Abstracts

Analysis of sharp metal edges at 45/spl deg/ to the FDTD grid

New finite-difference time-domain (FDTD) update equations for sharp metal edges are presented. The edge is assumed to be diagonal to the Yee cell faces. Derived using the contour-path method, the new equations properly model the singular field near the edge even with a relatively coarse grid. A dramatic improvement in computed accuracy was observed when a stripline with two sharp edges was analyzed using the new equations instead of standard FDTD techniques. The new equations are found to be stable even with the maximum allowed time step, easy to implement, and do not increase computer memory and time requirements.

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