# RF EXPOSURE STATEMENT

## 1. LIMITS

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

| Frequency range (MHz) | Electric field Strength (V/m) | Magnetic field Strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| 0.3 - 1.34…… | 614 | 1.63 | *(100) | 30 |
| 1.34 - 30…… | 824/f | 2.19/f | *(180/ $f^2$) | 30 |
| 30 - 300…… | 27.5 | 0.073 | 0.2 | 30 |
| 300 - 1500…… | …….... | …….... | f/1500 | 30 |
| 1500 - 100.000…… | …….... | …….... | 1.0 | 30 |

F = frequency in MHz
* = Plane-wave equivalent power density

## 2. MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

**$S = PG/4\pi R^2$**

S = Power density
P = maximum average transmit power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

## 2. Calculated Result and Limit

(LTE-Band12)

| | | |
|---|---|---|
| Average Max output Power at antenna input terminal | 23.500 | dBm |
| Average Max output Power at antenna input terminal | 223.872 | mW |
| Prediction distance | 20.000 | cm |
| Prediction frequency | 699.700 | MHz |
| Antenna Gain(typical) | -3.130 | dBi |
| Antenna Gain(numeric) | 0.486 | - |
| Power density at prediction frequency( S) | 0.02166 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 0.466 | $mW/cm^2$ |

(LTE-Band 25)

| | | |
|---|---|---|
| Average Max output Power at antenna input terminal | 23.500 | dBm |
| Average Max output Power at antenna input terminal | 223.872 | mW |
| Prediction distance | 20.000 | cm |
| Prediction frequency | 1850.700 | MHz |
| Antenna Gain(typical) | 2.240 | dBi |
| Antenna Gain(numeric) | 1.675 | - |
| Power density at prediction frequency( S) | 0.075 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 1.0000 | $mW/cm^2$ |

(CDMA)

| | | |
|---|---|---|
| Average Max output Power at antenna input terminal | 24.100 | dBm |
| Average Max output Power at antenna input terminal | 257.040 | mW |
| Prediction distance | 20.000 | cm |
| Prediction frequency | 824.200 | MHz |
| Antenna Gain(typical) | 0.910 | dBi |
| Antenna Gain(numeric) | 1.233 | - |
| Power density at prediction frequency( S) | 0.06306 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 0.549 | $mW/cm^2$ |

(PCS CDMA)

| | | |
|---|---|---|
| Average Max output Power at antenna input terminal | 24.100 | dBm |
| Average Max output Power at antenna input terminal | 257.040 | mW |
| Prediction distance | 20.000 | cm |
| Prediction frequency | 1851.250 | MHz |
| Antenna Gain(typical) | 3.270 | dBi |
| Antenna Gain(numeric) | 2.12324 | - |
| Power density at prediction frequency( S) | 0.109 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 1.00000 | $mW/cm^2$ |

(2.4 GHz BAND_MIMO)

| | | |
|---|---|---|
| Average Max output Power at antenna input terminal | 23.00 | dBm |
| Average Max output Power at antenna input terminal | 188.799 | mW |
| Prediction distance | 20.000 | cm |
| Prediction frequency | 2462.00 | MHz |
| Antenna Gain(typical) | 4.68 | dBi |
| Antenna Gain(numeric) | 2.93765 | - |
| Power density at prediction frequency( S) | 0.116608 | $mW/cm^2$ |
| MPE limit for uncontrolled exposure at prediction frequency | 1.00000 | $mW/cm^2$ |

## 3. Multiple radio MPE Factor

1) WLAN and CDMA
(0.116608/1.0000)+( 0.06306/0.549) = 0.116608+ 0.114863 = 0.231471 < 1.0 mW

2) WLAN and PCS CDMA
(0.116608/1.0000)+( 0.109/1.0000) = 0.116608 + 0.109 = 0.225608 < 1.0 mW

3) WLAN and LTE Band 12
(0.116608/1.0000)+( 0.02166/0.466) = 0.116608 + 0.046481 = 0.163089 < 1.0 mW

4) WLAN and LTE Band 25
(0.116608/1.0000)+( 0.075/1.0000) = 0.116608 + 0.075 = 0.191608< 1.0 mW

⇨ Therefore, the worst-case situation is (0.116608/1.0000)+( 0.06306/0.549) = 0.231471, which is less than "1"
This confirmed that the device comply with fcc 1.1310 MPE Limit.