Abstracts

A General Theorem on an Optimum Stepped Impedance Transformer

H.J. Riblet. "A General Theorem on an Optimum Stepped Impedance Transformer." 1960 Transactions on Microwave Theory and Techniques 8.2 (Mar. 1960 [T-MTT]): 169-170.

With the assistance of a mathematical theorem demonstrated by Eaton in a companion paper, it is shown rigorously, in the limit of small impedance transformation, that the familiar binomial impedance transformer, consisting of equal quarter-wave steps, is the shortest, monotonic, maximally-flat, stepped, transmission-line transformer having steps commensurate in length with the midband guide-wavelength, and coincident zeros at the midband frequency. It is shown how this theorem places very severe limitations on any effort to improve on the performance of a quarter-wave transformer by increasing the number of its impedance steps without a corresponding increase in its length.

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