



## Appendix D

### RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: VIDEO PROJECTOR

Test Model: HY-300A

#### Environmental Conditions

|                    |            |
|--------------------|------------|
| Temperature:       | 23.8°C     |
| Relative Humidity: | 52.1%      |
| ATM Pressure:      | 100.0 kPa  |
| Test Engineer:     | Paddi Chen |
| Supervised by:     | Nick Peng  |



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## D.1 -26dB Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | -26 dB Bandwidth (MHz) | Limit -26 dB Bandwidth (MHz) | Verdict |
|-----------|------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | a    | 5180            | Ant1    | 22.696                 | ---                          | Pass    |
| NVNT      | a    | 5200            | Ant1    | 22.279                 | ---                          | Pass    |
| NVNT      | a    | 5240            | Ant1    | 21.976                 | ---                          | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 24.822                 | ---                          | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 26.251                 | ---                          | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 26.763                 | ---                          | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 42.899                 | ---                          | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 45.263                 | ---                          | Pass    |





## Test Graphs

-26dB Bandwidth NVNT a 5180MHz Ant1



-26dB Bandwidth NVNT a 5200MHz Ant1



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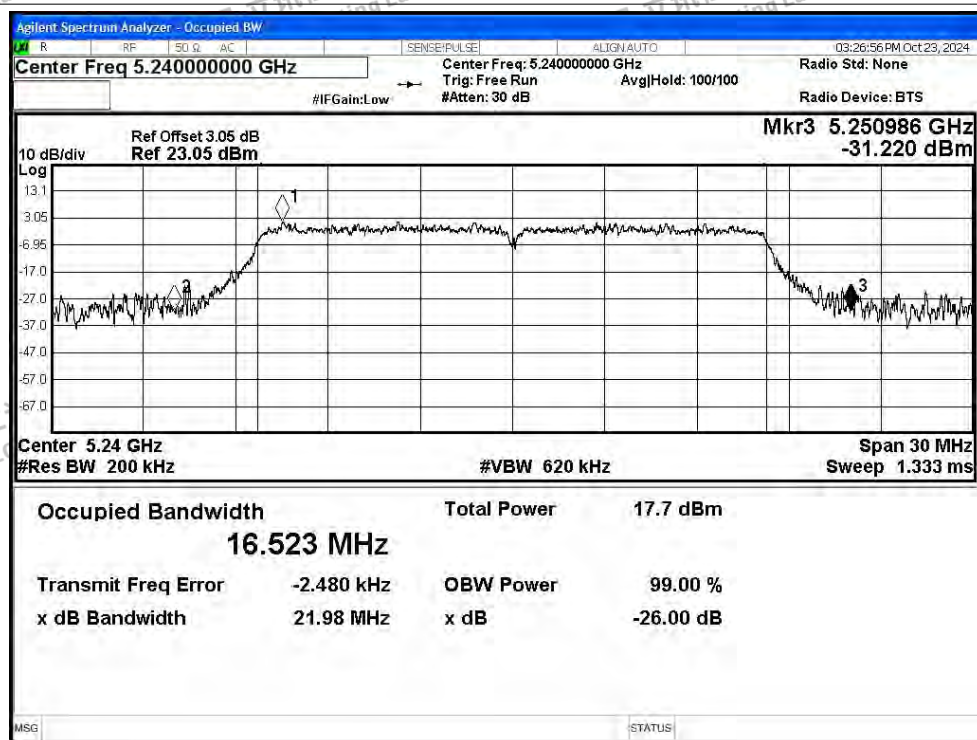
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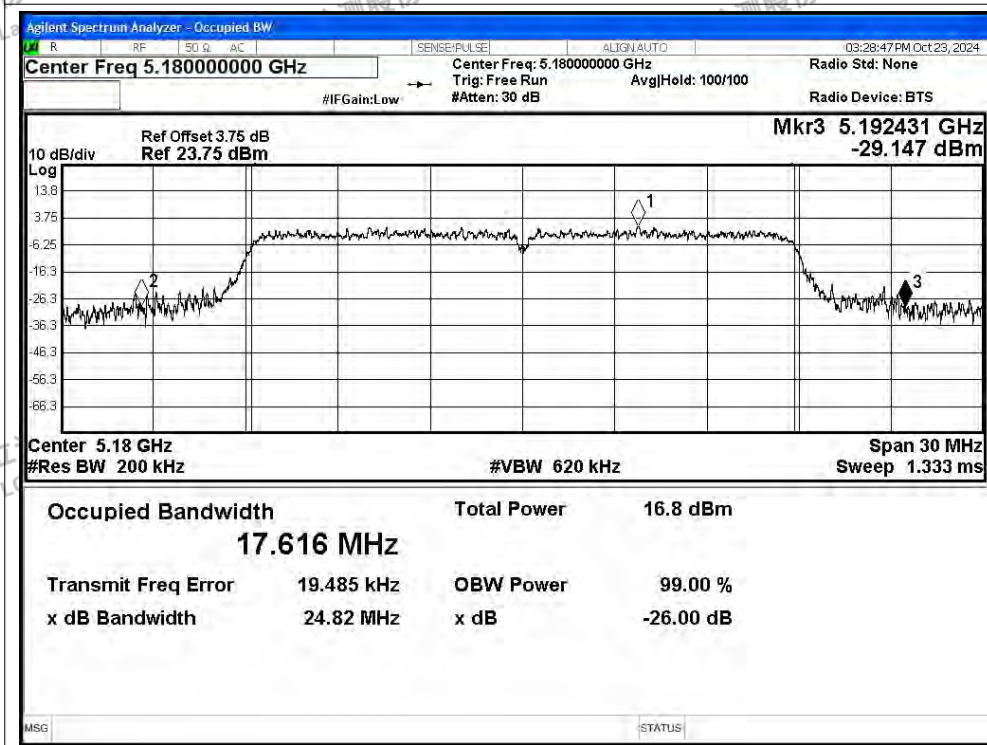
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-26dB Bandwidth NVNT a 5240MHz Ant1



-26dB Bandwidth NVNT n20 5180MHz Ant1



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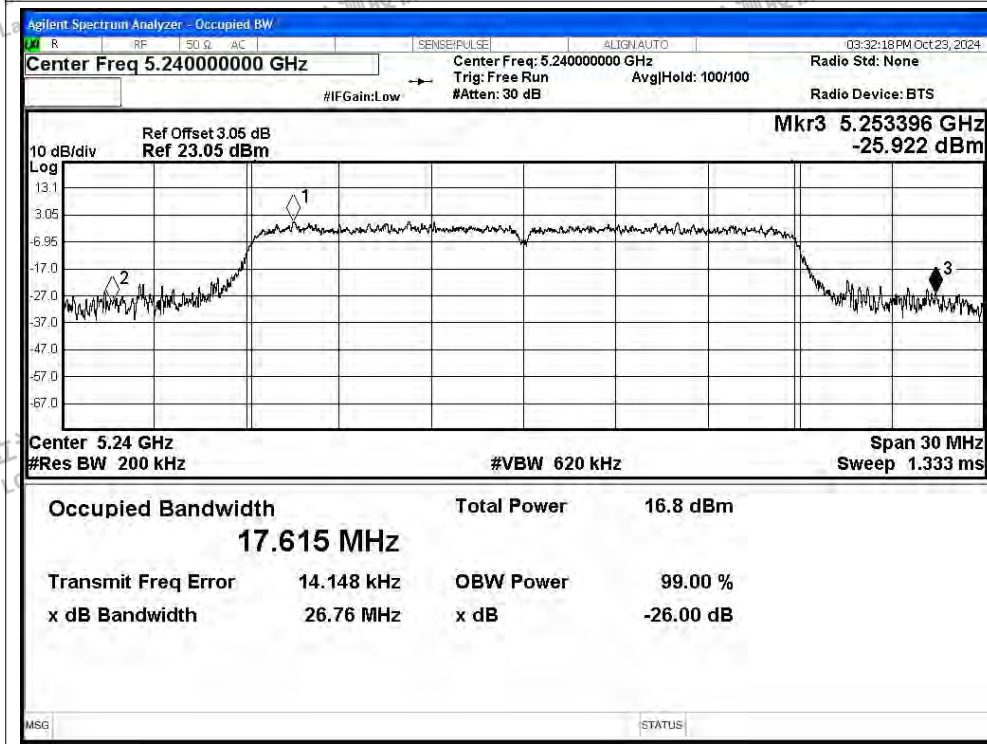
Scan code to check authenticity



-26dB Bandwidth NVNT n20 5200MHz Ant1

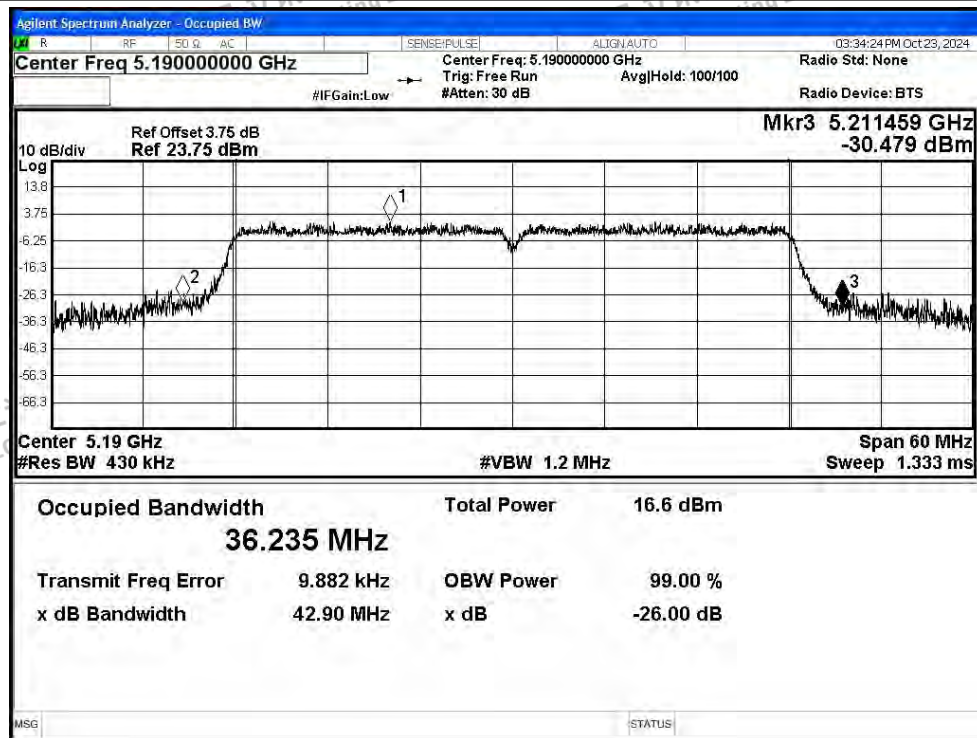


-26dB Bandwidth NVNT n20 5240MHz Ant1

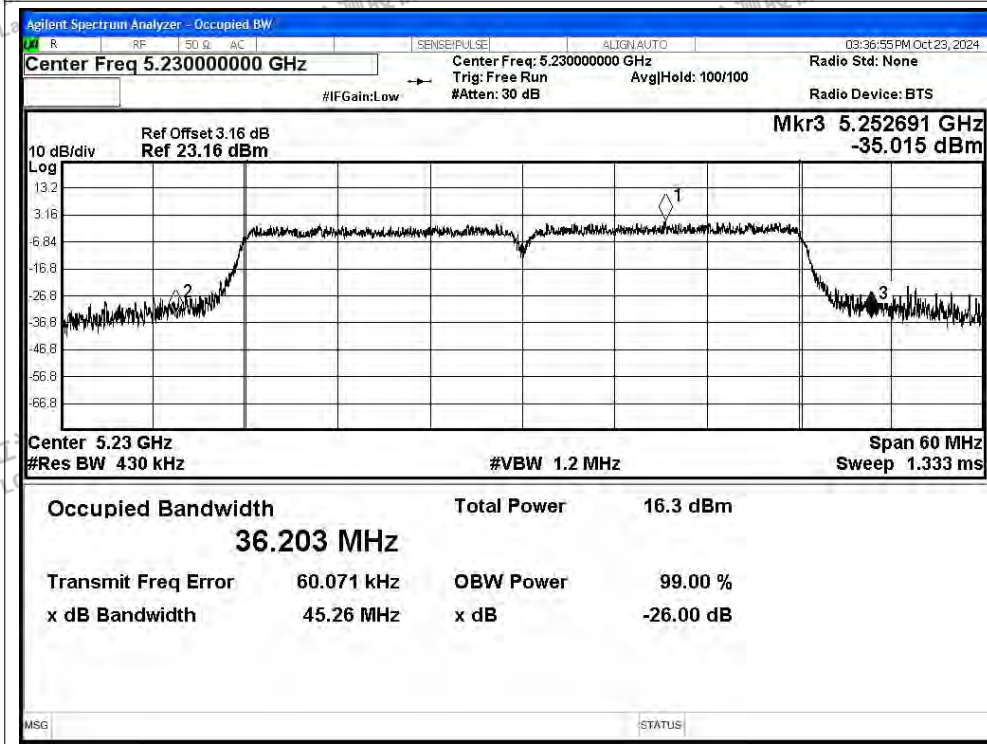




-26dB Bandwidth NVNT n40 5190MHz Ant1



-26dB Bandwidth NVNT n40 5230MHz Ant1





## D.2 Maximum Conducted Output Power

| Condition | Mode | Frequency<br>(MHz) | Antenna | Conducted Power<br>(dBm) | Duty Factor<br>(dB) | Total Power<br>(dBm) | Limit<br>(dBm) | Verdict |
|-----------|------|--------------------|---------|--------------------------|---------------------|----------------------|----------------|---------|
| NVNT      | a    | 5180               | Ant1    | 12.74                    | 0.24                | 12.98                | 24             | Pass    |
| NVNT      | a    | 5200               | Ant1    | 12.53                    | 0.24                | 12.77                | 24             | Pass    |
| NVNT      | a    | 5240               | Ant1    | 11.88                    | 0.24                | 12.12                | 24             | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 11.24                    | 0.12                | 11.36                | 24             | Pass    |
| NVNT      | n20  | 5200               | Ant1    | 10.95                    | 0.12                | 11.07                | 24             | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 11.2                     | 0.12                | 11.32                | 24             | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 10.8                     | 0.12                | 10.92                | 24             | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 10.34                    | 0.12                | 10.46                | 24             | Pass    |



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### D.3 Maximum Power Spectral Density Level

| Condition | Mode | Frequency<br>(MHz) | Antenna | Conducted PSD<br>(dBm/MHz) | Duty Factor<br>(dB) | Total PSD<br>(dBm/MHz) | Limit<br>(dBm/MHz) | Verdict |
|-----------|------|--------------------|---------|----------------------------|---------------------|------------------------|--------------------|---------|
| NVNT      | a    | 5180               | Ant1    | 2.2                        | 0.24                | 2.44                   | 11                 | Pass    |
| NVNT      | a    | 5200               | Ant1    | 1.92                       | 0.24                | 2.16                   | 11                 | Pass    |
| NVNT      | a    | 5240               | Ant1    | 1.45                       | 0.24                | 1.69                   | 11                 | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 0.49                       | 0.12                | 0.61                   | 11                 | Pass    |
| NVNT      | n20  | 5200               | Ant1    | 0.07                       | 0.12                | 0.19                   | 11                 | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 0.29                       | 0.12                | 0.41                   | 11                 | Pass    |
| NVNT      | n40  | 5190               | Ant1    | -3.13                      | 0.12                | -3.01                  | 11                 | Pass    |
| NVNT      | n40  | 5230               | Ant1    | -3.31                      | 0.12                | -3.19                  | 11                 | Pass    |

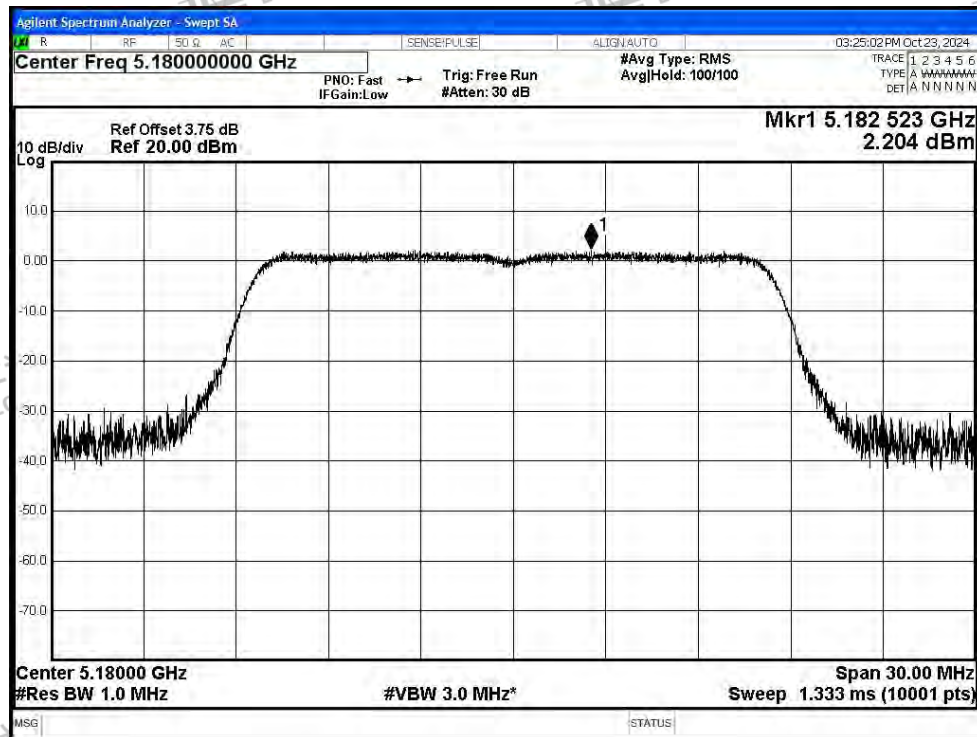


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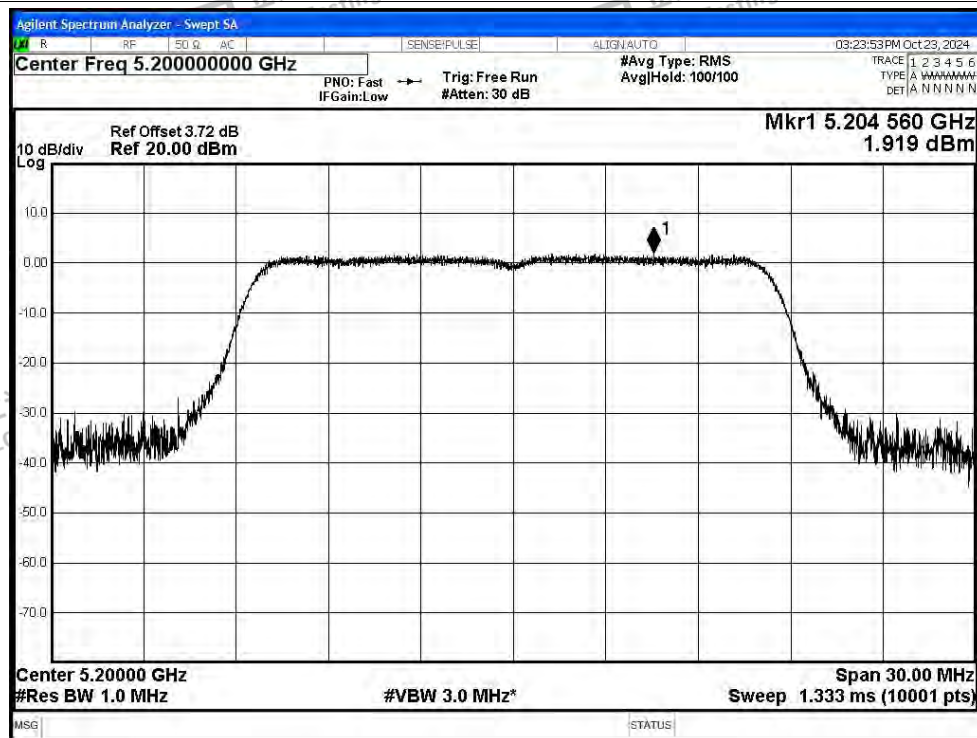


## Test Graphs

PSD NVNT a 5180MHz Ant1

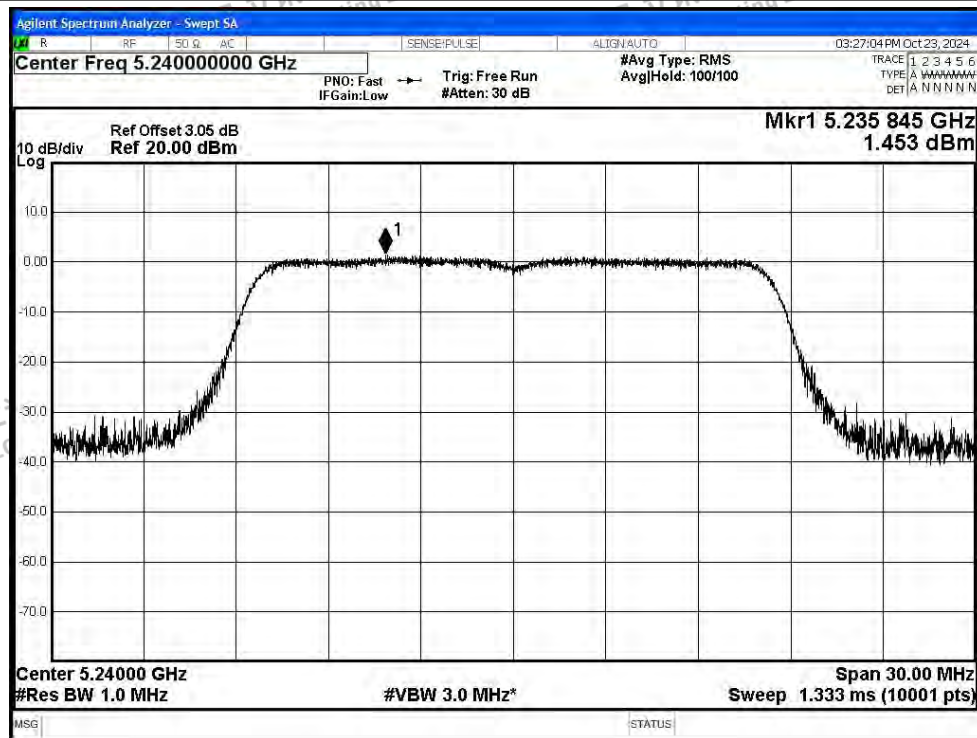


PSD NVNT a 5200MHz Ant1

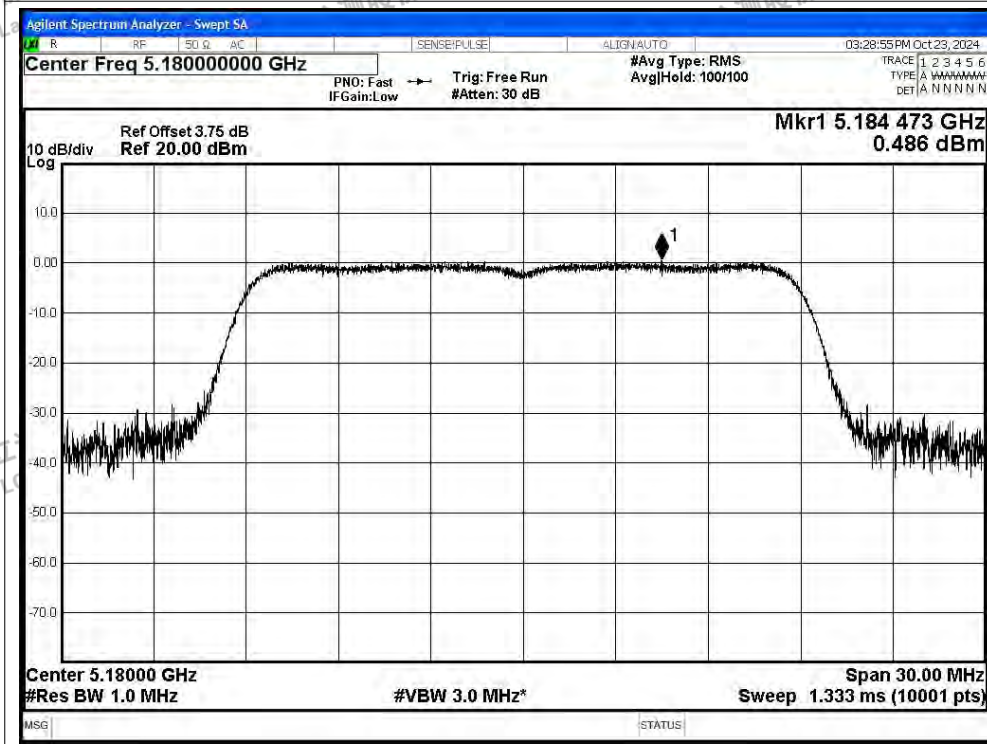




PSD NVNT a 5240MHz Ant1

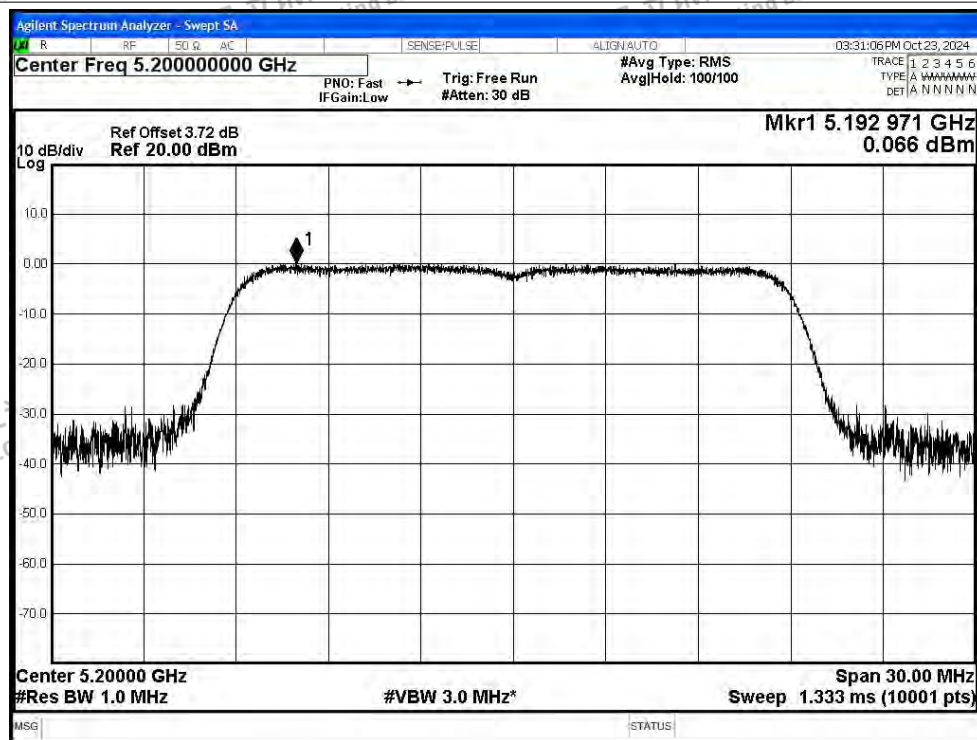


PSD NVNT n20 5180MHz Ant1

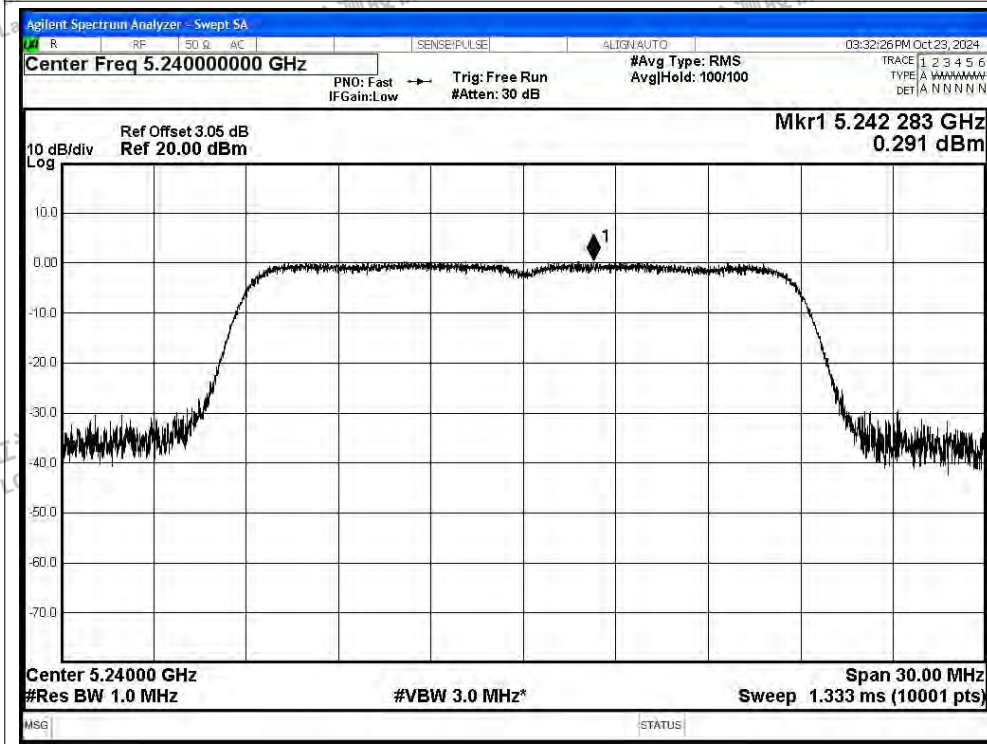




PSD NVNT n20 5200MHz Ant1

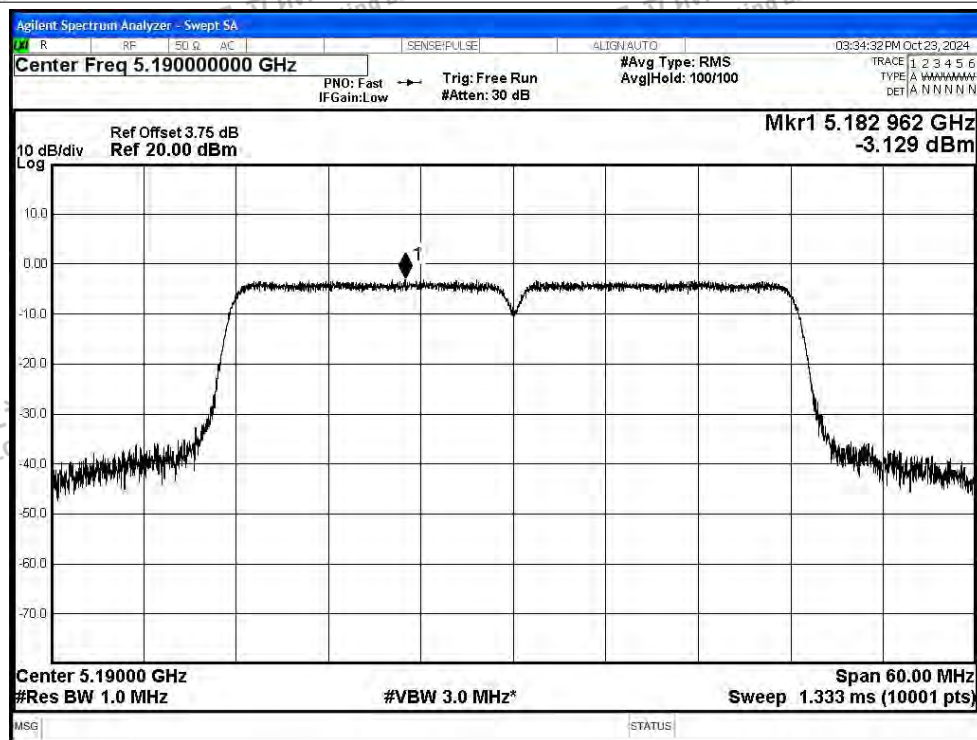


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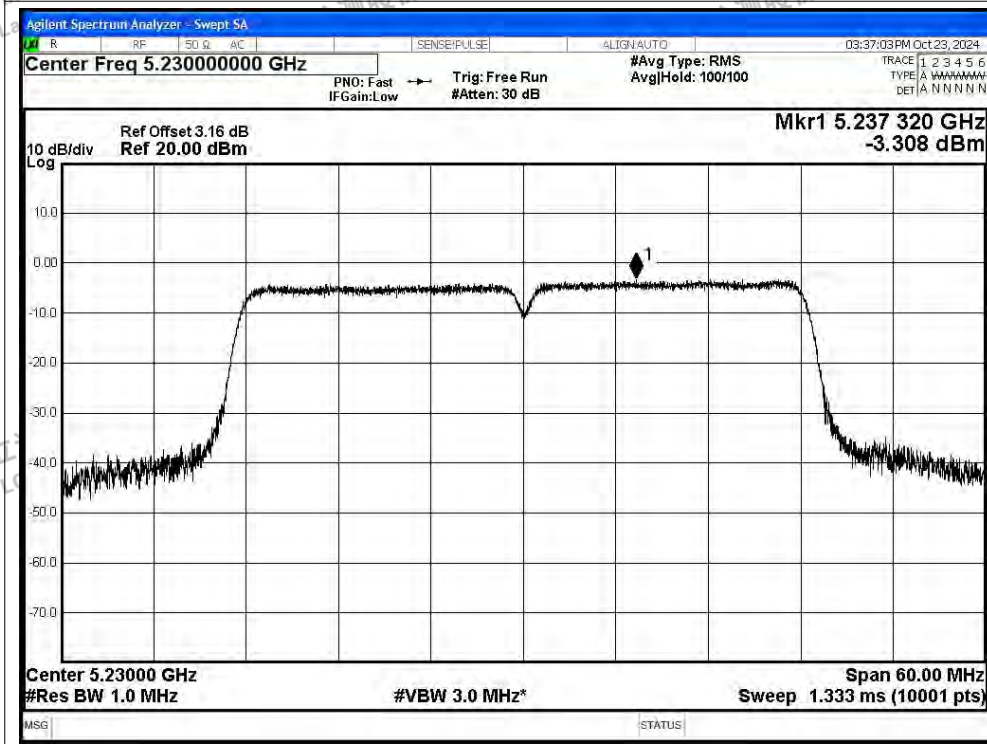




PSD NVNT n40 5190MHz Ant1



PSD NVNT n40 5230MHz Ant1





## D.4 Restrict Band

| Condition | Mode | Frequency<br>(MHz) | Antenna | Spur Freq<br>(MHz) | Power<br>(dBm) | Gain<br>(dBi) | Duty<br>Factor<br>(dB) | E<br>(dBuV/m) | Detector | Limit<br>(dBuV/m) | Verdict |
|-----------|------|--------------------|---------|--------------------|----------------|---------------|------------------------|---------------|----------|-------------------|---------|
| NVNT      | a    | 5180               | Ant1    | 4500               | -49.1          | 4.45          | -                      | 50.58         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5180               | Ant1    | 4500               | -58.14         | 4.45          | 0.24                   | 41.78         | Average  | 54                | Pass    |
| NVNT      | a    | 5180               | Ant1    | 5149.6             | -43.19         | 4.45          | -                      | 56.49         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5180               | Ant1    | 5148.9             | -54.06         | 4.45          | 0.24                   | 45.86         | Average  | 54                | Pass    |
| NVNT      | a    | 5180               | Ant1    | 5150               | -41.36         | 4.45          | -                      | 58.32         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5180               | Ant1    | 5150               | -54.09         | 4.45          | 0.24                   | 45.83         | Average  | 54                | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5350               | -50.08         | 4.45          | -                      | 49.60         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5350               | -56.9          | 4.45          | 0.24                   | 43.02         | Average  | 54                | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5372.4             | -44.97         | 4.45          | -                      | 54.71         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5350.32            | -56.83         | 4.45          | 0.24                   | 43.09         | Average  | 54                | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5460               | -50.99         | 4.45          | -                      | 48.69         | Peak     | 68.2              | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5460               | -57.8          | 4.45          | 0.24                   | 42.12         | Average  | 54                | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 4500               | -49.95         | 4.45          | -                      | 49.73         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 4500               | -57.72         | 4.45          | 0.12                   | 42.08         | Average  | 54                | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 5149.6             | -38.69         | 4.45          | -                      | 60.99         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 5148.2             | -53.25         | 4.45          | 0.12                   | 46.55         | Average  | 54                | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 5150               | -38.66         | 4.45          | -                      | 61.02         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 5150               | -52.19         | 4.45          | 0.12                   | 47.61         | Average  | 54                | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5350               | -48.55         | 4.45          | -                      | 51.13         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5350               | -56.89         | 4.45          | 0.12                   | 42.91         | Average  | 54                | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5361.6             | -47.17         | 4.45          | -                      | 52.51         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5351.76            | -56.63         | 4.45          | 0.12                   | 43.17         | Average  | 54                | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5460               | -49.36         | 4.45          | -                      | 50.32         | Peak     | 68.2              | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5460               | -58            | 4.45          | 0.12                   | 41.80         | Average  | 54                | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 4500               | -51            | 4.45          | -                      | 48.68         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 4500               | -57.79         | 4.45          | 0.12                   | 42.01         | Average  | 54                | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 5149.7             | -39.55         | 4.45          | -                      | 60.13         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 5149.7             | -52.88         | 4.45          | 0.12                   | 46.92         | Average  | 54                | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 5150               | -39.55         | 4.45          | -                      | 60.13         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 5150               | -52.88         | 4.45          | 0.12                   | 46.92         | Average  | 54                | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5350               | -50.46         | 4.45          | -                      | 49.22         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5350               | -57.35         | 4.45          | 0.12                   | 42.45         | Average  | 54                | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5363.61            | -46.95         | 4.45          | -                      | 52.73         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5351.19            | -56.78         | 4.45          | 0.12                   | 43.02         | Average  | 54                | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5460               | -49.07         | 4.45          | -                      | 50.61         | Peak     | 68.2              | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5460               | -57.82         | 4.45          | 0.12                   | 41.98         | Average  | 54                | Pass    |



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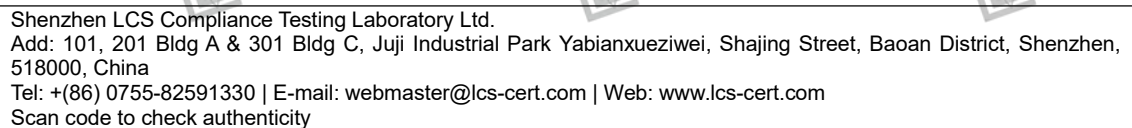
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### Restrict Band NVNT a 5180MHz Ant1 Peak

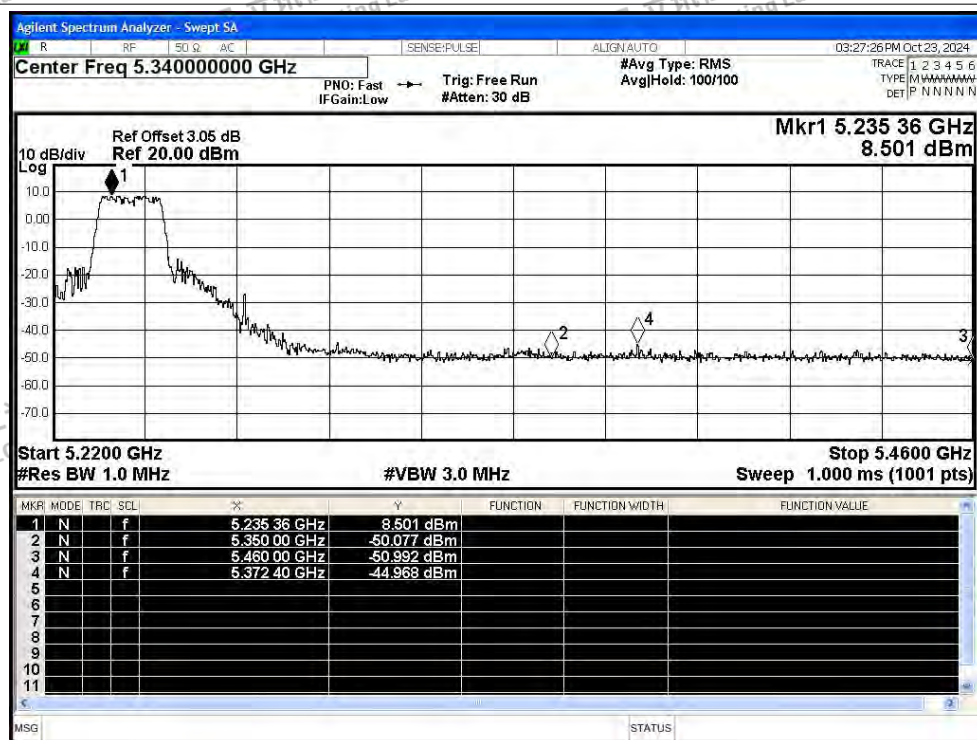


Restrict Band Noise

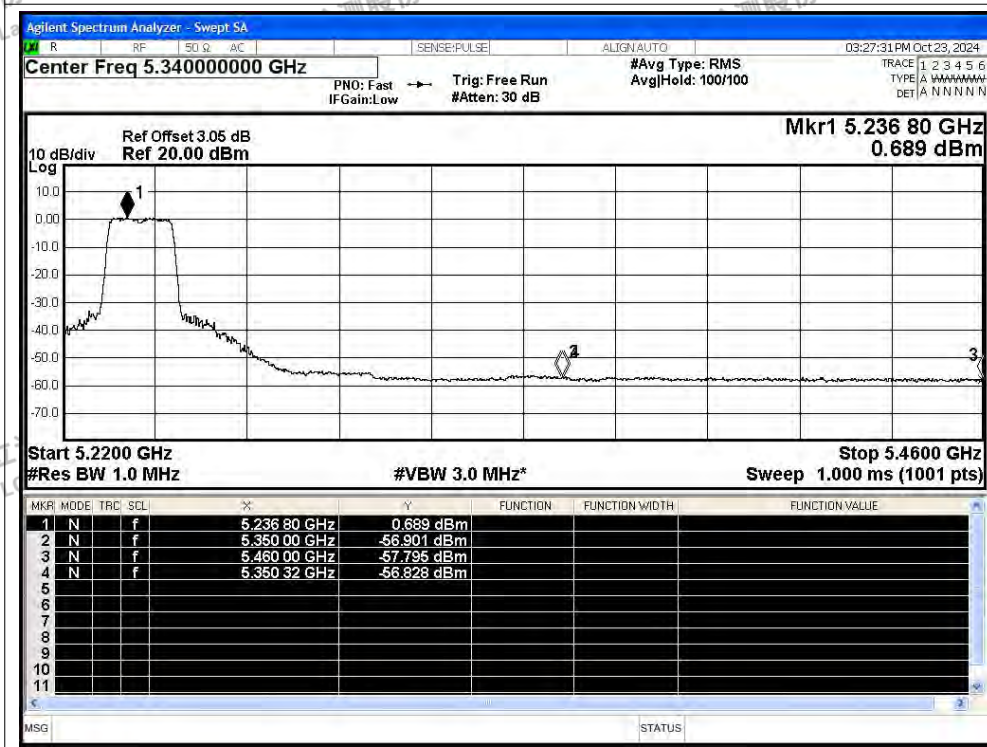




## Restrict Band NVNT a 5240MHz Ant1 Peak



## Restrict Band NVNT a 5240MHz Ant1 Average



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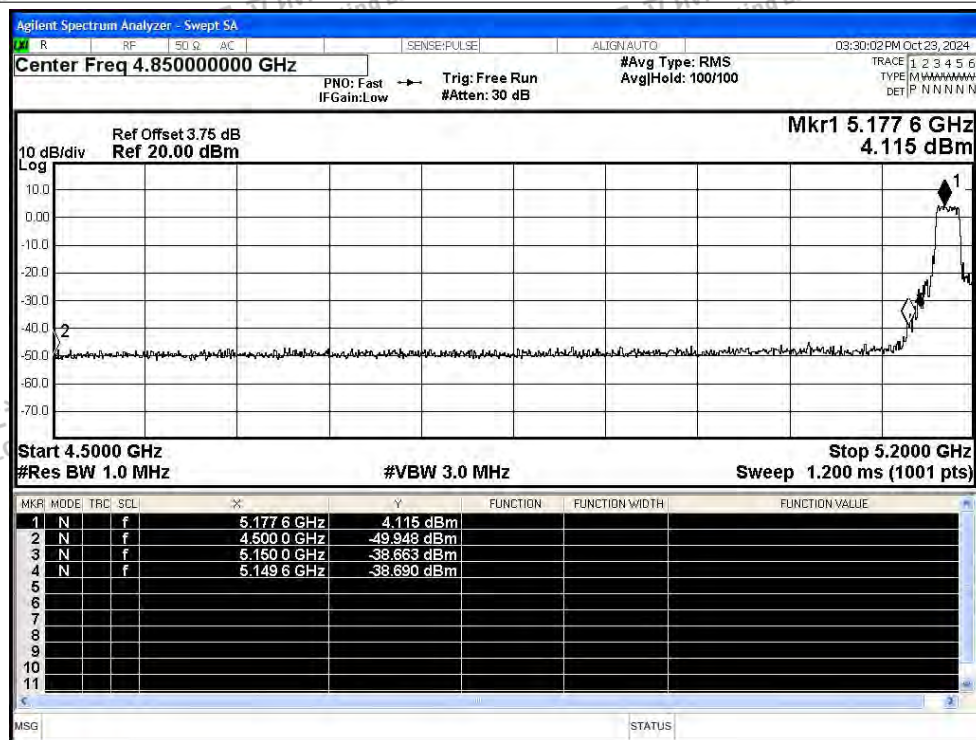
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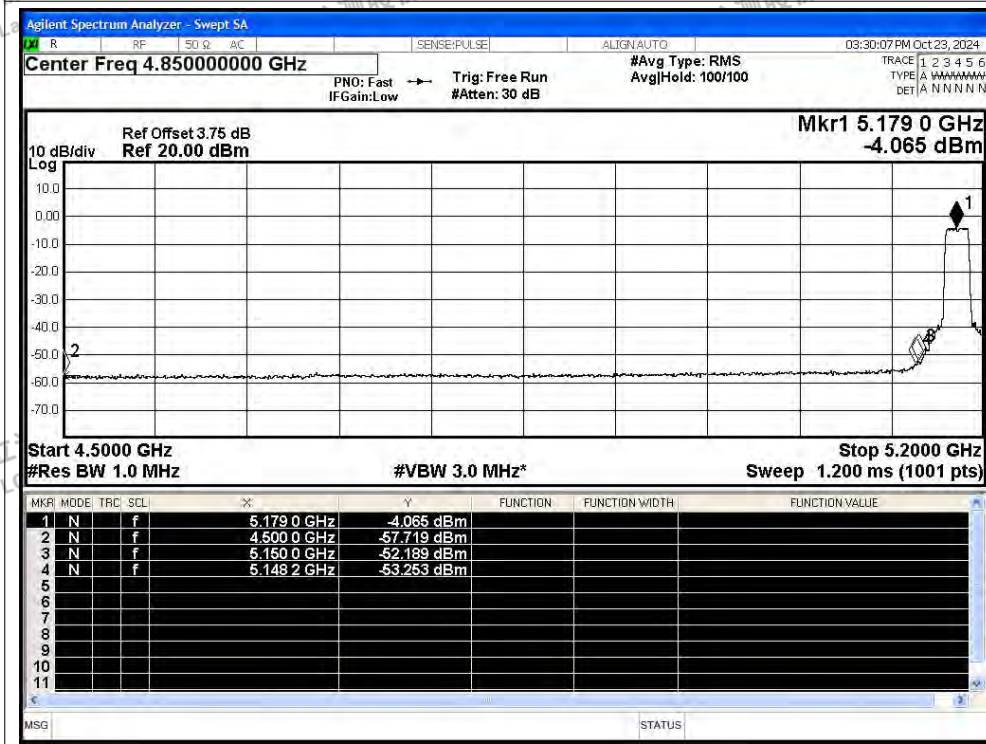
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## Restrict Band NVNT n20 5180MHz Ant1 Peak



## Restrict Band NVNT n20 5180MHz Ant1 Average



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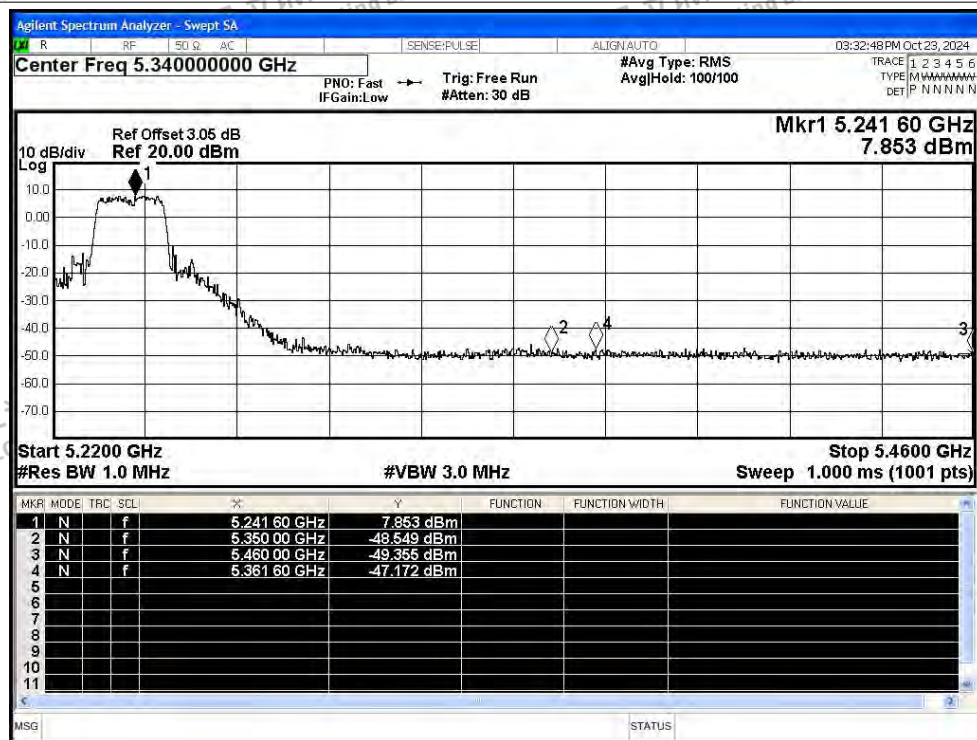
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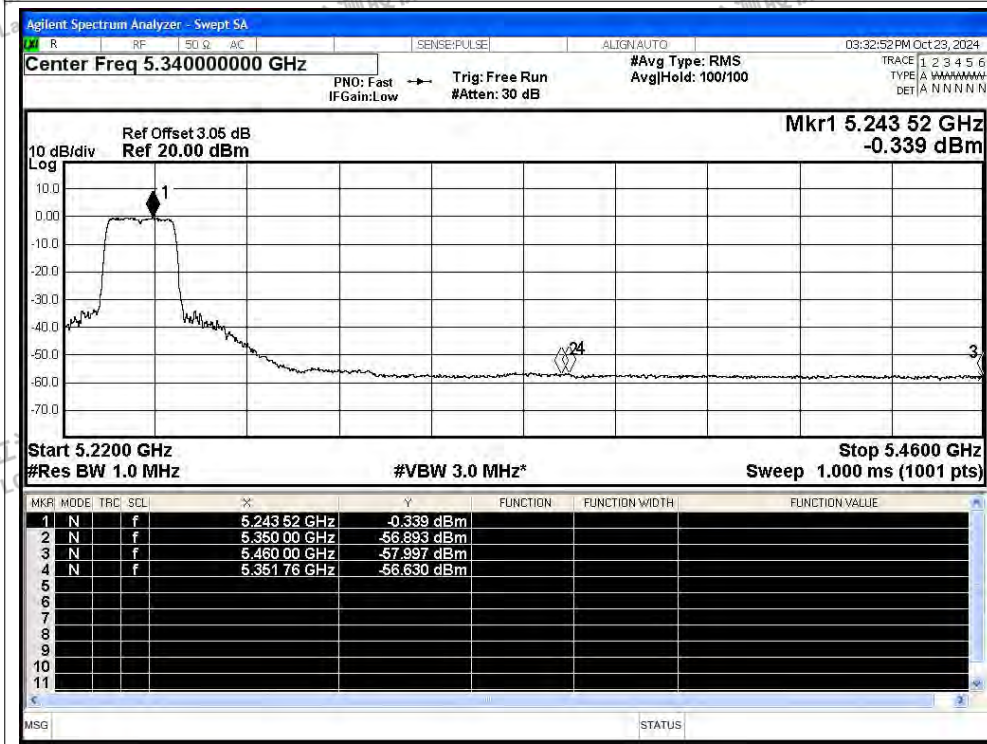
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## Restrict Band NVNT n20 5240MHz Ant1 Peak

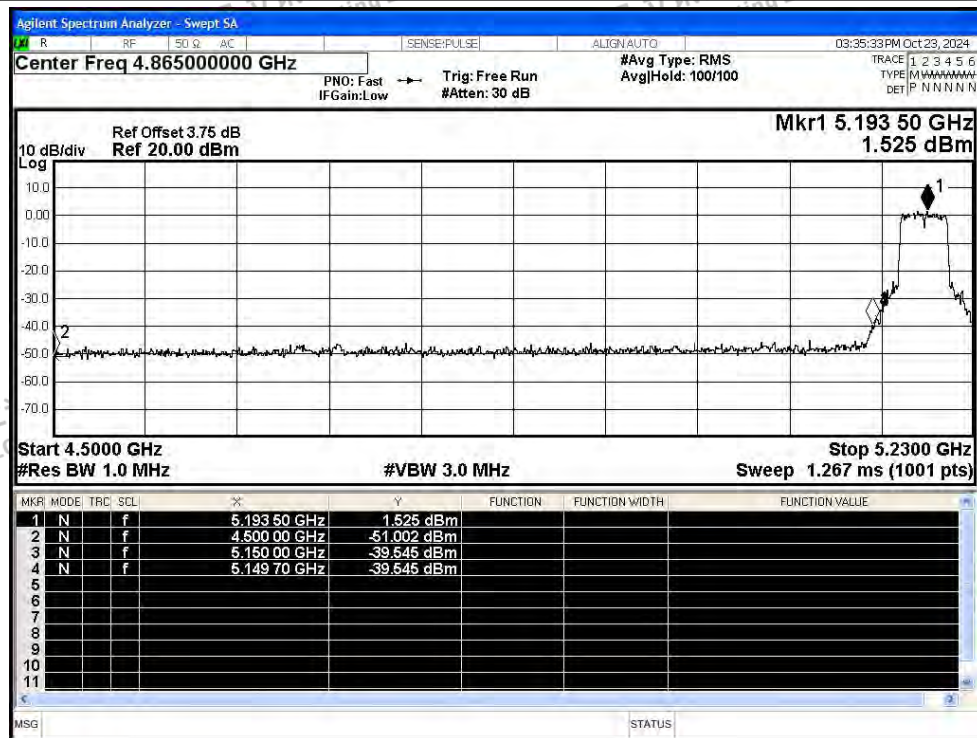


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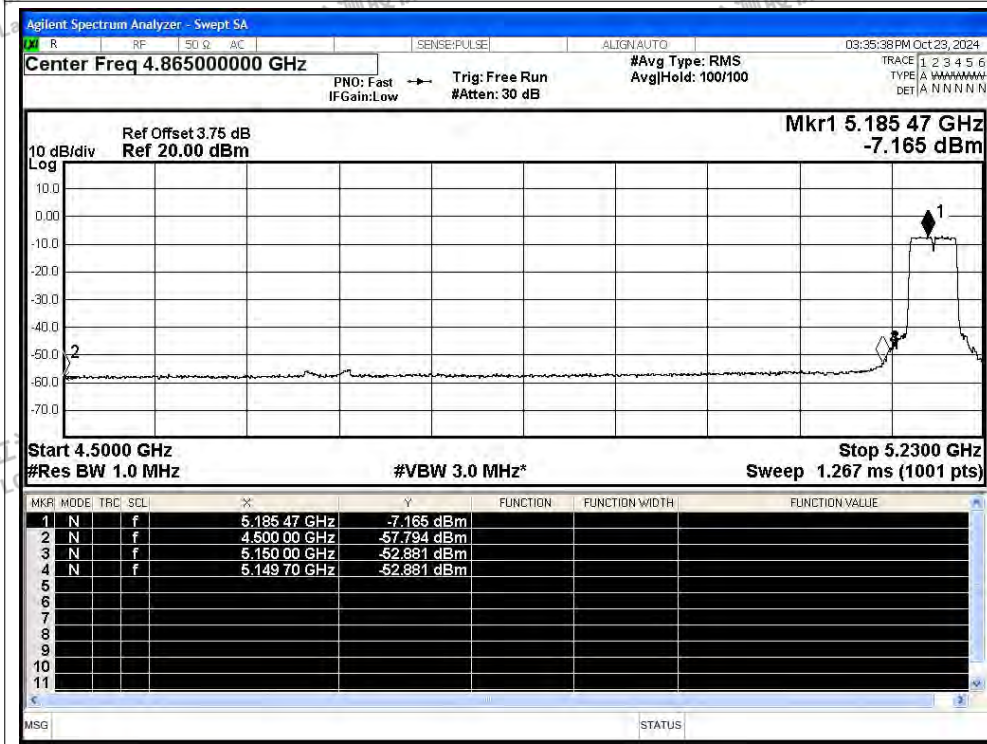




## Restrict Band NVNT n40 5190MHz Ant1 Peak



## Restrict Band NVNT n40 5190MHz Ant1 Average



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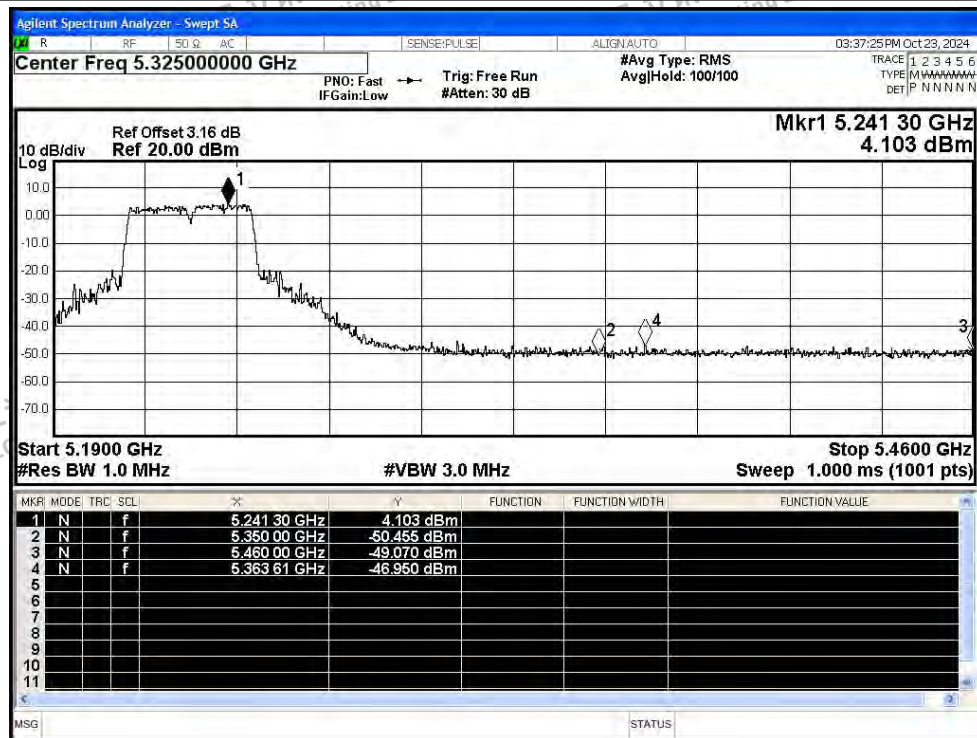
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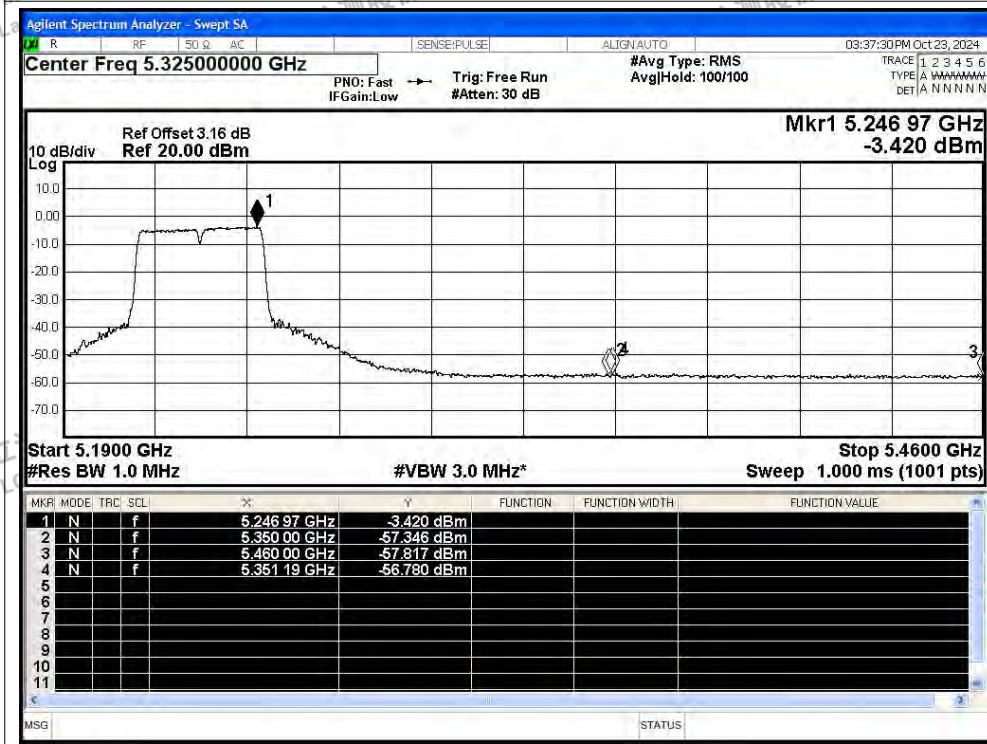
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## Restrict Band NVNT n40 5230MHz Ant1 Peak



## Restrict Band NVNT n40 5230MHz Ant1 Average





## D.5 Frequency Stability

| Condition | Mode | Frequency<br>(MHz) | Antenna | Measured Frequency<br>(MHz) | Frequency Error<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Verdict |
|-----------|------|--------------------|---------|-----------------------------|-------------------------|--------------------|----------------|---------|
| NVNT      | a    | 5180               | Ant1    | 5180                        | 0                       | 0                  | 25             | Pass    |
| NVNT      | a    | 5200               | Ant1    | 5199.98                     | -20000                  | -3.85              | 25             | Pass    |
| NVNT      | a    | 5240               | Ant1    | 5240                        | 0                       | 0                  | 25             | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 5179.98                     | -20000                  | -3.86              | 25             | Pass    |
| NVNT      | n20  | 5200               | Ant1    | 5199.96                     | -40000                  | -7.69              | 25             | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 5239.96                     | -40000                  | -7.63              | 25             | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 5190                        | 0                       | 0                  | 25             | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 5229.96                     | -40000                  | -7.65              | 25             | Pass    |

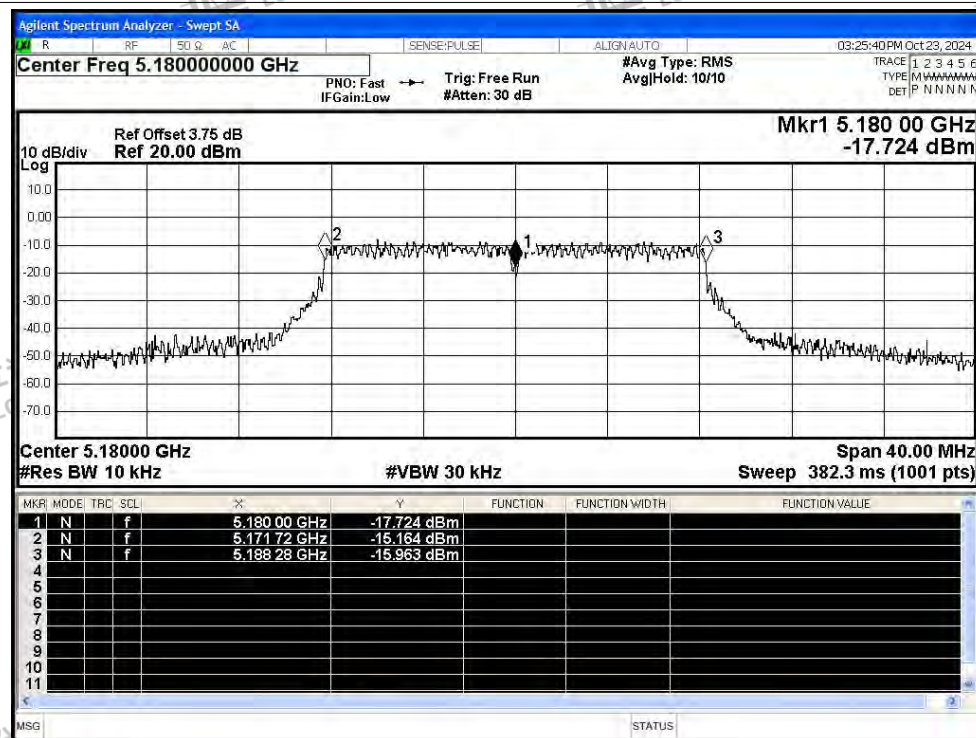


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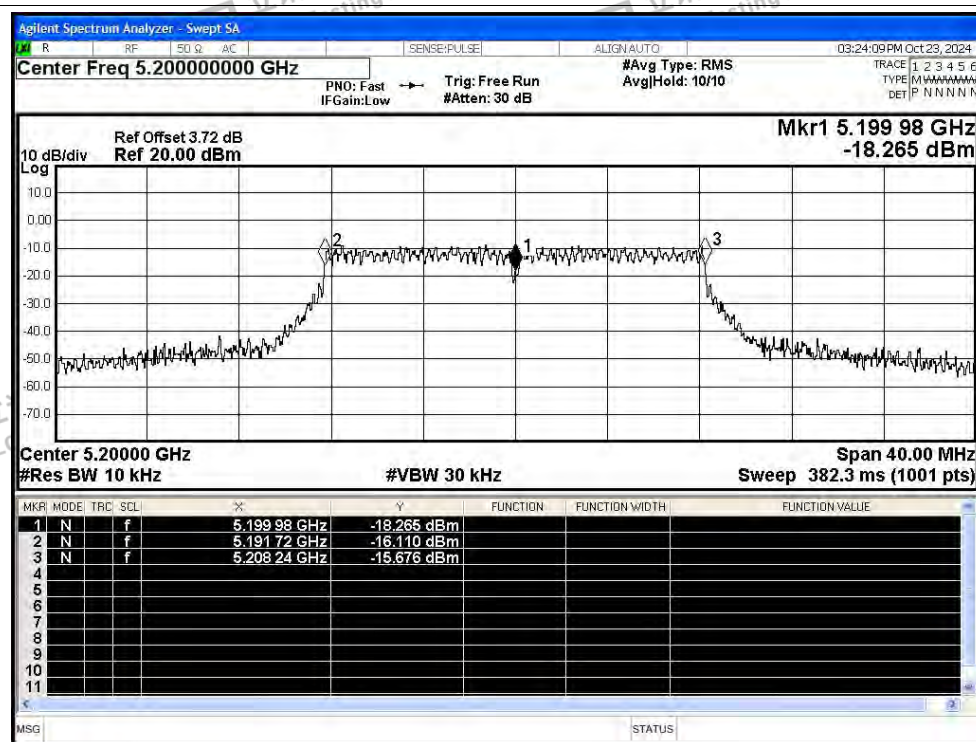


## Test Graphs

Freq. Stability NVNT a 5180MHz Ant1



Freq. Stability NVNT a 5200MHz Ant1



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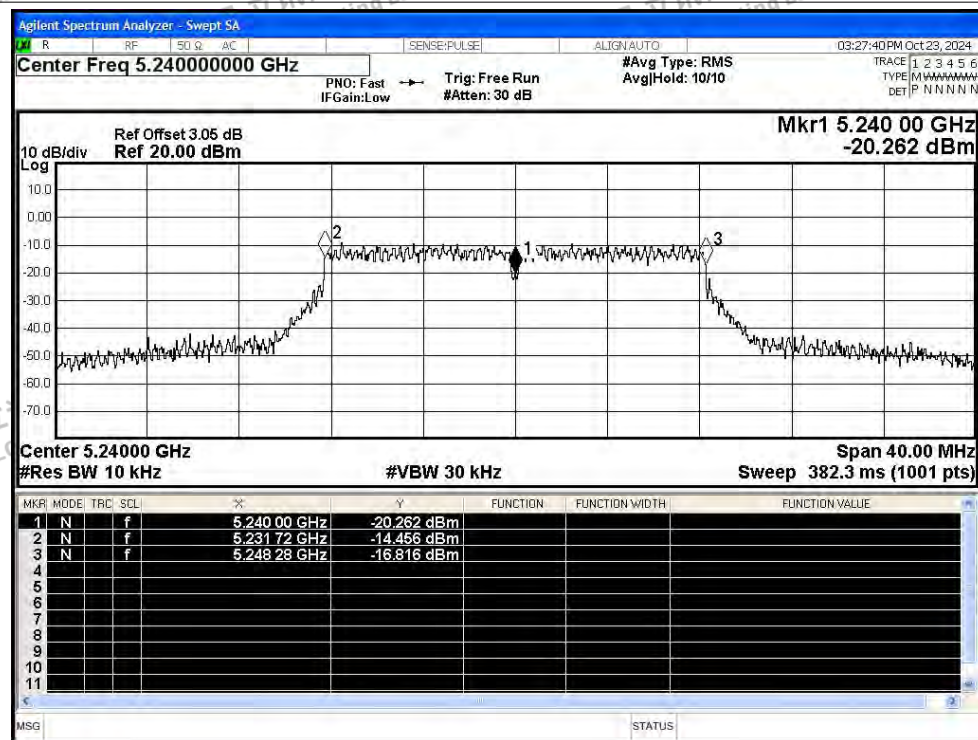
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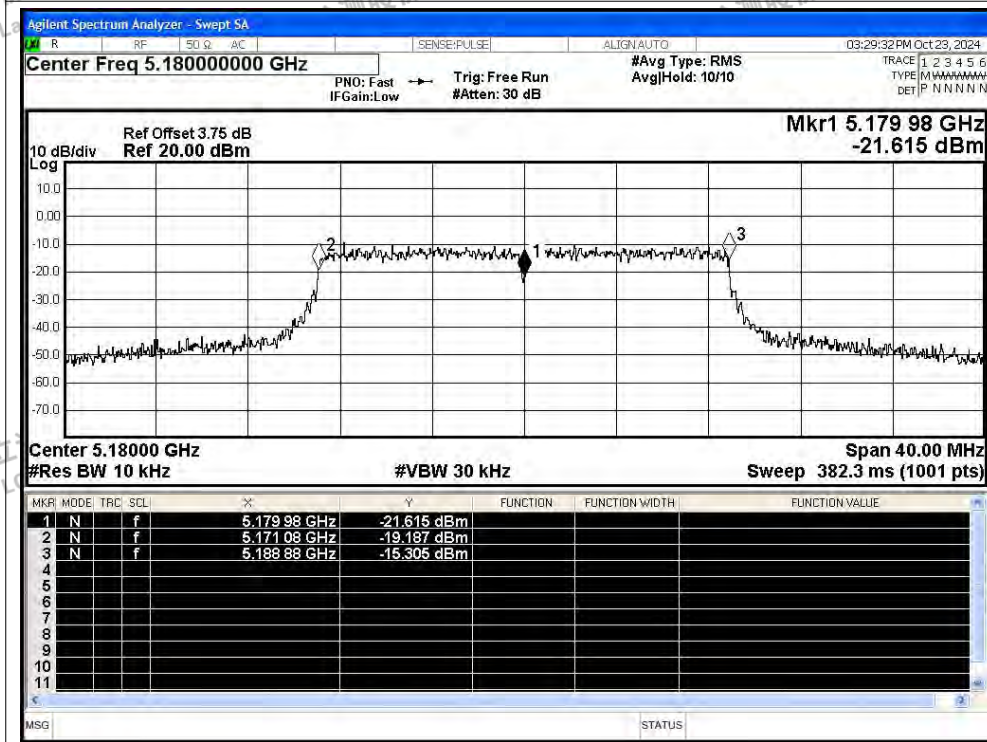
Scan code to check authenticity



## Freq. Stability NVNT a 5240MHz Ant1



## Freq. Stability NVNT n20 5180MHz Ant1



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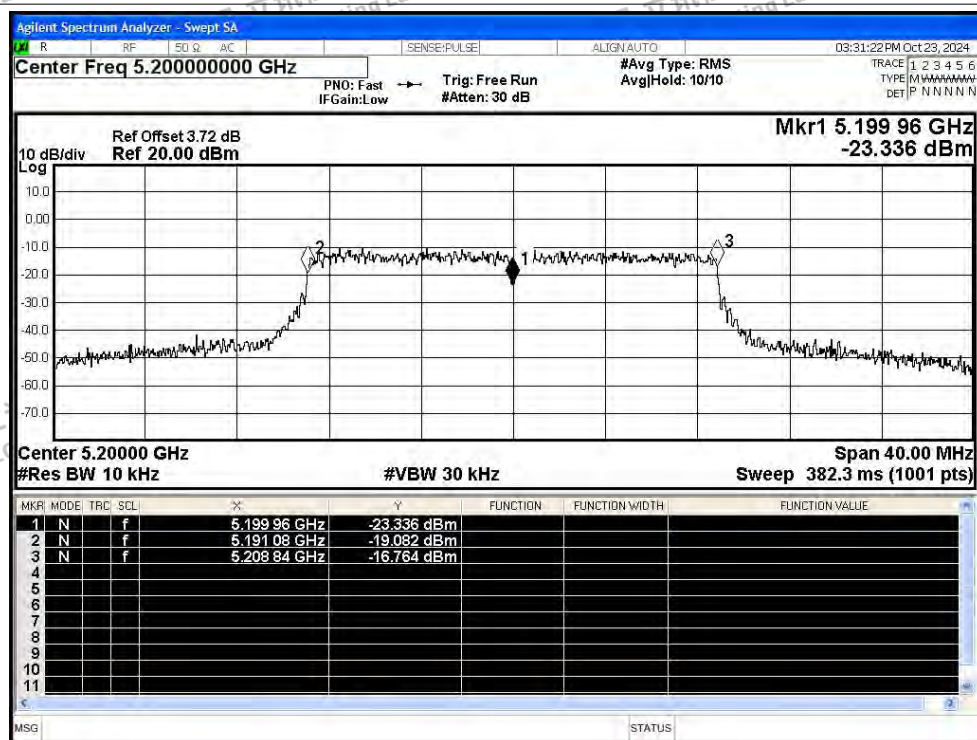
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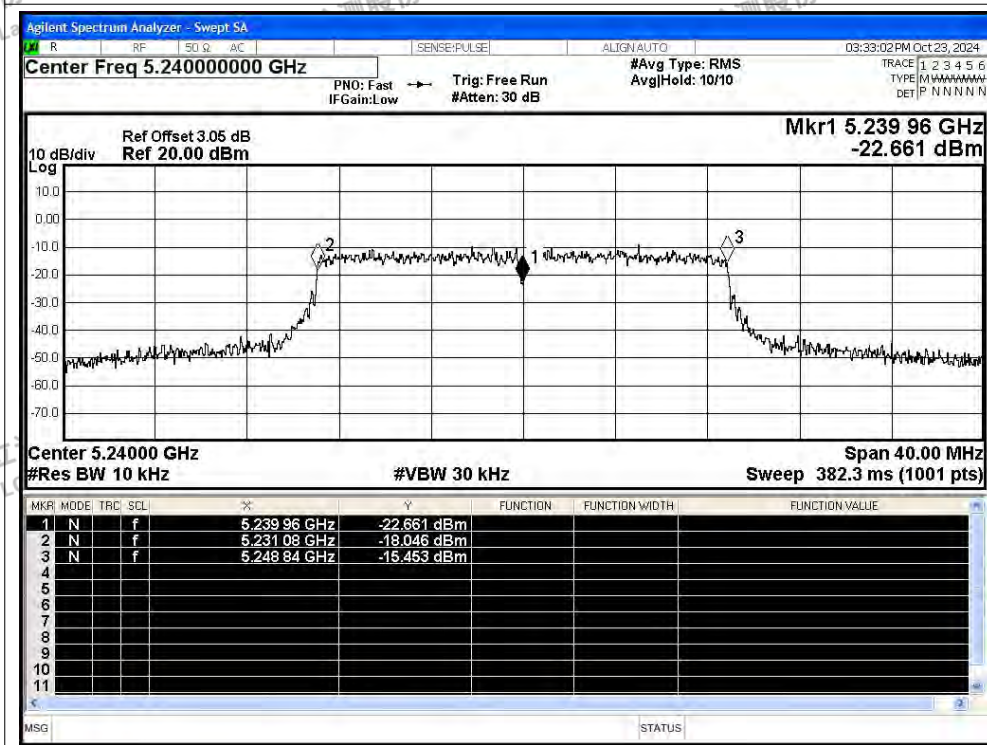
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## Freq. Stability NVNT n20 5200MHz Ant1



## Freq. Stability NVNT n20 5240MHz Ant1



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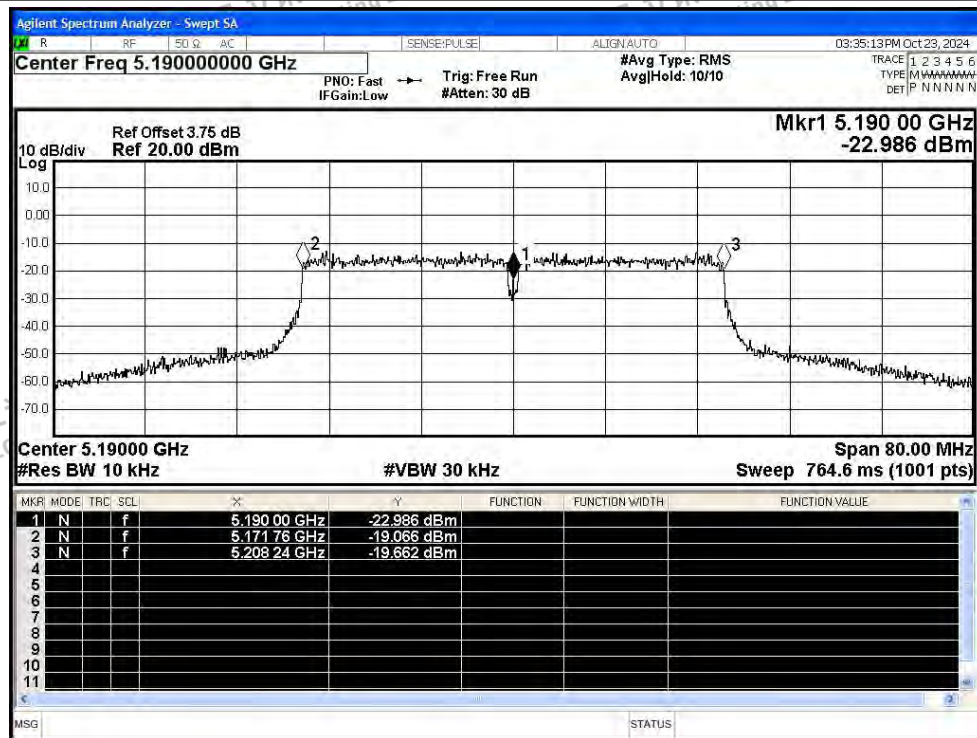
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

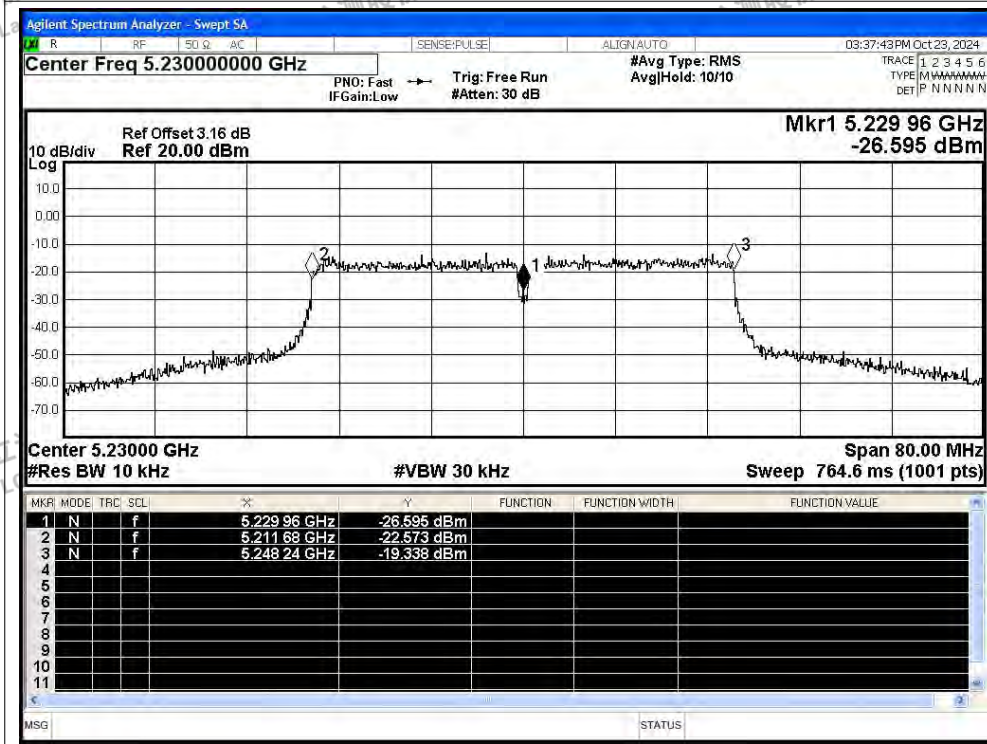
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## Freq. Stability NVNT n40 5190MHz Ant1



## Freq. Stability NVNT n40 5230MHz Ant1



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## D.6 Duty Cycle

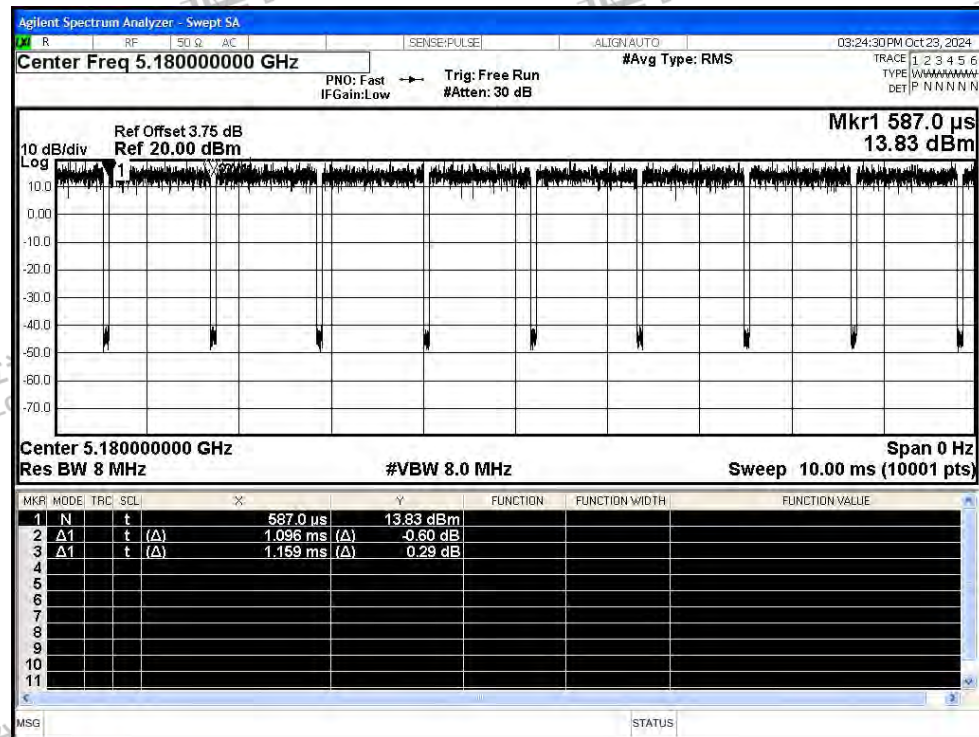
| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | a    | 5180            | Ant1    | 94.56          | 0.24                   | 0.91      |
| NVNT      | a    | 5200            | Ant1    | 94.65          | 0.24                   | 0.91      |
| NVNT      | a    | 5240            | Ant1    | 94.56          | 0.24                   | 0.91      |
| NVNT      | n20  | 5180            | Ant1    | 97.29          | 0.12                   | 0.44      |
| NVNT      | n20  | 5200            | Ant1    | 97.29          | 0.12                   | 0.44      |
| NVNT      | n20  | 5240            | Ant1    | 97.29          | 0.12                   | 0.44      |
| NVNT      | n40  | 5190            | Ant1    | 97.18          | 0.12                   | 0.46      |
| NVNT      | n40  | 5230            | Ant1    | 97.18          | 0.12                   | 0.46      |



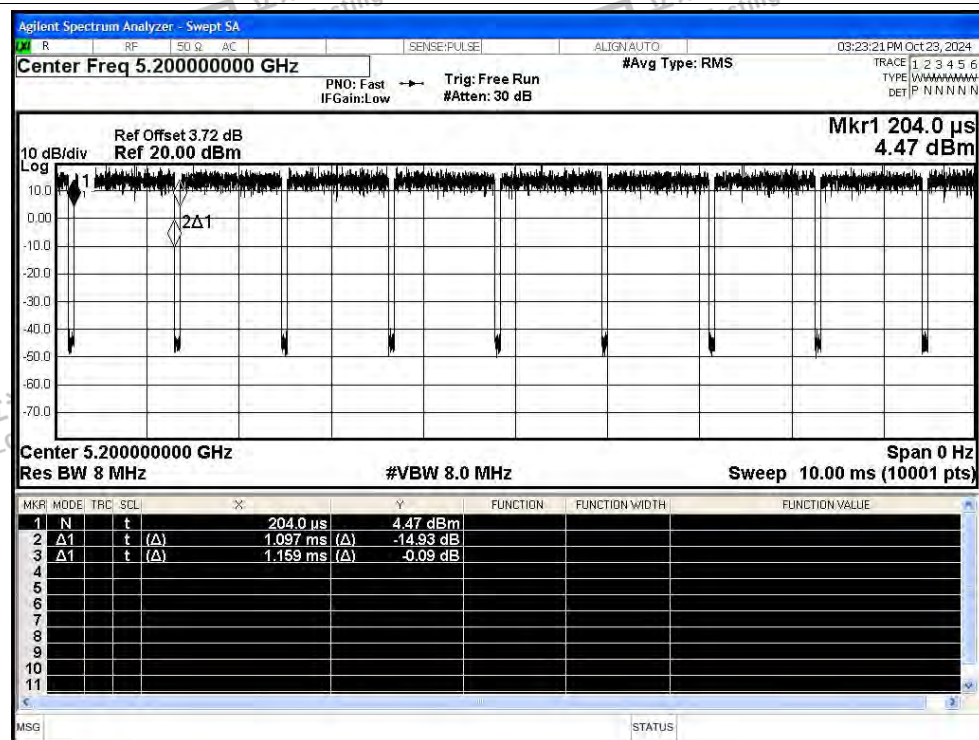


## Test Graphs

## Duty Cycle NVNT a 5180MHz Ant1



## Duty Cycle NVNT a 5200MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

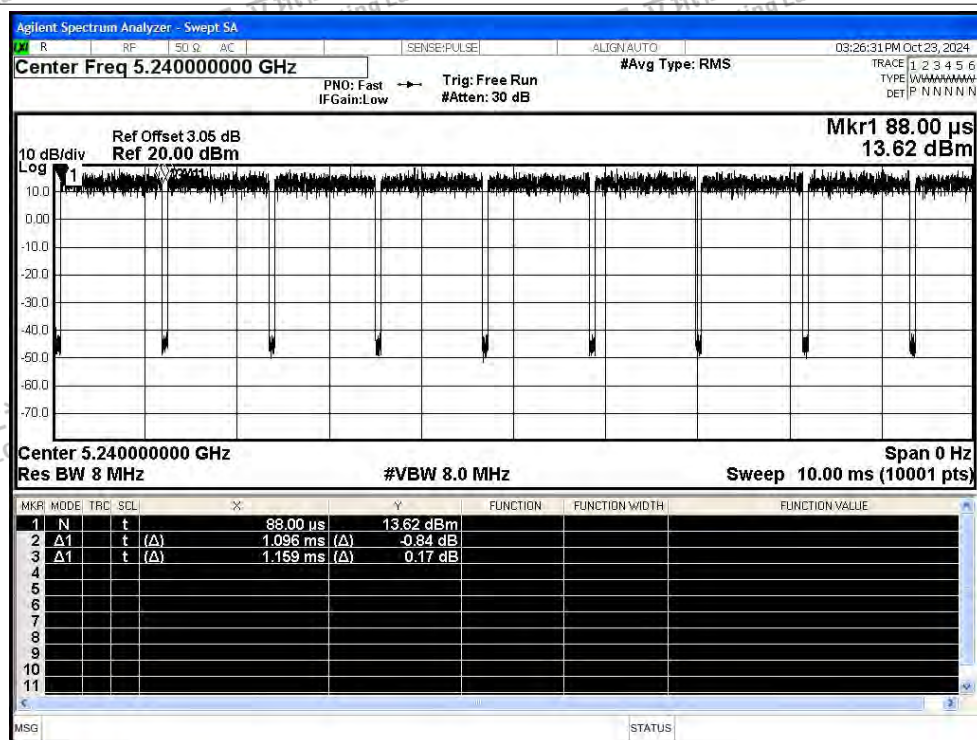
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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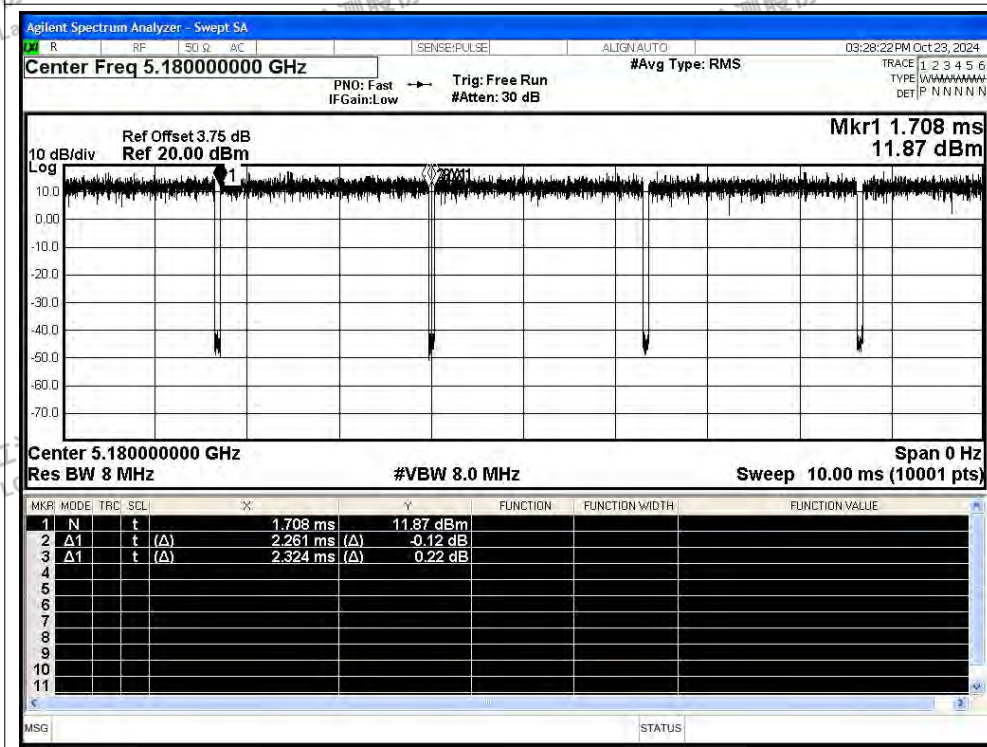
Scan code to check authenticity



## Duty Cycle NVNT a 5240MHz Ant1



## Duty Cycle NVNT n20 5180MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

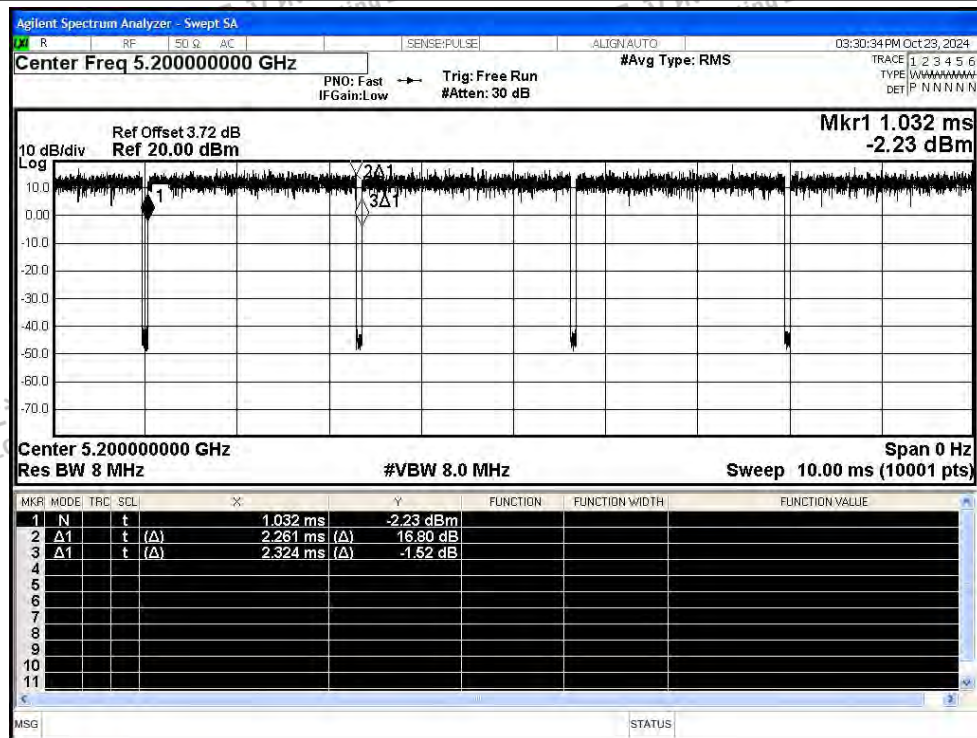
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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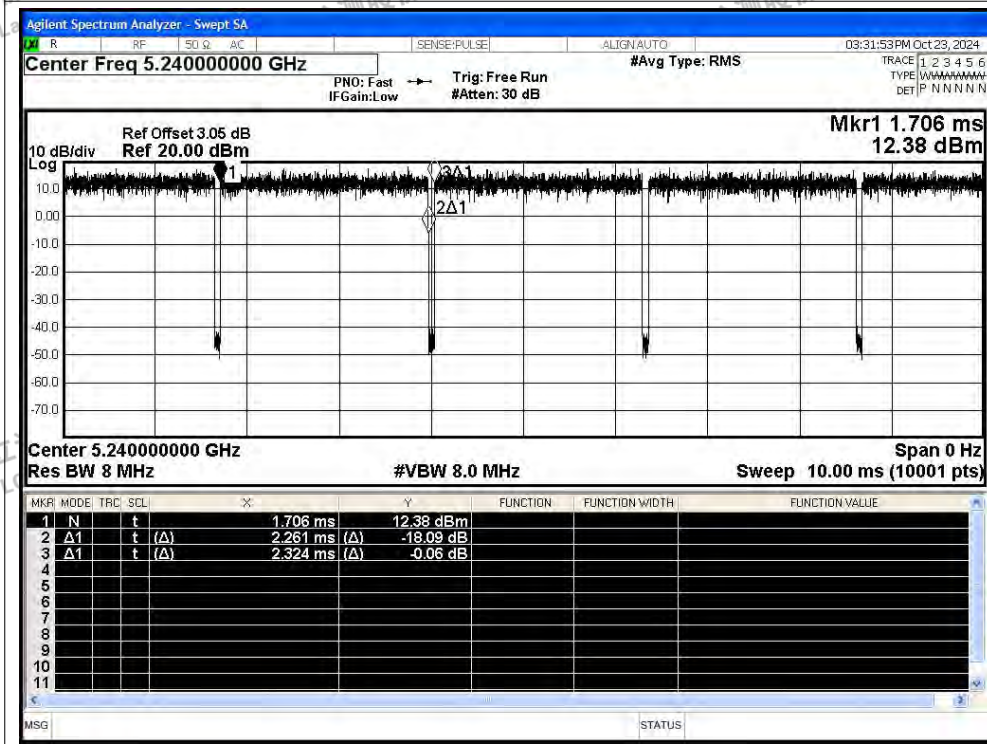
Scan code to check authenticity



## Duty Cycle NVNT n20 5200MHz Ant1



## Duty Cycle NVNT n20 5240MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

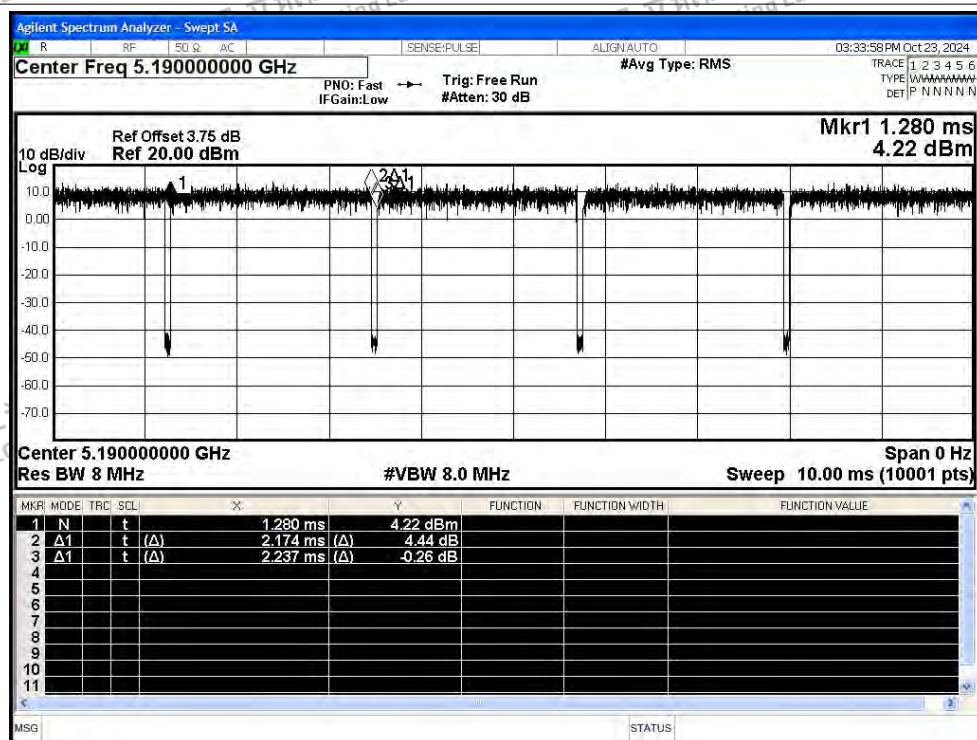
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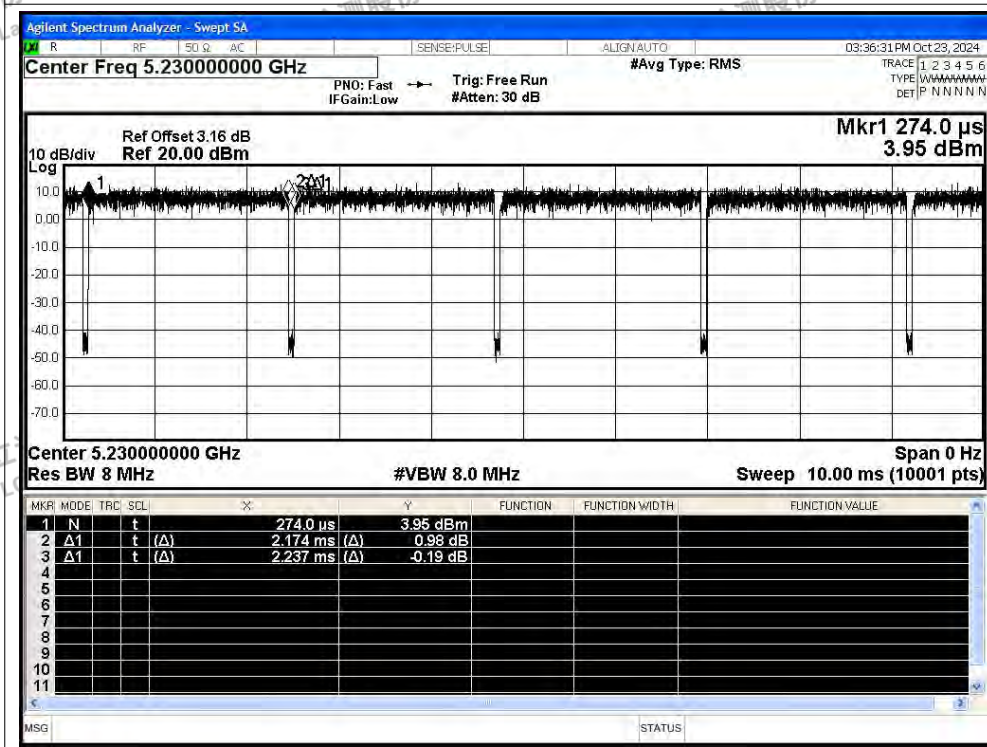
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## Duty Cycle NVNT n40 5190MHz Ant1



## Duty Cycle NVNT n40 5230MHz Ant1



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