



## Appendix D

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

Product Name: Car CarPlay Stereo

Test Model: TS0001

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.9° C   |
| Relative Humidity: | 52.4%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Jose Zhu  |
| 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    | 26.006                 | ---                          | Pass    |
| NVNT      | a    | 5200            | Ant1    | 24.212                 | ---                          | Pass    |
| NVNT      | a    | 5240            | Ant1    | 27.805                 | ---                          | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 29.37                  | ---                          | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 26.901                 | ---                          | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 27.163                 | ---                          | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 48.611                 | ---                          | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 50.396                 | ---                          | Pass    |

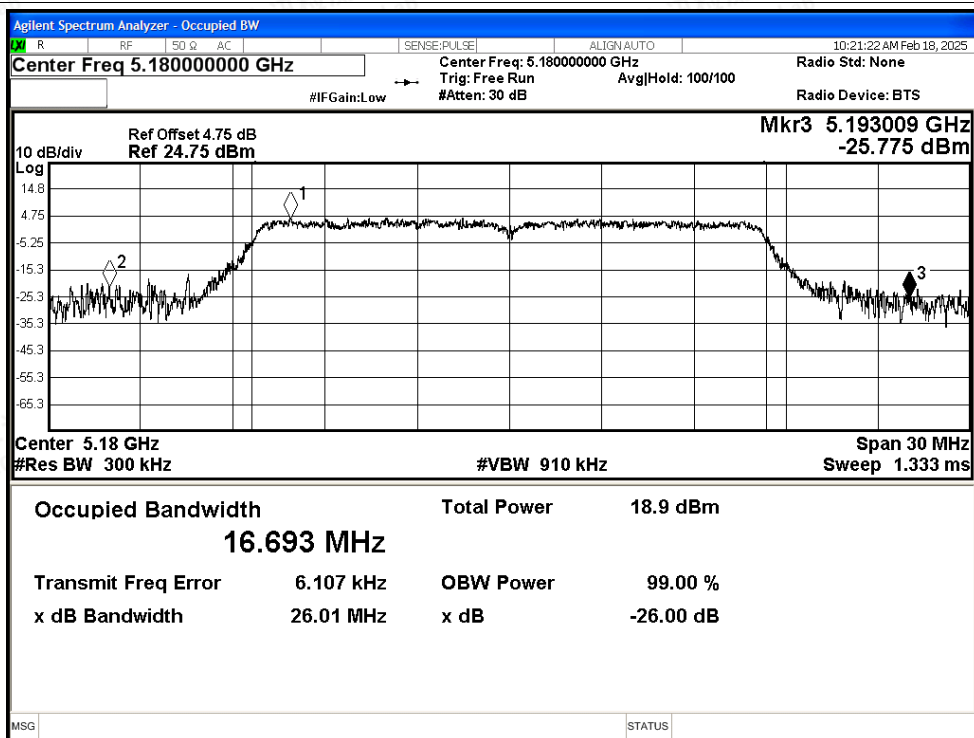


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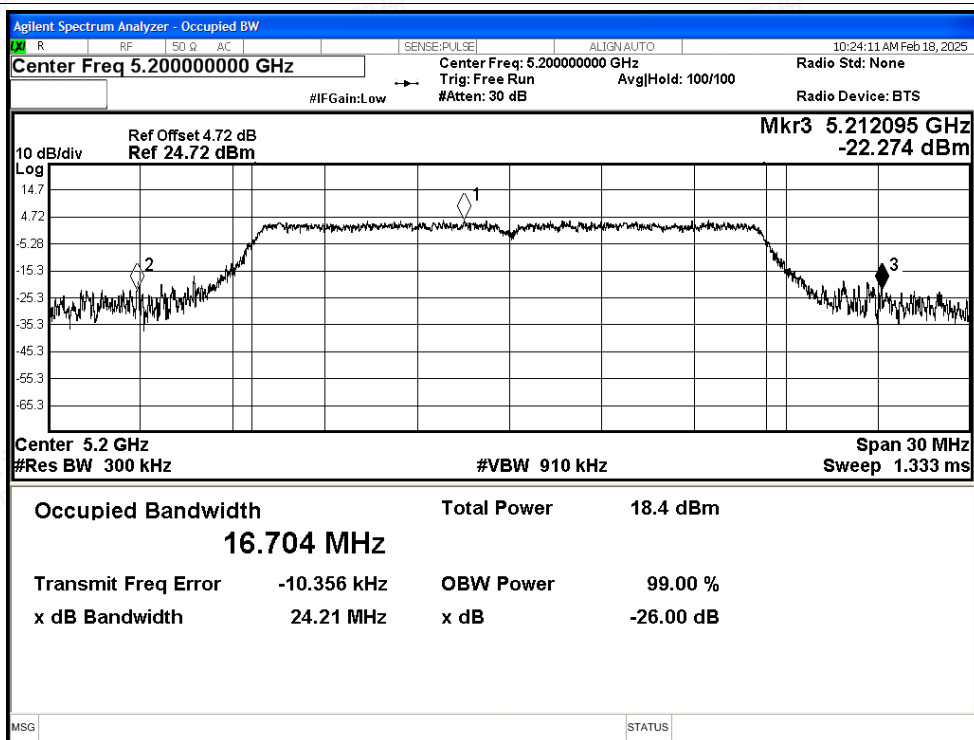


## Test Graphs

-26dB Bandwidth NVNT a 5180MHz Ant1

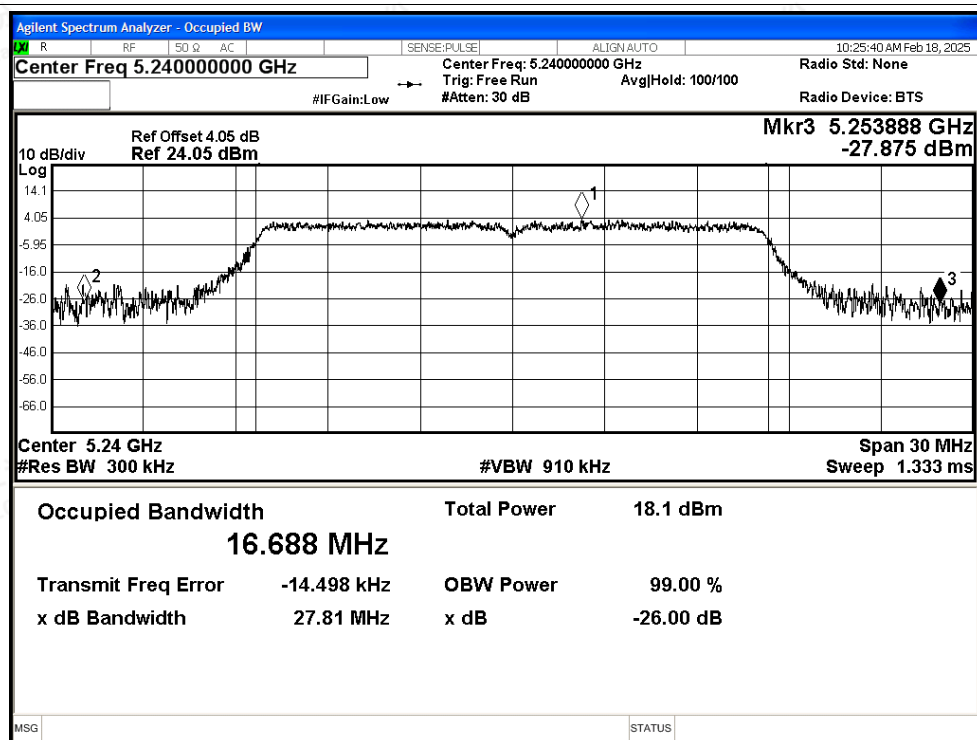


-26dB Bandwidth NVNT a 5200MHz Ant1

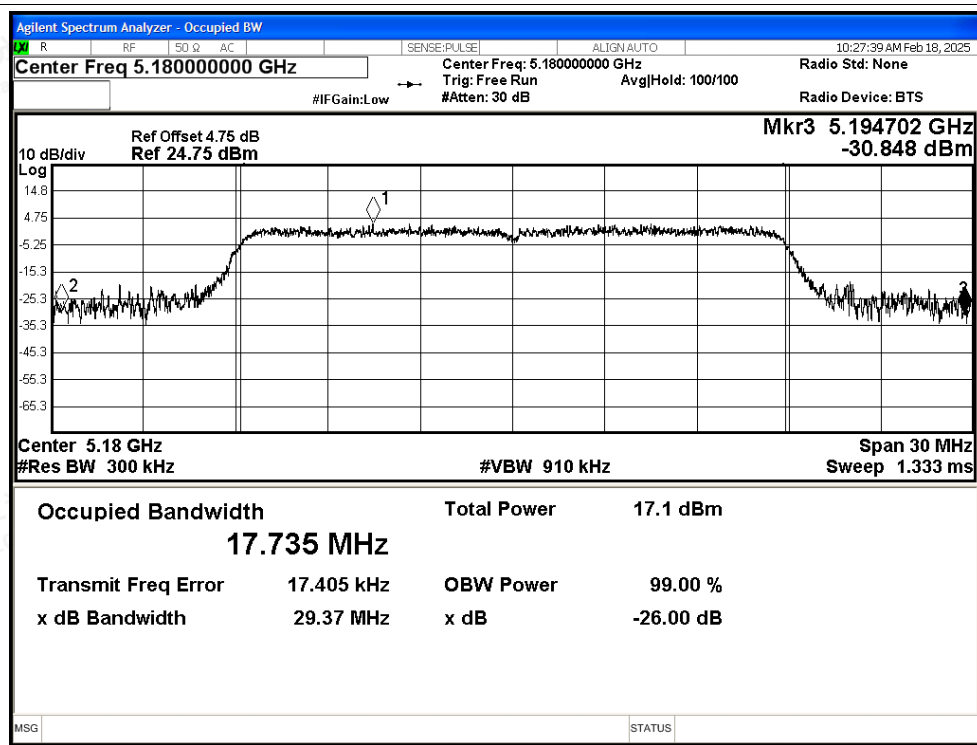




## -26dB Bandwidth NVNT a 5240MHz Ant1

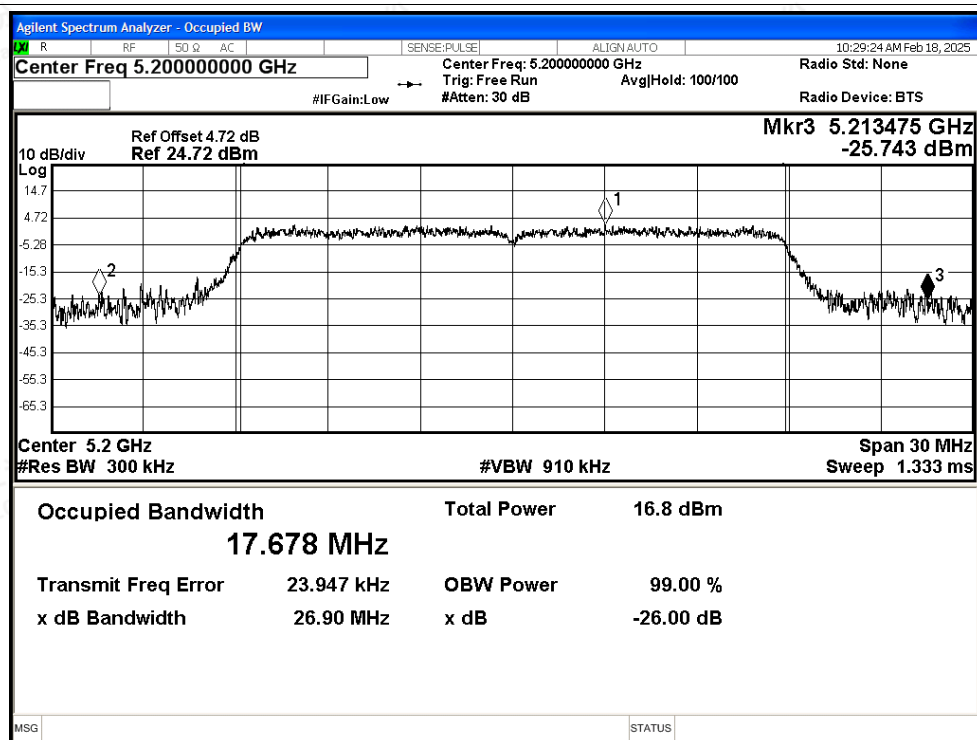


## -26dB Bandwidth NVNT n20 5180MHz Ant1

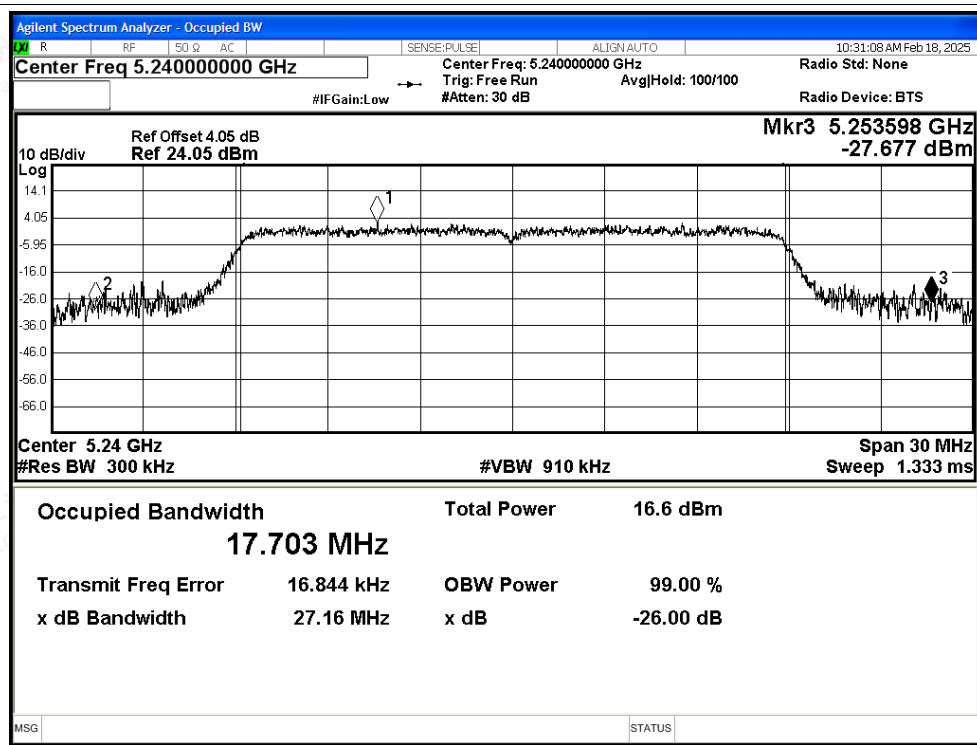




## -26dB Bandwidth NVNT n20 5200MHz Ant1

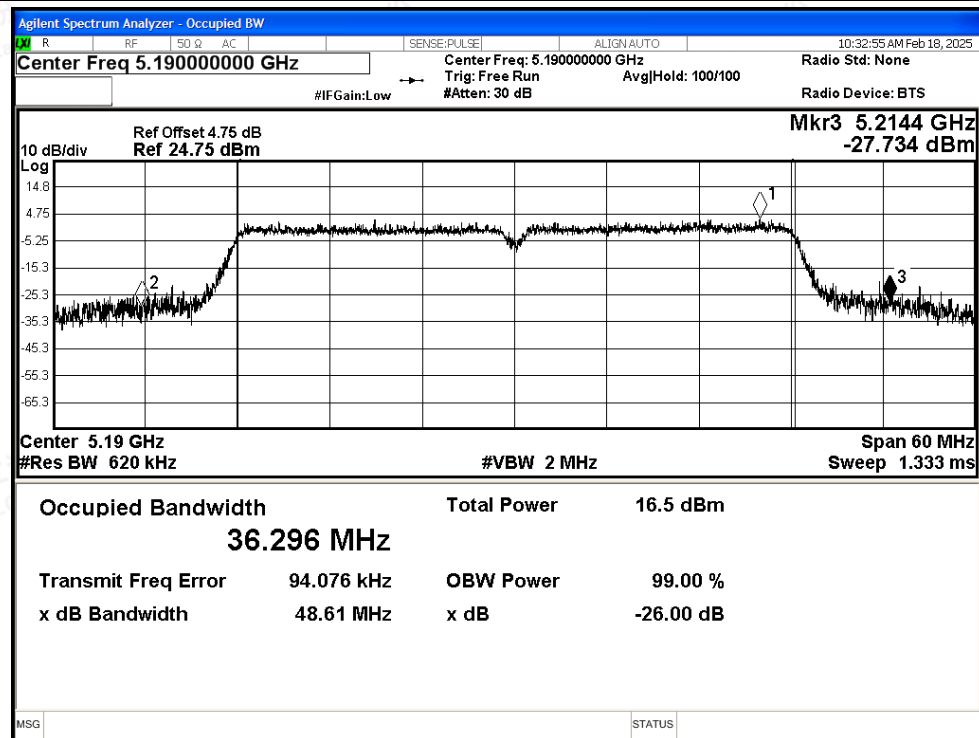


## -26dB Bandwidth NVNT n20 5240MHz Ant1

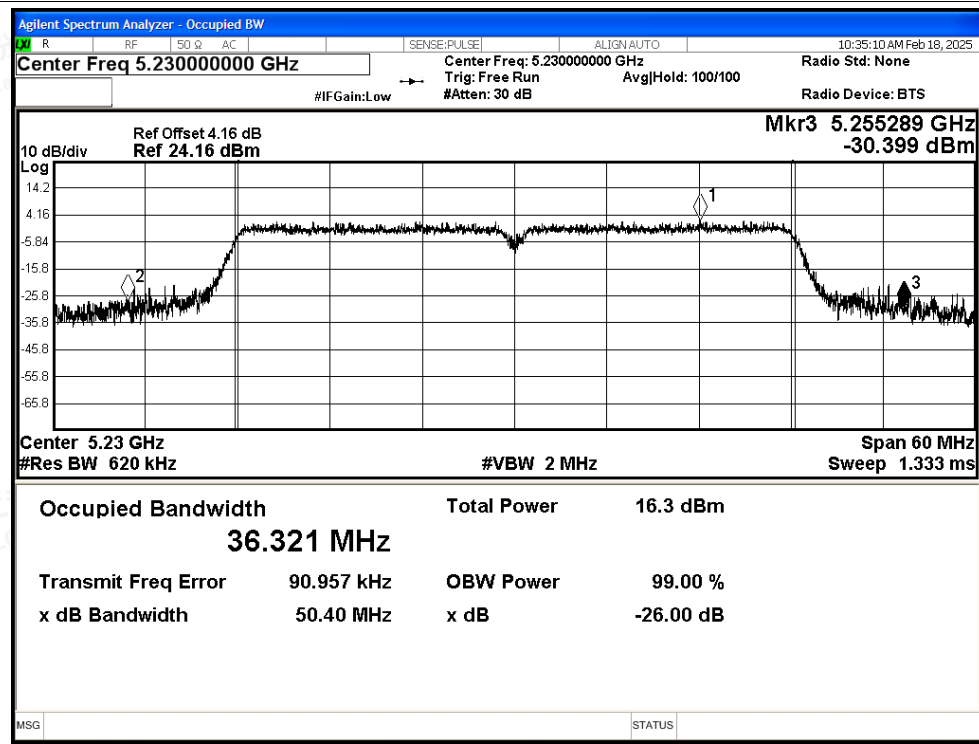




## -26dB Bandwidth NVNT n40 5190MHz Ant1



## -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    | 13.2                     | 0.24                | 13.44                | 24             | Pass    |
| NVNT      | a    | 5200               | Ant1    | 12.69                    | 0.24                | 12.93                | 24             | Pass    |
| NVNT      | a    | 5240               | Ant1    | 12.46                    | 0.24                | 12.7                 | 24             | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 11.62                    | 0.12                | 11.74                | 24             | Pass    |
| NVNT      | n20  | 5200               | Ant1    | 11.23                    | 0.12                | 11.35                | 24             | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 11.01                    | 0.12                | 11.13                | 24             | Pass    |
| NVNT      | n40  | 5190               | Ant1    | 10.16                    | 0.24                | 10.4                 | 24             | Pass    |
| NVNT      | n40  | 5230               | Ant1    | 11.05                    | 0.24                | 11.29                | 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    | 2.62                       | 0.24                | 2.86                   | 11                 | Pass    |
| NVNT      | a    | 5200               | Ant1    | 2.24                       | 0.24                | 2.48                   | 11                 | Pass    |
| NVNT      | a    | 5240               | Ant1    | 2.1                        | 0.24                | 2.34                   | 11                 | Pass    |
| NVNT      | n20  | 5180               | Ant1    | 0.66                       | 0.12                | 0.78                   | 11                 | Pass    |
| NVNT      | n20  | 5200               | Ant1    | 0.4                        | 0.12                | 0.52                   | 11                 | Pass    |
| NVNT      | n20  | 5240               | Ant1    | 0.11                       | 0.12                | 0.23                   | 11                 | Pass    |
| NVNT      | n40  | 5190               | Ant1    | -3.29                      | 0.24                | -3.05                  | 11                 | Pass    |
| NVNT      | n40  | 5230               | Ant1    | -3.82                      | 0.24                | -3.58                  | 11                 | Pass    |



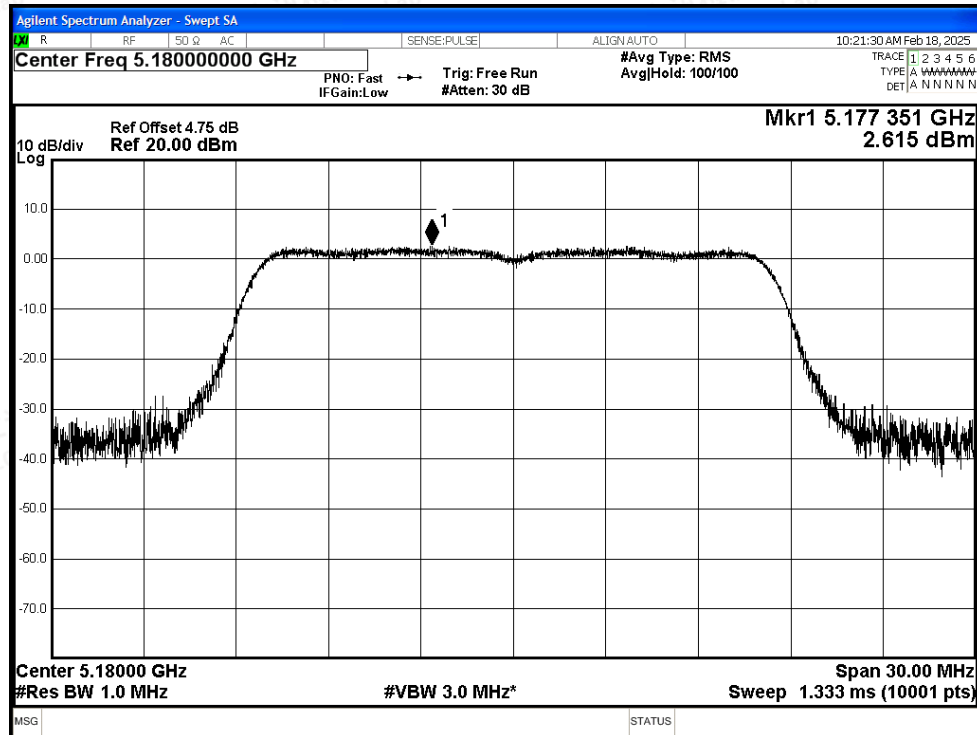
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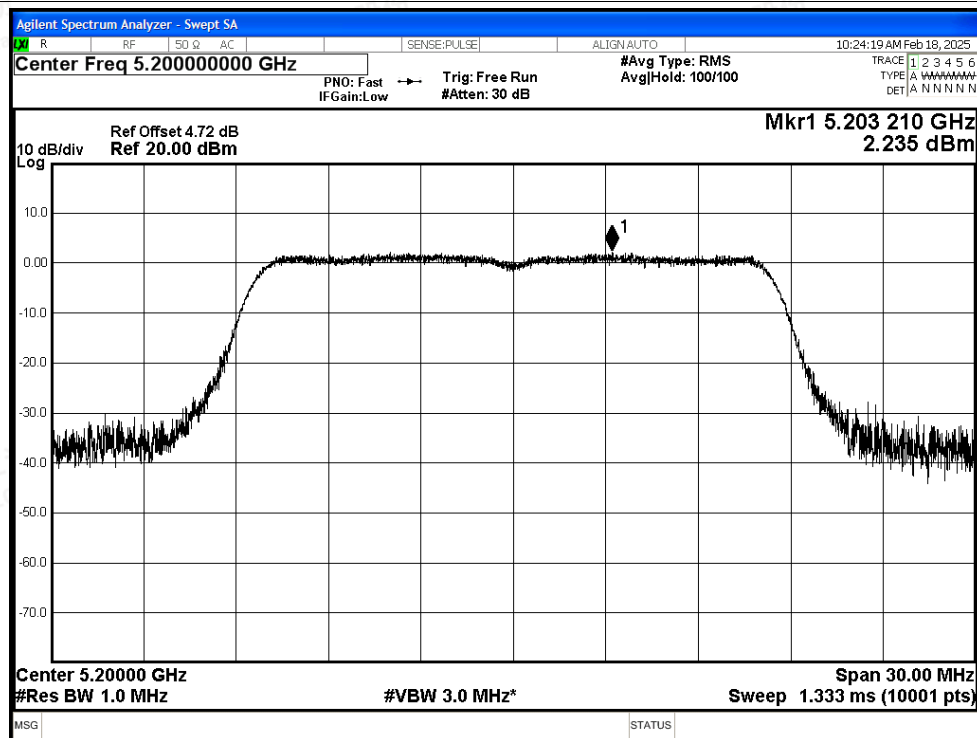


## Test Graphs

PSD NVNT a 5180MHz Ant1

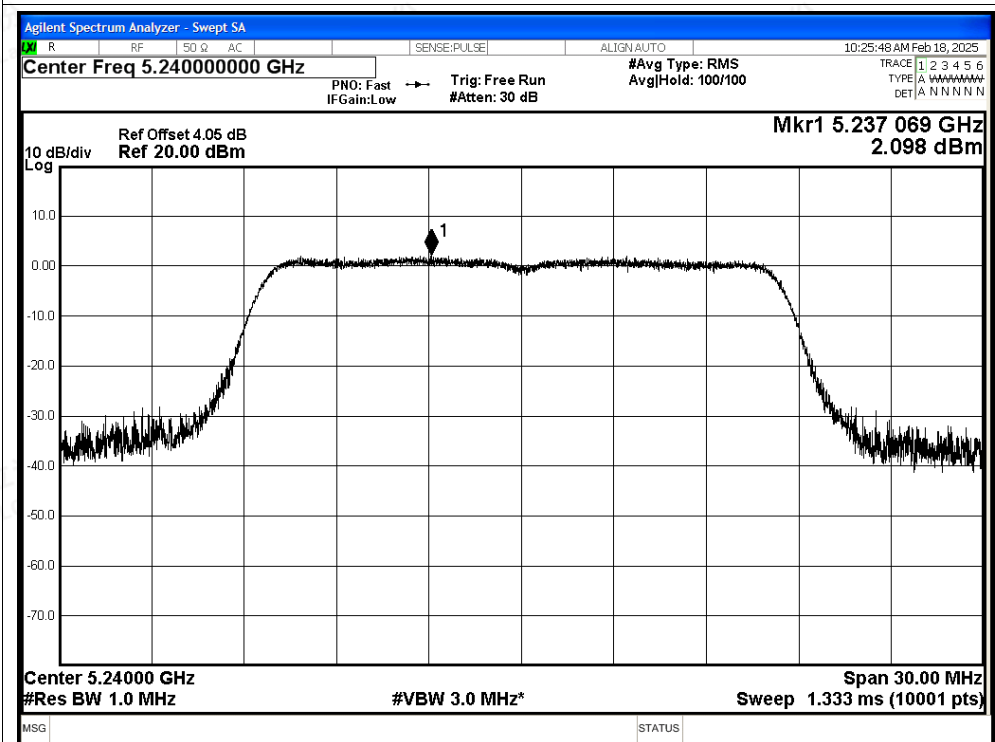


PSD NVNT a 5200MHz Ant1

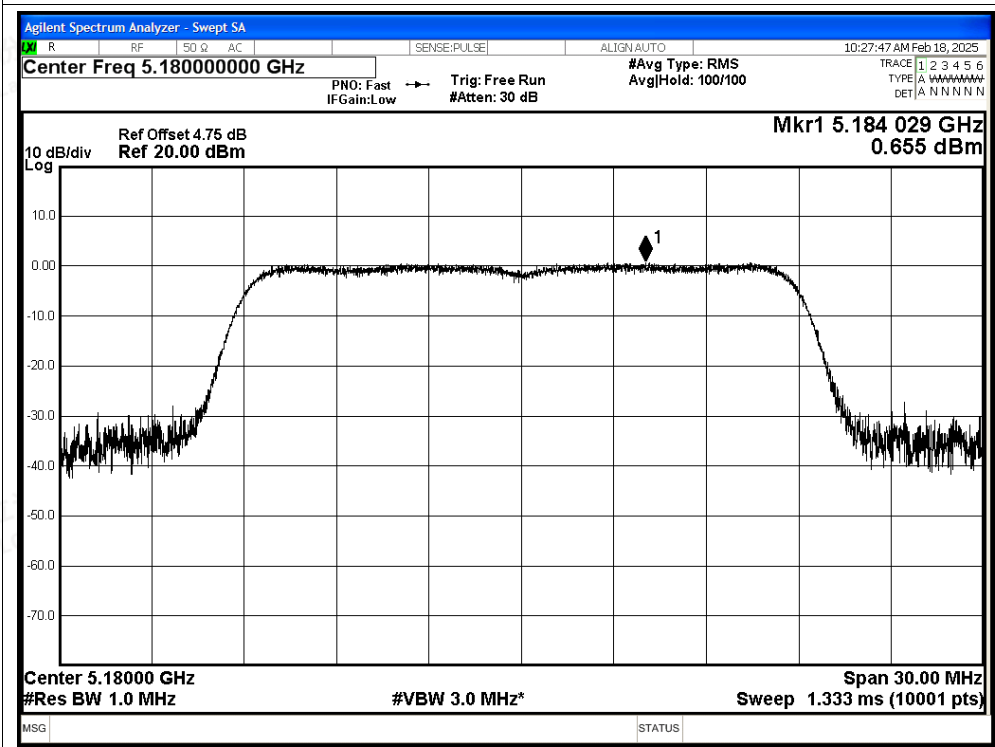


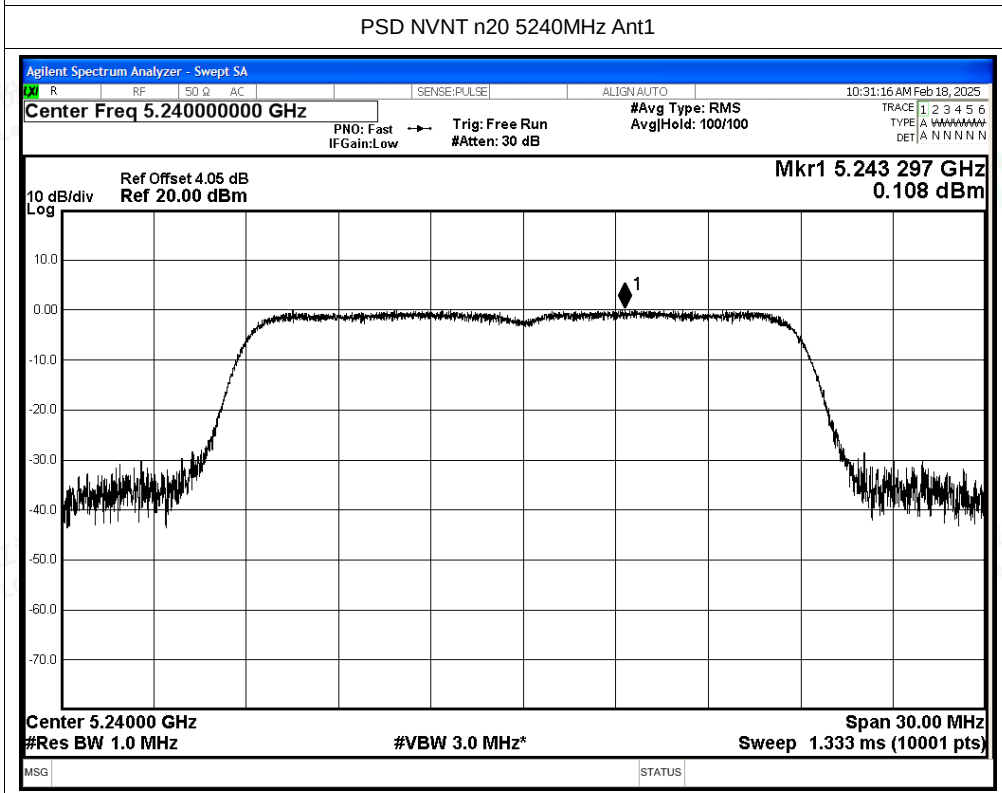
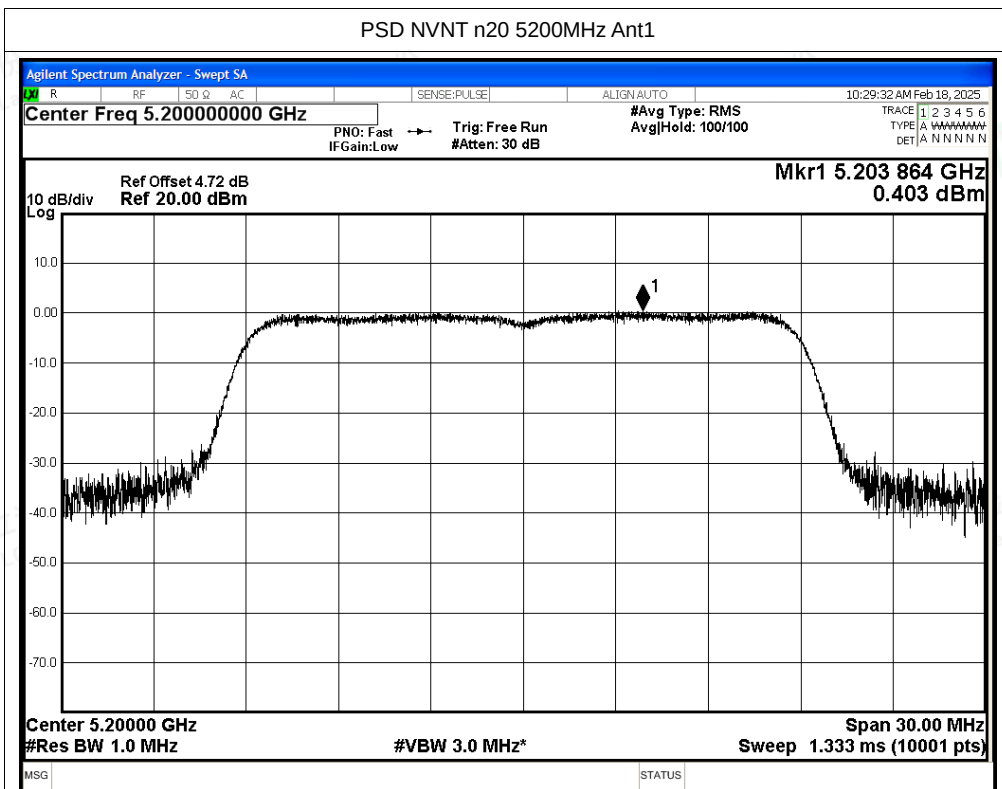


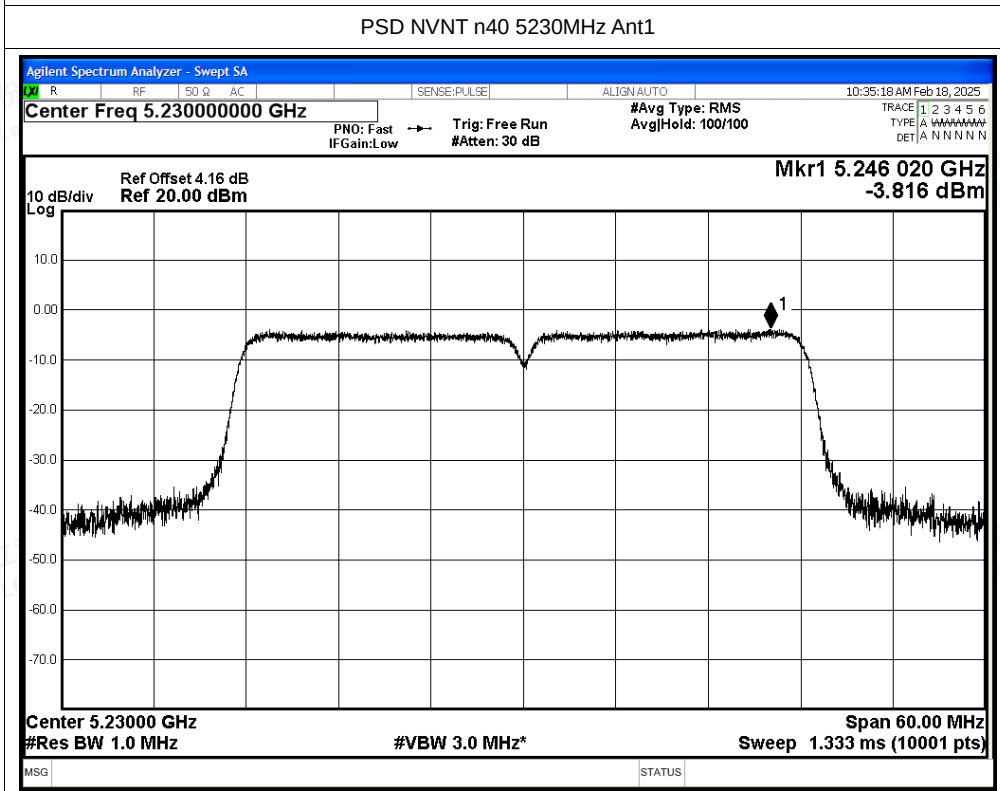
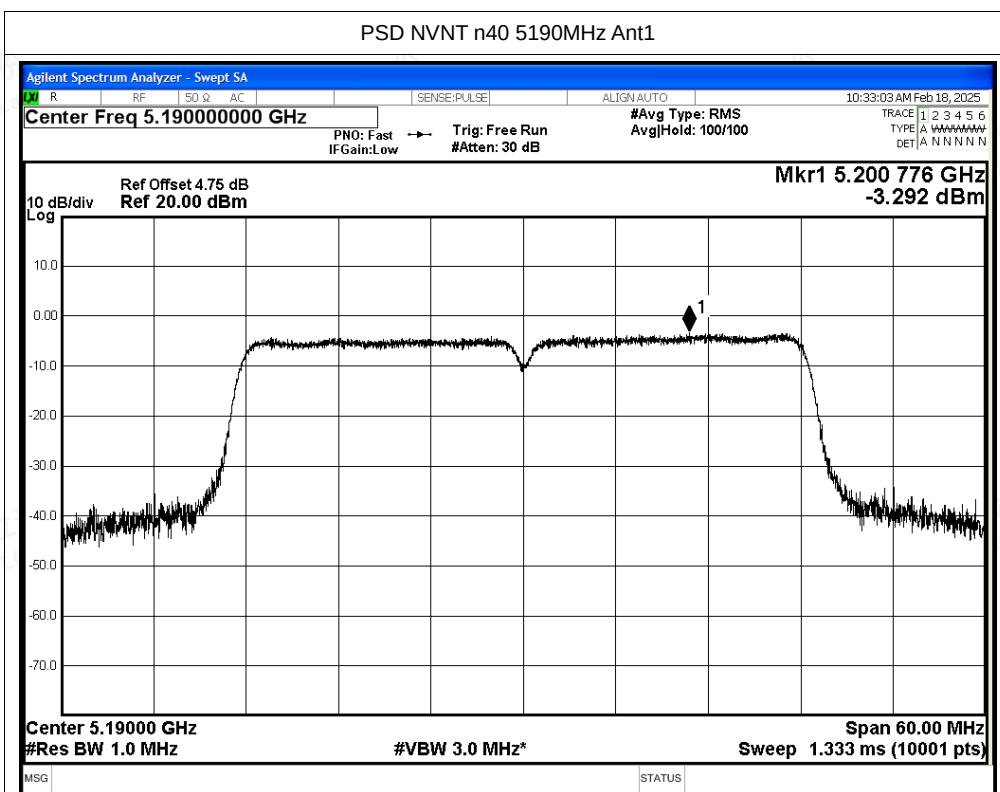
## PSD NVNT a 5240MHz Ant1



## PSD NVNT n20 5180MHz Ant1







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## D.4 Restrict Band

| Condition | Mode | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor (dB) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|------|-----------------|---------|-----------------|-------------|------------|------------------|------------|----------|----------------|---------|
| NVNT      | a    | 5180            | Ant1    | 4500            | -48.4       | 4.95       | -                | 51.78      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5180            | Ant1    | 4500            | -57.16      | 4.95       | 0.24             | 43.26      | Average  | 54             | Pass    |
| NVNT      | a    | 5180            | Ant1    | 5099.2          | -45.28      | 4.95       | -                | 54.90      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5180            | Ant1    | 5149.6          | -54.03      | 4.95       | 0.24             | 46.39      | Average  | 54             | Pass    |
| NVNT      | a    | 5180            | Ant1    | 5150            | -45.38      | 4.95       | -                | 54.80      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5180            | Ant1    | 5150            | -54.68      | 4.95       | 0.24             | 45.74      | Average  | 54             | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5350            | -50.14      | 4.95       | -                | 50.04      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5350            | -56.66      | 4.95       | 0.24             | 43.76      | Average  | 54             | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5445.36         | -45.77      | 4.95       | -                | 54.41      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5384.4          | -56.33      | 4.95       | 0.24             | 44.09      | Average  | 54             | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5460            | -49.57      | 4.95       | -                | 50.61      | Peak     | 68.2           | Pass    |
| NVNT      | a    | 5240            | Ant1    | 5460            | -57.22      | 4.95       | 0.24             | 43.20      | Average  | 54             | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 4500            | -49.39      | 4.95       | -                | 50.79      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 4500            | -57.48      | 4.95       | 0.12             | 42.82      | Average  | 54             | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5146.8          | -41.24      | 4.95       | -                | 58.94      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5148.2          | -54.14      | 4.95       | 0.12             | 46.16      | Average  | 54             | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5150            | -42.04      | 4.95       | -                | 58.14      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5150            | -54.26      | 4.95       | 0.12             | 46.04      | Average  | 54             | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5350            | -48.49      | 4.95       | -                | 51.69      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5350            | -56.99      | 4.95       | 0.12             | 43.31      | Average  | 54             | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5351.04         | -45.54      | 4.95       | -                | 54.64      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5392.8          | -56.37      | 4.95       | 0.12             | 43.93      | Average  | 54             | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5460            | -49.69      | 4.95       | -                | 50.49      | Peak     | 68.2           | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5460            | -56.88      | 4.95       | 0.12             | 43.42      | Average  | 54             | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 4500            | -49.85      | 4.95       | -                | 50.33      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 4500            | -57.42      | 4.95       | 0.24             | 43.00      | Average  | 54             | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 5149.7          | -39.83      | 4.95       | -                | 60.35      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 5149.7          | -52.98      | 4.95       | 0.24             | 47.44      | Average  | 54             | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 5150            | -39.83      | 4.95       | -                | 60.35      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 5150            | -52.98      | 4.95       | 0.24             | 47.44      | Average  | 54             | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5350            | -49.56      | 4.95       | -                | 50.62      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5350            | -57.09      | 4.95       | 0.24             | 43.33      | Average  | 54             | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5396.28         | -45.95      | 4.95       | -                | 54.23      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5356.86         | -56.14      | 4.95       | 0.24             | 44.28      | Average  | 54             | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5460            | -48.59      | 4.95       | -                | 51.59      | Peak     | 68.2           | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5460            | -57.23      | 4.95       | 0.24             | 43.19      | Average  | 54             | Pass    |

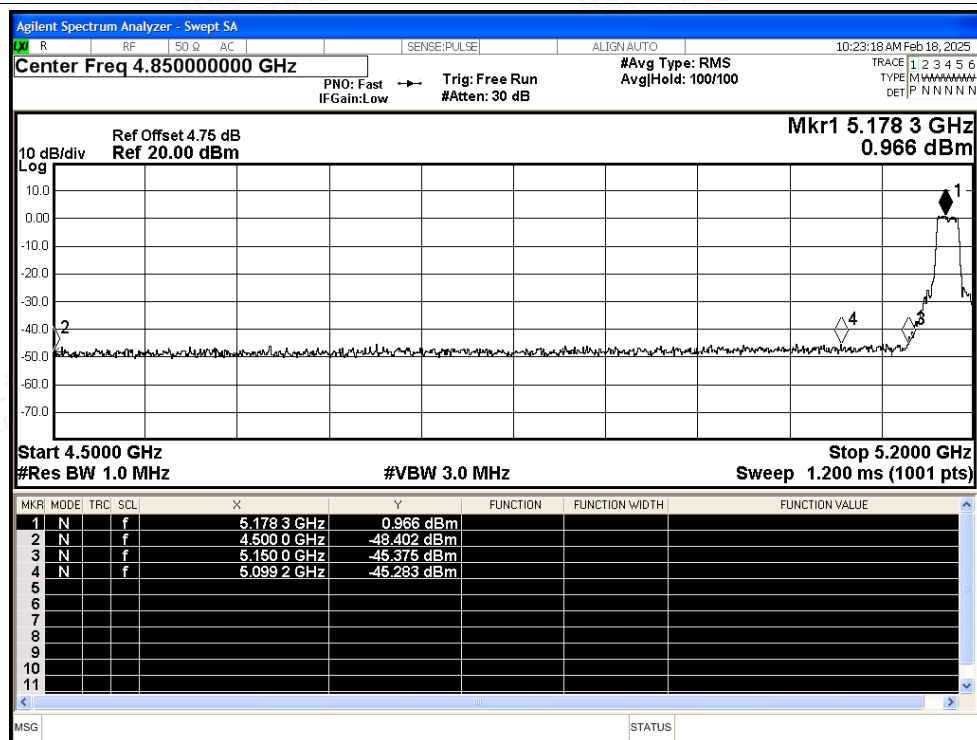


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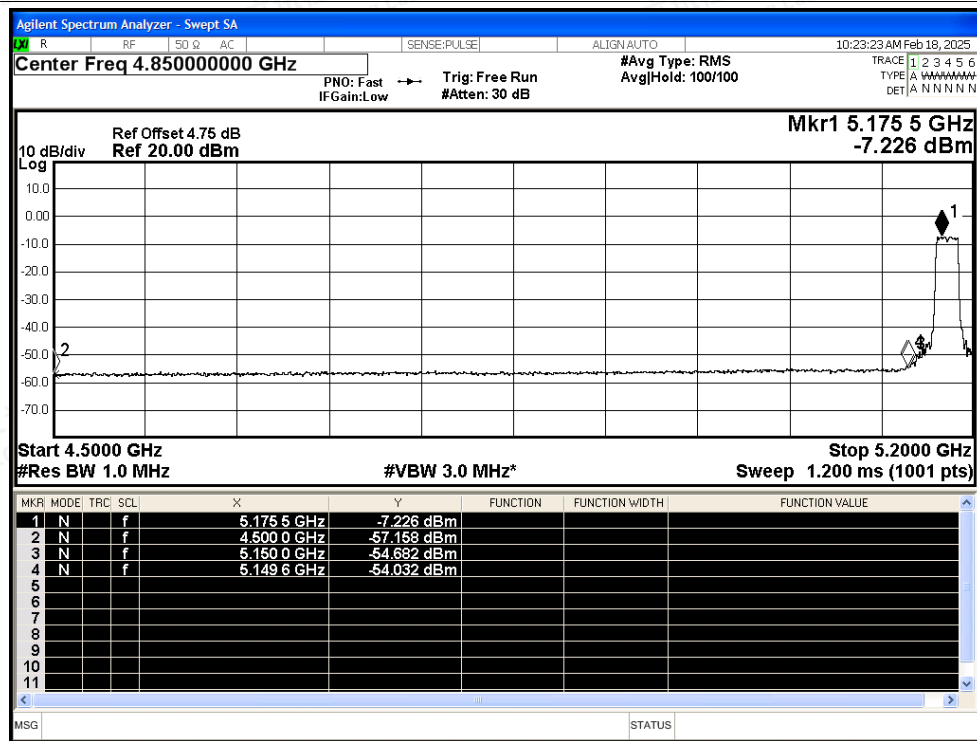


## Test Graphs

## Restrict Band NVNT a 5180MHz Ant1 Peak

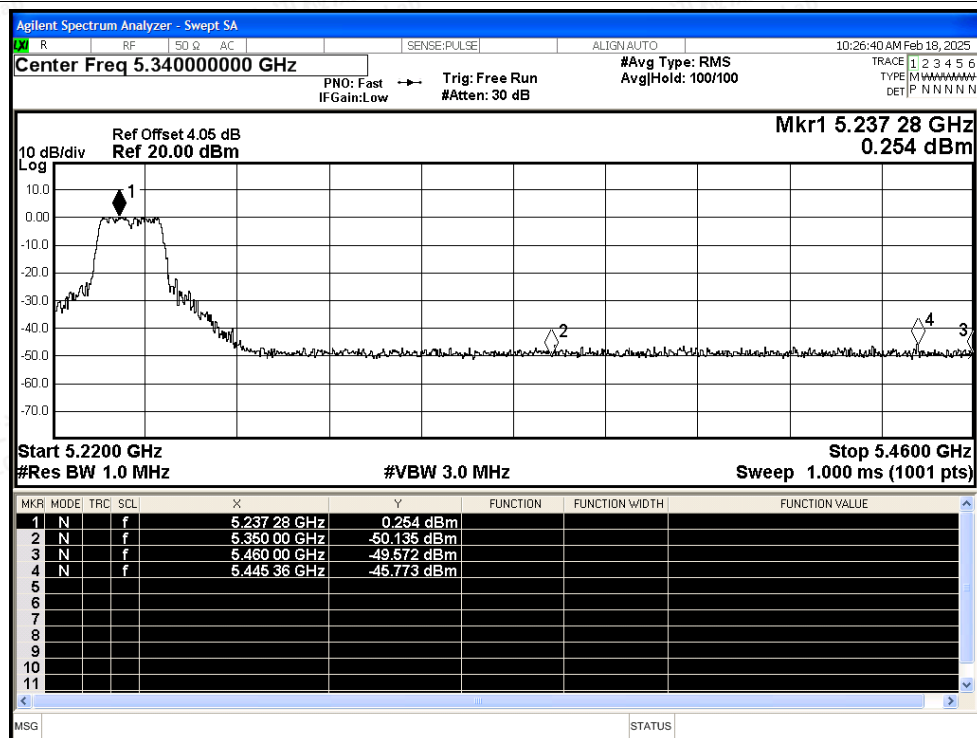


## Restrict Band NVNT a 5180MHz Ant1 Average

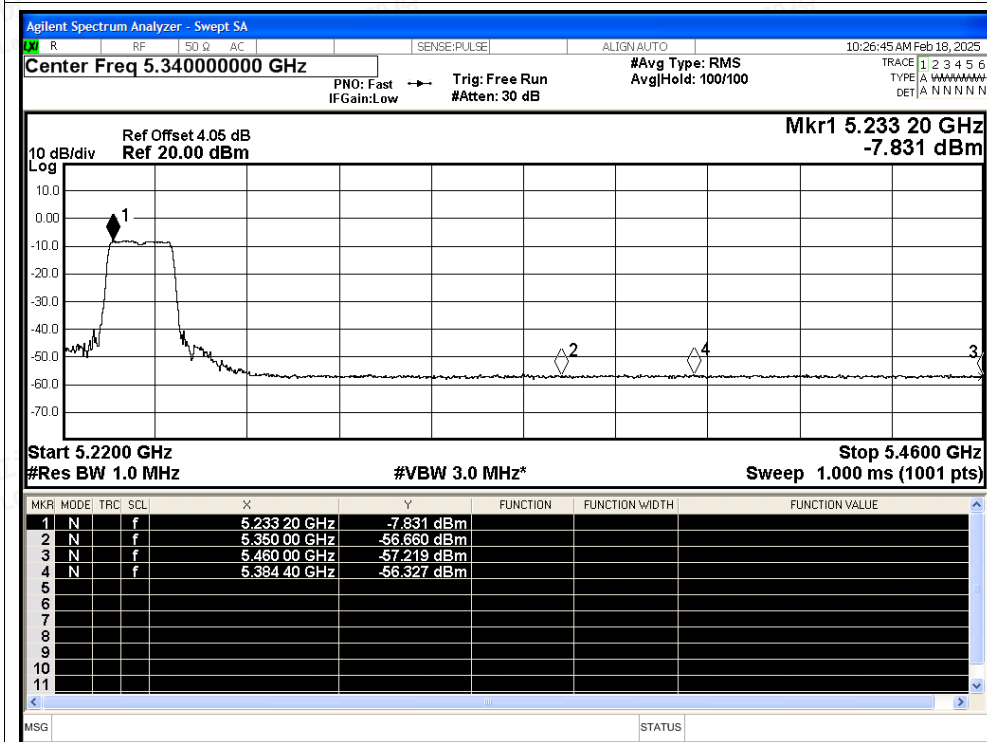




## Restrict Band NVNT a 5240MHz Ant1 Peak



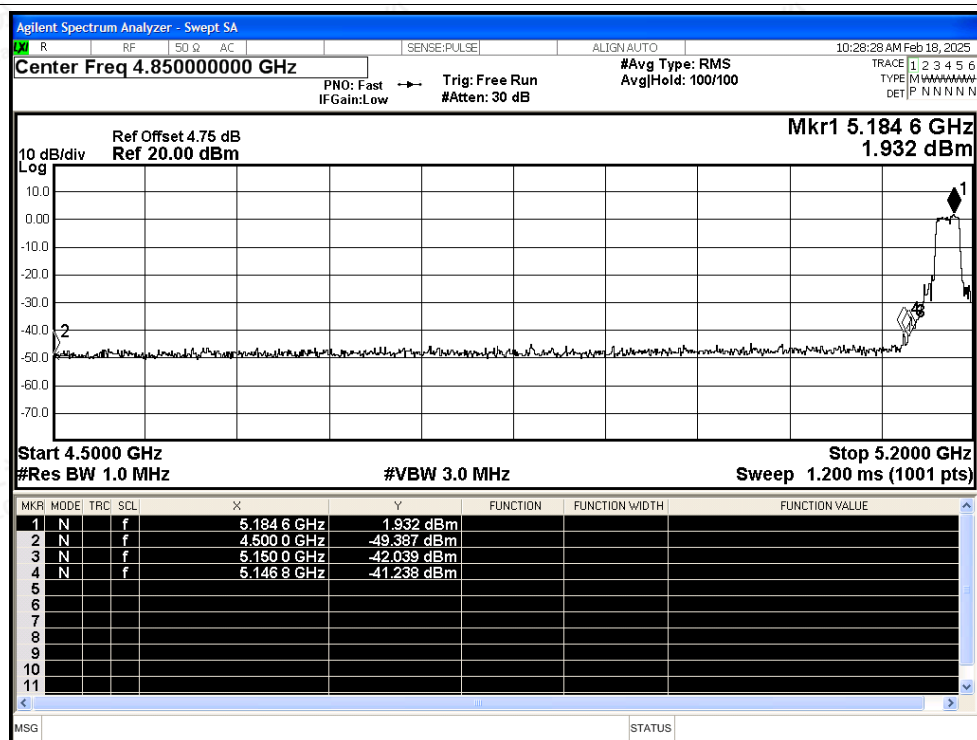
## Restrict Band NVNT a 5240MHz Ant1 Average



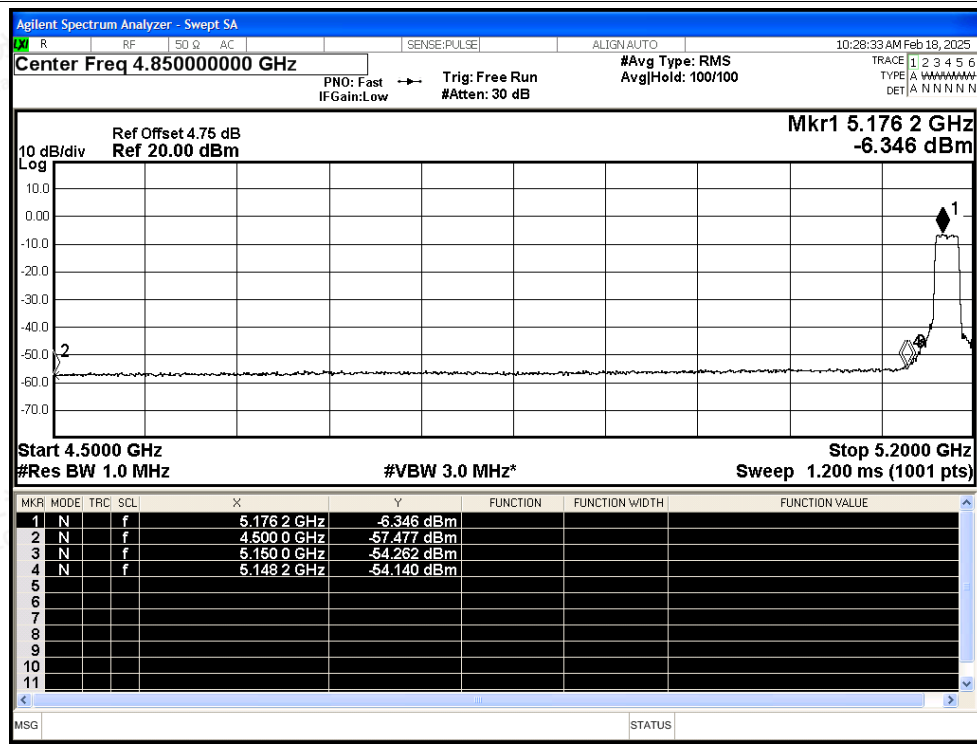




## Restrict Band NVNT n20 5180MHz Ant1 Peak



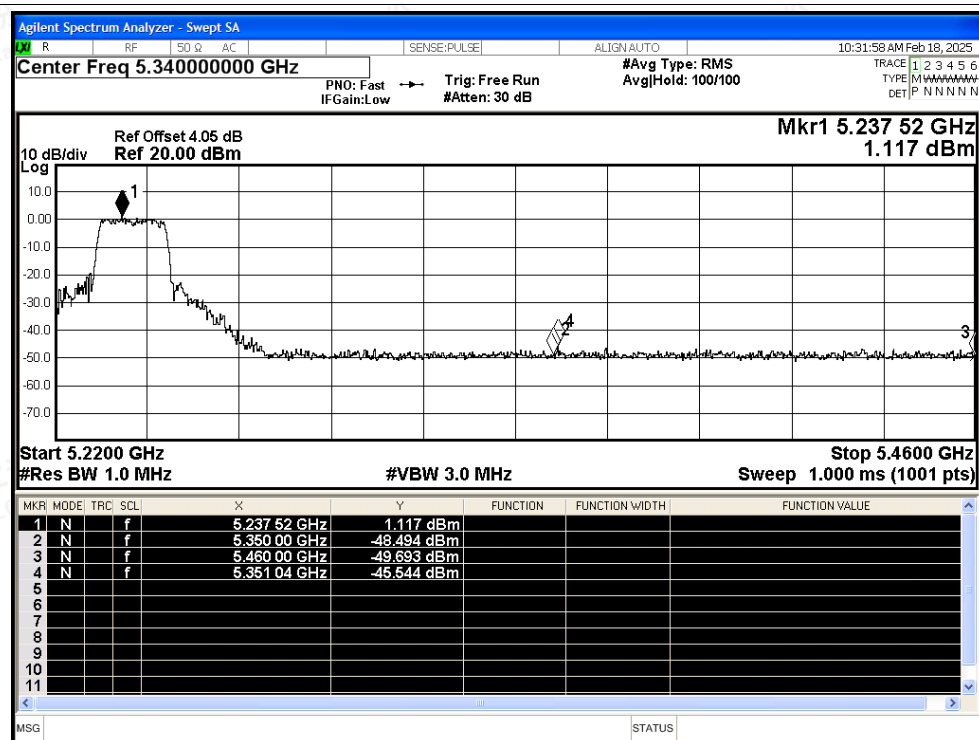
## Restrict Band NVNT n20 5180MHz Ant1 Average



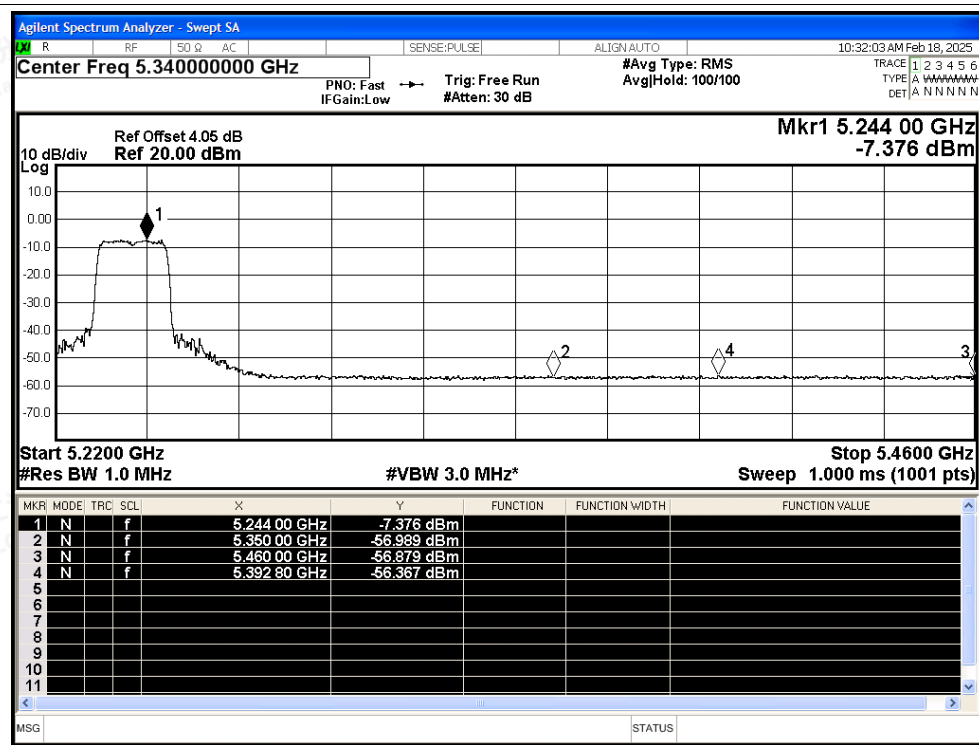




## Restrict Band NVNT n20 5240MHz Ant1 Peak

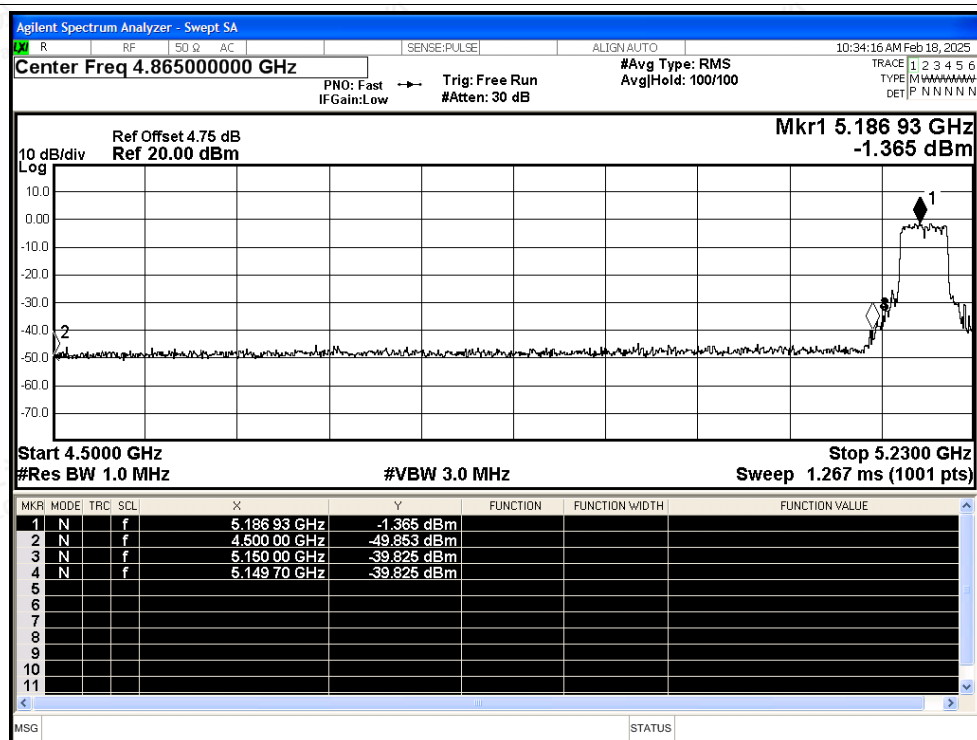


## Restrict Band NVNT n20 5240MHz Ant1 Average

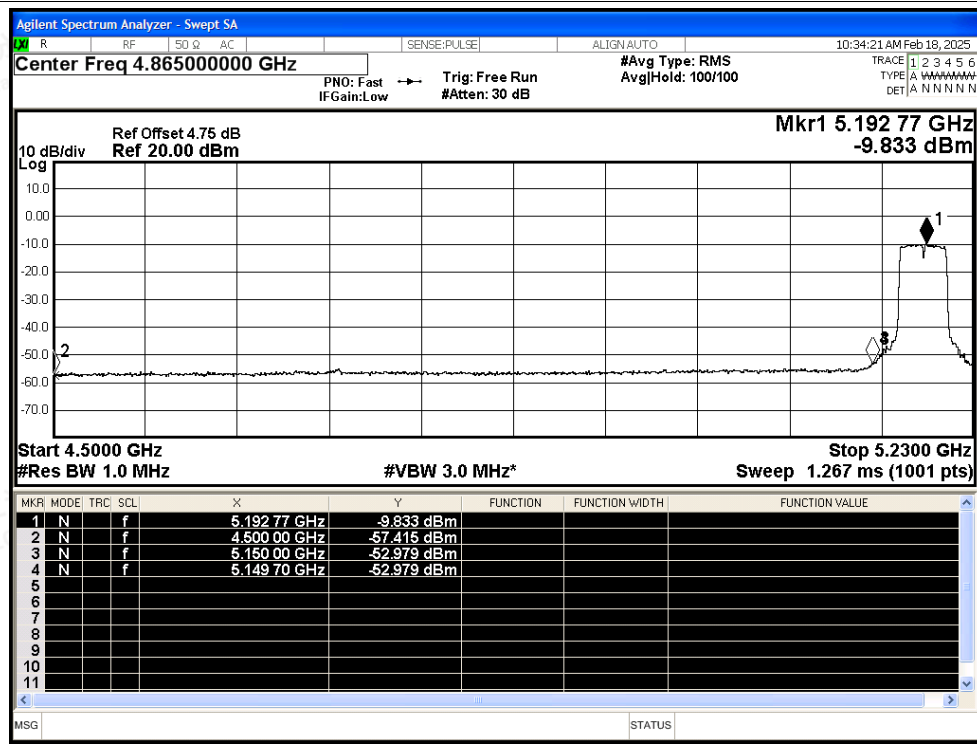




## Restrict Band NVNT n40 5190MHz Ant1 Peak

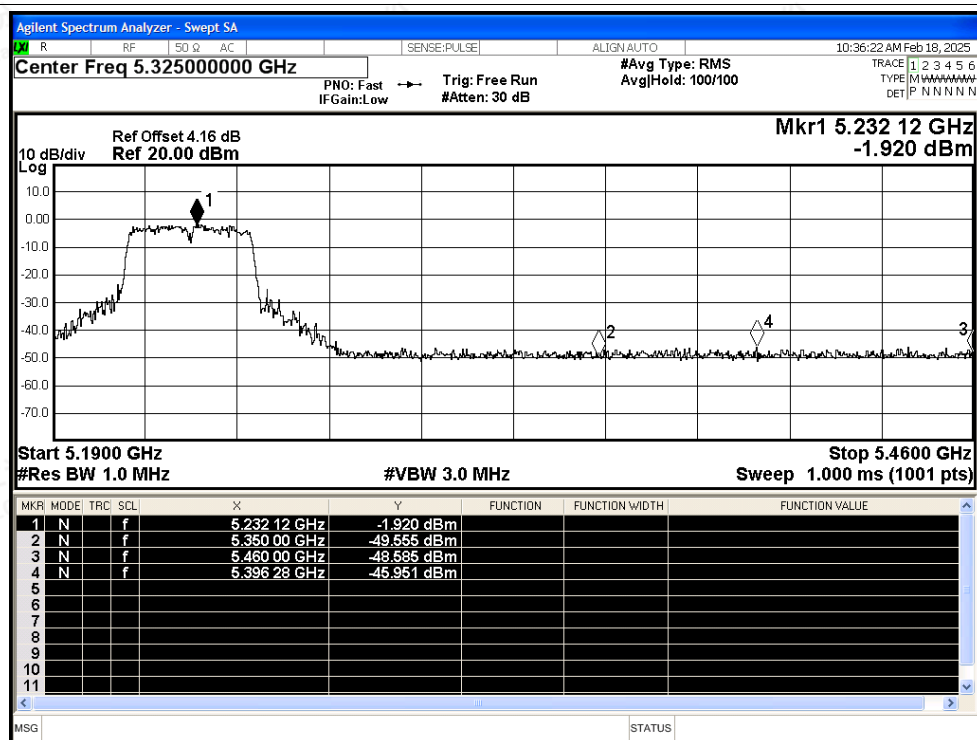


## Restrict Band NVNT n40 5190MHz Ant1 Average

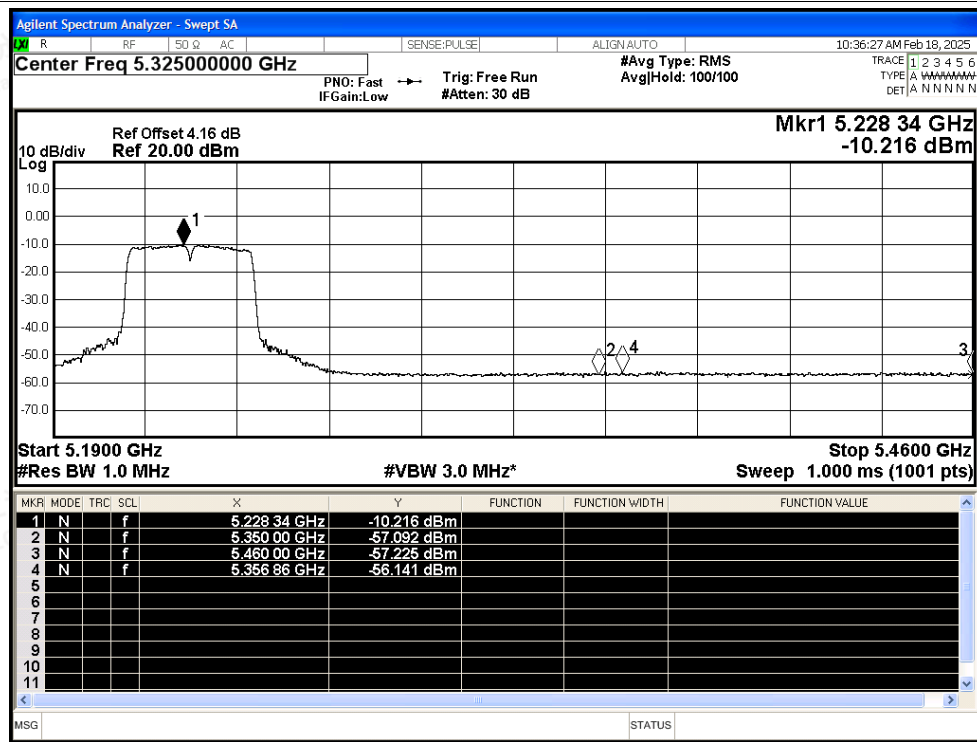




## Restrict Band NVNT n40 5230MHz Ant1 Peak



## Restrict Band NVNT n40 5230MHz Ant1 Average





## D.5 Frequency Stability

| Condition | Mode | Frequency (MHz) | Antenna | Measured Frequency (MHz) | Frequency Error (Hz) | Deviation (ppm) | Limit (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    | 5239.98                  | -20000               | -3.82           | 25          | Pass    |
| NVNT      | n20  | 5180            | Ant1    | 5179.96                  | -40000               | -7.72           | 25          | Pass    |
| NVNT      | n20  | 5200            | Ant1    | 5199.98                  | -20000               | -3.85           | 25          | Pass    |
| NVNT      | n20  | 5240            | Ant1    | 5239.98                  | -20000               | -3.82           | 25          | Pass    |
| NVNT      | n40  | 5190            | Ant1    | 5190                     | 0                    | 0               | 25          | Pass    |
| NVNT      | n40  | 5230            | Ant1    | 5229.96                  | -40000               | -7.65           | 25          | Pass    |

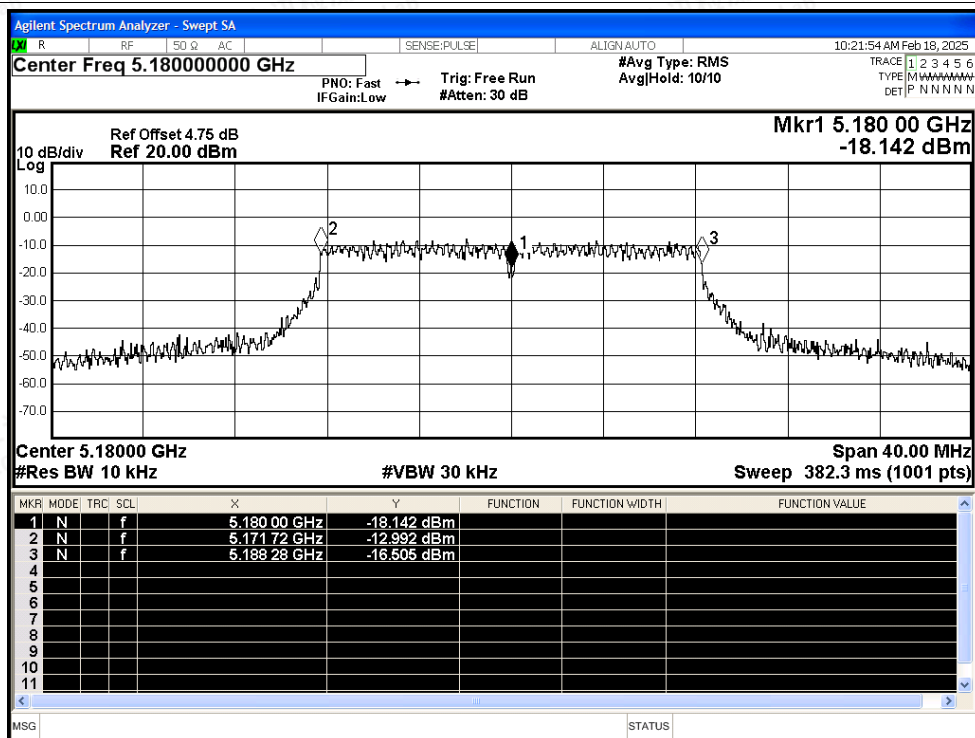


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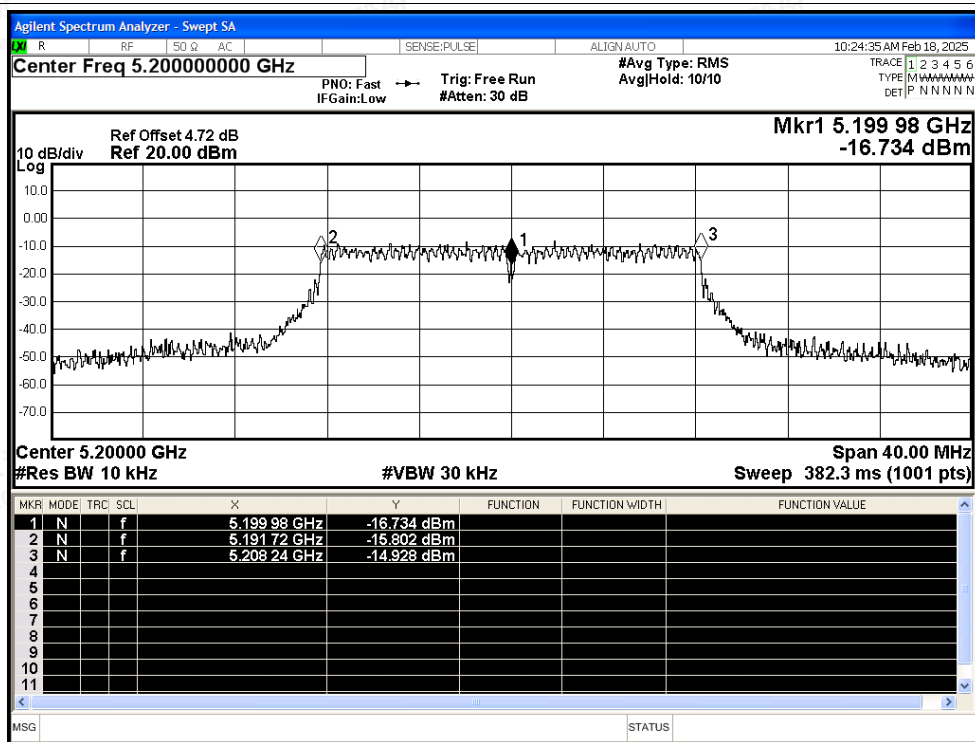


## Test Graphs

## Freq. Stability NVNT a 5180MHz Ant1

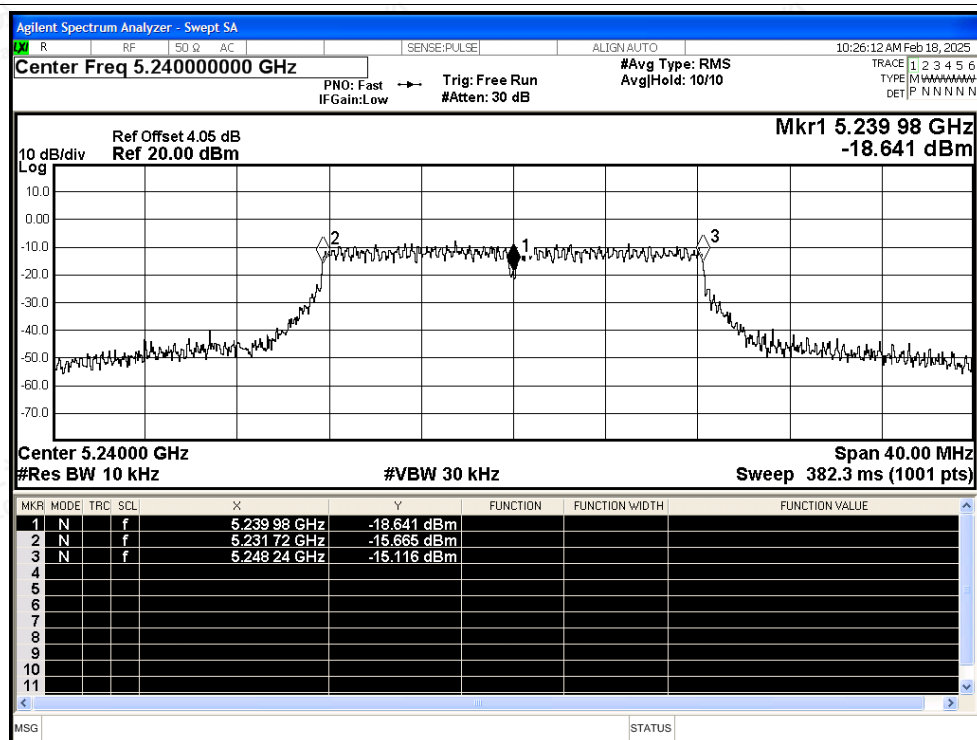


## Freq. Stability NVNT a 5200MHz Ant1

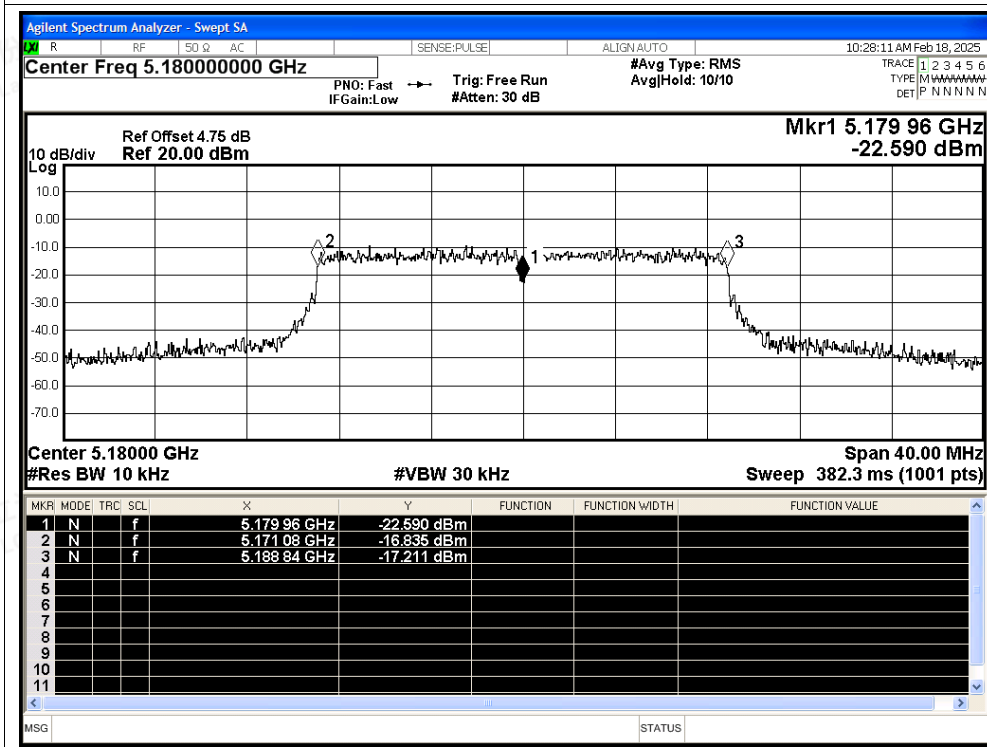




## Freq. Stability NVNT a 5240MHz Ant1

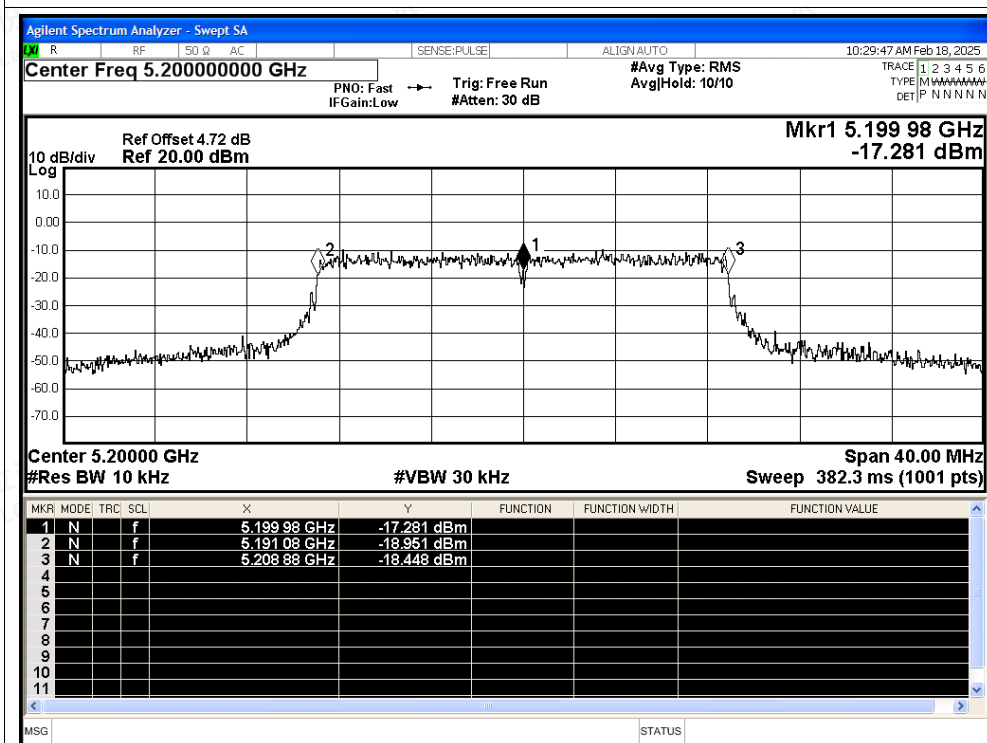


## Freq. Stability NVNT n20 5180MHz Ant1

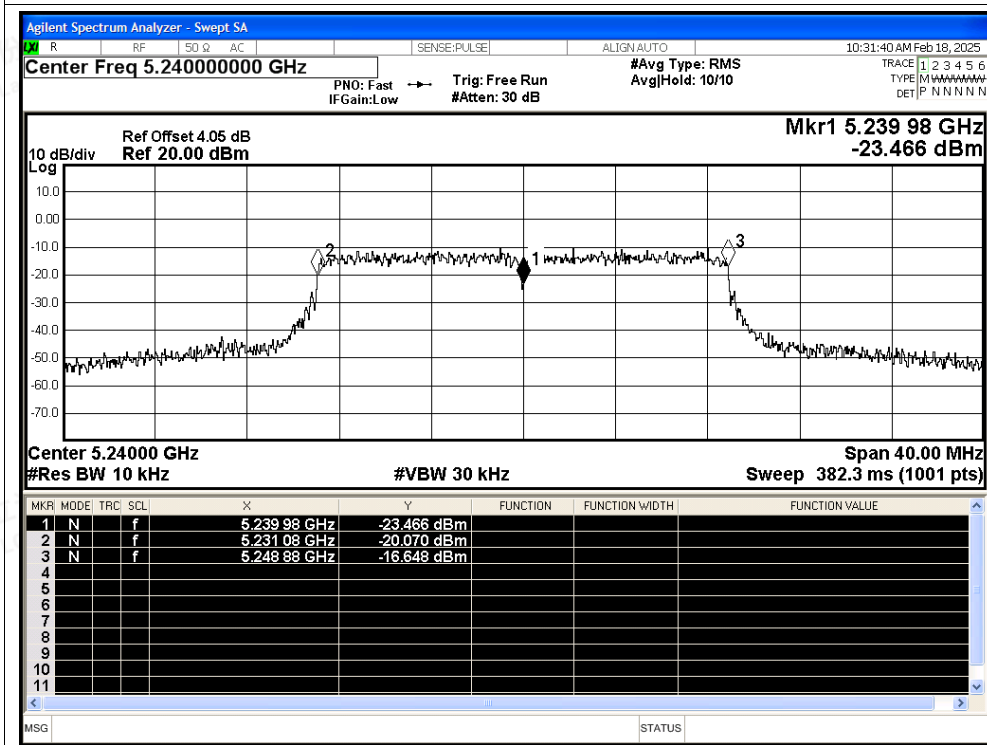




## Freq. Stability NVNT n20 5200MHz Ant1



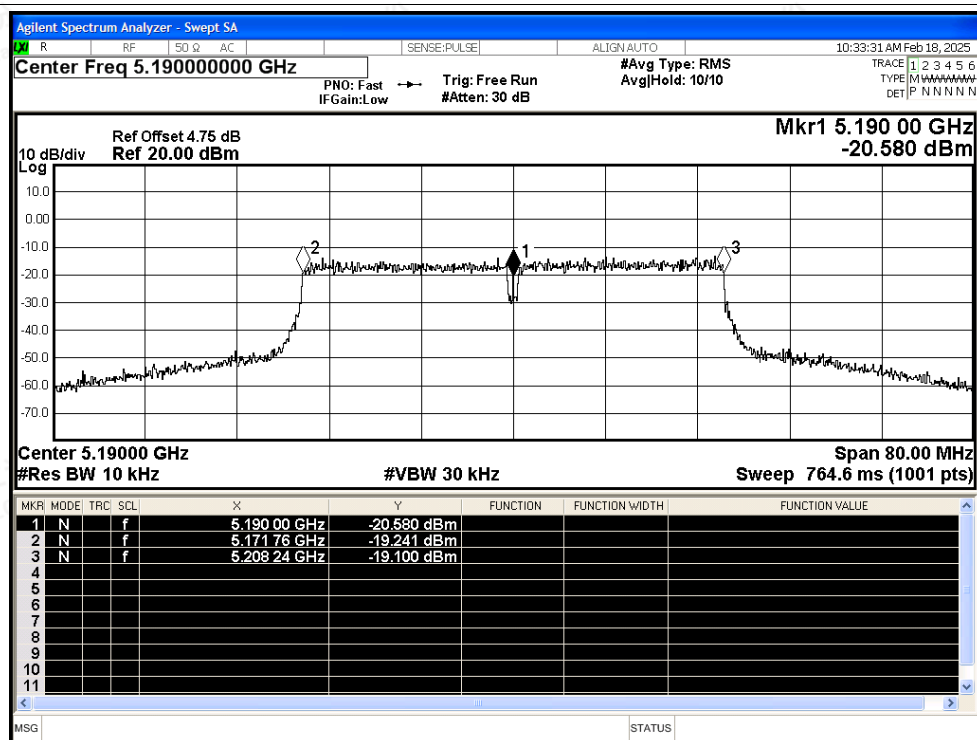
## Freq. Stability NVNT n20 5240MHz Ant1



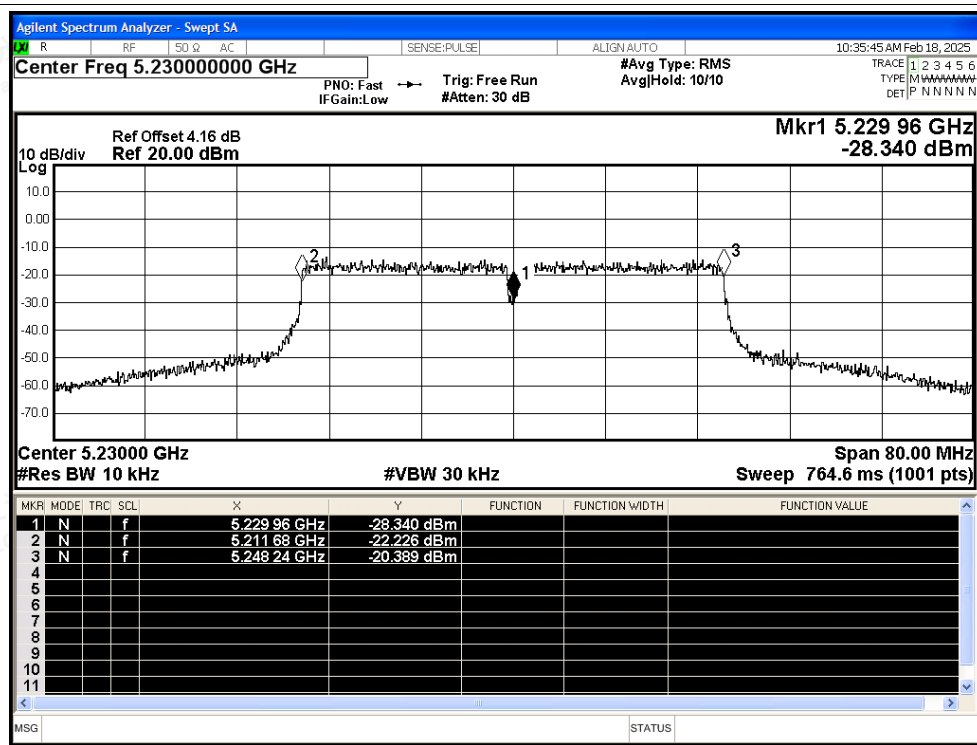




## Freq. Stability NVNT n40 5190MHz Ant1



## Freq. Stability NVNT n40 5230MHz Ant1







## 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    | 94.65          | 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    | 94.71          | 0.24                   | 0.9       |
| NVNT      | n40  | 5230            | Ant1    | 94.71          | 0.24                   | 0.9       |

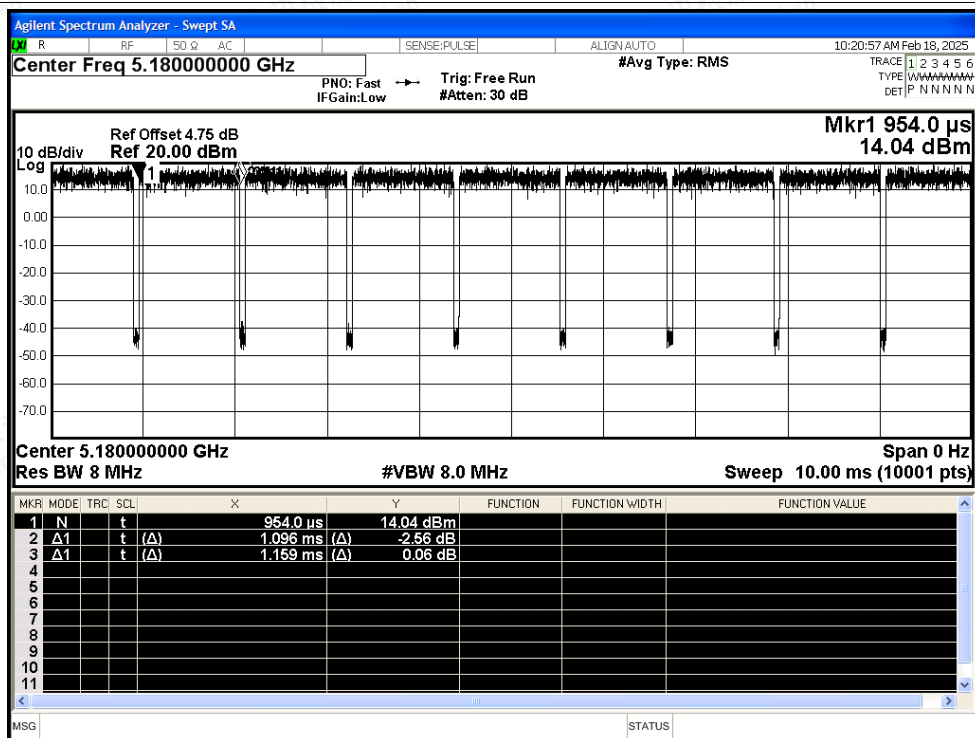


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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

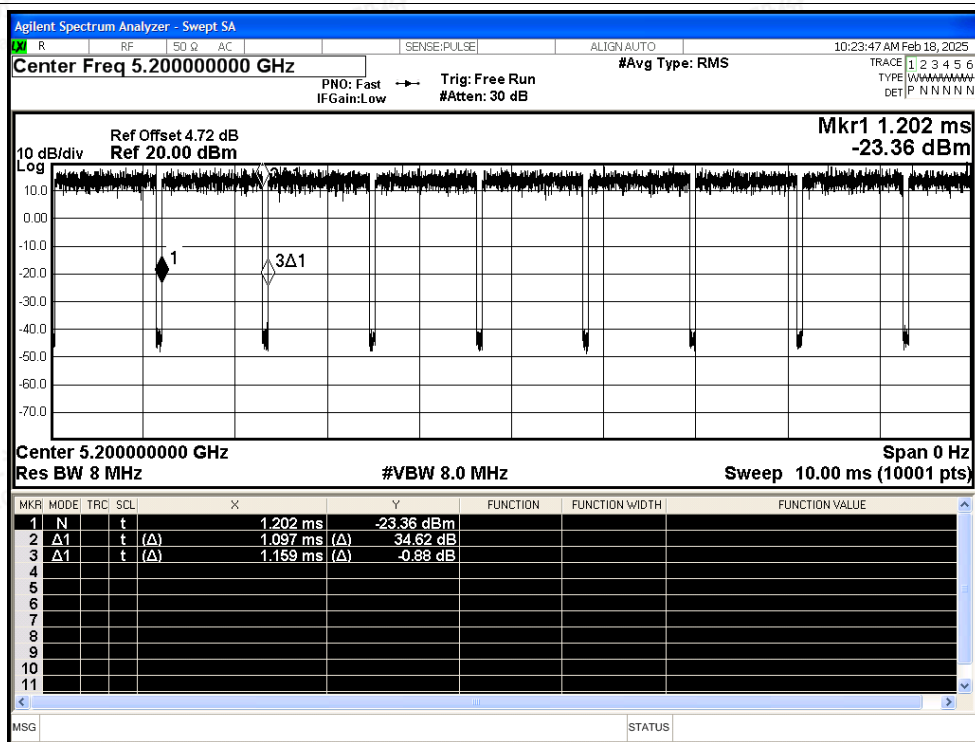


## Test Graphs

## Duty Cycle NVNT a 5180MHz Ant1

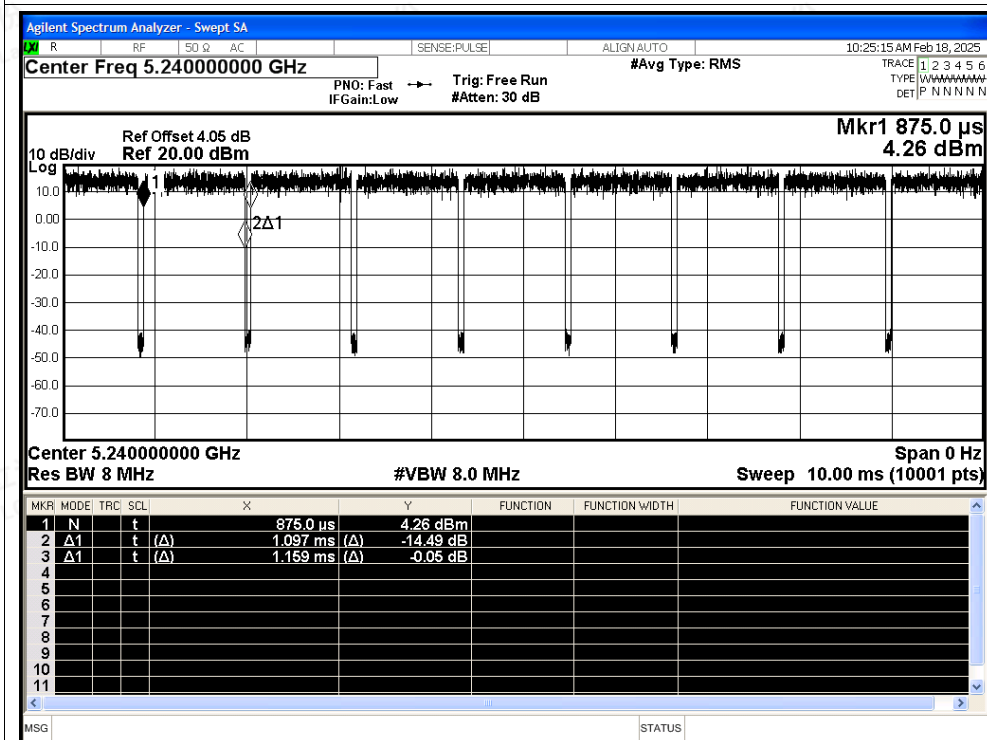


## Duty Cycle NVNT a 5200MHz Ant1

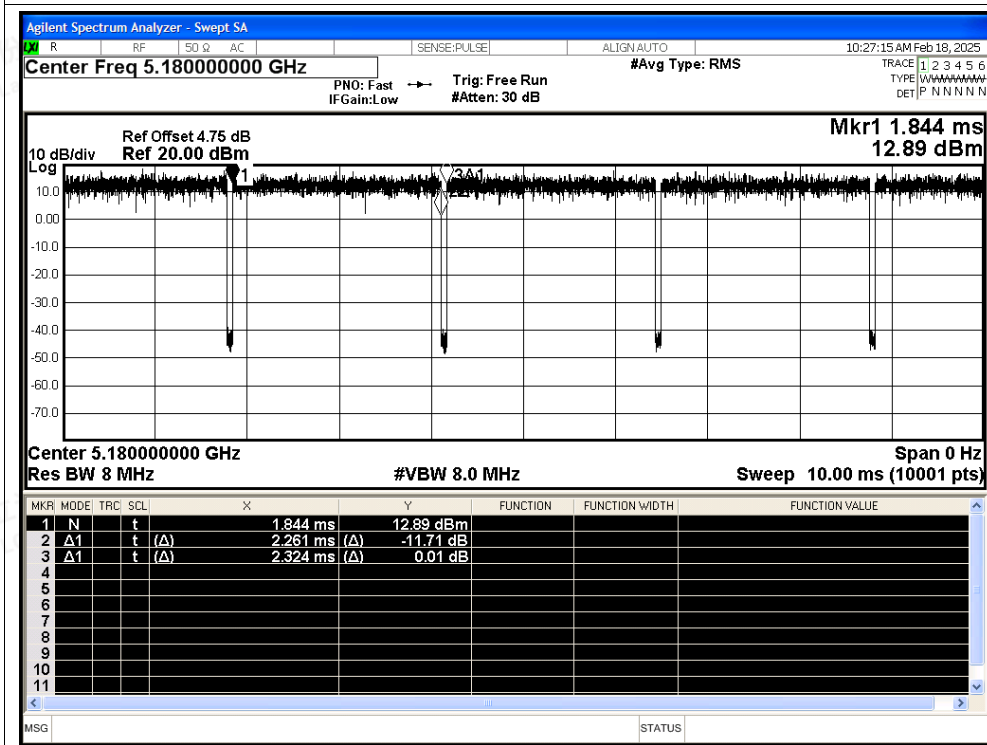




## Duty Cycle NVNT a 5240MHz Ant1

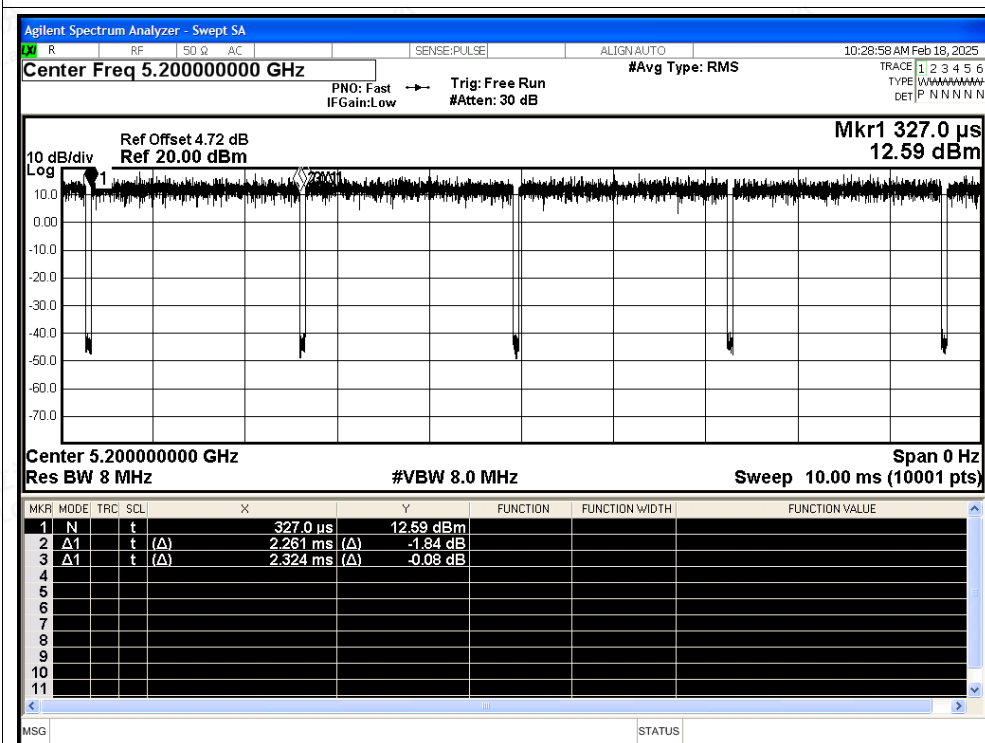


## Duty Cycle NVNT n20 5180MHz Ant1

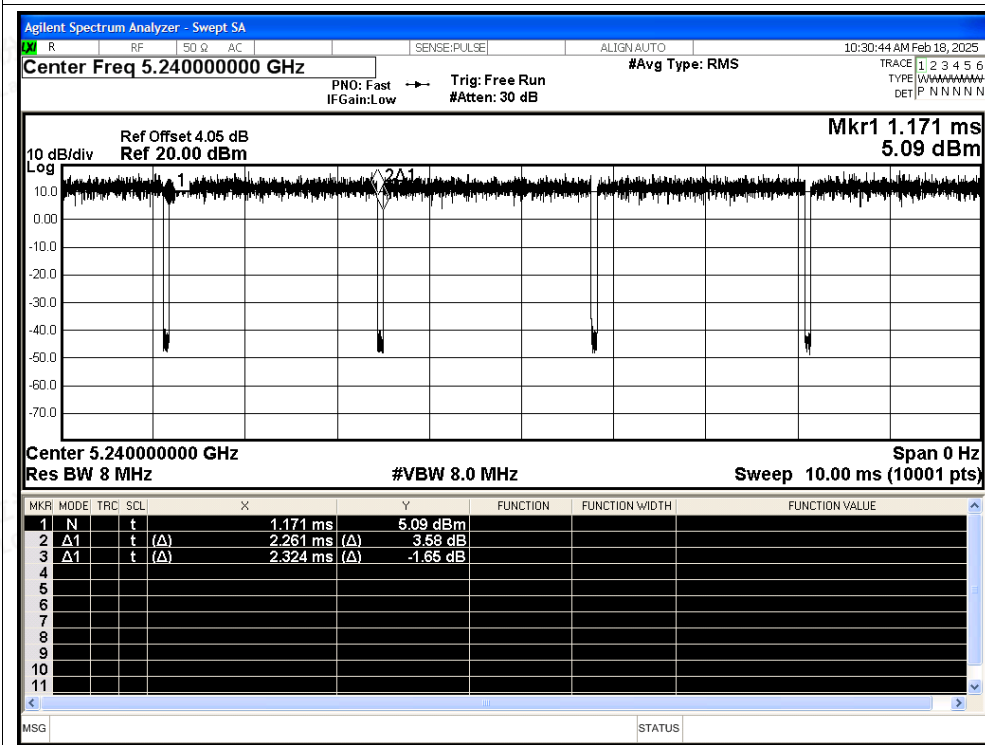




## Duty Cycle NVNT n20 5200MHz Ant1

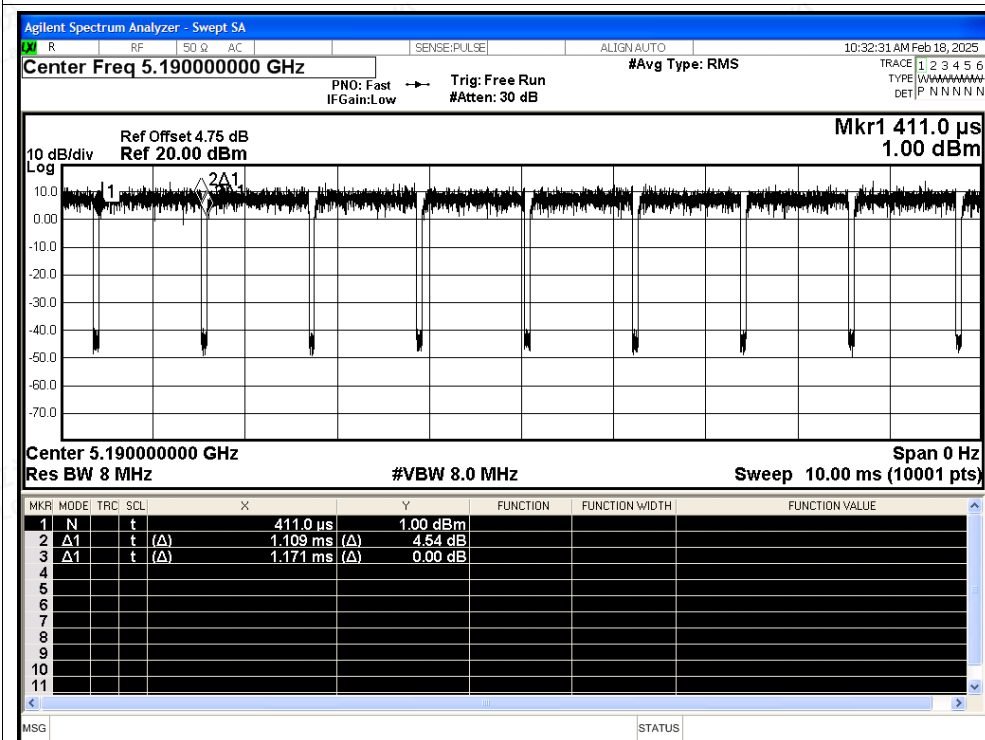


## Duty Cycle NVNT n20 5240MHz Ant1





## Duty Cycle NVNT n40 5190MHz Ant1



## Duty Cycle NVNT n40 5230MHz Ant1

