Abstracts

Determination of the Capacitance, Inductance, and Characteristic Impedance of Rectangular Lines

T.-S. Chen. "Determination of the Capacitance, Inductance, and Characteristic Impedance of Rectangular Lines." 1960 Transactions on Microwave Theory and Techniques 8.5 (Sep. 1960 [T-MTT]): 510-519.

This paper determines the capacitance, inductance, and characteristic impedance of rectangular lines by the method of conformal transformation. In practical applications, such lines may be used as transmission links of RF energy, as impedance-transforming sections, or as components in electron tubes. Formulas are given for the calculation of the parameters of rectangular lines having the following characteristics: 1) The inner conductor may have varying thickness compared with the depth of the outer conductor. 2) The axes of the conductors may coincide or may be displaced with respect to each other. 3) The edges of the inner conductor may be rounded to lessen the electrical stress occurring at sharp corners. Excellent agreement has been obtained between the calculated results and those found by use of the relaxation method, by direct measurement of models, and by electrolytic tank measurement.

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