MPE Calculation model# Multitech **MTSMC-E, MTCBA-E and MTCBA-E-U**

HUMAN EXPOSURE STATEMENT

Calculations can be made to predict RF field strength and power density levels around typical RF sources using the general equations (3) and (4) on page 19 of the following FCC document:
"OET Bulletin 65, Edition 97-01 - Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields".

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a "worst case" prediction.

$$S = PG/4\pi R^2 \qquad (3)$$

Where S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units e.g. mW)
G = power gain of the antenna in the direction of interest relative to the isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units e.g. cm)
or,

$$S = EIRP/4\pi R^2 \qquad (4)$$

Where EIRP = Equivalent Isotropic radiated power

MPE GSM 850
EIRP: **27.05** dBm (507mW)

Calculated at distance of 20cm

Power density $= 507 / (4 \times pi \times 20^2)$
$= 0.101\ mW/cm^2$

Calculation for distance at which power density will be $1mW/cm^2$

Distance $= \sqrt{\{507 / (4 \times pi \times 1)\}}$
$= 6.35$ cm

Limit:
$1mW/cm^2$ is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.

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MPE GSM 1900
EIRP: 26.92dBm (492.04mW)

Calculated at distance of 20cm

Power density = 492.04 / (4 x pi x 20^2)
= 0.097 mW/cm^2

Calculation for distance at which power density will be 1mW/cm^2

Distance = √ {492.04 / (4 x pi x 1)}
= 6.25cm

Limit:
1mW/cm^2 is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.