Abstracts

Theoretical and Practical Applications of Capacitance Matrix Transformations to TEM Network Design (Dec. 1966 [T-MTT])

R.J. Wenzel. "Theoretical and Practical Applications of Capacitance Matrix Transformations to TEM Network Design (Dec. 1966 [T-MTT])." 1966 Transactions on Microwave Theory and Techniques 14.12 (Dec. 1966 [T-MTT]): 635-647.

TEM propagation on an array of parallel conductors is described in terms of the normalized static capacitance matrix. Important properties of capacitance matrices are discussed and a physical and network interpretation is given to a useful linear transformation of the static capacitance matrix. Several practical applications of capacitance matrix transformations are given. These include 1) equivalent circuits for directional couplers with equal terminations, 2) design procedures for directional couplers with unequal terminations, and 3) element value tables and design details for compact coaxial filter-transformers. Construction details and experimental results are presented for a 3:1 bandwidth filter-transformer constructed with multiple re-entrant coaxial lines.

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