Abstracts

Equivalent Transformations for the Mixed Lumped Richards Section and Distributed Transmission Line

Y. Nemoto, M. Satake, K. Kobayashi and R. Sato. "Equivalent Transformations for the Mixed Lumped Richards Section and Distributed Transmission Line." 1988 Transactions on Microwave Theory and Techniques 36.4 (Apr. 1988 [T-MTT]): 635-641.

Introducing a new analysis method for the nonuniform transmission line, this paper shows equivalent transformations between a circuit consisting of a cascade connection of a lumped Richards section, an ideal transformer, and a distributed transmission line and one consisting of a cascade connection of a class of a nonuniform transmission line, a lumped Richards section, and an ideal transformer. Characteristic impedance distributions of these nonuniform transmission lines are expressed as hyperbolic or trigonometric functions. It is quite difficult to find the exact network functions of nonuniform transmission lines from the telegraph equation, but by using the equivalent transformation described it becomes possible to obtain exact network functions of a class of nonuniform transmission lines.

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