

Abstracts

Application of the Three-Dimensional Finite-Difference Time-Domain Method to the Analysis of Planar Microstrip Circuits

D.M. Sheen, S.M. Ali, M.D. Abouzahra and J.A. Kong. "Application of the Three-Dimensional Finite-Difference Time-Domain Method to the Analysis of Planar Microstrip Circuits." 1990 Transactions on Microwave Theory and Techniques 38.7 (Jul. 1990 [T-MTT]): 849-857.

A direct three dimensional finite-difference time-domain (FDTD) method is applied to the full-wave analysis of various microstrip structures. The method is shown to be an efficient tool for modeling complicated microstrip circuit components as well as microstrip antennas. From the time-domain results, the input impedance of a line-fed rectangular patch antenna and the frequency-dependent scattering parameters of a low-pass filter and a branch line coupler are calculated. These circuits are fabricated and the measurements are compared with the FDTD results and shown to be in good agreement.

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