

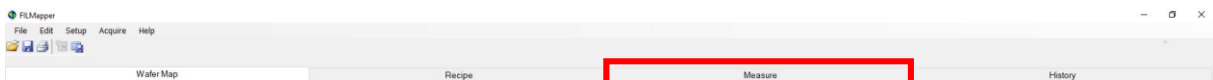
# User Manual F54 XY 200 UV Filmetrics

## ⚠ Restrictions and Precautions ⚠

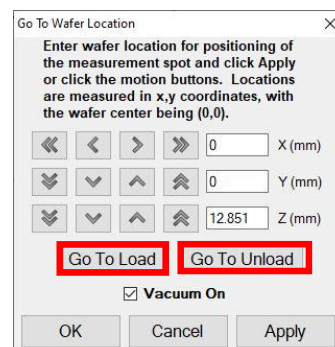
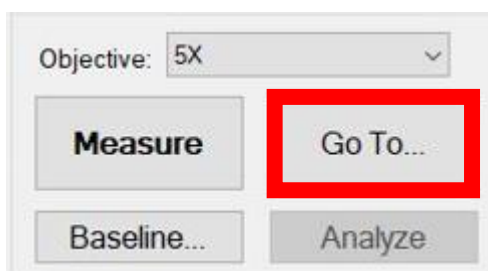
- Do not touch the objectives
- For 6" wafers, the metal pins on the stage have to be moved to the correct locations

### 1. Manual measurement (Blanket wafer or patterned wafer)

- Logon on the access control system on the zone computer to have access to the tool.
- Click on **Measure** tab and open the window



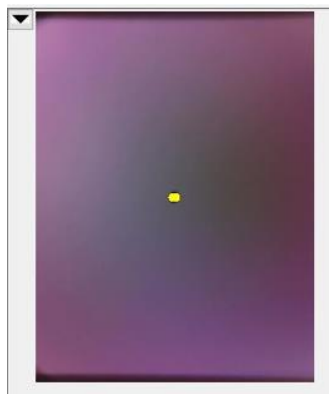
- Select your objective: x5 (spot size 60um) or 15x (spot size 20um), click on **Go To** and **Go To Unload** if the chuck is not in the loading position, install your wafer with the flat against you and click on **Go To Load**.



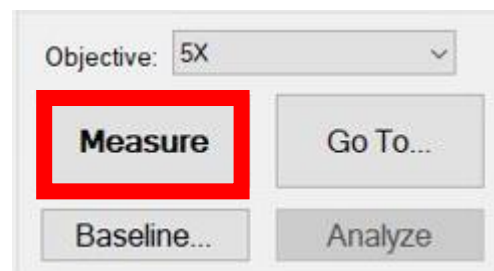
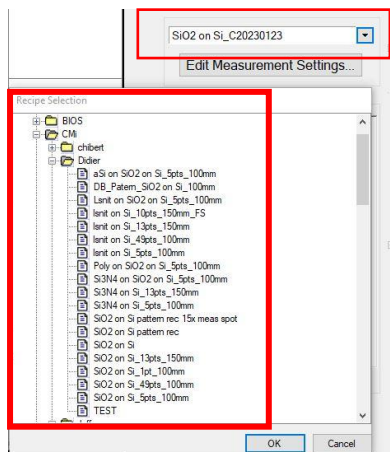
- d) To have repeatable and accurate results, it is recommended to make a baseline measurement before starting a measurement (See paragraph “baseline”). A baseline is mandatory when you switch the objectives.
- e) Adjust the position and focus on the sample using the arrows around (X,Y) and on the top right (Focus) of the image.

On a blanket sample, you have to see sharp black stripes on the top and bottom of the displayed image

On a patterned wafer you have to see your design

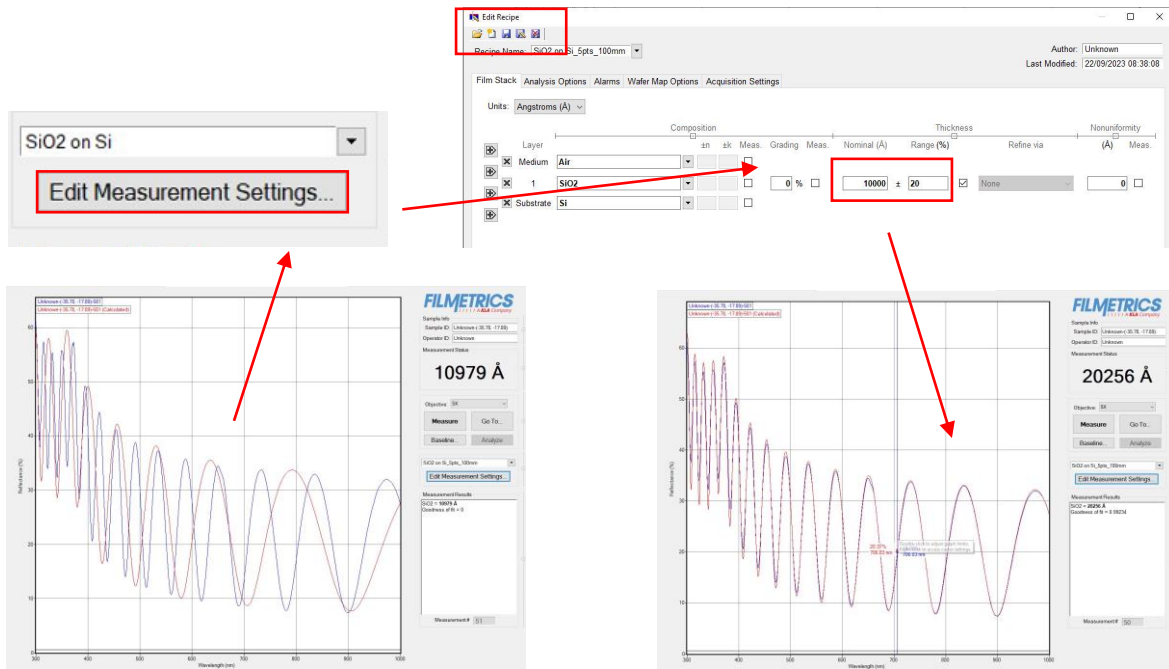


- f) Select your recipe from the library and click on **Measure**.



The system does the measurement and the fitting of the rough data to give the thickness of the layer (For more details, see paragraph recipe edition).

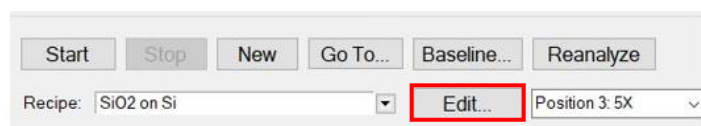
- g) Depending on the initial thickness and the tolerances which are set in the recipe, the quality of the fitting could be bad. A quick update of the recipe can be done by clicking on the **Edit Measurement Setting**. You can change either the thickness or the tolerance to get a better fitting and a correct thickness value. The recipe can be saved with a new name or you create a new recipe in your directory.

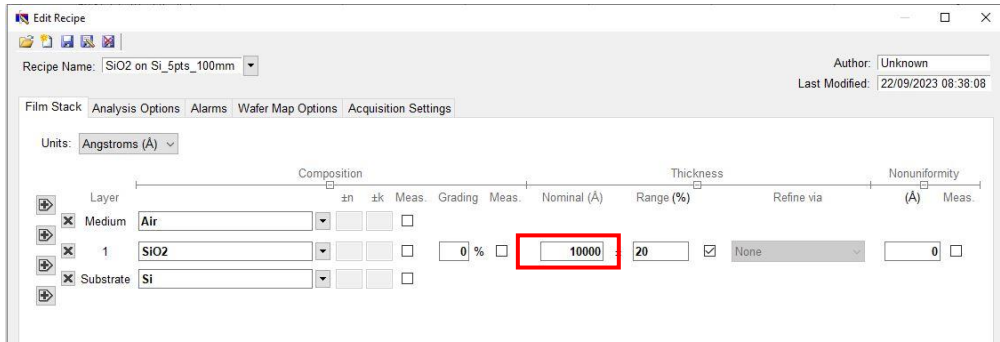


- h) Move and repeat the measurement if needed or click on **Go To** and **Go To Unload** to unload your wafer.

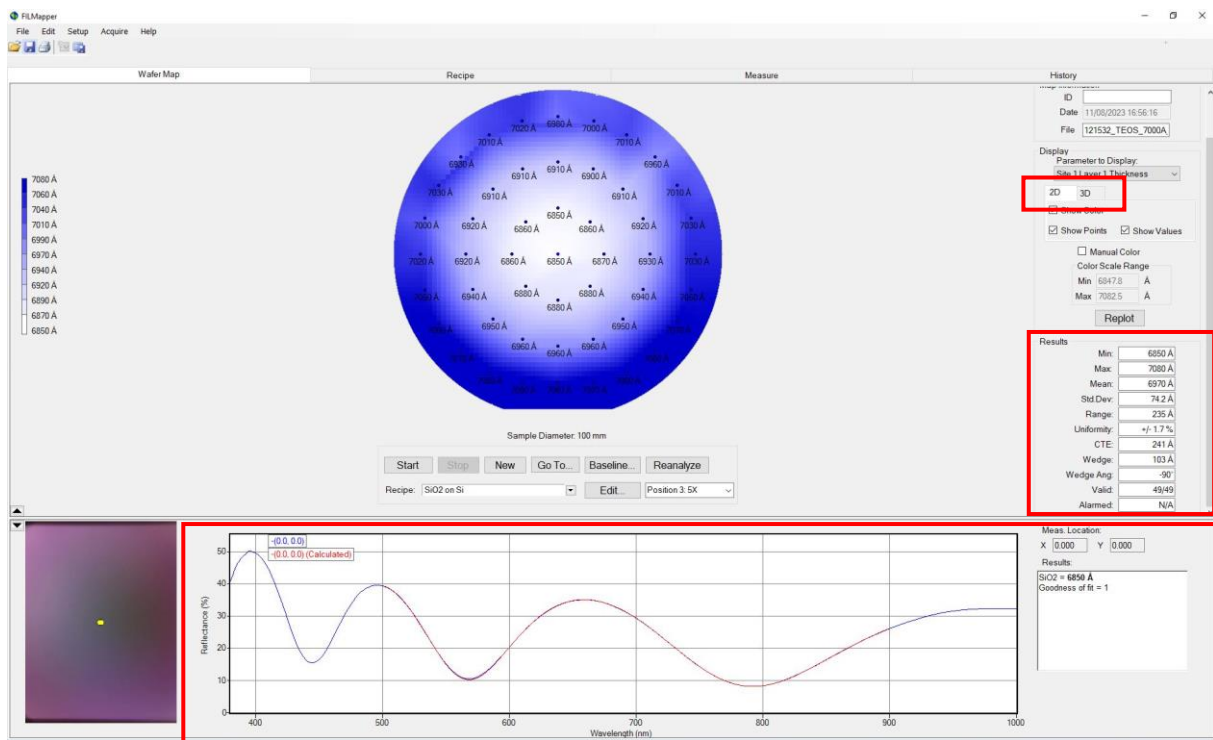
## 2. Automatic measurement (Blanket wafer)

- a) - e) see **Manual measurement**
- f) Click on **Wafer Map** tab
- g) Select your recipe in the library and adjust the thickness if needed by clicking on **Edit**.

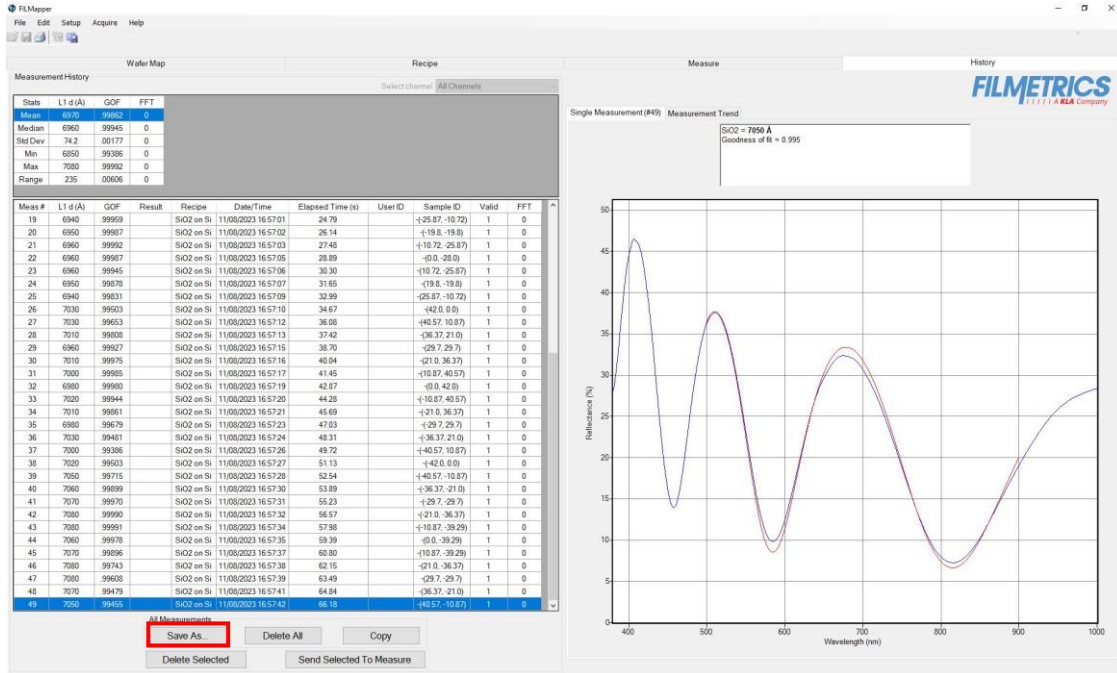




- h) Press **Start** to run the automatic measurements
- i) Once the measurements are done you have:
  - a. 2D view or 3D view
  - b. Statistic data
  - c. The raw spectra with the fitting and the corresponding thickness



- j) The data for each point are available in the tab **History**. You can export them in CVS file with the function **Save As**.

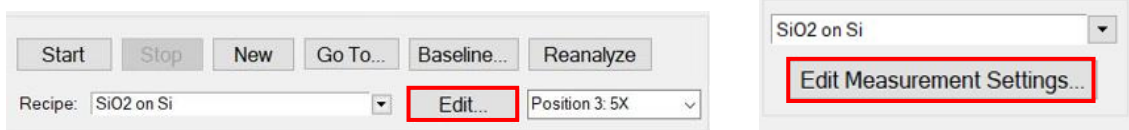


### 3. Automatic measurement (Patterned wafer)

(Coming soon)

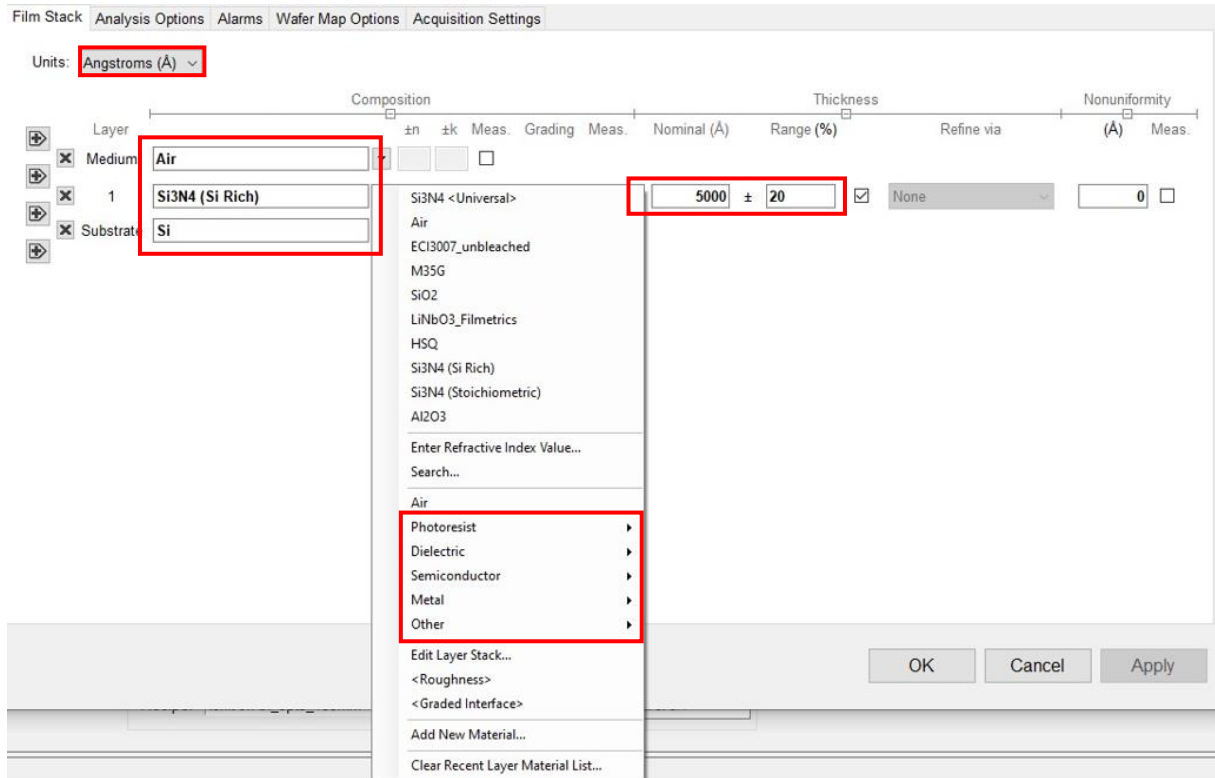
### 4. Edition of recipe for a blanket wafer

a) Recipe measurement can be edited from the **Wafer Map** tab or from the **Measure** tab



b) Film Stack

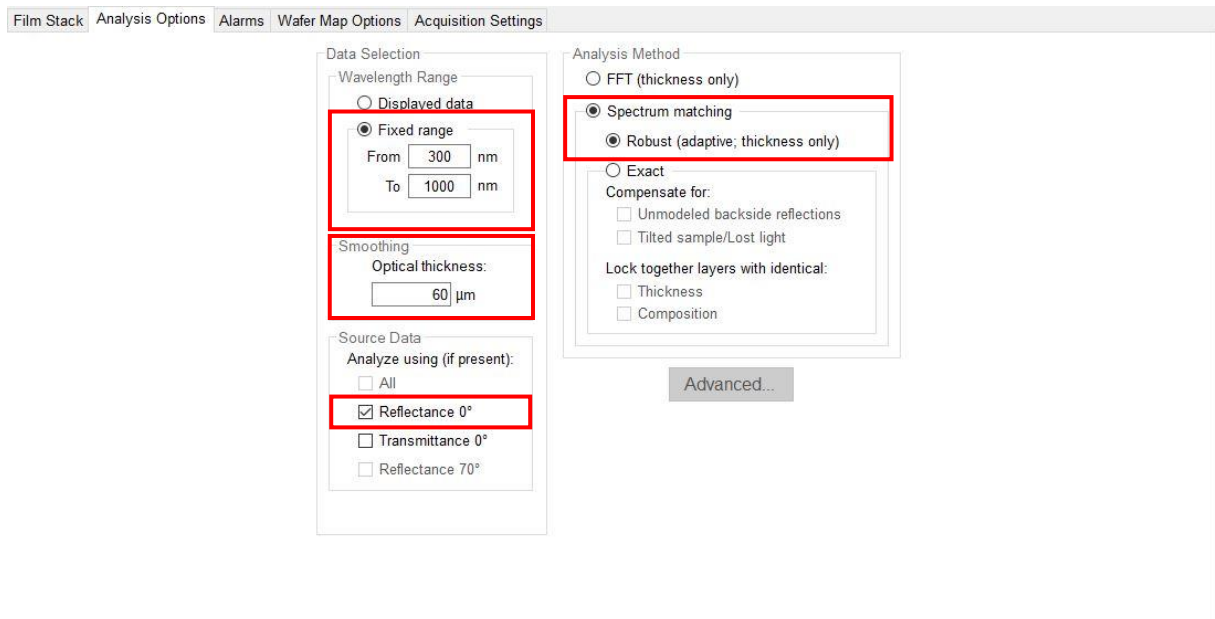
1. Set the stack layers between the substrate (silicon) and the layer “Air”  
A library of materials is provided by Filmetrics for Photoresist, Dielectric, Semiconductor, Metal and Other.
2. Set the expected thickness
3. Set the tolerance
4. Set the unit



c) Analysis Option

For the recommended and basic configuration see below.

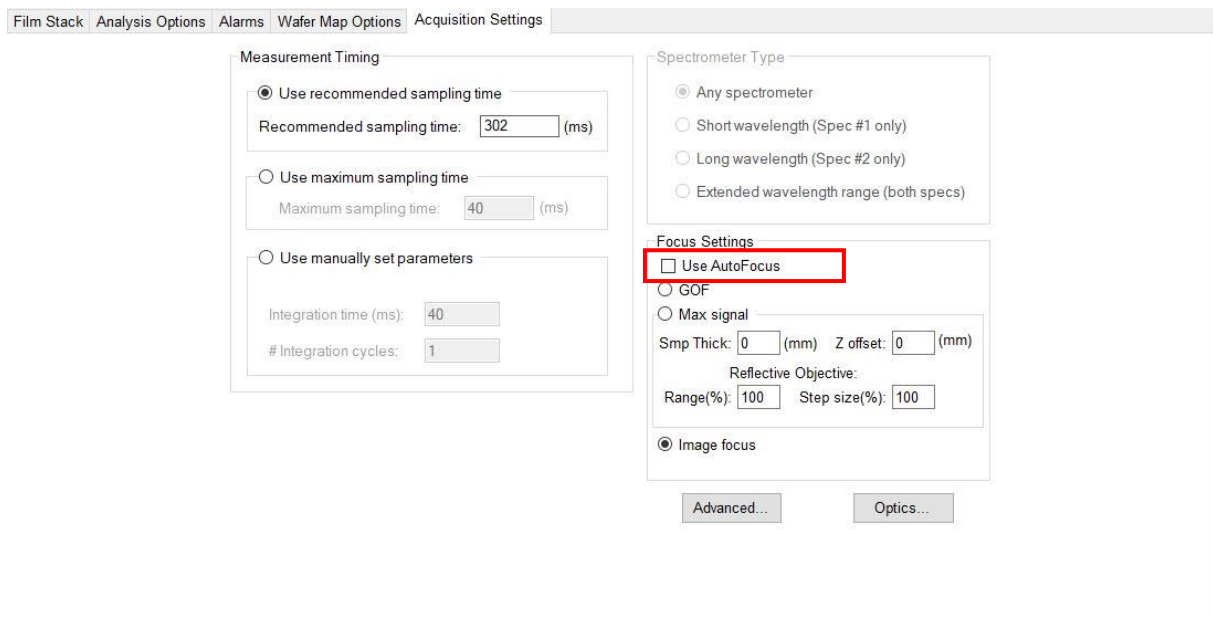
For specific needs please contact CMi staff or have a look on the **F54-XY-200 User Manual**



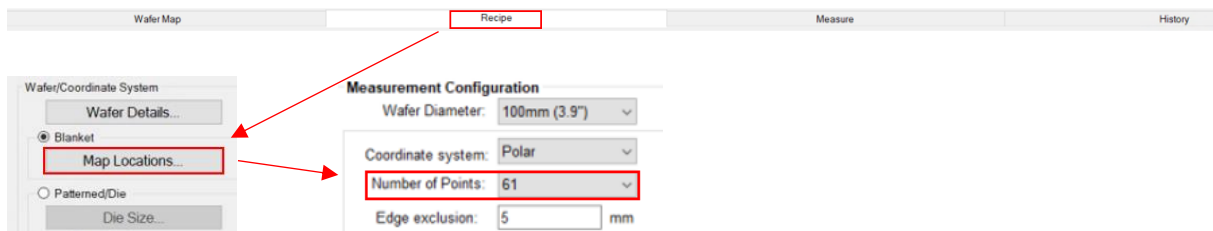
- d) Alarms: For production purpose only
- e) Wafer Map Options: For production purpose only
- f) Acquisition settings

You can select the option **Use AutoFocus** to have a focus on your sample for each measurement point but it's time consuming.

You can also make manually the focus during the loading sequence, if your wafer/sample is not bended, the accuracy of the measurement should be good. You can double check it with the GOF.



- g) The number and location of measured points can be selected on the “Recipe” tab, by clicking on “Map locations” and adjusting the Number of points. Other options (coordinate system, wafer diameter, edge exclusion) are available as well.





## 5. Edition of recipe for a patterned wafer

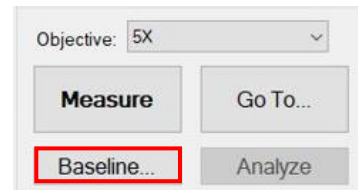
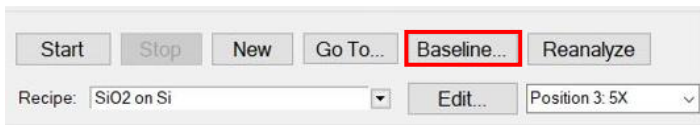
(Coming soon)

## 6. Baseline

Baseline is mandatory when you change the objective.

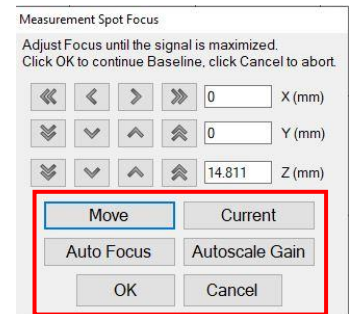
Baseline is recommended for accurate results especially for thin layer (less than 300 Å).

You can request a baseline either from the Wafer Map tab or from the Measure tab.



a) In the dialog box, click on “Take Sample Reflectance”

1. Move to the measurement location using the motion controls
2. Focus on the surface manually or click on **Auto Focus**
3. Click on **Autoscale Gain**
4. Click on **OK**



b) Click on “Take a Reflectance Spectrum”

1. Focus on the surface manually or click on **Auto Focus**
2. Click on **Autoscale Gain**
3. Click on **OK**