



## Appendix B

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

Product Name: Communicator

Test Model: Communicator 3-A

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.8 ° C  |
| Relative Humidity: | 52.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Ling Zhu  |
| Supervised by:     | Li Huan   |



Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity



## B.1 -6dB Bandwidth

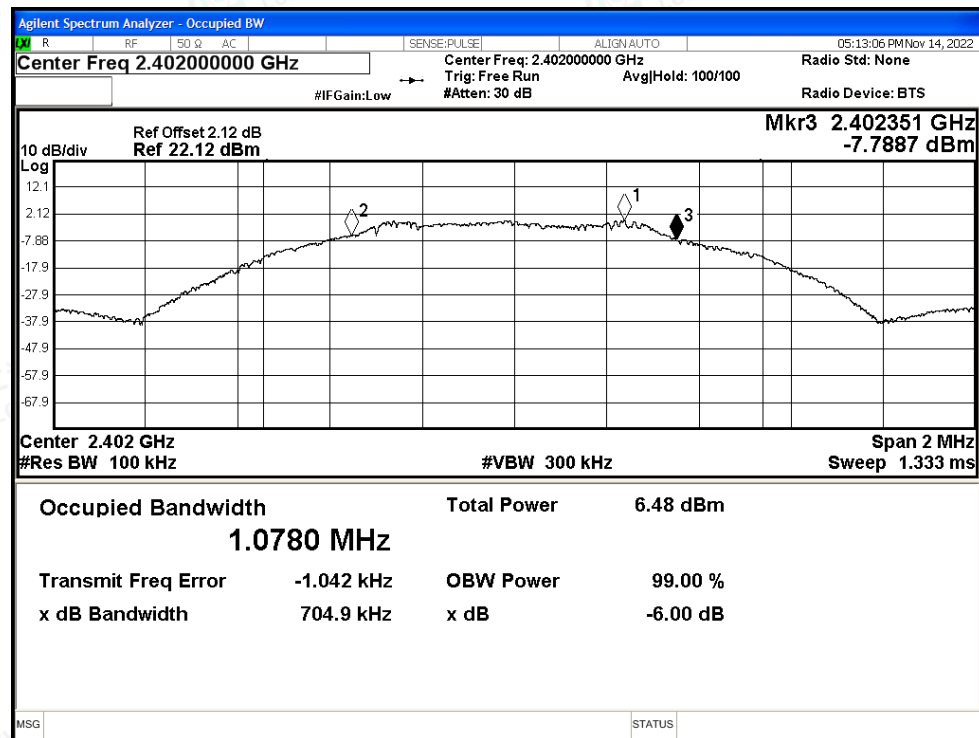
| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | BLE  | 2402            | Ant     | 0.705                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE  | 2440            | Ant     | 0.709                 | $\geq 0.5$                  | Pass    |
| NVNT      | BLE  | 2480            | Ant     | 0.692                 | $\geq 0.5$                  | Pass    |



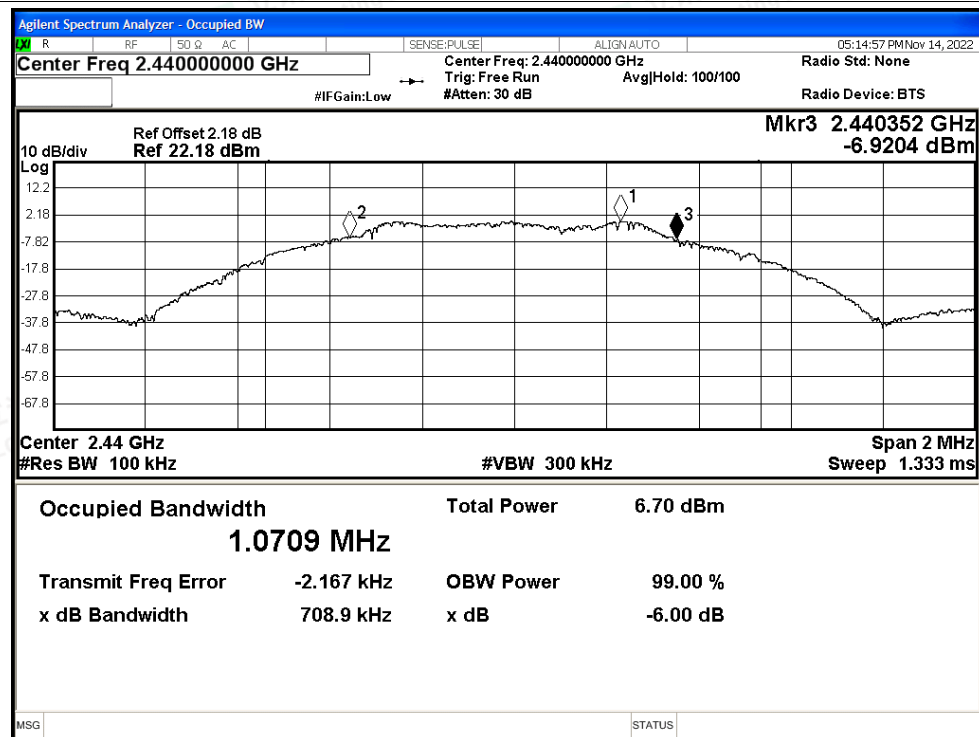


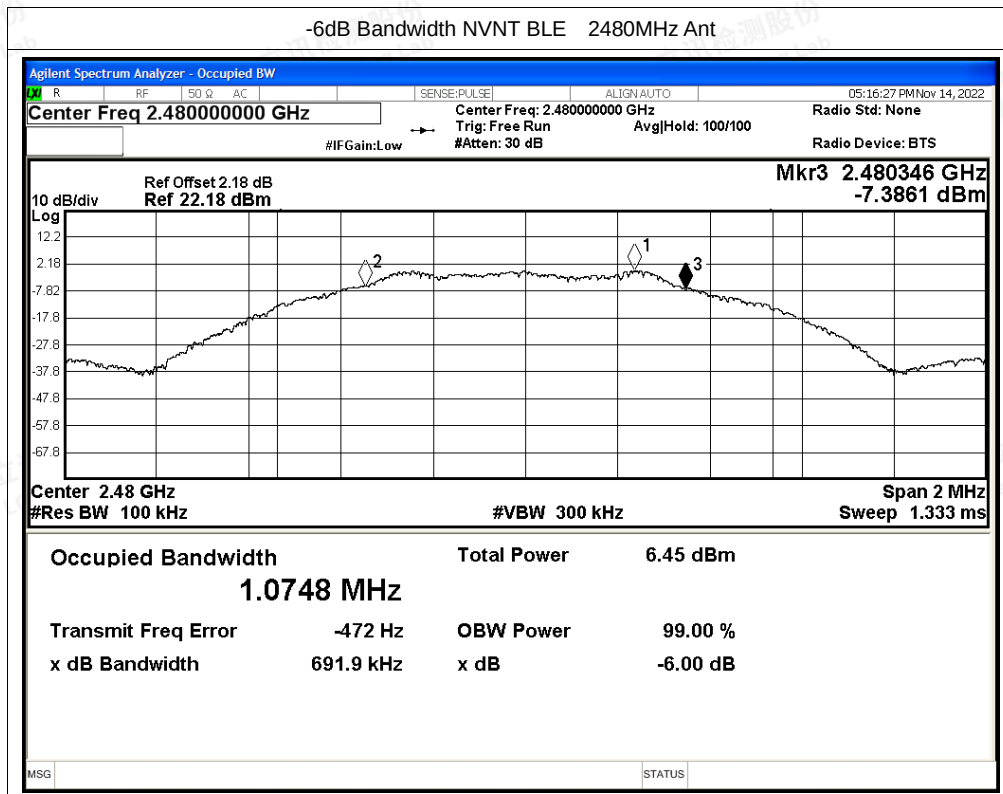
## Test Graphs

-6dB Bandwidth NVNT BLE 2402MHz Ant



-6dB Bandwidth NVNT BLE 2440MHz Ant







## B.2 Occupied Channel Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|-----------|------|-----------------|---------|---------------|
| NVNT      | BLE  | 2402            | Ant     | 1.064         |
| NVNT      | BLE  | 2440            | Ant     | 1.066         |
| NVNT      | BLE  | 2480            | Ant     | 1.068         |

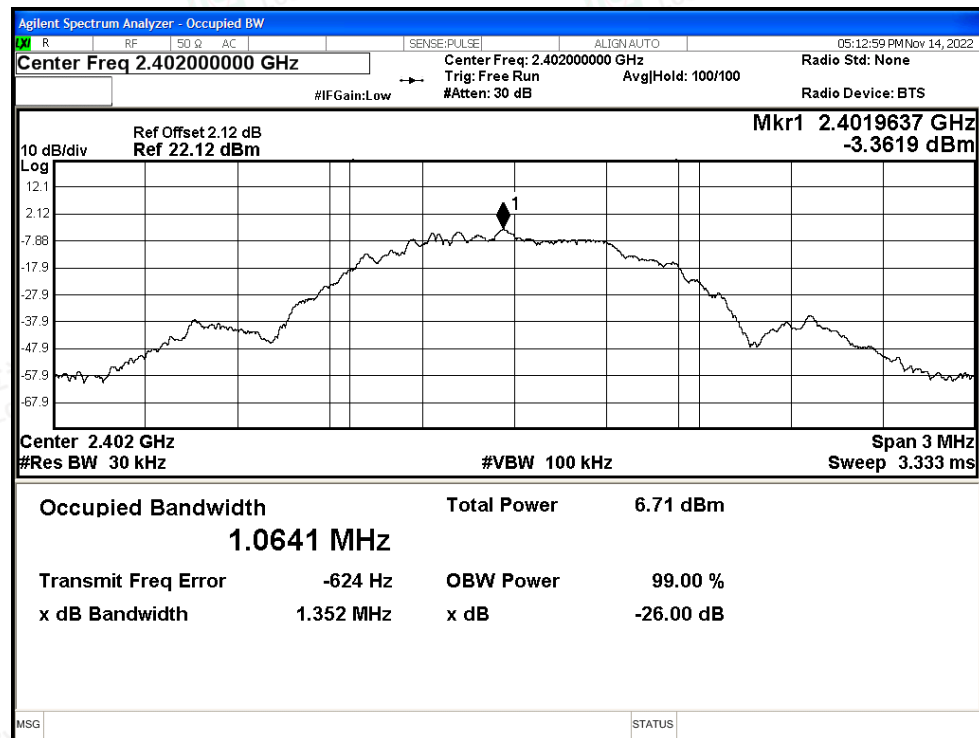


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: [webmaster@lcs-cert.com](mailto:webmaster@lcs-cert.com) | Web: [www.lcs-cert.com](http://www.lcs-cert.com)  
Scan code to check authenticity

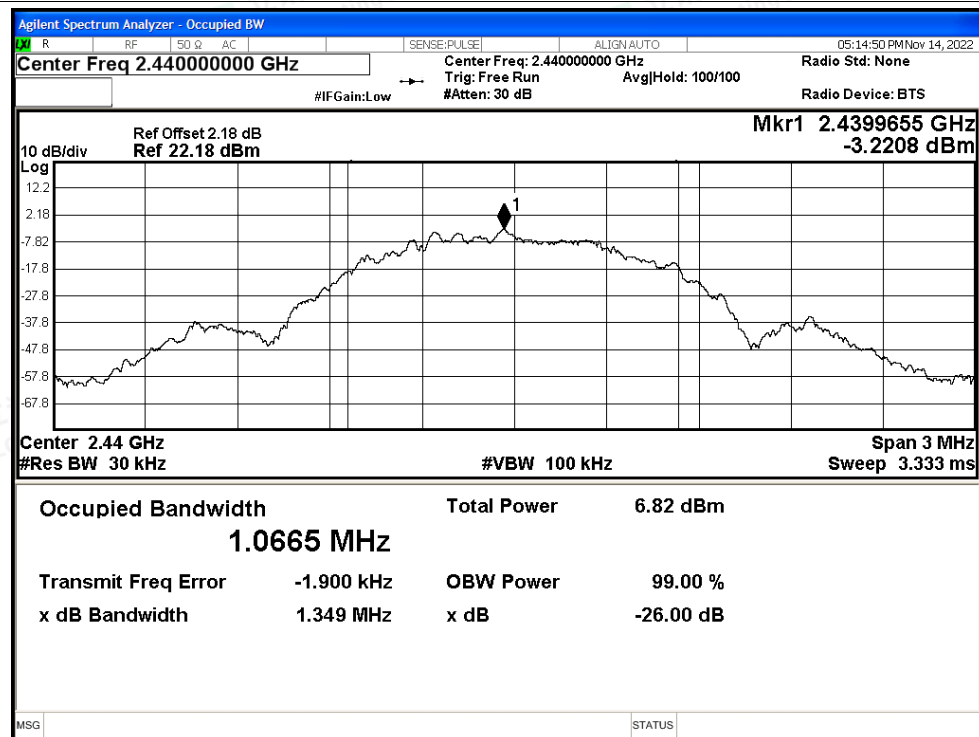


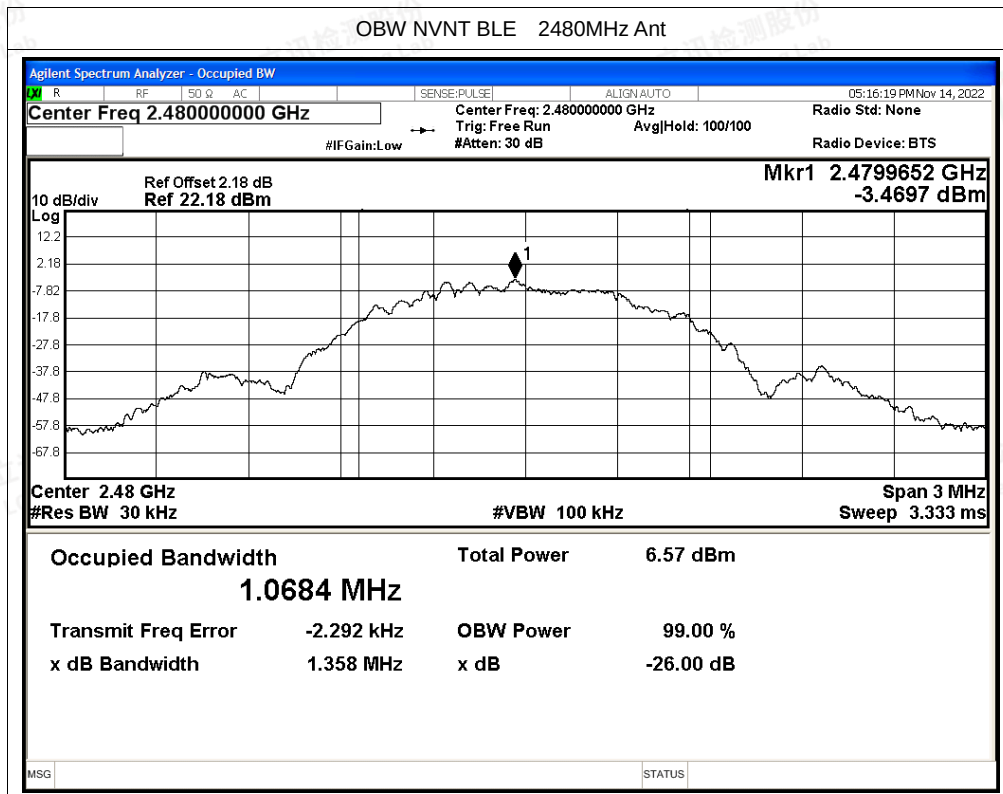
## Test Graphs

OBW NVNT BLE 2402MHz Ant



OBW NVNT BLE 2440MHz Ant







### B.3 Maximum Conducted Output Power

| Condition | Mode | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|-----------|------|-----------------|---------|-------------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -1.78             | 30          | Pass    |
| NVNT      | BLE  | 2440            | Ant     | -1.66             | 30          | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -1.91             | 30          | Pass    |



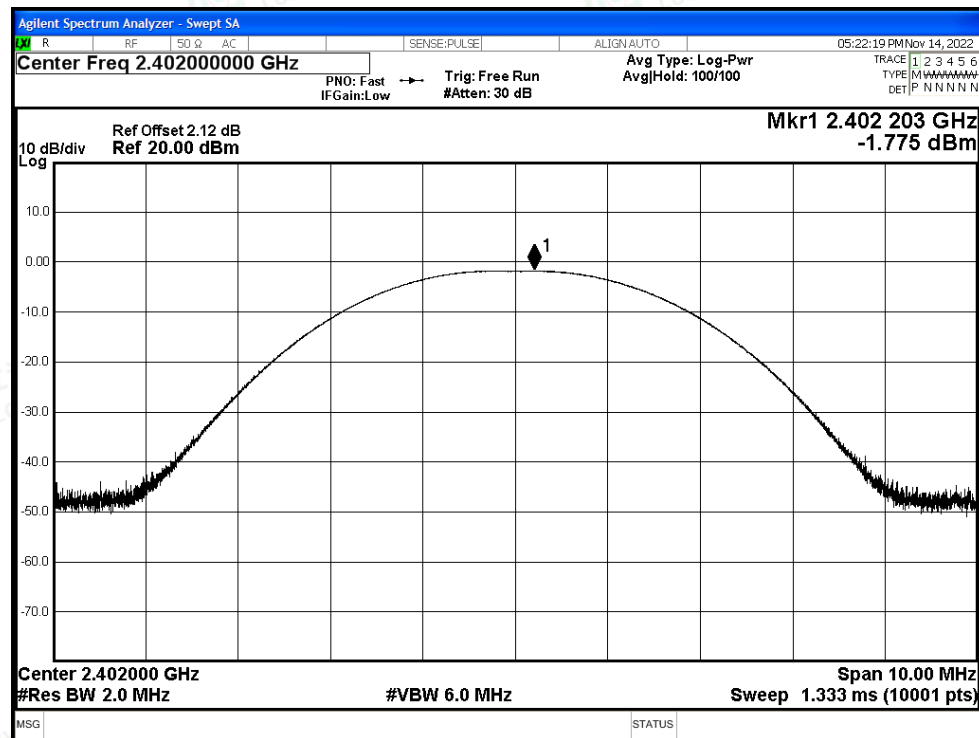
Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity



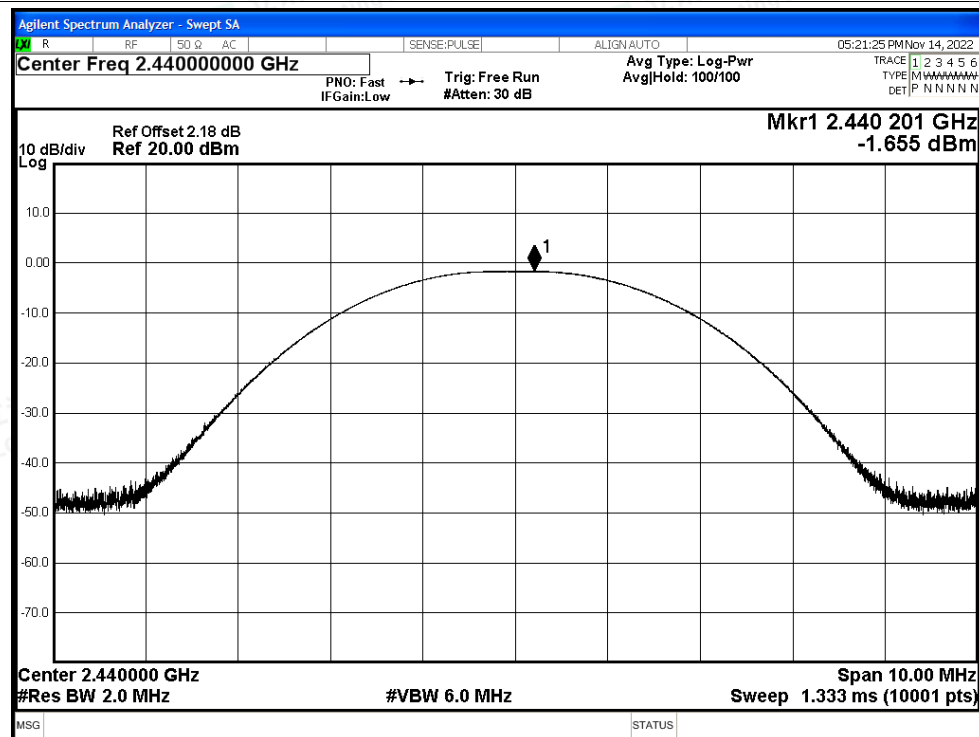


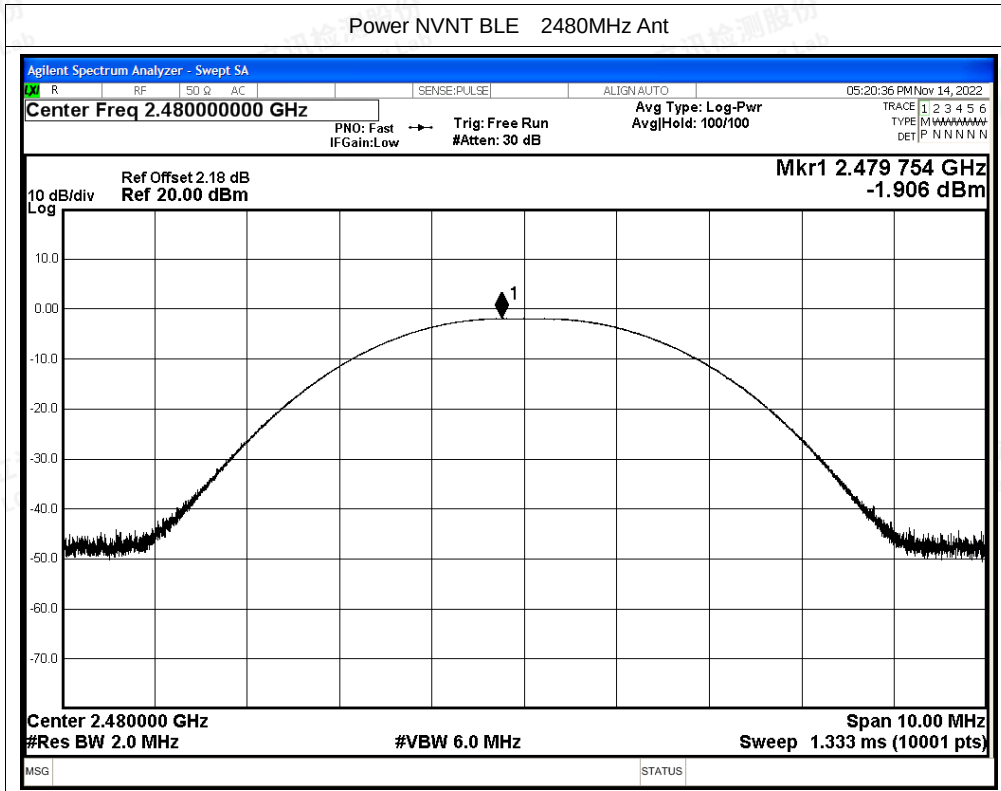
## Test Graphs

## Power NVNT BLE 2402MHz Ant



## Power NVNT BLE 2440MHz Ant







## B.4 Maximum Power Spectral Density Level

| Condition | Mode | Frequency (MHz) | Antenna | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|------|-----------------|---------|----------------------|------------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -16.88               | 8                | Pass    |
| NVNT      | BLE  | 2440            | Ant     | -16.76               | 8                | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -16.98               | 8                | Pass    |

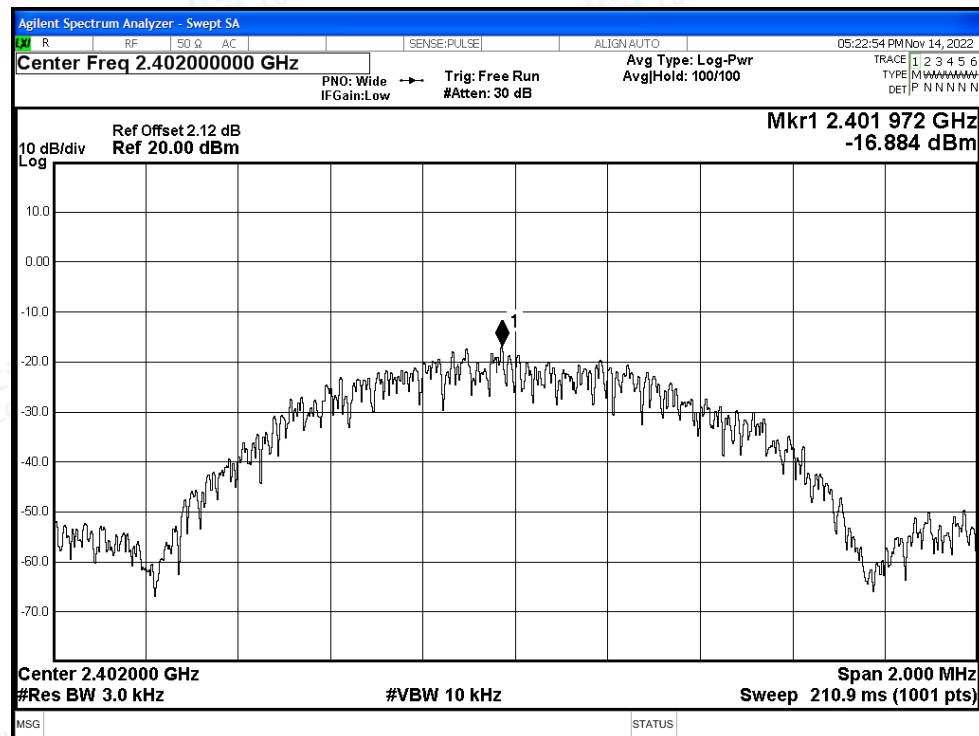


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

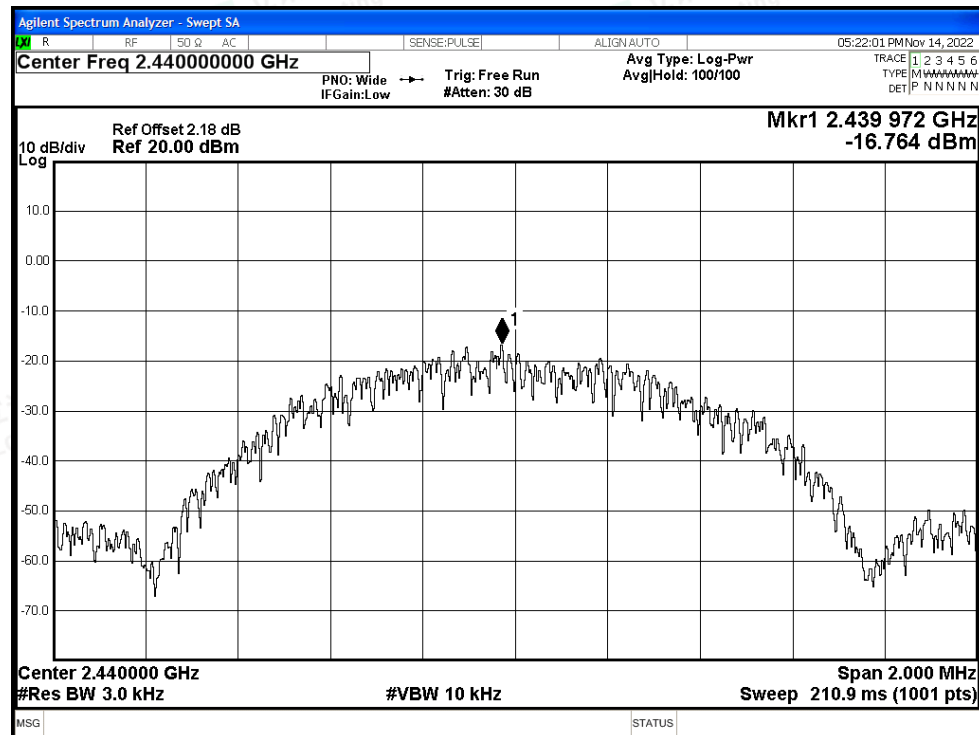


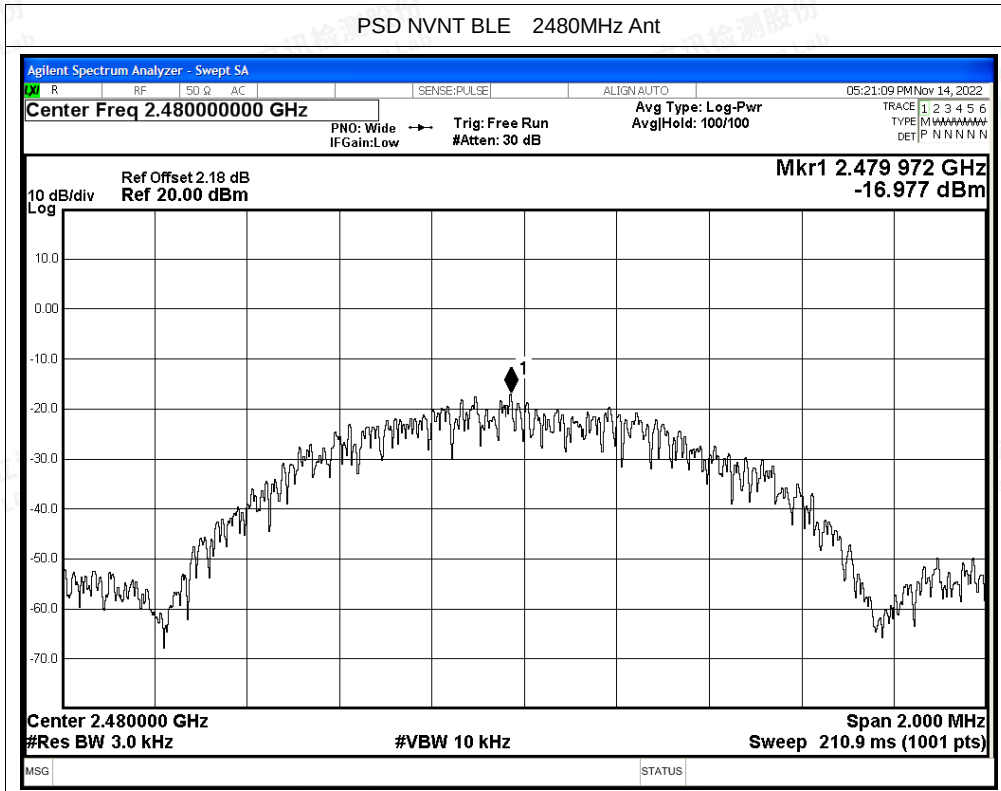
## Test Graphs

## PSD NVNT BLE 2402MHz Ant



## PSD NVNT BLE 2440MHz Ant







## B.5 Band Edge

| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -56.35          | -20         | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -56.76          | -20         | Pass    |

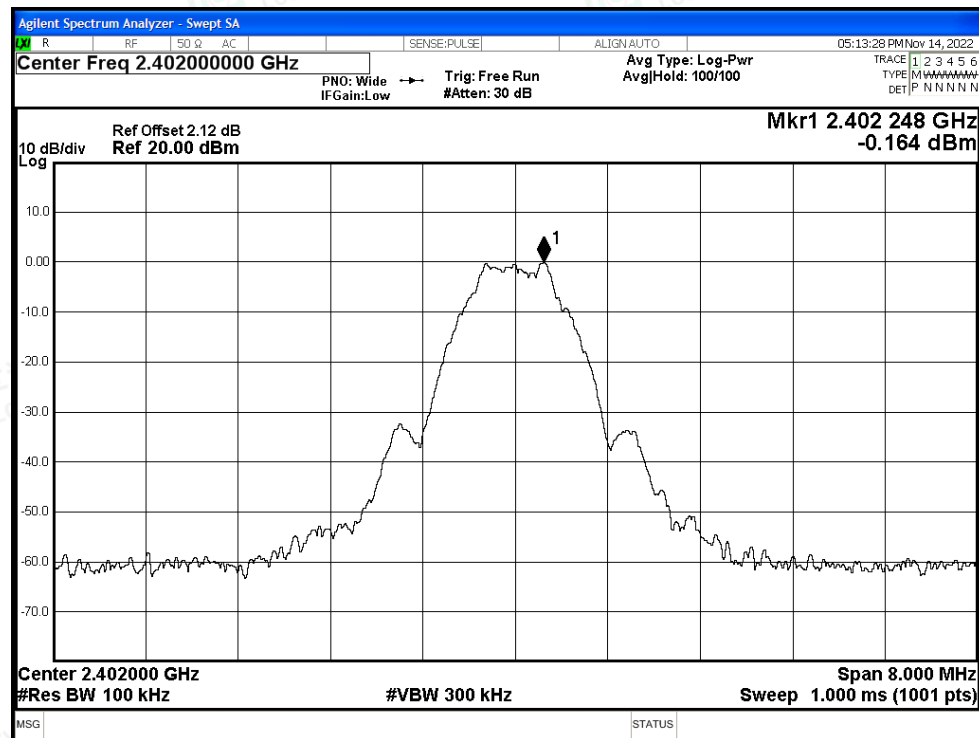


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

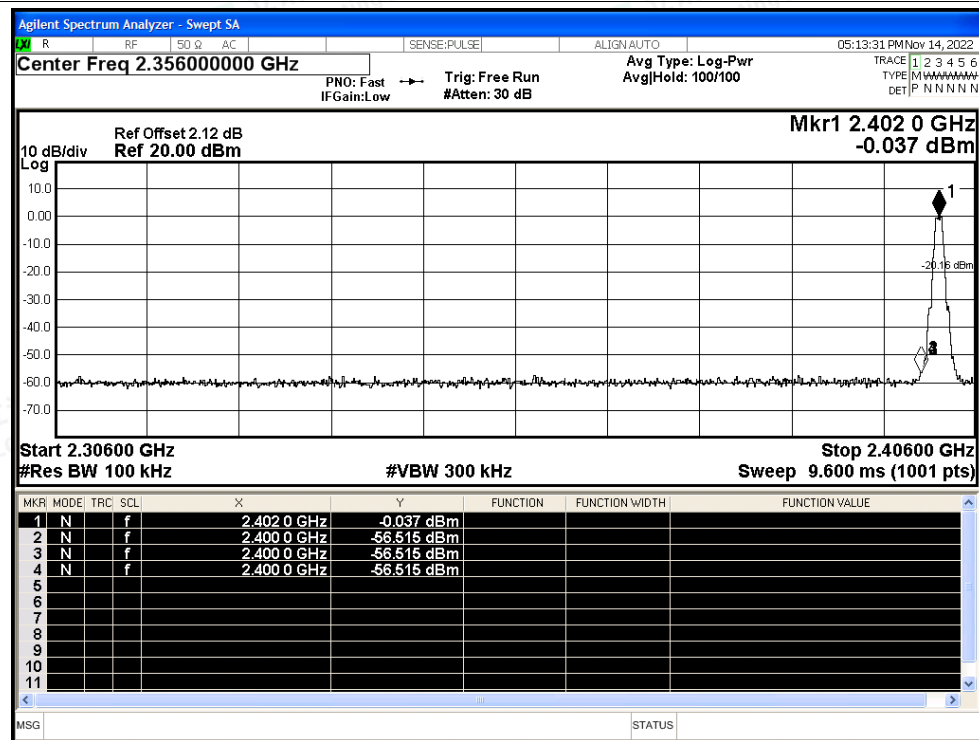


## Test Graphs

## Band Edge NVNT BLE 2402MHz Ant Ref

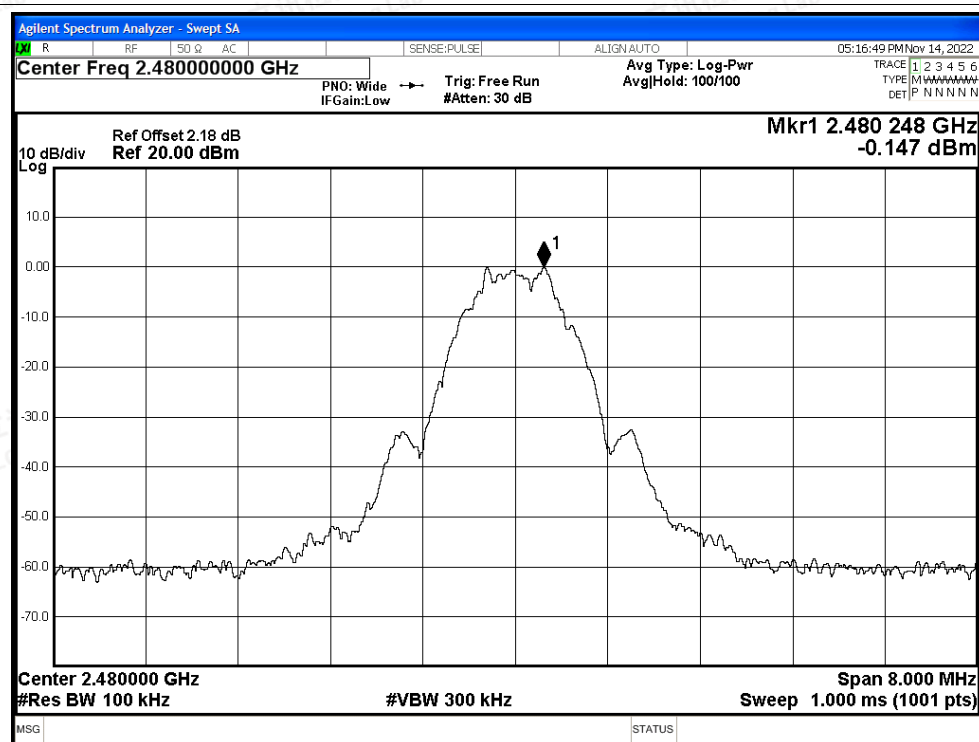


## Band Edge NVNT BLE 2402MHz Ant Emission

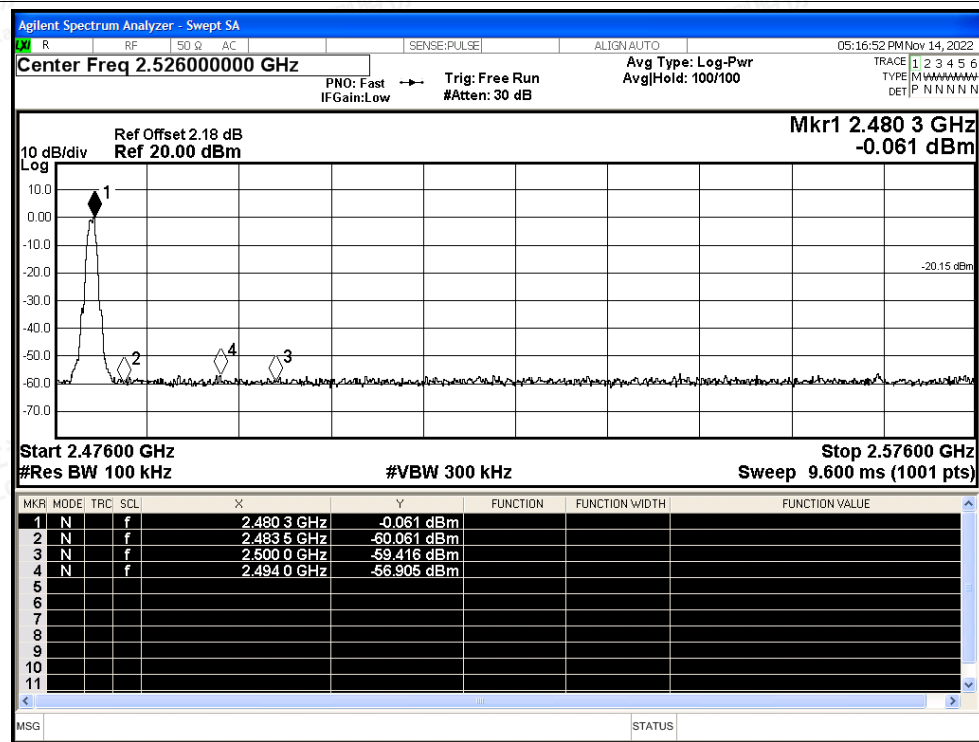




## Band Edge NVNT BLE 2480MHz Ant Ref



## Band Edge NVNT BLE 2480MHz Ant Emission







## B.6 Conducted RF Spurious Emission

| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | BLE  | 2402            | Ant     | -55.5           | -20         | Pass    |
| NVNT      | BLE  | 2440            | Ant     | -55.88          | -20         | Pass    |
| NVNT      | BLE  | 2480            | Ant     | -55.46          | -20         | Pass    |

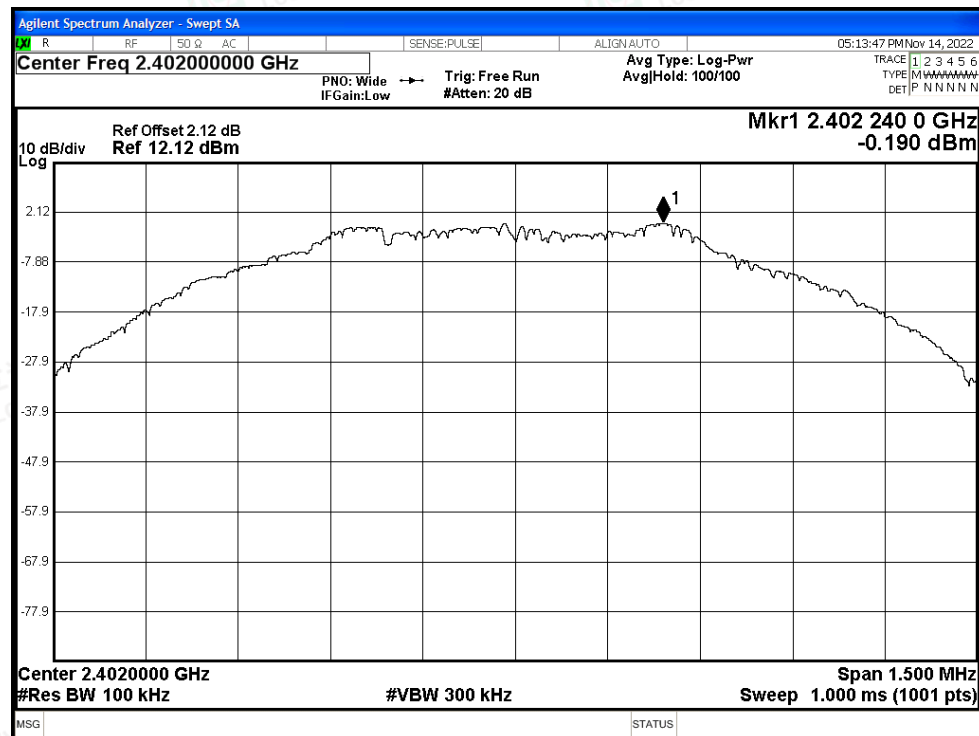


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

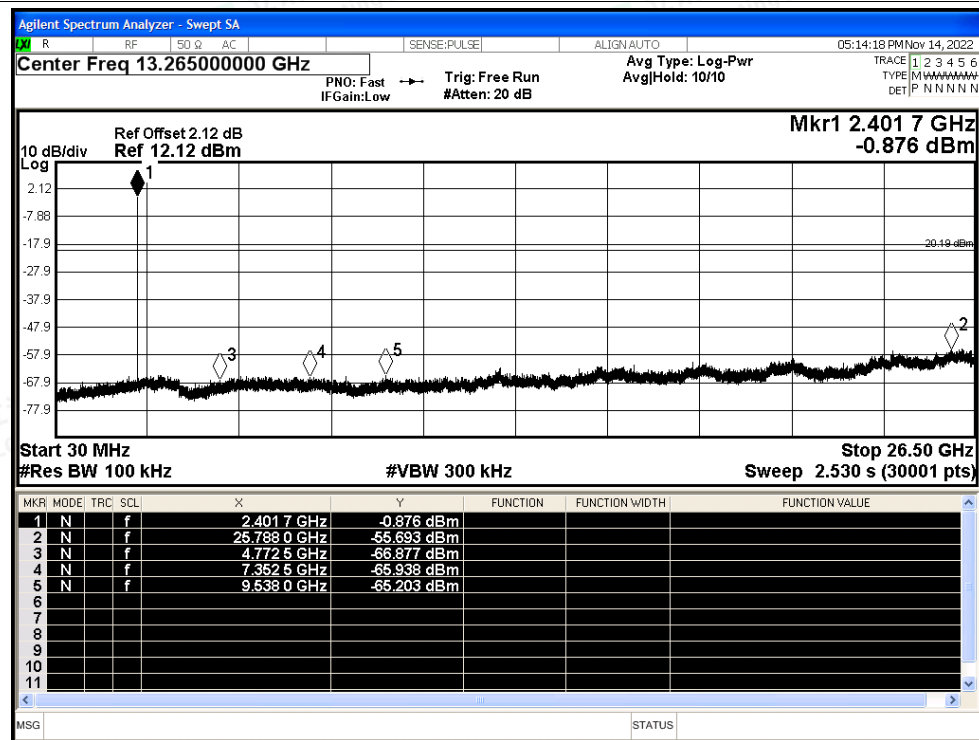


## Test Graphs

Tx. Spurious NVNT BLE 2402MHz Ant Ref

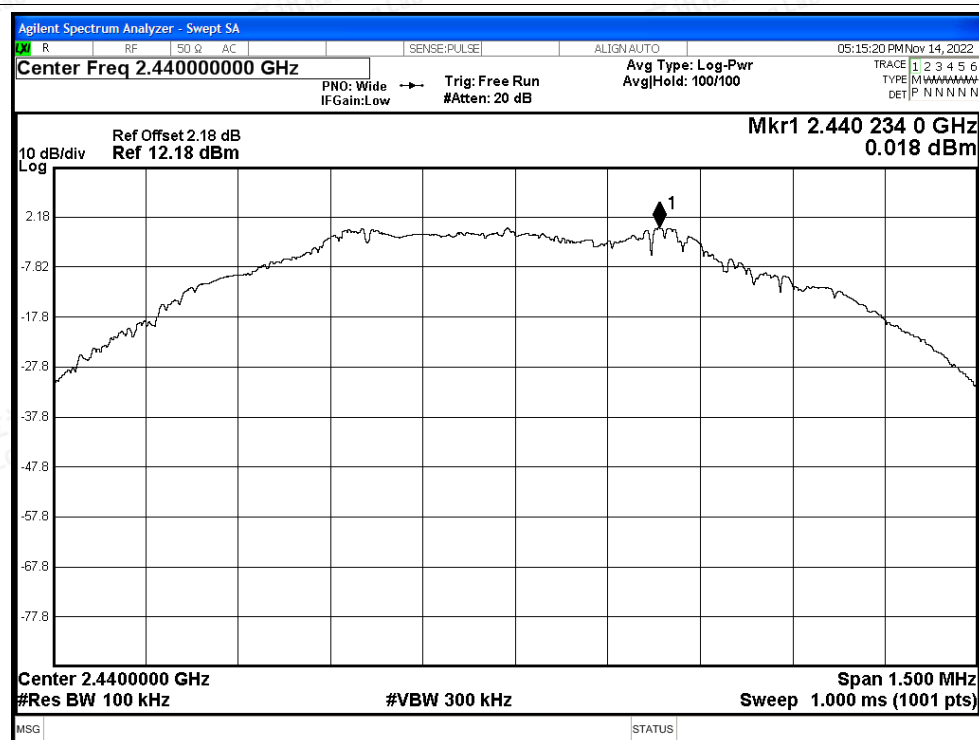


Tx. Spurious NVNT BLE 2402MHz Ant Emission

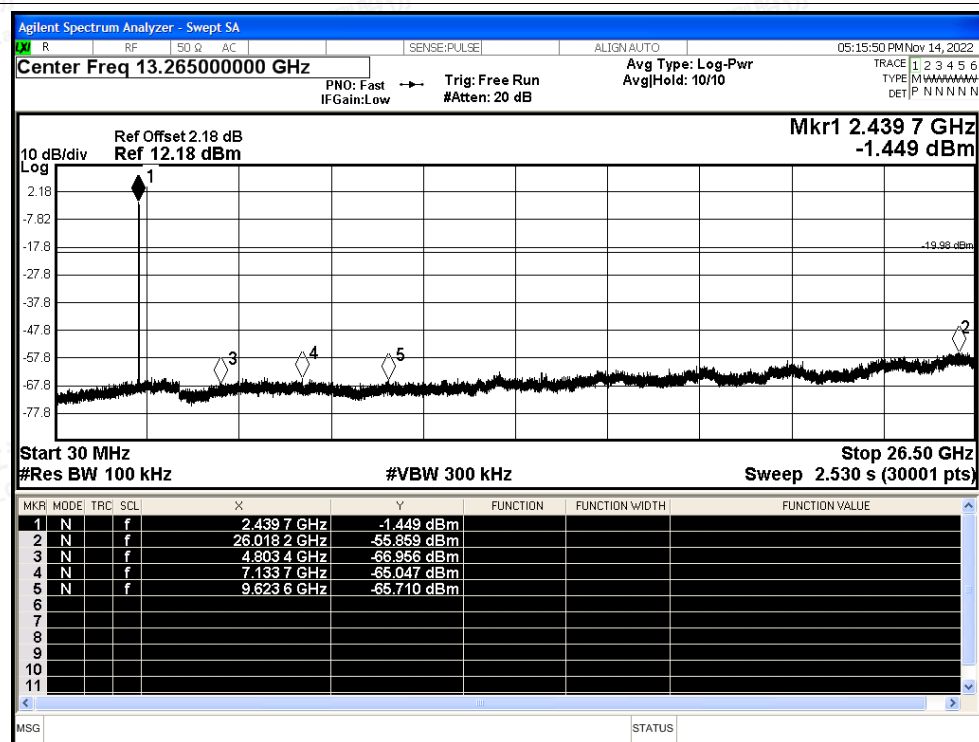




## Tx. Spurious NVNT BLE 2440MHz Ant Ref

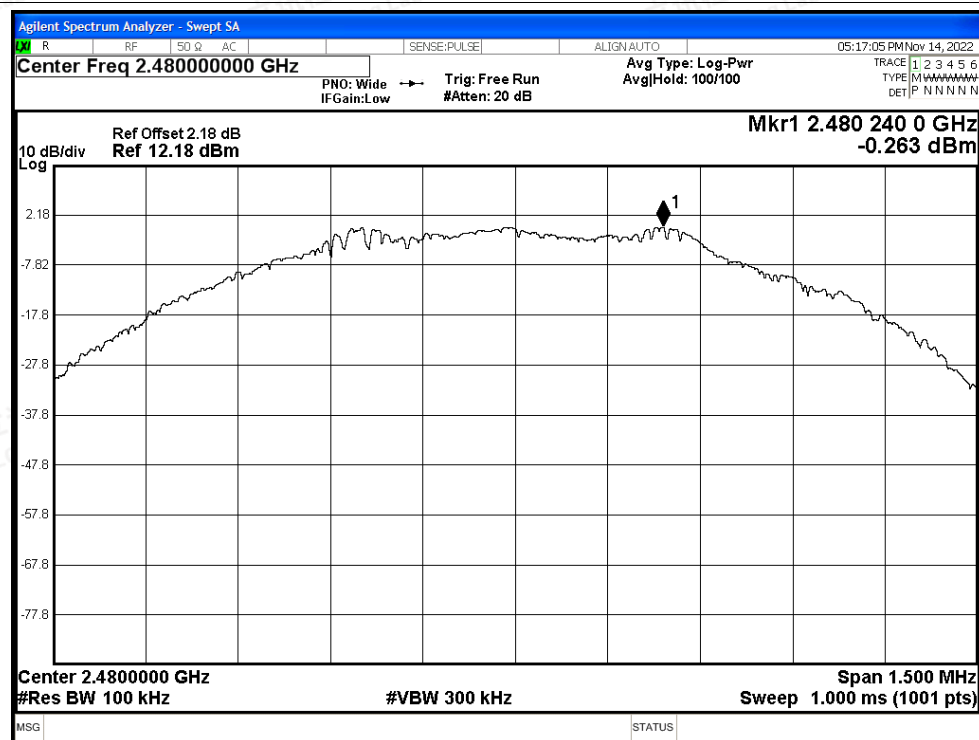


## Tx. Spurious NVNT BLE 2440MHz Ant Emission

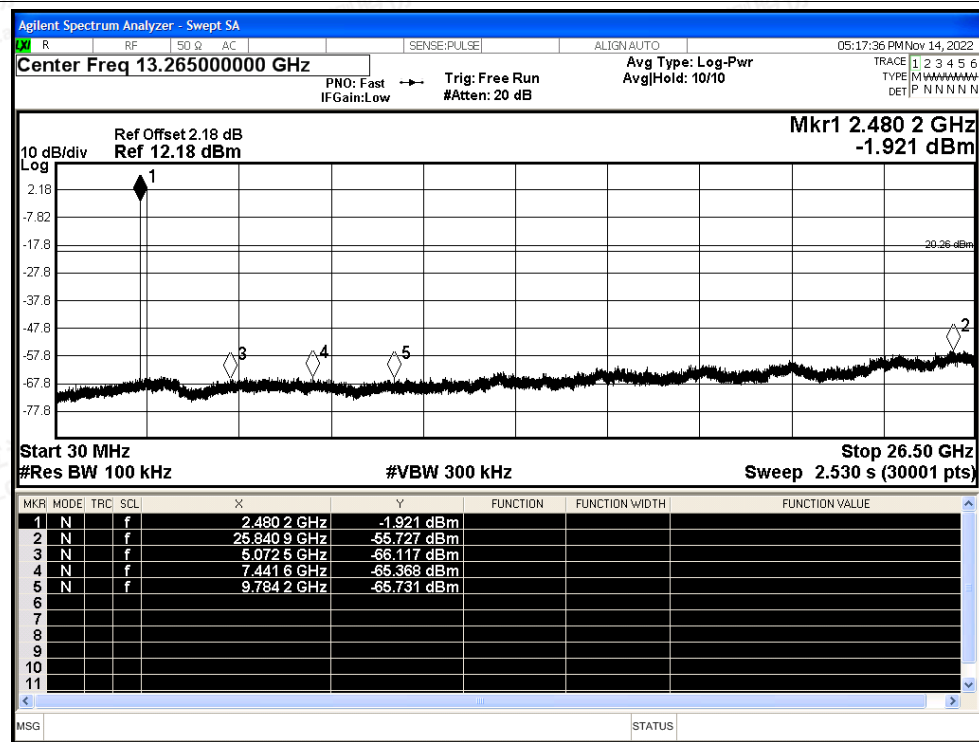




## Tx. Spurious NVNT BLE 2480MHz Ant Ref



## Tx. Spurious NVNT BLE 2480MHz Ant Emission





## B.7 Duty Cycle

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

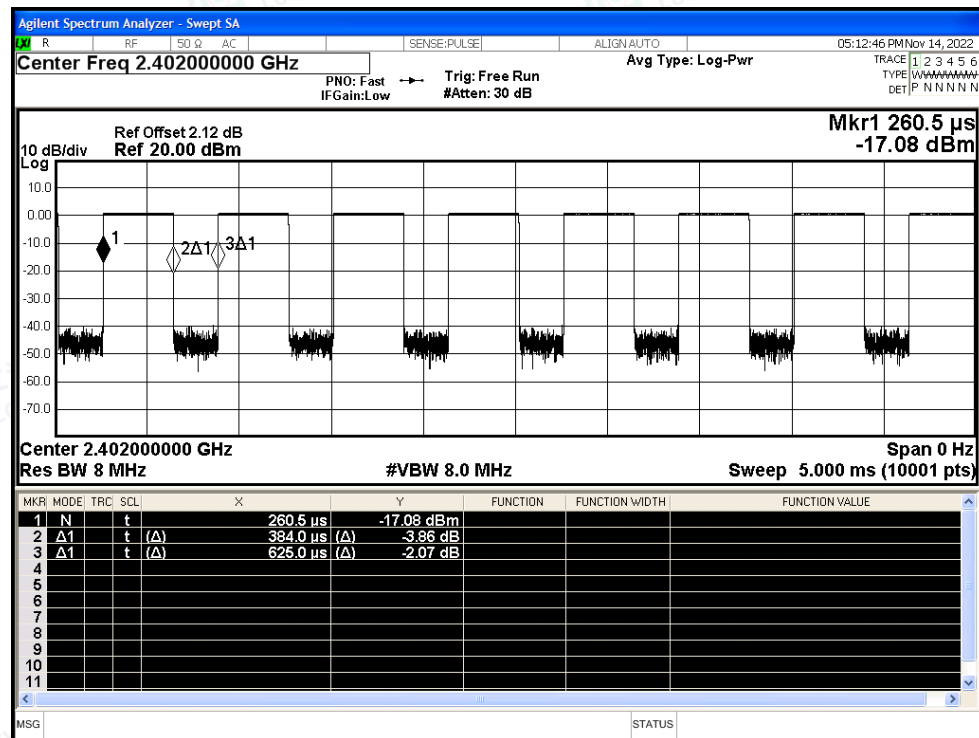


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

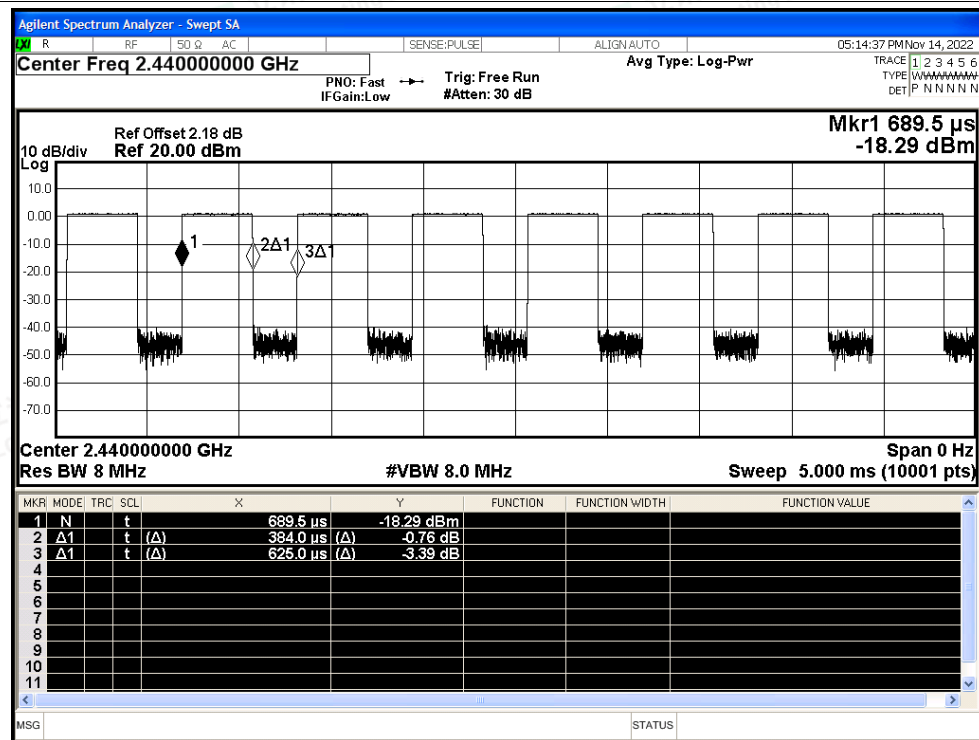


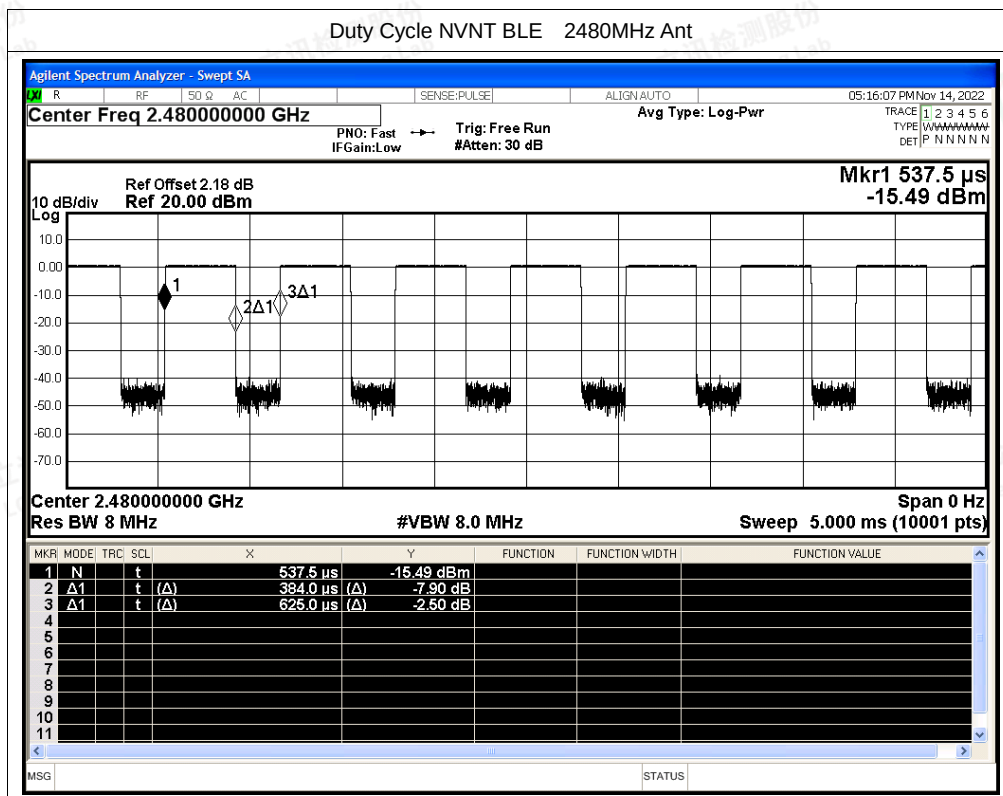
## Test Graphs

Duty Cycle NVNT BLE 2402MHz Ant



Duty Cycle NVNT BLE 2440MHz Ant







## B.8 Restrict Band

| Condition | Mode | Frequency<br>(MHz) | Antenna | Spur Freq<br>(MHz) | Power<br>(dBm) | Gain<br>(dBi) | E<br>(dBuV/m) | Detector | Limit<br>(dBuV/m) | Verdict |
|-----------|------|--------------------|---------|--------------------|----------------|---------------|---------------|----------|-------------------|---------|
| NVNT      | BLE  | 2402               | Ant     | 2310               | -50.98         | 3.2           | 47.45         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2310               | -59.82         | 3.2           | 38.61         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2338.8             | -46.91         | 3.2           | 51.52         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2378.832           | -58.82         | 3.2           | 39.61         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2390               | -51.19         | 3.2           | 47.24         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2402               | Ant     | 2390               | -59.31         | 3.2           | 39.12         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.5             | -50.68         | 3.2           | 47.75         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.5             | -58.7          | 3.2           | 39.73         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2495.344           | -46.44         | 3.2           | 51.99         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2483.632           | -58.26         | 3.2           | 40.17         | Average  | 54                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2500               | -51.23         | 3.2           | 47.20         | Peak     | 74                | Pass    |
| NVNT      | BLE  | 2480               | Ant     | 2500               | -59.07         | 3.2           | 39.36         | Average  | 54                | Pass    |



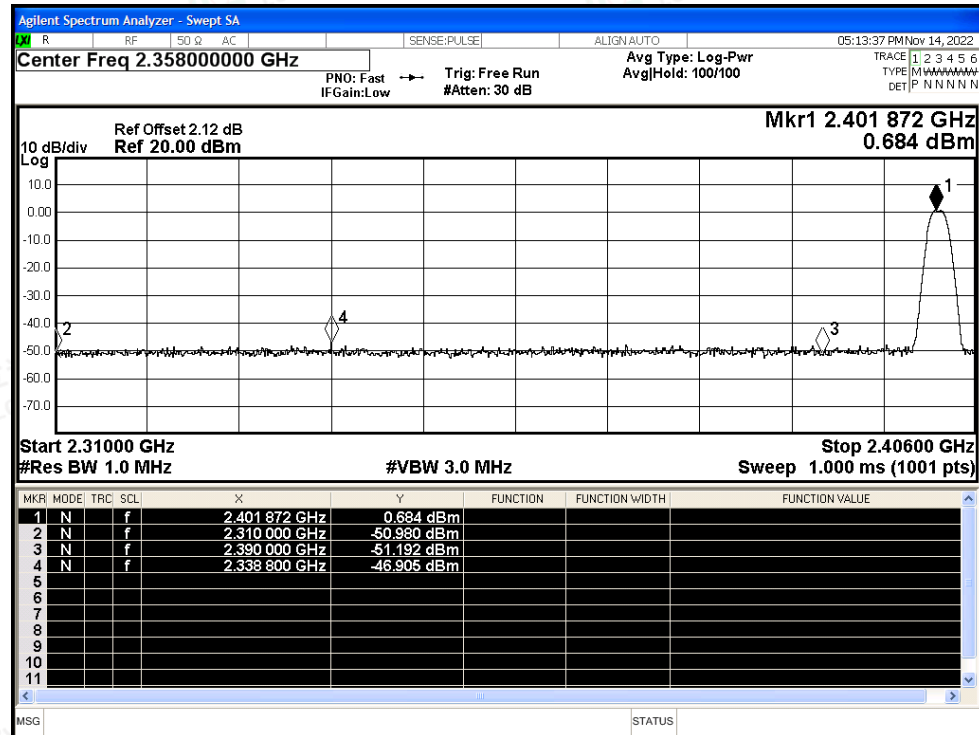
Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity



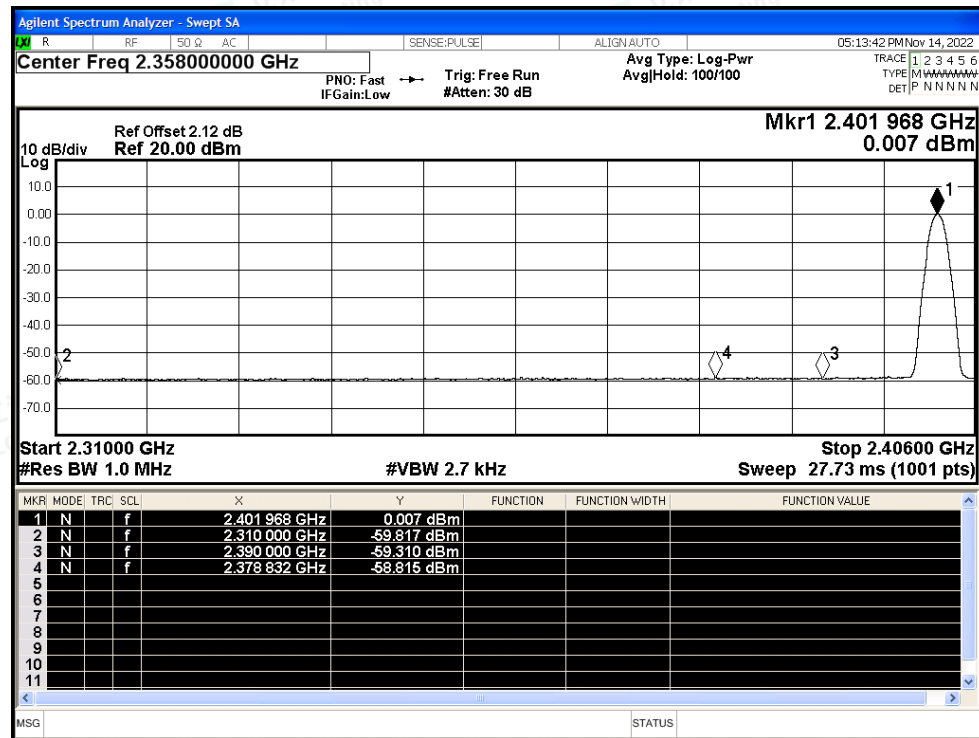


## Test Graphs

## Restrict Band NVNT BLE 2402MHz Ant Peak

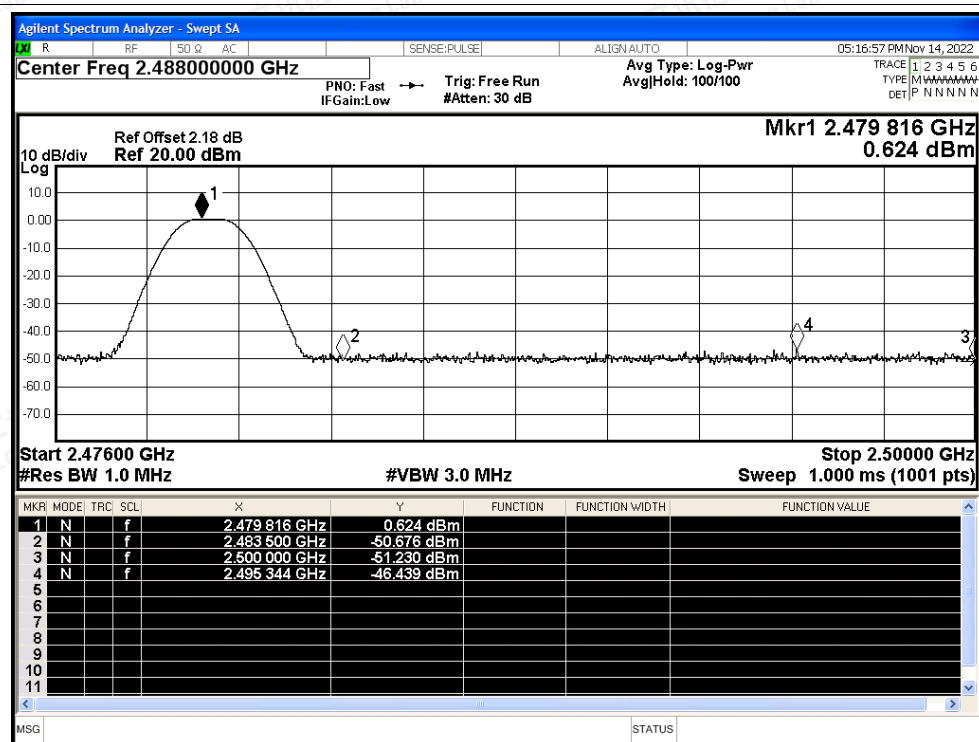


## Restrict Band NVNT BLE 2402MHz Ant Average





## Restrict Band NVNT BLE 2480MHz Ant Peak



## Restrict Band NVNT BLE 2480MHz Ant Average

