Abstracts

A High-Accuracy Microwave Phase Standard for Use in Primary Calibration Laboratories

A.V. James. "A High-Accuracy Microwave Phase Standard for Use in Primary Calibration Laboratories." 1968 Transactions on Microwave Theory and Techniques 16.11 (Nov. 1968 [T-MTT]): 944-949.

This paper describes the theory and construction of a broad-band, differential phase shifter for use over the frequency range of from 4.25 to 6.20 GHz. Perturbations of the phase shifter which cause it to deviate from the ideal 2/spl theta/ operation are discussed. The analysis follows that of Fox, but is carried out in the exponential form, and includes both phase and attenuation constants. A set of nonideal conditions are postulated: improper positioning and matching of the constituent components, improper electrical lengths of the differential phase shift sections, and loss in the dielectric slabs. Expressions are derived for each of the above conditions that demonstrate the effect on the 2/spl theta/ operation of the phase shifter. Evaluation of the experimental model shows that it operates within the predicted limits of error, ± 0.5°.

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