Abstracts

A Wide-Band Variable Microwave Coupler

G. Chao. "A Wide-Band Variable Microwave Coupler." 1970 Transactions on Microwave Theory and Techniques 18.9 (Sep. 1970 [T-MTT]): 576-583.

A method is described whereby the coupling value of a TEM quarter-wave coupler can be continuously varied over ranges up to 100 percent of the nominal value. The method employs the change of even- and odd-mode characteristic impedance levels over the coupling region and as such is best suited to stripline and other configurations which use parallel ground planes as outer conductors. Because current lines are crossed only in regions of relatively low current densities and because physical realizations are mechanically simple and compact, reliability is assured. Its major disadvantage is that the voltage standing-wave ratio (VSWR) increases and the isolation decreases as the coupling is tuned away from the nominal value. However, the simple predesign procedures described in Section III can reduce or eliminate this problem. The device can be used as a variable attenuator, a variable sampler, and, in systems with couplers, a trimming device.

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