Abstracts

A General Design Procedure for Quarter-Wavelength Inhomogeneous Impedance Transformers Having Approximately Equal-Ripple Performance

H.J. Riblet. "A General Design Procedure for Quarter-Wavelength Inhomogeneous Impedance Transformers Having Approximately Equal-Ripple Performance." 1965 Transactions on Microwave Theory and Techniques 13.5 (Sep. 1965 [T-MTT]): 622-629.

A general design procedure for quarter-wavelength inhomogeneous impedance transformers having approximately equal-ripple performance is presented, based on the simplifying assumptions that the relative impedance of two waveguides of slightly different widths is a constant and that tan Theta/sub i/= k/sub i/ tan Theta/sub 0/ in the vicinity of Theta/sub i/ and Theta/sub 0/ = 90°. The calculation of the design parameters depends on the fact that the insertion-loss function can be expressed, in closed form, in terms of the unknown parameters. When this is identified with the permissible equal-ripple function, a set of simultaneous equations in the unknown parameters results. The solution of these equations is approximated by the solution to the corresponding homogeneous transformer problem. Thus a set of simultaneous linear equations in the small differences can be obtained which provides an approximate solution to the problem. An experimental design is described and the resulting data are presented.

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