

5.6. RF Exposure

5.6.1. 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 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

5.6.2. 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

GPRS 850

Max Peak output Power at antenna input terminal	31.97	dBm
Max Peak output Power at antenna input terminal	1574	mW
Prediction distance	20	cm
Prediction frequency	848.80	MHz
Antenna Gain(typical)	1.000	dBi
Antenna Gain(numeric)	1.259	
Power density at prediction frequency(S)	0.394	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.566	mW/cm ²

GPRS 1900

Max Peak output Power at antenna input terminal	29.19	dBm
Max Peak output Power at antenna input terminal	829.9	mW
Prediction distance	20	cm
Prediction frequency	1880.0	MHz
Antenna Gain(typical)	1.000	dBi
Antenna Gain(numeric)	1.259	
Power density at prediction frequency(S)	0.2080	mW/cm2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm2

5.6.3 Test Results

The power density level at 20 cm is 0.394 mW/cm²(GPRS 850), 0.2080 mW/cm²(GPRS 1900), which is below the uncontrolled exposure limit for Cellular & PCS band.

Warning: In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, it must also have a minimum distance of 20 cm from the body during normal operation.