Abstracts

An Efficient Technique for Computing the Potential Green's Functions for a Thin, Periodically Excited Parallel-Plate Waveguide Bounded by Electric and Magnetic Walls

W.F. Richards, K. McInturff and P.S. Simon. "An Efficient Technique for Computing the Potential Green's Functions for a Thin, Periodically Excited Parallel-Plate Waveguide Bounded by Electric and Magnetic Walls." 1987 Transactions on Microwave Theory and Techniques 35.3 (Mar. 1987 [T-MTT]): 276-281.

An efficient formulation is described for calculating all vector and scalar potential Green's functions for a thin, infinitely long waveguide with periodic excitation. The Green's functions are represented by the first few terms of the modal expansion plus a quasi-static correction. This allows one to compute the Green's functions over a wide band of frequencies with little additional effort over that required for a single frequency. An attractive feature of the method is that the 1/R free-space singularity exhibited by the potentials is explicitly extracted in the lowest order quasi-static term. This is convenient for evaluating method-of-moments self-term contributions in closed form. The Green's functions have application for problems involving stripline structures such as Rotman lenses.

❑ Return to main document.