Abstracts

A Numerical Functions of Dyadic Green's Functions for Planar Bianisotropic Media with Application to Printed Transmission Lines

G.W. Hanson. "A Numerical Functions of Dyadic Green's Functions for Planar Bianisotropic Media with Application to Printed Transmission Lines." 1996 Transactions on Microwave Theory and Techniques 44.1 (Jan. 1996 [T-MTT]): 144-151.

An integral equation (IE) method with numerical solution is presented to determine the complete Green's dyadic for planar bianisotropic media. This method follows directly from the linearity of Maxwell's equations upon applying the volume equivalence principle for general linear media. The Green's function components are determined by the solution of two coupled one-dimensional IE's, with the regular part determined numerically and the depolarizing dyad contribution determined analytically. This method is appropriate for generating Green's functions for the computation of guided-wave propagation characteristics of conducting transmission lines and dielectric waveguides. The formulation is relatively simple, with the kernels of the IE's to be solved involving only linear combinations of Green's functions for an isotropic half-space. This method is verified by examining various results for microstrip transmission lines with electrically and magnetically anisotropic substrates, nonreciprocal ferrite superstrates, and chiral substrates. New results are presented for microstrip embedded in chiroferrite media.

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