Abstracts

Waveguide and Stripline 4-Port Single-Junction Circulators (Short Papers)

J. Helszajn. "Waveguide and Stripline 4-Port Single-Junction Circulators (Short Papers)." 1973 Transactions on Microwave Theory and Techniques 21.10 (Oct. 1973 [T-MTT]): 630-633.

The modal and eigenvalue approaches of 4-port single-junction circulators are combined to describe the theory and construction of a waveguide device and a stripline device. The three independent variables used in the case of the waveguide one are a pair of HE/sub ±1,1,1/ open dielectric resonances in a demagnetized ferrite disk, a TM/sub 0,1,1/ resonance on a metal post, and the magnitude of a direct field to remove the degeneracy between the HE/sub ±1,1,1/ modes. The eigenvalue approach is used to establish systematically each condition one at a time. The variables used in the construction of the stripline junction are a pair of radial n = ±3 degenerate resonances, a radial n = 0 resonance, and the amplitude of a direct field to split the degeneracy between the former modes. In this case a circulation condition is found in which it is possible to omit one of the circulation adjustments.

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