Abstracts

A High-Power Dual Six-Port Automatic Network Analyzer Used in Determining Biological Effects of RF and Microwave Radiation

C.A. Hoer. "A High-Power Dual Six-Port Automatic Network Analyzer Used in Determining Biological Effects of RF and Microwave Radiation." 1981 Transactions on Microwave Theory and Techniques 29.12 (Dec. 1981 [T-MTT] (1981 Symposium Issue)): 1356-1364.

The design, calibration, and performance of a high-power (1-1000 W) automatic network analyzer based on the six-port concept are described for the 10-100-MHz range. Calibration is performed with a length of transmission line as the only impedence standard needed. A 10-mW thermistor mount is the standard of power. Imprecision in measuring reflection coefficient Gamma is 0.0001 in magnitude and 0.005/|Gamma| degrees in phase. Corresponding estimated systematic errors are 0.001 and 0.1/|Gamma| degrees. Imprecision in measuring power is 0.01 percent of range (20 W, 200 W, or 1000 W) with an estimated systematic error of 1.25 percent of reading.

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