



## Appendix B

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

Product Name: Speaker set

Test Model: SL4100

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.9° C   |
| Relative Humidity: | 52.4%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Jerry Chu |
| Supervised by:     | Nick Peng |



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## B.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    | 0.659                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.649                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 1.156                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | 1.133                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 1.142                 | $\geq 0.5$                  | Pass    |

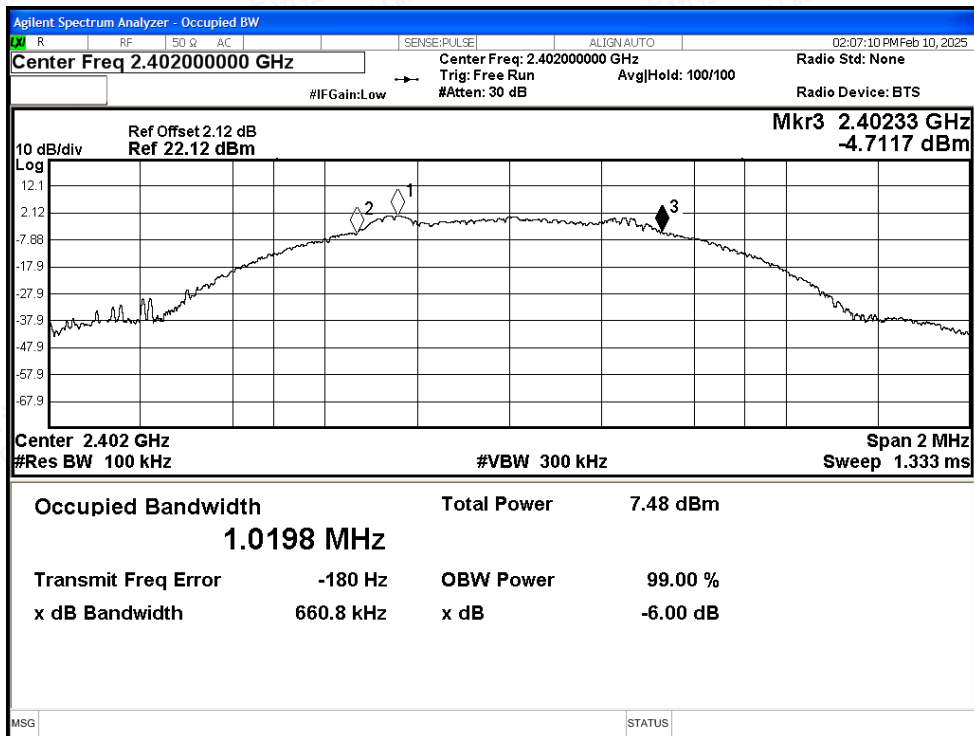


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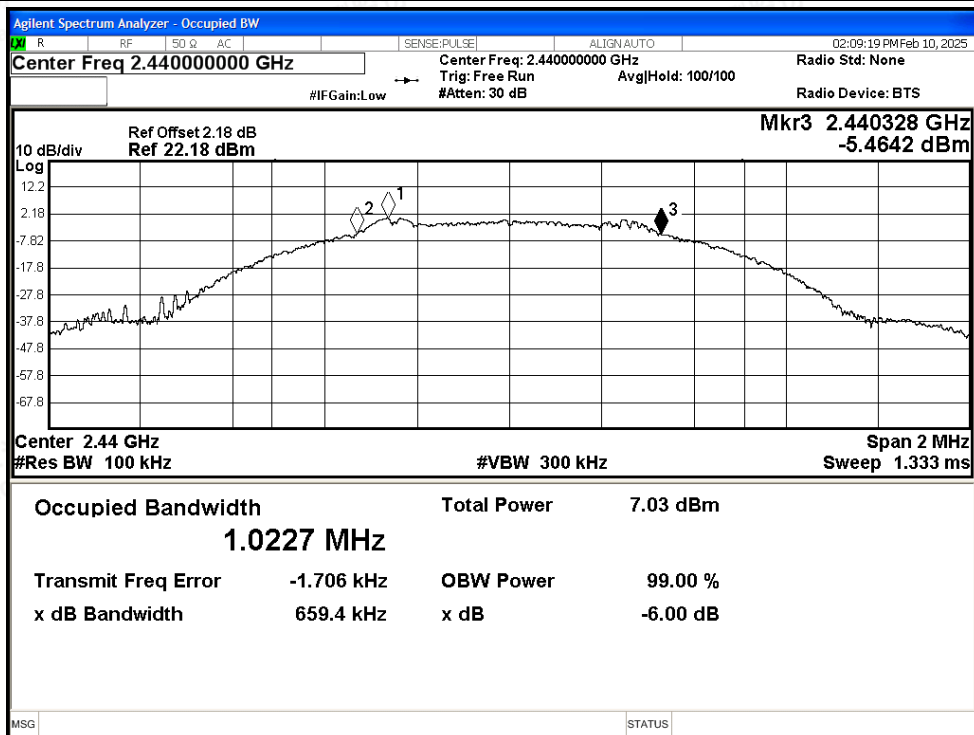


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

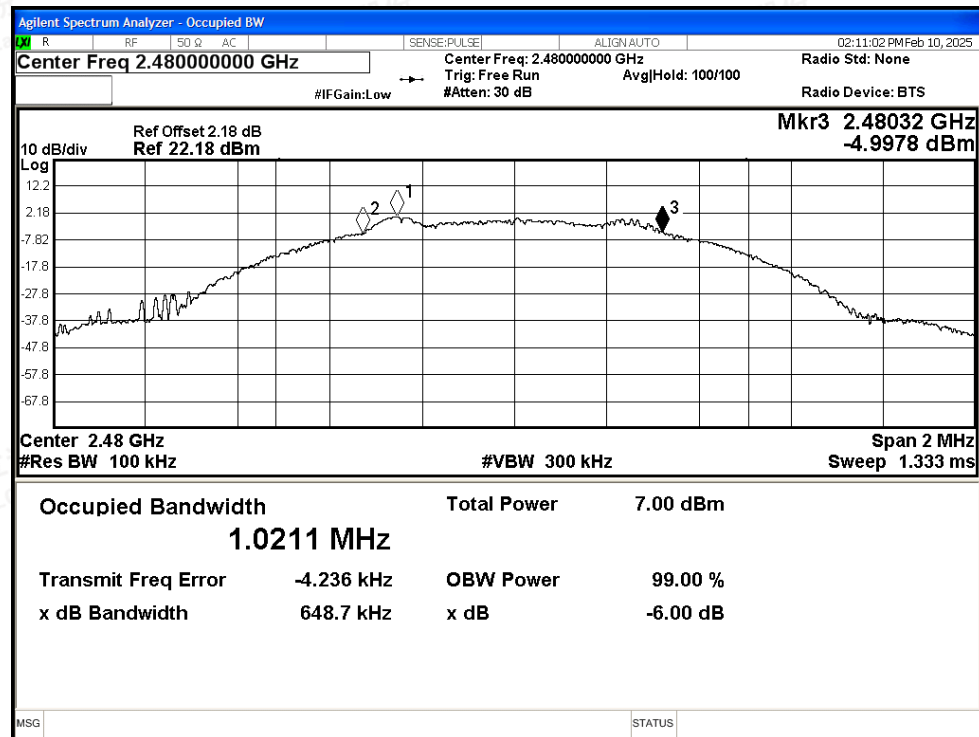


-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

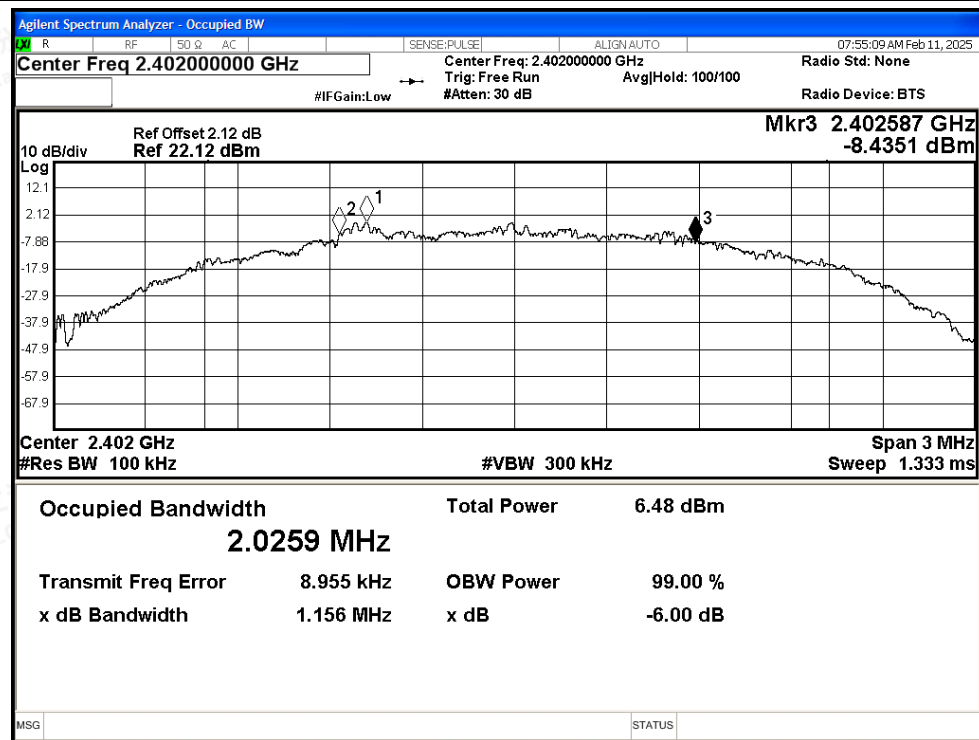




## -6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

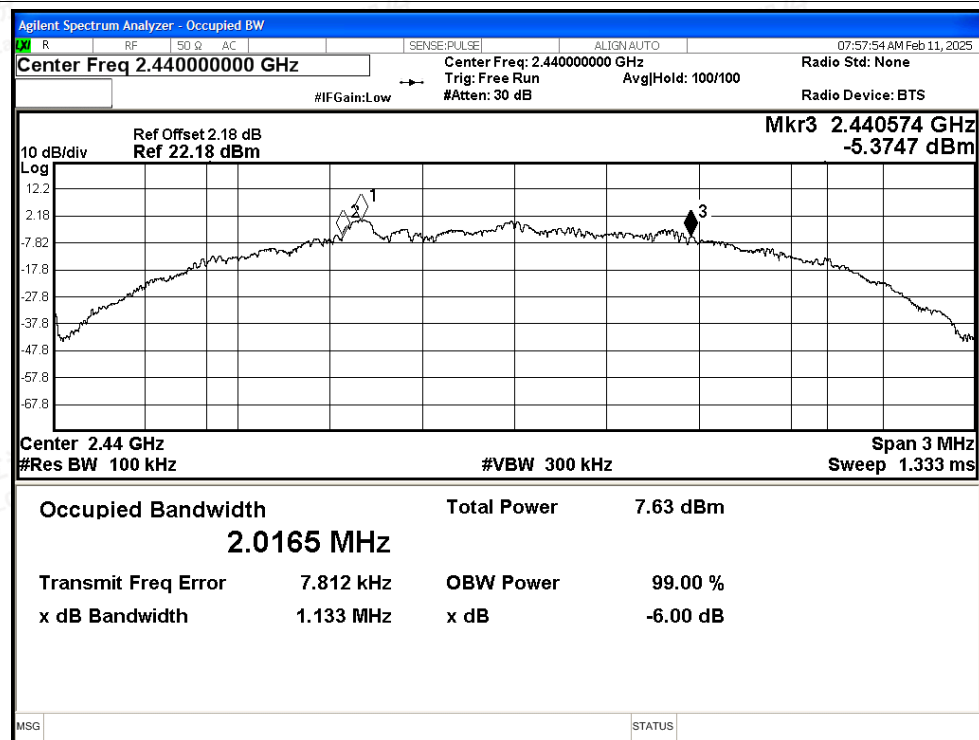


## -6dB Bandwidth NVNT BLE 2M 2402MHz Ant1

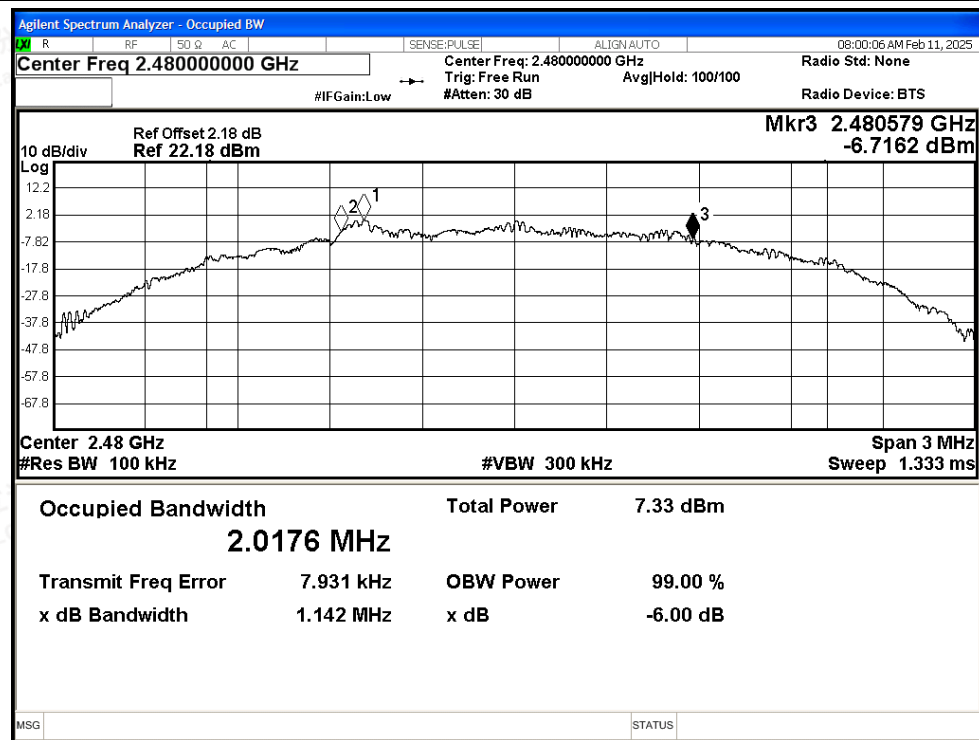




## -6dB Bandwidth NVNT BLE 2M 2440MHz Ant1



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





## B.2 Maximum Peak Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 1.57                  | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 1.17                  | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 1.11                  | 30          | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 0.23                  | 30          | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | 1.1                   | 30          | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 0.82                  | 30          | Pass    |

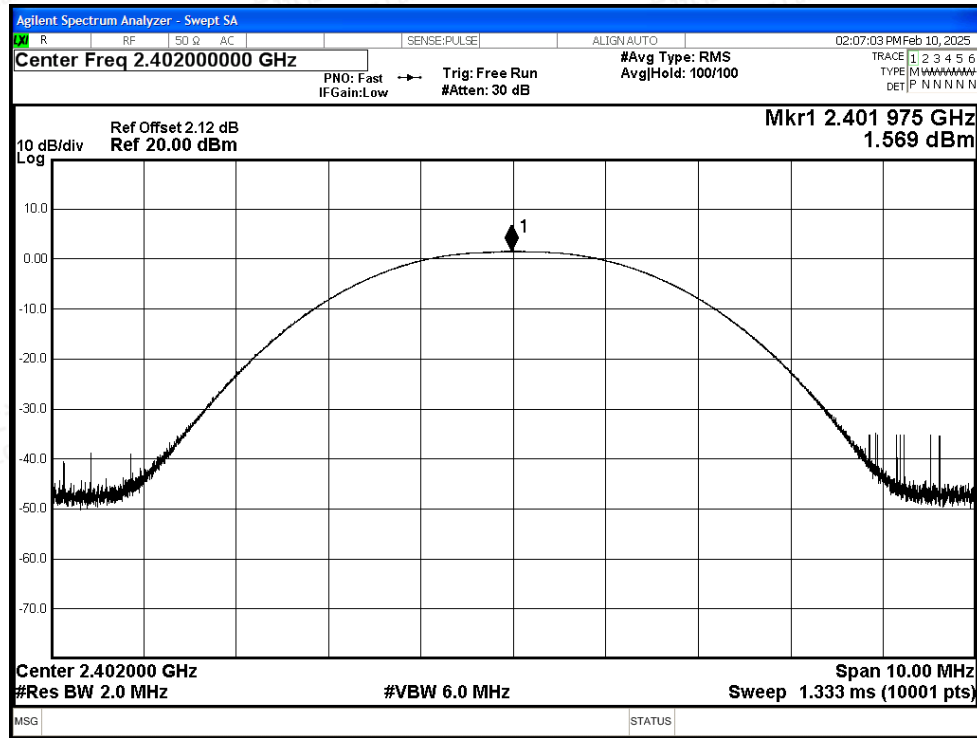


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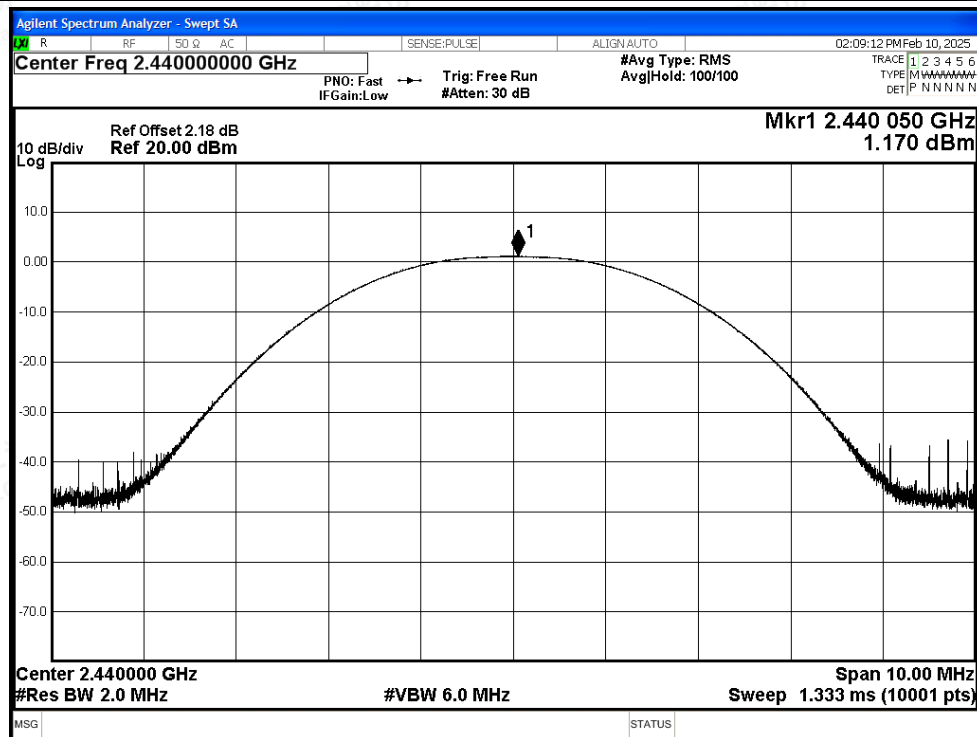


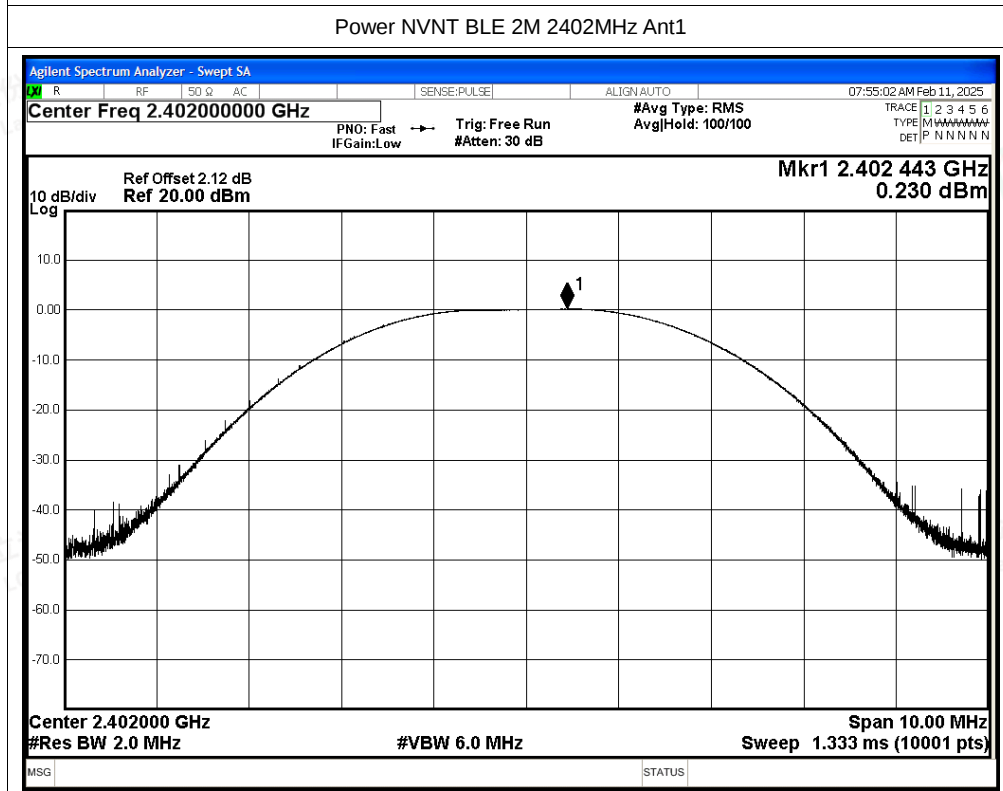
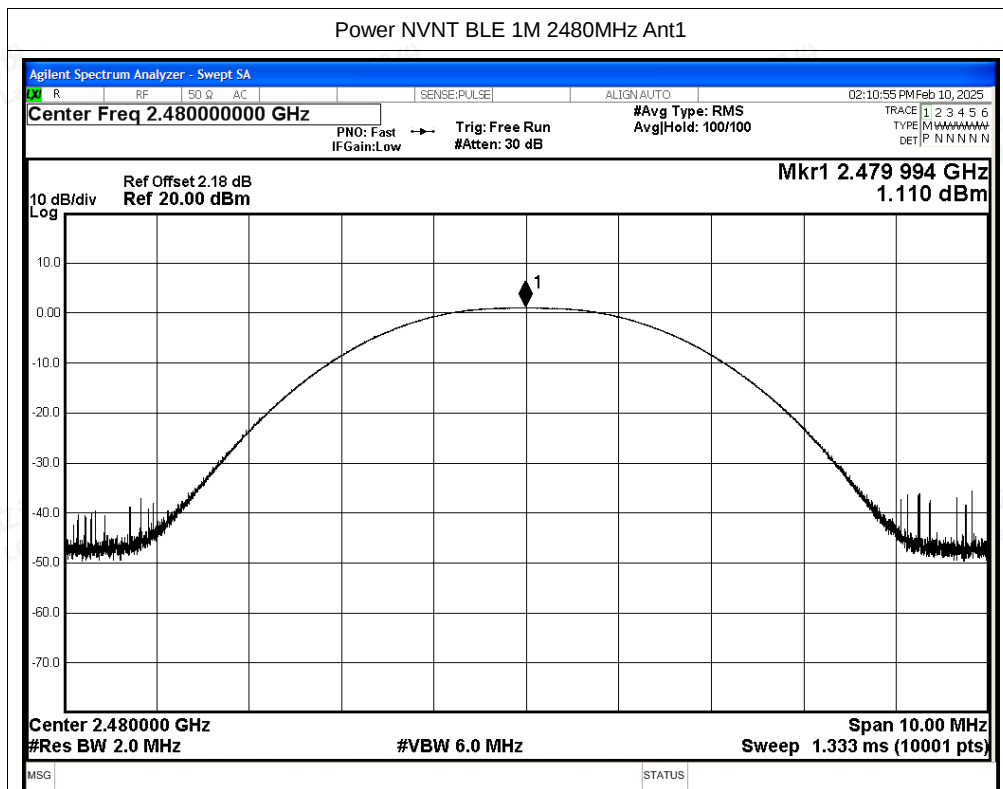
## Test Graphs

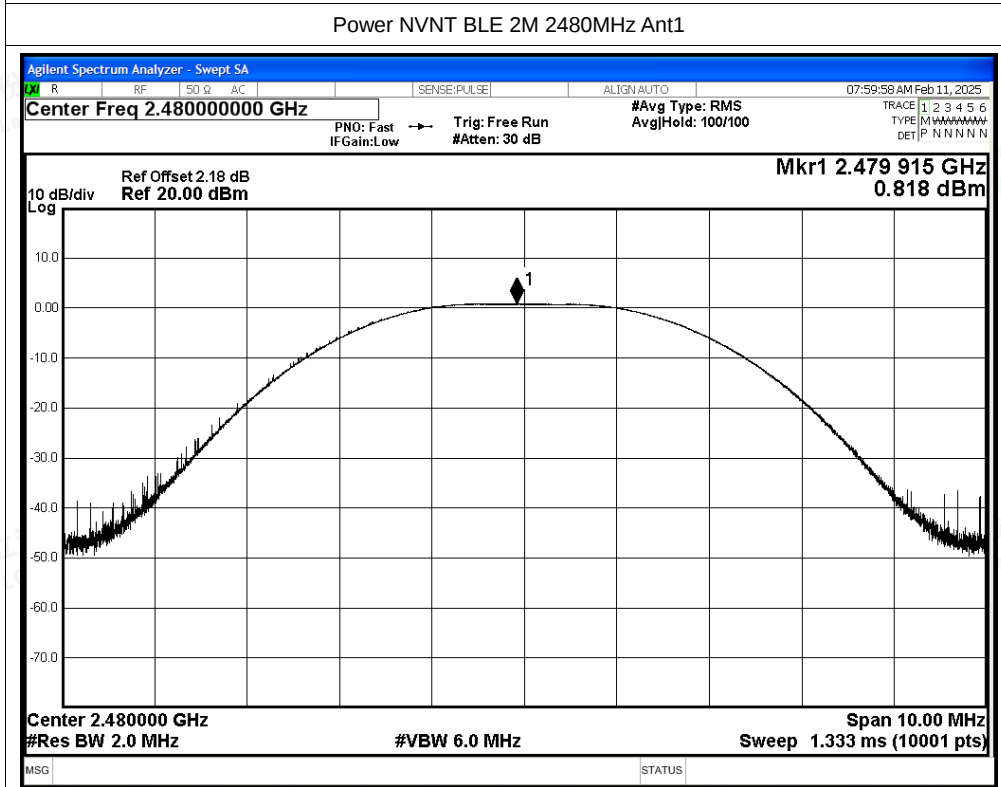
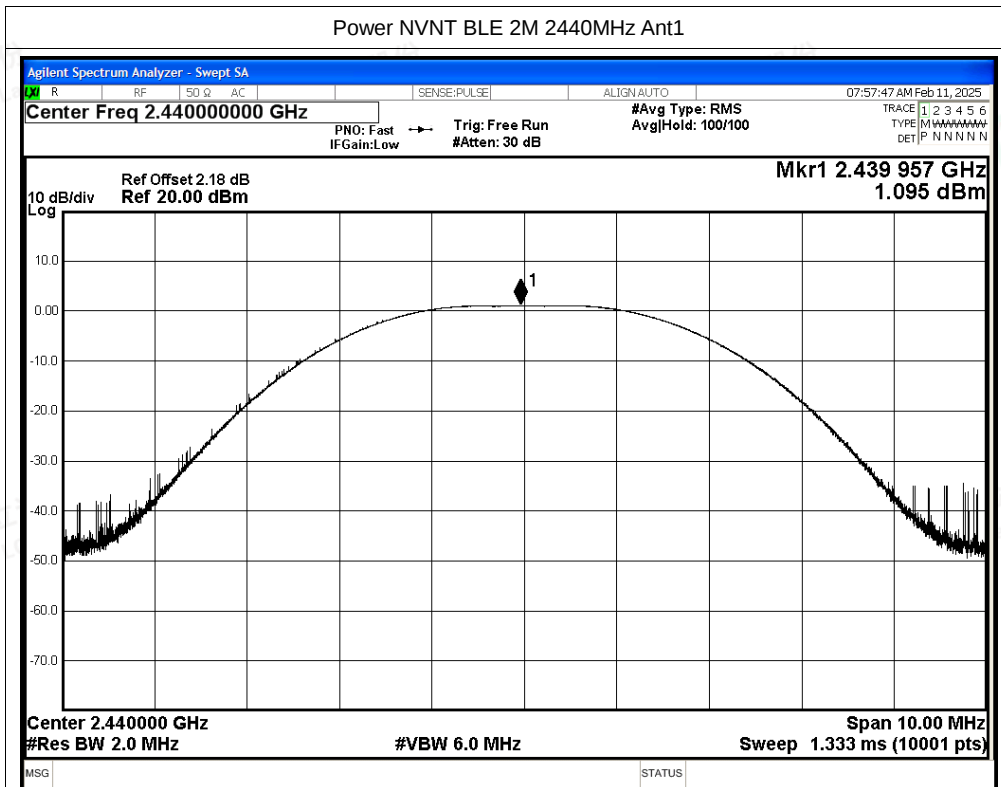
Power NVNT BLE 1M 2402MHz Ant1



Power NVNT BLE 1M 2440MHz Ant1









### B.3 Maximum Power Spectral Density Level

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|--------------------------|------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -15.13                   | 8                | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -15.3                    | 8                | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -15.45                   | 8                | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | -19.75                   | 8                | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | -18.51                   | 8                | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -19.28                   | 8                | Pass    |

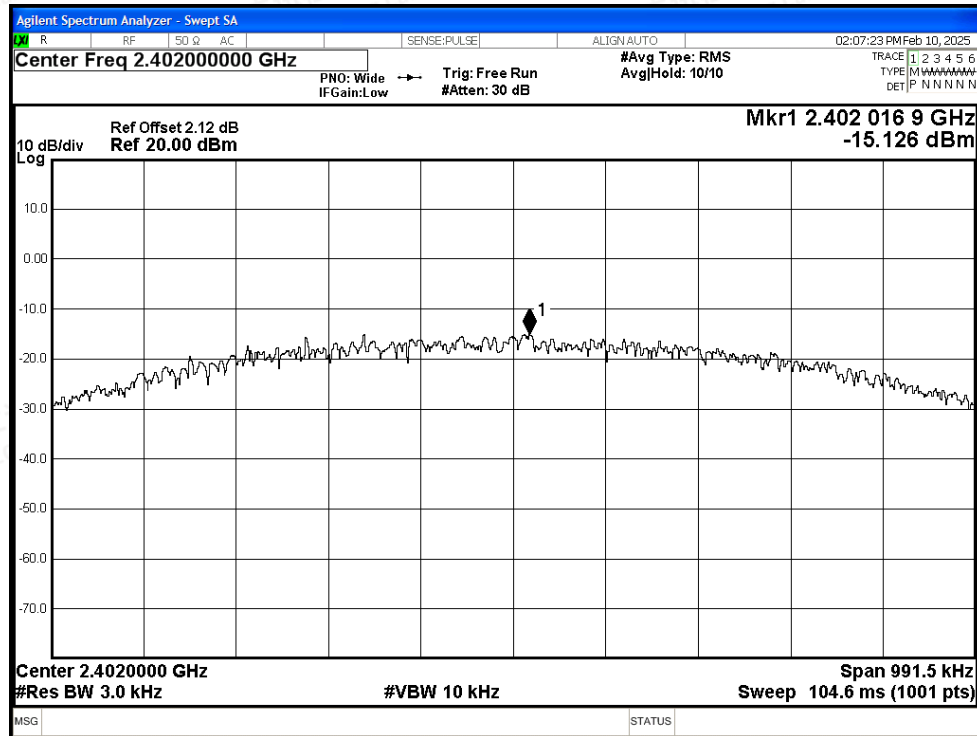


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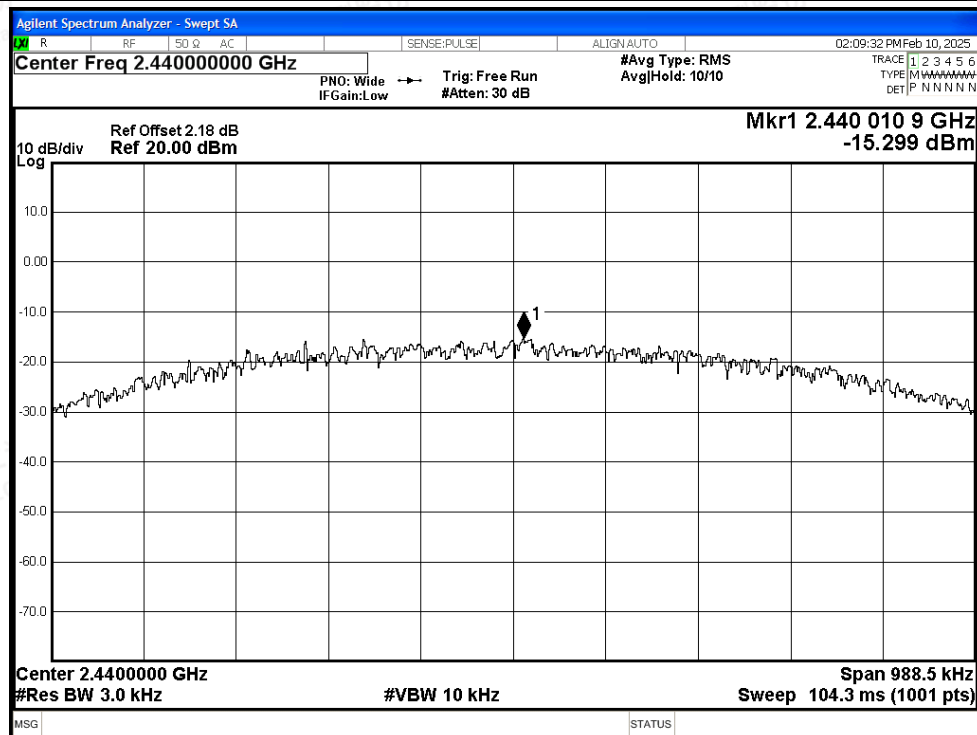


## Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1

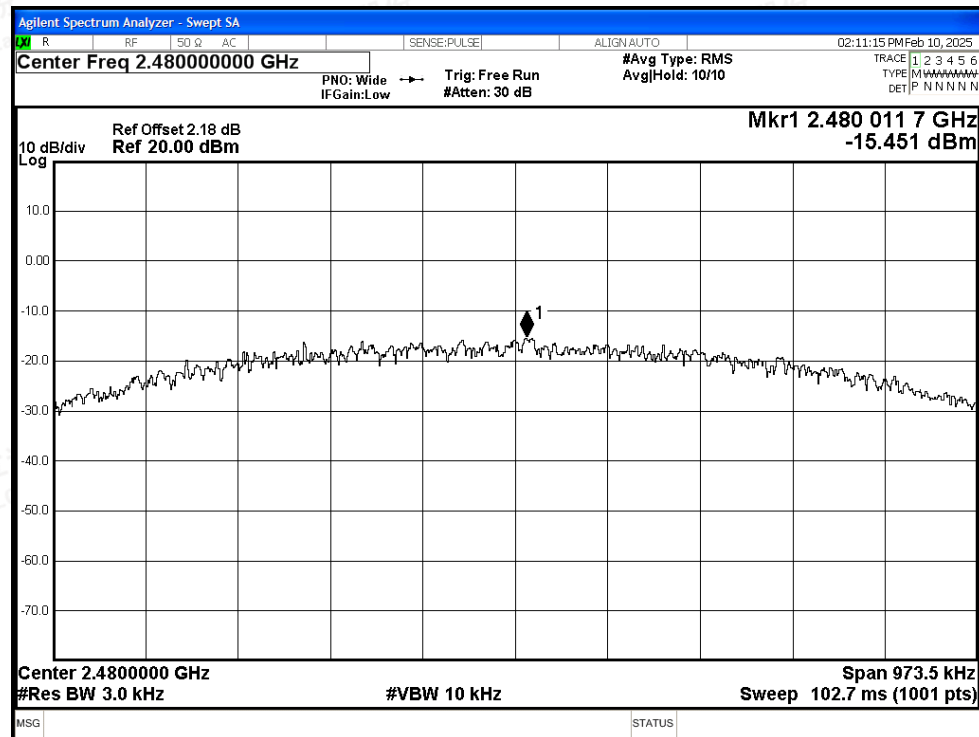


PSD NVNT BLE 1M 2440MHz Ant1

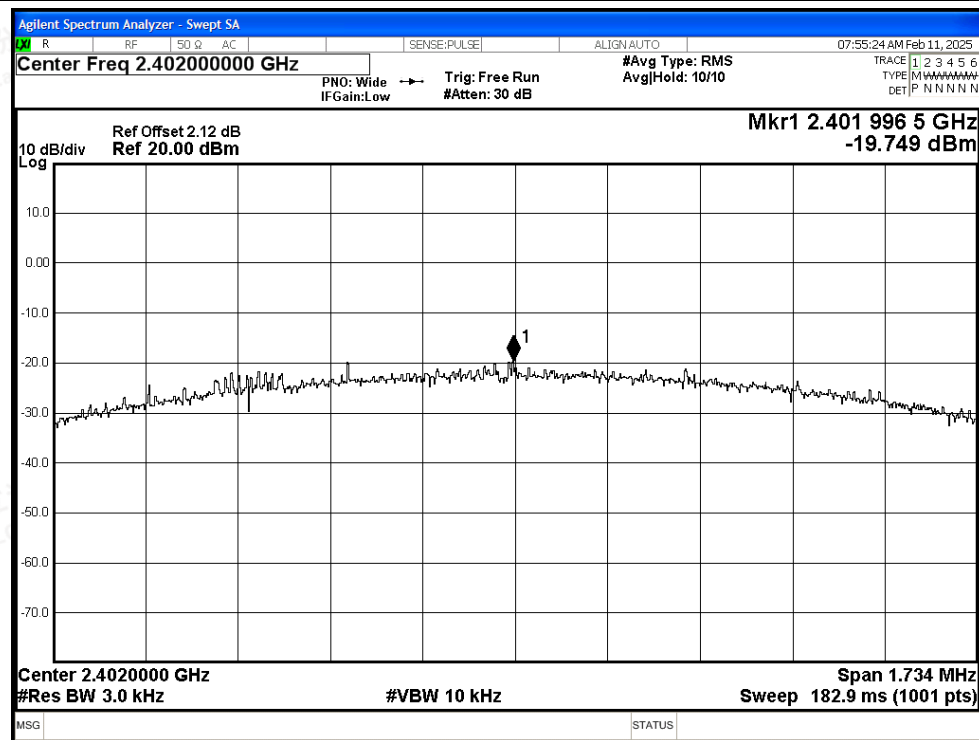




## PSD NVNT BLE 1M 2480MHz Ant1

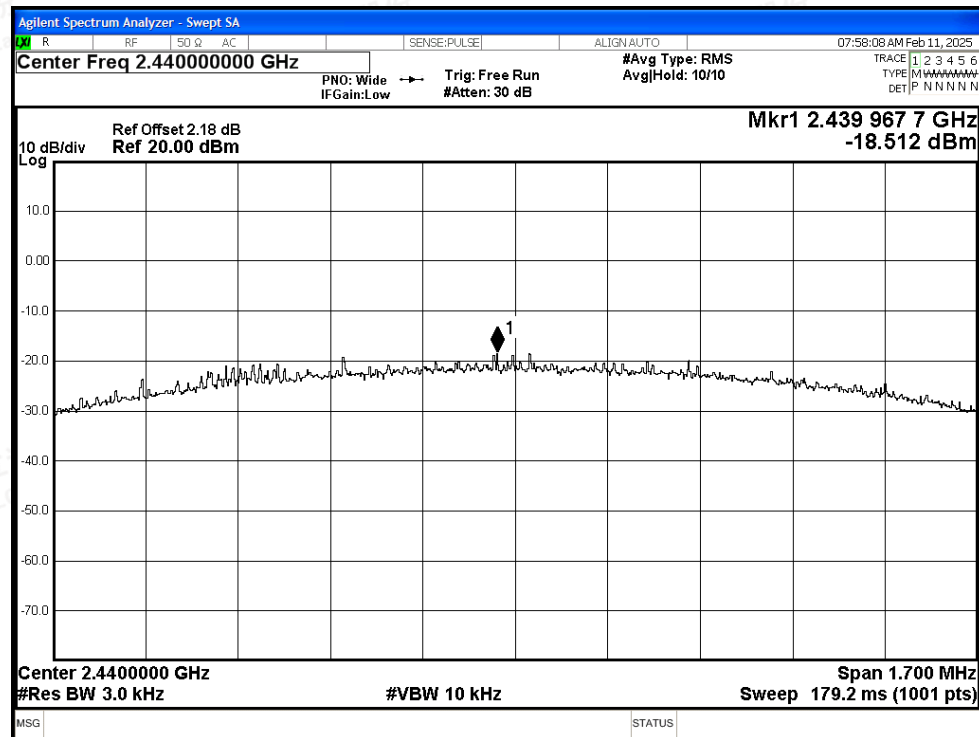


## PSD NVNT BLE 2M 2402MHz Ant1

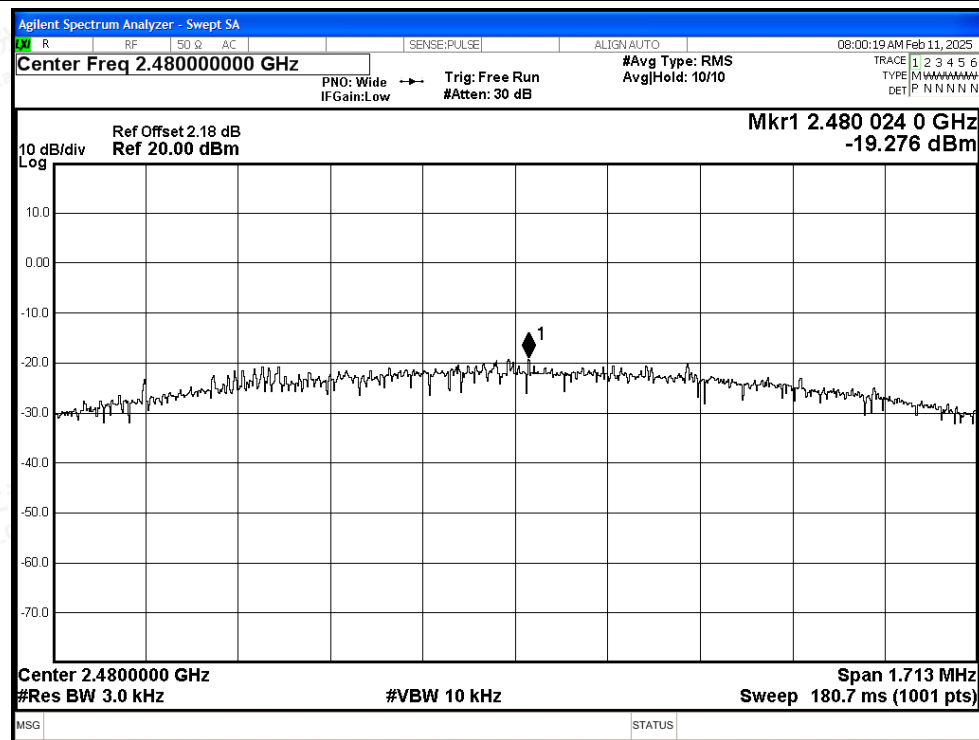




## PSD NVNT BLE 2M 2440MHz Ant1



## PSD NVNT BLE 2M 2480MHz Ant1





## B.4 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -58.12          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -57.58          | -20         | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | -45.61          | -20         | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -54.29          | -20         | Pass    |

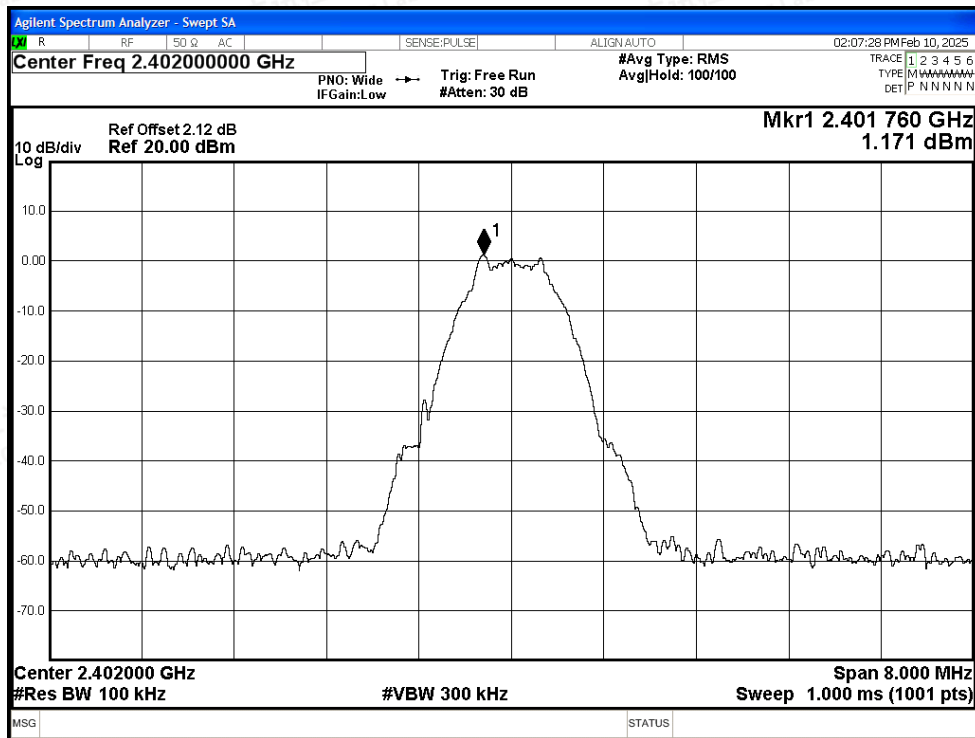


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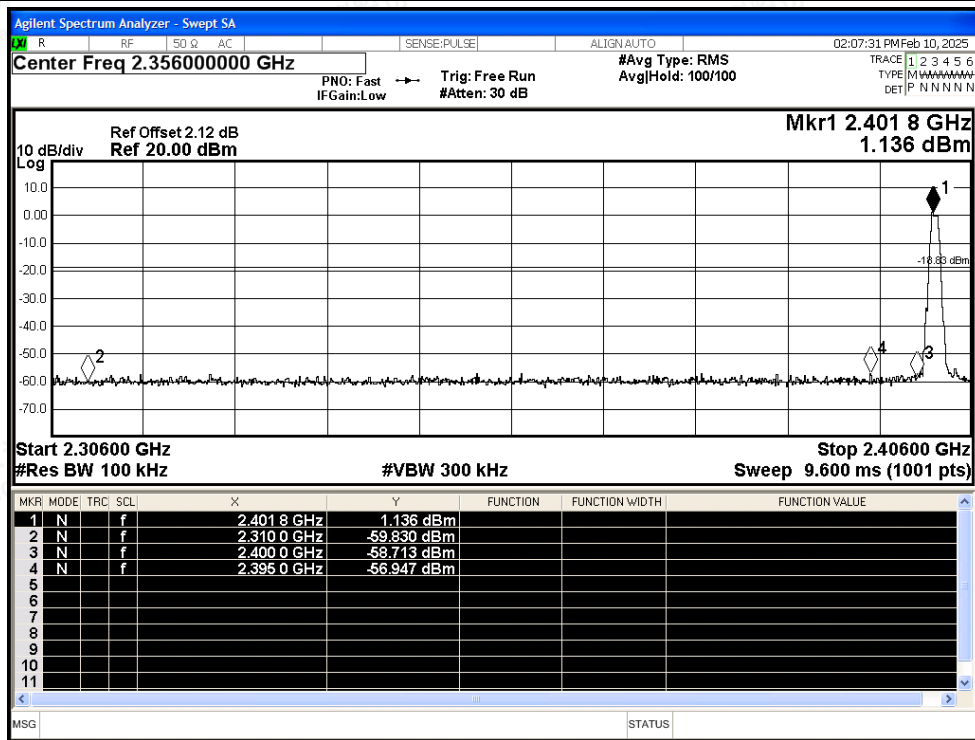


## Test Graphs

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

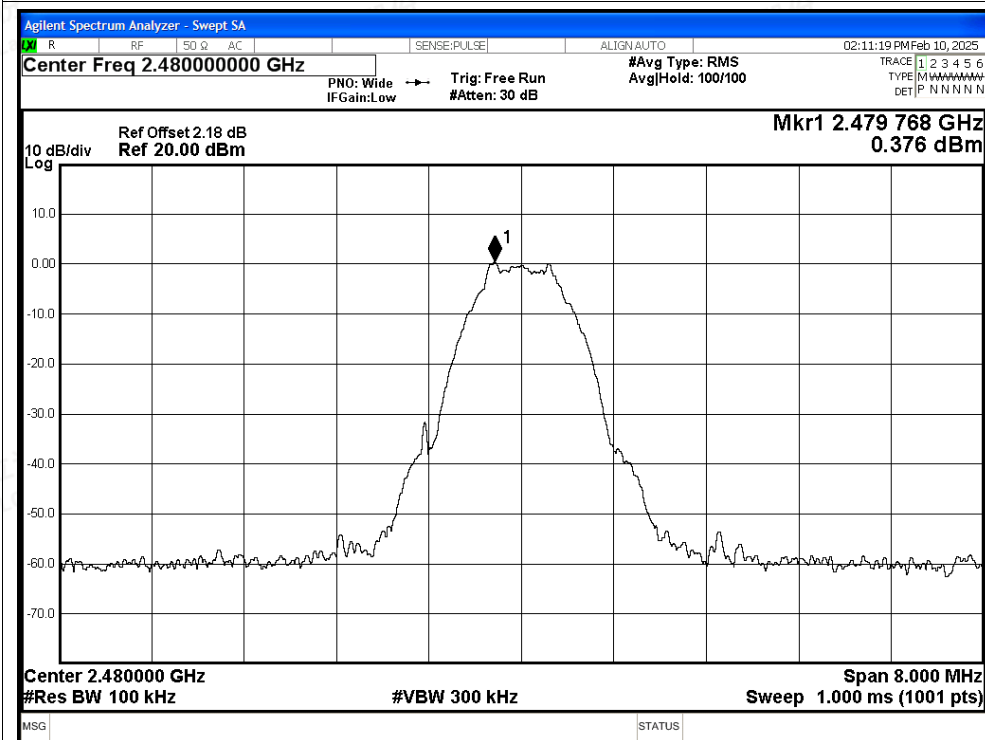


## Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

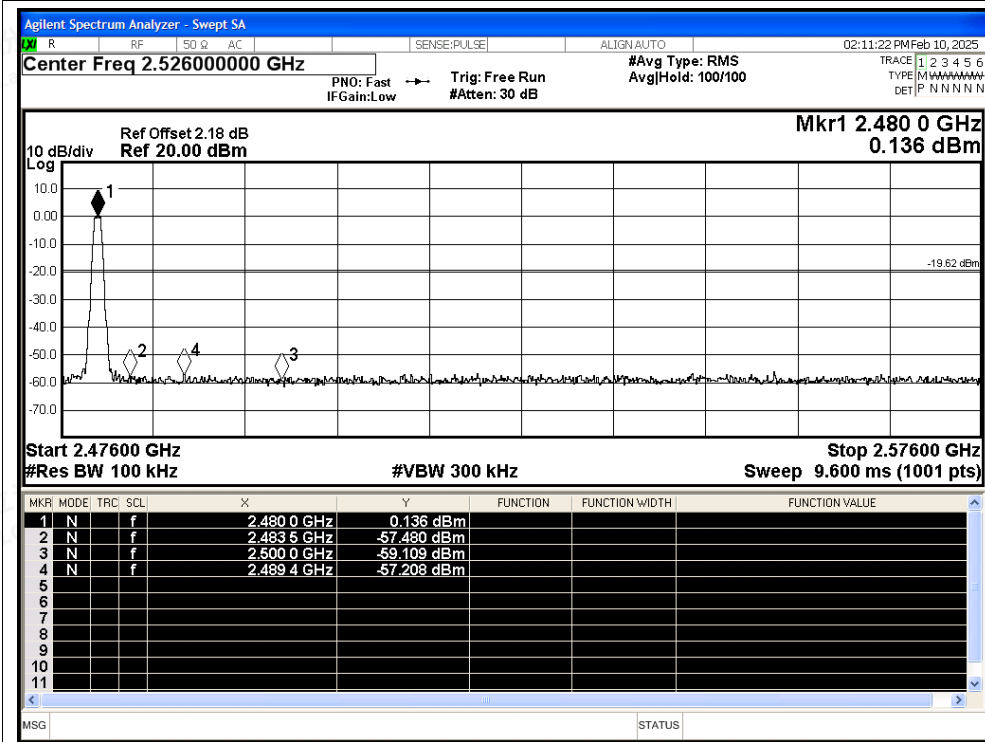




## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



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



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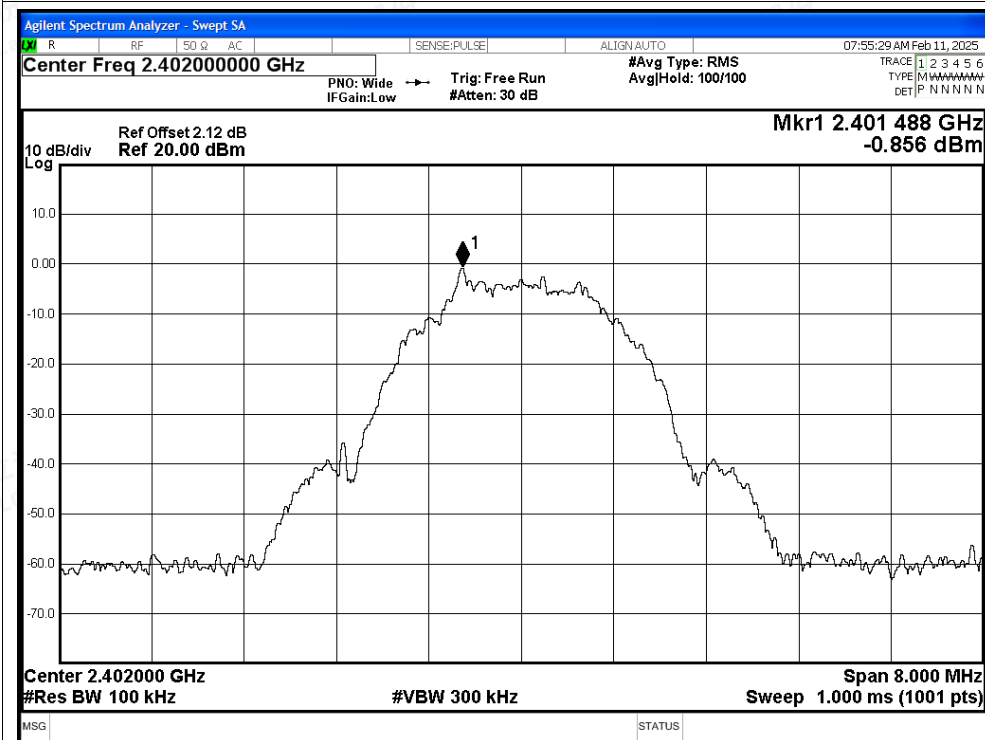
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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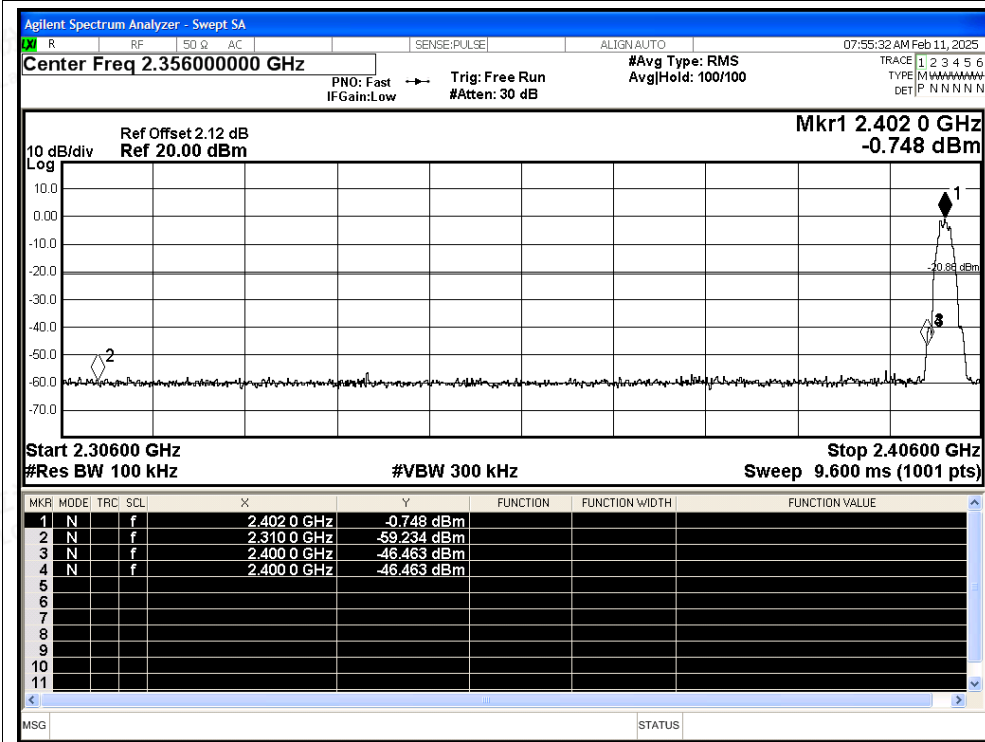
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## Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



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



Shenzhen LCS Compliance Testing Laboratory Ltd.

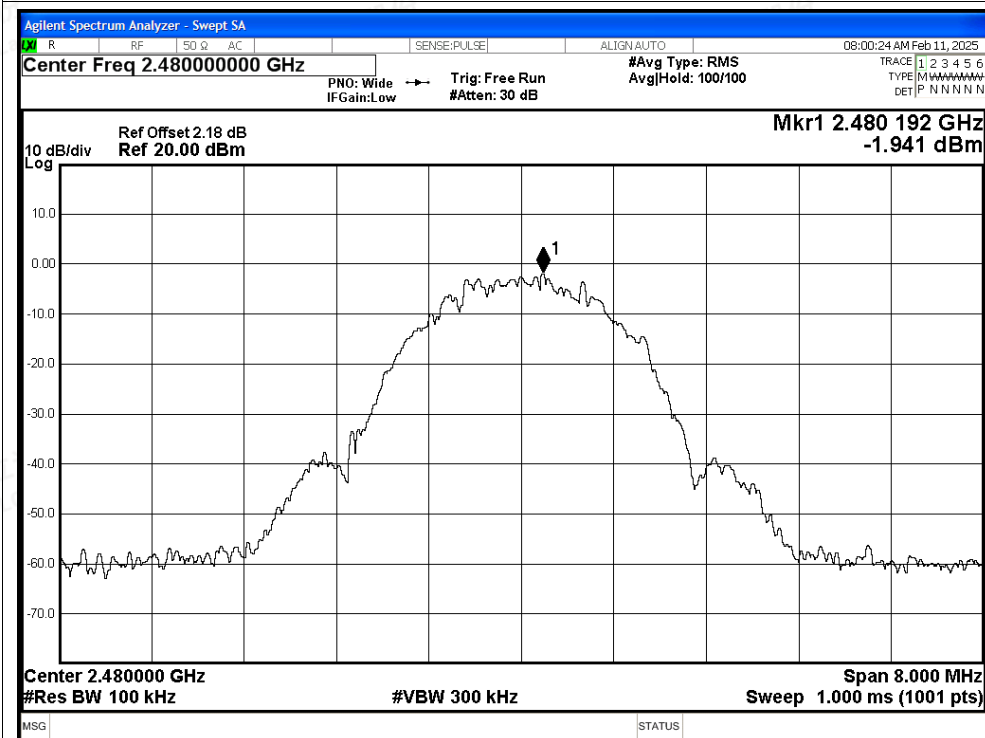
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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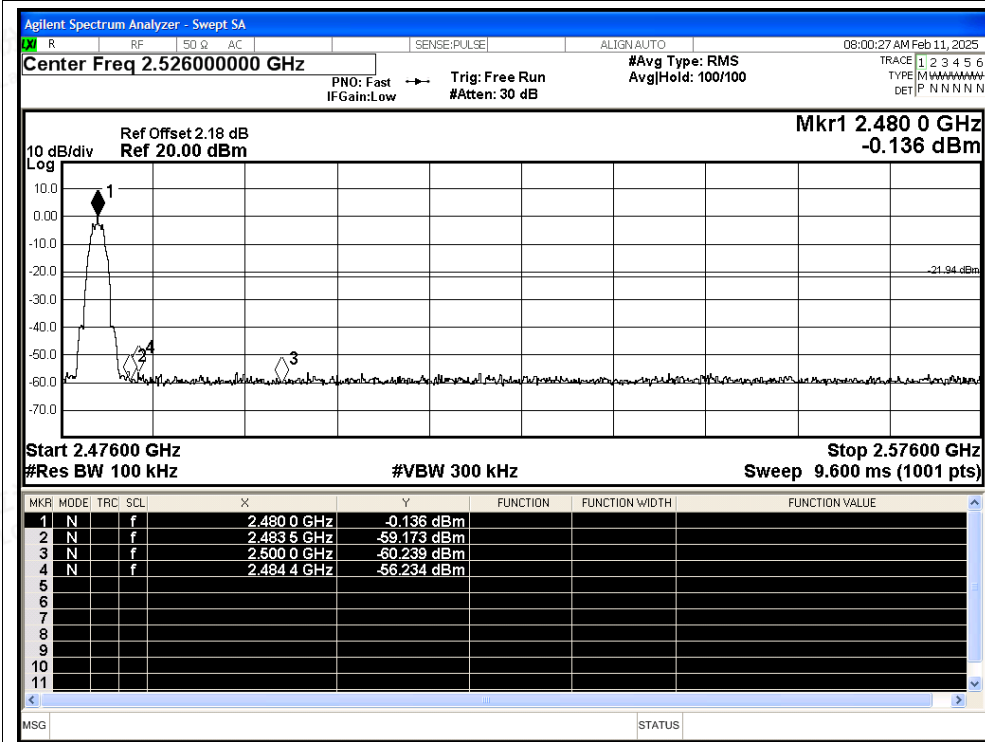
Scan code to check authenticity



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



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





## B.5 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -54.96          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -55.67          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -55.71          | -20         | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | -54.06          | -20         | Pass    |
| NVNT      | BLE 2M | 2440            | Ant1    | -55.67          | -20         | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | -54.82          | -20         | Pass    |

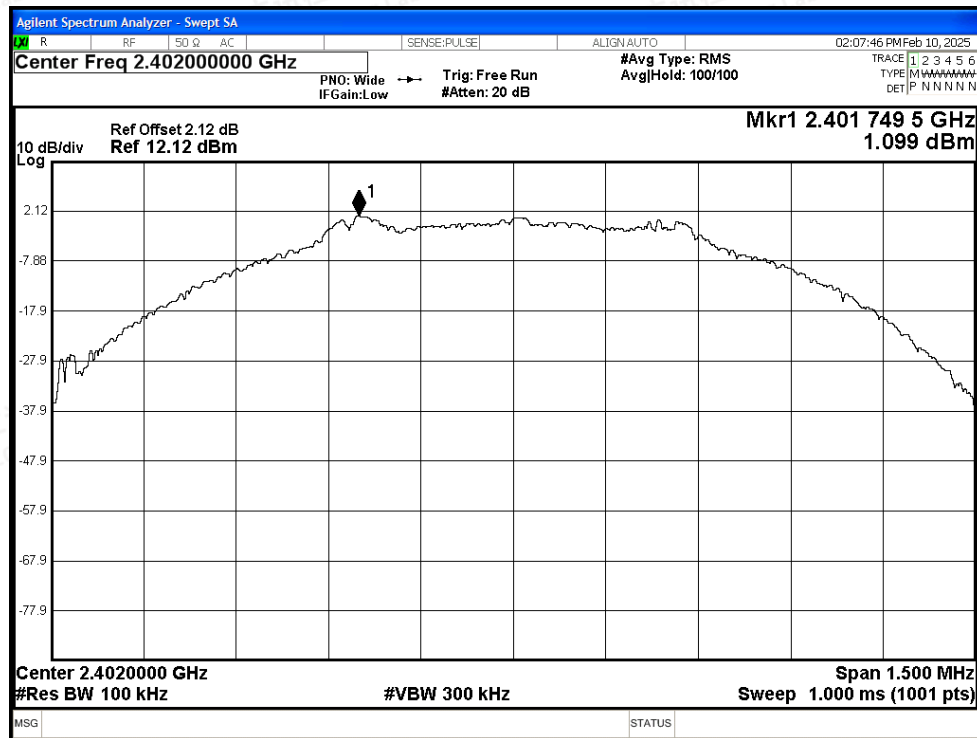


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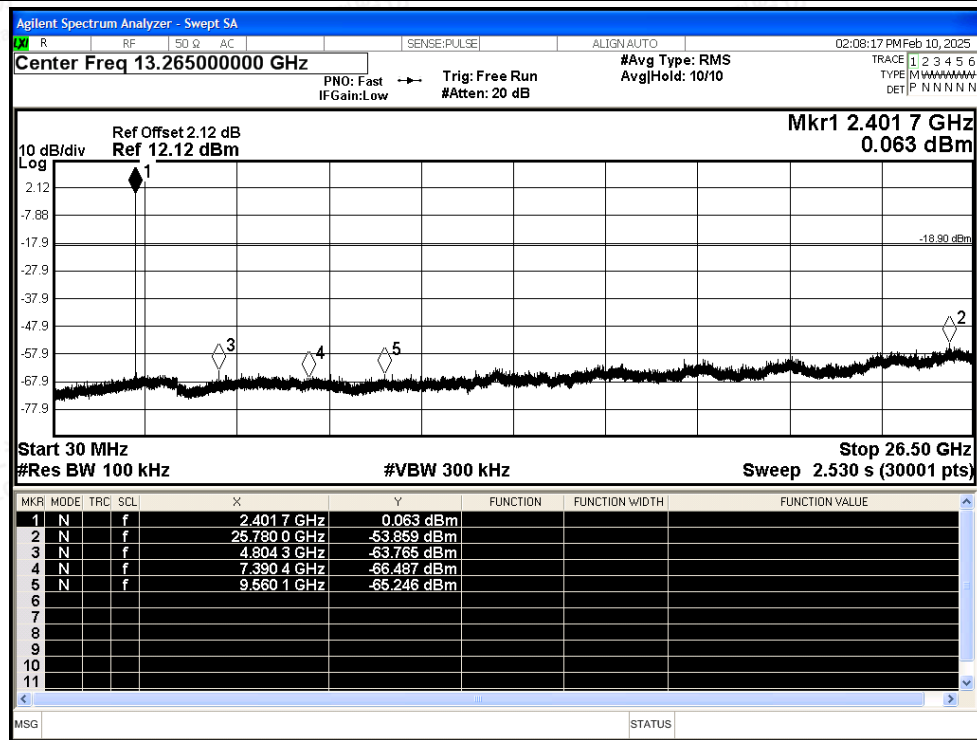


## Test Graphs

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

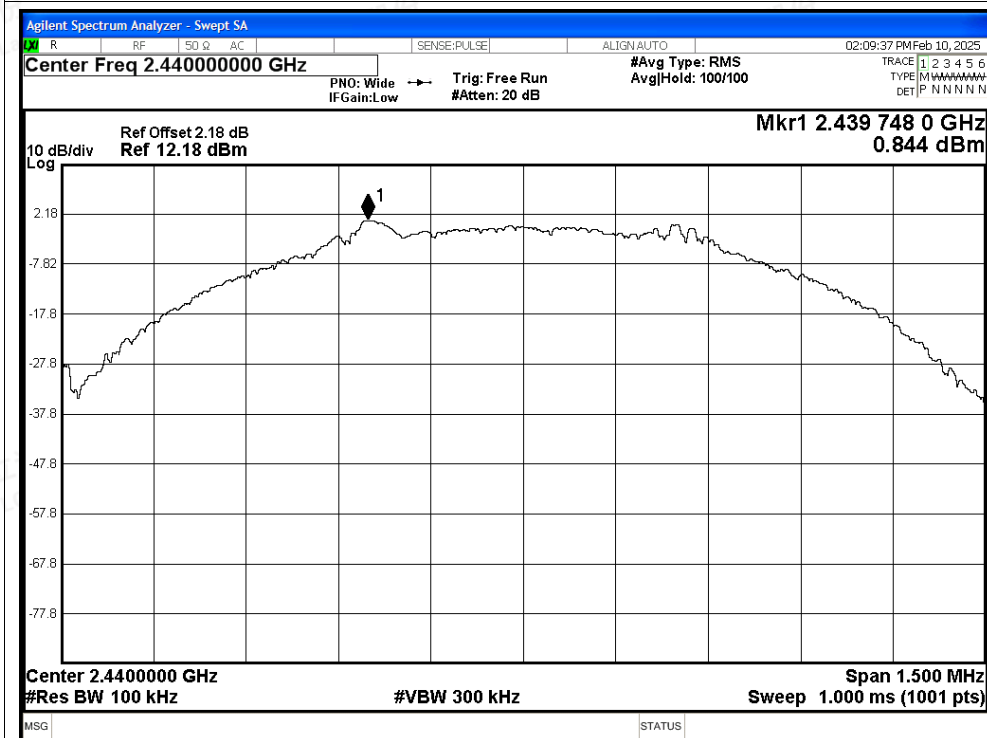


## Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission

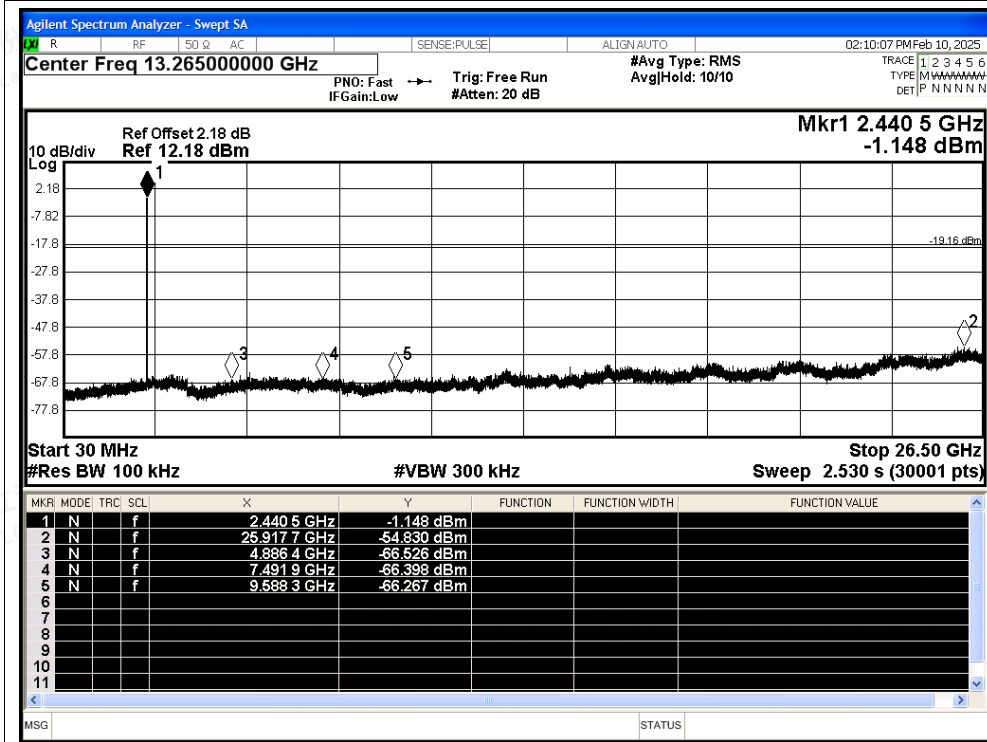




## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

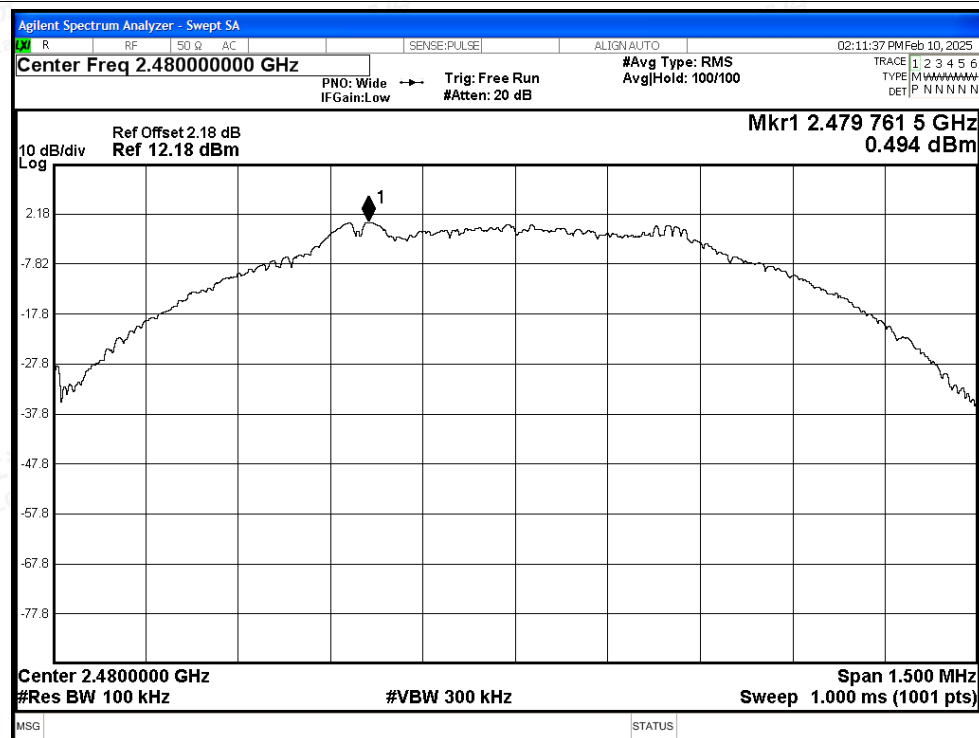


## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission

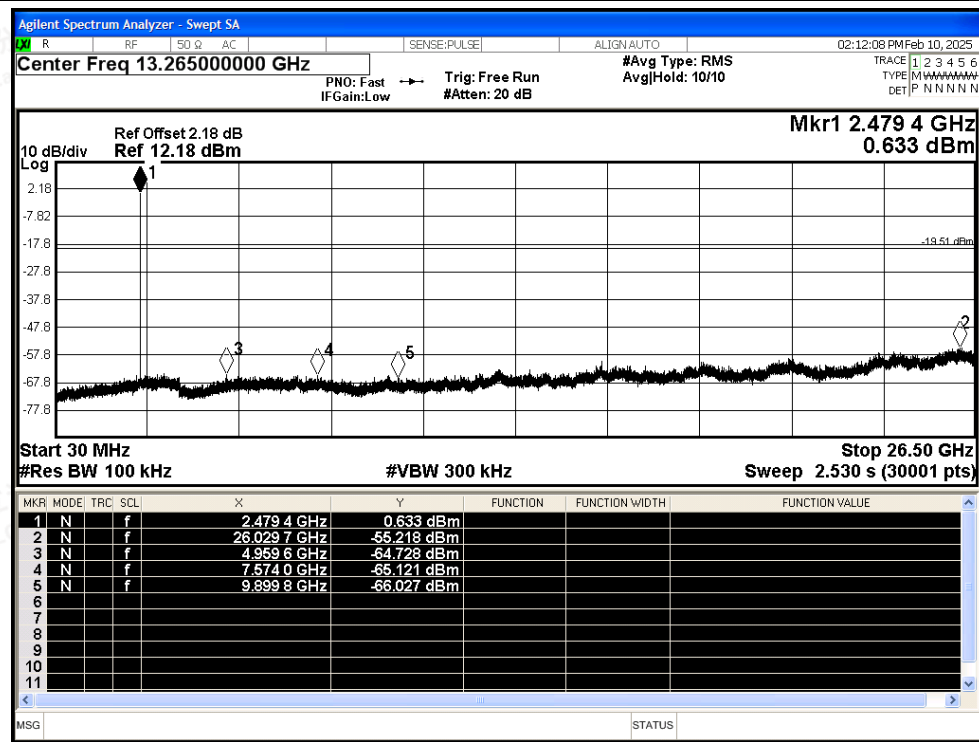




## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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

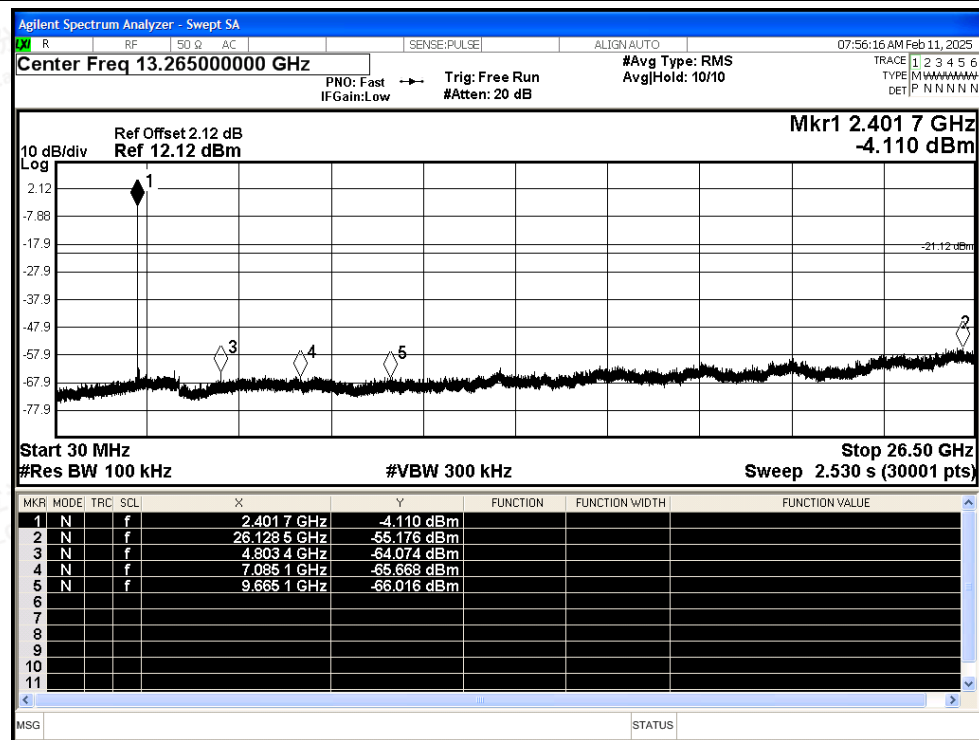




## Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref

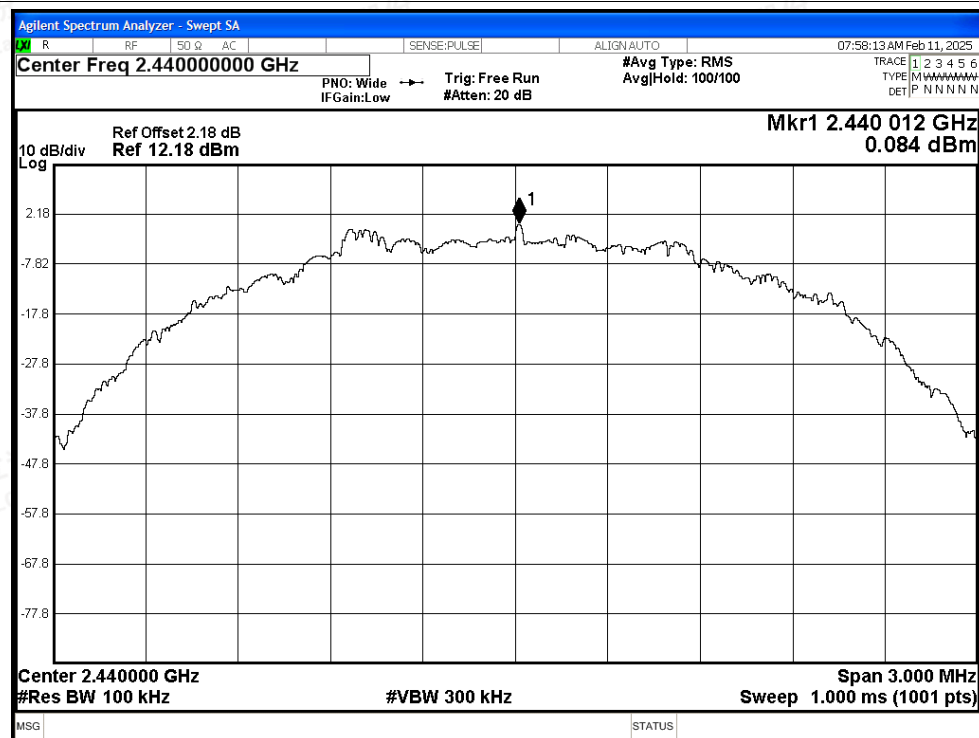


## Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission

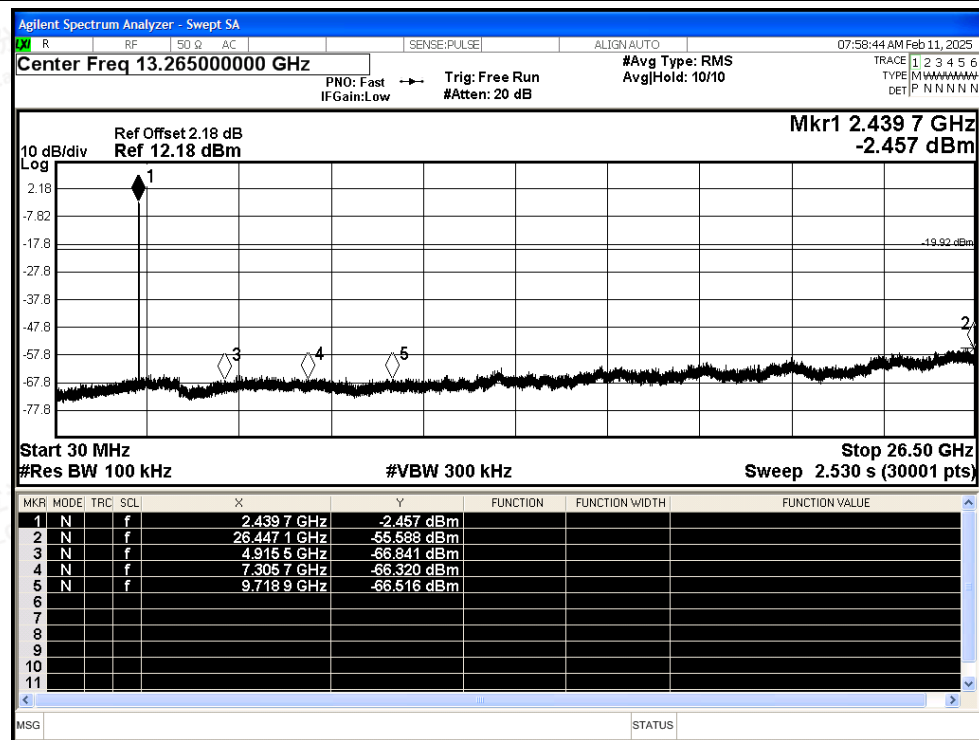




## Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref

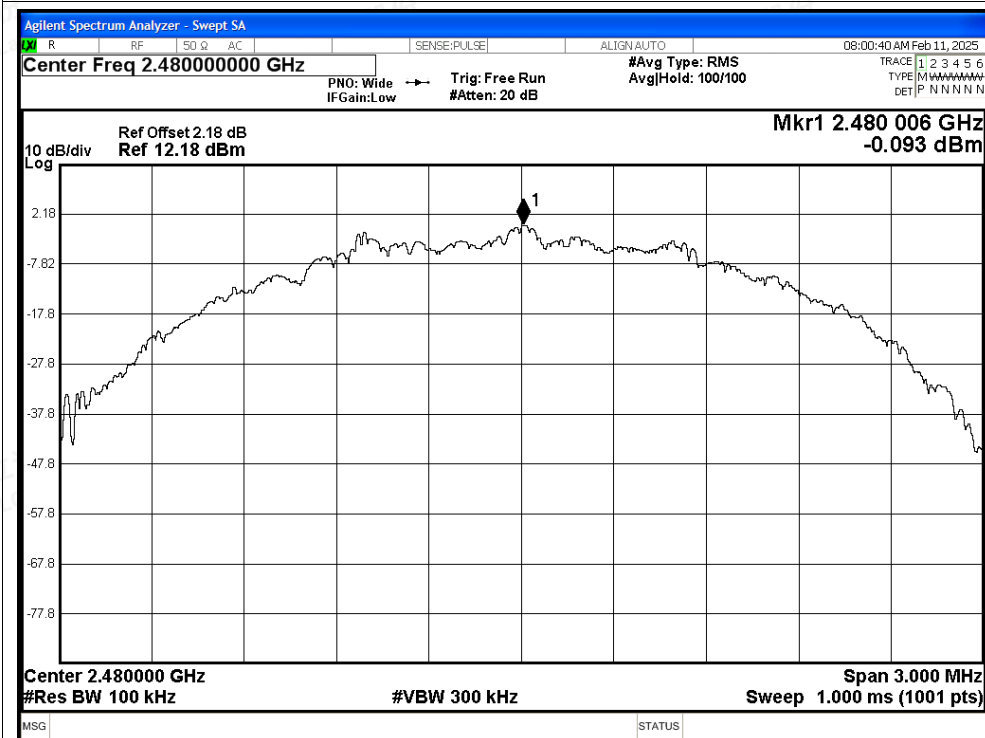


## Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission

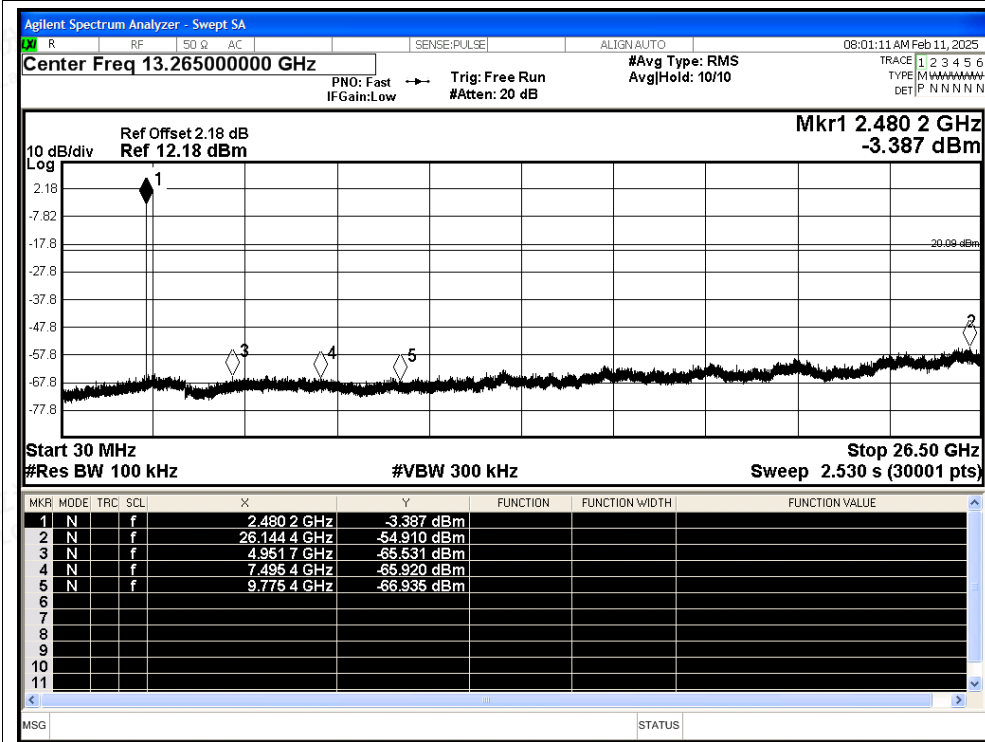




## Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



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





## B.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    | 65.96          | 1.81                   | 1.21      |
| NVNT      | BLE 2M | 2480            | Ant1    | 65.96          | 1.81                   | 1.21      |

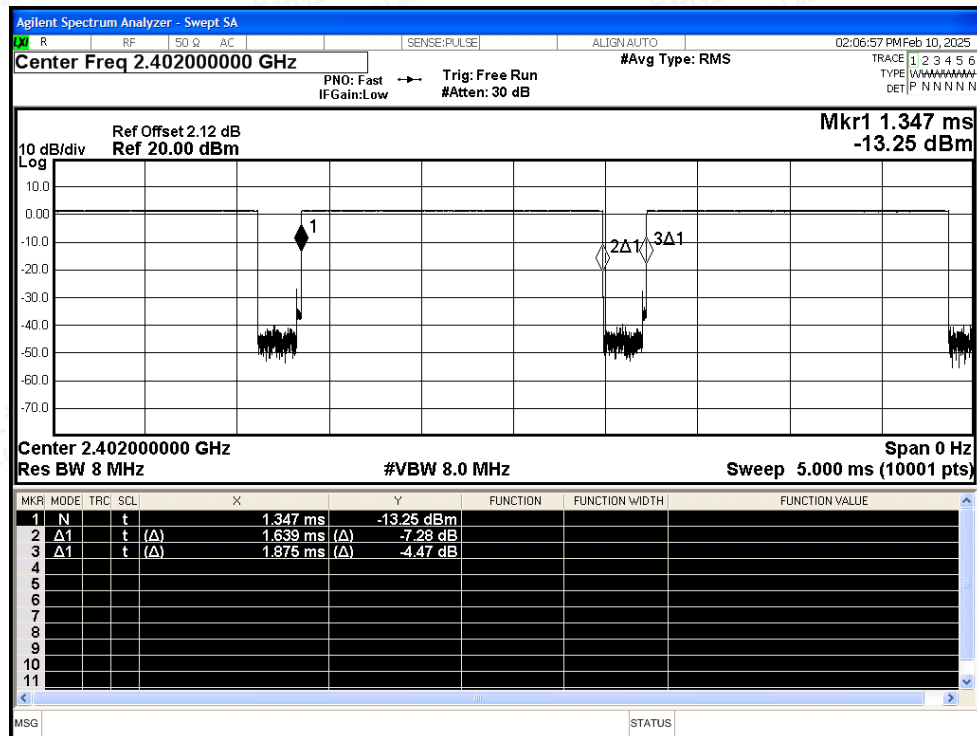


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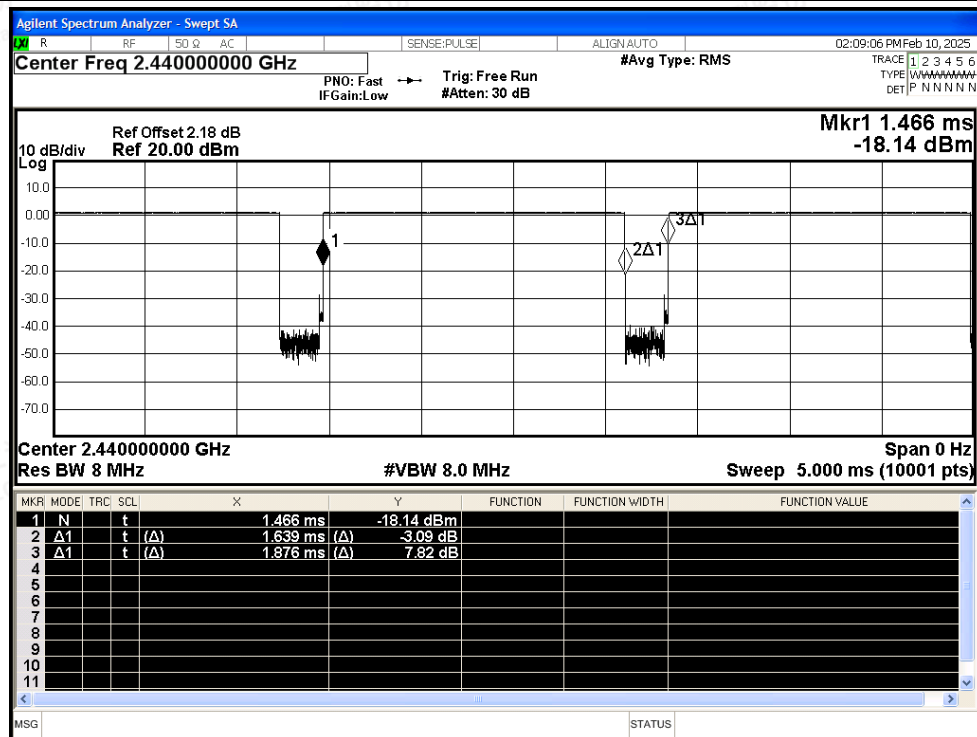


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1

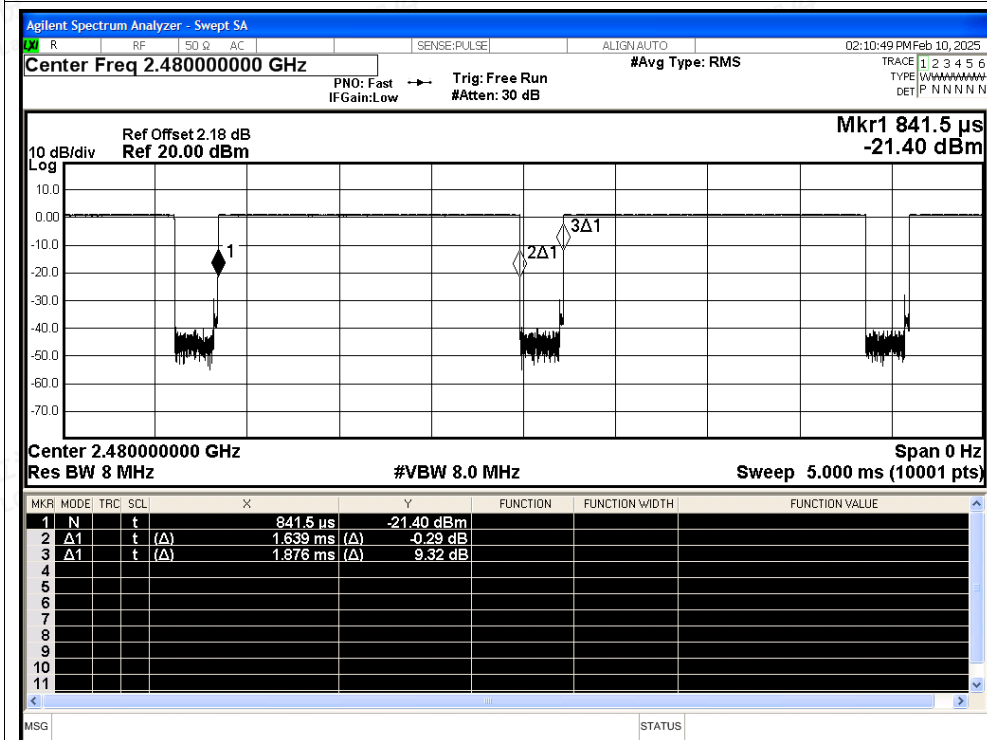


## Duty Cycle NVNT BLE 1M 2440MHz Ant1

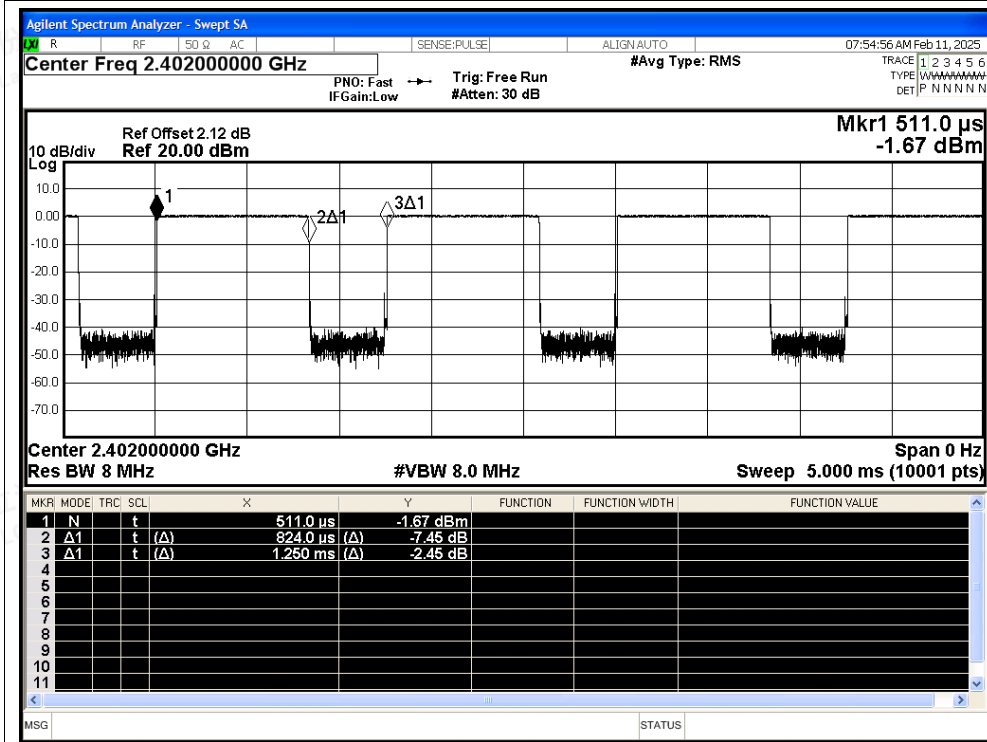


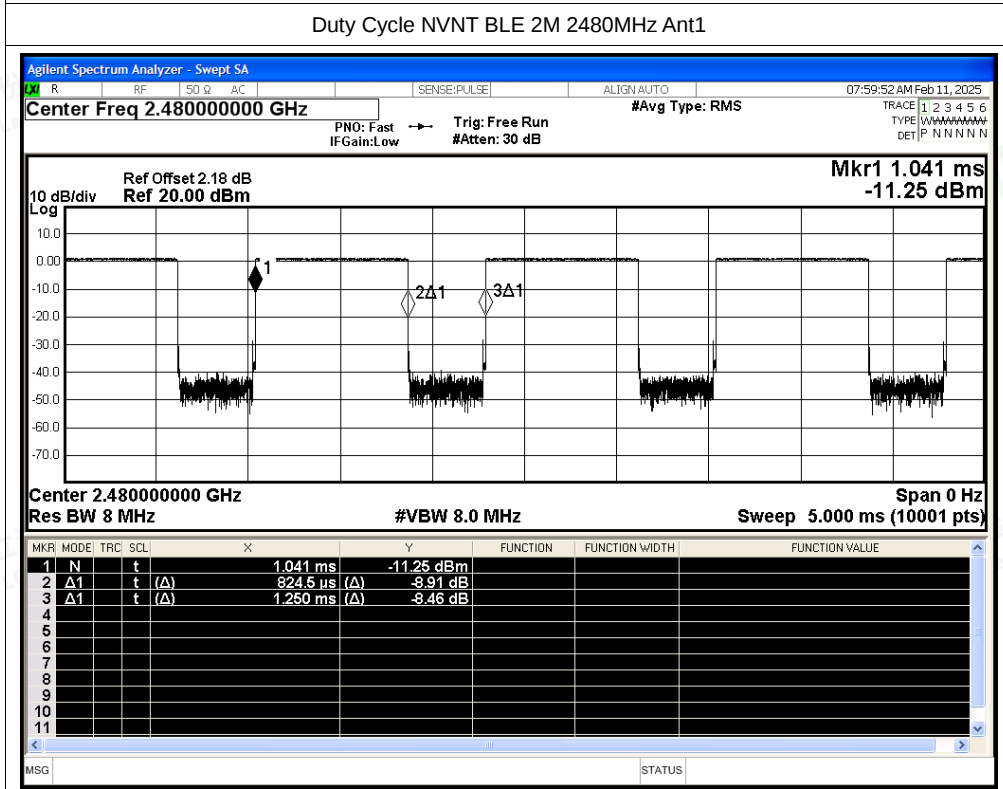
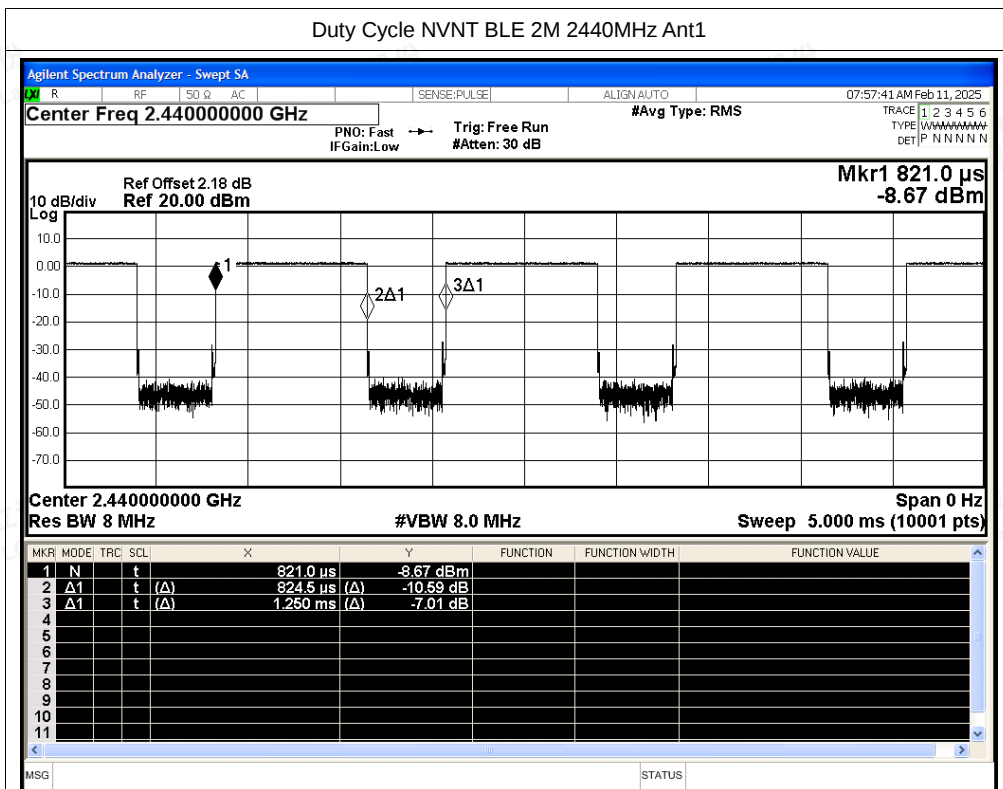


## Duty Cycle NVNT BLE 1M 2480MHz Ant1



## Duty Cycle NVNT BLE 2M 2402MHz Ant1







## B.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            | -51.46      | 2          | -                | 45.8       | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -58.6       | 2          | 0.59             | 39.25      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2312.88         | -46.95      | 2          | -                | 50.31      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2389.872        | -57.93      | 2          | 0.59             | 39.92      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -50.27      | 2          | -                | 46.99      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -58.25      | 2          | 0.59             | 39.6       | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -48.83      | 2          | -                | 48.43      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -57.09      | 2          | 0.59             | 40.76      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2484.352        | -42.12      | 2          | -                | 55.14      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.512        | -57.09      | 2          | 0.59             | 40.76      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -48.99      | 2          | -                | 48.27      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -57.71      | 2          | 0.59             | 40.14      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2310            | -49.88      | 2          | -                | 47.38      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2310            | -58.77      | 2          | 1.81             | 40.3       | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2331.12         | -47.65      | 2          | -                | 49.61      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2375.088        | -57.94      | 2          | 1.81             | 41.13      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2390            | -50.5       | 2          | -                | 46.76      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2402            | Ant1    | 2390            | -58.56      | 2          | 1.81             | 40.51      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.5          | -49.68      | 2          | -                | 47.58      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.5          | -57.03      | 2          | 1.81             | 42.04      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2485.456        | -42.08      | 2          | -                | 55.18      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2483.896        | -56.78      | 2          | 1.81             | 42.29      | Average  | 54             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2500            | -49.11      | 2          | -                | 48.15      | Peak     | 74             | Pass    |
| NVNT      | BLE 2M | 2480            | Ant1    | 2500            | -57.56      | 2          | 1.81             | 41.51      | Average  | 54             | Pass    |

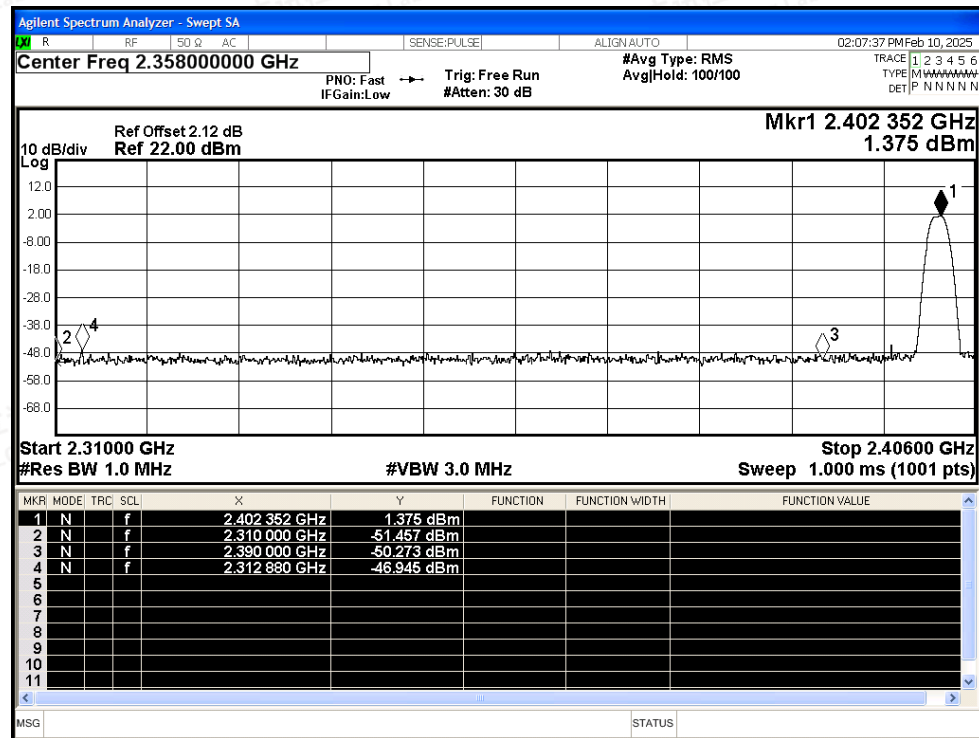


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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

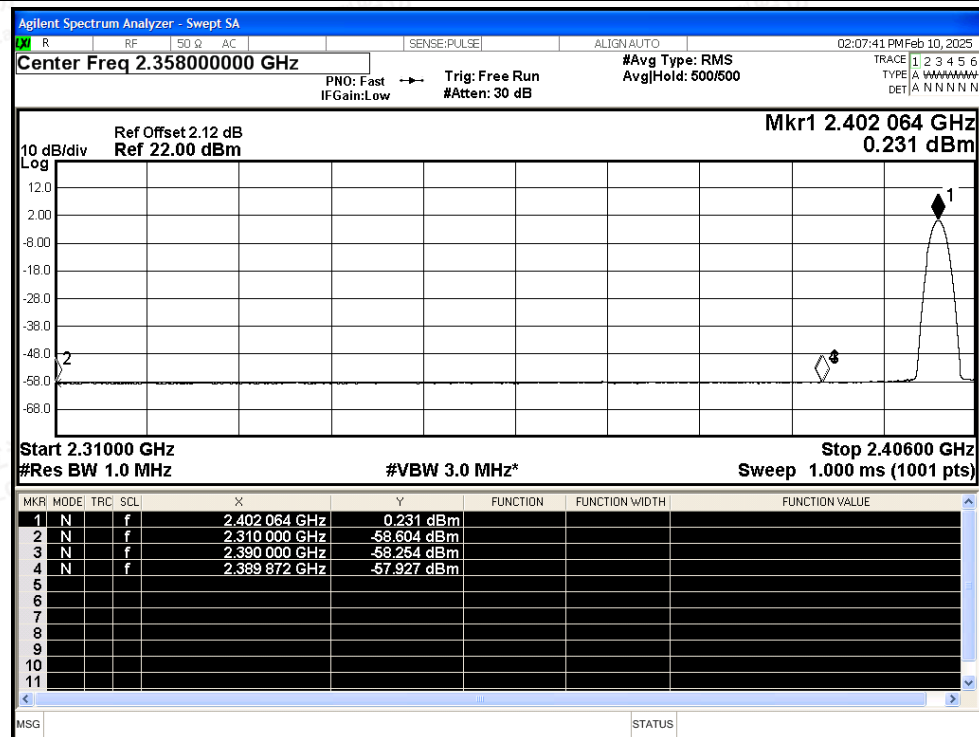


## Test Graphs

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

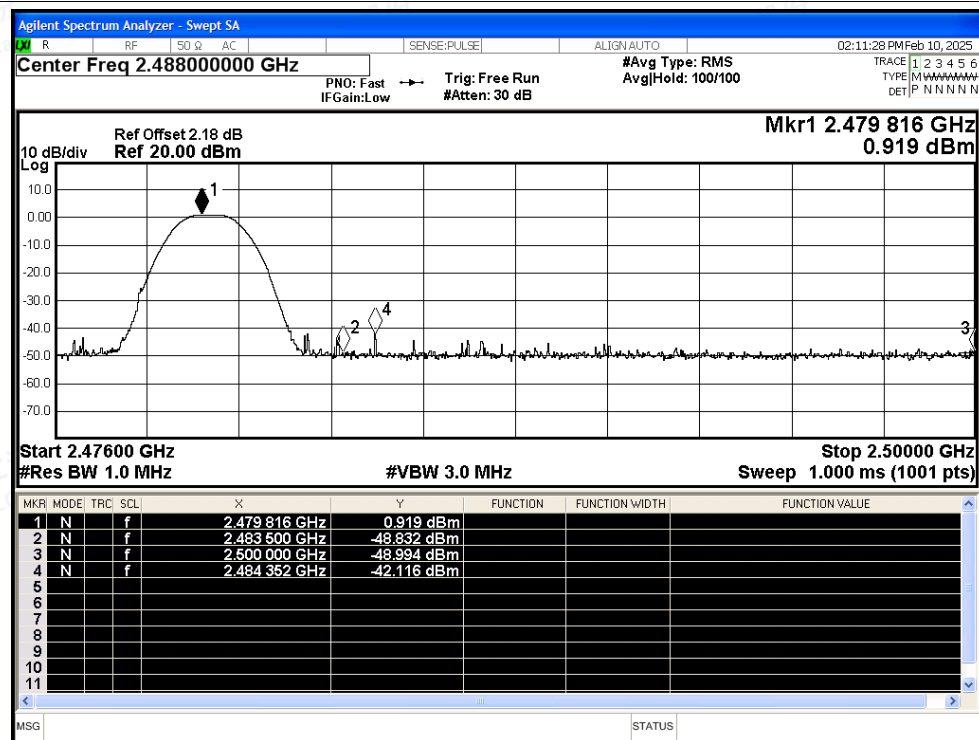


## Restrict Band NVNT BLE 1M 2402MHz Ant1 Average

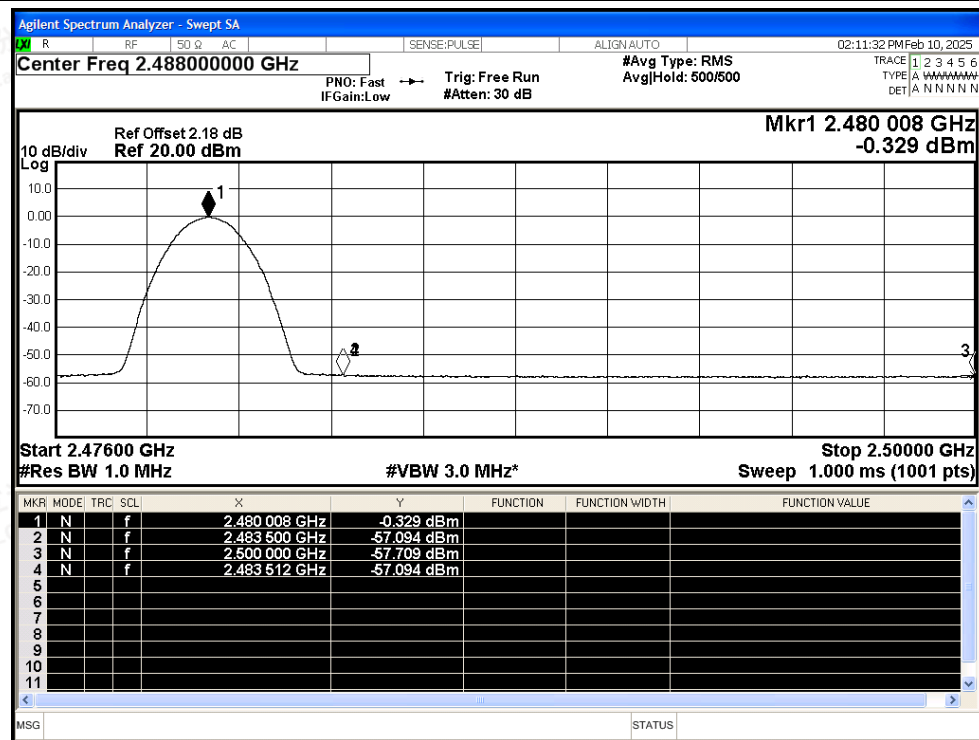




## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak

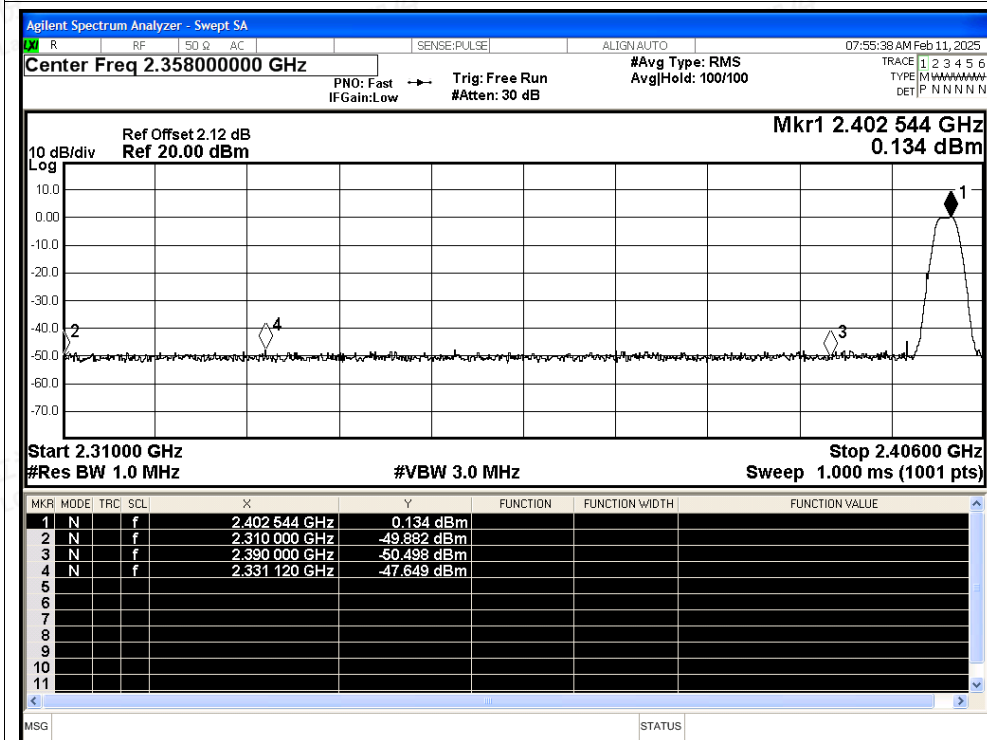


## Restrict Band NVNT BLE 1M 2480MHz Ant1 Average

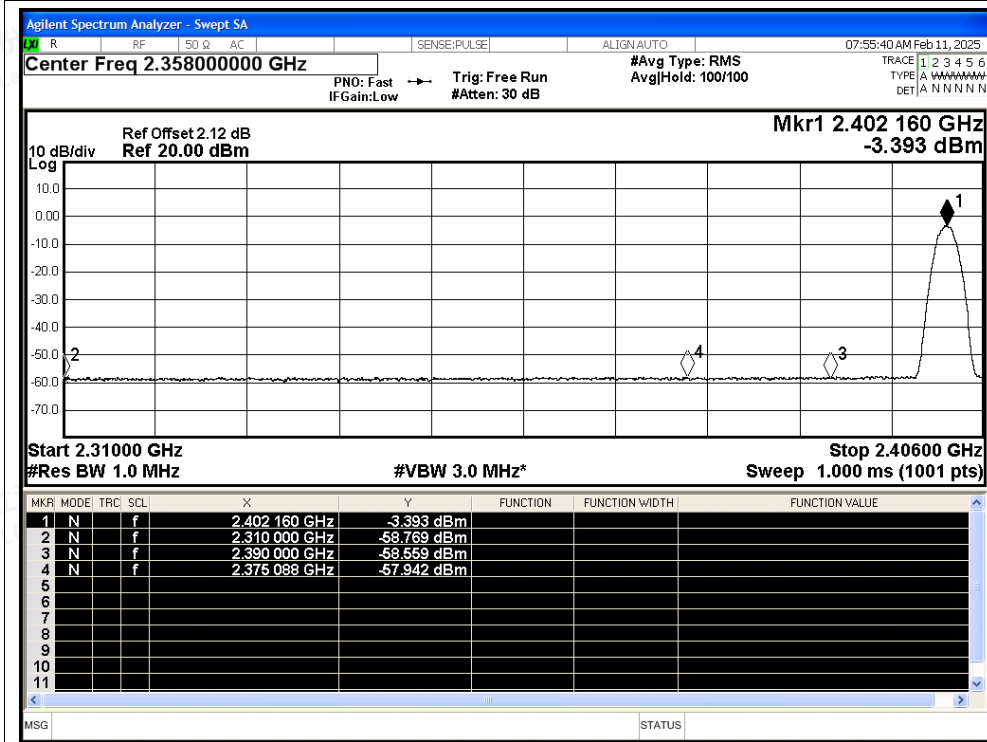




## Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak

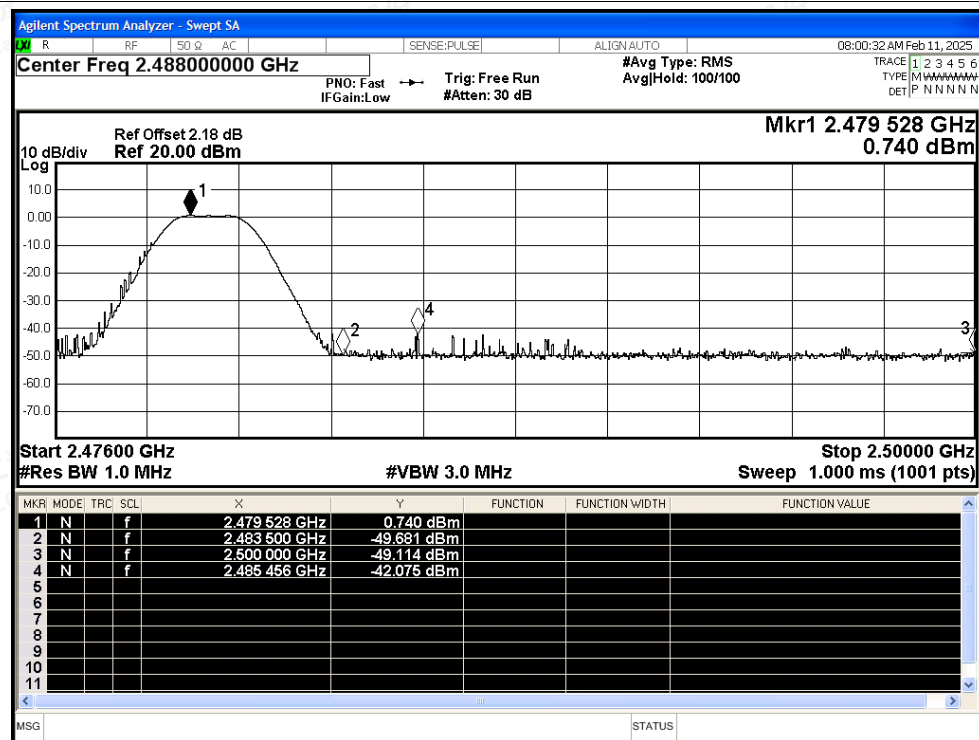


## Restrict Band NVNT BLE 2M 2402MHz Ant1 Average





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



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

