

MICROWAVE RADIATION FROM A HIGH-GAIN FREE ELECTRON LASER AMPLIFIER*)

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ABSTRACT

A high-gain, high-extraction efficiency, linearly polarized free electron laser amplifier has been operated at 34.6 GHz. At low signal levels exponential gain of 13.4 dB/meter has been measured. With a 30 kW input signal, saturation was observed with an 80 MW output and a 5% extraction efficiency. The results are in good agreement with linear models at small signal levels and non-linear models at large signal levels.

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