Abstracts

Accurate Modeling of Axisymmetric Two-Port Junctions in Coaxial Lines Using the Finite Element Method (Short Papers)

W.R. Scott, Jr.. "Accurate Modeling of Axisymmetric Two-Port Junctions in Coaxial Lines Using the Finite Element Method (Short Papers)." 1992 Transactions on Microwave Theory and Techniques 40.8 (Aug. 1992 [T-MTT]): 1712-1716.

A technique is developed for analyzing axisymmetric two-port junctions (axisymmetric discontinuities) in coaxial lines using the finite element method. Boundary conditions are developed for the input and output ports that absorb the reflected and transmitted waves while injecting the incident wave. The use of higher order elements is shown to greatly improve the accuracy, i.e., the accuracy increases rapidly with the order of the elements even when the number of nodes is kept roughly constant. The accuracy of the technique is verified by comparison with the theoretical and experimental results of other investigators for three discontinuities, and the agreement is shown to be excellent.

❑ Return to main document.