Abstracts

Characteristics of a Longitudinal/Transverse Coupling Slot in Crossed Rectangular Waveguides

S.R. Rengarajan. "Characteristics of a Longitudinal/Transverse Coupling Slot in Crossed Rectangular Waveguides." 1989 Transactions on Microwave Theory and Techniques 37.8 (Aug. 1989 [T-MTT]): 1171-1177.

A rigorous analysis of a broad wall slot coupler between two crossed rectangular waveguides is presented. The slot is longitudinal and offset from the center line in the main guide and is centered transverse in the branch guide. Pertinent integral equations are developed, taking into account finite wall thickness. The integral equations are then solved for the aperture electric field. Coupling slot characteristics are obtained, including the resonant length and dominant mode scattering. Numerical results for resonant length and scattering parameters are presented over a range of offsets, waveguide dimensions, and frequencies.

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