



## Appendix A

### RF Test Data for BLE (Conducted Measurement)

Product Name: HDMI TV Sync Backlight Kit

Test Model: HUB1

#### Environmental Conditions

|                    |                  |
|--------------------|------------------|
| Temperature:       | 23.5° C          |
| Relative Humidity: | 52.2%            |
| ATM Pressure:      | 100.0 kPa        |
| Test Engineer:     | Nick Peng        |
|                    | <i>Nick Peng</i> |
| Supervised by:     | Ling Zhu         |
|                    | <i>Ling Zhu</i>  |



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### A.1 -6dB Bandwidth

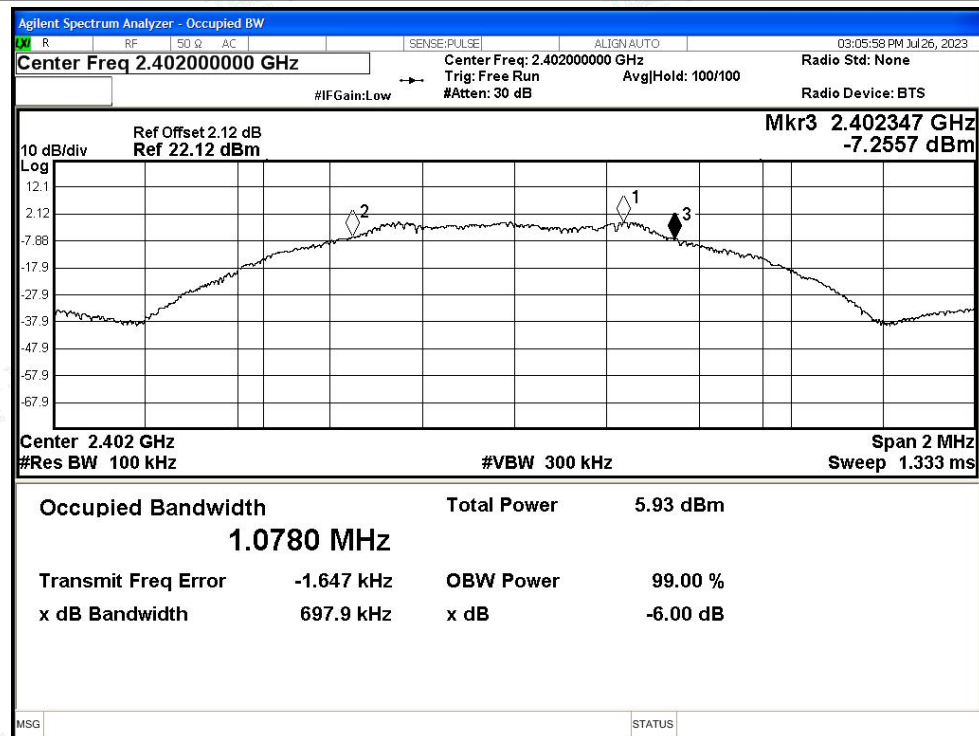
| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.698                 | >=0.5                       | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.701                 | >=0.5                       | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.706                 | >=0.5                       | Pass    |



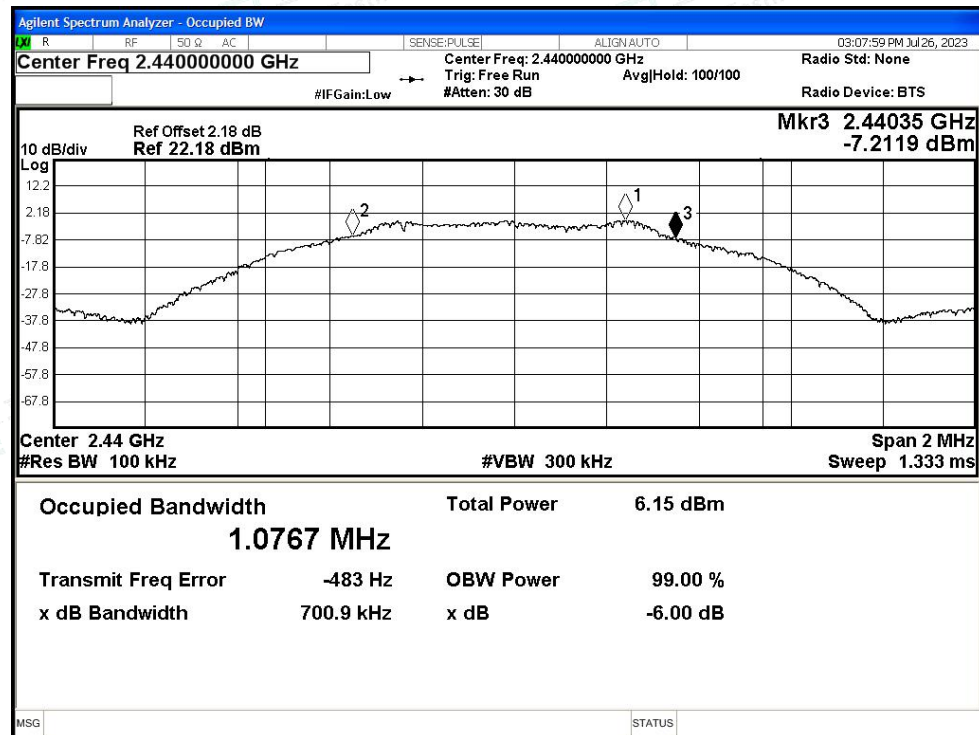


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

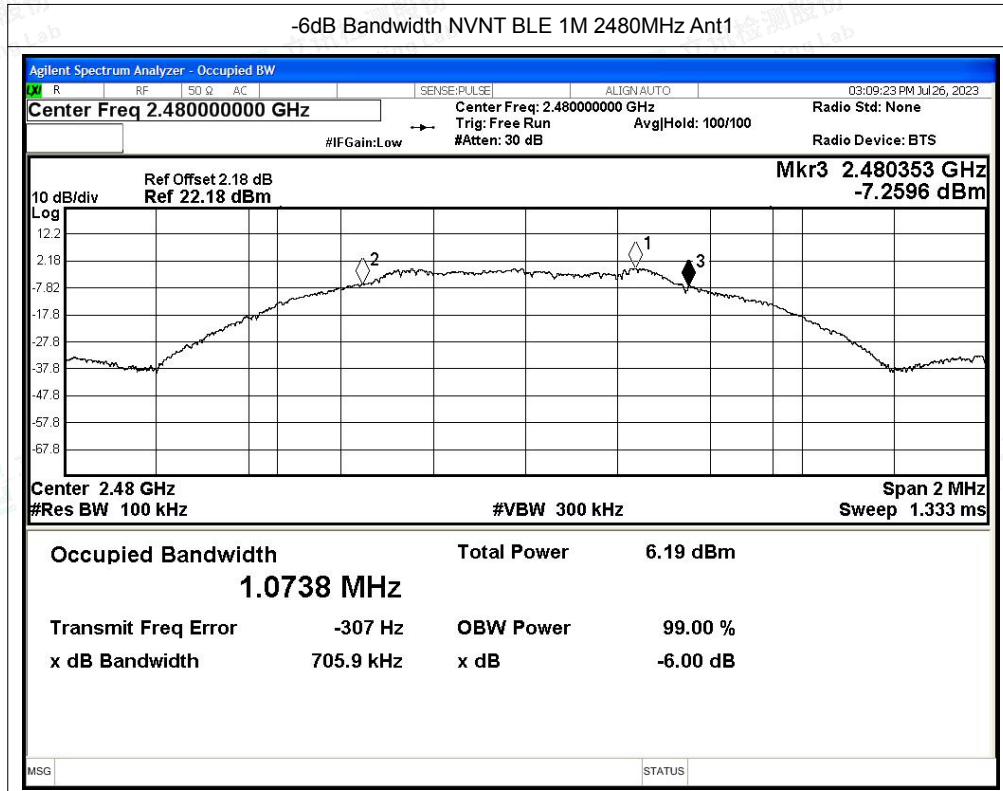


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## A.2 Maximum Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.23              | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.41              | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.44              | 30          | Pass    |



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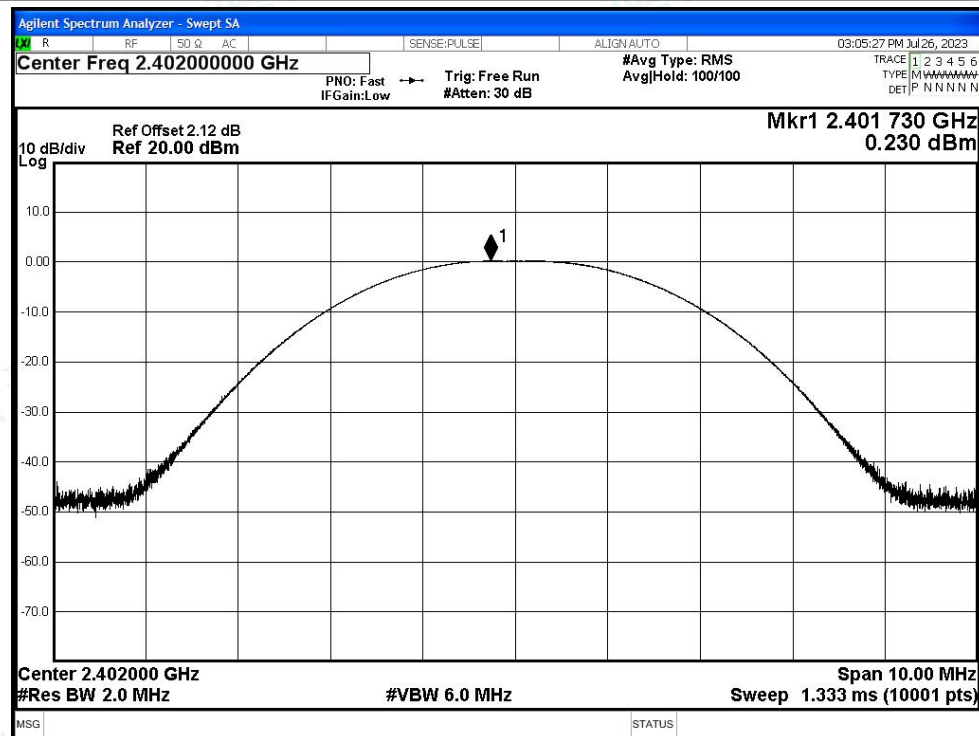
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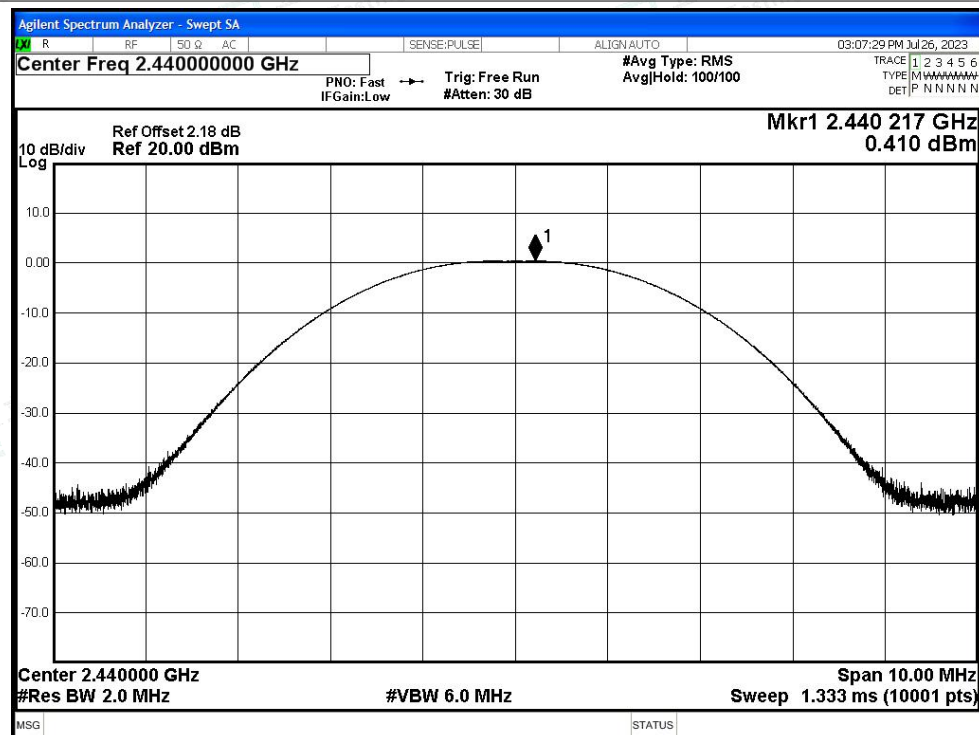


## Test Graphs

Power NVNT BLE 1M 2402MHz Ant1



Power NVNT BLE 1M 2440MHz Ant1

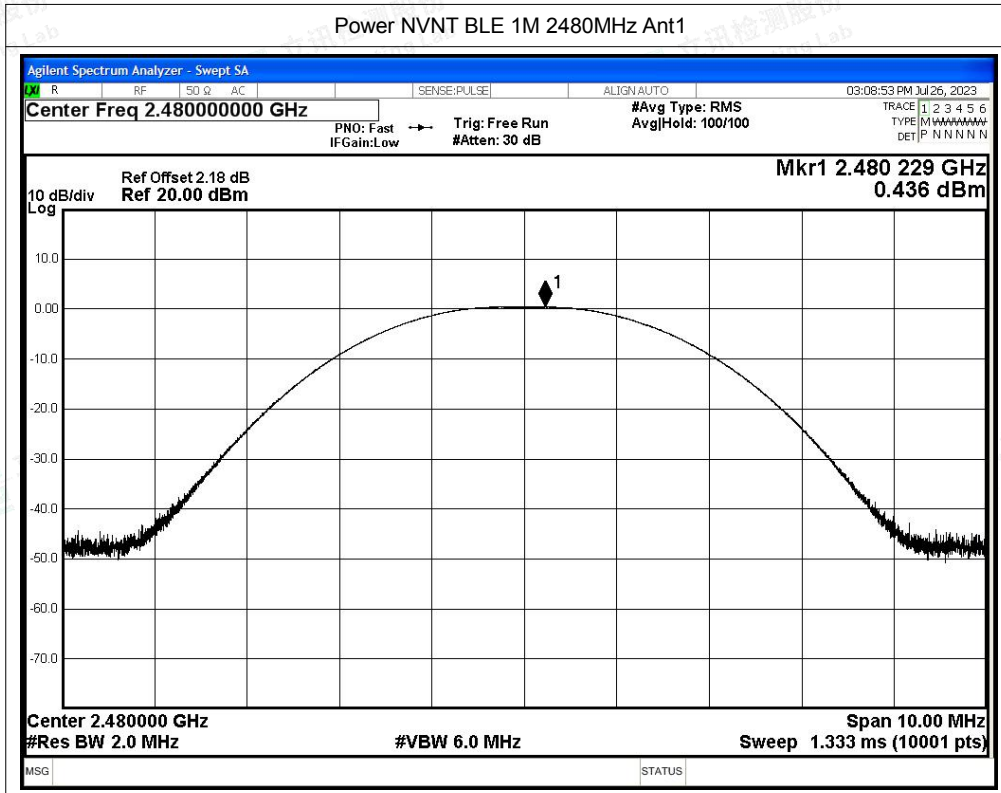


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### A.3 Maximum Power Spectral Density Level

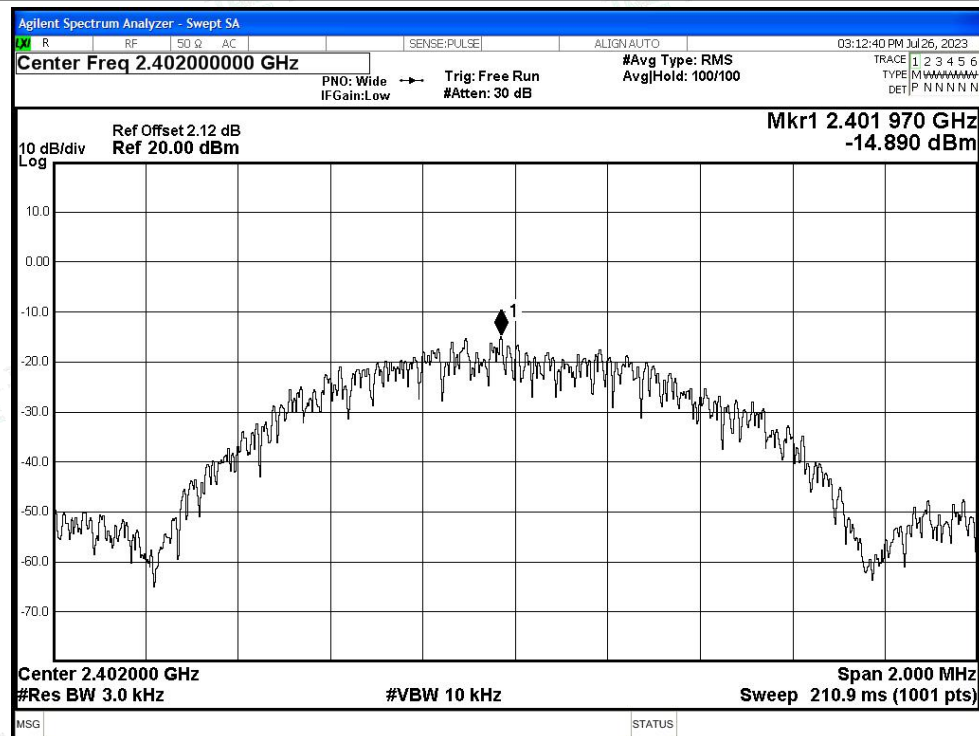
| Condition | Mode   | Frequency (MHz) | Antenna | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|----------------------|------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -14.89               | 8                | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -14.66               | 8                | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -14.71               | 8                | Pass    |



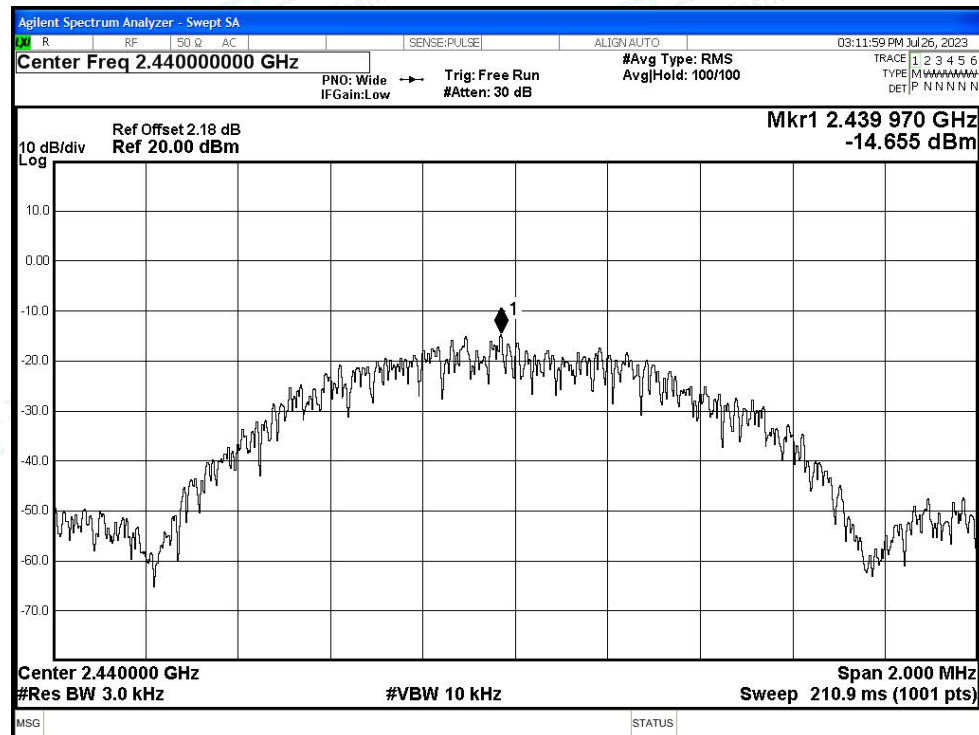


## Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2440MHz Ant1

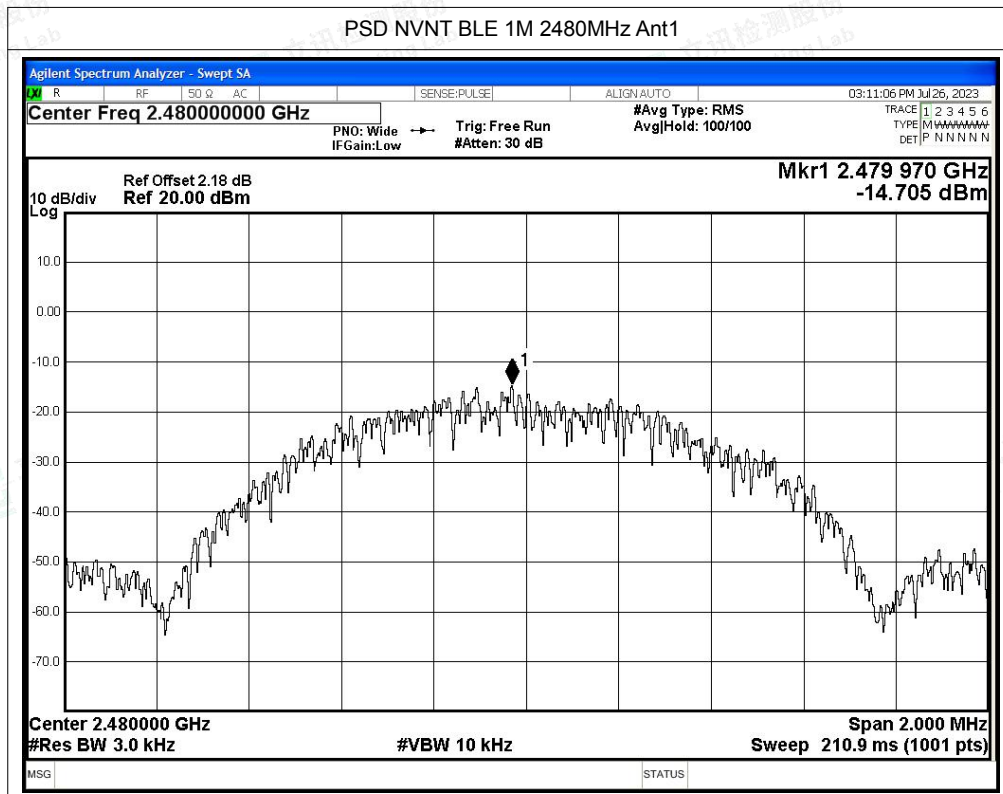


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### A.4 Band Edge

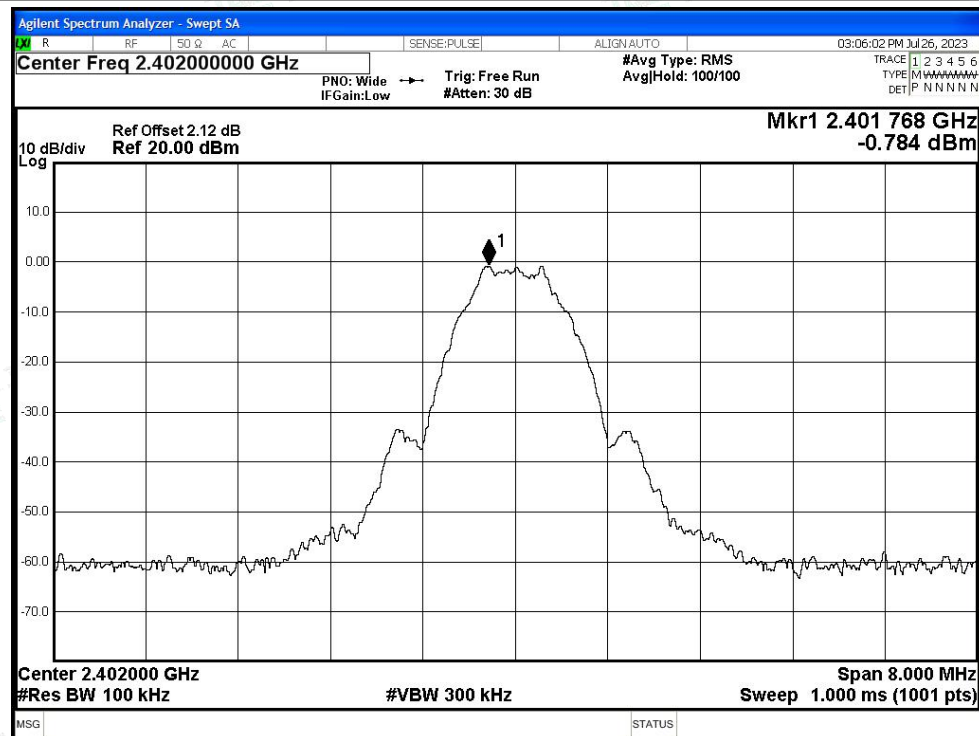
| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -55.53          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -56.69          | -20         | Pass    |



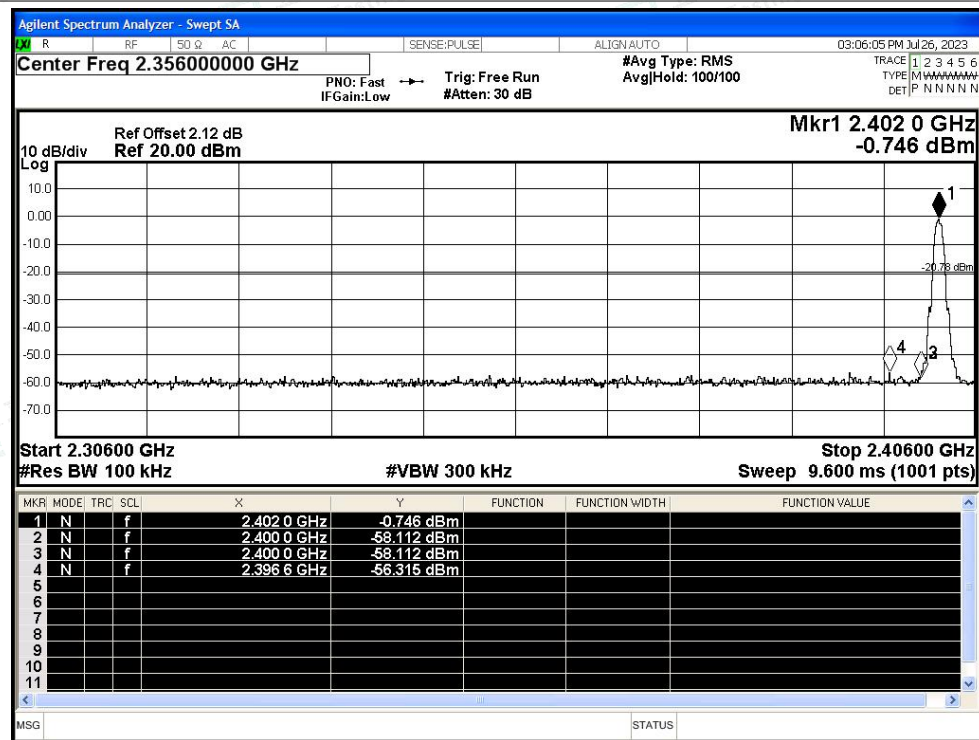


## Test Graphs

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



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



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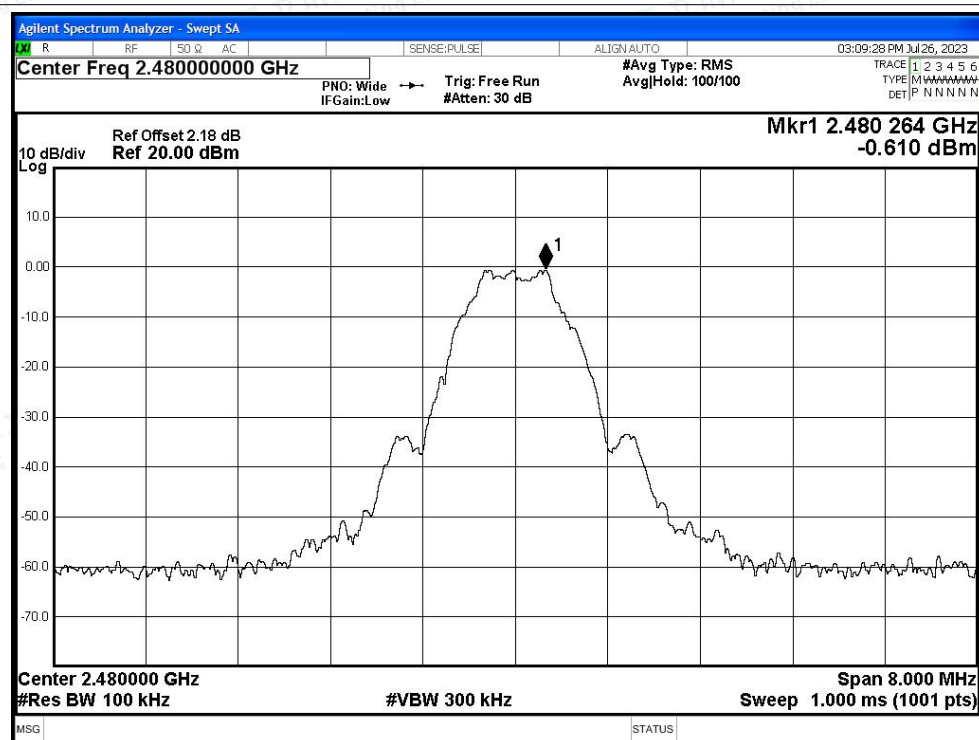
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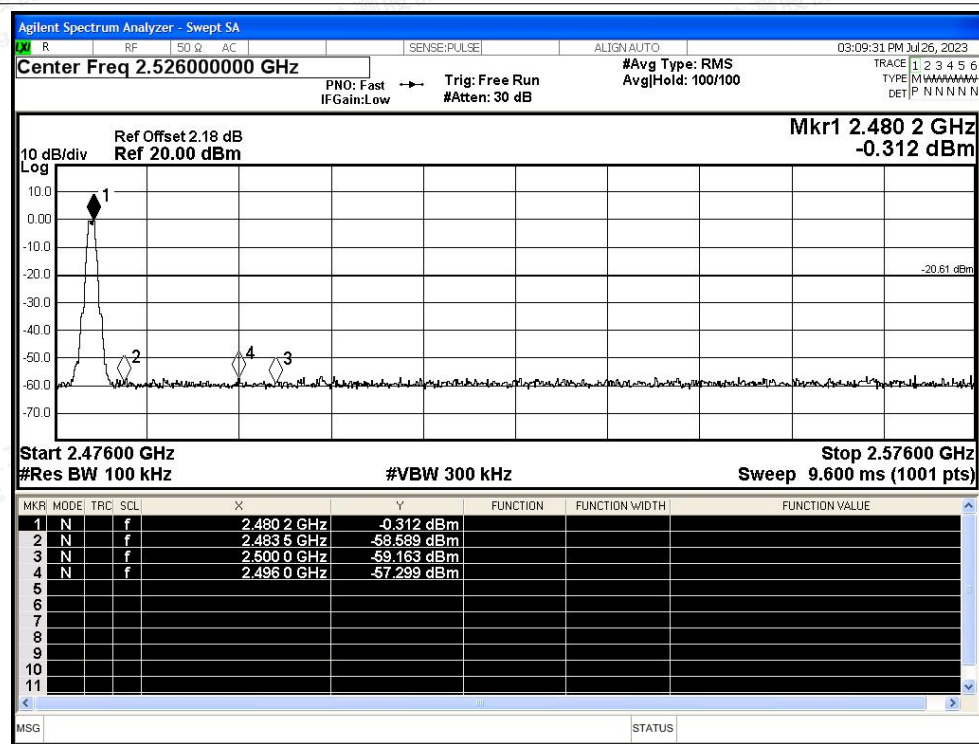
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## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



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



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### A.5 Conducted RF Spurious Emission

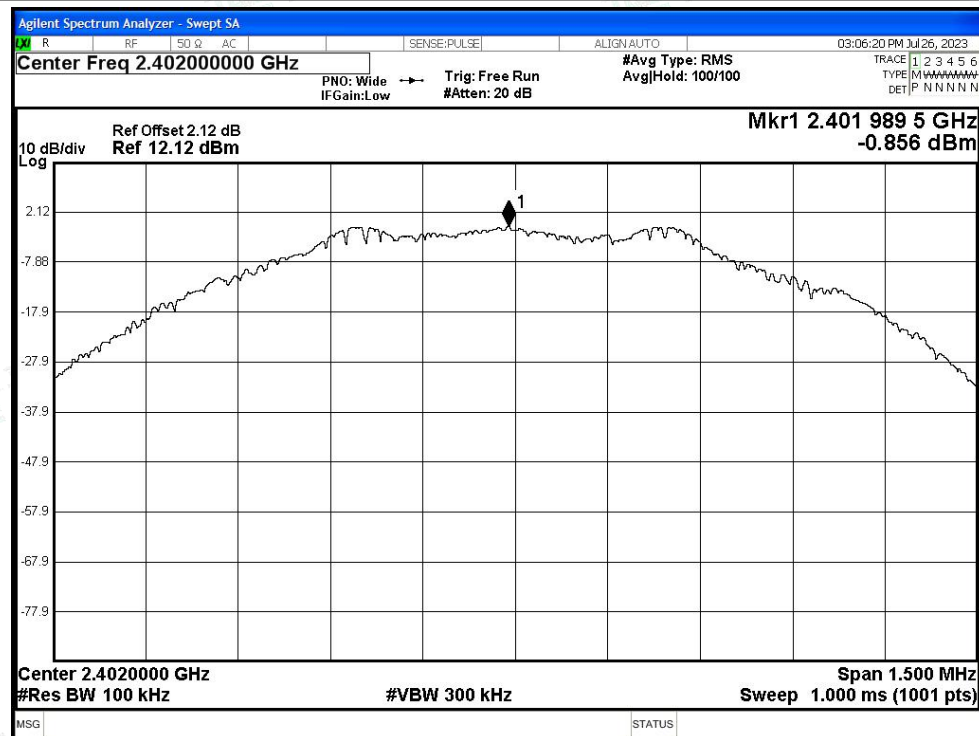
| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -54.77          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -54.49          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -54.7           | -20         | Pass    |



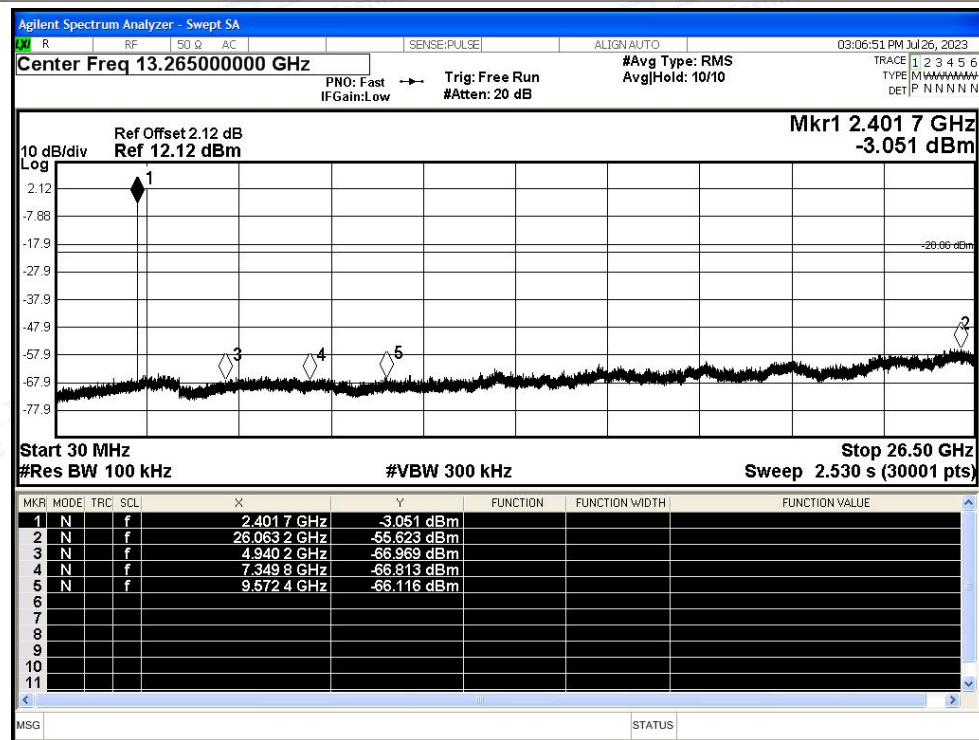


## Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



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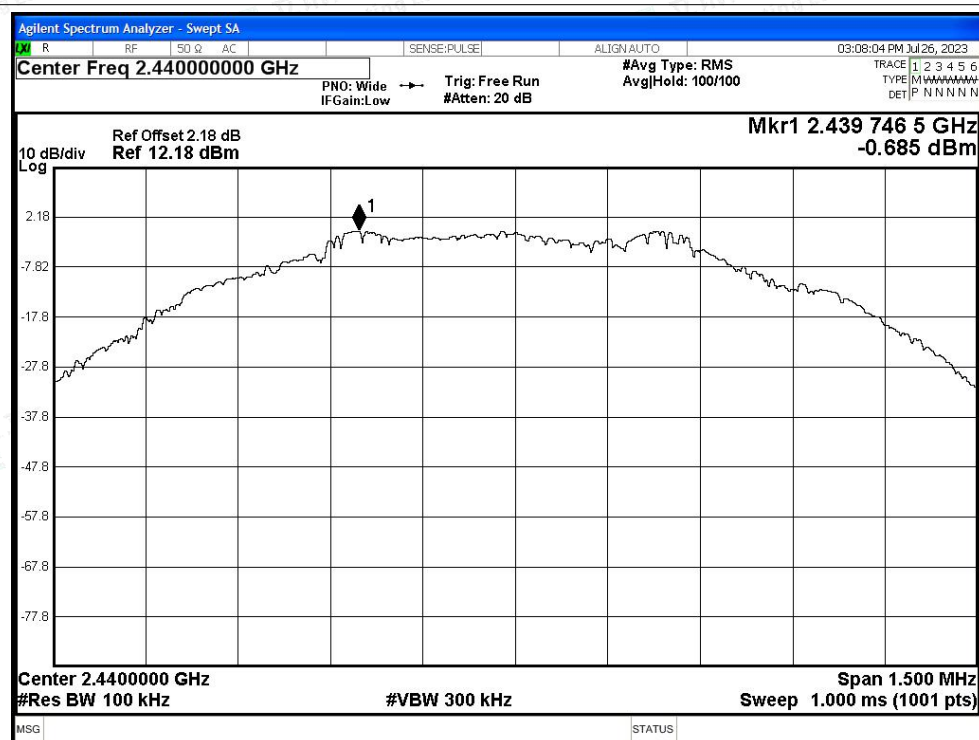
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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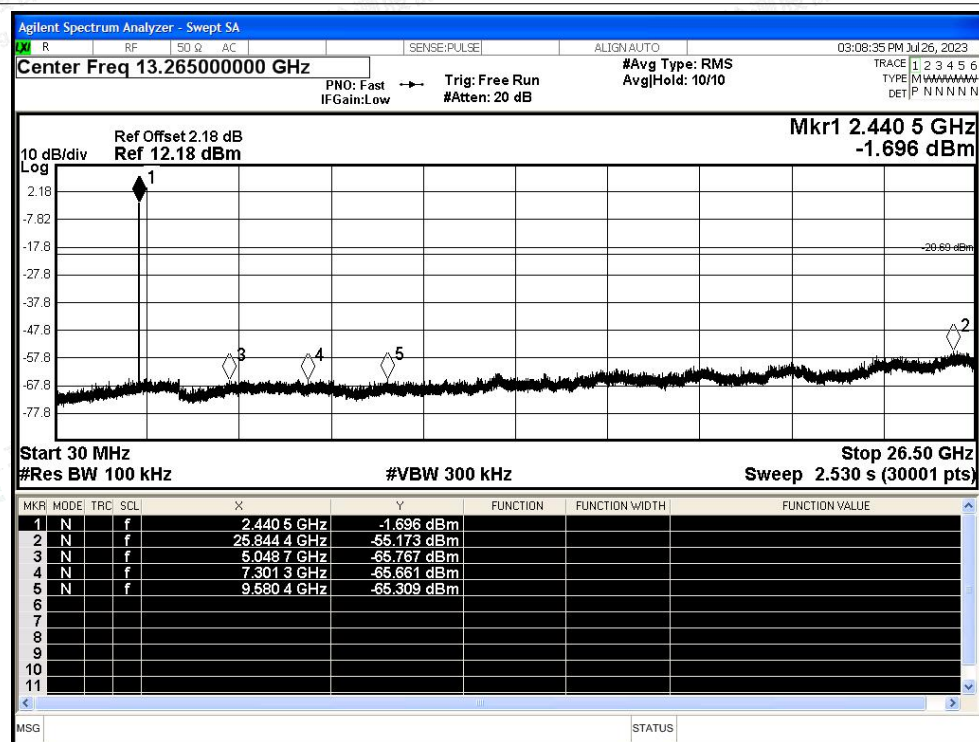
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## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



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



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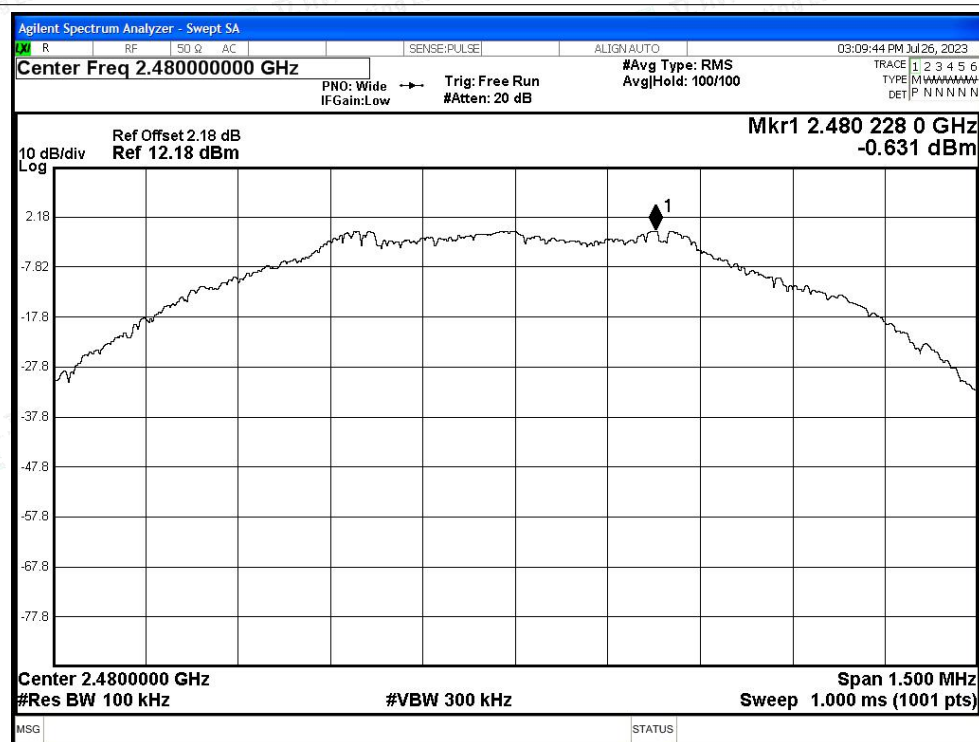
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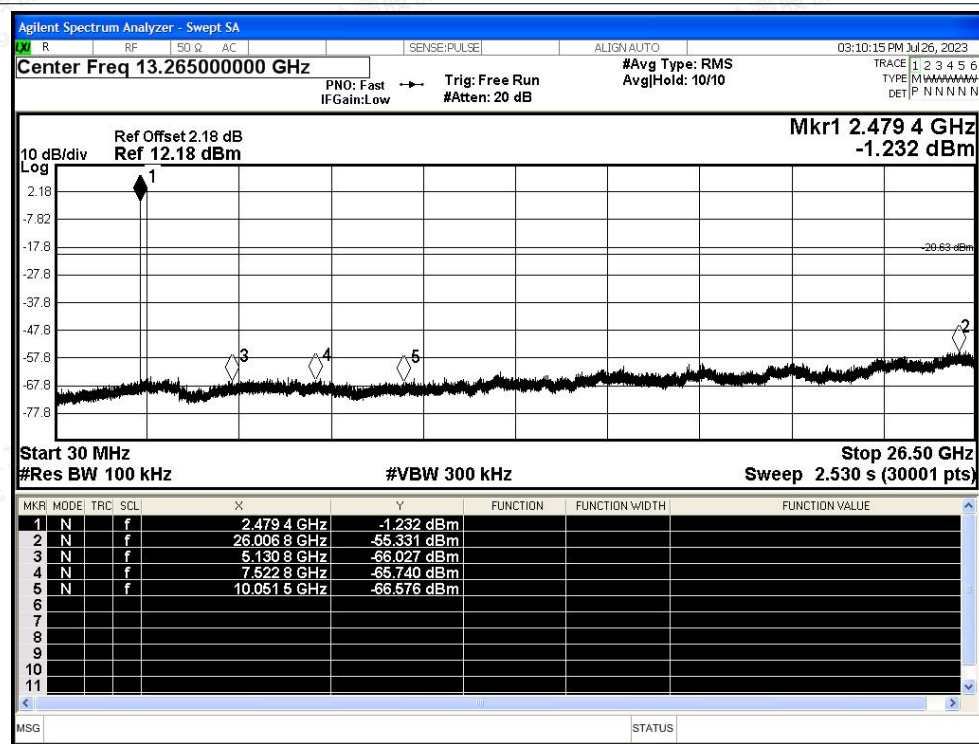
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## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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



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## A.6 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 61.44          | 2.12                   | 2.6       |
| NVNT      | BLE 1M | 2440            | Ant1    | 61.36          | 2.12                   | 2.61      |
| NVNT      | BLE 1M | 2480            | Ant1    | 61.36          | 2.12                   | 2.61      |



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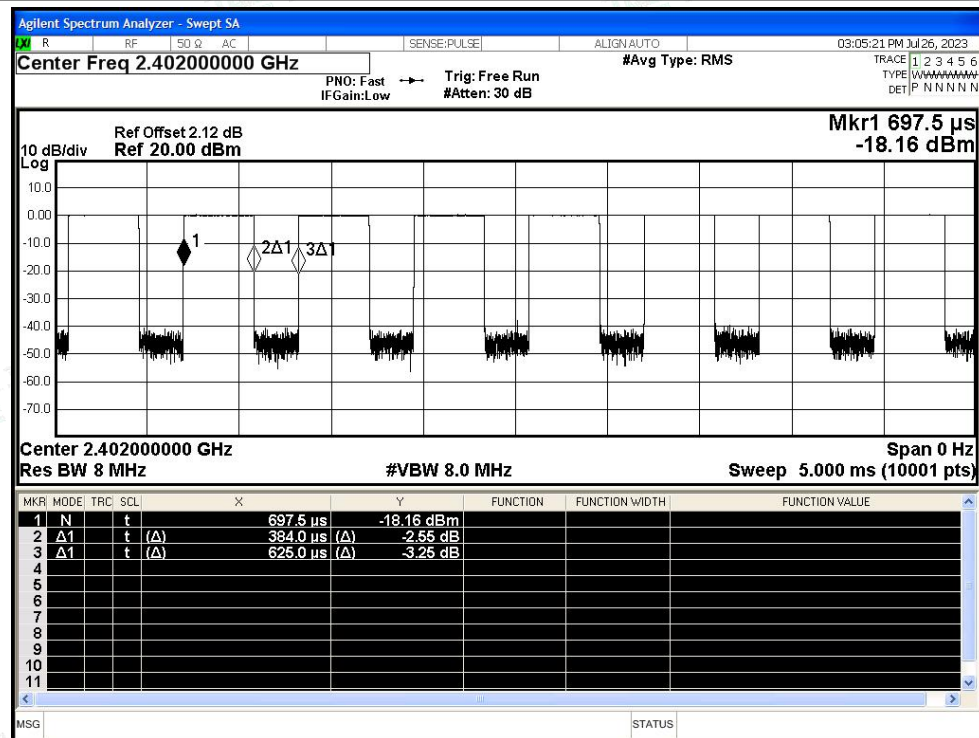
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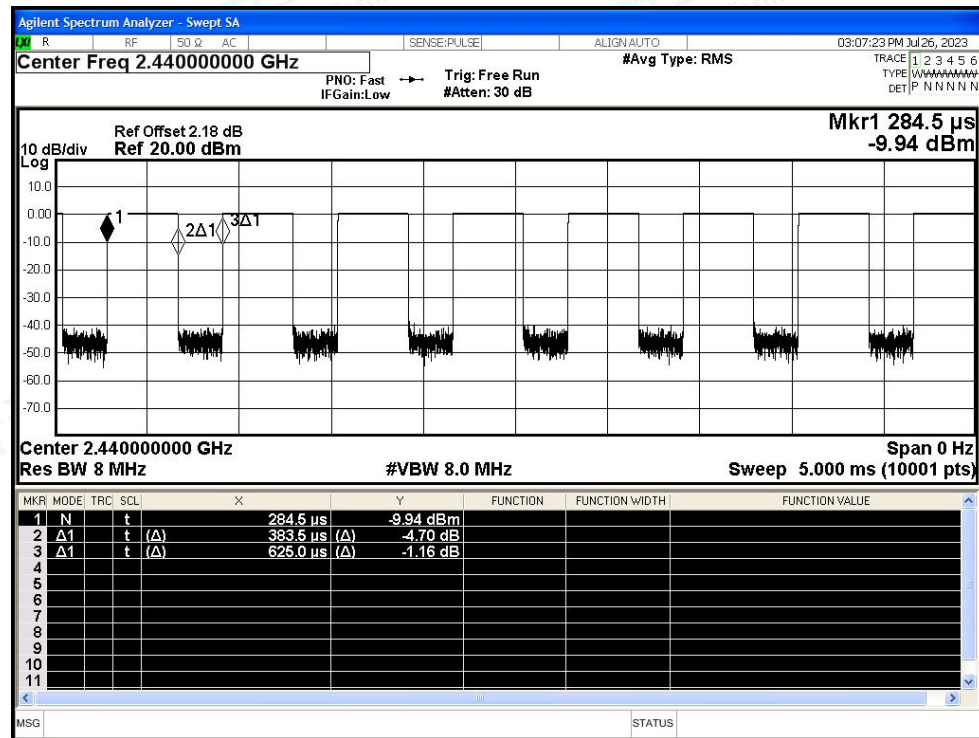


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1

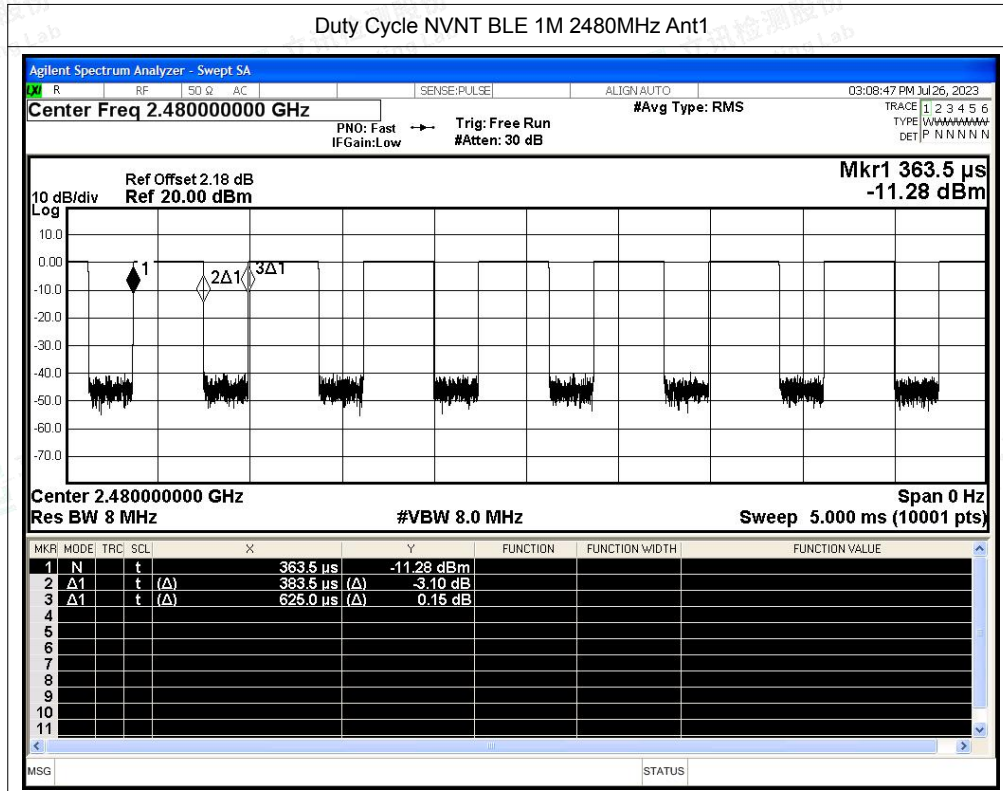


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## A.7 Restrict Band

| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------|----------|----------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -51.91      | 2.21       | 45.56      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -57.19      | 2.21       | 40.28      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2385.648        | -47.57      | 2.21       | 49.90      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2311.44         | -56.41      | 2.21       | 41.06      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -51.51      | 2.21       | 45.96      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -56.82      | 2.21       | 40.65      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -49.66      | 2.21       | 47.81      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -54.56      | 2.21       | 42.91      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2486.584        | -46.91      | 2.21       | 50.56      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.512        | -54.56      | 2.21       | 42.91      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -51.3       | 2.21       | 46.17      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -56.73      | 2.21       | 40.74      | Average  | 54             | Pass    |



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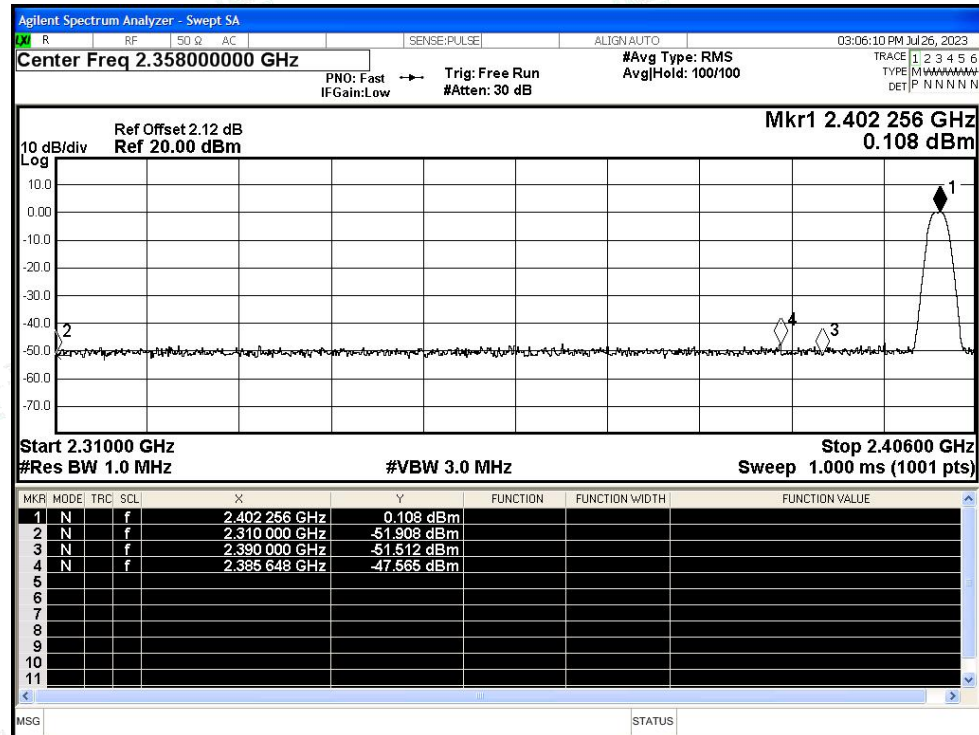
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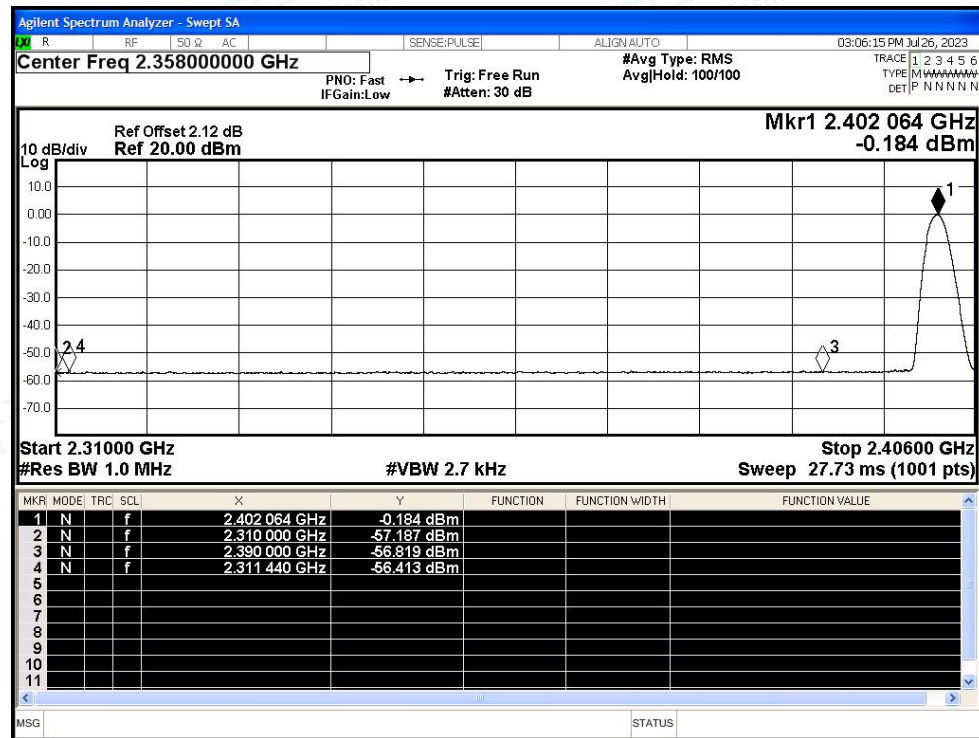


## Test Graphs

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



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



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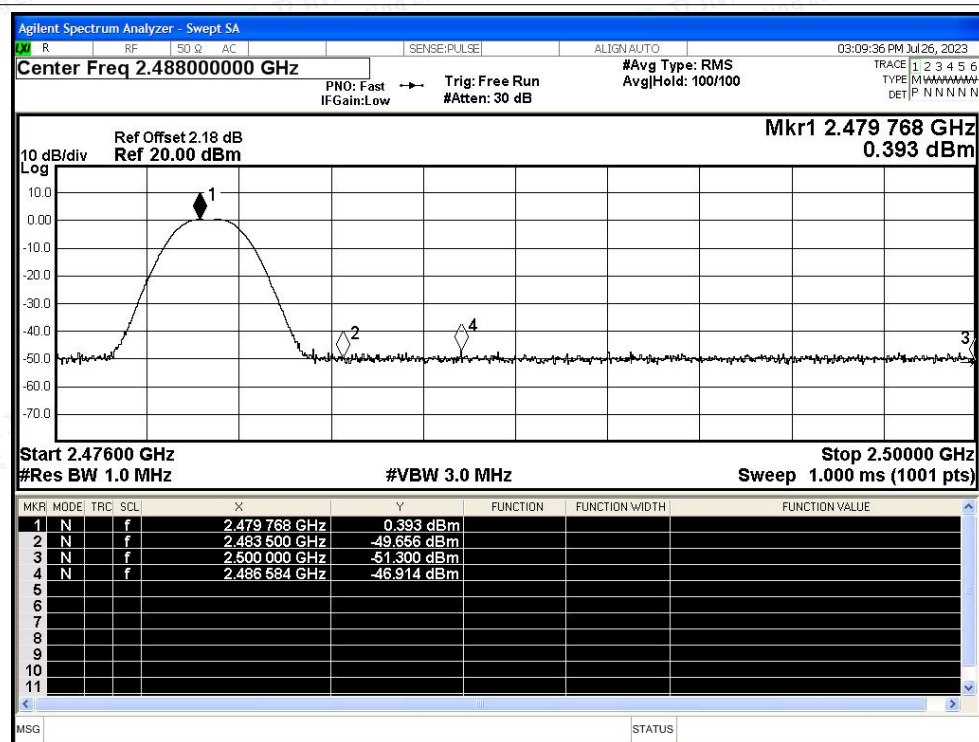
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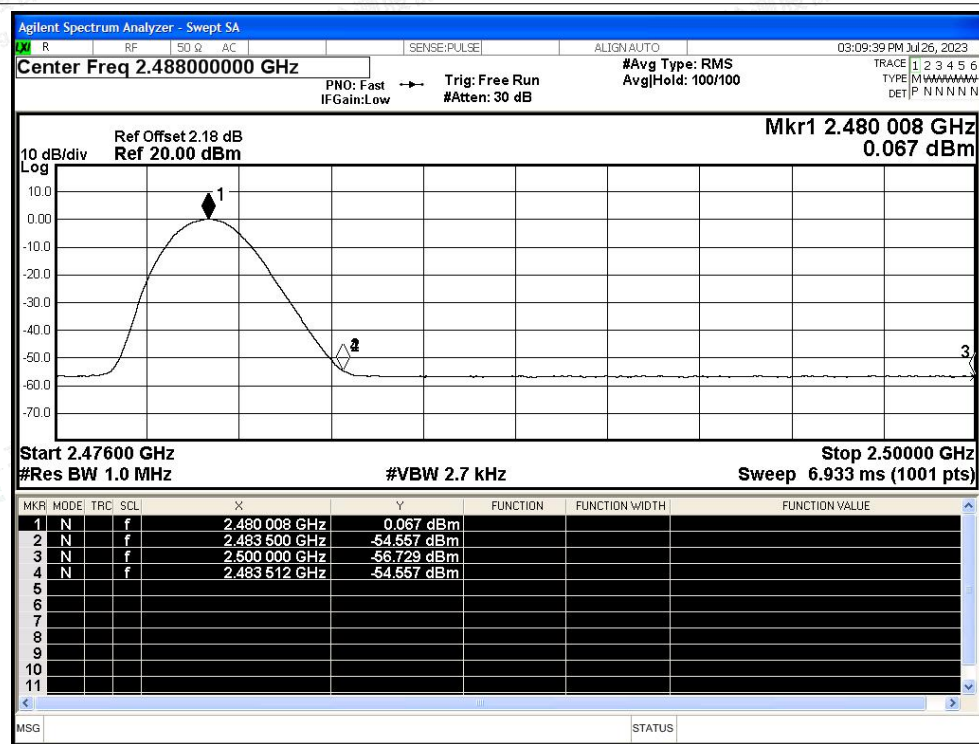
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## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



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



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