Abstracts

Beam-cavity interaction circuit at W-band

M.E. Hill, W.R. Fowkes, X.E. Lin and D.H. Whittum. "Beam-cavity interaction circuit at W-band." 2001 Transactions on Microwave Theory and Techniques 49.5 (May 2001 [T-MTT]): 998-1000.

In this paper, we describe the design, fabrication, and bench study of a millimeter-wave cavity employed as a relativistic klystron output structure. The oxygen-free electronic-grade copper cavity was prepared by electro-discharge machining and diffusion bonding, and cleaned and tuned to 91.4 GHz. Measured cavity characteristics are presented and compared with theory, including quality factor Q, coupling parameter /spl beta/, scattering matrix S/sub 11/, and axial electric field profile E/sub z/. This paper provides the basis for an understanding of the cavity as a transfer structure.

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