17090 - ANCHORING THE ENERGY BUDGET OF THE KEYSTONE JWST ERS ULTRA-HOT TARGET WASP-18 B

Cycle: 30, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Ms. Caroline Piaulet (PI) (CSA Member) (Contact)	**Universite de Montreal**	**caroline@astro.umontreal.ca**
Prof. Bjorn Benneke (CoI) (CSA Member)	Universite de Montreal	bjorn.benneke@umontreal.ca
Louis-Philippe Coulombe (CoI) (CSA Member)	Universite de Montreal	louis-philippe.coulombe@umontreal.ca
Mr. Stefan Pelletier (CoI) (CSA Member)	Universite de Montreal	pelletier@astro.umontreal.ca
Prof. Eliza M.-R. Kempton (CoI) (AdminUSPI)	University of Maryland	ekempton@astro.umd.edu
Prof. Jacob L. Bean (CoI)	University of Chicago	jbean@astro.uchicago.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) WASP-18 BIAS	WFC3/UVIS	5	18-Jul-2022 16:01:16.0	yes
02	(1) WASP-18 BIAS	WFC3/UVIS	5	18-Jul-2022 16:01:22.0	yes

10 Total Orbits Used

ABSTRACT

The exoplanet community has identified the massive ultra-hot Jupiter WASP-18b as one of the two keystone planets that will be observed as part of the JWST Transiting Exoplanets Early Release Science (ERS) program. These ERS observations will both serve the purpose of demonstrating JWST's capabilities as well as providing unprecedented infrared spectra for atmospheric characterization. A full MIRI phase curve of WASP-18 b as well as a NIRISS/SOSS eclipse in the ERS observations will deliver unprecedented constraints on the infrared emission spectrum of an exoplanet. However, the interpretation of the inferred dayside temperature profile, the overall energy budget, and the chemistry of WASP-18 b will be substantially hindered by our lack of constraints on the planetary albedo as well as the thermal emission shortward of 0.8 um. Here, we propose to observe two eclipses of WASP-18 b with the WFC3 UVIS G280 grism to spectroscopically measure the outgoing flux from 0.2 to 0.8 um. These observations will simultaneously capture the reflected light at short wavelengths and the considerable thermal emission between 0.5 and 0.8 um of WASP-18 b. Combined with JWST, our observations will provide the most complete spectral energy distribution of any exoplanet to date, with additional constraints on the scattering properties of the atmosphere as well as the presence or absence of short-wavelength absorbers such as TiO and VO believed to be responsible for thermal inversions in hot Jupiters. Overall, the UV-Visible HST observations combined with the JWST ERS infrared observations will enable an unprecedented holistic view into the energy budget and atmosphere processes of an exoplanet.

OBSERVING DESCRIPTION

We will use WFC3 G280 to observe two secondary eclipses of the ultra-hot Jupiter WASP-18b and obtain time series of spectra over the 200 to 800 nm range. We expect that the brightness of WASP-18 longwards of 400 nm is low enough that contamination from overlapping spectral orders is negligible. Our observations consist of two times five contiguous orbits, each set of five orbits covering one secondary eclipse, as well as the out-of-eclipse baseline which will be used to measure eclipse depths as well as mitigate detector systematics.

We estimated exposure times using the STScI ETC. We choose to use 30 second exposures, corresponding to about 2/3 of the detector full-well and yielding a signal-to-noise of 300 to 600 per resolution element. We will use a 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800 minimize data volume), which is large enough to cover both orders +1 and -1 while increasing the duty cycle and limiting overheads between exposures. Using the APT Orbit planner, we find that 20 exposures can be obtained for each telescope orbit.

We use a POS TARG Y offset of -50" to center the target on chip 2. Finally, we set CENTERAXIS2=1026 to center the subarray readout on the target location. In this configuration, the vertical center of the subarray is at the vertical center of chip 2. These settings are based upon similar observations in proposals 13574 and 15288.

We set constraints on the orientation ranges to make sure that we can separate the target trace from that of nearby stars on the detector.

Reduced gyro observations are not expected to significantly impact our program, as we only require two eclipse observations with phase constraints around the eclipse of a planet with an orbital period of only 0.9 days, which eases the scheduling compared to an event recurring with a long period. Overall, the orientation constraints still allow for more than 35 days of possible scheduling per year, while we only require two observations of an event recurring every 0.9 days.

Visit

Proposal 17090, Visit 01 Mon Jul 18 20:01:25 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 149.5D TO 180.2 D; ORIENT 332.9D TO 1.3 D; Period 0.94145223 D AND ZERO-PHASE HJD2458375.169883

Comments: Exposures of WASP-18 with F300X, and G280. The two visits consist of 5 orbits each with repeated exopsures on the same target and in the same position for each orbit. The first orbit of each visit contains the F300X direct image for wavelength calibration. Field positions are set to the center of the second CCD chip (chip 2). The only aperture that can be used with the G280 is the "UVIS". Therefore, we use POSTARGS to move the target to the chip center position. The nominal "UVIS" aperture puts the target 10" above the chip gap on chip 1. A Y-POSTARG of about 30" will put the target near the center of chip 1 and a Y-postarg of about -50" will put it near the center of chip 2 with a pixel position of (2048, 1026).

The optional parameters SIZEAXIS1=2100 and SIZEAXIS2=800 are used for all exposures to minimize the data volume resulting in time lost to buffer dumps. The use of the subarray will still enable us to meet our science goals because of the small extent of WASP-18's spectrum on the detector. This also requires the use of optional parameter CENTERAXIS2 in order to "steer" the location of the subarray readout so that it is centered on the target location. If we were positioning on chip 1 we could set CENTERAXIS2=TARGET. However, for the field center (nominal "UVIS" aperture) location on chip 2, we cannot center the subarray on the target because this would cause the subarray to extend into the chip gap, so we hardwire CENTERAXIS2=1026, which puts the vertical center of the subarray at the vertical center of chip 2.

Chip 2 biases are taken at the end of the visit because our grism exposures use custom subarrays, which will not have matching biases from the WFC3 bias calibration program.

For each visit we have phase constraints around the event of the planetary eclipse, both the orbital period of the planet and the phasing needed are placed on the first exposure in the sequence for each visit. As this target has a number of potential contamination sources we have placed Orient Ranges to make sure that we can separate the target trace from that of nearby stars on the detector.

Diagnostics

(G280 image, chip2 (01.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (01.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (01.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (01.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (01.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WASP-18	RA: 01 37 25.0333 (24.3543054d)	Proper Motion RA: 25.404 mas/yr	V=9.3	Reference Frame: ICRS
	Alt Name1: HD10069	Dec: -45 40 40.37 (-45.67788d)	Proper Motion Dec: 20.479 mas/yr		
		Equinox: J2000	Epoch of Position: 2015.5		

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[EXTRA-SOLAR PLANET, F3-F9]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G280 reference image (F300X) subarray on chip 2, phase constrained (WFC3UVIS.im.1810502)	(1) WASP-18	WFC3/UVIS, ACCUM, G280-REF	F300X	FLASH=20; SIZEAXIS2=800; CENTERAXIS2=1026; SIZEAXIS1=2100; CENTERAXIS1=2048	POS TARG null,-50; PHASE 0.278 TO 0.322	Sequence 1-2 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	***[1]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture.

We use FLASH=20 to meet the nominal count level.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 1-2 Non-Int in Visit 01	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[1]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

3	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 3-3 Non-Int in Visit 01	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[2]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026 , to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

4	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 4-4 Non-Int in Visit 01	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[3]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

5	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 5-5 Non-Int in Visit 01	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[4]***

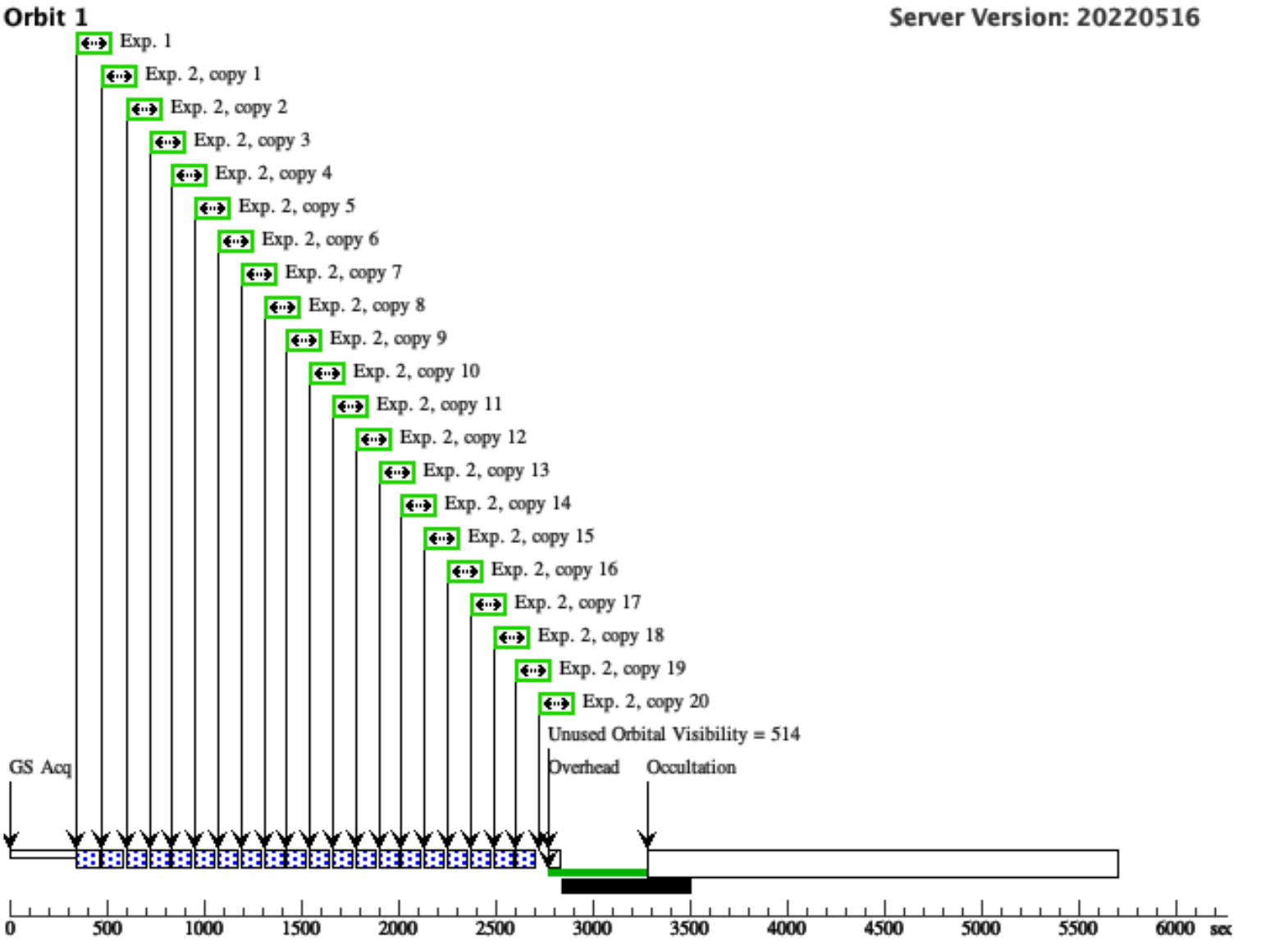
Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

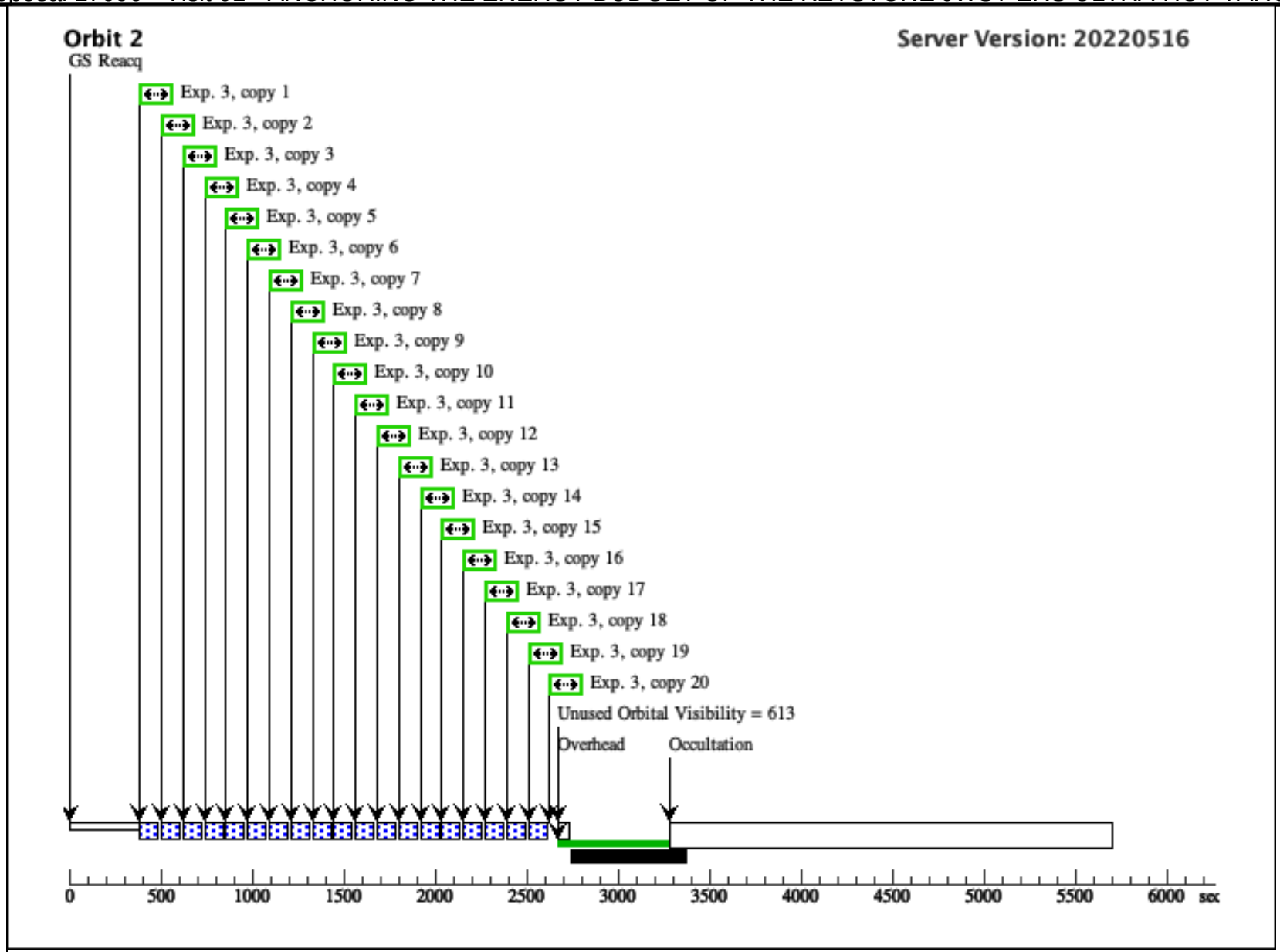
We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

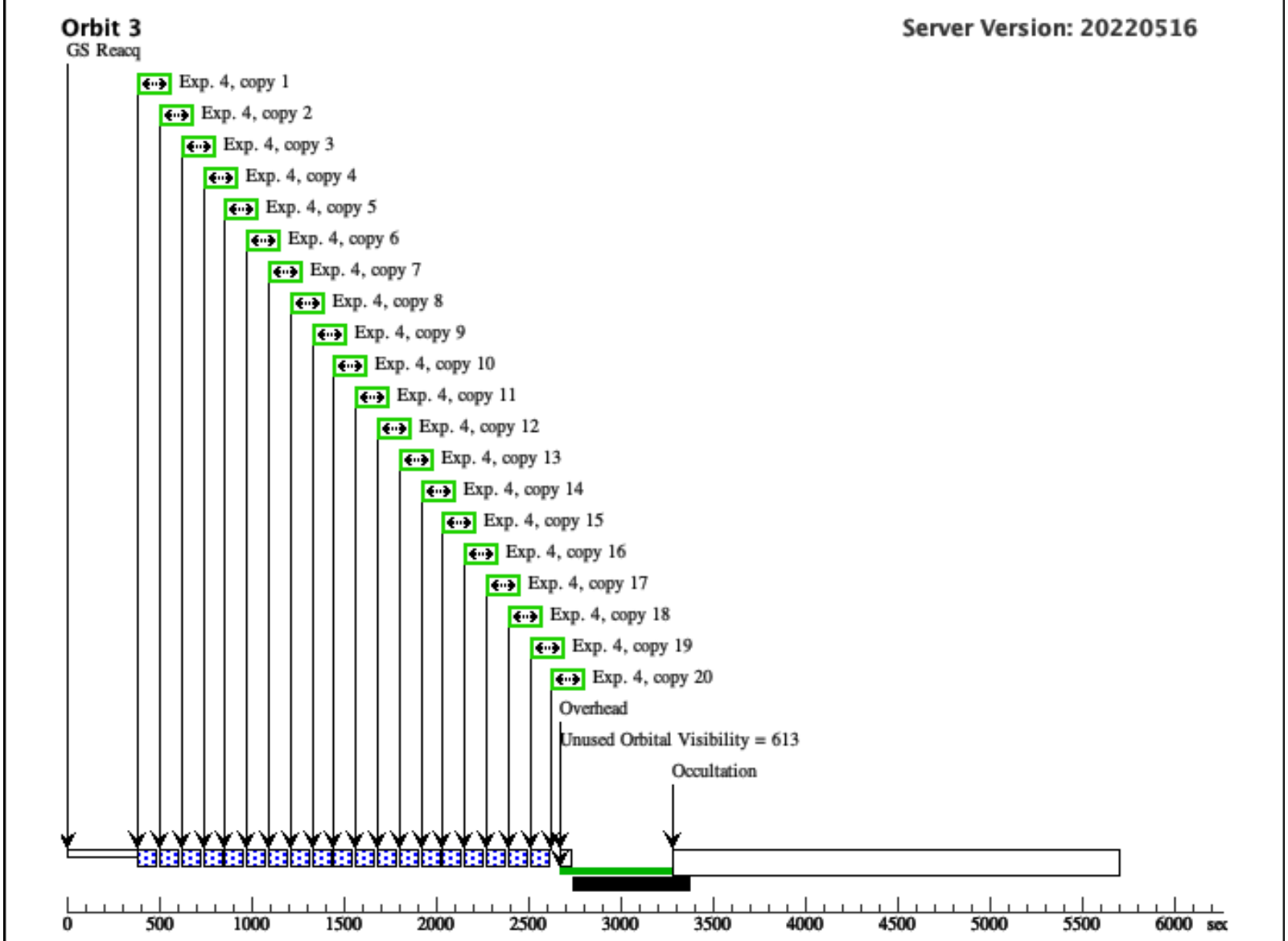
Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

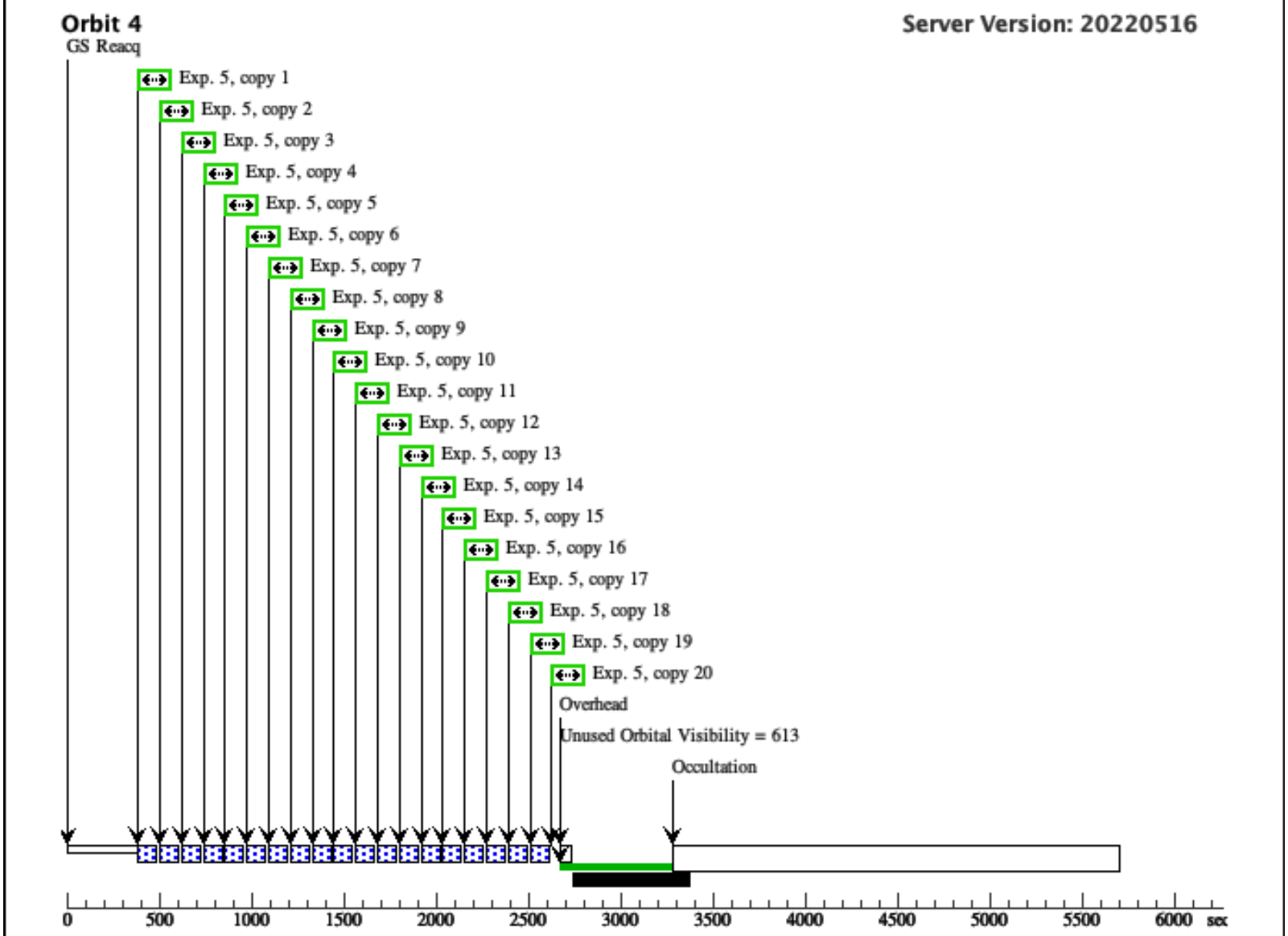
6	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 6-7 Non-Int in Visit 01	30 Secs X 20 (600 Secs)		
								[==>(Copy 1)] *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[5]***
	Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288. *We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.* *Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .*									
7	Bias	BIAS	WFC3/UVIS, ACCUM, UVIS	DEF	CENTERAXIS1=2048; CENTERAXIS2=1026; SIZEAXIS1=2100; SIZEAXIS2=800		Sequence 6-7 Non-Int in Visit 01	0.0 Secs X 2 (0 Secs)		
								[==>(Copy 1)] *[==>(Copy 2)]*	***[5]***	
	Comments: We set up the bias frames based on the previously sucessful programs 11934 and 15228. We use the same aperture and subarray size and position as the observations for direct calibration.									

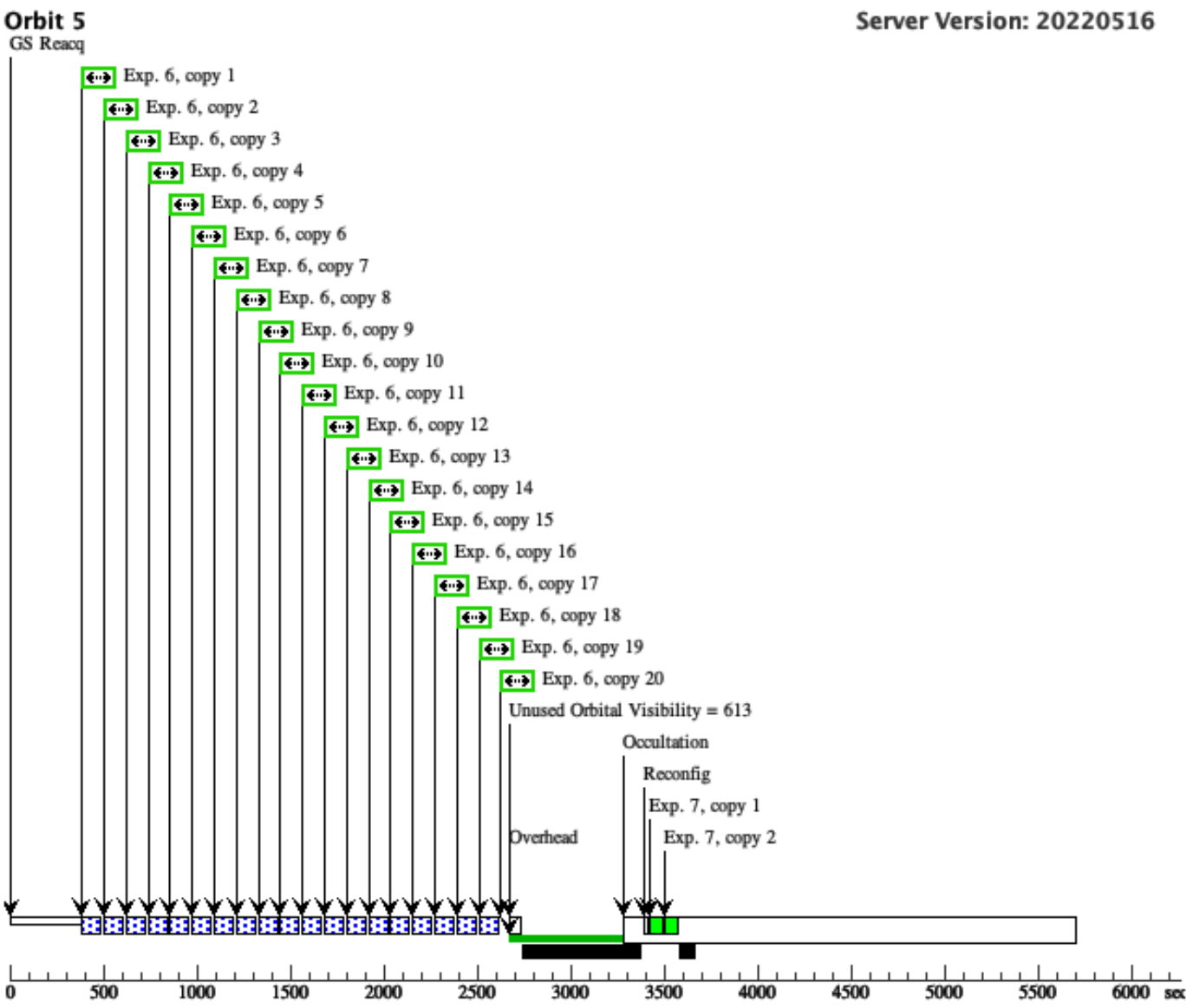
Orbit Structure




Orbit 2
Server Version: 20220516
GS Reacq
Exp. 3, copy 1
Exp. 3, copy 2
Exp. 3, copy 3
Exp. 3, copy 4
Exp. 3, copy 5
Exp. 3, copy 6
Exp. 3, copy 7
Exp. 3, copy 8
Exp. 3, copy 9
Exp. 3, copy 10
Exp. 3, copy 11
Exp. 3, copy 12
Exp. 3, copy 13
Exp. 3, copy 14
Exp. 3, copy 15
Exp. 3, copy 16
Exp. 3, copy 17
Exp. 3, copy 18
Exp. 3, copy 19
Exp. 3, copy 20
Unused Orbital Visibility = 613
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 3
Server Version: 20220516
GS Reacq
Exp. 4, copy 1
Exp. 4, copy 2
Exp. 4, copy 3
Exp. 4, copy 4
Exp. 4, copy 5
Exp. 4, copy 6
Exp. 4, copy 7
Exp. 4, copy 8
Exp. 4, copy 9
Exp. 4, copy 10
Exp. 4, copy 11
Exp. 4, copy 12
Exp. 4, copy 13
Exp. 4, copy 14
Exp. 4, copy 15
Exp. 4, copy 16
Exp. 4, copy 17
Exp. 4, copy 18
Exp. 4, copy 19
Exp. 4, copy 20
Overhead
Unused Orbital Visibility = 613
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 4
Server Version: 20220516
GS Reacq
Exp. 5, copy 1
Exp. 5, copy 2
Exp. 5, copy 3
Exp. 5, copy 4
Exp. 5, copy 5
Exp. 5, copy 6
Exp. 5, copy 7
Exp. 5, copy 8
Exp. 5, copy 9
Exp. 5, copy 10
Exp. 5, copy 11
Exp. 5, copy 12
Exp. 5, copy 13
Exp. 5, copy 14
Exp. 5, copy 15
Exp. 5, copy 16
Exp. 5, copy 17
Exp. 5, copy 18
Exp. 5, copy 19
Exp. 5, copy 20
Overhead
Unused Orbital Visibility = 613
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 5
Server Version: 20220516
GS Reacq
Exp. 6, copy 1
Exp. 6, copy 2
Exp. 6, copy 3
Exp. 6, copy 4
Exp. 6, copy 5
Exp. 6, copy 6
Exp. 6, copy 7
Exp. 6, copy 8
Exp. 6, copy 9
Exp. 6, copy 10
Exp. 6, copy 11
Exp. 6, copy 12
Exp. 6, copy 13
Exp. 6, copy 14
Exp. 6, copy 15
Exp. 6, copy 16
Exp. 6, copy 17
Exp. 6, copy 18
Exp. 6, copy 19
Exp. 6, copy 20
Unused Orbital Visibility = 613
Occultation
Reconfig
Exp. 7, copy 1
Exp. 7, copy 2
Overhead
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 17090, Visit 02 Mon Jul 18 20:01:25 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 149.5D TO 180.2 D; ORIENT 332.9D TO 1.3 D; Period 0.94145223 D AND ZERO-PHASE HJD2458375.169883

Comments: Exposures of WASP-18 with F300X, and G280. The two visits consist of 5 orbits each with repeated exopsures on the same target and in the same position for each orbit. The first orbit of each visit contains the F300X direct image for wavelength calibration. Field positions are set to the center of the second CCD chip (chip 2). The only aperture that can be used with the G280 is the "UVIS". Therefore, we use POSTARGS to move the target to the chip center position. The nominal "UVIS" aperture puts the target 10" above the chip gap on chip 1. A Y-POSTARG of about 30" will put the target near the center of chip 1 and a Y-postarg of about -50" will put it near the center of chip 2 with a pixel position of (2048, 1026).

The optional parameters SIZEAXIS1=2100 and SIZEAXIS2=800 are used for all exposures to minimize the data volume resulting in time lost to buffer dumps. The use of the subarray will still enable us to meet our science goals because of the small extent of WASP-18's spectrum on the detector. This also requires the use of optional parameter CENTERAXIS2 in order to "steer" the location of the subarray readout so that it is centered on the target location. If we were positioning on chip 1 we could set CENTERAXIS2=TARGET. However, for the field center (nominal "UVIS" aperture) location on chip 2, we cannot center the subarray on the target because this would cause the subarray to extend into the chip gap, so we hardwire CENTERAXIS2=1026, which puts the vertical center of the subarray at the vertical center of chip 2.

Chip 2 biases are taken at the end of the visit because our grism exposures use custom subarrays, which will not have matching biases from the WFC3 bias calibration program.

For each visit we have phase constraints around the event of the planetary eclipse, both the orbital period of the planet and the phasing needed are placed on the first exposure in the sequence for each visit. As this target has a number of potential contamination sources we have placed Orient Ranges to make sure that we can separate the target trace from that of nearby stars on the detector.

Diagnostics

(G280 image, chip2 (02.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (02.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (02.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (02.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(G280 image, chip2 (02.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WASP-18	RA: 01 37 25.0333 (24.3543054d)	Proper Motion RA: 25.404 mas/yr	V=9.3	Reference Frame: ICRS
	Alt Name1: HD10069	Dec: -45 40 40.37 (-45.67788d)	Proper Motion Dec: 20.479 mas/yr		
		Equinox: J2000	Epoch of Position: 2015.5		

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[EXTRA-SOLAR PLANET, F3-F9]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G280 reference image (F300X) subarray on chip 2, phase constrained (WFC3UVIS.im.1810502)	(1) WASP-18	WFC3/UVIS, ACCUM, G280-REF	F300X	FLASH=20; SIZEAXIS2=800; CENTERAXIS2=1026; SIZEAXIS1=2100; CENTERAXIS1=2048	POS TARG null,-50; PHASE 0.278 TO 0.322	Sequence 1-2 Non-Int in Visit 02	1 Secs (1 Secs) *[==>]*	***[1]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture.

We use FLASH=20 to meet the nominal count level.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 1-2 Non-Int in Visit 02	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[1]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

3	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 3-3 Non-Int in Visit 02	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[2]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026 , to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

4	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 4-4 Non-Int in Visit 02	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[3]***

Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026 , to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

5	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 5-5 Non-Int in Visit 02	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[4]***

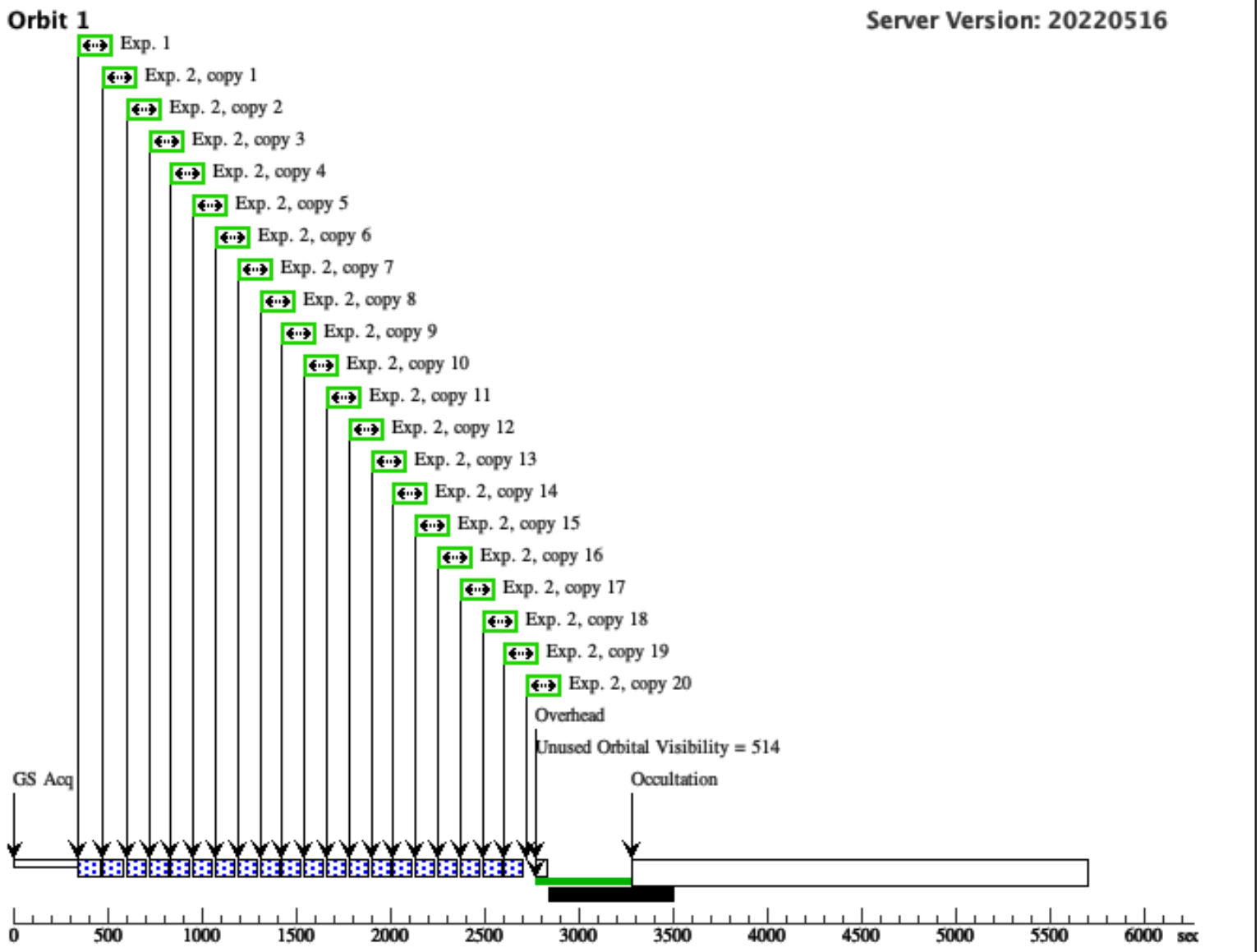
Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288.

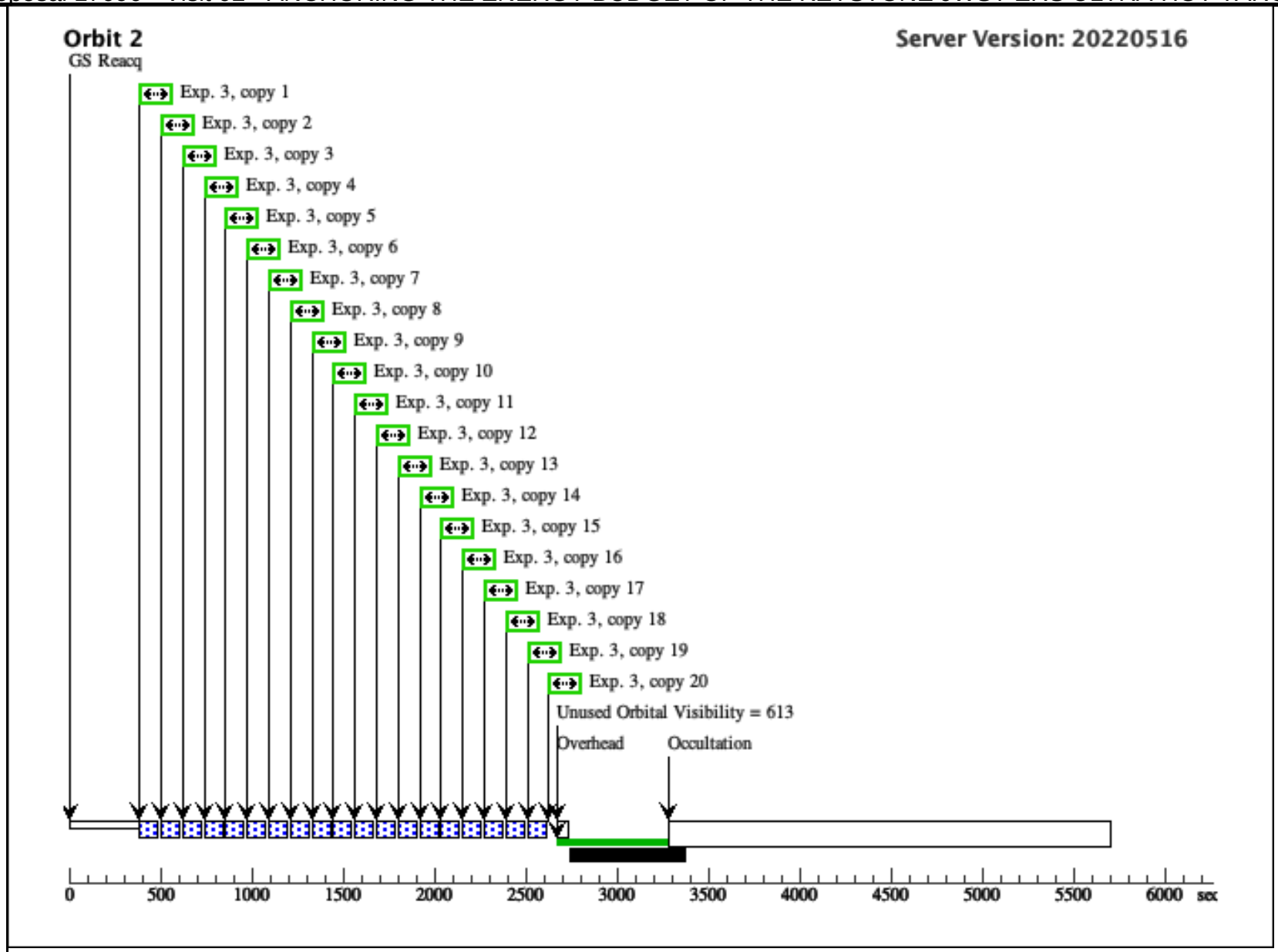
We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.

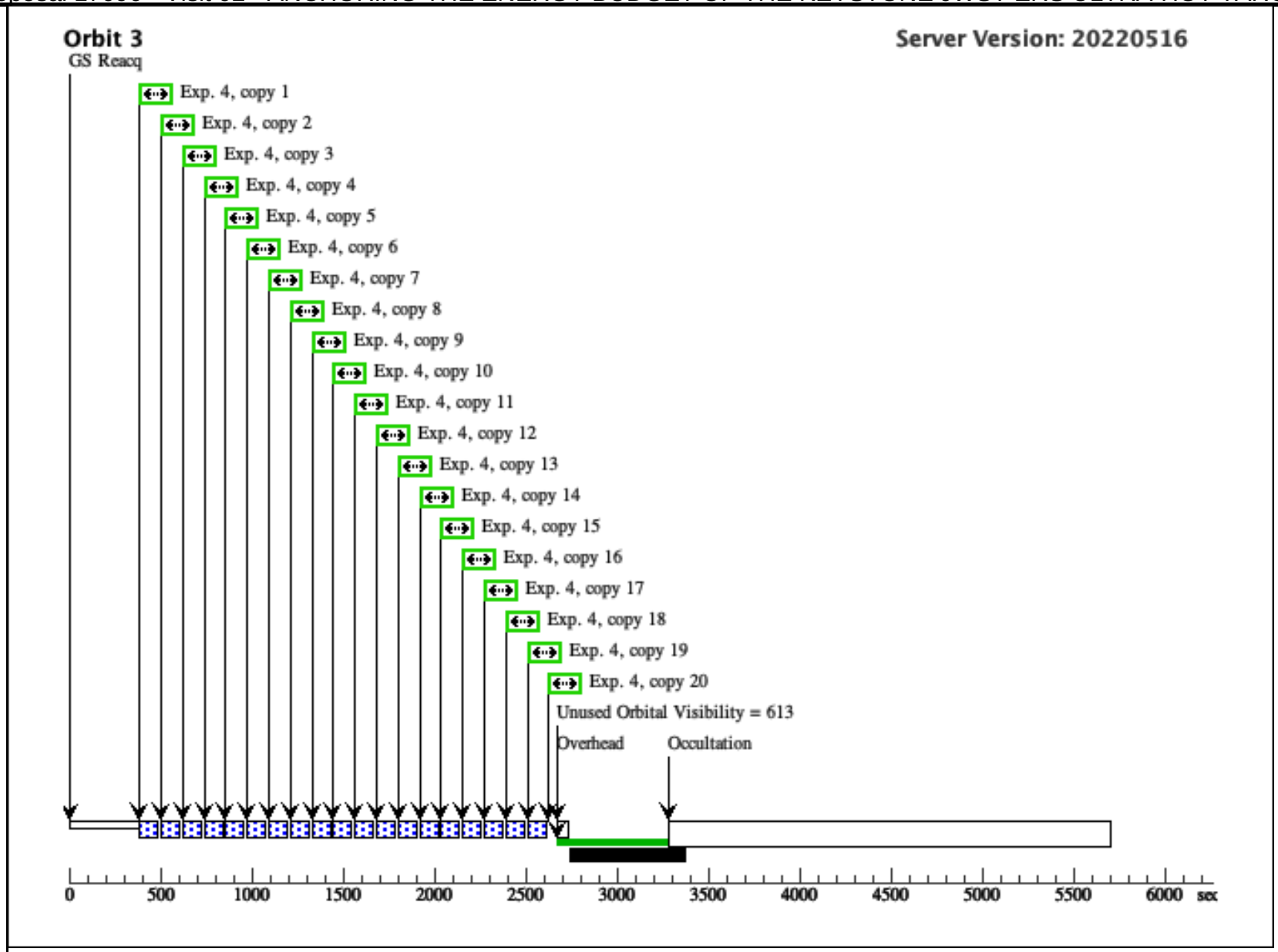
Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026 , to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .

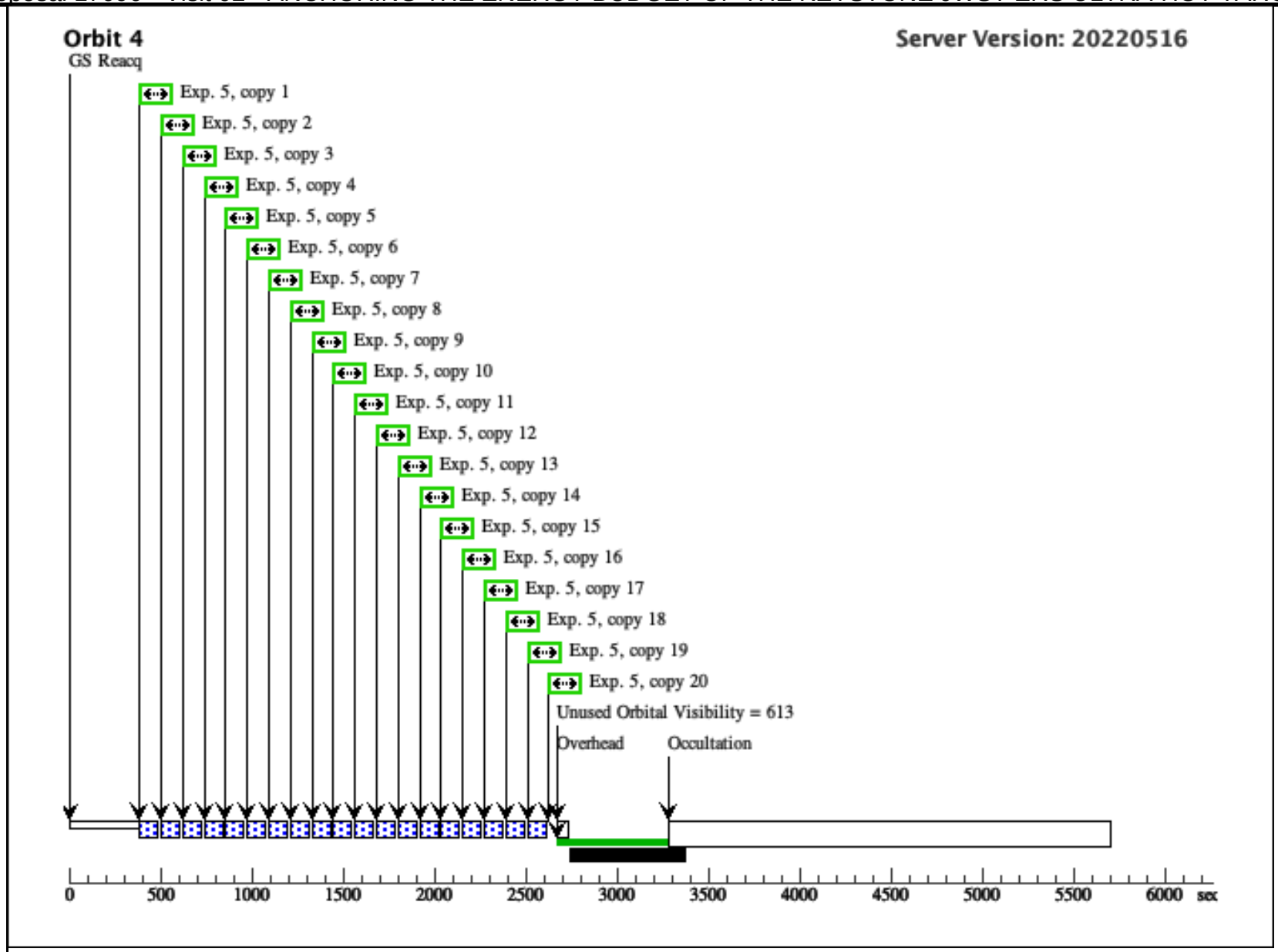
6	G280 image, chip2 (WFC3UVIS.sp.1810504)	(1) WASP-18	WFC3/UVIS, ACCUM, UVIS	G280	SIZEAXIS1=2100; SIZEAXIS2=800; CENTERAXIS2=1026; CENTERAXIS1=2048	POS TARG null,-50	Sequence 6-7 Non-Int in Visit 02	30 Secs X 20 (600 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]*	***[5]***
	Comments: We set the AMP to D following previous successfully executed proposals 13574 and 15288. *We use the 2100x800 subarray of the detector (SIZEAXIS1=2100 and SIZEAXIS2=800) to minimize data volume.* *Given that the nominal aperture for UVIS is about 10" above the chip gap on chip 1, we use a POS TARG Y offset of -50" (assuming each pixel covers 0.04") to center the target on chip 2. We set CENTERAXIS2=1026, to place the vertical center of the subarray at the vertical center of chip 2 where the target is positioned at (2048,1026) -50" in y below the nominal aperture. .*								
7	Bias	BIAS	WFC3/UVIS, ACCUM, UVIS	DEF	CENTERAXIS1=2048; CENTERAXIS2=1026; SIZEAXIS1=2100; SIZEAXIS2=800		Sequence 6-7 Non-Int in Visit 02	0.0 Secs X 2 (0 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]*	***[5]***
	Comments: We set up the bias frames based on the previously sucessful programs 11934 and 15228. We use the same aperture and subarray size and position as the observations for direct calibration.								

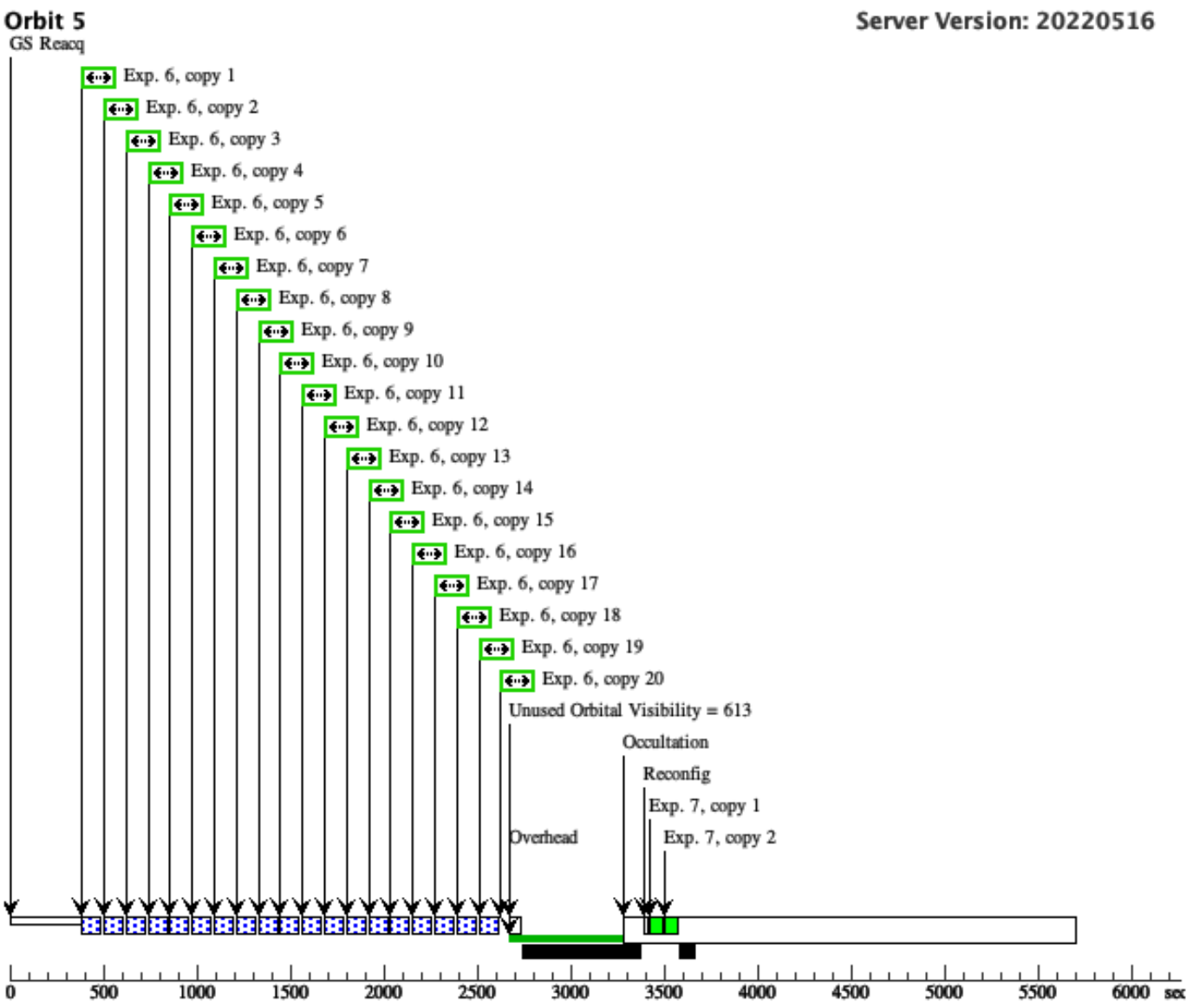
Orbit Structure




Orbit 2
Server Version: 20220516
GS Reacq
Exp. 3, copy 1
Exp. 3, copy 2
Exp. 3, copy 3
Exp. 3, copy 4
Exp. 3, copy 5
Exp. 3, copy 6
Exp. 3, copy 7
Exp. 3, copy 8
Exp. 3, copy 9
Exp. 3, copy 10
Exp. 3, copy 11
Exp. 3, copy 12
Exp. 3, copy 13
Exp. 3, copy 14
Exp. 3, copy 15
Exp. 3, copy 16
Exp. 3, copy 17
Exp. 3, copy 18
Exp. 3, copy 19
Exp. 3, copy 20
Unused Orbital Visibility = 613
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 3
Server Version: 20220516
GS Reacq
Exp. 4, copy 1
Exp. 4, copy 2
Exp. 4, copy 3
Exp. 4, copy 4
Exp. 4, copy 5
Exp. 4, copy 6
Exp. 4, copy 7
Exp. 4, copy 8
Exp. 4, copy 9
Exp. 4, copy 10
Exp. 4, copy 11
Exp. 4, copy 12
Exp. 4, copy 13
Exp. 4, copy 14
Exp. 4, copy 15
Exp. 4, copy 16
Exp. 4, copy 17
Exp. 4, copy 18
Exp. 4, copy 19
Exp. 4, copy 20
Unused Orbital Visibility = 613
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 4
Server Version: 20220516
GS Reacq
Exp. 5, copy 1
Exp. 5, copy 2
Exp. 5, copy 3
Exp. 5, copy 4
Exp. 5, copy 5
Exp. 5, copy 6
Exp. 5, copy 7
Exp. 5, copy 8
Exp. 5, copy 9
Exp. 5, copy 10
Exp. 5, copy 11
Exp. 5, copy 12
Exp. 5, copy 13
Exp. 5, copy 14
Exp. 5, copy 15
Exp. 5, copy 16
Exp. 5, copy 17
Exp. 5, copy 18
Exp. 5, copy 19
Exp. 5, copy 20
Unused Orbital Visibility = 613
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 5
Server Version: 20220516
GS Reacq
Exp. 6, copy 1
Exp. 6, copy 2
Exp. 6, copy 3
Exp. 6, copy 4
Exp. 6, copy 5
Exp. 6, copy 6
Exp. 6, copy 7
Exp. 6, copy 8
Exp. 6, copy 9
Exp. 6, copy 10
Exp. 6, copy 11
Exp. 6, copy 12
Exp. 6, copy 13
Exp. 6, copy 14
Exp. 6, copy 15
Exp. 6, copy 16
Exp. 6, copy 17
Exp. 6, copy 18
Exp. 6, copy 19
Exp. 6, copy 20
Unused Orbital Visibility = 613
Occultation
Reconfig
Exp. 7, copy 1
Exp. 7, copy 2
Overhead
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec