# 18129 - Intersection of Extremes: Probing the Wind of BP Cru

Cycle: 33, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

**INVESTIGATORS**


| *Name* | *Institution* |
|---|---|
| **Matheus Bernini Peron (PI) (ESA Member) (Contact)** | **Astronomisches Rechen-Institut Heidelberg** |
| Dr. Andreas Sander (CoI) (ESA Member) (CoPI) | Astronomisches Rechen-Institut Heidelberg |
| Mr. Joris Josiek (CoI) (ESA Member) | Universitat Heidelberg |
| Elisa Clara Schosser (CoI) (ESA Member) | Universitat Heidelberg |
| Roel Lefever (CoI) (ESA Member) | Astronomisches Rechen-Institut Heidelberg |
| Mr. Timothy N Parsons (CoI) (ESA Member) | University College London |
| Dr. Varsha Ramachandran (CoI) (ESA Member) | Universitat Heidelberg |
| Dr. Gemma Gonzalez-Tora (CoI) (ESA Member) | Astronomisches Rechen-Institut Heidelberg |
| Dr. Daniel Pauli (CoI) (ESA Member) | Institute of Astronomy, KU Leuven |
| Dr. Wolf-Rainer Hamann (CoI) (ESA Member) | Universitat Potsdam |
| Dr. Rainer Hainich (CoI) (ESA Member) | Universitat Potsdam |
| Prof. Lidia Oskinova (CoI) (ESA Member) | Universitat Potsdam |
| Dr. Helge Todt (CoI) (ESA Member) | Universitat Potsdam |
| Ms. Sabela Reyero Serantes (CoI) (ESA Member) | Universitat Potsdam |


**VISITS**

| *Visit* | *Targets used in Visit* | *Configurations used in Visit* | *Orbits Used* | *Last Orbit Planner Run* | *OP Current with Visit?* |
|---|---|---|---|---|---|
| 01 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:16.0 | yes |

| *Visit* | *Targets used in Visit* | *Configurations used in Visit* | *Orbits Used* | *Last Orbit Planner Run* | *OP Current with Visit?* |
|---|---|---|---|---|---|
| 05 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:17.0 | yes |
| 06 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:17.0 | yes |
| 07 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:18.0 | yes |
| 08 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:19.0 | yes |
| 09 | (1) V-BP-CRU | COS/FUV<br>COS/NUV | 2 | 17-Sep-2025 11:00:19.0 | yes |
| 04 | (1) V-BP-CRU | COS/NUV | 3 | 17-Sep-2025 11:00:20.0 | yes |

15 Total Orbits Used

**ABSTRACT**

Massive stars are frequently found in binary or multiple systems. Within the diverse types of multiples, high-mass X-ray binaries (HMXBs) are a particularly intriguing class of objects. They are characterized by strong X-ray emissions due to the accretion of material from a massive donor star onto a compact remnant. Their analysis offers unique insights into the physics of stellar winds and binary evolution. Using the unique capabilities of the HST, we aim to conduct a pilot and pioneering study of BP Cru, a HMXB system whose mass donor is a B hypergiant (BHG) - a B-type star close to the Eddington-limit with hybrid characteristics of "typical" B supergiants and luminous blue variables. Marking a crucial intersection among the evolution of massive stars, probing the wind of BP Cru provides a unique opportunity to investigate the nature of BHGs as well as wind-fed HMXBs. Obtaining the first high-quality UV spectra of this singular target and combining them with archival data for other spectral regions as well as state-of-the-art atmosphere models, we will (1) shed light into the evolutionary status of BP Cru, (2) measure the wind properties, and (3) constrain the conditions for wind accretion by the compact remnant, an aspect still highly uncertain in HMXBs. Additionally, this study will also boost our knowledge on radiatively driven winds for cooler regimes by evaluating the conditions and mechanisms for wind launching.

**OBSERVING DESCRIPTION**

We propose to observe BP Cru using HST/COS spectroscopy within 15 orbits, aiming for a S/N of ~10 in the FUV range using the G140L/1280 grating and of ~35 in the NUV range using G230L/2950. While medium-resolution settings would be ideal for obtaining detailed wind signatures, the

reddening of the target makes this unfeasible. Yet, the COS low resolution gratings will provide spectra comparable with IUE high dispersion data -- which proved to be sufficient to obtain detailed wind properties of, for example, the less extreme BHGs zet1 Sco and HD190603 (Clark et al. 2012). We calculated detailed synthetic spectra using available optical spectra and a state-of-the-art stellar atmosphere code (e.g. CMFGEN) to estimate the necessary exposure time. The UV data will contain major wind lines of different ionization stages (e.g., Si IV 1398-1402 Angstroms, C IV 1548-51 Angstroms, Mg II  2790-2805 Angstroms, dee Fig. 1), which, as illustrated in the figure, some are very sensitive to the X-ray emission in the wind. This will enable us to perform a spectral analysis that will reveal the detailed structure of a BHG wind and HMXB donor. While the optical lines show some wind features, many wind-driving ions, as well as the true wind velocity (and thus also the mass-loss rate), can only be determined from the spectral lines found in the UV range.
Our observations will be performed in TIME-TAG mode. Wherever possible, we will use all four FP-POS positions for each target to enhance the lifetime of the detector. Following the new COS Lifetime Usage Policy, the number of science counts per pixel does not exceed the 1% count limit (270 counts per second) per LP.

The X-ray emission increases considerably moments before the periastron (at phi ~ 0.95) and the apastron (phi ~ 0.50). We expect that the UV spectrum is affected by the amount of X-rays present in the wind. Thus, if the observations happen in multiple random orbital phases (which might include these special phases), spectra whose morphology differ considerably might be added.
With the proposed data, we aim to quantify the general atmospheric properties of BP Cru. Therefore, we need spectra that will not be (strongly) contaminated by such transient events. Hence, we require that all of our observations are taken between  phi = 0.65 and phi = 0.85 to  ensure the neutron star is far from the apsides. These phase constraints correspond to a time window of around 8 days during each period

## Visit

**Proposal 18129, Visit 01, implementation** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 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 |
|---|---|---|---|---|---|
| (1) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

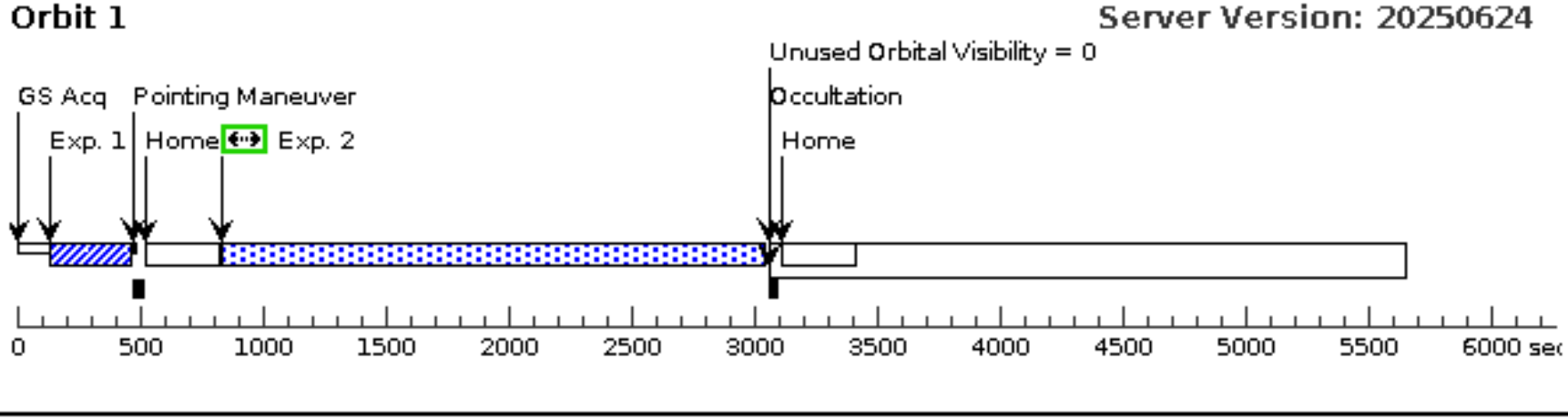
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

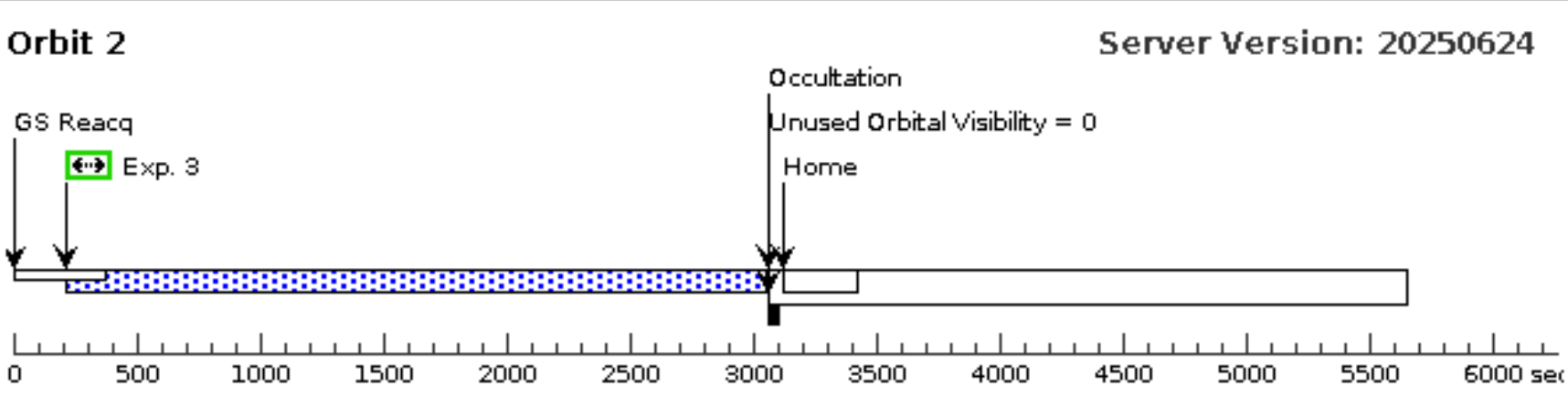
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=1; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=2; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 05** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 05) 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) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

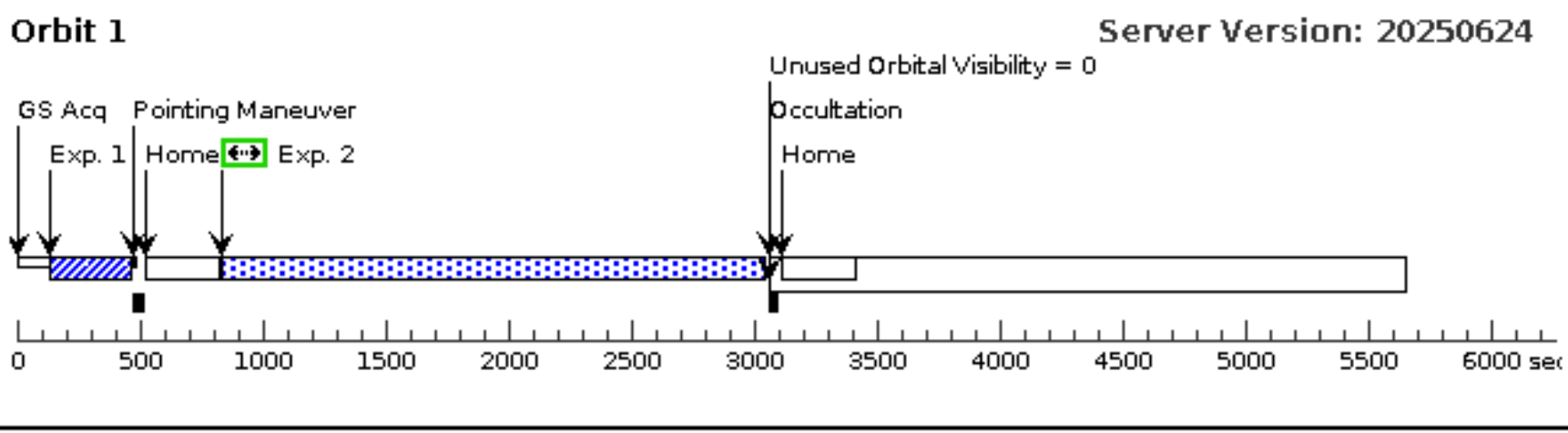
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

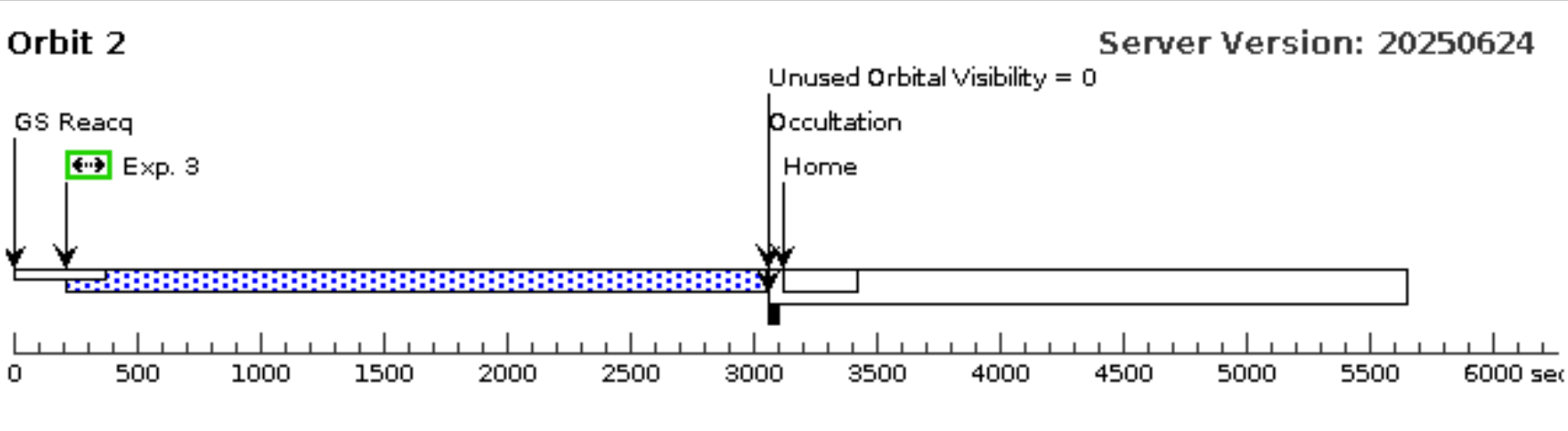
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=3; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=4; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 06** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 06) 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) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

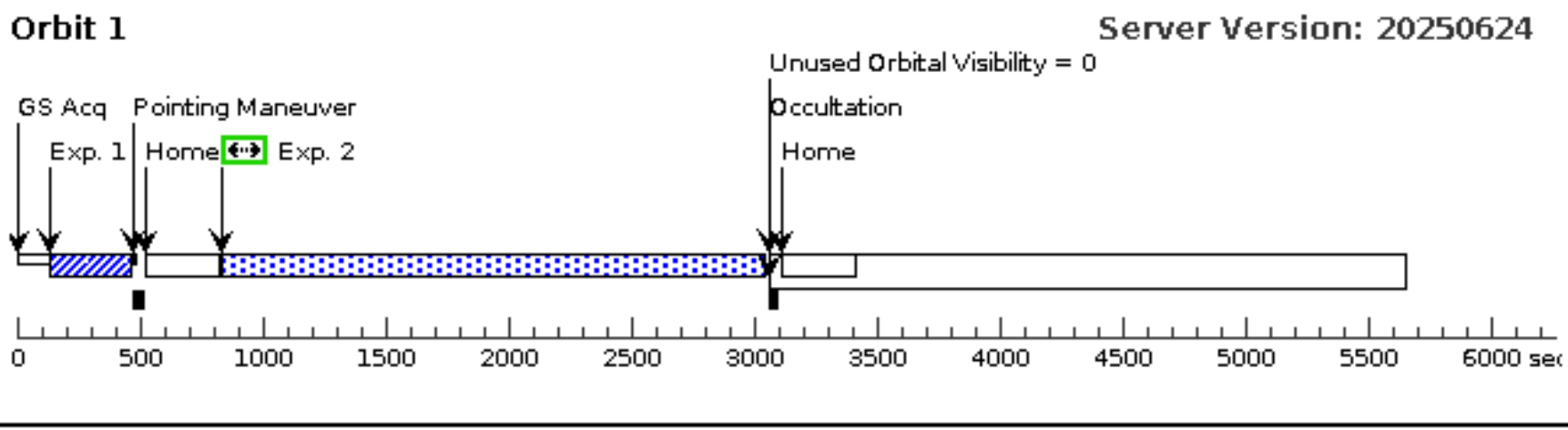
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

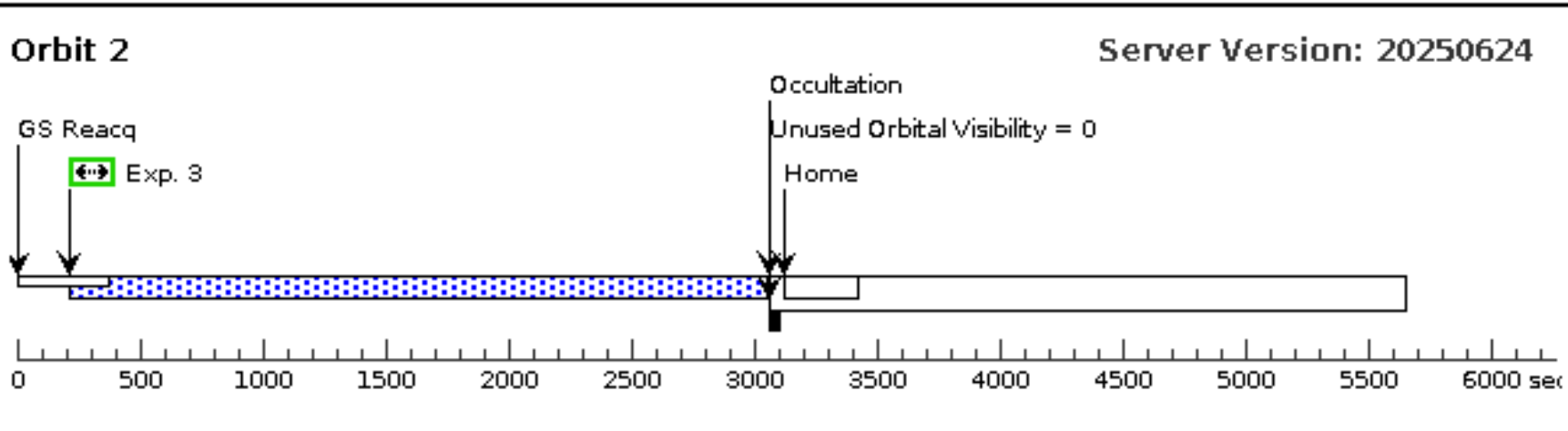
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=1; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=2; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 07** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 07) 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) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

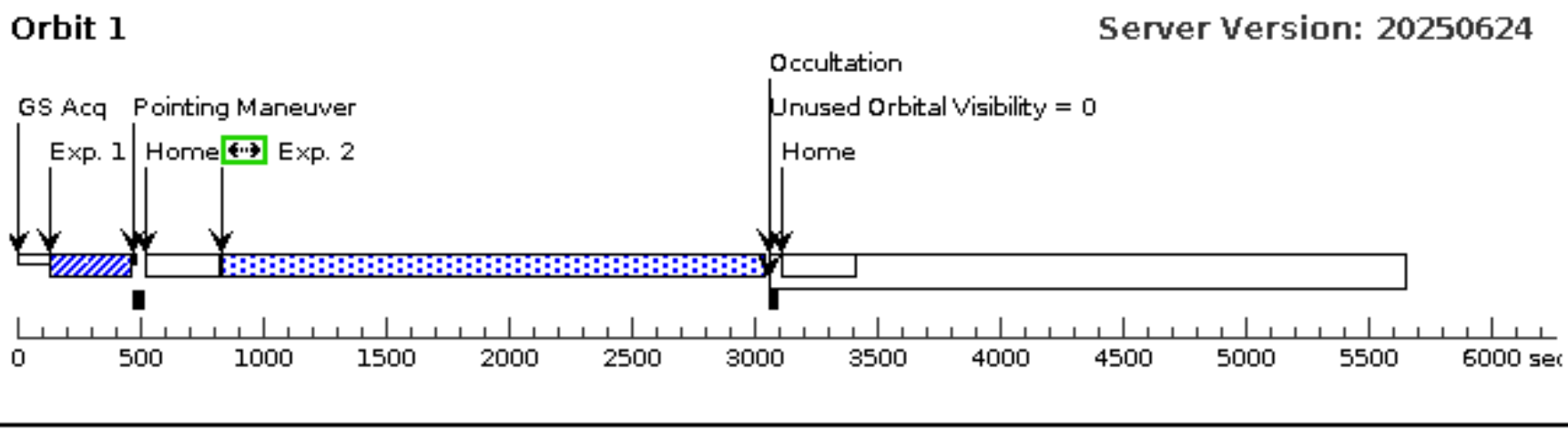
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

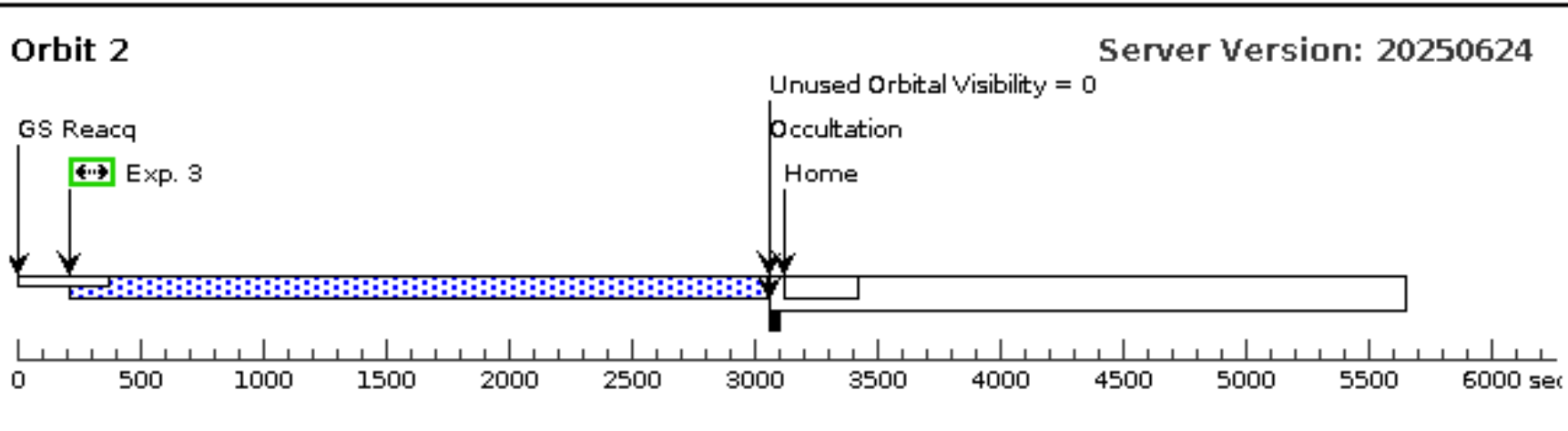
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=3; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=4; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 08** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 08) 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) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

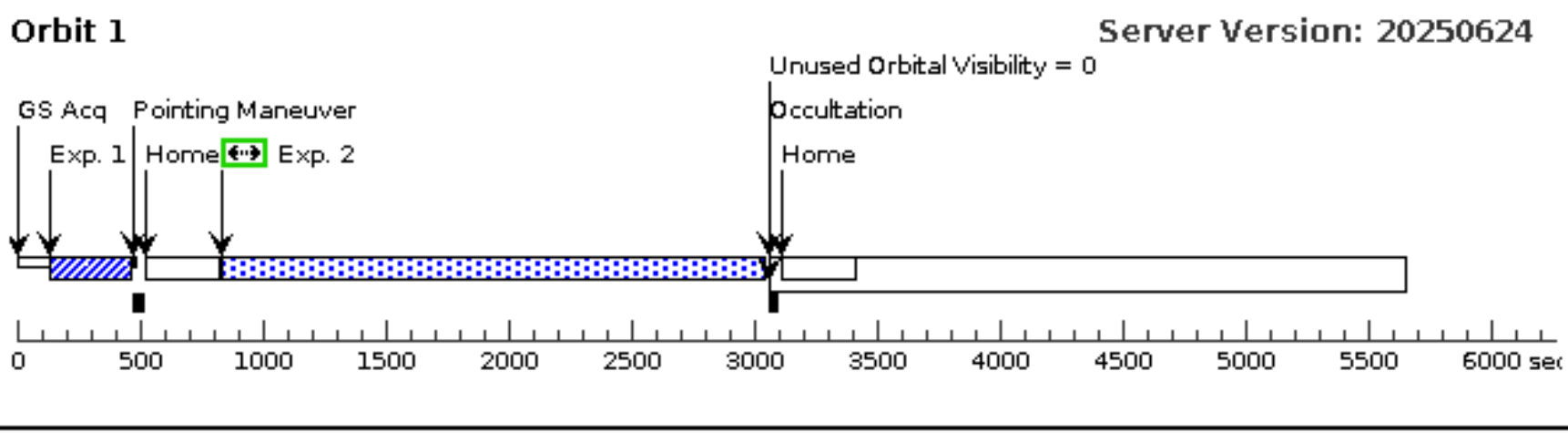
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

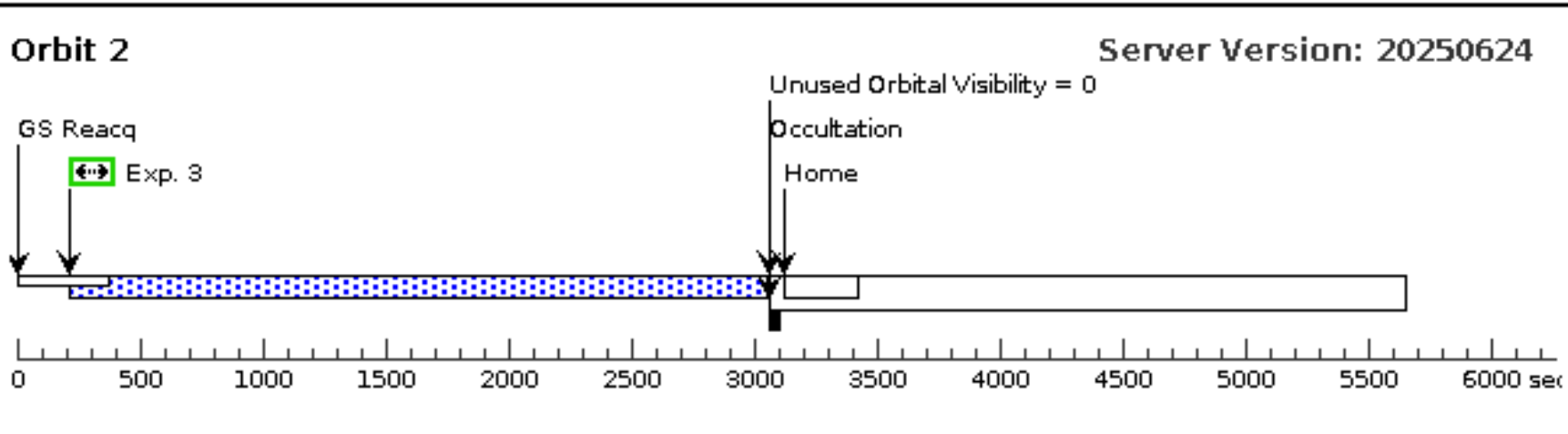
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=1; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=2; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 09** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Diagnostics

(Visit 09) 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) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

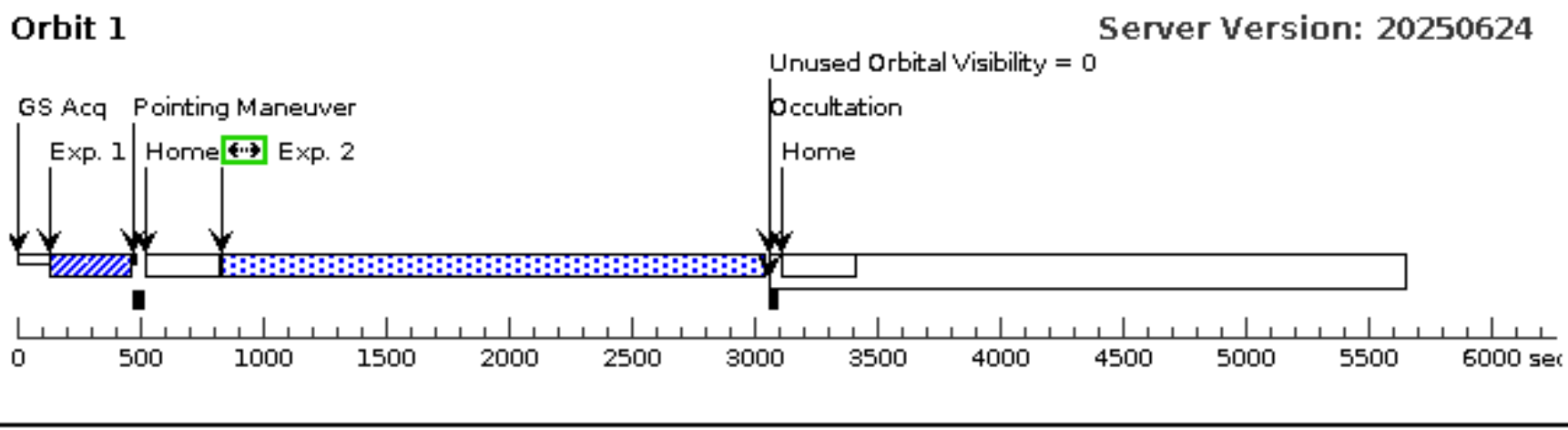
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

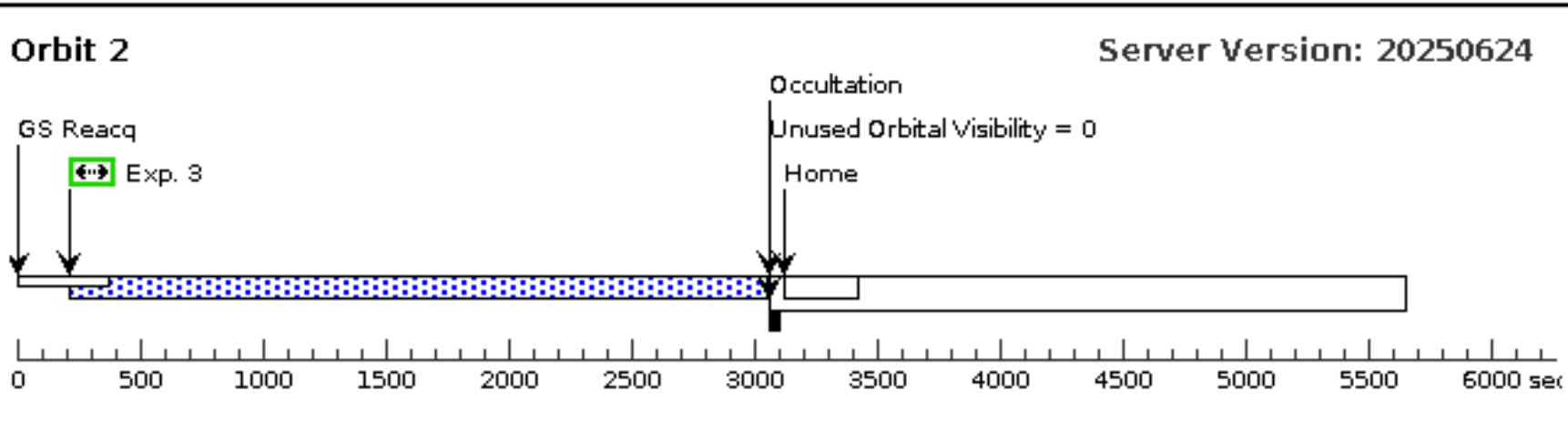
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure A (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | FUV expo 01 (COS.sp.2027041) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=3; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 1990 Secs (1990 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | FUV expo 02 (COS.sp.2023648) | (1) V-BP-CRU | COS/FUV, TIME-TAG, PSA | G140L 1280 A | FP-POS=4; BUFFER-TIME=9850 | PHASE 0.2 TO 0.7 | | 2618 Secs (2618 Secs)<br>*[==>]* | <br>***[2]*** |

Orbit Structure



## Visit

**Proposal 18129, Visit 04, implementation** Wed Sep 17 15:00:21 GMT 2025

**Diagnostic Status: No Diagnostics**

Scientific Instruments: COS/NUV

Special Requirements: Period 41.5 D AND ZERO-PHASE HJD2453531.65

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | V-BP-CRU | RA: 12 26 37.5605 (186.6565021d)<br>Dec: -62 46 13.26 (-62.77035d)<br>Equinox: J2000 | Proper Motion RA: -5.227 mas/yr<br>Proper Motion Dec: -2.0710000626422698 mas/yr<br>Parallax: 2.5059999999999997E-4"<br>Epoch of Position: 2000 | V=10.803 | Reference Frame: ICRS |

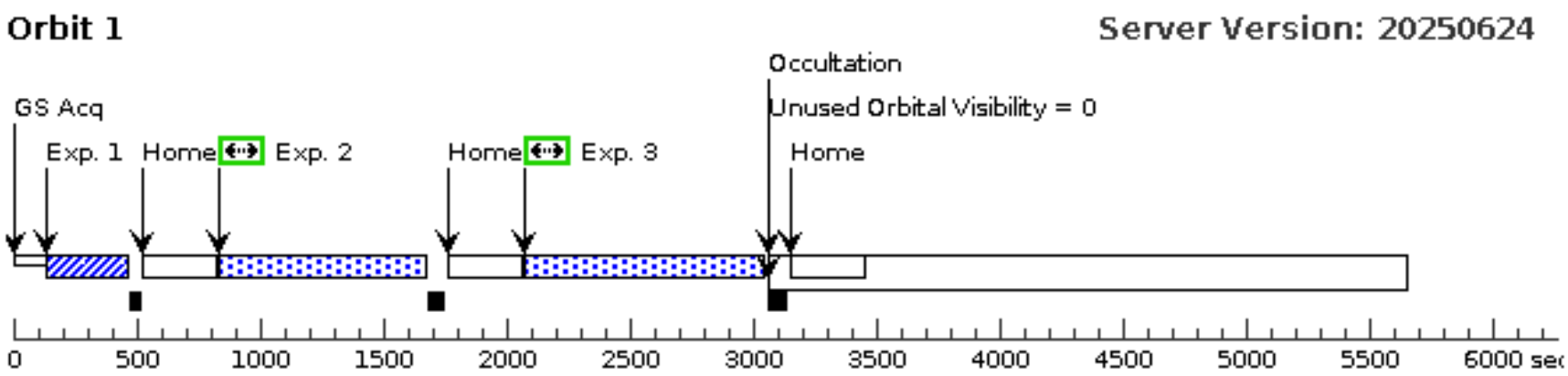
*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*

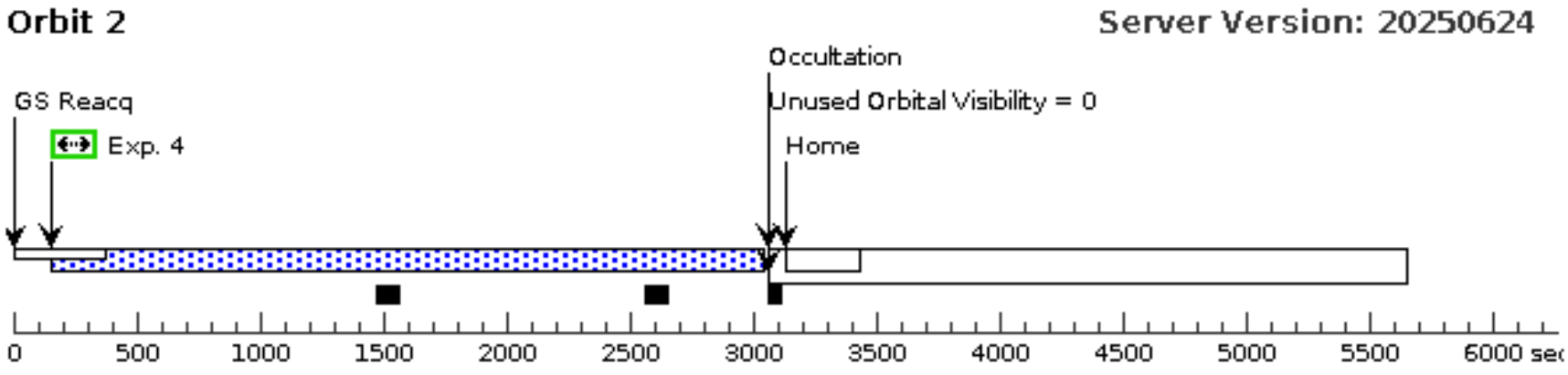
*SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.*
*Category=STAR*
*Description=[B0-B2 III-I]*
*Extended=NO*

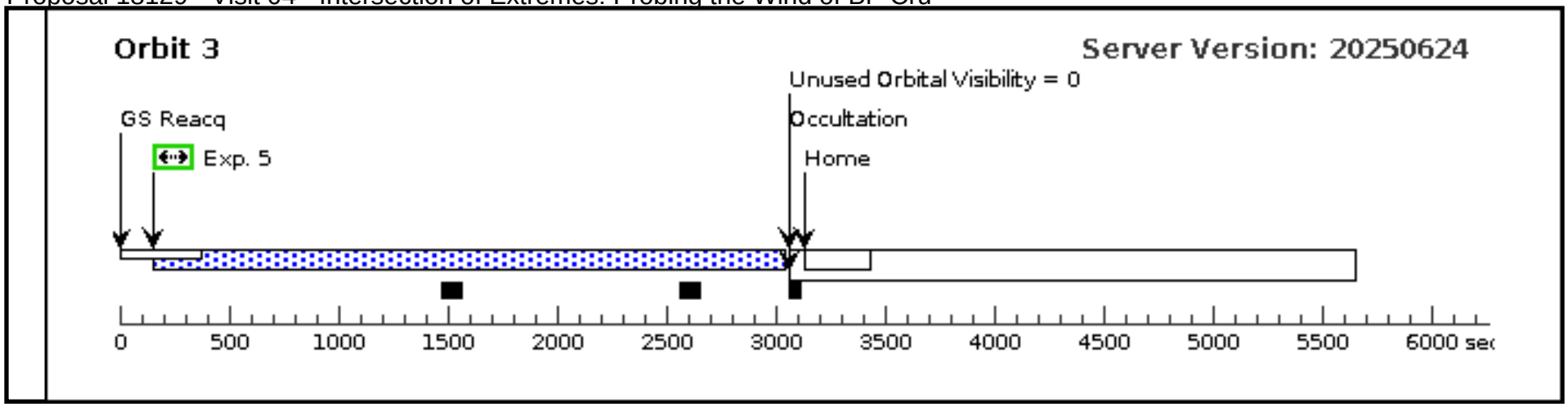
## Exposures

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TA exposure D (COS.ta.2027040) | (1) V-BP-CRU | COS/NUV, ACQ/IMAGE, PSA | MIRRORB | | PHASE 0.2 TO 0.7 | | 10 Secs (10 Secs)<br>*[==>]* | <br>***[1]*** |
| 2 | NUV expo 1 (COS.sp.2024335) | (1) V-BP-CRU | COS/NUV, TIME-TAG, PSA | G230L 2635 A | FP-POS=1; BUFFER-TIME=1164 | PHASE 0.2 TO 0.8 | | 600 Secs (600 Secs)<br>*[==>]* | <br>***[1]*** |
| 3 | NUV expo 2 (COS.sp.2027045) | (1) V-BP-CRU | COS/NUV, TIME-TAG, PSA | G230L 2635 A | FP-POS=2; BUFFER-TIME=1164 | PHASE 0.2 TO 0.8 | | 738 Secs (738 Secs)<br>*[==>]* | <br>***[1]*** |
| 4 | NUV expo 3 (COS.sp.2024337) | (1) V-BP-CRU | COS/NUV, TIME-TAG, PSA | G230L 2950 A | FP-POS=3; BUFFER-TIME=1090 | PHASE 0.2 TO 0.8 | | 2655 Secs (2655 Secs)<br>*[==>]* | <br>***[2]*** |
| 5 | NUV expo 4 (COS.sp.2024337) | (1) V-BP-CRU | COS/NUV, TIME-TAG, PSA | G230L 2950 A | FP-POS=4; BUFFER-TIME=1090 | PHASE 0.2 TO 0.7 | | 2655 Secs (2655 Secs)<br>*[==>]* | <br>***[3]*** |

Orbit Structure




Orbit 3
Server Version: 20250624
Unused Orbital Visibility = 0
GS Reacq
Occultation
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec