17925 - 20 Years of time baseline, The 3D kinematics of Centaurus A

Cycle: 32, Proposal Category: GO

(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) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:39.0	yes
02	(1) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:39.0	yes
03	(1) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:40.0	yes
04	(1) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:40.0	yes
05	(1) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:40.0	yes
06	(1) CENA-HALO	ACS/WFC	2	30-Jan-2025 11:02:41.0	yes

12 Total Orbits Used

ABSTRACT

Centaurus A (Cen A, NGC 5128) is the nearest elliptical galaxy to the Milky Way (MW), the most massive galaxy in the Local Volume and the nearest galaxy to host an active galactic nucleus (AGN). Cen A's importance to astronomy is exemplified by it being one of the 20 most cited objects in the SIMBAD database. We propose to use ACS/WFC to measure the proper motion (PM) of Cen A and use this information to: (1) for the first time, measure the transverse velocity of a galaxy group relative to the Local Group (LG), allowing us totest cosmological expectations and simulations in a new way and on far larger scales, and, (2) begin the process of determining the long-term stability of the reported plane of satellites in the Cen A group. It is vital that the second epoch of observations needed to derive Cen~A's PM is taken before ACS/WFC is decommissioned. Second-epoch observations with any other instrument would produce PMs with significant systematics, and new observations would need over 20 years to achieve the precision possible now with ACS/WFC.

OBSERVING DESCRIPTION

We will observe a halo field for Cen A with 12 single orbit exposures. This will allow us to get a second epoch of observations for finding the proper motion of Cen A and its galaxy group.

Visit

Proposal 17925, Visit 01 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: ORIENT 308D TO 248 D

Fixed Targets

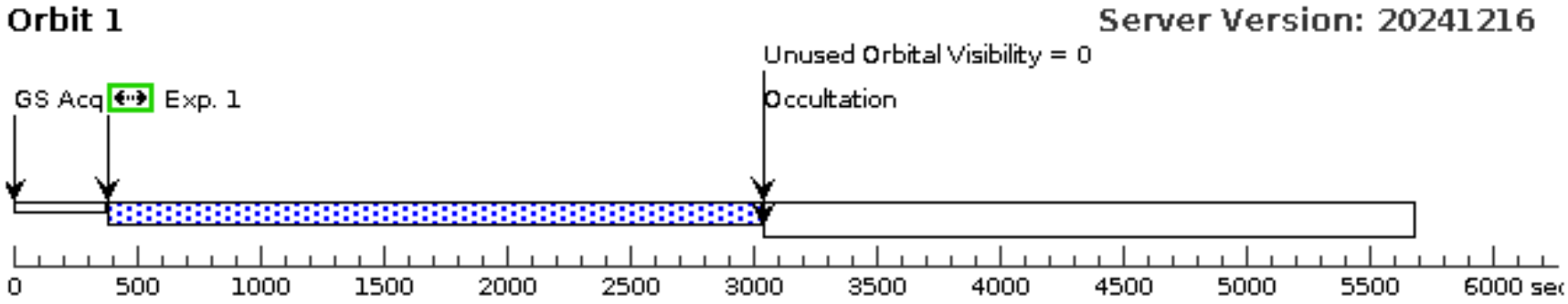
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

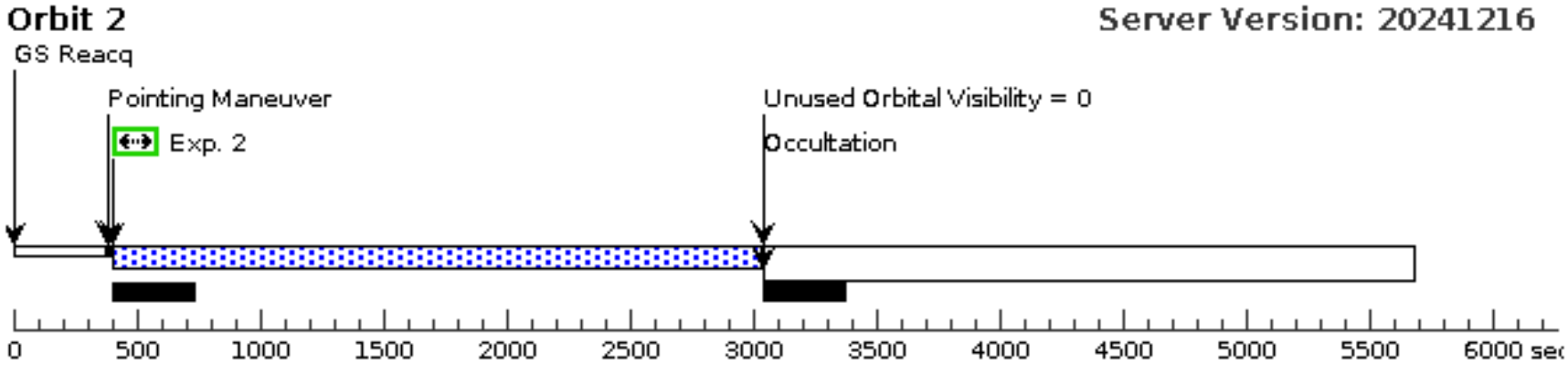
Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0,0		2449 Secs (2449 Secs)	
								[==>]	***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.1740,0 .1850		2449 Secs (2511 Secs)	
								[==>2511.0 Secs]	***[2]***

Orbit Structure





Visit

Proposal 17925, Visit 02 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: Informational

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01; GROUP 02,01,03,04,05,06 WITHIN 30D

Diagnostics

(Visit 02) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

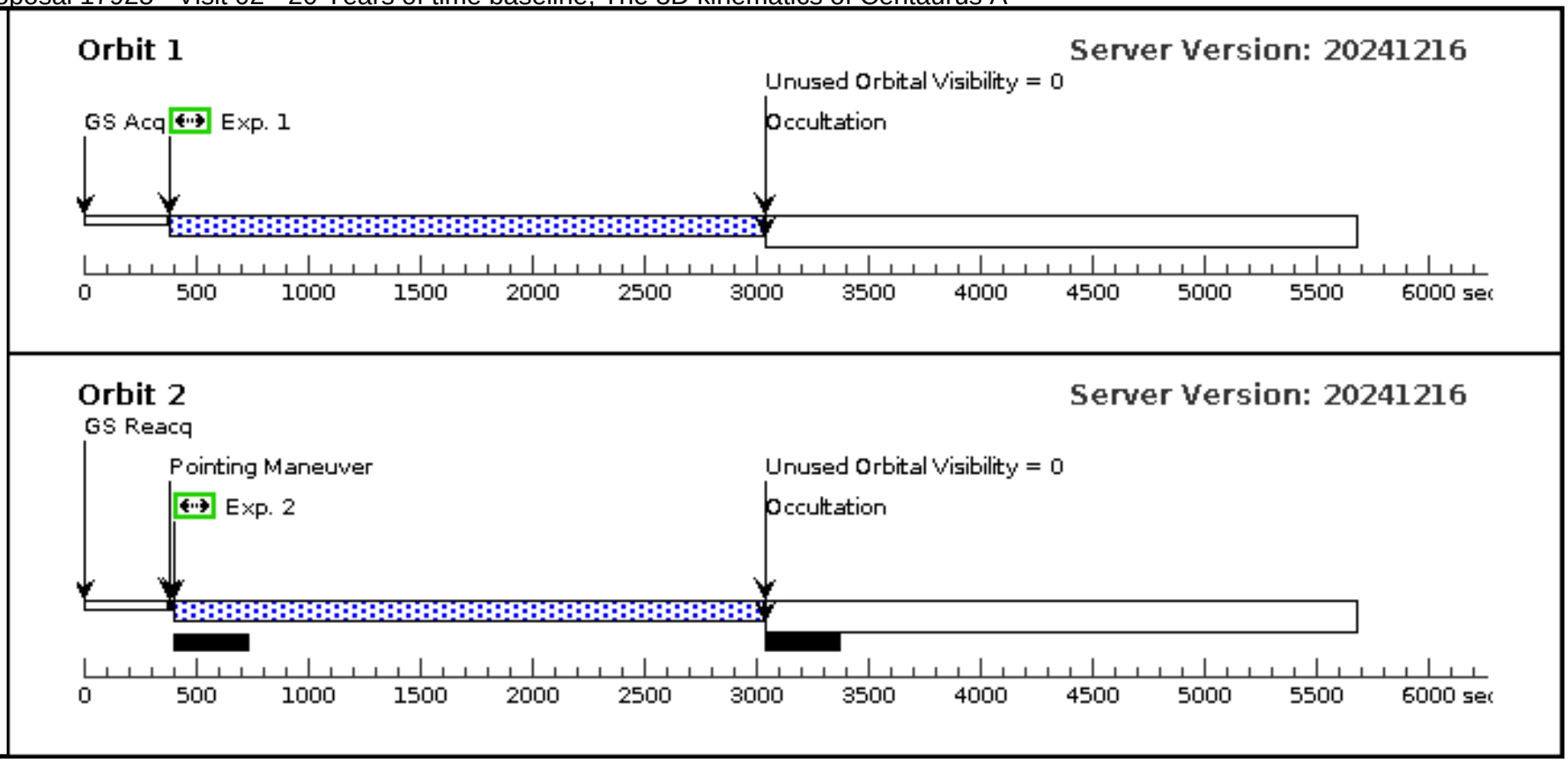
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.3232,0.1235		2449 Secs (2449 Secs) *[==>]*	 ***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.1005,0.3305		2449 Secs (2511 Secs) *[==>2511.0 Secs]*	 ***[2]***

Orbit Structure



Visit

Proposal 17925, Visit 03 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: Informational

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01; GROUP 03,01,02,04,05,06 WITHIN 30D

Diagnostics

(Visit 03) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

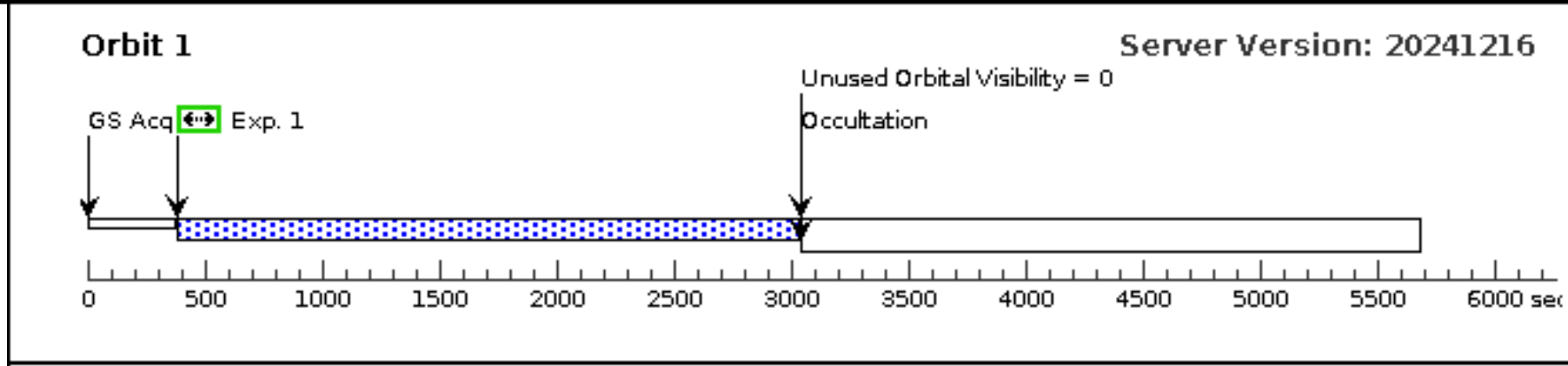
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

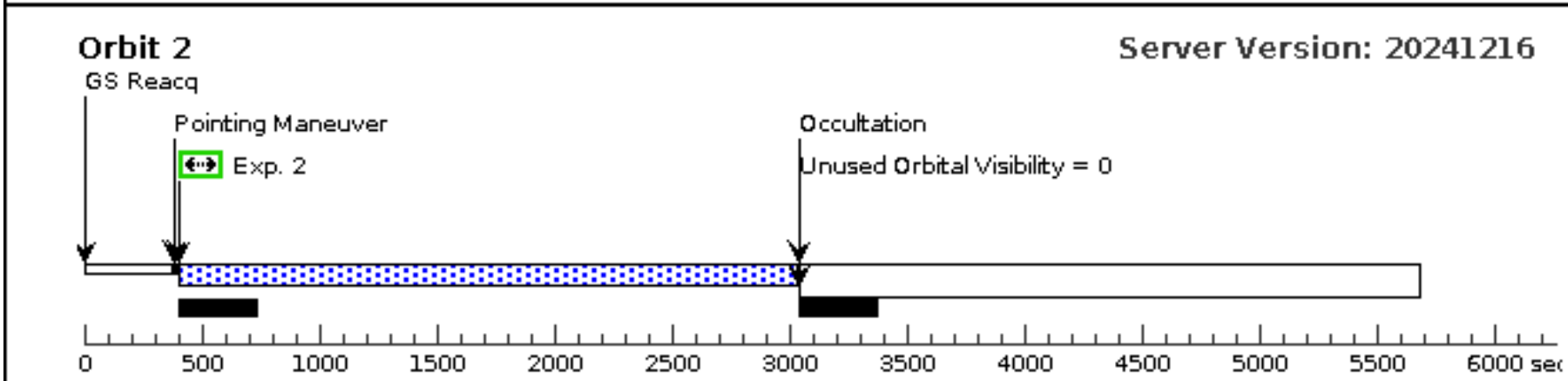
Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.5030,0.0460		2449 Secs (2449 Secs) *[==>]*	 ***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.6670,0.2310		2449 Secs (2511 Secs) *[==>2511.0 Secs]*	 ***[2]***

Orbit Structure





Visit

Proposal 17925, Visit 04 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: Informational

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01; GROUP 04,01,02,03,05,06 WITHIN 30D

Diagnostics

(Visit 04) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

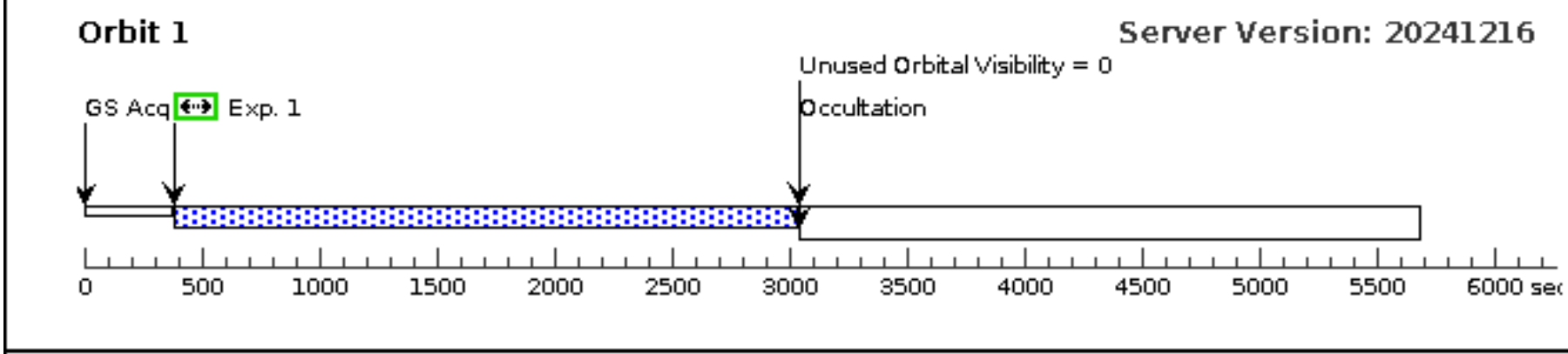
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

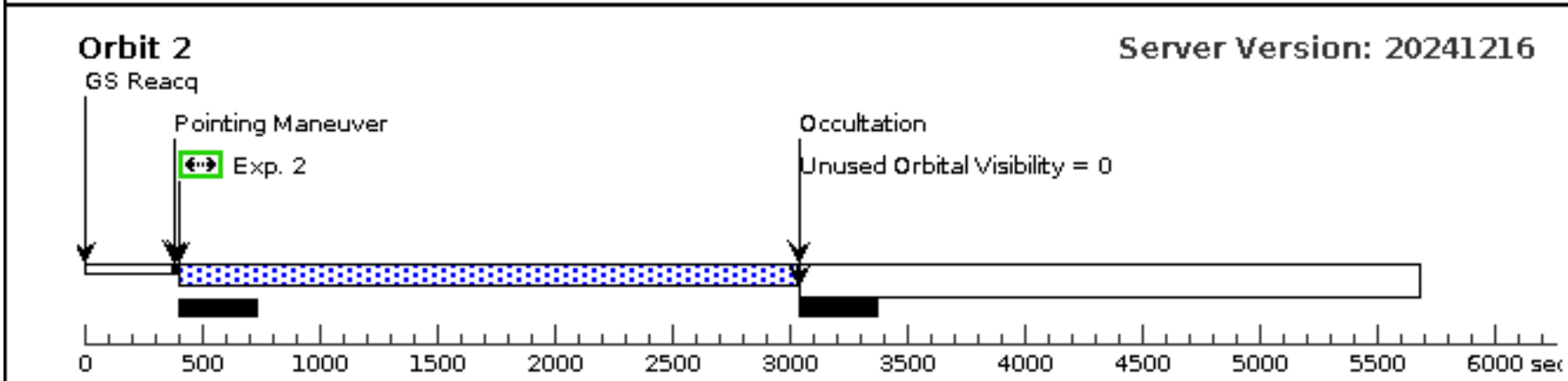
Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.8262,0.1695		2449 Secs (2449 Secs) *[==>]*	 ***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.6035,0.3765		2449 Secs (2511 Secs) *[==>2511.0 Secs]*	 ***[2]***

Orbit Structure





Visit

Proposal 17925, Visit 05 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: Informational

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01; GROUP 05,01,02,03,04,06 WITHIN 30D

Diagnostics

(Visit 05) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

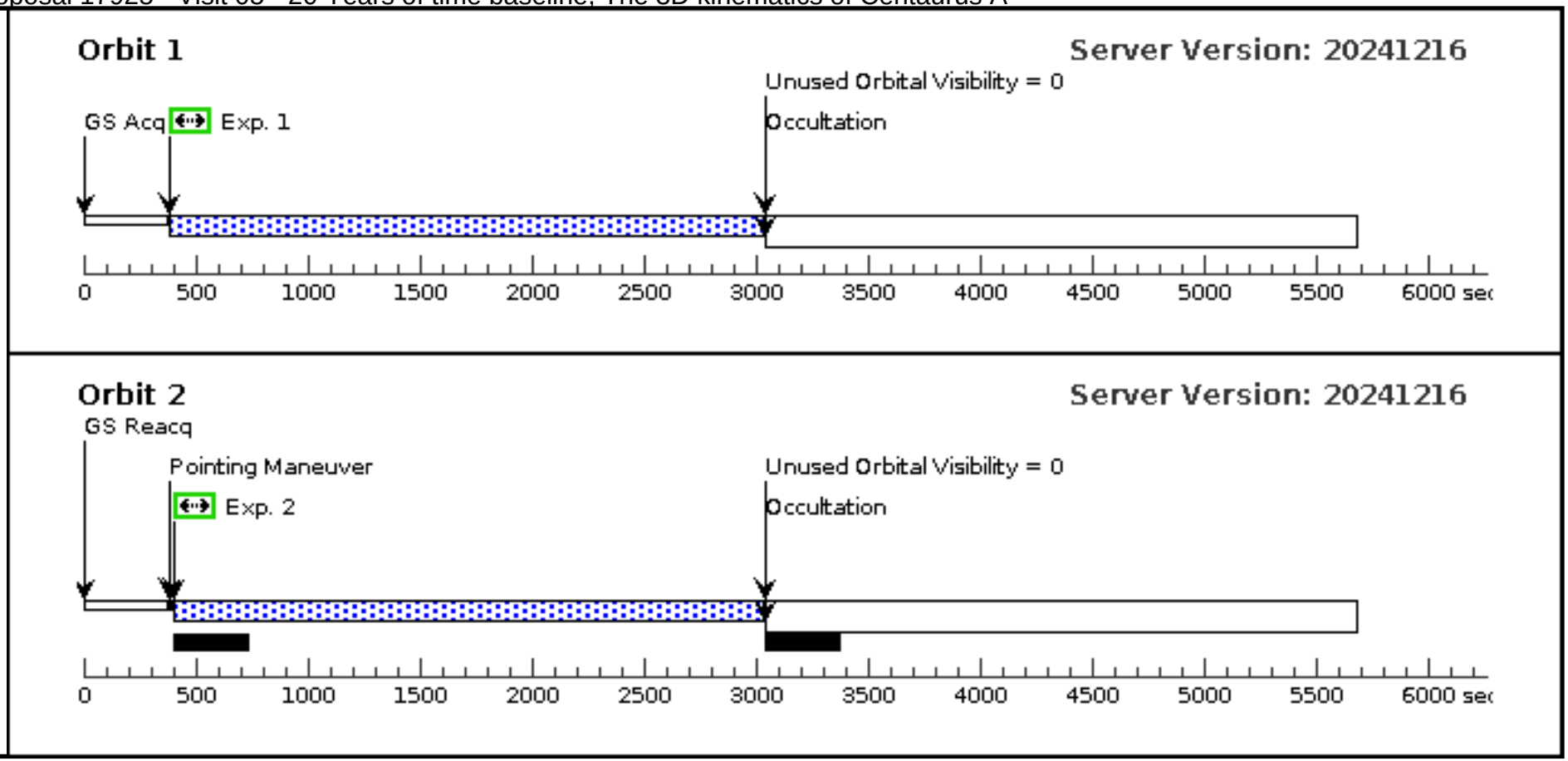
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.1180,0.5180		2449 Secs (2449 Secs) *[==>]*	 ***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.2920,0.7030		2449 Secs (2511 Secs) *[==>2511.0 Secs]*	 ***[2]***

Orbit Structure



Visit

Proposal 17925, Visit 06 Thu Jan 30 16:02:41 GMT 2025

Diagnostic Status: Informational

Scientific Instruments: ACS/WFC

Special Requirements: SAME ORIENT AS 01; GROUP 06,01,02,03,04,05 WITHIN 30D

Diagnostics

(Visit 06) Informational (Form): The Visit Planner and Spike may produce different schedulability results.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CENA-HALO	RA: 13 25 15.1000 (201.3129167d) Dec: -43 34 30.00 (-43.57500d) Equinox: J2000		V=24	Reference Frame: ICRS

Comments: This is the magnitude of a TRGB star, at this distance Cen A is resolved into indivdual stars and we are well into the halo so the magnitude of Cen A itself is irrelevent to these observations.
Category=GALAXY
Description=[ELLIPTICAL, HALO]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.4412,0.6415		2449 Secs (2449 Secs) *[==>]*	 ***[1]***
2		(1) CENA-HALO	ACS/WFC, ACCUM, WFC	F814W		POS TARG 0.2185,0.8485		2449 Secs (2511 Secs) *[==>2511.0 Secs]*	 ***[2]***

Orbit Structure