Abstracts

Millimeter-Wave Components for Use in a Variable State Four-Port Network Analyzer (Short Papers)

J.V. Bellantoni, G.C. Dalman, C.A. Lee and R.C. Compton. "Millimeter-Wave Components for Use in a Variable State Four-Port Network Analyzer (Short Papers)." 1988 Transactions on Microwave Theory and Techniques 36.12 (Dec. 1988 [T-MTT] (1988 Symposium Issue)): 1880-1885.

Components developed for use with a new type of network analyzer are presented. The analyzer contains a phase shifter which varies the state of the network, thus allowing accurate measurements to be made with approximately half the hardware required by conventional six-port analyzers. The phase shift is obtained using either a p-i-n diode reflection phase shifter or a mechanically positioned sliding short. Reflection measurements from two such waveguide analyzers will be presented one operates in the 27 to 40 GHz Ku-band, the other in the 75 to 110 GHz W-band. Waveguide-to-microstrip transitions have been developed for these analyzers, to characterize millimeter-wave planar circuits. A back-to-back Ka-band transition was built with a maximum VSWR of 1.9. A second back-to-back transition displayed a maximum VSWR of 1.45 over the W-band.

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