Abstracts

The Use of Symmetry to Simplify the Integral Equation Method with Application to 6-Sided Circulator Resonators

G.P. Riblet and E.R.B. Hansson. "The Use of Symmetry to Simplify the Integral Equation Method with Application to 6-Sided Circulator Resonators." 1982 Transactions on Microwave Theory and Techniques 30.8 (Aug. 1982 [T-MTT]): 1219-1223.

In this paper it is shown that for planar two-dimensional problems with symmetry, the dimensions of the matrices, which must be inverted to obtain a solution using the integral equation method, can be substantially reduced. For instance, for a three-fold symmetric hexagonal circulator junction with N segments about the periphery, the dimension of matrices to be inverted is reduced to N/3 from the usual N. It is demonstrated that for six-sided resonators with three-fold symmetry, a very good approximation to the equivalent admittance can be obtained with only 12 segments around the periphery, meaning that only 4 X 4 matrices need be inverted.

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