Abstracts

Periodically Loaded Nonreciprocal Transmission Lines for Phase-Shifter Applications

M.M.Z. Kharadly. "Periodically Loaded Nonreciprocal Transmission Lines for Phase-Shifter Applications." 1974 Transactions on Microwave Theory and Techniques 22.6 (Jun. 1974 [T-MTT] (Special Issue on Microwave Control Devices for Array Antenna Systems)): 635-640.

Nonreciprocal transmission lines periodically loaded with thin metallic diaphragms are analyzed using the wave transmission matrix approach. An approximate equivalent circuit representation of the diaphragm is proposed and discussed. Using this representation, the differential phase-shift and impedance characteristics of the periodically loaded line are computed for assumed parameters, for "shunt-capacitance" and "shunt-inductance" loading. The range of validity of the approximate results is examined using a certain criterion. The differential phase shift for both capacitive and inductive loading is found to be greater than that of the unloaded line and the results show the same general trends as those previously observed experimentally.

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