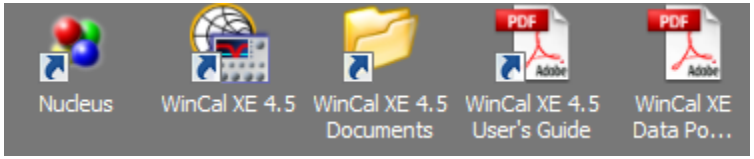
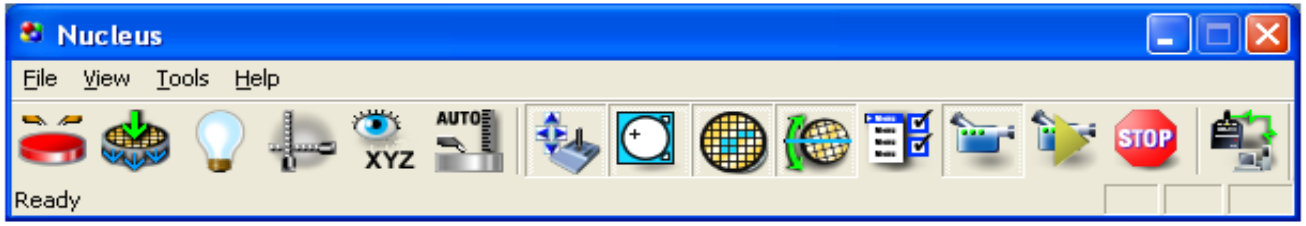
Purpose of Demonstration: Using VueTrack/eVue for Automatically- Corrected Small-Pad Probing over Temperature

Documentation is located at: Start…All Programs….Cascade Microtech…Nucleus; let's take a quick look at that.

Double-click on the Nucleus icon to start the program.





Open the needed Nucleus Tools and Components

Motion Control

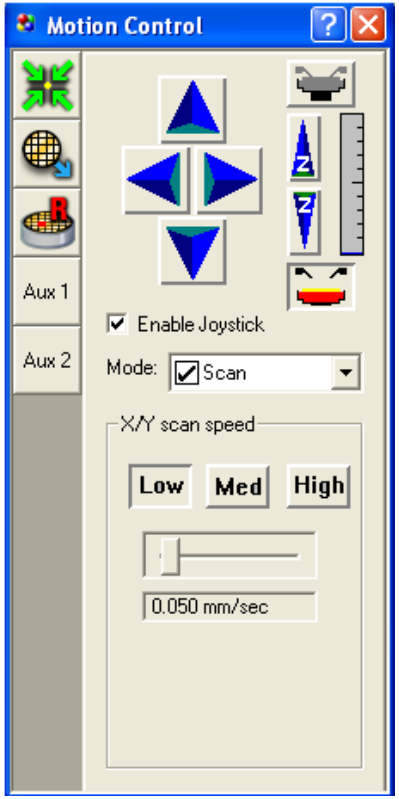
Wafer Map

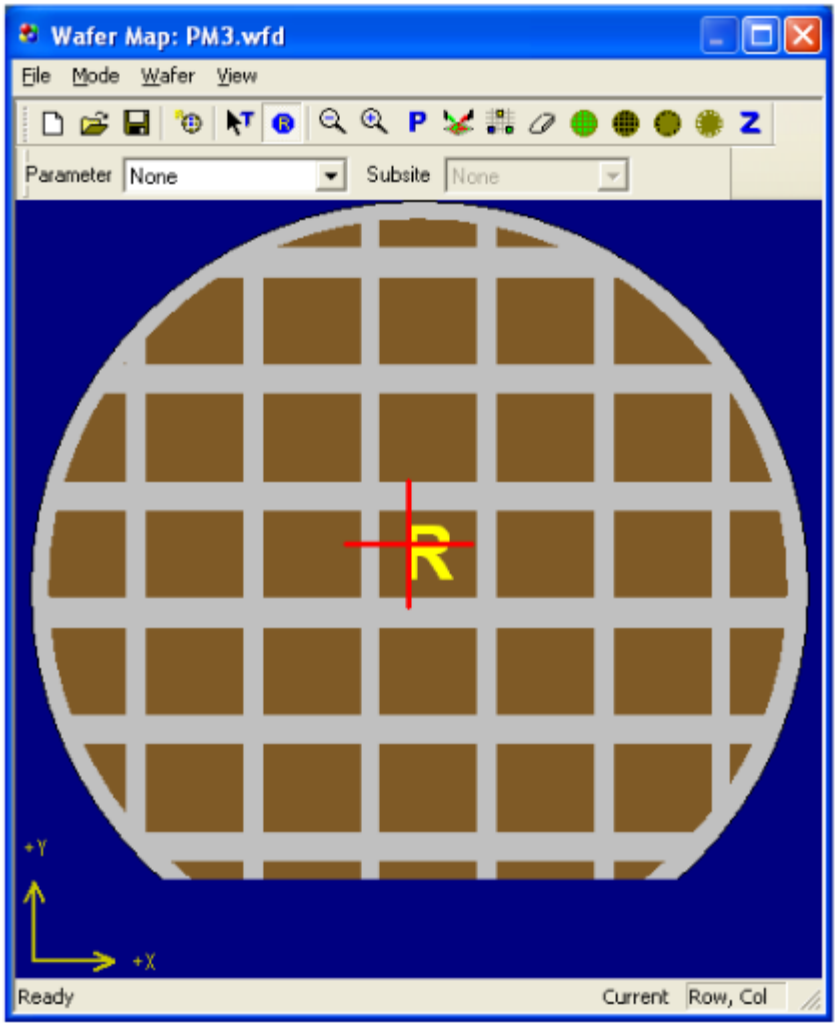
Align Tool

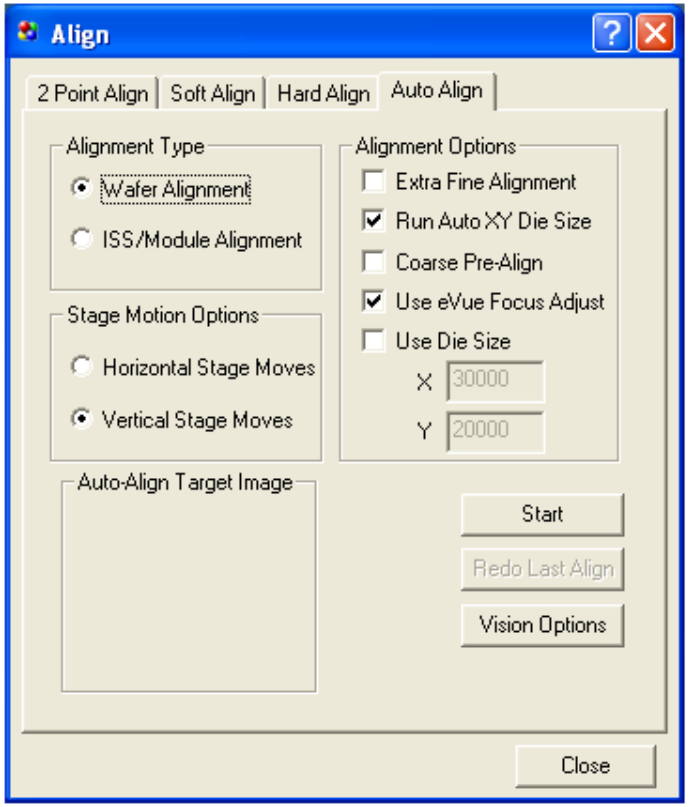
Measurement Tool

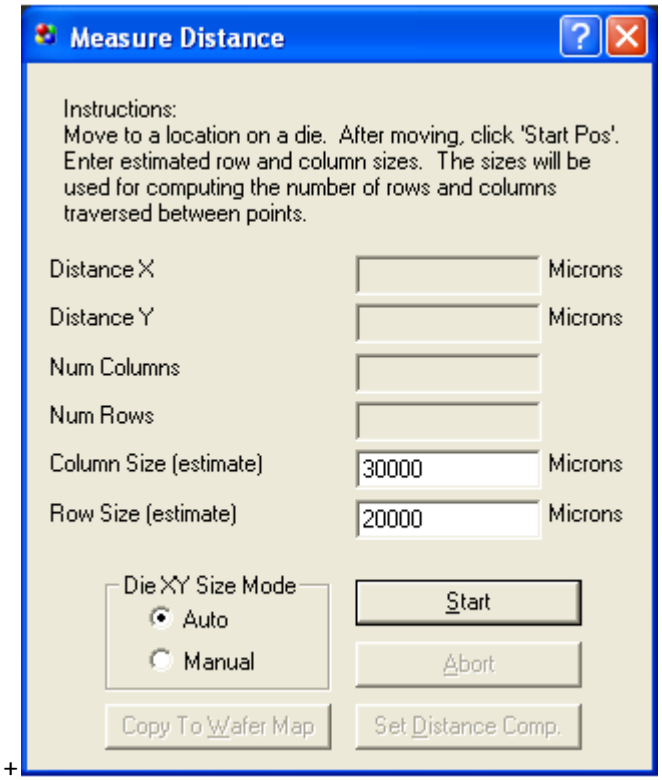
Video

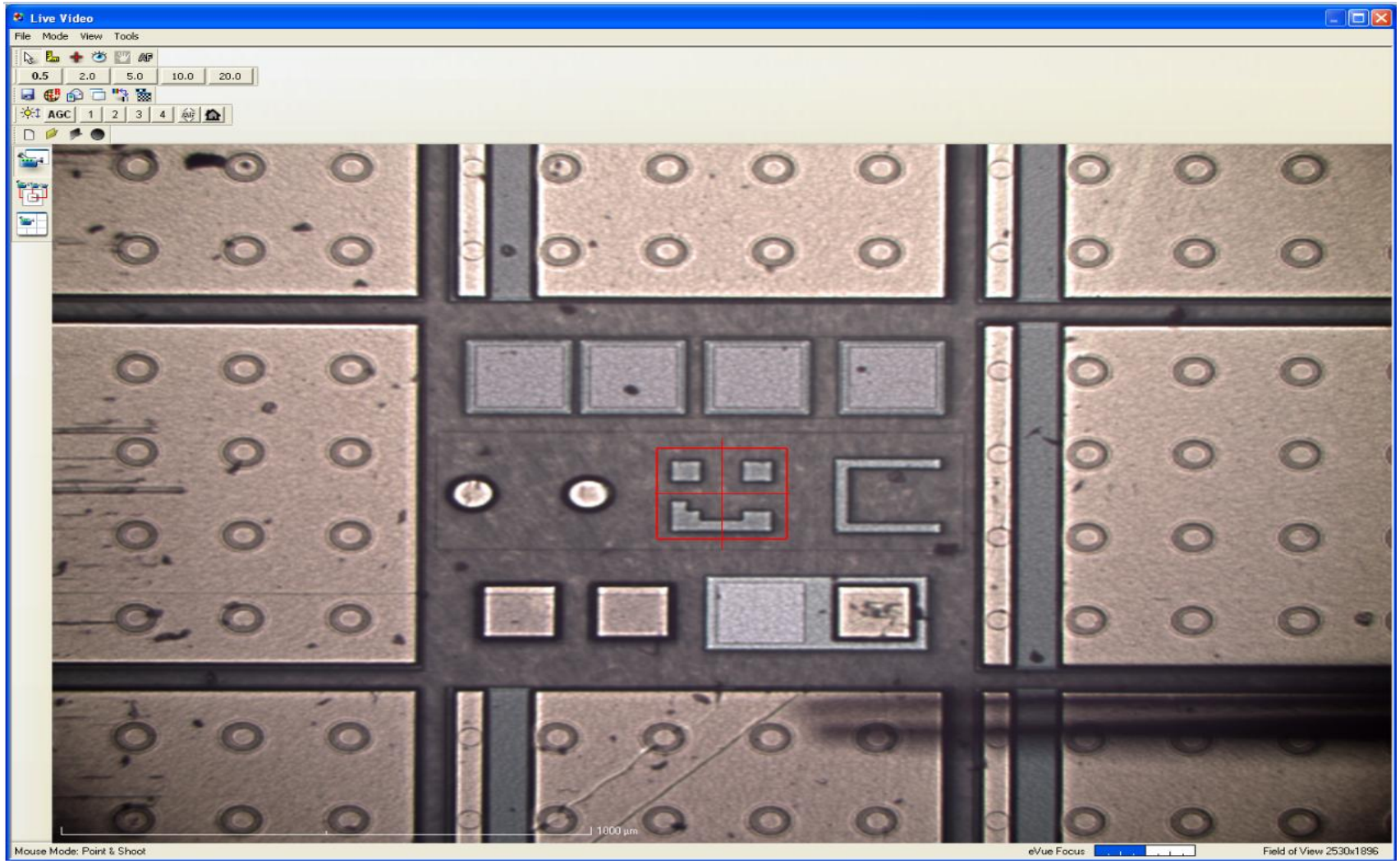
Automation XYZ

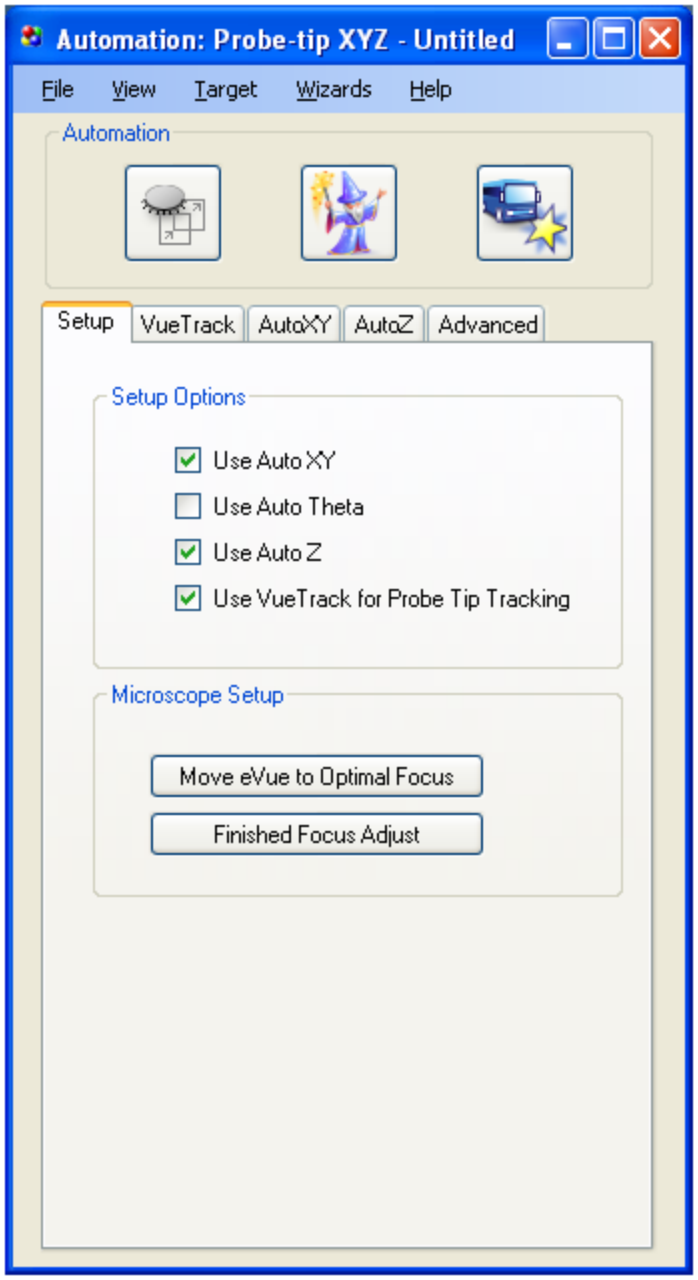

Motion Control
Aux 1
Aux 2
Enable Joystick
Mode:
Scan
X/Y scan speed
Low
Med
High
0.050 mm/sec


Wafer Map: PM3.wfd
File
Mode
Wafer
View
Parameter
None
Subsite
None
R
+Y
+X
Ready
Current
Row, Col

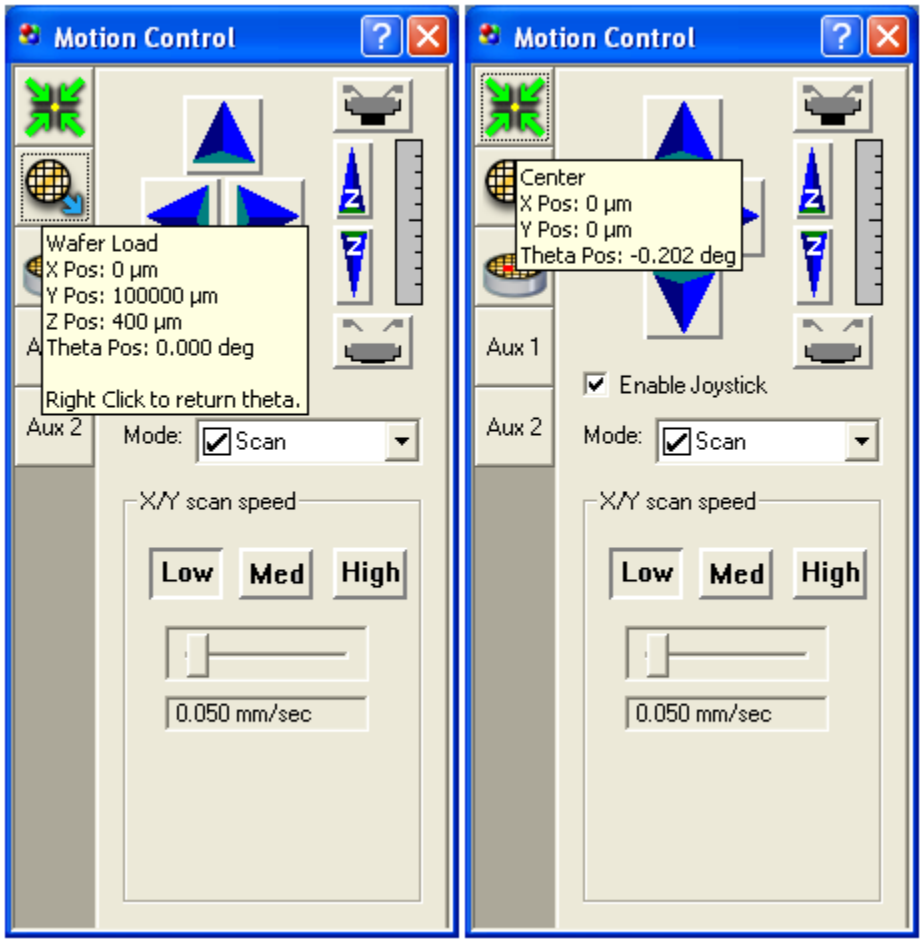

Align
2 Point Align
Soft Align
Hard Align
Auto Align
Alignment Type
Wafer Alignment
ISS/Module Alignment
Stage Motion Options
Horizontal Stage Moves
Vertical Stage Moves
Alignment Options
Extra Fine Alignment
Run Auto XY Die Size
Coarse Pre-Align
Use eVue Focus Adjust
Use Die Size
X 30000
Y 20000
Auto-Align Target Image
Start
Redo Last Align
Vision Options
Close

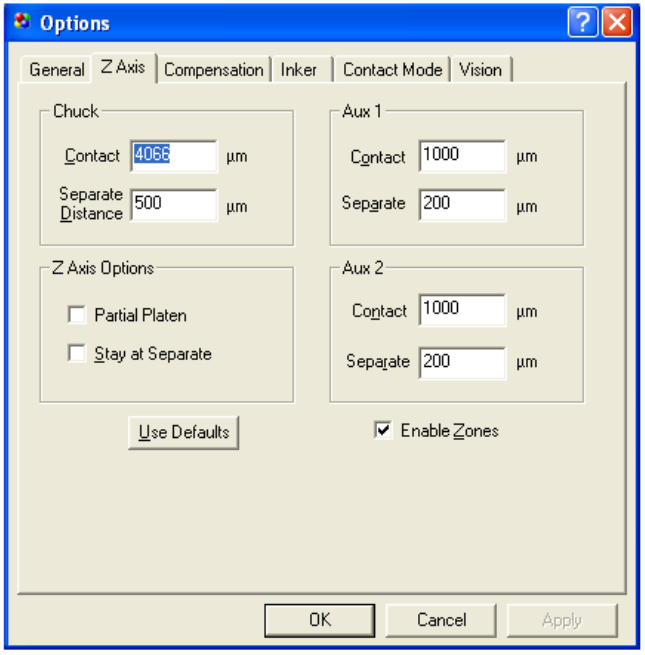

Measure Distance
Instructions:
Move to a location on a die. After moving, click 'Start Pos'.
Enter estimated row and column sizes. The sizes will be
used for computing the number of rows and columns
traversed between points.
Distance X
Microns
Distance Y
Microns
Num Columns
Num Rows
Column Size (estimate)
30000
Microns
Row Size (estimate)
20000
Microns
Die XY Size Mode
Auto
Manual
Start
Abort
Copy To Wafer Map
Set Distance Comp.


Live Video
File Mode View Tools
0.5 2.0 5.0 10.0 20.0
AGC 1 2 3 4
1000 µm
Mouse Mode: Point & Shoot
eVue Focus
Field of View 2530x1896


Automation: Probe-tip XYZ - Untitled
File
View
Target
Wizards
Help
Automation
Setup
VueTrack
AutoXY
AutoZ
Advanced
Setup Options
Use Auto XY
Use Auto Theta
Use Auto Z
Use VueTrack for Probe Tip Tracking
Microscope Setup
Move eVue to Optimal Focus
Finished Focus Adjust

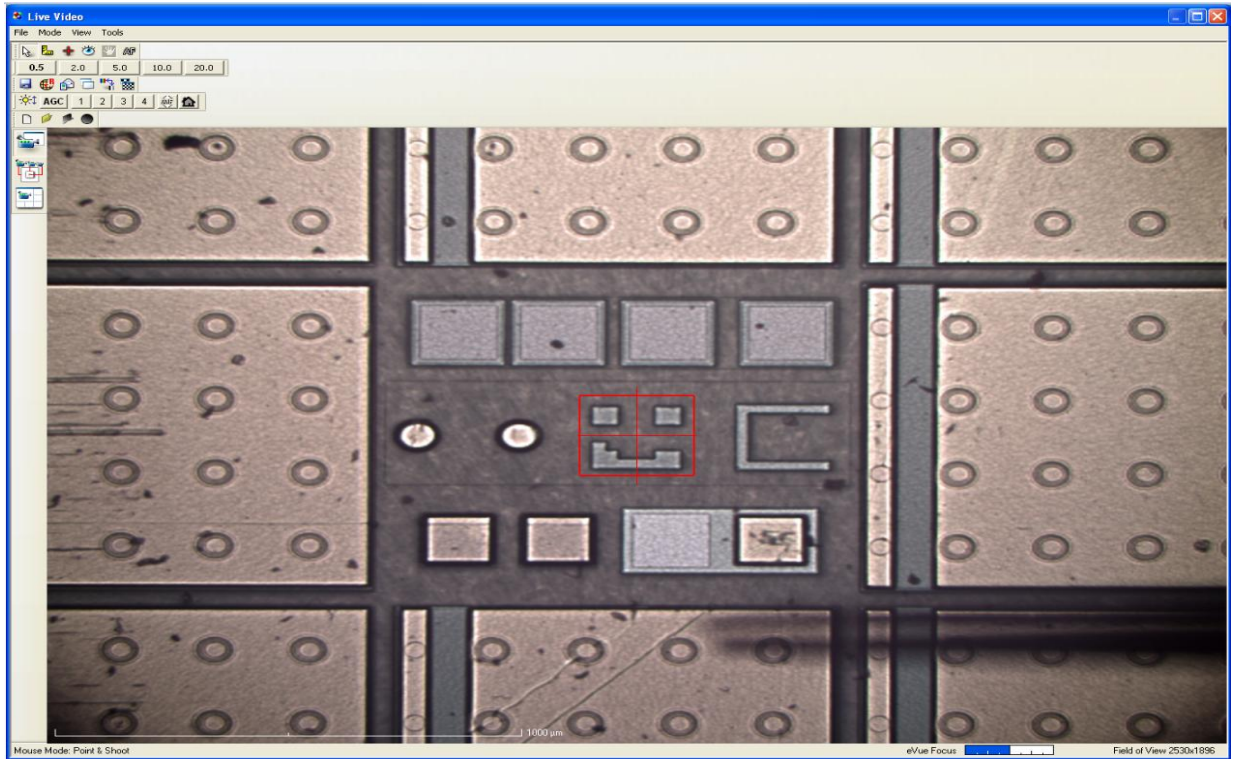
Use Motion Control to load and center the wafer (as well as adjust the chuck height, if necessary)



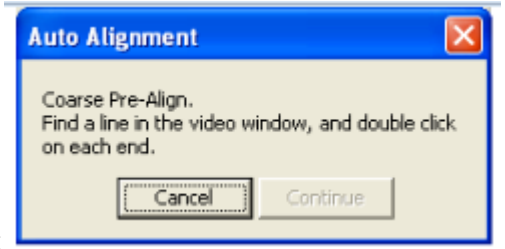


Now that we've seen the wafer, we know its size and orientation on the chuck and can set up the wafer map per the additional hand-out, "Wafer Map Details."

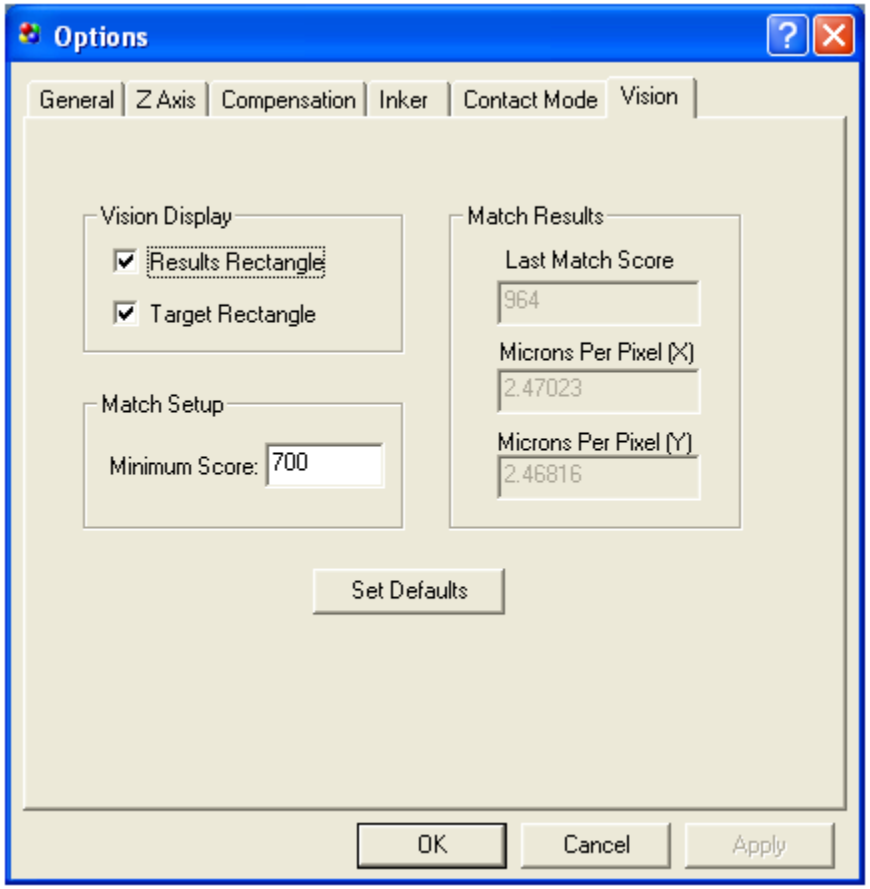
Once the wafer map is ready, we'll align the wafer and determine the die size. We focus on a feature that is seen only once per die.



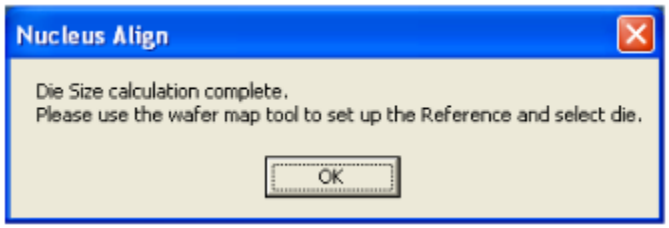
The coarse pre-align is done first

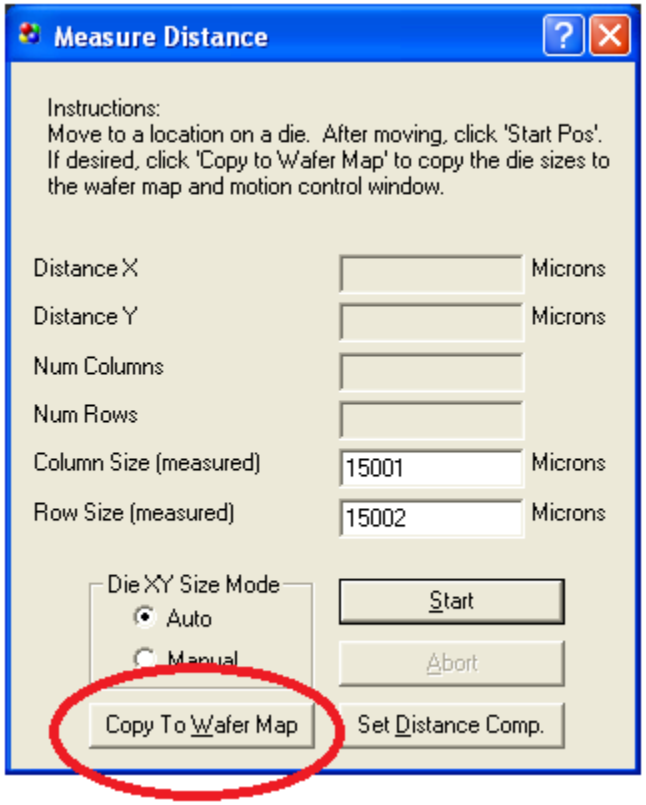


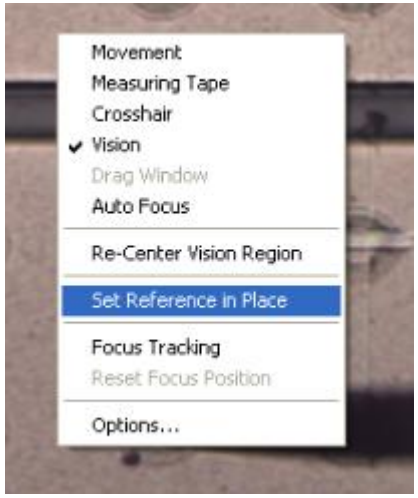
We note that we may need to adjust the Match Setup score in Options as necessary to recognize the chosen target in subsequent die.



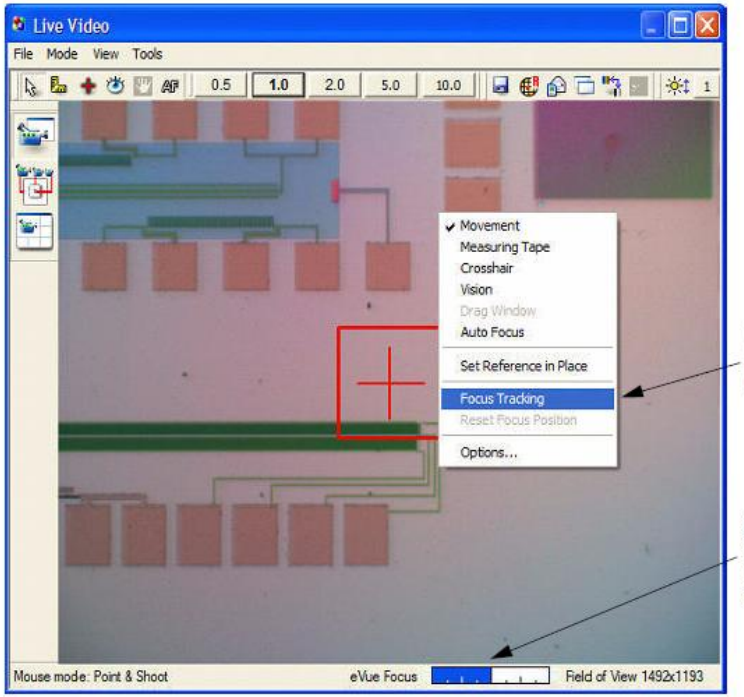
The die size is next determined (note that “Copy to Wafer Map” is no longer grayed-out in the Distance Measurement tool window) and we copy it to the wafer map. We also set reference in place though we’ll change it later.







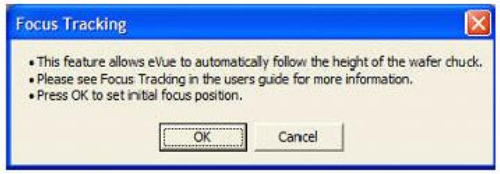
Make sure focus tracking is off…..



Select Focus Tracking from the context sensitive menu.

eVue Focus bar shows current position of the eVue fine focus stage.

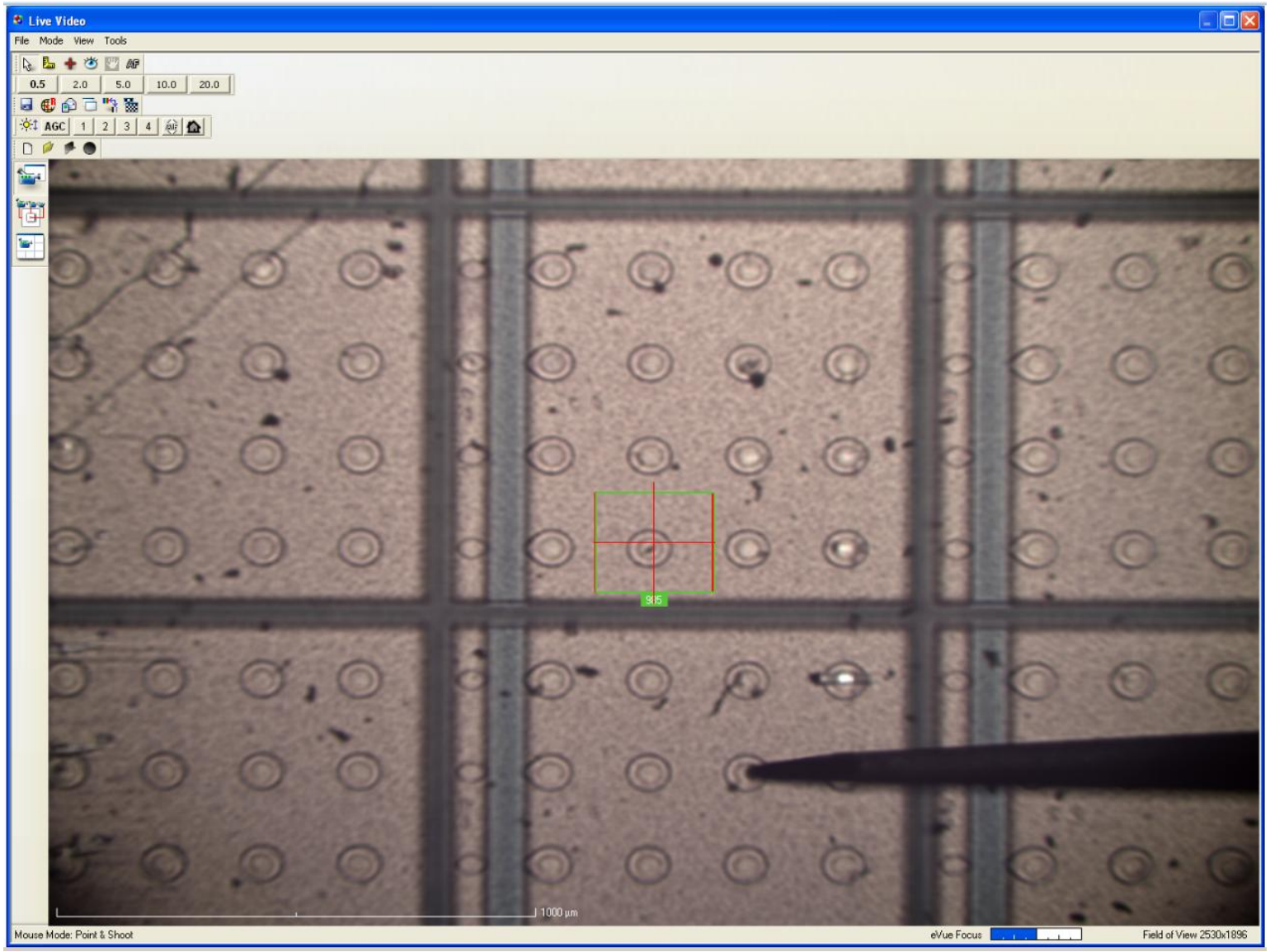
To enable Focus Tracking, click OK.



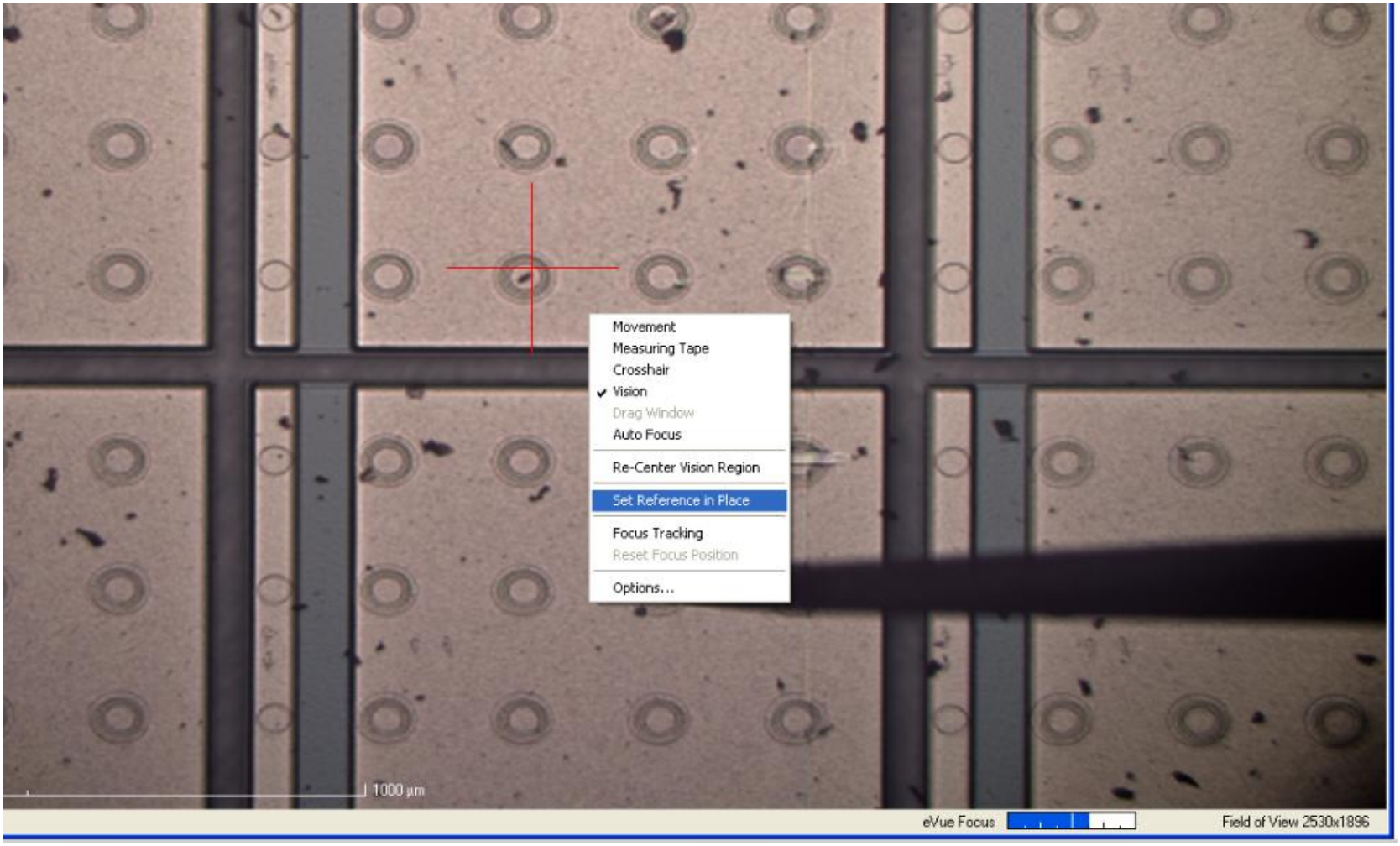
Focus Tracking synchronizes the current eVue fine focus position to the Stage Z position. From this point on, any movement of stage Z causes the eVue fine focus stage to track to the new position. This is useful for keeping the wafer in focus at all times, whether you are at separate or contact.

When Focus Tracking is enabled, the Reset Focus Position option is available. The Reset Focus Position option resynchronizes the current stage Z and eVue fine focus stage positions.

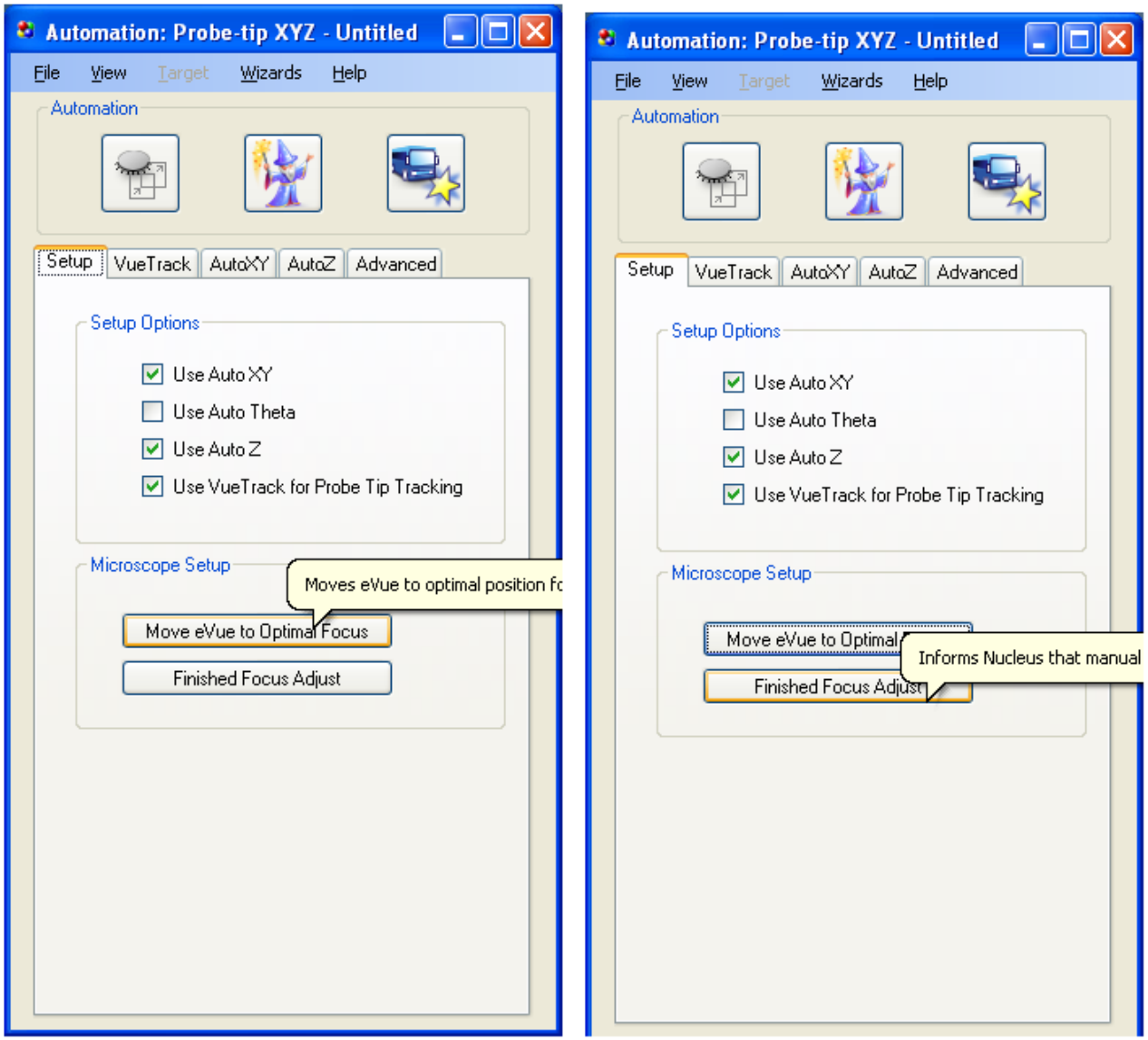
Probe to pad…….

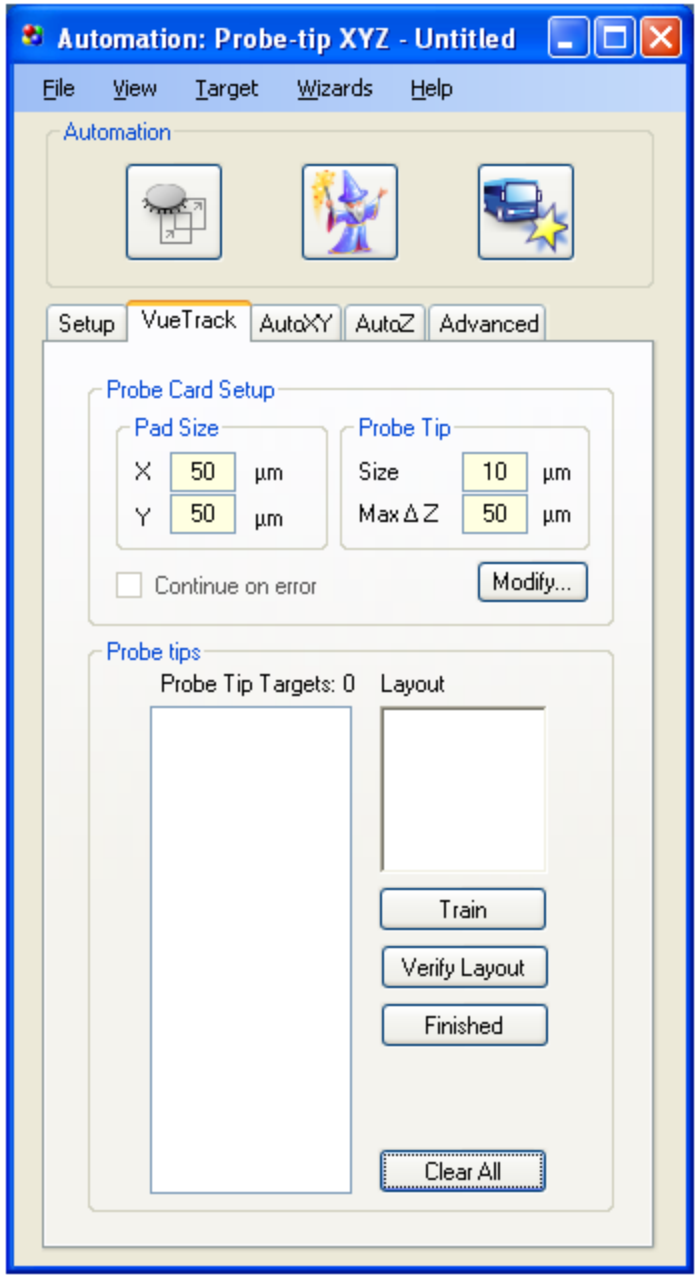

Live Video
File Mode View Tools
0.5 2.0 5.0 10.0 20.0
AGC 1 2 3 4
1000 µm
Mouse Mode: Point & Shoot
eVue Focus
Field of View 2530x1896

After probe to pad is accomplished, set reference in place.

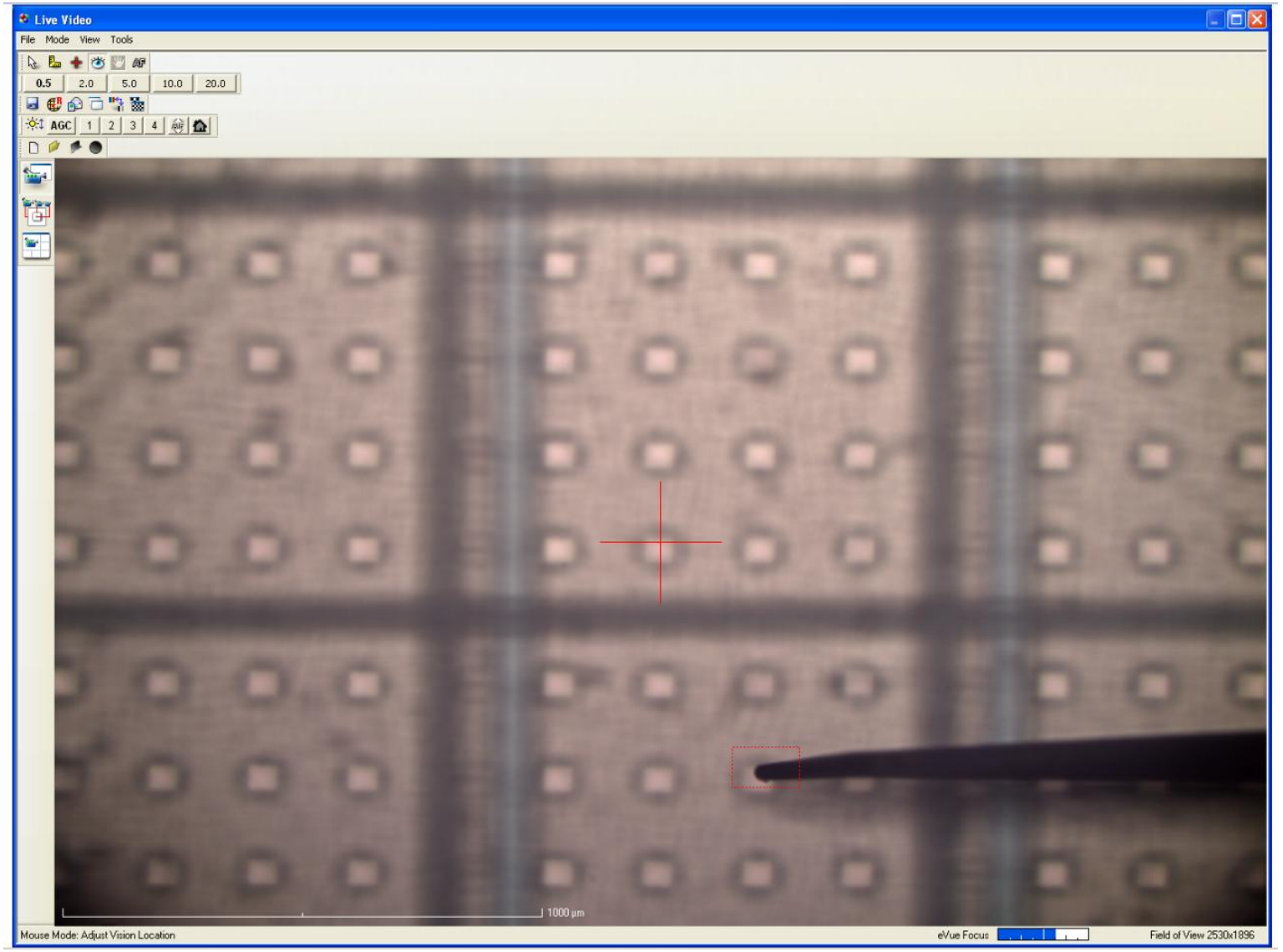


We next set up the Automation XYZ. Additional set-up details are provided in the additional handout: “Quick Start Guide for AUTO XYZ."

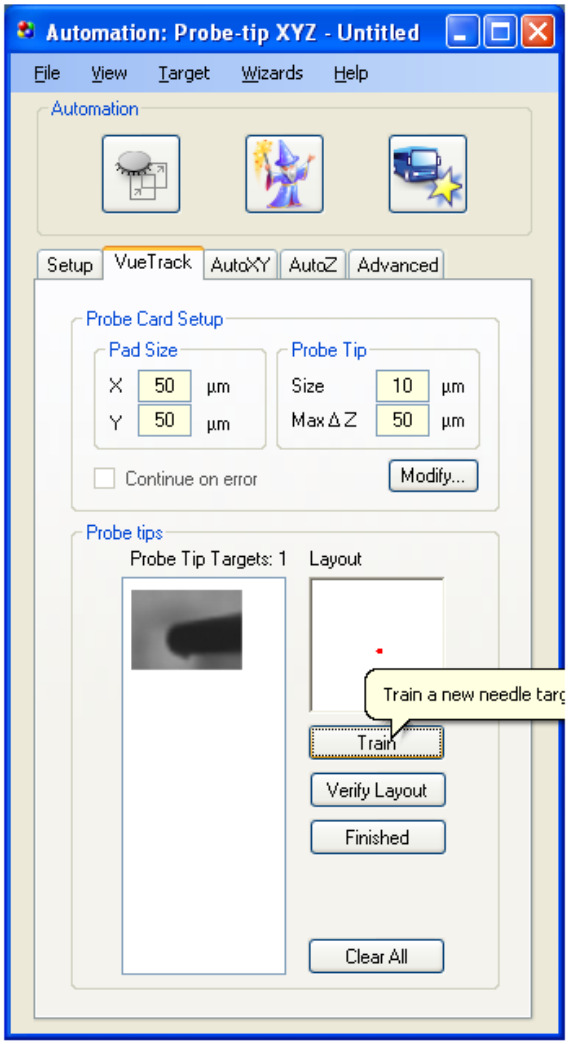



Automation: Probe-tip XYZ - Untitled
File
View
Target
Wizards
Help
Automation
Setup
VueTrack
AutoXY
AutoZ
Advanced
Probe Card Setup
Pad Size
X
50
µm
Y
50
µm
Probe Tip
Size
10
µm
Max Δ Z
50
µm
Continue on error
Modify...
Probe tips
Probe Tip Targets: 0
Layout
Train
Verify Layout
Finished
Clear All

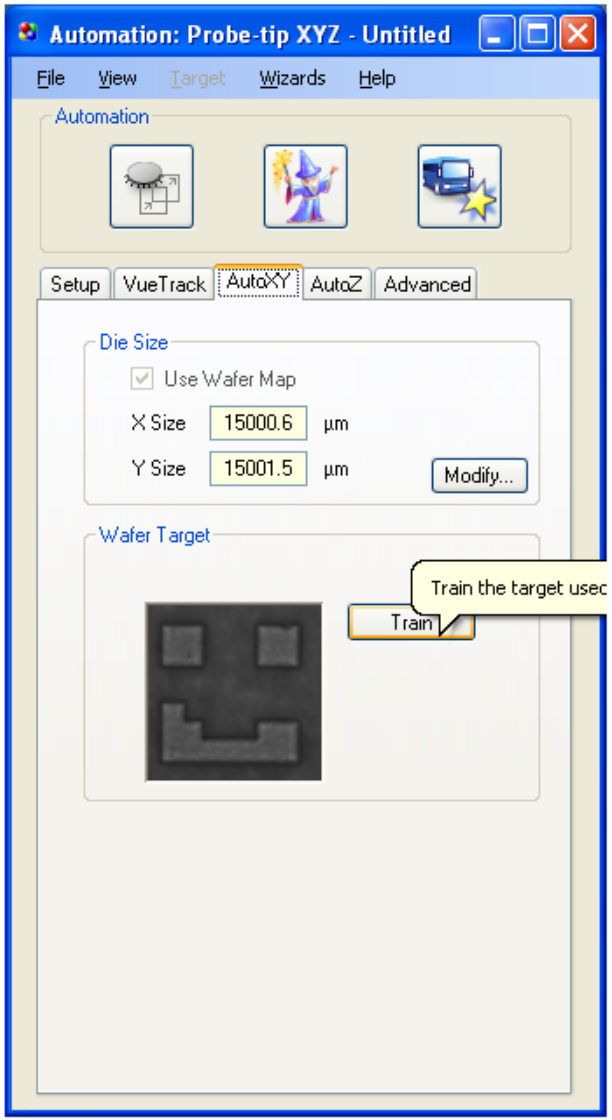
We click on the “EyeBall” to select the training area for establishing the probe tip reference.



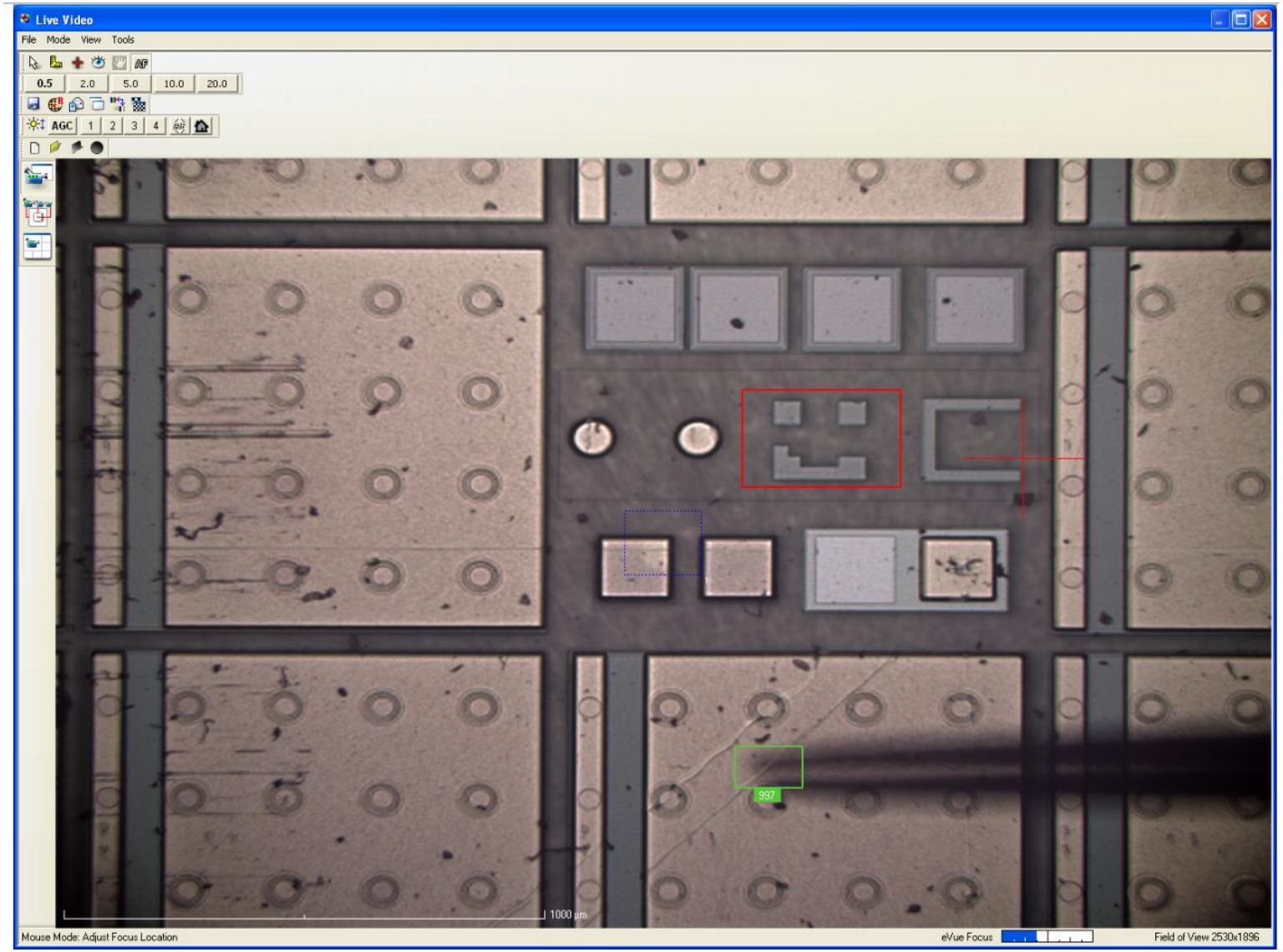
We can train on up to ten probe tip targets.



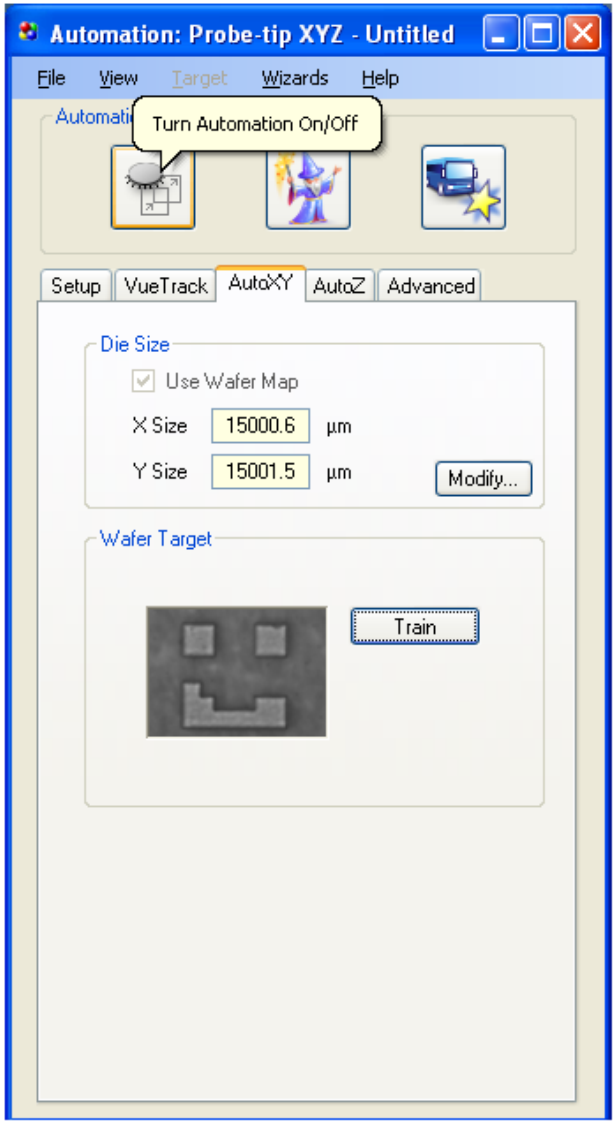
We next train on a wafer target to establish the wafer plane. This should be outside the probe card area.



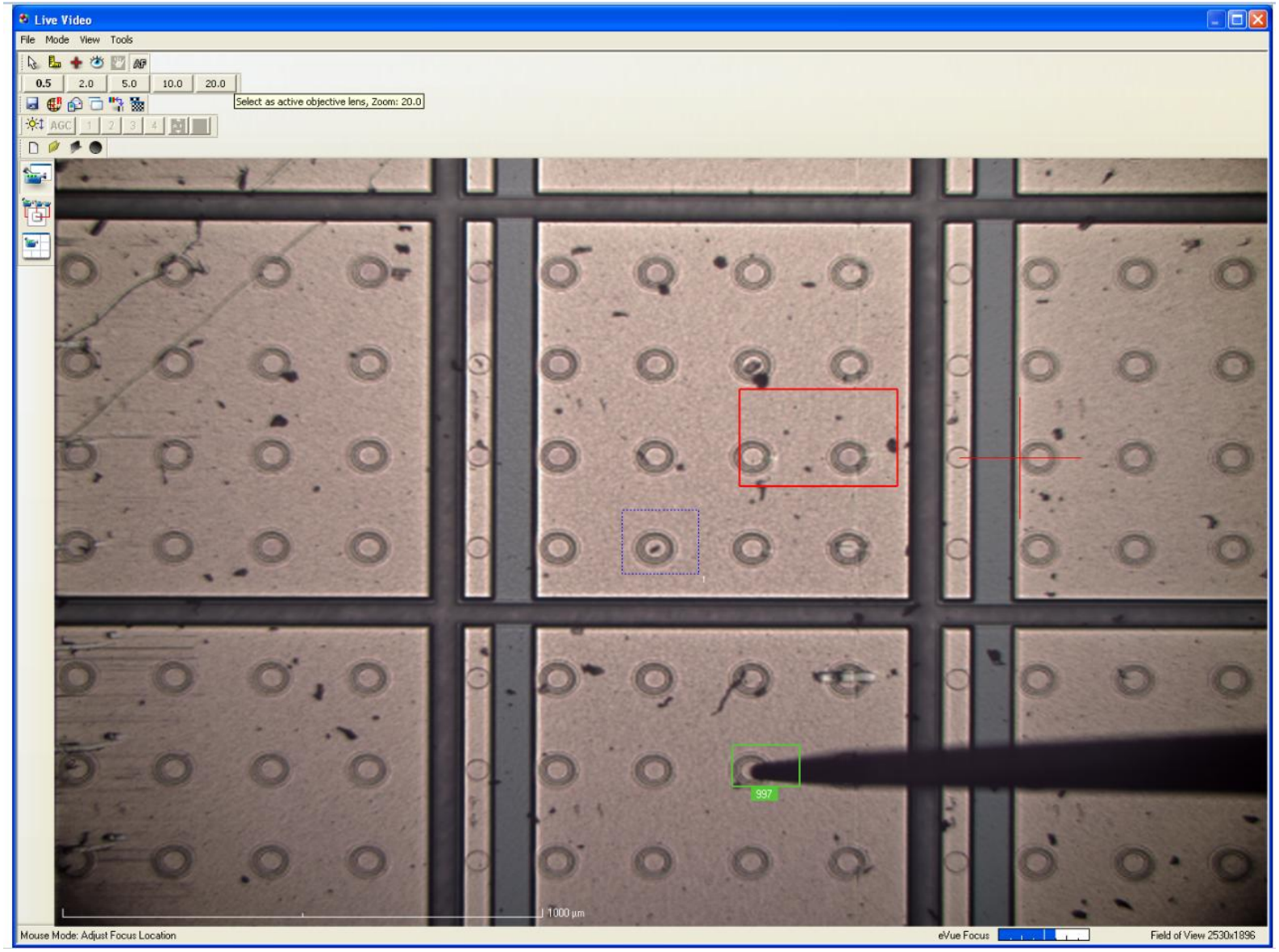
We use the “Eyeball” to designate a target; note that the blue AutoFocus block is located on another area. Let’s discuss that……



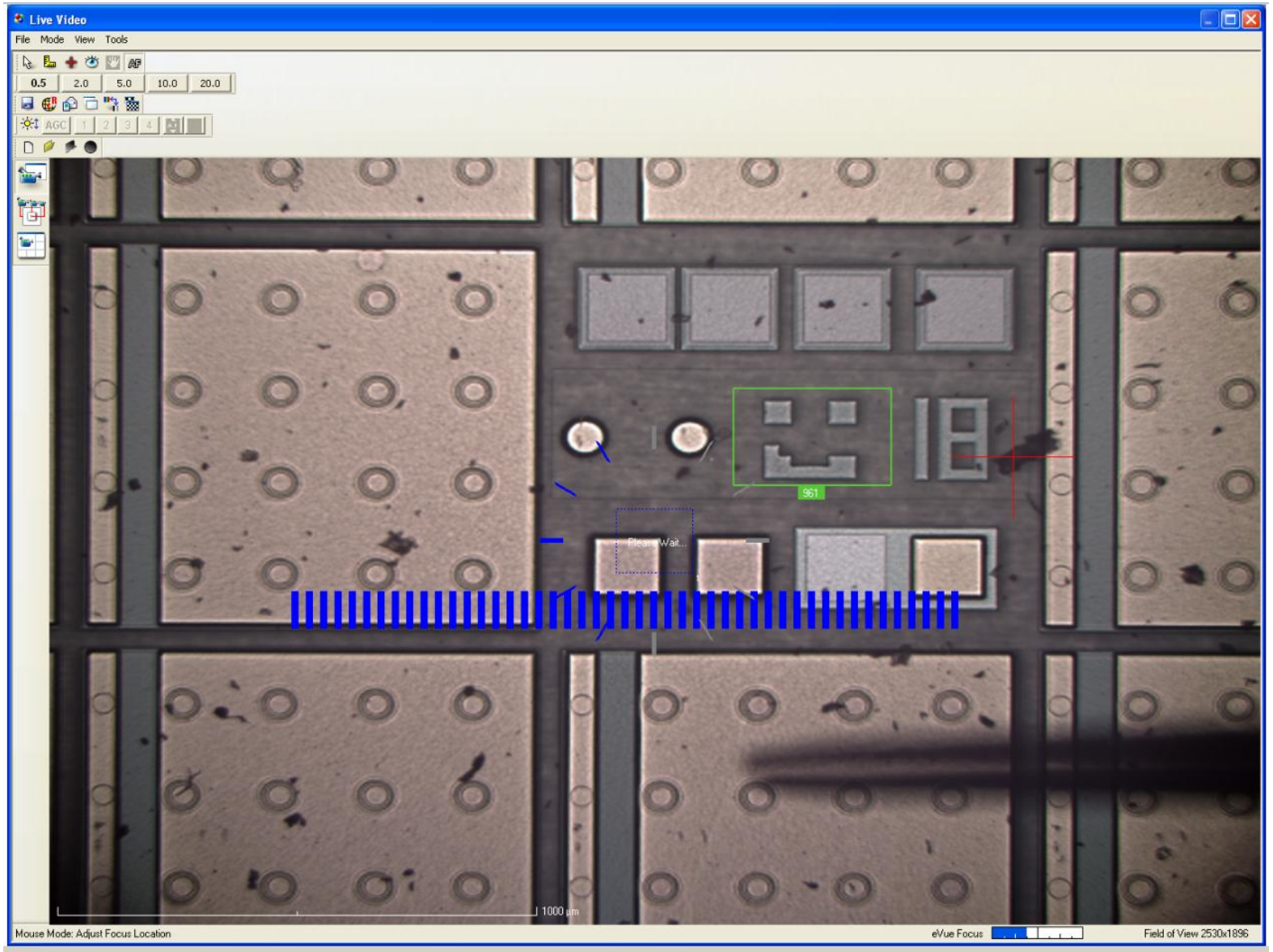
When finished training the wafer target we turn on Automation.



When we turn on Automation the chuck goes to contact at the trained postion with probe to pad.



We click on the wafer map to step to another location. The prober goes first to the trained wafer site, acquires the target



And then brings the wafer and probe in contact…..