

## A Three-Cavity Circularly Polarized Waveguide Directional Filter Yielding a Maximally Flat Response

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*R.L. Williams. "A Three-Cavity Circularly Polarized Waveguide Directional Filter Yielding a Maximally Flat Response." 1962 Transactions on Microwave Theory and Techniques 10.5 (Sep. 1962 [T-MTT]): 321-328.*

A directional filter is a completely matched four-port device which exhibits directional properties and a filter-like frequency characteristic. This paper extends work previously done on a single-cavity narrow-band circularly polarized waveguide directional filter to the case of three cavities connected in cascade with an overall bandwidth greater than 1 per cent. Analysis of the filter leads to a relationship between the two inner coupling factors and the two outermost coupling factors for a maximally flat response. The results obtained from an experimental filter using the design approach discussed herein compare favorably with the theoretical filter response. Directivity and band-elimination filter characteristics are discussed.

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