



# 15705 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric Microlensing

Cycle: 26, Proposal Category: GO

(Availability Mode: AVAILABLE)

## 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	(1) LAWD-37-SOURCE	WFC3/UVIS	1	12-Nov-2019 11:00:42.0	yes
51	(1) LAWD-37-SOURCE	WFC3/UVIS	1	12-Nov-2019 11:00:43.0	yes
02	(1) LAWD-37-SOURCE	WFC3/UVIS	1	12-Nov-2019 11:00:45.0	yes
03	(1) LAWD-37-SOURCE	WFC3/UVIS	1	12-Nov-2019 11:00:46.0	yes
52	(2) LAWD-37-OFFSET	WFC3/UVIS	1	12-Nov-2019 11:00:48.0	yes

5 Total Orbits Used

**ABSTRACT**

White dwarf (WD) is the final stage for a vast majority of stars, and WDs are important in a variety of astrophysical and galactic contexts. However, there are surprisingly few WDs with direct mass measurements, all of them in binaries.

It has been reported recently that the fifth-nearest WD, L145-141 (LAWD 37), will pass closely in front of a background star in late 2019, with an impact parameter of only 380 milliarcsec. As it passes in front, the WD will relativistically deflect the light from the background star, providing a unique opportunity for direct measurement of the WD's mass. The gravitational deflection angle depends only on the distances and relative positions of the stars, and on the mass of the WD. Since the distances and positions can be determined precisely before the event, the astrometric measurement offers a direct method to measure the mass of the WD to high accuracy (~2.5%).

Precision HST astrometry was recently used to measure the astrometric deflection caused by the nearby white dwarf Stein 2051B, and thus measure its mass--the first application of this technique outside the solar system. We now propose to repeat this experiment for a second WD. Relativistic astrometric microlensing is the only available model-independent technique for determining the mass of a single WD. Our target is of special interest because it is the second-nearest single WD (after van Maanen's Star).

Our measurement will be the first model-independent mass measurement of a single WD, and will add to the surprisingly small number of accurate model-independent mass determinations for WDs--a key element in testing the theoretical mass-radius relation.

## **OBSERVING DESCRIPTION**

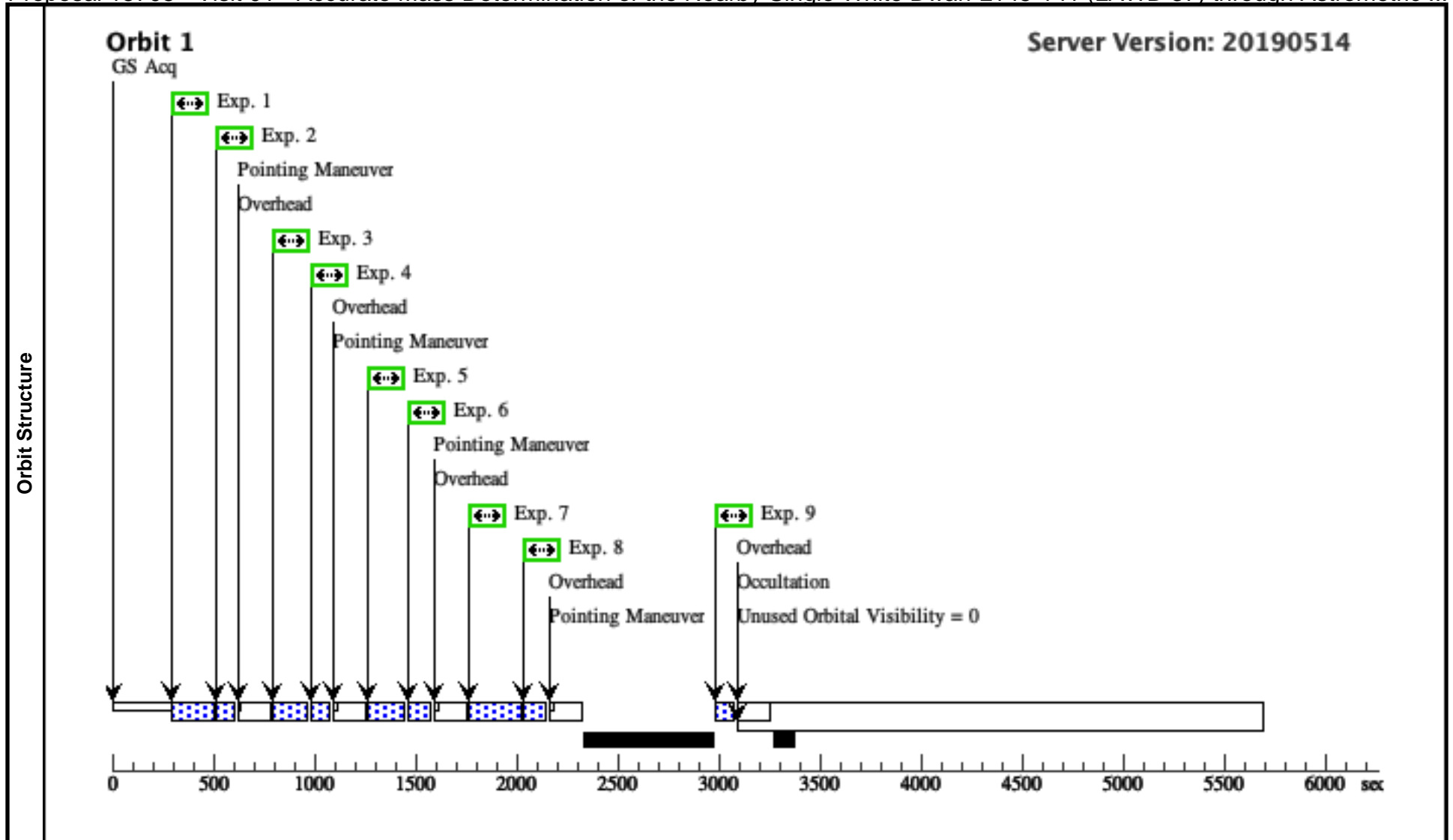
We have tweaked the observing strategy that was used in program GO-14448 to determine the mass of Stein 2051B, in order to improve the accuracy even further. At each epoch, we will obtain images in WFC3/UVIS F814W (I-band). The contrast between source and lens is best in this filter, and its PSF is well characterized. We will use a 2kx2k subarray to ensure that there are enough reference stars within the field, yet interruptions for buffer dumps will be unnecessary. At one epoch we will also obtain a few frames in F555W (V -band) in order to estimate the spectral types of the source and reference stars, and thus refine their distance estimates.

Since the astrometric deflection measurements are differential, it is important to measure them at several epochs, including close to the baseline and the peak. In addition, there must be enough epochs to independently solve for the proper motions and parallaxes of the reference stars and source. These considerations dictate our proposal to observe at 8 epochs beginning in April 2019.

Proposal 15705 - Visit 01 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Tue Nov 12 16:00:49 GMT 2019

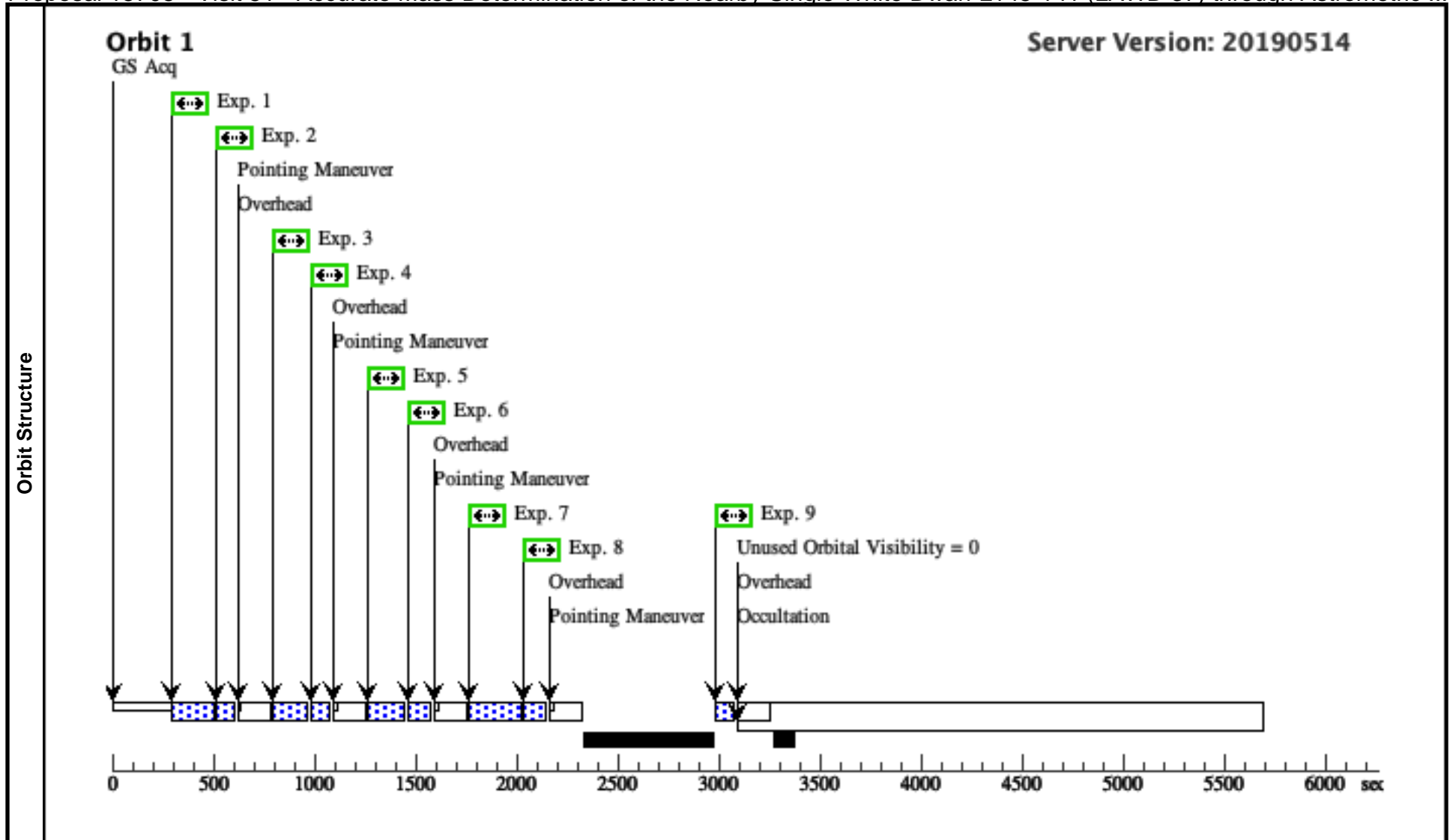
Visit	<b>Proposal 15705, Visit 01, failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 6D TO 21 D; BETWEEN 01-APR-2019 AND 16-APR-2019; VISIBILITY INTERVAL 51.64 M Comments: <i>ORIENT constraints are used to avoid diffraction spikes and bleed columns from the bright lens star falling near the faint source star.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	LAWD-37-SOURCE	RA: 11 45 51.2650 (176.4636042d) Dec: -64 50 35.87 (-64.84330d) Equinox: J2000		V=18.46	Reference Frame: ICRS			
	Comments: Category=STAR Description=[K III-I] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12; BLADE=A	POS TARG 10.4,9	Sequence 1-9 Non-Int in Visit 01	1 Secs (1 Secs) [==>]	[1]
	2		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 1	Sequence 1-9 Non-Int in Visit 01	95 Secs (95 Secs) [==>]	[1]
	3		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 15.4,14	Sequence 1-9 Non-Int in Visit 01	1 Secs (1 Secs) [==>]	[1]
	4		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 15.4,14	Sequence 1-9 Non-Int in Visit 01	95 Secs (95 Secs) [==>]	[1]
	5		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=12	POS TARG 5.4,13.9	Sequence 1-9 Non-Int in Visit 01	0.5 Secs (0.5 Secs) [==>]	[1]
	6		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 5	Sequence 1-9 Non-Int in Visit 01	95 Secs (95 Secs) [==>]	[1]
	7		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=11	POS TARG 5.3,4	Sequence 1-9 Non-Int in Visit 01	77 Secs (77 Secs) [==>]	[1]
	8		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 5.3,4	Sequence 1-9 Non-Int in Visit 01	95 Secs (95 Secs) [==>]	[1]
	9		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=11	POS TARG 15.3,3.9	Sequence 1-9 Non-Int in Visit 01	95 Secs (95 Secs) [==>]	[1]



Proposal 15705 - Visit 51 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Tue Nov 12 16:00:49 GMT 2019

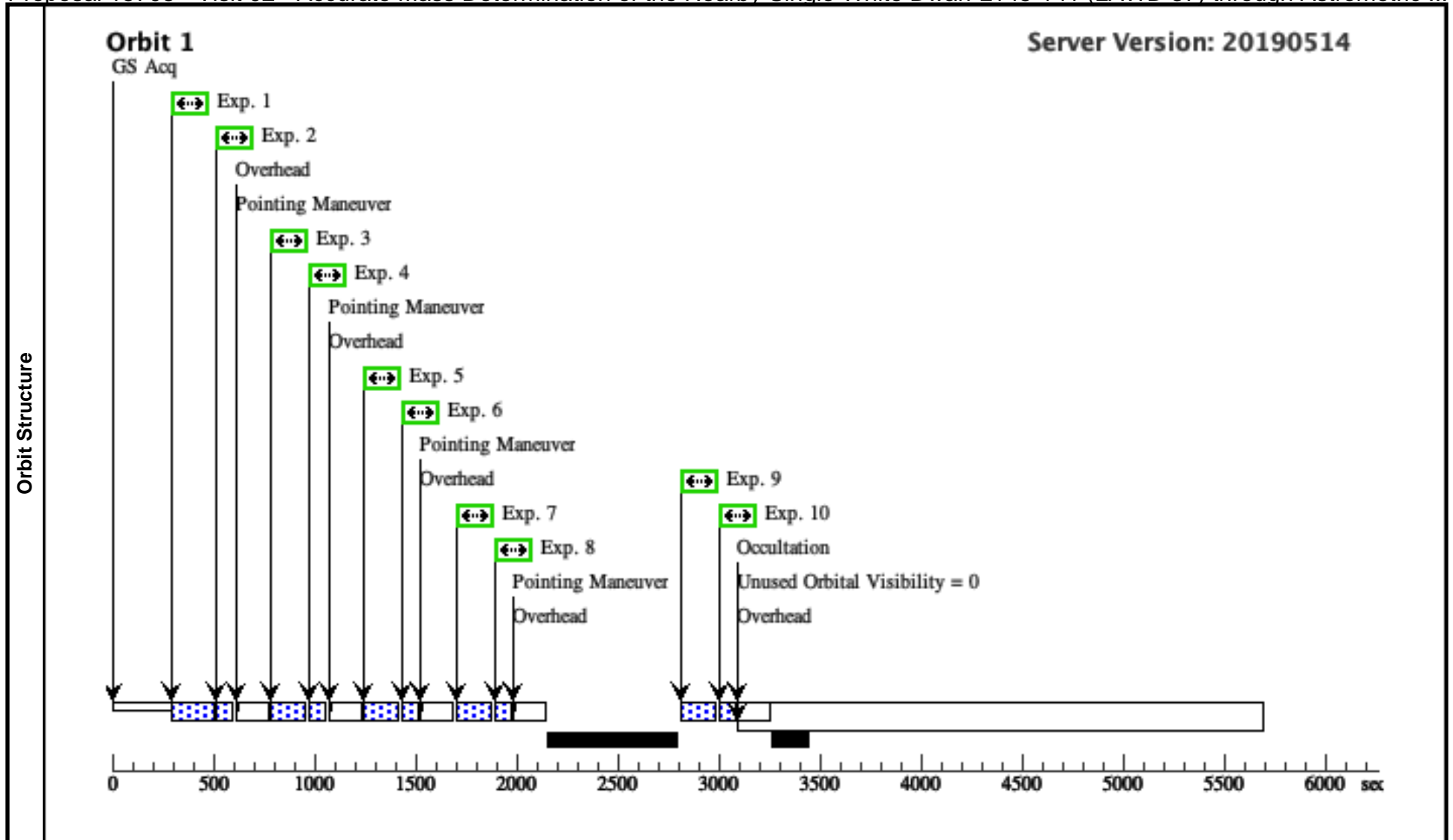
Visit	<b>Proposal 15705, Visit 51, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 54D TO 64 D; BETWEEN 27-APR-2019 AND 06-MAY-2019; VISIBILITY INTERVAL 51.64 M Comments: <i>ORIENT constraints are used to avoid diffraction spikes and bleed columns from the bright lens star falling near the faint source star. Copy of failed visit 01 without the BETWEEN requirement.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	LAWD-37-SOURCE	RA: 11 45 51.2650 (176.4636042d) Dec: -64 50 35.87 (-64.84330d) Equinox: J2000		V=18.46	Reference Frame: ICRS			
	Comments: Category=STAR Description=[K III-I] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12; BLADE=A	POS TARG 10.4,9	Sequence 1-9 Non-Int in Visit 51	1 Secs (1 Secs) [==>]	[1]
	2	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 1	Sequence 1-9 Non-Int in Visit 51	95 Secs (95 Secs) [==>]	[1]
	3	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 15.4,14	Sequence 1-9 Non-Int in Visit 51	1 Secs (1 Secs) [==>]	[1]
	4	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 15.4,14	Sequence 1-9 Non-Int in Visit 51	95 Secs (95 Secs) [==>]	[1]
	5	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=12	POS TARG 5.4,13.9	Sequence 1-9 Non-Int in Visit 51	0.5 Secs (0.5 Secs) [==>]	[1]
	6	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 5	Sequence 1-9 Non-Int in Visit 51	95 Secs (95 Secs) [==>]	[1]
	7	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=11	POS TARG 5.3,4	Sequence 1-9 Non-Int in Visit 51	77 Secs (77 Secs) [==>]	[1]
	8	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 5.3,4	Sequence 1-9 Non-Int in Visit 51	95 Secs (95 Secs) [==>]	[1]
	9	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=11	POS TARG 15.3,3.9	Sequence 1-9 Non-Int in Visit 51	95 Secs (95 Secs) [==>]	[1]



Proposal 15705 - Visit 02 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Tue Nov 12 16:00:49 GMT 2019

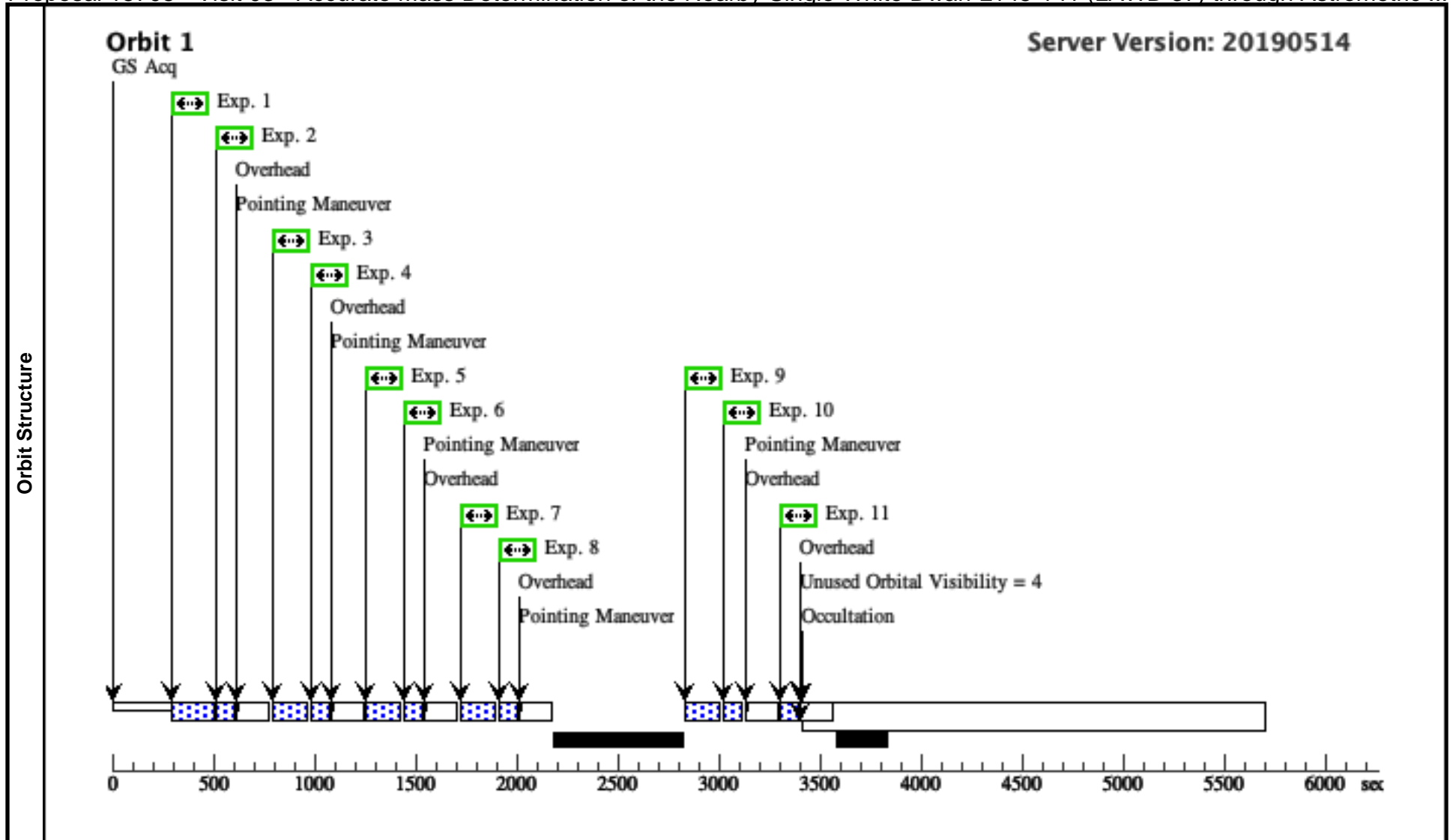
Visit	<b>Proposal 15705, Visit 02, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 182D TO 184 D; BETWEEN 17-SEP-2019 AND 23-SEP-2019; VISIBILITY INTERVAL 51.6 M Comments: <i>ORIENT constraints are used to avoid diffraction spikes and bleed columns from the bright lens star falling near the faint source star.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	LAWD-37-SOURCE	RA: 11 45 51.2650 (176.4636042d) Dec: -64 50 35.87 (-64.84330d) Equinox: J2000		V=18.46	Reference Frame: ICRS			
	Comments: Category=STAR Description=[K III-I] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12; BLADE=A	POS TARG 10.4,9	Sequence 1-10 Non-Int in Visit 02	1 Secs (1 Secs) [==>]	[1]
	2	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 1	Sequence 1-10 Non-Int in Visit 02	82 Secs (82 Secs) [==>]	[1]
	3	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 14.35,9	Sequence 1-10 Non-Int in Visit 02	1 Secs (1 Secs) [==>]	[1]
	4	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 3	Sequence 1-10 Non-Int in Visit 02	82 Secs (82 Secs) [==>]	[1]
	5	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 11.61,12.76	Sequence 1-10 Non-Int in Visit 02	1 Secs (1 Secs) [==>]	[1]
	6	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 5	Sequence 1-10 Non-Int in Visit 02	82 Secs (82 Secs) [==>]	[1]
	7	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 7.2,11.31	Sequence 1-10 Non-Int in Visit 02	1 Secs (1 Secs) [==>]	[1]
	8	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 7	Sequence 1-10 Non-Int in Visit 02	82 Secs (82 Secs) [==>]	[1]
	9	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 7.22,6.66	Sequence 1-10 Non-Int in Visit 02	1 Secs (1 Secs) [==>]	[1]
	10	(1) LAWD-37-SOU RCE	(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 9	Sequence 1-10 Non-Int in Visit 02	82 Secs (82 Secs) [==>]	[1]



Proposal 15705 - Visit 03 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Tue Nov 12 16:00:49 GMT 2019

Visit	<b>Proposal 15705, Visit 03, failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 210D TO 215 D; BETWEEN 22-OCT-2019 AND 26-OCT-2019 Comments: <i>ORIENT constraints are used to avoid diffraction spikes and bleed columns from the bright lens star falling near the faint source star.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	LAWD-37-SOURCE	RA: 11 45 51.2650 (176.4636042d) Dec: -64 50 35.87 (-64.84330d) Equinox: J2000		V=18.46	Reference Frame: ICRS				
	Comments: Category=STAR Description=[K III-I] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12; BLADE=A	POS TARG 10.4,9; GS ACQ SCENARI O BASE1B3	Sequence 1-11 Non-I nt in Visit 03	1 Secs (1 Secs) [==>]	[1]
	2		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 1	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]
	3		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 14.35,9	Sequence 1-11 Non-I nt in Visit 03	1 Secs (1 Secs) [==>]	[1]
	4		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 3	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]
	5		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 12.37,12 .42	Sequence 1-11 Non-I nt in Visit 03	1 Secs (1 Secs) [==>]	[1]
	6		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 5	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]
	7		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 8.42,12. 42	Sequence 1-11 Non-I nt in Visit 03	1 Secs (1 Secs) [==>]	[1]
	8		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 7	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]
	9		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=12	POS TARG 6.45,8.9 8	Sequence 1-11 Non-I nt in Visit 03	1 Secs (1 Secs) [==>]	[1]
	10		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	SAME POS AS 9	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]
11		(1) LAWD-37-SOU RCE	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 8.44,5.5 7	Sequence 1-11 Non-I nt in Visit 03	89 Secs (89 Secs) [==>]	[1]	



Proposal 15705 - Visit 52 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Tue Nov 12 16:00:49 GMT 2019

<b>Visit</b>	<b>Proposal 15705, Visit 52, implementation</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 251D TO 254 D; BETWEEN 26-NOV-2019 AND 28-NOV-2019 <i>Comments: ORIENT constraints are used to avoid diffraction spikes and bleed columns from the bright lens star falling near the faint source star.</i>						
	<b>Diagnostics</b>	(Exposure 1 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 2 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 3 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 4 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 5 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 6 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 7 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 8 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 9 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 10 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 11 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 12 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 13 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 14 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 15 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 16 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 17 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser (Exposure 18 (Sequence 1-18 Non-Int in Visit 52)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser					
<b>Fixed Targets</b>		<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>
		(2)	LAWD-37-OFFSET	RA: 11 45 50.9500 (176.4622917d) Dec: -64 50 41.50 (-64.84486d) Equinox: J2000		V=19	Reference Frame: ICRS
<i>Comments:</i> Category=EXT-STAR Description=[DC] Extended=NO							

Proposal 15705 - Visit 52 - Accurate Mass Determination of the Nearby Single White Dwarf L145-141 (LAWD 37) through Astrometric ...

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=20;	POS TARG 0,0;	Sequence 1-18 Non-Int in Visit 52	1.5 Secs (1.5 Secs)	[1]
	2	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	SAME POS AS 1	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	3	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG 3.56,0	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	4	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG 3.08,1.78	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	5	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=20	POS TARG 1.77,3.08	Sequence 1-18 Non-Int in Visit 52	1.5 Secs (1.5 Secs)	[1]
	6	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	SAME POS AS 5	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	7	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG -0.01,3.55	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	8	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG -1.79,3.07	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	9	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=20	POS TARG -3.09,1.77	Sequence 1-18 Non-Int in Visit 52	1.5 Secs (1.5 Secs)	[1]
	10	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	SAME POS AS 9	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	11	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG -3.55,-0.02	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	12	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG -3.07,-1.79	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	13	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=20	POS TARG -1.76,-3.09	Sequence 1-18 Non-Int in Visit 52	1.5 Secs (1.5 Secs)	[1]
	14	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	SAME POS AS 13	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	15	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG 0.02,-3.55	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	16	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	POS TARG 1.8,-3.07	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]
	17	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=20	POS TARG 3.09,-1.75	Sequence 1-18 Non-Int in Visit 52	1.5 Secs (1.5 Secs)	[1]
18	(2) LAWD-37-OFFS ET	(2) LAWD-37-OFFS ET	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=18	SAME POS AS 17	Sequence 1-18 Non-Int in Visit 52	85 Secs (85 Secs)	[1]	

