Abstracts

Operation of High Peak Power Differential Phase Shift Circulators at Direct Magnetic Fields Between Subsidiary and Main Resonances

J. Helszajn and P.N. Walker. "Operation of High Peak Power Differential Phase Shift Circulators at Direct Magnetic Fields Between Subsidiary and Main Resonances." 1978 Transactions on Microwave Theory and Techniques 26.9 (Sep. 1978 [T-MTT]): 653-658.

Instability in high peak power ferrite devices is usually avoided by either widening the spinwave linewidth to move the onset of the subsidiary resonance above the specification of the device, or by using a value of magnetic field below that at which the peak in the subsidiary resonance occurs. A third way to prevent this instability altogether is by adjusting the direct field and material magnetization to prohibit the frequency relation between the microwave signal and the spinwaves. This approach leads to an exceptionally low loss device at both small and large signal levels. The paper describes the experimental development of an 8.5-9.6-GHz 1-MW differential phase shift circulator biased in this way with an insertion loss of less than 0.20 dB.

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