Abstracts

Analysis of the Time Response of Multiconductor Transmission Lines with Frequency-Dependent Losses by the Method of Convolution-Characteristics

J.-F. Mao and Z.-F. Li. "Analysis of the Time Response of Multiconductor Transmission Lines with Frequency-Dependent Losses by the Method of Convolution-Characteristics." 1992 Transactions on Microwave Theory and Techniques 40.4 (Apr. 1992 [T-MTT]): 637-644.

A new method for analysis of the time response of multiconductor transmission lines with frequency-dependent losses is presented. This method can solve the time response of various kinds of transmission lines with arbitrary terminal networks. Particularly it can analyze nonuniform lines with frequency dependent losses, for which there is no existing effective method to analyze their time response so far. This method starts from the frequency-domain telegrapher's equations. After decoupling and inversely Fourier transforming, then a set of decoupled time-domain equations including convolutions are given. These equations can be solved with the characteristic method. The results obtained with this method are stable and accurate. Two examples are given to illustrate the application of this method to various multiconductor transmission lines.

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