

Abstracts

Transient Analysis of Lossless Coupled Transmission Lines in a Non-Homogeneous Dielectric Medium (1970 [MWSYM])

F.Y. Chang. "Transient Analysis of Lossless Coupled Transmission Lines in a Non-Homogeneous Dielectric Medium (1970 [MWSYM])." 1970 G-MTT International Microwave Symposium Digest of Technical Papers 70.1 (1970 [MWSYM]): 262-267.

This paper presents an effective method for computing the transient response of an n-conductor, coupled transmission-line system, which is characterized by multiple propagation modes of unequal phase velocities. 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 by the static capacitance matrices of the conductor system. The experimental result obtained on a three-conductor, microstrip printed circuit was found to be in excellent agreement with the computed result.

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