Abstracts

A New Analytic Design Technique for Two-and Three-Way Warped Mode Combline Directional Couplers

S. Islam. "A New Analytic Design Technique for Two-and Three-Way Warped Mode Combline Directional Couplers." 1989 Transactions on Microwave Theory and Techniques 37.1 (Jan. 1989 [T-MTT]): 34-42.

An analytic technique of designing ultra-wide-band warped-mode two-way and three-way microwave directional couplers is presented. With this matrix method it is possible to design couplers for any level of coupling by choosing a warping angle appropriate to the desired output amplitudes. The design technique involves obtaining a "wave propagation" matrix in analytical form as a function of the "taper parameter", which in turn is a function of distance along the coupler length. The line parameters and the forward scattering matrix are then determined from the wave propagation matrix at any distance from the beginning of the coupler. The method is demonstrated here for couplers using microstrip coupled comblines. The computed and the measured performance of a two-way and a three-way microstrip combline coupler are presented for equal power splitting. These couplers were found to work between 1.5 and 8.5 GHz.

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