Abstracts

Analysis of a Centered-Inclined Waveguide Slot Coupler

S.R. Rengarajan. "Analysis of a Centered-Inclined Waveguide Slot Coupler." 1989 Transactions on Microwave Theory and Techniques 37.5 (May 1989 [T-MTT]): 884-889.

A rigorous analysis of a centered-inclined broad wall slot coupler between two crossed rectangular waveguides is presented. Pertinent integral equations are developed, taking into account finite wall thickness. The integral equations are then solved for the slot aperture E field using the method of moments. Coupling slot characteristics are deduced, including resonant length and dominant mode scattering in both waveguides. Numerical results for resonant length and scattering parameters are presented over a range of tilt angles, frequencies, and waveguide dimensions. These results have significant application in the design of waveguide-fed slot arrays.

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