



US006448805B1

(12) **United States Patent**
Heald et al.

(10) **Patent No.:** **US 6,448,805 B1**
(45) **Date of Patent:** **Sep. 10, 2002**

(54) **METHOD AND APPARATUS FOR
WAFER-LEVEL TESTING OF
SEMICONDUCTOR LASERS**

5,498,973 A * 3/1996 Cavaliere et al. 324/765
6,265,237 B1 * 7/2001 Heffner et al. 438/24

FOREIGN PATENT DOCUMENTS

(75) Inventors: **David Leslie Heald**, Solvang; **Legardo Tardeo Reyes**, Pacifica, both of CA (US)

DE 3916924 C1 * 5/1990 324/767

OTHER PUBLICATIONS

(73) Assignee: **Novalux, Inc.**, Sunnyvale, CA (US)

IBM Tech. Disclosure Bulletin, "Full-Wafer Testing of Laser Diodes" (NB8911368, Nov. 1, 1989).*

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 38 days.

* cited by examiner

(21) Appl. No.: **09/782,092**

Primary Examiner—Michael Sherry

Assistant Examiner—Paresh Patel

(22) Filed: **Feb. 12, 2001**

(74) *Attorney, Agent, or Firm*—Fay Kaplun & Marcin, LLP

(51) **Int. Cl.**⁷ **G01R 31/26**; H01S 5/00

(57) **ABSTRACT**

(52) **U.S. Cl.** **324/767**; 324/765; 438/16; 438/17; 372/43; 372/50

A method and device for wafer level testing of semiconductor lasers allows probing from one side while detecting light output from the opposite side. A chuck with a transparent substrate receives the optical aperture side of a wafer of semiconductor lasers. The wafer is probed from the side opposite the side contacting the chuck and emitted light is detected on a side of the chuck opposite the side contacting the wafer.

(58) **Field of Search** 372/43, 50, 45, 372/46; 257/85; 438/16, 17; 324/765, 760, 767

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,489,477 A * 12/1984 Chik et al. 438/17

19 Claims, 9 Drawing Sheets

