



# 10476 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Cycle: 14, Proposal Category: GO

(Availability Mode: AVAILABLE)

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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## 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>
10	(12) ER8-HRC	ACS/HRC	2	07-Jun-2005 14:11:02.0	yes
20	(12) ER8-HRC	ACS/HRC	?	?	yes
30	(12) ER8-HRC	ACS/HRC	3	07-Jun-2005 14:11:32.0	yes
40	(12) ER8-HRC	ACS/HRC	?	?	yes
50	(12) ER8-HRC	ACS/HRC	2	07-Jun-2005 14:11:56.0	yes
60	(12) ER8-HRC	ACS/HRC	2	20-Jun-2005 11:44:22.0	yes

## ABSTRACT

## Proposal 10476 - Overview

We propose to determine the mass of the very cool white dwarf ER 8 through astrometric microlensing. We have predicted that ER 8 will pass very close to a 15th-mag background star in January 2006, with an impact parameter of less than 0.05 arcsec. As it passes in front, it will cause a deflection of the background star's image by  $>8$  milliarcsec, an amount easily detectable with HST/FGS. The gravitational deflection angle depends only on the distances and relative positions of the stars, and on the mass of the white dwarf. Since the distances and positions can be determined precisely before the event, the astrometric measurement offers a unique and direct method to measure the mass of the white dwarf to high accuracy ( $<5\%$ ). Unlike all other stellar mass determinations, this technique works for single stars (but only if they are nearby and of sufficient mass).

The mass of ER 8 is of special interest because it is a member of the Galactic halo, and appears to be the oldest known field white dwarf. This object can thus set a lower limit on the age of the Galactic halo, but since white-dwarf cooling rates depend on their masses, the mass is a necessary ingredient in the age determination.

As a byproduct, we will obtain an accurate parallax for ER 8, and thus its luminosity and (from its effective temperature) its radius. Such quantities are at present rather poorly known for the coolest white dwarfs, and will provide strong constraints on white-dwarf physics.

### **OBSERVING DESCRIPTION**

We need to know an accurate parallax and proper motion for ER 8, and an accurate location of the source star, in order to predict the precise circumstances of the event, including the date and impact parameter. The existing ground-based measurements do not have the  $\sim 1$ mas accuracy needed for these purposes, especially given the 6 mas/day proper motion of ER 8. Unfortunately ER 8, at 17th mag, is too faint for FGS observations. Therefore, we will use direct imaging with ACS to determine the astrometric parameters of ER 8, the source star, and the surrounding reference field. These determinations need to be done well in advance of the 2006 event, beginning in Cycle 12.

During the actual event, we need to measure the gravitational deflection of the source to much better than 1 mas accuracy. Fortunately, at 15th mag, the source star's position (relative to surrounding reference stars) can be measured easily with the FGS to the required precision.

These considerations dictate a four-phase observing program:

(1) Prediction phase. In this phase, we will obtain the HST observations needed to predict the circumstances of the event (distance to the lens, impact parameter, and time of closest approach) with high accuracy. In Cycles 12 (2 visits) and 13 (1 visit), we will image ER 8, the background

## Proposal 10476 - Overview

star, and the surrounding reference field with the ACS/WFC. Observations will be made at the times of maximum parallax factor (July 2003, January 2004, July 2004; one orbit each). These observations will establish the proper motion and parallax of ER 8 and the location (and any parallax) of the source, all to a higher accuracy ( $<1$  mas) than possible from the ground.

(2) FGS baseline phase. In mid-Cycle 12, we will use FGS1r to obtain accurate baseline astrometry of the source and surrounding reference stars to establish their relative positions before the onset of any gravitational deflection (1 visit, 2 orbits).

(3) Encounter phase. In mid-Cycle 13 (January 2005), when the deflection should first start to become detectable, we will obtain an FGS observation (2 orbits). Another FGS observation will be obtained at the beginning of Cycle 14 in July 2005 (2 orbits). Then, starting in late December 2005, we will begin our intensive FGS monitoring of the deflection event. This will consist of 1 FGS visit (2 orbits) every 3 days for a 9-day interval centered on the closest approach (total of 4 visits, 8 orbits).

(4) Post-encounter phase. Our final FGS observation in Cycle 14 will be in June 2006 (2 orbits) when the deflection will be nearing its end. At this point we will also obtain a final ACS image (1 orbit) for further refinement of the event circumstances based on the longest time baseline.

Therefore, our request is for 4 orbits in Cycle 12, 3 in Cycle 13, and 13 in Cycle 14.

Proposal 10476 - Visit 10 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Mon Jun 20 15:44:30 GMT 2005

Visit	<b>Proposal 10476, Visit 10</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 275.0D TO 275.0 D; BETWEEN 22-DEC-2005:00:00:00 AND 23-DEC-2005:00:00:00									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098	Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false		(1)				
	(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false		(2), (3)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)		V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2		Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO		Pattern 2-2 (2)	1000.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]

Proposal 10476 - Visit 10 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=3; AUTOIMAGE=NO	Pattern 3-3 (2)	1200.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)]	[2]		

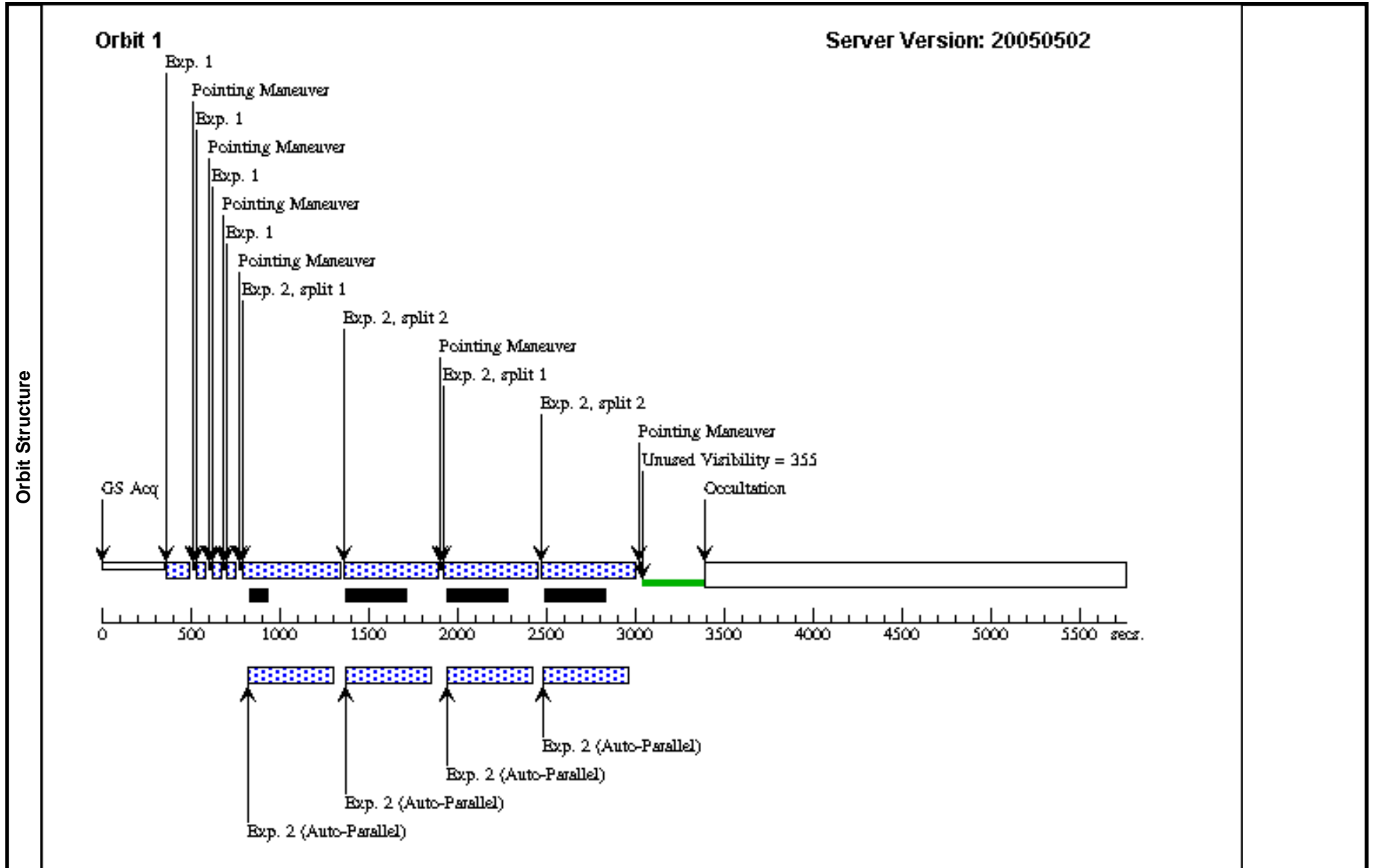
Proposal 10476 - Visit 20 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

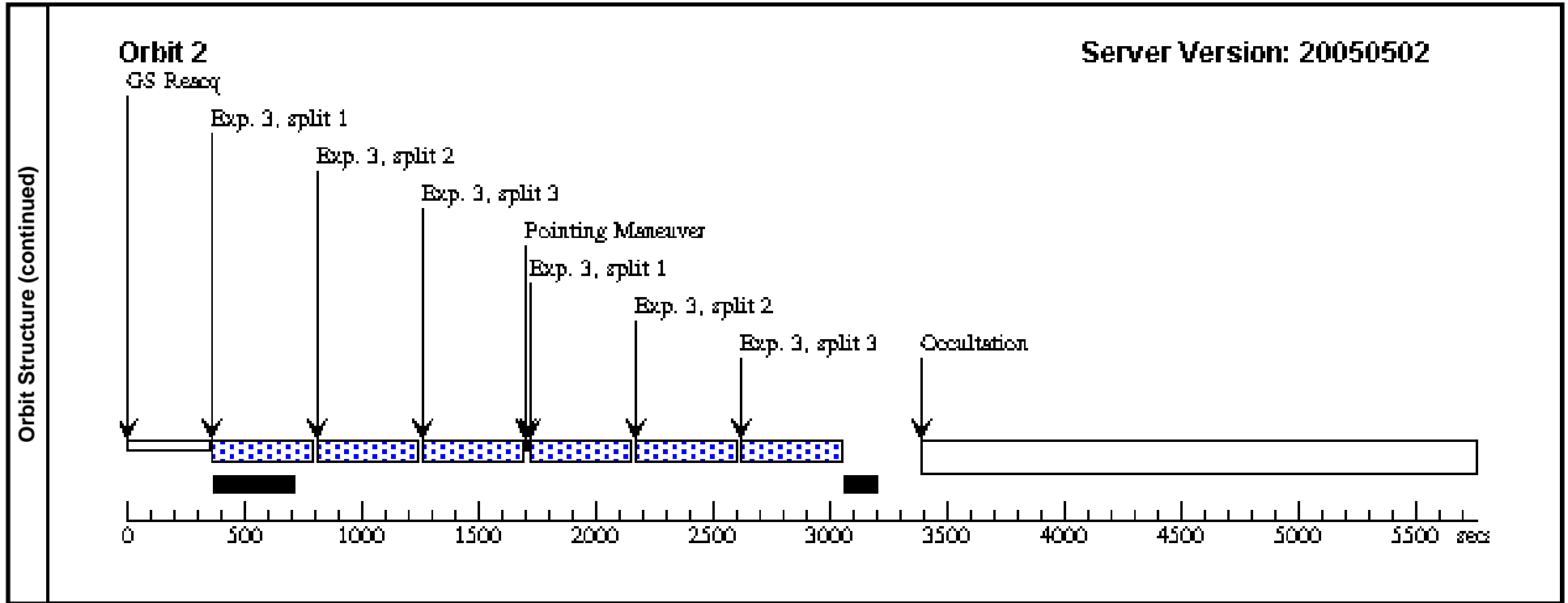
Mon Jun 20 15:44:32 GMT 2005

<b>Visit</b>	<b>Proposal 10476, Visit 20</b> <b>Diagnostic Status: Error</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 286.0D TO 286.0 D; BETWEEN 01-JAN-2006:00:00:00 AND 02-JAN-2006:00:00:00									
	<b>Diagnostics</b>	(Visit 20) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 20) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 20) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS								
<b>Patterns</b>		<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
	(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098	Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false							(1)
(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false							(2), (3)	
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)					V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME	
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2			Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO			Pattern 2-2 (2)	1000.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]	

Proposal 10476 - Visit 20 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=3; AUTOIMAGE=NO		Pattern 3-3 (2)	1200.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)]	[2]





Proposal 10476 - Visit 30 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Mon Jun 20 15:44:37 GMT 2005

Visit		<b>Proposal 10476, Visit 30</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 286.0D TO 286.0 D; BETWEEN 05-JAN-2006:00:00:00 AND 06-JAN-2006:00:00:00								
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098	Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false		(1), (4)					
(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false		(2), (3)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)		V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2			Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]
2		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L		GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO		Pattern 2-2 (2)	1000.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]

Proposal 10476 - Visit 30 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=3; AUTOIMAGE=NO		Pattern 3-3 (2)	1200.0 Secs [=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 1, Split 3)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)] [=>(Pattern 2, Split 3)]	[2]

Proposal 10476 - Visit 30 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures (continued)	4	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2		Pattern 4-4 (1)	15.0 Secs X 8	[3]
								[==>(Pattern 1, Copy 1)]	
								[==>(Pattern 1, Copy 2)]	
								[==>(Pattern 1, Copy 3)]	
								[==>(Pattern 1, Copy 4)]	
								[==>(Pattern 1, Copy 5)]	
								[==>(Pattern 1, Copy 6)]	
								[==>(Pattern 1, Copy 7)]	
								[==>(Pattern 1, Copy 8)]	
								[==>(Pattern 2, Copy 1)]	
								[==>(Pattern 2, Copy 2)]	
								[==>(Pattern 2, Copy 3)]	
								[==>(Pattern 2, Copy 4)]	
								[==>(Pattern 2, Copy 5)]	
								[==>(Pattern 2, Copy 6)]	
								[==>(Pattern 2, Copy 7)]	
								[==>(Pattern 2, Copy 8)]	
								[==>(Pattern 3, Copy 1)]	
								[==>(Pattern 3, Copy 2)]	
								[==>(Pattern 3, Copy 3)]	
								[==>(Pattern 3, Copy 4)]	
								[==>(Pattern 3, Copy 5)]	
								[==>(Pattern 3, Copy 6)]	
								[==>(Pattern 3, Copy 7)]	
								[==>(Pattern 3, Copy 8)]	
								[==>(Pattern 4, Copy 1)]	
								[==>(Pattern 4, Copy 2)]	
								[==>(Pattern 4, Copy 3)]	
								[==>(Pattern 4, Copy 4)]	
								[==>(Pattern 4, Copy 5)]	
								[==>(Pattern 4, Copy 6)]	
								[==>(Pattern 4, Copy 7)]	
[==>(Pattern 4, Copy 8)]									

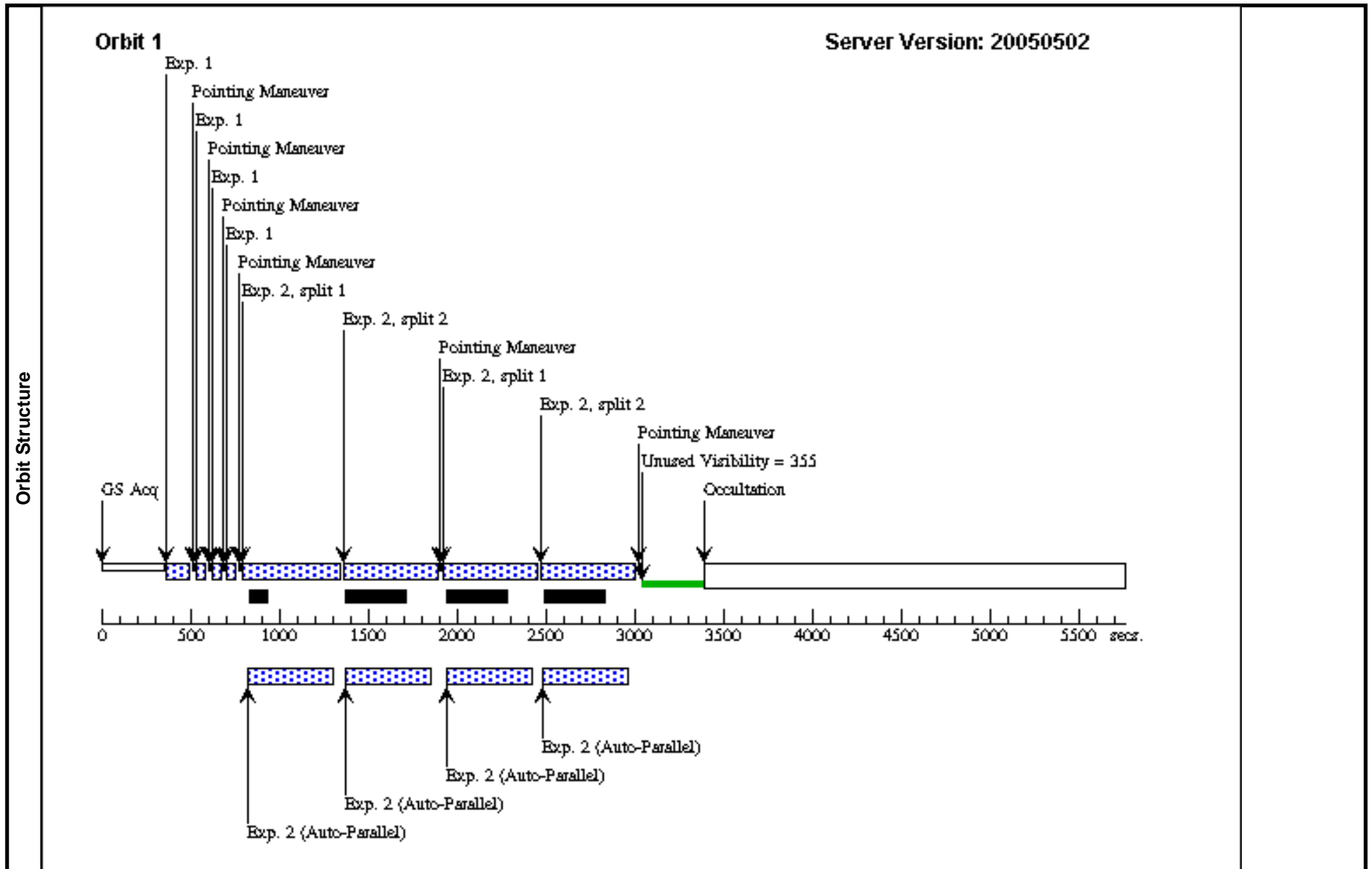
Proposal 10476 - Visit 40 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

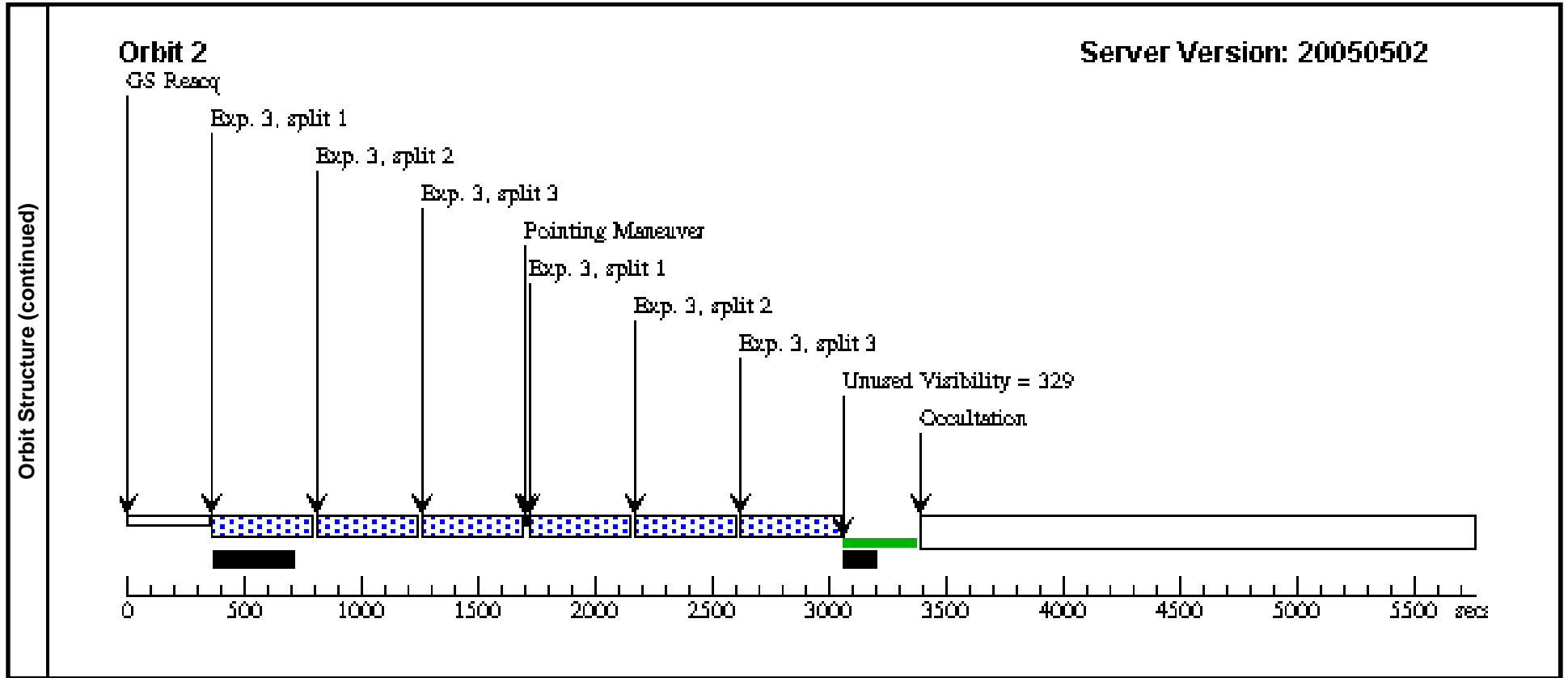
Mon Jun 20 15:44:38 GMT 2005

<b>Visit</b>	<b>Proposal 10476, Visit 40</b> <b>Diagnostic Status: Error</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 286.0D TO 286.0 D; BETWEEN 10-JAN-2006:00:00:00 AND 11-JAN-2006:00:00:00									
	<b>Diagnostics</b>	(Visit 40) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 40) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 40) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS								
<b>Patterns</b>		<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
	(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098	Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false					(1)		
(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false					(2), (3)			
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)				V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME		
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2			Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO			Pattern 2-2 (2)	1000.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]	

Proposal 10476 - Visit 40 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=3; AUTOIMAGE=NO	Pattern 3-3 (2)	1200.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)]	[2]		





Proposal 10476 - Visit 50 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Mon Jun 20 15:44:44 GMT 2005

Visit	<b>Proposal 10476, Visit 50</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 286.0D TO 286.0 D; BETWEEN 15-JAN-2006:00:00:00 AND 16-JAN-2006:00:00:00									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098	Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false		(1)				
	(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false		(2), (3)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)		V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2		Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO		Pattern 2-2 (2)	1000.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]

Proposal 10476 - Visit 50 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=3; AUTOIMAGE=NO		Pattern 3-3 (2)	1200.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)]	[2]

Proposal 10476 - Visit 60 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Mon Jun 20 15:44:44 GMT 2005

<b>Visit</b>	<b>Proposal 10476, Visit 60</b> <b>Diagnostic Status: Error</b> Scientific Instruments: ACS/HRC Special Requirements: PCS MODE FINE; SCHED 30%; ORIENT 286.0D TO 286.0 D; BETWEEN 30-JAN-2006:00:00:00 AND 31-JAN-2006:00:00:00									
	<b>Diagnostics</b>	(Visit 60) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 60) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 60) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS (Visit 60) Error: INTERNAL INCONSISTENCY IN MERGING PROCESS								
<b>Patterns</b>		<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
	(1)	Pattern Type=ACS-HRC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.15 Line Spacing=0.098		Coordinate Frame=POS-TARG Pattern Orientation=19.9 Angle Between Sides=63.5 Center Pattern=false						(1)
(2)	Pattern Type=ACS-HRC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.198 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=44.3 Angle Between Sides= Center Pattern=false						(2), (3)	
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(12)	ER8-HRC	RA: 13 12 55.4000 (198.2308333d) Dec: -47 27 59.50 (-47.46653d) Equinox: J2000 Plate Id: (?)				V=17.0	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME		
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO; GAIN=2			Pattern 1-1 (1)	15.0 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
2	(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO			Pattern 2-2 (2)	916.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]	[1]	

Proposal 10476 - Visit 60 - Accurate Mass Determination of the Ancient White Dwarf ER 8 Through Astrometric Microlensing

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		3		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	GAIN=2; CR-SPLIT=2; AUTOIMAGE=NO		Pattern 3-3 (2)	916.0 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]
	4		(12) ER8-HRC	ACS/HRC, ACCUM, HRC	G800L	CR-SPLIT=NO; GAIN=2; AUTOIMAGE=NO			400.0 Secs [==>]	[2]

