



# 16200 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Cycle: 28, Proposal Category: GO  
(Availability Mode: SUPPORTED)

## INVESTIGATORS

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## VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(4) OGLE-2017-BLG-0302	WFC3/UVIS	1	25-Jan-2023 07:00:16.0	yes
51	(4) OGLE-2017-BLG-0302	WFC3/UVIS	1	25-Jan-2023 07:00:17.0	yes
02	(7) OGLE-2019-BLG-1080	WFC3/UVIS	1	25-Jan-2023 07:00:19.0	yes
05	(7) OGLE-2019-BLG-1080	WFC3/UVIS	1	25-Jan-2023 07:00:20.0	yes
55	(7) OGLE-2019-BLG-1080	WFC3/UVIS	1	25-Jan-2023 07:00:21.0	yes
06	(7) OGLE-2019-BLG-1080	WFC3/UVIS	1	25-Jan-2023 07:00:22.0	yes
04	(6) OGLE-2019-BLG-1000	WFC3/UVIS	1	25-Jan-2023 07:00:23.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
07	(5) OGLE-2017-BLG-328 (10) OGLE-2017-BLG-328-OFFSET CCDFLAT	STIS/CCD	1	25-Jan-2023 07:00:23.0	yes
03	(5) OGLE-2017-BLG-328	WFC3/UVIS	1	25-Jan-2023 07:00:25.0	yes
53	(5) OGLE-2017-BLG-328	WFC3/UVIS	1	25-Jan-2023 07:00:26.0	yes

10 Total Orbits Used

## ABSTRACT

There should be ~100 million black holes (BHs) in our Galaxy, of which the majority should be single. Yet there has been no unambiguous detection of a solitary BH--not surprisingly, since they emit essentially no radiation. Astrometric microlensing--the relativistic deflection of light from a background star--is the only technique that can detect isolated BHs. HST has demonstrated its capability to measure such tiny deflections.

A multi-year HST program of precision astrometry of long-duration microlensing events in the Galactic bulge is underway, aimed at the first detection of isolated BHs. This program has achieved clear detections of deflections in two events, consistent with non-luminous massive lenses. However, the timing of the observations was sub-optimal due to some guide-star failures and the HST gyro failure in 2018. As a result, there remains a degeneracy between deflection, parallax, and proper motion; an unusually slow-moving low-mass lens remains a possibility. One more observation of these two targets will resolve this degeneracy. Observations of another event had to be abandoned when HST revealed a blended source. Because of the 2018 HST gyro failure, initiation of two new events had to be delayed until 2019. These events are still ongoing and need a total of five orbits for completion. One of the BH candidate sources is extremely red, which can be best explained by a shell around the putative BH. A 1-orbit STIS spectrum, and a final WFC3 image in Cycle 29, will test this hypothesis. Thus a total of 9 orbits (7 in Cycle 28 and 2 in Cycle 29) are needed to achieve the original objectives of the program, and to confirm the potentially exciting findings.

## OBSERVING DESCRIPTION

WFC3 imaging to measure astrometric deflections. We will employ an observational strategy similar to that used in the GO-15318 program. We will image each field using WFC3/UVIS, primarily with the F814W filter, but also with F606W.

In a rich stellar field such as the Galactic bulge, there is always a large number of reference stars available in the WFC3 field, even with the subarrays that we will use to avoid buffer dumps. This allows the highest possible astrometric accuracy.

Proposal 16200 (STScI Edit Number: 6, Created: Wednesday, January 25, 2023 at 7:00:27 AM Eastern Standard Time) - Overview

For the astrometric analysis, we will basically use procedures described in previous HST studies, including Anderson & King (2004) and Bellini (2014). Very similar techniques were used by Sahu et al. (2017) to detect the relativistic deflection of a background star by the nearby white dwarf Stein2051B, leading to a mass determination for this isolated object.

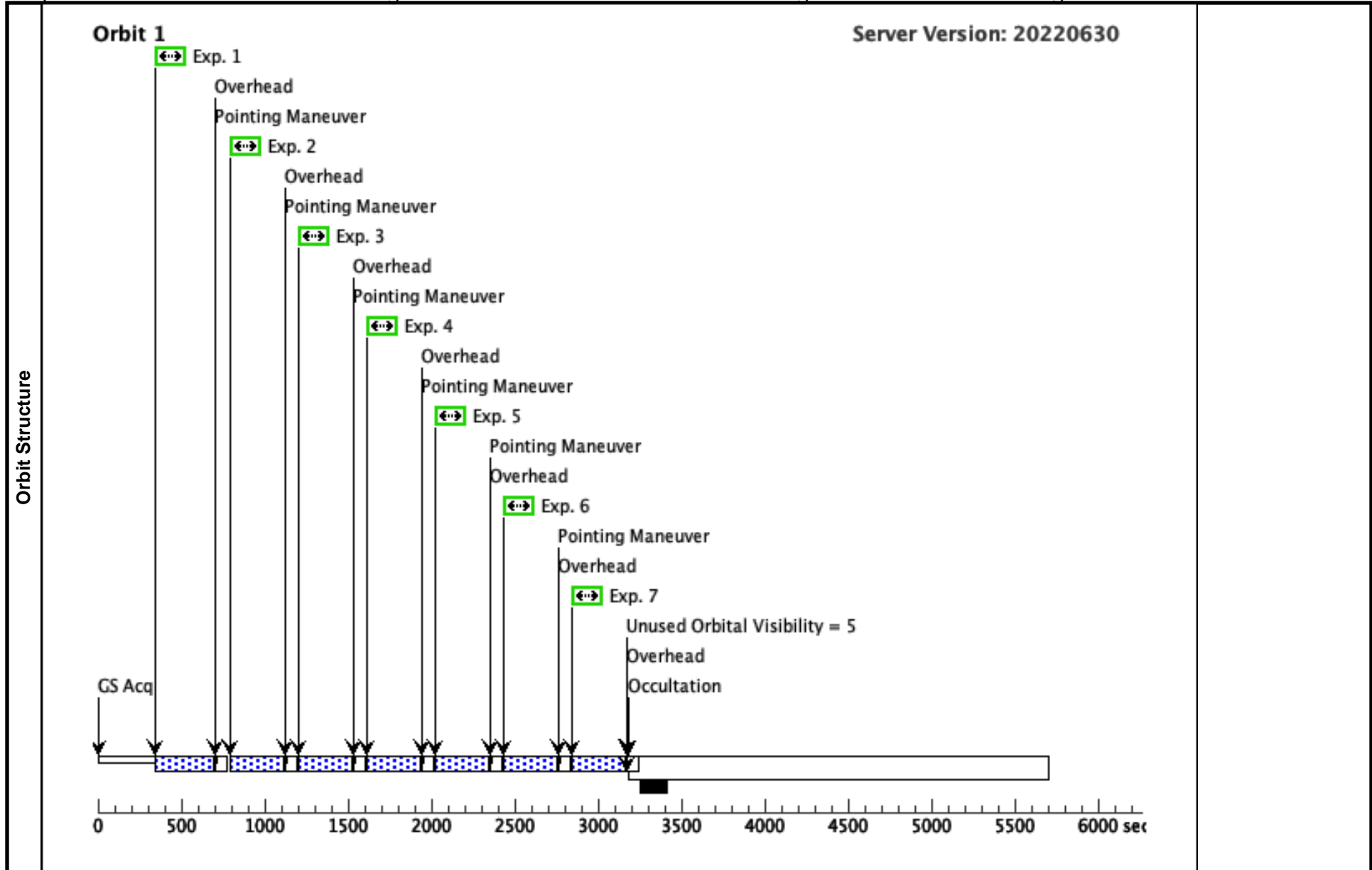
STIS spectroscopy of OGLE-2017-BLG-328. We will use G750L with a 0.2" slit to obtain a classification spectrum of the source. This setting covers a wavelength range of 5240-10265 Å. The STIS ETC indicates that a one-orbit exposure will reach a S/N per resolution element of ~22 at 7500 Å, which is more than adequate for spectral classification and inference of the intrinsic color.

As indicated in phase-I, we may have to re-adjust the orbit distribution for the targets based on the results from the first few observations. So the targets in visits 5 and 6 are specified as "DUMMY", which will be replaced with specific targets later on.

Proposal 16200 - Visit 01 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

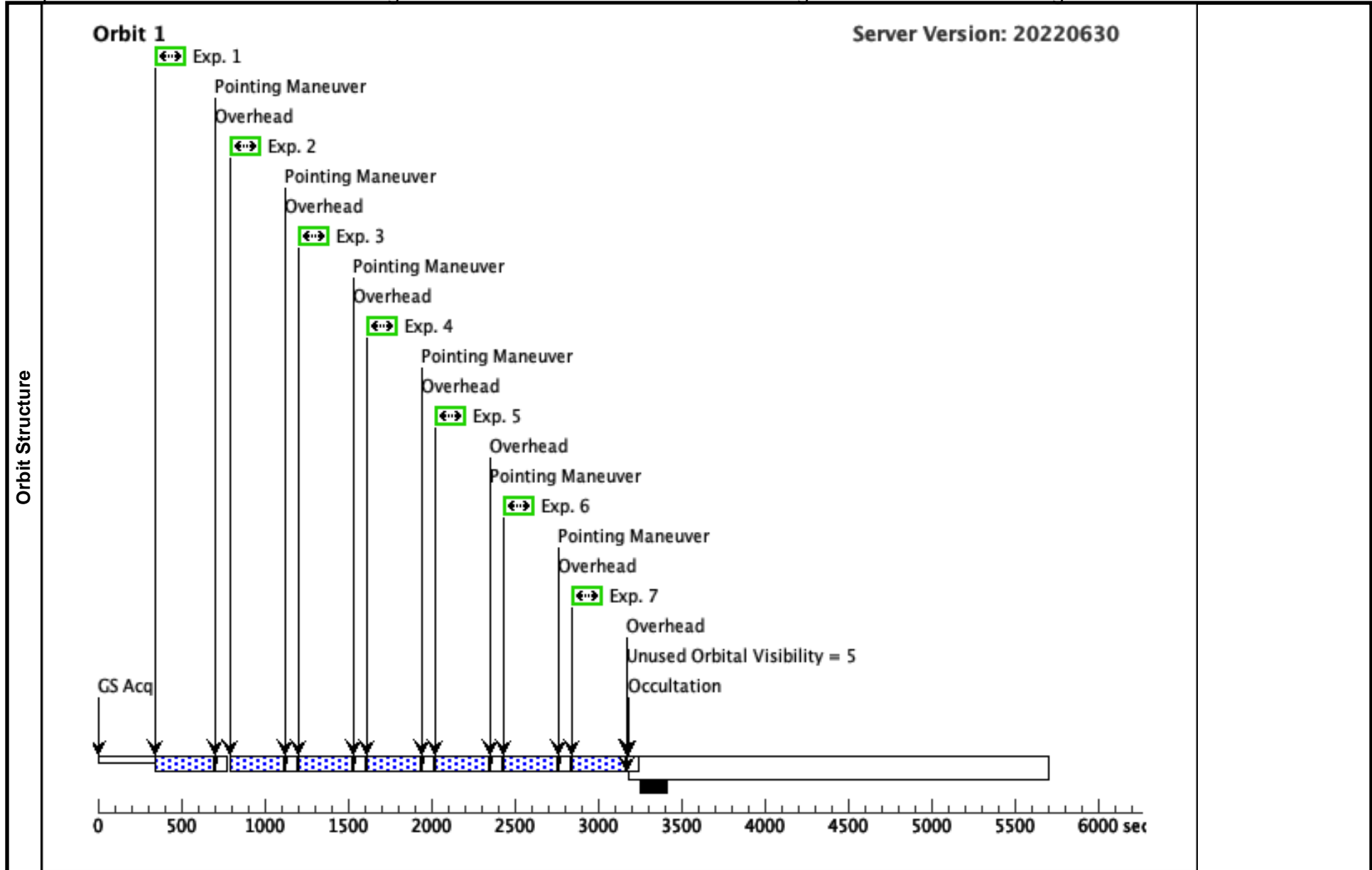
Visit	<b>Proposal 16200, Visit 01, failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(4)	OGLE-2017-BLG-0302	RA: 17 41 35.9300 (265.3997083d) Dec: -34 33 19.30 (-34.55536d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 0,0; GS ACQ SCENARI O BASE1B3		318 Secs (318 Secs) [==>]	[1]
	2		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 3.95,0		318 Secs (318 Secs) [==>]	[1]
	3		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 1.97,3.4 2		318 Secs (318 Secs) [==>]	[1]
	4		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -1.98,3. 42		318 Secs (318 Secs) [==>]	[1]
	5		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -3.95,-0. 02		318 Secs (318 Secs) [==>]	[1]
	6		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -1.96,-3. 43		318 Secs (318 Secs) [==>]	[1]
	7		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 2.00,-3. 41		318 Secs (318 Secs) [==>]	[1]



Proposal 16200 - Visit 51 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

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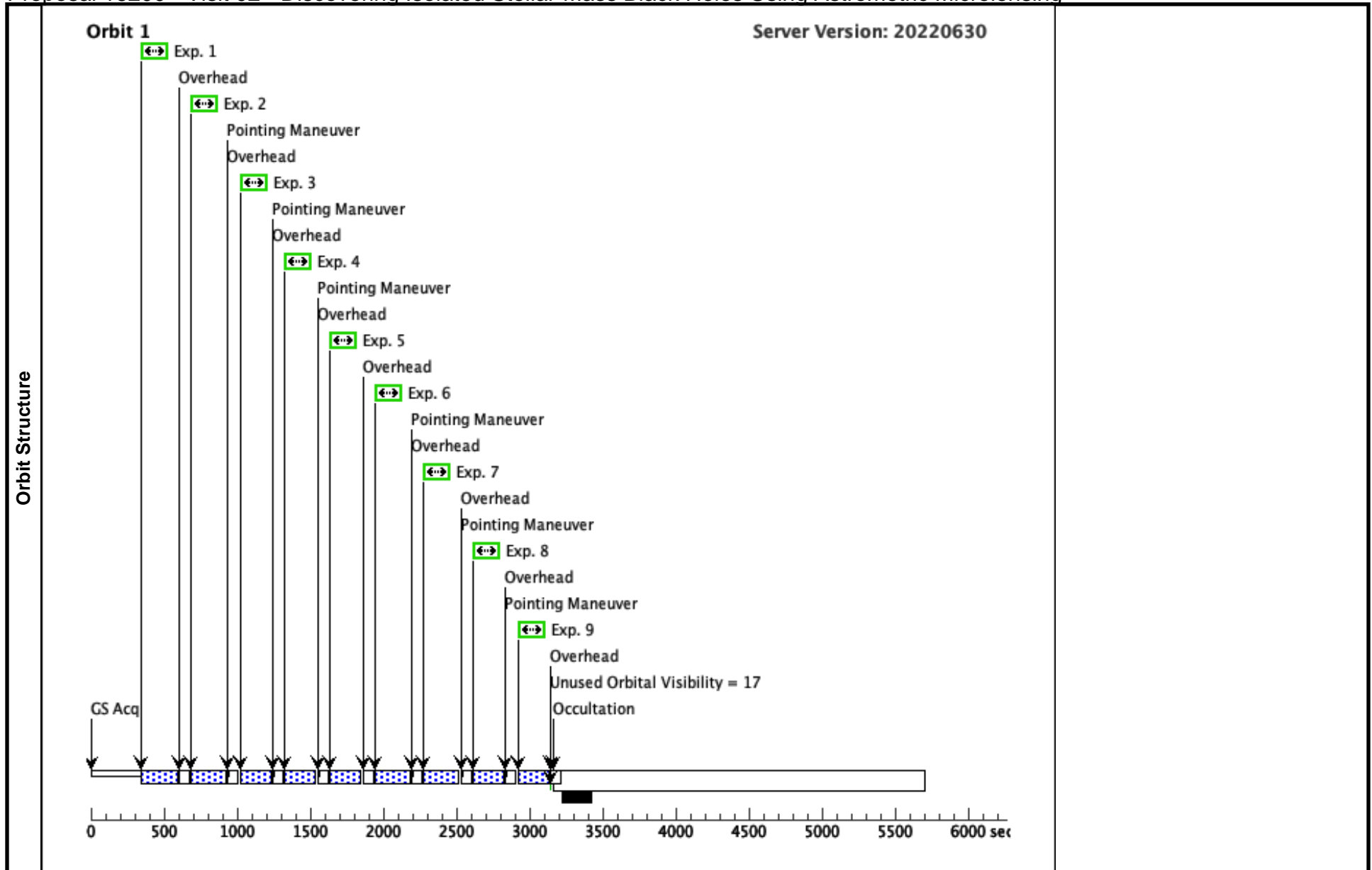
Visit	<b>Proposal 16200, Visit 51, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(4)	OGLE-2017-BLG-0302	RA: 17 41 35.9300 (265.3997083d) Dec: -34 33 19.30 (-34.55536d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 0,0; GS ACQ SCENARI O BASE1B3		318 Secs (318 Secs) [==>]	[1]
	2		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 3.95,0		318 Secs (318 Secs) [==>]	[1]
	3		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 1.97,3.4 2		318 Secs (318 Secs) [==>]	[1]
	4		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -1.98,3. 42		318 Secs (318 Secs) [==>]	[1]
	5		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -3.95,-0. 02		318 Secs (318 Secs) [==>]	[1]
	6		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG -1.96,-3. 43		318 Secs (318 Secs) [==>]	[1]
	7		(4) OGLE-2017-BL G-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=11	POS TARG 2.00,-3. 41		318 Secs (318 Secs) [==>]	[1]



Proposal 16200 - Visit 02 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

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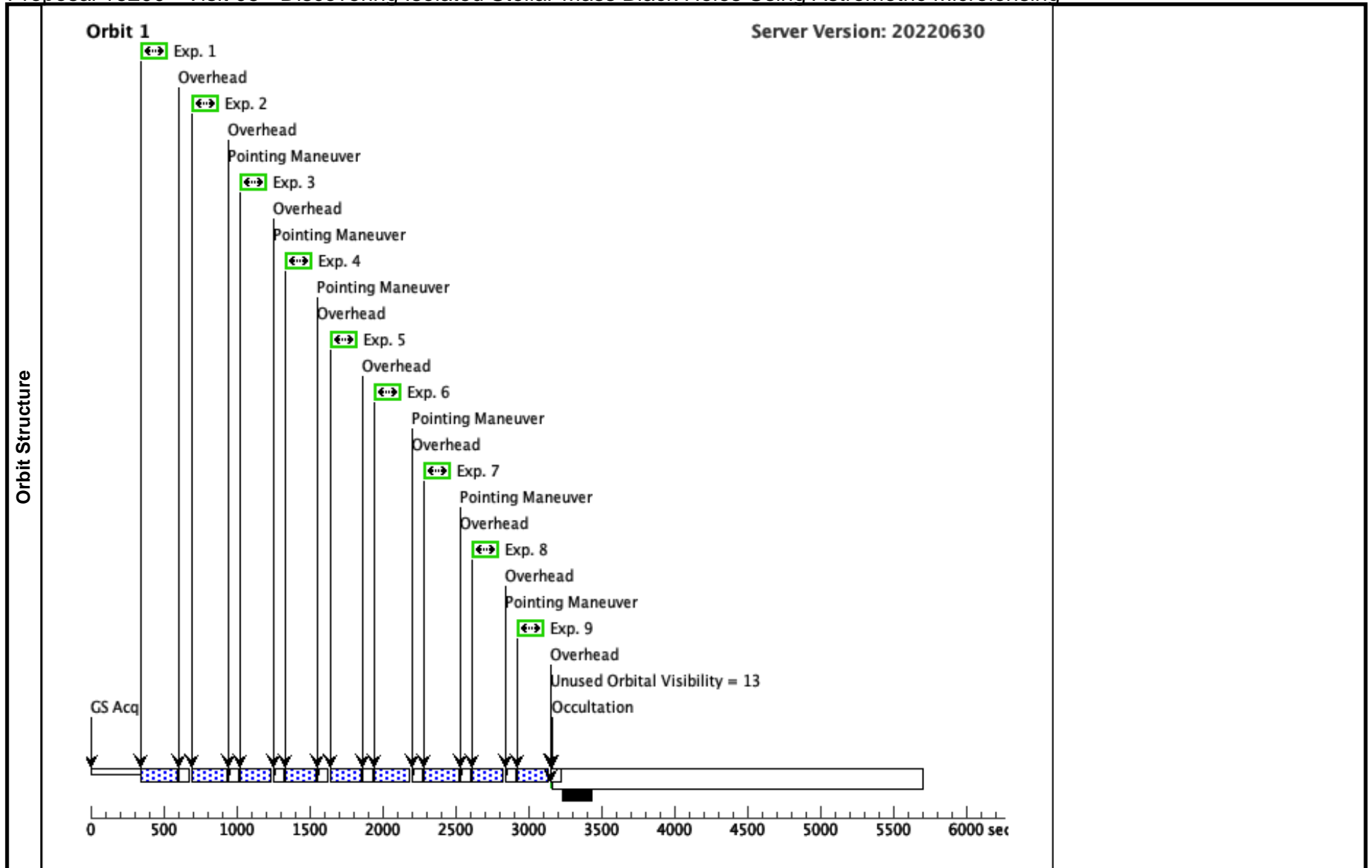
Visit	<b>Proposal 16200, Visit 02, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: BEFORE 25-OCT-2020:00:00:00									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(7)	OGLE-2019-BLG-1080	RA: 18 10 4.4700 (272.5186250d) Dec: -27 52 1.40 (-27.86706d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) [==>]	[1]
	2		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) [==>]	[1]
	3		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 3.95,0.1		216 Secs (216 Secs) [==>]	[1]
	4		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.7 9		216 Secs (216 Secs) [==>]	[1]
	5		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	6		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	7		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2. 8		216 Secs (216 Secs) [==>]	[1]
	8		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.95,0		216 Secs (216 Secs) [==>]	[1]
	9		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.68,-2. 79		216 Secs (216 Secs) [==>]	[1]



Proposal 16200 - Visit 05 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

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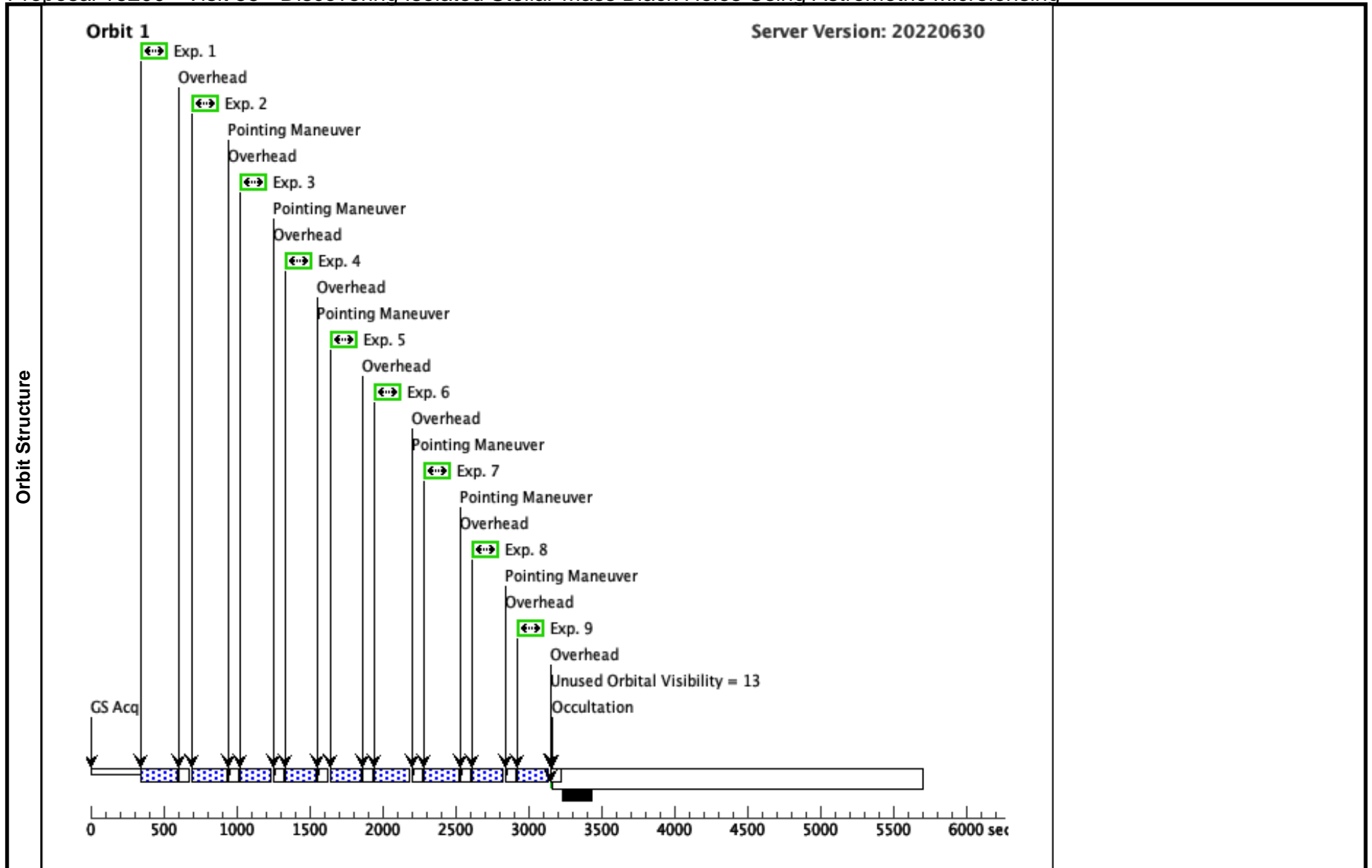
Visit	<b>Proposal 16200, Visit 05, failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: BEFORE 01-AUG-2022:00:00:00									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(7)	OGLE-2019-BLG-1080	RA: 18 10 4.4700 (272.5186250d) Dec: -27 52 1.40 (-27.86706d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=16			216 Secs (216 Secs) [==>]	[1]
	2		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) [==>]	[1]
	3		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 3.95,0.1		216 Secs (216 Secs) [==>]	[1]
	4		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.7 9		216 Secs (216 Secs) [==>]	[1]
	5		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	6		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=16	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	7		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2. 8		216 Secs (216 Secs) [==>]	[1]
	8		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.95,0		216 Secs (216 Secs) [==>]	[1]
	9		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.68,-2. 79		216 Secs (216 Secs) [==>]	[1]



Proposal 16200 - Visit 55 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

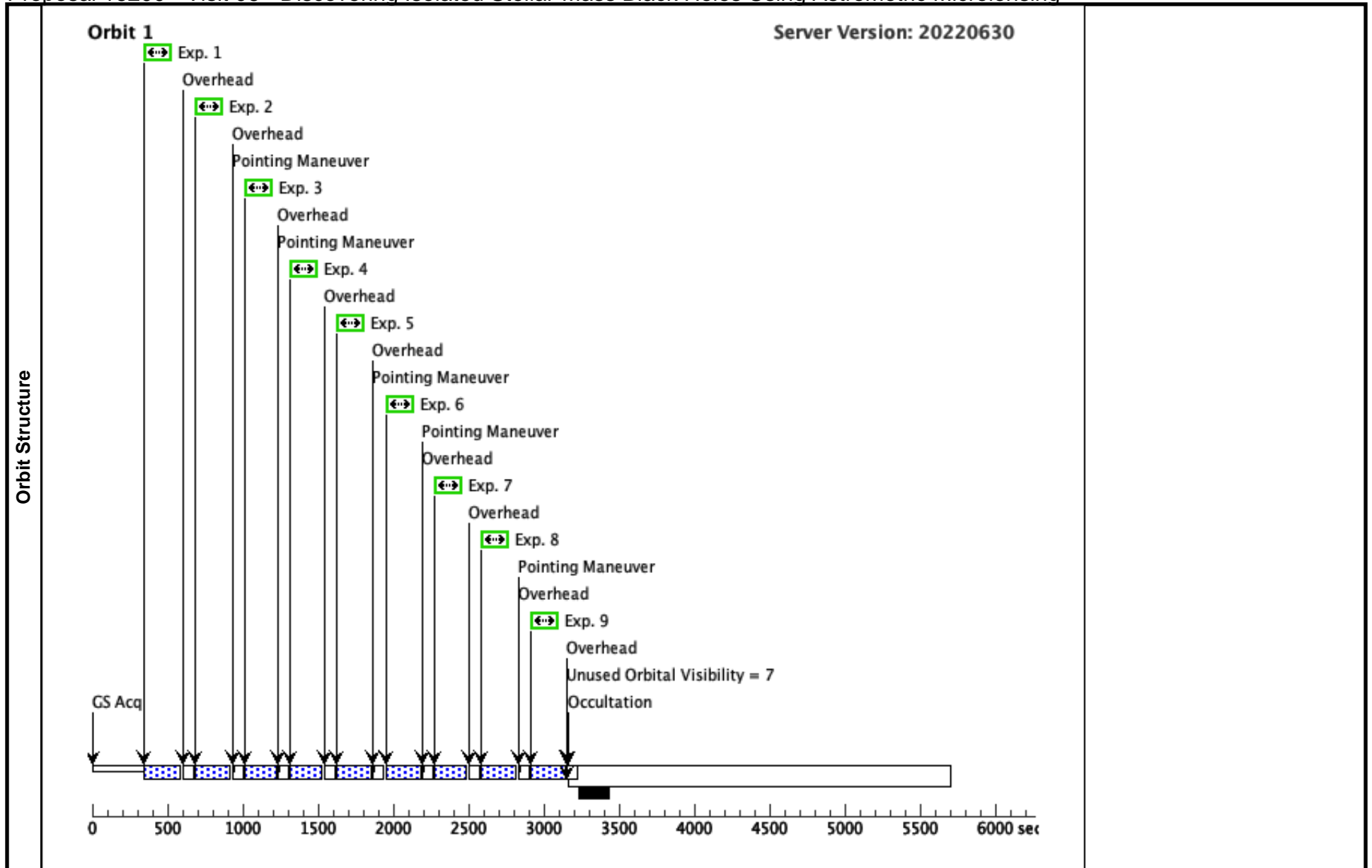
Visit	<b>Proposal 16200, Visit 55, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(7)	OGLE-2019-BLG-1080	RA: 18 10 4.4700 (272.5186250d) Dec: -27 52 1.40 (-27.86706d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=16			216 Secs (216 Secs) [==>]	[1]
	2		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) [==>]	[1]
	3		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 3.95,0.1		216 Secs (216 Secs) [==>]	[1]
	4		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.7 9		216 Secs (216 Secs) [==>]	[1]
	5		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	6		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=16	POS TARG 0,3.95		216 Secs (216 Secs) [==>]	[1]
	7		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2. 8		216 Secs (216 Secs) [==>]	[1]
	8		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.95,0		216 Secs (216 Secs) [==>]	[1]
	9		(7) OGLE-2019-BL G-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.68,-2. 79		216 Secs (216 Secs) [==>]	[1]



Proposal 16200 - Visit 06 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

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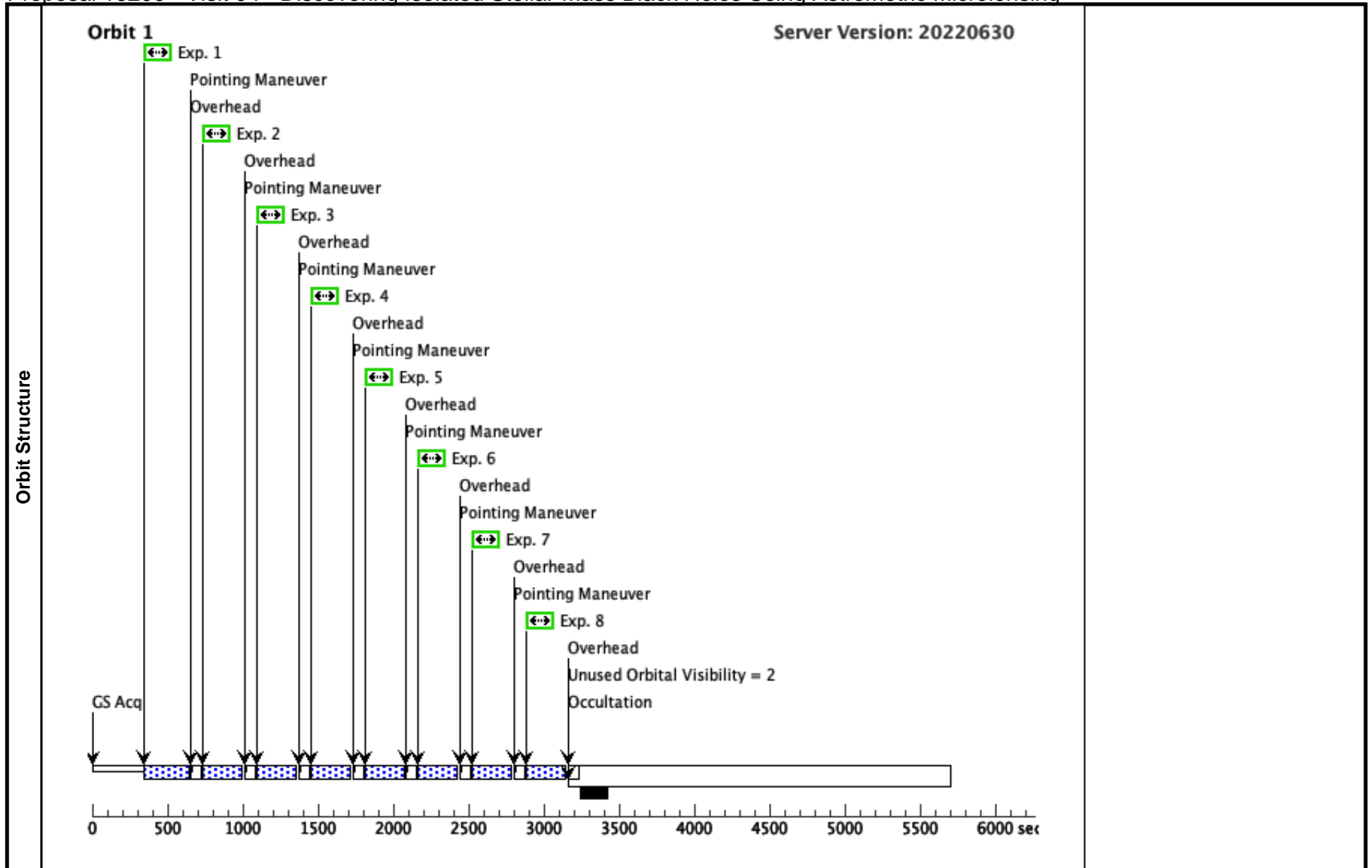
Fixed Targets	Visit									
	Proposal 16200, Visit 06 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 272.52D TO 272.52 D; BETWEEN 20-APR-2023 AND 10-MAY-2023									
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
(7)	OGLE-2019-BLG-1080	RA: 18 10 4.4700 (272.5186250d) Dec: -27 52 1.40 (-27.86706d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS					
<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12			212 Secs (212 Secs) [==>]	[1]
	2		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12			212 Secs (212 Secs) [==>]	[1]
	3		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 3.95,0.1		212 Secs (212 Secs) [==>]	[1]
	4		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 1.21,3.7 6		212 Secs (212 Secs) [==>]	[1]
	5		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	SAME POS AS 4		212 Secs (212 Secs) [==>]	[1]
	6		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.2,2.3 1		212 Secs (212 Secs) [==>]	[1]
	7		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.18,-2. 34		212 Secs (212 Secs) [==>]	[1]
	8		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	SAME POS AS 7		212 Secs (212 Secs) [==>]	[1]
	9		(7) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 1.25,-3. 75		212 Secs (212 Secs) [==>]	[1]



# Proposal 16200 - Visit 04 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

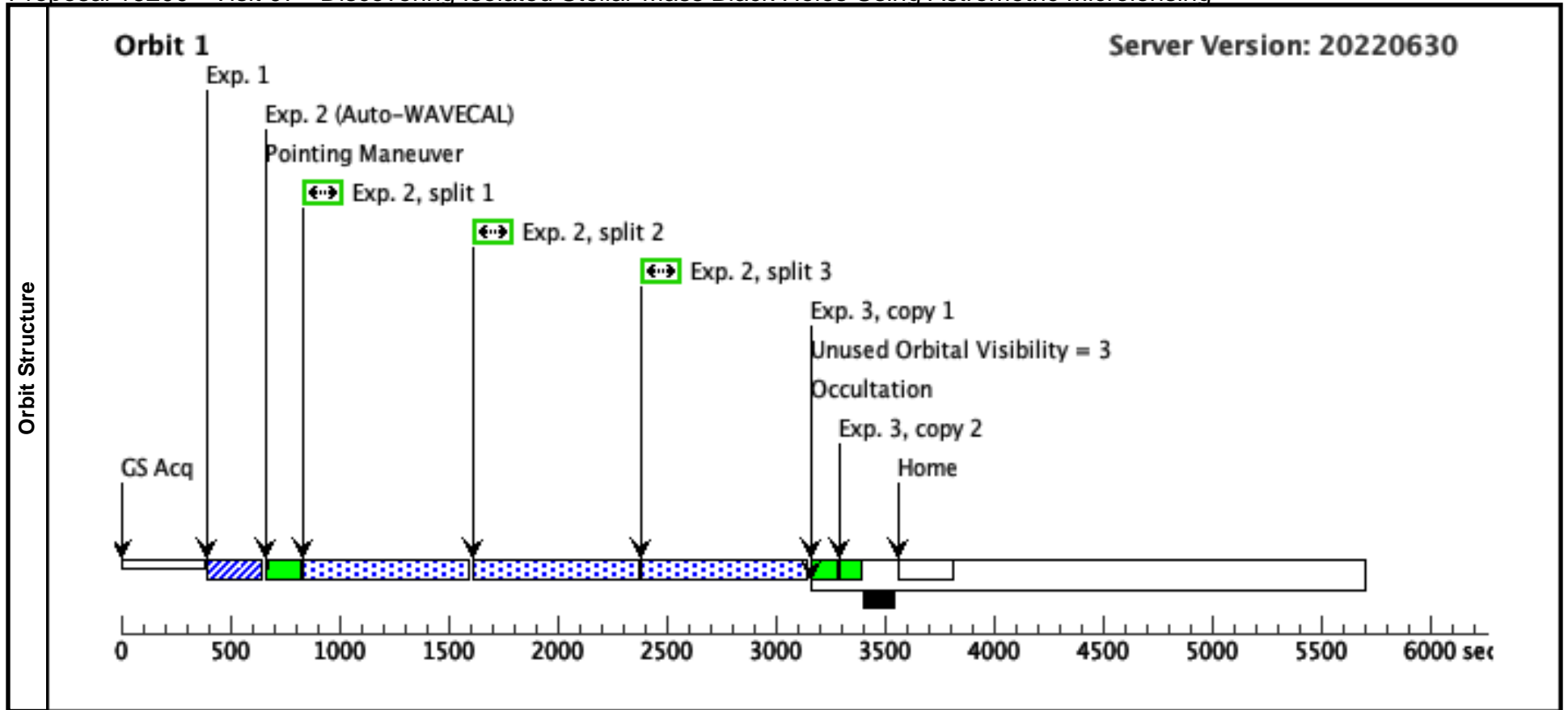
Visit	<b>Proposal 16200, Visit 04, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)																																																																																																			
Diagnostics	(Exposure 1 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 2 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 3 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 4 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 5 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 6 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 7 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 8 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser																																																																																																			
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(6)</td> <td>OGLE-2019-BLG-1000</td> <td>RA: 17 47 1.6700 (266.7569583d) Dec: -26 30 15.90 (-26.50442d) Equinox: J2000</td> <td></td> <td>V=19.66+/-2</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments:</i>                      Category=EXT-STAR                      Description=[A0-A3 III-I]</p>										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(6)	OGLE-2019-BLG-1000	RA: 17 47 1.6700 (266.7569583d) Dec: -26 30 15.90 (-26.50442d) Equinox: J2000		V=19.66+/-2	Reference Frame: ICRS																																																																														
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Exposures	<table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td></td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG 3.95,0</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>3</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG 2.46,3.0 9</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>4</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG -0.89,3. 85</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>5</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG -3.57,1. 7</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>6</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG -3.55,-1. 73</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>7</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG -0.86,-3. 86</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>8</td> <td>(6) OGLE-2019-BL G-1000</td> <td>(6) OGLE-2019-BL G-1000</td> <td>WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB</td> <td>F814W</td> <td>CR-SPLIT=NO; FLASH=8</td> <td>POS TARG 2.49,-3. 07</td> <td></td> <td>266 Secs (266 Secs) [==&gt;]</td> <td>[1]</td> </tr> </tbody> </table>										#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	1	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8			266 Secs (266 Secs) [==>]	[1]	2	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 3.95,0		266 Secs (266 Secs) [==>]	[1]	3	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 2.46,3.0 9		266 Secs (266 Secs) [==>]	[1]	4	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -0.89,3. 85		266 Secs (266 Secs) [==>]	[1]	5	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -3.57,1. 7		266 Secs (266 Secs) [==>]	[1]	6	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -3.55,-1. 73		266 Secs (266 Secs) [==>]	[1]	7	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -0.86,-3. 86		266 Secs (266 Secs) [==>]	[1]	8	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 2.49,-3. 07		266 Secs (266 Secs) [==>]	[1]
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit																																																																																											
1	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8			266 Secs (266 Secs) [==>]	[1]																																																																																											
2	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 3.95,0		266 Secs (266 Secs) [==>]	[1]																																																																																											
3	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 2.46,3.0 9		266 Secs (266 Secs) [==>]	[1]																																																																																											
4	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -0.89,3. 85		266 Secs (266 Secs) [==>]	[1]																																																																																											
5	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -3.57,1. 7		266 Secs (266 Secs) [==>]	[1]																																																																																											
6	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -3.55,-1. 73		266 Secs (266 Secs) [==>]	[1]																																																																																											
7	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -0.86,-3. 86		266 Secs (266 Secs) [==>]	[1]																																																																																											
8	(6) OGLE-2019-BL G-1000	(6) OGLE-2019-BL G-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 2.49,-3. 07		266 Secs (266 Secs) [==>]	[1]																																																																																											



Proposal 16200 - Visit 07 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

Visit	Proposal 16200, Visit 07, completed Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
Fixed Targets	(5)	OGLE-2017-BLG-328	RA: 17 54 9.5620 (268.5398417d) Dec: -28 44 52.61 (-28.74795d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Fixed Targets	(10)	OGLE-2017-BLG-328-OFFSET	RA: 17 54 9.5150 (268.5396458d) Dec: -28 44 53.65 (-28.74824d) Equinox: J2000		V=15+/-1	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[K V-IV]									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1452791)	(10) OGLE-2017-BL G-328-OFFSET	STIS/CCD, ACQ, 50CCD	MIRROR				2.5 Secs (2.5 Secs)	
	[==>]									[1]
	2		(5) OGLE-2017-BL G-328	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A	CR-SPLIT=3			2190 Secs (2190 Secs)	
[==>(Split 1)]									[1]	
[==>(Split 2)]										
[==>(Split 3)]										
3		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)]	[1]	
[==>(Copy 2)]										

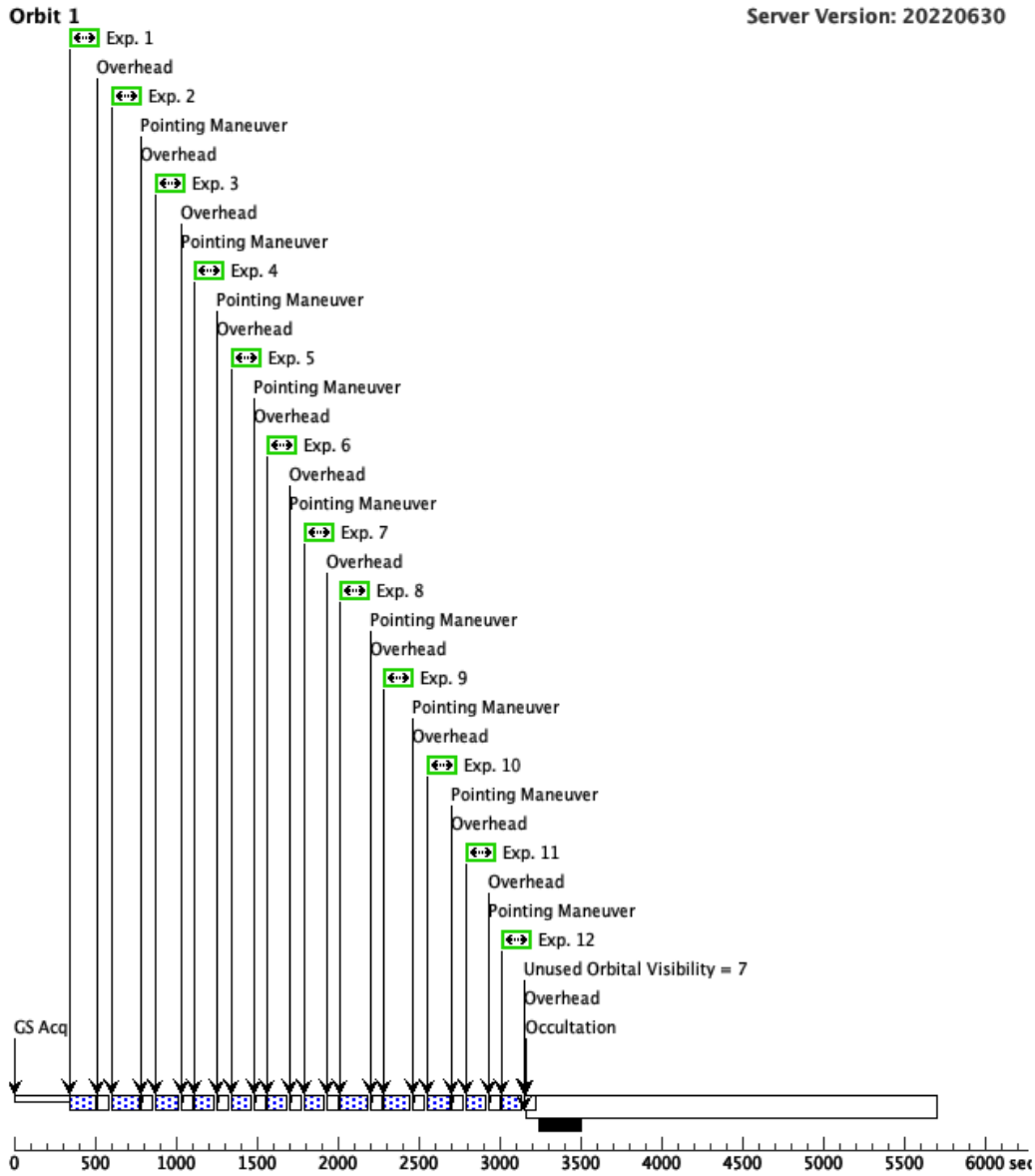


Proposal 16200 - Visit 03 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

Visit	<b>Proposal 16200, Visit 03, failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 267.38D TO 267.38 D; BEFORE 31-MAY-2021									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	OGLE-2017-BLG-328	RA: 17 54 9.5620 (268.5398417d) Dec: -28 44 52.61 (-28.74795d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		125 Secs (125 Secs) [==>]	[1]
	2		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=16	SAME POS AS 1		165 Secs (165 Secs) [==>]	[1]
	3		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 0.1,0.1		125 Secs (125 Secs) [==>]	[1]
	4		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 2.79,2.79		125 Secs (125 Secs) [==>]	[1]
	5		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 2.69,2.69		125 Secs (125 Secs) [==>]	[1]
	6		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG -2.79,2.59		125 Secs (125 Secs) [==>]	[1]
	7		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG -2.69,2.49		125 Secs (125 Secs) [==>]	[1]
	8		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=16	POS TARG -2.69,2.49		165 Secs (165 Secs) [==>]	[1]
	9		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=16	POS TARG -2.59,-2.79		165 Secs (165 Secs) [==>]	[1]
	10		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG -2.49,-2.69		125 Secs (125 Secs) [==>]	[1]
	11		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 2.59,-2.59		125 Secs (125 Secs) [==>]	[1]
	12		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=18	POS TARG 2.49,-2.49		125 Secs (125 Secs) [==>]	[1]

Orbit Structure



Proposal 16200 - Visit 53 - Discovering Isolated Stellar-Mass Black Holes Using Astrometric Microlensing

Wed Jan 25 12:00:27 GMT 2023

Visit	<b>Proposal 16200, Visit 53, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	OGLE-2017-BLG-328	RA: 17 54 9.5620 (268.5398417d) Dec: -28 44 52.61 (-28.74795d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[A0-A3 III-I]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		125 Secs (125 Secs) [==>]	[1]
	2		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=17	SAME POS AS 1		165 Secs (165 Secs) [==>]	[1]
	3		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 0.1,0.1		125 Secs (125 Secs) [==>]	[1]
	4		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 2.79,2.79		125 Secs (125 Secs) [==>]	[1]
	5		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 2.69,2.69		125 Secs (125 Secs) [==>]	[1]
	6		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG -2.79,2.59		125 Secs (125 Secs) [==>]	[1]
	7		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG -2.69,2.49		125 Secs (125 Secs) [==>]	[1]
	8		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=17	POS TARG -2.69,2.49		165 Secs (165 Secs) [==>]	[1]
	9		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=17	POS TARG -2.59,-2.79		165 Secs (165 Secs) [==>]	[1]
	10		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG -2.49,-2.69		125 Secs (125 Secs) [==>]	[1]
	11		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 2.59,-2.59		125 Secs (125 Secs) [==>]	[1]
	12		(5) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=17	POS TARG 2.49,-2.49		125 Secs (125 Secs) [==>]	[1]

Server Version: 20220630

Orbit Structure

