

Abstracts

Transient Analysis of Lossless Coupled Transmission Lines in a Nonhomogeneous Dielectric Medium (Sep. 1970 [T-MTT])

F.-Y. Chang. "Transient Analysis of Lossless Coupled Transmission Lines in a Nonhomogeneous Dielectric Medium (Sep. 1970 [T-MTT])." 1970 Transactions on Microwave Theory and Techniques 18.9 (Sep. 1970 [T-MTT]): 616-626.

An effective method for computing the transient response of an n-conductor transmission line system, which is characterized by multiple propagation modes of unequal phase velocities, is presented. To derive the computational algorithm, an equivalent circuit consisting of n decoupled transmission lines in conjunction with two congruence transformers was constructed and converted into two disjointed resistive n-ports. It is shown that the electrical behavior of the coupled transmission lines can be completely described in terms of the static capacitance matrices of the conductor system. The experimental results obtained on a three-conductor microstrip-printed circuit were found to be in excellent agreement with the computed results.

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