

## Appendix A

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

Product Name: Strip light

Test Model: TTGA002

#### Environmental Conditions

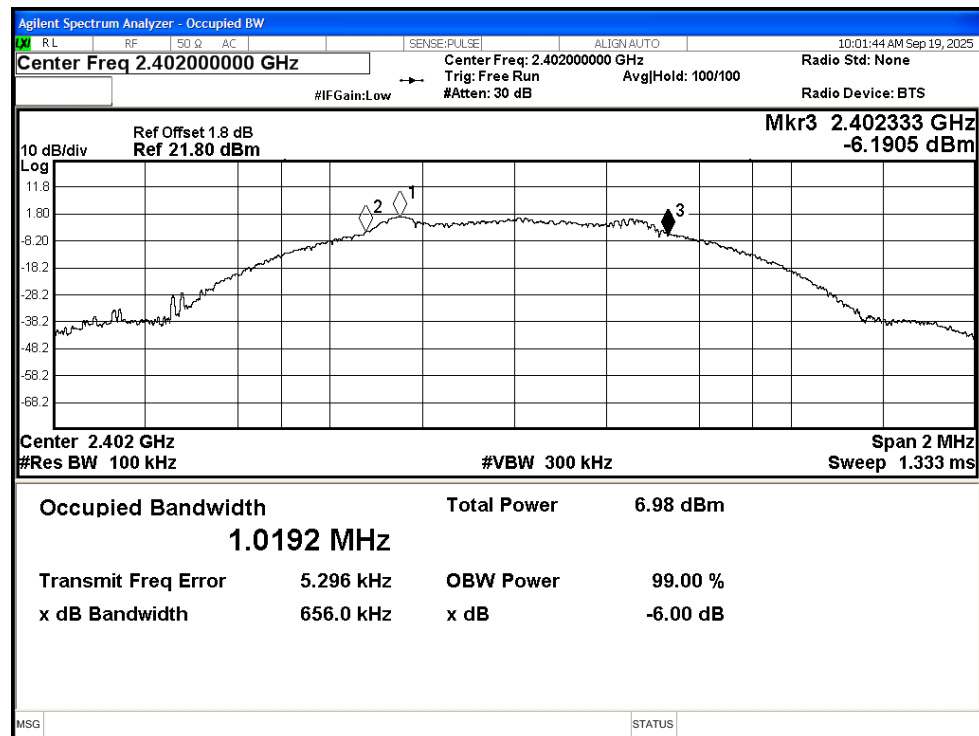
|                    |             |
|--------------------|-------------|
| Temperature:       | 23.8°C      |
| Relative Humidity: | 52.1%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Suichao Lai |
| Supervised by:     | Yan Chen    |

## A.1 -6dB Bandwidth

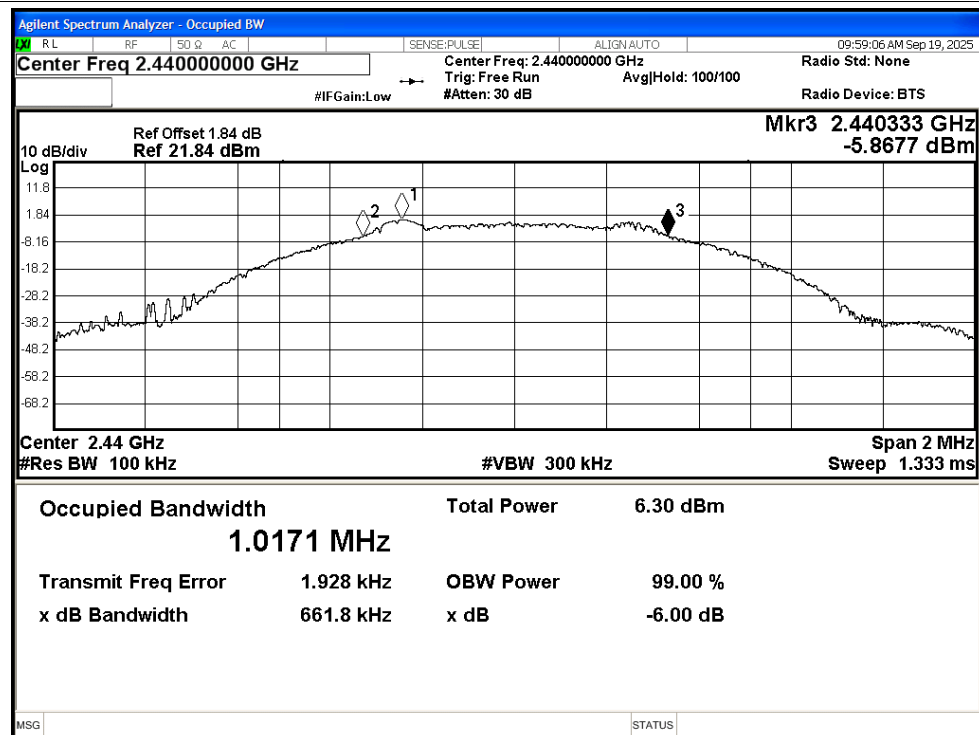
| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE  | 2402            | Ant     | 0.656                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE  | 2440            | Ant     | 0.662                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE  | 2480            | Ant     | 0.658                 | $\geq 0.5$                  | Pass    |

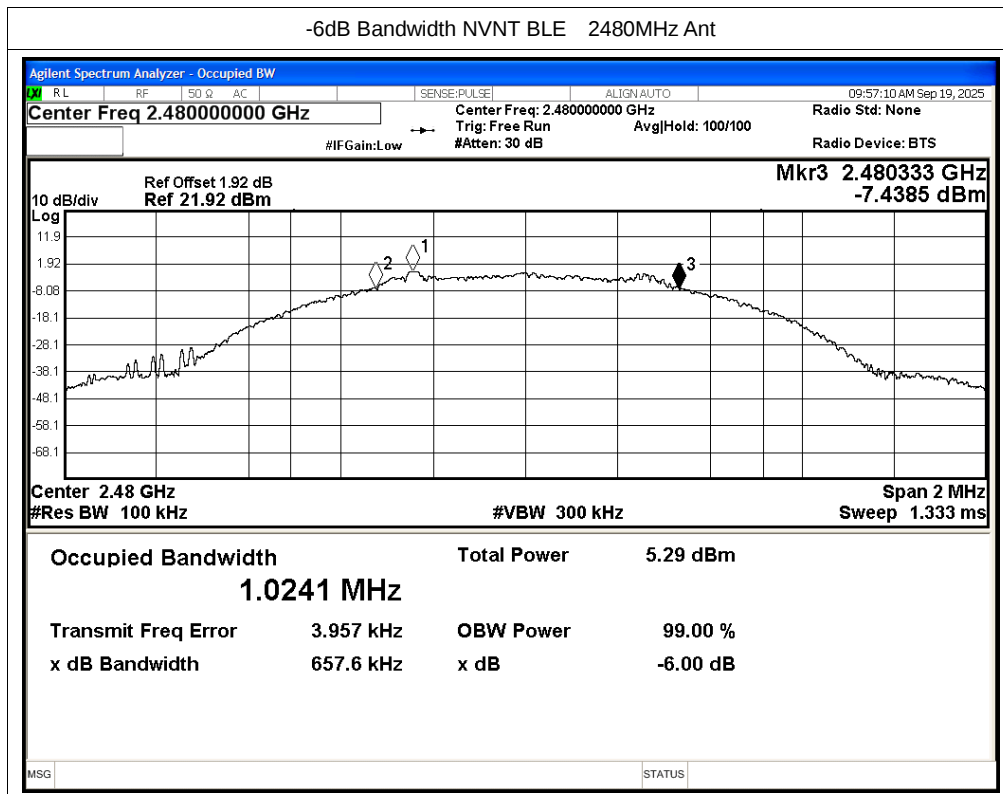
## Test Graphs

-6dB Bandwidth NVNT BLE 2402MHz Ant



-6dB Bandwidth NVNT BLE 2440MHz Ant



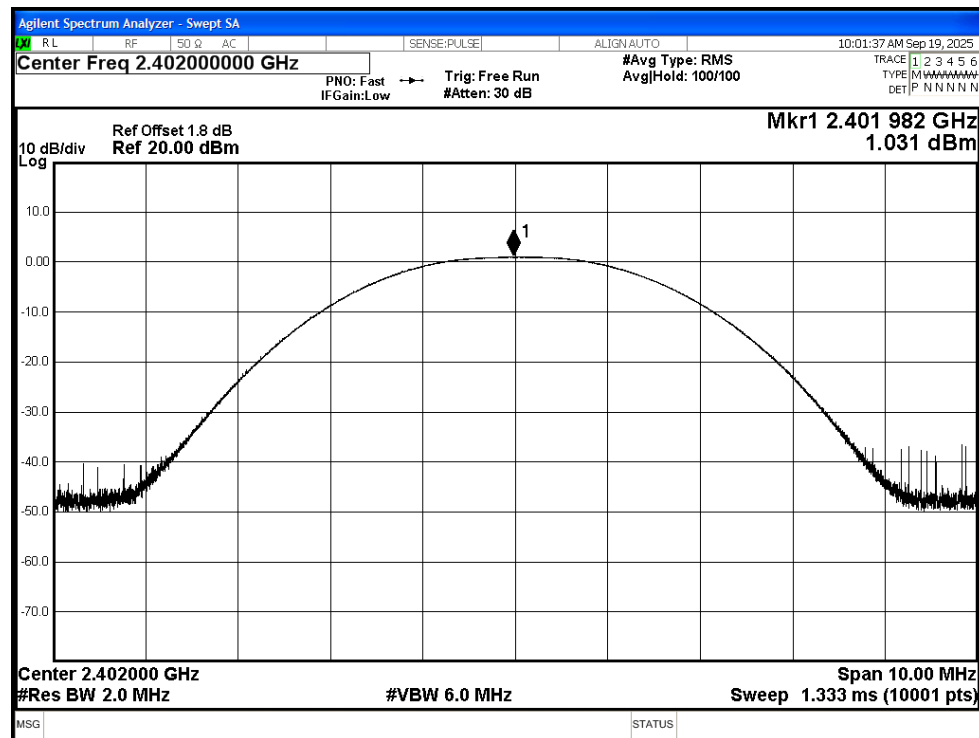


## A.2 Maximum Peak Conducted Output Power

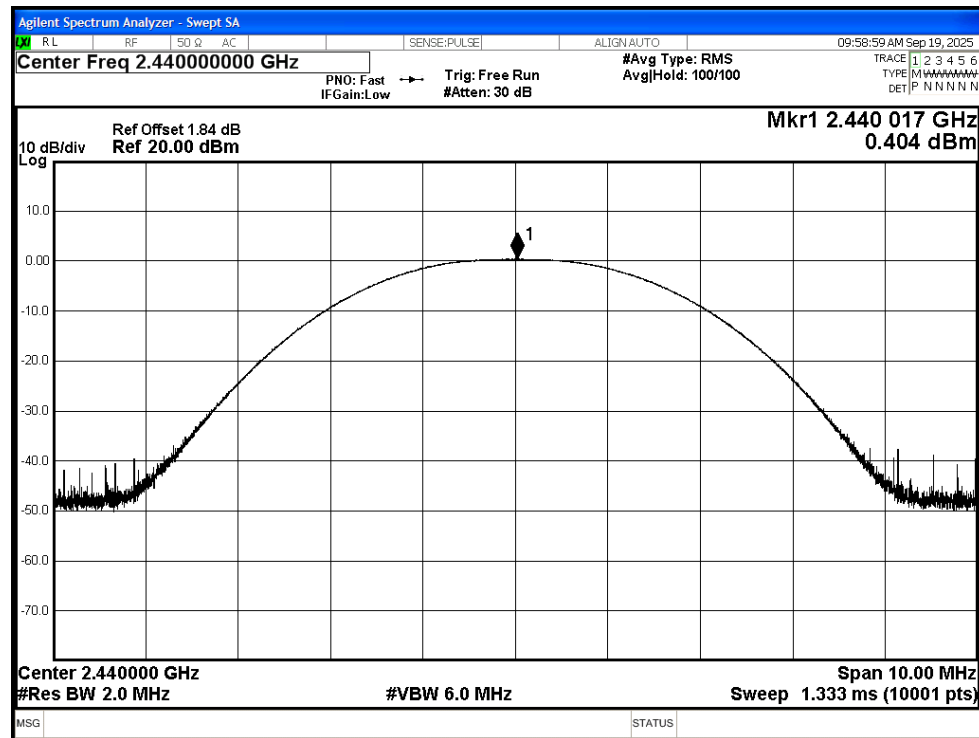
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | 1.03                  | 30          | Pass    |
| NVNT      | BLE  | 2440            | Ant     | 0.4                   | 30          | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -0.45                 | 30          | Pass    |

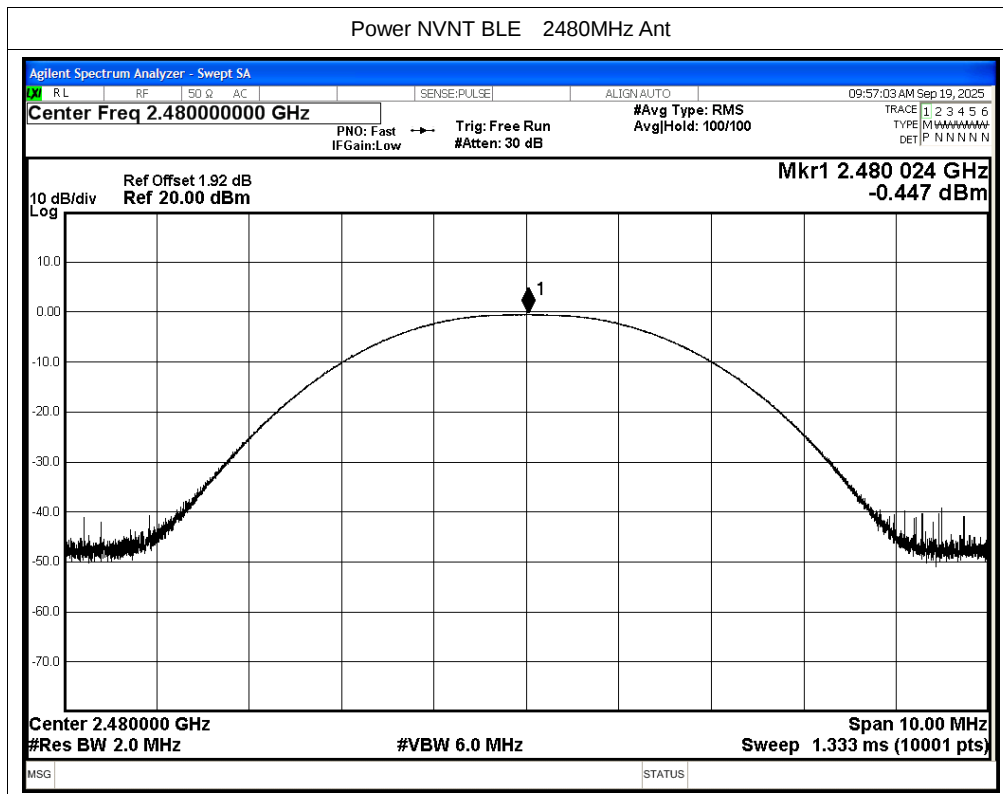
## Test Graphs

## Power NVNT BLE 2402MHz Ant



## Power NVNT BLE 2440MHz Ant



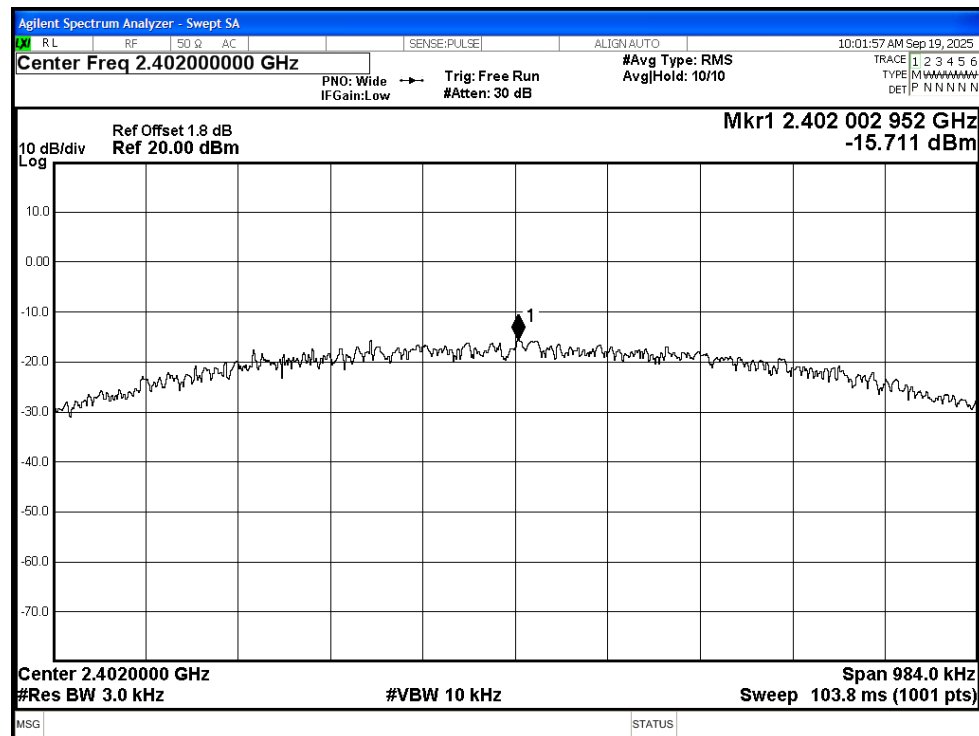


## A.3 Maximum Power Spectral Density Level

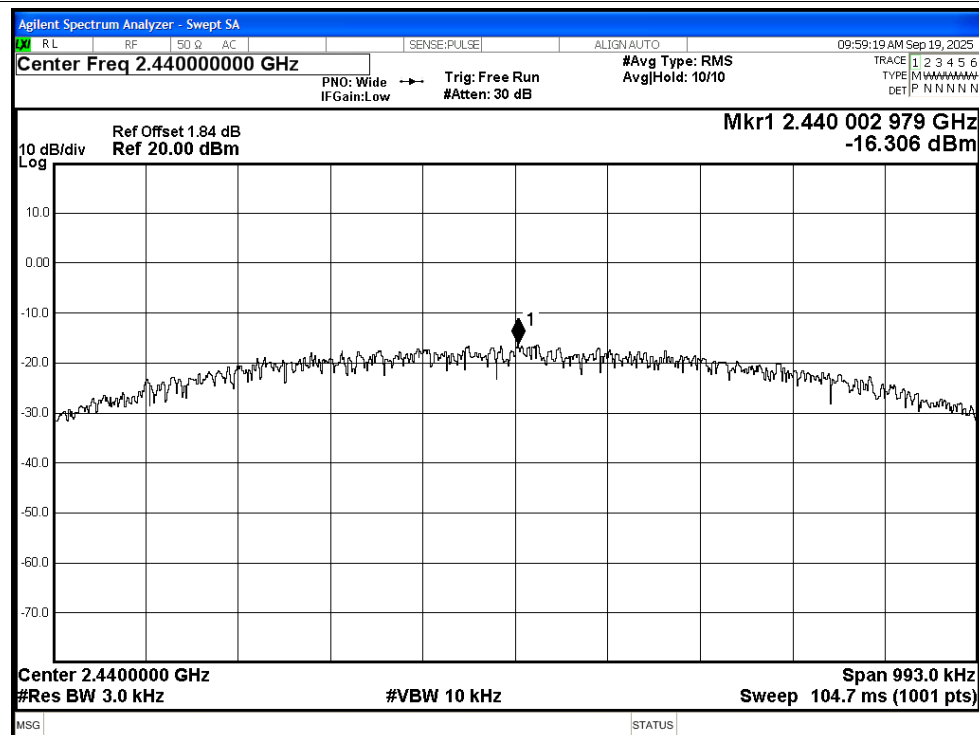
| Condition | Mode | Frequency (MHz) | Antenna | Conducted PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|------|-----------------|---------|--------------------------|------------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -15.71                   | 8                | Pass    |
| NVNT      | BLE  | 2440            | Ant     | -16.31                   | 8                | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -16.95                   | 8                | Pass    |

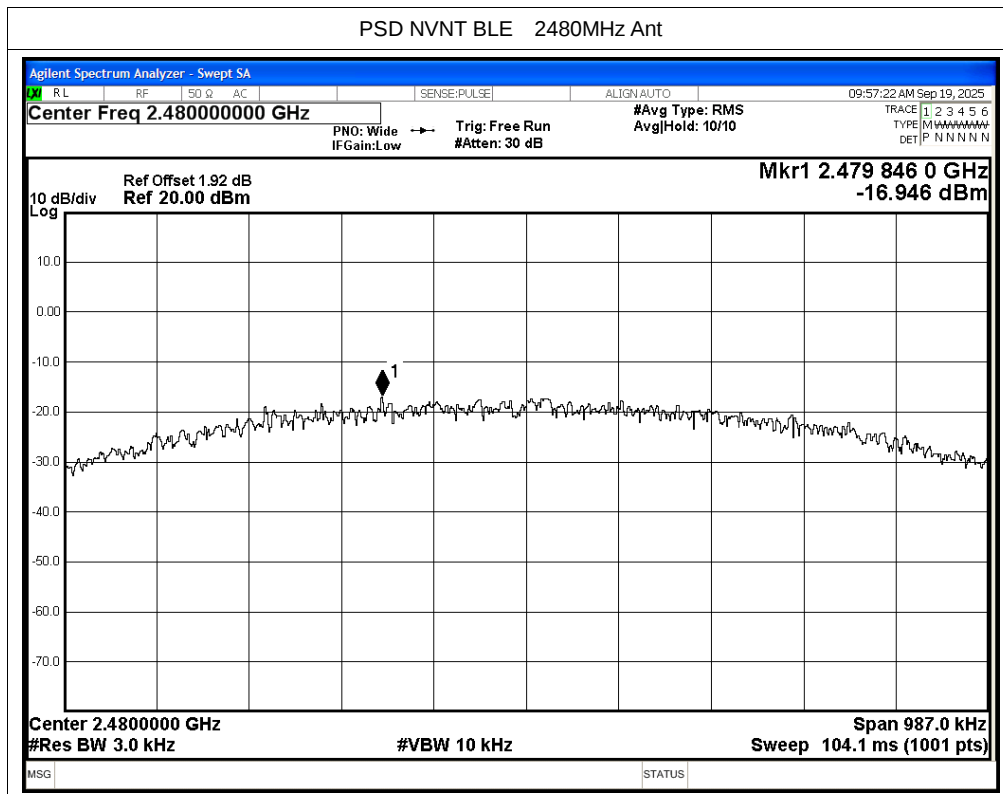
## Test Graphs

## PSD NVNT BLE 2402MHz Ant



## PSD NVNT BLE 2440MHz Ant



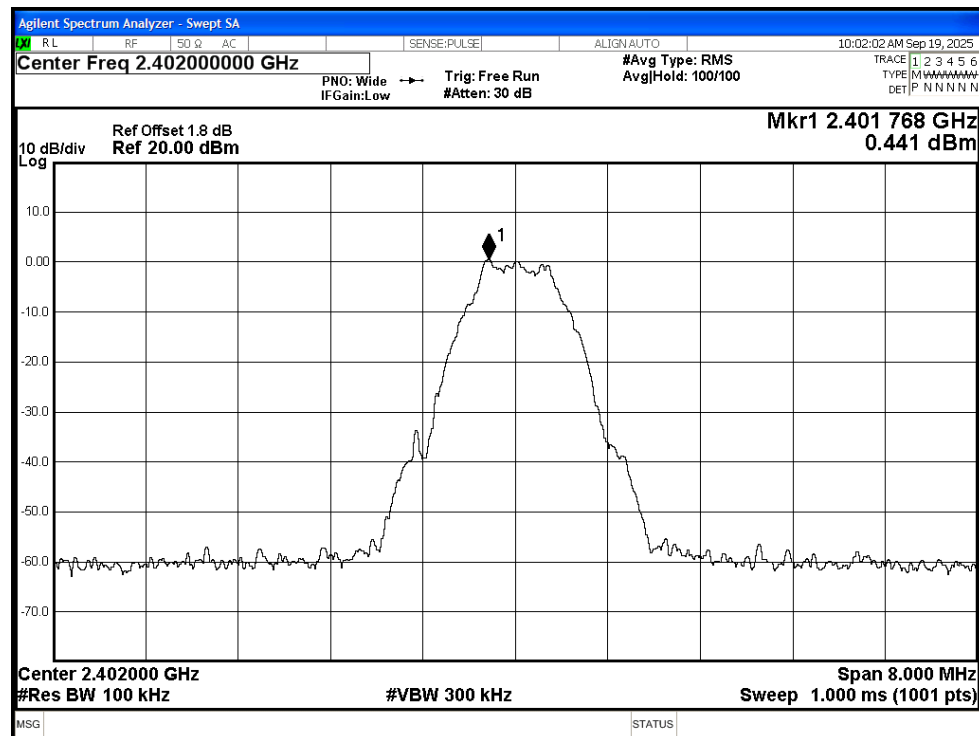


## A.4 Band Edge

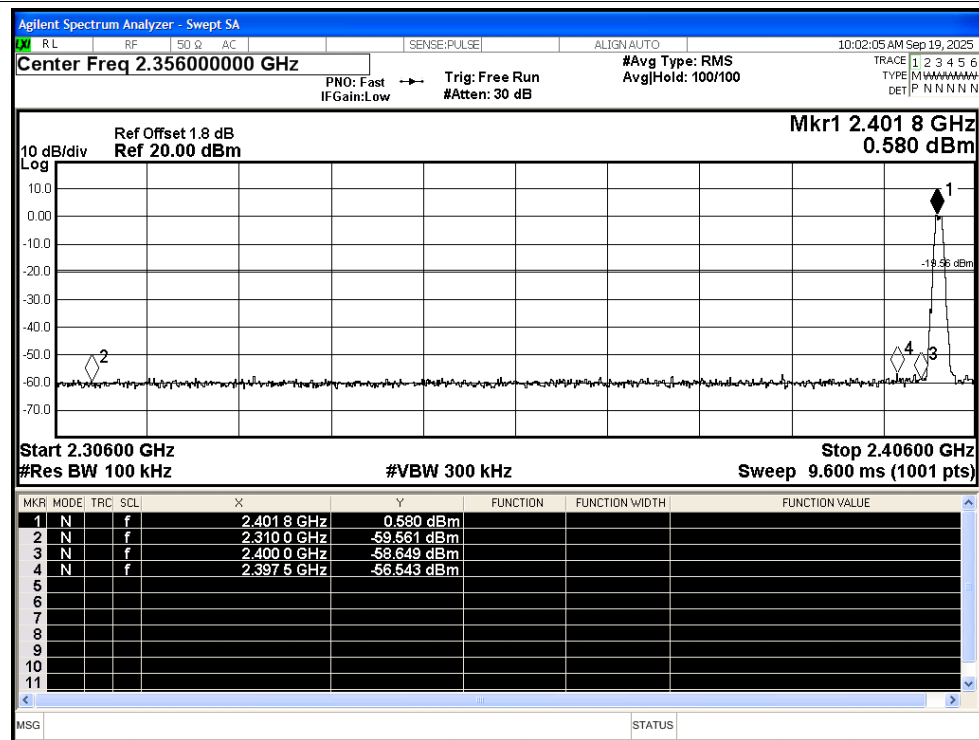
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -56.98          | -20         | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -55.22          | -20         | Pass    |

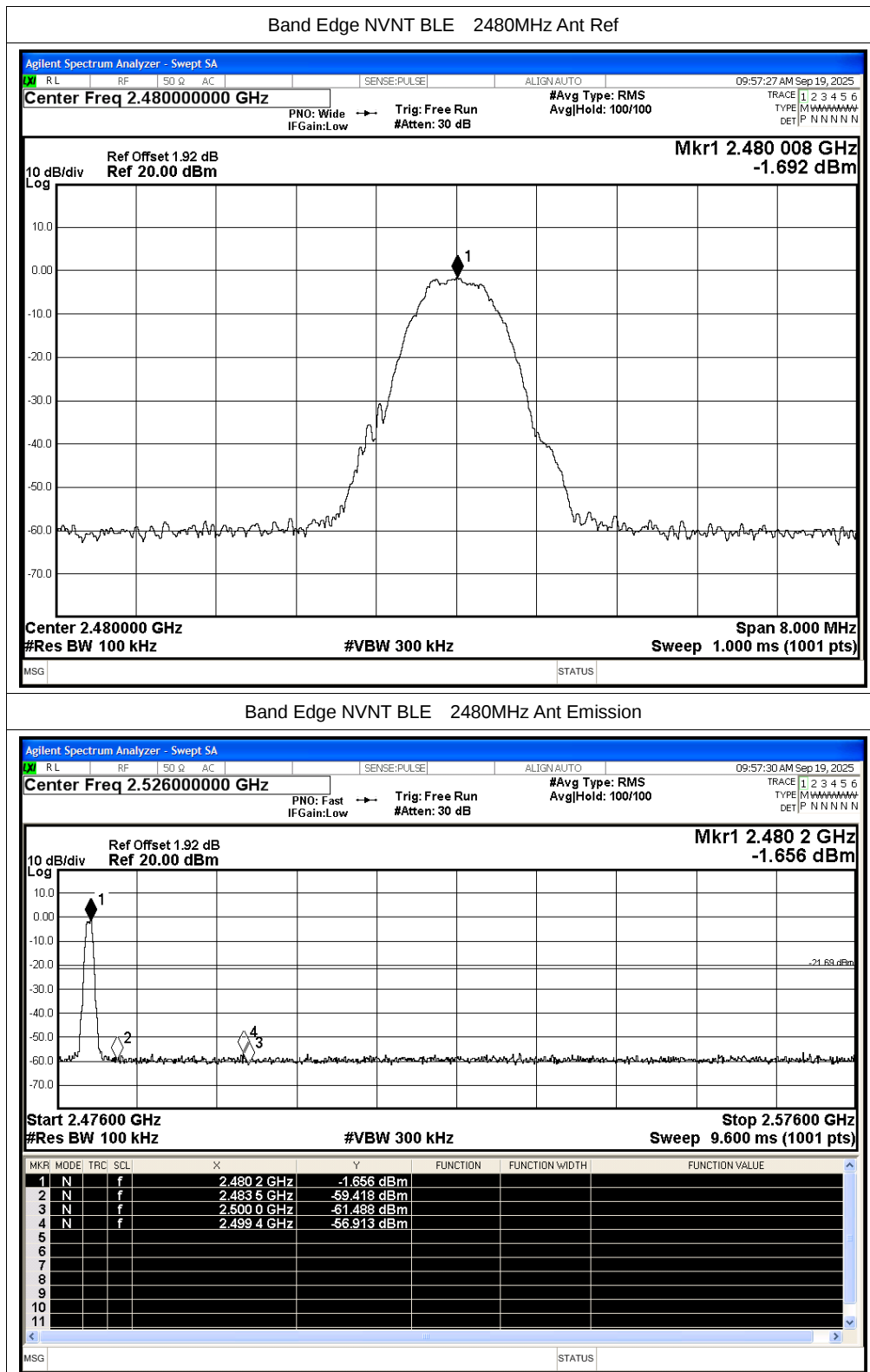
## Test Graphs

## Band Edge NVNT BLE 2402MHz Ant Ref



## Band Edge NVNT BLE 2402MHz Ant Emission



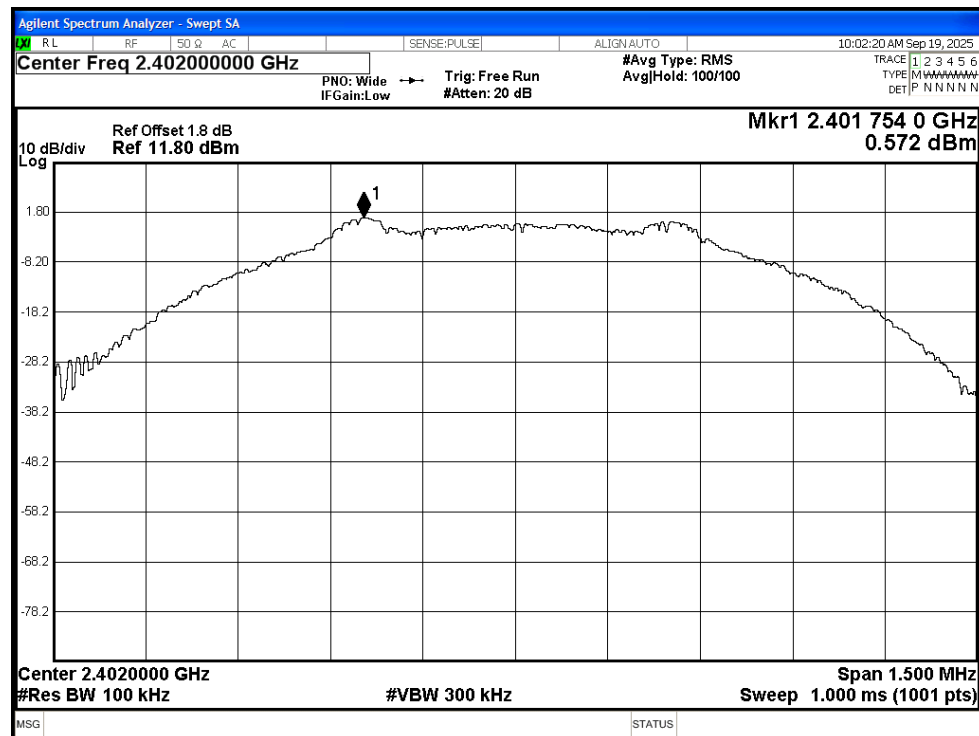


## A.5 Conducted RF Spurious Emission

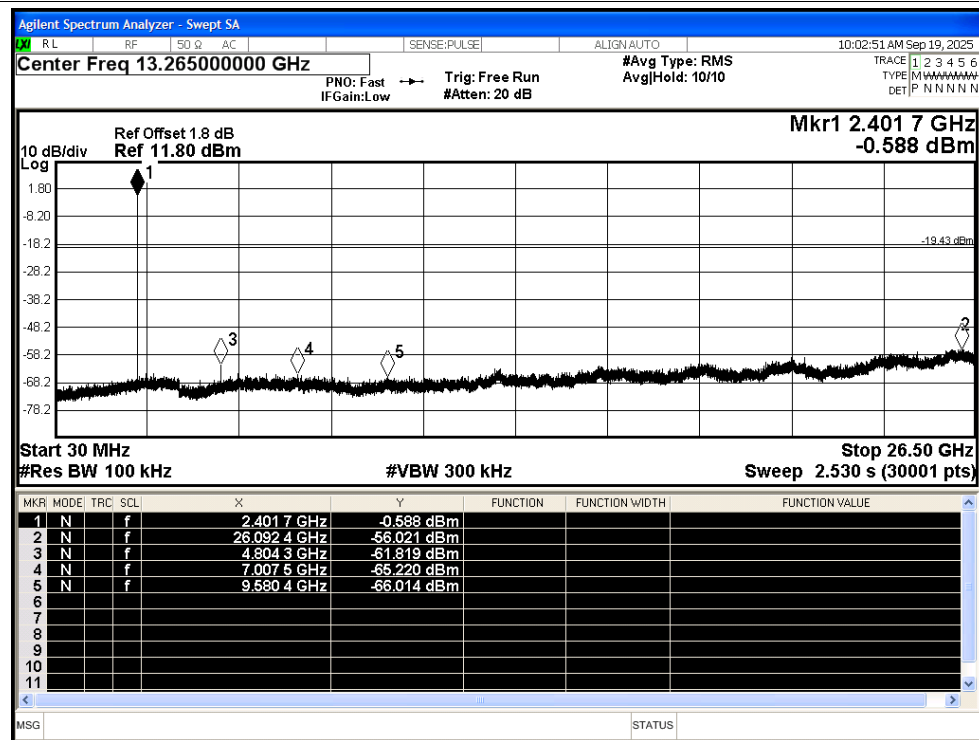
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -56.59          | -20         | Pass    |
| NVNT      | BLE  | 2440            | Ant     | -55.78          | -20         | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -54.25          | -20         | Pass    |

## Test Graphs

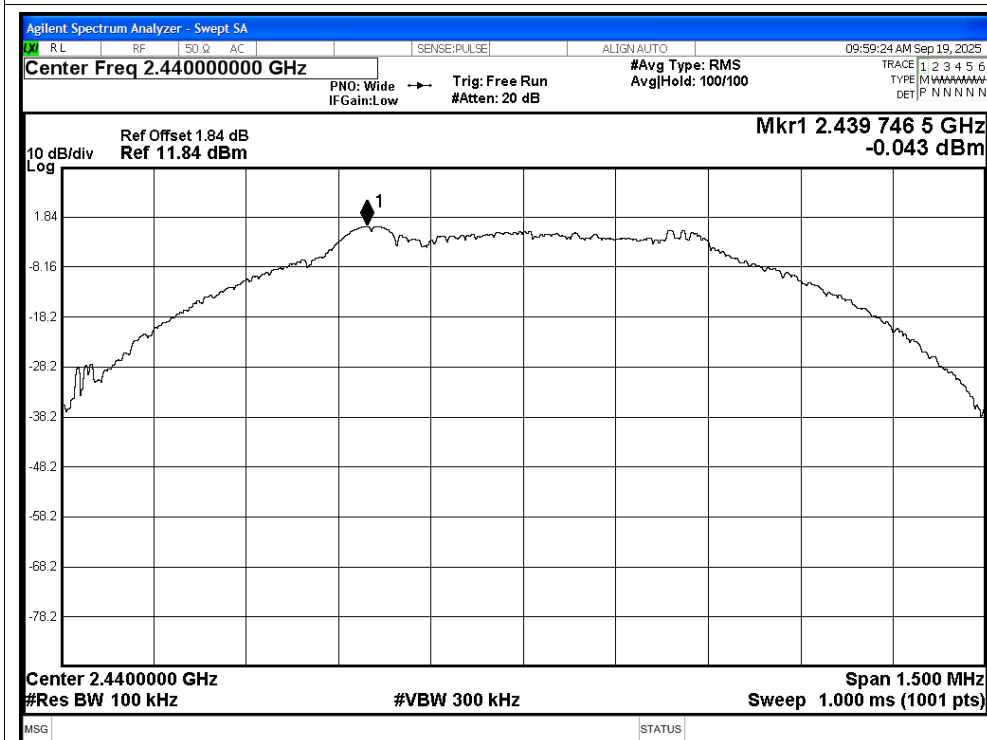
## Tx. Spurious NVNT BLE 2402MHz Ant Ref



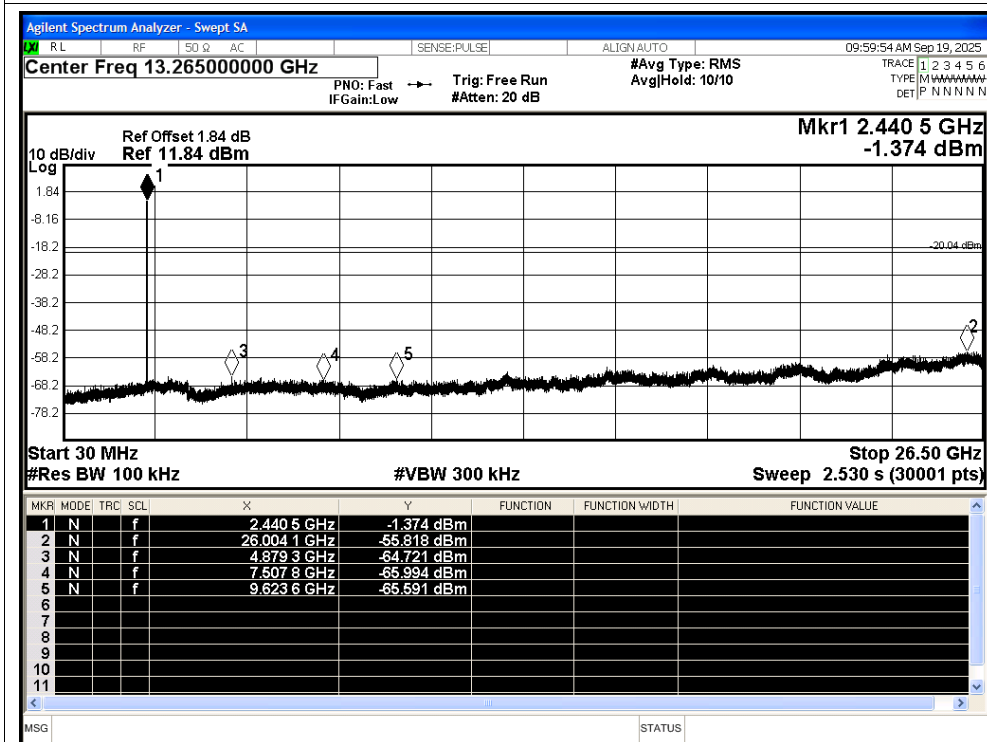
## Tx. Spurious NVNT BLE 2402MHz Ant Emission



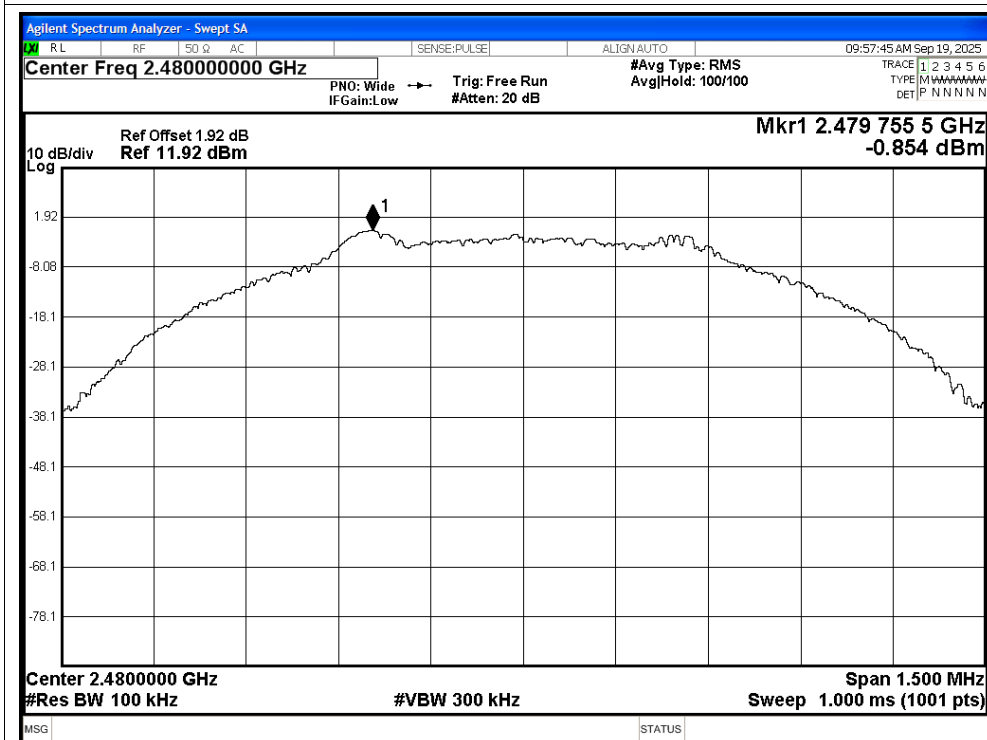
## Tx. Spurious NVNT BLE 2440MHz Ant Ref



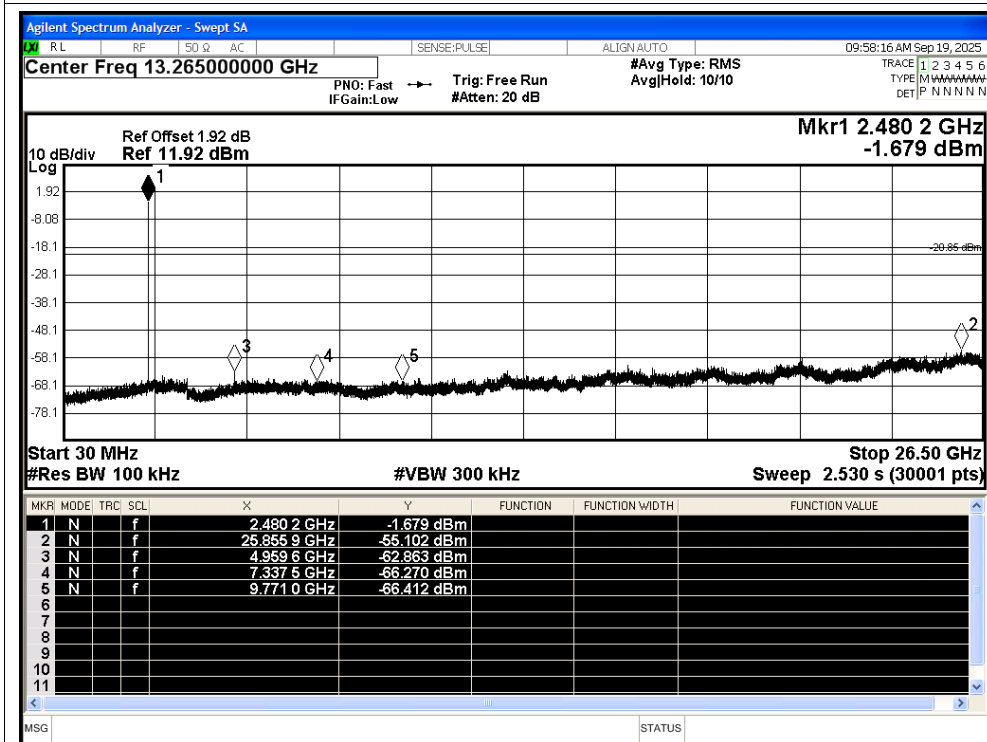
## Tx. Spurious NVNT BLE 2440MHz Ant Emission



## Tx. Spurious NVNT BLE 2480MHz Ant Ref



## Tx. Spurious NVNT BLE 2480MHz Ant Emission

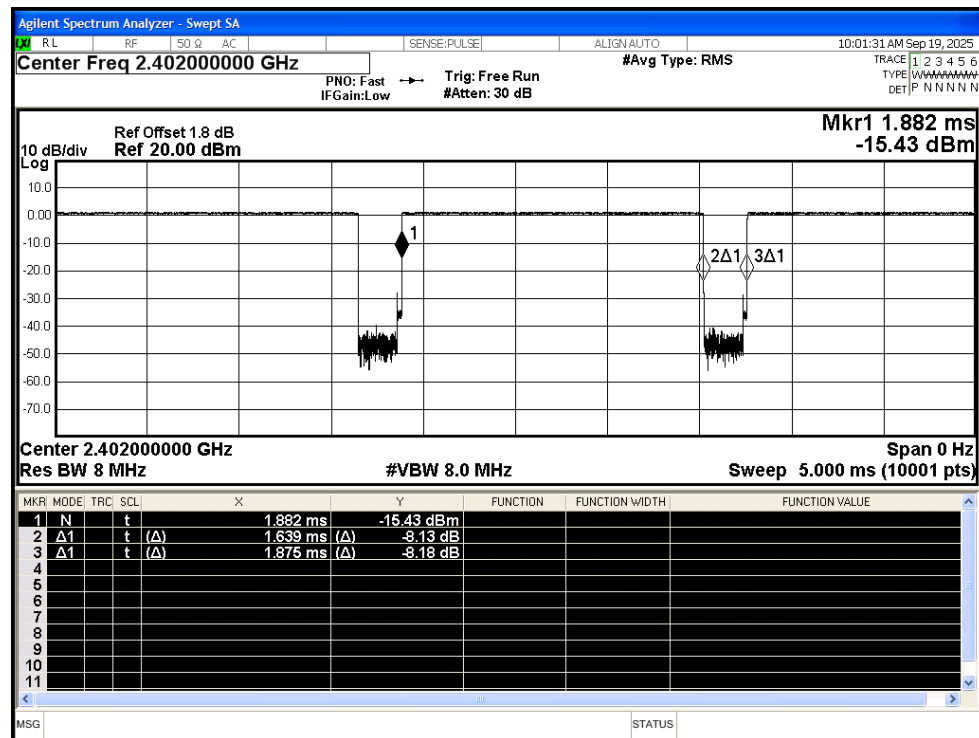


## A.6 Duty Cycle

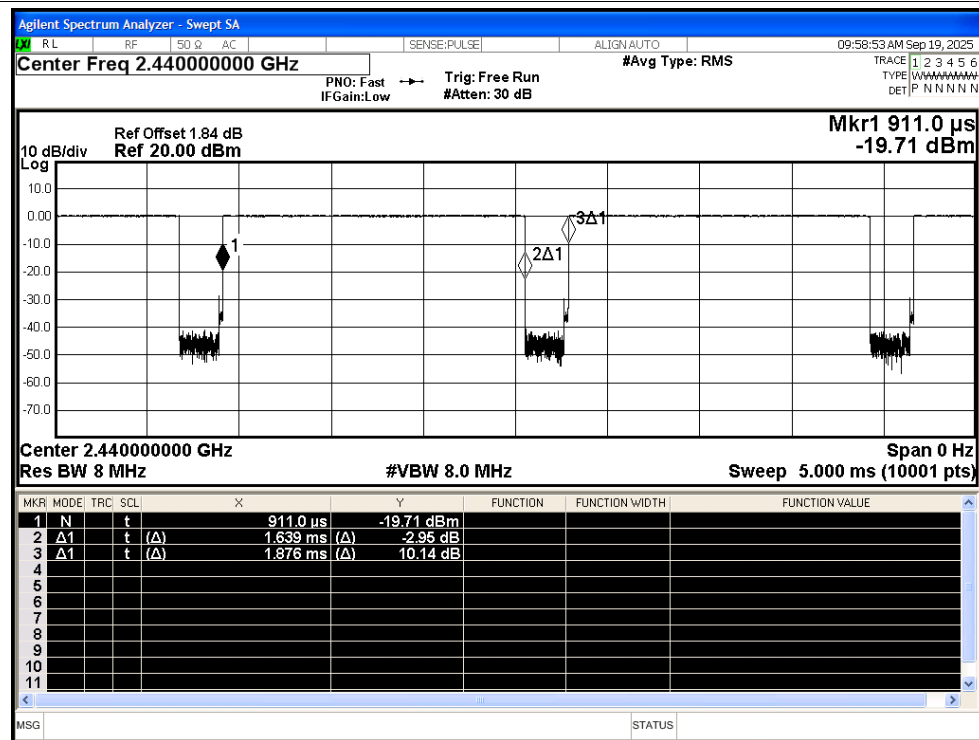
| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE  | 2402            | Ant     | 87.41          | 0.58                   | 0.61      |
| NVNT      | BLE  | 2440            | Ant     | 87.39          | 0.59                   | 0.61      |
| NVNT      | BLE  | 2480            | Ant     | 87.39          | 0.59                   | 0.61      |

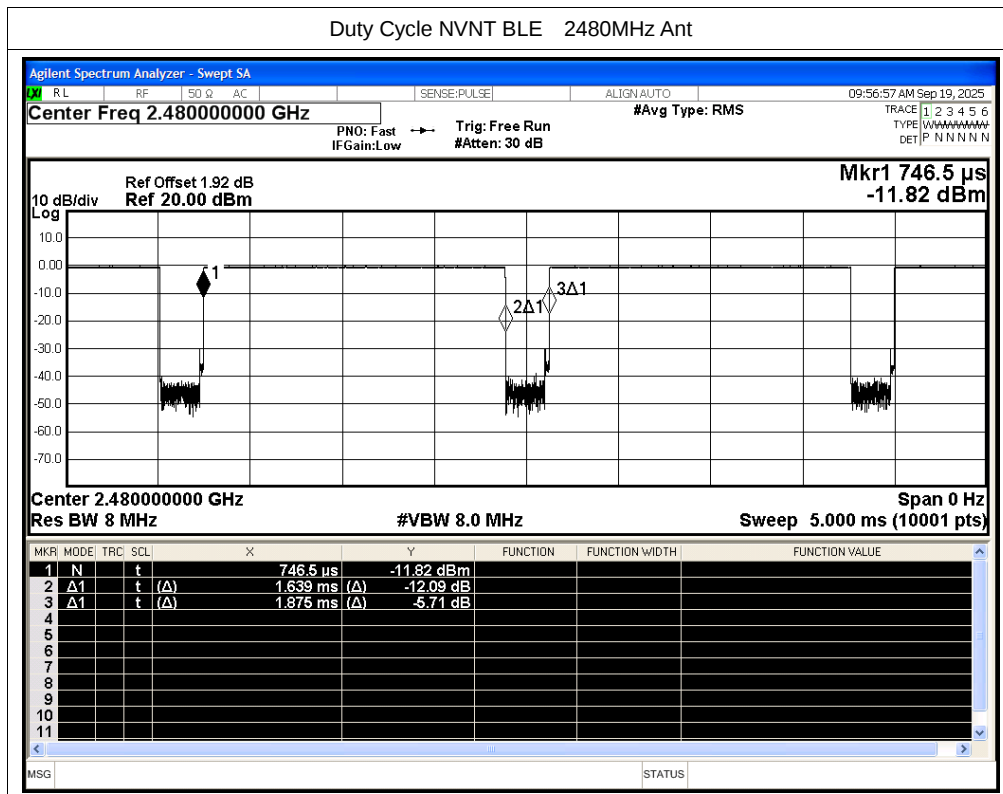
## Test Graphs

## Duty Cycle NVNT BLE 2402MHz Ant



## Duty Cycle NVNT BLE 2440MHz Ant



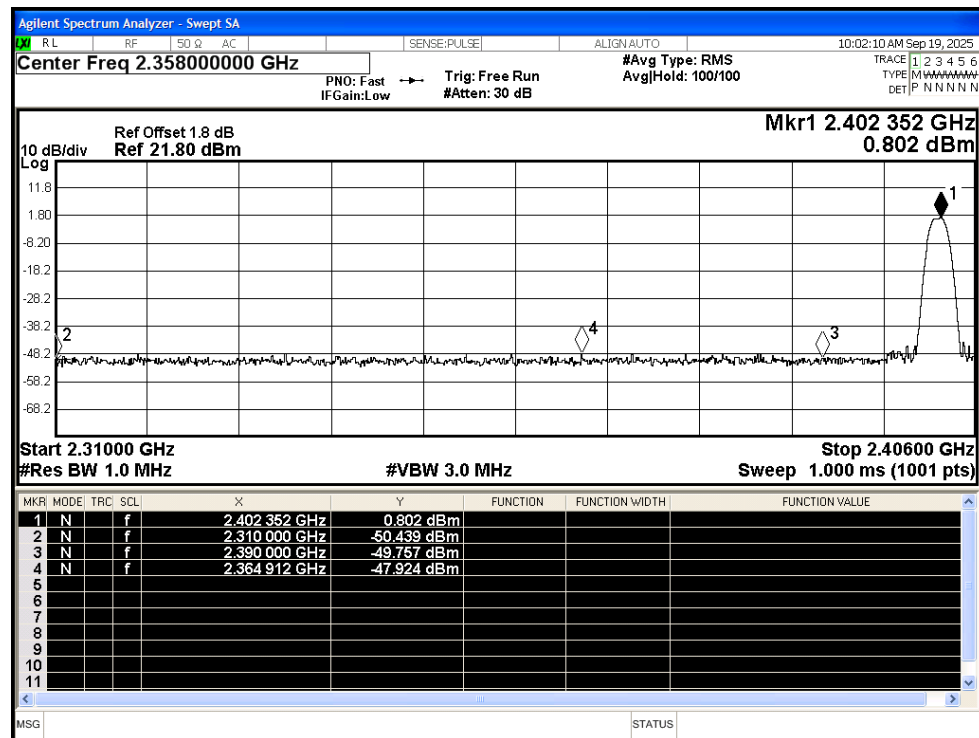


## A.7 Restrict Band

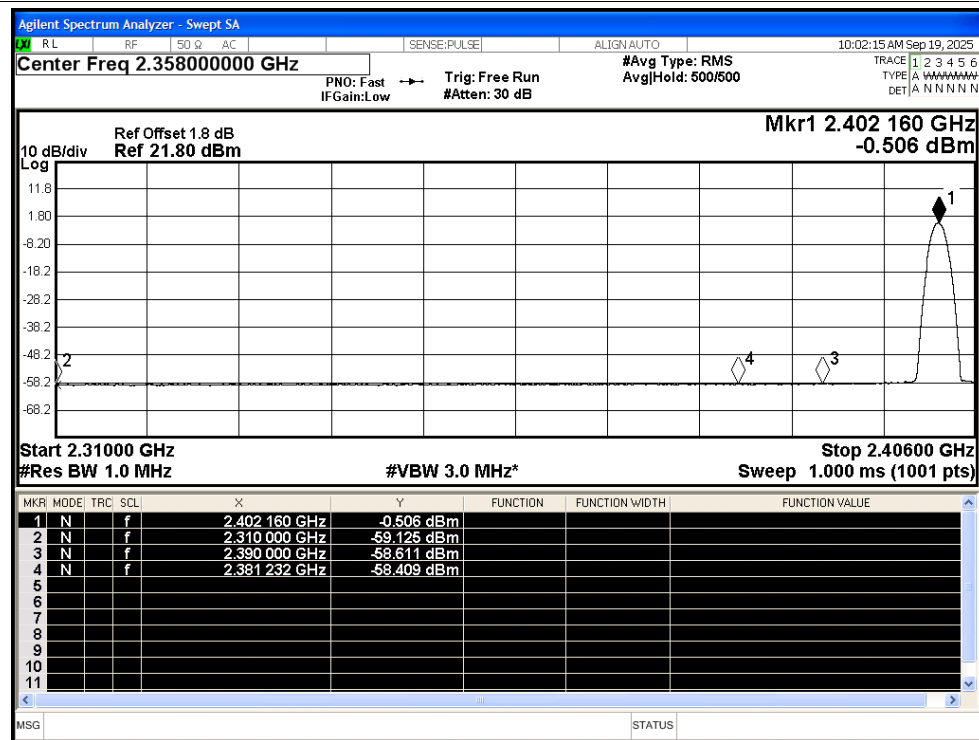
| Condition | Mode | Frequency<br>(MHz) | Antenna | Spur Freq<br>(MHz) | Power<br>(dBm) | Gain<br>(dBi) | Duty<br>Factor<br>(dB) | E<br>(dBuV/m) | Detector | Limit<br>(dBuV/m) | Verdict |
|-----------|------|--------------------|---------|--------------------|----------------|---------------|------------------------|---------------|----------|-------------------|---------|
| NVNT      | BLE  | 2402               | Ant     | 2310               | -50.44         | 2.499         | -                      | 47.32         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2310               | -59.13         | 2.499         | 0.58                   | 39.21         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2364.912           | -47.92         | 2.499         | -                      | 49.84         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2381.232           | -58.41         | 2.499         | 0.58                   | 39.93         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2390               | -49.76         | 2.499         | -                      | 48.00         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2390               | -58.61         | 2.499         | 0.58                   | 39.73         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.5             | -49.67         | 2.499         | -                      | 48.09         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.5             | -58.01         | 2.499         | 0.59                   | 40.34         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2486.968           | -45.71         | 2.499         | -                      | 52.05         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.56            | -57.7          | 2.499         | 0.59                   | 40.65         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2500               | -50.21         | 2.499         | -                      | 47.55         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2500               | -58.25         | 2.499         | 0.59                   | 40.10         | Average  | 54                | Pass    |

## Test Graphs

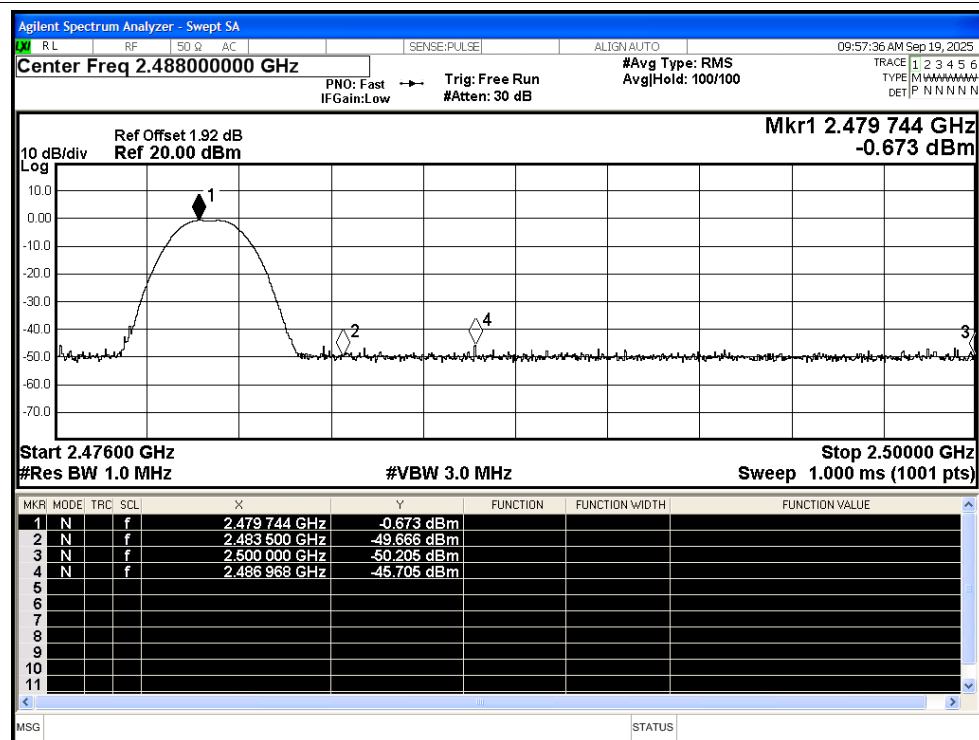
## Restrict Band NVNT BLE 2402MHz Ant Peak



## Restrict Band NVNT BLE 2402MHz Ant Average



## Restrict Band NVNT BLE 2480MHz Ant Peak



## Restrict Band NVNT BLE 2480MHz Ant Average

