# Abstracts

## Simplified Mode-Matching Techniques for the Analysis of Coaxial-Cavity-Coupled Radial E-Plane Power Dividers

*M.E. Bialkowski, J. Bornemann, V.P. Waris and P.W. Davis. "Simplified Mode-Matching Techniques for the Analysis of Coaxial-Cavity-Coupled Radial E-Plane Power Dividers." 1995 Transactions on Microwave Theory and Techniques 43.8 (Aug. 1995 [T-MTT]): 1875-1880.*

Two simplified mode-matching techniques for the numerical analysis of nonsymmetric waveguide E-plane radial N-ports are presented. The first model, which utilizes cartesian and cylindrical coordinate systems for interfacing rectangular waveguides to a coaxial cavity, shows excellent agreement between measurements and computer-intensive finite-element calculations. The second technique, which is based on rectangular coordinates only and thereby neglects the curvature of the coaxial cavity, achieves agreement only for transmission coefficients if the inner radius of the coaxial cavity is sufficiently large. The software for both models are operational on personal computers and require only seconds for a complete analysis. Examples are presented for a Ku-band E-plane six-port and a W-band E-plane ratrace ring. Some additional investigations on the ratrace configuration demonstrate the applicability of the models with respect to reliable component design.

❑ Return to main document.