Abstracts

The Adjustment of the m-Port Single-Junction Circulator

J. Helszajn. "The Adjustment of the m-Port Single-Junction Circulator." 1970 Transactions on Microwave Theory and Techniques 18.10 (Oct. 1970 [T-MTT]): 705-711.

The purpose of this paper is to present a systematic procedure for the adjustment of the m-port single-junction circulator in terms of the scattering-matrix eigenvalues of the junction. The theory used starts by defining the initial location of the scattering-matrix eigenvalues before any adjustment to the junction is made and also by defining the eigenvalue arrangement of an ideal circulator. The initial set of eigenvalues is then perturbed in a systematic way by adjusting the phases of (m-1) of the eigenvalues one at a time until the final set of eigenvalues is obtained. This procedure leads to (m-1) distinct scattering matrices which can be obtained with (m-1) symmetric perturbations of the junction. This approach also leads to (m-1) distinct boundary-value problems each involving one independent variable instead of the more usual single-boundary problem involving (m-1) independent variables.

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