

## 11. 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 Limit (DownLink)**

Max Peak output Power at antenna input terminal	30.08000	dBm
Max Peak output Power at antenna input terminal	1.01859	mW
Prediction distance	60.00000	cm
Prediction frequency	2136.90000	MHz
Antenna Gain(typical)	12.00000	dBi
Antenna Gain(numeric)	15.84893	-
Power density at prediction frequency (S)	0.356852	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm <sup>2</sup>

**2-2 Limit UpLink)**

Max Peak output Power at antenna input terminal	29.97000	dBm
Max Peak output Power at antenna input terminal	993.1	mW
Prediction distance	60.00000	cm
Prediction frequency	1715.00000	MHz
Antenna Gain(typical)	00.00000	dBi
Antenna Gain(numeric)	1.00000	-
Power density at prediction frequency (S)	0.021953	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm <sup>2</sup>

**3. RESULTS**

The power density level at 60 cm is 0.356852 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1.0 mW/cm<sup>2</sup> at 2136.9 MHz

The power density level at 60 cm is 0.021953 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 1.0 mW/cm<sup>2</sup> at 1715.0 MHz

Simultaneous MPE at 60 cm is  $(0.356852/1.0) + (0.021953/1) = 0.3788 < 1$

Warning: In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, it must also have a minimum distance of 60 cm from the body during normal operation.