Abstracts

Mode-Specific Reflectometry in a Multimode Waveguide

D.S. Stone, K.L. Felch and S.T. Spang. "Mode-Specific Reflectometry in a Multimode Waveguide." 1983 Transactions on Microwave Theory and Techniques 31.9 (Sep. 1983, Part I [T-MTT]): 710-718.

A technique for measuring the voltage-standing-wave ratio (VSWR) created by a mismatch for a specific mode in a multimode waveguide is described. A heavlly loaded resonant cavity is used to launch the mode of interest and the variation in the cavity loaded Q is noted as the phase separation of the cavity and the mismatch is varied. The bandwidth of this technique is generally about 0.03 percent and VSWR as low as 1.05:1 may be measured accurately. Mode-specific VSWR measurements are of particular interest in analyzing the performance of multimode waveguide components, and in opthnizing muitfmode networks. The measurement technique may be used, for example, in the design and optitnization of transmission lines for electron cyclotron resonance heating systems in magnetic fusion devices.

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