Abstracts

Characterization of Non-Symmetric Coplanar Waveguide Discontinuities

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A general technique to characterize non-symmetric coplanar waveguide (CPW) discontinuities with air-bridges, where both the fundamental coplanar and slotline modes may be excited together, is presented. First, the CPW discontinuity without air-bridges is analyzed using the Space Domain Integral Equation method. Second, the parameters (phase, amplitude and wavelength) of the coplanar and slotline modes are extracted from an amplitude modulated-like standing wave existing in the CPW feeding lines. Then, a 2n x 2n Generalized Scattering matrix of the discontinuity without air-bridges is derived which includes the occurring mode conversion. Finally, this Generalized Scattering matrix is reduced to an n x n one by enforcing suitable conditions at the ports which correspond to the excited slotline mode. For the purpose of illustration, the method is applied to a shielded non-symmetric short-end shunt CPW stub whose scattering parameters are also compared with those of a symmetric one.

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