

PMA Maintenance Alignment Check S-AB-P-171 Revision B

Intent: This document provides procedures for periodic maintenance alignment of the PMA between the UVAT and the UVDP of each of the 4 Beamlines.

Frequency: Quarterly

Material Needed: Laminated fluorescent card

Note: Appropriate laser safety eye protection **MUST** be worn in the Laser Bay.

Maintenance Alignment Check

1	Start the UVAT laser, S-AB-P-151.	<input type="checkbox"/>
2	Perform the UVAT Startup Alignment Check, S-AB-P-178.	<input type="checkbox"/>
Propagate the UVAT main beam to the PMA		
3	<ul style="list-style-type: none">Install the UVAT focus lens crosshairEnsure that the compensating plate at the output of the UVAT is inserted into the beam path.Ensure that the UVAT main beam (large beam) is injected to PMA1 (UVAT 5-inch flip-in mirror must be OUT of the beam path).	<input type="checkbox"/>
4	Rotate PMA1 to the east PMA2 mirror using the pre-recorded positions of the PMA1 rotation stage and tip/tilt actuators.	<input type="checkbox"/>
5	Check beam centration at PMA1 using a fluorescent card. Ensure that the UVAT beam does not clip on PMA1. If it does, resolve the issue before proceeding.	<input type="checkbox"/>
6	Check beam centration at PMA2 using a fluorescent card. If necessary, adjust PMA1 tip/tilt actuators to center the beam on PMA2. <ul style="list-style-type: none">Record the position of the PMA1 tip/tilt actuators in the Beamlines log book.	<input type="checkbox"/>
7	Insert the upper PMA3 mirror of beamline 4.	<input type="checkbox"/>
8	Check beam centration at PMA3 using a fluorescent card. If necessary, adjust PMA2 tip/tilt actuators to center the beam on PMA3. <ul style="list-style-type: none">Record the final position of the PMA2 tip/tilt actuators in the Beamlines log book.	<input type="checkbox"/>

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- 9 Insert the FCC crosshair into the beam path. Observe the UVAT focus lens and FCC crosshair overlap on the UVDP ASP centering camera.
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- Adjust both PMA1 and PMA3 mirrors until:
- the centering image at the UVDP ASP camera shows the UVAT focus lens and FCC crosshairs overlapping*
 - the beam pointing spot is aligned to the UVDP pointing reference to within ± 1 pixel in both the x and y directions at the UVDP ASP fine pointing camera.
- 10
- * In the aligned condition, the FCC crosshair will be 0.07 inches below the UVAT focus lens crosshair.
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- 11 Check to ensure the beam does not clip on PMA2. If clipping is observed, inform the Beamlines Manager.
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- 12 Record the final positions of the PMA1 and PMA3 tip/tilt actuators in the Beamlines log book.
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- 13 Insert the lower PMA3 mirror (beamline 2) into the beam path.
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- 14 Without making any adjustments to PMA2, use a fluorescent card to ensure that the beam does not clip on the lower PMA3. If clipping is observed, resolve the issue before proceeding.
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- 15 Repeat steps 6 – 12 for beamline 2.
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- 16 Repeat steps 4 – 12 for beamlines 1 and 3.

(End of Procedure)

Document Release

PMA Maintenance Alignment Check; S-AB-P-171

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