Abstracts

A Locally Conformed Finite-Difference Time-Domain Algorithm of Modeling Arbitrary Shape Planar Metal Strips

A general algorithm to model arbitrary shape planar metal strips by the finite-difference time-domain (FDTD) method is presented in this paper. With this method, fields in the entire computation domain are computed by the regular FDTD algorithm except those near metal strips where special techniques proposed in this paper are applied. Unlike globally conformed finite-difference algorithms, the computation efficiency of the regular FDTD method is maintained while high space-resolution is obtained by this locally conformed finite-difference method. Numerical tests have verified that a higher computation accuracy is achieved by this scheme than the conventionally used staircase approximation. The modeling of electrical characteristics of two crossed strip lines is provided as an example.

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