Abstracts

Effect of Transition Waveguides on Dielectric Waveguide Directional Couplers

S. Xu, S.T. Peng and F.K. Schwering. "Effect of Transition Waveguides on Dielectric Waveguide Directional Couplers." 1989 Transactions on Microwave Theory and Techniques 37.4 (Apr. 1989 [T-MTT]): 686-690.

The coupling of energy between two curved dielectric waveguides is investigated by the staircase approximation method, which combines the building block approach of multimode network theory with a rigorous mode-matching procedure. Particular attention is directed toward two major effects of transition waveguides on the performance of directional couplers composed of dielectric waveguides one is the change in the coupling length, the other is the radiation loss. The coupling problem is analyzed in terms of the scattering of an incident guided mode by the coupler structure as a whole. Numerical results are given to illustrate the coupling characteristics of various structures and to establish useful guidelines for the design of directional couplers.

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