Abstracts

Evaluation of human exposure in the vicinity of a base-station antenna using the multiple-region/FDTD hybrid method

P. Bernardi, M. Cavagnaro, S. Pisa and E. Piuzzi. "Evaluation of human exposure in the vicinity of a base-station antenna using the multiple-region/FDTD hybrid method." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1747-1750 vol.3.

In this paper, human exposure to the electromagnetic field radiated from a GSM radio-base station antenna operating in the 900-MHz frequency band has been analyzed. A hybrid multiple-region/FDTD method has been used to evaluate the field radiated by the antenna and the power absorbed in an accurate model of the exposed subject. The results show that field levels averaged on a surface equivalent to the left-to right vertical body section are well correlated with whole-body averaged specific absorption rate (SAR), while local SAR values are influenced by local peaks in the incident field. A comparison between the computational costs of MR/FDTD and pure FDTD shows that, with the application of appropriate compression techniques, the hybrid method becomes convenient, in terms of memory occupation, when the distance between the subject and the antenna is greater than 80 cm.

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