



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: DockLinQ 30 pin bluetooth adapter

Test Model: DockLinQ

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.4° C   |
| Relative Humidity: | 51.3%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | monkey.Li |
| Supervised by:     | Libin     |



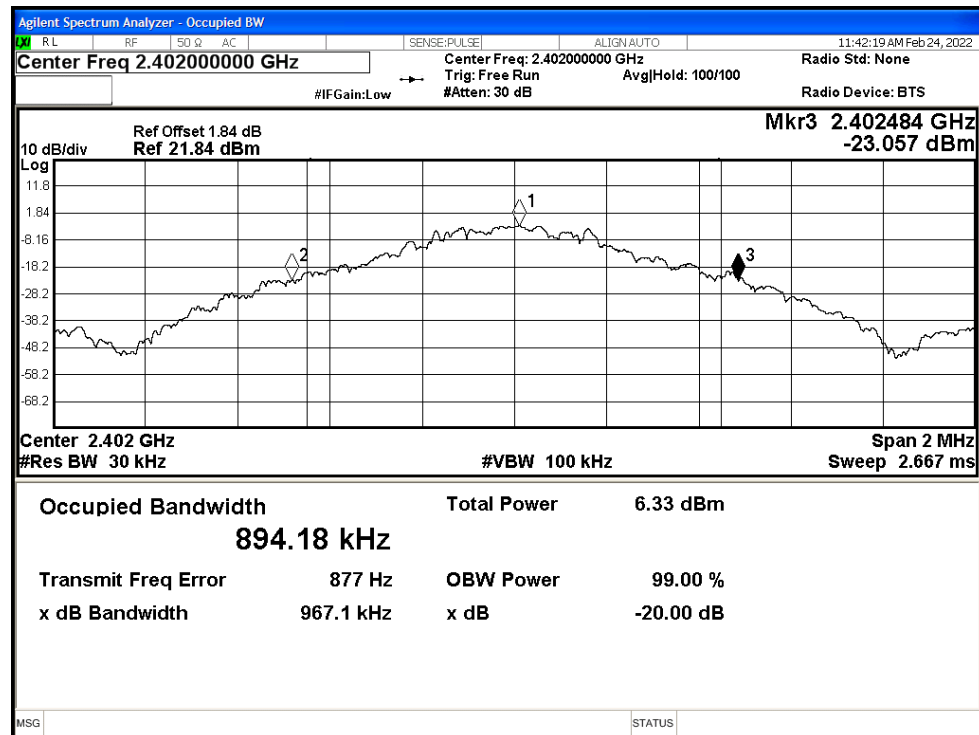
## A.1 20dB Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | 20 dB Bandwidth (MHz) | Limit 20 dB Bandwidth (MHz) | Verdict |
|-----------|-------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 0.967                 | 0                           | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | 0.964                 | 0                           | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | 0.974                 | 0                           | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | 1.285                 | 0                           | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | 1.309                 | 0                           | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | 1.305                 | 0                           | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | 1.302                 | 0                           | Pass    |
| NVNT      | 3-DH5 | 2441            | Ant1    | 1.299                 | 0                           | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | 1.307                 | 0                           | Pass    |

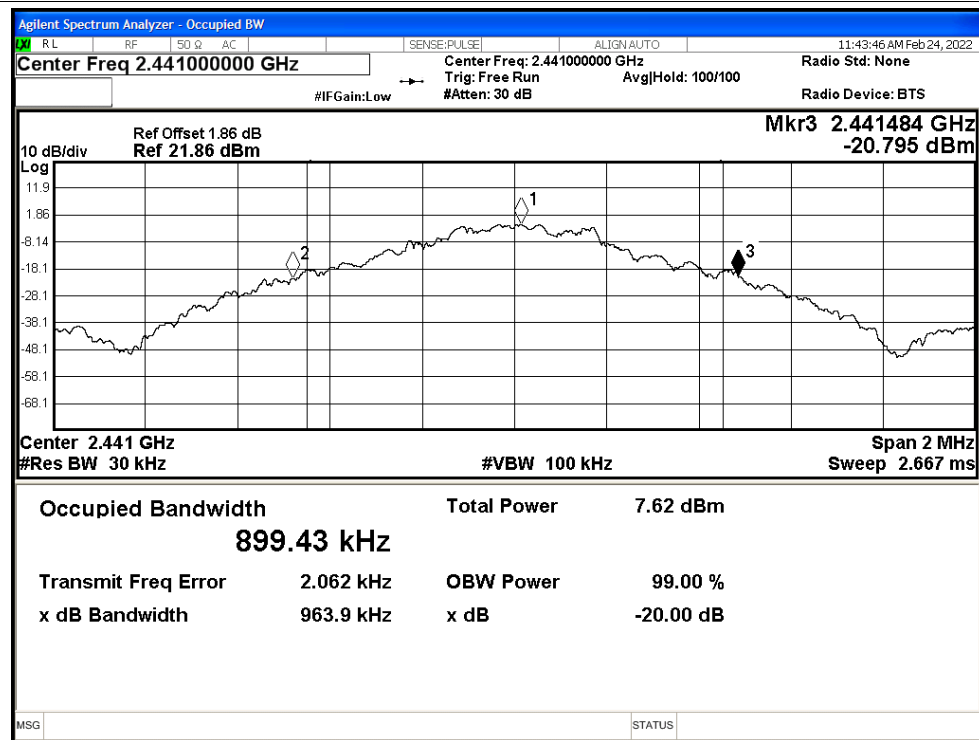


## Test Graphs

## 20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

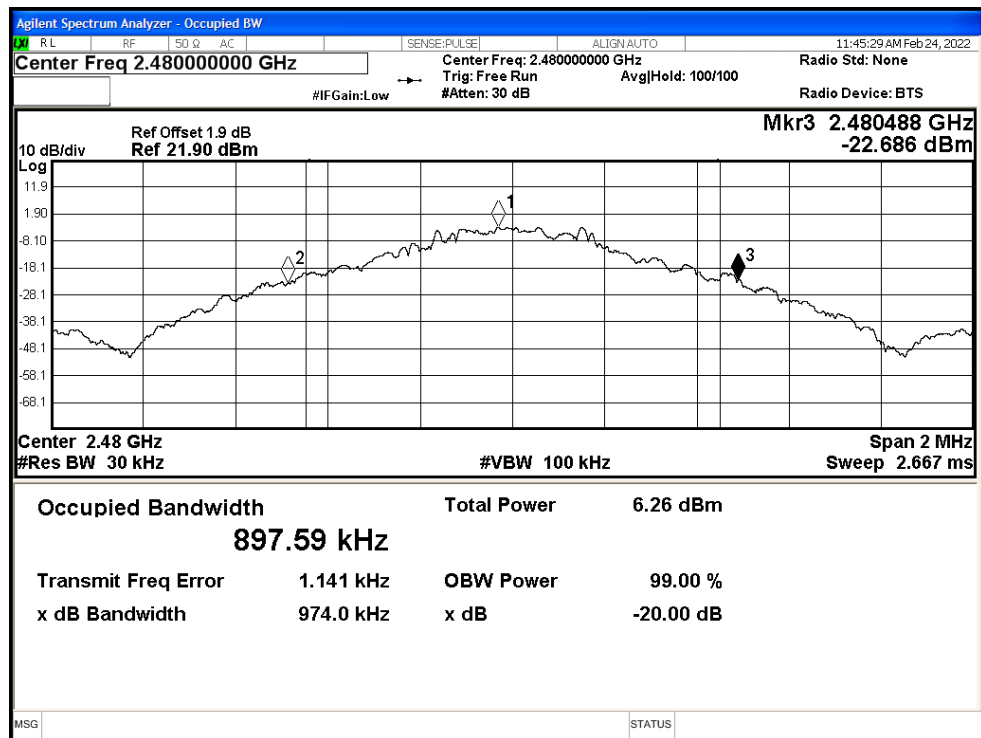


## 20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

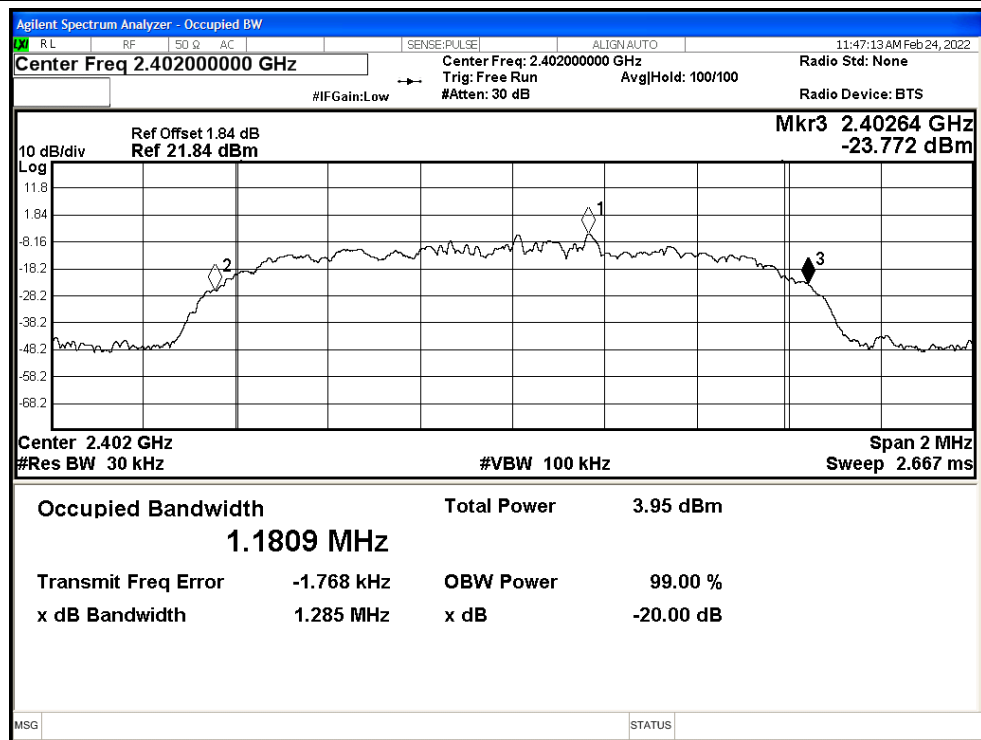




## 20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

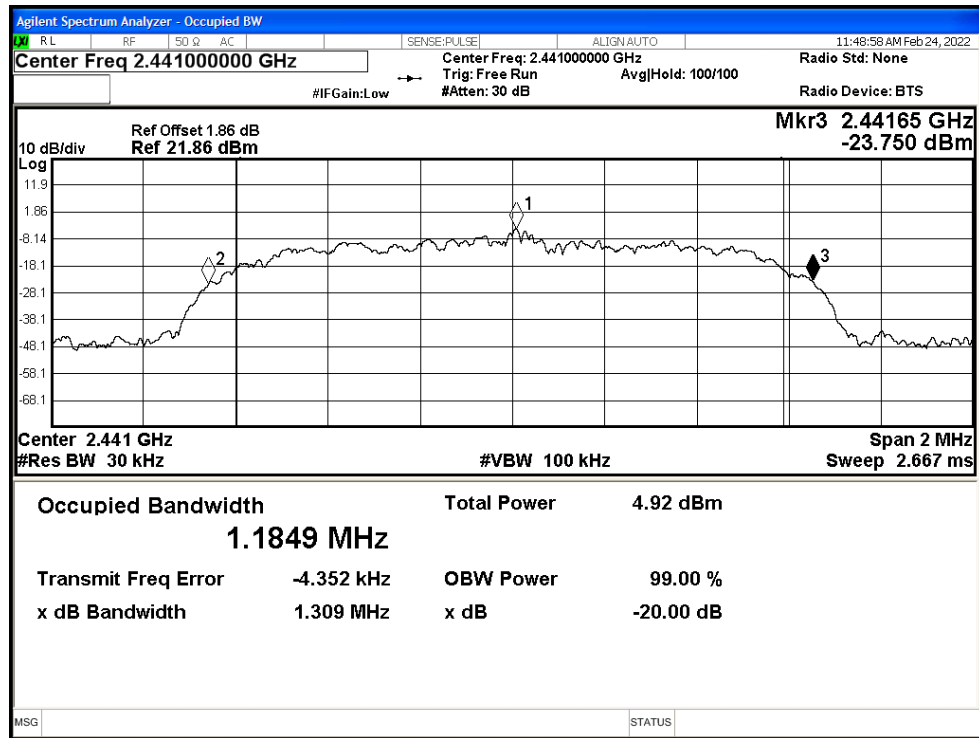


## 20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

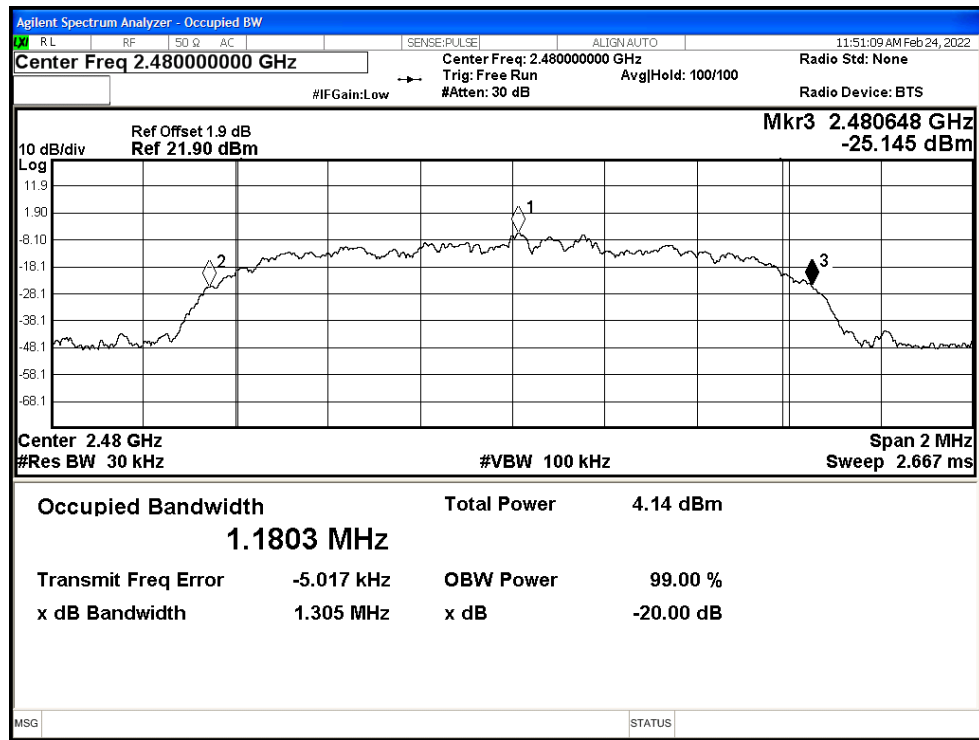




## 20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

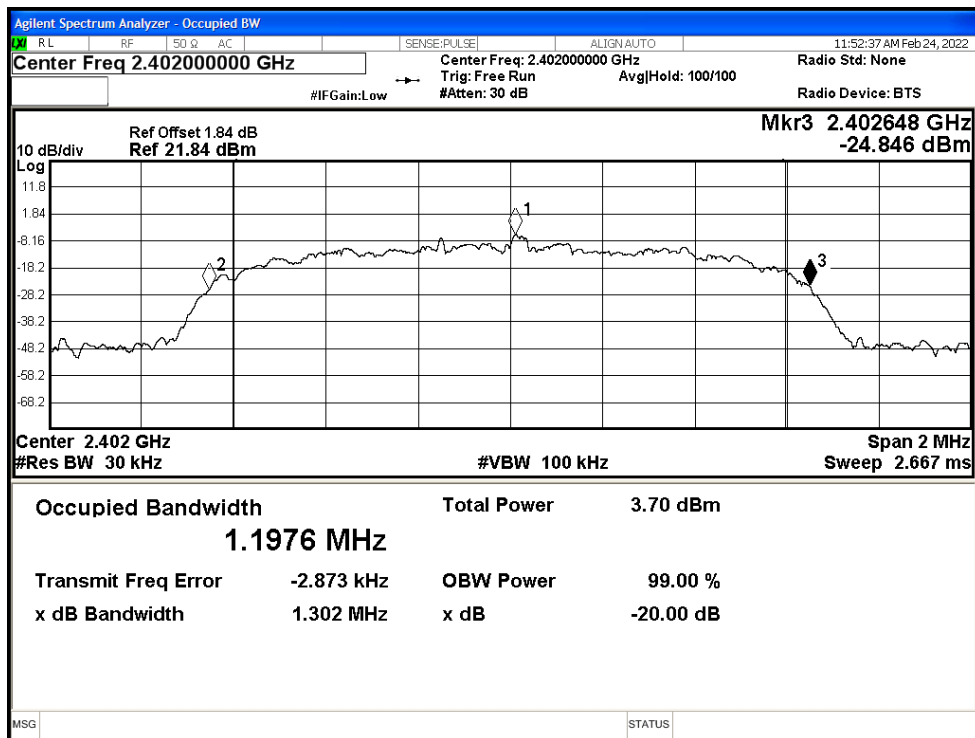


## 20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

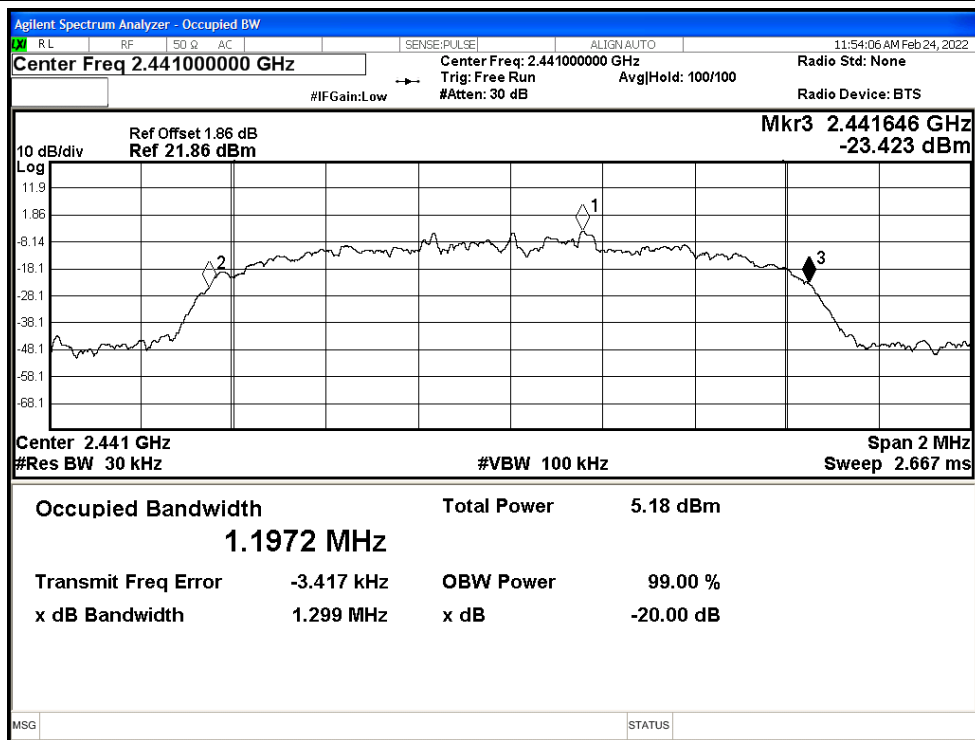


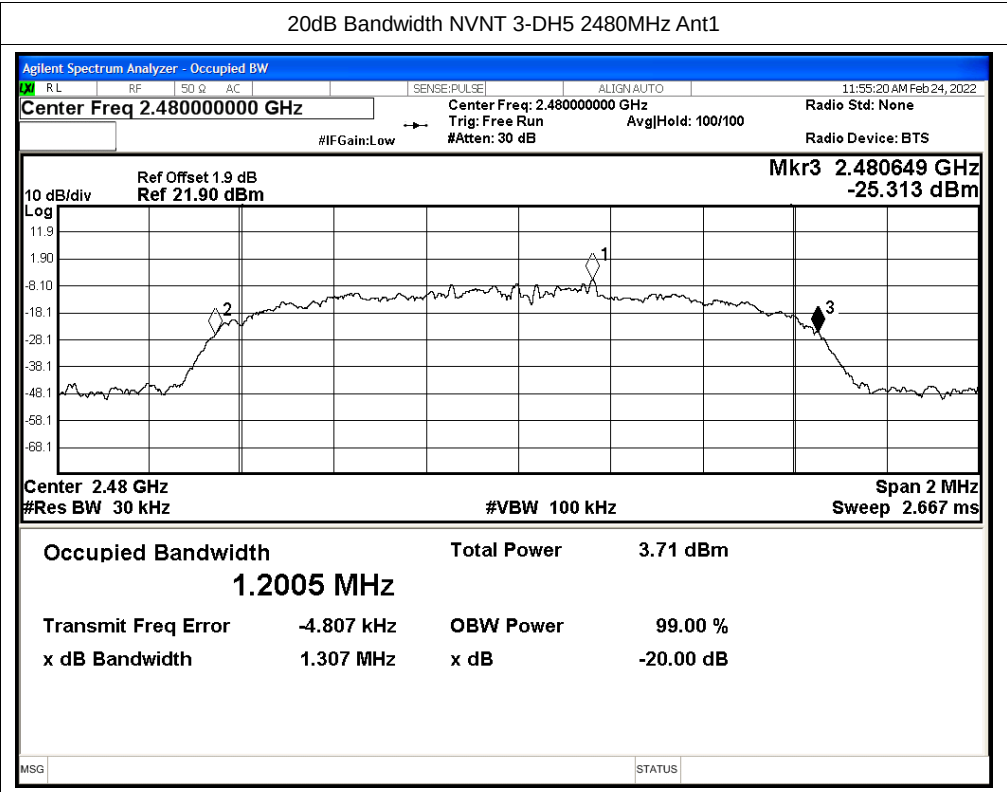


## 20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



## 20dB Bandwidth NVNT 3-DH5 2441MHz Ant1







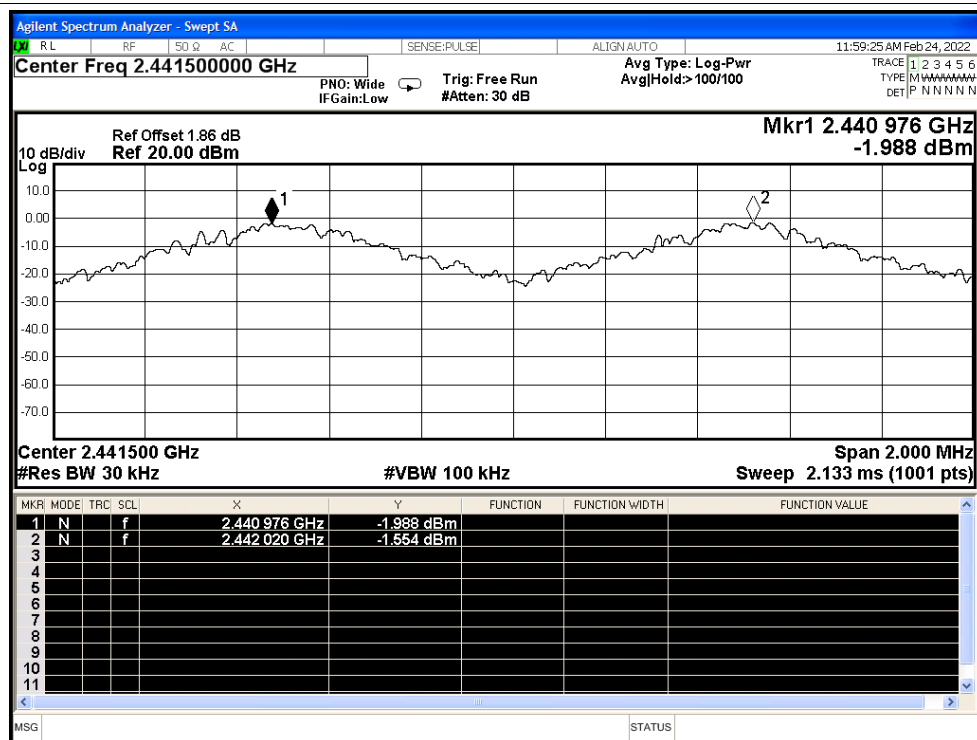
## A.2 Maximum Conducted Output Power

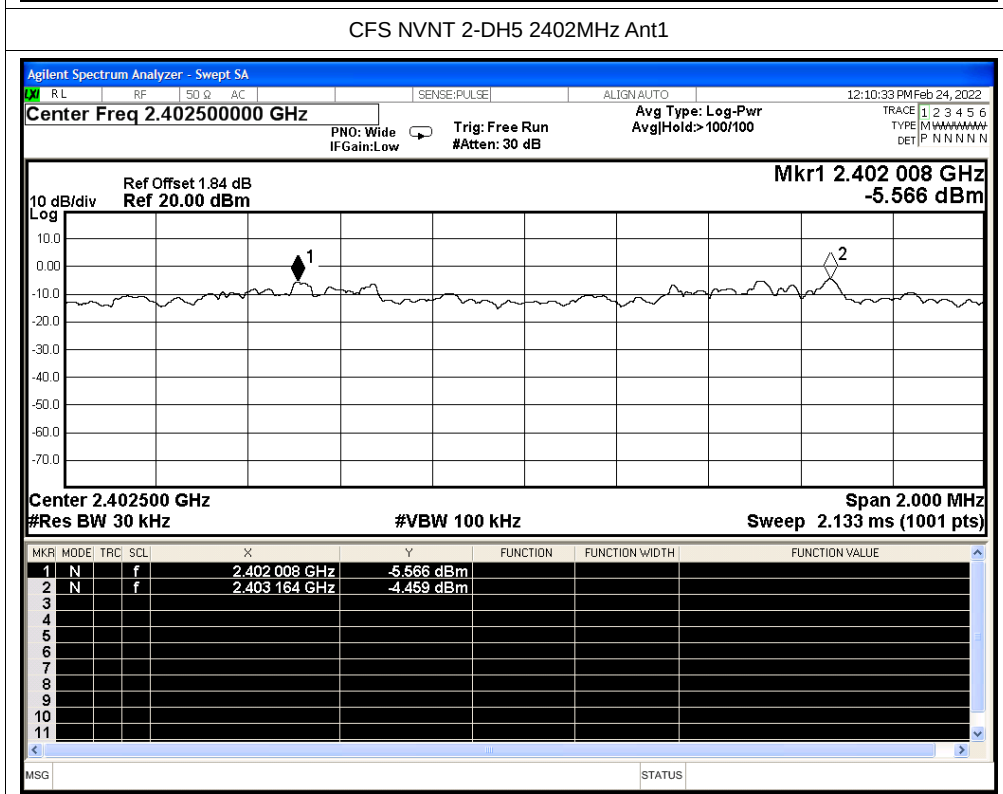
| Condition | Mode  | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|-------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | -0.06             | 21          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | 1.27              | 21          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -0.13             | 21          | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | -0.84             | 21          | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | 0.43              | 21          | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | -0.89             | 21          | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | -0.77             | 21          | Pass    |
| NVNT      | 3-DH5 | 2441            | Ant1    | 0.59              | 21          | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | -0.72             | 21          | Pass    |

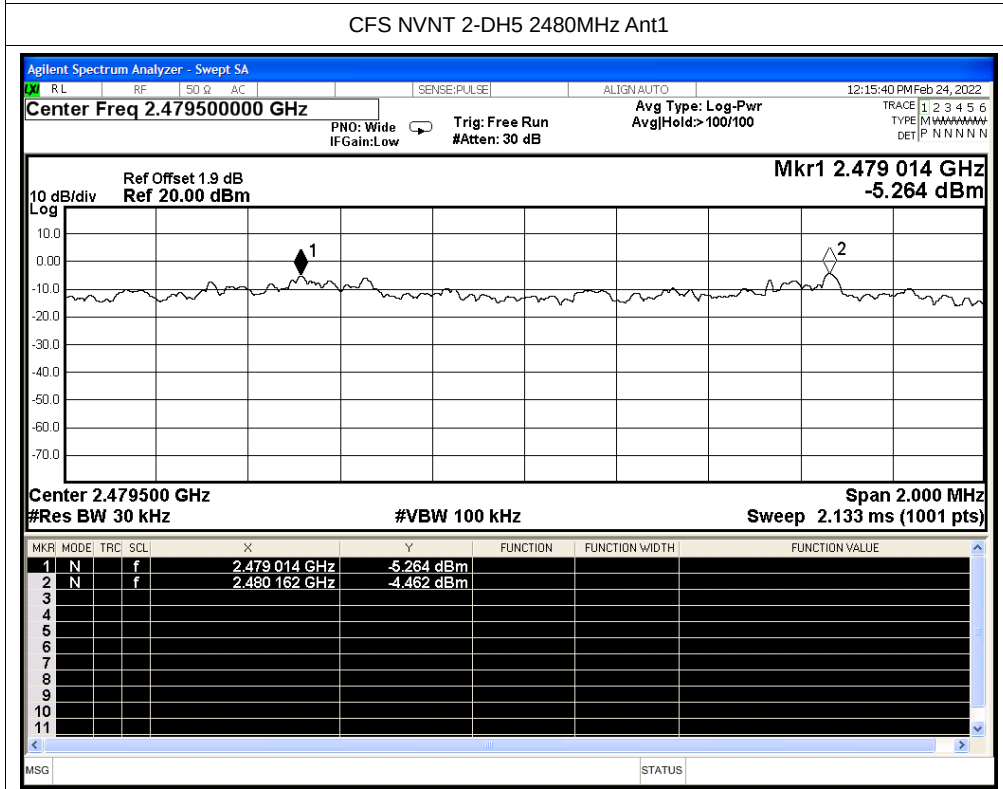


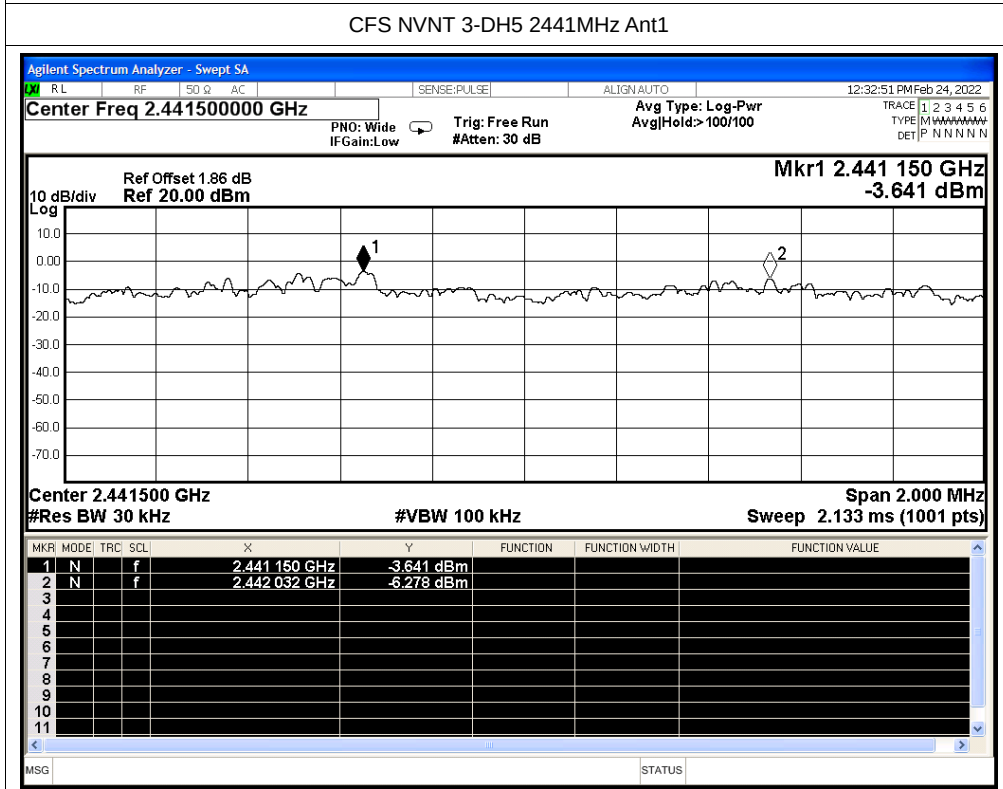
### A.3 Carrier Frequencies Separation

| Condition | Mode  | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|-----------|-------|---------|---------------------|---------------------|-----------|-------------|---------|
| NVNT      | 1-DH5 | Ant1    | 2401.99             | 2402.972            | 0.982     | 0.645       | Pass    |
| NVNT      | 1-DH5 | Ant1    | 2440.976            | 2442.02             | 1.044     | 0.643       | Pass    |
| NVNT      | 1-DH5 | Ant1    | 2479.012            | 2480.01             | 0.998     | 0.649       | Pass    |
| NVNT      | 2-DH5 | Ant1    | 2402.008            | 2403.164            | 1.156     | 0.857       | Pass    |
| NVNT      | 2-DH5 | Ant1    | 2441.006            | 2442.014            | 1.008     | 0.873       | Pass    |
| NVNT      | 2-DH5 | Ant1    | 2479.014            | 2480.162            | 1.148     | 0.87        | Pass    |
| NVNT      | 3-DH5 | Ant1    | 2402.16             | 2403.036            | 0.876     | 0.868       | Pass    |
| NVNT      | 3-DH5 | Ant1    | 2441.15             | 2442.032            | 0.882     | 0.866       | Pass    |
| NVNT      | 3-DH5 | Ant1    | 2479.012            | 2480.166            | 1.154     | 0.871       | Pass    |







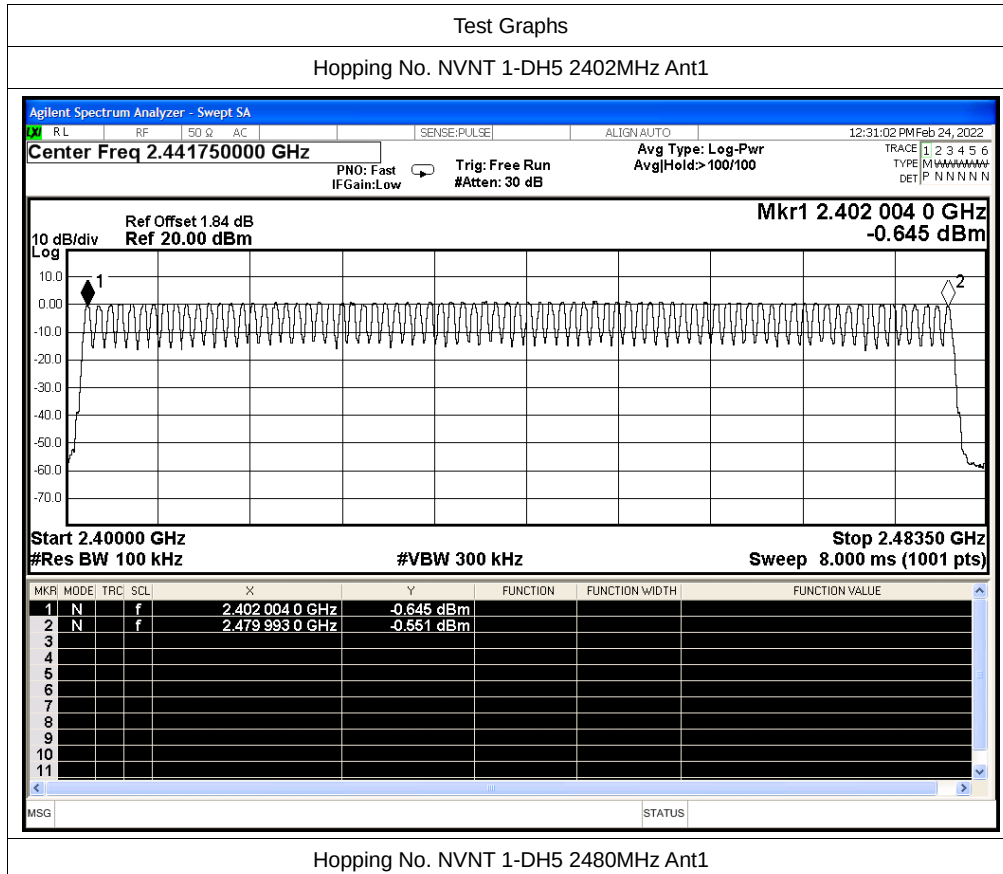


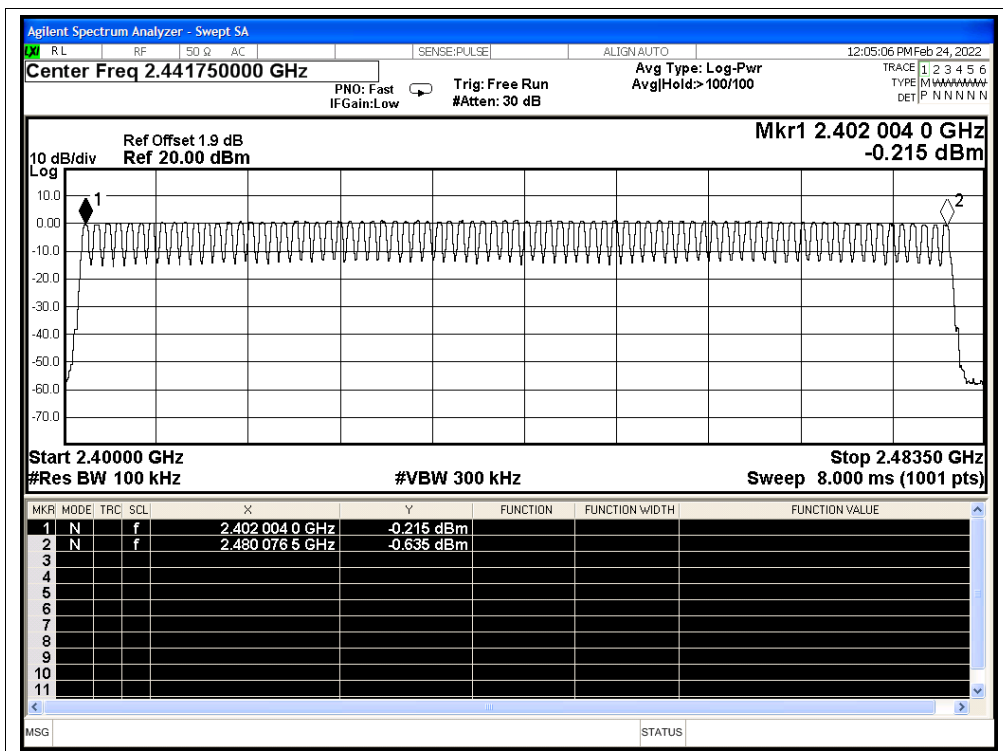


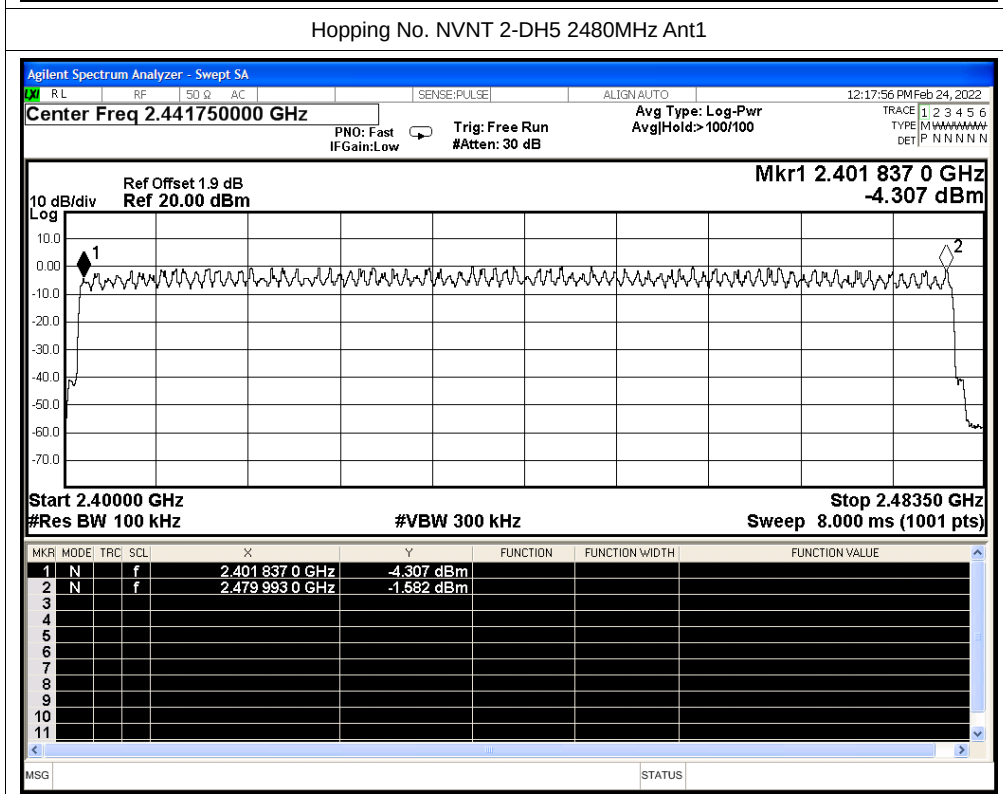


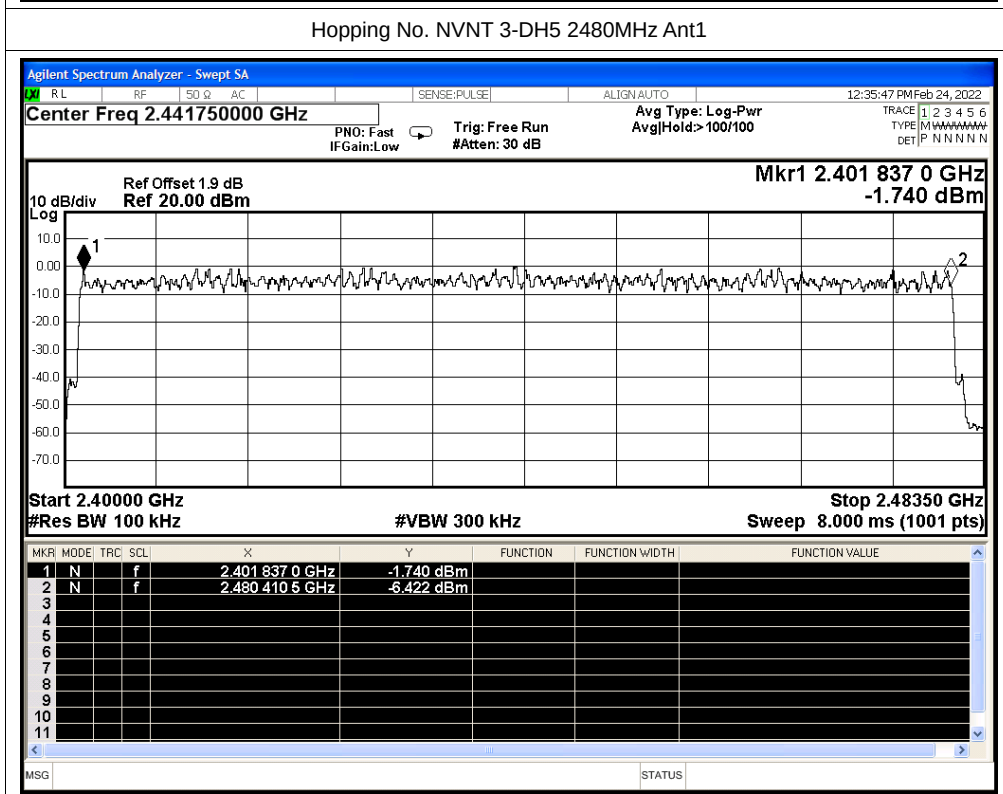
## A.5 Number of hopping channels

| Condition | Mode  | Antenna | Hopping Number | Limit | Verdict |
|-----------|-------|---------|----------------|-------|---------|
| NVNT      | 1-DH5 | Ant1    | 79             | 15    | Pass    |
| NVNT      | 2-DH5 | Ant1    | 79             | 15    | Pass    |
| NVNT      | 3-DH5 | Ant1    | 79             | 15    | Pass    |











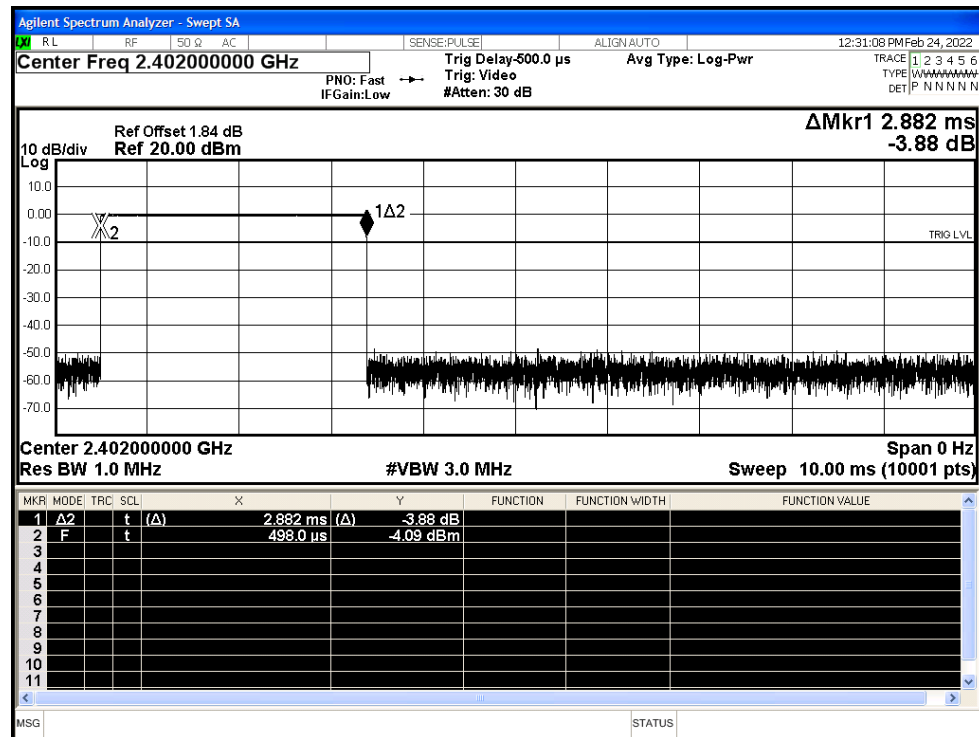
### A.4 Time of occupancy

| Condition | Mode  | Frequency<br>(MHz) | Antenna | Pulse Time<br>(ms) | Total Dwell<br>Time (ms) | Burst<br>Count | Period Time<br>(ms) | Limit<br>(ms) | Verdict |
|-----------|-------|--------------------|---------|--------------------|--------------------------|----------------|---------------------|---------------|---------|
| NVNT      | 1-DH5 | 2402               | Ant1    | 2.882              | 308.374                  | 107            | 31600               | 400           | Pass    |
| NVNT      | 1-DH5 | 2441               | Ant1    | 2.882              | 299.728                  | 104            | 31600               | 400           | Pass    |
| NVNT      | 1-DH5 | 2480               | Ant1    | 2.882              | 285.318                  | 99             | 31600               | 400           | Pass    |
| NVNT      | 2-DH5 | 2402               | Ant1    | 2.88               | 313.92                   | 109            | 31600               | 400           | Pass    |
| NVNT      | 2-DH5 | 2441               | Ant1    | 2.883              | 317.13                   | 110            | 31600               | 400           | Pass    |
| NVNT      | 2-DH5 | 2480               | Ant1    | 2.885              | 351.97                   | 122            | 31600               | 400           | Pass    |
| NVNT      | 3-DH5 | 2402               | Ant1    | 2.887              | 323.344                  | 112            | 31600               | 400           | Pass    |
| NVNT      | 3-DH5 | 2441               | Ant1    | 2.885              | 331.775                  | 115            | 31600               | 400           | Pass    |
| NVNT      | 3-DH5 | 2480               | Ant1    | 2.887              | 294.474                  | 102            | 31600               | 400           | Pass    |

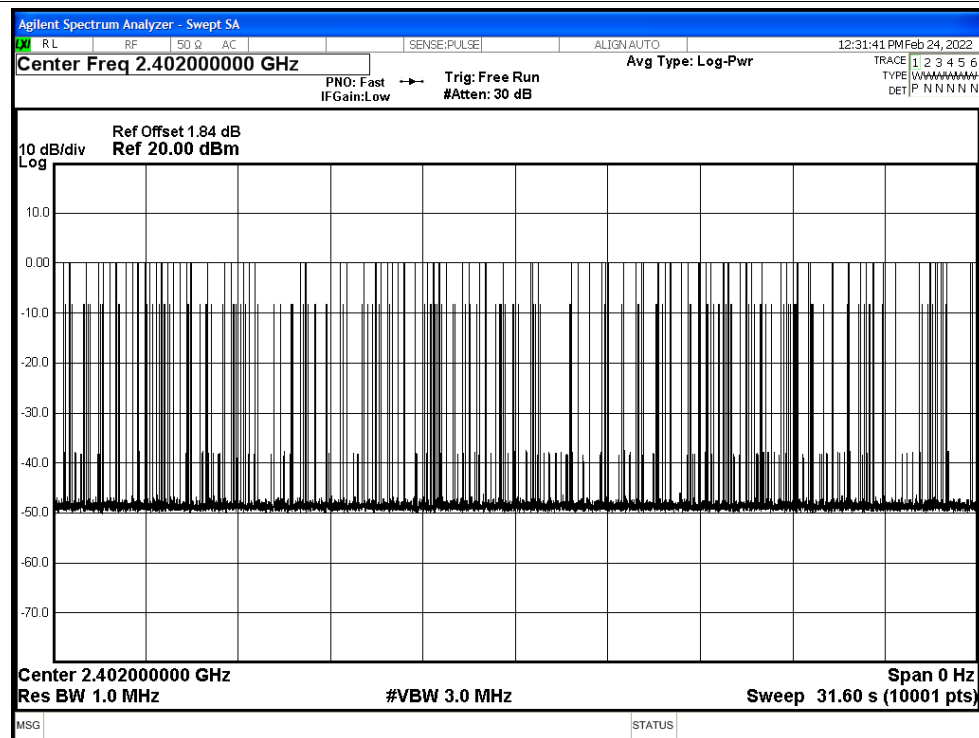


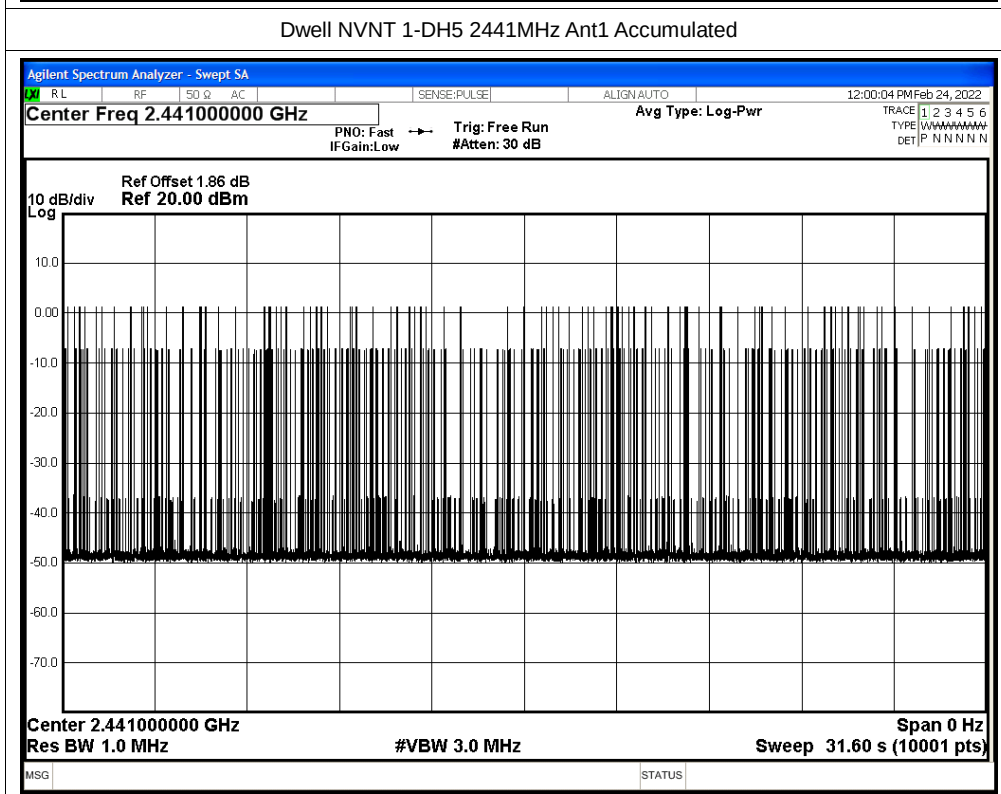
## Test Graphs

## Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



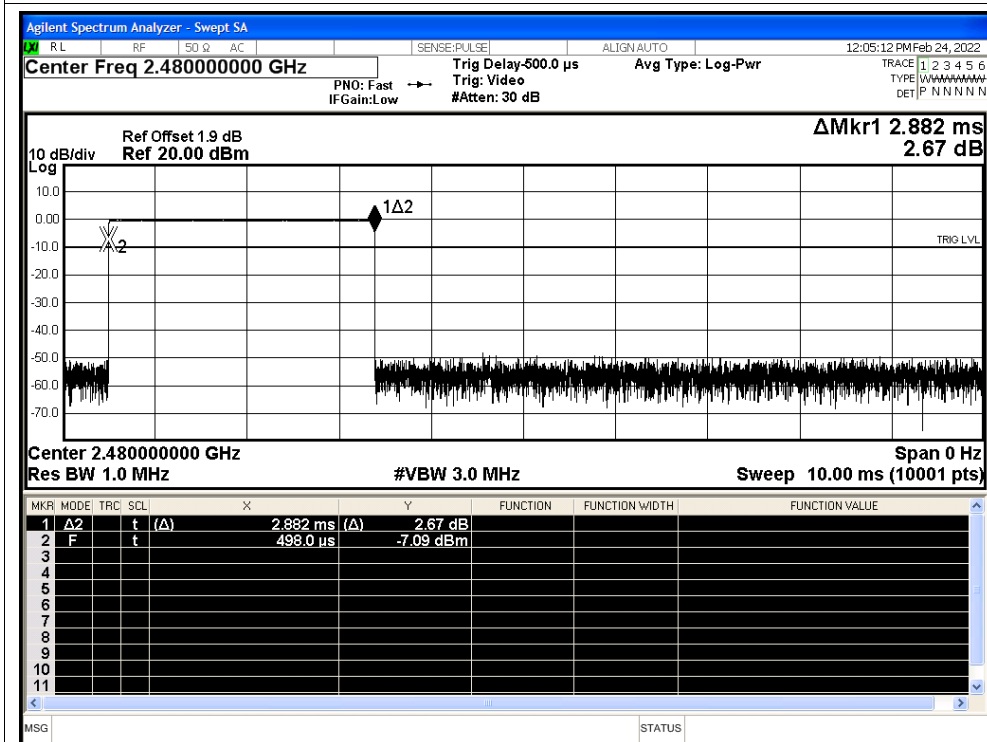
## Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



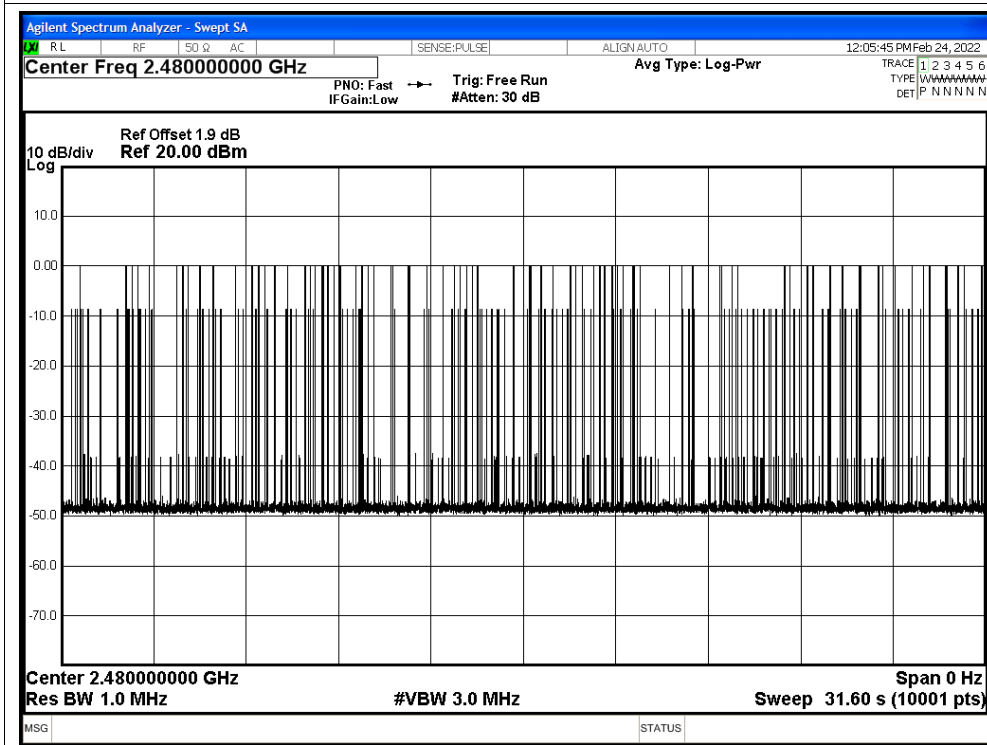




## Dwell NVNT 1-DH5 2480MHz Ant1 One Burst

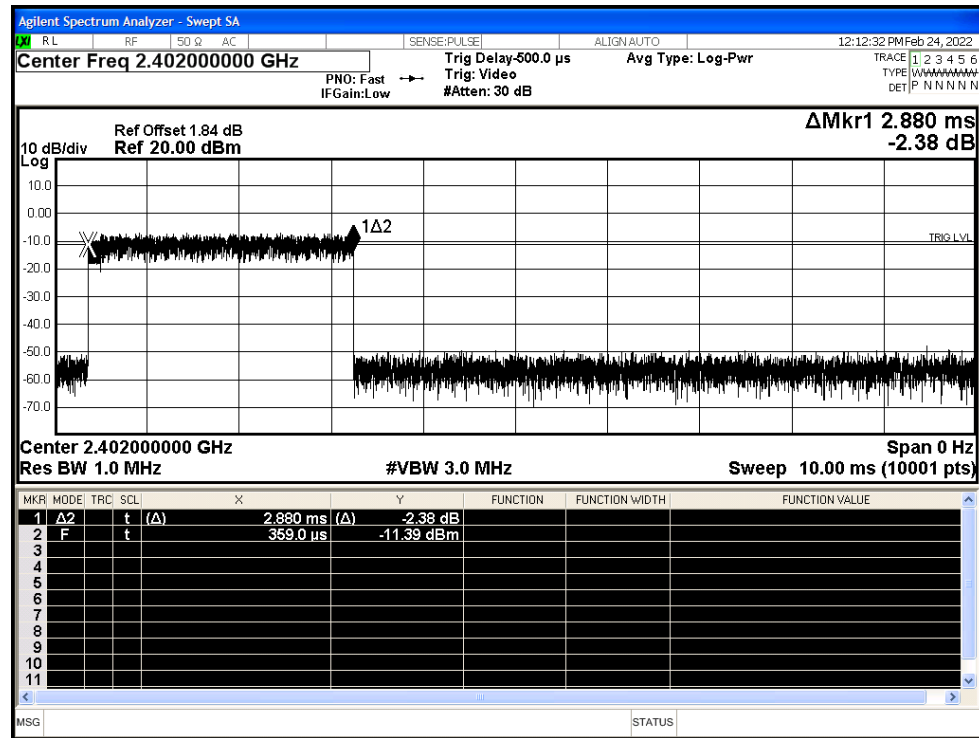


## Dwell NVNT 1-DH5 2480MHz Ant1 Accumulated

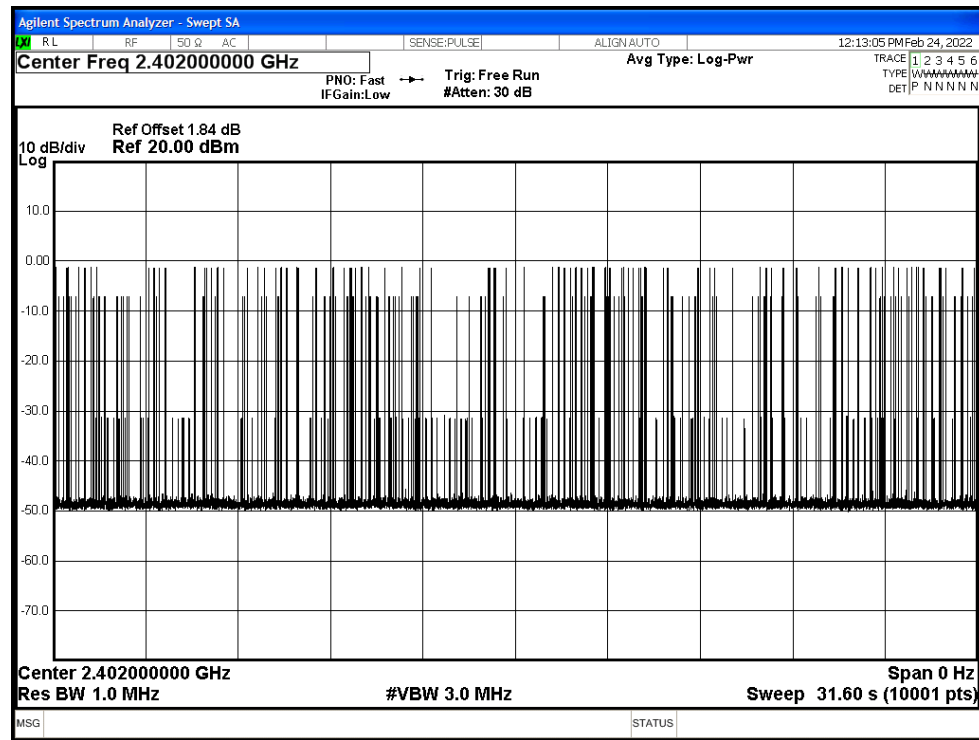




## Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

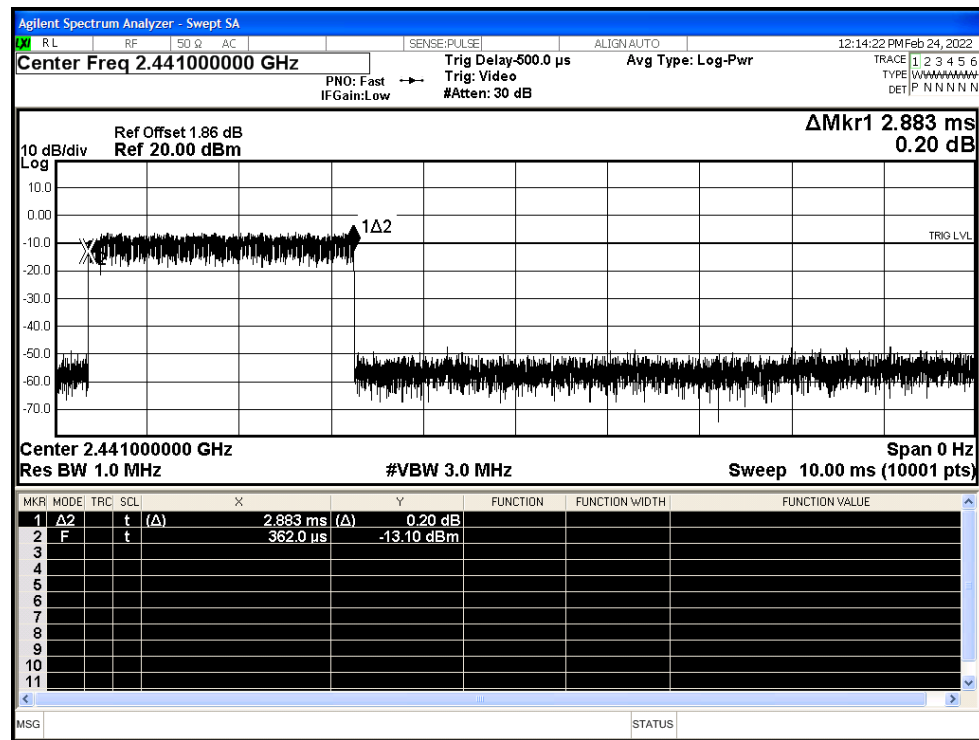


## Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

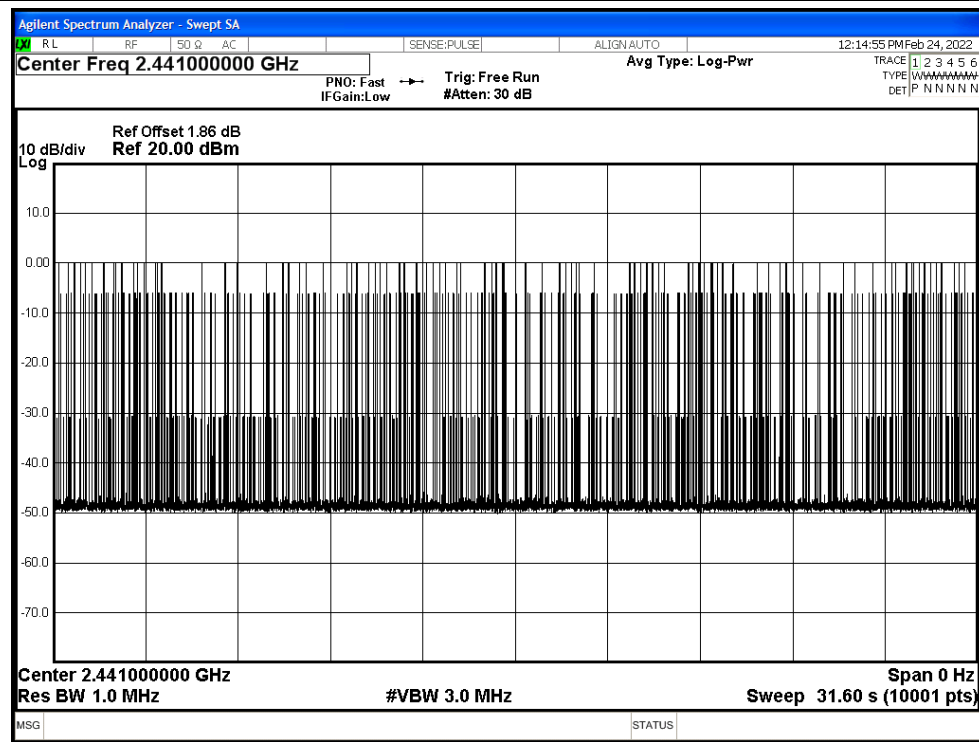




## Dwell NVNT 2-DH5 2441MHz Ant1 One Burst

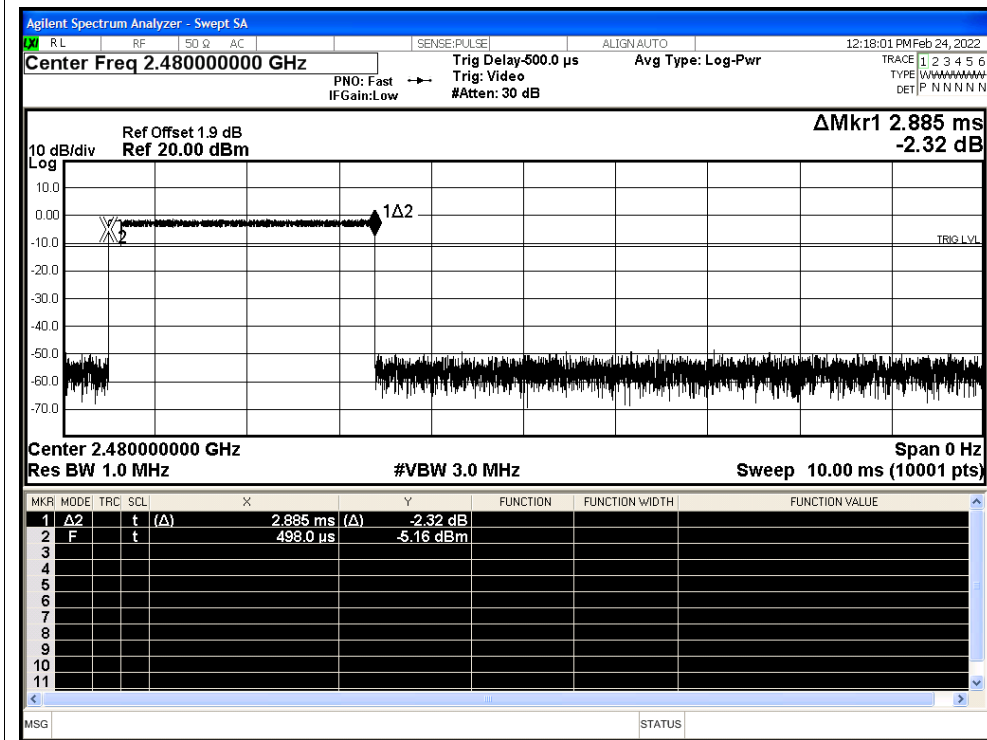


## Dwell NVNT 2-DH5 2441MHz Ant1 Accumulated

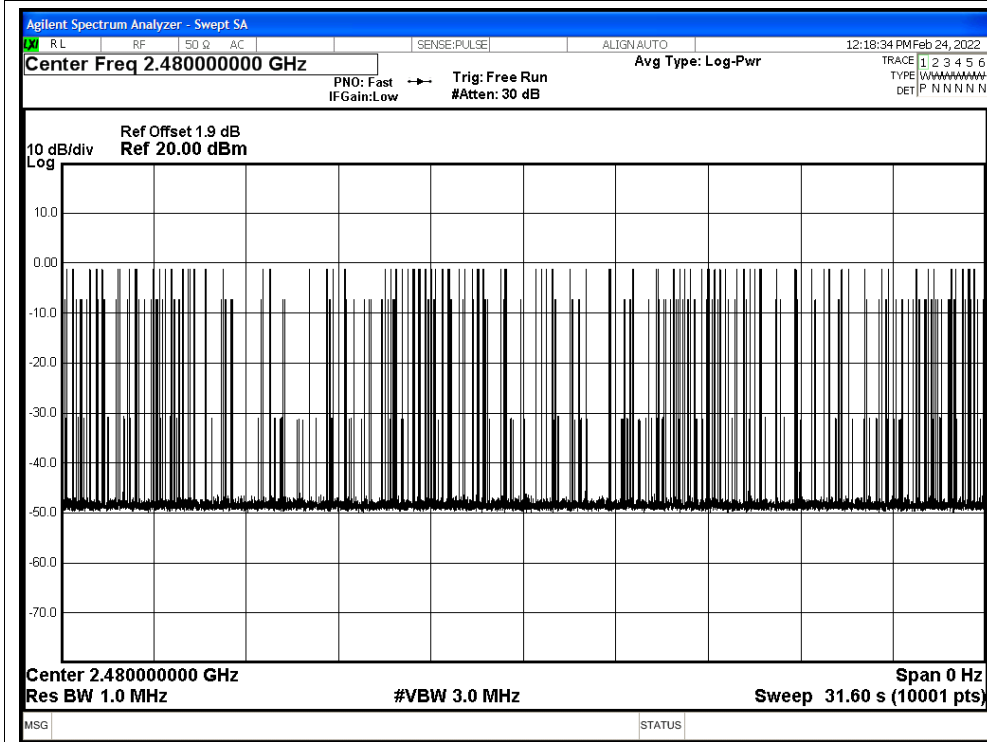




## Dwell NVNT 2-DH5 2480MHz Ant1 One Burst

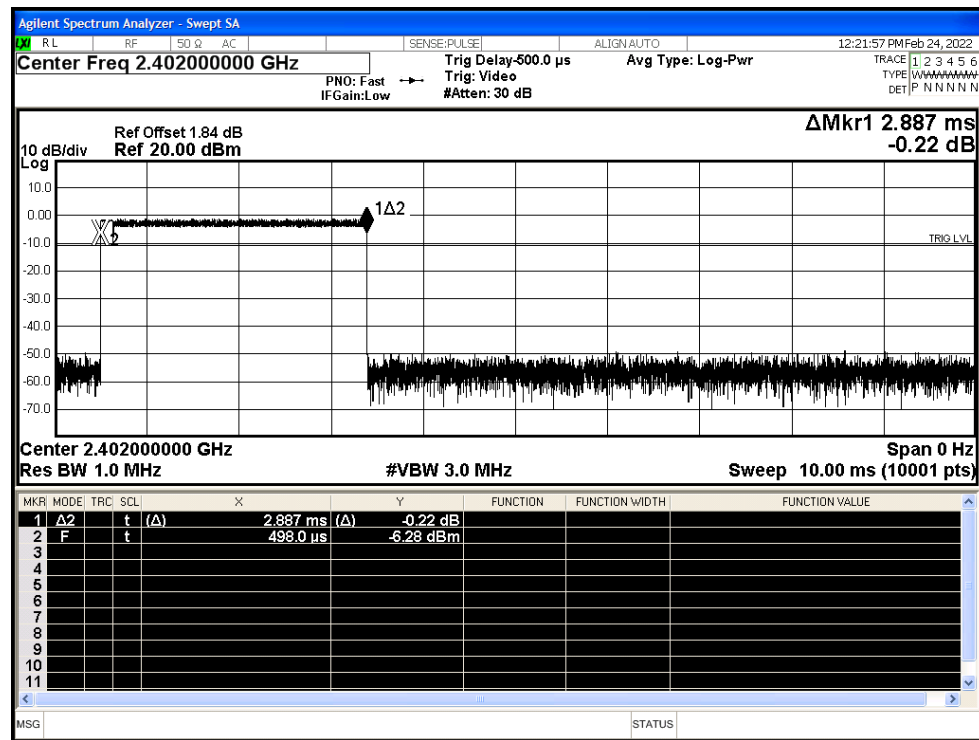


## Dwell NVNT 2-DH5 2480MHz Ant1 Accumulated

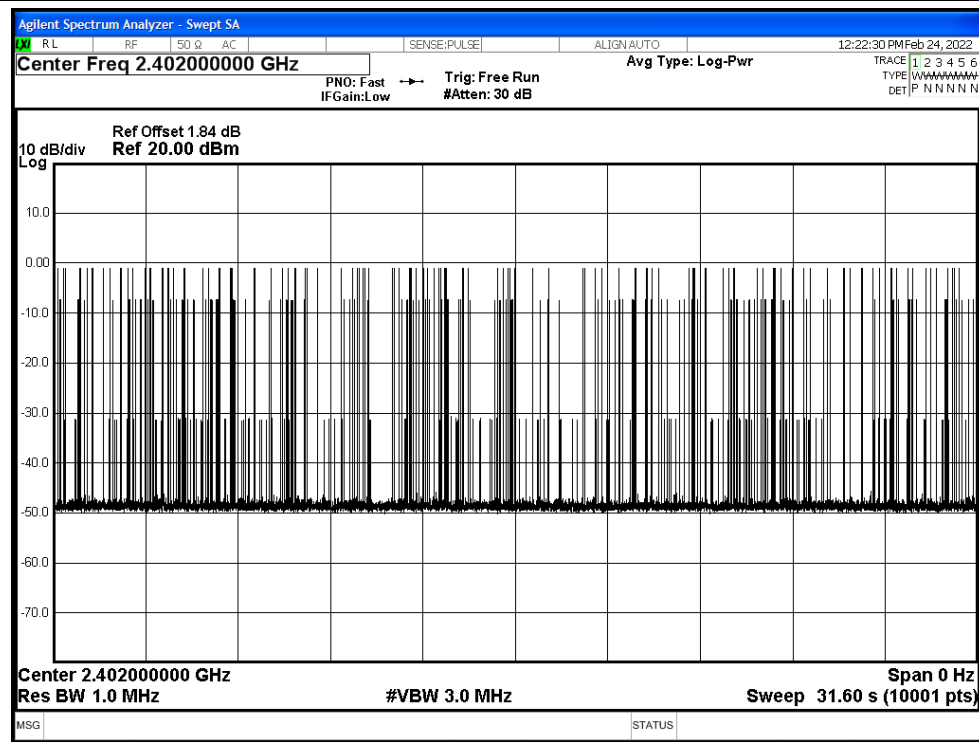




## Dwell NVNT 3-DH5 2402MHz Ant1 One Burst

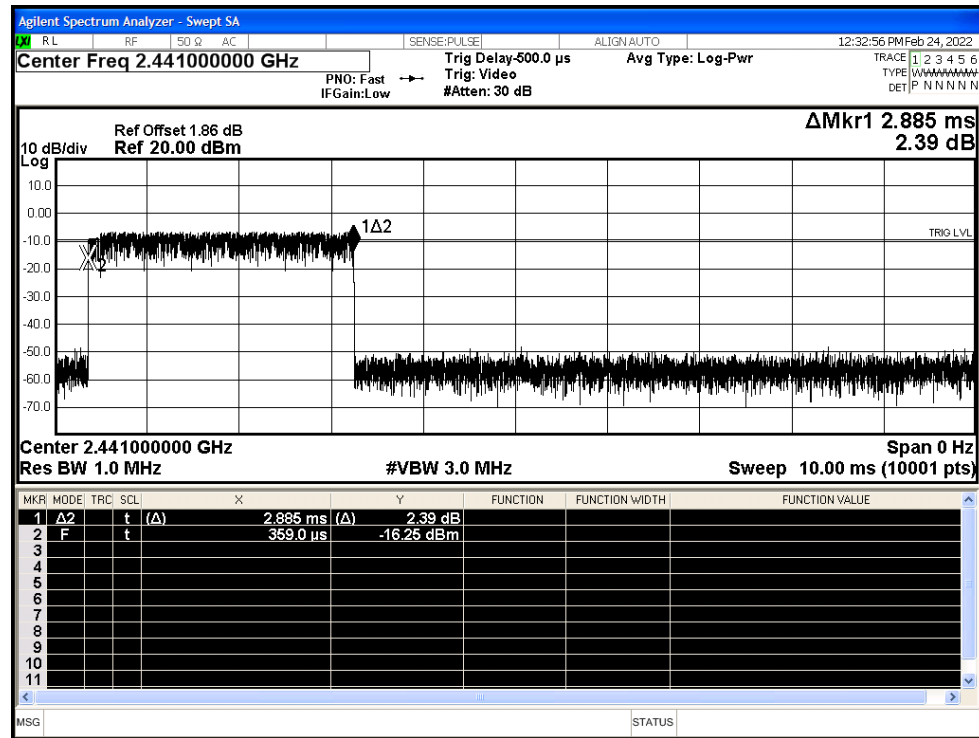


## Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

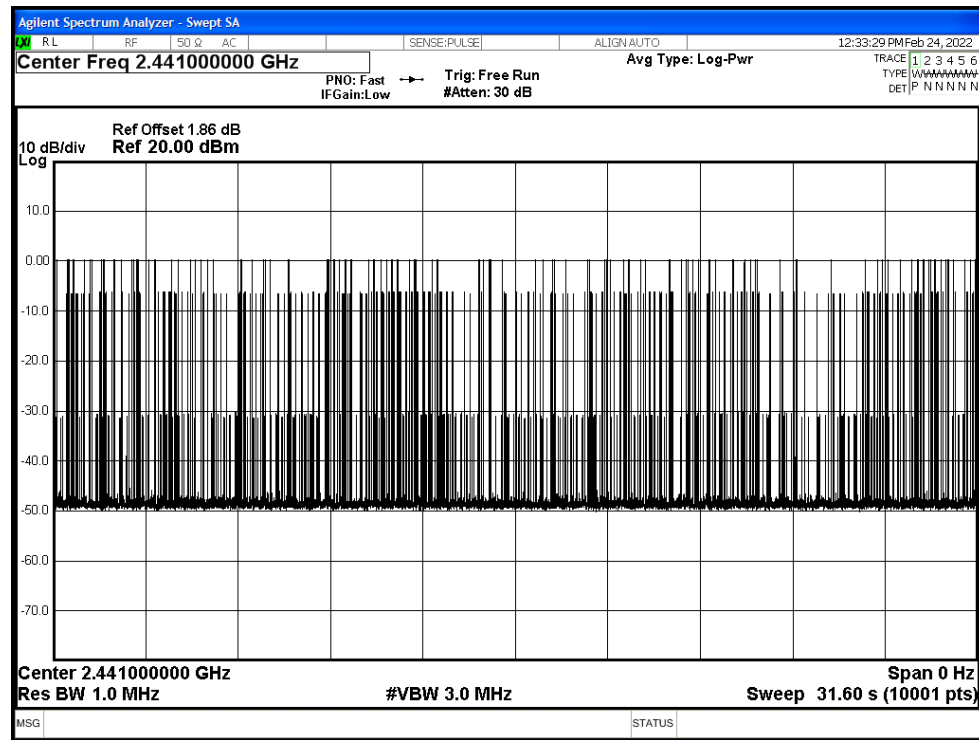




## Dwell NVNT 3-DH5 2441MHz Ant1 One Burst

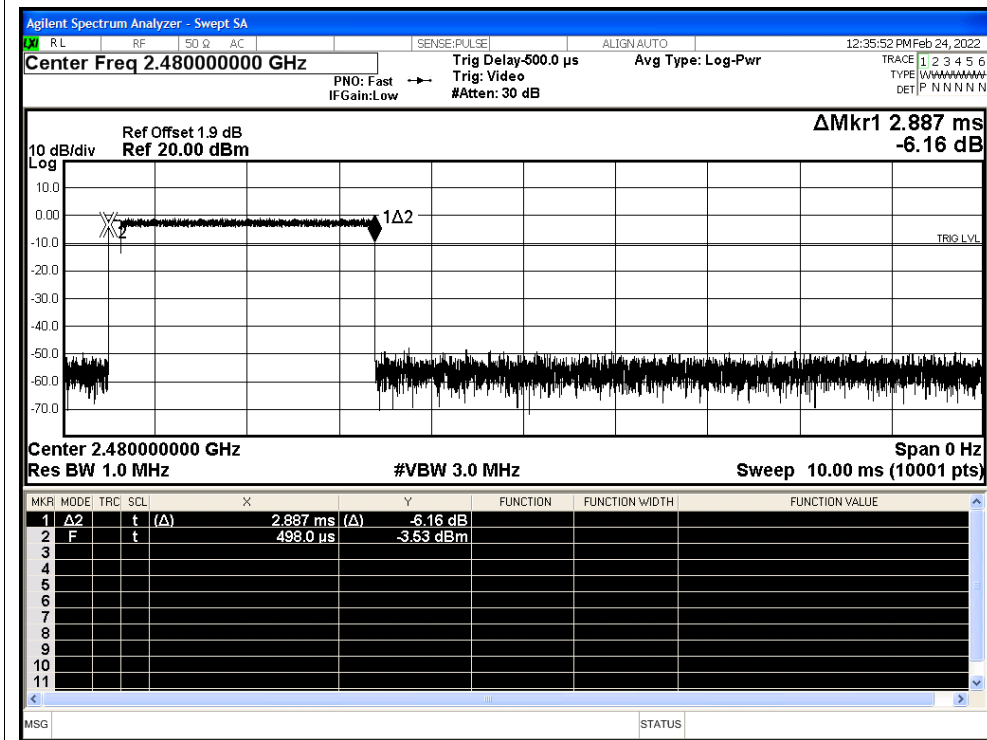


## Dwell NVNT 3-DH5 2441MHz Ant1 Accumulated

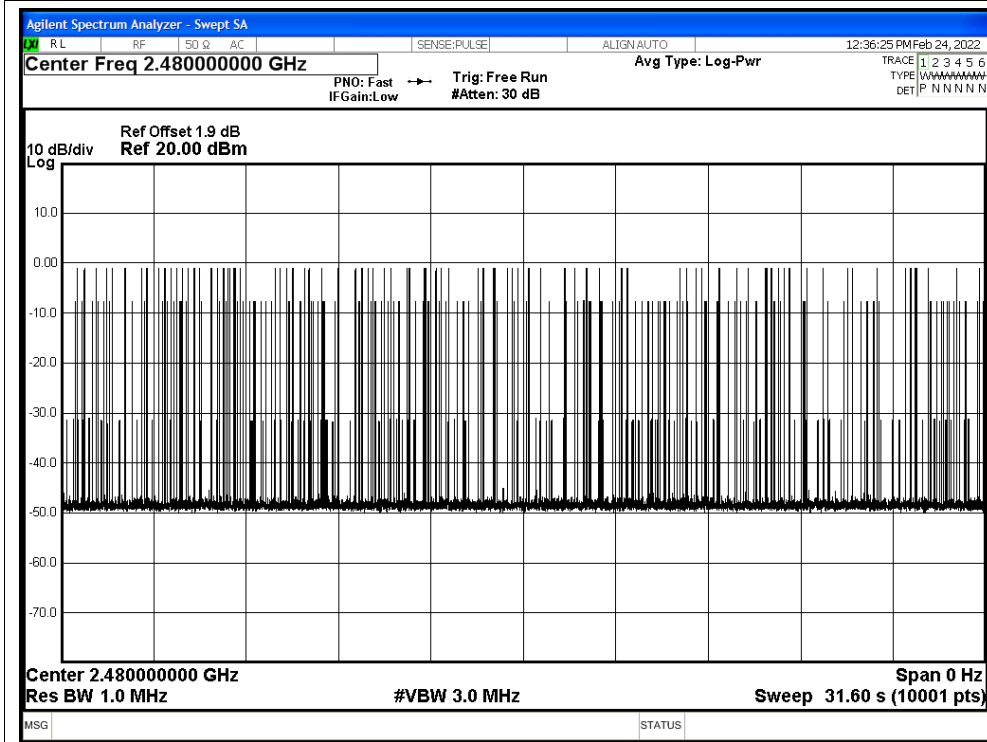




## Dwell NVNT 3-DH5 2480MHz Ant1 One Burst



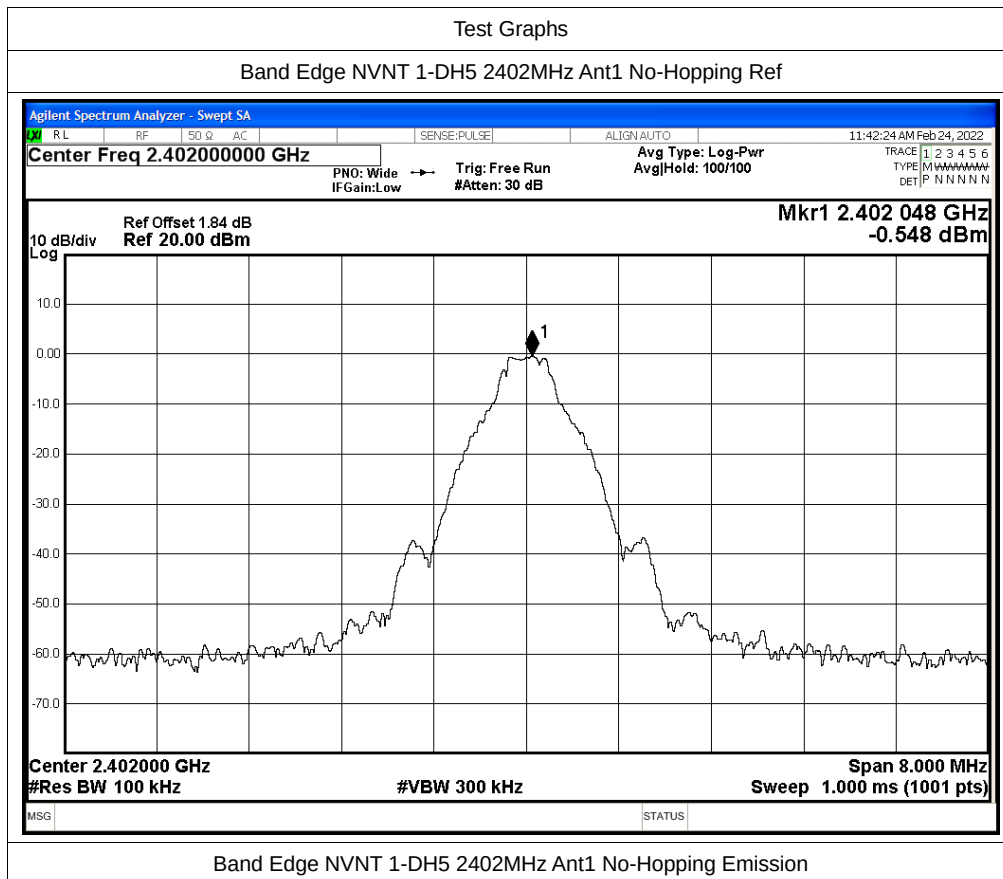
## Dwell NVNT 3-DH5 2480MHz Ant1 Accumulated

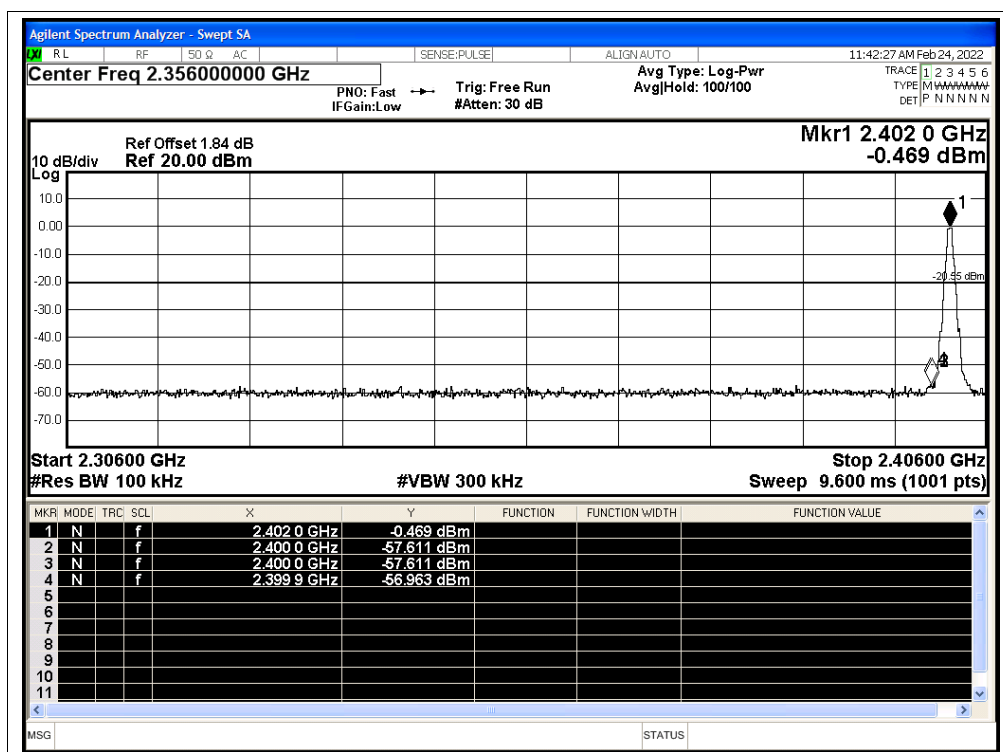


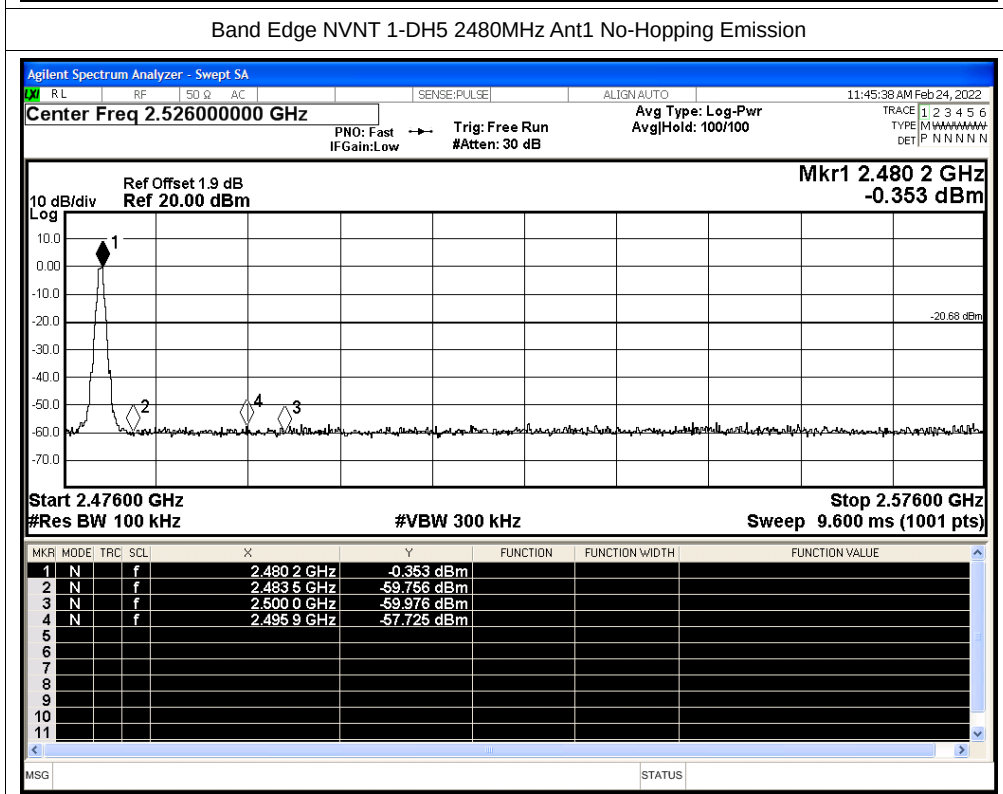


## A.6 Band edge measurements

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | -56.41          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | -57.04          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | -53.8           | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | -51.7           | -20         | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | -54.78          | -20         | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | -55.11          | -20         | Pass    |

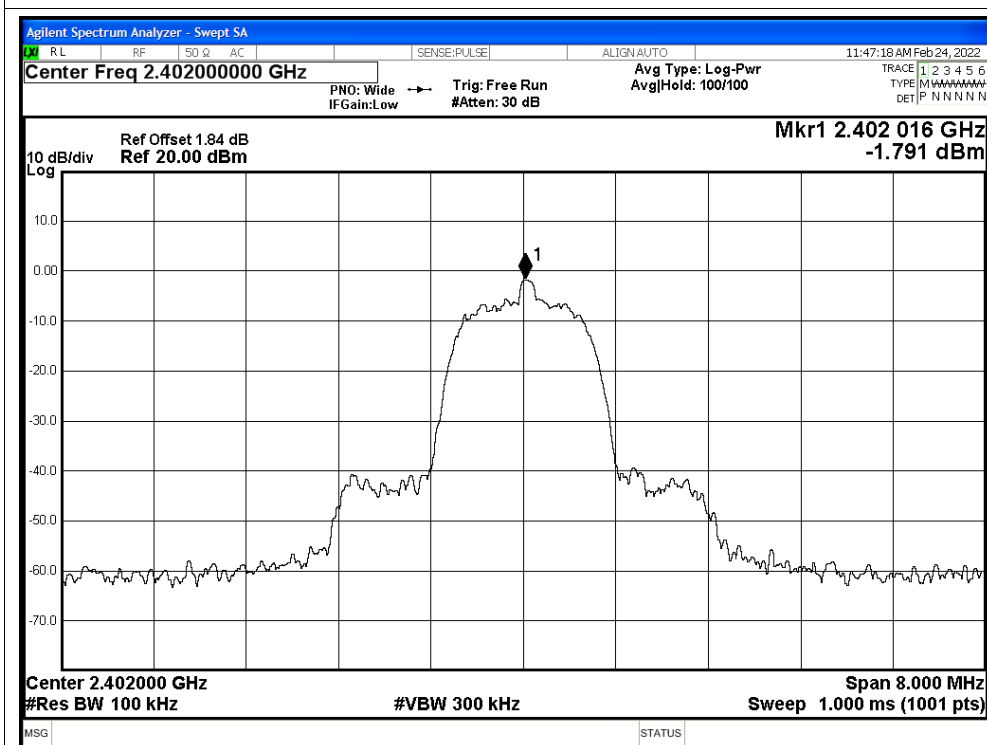




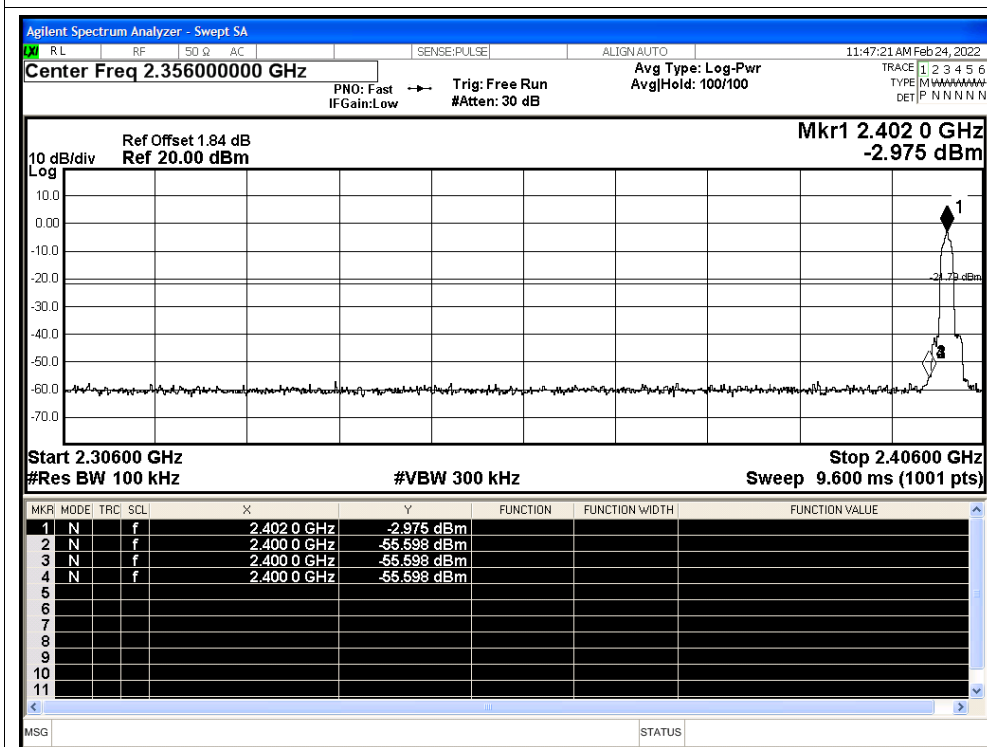




## Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



## Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

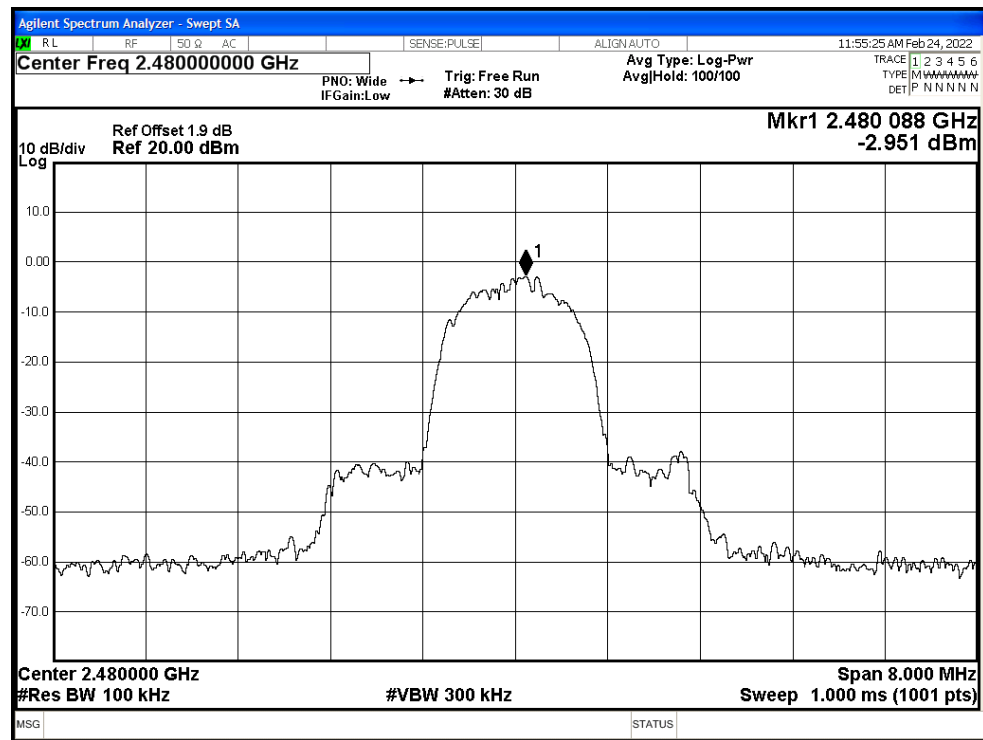




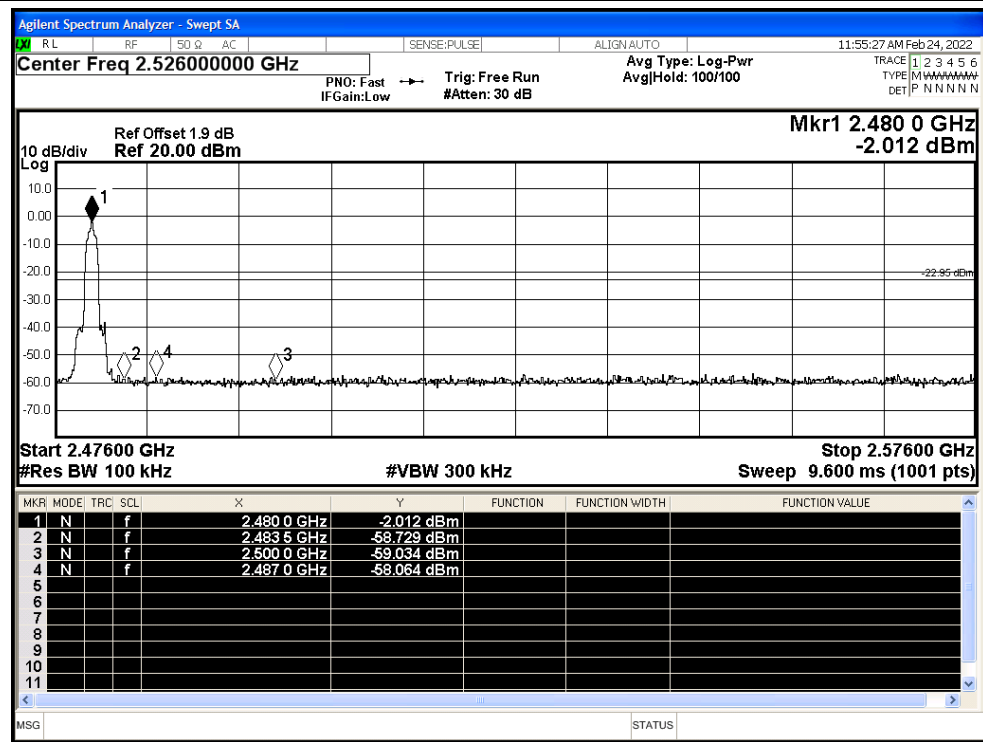




## Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



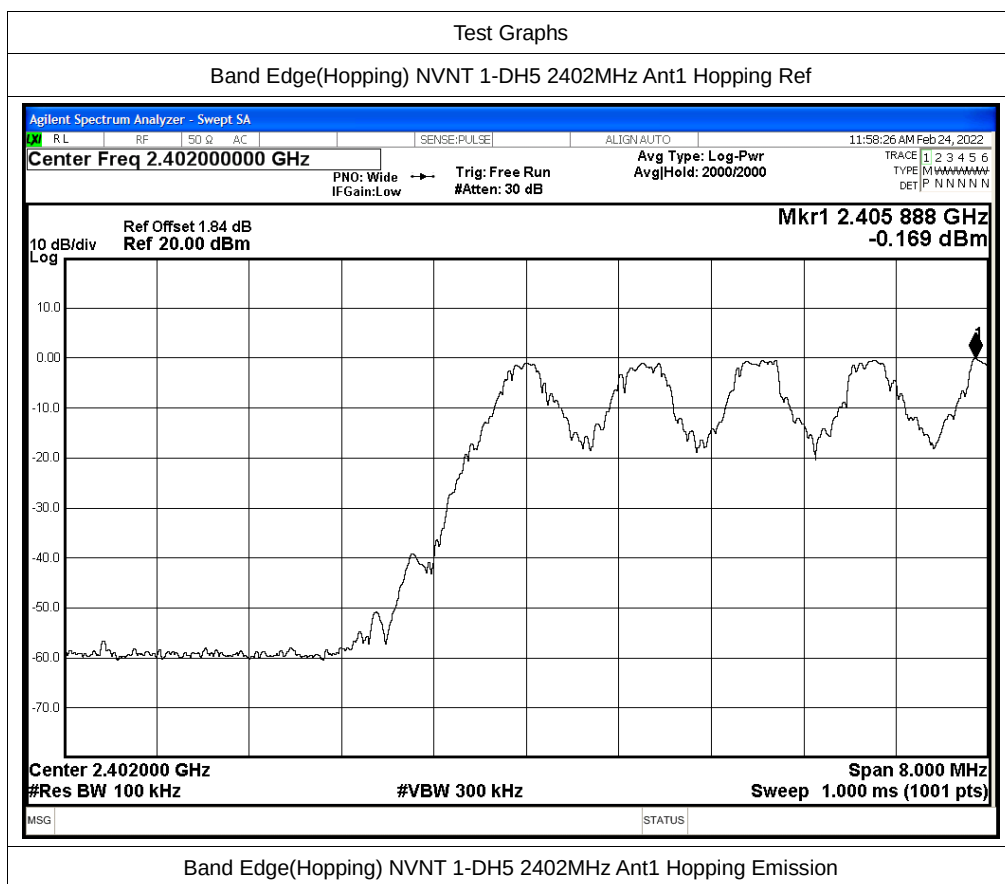
## Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

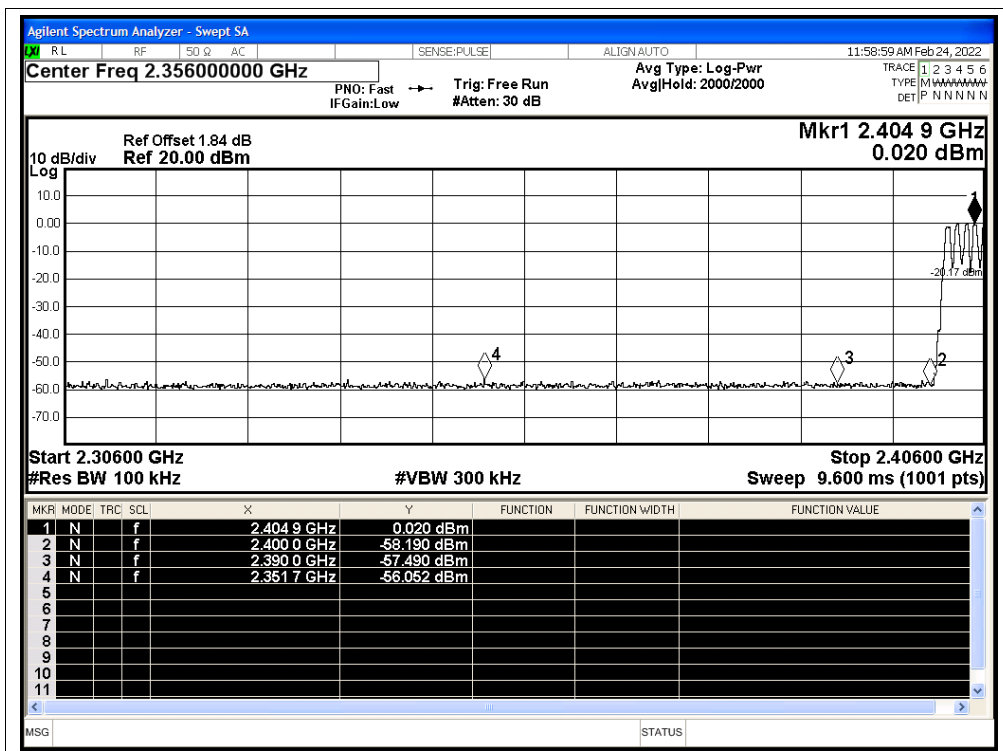




## (Hopping)

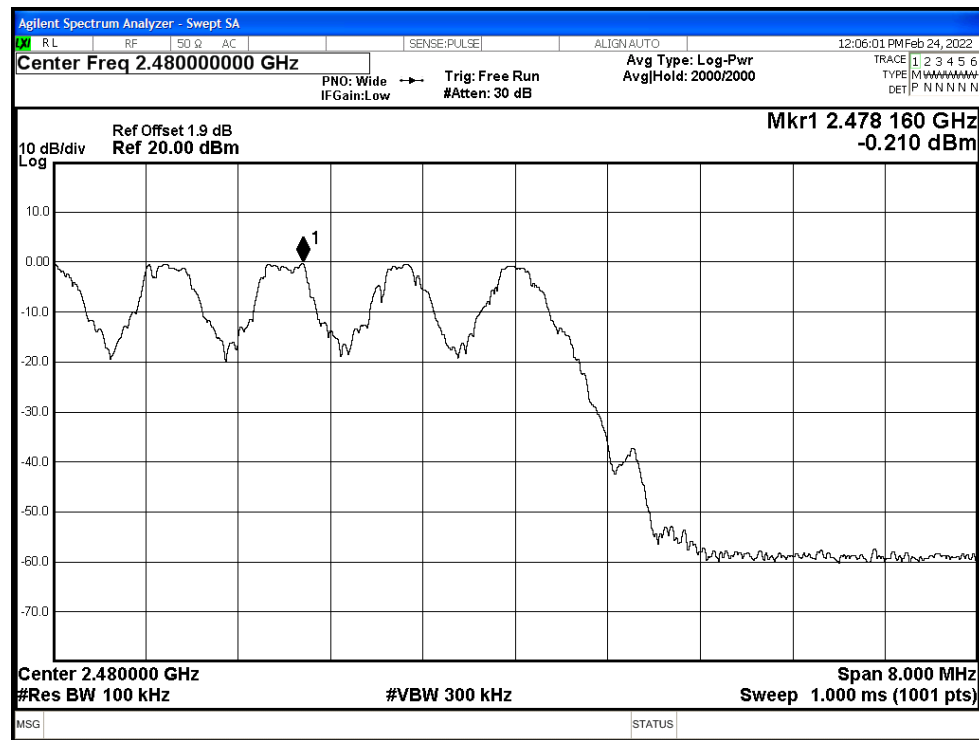
| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | Hopping      | -55.88          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | Hopping      | -55.98          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | Hopping      | -55.05          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | Hopping      | -52.88          | -20         | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | Hopping      | -53.49          | -20         | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | Hopping      | -54.78          | -20         | Pass    |



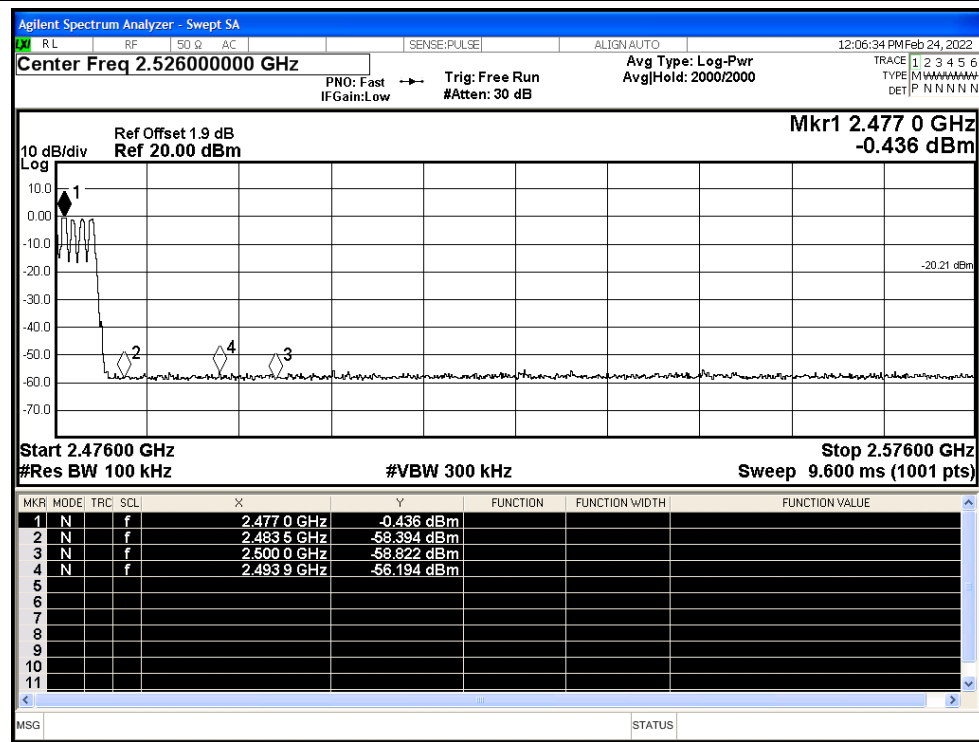


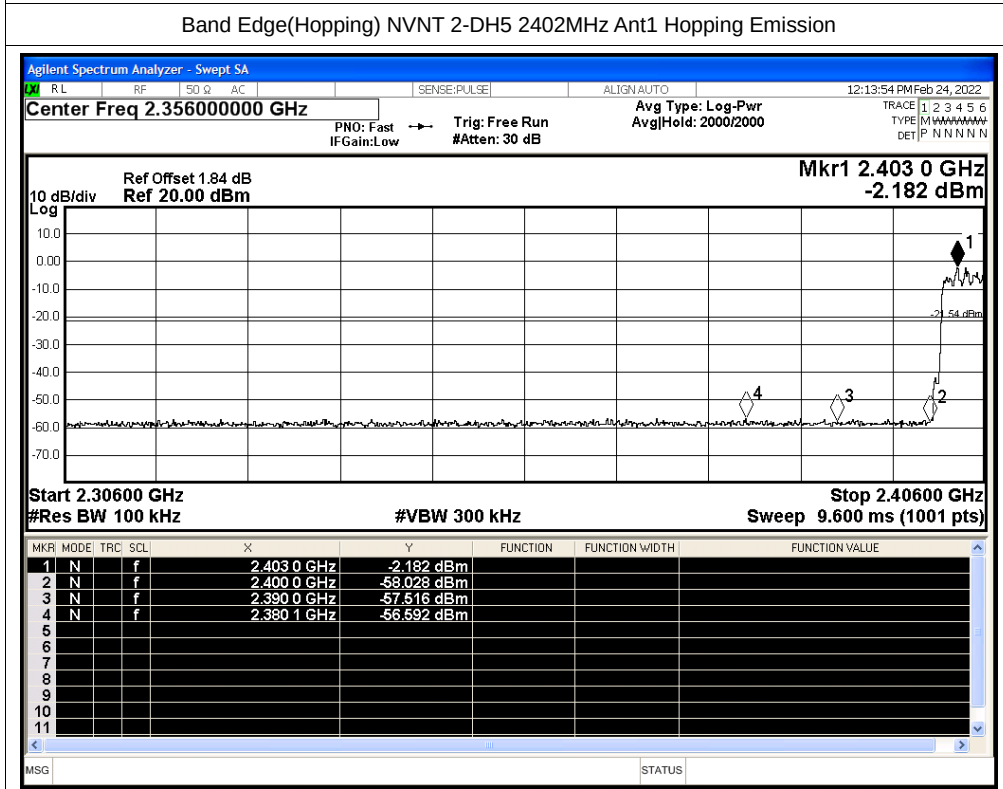


## Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



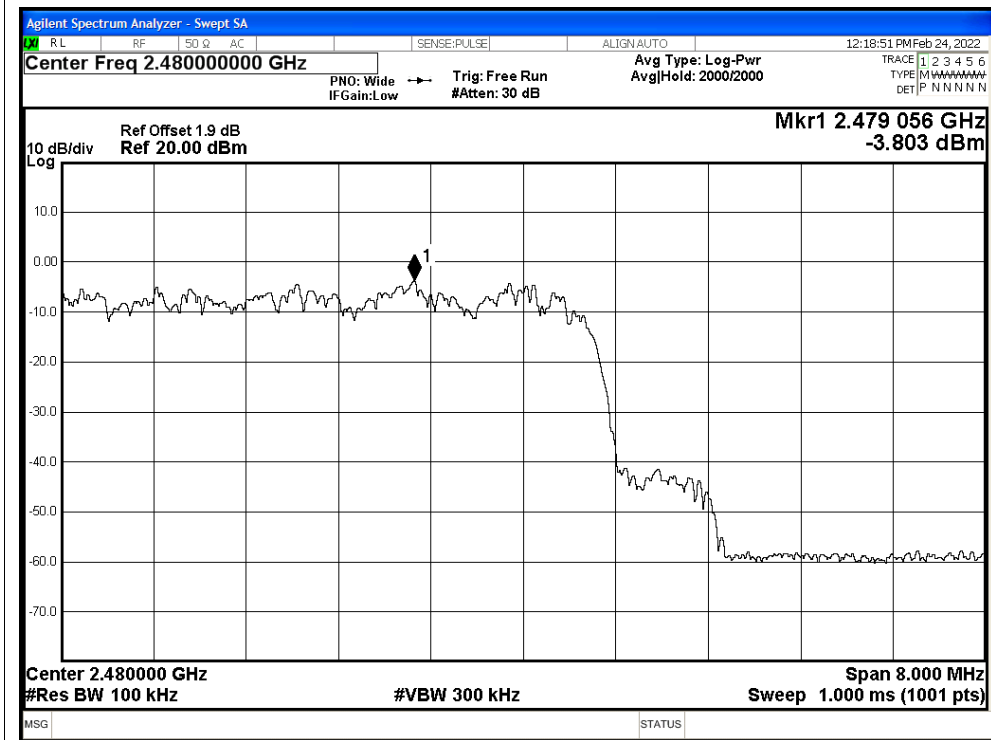
## Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



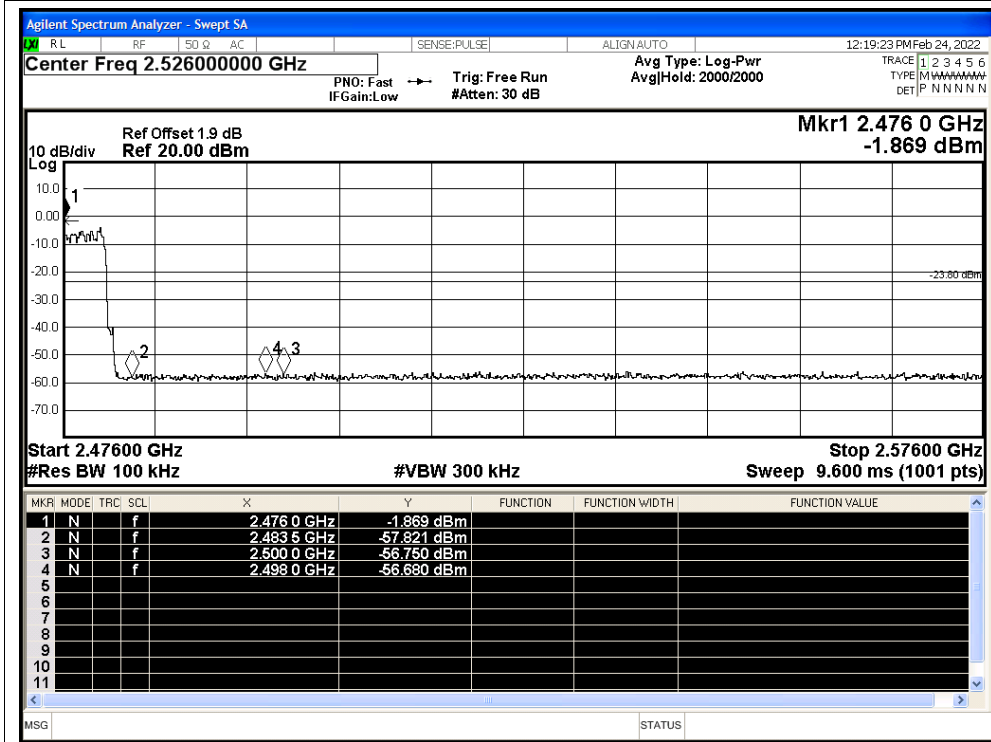




## Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

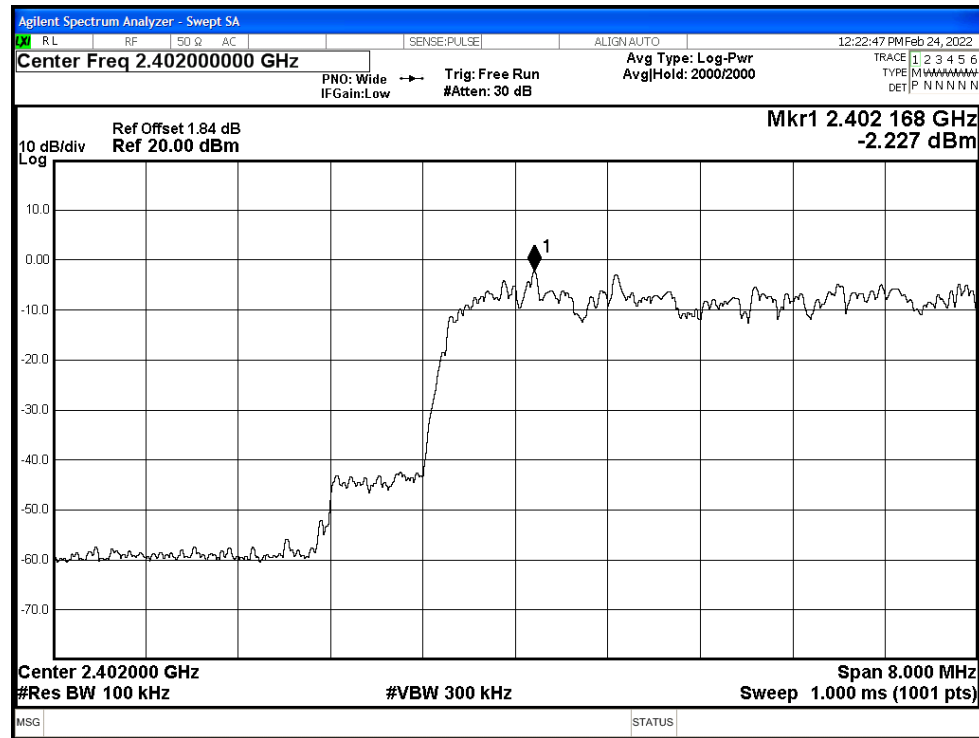


## Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

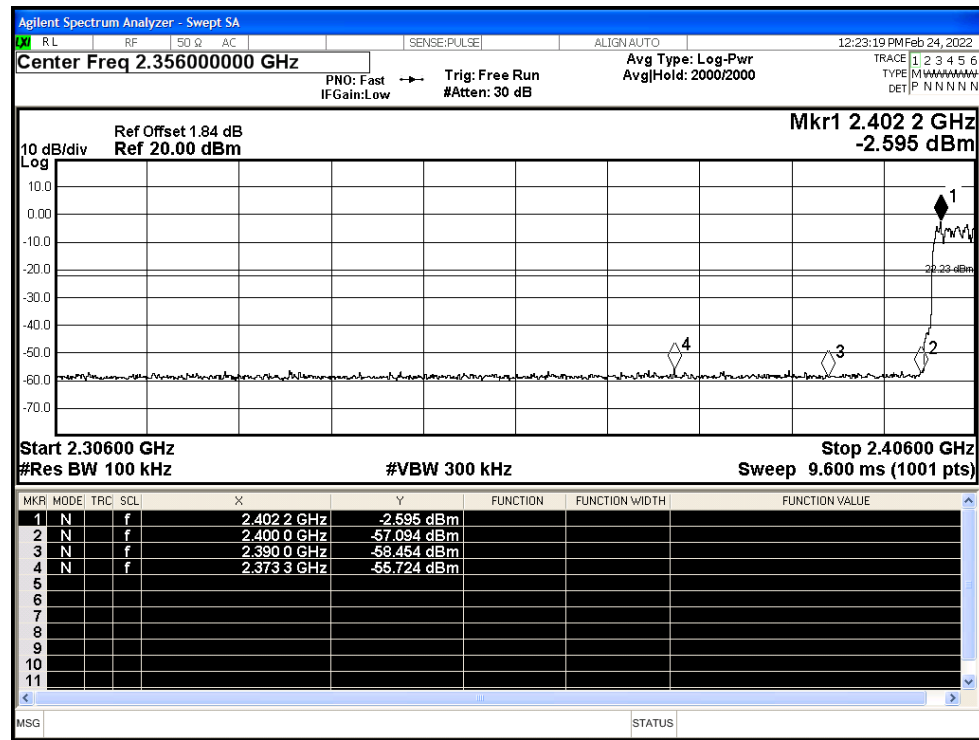




## Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

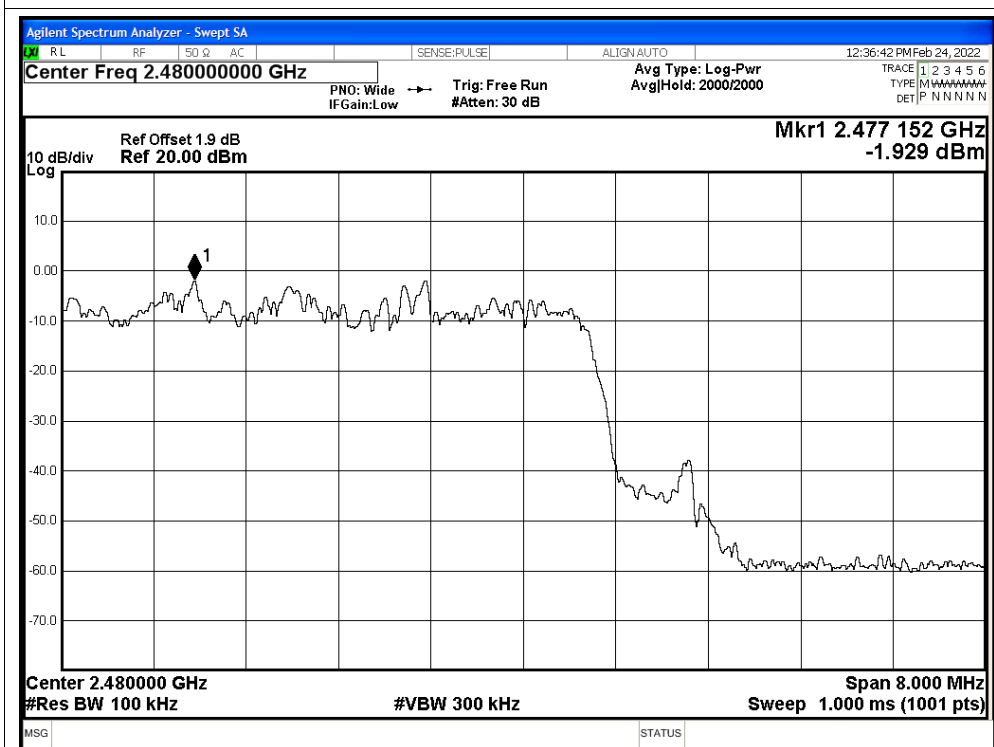


## Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

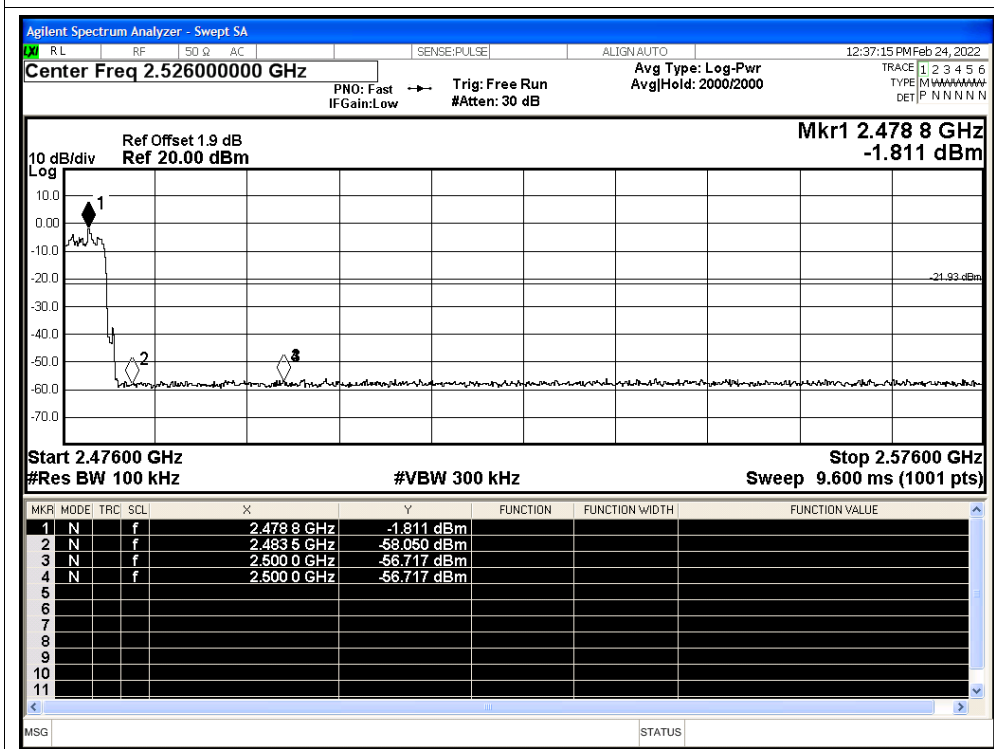




## Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



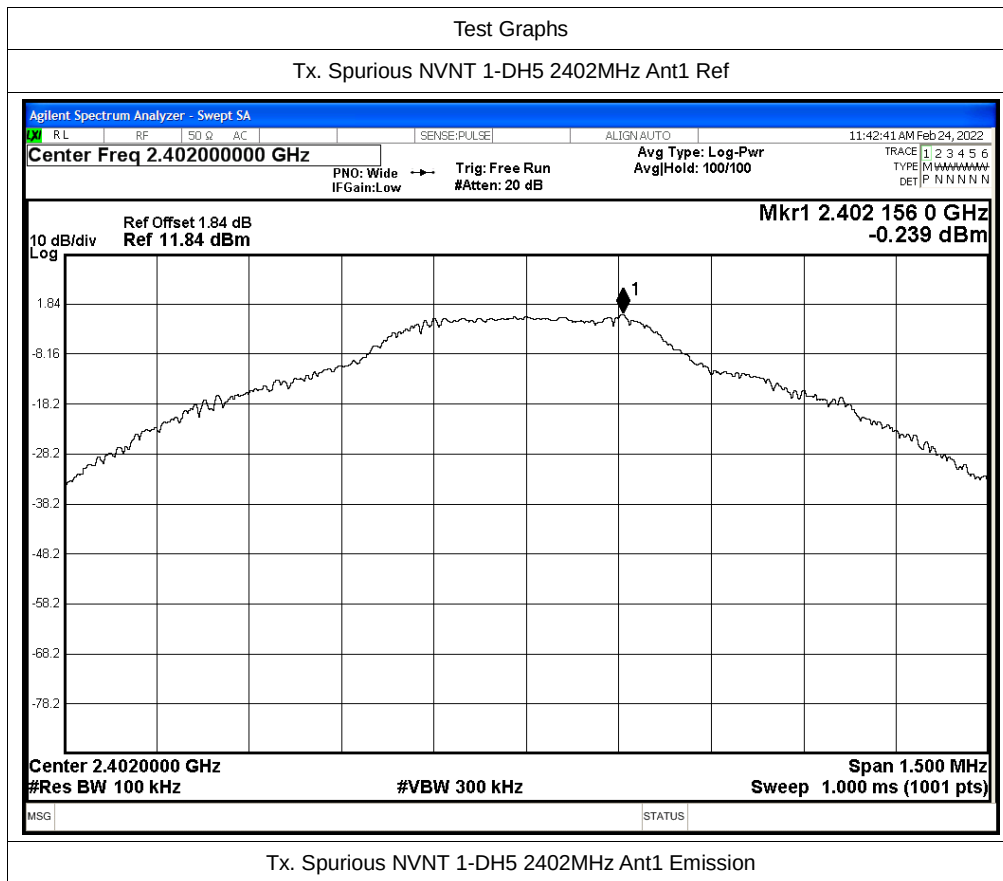
## Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

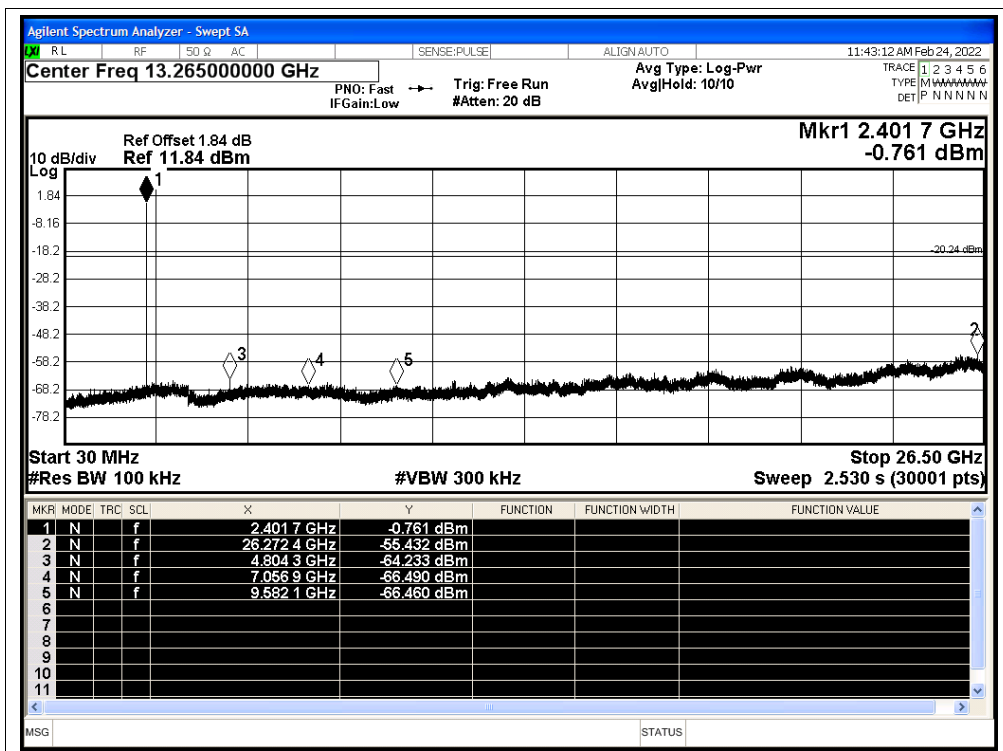


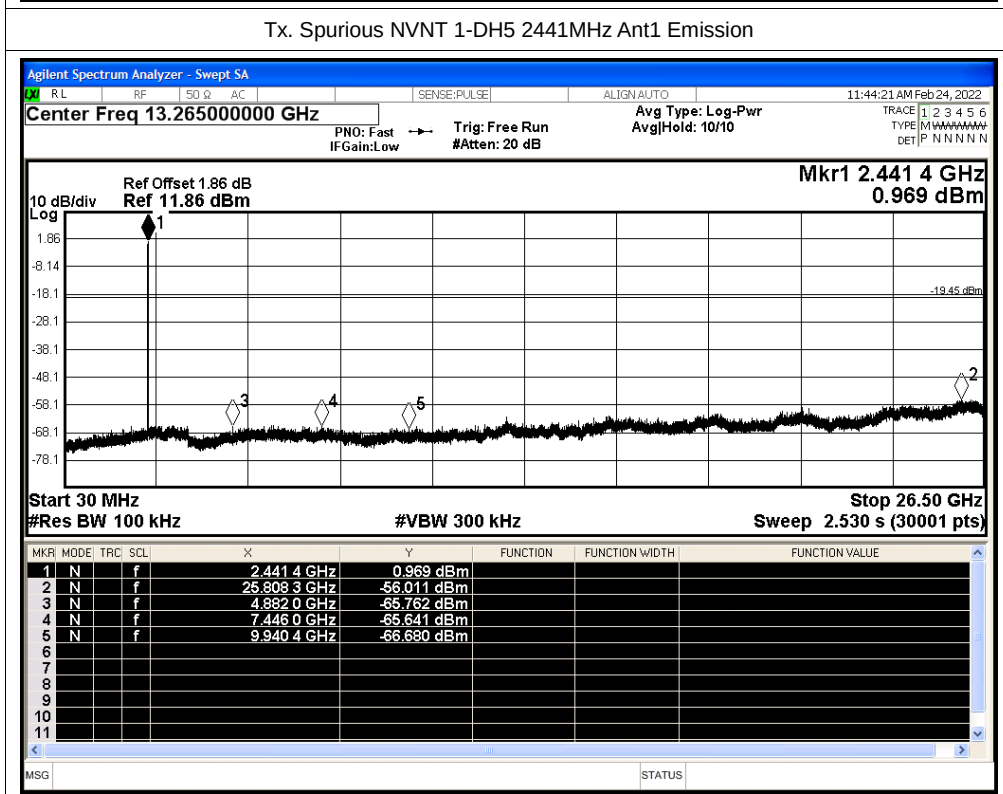


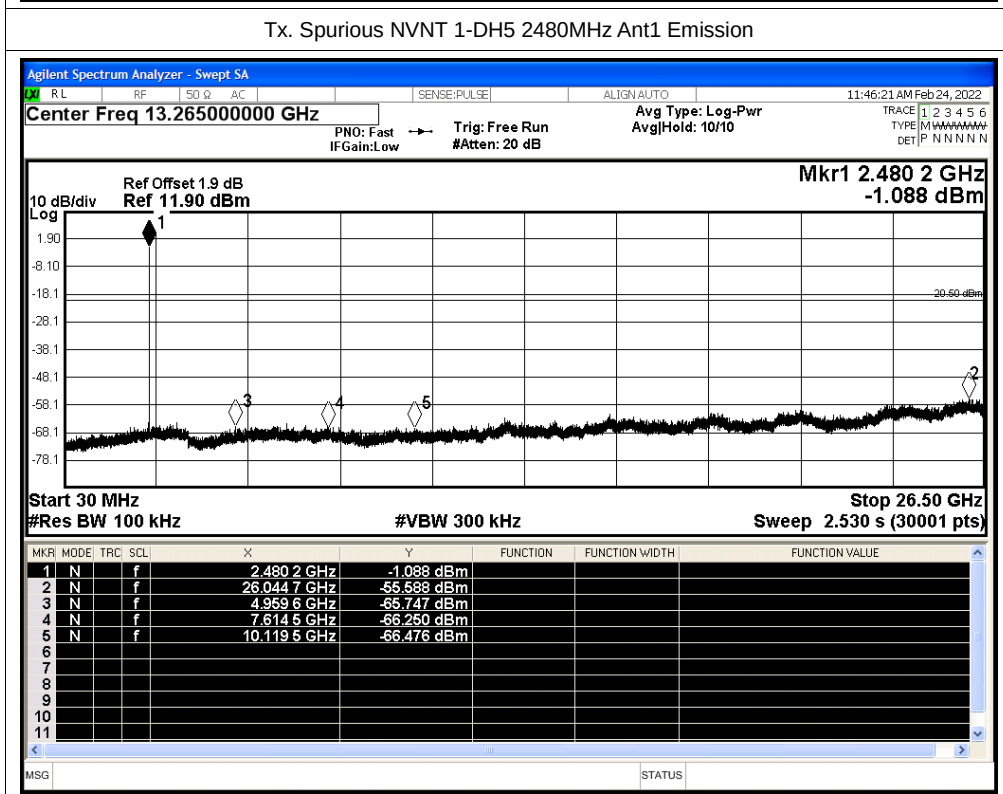
## A.7 Conducted Spurious Emission

| Condition | Mode  | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | -55.19          | -20         | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | -56.56          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -55.08          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | -52.55          | -20         | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | -54.37          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | -54.12          | -20         | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | -52.97          | -20         | Pass    |
| NVNT      | 3-DH5 | 2441            | Ant1    | -53.69          | -20         | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | -52.58          | -20         | Pass    |



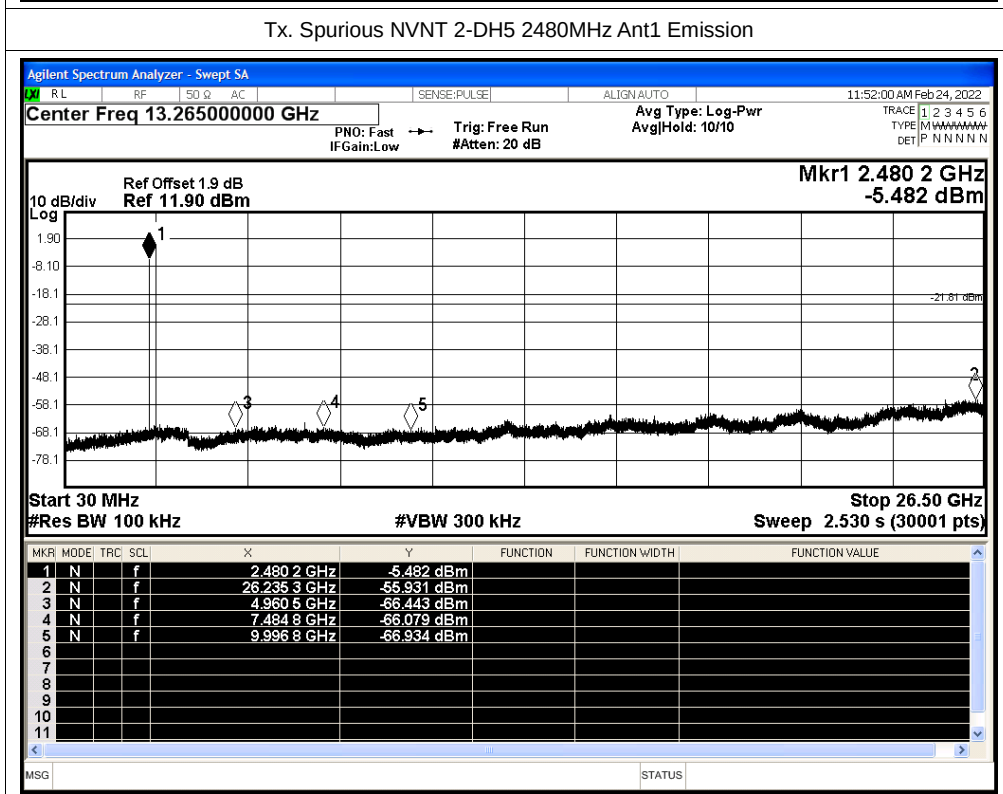




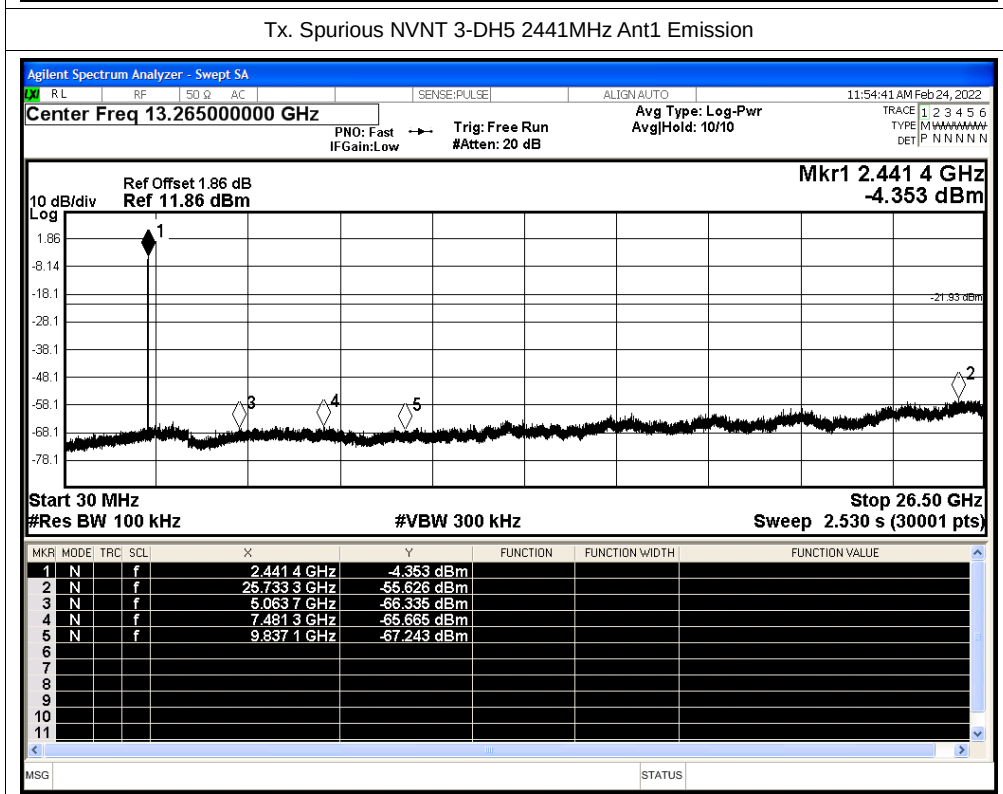






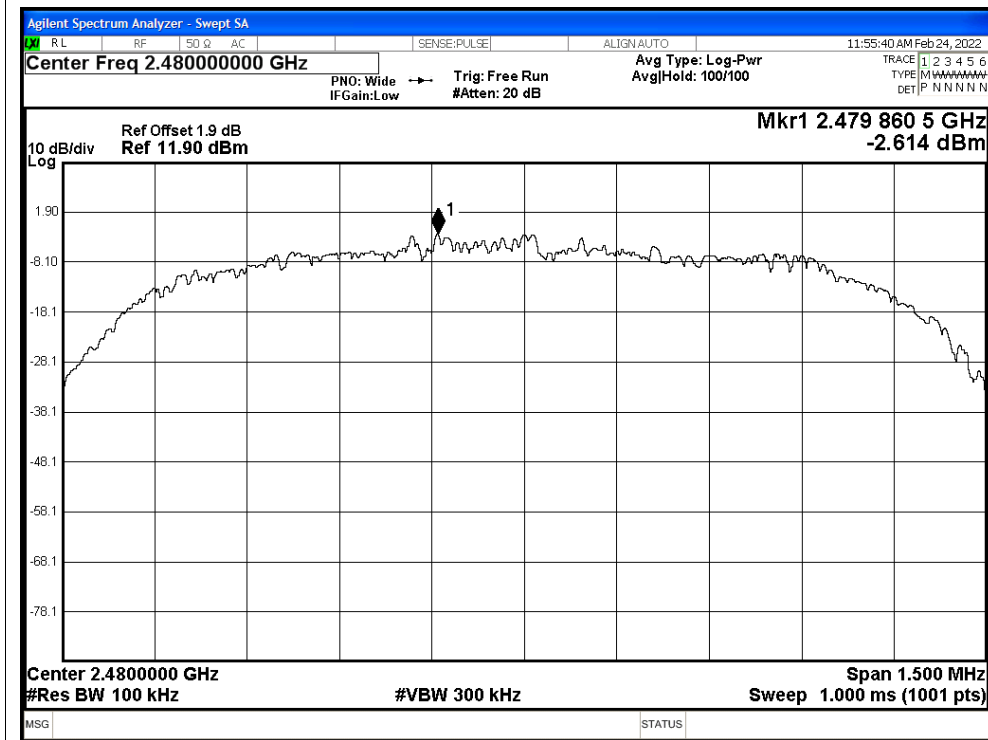




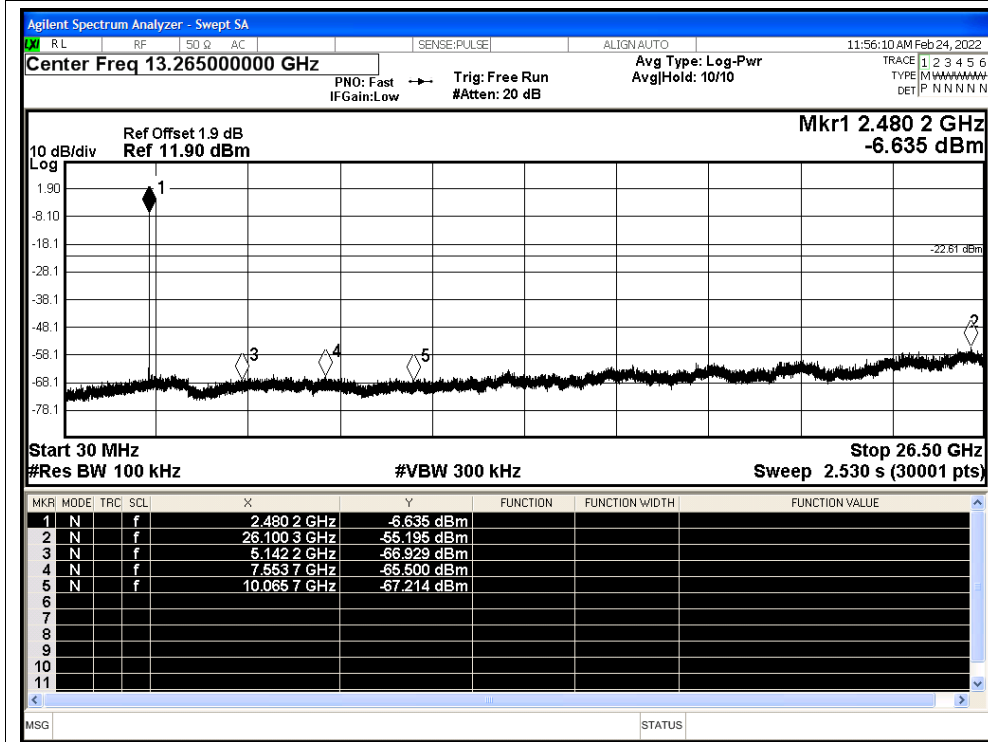




## Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



## Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission





## A.8 Emissions in Restricted Bands

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|------------|------------|----------|----------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -50.35      | 2          | 46.91      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -60.68      | 2          | 36.58      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2379.408        | -47.58      | 2          | 49.68      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2385.168        | -60.13      | 2          | 37.13      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -51.65      | 2          | 45.61      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -60.47      | 2          | 36.79      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -50.43      | 2          | 46.83      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -59.82      | 2          | 37.44      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2487.184        | -46.58      | 2          | 50.68      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.536        | -59.74      | 2          | 37.52      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -49.77      | 2          | 47.49      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -60.09      | 2          | 37.17      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -51.02      | 2          | 46.24      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -60.58      | 2          | 36.68      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2388.048        | -47.32      | 2          | 49.94      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2388.432        | -60.22      | 2          | 37.04      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -50.34      | 2          | 46.92      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -60.26      | 2          | 37         | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -48.51      | 2          | 48.75      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -59.83      | 2          | 37.43      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2485.216        | -47.36      | 2          | 49.9       | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2484.592        | -59.71      | 2          | 37.55      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -49.06      | 2          | 48.2       | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -60.01      | 2          | 37.25      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -51.45      | 2          | 45.81      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -60.67      | 2          | 36.59      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2386.512        | -47.8       | 2          | 49.46      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2382.288        | -60.19      | 2          | 37.07      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -50.8       | 2          | 46.46      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -60.32      | 2          | 36.94      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -49.94      | 2          | 47.32      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -59.67      | 2          | 37.59      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2488.72         | -47.45      | 2          | 49.81      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2483.656        | -59.6       | 2          | 37.66      | Average  | 54             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -49.52      | 2          | 47.74      | Peak     | 74             | Pass    |
| NVNT      | 3-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -59.98      | 2          | 37.28      | Average  | 54             | Pass    |

