

Abstracts

The Synthesis of N-Port Circulators (Nov. 1962 [T-MTT])

B.L. Humphreys and J.B. Davies. "The Synthesis of N-Port Circulators (Nov. 1962 [T-MTT])." 1962 Transactions on Microwave Theory and Techniques 10.6 (Nov. 1962 [T-MTT]): 551-554.

It is shown that there is a certain wide class of three-port network that can be transformed into a circulator by the addition of reactive elements. For such synthesis from a symmetrical three-port junction it is necessary and sufficient for it to be loss-free and for the moduli of the two transmission coefficients to be different. This approach may be used in the design of broad-band circulators. For junctions approximating to an n-port circulator with $n > 3$, it is shown that when the n reflection coefficients are matched by reactive networks in each arm, n particular transmission coefficients also vanish.

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