Abstracts

A Differential Method of Reflection Coefficient Extraction from FDTD Simulations

W.K. Gwarek and M. Celuch-Marcysiak. "A Differential Method of Reflection Coefficient Extraction from FDTD Simulations." 1996 Microwave and Guided Wave Letters 6.5 (May 1996 [MGWL]): 215-217.

A novel concept for accurate extraction of the reflection coefficient from electromagnetic simulations is proposed and implemented into the finite-difference time-domain (FDTD) method. It uses only the values of an arbitrary tangential E-field component and its derivative with respect to the longitudinal direction at one selected point, and of an arbitrary tangential H-field component and its derivative with respect to the longitudinal direction at another point. No a priori knowledge of reference impedances is needed, and the reflection coefficient is extracted from a single run of FDTD. The proposed method is directly applicable to arbitrarily shaped and inhomogeneous transmission lines.

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