

Abstracts

An Efficient Technique for the Time Domain Analysis of Multi-Conductor Transmission Lines Using the Hilbert Transform

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Most models that appeared in the literature for the transient time domain analysis of lossy multi-conductor, multi-dielectric transmission line systems are non causal and fail to accurately predict the pulse distortion resulting from the losses in a multi-conductor transmission line for very fast digital signals. The reason has been found in the modeling of the frequency dependent material characteristics, particularly the complex dielectric constant $\epsilon(\omega)$. In this paper, a causal model, based on the Hilbert Transform, is presented.

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