



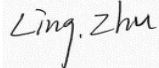
## Appendix B

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

Product Name: Module

Test Model: MW-4

#### Environmental Conditions

|                    |                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------|
| Temperature:       | 23.5℃                                                                                           |
| Relative Humidity: | 52.2%                                                                                           |
| ATM Pressure:      | 100.0 kPa                                                                                       |
| Test Engineer:     | <br>Ling Zhu  |
| Supervised by:     | <br>Li Huan |





## B.1 DTS Bandwidth

### Test Result

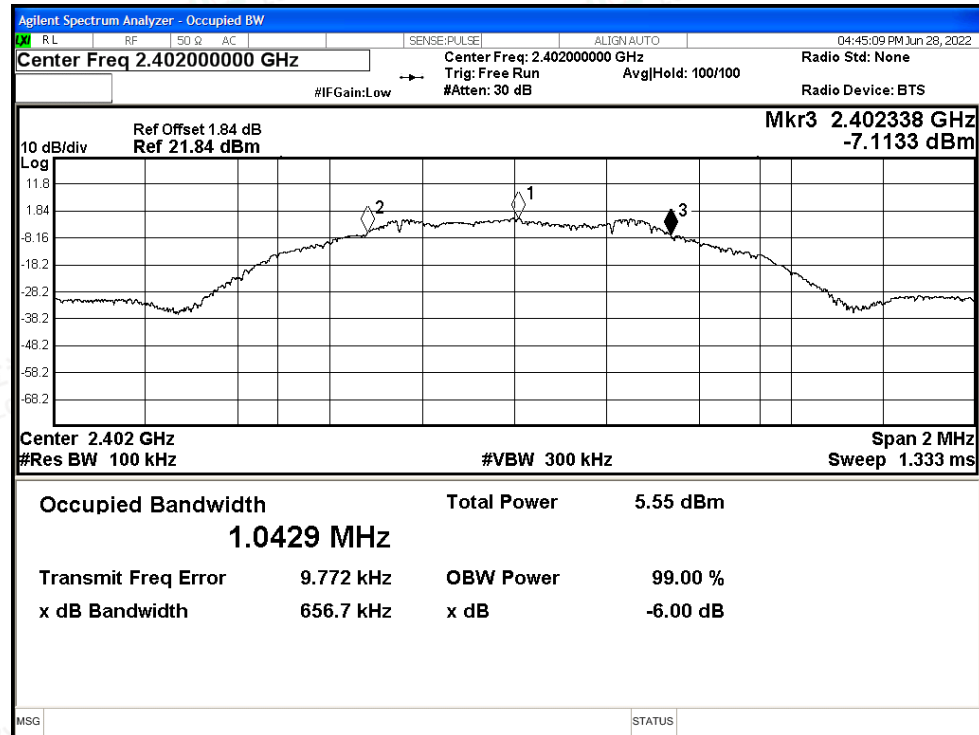
| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | 0.657                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | 0.661                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 0.664                 | $\geq 0.5$                  | Pass    |



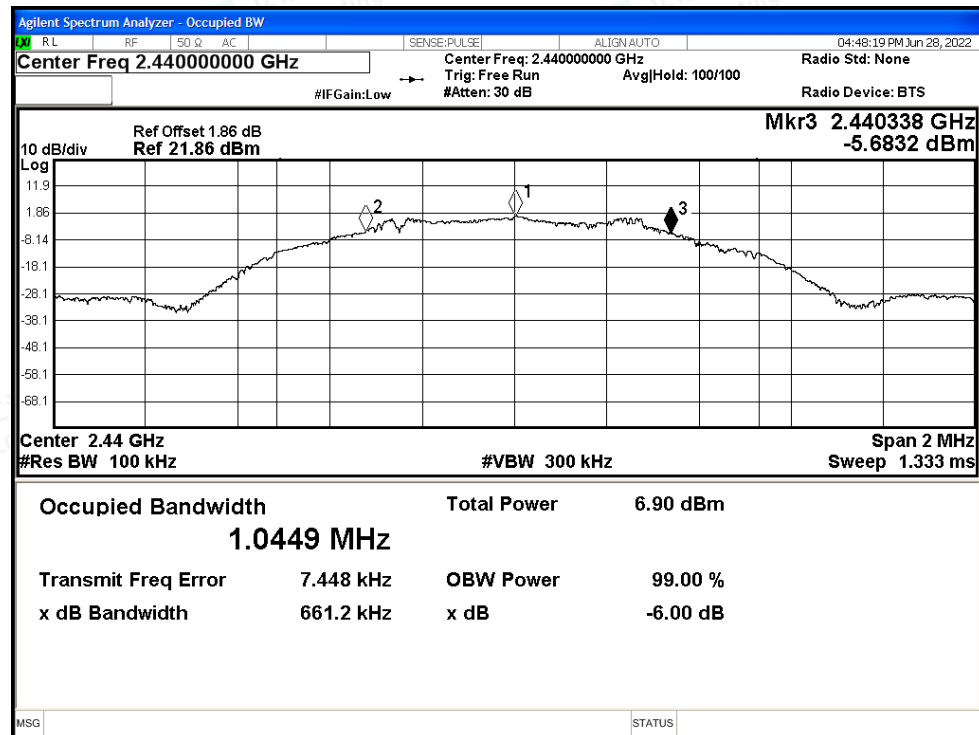


## Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

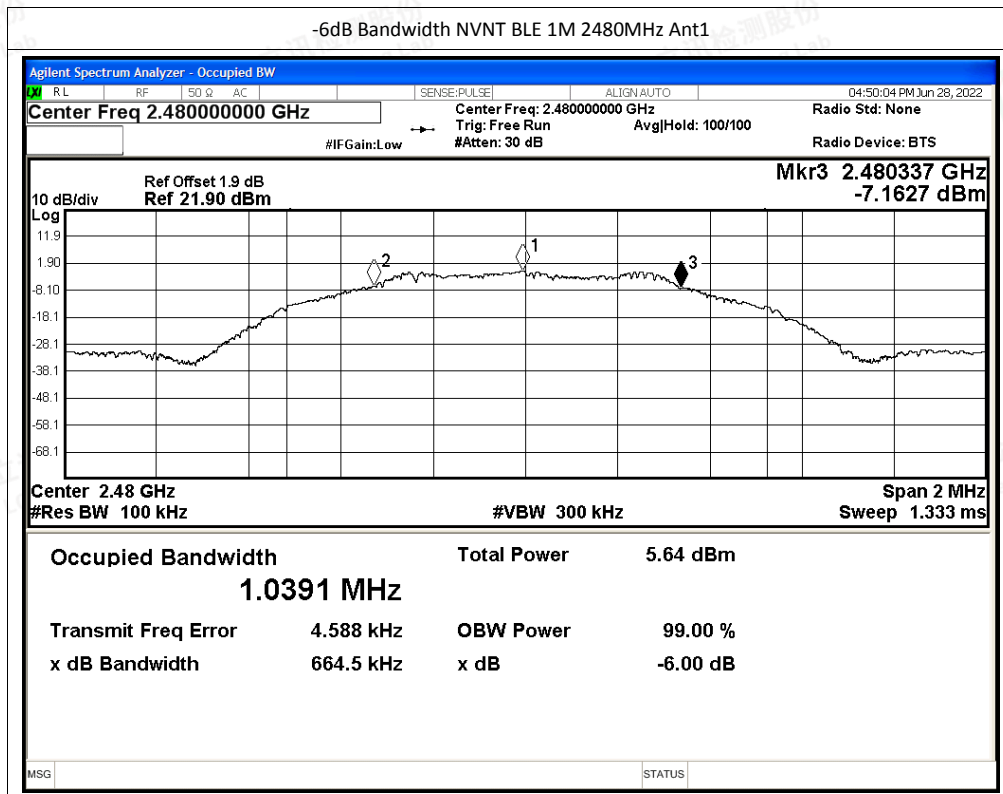


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## B.2 Maximum conducted output power

### Test Result

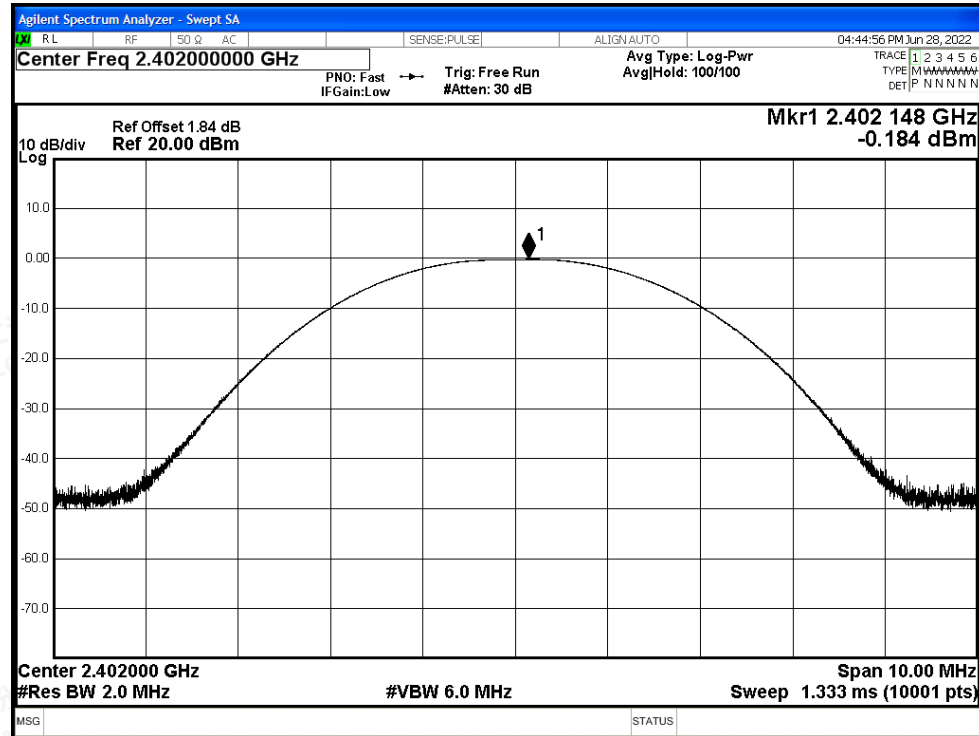
| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | -0.18       | ≤30        | PASS    |
|          |         | 2440    | 1.16        | ≤30        | PASS    |
|          |         | 2480    | -0.18       | ≤30        | PASS    |



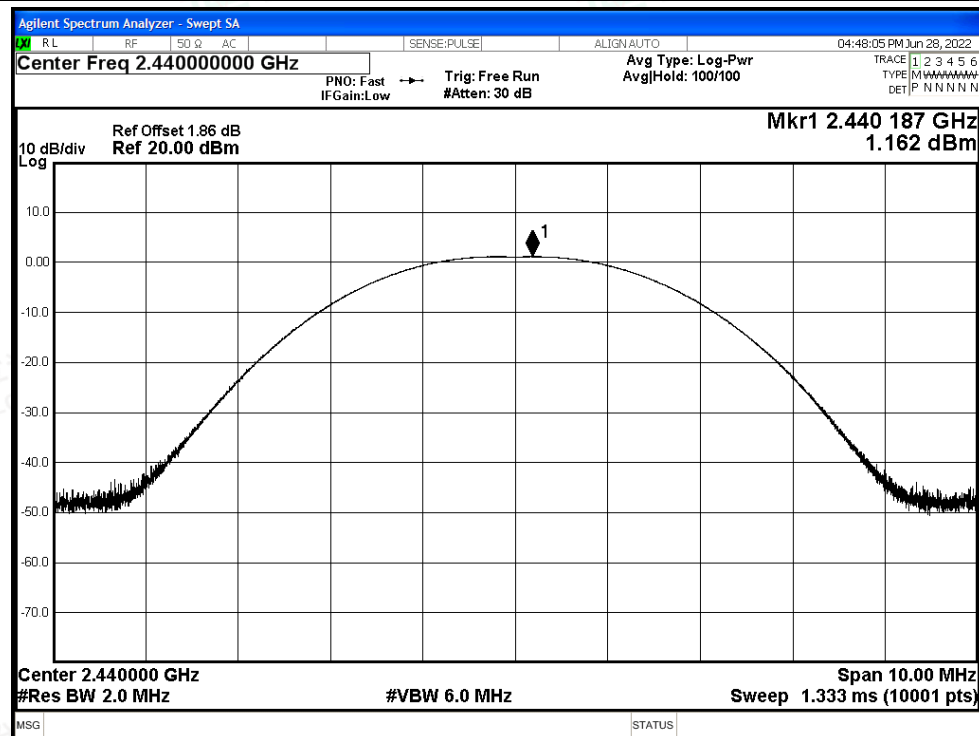


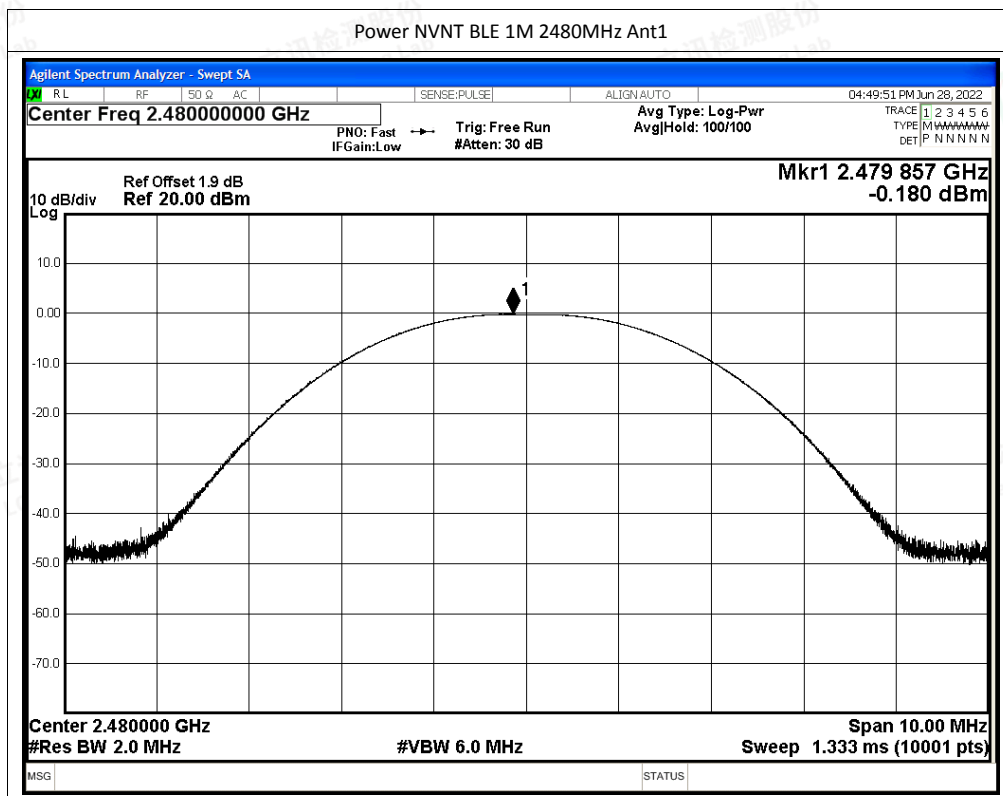
## Test Graphs

## Power NVNT BLE 1M 2402MHz Ant1



## Power NVNT BLE 1M 2440MHz Ant1







### B.3 Maximum power spectral density

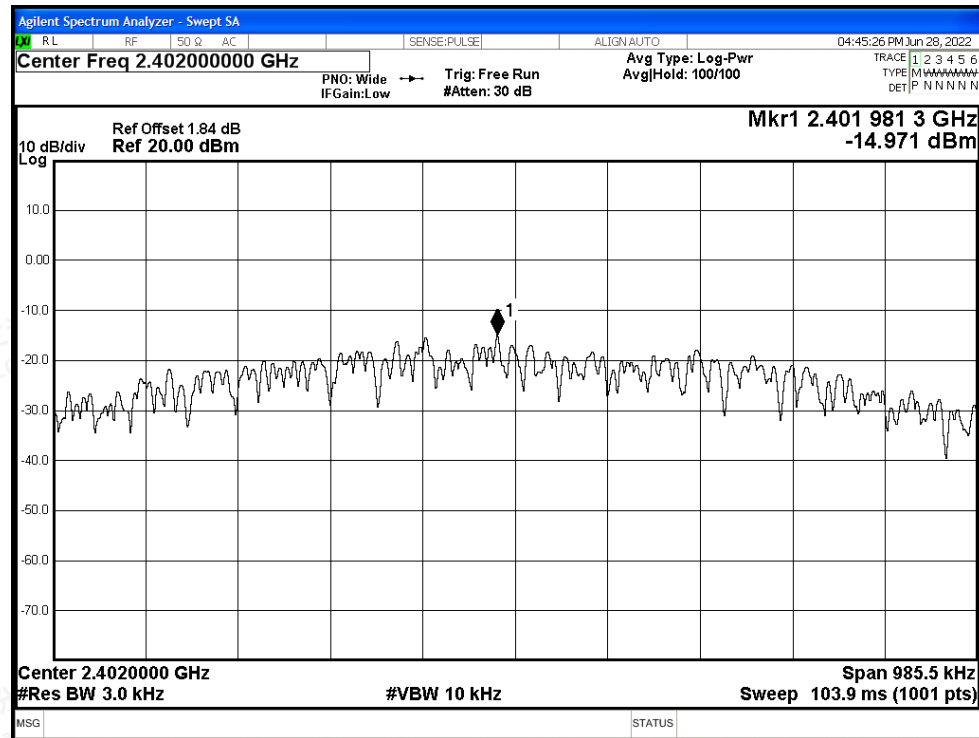
| TestMode | Antenna | Channel | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|---------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402    | -14.97           | ≤8.00           | PASS    |
|          |         | 2440    | -13.78           | ≤8.00           | PASS    |
|          |         | 2480    | -14.97           | ≤8.00           | PASS    |



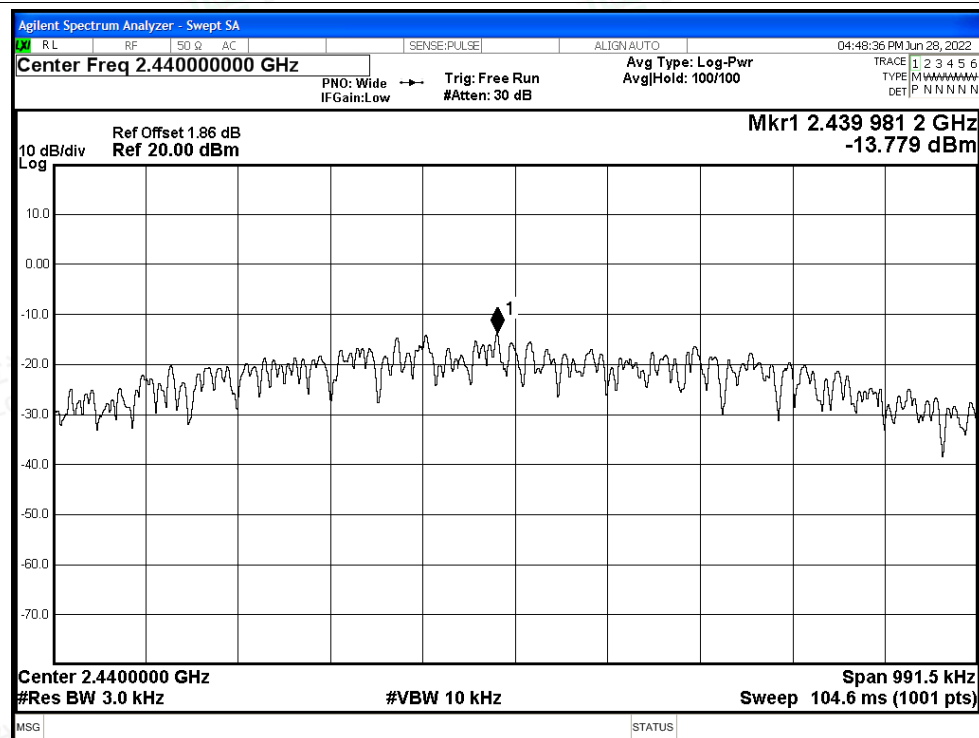


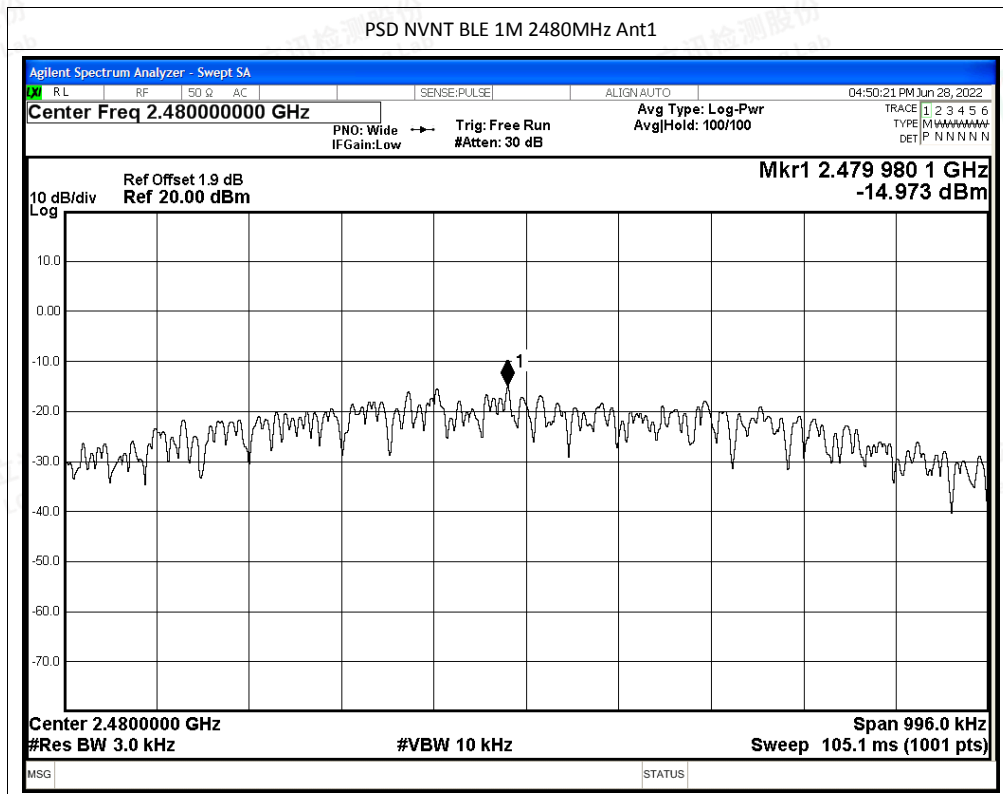
## Test Graphs

## PSD NVNT BLE 1M 2402MHz Ant1



## PSD NVNT BLE 1M 2440MHz Ant1







## B.4 Band edge measurements

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -56.23          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -57.16          | -20         | Pass    |

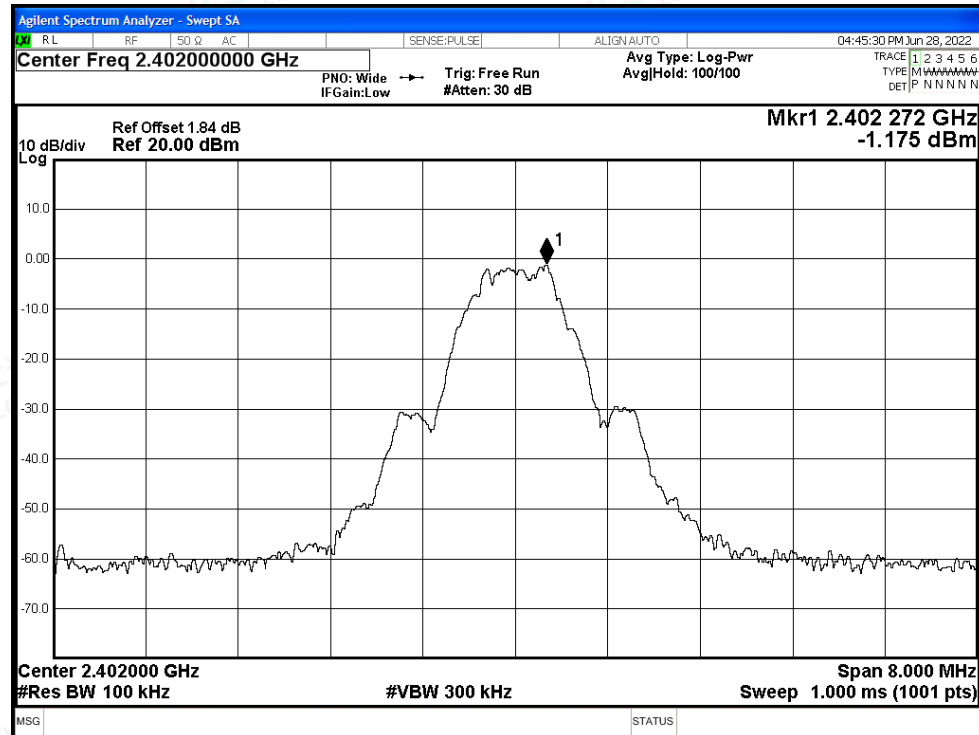


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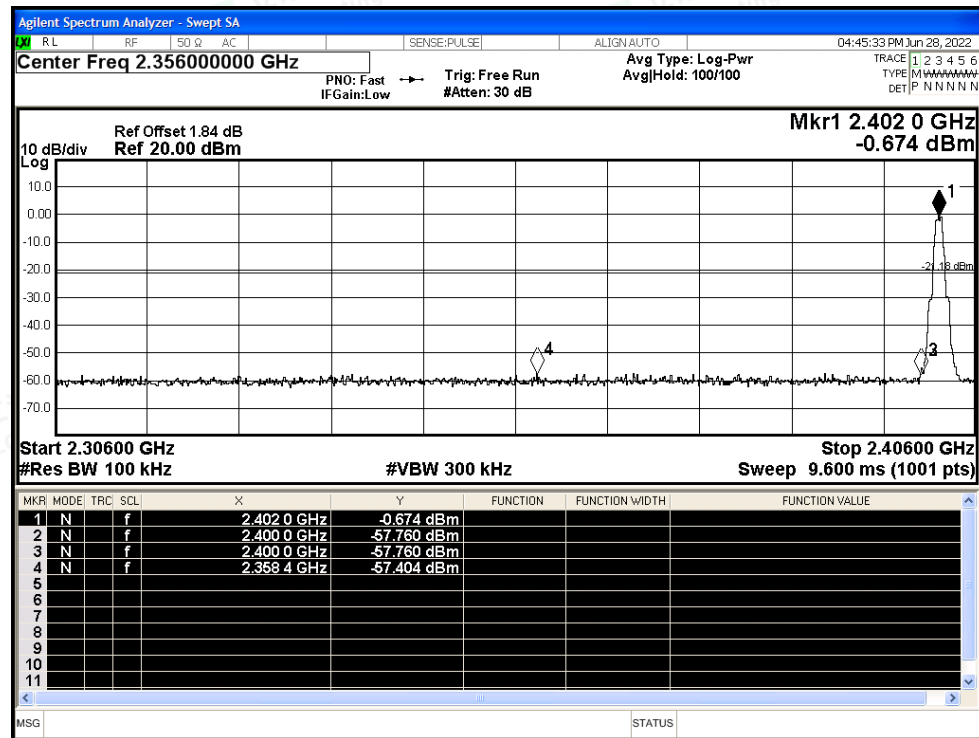


## Test Graphs

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



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



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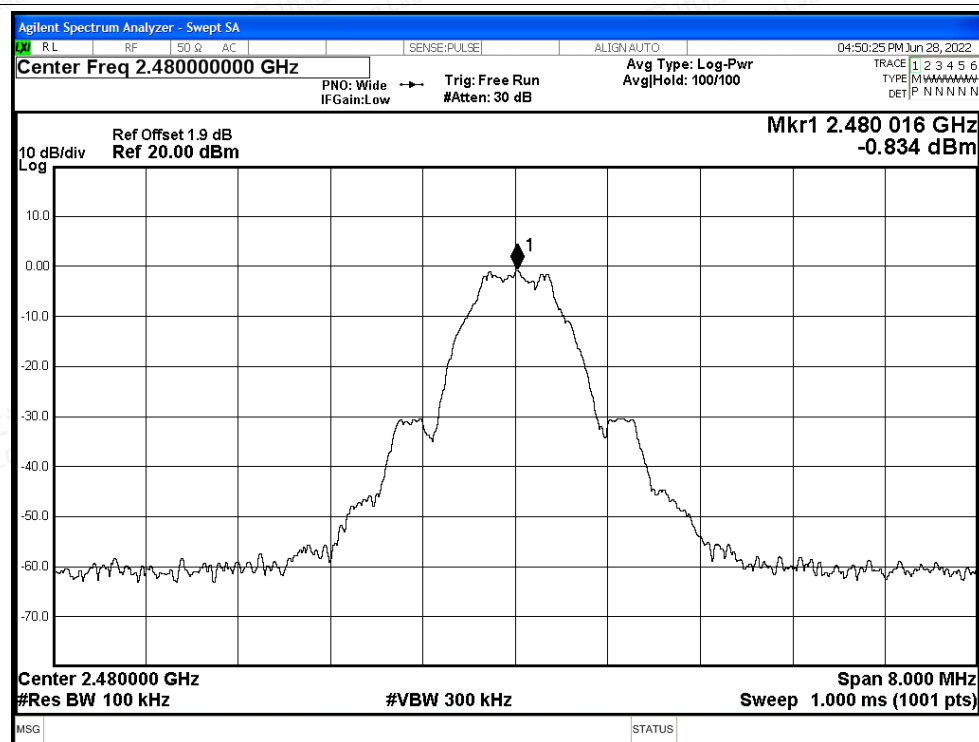
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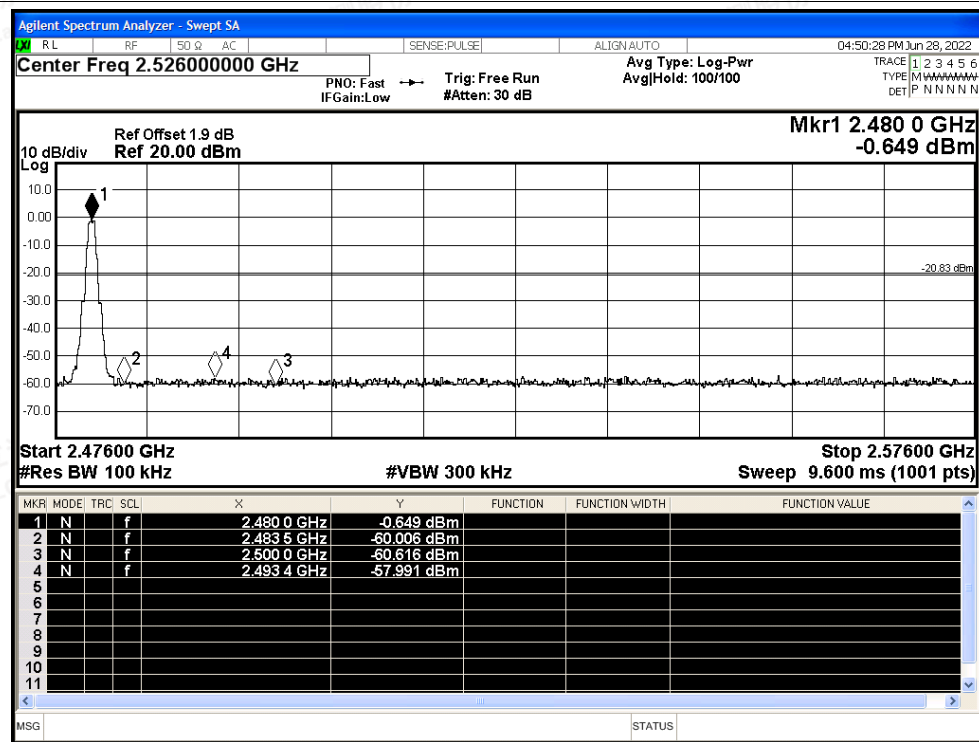
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## Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



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



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B.5 Conducted Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE 1M | 2402            | Ant1    | -54.94          | -20         | Pass    |
| NVNT      | BLE 1M | 2440            | Ant1    | -56.18          | -20         | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | -54.77          | -20         | Pass    |

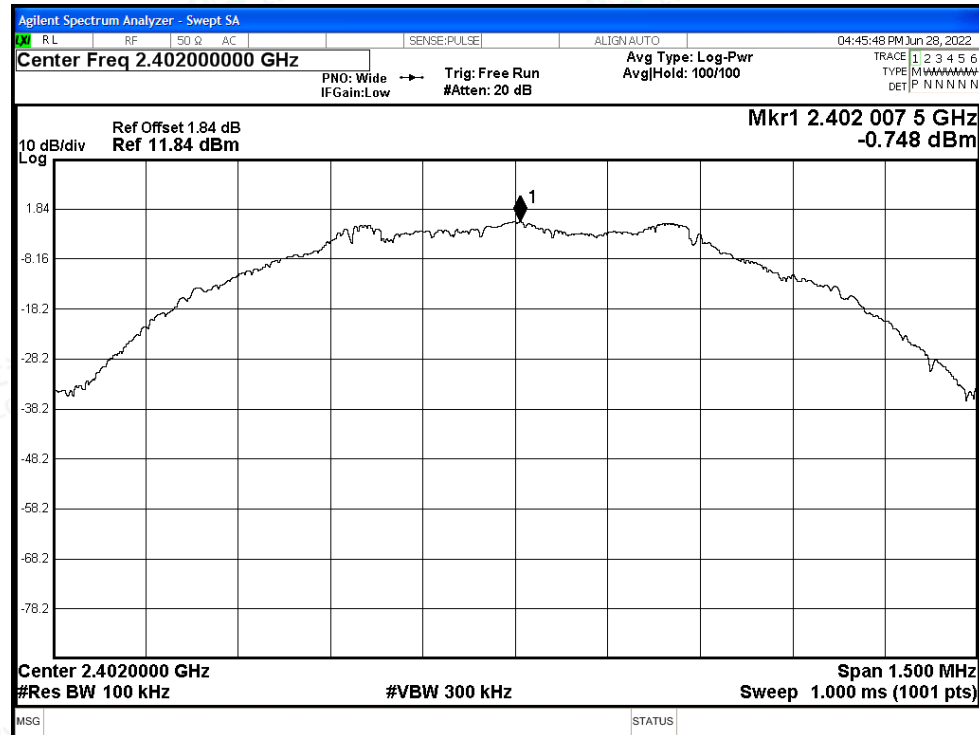


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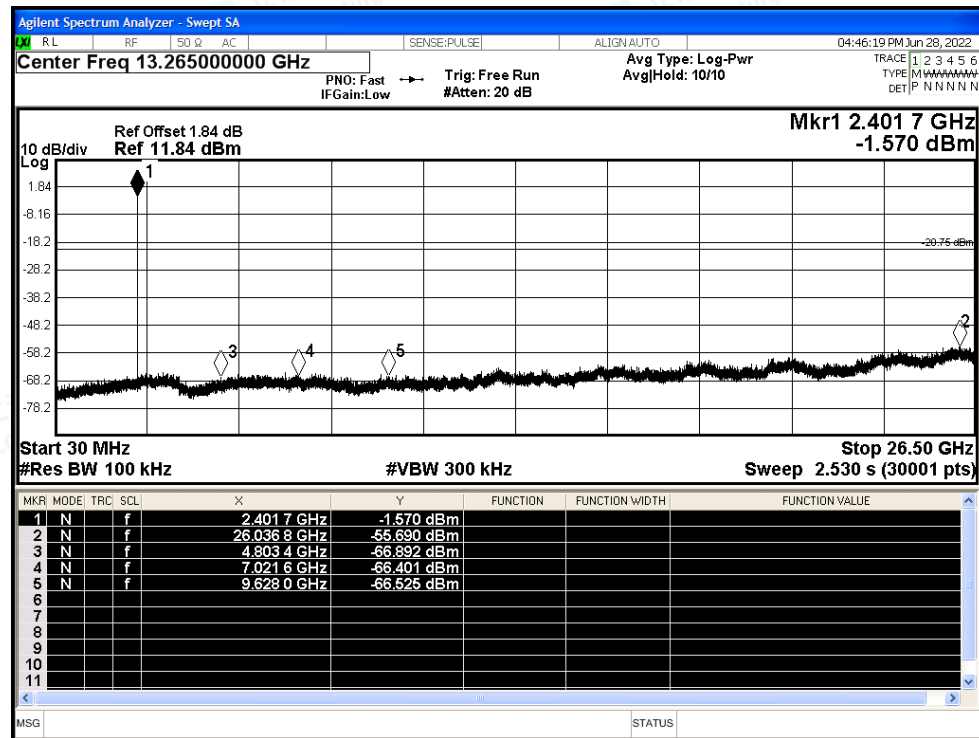


## Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

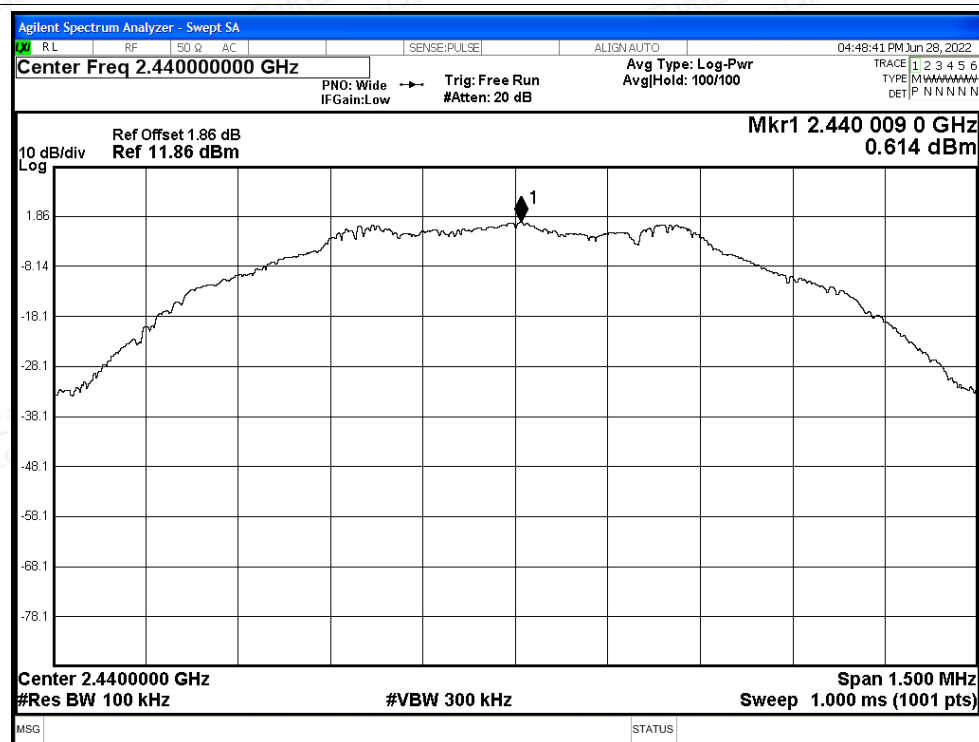


Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission

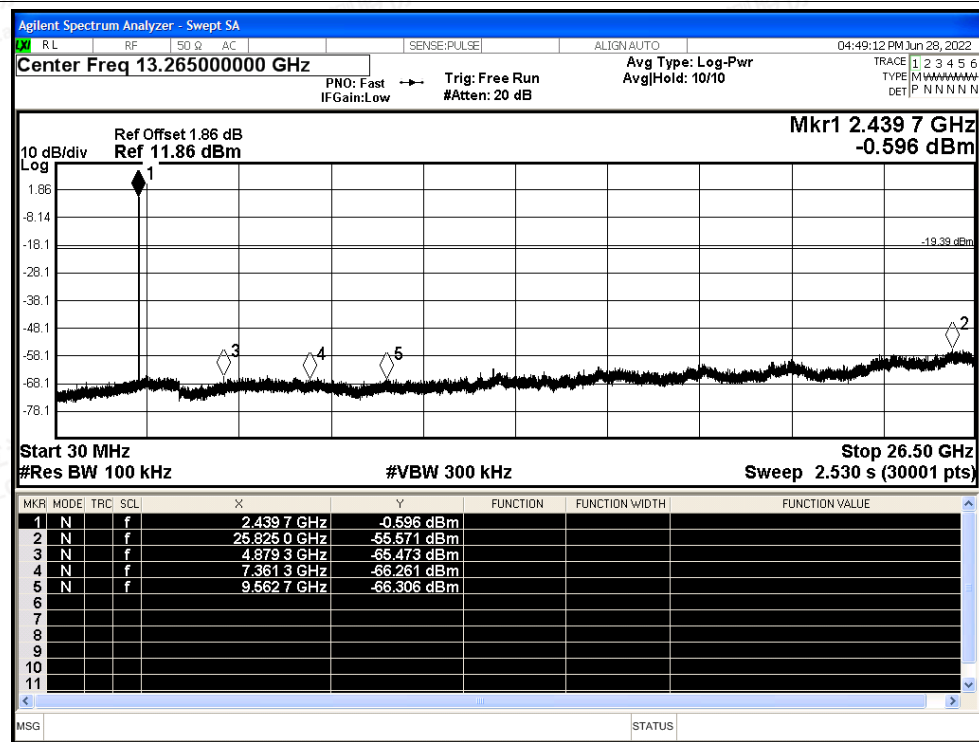




## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

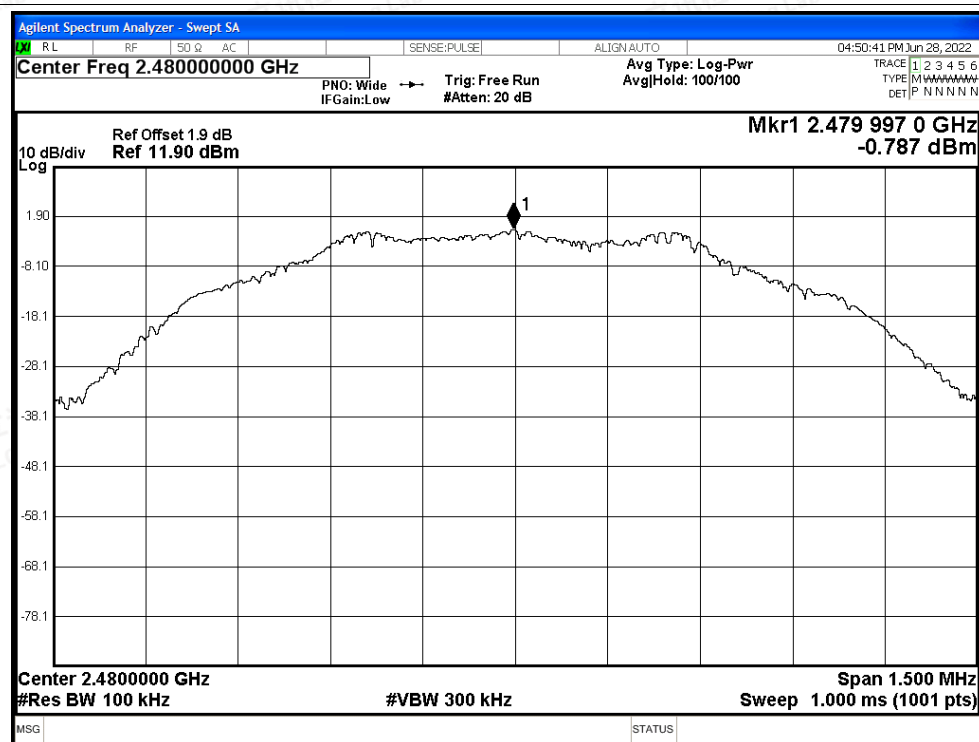


## Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission

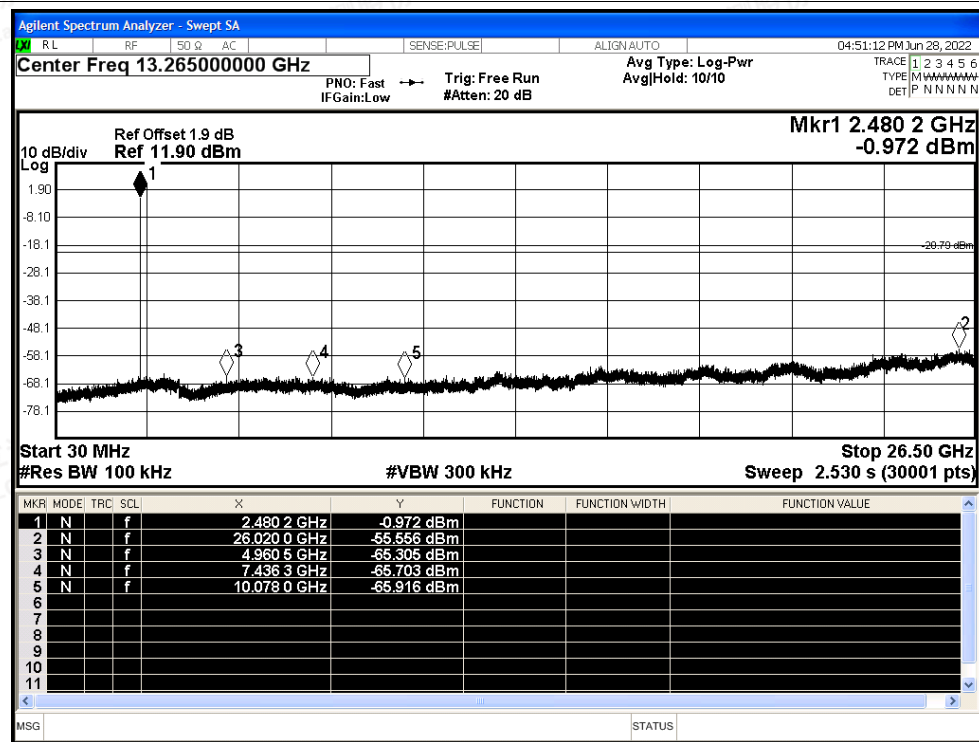




## Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



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





## B.6 Duty Cycle

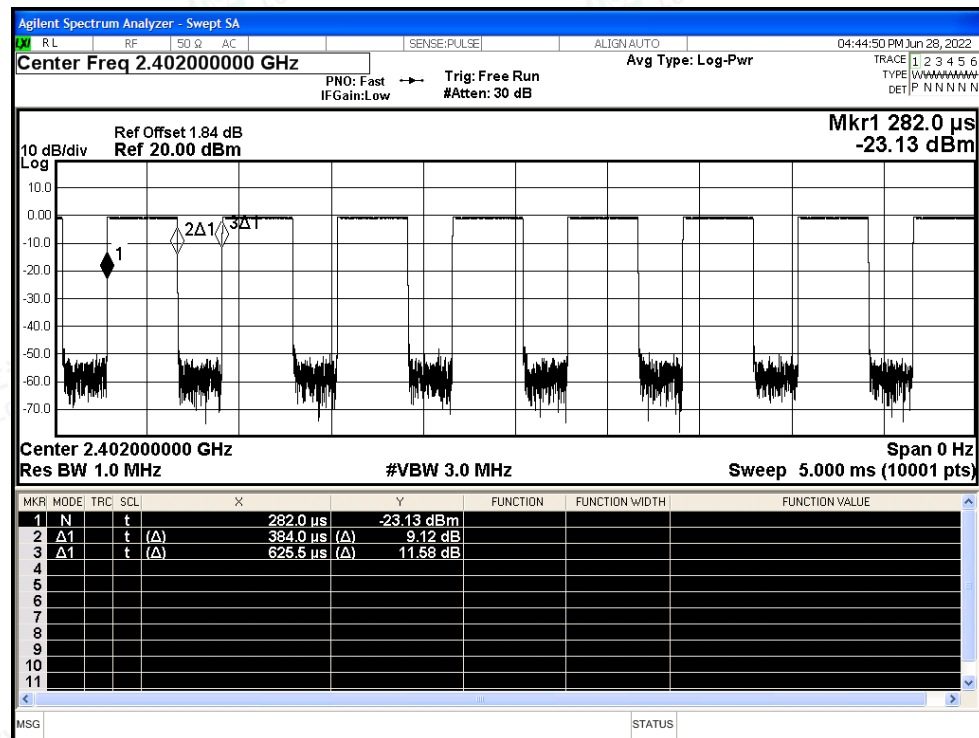
| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | BLE 1M | 2402            | Ant1    | 61.39          | 2.12                   | 2.6       |
| NVNT      | BLE 1M | 2440            | Ant1    | 61.44          | 2.12                   | 2.6       |
| NVNT      | BLE 1M | 2480            | Ant1    | 61.44          | 2.12                   | 2.6       |



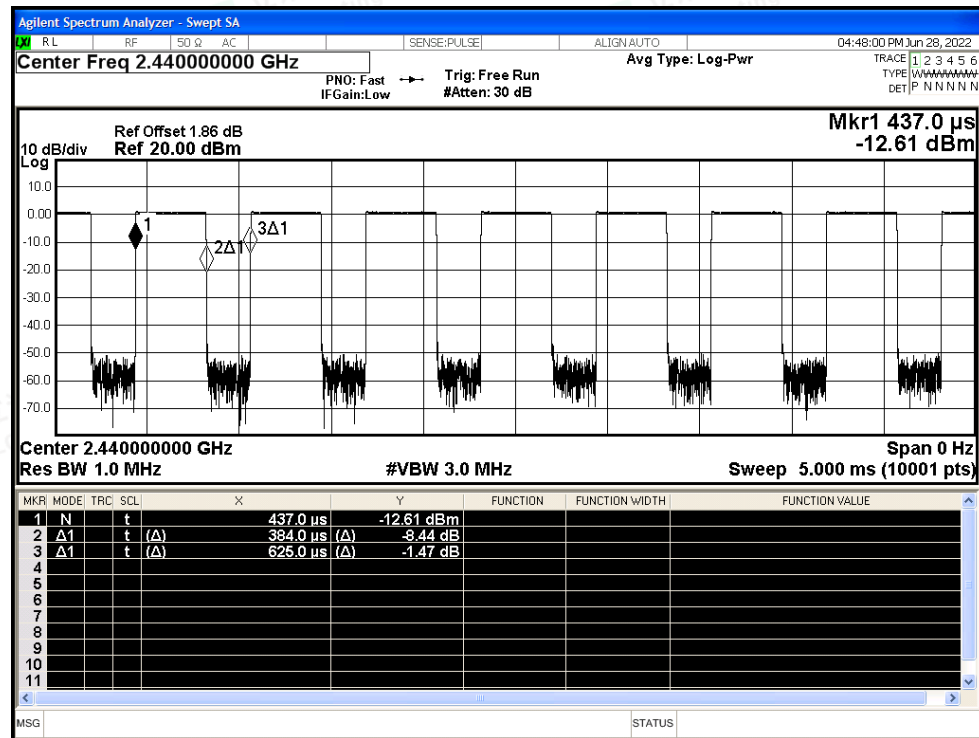


## Test Graphs

## Duty Cycle NVNT BLE 1M 2402MHz Ant1



## Duty Cycle NVNT BLE 1M 2440MHz Ant1

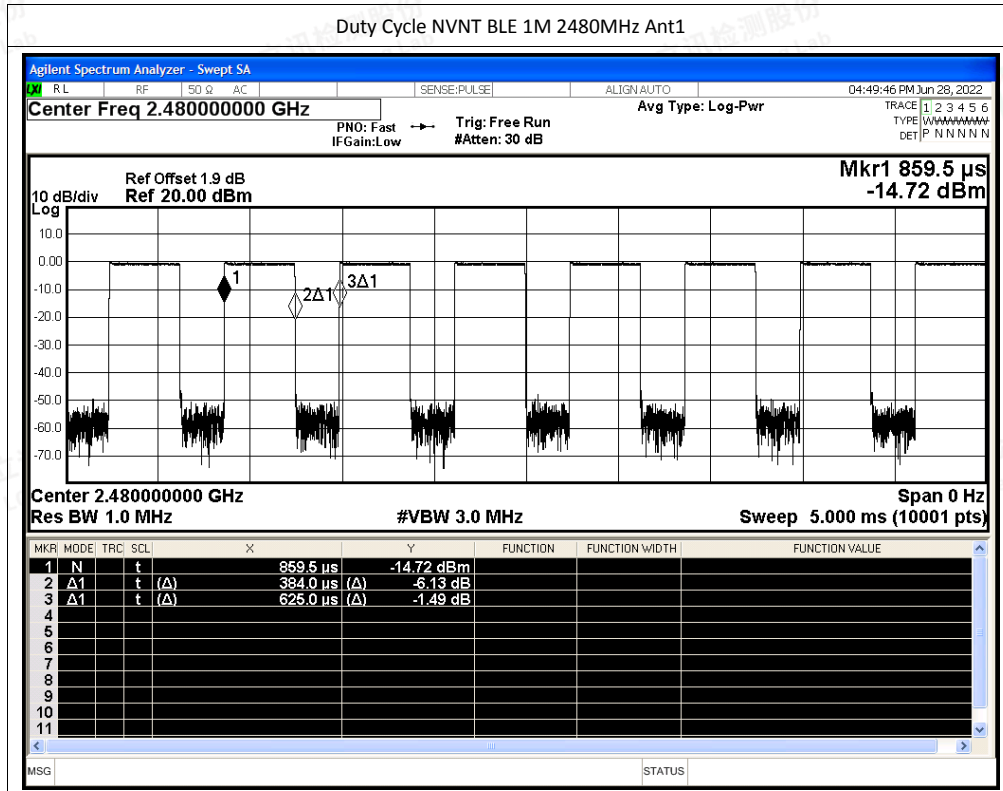


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## B.7 Emissions in Restricted Bands

| 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            | -51.47      | 3.0        | 46.79      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2310            | -59.88      | 3.0        | 38.38      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2372.016        | -47.16      | 3.0        | 51.10      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2363.952        | -59.21      | 3.0        | 39.05      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -50.69      | 3.0        | 47.57      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2402            | Ant1    | 2390            | -59.58      | 3.0        | 38.68      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -51.8       | 3.0        | 46.46      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2483.5          | -59.14      | 3.0        | 39.12      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2493.736        | -47.45      | 3.0        | 50.81      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2487.76         | -58.46      | 3.0        | 39.80      | Average  | 54             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -49.81      | 3.0        | 48.45      | Peak     | 74             | Pass    |
| NVNT      | BLE 1M | 2480            | Ant1    | 2500            | -59.05      | 3.0        | 39.21      | Average  | 54             | Pass    |

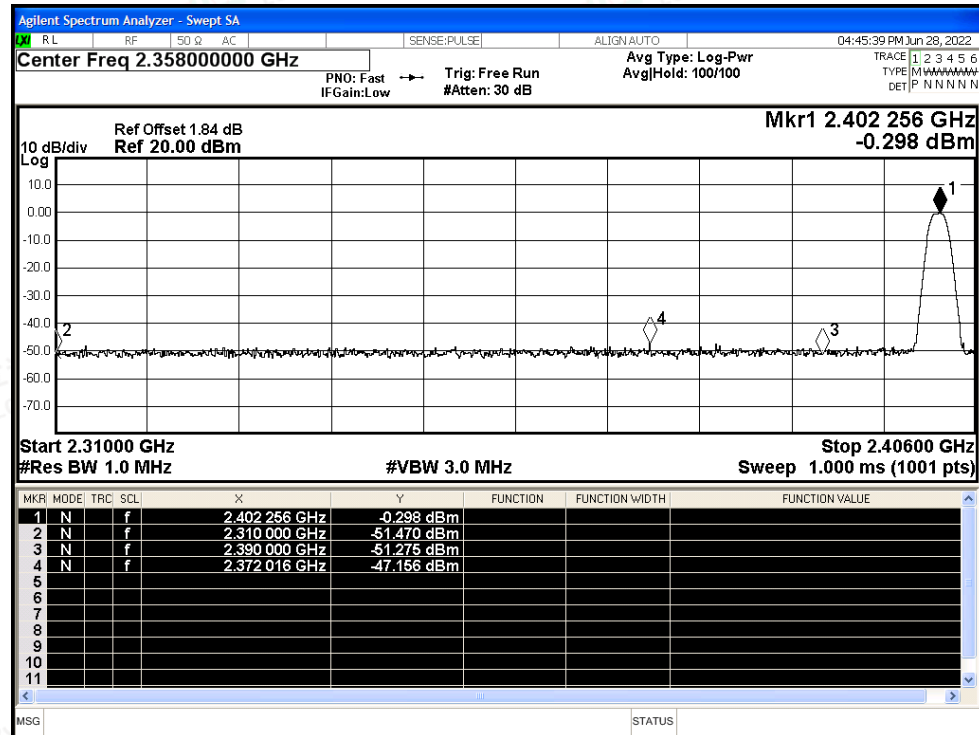


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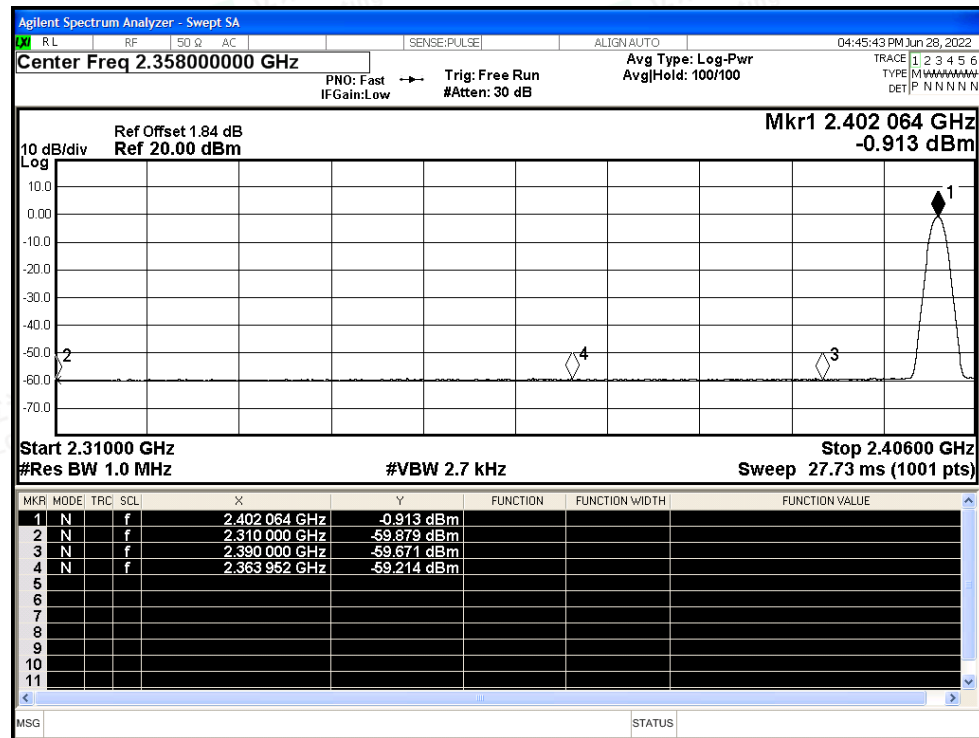


## Test Graphs

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



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



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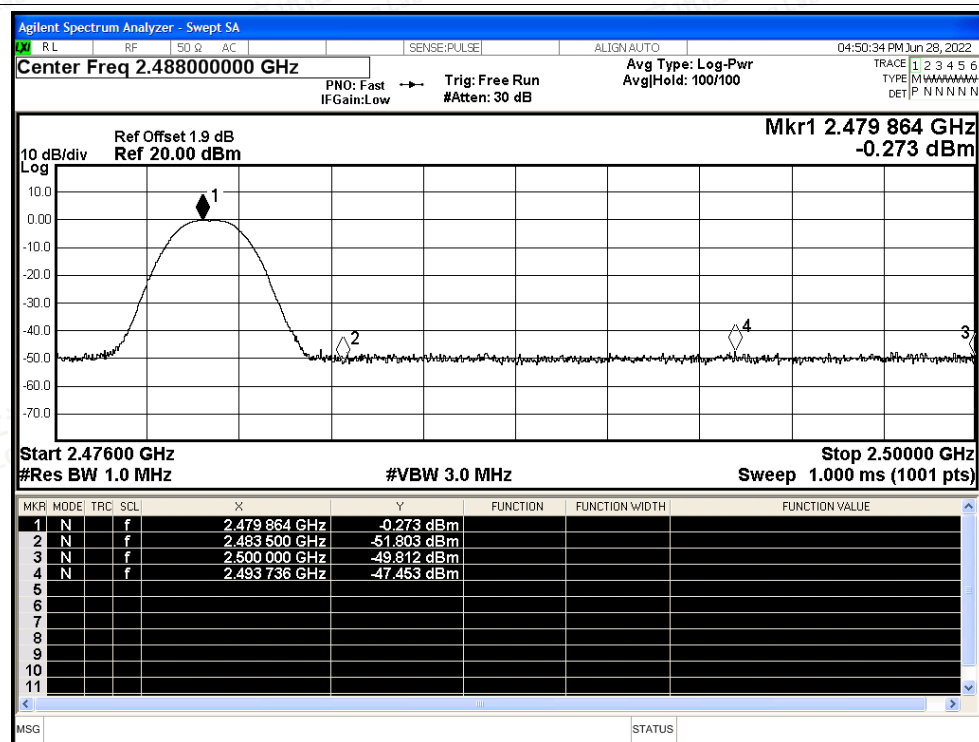
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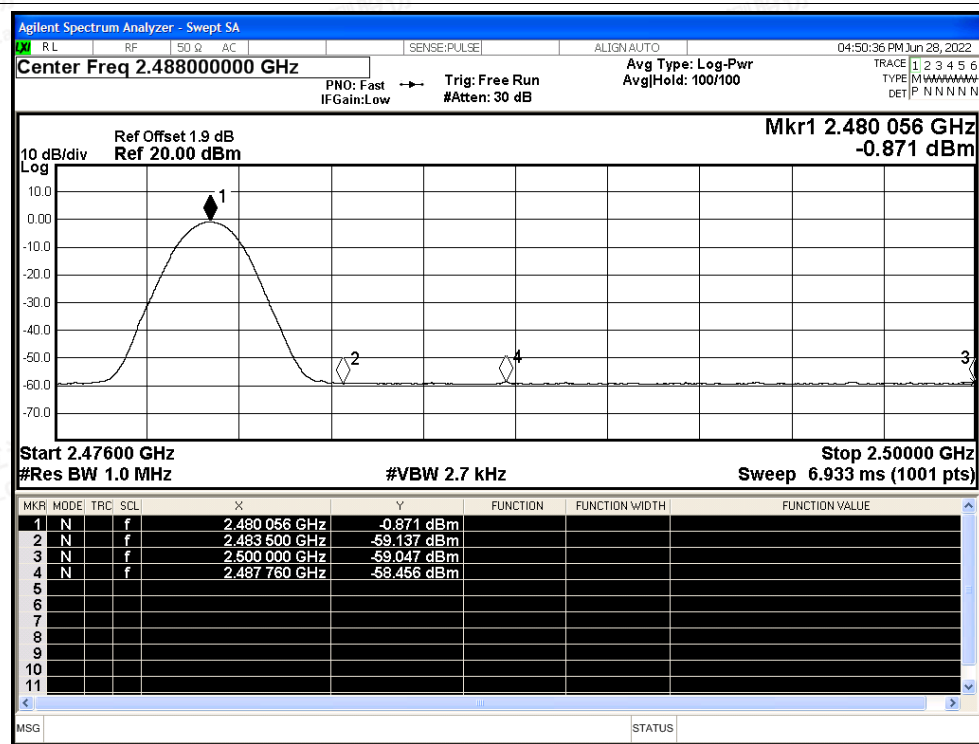
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## Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



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



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