Abstracts

On passive time-domain macromodels of distributed transmission line networks

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Recently, several time-domain passive macromodeling algorithms were proposed for distributed transmission line networks. Most of them employ some kind of approximation in the frequency-domain to match the response up to a maximum frequency of interest and the behavior after the highest frequency is generally not considered. This can cause significant errors in transient responses (especially in the early-time period). In order to address this difficulty, we will present a new algorithm to reduce these high-frequency errors in time-domain macromodels, while preserving passivity. The proposed algorithm is very useful in eliminating the spurious ripples in the flat delay portion of transient responses of distributed transmission line networks without needing to increase the order of approximation.

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