

4 FCC §1.1310 & §2.1091 - RF Exposure Information

4.1 Applicable Standards

According to §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

4.2 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

Cellular Band

Uplink:

Maximum output power at antenna input terminal (dBm):	<u>29.0</u>
Maximum output power at antenna input terminal (mW):	<u>794.332</u>
Prediction distance (cm):	<u>20</u>
Prediction frequency (MHz):	<u>836</u>
Maximum Antenna Net Gain (dBi):	<u>1.0</u>
Maximum Antenna Net Gain (numeric):	<u>1.259</u>
Power density at predication frequency and distance (mW/cm ²):	<u>0.199</u>
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	<u>0.557</u>

Downlink:

Maximum output power at antenna input terminal (dBm): -26.3
 Maximum output power at antenna input terminal (mW): 0.0023
 Prediction distance (cm): 20
 Prediction frequency (MHz): 881
 Maximum Antenna Net Gain (dBi): 8.0
 Maximum Antenna Net Gain (numeric): 6.31
 Power density at predication frequency and distance (mW/cm²): 0.000003
 MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 0.587

PCS Band

Uplink:

Maximum output power at antenna input terminal (dBm): 28.0
 Maximum output power at antenna input terminal (mW): 630.9573
 Prediction distance (cm): 20
 Prediction frequency (MHz): 1893.6
 Maximum Antenna Net Gain (dBi): 1.0
 Maximum Antenna Net Gain (numeric): 1.25
 Power density at predication frequency and distance (mW/cm²): 0.1580
 MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.0

Downlink:

Maximum output power at antenna input terminal (dBm): -29.7
 Maximum output power at antenna input terminal (mW): 0.0011
 Prediction distance (cm): 20
 Prediction frequency (MHz): 1960
 Maximum Antenna Net Gain (dBi): 8.0
 Maximum Antenna Net Gain (numeric): 6.31
 Power density at predication frequency and distance (mW/cm²): 0.000001
 MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.0

4.3 MPR Result

The device complies with the MPE requirements by providing a safe separation distance of 20 cm between the antenna, including any radiating structure. The proposed RF exposure safety information has been included in the User's Manual.