Abstracts

The Tetrahedral Junction as a Waveguide Switch (Correspondence)

J.A. Weiss. "The Tetrahedral Junction as a Waveguide Switch (Correspondence)." 1960 Transactions on Microwave Theory and Techniques 8.1 (Jan. 1960 [T-MTT]): 120-121.

A junction of two rectangular waveguides which are mutually cross-polarized becomes a magnetically controlled reactive switch when properly loaded by a ferrite rod magnetized longitudinally. It is a special case of a novel type of structure for which we propose the name tetrahedral junction. As a switch, it possesses: 1) very high insertion loss in the reflecting state, ~60 db; 2) loss in the transmitting state which is lower in principle than that attainable in any similar ferrite-waveguide device, <0.1 db; 3) high switching speed-1 mu sec is attainable with conventional circuits and convenient currents; 4) large bandwidth, ~10 per cent; 5) little sensitivity to variations in applied field and saturation magnetization; and 6) small phase and small phase-variations with frequency and applied field in the transmitting-state.

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