Palomar Adaptive Optics Test Plan

Title	**NGS AO Checkout**
Date	Every AO engineering night
Lead	A. Bouchez
Time requested	30 minutes during evening twilight.
Required conditions	Sufficiently clear to close loops on V=9 star.

Purpose

To verify acceptable performance of the NGS AO system for subsequent engineering tests. This includes estimating the primary mirror figure, seeing, on-axis Strehl, and isoplanatic angle.

Test procedure

1. Choose a binary star near zenith from the list below.
2. Acquire the primary with the AO system. All are 7<V<9, and 500 Hz framerate is probably right.
3. Take a wavefront sensor sky, perform both coarse and fine WFS-DM registration, and close the AO loops.
4. While waiting ~120s for focus offload to secondary, center binary on PHARO field and test count level:
   4.1. Camera setup: 25mas FOV, Ks, ND 1%, standard cross, 10s integration.
   4.2. Take a quick frame.
   4.3. Adjust telescope pointing to include both stars in FOV.
   4.4. Adjust exposure time to get 10-20k peak counts on brighter star.
   4.5. Record final telescope focus value.
5. Open loops, create a flat-map on the star [need more detailed instructions here].
6. Take a new WFS background if performing the experiment in twilight.
7. Close loops.
8. Record 3 images with PHARO. Note file numbers and primary Strehl.
9. Open the DM loop only using TAO button (loads flat-map).
10. Record 1 image with PHARO, 30s integration. Note file number and FWHM.

Results and conclusions

Date:		
Weather conditions:		
Telescope focus:		
PHARO directory:		
	File numbers	Strehl/FWHM
Closed-loop images		
Open-loop image		

Please note any other performance issues:

Star list

Result of a VizieR search of the Washinton Double Star Catalogue (I/237) with the following constraints: (**DE2000**: "**18:20:00..48:20:00**") AND (**Sep1**: "**8..15**") AND (**Sep2**: "**8..15**") AND (**MagA**: "**7..9**") AND (**MagB**: "**>10**")

The digit in the first column provides a link to the detailed Vizier page on the star.

Full	_RAJ2000 "h:m:s"	_DEJ2000 "d:m:s"	pa1 deg	Sep1 arcsec	MagA mag	MagB mag
1	00 21.0	+43 43	94	9.6	8.40	12.50
2	00 55.6	+34 33	71	10.9	8.80	11.80
3	02 09.6	+42 51	183	10.9	7.20	11.00
4	03 33.9	+32 05	142	13.4	8.80	12.00
5	03 41.9	+43 31	342	8.3	7.90	14.40
6	06 10.8	+33 00	332	14.1	8.20	12.00
7	06 19.8	+22 07	290	10.0	9.00	12.80
8	06 28.7	+35 16	97	13.0	8.70	11.60
9	06 52.8	+47 12	153	12.4	8.00	13.50
10	06 56.2	+34 28	37	11.8	8.20	12.20
11	07 00.2	+42 59	167	9.3	9.00	10.80
12	07 06.2	+24 52	50	14.1	7.10	11.10
13	07 21.5	+25 14	160	10.4	8.70	13.00
14	10 54.5	+20 46	5	8.4	8.40	11.90
15	13 49.6	+34 59	23	10.7	9.00	10.50
16	14 06.7	+34 47	71	14.2	7.00	10.20
17	14 52.5	+18 44	161	9.1	8.00	12.00
18	15 17.1	+41 17	121	9.3	8.40	12.40
19	16 40.9	+21 57	183	11.8	7.90	12.40
20	17 07.5	+35 57	197	12.5	9.00	11.00
21	17 46.7	+35 38	92	11.0	8.80	11.80
22	18 03.9	+26 39	193	12.4	7.00	12.00
23	18 12.6	+31 35	174	11.6	8.90	11.00
24	18 29.2	+29 33	186	11.5	7.70	12.60
25	18 40.9	+31 32	162	9.0	8.54	11.54
26	18 45.2	+38 19	22	10.4	7.70	10.40
27	19 03.9	+34 09	295	11.1	7.30	12.80
28	19 26.5	+40 08	221	9.8	8.40	13.70
29	19 41.3	+30 43	29	9.1	7.30	13.40
30	19 59.5	+24 43	175	14.4	8.30	10.70
31	20 06.0	+35 46	111	9.4	8.20	12.00
32	20 06.0	+35 46	299	11.3	8.20	14.80
33	20 11.3	+21 21	64	13.2	8.10	12.10
34	20 14.2	+35 22	231	11.8	7.59	10.50
35	20 24.2	+29 00	134	13.0	7.20	11.20
36	20 39.6	+21 43	315	9.2	8.66	10.53
37	20 57.4	+20 10	268	8.0	8.30	12.80
38	21 03.5	+24 00	299	13.1	7.40	13.40
39	21 05.7	+47 48	315	10.4	7.45	12.00
40	21 07.2	+36 57	285	10.4	8.15	10.50
41	21 39.5	+41 44	158	13.9	7.56	12.10
42	22 10.1	+32 21	131	13.1	7.90	12.10
43	22 46.0	+19 15	270	8.7	7.47	10.80
44	23 00.4	+41 07	295	14.0	8.80	10.50
45	23 09.6	+24 16	100	12.2	8.70	12.60
46	23 10.0	+36 51	334	12.4	8.20	14.70