



11593 - Dynamical Masses of the Coolest Brown Dwarfs

Cycle: 17, 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	(1) SDSSJ042348.57-041403.5	ACS/WFC	1	30-Jun-2010 21:15:44.0	yes
02	(1) SDSSJ042348.57-041403.5	ACS/WFC	1	30-Jun-2010 21:15:49.0	yes
03	(2) 2MASSJ05185995-2828372	ACS/WFC	1	30-Jun-2010 21:15:52.0	yes
05	(3) SDSSJ092615.38+584720.9	WFPC2	2	30-Jun-2010 21:15:54.0	yes
55	(3) SDSSJ092615.38+584720.9	ACS/WFC	1	30-Jun-2010 21:15:57.0	yes
06	(3) SDSSJ092615.38+584720.9	ACS/WFC	1	30-Jun-2010 21:15:59.0	yes
07	(4) EPS-IND-BAB	ACS/WFC	1	30-Jun-2010 21:16:03.0	yes
57	(5) EPSILON-INDI-B	ACS/WFC	1	30-Jun-2010 21:16:10.0	yes

9 Total Orbits Used

ABSTRACT

T dwarfs are excellent laboratories to study the evolution and the atmospheric physics of both brown dwarfs and extrasolar planets. To date, only a single T dwarf binary has a dynamical mass determination, and more are sorely needed. The prospects of measuring more dynamical masses over

the next decade are limited to 6 known short-period T dwarf binaries. We propose here to obtain Long-Term HST/ACS monitoring for the 3 of the 6 binaries which cannot be resolved with AO from the ground. Upon completion, our program will substantially increase the number of T dwarf dynamical mass measurements and thereby provide key benchmarks for testing theoretical models of ultracool objects.

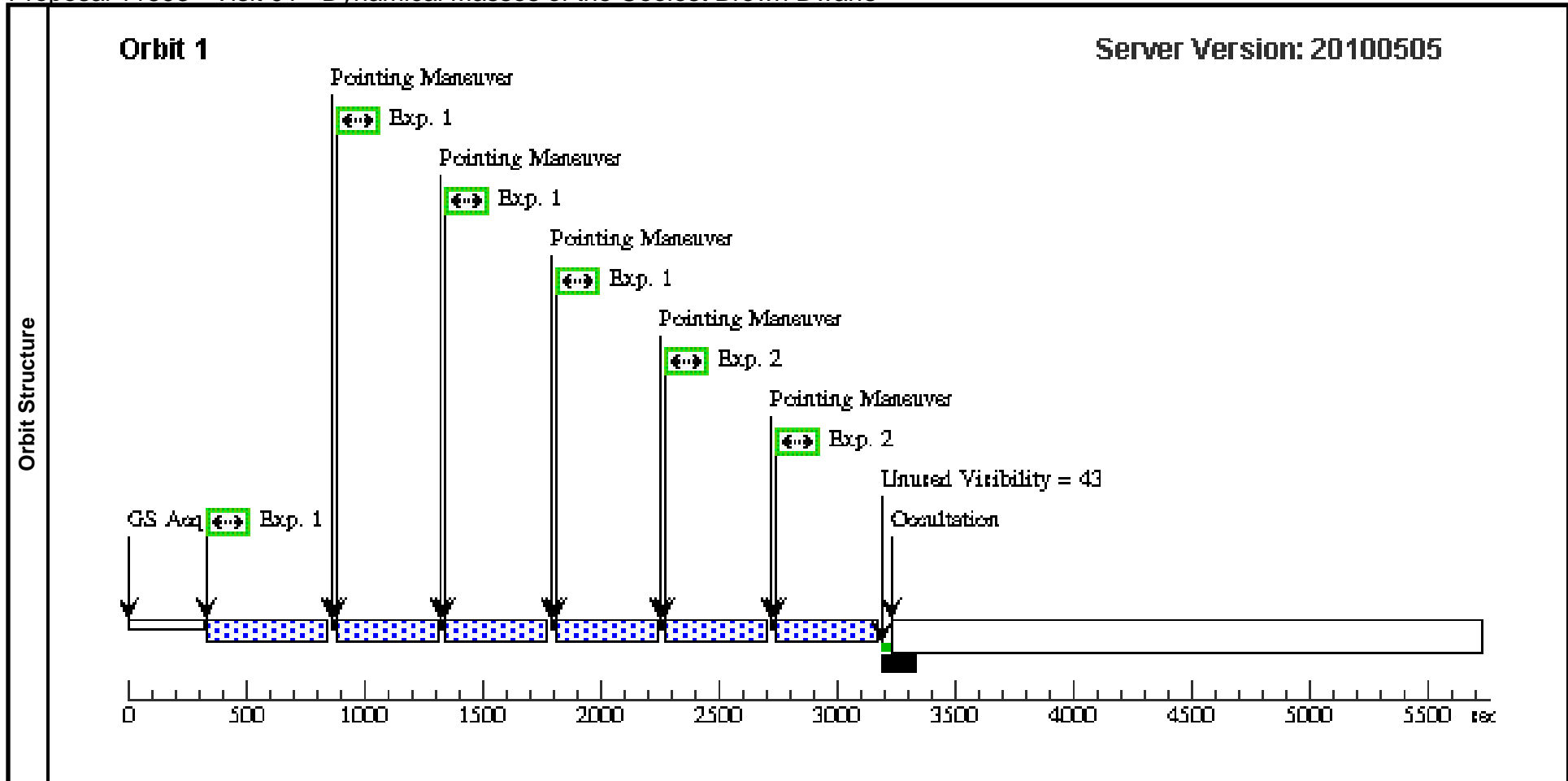
OBSERVING DESCRIPTION

Orbital monitoring of 3 methane brown dwarf (T dwarf) binaries. This is a long-term program with 6 epochs of imaging per target over 3 years. One PSF star (eps IndiBab) will be observed in the first year (Cycle 17).

Proposal 11593 (STScI Edit Number: 4, Created: Wednesday, June 30, 2010 8:16:15 PM EST) - Overview

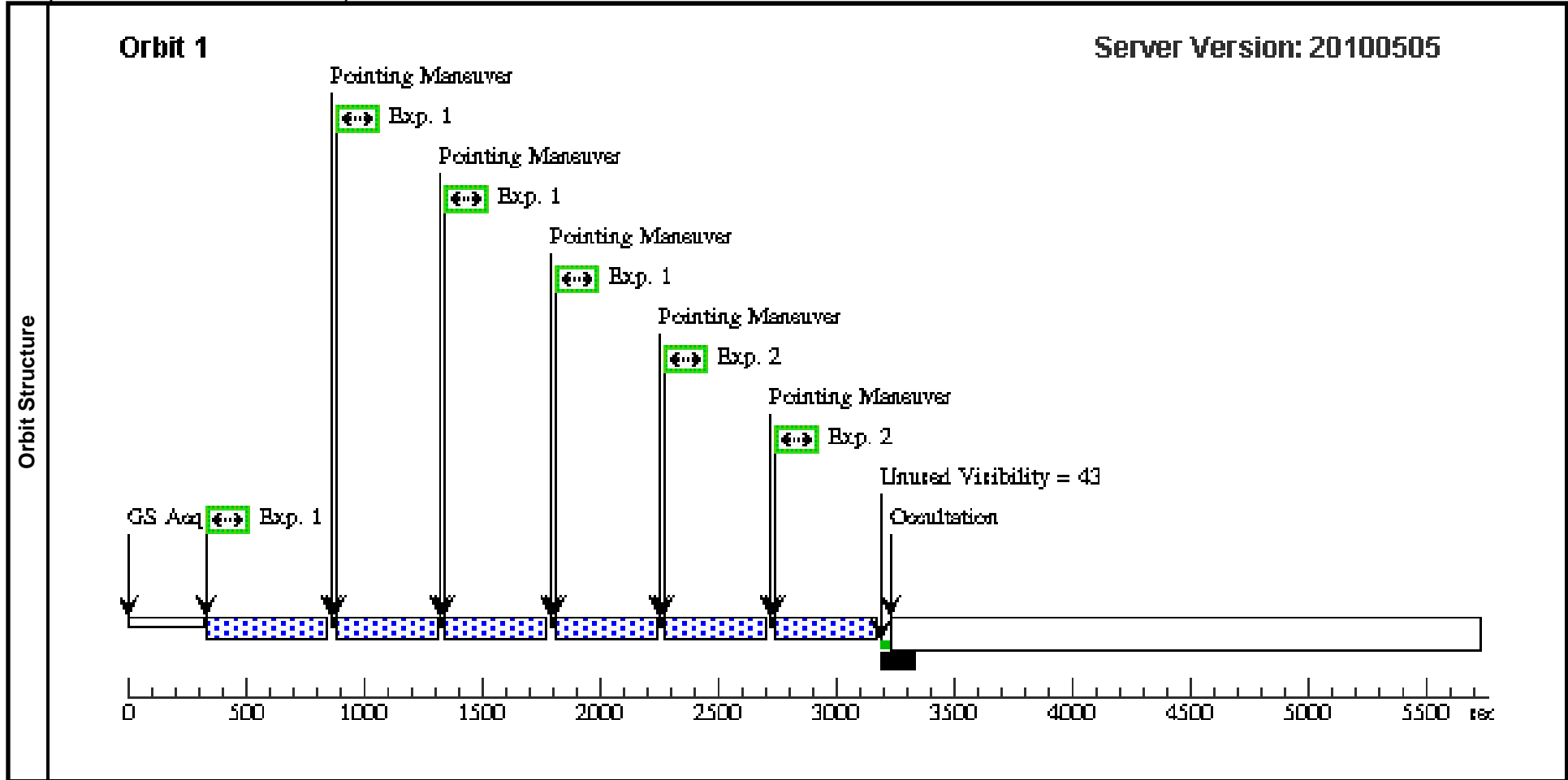
Thu Jul 01 01:16:15 GMT 2010

Visit	Proposal 11593, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 01-AUG-2009:00:00:00 AND 28-JAN-2010:00:00:00									
	#	Primary Pattern	Secondary Pattern	Exposures						
Patterns	(7)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false	(1)						
	(8)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.364 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=true	(2)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	SDSSJ042348.57-041403.5	RA: 04 23 48.5900 (65.9524583d) Dec: -04 14 3.50 (-4.23431d) Equinox: J2000		V=25 J=14.5, H=13.5, K=12.9	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	SD0423-04 Visit 1	(1) SDSSJ042348.57-041403.5	ACS/WFC, ACCUM, WFC1-1K	F814W				Pattern 7, Exps 1-1 (7)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]
2	SD0423-04 Visit 1	(1) SDSSJ042348.57-041403.5	ACS/WFC, ACCUM, WFC1-1K	F814W				Pattern 8, Exps 2-2 (8)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 11593 - Visit 01 - Dynamical Masses of the Coolest Brown Dwarfs

Visit		Proposal 11593, Visit 02, scheduling Thu Jul 01 01:16:16 GMT 2010 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 28-JUL-2010:00:00:00 AND 31-DEC-2010:00:00:00								
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(7)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
(8)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.364 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=true		(2)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	SDSSJ042348.57-041403.5	RA: 04 23 48.5900 (65.9524583d) Dec: -04 14 3.50 (-4.23431d) Equinox: J2000		V=25 J=14.5, H=13.5, K=12.9	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	SD0423-04 Visit 2	(1) SDSSJ042348.57-041403.5	ACS/WFC, ACCUM, WFC1-1K	F814W				Pattern 7, Exps 1-1 (7)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]
2	SD0423-04 Visit 2	(1) SDSSJ042348.57-041403.5	ACS/WFC, ACCUM, WFC1-1K	F814W				Pattern 8, Exps 2-2 (8)	340 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 11593 - Visit 03 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:16 GMT 2010

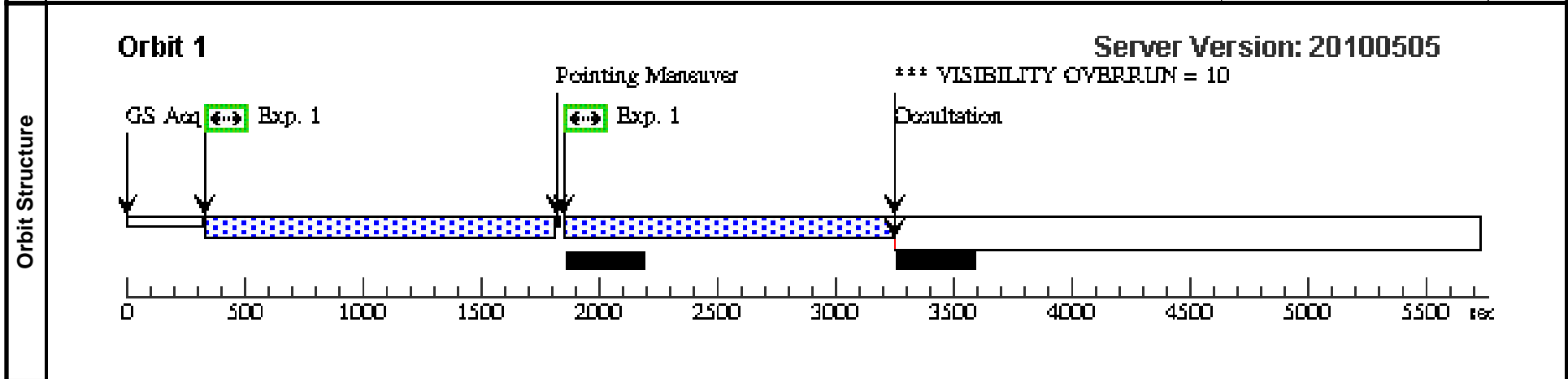
Visit	Proposal 11593, Visit 03, completed Diagnostic Status: Warning Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 10-MAY-2009:00:00:00 AND 18-JAN-2010:00:00:00

Diagnostics	(Visit 03) Warning (Orbit Planner): VISIBILITY OVERRUN
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	2MASSJ05185995-2828372	RA: 05 18 59.9500 (79.7497917d) Dec: -28 28 37.20 (-28.47700d) Equinox: J2000		V=25 J=16.0, H=14.8, K=14.2	Reference Frame: ICRS
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	2M0518-28 Visit 1	(2) 2MASSJ05185995-2828372	ACS/WFC, ACCUM, WFC	F814W			Pattern 1, Exps 1-1 (1)	1276 Secs [=>(Pattern 1)] [=>(Pattern 2)]	[1]

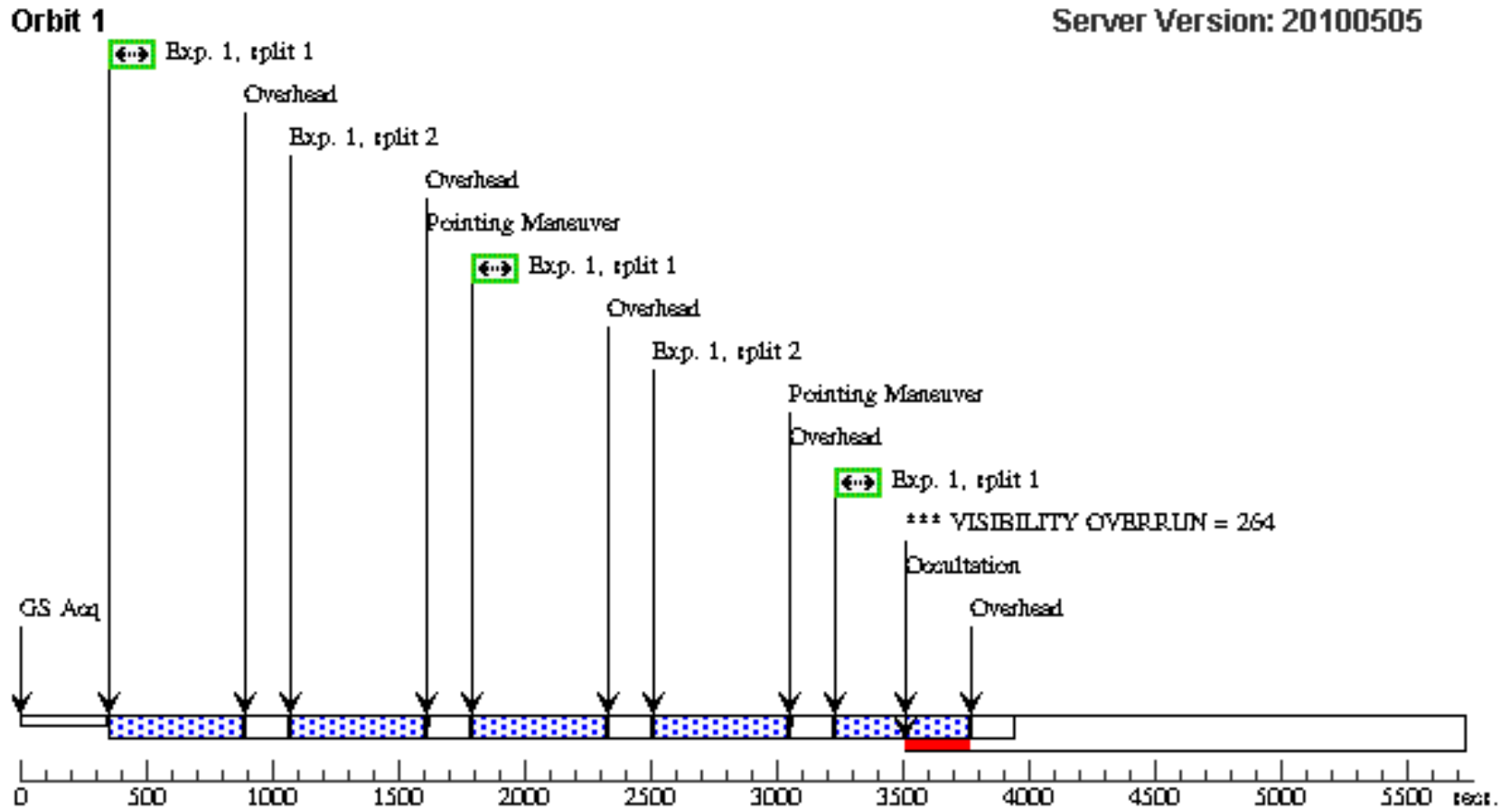


Proposal 11593 - Visit 03 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:17 GMT 2010

Visit	Proposal 11593, Visit 05, failed Diagnostic Status: Error Scientific Instruments: WFPC2 Special Requirements: GYRO MODE 2G; BETWEEN 01-DEC-2008:00:00:00 AND 10-APR-2009:00:00:00										
	(2M0926+58 Visit 1 (05.001)) Error (Form): CR-SPLIT is not a valid selection (2M0926+58 Visit 1 (05.001)) Error (Form): This attribute cannot have this value due to other choices: Mode=IMAGE This value is by default illegal. (2M0926+58 Visit 1 (05.001)) Error (Form): IMAGE is not a valid selection (2M0926+58 Visit 1 (05.001)) Error (Form): This attribute is not allowed to have this value: Config = WFPC2 It is a Restricted option and can only be used in an engineering proposal. (2M0926+58 Visit 1 (05.001)) Error (Form): Illegal selection: WFPC2. (Visit 05) Warning (Orbit Planner): VISIBILITY OVERRUN (Visit 05) Warning (Form): Gyro Mode overrides default value of 3GOBAD.										
Diagnosics											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(6)	Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.3535 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false					(1)			
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(3)	SDSSJ092615.38+584720.9	RA: 09 26 15.3800 (141.5640833d) Dec: +58 47 20.90 (58.78914d) Equinox: J2000			V=25 J=15.9, H=15.3, K=15.5		Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1	2M0926+58 Visit 1	(3) SDSSJ092615.38 +584720.9	WFPC2, IMAGE, PC1	F814W	CR-SPLIT=NO	GS ACQ SCENARI O BASE1T3	Pattern 6, Exps 1-1 (6)	700 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]	

Orbit Structure



Orbit 2

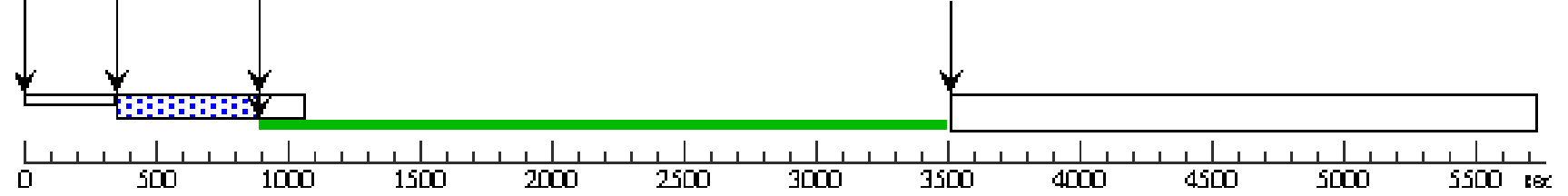
GS Req

Exp. 1, split 2

Unused Visibility = 2616

Overhead

Occultation



Proposal 11593 - Visit 55 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:17 GMT 2010

Visit	Proposal 11593, Visit 55, completed Diagnostic Status: Warning Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 16-MAY-2009:00:00:00 AND 22-NOV-2009:00:00:00
	(Visit 55) Warning (Orbit Planner): VISIBILITY OVERRUN

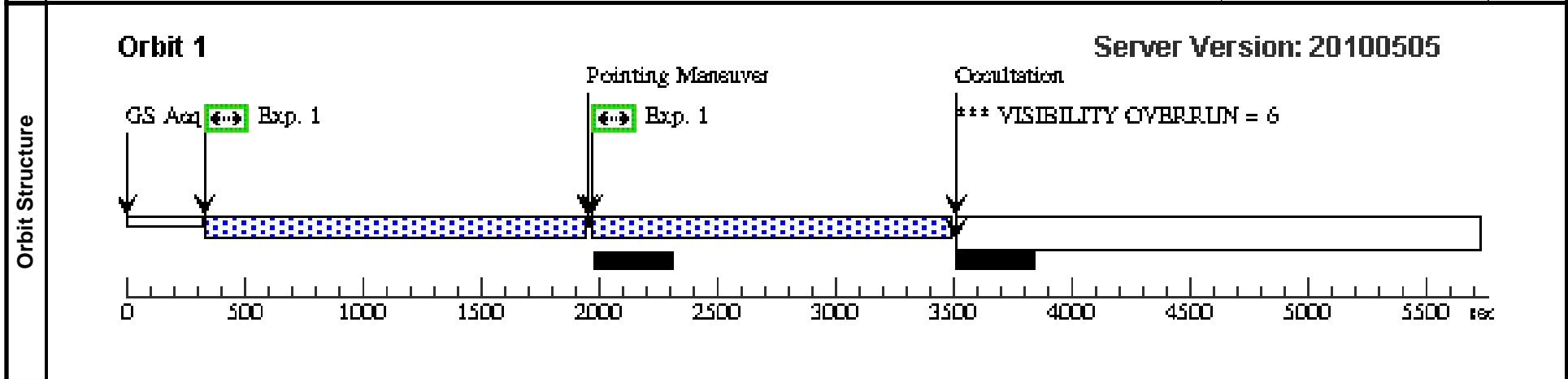
Diagnostics	(Visit 55) Warning (Orbit Planner): VISIBILITY OVERRUN
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	SDSSJ092615.38+584720.9	RA: 09 26 15.3800 (141.5640833d) Dec: +58 47 20.90 (58.78914d) Equinox: J2000		V=25 J=15.9, H=15.3, K=15.5	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	2M0926+58 Visit 1	(3) SDSSJ092615.38+584720.9	ACS/WFC, ACCUM, WFC	F814W				Pattern 1, Exps 1-1 (1)	1401 Secs [=>(Pattern 1)] [=>(Pattern 2)]



Proposal 11593 - Visit 06 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:18 GMT 2010

Visit	Proposal 11593, Visit 06, completed Diagnostic Status: Warning Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 07-JUN-2010:21:35:10 AND 31-DEC-2010:00:00:00
	(Visit 06) Warning (Orbit Planner): VISIBILITY OVERRUN

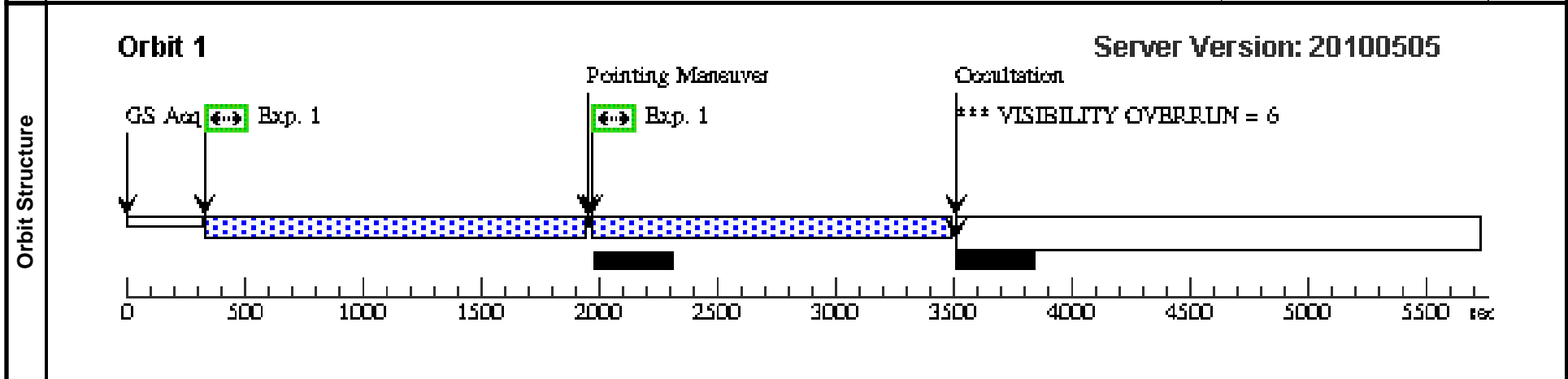
Diagnostics	(Visit 06) Warning (Orbit Planner): VISIBILITY OVERRUN
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	SDSSJ092615.38+584720.9	RA: 09 26 15.3800 (141.5640833d) Dec: +58 47 20.90 (58.78914d) Equinox: J2000		V=25 J=15.9, H=15.3, K=15.5	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

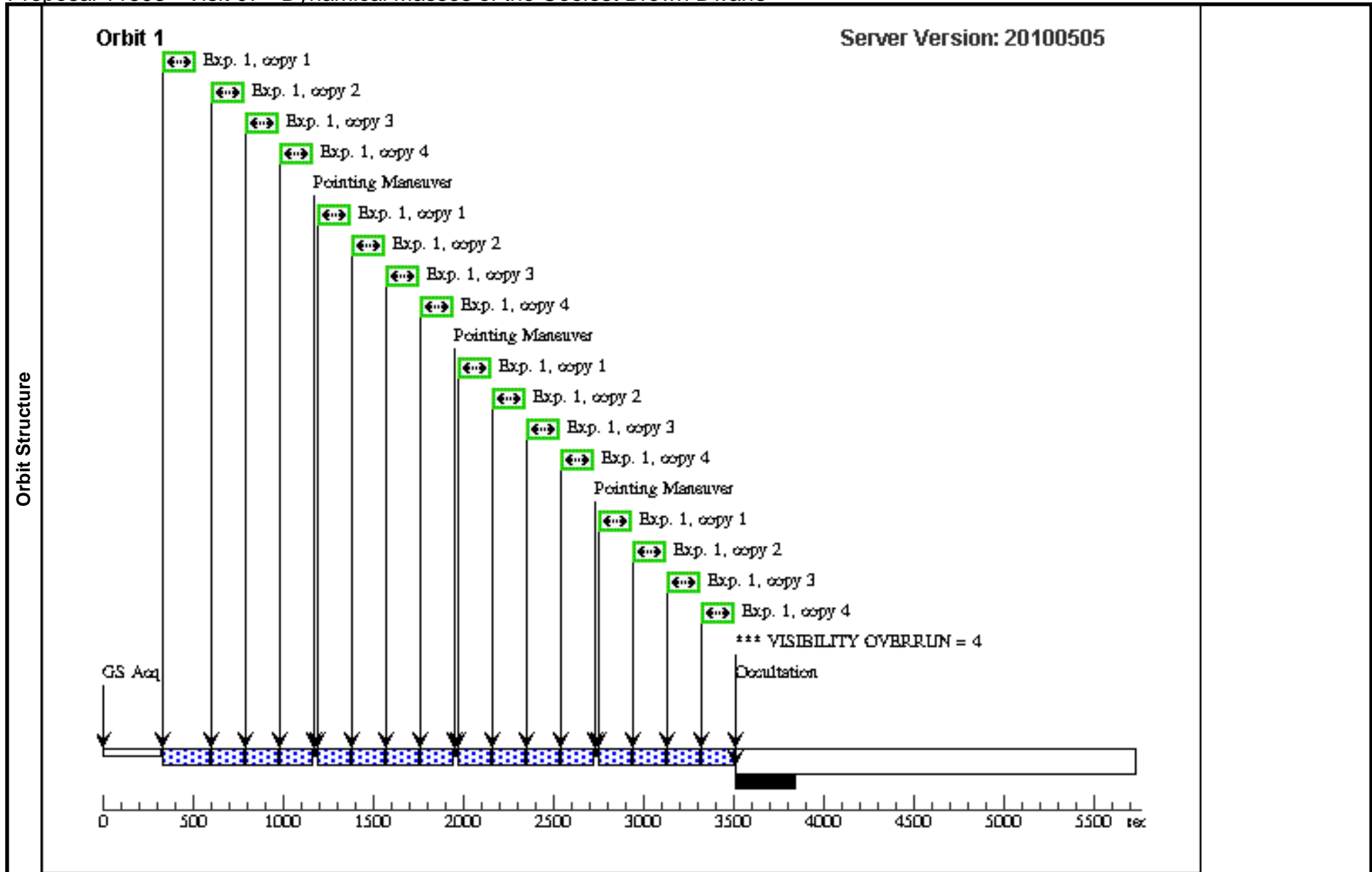
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	2M0926+58 Visit 2	(3) SDSSJ092615.38+584720.9	ACS/WFC, ACCUM, WFC	F814W				Pattern 1, Exps 1-1 (1)	1401 Secs [=>(Pattern 1)] [=>(Pattern 2)]



Proposal 11593 - Visit 06 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:18 GMT 2010

Visit	Proposal 11593, Visit 07, completed Diagnostic Status: Warning Scientific Instruments: ACS/WFC Special Requirements: BETWEEN 01-JUN-2010:00:00:00 AND 31-DEC-2010:00:00:00									
	(Visit 07) Warning (Orbit Planner): VISIBILITY OVERRUN									
Diagnosics										
Patterns	#	Primary Pattern		Secondary Pattern	Exposures					
	(7)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	EPS-IND-BAB	RA: 22 04 10.5200 (331.0438333d) Dec: -56 46 57.70 (-56.78269d) Equinox: J2000		V=25 J=11.9, H=11.3, K=11.2	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	eps IndiBab PSF	(4) EPS-IND-BAB	ACS/WFC, ACCUM, WFC1-1K	F814W			Pattern 7, Exps 1-1 (7)	80 Secs X 4 [=>(Pattern 1, Copy 1)] [=>(Pattern 1, Copy 2)] [=>(Pattern 1, Copy 3)] [=>(Pattern 1, Copy 4)] [=>(Pattern 2, Copy 1)] [=>(Pattern 2, Copy 2)] [=>(Pattern 2, Copy 3)] [=>(Pattern 2, Copy 4)] [=>(Pattern 3, Copy 1)] [=>(Pattern 3, Copy 2)] [=>(Pattern 3, Copy 3)] [=>(Pattern 3, Copy 4)] [=>(Pattern 4, Copy 1)] [=>(Pattern 4, Copy 2)] [=>(Pattern 4, Copy 3)] [=>(Pattern 4, Copy 4)]	[1]



Proposal 11593 - Visit 07 - Dynamical Masses of the Coolest Brown Dwarfs

Thu Jul 01 01:16:19 GMT 2010

Visit	Proposal 11593, Visit 57, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(7)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	EPSILON-INDI-B	RA: 22 04 12.2780 (331.0511583d) Dec: -56 47 6.58 (-56.78516d) Equinox: J2000	Proper Motion RA: 0.48205856403089786s/yr Proper Motion Dec: -2.53923"/yr Parallax: 0.27606" Epoch of Position: 2003.488	V=25 J=11.9, H=11.3, K=11.2	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	eps IndiBab PSF	(5) EPSILON-INDI-B	ACS/WFC, ACCUM, WFC1-1K	F814W				Pattern 7, Exps 1-1 (7) 80 Secs X 4 [==>79.0 Secs (Pattern 1, Copy 1)] [==>79.0 Secs (Pattern 1, Copy 2)] [==>79.0 Secs (Pattern 1, Copy 3)] [==>79.0 Secs (Pattern 1, Copy 4)] [==>79.0 Secs (Pattern 2, Copy 1)] [==>79.0 Secs (Pattern 2, Copy 2)] [==>79.0 Secs (Pattern 2, Copy 3)] [==>79.0 Secs (Pattern 2, Copy 4)] [==>79.0 Secs (Pattern 3, Copy 1)] [==>79.0 Secs (Pattern 3, Copy 2)] [==>79.0 Secs (Pattern 3, Copy 3)] [==>79.0 Secs (Pattern 3, Copy 4)] [==>79.0 Secs (Pattern 4, Copy 1)] [==>79.0 Secs (Pattern 4, Copy 2)] [==>79.0 Secs (Pattern 4, Copy 3)] [==>79.0 Secs (Pattern 4, Copy 4)]	[1]

