Abstracts

Human exposure to radio base-station antennas in urban environment

P. Bernardi, M. Cavagnaro, S. Pisa and E. Piuzzi. "Human exposure to radio base-station antennas in urban environment." 2000 Transactions on Microwave Theory and Techniques 48.11 (Nov. 2000, Part II [T-MTT] (Special Issue on Medical Application and Biological Effects of RF/Microwaves)): 1996-2002.

In this paper, the human exposure to the electromagnetic field radiated by a radio base-station antenna operating around 900 MHz in an urban environment has been analyzed. A hybrid ray-tracing/finite-difference time-domain (FDTD) method has been used to evaluate the incident field and the power absorbed in an exposed subject in the presence of reflecting walls. The base-station antenna has been characterized by means of its radiation pattern, evaluated with an FDTD analysis of a typical panel antenna. Three particular situations for a rooftop mounted antenna have been considered. In all the examined cases, the obtained results, in terms of incident field and absorbed power, are below the most recognized safety standard levels. The importance of an accurate modeling of the environment in which the exposure takes place has been evidenced.

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