Abstracts

Characterization of a Shielded Transition to a Dielectric Waveguide

A.G. Engel, Jr., N.I. Dib and L.P.B. Katehi. "Characterization of a Shielded Transition to a Dielectric Waveguide." 1994 Transactions on Microwave Theory and Techniques 42.5 (May 1994 [T-MTT]): 847-854.

A shielded sub-mm/THz monolithic transition between a layered dielectric waveguide and a strip-ridge line is characterized using two different approaches: the integral equation-mode matching (IEMM) method and the finite difference time domain (FDTD) technique. While higher order modes are considered, a simple method for determining the transition's circuit model (i.e., two-port scattering matrix) from the IEMM results is implemented and the electrical performance is studied as frequency and conductor width are varied. The FDTD analysis gives further insight into the behavior of the transition in a very wide frequency range (0-540 GHz). The transition is found to be very efficient over a wide frequency band and a broad range of conductor widths.

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