Abstracts

An Impedance Transformation Method for Finding the Load Impedance of a Two-Port Network

R. Mittra and R.J. King. "An Impedance Transformation Method for Finding the Load Impedance of a Two-Port Network." 1962 Transactions on Microwave Theory and Techniques 10.1 (Jan. 1962 [T-MTT]): 13-19.

An unknown load impedance terminating a lossy two-port junction can be calculated if the input impedance and junction parameters are known. It is to be shown that there exists a linear relationship, dependent upon two calibration constants, between the input reflection coefficient and a modified reflection coefficient of the load. Applying the linear transformation to the junction input impedance permits evaluation of the unknown load impedance. Calibration is accomplished by terminating the transmission line in at least three different reactance and measuring the corresponding input reflection coefficients. These data plot into the usual circular configuration on a Smith chart from which the necessary calibration data is obtained. When several load reactances are used, the calibration accuracy can be considerably increased, since the averaging advantage of plotting a mean straight line is utilized. Furthermore, once the junction has been calibrated, its equivalent T-network impedances and scattering coefficients may be found.

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