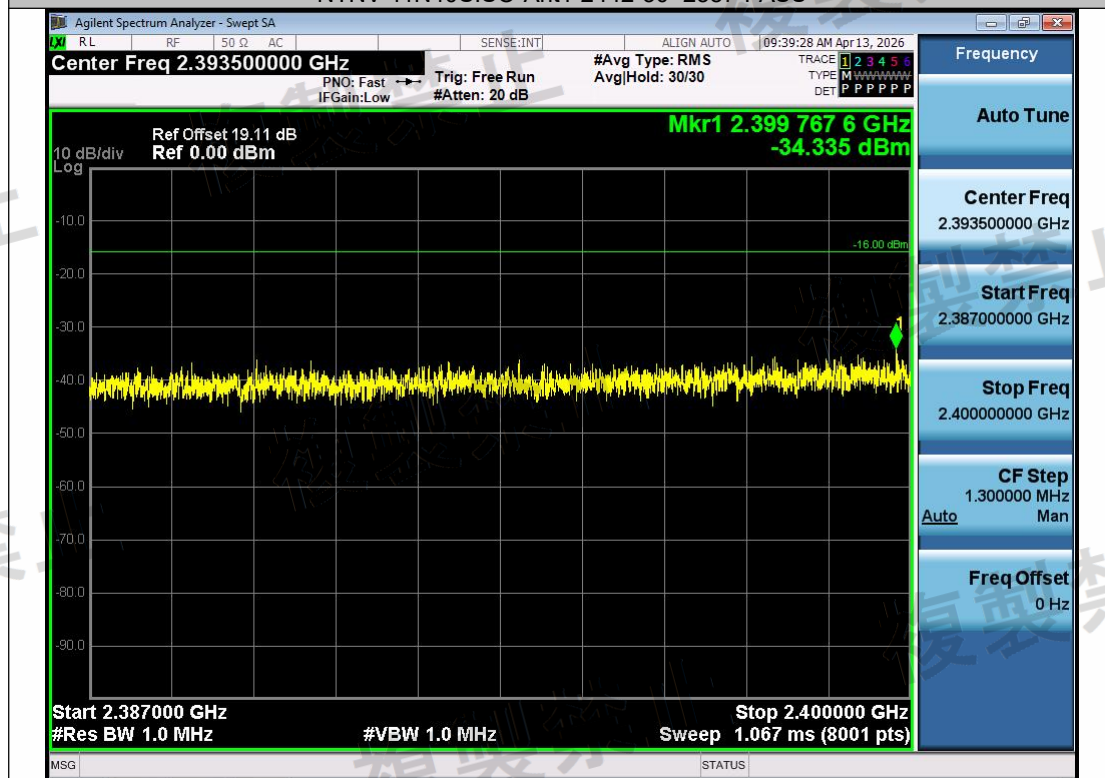
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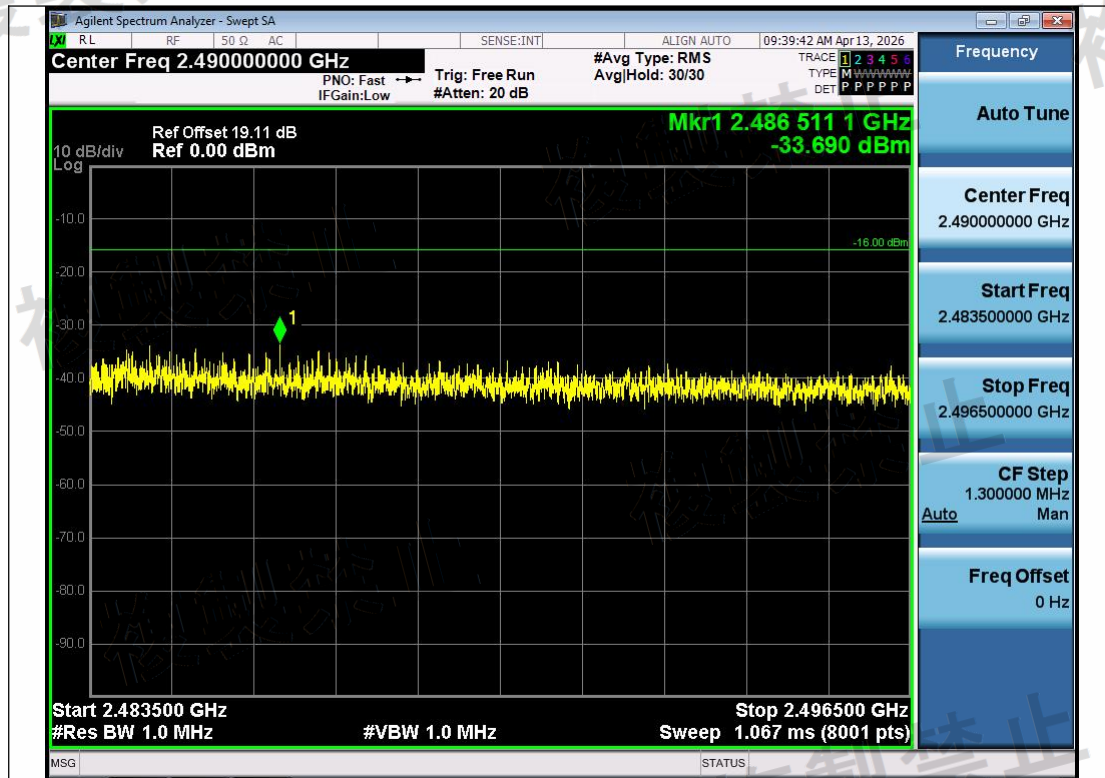
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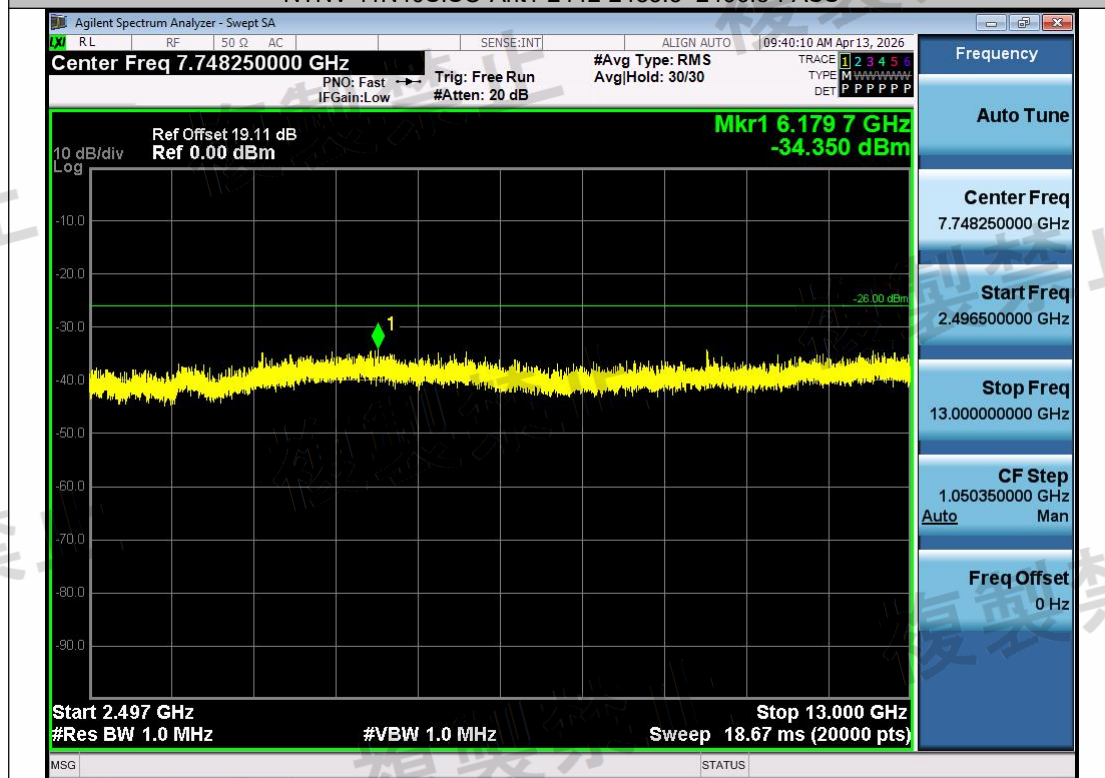
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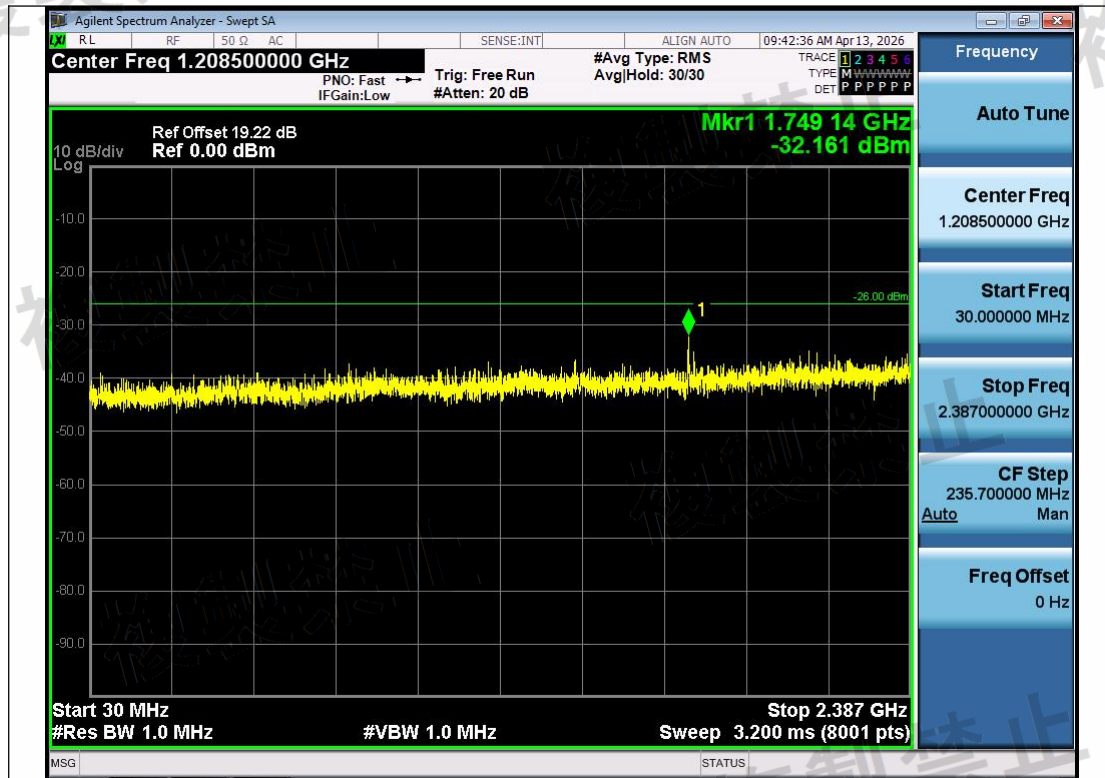
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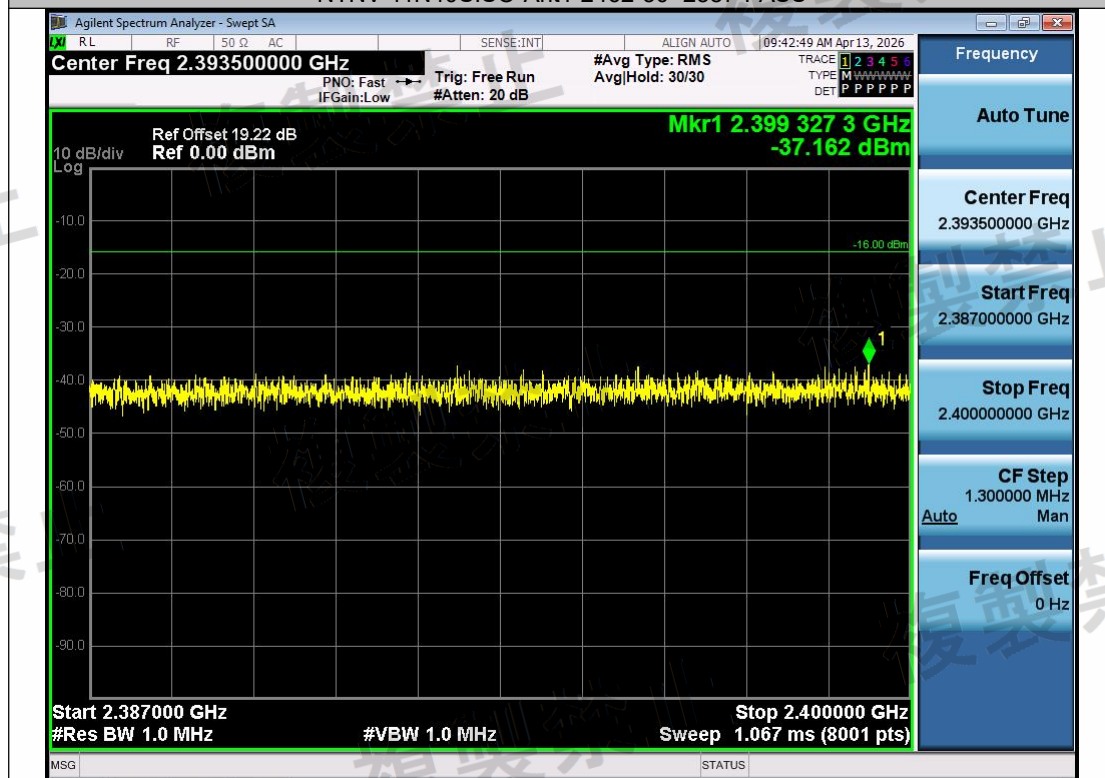
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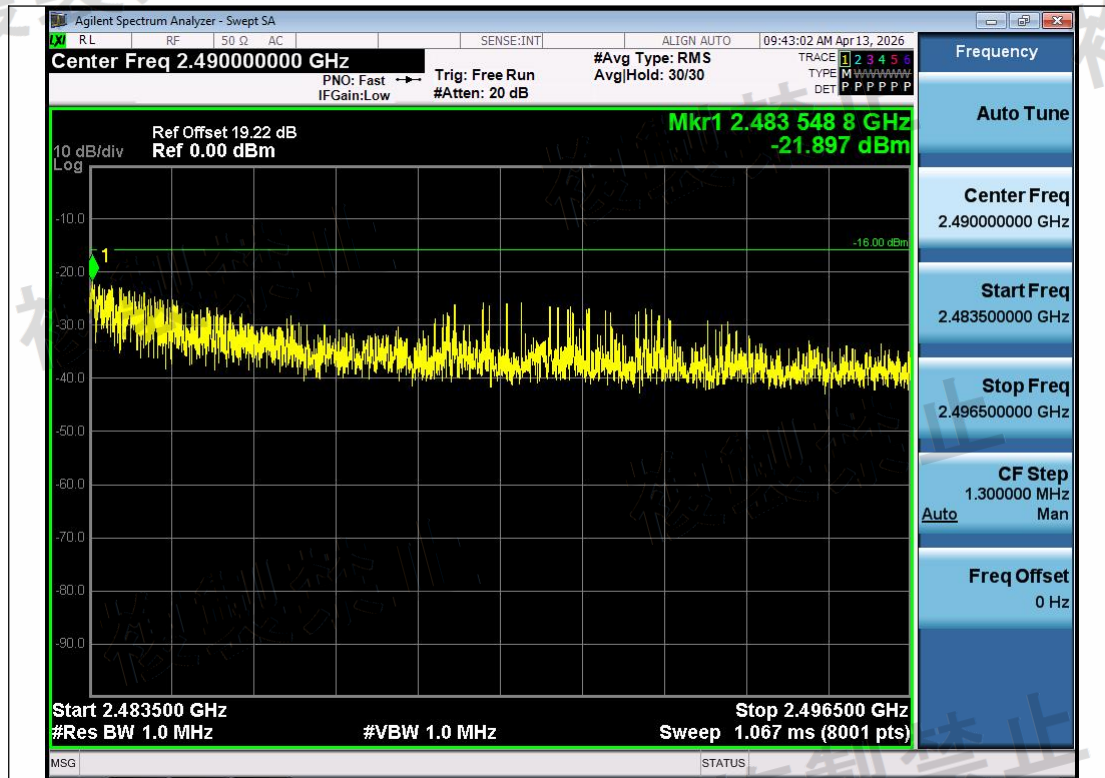
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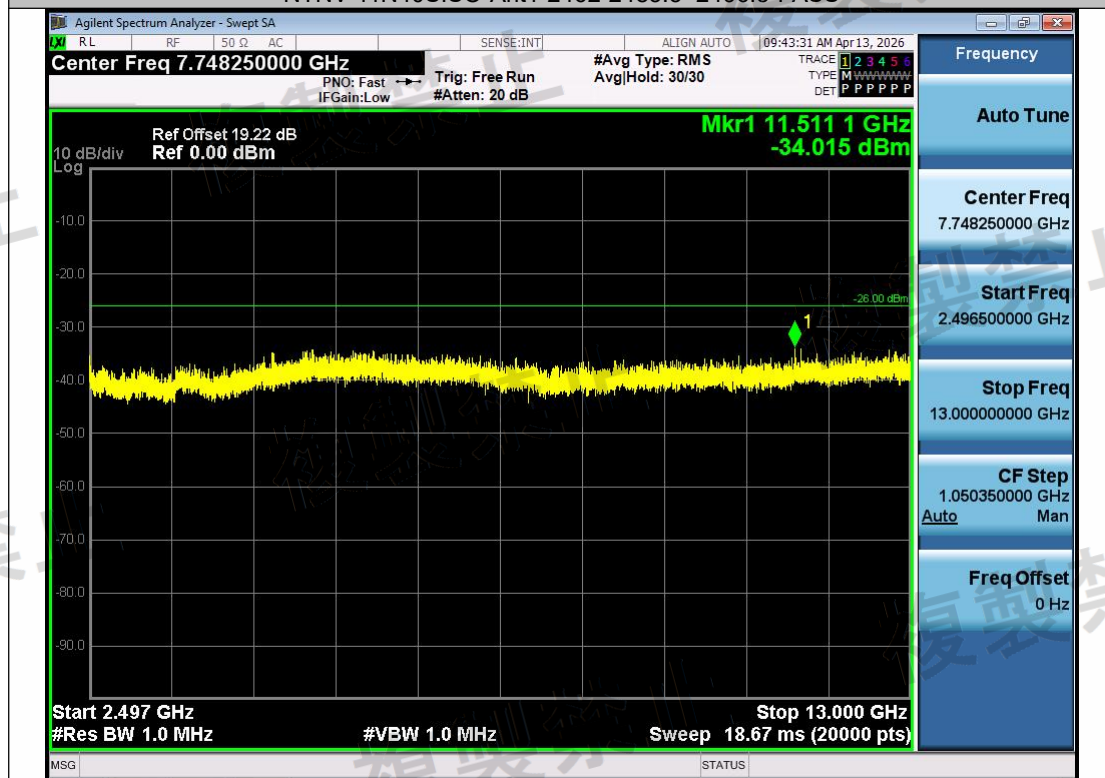
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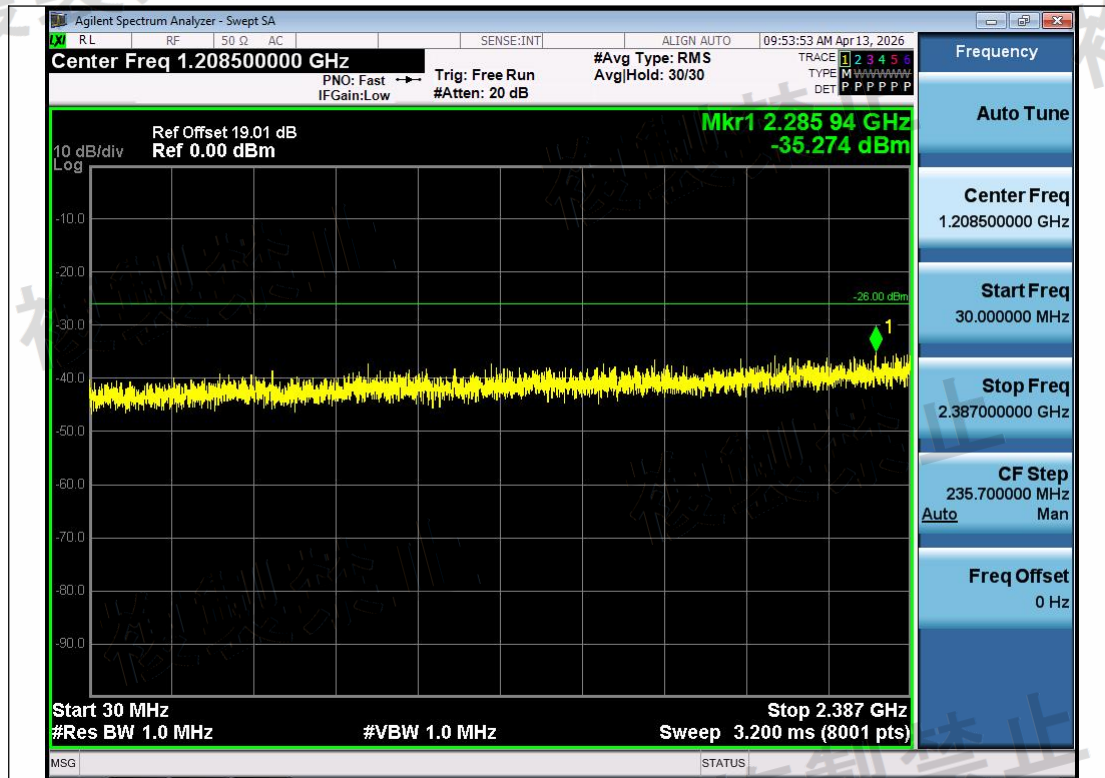
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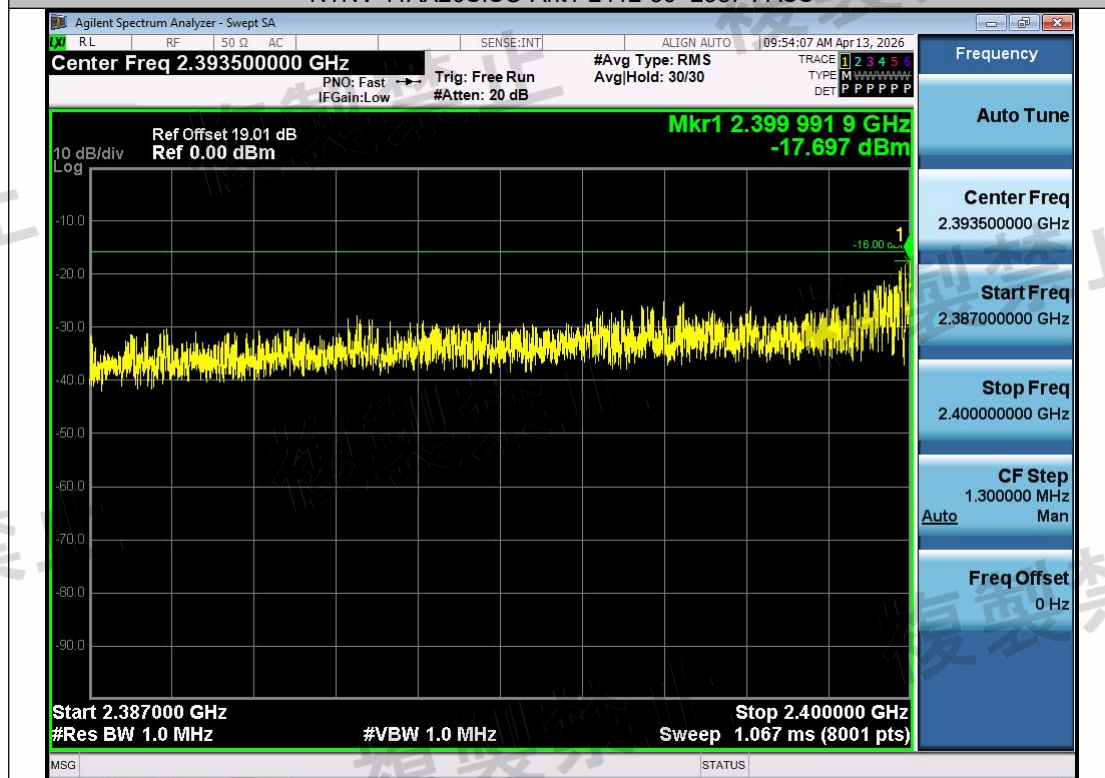
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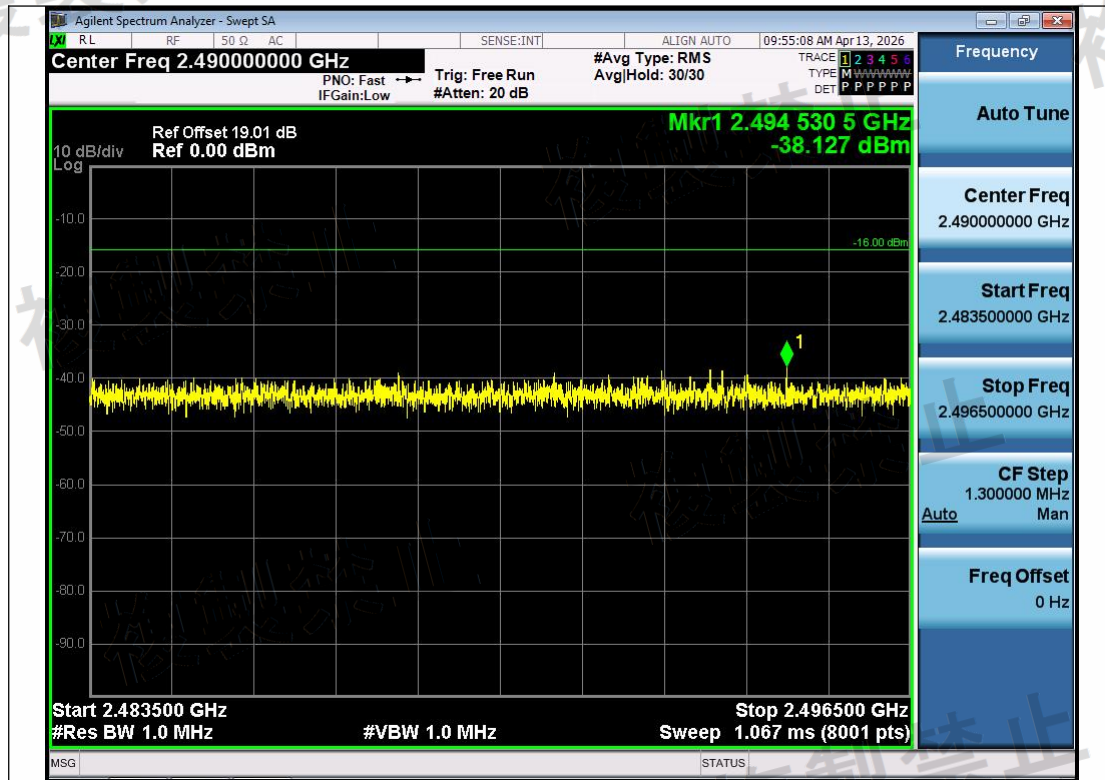
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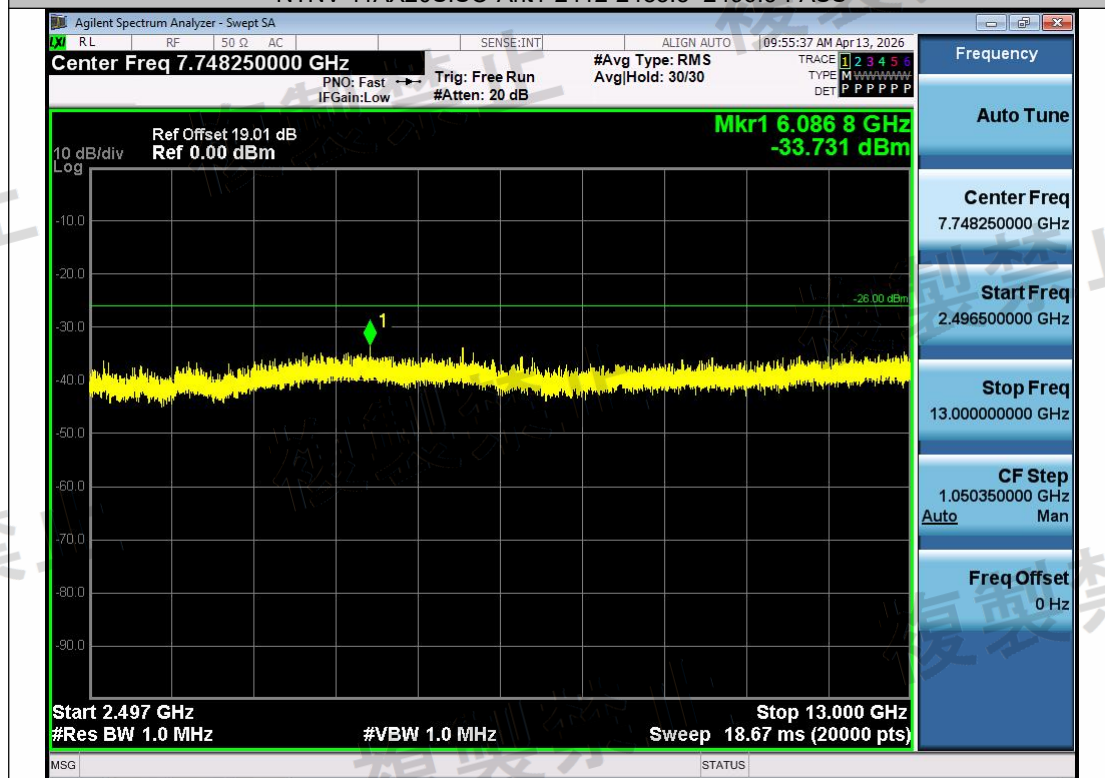
NTNV-11AX20SISO-Ant1-2412-30~2387-PASS



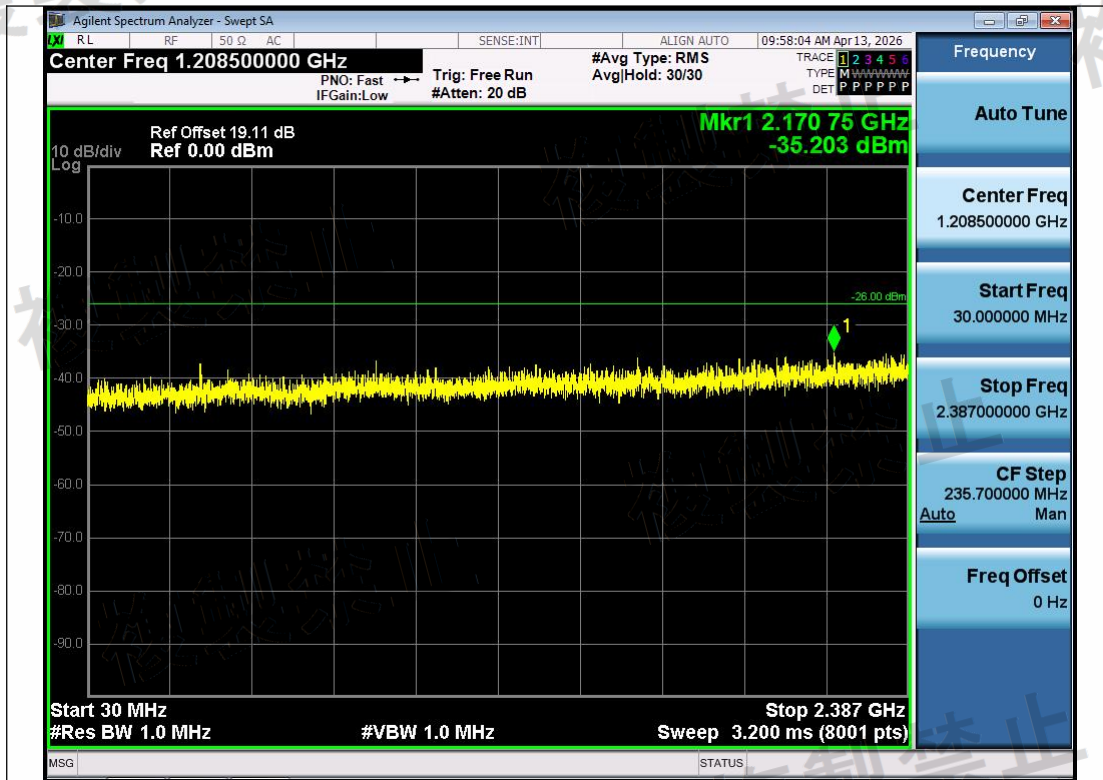
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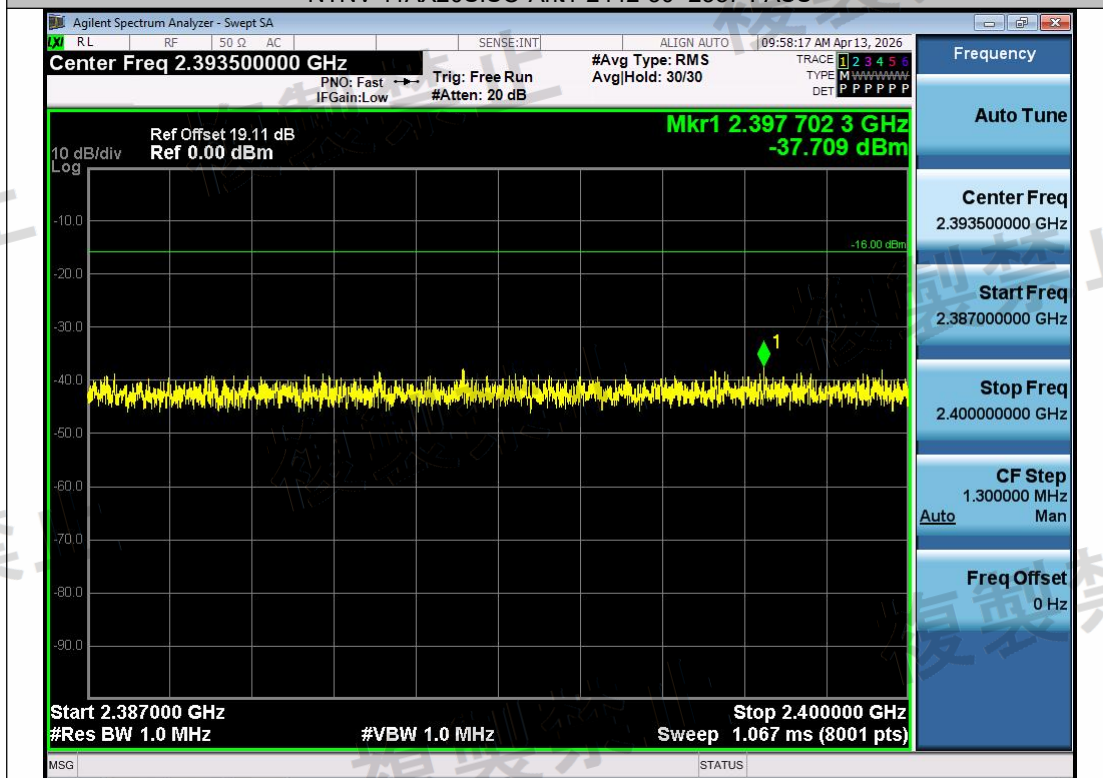
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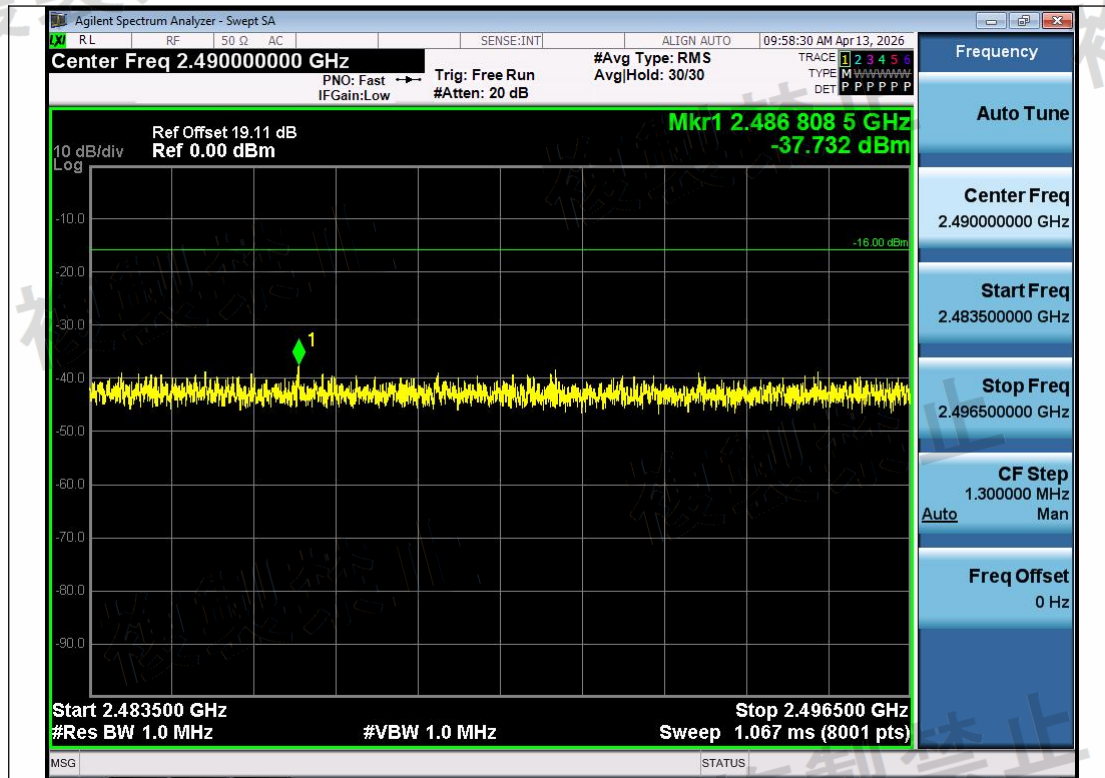
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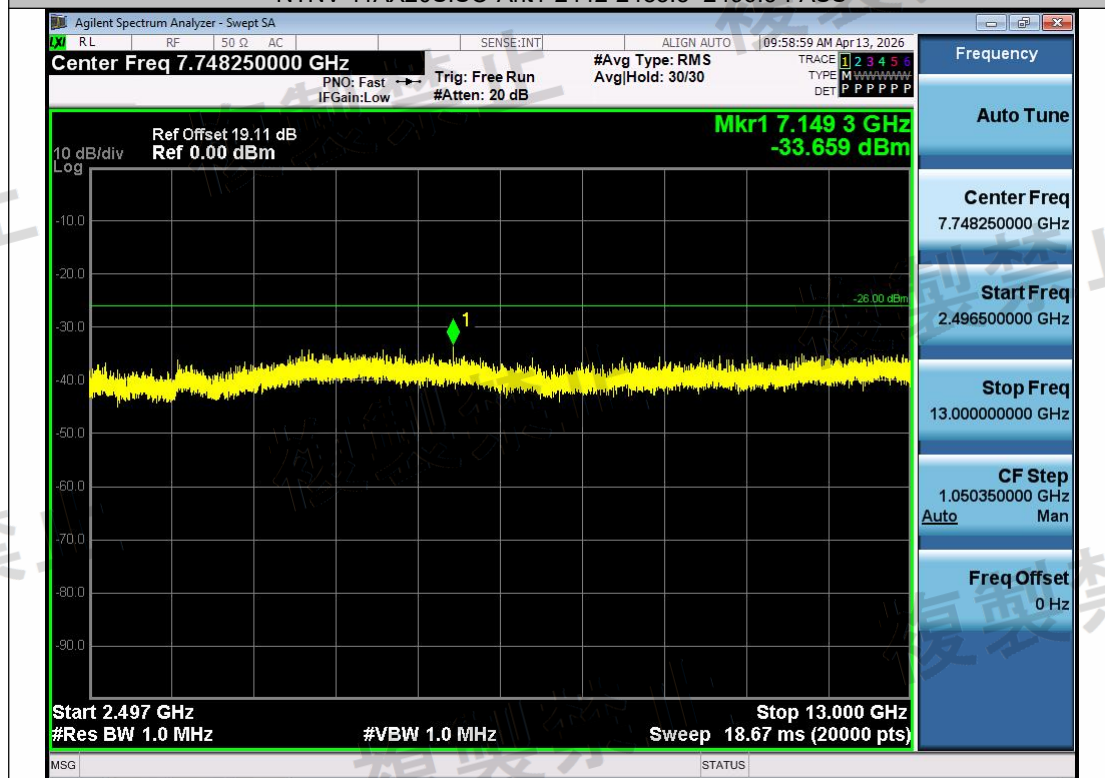
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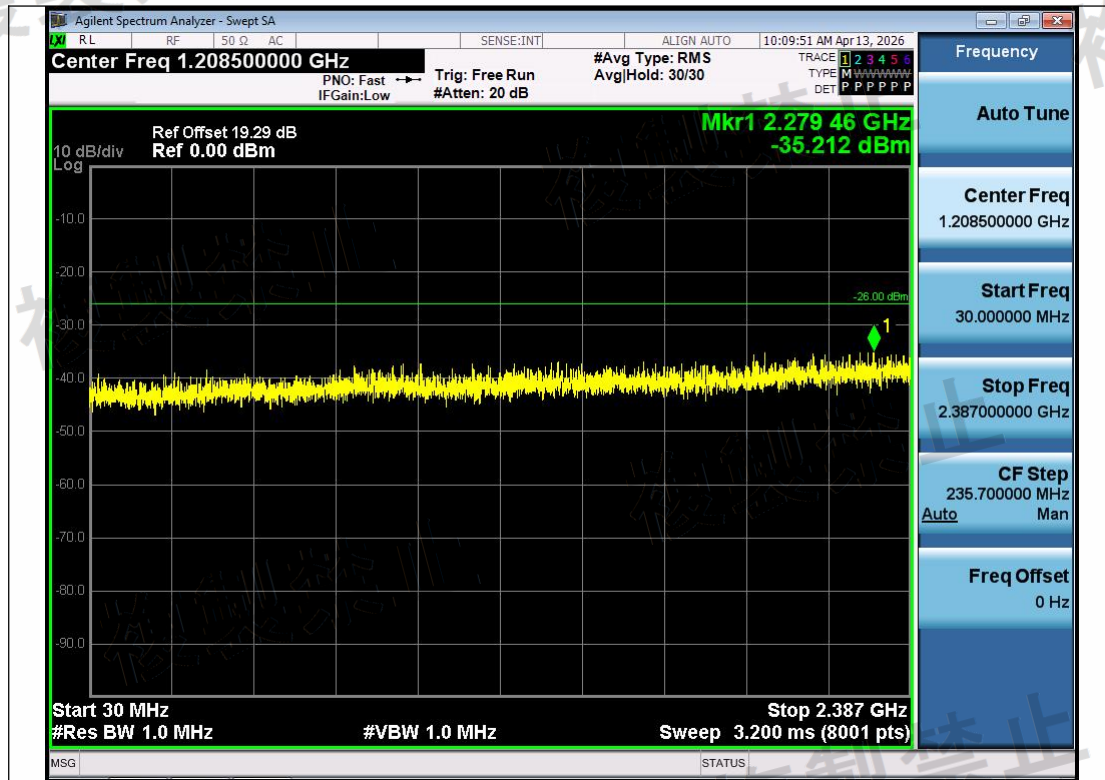
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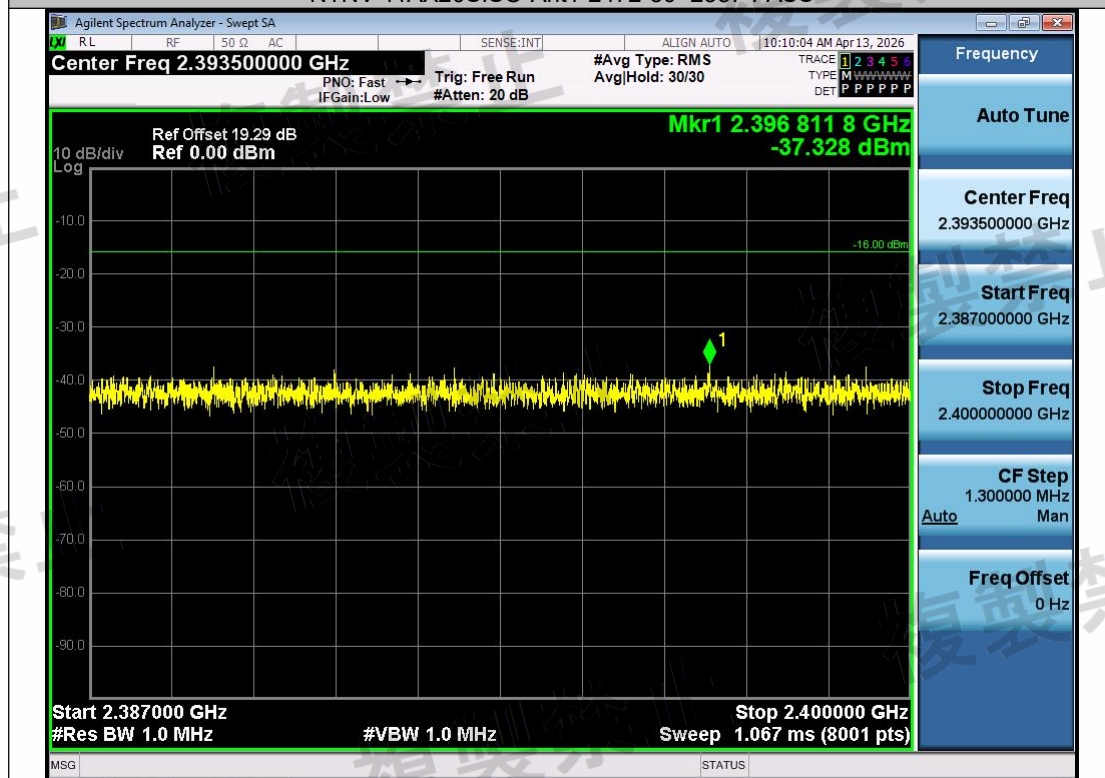
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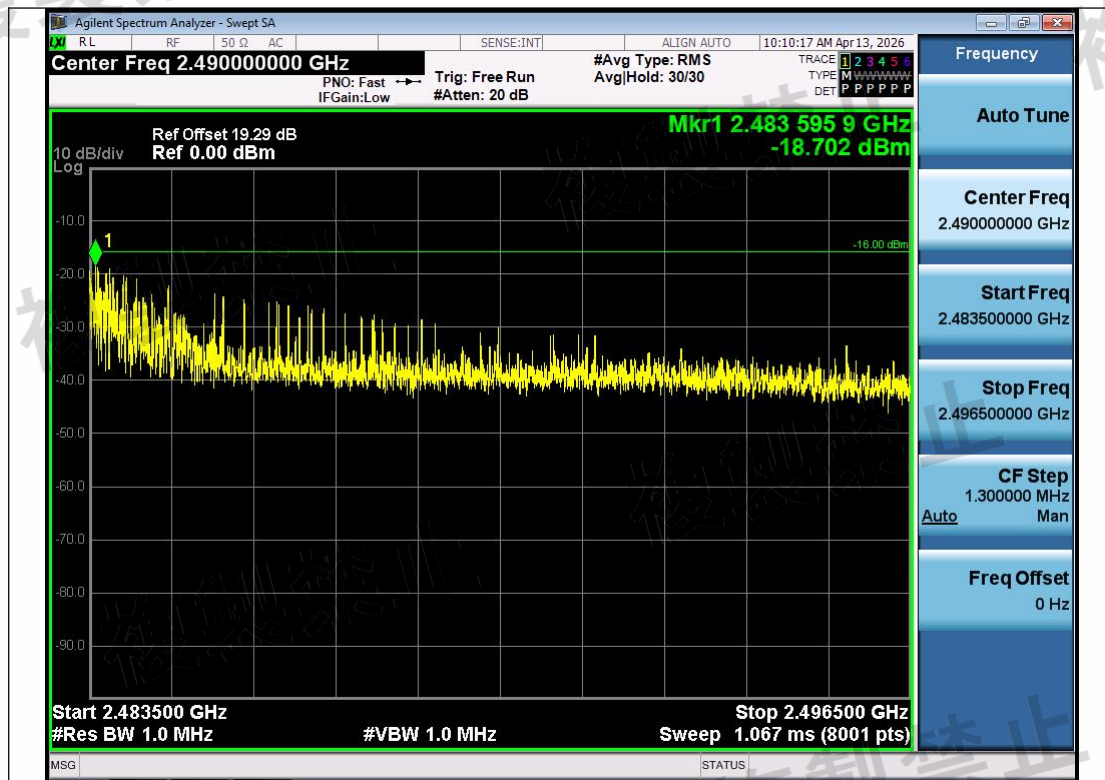
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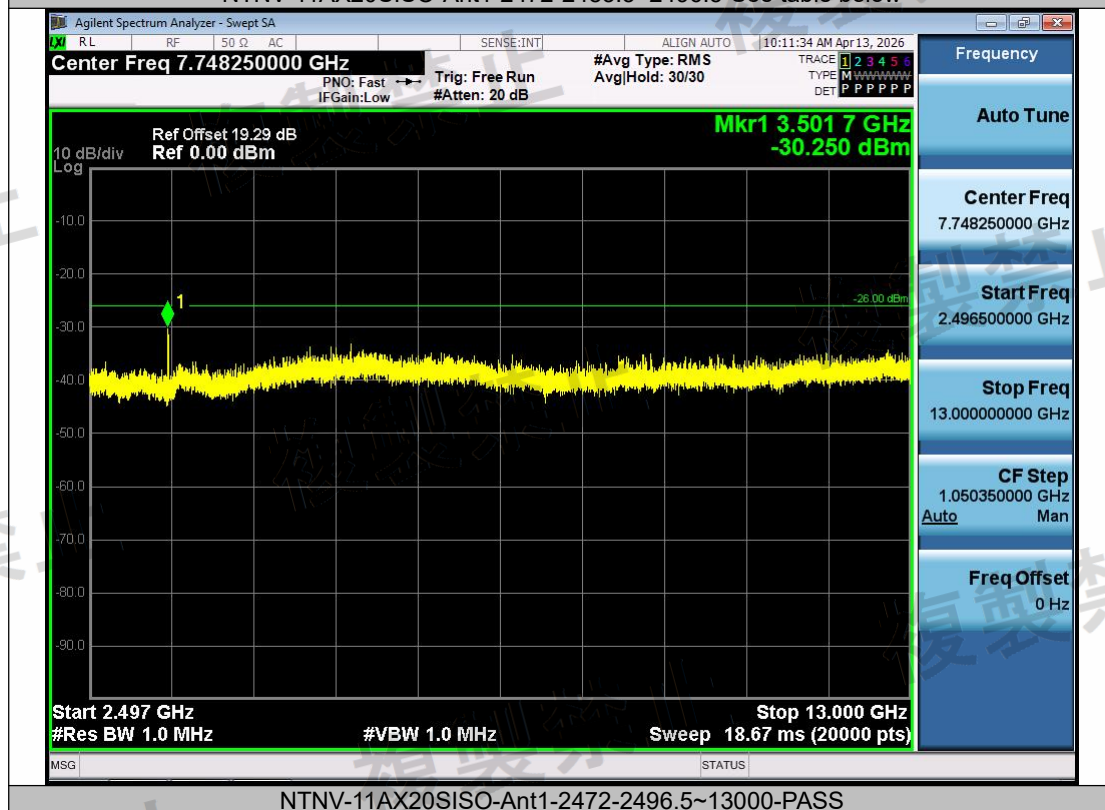
NTNV-11AX20SISO-Ant1-2472-30~2387-PASS



NTNV-11AX20SISO-Ant1-2472-2387~2400-PASS

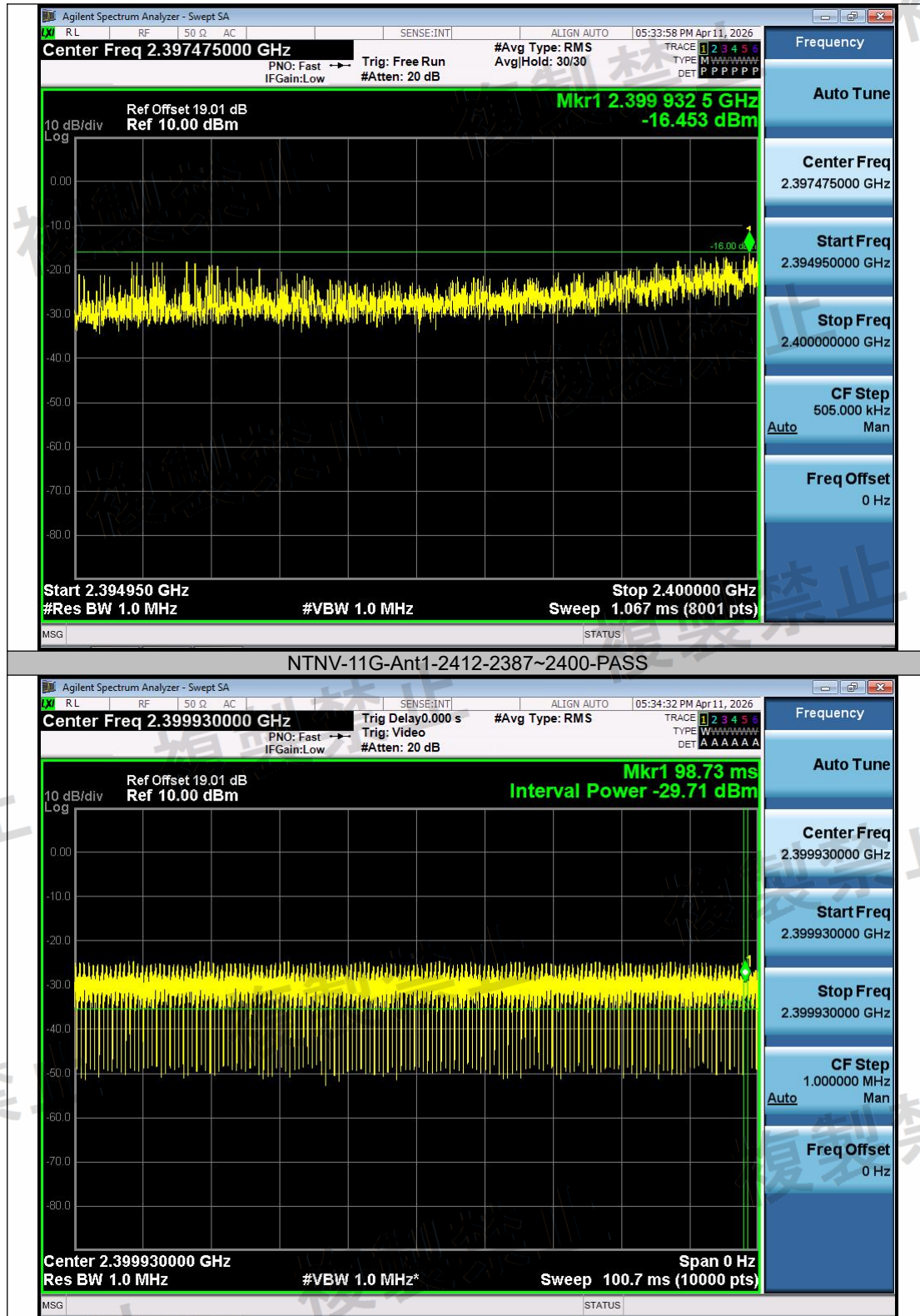


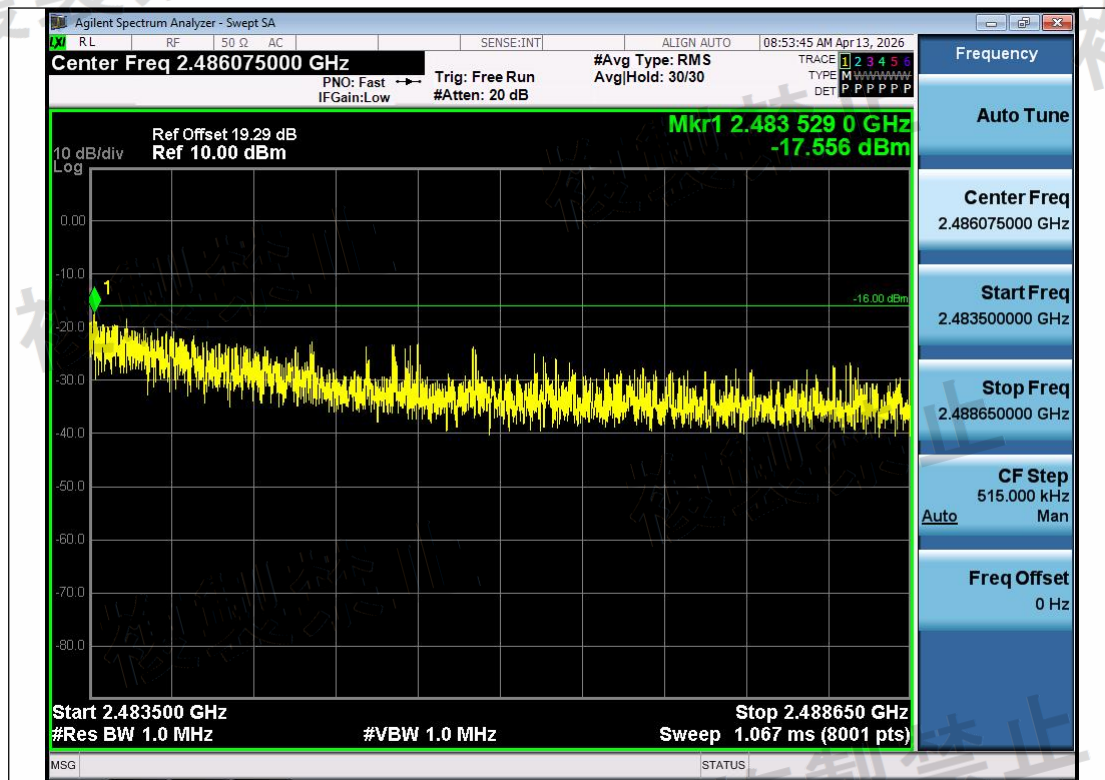
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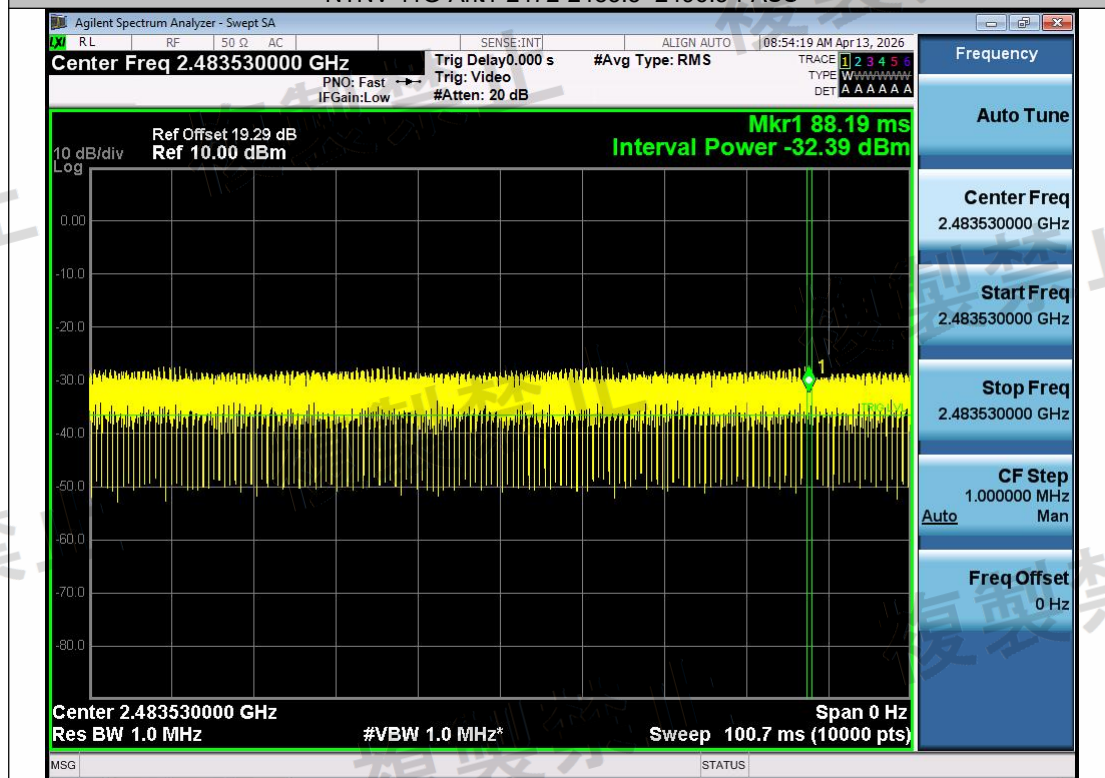
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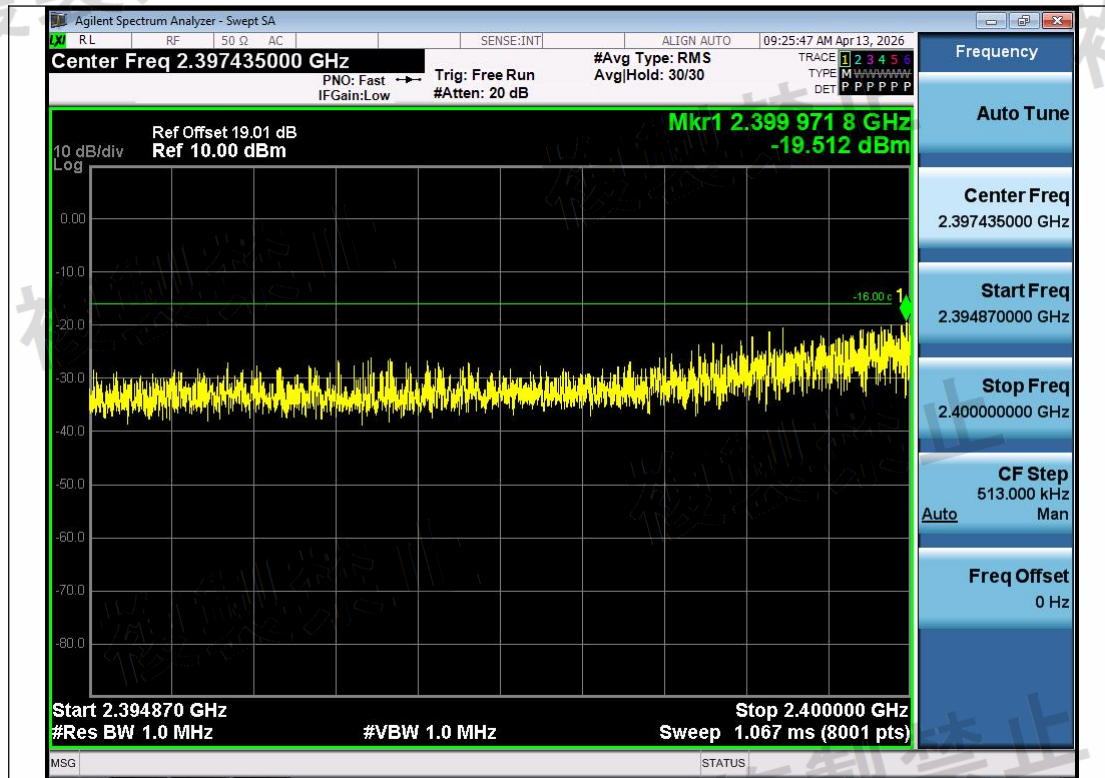
Step2



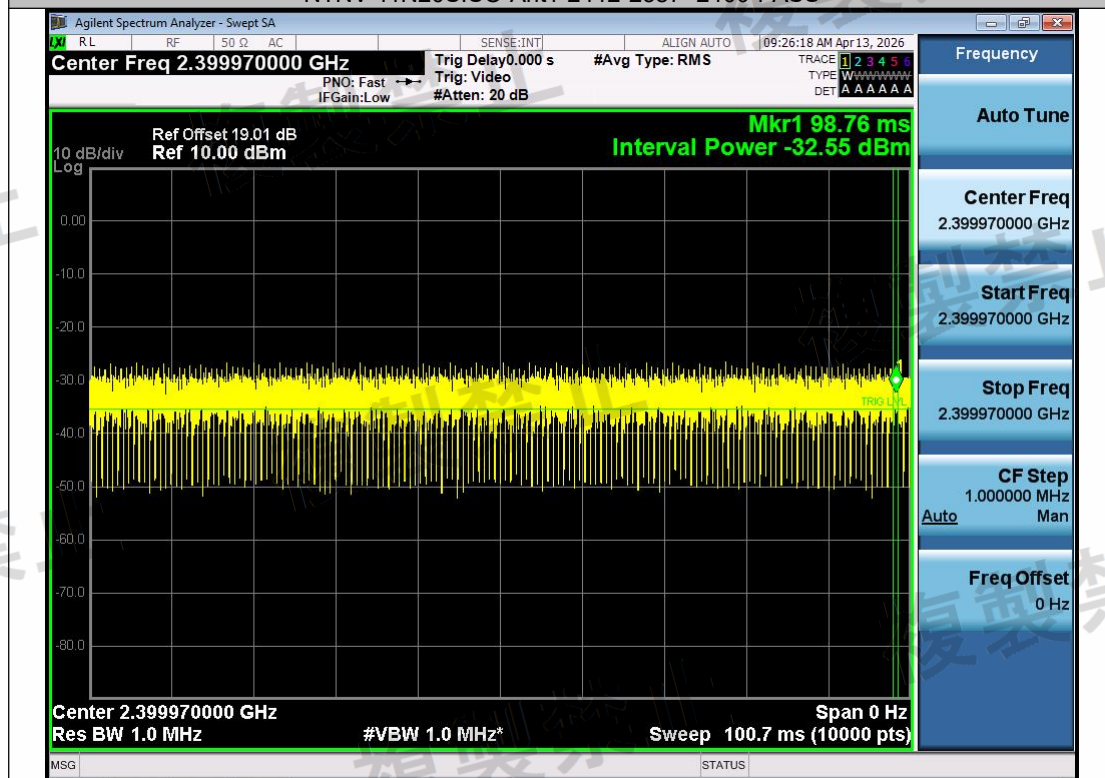


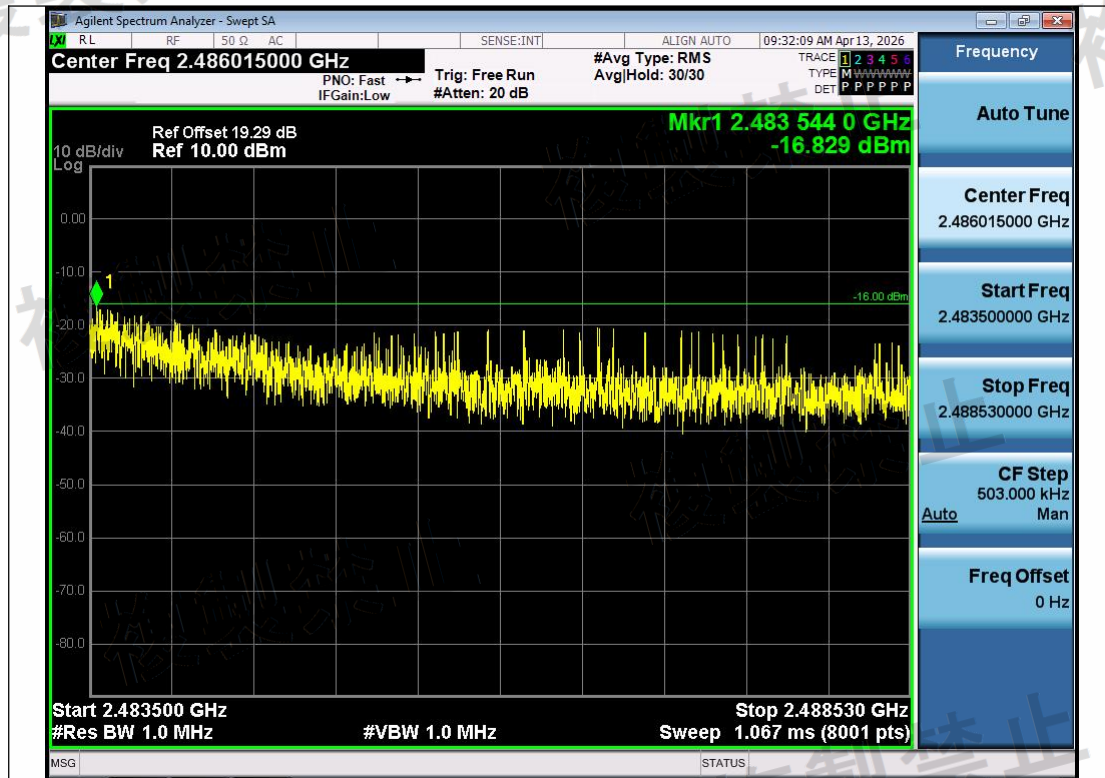
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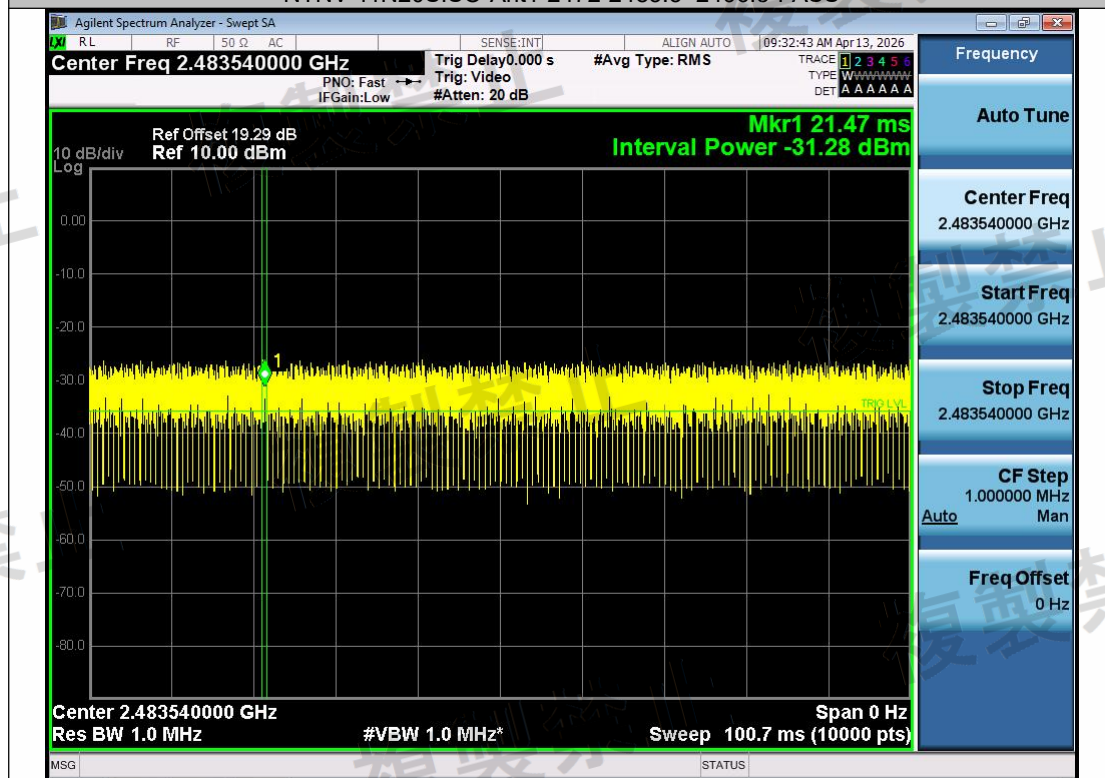


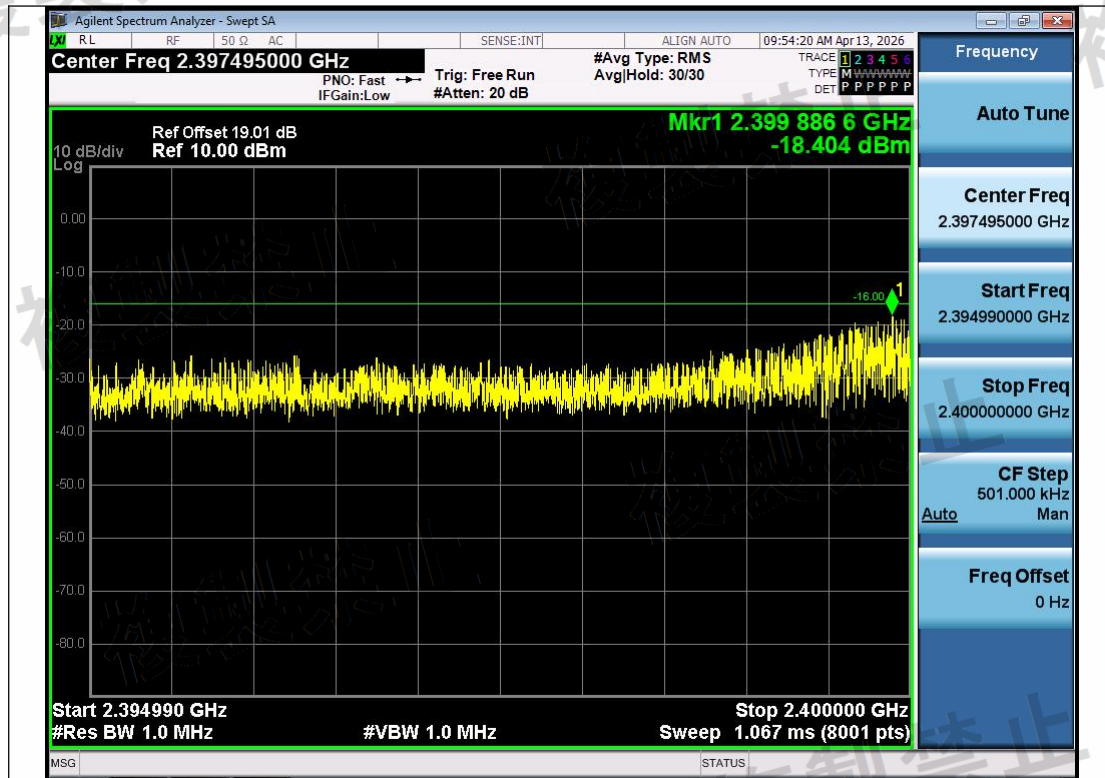
NTNV-11N20SISO-Ant1-2412-2387~2400-PASS



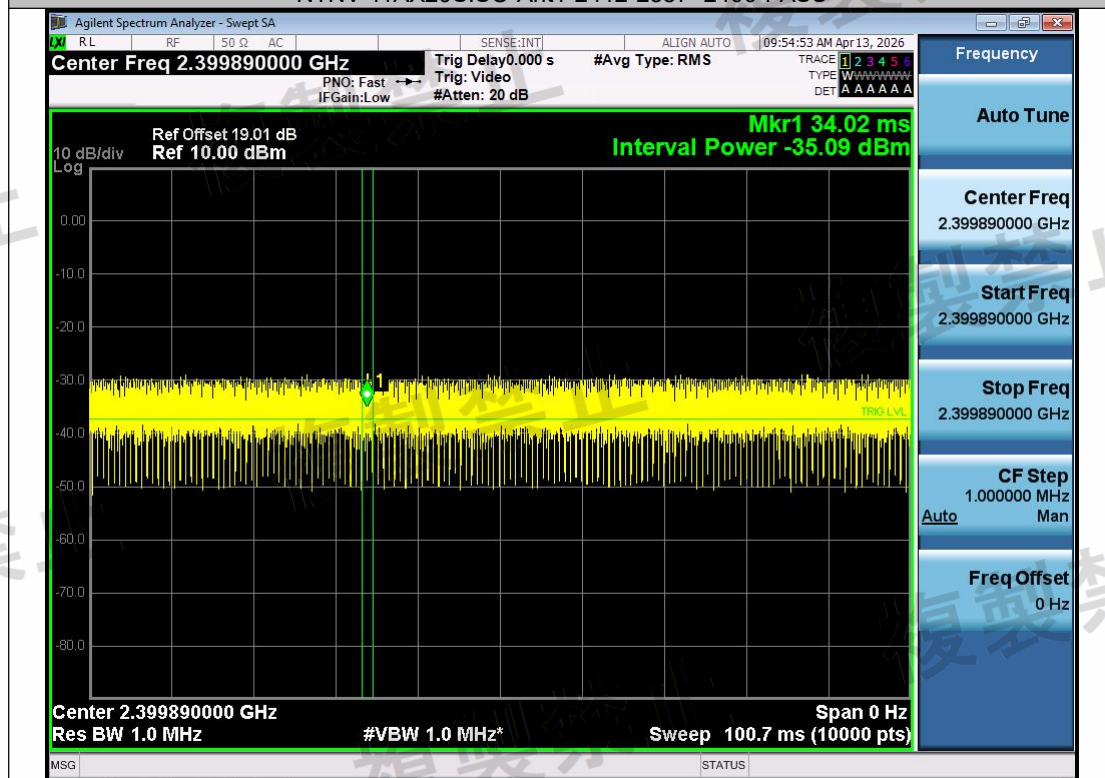


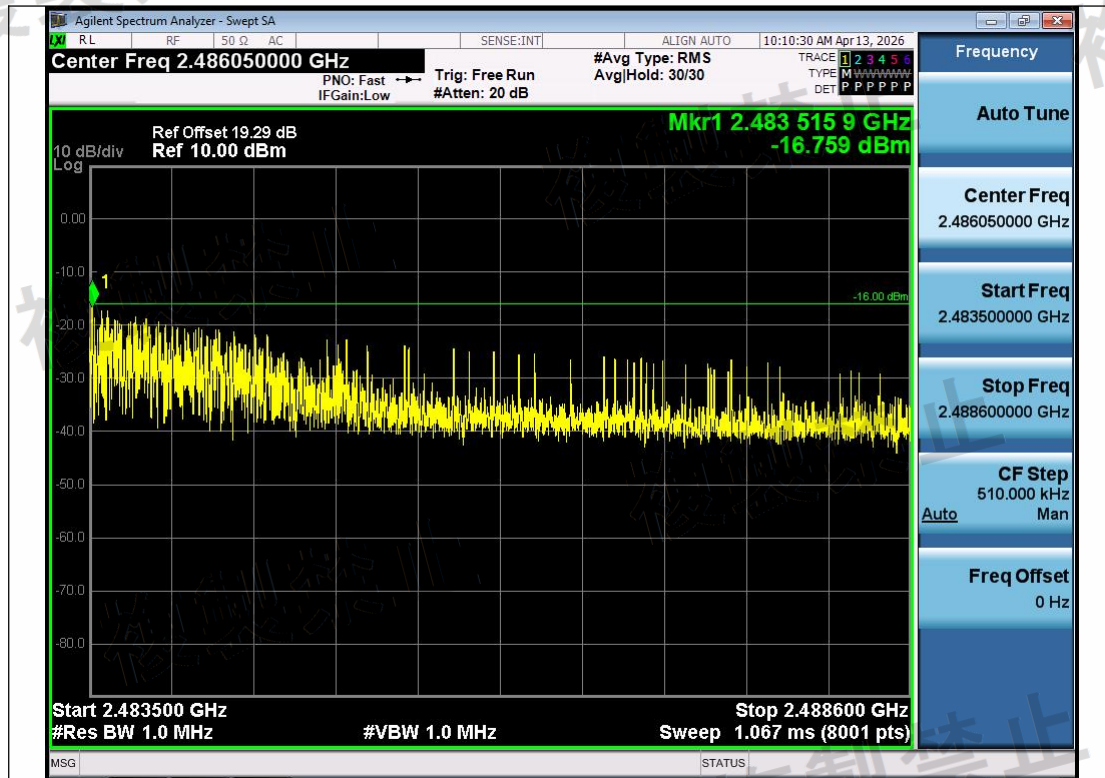
NTNV-11N20SISO-Ant1-2472-2483.5~2496.5-PASS



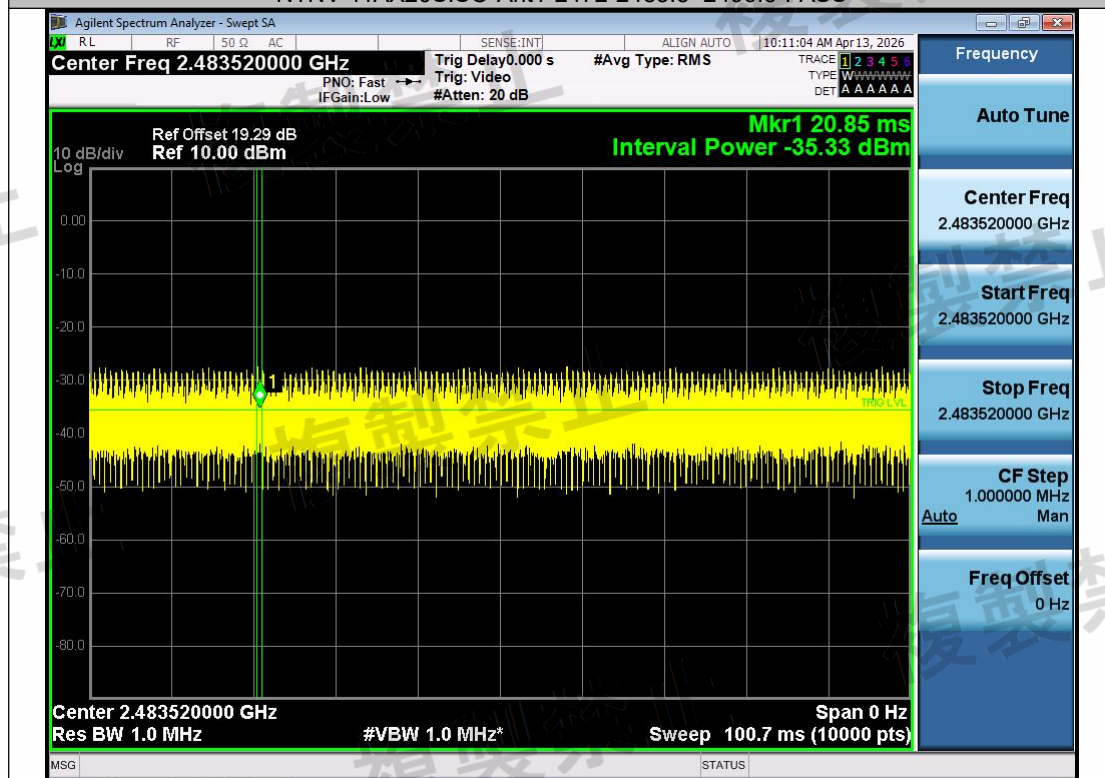


NTNV-11AX20SISO-Ant1-2412-2387~2400-PASS





NTNV-11AX20SISO-Ant1-2472-2483.5~2496.5-PASS



## 7.5 SPURIOUS EMISSIONS OF RX

### 7.5.1 Applicable Standard

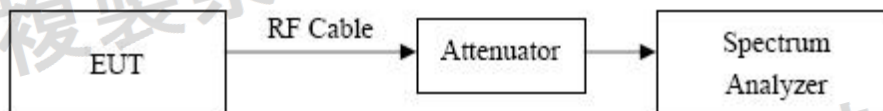
According to Item 19 of Article 2 Paragraph 1.

### 7.5.2 Conformance 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, 4nW (-54dBm) or less at a frequency below 1 GHz and 20 nW(-47dBm) or less at a frequency of 1 GHz or higher as measured using the circuit.

- |                      |                       |
|----------------------|-----------------------|
| a. 30 MHz - 1000 MHz | 4 nW (-54dBm) or less |
| b. 1GHz – 12.5 GHz   | 20 nW(-47dBm) or less |

### 7.5.3 Test Setup Block Diagram



### 7.5.4 Test Procedure

Set the EUT so that the test frequency is can be measured receipt consecutively all the time.

(1) Set the attenuation value of the dummy load lowest as possible, due to low level of the measured object.

(2) Set Spectrum analyzer for seeking the collateral emission is set as below.

|                      |                                                                                          |
|----------------------|------------------------------------------------------------------------------------------|
| Sweeping Bandwidth   | 30MHz to 5 times of carrier frequency                                                    |
| Resolution Bandwidth | In case of frequency lower than 1 GHz, 100 kHz<br>In case of frequency higher than 1 MHz |
| Video Bandwidth      | Same level as the resolution bandwidth                                                   |
| Sweep Time           | Minimum time to assure the measurement accuracy                                          |
| Y-Axis Scale         | 10 dB/Div                                                                                |
| Sweep Mode           | Single sweep                                                                             |
| Phase-Detection Mode | Positive peak                                                                            |

(3) Spectrum analyzer for measuring the collateral emission is set as below.

|                      |                                                                                          |
|----------------------|------------------------------------------------------------------------------------------|
| Central Frequency    | Collateral emission frequency                                                            |
| Sweeping Bandwidth   | 0 Hz                                                                                     |
| Resolution Bandwidth | In case of frequency lower than 1 GHz, 100 kHz<br>In case of frequency higher than 1 MHz |
| Video Bandwidth      | Same level as the resolution bandwidth                                                   |
| Sweep Mode           | Single sweep                                                                             |
| Detection Mode       | Sample                                                                                   |

Set the spectrum analyzer as (2), seek the maximum amplitude of the collateral emission.

In case of sought result lower than 1/10 limit value, employ the sought value as the measured value.

In case the sought value exceeds 1/10 limit value, seek the collateral emission frequency by narrowing the sweeping band sequentially to 1/10 for the purpose of higher accuracy of the spectrum analyzer. Set the spectrum analyzer as (3).

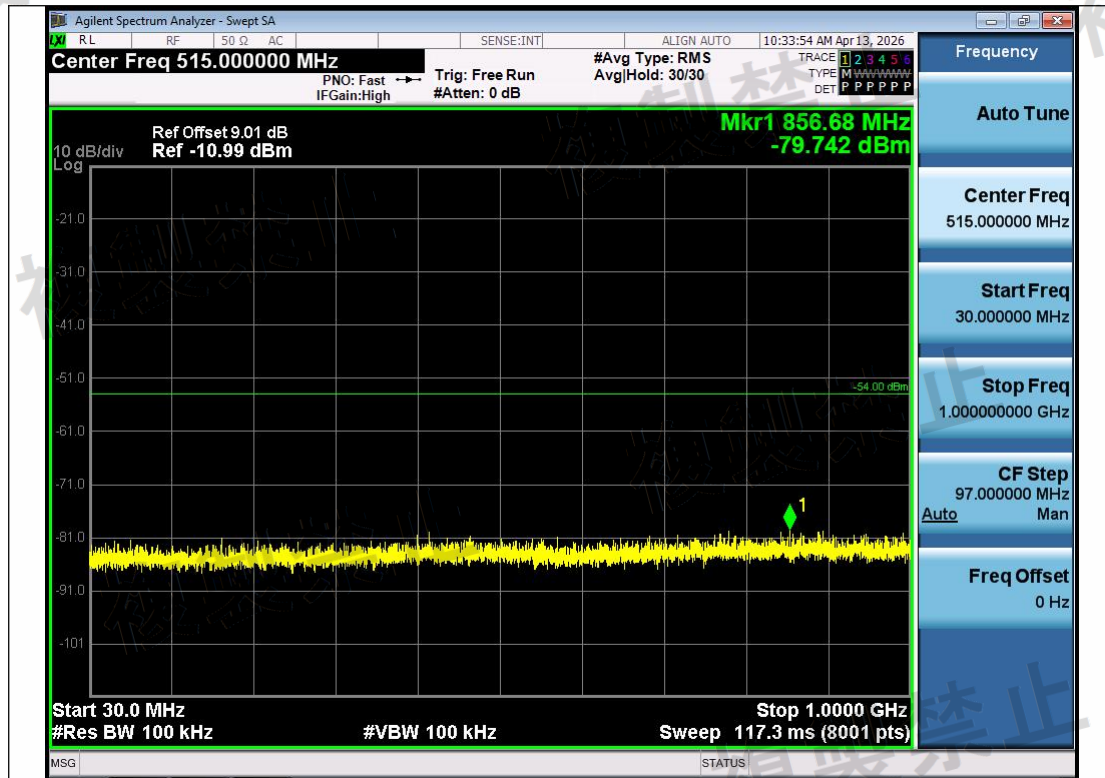
### 7.5.5 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 21.3°C    |
| Relative Humidity: | 55%       |
| ATM Pressure:      | 1011 mbar |

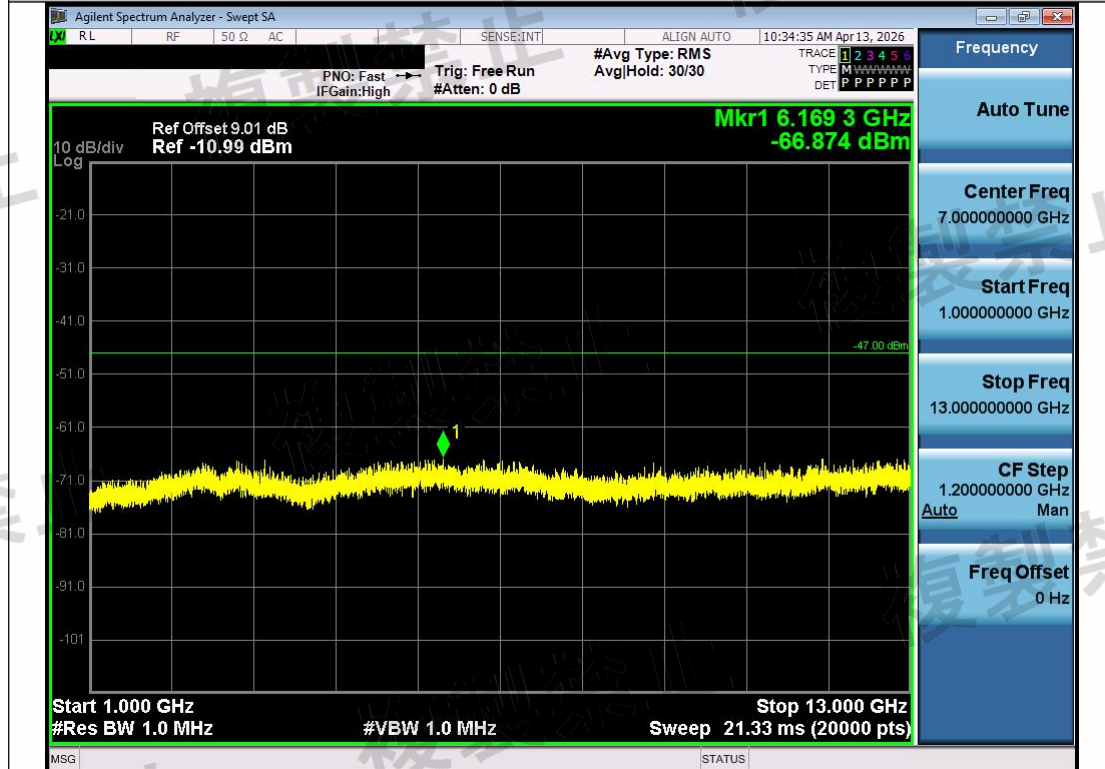
### 7.5.6 Test Results

| TestCondition | TestMode       | Antenna | Frequen<br>cy[MHz] | Freq.Range<br>[MHz] | Freq.<br>[MHz] | Result<br>[dBm] | Limit<br>[dBm] | Result<br>[nW] | Limit<br>[nW] | Verdict |
|---------------|----------------|---------|--------------------|---------------------|----------------|-----------------|----------------|----------------|---------------|---------|
| NTNV          | 11B            | Ant1    | 2412               | 30~1000             | 856.68         | -79.74          | ≤-54           | 0.0106<br>2    | ≤4            | PASS    |
| NTNV          | 11B            | Ant1    | 2412               | 1000~13000          | 6169.2<br>6    | -66.87          | ≤-47           | 0.2055<br>9    | ≤20           | PASS    |
| NTNV          | 11B            | Ant1    | 2442               | 30~1000             | 947.98         | -79.66          | ≤-54           | 0.0108<br>1    | ≤4            | PASS    |
| NTNV          | 11B            | Ant1    | 2442               | 1000~13000          | 6083.4<br>5    | -66.68          | ≤-47           | 0.2147<br>8    | ≤20           | PASS    |
| NTNV          | 11B            | Ant1    | 2472               | 30~1000             | 859.84         | -78.54          | ≤-54           | 0.0140<br>0    | ≤4            | PASS    |
| NTNV          | 11B            | Ant1    | 2472               | 1000~13000          | 5585.4<br>3    | -66.42          | ≤-47           | 0.2280<br>3    | ≤20           | PASS    |
| NTNV          | 11G            | Ant1    | 2412               | 30~1000             | 888.09         | -79.48          | ≤-54           | 0.01127        | ≤4            | PASS    |
| NTNV          | 11G            | Ant1    | 2412               | 1000~13000          | 6228.6<br>6    | -66.29          | ≤-47           | 0.2349<br>6    | ≤20           | PASS    |
| NTNV          | 11G            | Ant1    | 2442               | 30~1000             | 870.38         | -78.71          | ≤-54           | 0.0134<br>6    | ≤4            | PASS    |
| NTNV          | 11G            | Ant1    | 2442               | 1000~13000          | 5640.6<br>3    | -66.13          | ≤-47           | 0.2437<br>8    | ≤20           | PASS    |
| NTNV          | 11G            | Ant1    | 2472               | 30~1000             | 794.36         | -79.13          | ≤-54           | 0.0122<br>2    | ≤4            | PASS    |
| NTNV          | 11G            | Ant1    | 2472               | 1000~13000          | 12650.<br>18   | -65.76          | ≤-47           | 0.2654<br>6    | ≤20           | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2412               | 30~1000             | 801.39         | -79.64          | ≤-54           | 0.0108<br>6    | ≤4            | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2412               | 1000~13000          | 12519.<br>98   | -65.20          | ≤-47           | 0.3020<br>0    | ≤20           | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2442               | 30~1000             | 945.56         | -79.15          | ≤-54           | 0.0121<br>6    | ≤4            | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2442               | 1000~13000          | 11787.9<br>4   | -65.90          | ≤-47           | 0.2570<br>4    | ≤20           | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2472               | 30~1000             | 943.74         | -79.23          | ≤-54           | 0.01194        | ≤4            | PASS    |
| NTNV          | 11N20SI<br>SO  | Ant1    | 2472               | 1000~13000          | 5938.8<br>5    | -66.20          | ≤-47           | 0.2398<br>8    | ≤20           | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2422               | 30~1000             | 919.49         | -79.52          | ≤-54           | 0.01117        | ≤4            | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2422               | 1000~13000          | 12753.<br>39   | -66.73          | ≤-47           | 0.2123<br>2    | ≤20           | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2442               | 30~1000             | 779.69         | -78.25          | ≤-54           | 0.0149<br>6    | ≤4            | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2442               | 1000~13000          | 12569.<br>18   | -65.59          | ≤-47           | 0.2760<br>6    | ≤20           | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2462               | 30~1000             | 750.23         | -79.51          | ≤-54           | 0.01119        | ≤4            | PASS    |
| NTNV          | 11N40SI<br>SO  | Ant1    | 2462               | 1000~13000          | 5601.0<br>3    | -66.34          | ≤-47           | 0.2322<br>7    | ≤20           | PASS    |
| NTNV          | 11AX20S<br>ISO | Ant1    | 2412               | 30~1000             | 875.84         | -78.83          | ≤-54           | 0.0130<br>9    | ≤4            | PASS    |

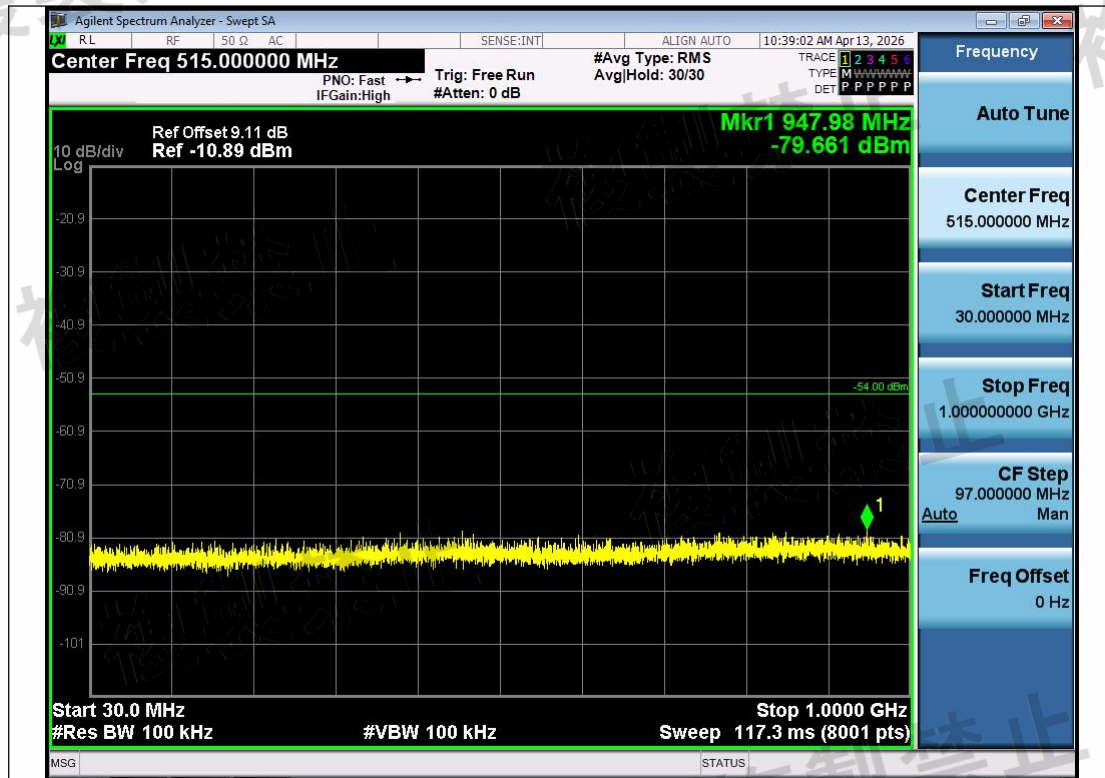
|      |                |      |      |            |          |        |      |         |     |      |
|------|----------------|------|------|------------|----------|--------|------|---------|-----|------|
| NTNV | 11AX20S<br>ISO | Ant1 | 2412 | 1000~13000 | 12264.36 | -66.68 | ≤-47 | 0.21478 | ≤20 | PASS |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 30~1000    | 919.98   | -78.75 | ≤-54 | 0.01334 | ≤4  | PASS |
| NTNV | 11AX20S<br>ISO | Ant1 | 2442 | 1000~13000 | 5175.01  | -66.13 | ≤-47 | 0.24378 | ≤20 | PASS |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 30~1000    | 879.24   | -79.47 | ≤-54 | 0.01130 | ≤4  | PASS |
| NTNV | 11AX20S<br>ISO | Ant1 | 2472 | 1000~13000 | 6118.26  | -65.71 | ≤-47 | 0.26853 | ≤20 | PASS |



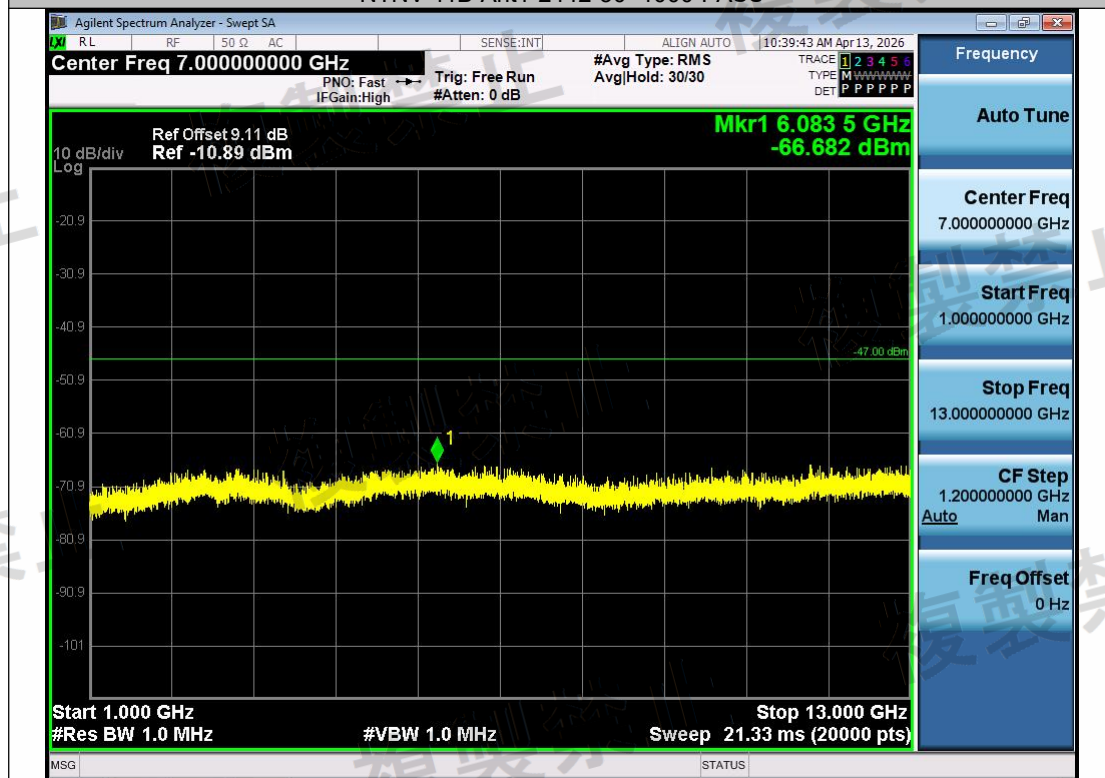
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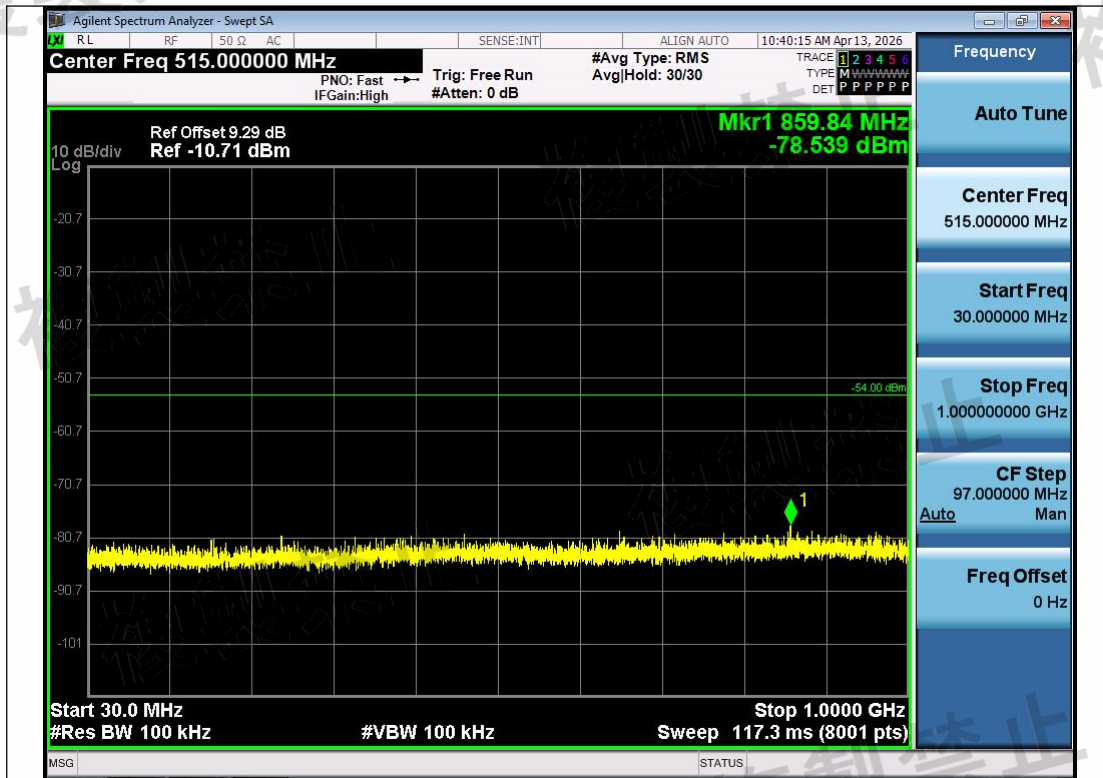
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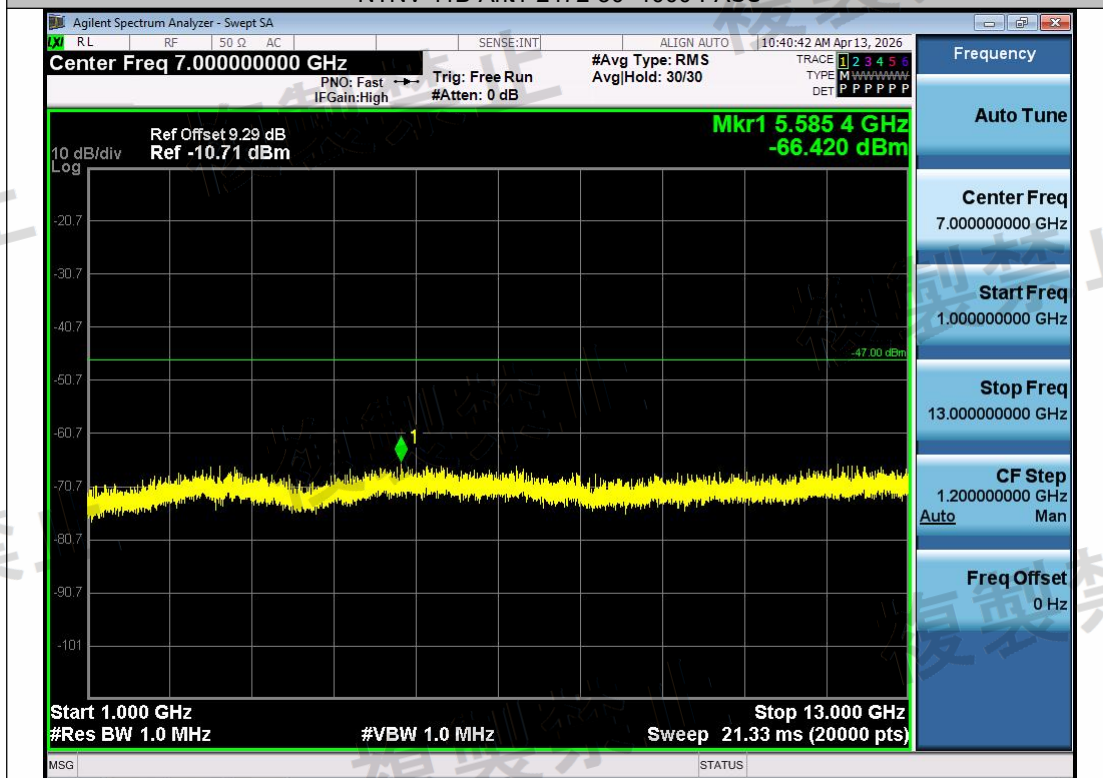
NTNV-11B-Ant1-2442-30~1000-PASS



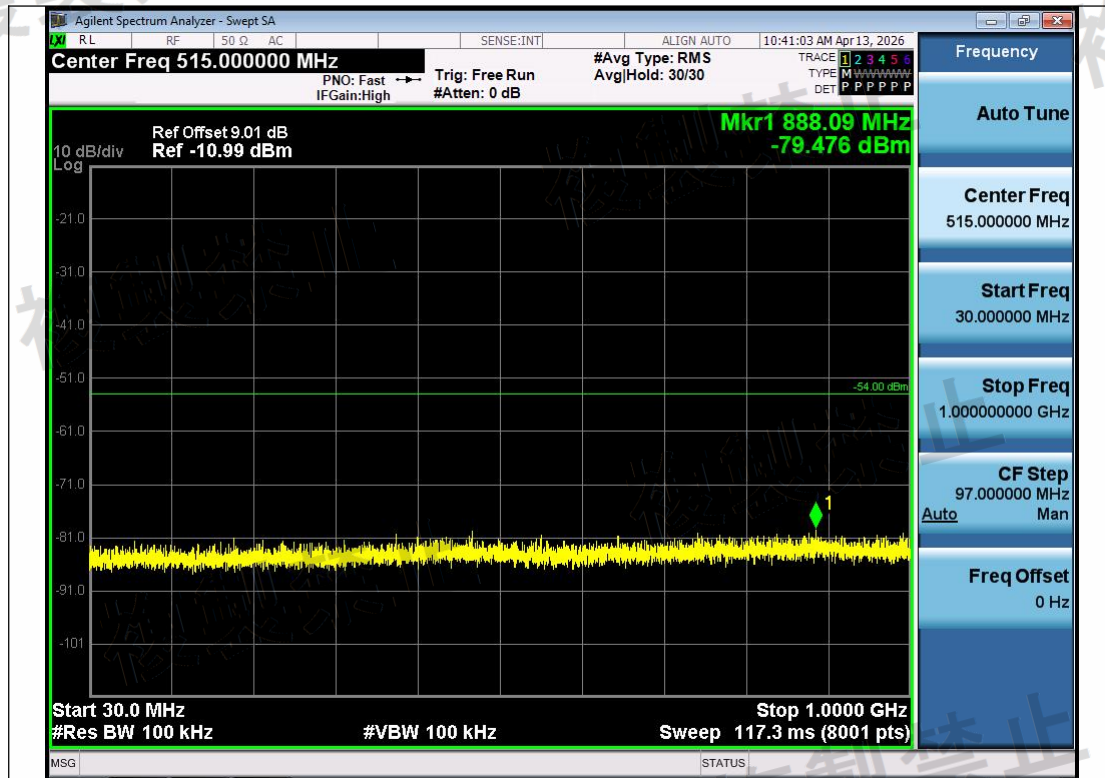
NTNV-11B-Ant1-2442-1000~13000-PASS



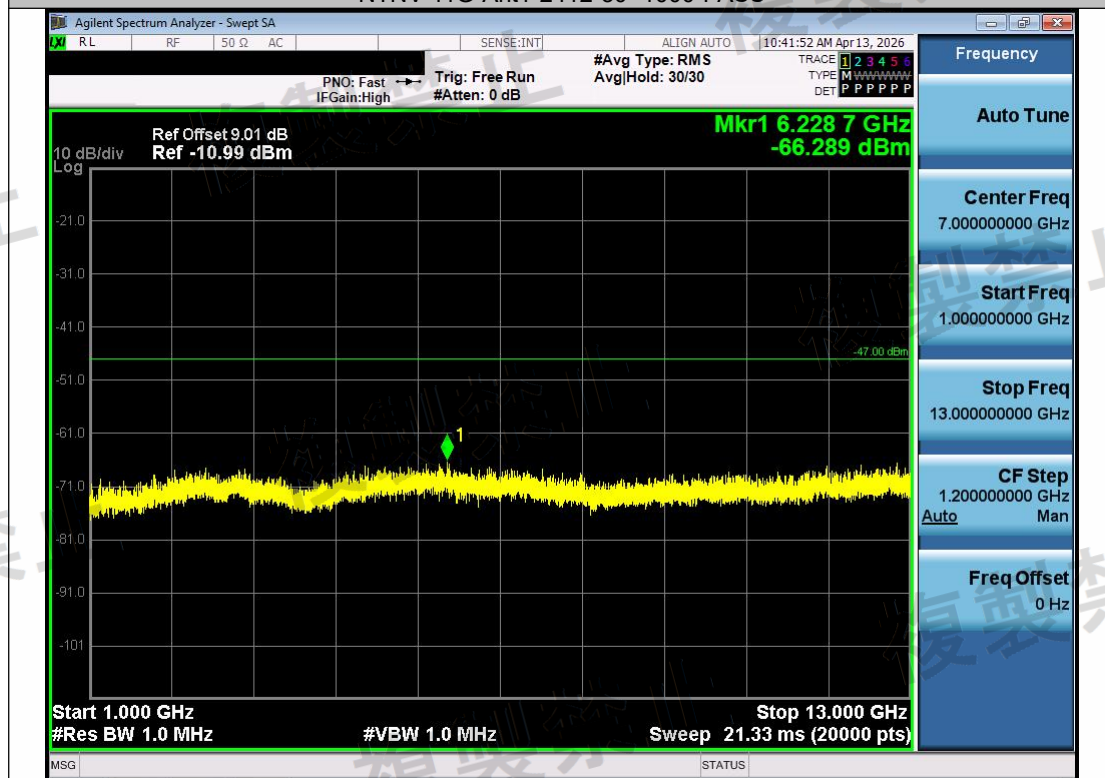
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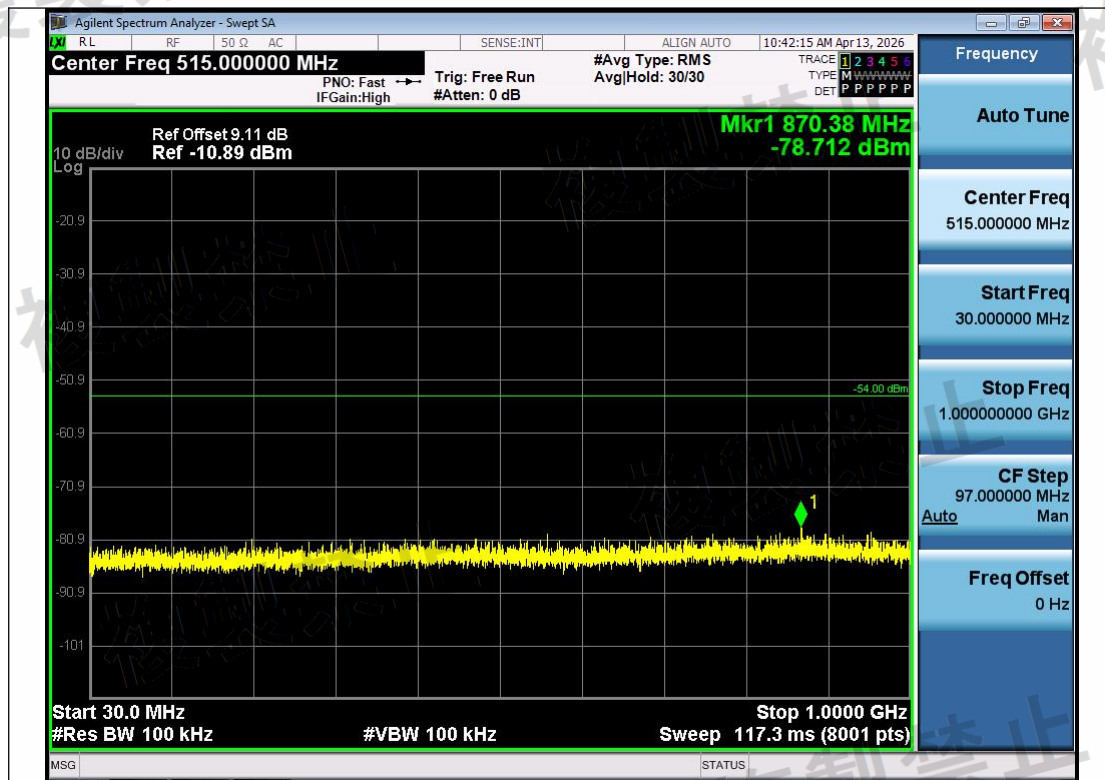
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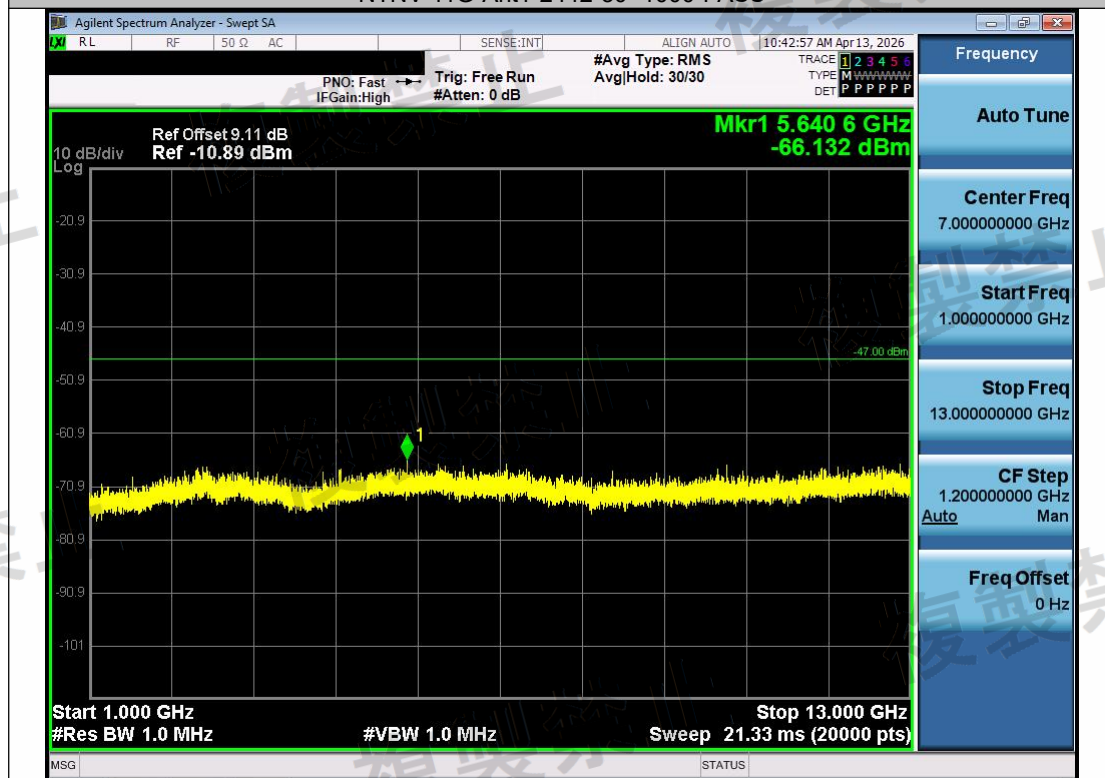
NTNV-11G-Ant1-2412-30~1000-PASS



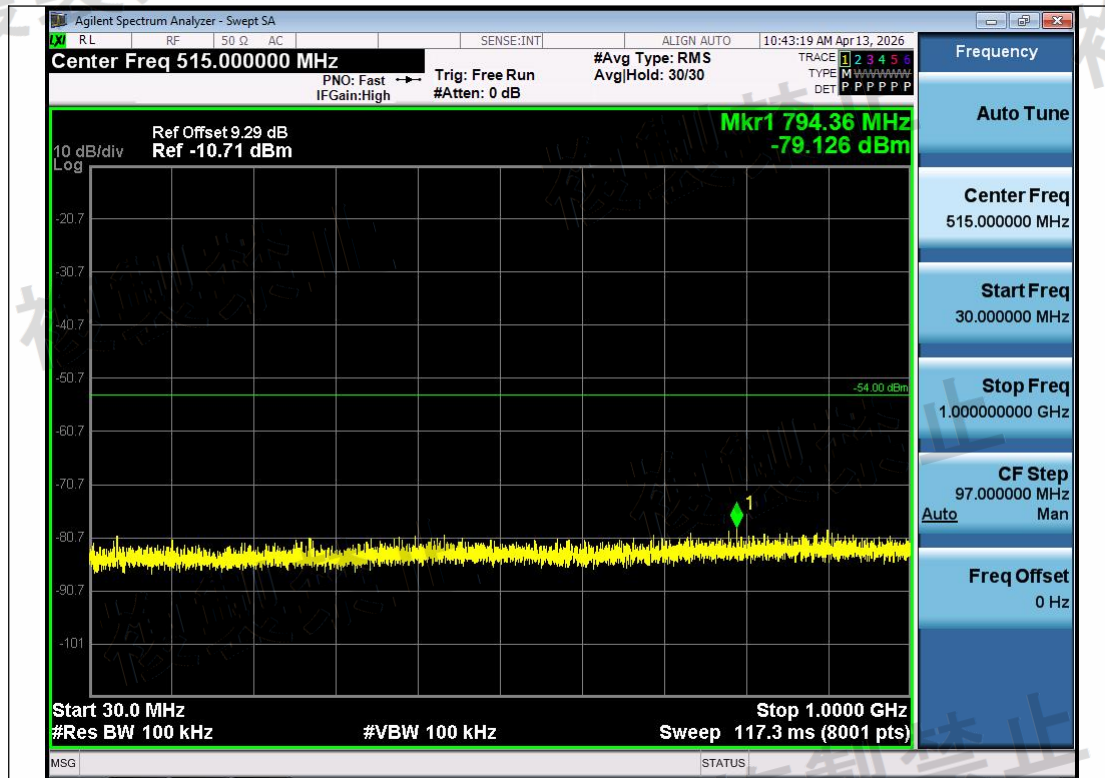
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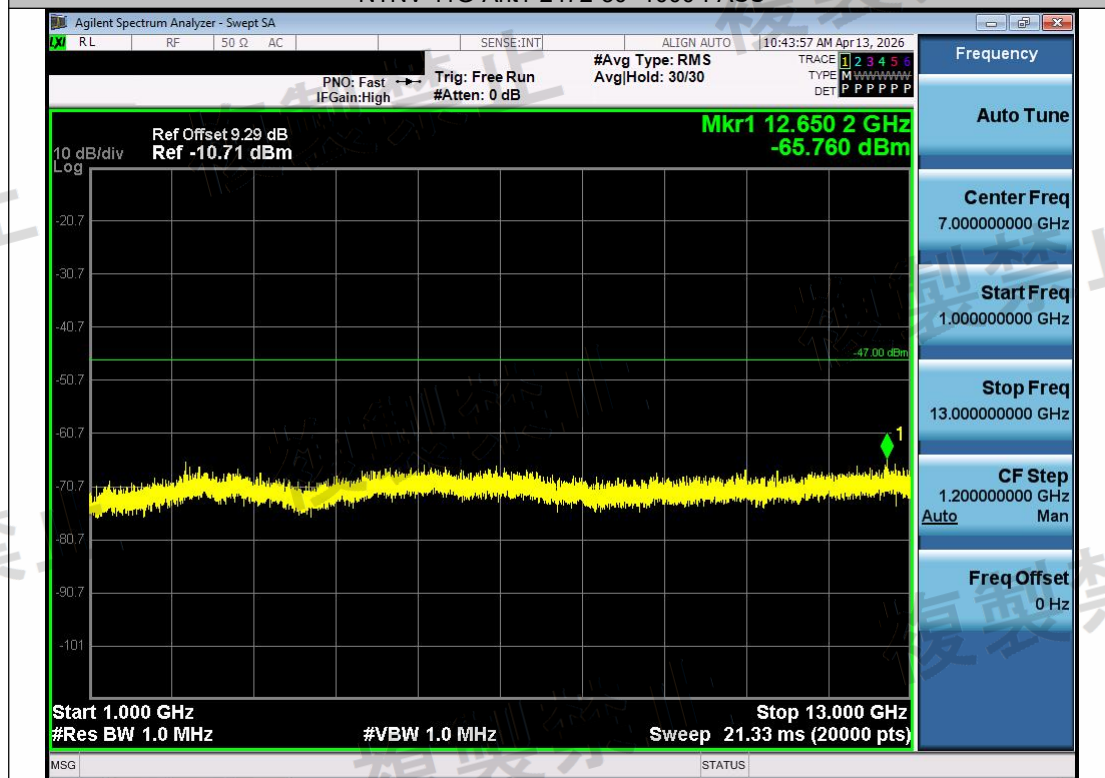
NTNV-11G-Ant1-2442-30~1000-PASS



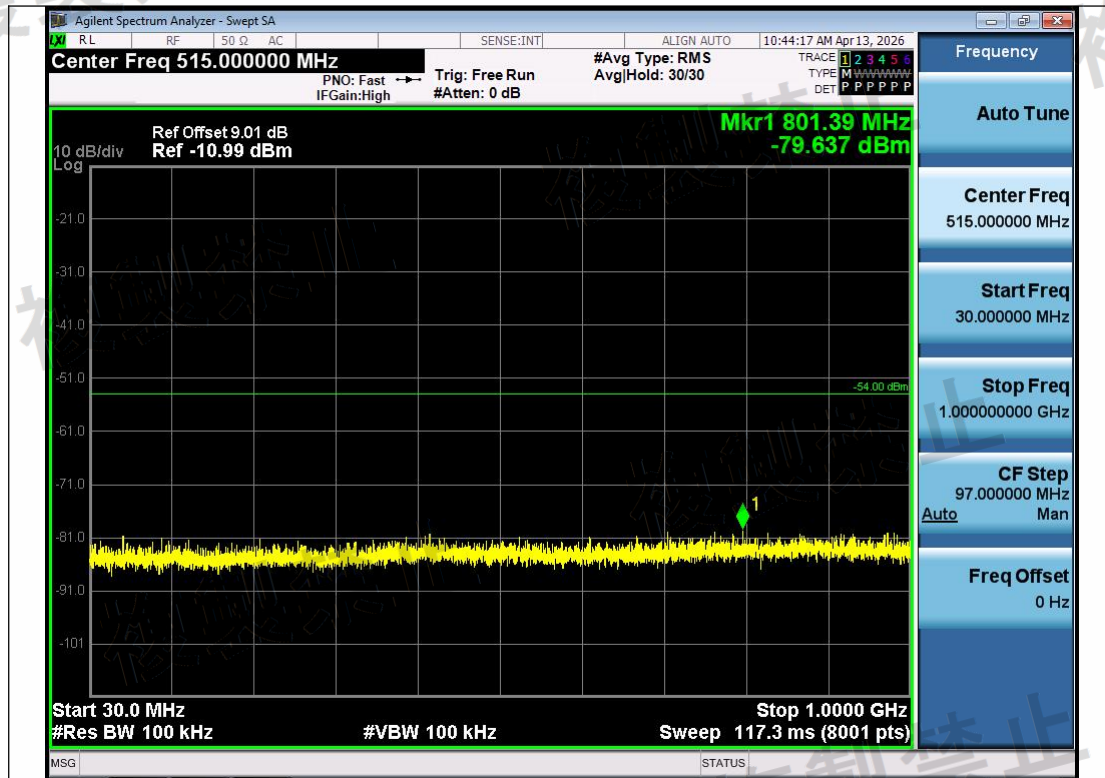
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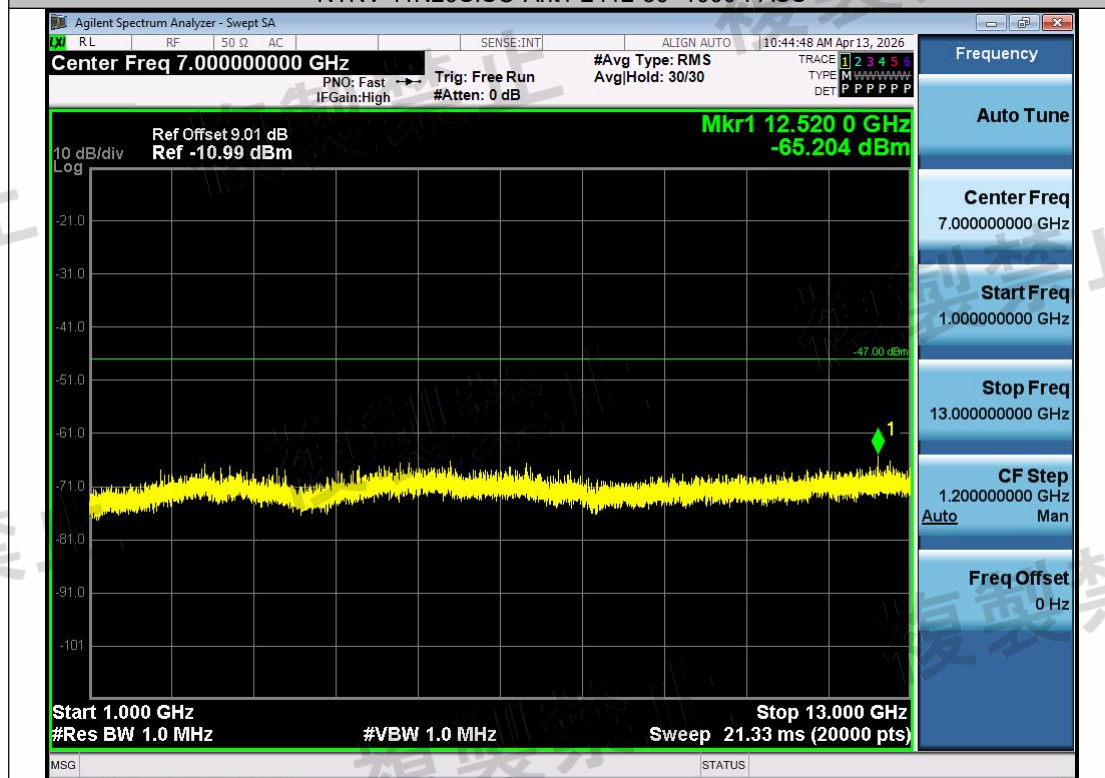
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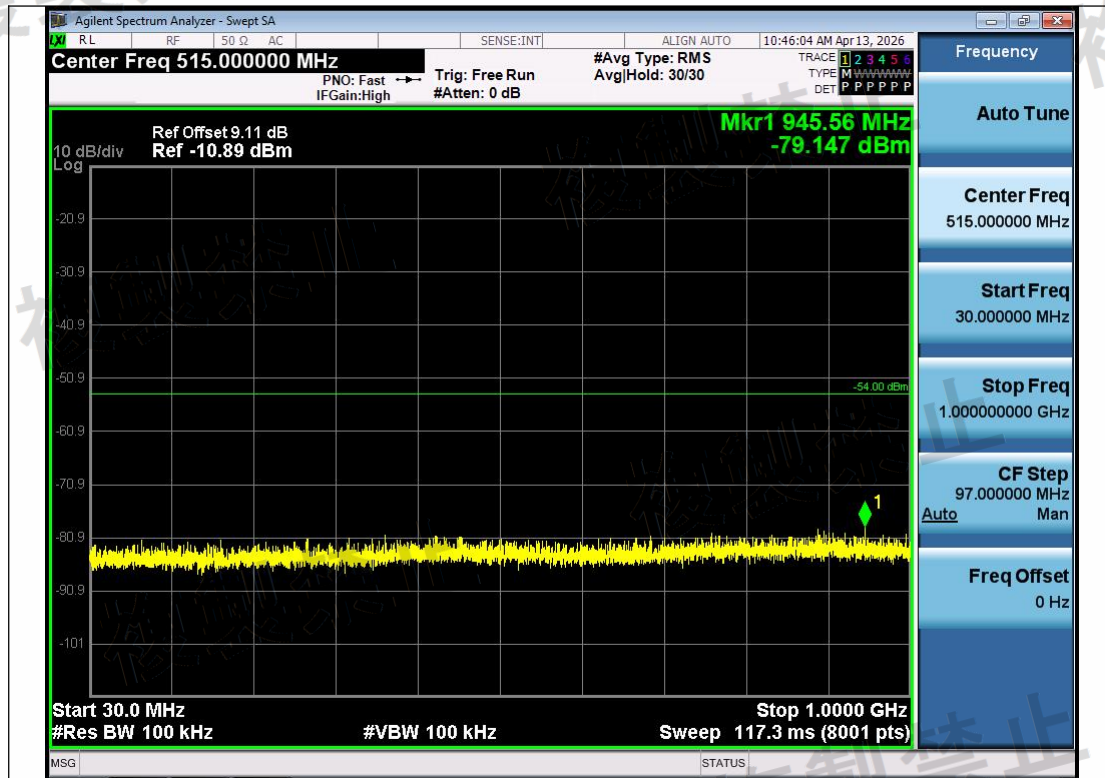
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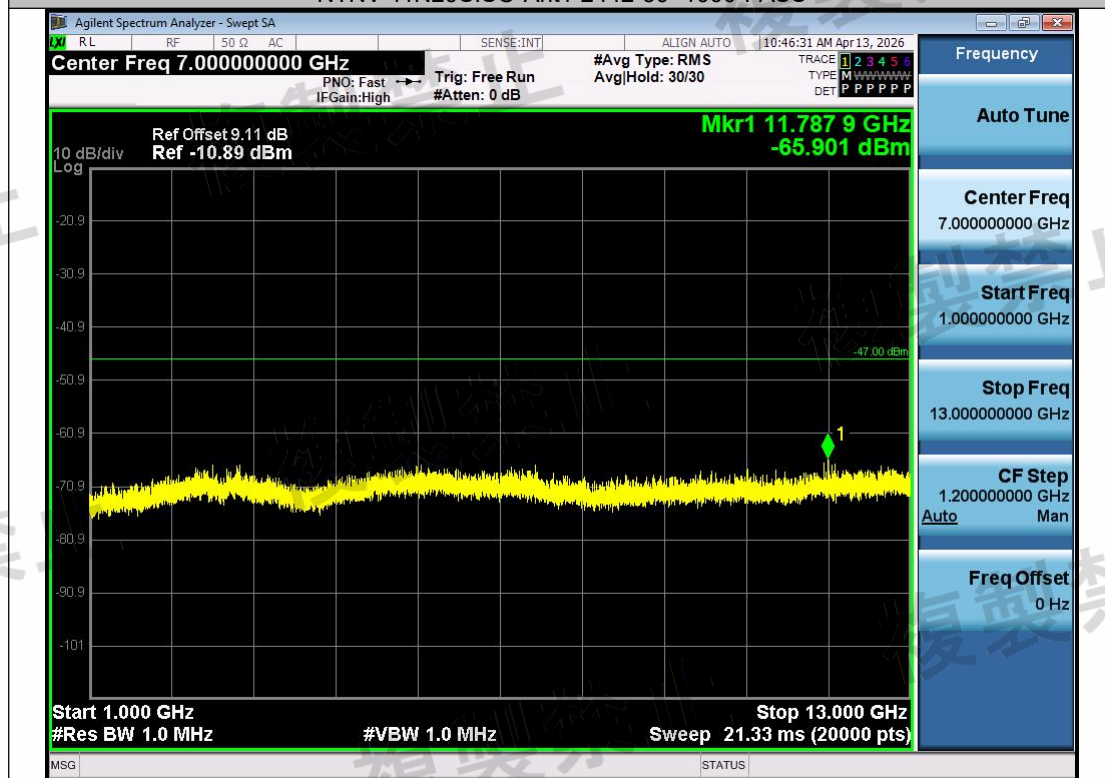
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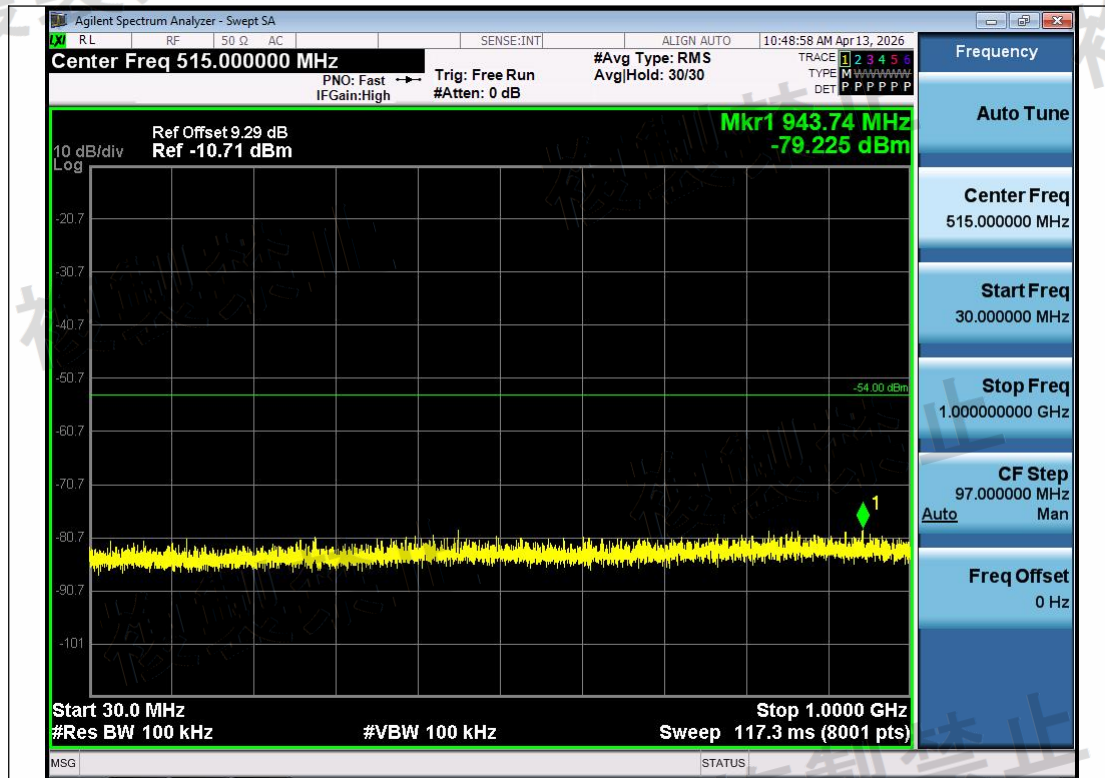
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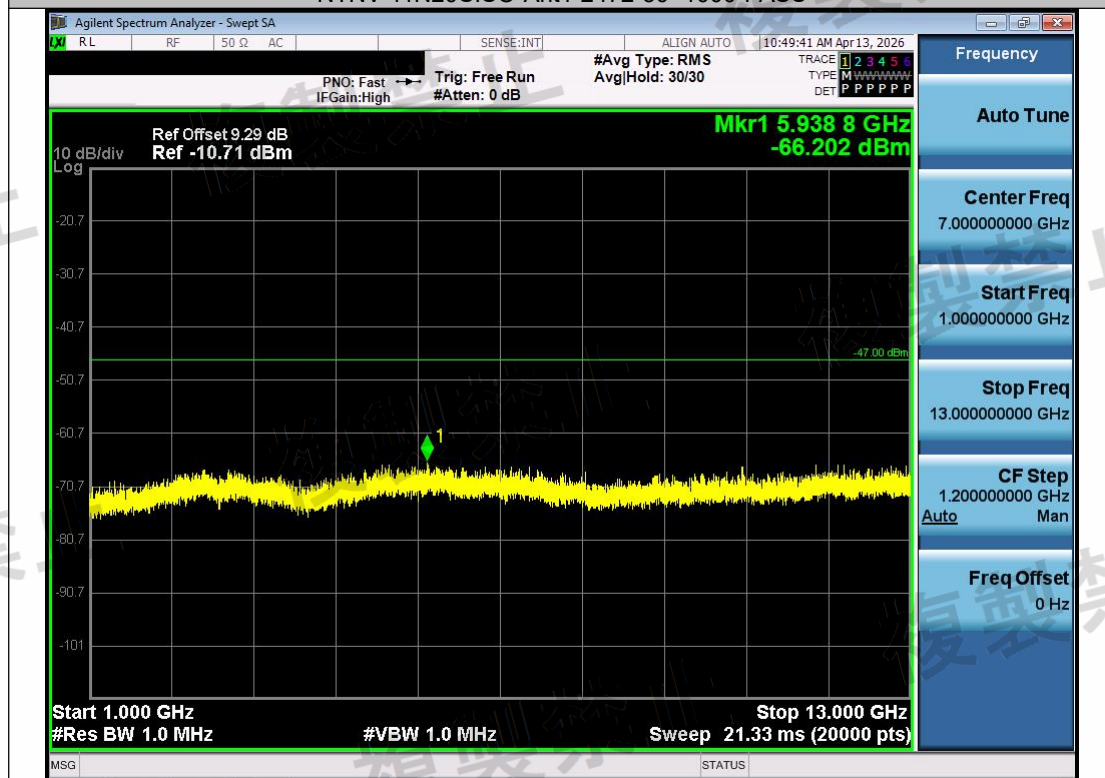
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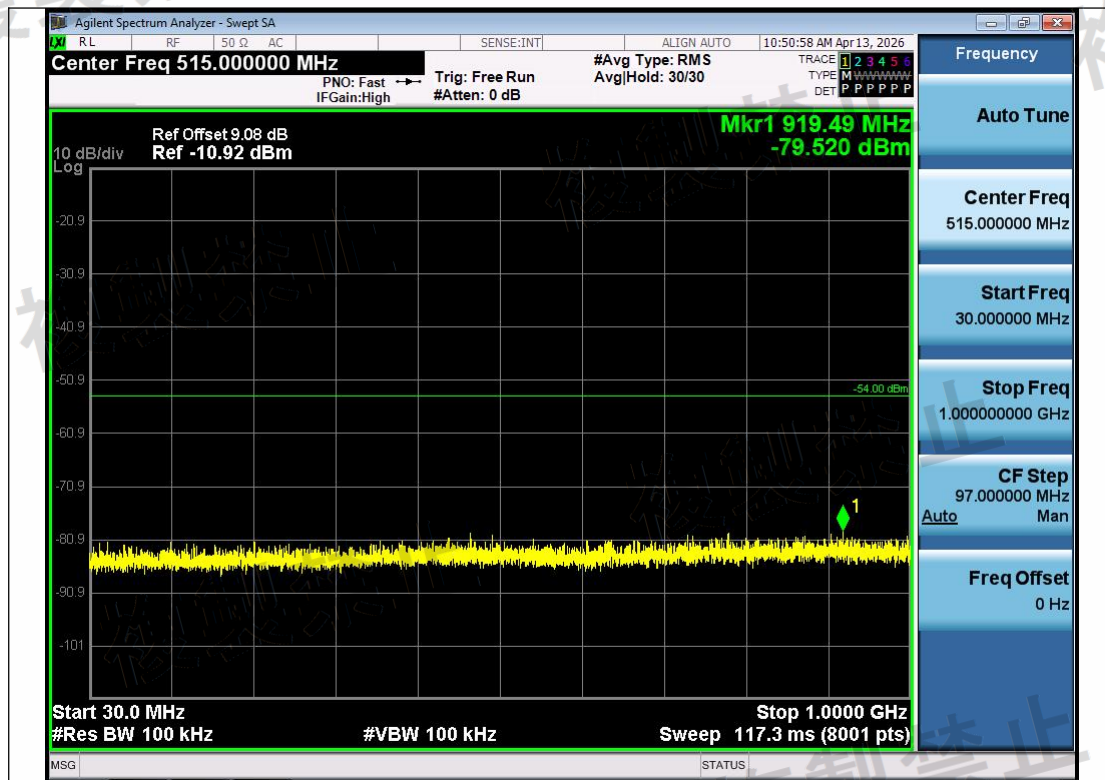
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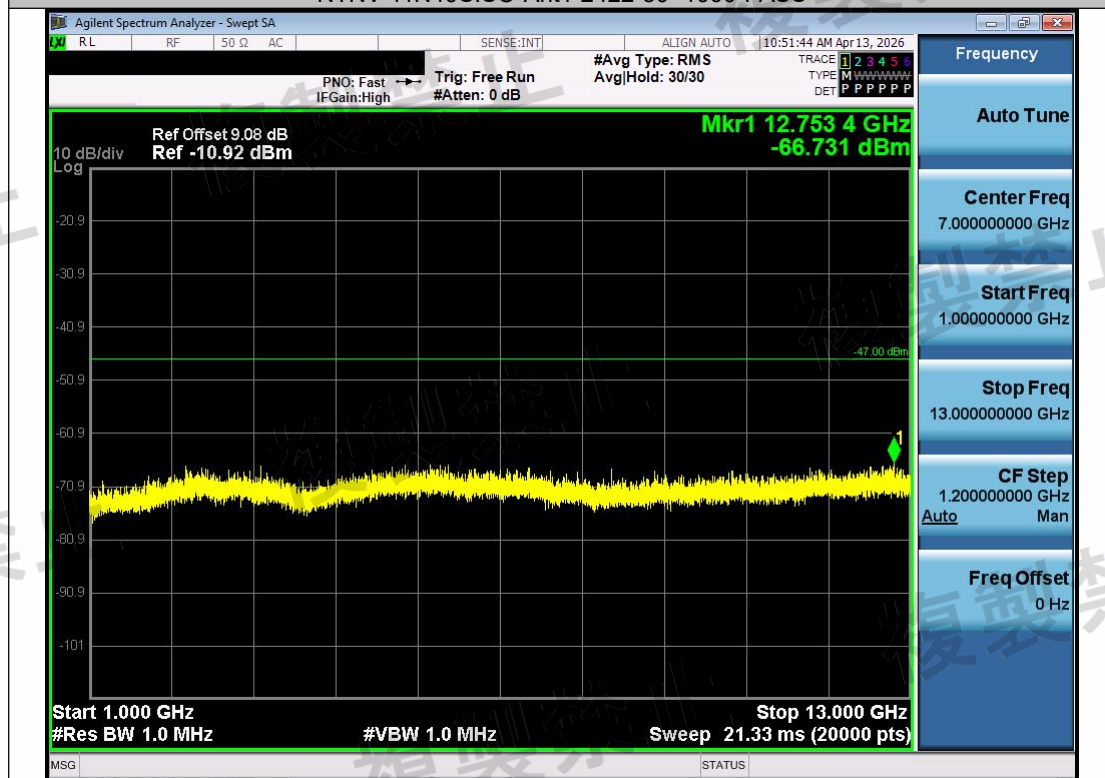
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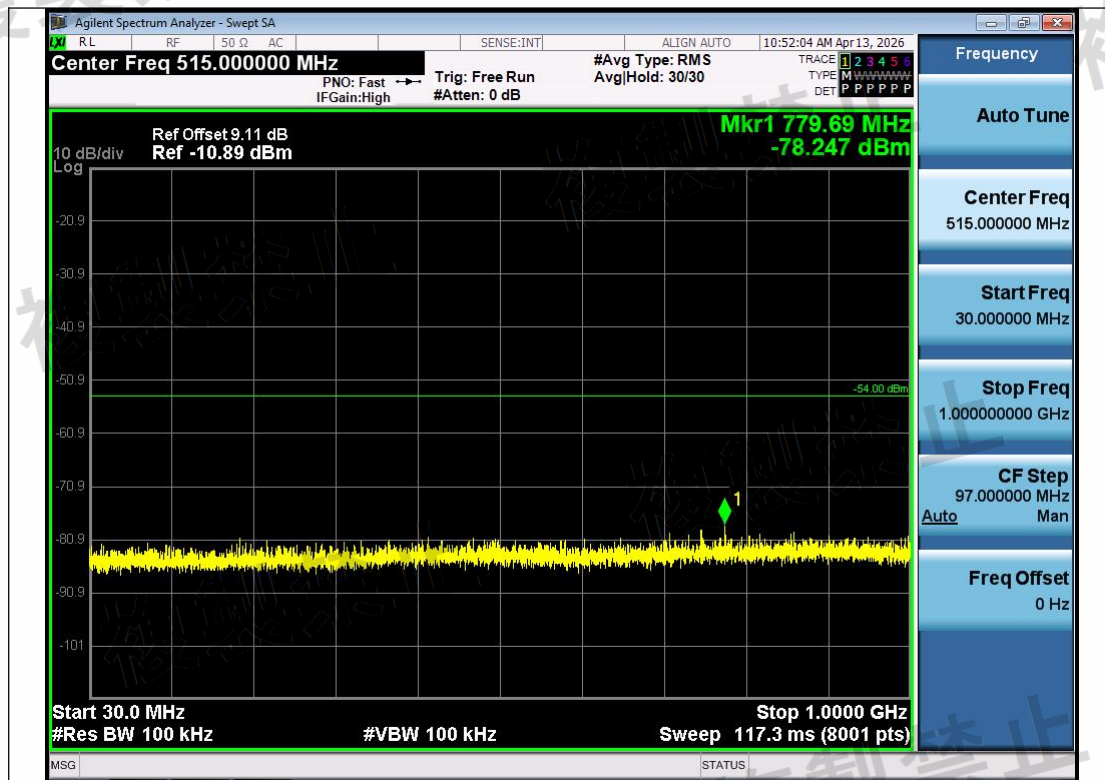
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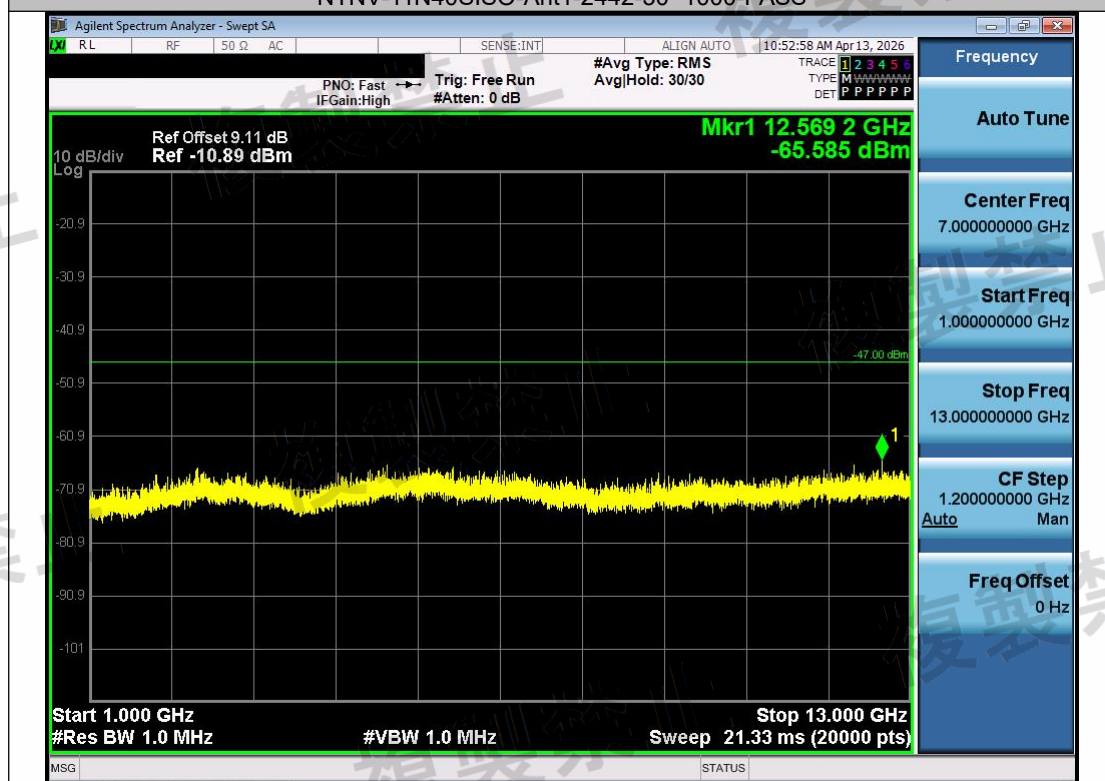
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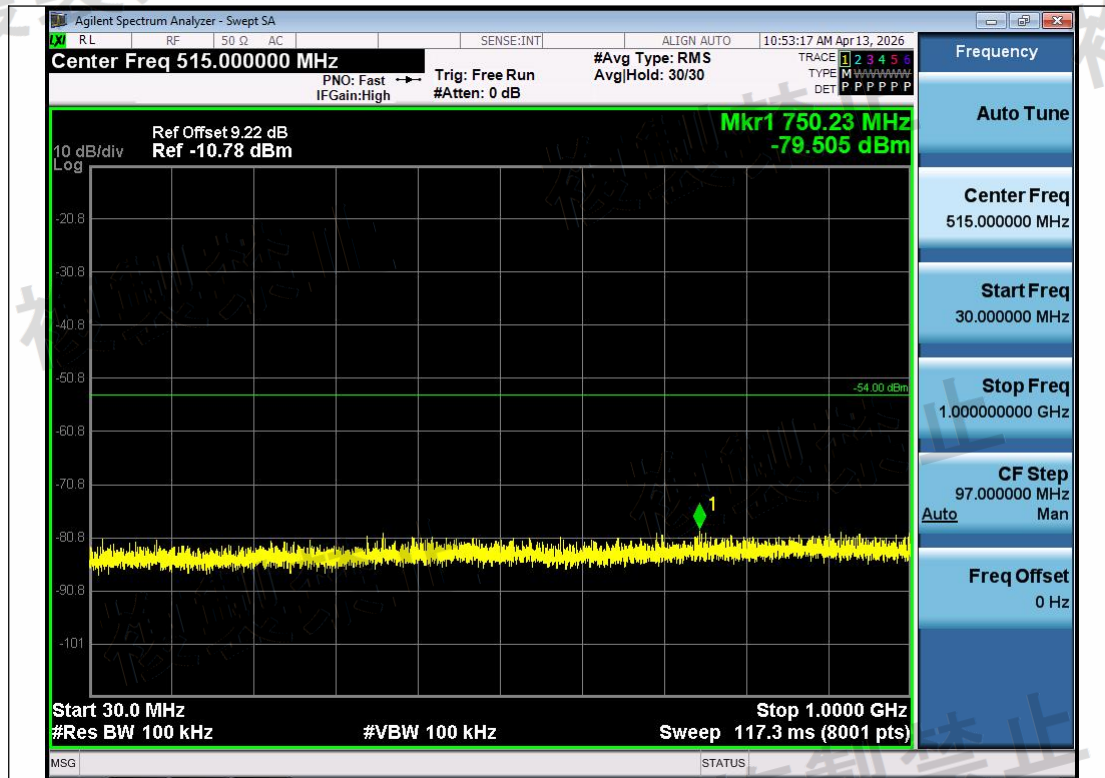
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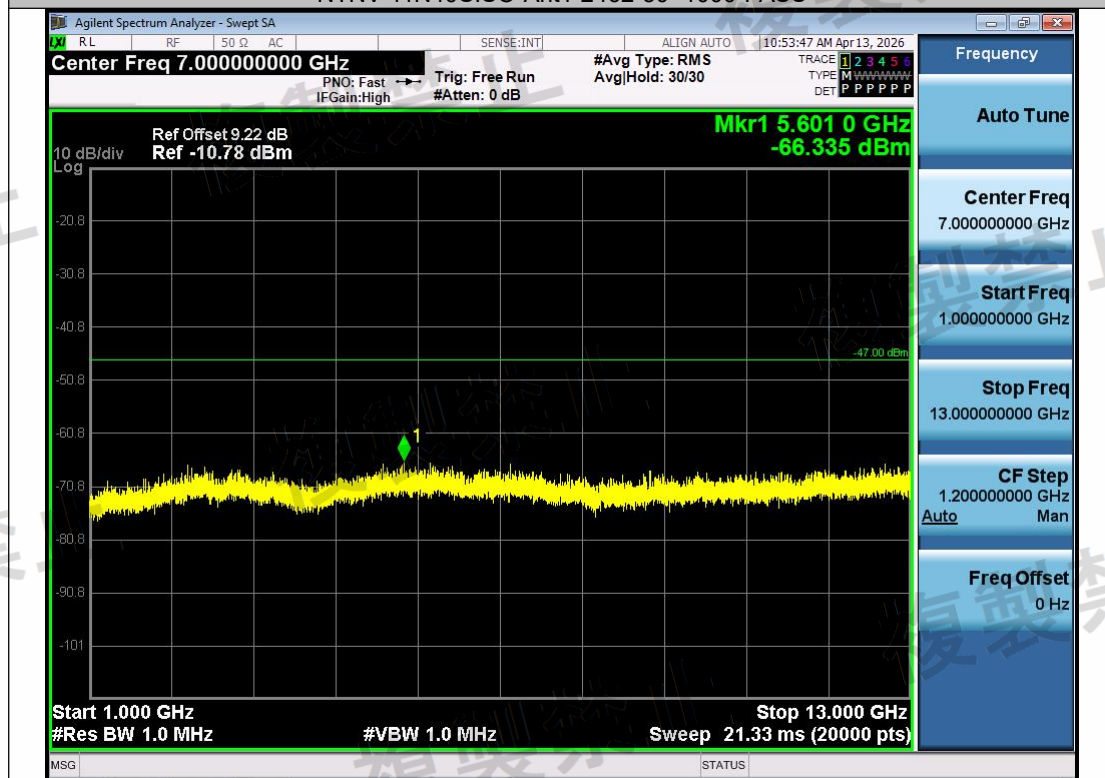
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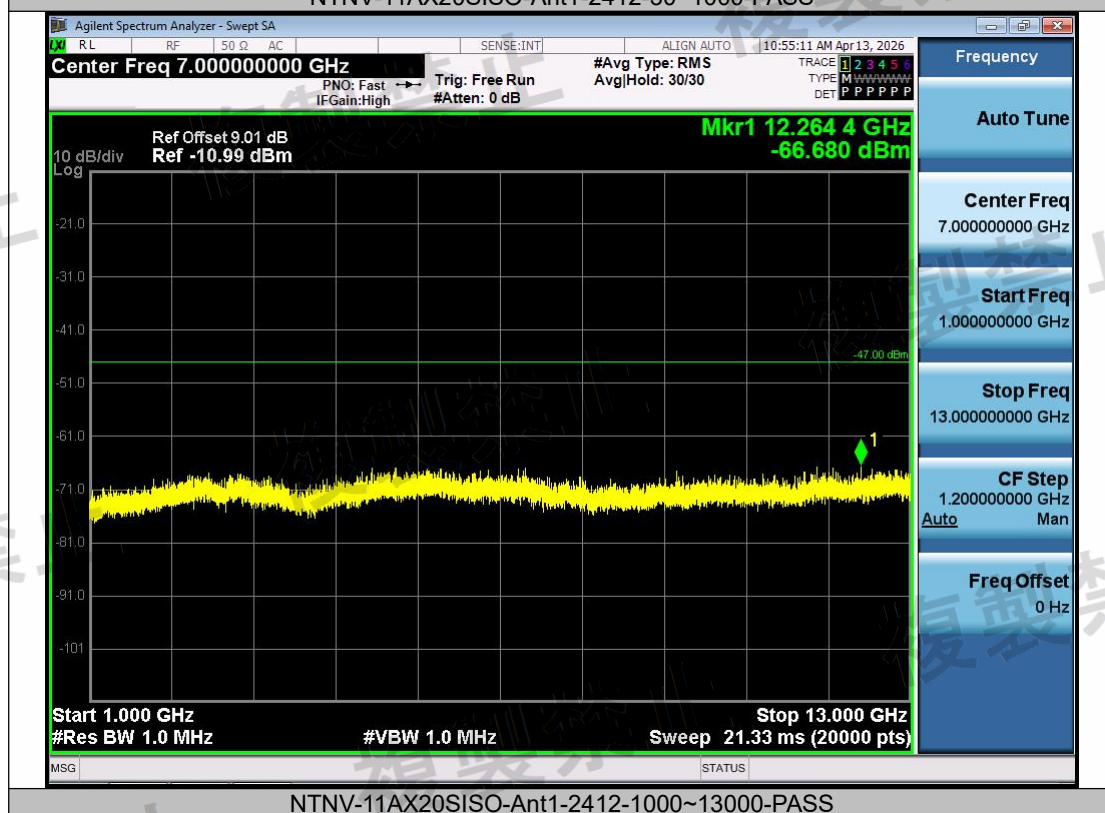
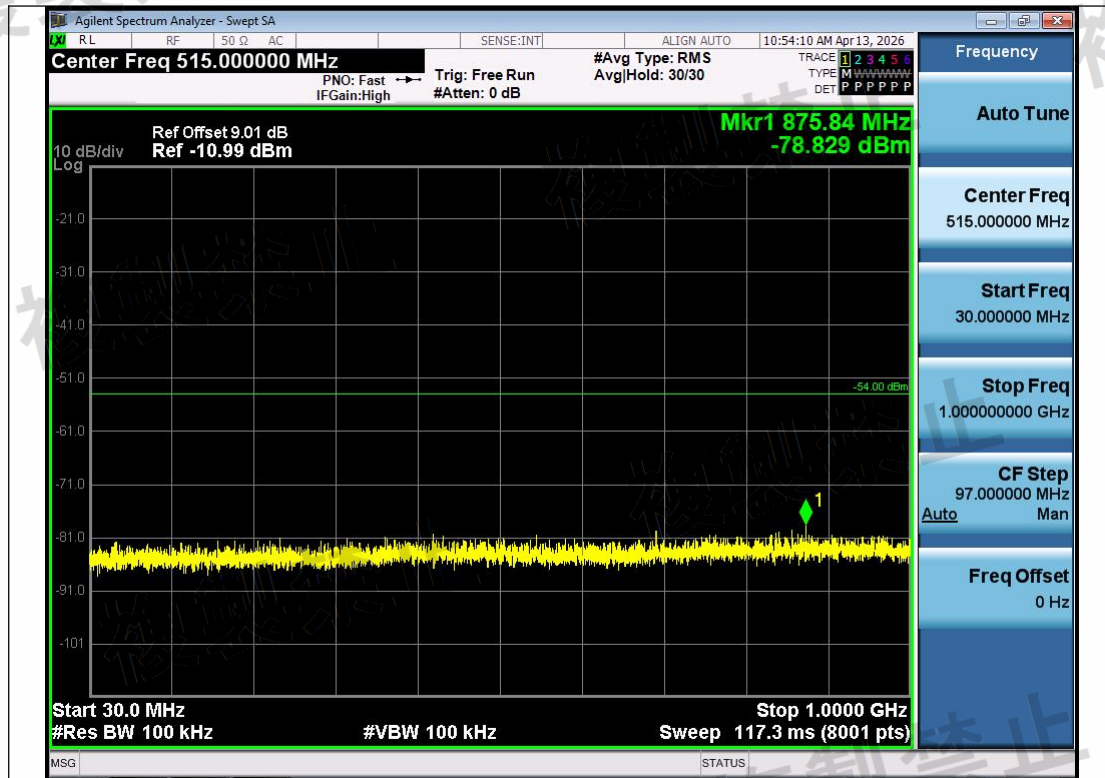
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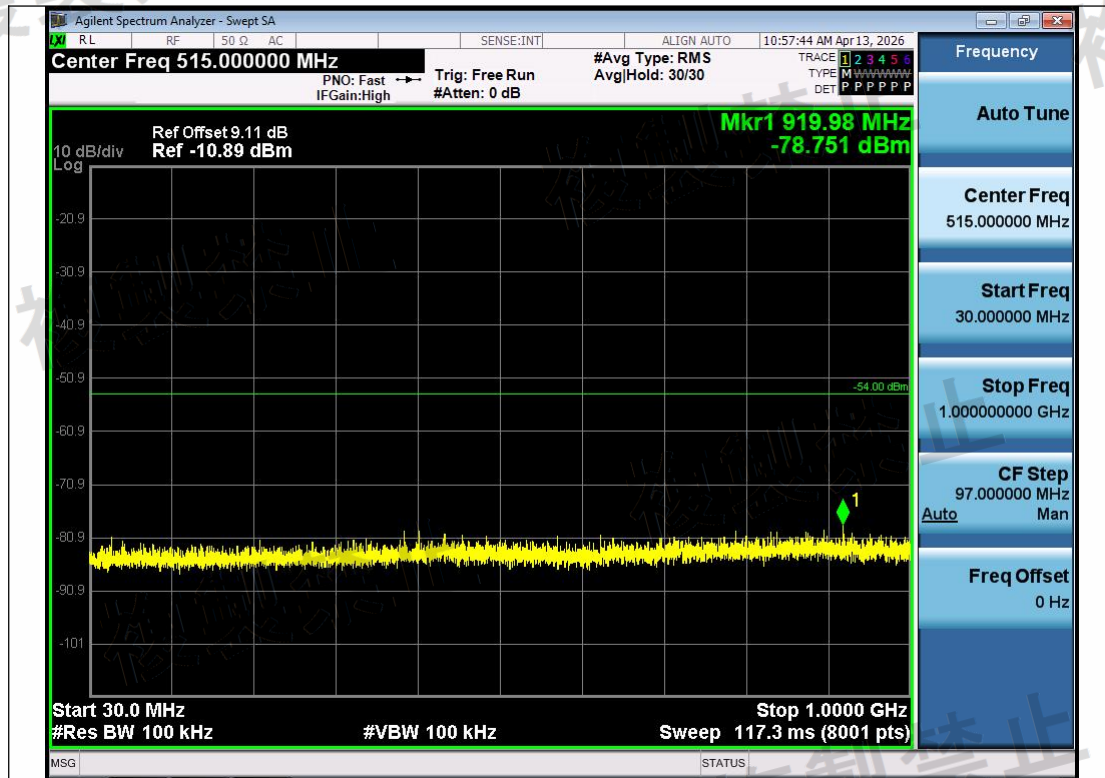


NTNV-11N40SISO-Ant1-2462-30~1000-PASS

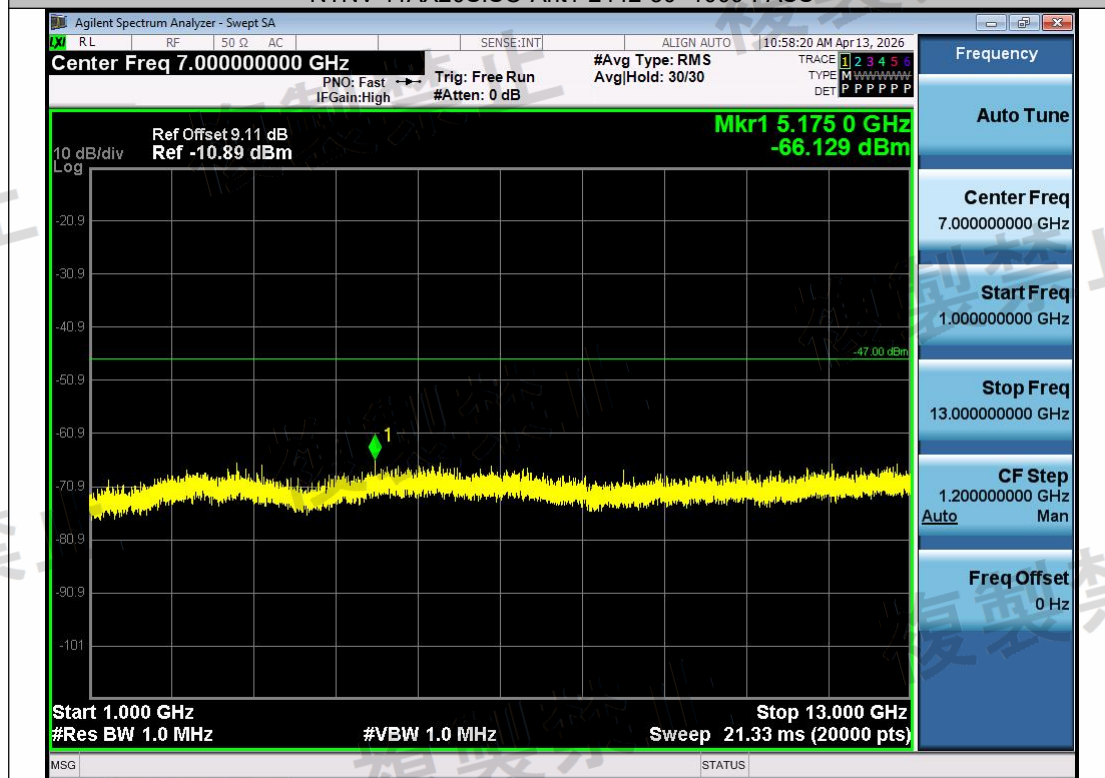


NTNV-11N40SISO-Ant1-2462-1000~13000-PASS

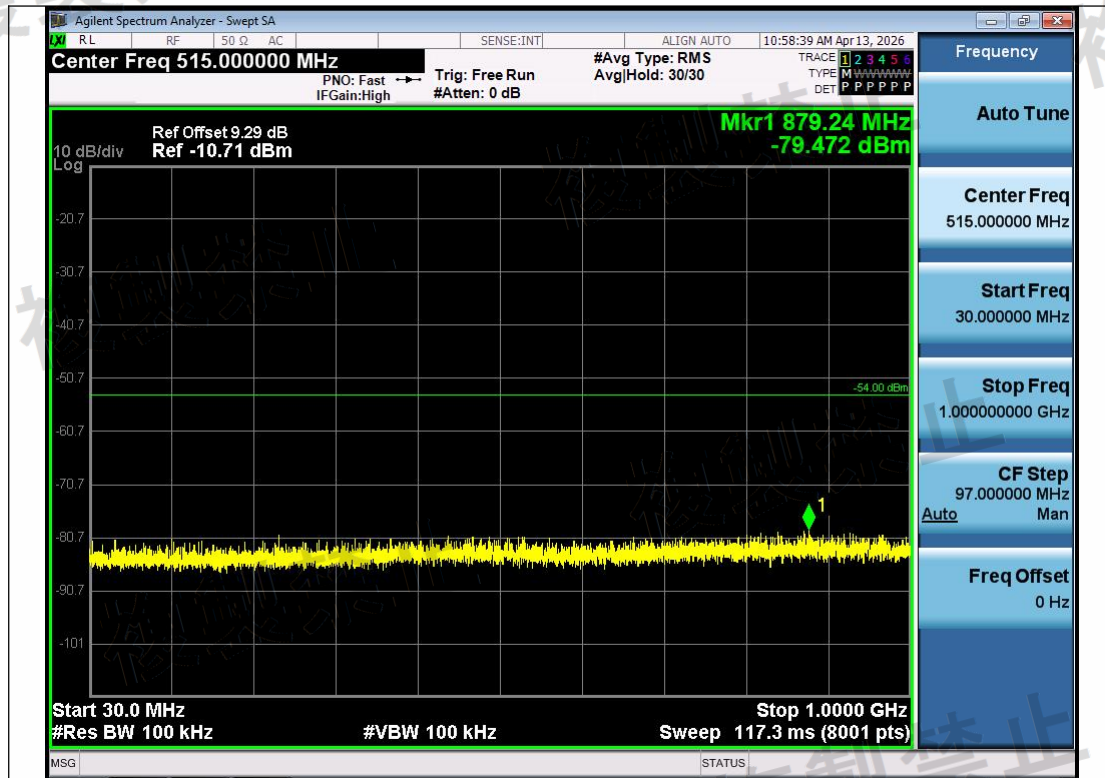




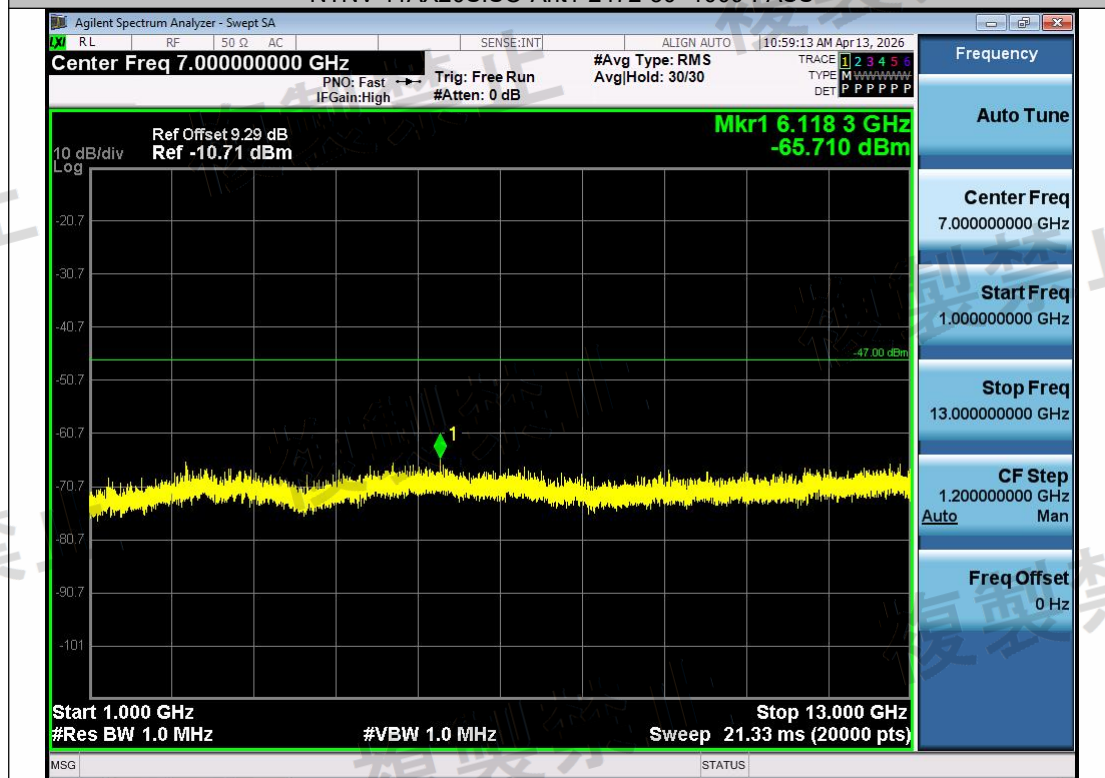
NTNV-11AX20SISO-Ant1-2442-30~1000-PASS



NTNV-11AX20SISO-Ant1-2442-1000~13000-PASS



NTNV-11AX20SISO-Ant1-2472-30~1000-PASS



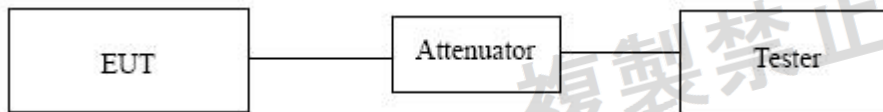
NTNV-11AX20SISO-Ant1-2472-1000~13000-PASS

## 7.6 INTERFERENCE PREVENTION FUNCTION

### 7.6.1 Standard Applicable

According to Item 19 of Article 2 Paragraph 1. The device shall have the function of automatic transmission or reception of identification code.

### 7.6.2 Test Setup Block Diagram



### 7.6.3 Test Procedure

1. Set the EUT in the usual operation condition
2. The radio equipment with automatic transmitting function of identification code
  - A. Transmit the assigned identification code from the radio equipment.
  - B. Confirm the identification code received by the demodulator.
3. The radio equipment with automatic receiving function of identification code
  - A. Transmit the assigned identification code from the opposite equipment.
  - B. Confirm that the usual communication is available.
  - C. Transmit the identification code distinct from the assigned one from the opposite equipment.
  - D. Confirm that the radio equipment is stopped or an indication is displayed as the identification code is different.

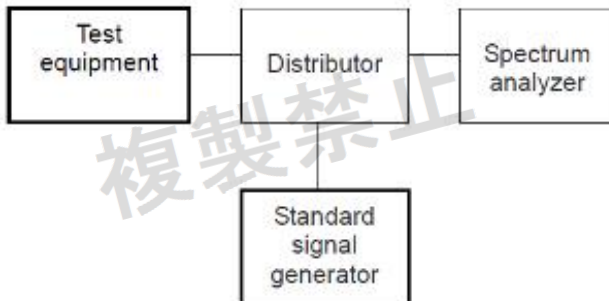
### 7.6.4 Summary of Test Results/Plots

Pass

| Test Item                                    | Test Result                                                                                |
|----------------------------------------------|--------------------------------------------------------------------------------------------|
| Transmitting Function of Identification Code | The device have the function of automatic transmission or reception of identification code |
| Receiving Function of Identification Code    | The device have the function of automatic transmission or reception of identification code |

## 7.7 CARRIER SENSE CAPABILITY

### 7.7.1 Measurement system diagram



### 7.7.2 Condition of measuring instrument

(1) Set the standard signal generator as follows:

Carrier frequency: Center frequency of receiving frequency band of test equipment

Modulation: No modulation.(note1)

Output level: regulated level on antenna input of test equipment

Note 1: The un-modulated carrier in the center frequency, when the carrier sense function of test equipment is not worked, if necessary, change the frequency or modulate it.

(2) Set the spectrum analyzer as follows:

Center frequency: Center frequency of the bandwidth used.(note2)

Sweep frequency band: 50MHz(note2)

Resolution bandwidth: Approximately 1 MHz

Video bandwidth: Comparable level with resolution bandwidth

Trigger condition: Free-run

Detective mode: Positive peak

Note 2: Under 26MHz of OFDM or other modulated method that with transmit function, set sweep frequency band as 0Hz, detective mode as sample, center frequency as the carrier frequency from 13MHz to 19MHz.

### 7.7.3 Condition of test equipment

Set the test equipment at the test frequency and the test spread code, and set it to the receiving mode in the beginning. When using external test device, connect with the test equipment by line connection.

### 7.7.4 Measuring operation procedure

(1) Test with test equipment only:

A) Set the spectrum analyzer according to above (2).

B) Set the test equipment to the transmitting operation with the output of standard signal generator OFF, and confirm that it emits over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

C) Set the test equipment to the receiving mode.

D) With the output of standard signal generator ON, set the test equipment to the transmitting operation, and confirm that it does not emit over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

### 7.7.5 Test result

The unit does meet the requirements (Good).

| Test Condition | Test Mode | Antenna | Frequency[MHz] | Result |
|----------------|-----------|---------|----------------|--------|
| NTNV           | 11B       | Ant1    | 2412           | Pass   |
|                |           | Ant1    | 2442           | Pass   |
|                |           | Ant1    | 2472           | Pass   |
|                | 11G       | Ant1    | 2412           | Pass   |
|                |           | Ant1    | 2442           | Pass   |
|                |           | Ant1    | 2472           | Pass   |
|                | 11N20     | Ant1    | 2412           | Pass   |
|                |           | Ant1    | 2442           | Pass   |
|                |           | Ant1    | 2472           | Pass   |
|                | 11N40     | Ant1    | 2422           | Pass   |
|                |           | Ant1    | 2442           | Pass   |
|                |           | Ant1    | 2462           | Pass   |
|                | 11ax20    | Ant1    | 2412           | Pass   |
|                |           | Ant1    | 2442           | Pass   |
|                |           | Ant1    | 2472           | Pass   |

## 7.8 RF ACCESSIBILITY

### Standard requirement

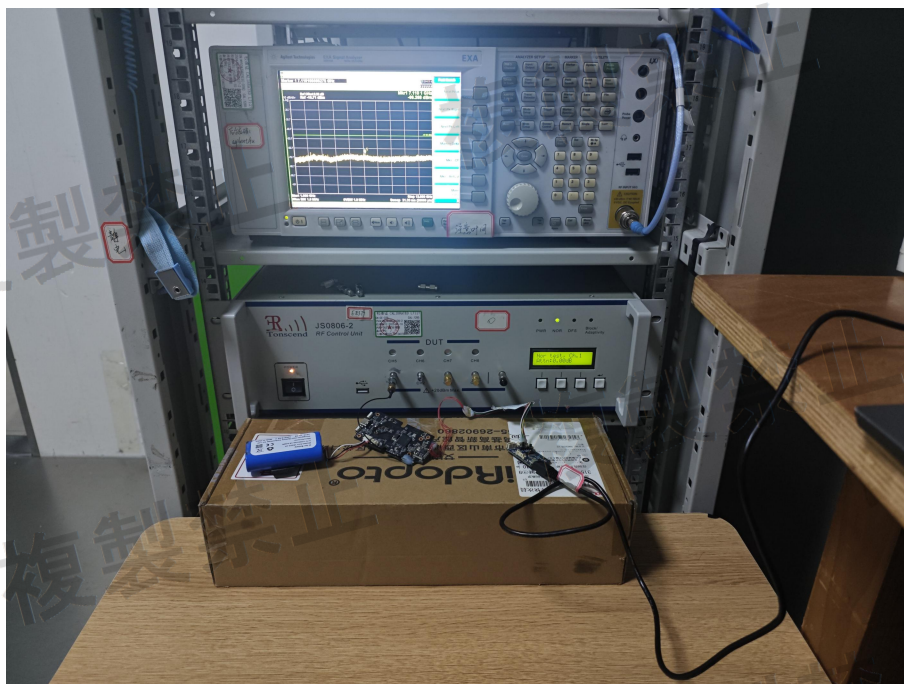
Article 49-20, paragraph 1 (a)

The EUT shall be constructed in such a way that sensitive RF parts, (like modulation and oscillator parts) cannot be reached easily by the user. These parts shall be covered by soldered metal caps or glue or by other mechanical covers. If the covers are fixed with screws, these shall be not the common type(s) like a Phillips, but special versions like Torx, so that the user cannot open the device with common tools.

|                                     |                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | Sealed with special screws.                                                                                                                                |
| <input type="checkbox"/>            | Plastic chassis is being welded using ultrasonic waves.                                                                                                    |
| <input type="checkbox"/>            | Chassis is glued using a special adhesive.                                                                                                                 |
| <input type="checkbox"/>            | Metal covers are spot-fused.                                                                                                                               |
| <input type="checkbox"/>            | Cover is specially interlocked.                                                                                                                            |
| <input checked="" type="checkbox"/> | RF and Modulation components are covered with shielding case and this shielding case is soldered.                                                          |
| <input type="checkbox"/>            | Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.                                                               |
| <input type="checkbox"/>            | Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.                                                 |
| <input type="checkbox"/>            | Shield case is welded at RF and modulation parts, and ID-ROM is glued with anon-transparent laminating agent.                                              |
| <input type="checkbox"/>            | RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable parts on PCB or adjustable parts are not exposed. |

Test result: Pass

## 8 APPENDIX PHOTOGRAPHS OF TEST SETUP



--- End of Report ---