LAYTEC
MEMBER OF THE NYNOMIC GROUP

EpiX® Modular Metrology Solution

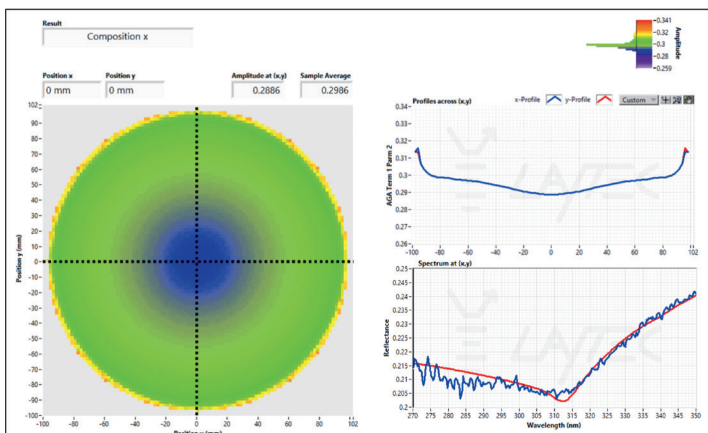
High-End Metrology White Light Reflectance, Photoluminescence & Automation for GaN Power and RF Applications

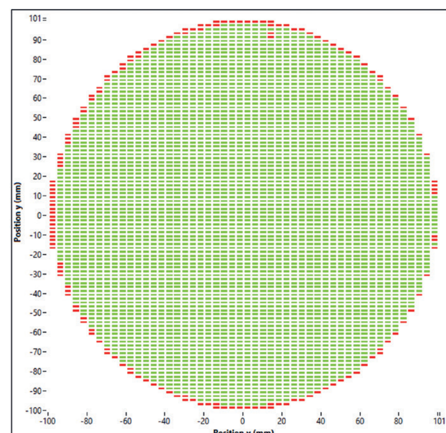
Applications

- 4D spectral reflectance and photoluminescence wafer mapping
- Quantification of barrier composition and thickness for E- and D-mode structures
- Total stack and individual layer thickness
- Statistical process control option

Features

- Pass/fail classification on wafer- and die-level
- Industry-compatible clean room design
- 250-2000 nm spectral range
- Analysis embedded in simple workflows
- Modularity by design





Web: www.laytec.de
Email: info@laytec.de
LinkedIn: www.linkedin.com/company/laytec

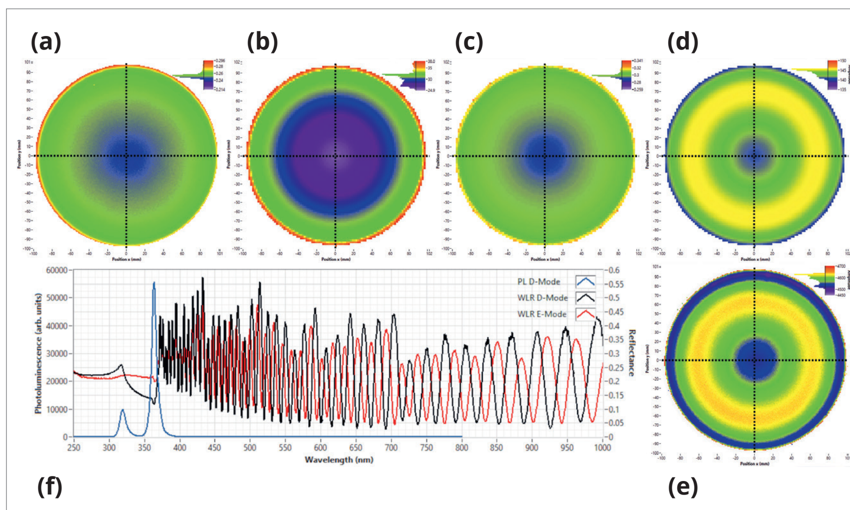
LayTec AG | Seesener Str. 10-13 | 10709 Berlin, Germany
Tel.: +49 (0) 30 89 00 55-0 | Fax: +49 (0) 30 89 00 55-180

EpiX® for GaN Power and RF

LAYTEC
MEMBER OF THE NYNOMIC GROUP

Frontside left: Color-coded wafermap of $Al_xGa_{1-x}N$ barrier composition of E-Mode HEMT structure with 100 nm p-GaN (2D-smoothed). Top right graph depicts x and y profiles defined by crosshairs in wafermap. Bottom right graph shows UV-spectrum of point defined by crosshairs in blue and spectral fit in red yielding barrier composition and thickness as well as p-GaN thickness.

Frontside right: Pass/fail classification of HEMT wafer at die-level



Color-coded wafer-maps of **(a)** $Al_xGa_{1-x}N$ barrier composition of D-Mode from UV-PL, **(b)** $Al_xGa_{1-x}N$ barrier thickness and **(c)** composition of E-Mode from UV-WLR (2D-smoothed), **(d)** p-GaN thickness and **(e)** total stack thickness of E-Mode from VIS-WLR **(f)** UV-PL spectrum of D-Mode (blue) and UV-VIS-WLR spectra of D-Mode (black) and E-Mode (red)

Key specs

White light reflectance (250 – 2000 nm)	
Absolute accuracy at wafer center	< ± 0.5 %
Signal to noise within single spectrum	< ± 0.5 %
System-induced deviation across wafer	< ± 0.5 %
UV-Photoluminescence (266 nm, 355 nm, ...)	
Intensity stability across wafer	< ± 3 %
Signal to noise within single spectrum	< ± 1 %
Automation	
Throughput (wafers / h @ 1mm pitch)	up to 40/25/15 (for 4"/6"/8" wafers)
Cleanroom compatibility	up to ISO 3

Additional benefits

- Modular configuration enables flexible parallel usage for LED, Laser, VCSEL and other wafer types
- Combination with complementary LayTec in-situ metrology for epitaxy and etching for in-depth wafer analysis through Connected Metrology®

Web: www.laytec.de
Email: info@laytec.de
LinkedIn: www.linkedin.com/company/laytec

LayTec AG | Seesener Str. 10-13 | 10709 Berlin, Germany
Tel.: +49 (0) 30 89 00 55-0 | Fax: +49 (0) 30 89 00 55-180