Abstracts

Noniterative stable transmission/reflection method for low-loss material complex permittivity determination

A.-H. Boughriet, C. Legrand and A. Chapoton. "Noniterative stable transmission/reflection method for low-loss material complex permittivity determination." 1997 Transactions on Microwave Theory and Techniques 45.1 (Jan. 1997 [T-MTT]): 52-57.

This paper describes a new noniterative transmission/reflection method applicable to permittivity measurements using arbitrary sample lengths in wide-band frequencies. This method is based on a simplified version of the well-known Nicolson-Ross-Weir (NRW) method. For low-loss materials, this method is stable over the whole frequency range: no divergence is observed at frequencies corresponding to integer multiples of one half wavelength in the sample. The accuracy on the dielectric permittivity is similar to that obtained with a more recently proposed iterative technique. A general equation for complex permittivity determination including the Stuchly, NRW, and new noniterative methods, is also proposed.

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