Abstracts

Lumped Element Equivalent Circuit Parameter Extraction of Distributed Microwave Circuits via TLM Simulation

P. Russer, M. Righi, C. Eswarappa and W.J.R. Hoefer. "Lumped Element Equivalent Circuit Parameter Extraction of Distributed Microwave Circuits via TLM Simulation." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 887-890.

A method for generation of lumped element equivalent circuits and the corresponding systems of ordinary differential equations for distributed microwave circuits is presented. Starting with a TLM analysis of a distributed multiport circuit the impulse response functions for reflection and transmission between the ports are computed. After Laplace-transforming the impulse functions numerically the poles are extracted within a specified domain of the complex frequency plane. From these poles canonical equivalent circuits representing the branches of the lumped element equivalent circuit are derived directly. By this way the topology as well as the parameters of the lumped element equivalent circuit are determined. The method is demonstrated in modeling of distributed one-port and multiport circuits.

❑ Return to main document.