Abstracts

Characteristic impedance of a rectangular double-ridged TEM line

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The characteristic impedance of a TEM transmission line, shaped as a double-ridged rectangular coaxial line, is analyzed in this paper as the customary transversal static problem. This type of transmission line is useful, for example, as a part of a cascaded transition between a double-ridged waveguide and a coaxial line. The solution of the transversal problem is achieved by dividing the cross-sectional region into distinct, separable regions, each one being characterized by closed-form Green's functions relating the flux function to the electric field. Surface-type integral equations are then formulated over the boundaries between the regions. Solution of these equations via the method of moments (MoM's) using the Galerkin choice yields the results for the characteristic impedance as a function of cross-sectional dimensions. Convergence of the solution is also studied.

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