Abstracts

An analytical method for the microwave imaging of cylindrically stratified media

M.J. Akhtar and A.S. Omar. "An analytical method for the microwave imaging of cylindrically stratified media." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 2005-2008 vol.3.

An analytical method for the imaging of cylindrically stratified media is presented. The proposed method is based on the direct problem formulation of cylindrical dielectric objects using the concept of radial transmission line theory. This direct equation is then inverted to obtain a closed-form solution of the radially varying permittivity profile in terms of its value at the interface and the Hankel transform of the reflection coefficient data. A technique to obtain the value of the permittivity at the air-dielectric interface from the multi frequency scattering data is also presented here. A number of examples have been considered and a good agreement between the actual and the reconstructed profiles show that the proposed technique Is suitable for both continuous and discontinuous profiles.

❑ Return to main document.