Abstracts

Constant-Frequency Synthesis of Lossy Microwave Two-Ports (Short Papers)

L.R.G. Versfeld. "Constant-Frequency Synthesis of Lossy Microwave Two-Ports (Short Papers)." 1985 Transactions on Microwave Theory and Techniques 33.8 (Aug. 1985 [T-MTT]): 736-738.

At a fixed frequency, every linear time-invariant two-port can be described by its scattering matrix, whose elements represent eight real parameters. In this paper, it is proved that every lossy (linear, time-invariant) two-port can be canonically synthesized by eight "elementary" two-ports, which are characterized by one parameter only. Moreover, these elementary two-ports are passive and realizable in the microwave region. The synthesis is performed in the form of a cascade structure (with one "side arm" for the nonreciprocal case). Explicit formulas for the parameters of the elementary two-ports are derived.

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