

# 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 <sup>2</sup> )	Averaging time (minutes)
0.3 - 1.34.....	614	1.63	*(100)	30
1.34 - 30.....	824/f	2.19/f	*(180/ f <sup>2</sup> )	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

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

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

## 2-1. Cellular BAND

Max Peak output Power at antenna input terminal (dBm)	24.250
Max Peak output Power at antenna input terminal (mW)	266.073
Prediction distance (cm)	20.000
Prediction frequency (MHz)	824.200
Antenna Gain(typical) (dBi)	0.280
Antenna Gain(numeric)	1.067
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.0565
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.00000

## 2-2. PCS BAND

Max Peak output Power at antenna input terminal (dBm)	24.34000
Max Peak output Power at antenna input terminal (mW)	271.64393
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	1880.00
Antenna Gain(typical) (dBi)	2.66000
Antenna Gain(numeric)	1.81000
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.09782
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.00000

**2-3. WLAN BAND**

Max Peak output Power at antenna input terminal (dBm)	18.820
Max Peak output Power at antenna input terminal (mW)	76.208
Prediction distance (cm)	20.000
Prediction frequency (MHz)	824.200
Antenna Gain(typical) (dBi)	-4.820
Antenna Gain(numeric)	0.330
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.0050
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.00000

**2-4. Cellular & WLAN BAND(Co-location MPE)**

Cellular Band measured 0.0565 mW/cm<sup>2</sup>, limit is 0.549 mW/cm<sup>2</sup>, therefore the % of the limit is 0.0565/0.549=10.29 % or ratio of 0.1029

WLAN Band measured 0.0050 mW/cm<sup>2</sup>, limit is 1 mW/cm<sup>2</sup>, therefore the % of the limit is 0.0050/1=0.5 % or ratio of 0.005

The combined MPE ratios is 10.29 % + 0.5 % = 10.79 % < 100 %

Note : Worst case of WLAN band is 802.11b.

**2-5. PCS & WLAN BAND(Co-location MPE)**

PCS Band measured 0.09782 mW/cm<sup>2</sup>, limit is 1 mW/cm<sup>2</sup>, therefore the % of the limit is 0.09782/1=9.782 % or ratio of 0.09782

WLAN Band measured 0.0050 mW/cm<sup>2</sup>, limit is 1 mW/cm<sup>2</sup>, therefore the % of the limit is 0.0050/1=0.5 % or ratio of 0.005

The combined MPE ratios is 9.782 % + 0.5 % = 10.282 % < 100 %

Note : Worst case of WLAN band is 802.11b.

### 3. RESULTS

The power density level at 20 cm is 0.0565 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1.0 mW/cm<sup>2</sup> at 824.20 MHz for CDMA band. The power density level at 20 cm is 0.09782 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1.0 mW/cm<sup>2</sup> at 1880 MHz for PCS CDMA band.

The power density level at 20 cm is 0.005 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2462 MHz for WLAN band.

(Cellular & WLAN Band) The combined MPE ratios is 10.29 % + 0.5 % = 10.79 % < 100 %

(PCS & WLAN Band) The combined MPE ratios is 9.782 % + 0.5 % = 10.282 % < 100 %