

Exposure Analysis of GSM Base Stations in Industrial Area

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Abstract : Exposure due to GSM frequencies is subject of daily debate. Though regulatory bodies provide guidelines for exposure, people still exercise fear on the possible health hazard that may result due to long term usage. In this study, exposure due to electromagnetic field emitted by GSM base stations in industrial areas was investigated. The aimed was to determine whether industrial area exposure is higher as compared to residential as well as compliance with ICNIRP guidelines. Influence of reflection and absorption with respect to inverse square law was also investigated. Measurements from GSM base stations were performed at various distances in far field region. The highest measured peak power densities as well as the calculated values at GSM 1.8 GHz were 6.05 and 90 mW/m² respectively. This corresponds to 0.07 and 1% of ICNIRP guidelines. The highest peak power densities as well as the calculated values at GSM 0.9 GHz were 11.92 and 49.7 mW/m² respectively. These values were 0.3 and 1.1% of ICNIRP guidelines.

Keywords : Global System for Mobile Communications (GSM), Electromagnetic Field (EMF), far field, power density, Radiofrequency (RF)

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