



## Appendix B

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

Product Name: AI-Wireless Robotic Pool Cleaner

Test Model: X80

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.8° C   |
| Relative Humidity: | 52.3%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Joker Hu  |
| Supervised by:     | Nick Peng |



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## B.1 -6dB Bandwidth

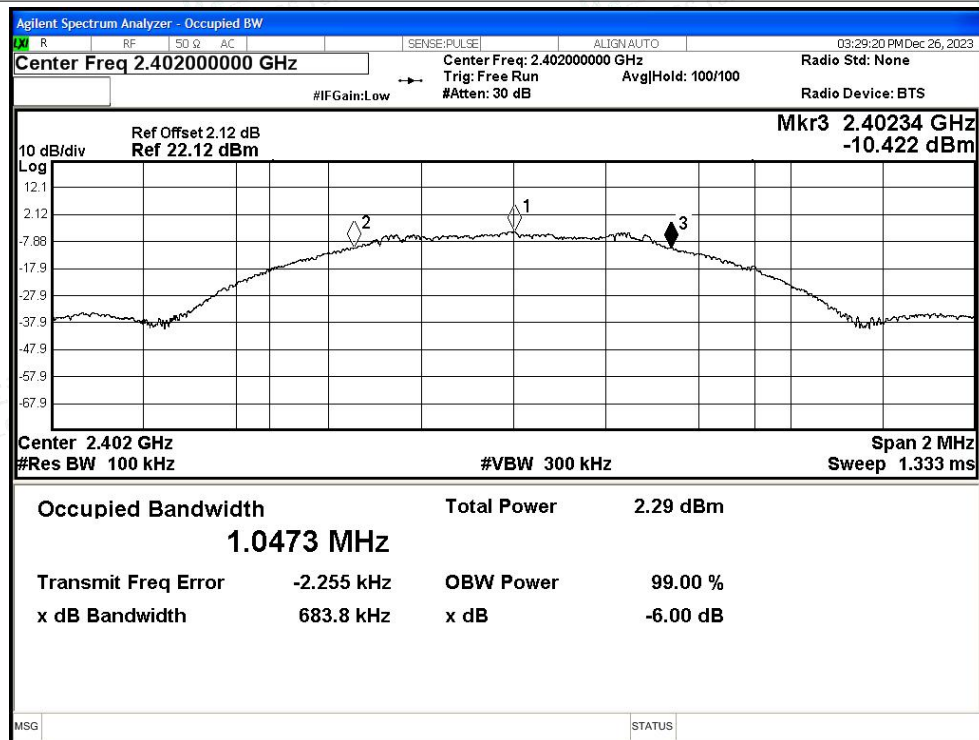
| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.684                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.663                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.682                 | $\geq 0.5$                  | Pass    |



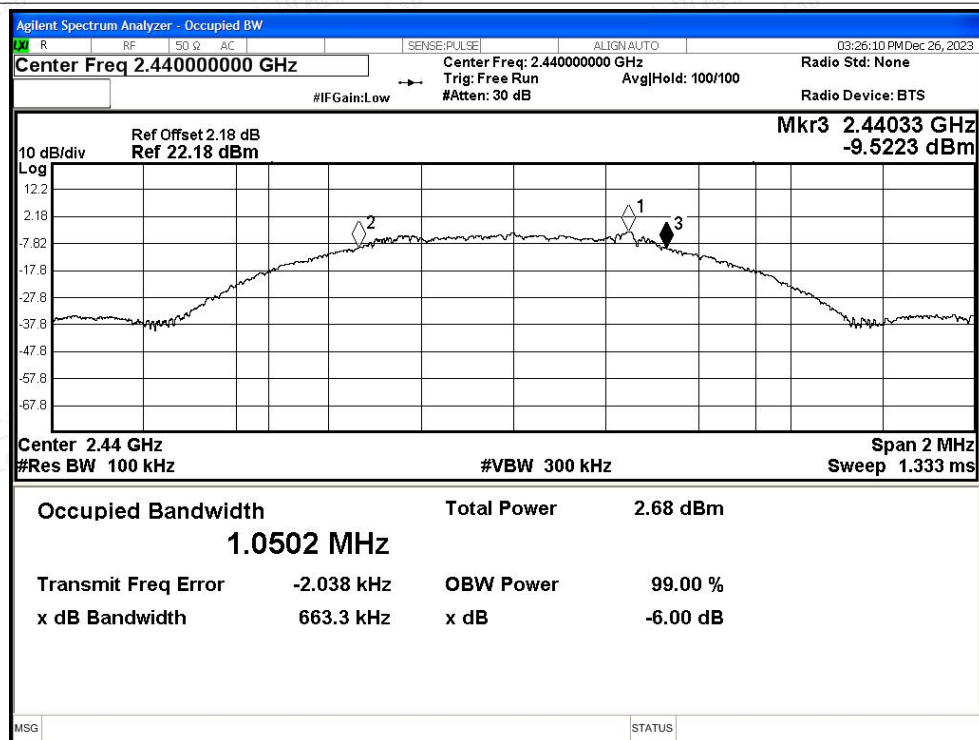


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

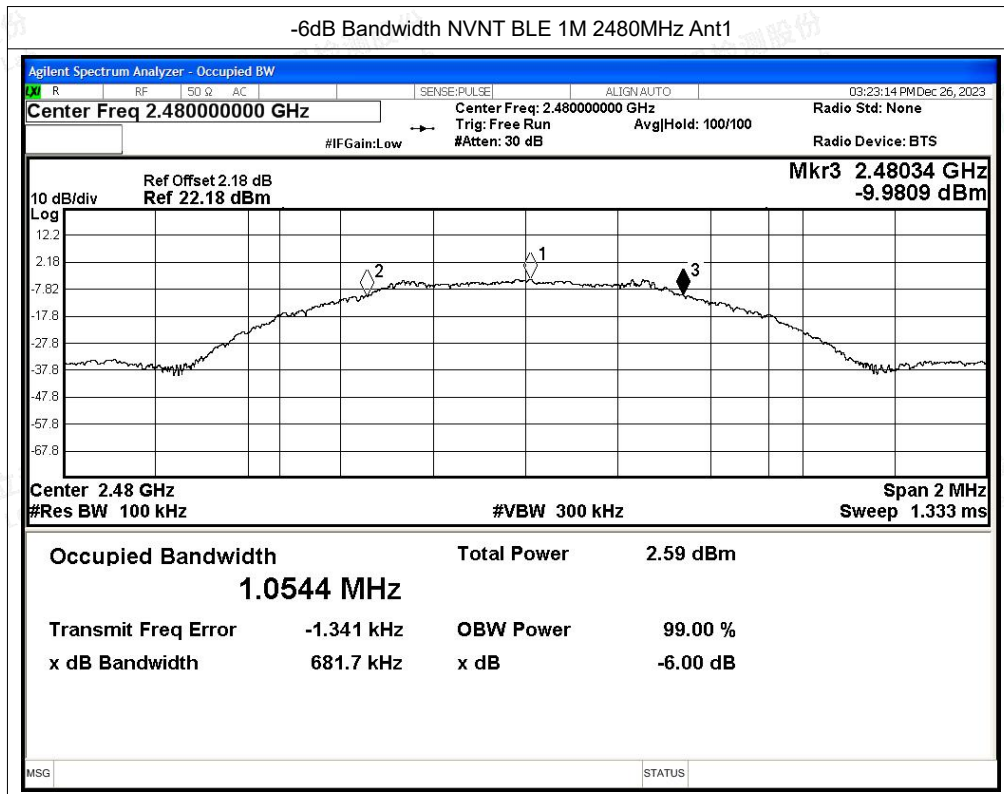


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## B.2 Occupied Channel Bandwidth

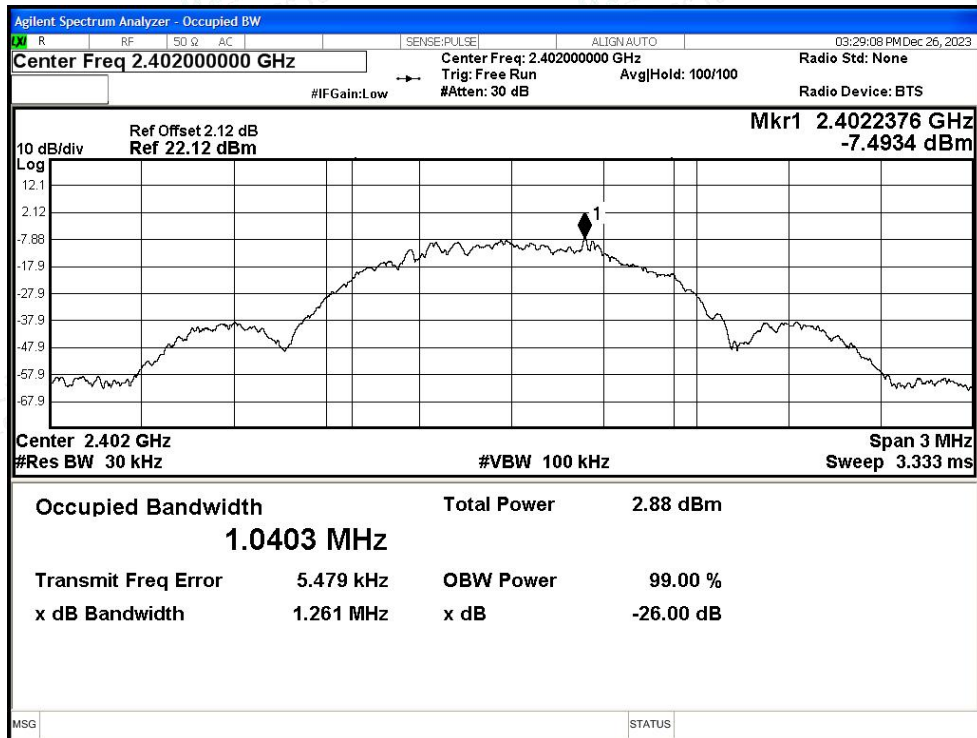
| Condition | Mode   | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|-----------|--------|-----------------|---------|---------------|
| NVNT      | BLE 1M | 2402            | Ant1    | 1.04          |
| NVNT      | BLE 1M | 2440            | Ant1    | 1.047         |
| NVNT      | BLE 1M | 2480            | Ant1    | 1.038         |



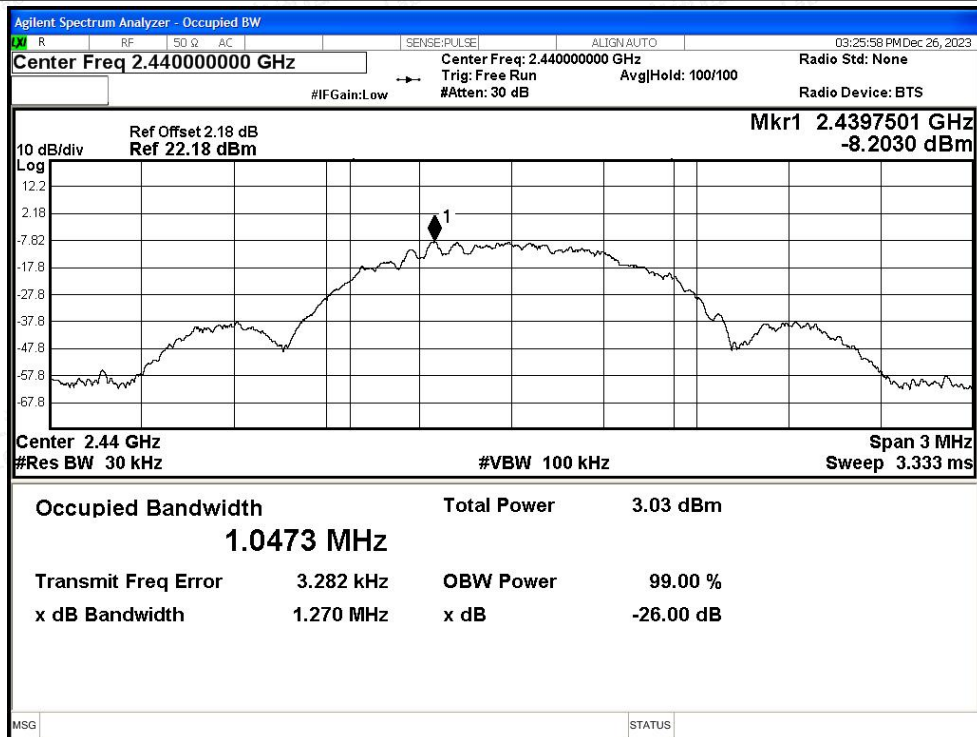


## Test Graphs

## OBW NVNT BLE 1M 2402MHz Ant1



## OBW NVNT BLE 1M 2440MHz Ant1

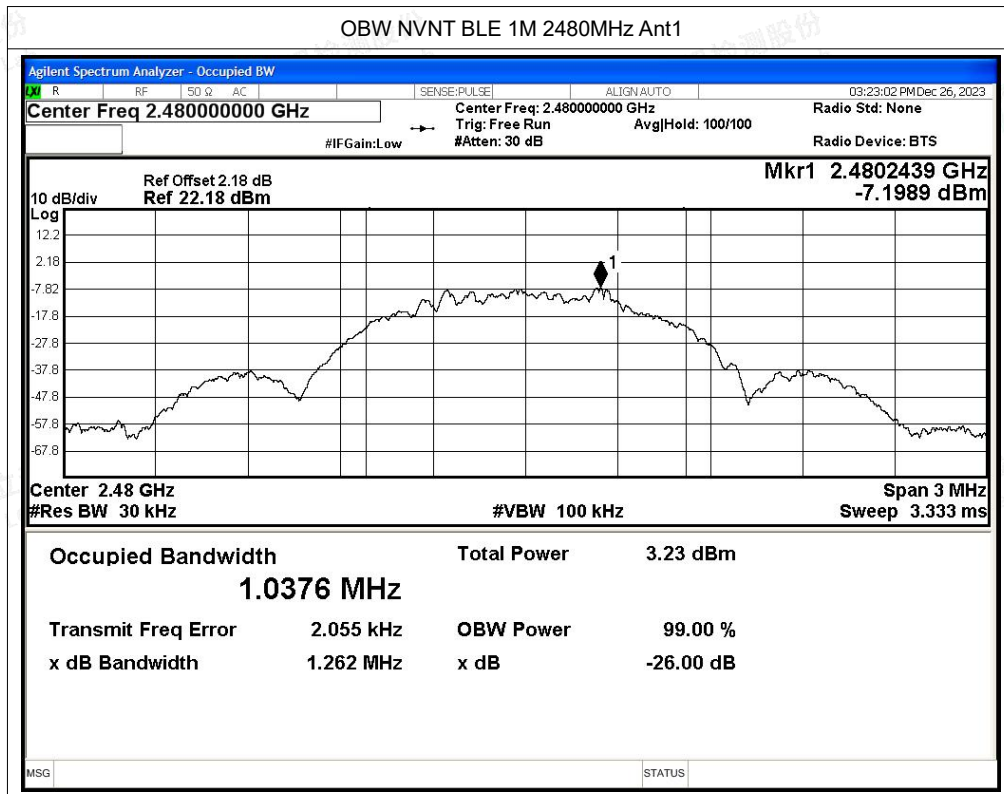


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### B.3 Maximum Peak Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -3.53             | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -3.14             | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -3.2              | 30          | Pass    |

#### EIRP

| Condition | Mode   | Frequency (MHz) | Antenna | Maximum Peak Output Power [dBm] | Antenna Gain | Report EIRP Power(dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|---------------------------------|--------------|------------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -3.53                           | 2.5          | -1.03                  | 36          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -3.14                           | 2.5          | -0.64                  | 36          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -3.2                            | 2.5          | -0.7                   | 36          | Pass    |



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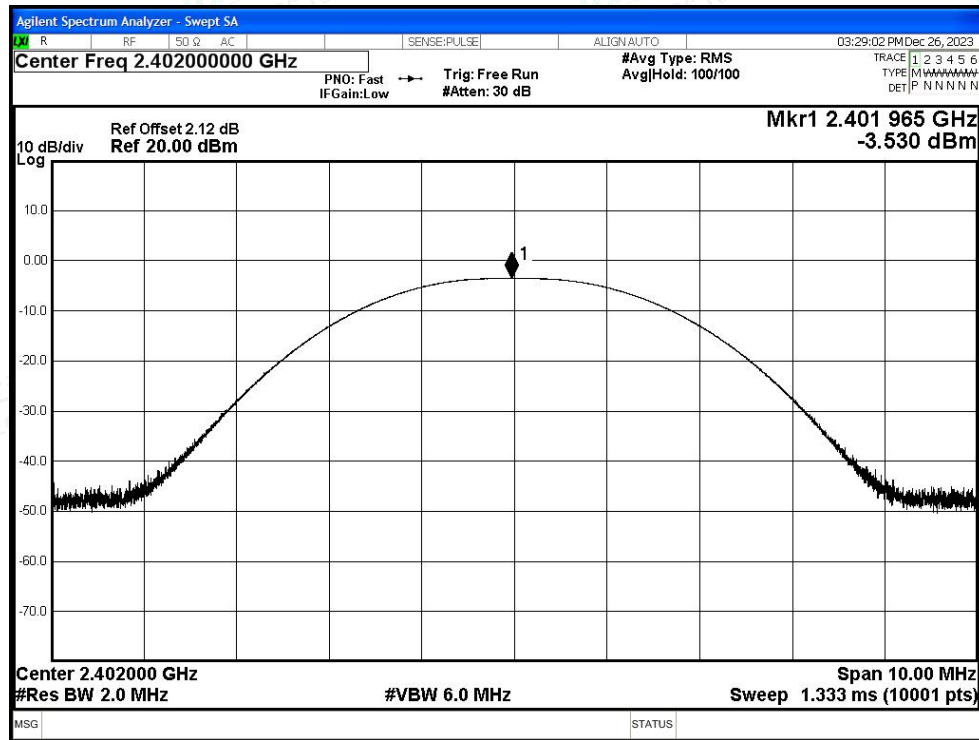
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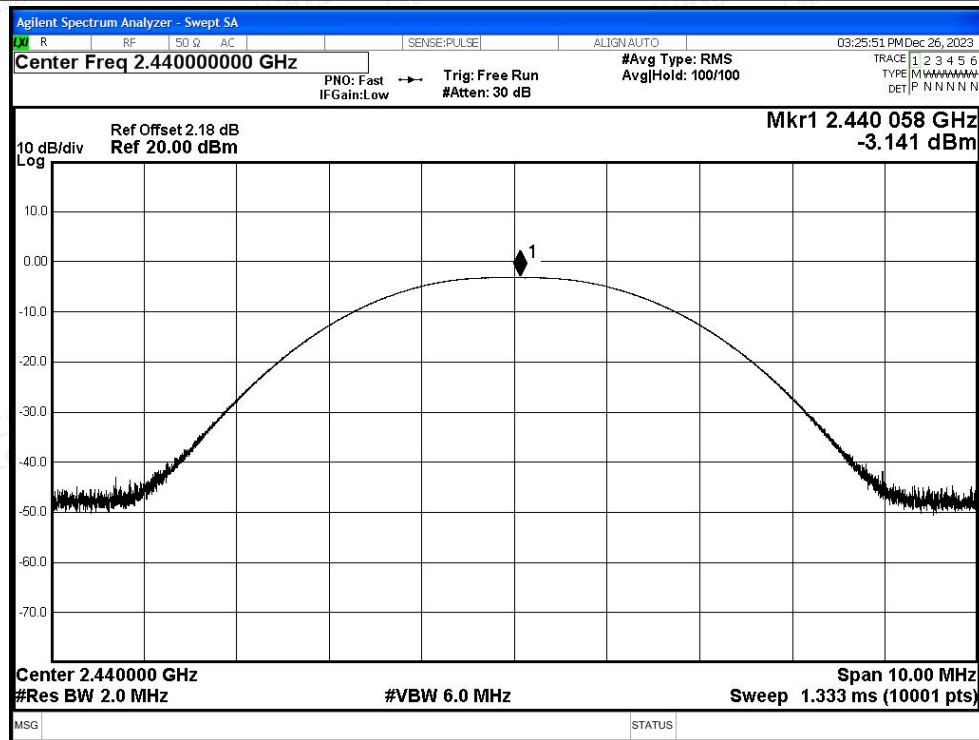


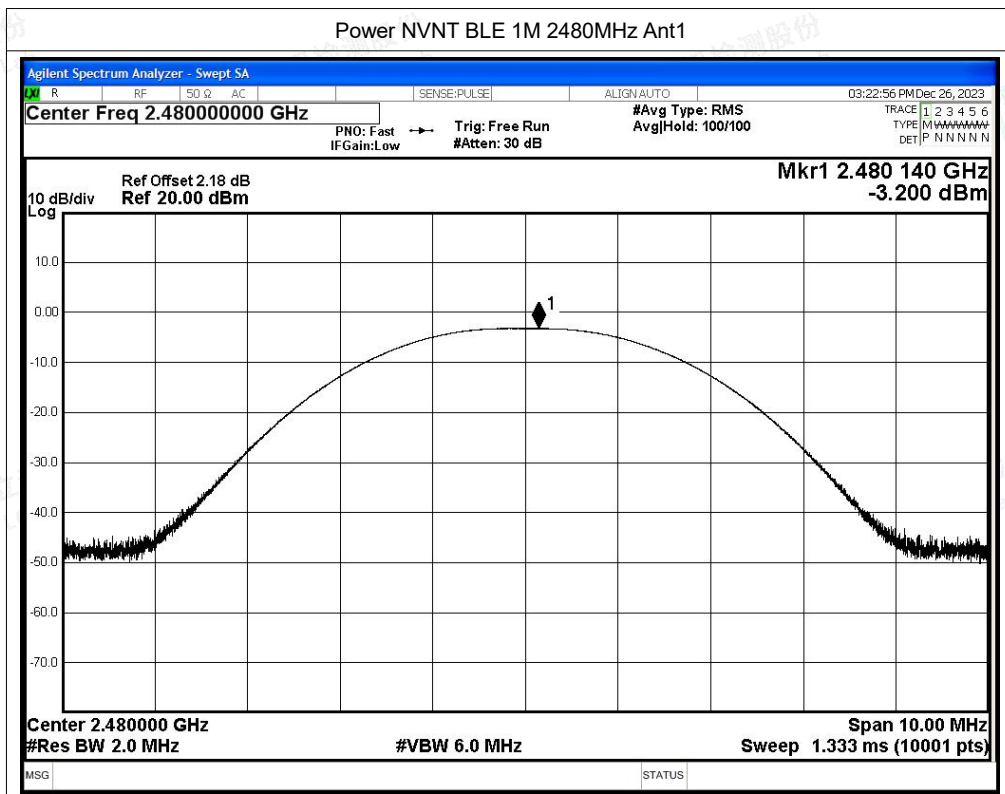
## Test Graphs

## Power NVNT BLE 1M 2402MHz Ant1



## Power NVNT BLE 1M 2440MHz Ant1





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## B.4 Maximum Power Spectral Density Level

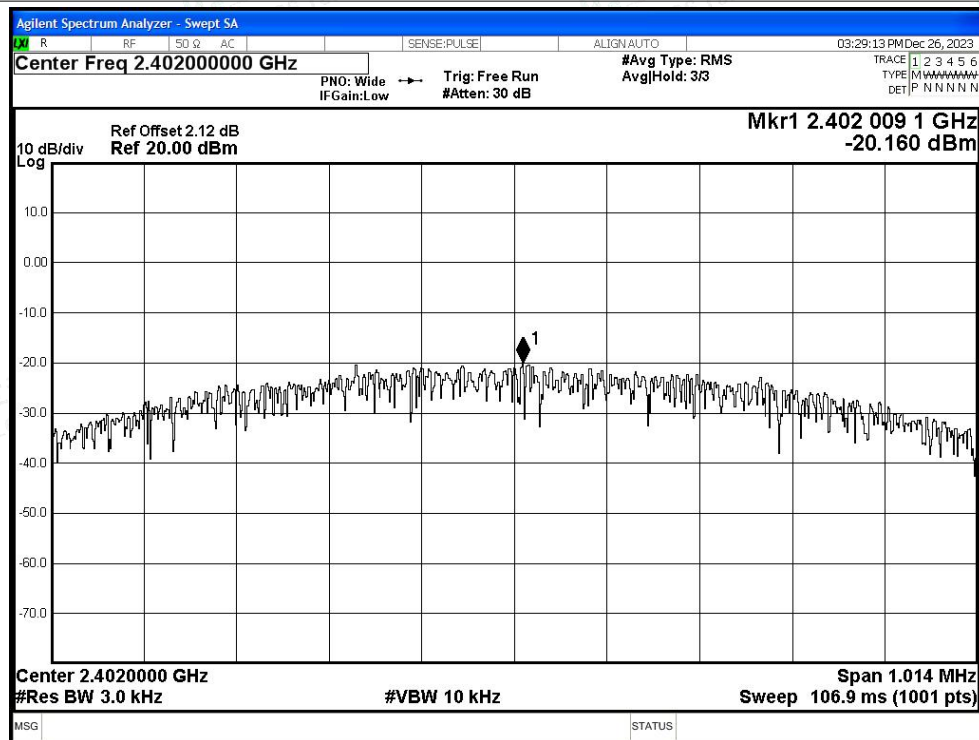
| Condition | Mode   | Frequency (MHz) | Antenna | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|----------------------|------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -20.16               | 8                | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -19.8                | 8                | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -20.02               | 8                | Pass    |



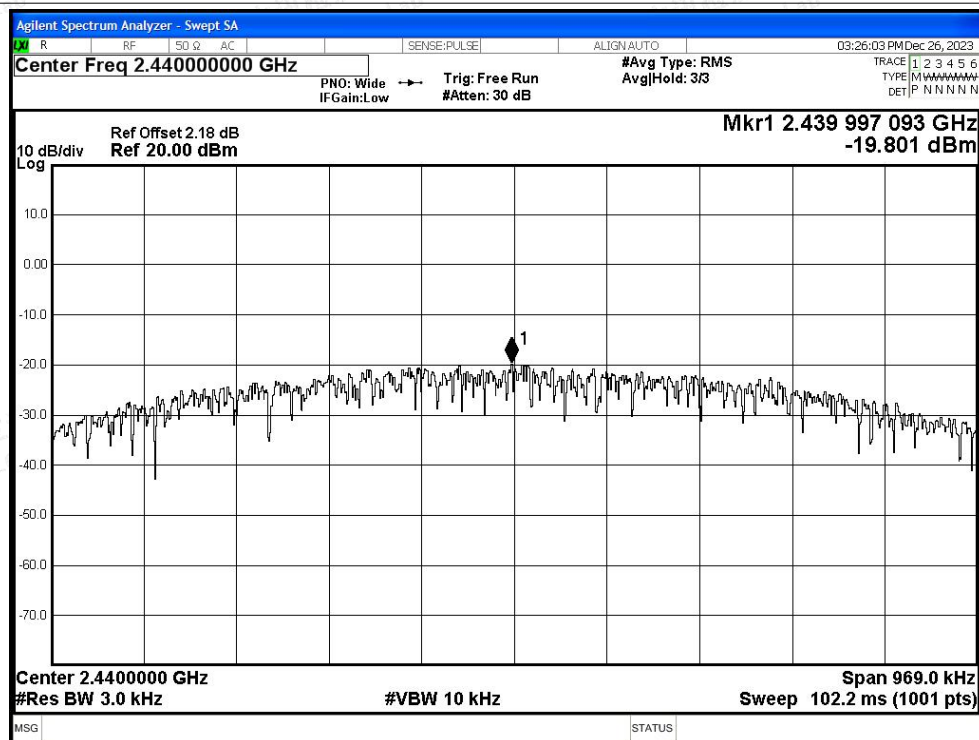


## Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2440MHz Ant1

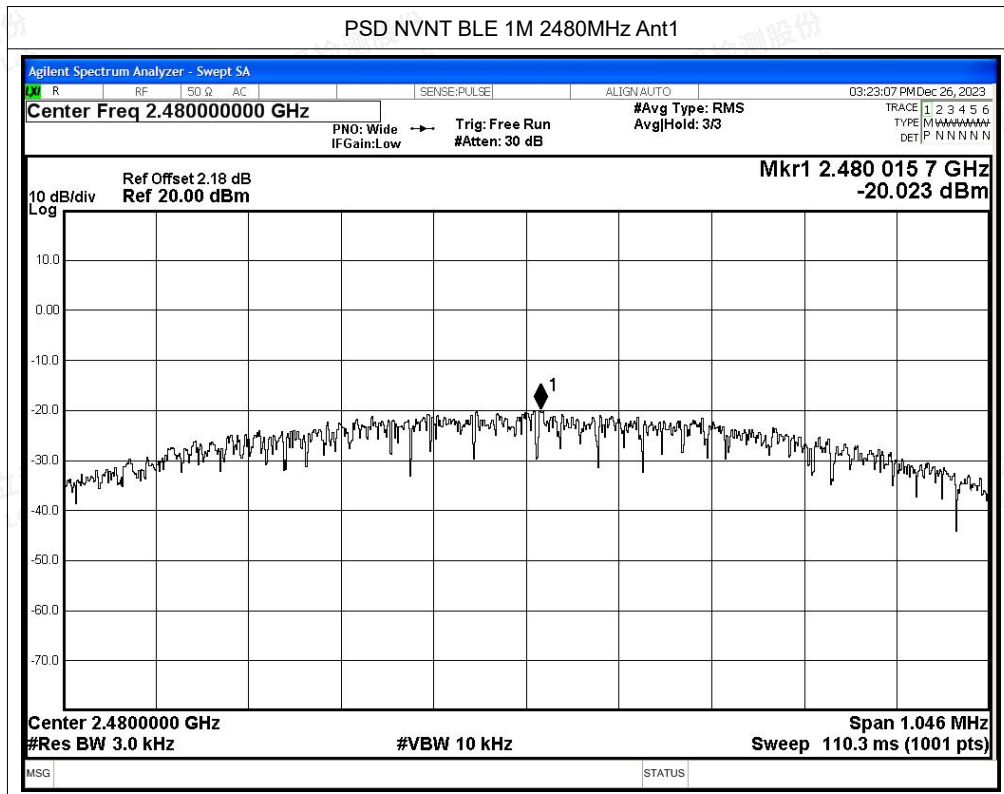


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## B.5 Band Edge

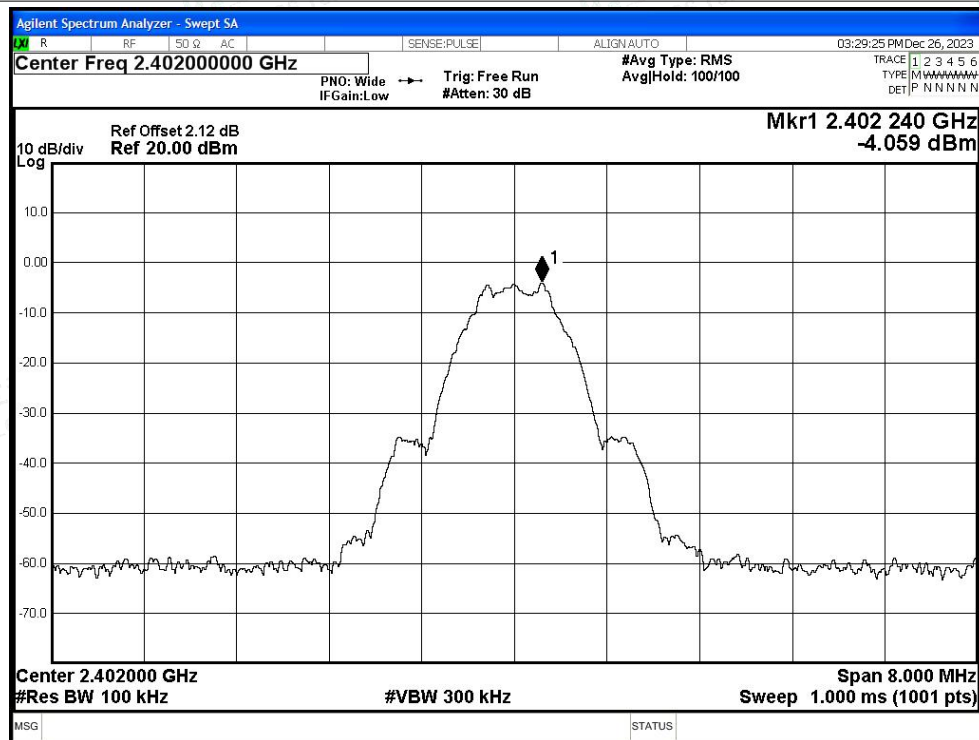
| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -52.06          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -52.35          | -20         | Pass    |



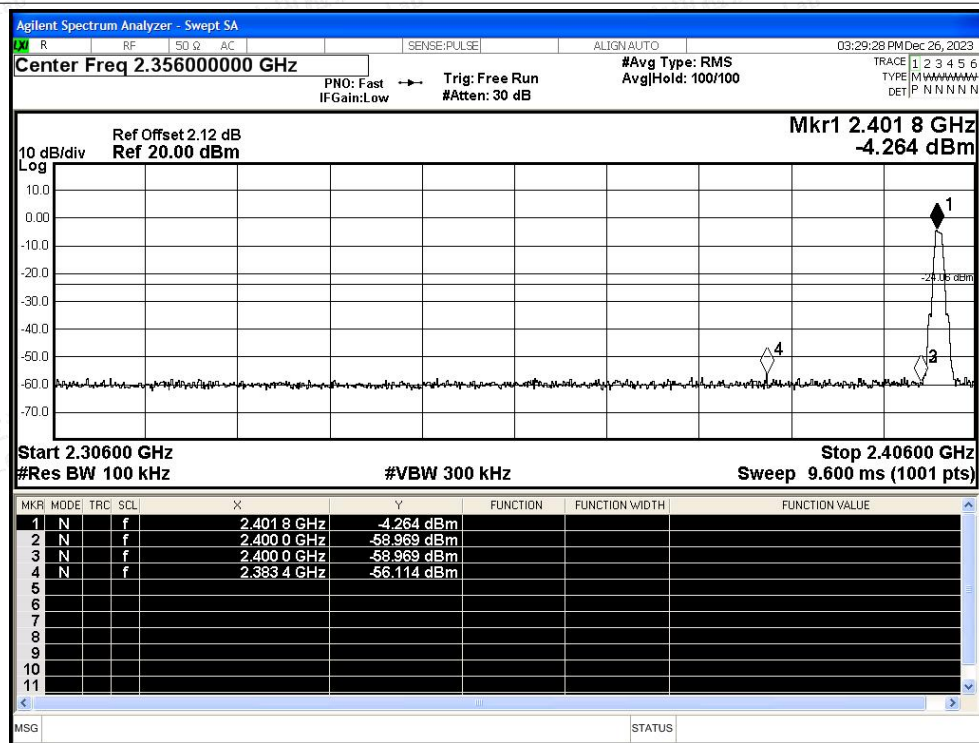


## Test Graphs

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



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



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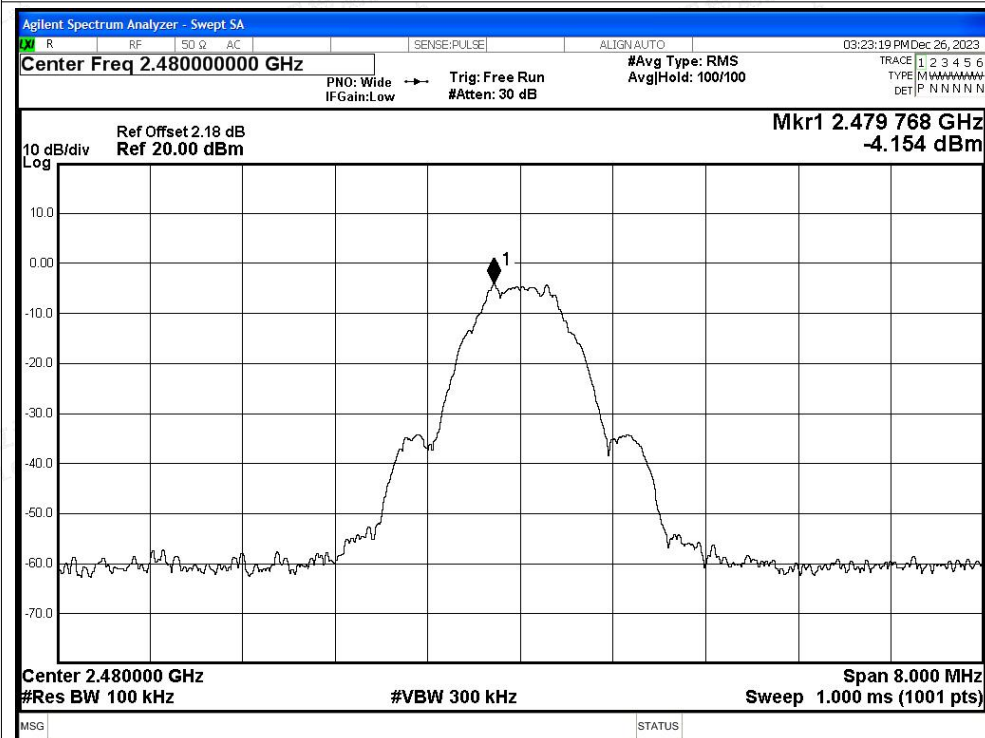
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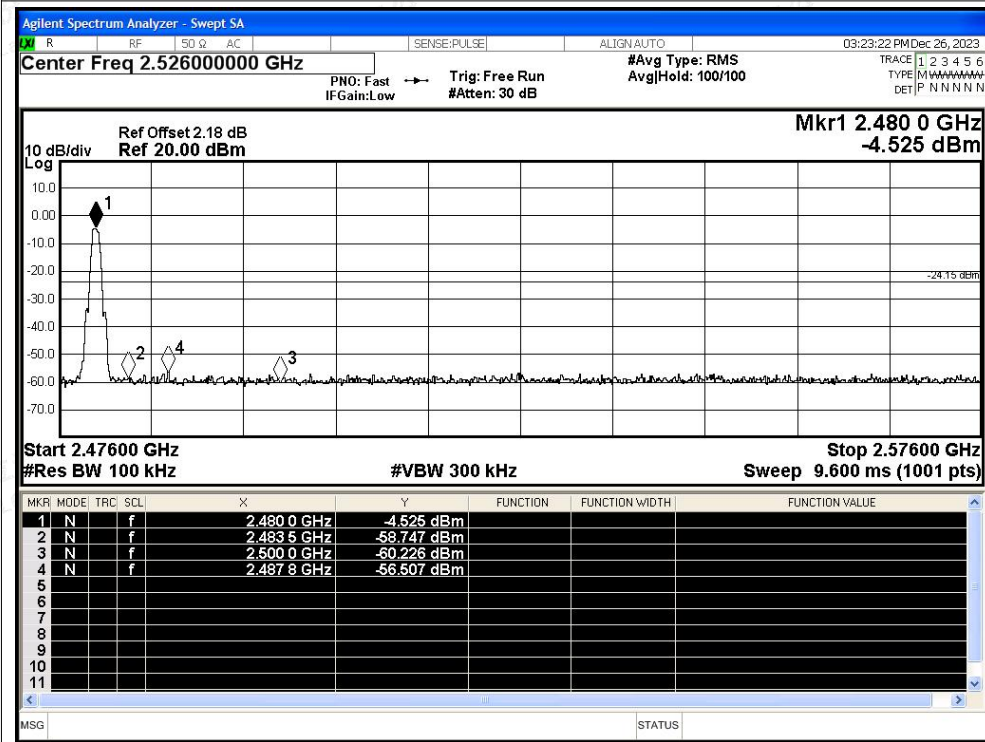




## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



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



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## B.6 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -50.54          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -51.89          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -51.36          | -20         | Pass    |



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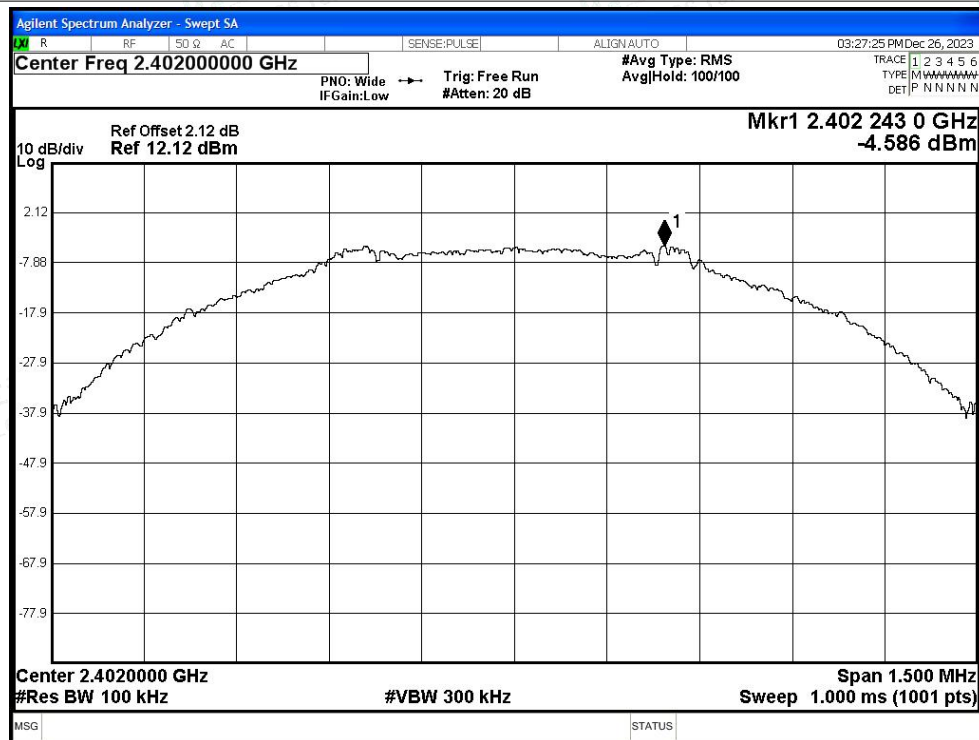
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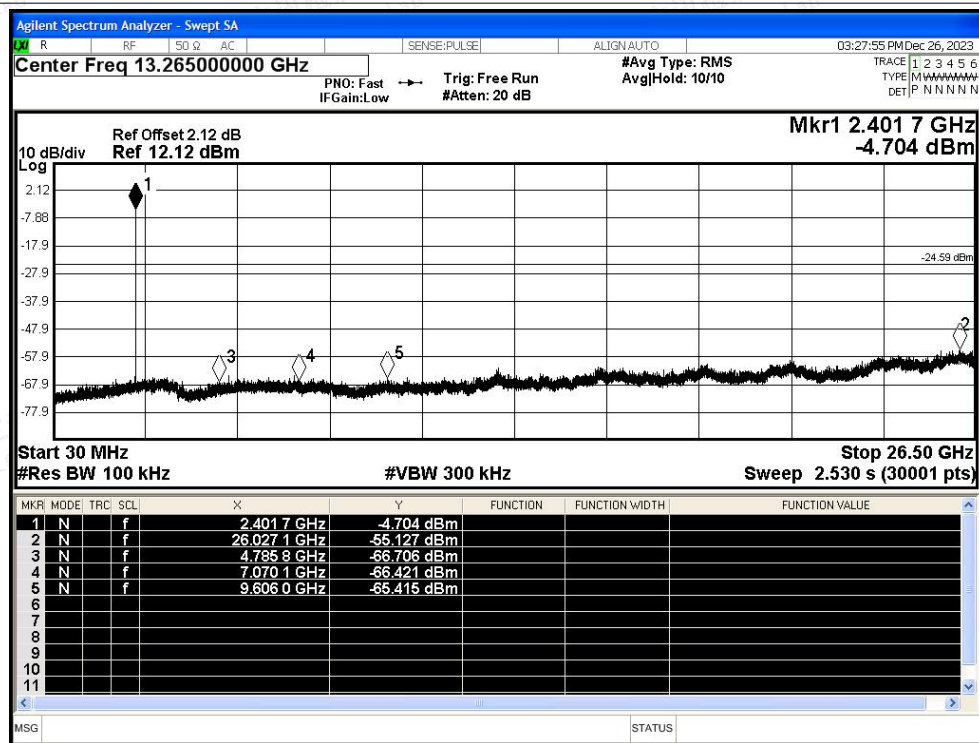


## Test Graphs

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



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



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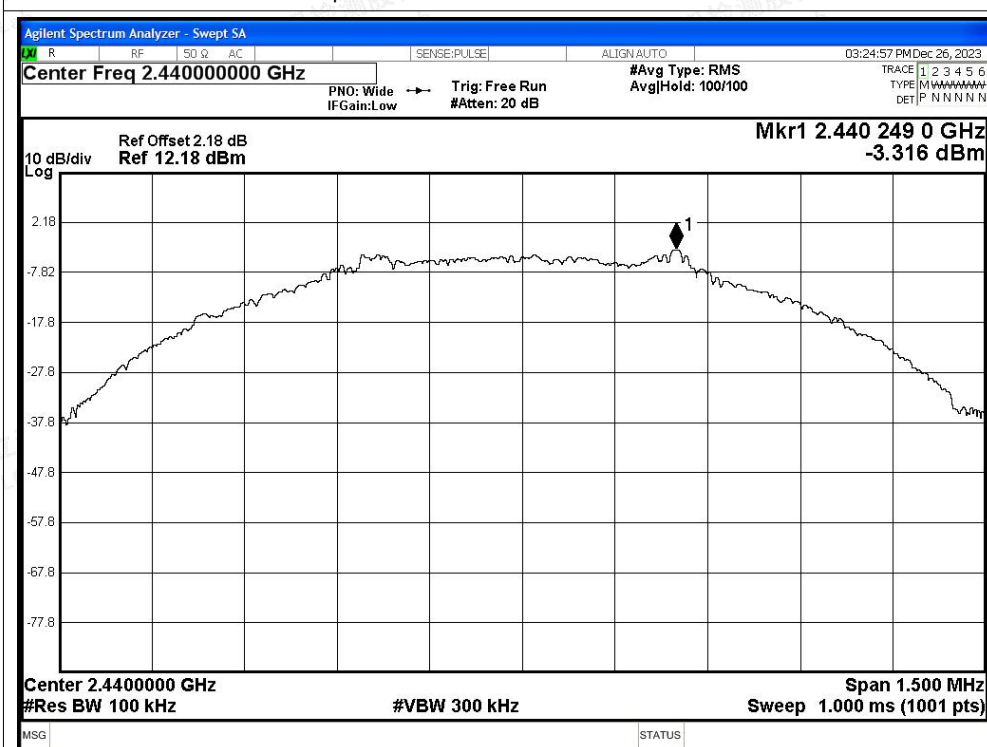
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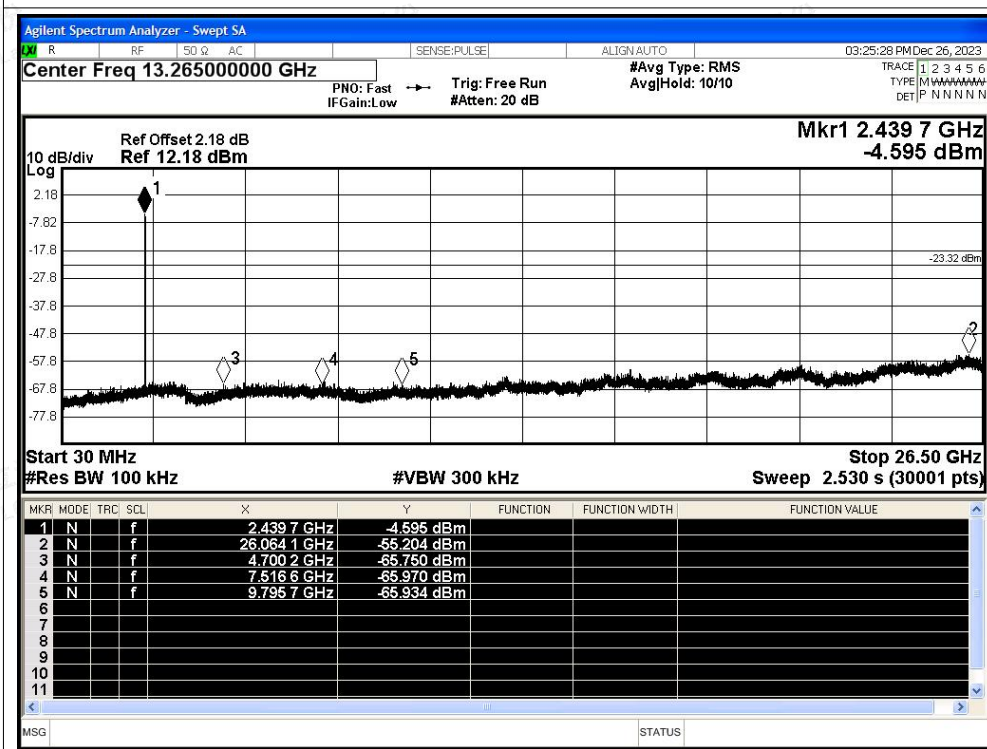
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## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



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



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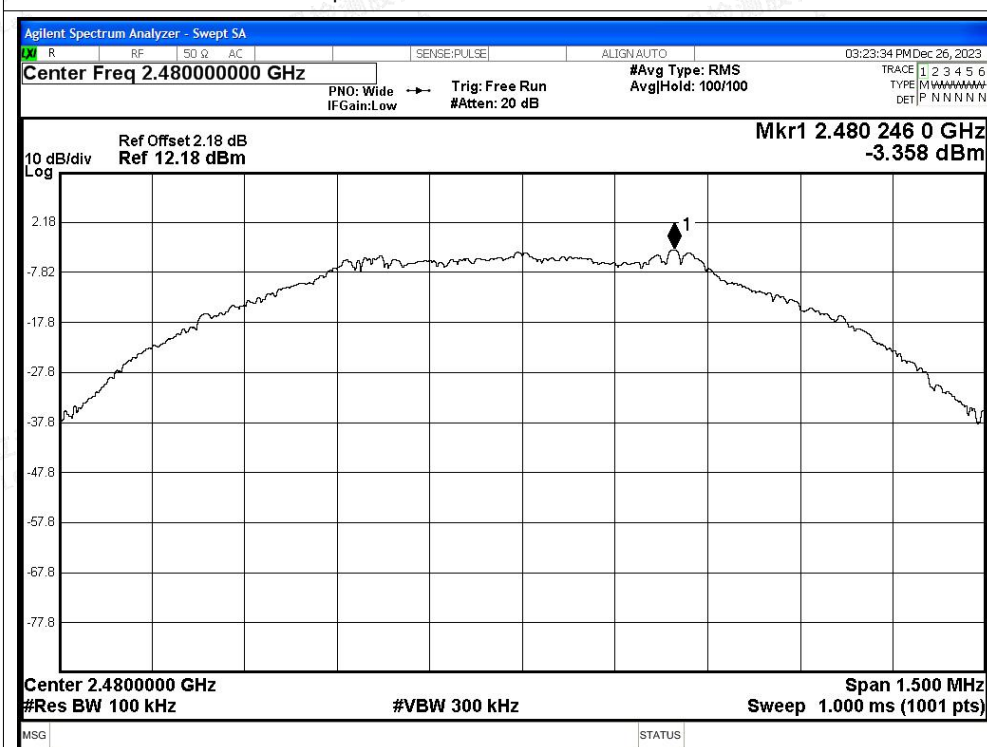
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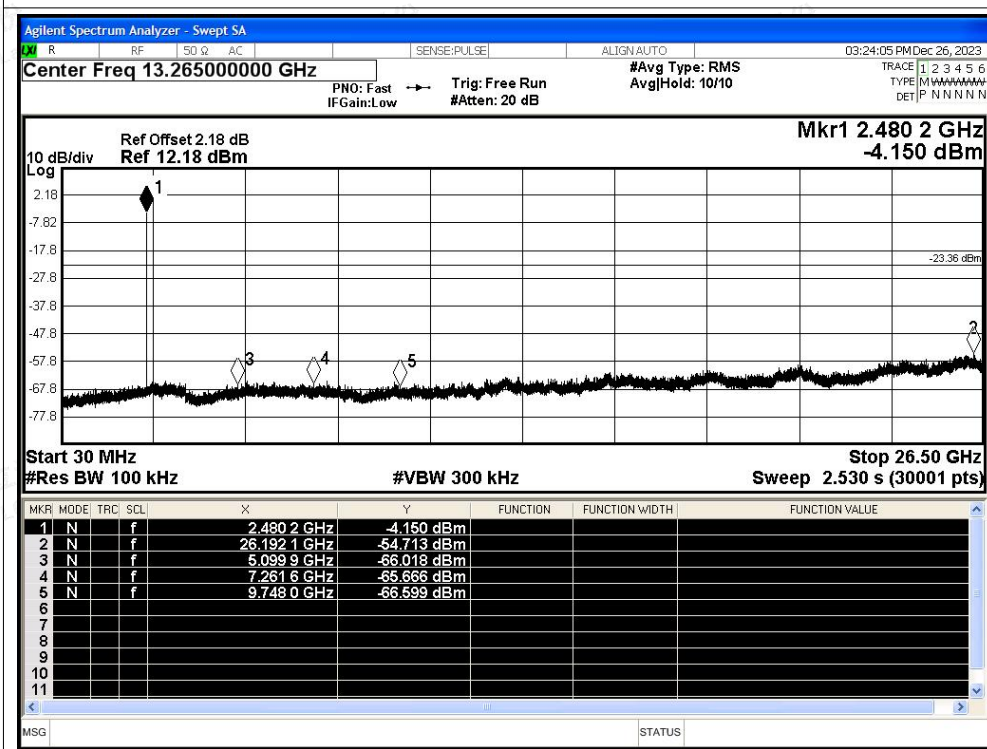
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## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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



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## B.7 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 85.1           | 0.7                    | 0.47      |
| NVNT      | BLE 1M | 2440            | Ant1    | 85.1           | 0.7                    | 0.47      |
| NVNT      | BLE 1M | 2480            | Ant1    | 85.1           | 0.7                    | 0.47      |



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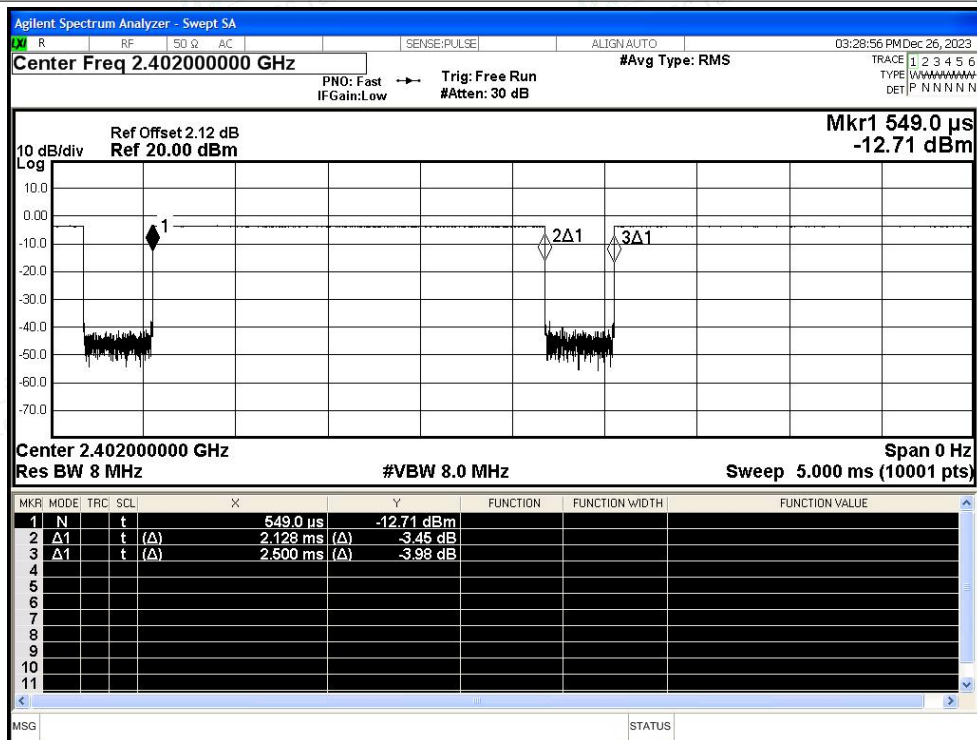
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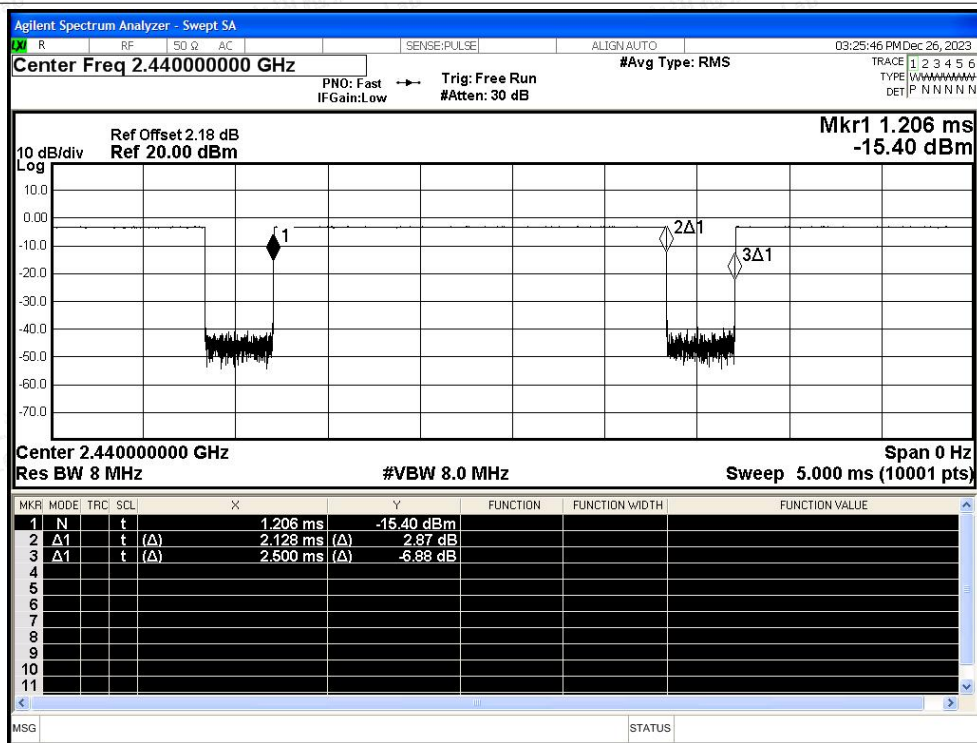


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1



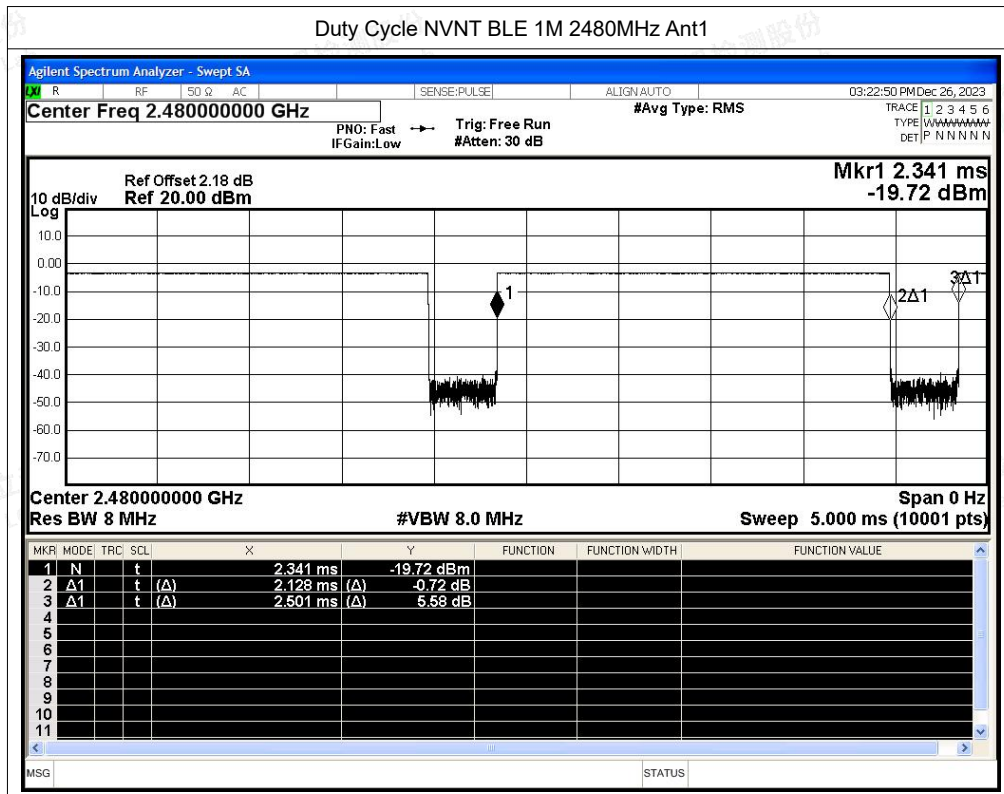
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## B.8 Restrict Band

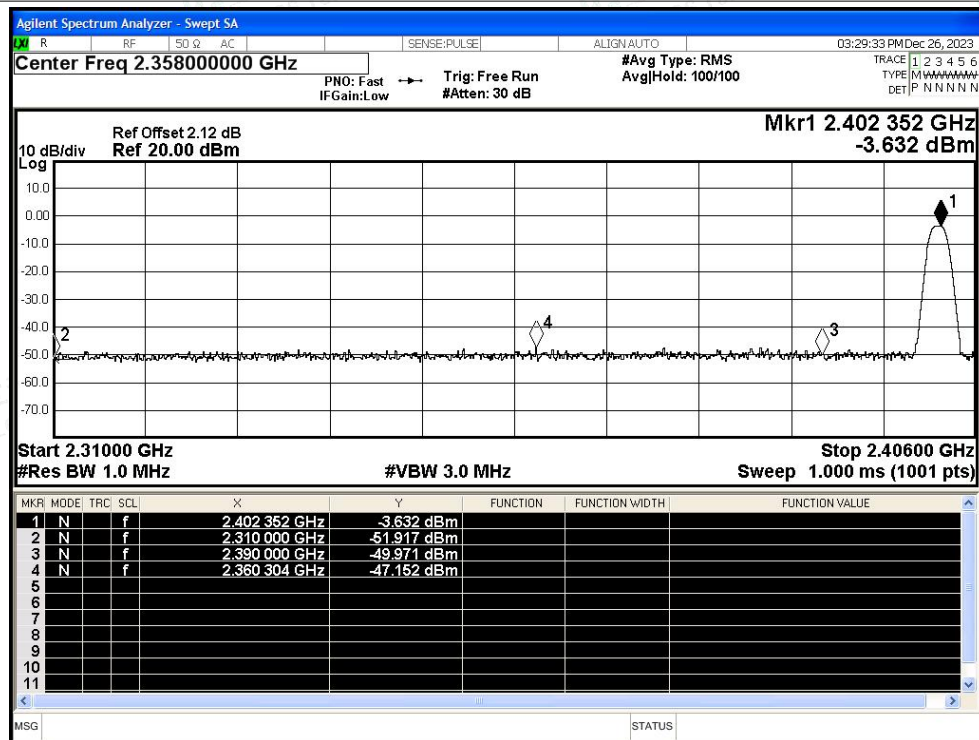
| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor (dB) | E (dBuV/m) | Detector | Limit (dBuV/m) |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------------|------------|----------|----------------|
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -51.92      | 2.5        | -                | 45.84      | Peak     | 74             |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -58.93      | 2.5        | 0.7              | 39.53      | Average  | 54             |
| NVNT      | BLE 1M | 2402            | Ant1    | 2360.304        | -47.15      | 2.5        | -                | 50.61      | Peak     | 74             |
| NVNT      | BLE 1M | 2402            | Ant1    | 2386.992        | -57.73      | 2.5        | 0.7              | 40.73      | Average  | 54             |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -49.97      | 2.5        | -                | 47.79      | Peak     | 74             |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -58.23      | 2.5        | 0.7              | 40.23      | Average  | 54             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -50.99      | 2.5        | -                | 46.77      | Peak     | 74             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -57.55      | 2.5        | 0.7              | 40.91      | Average  | 54             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2493.496        | -47.68      | 2.5        | -                | 50.08      | Peak     | 74             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2484.592        | -57.13      | 2.5        | 0.7              | 41.33      | Average  | 54             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -48.21      | 2.5        | -                | 49.55      | Peak     | 74             |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -58.17      | 2.5        | 0.7              | 40.29      | Average  | 54             |



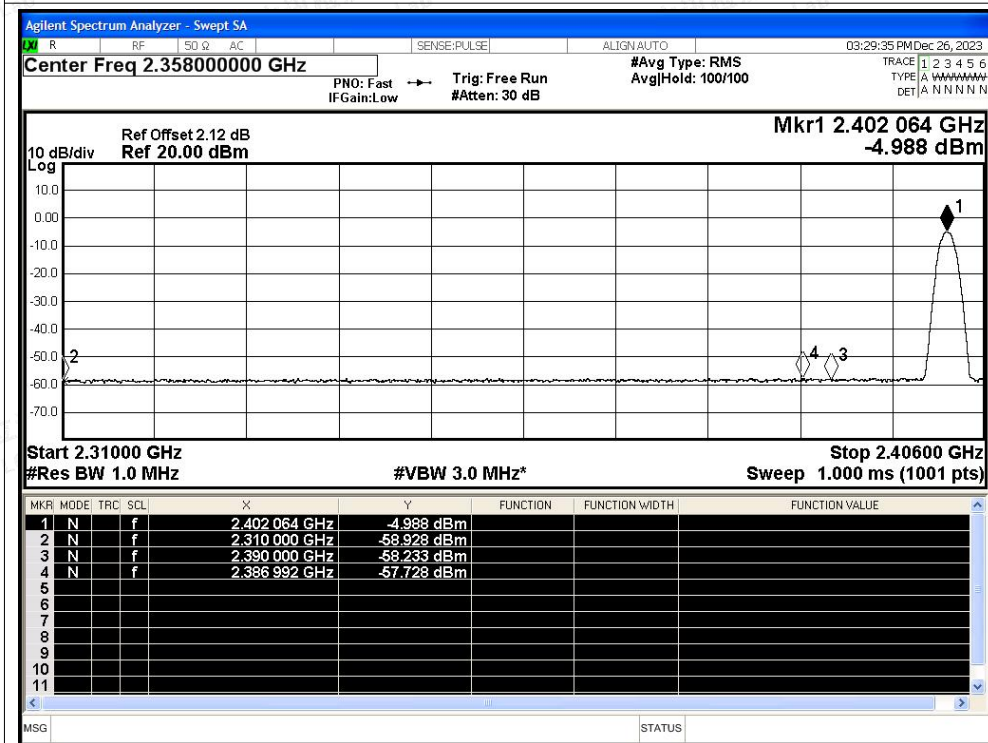


## Test Graphs

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



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

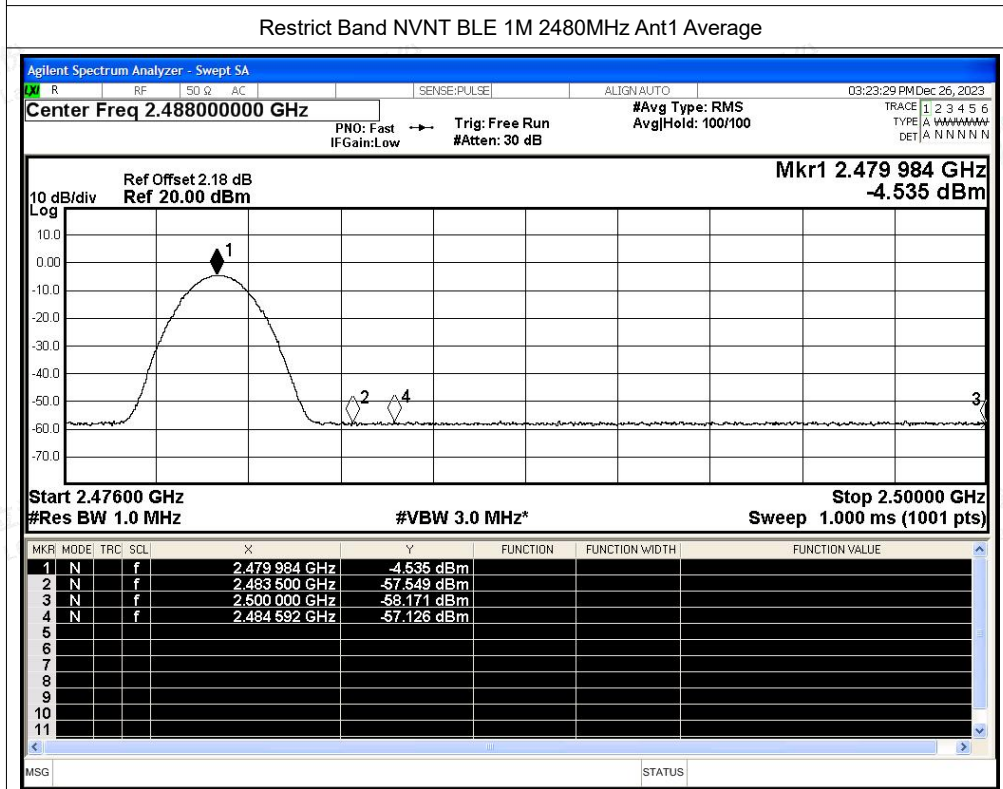
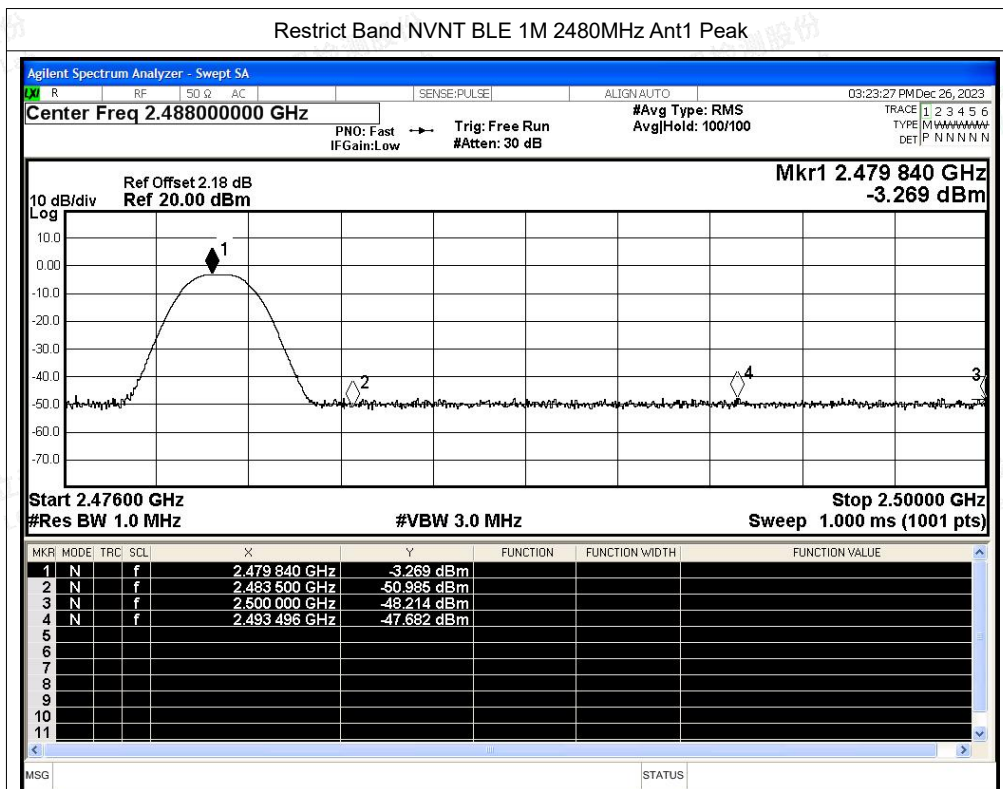


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