LOSS DUE TO MICROSTRIP BEND DISCONTINUITY IN MICROSTRIP LINE

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ABSTRACT

Discontinuities in interconnect are usually the result of change in the layout on the printed circuit board. Thus, this project is evaluated so that we can discover and observe how discontinuities such as bends in microwave integrated circuit (MICs) could contribute towards losses in microstrip line. The meander line is used as a microstrip line, and it is designed to match the 50Ω characteristic impedance. Four substrates will be bringing into play which consists of RT/Duroid5870, RT/Duroid6010, FPC16 and FR4 so that the influence of the substrate permittivity ε_r to the discontinuity can be examined. The frequency range for the study is varied from 1GHz to 20GHz. For the microstrip design and simulation, the *Microwave Office* software will be represented. To yields such an accurate results, simulation and experiment procedure is put into practice. There are three type of bending that will be observe here which is 90° curved, 45° mitered and 120° mitered that commonly known as optimally mitered. The result will be displayed for both the scattering parameter (*S*-parameter) and the current distribution.

Keywords: Discontinuity, curved bend, mitered, chamfered, matched, optimally mitered, substrate permittivity, mismatch, reflection, transmission coefficient, *S*-parameter, current distribution, width to height ratio (*w*/*h*), dielectric, transmission line, edge current and longitudinal current.

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