



11312 - The Local Cluster Substructure Survey (LoCuSS): Deep Strong Lensing Observations with WFPC2

Cycle: 15, Proposal Category: GO/DD

(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) A115	WFPC2	1	18-Jan-2008 05:44:17.0	yes
02	(2) Z348	WFPC2	1	18-Jan-2008 05:44:21.0	yes
03	(3) RXCJ0201.7-0212	WFPC2	1	18-Jan-2008 05:44:23.0	yes
04	(4) RXCJ0530.6-2226	WFPC2	1	18-Jan-2008 05:44:25.0	yes
05	(5) A586	WFPC2	1	18-Jan-2008 05:44:27.0	yes
06	(6) Z1432	WFPC2	1	18-Jan-2008 05:44:29.0	yes
07	(7) Z1693	WFPC2	1	18-Jan-2008 05:44:31.0	yes
08	(8) A689	WFPC2	1	18-Jan-2008 05:44:34.0	yes
09	(9) A697	WFPC2	1	18-Jan-2008 05:44:36.0	yes
10	(10) Z1883	WFPC2	1	18-Jan-2008 05:44:38.0	yes
11	(11) Z2089	WFPC2	1	18-Jan-2008 05:44:40.0	yes
12	(12) A750	WFPC2	1	18-Jan-2008 05:44:42.0	yes
13	(13) RXCJ0454.1-1014	WFPC2	1	18-Jan-2008 05:44:44.0	yes
14	(14) A1914	WFPC2	1	18-Jan-2008 05:44:46.0	yes
15	(15) A2009	WFPC2	1	18-Jan-2008 05:44:48.0	yes
16	(16) RXJ1720.1+2638	WFPC2	1	18-Jan-2008 05:44:49.0	yes
17	(17) RXCJ2127.1-1209	WFPC2	1	18-Jan-2008 05:44:51.0	yes
18	(18) RXJ2129.6+0005	WFPC2	1	18-Jan-2008 05:44:53.0	yes
19	(19) RXCJ2248.5-1606	WFPC2	1	18-Jan-2008 05:44:55.0	yes

<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>
20	(20) A2631	WFPC2	1	18-Jan-2008 05:44:57.0	yes

20 Total Orbits Used

ABSTRACT

LoCuSS is a systematic and detailed investigation of the mass, substructure, and thermodynamics of 100 X-ray luminous galaxy clusters at $0.15 < z < 0.3$. The primary goal is to test our recent suggestion that this population is dominated by dynamically immature disturbed clusters, and that the observed mass-temperature relation suffers strong structural segregation. If confirmed, this would represent a paradigm shift in our observational understanding of clusters, that were hitherto believed to be dominated by mature, undisturbed systems. We propose to complete our successful Cycle 15 program (SNAP:10881) which prior to premature termination had delivered robust weak-lensing detections in 17 clusters, and candidate strongly-lensed arcs in 11 of these 17. These strong and weak lensing signals will give an accurate measure of the total mass and structure of the dark matter distribution that we will subsequently compare with X-ray and Sunyaev Zeldovich Effect observables. The broader applications of our project include 1) the calibration of mass-temperature and mass-SZE scaling relations which will be critical for the calibration of proposed dark energy experiments, and 2) the low redshift baseline study of the demographics of massive clusters to aid interpretation of future high redshift ($z > 1$) cluster samples. To complete the all-important high resolution imaging component of our survey, we request deep WFPC2 observations of 20 clusters through the F606W filter, for which wide-field weak-lensing data are already available from our Subaru imaging program. The combination of deep WFPC2 and Subaru data for these 20 clusters will enable us to achieve the science program approved by the Cycle 15 TAC.

OBSERVING DESCRIPTION

We propose to observe each cluster with a linear three position dither, with a spacing of 1.03 arcsec between each position. Choices of aperture, ORIENT and (in a few cases) POS TARG offsets are motivated by a combination of keeping the prime science targets on WF2 and WF3, and avoiding stars. To pack each orbit, the third exposure of each dither has been extended from the "standard" 600sec to 700sec. In one case, the second exposure was also extended. Nineteen clusters will therefore be observed for 1900sec and one for 2000sec.

REAL TIME JUSTIFICATION

N/A

CALIBRATION JUSTIFICATION

N/A

ADDITIONAL COMMENTS

None

Visit	Proposal 11312, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 200.0D TO 270.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false				(1)				
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	A115	RA: 00 55 50.6210 (13.9609208d) Dec: +26 24 37.61 (26.41045d) Equinox: J2000				V=14+/-1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A115	(1) A115	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[=>600.0 Secs (Pattern 1)]		
									[=>600.0 Secs (Pattern 2)]	[1]	
									[=>700.0 Secs (Pattern 3)]		
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows and labels: GS Acq at ~100s, Exp. 1 at ~400s, Overhead/Pointing Maneuver at ~1100s, Exp. 1 at ~1300s, Overhead/Pointing Maneuver at ~2100s, Exp. 1 at ~2300s, Overhead/Pointing Maneuver at ~3100s, Occultation at ~3200s, and a final Overhead period at ~3300s. A blue checkered bar represents the active observation period. A green bar at the end indicates 'Unused Visibility = 34' seconds.</p>										

Visit	Proposal 11312, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 200.0D TO 320.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE		Coordinate Frame=POS-TARG						(1)	
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(2)	Z348	RA: 01 06 49.3741 (16.7057254d) Dec: +01 03 23.15 (1.05643d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Z348	(2) Z348	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[=>600.0 Secs (Pattern 1)]		
									[=>600.0 Secs (Pattern 2)]	[1]	
									[=>700.0 Secs (Pattern 3)]		
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>The diagram illustrates the timing of observations for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with arrows and labels: GS Acq (Green Start Acquisition) at approximately 300s, followed by three exposures (Exp. 1) at approximately 400s, 1300s, and 2300s. Each exposure is preceded by a Pointing Maneuver and followed by an Overhead period. A blue checkered bar highlights the total observation time, which ends at approximately 3100s. After this, there is an 'Unused Visibility = 17' period, followed by another Overhead and Occultation period. The total orbit duration is approximately 5500 seconds.</p>										

Visit	Proposal 11312, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 250.0D TO 283.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE		Coordinate Frame=POS-TARG						(1)	
		Purpose=DITHER		Pattern Orientation=45.0							
		Number Of Points=3		Angle Between Sides=							
		Point Spacing=1.0325		Center Pattern=false							
		Line Spacing=									
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(3)	RXCJ0201.7-0212	RA: 02 01 43.1170 (30.4296542d) Dec: -02 11 47.99 (-2.19666d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	RXCJ0201	(3) RXCJ0201.7-0212 2	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>Timeline labels: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Exp. 1, Pointing Maneuver, Overhead, Exp. 1, Overhead, Occultation. Unused Visibility = 17.</p>										

Visit	Proposal 11312, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 200.0D TO 250.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(4)	RXCJ0530.6-2226	RA: 05 30 40.3100 (82.6679583d) Dec: -22 26 39.30 (-22.44425d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	RXCJ0530	(4) RXCJ0530.6-2226 6	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO	POS TARG -20.0,10 .0	Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>The diagram illustrates the timing of observations on Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with arrows and labels: GS Acq (Green Start Acquisition) at approximately 300s, followed by three exposures (Exp. 1) at approximately 400s, 1300s, and 2300s. Each exposure is preceded by a Pointing Maneuver and followed by an Overhead period. An Occultation period begins at approximately 3100s. A note indicates 'Unused Visibility = 32'.</p>										

Visit	Proposal 11312, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 260.0D TO 300.0 D											
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures	
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)		
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(5)	A586	RA: 07 32 20.3335 (113.0847229d) Dec: +31 38 0.95 (31.63360d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A586	(5) A586	WFPC2, IMAGE, WF3-FIX		F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1 Server Version: 20071214											
	<p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows and labels: GS Acq at ~100s, three 'Exp. 1' exposures (green boxes) at ~400s, ~1300s, and ~2300s, and an 'Occultation' at ~3100s. Intervals between exposures are labeled 'Overhead' and 'Pointing Maneuver'. A blue checkered bar at the bottom indicates the active observation period. A note states 'Unused Visibility = 37'.</p>											

Visit	Proposal 11312, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 260.0D TO 300.0 D										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(6)	Z1432	RA: 07 43 23.0828 (115.8461783d) Dec: +17 33 41.57 (17.56155d) Equinox: J2000					V=14+/-1	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Z1432	(6) Z1432	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[=>600.0 Secs (Pattern 1)]		
									[=>600.0 Secs (Pattern 2)]	[1]	
									[=>700.0 Secs (Pattern 3)]		
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p> GS Acq → Exp. 1 → Pointing Maneuver → Overhead → Exp. 1 → Pointing Maneuver → Overhead → Exp. 1 → Pointing Maneuver → Overhead → Occultation → Unused Visibility = 29 </p> <p>Timeline (seconds): 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500</p>										

Visit	Proposal 11312, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 270.0D TO 320.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(7)	Z1693	RA: 08 25 56.6404 (126.4860017d) Dec: +04 15 0.00 (4.25000d) Equinox: J2000				V=14+/-1		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Z1693	(7) Z1693	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[=>600.0 Secs (Pattern 1)]		
									[=>600.0 Secs (Pattern 2)]		[1]
									[=>700.0 Secs (Pattern 3)]		
Orbit Structure	Orbit 1										

Visit	Proposal 11312, Visit 08, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 300.0D TO 360.0 D									
	Patterns	#	Primary Pattern					Secondary Pattern		
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections	Fluxes	Miscellaneous		
	(8)	A689	RA: 08 37 24.5750 (129.3523958d) Dec: +14 58 21.12 (14.97253d) Equinox: J2000				V=14+/-1	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	A689	(8) A689	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	Orbit 1 Server Version: 20071214									
	<p> GS Acq Exp. 1 Pointing Maneuver Overhead Exp. 1 Pointing Maneuver Overhead Exp. 1 Pointing Maneuver Overhead Occultation Unused Visibility = 22 </p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11312, Visit 09, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 210.0D TO 260.0 D											
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures	
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)		
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(9)	A697	RA: 08 42 57.5793 (130.7399138d) Dec: +36 21 59.64 (36.36657d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A697	(9) A697	WFPC2, IMAGE, WF2-FIX		F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1											
	<p>Server Version: 20071214</p> <p>Unused Visibility = 44</p> <p>GS Acq</p> <p>Exp. 1</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>											

Visit	Proposal 11312, Visit 10, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 240.0D TO 360.0 D										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false					(1)			
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(10)	Z1883	RA: 08 42 55.9998 (130.7333325d) Dec: +29 27 26.85 (29.45746d) Equinox: J2000			V=14+/-1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Z1883	(10) Z1883	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20071214</p> <p>Timeline labels: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Occultation, Unused Visibility = 34.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>										
	<p>Diagram description: The orbit structure shows a sequence of events over time. It starts with 'GS Acq' at approximately 100s. This is followed by 'Exp. 1' (green box) at ~350s. Then 'Pointing Maneuver' at ~1150s, 'Overhead' at ~1250s, 'Exp. 1' at ~1400s, 'Pointing Maneuver' at ~2100s, 'Overhead' at ~2200s, 'Exp. 1' at ~2350s, 'Overhead' at ~3050s, and 'Occultation' starting at ~3150s. A blue checkered bar spans from ~350s to ~3150s. 'Unused Visibility = 34' is noted at the end of the orbit.</p>										

Visit	Proposal 11312, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 250.0D TO 360.0 D									
	Patterns	#	Primary Pattern				Secondary Pattern			
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous
	(11)	Z2089	RA: 09 00 36.9001 (135.1537504d) Dec: +20 53 40.45 (20.89457d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Z2089	(11) Z2089	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	Orbit 1 Server Version: 20071214									
	<p>The diagram shows a timeline for Orbit 1 from 0 to 5500 seconds. Key events include:</p> <ul style="list-style-type: none"> GS Acq at approximately 100s. Exp. 1 at approximately 400s. Pointing Maneuver at approximately 1100s. Exp. 1 at approximately 1300s. Pointing Maneuver at approximately 2100s. Exp. 1 at approximately 2300s. Pointing Maneuver at approximately 3100s. Unused Visibility = 32 and Occultation starting at approximately 3100s. 									

Visit	Proposal 11312, Visit 12, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 290.0D TO 305.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(12)	A750	RA: 09 09 12.7125 (137.3029688d) Dec: +10 58 28.71 (10.97464d) Equinox: J2000				V=14+/-1		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A750	(12) A750	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1										
	<p style="text-align: right;">Server Version: 20071214</p> <p>Unused Visibility = 22</p>										

Visit	Proposal 11312, Visit 13, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 270.0D TO 310.0 D										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false					(1)			
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(13)	RXCJ0454.1-1014	RA: 04 54 6.8800 (73.5286667d) Dec: -10 13 24.60 (-10.22350d) Equinox: J2000					V=14+/-1	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A1758	(13) RXCJ0454.1-1014	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]	[1]	
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue checkered bar represents the observation period from approximately 300s to 3100s. Key events are marked with arrows: 'GS Acq' at ~300s, 'Exp. 1' (green box with camera icon) at ~400s, ~1300s, and ~2300s. Each 'Exp. 1' is preceded by a 'Pointing Maneuver' and 'Overhead' period. An 'Occlusion' event is marked at ~3100s. The text 'Unused Visibility = 22' is shown at the end of the timeline.</p>										

Visit	Proposal 11312, Visit 14, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 130.0D TO 205.0 D										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(14)	A1914	RA: 14 25 56.7400 (216.4864167d) Dec: +37 48 59.50 (37.81653d) Equinox: J2000					V=14+/-1	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A1914	(14) A1914	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs		
									[=>600.0 Secs (Pattern 1)]		
									[=>600.0 Secs (Pattern 2)]	[1]	
									[=>700.0 Secs (Pattern 3)]		
Orbit Structure	Orbit 1 Server Version: 20071214										

Visit	Proposal 11312, Visit 15, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 131.0D TO 143.0 D										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false							(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(15)	A2009	RA: 15 00 19.5362 (225.0814008d) Dec: +21 22 9.65 (21.36935d) Equinox: J2000				V=14+/-1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A2009	(15) A2009	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20071214</p> <p>The diagram illustrates the timing of observations for Orbit 1. It shows a sequence of events: GS Acq (Green Start Acquisition) at ~300s, followed by three exposures (Exp. 1) each preceded by a Pointing Maneuver and followed by an Overhead period. The exposures occur at approximately 400s, 1300s, and 2300s. A blue checkered bar represents the total observation time, which ends at ~3100s. An Occultation event is marked at ~3100s. The total duration of the orbit is 5500 seconds, with 32 seconds of unused visibility remaining.</p>										
	<p>Timeline labels: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Occultation, Unused Visibility = 32</p>										

Visit	Proposal 11312, Visit 16, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 180.0D TO 240.0 D									
	Patterns	#	Primary Pattern					Secondary Pattern		
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(16)	RXJ1720.1+2638	RA: 17 20 10.0394 (260.0418308d) Dec: +26 37 31.70 (26.62547d) Equinox: J2000			V=14+/-1		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	RXJ1720	(16) RXJ1720.1+2638 8	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	Orbit 1 Server Version: 20071214									
	<p>The diagram shows a timeline for Orbit 1 from 0 to 5500 seconds. Key events include:</p> <ul style="list-style-type: none"> GS Acq at approximately 100s. Exp. 1 at approximately 400s, 1300s, and 2300s. Overhead/Pointing Maneuver periods between exposures. Occultation starting at approximately 3100s. Unused Visibility = 34 seconds. 									

Visit	Proposal 11312, Visit 17, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 235.0D TO 265.0 D									
	Patterns	#	Primary Pattern				Secondary Pattern			
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(17)	RXCJ2127.1-1209	RA: 21 27 13.7310 (321.8072125d) Dec: -12 09 46.14 (-12.16282d) Equinox: J2000				V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	RXCJ2127	(17) RXCJ2127.1-1209	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO	POS TARG 0.0,5.0	Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	Orbit 1 Server Version: 20071214									

Visit	Proposal 11312, Visit 18, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 240.0D TO 270.0 D									
	Patterns	#	Primary Pattern					Secondary Pattern		
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(18)	RXJ2129.6+0005	RA: 21 29 39.9676 (322.4165317d) Dec: +00 05 21.39 (.08928d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	RXJ2129 5	(18) RXJ2129.6+0005	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20071214</p> <p>Timeline labels: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Occultation, Unused Visibility = 17.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>									

Visit	Proposal 11312, Visit 19, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 200.0D TO 300.0 D									
	Patterns	#	Primary Pattern					Secondary Pattern		
(1)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=1.0325 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(19)	RXCJ2248.5-1606	RA: 22 48 31.1133 (342.1296388d)	Dec: -16 06 25.71 (-16.10714d)	Equinox: J2000		V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	RXCJ2248 06	(19) RXCJ2248.5-1606	WFPC2, IMAGE, WF2-FIX	F606W	CR-SPLIT=NO		Pattern 1-1 (1)	600.0 Secs [==>600.0 Secs (Pattern 1)] [==>600.0 Secs (Pattern 2)] [==>700.0 Secs (Pattern 3)]	[1]
Orbit Structure	Orbit 1									
	<p>Server Version: 20071214</p> <p>Unused Visibility = 29</p> <p>Labels in diagram: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Occultation.</p>									

Visit	Proposal 11312, Visit 20, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 250.0D TO 270.0 D										
	Patterns	#	Primary Pattern					Secondary Pattern			Exposures
(1)		Pattern Type=WFPC2-LINE		Coordinate Frame=POS-TARG						(1)	
		Purpose=DITHER		Pattern Orientation=45.0							
		Number Of Points=3		Angle Between Sides=							
		Point Spacing=1.0325		Center Pattern=false							
		Line Spacing=									
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(20)	A2631	RA: 23 37 39.7485 (354.4156188d) Dec: +00 16 17.08 (.27141d) Equinox: J2000					V=14+/-1		Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	A2631	(20) A2631	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO	POS TARG -5.0,-5.0	Pattern 1-1 (1)	600.0 Secs [=>600.0 Secs (Pattern 1)] [=>600.0 Secs (Pattern 2)] [=>700.0 Secs (Pattern 3)]		[1]
Orbit Structure	Orbit 1 Server Version: 20071214										
	<p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue checkered bar represents the observation period, starting at approximately 30 seconds and ending at 3150 seconds. Key events are marked with vertical arrows: GS Acq at 30s, three exposures (Exp. 1) at approximately 400s, 1350s, and 2350s, each preceded by a 'Pointing Maneuver' and followed by 'Overhead'. An 'Occultation' event is marked at 3150s. The text 'Unused Visibility = 17' is shown at the top right of the diagram area.</p>										