Abstracts

A Least Squares Solution for Use in the Six-Port Measurement Technique (Dec. 1980 [T-MTT])

G.F. Engen. "A Least Squares Solution for Use in the Six-Port Measurement Technique (Dec. 1980 [T-MTT])." 1980 Transactions on Microwave Theory and Techniques 28.12 (Dec. 1980 [T-MTT] (1980 Symposium Issue)): 1473-1477.

Although based on the use of simple amplitude detectors, it is possible to obtain complex values of reflection coefficient, via the six-port technique, from the intersection of three circles in the complex plane. In a typical case, the circle centers are detemined primarily by the six-port design and are nominally constant, while the radii are proportional to the square root of the ratio of the output of three of the detectors to a fourth one. As a practical matter, however, these circles will not intersect in a point because of noise or other errors in the detectors.This paper develops a presedure for choosing Gamma in this context. Moreover, the question of what may be inferred about the system performance from the extent of this intersection failue is briefly considered.

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