

## \* Standalone SAR test exclusion considerations

### 1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

#### a) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                  | 6  |
| 3.0-30                | 1842/f                            | 4.89/f                            | (900/f)*                                | 6  |
| 30-300                | 61.4                              | 0.163                             | 1.0                                     | 6  |
| 300-1500              |                                   |                                   | F/300                                   | 6  |
| 1500-10000            |                                   |                                   | 5                                       | 6  |

#### b) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|--|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                  | 30   |
| 3.0-30                | 824/f                             | 2.19/f                            | (180/f)*                                | 30   |
| 30-300                | 27.5                              | 0.073                             | 0.2                                     | 30   |
| 300-1500              |                                   |                                   | F/1500                                  | 30   |
| 1500-10000            |                                   |                                   | 1.0                                     | 30   |

**Note :** f=frequency in MHz

**\*=Plane-wave equivalent power density**

**2. MPE Calculation Method**

|  |
|--|
| S = power density  |
| P = 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                                       |
| Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01   |
| $S = PG/4\pi R^2$  |

**3. Calculated Result and Limit**

**(R = 20cm)**

| Mode       | Frequency (MHz) | Max. Tune-up Power |                | Antenna Gain |              | Power Density (S)     | Limit of Power Density (S) | Result      |
|------------|-----------------|--------------------|----------------|--------------|--------------|-----------------------|----------------------------|-------------|
|            |                 | (dBm)              | (mW)           | (dBi)        | (numeric)    | (mW/cm <sup>2</sup> ) | (mW/cm <sup>2</sup> )      |             |
| WCDMA 850  | 826.40          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.551                      | <b>PASS</b> |
|            | 836.60          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.558                      | <b>PASS</b> |
|            | 846.60          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.564                      | <b>PASS</b> |
| HSUPA 850  | 826.40          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.551                      | <b>PASS</b> |
|            | 836.60          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.558                      | <b>PASS</b> |
|            | 846.60          | 23.000             | <b>199.526</b> | -1.200       | <b>0.759</b> | <b>0.030</b>          | 0.564                      | <b>PASS</b> |
| WCDMA 1900 | 1852.40         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |
|            | 1880.00         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |
|            | 1907.60         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |
| HSUPA 1900 | 1852.40         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |
|            | 1880.00         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |
|            | 1907.60         | 23.000             | <b>199.526</b> | 2.000        | <b>1.585</b> | <b>0.063</b>          | 1.000                      | <b>PASS</b> |