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

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/cm^2.
Therefore a typical antenna with a gain of 7dBi would be below the limit.