Abstracts

Efficient electromagnetic modeling of three-dimensional multilayer microstrip antennas and circuits

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An efficient method-of-moments (MoM) solution is presented for analysis of multilayer microstrip antennas and circuits. The required multilayer Green's functions are evaluated by the discrete complex image method (DCIM), with the guided-mode contribution extracted recursively using a multilevel contour integral in the complex /sub /spl rho//-plane. An interpolation scheme is employed to further reduce the computer time for calculating the Green's functions in the three-dimensional (3-D) space. Higher order interpolatory basis functions defined on curvilinear triangular patches are used to provide necessary flexibility and accuracy for the discretization of arbitrary shapes and to offer a better convergence than lower order basis functions. The combination of the improved DCIM and the higher order basis functions results in an efficient and accurate MoM analysis for 3-D multilayer microstrip structures.

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