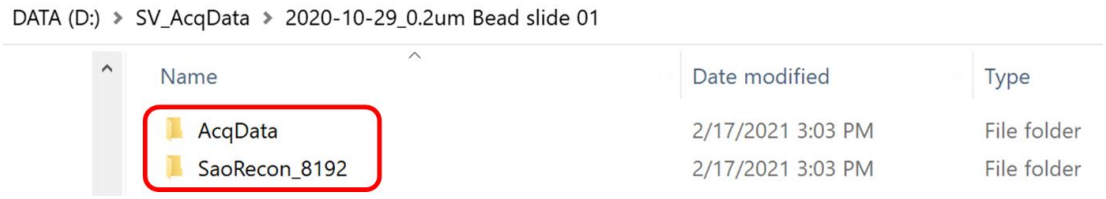
Revision History

Revision	Date	Name	Change Description
01	2021-04-05	Yang Hyo Kim	New Document
02	2021-04-20	Yang Hyo Kim	Update for Esper Control integration.

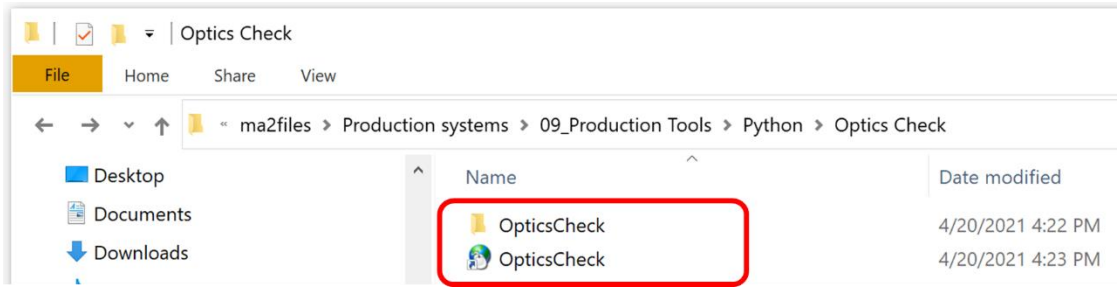
1. Purpose
    a. System imaging quality check.
2. Scope
    a. Engineering/Manufacturing
3. Responsibility
    a. Engineering and Manufacturing is responsible in keeping this document updated
    b. Procedure must be followed by Engineering/Manufacturing
4. References
    a. Calibration step B manual

Procedure

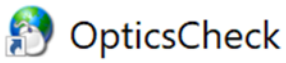
1. Take bead images and reconstruct it (read Calibration step B manual for more details). Make sure the reconstruction folder name is 'SaoRecon_8192'.



2. You can find a folder and a shortcut with a name of '**OpticsCheck**' in the file server (*\\ma2files\Production systems\09_Production Tools\Python\Optics Check*).

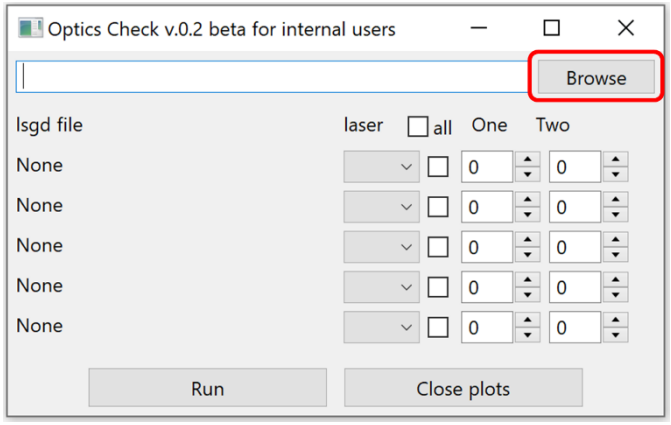


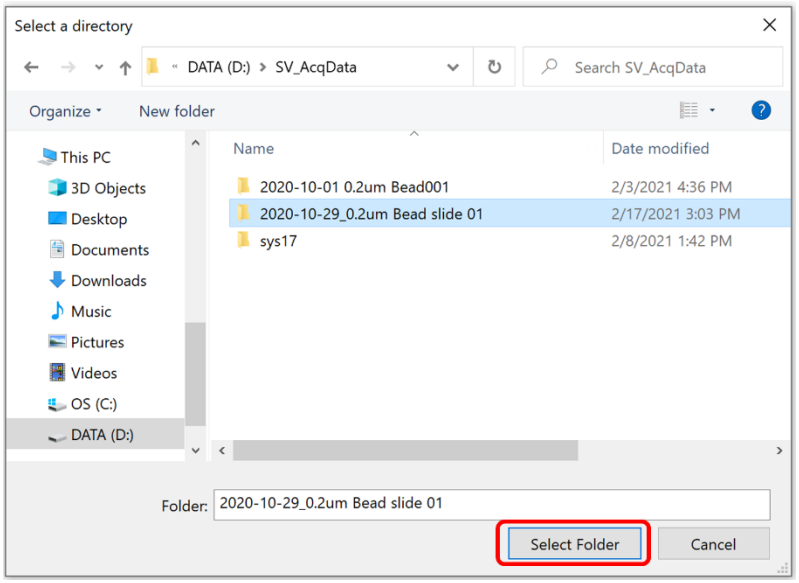
3. Run '**OpticsCheck**' software by double-clicking the shortcut icon.



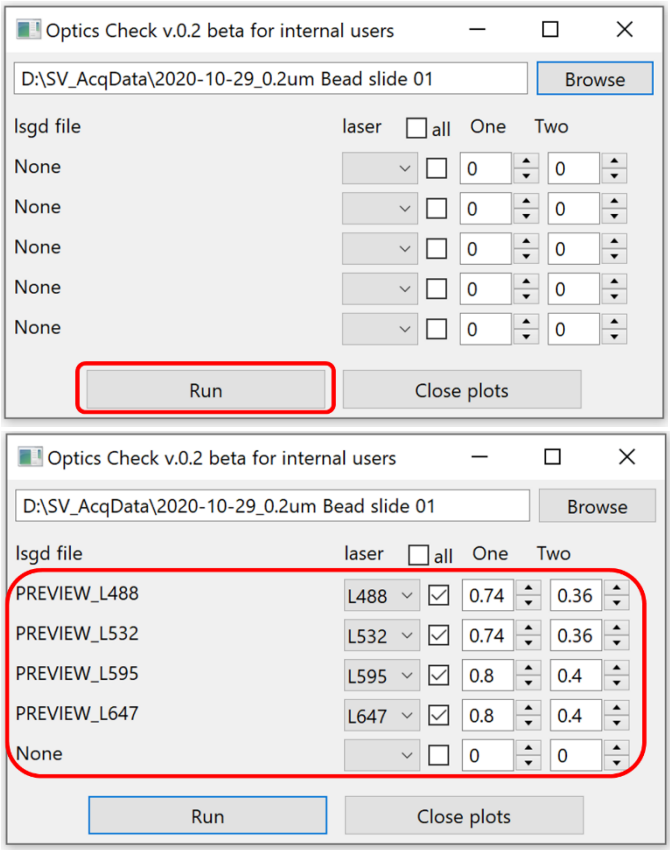
4. Enter the location where the data file is located by putting the directory path in the text box.

   You can also click Browse button to open directory-choosing dialog, click the data folder (for example, *D:\SV_AcqData\2020-10-01 0.2um Bead001*), and push '**Select Folder**' button.

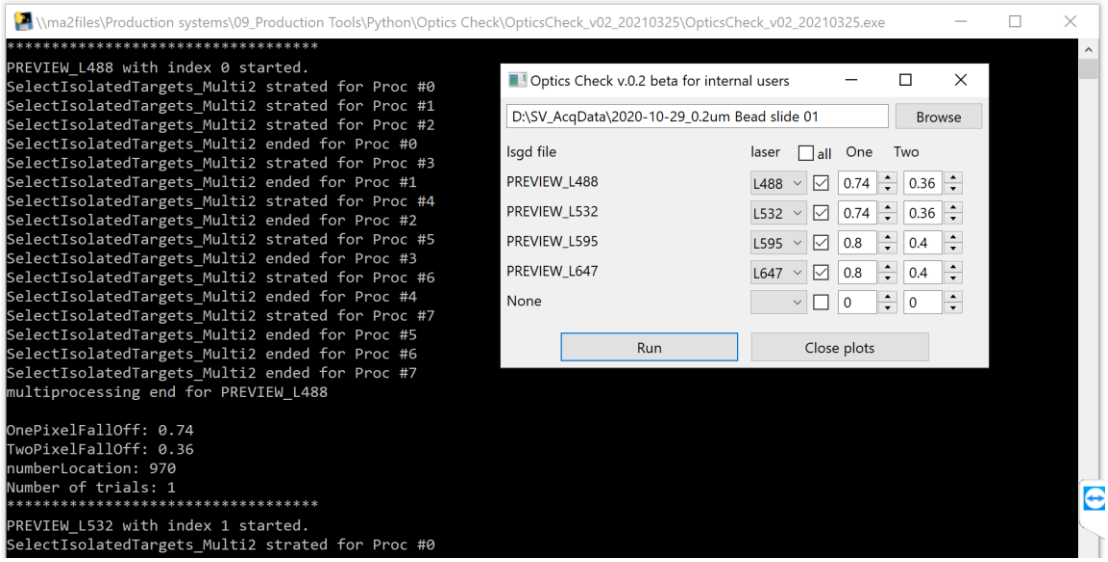




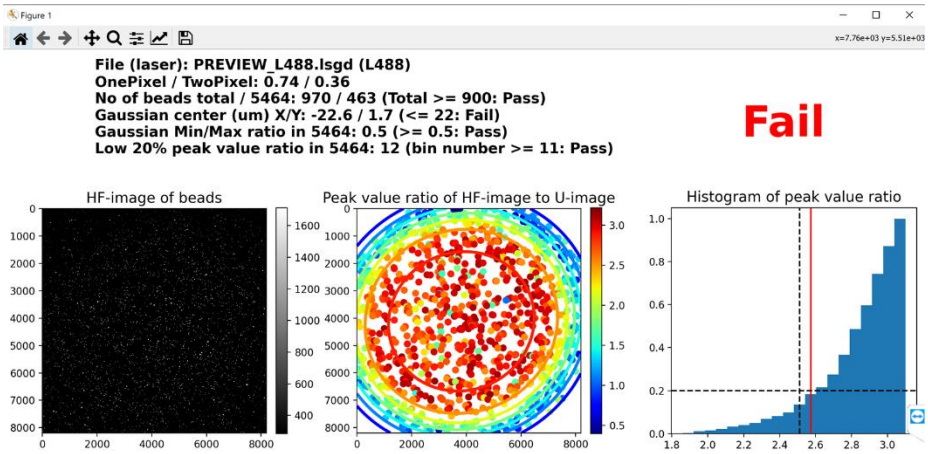
5. Click '**Run**' button and information is updated.



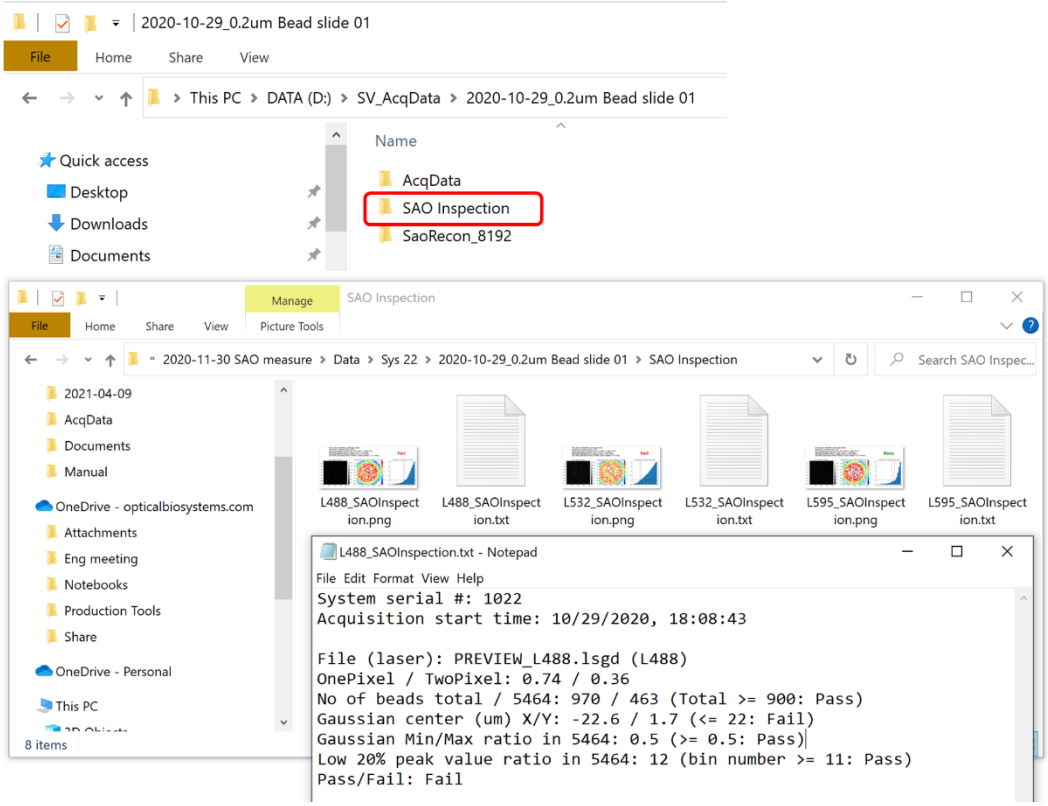
6. Click '**Run**' button one more time and the analysis starts. You can see many messages in the console window (black background).



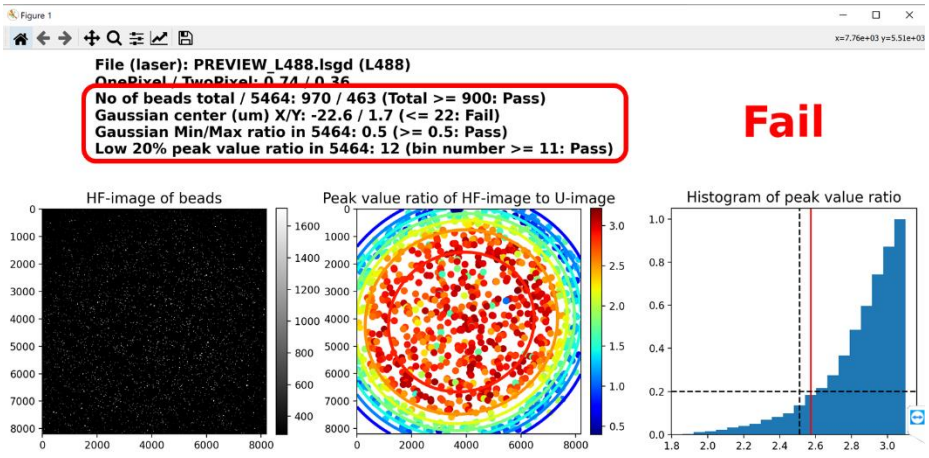
7. After 10~30 minutes later, you can find the result figures like the following.



8. The result figures and text files are saved inside a new folder (SAO Inspection).



9. There are 4 Pass/Fail criteria and the system **must pass all 4 criteria to guarantee the imaging quality**. If any of 4 criteria fails, the final verdict shows Fail.



10. <Pass/Fail trouble shooting guide>

Pass/Fail criteria	**Possible cause for fail**
Number of beads total	• Not enough number of beads inside the current field of view. Move the sample and take a new data. Or replace the bead sample slide and take a new data.
Gaussian center	• The center of the objective lens is misaligned to the camera center.
Gaussian Min/Max ratio	• The center of the objective lens may be misaligned to the camera center. • Laser beams may be misaligned. • Optics may be damaged or get dirty.
Low 20% peak value ratio	• The center of the objective lens may be misaligned to the camera center. • Two laser beam overwrap may be bad. • Optics may be damaged or get dirty.

11. Notice: 750 nm laser data doesn't work with the software yet.

12. This software can be integrated into another program by calling ‘OpticsCheck.exe’ file with the following options.

-h	Show help message and exit.
-v	Show program version info and exit.
-i “file path”	Process the data in the file path and exit. File path must be surrounded by double-quotation mark (“”).