Abstracts

Photoetched Microwave Transmission Lines

N.R. Wild. "Photoetched Microwave Transmission Lines." 1955 Transactions on Microwave Theory and Techniques 3.2 (Mar. 1955 [T-MTT]): 21-30.

Microwave transmission line and components of unusual light weight and compact construction can be made employing photoetching techniques to produce strip type transmission line. This report will be a general description of work done at Sanders Associates, Inc., to develop techniques for the design and manufacture of photoetched microwave transmission lines. Discussion will include measurements of attenuation and radiation leakage on parallel plate strip lines, as well as shielded type Tri-plate lines, the problem of mode purity and its relation to electrical parameters, various schemes of making transitions from standard waveguide to photoetched strip line. The basic design and performance of various components, as well as items of test equipment, such as slotted lines, matched loads, fixed attenuators, variable attenuators, directional couplers, crystal holders, phase shifters, hybrid rings, coax to Tri-plate transistors, etc., will also be treated. In addition, data will be presented showing impedance and susceptance values of simple discontinuities and impedance matching transformers. A simple technique for constructing gyrators and resonators will be presented, and the design and fabrication of an S-band signal generator employing photoetched microwave Tri-plate line will be shown, illustrating that practical microwave systems can be constructed far more economically than would be possible utilizing conventional waveguide techniques.

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