Abstracts

Field Theory Design of Square Waveguide Iris Polarizers

U. Tucholke, F. Arndt and T. Wriedt. "Field Theory Design of Square Waveguide Iris Polarizers." 1986 Transactions on Microwave Theory and Techniques 34.1 (Jan. 1986 [T-MTT]): 156-160.

Profiled depth corrugated square waveguide polarizers are designed with the method of field expansion into eigenmodes, which includes higher order mode interaction between the step discontinuities. Computer-optimized design data are giyen for a compact Ku-band prototype with an exponentially varying depth function that achieves 90° ± 1° differential phase shift shift within the separate 11.9-12.3-GHz and 17.5-17.9-GHz frequency bands. The maximum VSWR is only about 1.02. Further design examples include a linearly profiled depth function, which provides a short design, and a polarizer with iris thicknesses suitable for metal-etching manufacturing technique. The theory is verified by comparison with available measured results.

❑ Return to main document.