Abstracts

Mode Coupling and Power Transfer in a Coaxial Sector Waveguide with a Sector Angle Taper (Dec. 1980 [T-MTT])

A.W. Fliflet, L.R. Barnett and J.M. Baird. "Mode Coupling and Power Transfer in a Coaxial Sector Waveguide with a Sector Angle Taper (Dec. 1980 [T-MTT])." 1980 Transactions on Microwave Theory and Techniques 28.12 (Dec. 1980 [T-MTT] (1980 Symposium Issue)): 1482-1486.

We report a theoretical study of mode coupling and power transfer in a coaxial sector taper. The power transferred from the desired TE /sub 01/ mode into other propagating modes is calculated as a function of taper length and operating frequency. Power transfer via mode coupling involves at least three other modes: TE/sub 21/, TE/sub22/, and TM/sub21/. Power transfer as a function of final sector angle is also shown. At sector angles greater than 180° the taper is highly over-moded. This type of waveguide taper is utilized to feed a wide-band input coupler for gyrotron traveling wave amplifiers.

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