Abstracts

Electromagnetic Dyadic Green's Function in Cylindrically Multilayered Media

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A spectral-domain dyadic Green's function for electromagnetic fields in cylindrically multilayered media with circular cross section is derived in terms of matrices of the cylindrical vector wave functions. Some useful concepts, such as the effective plane wave reflection and transmission coefficients, are extended in the present spectral domain eigenfunction expansion. The coupling coefficient matrices of the scattering dyadic Green's functions are given by applying the principle of scattering super-position. The general solution has been applied to the case of axial symmetry (n =0, n is eigenvalue parameter in /spl O slash/ direction) where the scattering coefficients are decoupled between TM and TE waves. Two specific geometries, i.e., two- and three-layered media that are frequently employed to model the practical problems are considered in detail, and the coupling coefficient matrices of their dyadic Green's functions are given, respectively.

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