



## Appendix A

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

Product Name: MagBak Wallet

Test Model: MagBak Wallet

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24.3°C    |
| Relative Humidity: | 53.4%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Can Kun   |
| Supervised by:     | Nick Peng |



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## A.1 -6dB Bandwidth

| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.661                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.651                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.659                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 1.133                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | 1.149                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 1.244                 | $\geq 0.5$                  | Pass    |

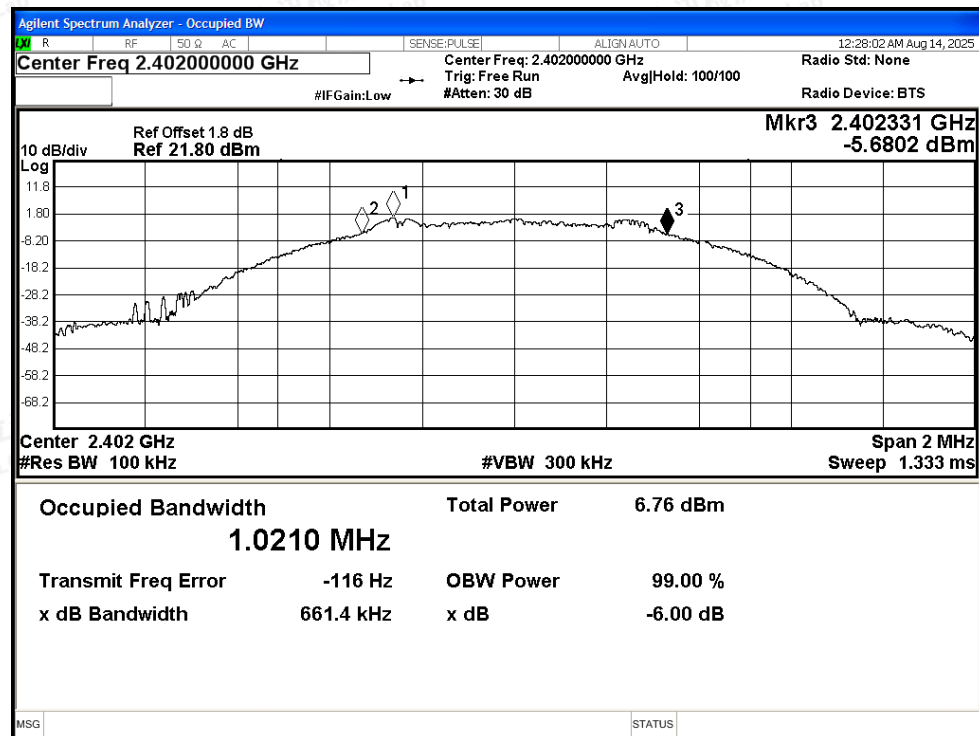


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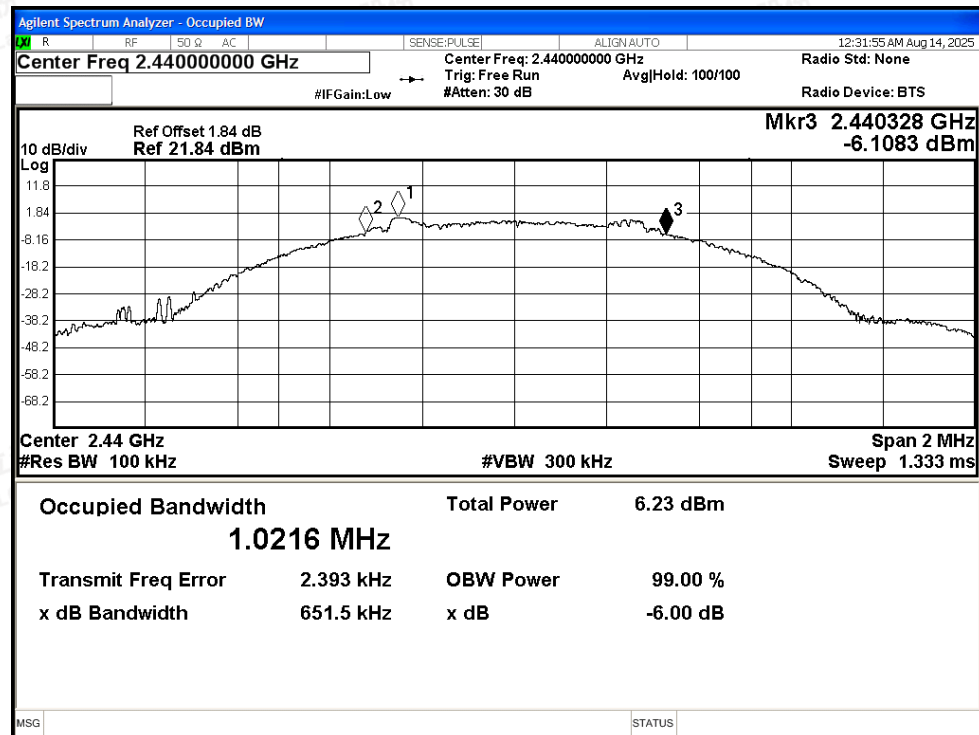


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

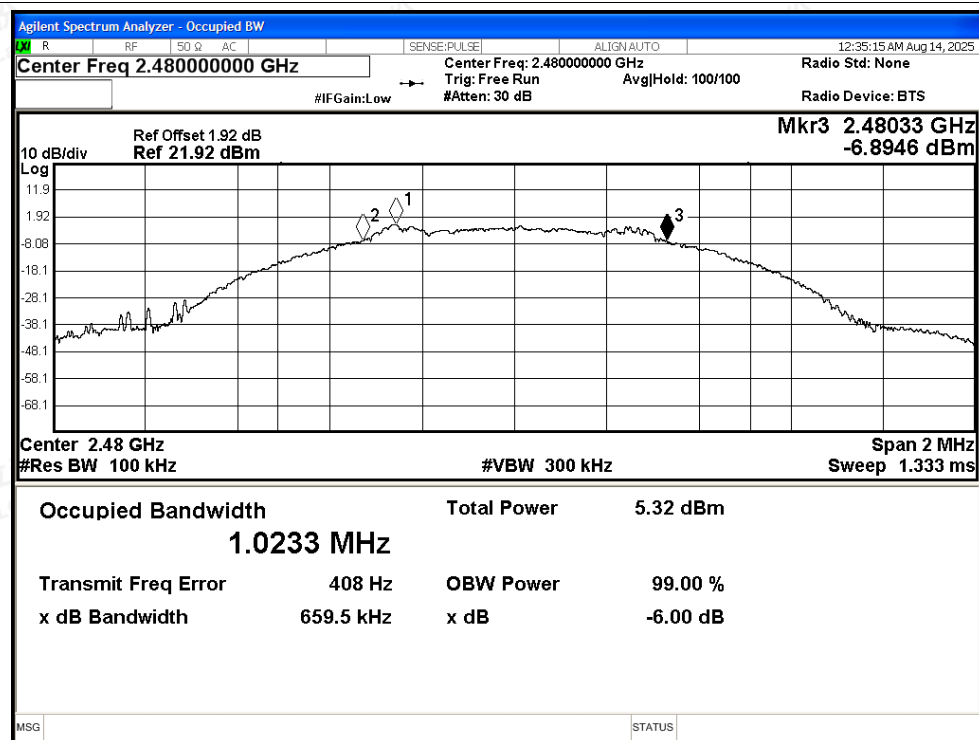


-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

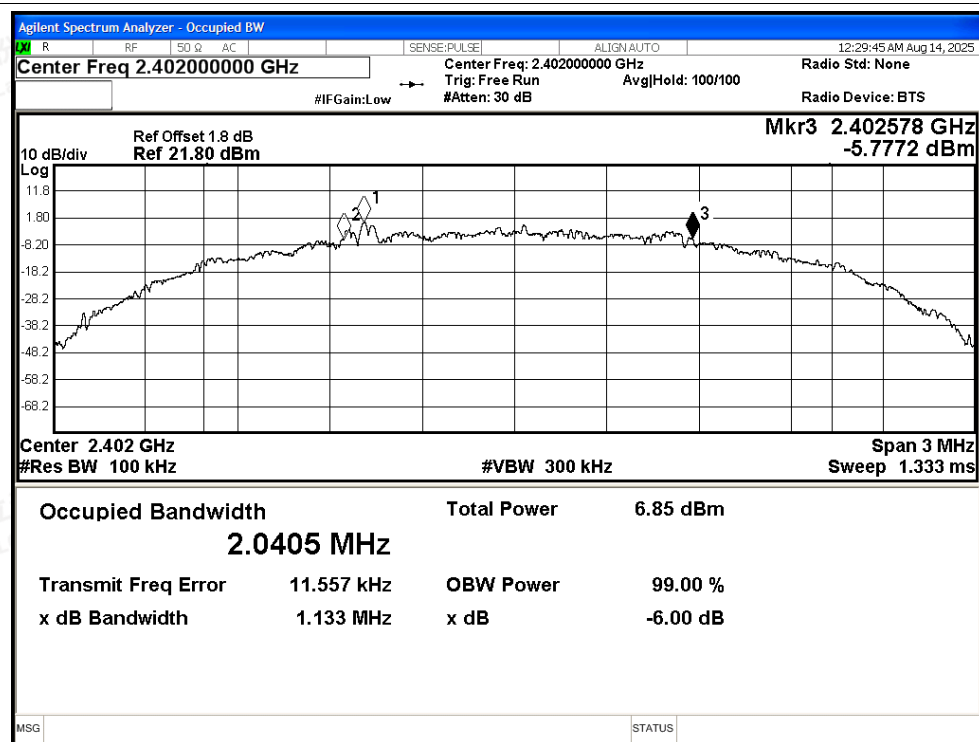




## -6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



## -6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



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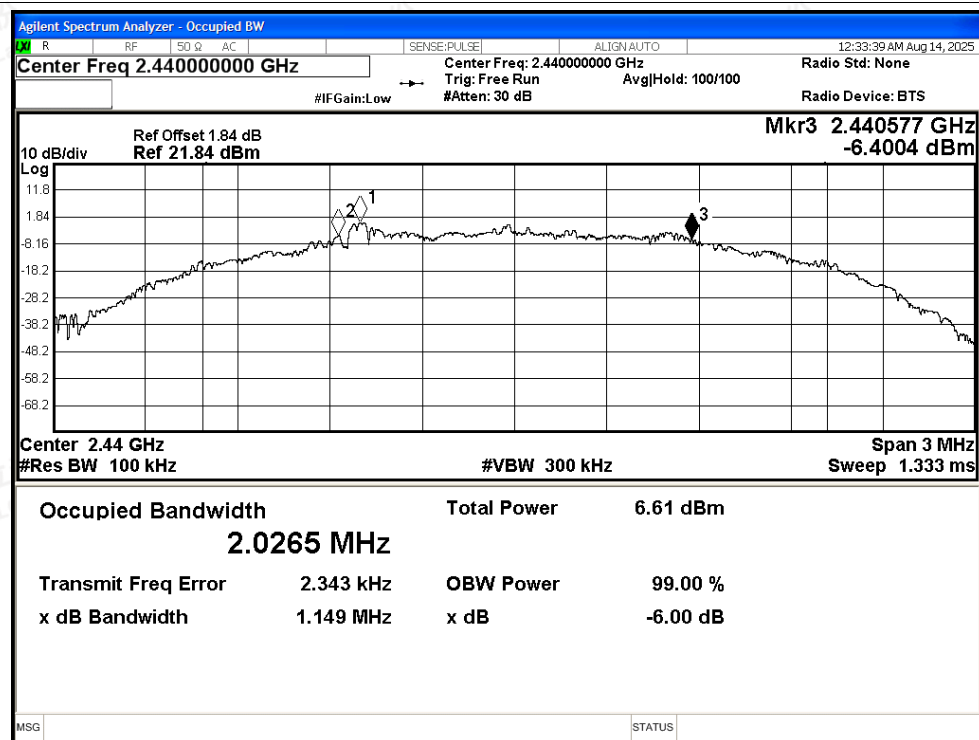
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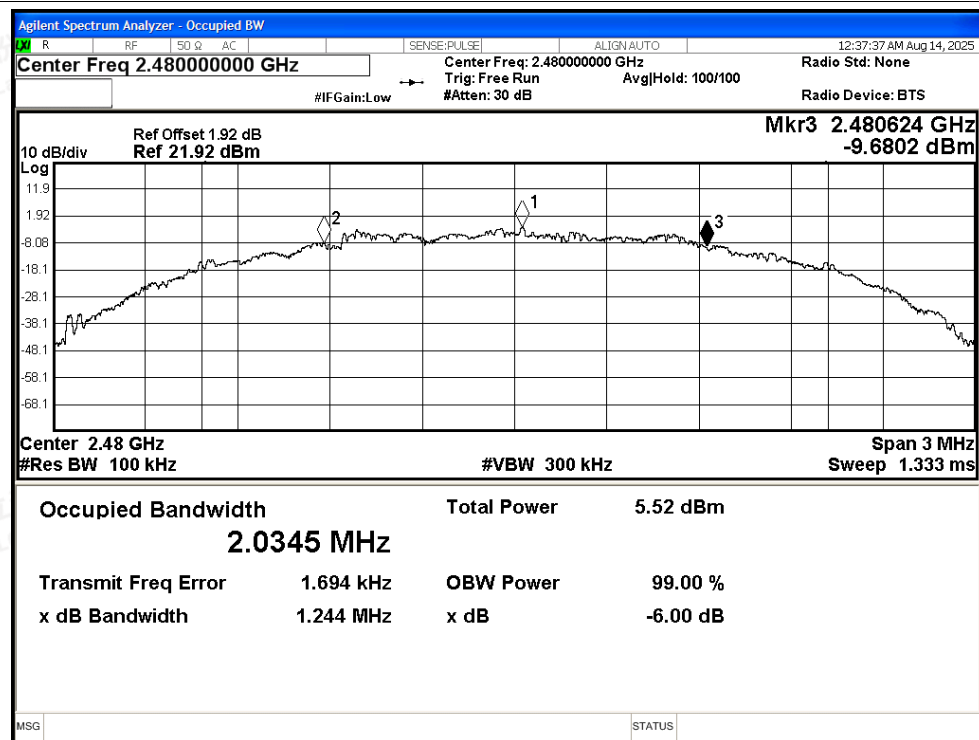
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## -6dB Bandwidth NVNT BLE 2M 2440MHz Ant1



## -6dB Bandwidth NVNT BLE 2M 2480MHz Ant1



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## A.2 Maximum Peak Conducted Output Power

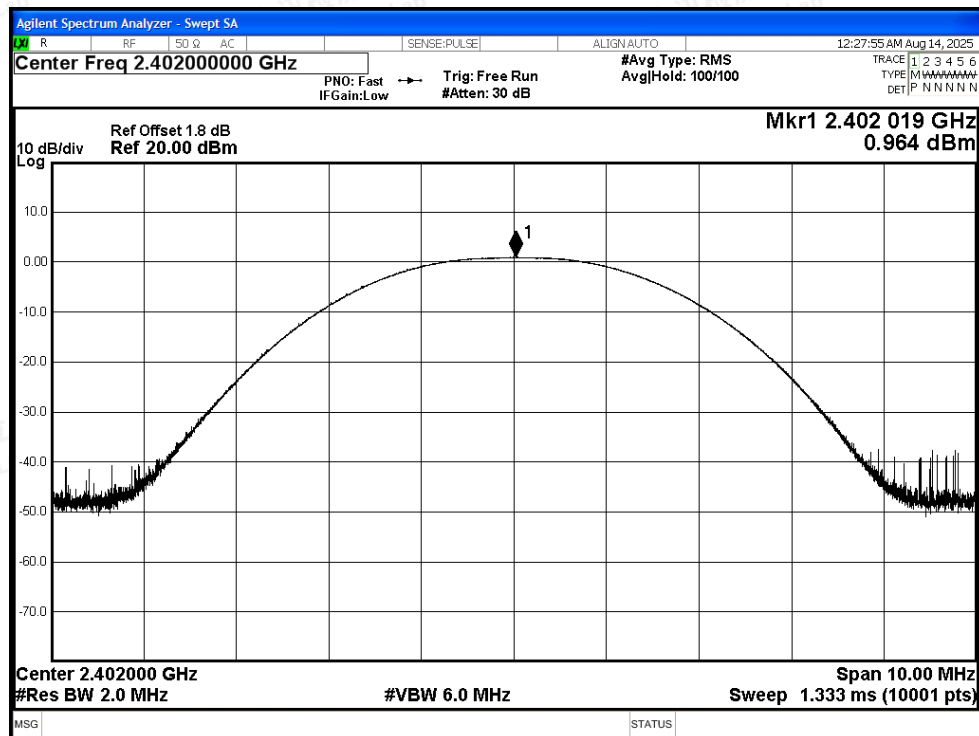
| Condition | Mode   | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.96              | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.48              | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -0.44             | 30          | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 0.83              | 30          | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | 0.27              | 30          | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -0.62             | 30          | Pass    |



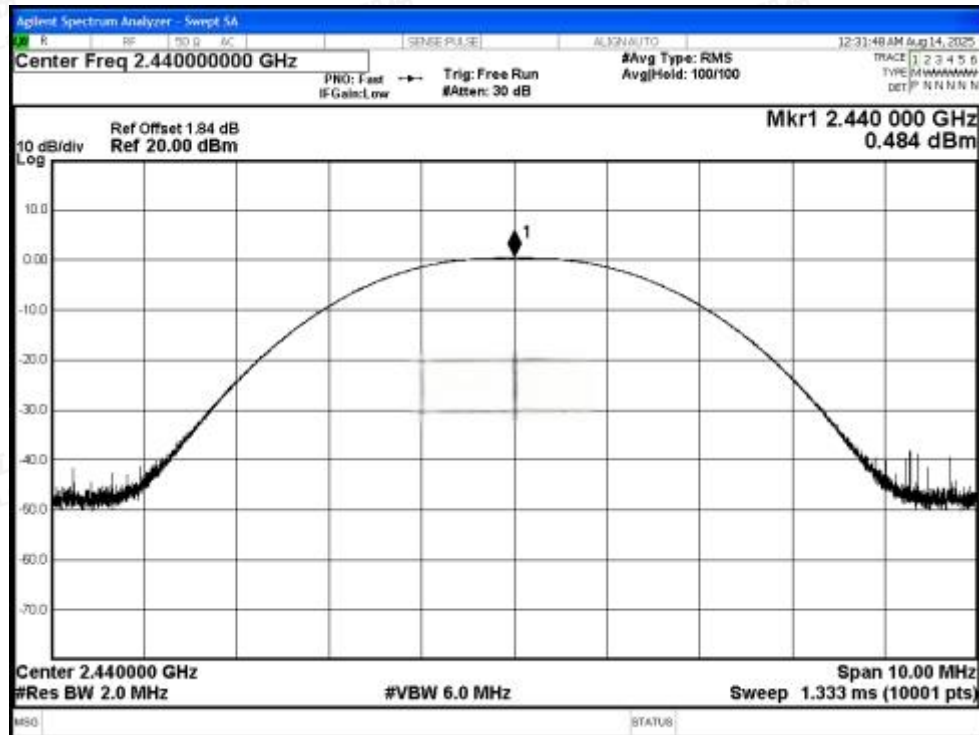


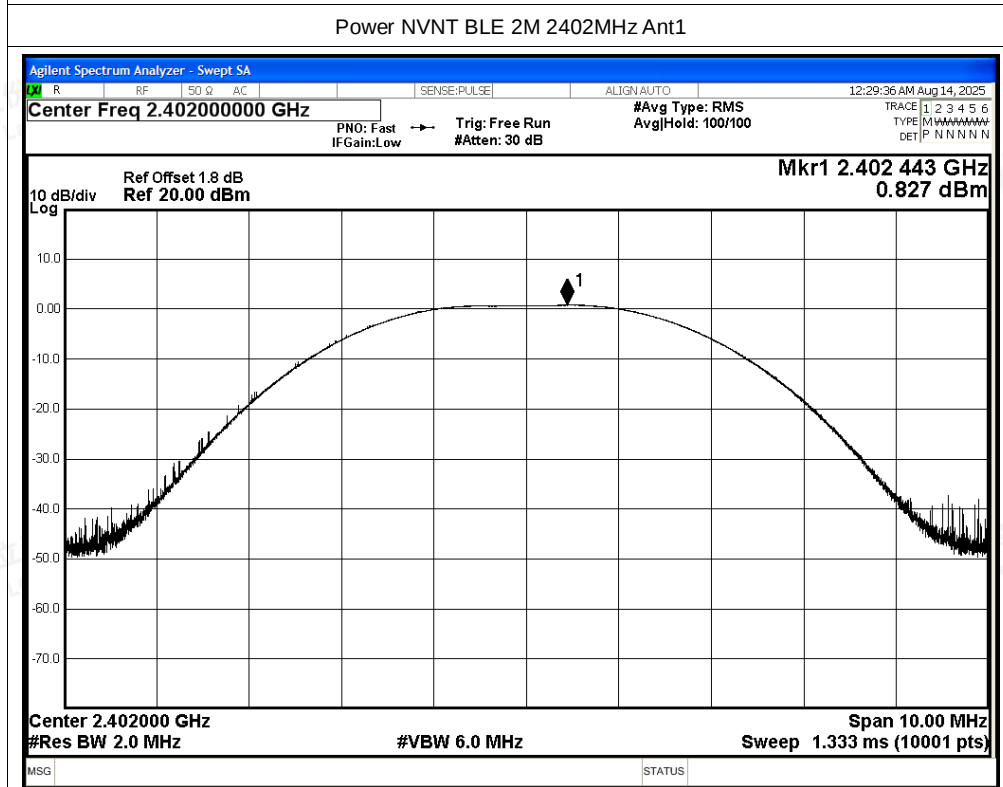
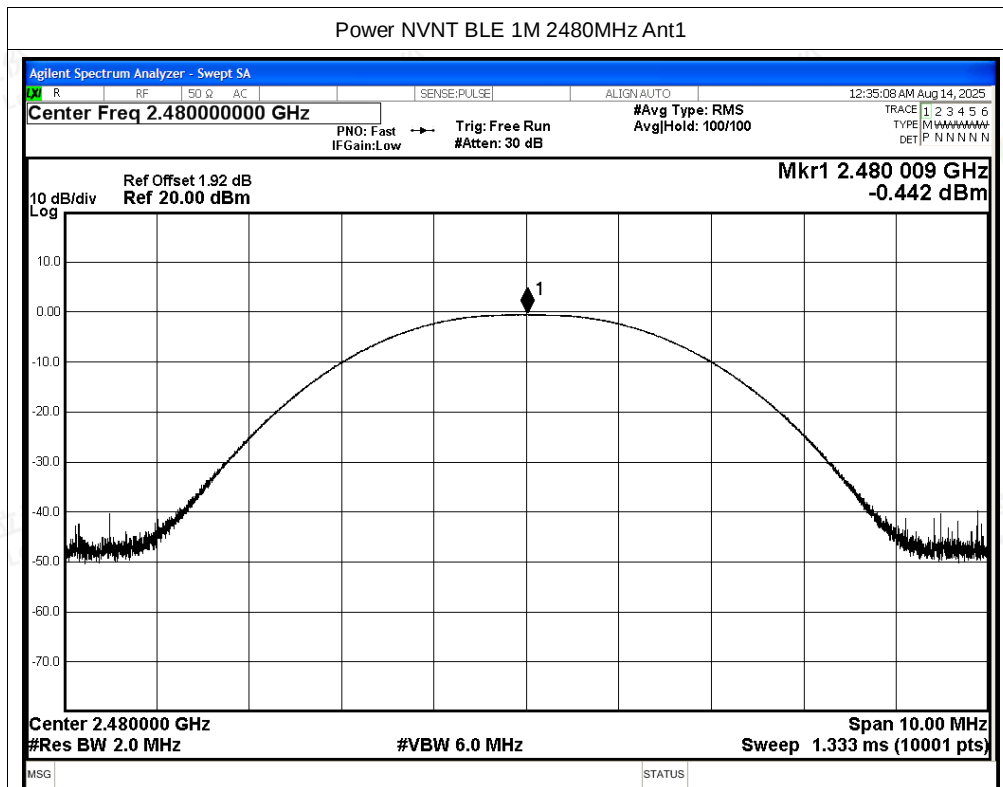
## Test Graphs

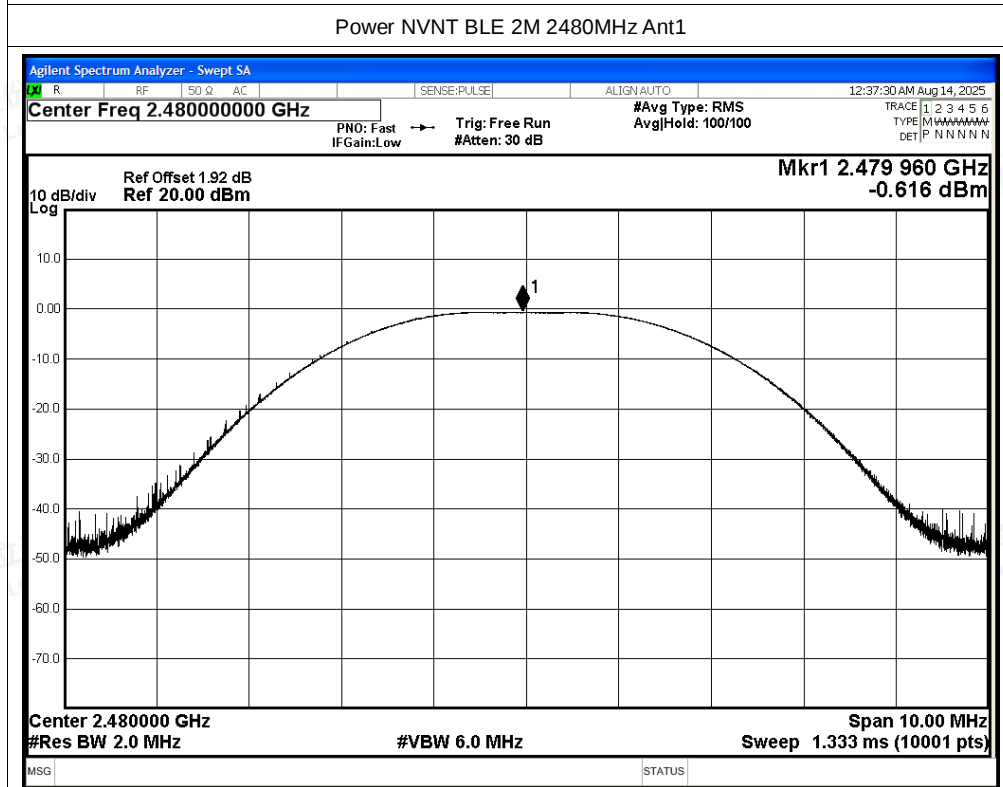
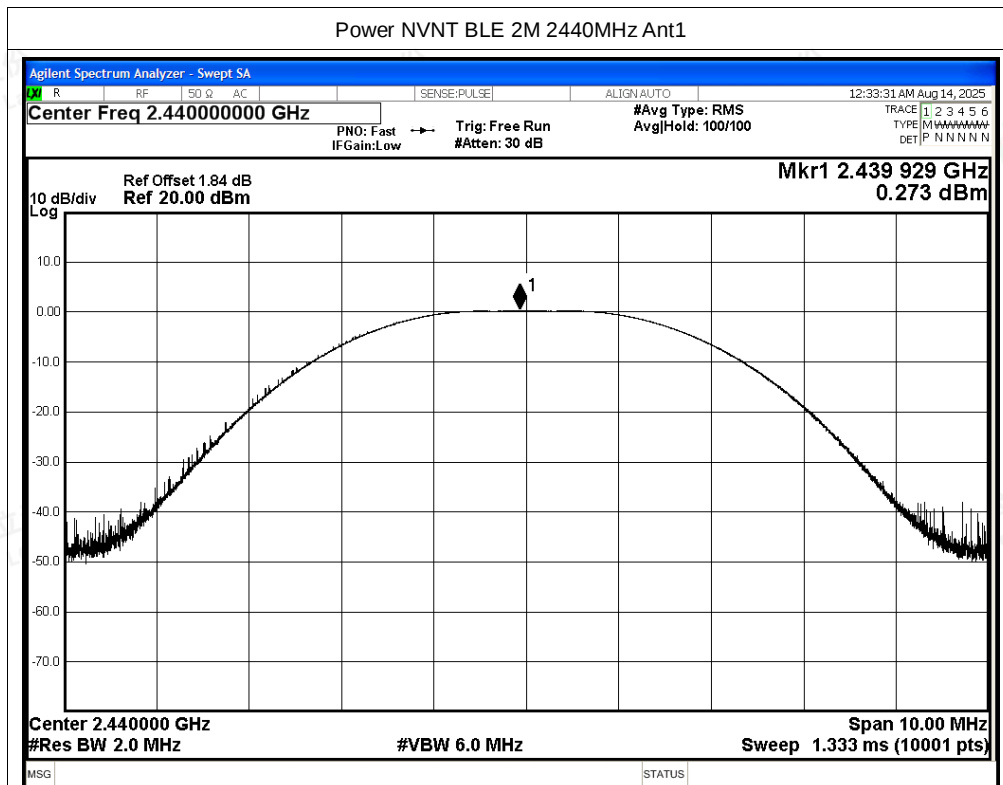
## Power NVNT BLE 1M 2402MHz Ant1



## Power NVNT BLE 1M 2440MHz Ant1









### A.3 Maximum Power Spectral Density Level

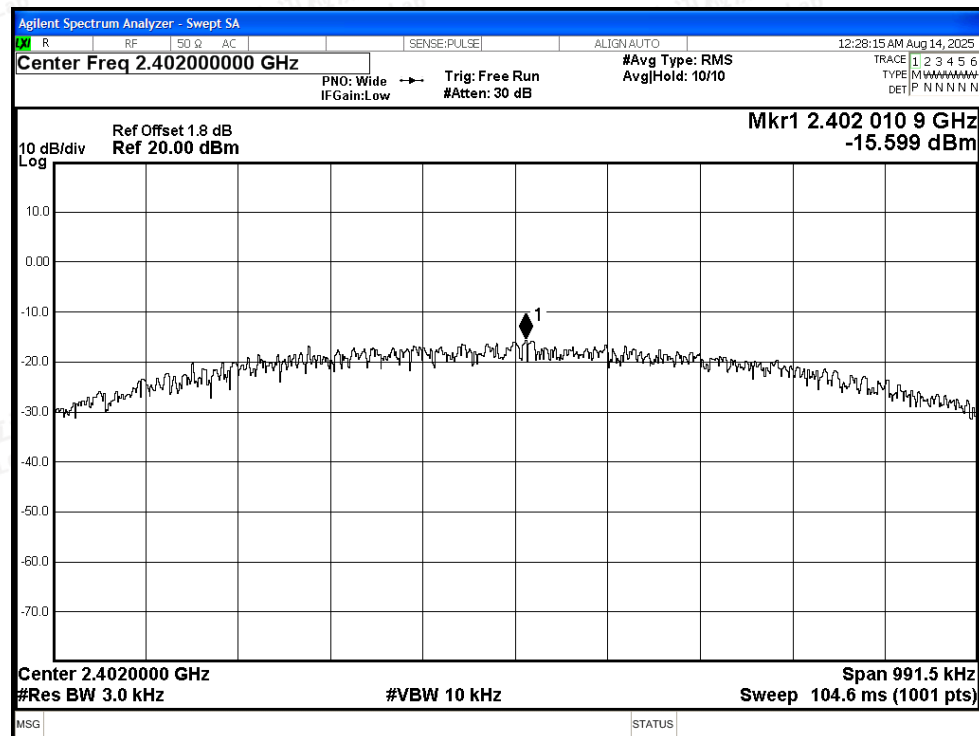
| Condition | Mode   | Frequency<br>(MHz) | Antenna | Total PSD<br>(dBm/3kHz) | Limit<br>(dBm/3kHz) | Verdict |
|-----------|--------|--------------------|---------|-------------------------|---------------------|---------|
| NVNT      | BLE 1M | 2402               | Ant1    | -15.6                   | 8                   | Pass    |
| NVNT      | BLE 1M | 2440               | Ant1    | -16.24                  | 8                   | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | -17.17                  | 8                   | Pass    |
| NVNT      | BLE 2M | 2402               | Ant1    | -19.07                  | 8                   | Pass    |
| NVNT      | BLE 2M | 2440               | Ant1    | -19.68                  | 8                   | Pass    |
| NVNT      | BLE 2M | 2480               | Ant1    | -20.31                  | 8                   | Pass    |



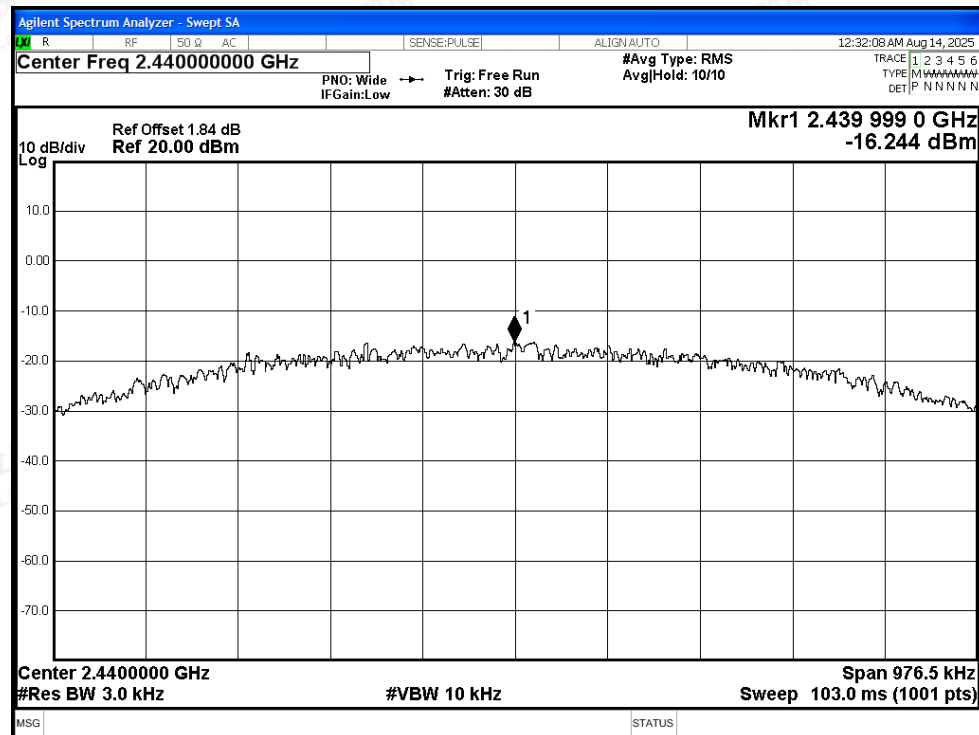


## Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1

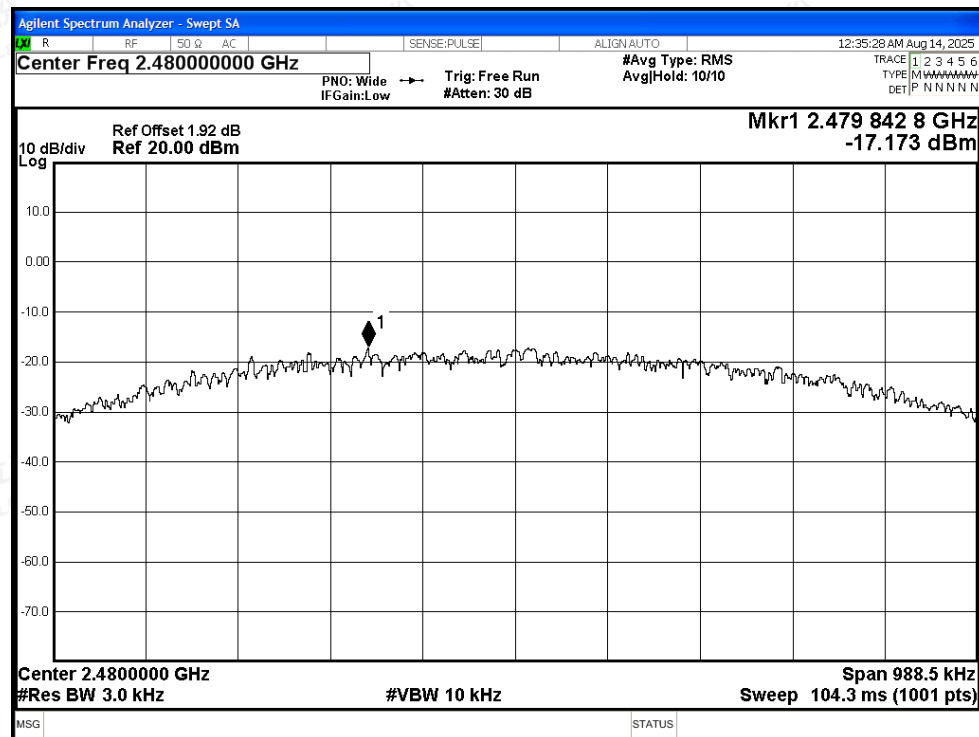


PSD NVNT BLE 1M 2440MHz Ant1

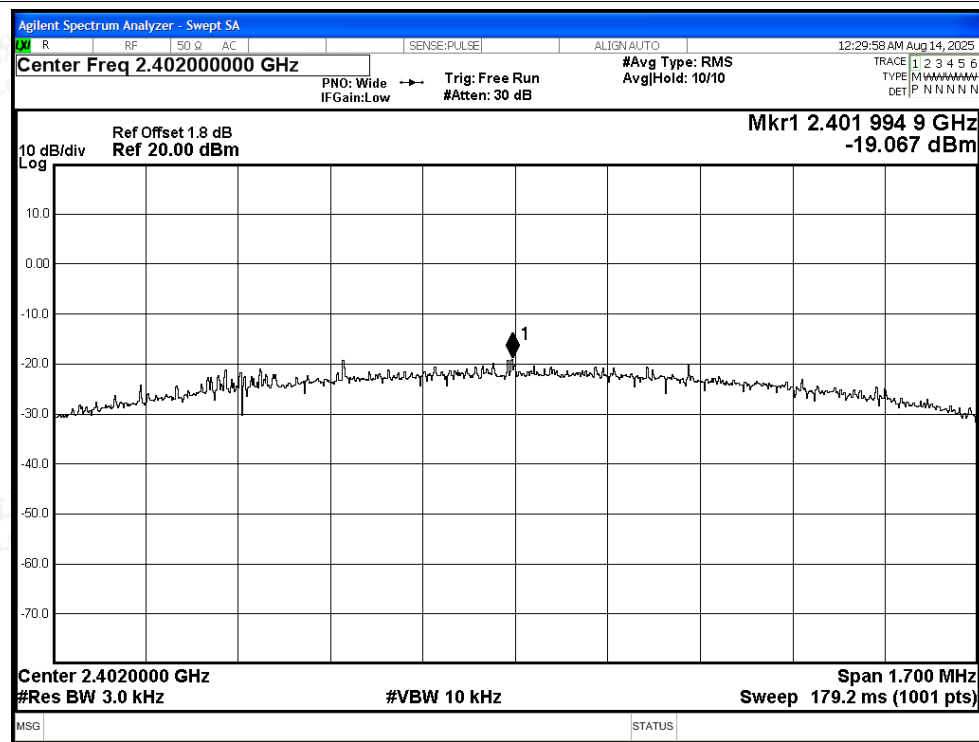




## PSD NVNT BLE 1M 2480MHz Ant1



## PSD NVNT BLE 2M 2402MHz Ant1



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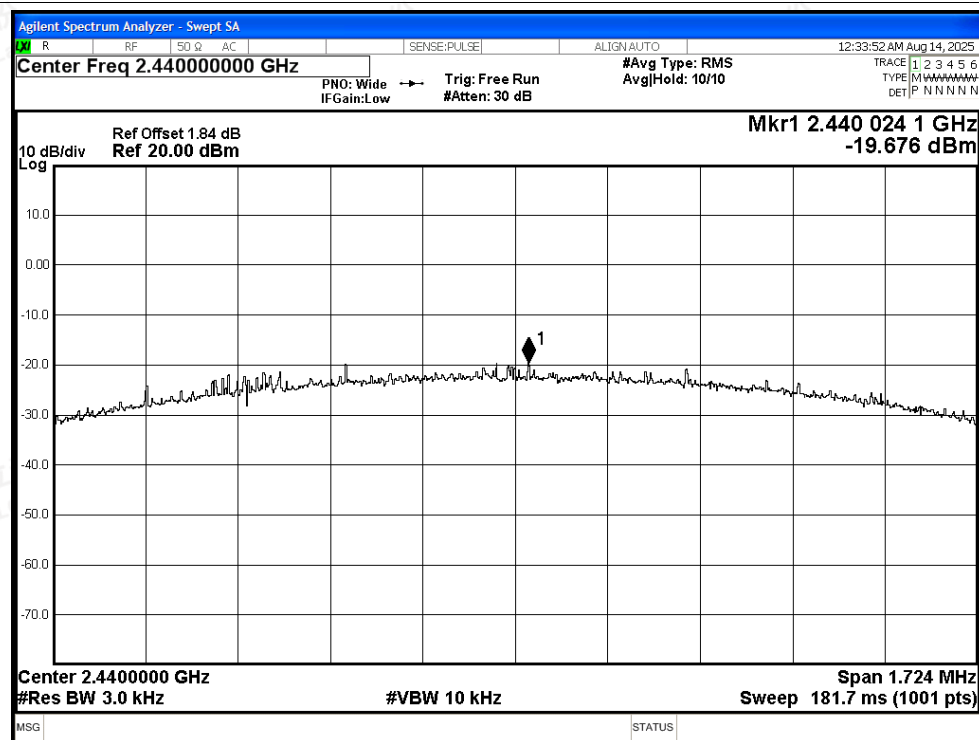
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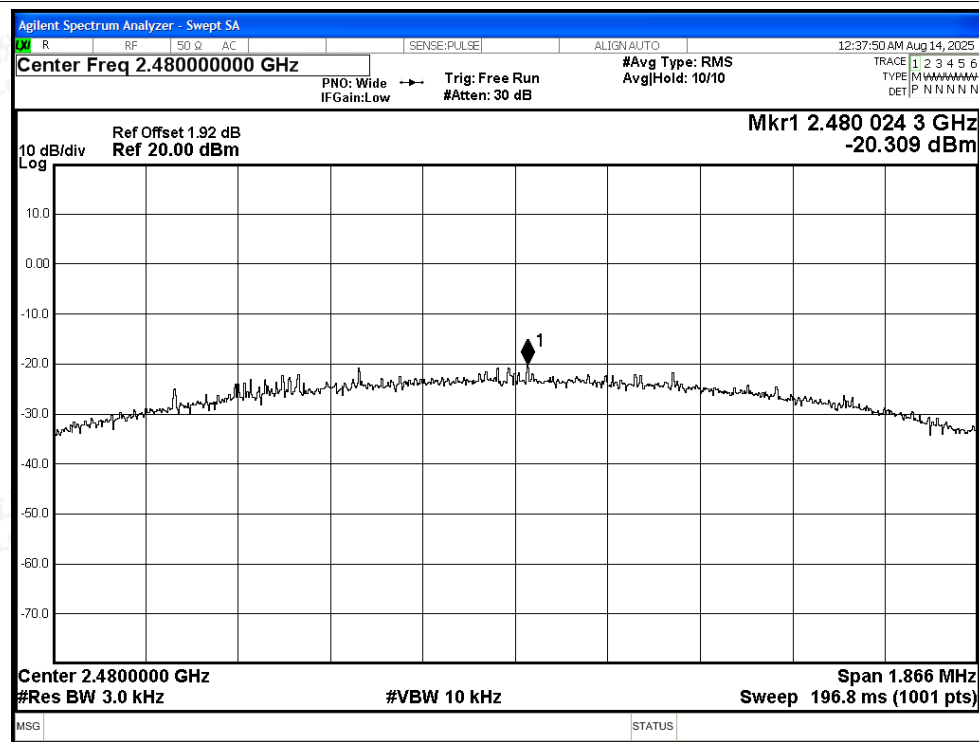
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PSD NVNT BLE 2M 2440MHz Ant1



PSD NVNT BLE 2M 2480MHz Ant1



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## A.4 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -57.18          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -55.57          | -20         | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | -44.57          | -20         | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -56.17          | -20         | Pass    |

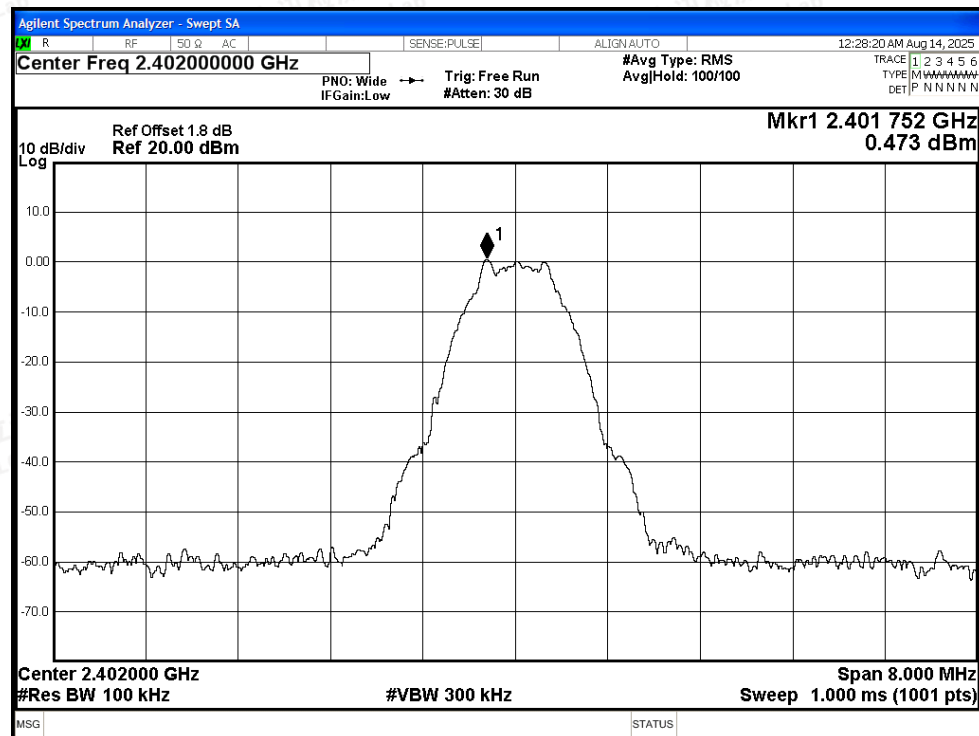


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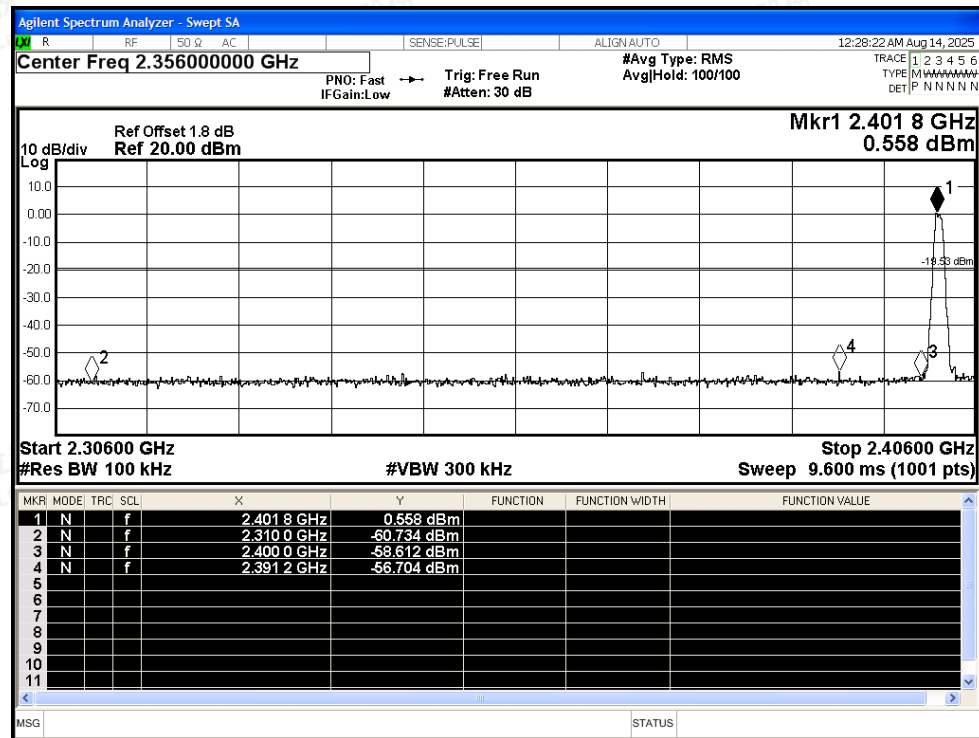


## Test Graphs

## Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



## Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



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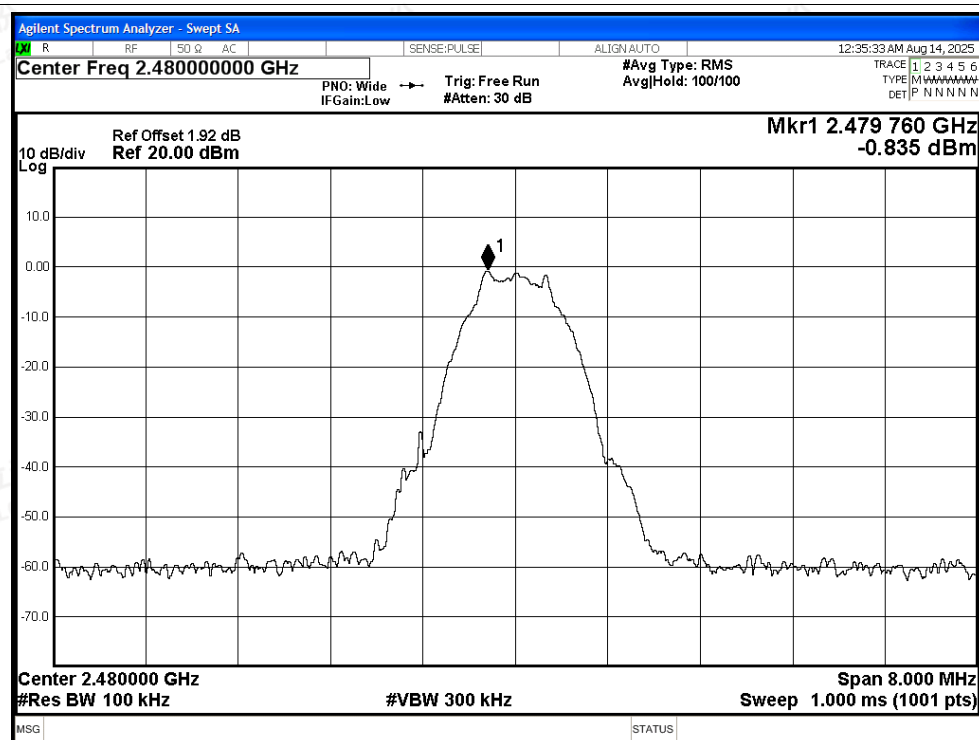
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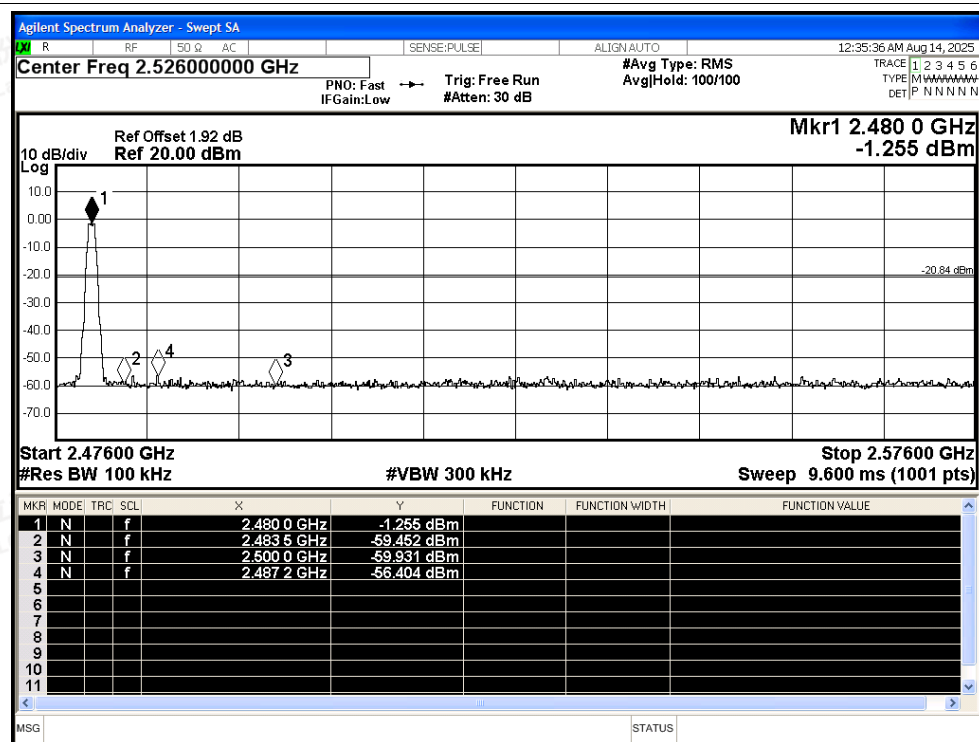
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## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref

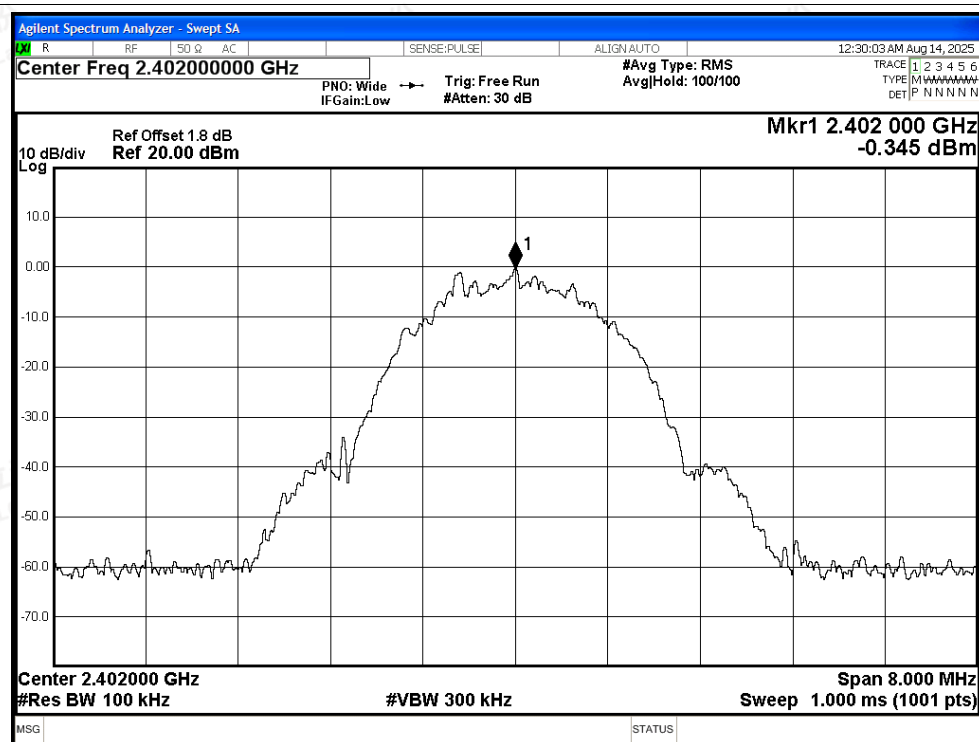


## Band Edge NVNT BLE 1M 2480MHz Ant1 Emission

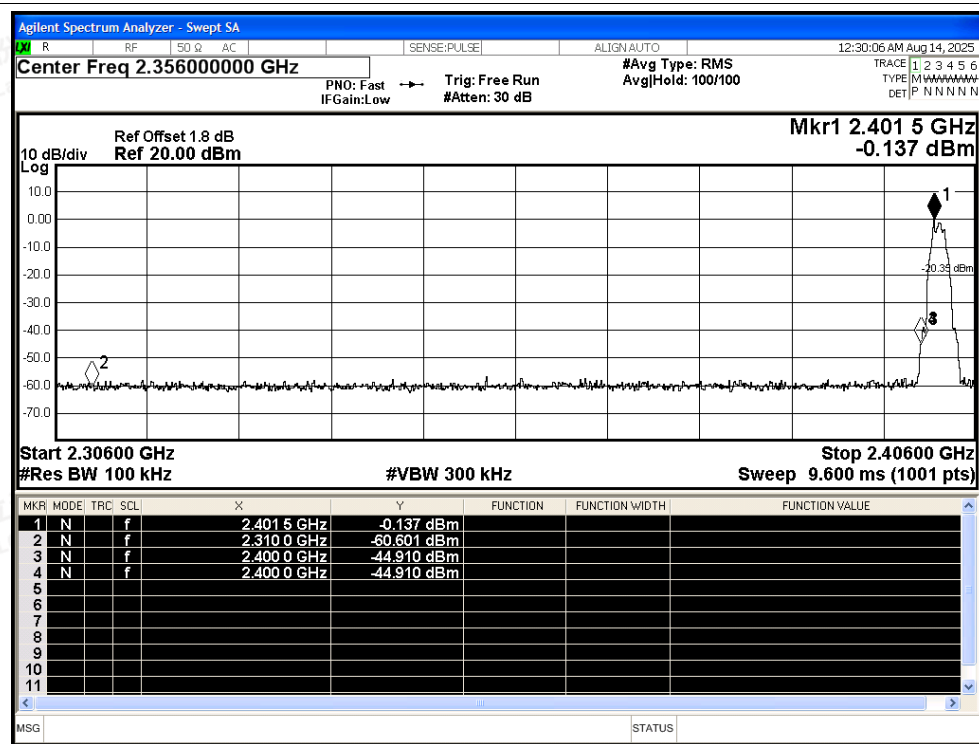




## Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



## Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



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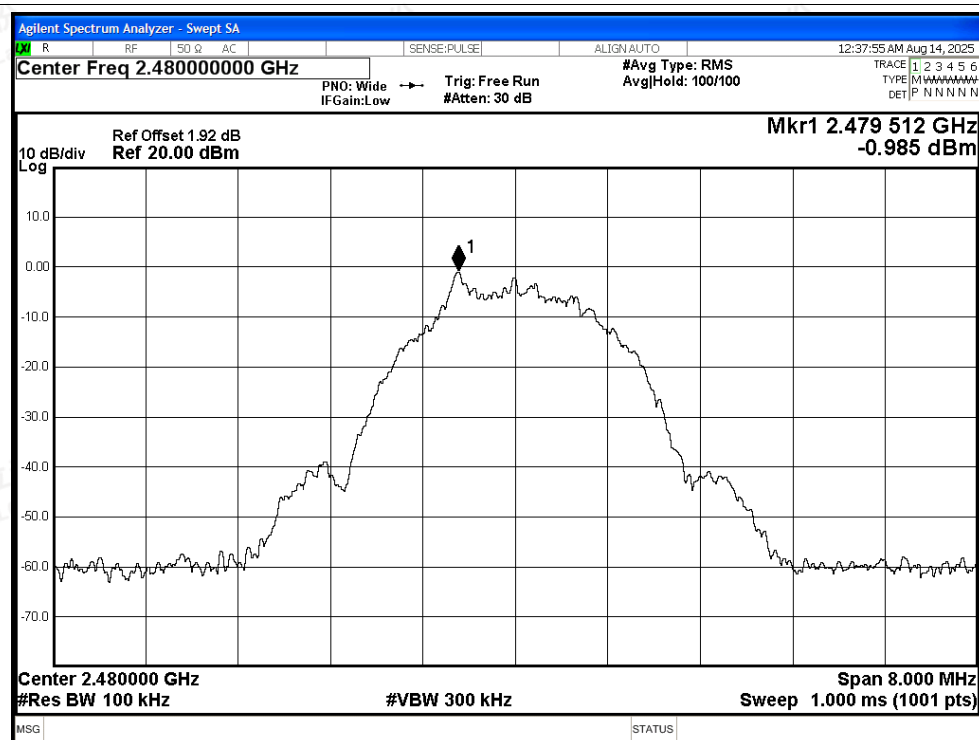
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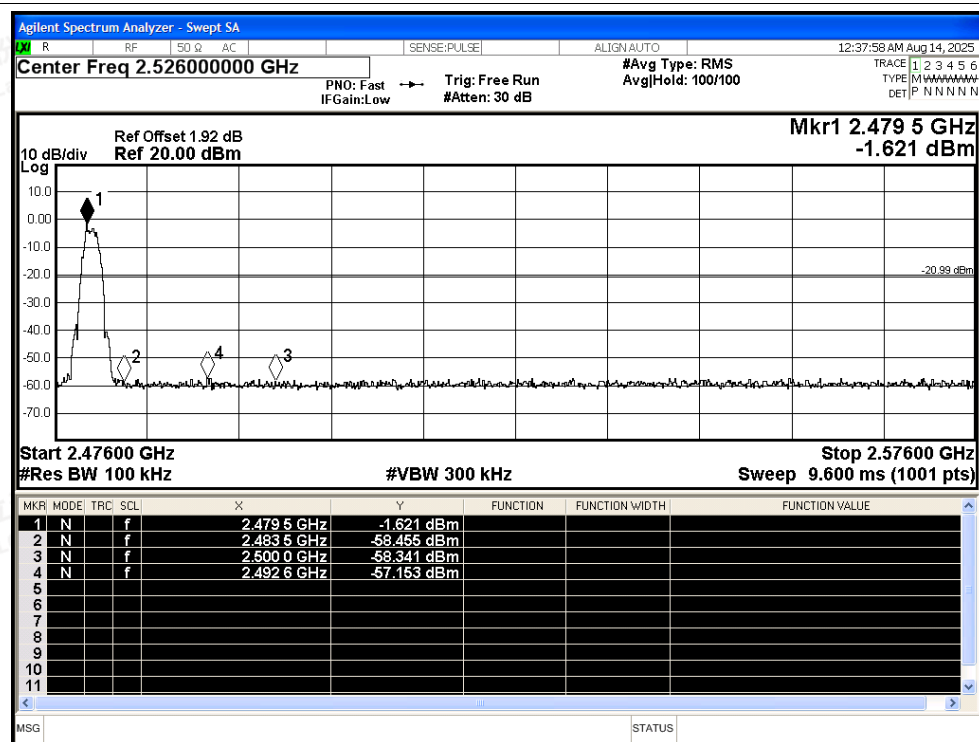
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## Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



## Band Edge NVNT BLE 2M 2480MHz Ant1 Emission



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## A.5 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -55.39          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -55.85          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -54.26          | -20         | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | -55.67          | -20         | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | -55.1           | -20         | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -52.79          | -20         | Pass    |

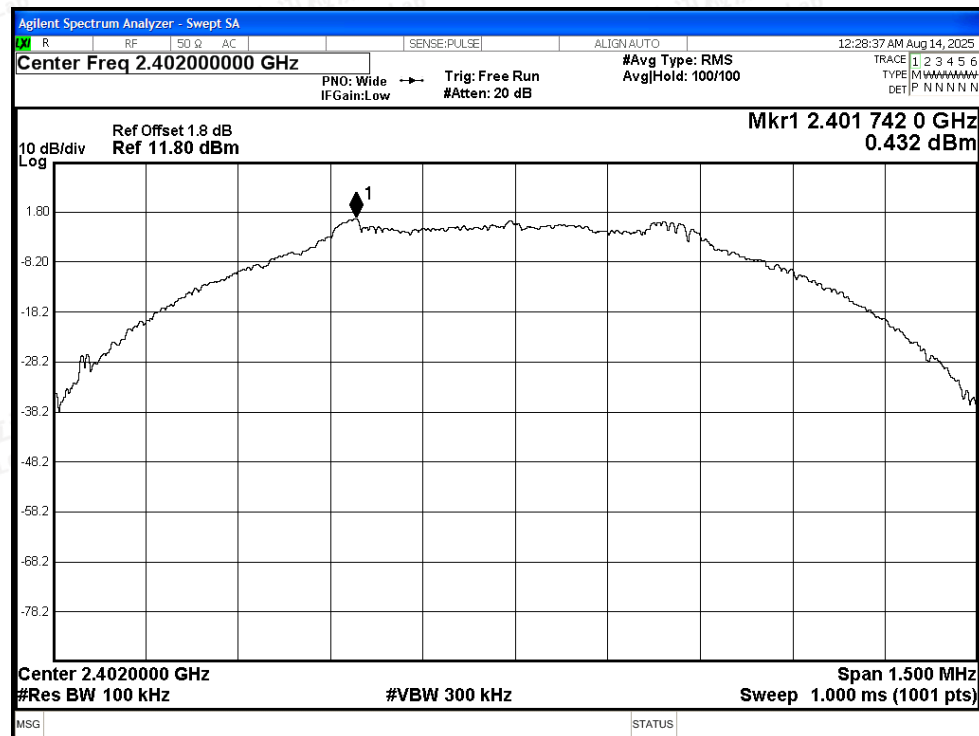


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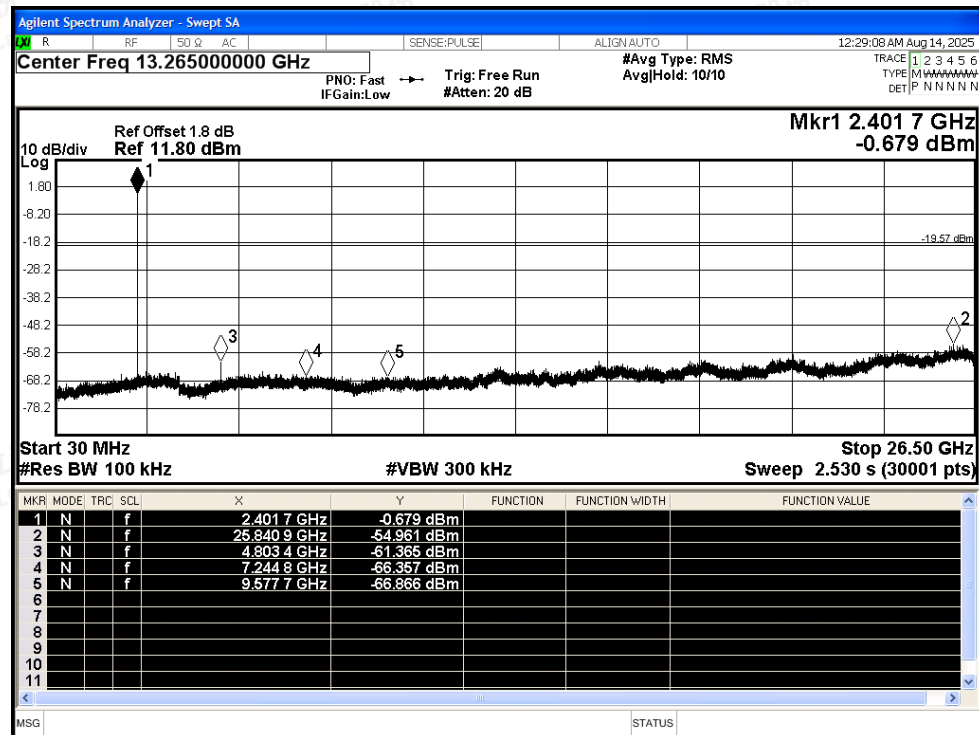


## Test Graphs

## Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



## Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



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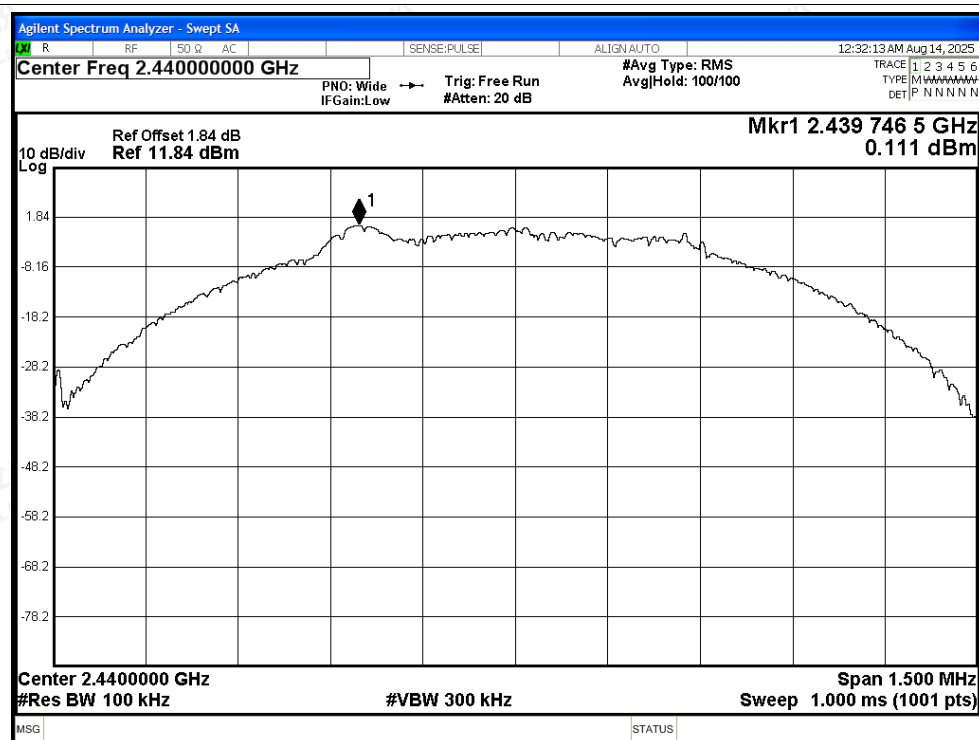
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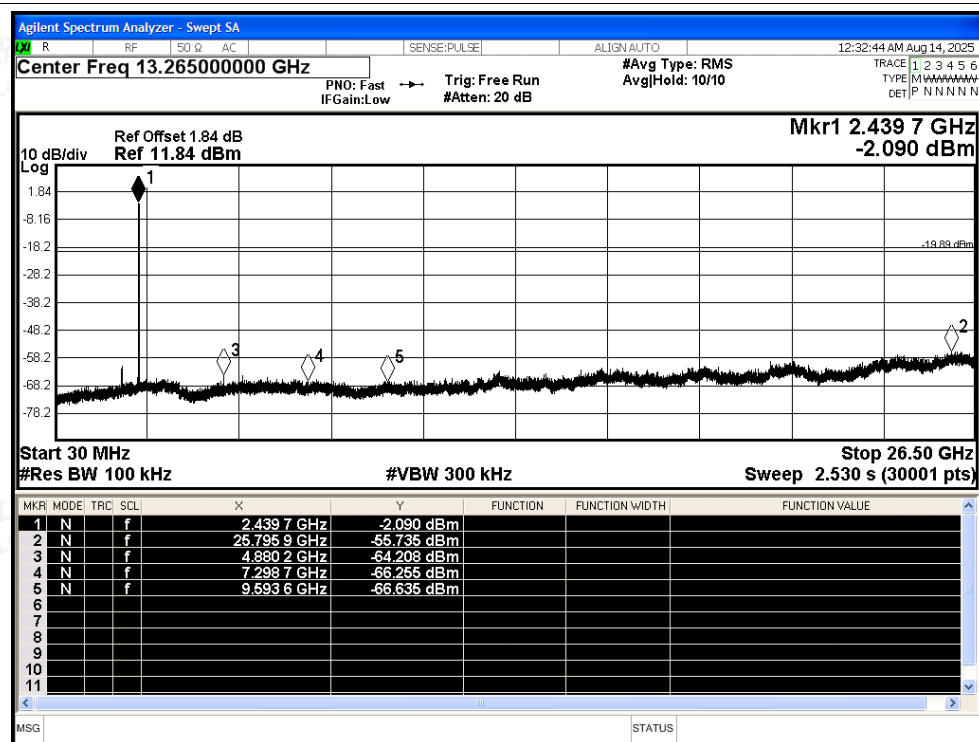
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## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



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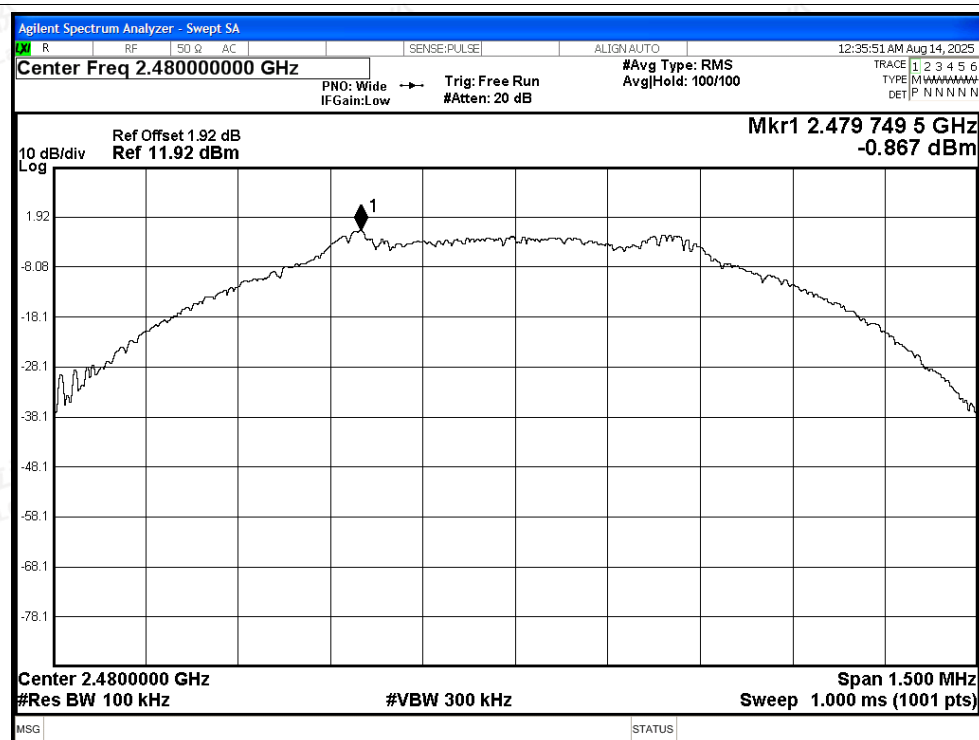
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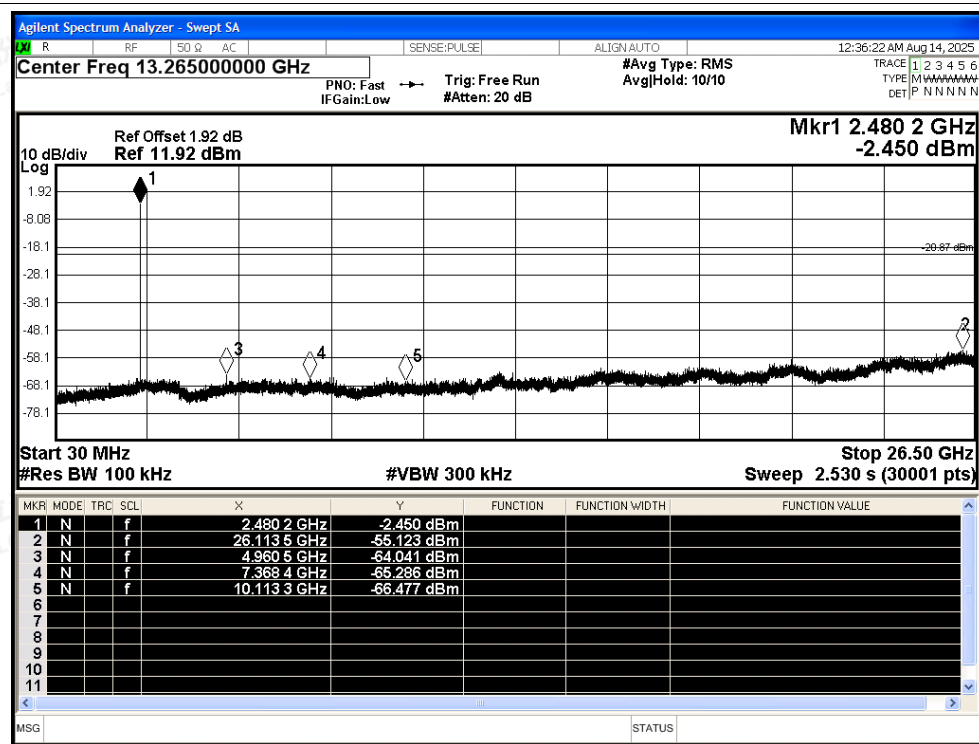
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## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



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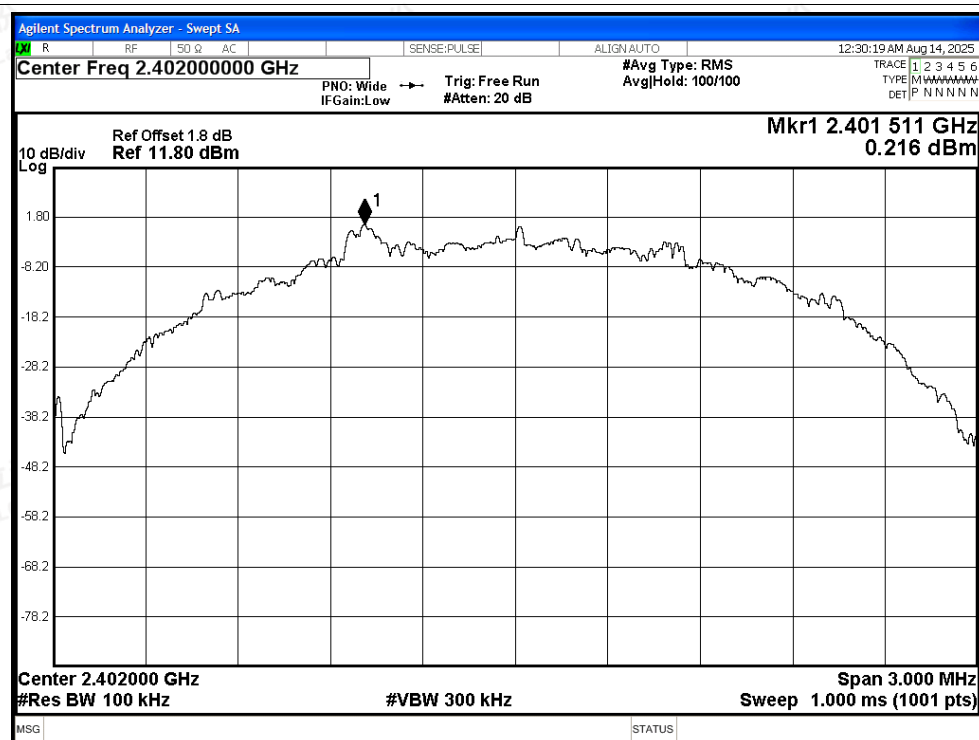
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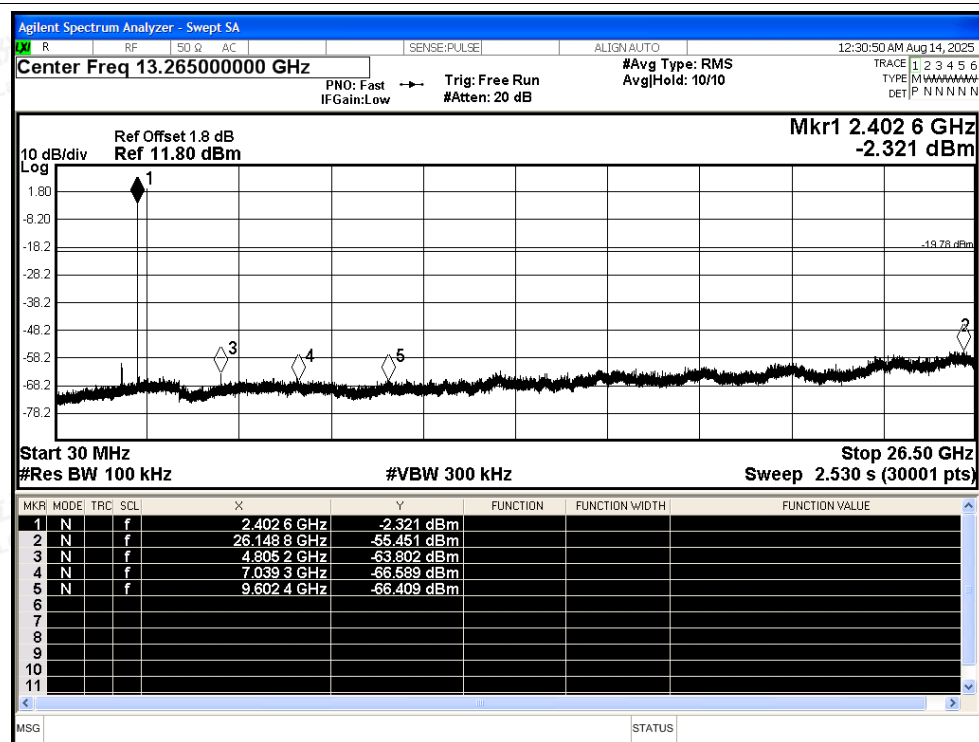
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## Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



## Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



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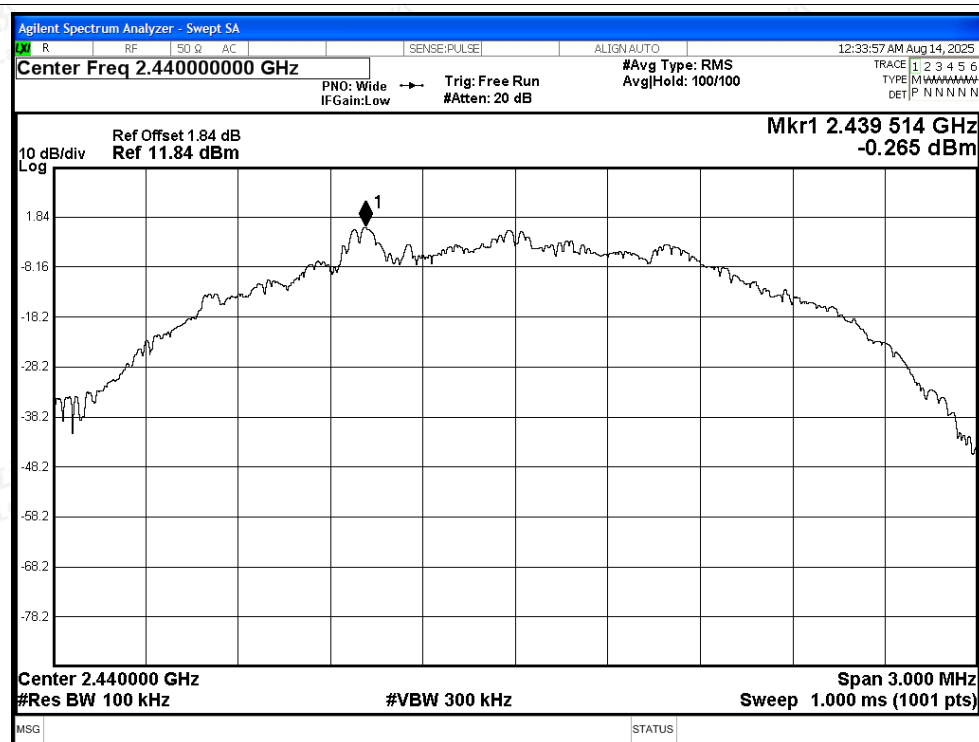
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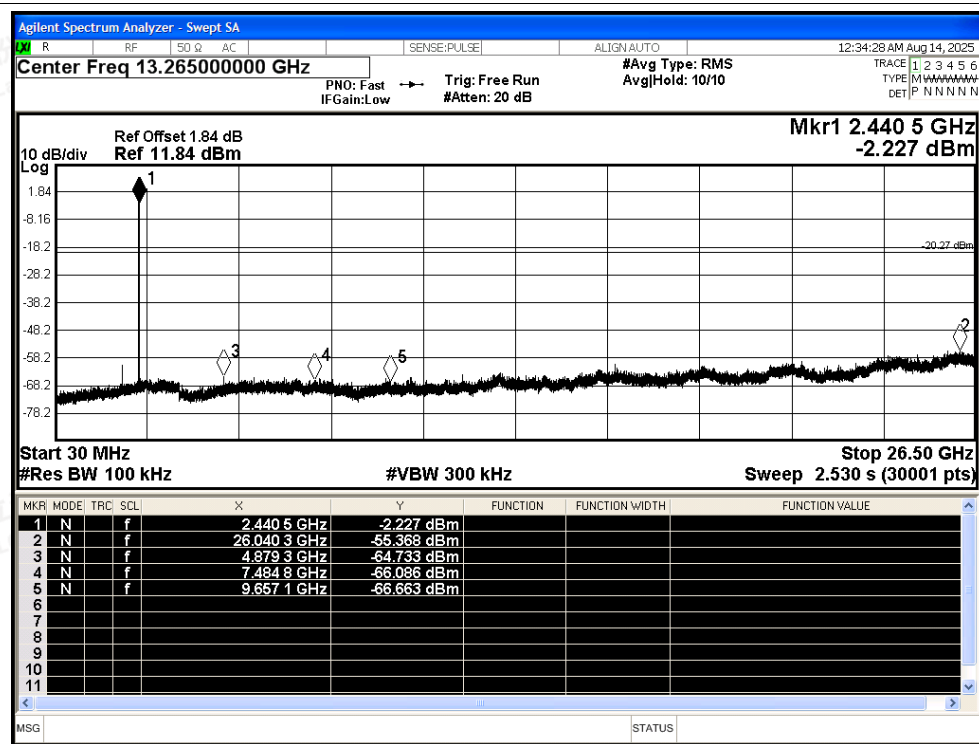
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## Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



## Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



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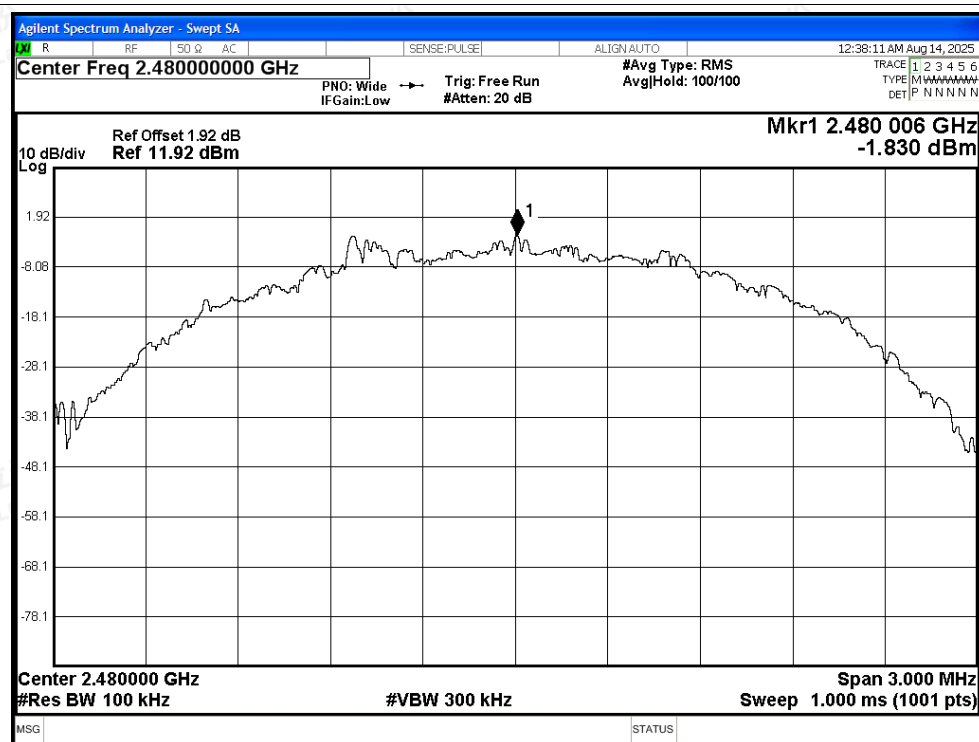
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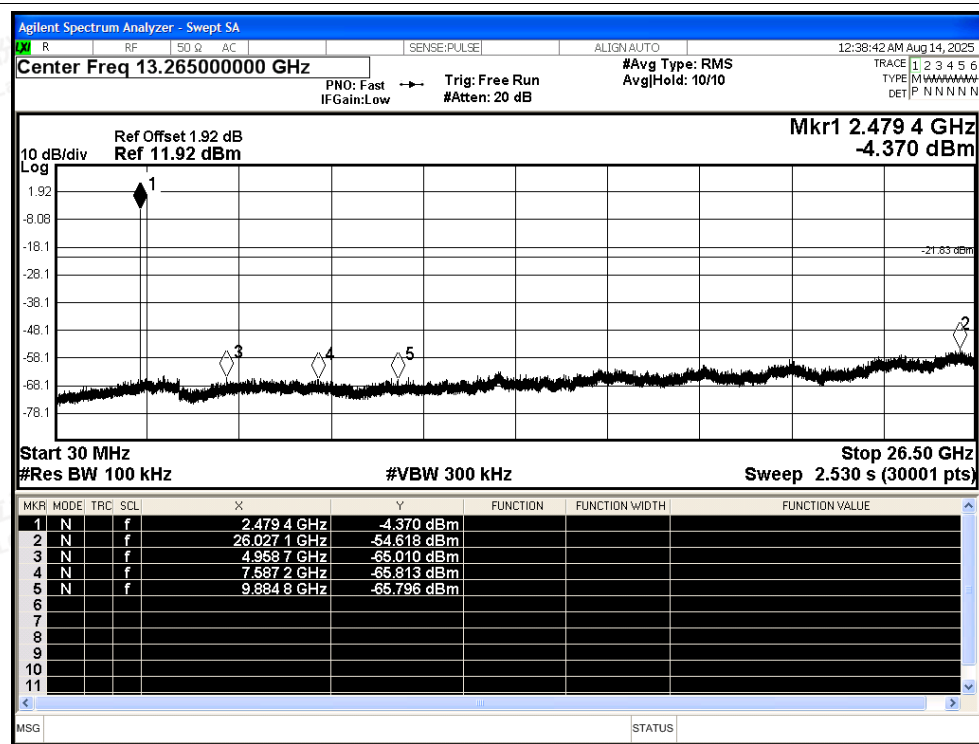
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## Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



## Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission



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## A.6 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 87.39          | 0.59                   | 0.61      |
| NVNT      | BLE 1M | 2440            | Ant1    | 87.39          | 0.59                   | 0.61      |
| NVNT      | BLE 1M | 2480            | Ant1    | 87.39          | 0.59                   | 0.61      |
| NVNT      | BLE 2M | 2402            | Ant1    | 65.92          | 1.81                   | 1.21      |
| NVNT      | BLE 2M | 2440            | Ant1    | 65.92          | 1.81                   | 1.21      |
| NVNT      | BLE 2M | 2480            | Ant1    | 65.92          | 1.81                   | 1.21      |

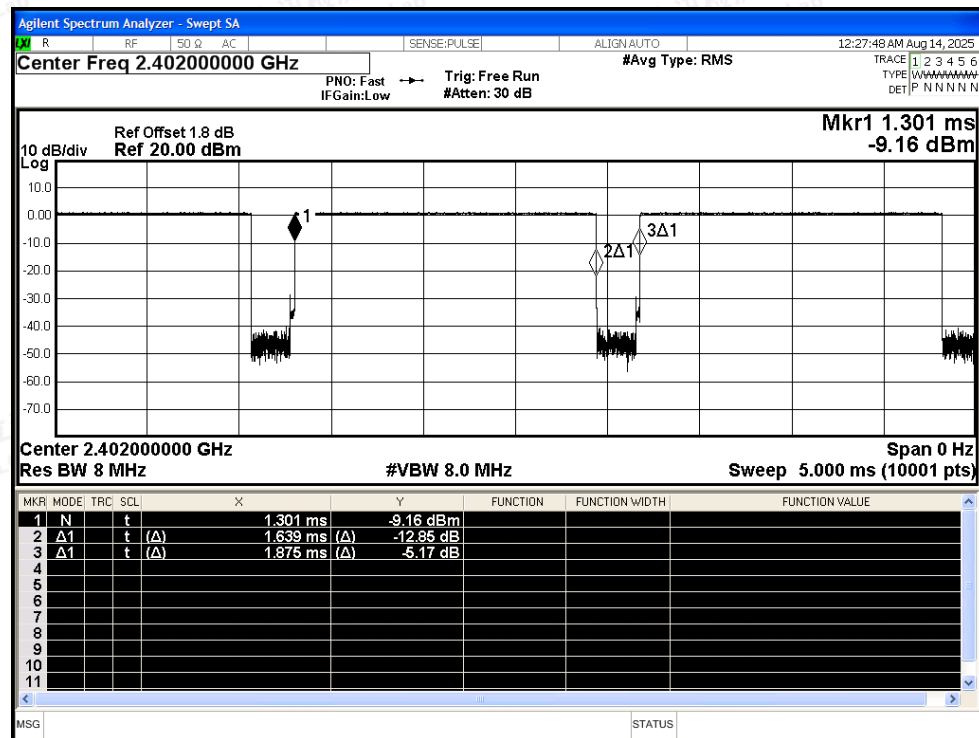


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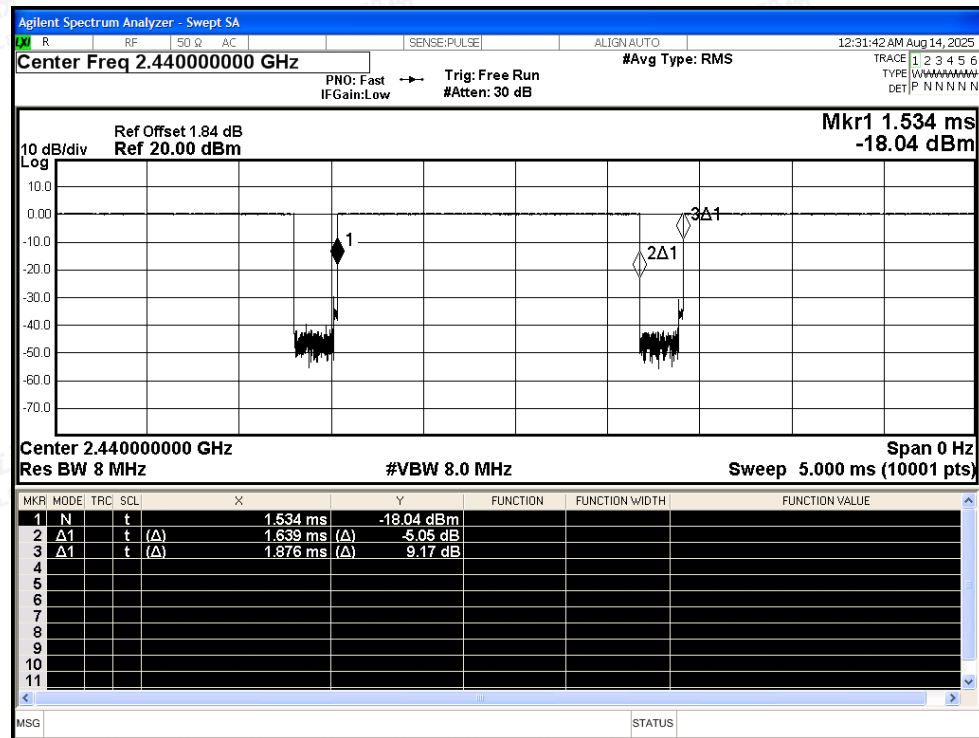


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1



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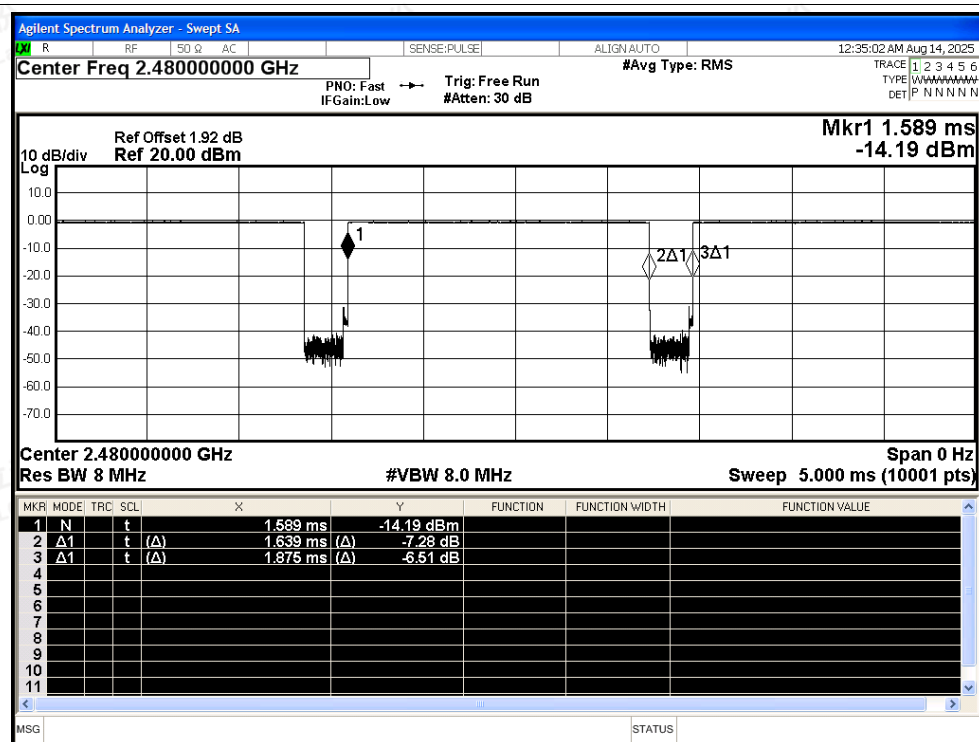
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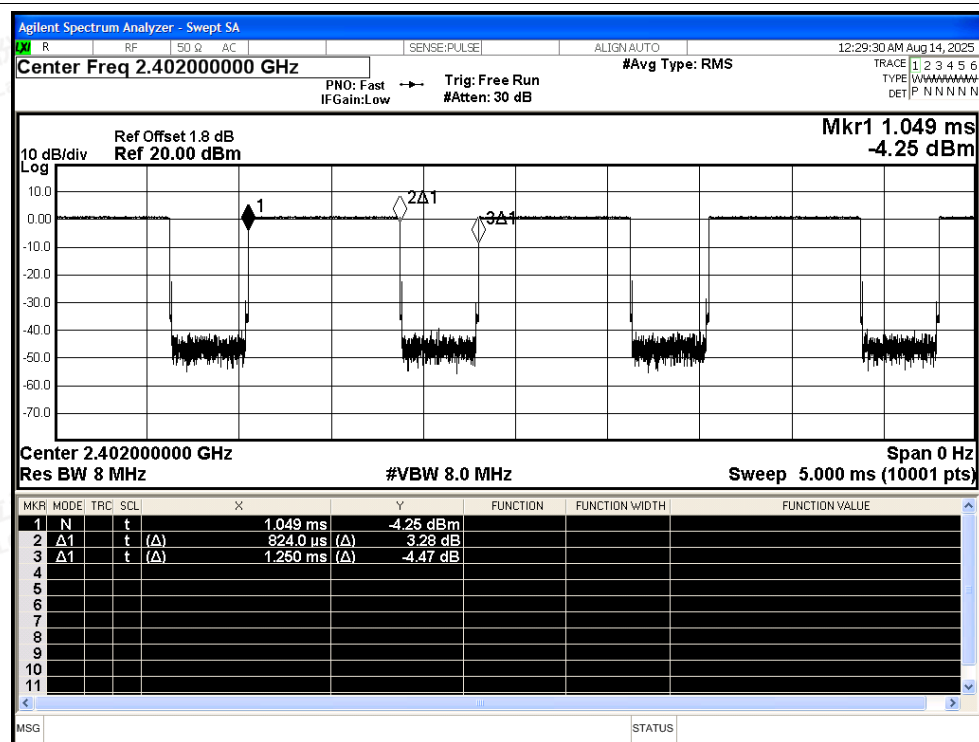
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## Duty Cycle NVNT BLE 1M 2480MHz Ant1



## Duty Cycle NVNT BLE 2M 2402MHz Ant1



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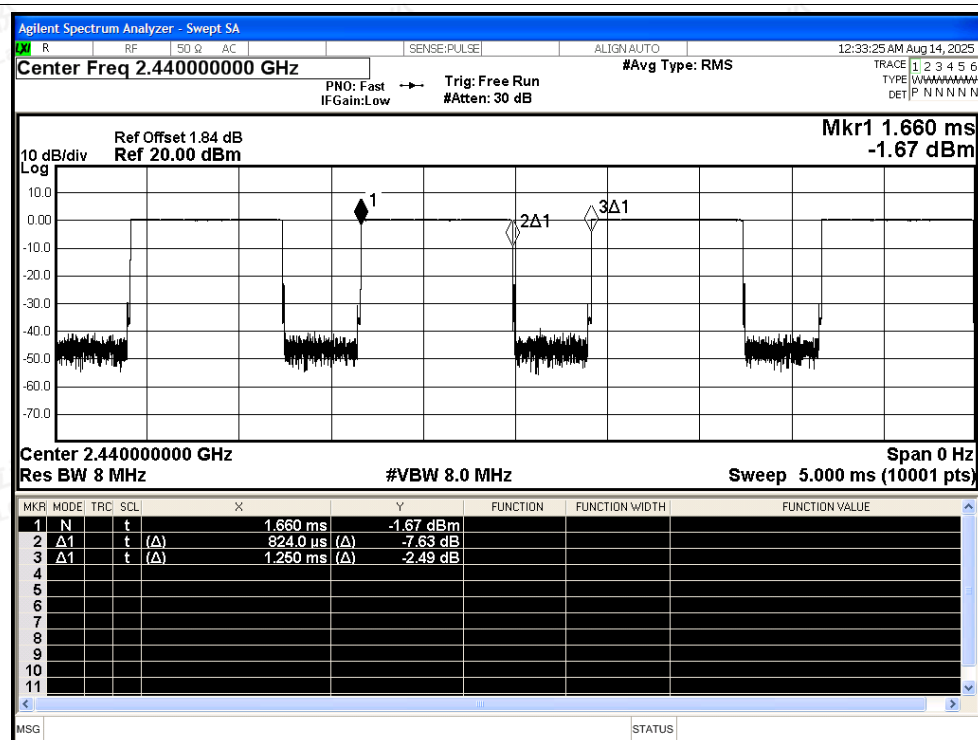
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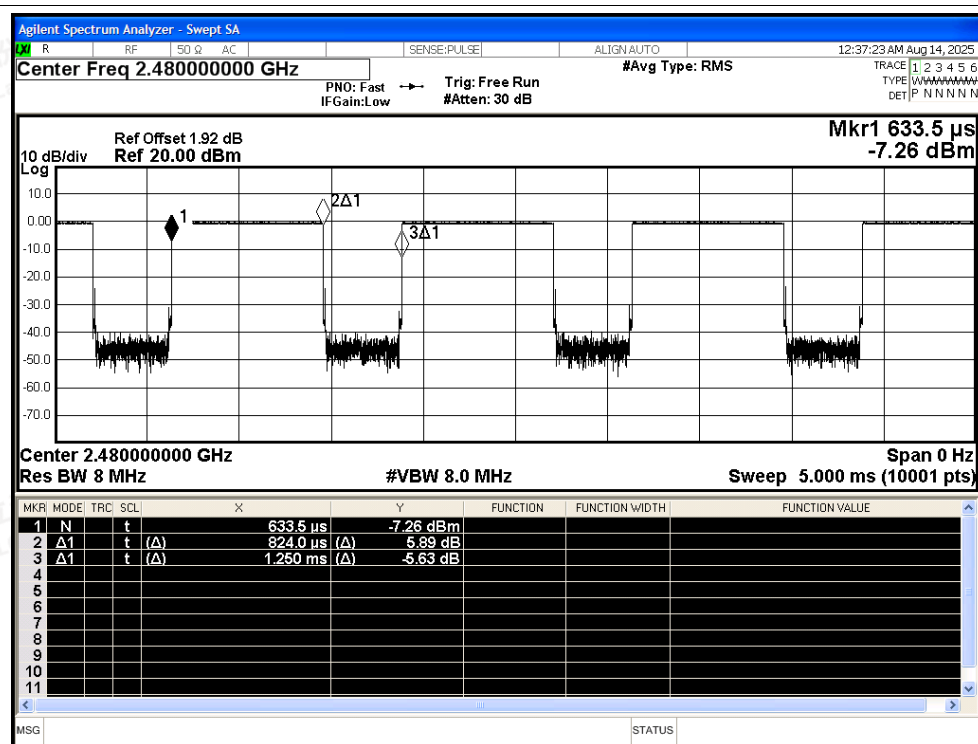
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## Duty Cycle NVNT BLE 2M 2440MHz Ant1



## Duty Cycle NVNT BLE 2M 2480MHz Ant1





## A.7 Restrict Band

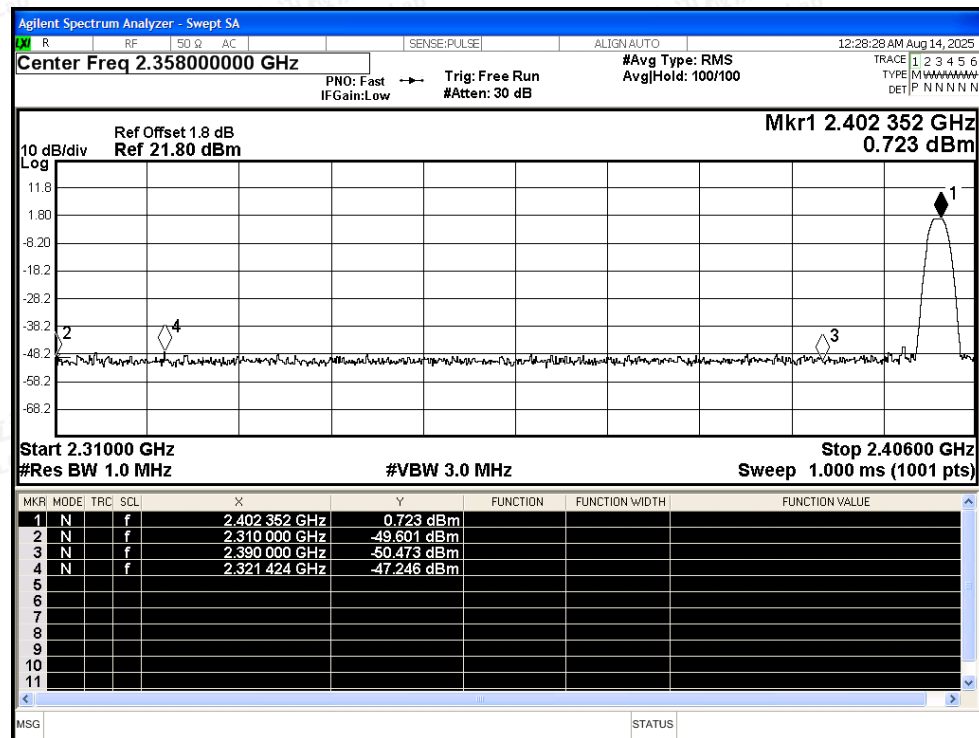
| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor (dB) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------------|------------|----------|----------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -49.6       | 2          | -                | 47.66      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -59.03      | 2          | 0.59             | 38.82      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2321.424        | -47.25      | 2          | -                | 50.01      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2378.832        | -58.39      | 2          | 0.59             | 39.46      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -50.47      | 2          | -                | 46.79      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -58.67      | 2          | 0.59             | 39.18      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -49.19      | 2          | -                | 48.07      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -57.95      | 2          | 0.59             | 39.9       | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2489.44         | -45.12      | 2          | -                | 52.14      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.56         | -57.69      | 2          | 0.59             | 40.16      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -49.37      | 2          | -                | 47.89      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -58.4       | 2          | 0.59             | 39.45      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2310            | -50.73      | 2          | -                | 46.53      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2310            | -59.19      | 2          | 1.81             | 39.88      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2384.976        | -47.91      | 2          | -                | 49.35      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2350.224        | -57.81      | 2          | 1.81             | 41.26      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2390            | -48.93      | 2          | -                | 48.33      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2390            | -58.64      | 2          | 1.81             | 40.43      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.5          | -50.47      | 2          | -                | 46.79      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.5          | -58.3       | 2          | 1.81             | 40.77      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2485.504        | -45.77      | 2          | -                | 51.49      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.968        | -57.2       | 2          | 1.81             | 41.87      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2500            | -50.59      | 2          | -                | 46.67      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2500            | -58.37      | 2          | 1.81             | 40.7       | Average  | 54             | Pass    |



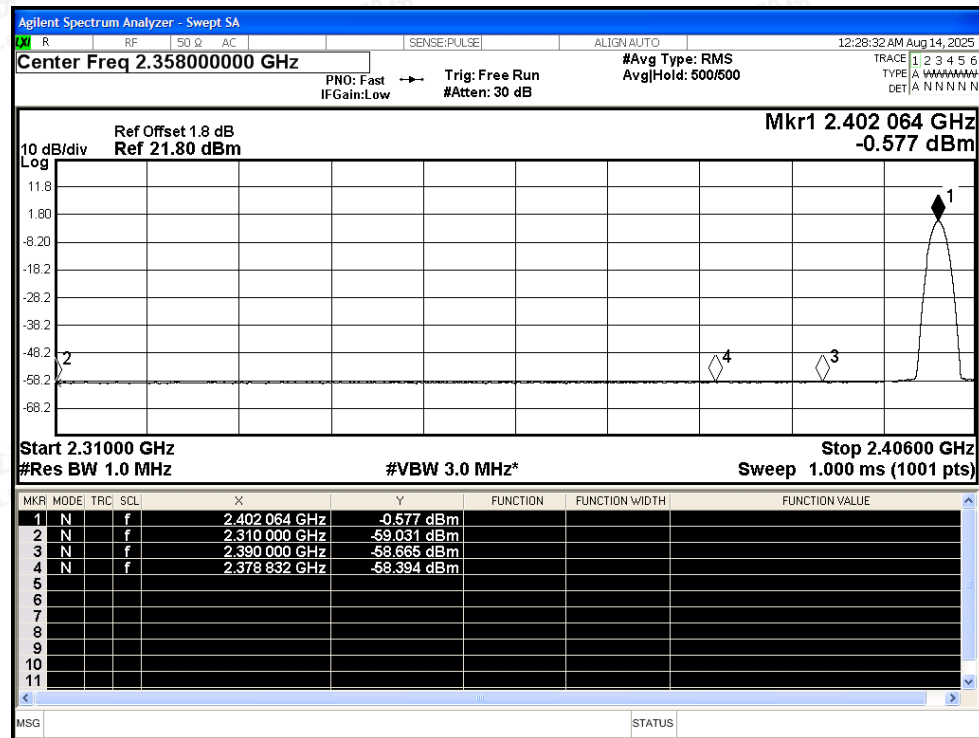


## Test Graphs

## Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak



## Restrict Band NVNT BLE 1M 2402MHz Ant1 Average



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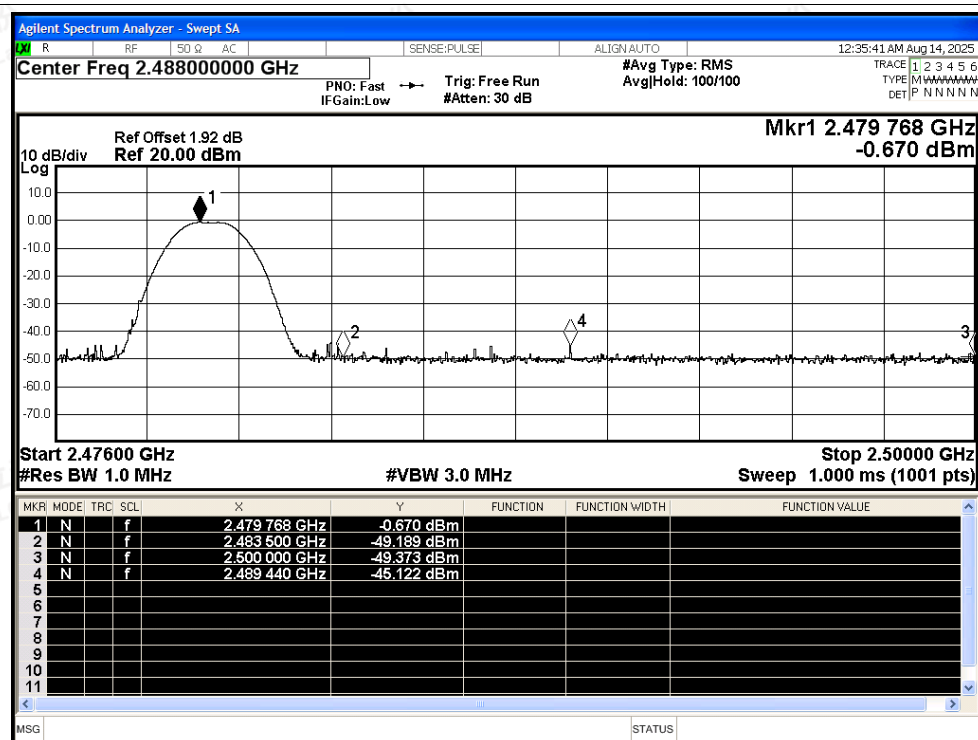
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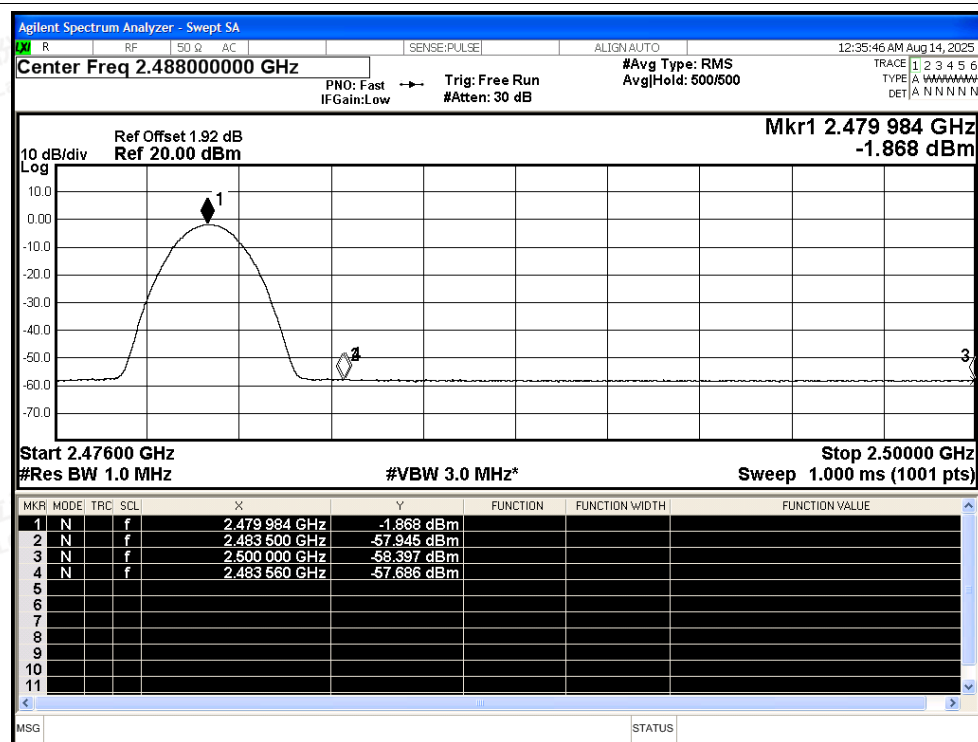
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## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak

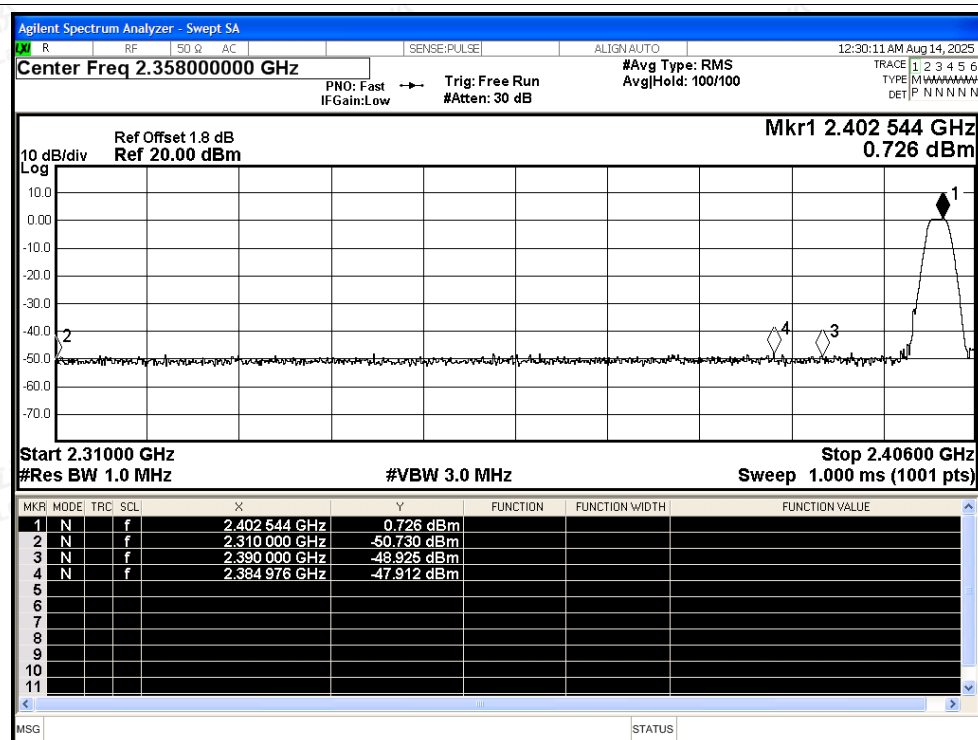


## Restrict Band NVNT BLE 1M 2480MHz Ant1 Average

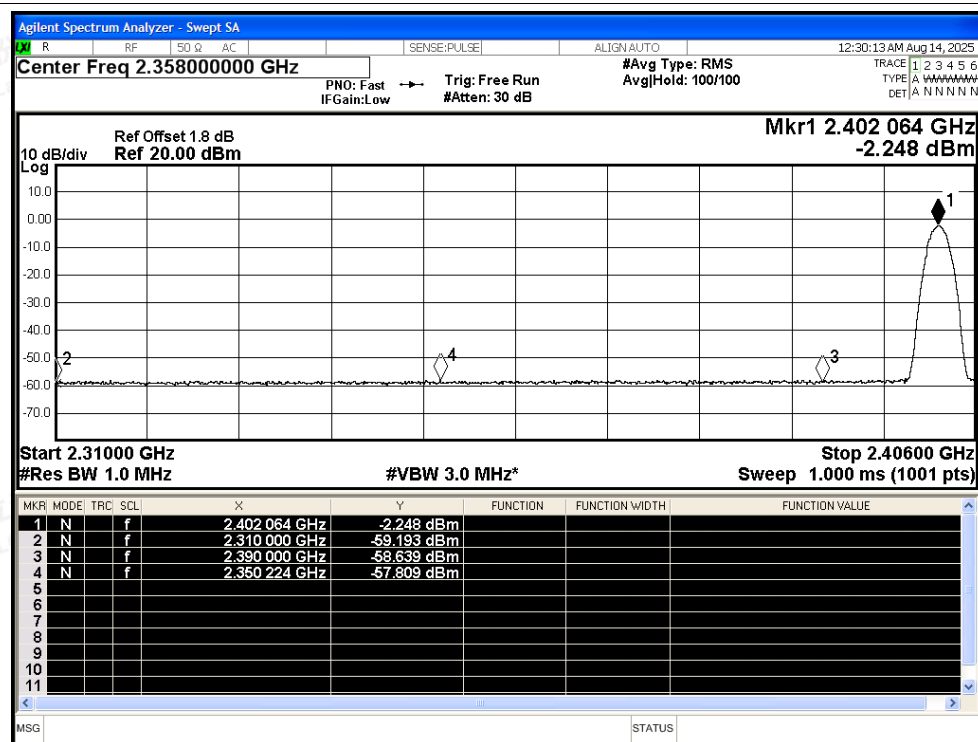




## Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak



## Restrict Band NVNT BLE 2M 2402MHz Ant1 Average



Shenzhen LCS Compliance Testing Laboratory Ltd.

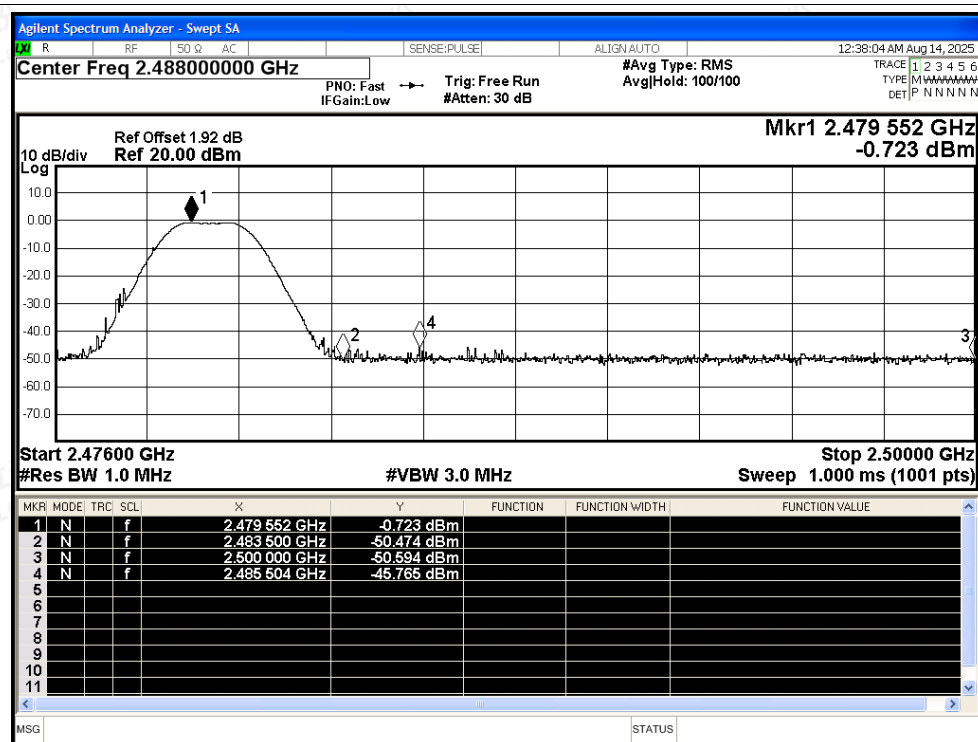
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## Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



## Restrict Band NVNT BLE 2M 2480MHz Ant1 Average

