Abstracts

New Equivalent Circuits for Inhomogeneous Coupled Lines with Synthesis Applications

R. Levy. "New Equivalent Circuits for Inhomogeneous Coupled Lines with Synthesis Applications." 1988 Transactions on Microwave Theory and Techniques 36.6 (Jun. 1988 [T-MTT]): 1087-1094.

Previously published equivalent circuit representations of parallel-coupled lines in an inhomogeneous medium by Zysman and Johnson are very complicated, and quite unsuitable for application in distributed filter synthesis. This defect was remedied in a previous (1984) conference paper by resynthesizing the circuits in a new and physically meaningful form. The theory is now extended to give an approximate but highly accurate synthesis of a 3:1 bandwidth inhomogeneous distributed high-pass filter realized in suspended substrate stripline. The new procedure is almost purely analytic, and computer-aided design is required only for fine tuning adjustments. Theoretical feasibility of designing such filters for upper pass bandwidths of greater than 8:1 is demonstrated.

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