

## 5.7. RF Exposure

### 5.7.1. Limit

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

### 5.7.2. 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.

Note:

1. Manufacturer declared that the maximum antenna gain is 3.0 dBi.
2. Manufacturer declared that the nearest distance between human and the EUT is 0.25m.
3. Only record worst case data.
4. All other emissions are too low to read.

**GSM 850**

Max Peak output Power at antenna input terminal	24.99	dBm
Max Peak output Power at antenna input terminal	315.5	mW
Prediction distance	25	cm
Prediction frequency	881.6	MHz
Antenna Gain(typical)	3.00	dBi
Antenna Gain(numeric)	2.00	
Power density at prediction frequency( S)	0.080	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.588	mW/cm <sup>2</sup>

**GPRS 1900**

Max Peak output Power at antenna input terminal	25.01	dBm
Max Peak output Power at antenna input terminal	316.96	mW
Prediction distance	25	cm
Prediction frequency	1960.00	MHz
Antenna Gain(typical)	3.00	dBi
Antenna Gain(numeric)	2.00	
Power density at prediction frequency( S)	0.081	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm <sup>2</sup>

**5.7.3 Test Results**

The power density level at 25 cm is 0.080 mW/cm<sup>2</sup>(GSM 850), 0.081 mW/cm<sup>2</sup>(GSM 1900), which is below the uncontrolled exposure limit for Cellular & PCS band.