Abstracts

Vector Wave Equation 2-D--FDTD Method for Guided Wave Problems

M. Okoniewski. "Vector Wave Equation 2-D--FDTD Method for Guided Wave Problems." 1993 Microwave and Guided Wave Letters 3.9 (Sep. 1993 [MGWL]): 307-309.

A new compact FDTD algorithm for the full wave analysis of inhomogeneous wave guiding structures, using two dimensional mesh is proposed. The formulation is based on the vector wave equation, and in contrast with previous approaches, allows for the formulation of the algorithm in a real domain only. Moreover, since only transverse electric fields are used, two real, instead of six complex components have to be updated and stored, and since they are both defined at the same mesh nodes, the treatment of dielectric inhomogeneities is simplified. Numerical examples validating the method are presented.

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