

## **FCC Appendix RF Test Data for BLE**

**FCC ID** : 2AUARTKVGO

**Company** : THINKCAR TECH CO., LTD.

**EUT** : TPMS INTELLIGENT DETECTION TOOL

**Model Number** : V-GO

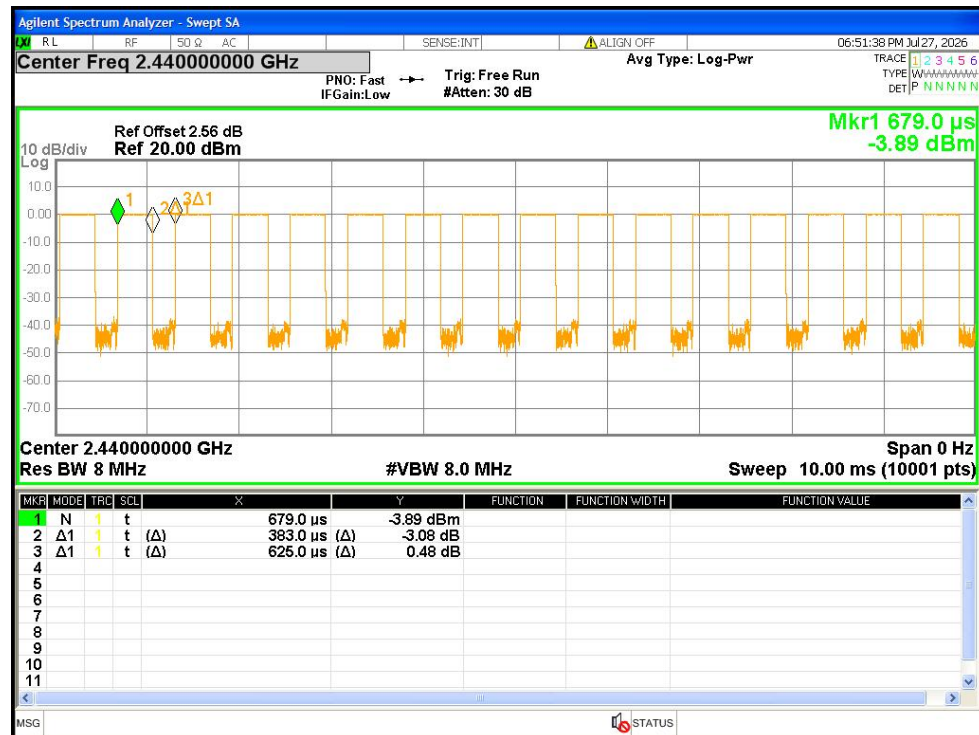
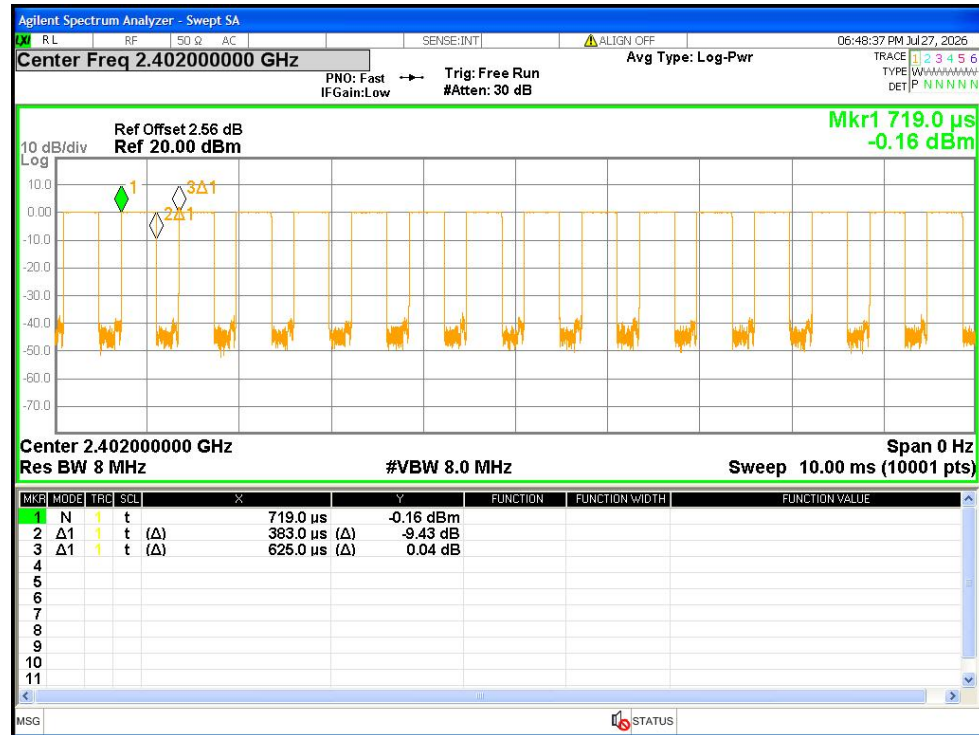
**Report No.** : CTA06071800101

**Reviewed By** : Eric Wang

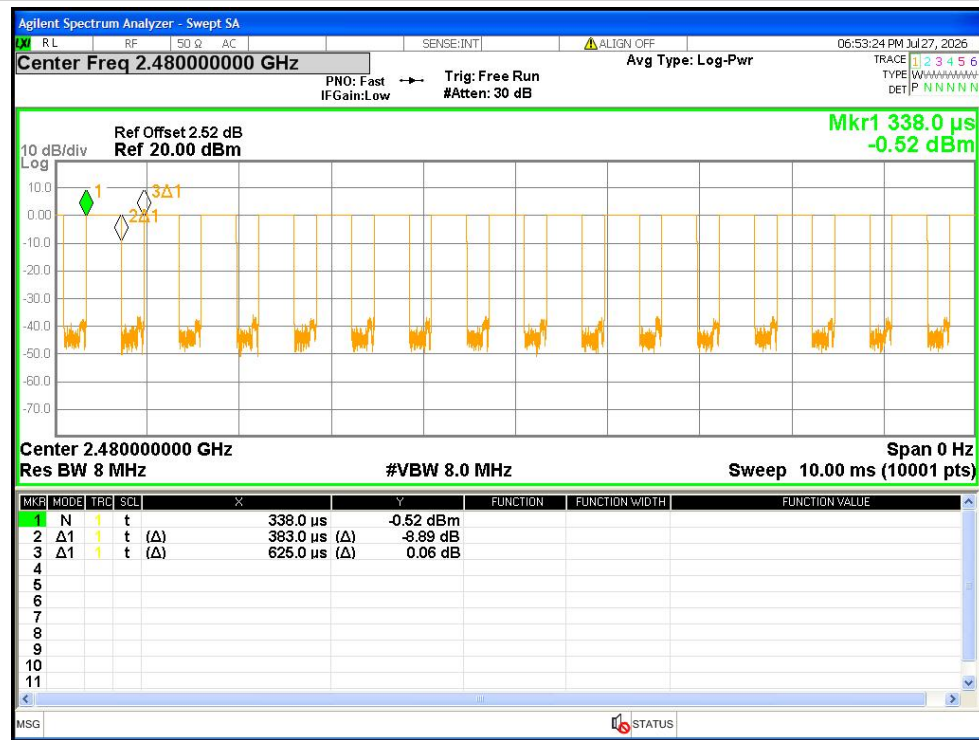
## Duty Cycle

| Mode   | Frequency (MHz) | On Time (ms) | Period (ms) | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|--------|-----------------|--------------|-------------|----------------|------------------------|-----------|
| BLE 1M | 2402            | 0.383        | 0.625       | 61.28          | 2.13                   | 2.61      |
| BLE 1M | 2440            | 0.383        | 0.625       | 61.28          | 2.13                   | 2.61      |
| BLE 1M | 2480            | 0.383        | 0.625       | 61.28          | 2.13                   | 2.61      |
| BLE 2M | 2402            | 0.203        | 0.625       | 32.48          | 4.88                   | 4.93      |
| BLE 2M | 2440            | 0.203        | 0.625       | 32.48          | 4.88                   | 4.93      |
| BLE 2M | 2480            | 0.204        | 0.625       | 32.64          | 4.86                   | 4.9       |

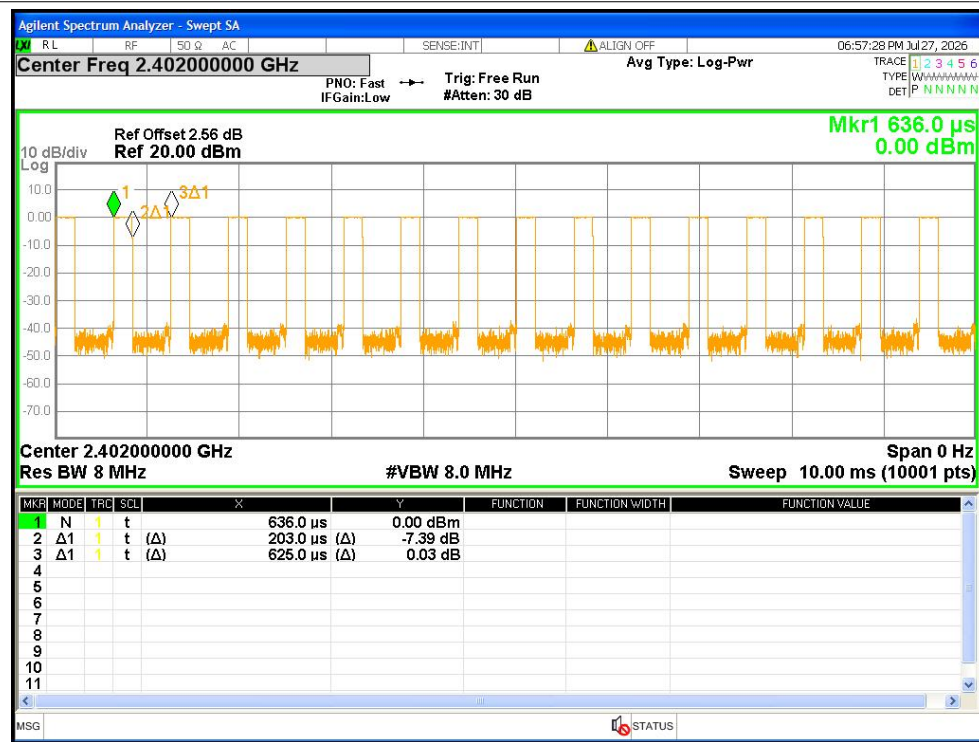
## Duty Cycle NVNT BLE 1M 2402MHz



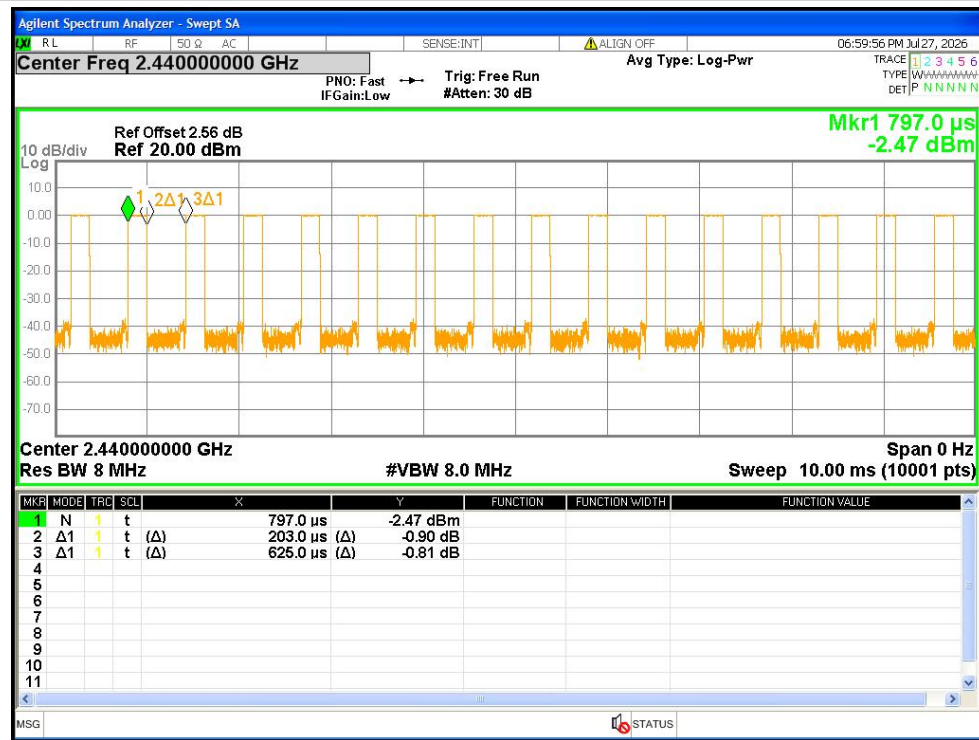
# Duty Cycle NVNT BLE 1M 2480MHz



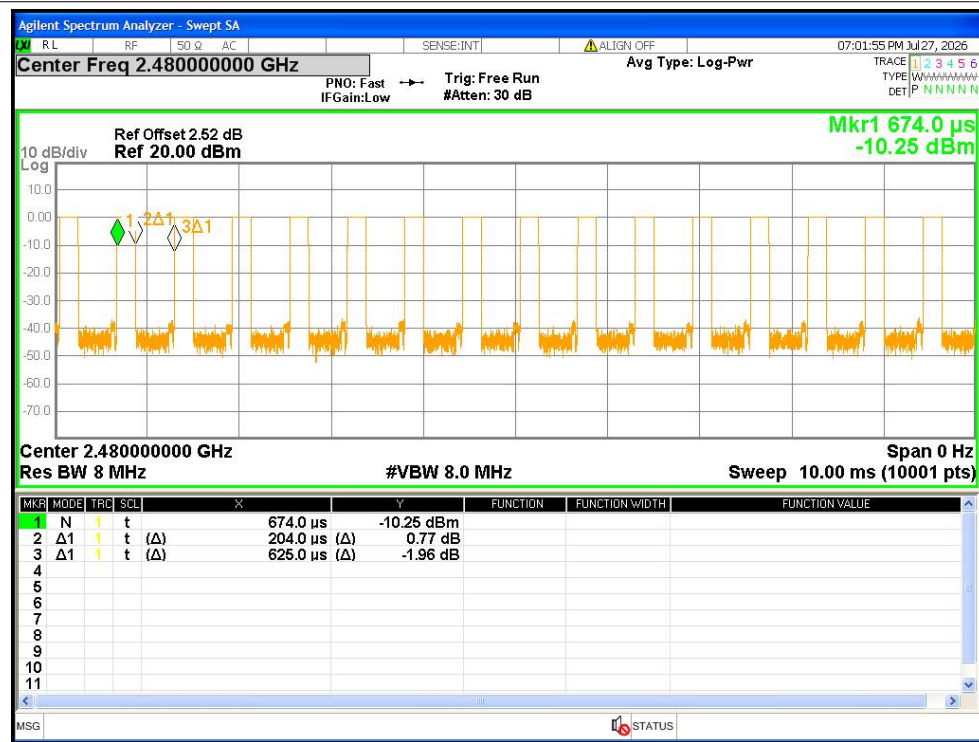
# Duty Cycle NVNT BLE 2M 2402MHz



## Duty Cycle NVNT BLE 2M 2440MHz



## Duty Cycle NVNT BLE 2M 2480MHz



## Maximum Peak Conducted Output Power

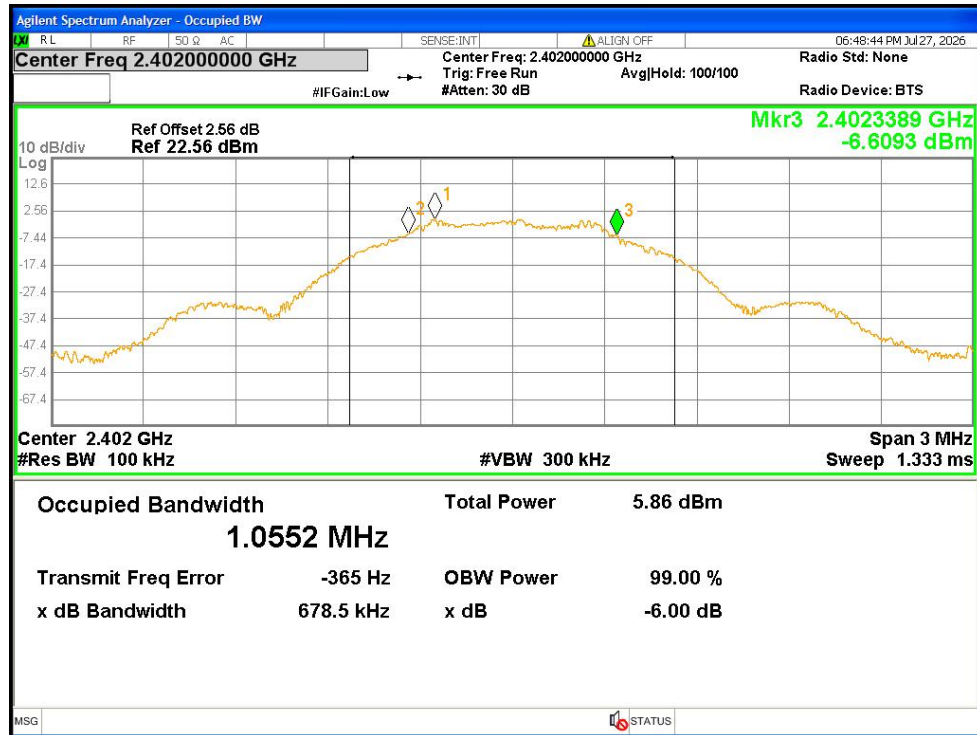
| Mode   | Frequency (MHz) | Conducted Power (dBm) | Limit (dBm) | Verdict |
|--------|-----------------|-----------------------|-------------|---------|
| BLE 1M | 2402            | 0.07                  | <=30        | Pass    |
| BLE 1M | 2440            | 0.04                  | <=30        | Pass    |
| BLE 1M | 2480            | 0.17                  | <=30        | Pass    |
| BLE 2M | 2402            | 0.07                  | <=30        | Pass    |
| BLE 2M | 2440            | 0.03                  | <=30        | Pass    |
| BLE 2M | 2480            | 0.17                  | <=30        | Pass    |

## -6dB Bandwidth

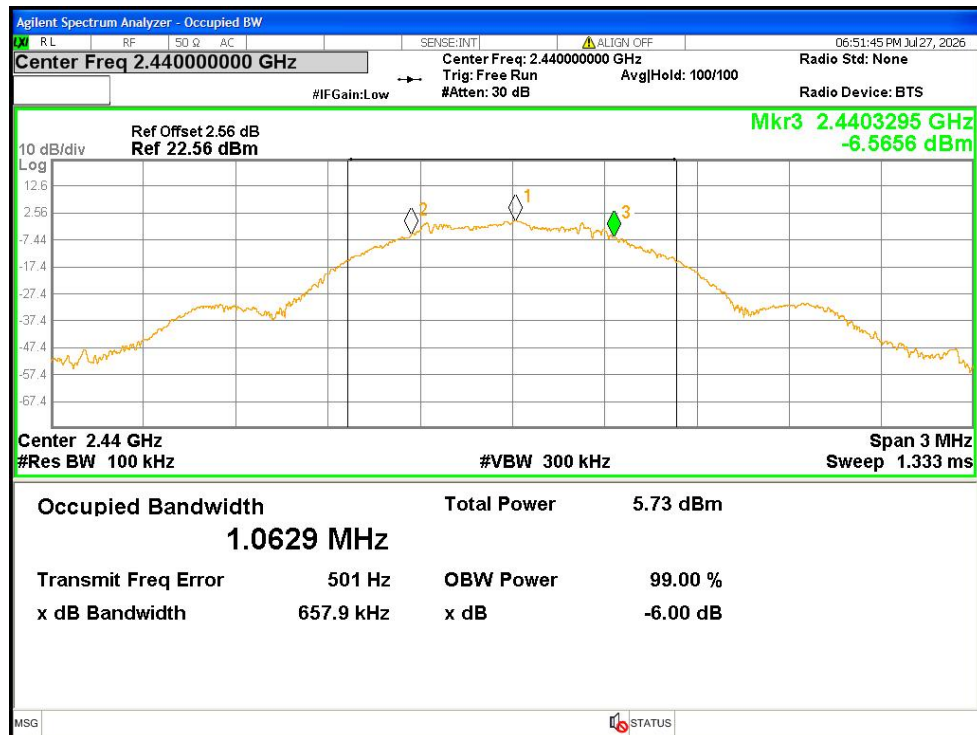
| Mode   | Frequency (MHz) | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|--------|-----------------|-----------------------|-----------------------------|---------|
| BLE 1M | 2402            | 0.6785                | $\geq 0.5$                  | Pass    |
| BLE 1M | 2440            | 0.6579                | $\geq 0.5$                  | Pass    |
| BLE 1M | 2480            | 0.6733                | $\geq 0.5$                  | Pass    |
| BLE 2M | 2402            | 1.094                 | $\geq 0.5$                  | Pass    |
| BLE 2M | 2440            | 1.126                 | $\geq 0.5$                  | Pass    |
| BLE 2M | 2480            | 1.148                 | $\geq 0.5$                  | Pass    |

# Test Graphs

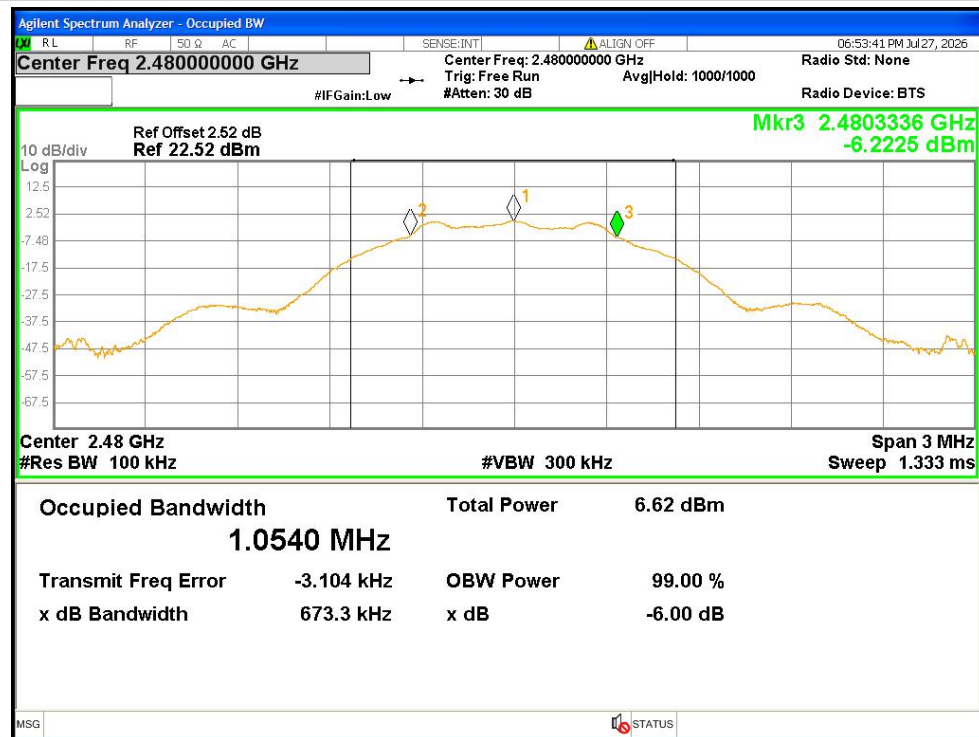
## -6dB Bandwidth NVNT BLE 1M 2402MHz



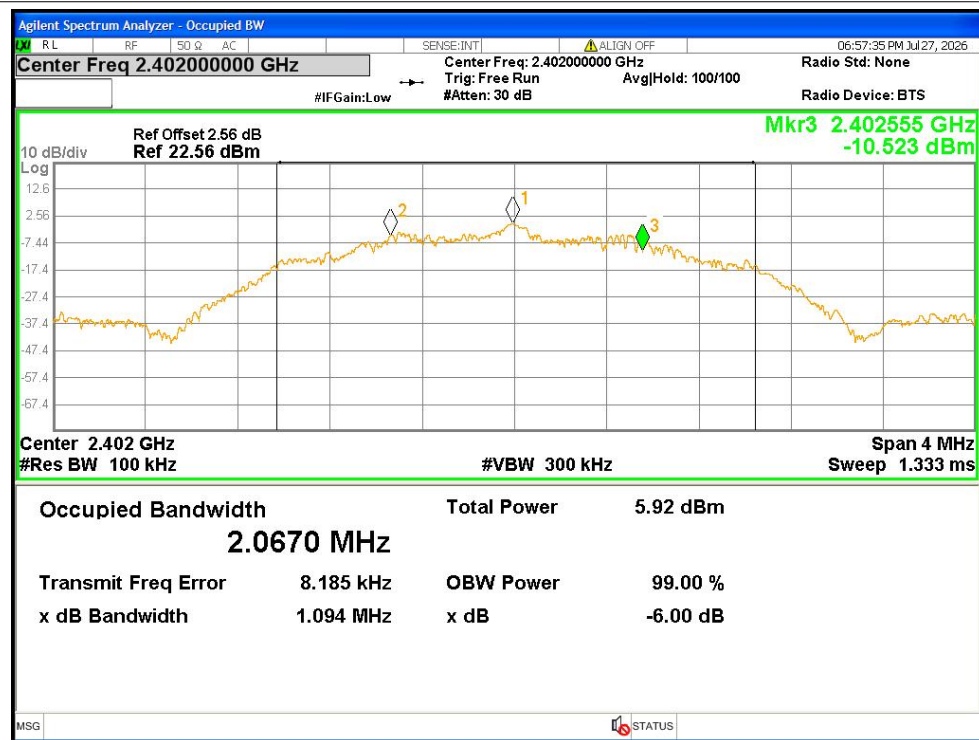
## -6dB Bandwidth NVNT BLE 1M 2440MHz



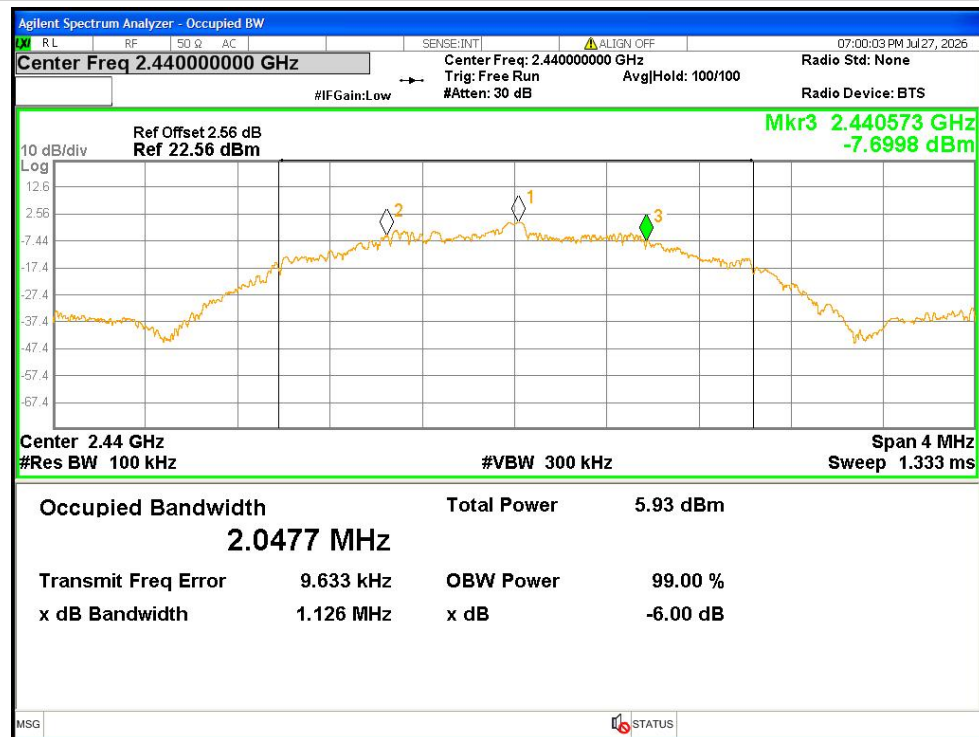
# -6dB Bandwidth NVNT BLE 1M 2480MHz



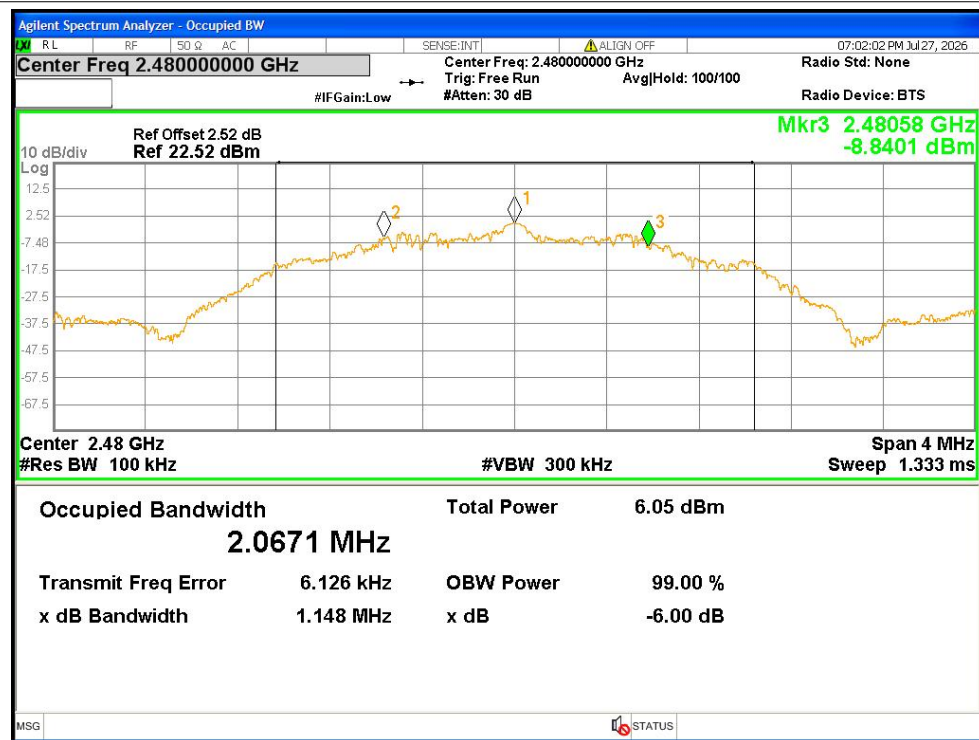
# -6dB Bandwidth NVNT BLE 2M 2402MHz



# -6dB Bandwidth NVNT BLE 2M 2440MHz



# -6dB Bandwidth NVNT BLE 2M 2480MHz

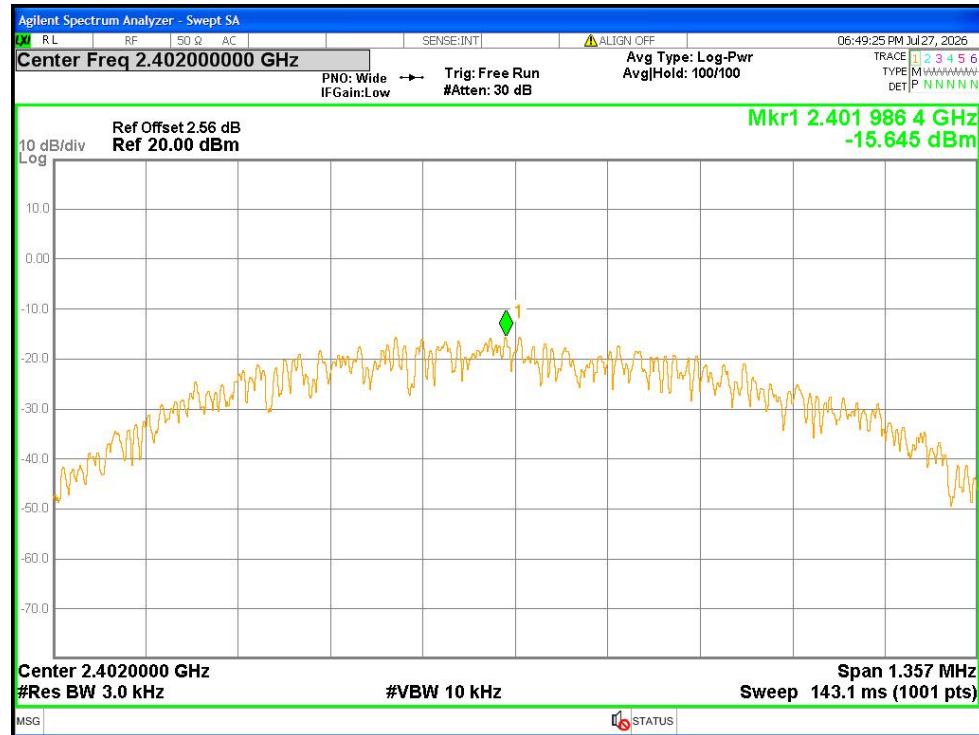


## Maximum Power Spectral Density Level

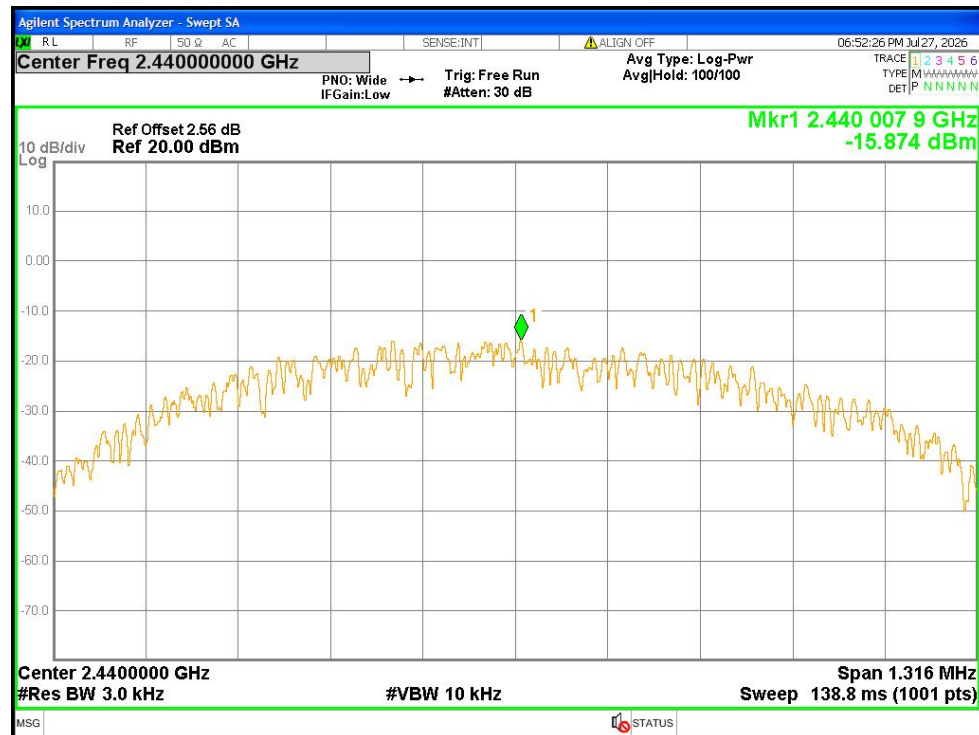
| Mode   | Frequency (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|--------|-----------------|----------------|------------------|---------|
| BLE 1M | 2402            | -15.65         | $\leq 8$         | Pass    |
| BLE 1M | 2440            | -15.87         | $\leq 8$         | Pass    |
| BLE 1M | 2480            | -15.24         | $\leq 8$         | Pass    |
| BLE 2M | 2402            | -16.92         | $\leq 8$         | Pass    |
| BLE 2M | 2440            | -16.87         | $\leq 8$         | Pass    |
| BLE 2M | 2480            | -16.77         | $\leq 8$         | Pass    |

# Test Graphs

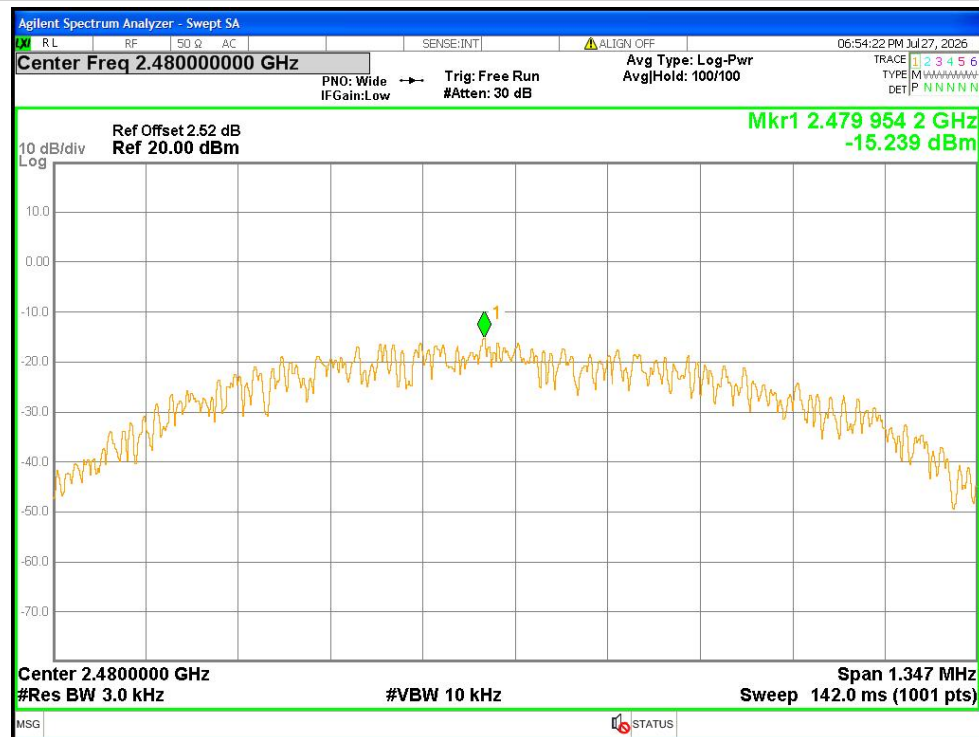
## PSD NVNT BLE 1M 2402MHz



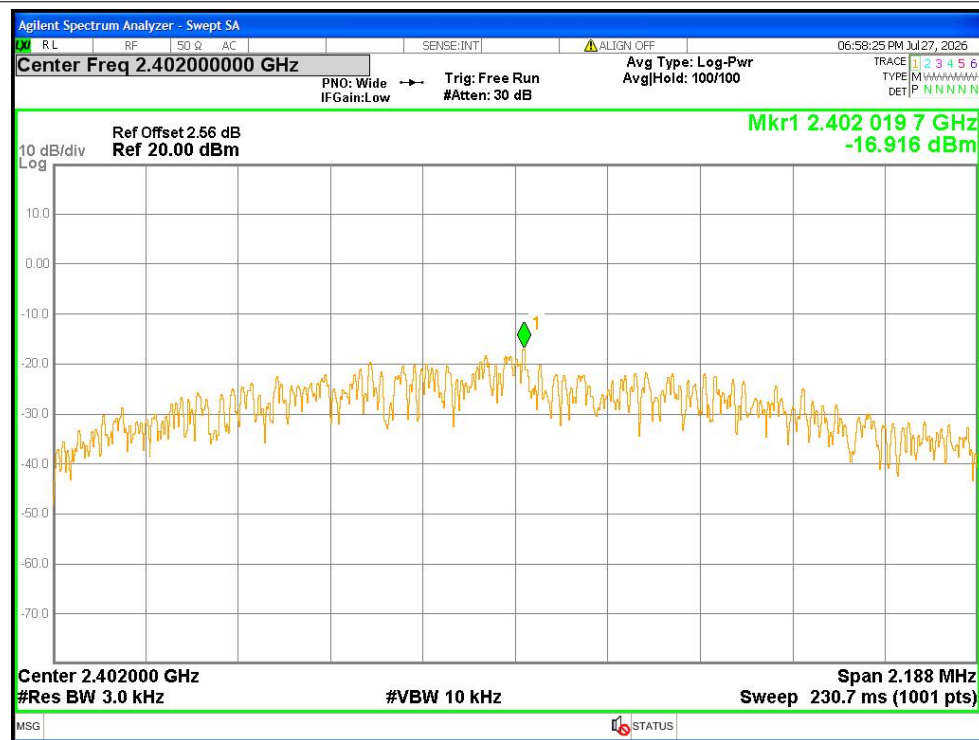
## PSD NVNT BLE 1M 2440MHz



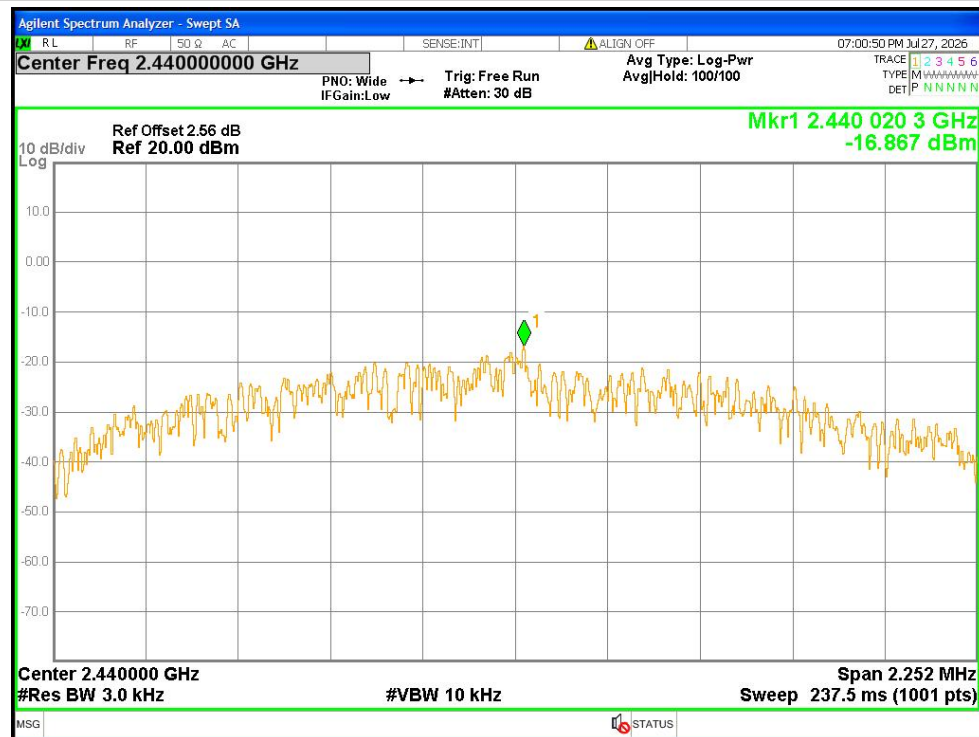
# PSD NVNT BLE 1M 2480MHz



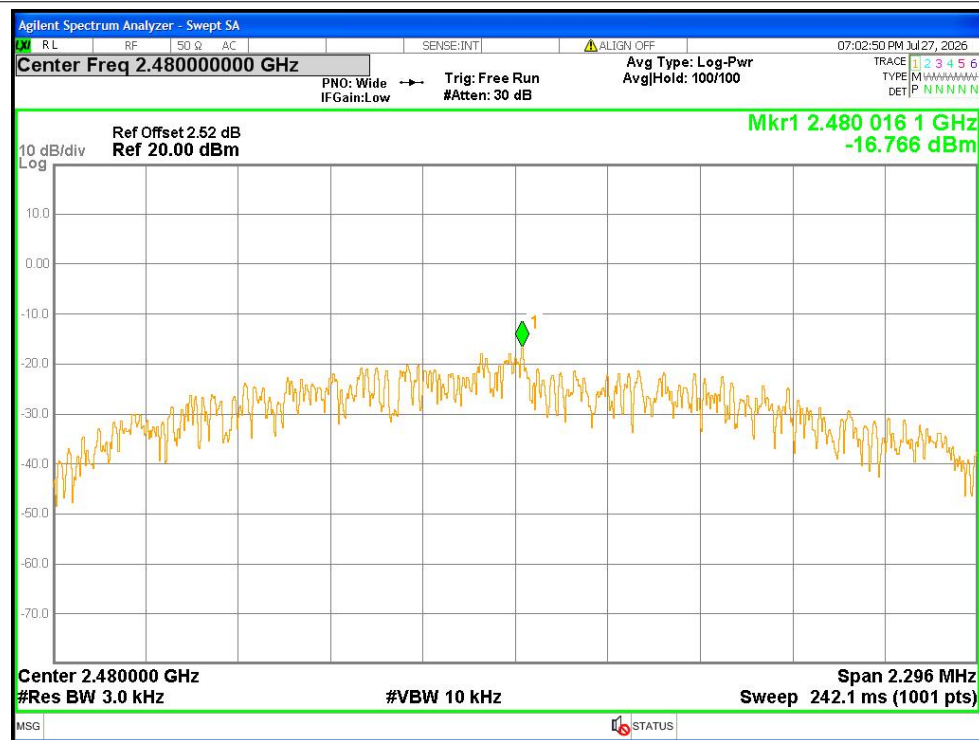
# PSD NVNT BLE 2M 2402MHz



# PSD NVNT BLE 2M 2440MHz



# PSD NVNT BLE 2M 2480MHz



## Band Edge

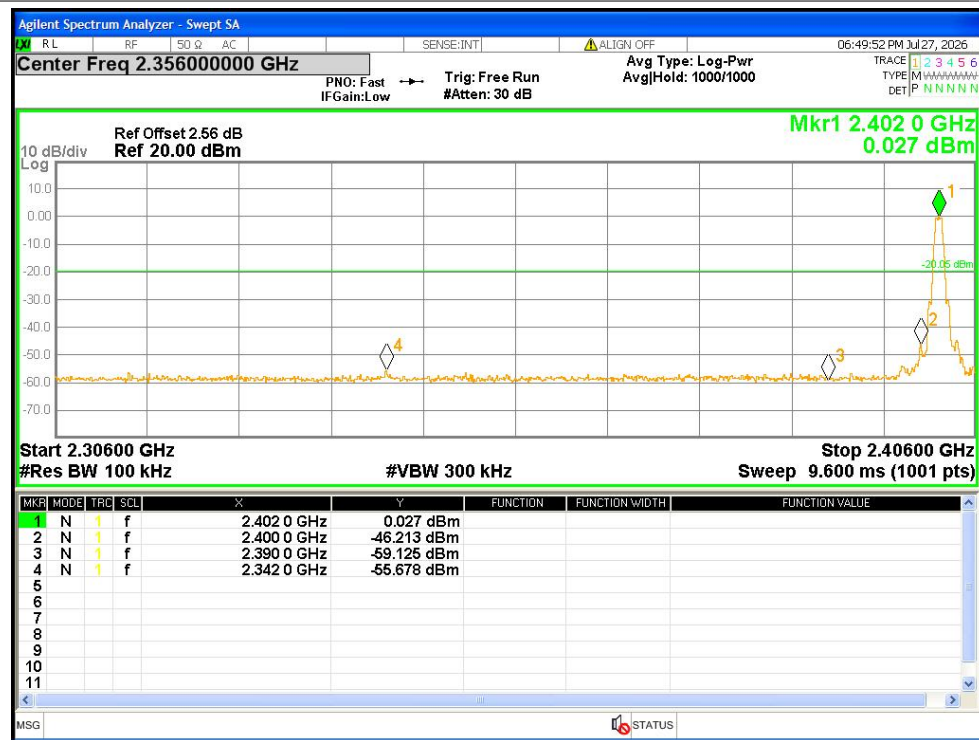
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -55.62          | <=-20       | Pass    |
| BLE 1M | 2480            | -43.25          | <=-20       | Pass    |
| BLE 2M | 2402            | -57.22          | <=-20       | Pass    |
| BLE 2M | 2480            | -43.48          | <=-20       | Pass    |

## Test Graphs

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



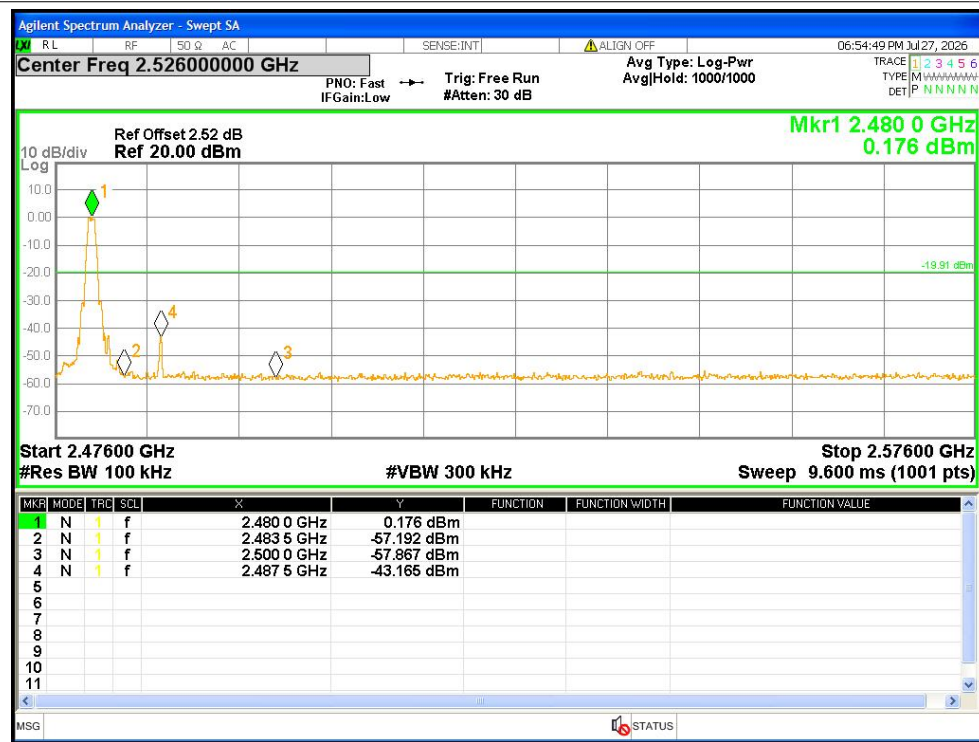
### Band Edge NVNT BLE 1M 2402MHz Emission



# Band Edge NVNT BLE 1M 2480MHz Ref



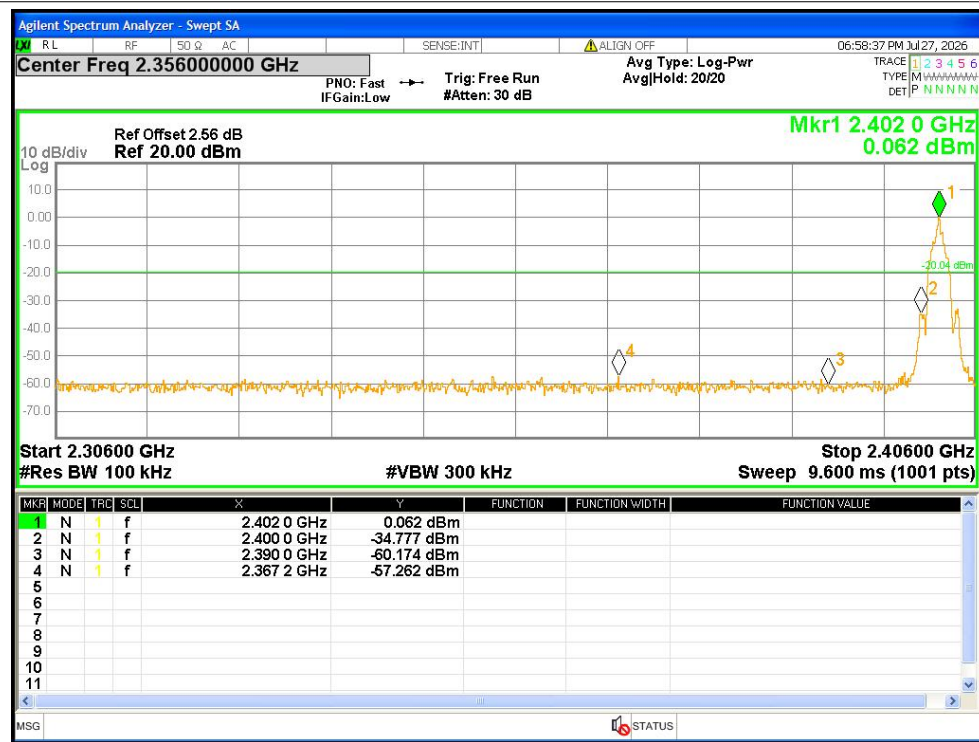
# Band Edge NVNT BLE 1M 2480MHz Emission



# Band Edge NVNT BLE 2M 2402MHz Ref



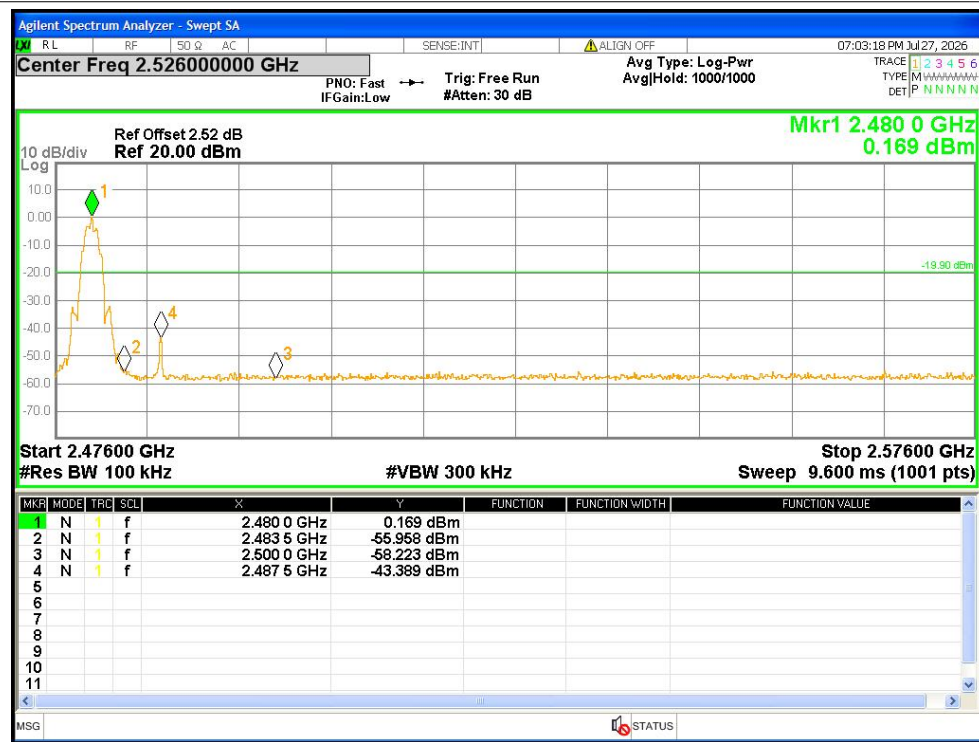
# Band Edge NVNT BLE 2M 2402MHz Emission



## Band Edge NVNT BLE 2M 2480MHz Ref



## Band Edge NVNT BLE 2M 2480MHz Emission



## Conducted RF Spurious Emission

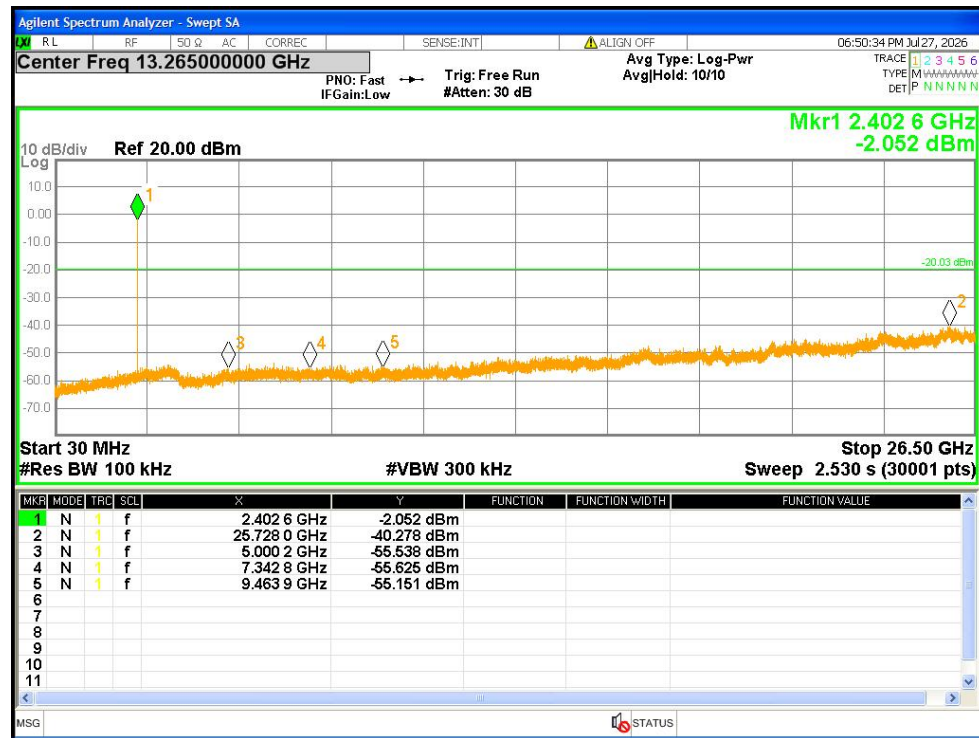
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -40.24          | <=-20       | Pass    |
| BLE 1M | 2440            | -40.42          | <=-20       | Pass    |
| BLE 1M | 2480            | -38.65          | <=-20       | Pass    |
| BLE 2M | 2402            | -40.08          | <=-20       | Pass    |
| BLE 2M | 2440            | -40.54          | <=-20       | Pass    |
| BLE 2M | 2480            | -40.59          | <=-20       | Pass    |

## Test Graphs

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



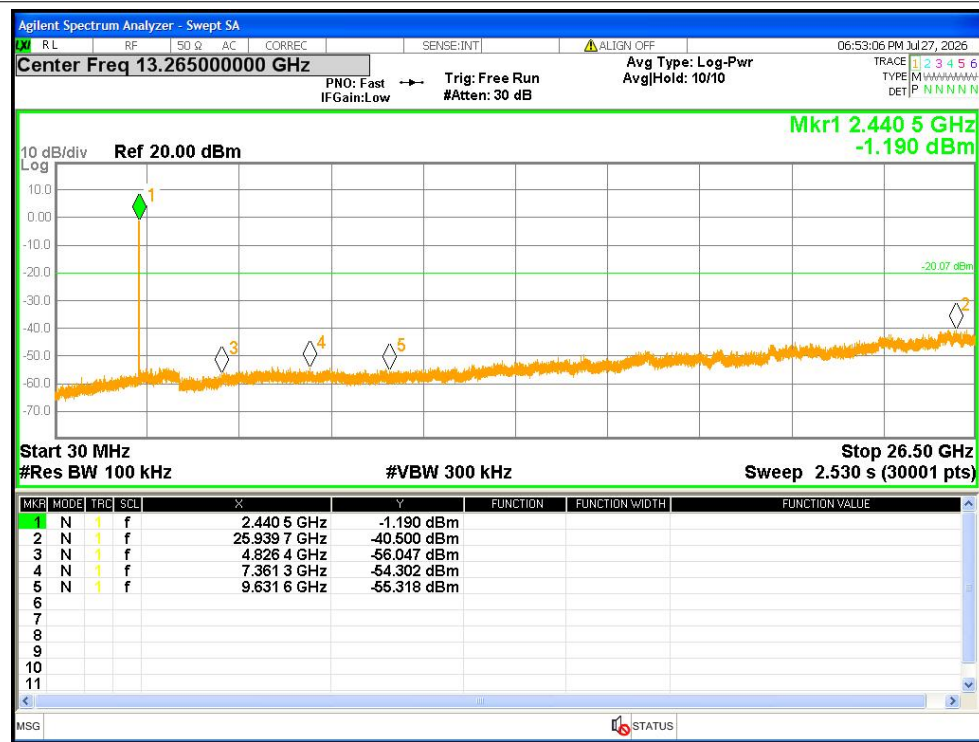
### Tx. Spurious NVNT BLE 1M 2402MHz Emission



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



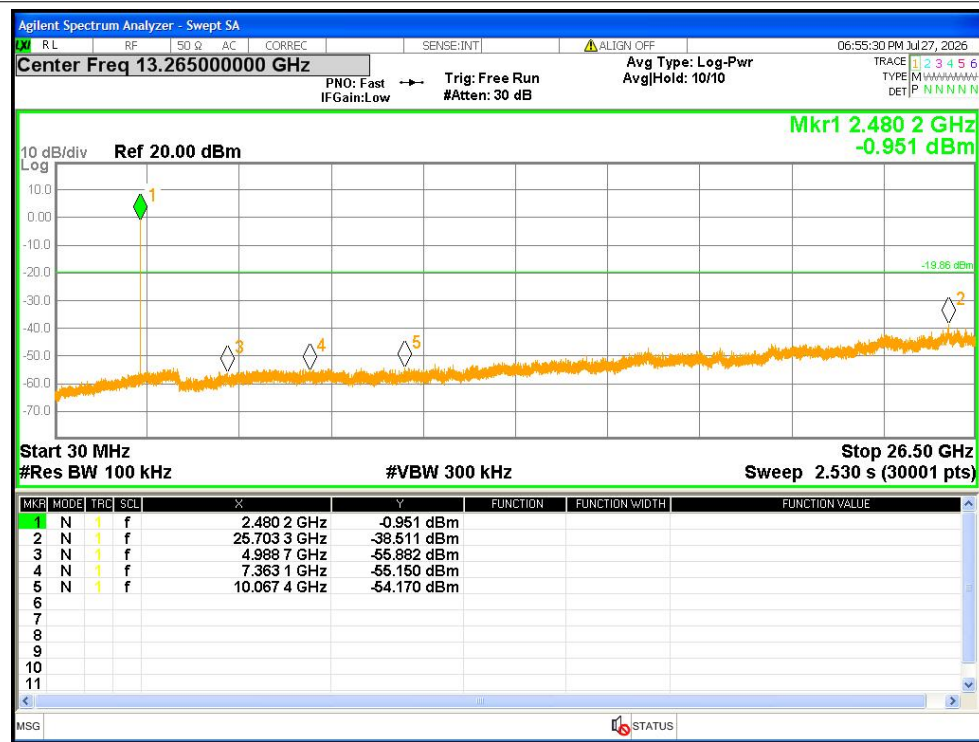
### Tx. Spurious NVNT BLE 1M 2440MHz Emission



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



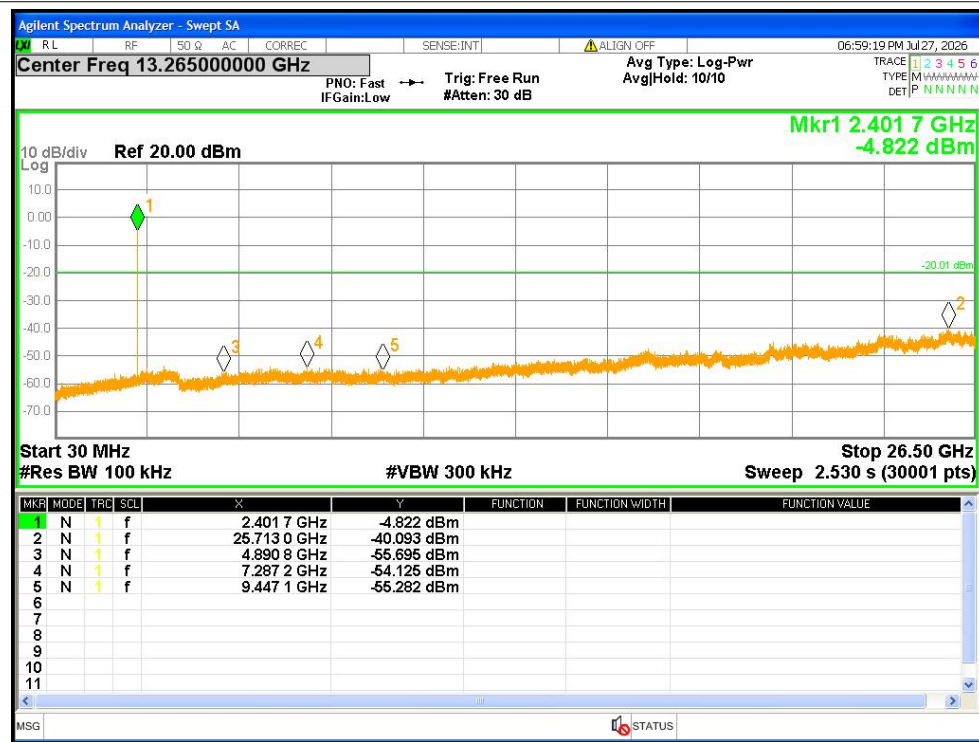
### Tx. Spurious NVNT BLE 1M 2480MHz Emission



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



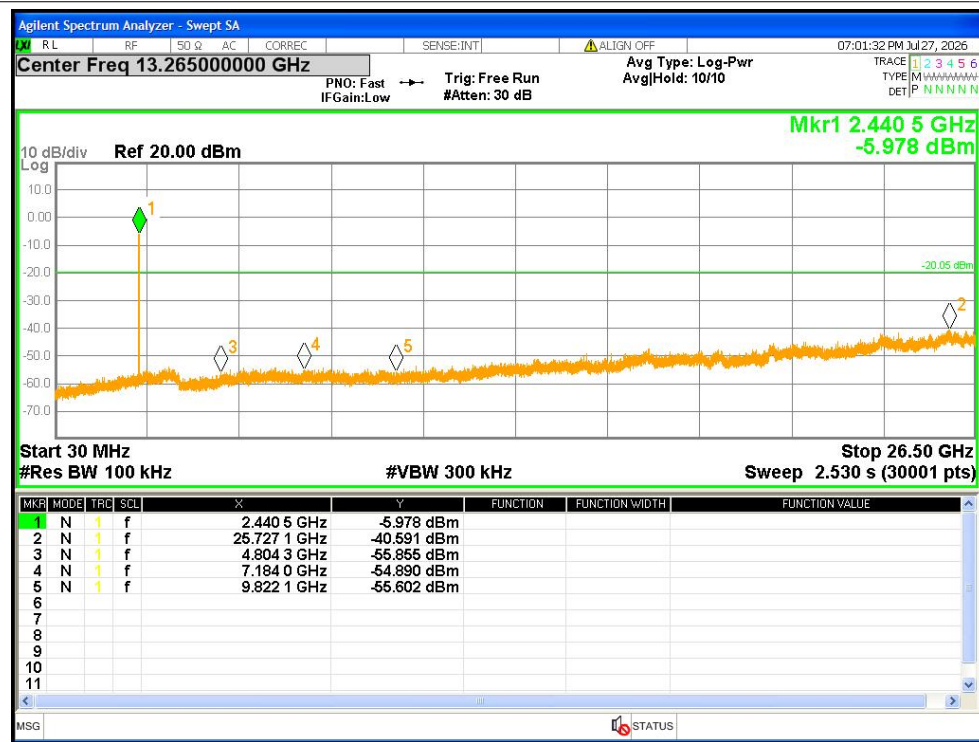
### Tx. Spurious NVNT BLE 2M 2402MHz Emission



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



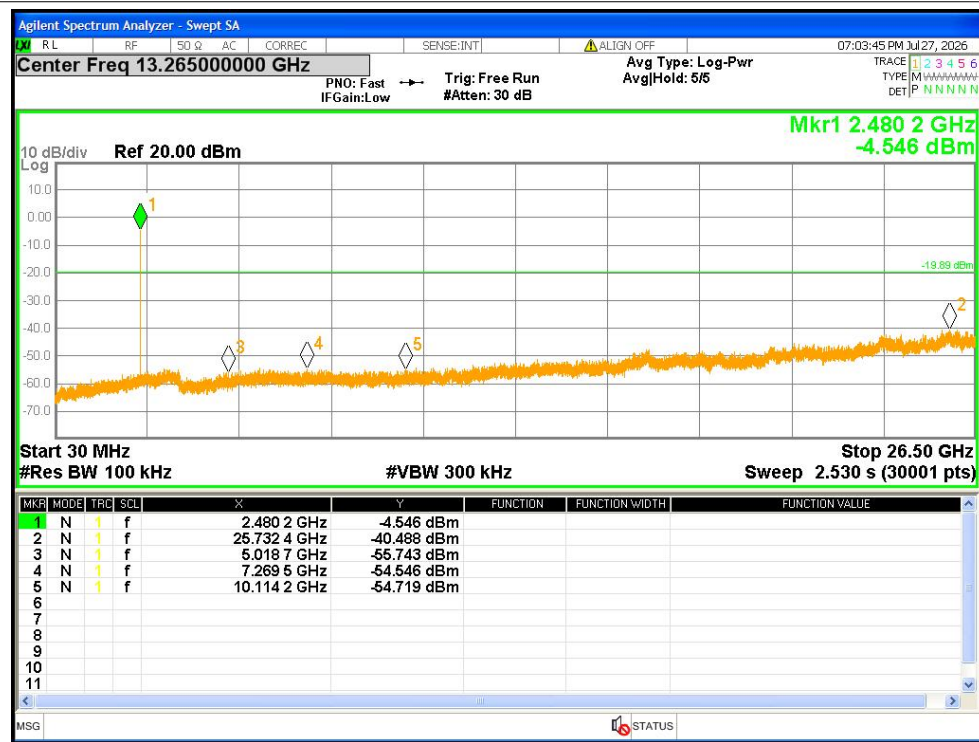
### Tx. Spurious NVNT BLE 2M 2440MHz Emission



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



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

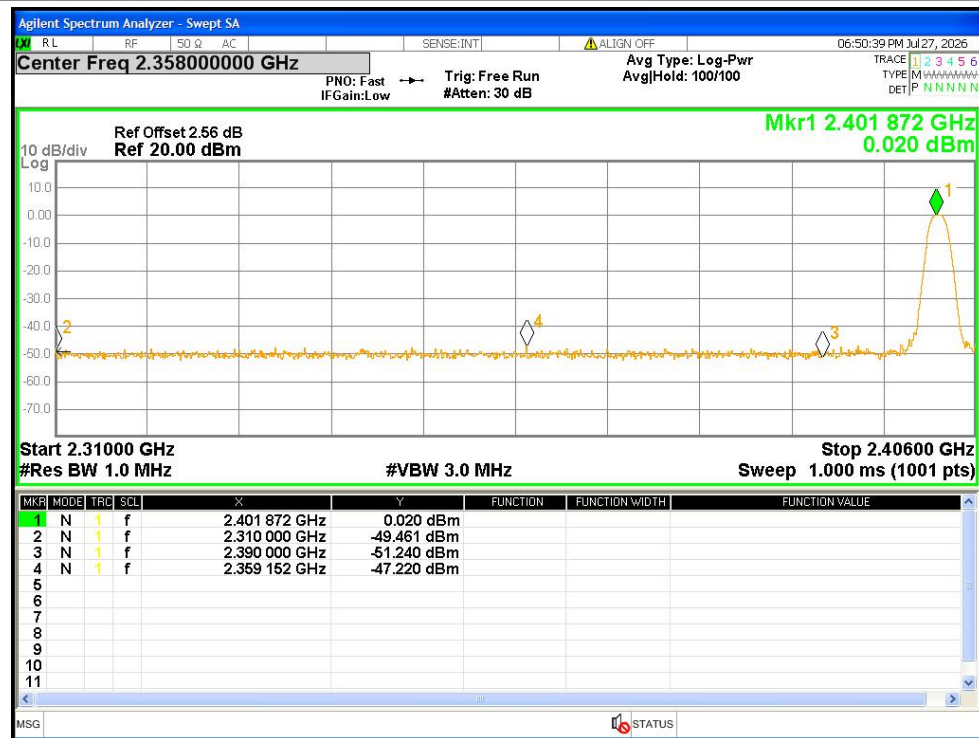


## Restrict Band

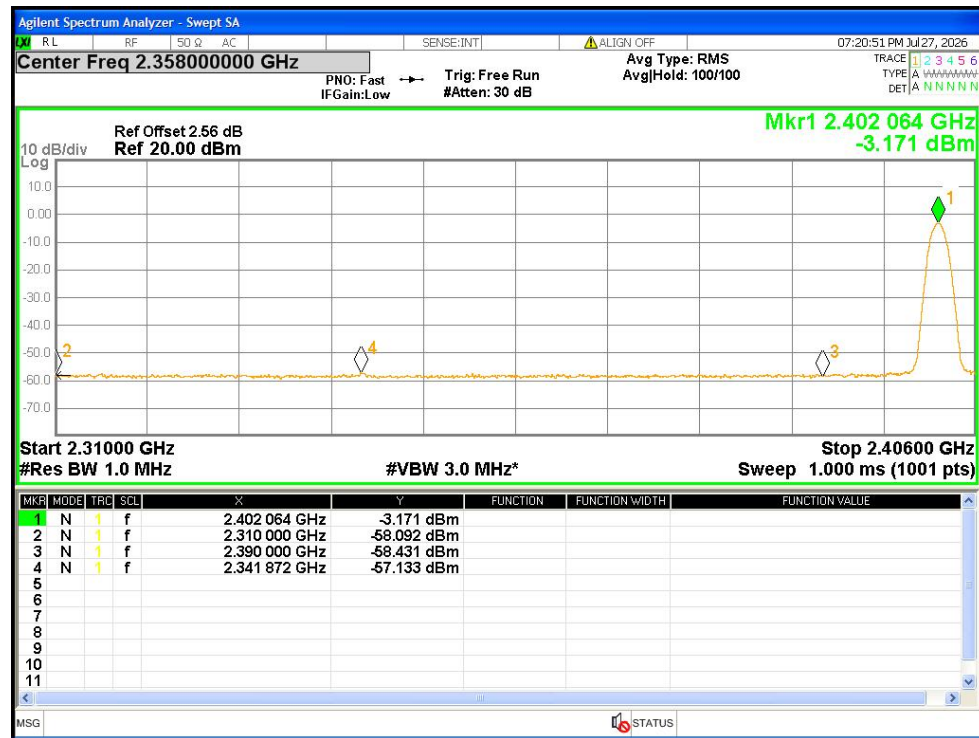
| Mode   | Frequency<br>(MHz) | Spur Freq<br>(MHz) | Power<br>(dBm) | Gain<br>(dBi) | Duty Factor<br>(dB) | E<br>(dBuV/m) | Detector | Limit<br>(dBuV/m) | Verdict |
|--------|--------------------|--------------------|----------------|---------------|---------------------|---------------|----------|-------------------|---------|
| BLE 1M | 2402               | 2310               | -49.46         | 2             | 0                   | 47.80         | Peak     | <=74              | Pass    |
| BLE 1M | 2402               | 2310               | -58.09         | 2             | 2.13                | 41.30         | Average  | <=54              | Pass    |
| BLE 1M | 2402               | 2359.152           | -47.21         | 2             | 0                   | 50.05         | Peak     | <=74              | Pass    |
| BLE 1M | 2402               | 2341.872           | -57.13         | 2             | 2.13                | 42.26         | Average  | <=54              | Pass    |
| BLE 1M | 2402               | 2390               | -50.86         | 2             | 0                   | 46.40         | Peak     | <=74              | Pass    |
| BLE 1M | 2402               | 2390               | -58.32         | 2             | 2.13                | 41.07         | Average  | <=54              | Pass    |
| BLE 1M | 2480               | 2483.5             | -49.37         | 2             | 0                   | 47.89         | Peak     | <=74              | Pass    |
| BLE 1M | 2480               | 2483.5             | -56.72         | 2             | 2.13                | 42.67         | Average  | <=54              | Pass    |
| BLE 1M | 2480               | 2487.496           | -40            | 2             | 0                   | 57.26         | Peak     | <=74              | Pass    |
| BLE 1M | 2480               | 2487.64            | -54.72         | 2             | 2.13                | 44.67         | Average  | <=54              | Pass    |
| BLE 1M | 2480               | 2500               | -48.04         | 2             | 0                   | 49.22         | Peak     | <=74              | Pass    |
| BLE 1M | 2480               | 2500               | -57.56         | 2             | 2.13                | 41.83         | Average  | <=54              | Pass    |
| BLE 2M | 2402               | 2310               | -50.57         | 2             | 0                   | 46.69         | Peak     | <=74              | Pass    |
| BLE 2M | 2402               | 2310               | -58.5          | 2             | 4.88                | 43.64         | Average  | <=54              | Pass    |
| BLE 2M | 2402               | 2348.592           | -46.54         | 2             | 0                   | 50.72         | Peak     | <=74              | Pass    |
| BLE 2M | 2402               | 2323.92            | -57.46         | 2             | 4.88                | 44.68         | Average  | <=54              | Pass    |
| BLE 2M | 2402               | 2390               | -50.77         | 2             | 0                   | 46.49         | Peak     | <=74              | Pass    |
| BLE 2M | 2402               | 2390               | -58.46         | 2             | 4.88                | 43.68         | Average  | <=54              | Pass    |
| BLE 2M | 2480               | 2483.5             | -46.7          | 2             | 0                   | 50.56         | Peak     | <=74              | Pass    |
| BLE 2M | 2480               | 2483.5             | -56.13         | 2             | 4.88                | 46.01         | Average  | <=54              | Pass    |
| BLE 2M | 2480               | 2487.664           | -40.71         | 2             | 0                   | 56.55         | Peak     | <=74              | Pass    |
| BLE 2M | 2480               | 2487.472           | -53.36         | 2             | 4.88                | 48.78         | Average  | <=54              | Pass    |
| BLE 2M | 2480               | 2500               | -48.25         | 2             | 0                   | 49.01         | Peak     | <=74              | Pass    |
| BLE 2M | 2480               | 2500               | -57.59         | 2             | 4.88                | 44.55         | Average  | <=54              | Pass    |

# Test Graphs

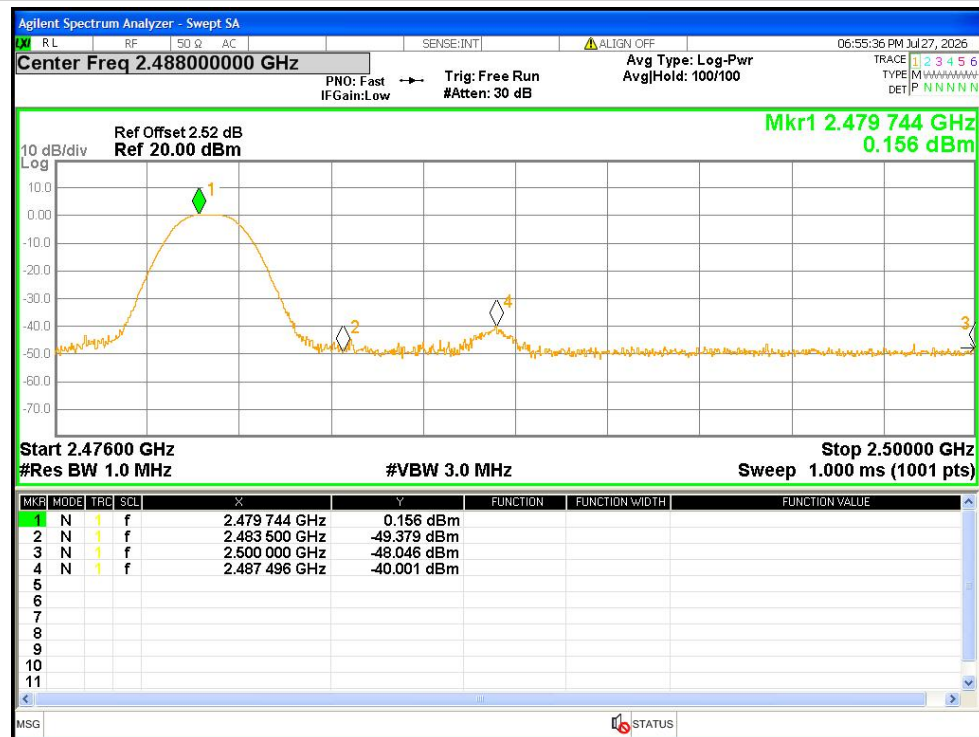
## Restrict Band NVNT BLE 1M 2402MHz Peak



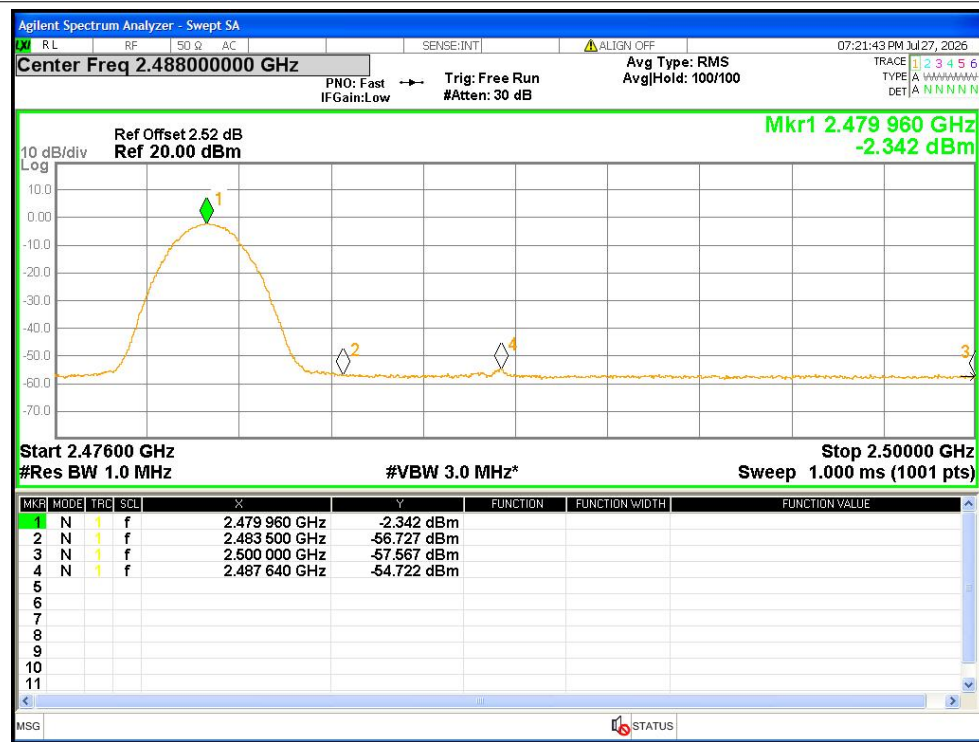
## Restrict Band NVNT BLE 1M 2402MHz Average



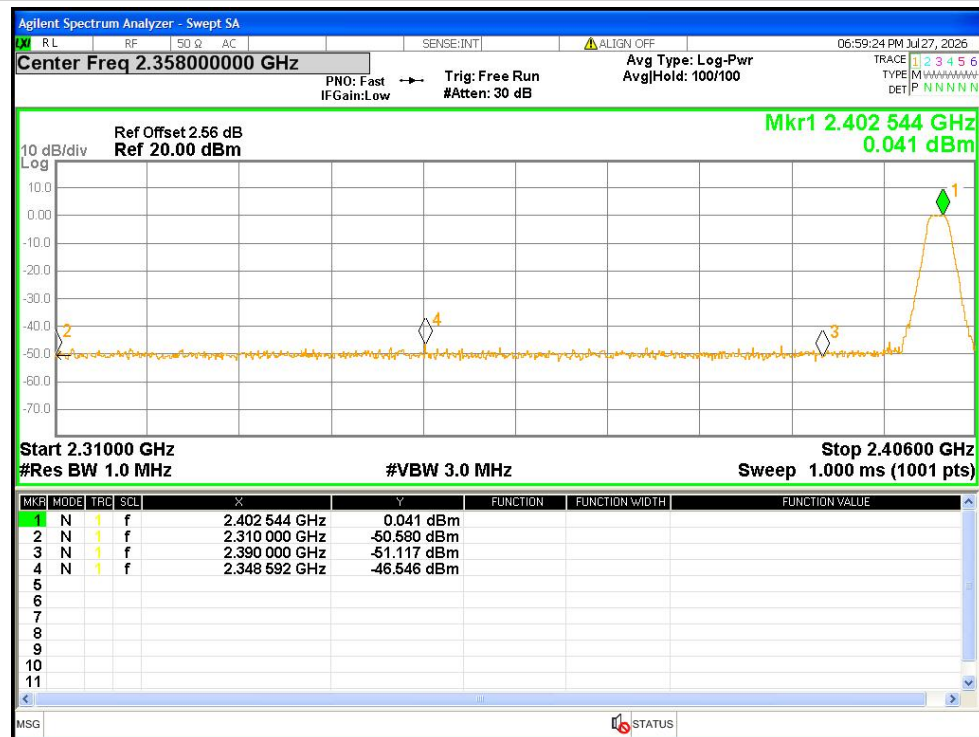
# Restrict Band NVNT BLE 1M 2480MHz Peak



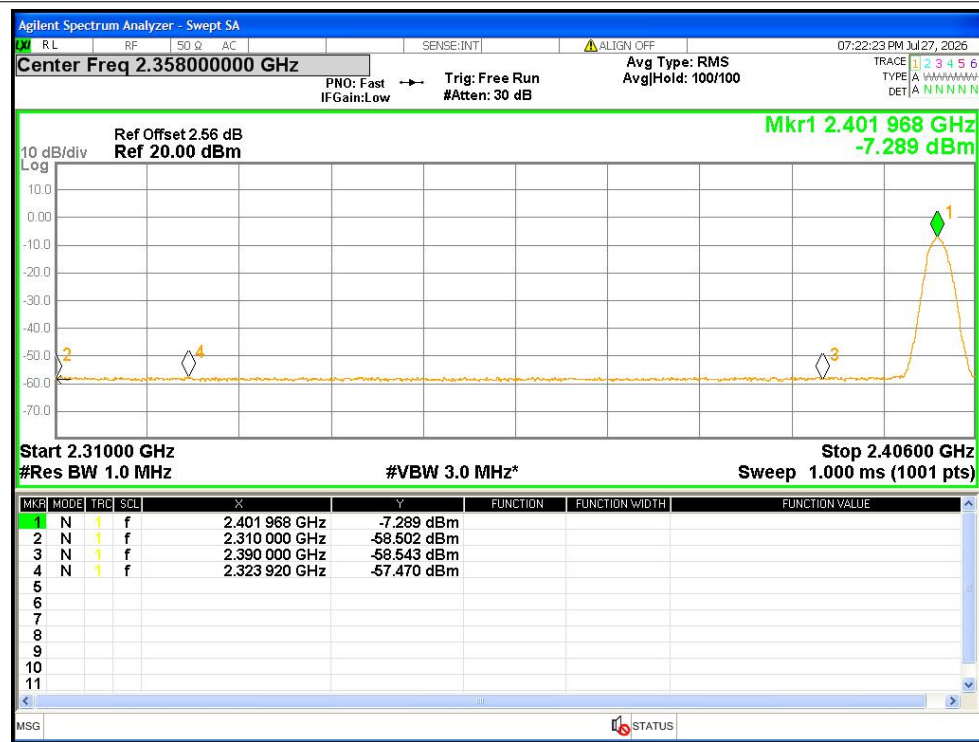
# Restrict Band NVNT BLE 1M 2480MHz Average



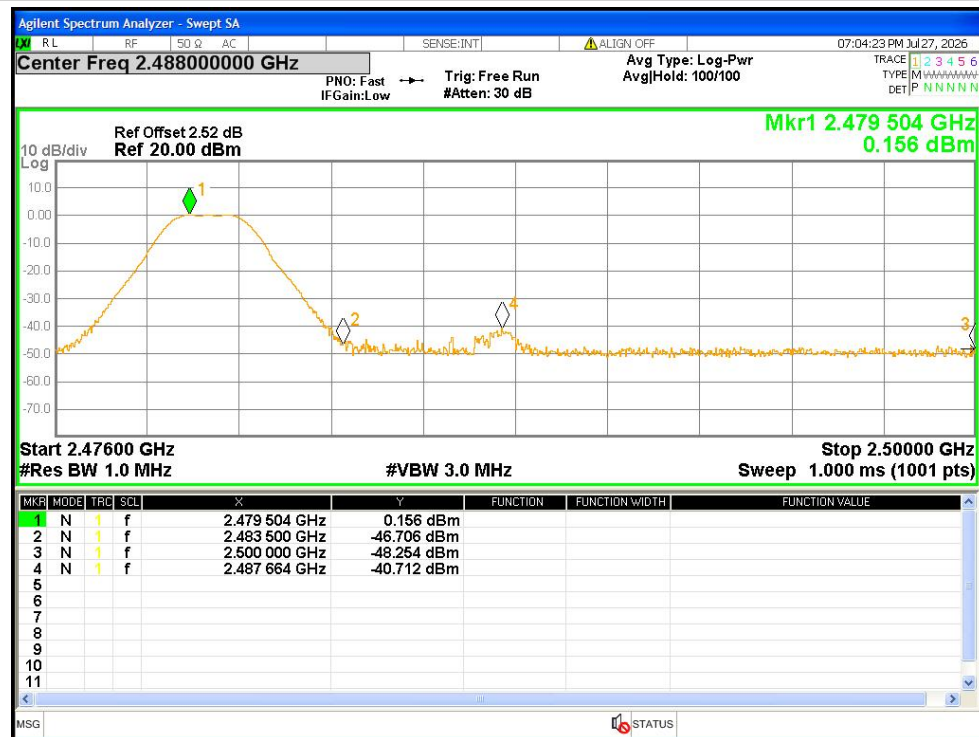
# Restrict Band NVNT BLE 2M 2402MHz Peak



# Restrict Band NVNT BLE 2M 2402MHz Average



# Restrict Band NVNT BLE 2M 2480MHz Peak



# Restrict Band NVNT BLE 2M 2480MHz Average

