Abstracts

Slot Line on a Dielectric Substrate

S.B. Cohn. "Slot Line on a Dielectric Substrate." 1969 Transactions on Microwave Theory and Techniques 17.10 (Oct. 1969 [T-MTT]): 768-778.

Slot line consists of a narrow gap in a conductive coating on one side of a dielectric substrate, the other side of the substrate being bare. If the substrate's permittivity is sufficiently high, such as /spl epsiv//sub r/ = 10 to 30, the slot-mode wavelength will be much smaller than free-space wavelength, and the fields will be closely confined near the slot. Possible applications of slot line to filters, couplers, ferrite devices, and circuits containing semiconductor elements are discussed. Slot line can be used either alone or with microstrip line on the opposite side of the substrate. A "second-order" analysis yields formulas for slot-line wavelength, phase velocity, group velocity, characteristic impedance, and effect of adjacent electric and magnetic walls.

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