Abstracts

Computation of Cutoff Wavenumbers of TE and TM Modes in Waveguides of Arbitrary Cross Sections Using a Surface Integral Formulation

M. Swaminathan, E. Arvas, T.K. Sarkar and A.R. Djordjevic. "Computation of Cutoff Wavenumbers of TE and TM Modes in Waveguides of Arbitrary Cross Sections Using a Surface Integral Formulation." 1990 Transactions on Microwave Theory and Techniques 38.2 (Feb. 1990 [T-MTT]): 154-159.

This paper describes a procedure for obtaining the cutoff wavenumbers of TE and TM modes in waveguides of arbitrary cross section. A surface integral equation approach is used where the E-field equation has been transformed into a matrix equation using the method of moments. An iterative technique has been used to pick the eigenvalues of the solution matrix which corresponds to the waveguide cutoff wavenumbers. The salient features of this technique are its speed, its simplicity, and the absence of any spurious modes while treating waveguides of arbitrary cross section. The first four modes have been tabulated for various waveguides and results are in very good agreement with published data.

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