Abstracts

A Sampling Measurement of Multimode Waveguide Power

E.D. Sharp and E.M.T. Jones. "A Sampling Measurement of Multimode Waveguide Power." 1962 Transactions on Microwave Theory and Techniques 10.1 (Jan. 1962 [T-MTT]): 73-82.

This paper describes a simple method of measuring the total power that is propagating at various frequencies in a multimode, rectangular waveguide. It is particularly useful for determining the power that is generated at harmonic frequencies by high-power transmitters. In this method, the amplitude of the waveguide fields at a number of frequencies is sampled at evenly spaced points around the waveguide periphery. It is shown theoretically that by averaging the squares of the sampled field amplitudes, the total multimode power at the various frequencies can be determined to within ±2 or ±5 db, depending upon which combinations of waveguide fields are measured. The theoretical accuracy is verified by measurements at both low and high powers.

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