

11 FCC §1.1307(b)(1) & §2.1091 - RF EXPOSURE INFORMATION

11.1 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

11.2 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 peak output power at antenna input terminal (dBm): 22.43

Maximum peak output power at antenna input terminal (mW): 174.98

Prediction distance (cm): 20

Prediction frequency (MHz): 836.6

Antenna Gain, typical (dBi): 2.0

Cable Loss (dB): 3.0

Power density at predication frequency and distance (mW/cm²): 0.0277

MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 0.5577

Cellular Band Downlink:

Maximum peak output power at antenna input terminal (dBm): 0.93
Maximum peak output power at antenna input terminal (mW): 1.24
Prediction distance (cm): 20
Prediction frequency (MHz): 891.6
Antenna Gain, typical (dBi): 0
Cable Loss (dB): 3.0
Power density at predication frequency and distance (mW/cm²): 0.000124
MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 0.5944

PCS Band Uplink:

Maximum peak output power at antenna input terminal (dBm): 22.80
Maximum peak output power at antenna input terminal (mW): 190.55
Prediction distance (cm): 20
Prediction frequency (MHz): 1909.8
Antenna Gain, typical (dBi): 2.0
Cable Loss (dB): 5.0
Power density at predication frequency and distance (mW/cm²): 0.019
MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.0

PCS Band Downlink:

Maximum peak output power at antenna input terminal (dBm): 0.75
Maximum peak output power at antenna input terminal (mW): 1.189
Prediction distance (cm): 20
Prediction frequency (MHz): 1989.8
Antenna Gain, typical (dBi): 0
Cable Loss (dB): 5.0
Power density at predication frequency and distance (mW/cm²): 0.0000748
MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.0

Results

For Uplink, the highest power density level at 20 cm is below the MPE uncontrolled exposure limit. For Downlink; the highest power density level at 20 cm is below the MPE uncontrolled exposure limit.