Abstracts

The Effects of Attenuation on the Born Reconstruction Procedure for Microwave Diffraction Tomography (Short Papers)

F.J. Paoloni. "The Effects of Attenuation on the Born Reconstruction Procedure for Microwave Diffraction Tomography (Short Papers)." 1986 Transactions on Microwave Theory and Techniques 34.3 (Mar. 1986 [T-MTT]): 366-368.

The effects of attenuation on the Born inversion process for diffraction tomography are investigated. The exact forward scattered fields for a lossy dielectric cylinder in a lossy medium are calculated and are then used to reconstruct an image of the scattering object. As accurate image is produced only when the cylinder acts as a small perturbation on the dielectric constant of the external medium. Results indicate that even small losses have a significant effect on the resolution of the image. It is possible, however, to eliminate image distortion by matching the loss tangent of the outside medium to that within the cylinder.

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