# Abstracts

## Multilayer Hybrid in Circular Waveguide (Dec. 1979 [T-MTT])

*E.T. Harkless and D.N. Zuckerman. "Multilayer Hybrid in Circular Waveguide (Dec. 1979 [T-MTT])." 1979 Transactions on Microwave Theory and Techniques 27.12 (Dec. 1979 [T-MTT] (1979 Symposium Issue)): 975-982.*

A dielectric sheet across a waveguide will partially transmit and partially reflect propagating waves. Such a sheet placed at 45° across the right angle intersection of two waveguides can create a hybrid junction. The use of several dielectric layers reduces mode conversion and also broad-bands the performance. It is shown here how to choose the thickness and permittivity of the layers to yield nearly constant power division over the 40- to 110-GHz range and at the same time minimize conversion of energy to other modes. Ray-optics analysis is used in this design procedure. Experimental results are presented which confirm the analysis. The use of such multilayer hybrid junctions to produce filters covering the 40 to 110-GHz range is examined.

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