19 May 2026

BluGlass achieves new world-record single-mode GaN laser performance

Highlights

- BluGlass has demonstrated 1.9W peak output power from a single spatial mode 450nm blue GaN laser in a single monolithic chip
- The world-record demonstrates continued improvement of BluGlass' two-section MOPA architecture (master oscillator and tapered power amplifier)
- Supersedes BluGlass' previous world record single-mode performance of 1.25W of peak output power
- Technical achievement supports BluGlass' progress across expanding portfolio of customer and government development programs

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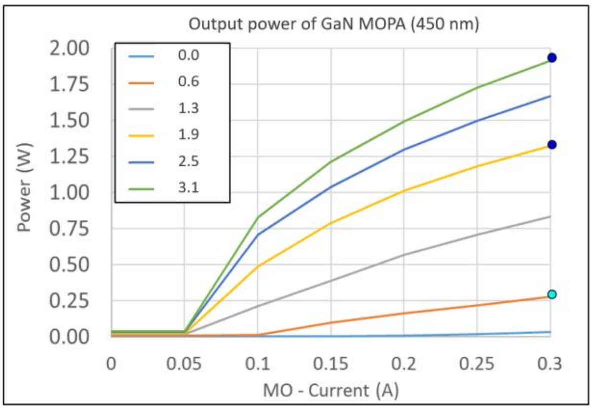
Global semiconductor developer **BluGlass Limited** (**ASX: BLG**) has demonstrated a new world-record gallium nitride (GaN) laser single-mode performance – achieving 1.9W of peak output power from a single spatial mode laser. This milestone represents a 52% improvement over BluGlass' previous world-record performance of 1.25W[1] of single-spatial mode power.

The record achievement combined a high-performance 450nm single-mode GaN laser with the Company's proprietary gain-chip technology; incorporating a single-mode master oscillator with a tapered power amplifier (MOPA) to scale high-power while maintaining high-precision. BluGlass' unique GaN gain chips and novel MOPA architectures provide independent electrical control of the laser and amplifier, enabling optimisation of gain and beam quality. Testing confirmed 1.9W of continuous amplified peak power, maintaining stable single-spatial mode emission with a well-defined beam profile and preservation of beam quality at high-power.

This result represents a significant advancement in BluGlass' development of world-leading, single-mode visible lasers, further strengthening the Company's leadership in next-generation photonics solutions for defense, aerospace, quantum, and advanced industrial applications.

BluGlass CEO and Executive Director Jim Haden said, "Our latest performance milestone highlights the strong technical progress our team continues to make advancing high-power, single-mode GaN lasers to support next-generation quantum and defence applications. Advancements in design and fabrication over the past year have delivered a significant step-up in output power to address the most exacting requirements of our Tier 1 and government customers.

"These capability advances support BluGlass' growing commercial momentum and the ongoing conversion of our US$100 million development pipeline as we turn technical innovation into customer-focused performance outcomes. GaN lasers are critical to both established and emerging photonics applications, and our world-leading gain chips create a long-term opportunity for BluGlass to capture market share as next-generation technologies are developed. Our continued investment in optimising MOPA architecture and epitaxial designs will broaden our wavelength offering and further improve power output, efficiency, and reliability, supporting delivery across contracted development programs. BluGlass is also progressing opportunities in emerging applications, including surface-emitting architectures, with early-stage engagements and proposals focused on AI data centres and next-generation sensing platforms."



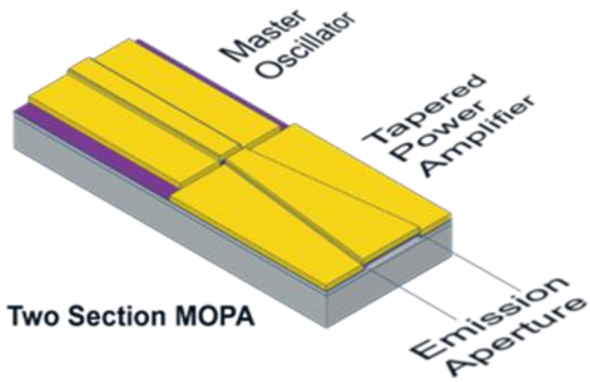


Figure 1: *Measured output power at various current of the GaN MOPA device, illustrating strong power growth and 1.9W of peak output power.* ***Figure 2****: The two-section MOPA device architecture, highlighting the independently driven master oscillator and tapered power amplifier configuration.*

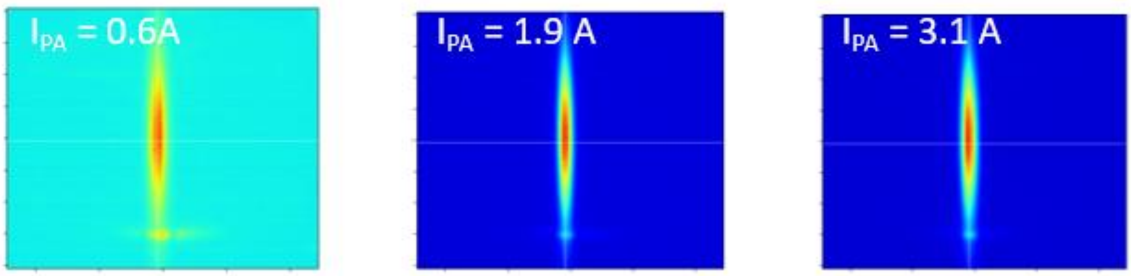


Figure 3: *Far-field measurements at peak power demonstrate single-spatial mode emission and a well-defined beam profile, indicating preservation of beam quality at higher output levels.*

1. https://bluglass.com/blg-demonstrates-world-record-single-mode-gan-laser/

This announcement has been approved for release by the Board of BluGlass.

*To the best of our knowledge, based on literature searches conducted by the University California, Santa Barbara (UCSB) and BluGlass, see references below.

References: GaN (Topic) AND optical amplifier (Topic) AND blue (All Fields)
Timespan: 1900-2025. Web of science search January 21,2025

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About BluGlass

BluGlass Limited (ASX:BLG) is a leading supplier of GaN laser diode products to the global photonics industry, focused on the industrial, defence, bio-medical, and scientific markets.

Listed on the ASX, BluGlass is one of just a handful of end-to-end GaN laser manufacturers globally. Its operations in Australia and the USA offer cutting-edge, custom laser diode development and manufacturing, from small-batch custom lasers to medium and high-volume off-the-shelf products.

The Company combines its proprietary low temperature, low hydrogen, remote plasma chemical vapour deposition (RPCVD) with advanced device design and fabrication to deliver differentiated laser solutions. With end-to-end capabilities spanning epitaxy, device design, fabrication, and testing, BluGlass is well-positioned to support critical next-generation photonics applications and sovereign supply chains.