Abstracts

Theory and Operation of a Reciprocal Faraday-Rotation Phase Shifter

W.E. Hord, F.J. Rosenbaum and J.A. Benet. "Theory and Operation of a Reciprocal Faraday-Rotation Phase Shifter." 1972 Transactions on Microwave Theory and Techniques 20.2 (Feb. 1972 [T-MTT]): 112-119.

The operation of a longitudinally magnetized fully filled square-waveguide reciprocal-ferrite phase shifter is described. The frequency characteristics of the phase shifter are predicted and measured. An error analysis, including rotational errors incurred in wide-band operation and manufacturing tolerances, is used to predict the loss performance of the device. The effect of the ferrite parameters and the waveguide geometry on phase-shifter performance may be calculated using this analysis. The variation of the phase shift with temperature as well as high-power effects are presented, and design considerations, including choice of ferrite saturation magnetization for wide-band performance, are discussed. Experimental results closely confirm the key aspects of this theory.

❑ Return to main document.