Abstracts

Adjustment of In-Phase Mode in Circulators Using Turnstile Junctions (Short Papers)

J. Helszajn and J. Sharp. "Adjustment of In-Phase Mode in Circulators Using Turnstile Junctions (Short Papers)." 1985 Transactions on Microwave Theory and Techniques 33.4 (Apr. 1985 [T-MTT]): 339-343.

The adjustment of the counter-rotating modes of waveguide circulators using weakly magnetized turnstile junctions is fairly well understood, but some uncertainty about the definition of the in-phase mode still remains. The purpose of this paper is to remedy this situation by experimentally evaluating the in-phase eigenvalue s/sub 0/ for different filling factors and radial wavenumbers of the in-phase resonator. This is done by using the unitary condition to derive four possible relationships between the in-phase and counter-rotating eigenvalues s/sub 0/ and s/sub 1/, and the scattering variable S/sub 11/, and using one or another of them to form s/sub 0/. The situation for which s/sub 0/ is in anti-phase to s/sub 1/ corresporrds to the first classic circulation condition of this class of device and is also derived.

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