

On the Calibration Process of Automatic Network Analyzer Systems (Short Papers)

S. Rehnmark. "On the Calibration Process of Automatic Network Analyzer Systems (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.4 (Apr. 1974 [T-MTT]): 457-458.

Formulas are presented for the direct calculation of the scattering parameters of a linear two-port, when it is measured by an imperfect network analyzer. Depending on the hardware configuration of the test set, the measurement system is represented by one of two flowgraph models. In both models presented, leakage paths are included. The error parameters, i.e., the scattering parameters of the measuring system, are six respective ten complex numbers for each frequency of interest. A calibration procedure, where measurements are made on standards, will determine the error parameters. One of many possible calibration procedures is briefly described. By using explicit formulas instead of iterative methods, the computing time for the correction of the scattering parameters of the unknown two-port is significantly reduced. The addition of leakage paths will only have a minor effect on computational complexity while measurement accuracy will increase.

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