Abstracts

A General Approach to Network Analyzer Calibration

K.J. Silvonen. "A General Approach to Network Analyzer Calibration." 1992 Transactions on Microwave Theory and Techniques 40.4 (Apr. 1992 [T-MTT]): 754-759.

A new general-purpose algorithm for network analyzer and test fixture calibration is presented. The TCX algorithm is able to handle most of the existing calibration methods including symmetrical test fixtures. Any combination of one-port or two-port standards can be used. There is a possibility of partial self-calibration, if one of the standards is a two-port network or a through connection. The algorithm is applied to get simple equations covering the TSD, LDX (LRL), LAX, and LMX methods (X being an unknown one-port or symmetrical two-port network). A transmission path is allowed between the ports of standard X. In the TSD method the delay line can be replaced with an attenuation network or with a matched load; also the "through" line can have an unknown delay and attenuation. A new method of root choice for LRL and similar methods in conjunction with test fixtures is described. The method of least-squares-fit can be applied, when redundant data are available. It gives an essential improvement of accuracy in the simulation of a symmetrical test fixture.

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