

Optics Alignment (BB) Part

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1. How to set Part conditions

In this chapter, how to set the **Optics Alignment (BB)** Part conditions is described.

1.1 Setting conditions

Set the basic conditions in the **Optics Alignment (BB)** dialog box.

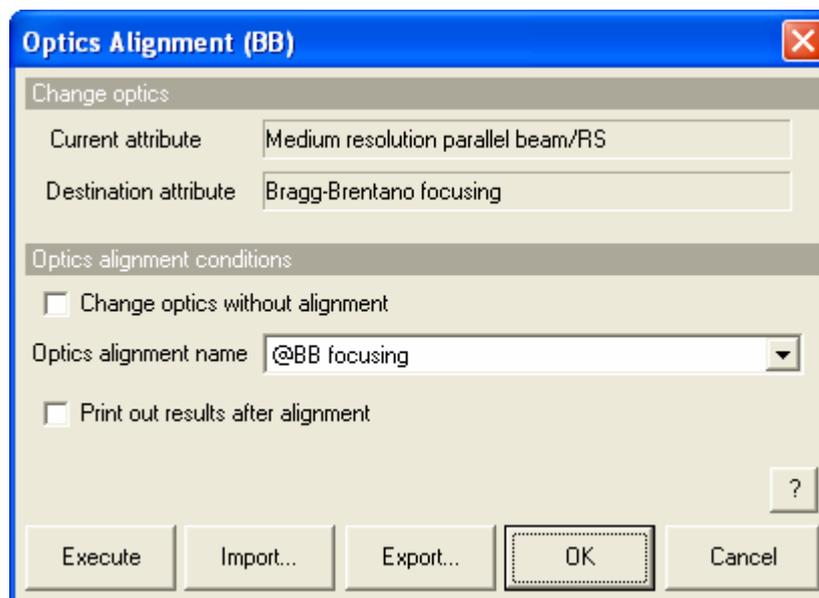


Fig.1.1.1 Optics Alignment (BB) dialog box

- Current attribute** Shows the current optics attribute.
- Destination attribute** Shows the destination optics attribute after the optics alignment.
- Change optics without alignment**
- When the **Change optics without alignment** box is checked, the optical axes are positioned at the predetermined optimal axis positions as recorded for the selected optics alignment name. These values will be used, and an additional alignment will not be performed.
- When the **Change optics without alignment** box is unchecked, the optics alignment is performed according to the sequence described in Chapter 2.



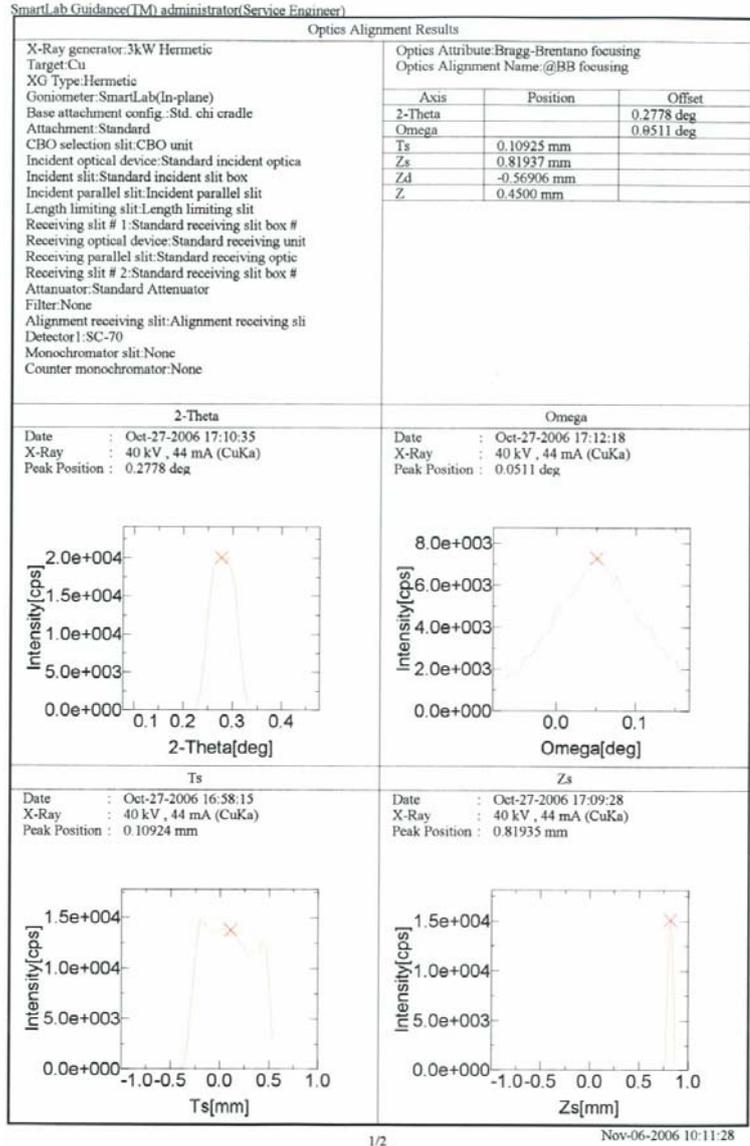
Tip: It takes about 10 minutes for the optics alignment to complete. It is recommended to perform the optics alignment (to uncheck the **Change optics without alignment** box) unless there is a specific reason not to.

- Optics alignment name** Select the optics alignment name. After the alignment, the optimal position of each axis is registered in the selected optics alignment name.

1. How to set Part conditions

Print out results after alignment

Check the **Print out results after alignment** box to print out the alignment results with the format shown below after alignment.



Execute

Executes the optics alignment under the conditions specified in the **Optics Alignment (BB)** dialog box.



CAUTION: Clicking the **Cancel** button after executing the optics alignment does not cancel the specified conditions.



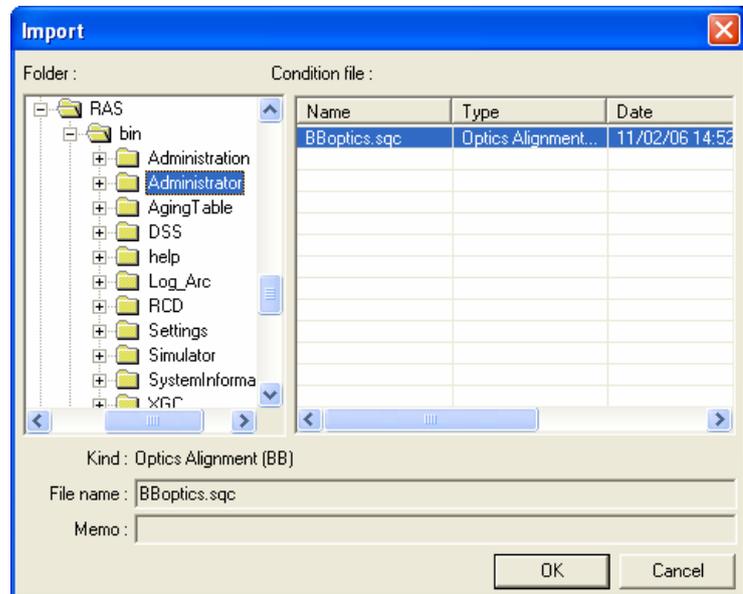
Tip: The optics alignment is executed with the **Optics Alignment (BB)** dialog box open. While the optics alignment is running, the Part conditions cannot be changed. They can be changed again after the alignment has been completed.

The setting of (Show confirmation messages) on the flow bar becomes invalid.

Import

Loads the saved Part conditions.

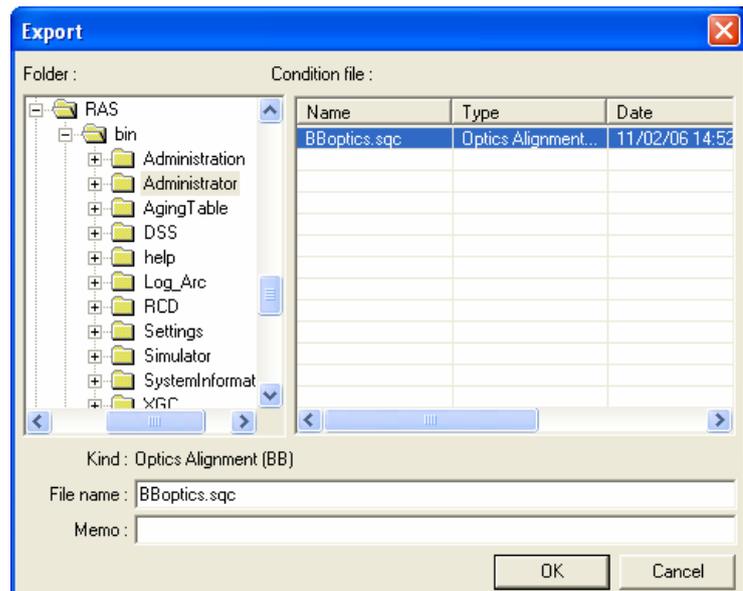
Clicking the **Import** button opens the **Import** dialog box. Select the folder including the file you want to import from the **Folder** tree view. In the **Condition file** list, select the condition file you want to import and click the **OK** button to load the Part conditions.



Export

Saves the specified Part conditions in a file.

Clicking the **Export** button opens the **Export** dialog box. From the **Folder** tree view, select a destination folder to save the conditions file then enter a file name in the **File name** box. Enter comments in the **Memo** box, if needed. After entering them, click the **OK** button.



OK

Sets the conditions and closes the dialog box.



CAUTION: When selecting another Package measurement or switching the task to the **Manual Control** task, etc. the specified conditions will be cancelled. To save the specified conditions in a file, click the **Export** button and save the conditions.

Cancel

Does not set the conditions and closes the dialog box.

?

Opens the online help of this Part.

2. Optics alignment sequence

The optics alignment is performed automatically. However, the center slit, Soller slit, etc. must be installed (or removed) manually as instructed by messages displayed on the screen.

Described below is the general optics alignment sequence.

- (1) Drive each axis of the goniometer to the initial position ($\theta_s = 0.0^\circ$, $\theta_d = 0.0^\circ$).
Adjust each slit width as shown in Fig. 2.1.
- (2) Place the height reference sample plate on the attachment and insert the center slit into the height reference sample plate as instructed by the messages displayed on the screen.

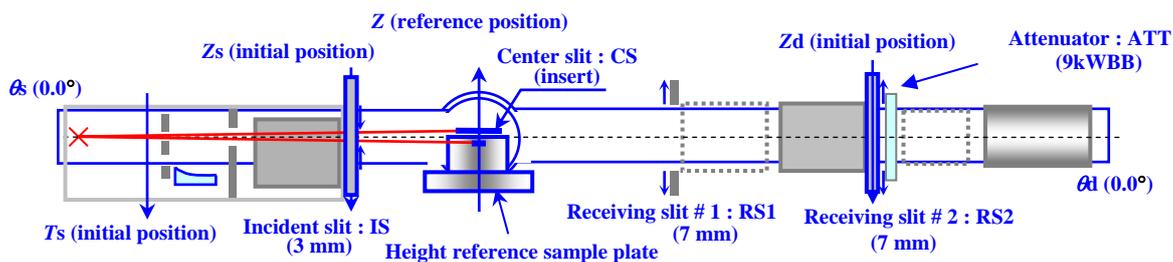


Fig. 2.1 Setting of the initial positions of the goniometer axes

- (3) Set the count mode of the counter to integral, the HV value to that registered in the system parameter management database, the PHA baseline to 500 mV, and the PHA window to 1000 mV.
- (4) Scan the θ_s axis and drive the θ_s axis to the peak position.

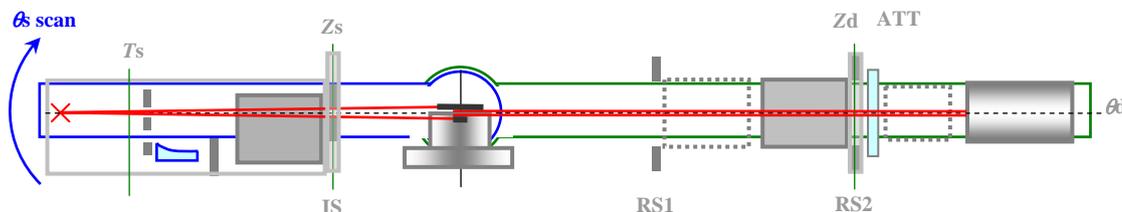


Fig. 2.2 Alignment based on θ_s scan

- (5) Set the RS1 width to 0.15 mm. Scan the θ_d axis and drive the θ_d axis to the peak position.

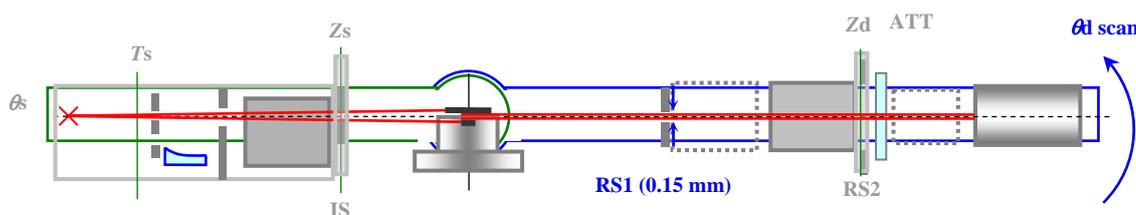


Fig. 2.3 Alignment based on θ_d scan

- (6) Set the RS2 width to 0.15 mm. Scan the Z_d axis and drive the Z_d axis to the peak position.

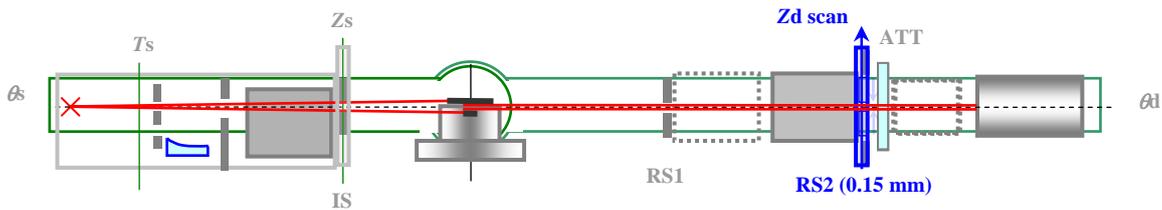


Fig. 2.4 Alignment based on Z_d scan

- (7) Set the IS width to 0.05 mm. Scan the Z_s axis and drive the Z_s axis to the peak position.

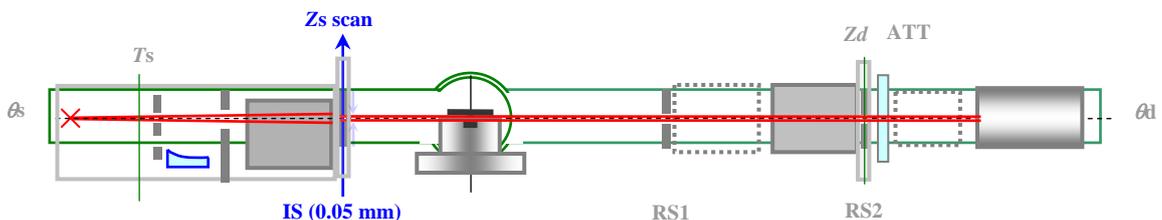


Fig. 2.5 Alignment based on Z_s scan

- (8) Set the IS width to 0.1 mm and the RS1 width to 7 mm. Drive the Z axis to -4 mm. Scan the 2-theta (theta_d) axis and drive the 2-theta axis to the peak position.

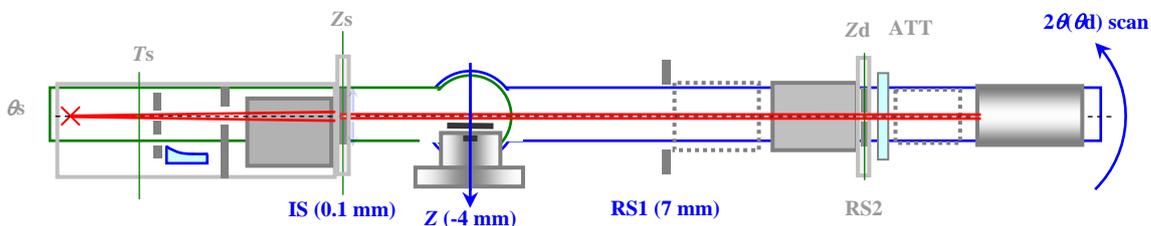


Fig. 2.6 Alignment based on 2-theta scan

- (9) The position determined here is the current zero position of the 2-theta axis. Set the 2-theta zero offset value so that the position is 0°.

(10) Drive the Z axis to the reference position for direct beam half cut alignment.

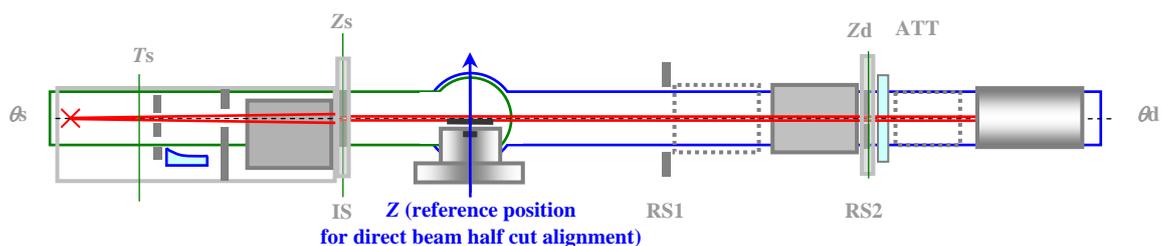


Fig. 2.7 Driving the Z axis to the reference position for direct beam half cut alignment

(11) Scan the omega axis again and drive the omega axis to the peak position.

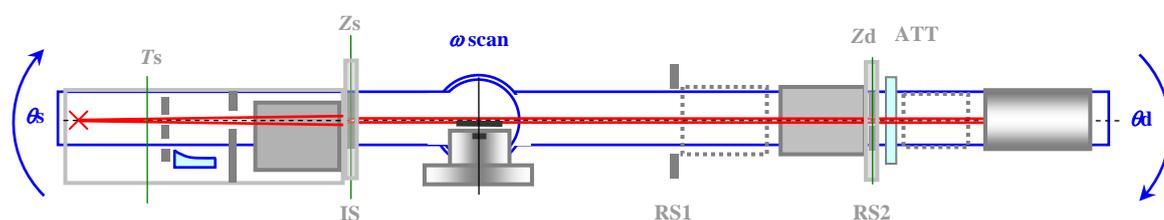


Fig. 2.8 Alignment based on omega scan

- (12) The position determined in step (11) is the current zero position of the omega axis at which the upper surface of the center slit is parallel to the incident x-ray beam. Set the omega zero offset value so that the position is 0° .
- (13) Set the count mode of the counter to differential. Restore the values of the HV, PHA baseline, and PHA window to those registered in the system parameter management database.
- (14) Register the position of the T_s axis set in step (1), and the positions of the Z_d , Z_s , 2-theta, and omega axes determined in steps (6), (7), (8), and (11) in the optics management database.