Abstracts

Leakage Characteristics of Groove Guide Having a Conductor Strip

Z. Ma and E. Yamashita. "Leakage Characteristics of Groove Guide Having a Conductor Strip." 1994 Transactions on Microwave Theory and Techniques 42.10 (Oct. 1994 [T-MTT]): 1925-1931.

A full-wave characterization of the groove guide having a conductor strip is made based on the mode-matching procedure. All of the constituents of the structure, including a coupling strip, grooves and a radiating open end, are treated in a concise and rigorous way by using the generalized scattering matrix technique. Numerical results show that a set of channel guide leaky modes is also present in this structure in addition to the groove guide leaky mode. The complex propagation behaviors of both the groove guide leaky mode and the channel guide leaky mode are illustrated for various waveguide geometric parameters, and some conclusions regarding the design of leaky wave antennas using this structure are drawn.

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