Revision	Description	Date
A	Initial Release – Linghan Ye	03/19/2020

Subject: Calibrate the Tip Alignment Station Location on the Icon Microscope

System(s) Affected: Icon

Action Category: As Required

Summary: Icon Alignment Calibration

NOTE: This document will go over how to calibrate the tip alignment station Location on the Icon. When alignment station is not calibrated, clicking the "move to alignment station", you would get a error message: "Alignment station is not calibrated". This would prevent users to move to alignment station to align the laser. With alignment station precisely calibrated, users are able to move to alignment station without an error message.

Calibrate the Tip Alignment Station Location procedure:

1. Please mount a standard probe holder with probe
2. Initialize the Stage, if not done so
3. Locate tip using the “SETUP” icon on the left side of the screen, focus on the tip. DO NOT GO TO THE ALIGNMENT STATION!
4. Click on the “NAVIGATE” icon.
5. Navigate to the Alignment station manually use XY control or trackball

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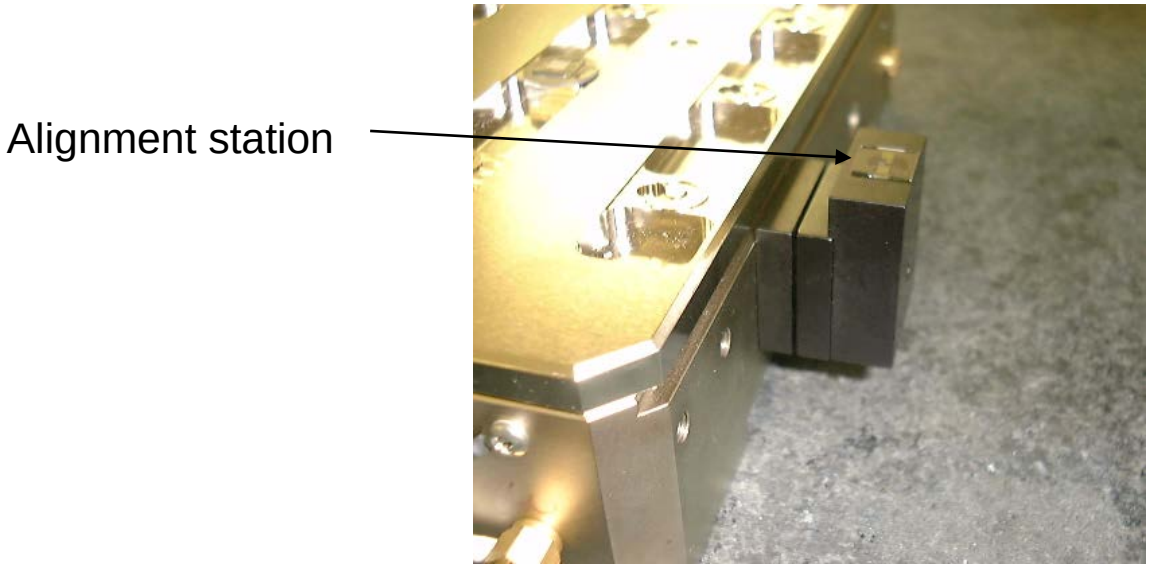

Figure 1

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Mirror areas to be used for laser alignment (either one)

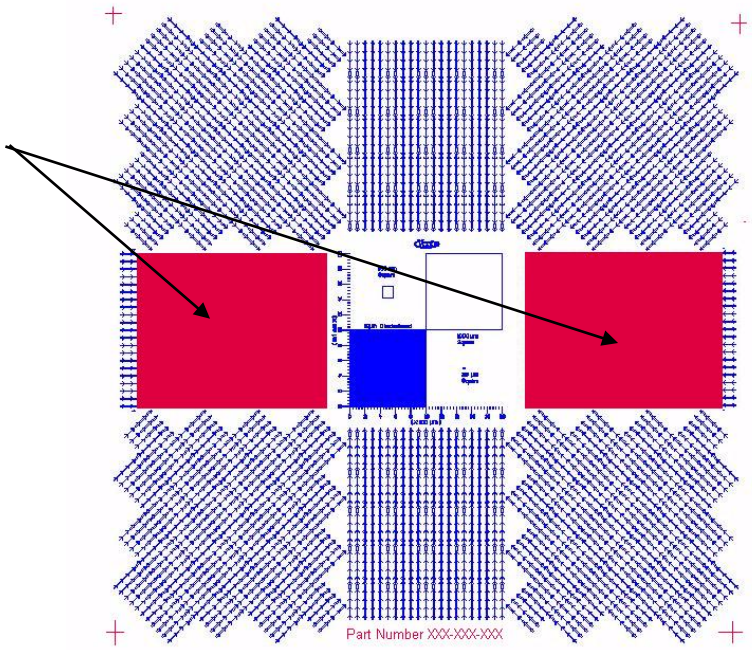

Figure 2

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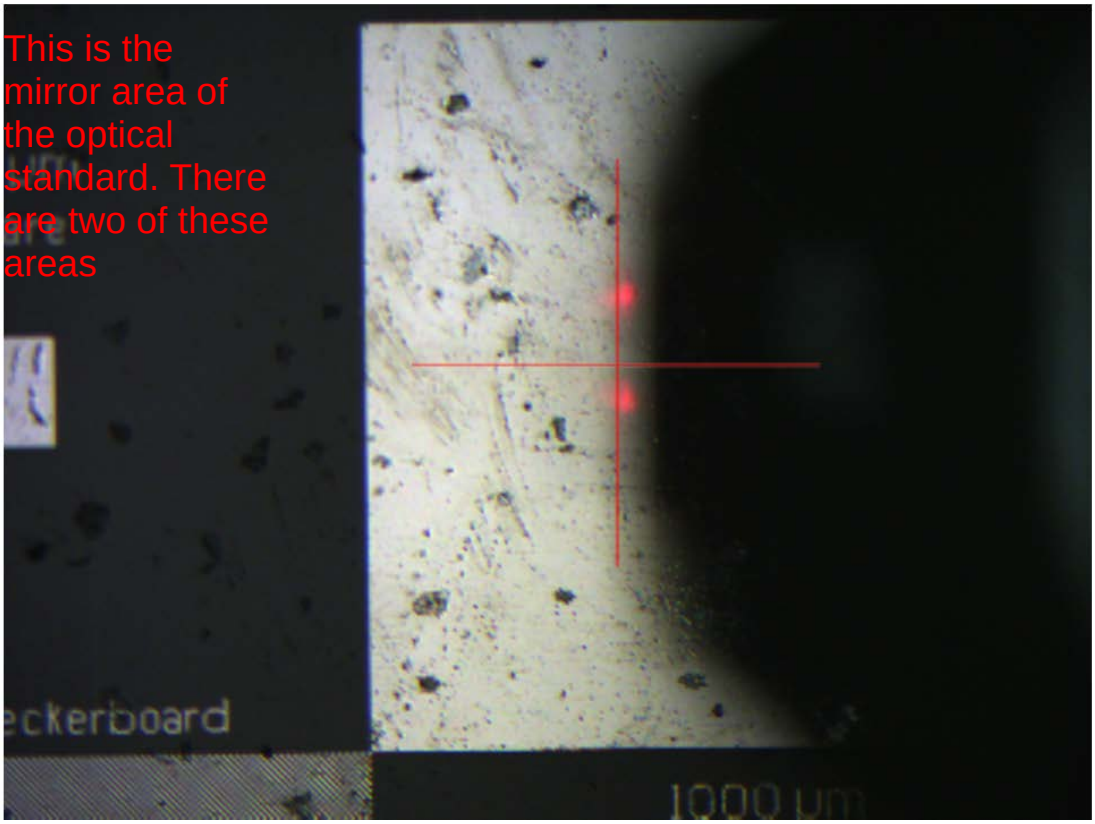

Figure 3

6. move to middle of the mirror area of the optical standard (Alignment station), then focus. see figure 3 above.

7. Write down the Z, X, & Y Coordinates as shown in the bottom right corner of the NS software screen.

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Figure 4

8. Add +500um to the Z Coordinate

Original Z value	-16691 um
Add 500um	+ 500 um
	_____
New Z value	-16191 um

Why add +500 um? Because we want extra microscope clearance over the optical standard.

9. go to set up, then focus on the **shadow** of the tip, see figure figure 5 below. if you focus on the shadow of the tip, you should be able to see the laser. Write down the optics value at the bottom of the software.

THE INFORMATION IN THIS DOCUMENT IS PROPRIETARY TO BRUKER NA NO

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figure 5

10. Exit Nanoscope Software.

11. Using Notepad, open the file: PAR\staged4.par located in your Nanoscope program directory: right click on the Nanoscope software>>properties>>open file location>>PAR folder>>stageD4. par

12. Modify staged4.par

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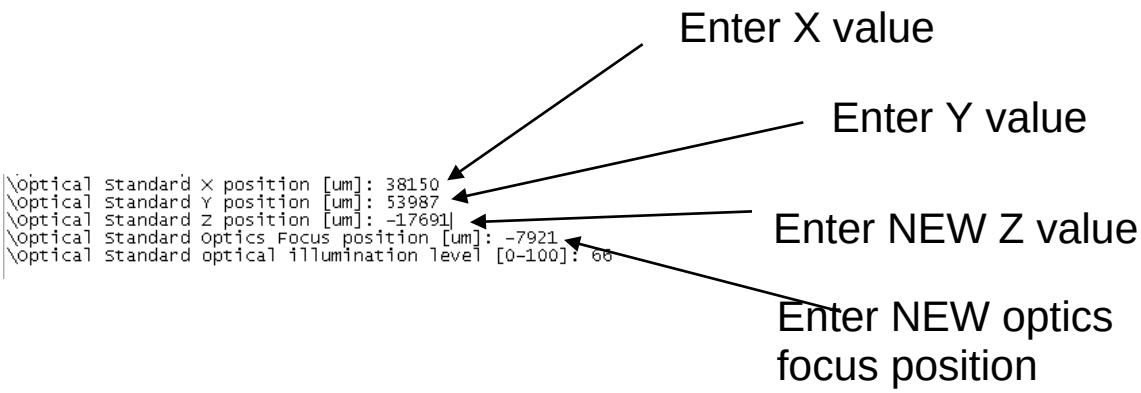

13. Save staged4.par

14. Exit Notepad software

15. Start Nanoscope software (be sure to use the correct version)

16. In setup, Press the “Alignment station” icon, let the AFM move to the alignment station. if anything weird happens, click abort if needed.

17. once done, if you can't see the shadow of the tip, Focus the microscope so that you can see the cantilever reflection (shadow of the tip) and the laser spot.

18. Adjust the Illumination so that the laser spot and cantilever can been easily seen.

19. In setup, return to the alignment station, then you should see the actual cantilever in the camera (not the shadow of the cantilever).

20. Exit the Nanoscope software and open again to ensure that the optics position and illumination values at the alignment station are saved.

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