

Abstracts

The Measurement of the Equivalent Admittance of 3-Port Circulators Via an Automated Measurement System (Short Papers)

G.P. Riblet. "The Measurement of the Equivalent Admittance of 3-Port Circulators Via an Automated Measurement System (Short Papers)." 1977 Transactions on Microwave Theory and Techniques 25.5 (May 1977 [T-MTT]): 401-405.

A derivation of the equivalent admittance of symmetrical 3-port circulators is given which is based on the requirement that the S-matrix eigenvalues be separated by $120/\text{deg}$ on the unit circle for perfect circulation. This quantity has the property that if a 2-port matching network is found which matches into this admittance, then the same matching network connected in each circulator arm will match the circulator. It was used in conjunction with a computerized measurement system to determine the optimal single-step transformer matching of a stripline 3.7-4.2-GHz circulator and resulted in a device with performance better than 30 dB over this band.

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