17856 - Narrowband Imaging of Caldwell 49

Cycle: 31, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) ROSETTE-NEBULA	WFC3/UVIS	6	24-Sep-2024 18:00:57.0	yes

6 Total Orbits Used

ABSTRACT

We propose to take deep narrowband imaging of the H II region Caldwell 49. Deep H-alpha, [N II], and [OIII] images in F656N, F658N, and F502N will sample different density and temperature regions within the nebula.

OBSERVING DESCRIPTION

We will obtain high signal-to-noise imaging of a portion of the Rosette Nebula in narrow and broadband filters F502N, F656N, F658N, F438W, F555W, and F814W. We propose a single WFC3 pointing which will adequately cover the features shown. In the event of needing to retake a failed visit, we will attempt to match the Position Angle; in the event that this is not possible to schedule in Reduced Gyro Mode, we will crop the image background as necessary so that no part of the publicized image is missing one or more colors. We expect that some visits may need to be repeated because of guide star failures, and will allow for the possibility that some make-up observations may themselves suffer guide-star failures. Dither strategy will be arranged to minimize the impact of variation of the PA. at an orient of 90-120 degrees to maximize the schedulability of make-up observations in the event of guide star failures while balancing the ease of scheduling. This orient is schedulable in multiple windows. We will also employ a dither pattern which fills the chip gaps and enables cosmic ray rejection. The brightest parts of the nebula are up to an order of magnitude brighter than the average surface brightness. Using spectra typical of H-II regions as a guide to emission line ratios, we use the WFC3 ETC to estimate exposure times and find that we can create high signal-to-noise images with 7200s for [N II], 2400s for [O III], and 2400s for H-alpha, with broadband images to color-balance stars in the bookends of each orbit. We therefore request 6 orbits for this target.

Proposal 17856 - Visit 01 - Narrowband Imaging of Caldwell 49

Visit

Proposal 17856, Visit 01 Tue Sep 24 22:00:58 GMT 2024

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 326D TO 336 D

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	ROSETTE-NEBULA Alt Name1: CALDWELL-49	RA: 06 30 41.9341 (97.6747254d) Dec: +04 59 48.20 (4.99672d) Equinox: J2000	Proper Motion RA: -1.63 mas/yr Proper Motion Dec: 0.15 mas/yr Parallax: 6.4E-4" Epoch of Position: 2000	V=12	Reference Frame: ICRS

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

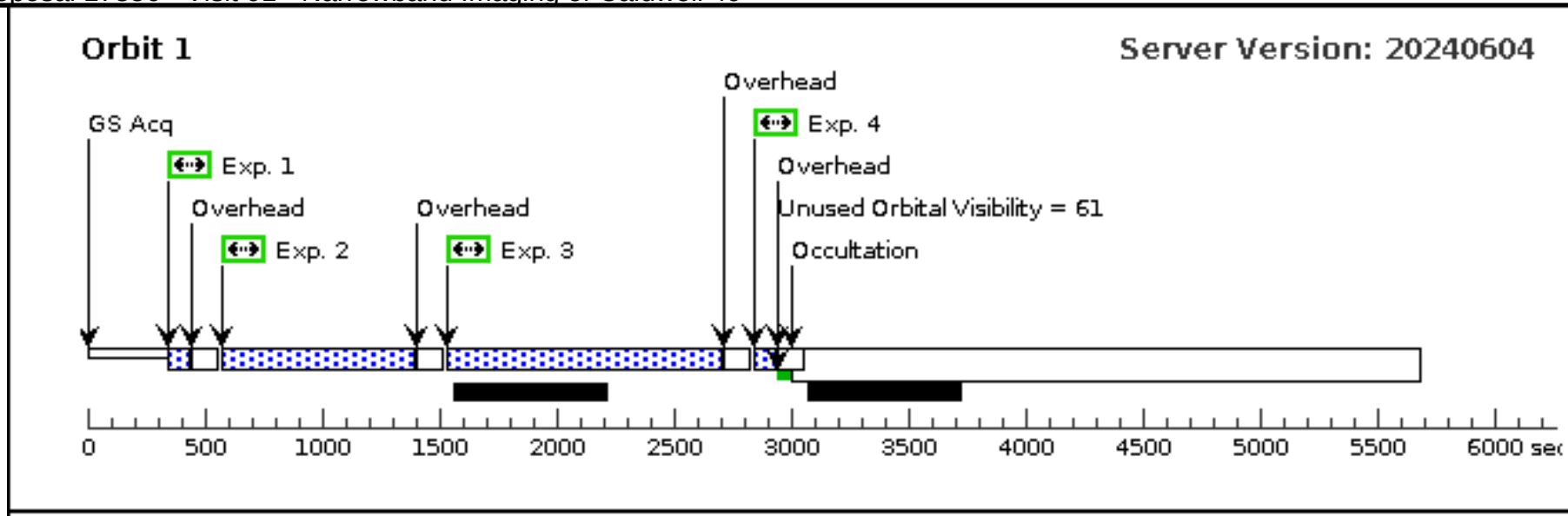
SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=ISM
Description=[HII REGION]

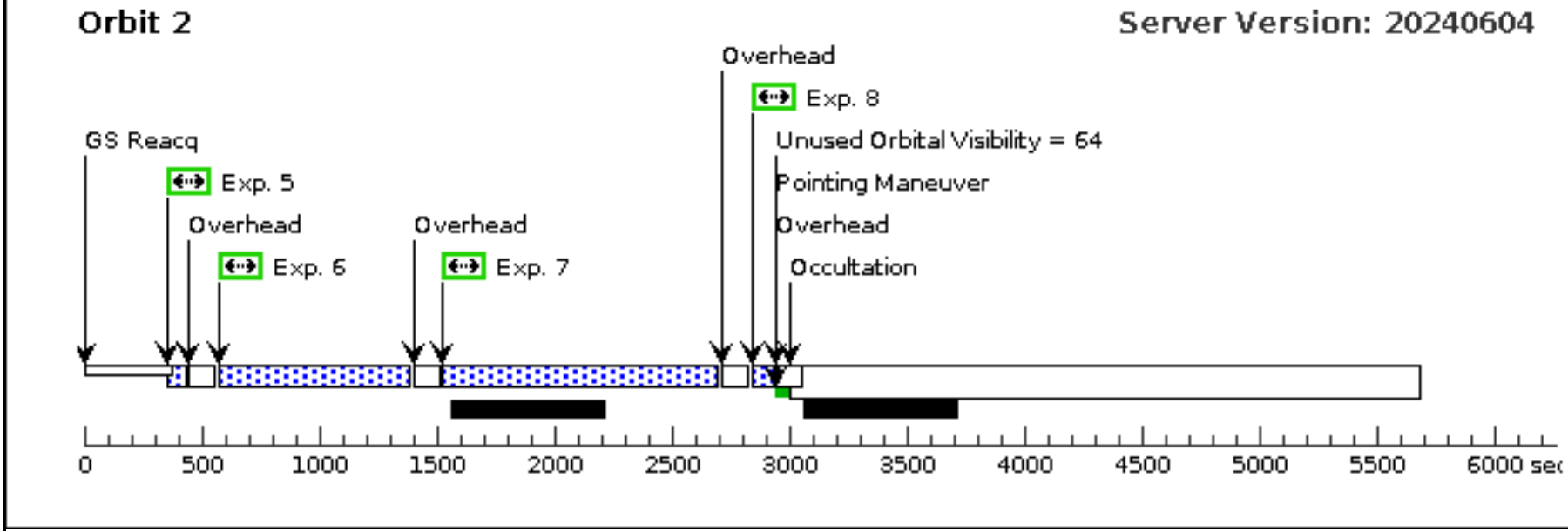
Exposures

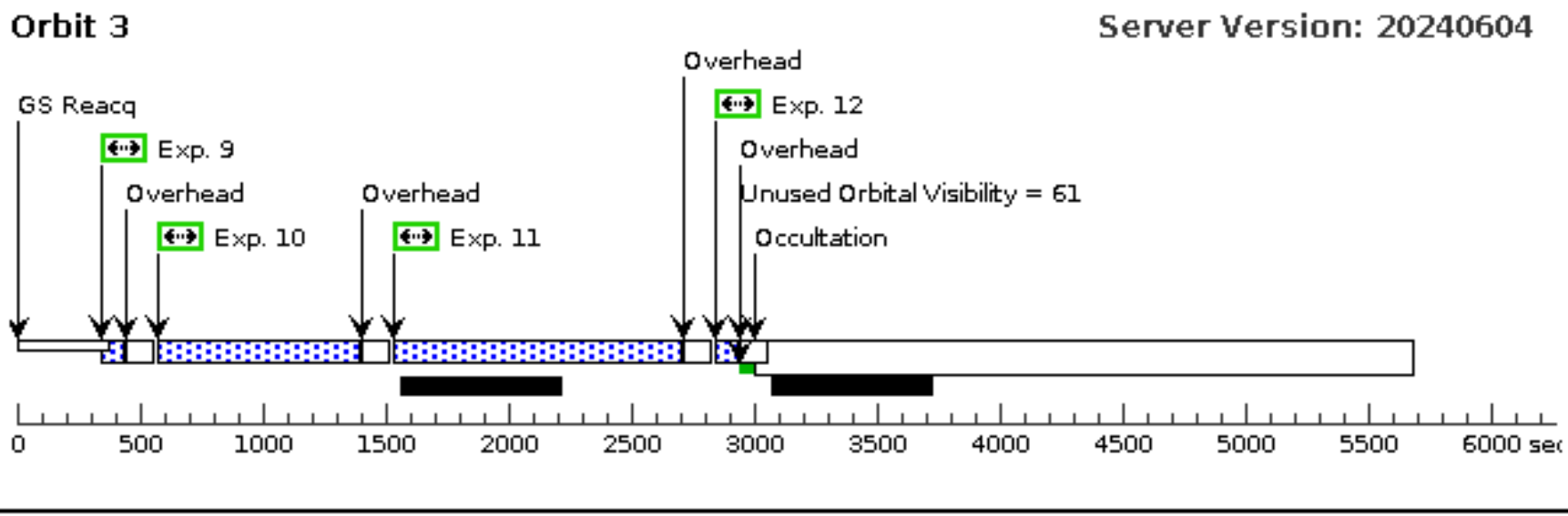
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W	FLASH=20			60 Secs (60 Secs)	
								[==>]	***[1]***
2		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F502N	FLASH=15			800 Secs (800 Secs)	
								[==>]	***[1]***
3		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15			1150 Secs (1150 Secs)	
								[==>]	***[1]***
4		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W	FLASH=15			60 Secs (60 Secs)	
								[==>]	***[1]***
5		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W	FLASH=20			60 Secs (60 Secs)	
								[==>]	***[2]***
6		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F656N	FLASH=15			800 Secs (800 Secs)	
								[==>]	***[2]***
7		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15			1150 Secs (1150 Secs)	
								[==>]	***[2]***
8		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=15			60 Secs (60 Secs)	
								[==>]	***[2]***
9		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W	FLASH=20	POS TARG 0.2,2.5		60 Secs (60 Secs)	
								[==>]	***[3]***
10		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F502N	FLASH=15	POS TARG 0.2,2.5		800 Secs (800 Secs)	
								[==>]	***[3]***
11		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15	POS TARG 0.2,2.5		1150 Secs (1150 Secs)	
								[==>]	***[3]***
12		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W	FLASH=15	POS TARG 0.2,2.5		60 Secs (60 Secs)	
								[==>]	***[3]***
13		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W	FLASH=15	POS TARG 0.2,2.5		60 Secs (60 Secs)	
								[==>]	***[4]***
14		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F656N	FLASH=15	POS TARG 0.2,2.5		800 Secs (800 Secs)	
								[==>]	***[4]***
15		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15	POS TARG 0.2,2.5		1150 Secs (1150 Secs)	
								[==>]	***[4]***
16		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=15	POS TARG 0.2,2.5		60 Secs (60 Secs)	
								[==>]	***[4]***
17		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W	FLASH=20	POS TARG 0.4,5		60 Secs (60 Secs)	
								[==>]	***[5]***
18		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F502N	FLASH=15	POS TARG 0.4,5		800 Secs (800 Secs)	
								[==>]	***[5]***
19		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15	POS TARG 0.4,5		1150 Secs (1150 Secs)	
								[==>]	***[5]***
20		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=15	POS TARG 0.4,5		60 Secs (60 Secs)	
								[==>]	***[5]***
21		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W	FLASH=15	POS TARG 0.4,5		60 Secs (60 Secs)	
								[==>]	***[6]***
22		(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F656N	FLASH=15	POS TARG 0.4,5		800 Secs (800 Secs)	
								[==>]	***[6]***

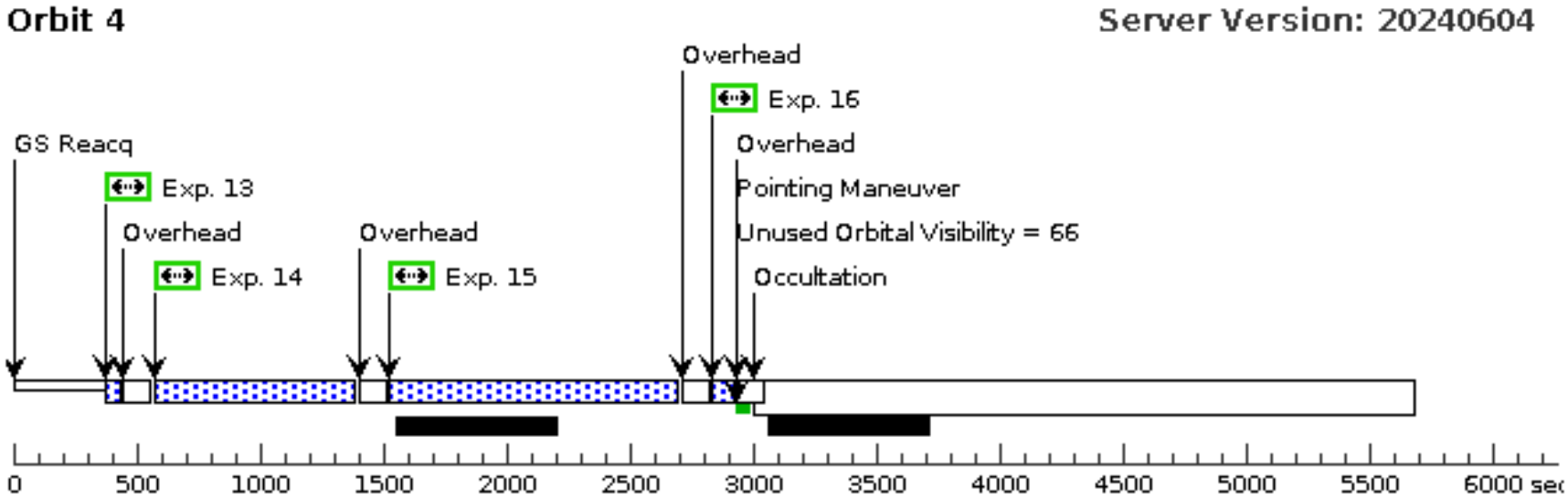
	23	(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F658N	FLASH=15	POS TARG 0.4,5	1150 Secs (1150 Secs) *[==>]*	 ***[6]***
	24	(1) ROSETTE-NEBULA	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=15	POS TARG 0.4,5	60 Secs (60 Secs) *[==>]*	 ***[6]***

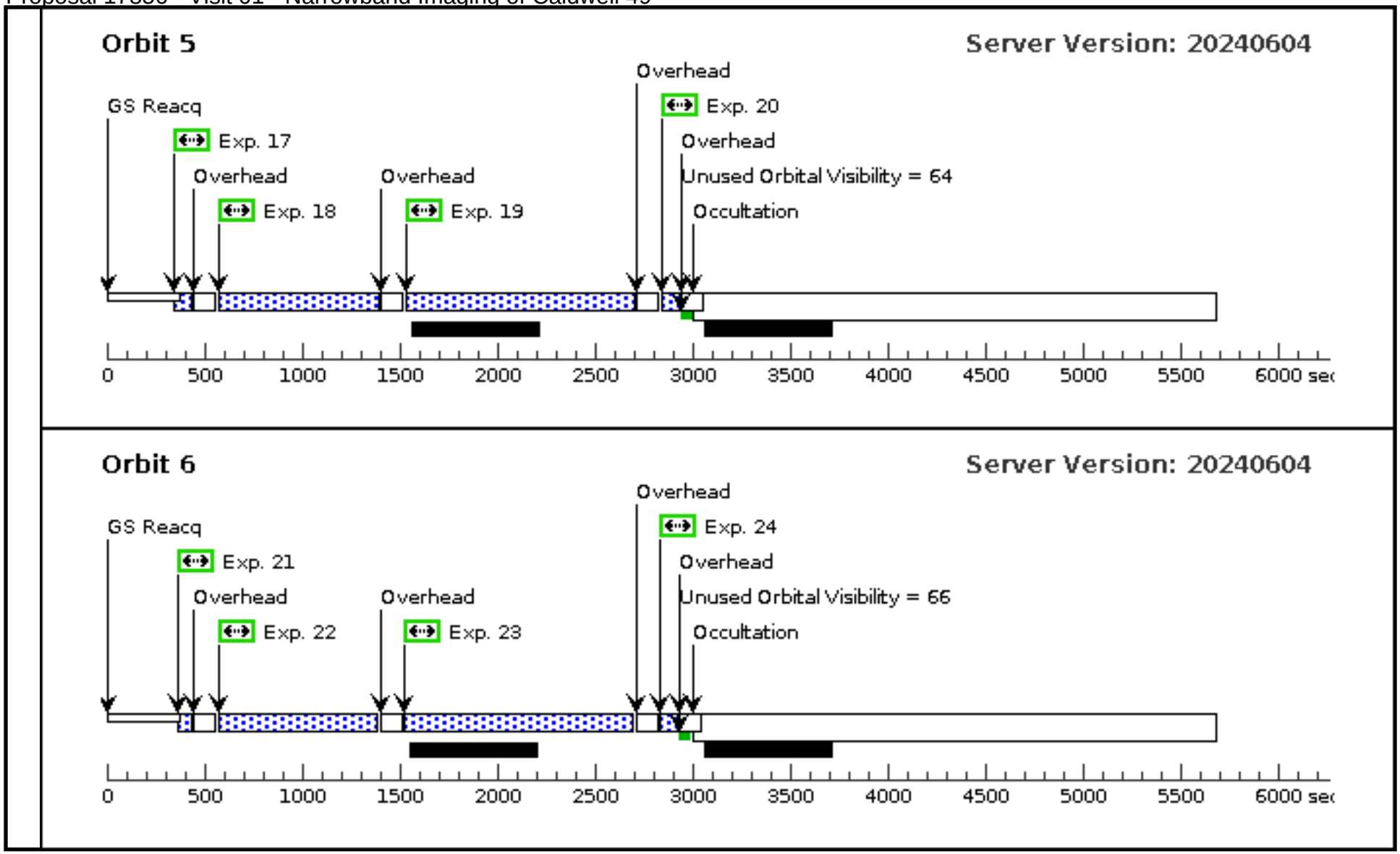
Orbit Structure






Orbit 3
Server Version: 20240604
GS Reacq
Exp. 9
Overhead
Exp. 10
Overhead
Exp. 11
Overhead
Exp. 12
Overhead
Unused Orbital Visibility = 61
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec


Orbit 4
Server Version: 20240604
GS Reacq
Exp. 13
Overhead
Exp. 14
Overhead
Exp. 15
Overhead
Exp. 16
Overhead
Pointing Maneuver
Unused Orbital Visibility = 66
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec


Orbit 5
Server Version: 20240604
GS Reacq
Exp. 17
Overhead
Exp. 18
Overhead
Exp. 19
Overhead
Exp. 20
Overhead
Unused Orbital Visibility = 64
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec
Orbit 6
Server Version: 20240604
GS Reacq
Exp. 21
Overhead
Exp. 22
Overhead
Exp. 23
Overhead
Exp. 24
Overhead
Unused Orbital Visibility = 66
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec