Abstracts

Infrared Surface Waves in Circular Hollow Waveguides with Small Core Diameters

F.E. Vermeulen, A.M. Robinson, C.R. James and J.N. McMullin. "Infrared Surface Waves in Circular Hollow Waveguides with Small Core Diameters." 1994 Transactions on Microwave Theory and Techniques 42.10 (Oct. 1994 [T-MTT]): 1932-1938.

An asymptotic form of the characteristic equation that describes wave propagation at near-infrared wavelengths in small core hollow circular waveguides is developed. Analytic solutions for the transverse and axial propagation constants are obtained. These demonstrate the transition of the TE/sub 11/ and TM/sub 01/ modes to surface waves as the guide radius is increased to values much greater than at cutoff. Relative power density distributions illustrating these mode transitions are shown.

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