15960 - Detecting Isolated Black Holes through Astrometric Microlensing

Cycle: 27, Proposal Category: GO

(Availability Mode: SUPPORTED)

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?*
01	(3) OGLE-2019-BLG-1000	WFC3/UVIS	1	22-Jul-2020 07:00:24.0	yes
02	(5) OGLE-2019-BLG-1080	WFC3/UVIS	1	22-Jul-2020 07:00:26.0	yes
04	(1) OGLE-2017-BLG-328	WFC3/UVIS	1	22-Jul-2020 07:00:27.0	yes
54	(1) OGLE-2017-BLG-328	WFC3/UVIS	1	22-Jul-2020 07:00:29.0	yes
55	(1) OGLE-2017-BLG-328	WFC3/UVIS	1	22-Jul-2020 07:00:30.0	yes
03	(2) OGLE-2017-BLG-0302	WFC3/UVIS	1	22-Jul-2020 07:00:32.0	yes

6 Total Orbits Used

ABSTRACT

A significant fraction of the mass of an old stellar population should be in the form of isolated black holes (BHs). Yet there has never been an unambiguous detection of a solitary BH. The only technique available to detect isolated BHs is astrometric microlensing--relativistic deflection of light from background stars.

We have carried out 2 HST programs aimed at the first detection of isolated BHs through astrometric microlensing. Our first program was a multi-year program where we monitored 5 microlensing events with T>100 days in the Galactic bulge. We detected astometric deflections, but the inferered masses for all these events are <0.5 Msun, indicating that these lenses are low-mass stars with small relative proper motions. Our second program was a large multi-cycle program where we monitored ~3 million stars in the Galactic bulge for 3 years to simultaneously detect microlensing events and deterimne their astrometric shifts. We have detected a large number of microlensing events. However, once again, none of them show appreciable astrometric deflections indicative of massive BHs.

Our results imply that either isolated BHs are more massive (>10 Msun), or T~100 day events are dominated by low-mass stars moving more slowly, or BHs are much rarer. BHs with mass > 10 Msun are expected to have T>300 days, and such very-long duration events are extremely unlikely to be caused by low-mass stars. Monitoring a few T>300-day events thus offers the last but most promising opportunity to detect isolated BHs, and distinguish between the above possibilities. After the recent upgrades, OGLE detects six T>300 days events each year, here we propose to monitor 4 such events.

OBSERVING DESCRIPTION

We will employ the same observational strategy we have followed earlier. Basically, we will image each field using WFC3, primarily with the F814W filter, but also with F606W. We will employ a 6-point dithering pattern, where we will observe the target star and the reference stars at a variety of pixel phases, thereby allowing us to construct an exquisite model of the PSF, and also randomize any remaining (small) systematic errors related to pixelization. Our dithers will also involve offsets of ~100 pixels, so that we will observe the target star at different places on the detector, so that any remaining distortion errors will average out. We expect such errors to be small (< 0.01 pixel), but randomizing them will be worthwhile. The procedure described here does not require the observations at different epochs to be taken in the same ORIENT, which makes the scheduling easier.

In a rich stellar field such as the Galactic bulge, there is always a large number of reference stars available in an WFC3 field, making it possible to achieve the highest possible astrometric accuracy. We will also image the field in the F606W and F814W filters. If there is blending, then the centroid shift is expected to be color dependent; V -band observations will provide additional help in evaluating the possible color-dependent blending contribution. The combined V and I-band observations will require one orbit per target at each epoch. We will observe at 5 different epochs which will be adequate to separate the proper motions from the deflections caused by lensing. For each event, we will obtain 2 observations in cycle 25, 2 observations in cycle 26, and 1 observation in cycle 27.

These observations need to be considered as ToO since the targets will be chosen after we find suitable candidates from OGLE alerts.

Visit

Proposal 15960, Visit 01, completed Wed Jul 22 11:00:32 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 86D TO 98 D; BETWEEN 20-OCT-2019 AND 30-NOV-2019

Diagnostics

(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

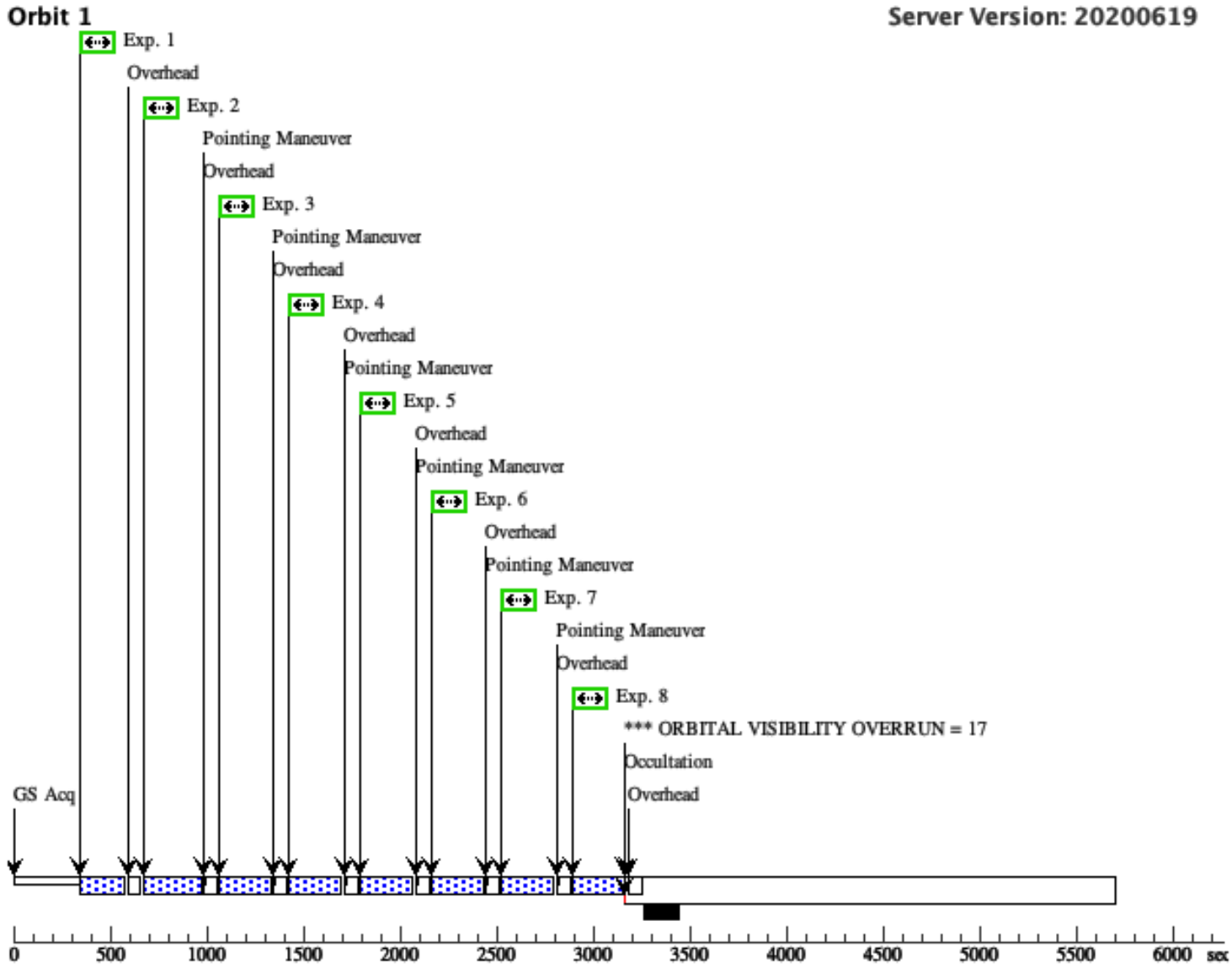
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	OGLE-2019-BLG-1000	RA: 17 47 1.6700 (266.7569583d) Dec: -26 30 15.90 (-26.50442d) Equinox: J2000		V=19.66+/-2	Reference Frame: ICRS

Comments:
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		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=7			200 Secs (200 Secs) *[==>]*	 ***[1]***
2		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8			275 Secs (275 Secs) *[==>]*	 ***[1]***
3		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 3.95,0.1		275 Secs (275 Secs) *[==>]*	 ***[1]***
4		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 2.79,2.79		275 Secs (275 Secs) *[==>]*	 ***[1]***
5		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG 0,3.95		275 Secs (275 Secs) *[==>]*	 ***[1]***
6		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -2.79,2.8		275 Secs (275 Secs) *[==>]*	 ***[1]***
7		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -3.95,0		275 Secs (275 Secs) *[==>]*	 ***[1]***
8		(3) OGLE-2019-BLG-1000	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=8	POS TARG -2.68,-2.79		275 Secs (275 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 15960, Visit 02, completed Wed Jul 22 11:00:32 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 04-APR-2020 AND 12-APR-2020

Diagnostics

(Exposure 1 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 2 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 3 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 4 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 5 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 6 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 7 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 8 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 9 (Visit 02)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Fixed Targets

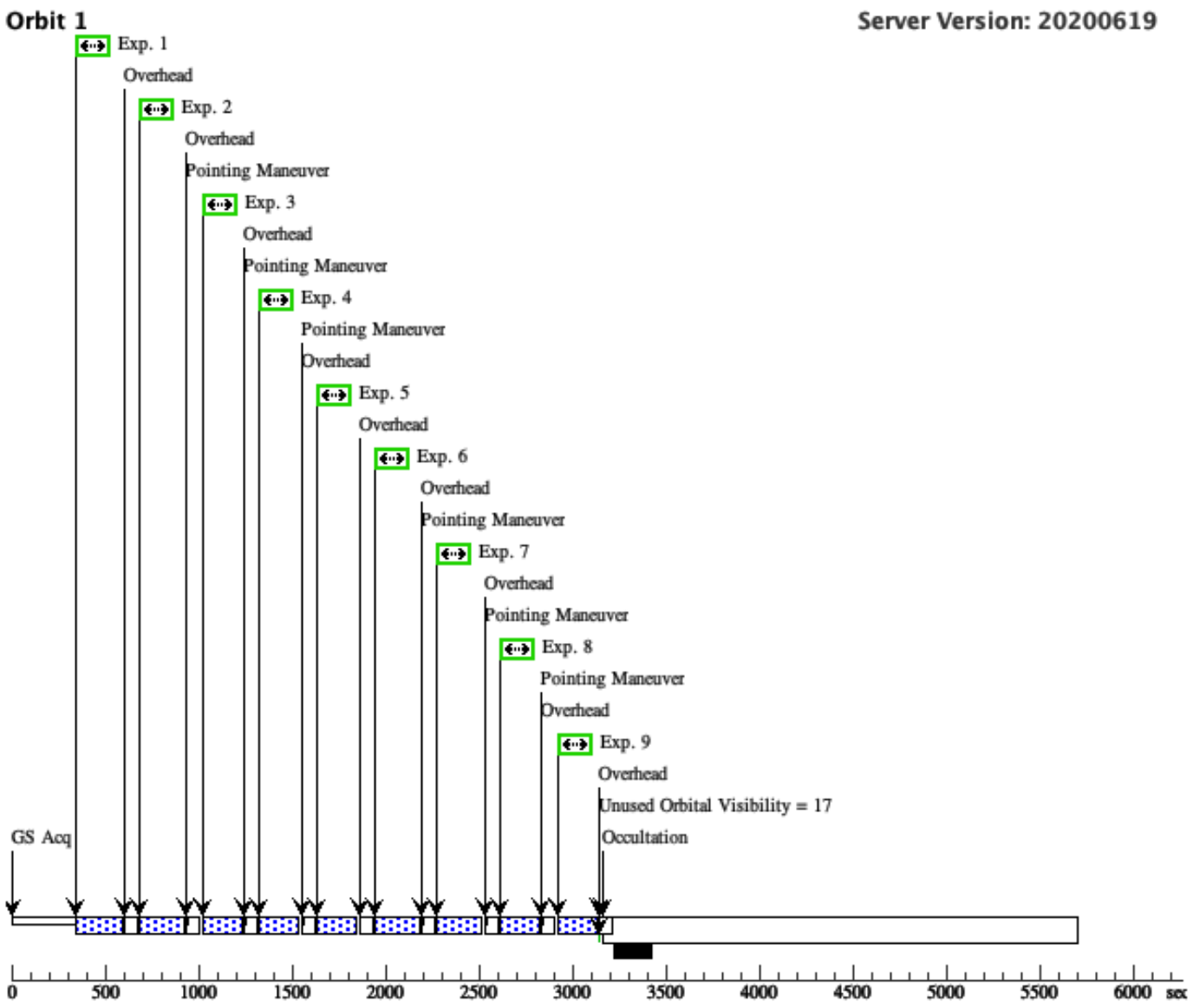
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	OGLE-2019-BLG-1080	RA: 18 10 4.4700 (272.5186250d) Dec: -27 52 1.40 (-27.86706d) Equinox: J2000		V=19.25+/-2	Reference Frame: ICRS

Comments:
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-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) *[==>]*	 ***[1]***
2		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12			216 Secs (216 Secs) *[==>]*	 ***[1]***
3		(5) OGLE-2019-BLG-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		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.79		216 Secs (216 Secs) *[==>]*	 ***[1]***
5		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) *[==>]*	 ***[1]***
6		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0,3.95		216 Secs (216 Secs) *[==>]*	 ***[1]***
7		(5) OGLE-2019-BLG-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		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -3.95,0		216 Secs (216 Secs) *[==>]*	 ***[1]***
9		(5) OGLE-2019-BLG-1080	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO; FLASH=12	POS TARG -2.68,-2.79		216 Secs (216 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 15960, Visit 04, failed Wed Jul 22 11:00:32 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 267.38D TO 267.38 D; BETWEEN 31-JAN-2020 AND 19-FEB-2020; VISIBILITY INTERVAL 51.7 M

Diagnostics

(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Exposure 2 (Visit 04)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 8 (Visit 04)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 9 (Visit 04)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Fixed Targets

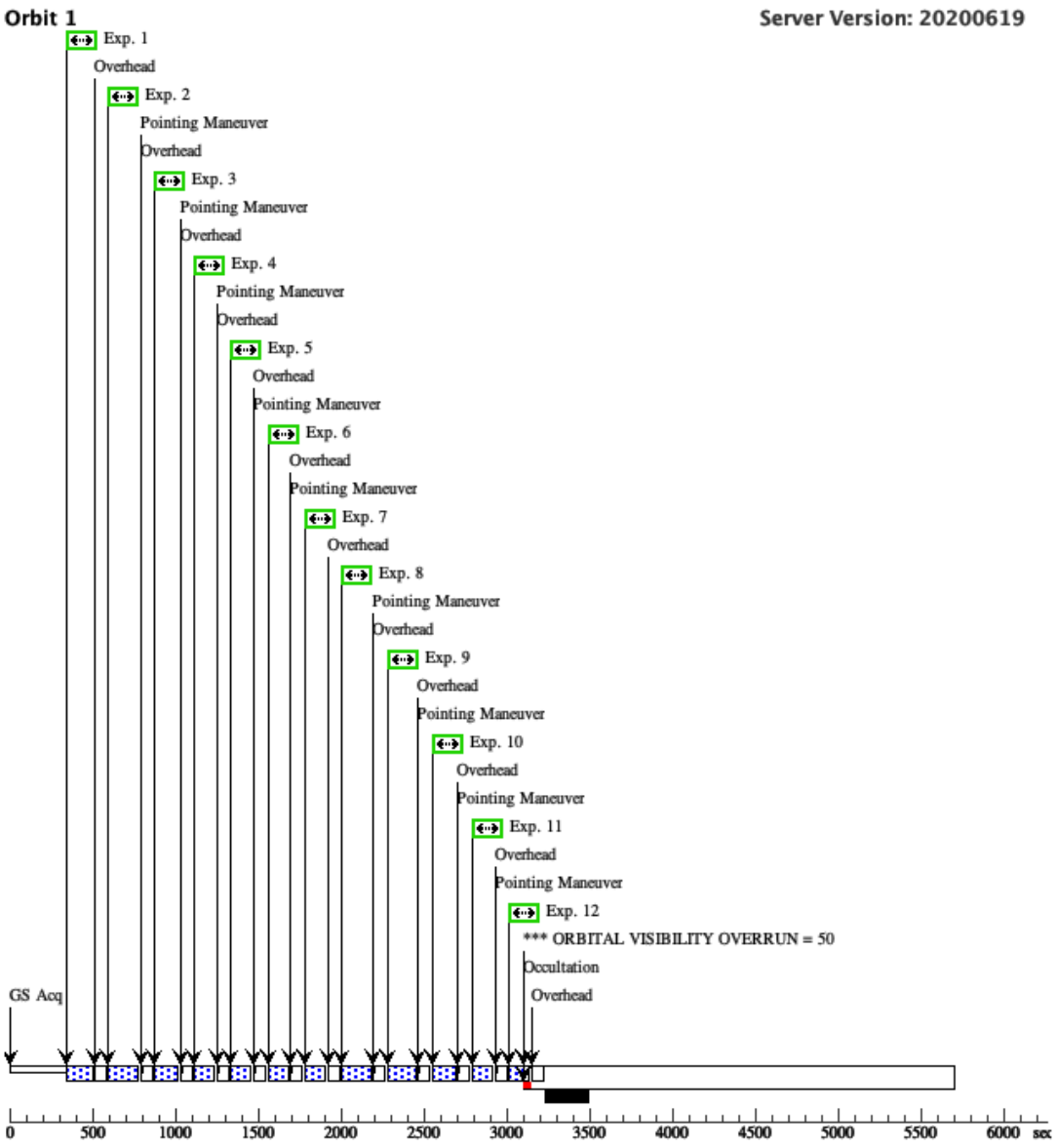
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OGLE-2017-BLG-328	RA: 17 54 9.5600 (268.5398333d) Dec: -28 44 52.60 (-28.74794d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS

Comments:
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		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		125 Secs (125 Secs) *[==>]*	*[1]*
2		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	SAME POS AS 1		173 Secs (173 Secs) *[==>]*	*[1]*
3		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0.1,0.1		125 Secs (125 Secs) *[==>]*	*[1]*
4		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.79		125 Secs (125 Secs) *[==>]*	*[1]*
5		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.69,2.69		125 Secs (125 Secs) *[==>]*	*[1]*
6		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2.59		125 Secs (125 Secs) *[==>]*	*[1]*
7		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		125 Secs (125 Secs) *[==>]*	*[1]*
8		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		173 Secs (173 Secs) *[==>]*	*[1]*
9		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.59,-2.79		173 Secs (173 Secs) *[==>]*	*[1]*
10		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.49,-2.69		125 Secs (125 Secs) *[==>]*	*[1]*
11		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.59,-2.59		125 Secs (125 Secs) *[==>]*	*[1]*
12		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.49,-2.49		125 Secs (125 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 15960, Visit 54, failed Wed Jul 22 11:00:33 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 267.38D TO 267.38 D; BEFORE 09-MAR-2020:00:00:00

Diagnostics

(Exposure 2 (Visit 54)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 8 (Visit 54)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 9 (Visit 54)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Fixed Targets

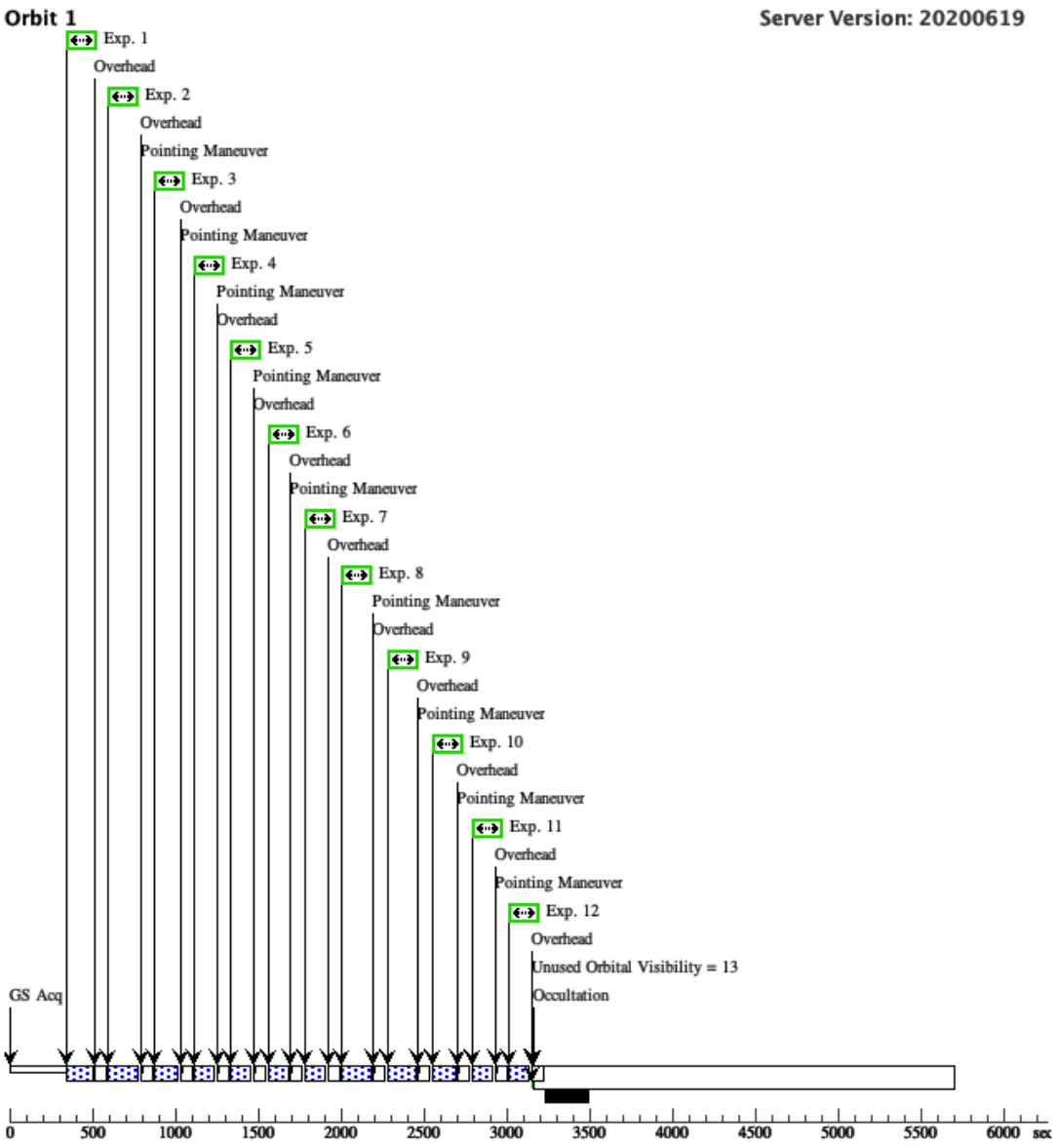
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OGLE-2017-BLG-328	RA: 17 54 9.5600 (268.5398333d) Dec: -28 44 52.60 (-28.74794d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS

Comments:
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		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		125 Secs (125 Secs) *[==>]*	*[1]*
2		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	SAME POS AS 1		173 Secs (173 Secs) *[==>]*	*[1]*
3		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0.1,0.1		125 Secs (125 Secs) *[==>]*	*[1]*
4		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.79		125 Secs (125 Secs) *[==>]*	*[1]*
5		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.69,2.69		125 Secs (125 Secs) *[==>]*	*[1]*
6		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2.59		125 Secs (125 Secs) *[==>]*	*[1]*
7		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		125 Secs (125 Secs) *[==>]*	*[1]*
8		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		173 Secs (173 Secs) *[==>]*	*[1]*
9		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.59,-2.79		173 Secs (173 Secs) *[==>]*	*[1]*
10		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.49,-2.69		125 Secs (125 Secs) *[==>]*	*[1]*
11		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.59,-2.59		125 Secs (125 Secs) *[==>]*	*[1]*
12		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.49,-2.49		125 Secs (125 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 15960, Visit 55, completed Wed Jul 22 11:00:33 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 267.38D TO 267.38 D

Diagnostics

(Exposure 2 (Visit 55)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 8 (Visit 55)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(Exposure 9 (Visit 55)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Fixed Targets

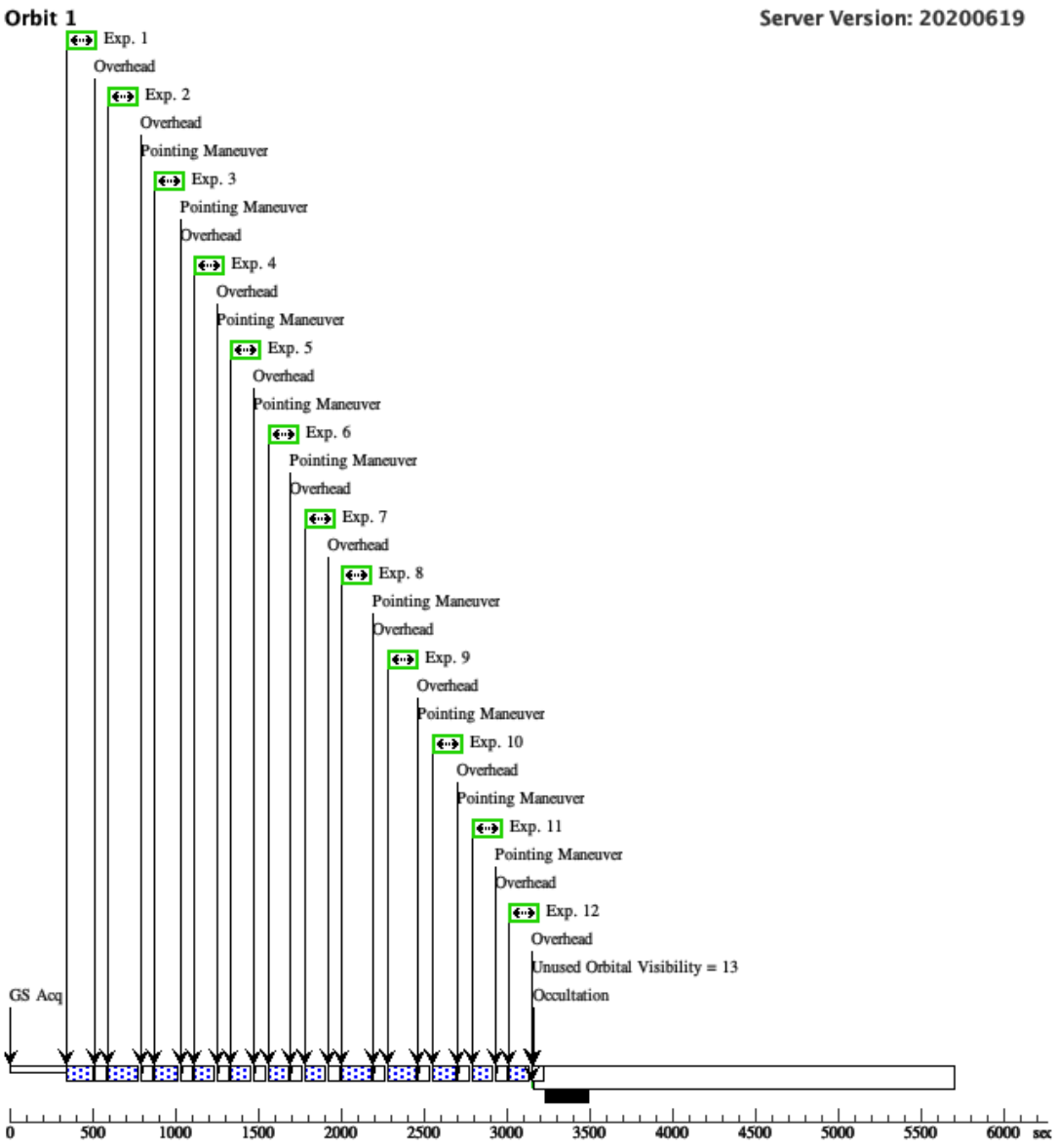
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OGLE-2017-BLG-328	RA: 17 54 9.5600 (268.5398333d) Dec: -28 44 52.60 (-28.74794d) Equinox: J2000		V=19+/-2	Reference Frame: ICRS

Comments:
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		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		125 Secs (125 Secs) *[==>]*	*[1]*
2		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	SAME POS AS 1		173 Secs (173 Secs) *[==>]*	*[1]*
3		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 0.1,0.1		125 Secs (125 Secs) *[==>]*	*[1]*
4		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.79,2.79		125 Secs (125 Secs) *[==>]*	*[1]*
5		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.69,2.69		125 Secs (125 Secs) *[==>]*	*[1]*
6		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.79,2.59		125 Secs (125 Secs) *[==>]*	*[1]*
7		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		125 Secs (125 Secs) *[==>]*	*[1]*
8		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.69,2.49		173 Secs (173 Secs) *[==>]*	*[1]*
9		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	CR-SPLIT=NO; FLASH=12	POS TARG -2.59,-2.79		173 Secs (173 Secs) *[==>]*	*[1]*
10		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG -2.49,-2.69		125 Secs (125 Secs) *[==>]*	*[1]*
11		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.59,-2.59		125 Secs (125 Secs) *[==>]*	*[1]*
12		(1) OGLE-2017-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=12	POS TARG 2.49,-2.49		125 Secs (125 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 15960, Visit 03 Wed Jul 22 11:00:33 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 93.052D TO 93.052 D; BETWEEN 01-AUG-2020 AND 31-AUG-2020

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	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

Comments:
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		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		320 Secs (320 Secs) *[==>]*	 ***[1]***
2		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG 3.95,0		320 Secs (320 Secs) *[==>]*	 ***[1]***
3		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG 1.97,3.42		320 Secs (320 Secs) *[==>]*	 ***[1]***
4		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG -1.98,3.42		320 Secs (320 Secs) *[==>]*	 ***[1]***
5		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG -3.95,-0.02		320 Secs (320 Secs) *[==>]*	 ***[1]***
6		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG -1.96,-3.43		320 Secs (320 Secs) *[==>]*	 ***[1]***
7		(2) OGLE-2017-BLG-0302	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=7	POS TARG 2.00,-3.41		320 Secs (320 Secs) *[==>]*	 ***[1]***

Orbit Structure