Abstracts

Design of a 70-GHz second-harmonic gyroklystron experiment for radar applications

W. Lawson. "Design of a 70-GHz second-harmonic gyroklystron experiment for radar applications." 2000 Microwave and Guided Wave Letters 10.3 (Mar. 2000 [MGWL]): 108-110.

A second-harmonic gyroklystron circuit has been designed to produce 140 kW of peak power near 70 GHz. A 70 kV 8 A beam with an average velocity ratio of 1.35 and an axial velocity spread of 8% r.m.s. interacts with four cavities operating in circular electric modes. The input cavity operates in the TE/sub 011/ mode and has been utilized previously in a number of successful first-harmonic gyroklystrons. The remaining cavities operate in the TE/sub 021/ mode and have been designed to be compatible with the existing first-harmonic test bed. The simulated gain is about 33.4 dB, and the expected instantaneous bandwidth is nearly 0.091%.

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