Abstracts

A Restatement of Mathematical Considerations of TEM Modes on an n-Wire Line

N. Nagai and A. Matsumoto. "A Restatement of Mathematical Considerations of TEM Modes on an n-Wire Line." 1974 Transactions on Microwave Theory and Techniques 22.4 (Apr. 1974 [T-MTT]): 353-359.

A restatement of mathematical considerations of TEM modes on an n-wire line is presented. An n-wire line inside a shielding conductor or over a ground plane supports n independent TEM modes which can be determined by obtaining eigenvectors on the n-wire line deduced from the characteristic admittance matrix. It is shown conclusively that the TEM modes are determined by the geometrical arrangement of the n wires as well as by the manner of excitation on the n-wire line. Power division ratios on each wire and terminating admittances for output ports of each wire are also discussed, and it is shown that one can excite a TEM mode similar to an even mode and n - 1 TEM modes, each of which resembles an odd mode, on the n-wire line.

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