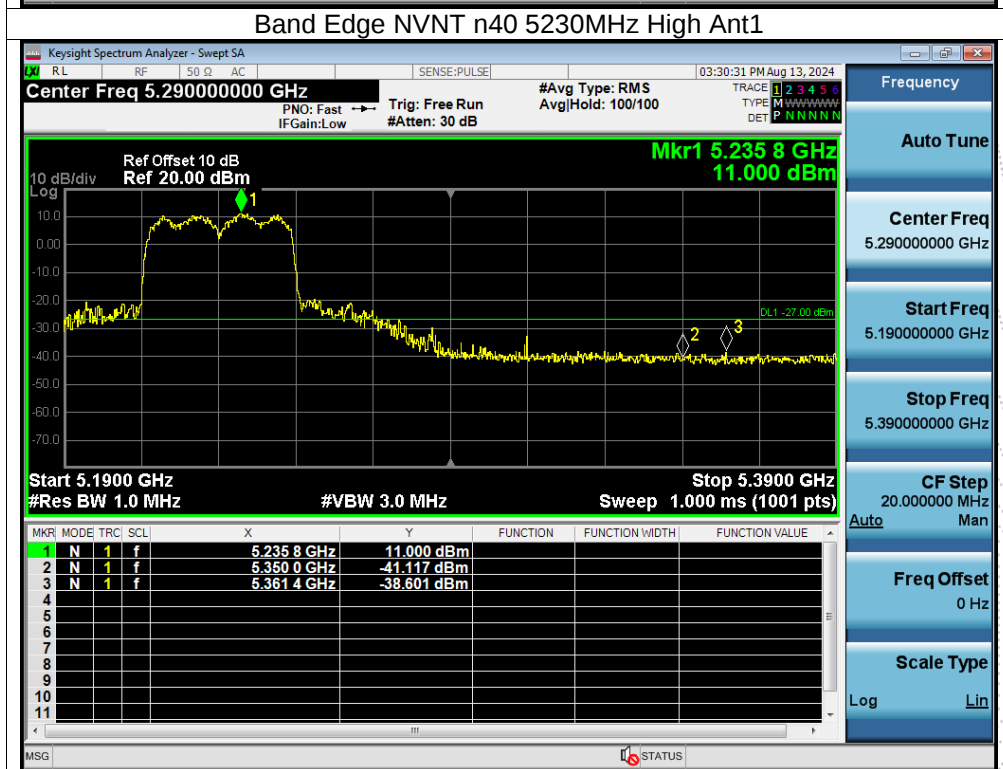
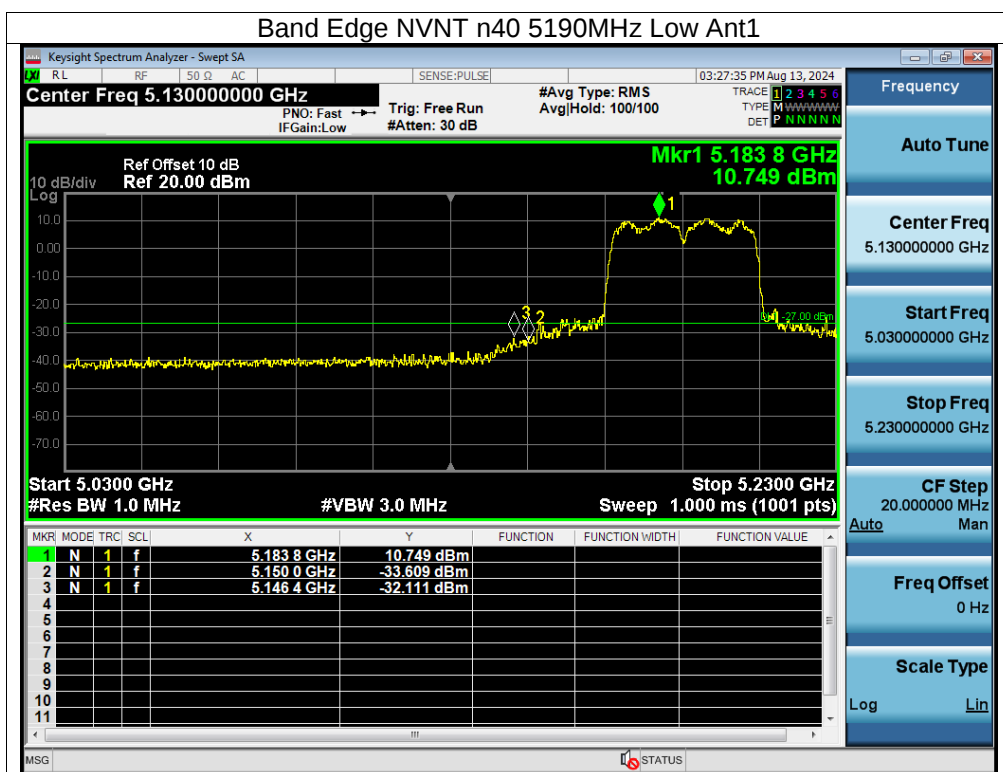
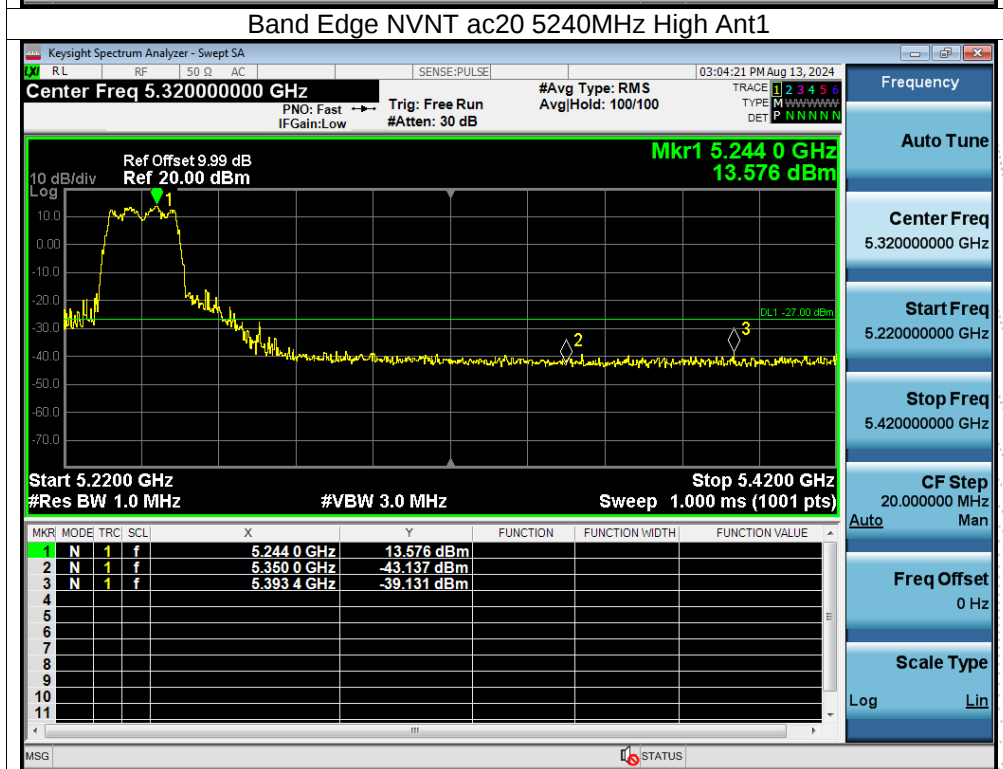
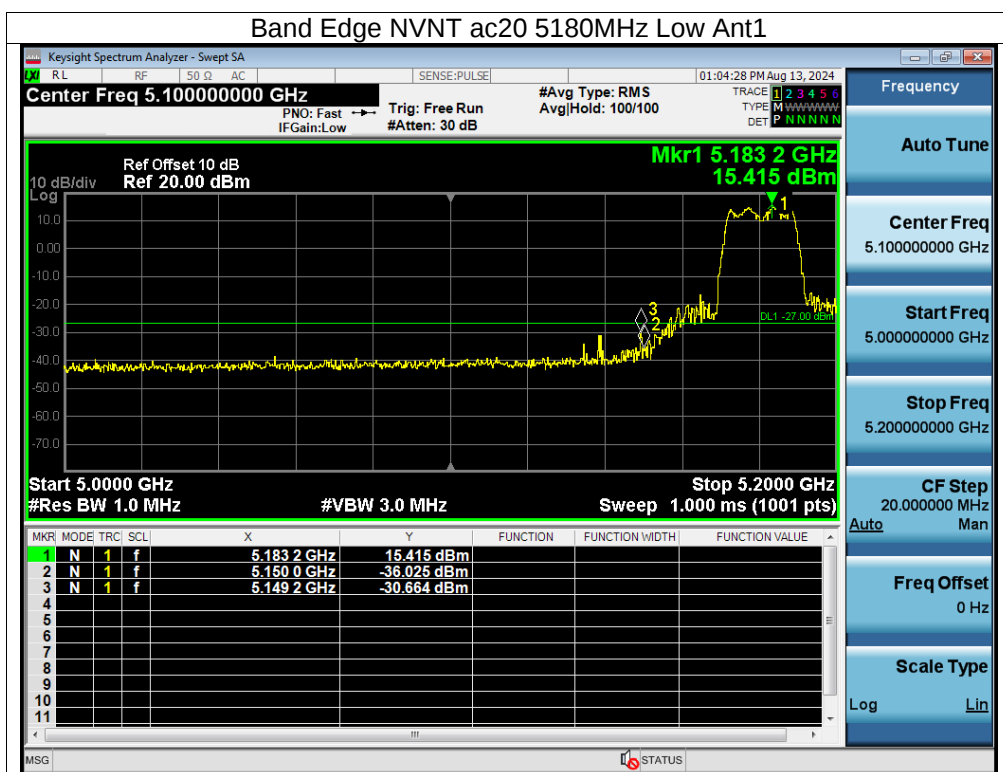
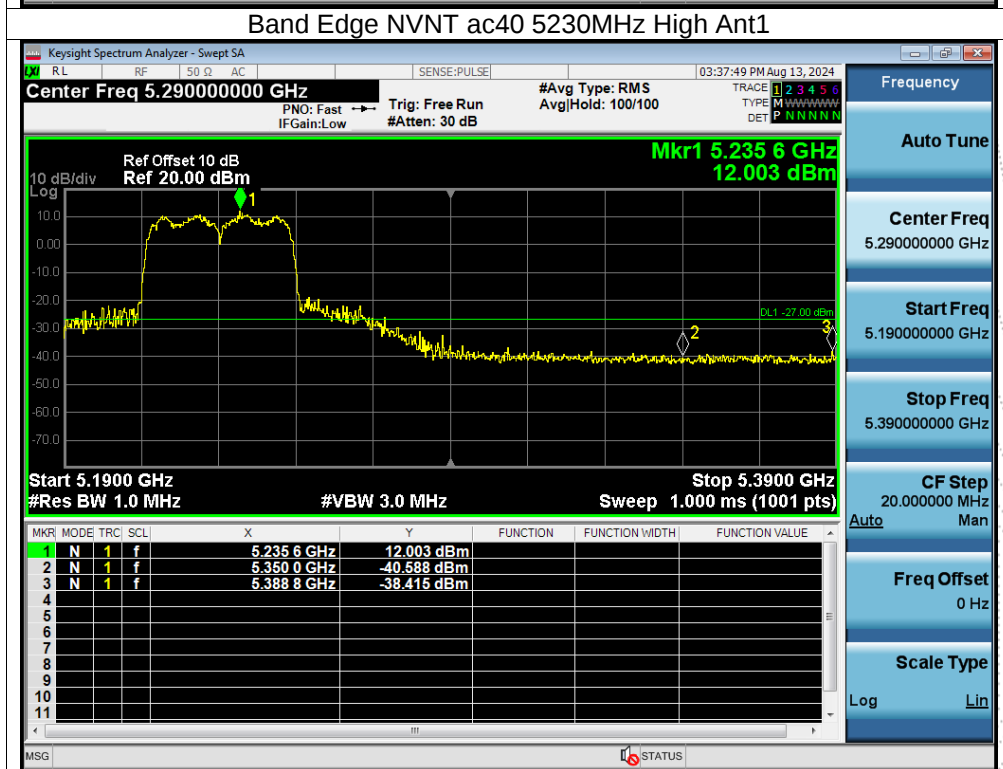
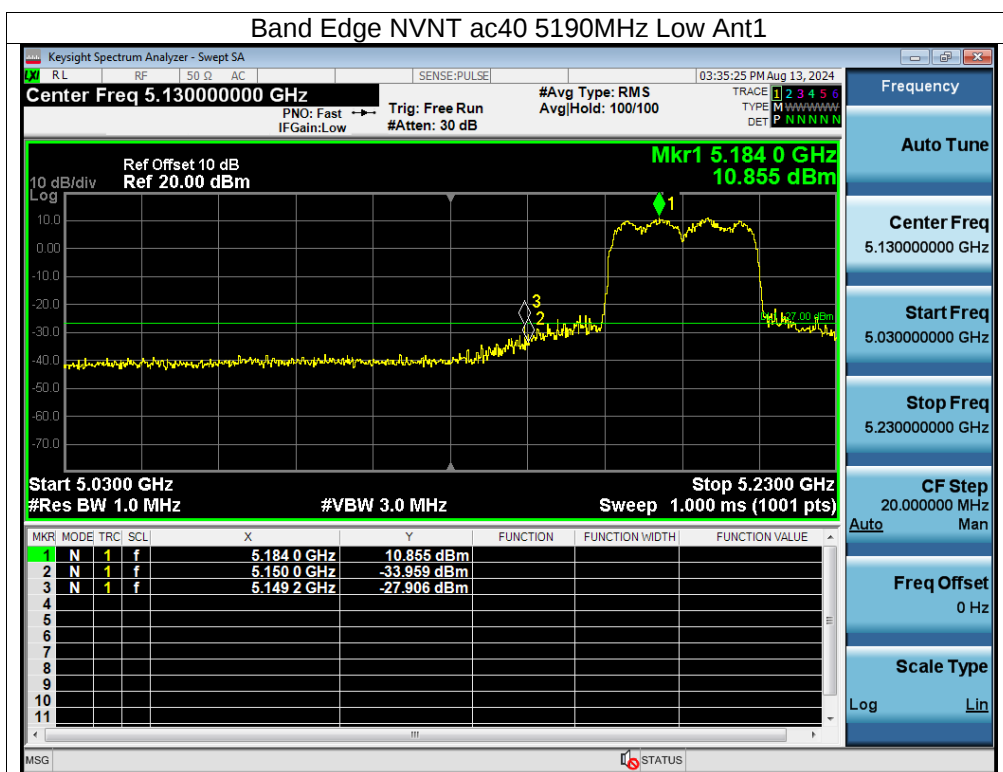
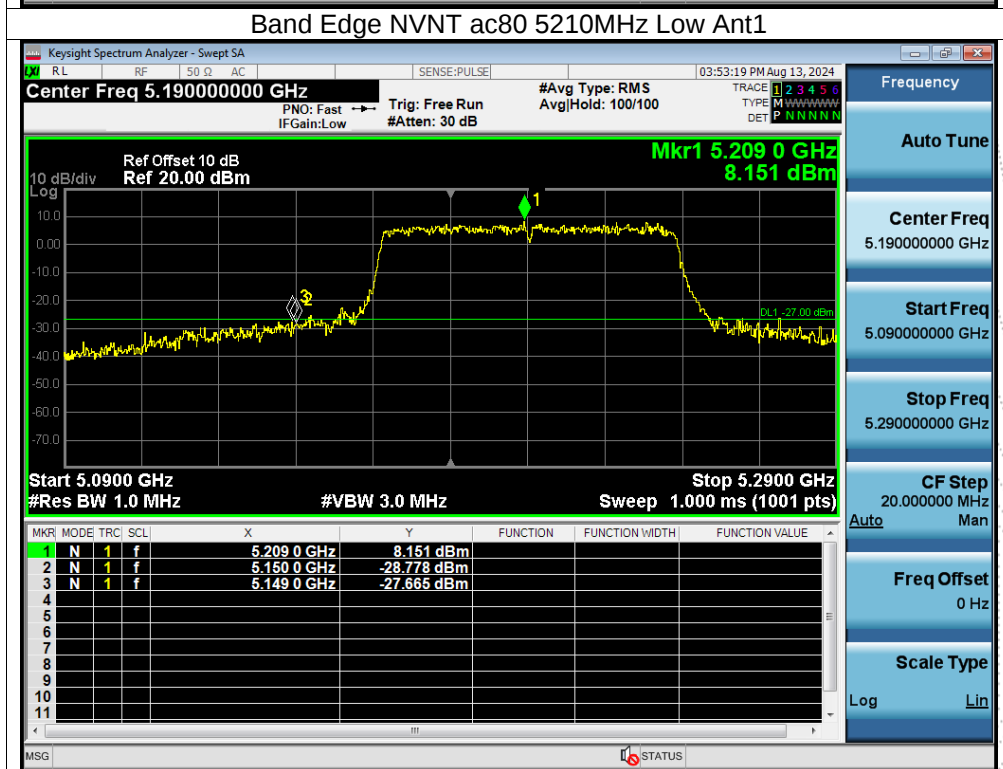
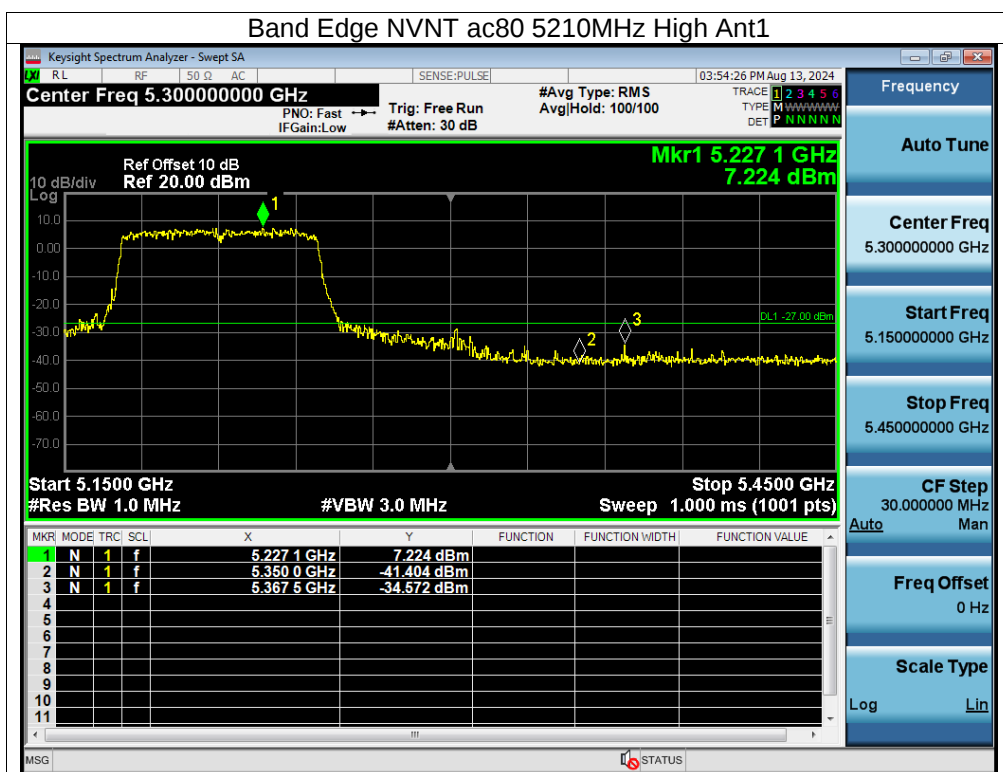
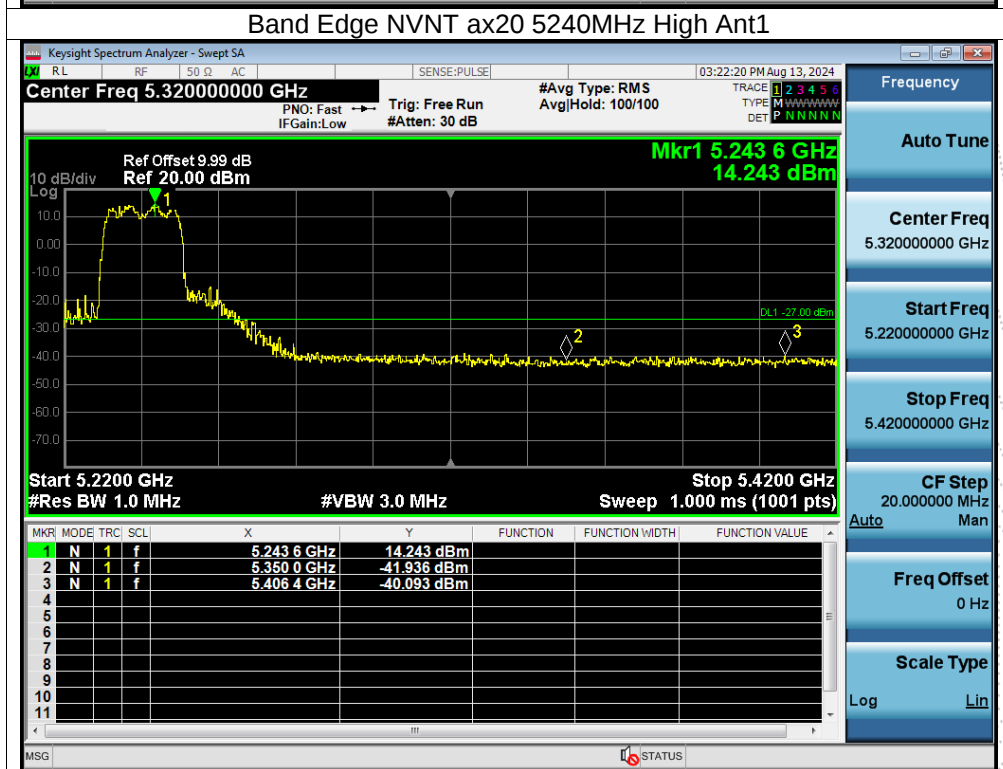
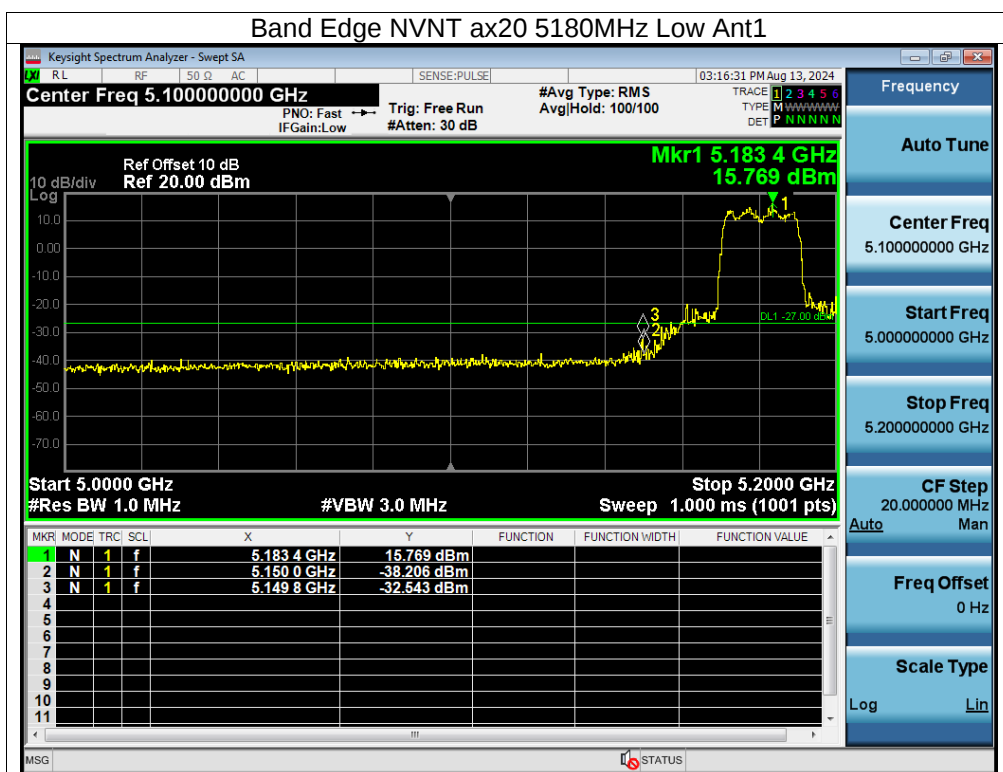


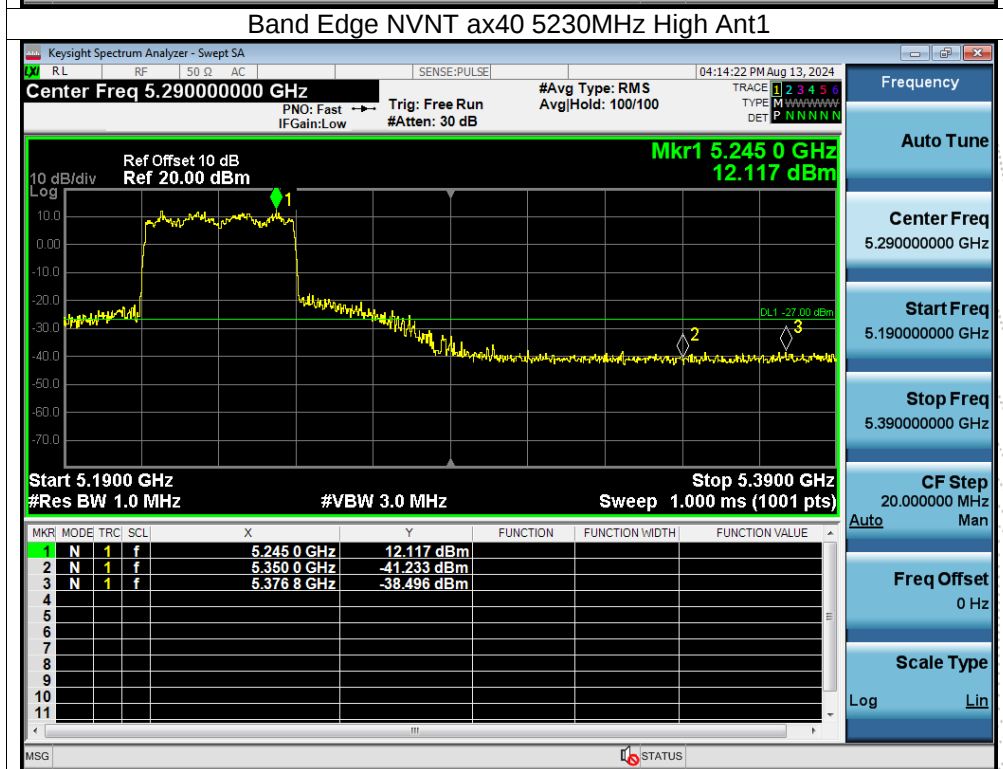
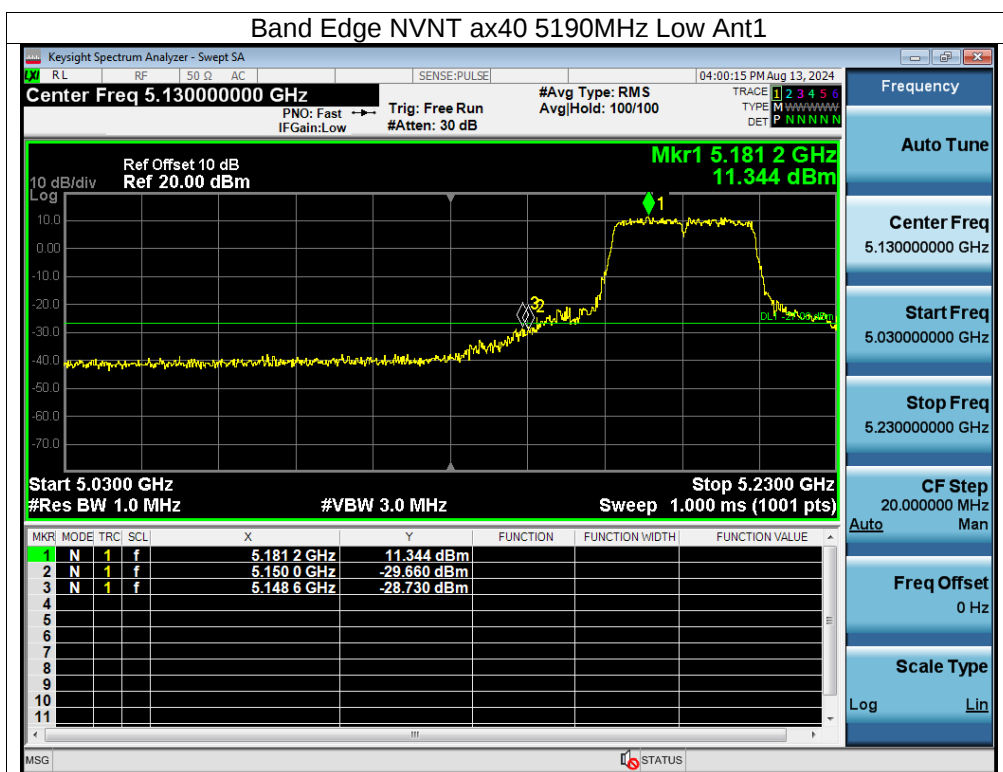


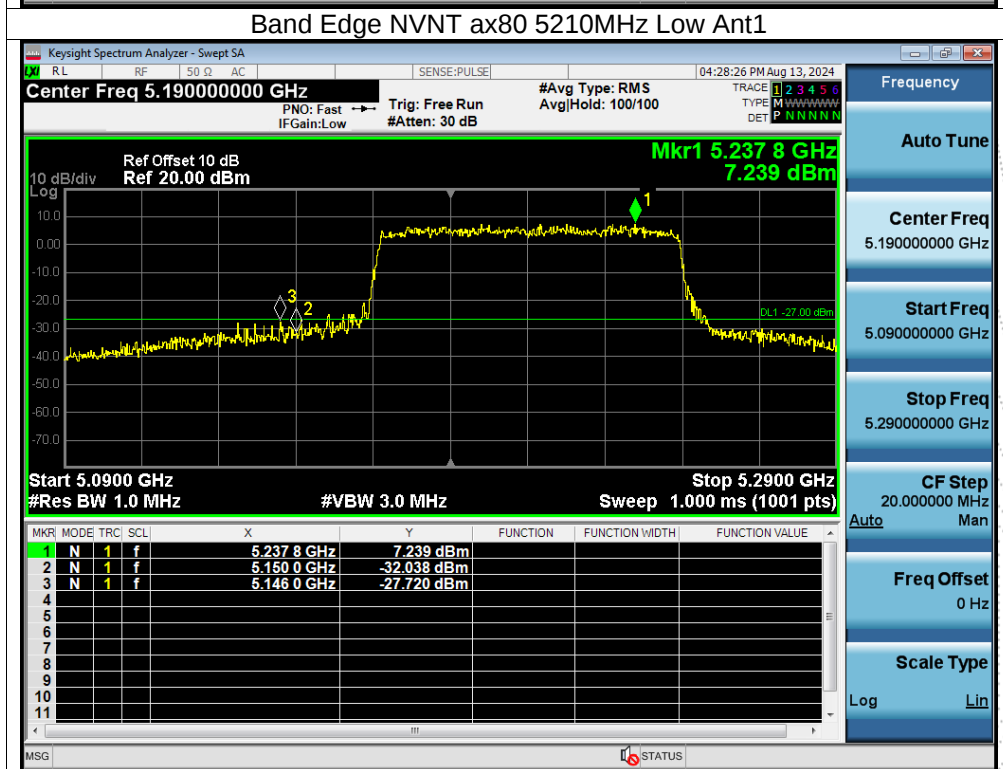
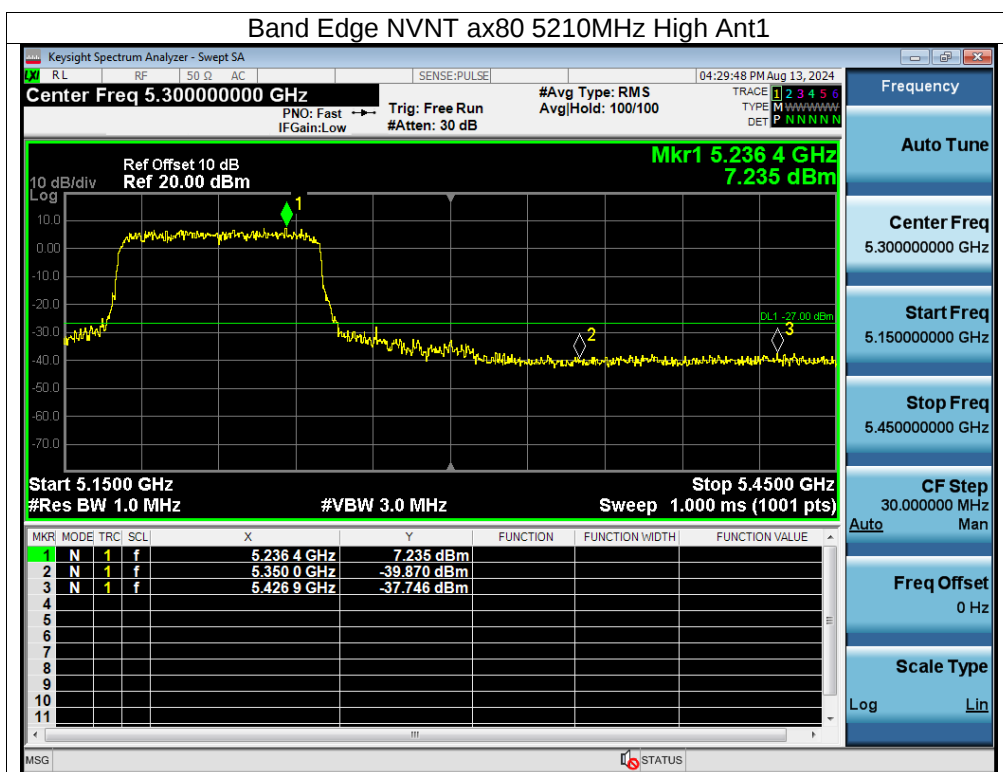








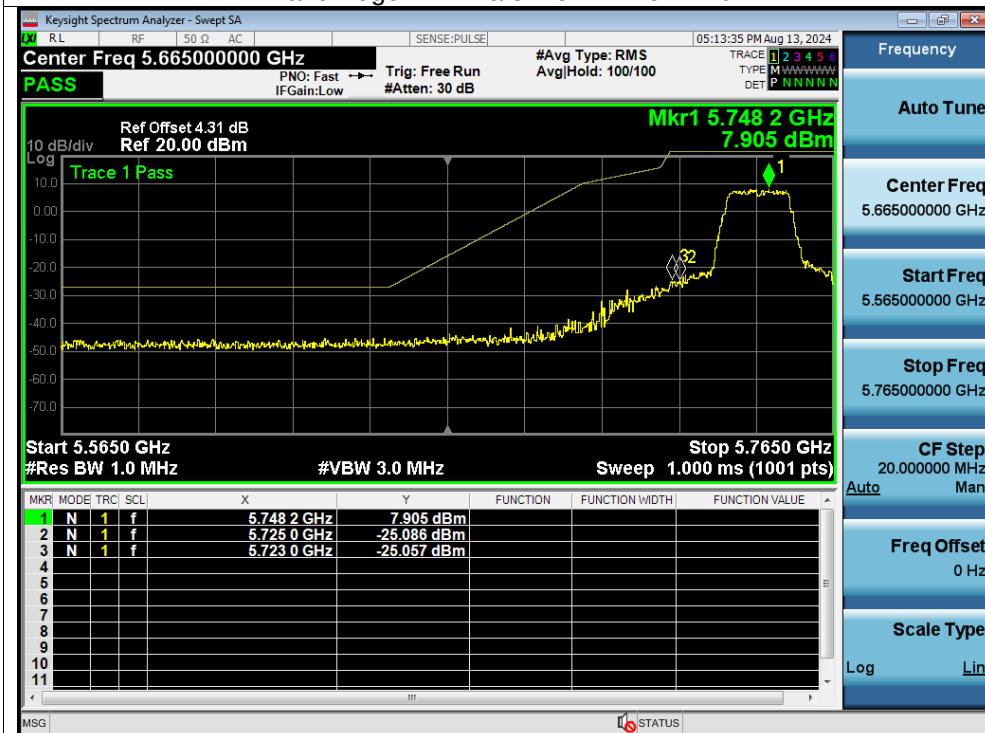




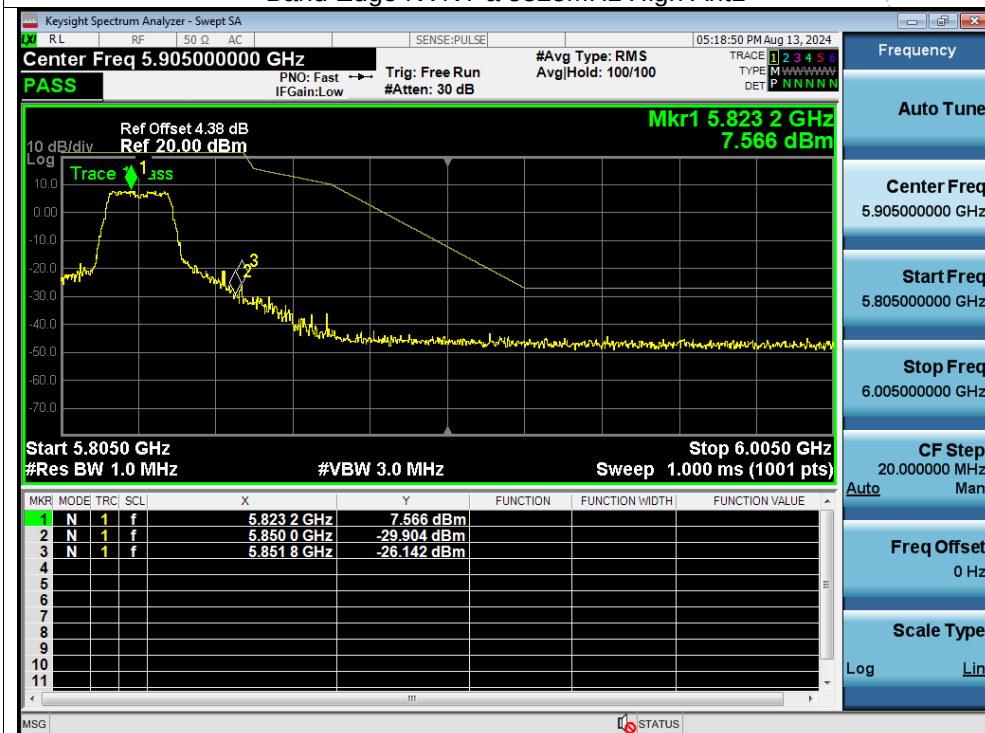
5745-5825MHz

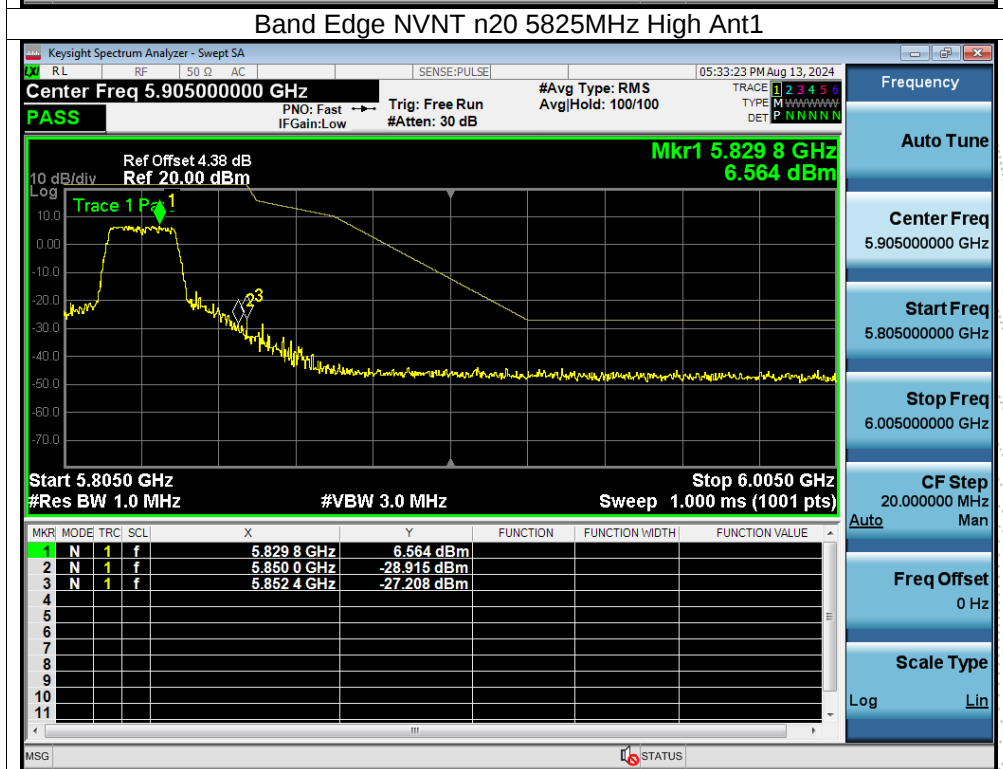
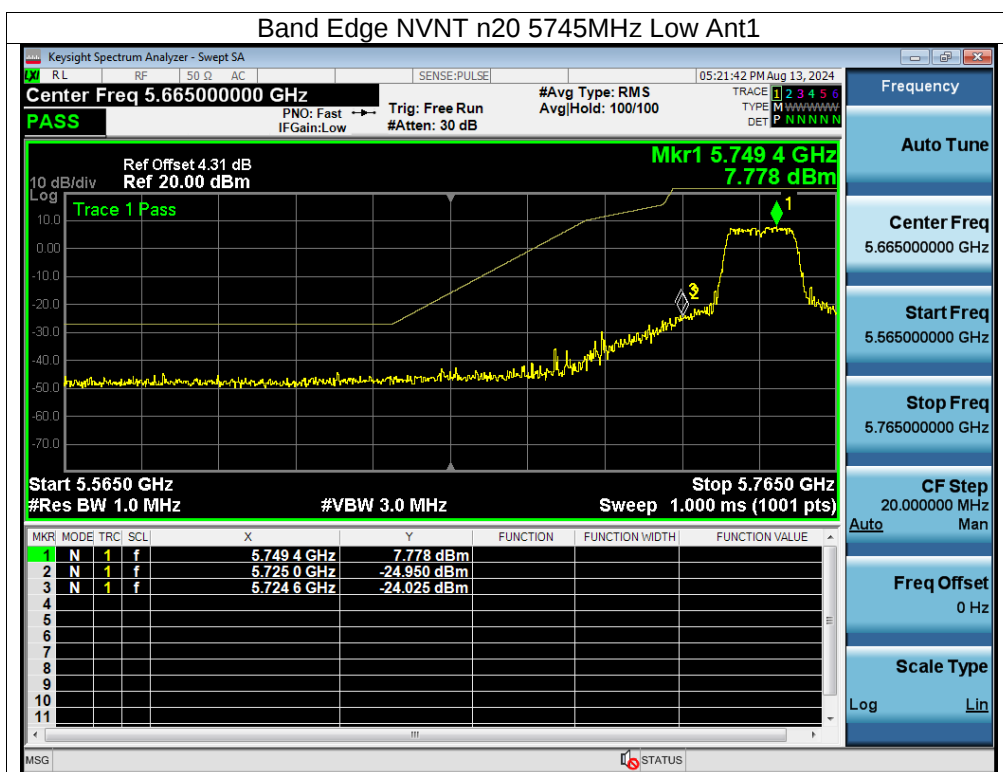
## Test Graphs

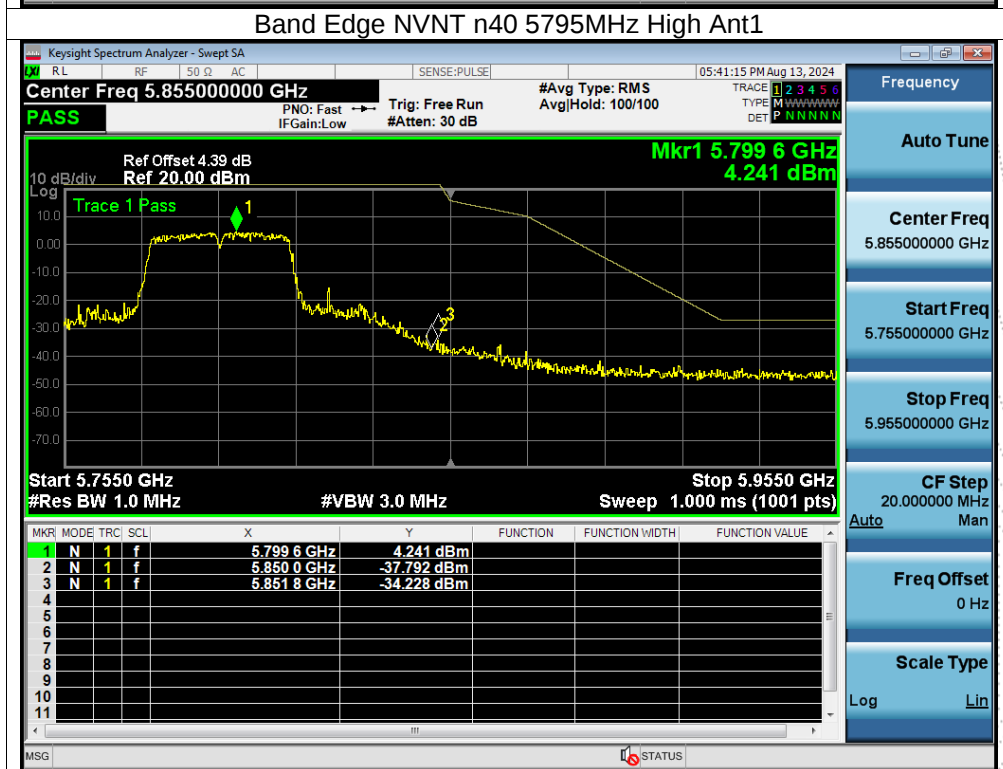
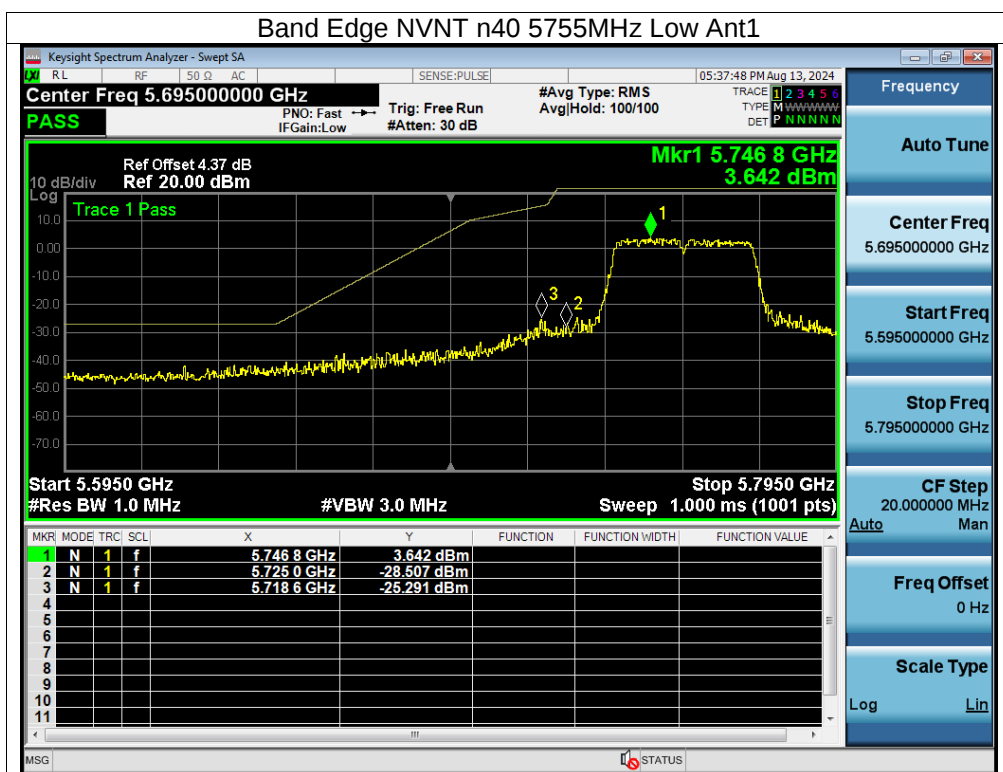
## Band Edge NVNT a 5745MHz Low Ant1

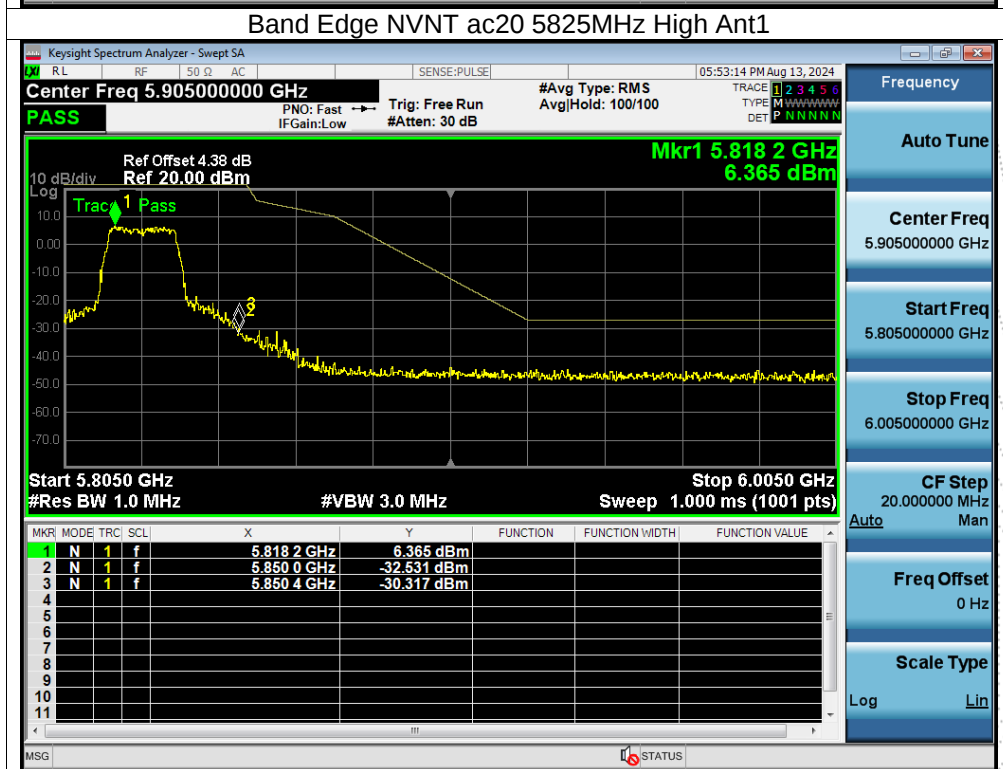
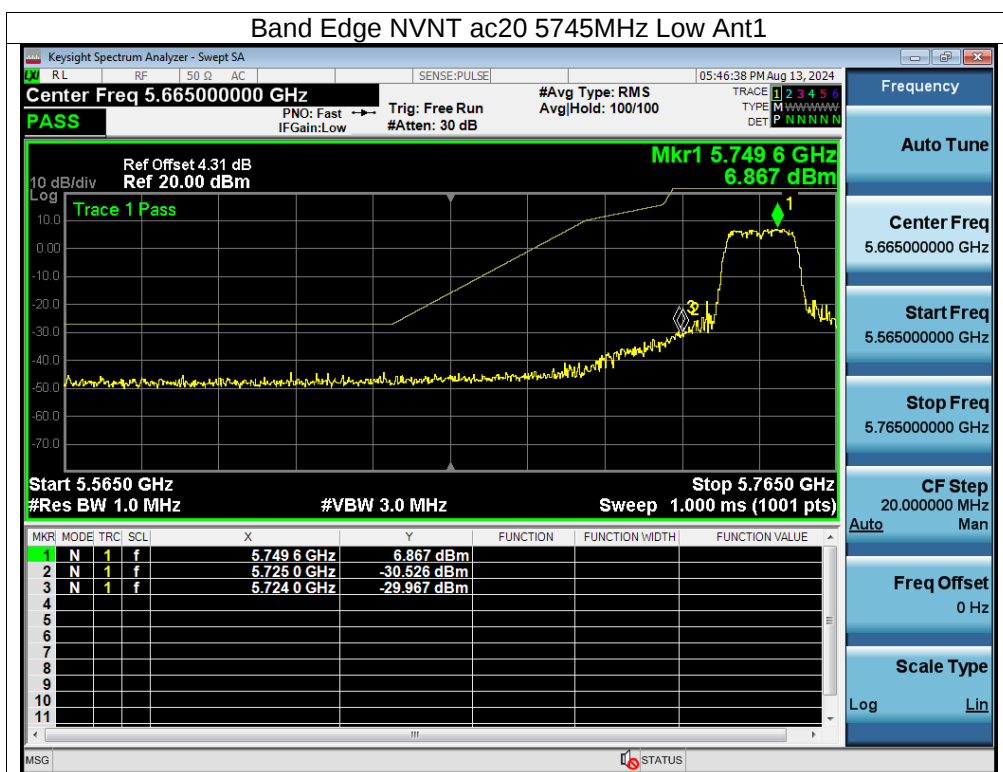


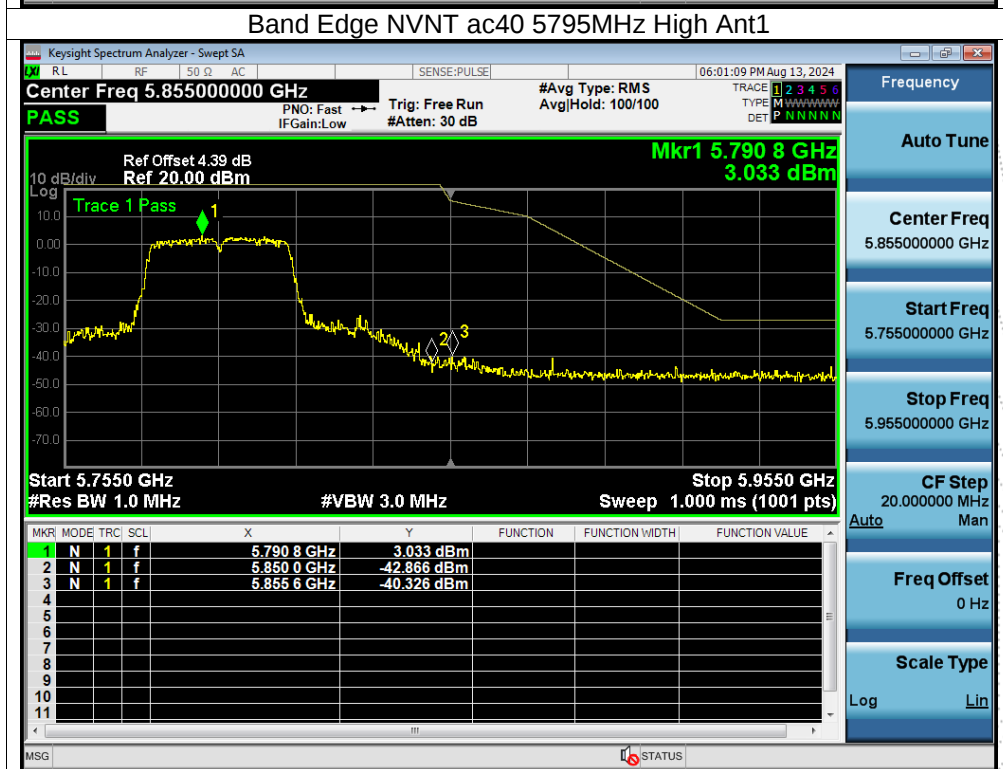
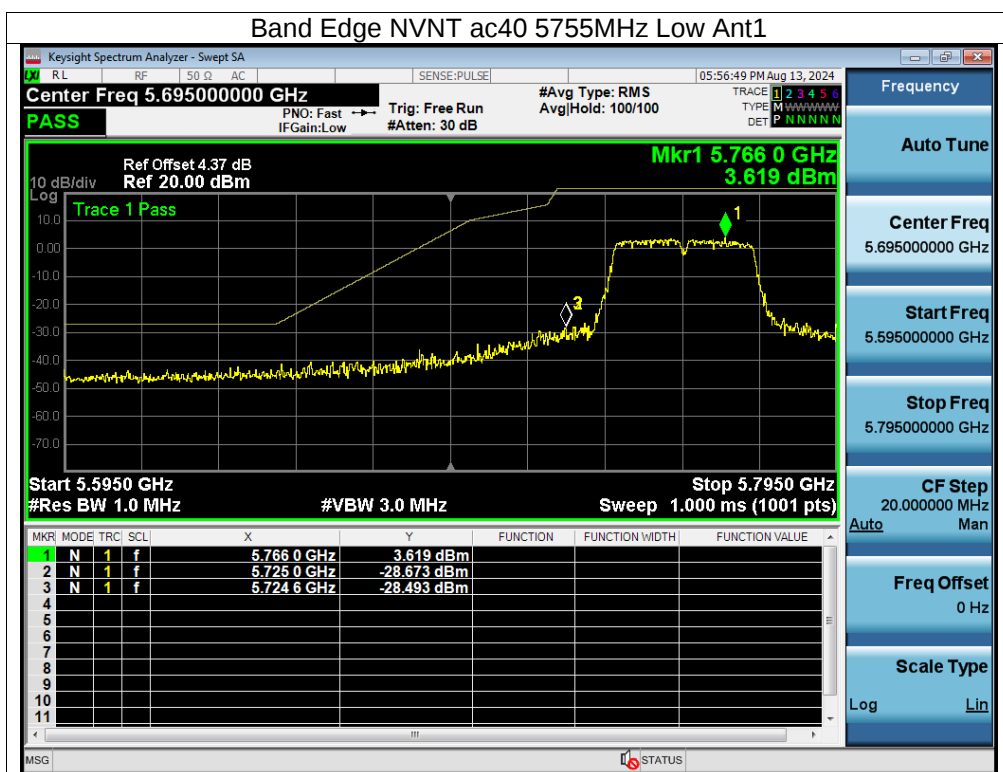
## Band Edge NVNT a 5825MHz High Ant1

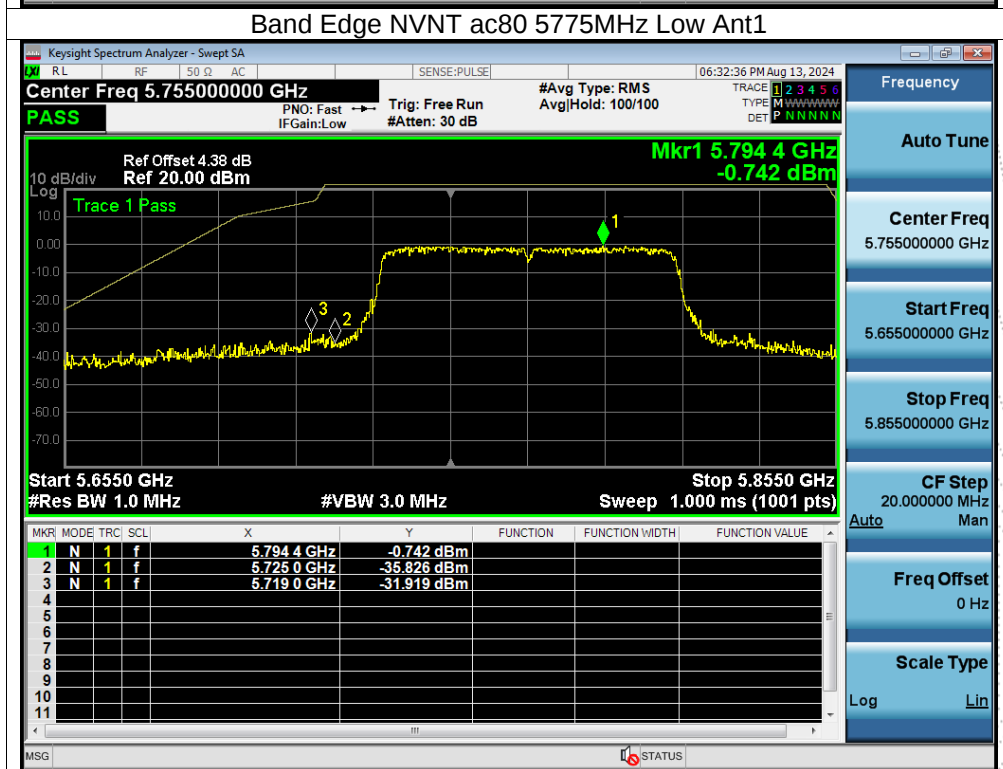
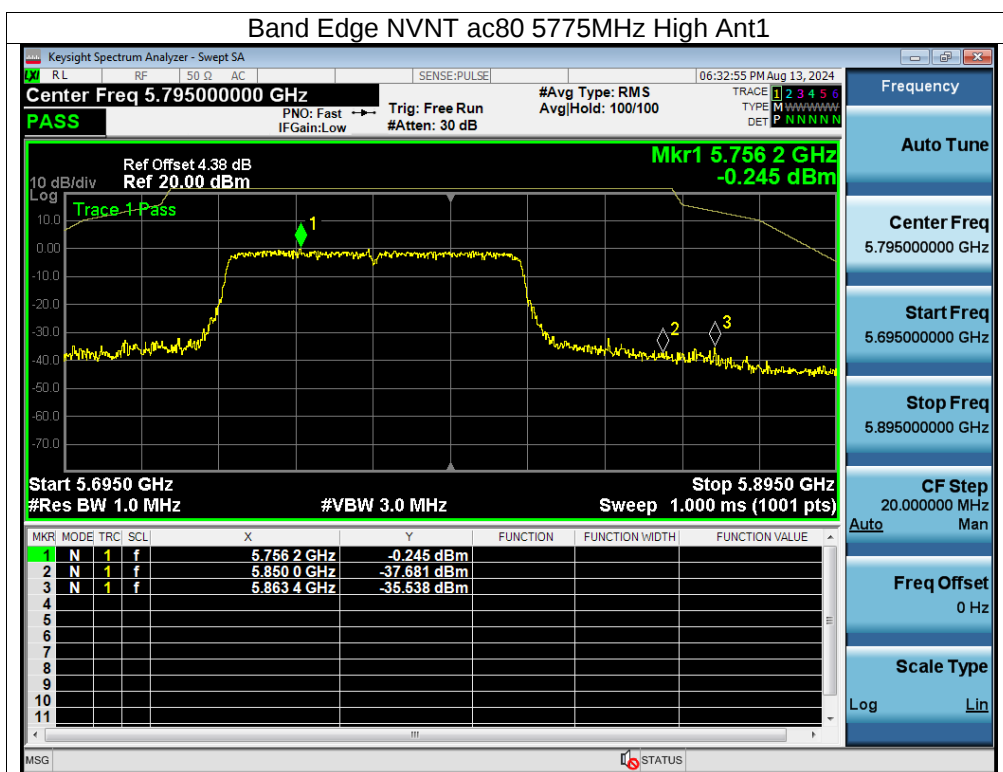


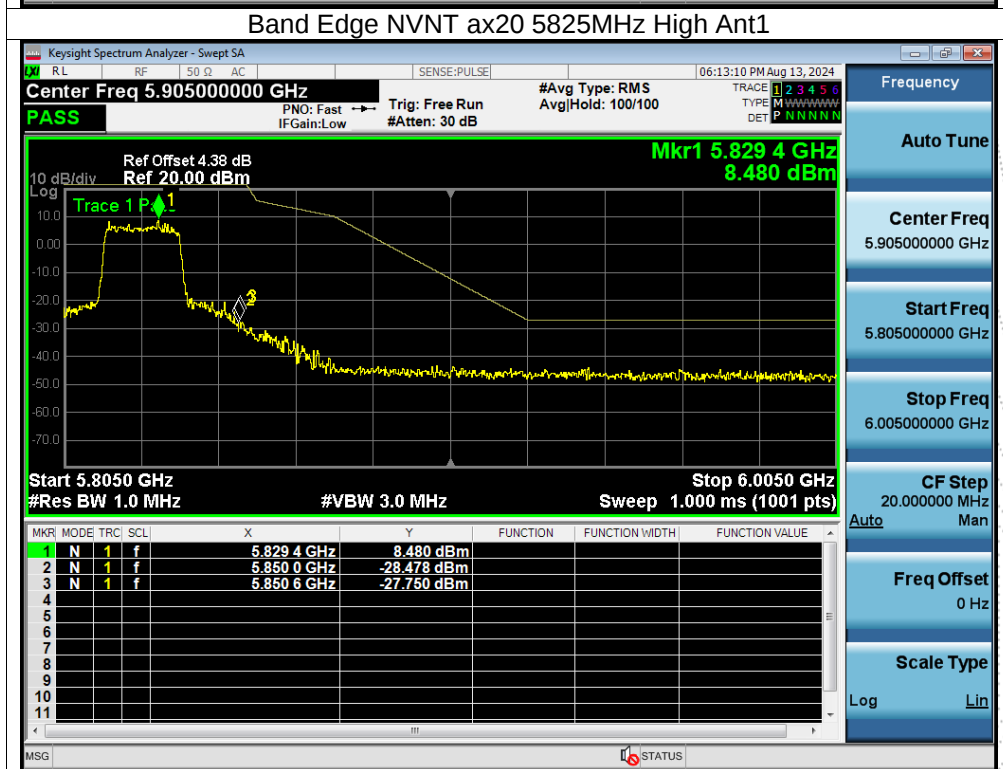
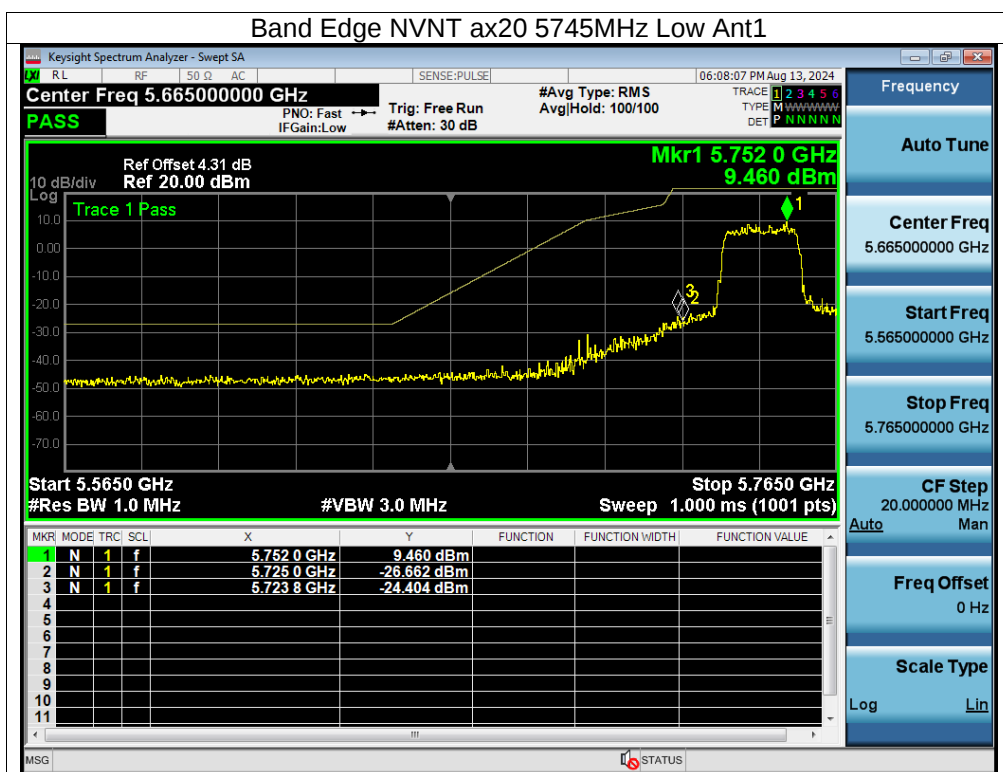


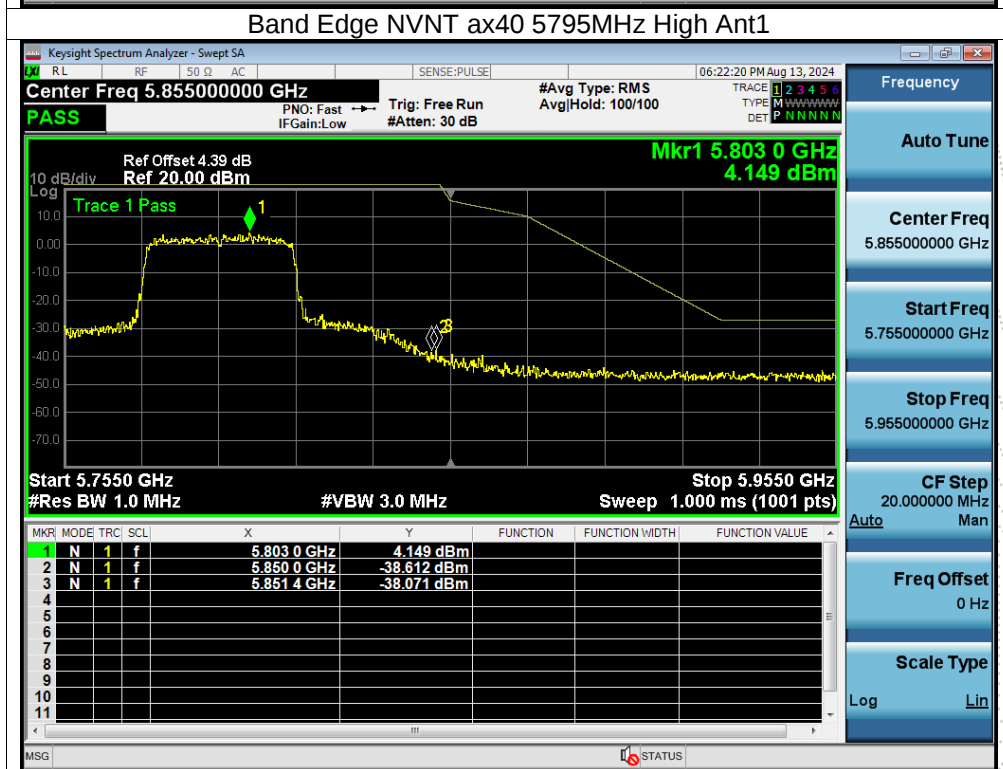
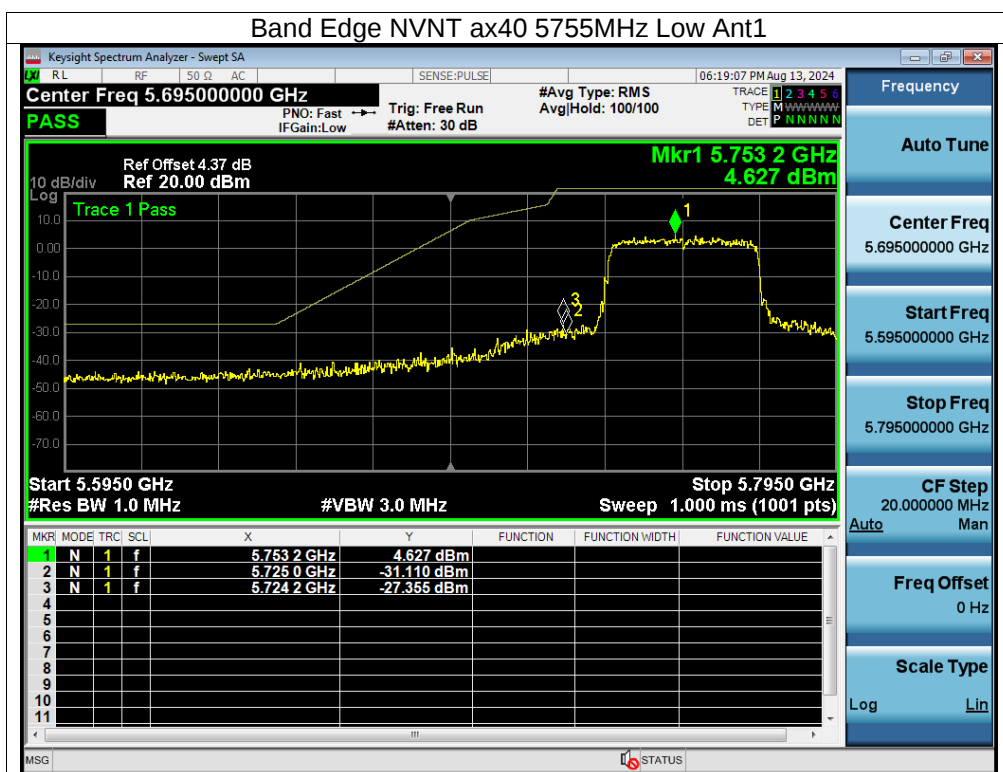


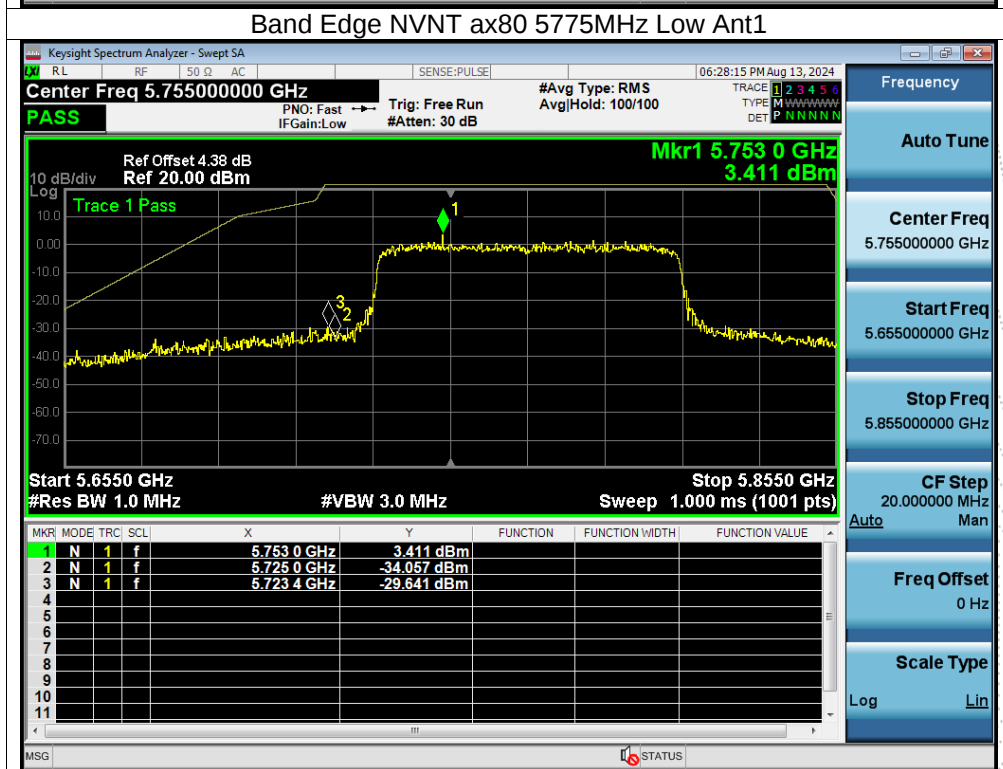
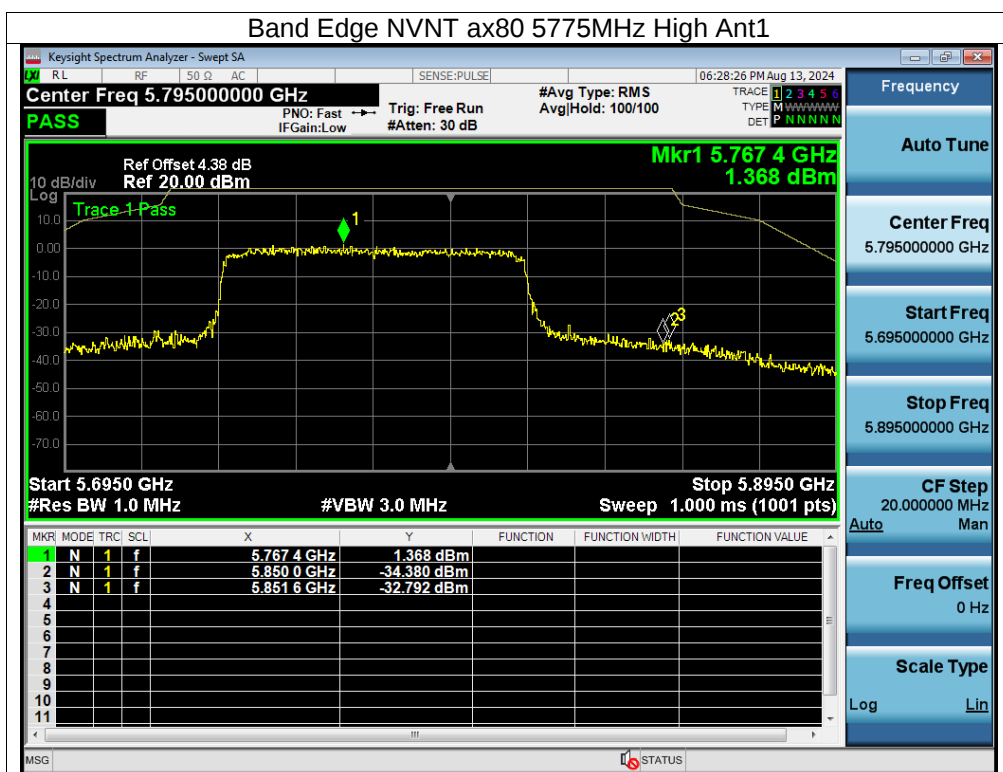












## 12. Spurious RF Conducted Emissions

### 12.1 Block Diagram Of Test Setup



### 12.2 Limit

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge..

### 12.3 Test Procedure

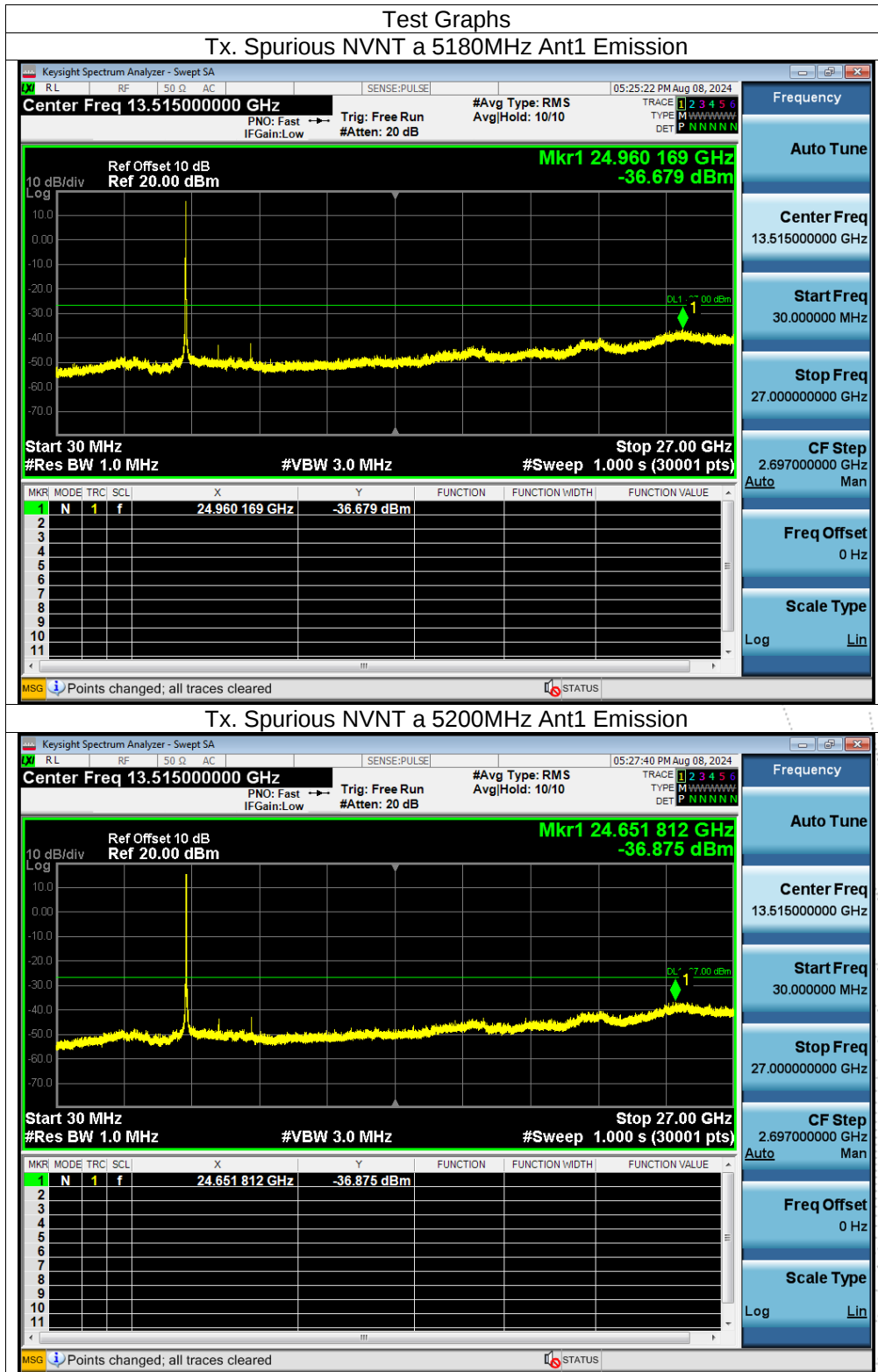
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

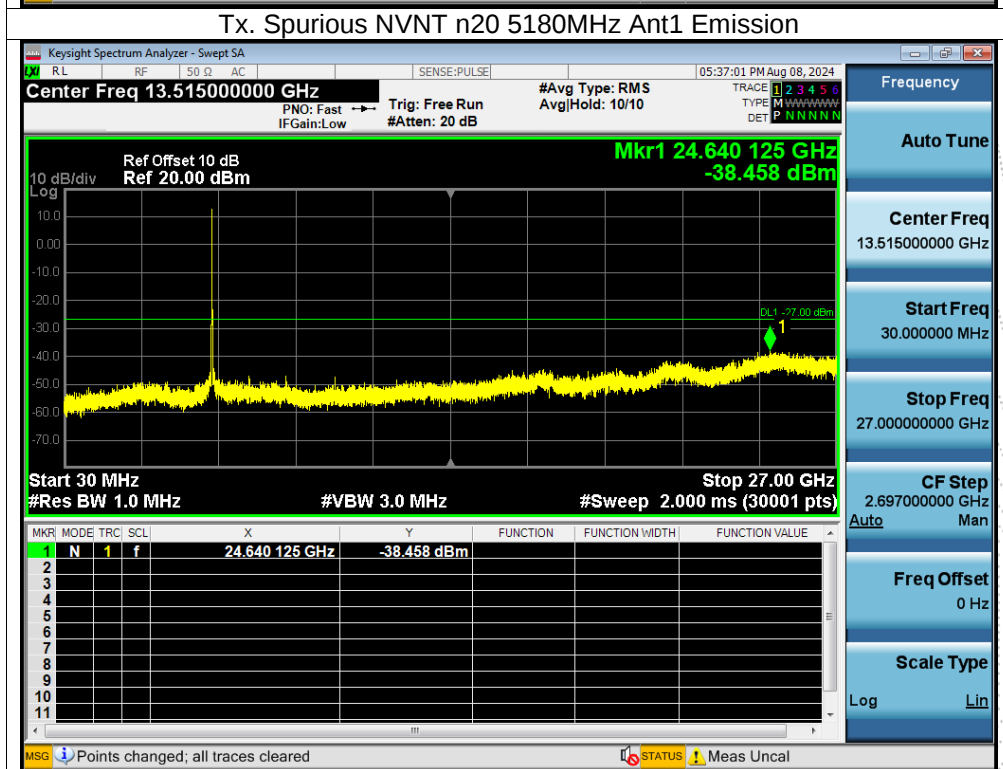
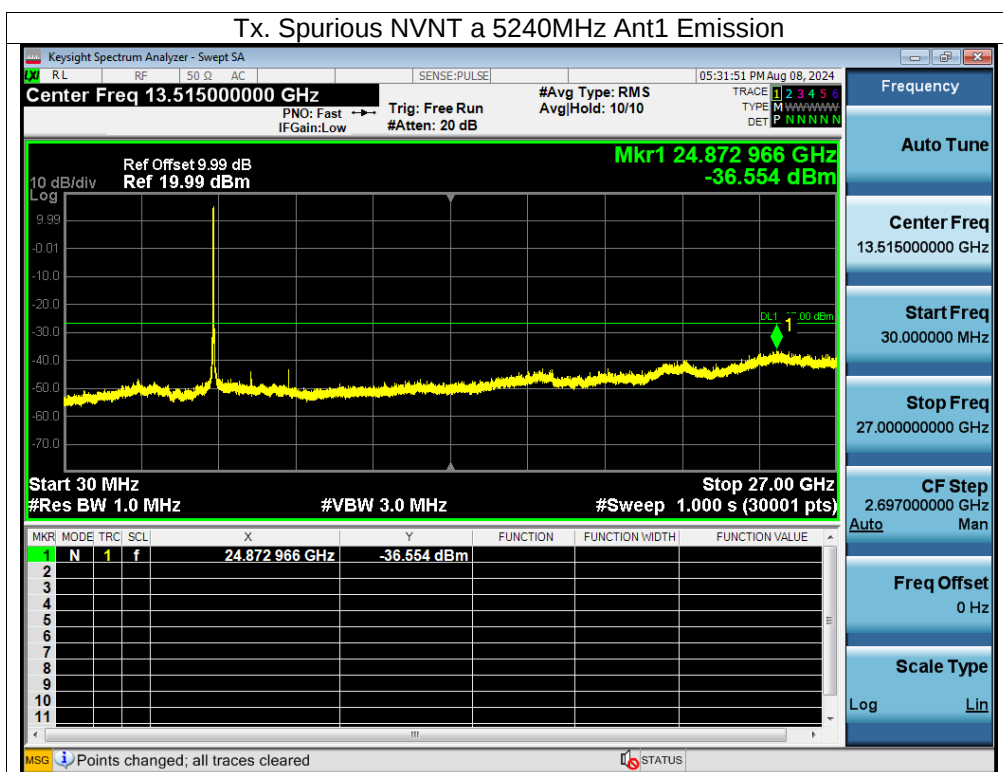
### 12.4 Test Result

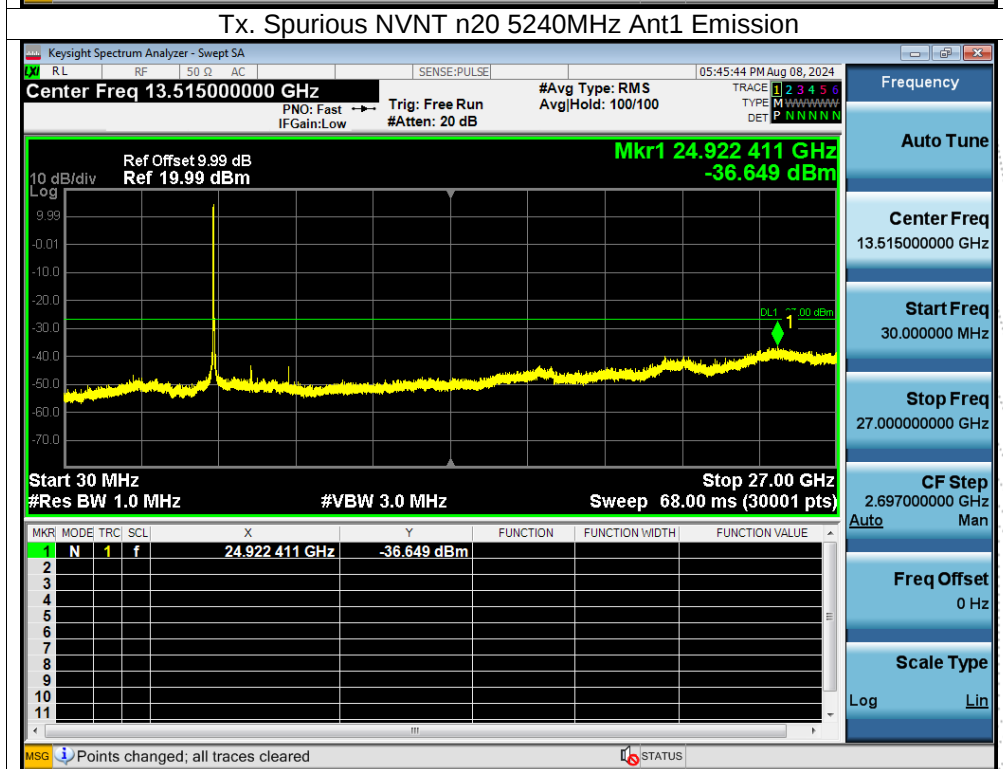
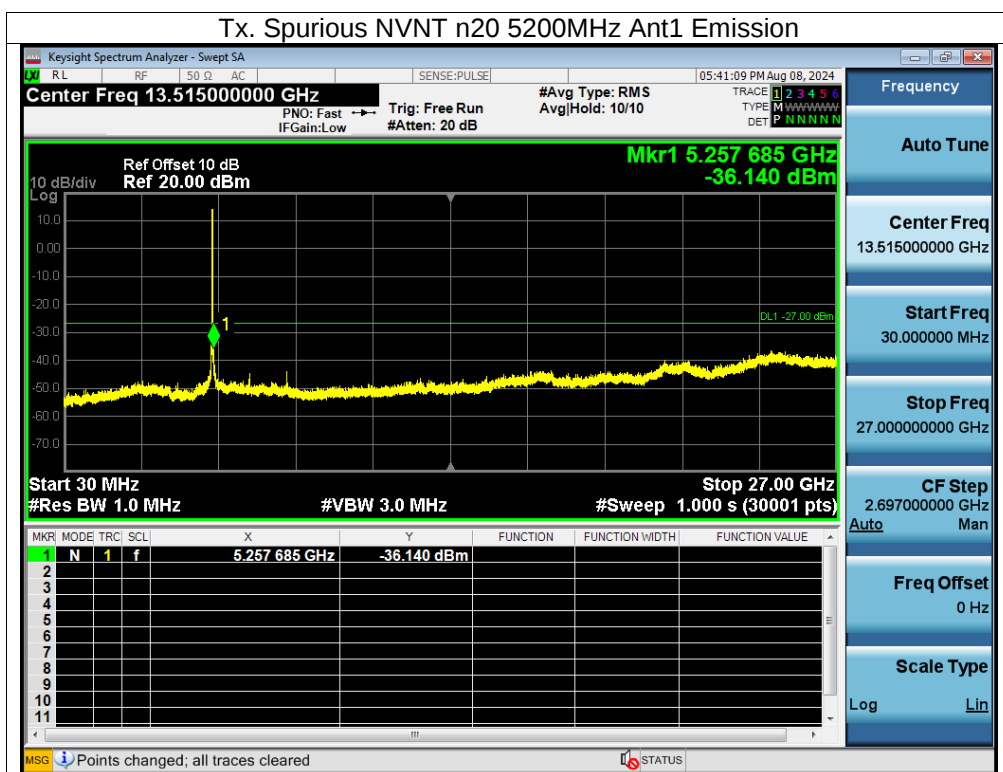
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data.

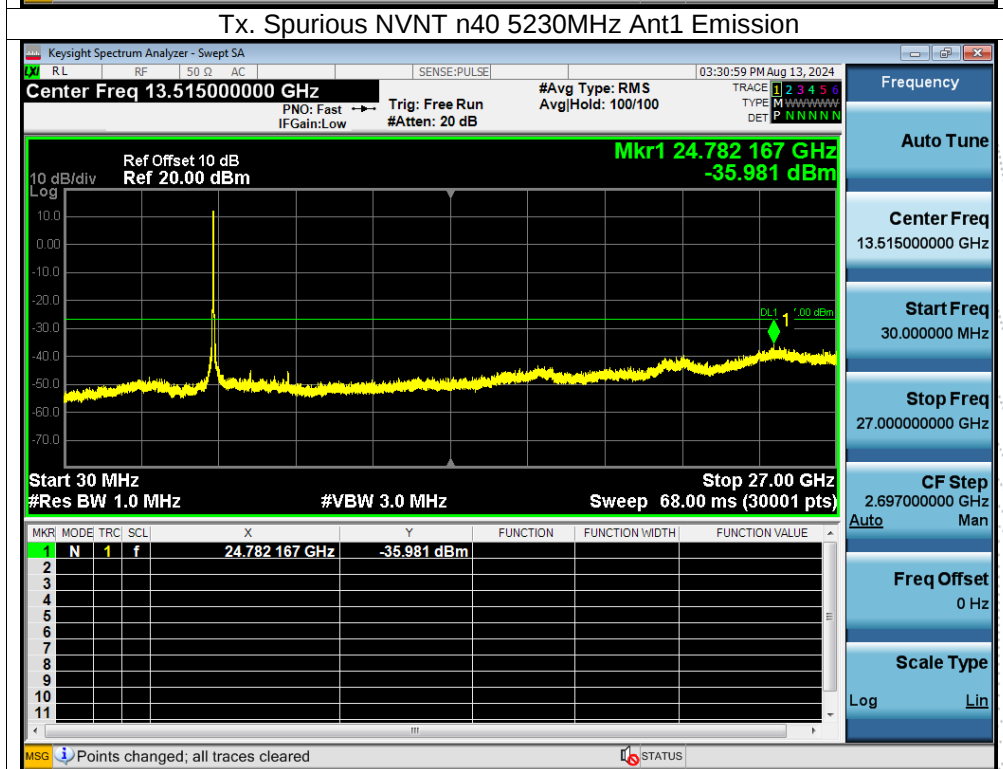
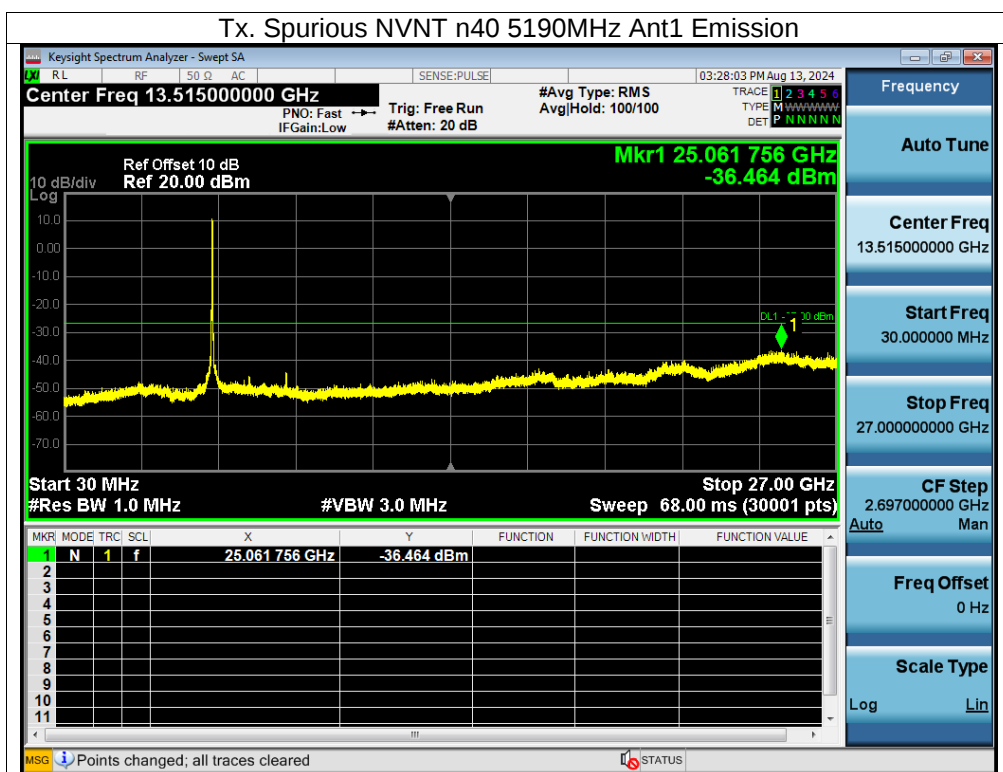
About: 26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

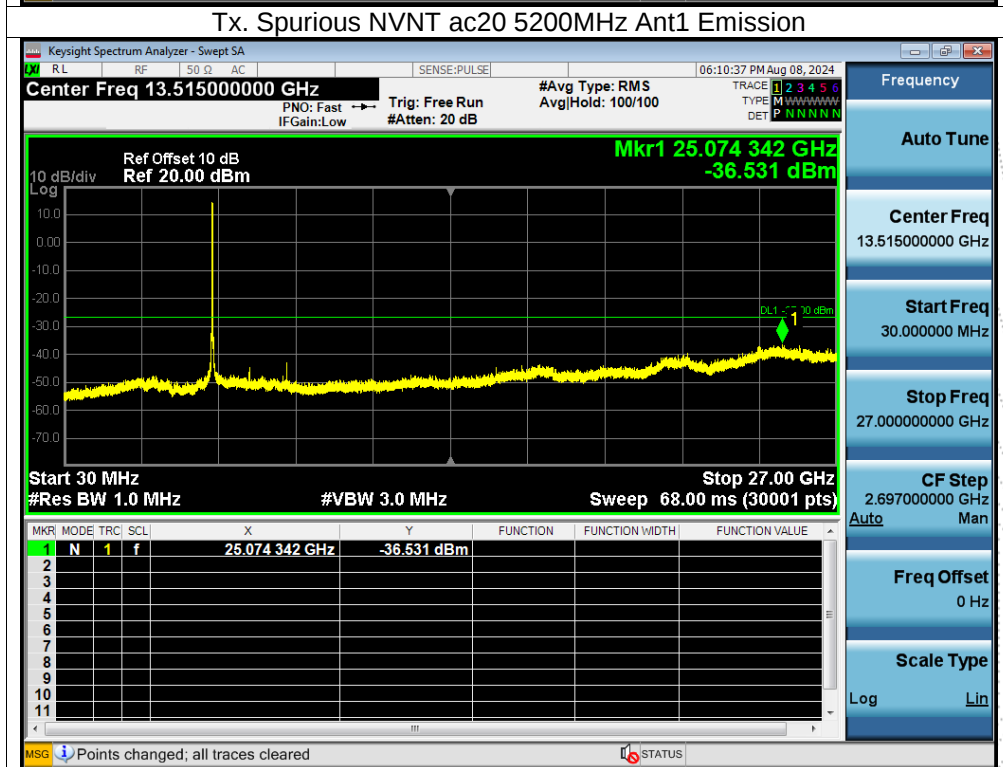
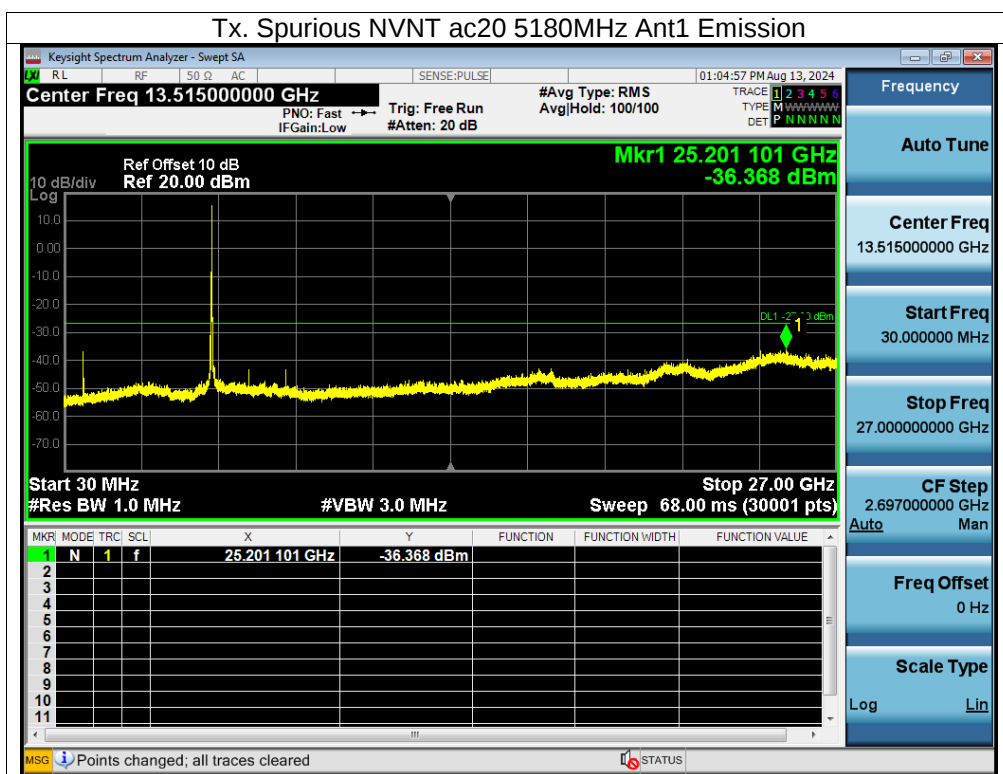
5180-5240MHz

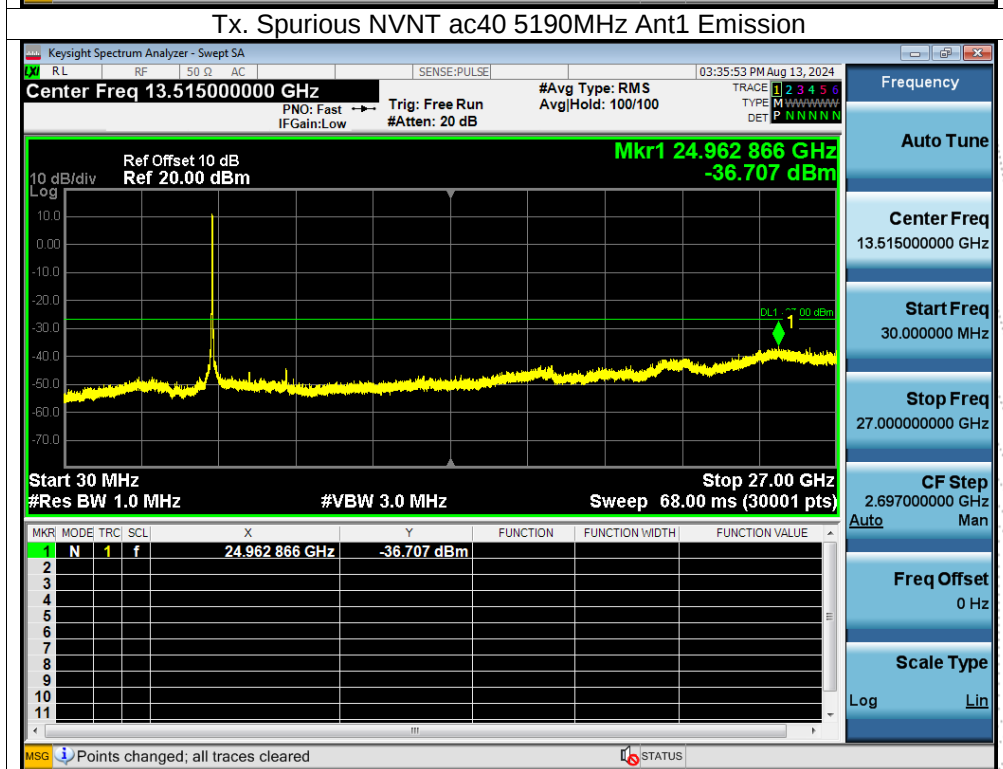
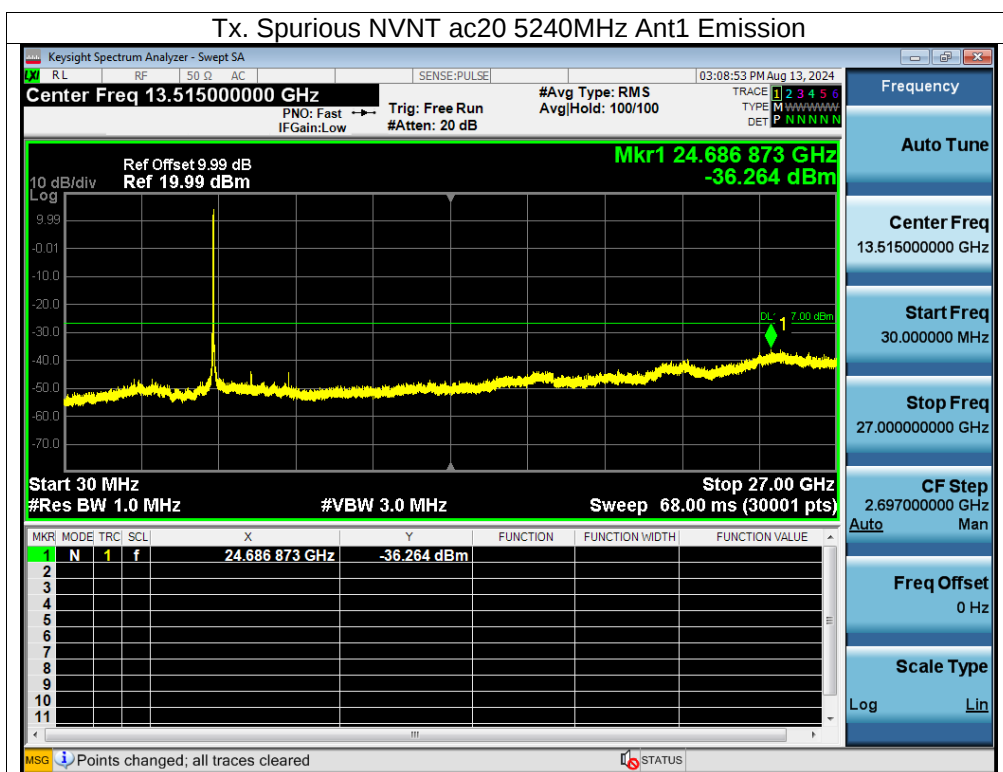


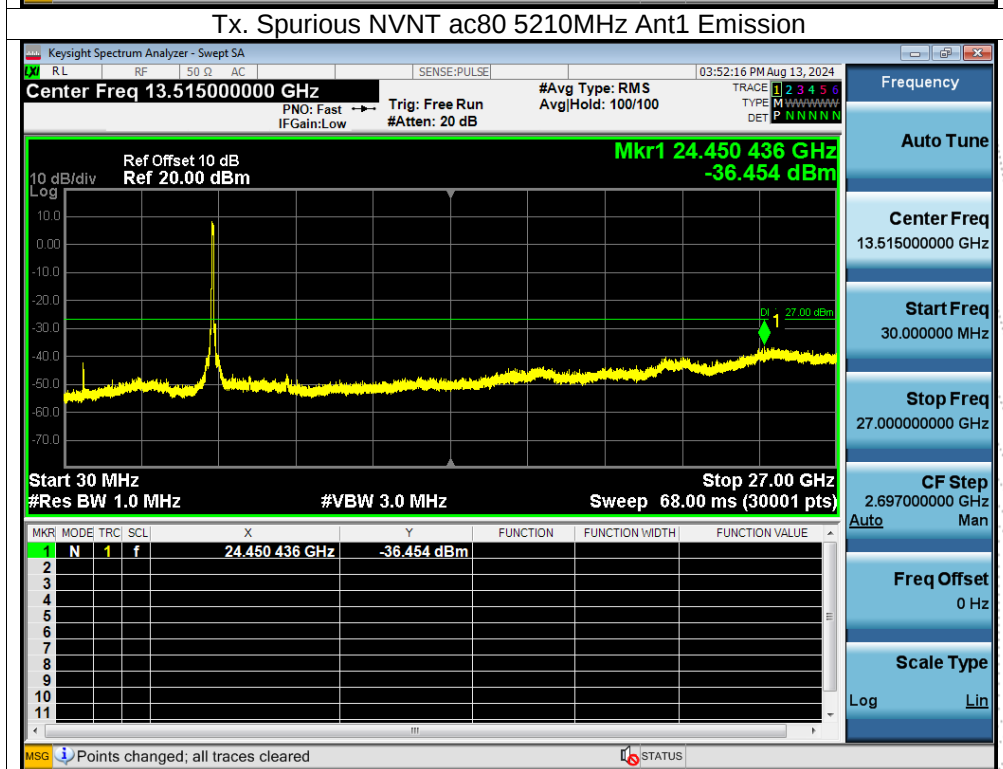
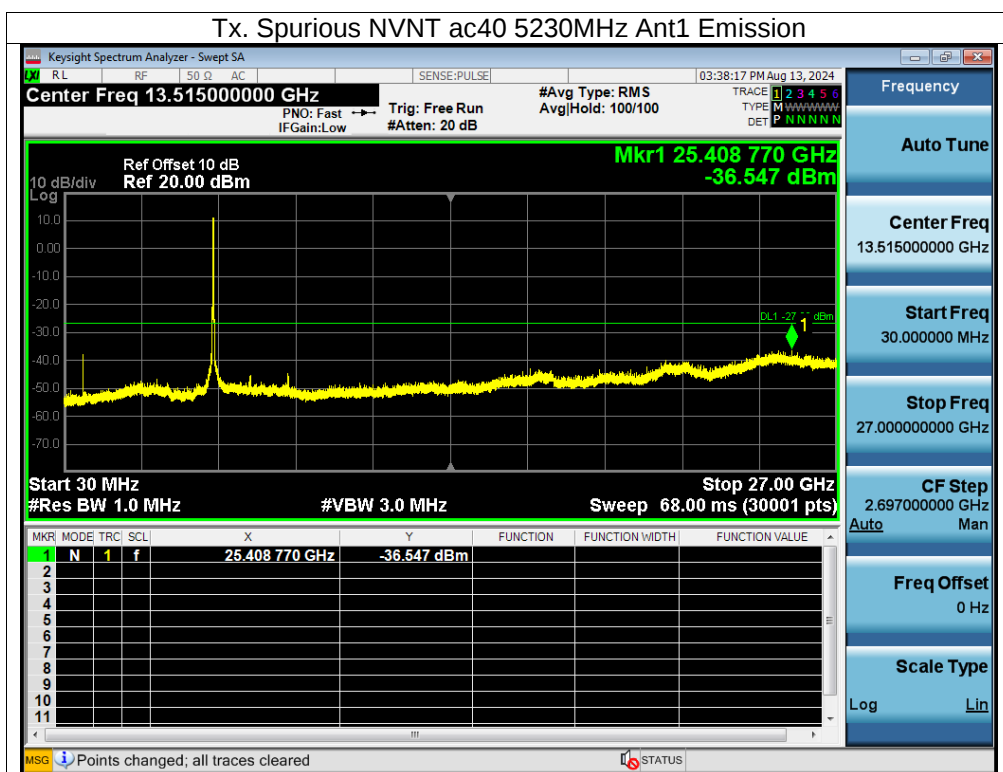


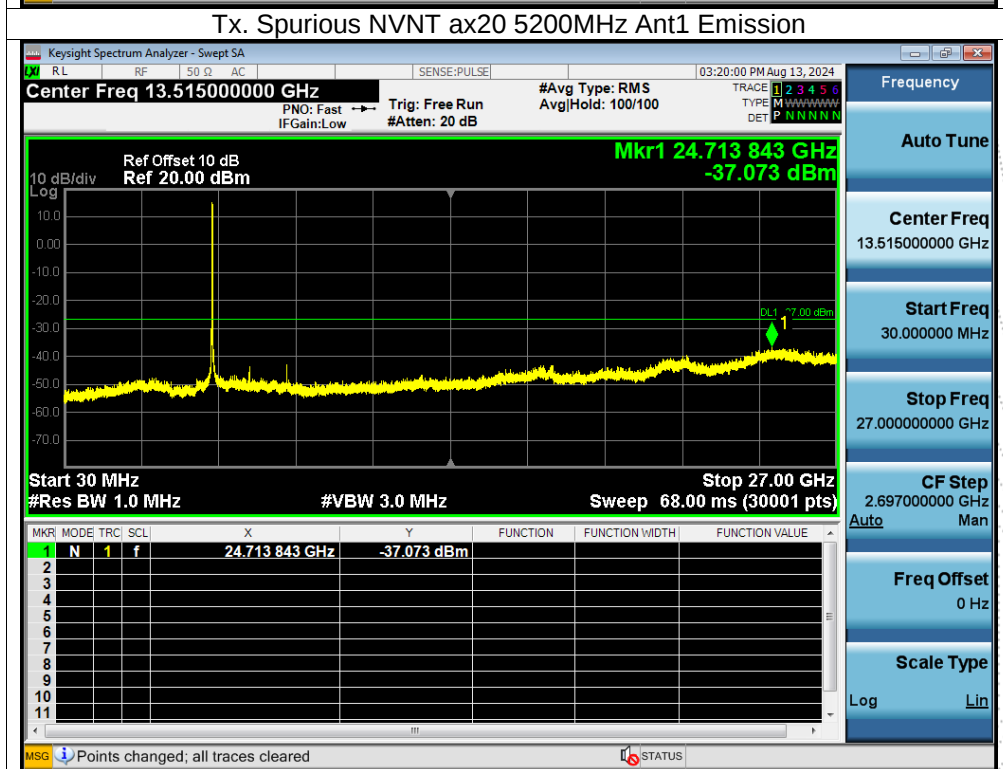
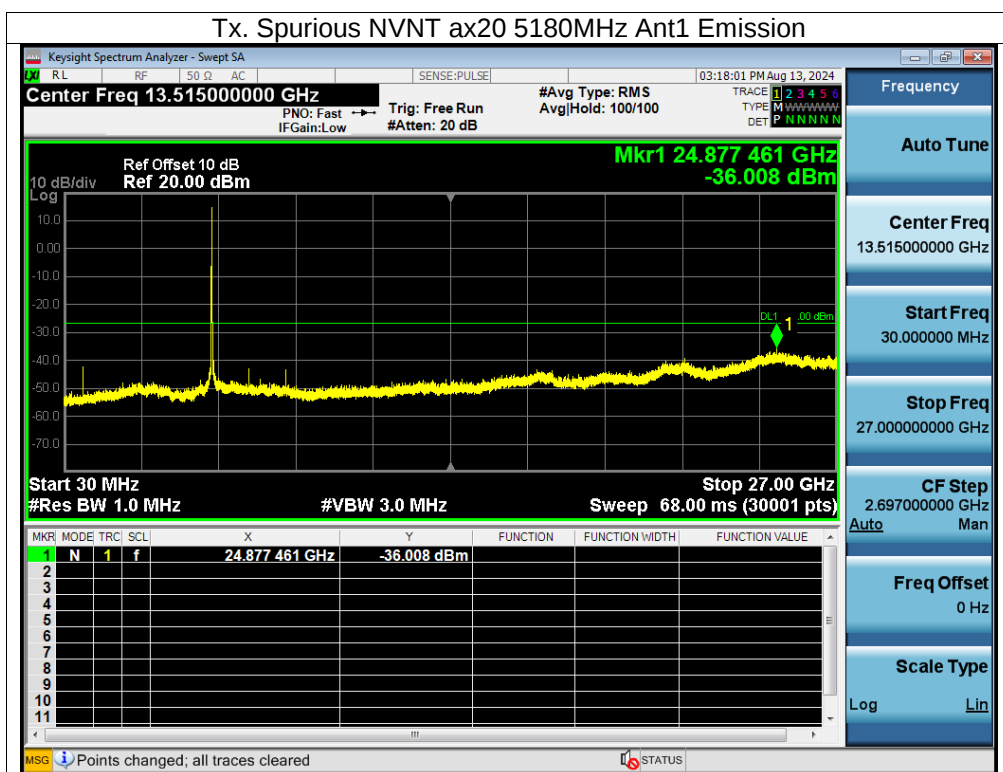


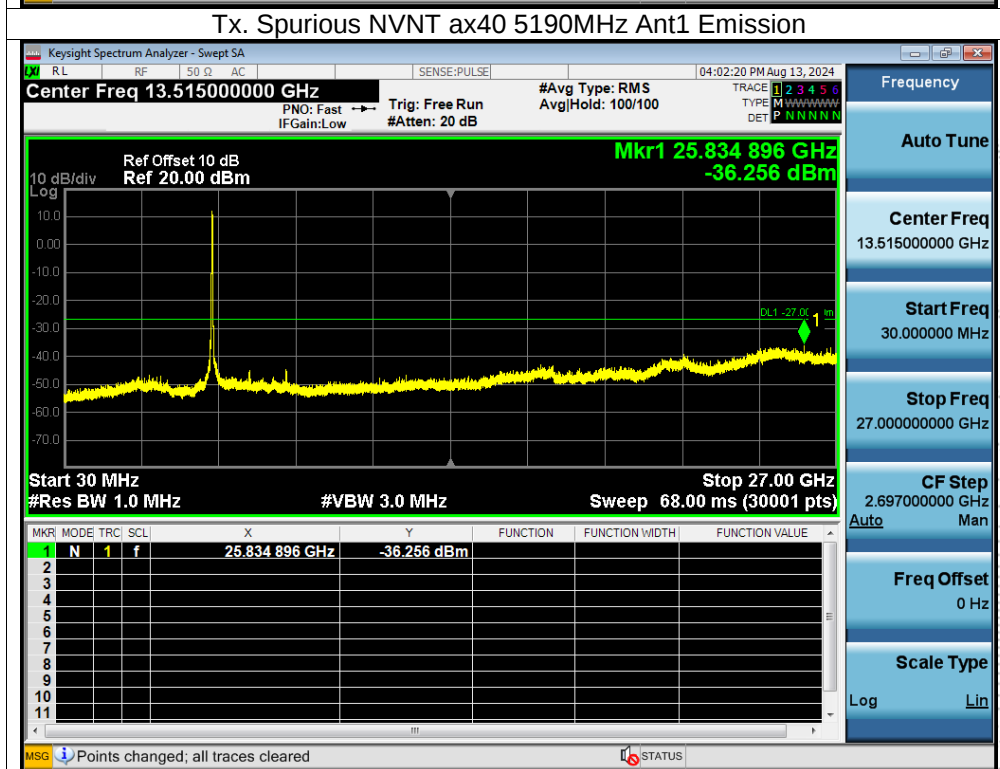
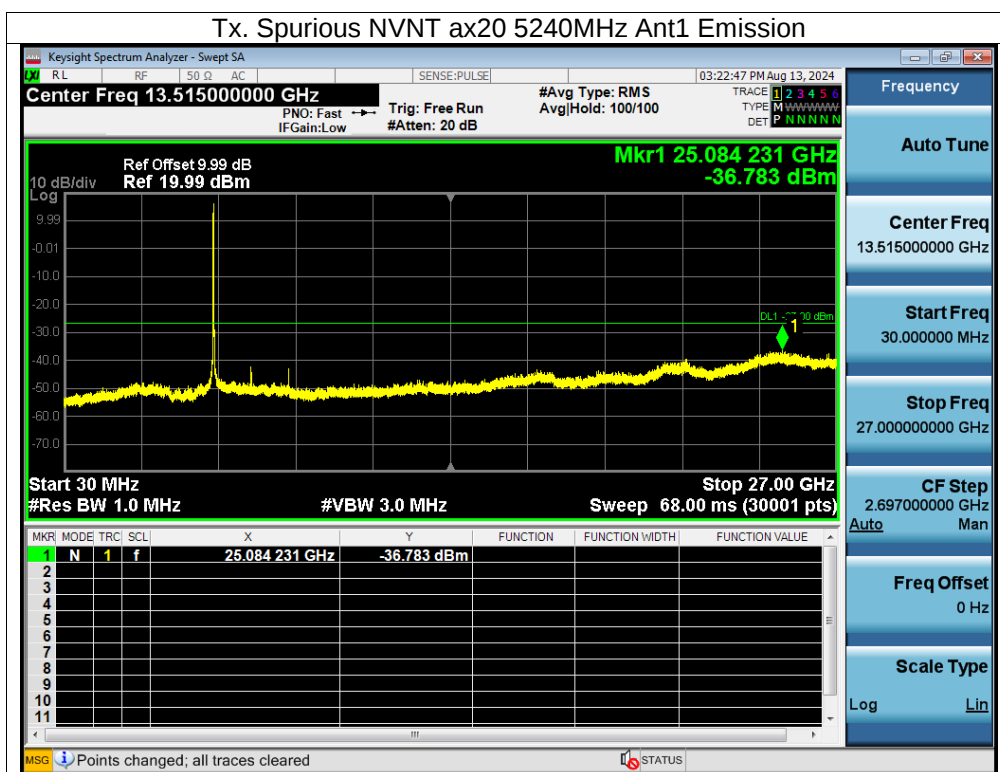


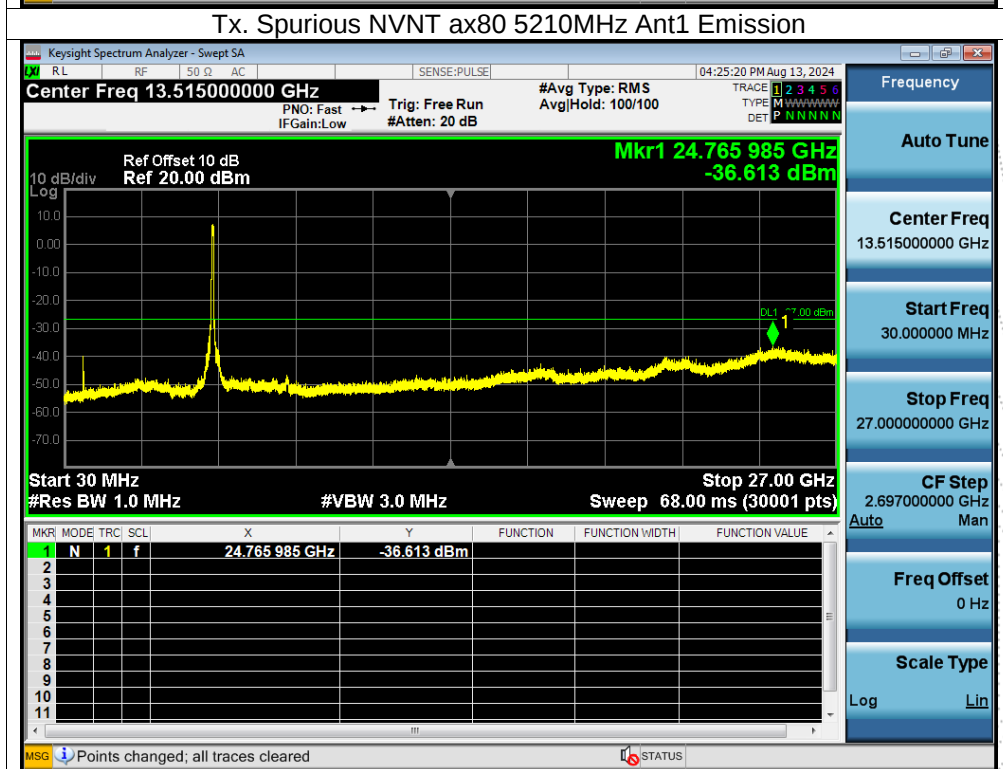
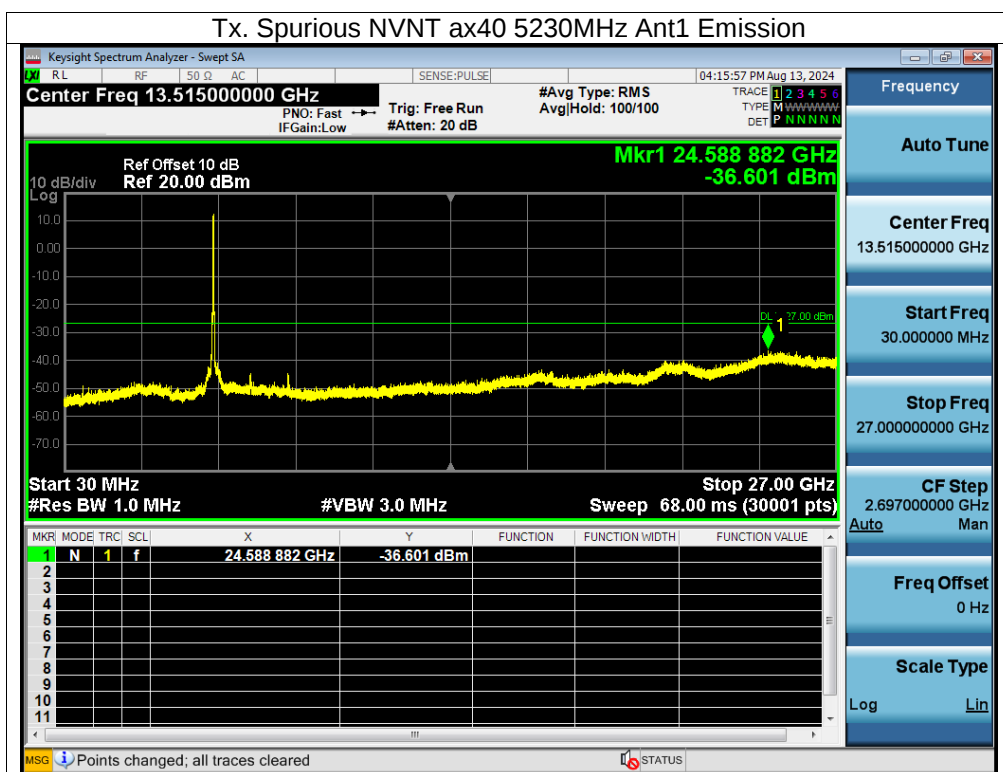




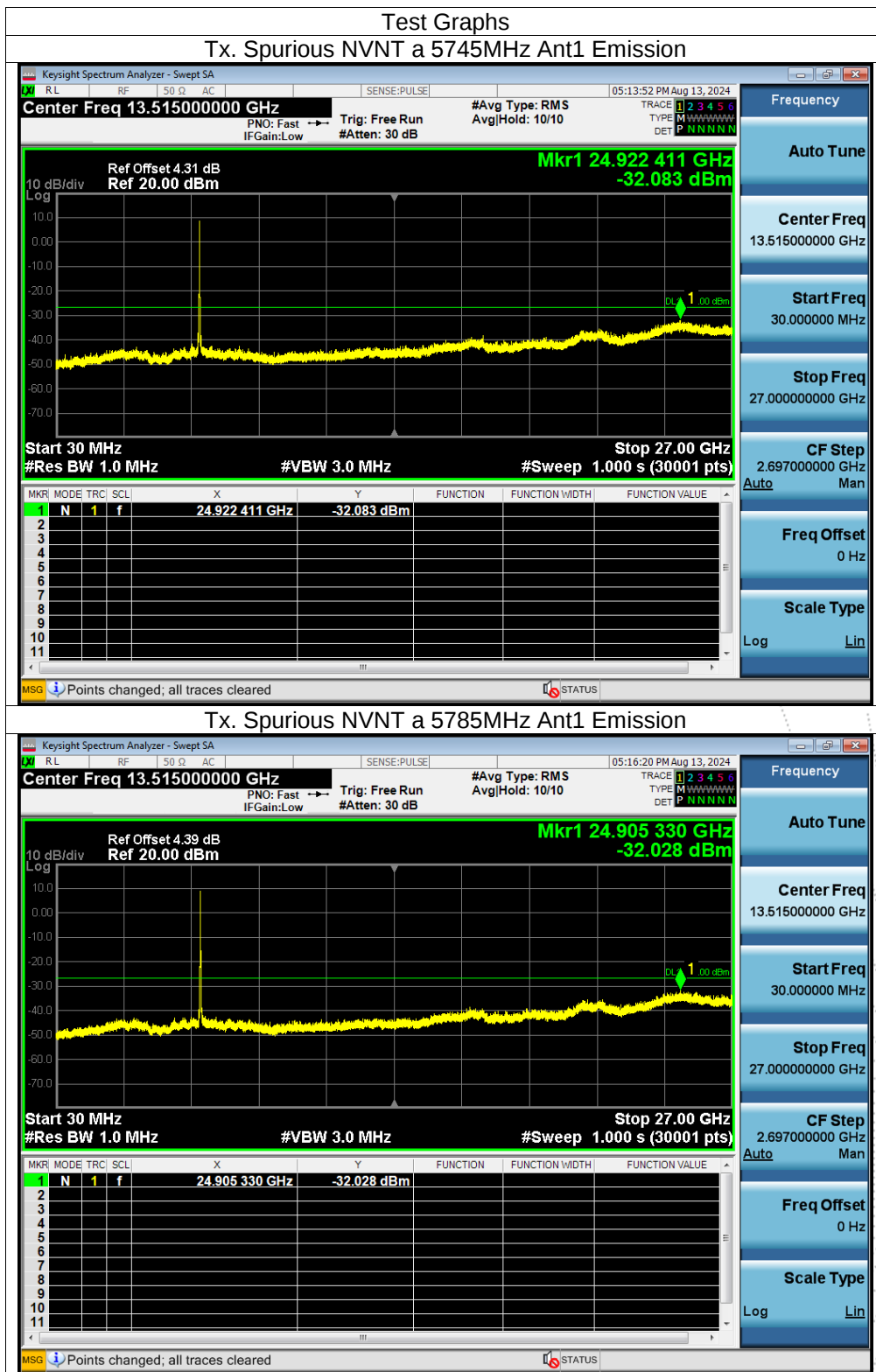


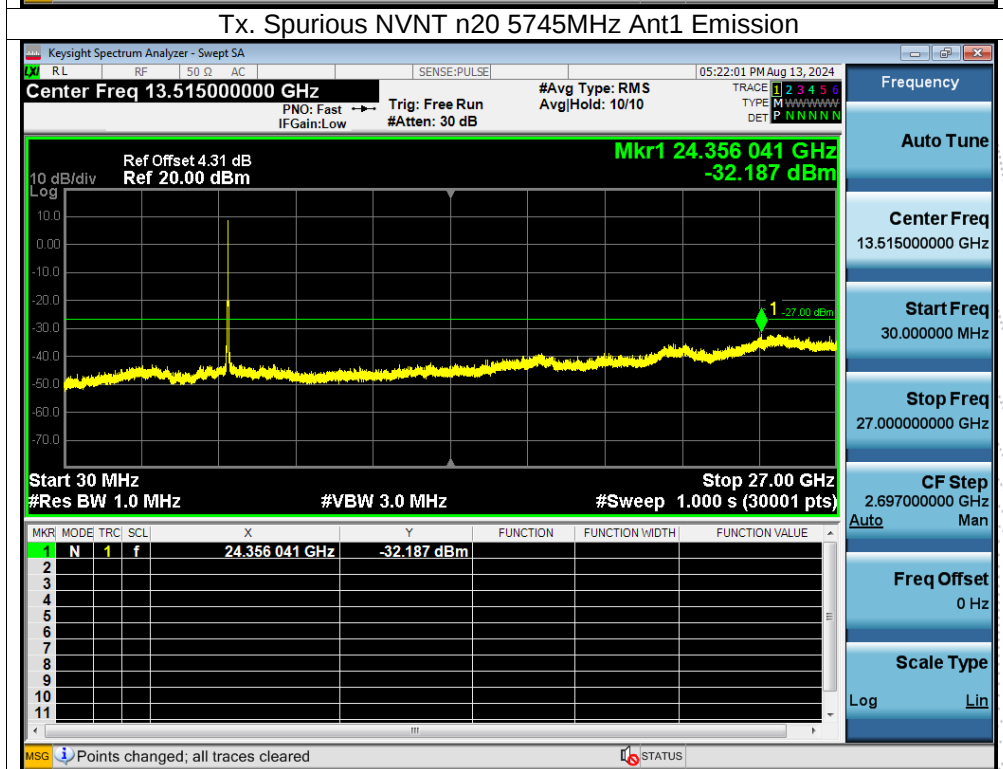
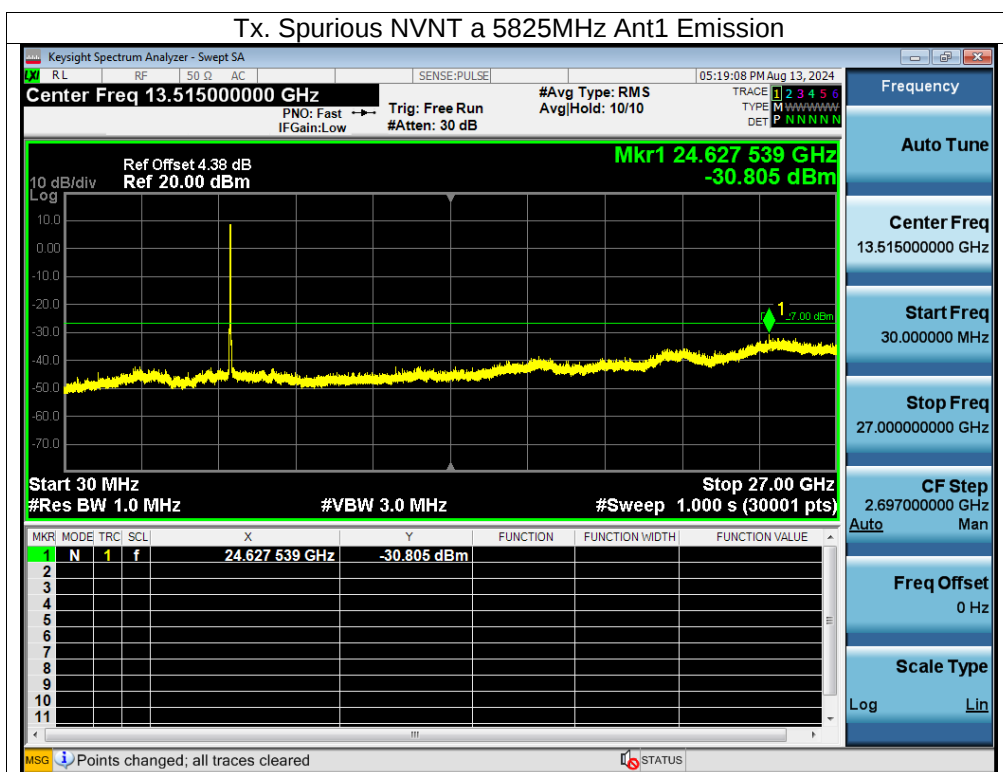


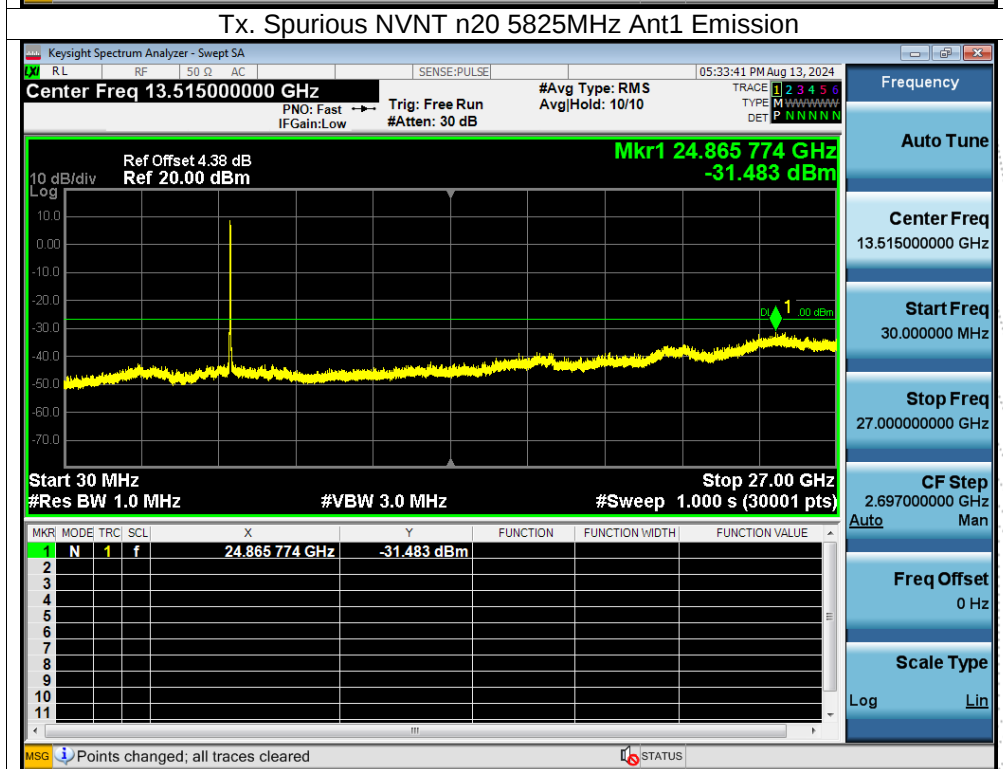
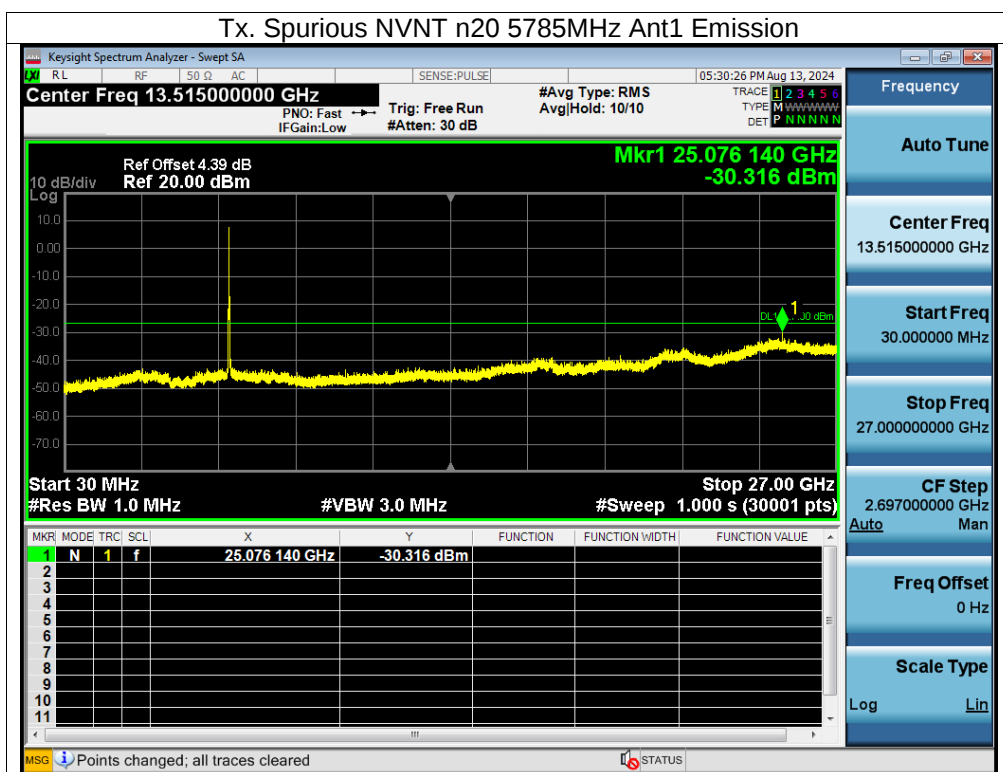


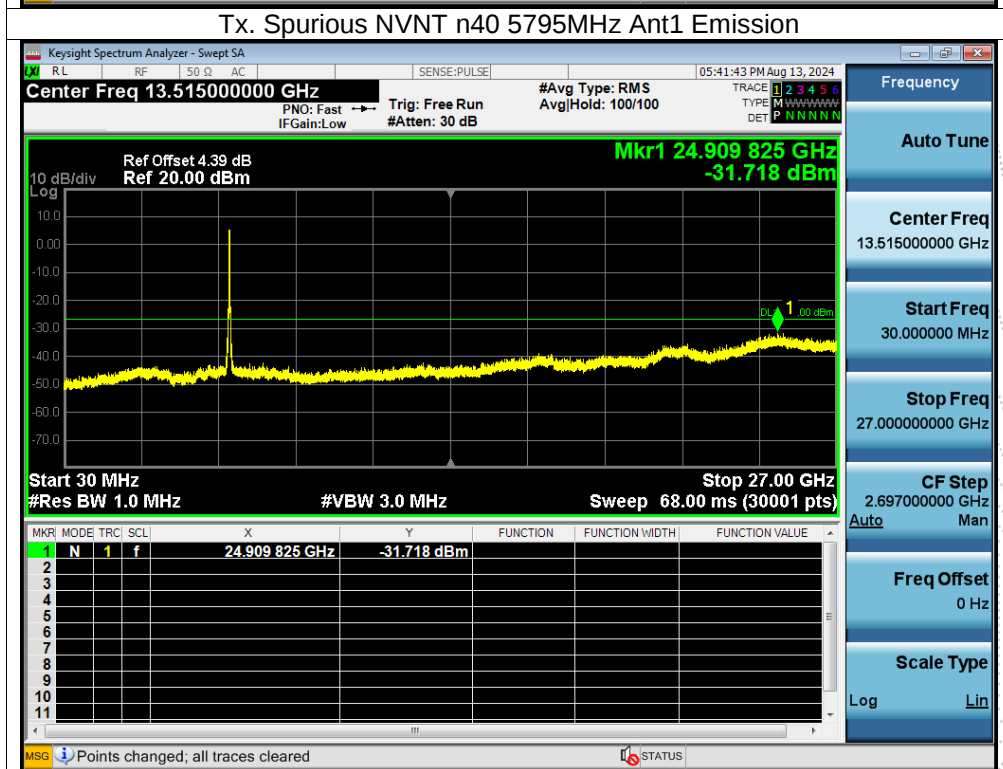
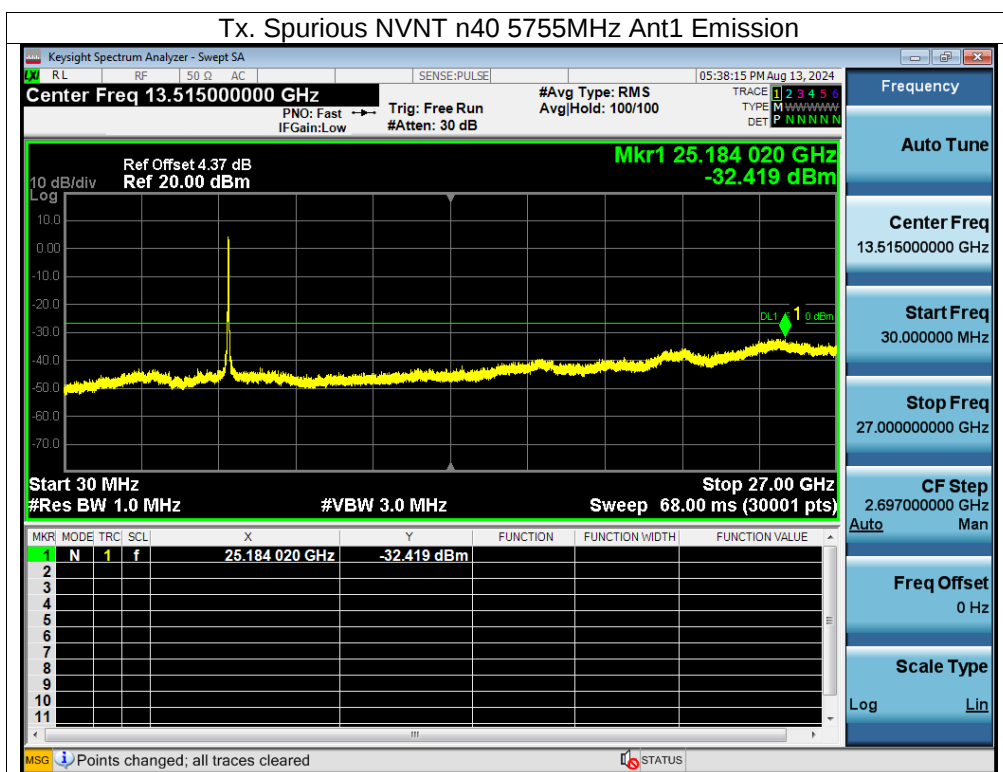


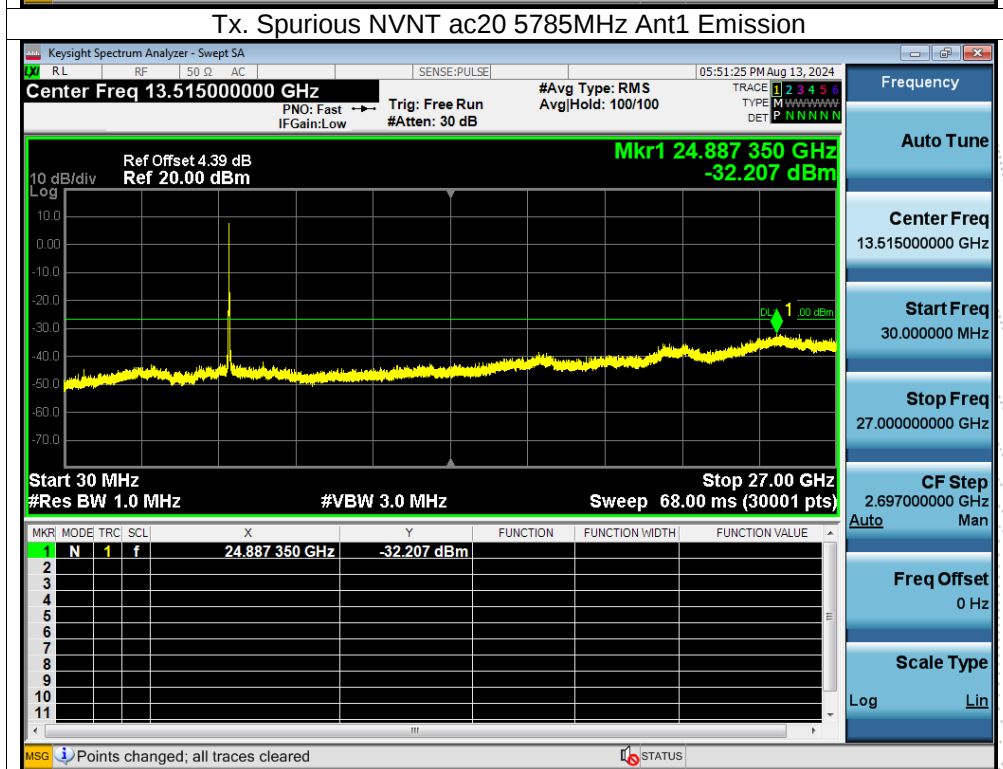
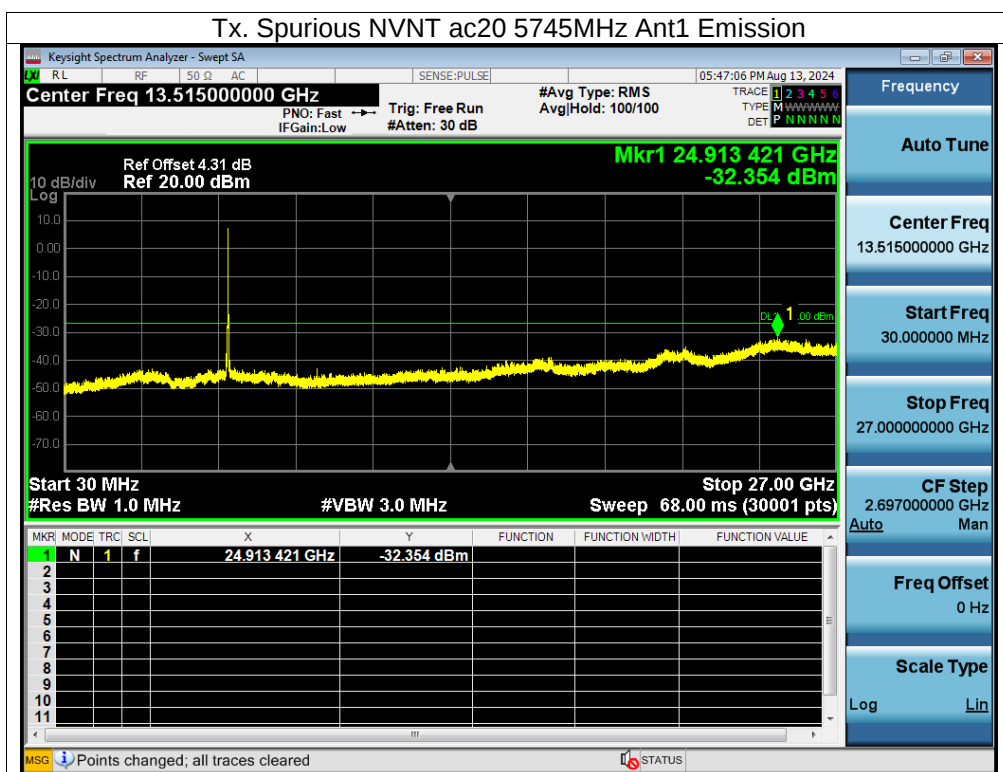
5745-58250MHz

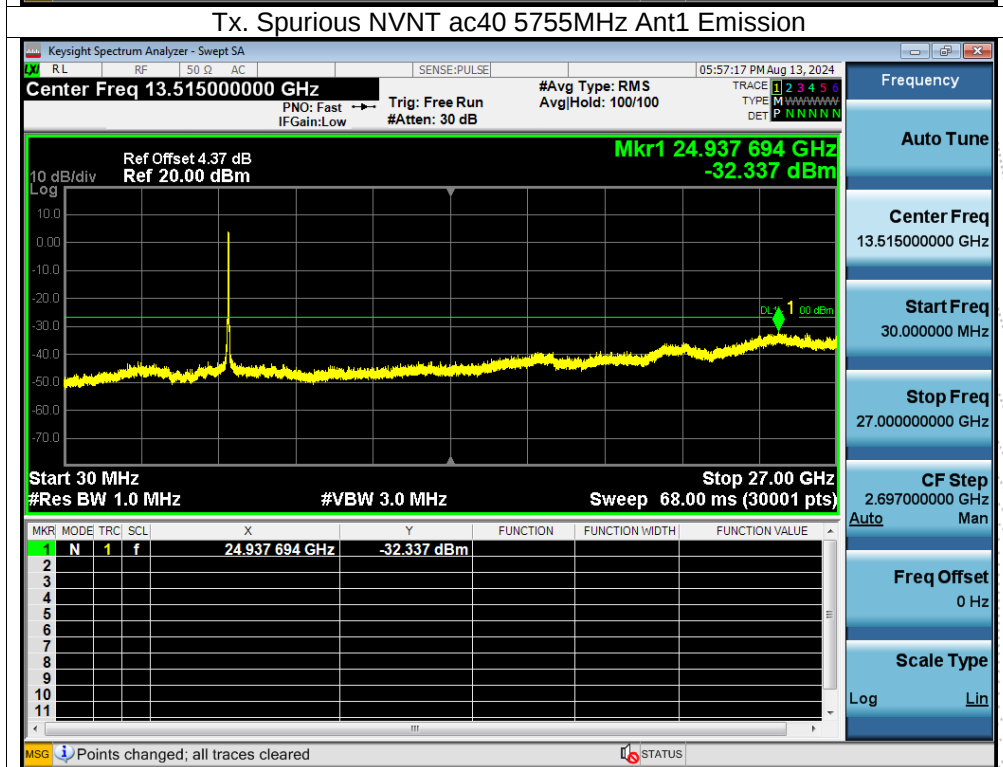
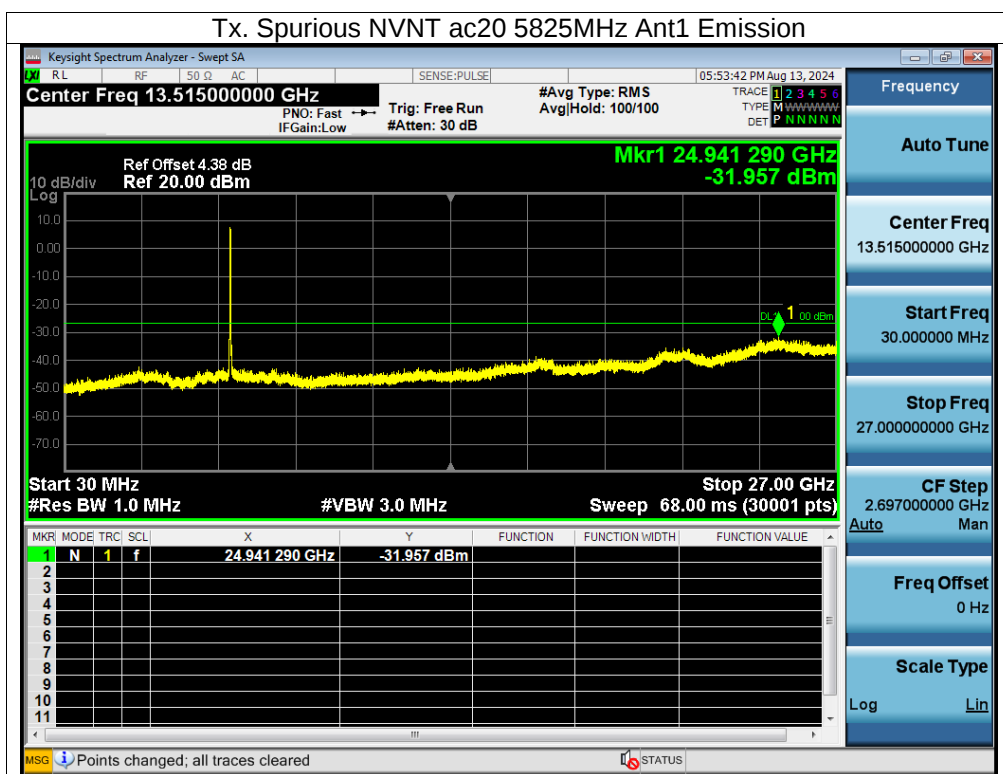


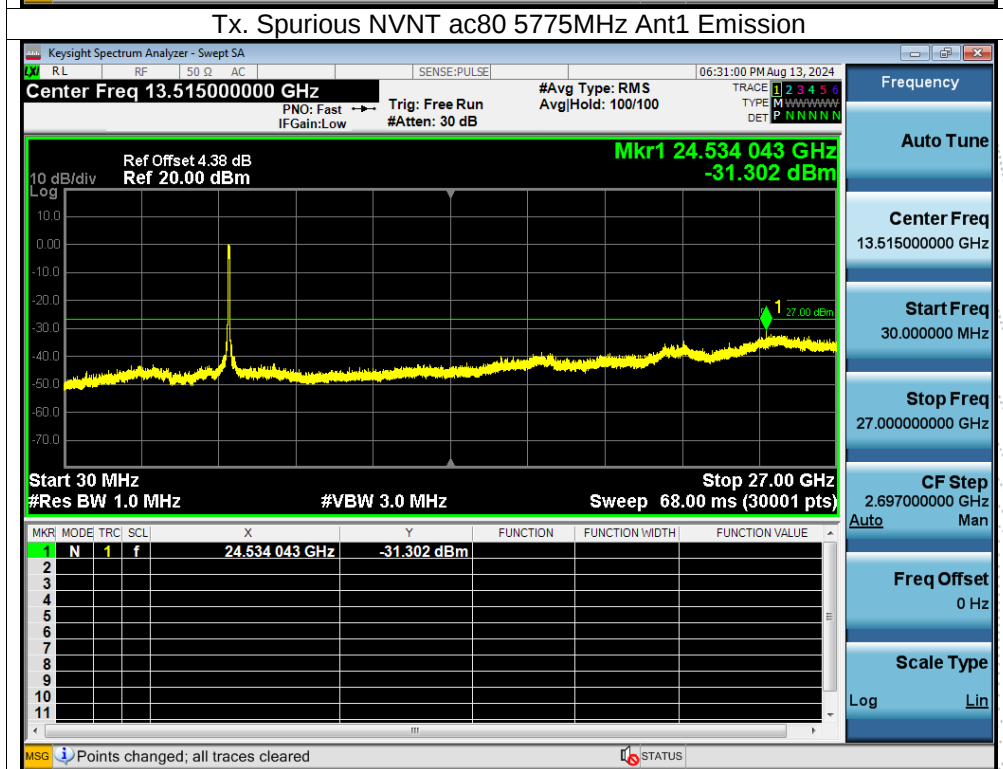
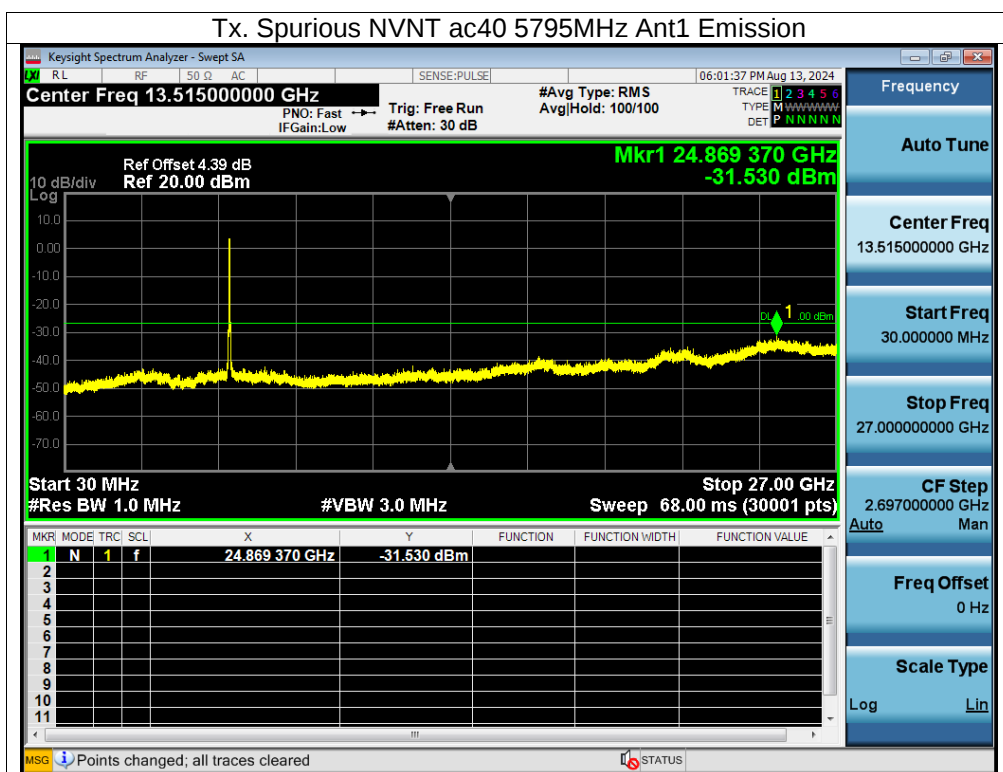


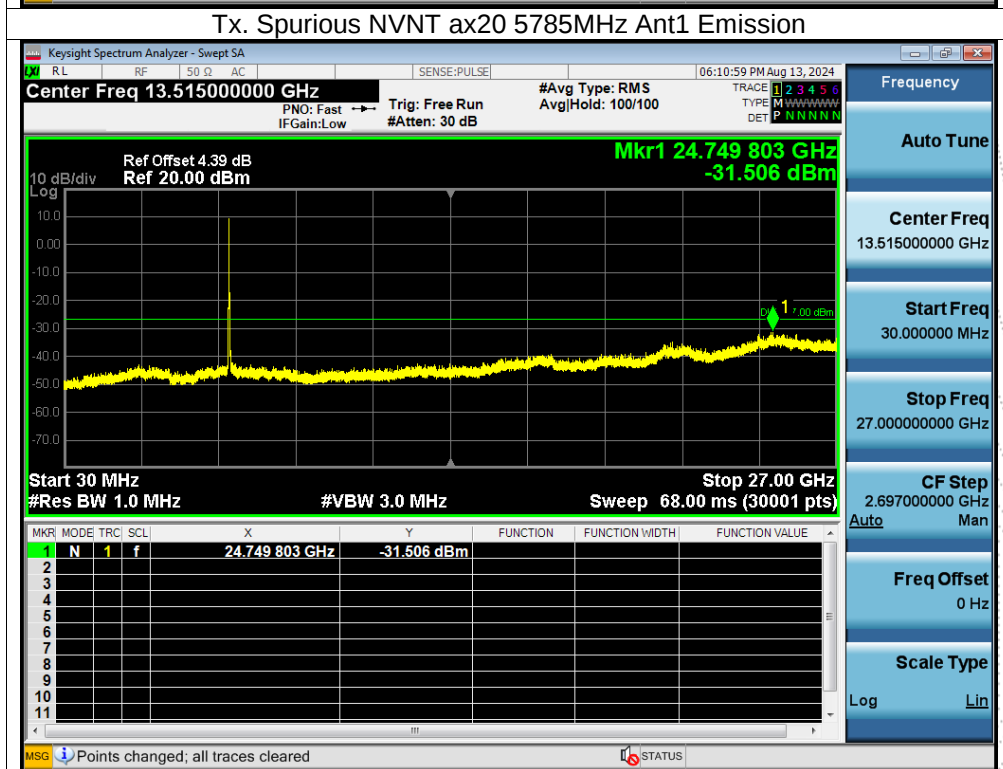
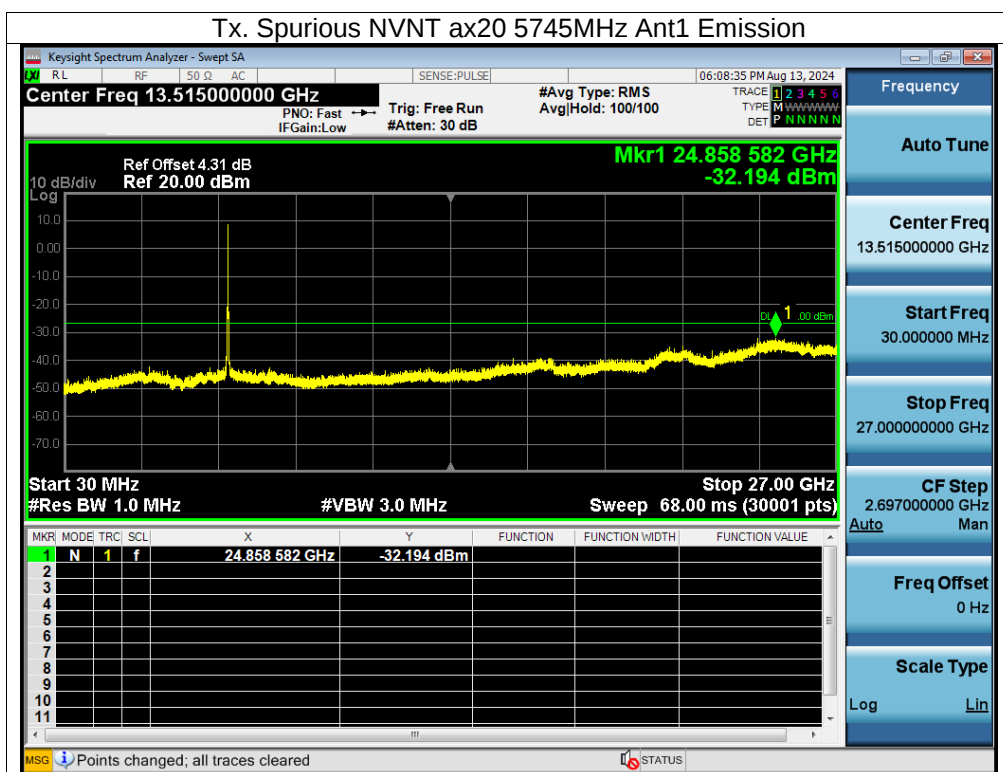


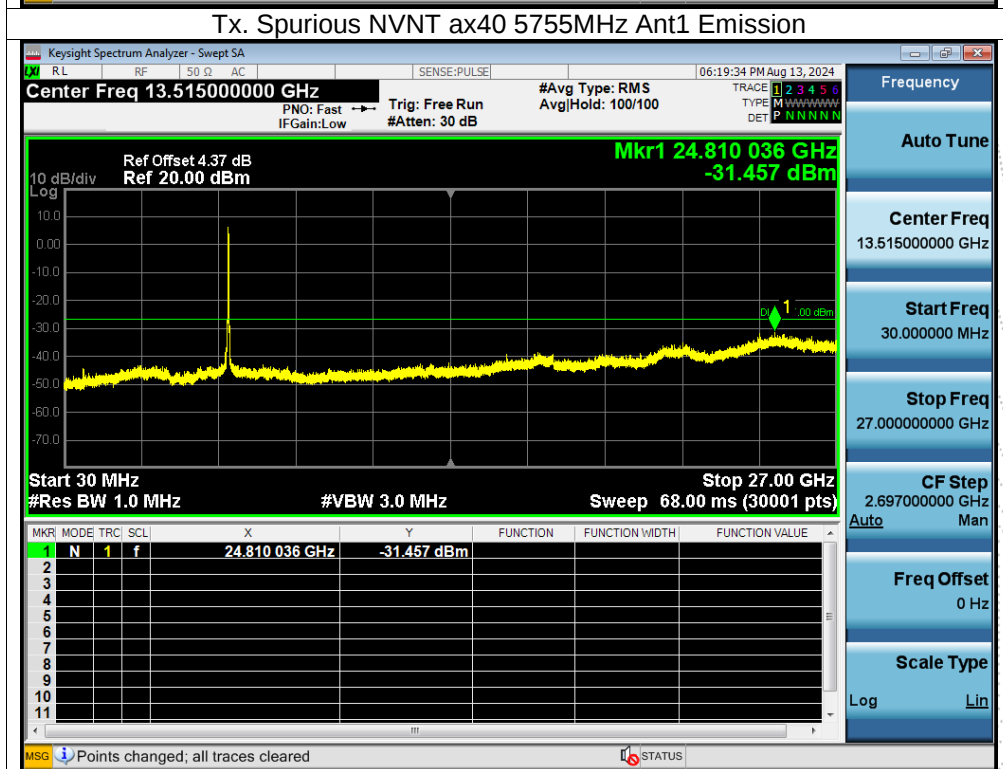
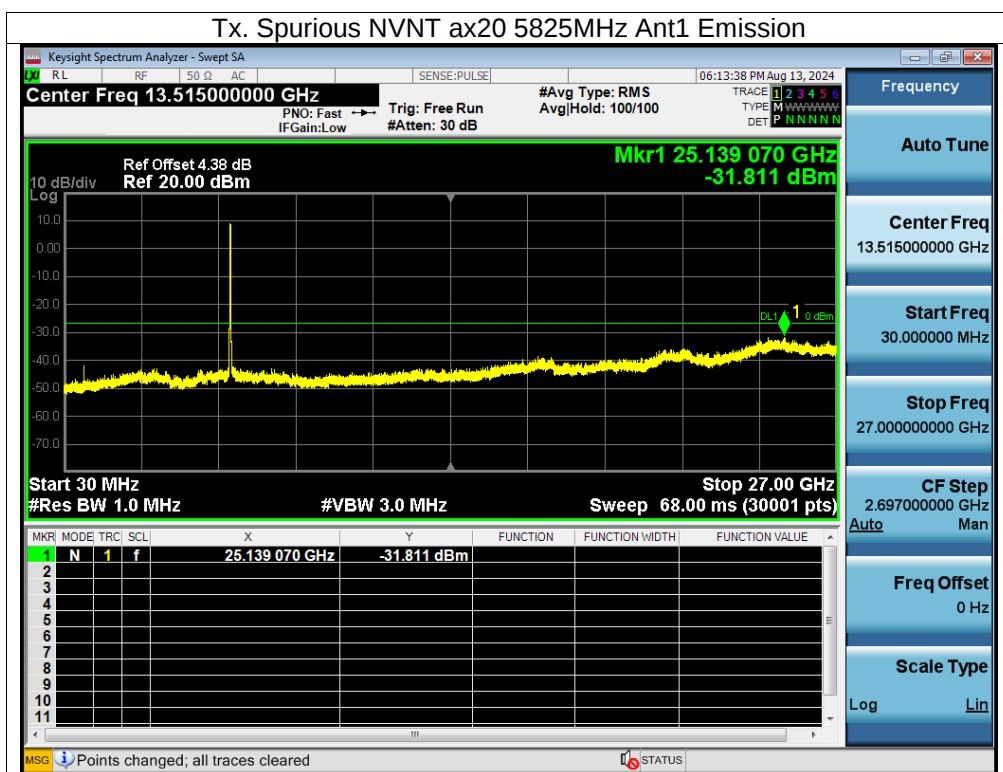


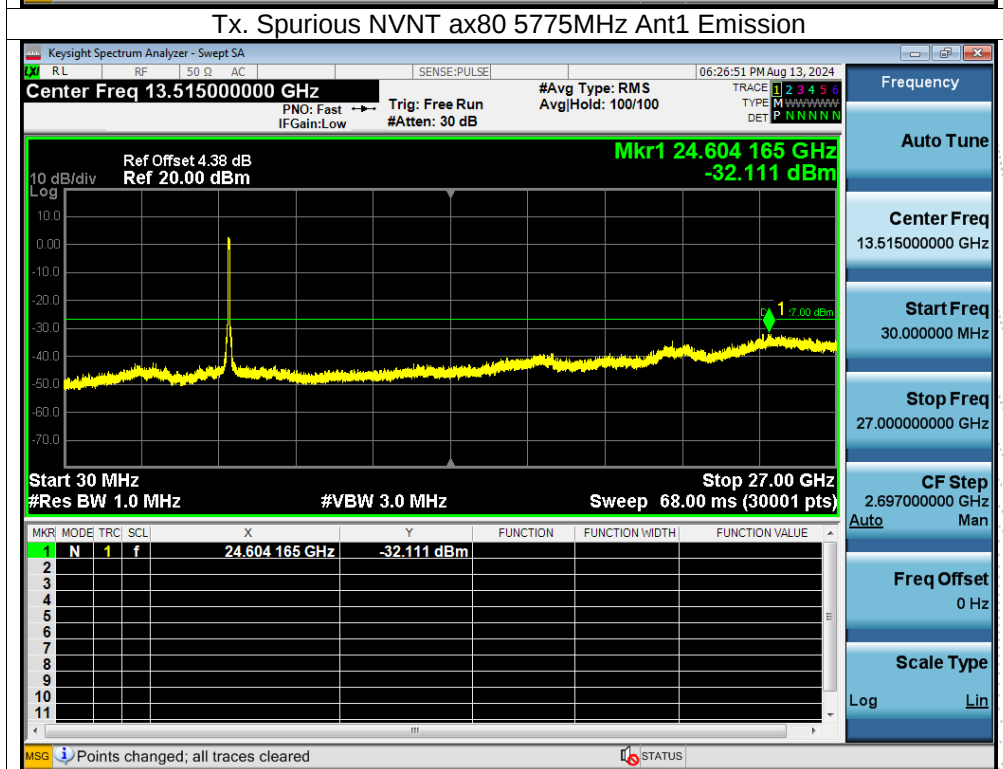
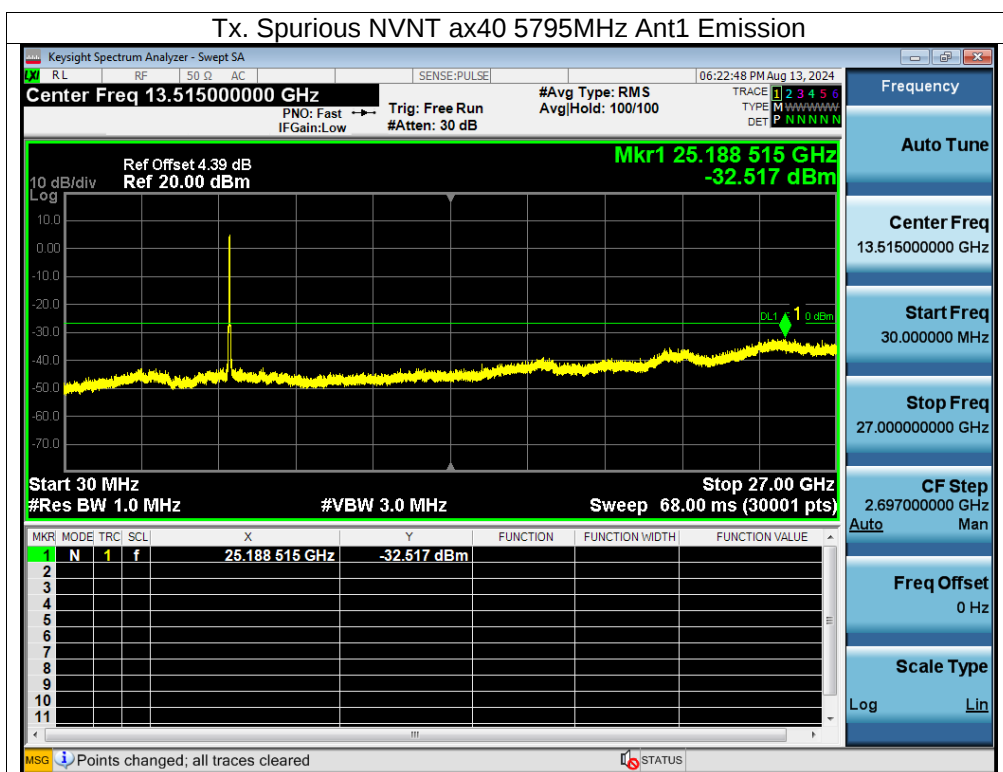












### 13. Frequency Stability Measurement

#### 13.1 Block Diagram Of Test Setup



#### 13.2 Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be  $\pm 20$  ppm maximum for the 5 GHz band (IEEE 802.11n specification)..

#### 13.3 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5.  $f_c$  is declaring of channel frequency. Then the frequency error formula is  $(f_c - f)/f_c \times 10^6$  ppm and he limit is less than  $\pm 20$ ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is  $-20^{\circ}\text{C}$ ~ $70^{\circ}\text{C}$ .

### 13.4 Test Result

|              |                                                 |                    |        |
|--------------|-------------------------------------------------|--------------------|--------|
| Temperature: | 26 °C                                           | Relative Humidity: | 54%    |
| Pressure:    | 101KPa                                          | Test Voltage:      | DC 24V |
| Test Mode:   | TX (5.1G) Mode Frequency U-NII-1 (5180-5240MHz) |                    |        |

#### Voltage vs. Frequency Stability

| TEST CONDITIONS |    |           |       | Reference Frequency: 5180MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5180.0107                    | 5180 | 0.0107               | 2.0584               |
|                 |    | V max (V) | 27.60 | 5180.0111                    | 5180 | 0.0111               | 2.1380               |
|                 |    | V min (V) | 20.40 | 5180.0104                    | 5180 | 0.0104               | 2.0096               |
| Limits          |    |           |       | 5150-5250 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

#### Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5180MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5180.0022                    | 5180 | 0.0022               | 0.4308               |
|                 |    | T (°C) | -10 | 5180.0032                    | 5180 | 0.0032               | 0.6138               |
|                 |    | T (°C) | 0   | 5180.0036                    | 5180 | 0.0036               | 0.6935               |
|                 |    | T (°C) | 10  | 5180.0117                    | 5180 | 0.0117               | 2.2597               |
|                 |    | T (°C) | 20  | 5180.0101                    | 5180 | 0.0101               | 1.9494               |
|                 |    | T (°C) | 30  | 5180.0022                    | 5180 | 0.0022               | 0.4232               |
|                 |    | T (°C) | 40  | 5180.0127                    | 5180 | 0.0127               | 2.4549               |
|                 |    | T (°C) | 50  | 5180.0123                    | 5180 | 0.0123               | 2.3747               |
|                 |    | T (°C) | 60  | 5180.0073                    | 5180 | 0.0073               | 1.4110               |
|                 |    | T (°C) | 70  | 5180.0062                    | 5180 | 0.0062               | 1.2029               |
| Limits          |    |        |     | 5150-5250 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |

## Voltage vs. Frequency Stability

| TEST CONDITIONS |    |           |       | Reference Frequency: 5200MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5200.0111                    | 5200 | 0.0111               | 2.1383               |
|                 |    | V max (V) | 27.60 | 5200.0040                    | 5200 | 0.0040               | 0.7637               |
|                 |    | V min (V) | 20.40 | 5200.0004                    | 5200 | 0.0004               | 0.0674               |
| Limits          |    |           |       | 5150-5250 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

## Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5200MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5200.00163                   | 5200 | 0.00163              | 0.3133               |
|                 |    | T (°C) | -10 | 5200.00720                   | 5200 | 0.00720              | 1.3846               |
|                 |    | T (°C) | 0   | 5200.00300                   | 5200 | 0.00300              | 0.5768               |
|                 |    | T (°C) | 10  | 5200.01115                   | 5200 | 0.01115              | 2.1451               |
|                 |    | T (°C) | 20  | 5200.00342                   | 5200 | 0.00342              | 0.6582               |
|                 |    | T (°C) | 30  | 5200.00314                   | 5200 | 0.00314              | 0.6034               |
|                 |    | T (°C) | 40  | 5200.01194                   | 5200 | 0.01194              | 2.2954               |
|                 |    | T (°C) | 50  | 5200.01061                   | 5200 | 0.01061              | 2.0411               |
|                 |    | T (°C) | 60  | 5200.00077                   | 5200 | 0.00077              | 0.1475               |
|                 |    | T (°C) | 70  | 5200.00549                   | 5200 | 0.00549              | 1.0549               |
| Limits          |    |        |     | 5150-5250 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |

## Voltage vs. Frequency Stability

| TEST CONDITIONS |    |           |       | Reference Frequency: 5240MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5240.0124                    | 5240 | 0.0124               | 2.3577               |
|                 |    | V max (V) | 27.60 | 5240.0078                    | 5240 | 0.0078               | 1.4924               |
|                 |    | V min (V) | 20.40 | 5240.0044                    | 5240 | 0.0044               | 0.8466               |
| Limits          |    |           |       | 5150-5250 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

## Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5240MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5240.0007                    | 5240 | 0.0007               | 0.1342               |
|                 |    | T (°C) | -10 | 5240.0045                    | 5240 | 0.0045               | 0.8541               |
|                 |    | T (°C) | 0   | 5240.0062                    | 5240 | 0.0062               | 1.1821               |
|                 |    | T (°C) | 10  | 5240.0007                    | 5240 | 0.0007               | 0.1310               |
|                 |    | T (°C) | 20  | 5240.0130                    | 5240 | 0.0130               | 2.4853               |
|                 |    | T (°C) | 30  | 5240.0023                    | 5240 | 0.0023               | 0.4330               |
|                 |    | T (°C) | 40  | 5240.0092                    | 5240 | 0.0092               | 1.7582               |
|                 |    | T (°C) | 50  | 5240.0096                    | 5240 | 0.0096               | 1.8298               |
|                 |    | T (°C) | 60  | 5240.0023                    | 5240 | 0.0023               | 0.4434               |
|                 |    | T (°C) | 70  | 5240.0127                    | 5240 | 0.0127               | 2.4302               |
| Limits          |    |        |     | 5150-5250 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |

|              |                                                 |                    |        |
|--------------|-------------------------------------------------|--------------------|--------|
| Temperature: | 26 °C                                           | Relative Humidity: | 54%    |
| Pressure:    | 101KPa                                          | Test Voltage:      | DC 24V |
| Test Mode:   | TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz) |                    |        |

#### Voltage vs. Frequency Stabilit

| TEST CONDITIONS |    |           |       | Reference Frequency: 5745MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5745.00211                   | 5745 | 0.00211              | 0.3670               |
|                 |    | V max (V) | 27.60 | 5745.01053                   | 5745 | 0.01053              | 1.8329               |
|                 |    | V min (V) | 20.40 | 5745.01106                   | 5745 | 0.01106              | 1.9253               |
| Limits          |    |           |       | 5725-5850 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

#### Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5745MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5745.00563                   | 5745 | 0.00563              | 0.9801               |
|                 |    | T (°C) | -10 | 5745.00308                   | 5745 | 0.00308              | 0.5363               |
|                 |    | T (°C) | 0   | 5745.00211                   | 5745 | 0.00211              | 0.3673               |
|                 |    | T (°C) | 10  | 5745.00996                   | 5745 | 0.00996              | 1.7331               |
|                 |    | T (°C) | 20  | 5745.00844                   | 5745 | 0.00844              | 1.4698               |
|                 |    | T (°C) | 30  | 5745.01209                   | 5745 | 0.01209              | 2.1038               |
|                 |    | T (°C) | 40  | 5745.00747                   | 5745 | 0.00747              | 1.2994               |
|                 |    | T (°C) | 50  | 5745.01249                   | 5745 | 0.01249              | 2.1748               |
|                 |    | T (°C) | 60  | 5745.00762                   | 5745 | 0.00762              | 1.3258               |
|                 |    | T (°C) | 70  | 5745.01250                   | 5745 | 0.01250              | 2.1766               |
| Limits          |    |        |     | 5725-5850 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |

## Voltage vs. Frequency Stability

| TEST CONDITIONS |    |           |       | Reference Frequency: 5785MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5785.00658                   | 5785 | 0.00658              | 1.1367               |
|                 |    | V max (V) | 27.60 | 5785.00601                   | 5785 | 0.00601              | 1.0384               |
|                 |    | V min (V) | 20.40 | 5785.00772                   | 5785 | 0.00772              | 1.3347               |
| Limits          |    |           |       | 5725-5850 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

## Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5785MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5785.01112                   | 5785 | 0.01112              | 1.9230               |
|                 |    | T (°C) | -10 | 5785.00110                   | 5785 | 0.00110              | 0.1905               |
|                 |    | T (°C) | 0   | 5785.01207                   | 5785 | 0.01207              | 2.0868               |
|                 |    | T (°C) | 10  | 5785.00229                   | 5785 | 0.00229              | 0.3963               |
|                 |    | T (°C) | 20  | 5785.01283                   | 5785 | 0.01283              | 2.2179               |
|                 |    | T (°C) | 30  | 5785.00606                   | 5785 | 0.00606              | 1.0474               |
|                 |    | T (°C) | 40  | 5785.00771                   | 5785 | 0.00771              | 1.3324               |
|                 |    | T (°C) | 50  | 5785.01246                   | 5785 | 0.01246              | 2.1536               |
|                 |    | T (°C) | 60  | 5785.00126                   | 5785 | 0.00126              | 0.2185               |
|                 |    | T (°C) | 70  | 5785.00256                   | 5785 | 0.00256              | 0.4417               |
| Limits          |    |        |     | 5725-5850 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |

## Voltage vs. Frequency Stability

| TEST CONDITIONS |    |           |       | Reference Frequency: 5825MHz |      |                      |                      |
|-----------------|----|-----------|-------|------------------------------|------|----------------------|----------------------|
|                 |    |           |       | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| T nom (°C)      | 20 | V nom (V) | 24.00 | 5825.01207                   | 5825 | 0.01207              | 2.0721               |
|                 |    | V max (V) | 27.60 | 5825.00080                   | 5825 | 0.00080              | 0.1380               |
|                 |    | V min (V) | 20.40 | 5825.00341                   | 5825 | 0.00341              | 0.5851               |
| Limits          |    |           |       | 5725-5850 MHz                |      |                      |                      |
| Result          |    |           |       | Complies                     |      |                      |                      |

## Temperature vs. Frequency Stability

| TEST CONDITIONS |    |        |     | Reference Frequency: 5825MHz |      |                      |                      |
|-----------------|----|--------|-----|------------------------------|------|----------------------|----------------------|
|                 |    |        |     | f                            | fc   | Max. Deviation (MHz) | Max. Deviation (ppm) |
| V nom (V)       | 24 | T (°C) | -20 | 5825.01245                   | 5825 | 0.01245              | 2.1378               |
|                 |    | T (°C) | -10 | 5825.01048                   | 5825 | 0.01048              | 1.7996               |
|                 |    | T (°C) | 0   | 5825.00547                   | 5825 | 0.00547              | 0.9398               |
|                 |    | T (°C) | 10  | 5825.00111                   | 5825 | 0.00111              | 0.1902               |
|                 |    | T (°C) | 20  | 5825.00642                   | 5825 | 0.00642              | 1.1027               |
|                 |    | T (°C) | 30  | 5825.00025                   | 5825 | 0.00025              | 0.0424               |
|                 |    | T (°C) | 40  | 5825.00301                   | 5825 | 0.00301              | 0.5166               |
|                 |    | T (°C) | 50  | 5825.00700                   | 5825 | 0.00700              | 1.2018               |
|                 |    | T (°C) | 60  | 5825.01175                   | 5825 | 0.01175              | 2.0164               |
|                 |    | T (°C) | 70  | 5825.01345                   | 5825 | 0.01345              | 2.3091               |
| Limits          |    |        |     | 5725-5850 MHz                |      |                      |                      |
| Result          |    |        |     | Complies                     |      |                      |                      |