Abstracts

General Field Theory Treatment of E-Plane Waveguide Junction Circulators--Part I: Full-Height Ferrite Configuration

M.E. El-Shandwily, A.A. Kamal and E.A.F. Abdallah. "General Field Theory Treatment of E-Plane Waveguide Junction Circulators--Part I: Full-Height Ferrite Configuration." 1977 Transactions on Microwave Theory and Techniques 25.9 (Sep. 1977 [T-MTT]): 784-793.

In this paper an exact field theory treatment for the N-port E-plane full-height ferrite rod junction circulators is presented. Field expressions are written in each region of the junction in the form of infinite modes. Matching of the fields at the common boundaries is used to get a set of infinite nonhomogeneous equations in these mode amplitudes. The point matching technique is used to obtain an approximate solution for the field amplitudes by taking a finite number of modes in each region. Three types of junctions have been analyzed by this technique. These junctions are the symmetrical Y junction and two types of T junctions. Experimental measurements have been carried out to verify the obtained numerical results.

❑ Return to main document.