

KLA Tencor Stylus Profilometer SOPs

AlphaStep® D-600 Stylus Profiler offers industry-leading high resolution 2D & 3D profiling, 2D stress, profile stitching and many additional features in an easy-to-use platform. The stylus profilometer system includes a 200 mm motorized stage, with 150 mm x 178 mm X-Y range of motion and an innovative optical lever sensor technology. The Alpha-Step D-600 Stylus Profiler also includes advanced optics and enhanced video controls for highly versatile sample visualization. The new sequencing software features manual deskew alignment, allowing users to program up to 1000 locations. (For more information, please go to <http://www.kla-tencor.com/Surface-Profiling/alpha-step-d-600.html>)

Click the link to find out the operating manual of AlphaStep D-Series:

<http://cleanroom.ou.edu/sites/cleanroom.ou.edu/files/AlphaStep%20D-Series%20Operational%20Manual.pdf>

The simplified SOPs for AlphaStep® D-600 Stylus Profiler is shown below:

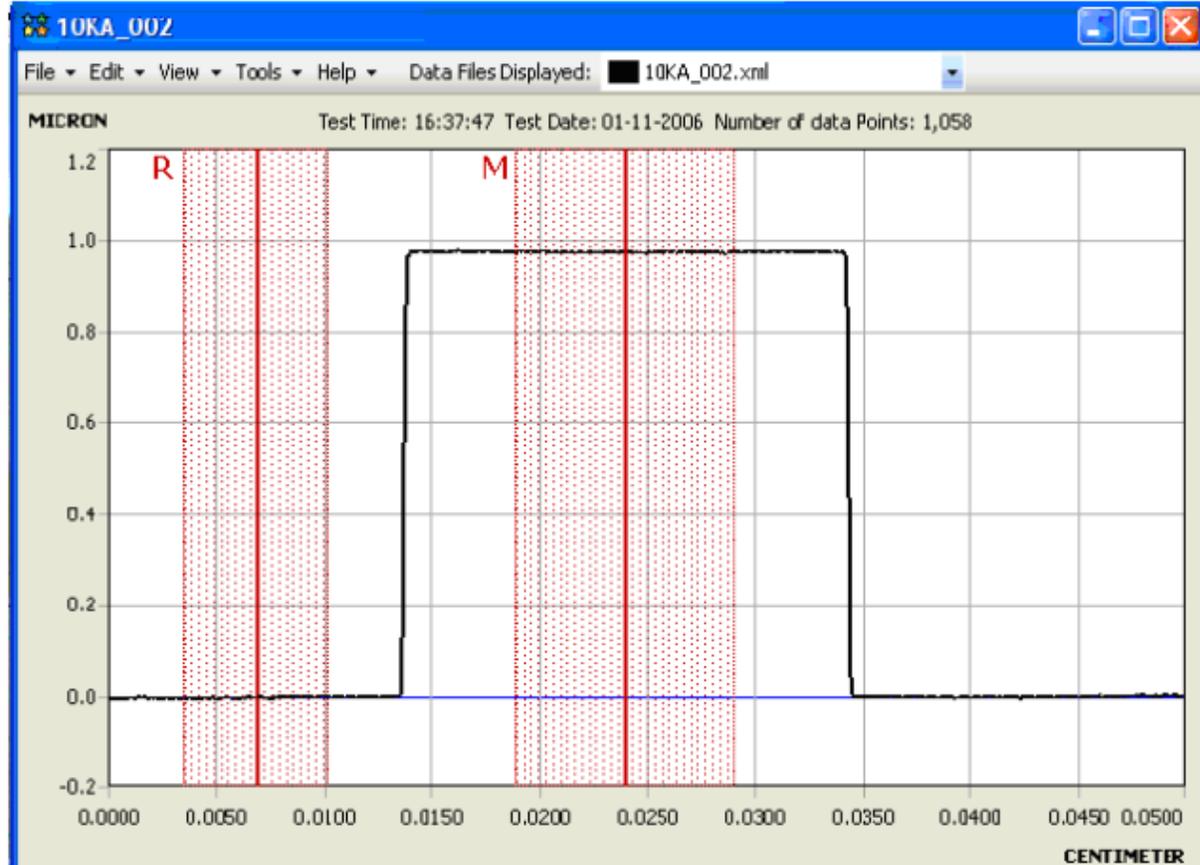
1. Powering up the instrument and load sample

- (1) Turn on the profilometer by flipping switch on back;
- (2) Turn on the computer and the pump;
- (3) Open AlpaStep D program on desktop;
- (4) Click “yes” for homing monitors (a window will pop up as soon as opening the program);

2. Control Panel Tab

- (1) Click “scan parameters” tab at the bottom of the screen and choose parameters. For instance: for a device that has 200 μm thickness,
 - *Speed: 0.20 mm/sec*
 - *Length: 5mm*
 - *Profile: Step up/down*
 - *Range: 550 μm (The next scale is 100 μm)*
 - *Direction: forward*
 - *Stylus force: 15.0 mg*
 - *Filter level-avg # points: 32*
- (2) Under “scan stage”, click box “vacuum on”;
- (3) Under “X-Y stages”, click “load position” button and click “go to” button for “load”. This will bring the chuck forward into the loading position.
- (4) Lift the lid and place testing substrate in the center of the chuck using tweezers;
- (5) Use +/- X and +/- Y buttons to move the wafer under the stylus;
- (6) Use arrows under “z stage” to move the stylus up and down;
- (7) Once finish positioning stylus over testing substrate, press “engage” button to bring the stylus on contact with the substrate;
- (8) Hit the “scan” button and scan, a graph depicting the resulting data will pop up after scan.

3. Analysis



- To move the R or M cursor, position the mouse on the R cursor, Left Click and hold the button. Move the mouse right or left to reposition the cursor in a desired location.
 - (1) Expand R&M regions and adjust their position so that they cover everything except the “peak” as depicted;
 - (2) Click “auto level step” box which will automatically level the graph;
 - (3) Move the cursor to the top of the graph (peak) and the height will be shown at the top right-hand corner of the screen.