



## Appendix C

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

Product Name: SOUNDEXTREME SEB28

Test Model: SEI-EXSEB2801

#### Environmental Conditions

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





## C.1 -6dB Bandwidth

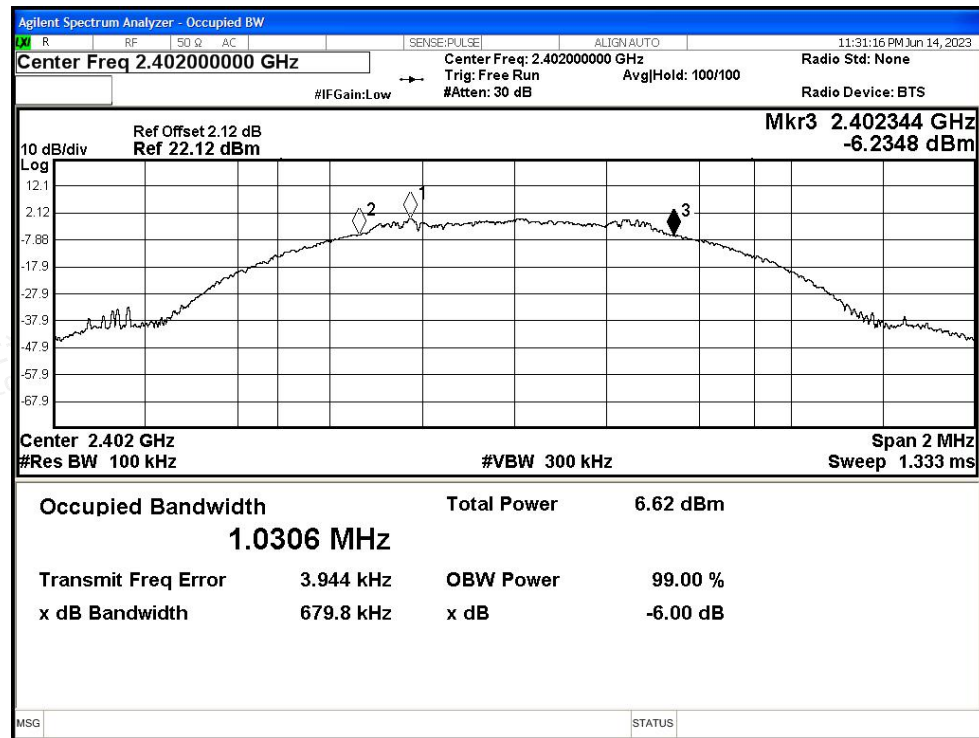
| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.68                  | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.653                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.661                 | $\geq 0.5$                  | Pass    |



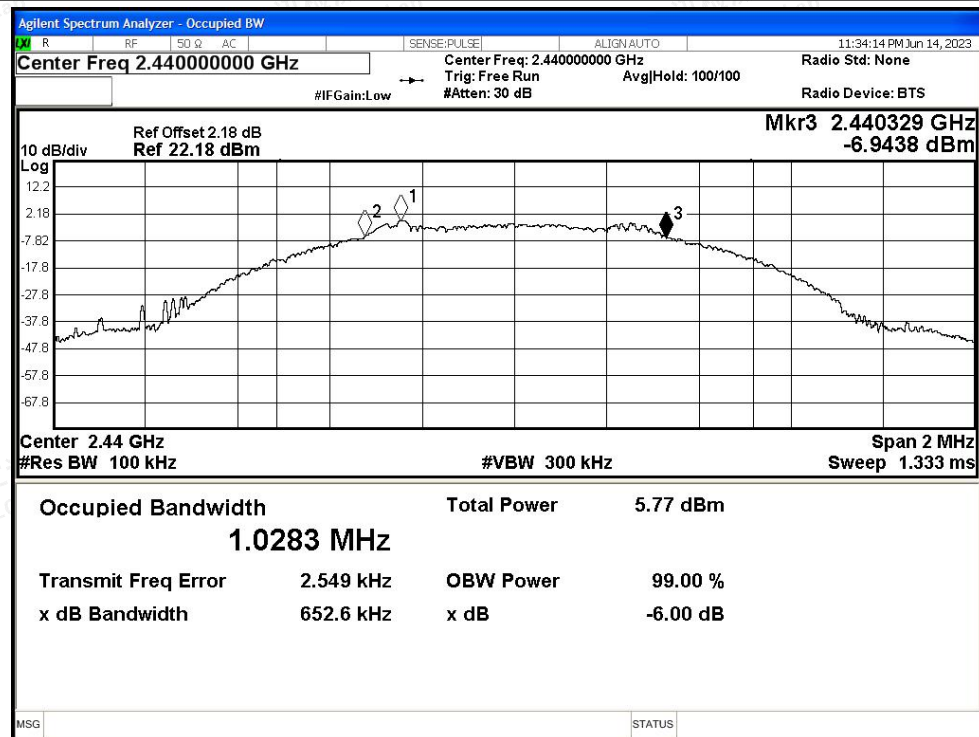


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

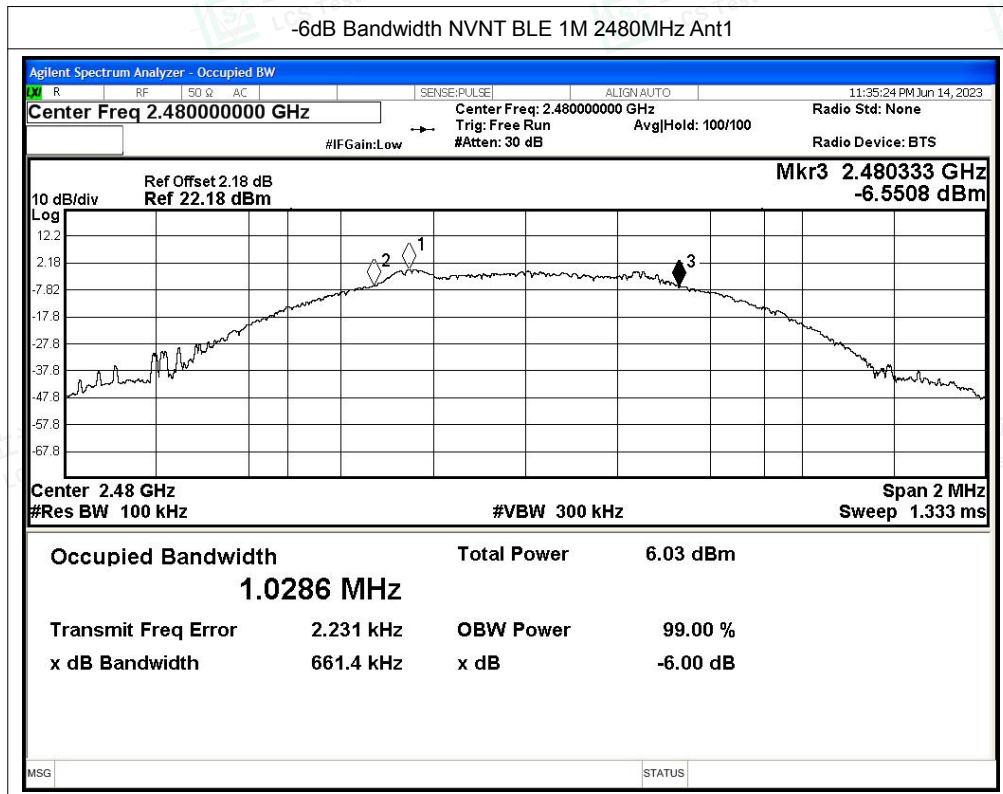


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## C.2 Maximum Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.98              | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.11              | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.28              | 30          | Pass    |



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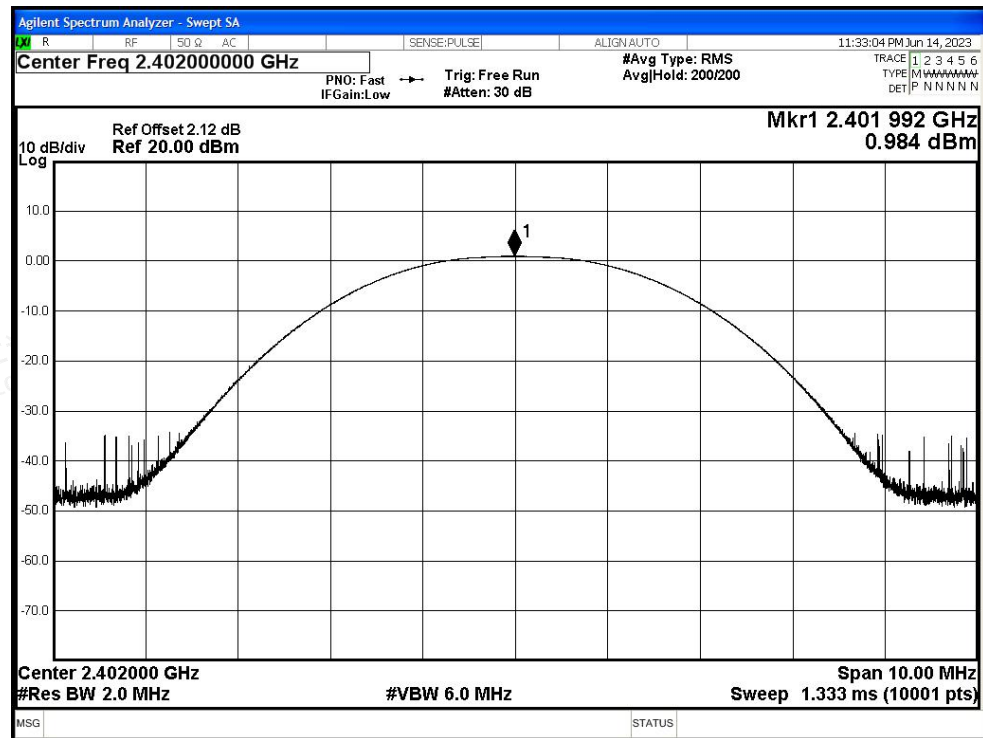
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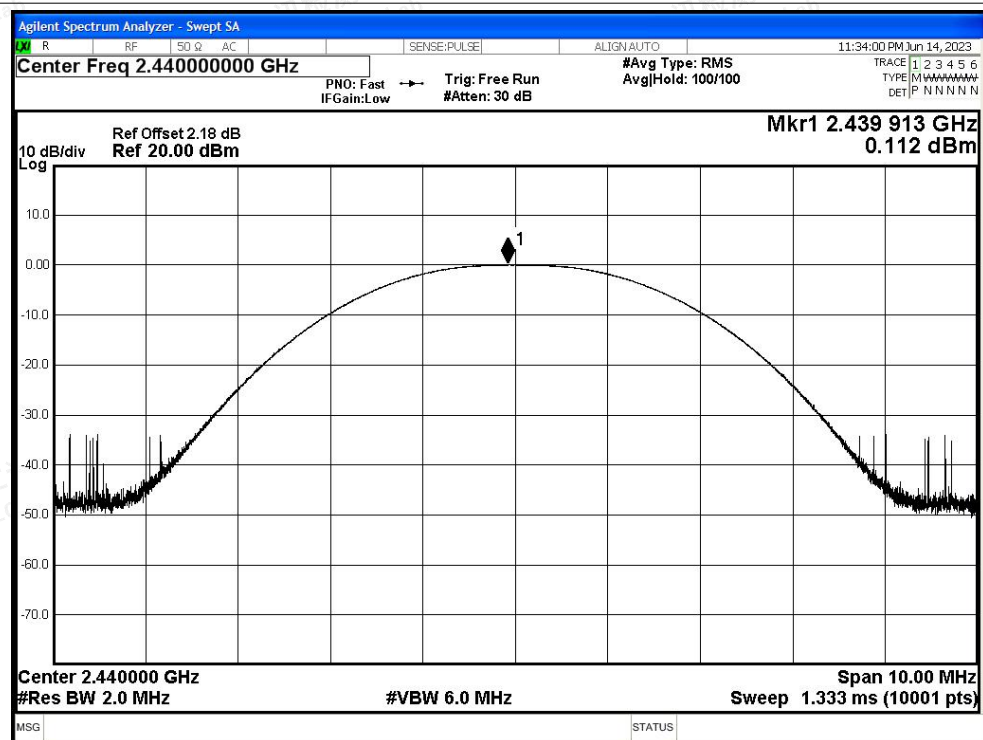


## Test Graphs

## Power NVNT BLE 1M 2402MHz Ant1



## Power NVNT BLE 1M 2440MHz Ant1

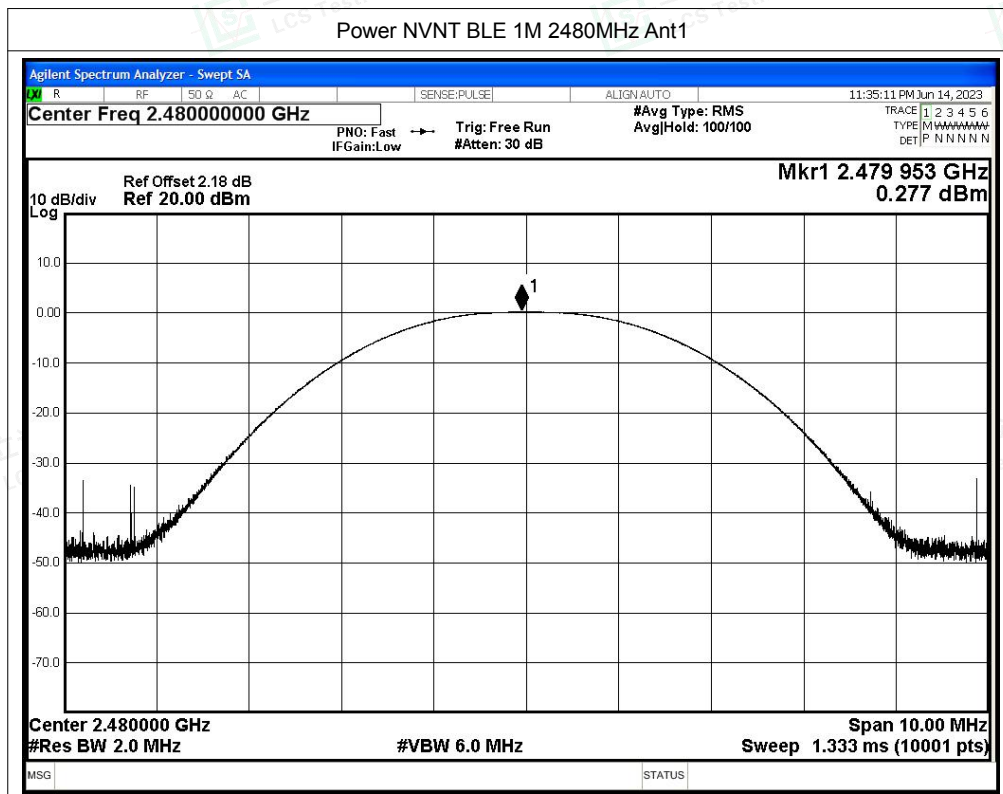


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### C.3 Maximum Power Spectral Density Level

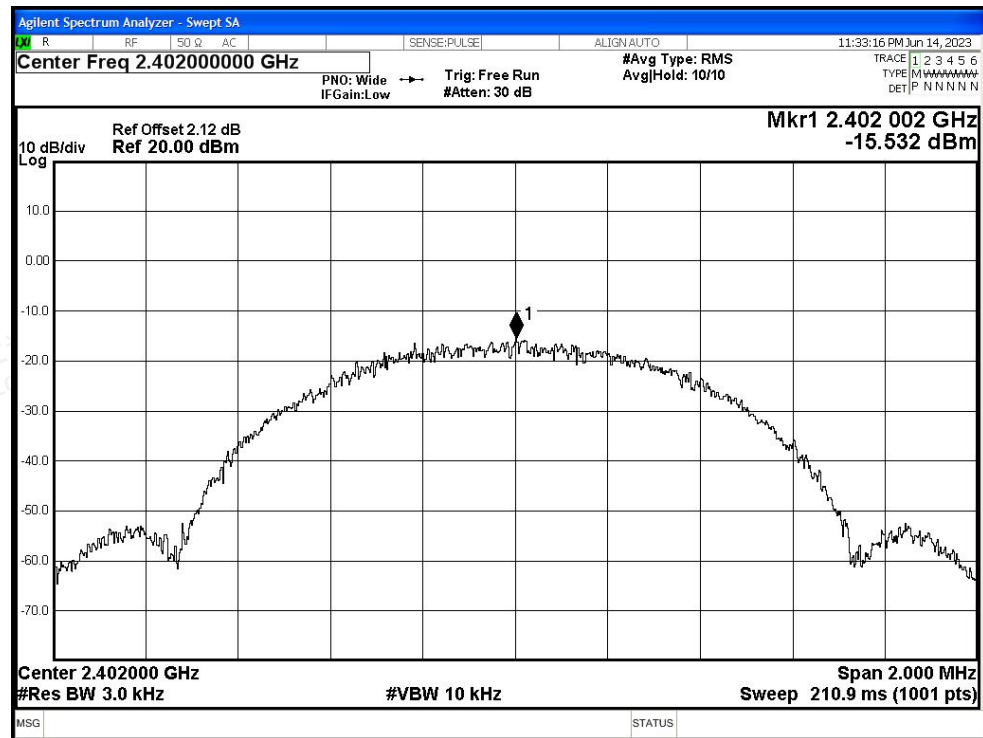
| Condition | Mode   | Frequency (MHz) | Antenna | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|----------------------|------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -15.53               | 8                | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -16.43               | 8                | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -16.39               | 8                | Pass    |



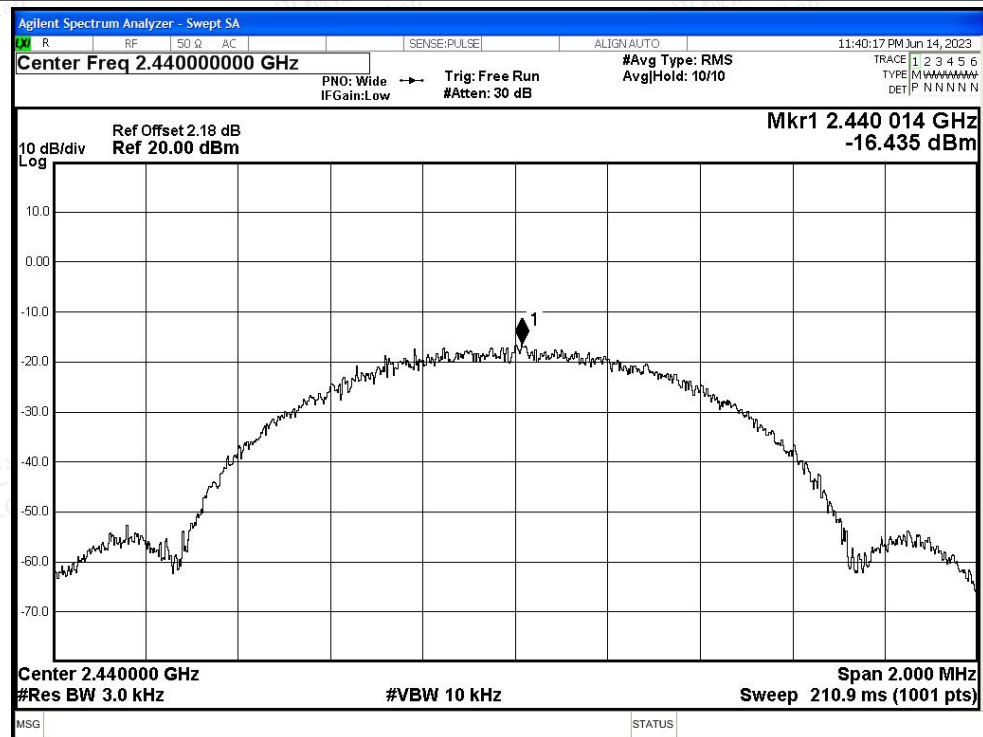


## Test Graphs

## PSD NVNT BLE 1M 2402MHz Ant1



## PSD NVNT BLE 1M 2440MHz Ant1

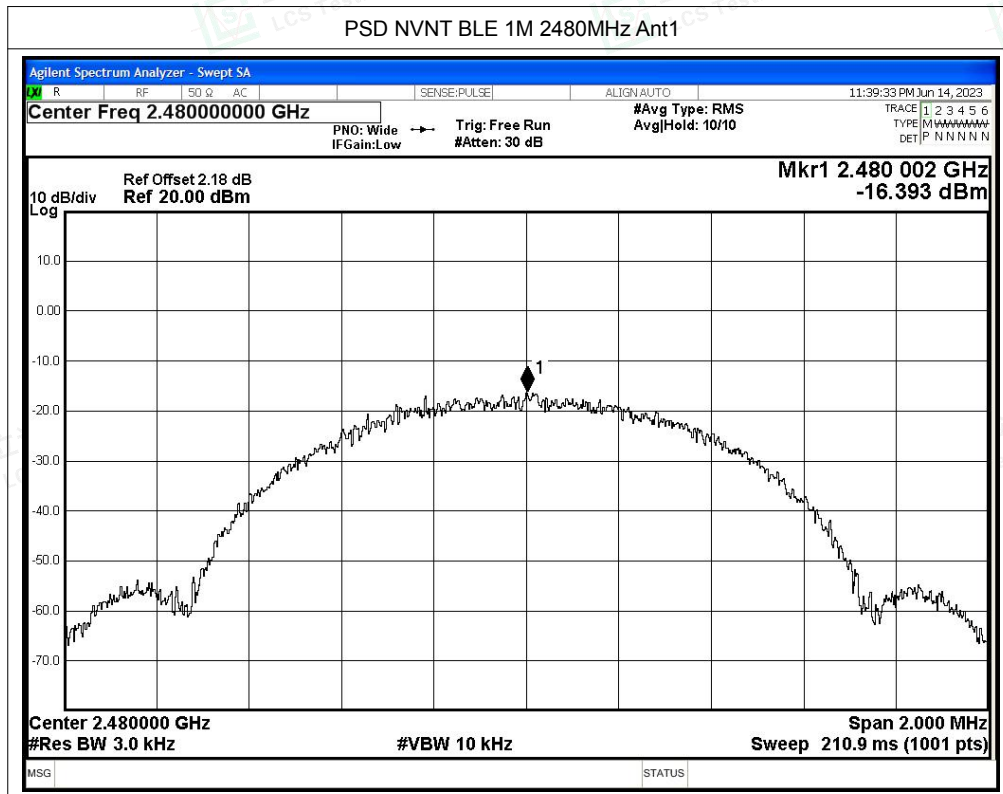


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## C.4 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -57.22          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -55.11          | -20         | Pass    |

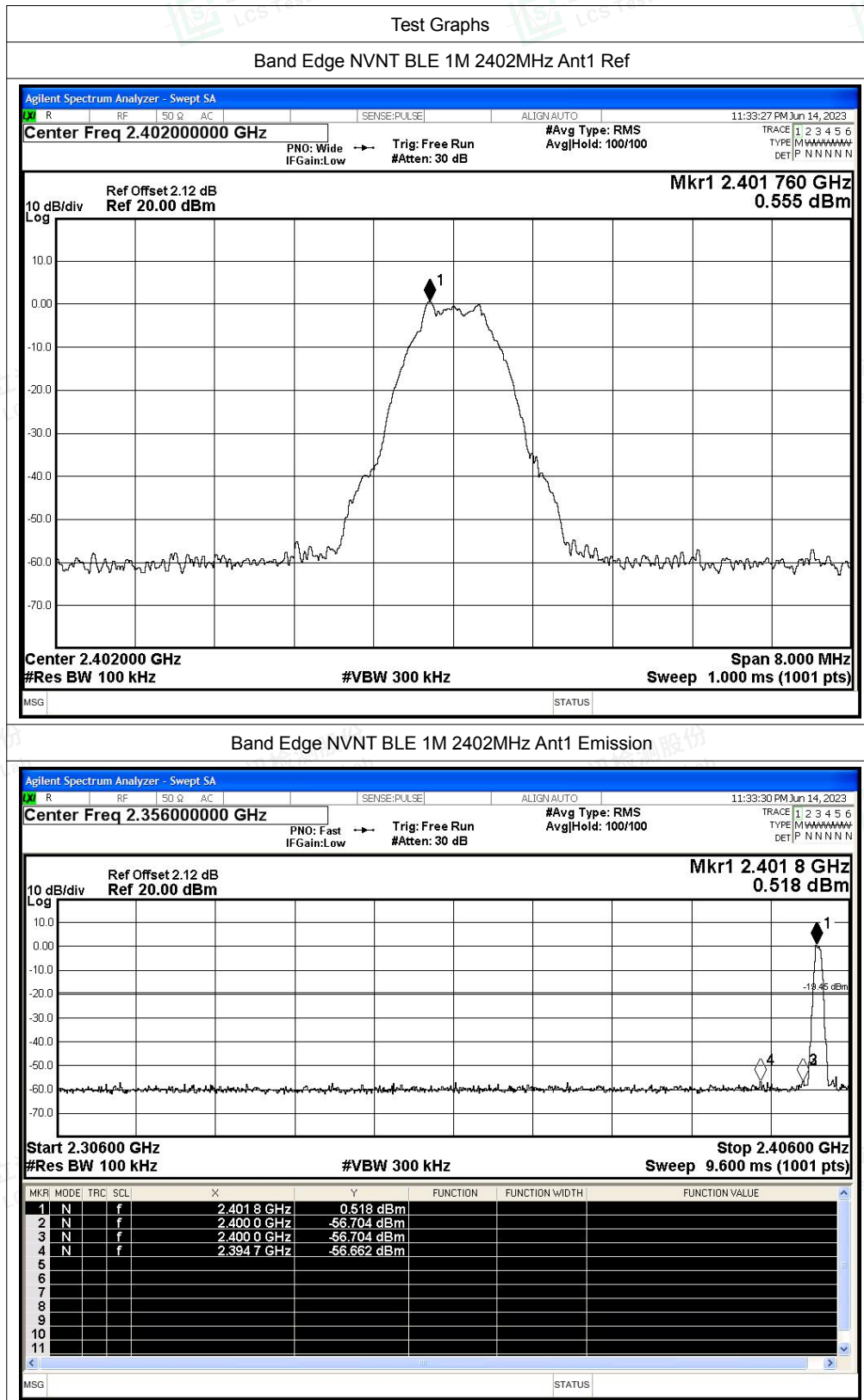


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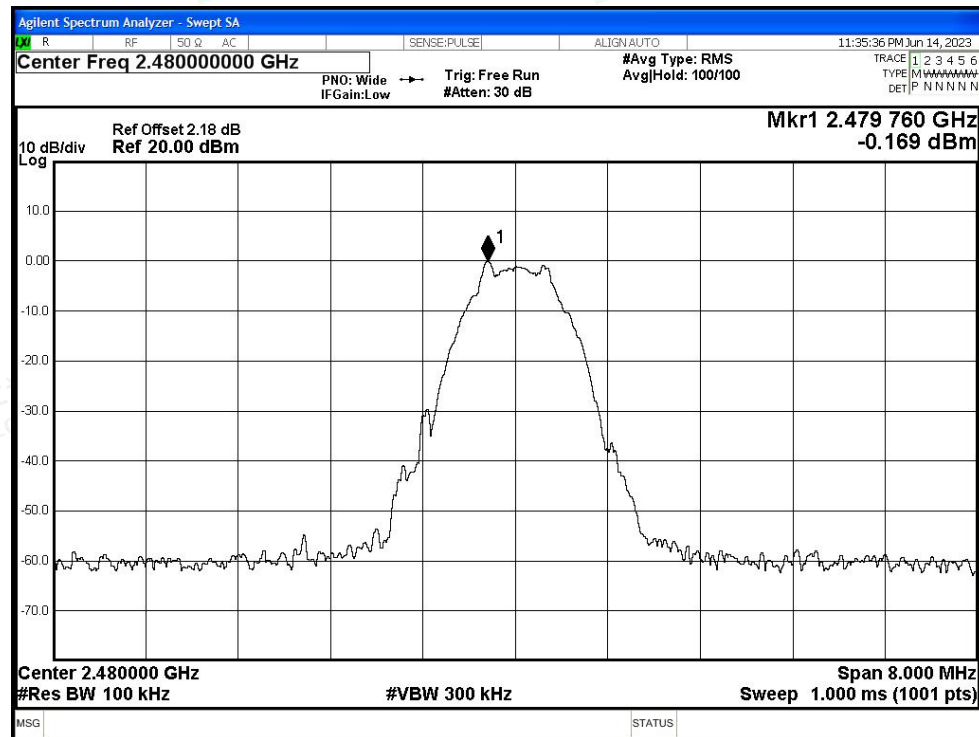
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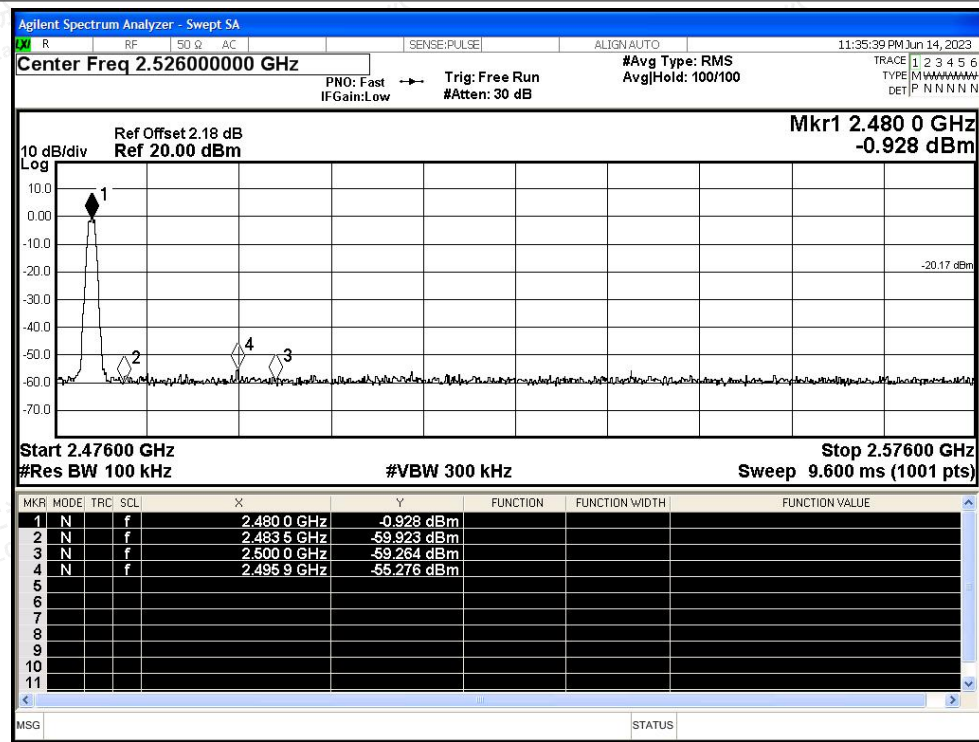




## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



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



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## C.5 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -49.08          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -54.87          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -55.17          | -20         | Pass    |



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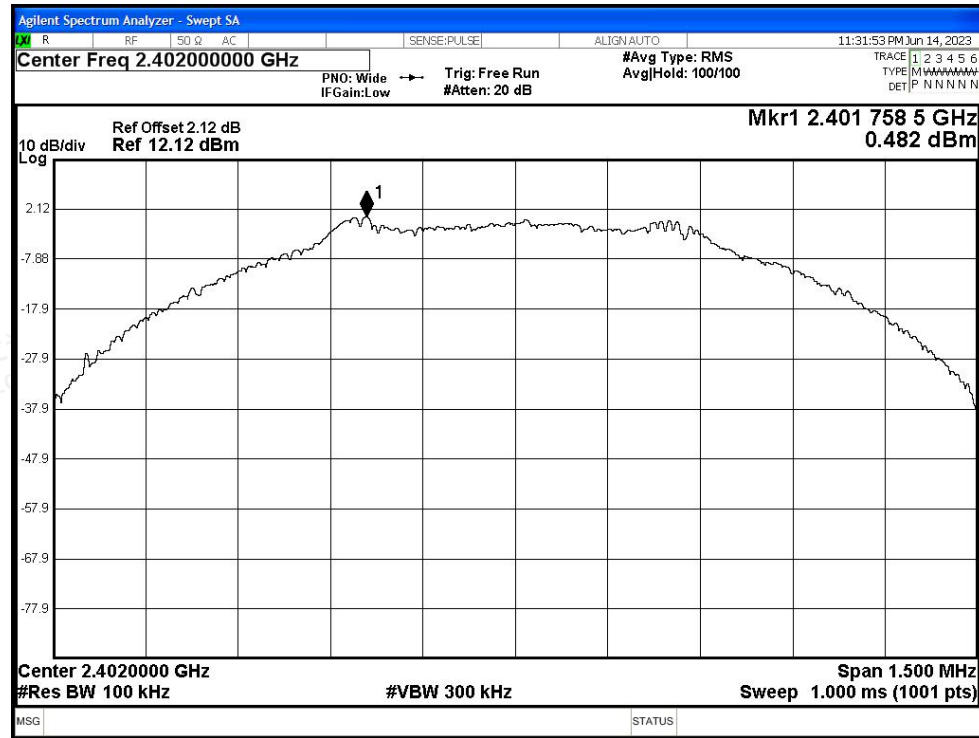
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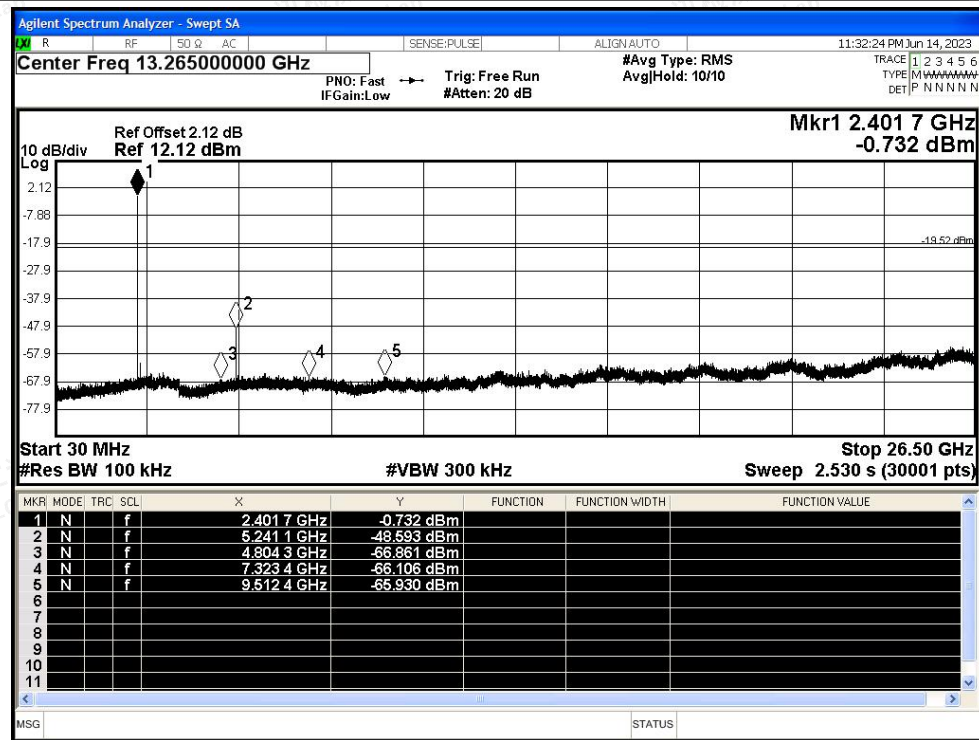


## Test Graphs

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



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



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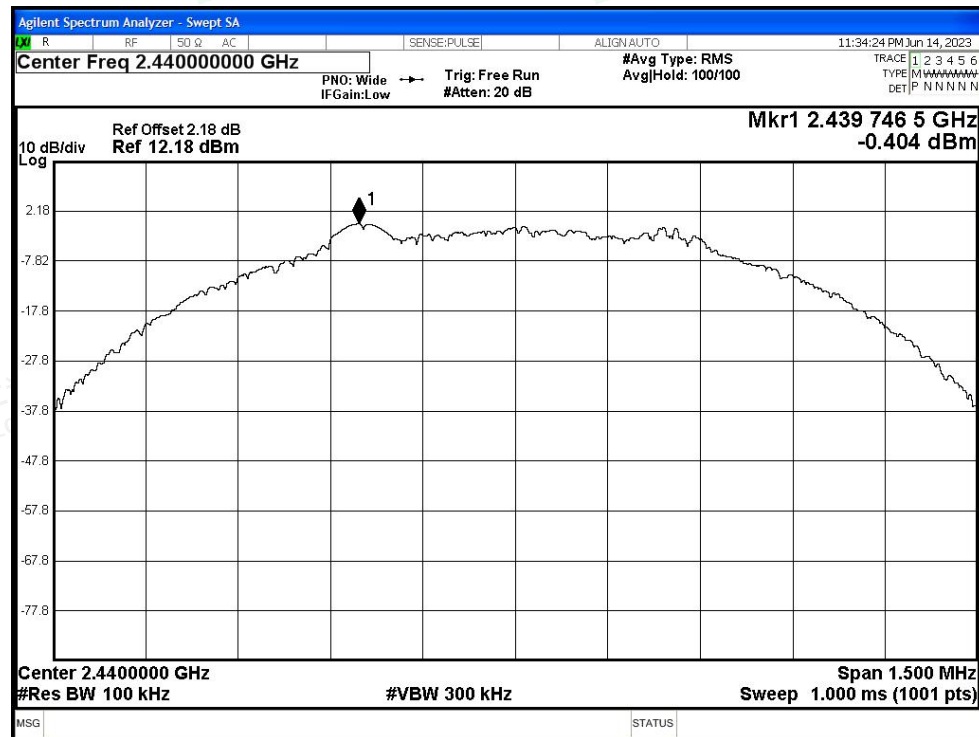
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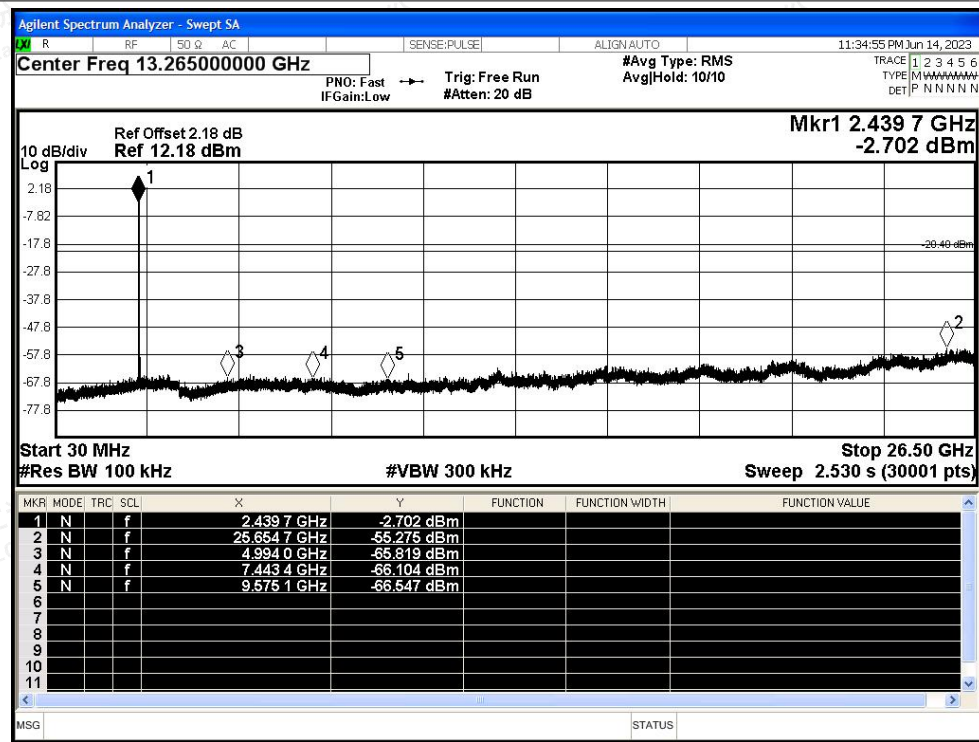
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## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



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



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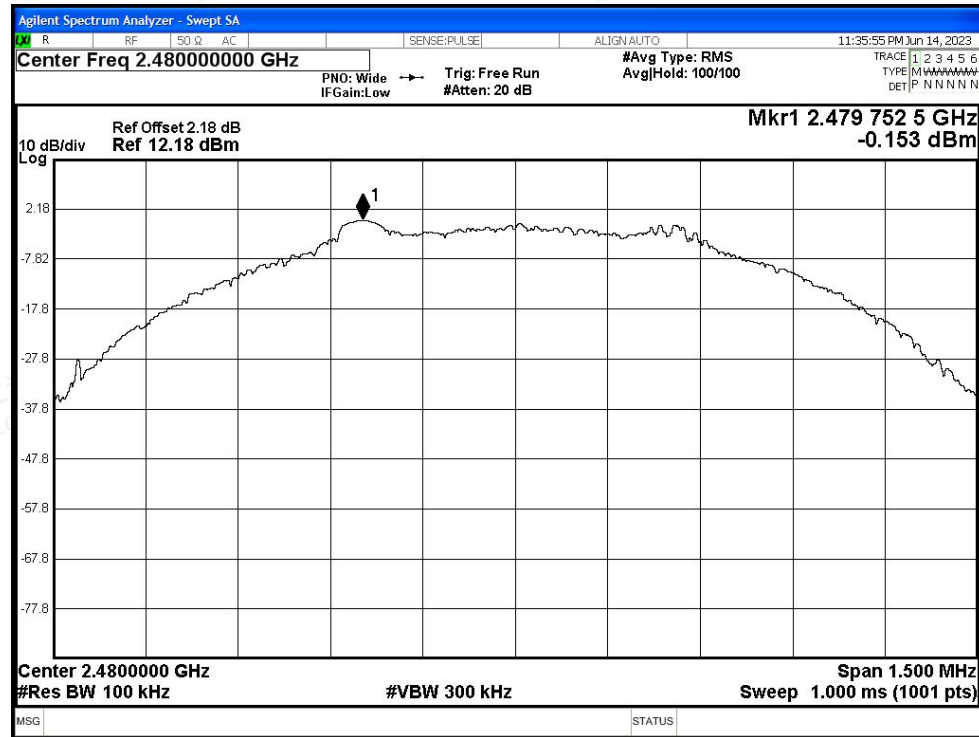
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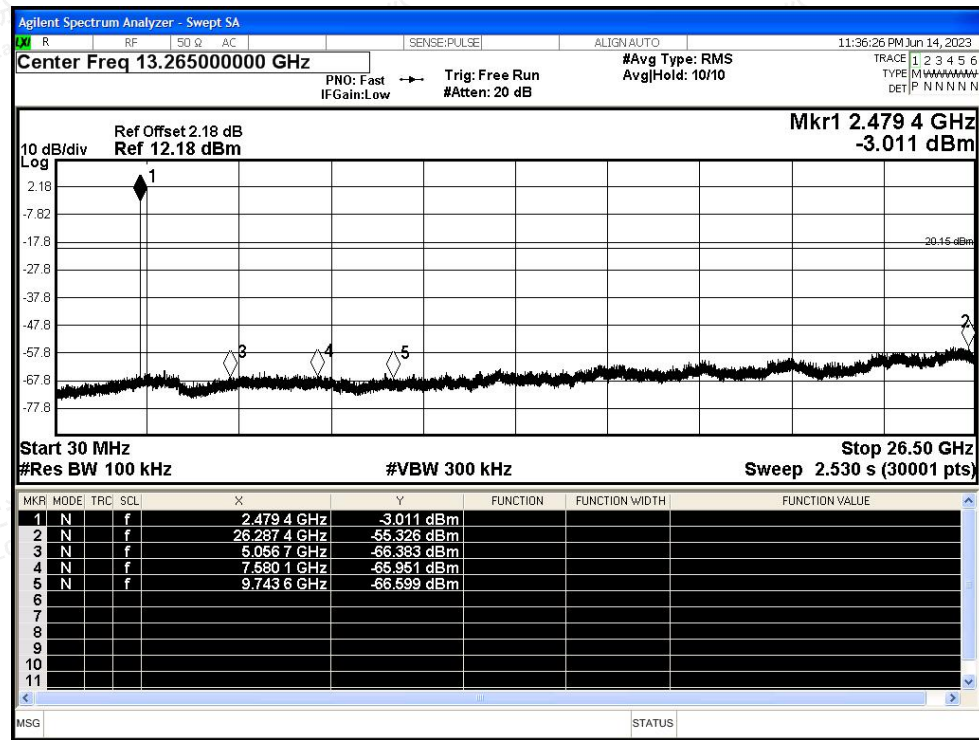
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## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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



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## C.6 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 99.51          | 0                      | 0.61      |
| NVNT      | BLE 1M | 2440            | Ant1    | 0              | 0                      | $\infty$  |
| NVNT      | BLE 1M | 2480            | Ant1    | 87.39          | 0.59                   | 0.61      |



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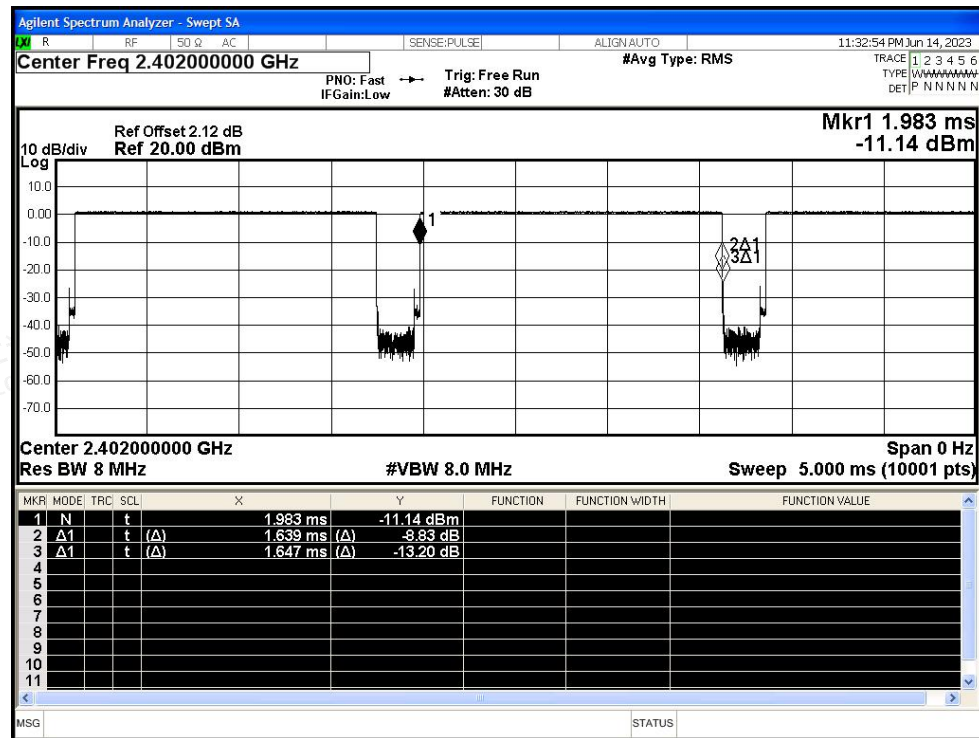
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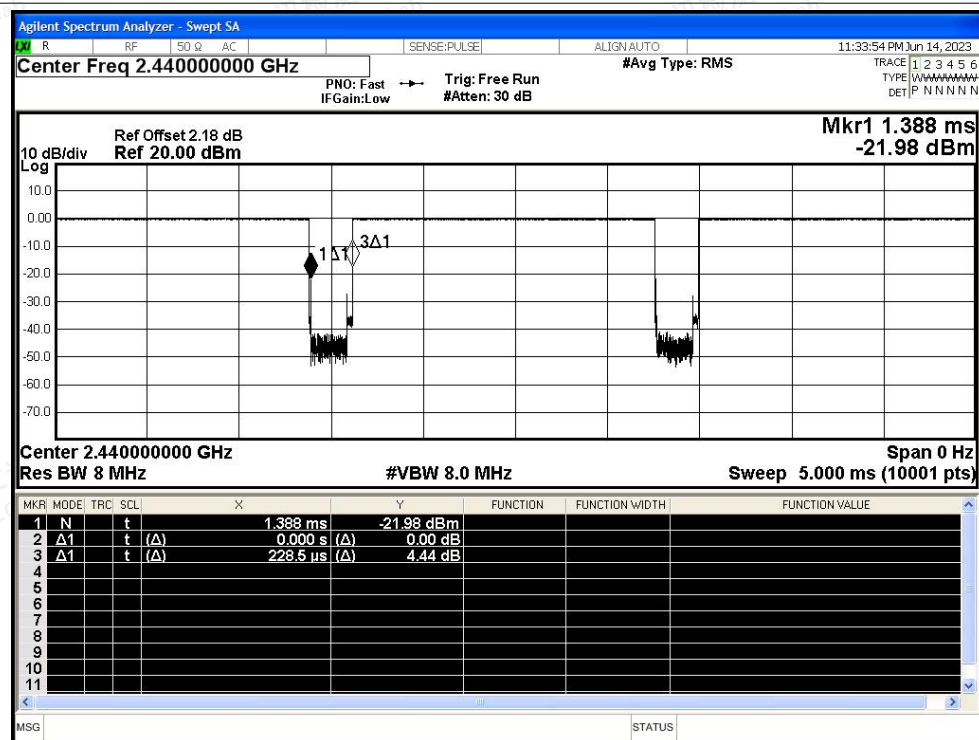


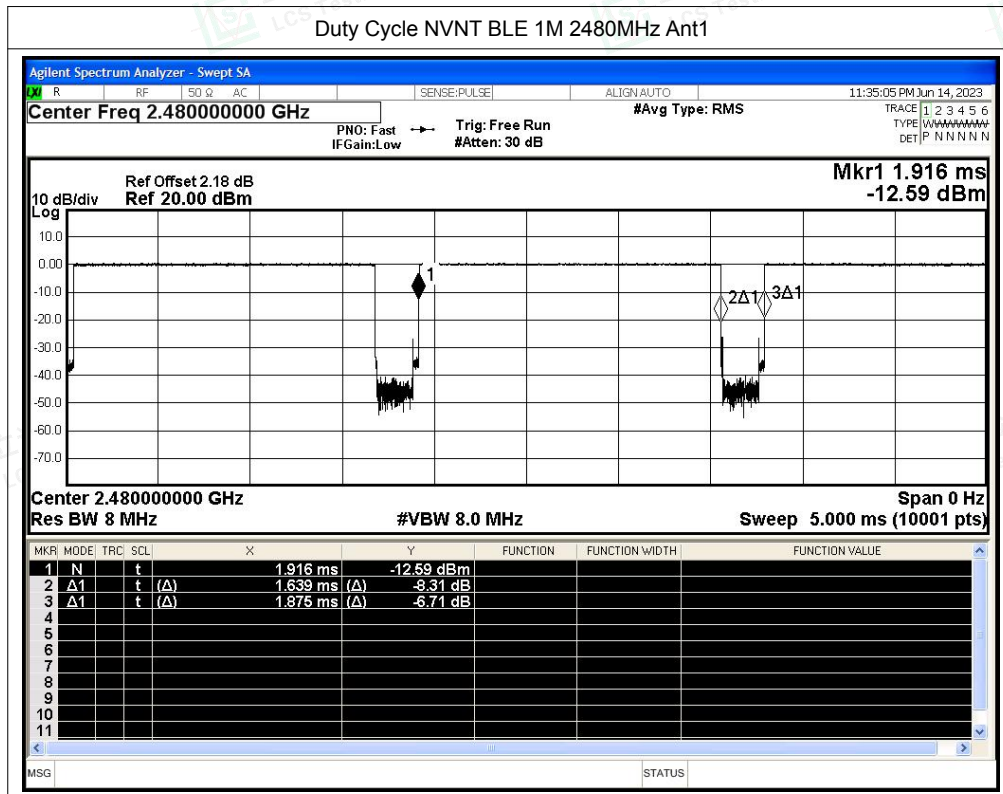
## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1





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## C.7 Restrict Band

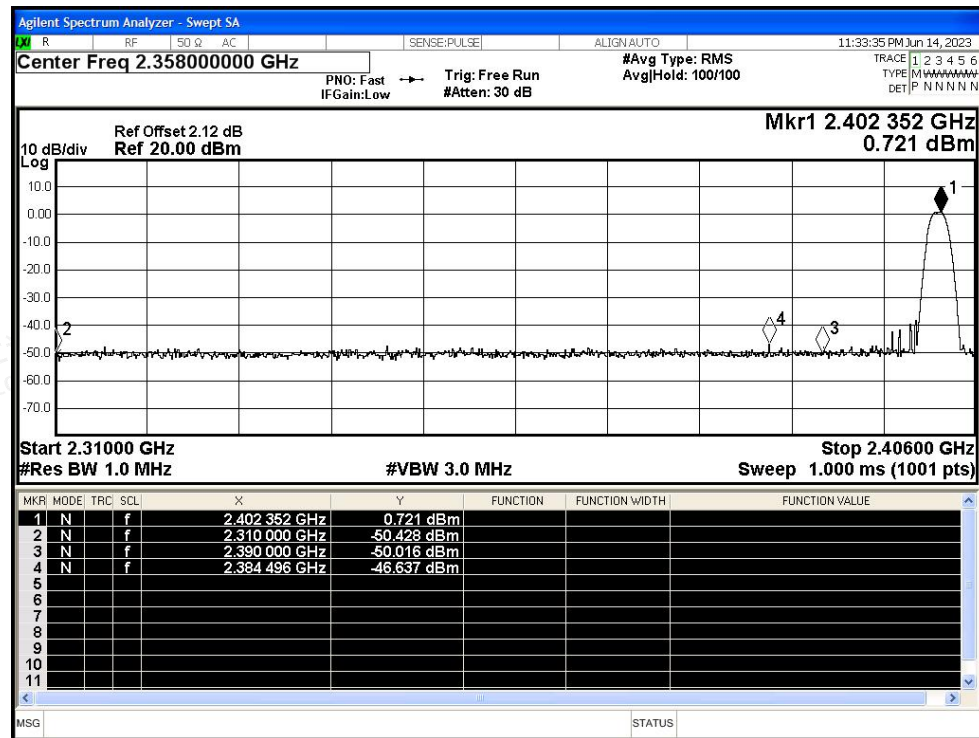
| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------|----------|----------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -50.43      | 2          | 46.83      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -57.93      | 2          | 39.33      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2384.496        | -46.64      | 2          | 50.62      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2386.032        | -57.27      | 2          | 39.99      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -50.02      | 2          | 47.24      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -57.49      | 2          | 39.77      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -50.3       | 2          | 46.96      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -55.13      | 2          | 42.13      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2484.136        | -39.73      | 2          | 57.53      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.512        | -55.13      | 2          | 42.13      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -51.36      | 2          | 45.9       | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -56.97      | 2          | 40.29      | Average  | 54             | Pass    |



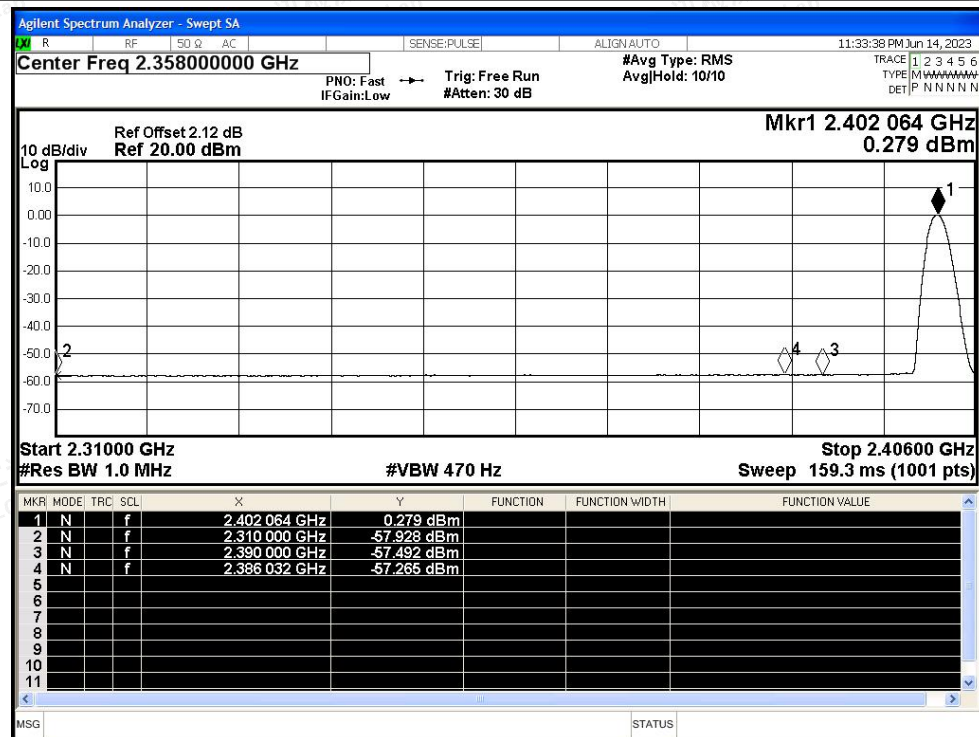


## Test Graphs

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



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



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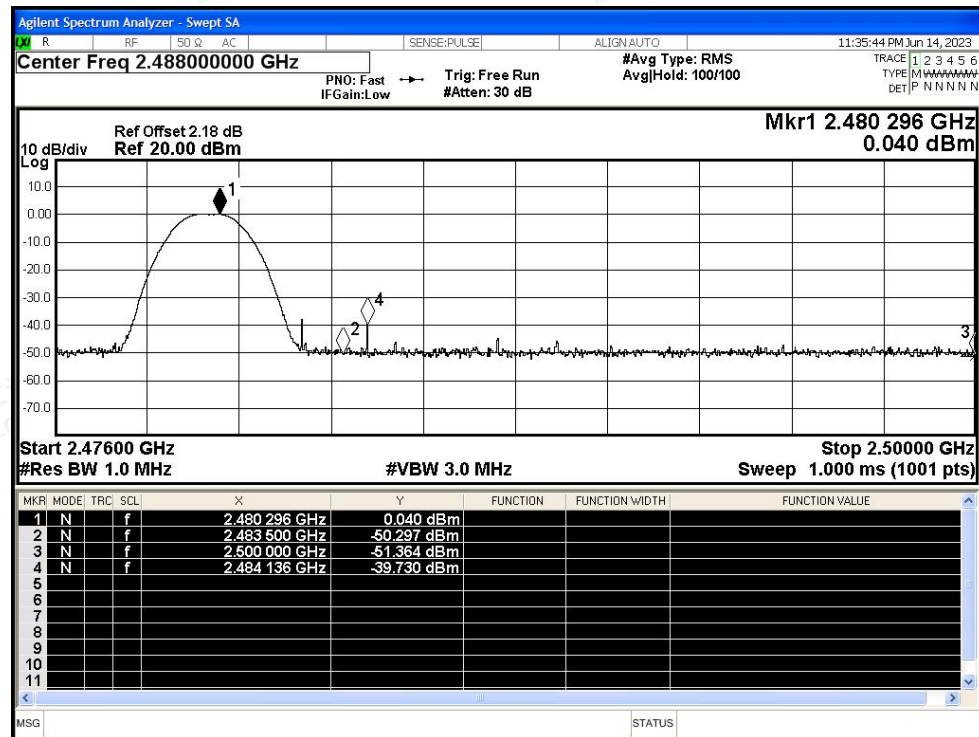
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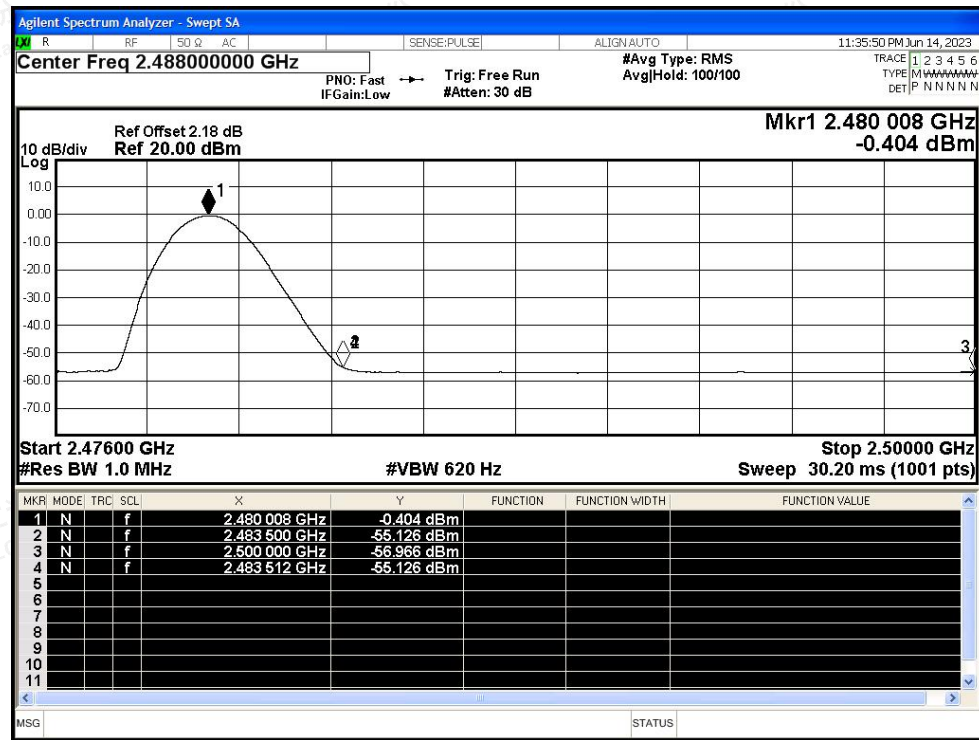
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## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



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



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