Abstracts

A Plasma Controlled Directional Coupler

J. Willis. "A Plasma Controlled Directional Coupler." 1962 Transactions on Microwave Theory and Techniques 10.5 (Sep. 1962 [T-MTT]): 383-389.

A new type of waveguide directional coupler is described which has a discharge tube as the coupling element in the common narrow wall between the guides. The use of the discharge tube allows continuous control of the amount of coupling between the guides. The theory of the coupler is given with curves for designing such a coupler. The paper describes the results obtained from a 3-db coupler. Measurements were made at a frequency of 450 Mc, of VSWR, noise output, and switching speed. These show a VSWR of the order of 1.3 over the control range, and an excess noise temperature with a peak of 20,000°K at one value of control current. The coupler is capable of switching up to speeds of 1000 cps.

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