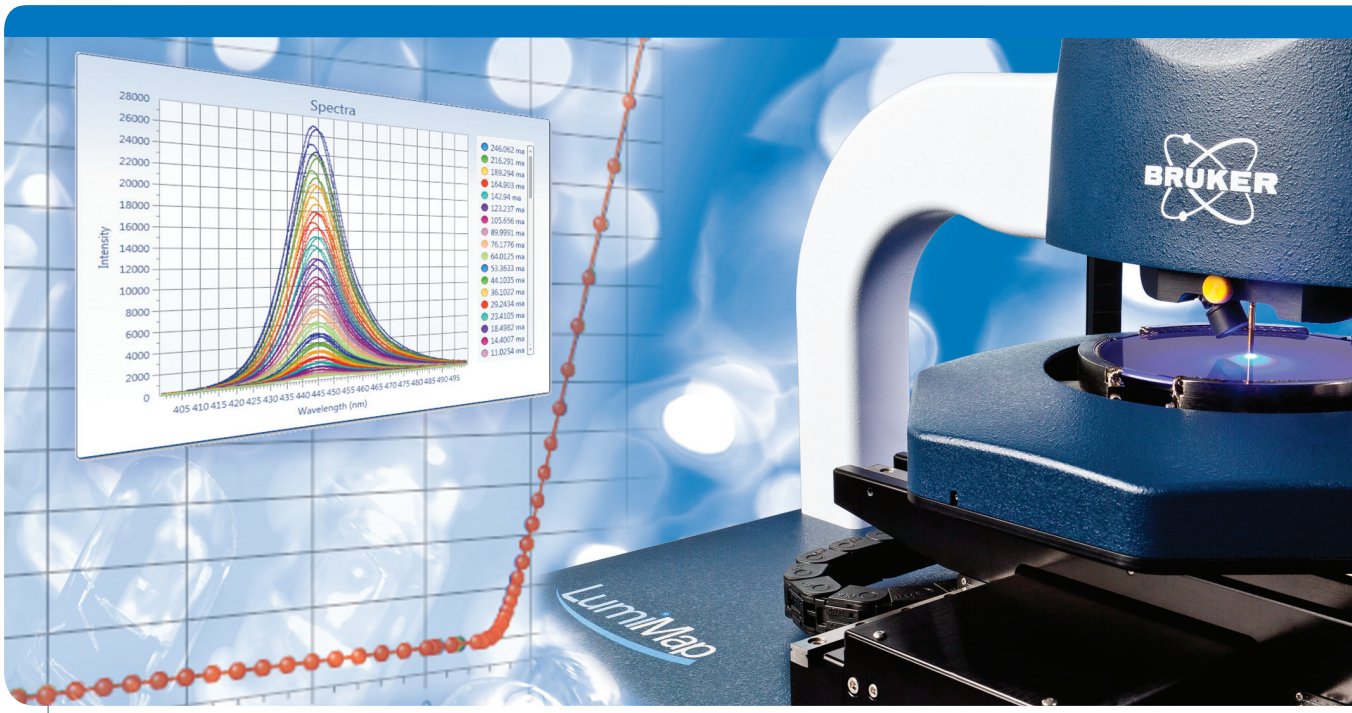


LumiMap Electroluminescence System

HB-LED Epitaxial Inspection for R&D and Production

The LumiMap Electroluminescence System integrates epi wafers spectral and electrical testing in one, simple, intuitive test environment that provides immediate data without any wafer preparation. The LumiMap utilizes a nondestructive touch probe to send a controlled current through the wafer. This current excites the active GaN layer, causing it to emit light. Proprietary, patent-pending features of the new metrology system include a durable conducting probe, a unique wafer edge contact solution, and advanced IV curve modeling for accurate and repeatable forward voltage (Vf) measurements. These features enable LumiMap to deliver the most accurate and repeatable forward and reverse IV characteristics, spectral intensity, wavelength, and spectral width measurements on 2- to 6-inch epi wafers.

Most Accurate, Reliable Epi Quality Inspection

- Measures forward and reverse IV characteristics accurately and repeatably
- Characterizes current-induced spectral intensity, wavelength, and spectral width
- Provides long-term Vf accuracy and repeatability via patent-pending probe design and edge contact
- Enables strong correlation with device-level measurements using advanced IV modeling

LumiMap Electroluminescence System.

Specifications

Measurement Types	IV characteristics (forward and reverse); Spectral properties (intensity, wavelength, width)
Wafer Types	Sapphire, SiC, GaAs, Si, GaN, GaP
Wafer Sizes	2in; 4in; 6in
Intensity	1% repeatable; 1.5% reproducible
Wavelength	0.5nm repeatable and reproducible; 0.5nm accuracy
Spectral Width	0.5nm repeatable and reproducible
Forward Voltage	1% repeatable; 3% reproducible
IR (-20V)	1% repeatable; 3% reproducible
Software	Windows 7, 64-bit platform
Voltage Range	±40V
Current Range	1nA to 1A range/1nA resolution
Measurement Locations	Up to 1000 automated, user-defined points
System Weight	34kg (75lb.)
Footprint	455mm (W) x 550mm (D) x 370mm (H) (17.9in (W) x 22.6in (D) x 14.5in (H)

Fastest, Easiest Quality Control

- Shortens acquisition of critical data from days to minutes
- Provides immediate feedback on MOCVD process quality, with no wafer preparation required
- Delivers nondestructive, multi-point inspection in seconds

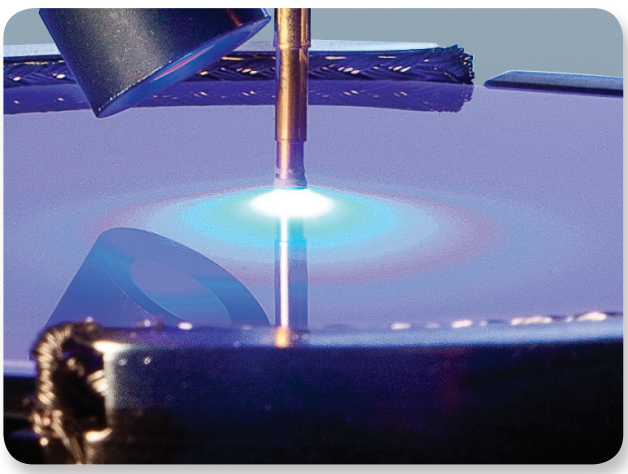
LumiMap Measurements Correlate to Device-Level Measurements

GaN epi wafer electrical and spectral measurements correlate well to device-level measurements. This provides an early warning of process shifts, which in turn reduce the risk of expensive scrap events. Strong correlation allows for statistical process control at the epi wafer stage. More accurate measurements of wavelength and Vf variation minimize end-of-line binning and improve yield.

Shortens accurate electrical/optical feedback loop from days to minutes!

Improved Manufacturing Costs

Motorized programmable stage for user-defined multiple point wafer mapping and intuitive software provide the industry's easiest to use interface for production quality control and process development. The long measurement lifetime of the proprietary conducting probe meets the strictest industry cost of ownership requirements. In addition, LumiMap provides immediate feedback to the critical GaN MOCVD process, ensuring higher yields.



Nondestructive LumiMap lights up wafer.

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