Abstracts

Junction Reactance and Dimensional Tolerance Effects on X-Band 3-dB Directional Couplers

W.H. Leighton, Jr. and A.G. Milnes. "Junction Reactance and Dimensional Tolerance Effects on X-Band 3-dB Directional Couplers." 1971 Transactions on Microwave Theory and Techniques 19.10 (Oct. 1971 [T-MTT]): 818-824.

Theoretical characteristics are presented for X-band 3-dB rat-race and branch-line couplers using gold microstrip lines with a semi-insulating GaAs dielectric. The rat-race configuration is shown to be less influenced by junction reactance and dimensional tolerances and has a greater bandwidth than the two-branch coupler. However, the rat-race coupler has the disadvantage that the output arms are not adjacent. Three-branch couplers are shown to have bandwidth comparable to the rat-race coupler but are much more sensitive to junction reactance and dimensional tolerances.

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