Abstracts

Time-domain reflectometry using arbitrary incident waveforms

Te-Wen Pan, Ching-Wen Hsue and Jhin-Fang Huang. "Time-domain reflectometry using arbitrary incident waveforms." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2558-2563.

A novel time-domain reflectometry technique is developed for detecting the physical structures of transmission lines by using arbitrary waveforms. By discretizing both incident and reflected waves, we formulate the reflection coefficient of a nonuniform transmission line as a polynomial ratio in the Z-transform, wherein the numerator and denominator represent the reflected and incident waves, respectively. A reconstruction scheme is derived to obtain the characteristic impedance profile of a transmission line. Some examples are presented to illustrate the validity of this new technique.

❑ Return to main document.