Abstracts

Broad-Band Isolators and Variable Attenuators for Millimeter Wavelengths

C.E. Barnes. "Broad-Band Isolators and Variable Attenuators for Millimeter Wavelengths." 1961 Transactions on Microwave Theory and Techniques 9.6 (Nov. 1961 [T-MTT]): 519-523.

A longitudinally magnetized rod of ferrite has been used as a dielectric waveguide which provides Faraday rotation independent of frequency in the band from 50 to 60 kMc. This rotator has been incorporated into broad-band isolators with forward losses of 1 db and reverse losses greater than 30 db with return losses of approximately 20 db over the band. It has also been used in a variable attenuator with a minimum loss of 1 db and a maximum loss greater than 30 db which is essentially constant over the band. Advantages of this type of rotator at millimeter wavelengths include bandwidths in excess of 20 per cent, low field requirements (25-50 /spl oelig/), relatively large dimensions, the use of common ferrites, and the absence of conducting waveguide walls which permits rapid switching of the control field. The last feature has been utilized in an automatic power leveling system capable of removing variations of several kc frequency content from the swept output of a millimeter wave BWO.

❑ Return to main document.