



## Appendix A

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

Product Name: Entertainment Bluetooth and Karaoke System

Test Model:CSS-1500

#### Environmental Conditions

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



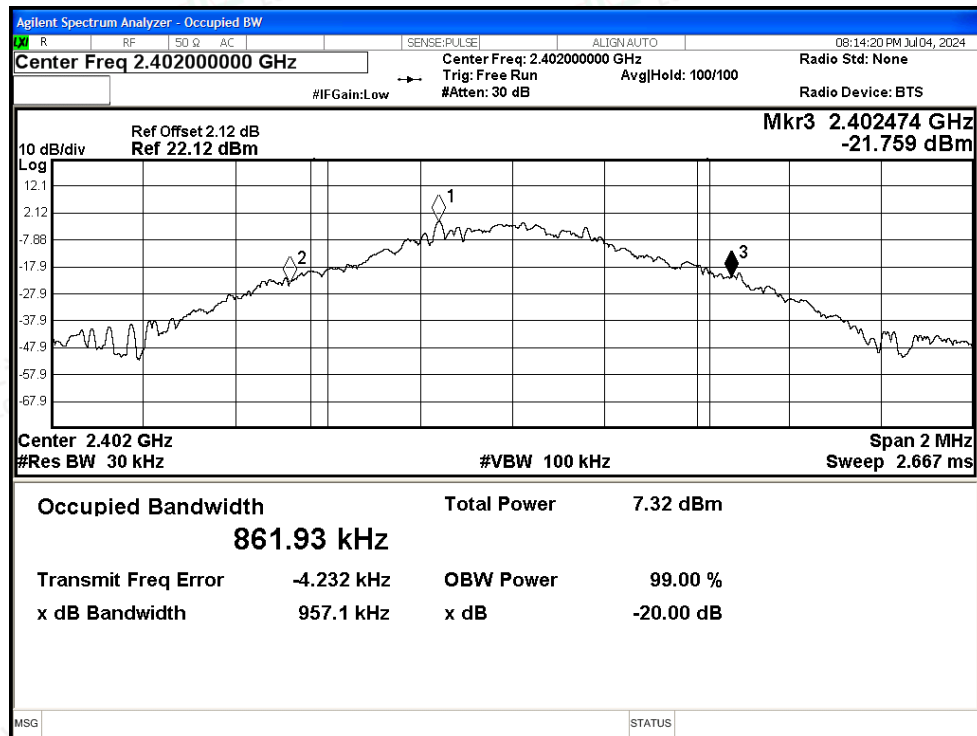
## A.1 -20dB Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|-----------|-------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | 0.957                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant0    | 1.003                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | 0.953                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | 1.285                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant0    | 1.282                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | 1.32                   | N/A                          | Pass    |

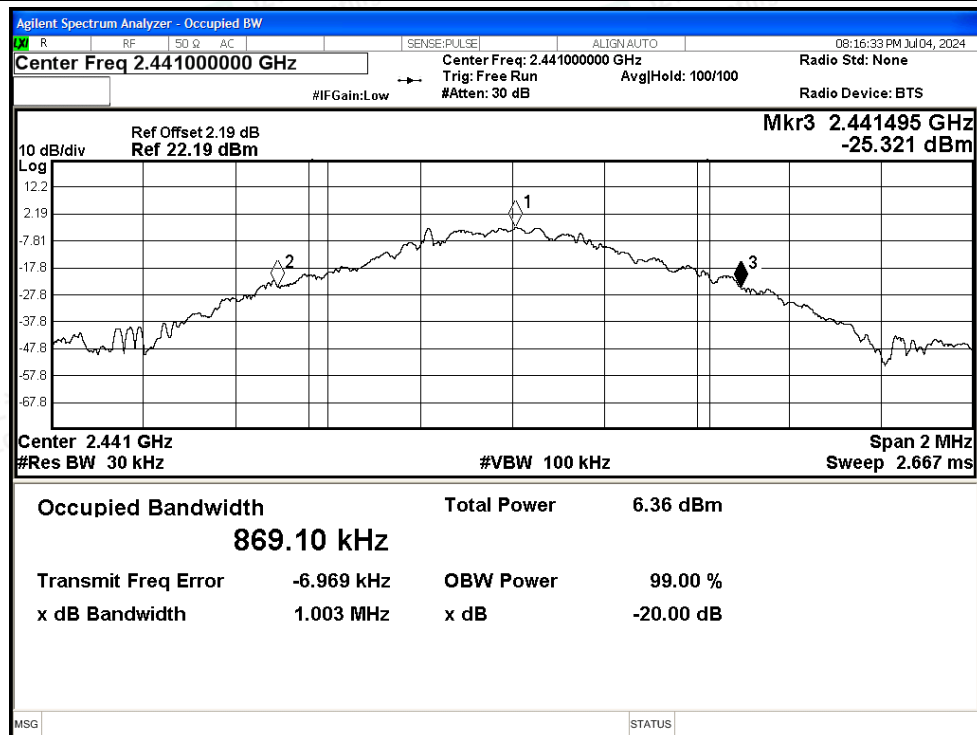


## Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant0



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant0

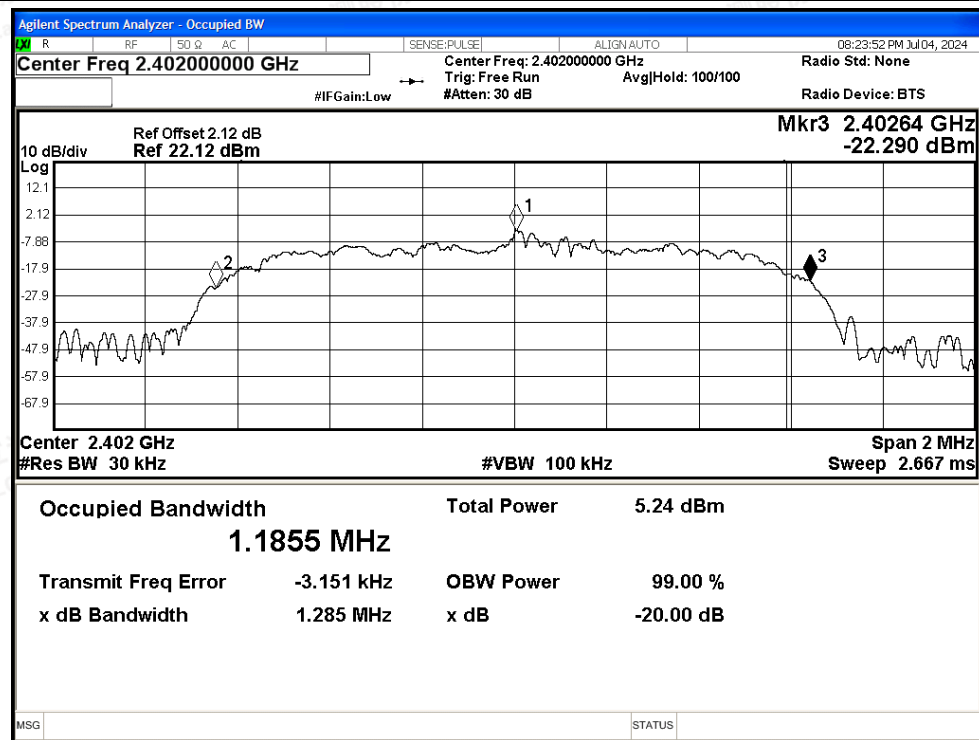




## -20dB Bandwidth NVNT 1-DH5 2480MHz Ant0

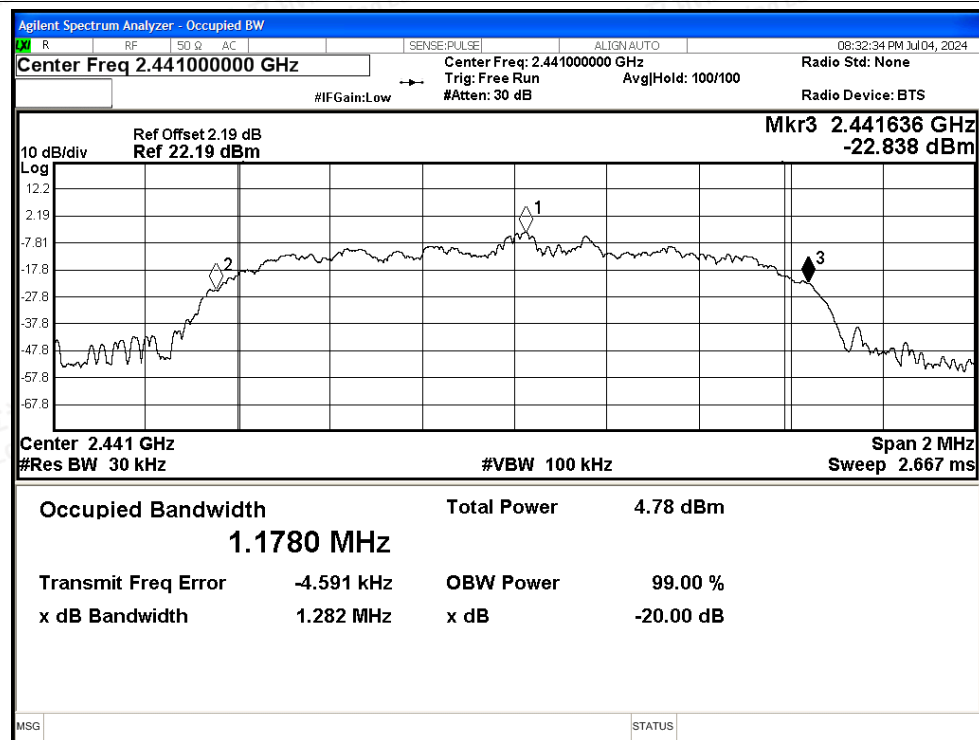


## -20dB Bandwidth NVNT 2-DH5 2402MHz Ant0

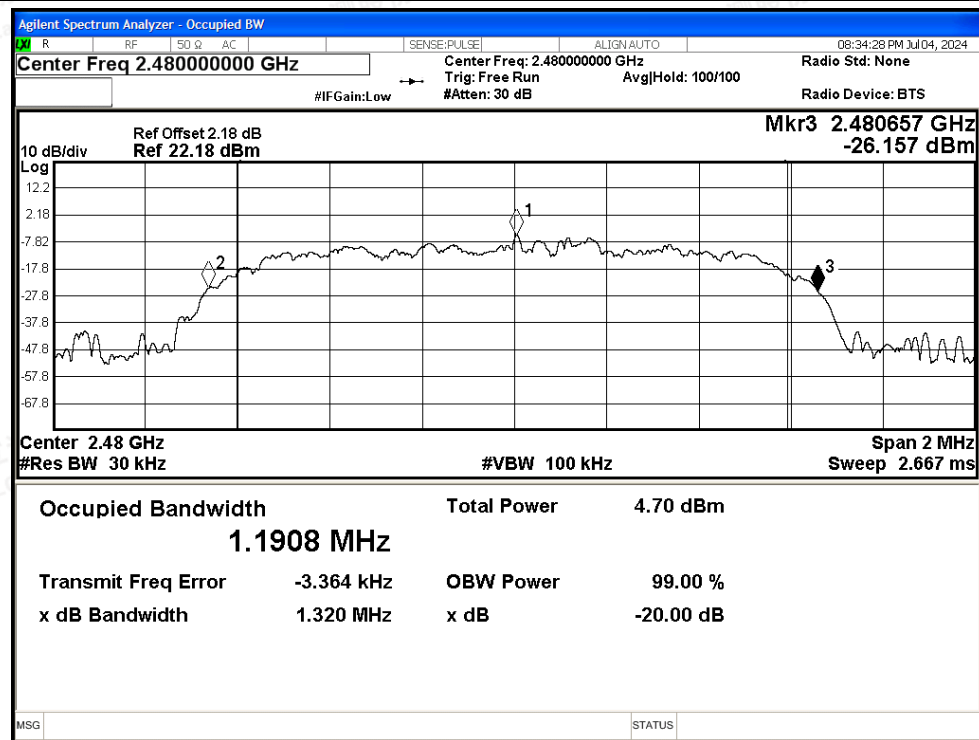




## -20dB Bandwidth NVNT 2-DH5 2441MHz Ant0



## -20dB Bandwidth NVNT 2-DH5 2480MHz Ant0





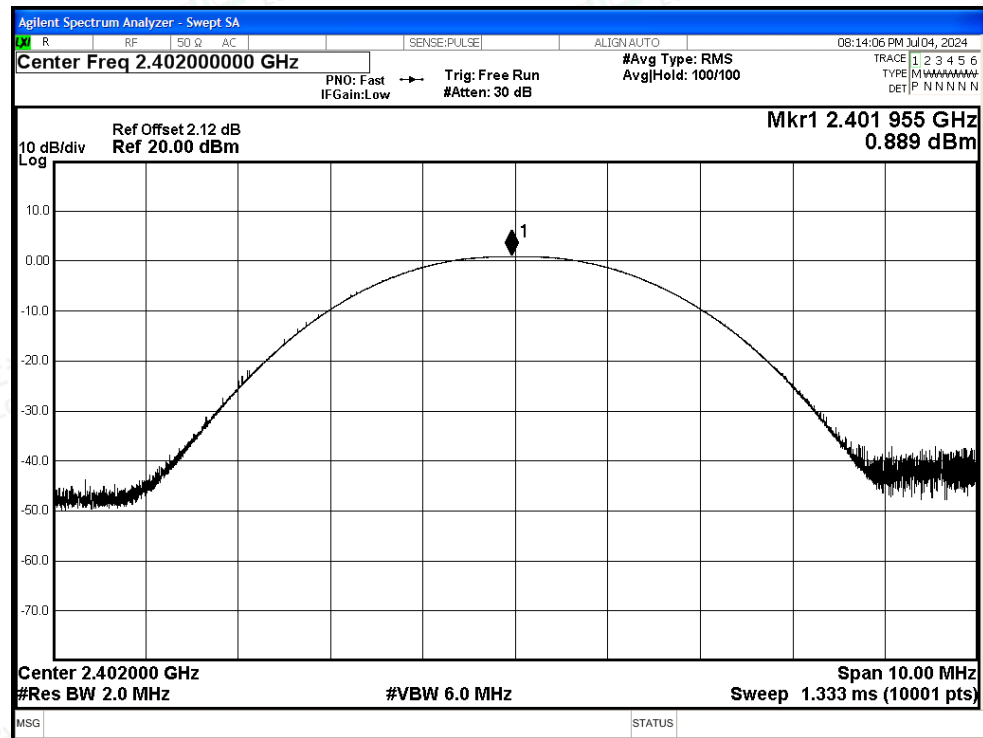
## A.2 Maximum Conducted Output Power

| Condition | Mode  | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|-------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | 0.89                  | 21          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant0    | -0.03                 | 21          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | 0.03                  | 21          | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | 0.89                  | 21          | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant0    | 0.11                  | 21          | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | 0.59                  | 21          | Pass    |

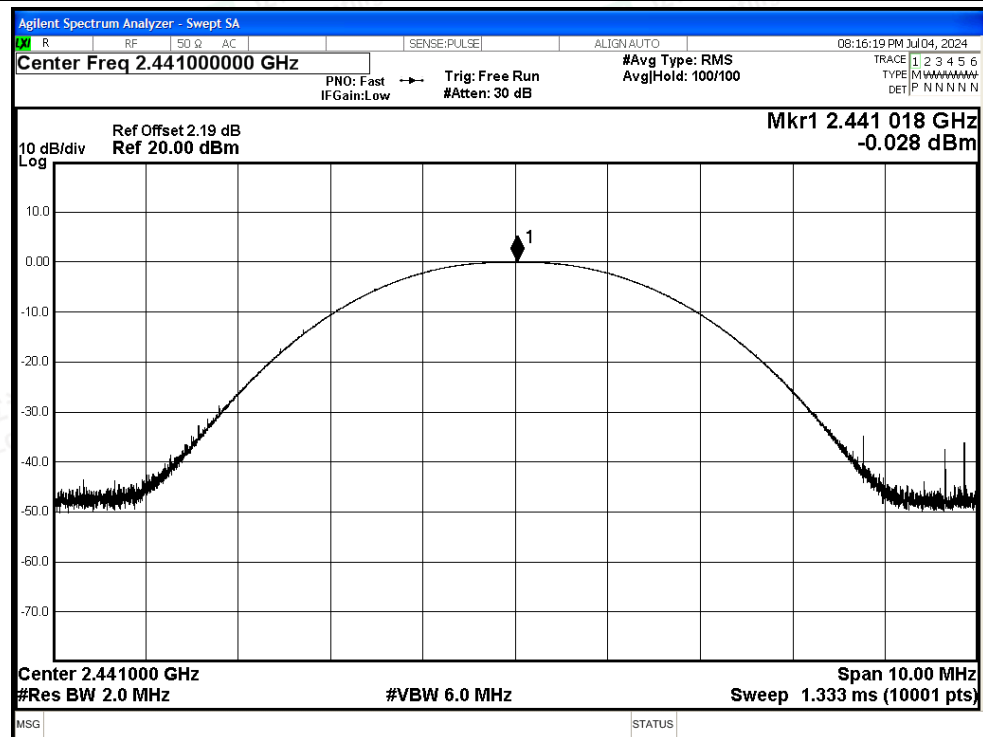


## Test Graphs

Power NVNT 1-DH5 2402MHz Ant0

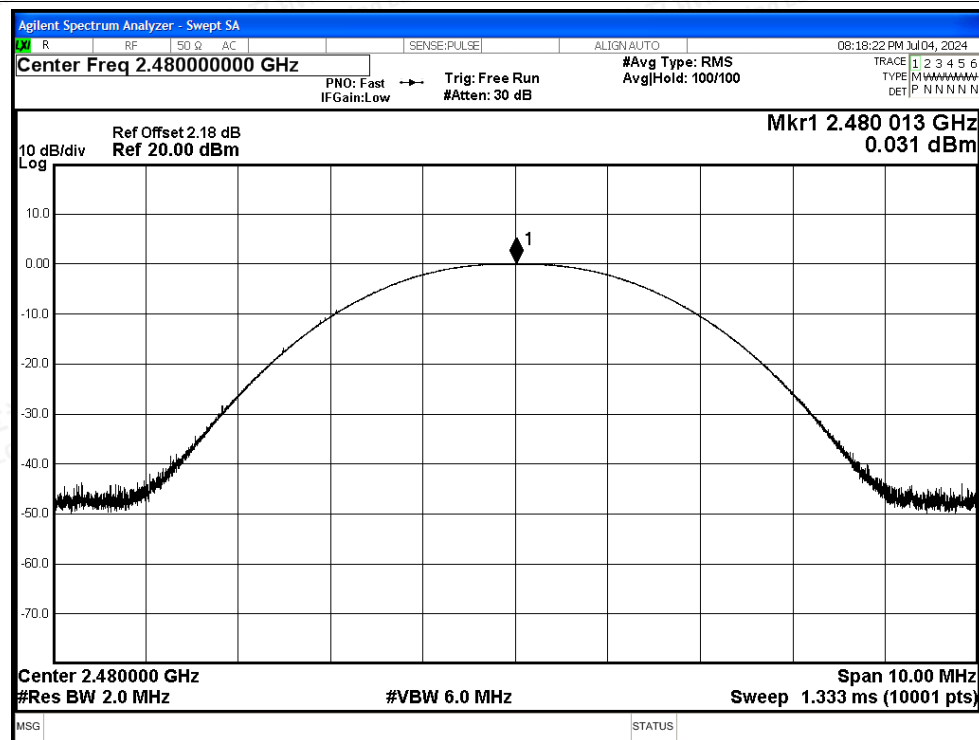


Power NVNT 1-DH5 2441MHz Ant0

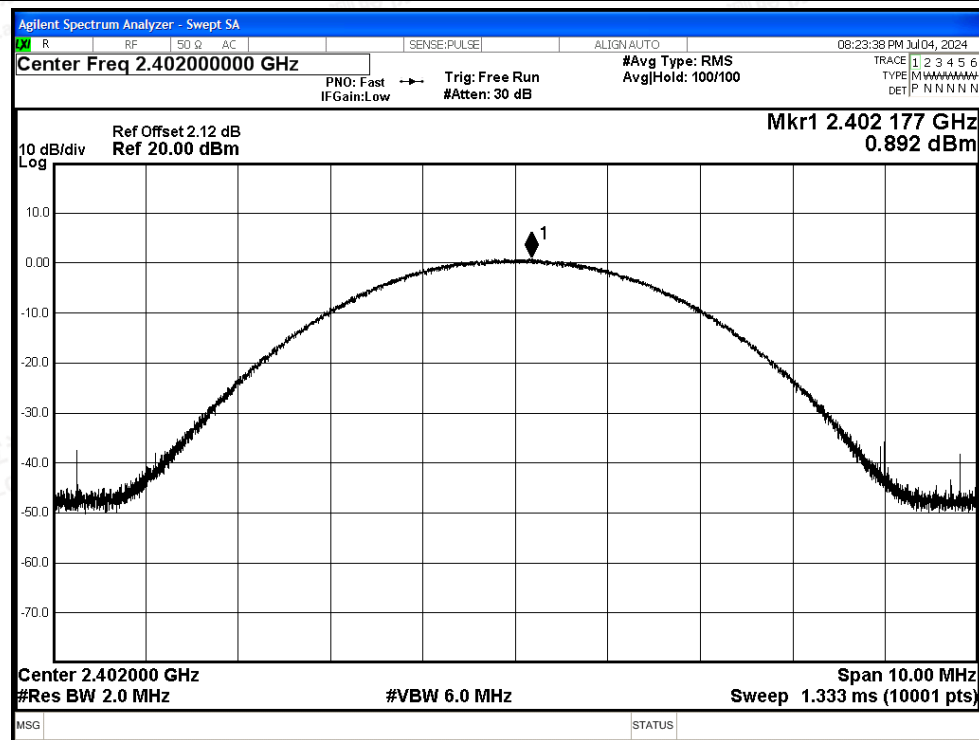




Power NVNT 1-DH5 2480MHz Ant0

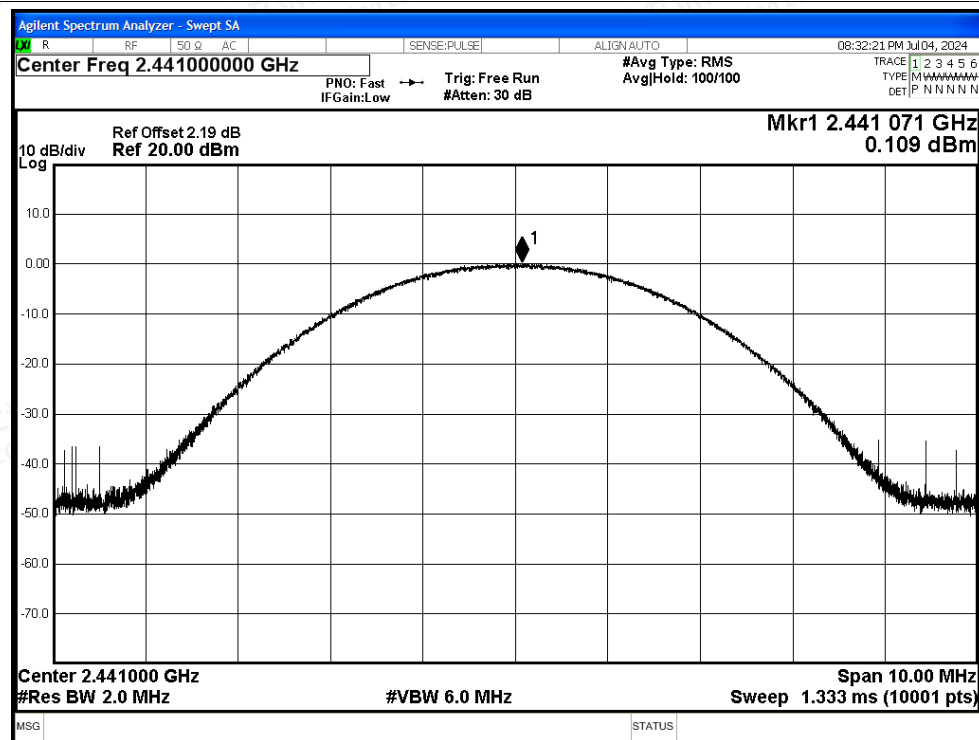


Power NVNT 2-DH5 2402MHz Ant0

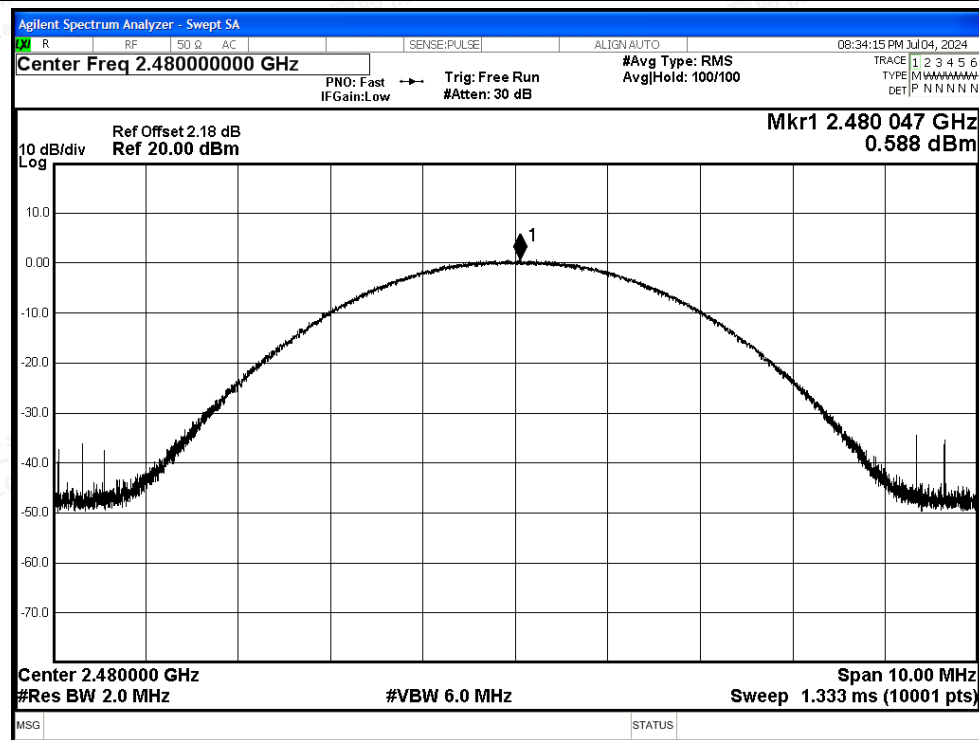




Power NVNT 2-DH5 2441MHz Ant0



Power NVNT 2-DH5 2480MHz Ant0



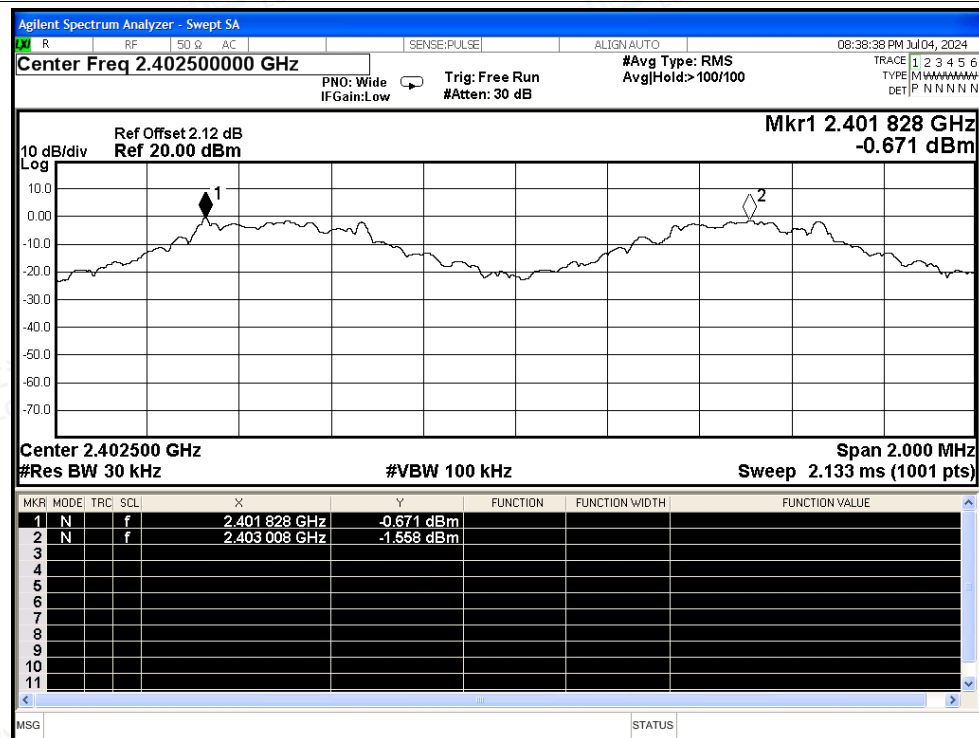


### A.3 Carrier Frequencies Separation

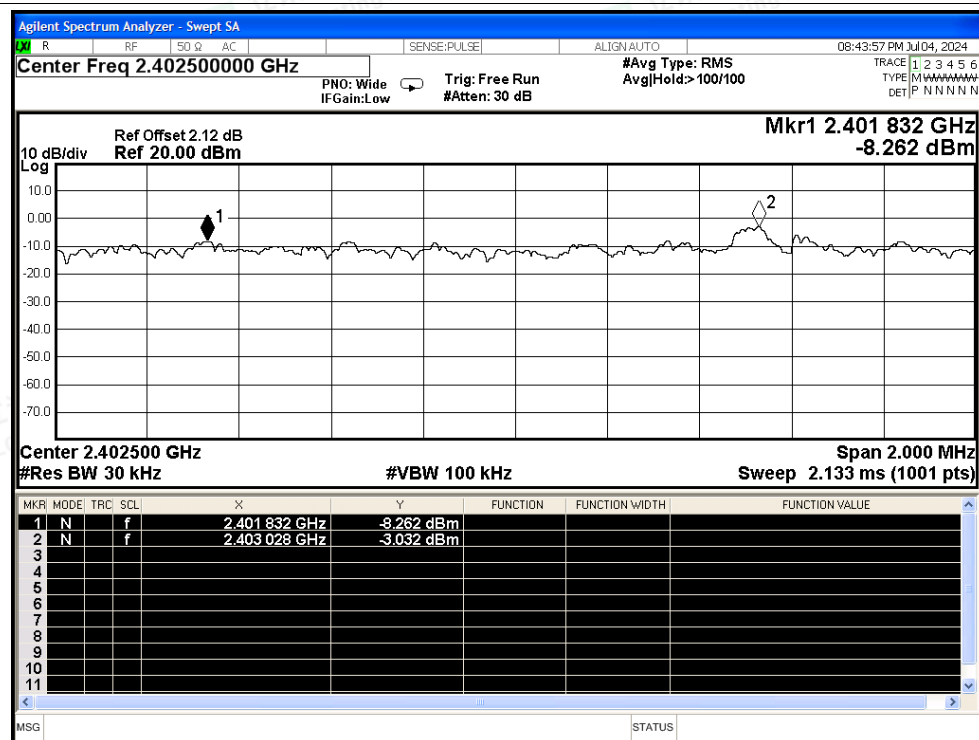
| Condition | Mode  | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|-----------|-------|---------|---------------------|---------------------|-----------|-------------|---------|
| NVNT      | 1-DH5 | Ant0    | 2401.828            | 2403.008            | 1.18      | 0.669       | Pass    |
| NVNT      | 2-DH5 | Ant0    | 2401.832            | 2403.028            | 1.196     | 0.880       | Pass    |

## Test Graphs

CFS NVNT 1-DH5 2402MHz Ant0



CFS NVNT 2-DH5 2402MHz Ant0





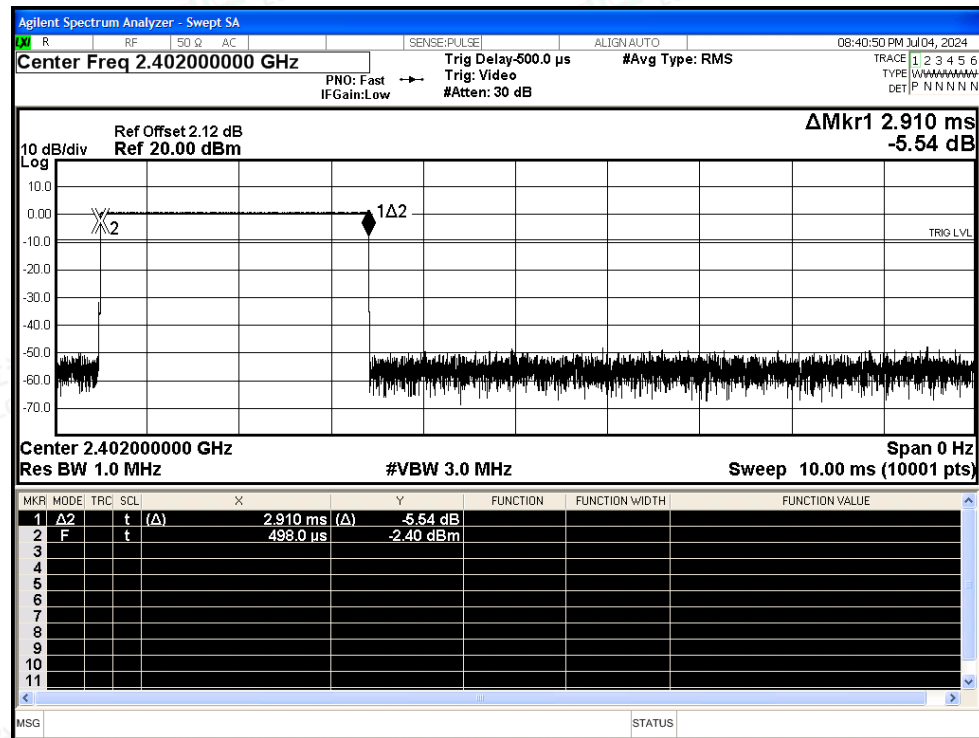
## A.4 Dwell Time

| 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               | Ant0    | 2.91               | 323.01                   | 111            | 31600               | 400           | Pass    |
| NVNT      | 2-DH5 | 2402               | Ant0    | 2.898              | 315.882                  | 109            | 31600               | 400           | Pass    |

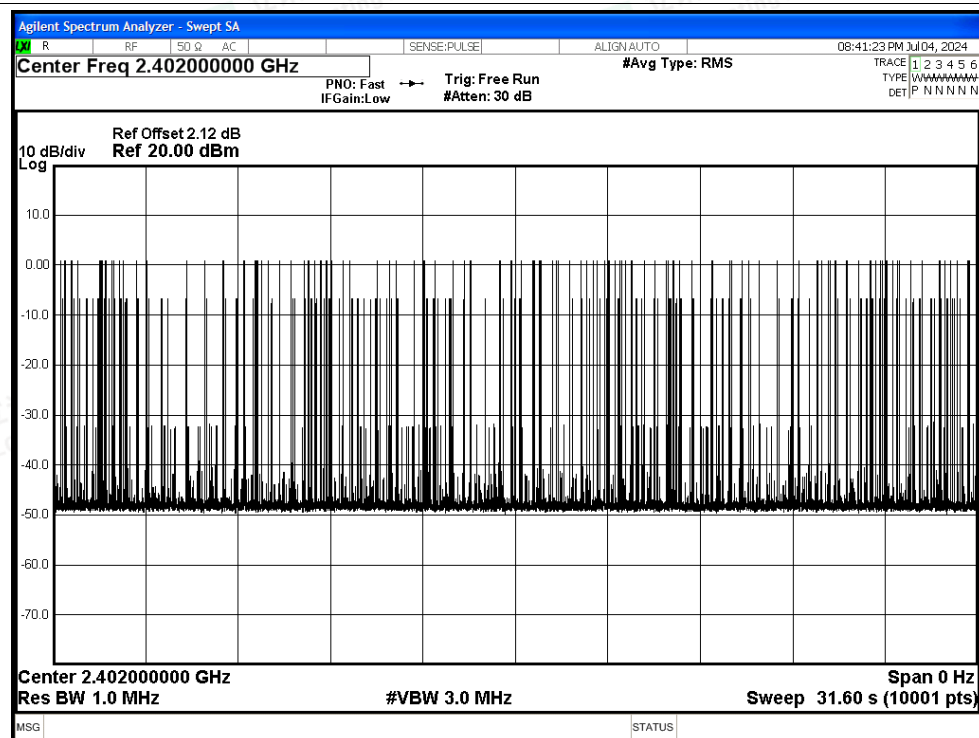


## Test Graphs

## Dwell NVNT 1-DH5 2402MHz Ant0 One Burst

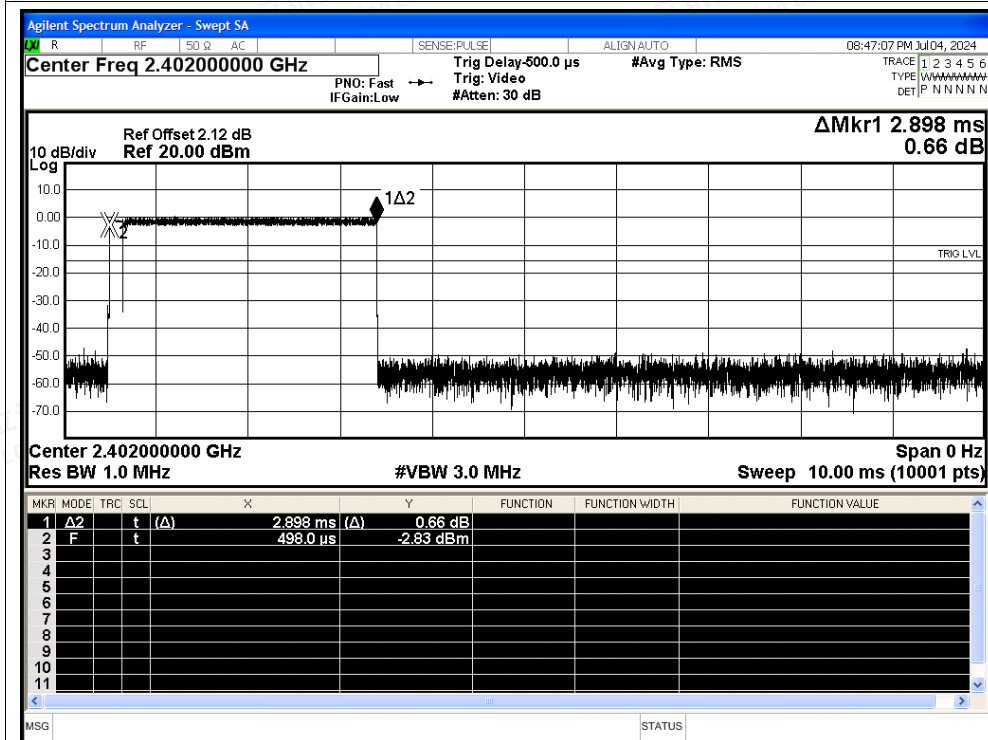


## Dwell NVNT 1-DH5 2402MHz Ant0 Accumulated

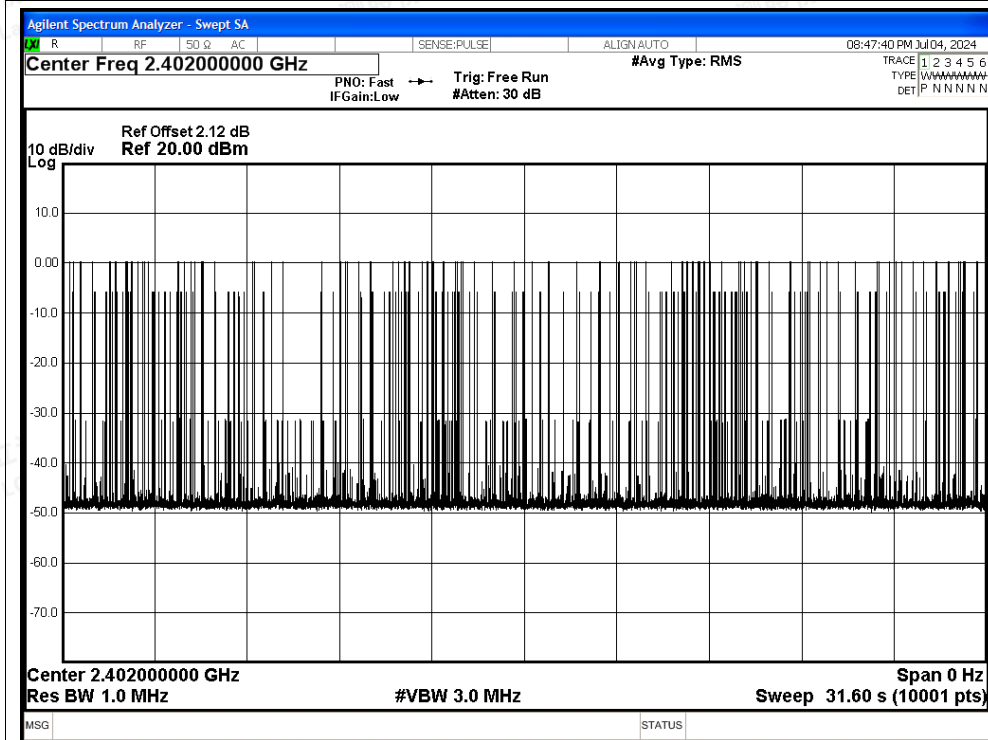




## Dwell NVNT 2-DH5 2402MHz Ant0 One Burst



## Dwell NVNT 2-DH5 2402MHz Ant0 Accumulated



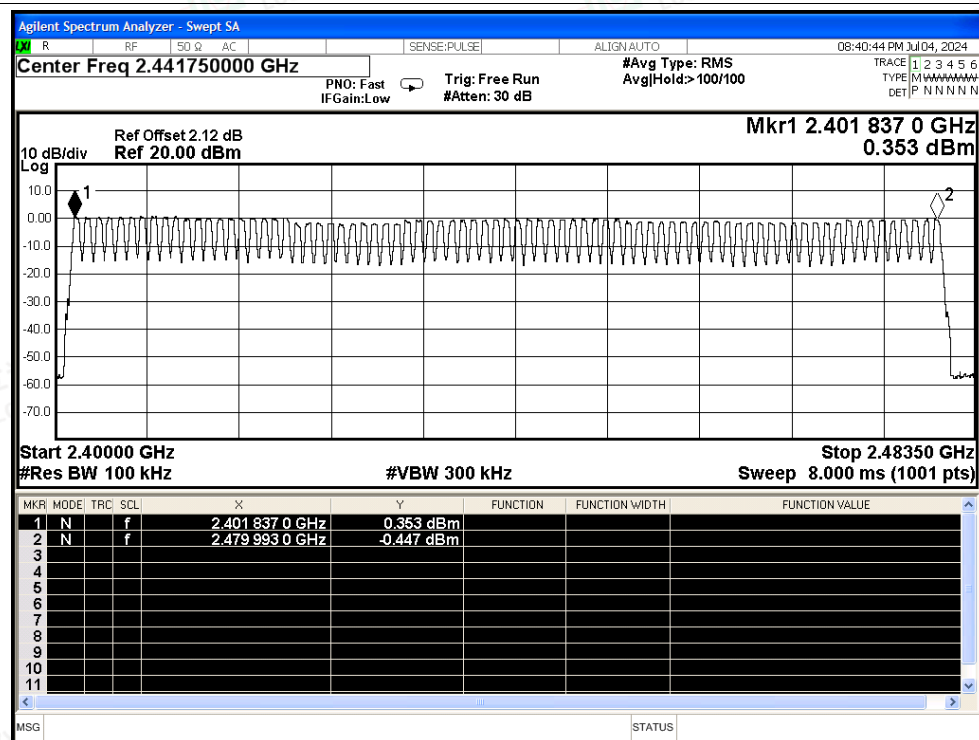


### A.5 Number of Hopping Channel

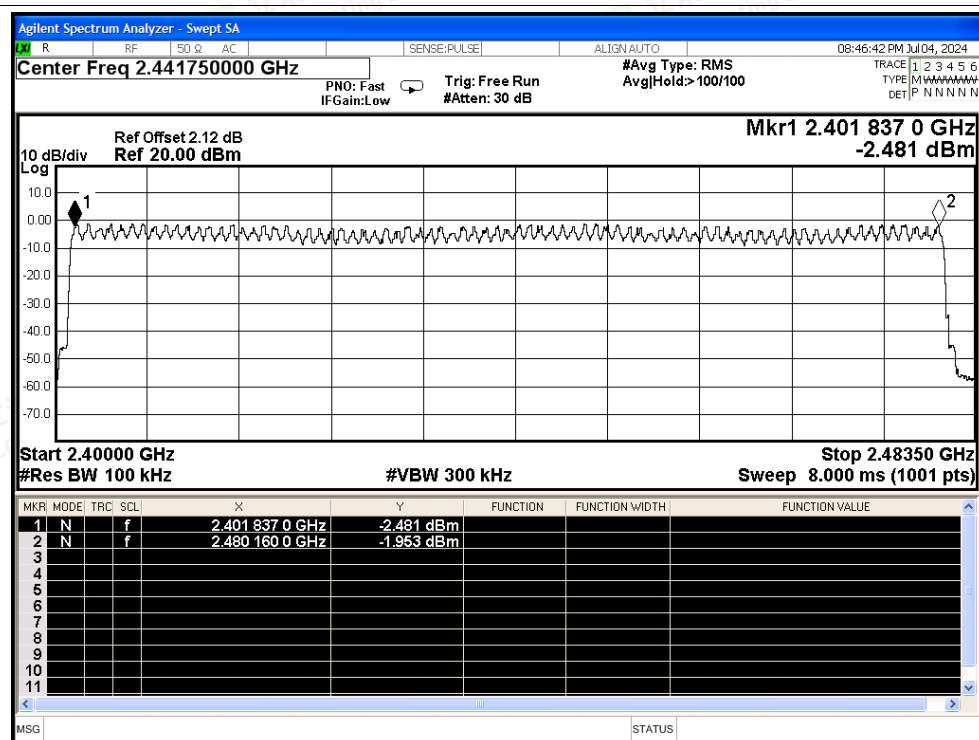
| Condition | Mode  | Antenna | Hopping Number | Limit | Verdict |
|-----------|-------|---------|----------------|-------|---------|
| NVNT      | 1-DH5 | Ant0    | 79             | 15    | Pass    |
| NVNT      | 2-DH5 | Ant0    | 79             | 15    | Pass    |

## Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant0



Hopping No. NVNT 2-DH5 2402MHz Ant0



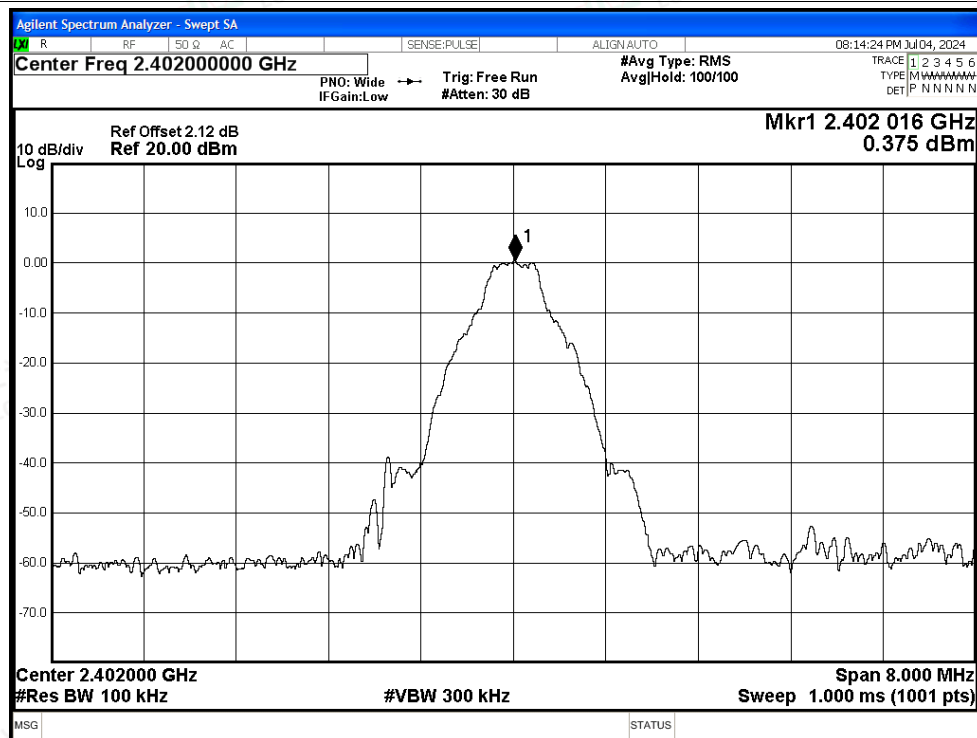


## A.6 Band Edge

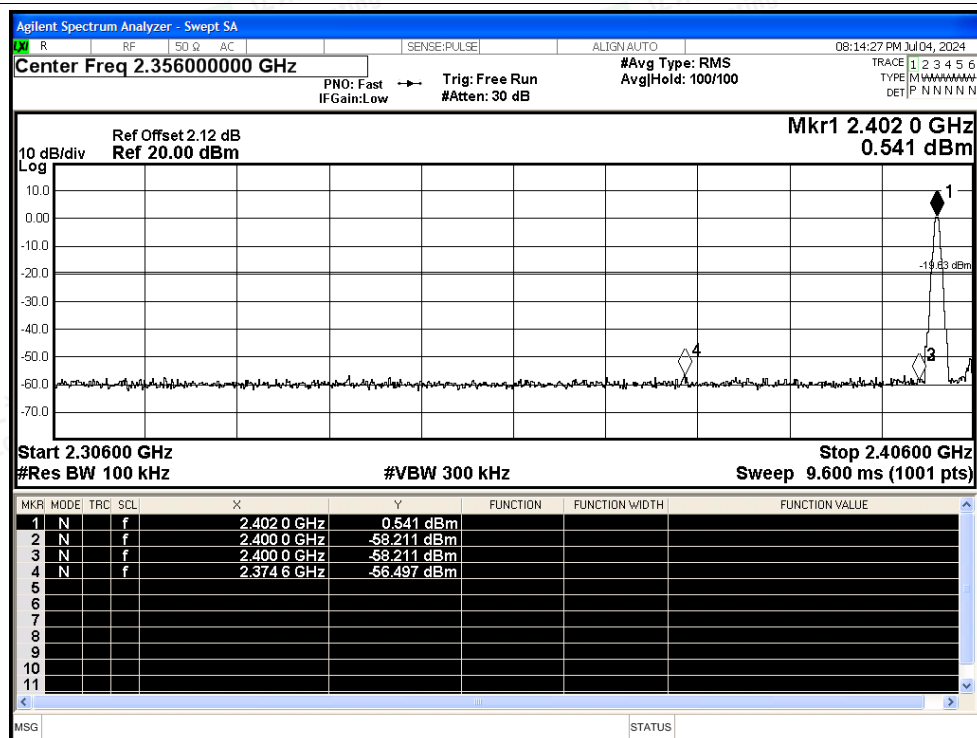
| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | -56.87          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | -55.82          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | -53.91          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | -54.95          | -20         | Pass    |

## Test Graphs

Band Edge NVNT 1-DH5 2402MHz Ant0 No-Hopping Ref

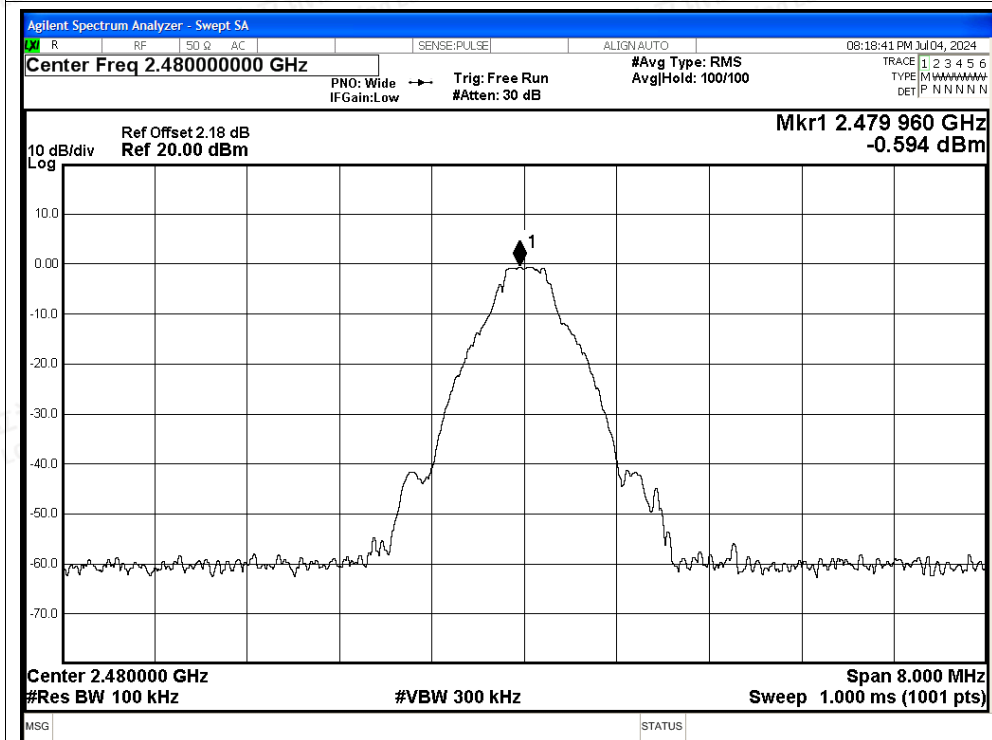


Band Edge NVNT 1-DH5 2402MHz Ant0 No-Hopping Emission

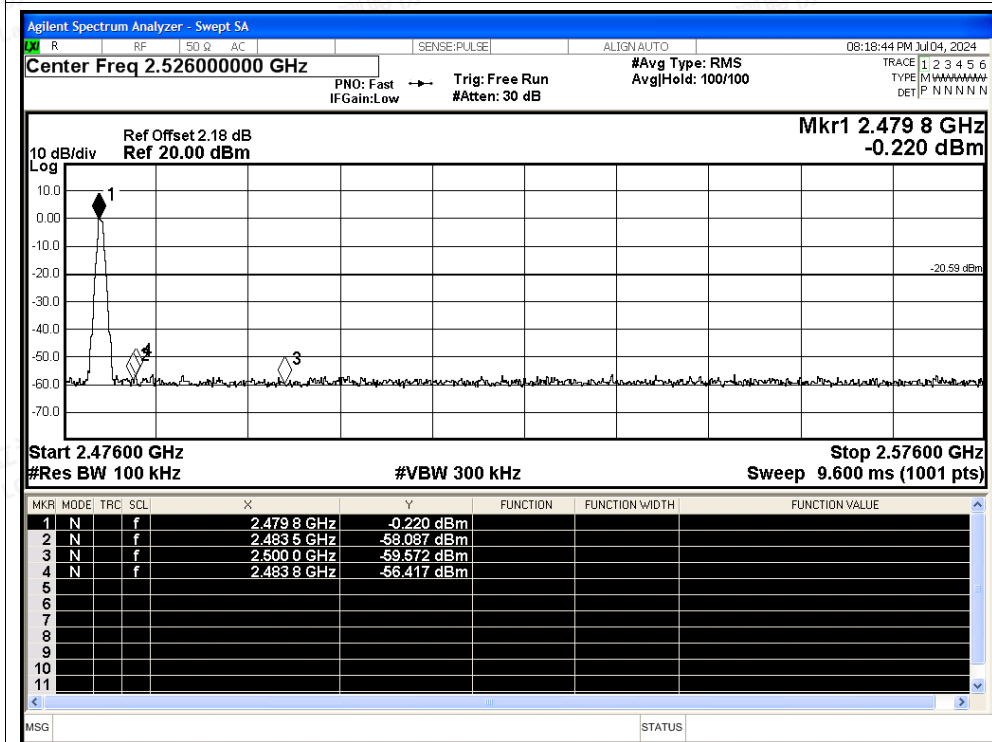




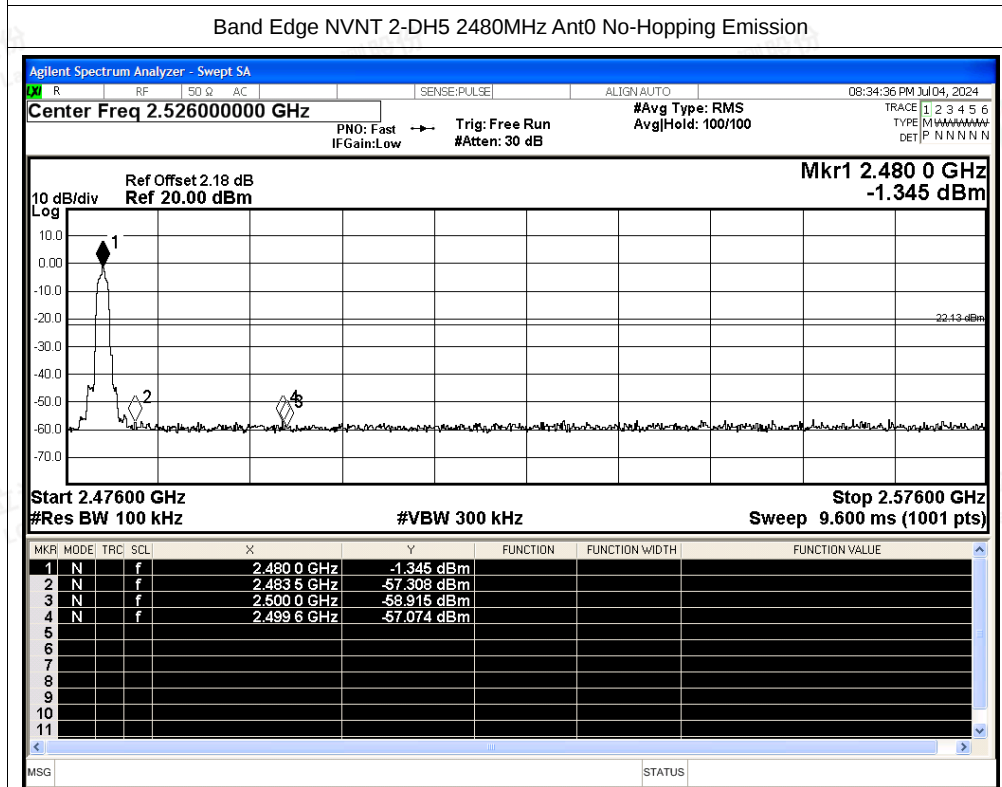
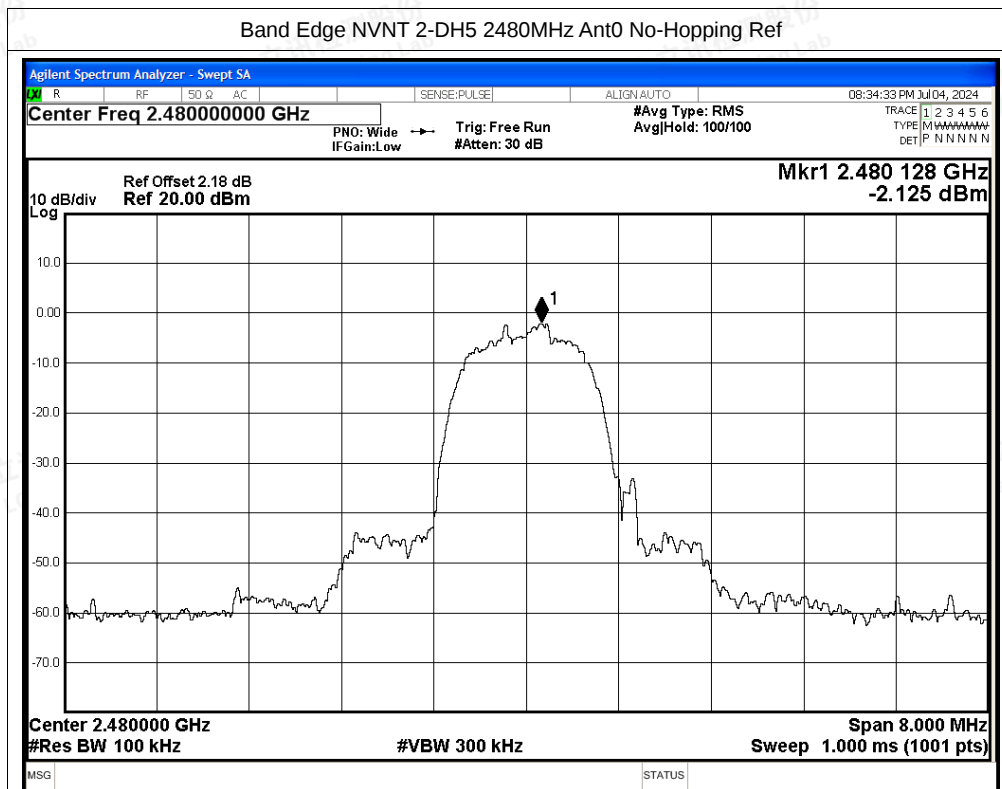
## Band Edge NVNT 1-DH5 2480MHz Ant0 No-Hopping Ref



## Band Edge NVNT 1-DH5 2480MHz Ant0 No-Hopping Emission



Report No.: LCSA06244038EA





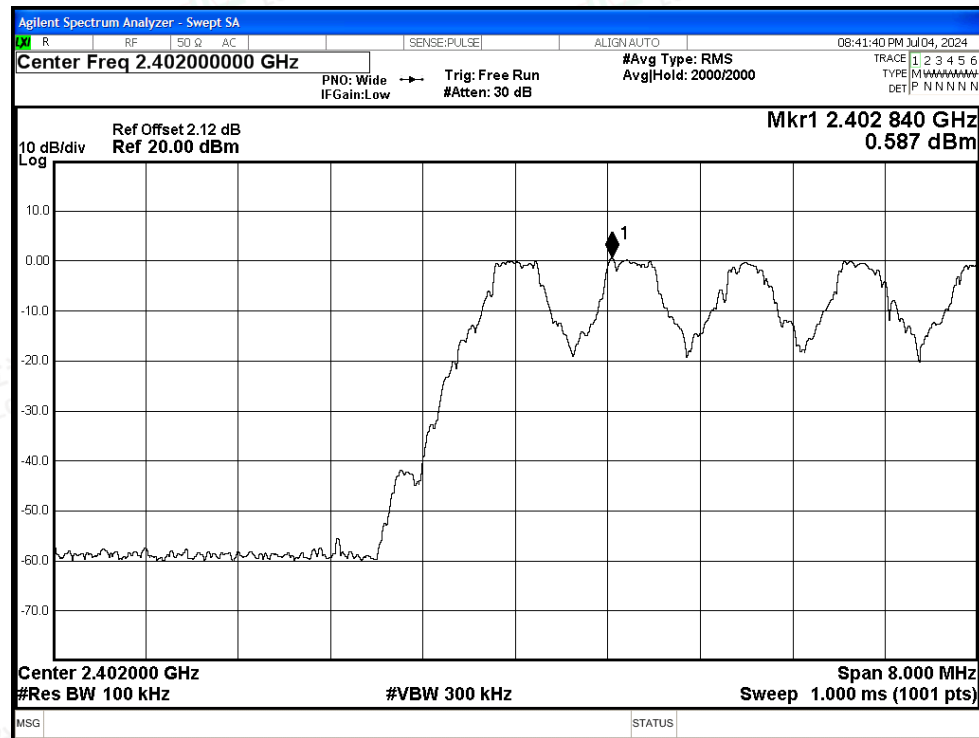
## (Hopping)

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | Hopping      | -56.42          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | Hopping      | -55.12          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | Hopping      | -54.84          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | Hopping      | -53.7           | -20         | Pass    |

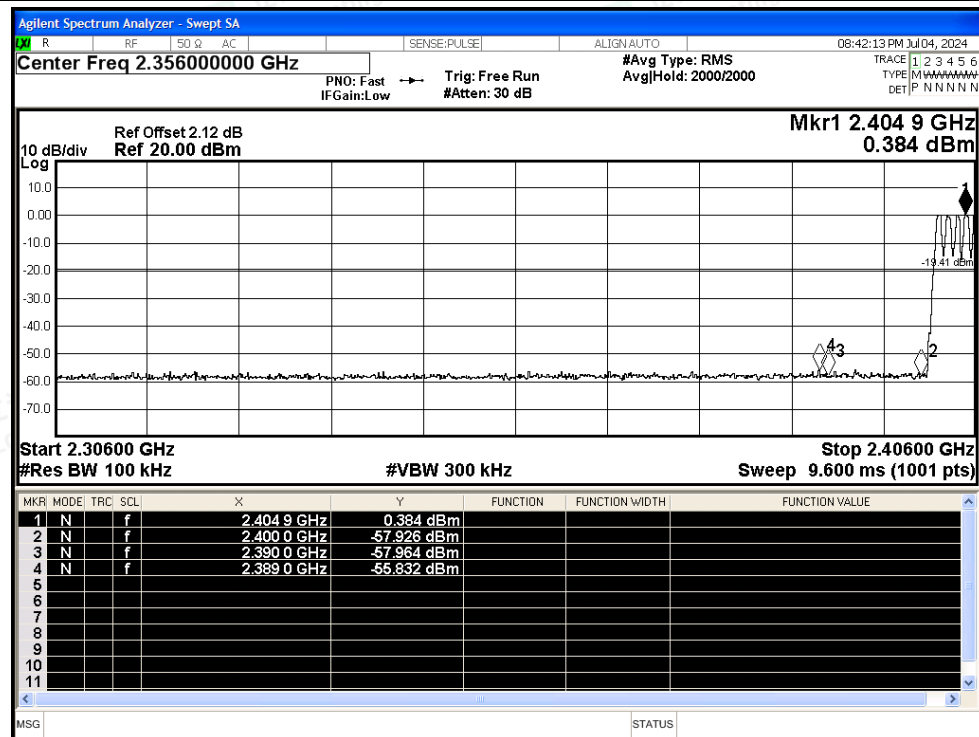


## Test Graphs

## Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant0 Hopping Ref

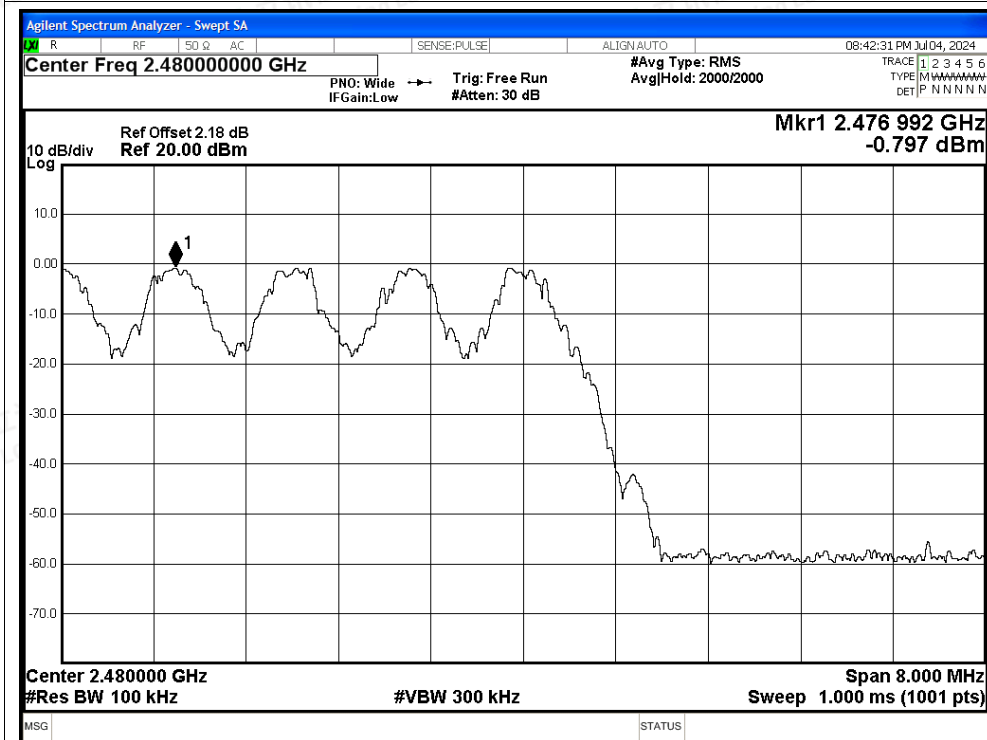


## Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant0 Hopping Emission

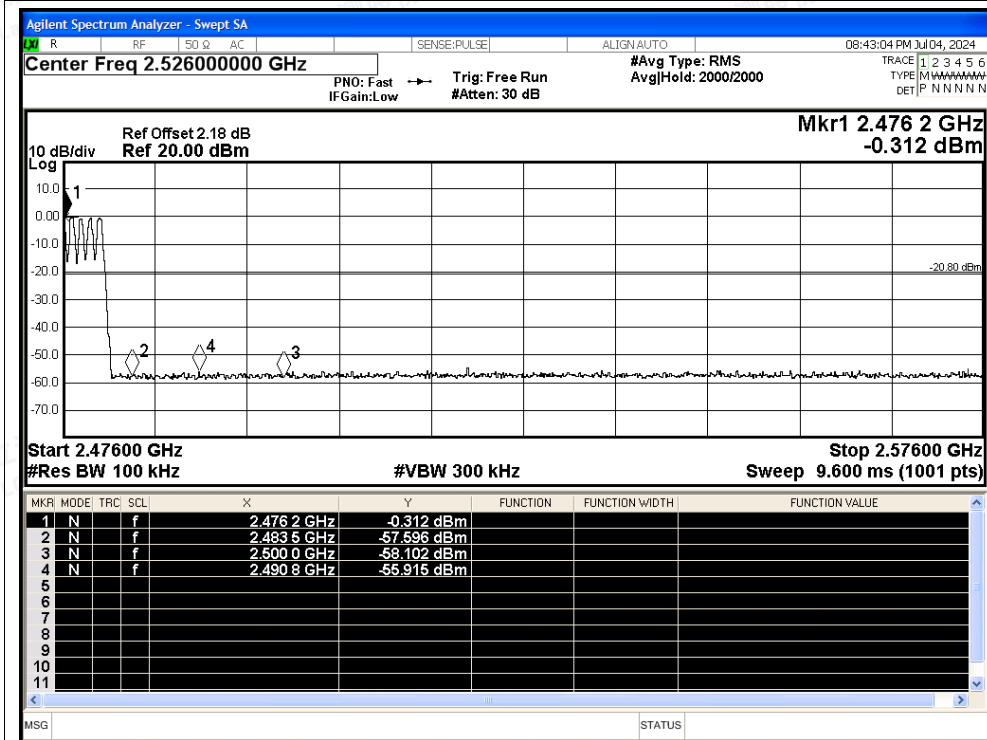




## Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant0 Hopping Ref

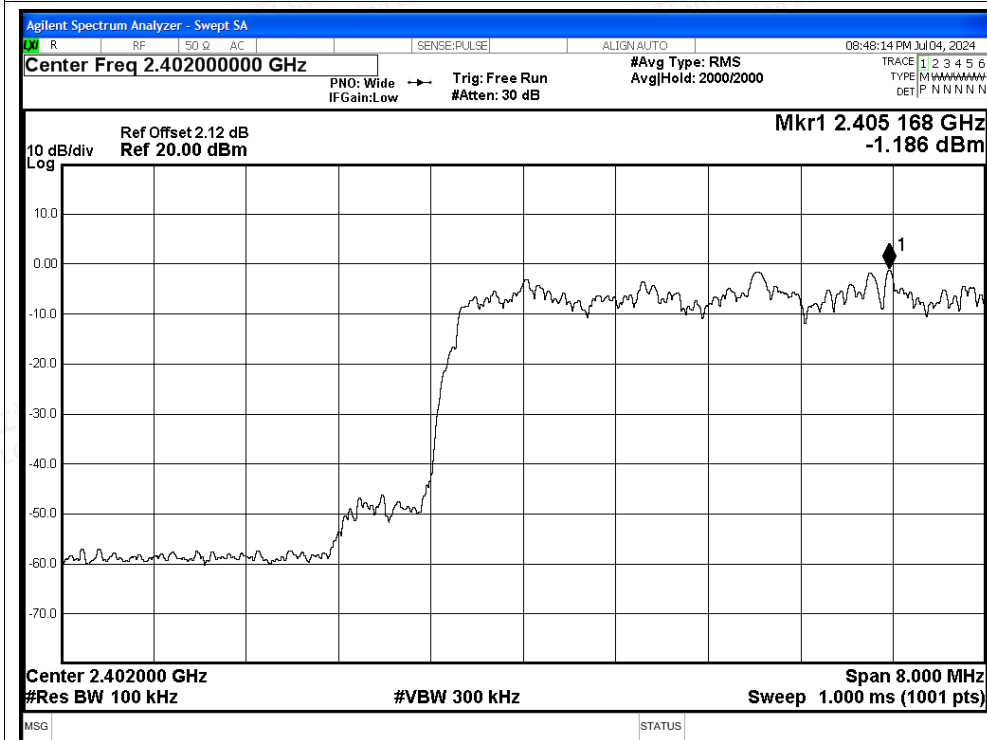


## Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant0 Hopping Emission

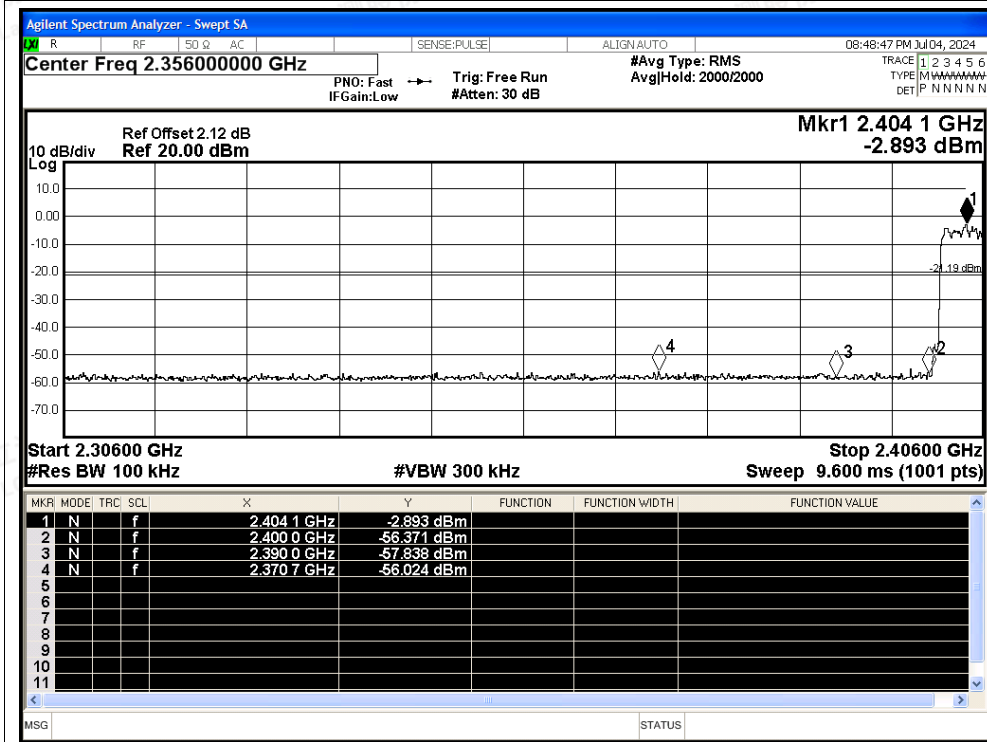




## Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant0 Hopping Ref

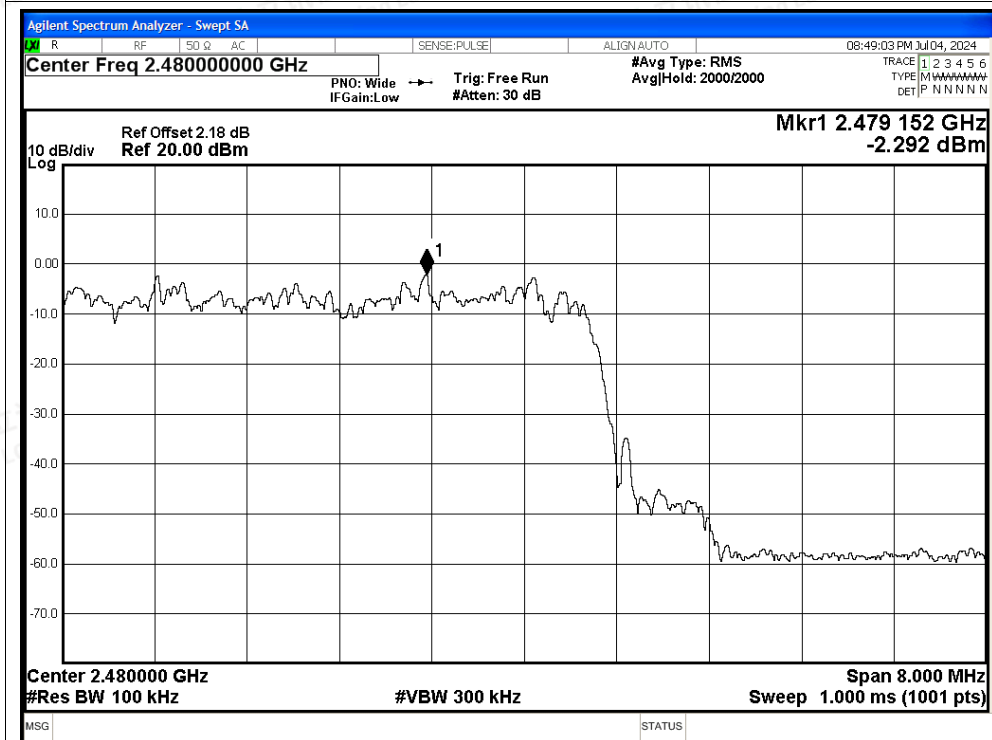


## Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant0 Hopping Emission

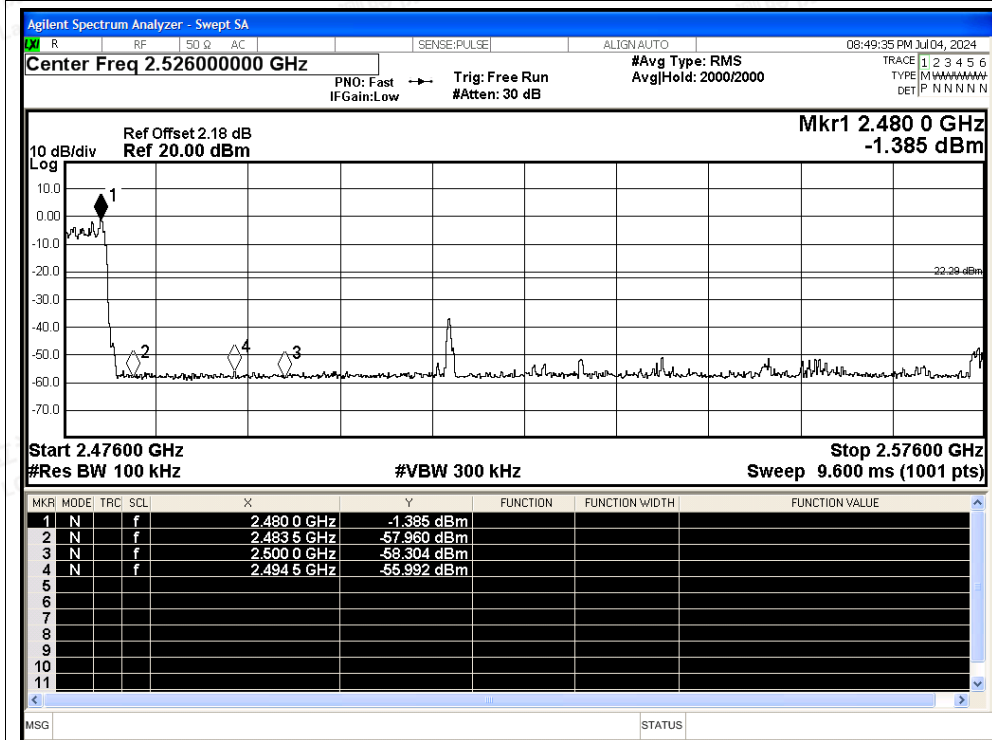




## Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant0 Hopping Ref



## Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant0 Hopping Emission





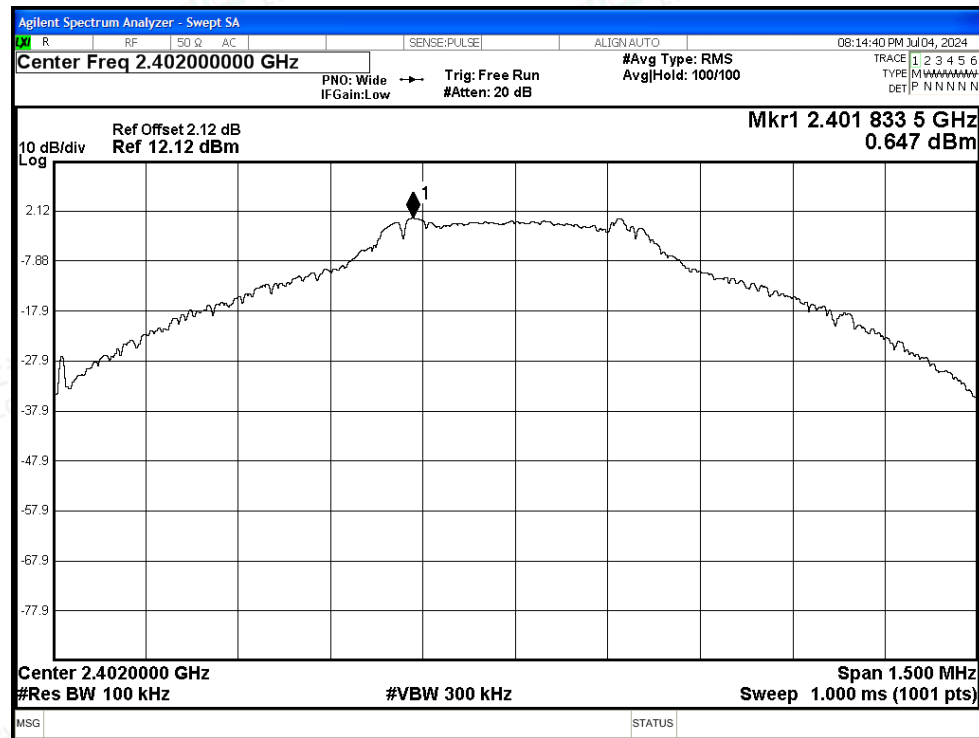
## A.7 Conducted RF Spurious Emission

| Condition | Mode  | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | -56.05          | -20         | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant0    | -55.3           | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | -42.09          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | -54.42          | -20         | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant0    | -53.04          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | -48.63          | -20         | Pass    |

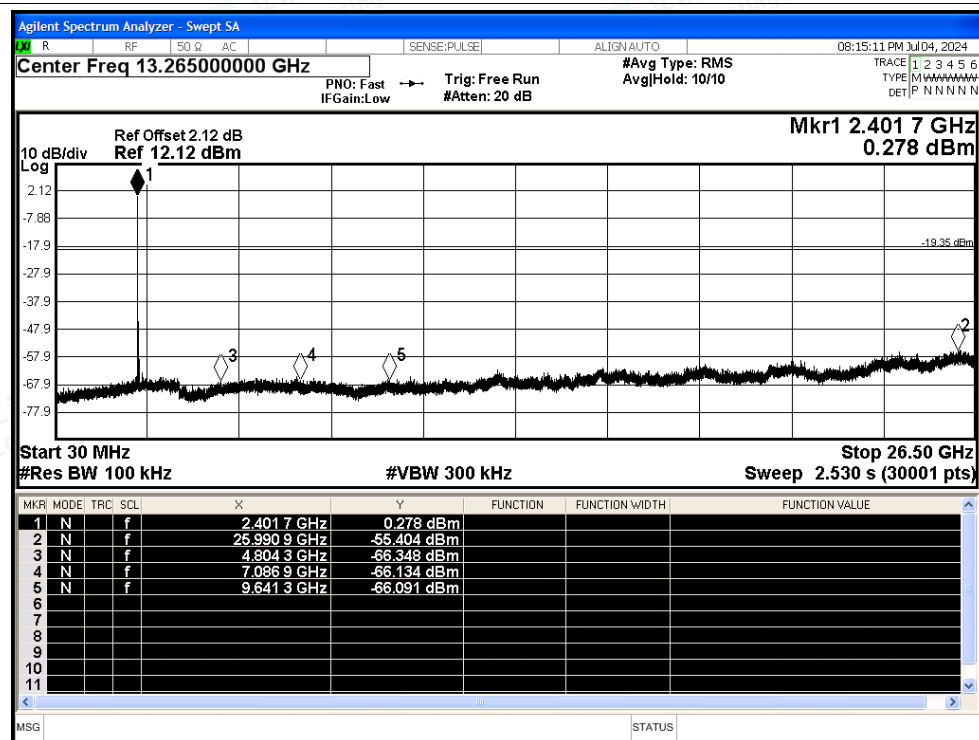


## Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant0 Ref

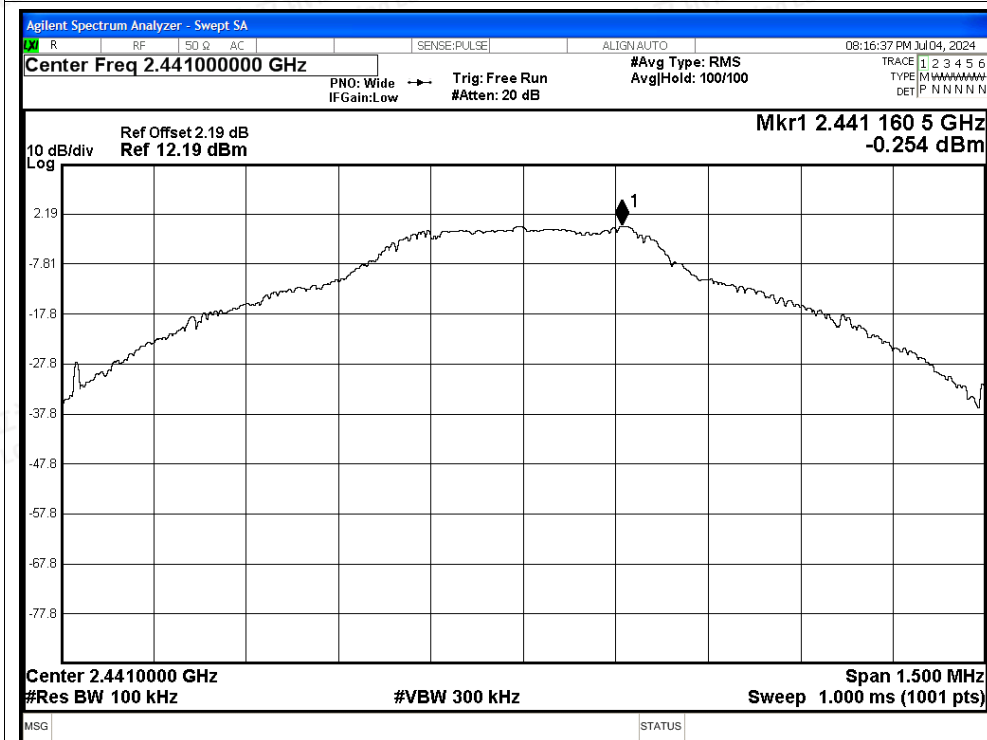


Tx. Spurious NVNT 1-DH5 2402MHz Ant0 Emission

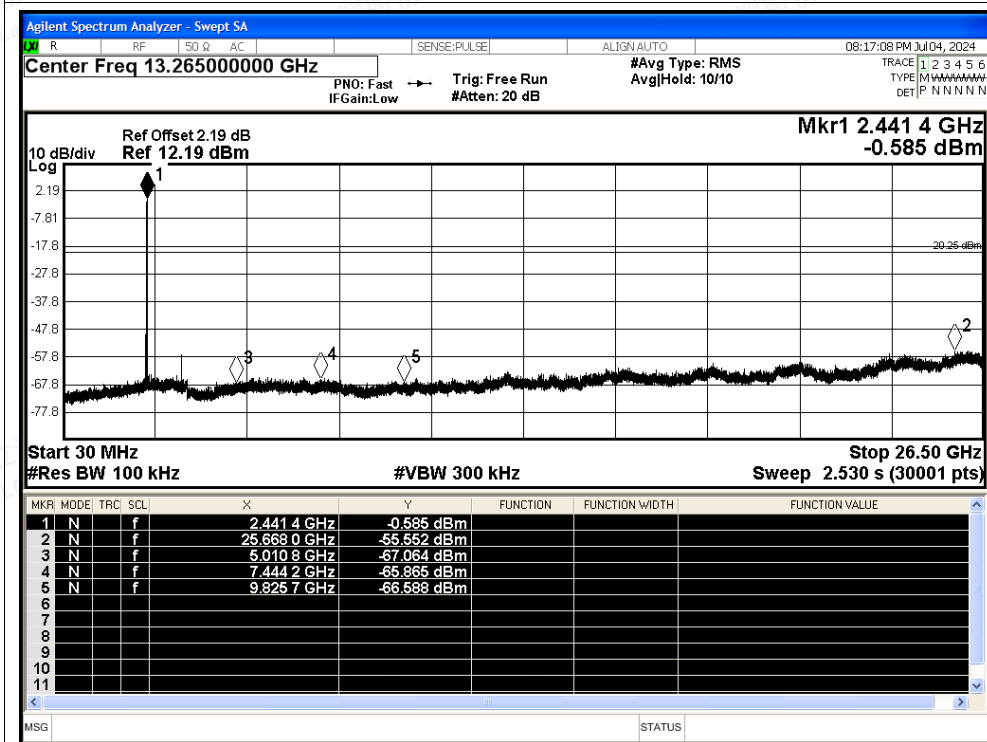


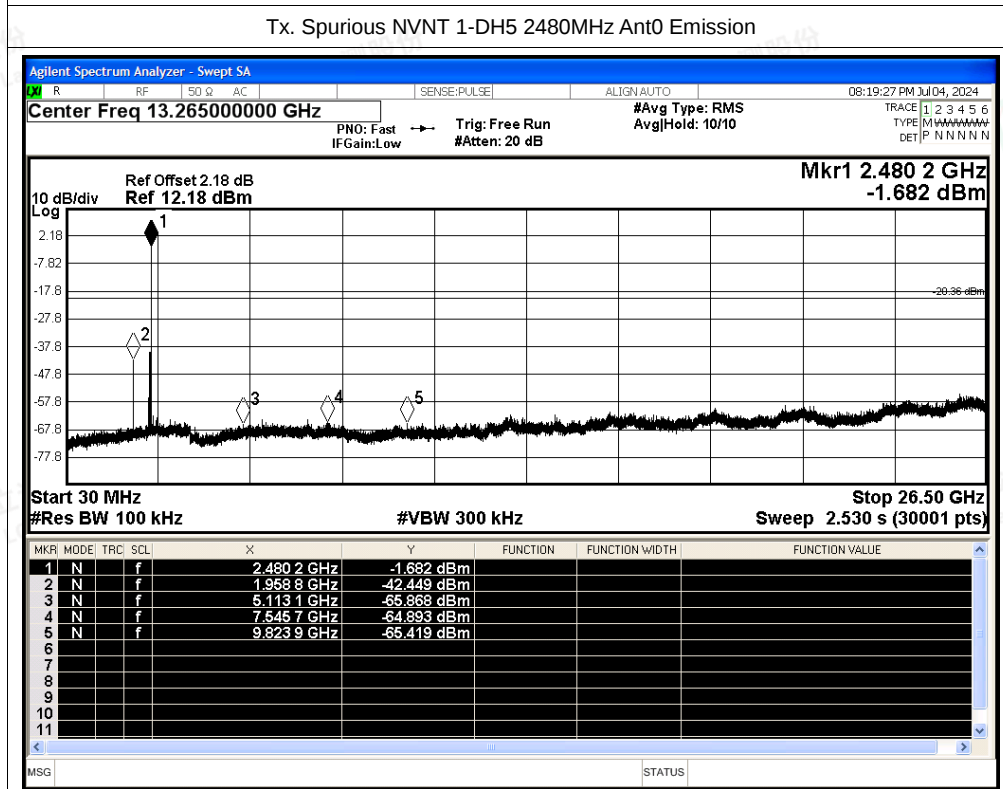
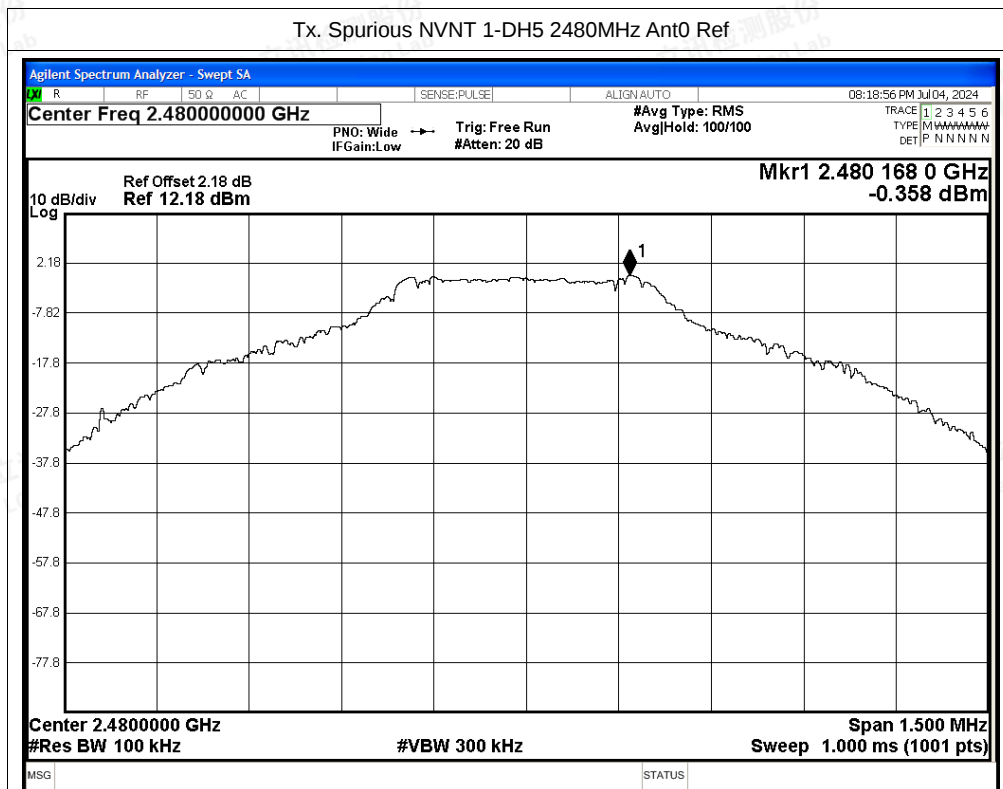


## Tx. Spurious NVNT 1-DH5 2441MHz Ant0 Ref



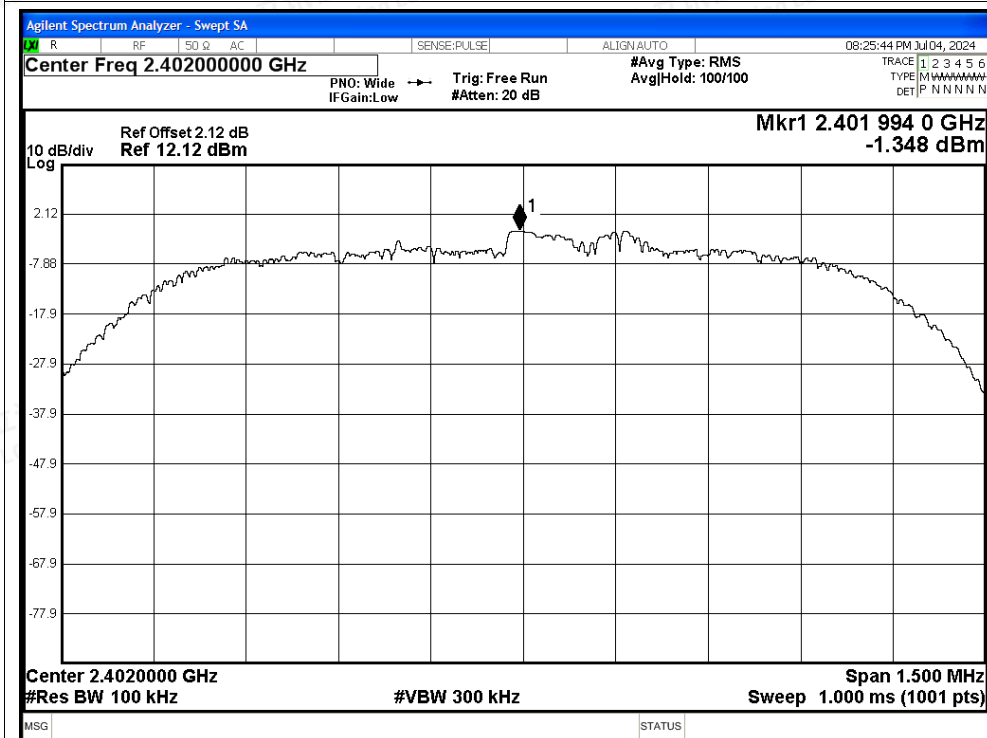
## Tx. Spurious NVNT 1-DH5 2441MHz Ant0 Emission



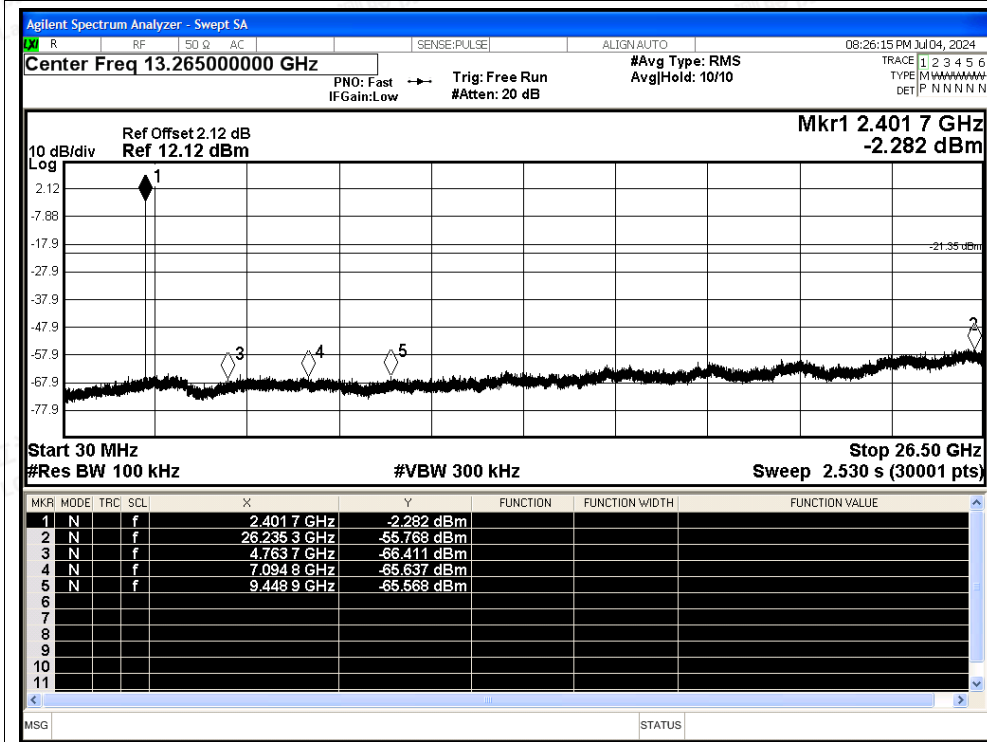


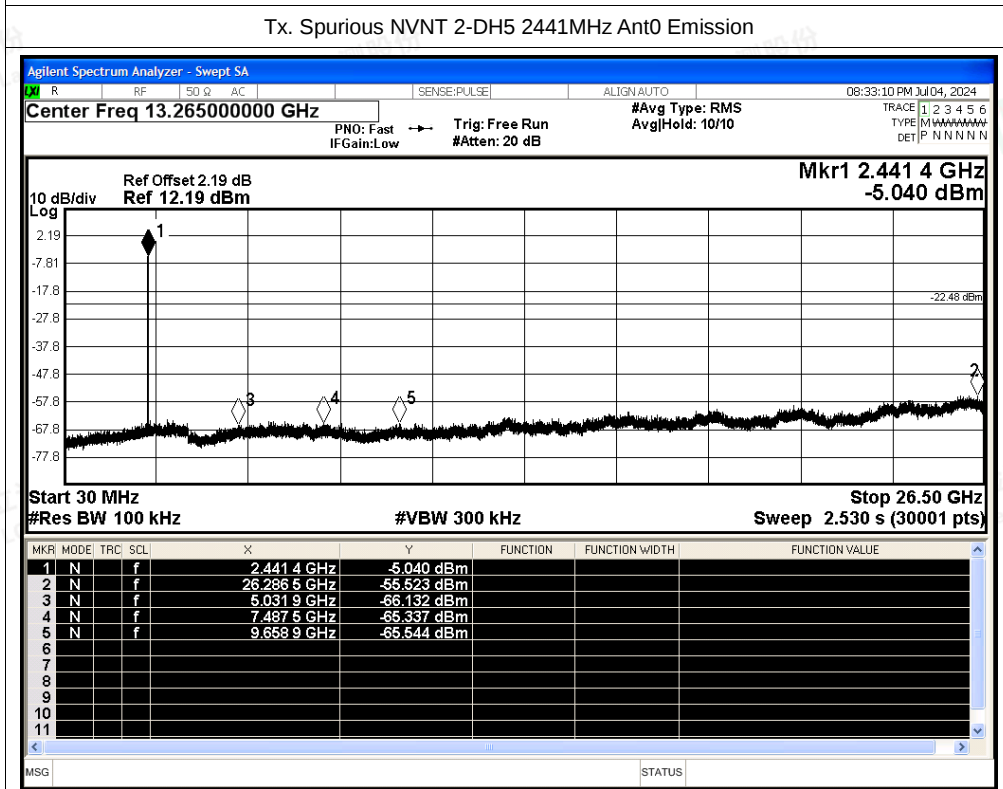
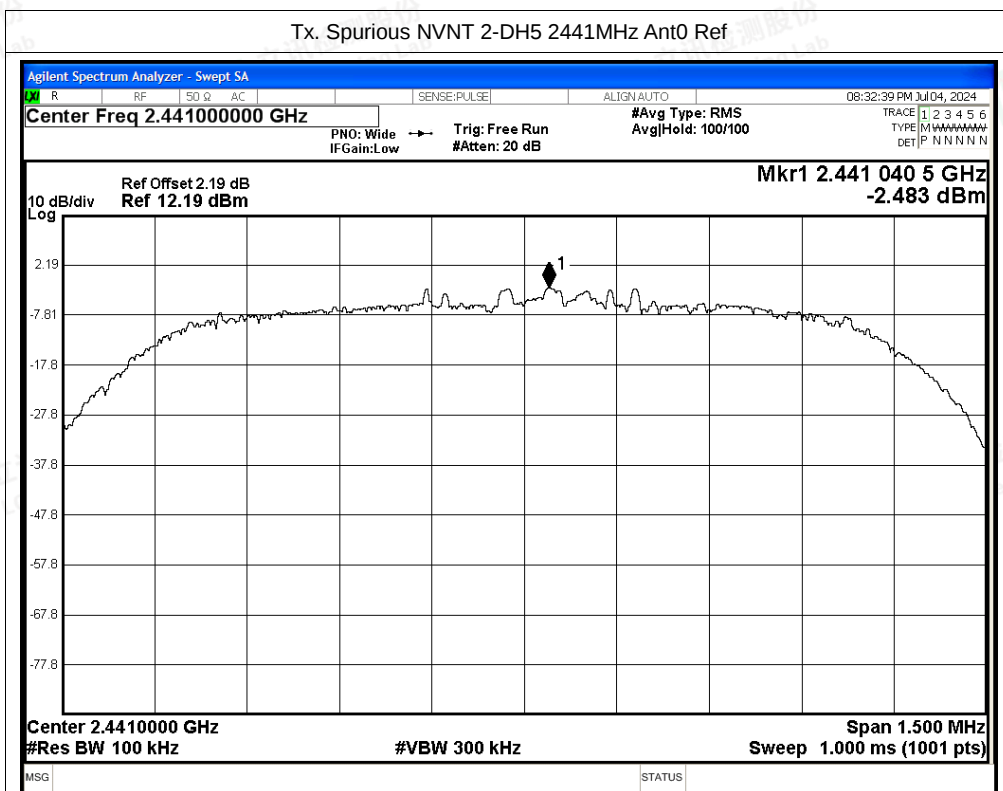


## Tx. Spurious NVNT 2-DH5 2402MHz Ant0 Ref



## Tx. Spurious NVNT 2-DH5 2402MHz Ant0 Emission









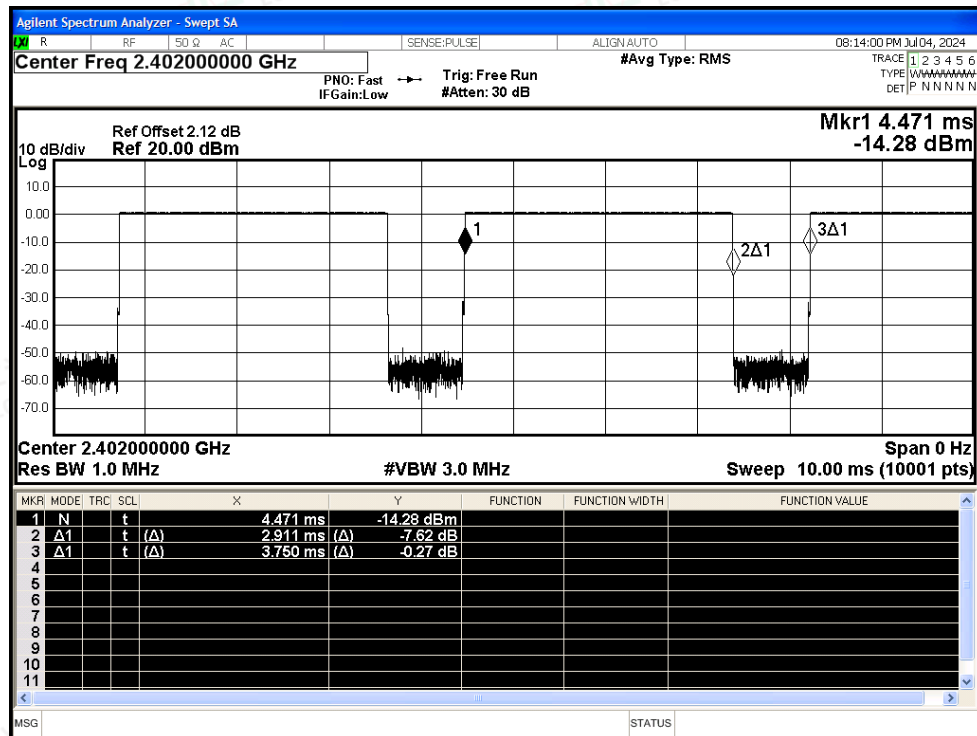
## A.8 Duty Cycle

| Condition | Mode  | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|-------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | 1-DH5 | 2402            | Ant0    | 77.63          | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2441            | Ant0    | 77.6           | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2480            | Ant0    | 77.63          | 1.1                    | 0.34      |
| NVNT      | 2-DH5 | 2402            | Ant0    | 77.28          | 1.12                   | 0.35      |
| NVNT      | 2-DH5 | 2441            | Ant0    | 77.28          | 1.12                   | 0.35      |
| NVNT      | 2-DH5 | 2480            | Ant0    | 77.28          | 1.12                   | 0.35      |

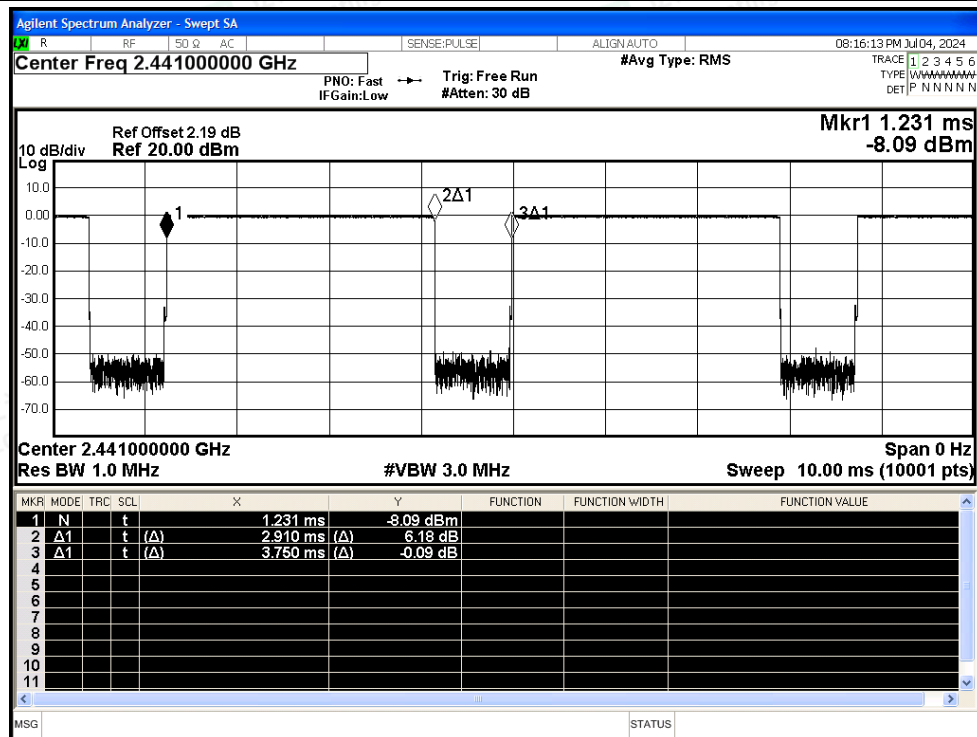


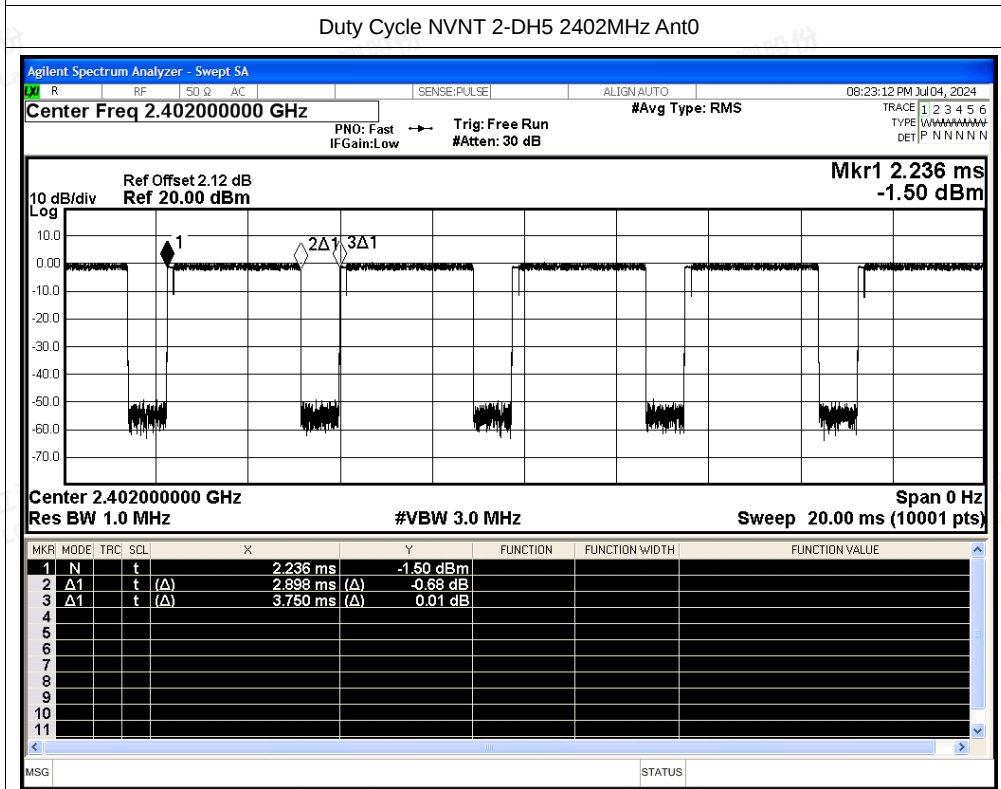
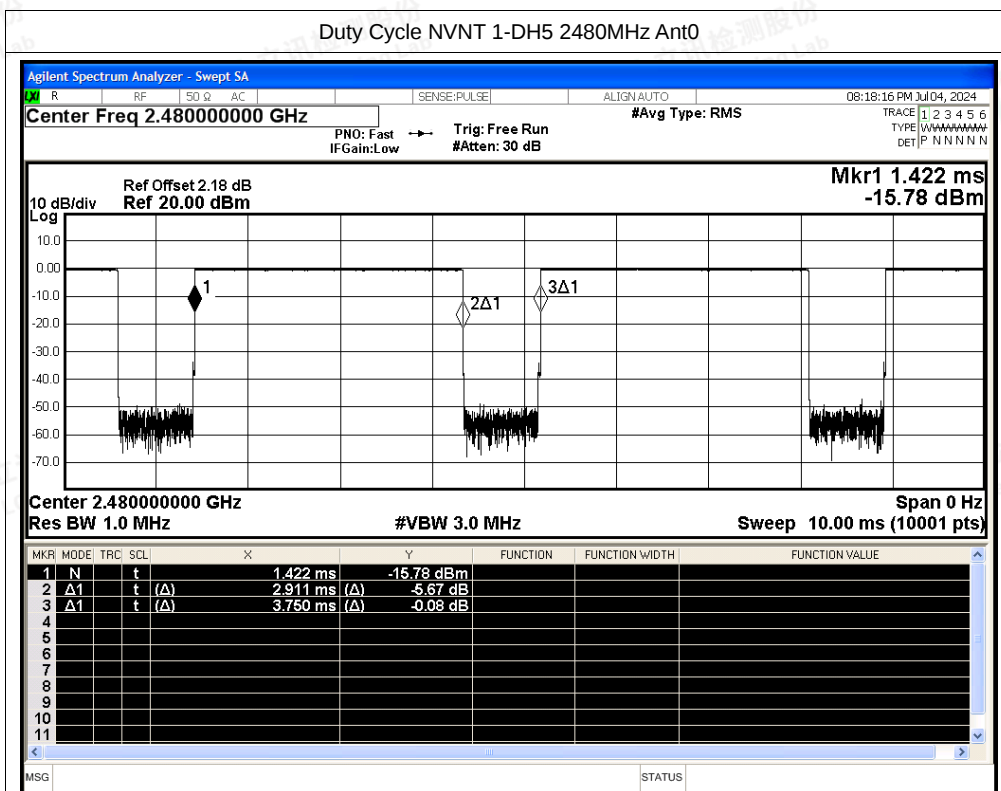
## Test Graphs

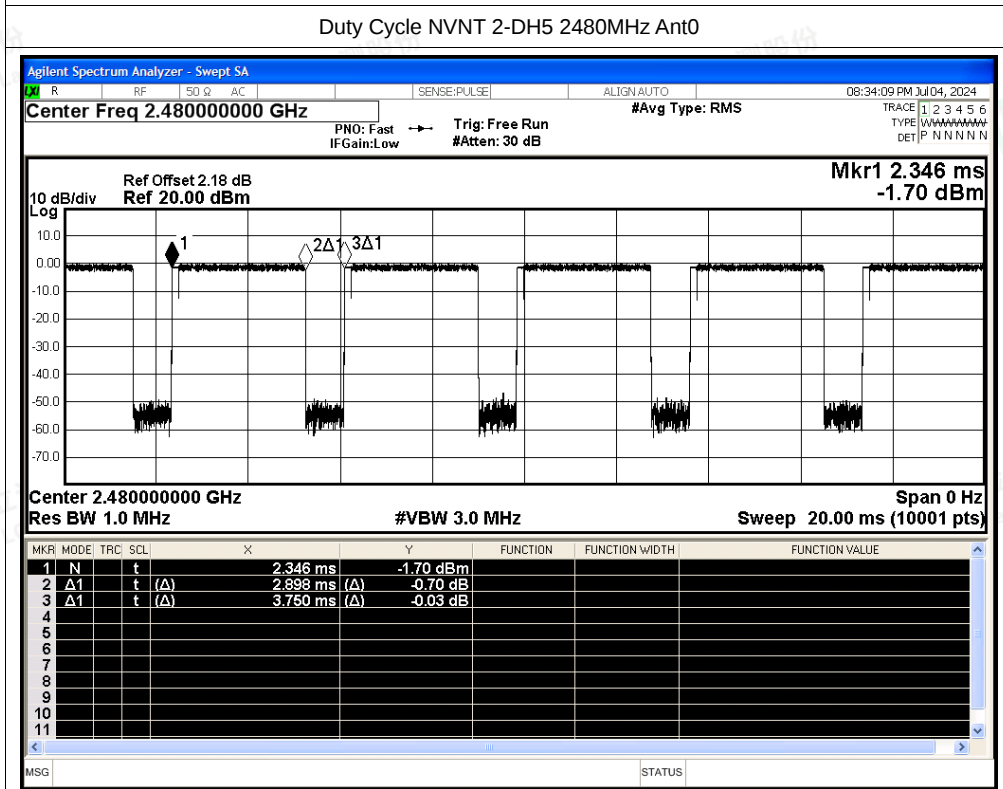
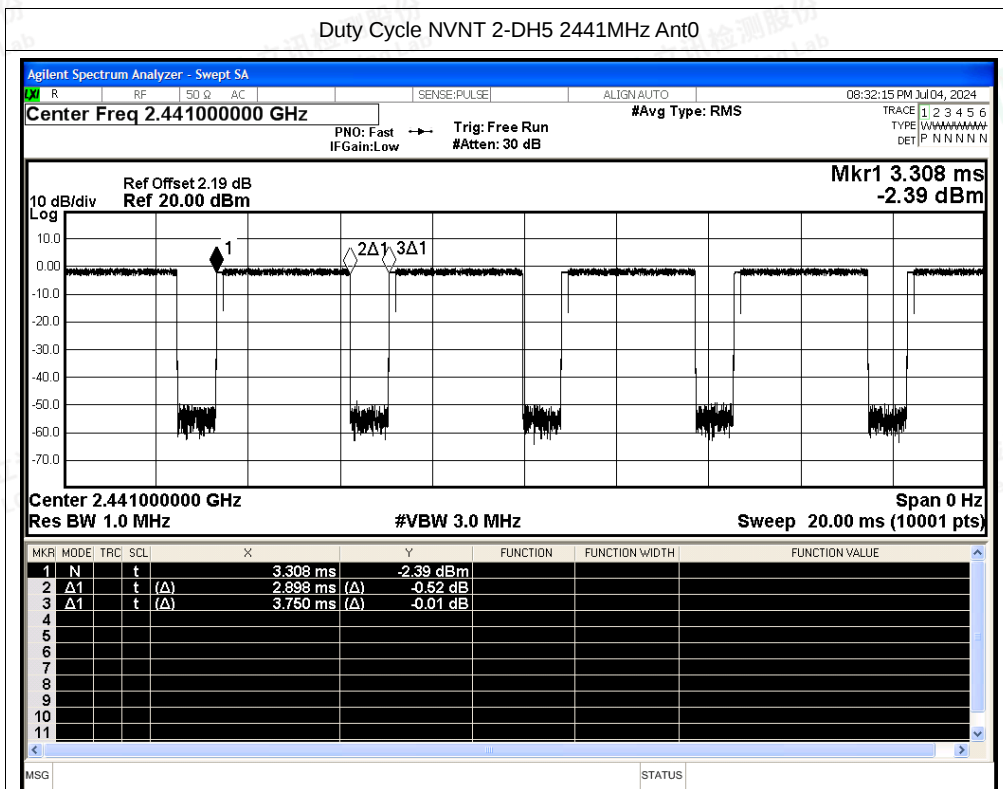
## Duty Cycle NVNT 1-DH5 2402MHz Ant0



## Duty Cycle NVNT 1-DH5 2441MHz Ant0







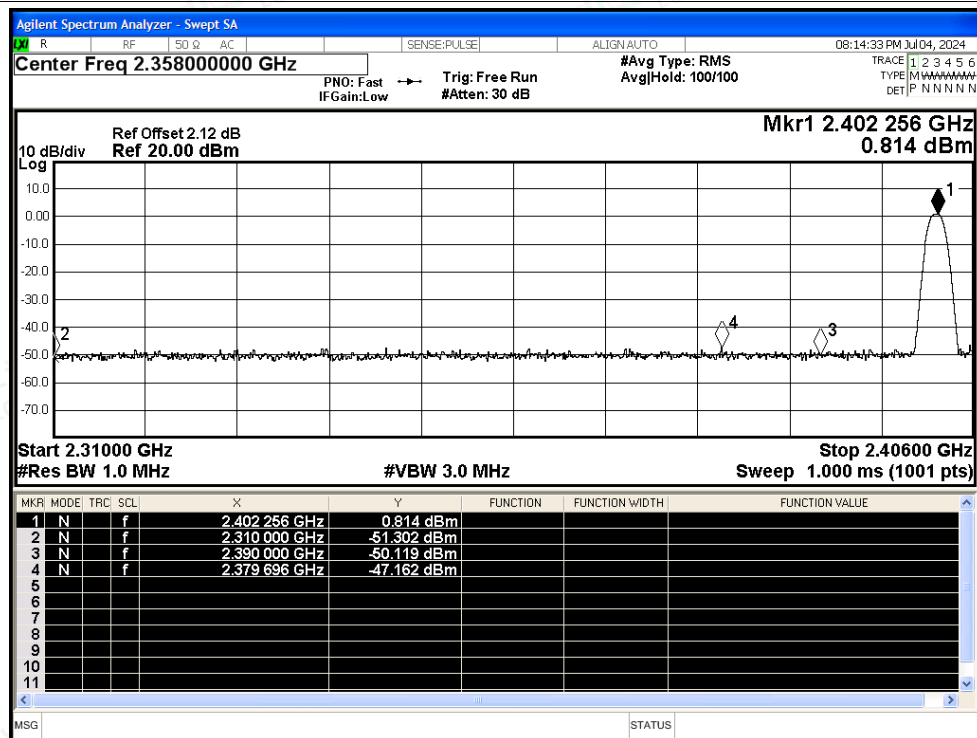


## A.9 Restrict Band

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor (dB) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|------------|------------------|------------|----------|----------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2310            | -51.3       | 2.00       | -                | 45.96      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2310            | -59.27      | 2.00       | 1.1              | 39.09      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2379.696        | -47.16      | 2.00       | -                | 50.10      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2375.952        | -57.35      | 2.00       | 1.1              | 41.01      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2390            | -50.12      | 2.00       | -                | 47.14      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant0    | No-Hopping   | 2390            | -58.33      | 2.00       | 1.1              | 40.03      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2483.5          | -49.69      | 2.00       | -                | 47.57      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2483.5          | -57.52      | 2.00       | 1.1              | 40.84      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2487.88         | -43.73      | 2.00       | -                | 53.53      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2496.4          | -57.06      | 2.00       | 1.1              | 41.30      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2500            | -50.08      | 2.00       | -                | 47.18      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant0    | No-Hopping   | 2500            | -57.99      | 2.00       | 1.1              | 40.37      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2310            | -51.91      | 2.00       | -                | 45.35      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2310            | -58.53      | 2.00       | 1.12             | 39.85      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2333.904        | -47.71      | 2.00       | -                | 49.55      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2384.976        | -57.48      | 2.00       | 1.12             | 40.90      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2390            | -49.62      | 2.00       | -                | 47.64      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant0    | No-Hopping   | 2390            | -58.09      | 2.00       | 1.12             | 40.29      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2483.5          | -49.82      | 2.00       | -                | 47.44      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2483.5          | -58.15      | 2.00       | 1.12             | 40.23      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2486.416        | -45.05      | 2.00       | -                | 52.21      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2485.168        | -56.91      | 2.00       | 1.12             | 41.47      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2500            | -48.73      | 2.00       | -                | 48.53      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant0    | No-Hopping   | 2500            | -57.86      | 2.00       | 1.12             | 40.52      | Average  | 54             | Pass    |

## Test Graphs

Restrict Band NVNT 1-DH5 2402MHz Ant0 No-Hopping Peak



Restrict Band NVNT 1-DH5 2402MHz Ant0 No-Hopping Average

