Abstracts

Electromagnetic Modeling of Waveguides Involving Finite-Size Dielectric Regions (Short Papers)

B.J. Rubin. "Electromagnetic Modeling of Waveguides Involving Finite-Size Dielectric Regions (Short Papers)." 1990 Transactions on Microwave Theory and Techniques 38.6 (Jun. 1990 [T-MTT]): 807-812.

A moment method is presented for handling arbitrarily shaped 2-D and 3-D waveguides that involve conductors, finite-size dielectric regions, or both. A novel procedure for modeling the dielectric allows 2-D rooftop functions to represent both the 3-D polarization current in the dielectric and the surface current on the conductors, and precludes the presence of fictitious charge within the dielectric. Examples include coaxial, microstrip, and dielectric waveguides. Numerical convergence, consistency with physical principles, and agreement with the literature are demonstrated.

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