Abstracts

Efficient electromagnetic modeling of microstrip structures in multilayer media

Feng Ling, Dan Jiao and Jian-Ming Jin. "Efficient electromagnetic modeling of microstrip structures in multilayer media." 1999 Transactions on Microwave Theory and Techniques 47.9 (Sep. 1999, Part II [T-MTT] (Special Issue on Multilayer Microwave Circuits)): 1810-1818.

This paper presents an efficient method-of-moments solution of the mixed-potential integral equation for a general microstrip structure in multilayer media. In this method, the general forms of the spectral-domain Green's functions for multilayer media are derived first. The spatial-domain Green's functions are then obtained by the discrete complex-image method, which obviates the time-consuming numerical evaluation of the Sommerfeld integral. The Rao-Wilton-Glisson basis functions are employed to provide necessary flexibility to model arbitrary shapes. To expedite the computation of frequency response over a broad band, a reduced-order model is presented using asymptotic waveform evaluation. Numerical results of multilayer circuits and antennas are presented to show the efficiency and accuracy of this method.

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