



11693 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

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) HD-10647	STIS/CCD	2	18-May-2010 21:05:22.0	yes
02	(1) HD-10647	STIS/CCD	2	18-May-2010 21:05:29.0	yes
03	(1) HD-10647	STIS/CCD	2	18-May-2010 21:05:34.0	yes
04	(1) HD-10647	STIS/CCD	2	18-May-2010 21:05:39.0	yes
09	(1) HD-10647	STIS/CCD	1	18-May-2010 21:05:47.0	yes
10	(1) HD-10647	STIS/CCD	1	18-May-2010 21:05:55.0	yes
11	(3) HD-7570	STIS/CCD	1	18-May-2010 21:06:02.0	yes

11 Total Orbits Used

ABSTRACT

Circumstellar debris disks offer direct views into the structure of extrasolar planetary systems. Their constituent dust, seen in scattered light and thermal emission, is created by the collisions of asteroidal and cometary parent bodies. The distribution of this dust provides information on the location of the parent bodies, and can be strongly affected by planetary perturbations. Dynamical signatures of planets can include asymmetries, warps, central clearings, and radial gaps in a disk, and thus are key features to search for in resolved images. Following up recent Spitzer measurements, we have now detected two new, nearby debris disks in scattered light. Our initial ACS F606W coronagraphic images show faint ringlike structures around the solar-type stars HD 10647 (F9V) and HD 207129 (G0V); both are also spatially resolved in Spitzer/MIPS 70 micron images. The HD 10647 disk, seen close to edge-on, represents the first disk ever imaged in scattered light around a star known to have a radial velocity planet. The inclined ring around HD 207129 is the faintest disk ever imaged in scattered light, and seems in the MIPS image to be asymmetric like the eccentric ring around Fomalhaut. We propose to obtain deep ACS coronagraphic images of these two disks. Our goals are to get definitive measurements of the dust spatial distributions (including disk asymmetries and sharpness of the ring edges), and measure the overall F606W-F814W color of each disk in order to constrain the dust properties. The results will be a definitive exploration of the Kuiper belts of two nearby, Sun-like stars. NOTE: HD 207129 was deleted from this program.

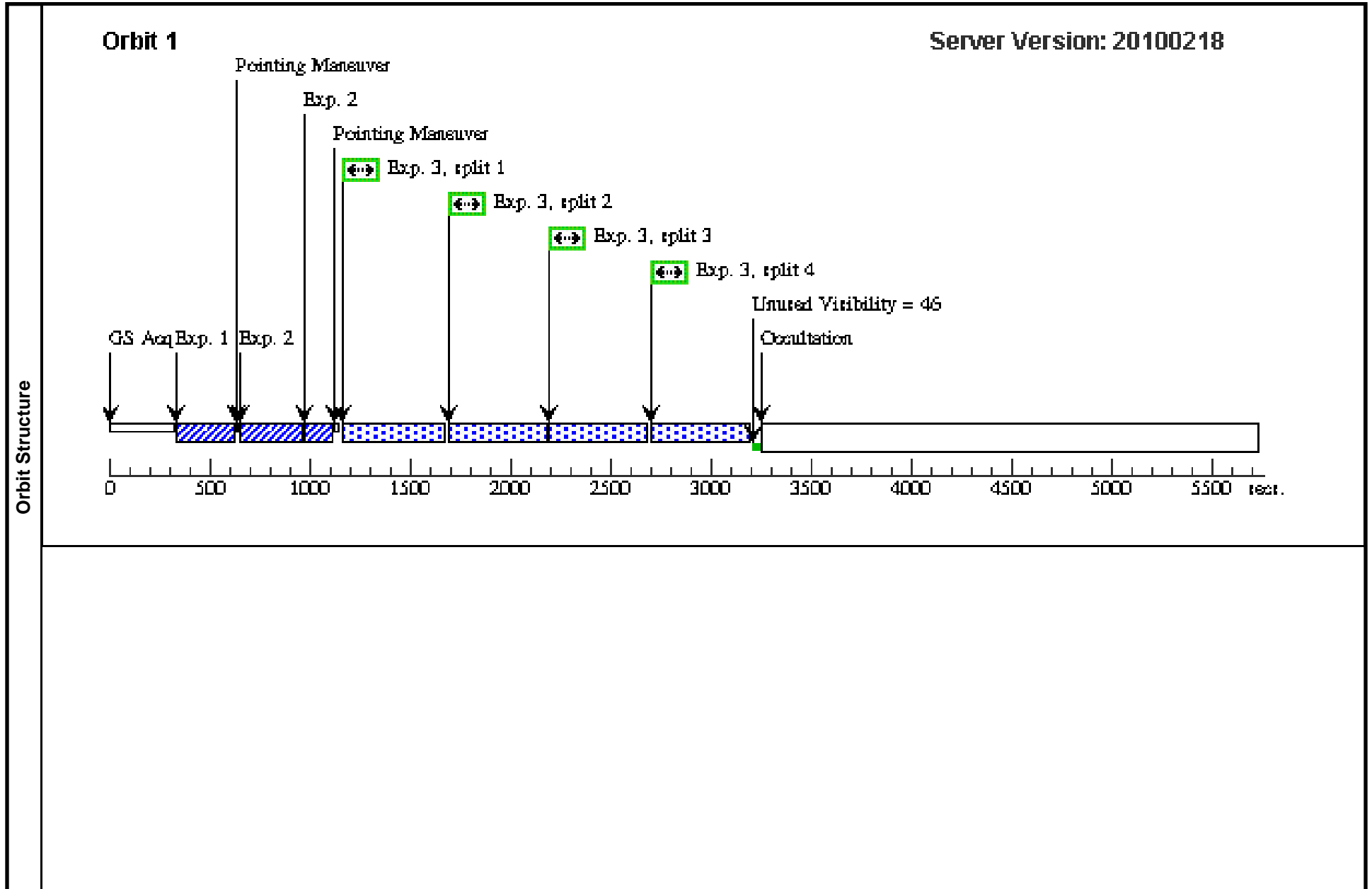
OBSERVING DESCRIPTION

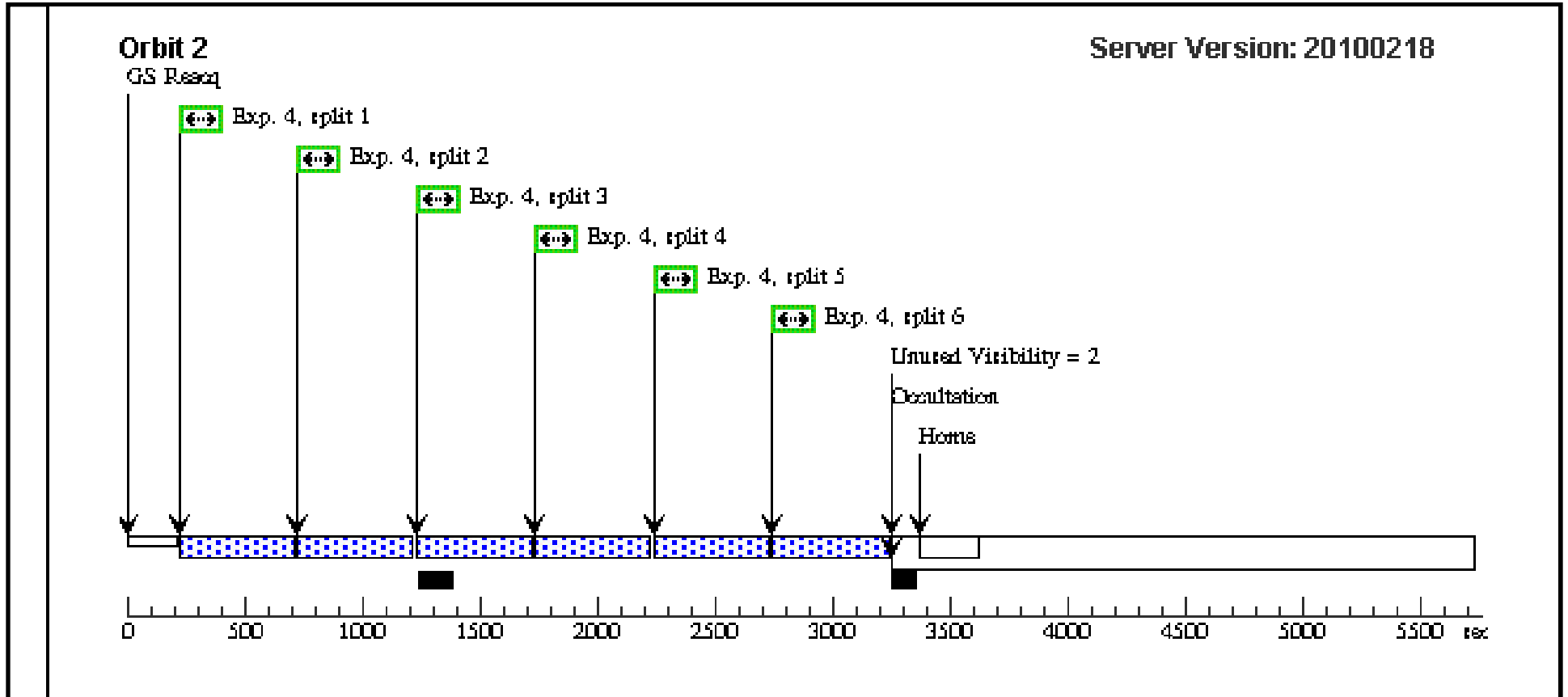
We will observe HD 10647 with the STIS coronagraph. We will spend 4 orbits observing it with WEDGEA2.0 to obtain a single deep image of the outer disk, then roll the telescope by 25-30 degrees and observe it again with another 4 orbits. In another set of observations, we observe HD 10647 with WEDGEA1.0 in one orbit to image the inner disk. We repeat in another orbit after rolling the telescope. Then, immediately after, we observe a reference PSF star. Orientation constraints ensure that the circumstellar disk, which extends along PA=56 deg, will be oriented perpendicular to the wedge.

Proposal 11693 - Visit 01 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:07 GMT 2010

Visit	Proposal 11693, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 40D TO 46 D; ORIENT 220D TO 226 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=4			1848 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=6			2760 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[2]

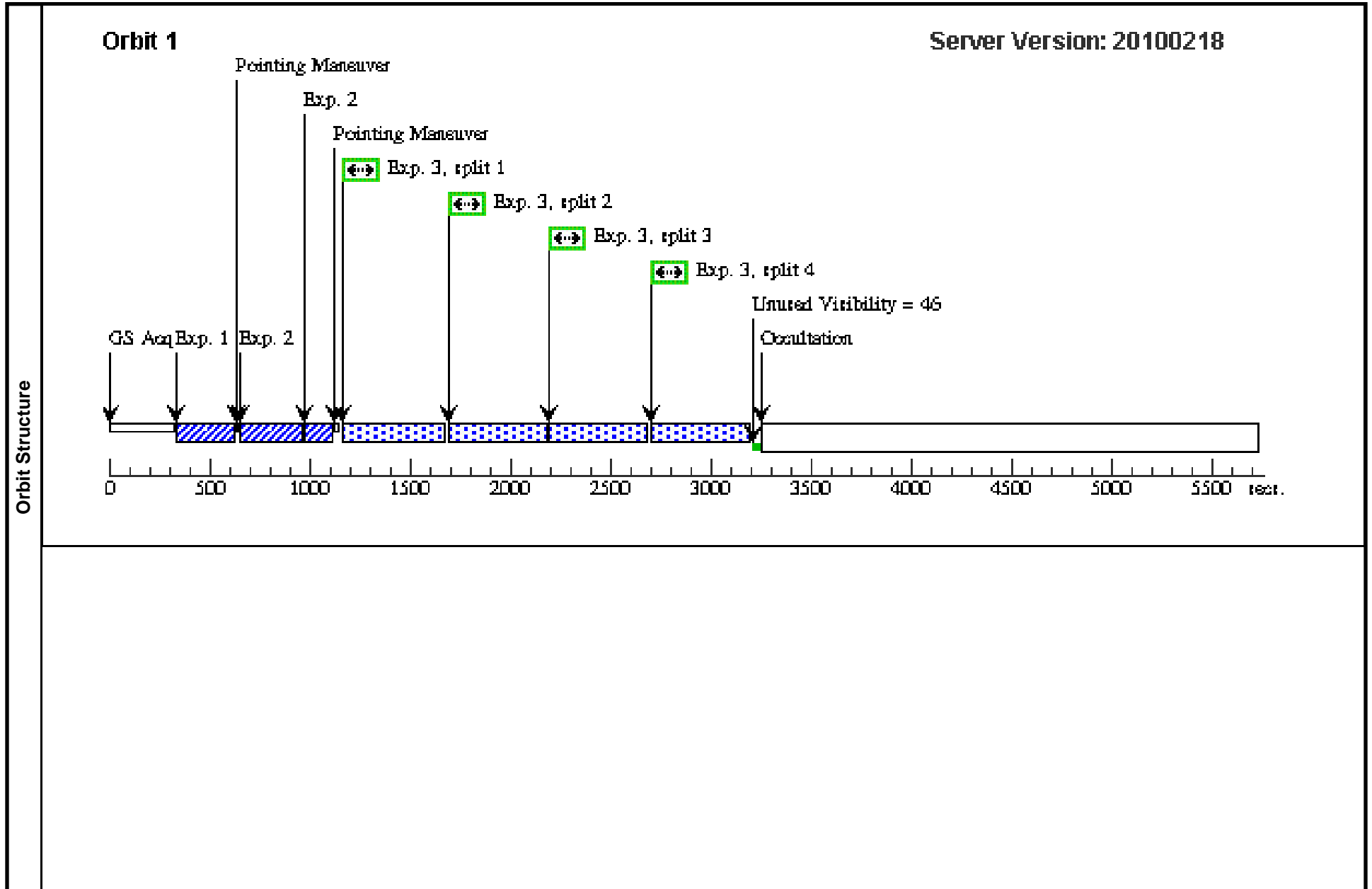


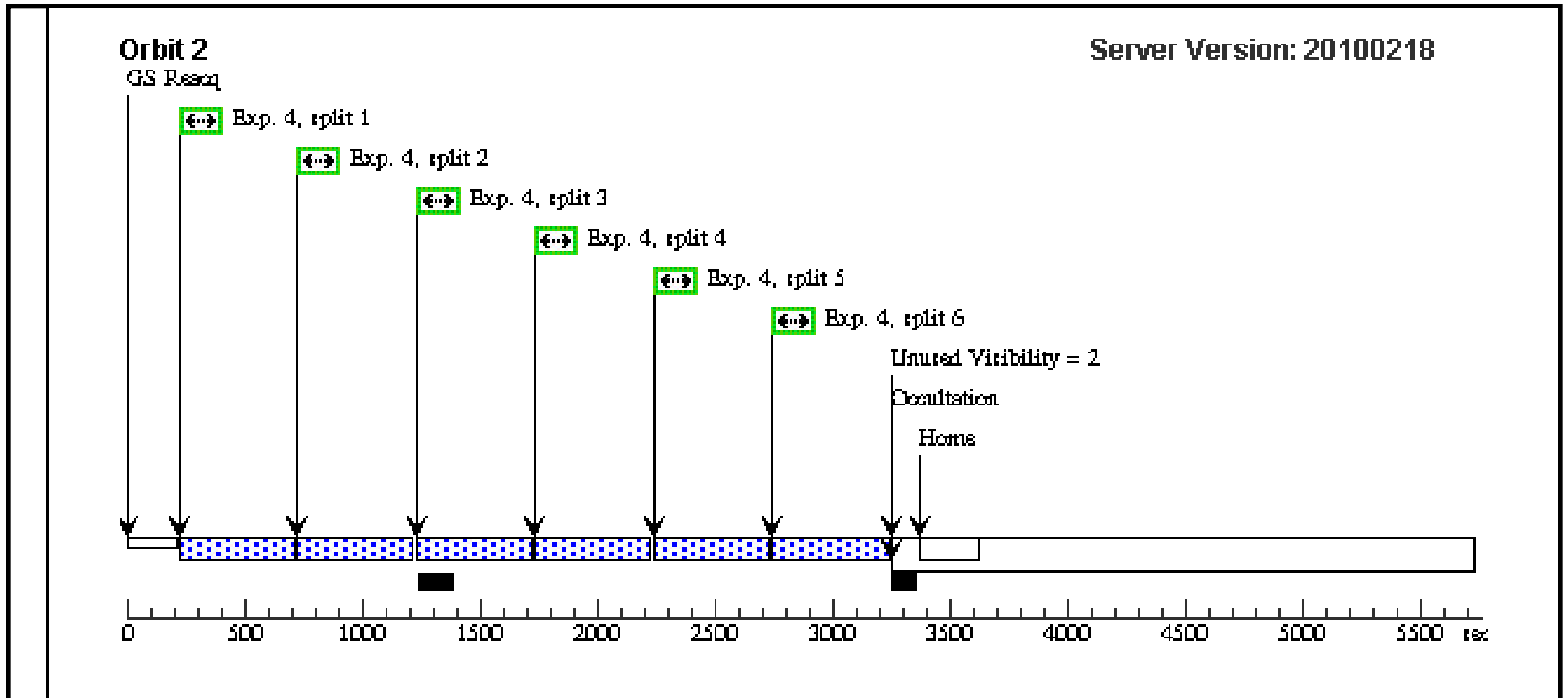


Proposal 11693 - Visit 02 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:08 GMT 2010

Visit	Proposal 11693, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 25D TO 30D FROM 01; SEQ 01,02 WITHIN 4 Orbits Comments: Max roll offset from visit 01 is desired									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=4			1848 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=6			2760 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[2]

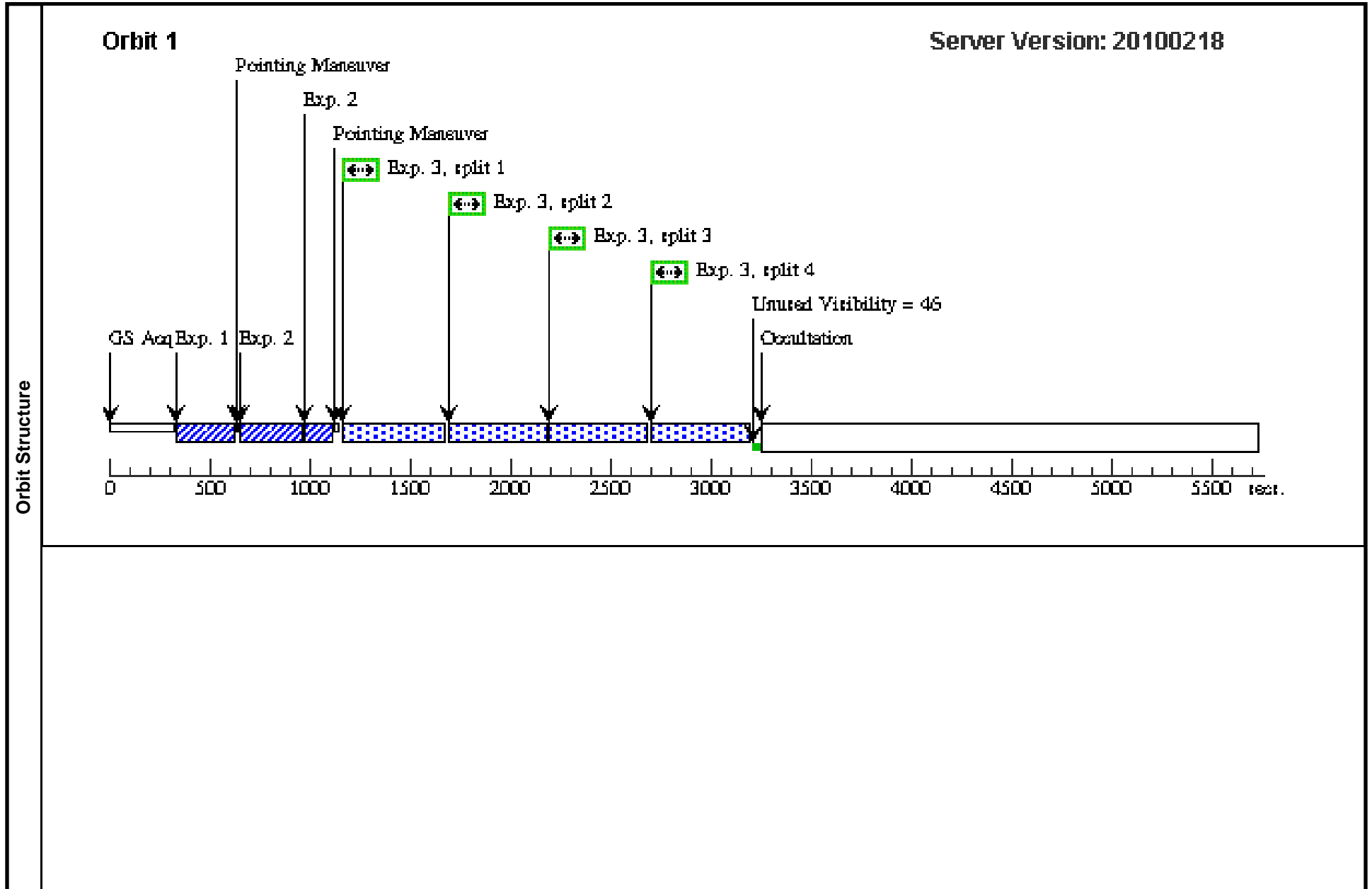


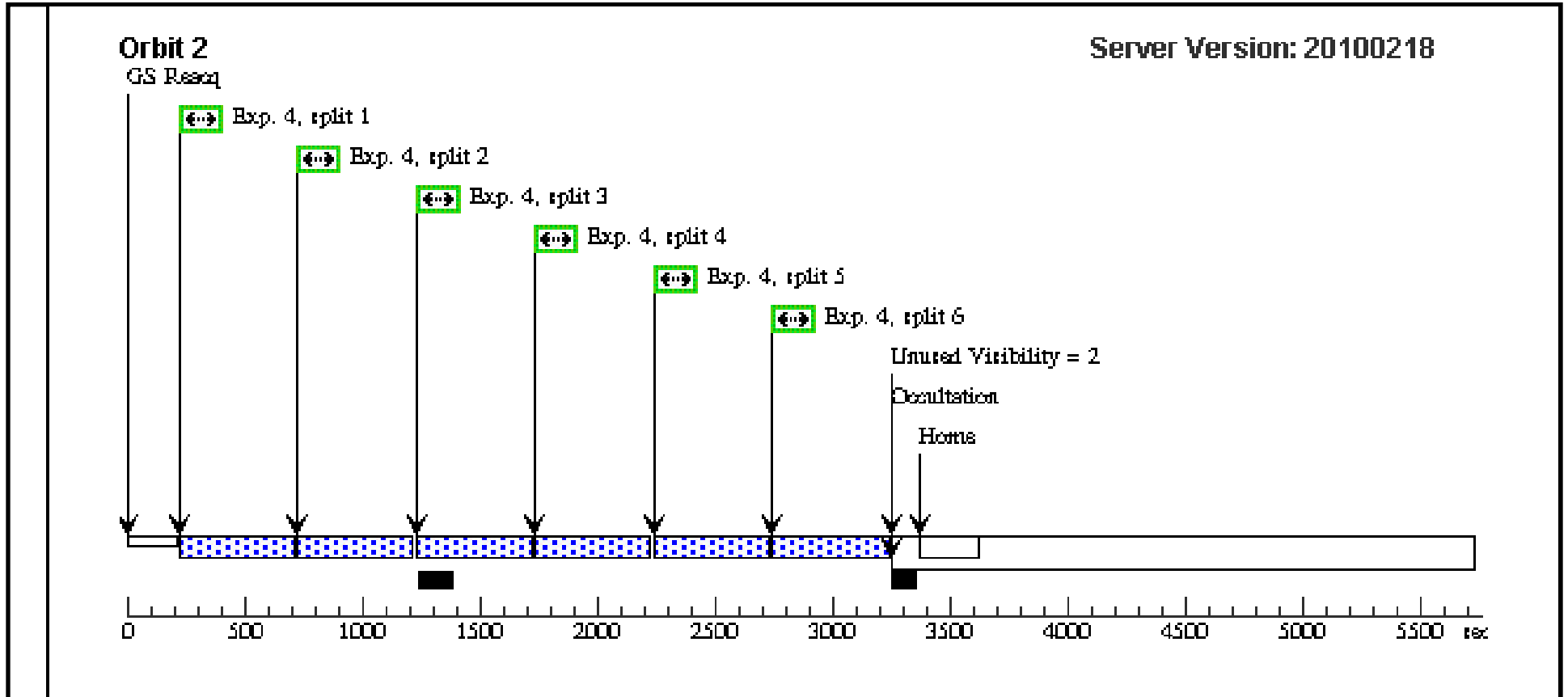


Proposal 11693 - Visit 03 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:09 GMT 2010

Visit	Proposal 11693, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 40D TO 46 D; ORIENT 220D TO 226 D Comments: Schedule as close as possible to Visits 01, 02									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=4			1848 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=6			2760 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[2]

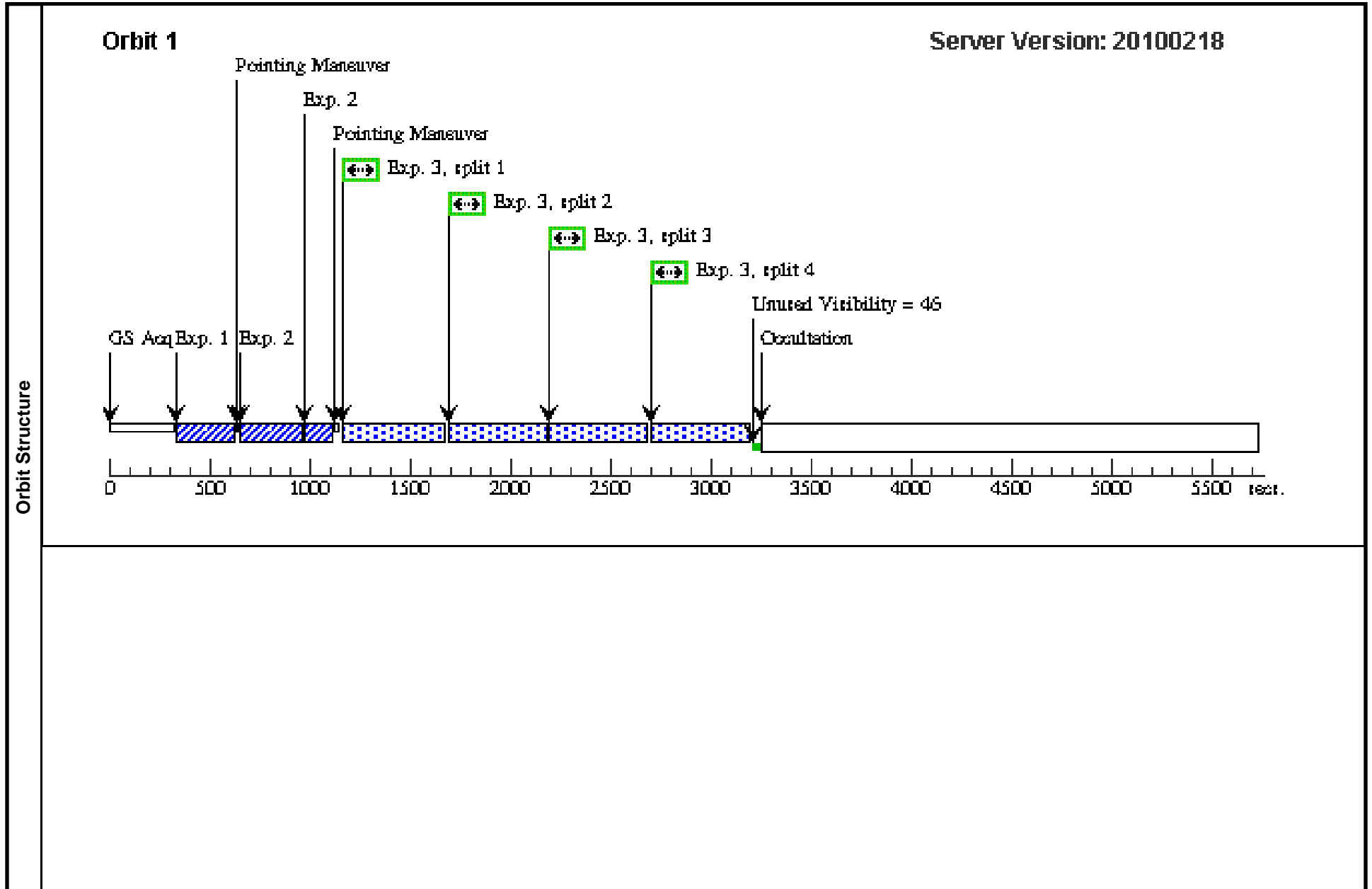


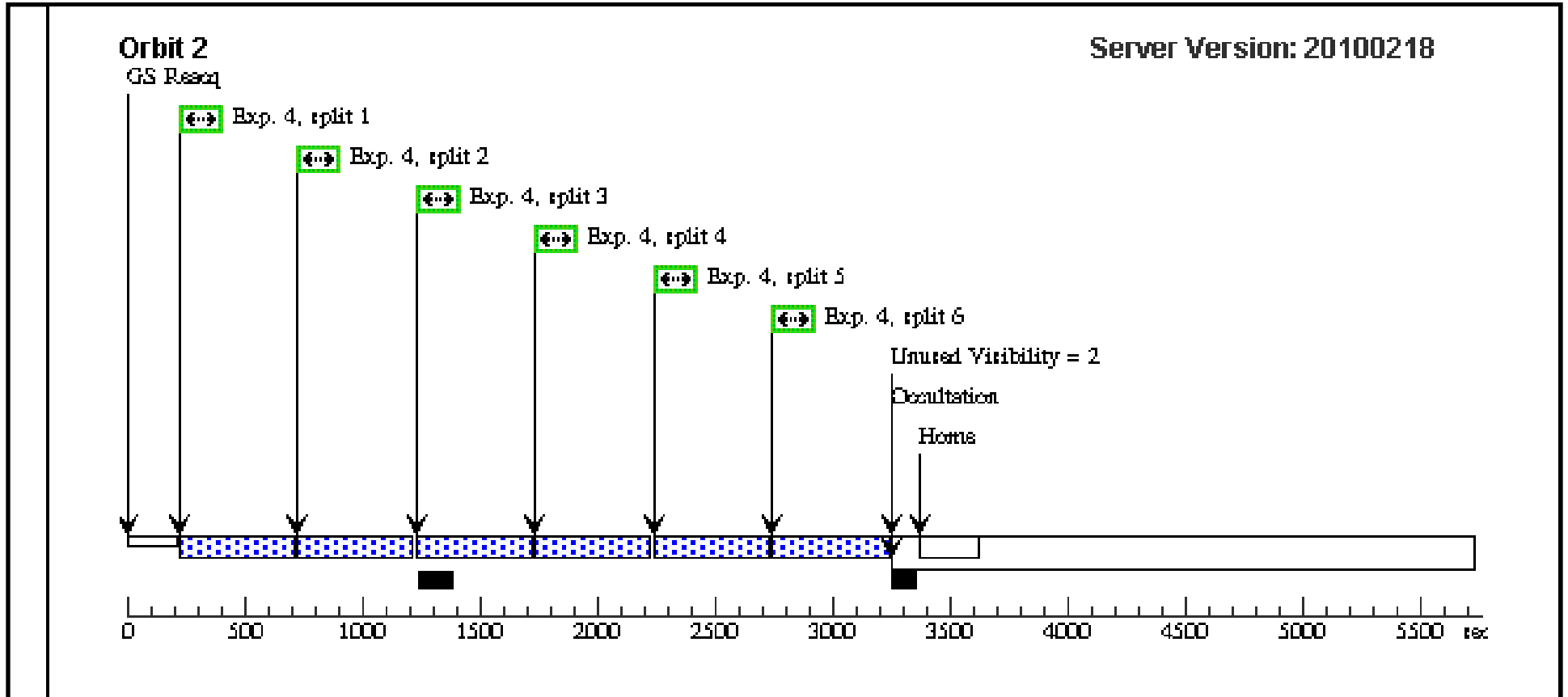


Proposal 11693 - Visit 04 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:09 GMT 2010

Visit	Proposal 11693, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 25D TO 30D FROM 03; SEQ 03,04 WITHIN 4 Orbits Comments: Max roll offset from visit 03 is desired									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=4			1848 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA2.0	MIRROR	CR-SPLIT=6			2760 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[2]





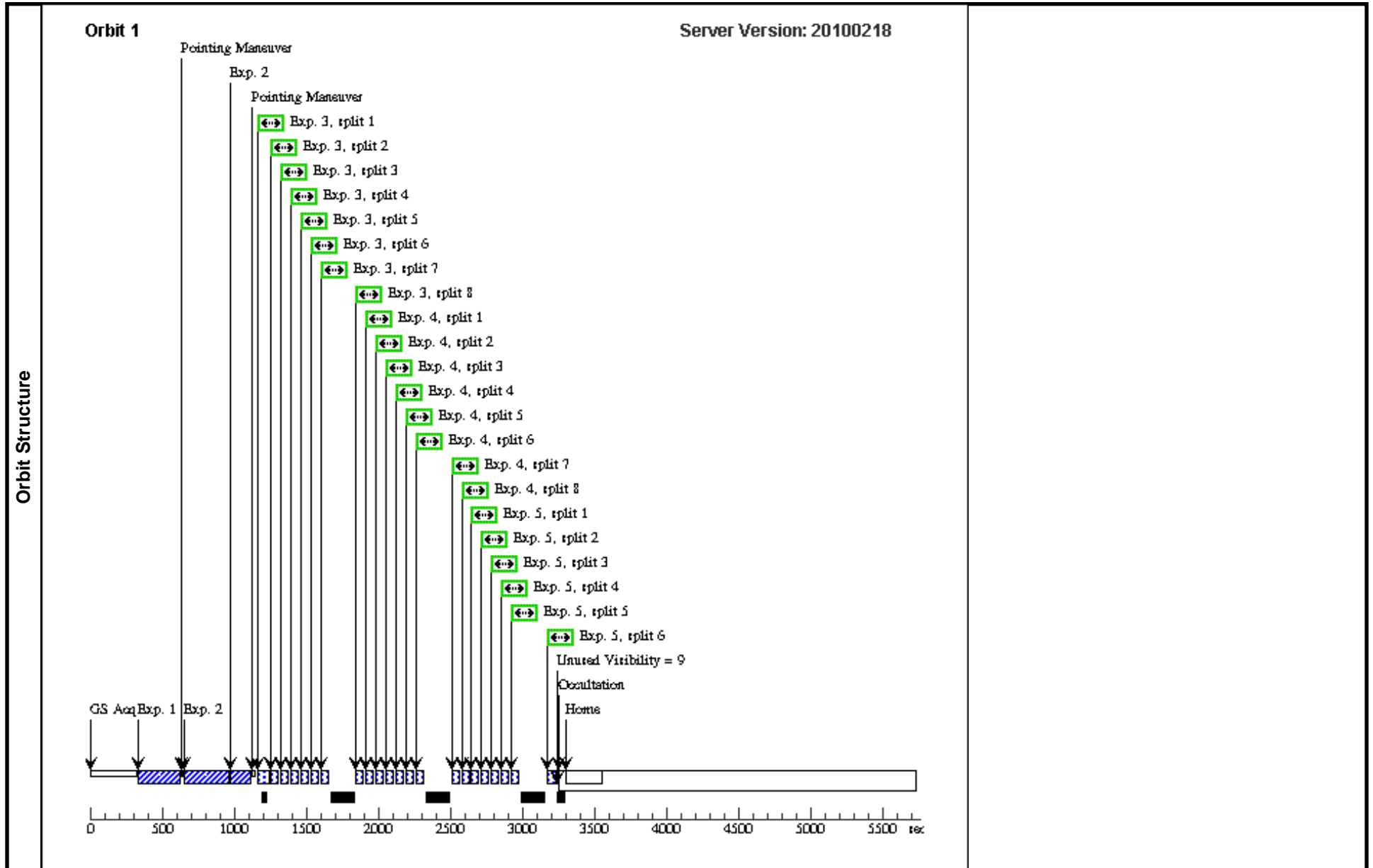
Proposal 11693 - Visit 09 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:10 GMT 2010

Visit	Proposal 11693, Visit 09, implementation					
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 40D TO 46 D; ORIENT 220D TO 226 D					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS

Proposal 11693 - Visit 09 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs	
									[==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs	
									[==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs	
									[==>(Split 1)]	
									[==>(Split 2)]	
									[==>(Split 3)]	
									[==>(Split 4)]	
								[==>(Split 5)]	[1]	
								[==>(Split 6)]		
								[==>(Split 7)]		
								[==>(Split 8)]		
4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs		
								[==>(Split 1)]		
								[==>(Split 2)]		
								[==>(Split 3)]		
								[==>(Split 4)]		
								[==>(Split 5)]	[1]	
								[==>(Split 6)]		
								[==>(Split 7)]		
								[==>(Split 8)]		
5		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=6			150 Secs		
								[==>(Split 1)]		
								[==>(Split 2)]		
								[==>(Split 3)]		
								[==>(Split 4)]		
								[==>(Split 5)]	[1]	
								[==>(Split 6)]		

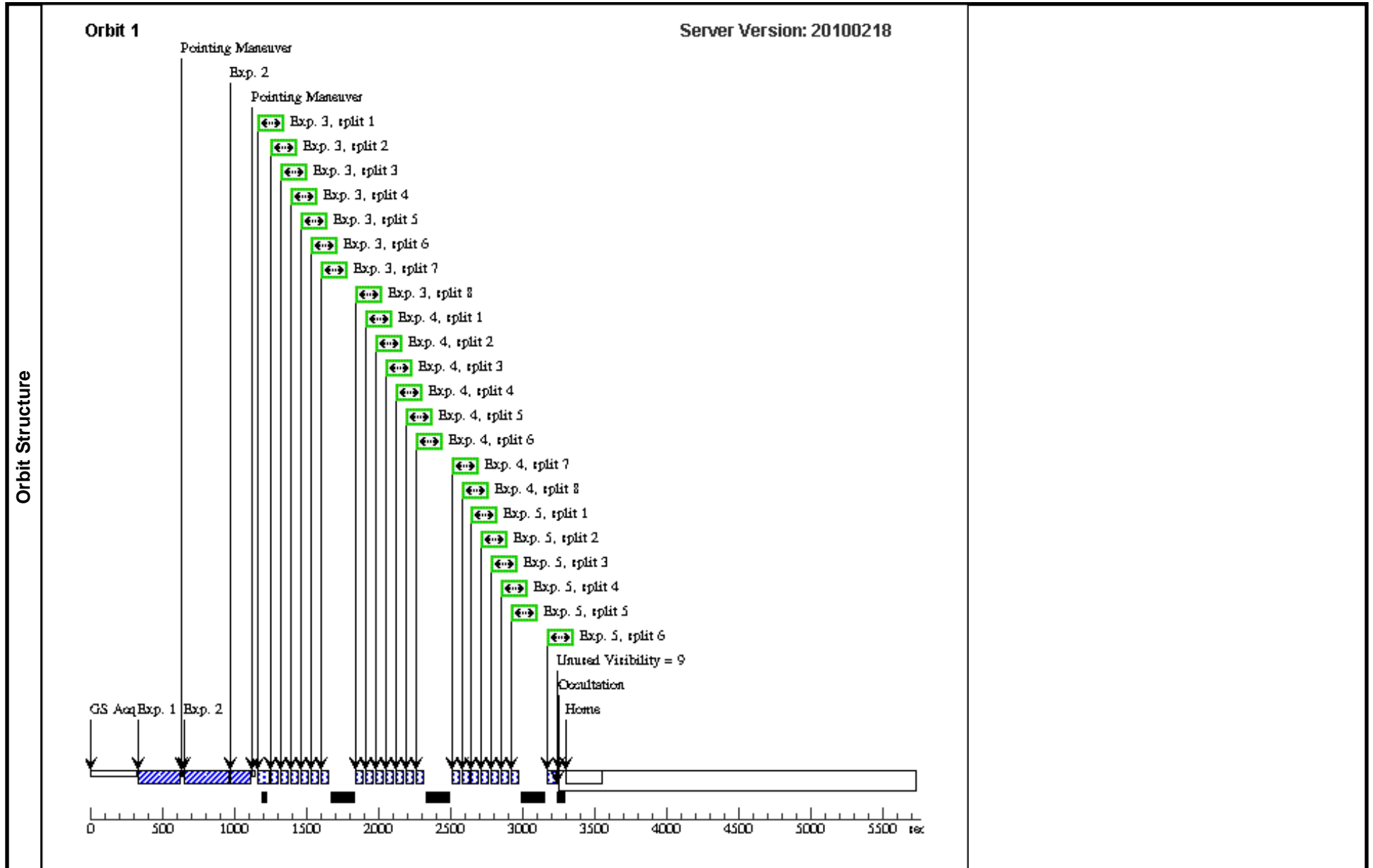


Proposal 11693 - Visit 09 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Visit	Proposal 11693, Visit 10, implementation Wed May 19 01:06:11 GMT 2010					
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; ORIENT 25D TO 30D FROM 09 Comments: <i>Max roll offset from visit 09 is desired</i>					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	HD-10647 Alt Name1: HR-506	RA: 01 42 29.3157 (25.6221488d) Dec: -53 44 27.00 (-53.74083d) Equinox: J2000	Proper Motion RA: 0.0193s/yr Proper Motion Dec: -0.109"/yr Parallax: 0.05763" Epoch of Position: 2000	V=5.5	Reference Frame: ICRS

Proposal 11693 - Visit 10 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) HD-10647	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2		(1) HD-10647	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)] [==>(Split 7)] [==>(Split 8)]	[1]
	4		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)] [==>(Split 7)] [==>(Split 8)]	[1]
	5		(1) HD-10647	STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=6			150 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[1]



Proposal 11693 - Visit 10 - Follow-up Observations of Debris Disks around Two Solar-Type Stars

Wed May 19 01:06:11 GMT 2010

Visit	Proposal 11693, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SCHED 60%; SEQ 09,10,11 WITHIN 3 Orbits									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(3)	HD-7570	RA: 01 15 11.1210 (18.7963375d) Dec: -45 31 53.99 (-45.53166d) Equinox: J2000	Proper Motion RA: 0.0642s/yr Proper Motion Dec: 0.18"/yr Parallax: 0.06643" Epoch of Position: 2000	V=5	Reference Frame: ICRS				
	<i>Comments: Reference PSF star for HD-10647</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) HD-7570		STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs [==>]	[1]
	2	(3) HD-7570		STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.5 Secs [==>]	[1]
	3	(3) HD-7570		STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)] [==>(Split 7)] [==>(Split 8)]	[1]
	4	(3) HD-7570		STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=8			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)] [==>(Split 7)] [==>(Split 8)]	[1]
5	(3) HD-7570		STIS/CCD, ACCUM, WEDGEA1.0	MIRROR	CR-SPLIT=5			125 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)]	[1]	

