

FCC ID:**QWY-ATM-R-132****Prediction of MPE limit at 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 the antenna

G = Antenna gain

R = Distance to the center of radiation of the antenna

Technologies:

Technologies:	Max. Power: (AVG)	Max. Gain:	Min. Pathloss:
2G GSM850	34 dBm	-2.0 dBi	2.8 dB
2G PCS1900	31 dBm	+0.8 dBi	5.0 dB
3G Band V	25 dBm	-2.0 dBi	2.8 dB
LTE 5	25 dBm	-2.0 dBi	2.8 dB
LTE 7	25 dBm	+1.3 dBi	5.2 dB

MPE results for FCC:

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled "Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure"

Frequency Range (MHz)	Power Density (mW/cm ²)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

Prediction: worst case

		< 1500 MHz	> 1500 MHz
		WWAN	WWAN
P	Max power input to the antenna	31.2 dBm	26.0 dBm
R	Distance	20 cm	20 cm
G	Antenna gain	-2.0 dBi	-2.4 dBi
S	MPE limit for uncontrolled exposure	0.56 mW/cm ² (worst case)	1 mW/cm ²
	Calculated Power density:	0.17 mW/cm²	0.10 mW/cm²

This prediction demonstrates the following:

The power density levels for FCC at a distance of 20 cm are below the maximum levels allowed by regulations.



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