Abstracts

Application of Rayleigh-Ritz Method to Dielectric Steps in Waveguides

R.E. Collin and R.M. Vaillancourt. "Application of Rayleigh-Ritz Method to Dielectric Steps in Waveguides." 1957 Transactions on Microwave Theory and Techniques 5.3 (Jul. 1957 [T-MTT]): 177-184.

The Rayleigh-Ritz method is applied to obtain approximations to the first N eigenfunctions and corresponding eigenvalues in an inhomogeneously filled rectangular waveguide. These approximate eigenfunctions are then used to obtain a solution for the reflection and transmission coefficients at the junction of an empty and partially filled waveguide. Theoretical and experimental results are given for a dielectric slab which extends completely across the broad dimension of the guide, but only partially across the narrow dimension. The experimental values are within the experimental error of the computed values obtained by considering the dominant mode and only two evanescent modes.

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