

Analysis of Specific Absorption Rate on Six Layer Human Head Model

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Abstract

Despite numerous advantages, mobile phones cause serious health issues to people due to electromagnetic radiation. Various head models already exist to study the impact of radiation on a human head. The accuracy of the measurement of power absorbed by different layers of a head should be high. A new head model with six layers is proposed in this paper. Parameters such as dielectric constant, conductivity and mass density of different tissue layers skin, fat, bone, Dura, cerebrospinal fluid (CSF), and brain are extracted from the Federal Communications Commission (FCC) database. To study the impact of radiation in the proposed model, standard planar inverted F-antennas (PIFA) capable to radiate at 1.7 GHz and 2.4 GHz are used. Simulations are performed using ANSYS Electromagnetics Suite. The analysis shows that the specific absorption rate (SAR) in the brain layer decreased in the proposed model when compared to the existing model.

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