Abstracts

Accurate Analysis of Coupled Strip-Finline Structure for Phase Constant, Characteristic Impedance, Dielectric and Conductor Losses

D. Mirshekar-Syahkal and J.B. Davies. "Accurate Analysis of Coupled Strip-Finline Structure for Phase Constant, Characteristic Impedance, Dielectric and Conductor Losses." 1982 Transactions on Microwave Theory and Techniques 30.6 (Jun. 1982 [T-MTT]): 906-910.

Propagation constant, characteristic impedance, dielectric loss, and conductor loss of coupled strip-unilateral finline is here computed for the first time. The technique of analysis is based on the assumption of hybrid wave propagation implemented through the spectral domain approach for the phase constant. A perturbation method together with the spectral analysis has been applied to find the losses. The basis functions used to approximate fields within unilateral finline gap and currents on the strip have been selected as Legendre polynomials for the unbounded field or current and trigonometric functions for bounded field or current. The Green's function matrix in the spectral domain for the two distinct planes of the coupled strip-unilateral finline has also been presented. This gives the opportunity for direct implementation in the analysis of other similar structures. The possibility of the extension of the technique to shielded stratified dielectric with distributed planar conductor within different layers has been also discussed.

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