17321 - Cycle 31 COS NUV Target Acquisition Monitor

Cycle: 31, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
PB	(1) 206W3	COS/NUV	2	14-Jun-2024 08:00:26.0	yes
01	(1) 206W3	COS/NUV	2	14-Jun-2024 08:00:33.0	yes
02	(1) 206W3	COS/NUV	2	14-Jun-2024 08:00:39.0	yes
13	(1) 206W3	COS/NUV	2	14-Jun-2024 08:00:45.0	yes
BA	(2) WD-1657+343 WAVE	COS/NUV	2	14-Jun-2024 08:00:51.0	yes
BB	(3) HIP66578 WAVE	COS/NUV	2	14-Jun-2024 08:00:57.0	yes
PN	WAVE	COS/NUV	1	14-Jun-2024 08:00:59.0	yes

13 Total Orbits Used

ABSTRACT

This program is changed from cycle 30 program 16939.

The allocation has been increased from 3 external orbits to 6 external orbits and 1 internal orbit. The 3 external visits have been increased from 1 orbit to 2 orbits each. The first orbit now consists of a flux sweep in the XD and AD directions to confirm target centering. The second orbit contains the imaging of 'adjacent' NUV TA modes and target acquisitions.

Visit PB obtains the PSA/MIRRORA to PSA/MIRRORB ACQ/IMAGE alignment.

Visit BA takes back-to-back PSA/MIRRORB & BOA/MIRRORA ACQ/IMAGEs and images (with flashes) and also takes G230L spectra to test the WCA-to-PSA offsets.

Visit BB takes back-to-back BOA/MIRRORA & BOA/MIRRORB ACQ/IMAGEs and images (with flashes) and also takes G225M and G185M spectra to test the WCA-to-PSA offsets.

Visit PN takes the Pt-Ne lamp "family portrait": P1 MirrorA, P2 MirrorA, P1 MirrorB, P2 MirrorB, and is purely internal

In all visits, lamp+target images are taken before and after the TA imaging mode that is being co-aligned (the second ACQ/IMAGE of the program.)

OBSERVING DESCRIPTION

This program has been chaged from the cycle 30 program 16939.

Each external visit consists of 2 orbits. The first orbit performs a flux sweep of the target across the aperture (i.e., step the target across the aperture in the XD and AD directions and take an image at each step). This is done using the more sensitive of the two modes being tested so as to produce the highest count rate possible. After the flux sweep, the testing of TA mode pairs progresses in the same manner as for previous cycles.

The second orbit in each visit in this program begins with a comparison of the ACQ/IMAGE centering of two ACQ/IMAGE modes out of the possible four (PSA or BOA) x (MIRRORA or MIRRORRB). This will involve not only the ACQ/IMAGEs, but NUV detector images of the WCA

lamp image and, if possible, coeval target images. These direct comparisons are only available for the PSA modes. For the BOA modes, the WCA lamp images and target images are taken consecutively. The assumption is that the PSA/MIRRORA ACQ/IMAGE centering has not changed since SMOV. The flux sweeps during the first orbit of each visit will test this assumption. Each of the other science aperture (SA) and MIRRORA/B ACQ/IMAGE combinations were co-aligned during SMOV and rely upon the flight software (FSW) WCA-to-SA along-dispersion (AD) and cross-dispersion (XD) offsets.

This back-to-back ACQ/IMAGE process allows us to test that TA modes are centering the target to the same point in the aperture. The Lamp+target exposures are interleaved throughout the visit to measure and verify the imaging WCA-to-SA offsets are still accurate for the remainder of the current HST Cycle. Images will usually use the PtNe#2 (P2) lamp, as it is the primary TA lamp, but some images will use PtNe#1 (P1) to monitor the lamps in imaging mode.

Visit PB (PSA/MIRRORB) of this program takes back-to-back PSA/MIRRORA & PSA/MIRRORB ACQ/IMAGEs and images (with flashes)

Visit BA (Boa/mirrorA) of this program takes back-to-back PSA/MIRRORB & BOA/MIRRORA ACQ/IMAGEs and images (with flashes) and takes G230L spectra to test the WCA-to-PSA offsets. (The G285M observations from cycle 30 and before have been removed due to low sensitivity of that observing mode).

Visit BB (Boa/mirrorB) of this program takes back-to-back BOA/MIRRORA & BOA/MIRRORB ACQ/IMAGEs and images (with flashes) and takes G225M & G185M spectra to test the WCA-to-PSA offsets.

Visit PN is a purely internal orbit that used to be part of visit BB. It takes a "family portrait" of all the P1/P2 MIRRORA/B WCA lamp images to track any drifting of the centroids, or changes in the lamps.

All lamp+target images use the QESIPARMS USELAMP and CURRENT to specifically set the lamp and current values.

See the comment of the first exposure of Visit PB for a description of the expected count rates, exposure times, & buffer times (for the lamps).

--------- Additional Comments ----------

Must be performed on 2 Guidestar fine-lock and must not use FGS2. Guidestar pair must be reviewed by the PC.

Proposal 17321 - PSA/A & PSA/B (PB) - Cycle 31 COS NUV Target Acquisition Monitor

Visit	**Proposal 17321, PSA/A & PSA/B (PB), failed** Fri Jun 14 12:01:00 GMT 2024 **Diagnostic Status: Warning** Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 31-JAN-2024:00:00:00; GROUP PB,BA,BB WITHIN 30D *Comments: This visit (PB, for PSA/MIRRORBA) performs the PSA/A vs PSA/B comparison. The target is 206W3, a target that was used last cycle and in the previous FGS-to-SI programs. 100% Schedulability.*
Diagnostics	(PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (PB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	206W3	RA: 06 08 55.4600 (92.2310833d)	Proper Motion RA: 0.5 mas/yr	V=14.53+/-0.1	Reference Frame: ICRS
	Alt Name1: MCNAM209	Dec: +24 15 39.59 (24.26100d)	Proper Motion Dec: -2.2 mas/yr	J=13.441,	
	Alt Name2: J060855.46+241539.7	Equinox: J2000	Epoch of Position: 2012.7	B=14.930	

Comments: Target previously observed in Visit 2 of 12781.
According to Colin, the target coordinates given here have been adjusted to ~2012.7. I include the UCAC3 PM in case this visit is used again at a later date.
The PSA/MIRRORA had 21,063 counts in 60s (351 ct/s). Max pixel = 1965/60 = 32.75 ct/s
The PSA/MIRRORB had 12,570 counts in 300s (41.9 cts/s). Max pixel = 238/300 = 0.8 ct/s
So, PSA MirrorA/MirrorB = 351.0/41.9 = 8.4 (for this target)
This target is N8CV022007 in GSC2.3.2

From SIMBAD:

Basic data :
Cl NGC 2168 M 178 -- Star in Cluster*
*Other object types: *iC (Cl*), IR (2MASS)*
ICRS coord. (ep=J2000) : 06 08 55.46 +24 15 39.8 (Infrared) [70 60 0] B 2003yCat.2246....0C
FK5 coord. (ep=J2000 eq=2000) : 06 08 55.46 +24 15 39.8 [70 60 0]
FK4 coord. (ep=B1950 eq=1950) : 06 05 51.62 +24 16 12.1 [70 60 0]
Gal coord. (ep=J2000) : 186.6569 +02.1612 [70 60 0]
Fluxes (6) :
B 14.930 [~] E ~
V 14.481 [~] E ~
R 14.600 [~] E 2003yCat.2246....0C
J 13.441 [0.023] C 2003yCat.2246....0C
H 13.354 [0.022] C 2003yCat.2246....0C
K 13.227 [0.026] C 2003yCat.2246....0C
Category=STAR
Description=[G V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	Centered PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

3	XD+0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
4	XD+0.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
5	XD+0.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
6	XD+1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
7	XD+1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
8	XD+1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
9	XD+1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
10	XD+2.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,2.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
11	XD-0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

12	XD-0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
13	XD-0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
14	XD-1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
15	XD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
16	XD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
17	XD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
18	AD+0.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
19	AD+0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
20	AD+0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

21	AD+1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
22	AD+1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
23	AD+1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
24	AD+1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
25	AD+2.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 2.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
26	AD-0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
27	AD-0.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
28	AD-0.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
29	AD-1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

30	AD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
31	AD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
32	AD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (PB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
33	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs *This exposure is new in cycle 31. It provides an idea of how well-centered we are when we come back to the target for the second orbit. After this exposure, the visit executes as in cycle 30 and before.*										

34	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

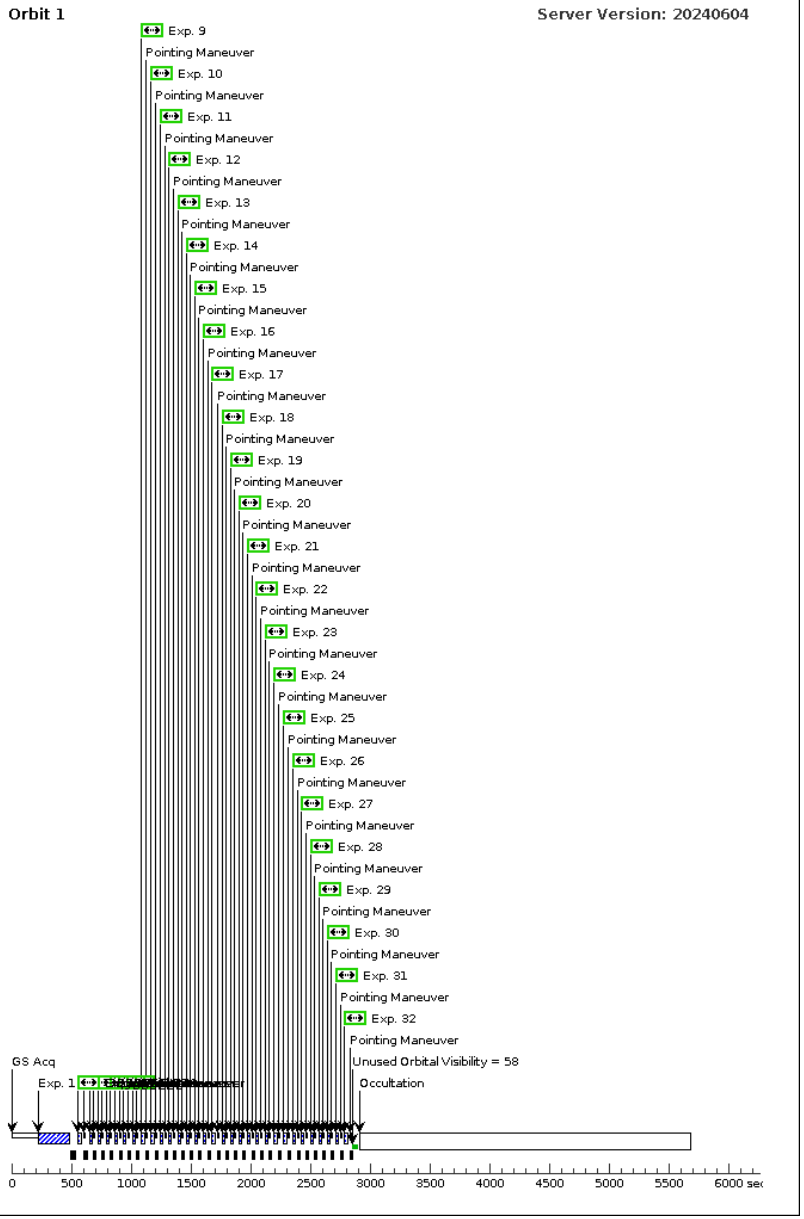
The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

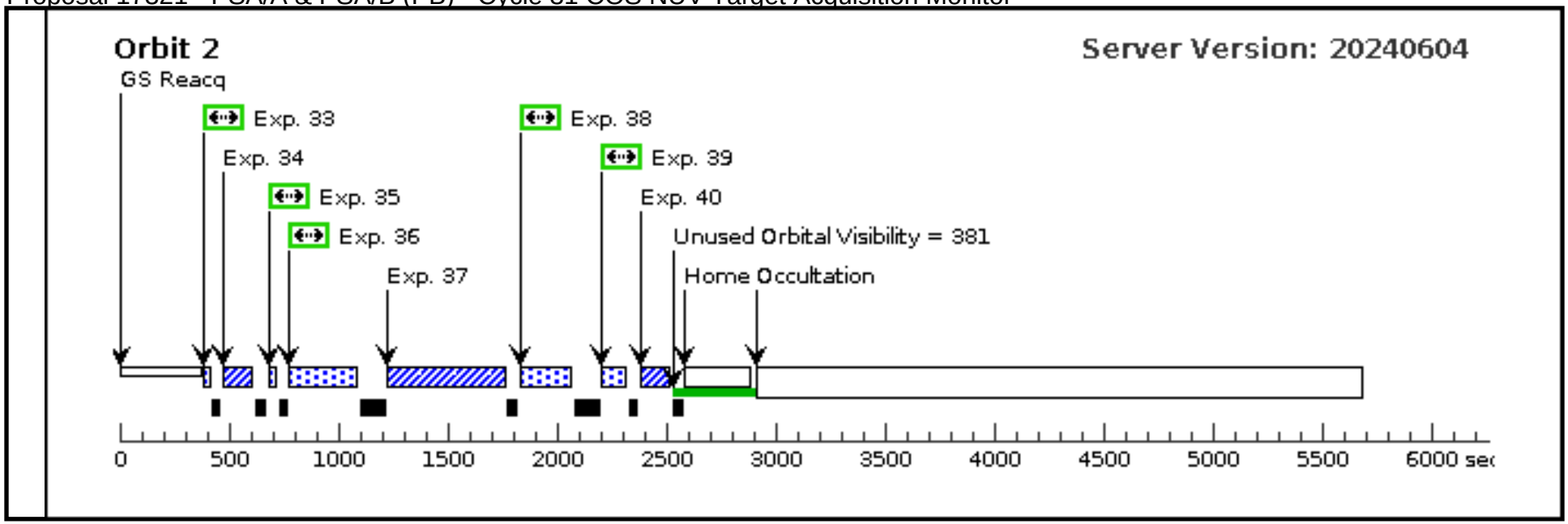
35	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

36	PSA/MIRRORB IMAGE (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect ~400 counts/s from the lamp. We need >k160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
37	PSA/MIRRORB ACQ/IMAGE (P2/MED) (COS.ta.1892809)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: PSA/MIRRORB ACQ/Image using P2/MED current.										
38	PSA/MIRRORB IMAGE2 (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect 225-400 counts/s from the lamp. We need > 160s of target time, and at least 12s of lamp time. We 'll get 200s of target and 2x20 of lamp to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
39	PSA/MIRRORA IMAGE2 (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORA/Lamp2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We need at least >12s of each, we get 20s for a good measurement. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs										
40	PSA/MIRRORA ACQ/IMAGE2 (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (PB)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Confirmation PSA/A ACQ/image, see first exposure of this visit for complete comment.										

Orbit Structure




Orbit 2
Server Version: 20240604
GS Reacq
Exp. 33
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Unused Orbital Visibility = 381
Home Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Proposal 17321 - PSA/A & PSA/B (01) - Cycle 31 COS NUV Target Acquisition Monitor

Visit	**Proposal 17321, PSA/A & PSA/B (01), failed** Fri Jun 14 12:01:00 GMT 2024 **Diagnostic Status: Warning** Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 15-MAR-2024:00:00:00; GROUP 01,BA,BB WITHIN 75D *Comments: This visit (PB, for PSA/MIRRORBA) performs the PSA/A vs PSA/B comparison. The target is 206W3, a target that was used last cycle and in the previous FGS-to-SI programs. 100% Schedulability.*
Diagnostics	(PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	206W3	RA: 06 08 55.4600 (92.2310833d)	Proper Motion RA: 0.5 mas/yr	V=14.53+/-0.1	Reference Frame: ICRS
	Alt Name1: MCNAM209	Dec: +24 15 39.59 (24.26100d)	Proper Motion Dec: -2.2 mas/yr	J=13.441,	
	Alt Name2: J060855.46+241539.7	Equinox: J2000	Epoch of Position: 2012.7	B=14.930	

Comments: Target previously observed in Visit 2 of 12781.
According to Colin, the target coordinates given here have been adjusted to ~2012.7. I include the UCAC3 PM in case this visit is used again at a later date.
The PSA/MIRRORA had 21,063 counts in 60s (351 ct/s). Max pixel = 1965/60 = 32.75 ct/s
The PSA/MIRRORB had 12,570 counts in 300s (41.9 cts/s). Max pixel = 238/300 = 0.8 ct/s
So, PSA MirrorA/MirrorB = 351.0/41.9 = 8.4 (for this target)
This target is N8CV022007 in GSC2.3.2

From SIMBAD:

Basic data :
Cl NGC 2168 M 178 -- Star in Cluster*
*Other object types: *iC (Cl*), IR (2MASS)*
ICRS coord. (ep=J2000) : 06 08 55.46 +24 15 39.8 (Infrared) [70 60 0] B 2003yCat.2246....0C
FK5 coord. (ep=J2000 eq=2000) : 06 08 55.46 +24 15 39.8 [70 60 0]
FK4 coord. (ep=B1950 eq=1950) : 06 05 51.62 +24 16 12.1 [70 60 0]
Gal coord. (ep=J2000) : 186.6569 +02.1612 [70 60 0]
Fluxes (6) :
B 14.930 [~] E ~
V 14.481 [~] E ~
R 14.600 [~] E 2003yCat.2246....0C
J 13.441 [0.023] C 2003yCat.2246....0C
H 13.354 [0.022] C 2003yCat.2246....0C
K 13.227 [0.026] C 2003yCat.2246....0C
Category=STAR
Description=[G V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	Centered PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

3	XD+0.25 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
4	XD+0.50 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
5	XD+0.75 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
6	XD+1.0 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
7	XD+1.25 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
8	XD+1.50 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
9	XD+1.75 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
10	XD+2.25 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,2.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
11	XD-0.25 PS A/MIRROR A IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

12	XD-0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
13	XD-0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
14	XD-1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
15	XD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
16	XD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
17	XD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
18	AD+0.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
19	AD+0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
20	AD+0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

21	AD+1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
22	AD+1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
23	AD+1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
24	AD+1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
25	AD+2.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 2.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
26	AD-0.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
27	AD-0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
28	AD-0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
29	AD-1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs)	[==>]	[1]
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

30	AD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
31	AD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
32	AD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (01)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
33	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*		***[2]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs

This exposure is new in cycle 31. It provides an idea of how well-centered we are when we come back to the target for the second orbit. After this exposure, the visit executes as in cycle 30 and before.

34	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

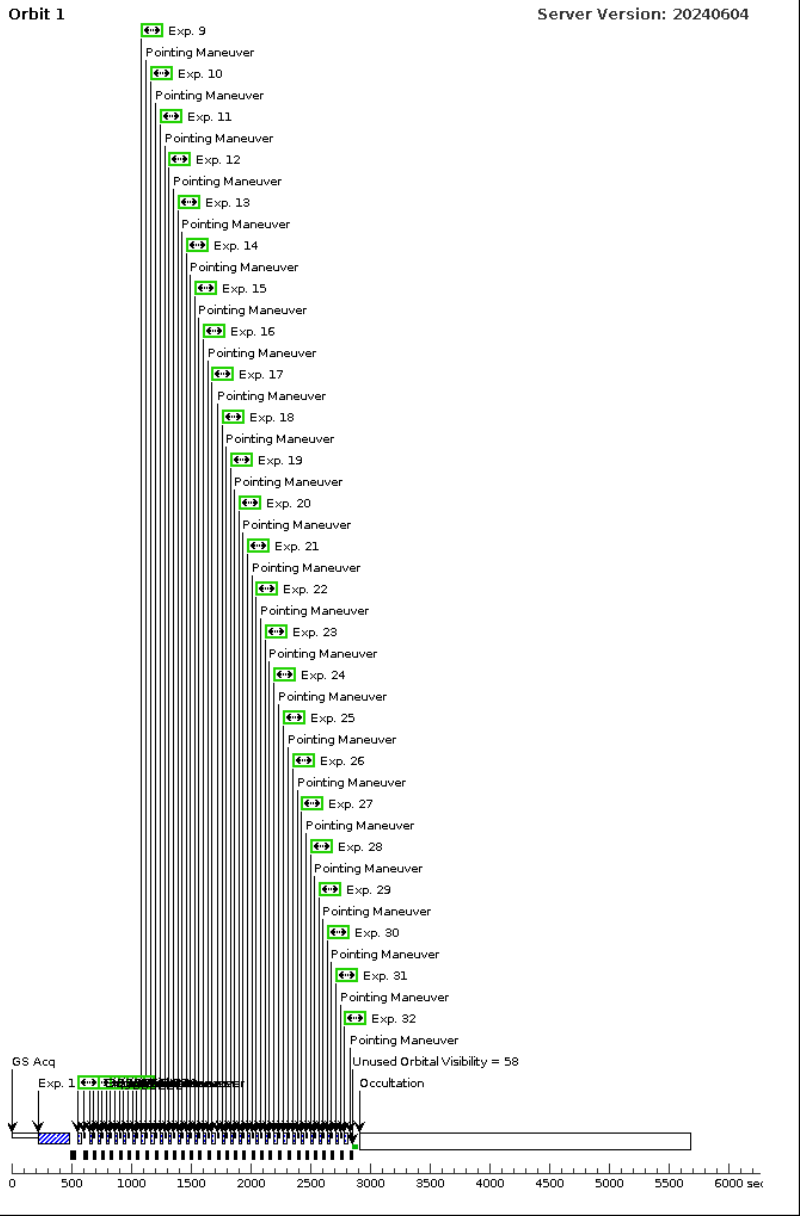
The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

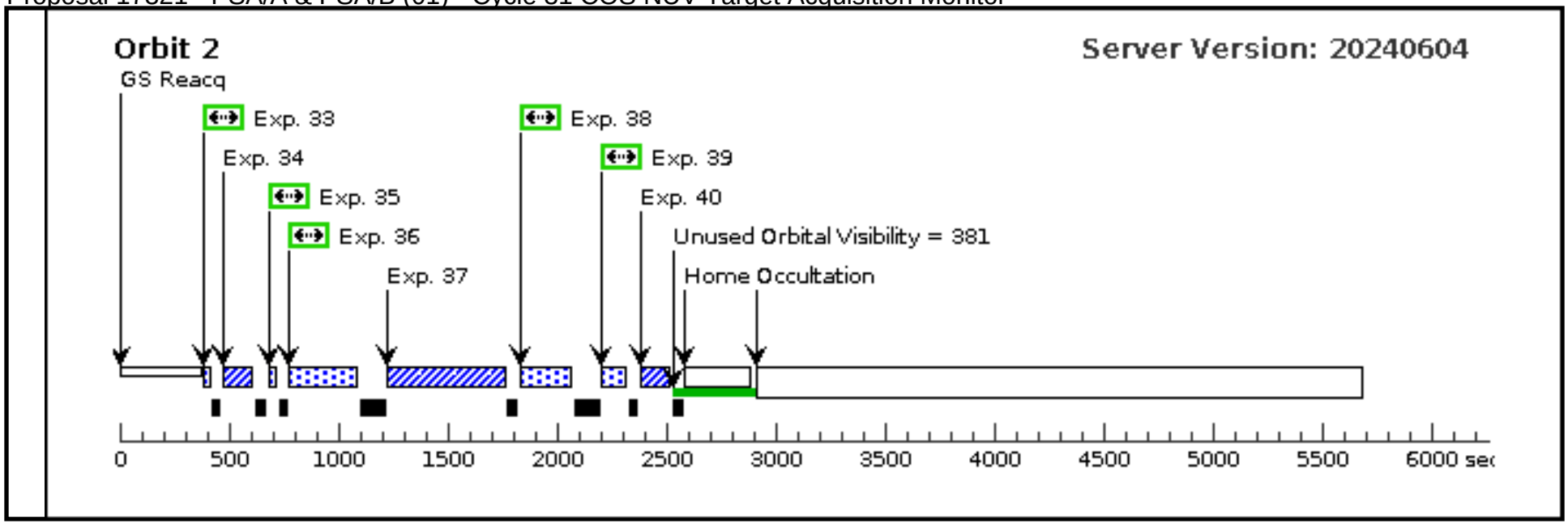
35	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

36	PSA/MIRRORB IMAGE (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect ~400 counts/s from the lamp. We need >k160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
37	PSA/MIRRORB ACQ/IMAGE (P2/MED) (COS.ta.1892809)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: PSA/MIRRORB ACQ/Image using P2/MED current.										
38	PSA/MIRRORB IMAGE2 (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect 225-400 counts/s from the lamp. We need > 160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 of lamp to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
39	PSA/MIRRORA IMAGE2 (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORA/Lamp2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We need at least >12s of each, we get 20s for a good measurement. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs										
40	PSA/MIRRORA ACQ/IMAGE2 (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (01)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Confirmation PSA/A ACQ/image, see first exposure of this visit for complete comment.										

Orbit Structure




Orbit 2
Server Version: 20240604
GS Reacq
Exp. 33
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Unused Orbital Visibility = 381
Home Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Proposal 17321 - PSA/A & PSA/B (02) - Cycle 31 COS NUV Target Acquisition Monitor

Visit	**Proposal 17321, PSA/A & PSA/B (02), failed** Fri Jun 14 12:01:00 GMT 2024 **Diagnostic Status: Warning** Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 15-APR-2024:00:00:00; GROUP 02,BA,BB WITHIN 105D *Comments: This visit (PB, for PSA/MIRRORBA) performs the PSA/A vs PSA/B comparison. The target is 206W3, a target that was used last cycle and in the previous FGS-to-SI programs. 100% Schedulability.*
Diagnostics	(PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/A & PSA/B (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	206W3	RA: 06 08 55.4600 (92.2310833d)	Proper Motion RA: 0.5 mas/yr	V=14.53+/-0.1	Reference Frame: ICRS
	Alt Name1: MCNAM209	Dec: +24 15 39.59 (24.26100d)	Proper Motion Dec: -2.2 mas/yr	J=13.441,	
	Alt Name2: J060855.46+241539.7	Equinox: J2000	Epoch of Position: 2012.7	B=14.930	

Comments: Target previously observed in Visit 2 of 12781.
According to Colin, the target coordinates given here have been adjusted to ~2012.7. I include the UCAC3 PM in case this visit is used again at a later date.
The PSA/MIRRORA had 21,063 counts in 60s (351 ct/s). Max pixel = 1965/60 = 32.75 ct/s
The PSA/MIRRORB had 12,570 counts in 300s (41.9 cts/s). Max pixel = 238/300 = 0.8 ct/s
So, PSA MirrorA/MirrorB = 351.0/41.9 = 8.4 (for this target)
This target is N8CV022007 in GSC2.3.2

From SIMBAD:

Basic data :
Cl NGC 2168 M 178 -- Star in Cluster*
*Other object types: *iC (Cl*), IR (2MASS)*
ICRS coord. (ep=J2000) : 06 08 55.46 +24 15 39.8 (Infrared) [70 60 0] B 2003yCat.2246....0C
FK5 coord. (ep=J2000 eq=2000) : 06 08 55.46 +24 15 39.8 [70 60 0]
FK4 coord. (ep=B1950 eq=1950) : 06 05 51.62 +24 16 12.1 [70 60 0]
Gal coord. (ep=J2000) : 186.6569 +02.1612 [70 60 0]
Fluxes (6) :
B 14.930 [~] E ~
V 14.481 [~] E ~
R 14.600 [~] E 2003yCat.2246....0C
J 13.441 [0.023] C 2003yCat.2246....0C
H 13.354 [0.022] C 2003yCat.2246....0C
K 13.227 [0.026] C 2003yCat.2246....0C
Category=STAR
Description=[G V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	Centered PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

3	XD+0.25 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
4	XD+0.50 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
5	XD+0.75 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
6	XD+1.0 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
7	XD+1.25 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
8	XD+1.50 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
9	XD+1.75 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
10	XD+2.25 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,2.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
11	XD-0.25 PSA/MIRROR A IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

12	XD-0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
13	XD-0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
14	XD-1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
15	XD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
16	XD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
17	XD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
18	AD+0.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
19	AD+0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
20	AD+0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

21	AD+1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
22	AD+1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
23	AD+1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
24	AD+1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
25	AD+2.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 2.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
26	AD-0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
27	AD-0.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
28	AD-0.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
29	AD-1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) [==>]		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

30	AD-1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
31	AD-1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
32	AD-1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (02)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
33	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs *This exposure is new in cycle 31. It provides an idea of how well-centered we are when we come back to the target for the second orbit. After this exposure, the visit executes as in cycle 30 and before.*										

34	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

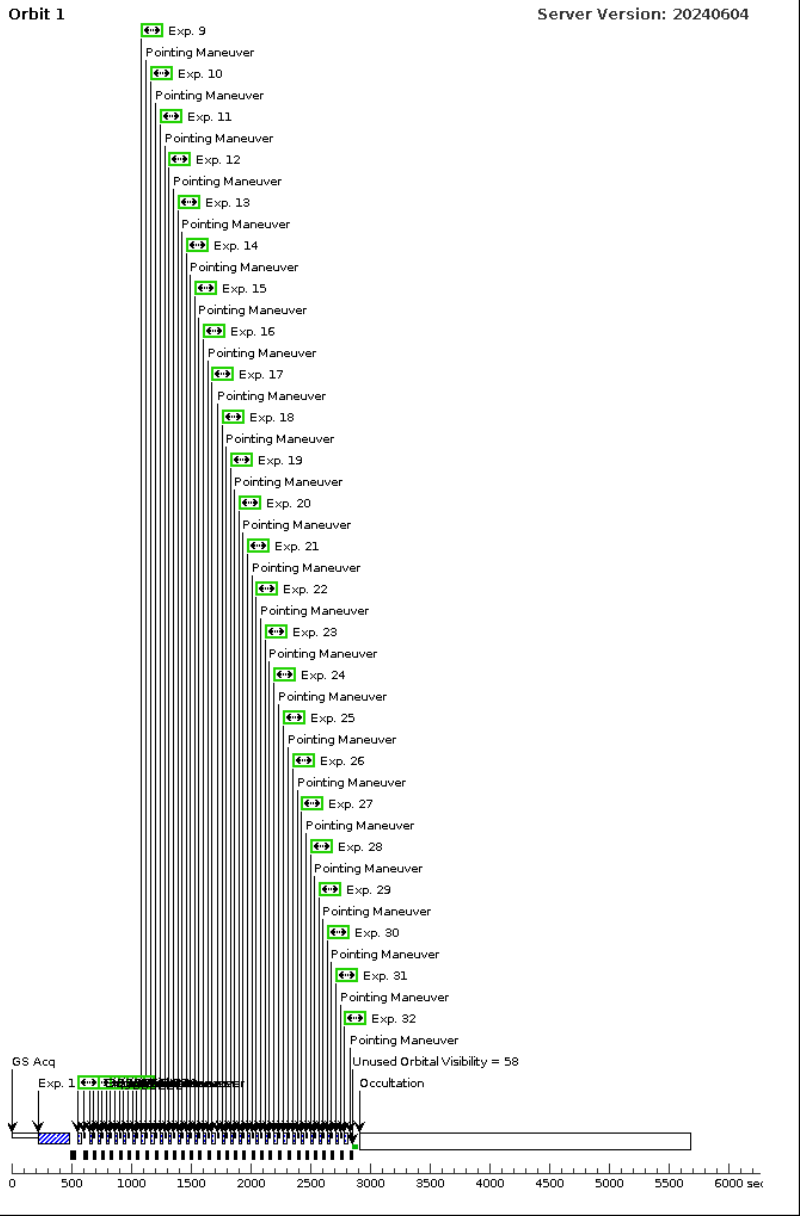
The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

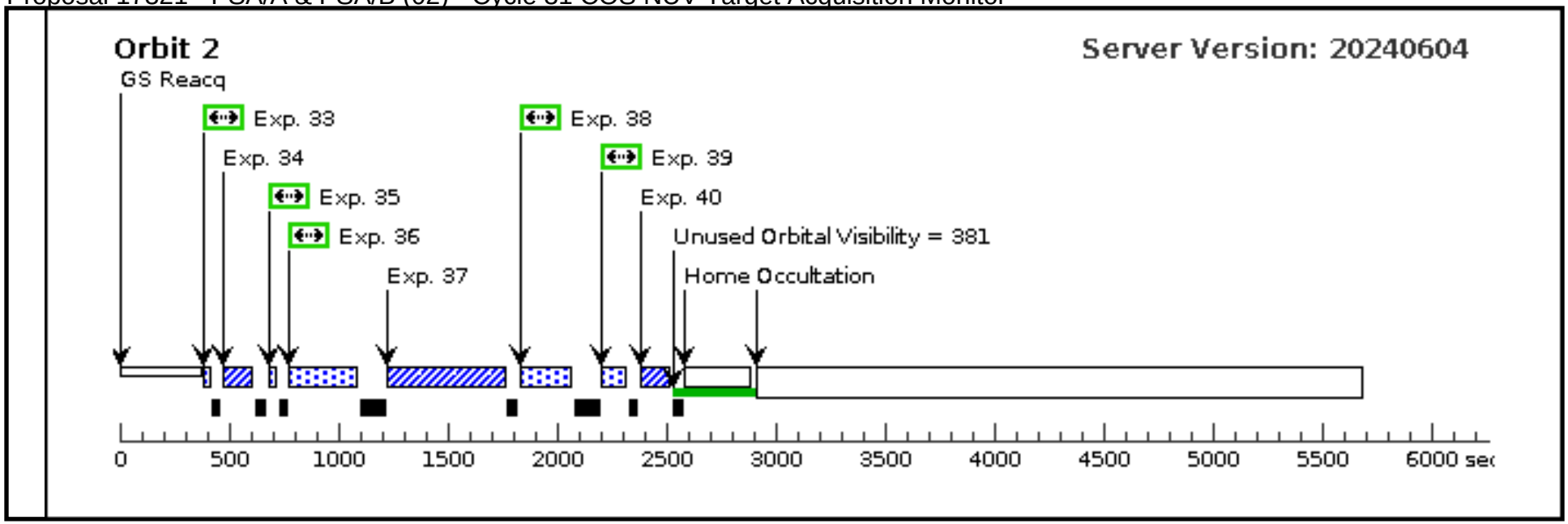
35	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

36	PSA/MIRRORB IMAGE (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect ~400 counts/s from the lamp. We need >k160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
37	PSA/MIRRORB ACQ/IMAGE (P2/MED) (COS.ta.1892809)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: PSA/MIRRORB ACQ/Image using P2/MED current.										
38	PSA/MIRRORB IMAGE2 (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect 225-400 counts/s from the lamp. We need > 160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 of lamp to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
39	PSA/MIRRORA IMAGE2 (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORA/Lamp2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We need at least >12s of each, we get 20s for a good measurement. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs										
40	PSA/MIRRORA ACQ/IMAGE2 (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (02)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Confirmation PSA/A ACQ/image, see first exposure of this visit for complete comment.										

Orbit Structure




Orbit 2
Server Version: 20240604
GS Reacq
Exp. 33
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Unused Orbital Visibility = 381
Home Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Proposal 17321 - PSA/A & PSA/B (13) - Cycle 31 COS NUV Target Acquisition Monitor

Visit

Proposal 17321, PSA/A & PSA/B (13), implementation Fri Jun 14 12:01:01 GMT 2024

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 30-JUN-2024:00:00:00; GROUP 13,BA,BB WITHIN 180D

Comments: This visit (PB, for PSA/MIRRORBA) performs the PSA/A vs PSA/B comparison. The target is 206W3, a target that was used last cycle and in the previous FGS-to-SI programs. 100% Schedulability.

Diagnostics

(PSA/A & PSA/B (13)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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(PSA/A & PSA/B (13)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	206W3	RA: 06 08 55.4600 (92.2310833d)	Proper Motion RA: 0.5 mas/yr	V=14.53+/-0.1	Reference Frame: ICRS
	Alt Name1: MCNAM209	Dec: +24 15 39.59 (24.26100d)	Proper Motion Dec: -2.2 mas/yr	J=13.441,	
	Alt Name2: J060855.46+241539.7	Equinox: J2000	Epoch of Position: 2012.7	B=14.930	

Comments: Target previously observed in Visit 2 of 12781.
According to Colin, the target coordinates given here have been adjusted to ~2012.7. I include the UCAC3 PM in case this visit is used again at a later date.
The PSA/MIRRORA had 21,063 counts in 60s (351 ct/s). Max pixel = 1965/60 = 32.75 ct/s
The PSA/MIRRORB had 12,570 counts in 300s (41.9 cts/s). Max pixel = 238/300 = 0.8 ct/s
So, PSA MirrorA/MirrorB = 351.0/41.9 = 8.4 (for this target)
This target is N8CV022007 in GSC2.3.2

From SIMBAD:

Basic data :
Cl NGC 2168 M 178 -- Star in Cluster*
*Other object types: *iC (Cl*), IR (2MASS)*
ICRS coord. (ep=J2000) : 06 08 55.46 +24 15 39.8 (Infrared) [70 60 0] B 2003yCat.2246....0C
FK5 coord. (ep=J2000 eq=2000) : 06 08 55.46 +24 15 39.8 [70 60 0]
FK4 coord. (ep=B1950 eq=1950) : 06 05 51.62 +24 16 12.1 [70 60 0]
Gal coord. (ep=J2000) : 186.6569 +02.1612 [70 60 0]
Fluxes (6) :
B 14.930 [~] E ~
V 14.481 [~] E ~
R 14.600 [~] E 2003yCat.2246....0C
J 13.441 [0.023] C 2003yCat.2246....0C
H 13.354 [0.022] C 2003yCat.2246....0C
K 13.227 [0.026] C 2003yCat.2246....0C
Category=STAR
Description=[G V-IV]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA		GS ACQ SCENARIO BASE1O3	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	Centered PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*	***[1]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

3	XD+0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
4	XD+0.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
5	XD+0.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
6	XD+1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
7	XD+1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
8	XD+1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
9	XD+1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
10	XD+2.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,2.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
11	XD-0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

12	XD-0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
13	XD-0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
14	XD-1.0 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
15	XD-1.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
16	XD-1.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.5	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
17	XD-1.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
18	AD+0.25 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
19	AD+0.50 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
20	AD+0.75 PSA/MIRRORA IMAGE (COS.im.18 92804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*	*[1]*
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

21	AD+1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
22	AD+1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
23	AD+1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG 1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
24	AD+1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
25	AD+2.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG 2.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
26	AD-0.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
27	AD-0.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
28	AD-0.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
29	AD-1.0 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										

30	AD-1.25 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
31	AD-1.50 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150	POS TARG -1.5,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
32	AD-1.75 PSA/MIRRORA IMAGE (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-32 Non-Int in PSA/A & PSA/B (13)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~50 when target is near center of aperture.										
33	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs *This exposure is new in cycle 31. It provides an idea of how well-centered we are when we come back to the target for the second orbit. After this exposure, the visit executes as in cycle 30 and before.*										

34	PSA/MIRRORA ACQ/IMAGE (P2/LOW) (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: The measured direct count rates for this target in Program 13171 are (S/N are just photon statistics of the lamp or target)
PSA/MIRRORA = 245 count/s (S/N = 40 in 7s, 60 in 15s)
PSA/MIRRORB = 15.6 count/s (S/N = 40 in 102s, 50 in 160, 60 in 230s)
A/B = 15.7 for this target

WCA/P2/MIRRORA@LOW = 7s produced 2900 counts(S/N = 54)
WCA/P2/MIRRORB@LOW = 30s produced 420 counts (S/N = 21)
WCA/P2/MIRRORB@MED = 10s is estimated to produce ~4000 counts (S/N = 52 in the primary spot)
WCA/P1/MIRRORB@LOW = 82 hz, so S/N =50 in 30s
WCA/A(LOW)/B(LOW) = 25-30
WCA/B(MED)/B(LOW) is estimated to be 15-20

To get everything at S/N = 50 we need at least the following exposure times
PSA(target)/A = 10s
PSA(target)/B = 160s
WCA/P2/LOW/A = 6s
WCA/P2/LOW/B = 180s (low current), S/N = 47 in 160s
WCA/P1/LOW/B is 5x brighter than lamp#2, so at least 36s
WCA/P2/MED/B is unknown, but we estimate it to be 15-20x the 2/LOW rate, so at least 12s

For each target image, we will use the 9x9 checkbox method, so the background for PSA exposures is 9x9(500/(50*300)/30s) based upon 500 counts in 30s in the WCA 50x300 box. This is 1 count in 10s, so we ignore this for the PSA.*

For the WCA images, we will be working a 50x300 box, so the rate here is 18 hz, but we are using a median to find the center, so it is not a straightforward S/N situation. We are interested in measuring the centroid in presence of the noise and 2500 lamp counts are sufficient for our needs for WCA/P2/LOW/B. Since, we are defining the WCA-to-PSA offset for WCA/P1/LOW/B and WCA/P2/MED/B, we will shoot for 3000 lamp counts.

*For the Buffer Time, we are shooting for S/N = 50. in both the target and the lamp. Lets overshoot to S/N of 60, that's 7200 counts -> BT = 2/3 * 326= 217. We'll be extra conservative and stay short of this.*

For PSA/MIRRORA: (COS.ta.634846) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 60 gives: Time = 13 seconds.Target count rate = 275 cts/s Brightest Pixel 38 cps
PSA/MIRRORB: (COS.ta.634849) We Simulated in ETC as G5, V=13.5 (lit says 14.5), S/N = 50 gives: Time = 217 seconds. Target count rate = 11.6 cts/s Brightest Pixel 1.6 cps

This target was also previously observed in Visit A2 of 12781, with the following REAL count rates (imaging mode)

The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,100 = 335 cts/s. PSA/A Brightest Pixel = 32.8 counts/s
The PSA/MIRRORB had 12,570 total counts in 300s, after background subtraction=7150 = 23.8 cts/s. PSA/B Brightest Pixel = 0.8 counts/s

PSA A/B = 14x (lbx1a2ffq/lbx1a2fhq) & PSA A/B (BP) = 41x

Remember that the SED of the target is important in this ratio as the two modes have different responses.

For PSA/A We get S/N = 60 in 3600/335 = 11s
For PSA/B, We get S/N = 60 in 3600/23.8 = 151s

In Oct 2016, this target was observed as part of 14452 Visit A2, with the following count rates:

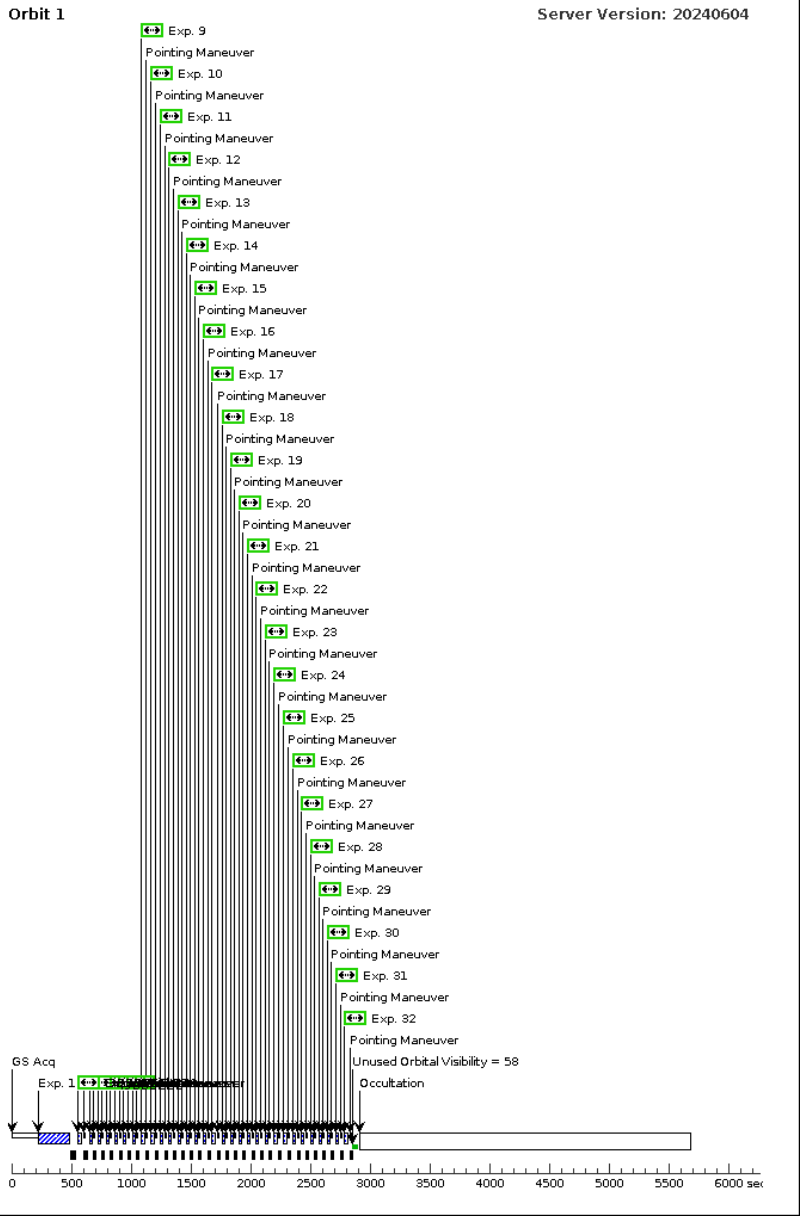
The PSA/A had 21,063 total counts in 60s (Target = 206W3), after background subtraction = 20,229 = 337 cts/s, Brightest Pixel = 23.1 counts/s
The PSA/B had 14,627 total counts in 300s, after background subtraction=7655 = 25.5 cts/s. PSA/B Brightest Pixel = 1.3 counts/s

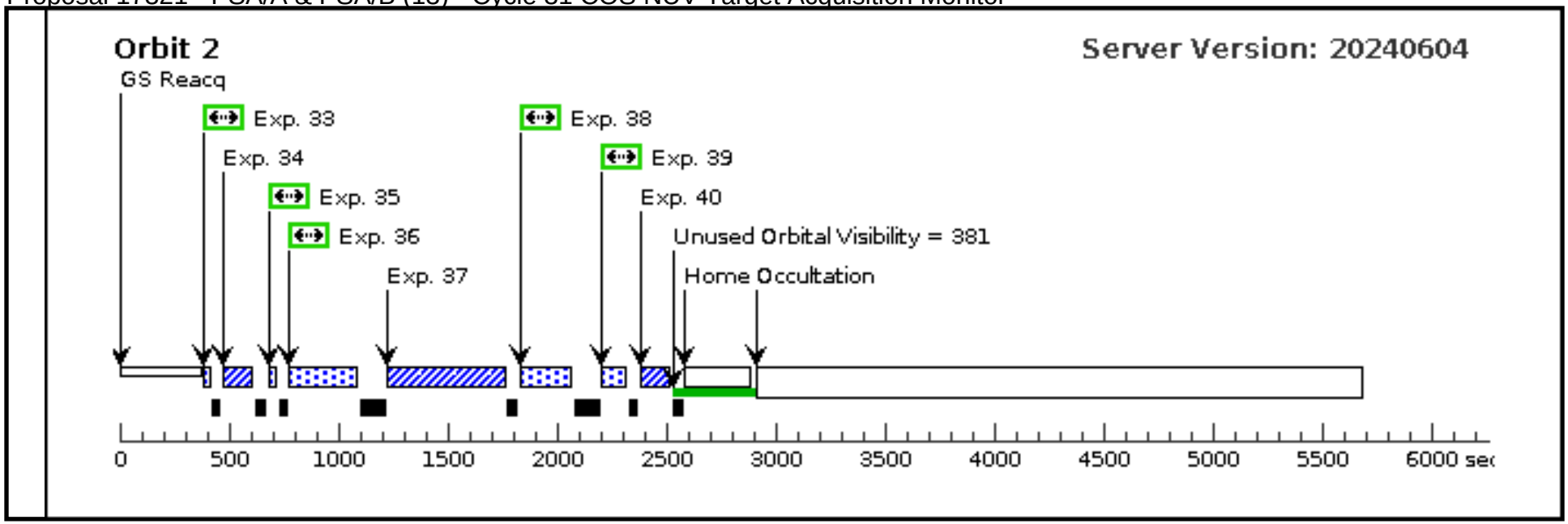
35	PSA/MIRRORA IMAGE (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*	***[2]***

Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORA/P2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We take 20s of each. Note that CURRENT= LOW and LAMP=LINE2 are set as QESIPARMs

36	PSA/MIRRORB IMAGE (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect ~400 counts/s from the lamp. We need >k160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
37	PSA/MIRRORB ACQ/IMAGE (P2/MED) (COS.ta.1892809)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: PSA/MIRRORB ACQ/Image using P2/MED current.										
38	PSA/MIRRORB IMAGE2 (P2/MED) (COS.im.1892810)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=200; FLASH=S0120D020; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	222 Secs (222 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORB/P2/MED current. Expect 225-400 counts/s from the lamp. We need > 160s of target time, and at least 12s of lamp time. We'll get 200s of target and 2x20 of lamp to get a good measurement. Note that CURRENT=MED and LAMP=LINE2 are set as QESIPARMs										
39	PSA/MIRRORA IMAGE2 (P2/LOW) (COS.im.1892804)	(1) 206W3	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=150; FLASH=S0060D020; CURRENT=LOW	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Lamp and target image to re-measure the WCA-to-PSA offset for PSA/MIRRORA/Lamp2/LOW current. Expect 416 counts/s from lamp, about the same from the target. We need at least >12s of each, we get 20s for a good measurement. Note that CURRENT=LOW and LAMP=LINE2 are set as QESIPARMs										
40	PSA/MIRRORA ACQ/IMAGE2 (COS.ta.1892807)	(1) 206W3	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			Sequence 33-40 Non-Int in PSA/A & PSA/B (13)	22 Secs (22 Secs) *[==>]*		***[2]***
Comments: Confirmation PSA/A ACQ/image, see first exposure of this visit for complete comment.										

Orbit Structure

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Server Version: 20240604
GS Reacq
Exp. 33
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Unused Orbital Visibility = 381
Home Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Proposal 17321 - PSA/B & BOA/A (BA) - Cycle 31 COS NUV Target Acquisition Monitor

Visit

Proposal 17321, PSA/B & BOA/A (BA), completed Fri Jun 14 12:01:01 GMT 2024

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 31-JAN-2024:00:00:00; GROUP BA,BB,PB WITHIN 30D

Comments: Visit BA compares the centering of PSA/MIRRORB to BOA/MIRRORA. The target will be the standard star WD1657+343. 100% Schedubility. This Visit (BA) should be executed within 30 days of the other visits inthis program, but in no particular order. The closer in time that they can all be executed, the better. We also take a G230L spectrum to test the WCA-to-PSA offsets.

Diagnostics

(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
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(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(PSA/B & BOA/A (BA)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WD-1657+343	RA: 16 58 51.1200 (254.7130000d) Dec: +34 18 53.30 (34.31481d) Equinox: J2000		V=16.1	Reference Frame: ICRS

Comments: COS.ta.432603 indicates this is a good PSA/MIRB to BOA/MIRA target PSA/MIRB counts = S/N=60 in 11.6s (S/N = 40 in 5.2s); COS.ta.432604 gives S/N=60 in 150.7s for BOA/MIRA
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/IMAGE (PSA/MIRRORB/P2/MED) (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	15 Secs (15 Secs) *[==>]*	***[1]***
	*Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 43 cps. We observed this target in Program 13124 and the target count rate was 400 cts/s, total cts = 4800 total , BP=24 cts/s That's sqrt(2/3 * 4800) = 56 (S/N)*								
2	Centered PSA/MIRRORB IMAGE (P2/MED) (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=500; FLASH=S0040D016; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	18 Secs (18 Secs) *[==>]*	***[1]***
	Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 42 cps. *A previous exposure of this target (lcgq01q7q) yielded a total (lamp+target+background) count rate of 24617 counts in 16s (1538 cps).* *So buffer time should be < 0.67 *(2.35E6/1538.) = 1024. Just be safe, we go with 500s.* *We insert a 16s lamp flash to make sure we get enough counts in the lamp image*								
3	XD+0.25 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
4	XD+0.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
5	XD+0.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
6	XD+1.0 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
7	XD+1.25 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
8	XD+1.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG null,1.5	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	16 Secs (16 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								

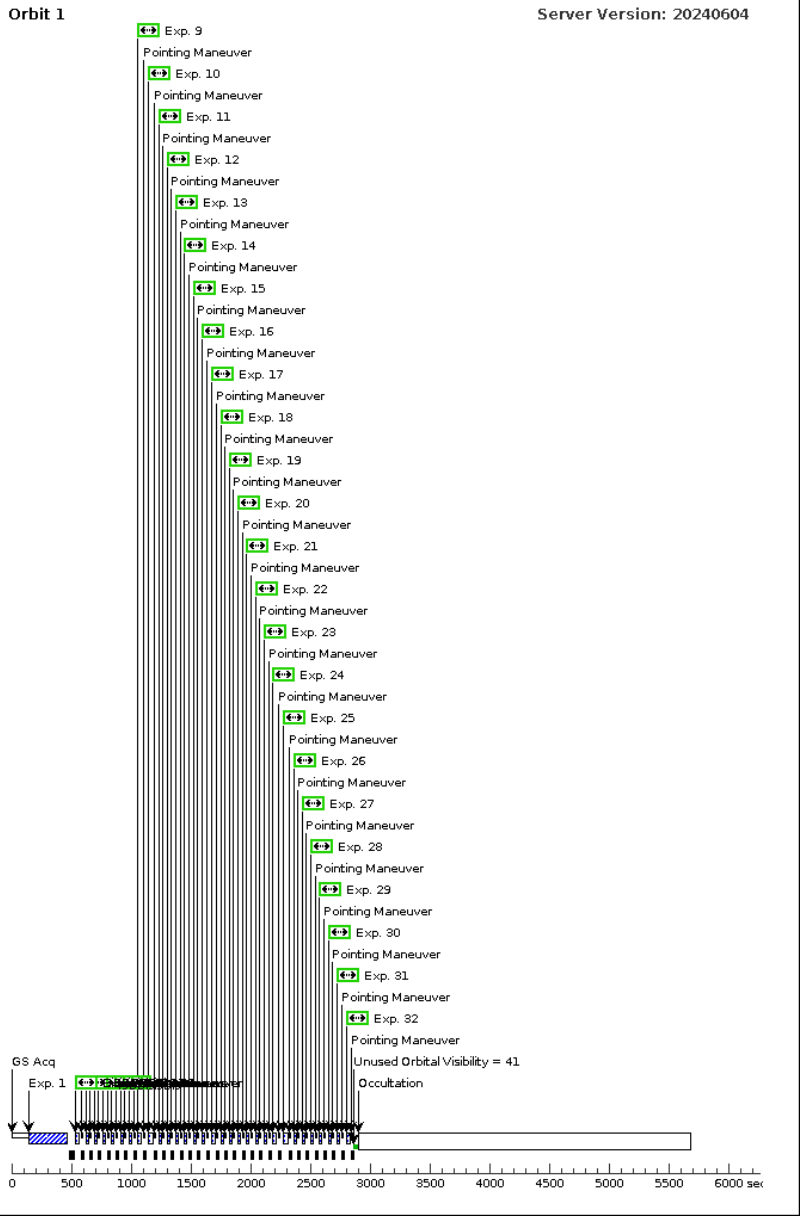
9	XD+1.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	21 Secs (21 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
10	XD+2.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG null,2.5	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	31 Secs (31 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
11	XD-0.25 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
12	XD-0.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
13	XD-0.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
14	XD-1.0 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
15	XD-1.25 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
16	XD-1.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG null,-1.5	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	16 Secs (16 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
17	XD-1.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	21 Secs (21 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									

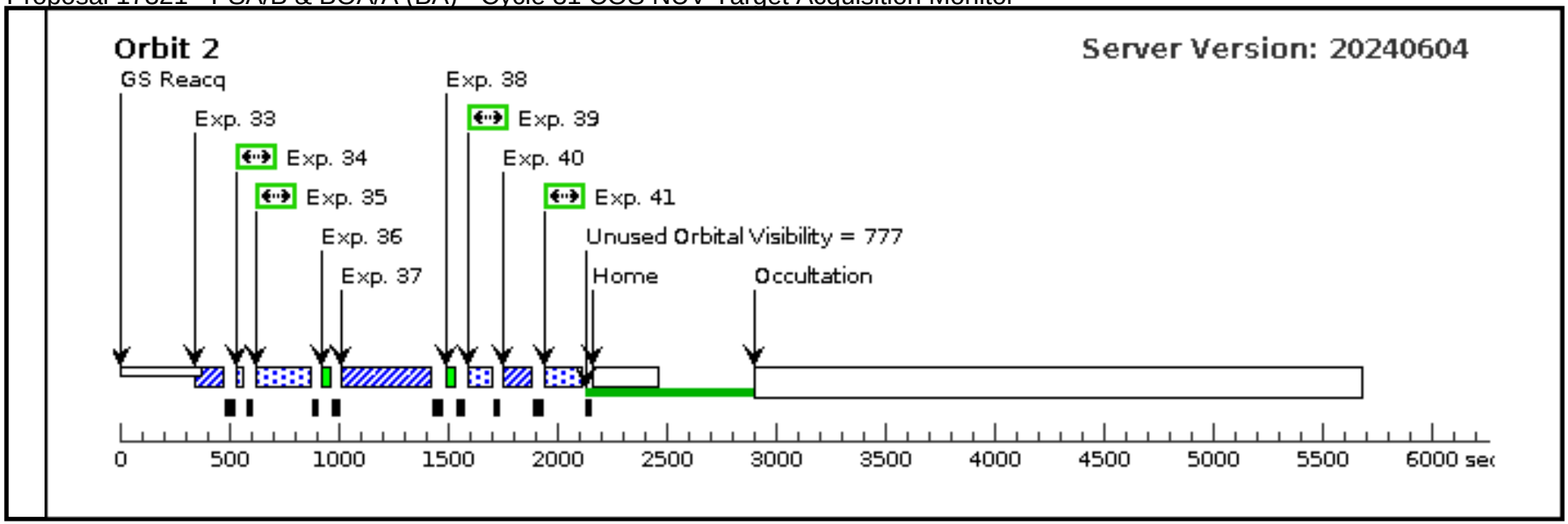
18	AD+0.25 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
19	AD+0.50 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
20	AD+0.75 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
21	AD+1.0 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
22	AD+1.25 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
23	AD+1.50 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG 1.5,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	16 Secs (16 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
24	AD+1.75 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	21 Secs (21 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
25	AD+2.50 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG 2.5,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	31 Secs (31 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									
26	AD-0.25 PSA/MIRROR B IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*	***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.									

27	AD-0.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
28	AD-0.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
29	AD-1.0 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
30	AD-1.25 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
31	AD-1.50 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG -1.5,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	16 Secs (16 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
32	AD-1.75 PSA/MIRRORB IMAGE (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-32 Non-Int in PSA/B & BOA/A (BA)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
33	ACQ/IMAGE (PSA/MIRRORB/P2/MED) (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	15 Secs (15 Secs) *[==>]*		***[2]***
*Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 43 cps. We observed this target in Program 13124 and the target count rate was 400 cts/s, total cts = 4800 total , BP=24 cts/s That's sqrt(2/3 * 4800) = 56 (S/N)*										
34	PSA/MIRRORB/P2/MED + Target (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	FLASH=S0040D016; BUFFER-TIME=500	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	18 Secs (18 Secs) *[==>]*		***[2]***
Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 42 cps. *A previous exposure of this target (lcgq01q7q) yielded a total (lamp+target+background) count rate of 24617 counts in 16s (1538 cps).* *So buffer time should be < 0.67 *(2.35E6/1538.) = 1024. Just be safe, we go with 500s.* *We insert a 16s lamp flash to make sure we get enough counts in the lamp image*										

35	BOA/MIRRORA/Target (no lamp) (COS.ta.433949)	(2) WD-1657+343	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=2000		Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	150 Secs (150 Secs) *[==>]*	**[2]**
*Comments: COS.ta.433949 gives S/N=60 in 150s, followed by a wavecal. The exposure time is driven by the target. We observed this target in 13124, the target count rate was 18.2 cps (2736 counts in 150s : ~312 background in 150s over a 50x50 box). This is a BOA image, so we need to add a WAVE image after this exposure. The WAVECAL=YES parameter does not trigger a separate lamp image. Buffer should be < 0.67 * (2.35E6/20.) or < 7800. We use 2000 just to be safe.*										
36	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA		QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	12 Secs (12 Secs) *[==>]*	**[2]**
Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s. Buffer Time is calculated automatically.										
37	ACQ/IMAGE (BOA/MIRRORA/P2/LOW) (COS.ta.433949)	(2) WD-1657+343	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	150 Secs (150 Secs) *[==>]*	**[2]**
Comments: COS.ta.433949 gives S/N=60 in 150s										
38	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA		QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	12 Secs (12 Secs) *[==>]*	**[2]**
Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s										
39	PSA/MIRRORB/P2/MED + Target (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	FLASH=S0040D016; BUFFER-TIME=500	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	18 Secs (18 Secs) *[==>]*	**[2]**
Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 42 cps. *A previous exposure of this target (lcgq01q7q) yielded a total (lamp+target+background) count rate of 24617 counts in 16s (1538 cps).* *So buffer time should be < 0.67 *(2.35E6/1538.) = 1024. Just be safe, we go with 500s.* *We insert a 16s lamp flash to make sure we get enough counts in the lamp image*										
40	ACQ/IMAGE (PSA/MIRRORB/P2/MED) (COS.ta.1521654)	(2) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	15 Secs (15 Secs) *[==>]*	**[2]**
*Comments: COS.ta.433946 gives S/N=60 in 11.65s. BP = 43 cps. We observed this target in 13124 and the target count rate was 400 cts/s, total cts = 4800, BP=24 cts/s That's sqrt(2/3 * 4800) = 56 (S/N)*										
41	PSA/G230L/3000 (COS.sp.1521659)	(2) WD-1657+343	COS/NUV, TIME-TAG, PSA	G230L 3000 A	BUFFER-TIME=700; FP-POS=3; FLASH=S0100D030	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 33-41 Non-Int in PSA/B & BOA/A (BA)	60 Secs (60 Secs) *[==>]*	**[2]**
*Comments: COS.sp.1030028 gives S/N=10/RE in 40s, we go for 60s. BT=2/3*1300 < 800 (we use 700 just to be safe) Based upon the data from 13124, we expect 3800 counts in 30s in the B-stripe. We set the lamp to the exposure time to get more counts. Note that previous version of this program had a typo in the label (it said 2950 not 3000). G230L/3000 is one of the 'approved' NUV cenwaves for TA.*										

Orbit Structure




Orbit 2
Server Version: 20240604
GS Reacq
Exp. 33
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Exp. 41
Unused Orbital Visibility = 777
Home
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17321, BOA/A & BOA/B (BB), completed Fri Jun 14 12:01:01 GMT 2024

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 01-JAN-2024:00:00:00 AND 31-JAN-2024:00:00:00; GROUP BB,BA,PB WITHIN 30D

Comments: Visit BB compares the centering of BOA/MIRRORA to BOA/MIRRORB. 100% Schedubility. This Visit (BB for BOA/MIRRORB) should be executed with 30 days of the other visits inthis program, in no particular order. The closer in time that they can all be executed, the better. We also take G185M & G225M spectra for the WCA-to-PSA offsets for NUV PEAKXD.

Diagnostics

(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
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(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(BOA/A & BOA/B (BB)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HIP66578	RA: 13 38 50.4757 (204.7103154d)	Proper Motion RA: -403.65 mas/yr	V=12.773+/-0.024	Reference Frame: ICRS
	Alt Name1: PG1337+705	Dec: +70 17 7.66 (70.28546d)	Proper Motion Dec: -22.0 mas/yr	F(1300)=1.3E-12,	
	Alt Name2: GRW+70.5824	Equinox: J2000	Parallax: 0.03829"	F(1800)=5.2E-13	
			Epoch of Position: 2000		
			Radial Velocity: 26 km/sec		

Comments: COS.ta.432623 S/N=60 in 12s BOA/MIRRORA, BOA/MIRRROB (COS.ta.432624) in 175s. This is an HST Standard Star (DA3)
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/IMAGE (BOA/MIRRORA/P2/LOW) (COS.ta.432623)	(3) HIP66578	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	18 Secs (18 Secs) *[==>]*	***[1]***
	Comments: Using the standard star HIP66578 to compare the centerings between the BOA/MIRRORA and BOA/MIRRORB ACQ/IMAGE centering options. The ETC gives 12 seconds to reach S/N=60 with this target in the BOA/MIRRORA mode. We observed this target in 13124, with 2961 counts in 12s (target +background in 50x50 box). We will need to follow this with a P2/LOW/WCA/A image.								
2	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA	BUFFER-TIME=270	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	16 Secs (16 Secs) *[==>]*	***[1]***
	Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s. The BT for this must be < 0.37(2.35E6/4800) or < 270*								
3	Centered BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150		Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
4	XD+0.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,.25	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
5	XD+0.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,.5	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
6	XD+0.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,.75	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
7	XD+1.0 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.0	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
8	XD+1.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.25	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								
9	XD+1.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,1.5	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*	***[1]***
	Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.								

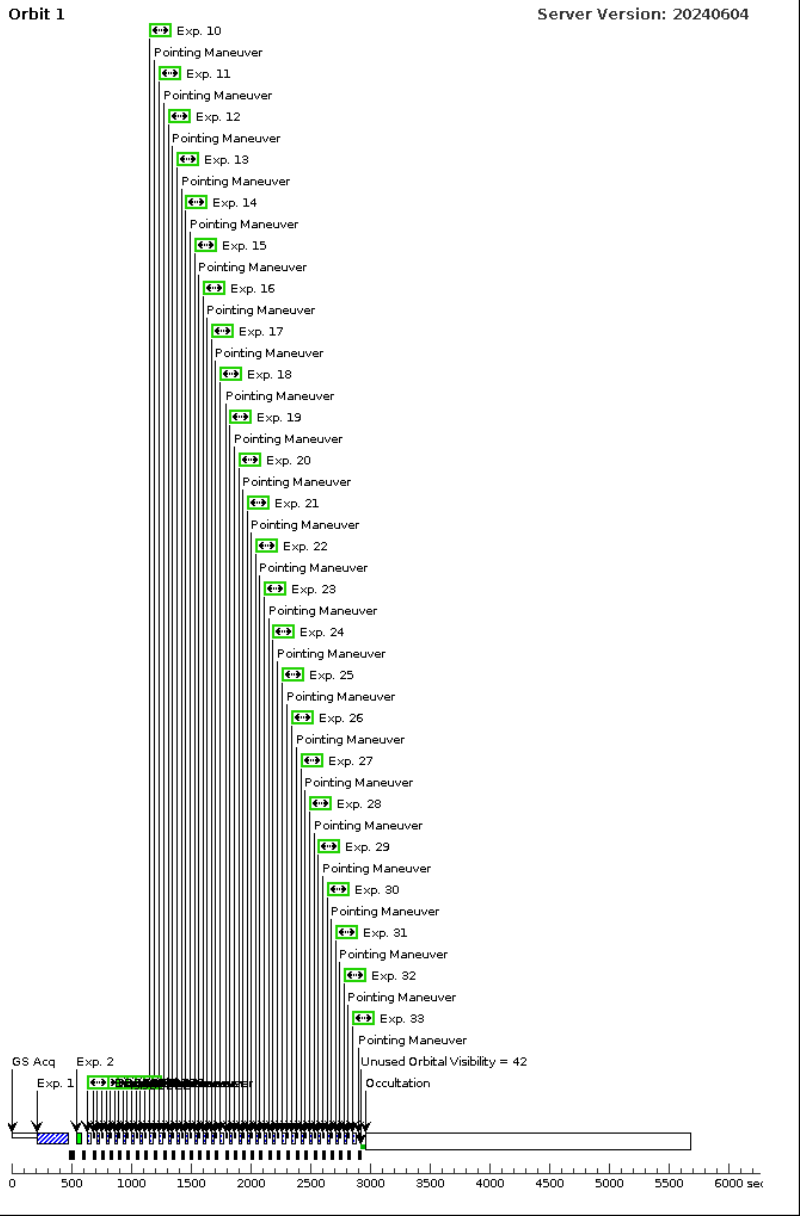
10	XD+1.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG null,1.75	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										
11	XD+2.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG null,2.5	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										
12	XD-0.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.25	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
13	XD-0.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.5	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
14	XD-0.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-.75	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
15	XD-1.0 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.0	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
16	XD-1.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.25	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
17	XD-1.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG null,-1.5	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
18	XD-1.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG null,-1.75	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										

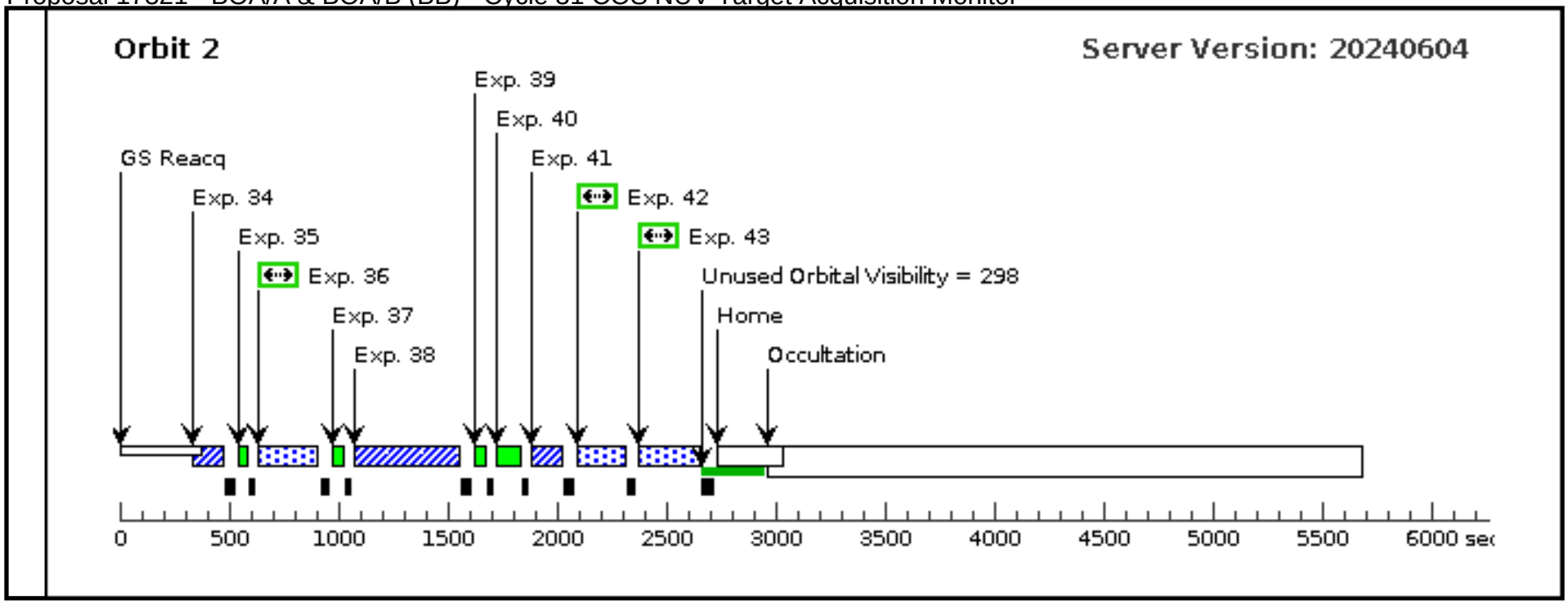
19	AD+0.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG .25,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
20	AD+0.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG .5,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
21	AD+0.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG .75,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
22	AD+1.0 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG 1.0,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
23	AD+1.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG 1.25,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
24	AD+1.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG 1.5,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
25	AD+1.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG 1.75,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										
26	AD+2.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG 2.5,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										
27	AD-0.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -.25,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										

28	AD-0.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -.5,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
29	AD-0.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -.75,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
30	AD-1.0 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -1.0,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
31	AD-1.25 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -1.25,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
32	AD-1.50 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=150	POS TARG -1.5,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	11 Secs (11 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture.										
33	AD-1.75 BOA/MIRRORA IMAGE (COS.ta.1521651)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORA	BUFFER-TIME=300	POS TARG -1.75,null	Sequence 1-33 Non-Int in BOA/A & BOA/B (BB)	21 Secs (21 Secs) *[==>]*		***[1]***
Comments: Part of flux sweep to test target centering. 11 s exposure provides S/N~60 when target is near center of aperture. Exp time increased to 21 s since target falls outside of aperture.										
34	ACQ/IMAGE (BOA/MIRRORA/P2/LOW) (COS.ta.432623)	(3) HIP66578	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	18 Secs (18 Secs) *[==>]*		***[2]***
Comments: Using the standard star HIP66578 to compare the centerings between the BOA/MIRRORA and BOA/MIRRORB ACQ/IMAGE centering options. The ETC gives 12 seconds to reach S/N=60 with this target in the BOA/MIRRORA mode. We observed this target in 13124, with 2961 counts in 12s (target +background in 50x50 box). We will need to follow this with a P2/LOW/WCA/A image.										
35	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA	BUFFER-TIME=270	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	16 Secs (16 Secs) *[==>]*		***[2]***
Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s. The BT for this must be < 0.37(2.35E6/4800) or < 270*										
36	BOA/MIRRORB/Target (no lamp) (COS.ta.432624)	(3) HIP66578	COS/NUV, TIME-TAG, BOA	MIRRORB	BUFFER-TIME=1000		Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	183 Secs (183 Secs) *[==>]*		***[2]***
*Comments: Followup BOA/MIRRORB calibration IMAGE with a wavecal to verify proper initial centering (The ETC gives 175 seconds to reach S/N=60 with this target in the BOA/MIRRORA mode.) The BT is ~ 0.67 *2.35E6/(1000) < 1575. as we are only getting about 20 cps from the source, most of the counts are noise. This is a BOA image, so we need to add a WAVE image after this exposure. The WAVECAL=YES parameter does not trigger a separate lamp image*										

37	WCA/MIRRORB/P2/MED (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORB	BUFFER-TIME=2000	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	24 Secs (24 Secs) *[==>]*		***[2]***
Comments: For P2/MED, we expect 300-460 cps, with a Brightest Pixel = 9 cts/s. So BT < 0.67(2.35E6/460) < 3400.*										
38	ACQ/IMAGE (BOA/MIRRORB/P2/MED) (COS.ta.432624)	(3) HIP66578	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	183 Secs (183 Secs) *[==>]*		***[2]***
Comments: Compare the centerings between the BOA/MIRRORA and BOA/MIRRORB ACQ/IMAGE centering options. The ETC gives 175 seconds to reach S/N=60 with this target in the BOA/MIRRORB mode.										
39	WCA/MIRRORB/P2/MED (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORB	BUFFER-TIME=2000	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	24 Secs (24 Secs) *[==>]*		***[2]***
Comments: For P2/MED, we expect 300-460 cps, with a Brightest Pixel = 9 cts/s. So BT < 0.67(2.35E6/460) < 3400.*										
40	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA	BUFFER-TIME=270	QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	16 Secs (16 Secs) *[==>]*		***[2]***
Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s. The BT for this must be < 0.37(2.35E6/4800) or < 270*										
41	ACQ/IMAGE (BOA/MIRRORA/P2/LOW) (COS.ta.432623)	(3) HIP66578	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	18 Secs (18 Secs) *[==>]*		***[2]***
Comments: Using the standard star HIP66578 to compare the centerings between the BOA/MIRRORA and BOA/MIRRORB ACQ/IMAGE centering options. The ETC gives 12 seconds to reach S/N=60 with this target in the BOA/MIRRORA mode. We observed this target in 13124, with 2961 counts in 12s (target +background in 50x50 box). We will need to follow this with a P2/LOW/WCA/A image.										
42	PSA/G225M/2306 (COS.sp.1030027)	(3) HIP66578	COS/NUV, TIME-TAG, PSA	G225M 2306 A	BUFFER-TIME=540; FLASH=S0200D035; FP-POS=3	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	90 Secs (90 Secs) *[==>]*		***[2]***
*Comments: COS.sp.1030027 gives s/n/re =10 in 70 seconds. BT=2/3 *1000 < 666. We want to get a good lamp flash, so 35s should be ok. FPPOS=3. G225M/2306 is one of the 'approved' NUV cenwaves for TA. We request 90s to account for further TDS*										
43	PSA/G185M/1913 (COS.sp.1521661)	(3) HIP66578	COS/NUV, TIME-TAG, PSA	G185M 1913 A	BUFFER-TIME=300; FLASH=S0070D035; FP-POS=3	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 34-43 Non-Int in BOA/A & BOA/B (BB)	120 Secs (120 Secs) *[==>]*		***[2]***
*Comments: COS.sp.1030026 gives s/n/re =10.7 in ~40 seconds. BT=2/3 * 638 < 400. We want to get a good lamp flash, so 35s should be ok. FPPOS=3. G185M/1913 is one of the 'approved' NUV cenwaves for TA. Due to concerns over grating TDS, I have trippled the exposure time to 120 seconds*										

Orbit Structure

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GS Reacq
Exp. 34
Exp. 35
Exp. 36
Exp. 37
Exp. 38
Exp. 39
Exp. 40
Exp. 41
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Exp. 43
Unused Orbital Visibility = 298
Home
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17321, PtNe (PN), completed Fri Jun 14 12:01:01 GMT 2024

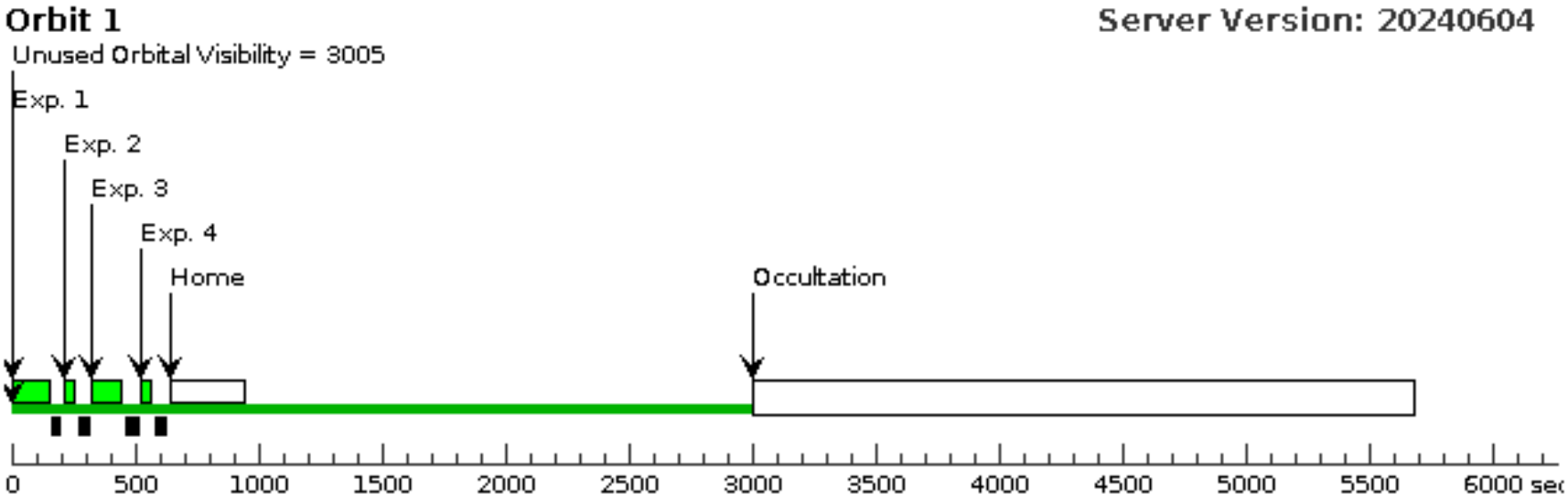
Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: This visit performs the PtNe lamp "family portrait".
P1 with MirrorA, P2 with MirrorA, P1 with MirrorB, P2 with MirrorB
In cycle 30 and earlier this was part of the BOA/A BOA/B visit, but as a purely internal observation it makes sense to split this into a separate orbit for scheduling purposes.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	WCA/MIRRORA/P1/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA		QESIPARM USELAMP LINE1; QESIPARM CURRENT LOW	Sequence 1-4 Non-Int in PtNe (PN)	16 Secs (16 Secs) [==>]	[1]
	Comments: For P1/LOW/A, we expect 2620 counts/s. BP = 45 cp/s. This is derived from data in program 13124.								
2	WCA/MIRRORA/P2/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORA		QESIPARM USELAMP LINE2; QESIPARM CURRENT LOW	Sequence 1-4 Non-Int in PtNe (PN)	26 Secs (26 Secs) [==>]	[1]
	Comments: For P2/LOW/MIRRORA we get 2900 counts in 7s								
3	WCA/MIRRORB/P1/LOW (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORB		QESIPARM USELAMP LINE1; QESIPARM CURRENT LOW	Sequence 1-4 Non-Int in PtNe (PN)	32 Secs (32 Secs) [==>]	[1]
	Comments: For P1/LOW, we expect 82 cts/s, to get 1600 counts in the primary spot, we need 2400 counts. 2400./82 = 30 seconds								
4	WCA/MIRRORB/P2/MED (no target)	WAVE	COS/NUV, TIME-TAG, WCA	MIRRORB		QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-4 Non-Int in PtNe (PN)	26 Secs (26 Secs) [==>]	[1]
	Comments: For P2/MED, we expect 300-460 cps, with a Brightest Pixel = 9 cts/s								

Orbit Structure