

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

**FCC ID** : 2ASKH-LCA03

**Company** : Phillips Connect Technologies LLC.

**EUT** : Lamp Check Sensor

**Model Number** : 77-S190 BD

**Report No.** : CTA26081203001

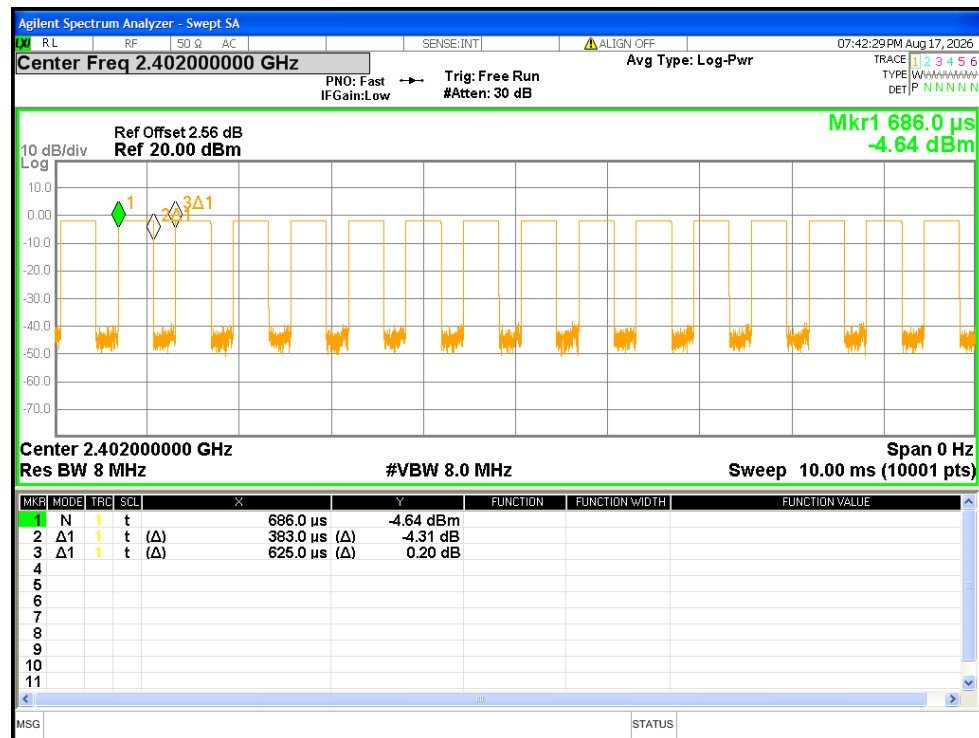
**Reviewed By** : Eric Wang

## Duty Cycle

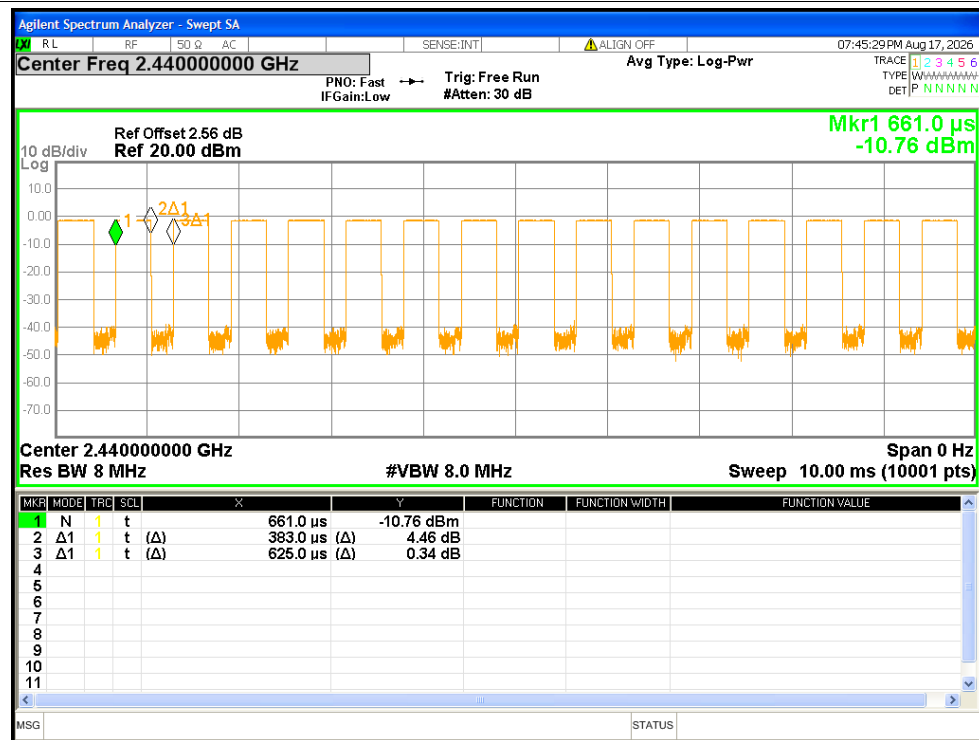
| Mode   | Frequency<br>(MHz) | On Time<br>(ms) | Period<br>(ms) | Duty Cycle<br>(%) | Correction Factor<br>(dB) | 1/T<br>(kHz) |
|--------|--------------------|-----------------|----------------|-------------------|---------------------------|--------------|
| BLE 1M | 2402               | 0.383           | 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         |

## Test Graphs

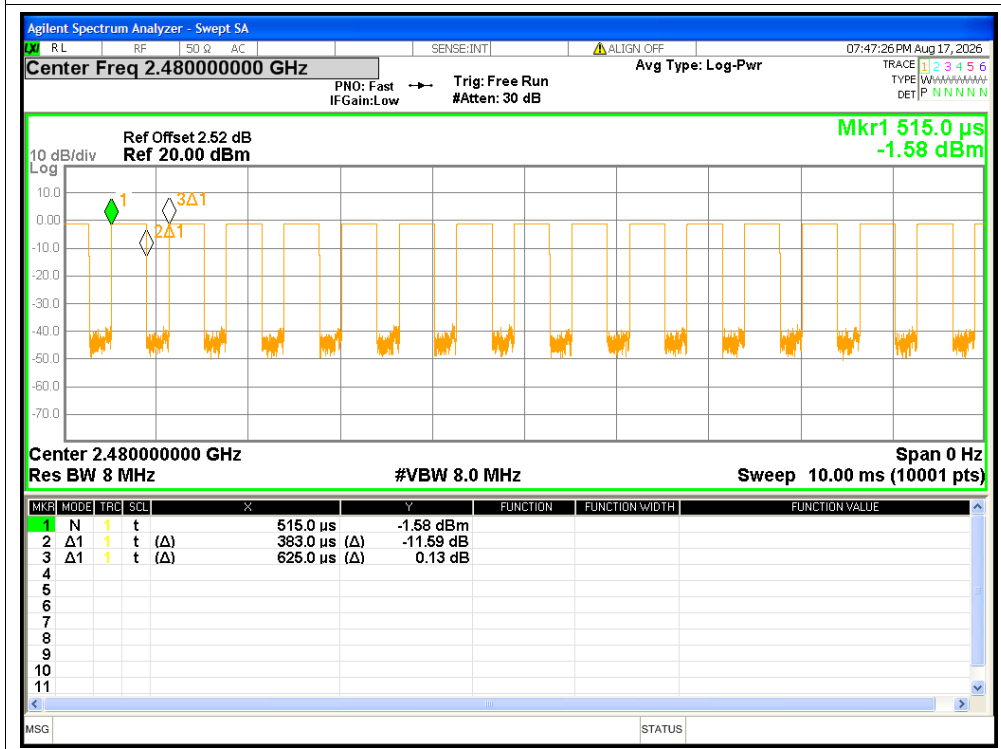
### Duty Cycle NVNT BLE 1M 2402MHz



### Duty Cycle NVNT BLE 1M 2440MHz



# Duty Cycle NVNT BLE 1M 2480MHz



## Maximum Peak Conducted Output Power

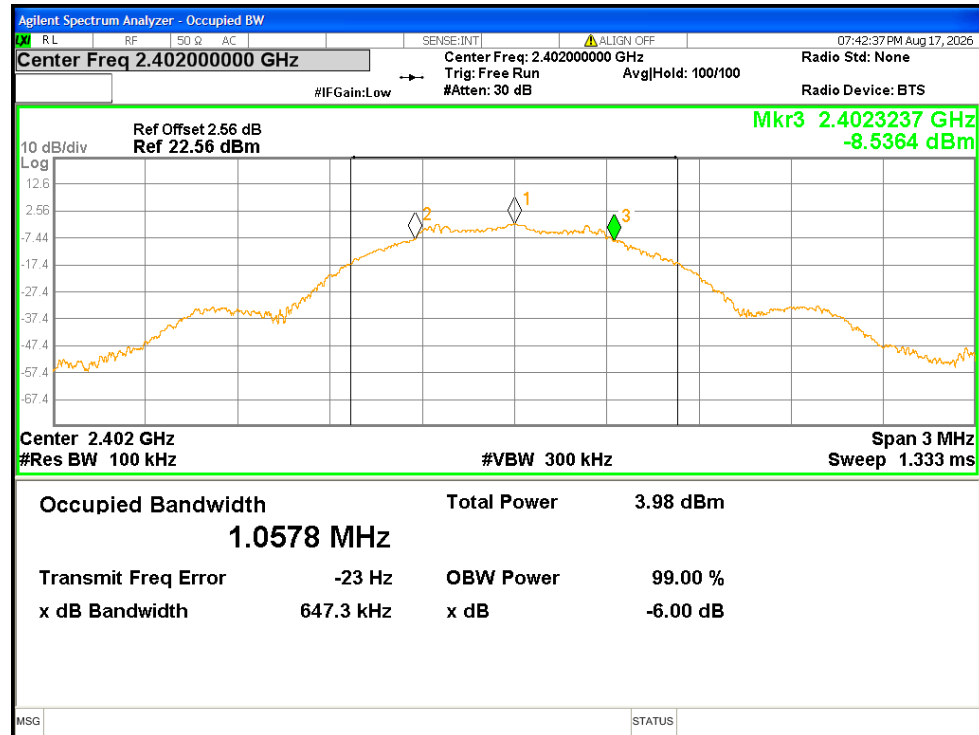
| Mode   | Frequency (MHz) | Conducted Power (dBm) | Limit (dBm) | Verdict |
|--------|-----------------|-----------------------|-------------|---------|
| BLE 1M | 2402            | -1.93                 | <=30        | Pass    |
| BLE 1M | 2440            | -1.42                 | <=30        | Pass    |
| BLE 1M | 2480            | -1.24                 | <=30        | Pass    |

## -6dB Bandwidth

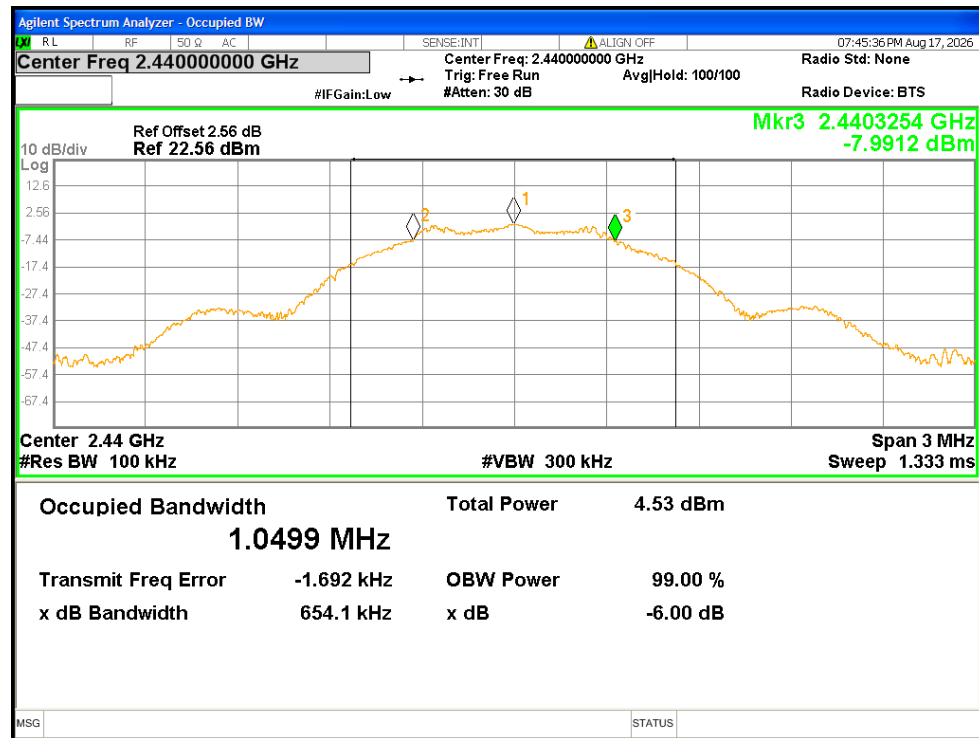
| Mode   | Frequency (MHz) | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|--------|-----------------|-----------------------|-----------------------------|---------|
| BLE 1M | 2402            | 0.6473                | $\geq 0.5$                  | Pass    |
| BLE 1M | 2440            | 0.6541                | $\geq 0.5$                  | Pass    |
| BLE 1M | 2480            | 0.6777                | $\geq 0.5$                  | Pass    |

# Test Graphs

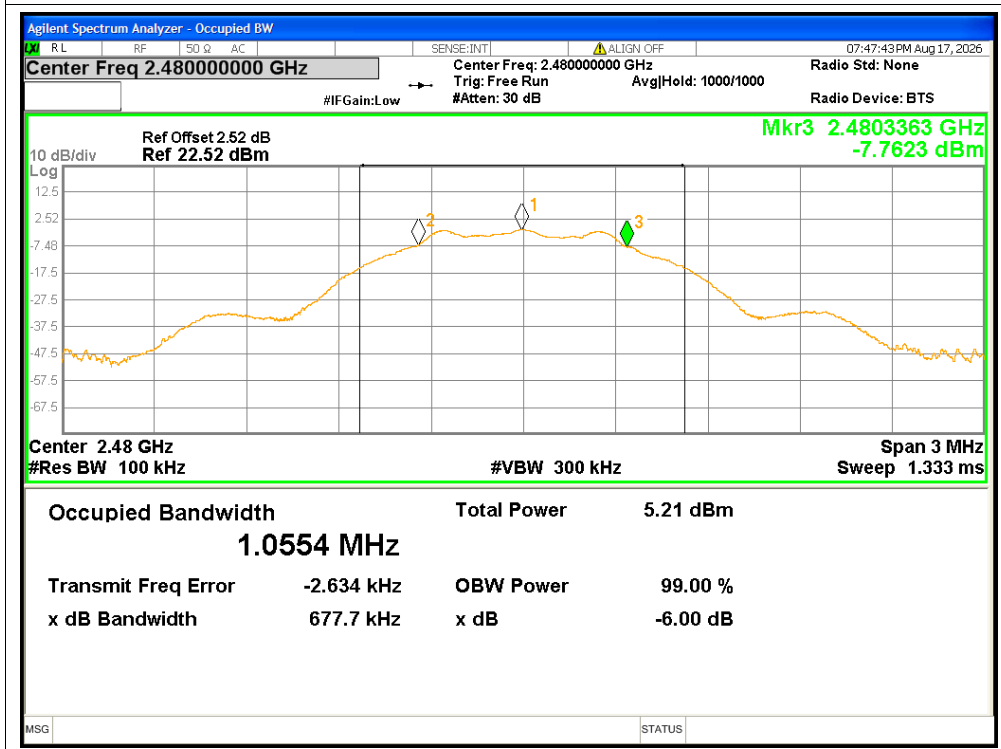
## -6dB Bandwidth NVNT BLE 1M 2402MHz



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



-6dB Bandwidth NVNT BLE 1M 2480MHz

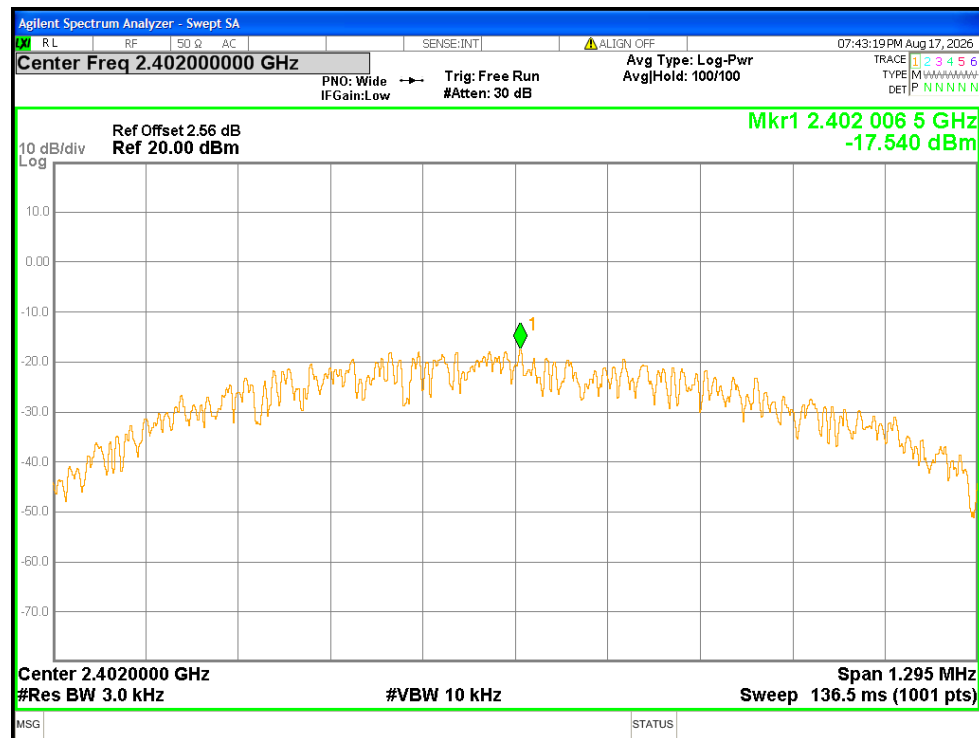


## Maximum Power Spectral Density Level

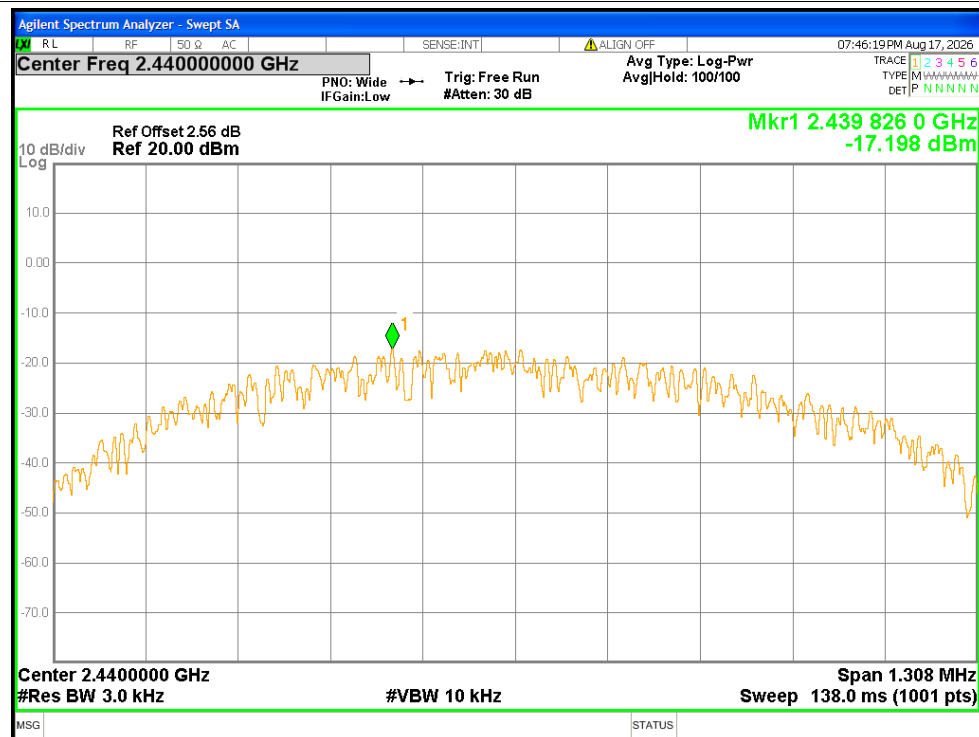
| Mode   | Frequency (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|--------|-----------------|----------------|------------------|---------|
| BLE 1M | 2402            | -17.54         | <=8              | Pass    |
| BLE 1M | 2440            | -17.2          | <=8              | Pass    |
| BLE 1M | 2480            | -16.7          | <=8              | Pass    |

# Test Graphs

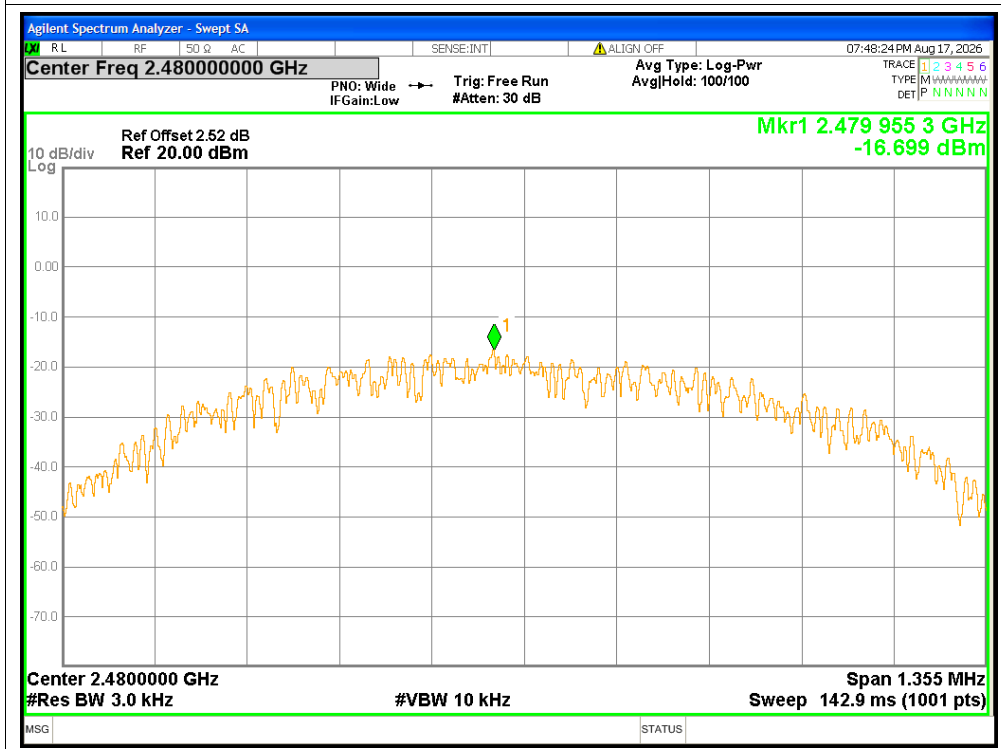
## PSD NVNT BLE 1M 2402MHz



## PSD NVNT BLE 1M 2440MHz



# PSD NVNT BLE 1M 2480MHz

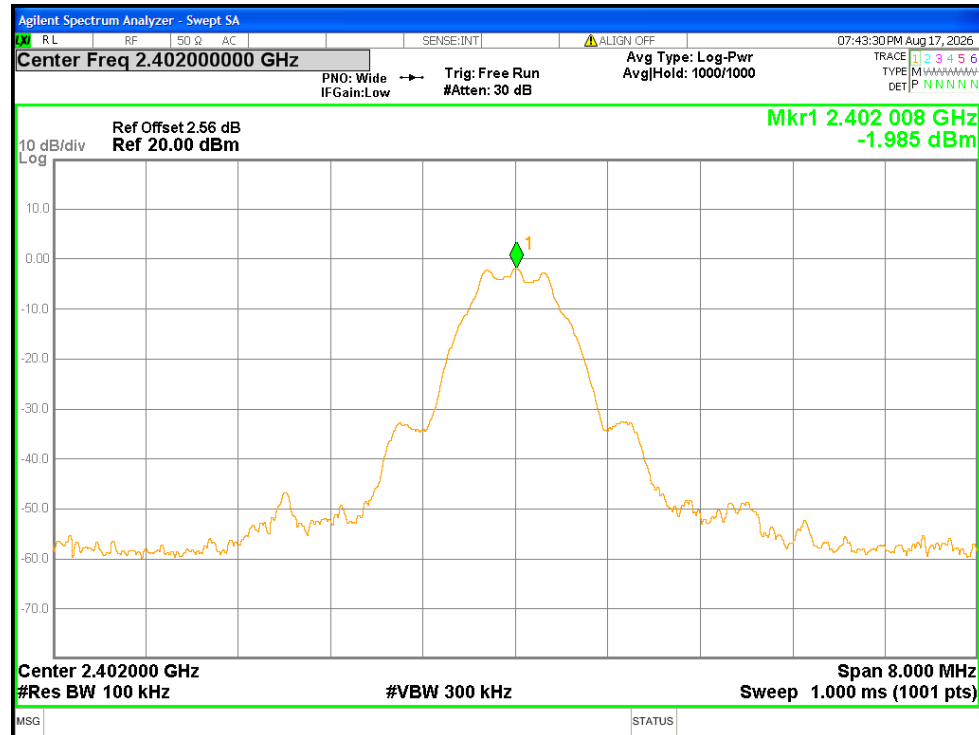


## Band Edge

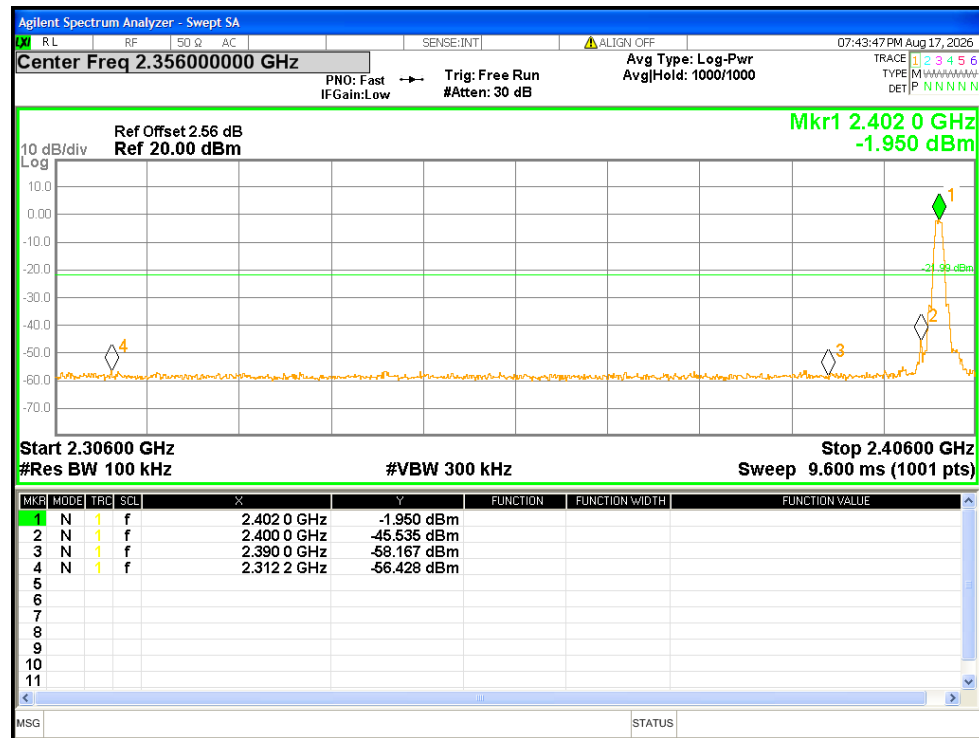
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -54.44          | <=-20       | Pass    |
| BLE 1M | 2480            | -45.08          | <=-20       | Pass    |

# Test Graphs

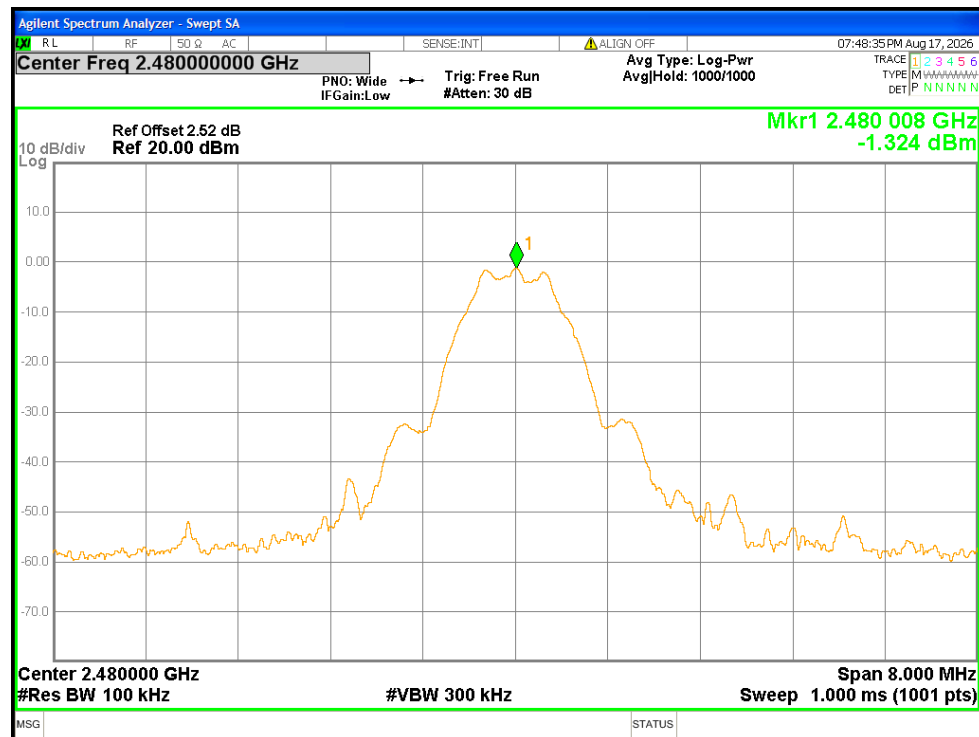
## Band Edge NVNT BLE 1M 2402MHz Ref



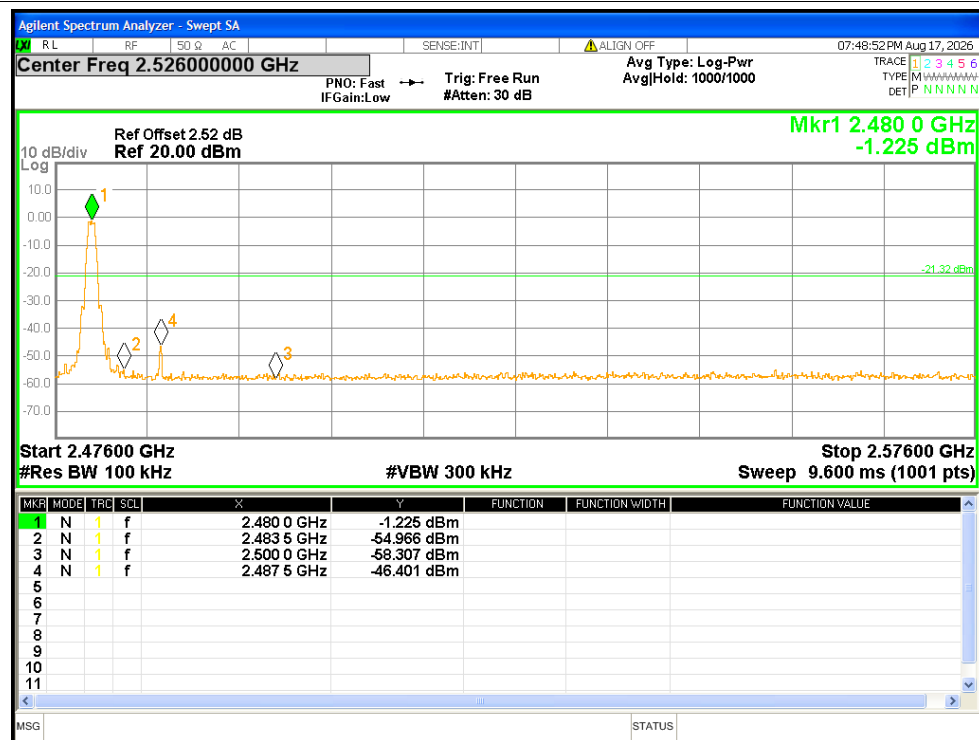
## Band Edge NVNT BLE 1M 2402MHz Emission



# Band Edge NVNT BLE 1M 2480MHz Ref



# Band Edge NVNT BLE 1M 2480MHz Emission



## Conducted RF Spurious Emission

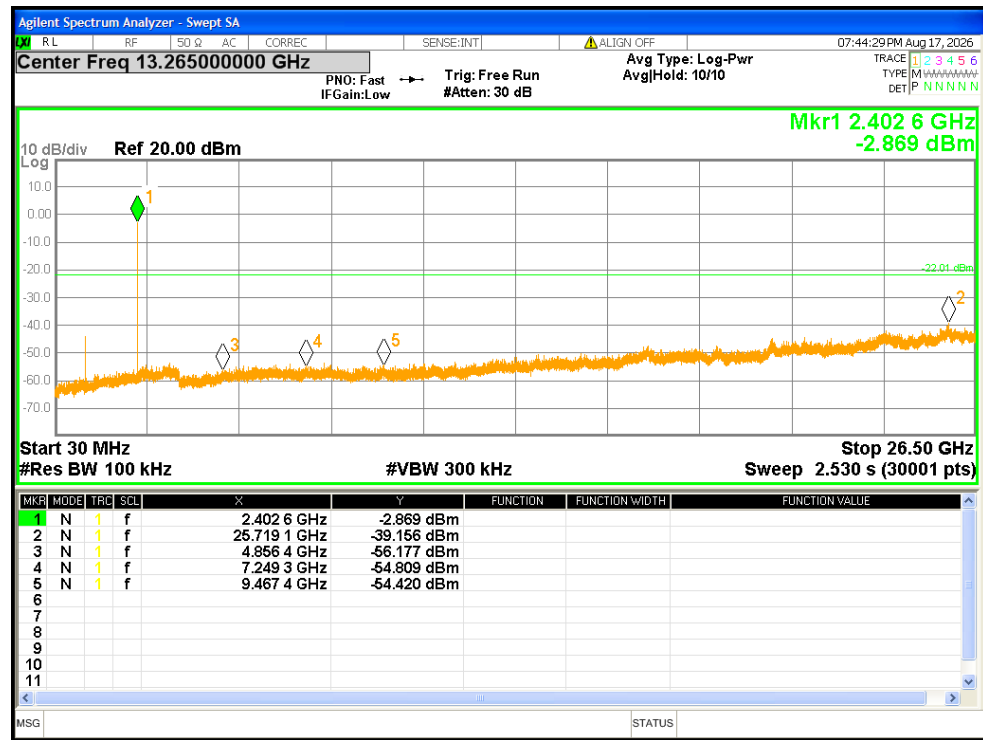
| Mode   | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|--------|-----------------|-----------------|-------------|---------|
| BLE 1M | 2402            | -37.14          | <=-20       | Pass    |
| BLE 1M | 2440            | -37.96          | <=-20       | Pass    |
| BLE 1M | 2480            | -38.69          | <=-20       | Pass    |

## Test Graphs

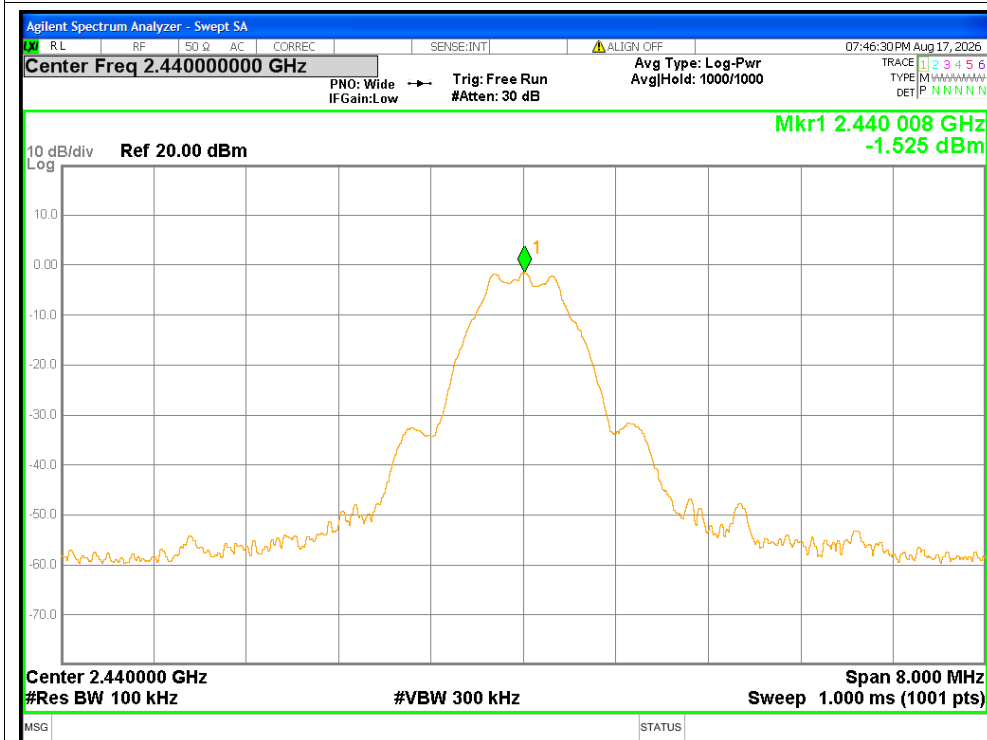
### Tx. Spurious NVNT BLE 1M 2402MHz Ref



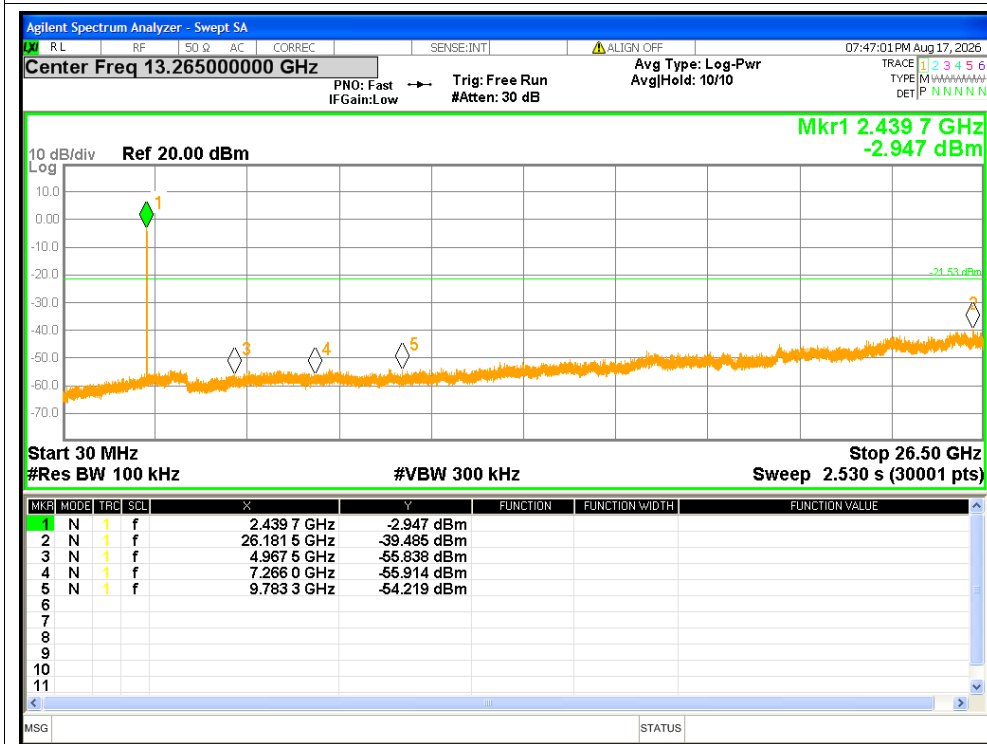
### Tx. Spurious NVNT BLE 1M 2402MHz Emission



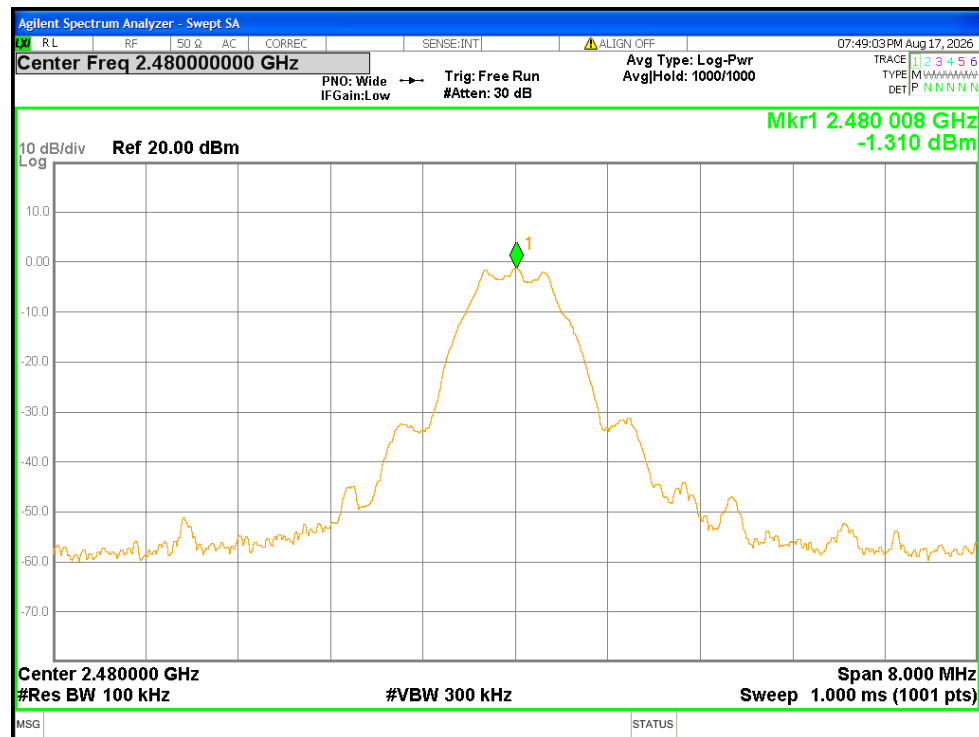
# Tx. Spurious NVNT BLE 1M 2440MHz Ref



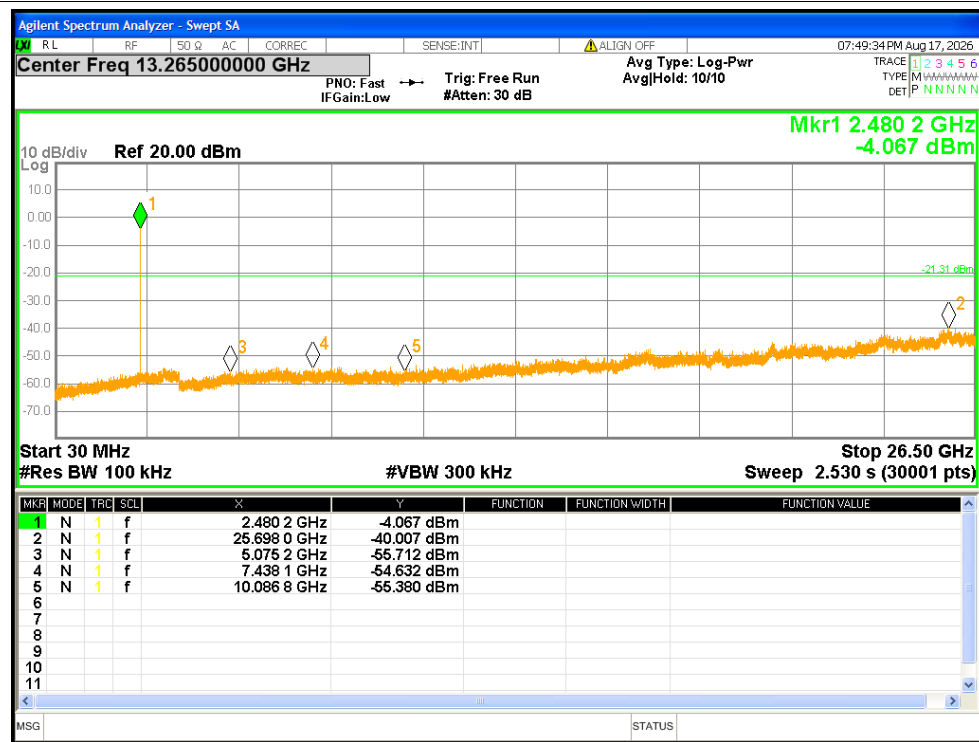
# Tx. Spurious NVNT BLE 1M 2440MHz Emission



# Tx. Spurious NVNT BLE 1M 2480MHz Ref



# Tx. Spurious NVNT BLE 1M 2480MHz Emission

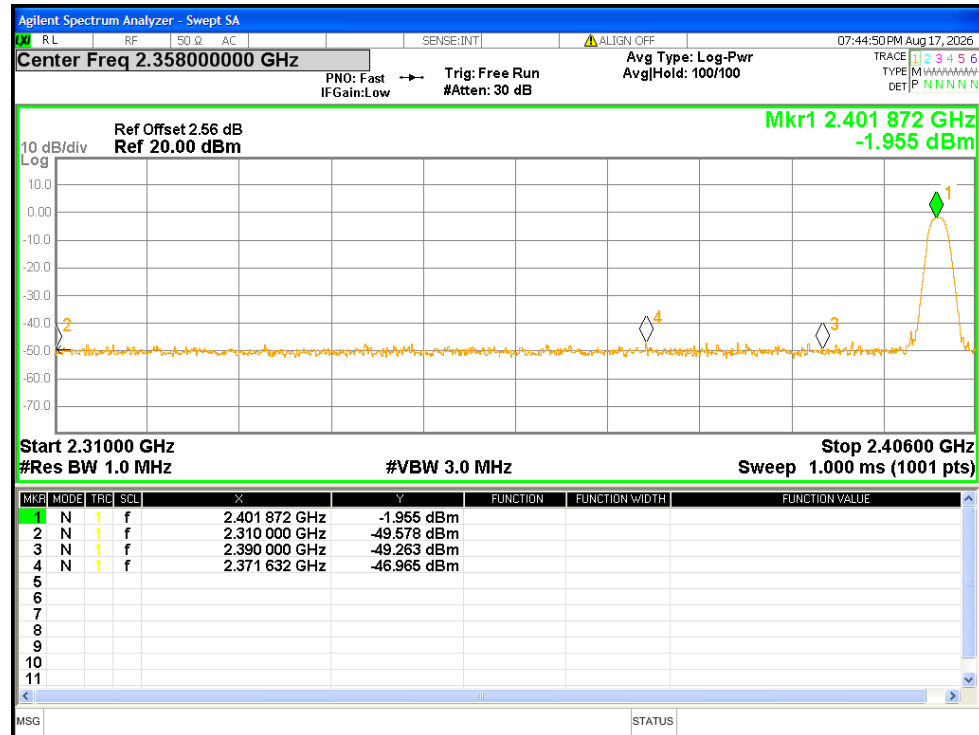


## Restrict Band

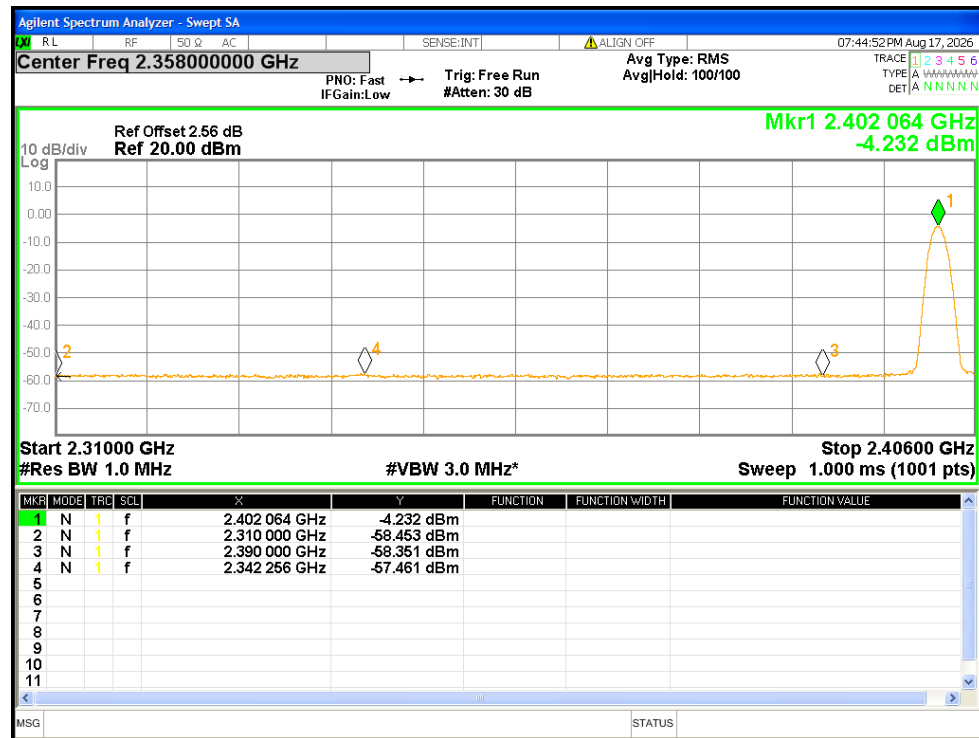
| Mode   | Frequ<br>ency<br>(MHz) | Spur<br>Freq<br>(MHz) | Power<br>(dBm) | Gain<br>(dBi) | Duty<br>Factor<br>(dB) | E<br>(dBuV/m) | Detector | Limit<br>(dBuV/m) | Verdict |
|--------|------------------------|-----------------------|----------------|---------------|------------------------|---------------|----------|-------------------|---------|
| BLE 1M | 2402                   | 2310                  | -49.57         | 5.05          | 0                      | 50.74         | Peak     | <=74              | Pass    |
| BLE 1M | 2402                   | 2310                  | -58.45         | 5.05          | 2.13                   | 43.99         | Average  | <=54              | Pass    |
| BLE 1M | 2402                   | 2371.632              | -46.96         | 5.05          | 0                      | 53.35         | Peak     | <=74              | Pass    |
| BLE 1M | 2402                   | 2342.256              | -57.46         | 5.05          | 2.13                   | 44.98         | Average  | <=54              | Pass    |
| BLE 1M | 2402                   | 2390                  | -50.86         | 5.05          | 0                      | 49.45         | Peak     | <=74              | Pass    |
| BLE 1M | 2402                   | 2390                  | -58.48         | 5.05          | 2.13                   | 43.96         | Average  | <=54              | Pass    |
| BLE 1M | 2480                   | 2483.5                | -47.47         | 5.05          | 0                      | 52.84         | Peak     | <=74              | Pass    |
| BLE 1M | 2480                   | 2483.5                | -57.09         | 5.05          | 2.13                   | 45.35         | Average  | <=54              | Pass    |
| BLE 1M | 2480                   | 2487.76               | -42.6          | 5.05          | 0                      | 57.71         | Peak     | <=74              | Pass    |
| BLE 1M | 2480                   | 2488.048              | -56.2          | 5.05          | 2.13                   | 46.24         | Average  | <=54              | Pass    |
| BLE 1M | 2480                   | 2500                  | -50.24         | 5.05          | 0                      | 50.07         | Peak     | <=74              | Pass    |
| BLE 1M | 2480                   | 2500                  | -57.84         | 5.05          | 2.13                   | 44.6          | Average  | <=54              | Pass    |

# Test Graphs

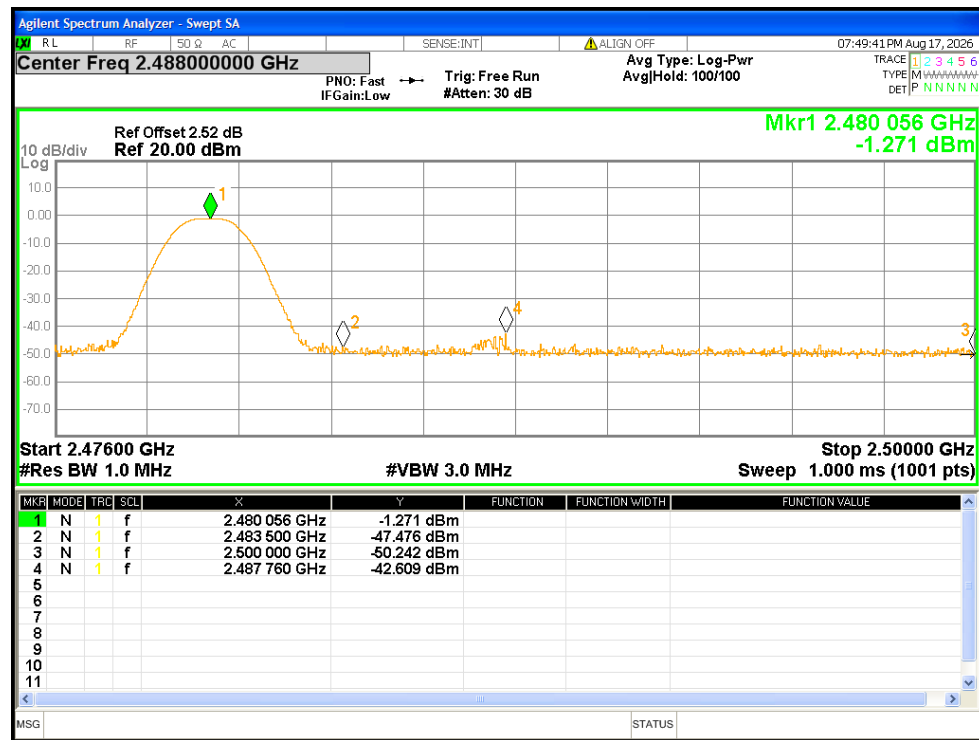
## Restrict Band NVNT BLE 1M 2402MHz Peak



## Restrict Band NVNT BLE 1M 2402MHz Average



# Restrict Band NVNT BLE 1M 2480MHz Peak



# Restrict Band NVNT BLE 1M 2480MHz Average

