Abstracts

Full-Wave Analysis of a Perfectly Conducting Wire Transmission Line in a Double-Layered Conductor-Backed Medium

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This paper presents a full-wave eigenmode analysis of a waveguide structure which consists of a double-layered conductor-backed medium with a perfectly conducting cylindrical wire in either the top layer or the bottom layer. The analysis starts with a Fourier series representation of the total longitudinal and transverse current components on the wire surface, which are seen as the sources of the eigenmode of the waveguide. The fields generated by these sources can be expressed in terms of suitable incoming and scattered fields. Finally, Galerkin's method is used to impose the boundary conditions on the wire surface. Numerical results are presented for a typical microwire interconnection structure.

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