Abstracts

Coupled Nonuniform Transmission Line and its Applications

Theory and applications of coupled nonuniform transmission lines are described. Matrix representations of a general coupled nonuniform transmission line are presented, by means of which the behavior of any coupled nonuniform transmission line maybe completely described. Among a wide variety of applications of coupled nonuniform transmission lines, two typical networks, one the coupled nonuniform transmission-line folded all-pass network and the other the coupled nonuniform transmission-line directional coupler, are treated in detail. Equivalent circuit representatious of these two networks are presented, which enable the designer to synthesize them in a greatly simplified manner by making use of the theories now available for more conventional single nonuniform transmission lines. In addition, the properties of these two networks using coupled exponential line are investigated. Design procedure is also given for asymmetrical coupled exponential-line directional couplers having excellent characteristics.

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