Abstracts

LMR 16-a self-calibration procedure for a leaky network analyzer

K. Silvonen. "LMR 16-a self-calibration procedure for a leaky network analyzer." 1997 Transactions on Microwave Theory and Techniques 45.7 (Jul. 1997 [T-MTT]): 1041-1049.

A thru-match-reflect/line-match-reflect (TMR/LMR) self-calibration procedure based on the 16-term error model is shown. The error model takes into account all the leakage paths of a wafer prober, test fixture, and network analyzer. Simple closed-form calibration equations are presented. The method is very robust-zero leakage paths and symmetrical or matched-error networks can be handled equally well as more general cases. The algorithm is suitable for nonleaky network analyzers as well. The calibration is comprised of two-port measurement of the following standards: T(L), M-M, R-R, R-M, M-R. Two matched loads (M) are the only standards that have to be known in addition to the thru (T) or line (L). The reflection coefficient of the two identical reflection standards (R) is found in addition to the error parameters as in the normal TMR method. Experimental measurements with the LMR 16 have been made. All the possible combinations of five calibration standards for the 16-term error model are tabulated. The limitations of the super-thru-short-delay algorithm are defined for the first time.

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