# Abstracts

## An Analysis of the m-Port Symmetrical H-Plane Waveguide Junction with Central Ferrite Post

*J.B. Davies. "An Analysis of the m-Port Symmetrical H-Plane Waveguide Junction with Central Ferrite Post." 1962 Transactions on Microwave Theory and Techniques 10.6 (Nov. 1962 [T-MTT]): 596-604.*

An analysis is presented for the m-port symmetrical H-plane waveguide junction with central ferrite post. It has application to the engineering problem of microwave circulators and to the more academic problem of the empty symmetrical junction. An exact solution is formulated from which is developed an approximation that is equivalent to considering only the propagating modes of the rectangular waveguides. The method is found to give results in agreement with the theory for the 2-port junction (i. e., waveguide) with ferrite post, and with experiment for ferrite-free 3- and 4-port junctions. Theoretical design curves are given for the 3-port circulator, although for lack of suitable ferrite data, these have not been checked accurately. A number of 3- and 4-port circulators have been made to designs arising from the analysis. Because the microwave performance is derived explicitly in terms of the junction geometry and ferrite properties, the design of a particular component must of necessity involve much computation.

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