Abstracts

A Fast and Efficient FDTD Algorithm for the Analysis of Planar Microstrip Discontinuities by Using a Simple Source Excitation Scheme

A.P. Zhao, A.V. Raisanen and S.R. Cvetkovic. "A Fast and Efficient FDTD Algorithm for the Analysis of Planar Microstrip Discontinuities by Using a Simple Source Excitation Scheme." 1995 Microwave and Guided Wave Letters 5.10 (Oct. 1995 [MGWL]): 341-343.

A fast solution FDTD algorithm with a simple and efficient excitation scheme for the analysis of microstrip circuits is introduced. In this algorithm, the source plane is located several nodes inside the near-end terminal plane and absorbing boundary conditions (ABC's) can be applied on the terminal plane directly, without any special treatment. In addition, with this excitation scheme, no dc source distortions are induced on the source plane and nearby. Consequently, the terminal plane can be moved very close to the discontinuity, even at one-cell beyond the input/output reference planes. Hence, very significant computational savings can be achieved. To demonstrate the validity and efficiency of this algorithm, numerical results for a typical discontinuous microstrip structure are given and compared with those obtained by conventional FDTD method.

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