

Abstracts

Fast Finite-Difference Time-Domain Analysis of Resonators Using Digital Filtering and Spectrum Estimation Techniques

Z. Bi, Y. Shen, K. Wu and J. Litva. "Fast Finite-Difference Time-Domain Analysis of Resonators Using Digital Filtering and Spectrum Estimation Techniques." 1992 *Transactions on Microwave Theory and Techniques* 40.8 (Aug. 1992 [T-MTT]): 1611-1619.

In this paper we discuss the use of digital filtering and spectrum estimation techniques for improving the efficiency of the FD-TD algorithm in solving eigenvalue problems. The great improvement of the efficiency of the method is demonstrated by means of both numerical and measurement results. In addition, several improvements to the present FD-TD method for eigenvalue analysis are presented. These include the analysis of open dielectric resonators and the extraction of the resonant frequencies from the FD-TD results. The result for the open dielectric resonator analysis is validated using measured data.

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