Abstracts

Axisymmetric Edge-Based Finite Element Formulation for Bodies of Revolution: Application to Dielectric Resonators

M.F. Wong, M. Prak and V.F. Hanna. "Axisymmetric Edge-Based Finite Element Formulation for Bodies of Revolution: Application to Dielectric Resonators." 1995 MTT-S International Microwave Symposium Digest 95.1 (1995 Vol. I [MWSYM]): 285-288.

This paper stresses on the treatment of bodies of revolution by the finite element method (FEM) with edge elements. It clearly states an inherent difficulty on the axis of rotation specially when considering the first azimuthal mode. We propose a formulation which is not a straightforward application of standard edge elements in FEM. It takes explicitly into account a not very well known axis condition with the help of an axisymmetrical-designed edge element. Results on dielectric resonators are given and compared to measurement and to calculations from a 3D edge-based FEM code.

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