Abstracts

Measurement of an Invariant in Directional Couplers

I. Awai, A. Takasugi, M. Hano and R. Kitoh. "Measurement of an Invariant in Directional Couplers." 1993 Microwave and Guided Wave Letters 3.4 (Apr. 1993 [MGWL]): 101-103.

It is studied how to measure an invariant of lossless four-port circuits with a reflection symmetry which result in directional couplers. The invariant K determines the isolation port as well as the coupling port with the amount of coupling, and thus the way of coupling is classified into three types corresponding to the cases K <= -1, -1 < K <= 1, and K > 1. The value of invariant is easily calculated from S-parameters commonly obtained by a vector network analyzer in the microwave frequency band. It can be used for predicting the transmission characteristics of a directional coupler without building the matching circuits.

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