An efficient method for electromagnetic characterization of 2-D geometries in stratified media

A numerically efficient technique, based on the spectral-domain method of moments (MoM) in conjunction with the generalized pencil-of-functions (GPOF) method, is developed for the characterization of two-dimensional geometries in multilayer planar media. This approach provides an analytic expression for all the entries of the MoM matrix, explicitly including the indexes of the basis and testing functions provided that the Galerkin's MoM is employed. This feature facilitates an efficient modification of the geometry without the necessity of recalculating the additional elements in the MoM matrix. To assess the efficiency of the approach, the results and the matrix fill times are compared to those obtained with two other efficient methods, namely, the spatial-domain MoM in conjunction with the closed-form Green's functions, and a fast Fourier transform algorithm to evaluate the MoM matrix entries. Among these, the spectral-domain MoM using the GPOF algorithm is the most efficient approach for printed multilayer geometries.

❑ Return to main document.

Click on title for a complete paper.