18205 - Cycle 33 COS FUV Characterization of Modal Gain When Changing High Voltage

Cycle: 33, Proposal Category: CAL/COS

(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?*
4A	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	06-Oct-2025 08:00:15.0	yes
4C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	06-Oct-2025 08:00:16.0	yes
7A	(1) WD0308-565 DARK NONE	COS COS/FUV COS/NUV S/C	1	06-Oct-2025 08:00:17.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
7B	(1) WD0308-565 NONE	COS COS/FUV COS/NUV	1	06-Oct-2025 08:00:18.0	yes
7C	(1) WD0308-565 DARK NONE	COS COS/FUV COS/NUV S/C	1	06-Oct-2025 08:00:19.0	yes
7D	(1) WD0308-565 NONE	COS COS/FUV COS/NUV	1	06-Oct-2025 08:00:20.0	yes

6 Total Orbits Used

ABSTRACT

This program collects data that will will be used to create gain maps of the detector on regions being used during Cycle 33.

Where possible, it uses the deuterium lamp. For regions of the detector that cannot be illuminated by the deuterium lamp, an external target is used.

Gain map data will be obtained both before and after any change is made to any nominal high voltage value on either segment, and before and after any lifetime move. Obtaining a gain map at these times will help to improve the modeling of the modal gain as a function of time and extracted charge, since it will provide data that cover the full time span of each high voltage at each LP. Improving these models will allow better predictions of the future lifetime of the detector.

OBSERVING DESCRIPTION

This program will obtain spectra with enough counts to permit the construction of a gain map covering the regions where the spectra fall in Cycle 33. Where possible, the deuterium lamp will be used, with the G130M/1309 setting used to put the maximimum number of counts on Segment A, and G160M/1600 for Segment B. Both segments can safely remain on with either setting. For detector regions that cannot be illuminated by the deuterium lamp, an external target is used.

Gain maps should be taken before and after any high voltage change, and before and after any change in Lifetime Position. They should be obtained at the appropriate HV levels and detector locations.

The plan for this cycle includes two (for LPs using internal orbits) or four (for LPs using external orbits) one-orbit contingency visits for each HV change. These visits will be used if a HV change is made during the cycle. For internal visits, one will be taken immediately before the change using the current HV values (visits 4A), and one will be taken after at the new values (visit 4C). For externals, two will be taken before (visits 7A and 7B) and two after (visits 7C and 7D).

Note that if the HV changes during the current cycle, the values specified in this proposal will have to be adjusted.

For the internal visits, the procedure for each visit is:

* Take an exposure at LP1 to set up the aperture position and HV. This can also be used to measure the gain at LP1.

* Adjust the HV values

* Adjust the aperture in the cross dispersion direction so that the deuterium lamp will illuminate the appropriate region on Segment A when using G130M/1309.

* Take a 440 second deuterium lamp exposure using both detector segments.

* Adjust the aperture to a second cross-dispersion location to obtain additional coverage on Segment A and take another 440 second deuterium lamp exposure.

* Adjust the aperture in the cross dispersion direction so that the deuterium lamp will illuminate the appropriate region on Segment B when using G160M/1600.

* Take a 440 second deuterium lamp exposure using both detector segments.

* Adjust the aperture to a second cross-dispersion location to obtain additional coverage on Segment B and take another 440 second deuterium lamp exposure.

* Return the aperture to the HOME position

All G130M/1309 exposures use FP-POS=1, and all G160M/1600 exposures use FP-POS=4. These choices give slightly more counts than other FP-POS values.

Note that because TRANS resets its aperture zero point when FCA exposures are taken, the aperture is explicitly moved using "QESIPARM XSTEPS", as was done in Program 13970, 14439, 14519, 14941, 15534, 15772, etc.

For the external visits, the procedure is as follows. This is based on the procedure in program 18179, COS LP7 Initial Gain Map.

* Acquire the target with an NUV ACQ/IMAGE

* Take a short G160M/1623 exposure at LP6 to initialize the HV, focus, aperture block, etc.

* Adjust the HV values

* Move the aperture block to the nominal LP position

* Take two G160M/1623 exposures; one each at FP-POS = 2 & 4

* Move the aperture block to a higher offset position

* Take two G160M/1623 exposures; one each at FP-POS = 2 & 4

* Move the aperture block to an even higher offset position

* Take two G160M/1623 exposures; one each at FP-POS = 2 & 4

* Return the aperture block to its initial (LP6) position

For visits 7B and 7D:

* Take a double NUV ACQ/IMAGE of the target to mitigate acquisition failures

* Take two standard G130M/1222 observatiosn at the nominal LP position using FP-POS = 1 & 3

* Move the aperture block to a higher offset position

* Take two standard G130M/1222 observations using FP-POS = 1 & 3

* Return the aperture block to its nominal LP position

For reference, the soft and hard stops for the apertures are listed below. All aperture moves are within these ranges.
MEB1:
SOFT STOPS = -275 to 275
HARD STOPS = -282 to 285

MEB2:
SOFT STOPS = -275 to 275

HARD STOPS = -284 to 283

Internal exposure summary table:

The initial exposure of each visit uses the FCA_LP1 aperture position, LAPXSTP = -153. Thus all XAPER values are relative to that position.

Visit	LP	Grating/Segment	Y Position	LAPXSTP	XAPER	HV
4A/4C	4	G130M/A	1	-32	+121	173/175
4A/4C	4	G130M/A	2	-86	+67	173/175
4A/4C	4	G160M/B	1	-41	+112	173/175
4A/4C	4	G160M/B	2	-95	+58	173/175

External exposure summary tables:

The initial exposure of these visits use the PSA_LP6 aperture position, LAPXSTP = -11. Thus all XAPER values are relative to that position:

Visit	LP	Grating	FP-POS	Y Position	LAPXSTP	XAPER	Postarg	HV
7A/7C	7	G160M/1623	2	1	-65	-54	+2.58	163/163
7A/7C	7	G160M/1623	4	1	-65	-54	+2.58	163/163
7A/7C	7	G160M/1623	2	2	-81	-70	+3.34	163/163
7A/7C	7	G160M/1623	4	2	-81	-70	+3.34	163/163
7A/7C	7	G160M/1623	2	3	-97	-86	+4.10	163/163

7A/7C	7	G160M/1623	4	3	-97	-86	+4.10	163/163

The initial exposure of these visits use the PSA_LPL aperture position, LAPXSTP = -49. Thus all XAPER values are relative to that position:

Visit	LP	Grating	FP-POS	Y Position	LAPXSTP	XAPER	Postarg	HV
7B/7D	7	G130M/1222	1	1	-49	0	0	163/163
7B/7D	7	G130M/1222	3	1	-49	0	0	163/163
7B/7D	7	G130M/1222	1	2	-65	-16	+0.76	163/163
7B/7D	7	G130M/1222	3	2	-65	-16	+0.76	163/163

Visit	**Proposal 18205, Internal LP4 gain map - before HV increase (4A)** Mon Oct 06 12:00:20 GMT 2025 **Diagnostic Status: Warning** Scientific Instruments: S/C, COS, COS/FUV Special Requirements: ON HOLD ; PARALLEL *Comments: This visit collects data at LP4. It uses the HV values appropriate for LP4 (173/175).* *On Hold Comments: Only needed if HV changed during Cycle 33*
Diagnostics	(Internal LP4 gain map - before HV increase (4A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB VISIT

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G160M/1600 Deuterium Exposure - Set up at LP1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=196; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1			125 Secs (125 Secs) *[==>]*	***[1]***
	Comments: Short exposure to set aperture to LP1, which is near the center of the aperture range used in this program. It also sets the HV to the LP1 values.								
2	Adjust HV to LP4 values	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QASISTATES COS FUV HVNOM HVNOM; QESIPARM ENDCTSA 173; QESIPARM ENDCTSB 175; QESIPARM SEGMENT AB		39 Secs (39 Secs) *[==>]*	***[1]***
	Comments: Adjust the HV to LP4 values. *Since the HV is not increasing, exposure time = 39 seconds*								
3	Aperture Adjustment 1 for Segment A	NONE	COS, ALIGN/APER		XAPER=121			0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment A with G130M/1309. *FCA LAPXSTP value at LP1 is -153* *Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP4 is -32* *Therefore, XAPER is set to -32 - -153 = +121*								
4	G130M/1309 Deuterium Exposure 1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=LP1			440 Secs (440 Secs) *[==>]*	***[1]***
	Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.								
5	Aperture Adjustment 2 for Segment A	NONE	COS, ALIGN/APER		XAPER=67	QESIPARM XSTEPS -54		0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment A with G130M/1309. *FCA LAPXSTP value at LP1 is -153* *Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP4 is -86* *Therefore, XAPER is set to -86 - -153 = +67. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+67 - +121) = -54] Special Requirement is necessary to move the aperture to the correct location.*								

6	G130M/1309 Deuterium Exposure 2	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

7	Aperture Adjustment 1 for Segment B	NONE	COS, ALIGN/APER		XAPER=112	QESIPARM XSTEPS 45	0.0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment B with G160M/1600.

FCA LAPXSTP value at LP1 is -153
Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 1 for LP4 is -41

*Therefore, XAPER is set to -41 - -153 = +112. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS 45" [(+112 - +67) = +45] Special Requirement is necessary to move the aperture to the correct location.*

8	G160M/1600 Deuterium Exposure 1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

9	Aperture Adjustment 2 for Segment B	NONE	COS, ALIGN/APER		XAPER=58	QESIPARM XSTEPS -54	0.0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment B with G160M/1600.

FCA LAPXSTP value at LP1 is -153
Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 2 for LP3 is -95.

*Therefore, XAPER is set to -95 - -153 = +58. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+58 - +112) = -54] Special Requirement is necessary to move the aperture to the correct location.*

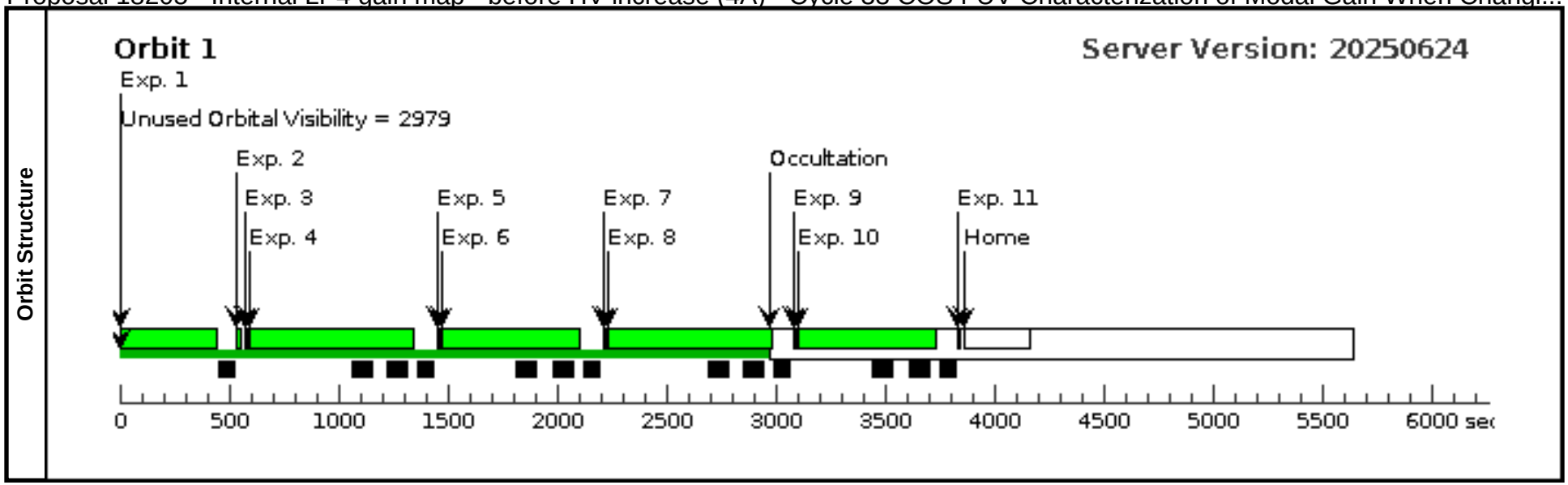
10	G160M/1600 Deuterium Exposure 2	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

11	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER		XAPER=0	QESIPARM XSTEPS -58	0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Return aperture to nominal position by setting XAPER=0

**HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -58" [(0 - 58) = -58] Special Requirement is necessary to move the aperture to its correct location.*


Orbit Structure
Orbit 1
Server Version: 20250624
Exp. 1
Unused Orbital Visibility = 2979
Exp. 2
Exp. 3
Exp. 4
Exp. 5
Exp. 6
Exp. 7
Exp. 8
Occultation
Exp. 9
Exp. 10
Exp. 11
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit	**Proposal 18205, Internal LP4 gain map - after HV increase (4C)** Mon Oct 06 12:00:20 GMT 2025 **Diagnostic Status: Warning** Scientific Instruments: S/C, COS, COS/FUV Special Requirements: ON HOLD ; PARALLEL *Comments: This visit collects data at LP4. It uses the HV values appropriate for LP4 (173/175).* *On Hold Comments: Only needed if HV changed during Cycle 33* *HV Values will have to be updated before execution!*
Diagnostics	(Internal LP4 gain map - after HV increase (4C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB VISIT

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G160M/1600 Deuterium Exposure - Set up at LP1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=196; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1			125 Secs (125 Secs) *[==>]*	***[1]***
	Comments: Short exposure to set aperture to LP1, which is near the center of the aperture range used in this program. It also sets the HV to the LP1 values.								
2	Adjust HV to LP4 values	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QASISTATES COS FUV HVNOM HVNOM; QESIPARM ENDCTSA 173; QESIPARM ENDCTSB 175; QESIPARM SEGMENT AB		39 Secs (39 Secs) *[==>]*	***[1]***
	Comments: Adjust the HV to LP4 values. *Since the HV is not increasing, exposure time = 39 seconds*								
3	Aperture Adjustment 1 for Segment A	NONE	COS, ALIGN/APER		XAPER=121			0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment A with G130M/1309. *FCA LAPXSTP value at LP1 is -153* *Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP4 is -32* *Therefore, XAPER is set to -32 - -153 = +121*								
4	G130M/1309 Deuterium Exposure 1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=LP1			440 Secs (440 Secs) *[==>]*	***[1]***
	Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.								
5	Aperture Adjustment 2 for Segment A	NONE	COS, ALIGN/APER		XAPER=67	QESIPARM XSTEPS -54		0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment A with G130M/1309. *FCA LAPXSTP value at LP1 is -153* *Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP4 is -86* *Therefore, XAPER is set to -86 - -153 = +67. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+67 - +121) = -54] Special Requirement is necessary to move the aperture to the correct location.*								

6	G130M/1309 Deuterium Exposure 2	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

7	Aperture Adjustment 1 for Segment B	NONE	COS, ALIGN/APER		XAPER=112	QESIPARM XSTEPS 45	0.0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment B with G160M/1600.

FCA LAPXSTP value at LP1 is -153
Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 1 for LP4 is -41

*Therefore, XAPER is set to -41 - -153 = +112. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS 45" [(+112 - +67) = +45] Special Requirement is necessary to move the aperture to the correct location.*

8	G160M/1600 Deuterium Exposure 1	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

9	Aperture Adjustment 2 for Segment B	NONE	COS, ALIGN/APER		XAPER=58	QESIPARM XSTEPS -54	0.0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment B with G160M/1600.

FCA LAPXSTP value at LP1 is -153
Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 2 for LP4 is -95.

*Therefore, XAPER is set to -95 - -153 = +58. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+58 - +112) = -54] Special Requirement is necessary to move the aperture to the correct location.*

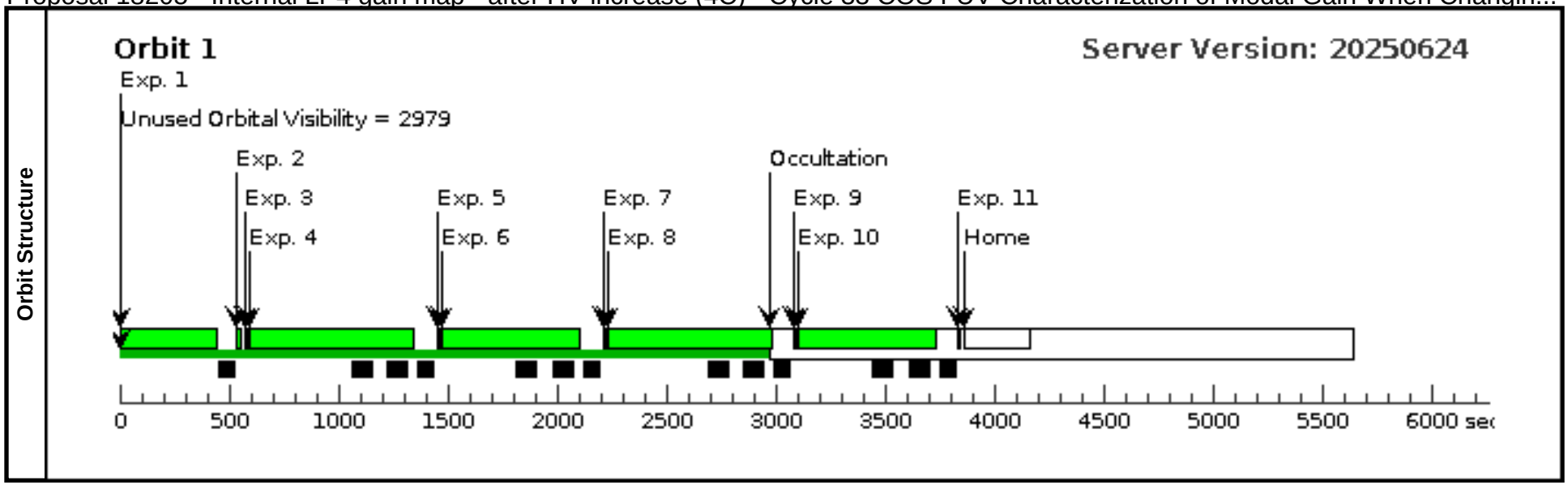
10	G160M/1600 Deuterium Exposure 2	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1		440 Secs (440 Secs) *[==>]*	***[1]***

Comments: Deuterium exposure optimized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values.

11	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER		XAPER=0	QESIPARM XSTEPS -58	0 Secs (0 Secs) *[==>]*	***[1]***

Comments: Return aperture to nominal position by setting XAPER=0

**HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -58" [(0 - 58) = -58] Special Requirement is necessary to move the aperture to its correct location.*


Orbit Structure
Orbit 1
Server Version: 20250624
Exp. 1
Unused Orbital Visibility = 2979
Exp. 2
Exp. 3
Exp. 4
Exp. 5
Exp. 6
Exp. 7
Exp. 8
Occultation
Exp. 9
Exp. 10
Exp. 11
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18205, External LP7 gain map; G160M - before HV increase (7A) Mon Oct 06 12:00:20 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: S/C, COS, COS/FUV, COS/NUV

Special Requirements: ON HOLD

Comments: This visit collects data at LP7. It uses the HV values appropriate for LP7 (163/163).

On Hold Comments: Only needed if HV changed during Cycle 33

Diagnostics

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

(External LP7 gain map; G160M - before HV increase (7A)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9178 (47.4496575d)	Proper Motion RA: 149.261 mas/yr	V=14.14	Reference Frame: ICRS
	Alt Name1: WG-7	Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 66.806 mas/yr		
		Equinox: J2000	Parallax: 0.0201813"		
			Epoch of Position: 2000		

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

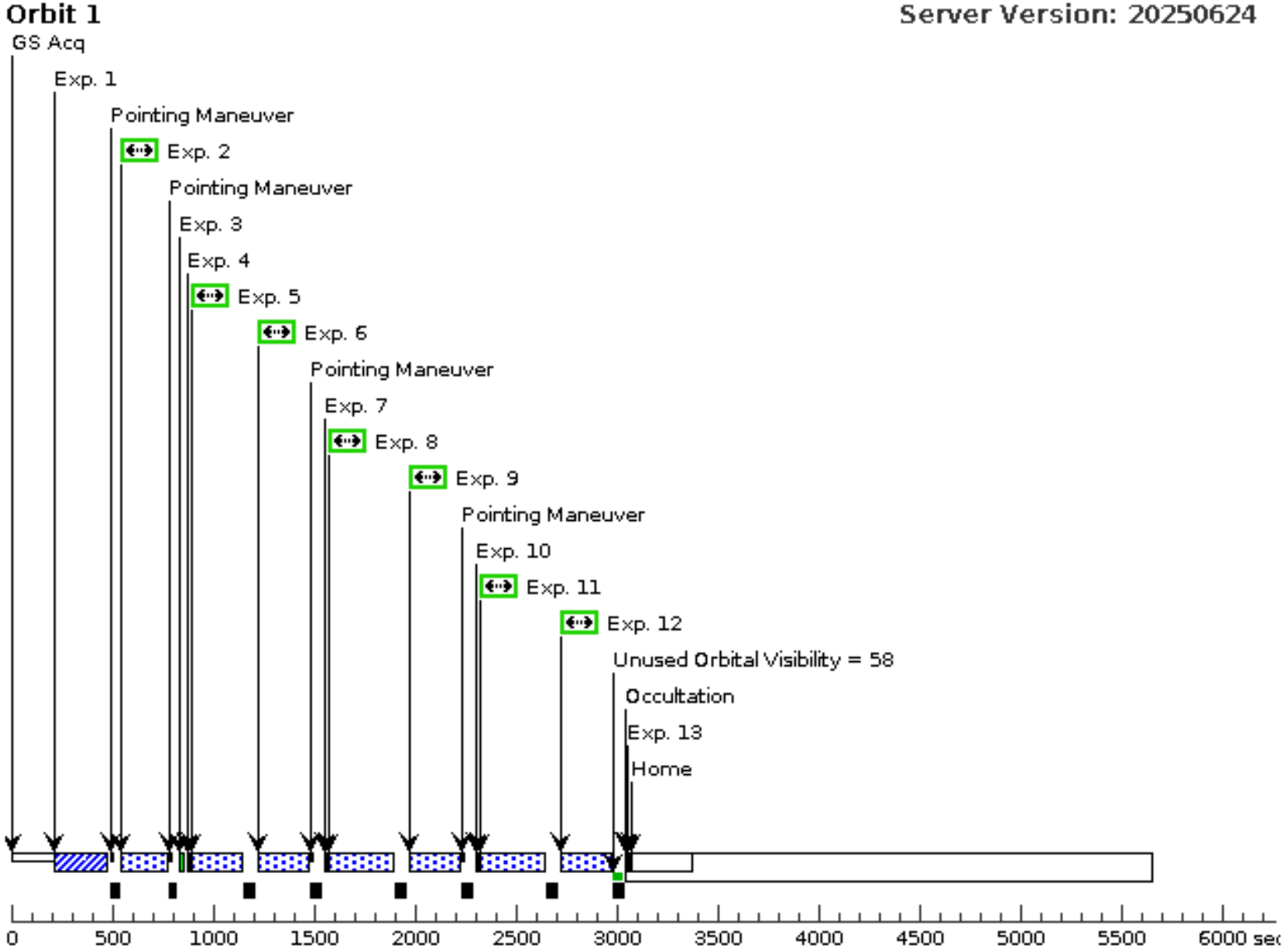
SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=STAR
Description=[DB]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	WD0308 ACQ/IMAGE (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Initial target acquisition.									
2	G160M Initialization Exposure (123456789)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	LIFETIME-POS=LP6; FLASH=NO; WAVECAL=NO; FP-POS=2; BUFFER-TIME=80			10 Secs (10 Secs) *[==>]*	***[1]***
Comments: A quick LP6 exposure to initialize the spectrograph for G160M/1623 observations. This also raises the HV to the maximum values for both segments. HV will need to be lowered in a separate exposure.									
3	Adjust HV to LP7 values (163/163)	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QASISTATES COS FUV HVNOM HVNOM; QESIPARM ENDC TSA 163; QESIPARM ENDC TSB 163; QESIPARM SEGMENT AB		39 Secs (39 Secs) *[==>]*	***[1]***
Comments: Adjusting the HV values from the LP6 to LP7 values. *Since the HV is not increasing, exposure time = 39 seconds.*									
4	Move Aperture to LP7 Position	NONE	COS, ALIGN/APER		XAPER=-54; YAPER=0			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Need to move the LP6 G160M/1623 spectrum up by ~ 30 pixels. *-1.806 steps/pixel * 30 pixels = -54 steps*									
5	G160M/1623; FP-POS = 2; Nominal LP7 position (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,2.58		200 Secs (200 Secs) *[==>]*	***[1]***
6	G160M/1623; FP-POS = 4; Nominal LP7 position (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,2.58		200 Secs (200 Secs) *[==>]*	***[1]***

7	Move Aperture to LP7 Position + 0.76 arc sec	NONE	COS, ALIGN/APER		XAPER=-70; YAPER=0	QESIPARM XSTEPS -16	0 Secs (0 Secs) *[==>]*		***[1]***
Comments: Aperture was previously moved +30 pixels in the cross dispersion direction. Now need to move the aperture up an additional 0.76". *-21 steps/" * 0.76" = -16 steps* *However, XAPER needs to move -54 + -16 steps = -70 steps (i.e., 70 steps from the initial LP6 position)* *XSTEPS = -16 in Qesiparms.*									
8	G160M/1623; FP-POS = 2; LP7 + 0.76 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,3.34	200 Secs (200 Secs) *[==>]*		***[1]***
9	G160M/1623; FP-POS = 4; LP7 + 0.76 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,3.34	200 Secs (200 Secs) *[==>]*		***[1]***
10	Move Aperture to LP7 Position + 1.52 arc sec	NONE	COS, ALIGN/APER		XAPER=-86; YAPER=0	QESIPARM XSTEPS -16	0 Secs (0 Secs) *[==>]*		***[1]***
Comments: Moving the aperture an additional -16 steps to be +1.52" above the nominal LP7 position. *Moving from +0.76" to +1.52" requires -16 steps.* *However, XAPER needs to move -54 (LP6 --> LP7) + -16 (LP7 --> LP7 + 0.76") + -16 (LP7 + 0.76" --> LP7 + 1.52") steps = -86 steps (i.e., 86 steps from the initial LP6 position)* *XSTEPS = -16 in Qesiparms.*									
11	G160M/1623; FP-POS = 2; LP7 + 1.52 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,4.10	200 Secs (200 Secs) *[==>]*		***[1]***
12	G160M/1623; FP-POS = 4; LP7 + 1.52 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,4.10	200 Secs (200 Secs) *[==>]*		***[1]***
13	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER		XAPER=0	QESIPARM XSTEPS 86	0 Secs (0 Secs) *[==>]*		***[1]***
Comments: Return the aperture block to its nominal starting point (LP6). Since the aperture block moved a total of -86 steps, Qesiparms XSTEPS = +86 steps									

Orbit Structure



Visit

Proposal 18205, External LP7 gain map; G130M - before HV increase (7B) Mon Oct 06 12:00:21 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS, COS/FUV, COS/NUV

Special Requirements: ON HOLD

Comments: This visit collects data at LP7. It uses the HV values appropriate for LP7 (163/163).

On Hold Comments: Only needed if HV changed during Cycle 33

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9178 (47.4496575d)	Proper Motion RA: 149.261 mas/yr	V=14.14	Reference Frame: ICRS
	Alt Name1: WG-7	Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 66.806 mas/yr		
		Equinox: J2000	Parallax: 0.0201813"		
			Epoch of Position: 2000		

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=STAR
Description=[DB]
Extended=NO

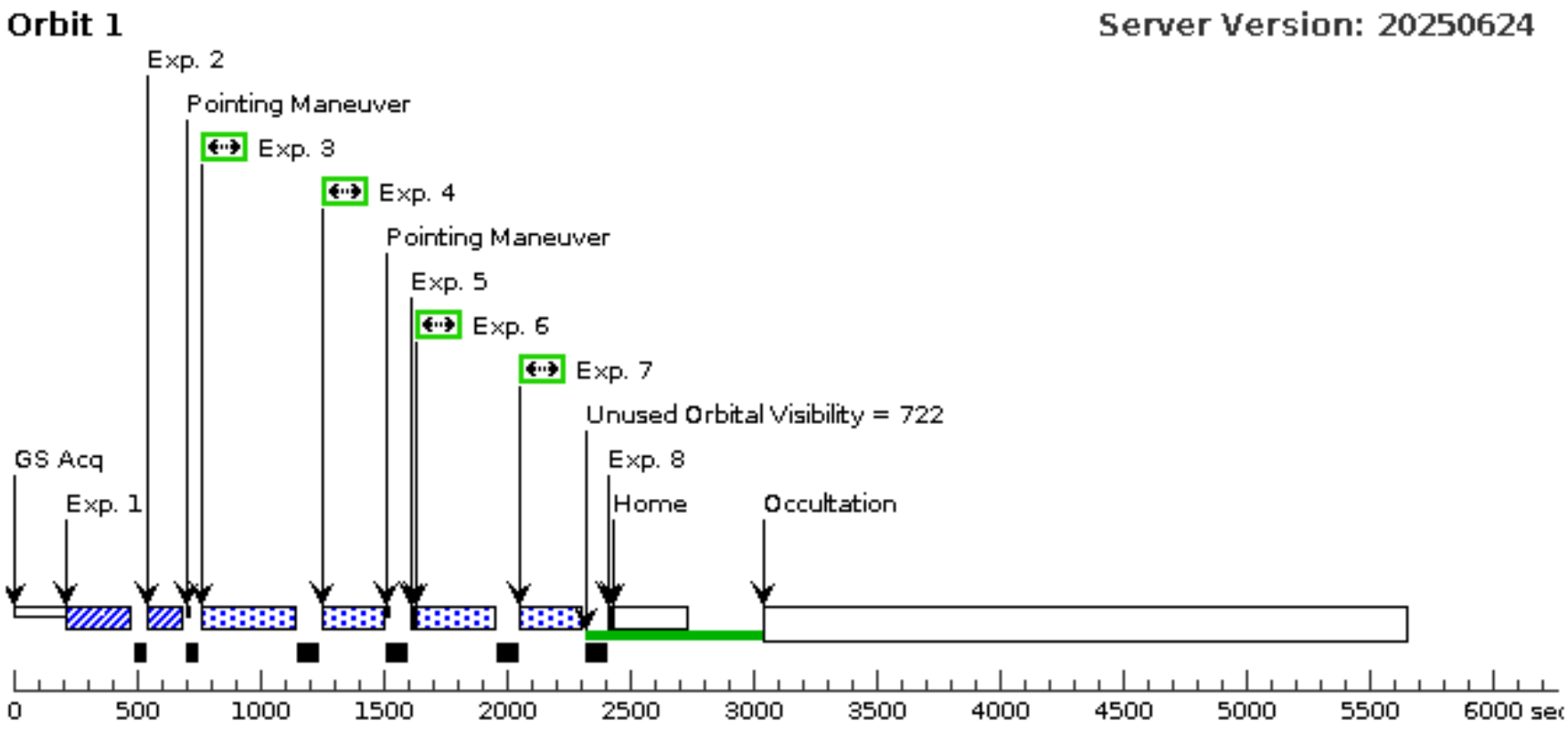
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	WD0308 ACQ/IMAGE (1st acq) (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Initial target acquisition.									
2	WD0308 ACQ/IMAGE (2nd acq) (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Second target acquisition to guard against an acquisition failure.									
3	G130M/1222 FP-POS = 1; Nominal LP7 position (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=1; FLASH=NO; WAVECAL=NO			200 Secs (200 Secs) *[==>]*	***[1]***
4	G130M/1222 FP-POS = 3; Nominal LP7 position (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=3; FLASH=NO; WAVECAL=NO			200 Secs (200 Secs) *[==>]*	***[1]***
5	Move aperture +0.76 arc sec	NONE	COS, ALIGN/APER		XAPER=-16; YAPER=0			0.0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Aperture is moved +0.76" from the nominal LP7 position. *-21 steps/" * 0.76" = -16 steps* *XAPER = -16*									
6	G130M/1222 FP-POS = 1; LP7 position + 0.76 arc sec (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=1; FLASH=NO; WAVECAL=NO	POS TARG null,0.76		200 Secs (200 Secs) *[==>]*	***[1]***
7	G130M/1222 FP-POS = 3; LP7 position + 0.76 arc sec (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=3; FLASH=NO; WAVECAL=NO	POS TARG null,0.76		200 Secs (200 Secs) *[==>]*	***[1]***

	8	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER	XAPER=0	QESIPARM XSTEP S 16	0 Secs (0 Secs) [==>]

Comments: Return the aperture block to its nominal starting point (LP6). Since the aperture block moved a total of -16 steps, Qesiparms XSTEPS = +16 steps

Orbit Structure



Visit

Proposal 18205, External LP7 gain map; G160M - after HV increase (7C) Mon Oct 06 12:00:21 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: S/C, COS, COS/FUV, COS/NUV

Special Requirements: ON HOLD

Comments: This visit collects data at LP7. It uses the HV values appropriate for LP7 (163/163).

On Hold Comments: Only needed if HV changed during Cycle 33
HV Values will have to be updated before execution!

Diagnostics

(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT
(External LP7 gain map; G160M - after HV increase (7C)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9178 (47.4496575d)	Proper Motion RA: 149.261 mas/yr	V=14.14	Reference Frame: ICRS
	Alt Name1: WG-7	Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 66.806 mas/yr		
		Equinox: J2000	Parallax: 0.0201813"		
			Epoch of Position: 2000		

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

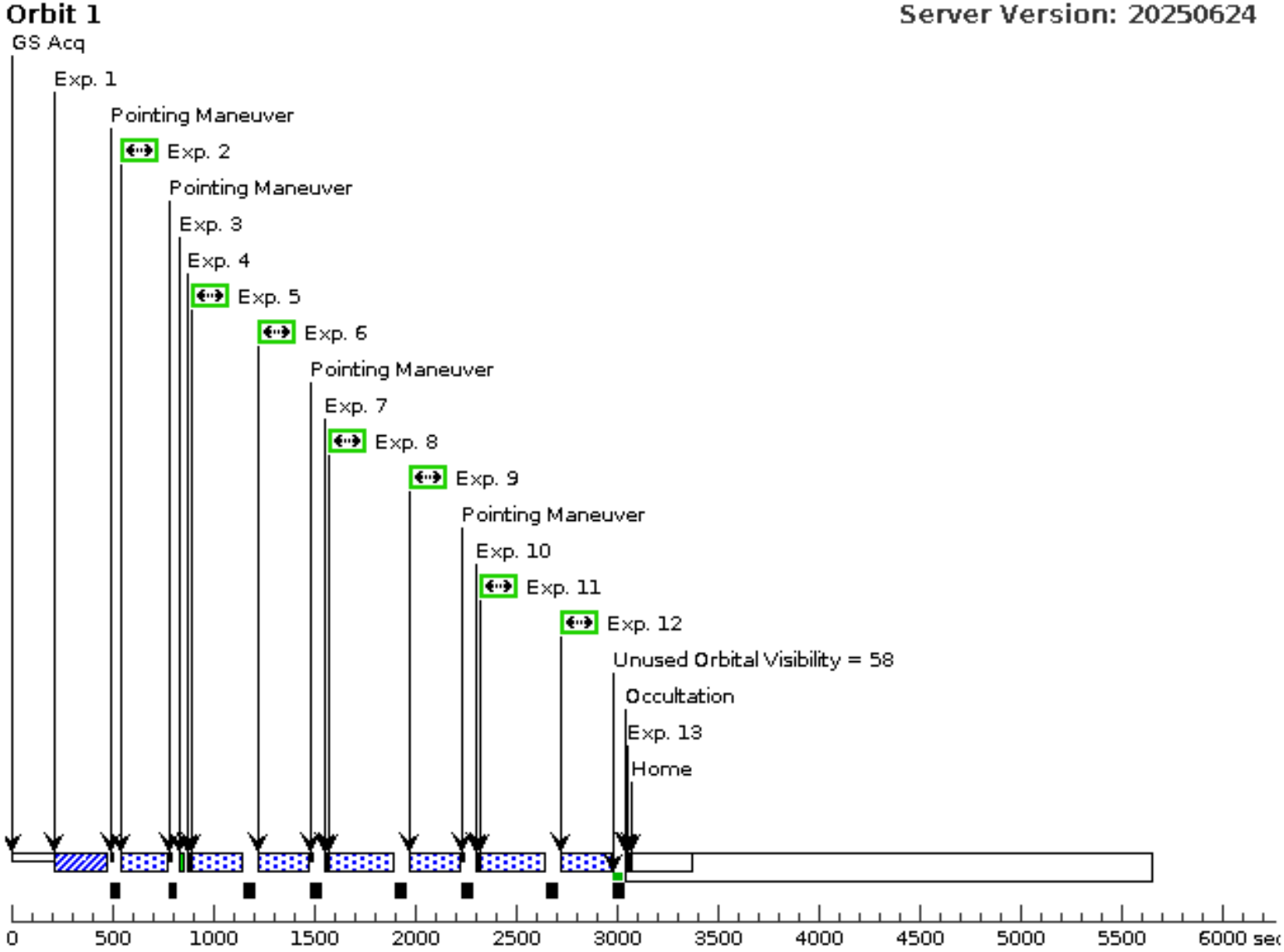
SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=STAR
Description=[DB]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	WD0308 ACQ/IMAGE (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Initial target acquisition.									
2	G160M Initialization Exposure (123456789)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	LIFETIME-POS=LP6; FLASH=NO; WAVECAL=NO; FP-POS=2; BUFFER-TIME=80			10 Secs (10 Secs) *[==>]*	***[1]***
Comments: A quick LP6 exposure to initialize the spectrograph for G160M/1623 observations. This also raises the HV to the maximum values for both segments. HV will need to be lowered in a separate exposure.									
3	Adjust HV to LP7 values (163/163)	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QASISTATES COS FUV HVNOM HVNOM; QESIPARM ENDCTSA 163; QESIPARM ENDCTSB 163; QESIPARM SEGMENT AB		39 Secs (39 Secs) *[==>]*	***[1]***
Comments: Adjusting the HV values from the LP6 to LP7 values. *Since the HV is not increasing, exposure time = 39 seconds.*									
4	Move Aperture to LP7 Position	NONE	COS, ALIGN/APER		XAPER=-54; YAPER=0			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Need to move the LP6 G160M/1623 spectrum up by ~ 30 pixels. *-1.806 steps/pixel * 30 pixels = -54 steps*									
5	G160M/1623; FP-POS = 2; Nominal LP7 position (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,2.58		200 Secs (200 Secs) *[==>]*	***[1]***
6	G160M/1623; FP-POS = 4; Nominal LP7 position (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,2.58		200 Secs (200 Secs) *[==>]*	***[1]***

7	Move Aperture to LP7 Position + 0.76 arc sec	NONE	COS, ALIGN/APER		XAPER=-70; YAPER=0	QESIPARM XSTEPS -16	0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Aperture was previously moved +30 pixels in the cross dispersion direction. Now need to move the aperture up an additional 0.76". *-21 steps/" * 0.76" = -16 steps* *However, XAPER needs to move -54 + -16 steps = -70 steps (i.e., 70 steps from the initial LP6 position)* *XSTEPS = -16 in Qesiparms.*								
8	G160M/1623; FP-POS = 2; LP7 + 0.76 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,3.34	200 Secs (200 Secs) *[==>]*	***[1]***
9	G160M/1623; FP-POS = 4; LP7 + 0.76 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,3.34	200 Secs (200 Secs) *[==>]*	***[1]***
10	Move Aperture to LP7 Position + 1.52 arc sec	NONE	COS, ALIGN/APER		XAPER=-86; YAPER=0	QESIPARM XSTEPS -16	0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Moving the aperture an additional -16 steps to be +1.52" above the nominal LP7 position. *Moving from +0.76" to +1.52" requires -16 steps.* *However, XAPER needs to move -54 (LP6 --> LP7) + -16 (LP7 --> LP7 + 0.76") + -16 (LP7 + 0.76" --> LP7 + 1.52") steps = -86 steps (i.e., 86 steps from the initial LP6 position)* *XSTEPS = -16 in Qesiparms.*								
11	G160M/1623; FP-POS = 2; LP7 + 1.52 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=2	POS TARG null,4.10	200 Secs (200 Secs) *[==>]*	***[1]***
12	G160M/1623; FP-POS = 4; LP7 + 1.52 arc sec (COS.sp.2070080)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=506; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP6; FP-POS=4	POS TARG null,4.10	200 Secs (200 Secs) *[==>]*	***[1]***
13	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER		XAPER=0	QESIPARM XSTEPS 86	0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Return the aperture block to its nominal starting point (LP6). Since the aperture block moved a total of -86 steps, Qesiparms XSTEPS = +86 steps								

Orbit Structure



Visit

Proposal 18205, External LP7 gain map; G130M - after HV increase (7D) Mon Oct 06 12:00:21 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS, COS/FUV, COS/NUV

Special Requirements: ON HOLD

Comments: This visit collects data at LP7. It uses the HV values appropriate for LP7 (163/163).

On Hold Comments: Only needed if HV changed during Cycle 33
HV Values will have to be updated before execution!

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9178 (47.4496575d)	Proper Motion RA: 149.261 mas/yr	V=14.14	Reference Frame: ICRS
	Alt Name1: WG-7	Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 66.806 mas/yr		
		Equinox: J2000	Parallax: 0.0201813"		
			Epoch of Position: 2000		

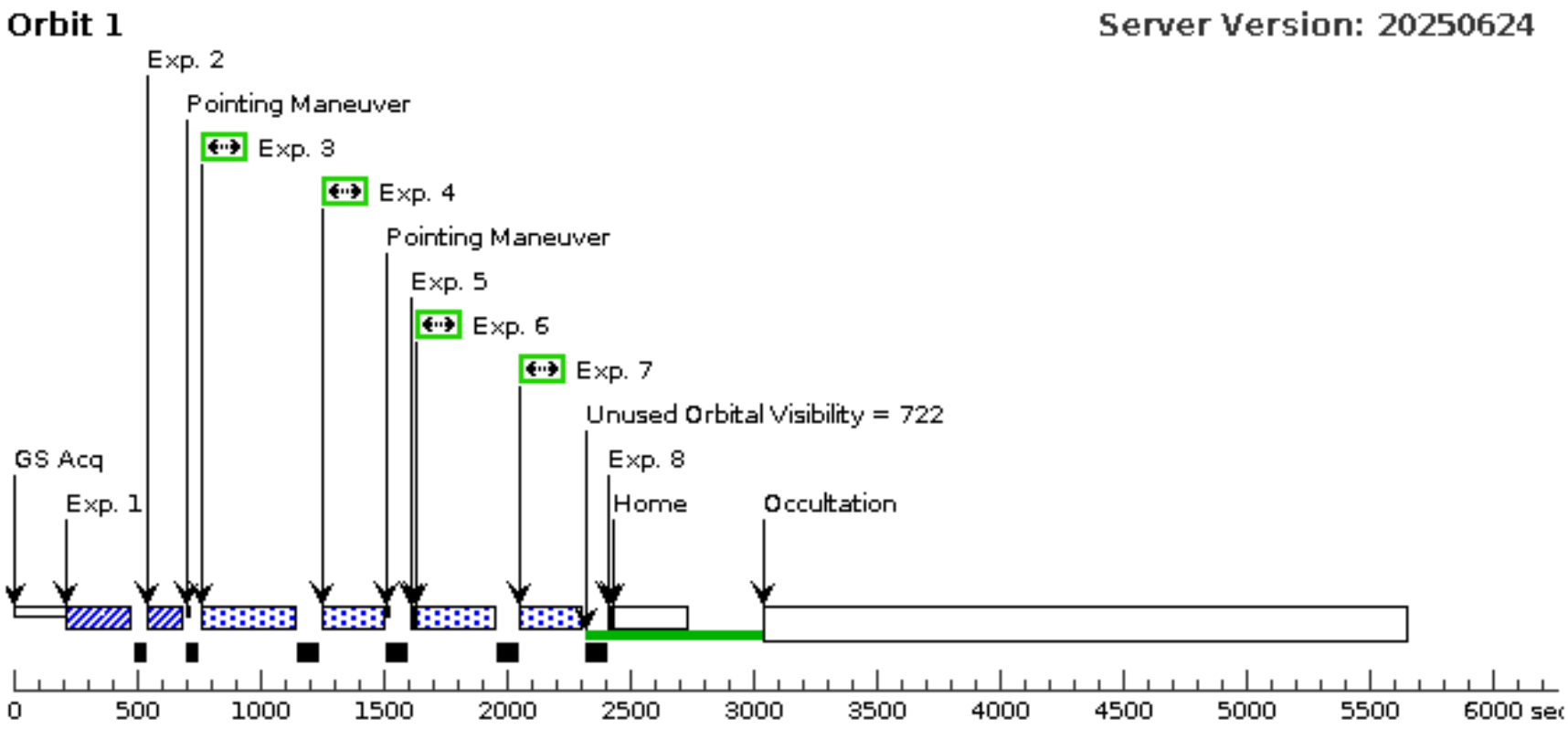
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

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=STAR
Description=[DB]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	WD0308 ACQ/IMAGE (1st acq) (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Initial target acquisition.									
2	WD0308 ACQ/IMAGE (2nd acq) (COS.ta.2070078)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				20 Secs (20 Secs) *[==>]*	***[1]***
Comments: Second target acquisition to guard against an acquisition failure.									
3	G130M/1222 FP-POS = 1; Nominal LP7 position (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=1; FLASH=NO; WAVECAL=NO			200 Secs (200 Secs) *[==>]*	***[1]***
4	G130M/1222 FP-POS = 3; Nominal LP7 position (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=3; FLASH=NO; WAVECAL=NO			200 Secs (200 Secs) *[==>]*	***[1]***
5	Move aperture +0.76 arc sec	NONE	COS, ALIGN/APER		XAPER=-16; YAPER=0			0.0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Aperture is moved +0.76" from the nominal LP7 position. *-21 steps/" * 0.76" = -16 steps* *XAPER = -16*									
6	G130M/1222 FP-POS = 1; LP7 position + 0.76 arc sec (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=1; FLASH=NO; WAVECAL=NO	POS TARG null,0.76		200 Secs (200 Secs) *[==>]*	***[1]***
7	G130M/1222 FP-POS = 3; LP7 position + 0.76 arc sec (COS.sp.2070081)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=261; LIFETIME-POS=LP7; FP-POS=3; FLASH=NO; WAVECAL=NO	POS TARG null,0.76		200 Secs (200 Secs) *[==>]*	***[1]***

	8	Return Aperture to Nominal Position	NONE	COS, ALIGN/APER	XAPER=0	QESIPARM XSTEP S 16	0 Secs (0 Secs) [==>]

Comments: Return the aperture block to its nominal starting point (LP6). Since the aperture block moved a total of -16 steps, Qesiparms XSTEPS = +16 steps

Orbit Structure