Abstracts

Coupled Transmission Line Networks in an Inhomogeneous Dielectric Medium (Oct. 1969 [T-MTT])

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In this paper, two-port networks composed of two identical, coupled transmission lines embedded in an inhomogeneous dielectric (e.g., suspended substrate, microstrip) are investigated. The ABCD parameters of circuit configurations, considered by Jones and Bolljahn, are obtained for the case of inhomogeneous dielectilc. Equivalent circuits of these networks are also given. It is shown that the characteristics of such circuits differ markedly from those embedded in a homogeneous medium. In addition, experimental results are presented for three types of circuits which have been constructed and tested. There is excellent agreement between the experimental results and those predicted theoretically on the basis of the equivalent circuits.

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