Abstracts

Hybrid Modes, Substrate Leakage, and Losses of Slotline at Millimeter-Wave Frequencies

T. Rozzi, F. Moglie, A. Morini, E. Marchionna and M. Politi. "Hybrid Modes, Substrate Leakage, and Losses of Slotline at Millimeter-Wave Frequencies." 1990 Transactions on Microwave Theory and Techniques 38.8 (Aug. 1990 [T-MTT]): 1069-1078.

This contribution deals with guided, hybrid propagation in slotline at microwave and millimeter-wave frequencies. The analysis is carried out rigorously in the space domain involving the variational solution of a singular integral equation for an E field tangential to the slot. Data are obtained for field distributions, dispersion, and characteristic impedance and are compared with data available in the literature. For the first time, we report results on power lost by the propagation mode in the conductors and in the dielectric substrate. Moreover, the analysis highlights the onset of leakage into a sufficiently thick substrate due the excitation of a TM surface wave. This sets a high-frequency limit for lossless operation.

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