Abstracts

Modal Characteristics of Quadruple-Ridged Circular and Square Waveguides (Short Papers)

M.H. Chen, G.N. Tsandoulas and F.G. Willwerth. "Modal Characteristics of Quadruple-Ridged Circular and Square Waveguides (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.8 (Aug. 1974 [T-MTT]): 801-804.

A theoretical study, backed by experimental verification, was undertaken to determine the modal characteristics of quadruple-ridged circular and square waveguides. Field lines for the first few important modes and cutoff frequencies were determined. It is shown that for square waveguides quadruple-ridge loading always decreases the TE/sub 10/-TE/sub 11/ bandwidth whereas for circular waveguides only a small amount of additional separation between the first two fundamental modes may be obtained over a limited parameter range. Symmetrical excitation will not excite the asymmetrical higher-order modes. This feature makes these waveguides acceptable as feeds for wide-band reflector antennas and for similar applications but raises a question mark regarding their use as radiators in wide-band phases arrays.

❑ Return to main document.