Abstracts

Effectiveness analysis of lossy dielectric shields for a three-layered human model

S. Nishizawa and O. Hashimoto. "Effectiveness analysis of lossy dielectric shields for a three-layered human model." 1999 Transactions on Microwave Theory and Techniques 47.3 (Mar. 1999 [T-MTT]): 277-283.

In this paper, we discuss the shielding effects of lossy dielectric materials located in front of a human model. Using the method of moments, we investigated the shielding effects by calculating the "whole average specific absorption rate (SAR)" and the "local SAR" for a three-layered elliptical model of the human body, which simulates the skin, fat, and muscle tissues. According to the results, in the low-frequency range of 200-800 MHz, the multiple reflection between the shield and human model gives rise to an increase in the whole average SAR when a low-loss material shield is placed in front of the human model. On the other hand, the local SAR increased not only at the skin layer, but also at the muscle layer. At higher frequencies, the SAR became a continuously decreasing function of frequency.

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