

## \* 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  2,  H  2 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  2,  H  2 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	Result
		(dBm)	(mW)	(dBi)	(numeric)	(mW/cm <sup>2</sup> )	(mW/cm2)	
WCDMA 850	826.40	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.551	<b>PASS</b>
	836.60	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.558	<b>PASS</b>
	846.60	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.564	<b>PASS</b>
HSUPA 850	826.40	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.551	<b>PASS</b>
	836.60	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.558	<b>PASS</b>
	846.60	23.000	<b>199.526</b>	-0.850	<b>0.822</b>	<b>0.033</b>	0.564	<b>PASS</b>
WCDMA 1900	1852.40	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>
	1880.00	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>
	1907.60	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>
HSUPA 1900	1852.40	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>
	1880.00	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>
	1907.60	23.000	<b>199.526</b>	-1.010	<b>0.793</b>	<b>0.031</b>	1.000	<b>PASS</b>