

Wavefront Control System Reference Wavefront Acquisition Procedure S-AB-P-139 Rev B

Intent: This procedure acquires a set of reference centroids for the IRDP WFS and is completed by the BLO. A reference wavefront should be taken weekly during pre-operation startup or at the request of System Science.

Prerequisites:

- IRAT Laser startup has been performed per S-AB-P-040
- MSC startup has been performed per S-AB-P-134
- SHSS startup has been performed per S-AB-P-127
- WCS Coordinator startup has been performed per S-AB-P-127
- WCS GUI startup has been performed per S-AB-P-127
- Beamline is aligned from the IRAT to IRDP

Frequency: Weekly

Procedure:

1	Instruct the ALT to set up the fiber launcher <ul style="list-style-type: none">• Set IRAT laser current and throttle to the 0.5W settings• Remove the beam dump from the IRAT throttle	<input type="checkbox"/>
<hr/>		
2	Using <i>balign</i> and the IRDP pointing camera; insert and align the TSF reference fiber.	<input type="checkbox"/>
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3	On the WCS GUI, open “options and parameters” (Screw Driver and Wrench Icon).	<input type="checkbox"/>
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4	Select the Auto Mode tab.	<input type="checkbox"/>
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5	Set ‘Number of Averages’ to 16.	<input type="checkbox"/>
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6	Select the Shack-Hartmann Sensor tab.	<input type="checkbox"/>
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7	Browse to and select the most recent “ROI Pattern” file using the path below: <p style="text-align: center;"><i>/u/epbl/WCS/Directory/ROIs/</i></p> <i>Directory</i> is listed for each WFS in the table below then click “OK”.	<input type="checkbox"/>

(continues)

Open a new terminal window and type:

8 `startSHSSGUIID`

ID is listed for each WFS in the table below then click “OK”.

Change the exposure time until all 77 spot are visible.

- 9
- The threshold should be set to 20 counts.
 - Note: Click *Apply* after every attempt in order for the changes to take effect.
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Click *Acquire Image* between attempts to set the exposure.
Repeat this empirical process until all 77 spot are visible.

10 Set Image Acquisition timeout to 100 ms more than the exposure time from step 9.

11 Enter the exposure time on the SHSS Configuration Parameter window and click *Apply*.

12 Close the SHSSGUI.

13 Acquire Reference, by clicking on the  button (this action stores a set of reference centroids).

14 Instruct the ALT to Restore the IRAT to its nominal state

- Return the Beam Dump to the IRAT throttle
- Return to IRAT laser to the alignment current

15 On the WCS GUI open “options and parameters” (Screw Driver and Wrench Icon).

16 Select the Auto Mode tab

17 Set the number of averages to 4 and click *Apply*.

(End of Procedure)

WCS Lookup Table

ID	DM Location	Directory	WFS Location	Computer Name
1	Beamline 1 Cavity	BL1	Beamline 1 IRDP	trinculo
2	Beamline 2 Cavity	BL2	Beamline 2 IRDP	galatea
3	Beamline 3 Cavity	BL3	Beamline 3 IRDP	himalia
4	Beamline 4 Cavity	BL4	Beamline 4 IRDP	despina
5	Upper Compressor	UC	Upper Compressor SPDP	lysithea
6	Lower Compressor	LC	Lower Compressor SPDP	thalassa
7	NA	PAD	PAD	TBD

Document Release:

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