



## 15514 - The primordial binary fraction in the young massive cluster Westerlund 2

Cycle: 26, Proposal Category: GO

(JWST Initiative)

(Availability Mode: AVAILABLE)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Elena Sabbi (PI) (Contact)</b>	<b>Space Telescope Science Institute</b>	<b>sabbi@stsci.edu</b>
Dr. Kailash C. Sahu (CoI)	Space Telescope Science Institute	ksahu@stsci.edu
Dr. Jay Anderson (CoI)	Space Telescope Science Institute	jayander@stsci.edu
Dr. Nate Bastian (CoI) (ESA Member)	Liverpool John Moores University	n.j.bastian@ljmu.ac.uk
Prof. Mark Gieles (CoI) (ESA Member)	University of Surrey	m.gieles@surrey.ac.uk
Dr. Daniel J. Lennon (CoI) (ESA Member)	ESA-European Space Astronomy Centre	danny.lennon@sciops.esa.int
Dr. Antonella Nota (CoI) (ESA Member)	Space Telescope Science Institute - ESA	nota@stsci.edu
Prof. John S. Gallagher III (CoI)	University of Wisconsin - Madison	jsg@astro.wisc.edu

### 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	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:18.0	yes
02	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:20.0	yes
03	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:21.0	yes
04	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:23.0	yes
05	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:24.0	yes
06	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:26.0	yes
07	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:27.0	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>
08	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:28.0	yes
09	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:30.0	yes
10	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:31.0	yes
11	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:33.0	yes
12	(1) CL-WESTERLUND-2	WFC3/UVIS	1	15-Jan-2019 08:00:35.0	yes

12 Total Orbits Used

## ABSTRACT

This is a photometric and astrometric proposal designed to probe the unexplored population of primordial low- and intermediate-mass binaries (mass range  $\sim 0.5$  to 8 Mo) in the young massive cluster Westerlund 2. Our observations are tailored to identify short, intermediate and long period binaries and therefore ascertain, for the first time, the fraction of low- and intermediate-mass binaries in an environment that resembles the conditions of stellar density and UV radiation found during the early evolution of globular clusters, or starburst galaxies. Knowledge of the orbital properties of soft and hard binaries over a broad range of masses can be used to constrain the models of star and cluster formation and evolution. A byproduct of this project will be an astrometric catalog of hundred of targets for spectroscopic follow up with JWST to study the early evolution of protoplanetary disks, which is one of the science themes of the Webb mission. If we can complete the requested observations in the next three cycles, we will be in the position to start the spectroscopic follow up in 2020, when JWST is fully commissioned. This makes the requested observations extremely timely.

## OBSERVING DESCRIPTION

This is a proposal to characterize for the first time low-mass short-, medium- and long-period binaries in a region of massive star formation. We plan to repeatedly observe the same region for the next three years. To maximize the detection the observations must be spaced in a non-uniform logarithmic scale. Each visits will consist of one single orbit. The observations have been organized as follow:

### CY24

During the first year we plan to detect the binaries with the shortest periods. To do so we need to schedule 10 equally spaced visits over 8 days (therefore scheduling a visit roughly every 19 hours). We will then schedule five visits roughly every 38 hours, for a total of 15 visits in 16 days. While it is not important when these 15 visits are scheduled within cycle24, it is important to maintain the cadence. During CY24 we will be

collected other 5 visits that will be scheduled every 51 days.

#### CY25

During the second year we will organize our observations in 2 series of five visits each. In the first series we will observe Wd2 every 3.2 days (for a total of five visits in 16 days) and in the second series we will visit the cluster every 25.6 days (5 visits in 128 days). Other five visits will be acquired every 102.4 days, with three visits to be scheduled in CY25 and 2 in CY26.

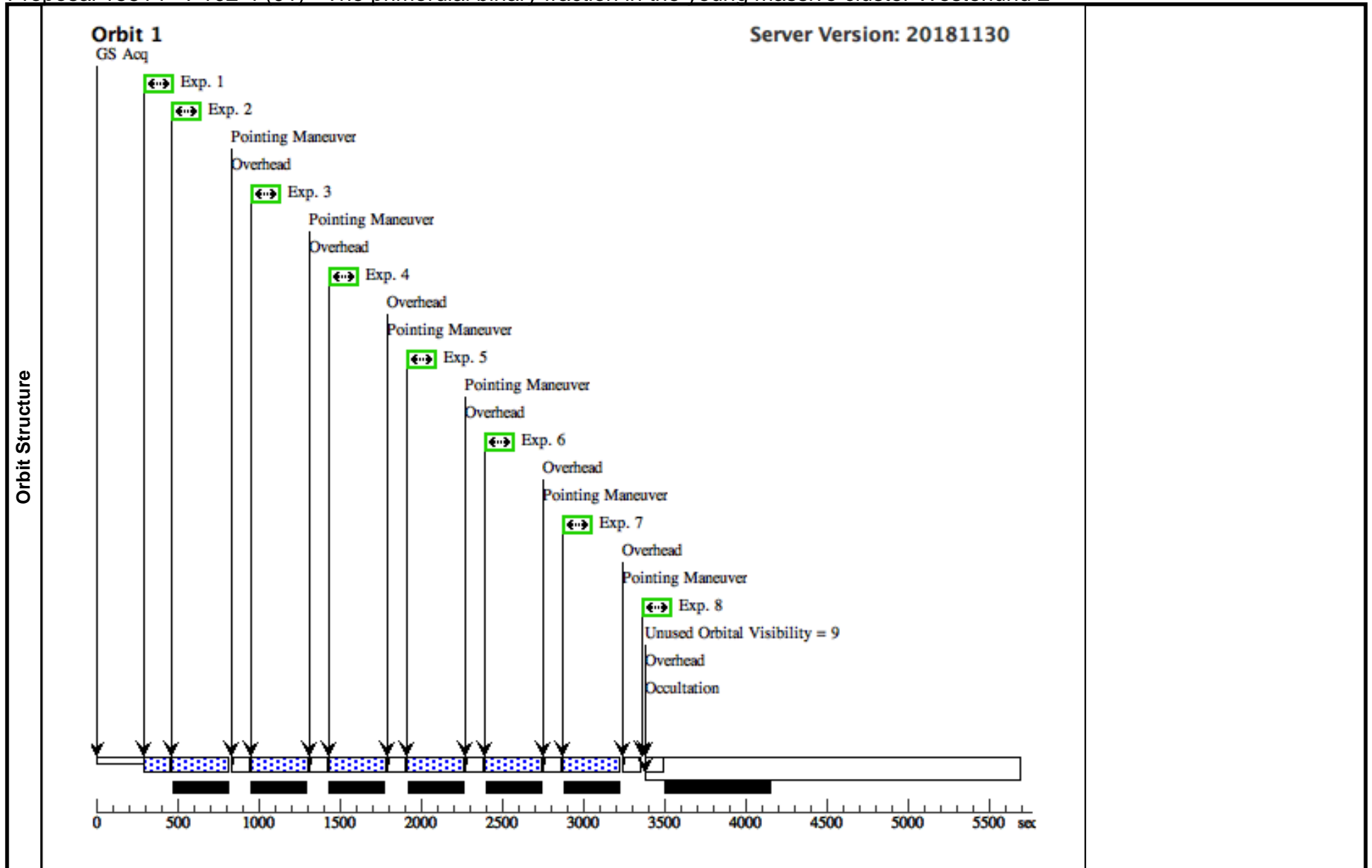
#### CY26

In CY26 in addition to the 2 visits every 102.4 days we will schedule 5 visits every 6.4 days (5 visits in 32 days) and five visits every 12.8 days (corresponding to an observing window of 64 days)

Because we want to carefully characterize the shape of the barely resolved stars, we need to minimize the effect of the shutter vibrations in the short exposures, therefore we request to acquire all the short exposures using SHUTTER=Blade A.

Proposal 15514 - P102-4 (01) - The primordial binary fraction in the young massive cluster Westerlund 2

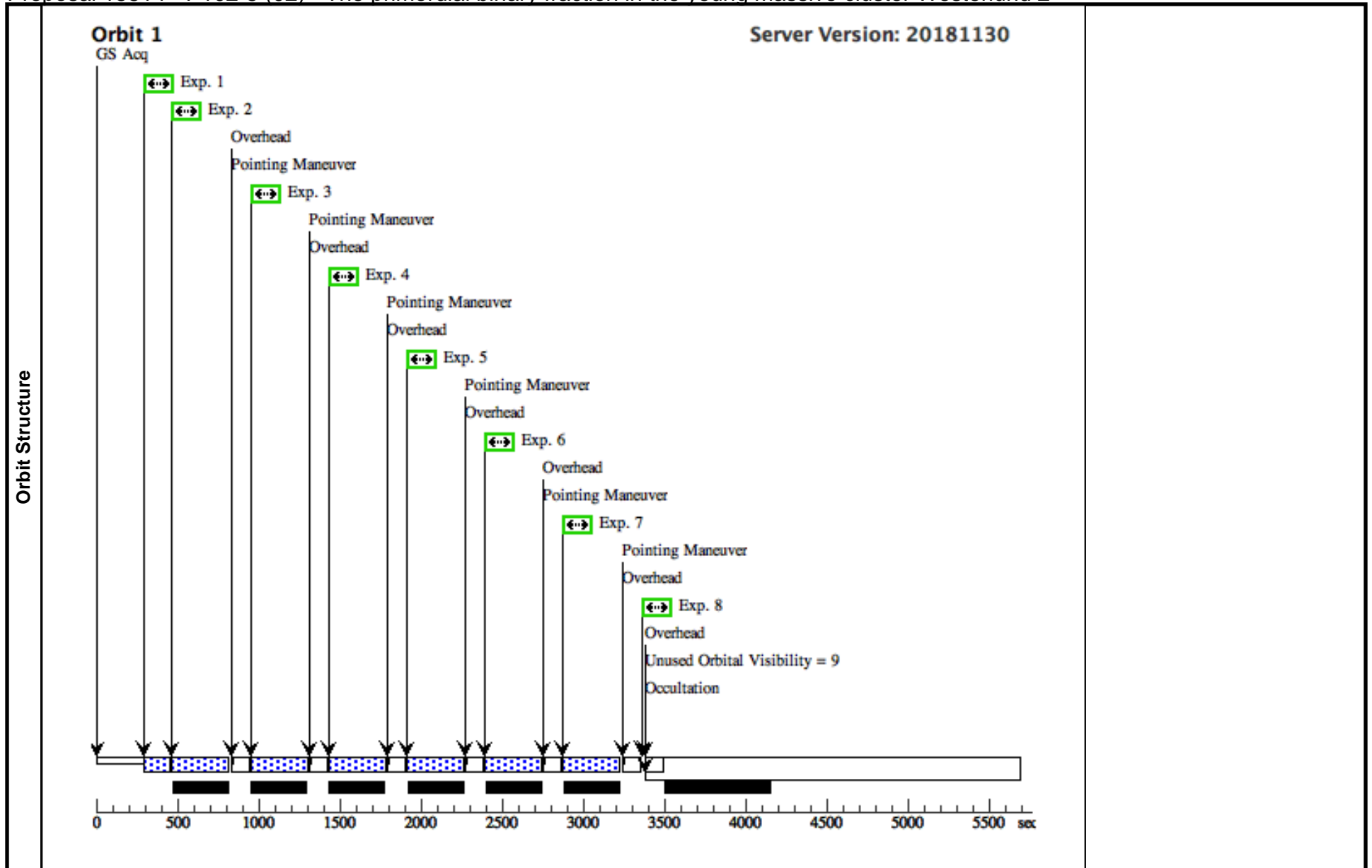
Visit	<b>Proposal 15514, P102-4 (01), scheduling</b> <span style="float: right;">Tue Jan 15 13:00:35 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 19-JAN-2019:00:00:00 AND 22-JAN-2019:00:00:00									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P102-4 (01)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P102-4 (01)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P102-4 (01)	3 Secs (3 Secs) [==>]	[1]



Proposal 15514 - P102-5 (02) - The primordial binary fraction in the young massive cluster Westerlund 2

Tue Jan 15 13:00:36 GMT 2019

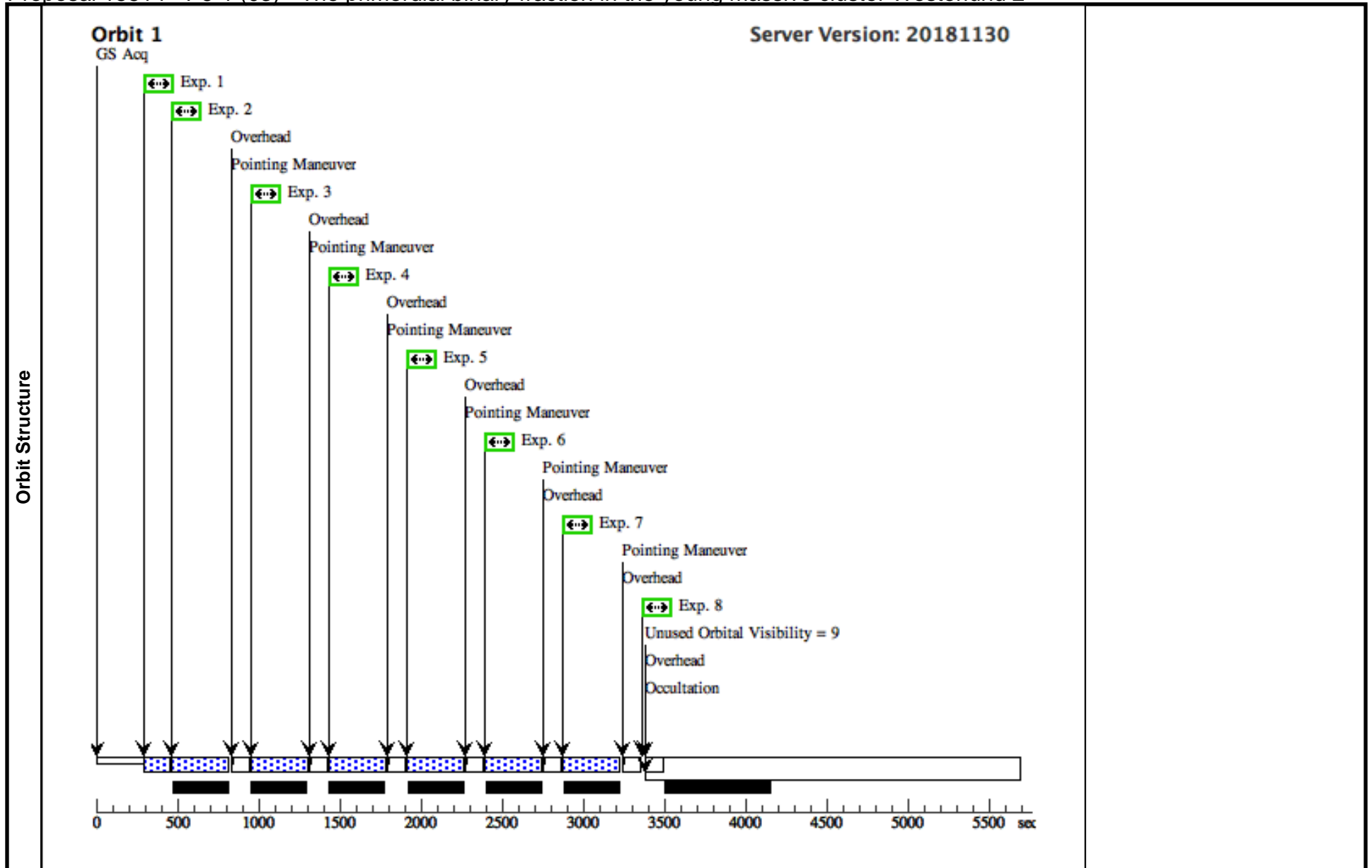
Visit	<b>Proposal 15514, P102-5 (02), implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 30-APR-2019:00:00:00 AND 02-MAY-2019:00:00:00									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P102-5 (02)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P102-5 (02)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P102-5 (02)	3 Secs (3 Secs) [==>]	[1]



Proposal 15514 - P6-1 (03) - The primordial binary fraction in the young massive cluster Westerlund 2

Tue Jan 15 13:00:36 GMT 2019

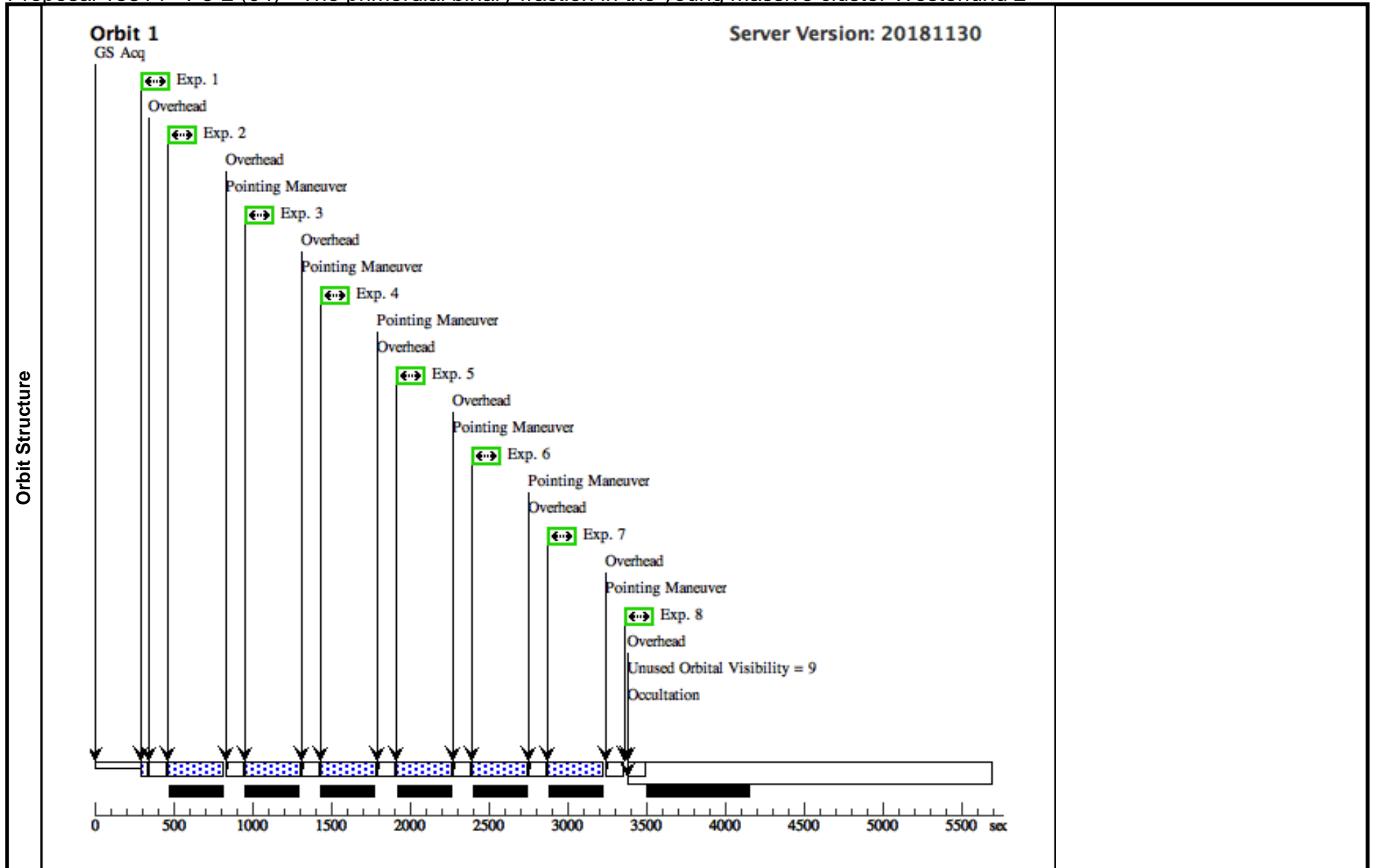
Visit	<b>Proposal 15514, P6-1 (03), implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P6-1 (03)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1.429	Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1.25	Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0.36	Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,-1.25	Sequence 1-8 Non-Int in P6-1 (03)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,-1.25	Sequence 1-8 Non-Int in P6-1 (03)	3 Secs (3 Secs) [==>]	[1]



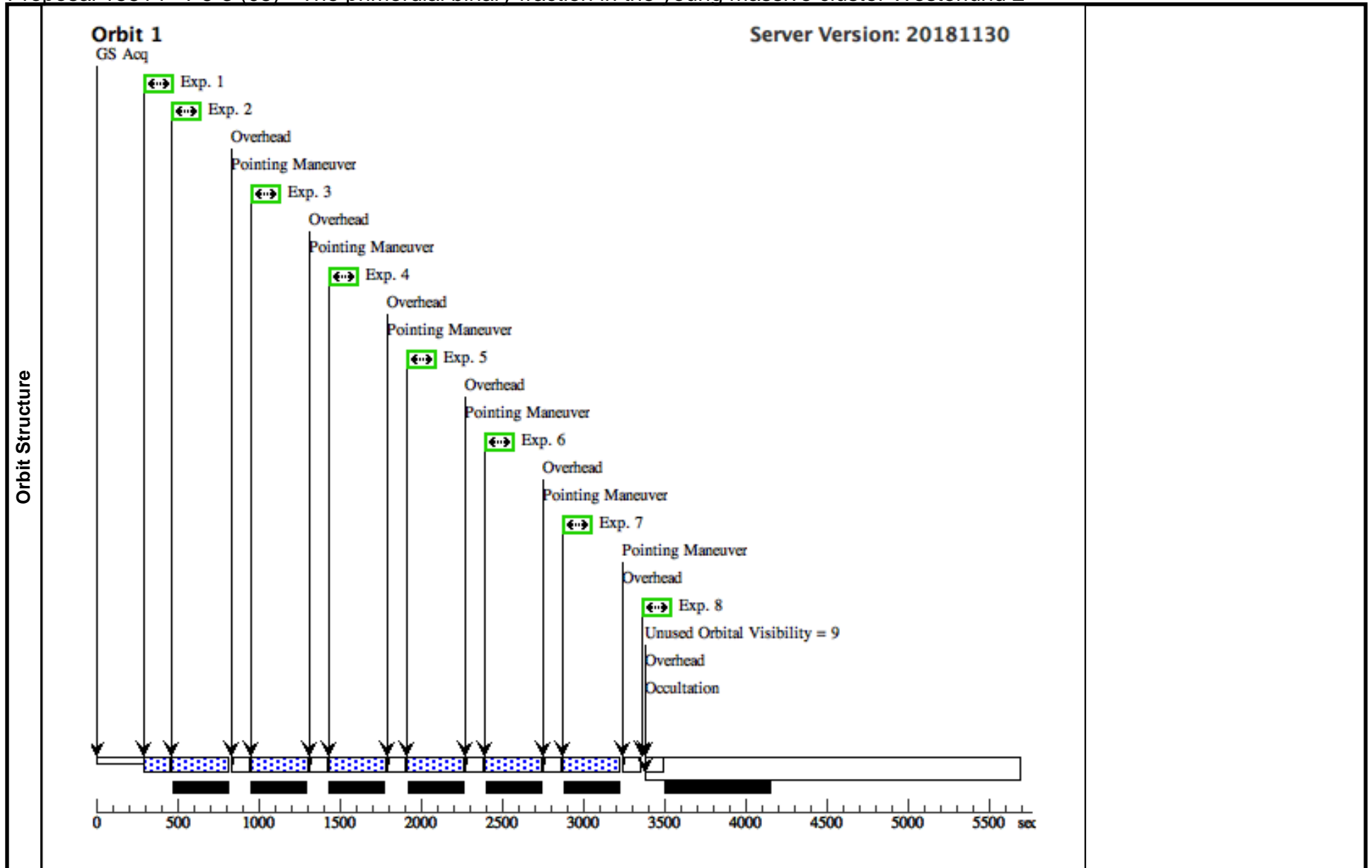
Proposal 15514 - P6-2 (04) - The primordial binary fraction in the young massive cluster Westerlund 2

Tue Jan 15 13:00:36 GMT 2019

Visit	<b>Proposal 15514, P6-2 (04), implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 03 BY 146 H TO 154 H									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55		3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55		350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429		350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25		350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4			350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36		350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25		350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25		3 Secs (3 Secs) [==>]	[1]

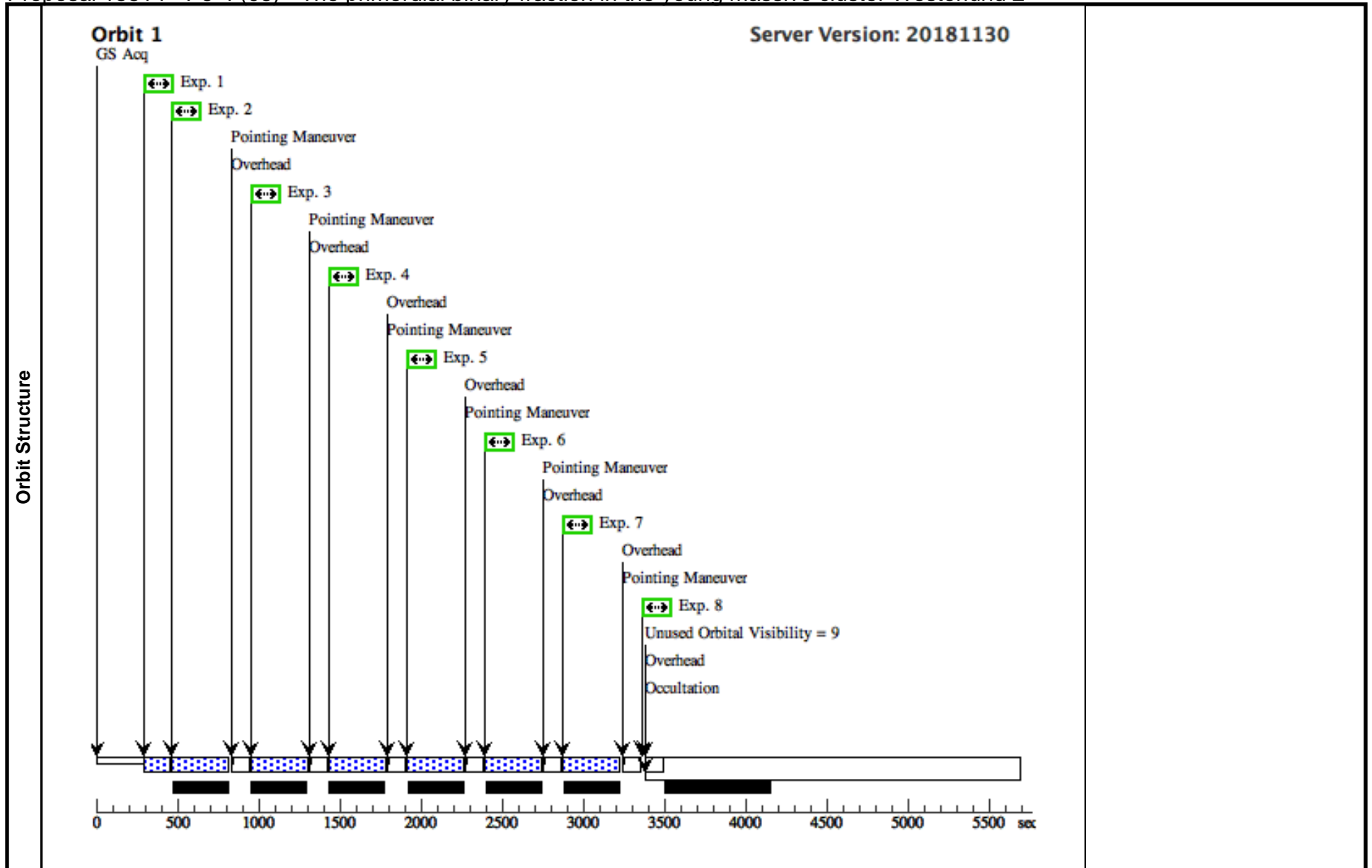




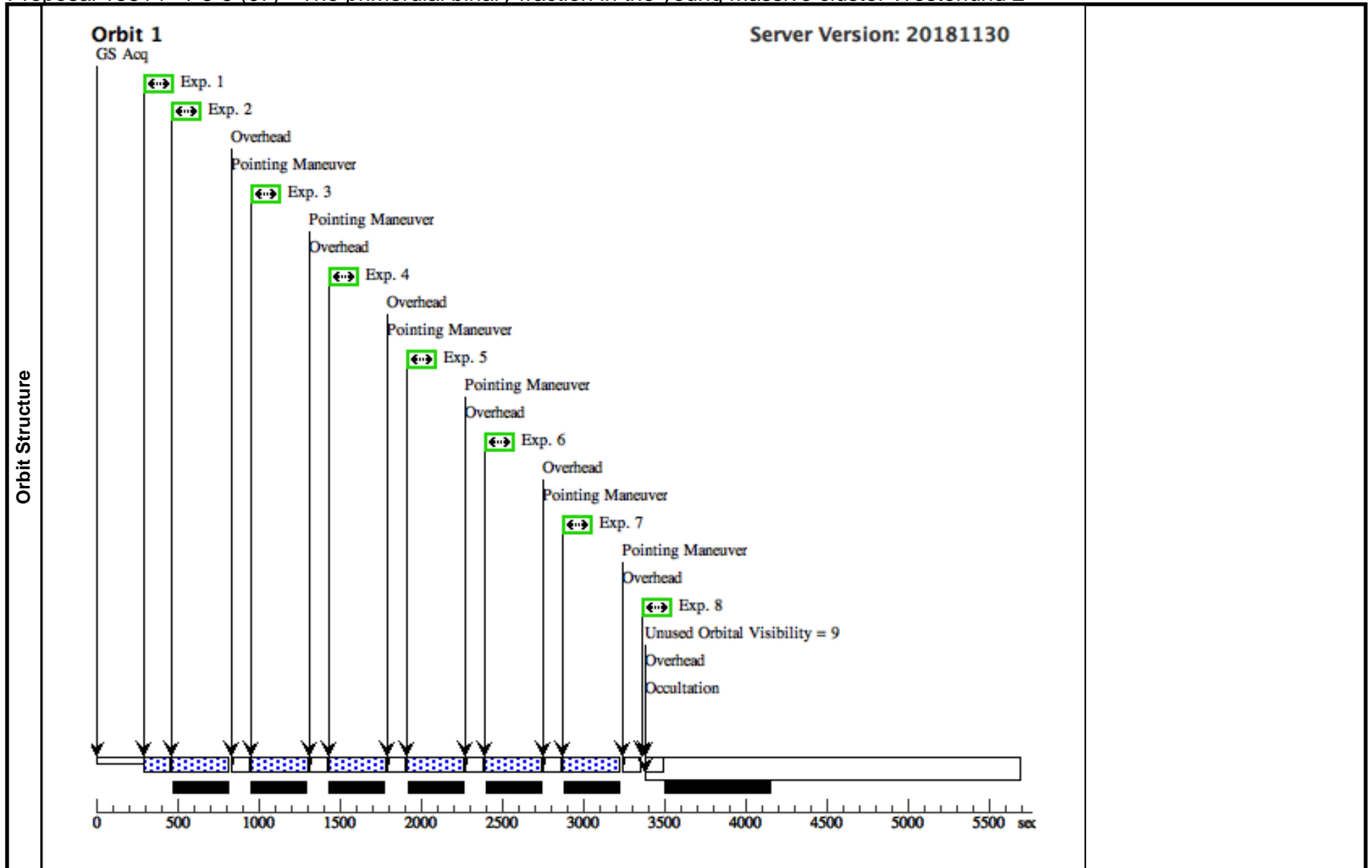


Proposal 15514 - P6-4 (06) - The primordial binary fraction in the young massive cluster Westerlund 2

Visit	<b>Proposal 15514, P6-4 (06), implementation</b> <span style="float: right;">Tue Jan 15 13:00:36 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 03 BY 446 H TO 454 H									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P6-4 (06)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P6-4 (06)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P6-4 (06)	3 Secs (3 Secs) [==>]	[1]

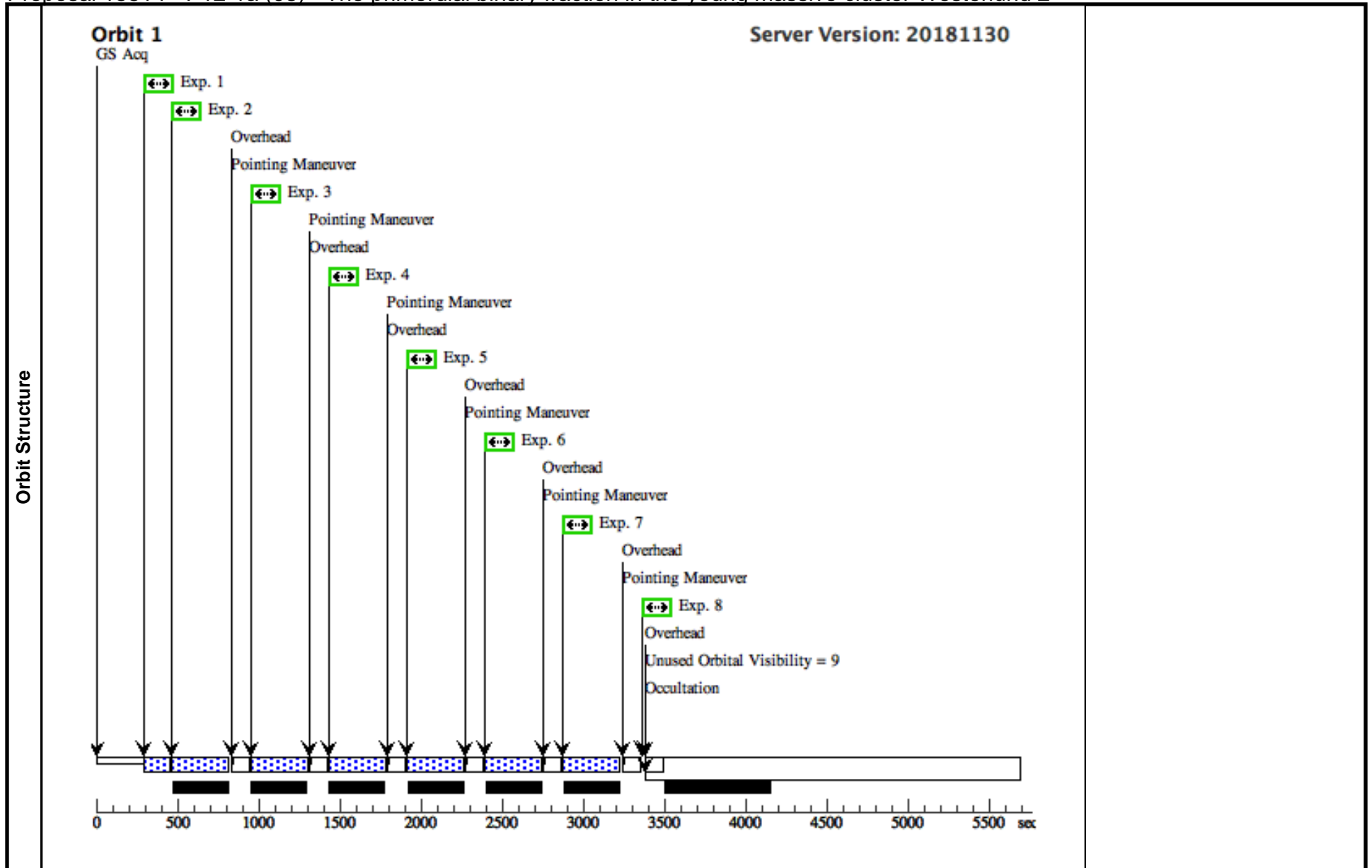






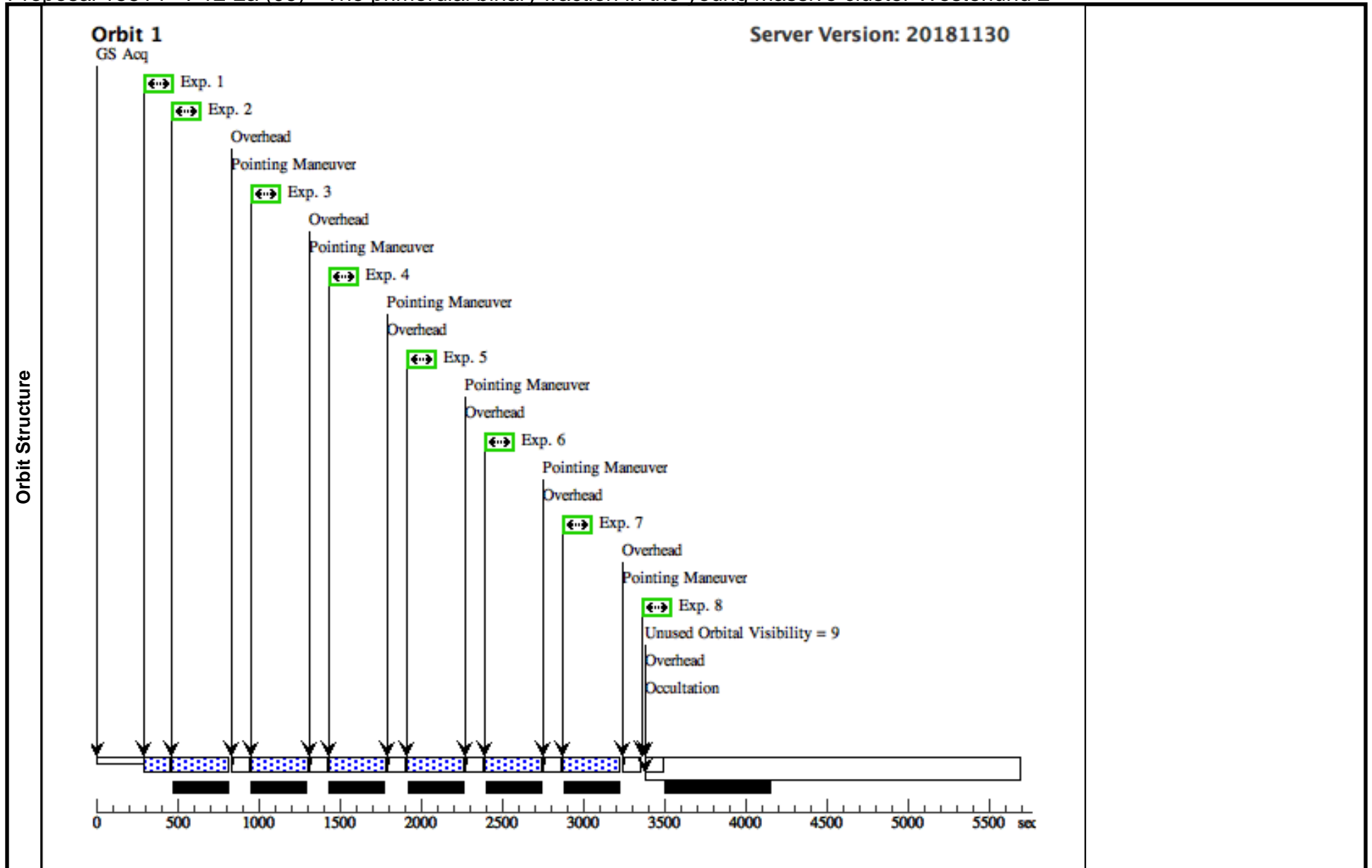
Proposal 15514 - P12-1a (08) - The primordial binary fraction in the young massive cluster Westerlund 2

Visit	<b>Proposal 15514, P12-1a (08), implementation</b> <span style="float: right;">Tue Jan 15 13:00:36 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-1a (08)	3 Secs (3 Secs) [==>]	[1]
	2		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	3		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	4		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	5		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	6		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	7		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P12-1a (08)	350 Secs (350 Secs) [==>]	[1]
	8		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P12-1a (08)	3 Secs (3 Secs) [==>]	[1]



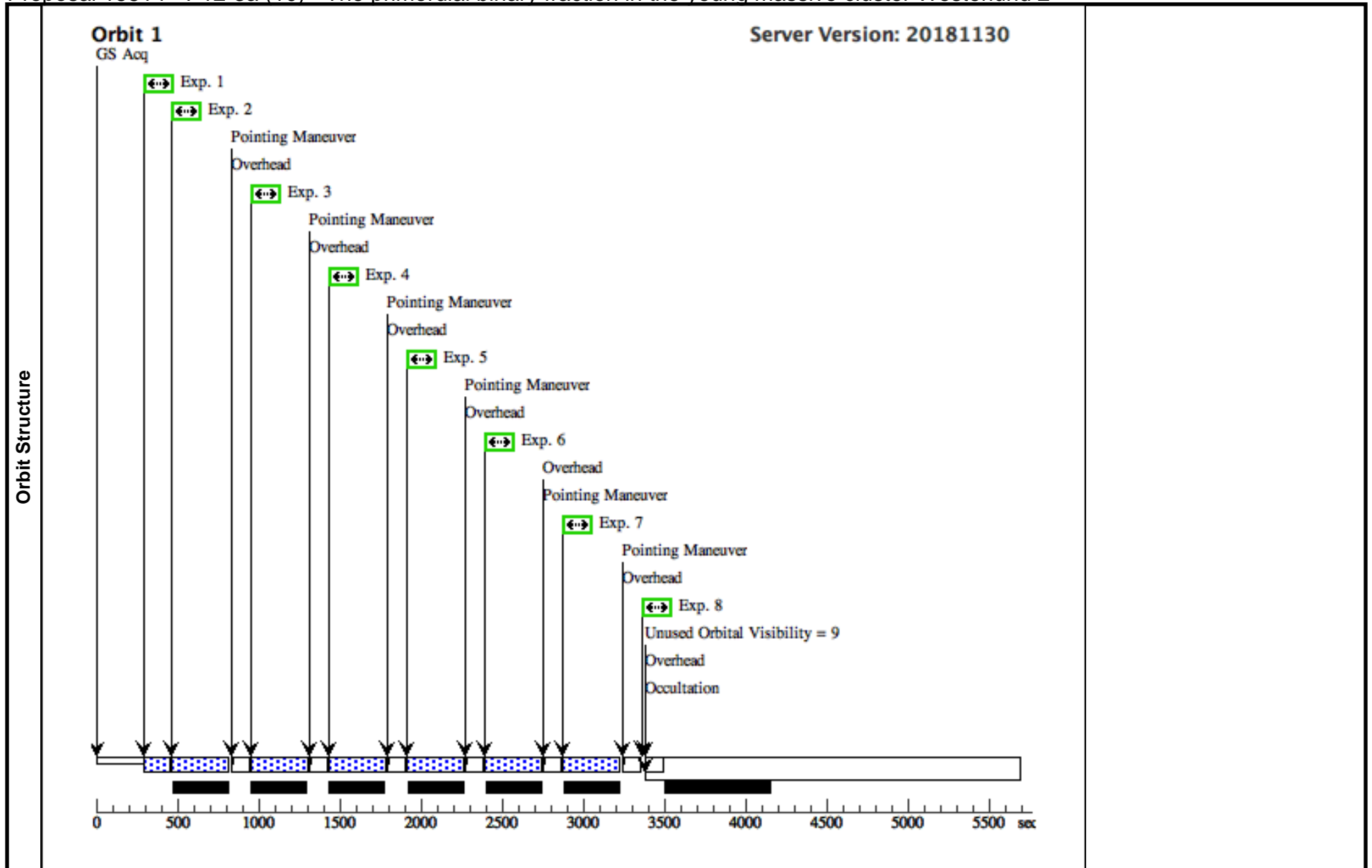
Proposal 15514 - P12-2a (09) - The primordial binary fraction in the young massive cluster Westerlund 2

Visit	<b>Proposal 15514, P12-2a (09), implementation</b> <span style="float: right;">Tue Jan 15 13:00:36 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 08 BY 590 H TO 615 H									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-2a (09)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1.429	Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1.025	Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0.36	Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,-1.25	Sequence 1-8 Non-Int in P12-2a (09)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,-1.25	Sequence 1-8 Non-Int in P12-2a (09)	3 Secs (3 Secs) [==>]	[1]



Proposal 15514 - P12-3a (10) - The primordial binary fraction in the young massive cluster Westerlund 2

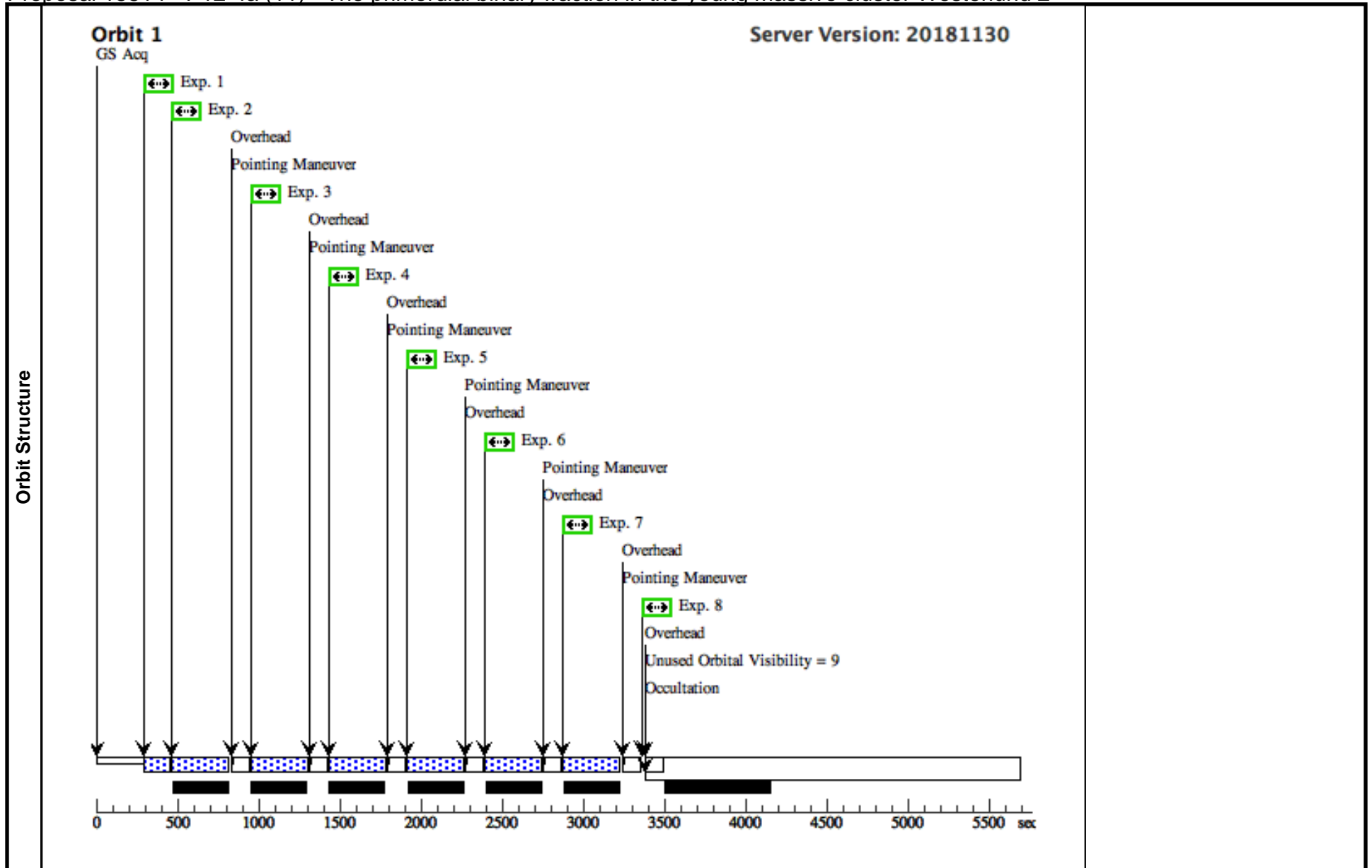
Visit	<b>Proposal 15514, P12-3a (10), implementation</b> <span style="float: right;">Tue Jan 15 13:00:37 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 08 BY 890 H TO 915 H									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-3a (10)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P12-3a (10)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P12-3a (10)	3 Secs (3 Secs) [==>]	[1]



Proposal 15514 - P12-4a (11) - The primordial binary fraction in the young massive cluster Westerlund 2

Tue Jan 15 13:00:37 GMT 2019

Visit	<b>Proposal 15514, P12-4a (11), implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 08 BY 1190 H TO 1215 H									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-4a (11)	3 Secs (3 Secs) [==>]	[1]
	2	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	3	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	4	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	5	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	6	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	7	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P12-4a (11)	350 Secs (350 Secs) [==>]	[1]
	8	(1) CL-WESTERLU ND-2	(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P12-4a (11)	3 Secs (3 Secs) [==>]	[1]



Proposal 15514 - P12-5a (12) - The primordial binary fraction in the young massive cluster Westerlund 2

Visit	<b>Proposal 15514, P12-5a (12), implementation</b> <span style="float: right;">Tue Jan 15 13:00:37 GMT 2019</span>									
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 08 BY 3290 H TO 3315 H									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(1)	CL-WESTERLUND-2	RA: 10 24 1.6767 (156.0069863d) Dec: -57 45 13.42 (-57.75373d) Equinox: J2000		V=10.5	Reference Frame: SIMBAD			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=STELLAR CLUSTER Description=[OB ASSOCIATION, STAR FORMING REGION, T ASSOCIATION, YOUNG ASSOCIATION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-5a (12)	3 Secs (3 Secs) [==>]	[1]
	2		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.18,1.5 55	Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	3		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.292,1. 429	Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	4		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 0.186,1. 25	Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	5		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4		Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	6		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.126,0 .36	Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	7		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -0.186,- 1.25	Sequence 1-8 Non-Int in P12-5a (12)	350 Secs (350 Secs) [==>]	[1]
	8		(1) CL-WESTERLU ND-2	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=12; BLADE=A	POS TARG -0.126,- 1.25	Sequence 1-8 Non-Int in P12-5a (12)	3 Secs (3 Secs) [==>]	[1]

