

# Abstracts

## An Optimization Approach to the Frequency-Domain Inverse Problem for a Nonuniform LCRG Transmission Line (Short Papers)

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*M. Norgren and S. He. "An Optimization Approach to the Frequency-Domain Inverse Problem for a Nonuniform LCRG Transmission Line (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.8 (Aug. 1996 [T-MTT]): 1503-1507.*

The inverse problem for a nonuniform LCRG transmission line is considered in the frequency domain. Imbedding equations for the reflection and transmission coefficients are derived through the concept of wave-splitting. An optimization approach is applied to reconstruct the line parameters as functions of the position using band-limited reflection and/or transmission data. Exact and explicit expressions for the gradients are derived, and the reconstruction algorithm (based upon a conjugate gradient method) is tested with both clean and noisy data. The problem of the nonuniqueness is also discussed.

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