



11011 - Dissecting An Accretion Disk

Cycle: 15, 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) RXJ1131-1231	ACS/HRC	1	14-Mar-2007 21:02:31.0	yes
02	(1) RXJ1131-1231	ACS/HRC	1	14-Mar-2007 21:02:37.0	yes
03	(1) RXJ1131-1231	ACS/SBC	1	14-Mar-2007 21:02:41.0	yes
04	(1) RXJ1131-1231	ACS/SBC	1	14-Mar-2007 21:02:44.0	yes
05	(1) RXJ1131-1231	ACS/SBC	1	14-Mar-2007 21:02:47.0	yes

5 Total Orbits Used

ABSTRACT

We will use 5 epochs of CXO and HST imaging to determine the X-ray and UV size of the accretion disk of the lensed quasar RXJ1131--1231 using microlensing. Based on preliminary data, we find that the X-ray source is roughly 1/10 the size of the accretion disk in the rest-frame B-band. The new observations will significantly reduce the uncertainties in this estimate, provide a comparison between the size of the X-ray source and the size of the accretion disk in the rest frame ultraviolet, and have the signal-to-noise ratio necessary to begin examining the size of the hard and soft-band X-ray emission regions separately. The results will quantitatively test accretion disk theory and X-ray emission mechanisms.

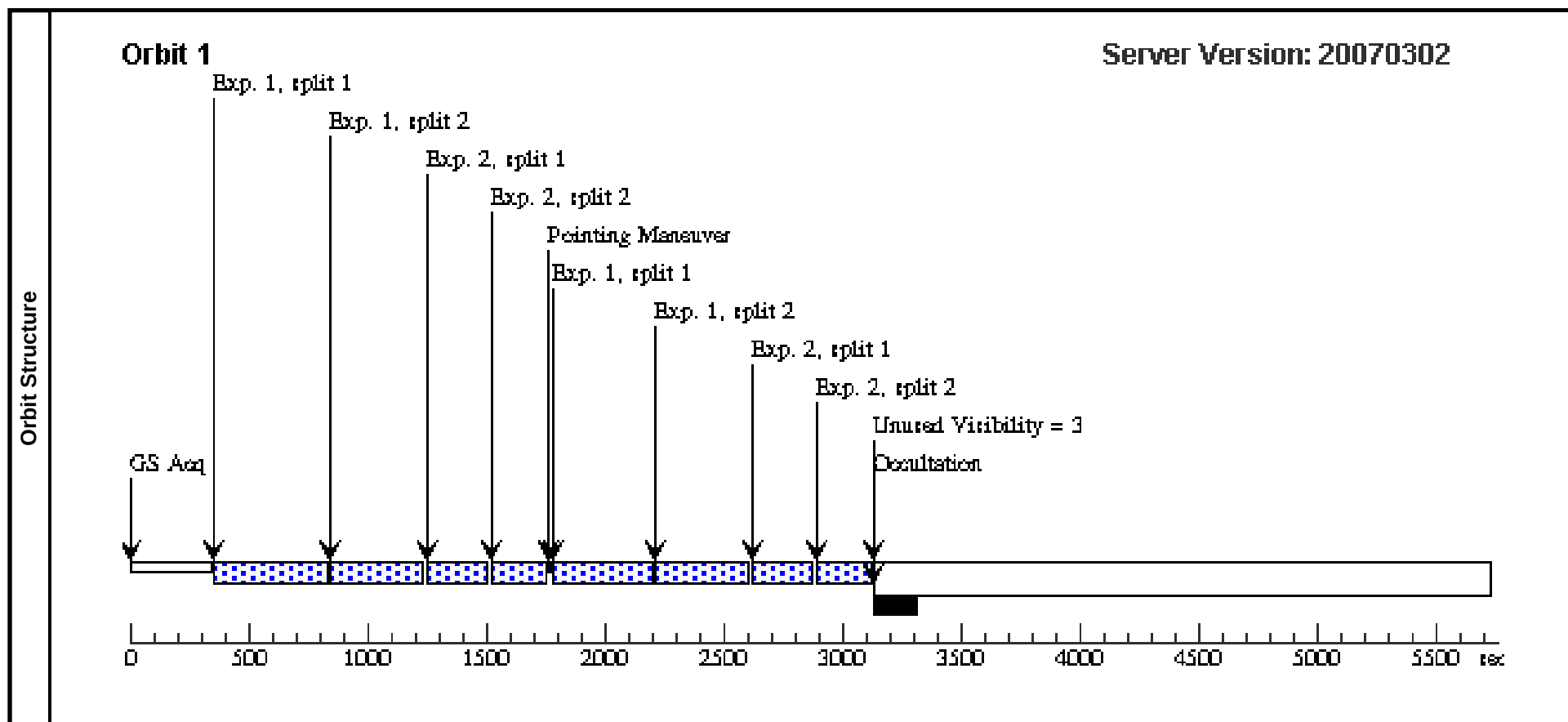
OBSERVING DESCRIPTION

We will obtain 5 epochs of HRC/F220W and F330W observations in order to determine the UV variability created by microlensing as compared to the optical and X-ray variability. The observations need to be as well distributed across the cycle as possible in order to maximize the scientific return. We have submitted a sequence with 3 observations during the first visibility period, and two in the second.

Perfect spacing is not required but observations spaced more closely than a month are of little use. Each observation should consist of dithered CR split pairs.

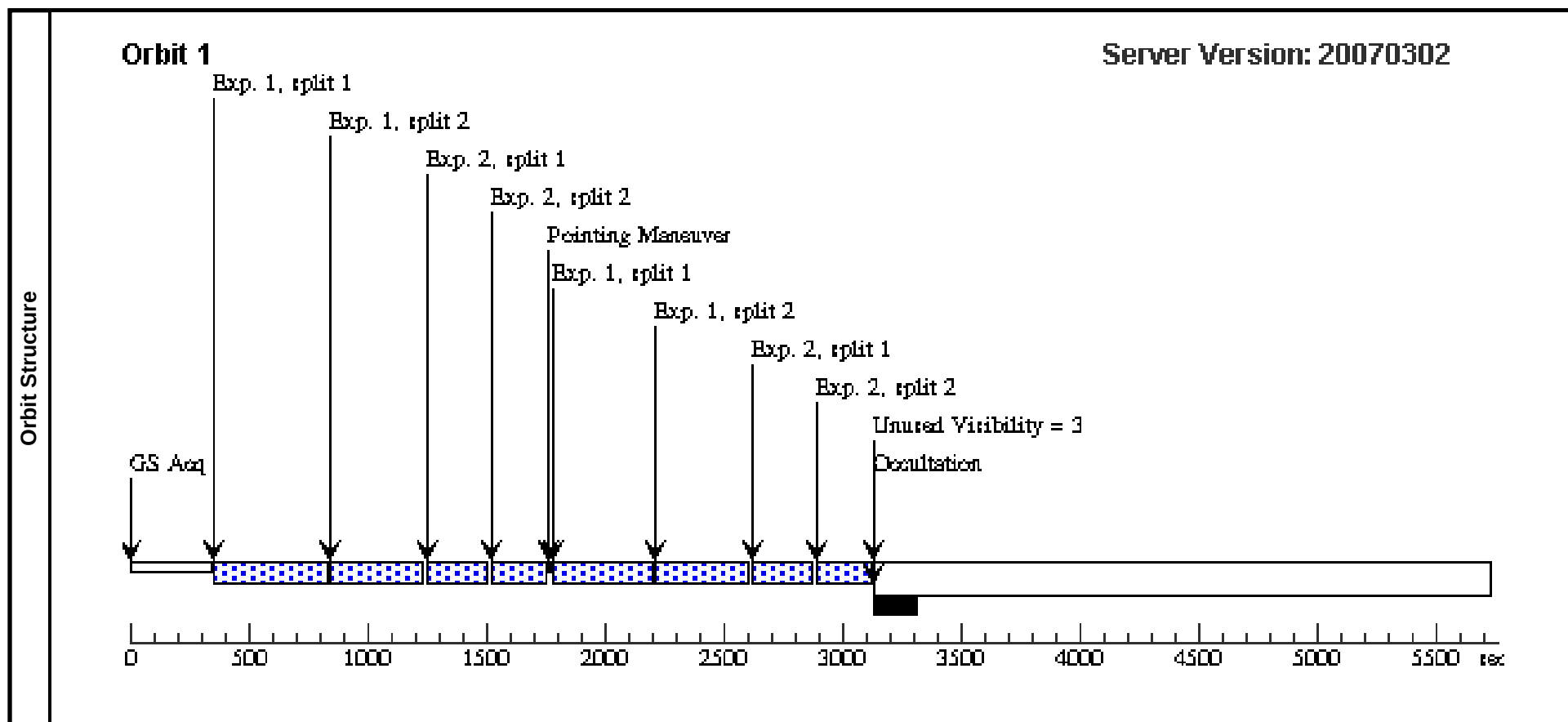
Proposal 11011 - Visit 01 - Dissecting An Accretion Disk

Visit	Proposal 11011, Visit 01, completed Thu Mar 15 01:02:49 GMT 2007									
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/HRC Special Requirements: BEFORE 15-DEC-2006:00:00:00 <i>Comments: Should be carried out as early as possible in the Cycle</i>									
Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
	(1)	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			(1-2)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(1)	RXJ1131-1231	RA: 11 31 51.4100 (172.9642083d) Dec: -12 31 59.10 (-12.53308d) Equinox: J2000				V=16.7+/-0.1		Reference Frame: Existing HST Image	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) RXJ1131-1231	ACS/HRC, ACCUM, HRC	F220W	CR-SPLIT=2		Pattern 1-2 (1)	724.0 Secs	
									[=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)]	[1]
	2		(1) RXJ1131-1231	ACS/HRC, ACCUM, HRC	F330W	CR-SPLIT=2		Pattern 1-2 (1)	380.0 Secs	
									[=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)]	[1]



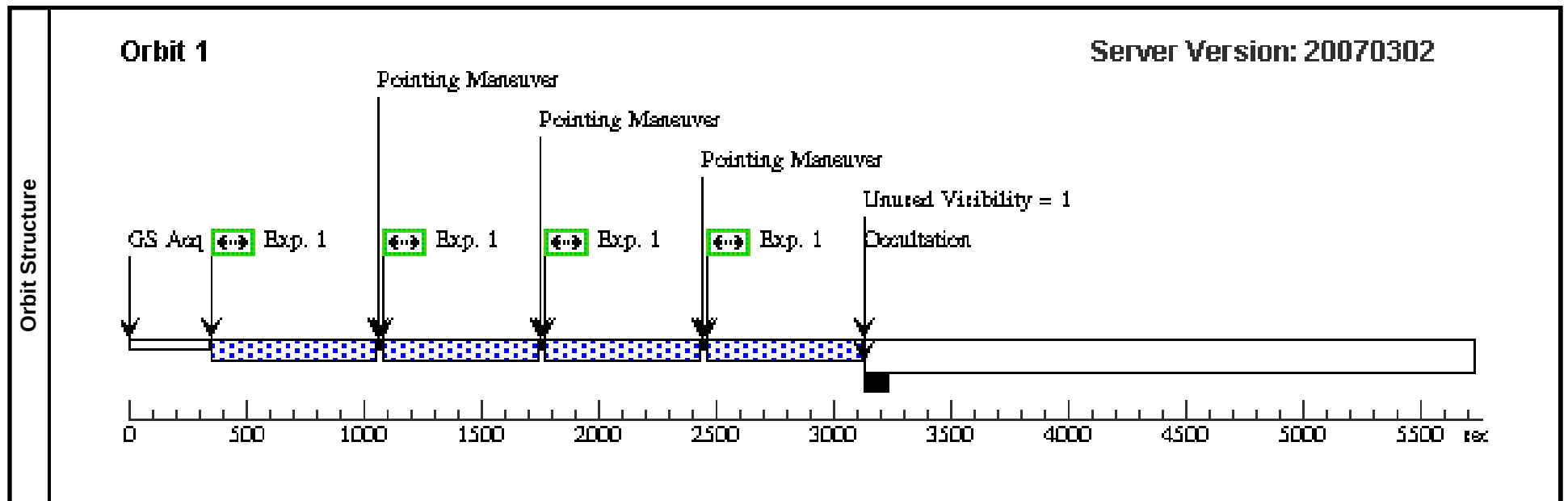
Proposal 11011 - Visit 02 - Dissecting An Accretion Disk

Visit	Proposal 11011, Visit 02, completed										Thu Mar 15 01:02:51 GMT 2007
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/HRC										
	Special Requirements: AFTER 01 BY 60 D TO 70 D										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(1)	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						(1-2)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	RXJ1131-1231	RA: 11 31 51.4100 (172.9642083d) Dec: -12 31 59.10 (-12.53308d) Equinox: J2000				V=16.7+/-0.1		Reference Frame: Existing HST Image		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(1) RXJ1131-1231	ACS/HRC, ACCUM, HRC	F220W	CR-SPLIT=2		Pattern 1-2 (1)	724.0 Secs		
									[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]		[1]
	2		(1) RXJ1131-1231	ACS/HRC, ACCUM, HRC	F330W	CR-SPLIT=2		Pattern 1-2 (1)	380.0 Secs		
									[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)]		[1]



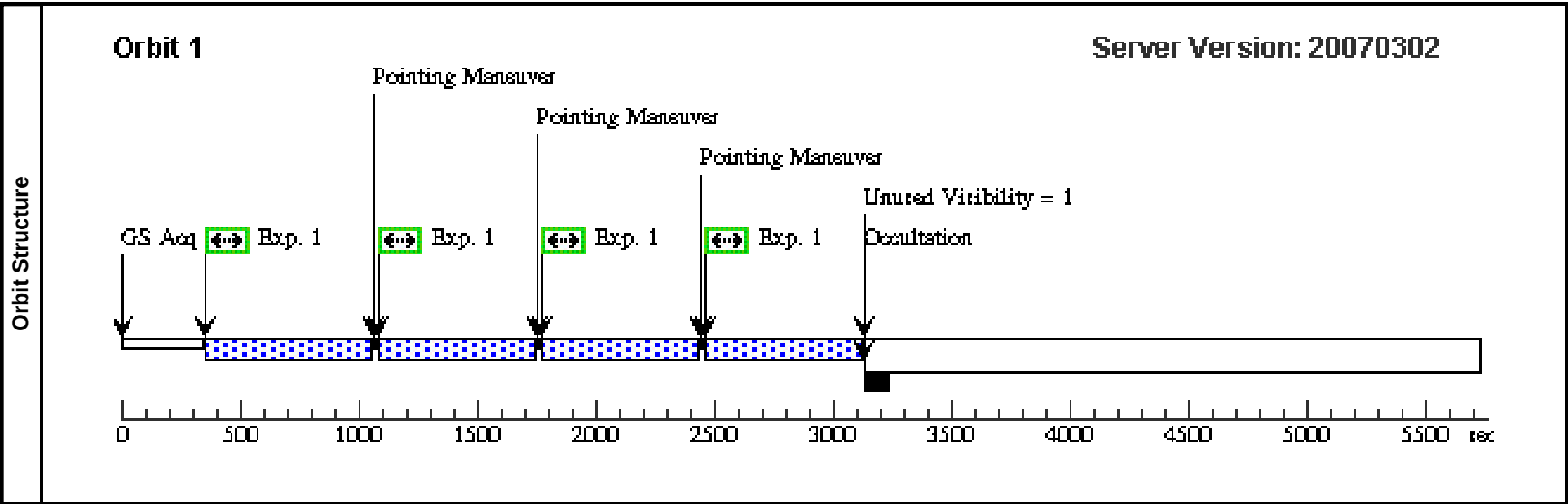
Proposal 11011 - Visit 03 - Dissecting An Accretion Disk

Visit	Proposal 11011, Visit 03, pi										Thu Mar 15 01:02:52 GMT 2007
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/SBC										
	Special Requirements: BEFORE 01-APR-2007:00:00:00										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116		Coordinate Frame=POS-TARG Pattern Orientation=20 Angle Between Sides=63.7 Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	RXJ1131-1231	RA: 11 31 51.4100 (172.9642083d) Dec: -12 31 59.10 (-12.53308d) Equinox: J2000				V=16.7+/-0.1		Reference Frame: Existing HST Image		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(1) RXJ1131-1231	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1-1 (2)	630.0 Secs		
									[==>(Pattern 1)]		[1]
									[==>(Pattern 2)]		
								[==>(Pattern 3)]			
									[==>(Pattern 4)]		



Proposal 11011 - Visit 04 - Dissecting An Accretion Disk

Visit	Proposal 11011, Visit 04, pi										Thu Mar 15 01:02:52 GMT 2007
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/SBC										
	Special Requirements: BETWEEN 01-DEC-2007:00:00:00 AND 31-DEC-2007:00:00:00										
	Comments: Should be carried out as early as possible to the end of the spring visibility period										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116		Coordinate Frame=POS-TARG Pattern Orientation=20 Angle Between Sides=63.7 Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	RXJ1131-1231	RA: 11 31 51.4100 (172.9642083d) Dec: -12 31 59.10 (-12.53308d) Equinox: J2000				V=16.7+/-0.1		Reference Frame: Existing HST Image		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(1) RXJ1131-1231	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1-1 (2)	630.0 Secs		
									[==>(Pattern 1)]		[1]
									[==>(Pattern 2)]		
									[==>(Pattern 3)]		
								[==>(Pattern 4)]			



Proposal 11011 - Visit 05 - Dissecting An Accretion Disk

Visit	Proposal 11011, Visit 05, pi										Thu Mar 15 01:02:52 GMT 2007
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/SBC										
	Special Requirements: AFTER 04 BY 30 D TO 45 D										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116		Coordinate Frame=POS-TARG Pattern Orientation=20 Angle Between Sides=63.7 Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	RXJ1131-1231	RA: 11 31 51.4100 (172.9642083d) Dec: -12 31 59.10 (-12.53308d) Equinox: J2000				V=16.7+/-0.1		Reference Frame: Existing HST Image		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(1) RXJ1131-1231	ACS/SBC, ACCUM, SBC	F165LP			Pattern 1-1 (2)	630.0 Secs		
									[==>(Pattern 1)]		[1]
									[==>(Pattern 2)]		
									[==>(Pattern 3)]		
								[==>(Pattern 4)]			

