Abstracts

A full-wave electromagnetic model for the waveguide-to-strip-line coupler using vias for confinement of parallel-plate modes

A. Ostergaard. "A full-wave electromagnetic model for the waveguide-to-strip-line coupler using vias for confinement of parallel-plate modes." 2000 Transactions on Microwave Theory and Techniques 48.2 (Feb. 2000 [T-MTT] (Mini-Special Issue on Research Reported at the 1999 Radio Frequency Integrated Circuits (RFIC) Symposium)): 226-238.

This paper presents a practical waveguide-to-strip-line coupler. An accurate integral-equation model satisfying all boundary conditions for the electromagnetic fields and all edge conditions for the currents are described. The integral equations are solved using the method of moments. An experimental -5-dB coupler has been built. Measured and computed scattering parameters are in excellent agreement. The waveguide-to-strip-line coupling terms agree within 0.1 dB at the resonance frequency. The discussion and the presented data provides physical insight to the operation of the coupler itself.

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