

Calibrating Two Six-Port Reflectometers with an Unknown Length of Precision Transmission Line

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This paper describes a technique for calibrating a pair of 6-port reflectometers for measuring the complex reflection coefficient of 1-port devices, or the scattering parameters of reciprocal 2-port devices. The operations in the calibration consist of connecting the two 6-ports together, connecting each 6-port to a calibration circuit consisting of two unknown terminations and a leveling loop, and then connecting the standard. The standard can be one termination whose complex impedance is known, or a length of precision transmission line whose cross-sectional dimensions are known. The length and loss of the line are not required. The solution for the constants which characterize each 6-port is closed, requiring no iteration.

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