Abstracts

FDTD dispersion revisited: faster-than-light propagation

J.B. Schneider and C.L. Wagner. "FDTD dispersion revisited: faster-than-light propagation." 1999 Microwave and Guided Wave Letters 9.2 (Feb. 1999 [MGWL]): 54-56.

The numerical dispersion relation that governs the propagation of fields in a finite-difference time-domain (FDTD) grid was derived several years ago. In this work a different interpretation is given for the governing equation. It is shown that the dispersion relation predicts faster-than-light propagation for coarsely resolved fields. Additionally, some spectral components that were previously believed to have zero phase velocity are shown to propagate, albeit with exponential decay.

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