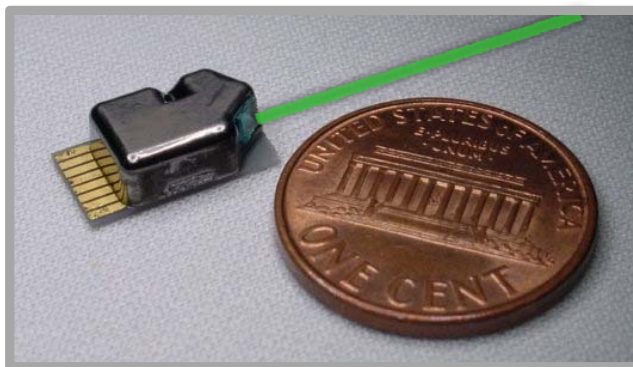




Turning material and laser science innovations into light sources for compact projectors

Spectralus Corporation



**Источники света для компактных проекторов: решения
на основе инноваций в физике материалов и лазерах**

Корпорация «Спектралюс»



Photos & Videos



Presentations



Gaming



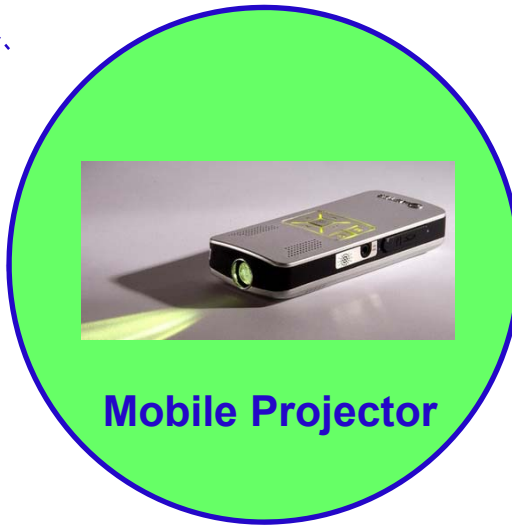
Auto



Portable DVD



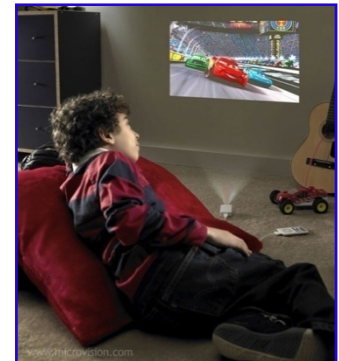
Consumer Market is Evolving



Photos, Videos, Business



Auto (HUDs)

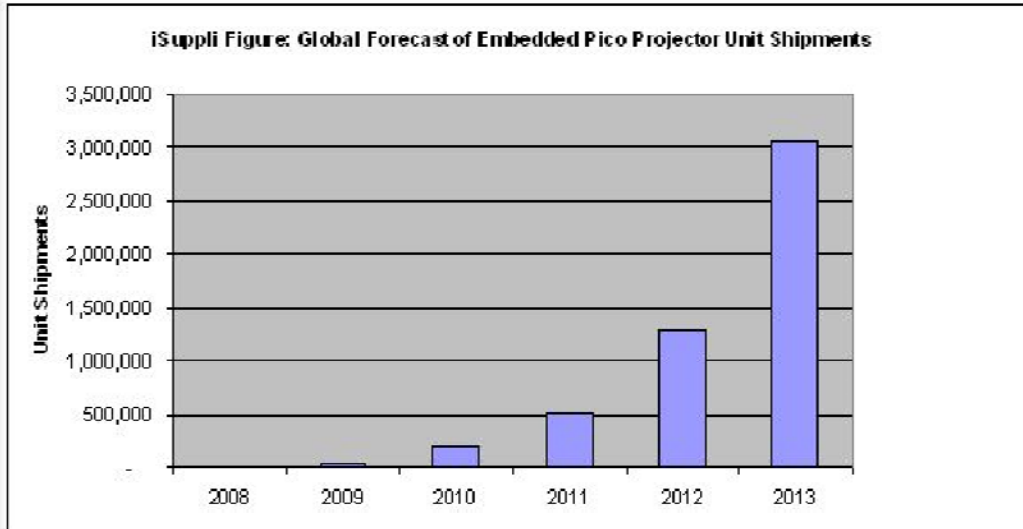


Gaming, DVD



Pico-Boom: Industry Headlines, July-September 2009

Huge Growth Set for Embedded Pico Projectors, Says iSuppli



Source: iSuppli Corp. August 2009

Samsung's SHOW Smartphone



Pico Boom

This diagram shows the internal components that make up Microvision's PicoP engine, including laser diodes and a microelectromechanical systems chip. Courtesy of Microvision Inc.

Pocket projectors are poised to explode, but will lasers or LEDs be the pre-eminent light source?

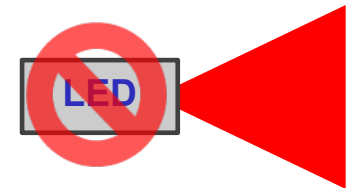
76 | PHOTONICS MEDIA | Photonics Spectra September 2009



Why Lasers and not LEDs?

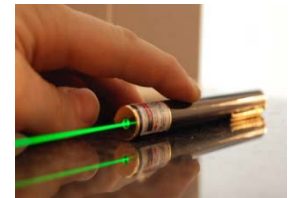
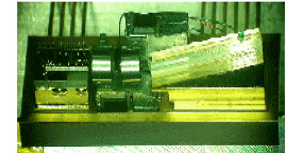
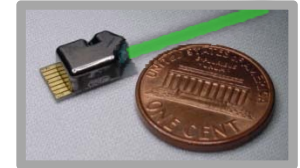
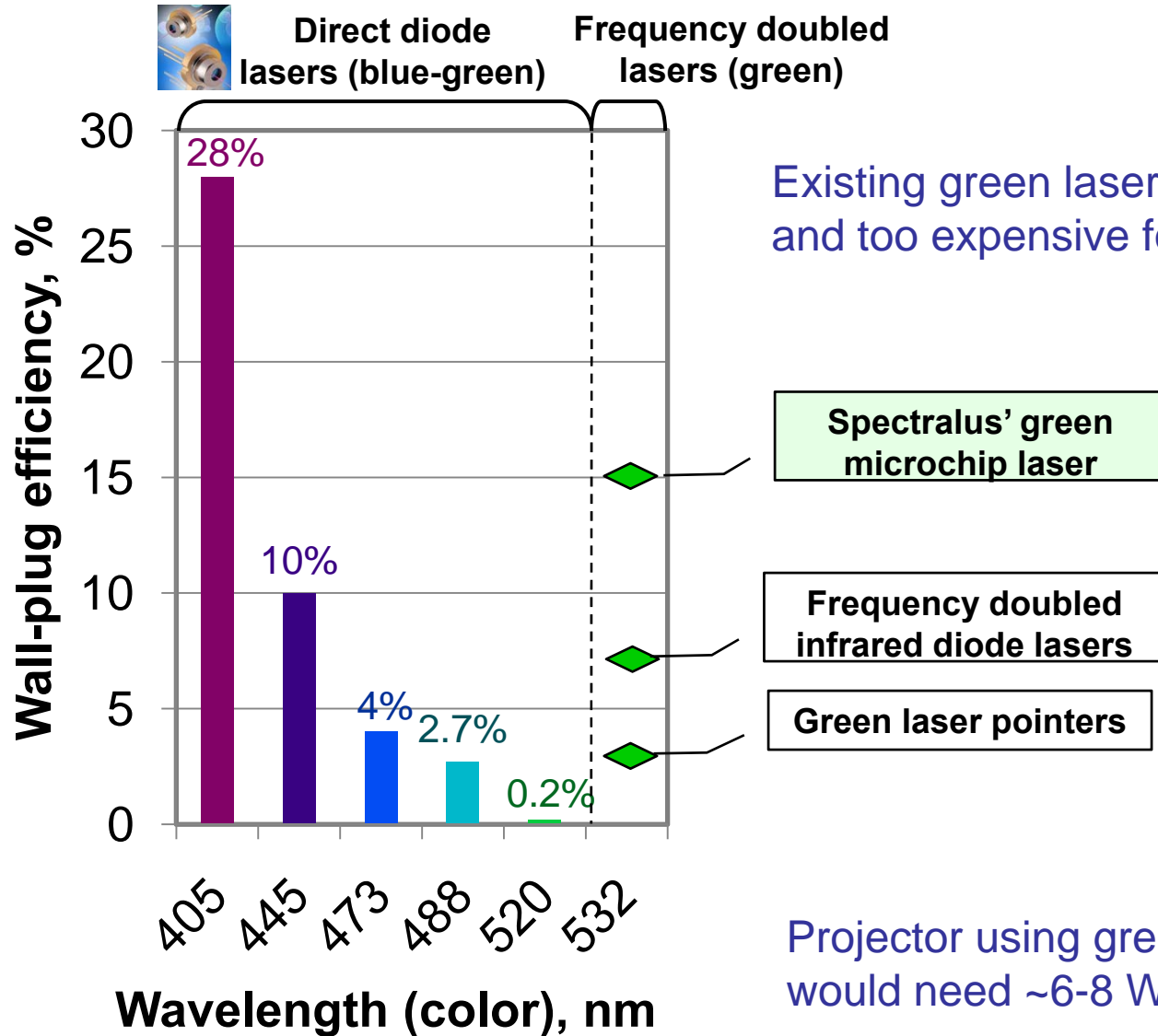


- **Light source** is what is holding the market from exponential growth
- **LED sources** were the first to market. But LED projectors are ...
 - Too dim (~10 lumens) when battery operated
 - Too big and not battery-powered (not mobile) when bright
- **Lasers** allow to use most light and color space for projection but ...
 - **Red**, **green**, and **blue** are needed
 - **Red** and **blue** lasers are available
 - **Green** lasers are NOT ready for mobile projectors





Green Laser Choices: why efficiency matters

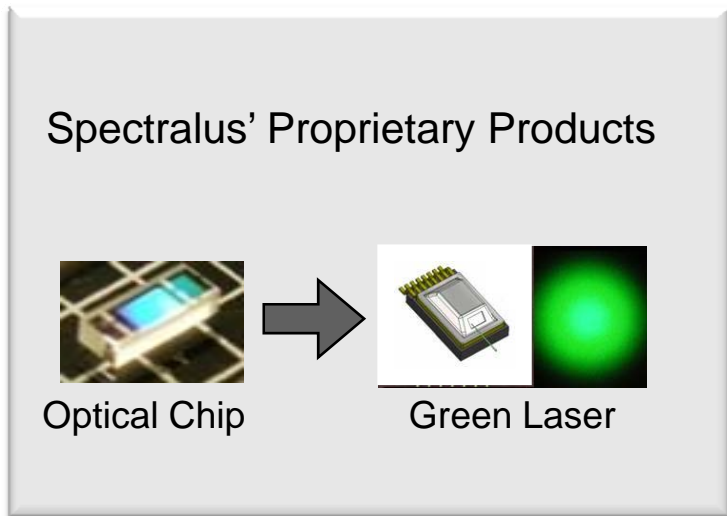


Projector using green pointer platform would need ~6-8 Watts: too much

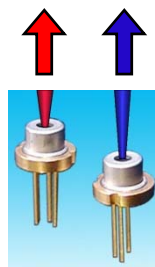


Spectralus Value Proposition

The company provides the essential missing **green** laser solution to enable **RGB** mobile laser projectors, which opens huge consumers market



Mobile Projector



Red and Blue diode lasers (available)

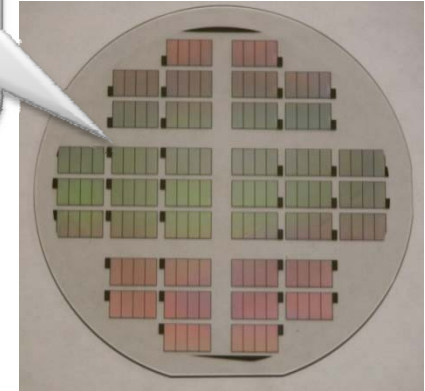


Spectralus Solution for Green Laser

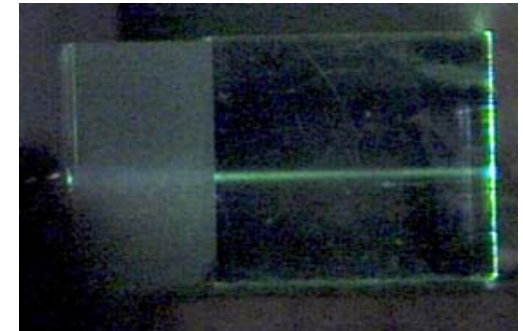
- Patented technology for PPLN optical chip with highest conversion efficiency from infrared into green light
- PPLN enables “solid-state laser microchip” – our proprietary engine for highest-efficiency, alignment-free laser source



PPLN chip



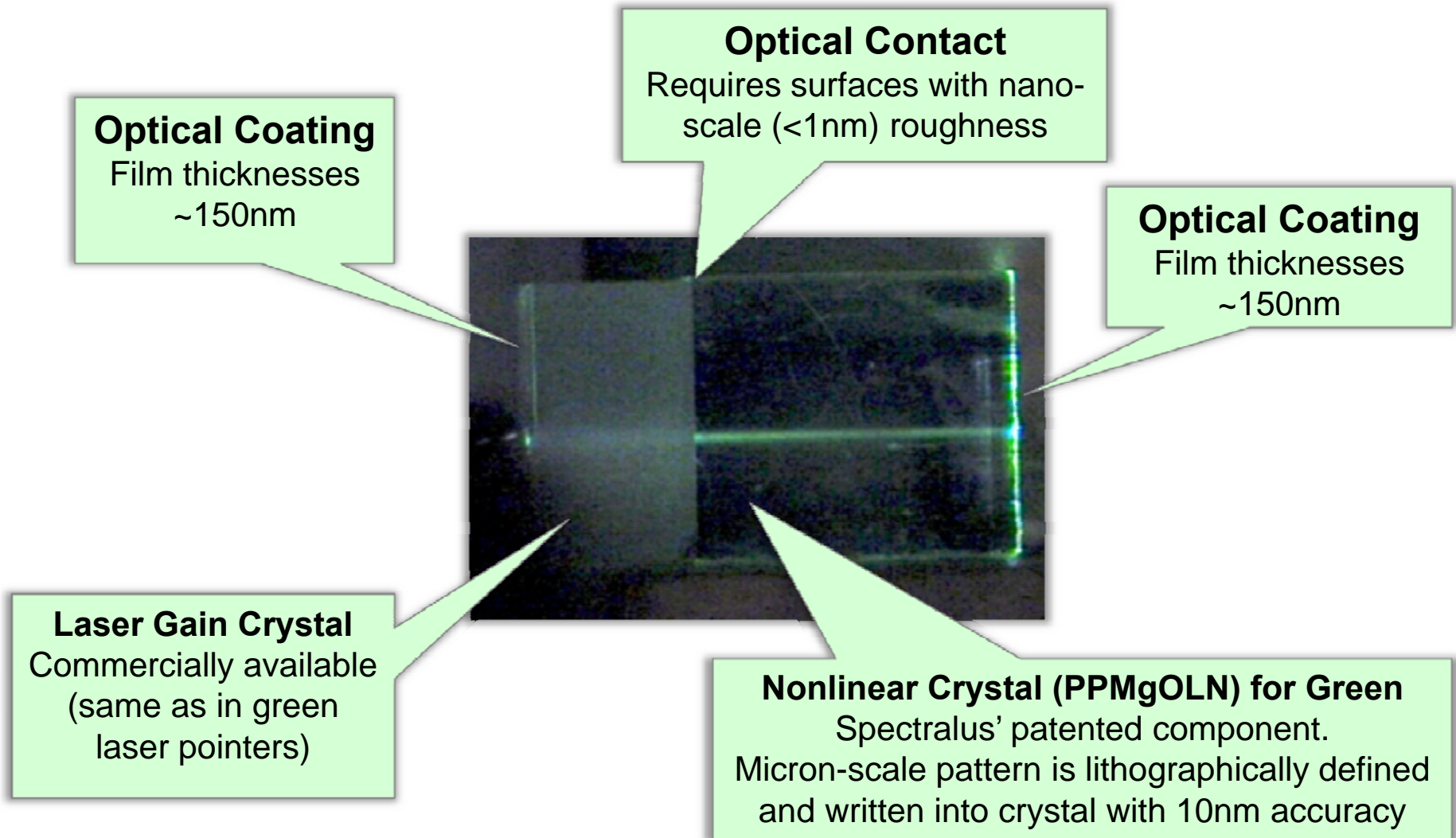
Lithium niobate wafer



Monolithic laser microchip



Nano-Engineering of Green Laser Microchip





About Spectralus

◎ History

- 2003-06: funded by angel investors (USA)
2007-now: venture funded (SGCM – 2007 / RVC – 2009);
- Established market and technology reputation, experienced team
- Partnership with Satori Electric (Japan) and distribution channels

◎ Strong Technology Portfolio

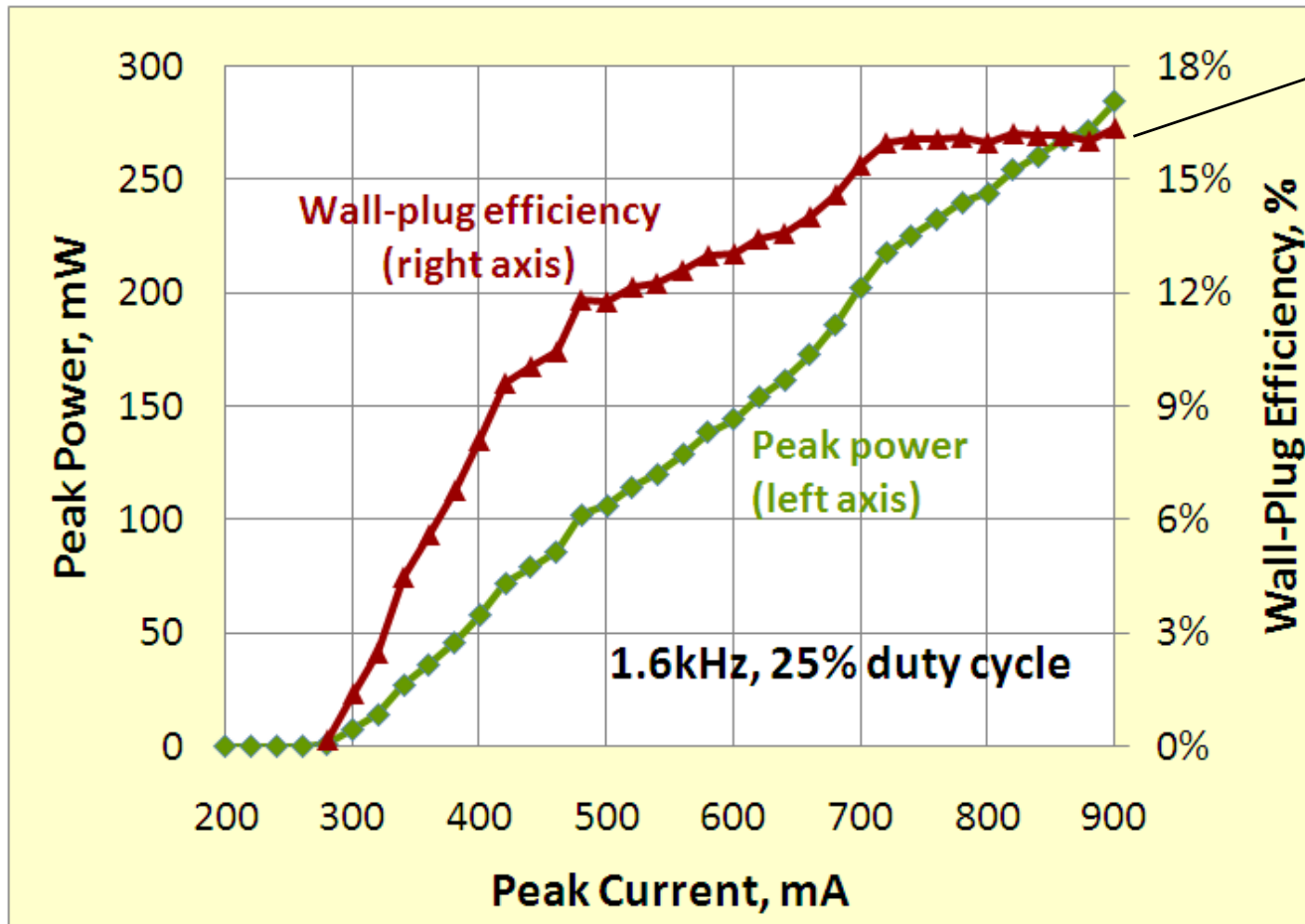
- 2 awarded and 4 pending patents for optical chip and laser technologies

◎ Global Team

- USA / Armenia / Russia



Spectralus® green laser has world's highest efficiency



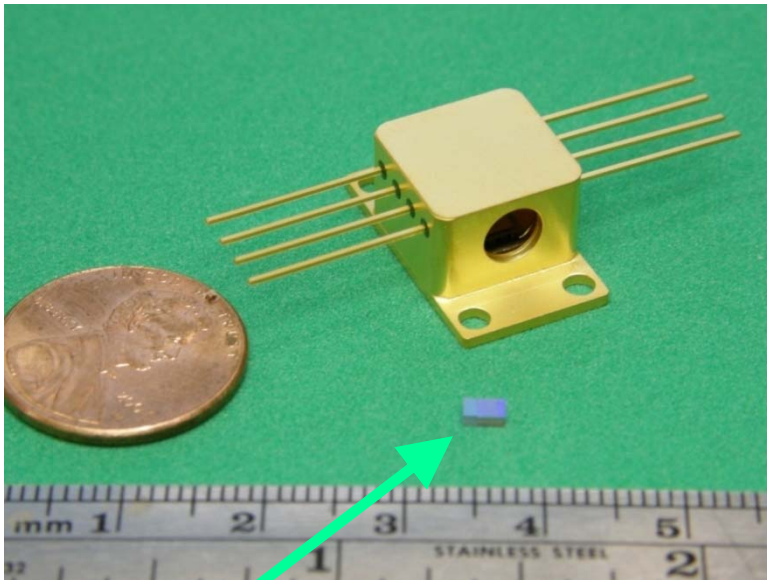
**16% efficiency demonstrated !
(July 2009)**

- Tested in field-sequential operation for projection applications



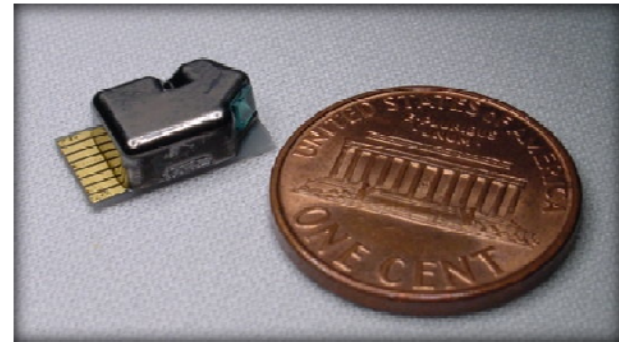
Package Development and Product Release Schedule

- ◉ Prototype green laser in mini-butterfly package
 - ◉ Available now
 - ◉ Volume $\sim 1.5 \text{ cm}^3$



Microchip

- ◉ Miniature “Atto” package
 - ◉ Available in Q4’2009
 - ◉ 60 milliwatts green power
 - ◉ Volume $< 0.4 \text{ cm}^3$
 - ◉ Height $< 4 \text{ mm}$





Summary

- ◉ We are in the beginning of pico and embedded projector boom
 - ◉ 400k units sold in the first year (2009)
- ◉ Light sources have the defining role for this market
 - ◉ LEDs took the lead, but lasers are forecasted to do more
- ◉ Spectralus' efficient green laser is a key to mobile projection market

