

Abstracts

A New Implementation of a Multiport Automatic Network Analyzer

A. Ferrero, U. Pisani and K.J. Kerwin. "A New Implementation of a Multiport Automatic Network Analyzer." 1992 Transactions on Microwave Theory and Techniques 40.11 (Nov. 1992 [T-MTT]): 2078-2085.

A generalized multiport network analyzer implemented using commercially available hardware is presented. Measurement calibration is accomplished through a novel calibration procedure which requires only conventional standards used for two-port calibrations. The calibration theory accounts for the errors due to the signal switching network but does not systematically remove errors due to signal leakage between port pairs. The approach is verified on a three-port test set implementation, and the measuring system can be expanded to n-ports with additional hardware in a straightforward manner. Experimental verification was carried out through measurement of one, two, and three ports devices connected to the test set ports in several different ways. Excellent agreement of the same corrected S-parameters measured at different test set ports was observed, and confidence in system accuracy is established through measurement of two-port verification standards.

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