

5 §1.1307(b) (1) & §2.1091 - RF EXPOSURE

5.1 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

5.2 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

CDMA Mode

Uplink:

Maximum peak output power at antenna input terminal (dBm): 18.35

Maximum peak output power at antenna input terminal (mW): 68.39

Prediction distance (cm): 80

Prediction frequency (MHz): 1880

Antenna Gain, typical (dBi): 12

Maximum Antenna Gain (numeric): 15.85

Power density at predication frequency and distance (mW/cm²): 0.0135

MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1.000

Downlink:

Maximum peak output power at antenna input terminal (dBm):	4.12
Maximum peak output power at antenna input terminal (mW):	2.58
Prediction distance (cm):	80
Prediction frequency (MHz):	1960
Antenna Gain, typical (dBi):	9
Maximum Antenna Gain (numeric):	7.943
Power density at predication frequency and distance (mW/cm ²):	0.0005
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	1.000

GSM Mode

Uplink:

Maximum peak output power at antenna input terminal (dBm):	20.17
Maximum peak output power at antenna input terminal (mW):	103.99
Prediction distance (cm):	80
Prediction frequency (MHz):	1880
Antenna Gain, typical (dBi):	12
Maximum Antenna Gain (numeric):	15.85
Power density at predication frequency and distance (mW/cm ²):	0.0205
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	1.000

Downlink:

Maximum peak output power at antenna input terminal (dBm):	4.06
Maximum peak output power at antenna input terminal (mW):	2.55
Prediction distance (cm):	80
Prediction frequency (MHz):	1960
Antenna Gain, typical (dBi):	12
Maximum Antenna Gain (numeric):	15.85
Power density at predication frequency and distance (mW/cm ²):	0.0005
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	1.000

5.3 Test Result

The device is compliant with the requirement MPE limit for uncontrolled exposure at predication frequency 1.0 mW/cm². The maximum power density at the distance of 80 cm was 0.0205 mW/cm². Thus, the requirement of at least 80 cm required by the manufacturer is in compliance with the MPE requirement.