



13748 - Astrometric search for Planets in the closest Brown Dwarf Binary system

Luhman 16AB

Cycle: 22, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS	1	23-Jul-2014 21:27:42.0	yes
02	(4) LUHMAN16AB-SFT	WFC3/UVIS	1	23-Jul-2014 21:27:44.0	yes
03	(4) LUHMAN16AB-SFT	WFC3/UVIS	1	23-Jul-2014 21:27:46.0	yes
04	(5) LUHMAN16ABMINAPNE1	WFC3/UVIS	1	23-Jul-2014 21:27:47.0	yes
05	(5) LUHMAN16ABMINAPNE1	WFC3/UVIS	1	23-Jul-2014 21:27:48.0	yes
06	(5) LUHMAN16ABMINAPNE1	WFC3/UVIS	1	23-Jul-2014 21:27:50.0	yes
07	(5) LUHMAN16ABMINAPNE1	WFC3/UVIS	1	23-Jul-2014 21:27:51.0	yes
08	(5) LUHMAN16ABMINAPNE1	WFC3/UVIS	1	23-Jul-2014 21:27:52.0	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	(7) LUHMAN16AB-RICCILOLO-1	WFC3/UVIS	1	23-Jul-2014 21:27:54.0	yes
10	(7) LUHMAN16AB-RICCILOLO-1	WFC3/UVIS	1	23-Jul-2014 21:27:55.0	yes
11	(7) LUHMAN16AB-RICCILOLO-1	WFC3/UVIS	1	23-Jul-2014 21:27:56.0	yes
12	(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS	1	23-Jul-2014 21:27:58.0	yes
13	(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS	1	23-Jul-2014 21:28:00.0	yes

13 Total Orbits Used

ABSTRACT

Located at 2.0 pc, the L8+T1 dwarfs system Luhman16AB is the third closest system known to Earth, making it a key benchmark for detailed investigation of brown dwarf atmospheric properties, thermal evolution, multiplicity and planet-hosting frequency. Indeed, a recent ground-based astrometric campaign suggested this system to host a 5-30 Jupiter masses exoplanet.

We propose to use HST in spatial-scanning mode to obtain the most accurate annual parallax of any brown dwarf to date, achieving an unprecedented accuracy of 1 part in 10000 (50 micro-arcsecond) for each of the two components of Luh16, and to constrain their absolute space motions with similar accuracy. Most importantly, we will be able to confirm the giant planet candidate and to search for faint companions co-moving with the targets, either resolved or through astrometric perturbations of the A-B orbital motion, the latter probing down to few Earth-masses.

Present-day ground-based direct imaging and AO facilities have fundamental limitations (field of view, PSF stability, differential chromatic effects, visibility) which introduce systematic and seasonal errors that are hard to quantify, and which have already resulted many times in clamorous false alarm in the recent past. This is particularly true for faint and red objects.

Luhman 16A and B will be problematic for GAIA (faint, color, crowding, visibility), and the here proposed HST spatial-scanning mode observations will actually be an important complementary validation of the final GAIA catalog itself (expected 2020). Similarly, JWST is not expected to provide any better astrometry than HST because of its broader and irregular PSFs.

OBSERVING DESCRIPTION

Each visit is scheduled in a 4-10 days window, centered at a well defined epoch.

These epochs are chosen as to better constrain the maxima elongation along the major and minor axis of the annual parallax of Luh16AB, its proper motions, the cusp and curve of the resulting cycloid combined motions, and to sample presence of possible extrasolar planets with periods between ~15 days and ~6 months.

Three epochs are taken at the maxima elongation along the annual parallax semi-major axis.

Five epochs at the maxima elongations along the semi-minor axis of the annual parallax.

Three epochs are taken at the cycloid (proper motions + annual parallax) curves of the Luh16AB proper motions (visits labeled "ricciolo"), and two epochs at the bottom of the cycloid motion (visits labeled "pancia").

For total of $3+5+3+2 = 13$ epochs.

Eleven of these epochs should be taken within Cycle 22, and the last two within Cycle 23.

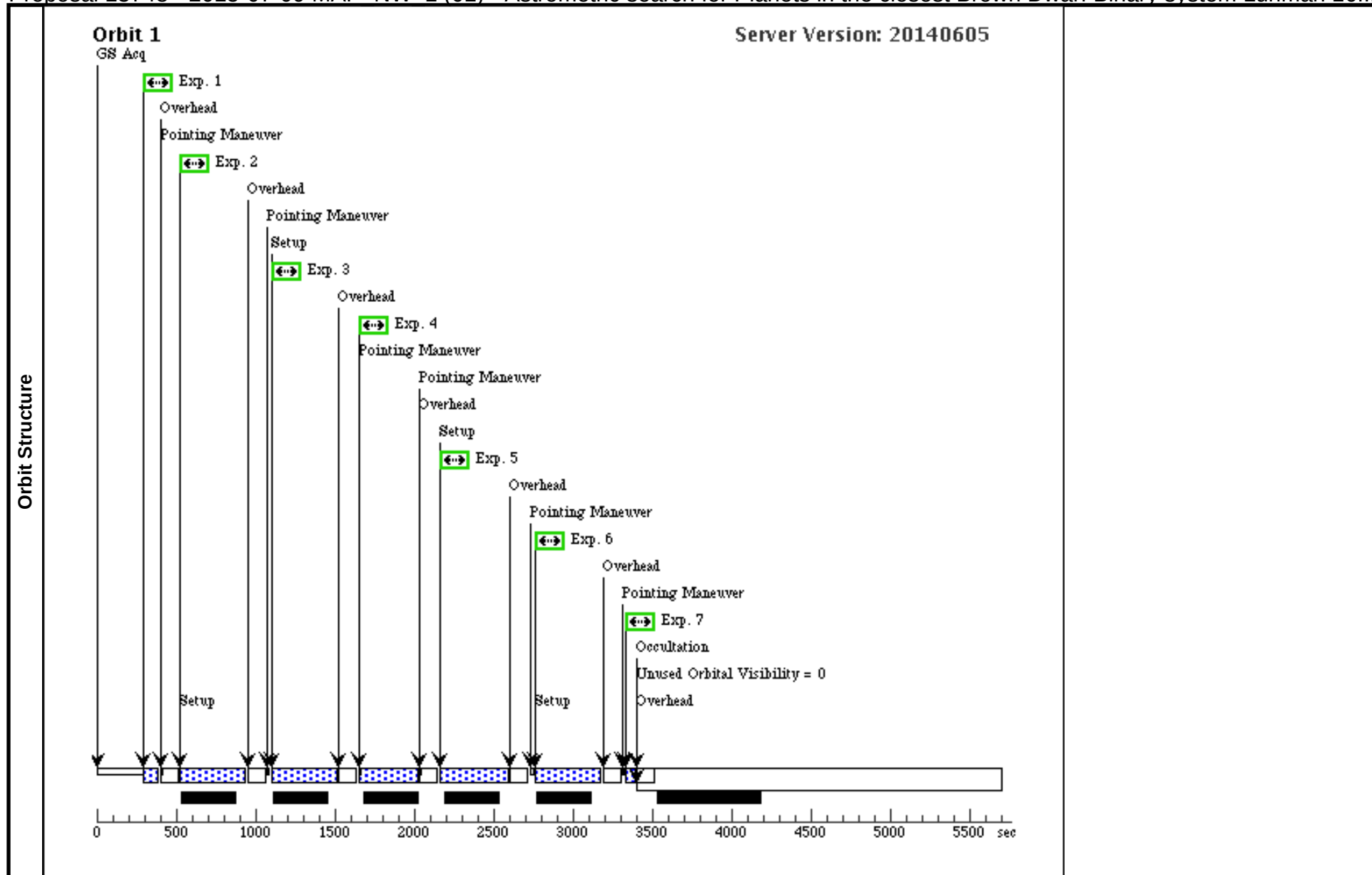
The first epoch should be taken as early as possible (this should be in this August 29th, 2014).

Each epoch contains three images in point source imaging mode, and four in spatial-scanning mode with WFC3/UVIS.

In addition to the images taken in spatial scan mode and to the short two point-source images at the beginning and at the end of the single orbit-visits --- as requested at the phase I stage --- it turned out possible to fit in the orbit one extra point source images of 348s in F606W. The color information will be precious to discriminate the nature (and so the distance) of the reference sources in the field (for example to separate slow close by red dwarf from far away giants).

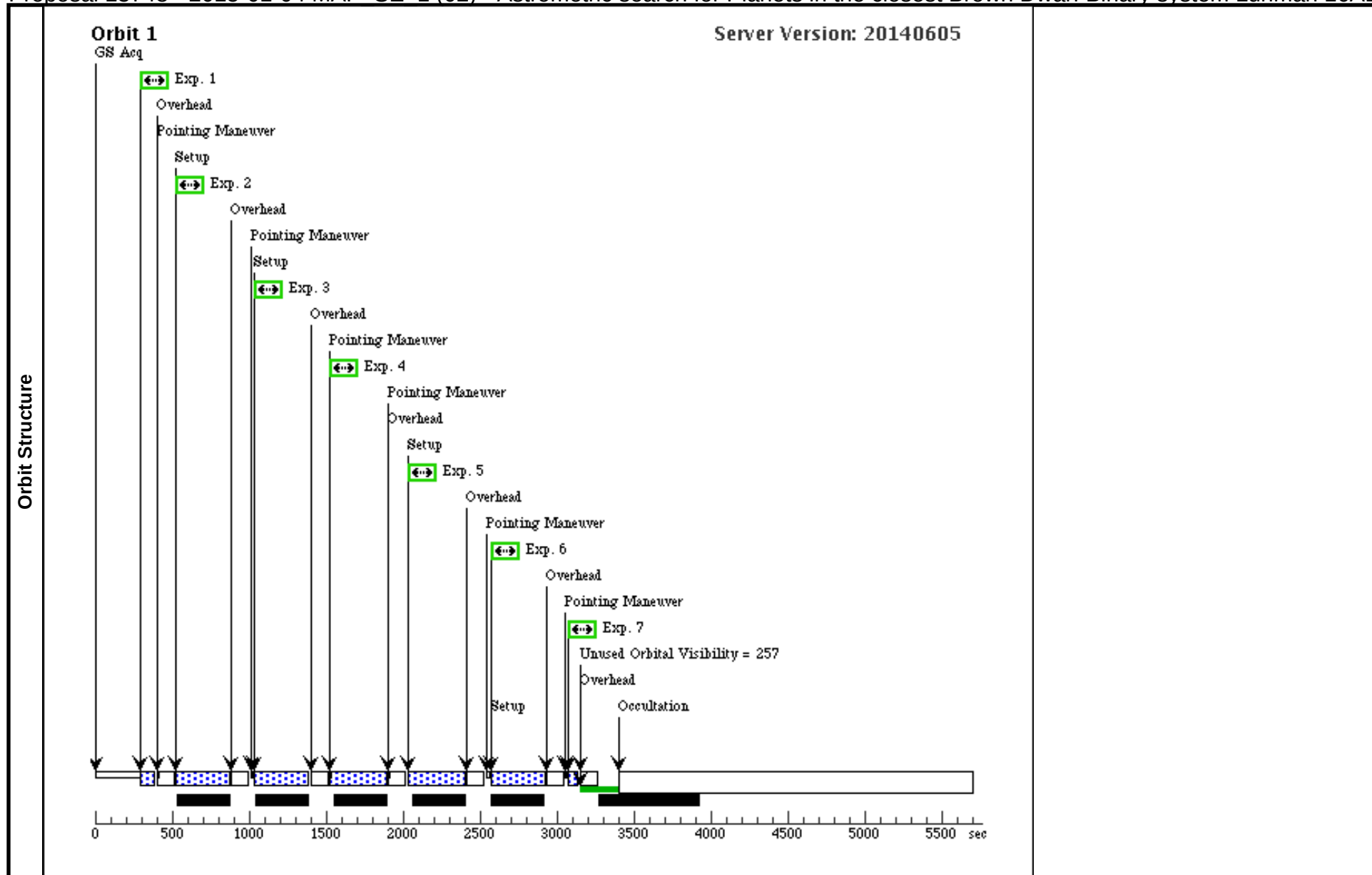
Proposal 13748 - 2015-07-09 MAP NW 1 (01) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16...

Visit	Proposal 13748, 2015-07-09 MAP_NW_1 (01) Thu Jul 24 01:28:01 GMT 2014 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 145D TO 145 D; BETWEEN 01-JUL-2015 AND 16-JUL-2015 <i>Comments: Epoch 2015-07-09.</i> <i>This is the epoch is taken at the maximum NW-elongation in the major axis of the annual parallax (AP).</i> <i>The epoch must be around 2015-07-09 +/- 15 days</i> <i>Then we want to scan perpendicularly to the major axis.</i> <i>ORIENTATION = ~ 0d or ~180d +/- 35d</i> <i>main SCAN along Y, where CTE are worse, so SCAN ORIENT.</i> <i>secondary SCAN along X.</i> <i>A suitalbe window seems to be between 2 July 2015 and and 16 July 2016. The closer to the July 9th, the better.</i>									
	Fixed Targets									
	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(6)	LUHMAN16AB-MAP-NW	RA: 10 49 13.0000 (162.3041667d) Dec: -53 19 4.60 (-53.31794d) Equinox: J2000			V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
	<i>Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4			60 Secs (60 Secs) [==>]	[1]
	2	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 1,270.0 Degrees,Forward			413 Secs (413 Secs) [==>]	[1]
	3	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 1,0.0 Degrees,Forward			412 Secs (412 Secs) [==>]	[1]
	4	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0			348 Secs (348 Secs) [==>]	[1]
	5	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 1,180.0 Degrees,Forward			412 Secs (412 Secs) [==>]	[1]
	6	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 1,90.0 Degrees,Forward			413 Secs (413 Secs) [==>]	[1]
	7	(6) LUHMAN16AB-MAP-NW	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4			60 Secs (60 Secs) [==>]	[1]



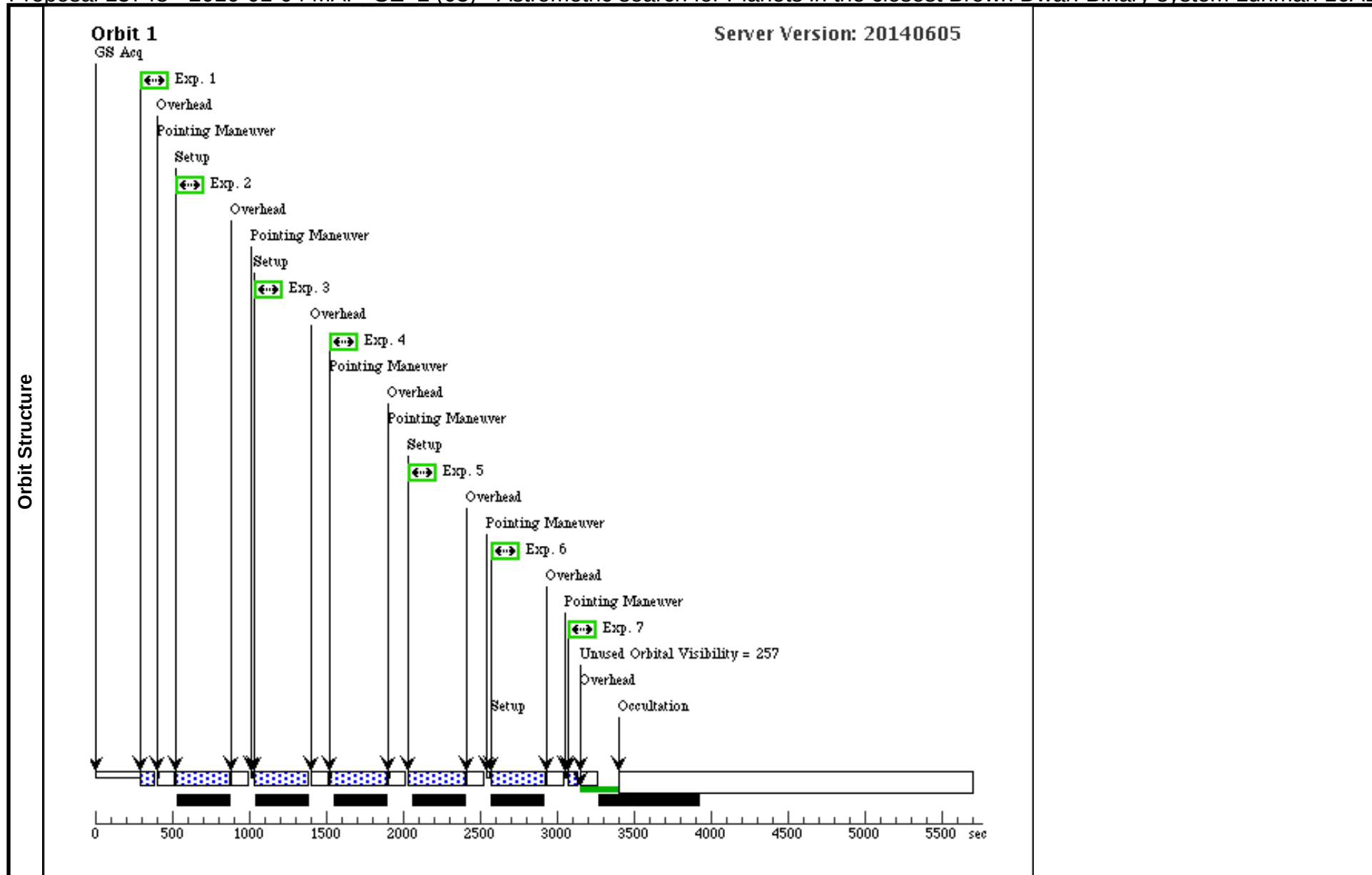
Proposal 13748 - 2015-01-04 MAP SE 1 (02) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2015-01-04 MAP_SE_1 (02) Thu Jul 24 01:28:02 GMT 2014 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 325D TO 325 D; BETWEEN 01-JAN-2015 AND 10-JAN-2015 <i>Comments: Epoch 2015-01-04.</i> <i>This is the epoch is taken at the maximum SE-elongation in the major axis of the annual parallax (AP).</i> <i>The epococh must be around 2015-01-04 +/- 15 days</i> <i>Then we want to scan perpendicularly to the major axis.</i> <i>ORIENTATION = ~ 0d or ~180d +/- 35d</i> <i>main SCAN along Y, where CTE are worse, so SCAN ORIENT.</i> <i>secondary SCAN along X.</i> <i>A suitalbe window seems to be between 1 Jan 2014 and and 8 Jan 2015. The closer to the Jan 4th, the better.</i>									
	Fixed Targets									
	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(4)	LUHMAN16AB-SFT	RA: 10 49 13.0000 (162.3041667d) Dec: -53 19 6.60 (-53.31850d) Equinox: J2000 <i>Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016</i>			V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4			60 Secs (60 Secs) [==>]	[1]
	2	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Forward			348 Secs (348 Secs) [==>]	[1]
	3	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forward			348 Secs (348 Secs) [==>]	[1]
	4	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0			348 Secs (348 Secs) [==>]	[1]
	5	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Forward			348 Secs (348 Secs) [==>]	[1]
	6	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,Forward			348 Secs (348 Secs) [==>]	[1]
	7	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4			60 Secs (60 Secs) [==>]	[1]



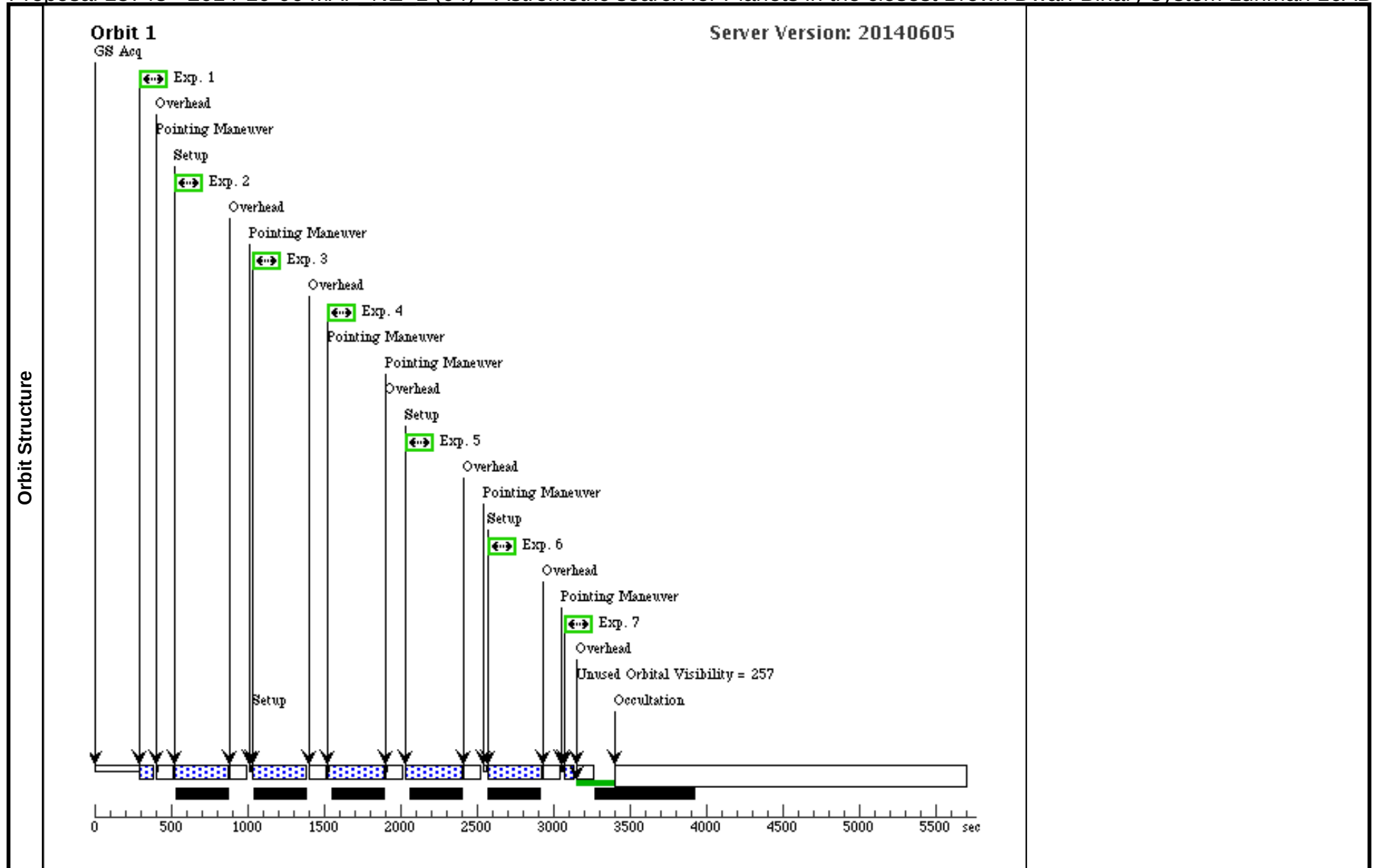
Proposal 13748 - 2016-01-04 MAP SE 2 (03) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2016-01-04 MAP_SE_2 (03)										Thu Jul 24 01:28:02 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 325D TO 325 D; BETWEEN 01-JAN-2016 AND 10-JAN-2016										
	Comments: Epoch 2016-01-04. This is the epoch is taken at the maximum SE-elongation in the major axis of the annual parallax (AP). The epococh must be around 2016-01-04 +/- 25 days Then we want to scan perpendicularly to the major axis. ORIENTATION = ~ 0d or ~180d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X. A suitalbe window seems to be between 15 Dec 2015 and 4 Feb 2016. The closer to the Jan 4th, the better.										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(4)	LUHMAN16AB-SFT	RA: 10 49 13.0000 (162.3041667d) Dec: -53 19 6.60 (-53.31850d) Equinox: J2000		V=24+/-1 Sloan-i = 15 +/- .5	Reference Frame: ICRS					
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs) [==>]	[1]	
	2	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Forward		348 Secs (348 Secs) [==>]	[1]	
	3	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forward		348 Secs (348 Secs) [==>]	[1]	
	4	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs) [==>]	[1]	
	5	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Forward		348 Secs (348 Secs) [==>]	[1]	
	6	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,Forward		348 Secs (348 Secs) [==>]	[1]	
	7	(4) LUHMAN16AB-SFT	(4) LUHMAN16AB-SFT	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs) [==>]	[1]	



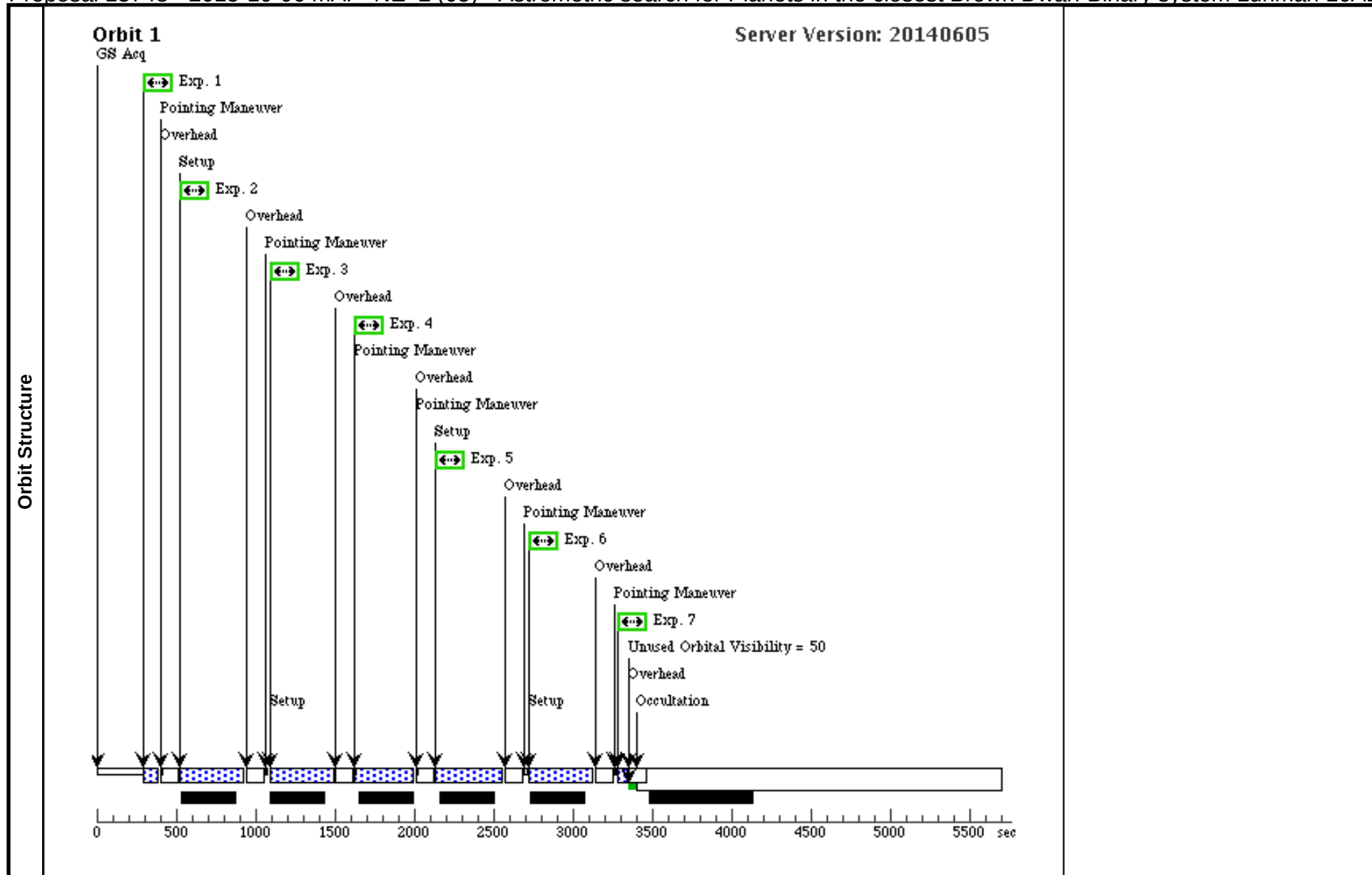
Proposal 13748 - 2014-10-06 mAP NE 1 (04) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2014-10-06 mAP_NE_1 (04) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 220D TO 220 D; BETWEEN 01-OCT-2014 AND 10-OCT-2014 Comments: Epoch 2014-10-06. This is the epoch is taken at the minimum NE-elongation in the minor axis of the annual parallax (AP). The epococh must be around 2014-10-06 +/- 25 days Then we want to scan perpendicularly to the minor axis. ORIENTATION = ~ 90d or ~270d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X. A suitalbe window seems to be between 28 September 2014 and 15 Oct 2014. The closer to the Oct 6th, the better.																																																																																									
	Fixed Targets	<table><tr><th>#</th><th>Name</th><th>Target Coordinates</th><th>Targ. Coord. Corrections</th><th>Fluxes</th><th>Miscellaneous</th></tr><tr><td>(5)</td><td>LUHMAN16ABMINAP NE1</td><td>RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000</td><td></td><td>V=24+/-1 Sloan-i = 15 +/- .5</td><td>Reference Frame: ICRS</td></tr></table> Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(5)	LUHMAN16ABMINAP NE1	RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000		V=24+/-1 Sloan-i = 15 +/- .5	Reference Frame: ICRS																																																																			
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Exposures	<table><tr><th>#</th><th>Label</th><th>Target</th><th>Config,Mode,Aperture</th><th>Spectral Els.</th><th>Opt. Params.</th><th>Special Reqs.</th><th>Groups</th><th>Exp. Time (Total)/[Actual Dur.]</th><th>Orbit</th></tr><tr><td>1</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG -4,4</td><td></td><td>60 Secs (60 Secs) [==>]</td><td>[1]</td></tr><tr><td>2</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward</td><td></td><td>348 Secs (348 Secs) [==>]</td><td>[1]</td></tr><tr><td>3</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard</td><td></td><td>348 Secs (348 Secs) [==>]</td><td>[1]</td></tr><tr><td>4</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F606W</td><td>FLASH=12</td><td>POS TARG 0,0</td><td></td><td>348 Secs (348 Secs) [==>]</td><td>[1]</td></tr><tr><td>5</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward</td><td></td><td>348 Secs (348 Secs) [==>]</td><td>[1]</td></tr><tr><td>6</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward</td><td></td><td>348 Secs (348 Secs) [==>]</td><td>[1]</td></tr><tr><td>7</td><td></td><td>(5) LUHMAN16AB MINAPNE1</td><td>WFC3/UVIS, ACCUM, UVIS1</td><td>F814W</td><td>FLASH=12</td><td>POS TARG 4,-4</td><td></td><td>60 Secs (60 Secs) [==>]</td><td>[1]</td></tr></table>										#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	1		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs) [==>]	[1]	2		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	3		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs) [==>]	[1]	4		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs) [==>]	[1]	5		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	6		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs) [==>]	[1]	7		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs) [==>]	[1]
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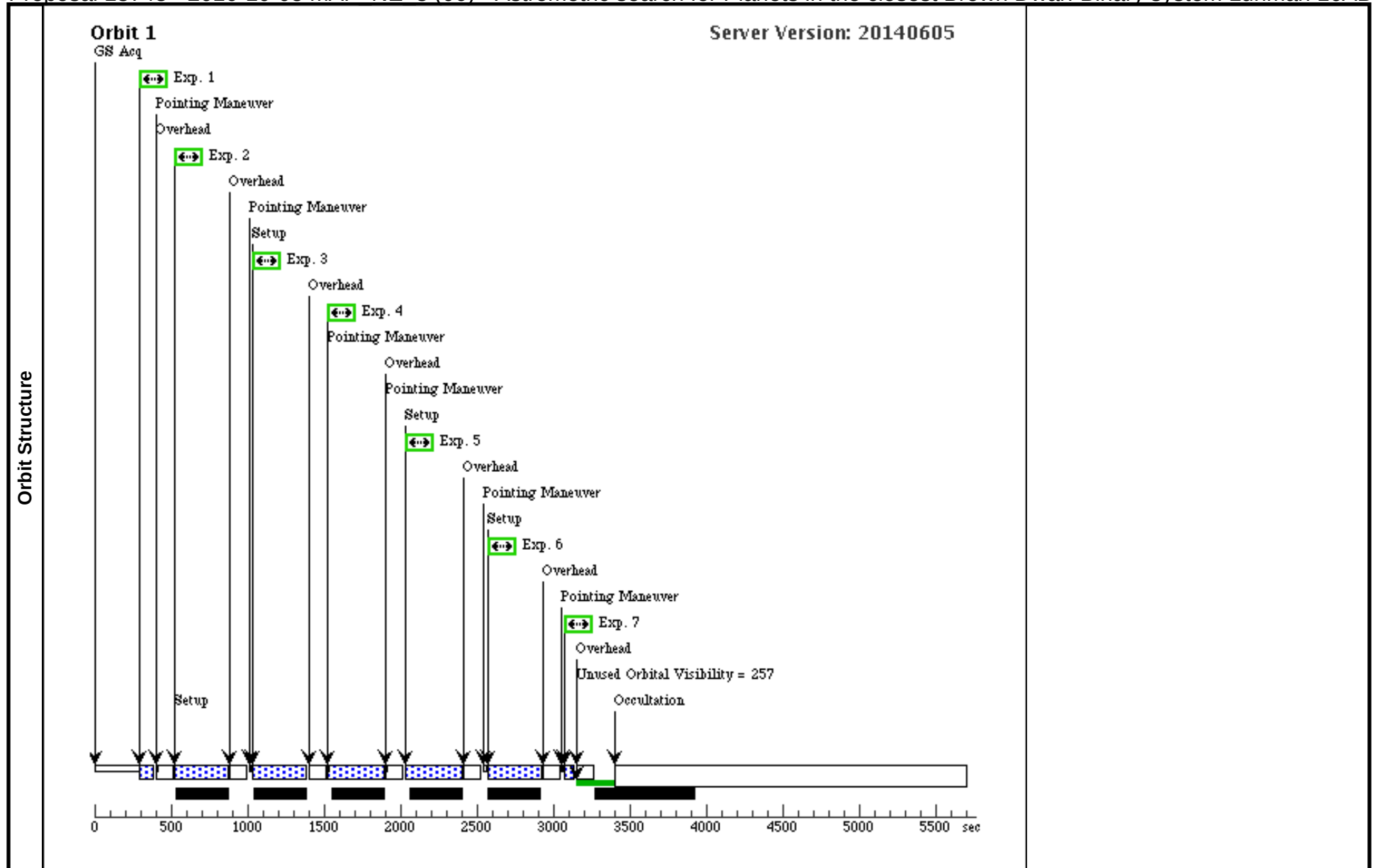
Proposal 13748 - 2015-10-06 mAP NE 2 (05) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2015-10-06 mAP_NE_2 (05)										Thu Jul 24 01:28:02 GMT 2014	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: WFC3/UVIS											
	Special Requirements: ORIENT 220D TO 220 D; BETWEEN 01-OCT-2015 AND 10-OCT-2015											
	Comments: Epoch 2015-10-06. This is the epoch is taken at the minimum NE-elongation in the minor axis of the annual parallax (AP). The epococh must be around 2015-10-06 +/- 25 days Then we want to scan perpendicularly to the minor axis. ORIENTATION = ~ 90d or ~270d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X. A suitalbe window seems to be between 28 September 2015 and 15 Oct 2015. The closer to the Oct 6th, the better.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(5)	LUHMAN16ABMINAP NE1	RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000					V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016												
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
										[==>]		[1]
	2		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 1,270.0 Degrees,For ward		400 Secs (400 Secs)		
										[==>]		[1]
	3		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 1,0.0 Degrees,Forwa rd		400 Secs (400 Secs)		
										[==>]		[1]
	4		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
										[==>]		[1]
	5		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 1,180.0 Degrees,For ward		400 Secs (400 Secs)		
									[==>]		[1]	
6		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 1,90.0 Degrees,Forw ard		400 Secs (400 Secs)			
									[==>]		[1]	
7		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1		F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
									[==>]		[1]	



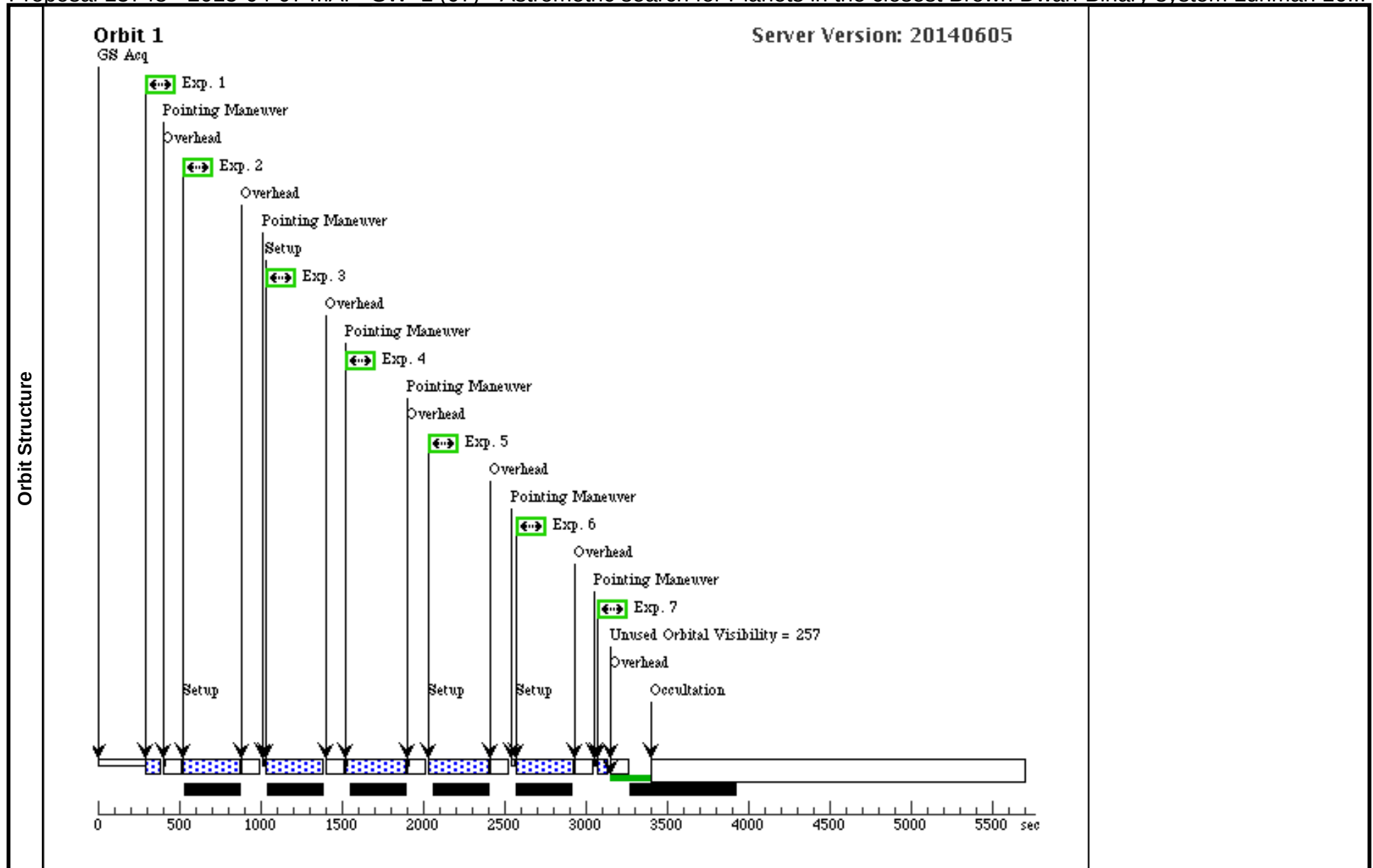
Proposal 13748 - 2016-10-05 mAP NE 3 (06) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2016-10-05 mAP_NE_3 (06)										Thu Jul 24 01:28:02 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 220D TO 220 D; BETWEEN 01-OCT-2016 AND 11-OCT-2016										
	Comments: Epoch 2016-10-05. This is the epoch is taken at the minimum NE-elongation in the minor axis of the annual parallax (AP). The epococh must be around 2016-10-05 +/- 25 days Then we want to scan perpendicularly to the minor axis. ORIENTATION = ~ 90d or ~270d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X. A suitalbe window seems to be between 28 September 2015 and 15 Oct 2016. The closer to the Oct 5th 2016, the better.										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(5)	LUHMAN16ABMINAP NE1	RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000				V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	4		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Forward		348 Secs (348 Secs)		
								[==>]		[1]	
6		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,Forward		348 Secs (348 Secs)			
								[==>]		[1]	
7		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
								[==>]		[1]	



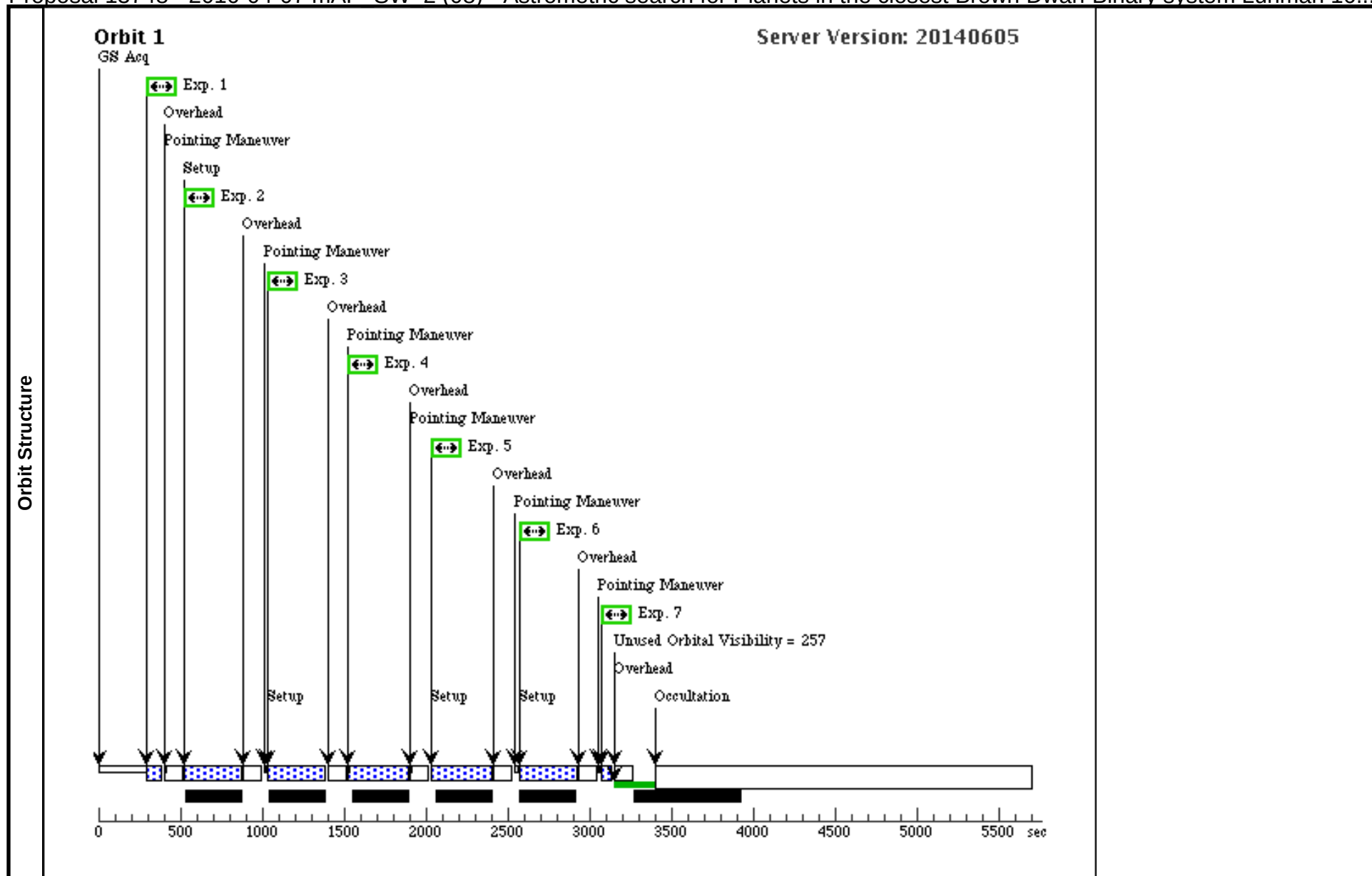
Proposal 13748 - 2015-04-07 mAP SW 1 (07) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16...

Visit	Proposal 13748, 2015-04-07 mAP_SW_1 (07)										Thu Jul 24 01:28:02 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 35D TO 35 D; BETWEEN 01-APR-2015 AND 08-APR-2015										
Fixed Targets	Comments: Epoch 2015-04-07. This is the epoch is taken at the minimum SW-elongation in the minor axis of the annual parallax (AP). The epococh must be around 2015-04-07 +/- 25 days Then we want to scan perpendicularly to the minor axis. ORIENTATION = ~ 90d or ~270d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
	A suitalbe window seems to be between 1 April 2015 and 15 April 2015. The closer to the Apr 7th 2015, the better.										
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(5)	LUHMAN16ABMINAP NE1	RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000		V=24+/-1 Sloan-i = 15 +/- .5	Reference Frame: ICRS					
Exposures	Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016										
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs) [==>]	[1]	
	2		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	
	3		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs) [==>]	[1]	
	4		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs) [==>]	[1]	
	5		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	
	6		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs) [==>]	[1]	
	7		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs) [==>]	[1]	



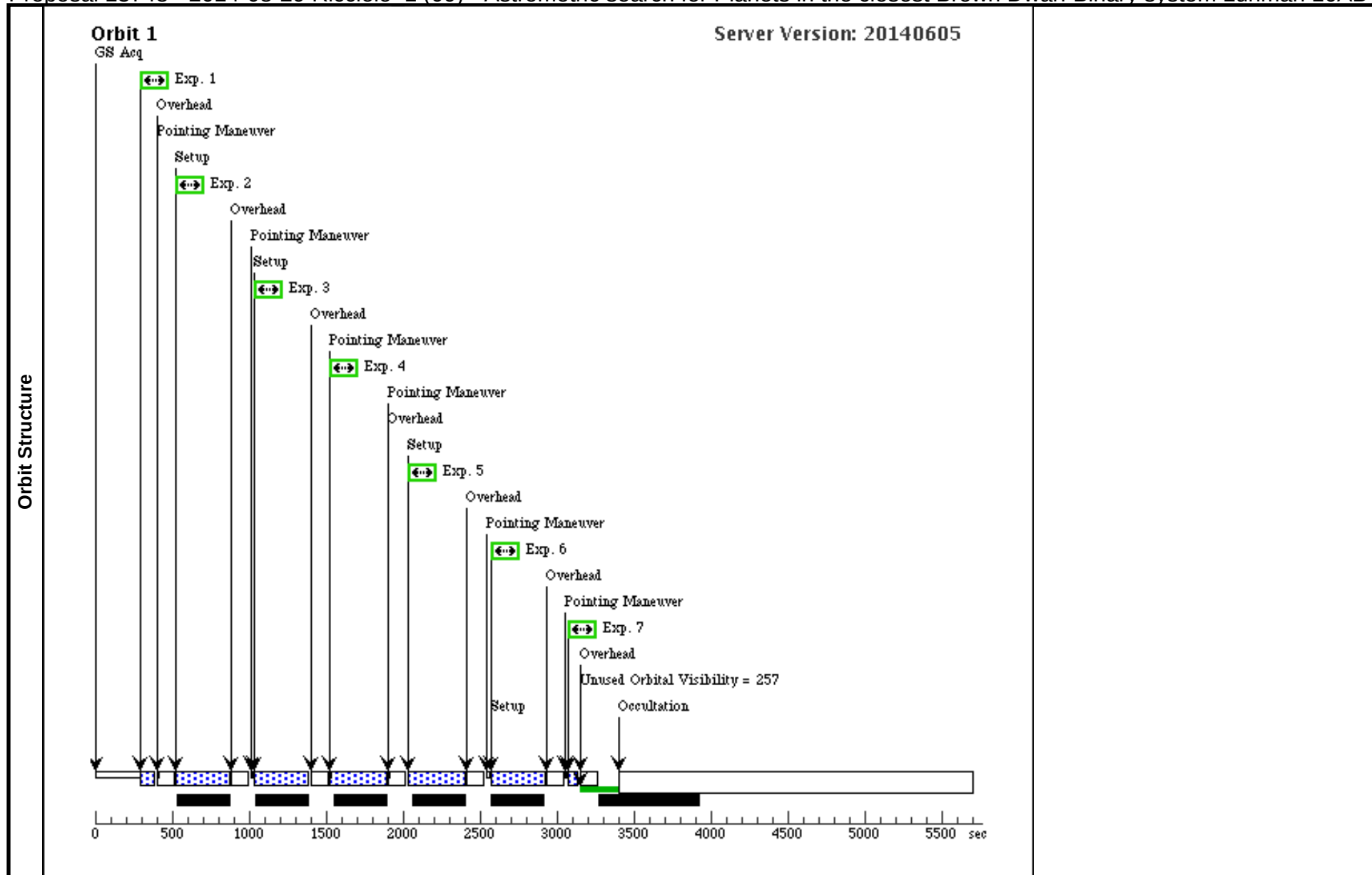
Proposal 13748 - 2016-04-07 mAP SW 2 (08) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16...

Visit	Proposal 13748, 2016-04-07 mAP_SW_2 (08)										Thu Jul 24 01:28:03 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 35D TO 35 D; BETWEEN 01-APR-2016 AND 08-APR-2016 Comments: Epoch 2016-04-07. This is the epoch is taken at the minimum SW-elongation in the minor axis of the annual parallax (AP). The epococh must be around 2016-04-07 +/- 25 days Then we want to scan perpendicularly to the minor axis. ORIENTATION = ~ 90d or ~270d +/- 35d main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X. A suitalbe window seems to be between 1 April 2016 and 15 April 2015. The closer to the Apr 7th 2015, the better.										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(5)	LUHMAN16ABMINAP NE1	RA: 10 49 16.5000 (162.3187500d) Dec: -53 19 40.00 (-53.32778d) Equinox: J2000		V=24+/-1 Sloan-i = 15 +/- .5	Reference Frame: ICRS					
	Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs) [==>]	[1]	
	2		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	
	3		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs) [==>]	[1]	
	4		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs) [==>]	[1]	
	5		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs) [==>]	[1]	
	6		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs) [==>]	[1]	
	7		(5) LUHMAN16AB MINAPNE1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs) [==>]	[1]	



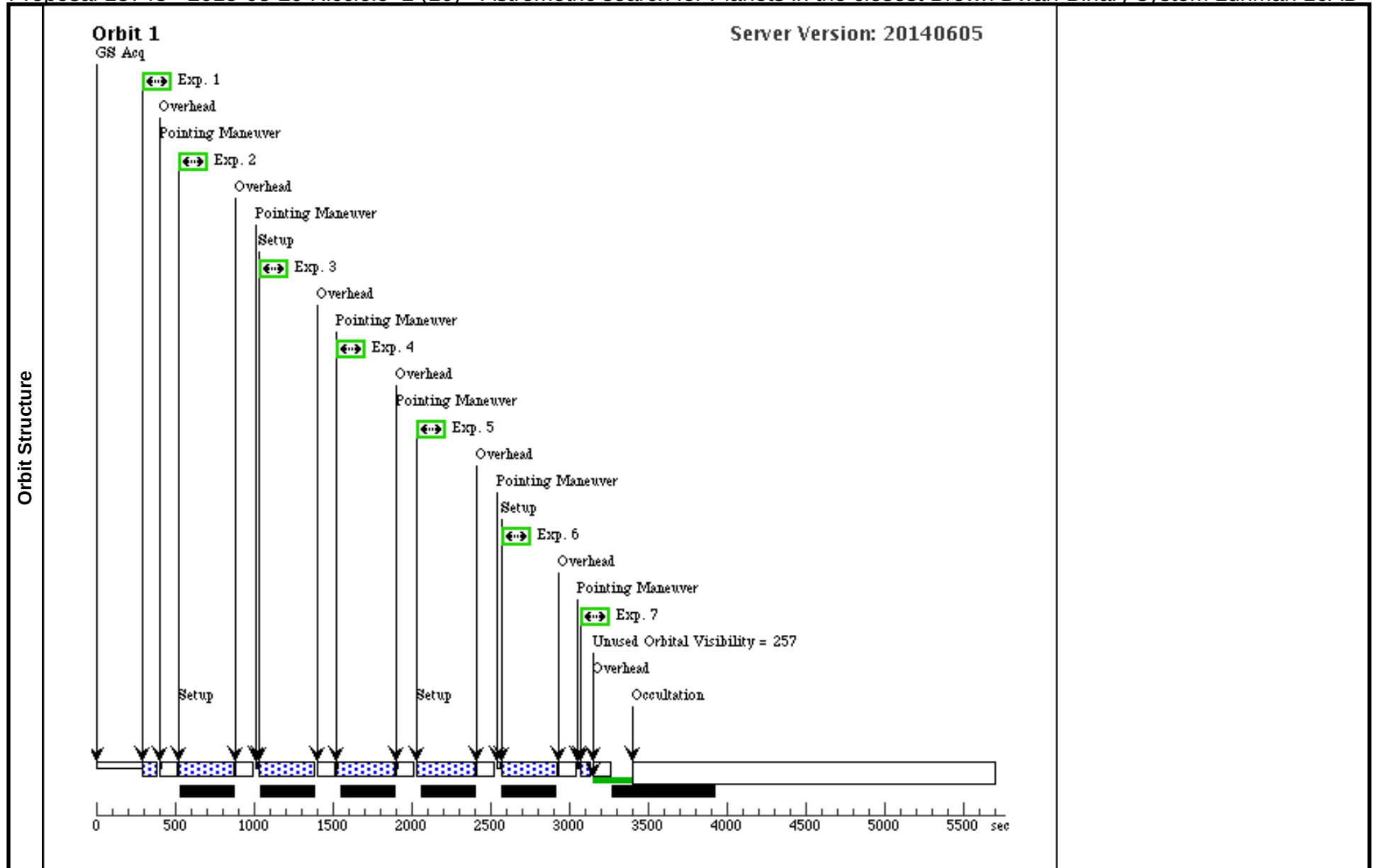
Proposal 13748 - 2014-08-29 Ricciolo 1 (09) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2014-08-29 Ricciolo_1 (09)								Thu Jul 24 01:28:03 GMT 2014		
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 160D TO 165 D; BETWEEN 20-AUG-2014 AND 03-SEP-2014										
	Comments: Epoch 2014-08-29. This is the epoch is taken at the ricciolo of the cycloid apparent motion. The epoch must be around 2014-08-29 +/- 15 days main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(7)	LUHMAN16AB- RICCIOLO-1	RA: 10 49 15.0000 (162.3125000d) Dec: -53 19 12.00 (-53.32000d) Equinox: J2000				V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs)		
									[==>]		[1]
	4		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs)		
								[==>]		[1]	
6		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs)			
								[==>]		[1]	
7		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
								[==>]		[1]	



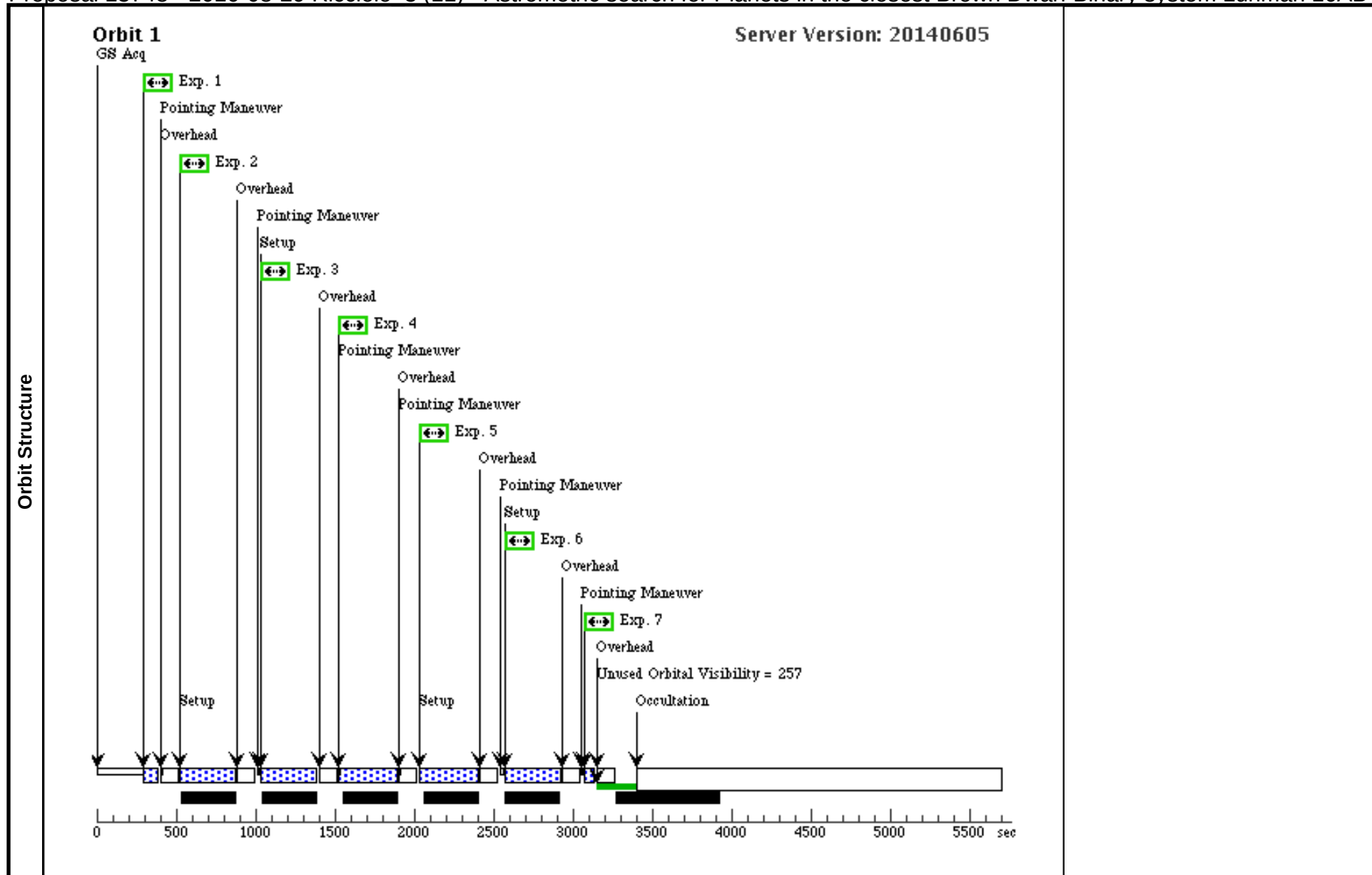
Proposal 13748 - 2015-08-29 Ricciolo 2 (10) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2015-08-29 Ricciolo_2 (10)								Thu Jul 24 01:28:03 GMT 2014		
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 160D TO 165 D; BETWEEN 20-AUG-2015 AND 03-SEP-2015										
	Comments: Epoch 2015-08-29. This is the epoch is taken at the ricciolo of the cycloid apparent motion. The epoch must be around 2015-08-29 +/- 15 days main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(7)	LUHMAN16AB- RICCIOLO-1	RA: 10 49 15.0000 (162.3125000d) Dec: -53 19 12.00 (-53.32000d) Equinox: J2000				V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs)		
									[==>]		[1]
	4		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs)		
									[==>]		[1]
	6		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs)		
									[==>]		[1]
7		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
								[==>]		[1]	



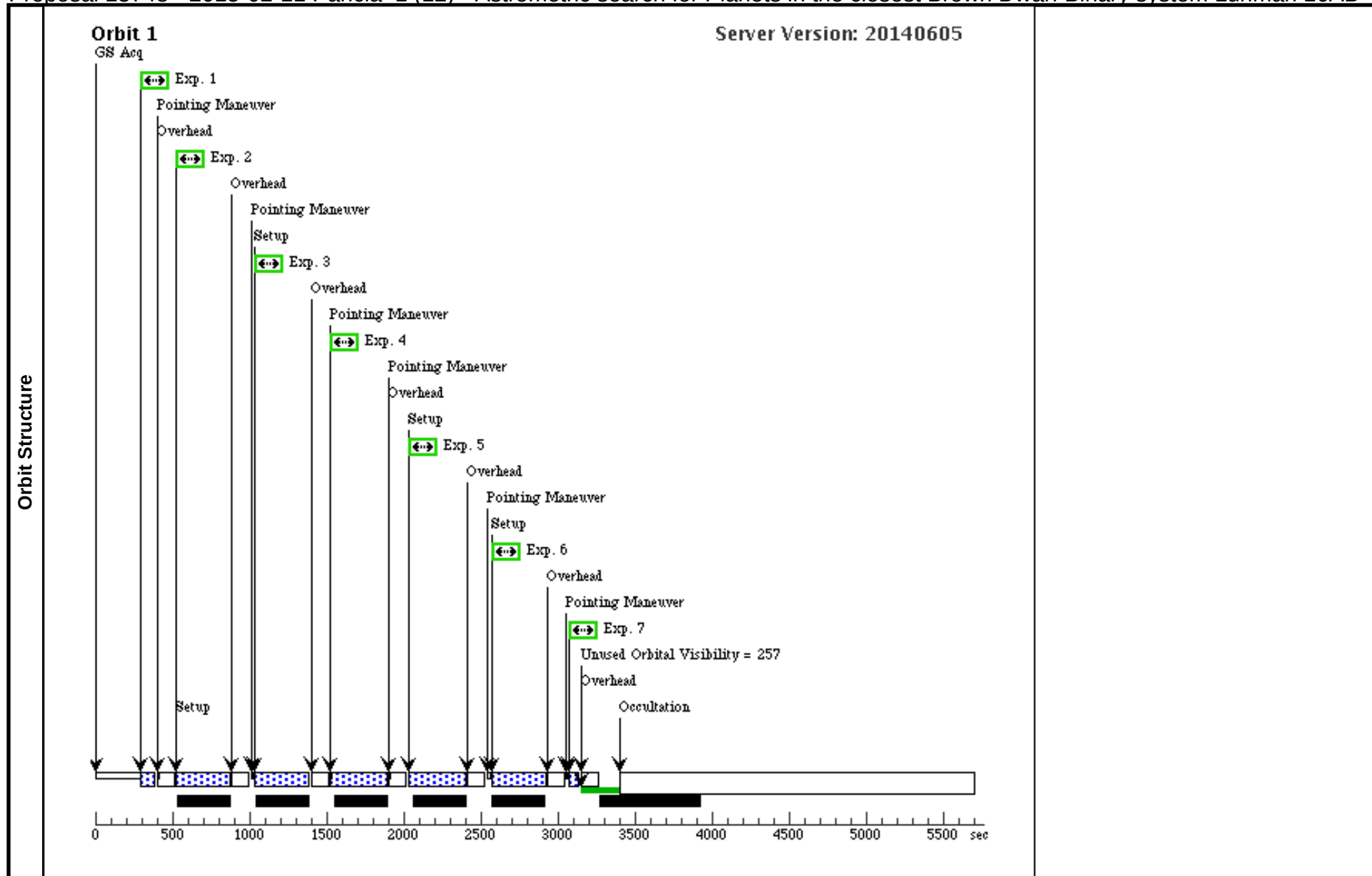
Proposal 13748 - 2016-08-29 Ricciolo 3 (11) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2016-08-29 Ricciolo_3 (11)								Thu Jul 24 01:28:03 GMT 2014		
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 160D TO 165 D; BETWEEN 20-AUG-2016 AND 03-SEP-2016										
	Comments: Epoch 2016-08-29. This is the epoch is taken at the ricciolo of the cycloid apparent motion. The epoch must be around 2016-08-29 +/- 15 days main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(7)	LUHMAN16AB- RICCIOLO-1	RA: 10 49 15.0000 (162.3125000d) Dec: -53 19 12.00 (-53.32000d) Equinox: J2000				V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS		
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Fo rward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forw ard		348 Secs (348 Secs)		
									[==>]		[1]
	4		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Fo rward		348 Secs (348 Secs)		
									[==>]		[1]
	6		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,For ward		348 Secs (348 Secs)		
									[==>]		[1]
7		(7) LUHMAN16AB- RICCIOLO-1	WFC3/UVIS, ACCUM, UVIS1	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
								[==>]		[1]	



Proposal 13748 - 2015-02-11 Pancia 1 (12) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2015-02-11 Pancia_1 (12)										Thu Jul 24 01:28:03 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 340D TO 345 D; BETWEEN 04-FEB-2015 AND 14-FEB-2015										
	Comments: Epoch 2015-02-11. This is the epoch is taken at the pancia of the cycloid apparent motion. The epoch must be around 2015-02-11 +/- 15 days. main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(8)	LUHMAN16AB-PANCIA-1	RA: 10 49 15.0000 (162.3125000d) Dec: -53 19 14.00 (-53.32056d) Equinox: J2000					V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS	
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	4		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Forward		348 Secs (348 Secs)		
								[==>]		[1]	
6		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,Forward		348 Secs (348 Secs)			
								[==>]		[1]	
7		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)			
								[==>]		[1]	



Proposal 13748 - 2016-02-11 Pancia 2 (13) - Astrometric search for Planets in the closest Brown Dwarf Binary system Luhman 16AB

Visit	Proposal 13748, 2016-02-11 Pancia_2 (13)										Thu Jul 24 01:28:03 GMT 2014
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: ORIENT 340D TO 345 D; BETWEEN 08-FEB-2016 AND 14-FEB-2016										
	Comments: Epoch 2016-02-11. This is the epoch is taken at the pancia of the cycloid apparent motion. The epoch must be around 2016-02-11 +/- 15 days. main SCAN along Y, where CTE are worse, so SCAN ORIENT. secondary SCAN along X.										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(8)	LUHMAN16AB-PANCIA-1	RA: 10 49 15.0000 (162.3125000d) Dec: -53 19 14.00 (-53.32056d) Equinox: J2000					V=24+/-1 Sloan-i = 15 +/- .5		Reference Frame: ICRS	
Comments: We have mapped the relative path of Luhman 16AB between 2014 and 2016											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4		60 Secs (60 Secs)		
									[==>]		[1]
	2		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,4; SPATIAL SCAN 0.0 12,270.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	3		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG -4,-4; SPATIAL SCAN 0.0 12,0.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	4		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F606W	FLASH=12	POS TARG 0,0		348 Secs (348 Secs)		
									[==>]		[1]
	5		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,4; SPATIAL SCAN 0.0 12,180.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	6		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4; SPATIAL SCAN 0.0 12,90.0 Degrees,Forward		348 Secs (348 Secs)		
									[==>]		[1]
	7		(8) LUHMAN16AB-PANCIA-1	WFC3/UVIS, ACCUM, UVIS2	F814W	FLASH=12	POS TARG 4,-4		60 Secs (60 Secs)		
									[==>]		[1]

