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**FOR IMMEDIATE RELEASE**

## **INNOLUME GmbH EXPANDS QUANTUM-DOT PRODUCT FAMILY**

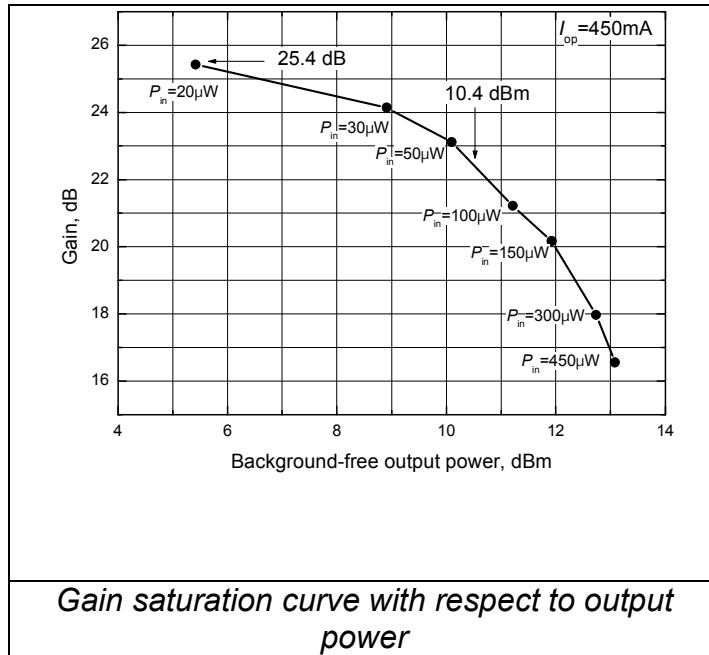
### **Innolume GmbH announces further progress in quantum-dot SOAs**

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DORTMUND, GERMANY and SANTA CLARA, CALIFORNIA (January 18th, 2007) – Innolume GmbH, a world leader in commercialization of quantum-dot-based optoelectronic devices, has announced a significant achievement in the realization of GaAs-based semiconductor optical amplifiers (SOAs) for the 1.3 $\mu$ m spectral range.

Semiconductor Optical Amplifier (SOA) is one of the key building blocks in today's WDM communications networks - it boosts optical signals which have attenuated over long distances traveled through fiber. However, the current quantum-well based technology faces significant challenges in optimal operation at ultra high speeds (100 Gb/s and beyond). The unique properties of quantum-dots, such as extremely fast gain recovery, have long-since had the potential to enable optimal operation at ultra high-speeds, but until now the basic parameters of QD-based SOAs, such as net gain and gain saturation, have remained lower as compared to commercially available InP-based quantum-well SOAs.

Using its extensive quantum-dot expertise, Innolume has demonstrated a significant improvement in the operation of QD-based SOAs: a fiber-to-fiber small signal gain as high as 25 dB and a saturation output power at -3dB in excess of 10 dBm. The device uses Innolume's proprietary quantum-dot technology platform which has been previously used for development of advanced mode-locked lasers, broadband lasers, and high-power lasers.



Dr. Alexey Kovsh, CTO Laser Technology at Innolume GmbH, explained the achievement, “The discrete nature of electronic states in QDs provides the opportunity to accumulate a significant amount of charge carriers in the excited state while simultaneously keeping the ground state in saturation regime. In addition, QDs exhibit a relaxation time of only a few hundred femtoseconds – so these two properties together give us a strong expectation of patterning free linear amplification of signals into the Terabit per second range. Furthermore, pronounced spectral hole burning, which is a unique property of QD devices, leads to significantly enhanced cross gain modulation, enabling effective wavelength conversion even at these ultra high speeds.” He added “Today we have brought QD parameters for amplification and wavelength conversion for SOAs to a level sufficient to fully exploit in the coming generation of ultra high-speed communication networks.”

### Description

The Innolume 1.3 $\mu$ m-SOA is based on an AlGaAs/GaAs laminated structure grown on a GaAs substrate and incorporates a highly-efficient an InAs/InGaAs quantum dot active region. The SOA relies on tilted-stripe AR/AR ridge-waveguide design which insures stable single-spatial-mode operation, reduced optical feedback and suppression of the spontaneous emission intensity. It is housed in a standard 14-pin butterfly package with two single-mode pigtailed and integrated thermoelectric cooler.

### About INNOLUME GmbH

Innolume is an innovator of Semiconductor Quantum Dot Technology, offering epitaxial wafers, laser chips and fiber coupled laser modules with unique properties for various applications. Newly also established in Santa Clara, CA (USA), Innolume produces wafers and devices in Dortmund (Germany). The company’s long term development focus is to drive performance improvements of semiconductors by delivering photonics solutions for chip level signal and timing distribution.

For more information about Innolume GmbH and its products, visit our website: [www.innolume.com](http://www.innolume.com).