

Realization of energy efficient society by improving LED performance and productivity, and spreading its applications

## Evaluation and measurement system for nitride semiconductors such as LEDs

### Features

- <NEW!> In situ crystal formation environment monitoring system of nitride semiconductors such as LEDs (YGrowthMonitor)
- Automatic mapping system for LED wafer photo-luminescence (PL) and film thickness (YWafer Mapper)
- Realized innovative evaluation and measurement system based on unique technologies at low cost (international patent pending!)

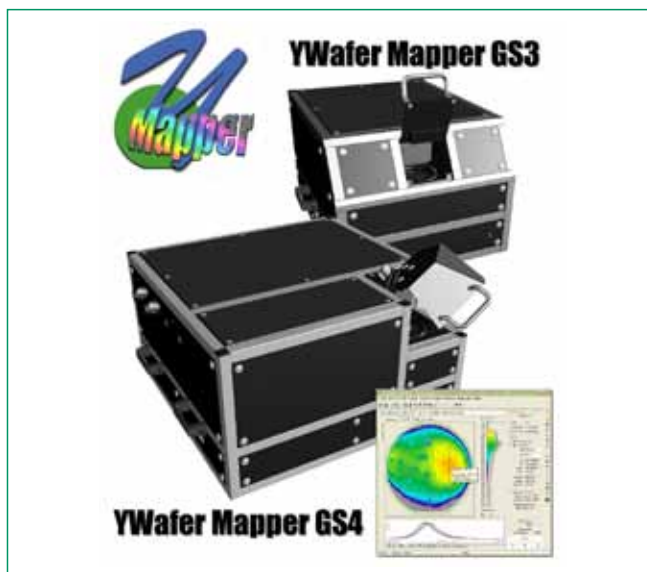
### Overview

(Technical principles, actions, etc.)

■ <NEW!> YGrowthMonitor is an in situ optical probing system for measuring the crystal growth conditions during semiconductor wafer fabrication for materials such as Gallium Nitride and alloys used in the fabrication of blue LEDs/LDs. Featuring higher sampling rates with respect to conventional products, it also has the following advantages: (1) absolute wafer temperature measurement during high temperature crystal formation, which can be used to calibrate in real time other temperature measurement devices such as pyrometers; (2) real-time confirmation of initial crystal layer completion via roughness monitoring; (3) real-time indium composition monitoring during device structure formation (world first), which is the deciding factor for the color of an LED.



■ YWafer Mapper is a high-speed mapping system for photoluminescence of nitride LED/LD wafers and film thickness. The applicable measurement size ranges from 2 inches to 6 inches. An automatic wafer loading system and other systems are available as options to automate production lines. This product improves LED quality and productivity because it allows LED manufacturers to detect defects in the wafer phase. This product is offered at a low price by limiting measurement targets to nitrides compared to general-purpose systems, including the products of other companies.



### Introductory Track Record

- This product has been sold to LED manufacturers and research facilities such as universities in Japan, Canada, China, Taiwan, Russia and other countries, and has been well evaluated for its great technology and usability.

### Effects

- LEDs have been attracting worldwide attention as energy efficient light sources, and the use of LEDs is spreading at a fast rate. Therefore, improved productivity and higher emission efficiency are expected to reduce costs. YWafer Mapper improves the initial yield of LED wafers. In addition, YGrowthMonitor improves the development of high efficiency new materials and the yield of vapor deposition processes because it allows in situ monitoring of crystal growth processes under high temperature. Both products are expected to further accelerate the spread of LEDs.

**YSystems Ltd.** 209-5 Hiraishi-Sumiyoshi, Kawauchi-cho, Tokushima-shi, Tokushima 771-0134

● TEL / +81-88-666-3533 ● FAX / +81-88-666-3534 ● E-Mail / info@ysystems.jp ● <http://www.ysystems.jp/>

Applicable field  
LED manufacturers and MOCVD manufacturers  
Research facilities such as universities and semiconductor manufacturing industry

Water

Energy saving/Energy recovery

Energy storage/Energy creation

New energy

Waste disposal/  
Recycling/  
Resource saving

Air

Soil

Other