

10 FCC §1.1307(b) (1) & §2.1091 – RF Exposure Information

10.1 Applicable Standard

According to FCC §1.1310 and §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
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

Note: f = frequency in MHz

* = Plane-wave equivalent power density

10.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

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

Where: 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

1900 MHz PCS Band Downlink: 1930-1995 MHz

Maximum peak output power at antenna input terminal (dBm): 26.23

Maximum peak output power at antenna input terminal (mW): 419.76

Prediction distance (cm): 20

Prediction frequency (MHz): 1994.8

Antenna Gain, typical (dBi): 3.0

Maximum Antenna Gain (numeric): 2.0

Power density at predication frequency and distance (mW/cm²): 0.167

MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.0

2100 MHz AWS Band Downlink: 2110-2155 MHz

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>18.79</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>75.68</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>2112.4</u>
<u>Antenna Gain, typical (dBi):</u>	<u>3.0</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>2.0</u>
<u>Power density at predication frequency and distance (mW/cm²):</u>	<u>0.03</u>
<u>MPE limit for uncontrolled exposure at predication frequency (mW/cm²):</u>	<u>1.0</u>

Results

The highest power density level at 20 cm is below the MPE uncontrolled exposure limit.