Abstracts

Full-Wave Analysis of Multiple Lossy Microstrip Lines on Multilayered Bi-Anisotropic Substrates and Imperfect Ground Metallization

Z. Cai and J. Bornemann. "Full-Wave Analysis of Multiple Lossy Microstrip Lines on Multilayered Bi-Anisotropic Substrates and Imperfect Ground Metallization." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 927-930.

An extended spectral-domain immittance approach is used to analyze multiconductor systems on layered bi-anisotropic substrates. Apart from the losses of the bi-anisotropic layers, the method takes into account the metallization thickness and losses of both the ground metallization and the multi-conductor system which can consist of conventional or high-Tc superconductors. It is demonstrated that due to the order, permittivity and anisotropy of substrate layers, the propagation characteristics of a multi-conductor system can be influenced to obtain a frequency range of almost identical complex propagation constants for all fundamental modes involved. Such a behavior can be advantageously utilized in future applications of high-speed interconnects and high-directivity couplers. Since the algorithm is CPU-time efficient and operational on modern workstations, the developed model offers an attractive solution for modern MMIC design purposes. At the example of a coupled pair of microstrip lines on anisotropic substrate, results are compared with previously published data and are found to be in excellent agreement.

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