



| Bandwidth | Test status          | LTE Band 13 Channel 23230 Test Results (ppm) |          |
|-----------|----------------------|--|----------|
|           |                      | QPSK   | 16QAM    |
| 5MHz      | -40°C/Normal Voltage | -0.00294                                     | -0.00465 |
|           | -30°C/Normal Voltage | -0.00426                                     | -0.00515 |
|           | -20°C/Normal Voltage | -0.00417                                     | -0.00945 |
|           | -10°C/Normal Voltage | -0.00208                                     | -0.00425 |
|           | 0°C/Normal Voltage   | -0.00343                                     | -0.00081 |
|           | 10°C/Normal Voltage  | -0.00238                                     | -0.00422 |
|           | 20°C/Normal Voltage  | -0.00879                                     | -0.00308 |
|           | 30°C/Normal Voltage  | -0.00501                                     | -0.00387 |
|           | 40°C/Normal Voltage  | -0.00451                                     | -0.00554 |
|           | 50°C/Normal Voltage  | -0.00450                                     | -0.00574 |
|           | 60°C/Normal Voltage  | -0.00597                                     | -0.00376 |
|           | 70°C/Normal Voltage  | -0.00376                                     | -0.00508 |
|           | 80°C/Normal Voltage  | -0.00224                                     | -0.00203 |
|           | 85°C/Normal Voltage  | -0.00545                                     | -0.00157 |
|           | 20°C/Min Voltage     | -0.00230                                     | -0.00550 |
|           | 20°C/Max Voltage     | -0.00137                                     | -0.00038 |
| 10MHz     | -40°C/Normal Voltage | -0.00396                                     | -0.00352 |
|           | -30°C/Normal Voltage | -0.00480                                     | -0.00419 |
|           | -20°C/Normal Voltage | -0.00252                                     | -0.00258 |
|           | -10°C/Normal Voltage | -0.00423                                     | -0.01091 |
|           | 0°C/Normal Voltage   | -0.00566                                     | -0.00831 |
|           | 10°C/Normal Voltage  | -0.00035                                     | -0.00719 |
|           | 20°C/Normal Voltage  | -0.00271                                     | -0.01170 |
|           | 30°C/Normal Voltage  | -0.00284                                     | -0.01451 |
|           | 40°C/Normal Voltage  | -0.00136                                     | -0.01192 |
|           | 50°C/Normal Voltage  | -0.00059                                     | -0.00918 |
|           | 60°C/Normal Voltage  | -0.00597                                     | -0.00376 |
|           | 70°C/Normal Voltage  | -0.00376                                     | -0.00508 |
|           | 80°C/Normal Voltage  | -0.00224                                     | -0.00203 |
|           | 85°C/Normal Voltage  | -0.00545                                     | -0.00157 |
|           | 20°C/Min Voltage     | -0.00269                                     | -0.00078 |
|           | 20°C/Max Voltage     | -0.00527                                     | -0.00662 |

### 4.7 Spurious Emissions at Antenna Terminals

**Ambient condition**

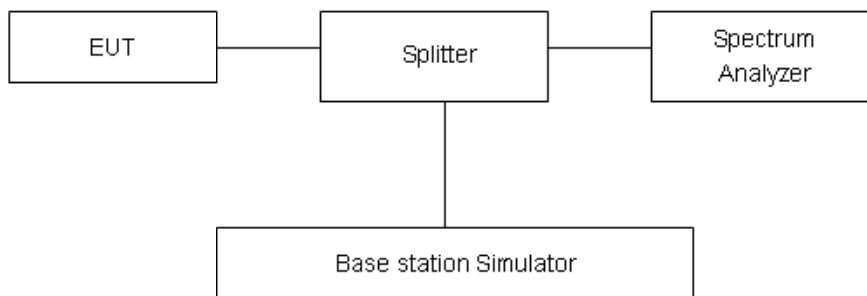
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

**Method of Measurement**

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz (other frequency), Sweep is set to ATUO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

**Test setup**



**Limits**

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to –70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and –80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

|                 |         |
|-----------------|---------|
| LTE -4/13 Limit | -13 dBm |
|-----------------|---------|

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .



| Frequency   | Uncertainty |
|-------------|-------------|
| 100kHz-2GHz | 0.684 dB    |
| 2GHz-18GHz  | 1.407 dB    |

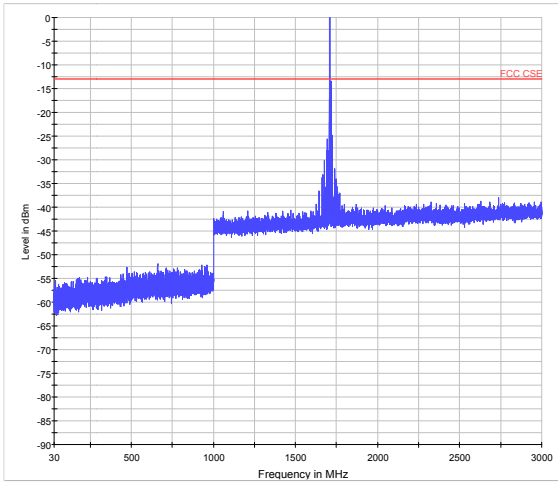
**Test Result: PASS**

If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.  
The signal beyond the limit is carrier in the following plots.

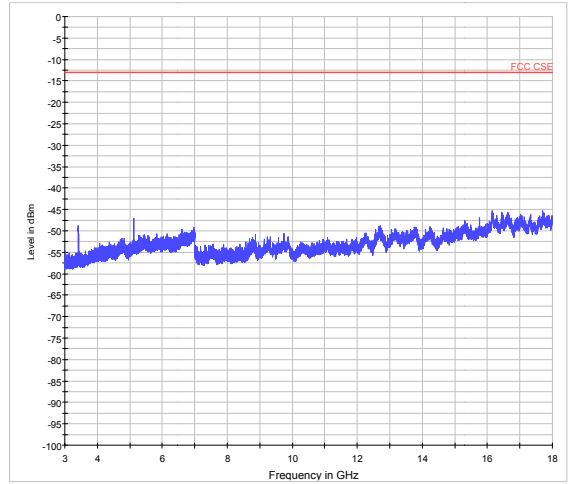
| Test Data File Name                 | Frequency (MHz) | Level (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------------------|-----------------|-------------|-------------|-------------|
| CSE_LTE B4_3M_CHLOW_RB6_0.03-3GHz   | 2034.0          | -21.08      | -13.00      | 8.08        |
| CSE_LTE B4_3M_CHMID_RB6_0.03-3GHz   | 1405.5          | -13.76      | -13.00      | 0.76        |
| CSE_LTE B4_3M_CHHIGH_RB6_0.03-3GHz  | 1437.3          | -16.27      | -13.00      | 3.27        |
| CSE_LTE B4_5M_CHLOW_RB6_0.03-3GHz   | 1389.3          | -17.79      | -13.00      | 4.79        |
| CSE_LTE B4_5M_CHMID_RB6_0.03-3GHz   | 1402.8          | -13.85      | -13.00      | 0.85        |
| CSE_LTE B4_5M_CHHIGH_RB6_0.03-3GHz  | 1420.5          | -16.67      | -13.00      | 3.67        |
| CSE_LTE B4_10M_CHLOW_RB6_0.03-3GHz  | 1399.3          | -23.37      | -13.00      | 10.37       |
| CSE_LTE B4_10M_CHMID_RB6_0.03-3GHz  | 1425.0          | -16.86      | -13.00      | 3.86        |
| CSE_LTE B4_10M_CHHIGH_RB6_0.03-3GHz | 1424.0          | -18.75      | -13.00      | 5.75        |
| CSE_LTE B4_15M_CHLOW_RB6_0.03-3GHz  | 2027.3          | -16.21      | -13.00      | 3.21        |
| CSE_LTE B4_15M_CHMID_RB6_0.03-3GHz  | 1430.8          | -14.53      | -13.00      | 1.53        |
| CSE_LTE B4_15M_CHHIGH_RB6_0.03-3GHz | 1448.5          | -18.17      | -13.00      | 5.17        |
| CSE_LTE B4_20M_CHLOW_RB6_0.03-3GHz  | 1402.0          | -20.18      | -13.00      | 7.18        |
| CSE_LTE B4_20M_CHMID_RB6_0.03-3GHz  | 2059.0          | -14.52      | -13.00      | 1.52        |
| CSE_LTE B4_20M_CHHIGH_RB6_0.03-3GHz | 2051.0          | -18.74      | -13.00      | 5.74        |
| CSE_LTE B13_5M_CHLOW_RB6_1-3GHz     | 1563.3          | -32.70      | -13.00      | 19.70       |
| CSE_LTE B13_5M_CHMID_RB6_1-3GHz     | 1568.0          | -33.91      | -13.00      | 20.91       |
| CSE_LTE B13_10M_CHLOW_RB6_1-3GHz    | 1572.8          | -33.12      | -13.00      | 20.12       |
| CSE_LTE B13_10M_CHMID_RB6_1-3GHz    | 1573.0          | -32.82      | -13.00      | 19.82       |



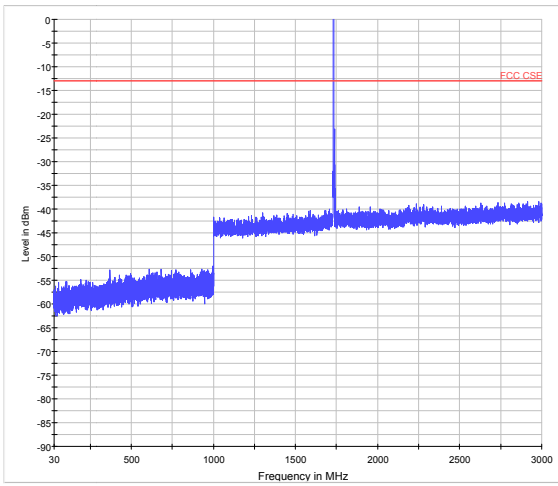
LTE Band 4 1.4MHz CH-Low 30MHz~3GHz



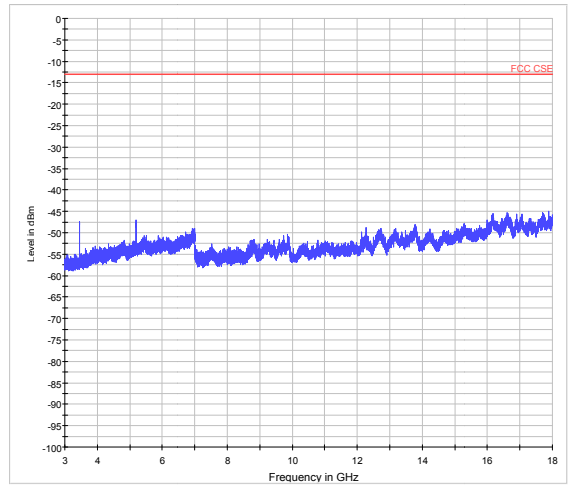
LTE Band 4 1.4MHz CH-Low 3GHz~18GHz



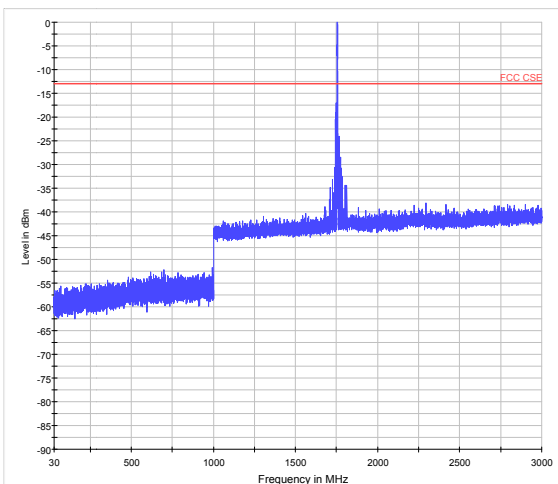
LTE Band 4 1.4MHz CH-Middle 30MHz~3GHz



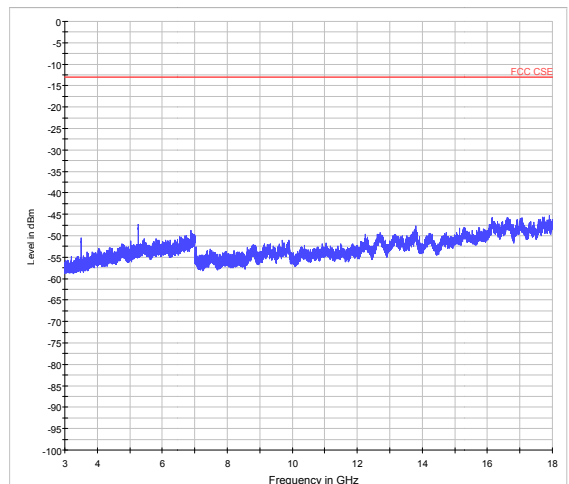
LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz



LTE Band 4 1.4MHz CH-High 30MHz~3GHz

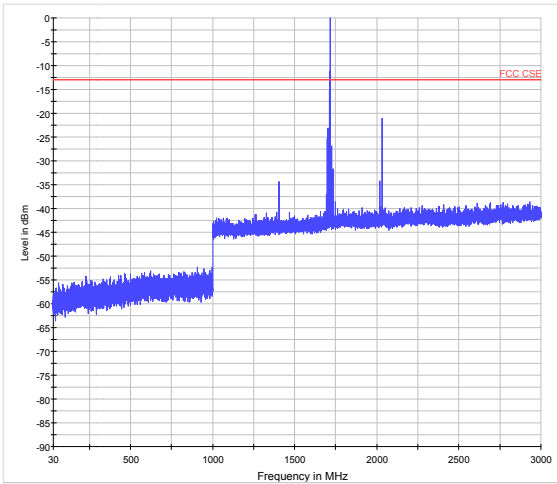


LTE Band 4 1.4MHz CH-High 3GHz~18GHz

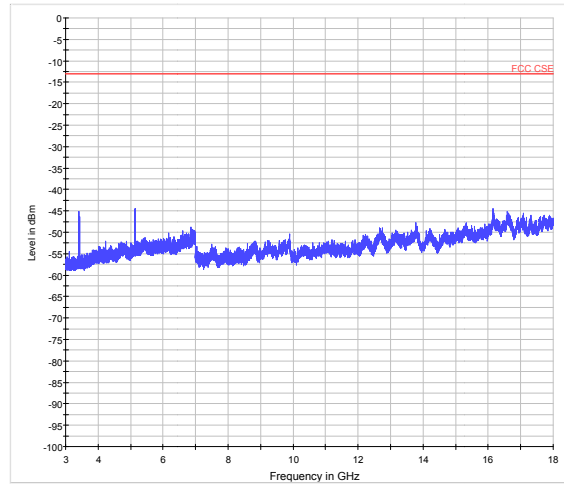




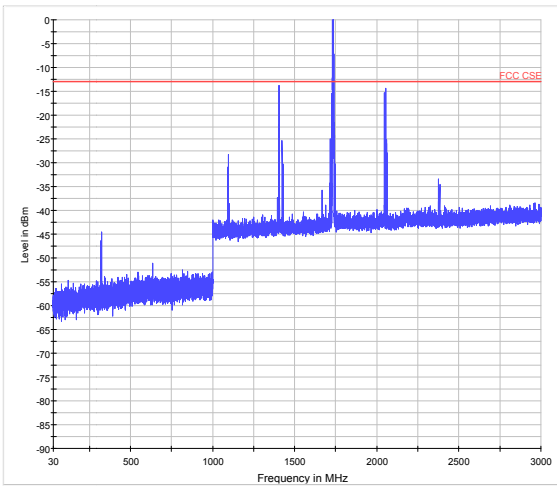
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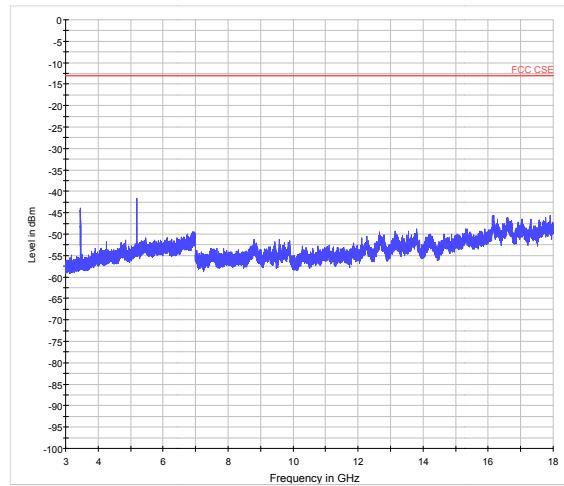
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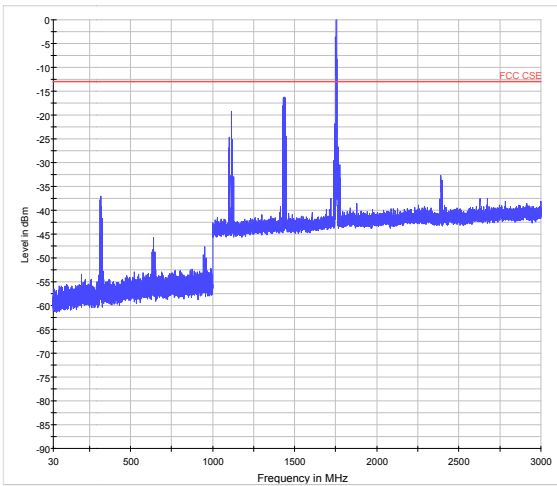
LTE Band 4 3MHz CH-Middle 30MHz~3GHz



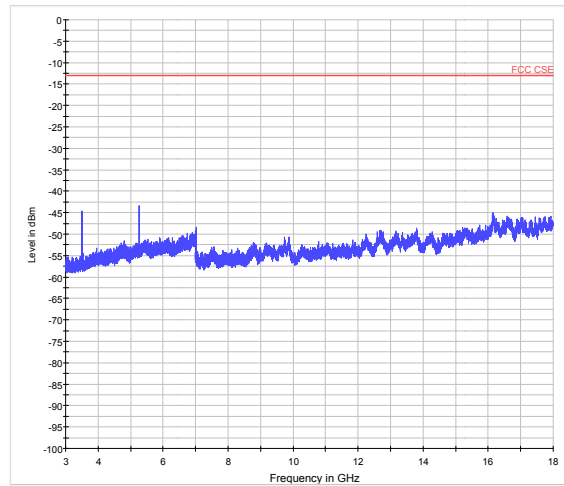
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LTE Band 4 3MHz CH-High 30MHz~3GHz

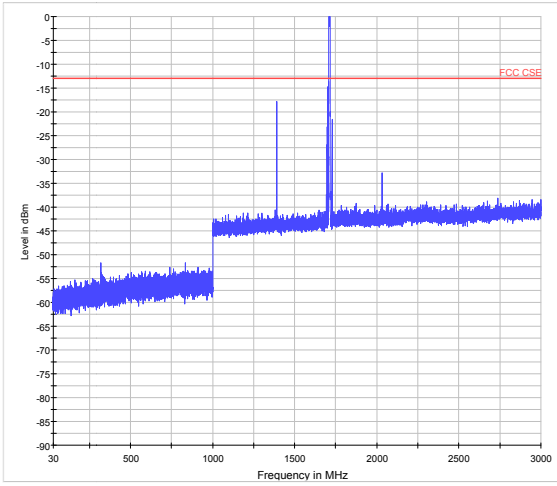


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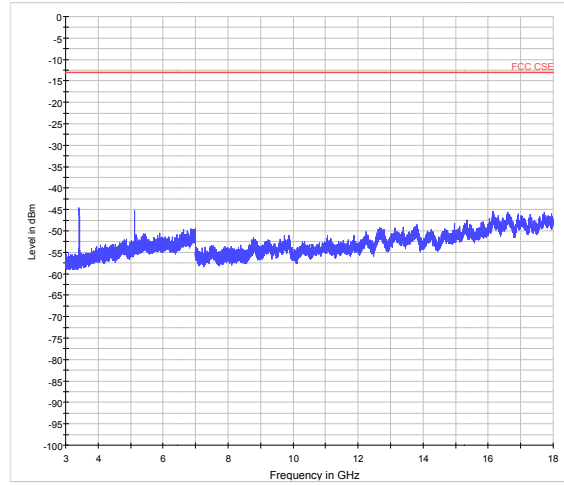




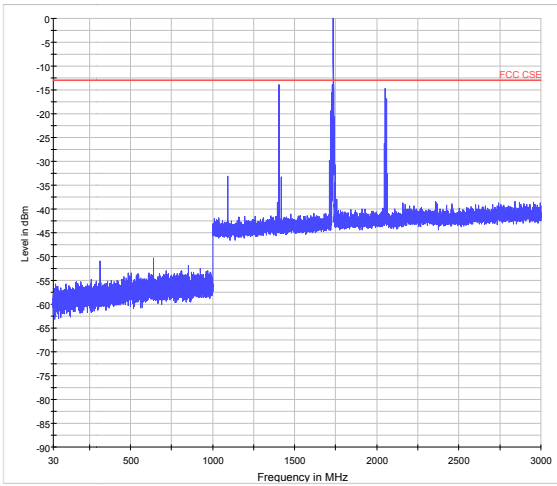
LTE Band 4 5MHz CH-Low 30MHz~3GHz



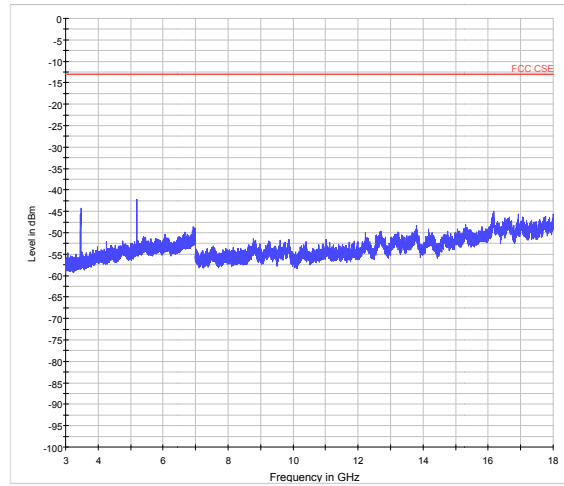
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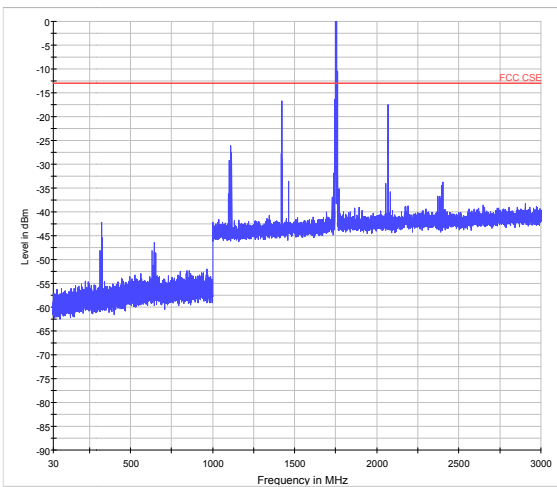
LTE Band 4 5MHz CH-Middle 30MHz~3GHz



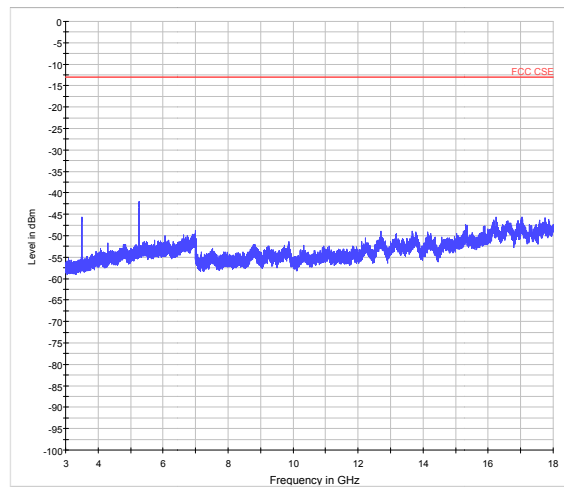
LTE Band 4 5MHz CH-Middle 3GHz~18GHz



LTE Band 4 5MHz CH-High 30MHz~3GHz

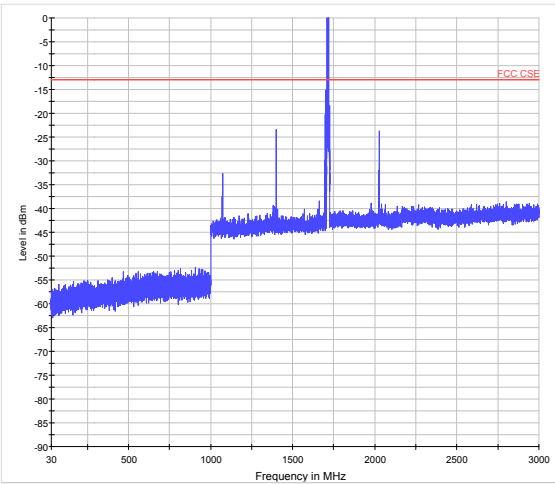


LTE Band 4 5MHz CH-High 3GHz~18GHz

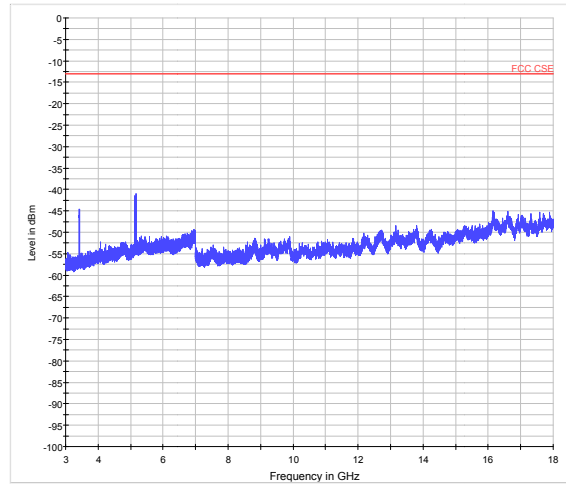




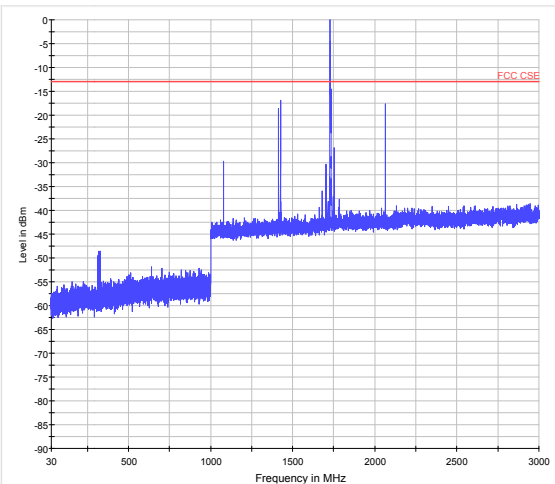
LTE Band 4 10MHz CH-Low 30MHz~3GHz



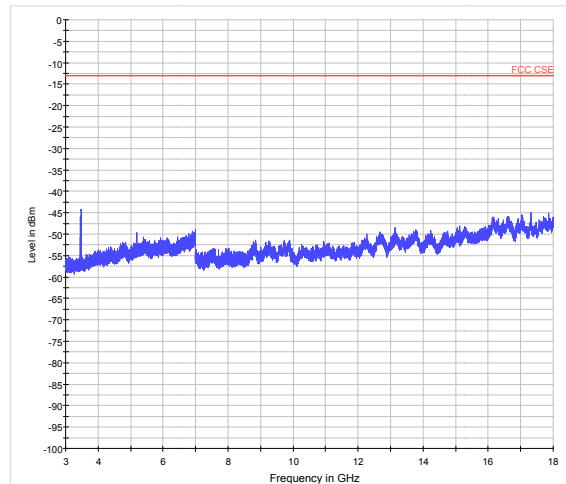
LTE Band 4 10MHz CH-Low 3GHz~18GHz



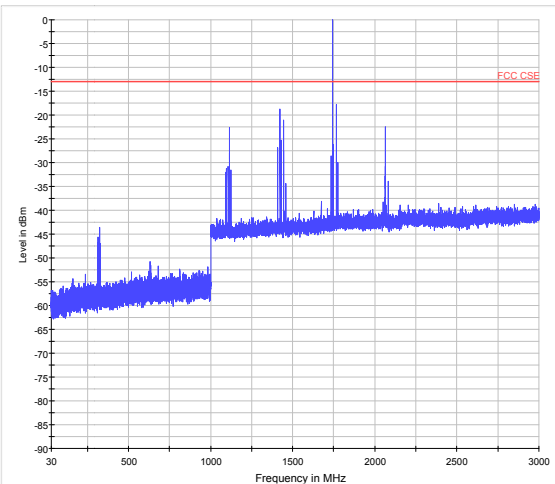
LTE Band 4 10MHz CH-Middle 30MHz~3GHz



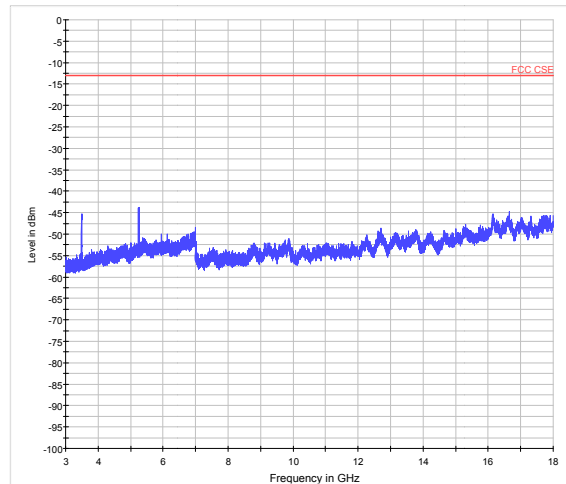
LTE Band 4 10MHz CH-Middle 3GHz~18GHz



LTE Band 4 10MHz CH-High 30MHz~3GHz



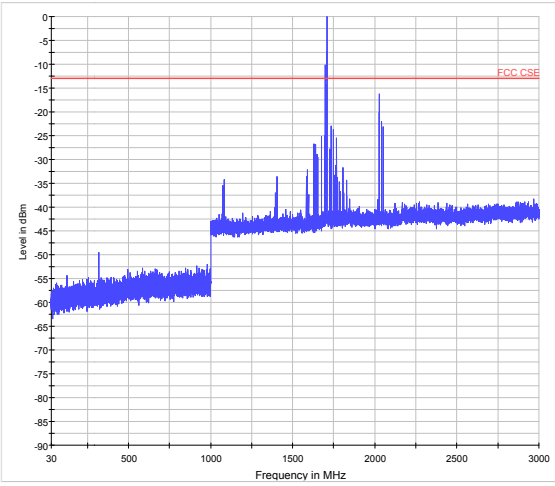
LTE Band 4 10MHz CH-High 3GHz~18GHz



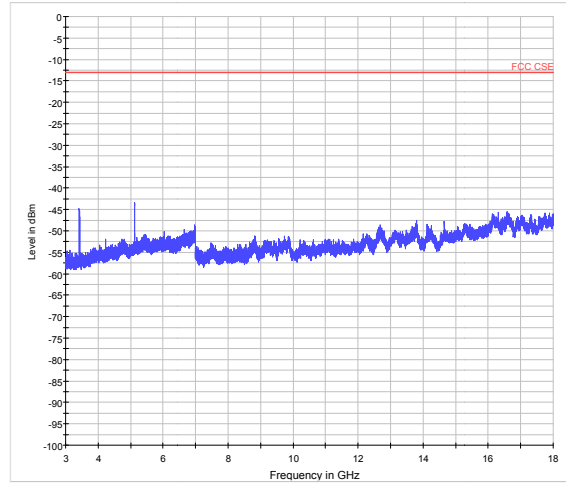




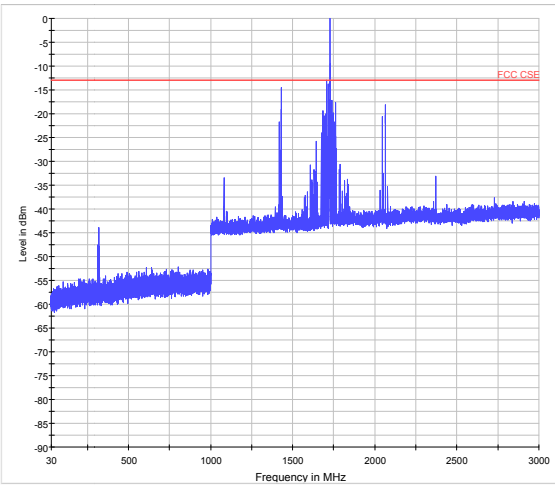
LTE Band 4 15MHz CH-Low 30MHz~3GHz



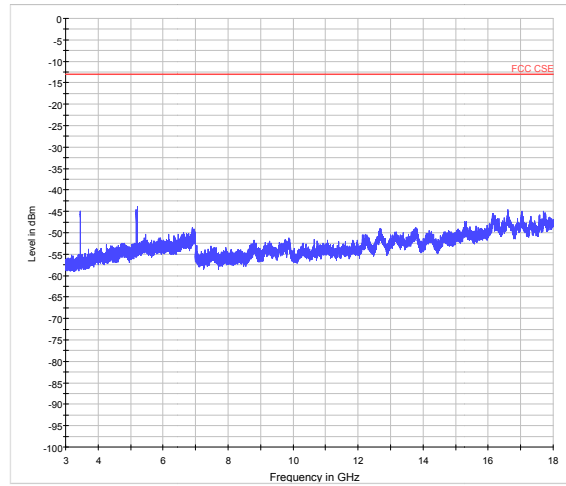
LTE Band 4 15MHz CH-Low 3GHz~18GHz



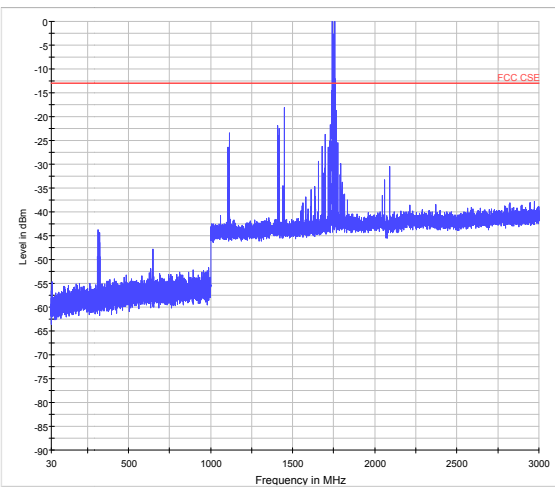
LTE Band 4 15MHz CH-Middle 30MHz~3GHz



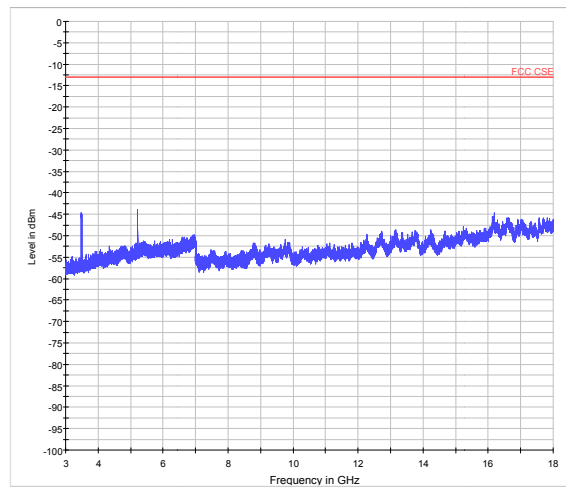
LTE Band 4 15MHz CH-Middle 3GHz~18GHz



LTE Band 4 15MHz CH-High 30MHz~3GHz

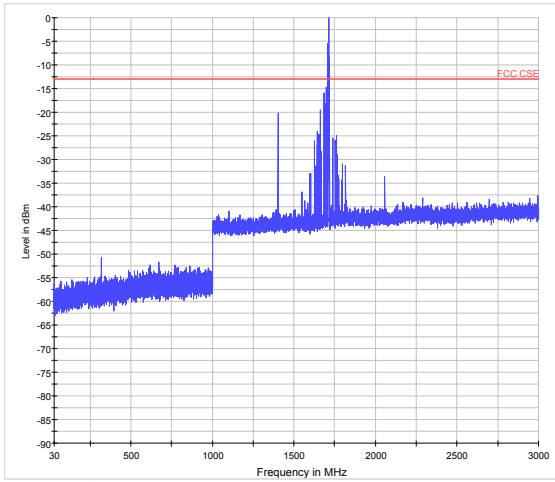


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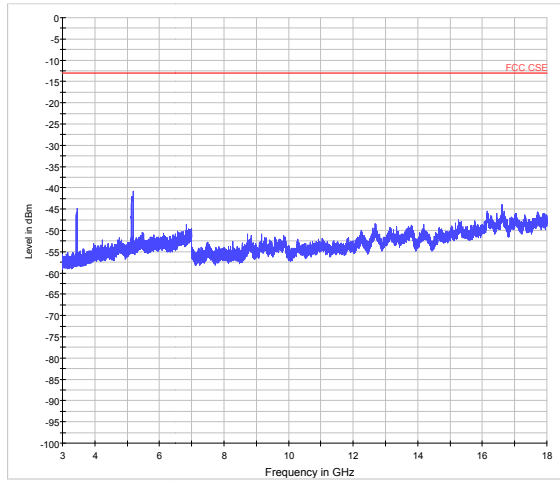




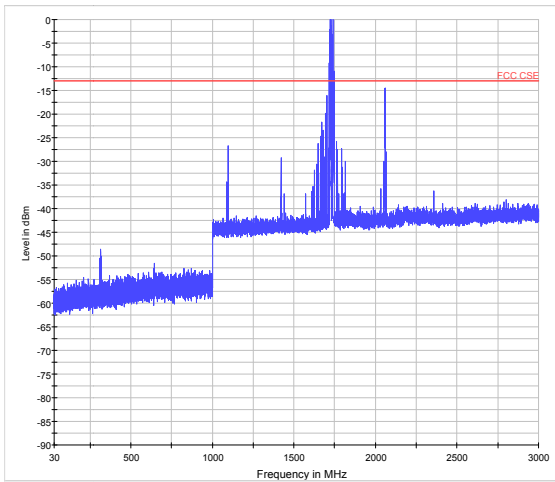
LTE Band 4 20MHz CH-Low 30MHz~3GHz



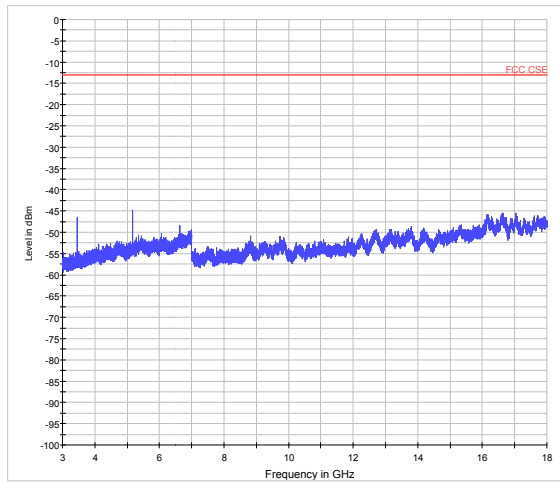
LTE Band 4 20MHz CH-Low 3GHz~18GHz



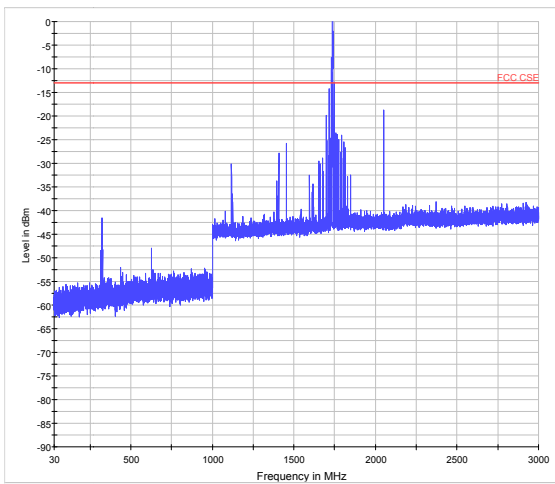
LTE Band 4 20MHz CH-Middle 30MHz~3GHz



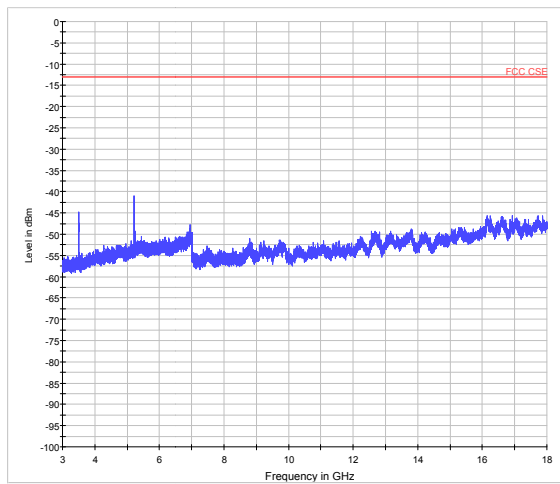
LTE Band 4 20MHz CH-Middle 3GHz~18GHz



LTE Band 4 20MHz CH-High 30MHz~3GHz

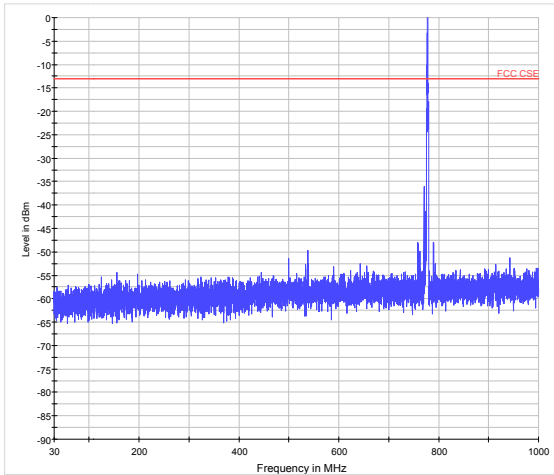


LTE Band 4 20MHz CH-High 3GHz~18GHz

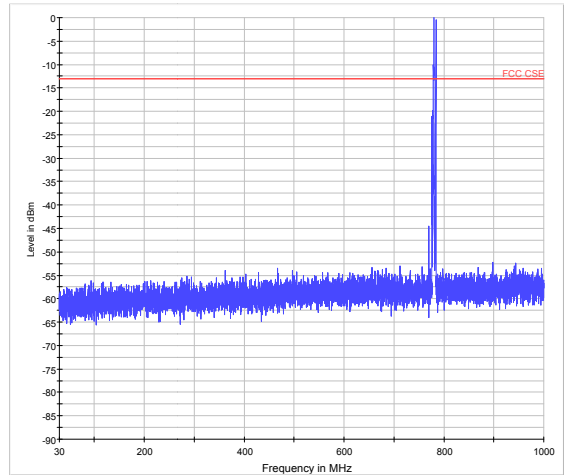




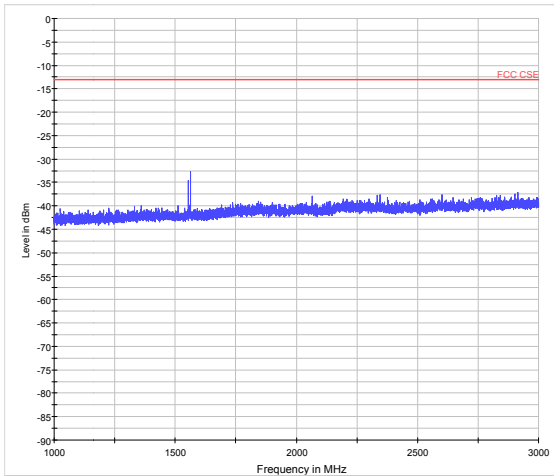
LTE Band 13 5MHz CH-Low 30MHz~1GHz



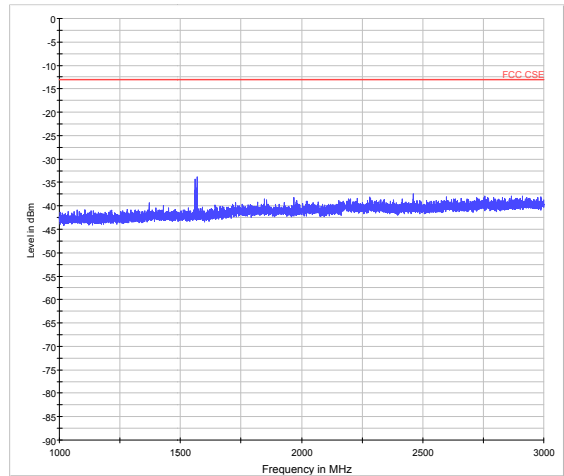
LTE Band 13 5MHz CH-Middle 30MHz~1GHz



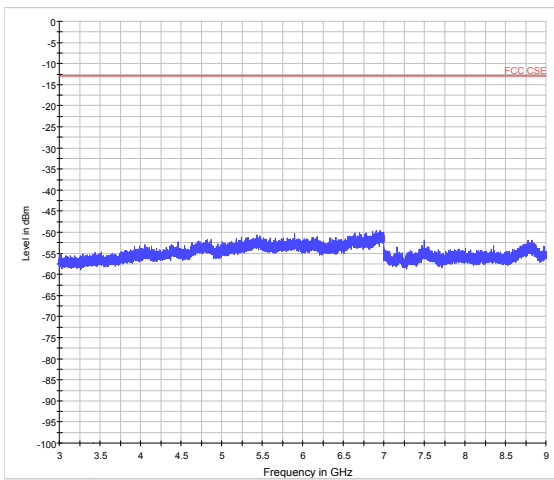
LTE Band 13 5MHz CH-Low 1GHz~3GHz



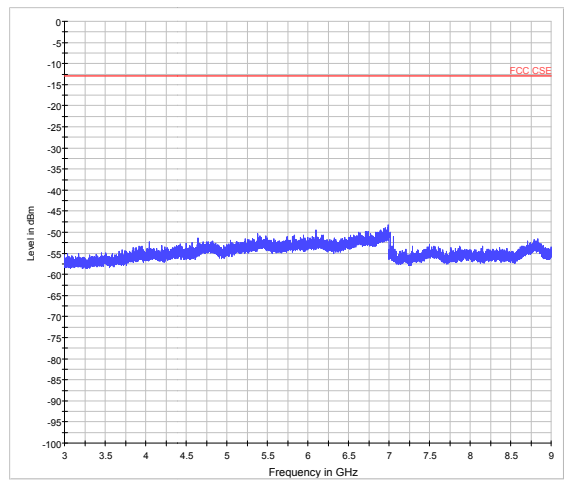
LTE Band 13 5MHz CH-Middle 1GHz~3GHz



LTE Band 13 5MHz CH-Low 3GHz~9GHz

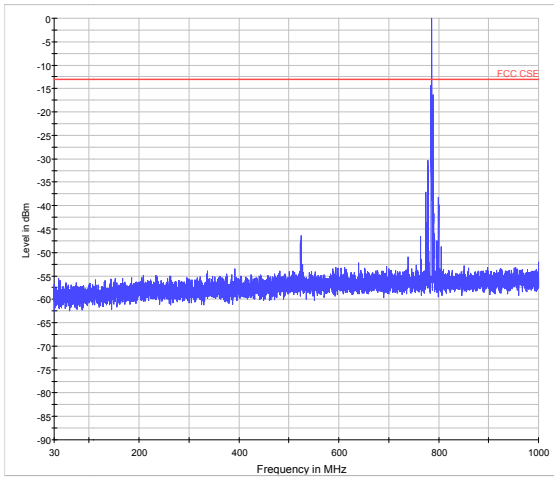


LTE Band 13 5MHz CH-Middle 3GHz~9GHz

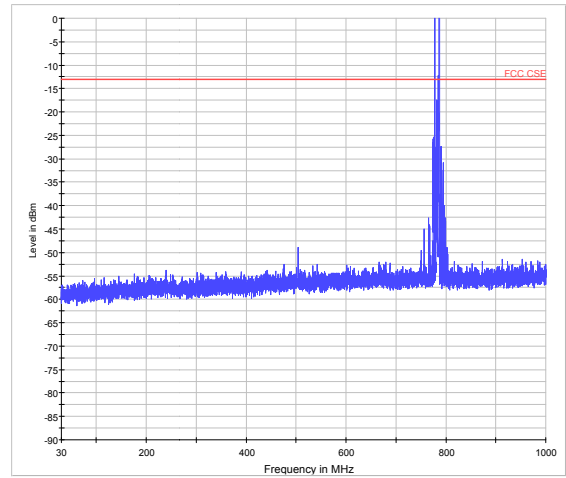




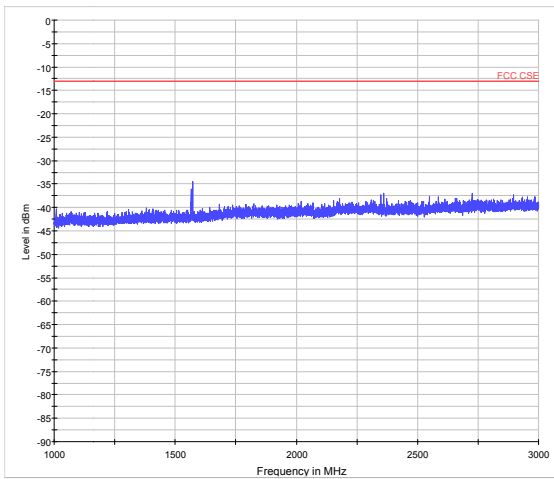
LTE Band 13 5MHz CH-High 30MHz~1.5GHz



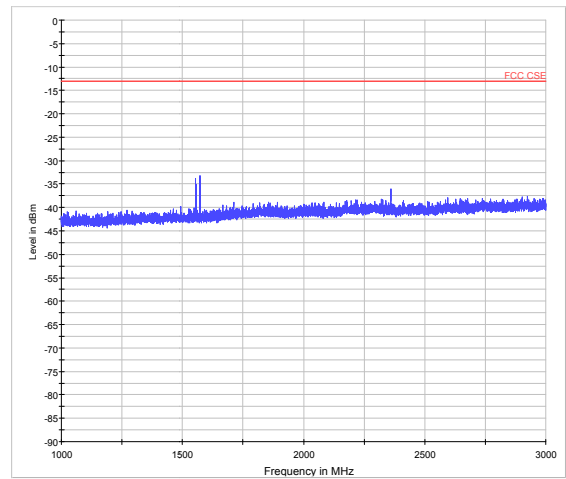
LTE Band 13 10MHz CH-Middle 30MHz~1.5GHz



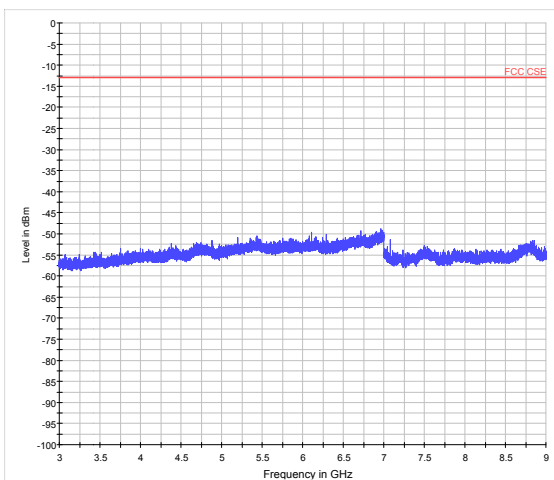
LTE Band 13 5MHz CH-High 1GHz~3GHz



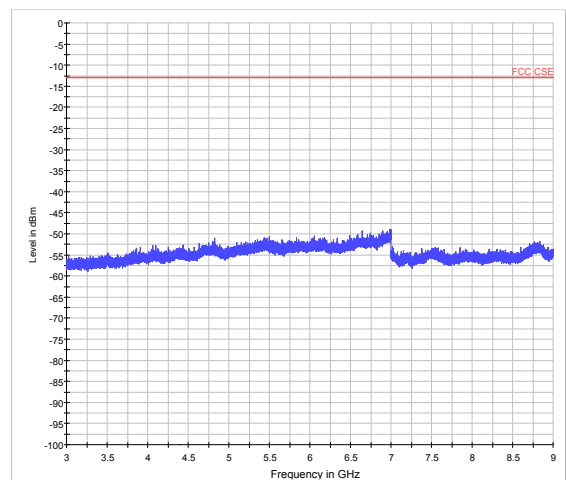
LTE Band 13 10MHz CH-Middle 1GHz~3GHz



LTE Band 13 5MHz CH-High 3GHz~9GHz

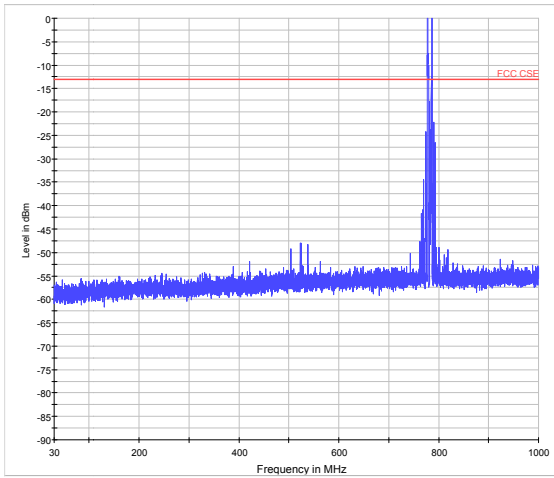


LTE Band 13 10MHz CH-Middle 3GHz~9GHz

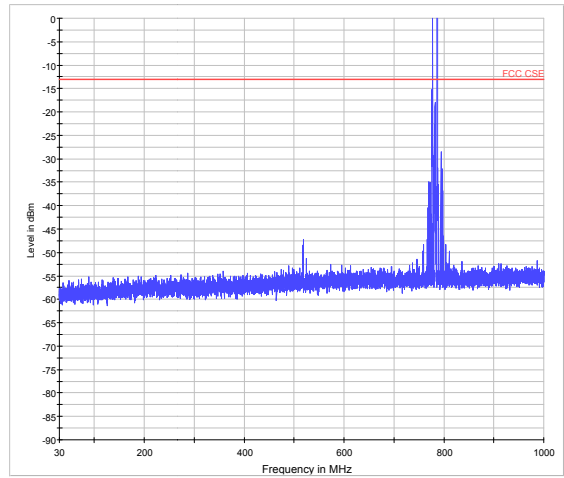




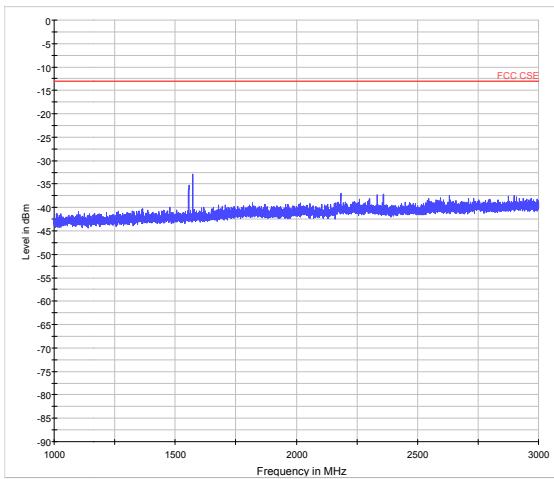
LTE Band 13 10MHz CH-Middle 30MHz~1.5GHz



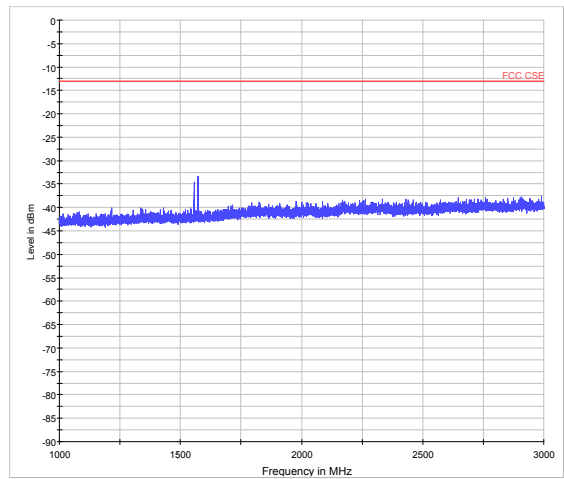
LTE Band 13 10MHz CH-Middle 30MHz~1.5GHz



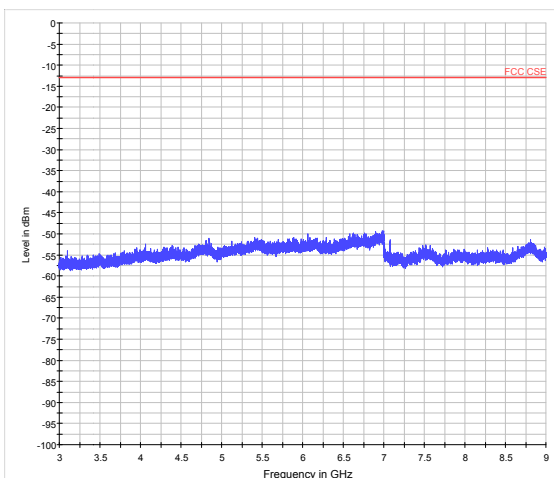
LTE Band 13 10MHz CH-Middle 1GHz~3GHz



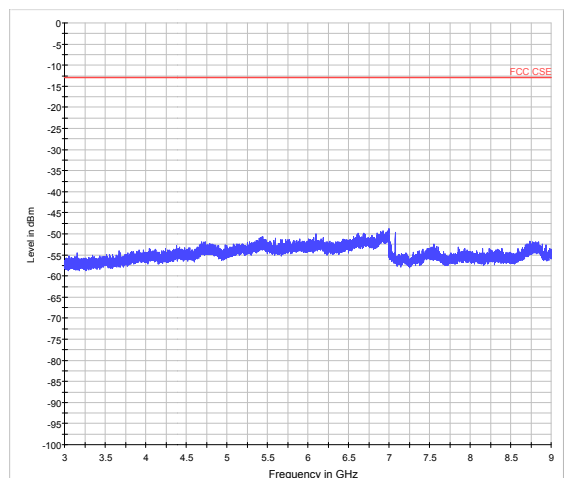
LTE Band 13 10MHz CH-Middle 1GHz~3GHz



LTE Band 13 10MHz CH-Middle 3GHz~9GHz



LTE Band 13 10MHz CH-Middle 3GHz~9GHz



## 4.8 Radiates Spurious Emission

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. Above 30MHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz, VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

The measurement results are amend as described below:

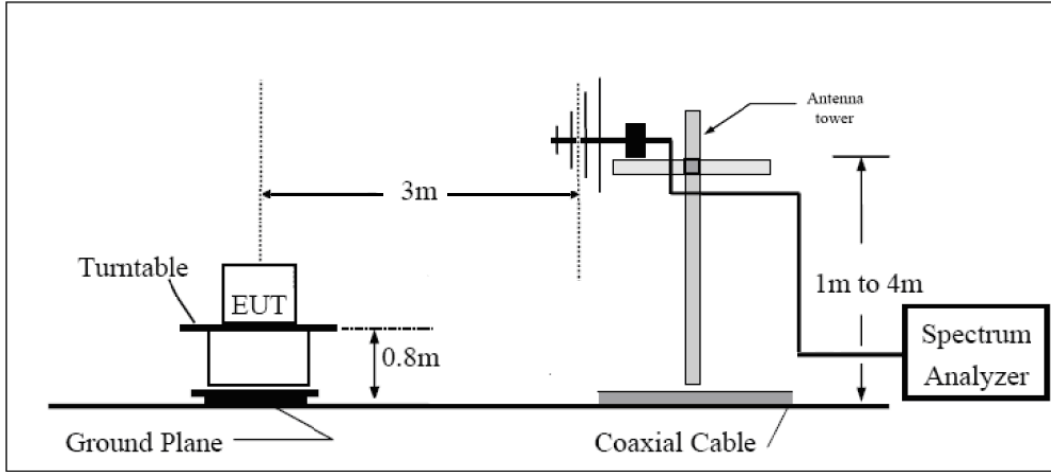
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$

8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

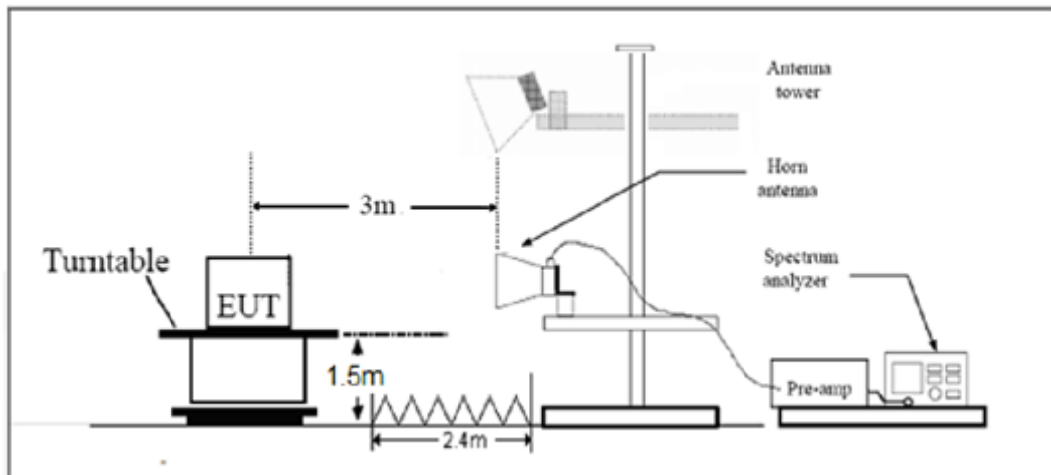
and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$ .

**Test setup**

**30MHz~~~ 1GHz**



**Above 1GHz**



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

**Limits**

Rule Part 27.53(h) specifies that “the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB.”

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

|                 |         |
|-----------------|---------|
| LTE -4/13 Limit | -13 dBm |
|-----------------|---------|



## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = \pm 1.96$ ,  $U = \pm 3.55$  dB.



**Test Result**

LTE Band 4 QPSK 1.4MHz CH-Low, 1 RB

| Harmonic | CH19957 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3421.4                  | -45.80   | 2.6             | 10.15      | Vertical             | -40.4           | -13.0       | 27.40       | 45            |
| 3        | 5132.1                  | -44.40   | 2.4             | 11.35      | Vertical             | -37.6           | -13.0       | 24.60       | 0             |
| 4        | 6842.8                  | -45.70   | 4.5             | 10.85      | Vertical             | -41.5           | -13.0       | 28.50       | 135           |
| 5        | 8553.5                  | -48.60   | 5.1             | 11.35      | Vertical             | -44.5           | -13.0       | 31.50       | 225           |
| 6        | 10264.2                 | -47.10   | 5.3             | 11.95      | Vertical             | -42.6           | -13.0       | 29.60       | 135           |
| 7        | 11974.9                 | -45.10   | 5.5             | 13.55      | Vertical             | -39.2           | -13.0       | 26.20       | 45            |
| 8        | 13685.6                 | -45.40   | 6.3             | 13.75      | Vertical             | -40.1           | -13.0       | 27.10       | 90            |
| 9        | 15396.3                 | -43.20   | 6.7             | 13.85      | Vertical             | -38.2           | -13.0       | 25.20       | 225           |
| 10       | 17107.0                 | -46.80   | 6.8             | 14.25      | Vertical             | -41.5           | -13.0       | 28.50       | 45            |

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

LTE Band 4 QPSK 1.4MHz CH-Middle, 1 RB

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3465.0                    | -45.80   | 2.6             | 10.75      | Vertical             | -39.8           | -13.0       | 26.80       | 135           |
| 3        | 5197.5                    | -40.70   | 2.4             | 11.05      | Vertical             | -34.2           | -13.0       | 21.20       | 45            |
| 4        | 6930.0                    | -43.80   | 4.5             | 11.15      | Vertical             | -39.3           | -13.0       | 26.30       | 90            |
| 5        | 8662.5                    | -51.70   | 5.1             | 11.35      | Vertical             | -47.6           | -13.0       | 34.60       | 225           |
| 6        | 10395.0                   | -49.50   | 5.3             | 11.95      | Vertical             | -45.0           | -13.0       | 32.00       | 45            |
| 7        | 12127.5                   | -54.70   | 5.5             | 13.55      | Vertical             | -48.8           | -13.0       | 35.80       | 90            |
| 8        | 13860.0                   | -48.60   | 6.3             | 13.75      | Vertical             | -43.3           | -13.0       | 30.30       | 135           |
| 9        | 15592.5                   | -45.20   | 6.7             | 13.85      | Vertical             | -40.2           | -13.0       | 27.20       | 135           |
| 10       | 17325.0                   | -46.60   | 6.8             | 14.25      | Vertical             | -41.3           | -13.0       | 28.30       | 90            |

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 1.4MHz CH-High, 1 RB**

| Harmonic | CH20393<br>Frequency<br>(MHz) | SG<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | Antenna<br>Polarization | ERP<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Azimuth<br>(deg) |
|----------|-------------------------------|-------------|-----------------------|---------------|-------------------------|-----------------------|----------------|----------------|------------------|
| 2        | 3508.6                        | -46.50      | 2.6                   | 10.15         | Vertical                | -41.1                 | -13.0          | 28.10          | 45               |
| 3        | 5262.9                        | -41.70      | 2.4                   | 11.05         | Vertical                | -35.2                 | -13.0          | 22.20          | 45               |
| 4        | 7017.2                        | -45.70      | 4.5                   | 11.15         | Vertical                | -41.2                 | -13.0          | 28.20          | 135              |
| 5        | 8771.5                        | -50.00      | 5.1                   | 11.35         | Vertical                | -45.9                 | -13.0          | 32.90          | 45               |
| 6        | 10525.8                       | -49.70      | 5.3                   | 11.95         | Vertical                | -45.2                 | -13.0          | 32.20          | 90               |
| 7        | 12280.1                       | -48.50      | 5.5                   | 13.55         | Vertical                | -42.6                 | -13.0          | 29.60          | 135              |
| 8        | 14034.4                       | -48.90      | 6.3                   | 13.75         | Vertical                | -43.6                 | -13.0          | 30.60          | 45               |
| 9        | 15788.7                       | -44.70      | 6.7                   | 13.85         | Vertical                | -39.7                 | -13.0          | 26.70          | 90               |
| 10       | 17543.0                       | -46.00      | 6.8                   | 14.25         | Vertical                | -40.7                 | -13.0          | 27.70          | 225              |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 3MHz CH-Low, 1 RB**

| Harmonic | CH19965<br>Frequency<br>(MHz) | SG<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | Antenna<br>Polarization | ERP<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Azimuth<br>(deg) |
|----------|-------------------------------|-------------|-----------------------|---------------|-------------------------|-----------------------|----------------|----------------|------------------|
| 2        | 3420.0                        | -45.90      | 2.6                   | 10.15         | Vertical                | -40.5                 | -13.0          | 27.50          | 180              |
| 3        | 5131.1                        | -38.50      | 2.4                   | 11.35         | Vertical                | -31.7                 | -13.0          | 18.70          | 225              |
| 4        | 6846.0                        | -43.70      | 4.5                   | 10.85         | Vertical                | -39.5                 | -13.0          | 26.50          | 135              |
| 5        | 8557.5                        | -46.00      | 5.1                   | 11.35         | Vertical                | -41.9                 | -13.0          | 28.90          | 225              |
| 6        | 10269.0                       | -44.40      | 5.3                   | 11.95         | Vertical                | -39.9                 | -13.0          | 26.90          | 90               |
| 7        | 11980.5                       | -42.60      | 5.5                   | 13.55         | Vertical                | -36.7                 | -13.0          | 23.70          | 90               |
| 8        | 13692.0                       | -41.20      | 6.3                   | 13.75         | Vertical                | -35.9                 | -13.0          | 22.90          | 45               |
| 9        | 15403.5                       | -42.10      | 6.7                   | 13.85         | Vertical                | -37.1                 | -13.0          | 24.10          | 180              |
| 10       | 17115.0                       | -40.20      | 6.8                   | 14.25         | Vertical                | -34.9                 | -13.0          | 21.90          | 45               |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 3MHz CH-Middle, 1 RB**

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3462.4                    | -45.80   | 2.6             | 10.75      | Vertical             | -39.8           | -13.0       | 26.80       | 0             |
| 3        | 5193.8                    | -38.10   | 2.4             | 11.05      | Vertical             | -31.6           | -13.0       | 18.60       | 135           |
| 4        | 6930.0                    | -42.60   | 4.5             | 11.15      | Vertical             | -38.1           | -13.0       | 25.10       | 225           |
| 5        | 8662.5                    | -45.70   | 5.1             | 11.35      | Vertical             | -41.6           | -13.0       | 28.60       | 315           |
| 6        | 10395.0                   | -43.90   | 5.3             | 11.95      | Vertical             | -39.4           | -13.0       | 26.40       | 270           |
| 7        | 12127.5                   | -43.60   | 5.5             | 13.55      | Vertical             | -37.7           | -13.0       | 24.70       | 225           |
| 8        | 13860.0                   | -41.20   | 6.3             | 13.75      | Vertical             | -35.9           | -13.0       | 22.90       | 135           |
| 9        | 15592.5                   | -42.80   | 6.7             | 13.85      | Vertical             | -37.8           | -13.0       | 24.80       | 225           |
| 10       | 17325.0                   | -39.70   | 6.8             | 14.25      | Vertical             | -34.4           | -13.0       | 21.40       | 0             |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 3MHz CH-High, 1 RB**

| Harmonic | CH20385 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3505.1                  | -45.40   | 2.6             | 10.15      | Vertical             | -40.0           | -13.0       | 27.00       | 135           |
| 3        | 5256.8                  | -40.90   | 2.4             | 11.05      | Vertical             | -34.4           | -13.0       | 21.40       | 225           |
| 4        | 7014.0                  | -43.30   | 4.5             | 11.15      | Vertical             | -38.8           | -13.0       | 25.80       | 315           |
| 5        | 8767.5                  | -46.40   | 5.1             | 11.35      | Vertical             | -42.3           | -13.0       | 29.30       | 270           |
| 6        | 10521.0                 | -42.30   | 5.3             | 11.95      | Vertical             | -37.8           | -13.0       | 24.80       | 225           |
| 7        | 12274.5                 | -43.80   | 5.5             | 13.55      | Vertical             | -37.9           | -13.0       | 24.90       | 135           |
| 8        | 14028.0                 | -40.60   | 6.3             | 13.75      | Vertical             | -35.3           | -13.0       | 22.30       | 225           |
| 9        | 15781.5                 | -43.10   | 6.7             | 13.85      | Vertical             | -38.1           | -13.0       | 25.10       | 90            |
| 10       | 17535.0                 | -41.30   | 6.8             | 14.25      | Vertical             | -36.0           | -13.0       | 23.00       | 90            |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 5MHz CH-Low, 1 RB**

| Harmonic | CH19975 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3420.4                  | -46.10   | 2.6             | 10.15      | Vertical             | -40.7           | -13.0       | 27.7        | 45            |
| 3        | 5131.1                  | -39.60   | 2.4             | 11.35      | Vertical             | -32.8           | -13.0       | 19.8        | 180           |
| 4        | 6850.0                  | -43.60   | 4.5             | 10.85      | Vertical             | -39.4           | -13.0       | 26.4        | 225           |
| 5        | 8562.5                  | -45.20   | 5.1             | 11.35      | Vertical             | -41.1           | -13.0       | 28.1        | 135           |
| 6        | 10275.0                 | -45.10   | 5.3             | 11.95      | Vertical             | -40.6           | -13.0       | 27.6        | 225           |
| 7        | 11987.5                 | -43.10   | 5.5             | 13.55      | Vertical             | -37.2           | -13.0       | 24.2        | 90            |
| 8        | 13700.0                 | -40.70   | 6.3             | 13.75      | Vertical             | -35.4           | -13.0       | 22.4        | 90            |
| 9        | 15412.5                 | -43.30   | 6.7             | 13.85      | Vertical             | -38.3           | -13.0       | 25.3        | 45            |
| 10       | 17125.0                 | -40.20   | 6.8             | 14.25      | Vertical             | -34.9           | -13.0       | 21.9        | 180           |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 5MHz CH-Middle, 1 RB**

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3465.0                    | -46.60   | 2.6             | 10.75      | Vertical             | -40.6           | -13.0       | 27.6        | 45            |
| 3        | 5190.8                    | -38.30   | 2.4             | 11.05      | Vertical             | -31.8           | -13.0       | 18.8        | 0             |
| 4        | 6930.0                    | -42.90   | 4.5             | 11.15      | Vertical             | -38.4           | -13.0       | 25.4        | 135           |
| 5        | 8662.5                    | -44.70   | 5.1             | 11.35      | Vertical             | -40.6           | -13.0       | 27.6        | 225           |
| 6        | 10395.0                   | -44.70   | 5.3             | 11.95      | Vertical             | -40.2           | -13.0       | 27.2        | 315           |
| 7        | 12127.5                   | -42.90   | 5.5             | 13.55      | Vertical             | -37.0           | -13.0       | 24.0        | 270           |
| 8        | 13860.0                   | -40.50   | 6.3             | 13.75      | Vertical             | -35.2           | -13.0       | 22.2        | 225           |
| 9        | 15592.5                   | -44.10   | 6.7             | 13.85      | Vertical             | -39.1           | -13.0       | 26.1        | 135           |
| 10       | 17325.0                   | -38.70   | 6.8             | 14.25      | Vertical             | -33.4           | -13.0       | 20.4        | 225           |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 5MHz CH-High, 1 RB**

| Harmonic | CH20375 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3501.0                  | -43.50   | 2.6             | 10.15      | Vertical             | -38.1           | -13.0       | 25.1        | 0             |
| 3        | 5251.1                  | -38.80   | 2.4             | 11.05      | Vertical             | -32.3           | -13.0       | 19.3        | 135           |
| 4        | 7010.0                  | -42.10   | 4.5             | 11.15      | Vertical             | -37.6           | -13.0       | 24.6        | 225           |
| 5        | 8762.5                  | -44.00   | 5.1             | 11.35      | Vertical             | -39.9           | -13.0       | 26.9        | 315           |
| 6        | 10515.0                 | -43.40   | 5.3             | 11.95      | Vertical             | -38.9           | -13.0       | 25.9        | 270           |
| 7        | 12267.5                 | -45.20   | 5.5             | 13.55      | Vertical             | -39.3           | -13.0       | 26.3        | 225           |
| 8        | 14020.0                 | -40.10   | 6.3             | 13.75      | Vertical             | -34.8           | -13.0       | 21.8        | 135           |
| 9        | 15772.5                 | -41.80   | 6.7             | 13.85      | Vertical             | -36.8           | -13.0       | 23.8        | 225           |
| 10       | 17525.0                 | -40.40   | 6.8             | 14.25      | Vertical             | -35.1           | -13.0       | 22.1        | 90            |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 10MHz CH-Low, 1 RB**

| Harmonic | CH20000 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3421.1                  | -45.40   | 2.6             | 10.15      | Vertical             | -40.0           | -13.0       | 27.00       | 90            |
| 3        | 5131.9                  | -39.20   | 2.4             | 11.35      | Vertical             | -32.4           | -13.0       | 19.40       | 45            |
| 4        | 6860.0                  | -43.10   | 4.5             | 10.85      | Vertical             | -38.9           | -13.0       | 25.90       | 180           |
| 5        | 8575.0                  | -46.00   | 5.1             | 11.35      | Vertical             | -41.9           | -13.0       | 28.90       | 225           |
| 6        | 10290.0                 | -44.70   | 5.3             | 11.95      | Vertical             | -40.2           | -13.0       | 27.20       | 135           |
| 7        | 12005.0                 | -45.30   | 5.5             | 13.55      | Vertical             | -39.4           | -13.0       | 26.40       | 225           |
| 8        | 13720.0                 | -41.10   | 6.3             | 13.75      | Vertical             | -35.8           | -13.0       | 22.80       | 90            |
| 9        | 15435.0                 | -42.30   | 6.7             | 13.85      | Vertical             | -37.3           | -13.0       | 24.30       | 90            |
| 10       | 17150.0                 | -40.90   | 6.8             | 14.25      | Vertical             | -35.6           | -13.0       | 22.60       | 45            |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 10MHz CH-Middle, 1 RB**

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3465.0                    | -47.20   | 2.6             | 10.75      | Vertical             | -41.2           | -13.0       | 28.2        | 180           |
| 3        | 5184.4                    | -38.30   | 2.4             | 11.05      | Vertical             | -31.8           | -13.0       | 18.8        | 45            |
| 4        | 6930.0                    | -43.40   | 4.5             | 11.15      | Vertical             | -38.9           | -13.0       | 25.9        | 0             |
| 5        | 8662.5                    | -44.30   | 5.1             | 11.35      | Vertical             | -40.2           | -13.0       | 27.2        | 135           |
| 6        | 10395.0                   | -43.50   | 5.3             | 11.95      | Vertical             | -39.0           | -13.0       | 26.0        | 225           |
| 7        | 12127.5                   | -45.10   | 5.5             | 13.55      | Vertical             | -39.2           | -13.0       | 26.2        | 315           |
| 8        | 13860.0                   | -40.80   | 6.3             | 13.75      | Vertical             | -35.5           | -13.0       | 22.5        | 270           |
| 9        | 15592.5                   | -43.30   | 6.7             | 13.85      | Vertical             | -38.3           | -13.0       | 25.3        | 225           |
| 10       | 17325.0                   | -40.80   | 6.8             | 14.25      | Vertical             | -35.5           | -13.0       | 22.5        | 135           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 10MHz CH-High, 1 RB**

| Harmonic | CH20350 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3491.3                  | -44.00   | 2.6             | 10.15      | Vertical             | -38.6           | -13.0       | 25.6        | 225           |
| 3        | 5236.5                  | -39.70   | 2.4             | 11.05      | Vertical             | -33.2           | -13.0       | 20.2        | 315           |
| 4        | 7000.0                  | -45.40   | 4.5             | 11.15      | Vertical             | -40.9           | -13.0       | 27.9        | 270           |
| 5        | 8750.0                  | -44.50   | 5.1             | 11.35      | Vertical             | -40.4           | -13.0       | 27.4        | 225           |
| 6        | 10500.0                 | -44.30   | 5.3             | 11.95      | Vertical             | -39.8           | -13.0       | 26.8        | 135           |
| 7        | 12250.0                 | -45.50   | 5.5             | 13.55      | Vertical             | -39.6           | -13.0       | 26.6        | 225           |
| 8        | 14000.0                 | -40.80   | 6.3             | 13.75      | Vertical             | -35.5           | -13.0       | 22.5        | 315           |
| 9        | 15750.0                 | -43.10   | 6.7             | 13.85      | Vertical             | -38.1           | -13.0       | 25.1        | 270           |
| 10       | 17500.0                 | -41.00   | 6.8             | 14.25      | Vertical             | -35.7           | -13.0       | 22.7        | 225           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 15MHz CH20025, 1 RB**

| Harmonic | CH20025 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3421.9                  | -46.20   | 2.6             | 10.15      | Vertical             | -40.8           | -13.0       | 27.8        | 135           |
| 3        | 5132.6                  | -39.10   | 2.4             | 11.35      | Vertical             | -32.3           | -13.0       | 19.3        | 225           |
| 4        | 6870.0                  | -40.20   | 4.5             | 10.85      | Vertical             | -36.0           | -13.0       | 23.0        | 90            |
| 5        | 8587.5                  | -44.90   | 5.1             | 11.35      | Vertical             | -40.8           | -13.0       | 27.8        | 90            |
| 6        | 10305.0                 | -46.00   | 5.3             | 11.95      | Vertical             | -41.5           | -13.0       | 28.5        | 45            |
| 7        | 12022.5                 | -45.00   | 5.5             | 13.55      | Vertical             | -39.1           | -13.0       | 26.1        | 180           |
| 8        | 13740.0                 | -41.90   | 6.3             | 13.75      | Vertical             | -36.6           | -13.0       | 23.6        | 225           |
| 9        | 15457.5                 | -42.90   | 6.7             | 13.85      | Vertical             | -37.9           | -13.0       | 24.9        | 135           |
| 10       | 17175.0                 | -40.90   | 6.8             | 14.25      | Vertical             | -35.6           | -13.0       | 22.6        | 225           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 15MHz CH-Middle, 1 RB**

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3465.0                    | -46.30   | 2.6             | 10.75      | Vertical             | -40.3           | -13.0       | 27.3        | 90            |
| 3        | 5177.6                    | -38.30   | 2.4             | 11.05      | Vertical             | -31.8           | -13.0       | 18.8        | 90            |
| 4        | 6930.0                    | -43.70   | 4.5             | 11.15      | Vertical             | -39.2           | -13.0       | 26.2        | 45            |
| 5        | 8662.5                    | -46.20   | 5.1             | 11.35      | Vertical             | -42.1           | -13.0       | 29.1        | 180           |
| 6        | 10395.0                   | -43.20   | 5.3             | 11.95      | Vertical             | -38.7           | -13.0       | 25.7        | 270           |
| 7        | 12127.5                   | -44.50   | 5.5             | 13.55      | Vertical             | -38.6           | -13.0       | 25.6        | 225           |
| 8        | 13860.0                   | -41.10   | 6.3             | 13.75      | Vertical             | -35.8           | -13.0       | 22.8        | 135           |
| 9        | 15592.5                   | -42.70   | 6.7             | 13.85      | Vertical             | -37.7           | -13.0       | 24.7        | 225           |
| 10       | 17325.0                   | -41.00   | 6.8             | 14.25      | Vertical             | -35.7           | -13.0       | 22.7        | 315           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 15MHz CH-High, 1 RB**

| Harmonic | CH20325<br>Frequency<br>(MHz) | SG<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | Antenna<br>Polarization | ERP<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Azimuth<br>(deg) |
|----------|-------------------------------|-------------|-----------------------|---------------|-------------------------|-----------------------|----------------|----------------|------------------|
| 2        | 3481.5                        | -43.40      | 2.6                   | 10.15         | Vertical                | -38.0                 | -13.0          | 25.0           | 270              |
| 3        | 5222.6                        | -37.30      | 2.4                   | 11.05         | Vertical                | -30.8                 | -13.0          | 17.8           | 225              |
| 4        | 6990.0                        | -43.00      | 4.5                   | 11.15         | Vertical                | -38.5                 | -13.0          | 25.5           | 135              |
| 5        | 8737.5                        | -46.20      | 5.1                   | 11.35         | Vertical                | -42.1                 | -13.0          | 29.1           | 225              |
| 6        | 10485.0                       | -43.50      | 5.3                   | 11.95         | Vertical                | -39.0                 | -13.0          | 26.0           | 90               |
| 7        | 12232.5                       | -45.10      | 5.5                   | 13.55         | Vertical                | -39.2                 | -13.0          | 26.2           | 45               |
| 8        | 13980.0                       | -40.80      | 6.3                   | 13.75         | Vertical                | -35.5                 | -13.0          | 22.5           | 180              |
| 9        | 15727.5                       | -43.30      | 6.7                   | 13.85         | Vertical                | -38.3                 | -13.0          | 25.3           | 45               |
| 10       | 17475.0                       | -40.80      | 6.8                   | 14.25         | Vertical                | -35.5                 | -13.0          | 22.5           | 0                |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 20MHz CH-Low, 1 RB**

| Harmonic | CH20050<br>Frequency<br>(MHz) | SG<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | Antenna<br>Polarization | ERP<br>Level<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Azimuth<br>(deg) |
|----------|-------------------------------|-------------|-----------------------|---------------|-------------------------|-----------------------|----------------|----------------|------------------|
| 2        | 3422.3                        | -45.00      | 2.6                   | 10.15         | Vertical                | -39.6                 | -13.0          | 26.6           | 135              |
| 3        | 5133.4                        | -38.70      | 2.4                   | 11.35         | Vertical                | -31.9                 | -13.0          | 18.9           | 225              |
| 4        | 6880.0                        | -44.50      | 4.5                   | 10.85         | Vertical                | -40.3                 | -13.0          | 27.3           | 315              |
| 5        | 8600.0                        | -45.20      | 5.1                   | 11.35         | Vertical                | -41.1                 | -13.0          | 28.1           | 270              |
| 6        | 10320.0                       | -42.50      | 5.3                   | 11.95         | Vertical                | -38.0                 | -13.0          | 25.0           | 225              |
| 7        | 12040.0                       | -44.50      | 5.5                   | 13.55         | Vertical                | -38.6                 | -13.0          | 25.6           | 135              |
| 8        | 13760.0                       | -40.90      | 6.3                   | 13.75         | Vertical                | -35.6                 | -13.0          | 22.6           | 225              |
| 9        | 15480.0                       | -43.00      | 6.7                   | 13.85         | Vertical                | -38.0                 | -13.0          | 25.0           | 135              |
| 10       | 17200.0                       | -41.70      | 6.8                   | 14.25         | Vertical                | -36.4                 | -13.0          | 23.4           | 225              |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.



**LTE Band 4 QPSK 20MHz CH-Middle, 1 RB**

| Harmonic | CH-Middle Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|---------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3465.0                    | -46.90   | 2.6             | 10.75      | Vertical             | -40.9           | -13.0       | 27.9        | 315           |
| 3        | 5170.5                    | -38.10   | 2.4             | 11.05      | Vertical             | -31.6           | -13.0       | 18.6        | 270           |
| 4        | 6930.0                    | -43.40   | 4.5             | 11.15      | Vertical             | -38.9           | -13.0       | 25.9        | 225           |
| 5        | 8662.5                    | -45.60   | 5.1             | 11.35      | Vertical             | -41.5           | -13.0       | 28.5        | 135           |
| 6        | 10395.0                   | -44.80   | 5.3             | 11.95      | Vertical             | -40.3           | -13.0       | 27.3        | 225           |
| 7        | 12127.5                   | -42.80   | 5.5             | 13.55      | Vertical             | -36.9           | -13.0       | 23.9        | 90            |
| 8        | 13860.0                   | -40.30   | 6.3             | 13.75      | Vertical             | -35.0           | -13.0       | 22.0        | 90            |
| 9        | 15592.5                   | -42.10   | 6.7             | 13.85      | Vertical             | -37.1           | -13.0       | 24.1        | 45            |
| 10       | 17325.0                   | -40.30   | 6.8             | 14.25      | Vertical             | -35.0           | -13.0       | 22.0        | 180           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 4 QPSK 20MHz CH-High, 1 RB**

| Harmonic | CH20300 Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-------------------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 3472.1                  | -47.00   | 2.6             | 10.15      | Vertical             | -41.6           | -13.0       | 28.6        | 225           |
| 3        | 5208.4                  | -40.40   | 2.4             | 11.05      | Vertical             | -33.9           | -13.0       | 20.9        | 135           |
| 4        | 6980.0                  | -43.60   | 4.5             | 11.15      | Vertical             | -39.1           | -13.0       | 26.1        | 225           |
| 5        | 8725.0                  | -45.60   | 5.1             | 11.35      | Vertical             | -41.5           | -13.0       | 28.5        | 90            |
| 6        | 10470.0                 | -44.80   | 5.3             | 11.95      | Vertical             | -40.3           | -13.0       | 27.3        | 90            |
| 7        | 12215.0                 | -42.80   | 5.5             | 13.55      | Vertical             | -36.9           | -13.0       | 23.9        | 45            |
| 8        | 13960.0                 | -40.30   | 6.3             | 13.75      | Vertical             | -35.0           | -13.0       | 22.0        | 180           |
| 9        | 15705.0                 | -42.10   | 6.7             | 13.85      | Vertical             | -37.1           | -13.0       | 24.1        | 45            |
| 10       | 17450.0                 | -40.30   | 6.8             | 14.25      | Vertical             | -35.0           | -13.0       | 22.0        | 0             |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 5MHz CH-Low, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1559.0          | -52.50   | 2.00            | 10.15      | Vertical             | -46.5           | -13.0       | 33.50       | 180           |
| 3        | 2338.5          | -46.30   | 2.50            | 11.35      | Vertical             | -39.6           | -13.0       | 26.60       | 270           |
| 4        | 3118.0          | -54.90   | 4.20            | 10.85      | Vertical             | -50.4           | -13.0       | 37.40       | 135           |
| 5        | 3897.5          | -52.50   | 5.20            | 11.35      | Vertical             | -48.5           | -13.0       | 35.50       | 225           |
| 6        | 4677.0          | -48.90   | 5.50            | 11.95      | Vertical             | -44.6           | -13.0       | 31.60       | 135           |
| 7        | 5456.5          | -51.10   | 5.70            | 13.55      | Vertical             | -45.4           | -13.0       | 32.40       | 90            |
| 8        | 6236.0          | -48.50   | 6.30            | 13.75      | Vertical             | -43.2           | -13.0       | 30.20       | 45            |
| 9        | 7015.5          | -47.10   | 6.80            | 13.85      | Vertical             | -42.2           | -13.0       | 29.20       | 180           |
| 10       | 7795.0          | -47.10   | 6.90            | 14.25      | Vertical             | -41.9           | -13.0       | 28.90       | 45            |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 5MHz CH-Middle, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1564.0          | -52.20   | 2.00            | 10.75      | Vertical             | -45.6           | -13.0       | 32.60       | 0             |
| 3        | 2346.0          | -47.59   | 2.51            | 11.05      | Vertical             | -41.2           | -13.0       | 28.20       | 135           |
| 4        | 3128.0          | -56.20   | 4.20            | 11.15      | Vertical             | -51.4           | -13.0       | 38.40       | 225           |
| 5        | 3910.0          | -54.30   | 5.20            | 11.15      | Vertical             | -50.5           | -13.0       | 37.50       | 90            |
| 6        | 4692.0          | -52.70   | 5.50            | 11.95      | Vertical             | -48.4           | -13.0       | 35.40       | 45            |
| 7        | 5474.0          | -53.60   | 5.70            | 13.55      | Vertical             | -47.9           | -13.0       | 34.90       | 180           |
| 8        | 6256.0          | -51.10   | 6.30            | 13.75      | Vertical             | -45.8           | -13.0       | 32.80       | 45            |
| 9        | 7038.0          | -47.60   | 6.80            | 13.85      | Vertical             | -42.7           | -13.0       | 29.70       | 0             |
| 10       | 7820.0          | -47.50   | 6.90            | 14.25      | Vertical             | -42.3           | -13.0       | 29.30       | 135           |

- Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.  
 2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 5MHz CH-High, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1569.0          | -52.90   | 2.00            | 10.15      | Vertical             | -46.9           | -13.0       | 33.9        | 225           |
| 3        | 2353.5          | -47.79   | 2.51            | 11.05      | Vertical             | -41.4           | -13.0       | 28.4        | 315           |
| 4        | 3138.0          | -56.50   | 4.20            | 11.15      | Vertical             | -51.7           | -13.0       | 38.7        | 270           |
| 5        | 3922.5          | -53.80   | 5.20            | 11.15      | Vertical             | -50.0           | -13.0       | 37.0        | 225           |
| 6        | 4707.0          | -53.20   | 5.50            | 11.95      | Vertical             | -48.9           | -13.0       | 35.9        | 135           |
| 7        | 5491.5          | -53.80   | 5.70            | 13.55      | Vertical             | -48.1           | -13.0       | 35.1        | 225           |
| 8        | 6276.0          | -51.40   | 6.30            | 13.75      | Vertical             | -46.1           | -13.0       | 33.1        | 90            |
| 9        | 7060.5          | -47.80   | 6.80            | 13.85      | Vertical             | -42.9           | -13.0       | 29.9        | 90            |
| 10       | 7845.0          | -47.60   | 6.90            | 14.25      | Vertical             | -42.4           | -13.0       | 29.4        | 45            |

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 10MHz CH-Low, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1564.0          | -52.85   | 2.00            | 10.15      | Vertical             | -44.7           | -13.0       | 31.7        | 180           |
| 3        | 2346.0          | -50.94   | 2.51            | 11.35      | Vertical             | -42.1           | -13.0       | 29.1        | 225           |
| 4        | 3128.0          | -57.95   | 4.20            | 10.85      | Vertical             | -51.3           | -13.0       | 38.3        | 135           |
| 5        | 3910.0          | -56.95   | 5.20            | 11.35      | Vertical             | -50.8           | -13.0       | 37.8        | 225           |
| 6        | 4692.0          | -54.95   | 5.50            | 11.95      | Vertical             | -48.5           | -13.0       | 35.5        | 90            |
| 7        | 5474.0          | -55.95   | 5.70            | 13.55      | Vertical             | -48.1           | -13.0       | 35.1        | 90            |
| 8        | 6256.0          | -53.75   | 6.30            | 13.75      | Vertical             | -46.3           | -13.0       | 33.3        | 45            |
| 9        | 7038.0          | -49.75   | 6.80            | 13.85      | Vertical             | -42.7           | -13.0       | 29.7        | 180           |
| 10       | 7820.0          | -49.95   | 6.90            | 14.25      | Vertical             | -42.6           | -13.0       | 29.6        | 45            |

- Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.  
2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 10MHz CH-Middle, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1564.0          | -50.90   | 2.00            | 10.75      | Vertical             | -44.3           | -13.0       | 31.3        | 0             |
| 3        | 2346.0          | -57.49   | 2.51            | 11.05      | Vertical             | -51.1           | -13.0       | 38.1        | 135           |
| 4        | 3128.0          | -56.00   | 4.20            | 11.15      | Vertical             | -51.2           | -13.0       | 38.2        | 225           |
| 5        | 3910.0          | -54.10   | 5.20            | 11.15      | Vertical             | -50.3           | -13.0       | 37.3        | 315           |
| 6        | 4692.0          | -53.40   | 5.50            | 11.95      | Vertical             | -49.1           | -13.0       | 36.1        | 270           |
| 7        | 5474.0          | -54.00   | 5.70            | 13.55      | Vertical             | -48.3           | -13.0       | 35.3        | 90            |
| 8        | 6256.0          | -51.50   | 6.30            | 13.75      | Vertical             | -46.2           | -13.0       | 33.2        | 45            |
| 9        | 7038.0          | -47.70   | 6.80            | 13.85      | Vertical             | -42.8           | -13.0       | 29.8        | 180           |
| 10       | 7820.0          | -47.70   | 6.90            | 14.25      | Vertical             | -42.5           | -13.0       | 29.5        | 45            |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

**LTE Band 13 QPSK 10MHz CH-High, 1 RB**

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1564.0          | -53.85   | 2.00            | 10.15      | Vertical             | -45.7           | -13.0       | 32.7        | 0             |
| 3        | 2346.0          | -50.44   | 2.51            | 11.05      | Vertical             | -41.9           | -13.0       | 28.9        | 135           |
| 4        | 3128.0          | -58.15   | 4.20            | 11.15      | Vertical             | -51.2           | -13.0       | 38.2        | 225           |
| 5        | 3910.0          | -55.95   | 5.20            | 11.15      | Vertical             | -50.0           | -13.0       | 37.0        | 315           |
| 6        | 4692.0          | -55.05   | 5.50            | 11.95      | Vertical             | -48.6           | -13.0       | 35.6        | 270           |
| 7        | 5474.0          | -56.05   | 5.70            | 13.55      | Vertical             | -48.2           | -13.0       | 35.2        | 225           |
| 8        | 6256.0          | -53.45   | 6.30            | 13.75      | Vertical             | -46.0           | -13.0       | 33.0        | 135           |
| 9        | 7038.0          | -49.15   | 6.80            | 13.85      | Vertical             | -42.1           | -13.0       | 29.1        | 225           |
| 10       | 7820.0          | -49.75   | 6.90            | 14.25      | Vertical             | -42.4           | -13.0       | 29.4        | 90            |

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

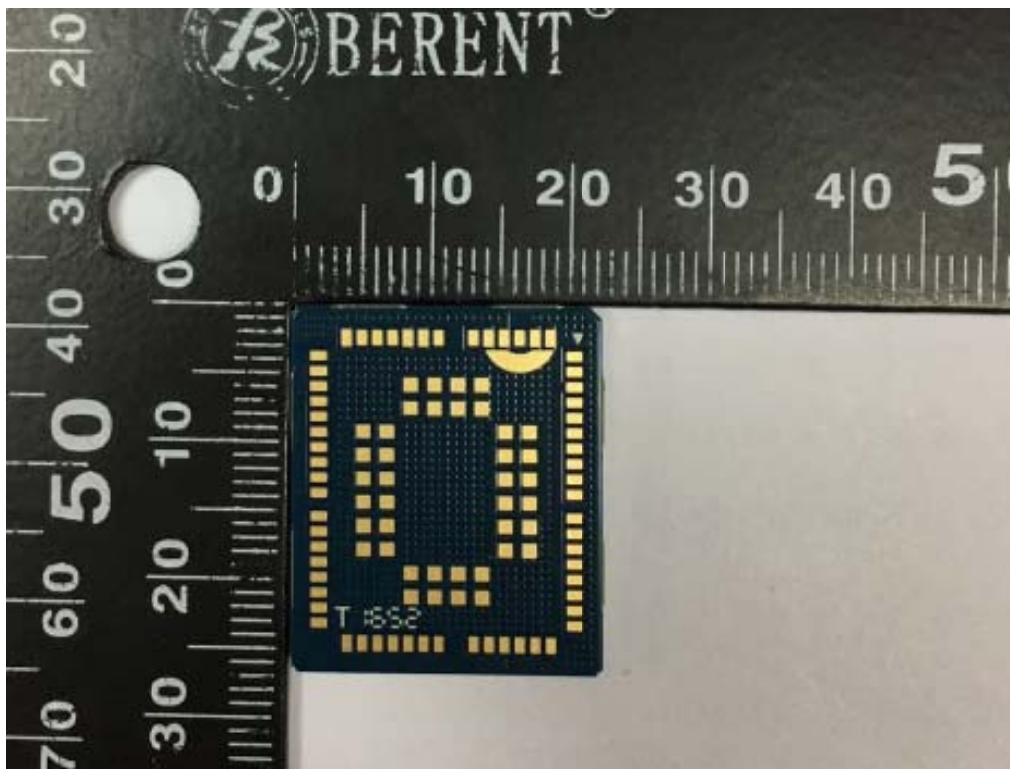
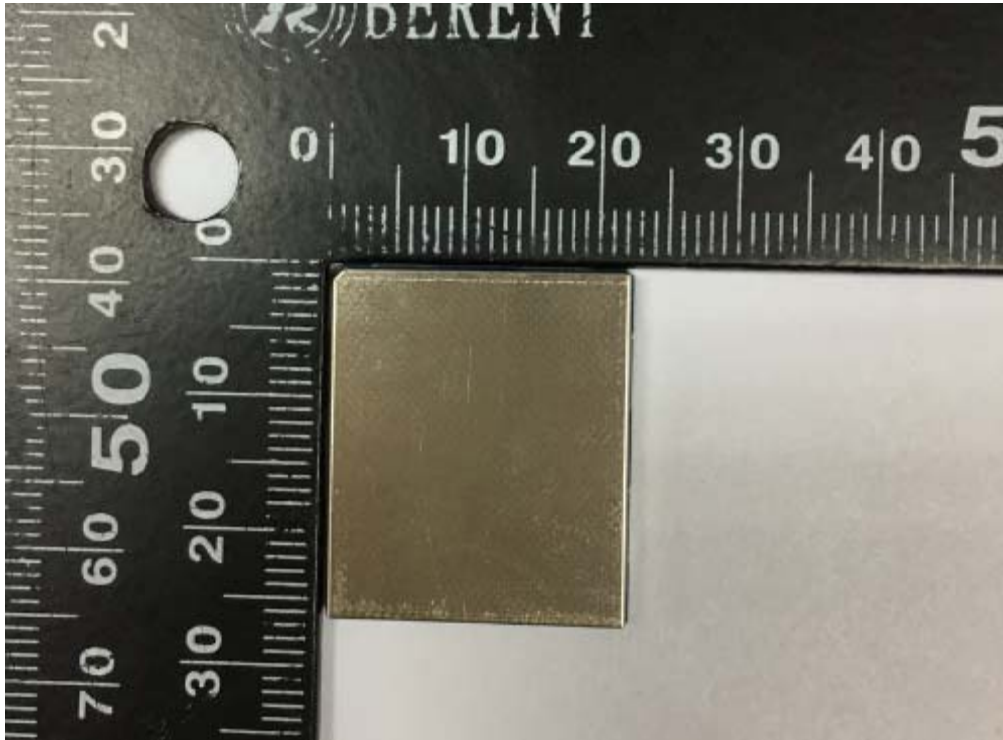
2. The worst emission was found in the antenna is vertical position.

## 5 Main Test Instruments

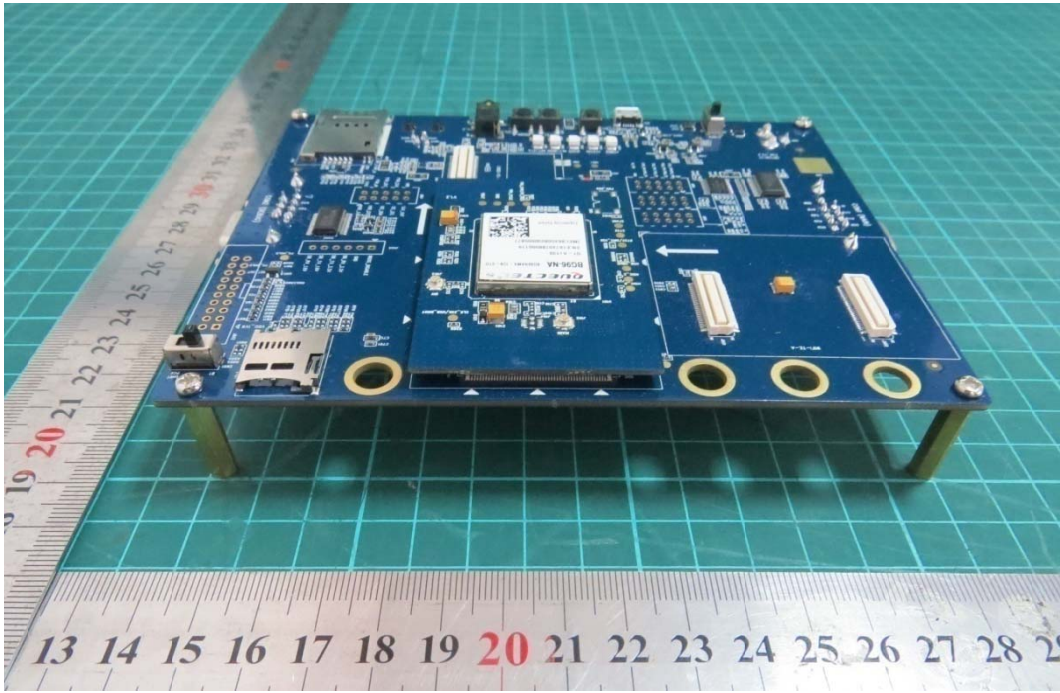
| Name                                 | Type         | Manufacturer | Serial Number | Calibration Date | Expiration Time |
|--------------------------------------|--------------|--------------|---------------|------------------|-----------------|
| Base Station Simulator               | CMW500       | R&S          | 113645        | 2017-05-14       | 2018-05-13      |
| Power Splitter                       | SHX-GF2-2-13 | Hua Xiang    | 10120101      | 2017-05-14       | 2018-05-13      |
| Universal Radio Communication Tester | E5515C       | Agilent      | MY48367192    | 2017-05-14       | 2018-05-13      |
| Spectrum Analyzer                    | N9010A       | Agilent      | MY47191109    | 2017-05-14       | 2018-05-13      |
| Signal Analyzer                      | FSV30        | R&S          | 100815        | 2016-12-16       | 2017-12-15      |
| Signal generator                     | SMB 100A     | R&S          | 102594        | 2017-05-14       | 2018-05-13      |
| EMI Test Receiver                    | ESCI3        | R&S          | 100948        | 2016-12-16       | 2017-12-15      |
| Trilog Antenna                       | VUBL 9163    | SCHWARZBECK  | 9163-201      | 2014-12-06       | 2017-12-05      |
| Horn Antenna                         | HF907        | R&S          | 100126        | 2014-12-06       | 2017-12-05      |
| Horn Antenna                         | 3160-09      | ETS-Lindgren | 00102643      | 2015-01-30       | 2018-01-29      |
| Climatic Chamber                     | PT-30B       | Re Ce        | 20101891      | 2016-07-17       | 2017-07-16      |
| RF Cable                             | SMA 15cm     | Agilent      | 0001          | 2017-02-06       | 2017-08-05      |

## ANNEX A: EUT Appearance and Test Setup

### A.1 EUT Appearance



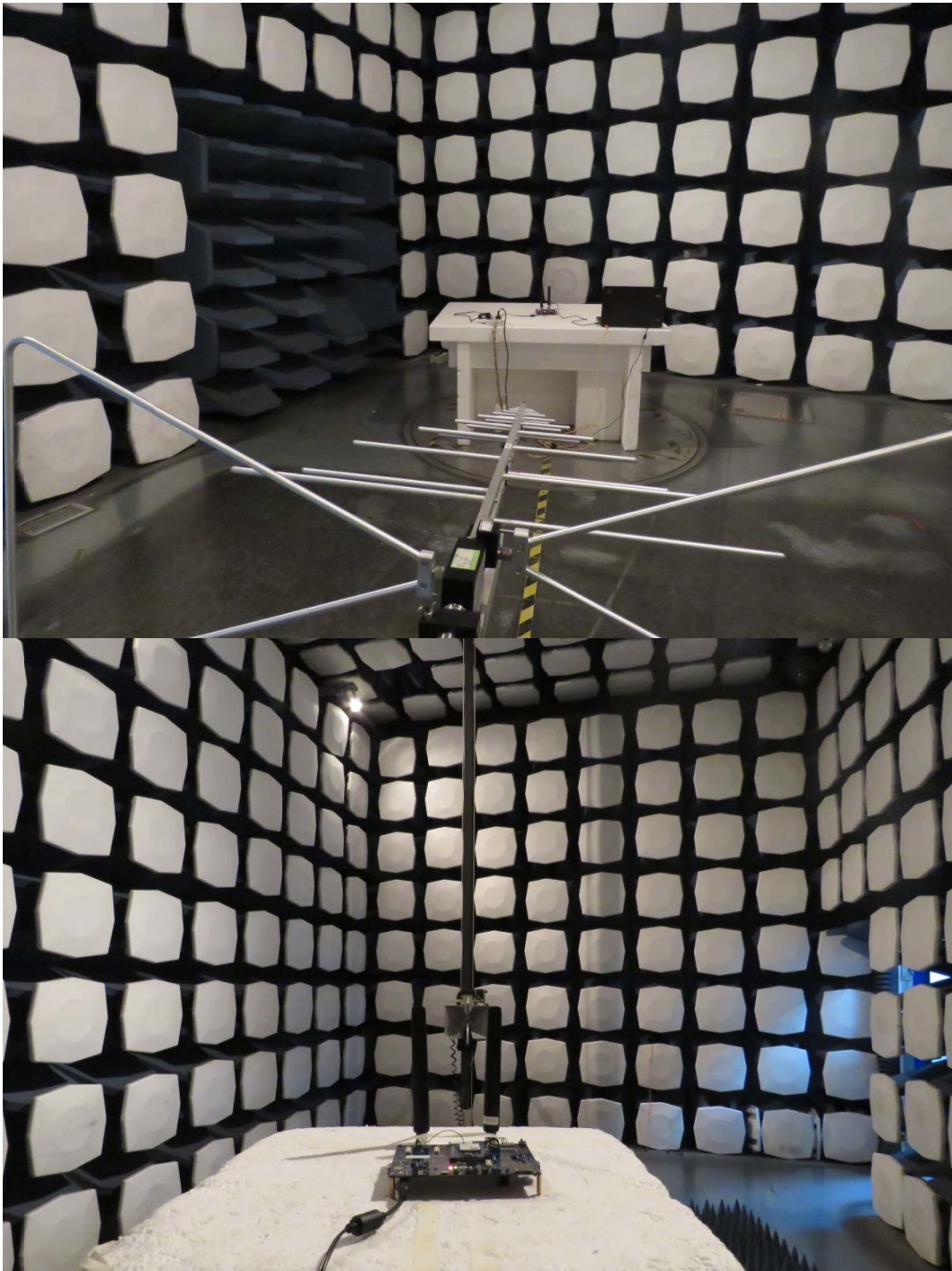
a: EUT



b: Evaluation Board

Picture 1 EUT and Accessory

## A.2 Test Setup



Picture 2: Radiated Spurious Emissions Test setup