



## Appendix A

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

Product Name: Label Maker

Test Model: PM220S

#### Environmental Conditions

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



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## A.1 -20dB Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|-----------|-------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 0.949                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | 1.008                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | 0.942                  | N/A                          | Pass    |

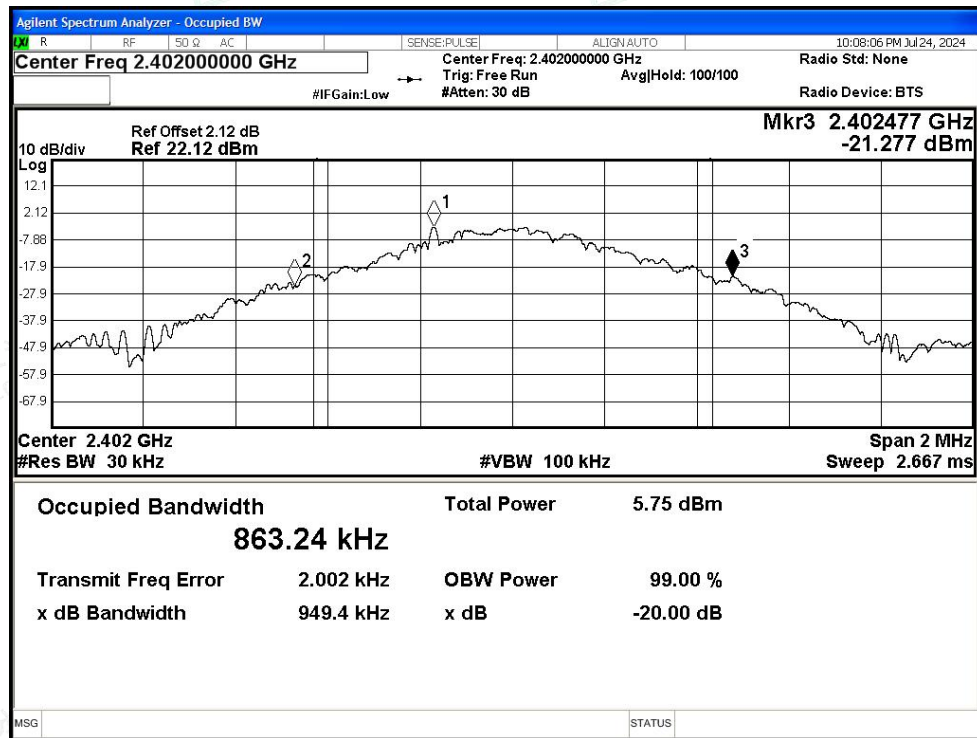


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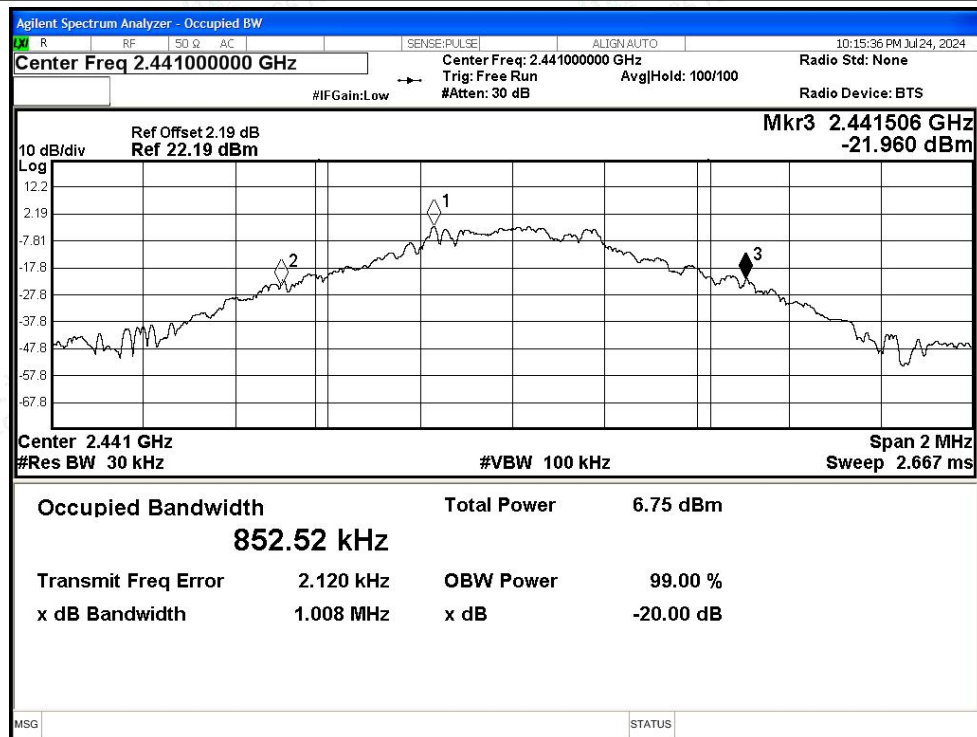


## Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

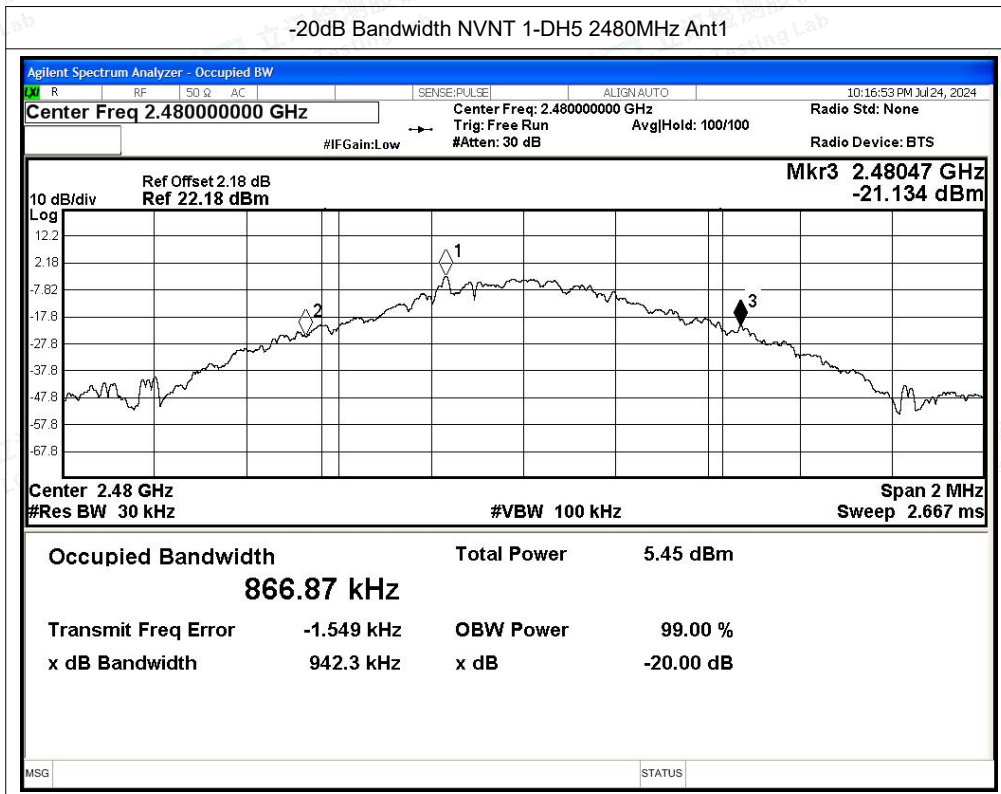


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## A.2 Maximum Peak Conducted Output Power

| Condition | Mode  | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|-------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | -0.37                 | 21          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | 0.01                  | 21          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -0.75                 | 21          | Pass    |

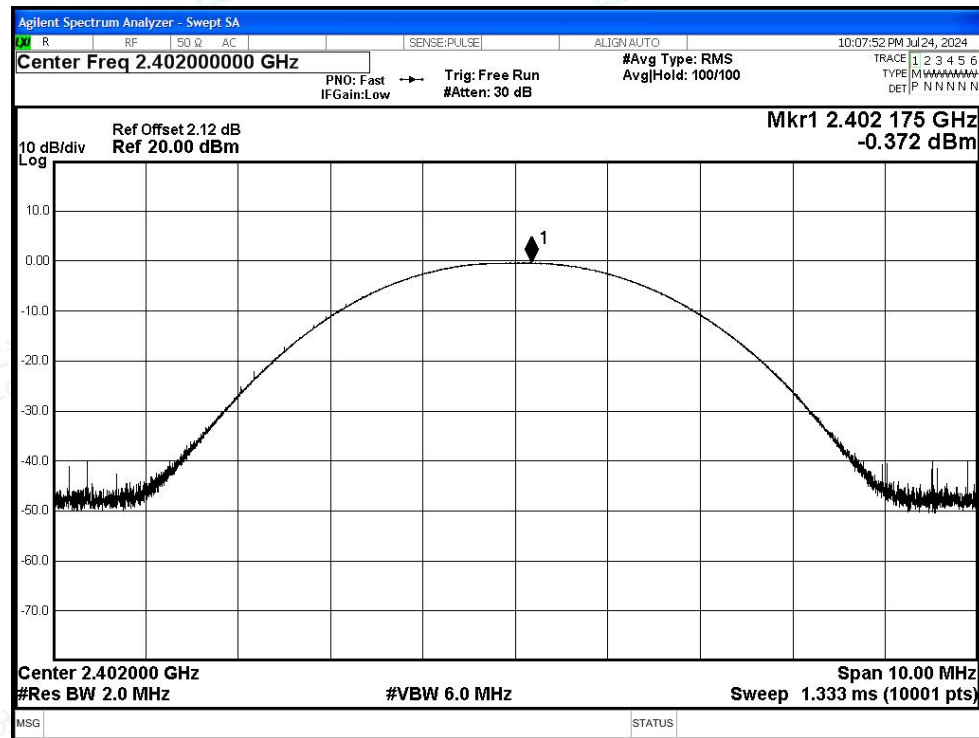


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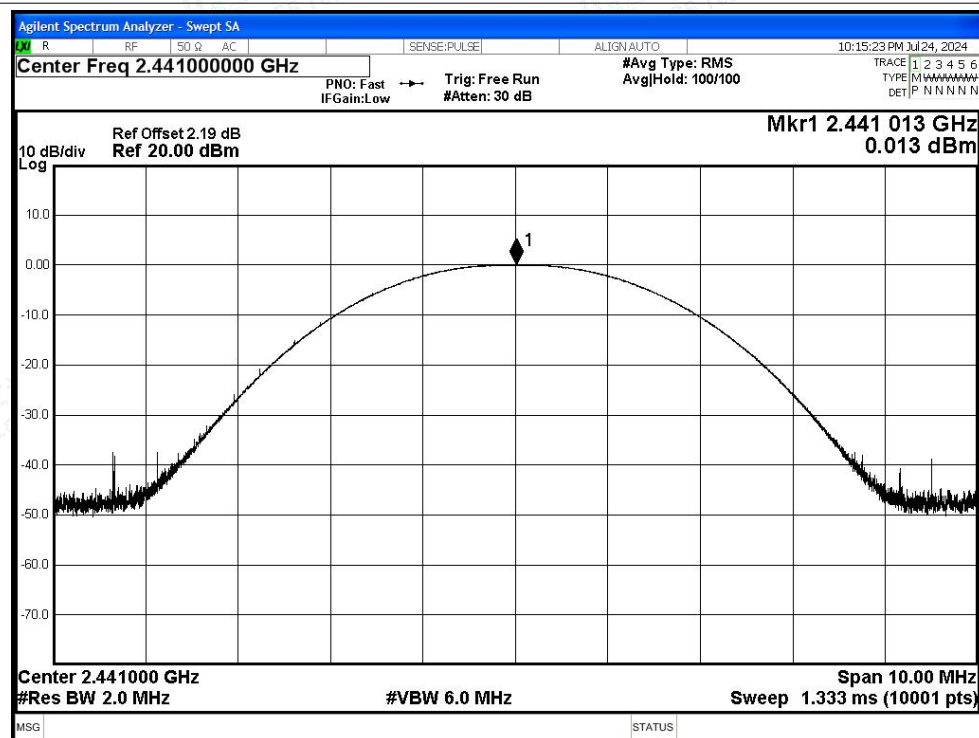


## Test Graphs

Power NVNT 1-DH5 2402MHz Ant1



Power NVNT 1-DH5 2441MHz Ant1

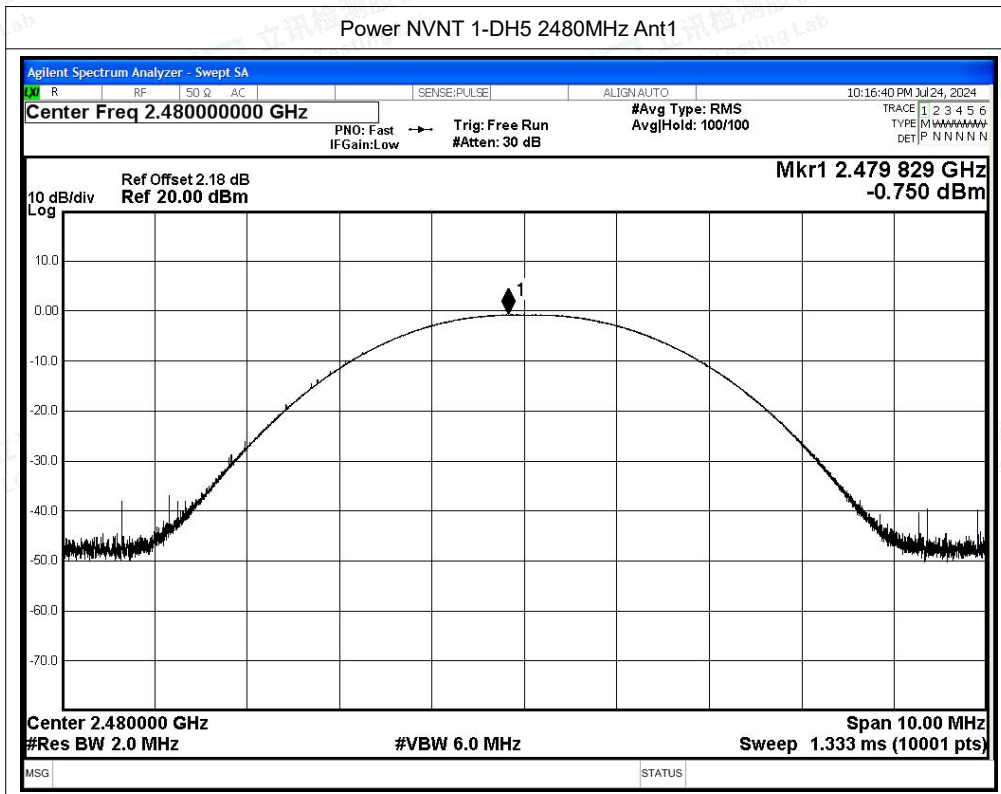


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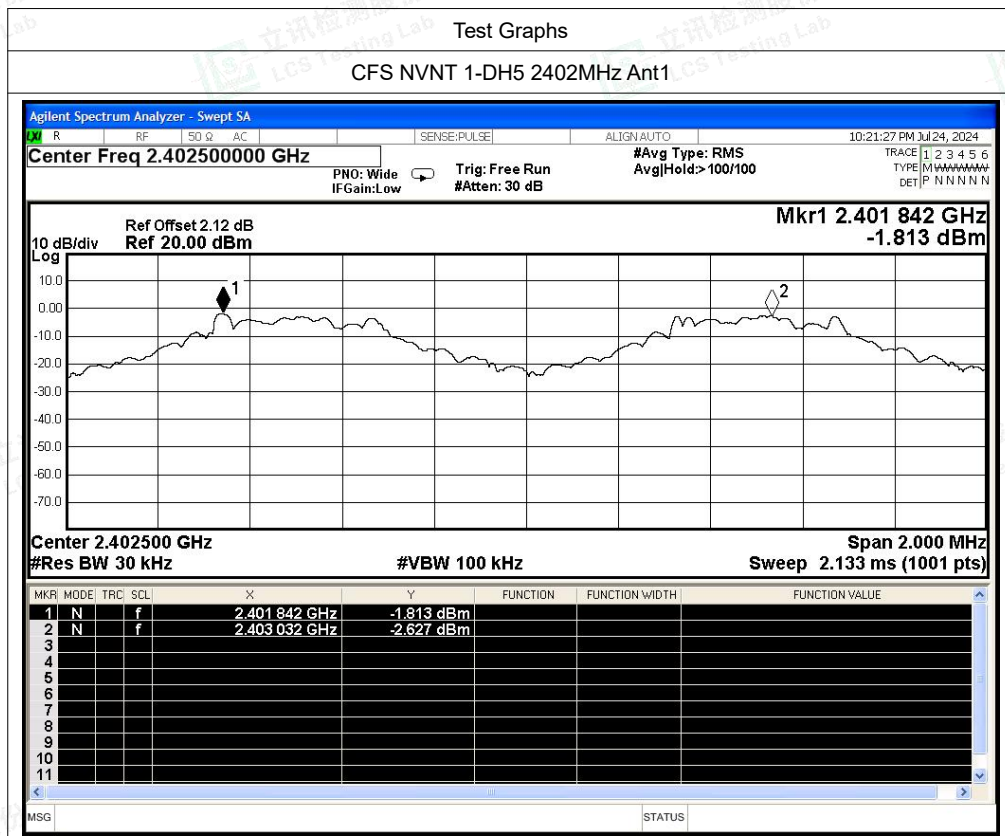


### A.3 Carrier Frequencies Separation

| Condition | Mode  | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|-----------|-------|---------|---------------------|---------------------|-----------|-------------|---------|
| NVNT      | 1-DH5 | Ant1    | 2401.842            | 2403.032            | 1.19      | 0.672       | Pass    |



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## A.4 Dwell Time

| Condition | Mode  | Frequency<br>(MHz) | Antenna | Pulse Time<br>(ms) | Total Dwell Time<br>(ms) | Burst<br>Count | Period Time<br>(ms) | Limit<br>(ms) | Verdict |
|-----------|-------|--------------------|---------|--------------------|--------------------------|----------------|---------------------|---------------|---------|
| NVNT      | 1-DH5 | 2402               | Ant1    | 2.91               | 308.46                   | 106            | 31600               | 400           | Pass    |

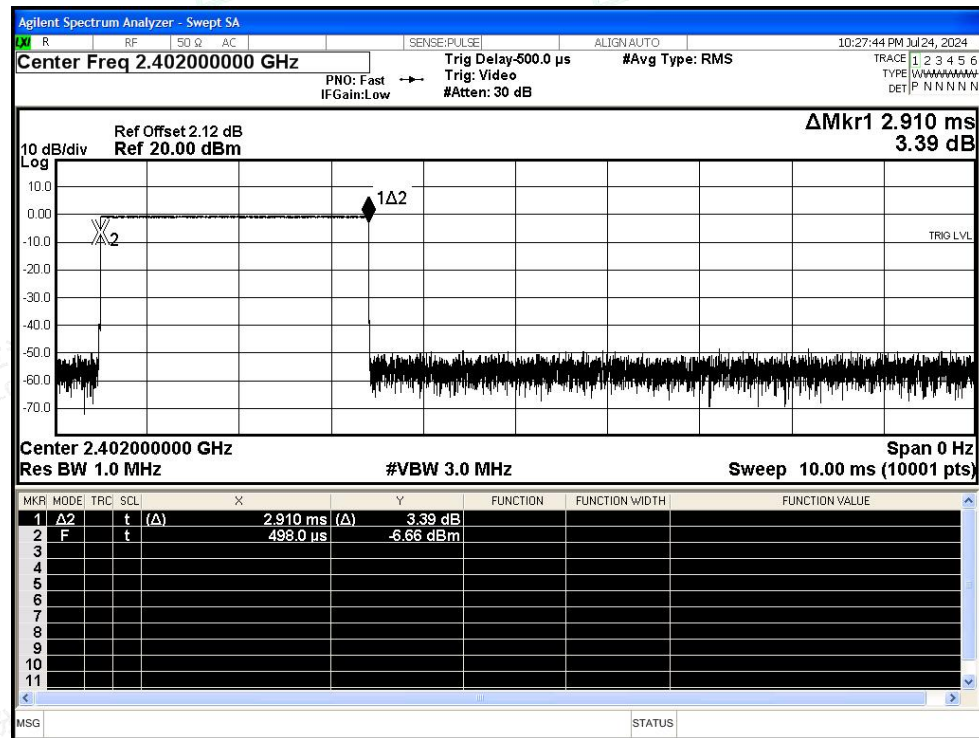


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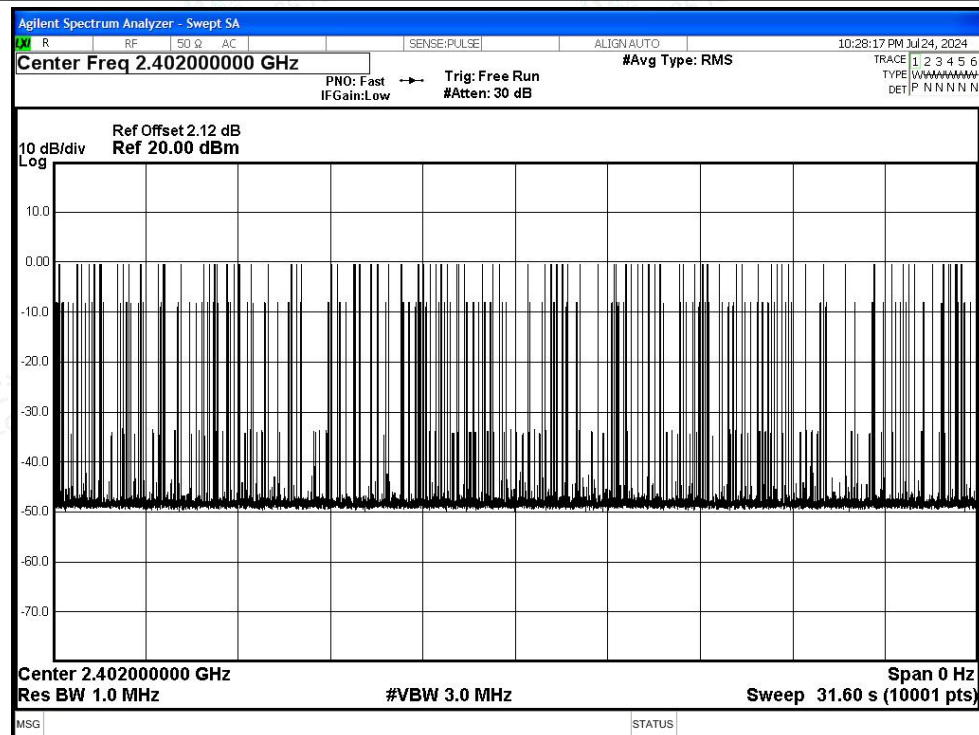


## Test Graphs

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



## Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



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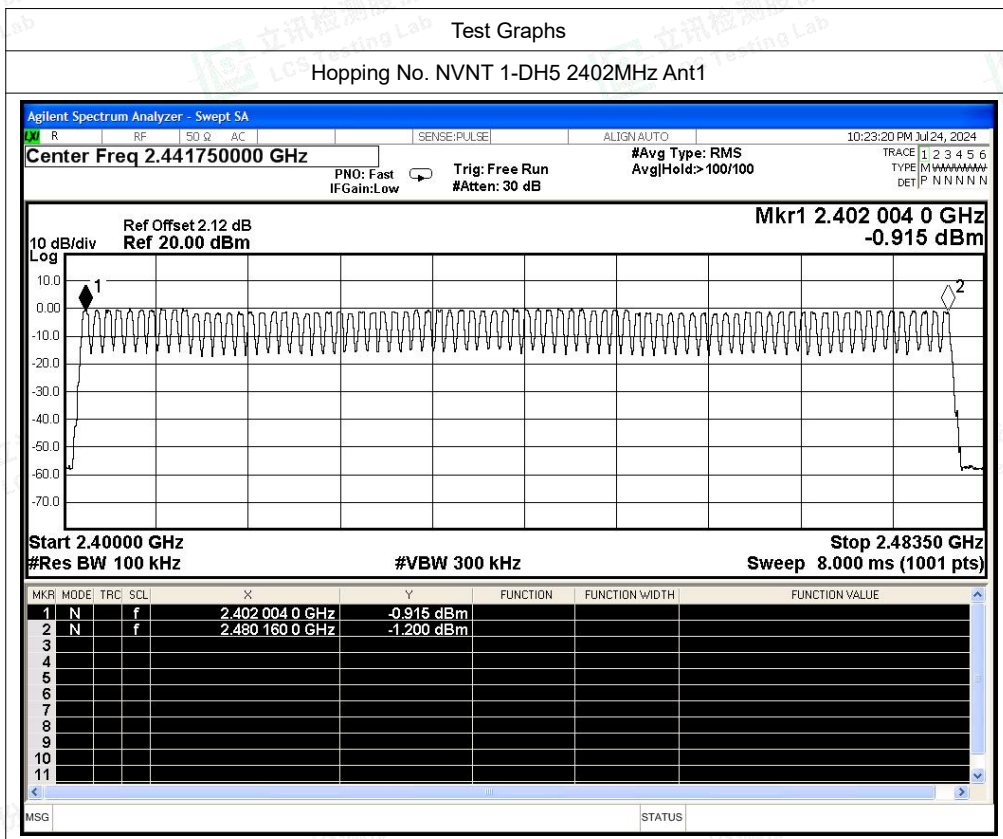


## A.5 Number of Hopping Channel

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



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## A.6 Band Edge

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | -56.32          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | -55.82          | -20         | Pass    |

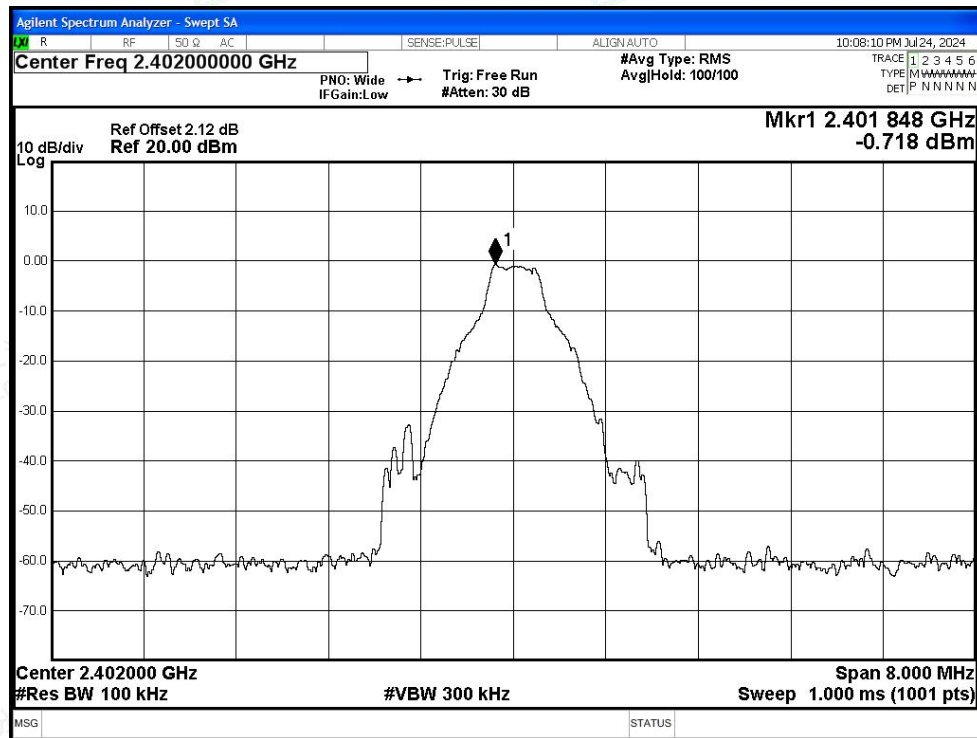


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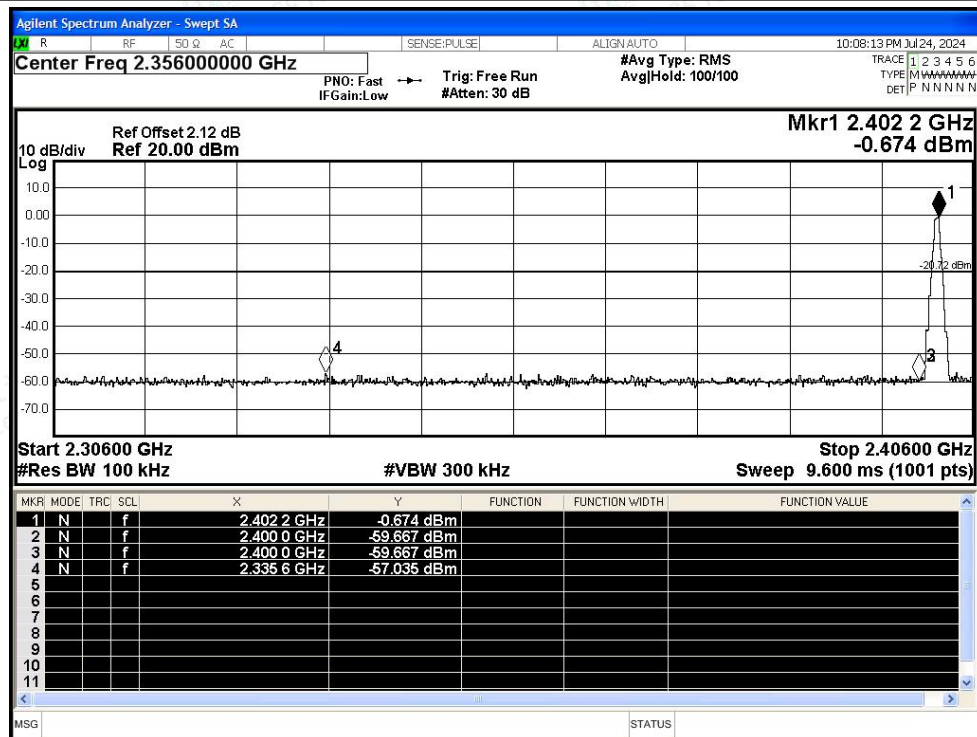


## Test Graphs

## Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



## Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



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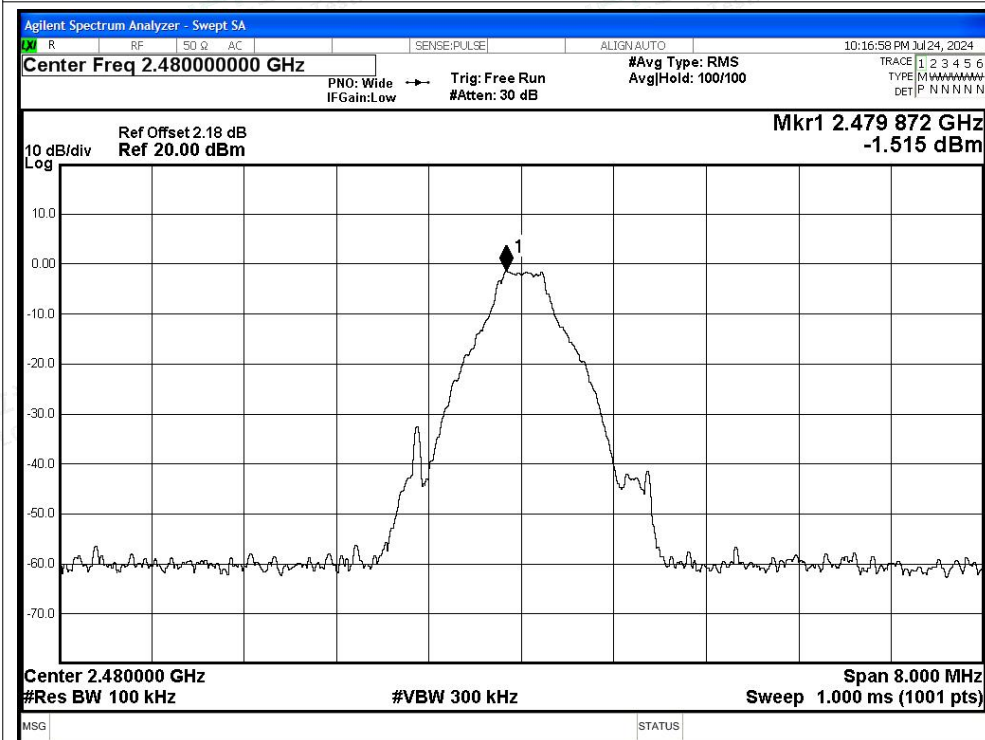
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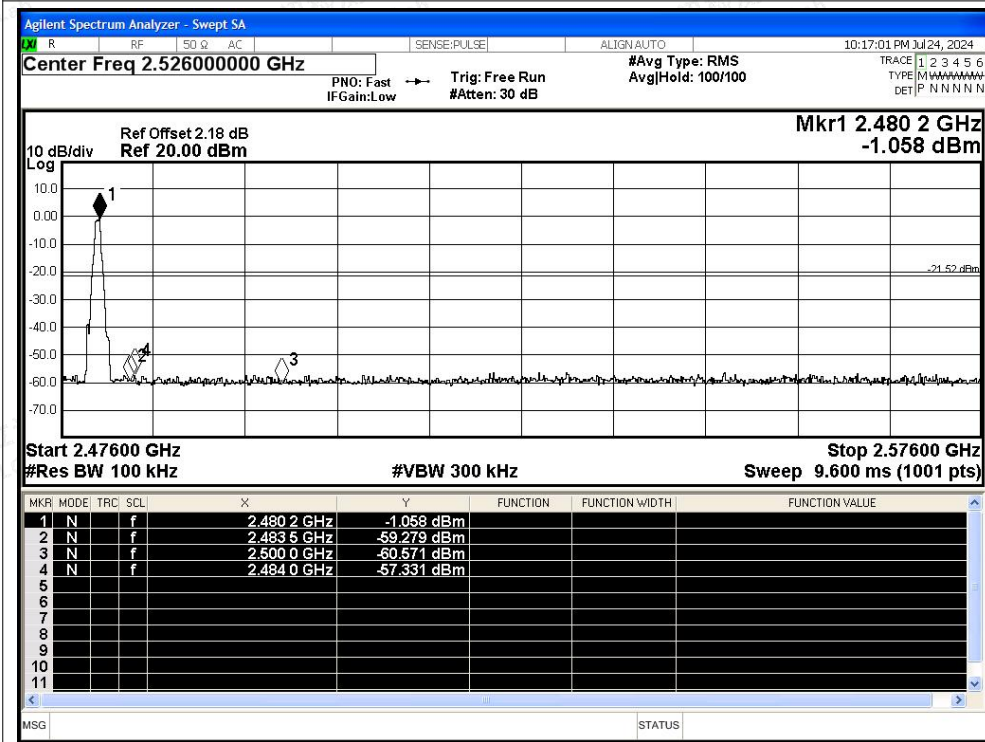
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## Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



## Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



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### (Hopping)

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | Hopping      | -55.01          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | Hopping      | -55.44          | -20         | Pass    |

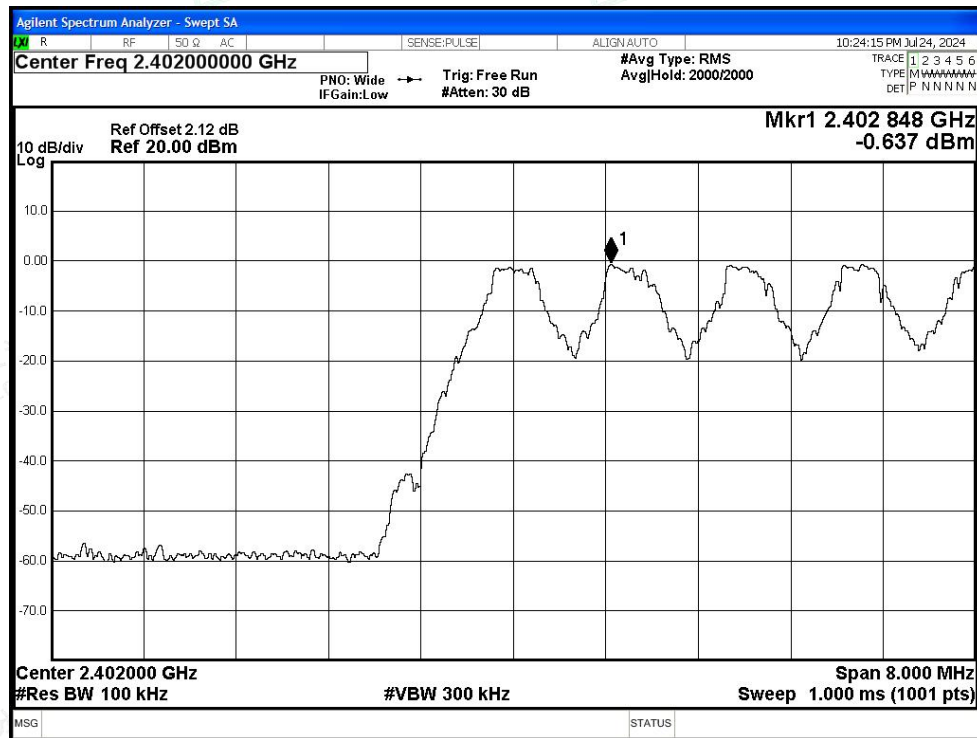


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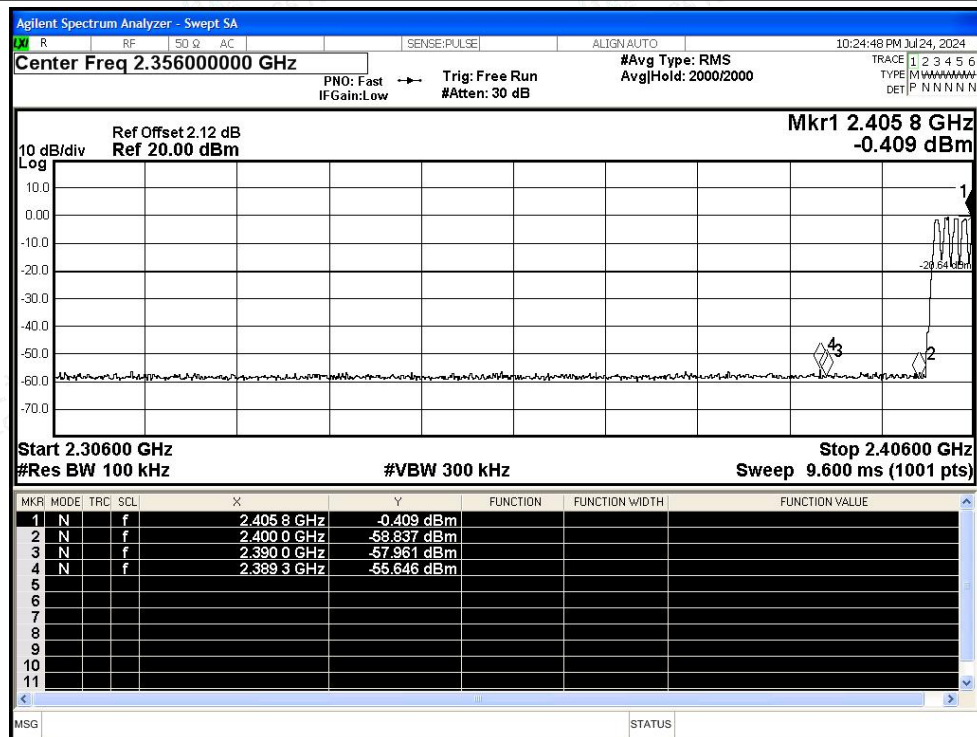


## Test Graphs

## Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



## Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

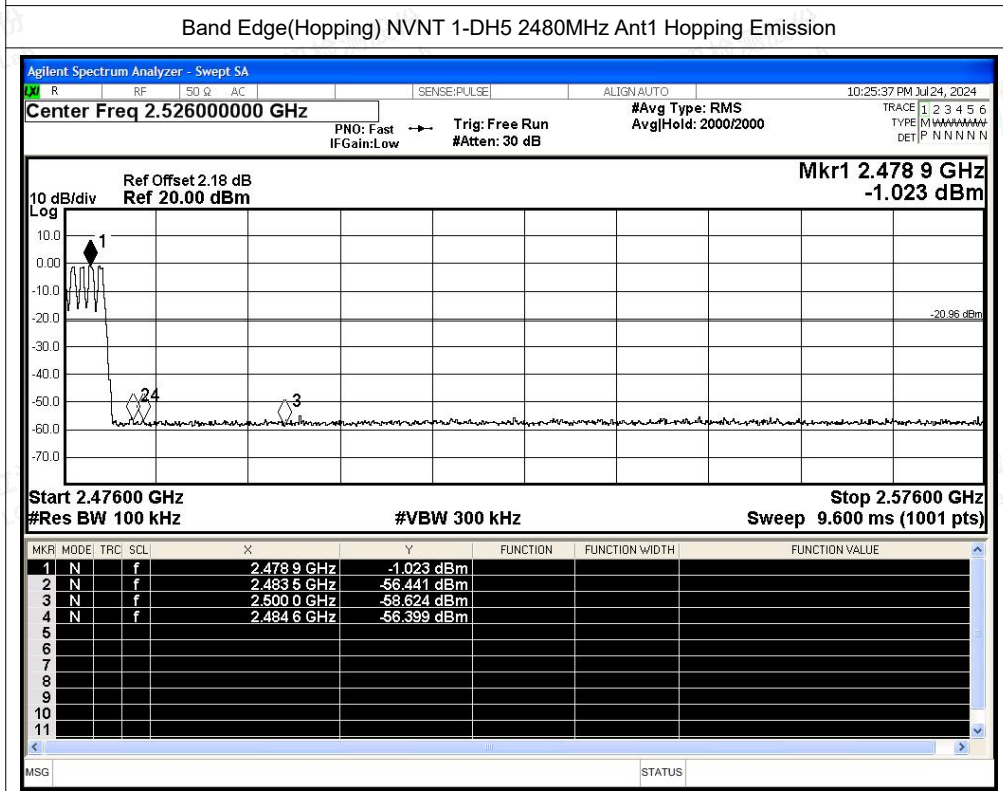
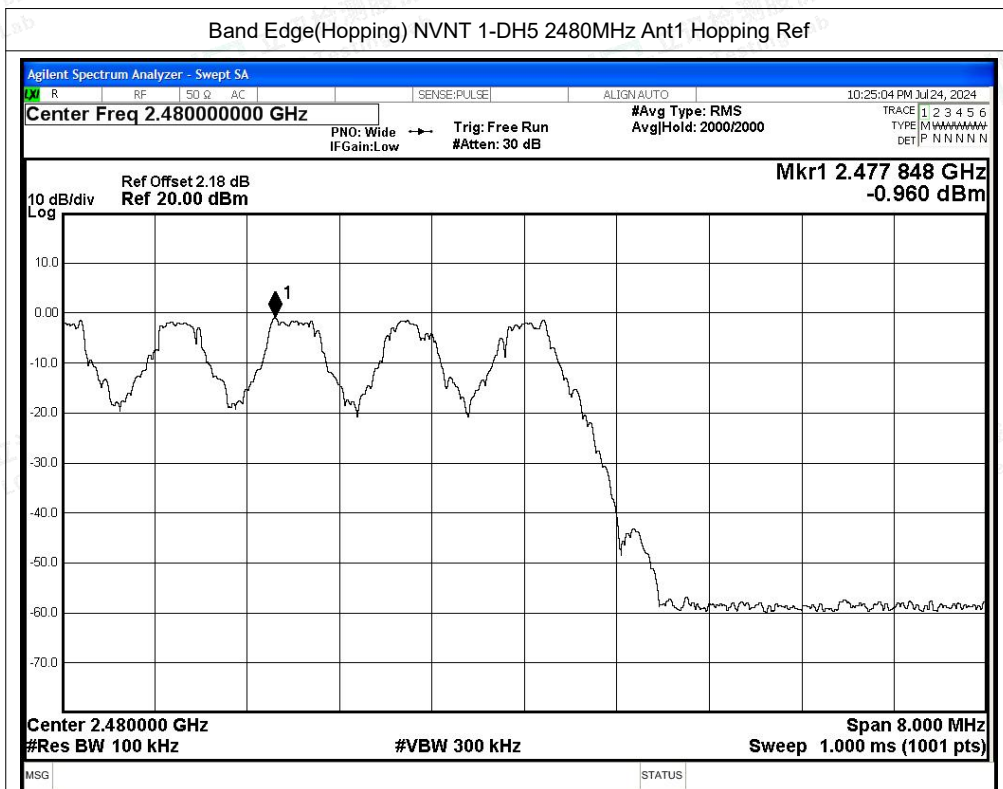


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## A.7 Conducted RF Spurious Emission

| Condition | Mode  | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | -54.48          | -20         | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | -55.16          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -53.75          | -20         | Pass    |

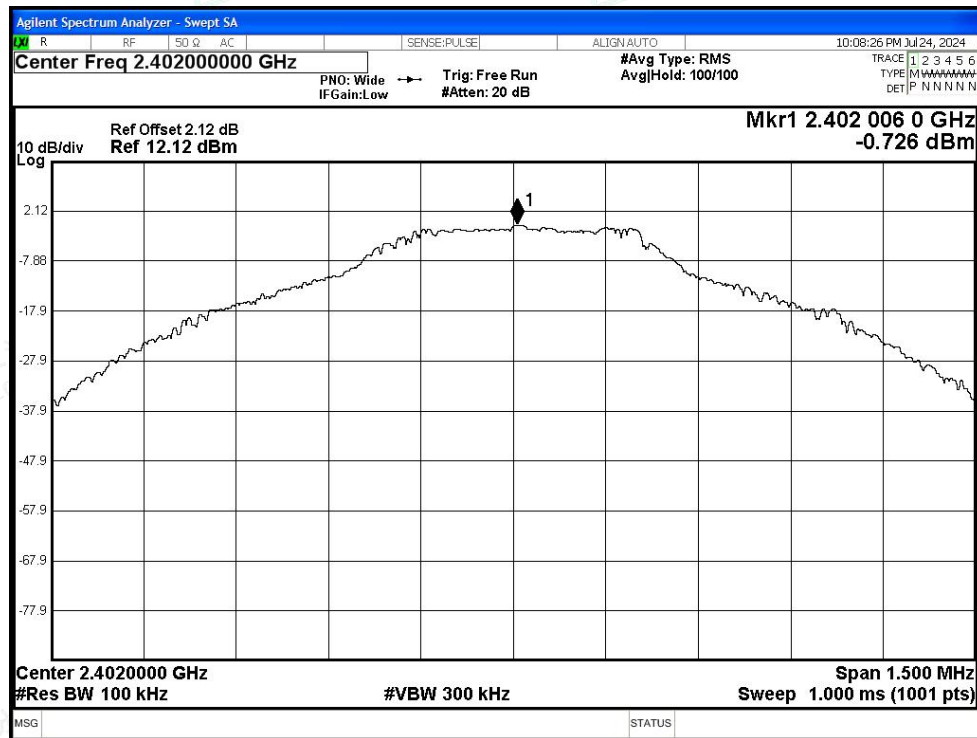


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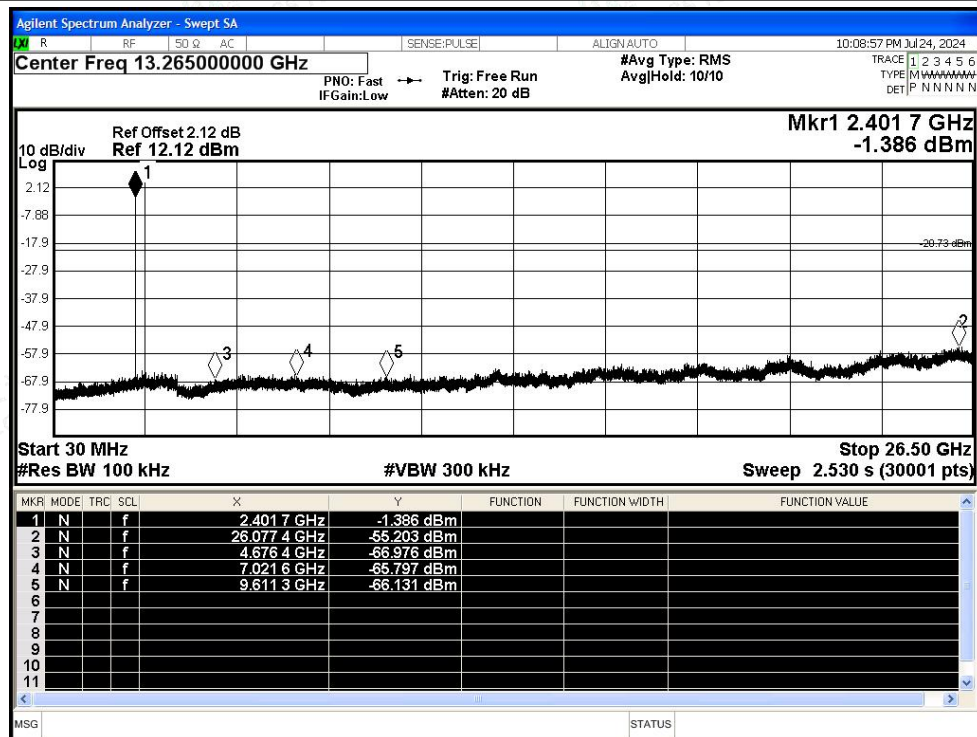


## Test Graphs

## Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



## Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



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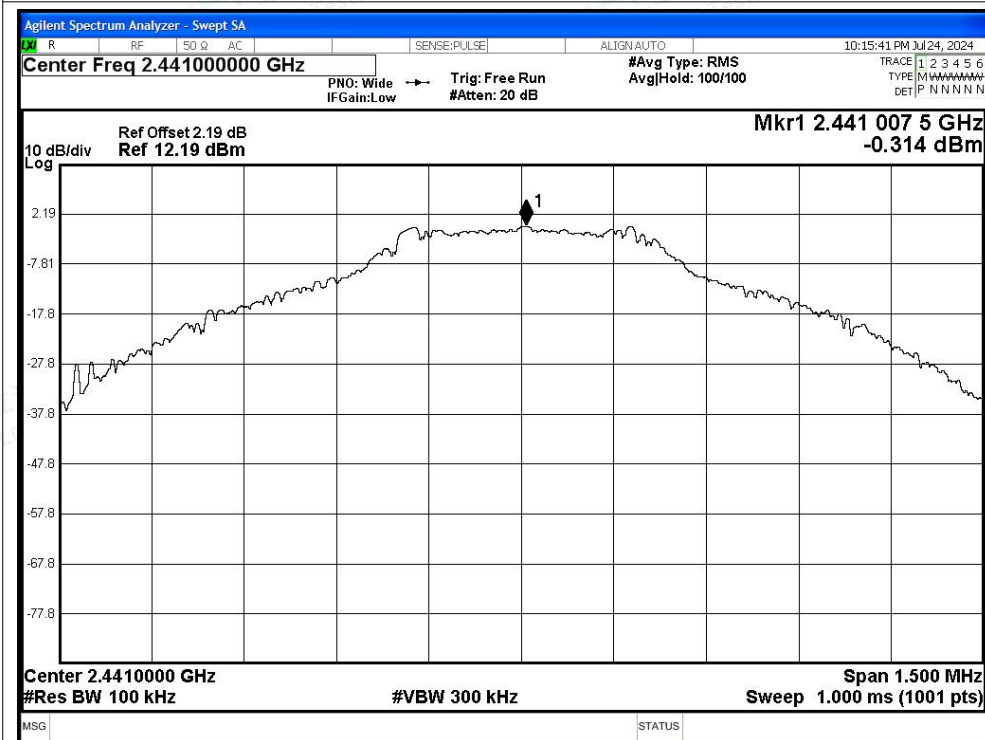
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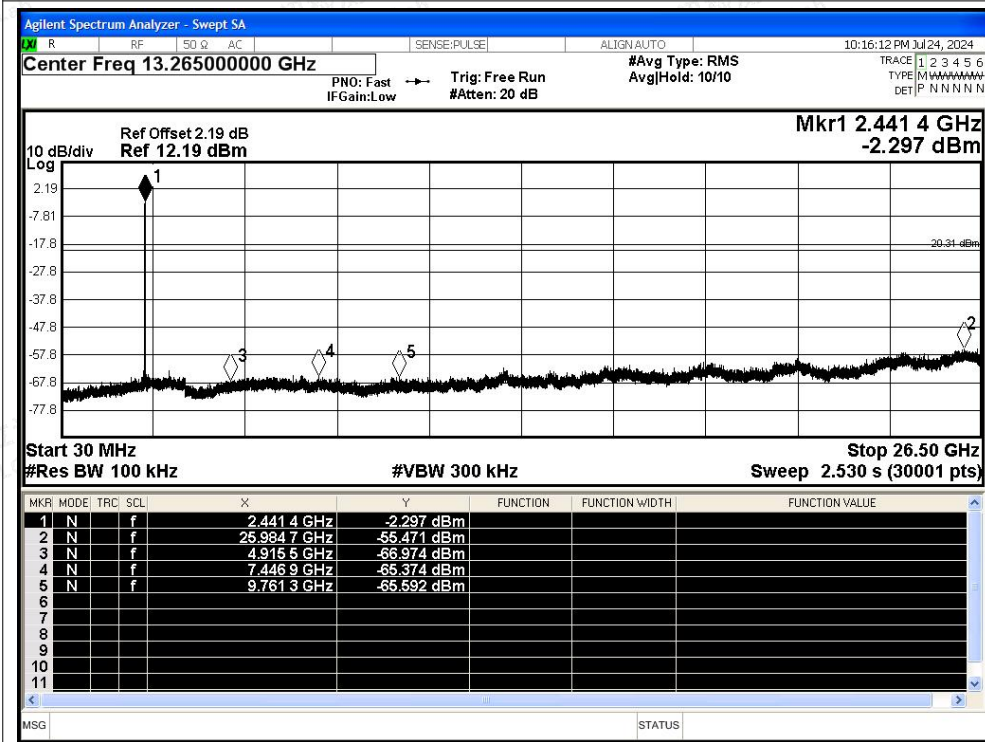
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## Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



## Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



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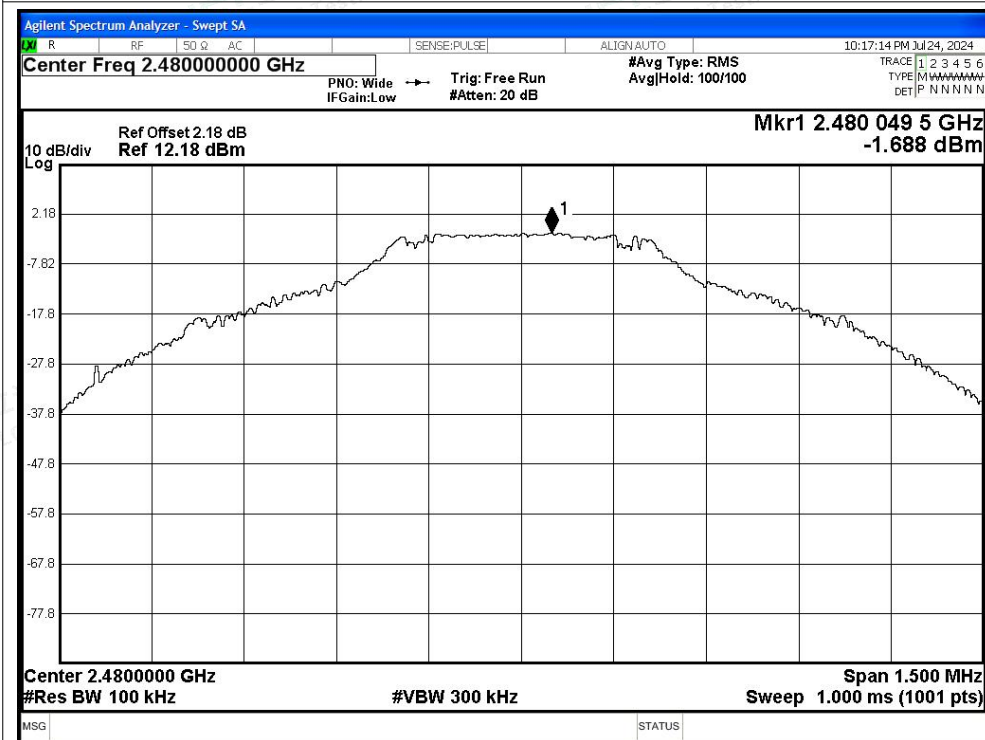
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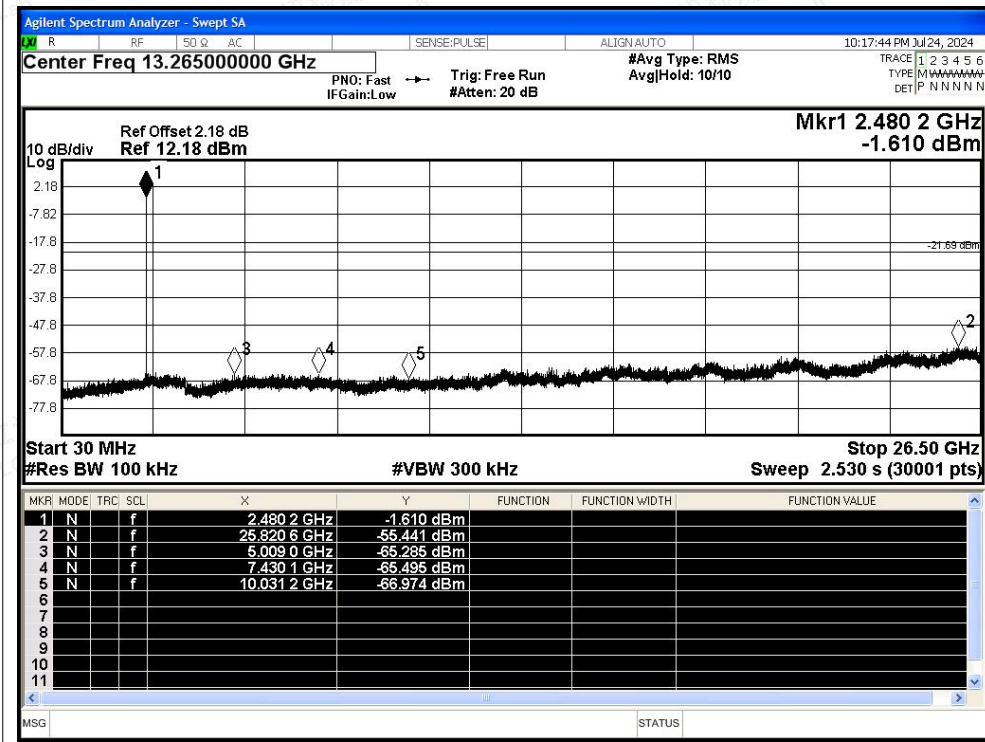
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## Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



## Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



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## A.8 Duty Cycle

| Condition | Mode  | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|-------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 77.63          | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2441            | Ant1    | 77.6           | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2480            | Ant1    | 77.63          | 1.1                    | 0.34      |

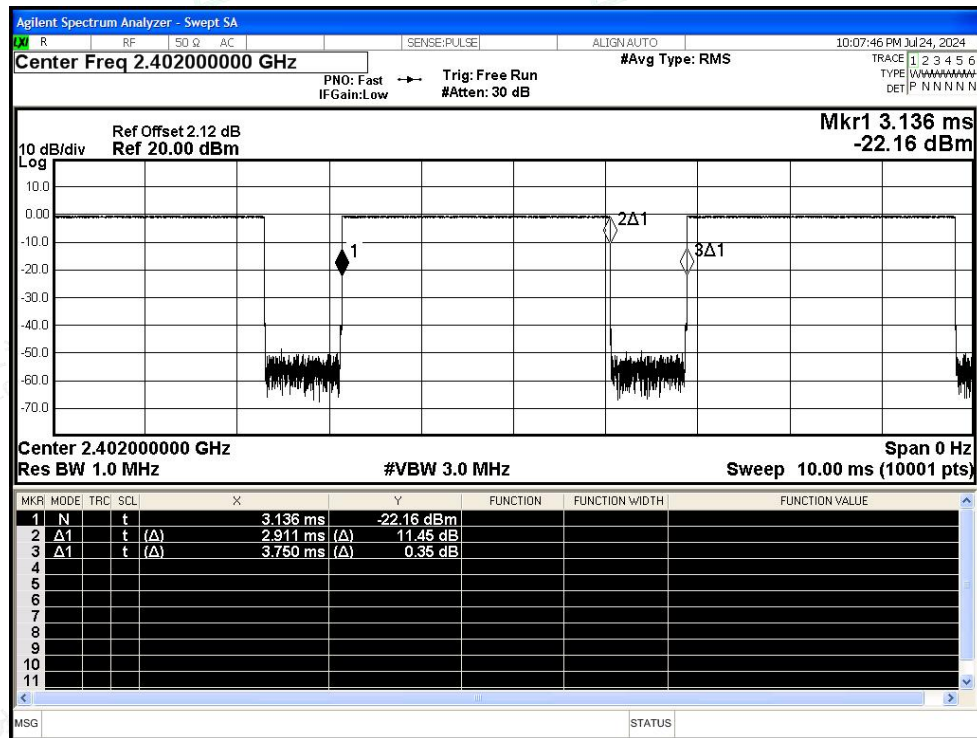


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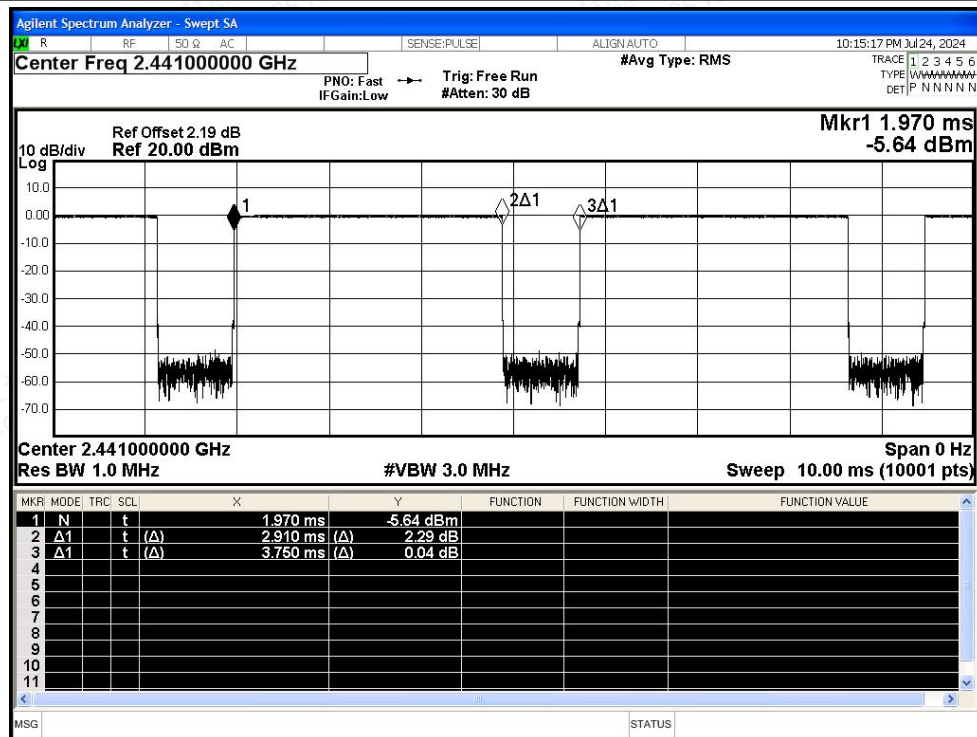


## Test Graphs

## Duty Cycle NVNT 1-DH5 2402MHz Ant1



## Duty Cycle NVNT 1-DH5 2441MHz Ant1

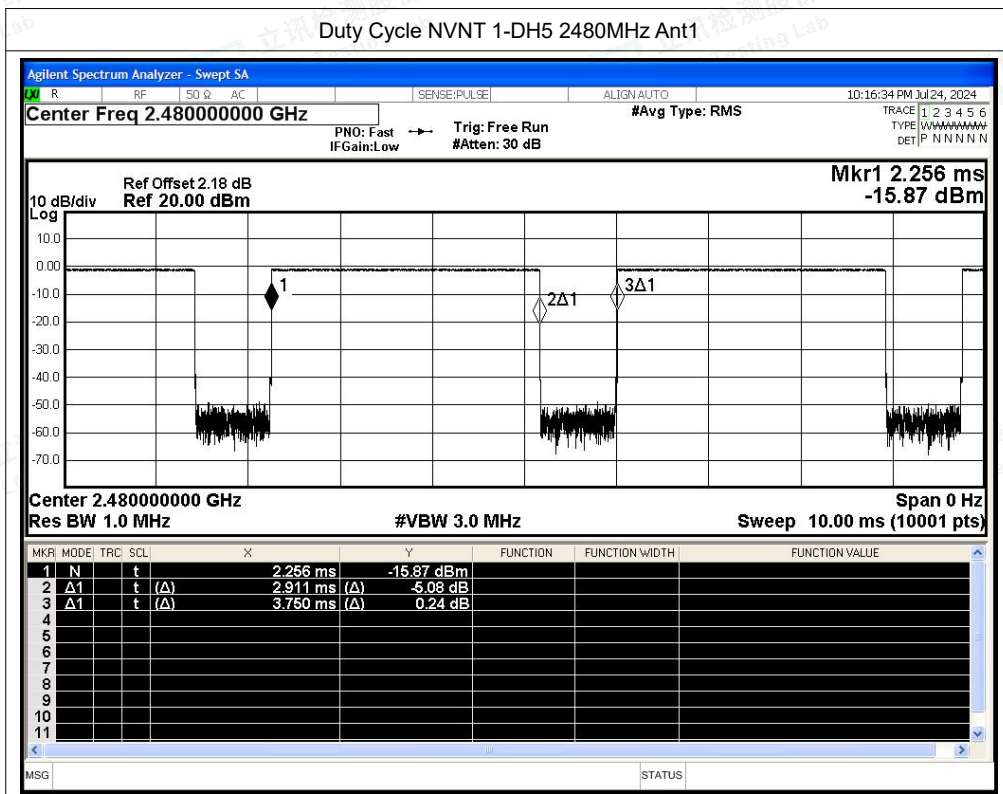


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## A.9 Restrict Band

| 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            | Ant1    | No-Hopping   | 2310            | -50.98      | 2          | -                | 46.28      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -58.63      | 2          | 1.1              | 39.73      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2325.744        | -47.34      | 2          | -                | 49.92      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2368.944        | -57.58      | 2          | 1.1              | 40.78      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -51.18      | 2          | -                | 46.08      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -58.34      | 2          | 1.1              | 40.02      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -50.32      | 2          | -                | 46.94      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -58.33      | 2          | 1.1              | 40.03      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2486.896        | -46.44      | 2          | -                | 50.82      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2484.688        | -57.11      | 2          | 1.1              | 41.25      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -49.62      | 2          | -                | 47.64      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -57.97      | 2          | 1.1              | 40.39      | Average  | 54             | Pass    |

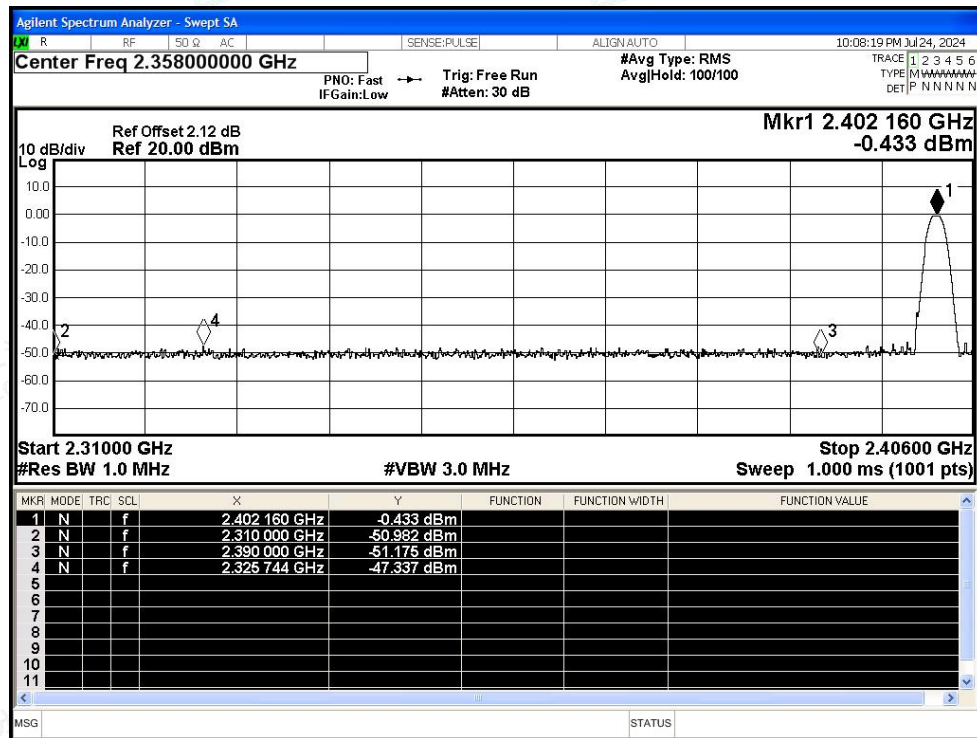


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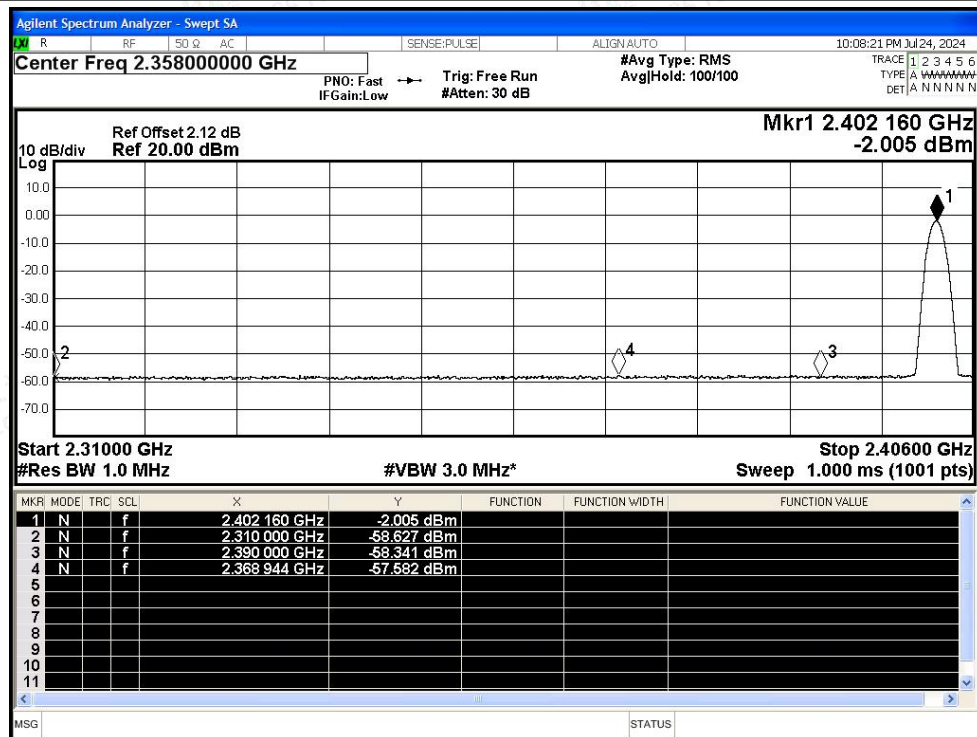


## Test Graphs

## Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



## Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



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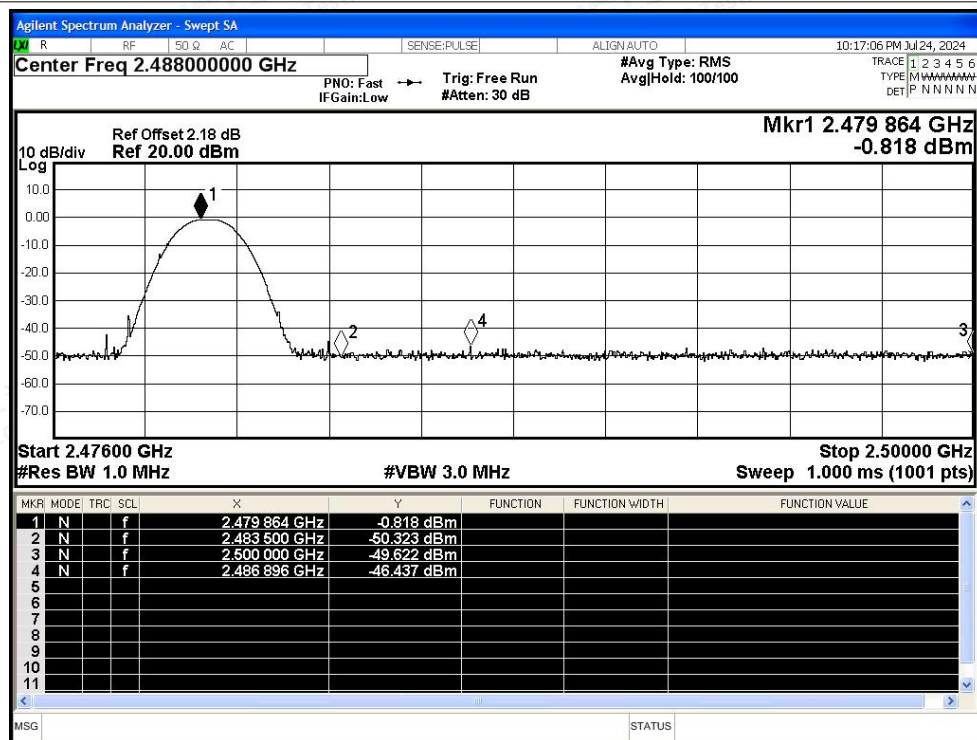
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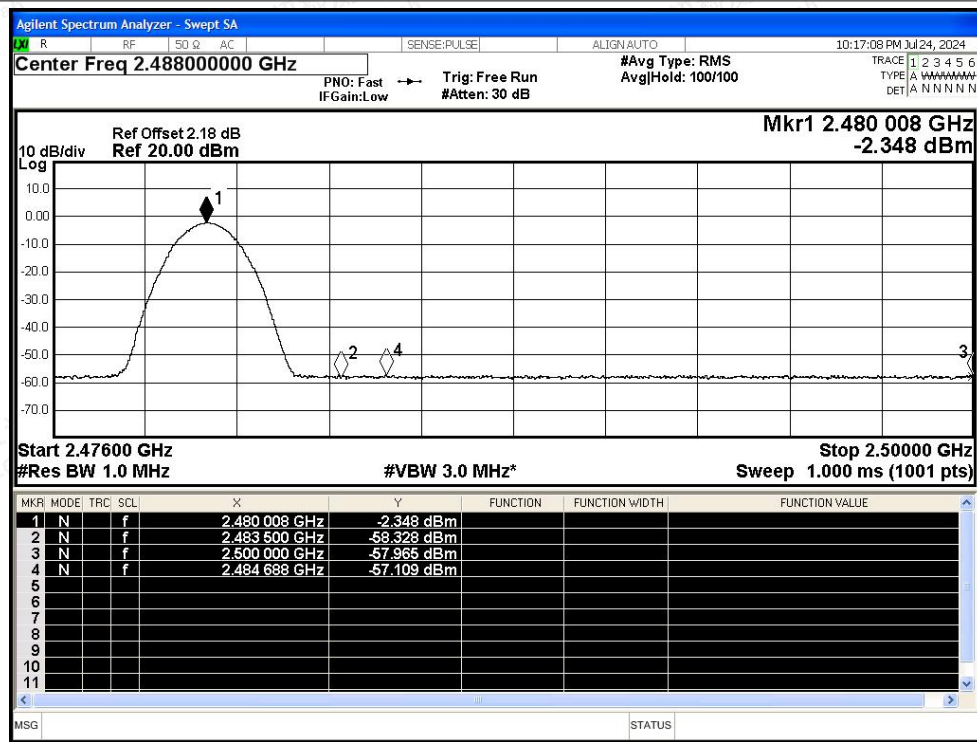
Scan code to check authenticity



## Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



## Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



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