

Near Field and Dosimetry of RF Bioeffects Research

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In this study, the authors would like to propose a refinement and alternative approach of near field analysis related to mobile phone radiation. First, the near field solutions of a dipole antenna used to represent the mobile phone antenna is discussed, followed by pseudo-static capacitive analysis of electric field in the near field region for free space and thin-layered slabs. Preliminary investigation focuses on antenna of Hertzian-dipole type. Initial results of simulations from the beta version of the developed tools in MATLAB[®] are then presented. Future research work will extend the investigation into a more accurate model of antenna and consequently its near field analysis, which will be verified with simulations using xFDTD and other available data in the literature. Furthermore, a theoretical approach in calculating the energy absorbed by thin-layered slabs based on energy calculation for static field, which takes into account the relative permittivity properties, is proposed and to be investigated.