Abstracts

The Effect of Substrate Anisotropy on the Dominant-Mode Leakage from Stripline with an Air Gap (Dec. 1995, Part II [T-MTT])

D. Nghiem, J.T. Williams, D.R. Jackson and A.A. Oliner. "The Effect of Substrate Anisotropy on the Dominant-Mode Leakage from Stripline with an Air Gap (Dec. 1995, Part II [T-MTT])." 1995 Transactions on Microwave Theory and Techniques 43.12 (Dec. 1995, Part II [T-MTT] (1995 Symposium Issue)): 2830-2837.

The fundamental properties of dominant leaky modes that exist on stripline structures having a small air gap above the conducting strip and uniaxial anisotropic substrates are investigated. These dominant leaky modes are modes that have a quasi-TEM strip current and are often strongly excited by conventional stripline feeds. The leakage occurs into the TM/sub 0/ parallel-plate mode of the background structure and results in undesirable crosstalk and spurious stripline performance. The properties of the leaky modes are examined for substrates that are either positive or negative uniaxial, and new physical effects introduced by the substrate anisotropy are discussed. The effects of replacing the air gap above the strip with an isotropic or uniaxial anisotropic bonding film are also discussed, and it is shown that the leakage may be eliminated by a proper choice of bonding film material, depending on the type of substrate anisotropy.

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