

A New Technique for the Quasi-TEM Analysis of Conductor-Backed Coplanar Waveguide Structures

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Numerically efficient and accurate formulae based on the spectral domain method for the analysis of conductor-backed coplanar waveguide structures are presented. Quasi-TEM parameters are obtained for these waveguide structures by using piecewise linear functions to approximate the potential distribution at the air-dielectric interface. Techniques such as nonuniform discretization and bound estimation are described which demonstrate shorter computational times. Results on the characteristic impedance calculation of standard coplanar waveguide are given to demonstrate the numerical accuracy and efficiency of the method presented here.

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