Abstracts

A Fast Computational Technique for Accurate Permittivity Determination Using Transmission Line Methods

L.P. Ligthart. "A Fast Computational Technique for Accurate Permittivity Determination Using Transmission Line Methods." 1983 Transactions on Microwave Theory and Techniques 31.3 (Mar. 1983 [T-MTT]): 249-254.

A fast analytical method is given for determining perrnittivity characteristics at microwave frequencies. The experimental setup uses a single-moded cylindrical waveguide filled with dielectric and followed by a load or by a moving short. In this way, transmission-reflection and short-circuited line methods are compared. by including the uncertainties in length and in the reflection and transmission parameters, the permittivity uncertainty region is determined. It is shown that for optimum accuracy of the permittivity, specific lengths in combination with a moving short are needed.

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