Abstracts

Three-Dimensional FDTD Analysis of Quasi-Optical Arrays Using Floquet Boundary Conditions and Berenger's PML

A. Alexanian, N.J. Kolias, R.C. Compton and R.A. York. "Three-Dimensional FDTD Analysis of Quasi-Optical Arrays Using Floquet Boundary Conditions and Berenger's PML." 1996 Microwave and Guided Wave Letters 6.3 (Mar. 1996 [MGWL]): 138-140.

Infinite periodic grid structures excited by normally incident beams are analyzed using finite-difference time-domain (FDTD), with Berenger's PML (perfectly matched layer) absorbing boundary condition used to terminate the computation domain along the beam axis. Floquet boundary conditions are used to handle arbitrarily shaped unit cells. Restriction to normal incidence permits using a Gaussian pulsed excitation to generate the wideband frequency response. The technique is used to model a previously reported multilayer quasioptical rotator array, with excellent agreement to the measurements obtained in the 26.540 GHz band in a lens-focused test setup.

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