

Performance Analysis of Laser Diode Single-End- Pumped Solid State Laser

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Abstract:

In this work, results are presented for a continuous wave diode laser single-end-pumped Nd:YVO₄ laser with maximum output power of 240mW in the TEM₀₀ mode at an optical pump power of 850mW. The laser performance under different output couplers has been studied both analytically and experimentally. The theoretical analysis provides a good prediction of the laser performance parameters which are in broad agreement with the experimentally observed results. An optical to optical conversion efficiency of 28% and an average optical slope efficiency of 29% were obtained. The fluctuation of the output power is less than 1.5% in 10 min.