Abstracts

General Purpose Programs for the Frequency Domain Analysis of Microwave Circuits

P.E. Green. "General Purpose Programs for the Frequency Domain Analysis of Microwave Circuits." 1969 Transactions on Microwave Theory and Techniques 17.8 (Aug. 1969 [T-MTT] (Special Issue on Computer-Oriented Microwave Practices)): 506-514.

This paper describes microwave circuit analysis programs techniques for general purpose which perform frequency domain analyses. Differing techniques used in two programs are described. The first uses transfer matrix analysis and is limited to networks having tree structured topologies and two-port devices such as transmission lines, stubs and lumped elements. It runs on a time-shared computer and is used for interactive design. The second program can analyze any linear network including those with multiport elements such as coupled transmission lines. This uses a nodal representation for the circuit and relies on inverting an admittance matrix to perform the analysis. In the first program the user describes his circuit in terms of topology as well as circuit elements. By this technique, a considerable reduction in computer size needed to run this program is effected. A 60 element circuit can be run on a commercial time-sharing service with less than 6K words of available core. The second program requires a large computer; for example, 32K words or core storage are required to analyze a 50 node circuit.

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