Abstracts

Electromagnetic-Energy Deposition in an Inhomogeneous Block Model of Man for Near-Field Irradiation Conditions

I. Chatterjee, M.J. Hagmann and O.P. Gandhi. "Electromagnetic-Energy Deposition in an Inhomogeneous Block Model of Man for Near-Field Irradiation Conditions." 1980 Transactions on Microwave Theory and Techniques 28.12 (Dec. 1980 [T-MTT] (1980 Symposium Issue)): 1452-1460.

The plane-wave spectrum approach is used to calculate the electromagnetic-energy deposition and its distribution in a 180-cell, inhomogeneous block model of man for a prescribed two-dimensional leakage electric field generated by RF sealers and other electronic equipment. The whole-body-averaged energy dose increases approximately as (Delta²/sub 1/Delta²/sub 2//Lamda/sup 4/) to the asymptotic plane-wave value, where Delta /sub1//Lamda and Delta/sub2//Lamda are the vertical and horizontal widths (in wavelengths) of the best fit half-cycle cosine functions to the prescribed leakage fields. The effect of phase variations shows that the worst case (maximum deposition) is always obtained for constant phase in the prescribed fields. The need for exact phase measurements is, therefore, obviated since the upper bound on the deposited energy is often the desired quantity.

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