Abstracts

Analysis of Wide-Band Stripline Circulators by Integral Equation Technique

The analysis of wide-band Y-junction stripline circulators using Green's function method was reported in the literature. In this paper, similar analyses are performed using an integral equation method and the results are compared. The boundary conditions used in the analyses are also discussed. A new boundary condition representing the actual fields more precisely than previously is formulated and applied to the junction. The results obtained with the new boundary conditions are examined and compared with the previous theoretical and experimental results. The current and voltage distributions that are created at the ports under the assumed boundary conditions are calculated and compared with the known stripline and junction modes. In the formulation, it is observed that the Green's function is not unique and it can be selected from a certain class of functions. This arbitrariness is introduced into the formulation by means of a complex parameter C_0. The effect of this parameter on the numerical results is investigated and it is shown that in certain regions of the complex C_0 plane, the numerical results converge on the analytical results.

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