

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

11.1 Applicable Standard

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

f = frequency in MHz

* = Plane-wave equivalent power density

11.2 MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of 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

Uplink:

Maximum peak output power at antenna input terminal (dBm): 18.60

Maximum peak output power at antenna input terminal (mW): 72.44

Prediction distance (cm): 80

Prediction frequency (MHz): 813.5

Antenna Gain, typical (dBi): 12

Maximum Antenna Gain (numeric): 15.85

Power density at predication frequency and distance (mW/cm²): 0.01428

MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 0.542

Downlink:

Maximum peak output power at antenna input terminal (dBm): 11.06
Maximum peak output power at antenna input terminal (mW): 12.76
Prediction distance (cm): 80
Prediction frequency (MHz): 858.5
Antenna Gain, typical (dBi): 12
Maximum Antenna Gain (numeric): 15.85
Power density at predication frequency and distance (mW/cm²): 0.00252
MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 0.572

11.3 Test Result

The device is compliant with the requirement MPE limit for uncontrolled exposure at predication frequency 0.542 mW/cm². The maximum power density at the distance of 80 cm was 0.01428 mW/cm².