



## Appendix A

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

Product Name: Nucleus-M II Motor Kit

Test Model: WLC-T06-MK

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.6°C    |
| Relative Humidity: | 52.3%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Can Kun   |
| Supervised by:     | Nick Peng |



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



## A.1 -6dB Bandwidth

| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | 1.321                 | $\geq 0.5$                  | Pass    |
| NVNT      | ZigBee | 2440            | Ant1    | 1.521                 | $\geq 0.5$                  | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 1.599                 | $\geq 0.5$                  | Pass    |

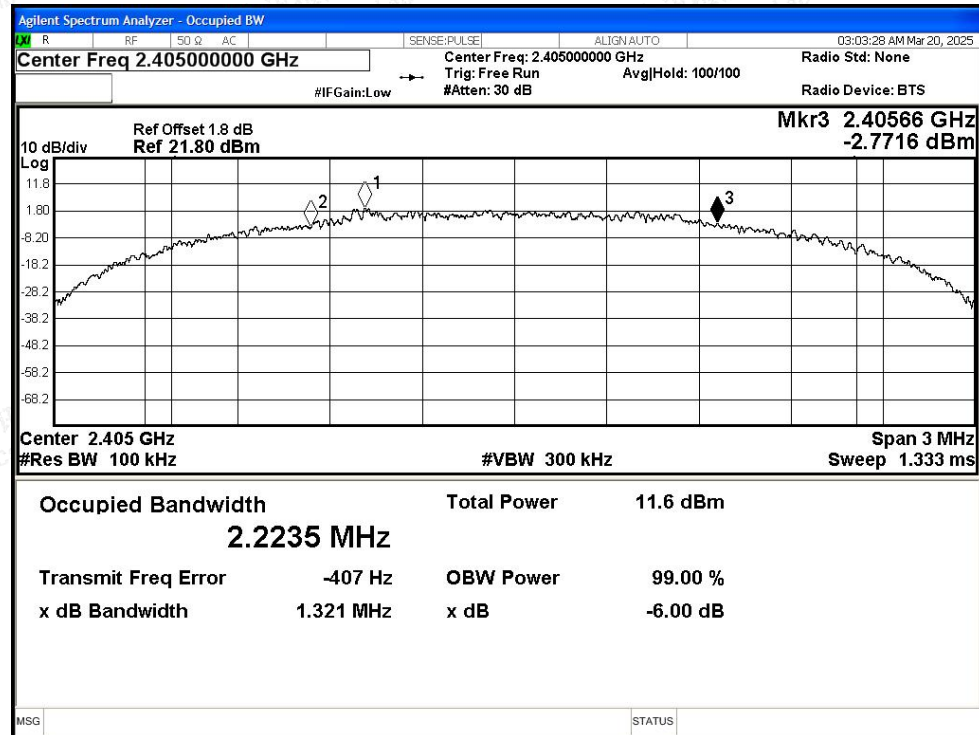


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

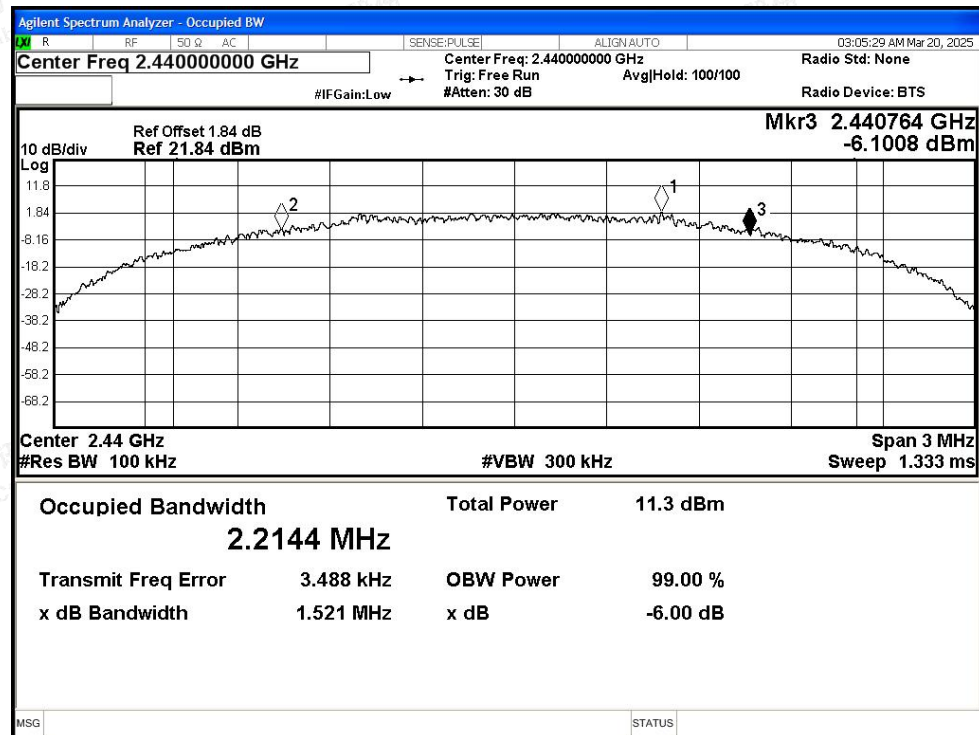


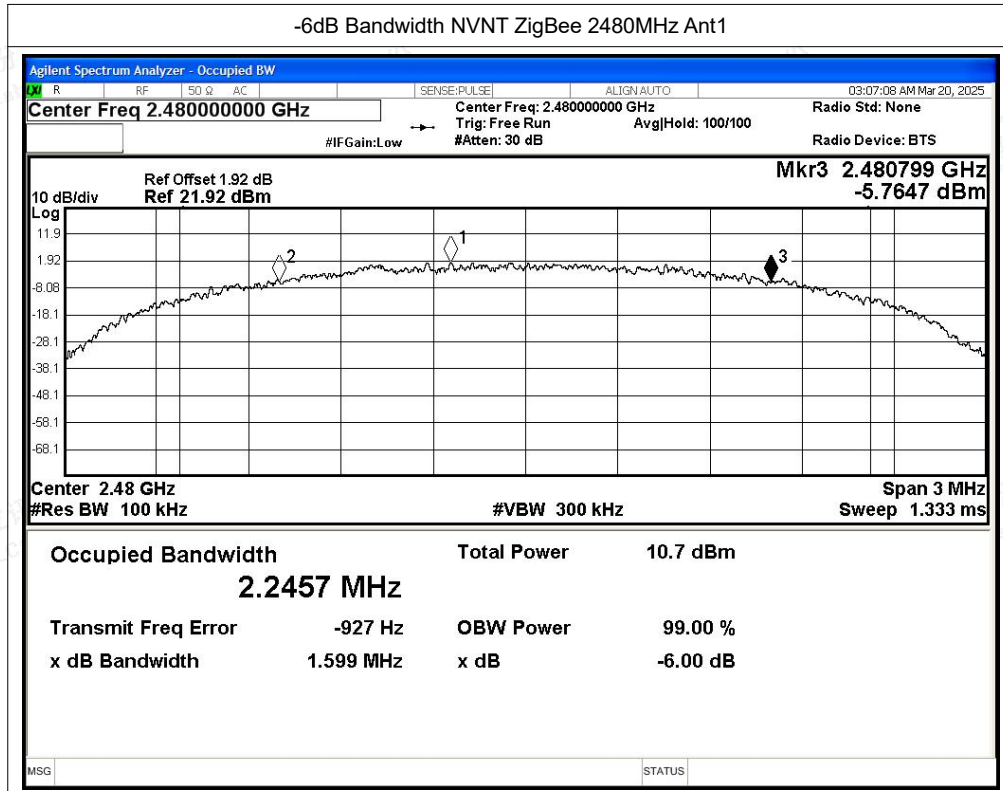
## Test Graphs

## -6dB Bandwidth NVNT ZigBee 2405MHz Ant1



## -6dB Bandwidth NVNT ZigBee 2440MHz Ant1







## A.2 Maximum Peak Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | 6.71                  | 30          | Pass    |
| NVNT      | ZigBee | 2440            | Ant1    | 6.49                  | 30          | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 6.96                  | 30          | Pass    |

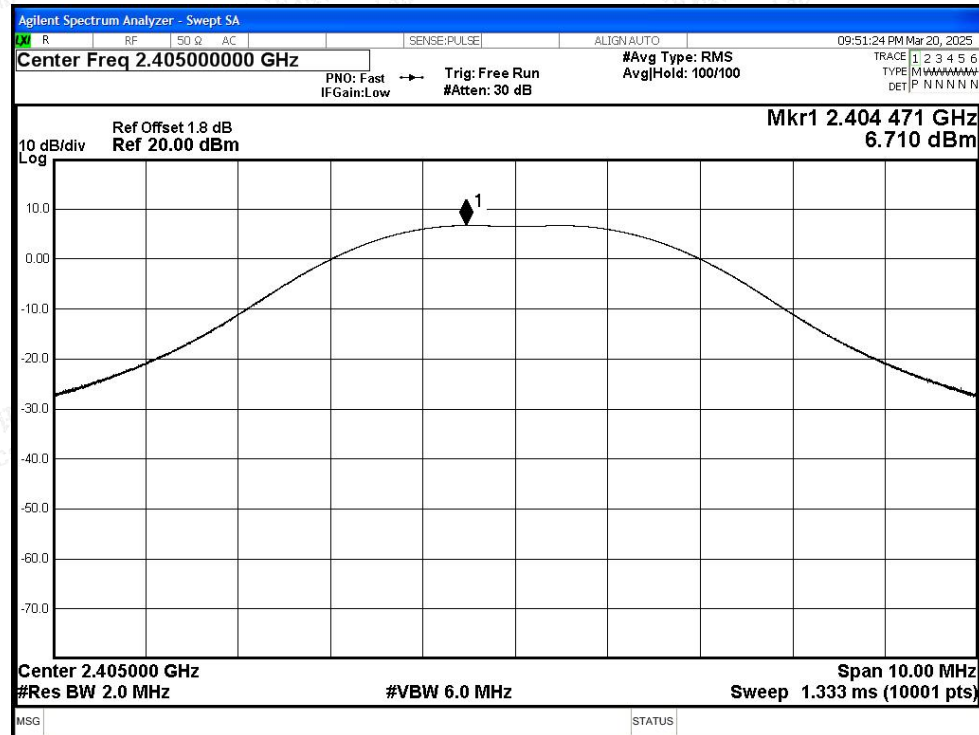


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

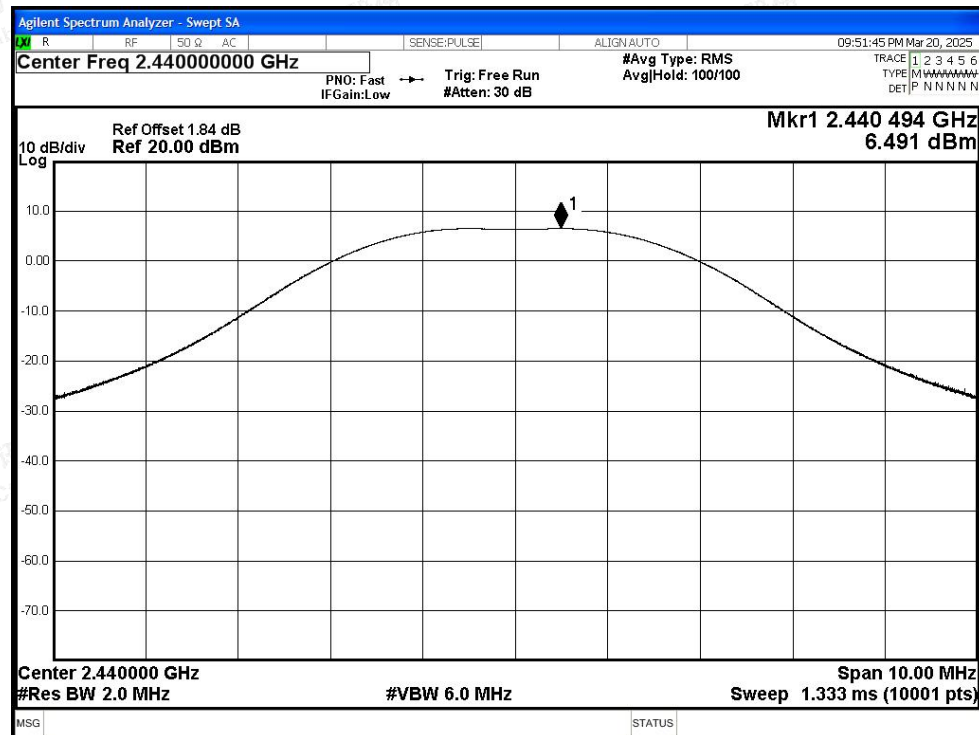


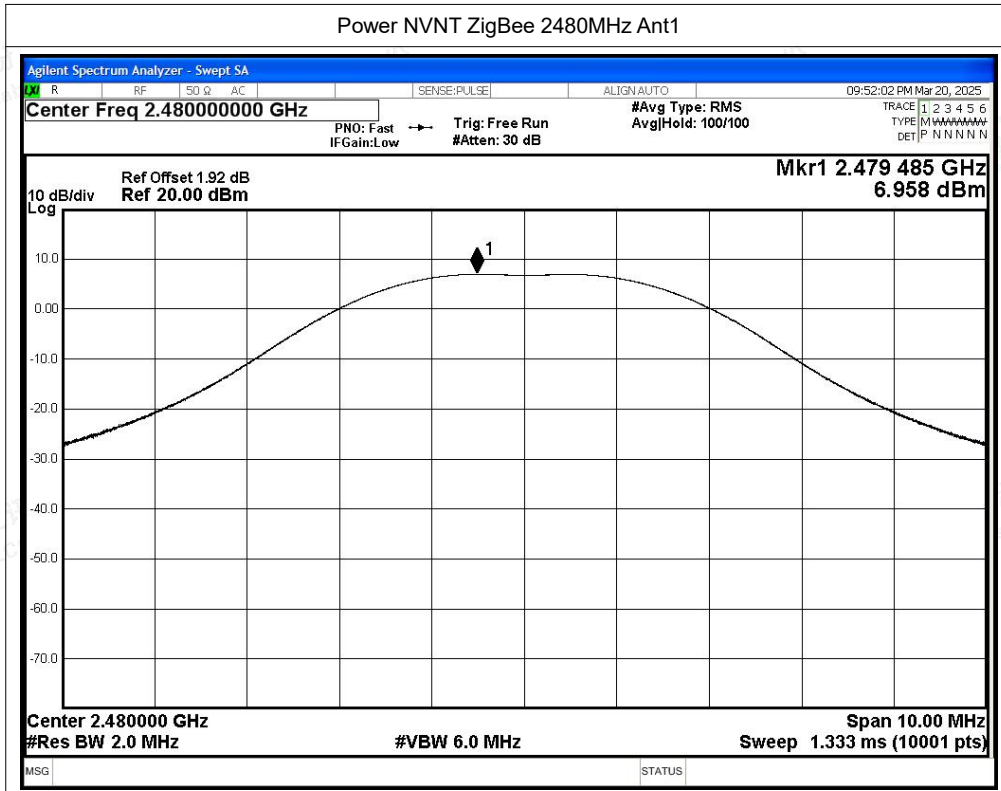
## Test Graphs

## Power NVNT ZigBee 2405MHz Ant1



## Power NVNT ZigBee 2440MHz Ant1







### A.3 Maximum Power Spectral Density Level

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|--------------------------|------------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | -7.69                    | 8                | Pass    |
| NVNT      | ZigBee | 2440            | Ant1    | -8.9                     | 8                | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | -9.68                    | 8                | Pass    |

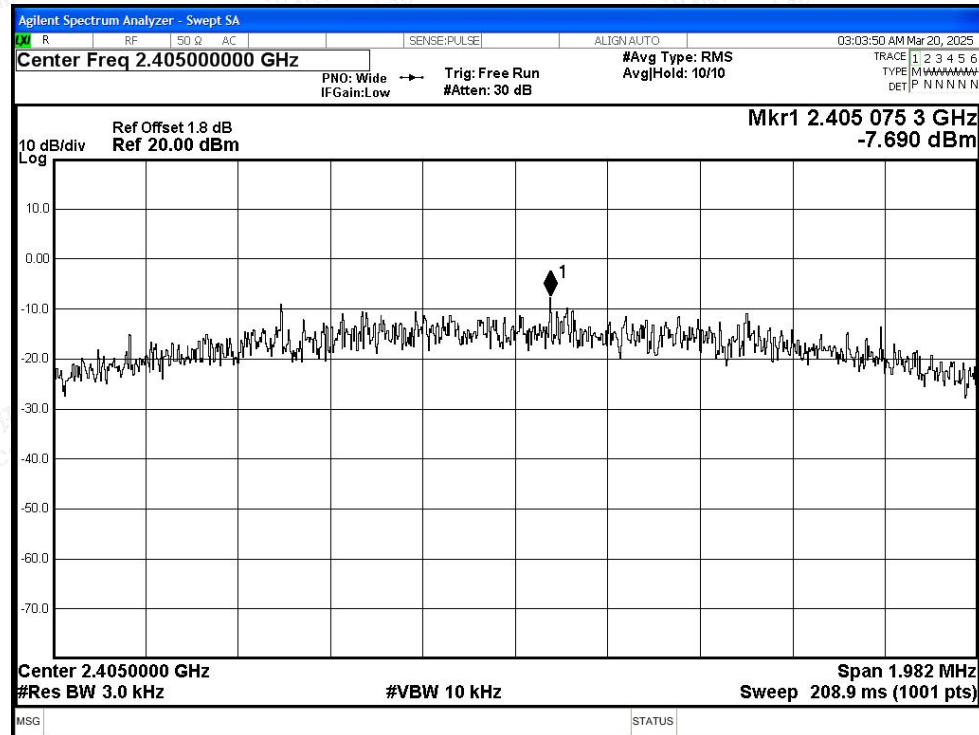


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

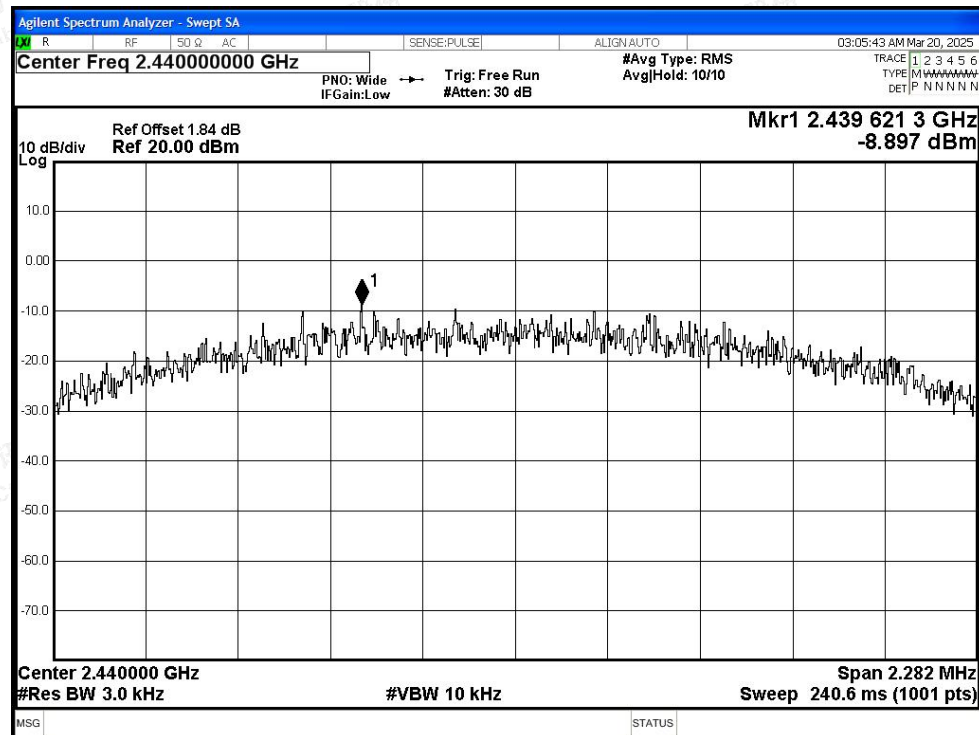


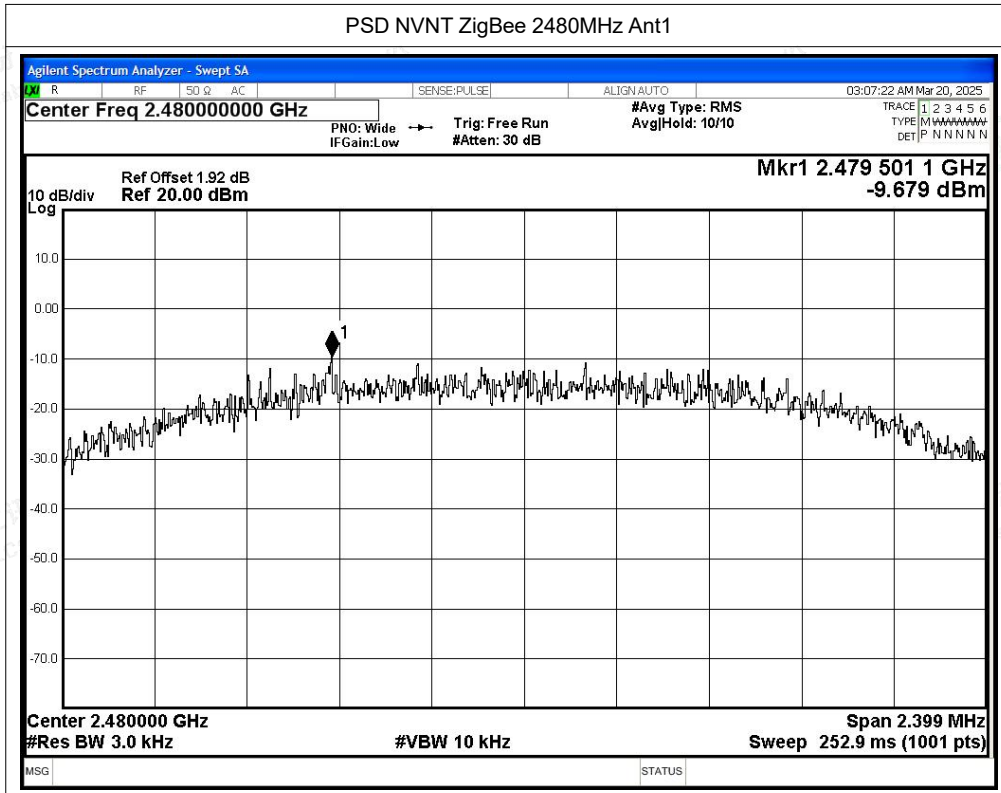
## Test Graphs

PSD NVNT ZigBee 2405MHz Ant1



PSD NVNT ZigBee 2440MHz Ant1







## A.4 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | -43.05          | -20         | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | -37.54          | -20         | Pass    |

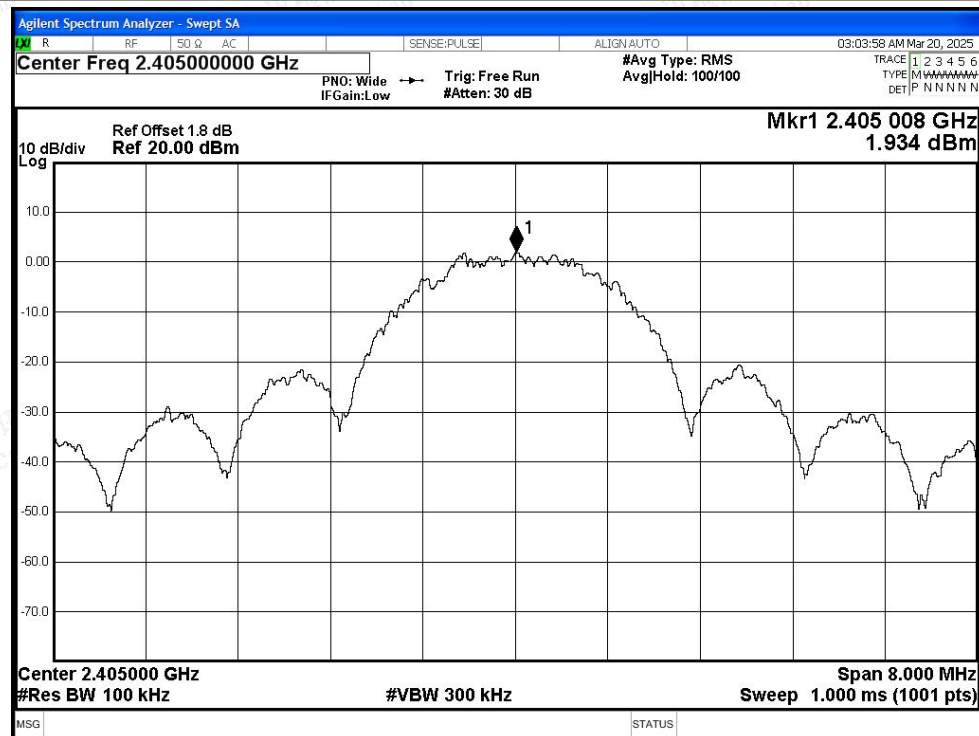


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

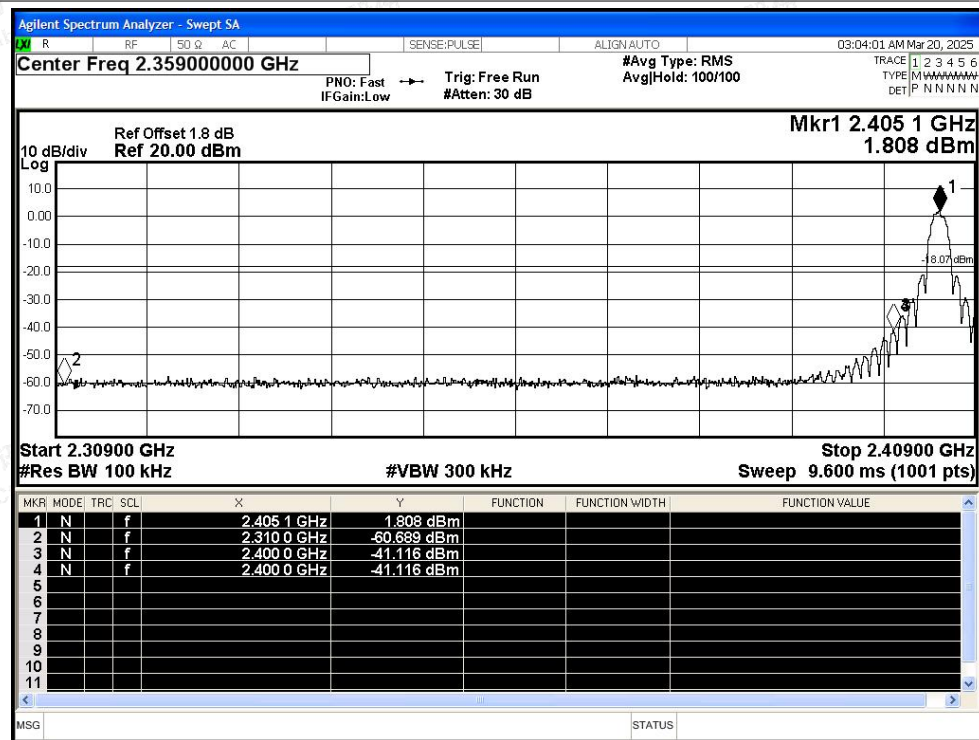


## Test Graphs

## Band Edge NVNT ZigBee 2405MHz Ant1 Ref



## Band Edge NVNT ZigBee 2405MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

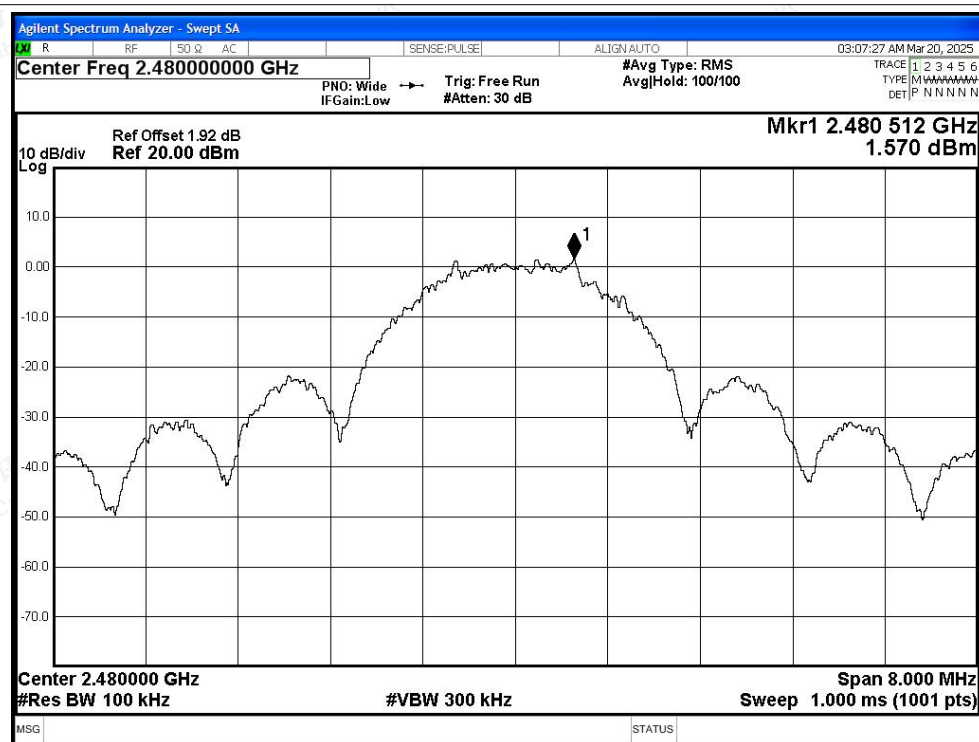
Add: 101, 201 Bldg A &amp; 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

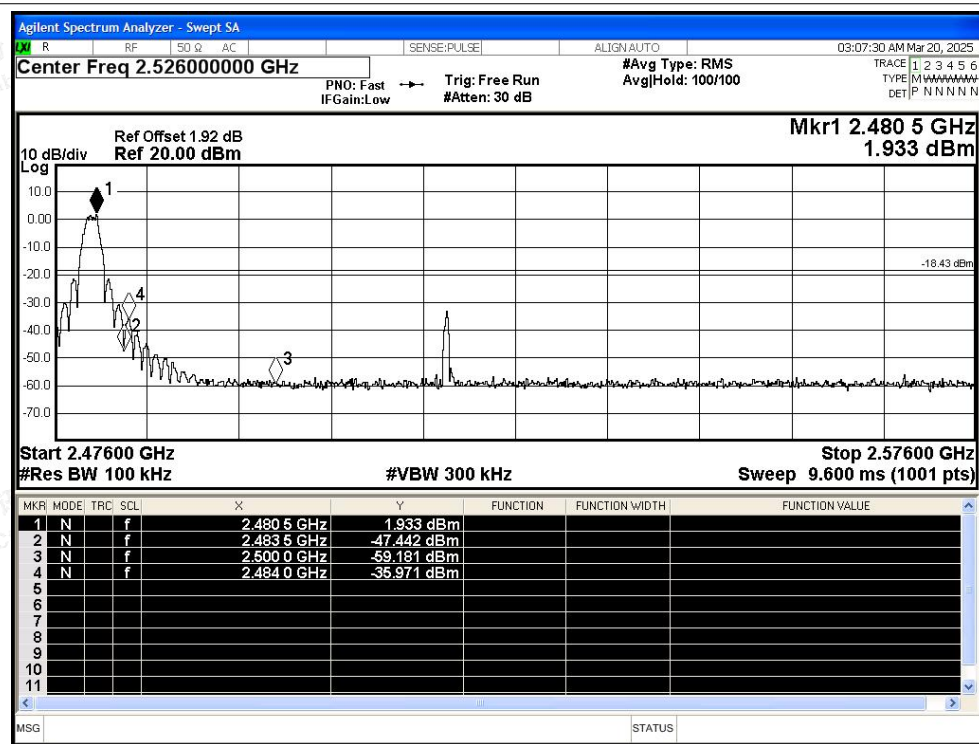
Scan code to check authenticity



## Band Edge NVNT ZigBee 2480MHz Ant1 Ref



## Band Edge NVNT ZigBee 2480MHz Ant1 Emission





## A.5 Conducted RF Spurious Emission

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | -56.46          | -20         | Pass    |
| NVNT      | ZigBee | 2440            | Ant1    | -53.74          | -20         | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | -58.18          | -20         | Pass    |

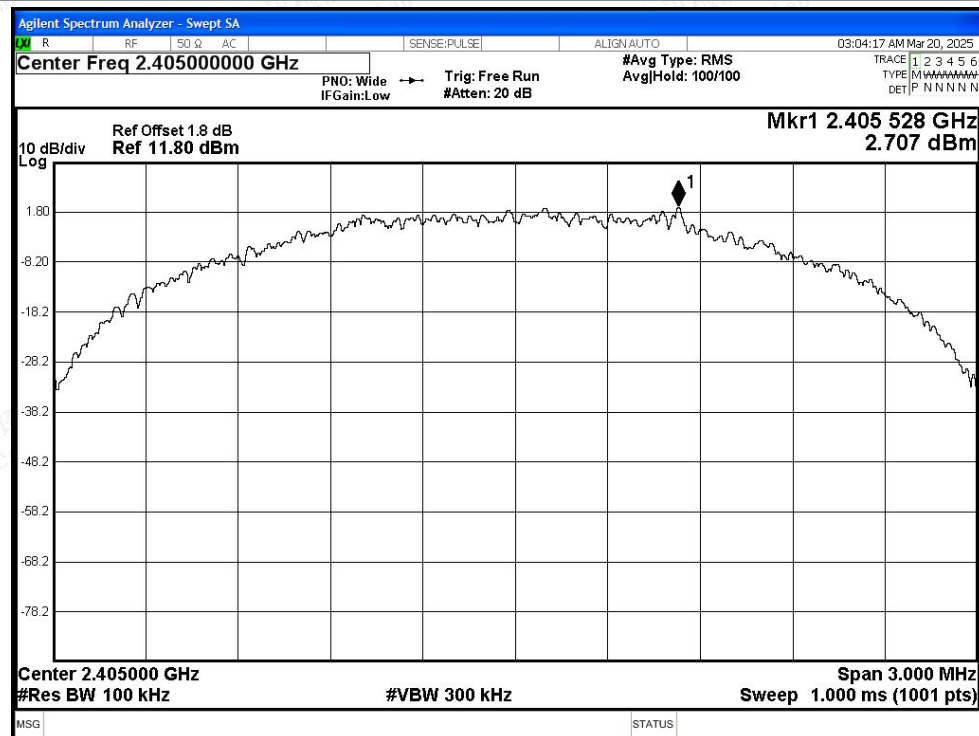


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

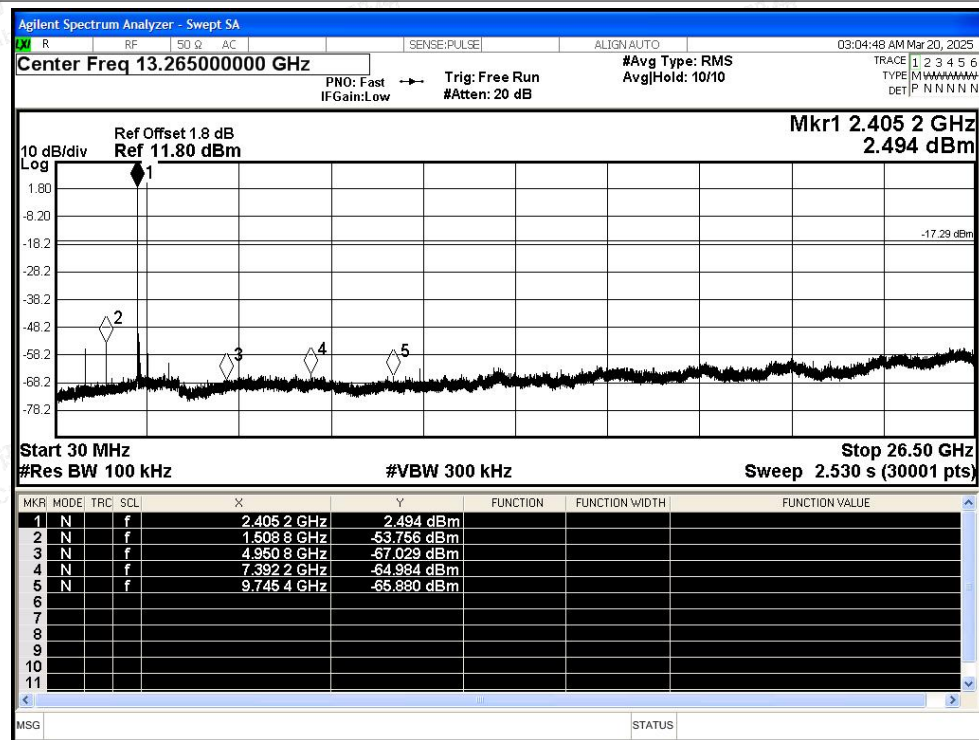


## Test Graphs

## Tx. Spurious NVNT ZigBee 2405MHz Ant1 Ref

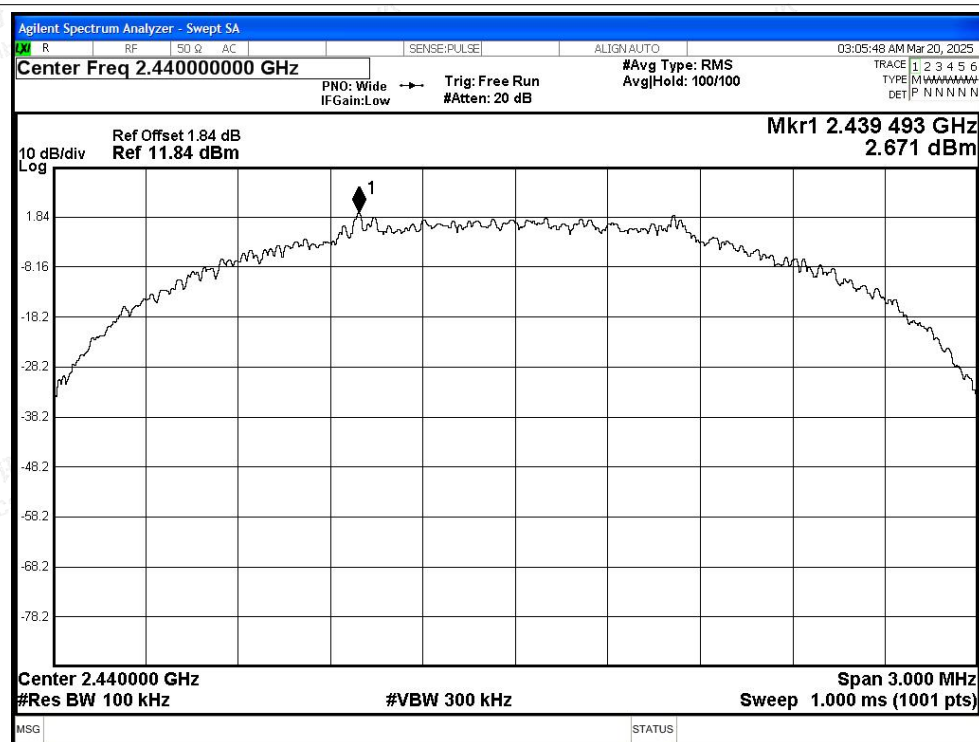


## Tx. Spurious NVNT ZigBee 2405MHz Ant1 Emission

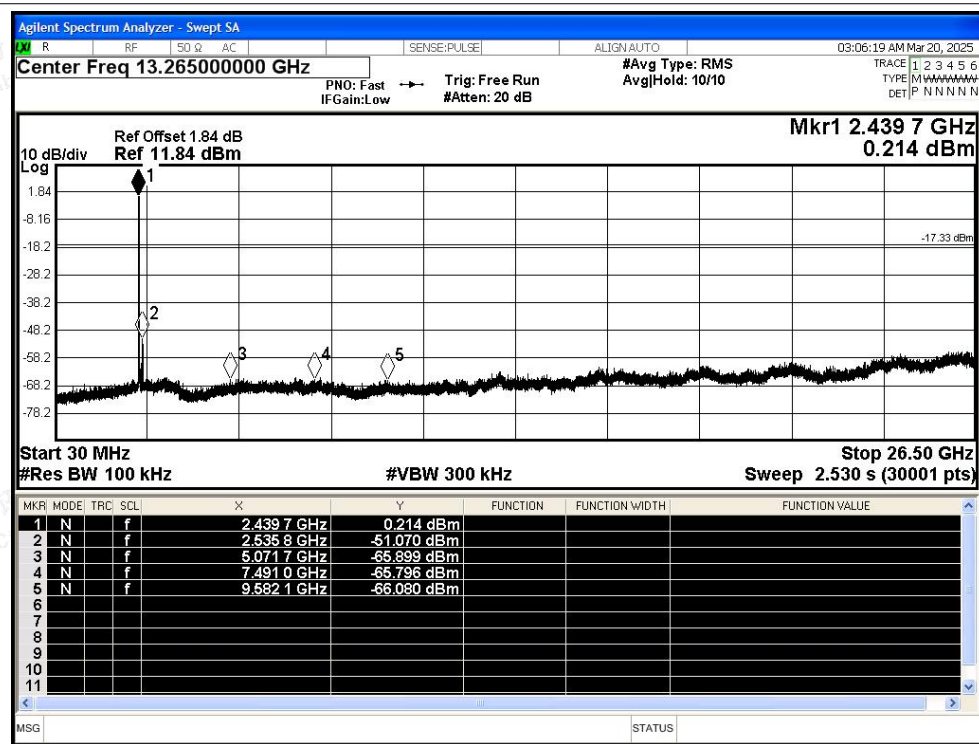




## Tx. Spurious NVNT ZigBee 2440MHz Ant1 Ref

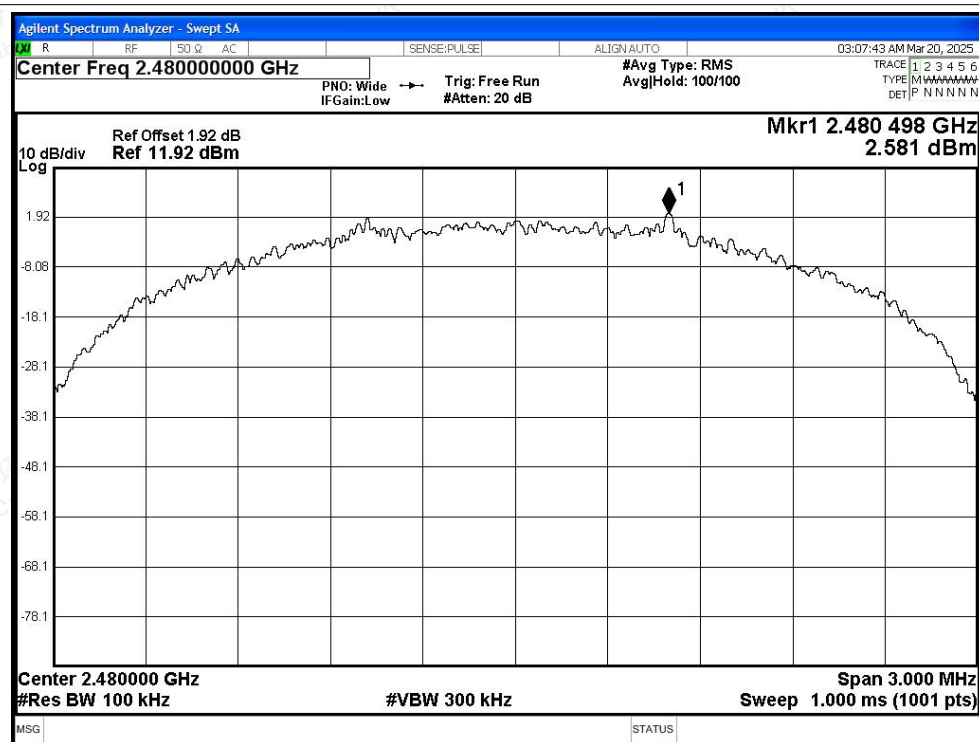


## Tx. Spurious NVNT ZigBee 2440MHz Ant1 Emission

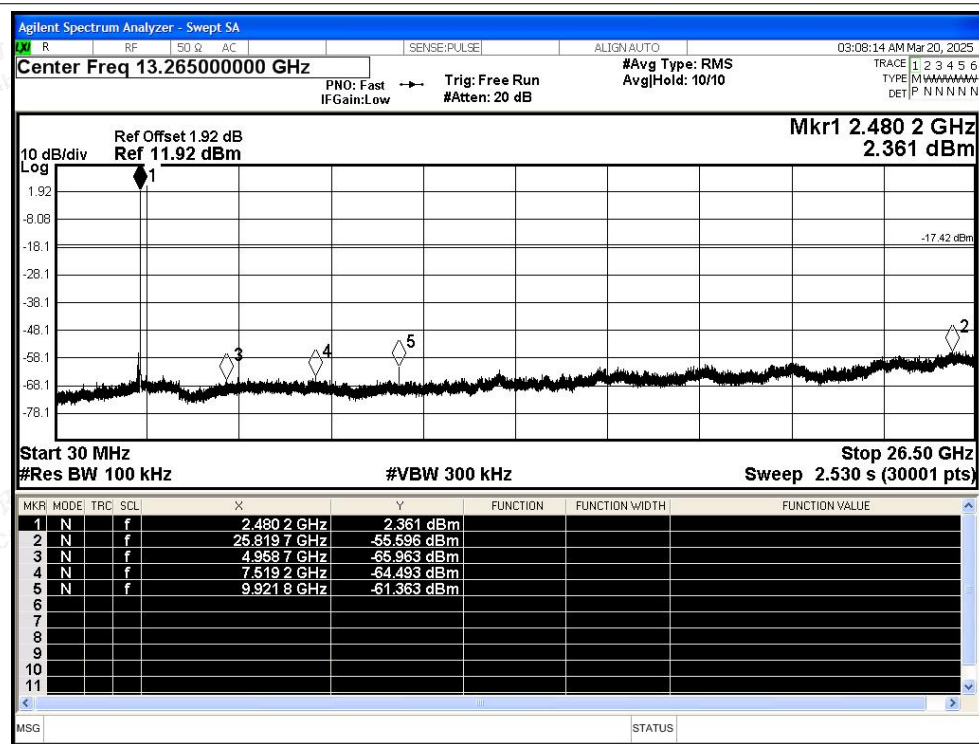




## Tx. Spurious NVNT ZigBee 2480MHz Ant1 Ref



## Tx. Spurious NVNT ZigBee 2480MHz Ant1 Emission





## A.6 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | ZigBee | 2405            | Ant1    | 100            | 0                      | 0         |
| NVNT      | ZigBee | 2440            | Ant1    | 100            | 0                      | 0         |
| NVNT      | ZigBee | 2480            | Ant1    | 100            | 0                      | 0         |

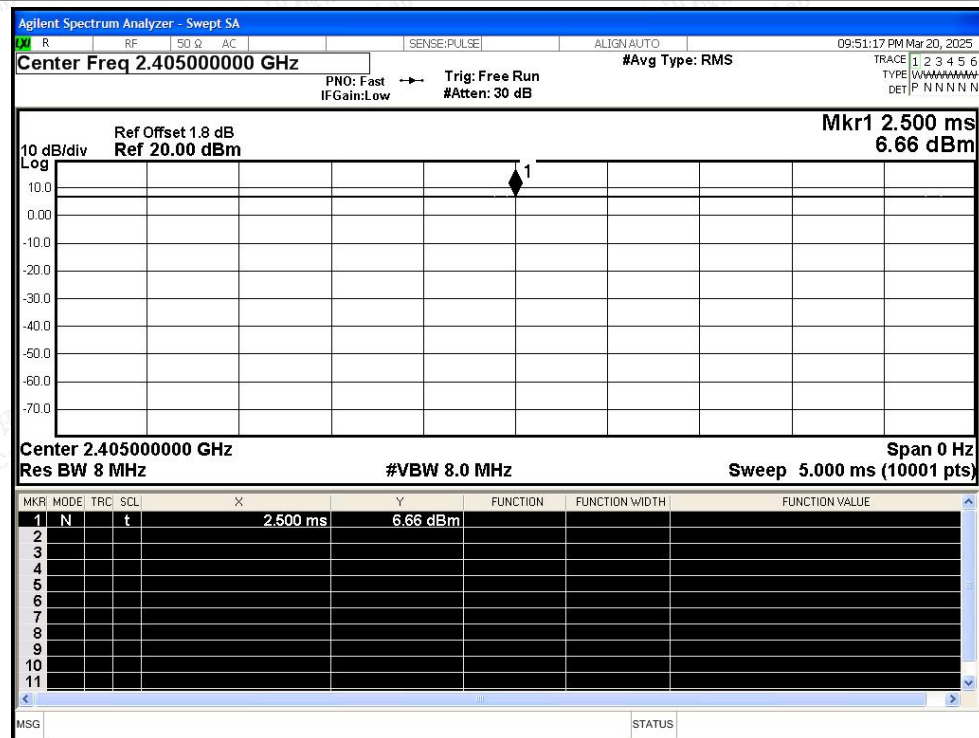


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

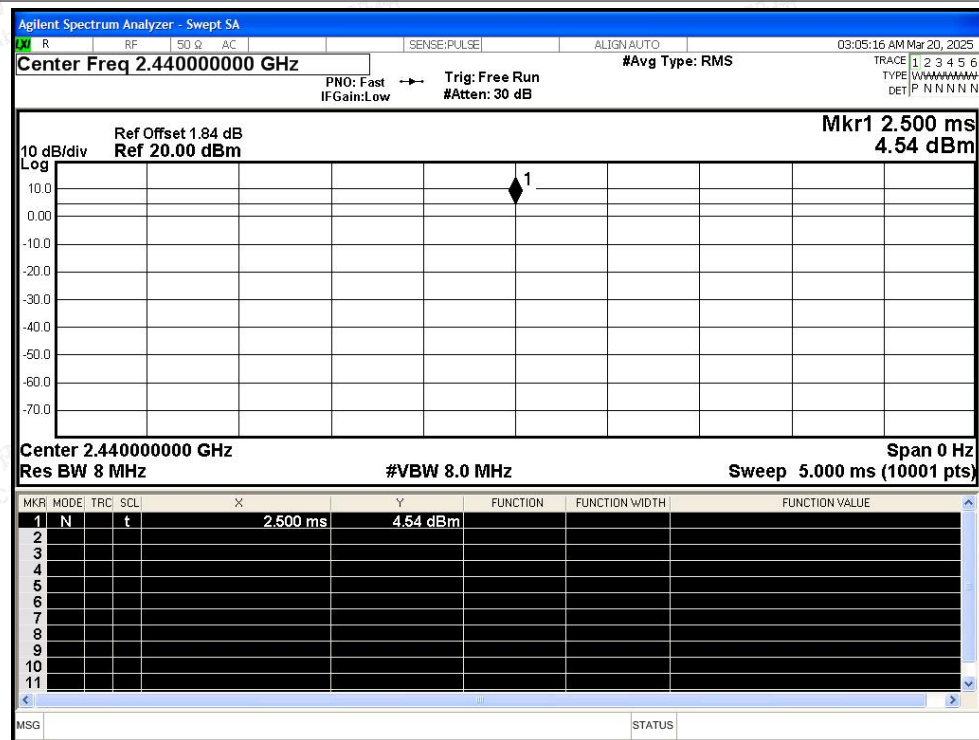


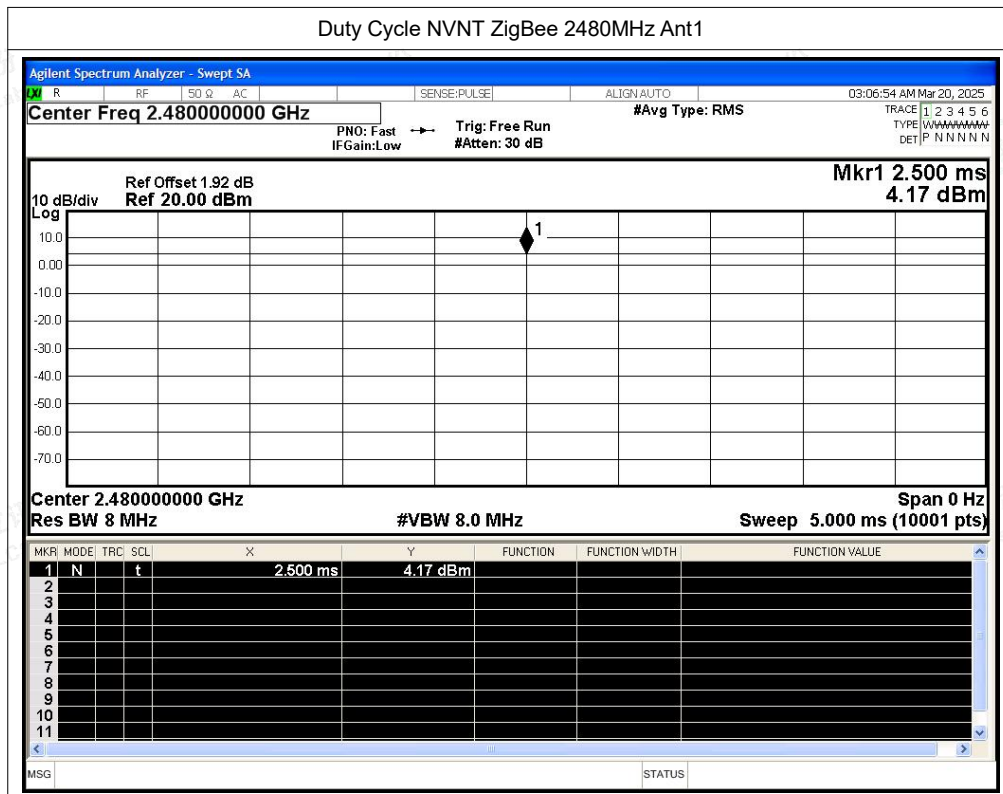
## Test Graphs

## Duty Cycle NVNT ZigBee 2405MHz Ant1



## Duty Cycle NVNT ZigBee 2440MHz Ant1







## A.7 Restrict Band

| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | Duty Factor (dB) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------------|------------|----------|----------------|---------|
| NVNT      | ZigBee | 2405            | Ant1    | 2310            | -50.48      | 2.0        | -                | 46.78      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2405            | Ant1    | 2310            | -58.56      | 2.0        | 0                | 38.7       | Average  | 54             | Pass    |
| NVNT      | ZigBee | 2405            | Ant1    | 2369.796        | -47.5       | 2.0        | -                | 49.76      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2405            | Ant1    | 2388.804        | -57.45      | 2.0        | 0                | 39.81      | Average  | 54             | Pass    |
| NVNT      | ZigBee | 2405            | Ant1    | 2390            | -50.33      | 2.0        | -                | 46.93      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2405            | Ant1    | 2390            | -57.53      | 2.0        | 0                | 39.73      | Average  | 54             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2483.5          | -42.18      | 2.0        | -                | 55.08      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2483.5          | -49.56      | 2.0        | 0                | 47.7       | Average  | 54             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2483.608        | -42.02      | 2.0        | -                | 55.24      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2483.512        | -49.56      | 2.0        | 0                | 47.7       | Average  | 54             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2500            | -50.7       | 2.0        | -                | 46.56      | Peak     | 74             | Pass    |
| NVNT      | ZigBee | 2480            | Ant1    | 2500            | -58.69      | 2.0        | 0                | 38.57      | Average  | 54             | Pass    |

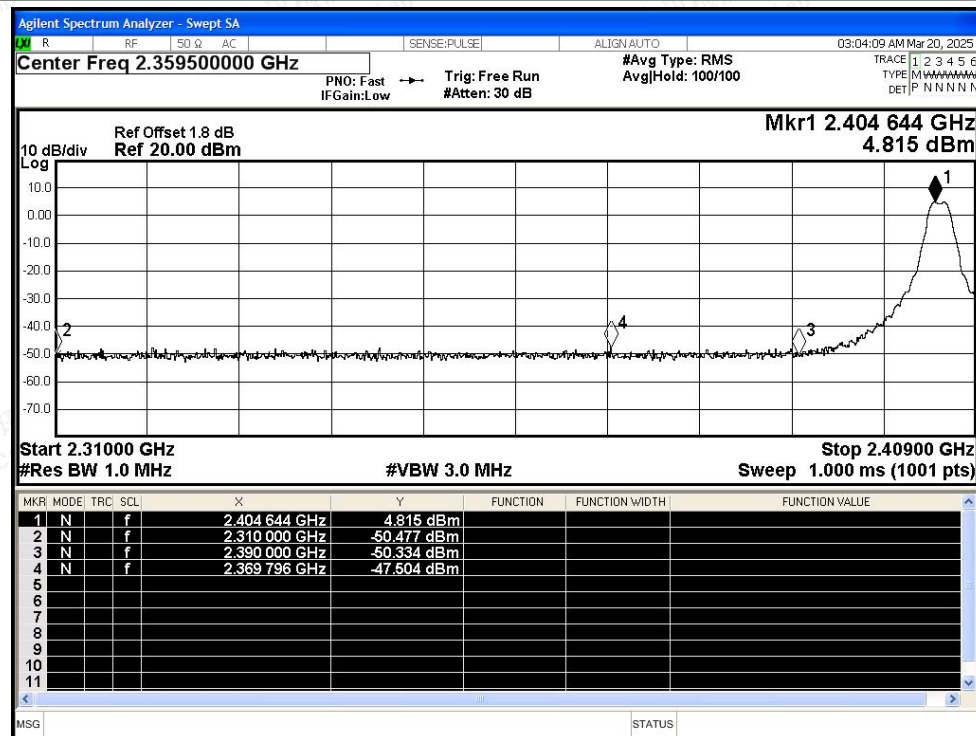


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street,  
Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

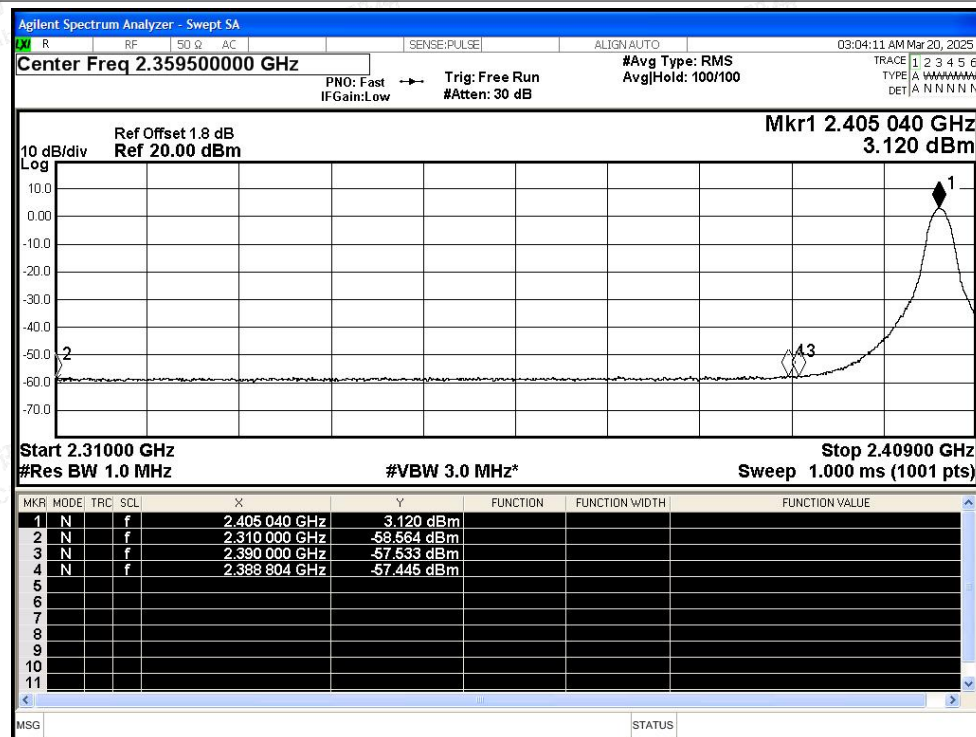


## Test Graphs

## Restrict Band NVNT ZigBee 2405MHz Ant1 Peak

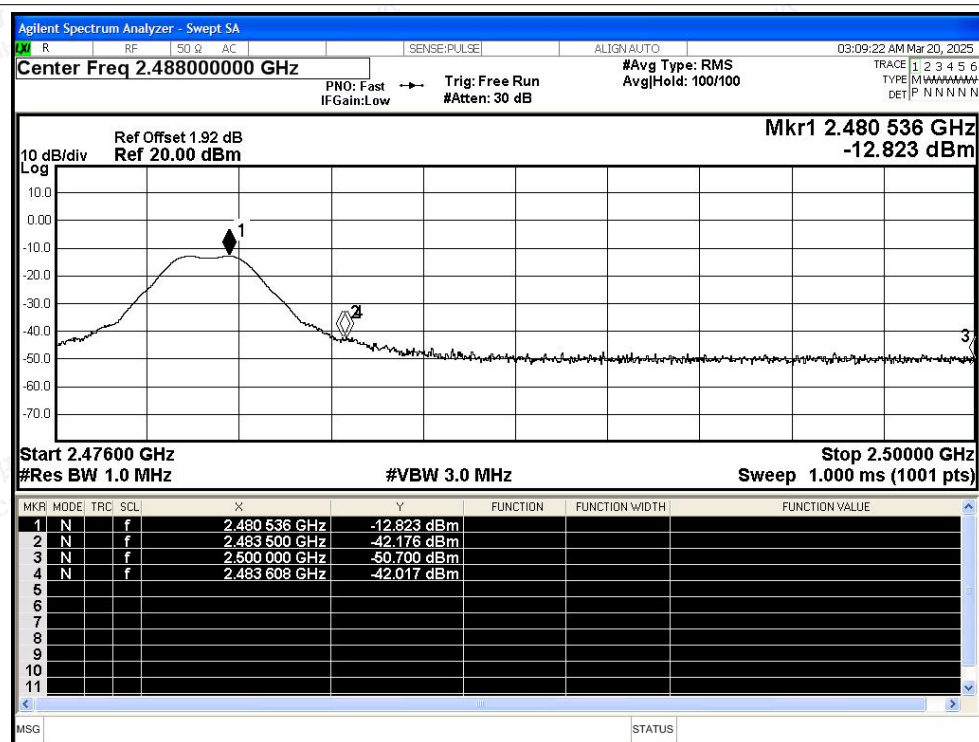


## Restrict Band NVNT ZigBee 2405MHz Ant1 Average





## Restrict Band NVNT ZigBee 2480MHz Ant1 Peak



## Restrict Band NVNT ZigBee 2480MHz Ant1 Average

