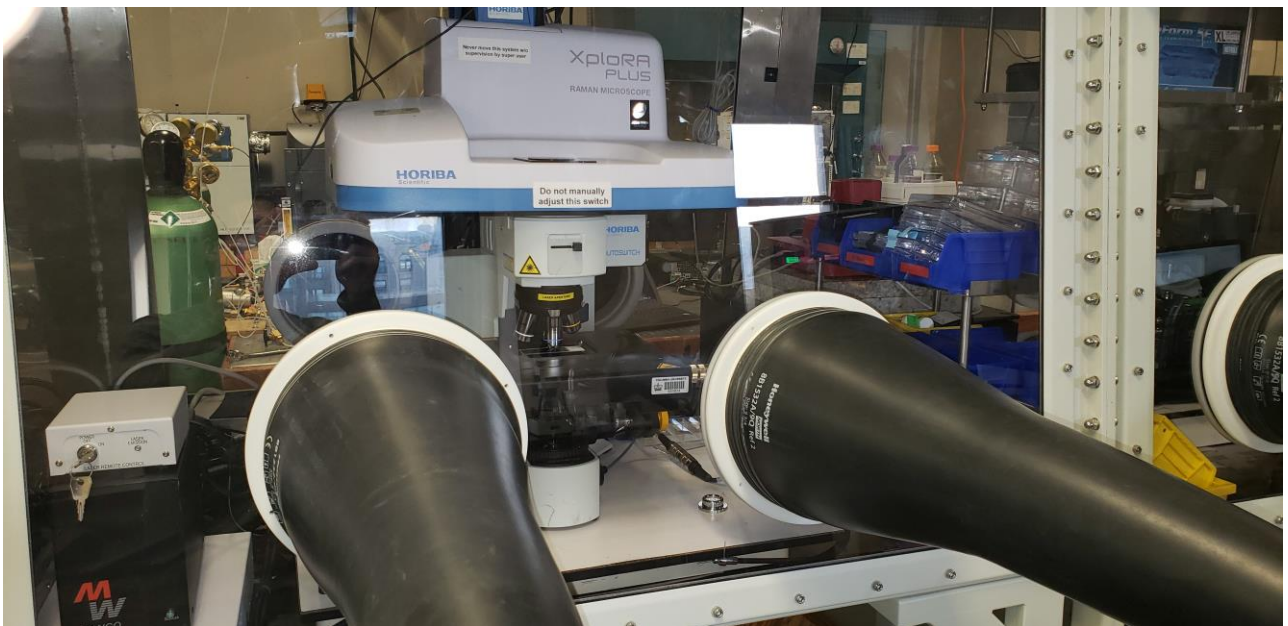


Horiba XploRA Standard Operating Procedure

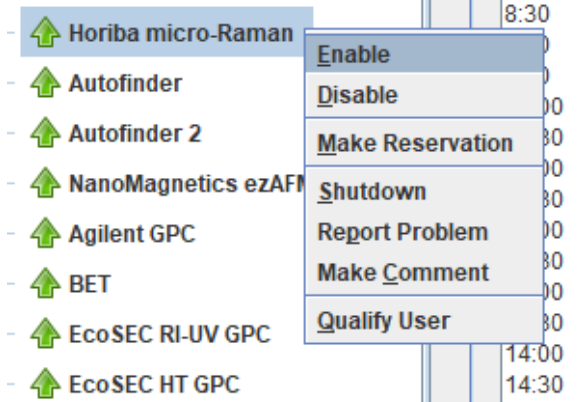


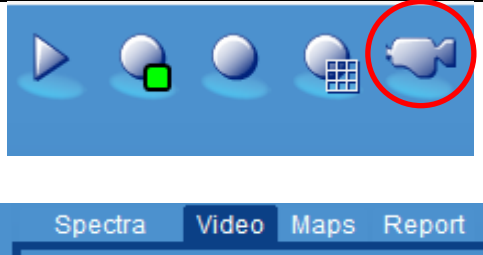


These instructions are intended for reference only, and will *not* replace the thorough training required for proper system operation. Contact a staff member with questions or to report a system problem.

Written by Nathan Finney, Evan Telford and Daniel Paley.

Updated by Manju Rajeswaran (May, 2020)



<p>1.</p>	<p>Enable the tool in BADGER</p>	
<p>2.</p>	<p>Put on a pair of gloves and use your right hand to enter the glovebox carefully and turn on the power strip on your left.</p>	
<p>3.</p>	<p>Open LabSpec6 located on the desktop.</p> <p>- The system should prompt you to calibrate the XY stage. Before clicking Ok, switch to the 10x objective to ensure the stage won't collide with the microscope.</p>	
<p>4.</p>	<p>View the video camera: Click the movie icon. Select the Video tab.</p>	



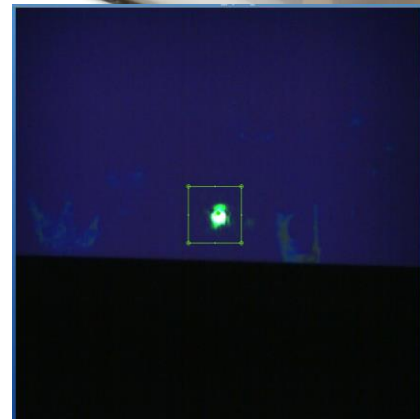
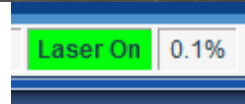
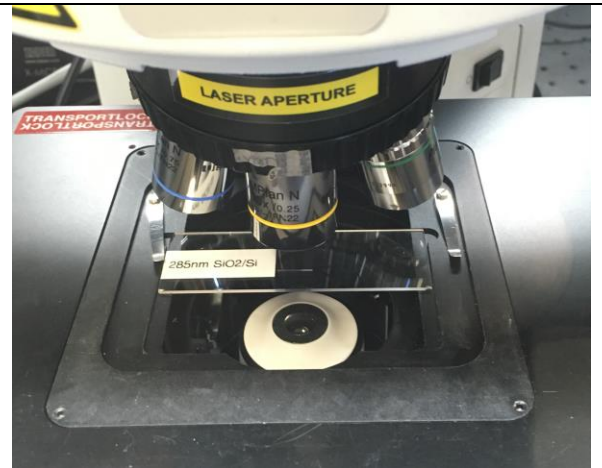
5. Calibration Slide and Laser Focus

Load the Si calibration slide, which is stored next to the objectives.

Set the laser on 0.1% power to help optimize the focus.

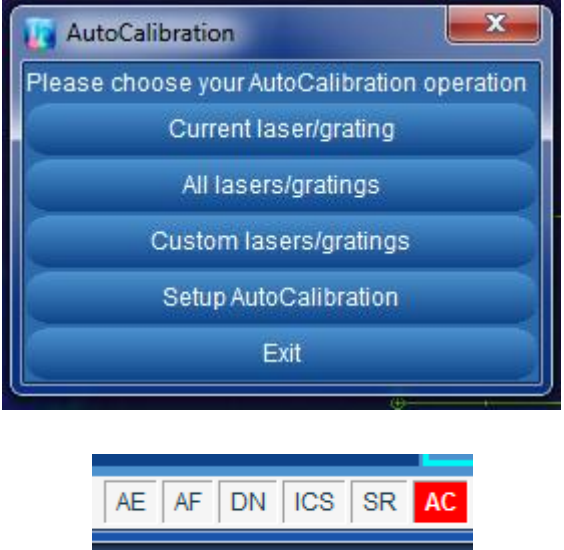
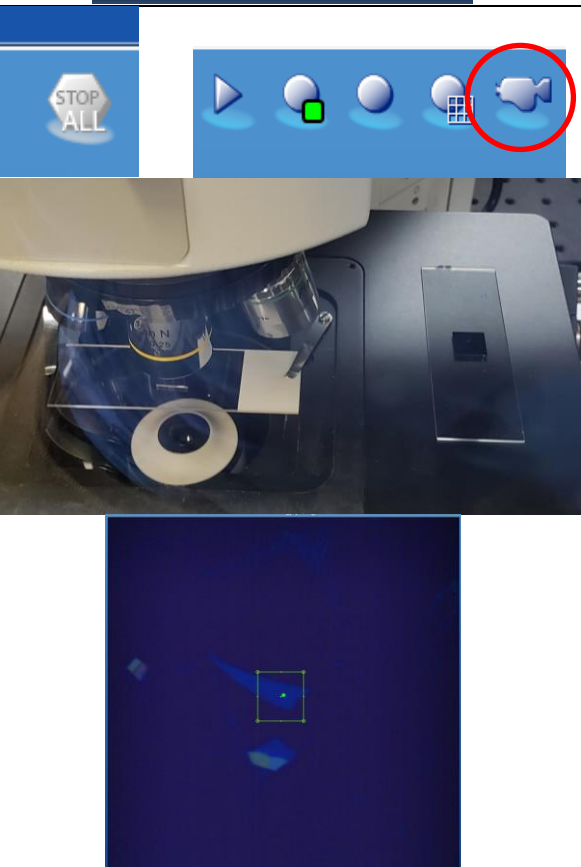
Use the joystick to focus on the surface with the 50x objective. (It may be easier to focus on the edge of the sample.)

The laser spot should be as small and focused as possible.



6. Wait for the CCD to cool down. The **Detector** button will change from **RED** to **GREEN** (approximately 5 minutes).



<p>7.</p>	<p>Auto-calibration</p> <p>Auto-calibrate the gratings by clicking on the AC button and selecting “All lasers/gratings”.</p> <p>- The AC button will appear RED if it needs calibration. Calibration takes ~5 min and is valid for 24 hours.</p>	
<p>8.</p>	<p>Sample Loading</p> <p>Press Stop All and then the Camera Button.</p> <p>Carefully remove the calibration slide and place your sample slide under the objective.</p> <p>Use the joystick to focus on the desired spot.</p>	



9. Single spectrum:
 Values shown in “Instrument setup” and “Acquisition parameters” are a basic starting point, but other values may be better for your sample.

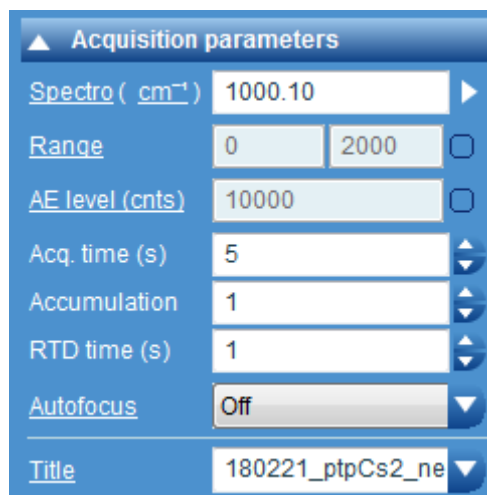
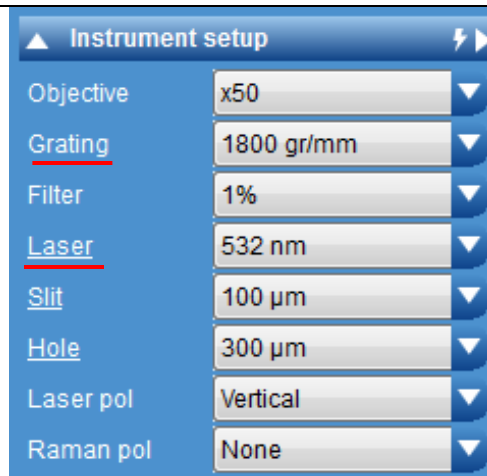
Under Acquisition tab:

-Instrument Setup: Select grating and laser power.

-Acquisition Parameters: For static grating, uncheck the Range box and set the center wavenumber. For grating scan (slow), set a spectral range and check the box. Set the acquisition time.

-Click the record button to initiate the single acquisition.

-The results are viewable in the “Spectra” Tab.



10. Mapping Raman:

Values shown in “Acquisition parameters” and “Map” are a basic starting point, but other values may be better for your sample.

-Select Video tab and draw the boundaries of your desired mapping area using the mapping toolbar on the left.

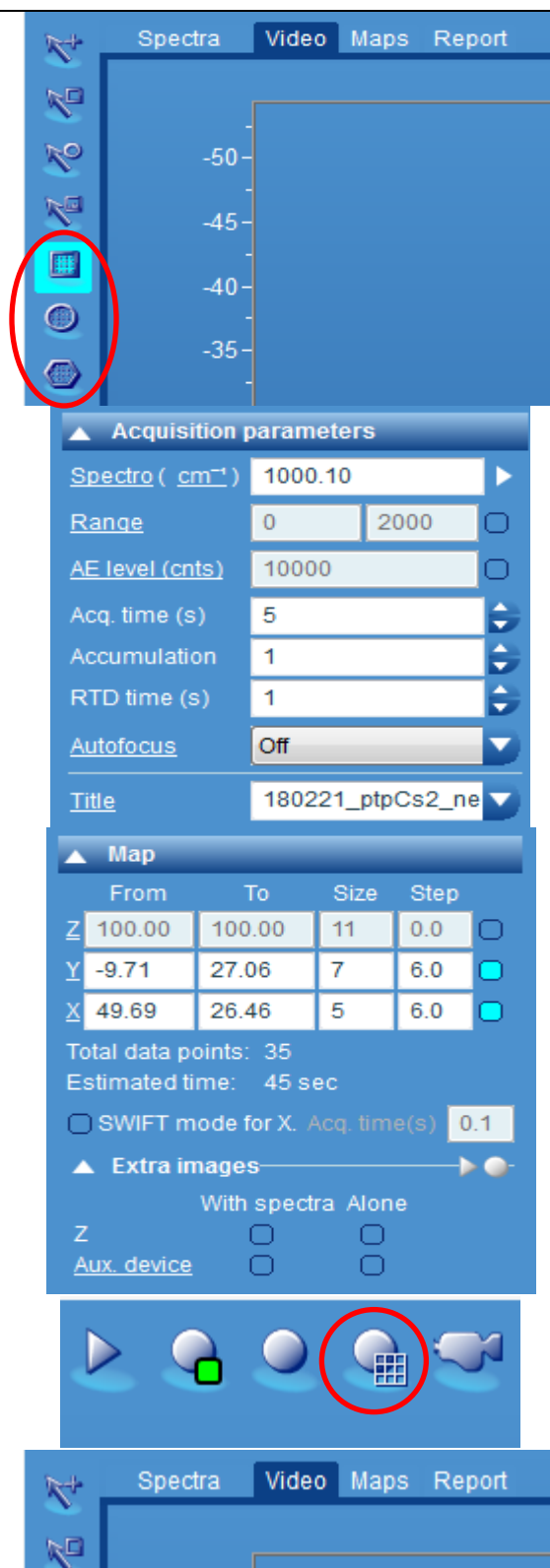
-Set the acquisition parameters as in step 9.




-Map tab: Select the desired step size (resolution). The software will calculate the number of data points and estimated time for full acquisition.

-Make sure SWIFT mode is not enabled to ensure the acquisition time is correct.

-Start the mapping by clicking "Start Map Acquisition."

-You can view the results in the “Maps” Tab.



<p>11. When you are finished using the Horiba and saving your data in C:\Users\Raman\Horiba User Data, please complete the following:</p> <ul style="list-style-type: none"> -Stop all processes -Change the objective back to 10x -Close the LabSpec6 software -Turn off the power strip inside the glovebox. 	  
<p>12. BADGER LOGOUT: Don't forget to disable the tool in badger after you're done.</p>	