

## Leaky properties of microstrip above a perforated ground plane

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*Kuo-Cheng Chen, C.-K.C. Tzuang, Yongxi Qian and T. Itoh. "Leaky properties of microstrip above a perforated ground plane." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. 1 [MWSYM]): 69-72 vol. 1.*

A leaky line is proposed. The leaky line emits leaky wave by feeding the bound mode that is not supposed to leak. The proposed guiding structure consists of a microstrip above a perforated ground plane with etched holes positioned anti-symmetrically. A prototype is built and tested to verify the concept. The two-port scattering parameters of the leaky line employing the well-known full-wave integral equation method agree well with the measured data. The investigation of RPA (relative power absorbed) and  $G_{\text{sub A,max}}$  (maximum available power gain) of the prototype points to a substantial excitation of the  $\text{EH}_{\text{sub 1}}$  leaky mode, over 50% leakage of input energy for the 72 mm long prototype at 6.5 GHz.

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