11298 - Calibrating Cosmological Chronometers: White Dwarf Masses

Cycle: 16, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
11	(1) WD0121-429	FGS	1	20-Sep-2010 21:00:53.0	yes
21	(2) WD0141-675	FGS	1	20-Sep-2010 21:00:56.0	yes
22	(8) WD1132+470	FGS	1	20-Sep-2010 21:00:58.0	yes
31	(8) WD1132+470	FGS	1	20-Sep-2010 21:00:59.0	yes
41	(8) WD1132+470	FGS	1	20-Sep-2010 21:01:00.0	yes
51	(9) WD0517+307	FGS	1	20-Sep-2010 21:01:02.0	yes
61	(6) WD1447-190	FGS	1	20-Sep-2010 21:01:04.0	yes
71	(7) WD2248+293	FGS	1	20-Sep-2010 21:01:05.0	yes

8 Total Orbits Used

ABSTRACT

We propose to use HST/FGS1R to determine White Dwarf (WD) masses. The unmatched resolving power of HST/FGS1R will be utilized to follow up four selected WD binary pairs. This high precision obtained with HST/FGS1R simply cannot be equaled by any ground based technique. This proposed effort complements that done by CoI Nelan in which a sample of WDs is being observed with HST/FGS1R. This proposal will dramatically increase the number of WDs for which dynamical mass measurements are possible, enabling a better calibration of the WD mass-radius relation, cooling curves, initial to final mass relations, and ultimately giving important clues to the star formation history of our Galaxy and the age of its disk as well as in other galaxies.

(This project is part of Subasavage's PhD thesis work at Georgia State University.)

OBSERVING DESCRIPTION

We will use FGS1r in its high angular resolution TRANSFER mode to observe our targets. Each single-orbit visit will contain two exposures, one with a long scan path, one with a short scan path. This will provide sensitivity for both wide binaries as well as close systems. The wide-band F583W filter will be used to maximize photon throuput.

Visit

Proposal 11298, Visit 11, completed Tue Sep 21 01:01:09 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%

Fixed Targets

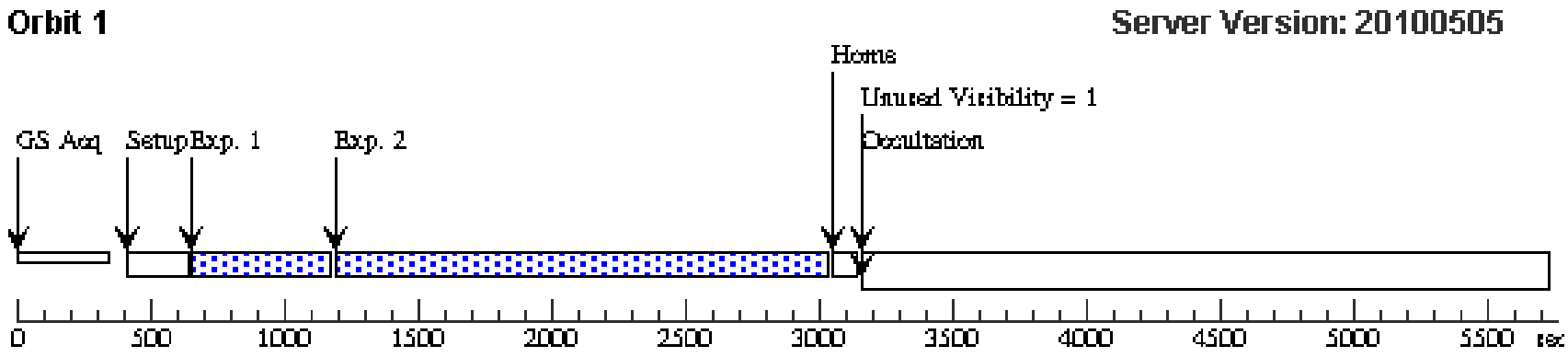
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0121-429	RA: 01 24 3.9800 (21.0165833d)	Proper Motion RA: 0.01936s/yr	V=14.83	Reference Frame: ICRS
		Dec: -42 40 38.50 (-42.67736d)	Proper Motion Dec: 0.5218"/yr	B-V=0.49	
		Equinox: J2000	Epoch of Position: 2000		

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		(1) WD0121-429	FGS, TRANS, 1	F583W	SCANS=5		Sequence 1-2 Non-Int	375.0 Secs	
								[==>]	***[1]***
2		(1) WD0121-429	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5		Sequence 1-2 Non-Int	1390.0 Secs	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 11298, Visit 21, completed Tue Sep 21 01:01:09 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%

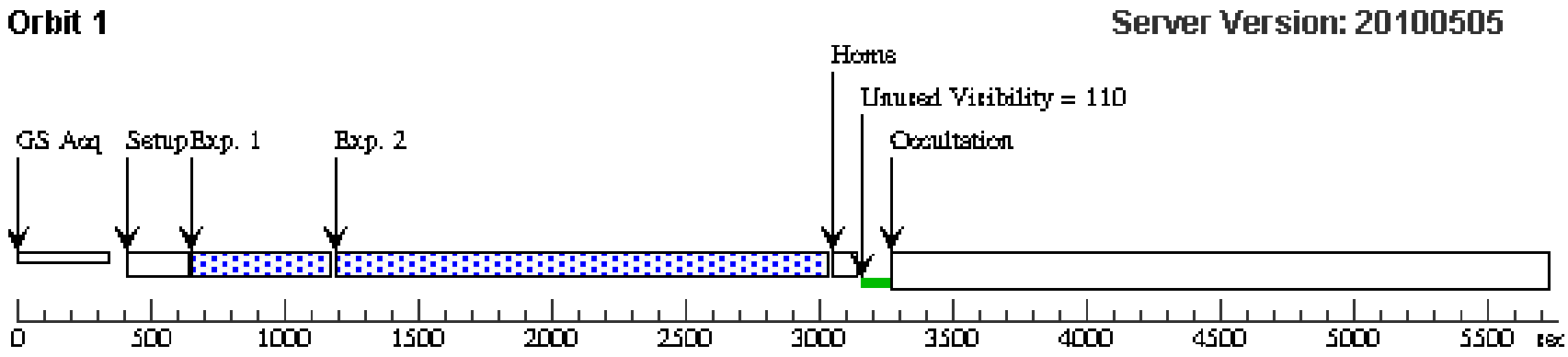
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WD0141-675	RA: 01 43 0.9900 (25.7541250d) Dec: -67 18 30.30 (-67.30842d) Equinox: J2000	Proper Motion RA: -0.056836s/yr Proper Motion Dec: -0.996"/yr Epoch of Position: 2000	V=13.9+/-0.2 B = 14.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) WD0141-675	FGS, TRANS, 1	F583W	SCANS=5		Sequence 1-2 Non-Int	375.0 Secs *[==>]*	 ***[1]***
2		(2) WD0141-675	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5		Sequence 1-2 Non-Int	1390.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 11298, Visit 22, completed Tue Sep 21 01:01:10 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 100%; ORIENT 170.0D TO 180.0 D

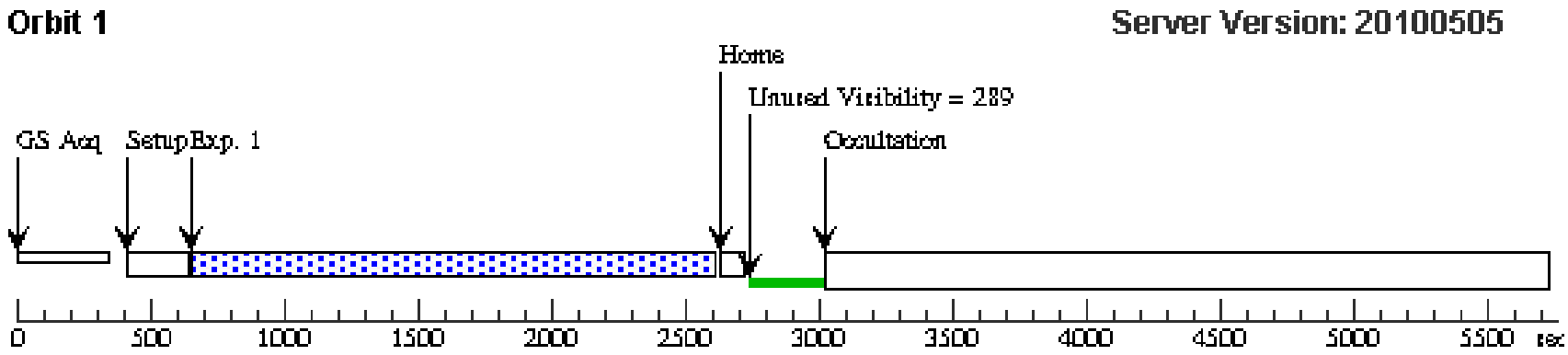
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	WD1132+470	RA: 11 34 48.8270 (173.7034458d)	Proper Motion RA: -0.016754s/yr	V=16.4+/-0.1	Reference Frame: ICRS
	Alt Name1: PG1132+471	Dec: +46 48 35.80 (46.80994d)	Proper Motion Dec: -0.133"/yr		
	Alt Name2: NLTT27858	Equinox: J2000	Epoch of Position: 2000		

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(8) WD1132+470	FGS, TRANS, 1	F583W	SCANS=30; STEP-SIZE=0.5	GS ACQ SCENARIO BASE1T3		1500 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 11298, Visit 31, completed Tue Sep 21 01:01:10 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%; ORIENT 144.0D TO 146.0 D; BETWEEN 10-APR-2009:00:00:00 AND 20-APR-2009:00:00:00

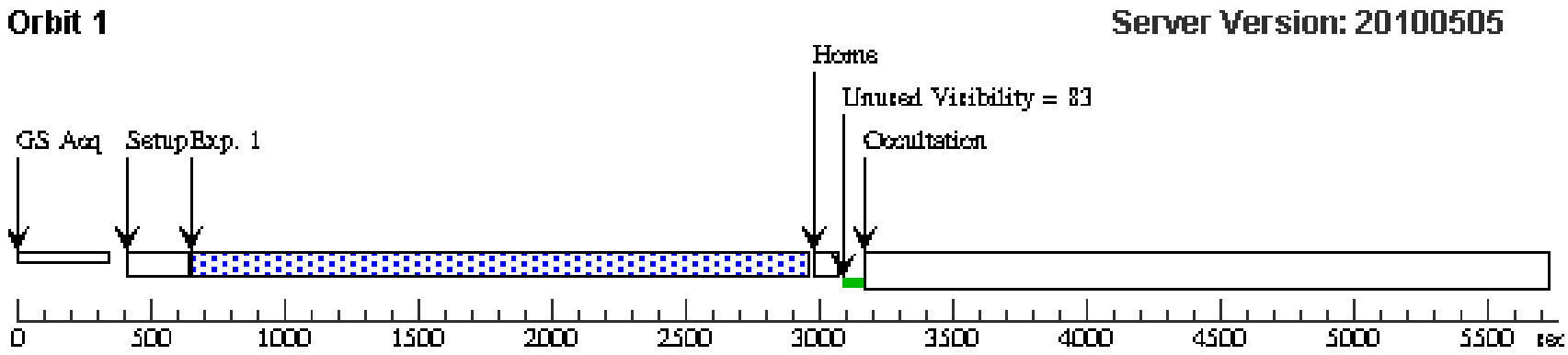
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	WD1132+470	RA: 11 34 48.8270 (173.7034458d)	Proper Motion RA: -0.016754s/yr	V=16.4+/-0.1	Reference Frame: ICRS
	Alt Name1: PG1132+471	Dec: +46 48 35.80 (46.80994d)	Proper Motion Dec: -0.133"/yr		
	Alt Name2: NLTT27858	Equinox: J2000	Epoch of Position: 2000		

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(8) WD1132+470	FGS, TRANS, 1	F583W	SCANS=38; STEP-SIZE=0.5	GS ACQ SCENARIO BASE1T3	Sequence 1-1 Non-Int	1750.0 Secs [==>]	[1]

Orbit Structure



Visit

Proposal 11298, Visit 41, completed Tue Sep 21 01:01:10 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%

Diagnostics

(Visit 41) Warning (Orbit Planner): SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS

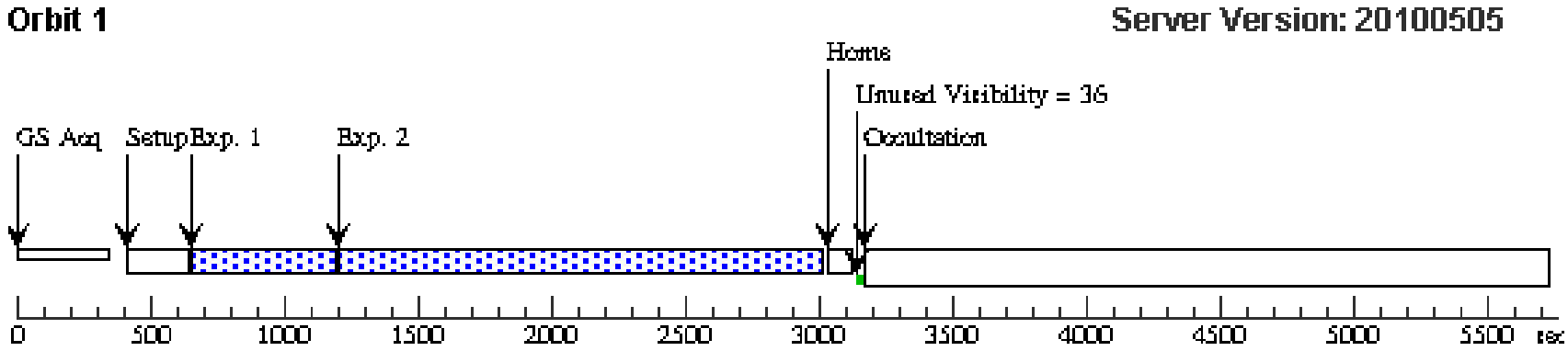
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	WD1132+470	RA: 11 34 48.8270 (173.7034458d)	Proper Motion RA: -0.016754s/yr	V=16.4+/-0.1	Reference Frame: ICRS
	Alt Name1: PG1132+471	Dec: +46 48 35.80 (46.80994d)	Proper Motion Dec: -0.133"/yr		
	Alt Name2: NLTT27858	Equinox: J2000	Epoch of Position: 2000		

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(8) WD1132+470	FGS, TRANS, 1	F583W	SCANS=5	GS ACQ SCENARIO BASE1T3	Sequence 1-2 Non-Int	375.0 Secs	
								[==>]	***[1]***
2		(8) WD1132+470	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5	SAME POS AS 1	Sequence 1-2 Non-Int	1340.0 Secs	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 11298, Visit 51, pi Tue Sep 21 01:01:11 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; GYRO MODE 3GOBAD; SCHED 70%

Diagnostics

(Visit 51) Warning (Form): Gyro Mode overrides default value of 2G.

(Visit 51) Warning (Orbit Planner): SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS

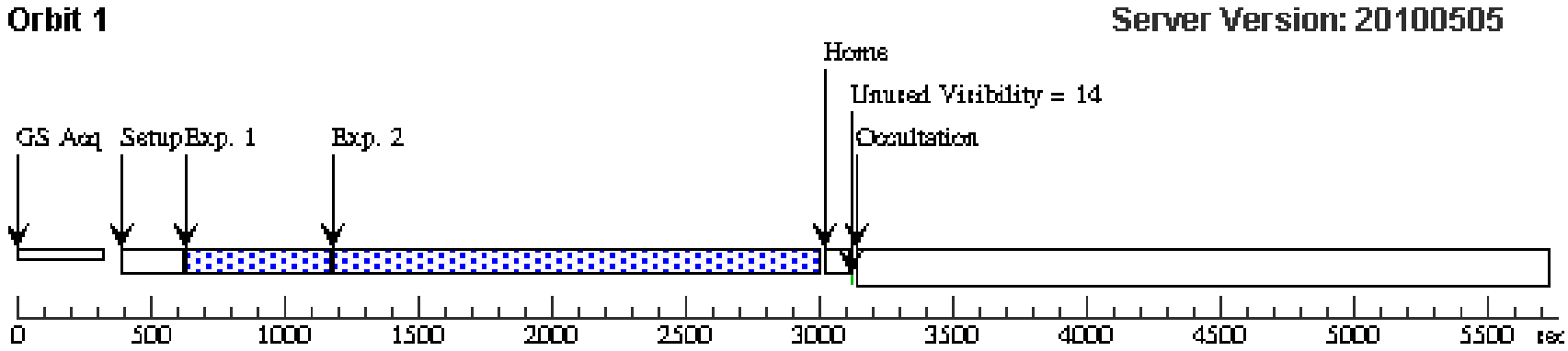
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	WD0517+307 Alt Name1: GD66	RA: 05 20 38.3000 (80.1595833d) Dec: +30 48 23.80 (30.80661d) Equinox: J2000	Proper Motion RA: 0.0041999417119279 52s/yr Proper Motion Dec: -0.12040000000000001"/yr Epoch of Position: 2000	V=15.6+/-0.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(9) WD0517+307	FGS, TRANS, 1	F583W	SCANS=5	GS ACQ SCENARIO BASE1B3	Sequence 1-2 Non-Int	375.0 Secs *[==>]*	 ***[1]***
2		(9) WD0517+307	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5		Sequence 1-2 Non-Int	1350.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 11298, Visit 61, completed Tue Sep 21 01:01:11 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%

Diagnostics

(Visit 61) Warning (Orbit Planner): SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS

(Visit 61) Warning (Orbit Planner): VISIBILITY OVERRUN

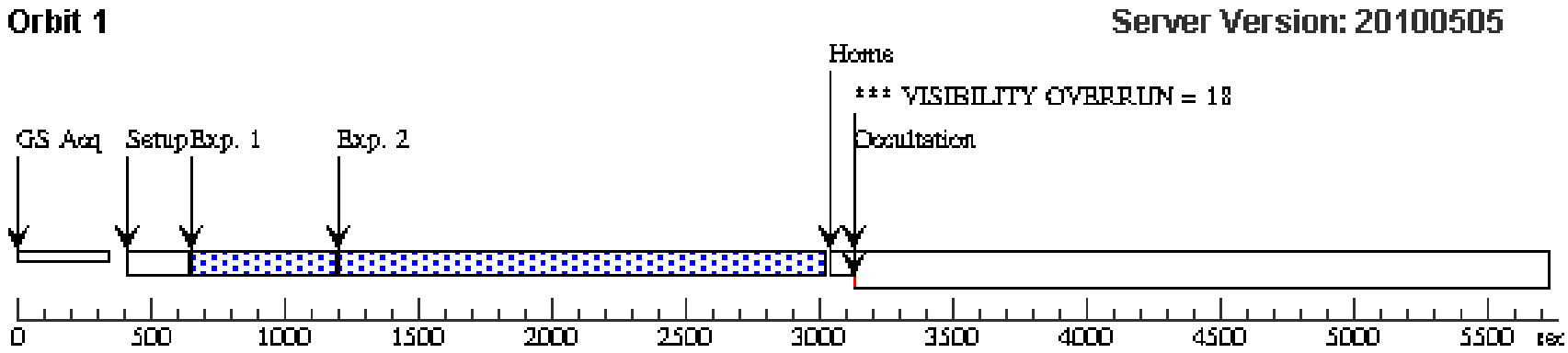
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	WD1447-190	RA: 14 50 11.9300 (222.5497083d) Dec: -19 14 8.70 (-19.23575d) Equinox: J2000	Proper Motion RA: -0.0172s/yr Proper Motion Dec: 0.0672"/yr Epoch of Position: 2000	V=15.8+/-0.2 B = 15.05	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(6) WD1447-190	FGS, TRANS, 1	F583W	SCANS=5	GS ACQ SCENARIO BASE1T3	Sequence 1-2 Non-Int	375.0 Secs	
								[==>]	***[1]***
2		(6) WD1447-190	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5		Sequence 1-2 Non-Int	1350.0 Secs	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 11298, Visit 71, completed Tue Sep 21 01:01:11 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: FGS

Special Requirements: PCS MODE FINE; SCHED 70%

Diagnostics

(Visit 71) Warning (Orbit Planner): SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	WD2248+293	RA: 22 51 23.0200 (342.8459167d)	Proper Motion RA: 0.0955s/yr	V=15.55+/-0.2	Reference Frame: ICRS
	Alt Name1: GJ1275	Dec: +29 39 44.40 (29.66233d)	Proper Motion Dec: 0.133"/yr	B = 16.22	
	Alt Name2: LHS529	Equinox: J2000	Epoch of Position: 2000		

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(7) WD2248+293	FGS, TRANS, 1	F583W	SCANS=5		Sequence 1-2 Non-Int	375.0 Secs	
								[==>]	***[1]***
2		(7) WD2248+293	FGS, TRANS, 1	F583W	SCANS=32; STEP-SIZE=0.5		Sequence 1-2 Non-Int	1330.0 Secs	
								[==>]	***[1]***

Orbit Structure