Abstracts

The use of symmetry to simplify the mixed-potential integral-equation method with application to N-way radial power dividers/combiners with isolation resistors

Yung-Jinn Chen, Yi-Hsin Pang and Ruey-Beei Wu. "The use of symmetry to simplify the mixed-potential integral-equation method with application to N-way radial power dividers/combiners with isolation resistors." 1999 Transactions on Microwave Theory and Techniques 47.9 (Sep. 1999, Part I [T-MTT]): 1609-1616.

This paper presents a full-wave analysis for the scattering characteristics of N-way radial power combiners, especially the matching and isolation among the output ports. The analysis hybridizes the mixed-potential integral-equation (MPIE) formulation with the idea of discrete Fourier transform (DFT) to extract the scattering parameters accurately and efficiently. The technique is also generalized to analyze the power combiners in which the lumped-resistor elements are included to improve port isolation. The resultant additional equations necessary to accommodate the lumped elements into the hybrid DFT-MPIE technique are derived. Examples demonstrating the numerical efficiency and accuracy of the technique are given. The computed results are found to be in good agreement with the measured data.

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