Abstracts

Finite-Difference Method for the Arbitrary Cross-Section Waveguide Problem Using the Best-Fit Boundary Approximation

P. Rozenfeld, L.A.C. Mello and A.B. Filho. "Finite-Difference Method for the Arbitrary Cross-Section Waveguide Problem Using the Best-Fit Boundary Approximation." 1981 MTT-S International Microwave Symposium Digest 81.1 (1981 [MWSYM]): 75-76.

The finite-difference method is a numerical technique which accuracy strongly depends on the precision of the reconstruction of the boundary of a waveguide. Usually the figure is reconstructed either by an outside or an inside approximation, or by using a much more complex method of unequal-arm finite-difference operator. This paper describes a computer program which maintains the simplicity of the usual finite-difference method and which uses the best-fit approximation to the cross-section of a waveguide. As a result a better precision is obtained and smaller computer time is used in the solution of the dominant mode of the hollow homogeneous waveguide problem. Computed values of the cutoff frequencies for several waveguides are presented.

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