Abstracts

Accurate Analysis of Tapered Planar Transmission Lines for Microwave Integrated Circuits

D. Mirshekar-Syahkal and J.B. Davies. "Accurate Analysis of Tapered Planar Transmission Lines for Microwave Integrated Circuits." 1981 Transactions on Microwave Theory and Techniques 29.2 (Feb. 1981 [T-MTT]): 123-128.

A broad class of nonuniform transmission lines is analyzed through the method of coupled modes accompanied by the spectral domain solution of uniform lines. This combination offers efficient computation of the coupling coefficients. Small coupling allows the rigorous field theory of the spectral domain approach to give explicitly the scattering matrix of the taper. Several structures, including microstrip to coplanar waveguide taper and waveguide to fin-line taper, are successfully analyzed. The computed values of reflection coefficients are compared with the values derived by a simple impedance method and with the measured values. Results from the experimentally investigated tapers show that the theory is in good agreement.

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