Abstracts

On the Design and Optimization of the Shielded-Pair Transmission Line

G.S. Smith and J.D. Nordgard. "On the Design and Optimization of the Shielded-Pair Transmission Line." 1980 Transactions on Microwave Theory and Techniques 28.8 (Aug. 1980 [T-MTT]): 887-893.

The electrical parameters of the shielded-pair transmission Iine are computed using a truncated harmonic expansion for the surface charge density on the conductors. The formulation includes the proximity effect due to the close spacing of the conductors. Parametric curves are given for the capacitance, resistance, and attenuation per-unit length, and the characteristic impedence of the Iine. Both the balanced and the longitudinal modes of propagation are considered and the dimensions for a line with minimum attenuation are determined for each mode. Capacitances measured on model transmission lines are shown to be in good agreement with the theory.

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