

16466 - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution

Cycle: 28, 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? |
|-------|-----------------------|------------------------------|-------------|------------------------|------------------------|
| 01 | (1) WD0308-565 | COS/FUV COS/NUV | 3 | 12-Mar-2021 09:01:16.0 | yes |
| 51 | (1) WD0308-565 | COS/FUV COS/NUV | 3 | 12-Mar-2021 09:01:18.0 | yes |
| 02 | (1) WD0308-565 | COS/FUV COS/NUV | 2 | 12-Mar-2021 09:01:20.0 | yes |
| 52 | (1) WD0308-565 | COS/FUV COS/NUV | 1 | 12-Mar-2021 09:01:21.0 | yes |

Proposal 16466 (STScI Edit Number: 5, Created: Friday, March 12, 2021 at 9:01:24 AM Eastern Standard Time) - Overview

| Visit | Targets used in Visit | Configurations used in Visit | Orbits Used | | OP Current with Visit? |
|-------|-----------------------|------------------------------|-------------|------------------------|------------------------|
| 03 | (1) WD0308-565 | COS/FUV COS/NUV | 2 | 12-Mar-2021 09:01:21.0 | yes |
| 04 | (1) WD0308-565 | COS/FUV COS/NUV | 2 | 12-Mar-2021 09:01:23.0 | yes |
| 05 | (1) WD0308-565 | COS/FUV COS/NUV | 1 | 12-Mar-2021 09:01:24.0 | yes |

14 Total Orbits Used

ABSTRACT

Observations of the spectrophotometric white dwarf standard star WD0308-565 will be obtained at all cenwaves that are moving to LP5, and G140L/800, which is moving to LP3. All FP-POS will be used for the observations except for G130M/1291/FUVB, for which only FP-POS=3, 4 will be used in order to comply with the COS2025 rules.

The data will be used to determine the 2D cross-dispersion spectral profiles and traces required to perform two-zone extraction, as well as the sensitivities and flat-fields for accurate flux calibration. Additionally, the data will be used to determine the spatial resolution of the detectors. The main requirement for this program is to achieve S/N of about 50 per resel, which is driven by the requirement for obtaining profiles that are sufficiently accurate that the contours can be located such that the enclosed flux errors are less than 1%. This program ties in with the FUV spectroscopic sensitivity monitoring program at LP4 during which near-contemporaneous observations at the new LPs will be obtained to monitor any rapid evolution in the gain.

OBSERVING DESCRIPTION

Updates for LP5/LP3

LP4: Data were obtained at all cenwaves expect the blue modes at S/N ~50/resel

LP5/LP3: We will only need data at LP5 for G130M/1291,1300,1309,1318,1327 and at LP3 for G140L/800 (lower S/N requirement)

LP4: The main target was WD0308-565, but we also needed to observe GD71 to get better data for FUVA on G160M

LP5/LP3: We will use WD0308-565 for both LP5 and LP3, and we no longer need to use GD71

Proposal 16466 (STScI Edit Number: 5, Created: Friday, March 12, 2021 at 9:01:24 AM Eastern Standard Time) - Overview

LP4: All cenwaves were observed at all four FPPOS

LP5/LP3: We will need to abide by COS2025 rules for G130M at LP5, so G130M/1291/FUVB will be observed only at FPPOS=3 and 4; G140L/800 at LP3 can have all FPPOS

Two ACQ exposures have been specified for each visit to get the target more accurately centered.

For LP4, a special requirement for the Guide Stars, BASE1B3, was added by the PC to each ACQ exposure.

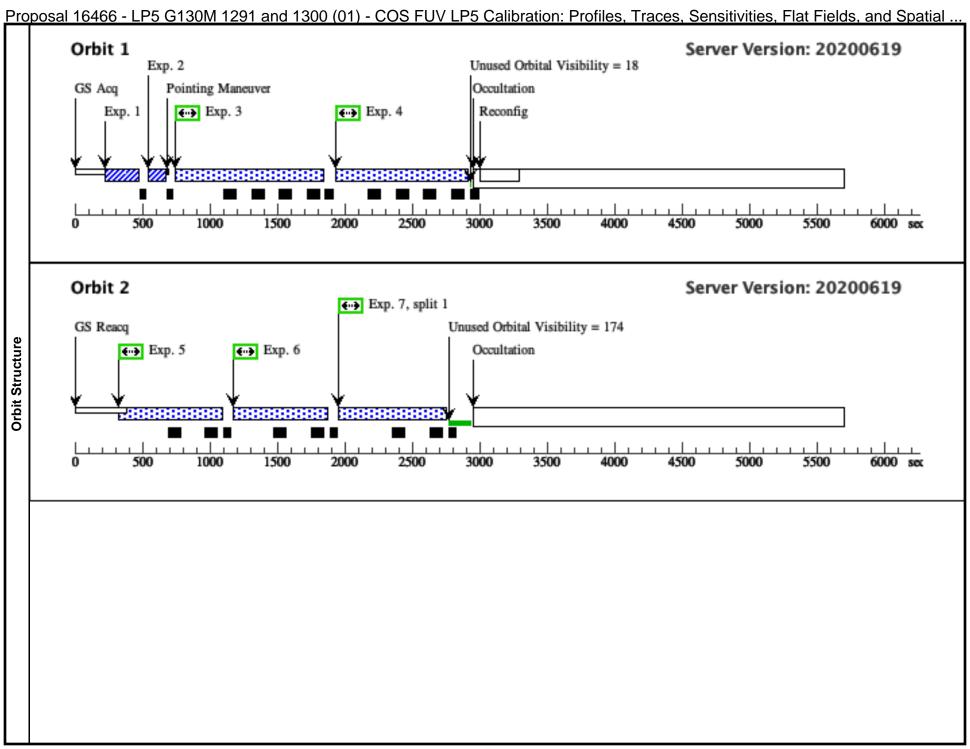
The visits for this program are modeled on those in 14910 for the G130M modes, and in program 15483 for G140L/800. Due to the decrease in sensitivity with time, the exposure times per cenwave need to be longer compared with those in the earlier programs.

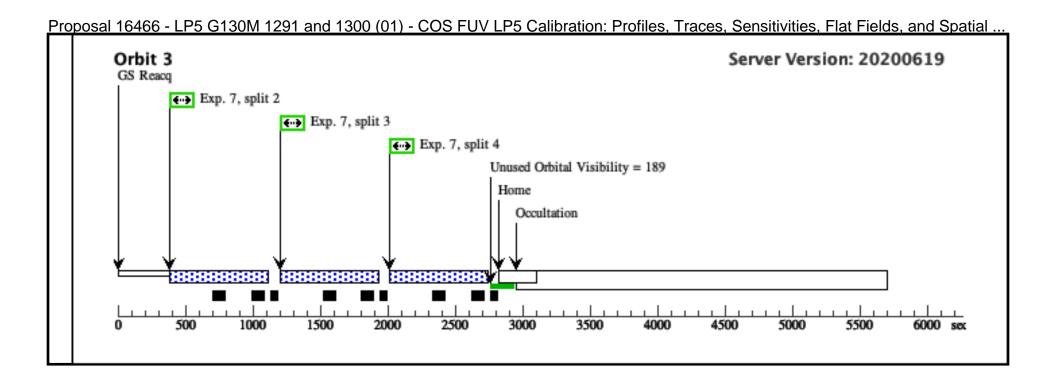
| P | ro | <u>posal 16466 - LP5 G</u> | 6130M 1291 and 1300 (01) - Co | OS FUV LP5 Calibration: Prof | <u>files, Traces, Sensit</u> | ivities, Flat Fields, and Spatial | | | | |
|--------|-------------|---|---|----------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| Г | | Proposal 16466, LP5 G130M 12 | 291 and 1300 (01), implementation | | | Fri Mar 12 14:01:24 GMT 2021 | | | | |
| ı | | Diagnostic Status: Warning | | | | | | | | |
| Ι. | _ | Scientific Instruments: COS/FUV | | | | | | | | |
| Visit | Si | Special Requirements: SCHED 10 | | | | | | | | |
| | > | Comments: Target WD 0308-565 | | | | | | | | |
| ı | | Profiles for G130M/1291 and G1 | 30M/1300 set the requirements | | | | | | | |
| L | | Goal is S/N~50/resel over most of | f the bandpass | | | | | | | |
| ; ; | Diagnostics | (LPS G130M 1291 and 1300 (01) |)) Warning (Orbit Planner): INEFFICIENT ORDE | RING OF FP-POS POSITIONS | | | | | | |
| | | # Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | | |
| ١, | argets | (1) WD0308-565 | RA: 03 09 47.9178 (47.4496575d) | Proper Motion RA: 149.241 mas/yr | V=14.14+/-0.02 | Reference Frame: ICRS | | | | |
| | ğ | | Dec: -56 23 49.41 (-56.39706d) | Proper Motion Dec: 66.919 mas/yr | | | | | | |
| Т | <u>a</u> | | Equinox: J2000 | Epoch of Position: 2000 | | | | | | |
| L | Fixed | Comments: Coordinates and prop V magnitude from SIMBAD, base Category=STAR Description=[DB] Extended=NO | per motions from SIMBAD, using GAIA DR2 cataled on UCAC4. | og. | | | | | | |

Proposal 16466 - LP5 G130M 1291 and 1300 (01) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial. Orbit Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Reqs. Groups Exp. Time (Total)/[Actual Dur.] (ETC Run) (1) WD0308-565 ACQ/IM COS/NUV, ACQ/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 [==>] [1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACO/IM Mirror A/BOA (1) WD0308-565 ACO/IM COS/NUV, ACO/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 I = = > 1[1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACQ/IM Mirror A/BOA G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=3; 930 Secs (930 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L f = = > 13 Seg=BOT P5; Н (COS.sp.147 BUFFER-TIME=20 [1] 2462) SEGMENT=BOTH Comments: Exposure time motivated by FUVB requirements; S/N ~ 43 at 1140A, and >50 beyond 1160A. ETC reported Buffer Time is 323 s; BUFFER-TIME = (930 - 110) / 4 = 205 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=4; 930 Secs (930 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L [==>] 4 Seg=BOT P5; Н (COS.sp.147 BUFFER-TIME=20 [1] 2462) Exposures SEGMENT=BOTH Comments: Exposure time motivated by FUVB requirements; S/N ~ 43 at 1140A, and >50 beyond 1160A. ETC reported Buffer Time is 323 s; BUFFER-TIME = (900 - 110) / 4 = 205 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=1; 650 Secs (650 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L [==>1 1 Seg=A P5; (COS.sp.147 2400) BUFFER-TIME=27 [2] SEGMENT=A Comments: S/N = 50 at 1430A. ETC reported Buffer Time is 323 s. This is for both segments, and will be longer (> 700 sec) for Segment A only. $BUFF\hat{E}R$ -TIME = (650 - 110)/2 = 270 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=2; 650 Secs (650 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L *[==>1* 2 Seg=A (COS.sp.147 2400) BUFFER-TIME=27 [2] 0; SEGMENT=A Comments: S/N = 50 at 1430A. ETC reported Buffer Time is 323 s. This is for both segments, and will be longer (> 700 sec) for Segment A only. $BUFF\hat{E}R\text{-}TIME = (650 - 110)/2 = 270 \text{ s.}$

Proposal 16466 - LP5 G130M 1291 and 1300 (01) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial ...

| <u> </u> | 0000: 10 100 <u>=</u> 1 0 0 1001 | VI 1201 and 1000 (01) | 000.0 | <u>- </u> | Tracco, Corionivinos, Frantificias, and Opt | atiai |
|----------|---|------------------------|-------------------|--|---|-------|
| | 7 G130M/130 (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M | FP-POS=ALL; | 679 Secs (2716 Secs) | |
| | 0 - FPPOS= ALL Seg=A | | 1300 A | BUFFER-TIME=28 | $[==>(Split\ 1)]$ | [2] |
| | (COS.sp.147 | | | 4; | $[==>(Split\ 2)]$ | |
| | 2404) | | | LIFETIME-POS=L P5; | [==>(Split 3)] | [3] |
| | | | | * | $[==>(Split\ 4)]$ | |
| i I | | | | SEGMENT=A | $I = - \times (Spin +)I$ | |
| | Comments: $S/N = 50$ at 1440A. | | | | | |
| | ETC reported Buffer Time is 323 s. This | | er (> 800 sec) fo | or Segment A only. | | |
| | BUFFER-TIME = (679 - 110) / 2 = 284 s | š. | | | | |





| | <u>Pro</u> | <u> oposal 16466 - LP5 G130M 1291 and 1300 (51) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivitie</u> | s, Flat Fields, and Spatial |
|---|------------|---|------------------------------|
| ı | | Proposal 16466, LP5 G130M 1291 and 1300 (51) | Fri Mar 12 14:01:24 GMT 2021 |
| ı | | Diagnostic Status: Warning | |
| 1 | | Scientific Instruments: COS/FUV, COS/NUV | |

Special Requirements: COS/FUV, COS Special Requirements: SCHED 100% Comments: Target WD 0308-565

Profiles for G130M/1291 and G130M/1300 set the requirements

Goal is S/N~50/resel over most of the bandpass

Copy of visit 01 to remove it from the link set with visit 02 - 05.

Diagnostics

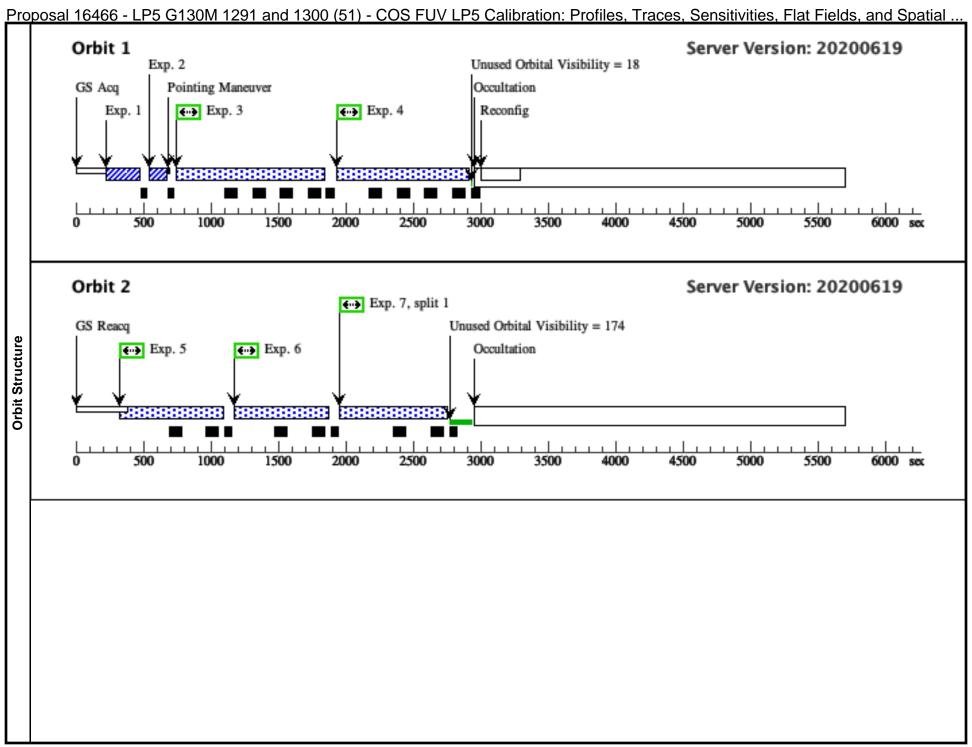
(LP5 G130M 1291 and 1300 (51)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

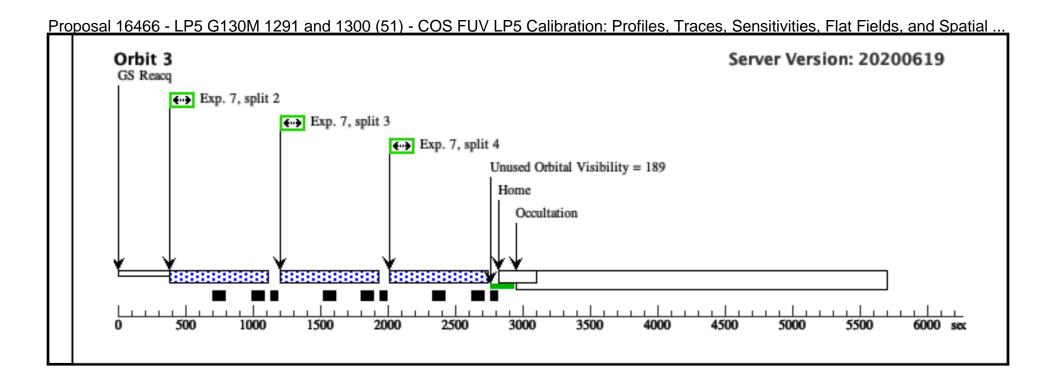
| ட | | | | | | |
|----------|--|---|----------------------------------|----------------|-----------------------|--|
| | # Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | |
| ets | (1) WD0308-565 | RA: 03 09 47.9178 (47.4496575d) | Proper Motion RA: 149.241 mas/yr | V=14.14+/-0.02 | Reference Frame: ICRS | |
| § | | Dec: -56 23 49.41 (-56.39706d) | Proper Motion Dec: 66.919 mas/yr | | | |
| <u>a</u> | | Equinox: J2000 | Epoch of Position: 2000 | | | |
| Fixed | Comments: Coordinates and pro V magnitude from SIMBAD, bas Category=STAR | oper motions from SIMBAD, using GAIA DR2 cate ed on UCAC4. | ılog. | | | |
| " | Description=[DB] Extended=NO | | | | | |

Proposal 16466 - LP5 G130M 1291 and 1300 (51) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial. Orbit Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Reqs. Groups Exp. Time (Total)/[Actual Dur.] (ETC Run) (1) WD0308-565 ACQ/IM COS/NUV, ACQ/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 [==>] [1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACO/IM Mirror A/BOA (1) WD0308-565 ACO/IM COS/NUV, ACO/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 I = = > 1[1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACQ/IM Mirror A/BOA G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=3; 930 Secs (930 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L f = = > 13 Seg=BOT P5; Н (COS.sp.147 BUFFER-TIME=20 [1] 2462) SEGMENT=BOTH Comments: Exposure time motivated by FUVB requirements; S/N ~ 43 at 1140A, and >50 beyond 1160A. ETC reported Buffer Time is 323 s; BUFFER-TIME = (930 - 110) / 4 = 205 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=4; 930 Secs (930 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L *[==>1* 4 Seg=BOT P5; Н (COS.sp.147 BUFFER-TIME=20 [1] 2462) Exposures SEGMENT=BOTH Comments: Exposure time motivated by FUVB requirements; S/N ~ 43 at 1140A, and >50 beyond 1160A. ETC reported Buffer Time is 323 s; BUFFER-TIME = (900 - 110) / 4 = 205 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=1; 650 Secs (650 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L [==>1 1 Seg=A P5; (COS.sp.147 2400) BUFFER-TIME=27 [2] SEGMENT=A Comments: S/N = 50 at 1430A. ETC reported Buffer Time is 323 s. This is for both segments, and will be longer (> 700 sec) for Segment A only. $BUFF\hat{E}R$ -TIME = (650 - 110)/2 = 270 s. G130M/129 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=2; 650 Secs (650 Secs) 1 - FPPOS= 1291 A LIFETIME-POS=L *[==>1* 2 Seg=A (COS.sp.147 2400) BUFFER-TIME=27 [2] 0; SEGMENT=A Comments: S/N = 50 at 1430A. ETC reported Buffer Time is 323 s. This is for both segments, and will be longer (> 700 sec) for Segment A only. $BUFF\hat{E}R\text{-}TIME = (650 - 110)/2 = 270 \text{ s.}$

Proposal 16466 - LP5 G130M 1291 and 1300 (51) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial ...

| <u> </u> | 900ai 10100 Ei 0 010 | oivi 1201 ana 1000 (01) | 00010 | V EI O Galibration: I Tomoo; | Tracco, Corlottivitico, Flat Florac, and Opt | atiai |
|----------------|---|--|-------------------|------------------------------|--|-------|
| | 7 G130M/130 (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M | FP-POS=ALL; | 679 Secs (2716 Secs) | · |
| | 0 - FPPOS= ALL Seg=A | | 1300 A | BUFFER-TIME=28 | $[==>(Split\ 1)]$ | [2] |
| | (COS.sp.147 | | | 4; | $[==>(Split\ 2)]$ | |
| | 2404) | | | LIFETIME-POS=L P5; | [==>(Split 3)] | [3] |
| | | | | SEGMENT=A | $[==>(Split\ 4)]$ | |
| | Comments: $S/N = 50$ at 1440A. | | | SEGMENT-71 | | |
| | Comments. 5/14 = 50 th 1440/1. | | | | | |
| | ETC reported Buffer Time is 323 s. The BUFFER-TIME = $(679 - 110)/2 = 28$ | nis is for both segments, and will be long | ger (> 800 sec) f | for Segment A only. | | |
| \blacksquare | DUTTER-TIME = (0/9 - 110)/2 = 20 | PT 3. | | | | |

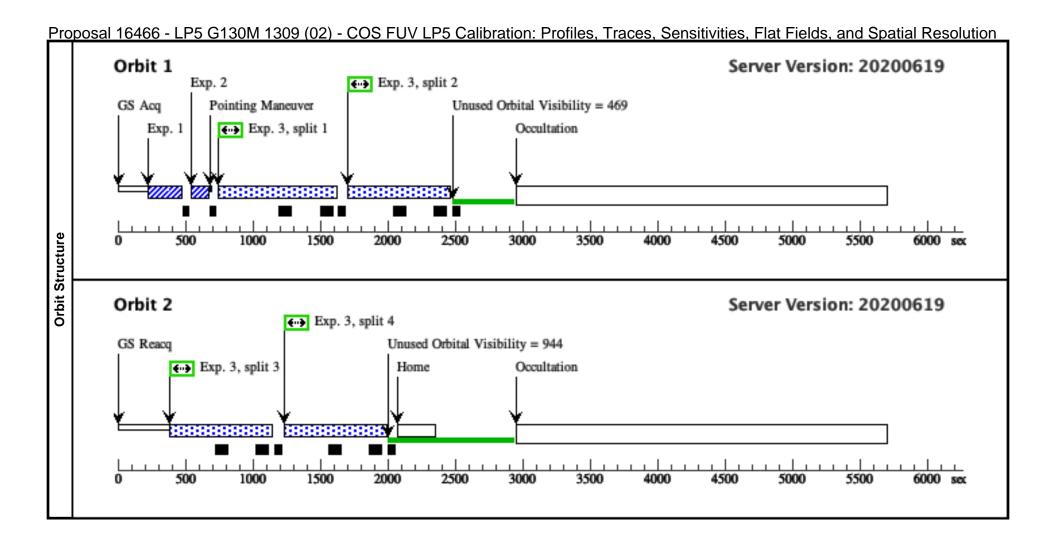




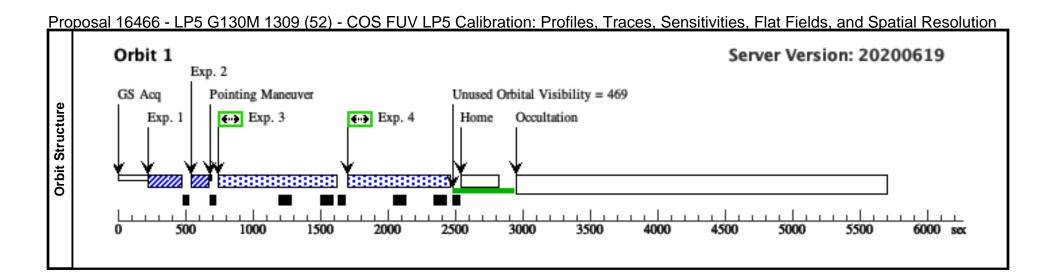
Proposal 16466 - LP5 G130M 1309 (02) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution Proposal 16466, LP5 G130M 1309 (02), failed Fri Mar 12 14:01:24 GMT 2021 Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100%; GROUP 02,01,03,04 WITHIN 7D Comments: Target WD 0308-565 Profiles for G130M/1309 set the requirements Goal is S/N~50/resel over most of the bandpass Name **Target Coordinates Targ. Coord. Corrections** Fluxes Miscellaneous Fixed Targets (1) WD0308-565 RA: 03 09 47.9178 (47.4496575d) Proper Motion RA: 149.241 mas/yr V=14.14+/-0.02 Reference Frame: ICRS Dec: -56 23 49.41 (-56.39706d) Proper Motion Dec: 66.919 mas/yr Equinox: J2000 Epoch of Position: 2000 Comments: Coordinates and proper motions from SIMBAD, using GAIA DR2 catalog. V magnitude from SIMBAD, based on UCAC4. Category=STAR Description=[DB] Extended=NO

| | # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|------|-----|--------------------------------|------------------------|--|----------------------|-----------------------|---------------|----------------|---------------------------------|------------|
| | 1 | ACQ/IM (COS.ta.146 8946) | (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | | | 11 Secs (11 Secs) [==>] | [1] |
| | Con | nments: S/N = | 30 reached in 10.5 sec | conds using NUV ACQ/IM Mirror A/B | OA | | | | | |
| ۱., | 2 | ACQ/IM (COS.ta.146 | (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | | | 11 Secs (11 Secs) | |
| Ires | | 8946) | | | | | | | [==>] | [1] |
| I & | Con | nments: S/N = | 30 reached in 10.5 sec | conds using NUV ACQ/IM Mirror A/B | OA | | | | | |
| 8 | 3 | | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M | FP-POS=ALL; | | | 708 Secs (2832 Secs) | |
| Expo | | 9 - FPPOS= ALL Seg=A | | | 1309 A | | | [==>(Split 1)] | [1] | |
| | | (COS.sp.147 | | | | | 9; | | $[==>(Split\ 2)]$ | [1] |
| | | 2406) | | | | LIFETIME-POS=L P5; | | | $[==>(Split\ 3)]$ | 527 |
| | | | | | | SEGMENT=A | | | $[==>(Split\ 4)]$ | [2] |
| | Con | nments: S/N = | 50 at 1447A. | | | | | | | |
| | ETC | C reported Buff | er Time is 326 s. This | s is for both segments, and will be long | er (> 800 sec) for 1 | Segment A only. | | | | |

 $BUFF \hat{E}R$ -TIME = (708-110)/2 = 299 s.

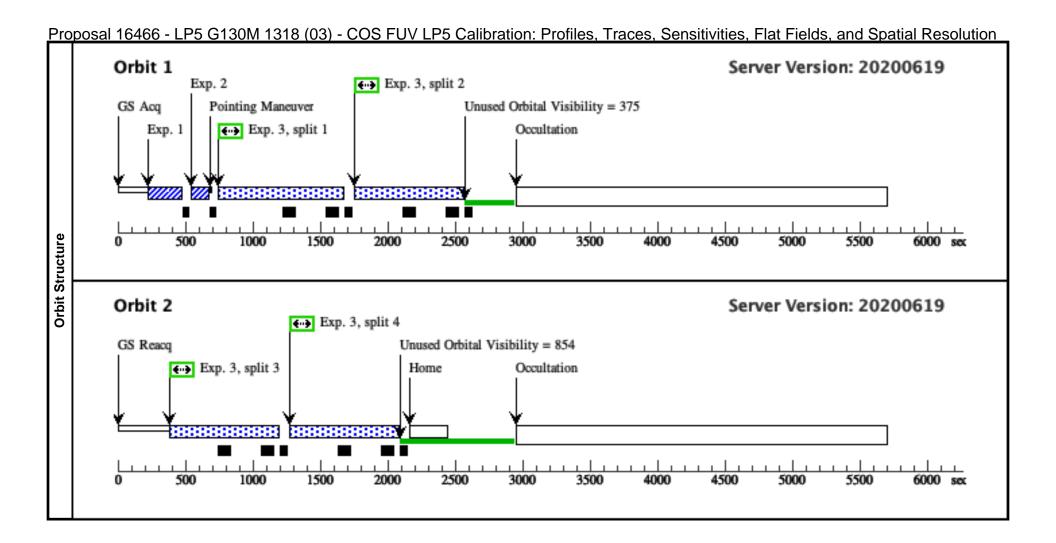


Proposal 16466 - LP5 G130M 1309 (52) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution Proposal 16466, LP5 G130M 1309 (52), scheduling Fri Mar 12 14:01:25 GMT 2021 **Diagnostic Status: No Diagnostics** Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100% Comments: Target WD 0308-565 Profiles for G130M/1309 set the requirements Goal is S/N~50/resel over most of the bandpass Repeat visit for failed 2nd orbit during visit 02; FP-POS=ALL replaced by separate FP-POS=3 and 4 exposures. Name **Target Coordinates** Targ. Coord. Corrections Fluxes Miscellaneous Targets V=14.14+/-0.02 Reference Frame: ICRS WD0308-565 RA: 03 09 47.9178 (47.4496575d) Proper Motion RA: 149.241 mas/yr Dec: -56 23 49.41 (-56.39706d) Proper Motion Dec: 66.919 mas/yr Equinox: J2000 Epoch of Position: 2000 Comments: Coordinates and proper motions from SIMBAD, using GAIA DR2 catalog. V magnitude from SIMBAD, based on UCAC4. Category=SŤAR Description = [DB]Extended=NO Label Groups **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Exp. Time (Total)/[Actual Dur.] Orbit (ETC Run) ACO/IM (1) WD0308-565 COS/NUV, ACO/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 *[==>1* [1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACQ/IM Mirror A/BOA (1) WD0308-565 COS/NUV, ACQ/IMAGE, BOA MIRRORA 11 Secs (11 Secs) ACO/IM (COS.ta.146 f = = > 1[1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACO/IM Mirror A/BOA G130M/130 (1) WD0308-565 G130M FP-POS=3; 708 Secs (708 Secs) COS/FUV, TIME-TAG, PSA 9 - FPPOS= 1309 A BUFFER-TIME=29 I = = > 13 Seg=A Exposures (COS.sp.147 2406) LIFETIME-POS=L [1] SEGMENT=A Comments: S/N = 50 at 1447A. ETC reported Buffer Time is 326 s. This is for both segments, and will be longer (> 800 sec) for Segment A only. $BUFF\hat{E}R\text{-}TIME = (708\text{-}110)/2 = 299 \text{ s.}$ G130M/130 (1) WD0308-565 COS/FUV, TIME-TAG, PSA G130M FP-POS=4; 708 Secs (708 Secs) 9 - FPPOS= 1309 A BUFFER-TIME=29 [==>] 4 Seg=A(COS.sp.147 2406) LIFETIME-POS=L [1] P5: SEGMENT=A Comments: S/N = 50 at 1447A. ETC reported Buffer Time is 326 s. This is for both segments, and will be longer (> 800 sec) for Segment A only. $BUFF \hat{E}R$ -TIME = (708-110)/2 = 299 s.



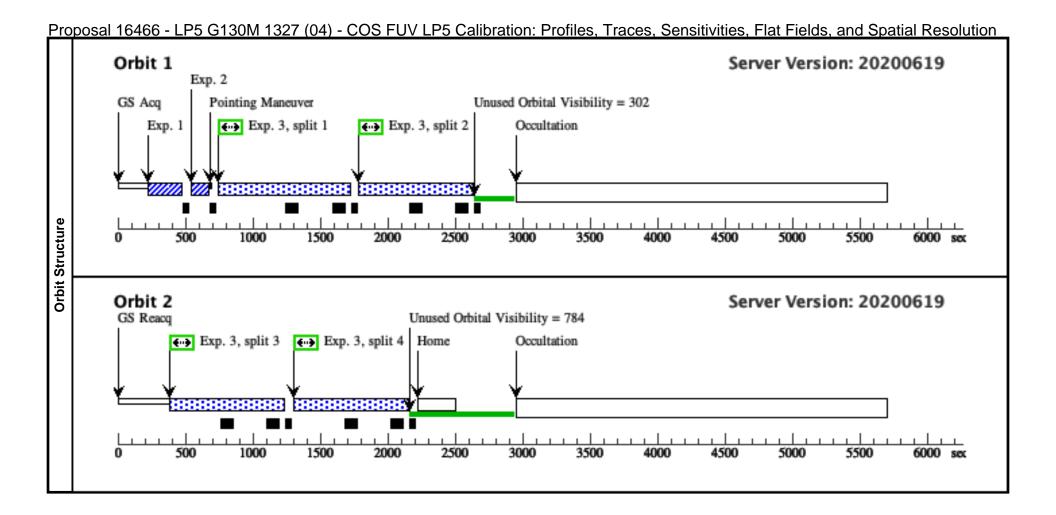
Proposal 16466 - LP5 G130M 1318 (03) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution Proposal 16466, LP5 G130M 1318 (03), completed Fri Mar 12 14:01:25 GMT 2021 Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100%; GROUP 03,01,02,04 WITHIN 7D Comments: Target WD 0308-565 Profiles for G130M/1318 set the requirements Goal is S/N~50/resel over most of the bandpass Name **Target Coordinates Targ. Coord. Corrections** Fluxes Miscellaneous Fixed Targets (1) WD0308-565 RA: 03 09 47.9178 (47.4496575d) Proper Motion RA: 149.241 mas/yr V=14.14+/-0.02 Reference Frame: ICRS Proper Motion Dec: 66.919 mas/yr Dec: -56 23 49.41 (-56.39706d) Equinox: J2000 Epoch of Position: 2000 Comments: Coordinates and proper motions from SIMBAD, using GAIA DR2 catalog. V magnitude from SIMBAD, based on UCAC4. Category=STAR Description=[DB] Extended=NO Label Target Config, Mode, Aperture Spectral Els. Opt. Params. Special Reqs. Exp. Time (Total)/[Actual Dur.] Orbit Groups (ETC Run)

| | 1 | ACQ/IM (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | 11 Secs (11 Secs) | |
|--------|-----|---|--|---------------------|-----------------------|----------------------|-----|
| | | (COS.ta.146 8946) | | | | [==>] | [1] |
| | Con | nments: $S/N = 30$ reached in 10.5 | seconds using NUV ACQ/IM Mirror A/E | BOA | | | |
| | 2 | ACQ/IM (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | 11 Secs (11 Secs) | |
| sarres | | (COS.ta.146 8946) | | | | [==>] | [1] |
| Ins | | nments: $S/N = 30$ reached in 10.5 | seconds using NUV ACQ/IM Mirror A/E | BOA | | | |
| 8 | 3 | G130M/131 (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M | FP-POS=ALL; | 753 Secs (3012 Secs) | |
| Expo | | 8 - FPPOS= ALL Seg=A | | 1318 A | BUFFER-TIME=32 | $[==>(Split\ 1)]$ | |
| 1 | | (COS.sp.147 | | | 1; | $[==>(Split\ 2)]$ | [1] |
| | | 2408) | | | LIFETIME-POS=L P5; | $[==>(Split\ 3)]$ | |
| | | | | | SEGMENT=A | $[==>(Split\ 4)]$ | [2] |
| | Con | nments: $S/N = 50$ at 1458A. | | | | | |
| | | C reported Buffer Time is 323 s. TFFER-TIME = $(753-110)/2 = 325$ | his is for both segments, and will be long | ger (> 800 sec) for | Segment A only. | | |



Proposal 16466 - LP5 G130M 1327 (04) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution Proposal 16466, LP5 G130M 1327 (04), completed Fri Mar 12 14:01:25 GMT 2021 Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100%; GROUP 04,01,02,03 WITHIN 7D Comments: Target WD 0308-565 Profiles for G130M/1327 set the requirements Goal is S/N~50/resel over most of the bandpass Name **Target Coordinates Targ. Coord. Corrections** Fluxes Miscellaneous Fixed Targets (1) WD0308-565 RA: 03 09 47.9178 (47.4496575d) Proper Motion RA: 149.241 mas/yr V=14.14+/-0.02 Reference Frame: ICRS Dec: -56 23 49.41 (-56.39706d) Proper Motion Dec: 66.919 mas/yr Equinox: J2000 Epoch of Position: 2000 Comments: Coordinates and proper motions from SIMBAD, using GAIA DR2 catalog. V magnitude from SIMBAD, based on UCAC4. Category=STAR Description=[DB] Extended=NO

| | # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|--------|-----|--------------------------------|---|--|----------------------|-----------------------|---------------|--------|--|-------|
| | 1 | ACQ/IM (COS.ta.146 8946) | (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | | | 11 Secs (11 Secs) <i>[</i> ==> <i>]</i> | [1] |
| l | Con | nments: S/N = | 30 reached in 10.5 se | conds using NUV ACQ/IM Mirror A/B | OA | | | | | |
| | 2 | ACQ/IM | (1) WD0308-565 | COS/NUV, ACQ/IMAGE, BOA | MIRRORA | | | | 11 Secs (11 Secs) | |
| sarres | | (COS.ta.146 8946) | | | | | | | [==>] | [1] |
| ns | Con | nments: S/N = | 30 reached in 10.5 se | conds using NUV ACQ/IM Mirror A/B | OA | | | | | |
| 18 | 3 | | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M | FP-POS=ALL; | | | 793 Secs (3172 Secs) | |
| Expo | | 7 - FPPOS= ALL Seg=A | | | 1327 A | BUFFER-TIME=34 | | | $[==>(Split\ 1)]$ | (11 |
| | | (COS.sp.147 | | | | 1; | | | $[==>(Split\ 2)]$ | [1] |
| l | | 2401) | | | | LIFETIME-POS=L P5; | | | $[==>(Split\ 3)]$ | |
| | | | | | | SEGMENT=A | | | $[==>(Split\ 4)]$ | [2] |
| I | Con | nments: S/N = | 50 at 1467A. | | | | | | | |
| | | | For Time is 324 s. This $(793-110)/2 = 341 \text{ s}$ | s is for both segments, and will be long | er (> 800 sec) for S | Segment A only. | | | | |



Proposal 16466 - LP3 G140L 800 (05) - COS FUV LP5 Calibration: Profiles, Traces, Sensitivities, Flat Fields, and Spatial Resolution Proposal 16466, LP3 G140L 800 (05), completed Fri Mar 12 14:01:25 GMT 2021 **Diagnostic Status: No Diagnostics** Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 50% Comments: Target WD 0308-565 Profiles for G140L/800 set the requirements Goal is S/N~10/resel in the short-wavelength region (915-1050A) Schedulability has been set to 50 to ensure that orbit is long enough for getting the total time on target Name **Target Coordinates** Targ. Coord. Corrections Fluxes Miscellaneous Targets WD0308-565 V=14.14+/-0.02 Reference Frame: ICRS RA: 03 09 47.9178 (47.4496575d) Proper Motion RA: 149.241 mas/yr Dec: -56 23 49.41 (-56.39706d) Proper Motion Dec: 66.919 mas/yr Equinox: J2000 Epoch of Position: 2000 Comments: Coordinates and proper motions from SIMBAD, using GAIA DR2 catalog. V magnitude from SIMBAD, based on UCAC4. Category=SŤAR Description = [DB]Extended=NO Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit (ETC Run) ACO/IM (1) WD0308-565 COS/NUV, ACO/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 *[==>1* [1] 8946) Comments: S/N = 30 reached in 10.5 seconds using NUV ACQ/IM Mirror A/BOA ACO/IM (1) WD0308-565 COS/NUV, ACQ/IMAGE, BOA MIRRORA 11 Secs (11 Secs) (COS.ta.146 [==>1 [1] 8946) Exposures Comments: S/N = 30 reached in 10.5 seconds using NUV ACO/IM Mirror A/BOA G140L/800 - (1) WD0308-565 COS/FUV, TIME-TAG, PSA G140L FP-POS=ALL; 450 Secs (1800 Secs) FPPOS=AL 800 A LIFETIME-POS=L $[==>(Split\ 1)]$ L Seg=A P3: $[==>(Split\ 2)]$ (COS.sp.147 2412) SEGMENT=A; [1] $[==>(Split\ 3)]$ BUFFER-TIME=17 [==>(Split 4)]Comments: At the shorter wavelength end, getting an S/N~50 is not possible, given the low throughput. While implementing cenwave 800 for the first time (at LP4), the S/N requirement was modified. It was shown th at with adequate smoothing/binning, an S/N ~ 5 to 10 per resel in the short wavelength region would yield sufficiently reliable profiles and flux calibration. This was implemented in program 15483, in which the exposure ure time was 1450 seconds. Using that as a baseline, the current exposure time has been chosen to account for the decline in sensitivity, and to obtain an S/N ~ 10 in the short wavelength region. An S/N of >50 is achi eved over most of the bandpass.

ETC reported Buffer Time is 350s; BUFFER-TIME = (450 - 110)/2 = 170 s.

