Abstracts

Quasi-Static Conductor Loss Calculations in Transmission Lines Using a New Conformal Mapping Technique

E. Tuncer, B.-T. Lee, M.S. Islam and D.P. Neikirk. "Quasi-Static Conductor Loss Calculations in Transmission Lines Using a New Conformal Mapping Technique." 1994 Transactions on Microwave Theory and Techniques 42.9 (Sep. 1994, Part II [T-MTT]): 1807-1815.

A new approximation technique to find the total series impedance per unit length for quasi-TEM transmission lines including conductor loss has been developed. It is shown through the use of conformal mapping that both frequency dependent skin-depth and proximity effects can be accurately modeled. Comparison between experimental measurements and calculations for twin-lead, coplanar strips, parallel square bars, and coplanar waveguide all show excellent agreement. This technique is easily generalized to any transmission line making use of polygonal cross-section conductors.

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