Abstracts

Reduced FDTD formulation (R-FDTD) for the analysis of 30 GHz dielectric resonator coupled to a microstrip line

G. Kondylis, F. De Flaviis, G. Pottie, M. Sironen and T. Itoh. "Reduced FDTD formulation (R-FDTD) for the analysis of 30 GHz dielectric resonator coupled to a microstrip line." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1581-1584 vol.4.

In this paper a reduced formulation for the standard finite difference time domain method (R-FDTD), based on the divergence free nature of the electric and magnetic field displacement is presented. This new approach for the solution of Maxwell equations allows a memory reduction in the storage of the field components with almost no computational cost. As validation of the new technique, the resonance frequencies of a dielectric resonator coupled to a microstrip line printed on alumina substrate is studied. Results of measured and calculated resonant frequencies are provided, confirming the validity of the novel numerical technique.

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