



10613 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Todd J. Henry (PI)	Georgia State University Research Foundation	
Dr. Edmund Nelan (CoI)	Space Telescope Science Institute	nelan@stsci.edu
Dr. George Fritz Benedict (CoI)	University of Texas at Austin	fritz@astro.as.utexas.edu
Dr. Otto Franz (CoI)	Lowell Observatory	
Dr. Philip A. Ianna (CoI)	The University of Virginia	pai@virginia.edu
Dr. Barbara McArthur (CoI)	University of Texas at Austin	mca@astro.as.utexas.edu
Dr. Lawrence H. Wasserman (CoI)	Lowell Observatory	l.h.wasserman@lowell.edu

VISITS

<i>Visit</i>	<i>Targets</i>	<i>Configurations</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(10) GL22 (12) GL22-049-REF (13) GL22-087-REF (11) GL22-024-REF	FGS	1	15-Sep-2005 21:03:47.0	yes

Proposal 10613 - Overview

Visit	Targets	Configurations	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
02	(92) GL234-USNO2-REF (93) GL234-USNO3-REF (25) GL234-079-REF (27) GL234-754-REF (26) GL234-520-REF (20) GL234	FGS	1	15-Sep-2005 21:03:55.0	yes
03	(33) GL469-140-REF (30) GL469 (31) GL469-021-REF (32) GL469-083-REF	FGS	1	15-Sep-2005 21:04:00.0	yes
04	(40) GL473	FGS	1	15-Sep-2005 21:04:03.0	yes
05	(53) GJ1081-054-REF (52) GJ1081-051-REF (50) GJ1081 (51) GJ1081-023-REF (104) GJ1081-089-REF	FGS	1	15-Sep-2005 21:04:06.0	yes
06	(97) GJ1245-2-REF (74) GJ1245-607-REF (73) GJ1245-179-REF (71) GJ1245-108-REF (96) GJ1245-1-REF (70) GJ1245	FGS	1	15-Sep-2005 21:04:12.0	yes
07	(107) G250-29-USNO1-REFB (86) G250-29-344-REF (108) G250-29-USNO2-REFB (80) G250-29	FGS	1	15-Sep-2005 21:04:17.0	yes
08	(109) GL54	FGS	1	15-Sep-2005 21:04:20.0	yes

Proposal 10613 - Overview

<i>Visit</i>	<i>Targets</i>	<i>Configurations</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
09	(176) LHS224AB-REF5 (172) LHS224AB-REF1 (174) LHS224AB-REF3 (171) LHS224AB-0 (175) LHS224AB-REF4 (173) LHS224AB-REF2 (170) LHS224AB	FGS	1	15-Sep-2005 21:04:26.0	yes

9 Total Orbits Used

ABSTRACT

We propose to use HST-FGS1R to calibrate the mass-luminosity relation (MLR) for stars less massive than 0.2 Msun, with special emphasis on objects near the stellar/brown dwarf border. Our goals are to determine M_V values to 0.05 magnitude, masses to 5% and double the number of objects with masses determined to be less than 0.20 Msun. This program uses the combination of HST-FGS3/FGS1R at optical wavelengths and ground-based infrared interferometry to examine nearby, subarcsecond binary systems. The high precision measurements with HST-FGS3/FGS1R (to 1 mas in the separations) for these faint targets ($V = 10\text{--}15$) simply cannot be equaled by any ground based technique. As a result of these measurements, we are deriving high quality luminosities and masses for the components in the observed systems, and characterizing their spectral energy distributions from 0.5 to 2.2 μm . Several of the objects included have $M < 0.1$ Msun, placing them at the very end of the stellar main sequence. Three of the targets are brown dwarf candidates, including the current low mass record holder, GJ 1245C, with a mass of 0.062 ± 0.004 Msun. The payoff of this proposal is high because all 10 of the systems selected have already been resolved with HST- FGS3/FGS1R during Cycles 5--10 and contain most of the reddest objects for which masses can be determined.

OBSERVING DESCRIPTION

Cycle 5--13 Update: FGS-TRANS observations of the systems were (generally) made at the beginning and end of Cycle 5 and once each in Cycles 6/7/8/9/10/11/12/13, resulting in about six observations so far for each system (except Gl 54 and GJ 2005, which were added more recently).

Additional Cycle 10

Proposal 10613 - Overview

measurements have not yet been carried out for eight of the systems. The TRANS mode observations are used to map the binary orbits via determination of the separations and position angles, and to measure the magnitude difference of the components so that luminosities can be derived. In Cycles 8-13 FGS-POS measurements have been made to locate the position of the center of mass of each system with respect to background stars. This allows us to determine the fractional masses of the components so that individual masses can be derived. Because of the long orbital periods of these systems, radial velocity techniques are not typically useful in getting fractional masses because the velocity differences are small, in addition to the complicating factor that the systems are generally faint and the velocities are of poor precision. The timing of observations has been carefully planned to provide points on the orbits every 20--30° degrees, and a similar strategy will be used in Cycles 11/12/13. Experience from Gl 748 (17 observations) and Gl 791.2 (14 observations) indicates that a set of roughly 12 measurements spread around the orbit is sufficient to achieve orbital parameter errors smaller than 1% error in the semimajor axis triples in Kepler's Third Law, which is why we need orbital elements with minimal error, and the consequent orbital coverage. Cycle 11--13 Plan: We propose to continue this effort to (1) increase the orbital coverage from six to nine years, thereby passing the critical half-orbit point on all of the systems, (2) determine the first masses for six systems, (3) revise masses for four systems, (4) refine the brightness ratios, and (5) employ the low-cost (in the sense of number of orbits) technique to measure the fractional masses in nine systems. In essence, via this program HST-FGS will be the instrument responsible for defining the MLR for the most populous stars in the Galaxy --- not a bad legacy for the sometimes forgotten HST instrument. Each of the 10 systems will be observed once each Cycle in FGS-TRANS mode through filter F583W to determine the separation, position angle, and brightness difference between the components. For the TRANS mode observations, 20--60 scans 0.8--3.0" in length are typically made across the binary. The F583W aperture has been selected because it is the best calibrated of the filters available in FGS. The transmission of the telescope through F583W is already calibrated to the Johnson V band (Henry et al 1999), and will allow the magnitude difference at visible wavelengths to be attained with high accuracy. During the same orbit, nine of the systems will be observed in FGS-POS mode to relate the binary to a background grid of stars in order to find the center of mass (Gl 473 is the lone exception because it lacks reference stars). POS mode observations will include multiple runs through the field. The POS mode observations allow to get fractional masses for each system. Over time, the vector connecting the two components rotates about the center of mass as they orbit one another. By overlapping the yearly vectors, we pinpoint the center of mass and derive the fractional masses, provided that the movement of the system due to its proper motion and parallax can be removed using accurate ground-

Proposal 10613 - Overview

based data.

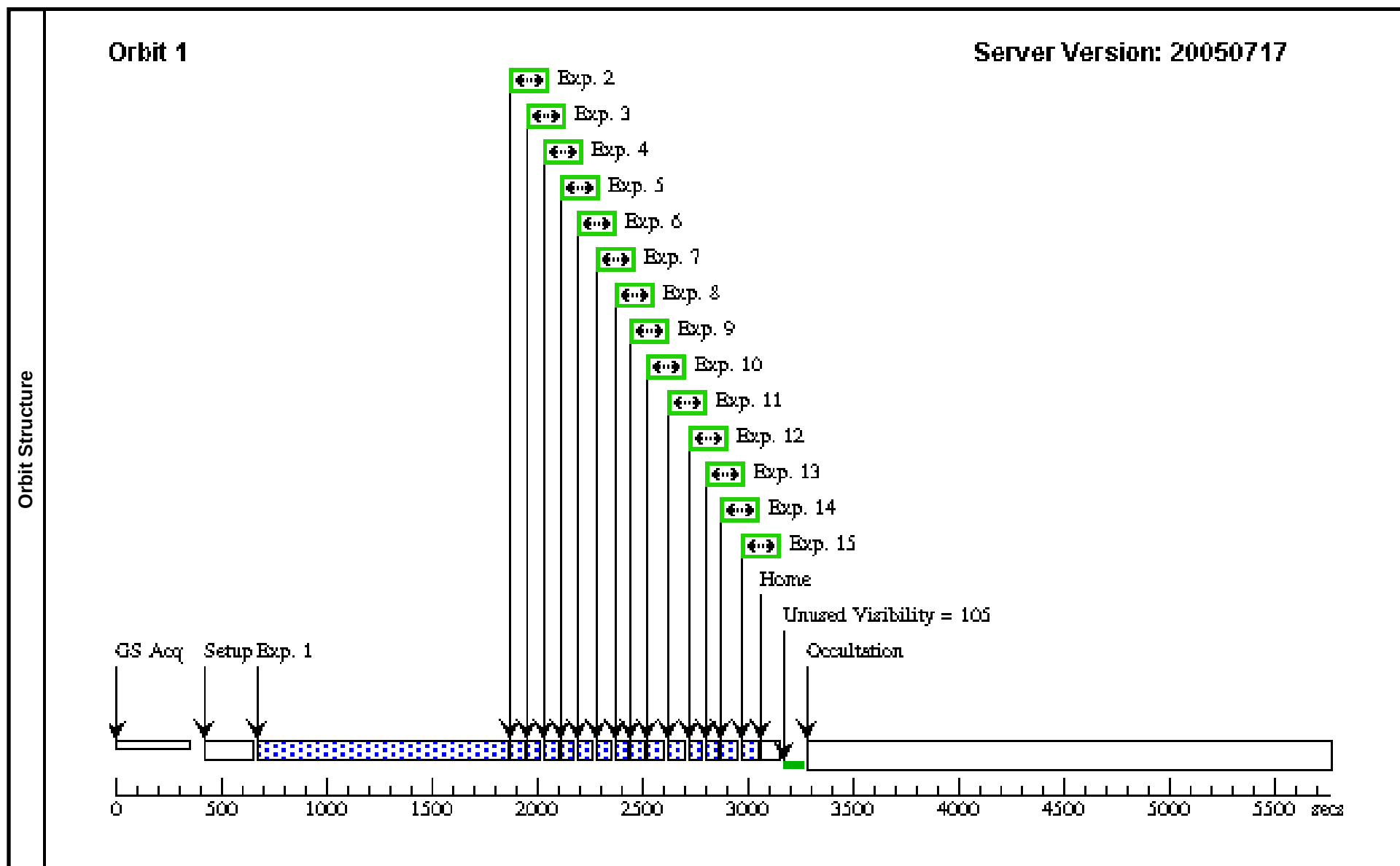
Errors in the location of vector overlap due to parallax uncertainties are minimized by observing the systems at nearly the same time every year. GJ 1215 and GJ 2005 are the most difficult targets due to faintness, but they are arguably the most important targets --- their secondaries have masses in the brown dwarf regime.

Proposal 10613 - Visit 01 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 01										Fri Sep 16 01:04:28 GMT 2005	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 115.8D TO 115.8 D; BETWEEN 24-OCT-2006:00:00:00 AND 26-NOV-2006:00:00:00											
	Comments: scanlength 1.5"											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(10)	GL22	RA: 00 32 24.7000 (8.1029167d)			Proper Motion RA: 0.29504s/yr		V=10.38+/-0.05		Coordinate Source: GUIDE_STAR_CATALOG		
		Alt Name1: BD+66D34	Dec: +67 14 11.90 (67.23664d)			Proper Motion Dec: -0.2372"/yr						
		Alt Name2: LHS114	Equinox: J2000			Parallax: 0.09809"						
			Plate Id: (?)			Epoch of Position: 1983.84						
	Comments: B-V = 1.54+/-0.05 TYPE=M2V BEWARE: second component at 4" with V = 12.4											
	(11)	GL22-024-REF	RA: 00 32 18.3840 (8.0766000d)			Proper Motion RA: 0.0s/yr		V=12.6+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG		
			Dec: +67 13 7.03 (67.21862d)			Proper Motion Dec: 0.0"/yr						
			Equinox: J2000			Parallax: 0.0"						
			Plate Id: (?)			Epoch of Position:						
(12)	GL22-049-REF	RA: 00 32 22.1780 (8.0924083d)			Proper Motion RA: 0.0s/yr		V=13.3+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG			
		Dec: +67 11 55.21 (67.19867d)			Proper Motion Dec: 0.0"/yr							
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(13)	GL22-087-REF	RA: 00 32 12.7900 (8.0532917d)			Proper Motion RA: 0.0s/yr		V=13.4+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG			
		Dec: +67 13 19.92 (67.22220d)			Proper Motion Dec: 0.0"/yr							
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(10) GL22	FGS, TRANS, 1	F583W	STEP-SIZE=1; SCANS=12	POS TARG 0,25	Sequence 1-15 Non-Int	950.0 Secs			
									[==>]		[1]	
	2		(10) GL22	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs			
									[==>]		[1]	
	3		(11) GL22-024-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs			
									[==>]		[1]	
	4		(13) GL22-087-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs			
									[==>]		[1]	
	5		(11) GL22-024-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs			
									[==>]		[1]	
	6		(12) GL22-049-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs			
									[==>]		[1]	

Proposal 10613 - Visit 01 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	7		(10) GL22	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	8		(11) GL22-024-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	9		(13) GL22-087-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	10		(12) GL22-049-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	11		(13) GL22-087-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	12		(11) GL22-024-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	13		(10) GL22	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	14		(12) GL22-049-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]
	15		(13) GL22-087-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-15 Non-Int	20.0 Secs [==>]	[1]

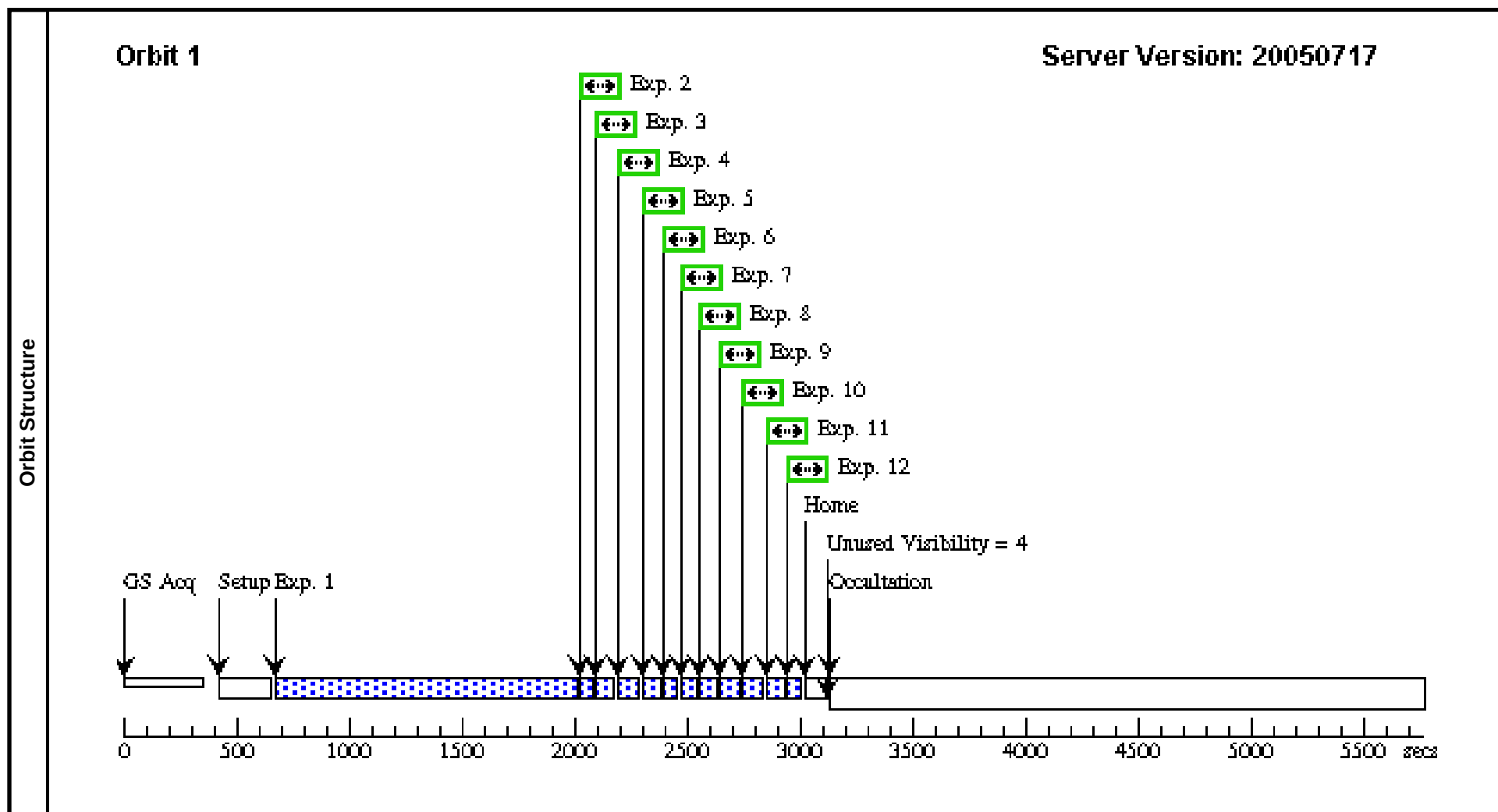


Proposal 10613 - Visit 02 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 02										Fri Sep 16 01:04:30 GMT 2005	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 260.0D TO 280.0 D; BETWEEN 16-SEP-2005:00:00:00 AND 22-SEP-2005:00:00:00											
	Comments: scanlength 2.0"											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(20)	GL234	RA: 06 29 22.6440 (97.3443500d)			Proper Motion RA: 0.04722s/yr		V=11.08+/-0.05		Coordinate Source:		
		Alt Name1: ROSS614	Dec: -02 48 39.42 (-2.81095d)			Proper Motion Dec: -0.7025"/yr				GUIDE_STAR_CATALOG		
		Alt Name2: LHS1849	Equinox: J2000			Parallax: 0.24434"						
			Plate Id: (?)			Epoch of Position: 1983.94						
	Comments: B-V = 1.72+/-0.05 TYPE=M5V											
	(25)	GL234-079-REF	RA: 06 29 30.0000 (97.3750000d)			Proper Motion RA: 0.0s/yr		V=13.8		Coordinate Source:		
		Dec: -02 49 8.70 (-2.81908d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(26)	GL234-520-REF	RA: 06 29 28.3000 (97.3679167d)			Proper Motion RA: 0.0s/yr		V=14.2		Coordinate Source:			
		Dec: -02 48 38.90 (-2.81081d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(27)	GL234-754-REF	RA: 06 29 23.9400 (97.3497500d)			Proper Motion RA: 0.0s/yr		V=14.2		Coordinate Source:			
		Dec: -02 49 14.50 (-2.82069d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(92)	GL234-USNO2-REF	RA: 06 29 20.7000 (97.3362500d)			Proper Motion RA: 0.0s/yr		V=14.7		Coordinate Source:			
		Dec: -02 49 52.70 (-2.83131d)			Proper Motion Dec: 0.0"/yr				USNO ACT CATALOG 2.0			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(93)	GL234-USNO3-REF	RA: 06 29 26.3000 (97.3595833d)			Proper Motion RA: 0.0s/yr		V=14.5		Coordinate Source:			
		Dec: -02 47 30.20 (-2.79172d)			Proper Motion Dec: 0.0"/yr				USNO ACT CATALOG 2.0			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(20) GL234	FGS, TRANS, 1	F583W	SCANS=12;	POS TARG 0,0	Sequence 1-12 Non-Int	1100.0 Secs			
						STEP-SIZE=0.8			[==>]		[1]	
	2		(20) GL234	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs			
									[==>]		[1]	
	3		(92) GL234-USNO2-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs			
								[==>]		[1]		

Proposal 10613 - Visit 02 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	4		(93) GL234-USNO3 -REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	5		(26) GL234-520-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	6		(20) GL234	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	7		(25) GL234-079-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	8		(27) GL234-754-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	9		(92) GL234-USNO2 -REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	10		(26) GL234-520-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	11		(93) GL234-USNO3 -REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]
	12		(20) GL234	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs [==>]	[1]

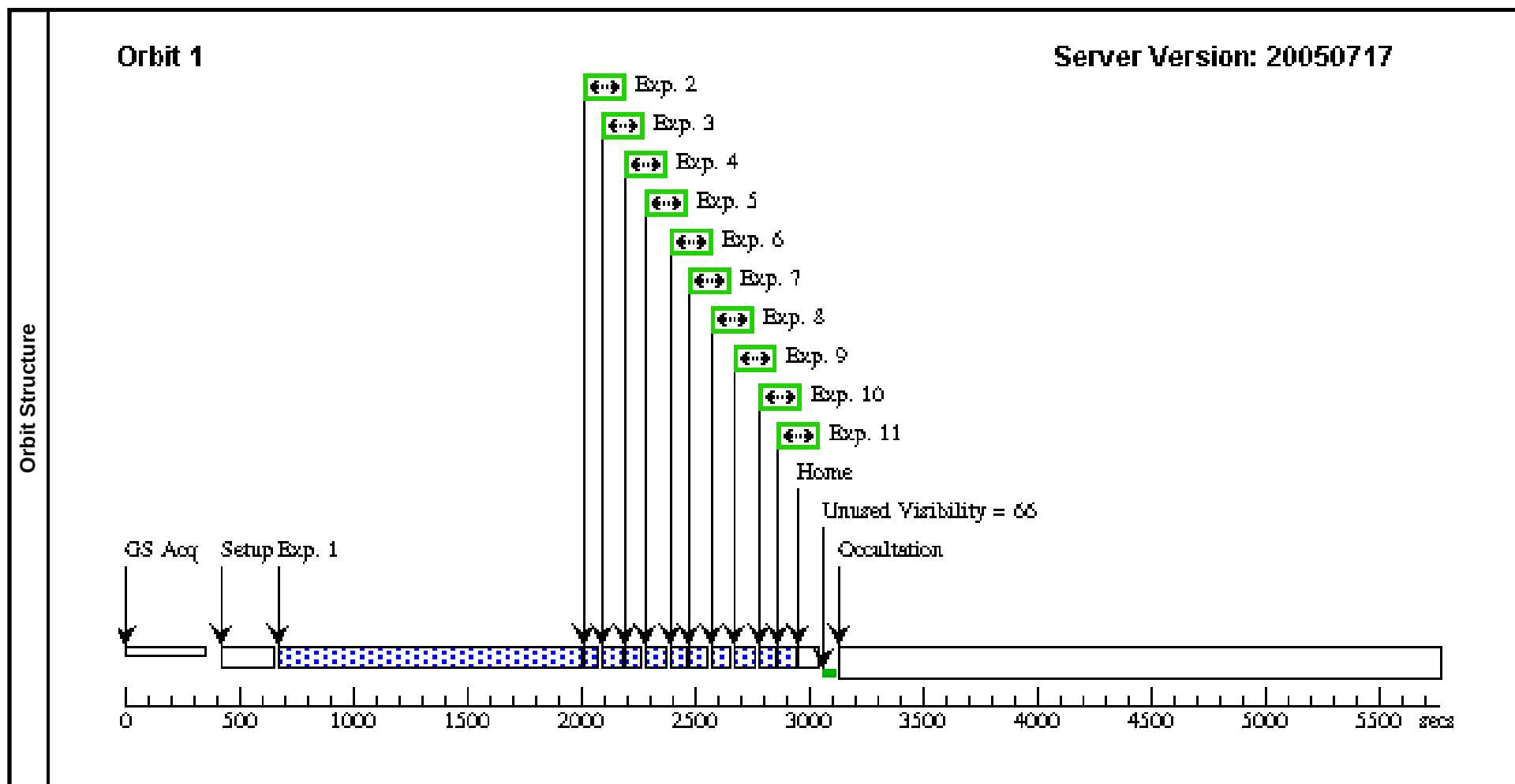


Proposal 10613 - Visit 03 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 03										Fri Sep 16 01:04:30 GMT 2005	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 299.2D TO 299.2 D; BETWEEN 26-NOV-2005:00:00:00 AND 30-NOV-2005:00:00:00											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(30)	GL469	RA: 12 28 57.5820 (187.2399250d)			Proper Motion RA: -0.04303s/yr		V=12.06+/-0.05		Coordinate Source: NEARBY STAR CATALOG (JAHREISS 1991)		
		Alt Name1: WOLF414	Dec: +08 25 31.44 (8.42540d)			Proper Motion Dec: -0.2881"/yr						
		Alt Name2: LHS2565	Equinox: J2000			Parallax: 0.07333"						
			Plate Id: (?)			Epoch of Position: 2000.0						
	Comments: B-V = 1.60+/-0.05 TYPE=M4V Comments:											
	(31)	GL469-021-REF	RA: 12 29 26.9400 (187.3622500d)			Proper Motion RA: 0.0s/yr		V=11.3+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG		
			Dec: +08 23 30.16 (8.39171d)			Proper Motion Dec: 0.0"/yr						
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(32)	GL469-083-REF	RA: 12 28 41.9660 (187.1748583d)			Proper Motion RA: 0.0s/yr		V=11.8+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG			
		Dec: +08 26 3.44 (8.43429d)			Proper Motion Dec: 0.0"/yr							
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(33)	GL469-140-REF	RA: 12 28 53.8220 (187.2242583d)			Proper Motion RA: 0.0s/yr		V=14.8+/-0.2		Coordinate Source: GUIDE_STAR_CATALOG			
		Dec: +08 25 42.13 (8.42837d)			Proper Motion Dec: 0.0"/yr							
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(30) GL469	FGS, TRANS, 1	F583W	SCANS=26; STEP-SIZE=1	POS TARG 0,-10	Sequence 1-11 Non-Int	930.0 Secs			
									[==>]		[1]	
	2		(30) GL469	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs			
									[==>]		[1]	
	3		(33) GL469-140-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	20.0 Secs			
									[==>]		[1]	
	4		(32) GL469-083-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs			
									[==>]		[1]	
	5		(33) GL469-140-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs			
									[==>]		[1]	
	6		(30) GL469	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	20.0 Secs			
									[==>]		[1]	
	7		(31) GL469-021-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs			
								[==>]		[1]		

Proposal 10613 - Visit 03 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config, Mode, Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	8		(30) GL469	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs	
									[==>]	[1]
	9		(33) GL469-140-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	20.0 Secs	
									[==>]	[1]
	10		(32) GL469-083-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	10.0 Secs	
									[==>]	[1]
	11		(30) GL469	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-11 Non-Int	20.0 Secs	
									[==>]	[1]



Proposal 10613 - Visit 04 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

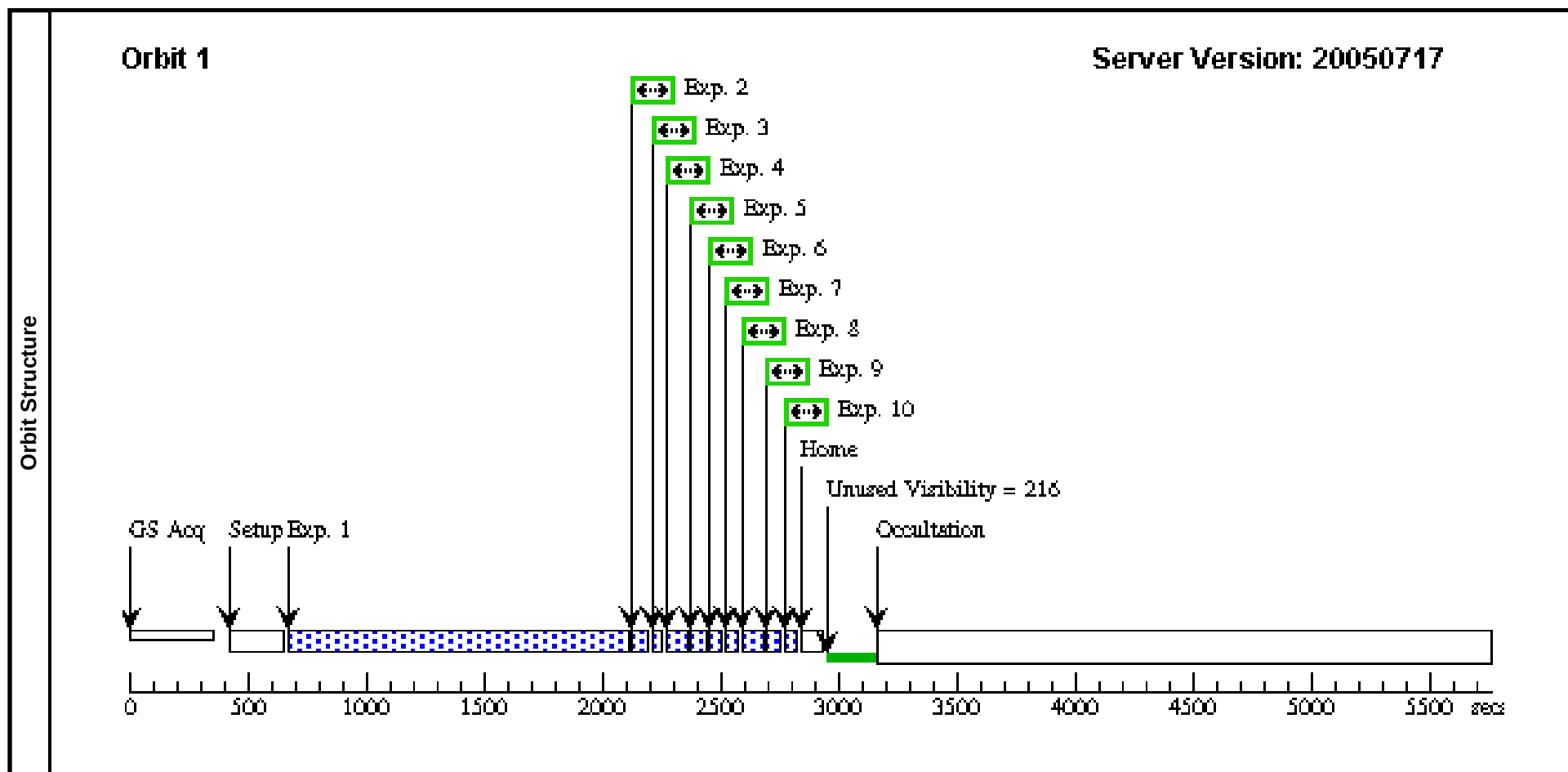
Visit	Proposal 10613, Visit 04										Fri Sep 16 01:04:31 GMT 2005									
	Diagnostic Status: No Diagnostics																			
	Scientific Instruments: FGS																			
	Special Requirements: BETWEEN 10-JAN-2006:00:00:00 AND 02-MAR-2006:00:00:00																			
Comments: scanlength 3.0", near maximum elongation																				
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous										
	(40)	GL473		RA: 12 33 19.5400 (188.3314167d)		Proper Motion RA: -0.12132s/yr		V=12.46+/-0.05		Coordinate Source:										
		Alt Name1: WOLF424		Dec: +09 01 11.32 (9.01981d)		Proper Motion Dec: 0.2332"/yr				NEARBY STAR CATALOG (JAHREISS 1991)										
		Alt Name2: LHS333		Equinox: J2000		Parallax: 0.2279"														
				Plate Id: (?)		Epoch of Position: 1982.07														
Comments: B-V = 1.84+/-0.05 TYPE=M6V																				
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit								
	1		(40) GL473	FGS, TRANS, 1		F583W	SCANS=27; STEP-SIZE=1	POS TARG 0,0		2000.0 Secs										
										[==>]		[1]								
Orbit Structure	Orbit 1										Server Version: 20050717									

Proposal 10613 - Visit 05 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 05										Fri Sep 16 01:04:31 GMT 2005	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 76.0D TO 80.0 D											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(50)	GJ1081	RA: 05 33 19.1400 (83.3297500d)			Proper Motion RA: 0.0048s/yr		V=12.21+/-0.05		Coordinate Source:		
		Alt Name1: G096-045	Dec: +44 49 4.94 (44.81804d)			Proper Motion Dec: -0.365"/yr				NEARBY STAR CATALOG (JAHREISS 1991)		
			Equinox: J2000			Parallax: 0.0652"						
			Plate Id: (?)			Epoch of Position: 1983.03						
		Comments: B-V = 1.60+/-0.1 TYPE=M3V coords from GO 6036 = GJ1081-NEW										
	(51)	GJ1081-023-REF	RA: 05 33 11.7000 (83.2987500d)			Proper Motion RA: 0.0s/yr		V=12.7+/-0.2		Coordinate Source:		
			Dec: +44 50 19.43 (44.83873d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG		
			Equinox: J2000			Parallax: 0.0"						
			Plate Id: (?)			Epoch of Position:						
	(52)	GJ1081-051-REF	RA: 05 33 17.9000 (83.3245833d)			Proper Motion RA: 0.0s/yr		V=10.9+/-0.2		Coordinate Source:		
			Dec: +44 48 44.14 (44.81226d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG		
			Equinox: J2000			Parallax: 0.0"						
			Plate Id: (?)			Epoch of Position:						
	(53)	GJ1081-054-REF	RA: 05 33 35.2220 (83.3967583d)			Proper Motion RA: 0.0s/yr		V=13.3+/-0.2		Coordinate Source:		
			Dec: +44 49 52.21 (44.83117d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG		
			Equinox: J2000			Parallax: 0.0"						
			Plate Id: (?)			Epoch of Position:						
	(104)	GJ1081-089-REF	RA: 05 33 7.6390 (83.2818292d)			Proper Motion RA: 0.0s/yr		V=14.2+/-0.2		Coordinate Source:		
		Alt Name1:	Dec: +44 47 26.88 (44.79080d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG		
		GSC02922.00143	Equinox: J2000			Parallax: 0.0"						
			Plate Id: 02RQ			Epoch of Position:						
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(50) GJ1081	FGS, TRANS, 1	F583W	SCANS=30;	POS TARG 0,-10;	Sequence 1-10 Non-Int	1000.0 Secs			
						STEP-SIZE=1	GSPAIR 029220156 1F30292201001F2		[==>]		[1]	
	2		(50) GJ1081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	20.0 Secs			
									[==>]		[1]	
	3		(52) GJ1081-051-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	10.0 Secs			
									[==>]		[1]	
4		(53) GJ1081-054-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	20.0 Secs				
								[==>]		[1]		
5		(52) GJ1081-051-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	10.0 Secs				
								[==>]		[1]		

Proposal 10613 - Visit 05 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config, Mode, Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	6		(50) GJ1081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	20.0 Secs	
									[==>]	[1]
	7		(51) GJ1081-023-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	10.0 Secs	
									[==>]	[1]
	8		(104) GJ1081-089-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	20.0 Secs	
									[==>]	[1]
	9		(52) GJ1081-051-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	10.0 Secs	
									[==>]	[1]
	10		(50) GJ1081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-10 Non-Int	20.0 Secs	
									[==>]	[1]

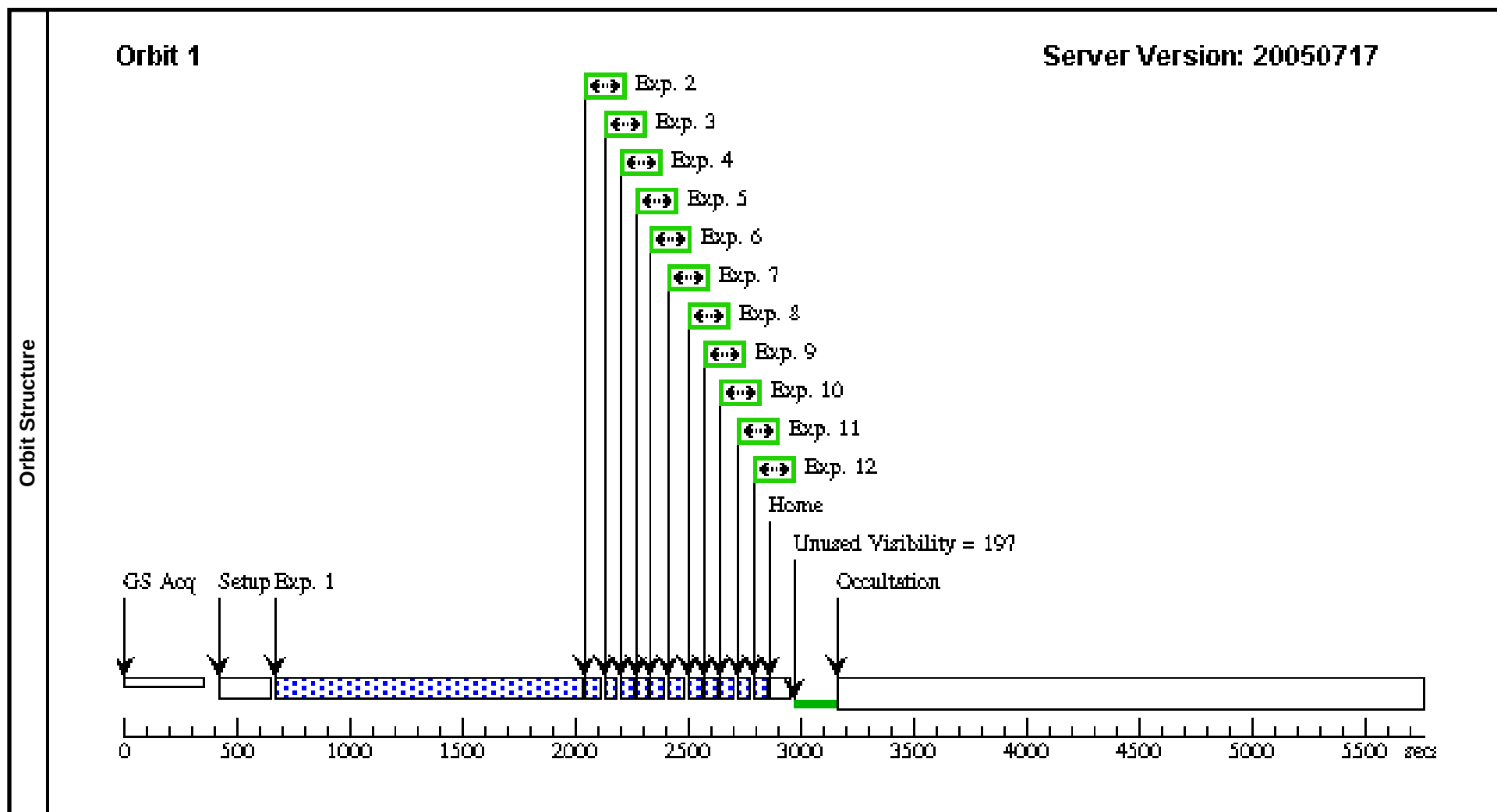


Proposal 10613 - Visit 06 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 06										Fri Sep 16 01:04:32 GMT 2005	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 53.0D TO 60.0 D; BETWEEN 01-NOV-2005:00:00:00 AND 15-NOV-2005:00:00:00											
	Comments: scanlength 2.0"											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(70)	GJ1245	RA: 19 53 53.9000 (298.4745833d)			Proper Motion RA: 0.04088s/yr		V=13.41+/-0.05		Coordinate Source:		
		Alt Name1: V1581CYG	Dec: +44 25 0.40 (44.41678d)			Proper Motion Dec: -0.5846"/yr				NEARBY STAR CATALOG (JAHREISS 1991)		
		Alt Name2: LHS3494	Equinox: J2000			Parallax: 0.2202"						
			Plate Id: (?)			Epoch of Position: 1983.67						
	Comments: B-V = 1.90+/-0.05 TYPE=M6V											
	(71)	GJ1245-108-REF	RA: 19 53 58.2410 (298.4926708d)			Proper Motion RA: 0.0s/yr		V=11.7+/-0.2		Coordinate Source:		
			Dec: +44 24 55.19 (44.41533d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG		
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(73)	GJ1245-179-REF	RA: 19 54 14.3520 (298.5598000d)			Proper Motion RA: 0.0s/yr		V=11.7+/-0.2		Coordinate Source:			
		Dec: +44 24 53.32 (44.41481d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(74)	GJ1245-607-REF	RA: 19 53 56.8010 (298.4866708d)			Proper Motion RA: 0.0s/yr		V=12.4+/-0.2		Coordinate Source:			
		Dec: +44 26 35.74 (44.44326d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
		Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(96)	GJ1245-1-REF	RA: 19 54 22.3130 (298.5929708d)			Proper Motion RA: 0.0s/yr		V=11.51+/-0.2		Coordinate Source:			
	Alt Name1:	Dec: +44 25 29.28 (44.42480d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
	GSC3149.00606	Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
(97)	GJ1245-2-REF	RA: 19 54 20.0660 (298.5836083d)			Proper Motion RA: 0.0s/yr		V=13.72+/-0.2		Coordinate Source:			
	Alt Name1:	Dec: +44 26 27.92 (44.44109d)			Proper Motion Dec: 0.0"/yr				GUIDE_STAR_CATALOG			
	GSC3149.00132	Equinox: J2000			Parallax: 0.0"							
		Plate Id: (?)			Epoch of Position:							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(70) GJ1245	FGS, TRANS, 1	F583W	SCANS=22;	POS TARG 0,0	Sequence 1-12 Non-Int	1000.0 Secs			
						STEP-SIZE=1			[==>]		[1]	
	2		(70) GJ1245	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs			
									[==>]		[1]	
	3		(71) GJ1245-108-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs			
								[==>]		[1]		

Proposal 10613 - Visit 06 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config, Mode, Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	4		(73) GJ1245-179-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	5		(96) GJ1245-1-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	6		(97) GJ1245-2-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	7		(71) GJ1245-108-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	8		(70) GJ1245	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	9		(74) GJ1245-607-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	10		(70) GJ1245	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	11		(71) GJ1245-108-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]
	12		(73) GJ1245-179-RE F	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	8.0 Secs	
									[==>]	[1]

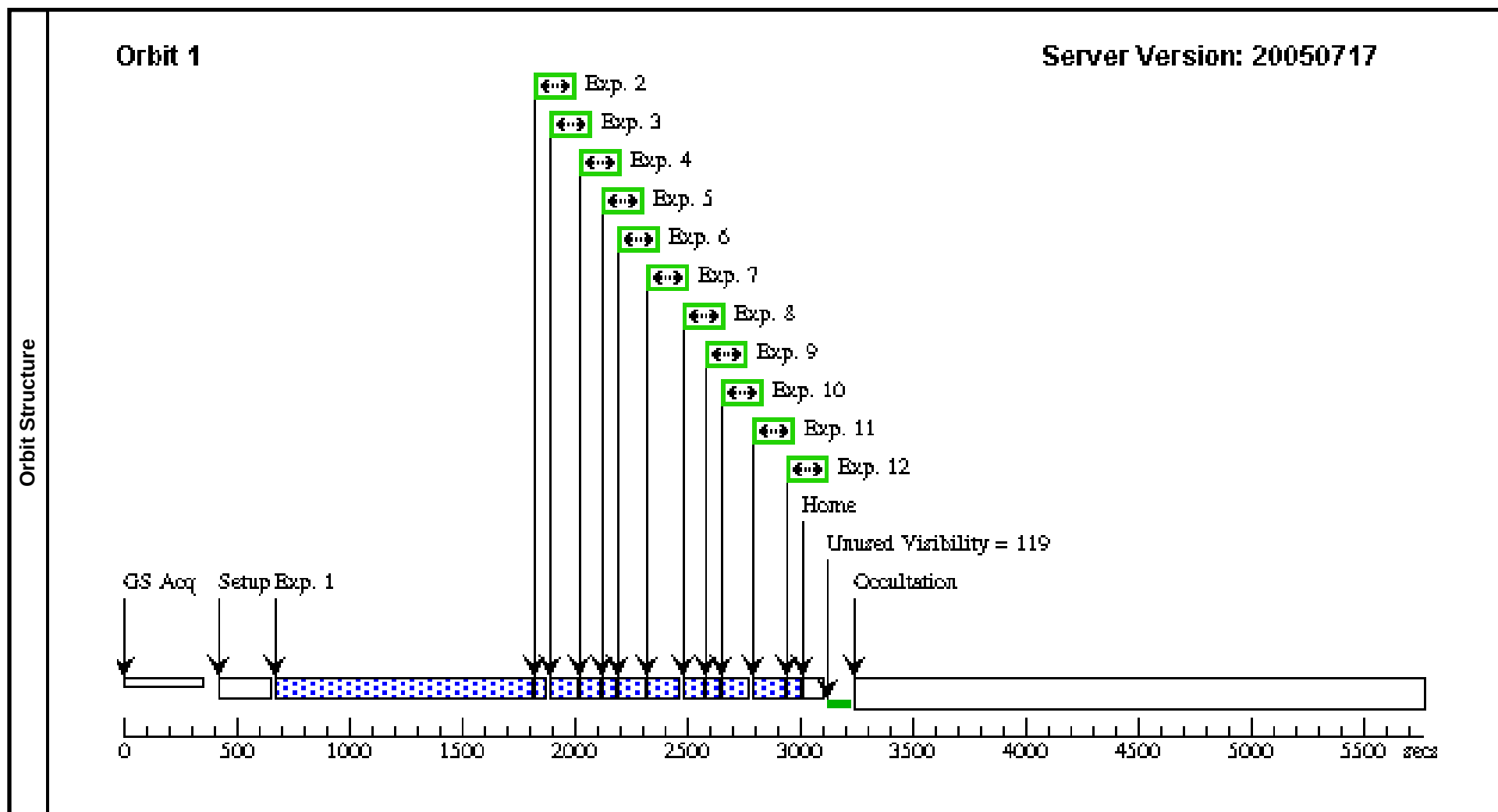


Proposal 10613 - Visit 07 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 07										Fri Sep 16 01:04:32 GMT 2005	
	Diagnostic Status: Warning											
	Scientific Instruments: FGS											
	Special Requirements: SCHED 70%; ORIENT 280.0D TO 285.0 D; BETWEEN 05-AUG-2005:00:00:00 AND 28-SEP-2005:00:00:00											
	Comments: scanlength 1.5"											
Diagnostics	(Visit 07) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA											
	(Visit 07) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA											
	(Visit 07) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA											
	(Visit 07) Warning: FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA											
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous						
	(80)	G250-29 Alt Name1: LHS221	RA: 06 54 4.2970 (103.5179042d) Dec: +60 52 18.14 (60.87171d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.07319s/yr Proper Motion Dec: -1.0155"/yr Parallax: 0.09542" Epoch of Position: 2000.0	V=11.06+/-0.05	Coordinate Source: NEARBY STAR CATALOG (JAHREISS 1 991)						
	Comments: B-V = 1.54+/-0.05 TYPE=M2V											
	(86)	G250-29-344-REF Alt Name1: GSC04110.01155	RA: 06 54 21.4150 (103.5892292d) Dec: +60 53 31.02 (60.89195d) Equinox: J2000 Plate Id: 034U	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=14.4+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG						
	(107)	G250-29-USNO1-REFB	RA: 06 53 57.7790 (103.4907458d) Dec: +60 52 6.00 (60.86833d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=15.7+/-0.1	Coordinate Source: USNO A2000						
	(108)	G250-29-USNO2-REFB	RA: 06 54 9.2400 (103.5385000d) Dec: +60 52 49.60 (60.88044d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=15.4+/-0.1	Coordinate Source: USNO A2000						
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit	
	1		(80) G250-29	FGS, TRANS, 1	F583W	SCANS=12; STEP-SIZE=0.6	POS TARG 0,0	Sequence 1-12 Non-Int	900.0 Secs			
									[==>]		[1]	
	2		(80) G250-29	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	2.0 Secs			
									[==>]		[1]	
	3		(108) G250-29-USNO2-REFB	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs			
								[==>]		[1]		
	4		(86) G250-29-344-REF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs			
									[==>]		[1]	

Proposal 10613 - Visit 07 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	5		(80) G250-29	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	2.0 Secs	
									[==>]	[1]
	6		(107) G250-29-USN O1-REFB	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs	
									[==>]	[1]
	7		(108) G250-29-USN O2-REFB	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs	
									[==>]	[1]
	8		(86) G250-29-344-R EF	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs	
									[==>]	[1]
	9		(80) G250-29	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	2.0 Secs	
									[==>]	[1]
	10		(107) G250-29-USN O1-REFB	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs	
									[==>]	[1]
	11		(108) G250-29-USN O2-REFB	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	10.0 Secs	
									[==>]	[1]
	12		(80) G250-29	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-12 Non-Int	2.0 Secs	
									[==>]	[1]



Proposal 10613 - Visit 08 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 08										Fri Sep 16 01:04:34 GMT 2005		
	Diagnostic Status: No Diagnostics												
Scientific Instruments: FGS													
Special Requirements: SCHED 50%; BETWEEN 03-SEP-2006:00:00:00 AND 21-SEP-2006:00:00:00													
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous					
	(109)	GL54	RA: 01 10 22.3100 (17.5929583d)	Proper Motion RA: 0.06765s/yr		V=9.8+/-0.1		Coordinate Source:					
		Alt Name1: LHS1208	Dec: -67 26 46.80 (-67.44633d)	Proper Motion Dec: 0.57198"/yr				HIPPARCOS/TYCHO_CATALOGUE					
		Alt Name2: HIP5496	Equinox: J2000	Parallax: 0.12286"									
Plate Id: (?)													
Epoch of Position: 1991.25													
Comments: V = 9.80+/-0.05													
B-V = 1.57+/-0.05													
TYPE=M3.0V													
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit		
	1		(109) GL54	FGS, TRANS, 1	F583W	SCANS=19;	POS TARG 0,0		950.0 Secs				
						STEP-SIZE=0.5			[==>]		[1]		
Orbit Structure	Orbit 1												
	Server Version: 20050717												

Proposal 10613 - Visit 09 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Visit	Proposal 10613, Visit 09 Diagnostic Status: Warning Scientific Instruments: FGS Special Requirements: ORIENT 245.0D TO 261.0 D; BETWEEN 01-NOV-2005:00:00:00 AND 05-NOV-2005:00:00:00					Fri Sep 16 01:04:34 GMT 2005
	Diagnostics (Visit 09) Warning: SHORT FGS SCAN LENGTH MAY SIGNAL PROBLEMS					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(170)	LHS224AB Alt Name1: GJ3421 Alt Name2: GSC3767.01193	RA: 07 03 55.8000 (105.9825000d) Dec: +52 42 5.80 (52.70161d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.08359s/yr Proper Motion Dec: -0.921"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=13.3+/-0.2	Coordinate Source: BAKOS & SAHU 2002
	(171)	LHS224AB-0 Alt Name1: GJ3421 Alt Name2: GSC3767.01193	RA: 07 03 55.8000 (105.9825000d) Dec: +52 42 5.80 (52.70161d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.08359s/yr Proper Motion Dec: -0.921"/yr Parallax: 0.0" Epoch of Position: 2000.0	V=15.8+/-0.2	Coordinate Source: BAKOS & SAHU 2002
	Comments: This is the same target as LHS224AB, but with a false magnitude specification that will facilitate acquisition for the POS mode exposures.					
	(172)	LHS224AB-REF1 Alt Name1: GSC3767.00651	RA: 07 03 49.4500 (105.9560417d) Dec: +52 42 14.54 (52.70404d) Equinox: J2000 Plate Id: 01JX	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=11.26+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(173)	LHS224AB-REF2 Alt Name1: GSC3767.00768	RA: 07 03 41.3160 (105.9221500d) Dec: +52 40 14.31 (52.67064d) Equinox: J2000 Plate Id: 01JX	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=10.37+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(174)	LHS224AB-REF3 Alt Name1: GSC3767.01312	RA: 07 03 34.8020 (105.8950083d) Dec: +52 40 39.32 (52.67759d) Equinox: J2000 Plate Id: 01JX	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=12.18+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG
	(175)	LHS224AB-REF4 Alt Name1: GSC3767.00569	RA: 07 04 26.4000 (106.1100000d) Dec: +52 44 0.64 (52.73351d) Equinox: J2000 Plate Id: 01JX	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=13.27+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG

Proposal 10613 - Visit 09 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Fixed Targets (continued)	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(176)	LHS224AB-REF5 Alt Name1: GSC3767.00553	RA: 07 04 34.9510 (106.1456292d) Dec: +52 45 7.99 (52.75222d) Equinox: J2000 Plate Id: 01JX	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Parallax: 0.0" Epoch of Position:	V=11.24+/-0.2	Coordinate Source: GUIDE_STAR_CATALOG

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(170) LHS224AB	FGS, TRANS, 1	F583W	SCANS=20; STEP-SIZE=0.5		Sequence 1-17 Non-Int	800.0 Secs [==>]	[1]
	2		(171) LHS224AB-0	FGS, POS, 1	F583W	FES-TIME=0.05	SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	3		(172) LHS224AB-R EF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	4		(174) LHS224AB-R EF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	5		(173) LHS224AB-R EF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	6		(175) LHS224AB-R EF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	7		(176) LHS224AB-R EF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	8		(171) LHS224AB-0	FGS, POS, 1	F583W	FES-TIME=0.05	SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	9		(172) LHS224AB-R EF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	10		(174) LHS224AB-R EF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	11		(173) LHS224AB-R EF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	12		(175) LHS224AB-R EF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]
	13		(176) LHS224AB-R EF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs [==>]	[1]

Proposal 10613 - Visit 09 - Calibrating the Mass-Luminosity Relation at the End of the Main Sequence

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	14		(171) LHS224AB-0	FGS, POS, 1	F583W	FES-TIME=0.05	SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs	
									[==>]	[1]
	15		(172) LHS224AB-R EF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs	
									[==>]	[1]
	16		(173) LHS224AB-R EF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs	
									[==>]	[1]
	17		(174) LHS224AB-R EF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-17 Non-Int	10.0 Secs	
									[==>]	[1]

