Abstracts

Calculation of Characteristic Admittances and Coupling Coefficients for Strip Transmission Lines

D.W. Kammler. "Calculation of Characteristic Admittances and Coupling Coefficients for Strip Transmission Lines." 1968 Transactions on Microwave Theory and Techniques 16.11 (Nov. 1968 [T-MTT]): 925-937.

An integral equation technique is presented which may be used to efficiently compute the Maxwellian capacitance matrix, i.e., the coefficients of capacitance and inductance, for any system of zero-thickness strip conductors located parallel to and between two ground planes, The TEM characteristic admittances for various operating modes and the coupling coefficients can then be obtained from the elements of this matrix. A single computer program based upon this technique can be used to compute the capacitance matrix for any particular strip line configuration desired and would thus be especially valuable to the design engineer who would like to quickly obtain accurate design curves for a previously unstudied configuration of ship conductors. This procedure gives much more accurate results in but a fraction of the computer time required when the more common finite difference equation approach is used, and it avoids the necessity for a separate mathematical analysis for each new strip line configuration, as would be required when using a conformal mapping technique. Illustrative results are given for several different strip-line configurations.

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