An Efficient Implementation of the PML for Truncating FDTD

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Abstract

An efficient implementation of the perfectly matched layer (PML) is presented for truncating lossy and lossless finite-difference time-domain (FDTD) computational domains. The implementation is based on the stretched coordinate PML formulations and on the derivation of the wave equation in the PML region. Significant savings in computational time and memory storage requirements are achieved. In addition, the FDTD implementation of the new formulations is simpler than the conventional PML formulations. Two dimensional numerical tests have been carried out to validate the proposed formulations. © 2002 Wiley Periodicals, Inc. Microwave Opt Technol Lett 36: 55–60, 2003; Published online in Wiley InterScience (www.interscience.wiley.com). DOI 10.1002/mop.10669