



16244 - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Cycle: 28, Proposal Category: GO

(UV Initiative)

(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	(11) NGC2682-WOCS1003	ACS/SBC	2	27-May-2021 17:00:37.0	yes
02	(1) NGC2682-WOCS3001-WOCS4001	ACS/SBC	2	27-May-2021 17:00:37.0	yes
03	(3) NGC2682-WOCS14020	ACS/SBC	2	27-May-2021 17:00:38.0	yes
04	(4) NGC2682-WOCS12020	ACS/SBC	2	27-May-2021 17:00:39.0	yes
05	(7) NGC2682-WOCS2068	ACS/SBC	2	27-May-2021 17:00:39.0	yes
06	(8) NGC2682-WOCS9005	ACS/SBC	2	27-May-2021 17:00:40.0	yes
07	(9) NGC2682-WOCS6025	ACS/SBC	2	27-May-2021 17:00:41.0	yes
08	(10) NGC2682-WOCS11006	ACS/SBC	2	27-May-2021 17:00:41.0	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>
09	(12) NGC2682-085119+114816	WFC3/UVIS	1	27-May-2021 17:00:42.0	yes
Z5	(7) NGC2682-WOCS2068	ACS/SBC	2	27-May-2021 17:00:42.0	yes

19 Total Orbits Used

ABSTRACT

Mass transfer occurs in binary stars across stellar masses, and has broad implications for astrophysics. Binary evolution with mass transfer leads to gravitational wave sources, SNe Ia's, low mass X-ray binaries, sub-dwarf O/B stars, blue stragglers, and assuredly new objects in the LSST-era.

Mass transfer physics remains uncertain in crucial ways, one being the relative frequency of stable Roche-lobe overflow (RLOF) and unstable common-envelope (CE) evolution. Theory argues that the fork between RLOF and CE depends on binary mass ratio; higher mass ratios go through CE evolution.

Blue stragglers are tracers of the evolution of solar-like binary stars with orbital periods of less than 10,000 days. HST discovery of white dwarf (WD) companions showed that most open cluster blue stragglers form via RLOF onto secondary stars near the main-sequence turnoff mass.

We propose to study blue stragglers with masses below cluster turnoffs, specifically the recently discovered blue lurkers in the 4-Gyr open cluster M67. Formed from binaries with higher mass ratios, these blue lurkers can empirically define the RLOF/CE stability criterion.

We will search for hot WD companions in the blue lurker binaries using ACS/SBC FUV photometry, and determine their formation times from cooling ages. Discovery of WDs would establish that blue lurkers also have predominantly stable RLOF origins. Their larger progenitor mass ratios then provide new guidance for mass-transfer theory, including stability conditions, the frequency of CE evolution, and mass transfer efficiencies. With the cooling age timescales, we will do detailed modeling of RLOF evolution pathways to the blue lurkers.

OBSERVING DESCRIPTION

Hubble Space Telescope ACS/SBC is the only facility capable of providing sensitive multiple-narrow-band FUV photometry for all the M67 blue lurkers, in order to test the hypothesis of blue lurkers being primarily RLOF products like classical blue straggler stars (BSSs), to derive WD temperatures and cooling ages needed to model their evolution, and thereby to advance understanding of mass transfer (MT) physics and binary evolution. In total, we request 14 orbits of ACS/SBC photometry for 8 science targets, 2 orbits for red-leak calibration, and 1 orbit of WFC3

photometry for NUV calibration, for a total request of 17 orbits.

The observations we propose here are nearly identical to those of the successful ACS/SBC program of Gosnell et al. (2014, 2015) that detected WD companions to 7 binary classical BSSs in the open cluster NGC 188. This method is well developed and known to produce high-quality scientific results. Specifically, we propose F140LP, F150LP and F165LP images of the 8 blue lurker binaries. We will difference these results to obtain photometric measurements in the derived FUV bandpasses F140N and F150N (Dieball et al. 2010; Gosnell et al. 2015). These narrow bandpasses avoid the red tails of F140LP and F150LP and thus include no or only very small contributions from main sequence (MS) starlight.

In detail, for each target we propose total integrations of 1800 seconds, 2160 seconds, and 1174 seconds in the F140LP, F150LP, and F165LP filters, respectively, divided over the 2-point ACS-SBC-DITHER-LINE pattern. The relative exposure times are chosen to minimize uncertainties in F140N and F150N and pack the orbits to their maximum efficiency. Including overheads, this suite of integrations fully fills 2 orbits of ACS/SBC FUV imaging.

With essentially the same observing plan, Gosnell et al. (2015) achieved a signal-to-noise > 10 in all three bandpasses for an 11,000 K WD+MS pair in NGC 188. Given that M67 is a factor of 2 closer than NGC 188 (815 pc vs. 1770 pc, with similar, very low extinctions), the integration times proposed here will be able to achieve such signal-to-noise levels in F140N and F150N for a cooler 10,250 K WD+MS pair, extending the detection limit in WD age to 500 Myr. (Not considering confusion in the broad bandpass, the GALEX FUV detection limit only finds WDs with temperatures greater than 12,500 K.)

The detectability of a WD companion also depends on the temperature of the primary star. The V and B-V ranges of the NGC 188 classical blue stragglers and the M67 MS blue lurkers are very similar, given the closer distance and younger age of M67. So the blue lurker flux contributions to F165LP and to the red tails of F140LP and F150LP will be very similar to Gosnell et al. (2015). We note that one of our targets, WOCS 4001, is substantially cooler with a temperature of 5520 K, which may permit detection of a cooler WD.

The red leak is a well-known problem with ACS/SBC measurements of stars with considerable optical flux. The red leak has changed with time (Feldman et al. 2010). Thus Gosnell et al. (2015) developed a red leak correction technique using a serendipitously observed red giant star. As no giants are in any of the fields of view proposed here, we request a separate observation of a red giant (WOCS 1003) using the same exposure times in F140LP, F150LP, and F165LP as for the targets.

Proposal 16244 (STScI Edit Number: 1, Created: Thursday, May 27, 2021 at 4:00:43 PM Eastern Standard Time) - Overview

Targets WOCS 3001 and WOCS 4001 fall in the same field of view and can be observed together in one 2-orbit visit with an orientation angle range of 60-125 degrees. The rest of our targets can be observed in separate visits of 2 orbits each with no angle restrictions.

Achieving our detection limits also requires that we can calibrate the flux contribution of the MS companions in F165LP. Gosnell et al. (2015) did this by normalizing a model stellar spectrum to near-UV (NUV) photometry, where the flux is dominated by the MS companion. For all but one of our candidates we will use existing GALEX NUV (2267A) photometry. For WOCS 4001, our coolest candidate, no NUV photometry is available. The 5500 K flux likely only comes to dominate over a cool WD at wavelengths greater than 2500A. To establish this, we request 1 orbit of photometry with WFC3-F275W for this calibration with a total exposure time of 2482 seconds, divided over a 3-point WFC3-UVIS-GAP-LINE dither pattern. We add a post-flash of 20 e- to reduce CTE losses. One pointing of WFC3 can image WOCS 4001 plus WOCS 9005 at all orientation angles, and WOCS 9005 is also detected in GALEX NUV for yet better flux calibration. Including overheads, these WFC3 observations fully fill 1 orbit.

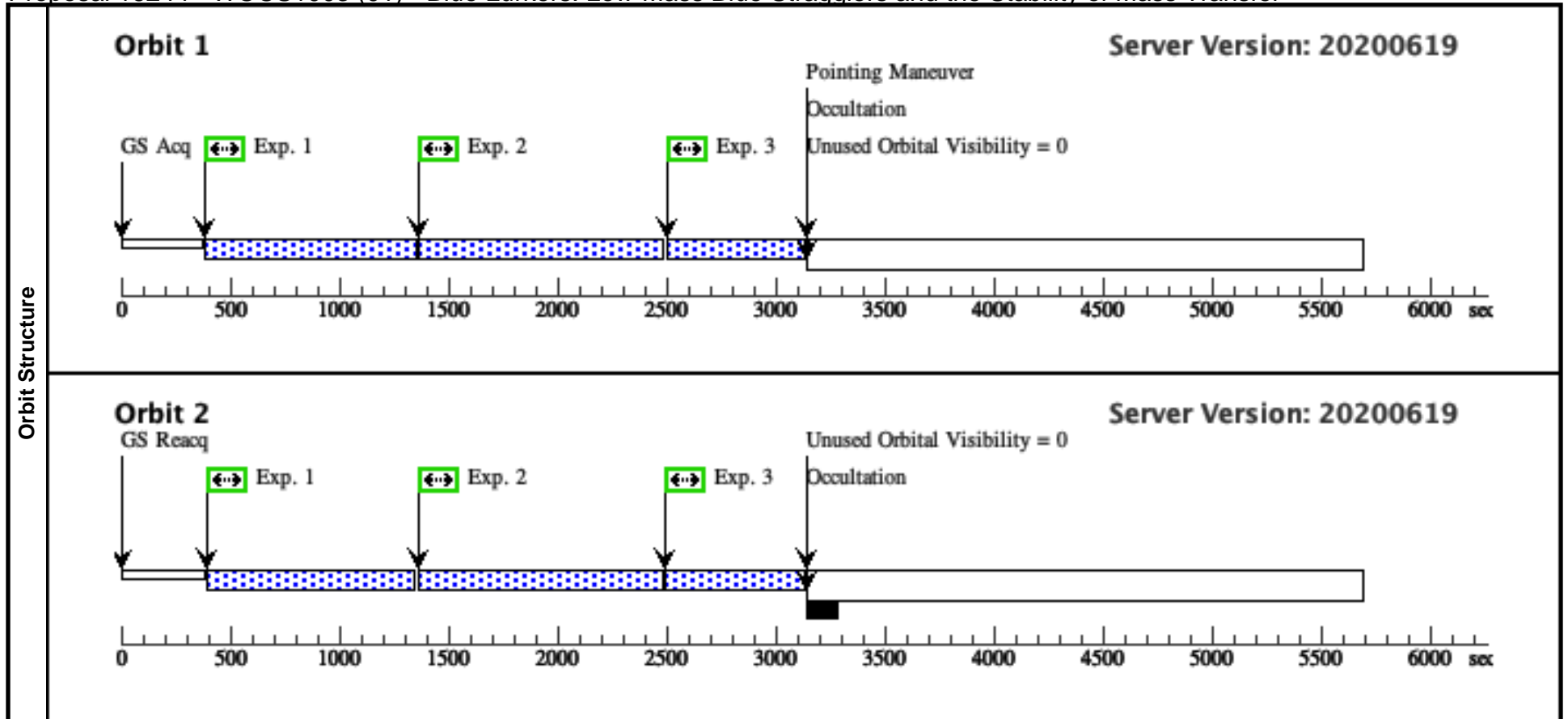
In all, we request 16 orbits of ACS/SBC photometry (14 for our science targets and 2 for red-leak calibration) and 1 orbit of WFC3 photometry.

These proposed observations pose no Bright Object threat to ACS/SBC. The spectral type of all stars that may fall on the detector are known, and that information is provided in the comments for each exposure. Previous GALEX observations indicate the UV fluxes are well within the safe range.

Proposal 16244 - WOCS1003 (01) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

Visit	Proposal 16244, WOCS1003 (01), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)									
Patterns	#	Primary Pattern		Secondary Pattern		Exposures				
	(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false			(1-3)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(11)	NGC2682-WOCS1003 Alt Name1: SAND1010	RA: 08 51 22.8000 (132.8450000d) Dec: +11 48 1.67 (11.80046d) Equinox: J2000	Proper Motion RA: -11.048 mas/yr Proper Motion Dec: -2.927 mas/yr Epoch of Position: 2015.5	V=10.48	Reference Frame: ICRS				
Comments: Category=STAR Description=[K III-I]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WOCS1003-F140LP (1449703)	(11) NGC2682-WOCS1003	ACS/SBC, ACCUM, SBC	F140LP				Pattern 1, Exps 1-3 in WOCS1003 (01) (1) 900 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]
Comments: ETC run calculated using a K5III Kastelli-Curucz spectrum, reddened assuming $E(B-V) = 0.041$, and normalized to $V = 10.48$. This source will be used for red leak calibration, so the ETC warning regarding the effective wavelength of the observation and the signal coming from outside the filter bandpass is not an issue. The GALEX BOT shows detector safety. The only GALEX source in the field is GALEX J085122.7+114801 with a NUV mag of 19.07 and is undetected in FUV, posing no risk to the detector. The GSC2 bot erroneously identifies six sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000748: G0V, N8X7000750: G0V, N8X7000759: G2V, N8X7000761: K5III (this is our red giant target), N8X7007948: K3, N8X7007949: K2. These sources pose no risk to the detector.										
2	WOCS1003-F150LP (1449704)	(11) NGC2682-WOCS1003	ACS/SBC, ACCUM, SBC	F150LP				Pattern 1, Exps 1-3 in WOCS1003 (01) (1) 1080 Secs (2160 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]	
Comments: ETC run calculated using a K5III Kastelli-Curucz spectrum, reddened assuming $E(B-V) = 0.041$, and normalized to $V = 10.48$. This source will be used for red leak calibration, so the ETC warning regarding the effective wavelength of the observation and the signal coming from outside the filter bandpass is not an issue. The GALEX BOT shows detector safety. The only GALEX source in the field is GALEX J085122.7+114801 with a NUV mag of 19.07 and is undetected in FUV, posing no risk to the detector. The GSC2 bot erroneously identifies five sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000748: G0V, N8X7000750: G0V, N8X7000759: G2V, N8X7000761: K5III (this is our red giant target), N8X7007949: K2. These sources pose no risk to the detector.										
3	WOCS1003-F165LP (1449707)	(11) NGC2682-WOCS1003	ACS/SBC, ACCUM, SBC	F165LP				Pattern 1, Exps 1-3 in WOCS1003 (01) (1) 585 Secs (1174 Secs) [==>(Pattern 1)] [==>589.0 Secs (Pattern 2)]	[1] [2]	
Comments: ETC run calculated using a K5III Kastelli-Curucz spectrum, reddened assuming $E(B-V) = 0.041$, and normalized to $V = 10.48$. This source will be used for red leak calibration, so the ETC warning regarding the effective wavelength of the observation and the signal coming from outside the filter bandpass is not an issue. The GALEX BOT shows detector safety. The only GALEX source in the field is GALEX J085122.7+114801 with a NUV mag of 19.07 and is undetected in FUV, posing no risk to the detector. The GSC2 bot erroneously identifies four sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000748: G0V, N8X7000750: G0V, N8X7000759: G2V, N8X7000761: K5III (this is our red giant target). These sources pose no risk to the detector.										

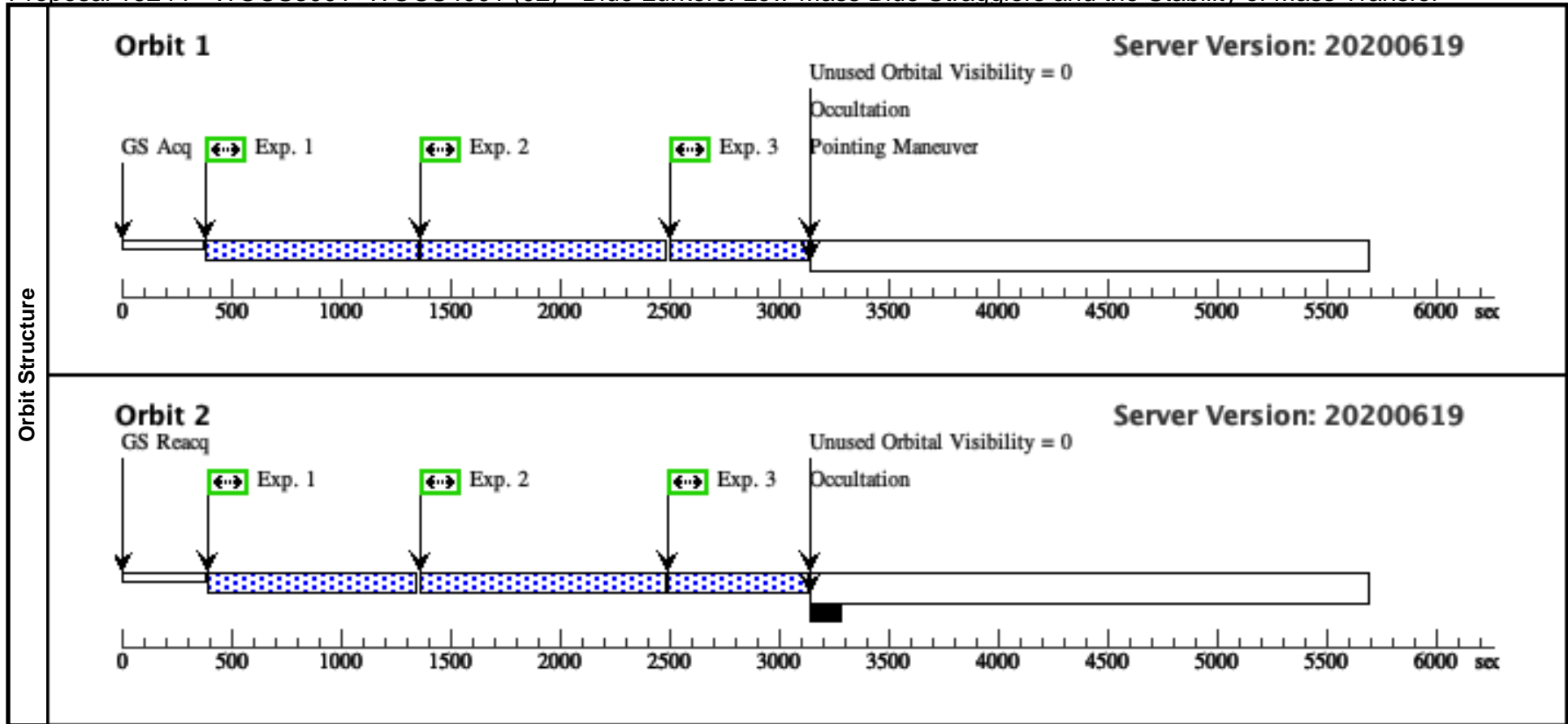


Proposal 16244 - WOCS3001+WOCS4001 (02) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Visit	Proposal 16244, WOCS3001+WOCS4001 (02), completed Thu May 27 21:00:43 GMT 2021 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: ORIENT 60D TO 125 D					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(1)		Pattern Type=ACS-SBC-DITHER- LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false		(1-3)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC2682-WOCS3001- WOCS4001 Alt Name1: SAND1031- SAND1029	RA: 08 51 22.5796 (132.8440817d) Dec: +11 49 5.28 (11.81813d) Equinox: J2000		V=13.26 V for 3001= 13.26; V for 4001= 15.21	Reference Frame: SIMBAD
Comments: This location is selected to include WOCS 3001 (SAND 1031: 8 51 22.96, +11 49 13.1) and WOCS 4001 (SAND 1029: 8 51 21.62, +11 49 02.5) in the field at the orient ranges specified. Category=STAR Description=[BLUE STRAGGLER]						

Proposal 16244 - WOCS3001+WOCS4001 (02) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

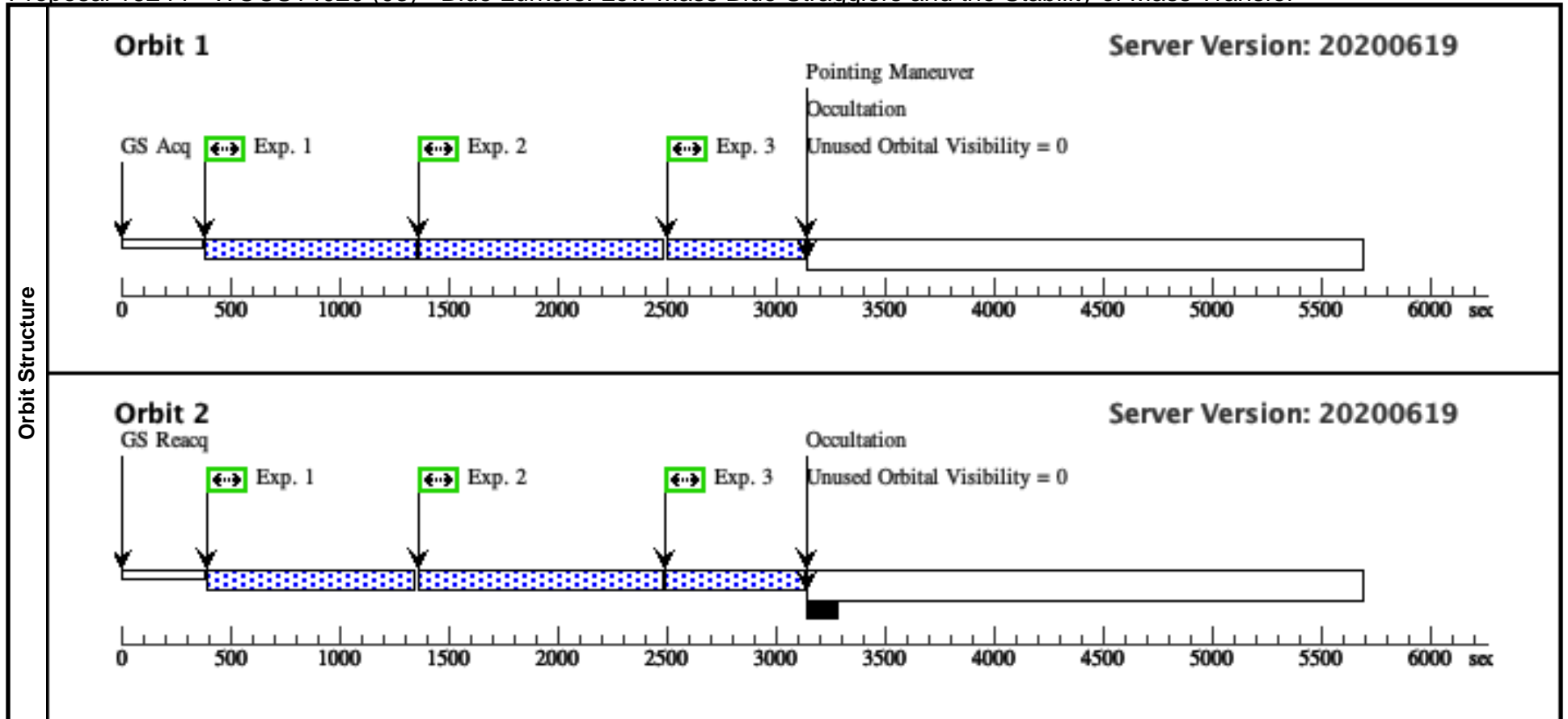
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	WOCS4001 +3001-F140 LP (1450514)	(1) NGC2682-WOC S3001-WOCS4001	ACS/SBC, ACCUM, SBC	F140LP		Pattern 1, Exps 1-3 in WOCS3001+WOCS4001 (02) (1)	900 Secs (1800 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
	<p><i>Comments: The ETC run cited here is for the brightest star in the field of interest, WOCS 3001. A separate ETC calculation for the second star, WOCS 4001, is here: http://etc.stsci.edu/etc/results/ACS.im.1450521/. The combined global count rates for both targets is 191.145 counts/s, well below the SBC screening limit. The synthetic spectrum for WOCS 3001 combines a V=13.26, T=6880 K main sequence star with a 16,000 K WD. The synthetic spectrum for WOCS 4001 combines a V=15.21, T=5520 K main sequence star with a 16,000 K WD. Each spectrum produces a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>Although the GALEX BOT tool did not return any sources, we know that this field includes one GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716998891524) with FUV = 2 1.48, posing no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies four sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000725: F7V (one of our targets), N8X7000731: G8V (one of our targets), N8X7000740: F7IV, and N8X7008004: K3V. These sources pose no risk to the detector.</i></p>									
	2	WOCS4001 +3001-F150 LP (1450516)	(1) NGC2682-WOC S3001-WOCS4001	ACS/SBC, ACCUM, SBC	F150LP		Pattern 1, Exps 1-3 in WOCS3001+WOCS4001 (02) (1)	1080 Secs (2160 Secs)		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
	<p><i>Comments: The ETC run cited here is for the brightest star in the field of interest, WOCS 3001. A separate ETC calculation for the second star, WOCS 4001, is available here: http://etc.stsci.edu/etc/results/ACS.im.1450522/. The combined global count rates for both targets is 59.499 counts/second, well below the SBC screening limit. The synthetic spectrum for WOCS 3001 combines a V=13.26, T=6880 K main sequence star with a 16,000 K WD. The synthetic spectrum for WOCS 4001 combines a V=15.21, T=5520 K main sequence star with a 16,000 K WD. Each spectrum produces a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>Although the GALEX BOT tool did not return any sources, we know that this field includes one GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716998891524) with FUV = 2 1.48, posing no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies three sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000725: F7V (one of our targets), N8X7000731: G8V (one of our targets), and N8X700740: F7IV. These sources pose no risk to the detector.</i></p>									
	3	WOCS4001 +3001-F165 LP (1450517)	(1) NGC2682-WOC S3001-WOCS4001	ACS/SBC, ACCUM, SBC	F165LP		Pattern 1, Exps 1-3 in WOCS3001+WOCS4001 (02) (1)	585 Secs (1174 Secs)		
								[==>(Pattern 1)]	[1]	
[==>589 Secs (Pattern 2)]								[2]		
<p><i>Comments: The ETC run cited here is for the brightest star in the field of interest, WOCS 3001. A separate ETC calculation for the second star, WOCS 4001, is available here: http://etc.stsci.edu/etc/results/ACS.im.1450524/. The combined global count rates for both targets is 31.475 counts/second, well below the SBC screening limit. The synthetic spectrum for WOCS 3001 combines a V=13.26, T=6880 K main sequence star with a 16,000 K WD. The synthetic spectrum for WOCS 4001 combines a V=15.21, T=5520 K main sequence star with a 16,000 K WD. Each spectrum produces a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>Although the GALEX BOT tool did not return any sources, we know that this field includes one GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716998891524) with FUV = 2 1.48, posing no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies two sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000725: F7V (one of our targets) and N8X7000740: F7IV. These sources pose no risk to the detector.</i></p>										



Proposal 16244 - WOCS14020 (03) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

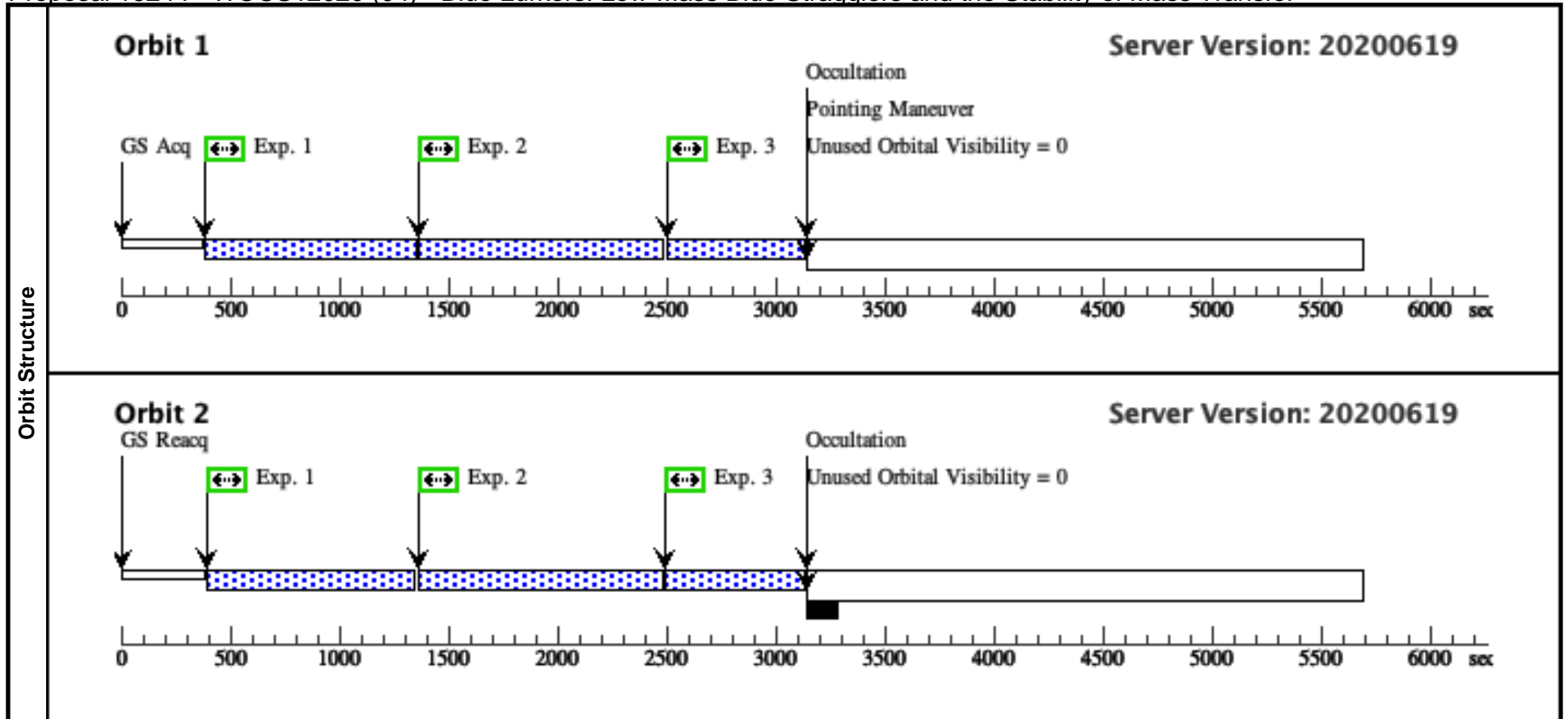
Visit	Proposal 16244, WOCS14020 (03), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(1)	Pattern Type=ACS-SBC-DITHER- LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false		(1-3)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	NGC2682-WOCS14020 Alt Name1: SAND-1452	RA: 08 52 3.5006 (133.0145858d) Dec: +11 47 48.12 (11.79670d) Equinox: J2000	Proper Motion RA: -11.027 mas/yr Proper Motion Dec: -3.76 mas/yr Epoch of Position: 2015.5	V=14.58	Reference Frame: ICRS				
	Comments: Category=STAR Description=[BLUE STRAGGLER]									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WOCS14020-F140LP (1449693)	(3) NGC2682-WOC S14020	ACS/SBC, ACCUM, SBC	F140LP			Pattern 1, Exps 1-3 in WOCS14020 (03) (1)	900 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]
	Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.58, T=5930 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. The GALEX BOT tool returns two safe sources: GALEX J085203.4+114748 with a NUV mag of 19.56 and GALEX J085204.9+114737 with a NUV mag of 21.09. Both sources are undetected in GALEX FUV and pose no risk to the detector. The GSC2 BOT tool erroneously identifies two sources as O5V stars and health risks. The spectral types of these stars are as follows: N8X7000767: G2V, N8X7000769: G1V (this is our target), and pose no risk to the detector.									
2	WOCS14020-F150LP (1449694)	(3) NGC2682-WOC S14020	ACS/SBC, ACCUM, SBC	F150LP			Pattern 1, Exps 1-3 in WOCS14020 (03) (1)	1080 Secs (2160 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]	
	Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.58, T=5930 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. The GALEX BOT tool returns two safe sources: GALEX J085203.4+114748 with a NUV mag of 19.56 and GALEX J085204.9+114737 with a NUV mag of 21.09. Both sources are undetected in GALEX FUV and pose no risk to the detector. The GSC2 BOT tool erroneously identifies two sources as O5V stars and health risks. The spectral types of these stars are as follows: N8X7000767: G2V, N8X7000769: G1V (this is our target), which pose no risk to the detector.									
3	WOCS14020-F165LP (1449695)	(3) NGC2682-WOC S14020	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1, Exps 1-3 in WOCS14020 (03) (1)	585 Secs (1174 Secs) [==>(Pattern 1)] [==>589 Secs (Pattern 2)]	[1] [2]	
	Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.58, T=5930 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. The GALEX BOT tool returns two safe sources: GALEX J085203.4+114748 with a NUV mag of 19.56 and GALEX J085204.9+114737 with a NUV mag of 21.09. Both sources are undetected in GALEX FUV and pose no risk to the detector. The GSC2 BOT tool erroneously identifies one source as a O5V star and health risks. The spectral type of this star (N8X7000767) is G2V, and poses no risk to the detector.									



Proposal 16244 - WOCS12020 (04) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

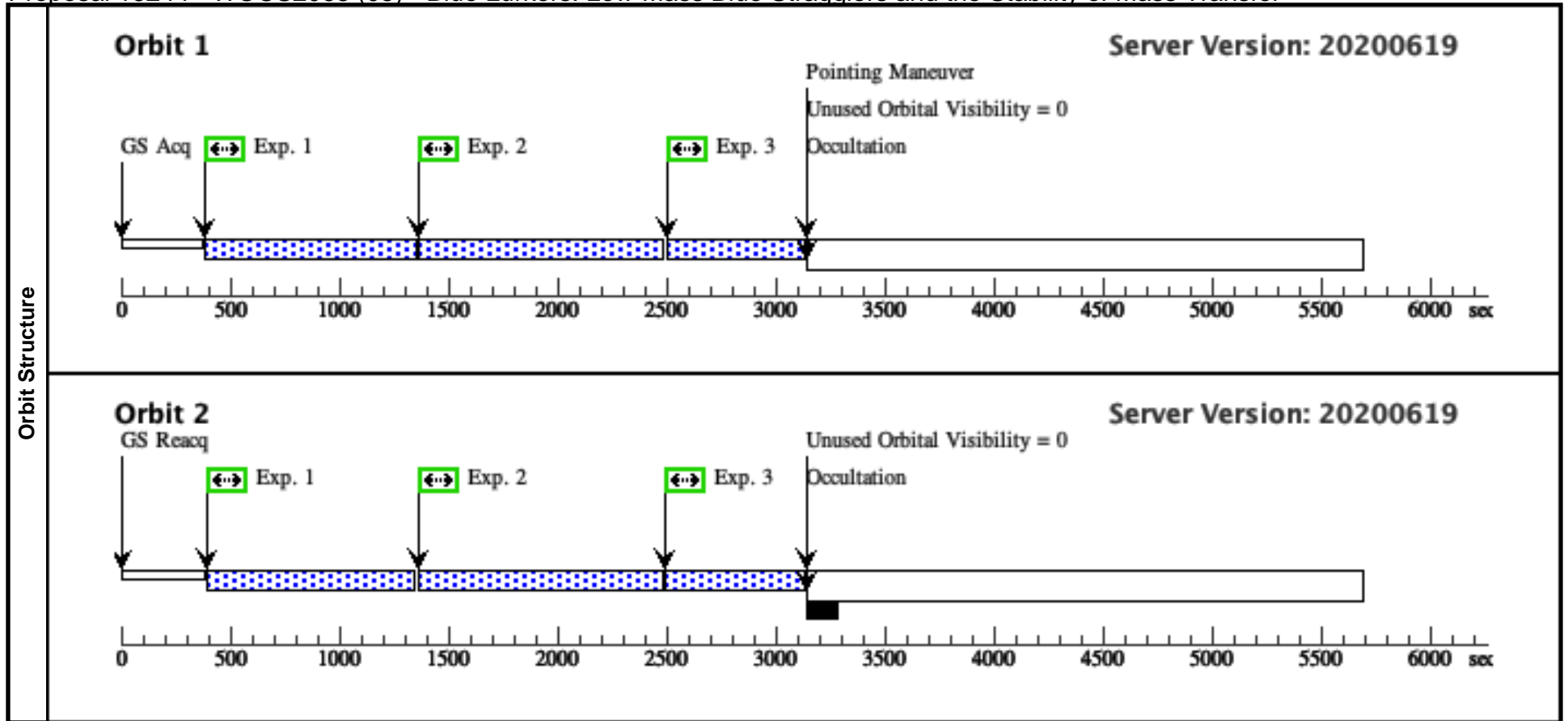
Visit	Proposal 16244, WOCS12020 (04), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false		(1-3)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	NGC2682-WOCS12020 Alt Name1: SAND1102	RA: 08 51 8.8526 (132.7868858d) Dec: +11 57 53.74 (11.96493d) Equinox: J2000	Proper Motion RA: -12.361 mas/yr Proper Motion Dec: -2.518 mas/yr Epoch of Position: 2015.5	V=14.28	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STAR Description=[BLUE STRAGGLER]									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WOCS12020-F140LP (1449686)	(4) NGC2682-WOC S12020	ACS/SBC, ACCUM, SBC	F140LP				Pattern 1, Exps 1-3 in WOCS12020 (04) (1)	900 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.28, T=6250 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3058368695977909553) with NUV = 19.11 and FUV = 23.87, posing no risk to the detector. The GSC2 BOT tool erroneously identifies one source (N8X7000578) as a O5V star and a health risk. This is our target, which has a spectral of G0V, and poses no risk to the detector.									
2	WOCS12020-F150LP (1449687)	(4) NGC2682-WOC S12020	ACS/SBC, ACCUM, SBC	F150LP				Pattern 1, Exps 1-3 in WOCS12020 (04) (1)	1080 Secs (2160 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.28, T=6250 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3058368695977909553) with NUV = 19.11 and FUV = 23.87, posing no risk to the detector. The GSC2 BOT tool erroneously identifies one source (N8X7000578) as a O5V star and a health risk. This is our target, which has a spectral of G0V, and poses no risk to the detector.									
3	WOCS12020-F165LP (1449688)	(4) NGC2682-WOC S12020	ACS/SBC, ACCUM, SBC	F165LP				Pattern 1, Exps 1-3 in WOCS12020 (04) (1)	585 Secs (1174 Secs) [==>(Pattern 1)] [==>589 Secs (Pattern 2)]	[1] [2]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=14.28, T=6250 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3058368695977909553) with NUV = 19.11 and FUV = 23.87, posing no risk to the detector. The GSC2 BOT tool erroneously identifies one source (N8X7000578) as a O5V star and a health risk. This is our target, which has a spectral of G0V, and poses no risk to the detector.									



Proposal 16244 - WOCS2068 (05) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

Visit	Proposal 16244, WOCS2068 (05), failed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)									
Patterns	#	Primary Pattern				Secondary Pattern				Exposures
	(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false						(1-3)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(7)	NGC2682-WOCS2068 Alt Name1: SAND277	RA: 08 49 21.4832 (132.3395133d) Dec: +12 04 22.83 (12.07301d) Equinox: J2000		Proper Motion RA: -7.218 mas/yr Proper Motion Dec: -1.47 mas/yr Epoch of Position: 2015.5		V=12.19		Reference Frame: ICRS	
Comments: Category=STAR Description=[BLUE STRAGGLER]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WOCS2068-F140LP (1449668)	(7) NGC2682-WOC S2068	ACS/SBC, ACCUM, SBC	F140LP			Pattern 1, Exps 1-3 in WOCS2068 (05) (1)	900 Secs (1800 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1] [2]
Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.19, T=6000 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716999936799) with NUV = 16.72 and FUV = 22.75, posing no risk to the detector. The GSC2 BOT tool erroneously identifies two sources as a O5V stars and health risks. The spectral types of these stars are as follows: N8X5000226: F5V (this is our target), N8X5005976: K2V. These pose no risk to the detector.										
2	WOCS2068-F150LP (1449669)	(7) NGC2682-WOC S2068	ACS/SBC, ACCUM, SBC	F150LP			Pattern 1, Exps 1-3 in WOCS2068 (05) (1)	1080 Secs (2160 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1] [2]	
Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.19, T=6000 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716999936799) with NUV = 16.72 and FUV = 22.75, posing no risk to the detector. The GSC2 BOT tool erroneously identifies one source (N8X5000226) as an O5V star and a health risk. This is our target, with a spectral type of F5V, and poses no risk to the detector.										
3	WOCS2068-F165LP (1449671)	(7) NGC2682-WOC S2068	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1, Exps 1-3 in WOCS2068 (05) (1)	585 Secs (1174 Secs) [=>(Pattern 1)] [=>589 Secs (Pattern 2)]	[1] [2]	
Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.19, T=6000 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716999936799) with NUV = 16.72 and FUV = 22.75, posing no risk to the detector. The GSC2 BOT tool erroneously identifies one source (N8X5000226) as an O5V star and a health risk. This is our target, with a spectral type of F5V, and poses no risk to the detector.										



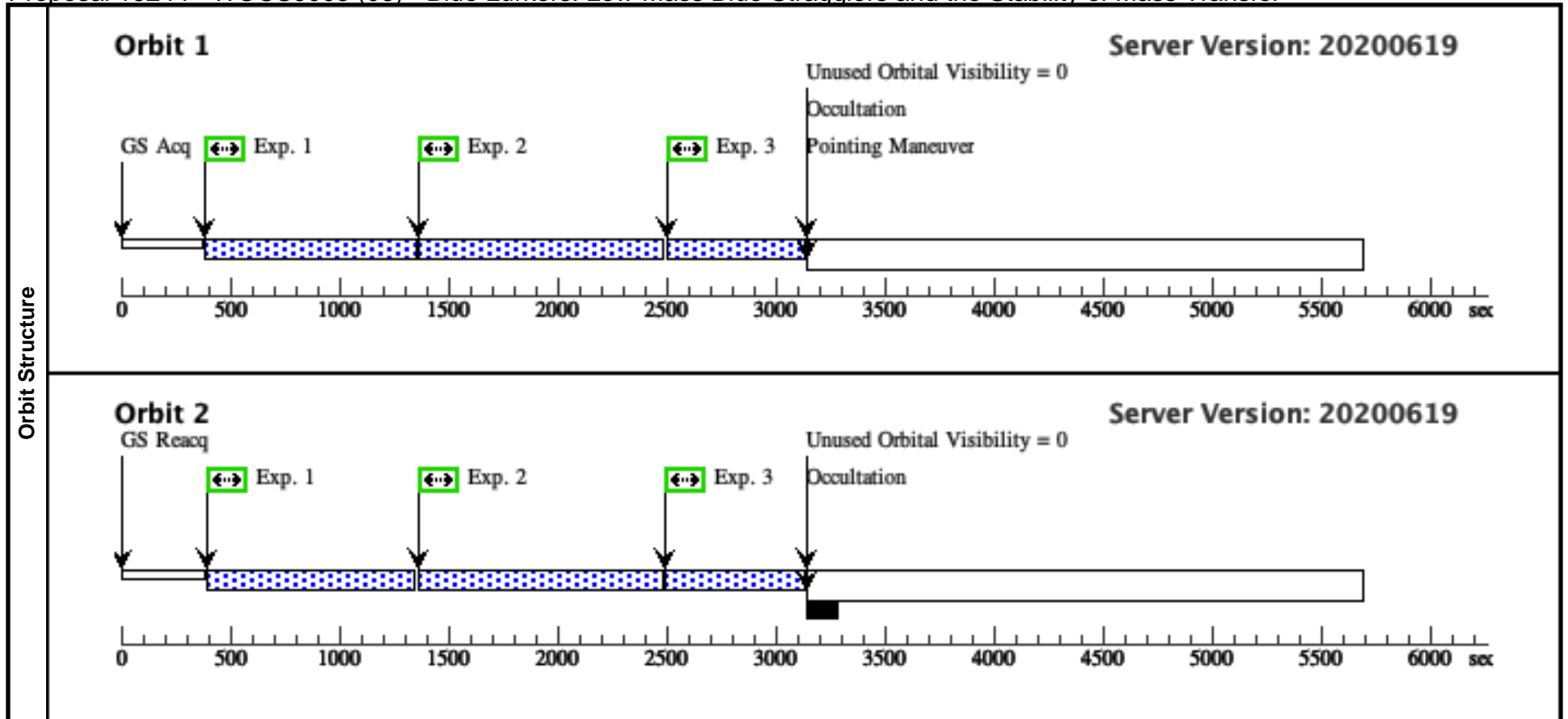
Proposal 16244 - WOCS9005 (06) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

Visit	Proposal 16244, WOCS9005 (06), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)					
Patterns	#	Primary Pattern	Secondary Pattern	Exposures		
	(1)	Pattern Type=ACS-SBC-DITHER- LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false		(1-3)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	NGC2682-WOCS9005 Alt Name1: SAND1005	RA: 08 51 15.4457 (132.8143571d) Dec: +11 47 31.40 (11.79206d) Equinox: J2000	Proper Motion RA: -11.661 mas/yr Proper Motion Dec: -2.128 mas/yr Epoch of Position: 2015.5	V=12.65	Reference Frame: ICRS
	Comments: Category=STAR Description=[BLUE STRAGGLER]					

Proposal 16244 - WOCS9005 (06) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

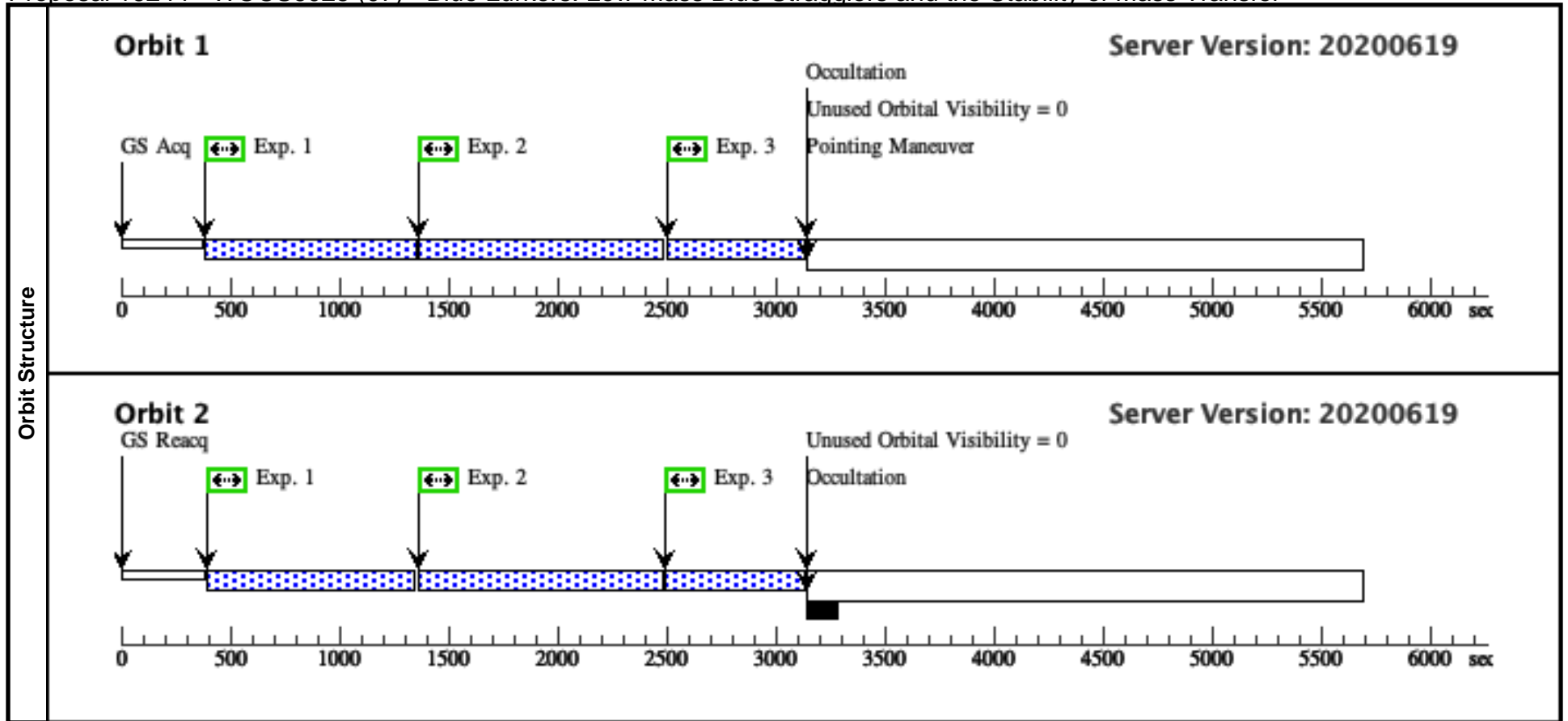
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	WOCS9005 (8) NGC2682-WOC -F140LP S9005 (1449689)	ACS/SBC, ACCUM, SBC	F140LP			Pattern 1, Exps 1-3 in WOCS9005 (06) (1)	900 Secs (1800 Secs)	
								[==>(Pattern 1)]	[1]
								[==>(Pattern 2)]	[2]
								<p><i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.65, T=6460 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>The GALEX BOT returns our target as exceeding the local safety count rate, but this is based on the star being an O5V. We know that it is an F7V star. The synthetic spectrum used in the ETC is a more realistic assessment, with a local count rate of 37.7 counts/s. In addition, the GALEX BOT identifies two safe sources: GALEX J085114.6+114724 with NUV = 17.52, and GALEX J085115.5+114701 with NUV = 21.52. None of the safe sources are undetected in GALEX FUV and pose no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies two sources as a O5V stars and health risks. The spectral types of these stars are as follows: N8X7000775: F7V (this is our target), N8X7000777: F8V. These sources pose no risk to the detector.</i></p>	
Exposures	2	WOCS9005 (8) NGC2682-WOC -F150LP S9005 (1449691)	ACS/SBC, ACCUM, SBC	F150LP			Pattern 1, Exps 1-3 in WOCS9005 (06) (1)	1080 Secs (2160 Secs)	
								[==>(Pattern 1)]	[1]
								[==>(Pattern 2)]	[2]
								<p><i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.65, T=6460 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>The GALEX BOT returns three safe sources: GALEX J085115.3+114731 with NUV = 16.91, GALEX J085114.6+114724 with NUV = 17.52, and GALEX J085115.5+114701 with NUV = 21.52. None of the sources are detected in GALEX FUV, and pose no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies two sources as a O5V stars and health risks. The spectral types of these stars are as follows: N8X7000775: F7V (this is our target), N8X7000777: F8V. These sources pose no risk to the detector.</i></p>	
Exposures	3	WOCS9005 (8) NGC2682-WOC -165LP S9005 (1449692)	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1, Exps 1-3 in WOCS9005 (06) (1)	585 Secs (1174 Secs)	
								[==>(Pattern 1)]	[1]
								[==>589 Secs (Pattern 2)]	[2]
								<p><i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.65, T=6460 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i></p> <p><i>The GALEX BOT returns three safe sources: GALEX J085115.3+114731 with NUV = 16.91, GALEX J085114.6+114724 with NUV = 17.52, and GALEX J085115.5+114701 with NUV = 21.52. None of the sources are detected in GALEX FUV, and pose no risk to the detector.</i></p> <p><i>The GSC2 BOT erroneously identifies two sources as a O5V stars and health risks. The spectral types of these stars are as follows: N8X7000775: F7V (this is our target), N8X7000777: F8V. These sources pose no risk to the detector.</i></p>	



Proposal 16244 - WOCS6025 (07) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

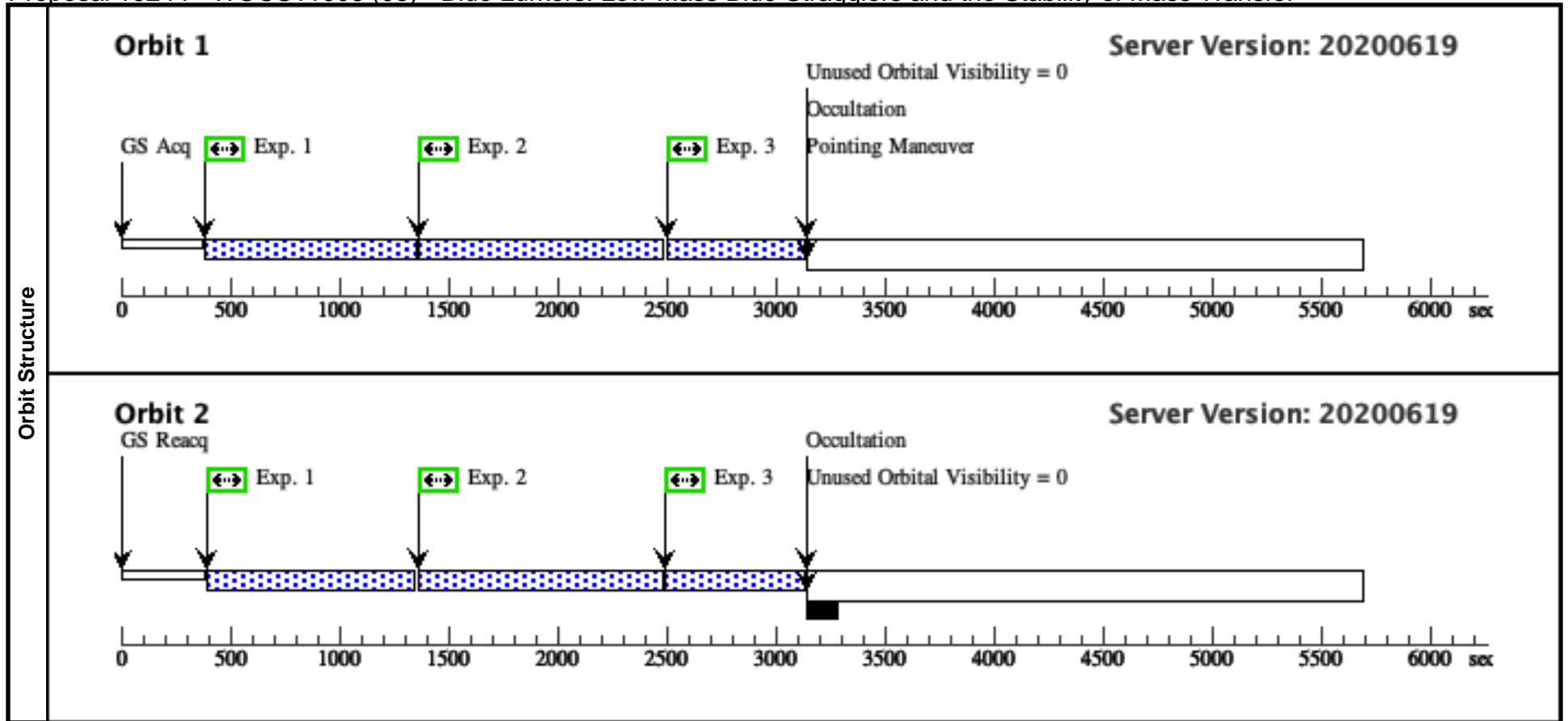
Visit	Proposal 16244, WOCS6025 (07), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)										
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false		(1-3)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(9)	NGC2682-WOCS6025 Alt Name1: SAND1431	RA: 08 52 5.8071 (133.0241963d) Dec: +11 42 24.71 (11.70686d) Equinox: J2000	Proper Motion RA: -10.723 mas/yr Proper Motion Dec: -2.329 mas/yr Epoch of Position: 2015.5	V=13.70	Reference Frame: ICRS					
	<i>Comments:</i> Category=STAR Description=[BLUE STRAGGLER]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	WOCS6025-F140LP (1449676)	(9) NGC2682-WOC S6025	ACS/SBC, ACCUM, SBC	F140LP				Pattern 1, Exps 1-3 in WOCS6025 (07) (1)	900 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=13.70, T=6060 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> The GALEX BOT returns two safe sources: GALEX J085205.8+114224 with NUV = 18.45 and GALEX J085206.5+114249 with NUV = 22.58. GALEX J085206.5+114249 is our target, which we know has a GALEX FUV = 24.0 although that information was not returned in the BOT. These sources pose no risk to the detector. The GSC2 BOT erroneously identifies one source (N8X7000881) as a O5V star and a health risk. This is our target, which has a known spectral type of G0V and poses no risk to the detector.										
2	WOCS6025-F150LP (1449681)	(9) NGC2682-WOC S6025	ACS/SBC, ACCUM, SBC	F150LP				Pattern 1, Exps 1-3 in WOCS6025 (07) (1)	1080 Secs (2160 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]	
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=13.70, T=6060 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> The GALEX BOT returns two safe sources: GALEX J085205.8+114224 with NUV = 18.45 and GALEX J085206.5+114249 with NUV = 22.58. GALEX J085206.5+114249 is our target, which we know has a GALEX FUV = 24.0 although that information was not returned in the BOT. These sources pose no risk to the detector. The GSC2 BOT erroneously identifies one source (N8X7000881) as a O5V star and a health risk. This is our target, which has a known spectral type of G0V and poses no risk to the detector.										
3	WOCS6025-F165LP (1449682)	(9) NGC2682-WOC S6025	ACS/SBC, ACCUM, SBC	F165LP				Pattern 1, Exps 1-3 in WOCS6025 (07) (1)	585 Secs (1174 Secs) [==>(Pattern 1)] [==>589 Secs (Pattern 2)]	[1] [2]	
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=13.70, T=6060 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> The GALEX BOT returns two safe sources: GALEX J085205.8+114224 with NUV = 18.45 and GALEX J085206.5+114249 with NUV = 22.58. GALEX J085206.5+114249 is our target, which we know has a GALEX FUV = 24.0 although that information was not returned in the BOT. These sources pose no risk to the detector. The GSC2 BOT erroneously identifies one source (N8X7000881) as a O5V star and a health risk. This is our target, which has a known spectral type of G0V and poses no risk to the detector.										



Proposal 16244 - WOCS11006 (08) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:43 GMT 2021

Visit	Proposal 16244, WOCS11006 (08), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false	(1-3)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(10)	NGC2682-WOCS11006 Alt Name1: SAND2223	RA: 08 51 29.8558 (132.8743992d) Dec: +11 51 29.95 (11.85832d) Equinox: J2000	Proper Motion RA: -11.183 mas/yr Proper Motion Dec: -2.516 mas/yr Epoch of Position: 2015.5	V=13.33	Reference Frame: ICRS				
	<i>Comments:</i> Category=STAR Description=[BLUE STRAGGLER]									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WOCS11006-F140LP (1449683)	(10) NGC2682-WOCS11006	ACS/SBC, ACCUM, SBC	F140LP				Pattern 1, Exps 1-3 in WOCS11006 (08) (1)	900 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=13.33, T=6420 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> The GALEX BOT returns one safe source: GALEX J085129.8+115129, which is our target with FUV = 21.8 (no NUV measurement), posing no risk to the detector. The GSC2 BOT erroneously identifies six sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000645: G1IV, N8X7000652: G3V, N8X7000659: F6V, N8X7000663: G4V, N8X7000666: G0V, and N8X7000672: G0V. These sources pose no risk to the detector.									
2	WOCS11006-F150LP (1449684)	(10) NGC2682-WOCS11006	ACS/SBC, ACCUM, SBC	F150LP				Pattern 1, Exps 1-3 in WOCS11006 (08) (1)	1080 Secs (2160 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	[1] [2]
3	WOCS11006-F165LP (1449685)	(10) NGC2682-WOCS11006	ACS/SBC, ACCUM, SBC	F165LP				Pattern 1, Exps 1-3 in WOCS11006 (08) (1)	585 Secs (1174 Secs) [==>(Pattern 1)] [==>589 Secs (Pattern 2)]	[1] [2]
	<i>Comments: The ETC run is calculated using a synthetic spectrum combining a V=13.33, T=6420 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety.</i> The GALEX BOT returns one safe source: GALEX J085129.8+115129, which is our target with FUV = 21.8 (no NUV measurement), posing no risk to the detector. The GSC2 BOT erroneously identifies five sources as O5V stars and health risks. The actual spectral types are as follows: N8X7000645: G1IV, N8X7000652: G3V, N8X7000659: F6V, N8X7000666: G0V, and N8X7000672: G0V. These sources pose no risk to the detector.									



Proposal 16244 - WFC3-WOCS4001+WOCS9005 (09) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:44 GMT 2021

Visit	Proposal 16244, WFC3-WOCS4001+WOCS9005 (09), completed		
	Diagnostic Status: Warning		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

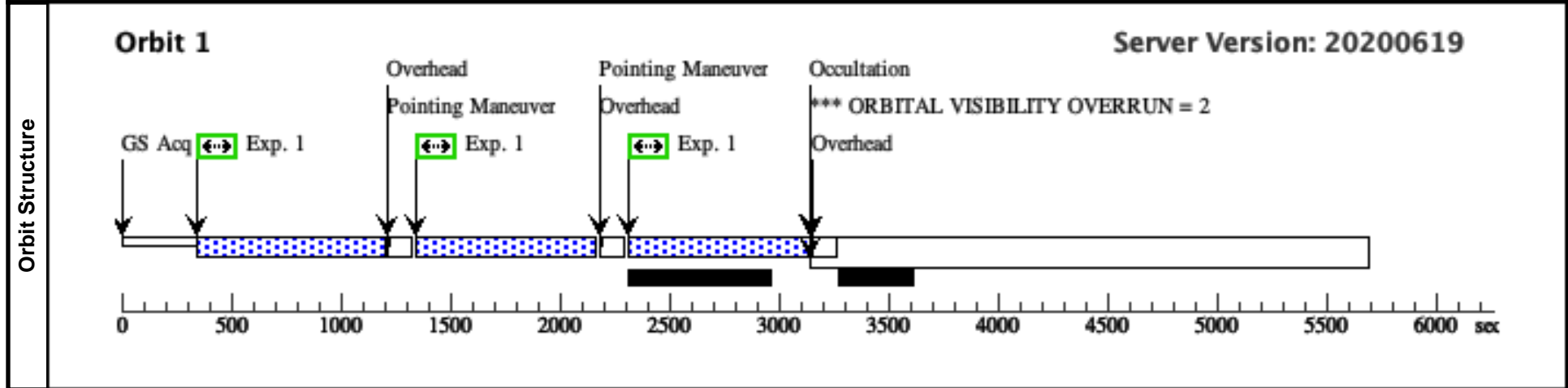
Diagnostics	(WFC3-WOCS4001+WOCS9005 (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN		
	(WFC3_UVIS_F275W (09.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(3)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=3 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(12)	NGC2682-085119+114816 Alt Name1: WOCS4001-WOCS9005	RA: 08 51 18.5107 (132.8271279d) Dec: +11 48 16.29 (11.80452d) Equinox: J2000		V=(?) 4001: V= 15.21; 9005: V= 12.65	Reference Frame: ICRS

Comments: This field location is selected to include WOCS 4001 (SAND 1029: 8 51 21.62, +11 49 02.5) and WOCS 9005 (SAND 1005: 8 51 15.45, +11 47 31.4) at all orientation angles.
 Category=STELLAR CLUSTER
 Description=[OPEN CLUSTER]

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	WFC3_UV1_S_F275W (1451775)	(12) NGC2682-0851 19+114816	WFC3/UVIS, ACCUM, UVIS	F275W	FLASH=20.0			Pattern 3, Exps 1-1 in WFC3-WOCS4001+WOCS9005 (09) (3)	827 Secs (2482 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>828 Secs (Pattern 3)]



Proposal 16244 - HOPR05 (Z5) - Blue Lurkers: Low-Mass Blue Stragglers and the Stability of Mass Transfer

Thu May 27 21:00:44 GMT 2021

Visit	Proposal 16244, HOPR05 (Z5) Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
(1)		Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.472 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=44.4 Angle Between Sides= Center Pattern=false					(1-3)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(7)	NGC2682-WOCS2068 Alt Name1: SAND277	RA: 08 49 21.4832 (132.3395133d) Dec: +12 04 22.83 (12.07301d) Equinox: J2000		Proper Motion RA: -7.218 mas/yr Proper Motion Dec: -1.47 mas/yr Epoch of Position: 2015.5		V=12.19	Reference Frame: ICRS			
Comments: Category=STAR Description=[BLUE STRAGGLER]											
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	WOCS2068-F140LP (1449668)	(7) NGC2682-WOC S2068	ACS/SBC, ACCUM, SBC	F140LP			Pattern 1, Exps 1-3 in HOPR05 (Z5) (1)	900 Secs (1800 Secs)		
Comments: The ETC run is calculated using a synthetic spectrum combining a V=12.19, T=6000 K main sequence star with a 16,000 K WD, producing a FUV flux approximately 100 times greater than the brightest known FUV GALEX source in the field of NGC 2682 (M67) to demonstrate detector safety. Although the GALEX BOT tool did not return any sources, we know that this target is a GALEX source (https://galex.stsci.edu/GR6/?page=explore&photo=true&objid=3068677716999936799) with NUV = 16.72 and FUV = 22.75, posing no risk to the detector. The GSC2 BOT tool erroneously identifies two sources as a O5V stars and health risks. The spectral types of these stars are as follows: N8X5000226: F5V (this is our target), N8X5005976: K2V. These pose no risk to the detector.											
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