

KLA Tencor

Step Preview:

Review the recipe.

Place your sample on the stage.

Load the stage.

Focus on your sample.

Find the step.

Mark the step.

Start the scan.

Level the profile.

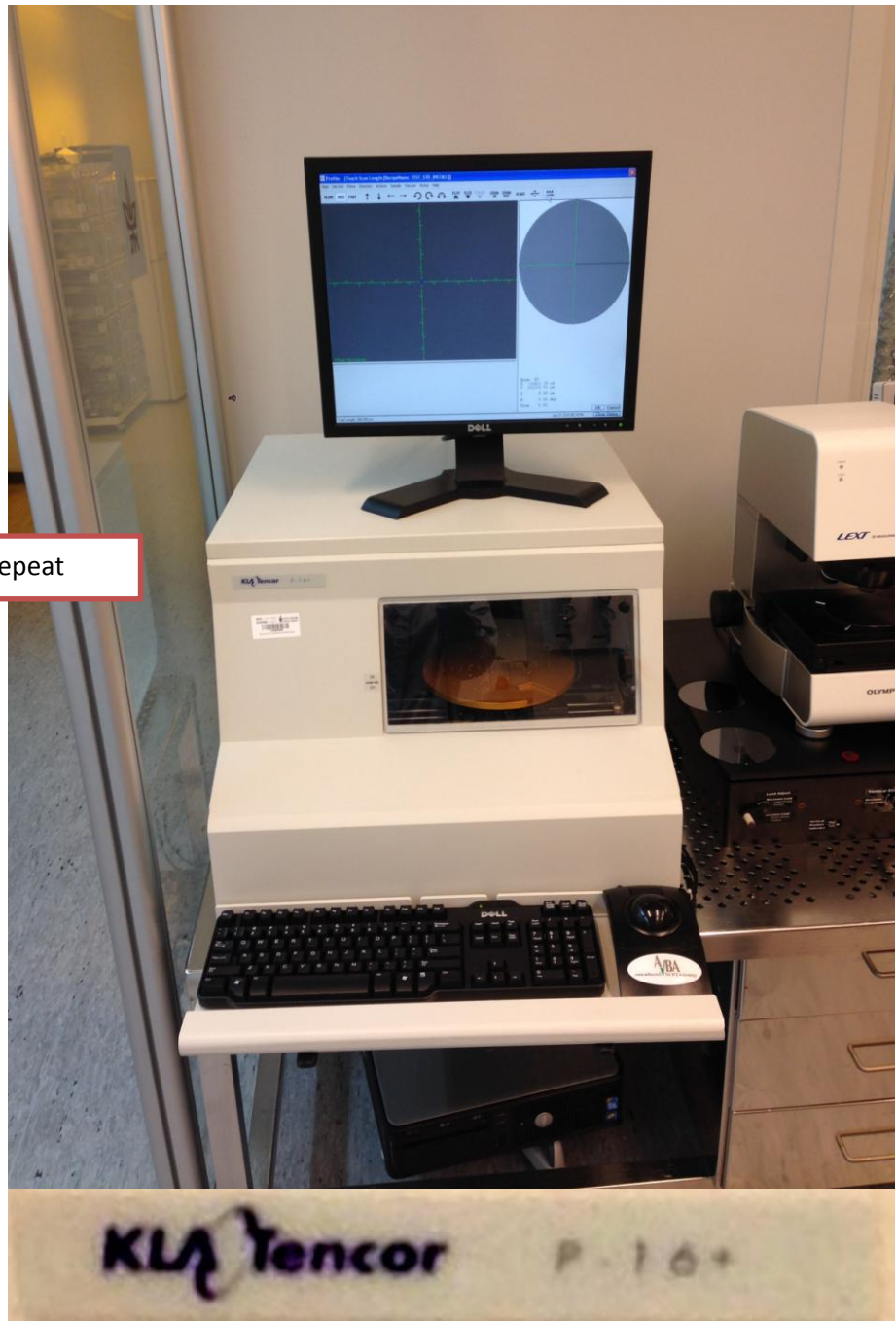
Measure the profile.

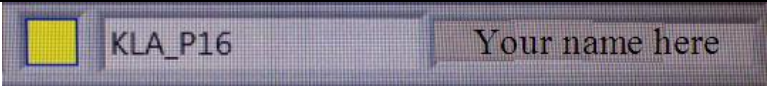
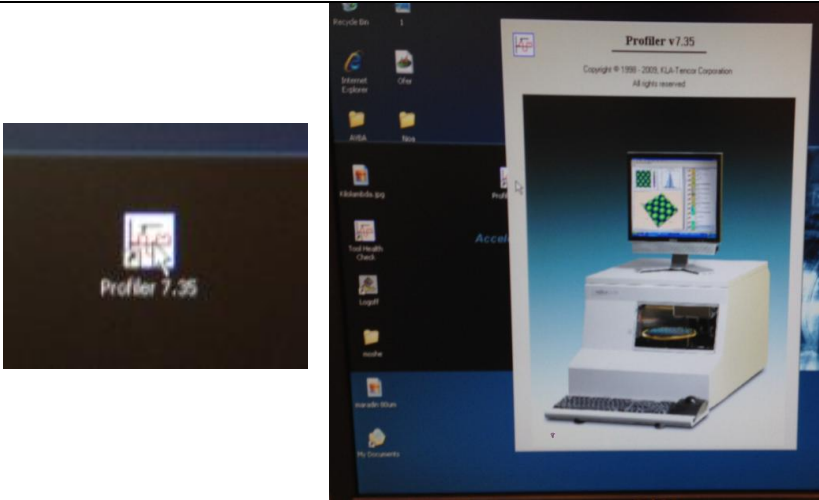
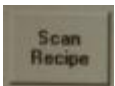

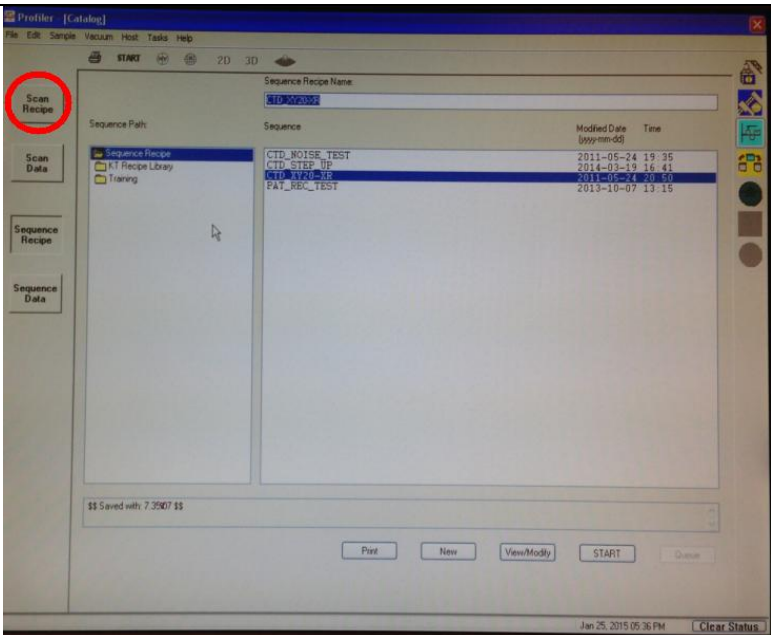
Close the profile.

Unload the stage.

Remove your sample.

Repeat



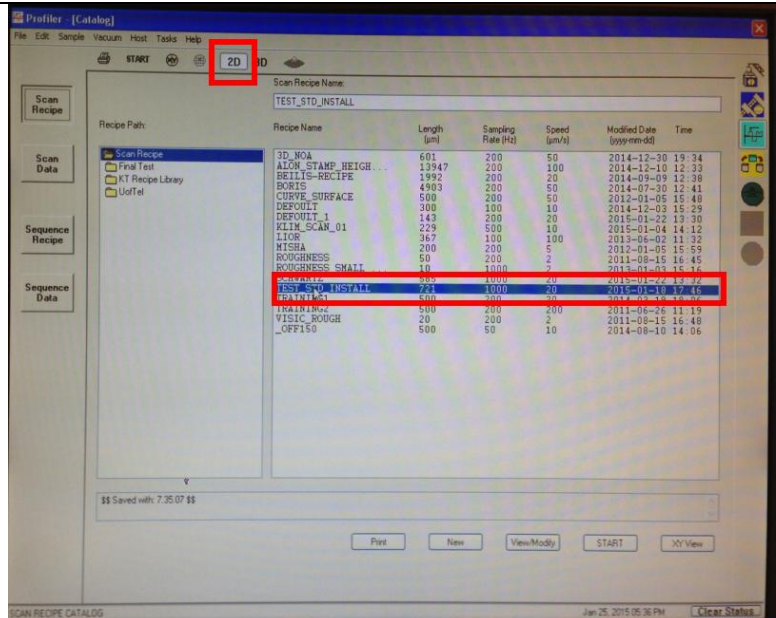
<p>1</p>	<p>LOG IN!!!!</p> <p><u>Restrictions/Requirements:</u></p>	 <ul style="list-style-type: none"> Do not put your hands under the scan head, you could damage the stylus. Sample size limitations: No samples greater than 200mm in diameter or smaller than 3mmx3mm. Limitations on materials: No uncured su8, no uncured PDMS, uncured PR, no soft material that might stick to the stylus. Sample thickness is between 150um -3mm. Do not measure any cantilevers or thin membranes, you may damage stylus. Stylus tip radius is 2µm with a 60 degree cone angle.
<p>2</p>	<p>If the computer is OFF, turn it ON and load the "Profiler 7.35" program using the Desktop icon. Wait for the program to load.</p>	
<p>3</p>	<p>At the scan recipe screen, choose</p>  <p>If the computer was ON, close any other windows by pressing  till you get the scan recipe screen.</p>	

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Switch to **2D** scan and choose the "TEST_STD_INSTALL" recipe by double click.

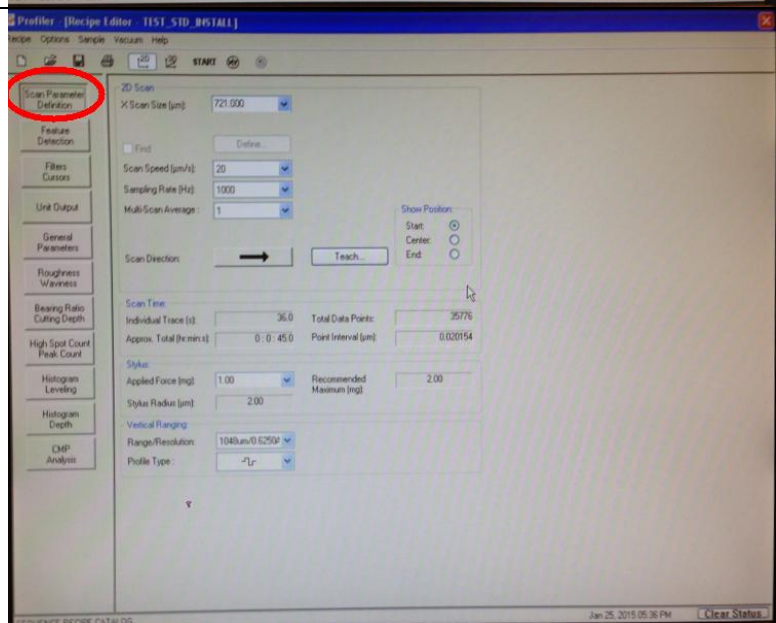
Note: You can create and save your own recipes (in case you need to).

The "TEST_STD_INSTALL" recipe is for general use of the clean room users.



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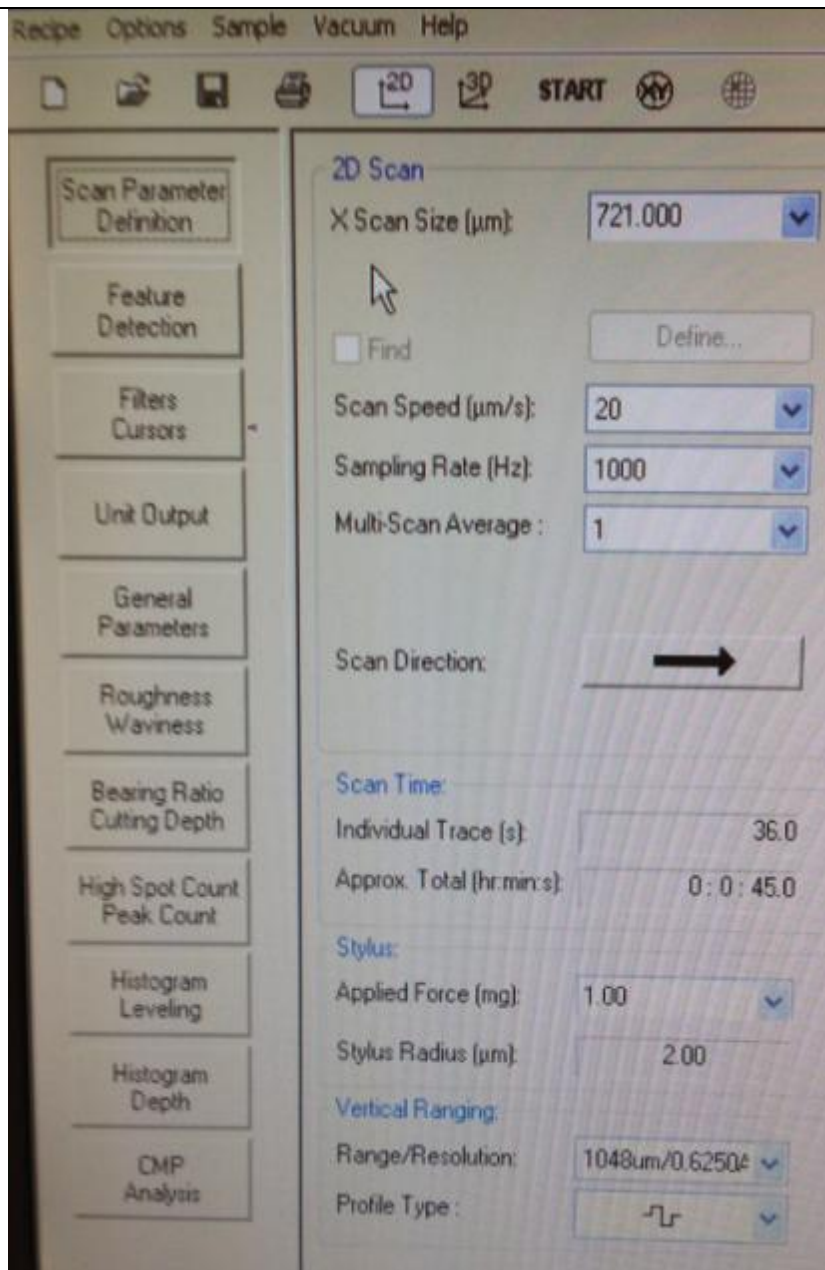
Press **Scan Parameter Definition** to see the scan parameters.



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
The Relevant Scan parameters are:

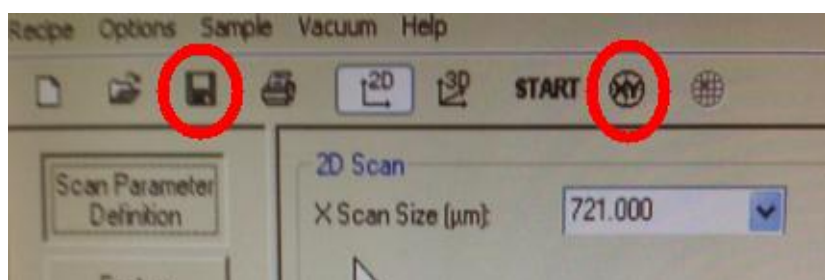
- Scan Speed – This is the tip scanning speed. Use lower speed for deeper tranches. **Please do not use speed that exceeds 10µm/s for steps that are deeper than 10µm. For shallower profiles please do not exceed 50µm/s.**
- Sampling rate – this will influence the statistics of your measurement. Use higher values for higher scan speed.
- Scan direction – this defines the direction of stage movement during the scan. Please do not change it (default is LEFT to RIGHT) unless it is necessary.
- Applied force – this influences the force applied by the scanning tip during the scan. Please leave it at 1mg.
- Range/Resolution – choose the required resolution. **Please note that the lowest resolution is accurate enough so there is no need to change it.**



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When you finished editing the recipe press  to save it.

Then press  to enter the XY-view.



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You are now ready to insert your sample.


Check the location of the stage. If the stage is under the scanning head (far from the user) press



to bring the stage to load/unload position.

Open the door and place your sample in the **middle** of the stage.

Turn on the manual vacuum switch to the left side of the door. Check that the vacuum is engaged by **gently** trying to move your sample with tweezers.

Close the door, press . The stage will now move and stop under the scan head.

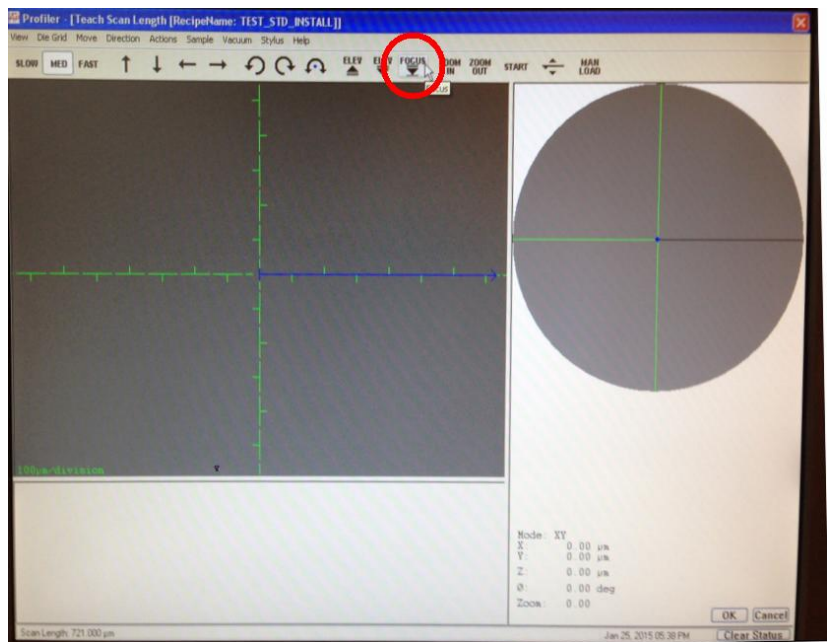
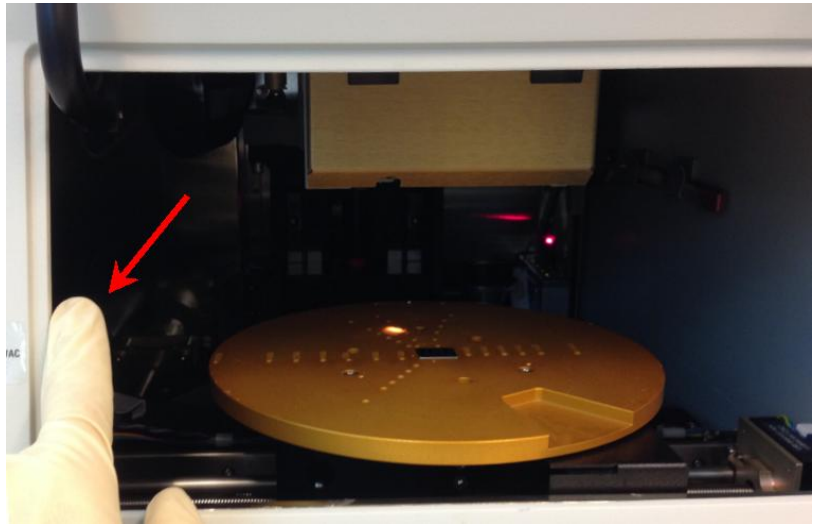
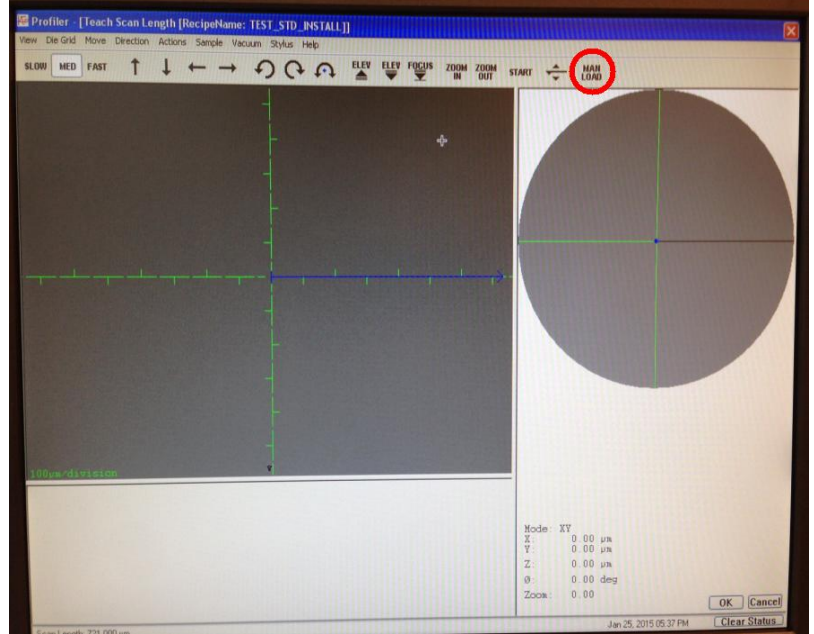
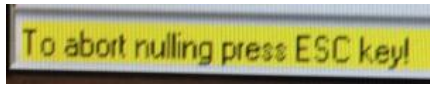
DO NOT OPEN DOOR BEFORE THE STAGE COMES TO A COMPLETE STOP – this will cause error.



Press to focus the stylus on your sample – this might take some time. The scan head moves slowly down, towards your sample.

In case of emergency you can abort the scan head movement by pressing ESC.

You can see this comment on the bottom left corner of the screen:

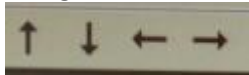


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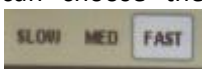
After the focus is finished and the scanning head is focused on your sample you can start looking for the structure you want to measure.

There are several ways to move your sample:

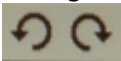
- Using the mouse – left click will center the screen at that point.
- Using keyboard arrows.
- Using screen arrows.



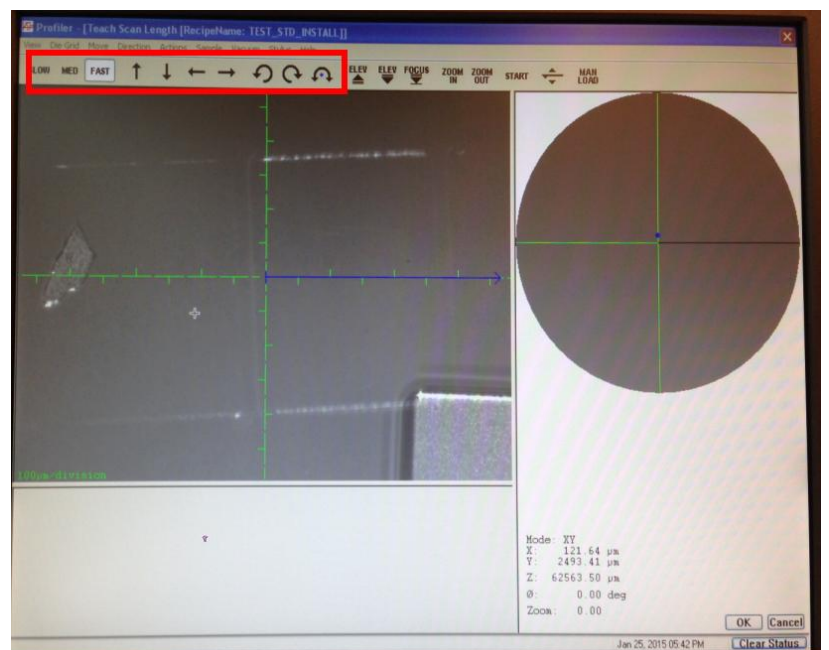
You can choose the movement type:



You can change the angle of your sample:



will rotate your sample around a center of the screen.




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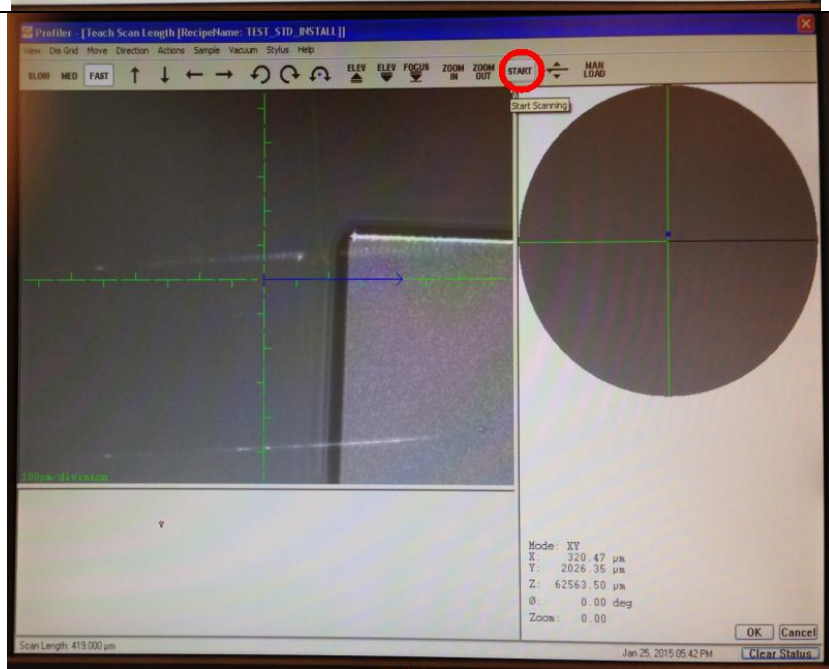
After you are set and pleased with the location use the mouse to mark on-screen the scan line (blue arrow – pointing right).

Right click and hold the mouse button at the scan START location, use the **trackball to drag** the line to the desired scan STOP location and **release mouse button**.

PLEASE be extremely careful when selecting the scan line:

- **Always move from higher to lower surface and never the opposite direction – this will break the stylus!**
- **Be sure you stay on your sample during the scan.**

Press  to start the scan.




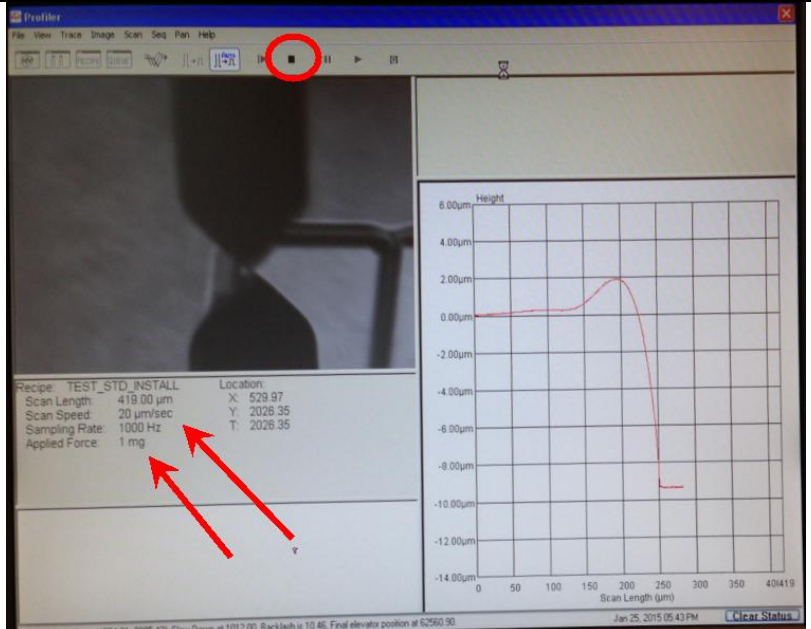
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You will see the stylus movement during the scan with simultaneous profile measurement.


Check these values again:

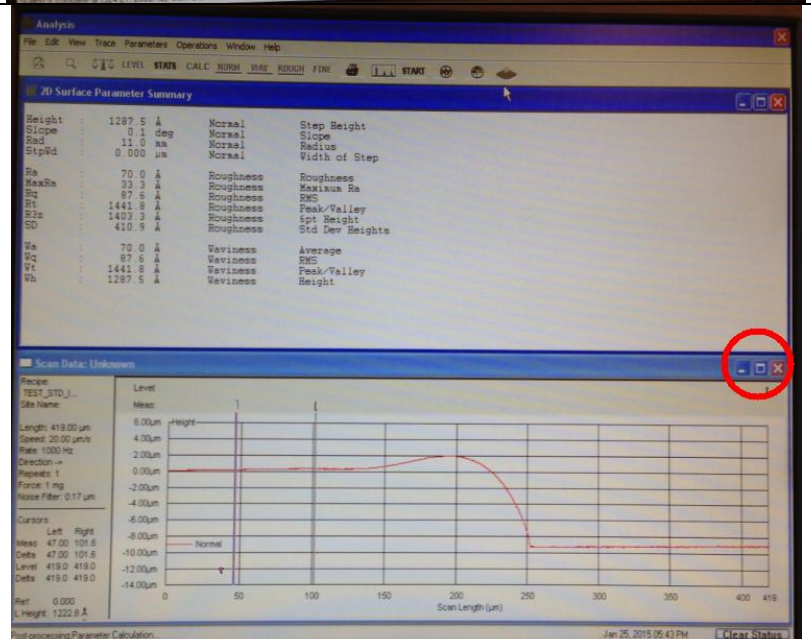
Recipe: TEST_STD_INSTALL
Scan Length: 419.00 μm
Scan Speed: 20 $\mu\text{m}/\text{sec}$
Sampling Rate: 1000 Hz
Applied Force: 1 mg

In case something goes wrong press  to stop the scan.





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After the scan is finished you will get two analysis windows, you need the lower one so just maximize it using .



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You will probably need to level the profile first. Press  and use the level bars to mark two surfaces which should have same height. The width of the bars will influence the statistics – the wider the bar the better is the high averaging.

When finished press  again for the level to take effect.

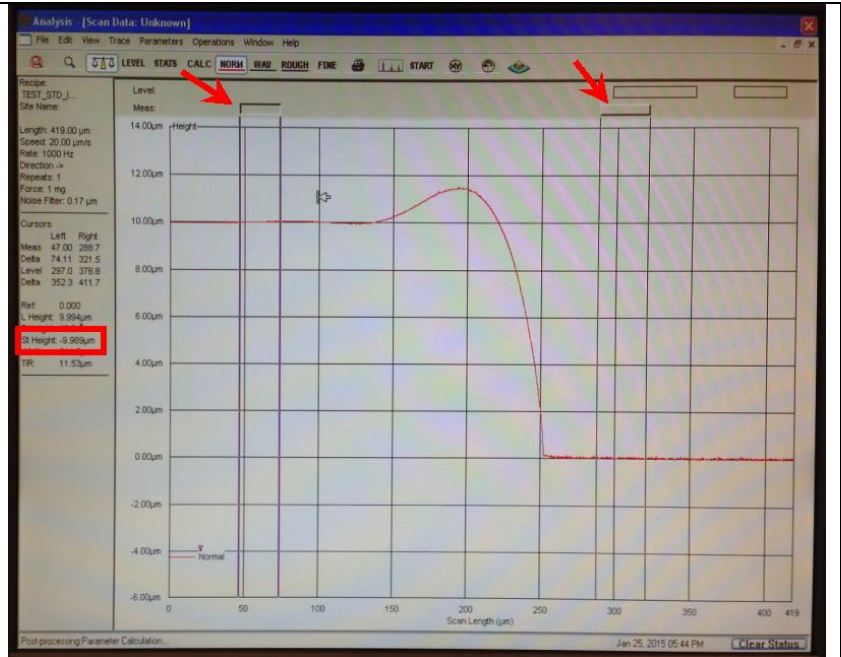


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Use the measure bars to measure the profile.

The bar width influences the statistics of the calculation.

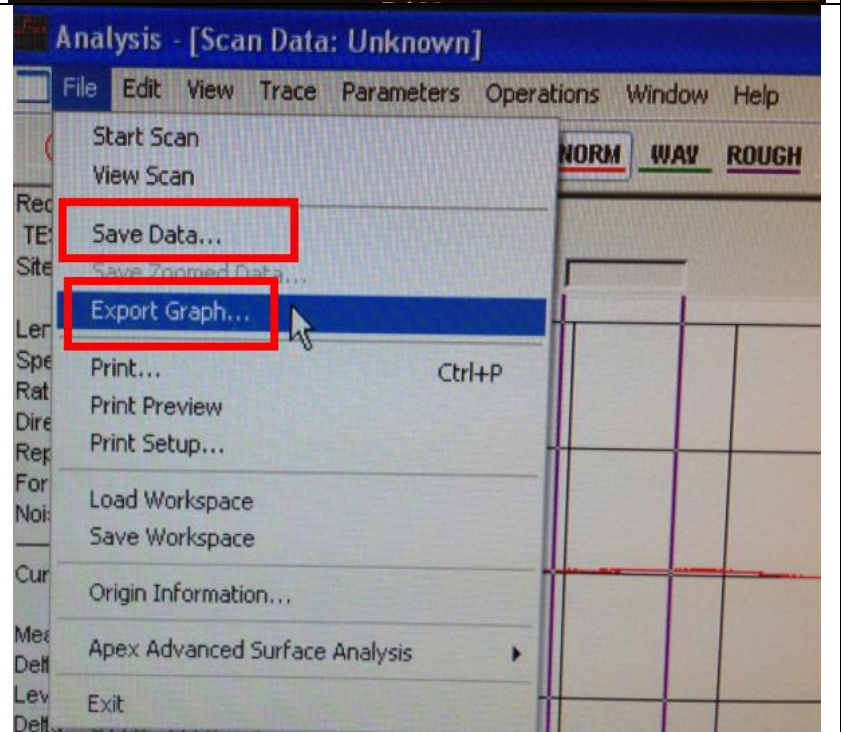
The step height result can be found under:



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You can save the profile as a figure by going to File→ “Export Graph”. Then just save the figure in your folder.

Or you can export the measured values as a .dat file by choosing the “Save Data” option.

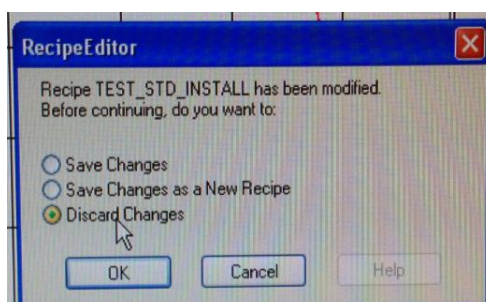
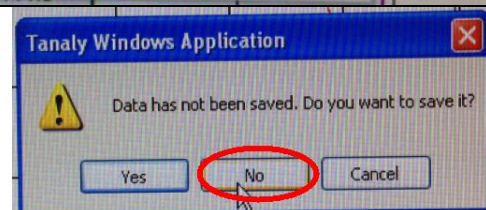


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When finished with the current measurement results you need to go back to XY-view by closing the

analysis window or pressing .

Do not save and Discard changes.



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If you want to perform additional profile measurement on same



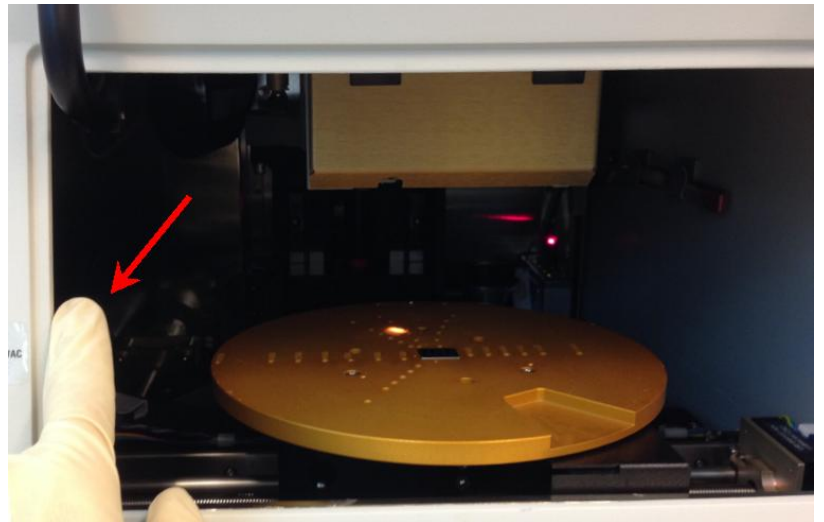
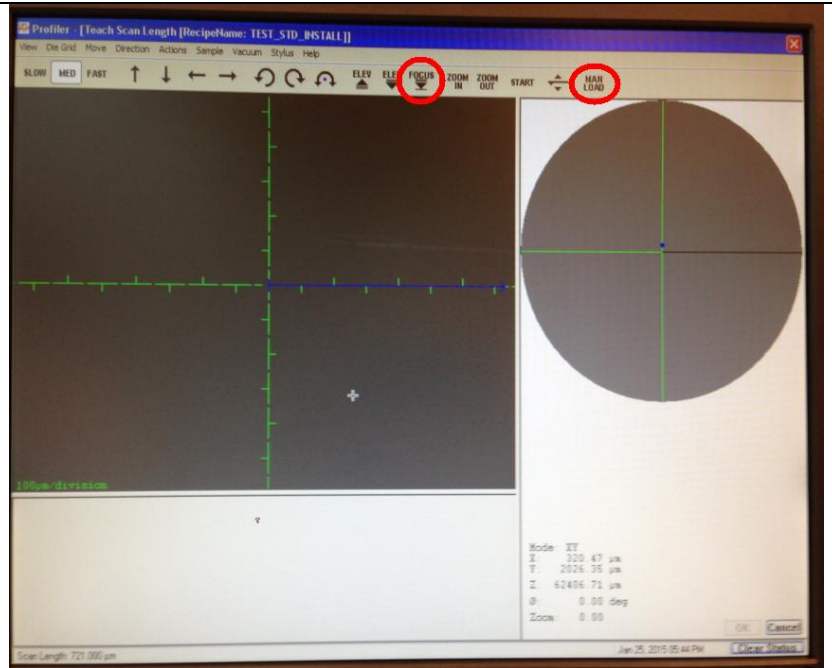
sample press and go back to step 9.

If finished or you want to replace



the sample press and wait for the stage to come to load/unload position. Open the door and turn off the manual vacuum switch.

Take off/replace your sample and close the door.



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Don't forget to

LOG OFF!

