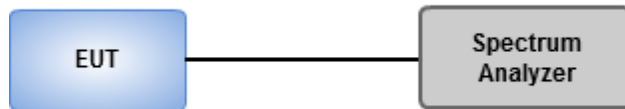


## 3.5 Emission and Occupied Bandwidth

### 3.5.1 Test Procedures

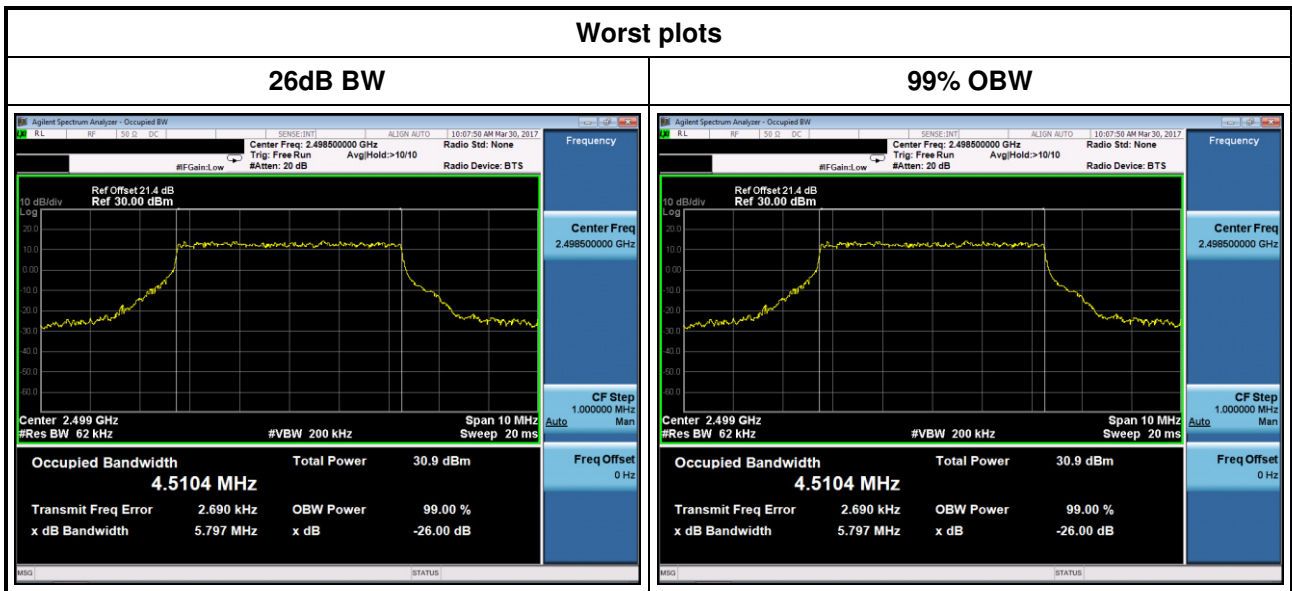
1. Set resolution bandwidth (RBW) = 62~220 kHz, Video bandwidth = 200 ~ 680 kHz for 5 ~ 20 MHz channel bandwidth
2. Set Detector = Peak, Trace mode = max hold, Sweep = auto couple, Allow the trace to stabilize.
3. Using 26dB and occupied bandwidth measurement function of spectrum analyzer to measure bandwidth

### 3.5.2 Test Setup



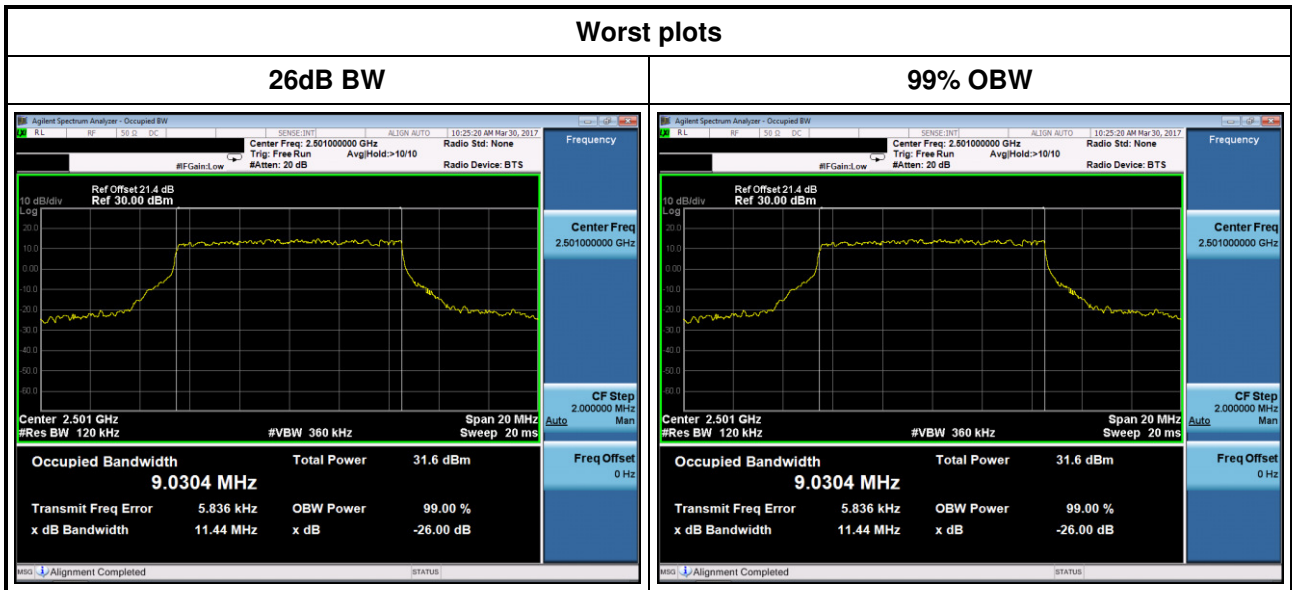
### 3.5.3 Test Result of Occupied Bandwidth

| Channel Bandwidth (MHz) | Modulation | Frequency (MHz) | 26dB BW (MHz) | 99% OBW (MHz) |
|-------------------------|------------|-----------------|---------------|---------------|
| 5                       | QPSK       | 2498.5          | 5.7970        | 4.5104        |
| 5                       | QPSK       | 2593.0          | 5.7270        | 4.5104        |
| 5                       | QPSK       | 2687.5          | 5.7660        | 4.5104        |
| 5                       | 16QAM      | 2498.5          | 5.6270        | 4.5037        |
| 5                       | 16QAM      | 2593.0          | 5.5480        | 4.4981        |
| 5                       | 16QAM      | 2687.5          | 5.5340        | 4.4992        |

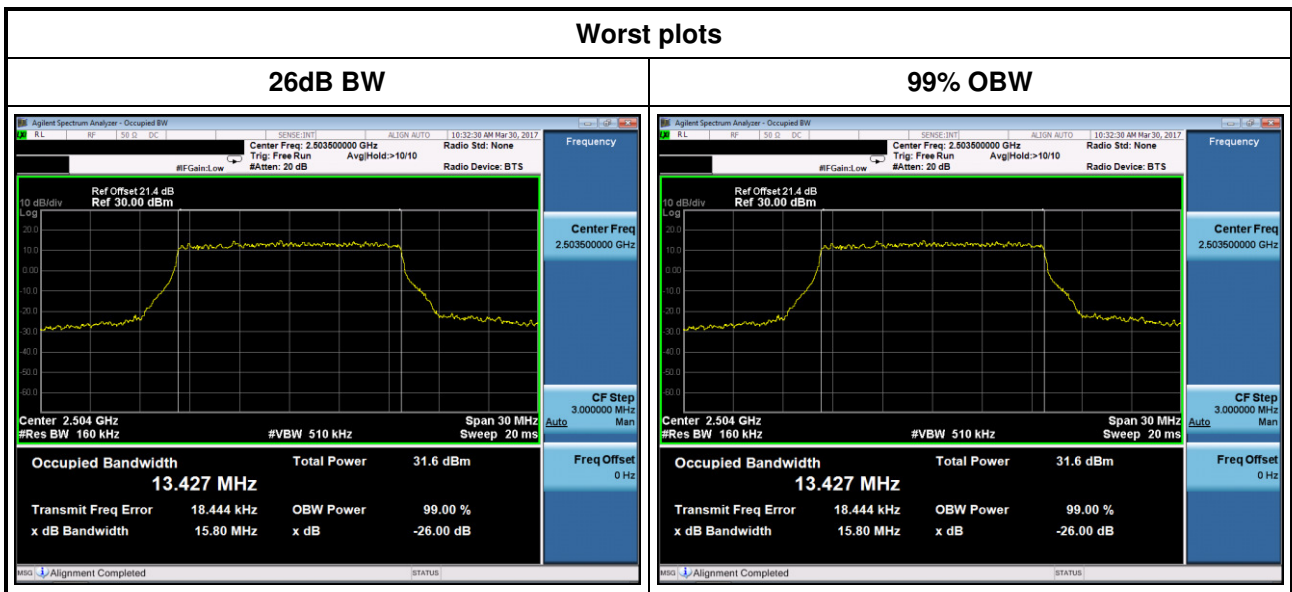




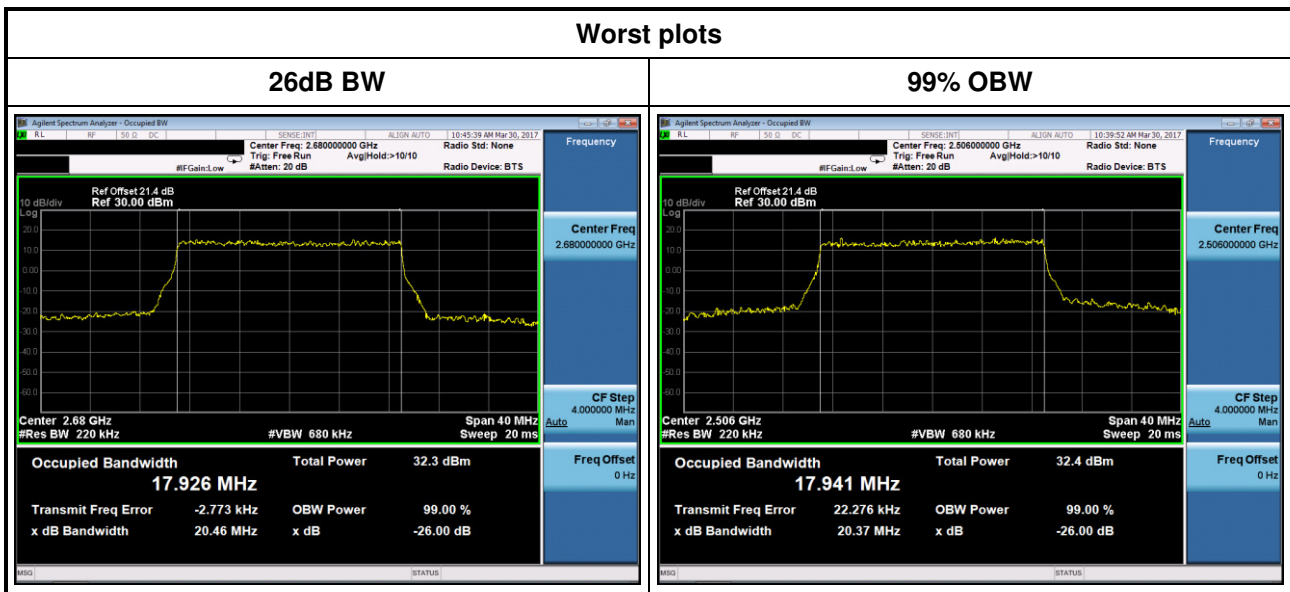
| Channel Bandwidth (MHz) | Modulation | Frequency (MHz) | 26dB BW (MHz) | 99% OBW (MHz) |
|-------------------------|------------|-----------------|---------------|---------------|
| 10                      | QPSK       | 2501.0          | 10.8800       | 8.9433        |
| 10                      | QPSK       | 2593.0          | 10.8300       | 8.9445        |
| 10                      | QPSK       | 2685.0          | 10.8000       | 8.9416        |
| 10                      | 16QAM      | 2501.0          | 11.4400       | 9.0304        |
| 10                      | 16QAM      | 2593.0          | 11.1500       | 9.0183        |
| 10                      | 16QAM      | 2685.0          | 11.1400       | 9.0206        |



| Channel Bandwidth (MHz) | Modulation | Frequency (MHz) | 26dB BW (MHz) | 99% OBW (MHz) |
|-------------------------|------------|-----------------|---------------|---------------|
| 15                      | QPSK       | 2503.5          | 15.8000       | 13.4270       |
| 15                      | QPSK       | 2593.0          | 15.7300       | 13.3980       |
| 15                      | QPSK       | 2682.5          | 15.7000       | 13.4230       |
| 15                      | 16QAM      | 2503.5          | 15.4700       | 13.4010       |
| 15                      | 16QAM      | 2593.0          | 15.4400       | 13.3860       |
| 15                      | 16QAM      | 2682.5          | 15.4700       | 13.3960       |



| Channel Bandwidth (MHz) | Modulation | Frequency (MHz) | 26dB BW (MHz) | 99% OBW (MHz) |
|-------------------------|------------|-----------------|---------------|---------------|
| 20                      | QPSK       | 2506.0          | 20.2000       | 17.9140       |
| 20                      | QPSK       | 2593.0          | 20.4400       | 17.9070       |
| 20                      | QPSK       | 2680.0          | 20.4600       | 17.9260       |
| 20                      | 16QAM      | 2506.0          | 20.3700       | 17.9410       |
| 20                      | 16QAM      | 2593.0          | 20.2200       | 17.9400       |
| 20                      | 16QAM      | 2680.0          | 20.1000       | 17.9330       |



## 3.6 Frequency Stability

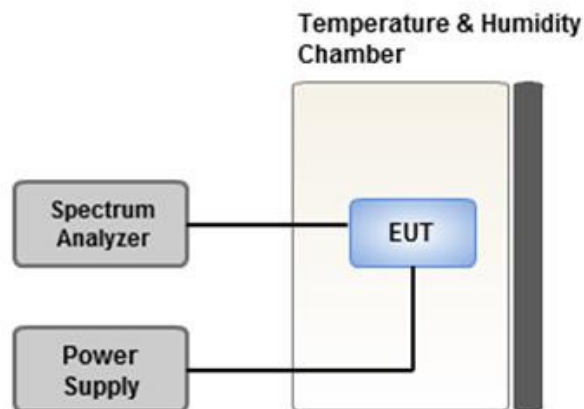
### 3.6.1 Limit of Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation

### 3.6.2 Test Procedures

1. EUT was placed at temperature chamber and connected to an external power supply.
2. Temperature and voltage condition shall be tested to confirm frequency stability.
3. Temperature range is from -30~55°C and voltage range is from lowest to highest working voltage.
4. Tem Link up EUT and simulator. Confirm frequency drift value of simulator and record it.

### 3.6.3 Test Setup



### 3.6.4 Test Result of Frequency Stability

#### Channel Bandwidth: 5MHz

| Frequency: 2593.0MHz | Frequency Drift (ppm) |                 |
|----------------------|-----------------------|-----------------|
| Temperature (°C)     | Frequency Error (ppm) | Limit (ppm)     |
| T20°C Vmax           | -0.007                | 2.5             |
| T20°C Vmin           | -0.003                | 2.5             |
| T50°C Vnom           | -0.003                | 2.5             |
| T40°C Vnom           | -0.005                | 2.5             |
| T30°C Vnom           | -0.009                | 2.5             |
| T20°C Vnom           | -0.004                | 2.5             |
| T10°C Vnom           | -0.006                | 2.5             |
| T0°C Vnom            | -0.006                | 2.5             |
| T-10°C Vnom          | -0.008                | 2.5             |
| T-20°C Vnom          | -0.005                | 2.5             |
| T-30°C Vnom          | -0.008                | 2.5             |
| Vnom [Vac]: 120      | Vmax [Vac]: 138       | Vmin [Vac]: 102 |
| Tnom [°C]: 20        | Tmax [°C]: 50         | Tmin [°C]: -30  |

#### Channel Bandwidth: 10MHz

| Frequency: 2593.0MHz | Frequency Drift (ppm) |                 |
|----------------------|-----------------------|-----------------|
| Temperature (°C)     | Frequency Error (ppm) | Limit (ppm)     |
| T20°C Vmax           | -0.007                | 2.5             |
| T20°C Vmin           | -0.005                | 2.5             |
| T50°C Vnom           | -0.004                | 2.5             |
| T40°C Vnom           | -0.009                | 2.5             |
| T30°C Vnom           | -0.005                | 2.5             |
| T20°C Vnom           | -0.005                | 2.5             |
| T10°C Vnom           | -0.003                | 2.5             |
| T0°C Vnom            | -0.007                | 2.5             |
| T-10°C Vnom          | -0.005                | 2.5             |
| T-20°C Vnom          | -0.004                | 2.5             |
| T-30°C Vnom          | -0.002                | 2.5             |
| Vnom [Vac]: 120      | Vmax [Vac]: 138       | Vmin [Vac]: 102 |
| Tnom [°C]: 20        | Tmax [°C]: 50         | Tmin [°C]: -30  |

**Channel Bandwidth: 15MHz**

| Frequency: 2593.0MHz | Frequency Drift (ppm) |                 |
|----------------------|-----------------------|-----------------|
| Temperature (°C)     | Frequency Error (ppm) | Limit (ppm)     |
| T20°CVmax            | -0.005                | 2.5             |
| T20°CVmin            | -0.006                | 2.5             |
| T50°CVnom            | -0.008                | 2.5             |
| T40°CVnom            | -0.005                | 2.5             |
| T30°CVnom            | -0.005                | 2.5             |
| T20°CVnom            | -0.003                | 2.5             |
| T10°CVnom            | -0.007                | 2.5             |
| T0°CVnom             | -0.008                | 2.5             |
| T-10°CVnom           | -0.004                | 2.5             |
| T-20°CVnom           | -0.004                | 2.5             |
| T-30°CVnom           | -0.003                | 2.5             |
| Vnom [Vac]: 120      | Vmax [Vac]: 138       | Vmin [Vac]: 102 |
| Tnom [°C]: 20        | Tmax [°C]: 50         | Tmin [°C]: -30  |

**Channel Bandwidth: 20MHz**

| Frequency: 2593.0MHz | Frequency Drift (ppm) |                 |
|----------------------|-----------------------|-----------------|
| Temperature (°C)     | Frequency Error (ppm) | Limit (ppm)     |
| T20°CVmax            | -0.007                | 2.5             |
| T20°CVmin            | -0.005                | 2.5             |
| T50°CVnom            | -0.006                | 2.5             |
| T40°CVnom            | -0.008                | 2.5             |
| T30°CVnom            | -0.007                | 2.5             |
| T20°CVnom            | -0.008                | 2.5             |
| T10°CVnom            | -0.006                | 2.5             |
| T0°CVnom             | -0.004                | 2.5             |
| T-10°CVnom           | -0.008                | 2.5             |
| T-20°CVnom           | -0.006                | 2.5             |
| T-30°CVnom           | -0.008                | 2.5             |
| Vnom [Vac]: 120      | Vmax [Vac]: 138       | Vmin [Vac]: 102 |
| Tnom [°C]: 20        | Tmax [°C]: 50         | Tmin [°C]: -30  |

## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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