

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

5.1 Applicable Standard

According to §1.1310 and §2.1091 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

GSM Band

Maximum peak output power at antenna input terminal: 32.56 (dBm)

Maximum peak output power at antenna input terminal: 1786.49 (mW)

Prediction distance: 20 (cm)

Predication frequency: 836.6 (MHz)

Antenna Gain (typical): 0.5 (dBi)

Antenna gain: 1.122 (numeric)

Power density at predication frequency at 20 cm: 0.399 (mW/cm²)

MPE limit for uncontrolled exposure at prediction frequency: 0.560 (mW/cm²)

PCS Band

Maximum peak output power at antenna input terminal: 29.22 (dBm)

Maximum peak output power at antenna input terminal: 835.60 (mW)

Prediction distance: 20 (cm)

Predication frequency: 1880 (MHz)

Antenna Gain (typical): 0.5 (dBi)

Antenna gain: 1.122 (numeric)

Power density at predication frequency at 20 cm: 0.187 (mW/cm²)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm²)

5.3 Test Result

The EUT is a mobile device. The power density level at 20 cm is 0.399 mW/cm², which is below the uncontrolled exposure limit of 0.560 mW/cm² at 836.580 MHz for GSM band. The power density level at 20 cm is 0.187 mW/cm², which is below the uncontrolled exposure limit of 1mW/cm² at 1880 MHz for PCS band.