Abstracts

Current Distribution and Impedance of Lossless Conductor Systems

R.L. Brooke and J.E. Cruz. "Current Distribution and Impedance of Lossless Conductor Systems." 1967 Transactions on Microwave Theory and Techniques 15.6 (Jun. 1967 [T-MTT]): 358-364.

A general method for determining the characteristic impedance of uniform, lossless transmission systems is developed. The torrent distribution within the system is determined by means of a matrix equation programmed for computer solution. Once the current distribution is known, the inductance per unit length and characteristic impedance are determined. The results obtained by applying this method to several rectangular coaxial systems are compared with the predictions of an approximate analytic expression. The reflection coefficient of a variable characteristic impedance coaxial line is measured on a time-domain reflectometer (TDR), and the results are compared with both the matrix method and the approximate analytic expression.

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