Abstracts

Phase-Shift Characteristics of Dielectric Loaded Waveguide

G.F. Bland and A.G. Franco. "Phase-Shift Characteristics of Dielectric Loaded Waveguide." 1962 Transactions on Microwave Theory and Techniques 10.6 (Nov. 1962 [T-MTT]): 492-496.

An investigation of waveguide phase-shifting techniques was conducted for the purpose of establishing the design criteria for a device capable of meeting the following specifications: a phase-shift variable over a minimum range of 360° and a maximum phase error of ±5° at any phase setting over at last a 10 per cent frequency bandwidth. The dielectric loaded waveguide is the basis of a device which meets the design requirements. In this paper the analytical expressions applicable to the dielectric loaded waveguide cross section are derived using the transverse resonance procedure. A rigorous description of the propagation characteristics of this structure for various parameter values is obtained through the use of a high-speed computing machine. The excellent correlation between computed values and the data obtained from an experimental model is presented.

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