Abstracts

Hybrid-mode computation of propagation and attenuation characteristics of parallel coupled microstrips with finite metallization thickness

Jen-Tsai Kuo and T. Itoh. "Hybrid-mode computation of propagation and attenuation characteristics of parallel coupled microstrips with finite metallization thickness." 1997 Transactions on Microwave Theory and Techniques 45.2 (Feb. 1997 [T-MTT]): 274-280.

The hybrid-mode mixed spectral domain approach (MSDA) is formulated to investigate the dispersion nature of multiple coupled microstrip lines with arbitrary metallization thickness. Incorporated into the solution procedure, a new set of basis functions with /spl delta//sup -1/3/ field singularity near conductor edges is found to be effective in calculating both the phase and attenuation constants. The computation of conductor loss is based on the perturbation procedure. Over a broad band of frequency spectrum, excellent agreement is obtained between the calculated results and existing experiment data for the metallic losses of a single microstrip and effective dielectric constants of coupled lines. The influence of finite metallization thickness on the frequency dependent modal propagation and attenuation characteristics is presented for both a three-line and four-line structure.

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