10553 - Bipolar Scattering Structures in AGN

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets*	*Configurations*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) 2MASX-J10494334+5837501	ACS/HRC	2	20-Jun-2005 11:21:43.0	yes

2 Total Orbits Used

ABSTRACT

The Unified Scheme for Seyfert galaxies successfully explains the basic distinctions between Type 1 and Type 2 AGN, including the existence of broad scattered lines in polarized flux spectra of the latter. However, it fails to account for the strongly polarized broad lines often observed in Type 1 AGN. We have discovered an intermediate type red QSO that exhibits polarization properties of both types; indeed it suggests a bipolar scattering geometry similar to that seen in Galactic protoplanetary nebulae. We request a small allocation with the high-resolution camera on ACS to image the object in two key spectral bands. The results will allow an unambiguous interpretation of ground-based data, and enable modeling of the inclination and opening angle that illuminates the scattering clouds. Like NGC 1068, a successful explanation of this object will not only allow further unification of AGN but also aid in unraveling the details of their inner structure.

OBSERVING DESCRIPTION

The observations are straightforward imaging, except for the proximity (7.8 arcsec E) of a V = 12 mag G star that raises concern about possible scattered light. We choose the ACS/HRC, which can yield a PSF approaching 0.03" FWHM in the blue, and the 26" FOV is ample for imaging the QSO. We wish to observe with a roll angle that orients the secondary spider diffraction spikes at least 15 degrees from E-W. Image dithering and drizzle analysis will be used to maximize resolution while removing the cosmic rays. The blue scattered component is well-sampled by the F435W filter. In the red we choose F658N.

Visit

Proposal 10553, Visit 01 Mon Jun 20 15:21:46 GMT 2005

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: ORIENT 15.0D TO 75.0 D; ORIENT 105.0D TO 165.0 D; ORIENT 195.0D TO 255.0 D; ORIENT 285.0D TO 345.0 D

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)

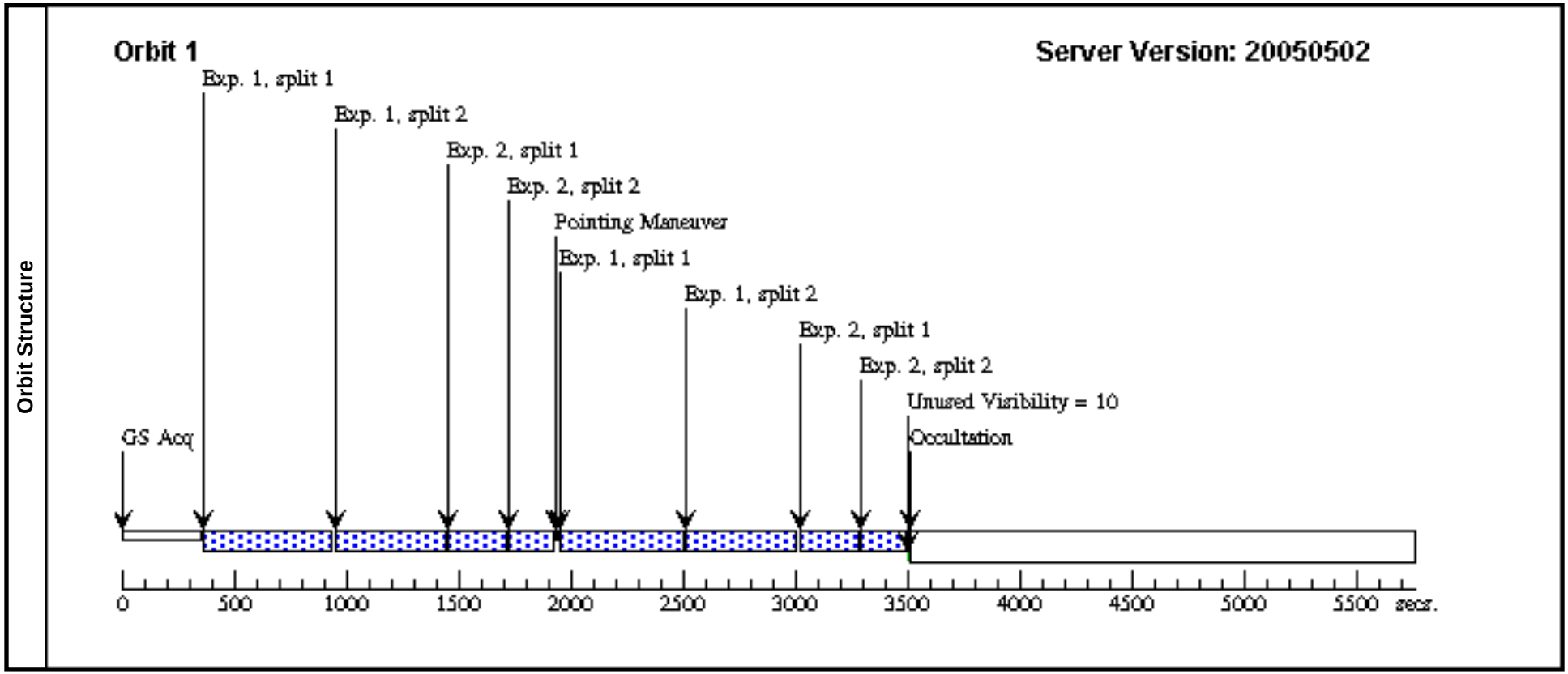
Fixed Targets

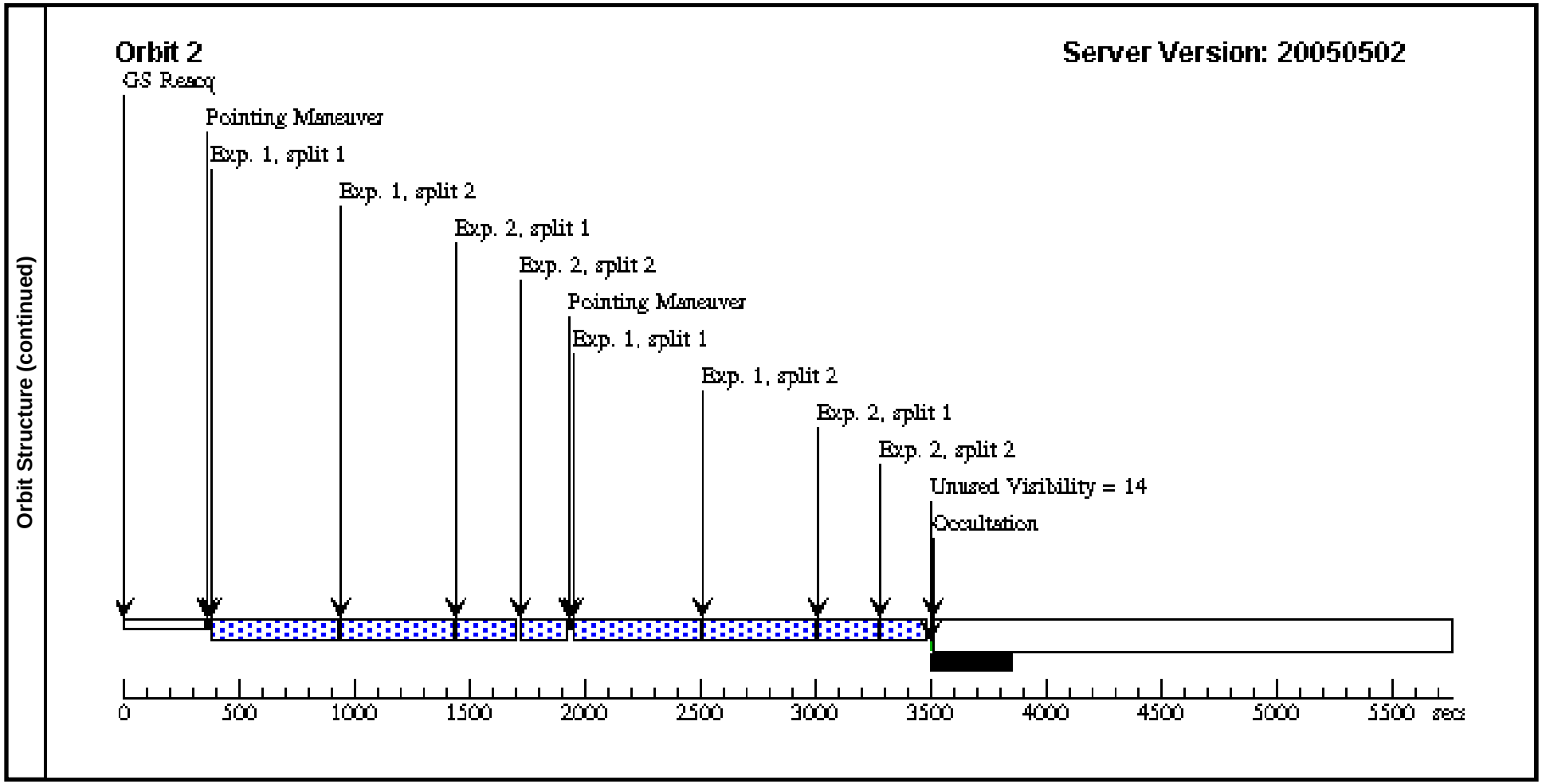
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2MASX-J10494334+5837501	RA: 10 49 43.4000 (162.4308333d) Dec: +58 37 50.40 (58.63067d) Equinox: J2000 Plate Id: (?)	Redshift: 0.115	V=18.9	Coordinate Source: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	F658N	(1) 2MASX-J10494334+5837501	ACS/HRC, ACCUM, HRC	F658N			Pattern 1-2 (1)	910.0 Secs	
								[==>(Pattern 1, Split 1)] *[==>(Pattern 1, Split 2)]* *[==>(Pattern 2, Split 1)]* *[==>(Pattern 2, Split 2)]*	***[1]***
								[==>(Pattern 3, Split 1)] *[==>(Pattern 3, Split 2)]* *[==>(Pattern 4, Split 1)]* *[==>(Pattern 4, Split 2)]*	***[2]***
2	F435W	(1) 2MASX-J10494334+5837501	ACS/HRC, ACCUM, HRC	F435W			Pattern 1-2 (1)	325.0 Secs	
								[==>(Pattern 1, Split 1)] *[==>(Pattern 1, Split 2)]* *[==>(Pattern 2, Split 1)]* *[==>(Pattern 2, Split 2)]*	***[1]***
								[==>(Pattern 3, Split 1)] *[==>(Pattern 3, Split 2)]* *[==>(Pattern 4, Split 1)]* *[==>(Pattern 4, Split 2)]*	***[2]***


Orbit Structure
Orbit 1
Server Version: 20050502
Exp. 1, split 1
Exp. 1, split 2
Exp. 2, split 1
Exp. 2, split 2
Pointing Maneuver
Exp. 1, split 1
Exp. 1, split 2
Exp. 2, split 1
Exp. 2, split 2
Unused Visibility = 10
Occultation
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit Structure (continued)
Orbit 2
Server Version: 20050502
GS Reacq
Pointing Maneuver
Exp. 1, split 1
Exp. 1, split 2
Exp. 2, split 1
Exp. 2, split 2
Pointing Maneuver
Exp. 1, split 1
Exp. 1, split 2
Exp. 2, split 1
Exp. 2, split 2
Unused Visibility = 14
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs