Palomar Adaptive Optics Test Plan

Title	Laser, BTO, and safety system checkout
Date	9/05/06
Lead	A. Bouchez
Time requested	2 hr
Required conditions	Dome closed

Purpose
1. Align 589nm laser to BTO.
2. Test safety systems, BTO servo loop.

Previous analysis
Two-dimentional BTO lookup tables were created from HA and Dec scans made using the 660 nm stimulus laser on 6/13/06.

Test procedure

In prime focus with 660nm laser:
1. Align BTO at zenith [need more detail].
2. Adjust LLT top fold mirror to direct light onto FSM.
3. Close BTO servo loops to Q3, verify stability.
4. Adjust Q3 beamsplitter (with HS closed on Q3) to center beam on FSM.
5. Adjust LLT FSM and final fold mirror to align laser to LLT optical axis.

In Coude lab:
6. Override safety system zone 8. Coude block in.
7. Open shutter.
8. Adjust final laser mirror to center beam on M1a.
9. Adjust M1a to co-align 589nm and 660nm spots on ceiling.
10. Adjust beamsplitter cube to coalign 589nm and 660nm spots at Coude exit window.
11. Test laser focus with shear plate. Adjust laser focus motor to collimate. Save default value.
12. Close shutter.

In dome:
13. Remove coude block.
14. At low laser power with personnel in dome, open shutter and verify that BTO alignment looks good (check beam pattern on ceiling.)
15. Increase to high power, close BTO loops on Q3. Verify loop stability. Save BTO zenith default positions.
16. Enable Q3 safety system.
17. Test that shutter can be opened and BTO servo loop closed at zenith.
18. Send personnel to prime focus.
19. Visually estimate spot size on LLT primary. Adjust laser focus stage if necessary to minimize spot on primary.

Results and conclusions