Abstracts

A compact 2-D full-wave finite-difference frequency-domain method for general guided wave structures

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A compact two-dimensional (2-D) full-wave finite-difference frequency-domain method is proposed for the analysis of dispersion characteristics of a general guided wave structure. Because the longitudinal field components are eliminated in the proposed method, only four transverse field components are involved in the final resulting eigen equation. This feature considerably reduces the required CPU time as compared to the existing approaches by which six field components are comprised. Additionally, unlike other 2-D finite-difference schemes that determine the eigenfrequency for a given propagation constant, the new method finds the propagation constant /spl beta/ for a given k/sub o/ (frequency). The new method has been verified by examining the computed results of a number of typical guided wave structures with the published results. Very good agreement is achieved.

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