Abstracts

Long-Wavelength Electromagnetic Power Absorption in Ellipsoidal Model of Man and Animals

H. Massoudi, C.H. Durney and C.C. Johnson. "Long-Wavelength Electromagnetic Power Absorption in Ellipsoidal Model of Man and Animals." 1977 Transactions on Microwave Theory and Techniques 25.1 (Jan. 1977 [T-MTT]): 47-52.

A previously developed long-wavelength analysis is applied to ellipsoidal models of humans and experimental animals to obtain the distribution of tissue power absorption and average power absorption for different frequencies and orientations of the model with respect to the field vectors. Curves showing the distribution of absorbed power inside the model, and the average absorbed power versus frequency are presented for several species. Comparisons of calculated data with preliminary experimental data on monkeys are given. The theoretical results show that the power absorption in the ellipsoidal model is a strong function of frequency and orientation with respect to the incident plane wave field vectors. The quantitative data presented here are valuable for estimating tissue electromagnetic (EM) power absorption in experimental animals and humans. These data may also be used in extrapolating EM induced effects measured in animals to those expected in humans.

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