

Prediction of MPE limit at given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density

P = power input to the 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

Prediction for GSM 1900 (1850-1910 MHz) Band

Maximum peak output power at antenna input terminal:	<u>29.01</u>	dBm
Maximum peak output power at antenna input terminal:	<u>796.16</u>	mW
Prediction distance:	<u>20</u>	cm
Prediction frequency:	<u>1880</u>	MHz
MPE limit for uncontrolled exposure at prediction frequency:	<u>1</u>	$\frac{mW}{cm^2}$
Maximum Permissive antenna gain:	<u>6.313495211</u>	numeric
Maximum Permissive Antenna gain:	<u>8</u>	dB

The factory tuning procedure ensures that the transmitter output power conducted does not exceed 1 watt.

An antenna with the antenna gain of 8dBi would have as result the MPE value of 1 mW/cm². Therefore a typical antenna with a gain of 7dBi would be below the limit.