

## Radiated Spurious Emission

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

Because the Margin is relatively large, only one worst point is recorded in the report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (Horizontal and Vertical). The worst-case configuration and its corresponding results are documented in the test report.

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| LTE | X axis, Vertical polarization |
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After the pretest, External Antenna was selected as the worst Antenna for WWAN.

### External Antenna

LTE Band 2 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 3755.63         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 3        | 5633.63         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 4        | 7511.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 5        | 9389.50         | -33.54   | 4.30            | 11.10      | Vertical             | -26.74             | -13.00      | 13.74       | 96            |
|            | 6        | 11265.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 13142.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 15020.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 16897.50        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 18800.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |

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

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

## LTE Band 4 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 3460.50         | -46.69   | 2.70            | 12.70      | Vertical             | -36.69             | -13.00      | 23.69       | 154           |
|            | 3        | 5191.50         | -43.09   | 3.20            | 12.50      | Vertical             | -33.79             | -13.00      | 20.79       | 36            |
|            | 4        | 6930.00         | -56.91   | 4.20            | 11.80      | Vertical             | -49.31             | -13.00      | 36.31       | 175           |
|            | 5        | 8651.60         | -34.98   | 4.40            | 12.50      | Vertical             | -26.88             | -13.00      | 13.88       | 99            |
|            | 6        | 10380.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 12110.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 13840.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 15570.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 17300.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |

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 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 1668.65         | -45.48   | 1.70            | 8.70       | Vertical             | -40.63             | -13.00      | 27.63       | 45            |
|            | 3        | 2503.10         | -30.98   | 2.30            | 12.00      | Vertical             | -23.43             | -13.00      | 10.43       | 135           |
|            | 4        | 3337.50         | -50.11   | 2.70            | 12.70      | Vertical             | -42.26             | -13.00      | 29.26       | NA            |
|            | 5        | 4171.88         | -22.60   | 3.00            | 12.50      | Vertical             | -15.25             | -13.00      | 2.25        | NA            |
|            | 6        | 5006.25         | -44.67   | 3.40            | 12.50      | Vertical             | -37.72             | -13.00      | 24.72       | NA            |
|            | 7        | 5840.63         | -31.86   | 3.40            | 12.80      | Vertical             | -24.61             | -13.00      | 11.61       | NA            |
|            | 8        | 6675.00         | -51.79   | 4.10            | 11.50      | Vertical             | -46.54             | -13.00      | 33.54       | NA            |
|            | 9        | 7509.38         | -40.58   | 4.20            | 12.20      | Vertical             | -34.73             | -13.00      | 21.73       | NA            |
|            | 10       | 8343.75         | -50.98   | 4.30            | 12.50      | Vertical             | -44.93             | -13.00      | 31.93       | 96            |

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 12 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 1410.53         | -55.00   | 1.70            | 8.70       | Vertical             | -50.15             | -13.00      | 37.15       | 90            |
|            | 3        | 2116.13         | -36.89   | 2.10            | 11.10      | Vertical             | -30.04             | -13.00      | 17.04       | 45            |
|            | 4        | 2821.53         | -67.49   | 2.30            | 13.10      | Vertical             | -58.84             | -13.00      | 45.84       | 135           |
|            | 5        | 3525.00         | -35.20   | 2.60            | 12.70      | Vertical             | -27.25             | -13.00      | 14.25       | 135           |
|            | 6        | 4232.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 4935.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 5640.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 6345.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 7050.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |

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

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

## LTE Band 13 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 1559.41         | -71.24   | 1.70            | 8.70       | Vertical             | -64.24             | -40.00      | 24.24       | 22            |
|            | 3        | 2339.40         | -46.64   | 2.10            | 12.00      | Vertical             | -38.89             | -13.00      | 25.89       | 17            |
|            | 4        | 3118.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 5        | 3897.50         | -52.27   | 2.90            | 12.50      | Vertical             | -44.82             | -13.00      | 31.82       | 12            |
|            | 6        | 4677.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 5456.50         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 6236.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 7265.60         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 7795.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |

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 14 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 1581.72         | -65.06   | 1.70            | 8.70       | Vertical             | -60.21             | -40.00      | 20.21       | 64            |
|            | 3        | 2372.59         | -52.61   | 2.30            | 12.00      | Vertical             | -45.06             | -13.00      | 32.06       | 108           |
|            | 4        | 3162.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 5        | 3952.50         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 6        | 4743.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 5533.50         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 6324.00         | -51.56   | 3.80            | 11.50      | Vertical             | -46.01             | -13.00      | 33.01       | 76            |
|            | 9        | 7114.50         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 7905.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |

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 25 CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 3761.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 3        | 5641.30         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 4        | 7530.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 5        | 9401.50         | -36.02   | 4.30            | 11.10      | Vertical             | -29.22             | -13.00      | 16.22       | 95            |
|            | 6        | 11295.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 13177.50        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 15060.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 16942.50        | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 18825.00        | --       | --              | --         | --                   | --                 | --          | --          | --            |

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 (824 ~ 849) CH-Middle

| Band width | Harmonic | Frequency (MHz) | SG (dBm) | Cable Loss (dB) | Gain (dBi) | Antenna Polarization | Result Level (dBm) | Limit (dBm) | Margin (dB) | Azimuth (deg) |
|------------|----------|-----------------|----------|-----------------|------------|----------------------|--------------------|-------------|-------------|---------------|
| 5MHz       | 2        | 1668.73         | -51.90   | 1.70            | 8.70       | Vertical             | -47.05             | -13.00      | 34.05       | 25            |
|            | 3        | 2503.07         | -49.70   | 2.30            | 12.00      | Vertical             | -42.15             | -13.00      | 29.15       | 14            |
|            | 4        | 3336.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 5        | 4171.80         | -26.45   | 3.00            | 12.50      | Vertical             | -19.10             | -13.00      | 6.10        | 14            |
|            | 6        | 5004.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 7        | 5838.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 8        | 6672.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 9        | 7506.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |
|            | 10       | 8340.00         | --       | --              | --         | --                   | --                 | --          | --          | --            |

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.