Abstracts

A New Technique for Multimode Power Measurement (1962 [MWSYM])

J.J. Taub and J. Goldberg. "A New Technique for Multimode Power Measurement (1962 [MWSYM])." 1962 PGMTT National Symposium Program and Digest 62.1 (1962 [MWSYM]): 64-69.

A new and simple technique is described for measuring the total power flow in an overmoded waveguide. A problem arises when measuring spurious emissions of microwave transmitters and low-loss transmission in the millimeter and submillimeter regions. In many instances, the power is split between two and ten modes. Conventional power-measuring devices are based on one propagating mode. By converting the overmoded wave to an approximate plane wave, the total power flow in an overmoded waveguide can be determined by averaging the squared magnitudes of electric field along the waveguide perimeter. The electric field is sampled by a set of fixed probes. Unlike an earlier fixed-probe technique, this technique does not require a digital computer to reduce the data and can operate at higher peak-power levels. It is applicable to all uniform transmission lines. However, this paper discusses in detail only the rectangular waveguide.

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