MPE calculation for: Model# R8

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 Isotropically radiated power

Calculation:

GSM 1900
EIRP: 29.27dBm (845.27mW)

Calculated at distance of 20cm

     Power density   = 845.27 / (4 x pi x 20^2)
                      = 0.168 mW/cm^2

GSM 850
EIRP: 27.73dBm (592.92mW)

Calculated at distance of 20cm

     Power density   = 592.92 / (4 x pi x 20^2)
                      = 0.118 mW/cm^2

BT
EIRP: 3.2dBm (2.09mW)

Calculated at distance of 20cm

$$\text{Power density} = 2.09 / (4 \text{ x pi x } 20^2)$$
$$= 0.0004 \text{ mW/cm}^2$$

Limits for General Population/Uncontrolled Exposure (§1.1310)

Frequency range (MHz)	Power density (mW/cm^2)
300 – 1500	f/1500
1500 – 100,000	1.0

The warning information is included in the user manual