Abstracts

Boundary Elements and Analytic Expansions Applied to H-Plane Waveguide Junctions

J. Abdulnour and L. Marchildon. "Boundary Elements and Analytic Expansions Applied to H-Plane Waveguide Junctions." 1994 Transactions on Microwave Theory and Techniques 42.6 (Jun. 1994 [T-MTT]): 1038-1045.

We propose a method to calculate field distribution and S-parameters in a planar n-port junction with rectangular waveguides. We use boundary elements on metallic walls, combined with modal expansion in waveguides and analytic representations for the field in dielectric samples or ferrites. Our approach uses fewer nodal points than either the finite-element or the boundary-element method. It is applicable to an H-plane junction with quite arbitrary geometry. The junction may contain several homogeneous or piecewise homogeneous circular cylindrical dielectric samples or ferrites, or samples with more general shape if a simple analyticity condition is met.

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