Abstracts

A new systematic and efficient method of analysis for conductor-backed coplanar-waveguide directional couplers

C.H. Wu and S. Uysal. "A new systematic and efficient method of analysis for conductor-backed coplanar-waveguide directional couplers." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part I [T-MTT]): 1127-1131.

This paper presents a set of newly developed computer-aided-design-oriented formulas for the evaluation of the quasi-static even- and odd-mode characteristics of conductor-backed coplanar-waveguide (CBCPW) coupled lines. This set of expressions is evaluated using a conformal mapping method based on the assumption of pure transverse-electromagnetic propagation. The result for the odd- and even-mode characteristic impedance and effective dielectric constants computed by these formulas agrees well with the result evaluated from the existing formulas of both Wadell (1991) and Hanna (1985). However, the new expressions derived provide a more systematic and efficient method for calculating the essential parameters of CBCPW coupled lines as compared to the existing ones.

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