

Transmission-Line Properties of a Round Wire in a Polygon Shield

H.A. Wheeler. "Transmission-Line Properties of a Round Wire in a Polygon Shield." 1979 Transactions on Microwave Theory and Techniques 27.8 (Aug. 1979 [T-MTT]): 717-721.

A family of transmission lines is based on a round wire in a cylindrical shield of polygon cross-section. There is presented a simple formula which gives a smooth transition between the extremes of a small wire and a wire near contact. The same formula is adapted for different shapes by entry of different constants depending on the number of shield planes and the degree of symmetry. The formula is reversible for synthesis or analysis by explicit expression of either shape ratio or wave resistance in terms of the other. For comparison in the transition region, there is computed for each shape a close approximation by the method of images.

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