Abstracts

A Four-Port Waveguide Junction Circulator and Effects of Dielectric Loading on its Performance (Correspondence)

G.S. Sidhu and O.P. Gandhi. "A Four-Port Waveguide Junction Circulator and Effects of Dielectric Loading on its Performance (Correspondence)." 1965 Transactions on Microwave Theory and Techniques 13.3 (May 1965 [T-MTT]): 388-389.

This communication describes a fourport X-band waveguide junction circulator. The effects of dielectric loading on its performance are also included. The circulator employs a right angled H-type junction of two X-band waveguides. The junction is loaded with a cylindrical post of R-4 ferrite filling the height of the waveguide. A full height teflon cylinder surrounds the ferrite post (Fig. 1). Hitherto, no four-port waveguide circulator using this ferrite-dielectric configuration has been reported in the literature. The earliest four-port waveguide junction circulator is due to Yoshida. He used a ferrite rod along with a suitable impedance element at the right place in the usual H-type four-port waveguide junction. Davis, Coleman, and Cotter have reported their investigations on four-port waveguide junction circulator in a recent publication. Their circulator also employed a central polarized ferrite post, which was half the waveguide height, on top of which was a cylindrical brass post. In another configuration they used a full height brass post surrounded by a closely fitting ferrite tube, which in turn was surrounded by a dielectric tube.

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