Abstracts

High-Harmonic Gyrotron Oscillators and Gyro-Klystron Amplifiers

D.B. McDermott, D.S. Furuno and N.C. Luhmann, Jr.. "High-Harmonic Gyrotron Oscillators and Gyro-Klystron Amplifiers." 1984 MTT-S International Microwave Symposium Digest 84.1 (1984 [MWSYM]): 359-361.

The design and performance of several millimeter-wave harmonic gyrotron concepts are described in which the interaction is between axis-encircling electrons and cylindrical cavity TE/sub n11/ modes. This allows the magnetic field of the gyrotron to be reduced by an order of magnitude. Efficiencies up to 15% have been measured for moderate harmonic interactions, multi-kW per levels have been attained at the eleventh harmonic of the cyclotron frequency, 65 GHz waves have been produced, and a sixth-harmonic gyro-klystron amplifier has yielded 23 dB gain. Also, an 18 GHz, 1/2 MW fourth-harmonic gyrotron has been constructed and is being tested.

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