

Abstracts

Some Notes on the Optimum Design of Stepped Transmission-Line Transformers

L. Solymar. "Some Notes on the Optimum Design of Stepped Transmission-Line Transformers." 1958 Transactions on Microwave Theory and Techniques 6.4 (Oct. 1958 [T-MTT]): 374-378.

This paper describes an optimum design of monotonic stepped transmission-line transformers when the reflection coefficient and the bandwidth ratio are prescribed. For the analysis, discontinuity capacitances and reflection interactions are neglected and the validity of the conclusions is therefore restricted to small steps. The analysis is applicable to a multistep transmission line of which the quarter-wave transformer is a special case. In particular, it is shown that if the number of steps is increased from three to five a larger bandwidth may be obtained, but it is not possible to reduce the over-all length in this manner. For a given bandwidth, the shortest taper is always a stepped transmission line and never a continuous one.

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