

Abstracts

Recent Advances in Gyrotrons

J.F. Shively, P. Ferguson, H.R. Jory, J. Moran and R.S. Symons. "Recent Advances in Gyrotrons." 1980 MTT-S International Microwave Symposium Digest 80.1 (1980 [MWSYM]): 99-101.

The gyrotron is a new type of microwave tube capable of producing high-power output at millimeter wavelengths. Oscillator results have been described in recent Soviet publications. This paper describes work in progress to develop oscillators of the gyrotron type to deliver 200 kW CW at 28 and 60 GHz. Although considerable progress had been made with gyrokylystron amplifier stability to the point that amplifier gains of over 40 dB had been measured in a pulsed experimental gyrokylystron amplifier, efficiency problems, potential dilution of effort and reconsideration of requirements resulted in dropping gyrokylystron amplifier effort in favor of the gyrotron oscillator. Pulsed oscillators have been delivered which produced 246 kw peak power at 28 GHz with 38% efficiency. A CW oscillator has been tested to 212 kW with 40% efficiency and 119 kW with 46% efficiency also at 28 GHz. Other areas of R and D are discussed, including gyro-TWT amplifiers with increased instantaneous bandwidth (5 - 10%).

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