

10. 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 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

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. iDen Downlink (800 MHz)

Max Peak output Power at antenna input terminal	26.970	dBm
Max Peak output Power at antenna input terminal	497.737	mW
Prediction distance	50.000	cm
Prediction frequency	851.0125	MHz
Antenna Gain(typical)	12.000	dBi
Antenna Gain(numeric)	15.849	—
Power density at prediction frequency(S)	0.251	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.567	mW/cm ²

2-2. iDen Uplink (800 MHz)

Max Peak output Power at antenna input terminal	27.000	dBm
Max Peak output Power at antenna input terminal	501.187	mW
Prediction distance	50.000	cm
Prediction frequency	806.0125	MHz
Antenna Gain(typical)	12.000	dBi
Antenna Gain(numeric)	15.849	—
Power density at prediction frequency(S)	0.253	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.537	mW/cm ²

2-3. iDen Downlink (900 MHz)

Max Peak output Power at antenna input terminal	27.020	dBm
Max Peak output Power at antenna input terminal	503.501	mW
Prediction distance	50.000	cm
Prediction frequency	935.0125	MHz
Antenna Gain(typical)	12.000	dBi
Antenna Gain(numeric)	15.849	—
Power density at prediction frequency(S)	0.254	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.623	mW/cm ²

2-4. iDen Uplink (900 MHz)

Max Peak output Power at antenna input terminal	26.850	dBm
Max Peak output Power at antenna input terminal	484.172	mW
Prediction distance	50.000	cm
Prediction frequency	896.0125	MHz
Antenna Gain(typical)	12.000	dBi
Antenna Gain(numeric)	15.849	—
Power density at prediction frequency(S)	0.244	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	0.597	mW/cm ²

3. RESULTS

The power density level at 50 cm is 0.253 mW/cm²(iDen 800 MHz UpLink), 0.251 mW/cm²(iDen 800 MHz DownLink), 0.244 mW/cm²(iDen 900 MHz UpLink), 0.254 mW/cm²(iDen 900 MHz DownLink), which is below the uncontrolled exposure limit for iDEN band.

Simultaneous MPE at 25 Cm is $(0.251/0.567) + (0.254/0.623) = 0.850 < 1$ (DownLink),
 $(0.2536/0.537) + (0.244/0.597) = 0.883 < 1$ (UpLink),

Warning: In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, it must also have a minimum distance of 50 cm from the body during normal operation.