18177 - COS FUV LP7 Calibration: Dispersion Solutions

Cycle: 33, Proposal Category: CAL/COS

(Calibration)

(Availability Mode: RESTRICTED)

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	(2) HD93205	COS/FUV COS/NUV	1	29-Sep-2025 08:00:14.0	yes
02	(1) AV75	COS/FUV COS/NUV	1	29-Sep-2025 08:00:15.0	yes
03	(1) AV75	COS/FUV COS/NUV	1	29-Sep-2025 08:00:16.0	yes
04	(1) AV75	COS/FUV COS/NUV	1	29-Sep-2025 08:00:16.0	yes

4 Total Orbits Used

ABSTRACT

This program determines the dispersion solutions for the G130M grating cenwaves 1055, 1096, 1222, and 1291 at LP7. It observes absorption line standard stars HD93205 with FUVB only for the blue modes (cenwaves 1055 and 1096), and AV75 with both segments on for all LP7 cenwaves. HD93205 data is needed because AV75 does not have enough absorption features on FUVB to accurately derive dispersion solutions. Because there are no Pt-Ne calibration lamp lines at the blue modes FUVB wavelengths these observations will only be used to derive the FUVB dispersion coefficients. The blue modes zero points will be derived from AV75 data.

The exposure times and the number of orbits requested are driven by the need to achieve at least S/N ~ 20 in the continuum of both absorption line targets.

OBSERVING DESCRIPTION

This program obtains FP-POS=3 spectra of HD93205 for cenwaves 1055 and 1096 using FUVB only and of AV75 for all LP7 cenwaves with both FUV segments in order to derive dispersion solutions and zero points.

Target acquisitions for AV75 start with an ACQ/SEARCH because AV75 is in a crowded field. A subsequent ACQ/IMAGE improves the target centering for improved zero point accuracy. In an analysis of acquisitions in program 14909, double ACQ/IMAGEs were confirmed to center the target 2 to 3 times more accurately than single ACQ/IMAGEs. A single ACQ is sufficient for HD93205 because zero points will not be measured with these data.

Exposure times for cenwaves 1055 and 1096 toward both HD93205 and AV75 are extended to fill the orbits. AV75 exposures with cenwaves 1222 and 1291 do not require a full orbit to achieve our S/N goal.

Visit

Proposal 18177, HD93205 (01), implementation Mon Sep 29 12:00:17 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(HD93205 (01)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	HD93205 Alt Name1: V-V560-CAR	RA: 10 44 33.7393 (161.1405804d) Dec: -59 44 15.43 (-59.73762d) Equinox: J2000	Proper Motion RA: -7.619 mas/yr Proper Motion Dec: 2.947 mas/yr Parallax: 4.308E-4" Epoch of Position: 2000	V=7.75	Reference Frame: ICRS

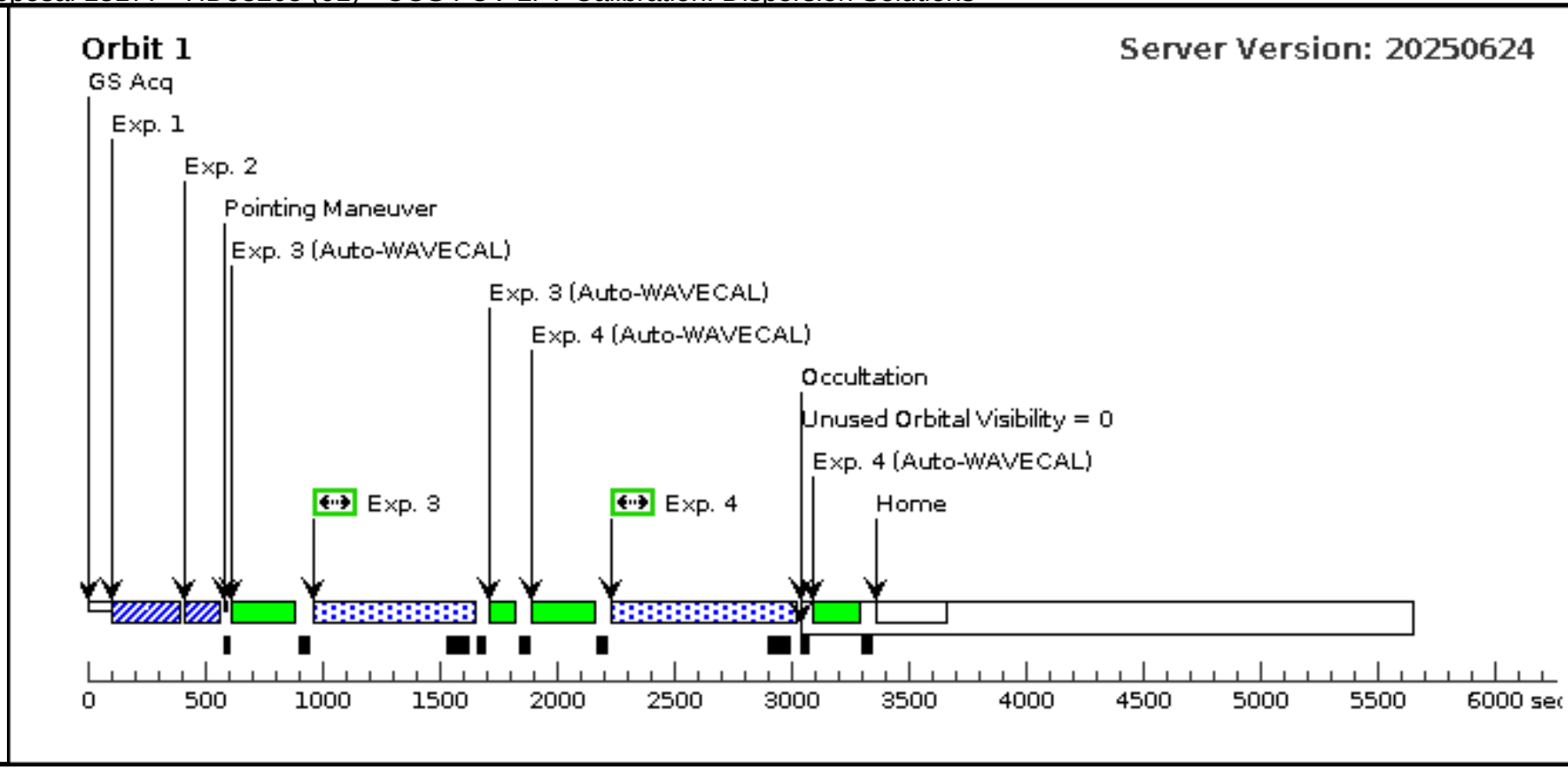
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

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=EXT-STAR
Description=[MAIN SEQUENCE O]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HD93205 ACQ/PEAKXD (COS.sa.2101135)	(2) HD93205	COS/NUV, ACQ/PEAKXD, PSA	G225M 2306 A				1 Secs (1 Secs) *[==>]*	***[1]***
Comments: Used HD93205 combined spectra from original 13070 program ACQ. Too bright for any NUV Imaging mode or FUV spec. *NUV G285M is no longer supported, so the longest recommended wavelength setting of G225M is used instead.*									
2	HD93205 ACQ/PEAKD (COS.sa.2101139)	(2) HD93205	COS/NUV, ACQ/PEAKD, PSA	G225M 2306 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	***[1]***
Comments: Used HD93205 combined spectra from original 13070 program ACQ. Too bright for any NUV Imaging mode or FUV spec. *NUV G285M is no longer supported, so the longest recommended wavelength setting of G225M is used instead.*									
3	HD93205 c1096 (COS.sp.1954513)	(2) HD93205	COS/FUV, TIME-TAG, PSA	G130M 1096 A	SEGMENT=B; FP-POS=3; BUFFER-TIME=530; LIFETIME-POS=LP7			640 Secs (640 Secs) *[==>]*	***[1]***
Comments: Based on ETC estimate for S/N ~20-30 in the continuum around 980A (COS.sp.1954513). Reduced exposure time slightly to make things fit. Can probably be reduced by up to 100s if needed.									
4	HD93205 c1055 (COS.sp.1954514)	(2) HD93205	COS/FUV, TIME-TAG, PSA	G130M 1055 A	SEGMENT=B; FP-POS=3; BUFFER-TIME=632; LIFETIME-POS=LP7			742 Secs (742 Secs) *[==>]*	***[1]***
Comments: Based on ETC estimate for S/N ~20-30 in the continuum around 980A (COS.sp.1954514). Reduced exposure time slightly to make things fit. Can probably be reduced by up to 100s if needed.									

Orbit Structure



Visit

Proposal 18177, AV75 (02), scheduling Mon Sep 29 12:00:17 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 280D TO 60 D

Comments: This is all of the observations of AV75 needed. Likely the spectral resolution will make some of these exposures redundant.

Diagnostics

(AV75 (02)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AV75 Alt Name1: AZV75	RA: 00 50 32.3920 (12.6349667d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000	Proper Motion RA: 0.746 mas/yr Proper Motion Dec: -1.255999950444675 mas/yr Parallax: 2.04E-5" Epoch of Position: 2000	V=12.756	Reference Frame: ICRS

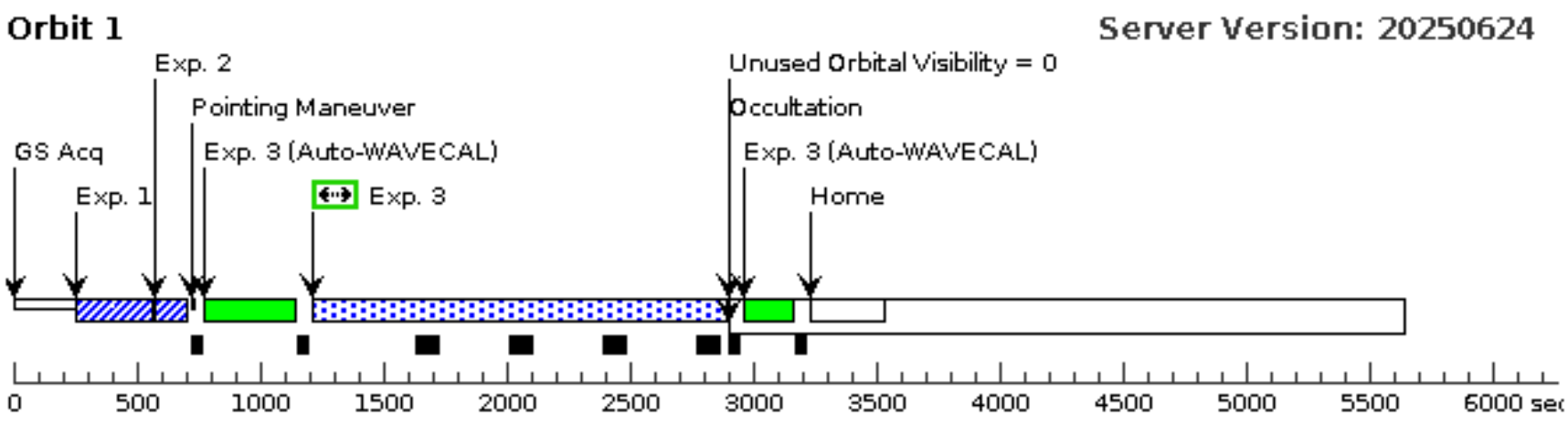
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

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=EXT-STAR
Description=[MAIN SEQUENCE O]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	AV75 ACQ/SEARCH (COS.ta.1954776)	(1) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767; CENTER=FLUX-WT			9 Secs (9 Secs) *[==>]*	*[1]*
Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs.									
2	AV75 ACQ/IMAGE (COS.ta.1954781)	(1) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				13 Secs (13 Secs) *[==>]*	*[1]*
Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs. ETC gives 3.1s for S/N=30, so this exp time could be shortened if needed .									
3	AV75 c1055/FP3 (COS.sp.2023427)	(1) AV75	COS/FUV, TIME-TAG, PSA	G130M 1055 A	FP-POS=3; BUFFER-TIME=379; LIFETIME-POS=LP7			1626 Secs (1626 Secs) *[==>]*	*[1]*
Comments: COS.sp.2023427									

Orbit Structure



Visit

Proposal 18177, AV75 (03), scheduling Mon Sep 29 12:00:17 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 280D TO 60 D

Comments: This is all of the observations of AV75 needed. Likely the spectral resolution will make some of these exposures redundant.

Diagnostics

(AV75 (03)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AV75 Alt Name1: AZV75	RA: 00 50 32.3920 (12.6349667d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000	Proper Motion RA: 0.746 mas/yr Proper Motion Dec: -1.255999950444675 mas/yr Parallax: 2.04E-5" Epoch of Position: 2000	V=12.756	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=EXT-STAR
Description=[MAIN SEQUENCE O]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	AV75 ACQ/SEARCH (COS.ta.1954776)	(1) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767; CENTER=FLUX-WT			9 Secs (9 Secs) *[==>]*	*[1]*

Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs.

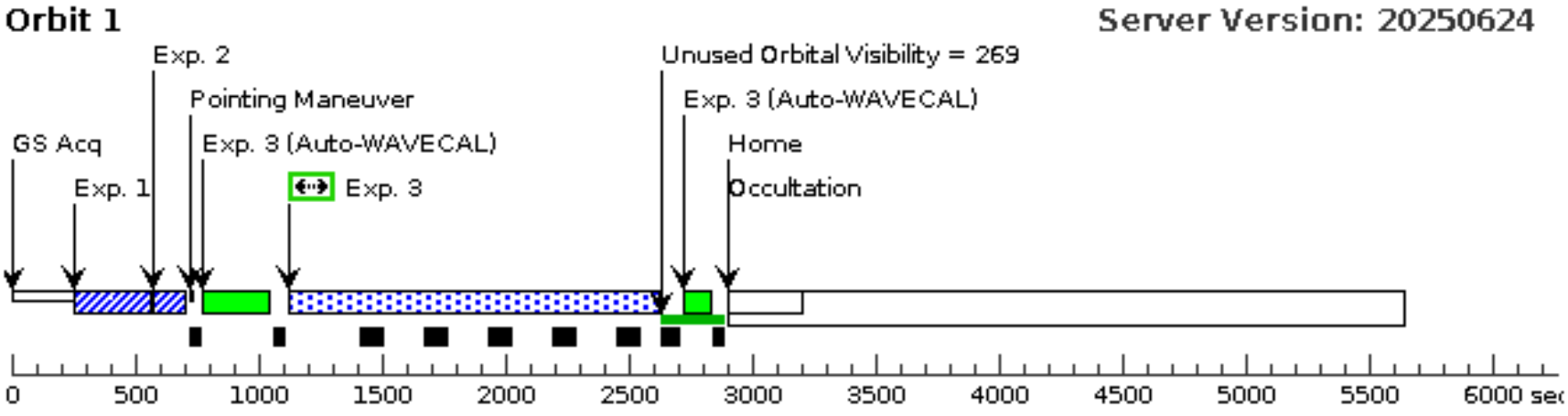
2	AV75 ACQ/IMAGE (COS.ta.1954781)	(1) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				13 Secs (13 Secs) *[==>]*	*[1]*

Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs. ETC gives 3.1s for S/N=30, so this exp time could be shortened if needed .

3	AV75 c1096/FP3 (COS.sp.2023441)	(1) AV75	COS/FUV, TIME-TAG, PSA	G130M 1096 A	FP-POS=3; BUFFER-TIME=2588; LIFETIME-POS=LP7			1450 Secs (1450 Secs) *[==>]*	*[1]*

Comments: COS.sp.2023441 -> 1350s for S/N = 10 @ 979A. Extended slightly

Orbit Structure



Visit

Proposal 18177, AV75 (04), scheduling Mon Sep 29 12:00:17 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 280D TO 60 D

Comments: This is all of the observations of AV75 needed. Likely the spectral resolution will make some of these exposures redundant.

Diagnostics

(AV75 (04)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

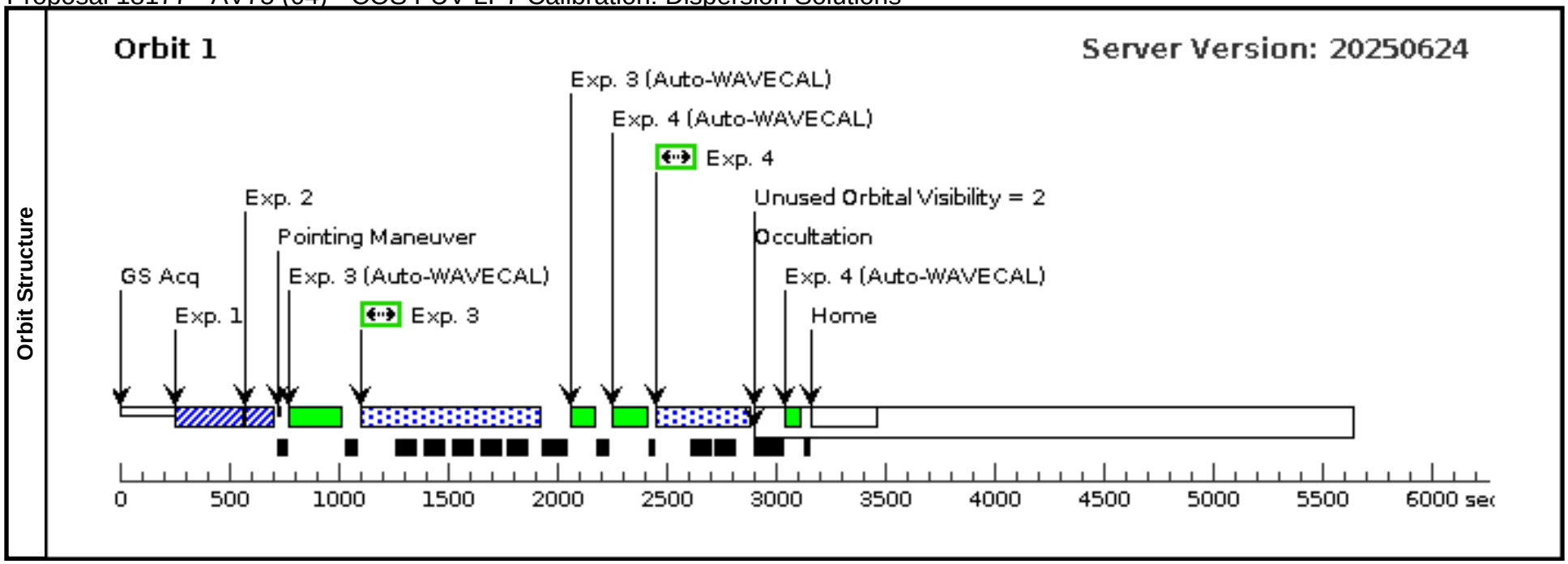
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AV75 Alt Name1: AZV75	RA: 00 50 32.3920 (12.6349667d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000	Proper Motion RA: 0.746 mas/yr Proper Motion Dec: -1.255999950444675 mas/yr Parallax: 2.04E-5" Epoch of Position: 2000	V=12.756	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=EXT-STAR
Description=[MAIN SEQUENCE O]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	AV75 ACQ/SEARCH (COS.ta.1954776)	(1) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767; CENTER=FLUX-WT			9 Secs (9 Secs) *[==>]*	*[1]*
Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs.									
2	AV75 ACQ/IMAGE (COS.ta.1954781)	(1) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				13 Secs (13 Secs) *[==>]*	*[1]*
Comments: Double acquisition necessary to improve centering. Sequence and settings based on successful wavelength scale monitor programs. ETC gives 3.1s for S/N=30, so this exp time could be shortened if needed .									
3	AV75 c1222 /FP3 (COS.sp.2024166)	(1) AV75	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=3; BUFFER-TIME=128; LIFETIME-POS=LP7			770 Secs (770 Secs) *[==>]*	*[1]*
Comments: COS.sp.2024166 -> 750s for S/N = 20 @ 1100A. Extended slightly to fill orbit.									
4	AV75 c1291 /FP3 (COS.sp.2023849)	(1) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=115; LIFETIME-POS=LP7			380 Secs (380 Secs) *[==>]*	*[1]*
Comments: COS.sp.2023849 -> 340s for S/N = 20 @ 1200A. Extended slightly to fill orbit									


Orbit Structure
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Server Version: 20250624
Exp. 3 (Auto-WAVECAL)
Exp. 4 (Auto-WAVECAL)
Exp. 4
Exp. 2
Unused Orbital Visibility = 2
Pointing Maneuver
Occultation
GS Acq
Exp. 3 (Auto-WAVECAL)
Exp. 4 (Auto-WAVECAL)
Exp. 1
Exp. 3
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec