Abstracts

On the Design of Stepped Transmission-Line Transformers (Correspondence)

M.A. Hamid and M.M. Yunik. "On the Design of Stepped Transmission-Line Transformers (Correspondence)." 1967 Transactions on Microwave Theory and Techniques 15.9 (Sep. 1967 [T-MTT]): 528-529.

The problem of matching a complex load impedance to a given transmission line using a series matching transformer is considered with a view to minimizing the transformer length and overall insertion loss. A graphical technique is presented that leads to a solution for the length and characteristic impedance of the transformer section. It is shown that this transformer reduces to the usual quarter-wave transformer for the particular case where the load is purely resistive. The performance of the transformer is also compared with the quarter-wave transformer for the case of a complex load impedance and a numerical example is given. It is shown that the design procedure is relatively simple and may lead to a significant reduction in the overall length and insertion loss of the matching section. While there is no significant improvement in the bandwidth for frequency-dependent loads, the proposed design still offers attractive features for matching transmitting antennas.

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