

## 5.5. Peak-to-Average Power Ratio (PAPR)

### Ambient condition

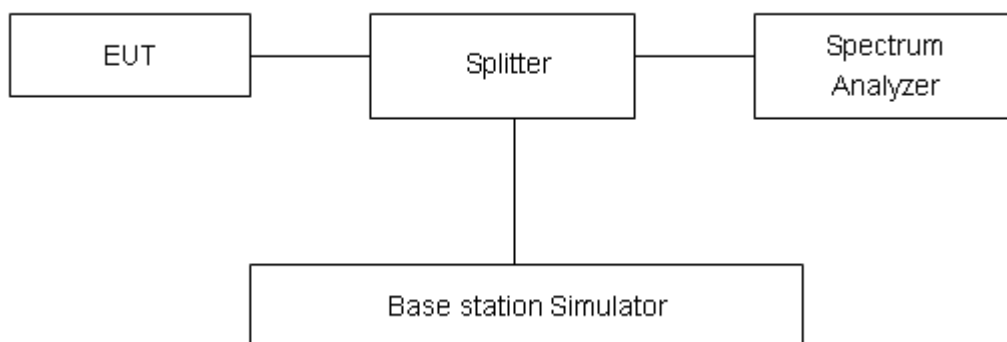
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

Measure the total peak power and record as  $P_{Pk}$ . And measure the total average power and record as  $P_{Avg}$ . Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).$$

### Test Setup



### Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.4$  dB.



## Test Results

| Mode              | Channel | Frequency (MHz) | Peak (dBm) | Avg (dBm) | PAPR (dB) | Limit (dB) | Conclusion |
|-------------------|---------|-----------------|------------|-----------|-----------|------------|------------|
| GPRS 850 (GMSK)   | 128     | 824.2           | 30.69      | 30.01     | 0.68      | ≤13        | PASS       |
|                   | 190     | 836.6           | 30.82      | 30.11     | 0.71      | ≤13        | PASS       |
|                   | 251     | 848.8           | 30.92      | 30.28     | 0.64      | ≤13        | PASS       |
| EGPRS 850 (8-PSK) | 128     | 824.2           | 26.84      | 26.05     | 0.79      | ≤13        | PASS       |
|                   | 190     | 836.6           | 26.97      | 26.06     | 0.91      | ≤13        | PASS       |
|                   | 251     | 848.8           | 27.00      | 26.19     | 0.81      | ≤13        | PASS       |

| LTE Band 5 |                 |         |                 |            |           |           |            |            |
|------------|-----------------|---------|-----------------|------------|-----------|-----------|------------|------------|
| Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | Peak (dBm) | Avg (dBm) | PAPR (dB) | Limit (dB) | Conclusion |
| QPSK       | 1.4             | 20407   | 824.7           | 32.89      | 22.62     | 10.27     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 32.98      | 22.71     | 10.27     | ≤13        | PASS       |
|            |                 | 20643   | 848.3           | 34.59      | 22.86     | 11.73     | ≤13        | PASS       |
|            | 3               | 20415   | 825.5           | 32.71      | 22.70     | 10.01     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 32.95      | 22.73     | 10.22     | ≤13        | PASS       |
|            |                 | 20635   | 847.5           | 34.52      | 22.90     | 11.62     | ≤13        | PASS       |
|            | 5               | 20425   | 826.5           | 32.69      | 22.68     | 10.01     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 33.21      | 22.69     | 10.52     | ≤13        | PASS       |
|            |                 | 20625   | 846.5           | 32.99      | 22.85     | 10.14     | ≤13        | PASS       |
|            | 10              | 20450   | 829             | 32.56      | 22.65     | 9.91      | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 32.60      | 22.64     | 9.96      | ≤13        | PASS       |
|            |                 | 20600   | 844             | 32.87      | 22.81     | 10.06     | ≤13        | PASS       |
| 16QAM      | 1.4             | 20407   | 824.7           | 33.44      | 22.67     | 10.77     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 34.24      | 23.20     | 11.04     | ≤13        | PASS       |
|            |                 | 20643   | 848.3           | 34.79      | 23.00     | 11.79     | ≤13        | PASS       |
|            | 3               | 20415   | 825.5           | 34.01      | 22.70     | 11.31     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 34.24      | 23.25     | 10.99     | ≤13        | PASS       |
|            |                 | 20635   | 847.5           | 35.15      | 23.04     | 12.11     | ≤13        | PASS       |
|            | 5               | 20425   | 826.5           | 33.86      | 22.67     | 11.19     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 34.41      | 23.20     | 11.21     | ≤13        | PASS       |
|            |                 | 20625   | 846.5           | 33.85      | 23.00     | 10.85     | ≤13        | PASS       |
|            | 10              | 20450   | 829             | 33.35      | 22.65     | 10.70     | ≤13        | PASS       |
|            |                 | 20525   | 836.5           | 33.28      | 23.16     | 10.12     | ≤13        | PASS       |
|            |                 | 20600   | 844             | 32.99      | 22.97     | 10.02     | ≤13        | PASS       |



| LTE Band 26 |                 |         |                 |            |           |           |            |            |
|-------------|-----------------|---------|-----------------|------------|-----------|-----------|------------|------------|
| Modulation  | Bandwidth (MHz) | Channel | Frequency (MHz) | Peak (dBm) | Avg (dBm) | PAPR (dB) | Limit (dB) | Conclusion |
| QPSK        | 1.4             | 26797   | 824.7           | 33.12      | 22.76     | 10.36     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 34.32      | 22.74     | 11.58     | ≤13        | PASS       |
|             |                 | 27033   | 848.3           | 34.27      | 22.75     | 11.52     | ≤13        | PASS       |
|             | 3               | 26805   | 825.5           | 32.83      | 22.74     | 10.09     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 34.86      | 22.73     | 12.13     | ≤13        | PASS       |
|             |                 | 27025   | 847.5           | 34.05      | 22.73     | 11.32     | ≤13        | PASS       |
|             | 5               | 26815   | 826.5           | 33.04      | 22.82     | 10.22     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 32.82      | 22.75     | 10.07     | ≤13        | PASS       |
|             |                 | 27015   | 846.5           | 33.18      | 22.77     | 10.41     | ≤13        | PASS       |
|             | 10              | 26840   | 829             | 33.13      | 22.80     | 10.33     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 33.01      | 22.71     | 10.30     | ≤13        | PASS       |
|             |                 | 26990   | 844             | 32.72      | 22.72     | 10.00     | ≤13        | PASS       |
|             | 15              | 26865   | 831.5           | 31.94      | 22.77     | 9.17      | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 32.64      | 22.66     | 9.98      | ≤13        | PASS       |
|             |                 | 26965   | 841.5           | 33.86      | 22.68     | 11.18     | ≤13        | PASS       |
| 16QAM       | 1.4             | 26797   | 824.7           | 34.28      | 23.10     | 11.18     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 36.11      | 23.19     | 12.92     | ≤13        | PASS       |
|             |                 | 27033   | 848.3           | 35.77      | 22.87     | 12.90     | ≤13        | PASS       |
|             | 3               | 26805   | 825.5           | 34.12      | 23.08     | 11.04     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 35.43      | 23.15     | 12.28     | ≤13        | PASS       |
|             |                 | 27025   | 847.5           | 35.59      | 22.82     | 12.77     | ≤13        | PASS       |
|             | 5               | 26815   | 826.5           | 33.94      | 23.11     | 10.83     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 34.20      | 23.20     | 11.00     | ≤13        | PASS       |
|             |                 | 27015   | 846.5           | 33.77      | 22.86     | 10.91     | ≤13        | PASS       |
|             | 10              | 26840   | 829             | 33.08      | 23.08     | 10.00     | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 33.76      | 23.15     | 10.61     | ≤13        | PASS       |
|             |                 | 26990   | 844             | 33.41      | 22.82     | 10.59     | ≤13        | PASS       |
|             | 15              | 26865   | 831.5           | 32.47      | 23.06     | 9.41      | ≤13        | PASS       |
|             |                 | 26915   | 836.5           | 32.80      | 23.11     | 9.69      | ≤13        | PASS       |
|             |                 | 26965   | 841.5           | 33.03      | 22.79     | 10.24     | ≤13        | PASS       |

## 5.6. Frequency Stability

### Ambient condition

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

### Method of Measurement

#### 1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -40°C to +85°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

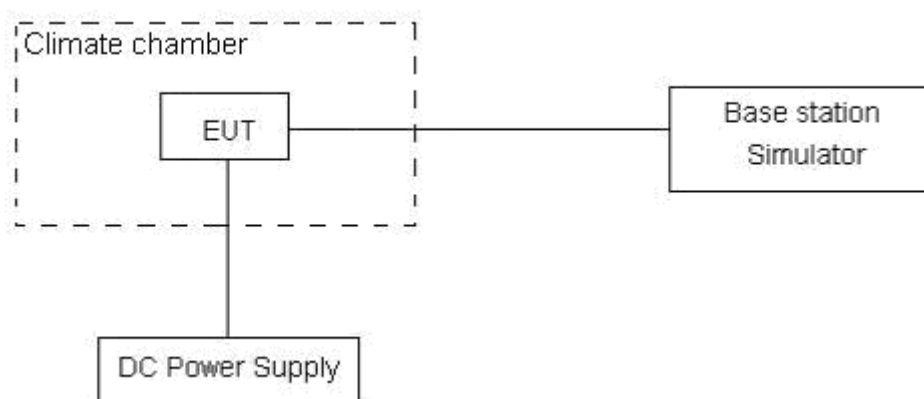
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

### Test setup



## Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

|        |                |
|--------|----------------|
| Limits | $\leq 2.5$ ppm |
|--------|----------------|

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 3$ ,  $U = 0.01$  ppm.

## Test Result

| Mode                      | Test status          | Test Results (ppm) |              | Limit (ppm) | Conclusion |
|---------------------------|----------------------|--------------------|--------------|-------------|------------|
|                           |                      | GPRS (GMSK)        | EGPRS (8PSK) |             |            |
| GSM 850<br>Middle Channel | -40°C/Normal Voltage | 0.0211             | 0.0202       | 2.5         | PASS       |
|                           | -30°C/Normal Voltage | 0.0294             | 0.0242       | 2.5         | PASS       |
|                           | -20°C/Normal Voltage | 0.0297             | 0.0257       | 2.5         | PASS       |
|                           | -10°C/Normal Voltage | 0.0292             | 0.0253       | 2.5         | PASS       |
|                           | 0°C/Normal Voltage   | 0.0301             | 0.0250       | 2.5         | PASS       |
|                           | 10°C/Normal Voltage  | 0.0333             | 0.0241       | 2.5         | PASS       |
|                           | 20°C/Normal Voltage  | 0.0395             | 0.0317       | 2.5         | PASS       |
|                           | 30°C/Normal Voltage  | 0.0312             | 0.0262       | 2.5         | PASS       |
|                           | 40°C/Normal Voltage  | 0.0343             | 0.0248       | 2.5         | PASS       |
|                           | 50°C/Normal Voltage  | 0.0355             | 0.0288       | 2.5         | PASS       |
|                           | 60°C/Normal Voltage  | 0.0325             | 0.0302       | 2.5         | PASS       |
|                           | 70°C/Normal Voltage  | 0.0349             | 0.0273       | 2.5         | PASS       |
|                           | 80°C/Normal Voltage  | 0.0350             | 0.0266       | 2.5         | PASS       |
|                           | 85°C/Normal Voltage  | 0.0338             | 0.0279       | 2.5         | PASS       |
|                           | 20°C/Minimum Voltage | 0.0273             | 0.0234       | 2.5         | PASS       |
|                           | 20°C/Maximum Voltage | 0.0217             | 0.0208       | 2.5         | PASS       |



| Bandwidth | Test status          | LTE Band 5 Middle Channel Test Results (ppm) |          |             |            |
|-----------|----------------------|----------------------------------------------|----------|-------------|------------|
|           |                      | QPSK                                         | 16QAM    | Limit (ppm) | Conclusion |
| 1.4MHz    | -40°C/Normal Voltage | -0.00147                                     | -0.01488 | 2.5         | PASS       |
|           | -30°C/Normal Voltage | -0.00025                                     | -0.01676 | 2.5         | PASS       |
|           | -20°C/Normal Voltage | -0.00142                                     | -0.01840 | 2.5         | PASS       |
|           | -10°C/Normal Voltage | -0.00279                                     | -0.01732 | 2.5         | PASS       |
|           | 0°C/Normal Voltage   | -0.00198                                     | -0.02276 | 2.5         | PASS       |
|           | 10°C/Normal Voltage  | -0.00053                                     | -0.02736 | 2.5         | PASS       |
|           | 20°C/Normal Voltage  | -0.00059                                     | -0.01711 | 2.5         | PASS       |
|           | 30°C/Normal Voltage  | 0.00234                                      | -0.01736 | 2.5         | PASS       |
|           | 40°C/Normal Voltage  | 0.00104                                      | -0.02404 | 2.5         | PASS       |
|           | 50°C/Normal Voltage  | 0.00429                                      | -0.01883 | 2.5         | PASS       |
|           | 60°C/Normal Voltage  | 0.00430                                      | -0.02723 | 2.5         | PASS       |
|           | 70°C/Normal Voltage  | -0.00128                                     | -0.02343 | 2.5         | PASS       |
|           | 80°C/Normal Voltage  | -0.00143                                     | -0.01695 | 2.5         | PASS       |
|           | 85°C/Normal Voltage  | 0.00212                                      | -0.01592 | 2.5         | PASS       |
|           | 20°C/Minimum Voltage | -0.00146                                     | -0.01522 | 2.5         | PASS       |
|           | 20°C/Maximum Voltage | 0.00099                                      | -0.02527 | 2.5         | PASS       |
| 3MHz      | -40°C/Normal Voltage | -0.00178                                     | -0.01886 | 2.5         | PASS       |
|           | -30°C/Normal Voltage | -0.00259                                     | -0.01704 | 2.5         | PASS       |
|           | -20°C/Normal Voltage | -0.00334                                     | -0.01677 | 2.5         | PASS       |
|           | -10°C/Normal Voltage | -0.00158                                     | -0.02166 | 2.5         | PASS       |
|           | 0°C/Normal Voltage   | -0.00031                                     | -0.01933 | 2.5         | PASS       |
|           | 10°C/Normal Voltage  | -0.00438                                     | -0.01900 | 2.5         | PASS       |
|           | 20°C/Normal Voltage  | -0.00491                                     | -0.01522 | 2.5         | PASS       |
|           | 30°C/Normal Voltage  | -0.00392                                     | -0.00512 | 2.5         | PASS       |
|           | 40°C/Normal Voltage  | -0.00197                                     | -0.00279 | 2.5         | PASS       |
|           | 50°C/Normal Voltage  | -0.00160                                     | 0.00207  | 2.5         | PASS       |
|           | 60°C/Normal Voltage  | -0.00361                                     | 0.00385  | 2.5         | PASS       |
|           | 70°C/Normal Voltage  | -0.00209                                     | -0.00123 | 2.5         | PASS       |
|           | 80°C/Normal Voltage  | -0.00061                                     | 0.00393  | 2.5         | PASS       |
|           | 85°C/Normal Voltage  | -0.00164                                     | 0.00286  | 2.5         | PASS       |
|           | 20°C/Minimum Voltage | -0.00197                                     | 0.00123  | 2.5         | PASS       |
|           | 20°C/Maximum Voltage | 0.00099                                      | 0.00146  | 2.5         | PASS       |
| 5MHz      | -40°C/Normal Voltage | -0.00219                                     | -0.02227 | 2.5         | PASS       |
|           | -30°C/Normal Voltage | -0.00092                                     | -0.01994 | 2.5         | PASS       |
|           | -20°C/Normal Voltage | -0.00499                                     | -0.01961 | 2.5         | PASS       |



|       |                      |          |          |     |      |
|-------|----------------------|----------|----------|-----|------|
|       | -10°C/Normal Voltage | -0.00552 | -0.01583 | 2.5 | PASS |
|       | 0°C/Normal Voltage   | -0.00453 | -0.00573 | 2.5 | PASS |
|       | 10°C/Normal Voltage  | -0.00258 | -0.00340 | 2.5 | PASS |
|       | 20°C/Normal Voltage  | -0.00221 | 0.00146  | 2.5 | PASS |
|       | 30°C/Normal Voltage  | -0.00422 | 0.00324  | 2.5 | PASS |
|       | 40°C/Normal Voltage  | -0.00056 | -0.01977 | 2.5 | PASS |
|       | 50°C/Normal Voltage  | -0.00463 | -0.01600 | 2.5 | PASS |
|       | 60°C/Normal Voltage  | -0.00516 | -0.00589 | 2.5 | PASS |
|       | 70°C/Normal Voltage  | -0.00417 | -0.00356 | 2.5 | PASS |
|       | 80°C/Normal Voltage  | -0.00222 | 0.00129  | 2.5 | PASS |
|       | 85°C/Normal Voltage  | -0.00185 | 0.00307  | 2.5 | PASS |
|       | 20°C/Minimum Voltage | -0.00386 | -0.02244 | 2.5 | PASS |
|       | 20°C/Maximum Voltage | -0.00183 | -0.02011 | 2.5 | PASS |
| 10MHz | -40°C/Normal Voltage | -0.00252 | 0.01378  | 2.5 | PASS |
|       | -30°C/Normal Voltage | -0.00126 | 0.00426  | 2.5 | PASS |
|       | -20°C/Normal Voltage | -0.00532 | -0.00082 | 2.5 | PASS |
|       | -10°C/Normal Voltage | -0.00586 | 0.01753  | 2.5 | PASS |
|       | 0°C/Normal Voltage   | -0.00487 | 0.00326  | 2.5 | PASS |
|       | 10°C/Normal Voltage  | -0.00292 | 0.00164  | 2.5 | PASS |
|       | 20°C/Normal Voltage  | -0.00255 | 0.00186  | 2.5 | PASS |
|       | 30°C/Normal Voltage  | -0.00455 | -0.01739 | 2.5 | PASS |
|       | 40°C/Normal Voltage  | -0.00090 | -0.01339 | 2.5 | PASS |
|       | 50°C/Normal Voltage  | -0.00496 | -0.01176 | 2.5 | PASS |
|       | 60°C/Normal Voltage  | -0.00550 | -0.01542 | 2.5 | PASS |
|       | 70°C/Normal Voltage  | -0.00243 | -0.00532 | 2.5 | PASS |
|       | 80°C/Normal Voltage  | -0.00094 | -0.00299 | 2.5 | PASS |
|       | 85°C/Normal Voltage  | -0.00197 | 0.00186  | 2.5 | PASS |
|       | 20°C/Minimum Voltage | -0.00231 | 0.00365  | 2.5 | PASS |
|       | 20°C/Maximum Voltage | 0.00066  | -0.01578 | 2.5 | PASS |

| Bandwidth | Test status          | LTE Band 26 Middle Channel Test Results (ppm) |          |             |            |
|-----------|----------------------|-----------------------------------------------|----------|-------------|------------|
|           |                      | QPSK                                          | 16QAM    | Limit (ppm) | Conclusion |
| 1.4MHz    | -40°C/Normal Voltage | -0.00255                                      | -0.00904 | 2.5         | PASS       |
|           | -30°C/Normal Voltage | -0.00082                                      | -0.00258 | 2.5         | PASS       |
|           | -20°C/Normal Voltage | -0.00245                                      | -0.00454 | 2.5         | PASS       |
|           | -10°C/Normal Voltage | -0.00195                                      | -0.00467 | 2.5         | PASS       |
|           | 0°C/Normal Voltage   | -0.00237                                      | -0.00055 | 2.5         | PASS       |
|           | 10°C/Normal Voltage  | -0.00209                                      | -0.00196 | 2.5         | PASS       |



|      |                      |          |          |     |      |
|------|----------------------|----------|----------|-----|------|
|      | 20°C/Normal Voltage  | -0.00316 | 0.00197  | 2.5 | PASS |
|      | 30°C/Normal Voltage  | 0.00110  | 0.00117  | 2.5 | PASS |
|      | 40°C/Normal Voltage  | 0.00018  | -0.01288 | 2.5 | PASS |
|      | 50°C/Normal Voltage  | -0.00241 | -0.01149 | 2.5 | PASS |
|      | 60°C/Normal Voltage  | -0.00175 | -0.00275 | 2.5 | PASS |
|      | 70°C/Normal Voltage  | -0.00218 | -0.00581 | 2.5 | PASS |
|      | 80°C/Normal Voltage  | -0.00326 | -0.00439 | 2.5 | PASS |
|      | 85°C/Normal Voltage  | -0.00109 | -0.00863 | 2.5 | PASS |
|      | 20°C/Minimum Voltage | -0.00053 | -0.00961 | 2.5 | PASS |
|      | 20°C/Maximum Voltage | -0.00207 | -0.01095 | 2.5 | PASS |
| 3MHz | -40°C/Normal Voltage | -0.00073 | -0.01100 | 2.5 | PASS |
|      | -30°C/Normal Voltage | -0.00258 | -0.01870 | 2.5 | PASS |
|      | -20°C/Normal Voltage | -0.00261 | -0.01069 | 2.5 | PASS |
|      | -10°C/Normal Voltage | -0.00302 | -0.01623 | 2.5 | PASS |
|      | 0°C/Normal Voltage   | -0.00081 | -0.00377 | 2.5 | PASS |
|      | 10°C/Normal Voltage  | -0.00209 | -0.01283 | 2.5 | PASS |
|      | 20°C/Normal Voltage  | -0.00219 | -0.01866 | 2.5 | PASS |
|      | 30°C/Normal Voltage  | -0.00185 | -0.02007 | 2.5 | PASS |
|      | 40°C/Normal Voltage  | -0.00112 | -0.01834 | 2.5 | PASS |
|      | 50°C/Normal Voltage  | 0.00104  | -0.01458 | 2.5 | PASS |
|      | 60°C/Normal Voltage  | -0.00322 | -0.01830 | 2.5 | PASS |
|      | 70°C/Normal Voltage  | -0.00081 | -0.01652 | 2.5 | PASS |
|      | 80°C/Normal Voltage  | -0.00292 | -0.01957 | 2.5 | PASS |
|      | 85°C/Normal Voltage  | -0.00253 | -0.01998 | 2.5 | PASS |
|      | 20°C/Minimum Voltage | -0.00082 | -0.02011 | 2.5 | PASS |
|      | 20°C/Maximum Voltage | -0.00062 | -0.01874 | 2.5 | PASS |
| 5MHz | -40°C/Normal Voltage | -0.00377 | -0.01621 | 2.5 | PASS |
|      | -30°C/Normal Voltage | -0.00441 | -0.01817 | 2.5 | PASS |
|      | -20°C/Normal Voltage | -0.00294 | -0.01724 | 2.5 | PASS |
|      | -10°C/Normal Voltage | -0.00087 | -0.01276 | 2.5 | PASS |
|      | 0°C/Normal Voltage   | -0.00381 | -0.02108 | 2.5 | PASS |
|      | 10°C/Normal Voltage  | -0.00455 | -0.01305 | 2.5 | PASS |
|      | 20°C/Normal Voltage  | -0.00348 | -0.00441 | 2.5 | PASS |
|      | 30°C/Normal Voltage  | -0.00316 | -0.00631 | 2.5 | PASS |
|      | 40°C/Normal Voltage  | -0.00092 | -0.00910 | 2.5 | PASS |
|      | 50°C/Normal Voltage  | 0.00149  | -0.00814 | 2.5 | PASS |
|      | 60°C/Normal Voltage  | 0.00143  | -0.00483 | 2.5 | PASS |
|      | 70°C/Normal Voltage  | -0.00383 | -0.00781 | 2.5 | PASS |
|      | 80°C/Normal Voltage  | -0.00246 | -0.00750 | 2.5 | PASS |
|      | 85°C/Normal Voltage  | 0.00236  | -0.01982 | 2.5 | PASS |



|       |                      |          |          |     |      |
|-------|----------------------|----------|----------|-----|------|
|       | 20°C/Minimum Voltage | -0.00310 | -0.01586 | 2.5 | PASS |
|       | 20°C/Maximum Voltage | 0.00005  | -0.01339 | 2.5 | PASS |
| 10MHz | -40°C/Normal Voltage | 0.00022  | 0.00374  | 2.5 | PASS |
|       | -30°C/Normal Voltage | -0.00258 | 0.00269  | 2.5 | PASS |
|       | -20°C/Normal Voltage | -0.00281 | -0.00081 | 2.5 | PASS |
|       | -10°C/Normal Voltage | -0.00347 | -0.00122 | 2.5 | PASS |
|       | 0°C/Normal Voltage   | -0.00201 | -0.00212 | 2.5 | PASS |
|       | 10°C/Normal Voltage  | -0.00300 | -0.00171 | 2.5 | PASS |
|       | 20°C/Normal Voltage  | -0.00126 | -0.00060 | 2.5 | PASS |
|       | 30°C/Normal Voltage  | -0.00228 | -0.00116 | 2.5 | PASS |
|       | 40°C/Normal Voltage  | -0.00081 | 0.00389  | 2.5 | PASS |
|       | 50°C/Normal Voltage  | 0.00237  | 0.00440  | 2.5 | PASS |
|       | 60°C/Normal Voltage  | -0.00122 | 0.00307  | 2.5 | PASS |
|       | 70°C/Normal Voltage  | -0.00100 | 0.00085  | 2.5 | PASS |
|       | 80°C/Normal Voltage  | -0.00336 | -0.00016 | 2.5 | PASS |
|       | 85°C/Normal Voltage  | -0.00024 | 0.00495  | 2.5 | PASS |
|       | 20°C/Minimum Voltage | -0.00279 | 0.00288  | 2.5 | PASS |
|       | 20°C/Maximum Voltage | -0.00112 | 0.00154  | 2.5 | PASS |
| 15MHz | -40°C/Normal Voltage | -0.00257 | -0.01834 | 2.5 | PASS |
|       | -30°C/Normal Voltage | -0.00241 | 0.00308  | 2.5 | PASS |
|       | -20°C/Normal Voltage | -0.00202 | 0.03394  | 2.5 | PASS |
|       | -10°C/Normal Voltage | -0.00255 | 0.04132  | 2.5 | PASS |
|       | 0°C/Normal Voltage   | -0.00128 | -0.02313 | 2.5 | PASS |
|       | 10°C/Normal Voltage  | -0.00300 | 0.03032  | 2.5 | PASS |
|       | 20°C/Normal Voltage  | -0.00127 | 0.03543  | 2.5 | PASS |
|       | 30°C/Normal Voltage  | -0.00165 | 0.03247  | 2.5 | PASS |
|       | 40°C/Normal Voltage  | -0.00200 | 0.03540  | 2.5 | PASS |
|       | 50°C/Normal Voltage  | -0.00130 | 0.03388  | 2.5 | PASS |
|       | 60°C/Normal Voltage  | -0.00353 | 0.03145  | 2.5 | PASS |
|       | 70°C/Normal Voltage  | -0.00329 | 0.04016  | 2.5 | PASS |
|       | 80°C/Normal Voltage  | -0.00313 | 0.04157  | 2.5 | PASS |
|       | 85°C/Normal Voltage  | -0.00331 | 0.03741  | 2.5 | PASS |
|       | 20°C/Minimum Voltage | -0.00288 | 0.03040  | 2.5 | PASS |
|       | 20°C/Maximum Voltage | -0.00172 | 0.02449  | 2.5 | PASS |

## 5.7. Spurious Emissions at Antenna Terminals

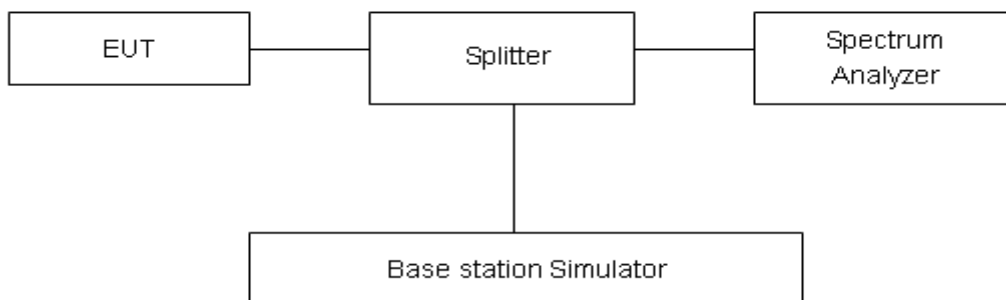
### Ambient condition

| 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 9kHz to the 10th harmonic of the carrier. The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

### Test setup



### Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.”

| Limit | -13 dBm |
|-------|---------|
|-------|---------|

### Measurement Uncertainty

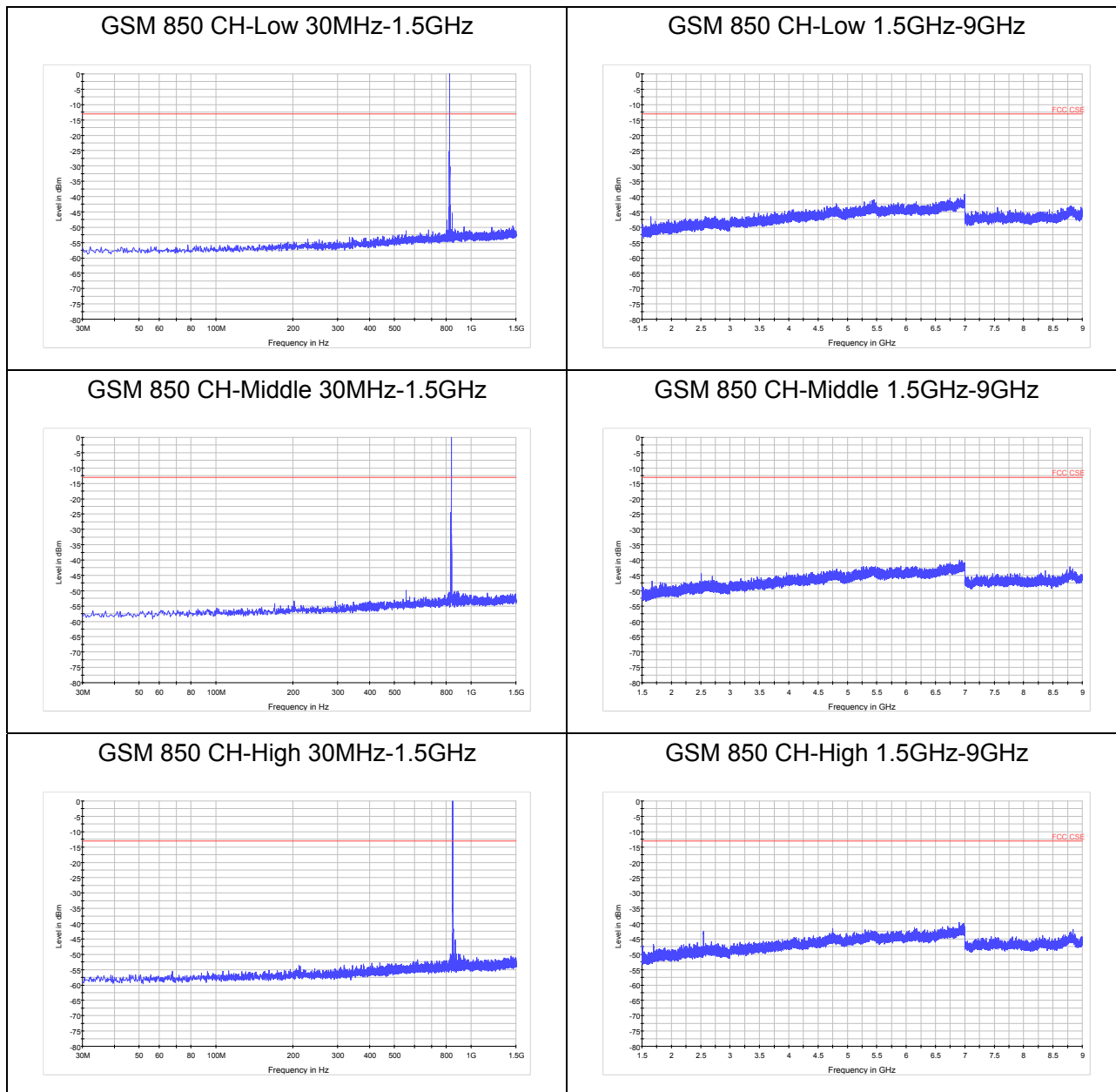
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency     | Uncertainty |
|---------------|-------------|
| 100kHz-2GHz   | 0.684 dB    |
| 2GHz-12.75GHz | 1.407 dB    |

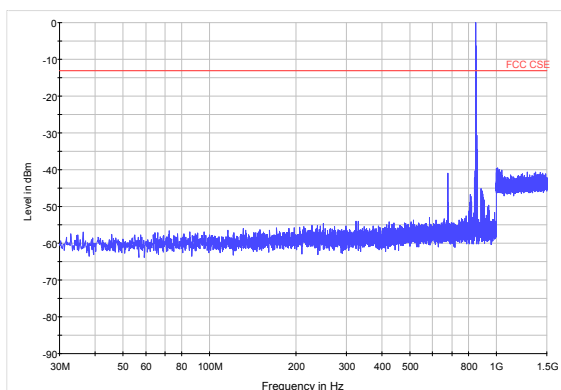
## Test Result

Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

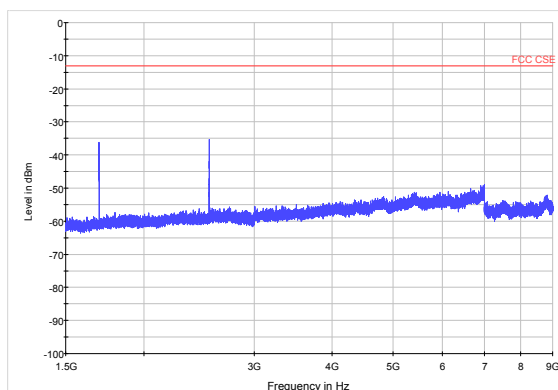
If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.  
The signal beyond the limit is carrier.



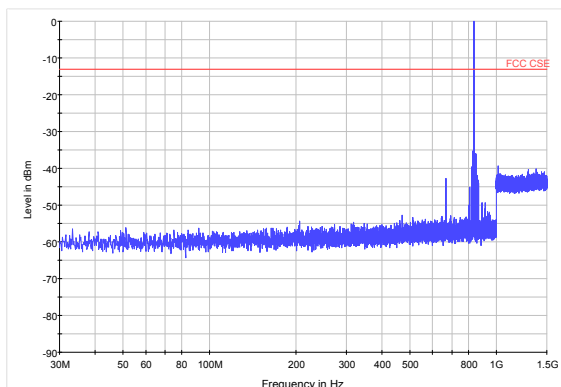
LTE Band 5 1.4MHz CH-Low 30MHz-1.5GHz



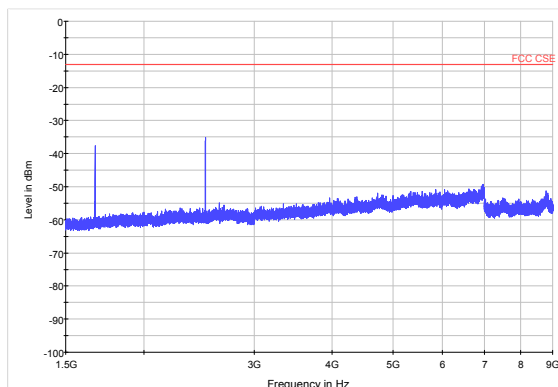
LTE Band 5 1.4MHz CH-Low 1.5GHz-9GHz



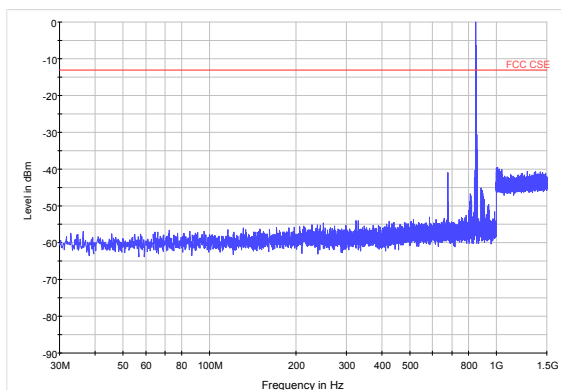
LTE Band 5 1.4MHz CH-Middle 30MHz-1.5GHz



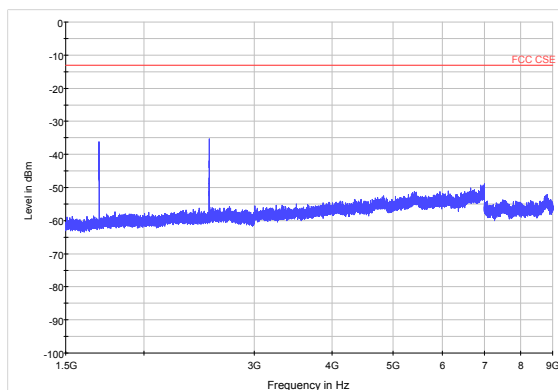
LTE Band 5 1.4MHz CH-Middle 1.5GHz-9GHz



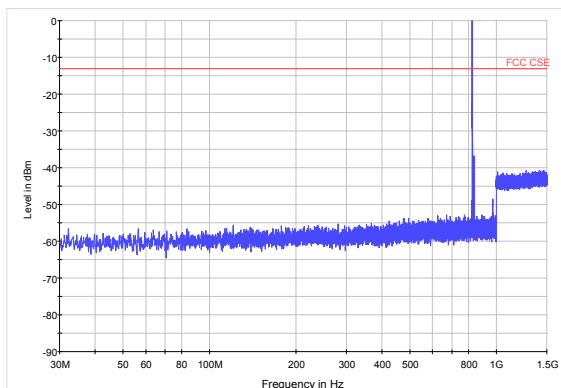
LTE Band 5 1.4MHz CH-High 30MHz-1.5GHz



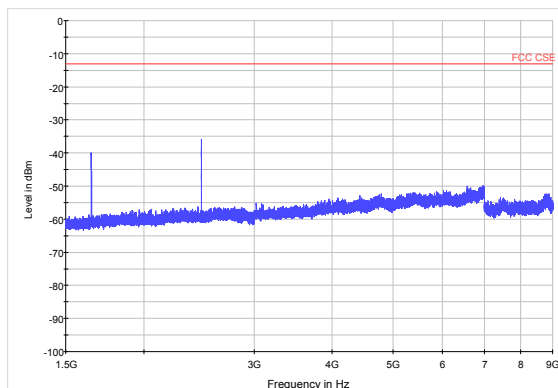
LTE Band 5 1.4MHz CH-High 1.5GHz-9GHz z



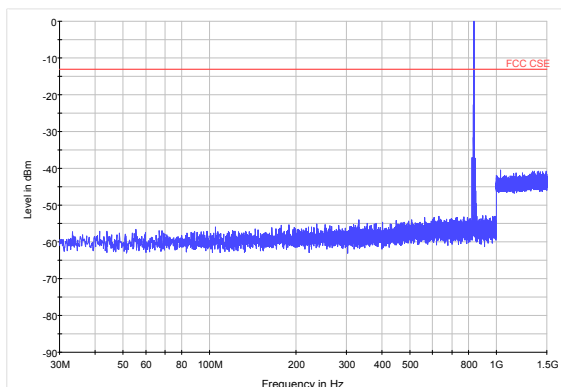
LTE Band 5 3MHz CH-Low 30MHz-1.5GHz



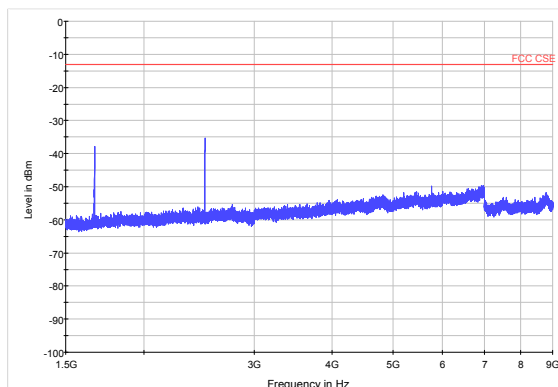
LTE Band 5 3MHz CH-Low 1.5GHz-9GHz z



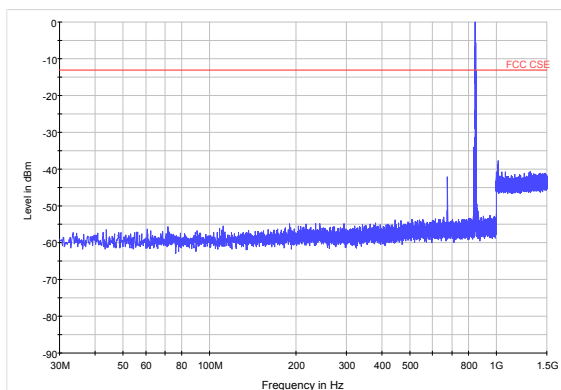
LTE Band 5 3MHz CH-Middle 30MHz-1.5GHz



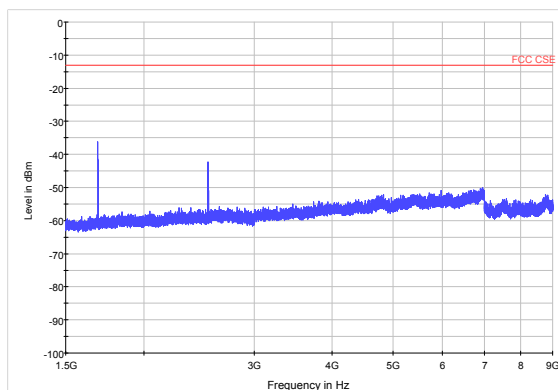
LTE Band 5 3MHz CH-Middle 1.5GHz-9GHz



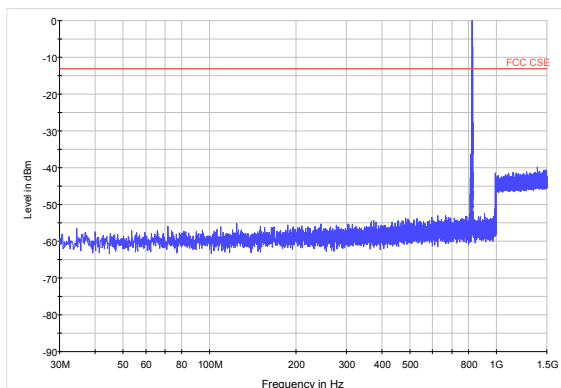
LTE Band 5 3MHz CH-High 30MHz-1.5GHz



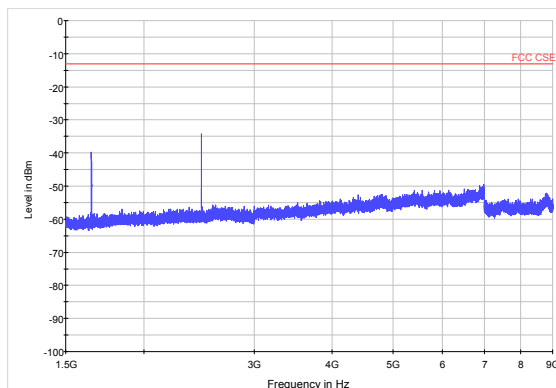
LTE Band 5 3MHz CH-High 1.5GHz-9GHz



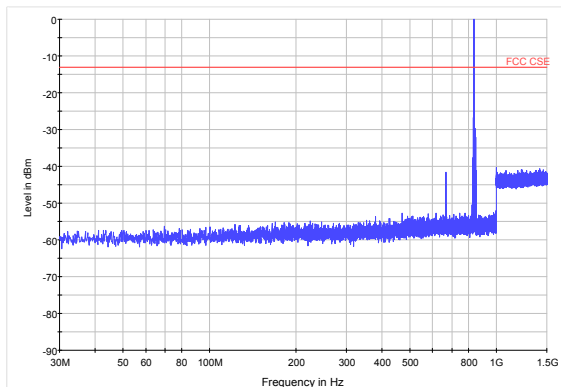
LTE Band 5 5MHz CH-Low 30MHz-1.5GHz



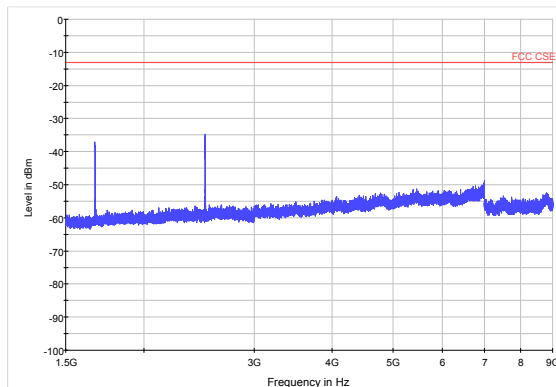
LTE Band 5 5MHz CH-Low 1.5GHz-9GHz



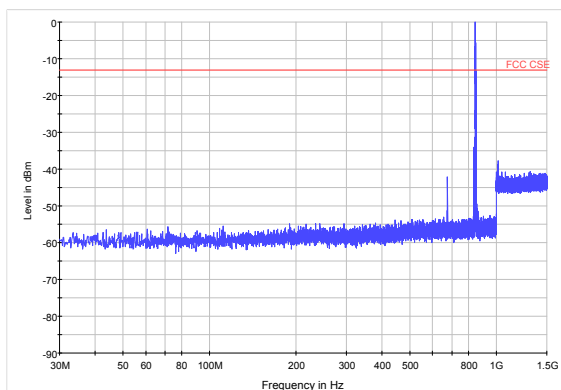
LTE Band 5 5MHz CH-Middle 30MHz-1.5GHz



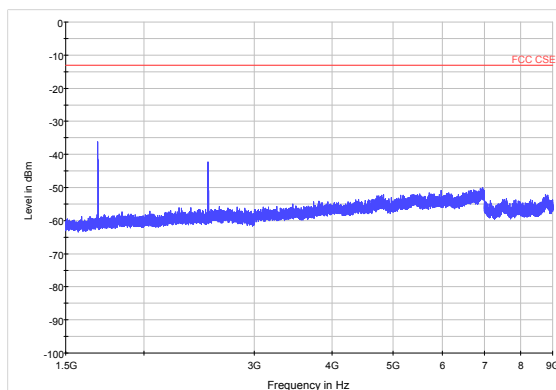
LTE Band 5 5MHz CH-Middle 1.5GHz-9GHz



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

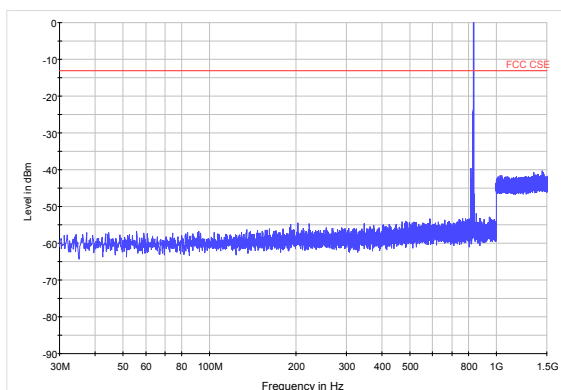


LTE Band 5 5MHz CH-High 1.5GHz-9GHz

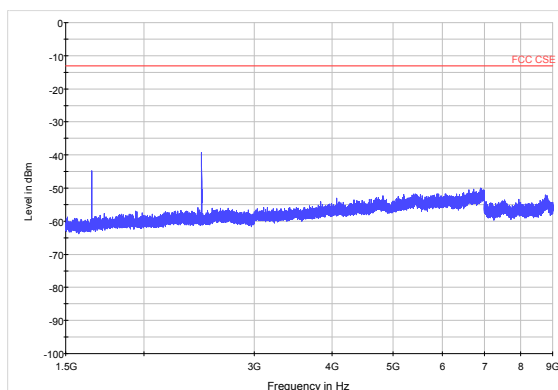




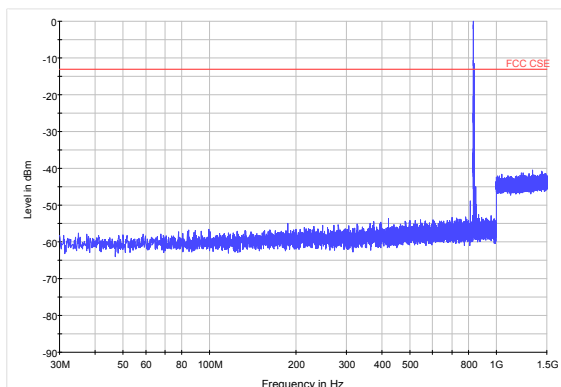
LTE Band 5 10MHz CH-Low 30MHz-1.5GHz



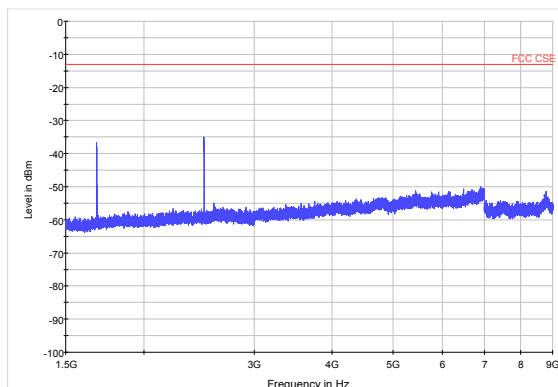
LTE Band 5 10MHz CH-Low 1.5GHz-9GHz



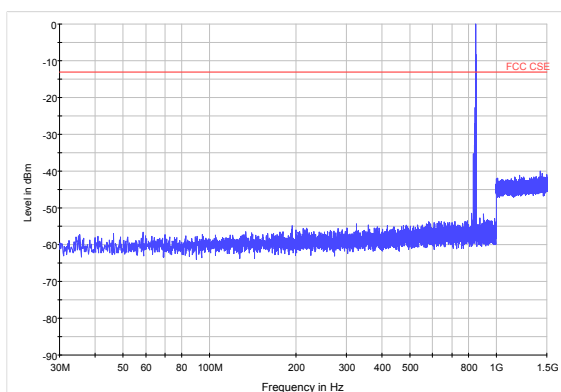
LTE Band 5 10MHz CH-Middle 30MHz-1.5GHz



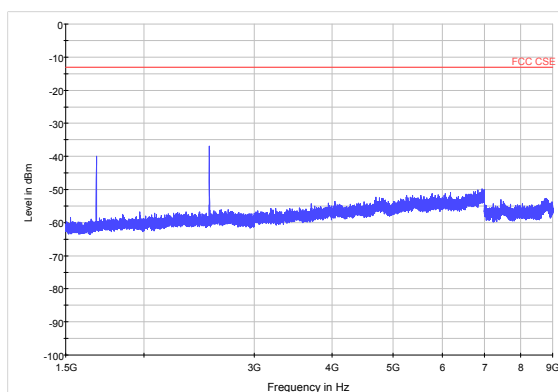
LTE Band 5 10MHz CH-Middle 1.5GHz-9GHz



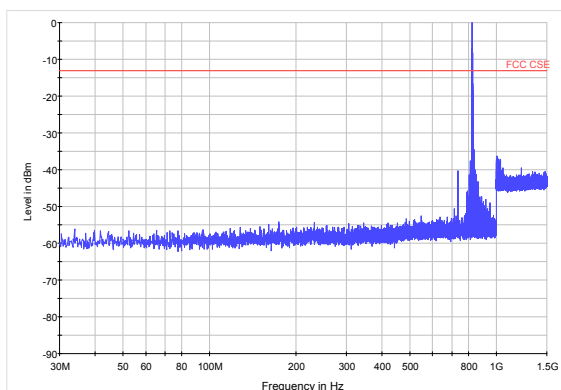
LTE Band 5 10MHz CH-High 30MHz-1.5GHz



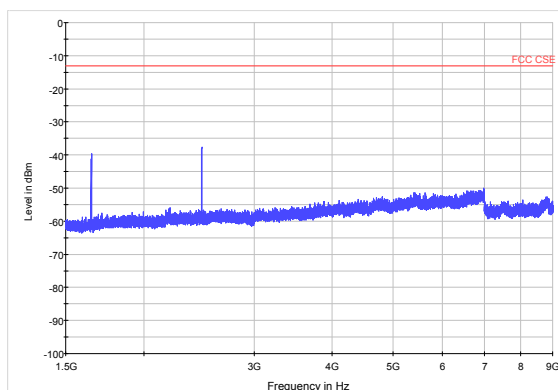
LTE Band 5 10MHz CH-High 1.5GHz-9GHz



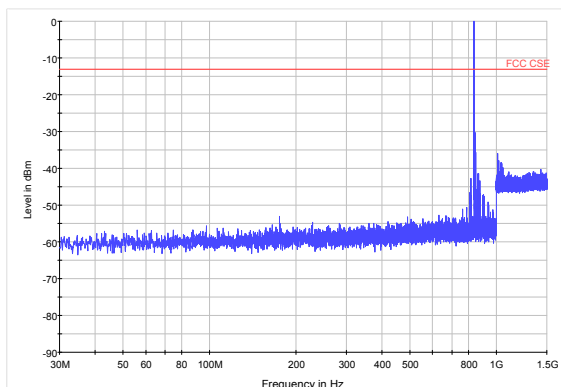
LTE Band 26 1.4MHz CH-Low 1.5MHz~3GHz



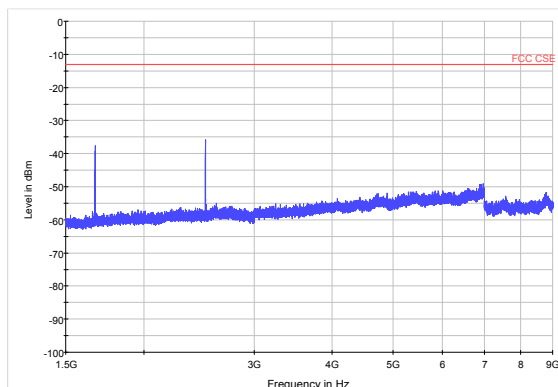
LTE Band 26 1.4MHz CH-Low 1.5GHz~9GHz



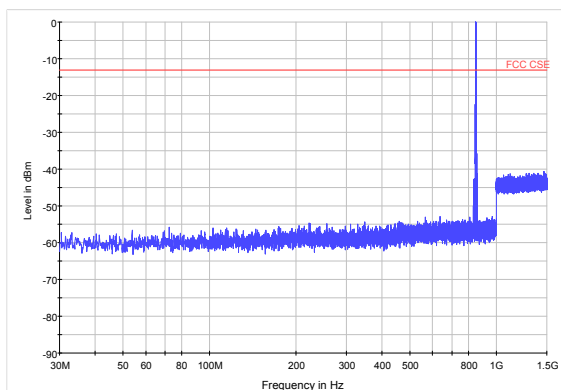
LTE Band 26 1.4MHz CH-Middle 1.5MHz~3GHz



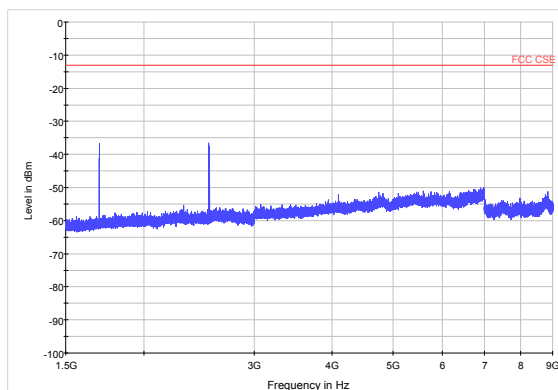
LTE Band 26 1.4MHz CH-Middle 1.5GHz~9GHz



LTE Band 26 1.4MHz CH-High 1.5MHz~3GHz

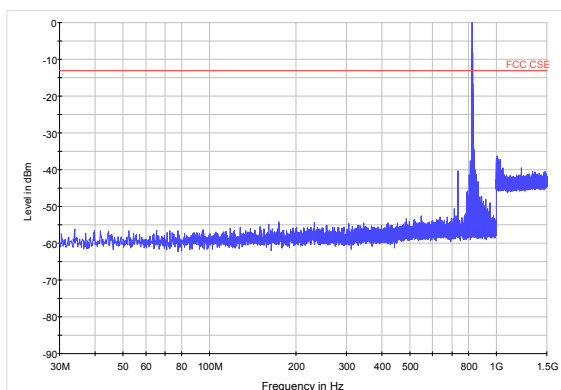


LTE Band 26 1.4MHz CH-High 1.5GHz~9GHz

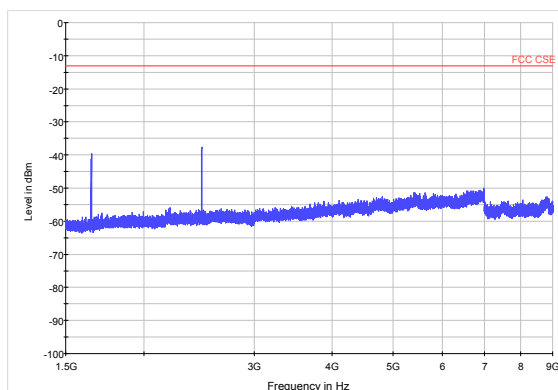




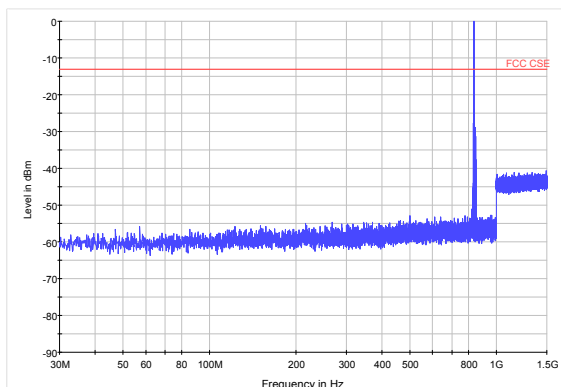
LTE Band 26 3MHz CH-Low 1.5MHz~3GHz



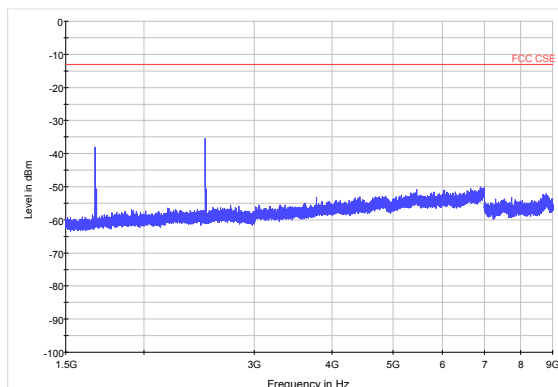
LTE Band 26 3MHz CH-Low 1.5GHz~9GHz



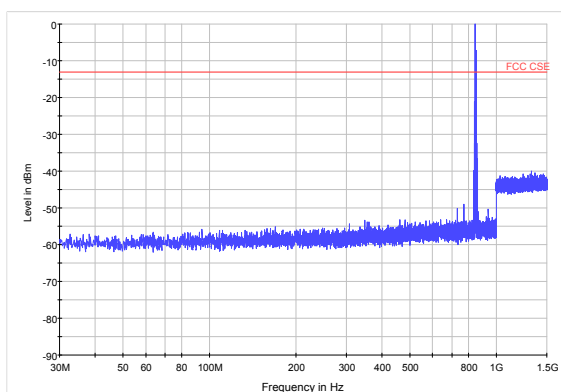
LTE Band 26 3MHz CH-Middle 1.5MHz~3GHz



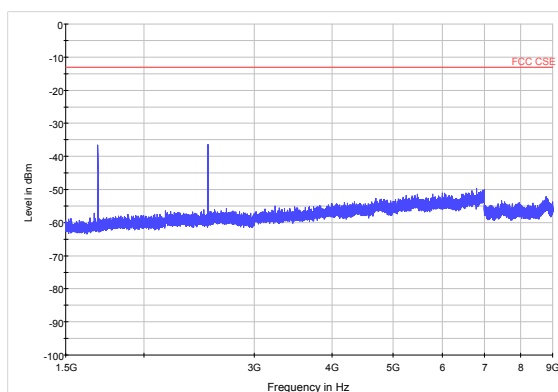
LTE Band 26 3MHz CH-Middle 1.5GHz~9GHz



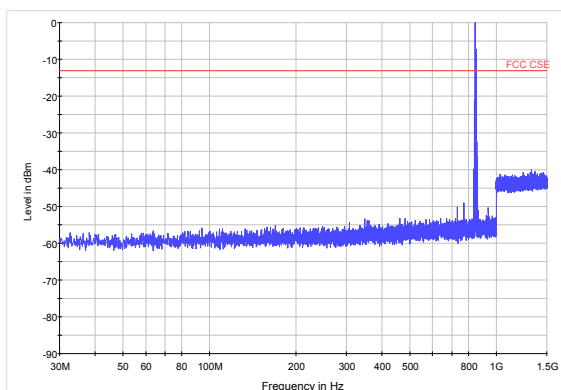
LTE Band 26 3MHz CH-High 1.5MHz~3GHz



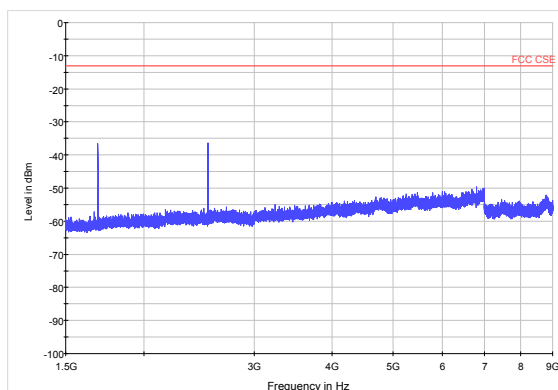
LTE Band 26 3MHz CH-High 1.5GHz~9GHz



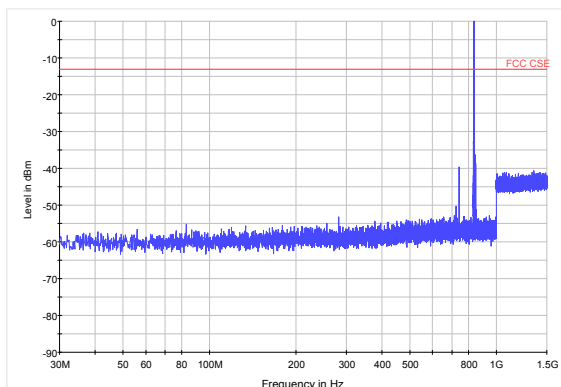
LTE Band 26 5MHz CH-Low 1.5MHz~3GHz



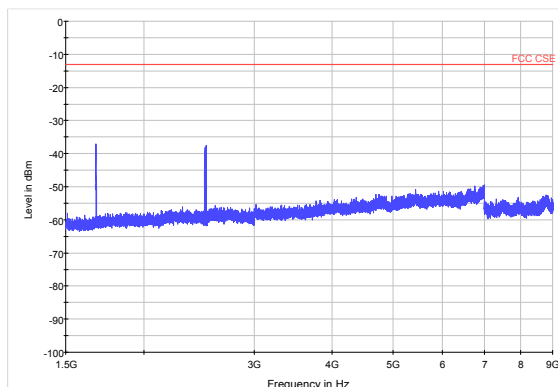
LTE Band 26 5MHz CH-Low 1.5GHz~9GHz



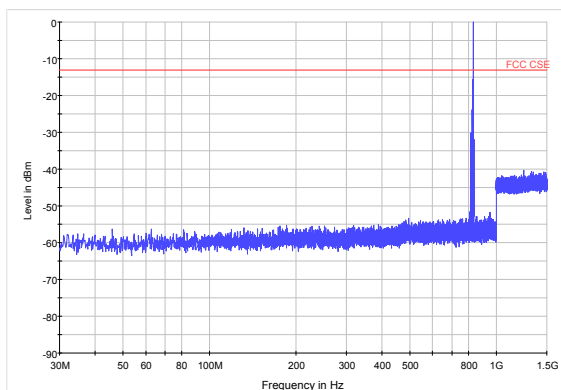
LTE Band 26 5MHz CH-Middle 1.5MHz~3GHz



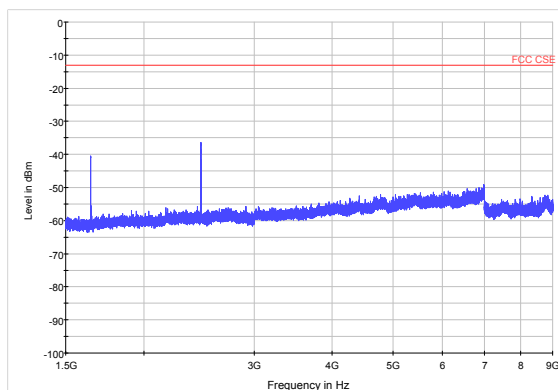
LTE Band 26 5MHz CH-Middle 1.5GHz~9GHz



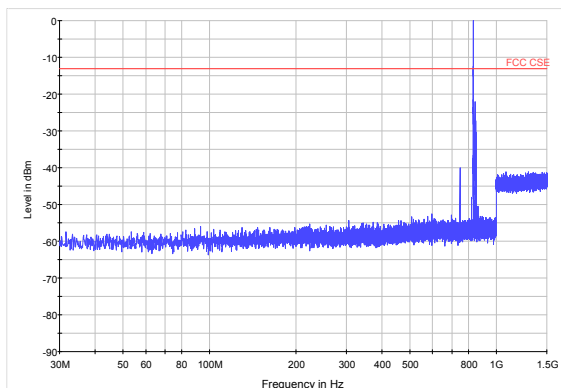
LTE Band 26 10MHz CH-Low 1.5MHz~3GHz



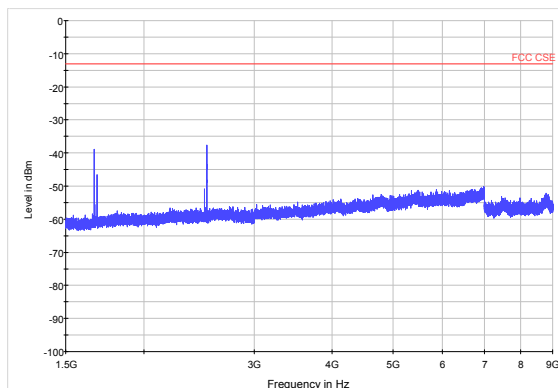
LTE Band 26 10MHz CH-Low 1.5GHz~9GHz



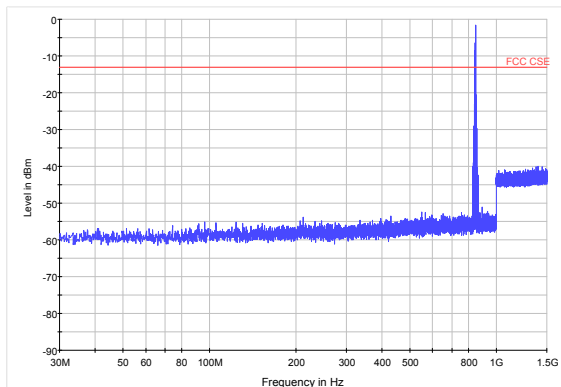
LTE Band 26 10MHz CH-Middle 1.5MHz~3GHz



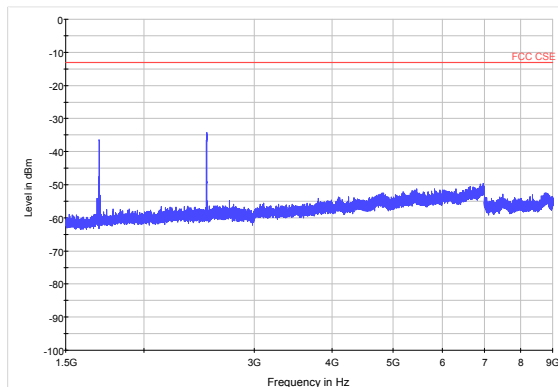
LTE Band 26 10MHz CH-Middle 1.5GHz~9GHz



LTE Band 26 10MHz CH-High 1.5MHz~3GHz



LTE Band 26 10MHz CH-High 1.5GHz~9GHz



## 5.8. Radiates Spurious Emission

### Ambient condition

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

### Method of Measurement

1. The testing follows ANSI C63.26 (2015) Section 5.5.2.3.
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:  

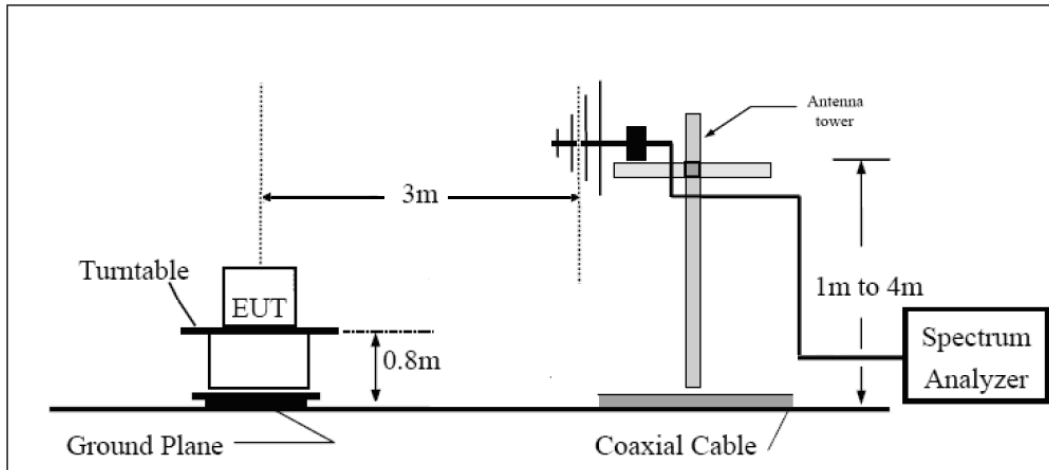
$$\text{Power(EIRP)} = \text{PMea} - \text{PAG} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:  

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

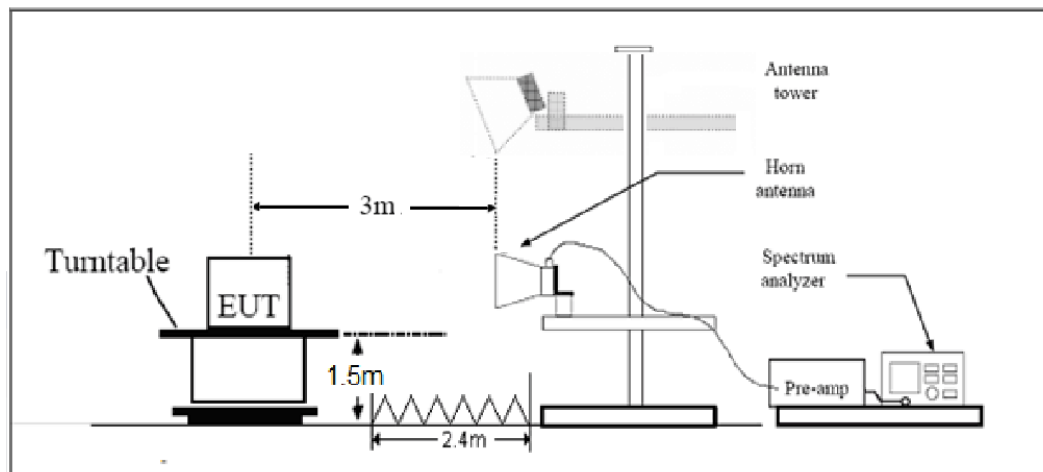
and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$ .

## Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side: 2.4m x 3.6m

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

### Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.”

|       |         |
|-------|---------|
| Limit | -13 dBm |
|-------|---------|

### Measurement Uncertainty

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

**Test Result**

## GSM 850 CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1648            | -56.00   | 2               | 10.15      | Vertical             | -50.0           | -13.0       | 37.0        | 45            |
| 3        | 2473            | -56.69   | 2.51            | 11.35      | Vertical             | -50.0           | -13.0       | 37.0        | 180           |
| 4        | 3297            | -54.60   | 4.2             | 10.85      | Vertical             | -50.1           | -13.0       | 37.1        | 180           |
| 5        | 4121            | -53.30   | 5.2             | 11.35      | Vertical             | -49.3           | -13.0       | 36.3        | 225           |
| 6        | 4945            | -52.00   | 5.5             | 11.95      | Vertical             | -47.7           | -13.0       | 34.7        | 135           |
| 7        | 5769            | -52.30   | 5.7             | 13.55      | Vertical             | -46.6           | -13.0       | 33.6        | 135           |
| 8        | 6594            | -48.40   | 6.3             | 13.75      | Vertical             | -43.1           | -13.0       | 30.1        | 45            |
| 9        | 7418            | -46.30   | 6.8             | 13.85      | Vertical             | -41.4           | -13.0       | 28.4        | 180           |
| 10       | 8242            | -46.40   | 6.9             | 14.25      | Vertical             | -41.2           | -13.0       | 28.2        | 270           |

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.

## GSM 850 CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1673            | -53.6    | 2               | 10.75      | Vertical             | -47.0           | -13.0       | 34.0        | 225           |
| 3        | 2498            | -55.49   | 2.51            | 11.05      | Vertical             | -49.1           | -13.0       | 36.1        | 135           |
| 4        | 3346            | -56.6    | 4.2             | 11.15      | Vertical             | -51.8           | -13.0       | 38.8        | 135           |
| 5        | 4183            | -53      | 5.2             | 11.15      | Vertical             | -49.2           | -13.0       | 36.2        | 45            |
| 6        | 5020            | -50.4    | 5.5             | 11.95      | Vertical             | -46.1           | -13.0       | 33.1        | 270           |
| 7        | 5856            | -51      | 5.7             | 13.55      | Vertical             | -45.3           | -13.0       | 32.3        | 180           |
| 8        | 6693            | -49.6    | 6.3             | 13.75      | Vertical             | -44.3           | -13.0       | 31.3        | 270           |
| 9        | 7529            | -46.9    | 6.8             | 13.85      | Vertical             | -42.0           | -13.0       | 29.0        | 135           |
| 10       | 8366            | -47      | 6.9             | 14.25      | Vertical             | -41.8           | -13.0       | 28.8        | 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.



## GSM 850 CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1698            | -58.4    | 2               | 10.15      | Vertical             | -52.4           | -13.0       | 39.4        | 90            |
| 3        | 2546            | -57.49   | 2.51            | 11.05      | Vertical             | -51.1           | -13.0       | 38.1        | 45            |
| 4        | 3395            | -57.7    | 4.2             | 11.15      | Vertical             | -52.9           | -13.0       | 39.9        | 180           |
| 5        | 4244            | -53.7    | 5.2             | 11.15      | Vertical             | -49.9           | -13.0       | 36.9        | 270           |
| 6        | 5093            | -50.7    | 5.5             | 11.95      | Vertical             | -46.4           | -13.0       | 33.4        | 135           |
| 7        | 5942            | -51.6    | 5.7             | 13.55      | Vertical             | -45.9           | -13.0       | 32.9        | 45            |
| 8        | 6790            | -49.6    | 6.3             | 13.75      | Vertical             | -44.3           | -13.0       | 31.3        | 270           |
| 9        | 7639            | -46.9    | 6.8             | 13.85      | Vertical             | -42.0           | -13.0       | 29.0        | 180           |
| 10       | 8488            | -46.4    | 6.9             | 14.25      | Vertical             | -41.2           | -13.0       | 28.2        | 270           |

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 5 1.4MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1649.4          | -51.4    | 2.00            | 10.75      | vertical             | -44.8           | -13.0       | 31.8        | 0             |
| 3        | 2474.1          | -50.19   | 2.51            | 11.05      | vertical             | -43.8           | -13.0       | 30.8        | 135           |
| 4        | 3298.8          | -54.02   | 4.20            | 11.15      | vertical             | -49.22          | -13.0       | 36.2        | 225           |
| 5        | 4123.5          | -52.28   | 5.20            | 11.15      | vertical             | -48.48          | -13.0       | 35.5        | 90            |
| 6        | 4948.2          | -51.49   | 5.50            | 11.95      | vertical             | -47.19          | -13.0       | 34.2        | 45            |
| 7        | 5772.9          | -53.53   | 5.70            | 13.55      | vertical             | -47.83          | -13.0       | 34.8        | 180           |
| 8        | 6597.6          | -49      | 6.30            | 13.75      | vertical             | -43.70          | -13.0       | 30.7        | 45            |
| 9        | 7422.3          | -45.85   | 6.80            | 13.85      | vertical             | -40.95          | -13.0       | 27.9        | 0             |
| 10       | 8247.0          | -46.71   | 6.90            | 14.25      | vertical             | -41.51          | -13.0       | 28.5        | 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 5 1.4MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1673.0          | -50.4    | 2.00            | 10.75      | vertical             | -43.8           | -13.0       | 30.8        | 225           |
| 3        | 2509.5          | -54.09   | 2.51            | 11.05      | vertical             | -47.7           | -13.0       | 34.7        | 315           |
| 4        | 3346.0          | -54.15   | 4.20            | 11.15      | vertical             | -49.35          | -13.0       | 36.3        | 45            |
| 5        | 4182.5          | -52.83   | 5.20            | 11.15      | vertical             | -49.03          | -13.0       | 36.0        | 0             |
| 6        | 5019.0          | -52.27   | 5.50            | 11.95      | vertical             | -47.97          | -13.0       | 35.0        | 135           |
| 7        | 5855.5          | -51.23   | 5.70            | 13.55      | vertical             | -45.53          | -13.0       | 32.5        | 225           |
| 8        | 6692.0          | -51.64   | 6.30            | 13.75      | vertical             | -46.34          | -13.0       | 33.3        | 90            |
| 9        | 7528.5          | -46.57   | 6.80            | 13.85      | vertical             | -41.67          | -13.0       | 28.7        | 45            |
| 10       | 8365.0          | -48.16   | 6.90            | 14.25      | vertical             | -42.96          | -13.0       | 30.0        | 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 5 1.4MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1696.6          | -46.4    | 2.00            | 10.75      | vertical             | -39.8           | -13.0       | 26.8        | 45            |
| 3        | 2544.9          | -53.39   | 2.51            | 11.05      | vertical             | -47.0           | -13.0       | 34.0        | 0             |
| 4        | 3393.2          | -53.33   | 4.20            | 11.15      | vertical             | -48.53          | -13.0       | 35.5        | 135           |
| 5        | 4241.5          | -51.5    | 5.20            | 11.15      | vertical             | -47.70          | -13.0       | 34.7        | 225           |
| 6        | 5089.8          | -49.5    | 5.50            | 11.95      | vertical             | -45.20          | -13.0       | 32.2        | 315           |
| 7        | 5938.1          | -51.84   | 5.70            | 13.55      | vertical             | -46.14          | -13.0       | 33.1        | 45            |
| 8        | 6786.4          | -49.44   | 6.30            | 13.75      | vertical             | -44.14          | -13.0       | 31.1        | 0             |
| 9        | 7634.7          | -47.51   | 6.80            | 13.85      | vertical             | -42.61          | -13.0       | 29.6        | 135           |
| 10       | 8483.0          | -47.72   | 6.90            | 14.25      | vertical             | -42.52          | -13.0       | 29.5        | 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 5 3MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1648.3          | -50.9    | 2.00            | 10.75      | vertical             | -44.3           | -13.0       | 31.3        | 90            |
| 3        | 2476.5          | -51.59   | 2.51            | 11.05      | vertical             | -45.2           | -13.0       | 32.2        | 45            |
| 4        | 3302.0          | -54.1    | 4.20            | 11.15      | vertical             | -49.3           | -13.0       | 36.3        | 180           |
| 5        | 4127.5          | -53      | 5.20            | 11.15      | vertical             | -49.2           | -13.0       | 36.2        | 45            |
| 6        | 4953.0          | -51.5    | 5.50            | 11.95      | vertical             | -47.2           | -13.0       | 34.2        | 0             |
| 7        | 5778.5          | -52.6    | 5.70            | 13.55      | vertical             | -46.9           | -13.0       | 33.9        | 135           |
| 8        | 6604.0          | -50.7    | 6.30            | 13.75      | vertical             | -45.4           | -13.0       | 32.4        | 225           |
| 9        | 7429.5          | -46.5    | 6.80            | 13.85      | vertical             | -41.6           | -13.0       | 28.6        | 315           |
| 10       | 8255.0          | -46.7    | 6.90            | 14.25      | vertical             | -41.5           | -13.0       | 28.5        | 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 5 3MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1670.3          | -50.3    | 2.00            | 10.75      | vertical             | -43.7           | -13.0       | 30.7        | 0             |
| 3        | 2509.5          | -54.09   | 2.51            | 11.05      | vertical             | -47.7           | -13.0       | 34.7        | 135           |
| 4        | 3346.0          | -54.5    | 4.20            | 11.15      | vertical             | -49.7           | -13.0       | 36.7        | 225           |
| 5        | 4182.5          | -53.4    | 5.20            | 11.15      | vertical             | -49.6           | -13.0       | 36.6        | 90            |
| 6        | 5019.0          | -51      | 5.50            | 11.95      | vertical             | -46.7           | -13.0       | 33.7        | 45            |
| 7        | 5855.5          | -51.7    | 5.70            | 13.55      | vertical             | -46.0           | -13.0       | 33.0        | 180           |
| 8        | 6692.0          | -51      | 6.30            | 13.75      | vertical             | -45.7           | -13.0       | 32.7        | 45            |
| 9        | 7528.5          | -47.3    | 6.80            | 13.85      | vertical             | -42.4           | -13.0       | 29.4        | 0             |
| 10       | 8365.0          | -48.3    | 6.90            | 14.25      | vertical             | -43.1           | -13.0       | 30.1        | 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 5 3MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1692.5          | -47.2    | 2.00            | 10.75      | vertical             | -40.6           | -13.0       | 27.6        | 0             |
| 3        | 2542.5          | -54.39   | 2.51            | 11.05      | vertical             | -48.0           | -13.0       | 35.0        | 135           |
| 4        | 3390.0          | -55.1    | 4.20            | 11.15      | vertical             | -50.3           | -13.0       | 37.3        | 225           |
| 5        | 4237.5          | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 90            |
| 6        | 5085.0          | -50.2    | 5.50            | 11.95      | vertical             | -45.9           | -13.0       | 32.9        | 45            |
| 7        | 5932.5          | -51.9    | 5.70            | 13.55      | vertical             | -46.2           | -13.0       | 33.2        | 180           |
| 8        | 6780.0          | -49.7    | 6.30            | 13.75      | vertical             | -44.4           | -13.0       | 31.4        | 45            |
| 9        | 7627.5          | -48.9    | 6.80            | 13.85      | vertical             | -44.0           | -13.0       | 31.0        | 0             |
| 10       | 8475.0          | -48      | 6.90            | 14.25      | vertical             | -42.8           | -13.0       | 29.8        | 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 5 5MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1649.6          | -50.4    | 2.00            | 10.75      | vertical             | -43.8           | -13.0       | 30.8        | 45            |
| 3        | 2479.5          | -49.59   | 2.51            | 11.05      | vertical             | -43.2           | -13.0       | 30.2        | 0             |
| 4        | 3306.0          | -52.3    | 4.20            | 11.15      | vertical             | -47.5           | -13.0       | 34.5        | 135           |
| 5        | 4132.5          | -53.6    | 5.20            | 11.15      | vertical             | -49.8           | -13.0       | 36.8        | 225           |
| 6        | 4959.0          | -52.2    | 5.50            | 11.95      | vertical             | -47.9           | -13.0       | 34.9        | 90            |
| 7        | 5785.5          | -51.6    | 5.70            | 13.55      | vertical             | -45.9           | -13.0       | 32.9        | 45            |
| 8        | 6612.0          | -49.8    | 6.30            | 13.75      | vertical             | -44.5           | -13.0       | 31.5        | 180           |
| 9        | 7438.5          | -45.7    | 6.80            | 13.85      | vertical             | -40.8           | -13.0       | 27.8        | 45            |
| 10       | 8265.0          | -48.4    | 6.90            | 14.25      | vertical             | -43.2           | -13.0       | 30.2        | 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 5 5MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1673.0          | -50.2    | 2.00            | 10.75      | vertical             | -43.6           | -13.0       | 30.6        | 135           |
| 3        | 2509.5          | -53.99   | 2.51            | 11.05      | vertical             | -47.6           | -13.0       | 34.6        | 225           |
| 4        | 3346.0          | -54.2    | 4.20            | 11.15      | vertical             | -49.4           | -13.0       | 36.4        | 90            |
| 5        | 4182.5          | -52.3    | 5.20            | 11.15      | vertical             | -48.5           | -13.0       | 35.5        | 45            |
| 6        | 5019.0          | -50      | 5.50            | 11.95      | vertical             | -45.7           | -13.0       | 32.7        | 180           |
| 7        | 5855.5          | -51.9    | 5.70            | 13.55      | vertical             | -46.2           | -13.0       | 33.2        | 45            |
| 8        | 6692.0          | -49.9    | 6.30            | 13.75      | vertical             | -44.6           | -13.0       | 31.6        | 0             |
| 9        | 7528.5          | -45.3    | 6.80            | 13.85      | vertical             | -40.4           | -13.0       | 27.4        | 45            |
| 10       | 8365.0          | -47.3    | 6.90            | 14.25      | vertical             | -42.1           | -13.0       | 29.1        | 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 5 5MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1693.0          | -46      | 2.00            | 10.75      | vertical             | -39.4           | -13.0       | 26.4        | 135           |
| 3        | 2539.5          | -55.09   | 2.51            | 11.05      | vertical             | -48.7           | -13.0       | 35.7        | 225           |
| 4        | 3386.0          | -54.8    | 4.20            | 11.15      | vertical             | -50.0           | -13.0       | 37.0        | 90            |
| 5        | 4232.5          | -53.5    | 5.20            | 11.15      | vertical             | -49.7           | -13.0       | 36.7        | 45            |
| 6        | 5079.0          | -49      | 5.50            | 11.95      | vertical             | -44.7           | -13.0       | 31.7        | 180           |
| 7        | 5925.5          | -52.5    | 5.70            | 13.55      | vertical             | -46.8           | -13.0       | 33.8        | 45            |
| 8        | 6772.0          | -50.5    | 6.30            | 13.75      | vertical             | -45.2           | -13.0       | 32.2        | 0             |
| 9        | 7618.5          | -45      | 6.80            | 13.85      | vertical             | -40.1           | -13.0       | 27.1        | 45            |
| 10       | 8465.0          | -47.2    | 6.90            | 14.25      | vertical             | -42.0           | -13.0       | 29.0        | 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 5 10MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1658.0          | -51.4    | 2.00            | 10.75      | vertical             | -44.8           | -13.0       | 31.8        | 135           |
| 3        | 2487.0          | -50.89   | 2.51            | 11.05      | vertical             | -44.5           | -13.0       | 31.5        | 225           |
| 4        | 3316.0          | -53.7    | 4.20            | 11.15      | vertical             | -48.9           | -13.0       | 35.9        | 90            |
| 5        | 4145.0          | -52.7    | 5.20            | 11.15      | vertical             | -48.9           | -13.0       | 35.9        | 45            |
| 6        | 4974.0          | -51.9    | 5.50            | 11.95      | vertical             | -47.6           | -13.0       | 34.6        | 180           |
| 7        | 5803.0          | -50.2    | 5.70            | 13.55      | vertical             | -44.5           | -13.0       | 31.5        | 45            |
| 8        | 6632.0          | -48.9    | 6.30            | 13.75      | vertical             | -43.6           | -13.0       | 30.6        | 0             |
| 9        | 7461.0          | -47.3    | 6.80            | 13.85      | vertical             | -42.4           | -13.0       | 29.4        | 135           |
| 10       | 8290.0          | -47.8    | 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 5 10MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1673.0          | -51.1    | 2.00            | 10.75      | vertical             | -44.5           | -13.0       | 31.5        | 0             |
| 3        | 2509.5          | -54.39   | 2.51            | 11.05      | vertical             | -48.0           | -13.0       | 35.0        | 135           |
| 4        | 3346.0          | -53.8    | 4.20            | 11.15      | vertical             | -49.0           | -13.0       | 36.0        | 225           |
| 5        | 4182.5          | -52.4    | 5.20            | 11.15      | vertical             | -48.6           | -13.0       | 35.6        | 90            |
| 6        | 5019.0          | -49.7    | 5.50            | 11.95      | vertical             | -45.4           | -13.0       | 32.4        | 45            |
| 7        | 5855.5          | -51.3    | 5.70            | 13.55      | vertical             | -45.6           | -13.0       | 32.6        | 180           |
| 8        | 6692.0          | -48.5    | 6.30            | 13.75      | vertical             | -43.2           | -13.0       | 30.2        | 45            |
| 9        | 7528.5          | -46.4    | 6.80            | 13.85      | vertical             | -41.5           | -13.0       | 28.5        | 0             |
| 10       | 8365.0          | -48      | 6.90            | 14.25      | vertical             | -42.8           | -13.0       | 29.8        | 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 5 10MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1688.0          | -47.7    | 2.00            | 10.75      | vertical             | -41.1           | -13.0       | 28.1        | 0             |
| 3        | 2532.0          | -52.79   | 2.51            | 11.05      | vertical             | -46.4           | -13.0       | 33.4        | 135           |
| 4        | 3376.0          | -52.4    | 4.20            | 11.15      | vertical             | -47.6           | -13.0       | 34.6        | 225           |
| 5        | 4220.0          | -52.1    | 5.20            | 11.15      | vertical             | -48.3           | -13.0       | 35.3        | 90            |
| 6        | 5064.0          | -49.9    | 5.50            | 11.95      | vertical             | -45.6           | -13.0       | 32.6        | 45            |
| 7        | 5908.0          | -51.5    | 5.70            | 13.55      | vertical             | -45.8           | -13.0       | 32.8        | 180           |
| 8        | 6752.0          | -49.2    | 6.30            | 13.75      | vertical             | -43.9           | -13.0       | 30.9        | 45            |
| 9        | 7596.0          | -46.9    | 6.80            | 13.85      | vertical             | -42.0           | -13.0       | 29.0        | 0             |
| 10       | 8440.0          | -48.2    | 6.90            | 14.25      | vertical             | -43.0           | -13.0       | 30.0        | 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 26 1.4MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1629.40         | -51.5    | 2.00            | 10.75      | vertical             | -44.9           | -13.0       | 31.9        | 90            |
| 3        | 2444.10         | -50.89   | 2.51            | 11.05      | vertical             | -44.5           | -13.0       | 31.5        | 45            |
| 4        | 3258.80         | -56      | 4.20            | 11.15      | vertical             | -51.2           | -13.0       | 38.2        | 180           |
| 5        | 4073.50         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 225           |
| 6        | 4888.20         | -51.1    | 5.50            | 11.95      | vertical             | -46.8           | -13.0       | 33.8        | 135           |
| 7        | 5702.90         | -51.9    | 5.70            | 13.55      | vertical             | -46.2           | -13.0       | 33.2        | 90            |
| 8        | 6517.60         | -50      | 6.30            | 13.75      | vertical             | -44.7           | -13.0       | 31.7        | 45            |
| 9        | 7332.30         | -45.8    | 6.80            | 13.85      | vertical             | -40.9           | -13.0       | 27.9        | 180           |
| 10       | 8147.00         | -46.5    | 6.90            | 14.25      | vertical             | -41.3           | -13.0       | 28.3        | 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 26 1.4MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1663.00         | -49.6    | 2.00            | 10.75      | vertical             | -43.0           | -13.0       | 30.0        | 135           |
| 3        | 2494.50         | -54.19   | 2.51            | 11.05      | vertical             | -47.8           | -13.0       | 34.8        | 90            |
| 4        | 3326.00         | -55.4    | 4.20            | 11.15      | vertical             | -50.6           | -13.0       | 37.6        | 45            |
| 5        | 4157.50         | -52.8    | 5.20            | 11.15      | vertical             | -49.0           | -13.0       | 36.0        | 180           |
| 6        | 4989.00         | -49.6    | 5.50            | 11.95      | vertical             | -45.3           | -13.0       | 32.3        | 225           |
| 7        | 5820.50         | -51.8    | 5.70            | 13.55      | vertical             | -46.1           | -13.0       | 33.1        | 135           |
| 8        | 6652.00         | -48.9    | 6.30            | 13.75      | vertical             | -43.6           | -13.0       | 30.6        | 90            |
| 9        | 7483.50         | -46.4    | 6.80            | 13.85      | vertical             | -41.5           | -13.0       | 28.5        | 45            |
| 10       | 8315.00         | -46.6    | 6.90            | 14.25      | vertical             | -41.4           | -13.0       | 28.4        | 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 26 1.4MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1696.60         | -47.4    | 2.00            | 10.75      | vertical             | -40.8           | -13.0       | 27.8        | 225           |
| 3        | 2544.90         | -53.69   | 2.51            | 11.05      | vertical             | -47.3           | -13.0       | 34.3        | 135           |
| 4        | 3393.20         | -56.3    | 4.20            | 11.15      | vertical             | -51.5           | -13.0       | 38.5        | 90            |
| 5        | 4241.50         | -52.1    | 5.20            | 11.15      | vertical             | -48.3           | -13.0       | 35.3        | 45            |
| 6        | 5089.80         | -50.5    | 5.50            | 11.95      | vertical             | -46.2           | -13.0       | 33.2        | 180           |
| 7        | 5938.10         | -51.3    | 5.70            | 13.55      | vertical             | -45.6           | -13.0       | 32.6        | 225           |
| 8        | 6786.40         | -49.4    | 6.30            | 13.75      | vertical             | -44.1           | -13.0       | 31.1        | 135           |
| 9        | 7634.70         | -46.7    | 6.80            | 13.85      | vertical             | -41.8           | -13.0       | 28.8        | 90            |
| 10       | 8483.00         | -47.4    | 6.90            | 14.25      | vertical             | -42.2           | -13.0       | 29.2        | 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 26 3MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1631.00         | -50.4    | 2.00            | 10.75      | vertical             | -43.8           | -13.0       | 30.8        | 180           |
| 3        | 2446.50         | -50.59   | 2.51            | 11.05      | vertical             | -44.2           | -13.0       | 31.2        | 225           |
| 4        | 3262.00         | -56.3    | 4.20            | 11.15      | vertical             | -51.5           | -13.0       | 38.5        | 135           |
| 5        | 4077.50         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 90            |
| 6        | 4893.00         | -51      | 5.50            | 11.95      | vertical             | -46.7           | -13.0       | 33.7        | 45            |
| 7        | 5708.50         | -52.2    | 5.70            | 13.55      | vertical             | -46.5           | -13.0       | 33.5        | 180           |
| 8        | 6524.00         | -50      | 6.30            | 13.75      | vertical             | -44.7           | -13.0       | 31.7        | 225           |
| 9        | 7339.50         | -45.3    | 6.80            | 13.85      | vertical             | -40.4           | -13.0       | 27.4        | 135           |
| 10       | 8155.00         | -47      | 6.90            | 14.25      | vertical             | -41.8           | -13.0       | 28.8        | 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 26 3MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1663.00         | -50.5    | 2.00            | 10.75      | vertical             | -43.9           | -13.0       | 30.9        | 45            |
| 3        | 2494.50         | -53.09   | 2.51            | 11.05      | vertical             | -46.7           | -13.0       | 33.7        | 180           |
| 4        | 3326.00         | -56.4    | 4.20            | 11.15      | vertical             | -51.6           | -13.0       | 38.6        | 225           |
| 5        | 4157.50         | -52.6    | 5.20            | 11.15      | vertical             | -48.8           | -13.0       | 35.8        | 135           |
| 6        | 4989.00         | -49.7    | 5.50            | 11.95      | vertical             | -45.4           | -13.0       | 32.4        | 90            |
| 7        | 5820.50         | -52.5    | 5.70            | 13.55      | vertical             | -46.8           | -13.0       | 33.8        | 45            |
| 8        | 6652.00         | -48.9    | 6.30            | 13.75      | vertical             | -43.6           | -13.0       | 30.6        | 180           |
| 9        | 7483.50         | -46.4    | 6.80            | 13.85      | vertical             | -41.5           | -13.0       | 28.5        | 225           |
| 10       | 8315.00         | -46.8    | 6.90            | 14.25      | vertical             | -41.6           | -13.0       | 28.6        | 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 26 3MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1695.00         | -46.4    | 2.00            | 10.75      | vertical             | -39.8           | -13.0       | 26.8        | 90            |
| 3        | 2542.50         | -53.79   | 2.51            | 11.05      | vertical             | -47.4           | -13.0       | 34.4        | 45            |
| 4        | 3390.00         | -56.3    | 4.20            | 11.15      | vertical             | -51.5           | -13.0       | 38.5        | 180           |
| 5        | 4237.50         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 225           |
| 6        | 5085.00         | -50.5    | 5.50            | 11.95      | vertical             | -46.2           | -13.0       | 33.2        | 135           |
| 7        | 5932.50         | -51.5    | 5.70            | 13.55      | vertical             | -45.8           | -13.0       | 32.8        | 90            |
| 8        | 6780.00         | -48.4    | 6.30            | 13.75      | vertical             | -43.1           | -13.0       | 30.1        | 45            |
| 9        | 7627.50         | -46.1    | 6.80            | 13.85      | vertical             | -41.2           | -13.0       | 28.2        | 180           |
| 10       | 8475.00         | -47.4    | 6.90            | 14.25      | vertical             | -42.2           | -13.0       | 29.2        | 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 26 5MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1633.00         | -50.5    | 2.00            | 10.75      | vertical             | -43.9           | -13.0       | 30.9        | 135           |
| 3        | 2449.50         | -49.59   | 2.51            | 11.05      | vertical             | -43.2           | -13.0       | 30.2        | 90            |
| 4        | 3266.00         | -55.9    | 4.20            | 11.15      | vertical             | -51.1           | -13.0       | 38.1        | 45            |
| 5        | 4082.50         | -52.4    | 5.20            | 11.15      | vertical             | -48.6           | -13.0       | 35.6        | 180           |
| 6        | 4899.00         | -51      | 5.50            | 11.95      | vertical             | -46.7           | -13.0       | 33.7        | 225           |
| 7        | 5715.50         | -52.3    | 5.70            | 13.55      | vertical             | -46.6           | -13.0       | 33.6        | 135           |
| 8        | 6532.00         | -50      | 6.30            | 13.75      | vertical             | -44.7           | -13.0       | 31.7        | 90            |
| 9        | 7348.50         | -46.3    | 6.80            | 13.85      | vertical             | -41.4           | -13.0       | 28.4        | 45            |
| 10       | 8165.00         | -46.4    | 6.90            | 14.25      | vertical             | -41.2           | -13.0       | 28.2        | 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 26 5MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1663.00         | -50.3    | 2.00            | 10.75      | vertical             | -43.7           | -13.0       | 30.7        | 225           |
| 3        | 2494.50         | -53.59   | 2.51            | 11.05      | vertical             | -47.2           | -13.0       | 34.2        | 135           |
| 4        | 3326.00         | -55.9    | 4.20            | 11.15      | vertical             | -51.1           | -13.0       | 38.1        | 90            |
| 5        | 4157.50         | -52.2    | 5.20            | 11.15      | vertical             | -48.4           | -13.0       | 35.4        | 45            |
| 6        | 4989.00         | -50.7    | 5.50            | 11.95      | vertical             | -46.4           | -13.0       | 33.4        | 180           |
| 7        | 5820.50         | -52.5    | 5.70            | 13.55      | vertical             | -46.8           | -13.0       | 33.8        | 225           |
| 8        | 6652.00         | -48.4    | 6.30            | 13.75      | vertical             | -43.1           | -13.0       | 30.1        | 135           |
| 9        | 7483.50         | -46.4    | 6.80            | 13.85      | vertical             | -41.5           | -13.0       | 28.5        | 90            |
| 10       | 8315.00         | -46.3    | 6.90            | 14.25      | vertical             | -41.1           | -13.0       | 28.1        | 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 26 5MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1693.00         | -46.7    | 2.00            | 10.75      | vertical             | -40.1           | -13.0       | 27.1        | 180           |
| 3        | 2539.50         | -53.09   | 2.51            | 11.05      | vertical             | -46.7           | -13.0       | 33.7        | 225           |
| 4        | 3386.00         | -56.6    | 4.20            | 11.15      | vertical             | -51.8           | -13.0       | 38.8        | 135           |
| 5        | 4232.50         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 90            |
| 6        | 5079.00         | -50.5    | 5.50            | 11.95      | vertical             | -46.2           | -13.0       | 33.2        | 45            |
| 7        | 5925.50         | -51      | 5.70            | 13.55      | vertical             | -45.3           | -13.0       | 32.3        | 180           |
| 8        | 6772.00         | -48.4    | 6.30            | 13.75      | vertical             | -43.1           | -13.0       | 30.1        | 225           |
| 9        | 7618.50         | -46.7    | 6.80            | 13.85      | vertical             | -41.8           | -13.0       | 28.8        | 135           |
| 10       | 8465.00         | -47.4    | 6.90            | 14.25      | vertical             | -42.2           | -13.0       | 29.2        | 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 26 10MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1640.00         | -51.7    | 2.00            | 10.75      | vertical             | -45.1           | -13.0       | 32.1        | 45            |
| 3        | 2460.00         | -52.09   | 2.51            | 11.05      | vertical             | -45.7           | -13.0       | 32.7        | 180           |
| 4        | 3280.00         | -56.3    | 4.20            | 11.15      | vertical             | -51.5           | -13.0       | 38.5        | 225           |
| 5        | 4100.00         | -52      | 5.20            | 11.15      | vertical             | -48.2           | -13.0       | 35.2        | 135           |
| 6        | 4920.00         | -50.8    | 5.50            | 11.95      | vertical             | -46.5           | -13.0       | 33.5        | 90            |
| 7        | 5740.00         | -50.8    | 5.70            | 13.55      | vertical             | -45.1           | -13.0       | 32.1        | 45            |
| 8        | 6560.00         | -50      | 6.30            | 13.75      | vertical             | -44.7           | -13.0       | 31.7        | 180           |
| 9        | 7380.00         | -45.3    | 6.80            | 13.85      | vertical             | -40.4           | -13.0       | 27.4        | 225           |
| 10       | 8200.00         | -47      | 6.90            | 14.25      | vertical             | -41.8           | -13.0       | 28.8        | 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 26 10MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1663.00         | -52.2    | 2.00            | 10.75      | vertical             | -45.6           | -13.0       | 32.6        | 90            |
| 3        | 2494.50         | -55.39   | 2.51            | 11.05      | vertical             | -49.0           | -13.0       | 36.0        | 45            |
| 4        | 3326.00         | -55.4    | 4.20            | 11.15      | vertical             | -50.6           | -13.0       | 37.6        | 180           |
| 5        | 4157.50         | -52.8    | 5.20            | 11.15      | vertical             | -49.0           | -13.0       | 36.0        | 225           |
| 6        | 4989.00         | -50      | 5.50            | 11.95      | vertical             | -45.7           | -13.0       | 32.7        | 135           |
| 7        | 5820.50         | -51.8    | 5.70            | 13.55      | vertical             | -46.1           | -13.0       | 33.1        | 90            |
| 8        | 6652.00         | -48.9    | 6.30            | 13.75      | vertical             | -43.6           | -13.0       | 30.6        | 45            |
| 9        | 7483.50         | -46.3    | 6.80            | 13.85      | vertical             | -41.4           | -13.0       | 28.4        | 180           |
| 10       | 8315.00         | -46.6    | 6.90            | 14.25      | vertical             | -41.4           | -13.0       | 28.4        | 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 26 10MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1688.00         | -48.8    | 2.00            | 10.75      | vertical             | -42.2           | -13.0       | 29.2        | 135           |
| 3        | 2532.00         | -54.19   | 2.51            | 11.05      | vertical             | -47.8           | -13.0       | 34.8        | 90            |
| 4        | 3376.00         | -56      | 4.20            | 11.15      | vertical             | -51.2           | -13.0       | 38.2        | 45            |
| 5        | 4220.00         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 180           |
| 6        | 5064.00         | -50.5    | 5.50            | 11.95      | vertical             | -46.2           | -13.0       | 33.2        | 225           |
| 7        | 5908.00         | -51      | 5.70            | 13.55      | vertical             | -45.3           | -13.0       | 32.3        | 135           |
| 8        | 6752.00         | -49.2    | 6.30            | 13.75      | vertical             | -43.9           | -13.0       | 30.9        | 90            |
| 9        | 7596.00         | -46.7    | 6.80            | 13.85      | vertical             | -41.8           | -13.0       | 28.8        | 45            |
| 10       | 8440.00         | -46.4    | 6.90            | 14.25      | vertical             | -41.2           | -13.0       | 28.2        | 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 26 15MHz CH-Low

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1645.00         | -52.1    | 2.00            | 10.75      | vertical             | -45.5           | -13.0       | 32.5        | 225           |
| 3        | 2467.50         | -49.99   | 2.51            | 11.05      | vertical             | -43.6           | -13.0       | 30.6        | 135           |
| 4        | 3290.00         | -56.7    | 4.20            | 11.15      | vertical             | -51.9           | -13.0       | 38.9        | 90            |
| 5        | 4112.50         | -52      | 5.20            | 11.15      | vertical             | -48.2           | -13.0       | 35.2        | 45            |
| 6        | 4935.00         | -50.8    | 5.50            | 11.95      | vertical             | -46.5           | -13.0       | 33.5        | 180           |
| 7        | 5757.50         | -51.4    | 5.70            | 13.55      | vertical             | -45.7           | -13.0       | 32.7        | 225           |
| 8        | 6580.00         | -50      | 6.30            | 13.75      | vertical             | -44.7           | -13.0       | 31.7        | 135           |
| 9        | 7402.50         | -46.3    | 6.80            | 13.85      | vertical             | -41.4           | -13.0       | 28.4        | 90            |
| 10       | 8225.00         | -46      | 6.90            | 14.25      | vertical             | -40.8           | -13.0       | 27.8        | 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 26 10MHz CH-Middle

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1663.00         | -51.7    | 2.00            | 10.75      | vertical             | -45.1           | -13.0       | 32.1        | 180           |
| 3        | 2494.50         | -53.79   | 2.51            | 11.05      | vertical             | -47.4           | -13.0       | 34.4        | 225           |
| 4        | 3326.00         | -56.4    | 4.20            | 11.15      | vertical             | -51.6           | -13.0       | 38.6        | 135           |
| 5        | 4157.50         | -52.8    | 5.20            | 11.15      | vertical             | -49.0           | -13.0       | 36.0        | 90            |
| 6        | 4989.00         | -49.6    | 5.50            | 11.95      | vertical             | -45.3           | -13.0       | 32.3        | 45            |
| 7        | 5820.50         | -52.5    | 5.70            | 13.55      | vertical             | -46.8           | -13.0       | 33.8        | 180           |
| 8        | 6652.00         | -48.9    | 6.30            | 13.75      | vertical             | -43.6           | -13.0       | 30.6        | 225           |
| 9        | 7483.50         | -47.3    | 6.80            | 13.85      | vertical             | -42.4           | -13.0       | 29.4        | 135           |
| 10       | 8315.00         | -46.6    | 6.90            | 14.25      | vertical             | -41.4           | -13.0       | 28.4        | 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.

## LTE Band 26 15MHz CH-High

| Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | ERP Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|----------|-----------------|----------|-----------------|------------|----------------------|-----------------|-------------|-------------|---------------|
| 2        | 1683.00         | -50      | 2.00            | 10.75      | vertical             | -43.4           | -13.0       | 30.4        | 45            |
| 3        | 2524.50         | -55.89   | 2.51            | 11.05      | vertical             | -49.5           | -13.0       | 36.5        | 180           |
| 4        | 3366.00         | -56.4    | 4.20            | 11.15      | vertical             | -51.6           | -13.0       | 38.6        | 225           |
| 5        | 4207.50         | -52.5    | 5.20            | 11.15      | vertical             | -48.7           | -13.0       | 35.7        | 135           |
| 6        | 5049.00         | -50.9    | 5.50            | 11.95      | vertical             | -46.6           | -13.0       | 33.6        | 90            |
| 7        | 5890.50         | -51      | 5.70            | 13.55      | vertical             | -45.3           | -13.0       | 32.3        | 45            |
| 8        | 6732.00         | -48.6    | 6.30            | 13.75      | vertical             | -43.3           | -13.0       | 30.3        | 180           |
| 9        | 7573.50         | -46.7    | 6.80            | 13.85      | vertical             | -41.8           | -13.0       | 28.8        | 225           |
| 10       | 8415.00         | -45.4    | 6.90            | 14.25      | vertical             | -40.2           | -13.0       | 27.2        | 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.

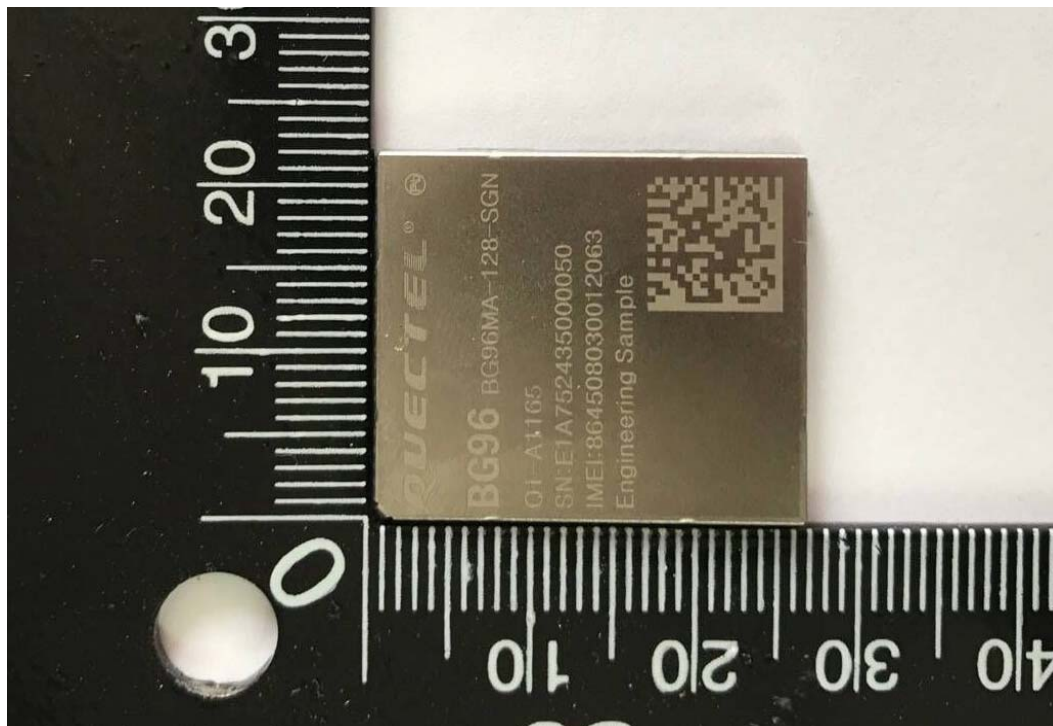
## 6. Main Test Instruments

| Name                                 | Manufacturer | Type         | Serial Number | Calibration Date | Expiration Time |
|--------------------------------------|--------------|--------------|---------------|------------------|-----------------|
| Base Station Simulator               | R&S          | CMW500       | 150415        | 2017-05-14       | 2018-05-13      |
| Power Splitter                       | Hua Xiang    | SHX-GF2-2-13 | 10120101      | 2017-05-14       | 2018-05-13      |
| Spectrum Analyzer                    | Agilent      | N9010A       | MY47191109    | 2017-05-20       | 2018-05-19      |
| Universal Radio Communication Tester | Agilent      | E5515C       | MY48367192    | 2017-05-20       | 2018-05-19      |
| Signal Analyzer                      | R&S          | FSV30        | 100815        | 2016-12-16       | 2017-12-15      |
| EMI Test Receiver                    | R&S          | ESCI         | 100948        | 2017-05-20       | 2018-05-19      |
| Signal generator                     | R&S          | SMB 100A     | 102594        | 2017-05-14       | 2018-05-13      |
| Signal generator                     | R&S          | SMR27        | 100365        | 2017-05-14       | 2018-05-13      |
| Trilog Antenna                       | SCHWARZBECK  | VUBL 9163    | 9163-201      | 2014-12-06       | 2017-12-05      |
| Horn Antenna                         | R&S          | HF907        | 100126        | 2014-12-06       | 2017-12-05      |
| Horn Antenna                         | ETS-Lindgren | 3160-09      | 00102644      | 2015-01-30       | 2018-01-29      |
| Climatic Chamber                     | Re Ce        | PT-30B       | 20101891      | 2015-07-18       | 2018-07-17      |
| RF Cable                             | Agilent      | SMA 15cm     | 0001          | 2017-02-06       | 2017-08-05      |
| Preamplifier                         | R&S          | SCU18        | 102327        | 2017-06-18       | 2018-06-17      |

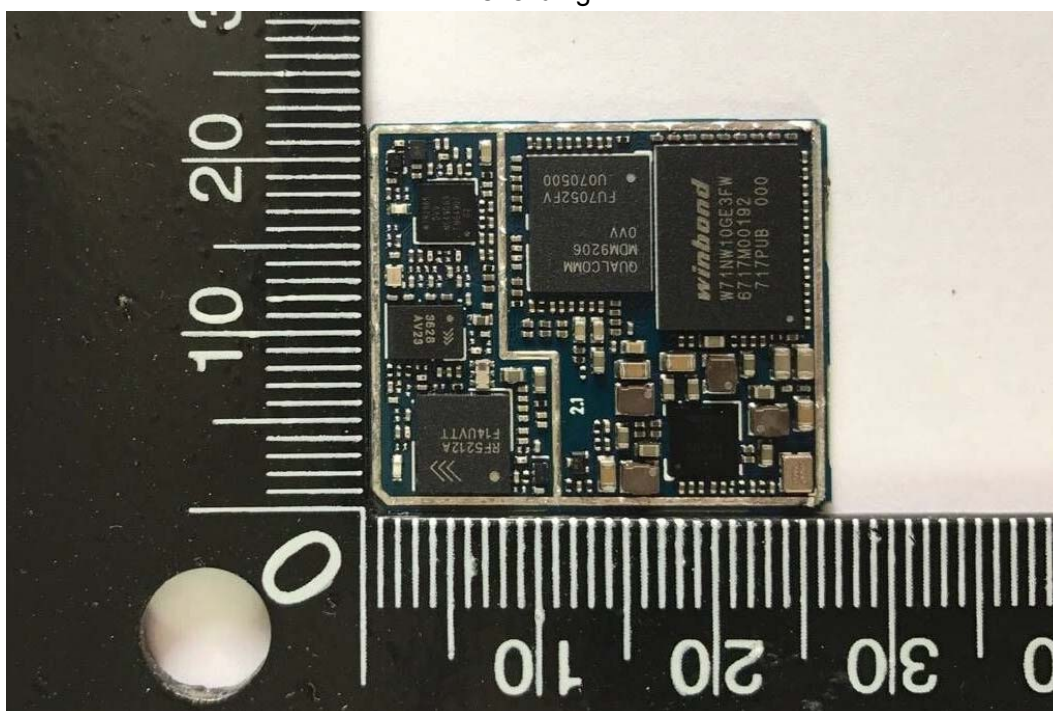
\*\*\*\*\*END OF REPORT \*\*\*\*\*

## ANNEX A: EUT Appearance and Test Setup

### A.1 EUT Appearance

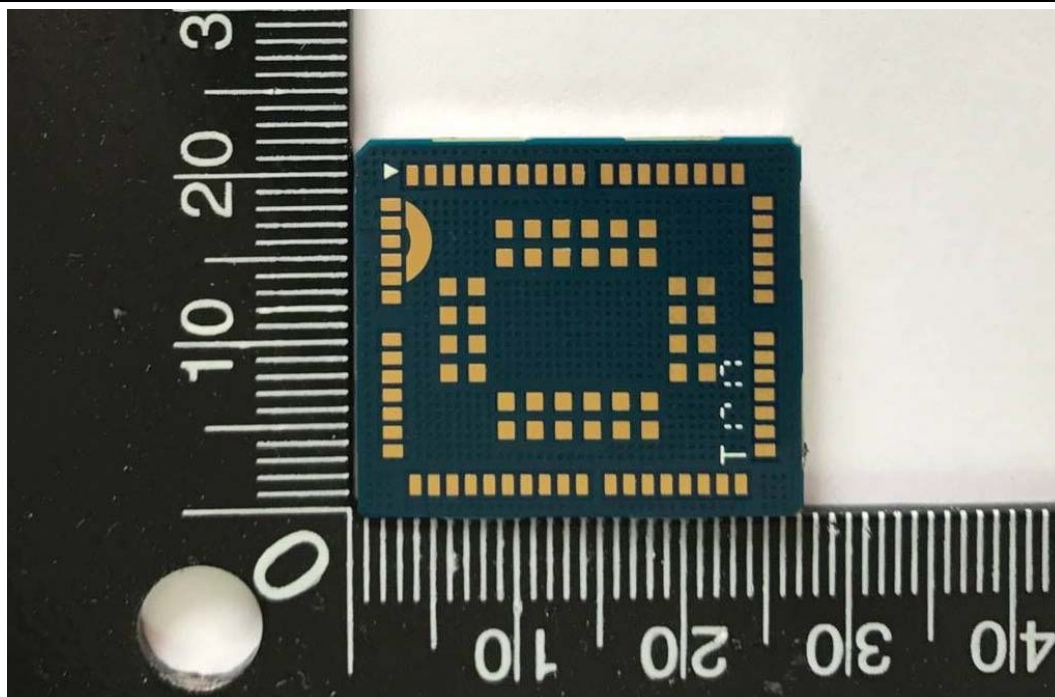


shielding



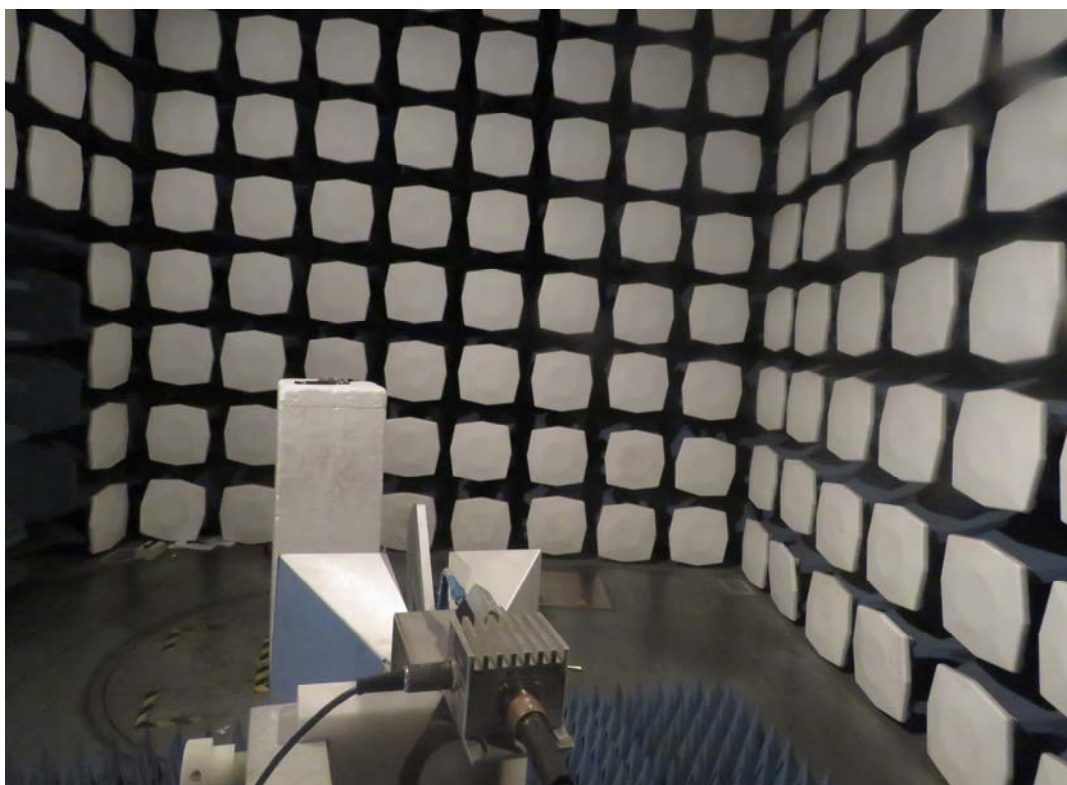
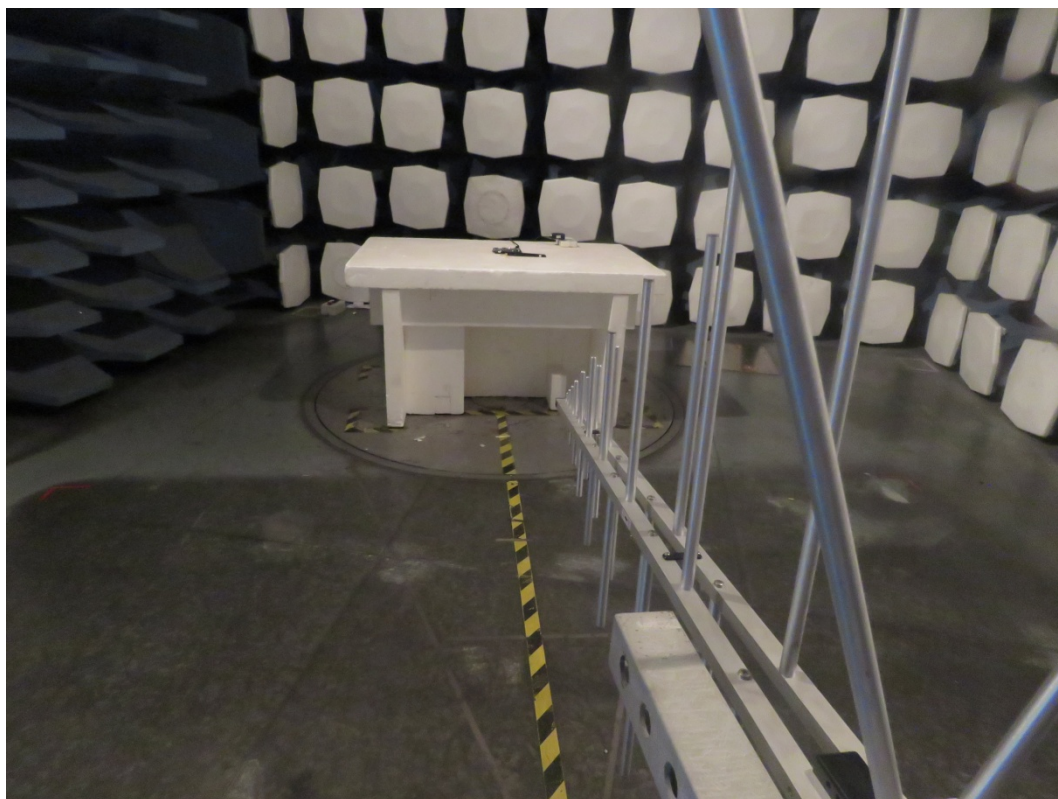
No shielding

Front Side



Back Side  
a: EUT

## A.2 Test Setup



Picture 2: Radiated Spurious Emissions Test setup