



Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Portable Power Station

Test Model: Singo 3000

Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.8°C    |
| Relative Humidity: | 52.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Jay Luo   |
| Supervised by:     | Nick Peng |





### B.1 -6dB Bandwidth

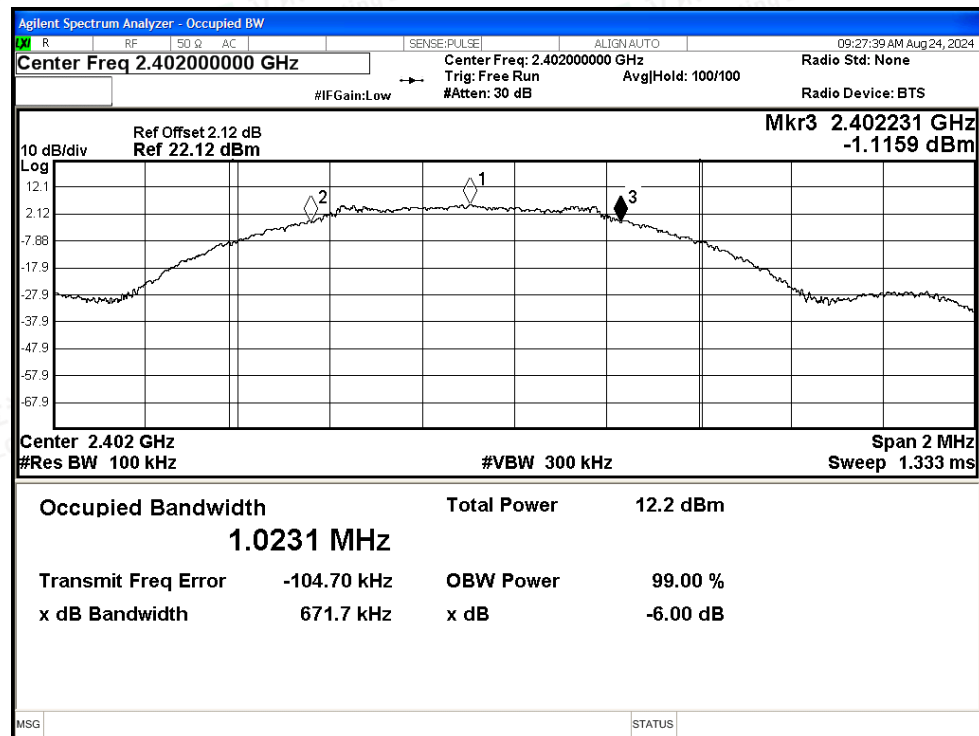
| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.672                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.658                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.7                   | $\geq 0.5$                  | Pass    |



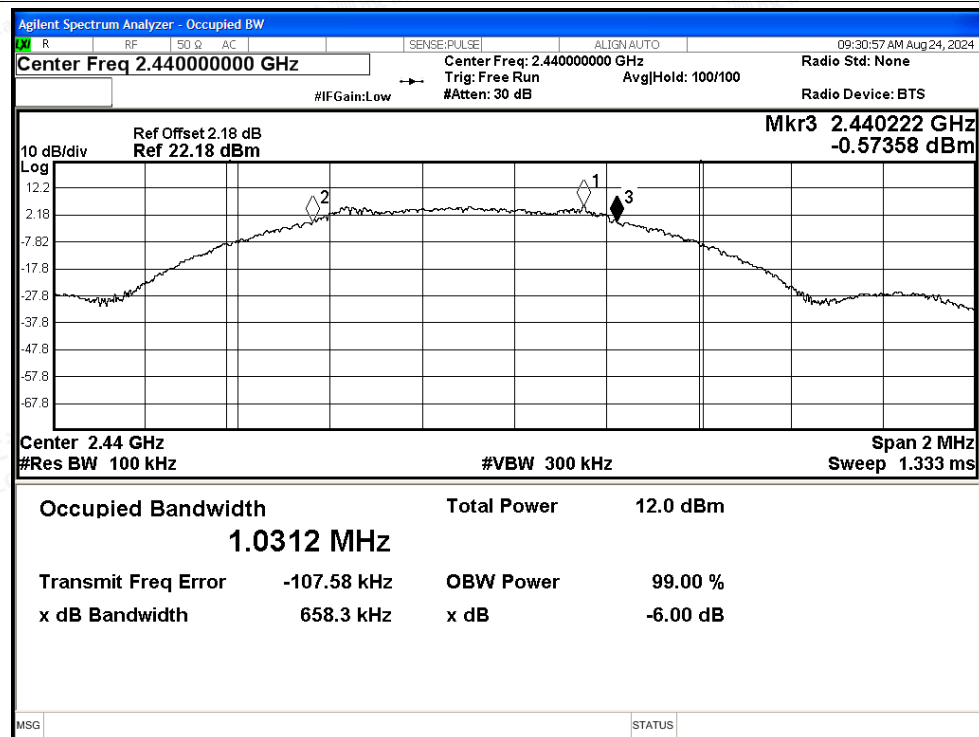


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

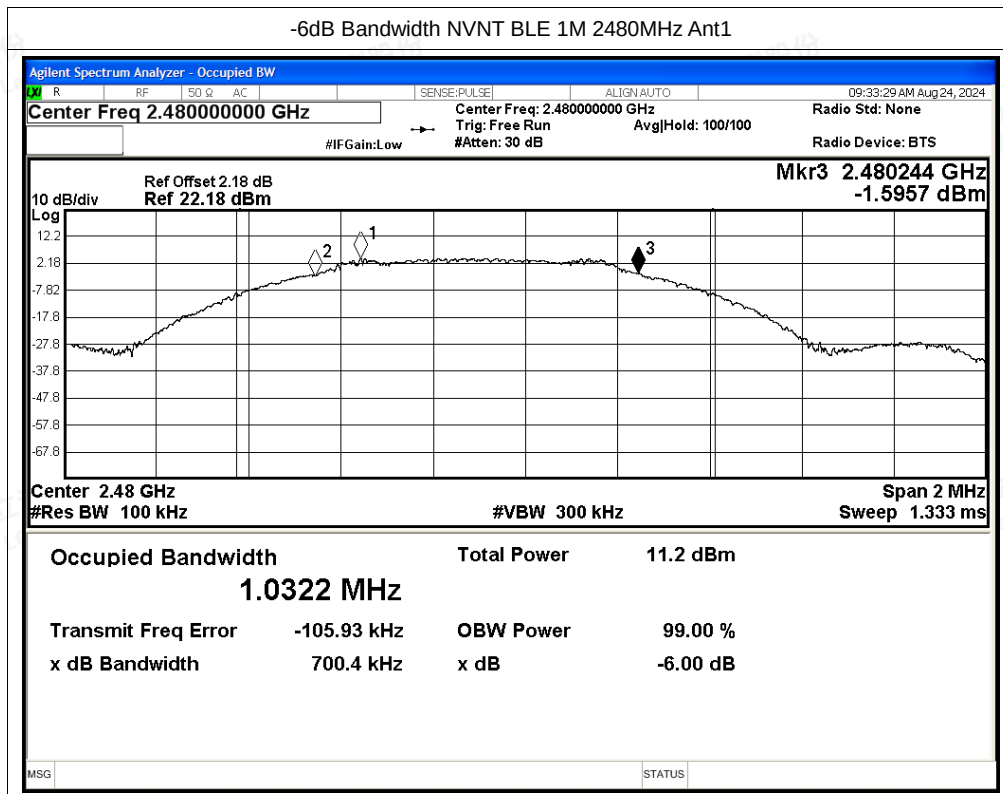


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B.2 Maximum Peak Conducted Output Power

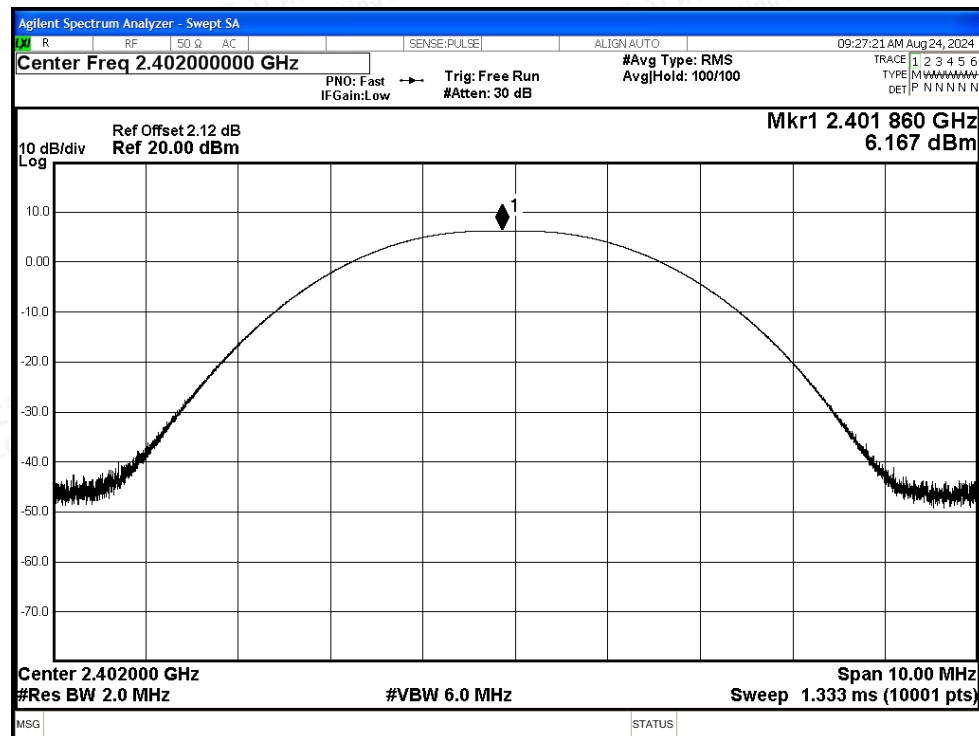
| Condition | Mode   | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 6.17                  | 30          | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 6.03                  | 30          | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 5.17                  | 30          | Pass    |



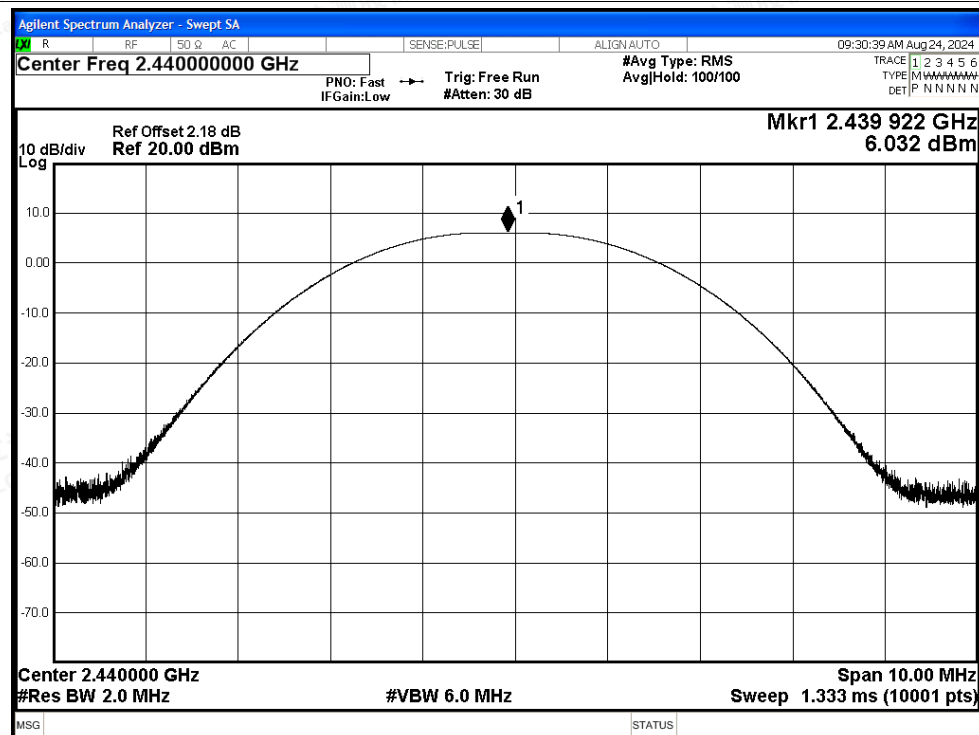


## Test Graphs

Power NVNT BLE 1M 2402MHz Ant1



Power NVNT BLE 1M 2440MHz Ant1

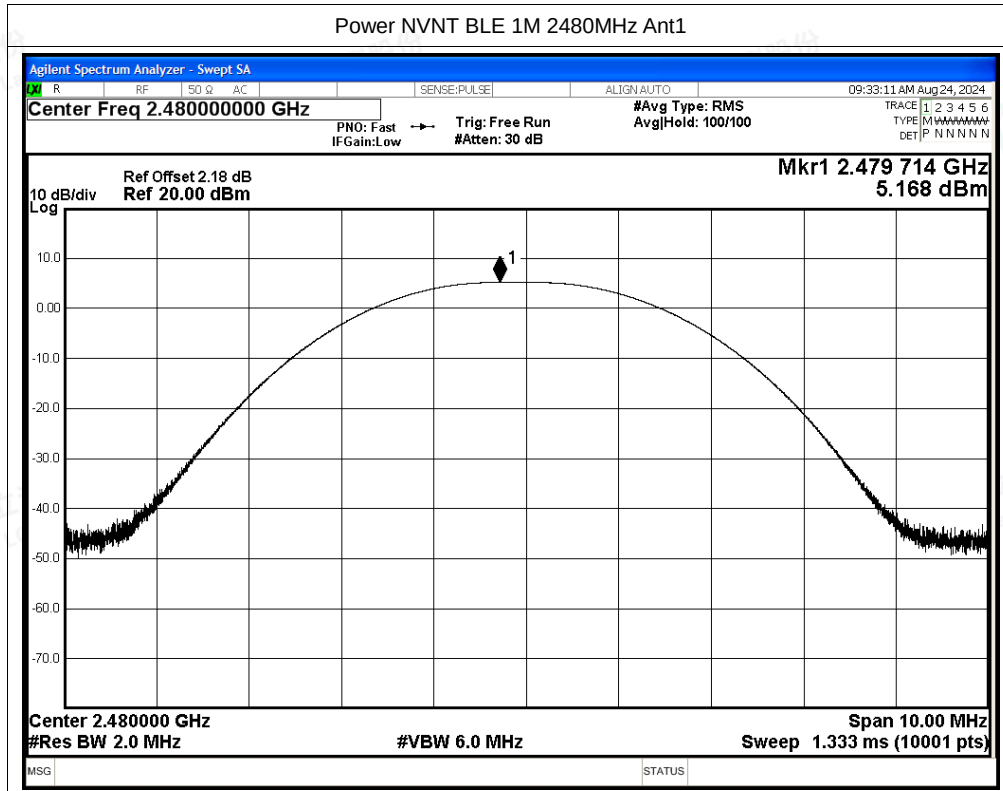


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### B.3 Maximum Power Spectral Density Level

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|--------------------------|------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -5.73                    | 8                | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -6.04                    | 8                | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -6.41                    | 8                | Pass    |

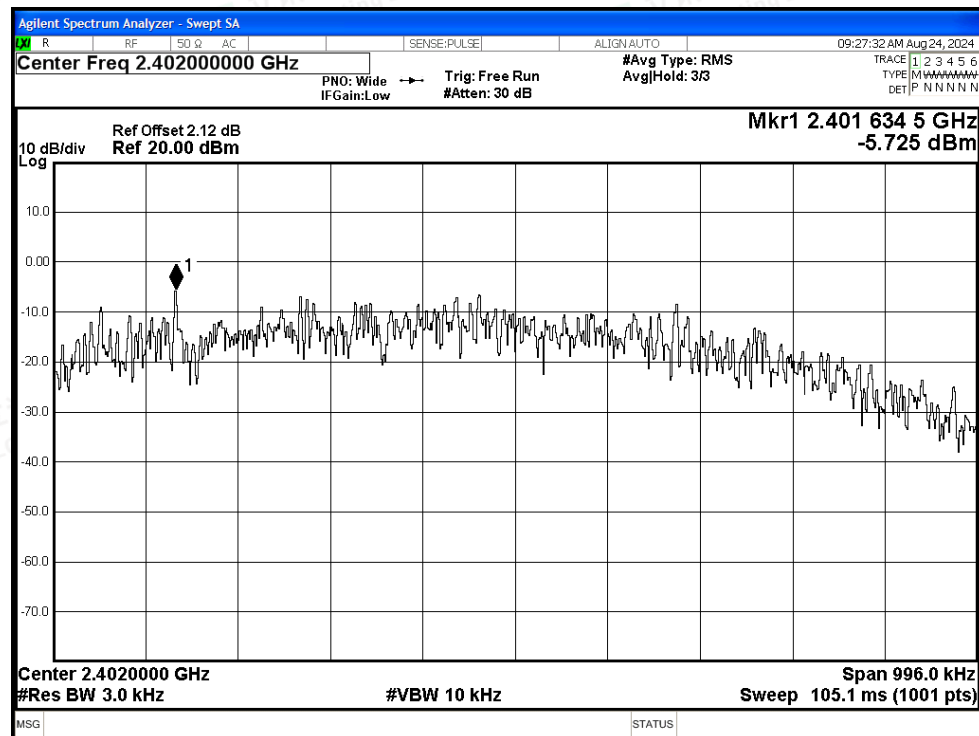




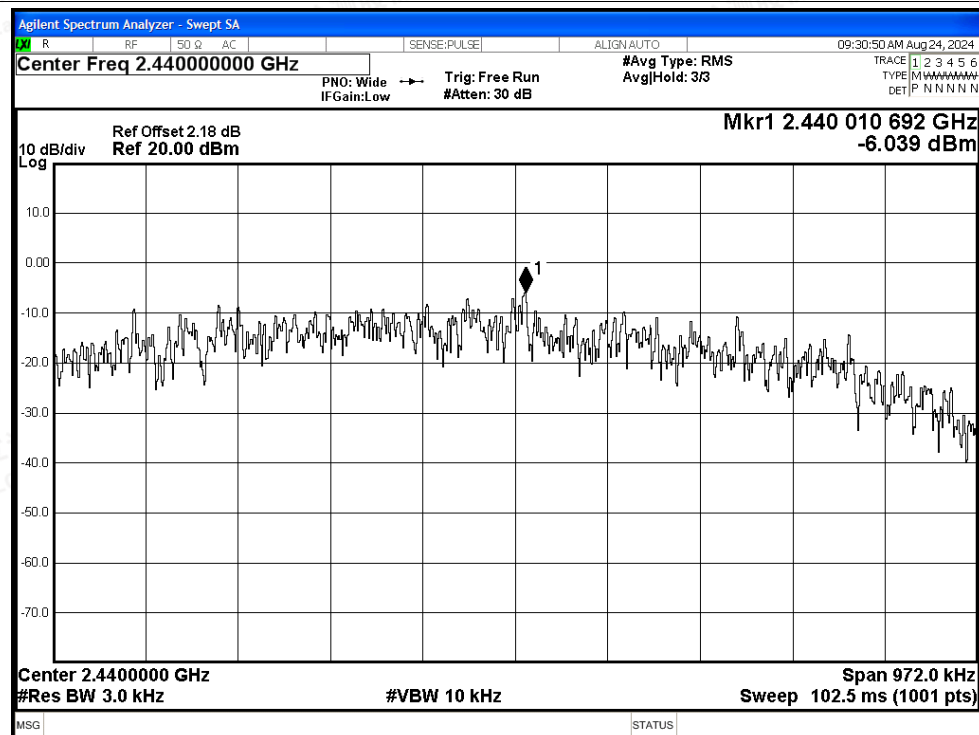


## Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2440MHz Ant1

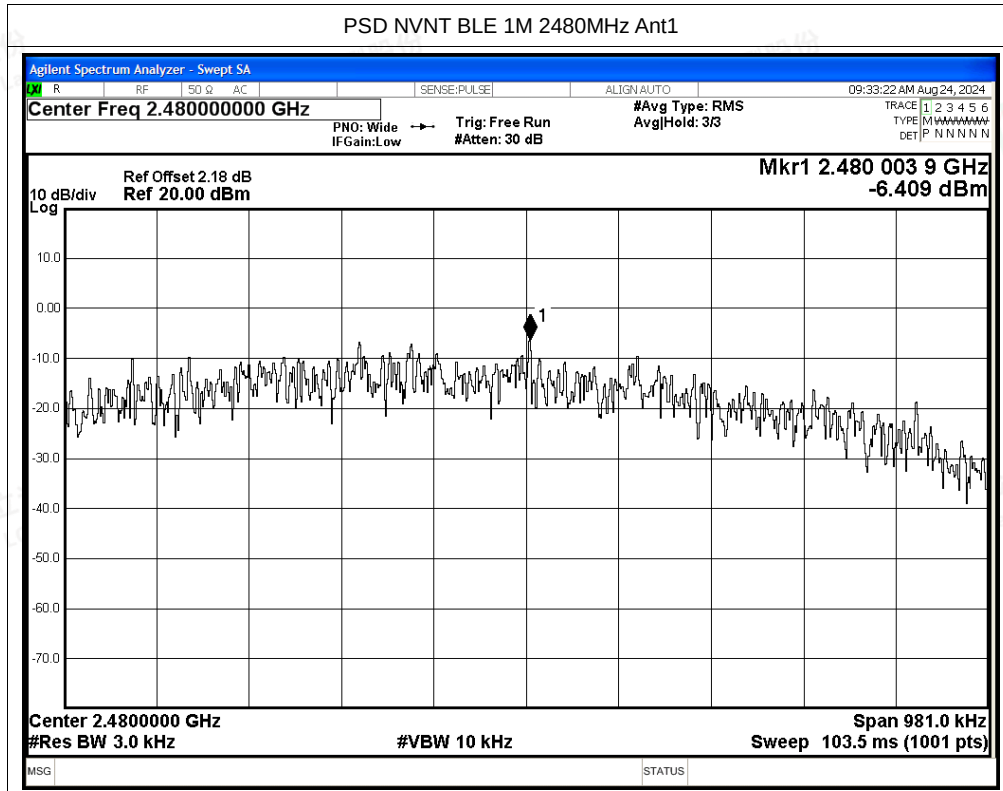


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B. 4 Band Edge

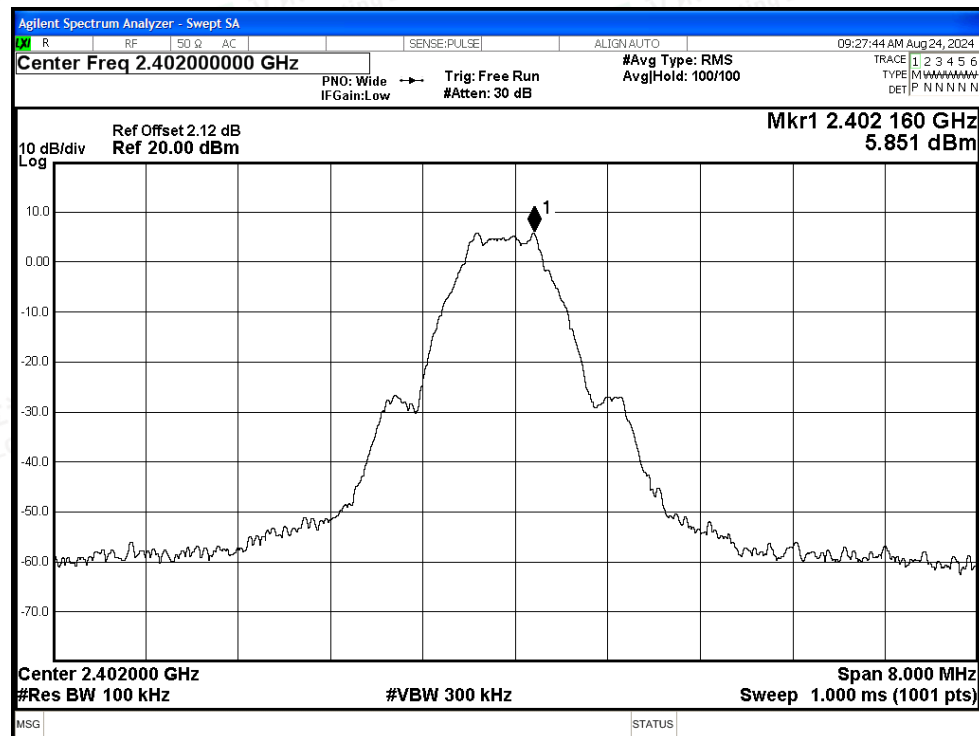
| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -59             | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -60.79          | -20         | Pass    |



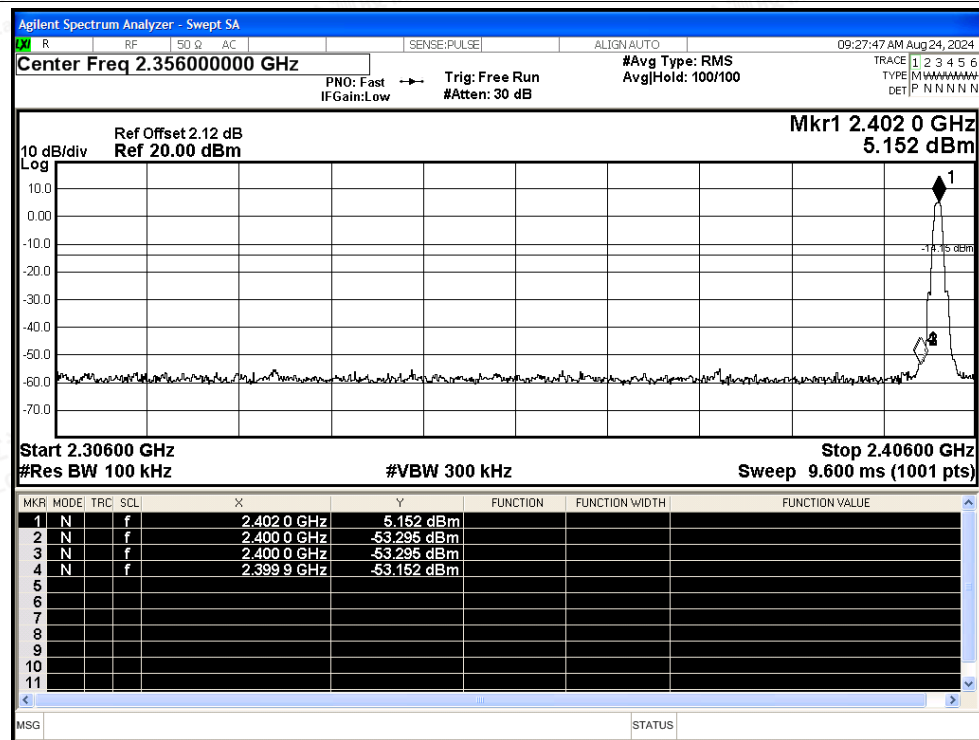


## Test Graphs

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



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

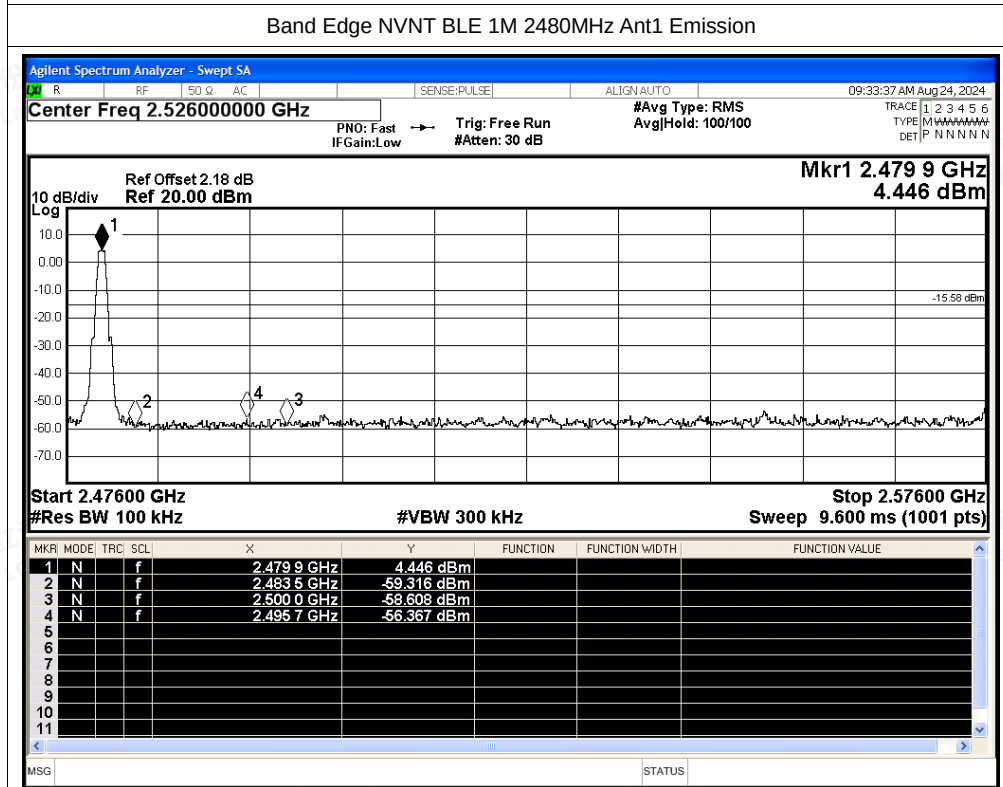
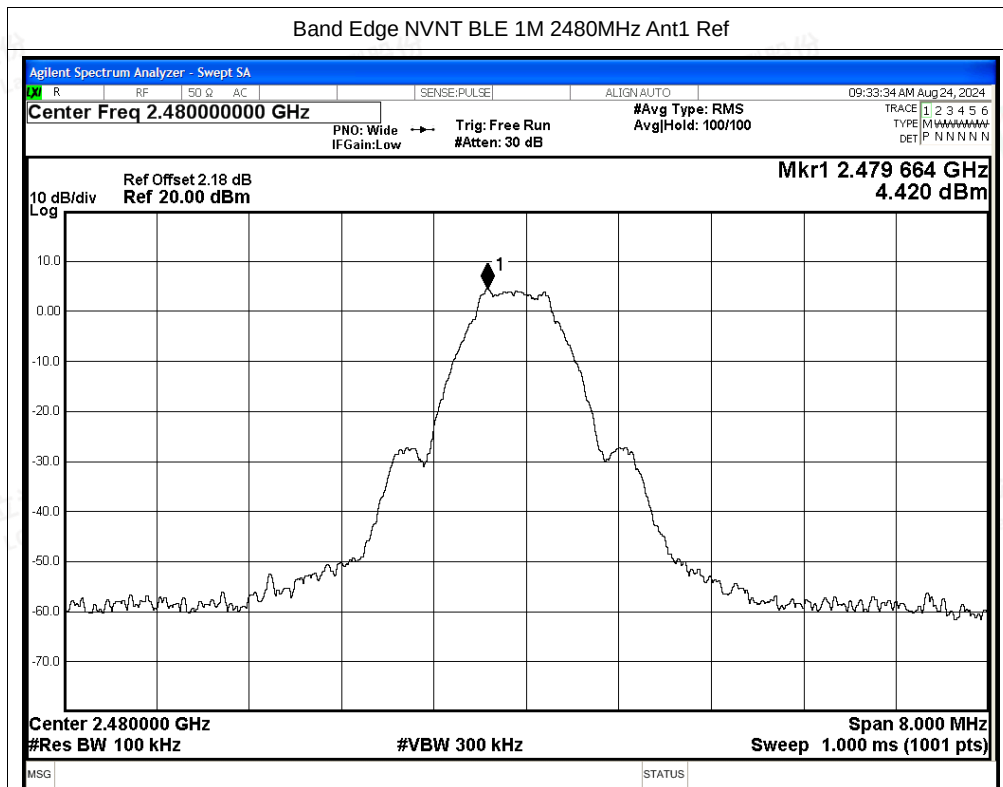


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## B.5 Conducted RF Spurious Emission

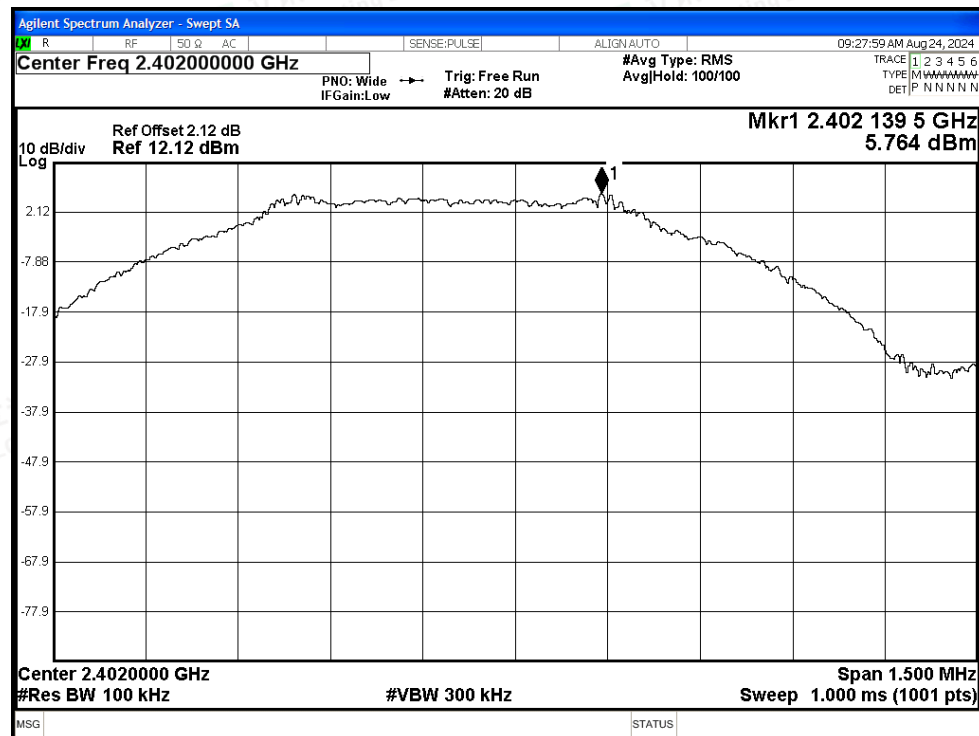
| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -45.01          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -45.48          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -47.49          | -20         | Pass    |



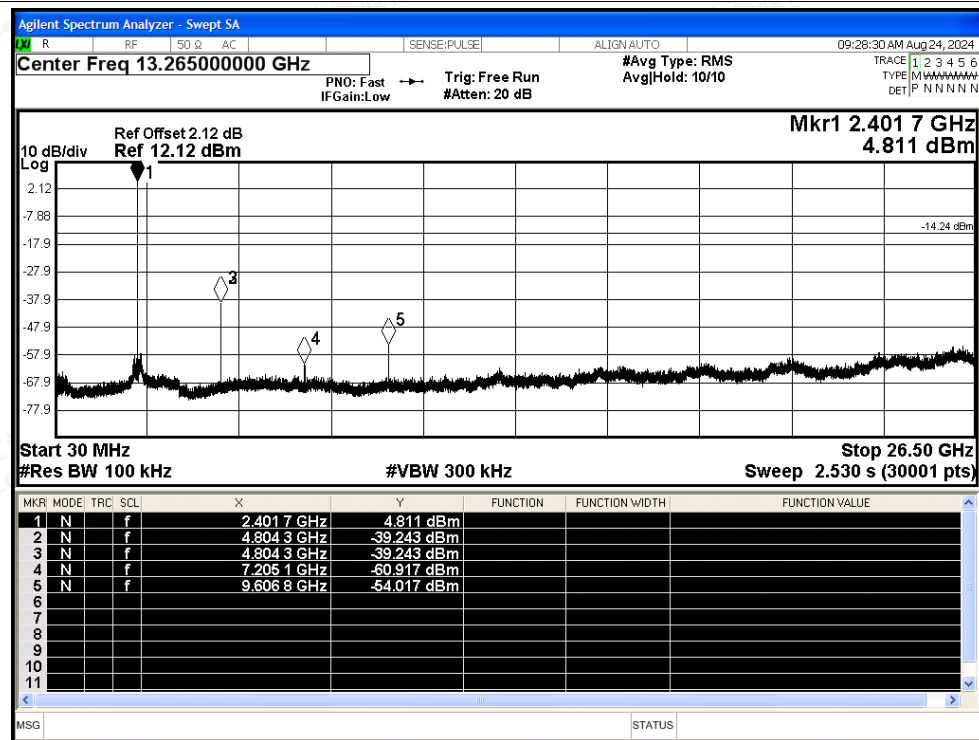


## Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



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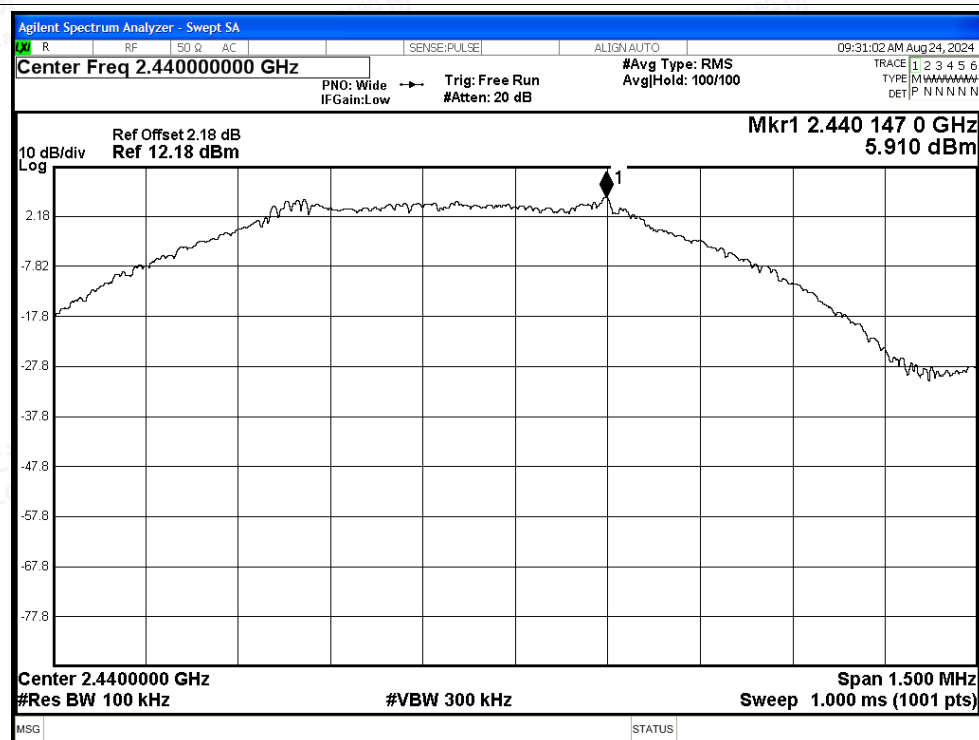
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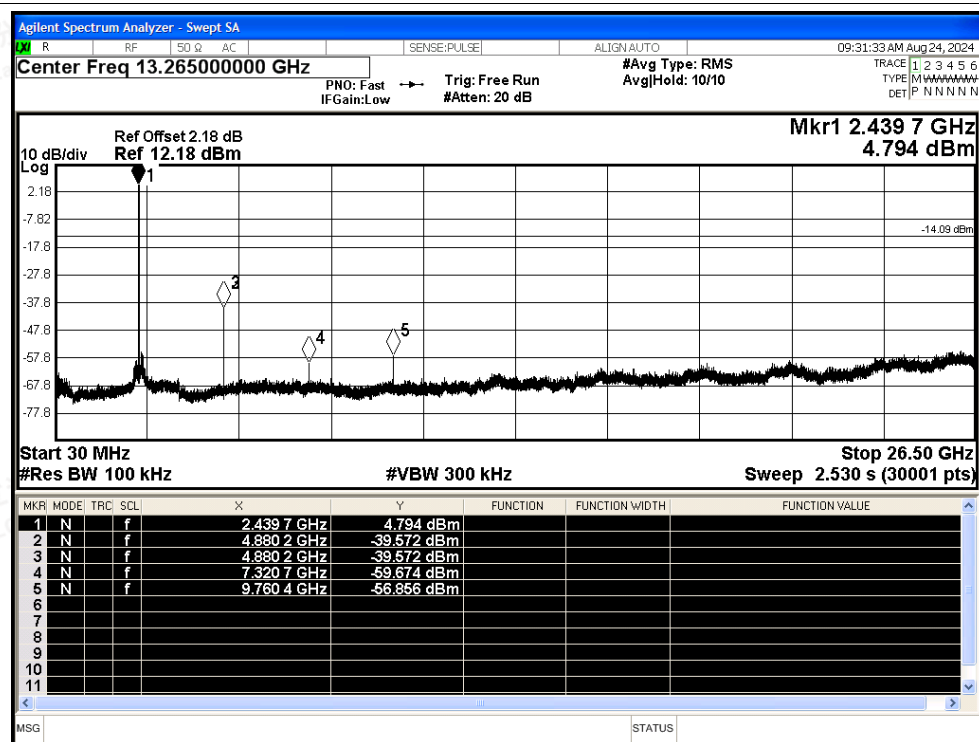
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## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



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



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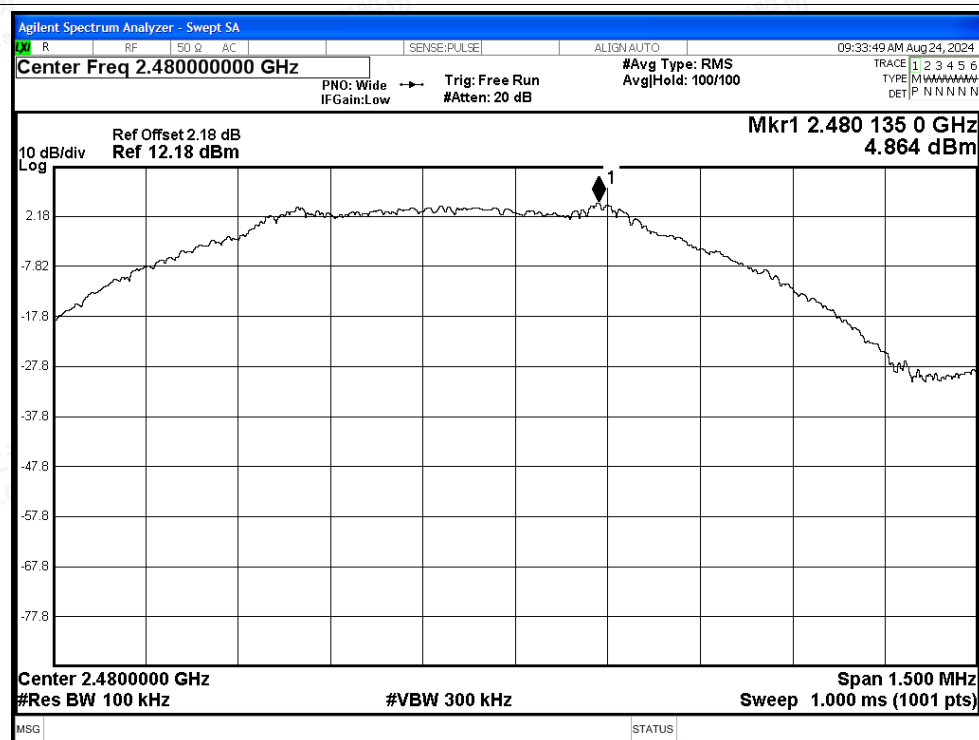
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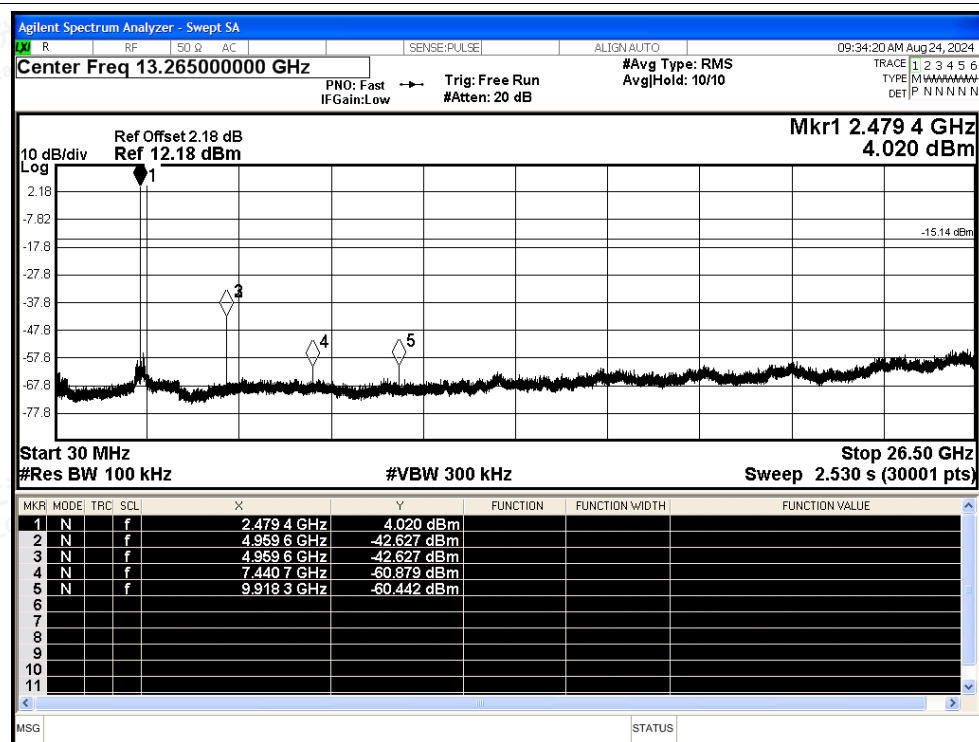




## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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



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## B.6 Duty Cycle

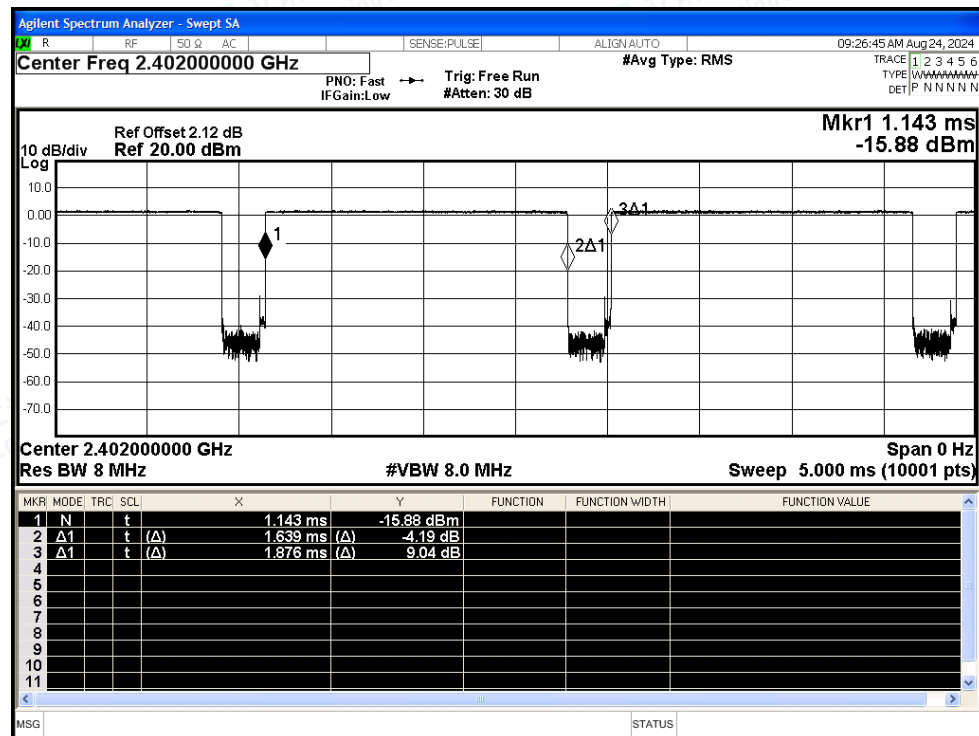
| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 87.39          | 0.59                   | 0.61      |
| NVNT      | BLE 1M | 2440            | Ant1    | 87.41          | 0.58                   | 0.61      |
| NVNT      | BLE 1M | 2480            | Ant1    | 87.41          | 0.58                   | 0.61      |



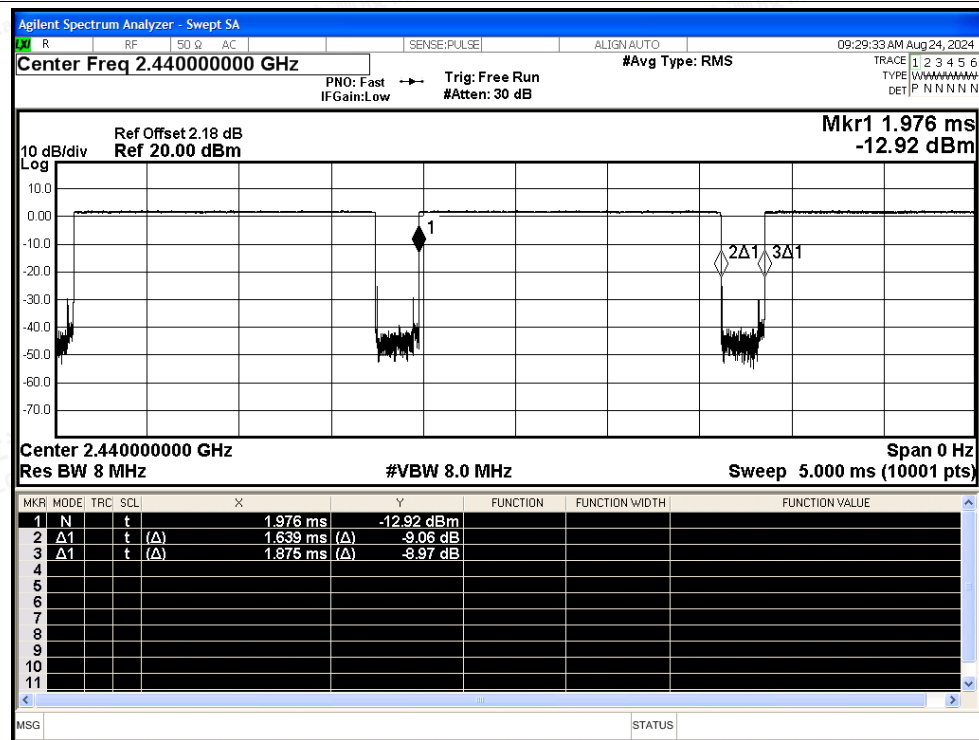


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1

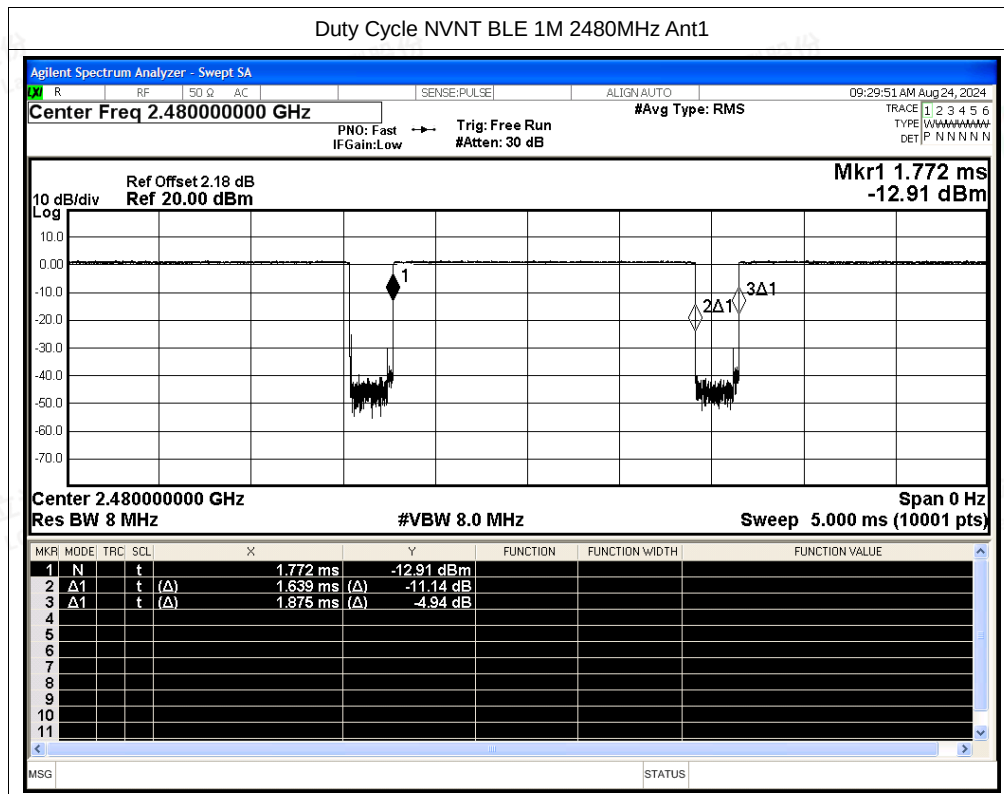


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## B.7 Restrict Band

| Condition | Mode   | Frequency<br>(MHz) | Antenna | 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 |
|-----------|--------|--------------------|---------|-----------------------|----------------|---------------|------------------------|---------------|----------|-------------------|---------|
| NVNT      | BLE 1M | 2402               | Ant1    | 2310                  | -46.51         | 2             | -                      | 50.75         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2402               | Ant1    | 2310                  | -56.1          | 2             | 0.59                   | 41.75         | Average  | 54                | Pass    |
| NVNT      | BLE 1M | 2402               | Ant1    | 2361.264              | -45.35         | 2             | -                      | 51.91         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2402               | Ant1    | 2330.256              | -54.68         | 2             | 0.59                   | 43.17         | Average  | 54                | Pass    |
| NVNT      | BLE 1M | 2402               | Ant1    | 2390                  | -49.7          | 2             | -                      | 47.56         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2402               | Ant1    | 2390                  | -57.96         | 2             | 0.59                   | 39.89         | Average  | 54                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2483.5                | -49.66         | 2             | -                      | 47.60         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2483.5                | -57.03         | 2             | 0.58                   | 40.81         | Average  | 54                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2498.416              | -44.75         | 2             | -                      | 52.51         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2495.68               | -55.92         | 2             | 0.58                   | 41.92         | Average  | 54                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2500                  | -49.34         | 2             | -                      | 47.92         | Peak     | 74                | Pass    |
| NVNT      | BLE 1M | 2480               | Ant1    | 2500                  | -57.06         | 2             | 0.58                   | 40.78         | Average  | 54                | Pass    |



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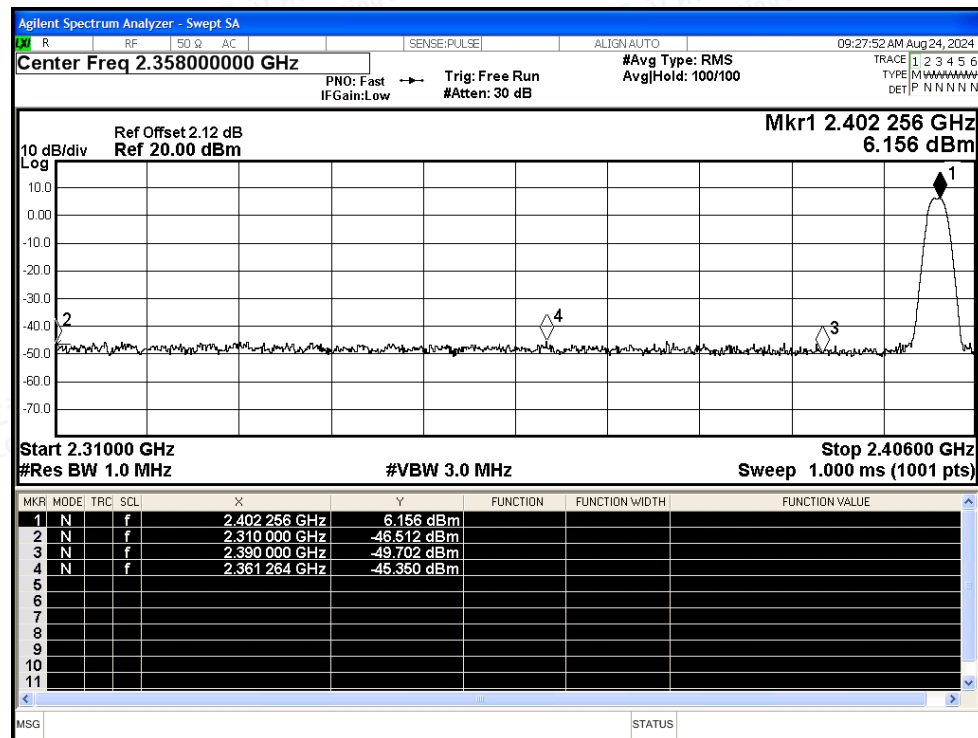
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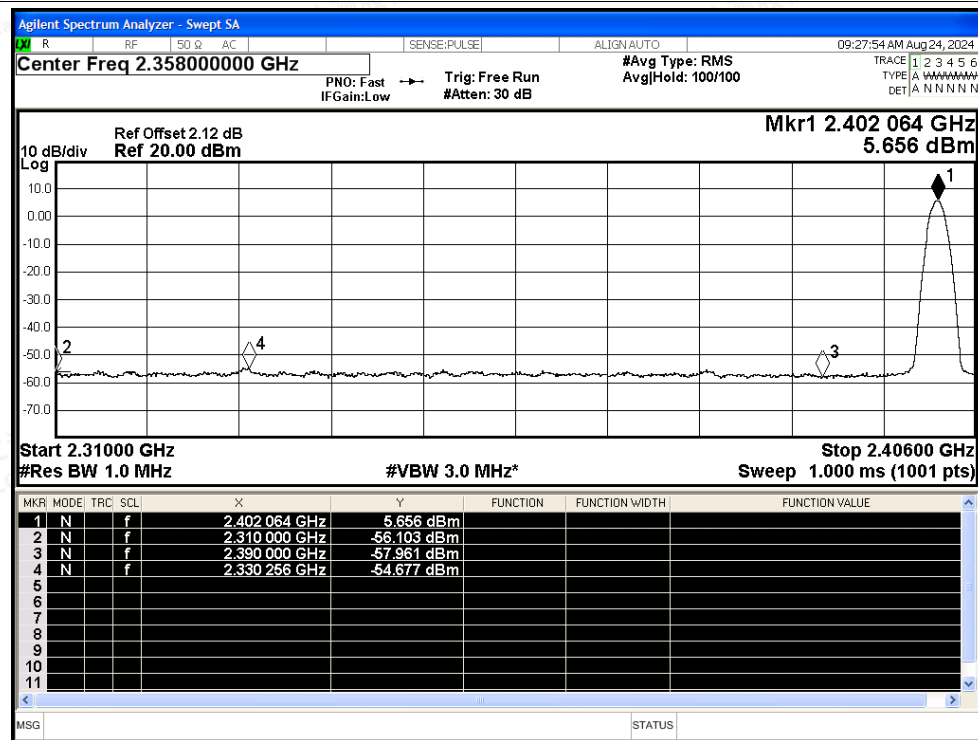


## Test Graphs

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



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



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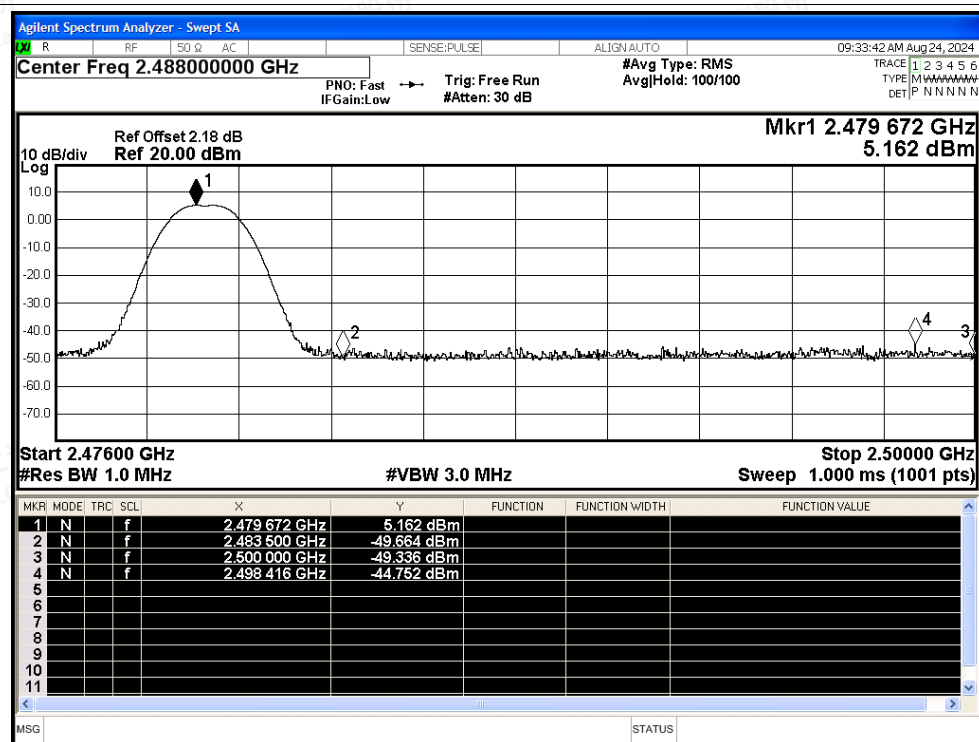
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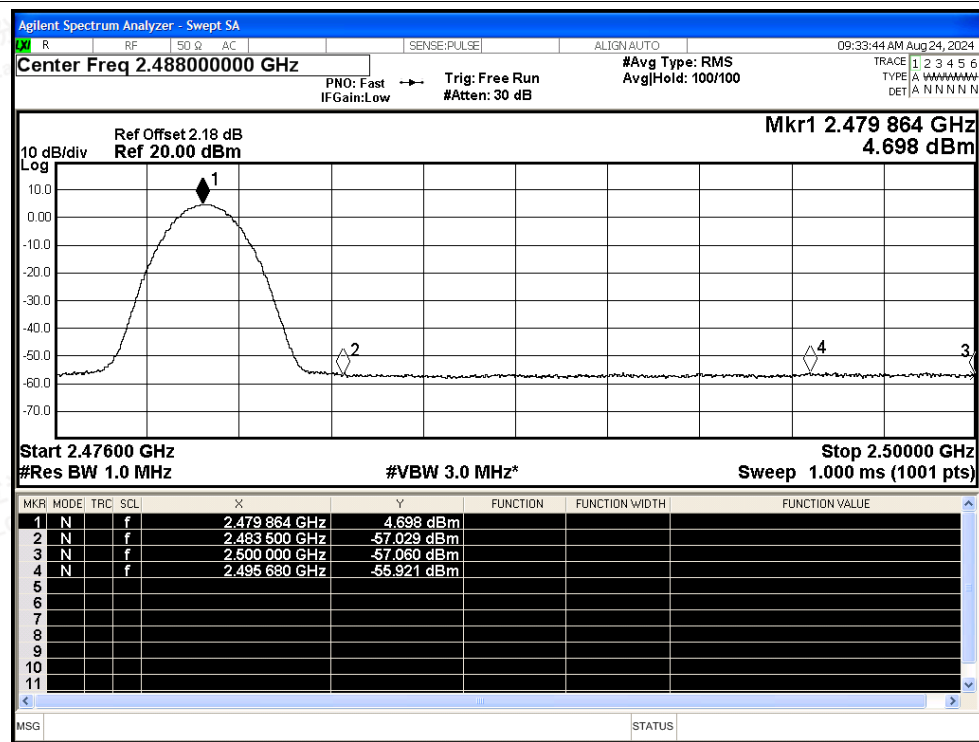
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## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



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



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