

● Dimension Edge PSS with AutoMET software

Bruker's Dimension Edge™ PSS is the ideal metrology and inspection system for LED substrate and epi manufacturers. As an extension of the Dimension Edge Atomic Force Microscope (AFM) platform, the Edge PSS incorporates the incredible value and resolution for which the Dimension® systems are renowned. Bruker's proprietary AutoMET™ software has been designed specifically to meet the needs of patterned sapphire substrate (PSS) suppliers, providing a level of automation and ease of use never before seen in a value-price AFM.

- Engineering and Operator levels provide the ease of use required for production lines
- Superior resolution meets your roadmap for years to come

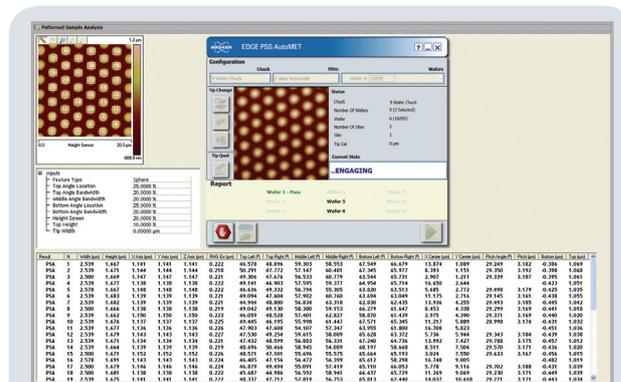
PSS Resolution

Light-emitting diodes (LEDs) have seen tremendous improvements in efficiency and luminance that enable new applications in display backlighting, large area emissive displays, automotive lighting, and general illumination. The introduction of PSS is a key part of this growth and its continued improvement undoubtedly will drive further advances. As the pitch of PSS goes below 2 microns, traditional confocal techniques lose the resolution needed to provide valuable process metrology. The Dimension Edge PSS solves this need with sub-nanometer resolution and the ability to measure up to nine 2-inch wafers at a time (or a single 4- or 6-inch wafer), providing all the data necessary to keep the PSS manufacturing process under control.

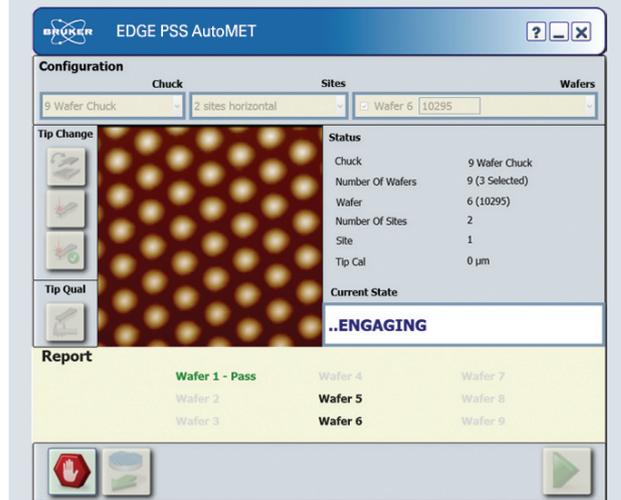
Advanced PSS Metrology Capabilities

Using the Dimension Edge PSS with AutoMET provides both the ability to analyze every substrate feature with AFM resolution and to provide automatic statistical data for the entire wafer. Bruker's dedicated PSS analysis package can simultaneously provide data on:

- Height
- Side wall angle
- Feature profile
- Diameter
- Pitch



Advanced automated analysis.



User interface for production operation.

Production Level Ease of Use

The Edge PSS incorporates AutoMET software that is specifically designed to meet LED manufacturing requirements. The software features two distinct modes of operation:

- 1. Operator Level** – A simple user interface with push button guides users through the steps of tip change, align, tune and qualify. Single button operation runs up to 9 wafers automatically with simple PASS/FAIL output.
- 2. Engineer Level** – A password protected user interface allows engineers to access all critical AFM parameters. Process engineers can also set all necessary pass/fail criteria easily with in this mode.

The Dimension Edge PSS improves operator usability with easy laser alignment as well as automatic report generation, providing the best user experience ever released in a value-priced AFM.

R&D Flexibility from the Leader in AFM

In addition to the specific PSS measurement capabilities built into the Dimension Edge PSS, the system also incorporates all of the world-leading Bruker AFM technology that the Dimension microscopes have become famous for, including high resolution and low noise for epitaxial roughness measurements, and such standard and proprietary AFM modes as TappingMode™, Contact Mode, Phasemaging™ and LiftMode™.

Cover images

Foreground: Dimension Edge PSS AutoMET software and system with 9 wafer chuck.
Background: 3D AFM image of flat-top patterned sapphire substrate.



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