Turkish Journal

of

Electrical Engineering & Computer Sciences

Keywords
Authors

elektrik@tubitak.gov.tr

Scientific Journals Home Page

Turkish Journal of Electrical Engineering & Computer Sciences

Comparison of Rectangular and Cylindrical FDTD representations on a Ring Resonator Problem

Funda AKLEMAN[1], Levent SEVGİ[2]
[1]İstanbul Technical University,
Electronics and Communication Engineering Department,
Maslak, 34469 İstanbul-TURKEY
e-mail: akleman@itu.edu.tr
[2]Doğuş University, Electronics and Communication Engineering Department,
Zeamet Sok. No. 21,
Acıbadem 34722 İstanbul-TURKEY
e-mail: lsevgi@itu.edu.tr

Abstract: The aim of this paper is to discuss rectangular and cylindrical representations of finite-difference time-domain (FDTD) method over characteristic tests and comparisons. A ring resonator is chosen as a canonical structure and modeled with both rectangular- and cylindrical-FDTD packages. Calibration against analytical exact solution derived in terms of cylindrical Bessel functions is also performed. It is shown that rectangular-FDTD with periodic boundary condition, where the computation domain is reduced, can also be applied in modeling circular structures.

Turk. J. Elec. Eng. & Comp. Sci., **16**, (2008), 87-94.
Full text: pdf
Other articles published in the same issue: Turk. J. Elec. Eng. & Comp. Sci.,vol.16,iss.1.