

# Abstracts

## The Phase Shift Through Symmetrical 3-Port Circulators (Short Papers)

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G. Riblet. "The Phase Shift Through Symmetrical 3-Port Circulators (Short Papers)." 1975 *Transactions on Microwave Theory and Techniques* 23.5 (May 1975 [T-MTT]): 446-449.

Simple approximate formulas are derived for the phase shift through matched circulators---with and without transformer coupling---using expressions for the eigenadmittances  $Y_{00}$ ,  $Y_{-11}$ , and  $Y_{11}$  which have recently been proposed. These formulas allow one to predict the phase shift from measurements of the VSWR in one case and from a knowledge of the transformer admittance  $Y$  in the second. They have been confirmed experimentally for strip-line circulators and indicate that in this respect circulators behave like electrically long transmission devices.

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