Abstracts

Slot-Line Field Components (Correspondence)

S.B. Cohn. "Slot-Line Field Components (Correspondence)." 1972 Transactions on Microwave Theory and Techniques 20.2 (Feb. 1972 [T-MTT]): 172-174.

Formulas derived by mode summation give the six B- and H-field components in the various air and dielectric regions of a slot-line cross section. These formulas are valid except when very close to the slot, where approximations in the analysis cause a large error. A quasi-static method yields a second set of formulas that apply near the slot. Thus the field is determined satisfactorily in all parts of the cross section. Graphs of the H components show that elliptical polarization exists, with the best approach to circularity near the slot and near the opposite surface of the substrate. Quantitative field data are useful for analysis and design of slot-line components, such as ferrite devices, dielectric-resonator filters, directional couplers, and broad-band transitions to coaxial line or microstrip.

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