Abstracts

Cylindrical Microstrip Line Partially Embedded in a Perfectly Conducting Ground Plane (Short Papers)

The quasi-TEM characteristics of a novel cylindrical microstrip line are rigorously determined. The line consists of an infinitesimally thin strip on the surface of a dielectric cylinder partially embedded in a perfectly conducting ground plane. Expressions for the potential distribution inside and outside the dielectric substrate, the charge distribution on the strip, and the capacitance of the microstrip line are derived. Sample numerical results based on the derived expressions are also given and discussed. In particular, it is shown that the effective dielectric constant for the symmetrical microstrip line is a linear function of the substrate's dielectric constant, and is almost independent of the strip width.

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