Abstracts

Modeling of Discontinuities in General Coaxial Waveguide Structures by the FDTD-Method

The finite difference time domain (FDTD)-method is applied to model generalized coaxial waveguide structures with discontinuities. The cross-section of the waveguide consists of a closed outer conductor and one or two inner conductors of arbitrary shape. The cross-section can have any number of dielectric materials with losses. The singular field-behavior near sharp edges is explicitly included in the finite-difference scheme. Any kind of discontinuity can be handled: changes in cross-section as well as changes of material parameters. From the time-domain data, frequency-domain data (S-parameters) are obtained using Fourier-transform techniques.

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