



## 16332 - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Cycle: 28, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

### INVESTIGATORS

| <i>Name</i>                         | <i>Institution</i>                             | <i>E-Mail</i>              |
|-------------------------------------|--|----------------------------|
| <b>Kate Rowlands (PI) (Contact)</b> | <b>Space Telescope Science Institute</b>       | <b>krowlands@stsci.edu</b> |
| Dr. Ravi Sankrit (CoI) (Contact)    | Space Telescope Science Institute              | rsankrit@stsci.edu         |
| Elaine M Frazer (CoI) (Contact)     | Space Telescope Science Institute              | efrazer@stsci.edu          |
| Dr. Marc Rafelski (CoI)             | Space Telescope Science Institute              | mrafelski@stsci.edu        |
| Dr. Bethan Lesley James (CoI)       | Space Telescope Science Institute - ESA - JWST | bjames@stsci.edu           |

### VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:00:56.0        | yes                           |
| 02           | (2) GD71<br>DARK<br>WAVE     | COS/FUV<br>COS/NUV<br>S/C           | 2                  | 30-Jun-2021 10:00:57.0        | yes                           |
| 03           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:00:59.0        | yes                           |
| 04           | (2) GD71<br>DARK<br>WAVE     | COS/FUV<br>COS/NUV<br>S/C           | 2                  | 30-Jun-2021 10:01:01.0        | yes                           |

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 05           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:01:03.0        | yes                           |
| 06           | (2) GD71<br>DARK<br>WAVE     | COS/FUV<br>COS/NUV<br>S/C           | 2                  | 30-Jun-2021 10:01:04.0        | yes                           |
| 07           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:01:06.0        | yes                           |
| 08           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:01:09.0        | yes                           |
| 09           | (2) GD71<br>DARK<br>WAVE     | COS/FUV<br>COS/NUV<br>S/C           | 2                  | 30-Jun-2021 10:01:10.0        | yes                           |
| 10           | (1) WD0308-565<br>DARK       | COS/FUV<br>COS/NUV<br>S/C           | 3                  | 30-Jun-2021 10:01:12.0        | yes                           |

26 Total Orbits Used

### **ABSTRACT**

The FUV gratings are the most used modes on COS. They have experienced changes in sensitivity since the instrument was installed. The trends in the time-dependent spectroscopic sensitivity depend on the grating, segment and wavelength. Each cycle a calibration proposal to monitor the sensitivity of each FUV grating mode at several cenwave settings is implemented. The monitor runs on an approximate schedule of one set of visits every two months. This program is contingency program that will be triggered in the case that the sensitivity of any grating/mode is found to be rapidly decreasing and therefore requiring a higher cadence of observations.

### **OBSERVING DESCRIPTION**

Proposal 16332 (STScI Edit Number: 0, Created: Wednesday, June 30, 2021 at 9:01:13 AM Eastern Standard Time) - Overview

The description below is from program 16324, the main COS FUV Spectroscopic Sensitivity Monitor for Cycle 28. This is a contingency program, and the exposure sequence in each visit are identical to those in the main program. However, there are no "between" constraints as yet specified for each of these visits. If it is necessary to trigger the contingency observations, the required dates will be provided.

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As part of the standard monitoring sequence the standard stars, WD0308-565 and GD71, will be observed every two months (except for May-July, during which time GD71 is unavailable).

Each sequence consists of 5 orbits: a 3 orbit visit (target WD0308-565) that covers

G130M/1055/FUVA,

G130M/1222,

G130M/1291,

G130M/1327/FUVA,

G160M/1533/FUVB

G160M/1577/FUVB,

G160M/1623/FUVB,

G140L/800/FUVA

G140L/1105/FUVA,

G140L/1280,

and a 2 orbit visit (target GD71) that covers

G130M/1096/FUVB,

G160M/1533/FUVA,

G160M/1577/FUVA,

G160M/1623/FUVA.

These comprise the shortest and longest central wavelengths of the normal modes with each grating. Additionally, G130M/1055, and 1096 (the blue modes) and G130M/1291 are included. Also included is G160M/1577, which used to be the shortest cenwave before the introduction of

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G160M/1533 in Cycle 26. The observations will be done at LP4, except for G130M/1055 and G130M/1096, which will be done at LP2.

Contingency visit 10 exposures would occur after the move to LP5 and LP3 in October 2021. G130M/1291 and 1300 exposures have been changed from LP4 to LP5, and G140L exposures have been changed from LP4 to LP3. G160M and G130M/1055/1096/1222 cenwaves are unchanged.

SNR requirements:

- The general requirement is for an SNR of 15 per resel at the wavelength of least sensitivity for the standard modes, and SNR of 15 per resel beyond some minimum wavelength for the blue modes and c1222. The G140L/800 and 1280 modes have slightly different criteria, to provide SNR of  $>\sim 5$  per resel at wavelengths below  $\sim 1080$  Ang.
- The aim is to obtain TDS calibration better than 2% for standard modes and 10% for blue modes.

ETC calculations:

- The ETC calculations use CALSPEC standard model versions wd0308\_565\_mod\_003.fits and gd71\_mod\_010.fits against which the TDS model slopes are referenced.
- The ETC calculations are specified by requiring SNR of 15 at specific wavelengths, except for the following:  
G140L/800 SNR of 6 per resel at 1045 Ang (only FUV A is used)  
G140L/1280 SNR of 12 per resel at 1090 Ang (lies on FUV B)

- For the blue modes and c1222, the wavelengths specified for SNR of 15 are:

990 Ang for c1096 (Only FUV B is used)

1120 Ang for c1055 (lies on FUV A)

1130 Ang for c1222 (lies on FUV B)

Time constraints:

- Complete monitoring sequence should occur every 2 months starting in December 2018.
- GD71 is unschedulable May-July 2018, and therefore that sequence will consist of only one visit.

The exposure times and organization of visits follows the scheme used in Cycle 27. As in Cycle 27, for all but one set of the WD0308-565 observations using G160M, the specifications now are SEGMENT=B (i.e. segment A is turned off). The one exception is the June sequence (visit

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07) for which the specifications are SEGMENT=BOTH for these modes, because GD71 is not available during this period.

Proposal 16332 - WD0308-C1 (01) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Wed Jun 30 14:01:13 GMT 2021

|   |  |            |   |   |                                 |                       |
|---|--|------------|---|---|---------------------------------|-----------------------|
| <b>Visit</b>  | <b>Proposal 16332, WD0308-C1 (01), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: S/C, COS/FUV, COS/NUV<br>Special Requirements: SCHED 100%<br><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off).</i> |            |   |   |                                 |                       |
|   | <b>Fixed Targets</b>   | <b>#</b>   | <b>Name</b>   | <b>Target Coordinates</b>   | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>         |
| (1)   |  | WD0308-565 | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02                  | Reference Frame: ICRS |
| <i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog.<br/>                 Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.<br/>                 Category=STAR<br/>                 Description=[DB]<br/>                 Extended=NO</i> |  |            |   |   |                                 |                       |

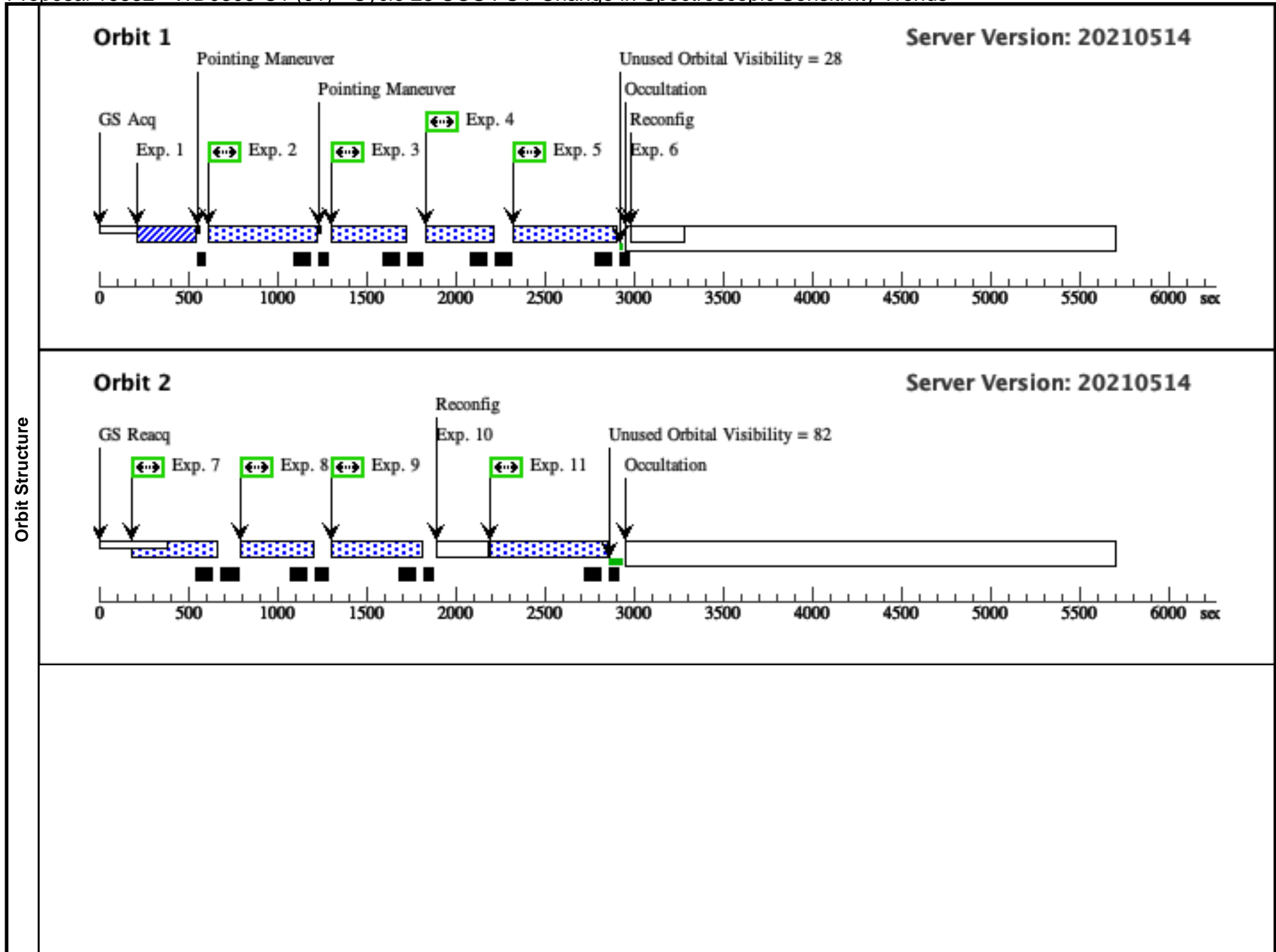
Proposal 16332 - WD0308-C1 (01) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

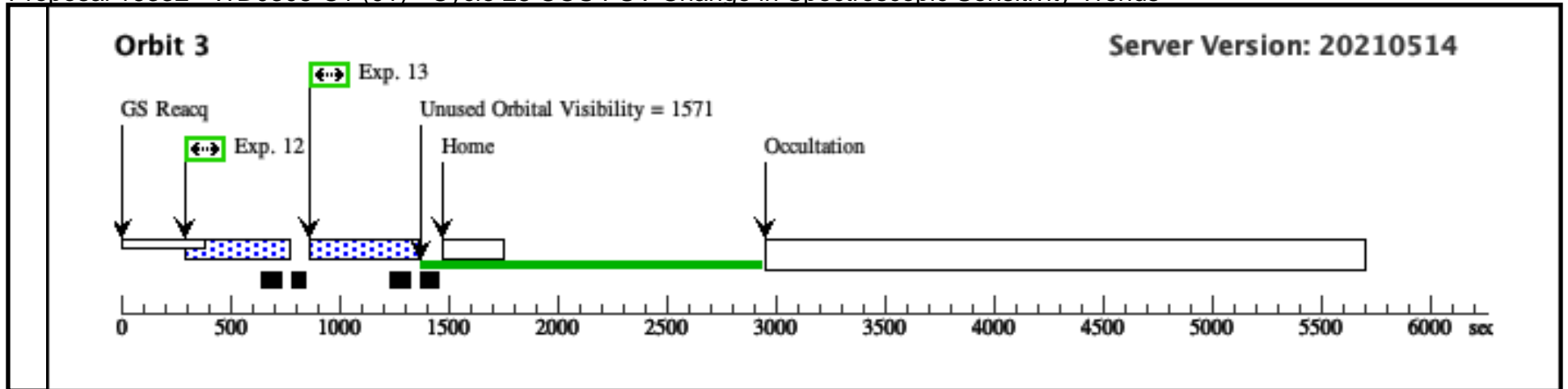
| #  | Label<br>(ETC Run)   | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|--|--|--|------------------------|-------------------------|--|--|--------|---------------------------------|------------------------------|-----|
| Exposures  | 1  | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |        | 45 Secs (45 Secs)<br>[==>]      | [1]                          |     |
|  | <i>Comments: cycle 24 comment: exposure times not reduced following updated ETC calculations, differences not enough to affect orbit requested.<br/>Cycle 28 comment: we continue to use the same exposure time since differences do not affect orbit request.</i> |  |                        |                         |  |  |        |                                 |                              |     |
|  | 2  | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |        |                                 | 393 Secs (393 Secs)<br>[==>] | [1] |
|  | <i>Comments: ETC buffer time is 1831 sec<br/>Set buffer time = exptime - 110 sec</i>   |  |                        |                         |  |  |        |                                 |                              |     |
|  | 3  | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 267 Secs (267 Secs)<br>[==>] | [1] |
|  | <i>Comments: ETC buffer time is 392 sec.<br/>Set buffer time = exptime - 110 sec</i>   |  |                        |                         |  |  |        |                                 |                              |     |
|  | 4  | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 236 Secs (236 Secs)<br>[==>] | [1] |
| <i>Comments: ETC buffer time is 323 sec.<br/>Set buffer time = exptime - 110 sec</i>                             |  |  |                        |                         |  |  |        |                                 |                              |     |
| 5  | G140L/1280<br>(COS.sp.145<br>7781)   | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 366 Secs (366 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: ETC buffer time is 460 sec.<br/>Set buffer time = exptime - 110 sec</i>                             |  |  |                        |                         |  |  |        |                                 |                              |     |
| 6  |  | DARK                                       | S/C, DATA, NONE        |                         |  | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      |        | 1 Secs (1 Secs)<br>[==>]        | [1]                          |     |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |  |                        |                         |  |  |        |                                 |                              |     |
| 7  | G160M/153<br>3/B<br>(COS.sp.145<br>7649)   | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B    |  |        | 223 Secs (223 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: ETC buffer time is 502 sec.<br/>Set buffer time = exptime - 110 sec.</i>                            |  |  |                        |                         |  |  |        |                                 |                              |     |

Proposal 16332 - WD0308-C1 (01) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |                |                        |                 |   |                              |     |
|--|---|----------------|------------------------|-----------------|---|------------------------------|-----|
| 8  | G160M/157<br>7/B<br>(COS.sp.145<br>7650)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 275 Secs (275 Secs)<br>[==>] | [2] |
| <p>Comments: ETC buffer time is 606 sec.<br/>Set buffer time = exptime - 110 sec</p>                             |   |                |                        |                 |   |                              |     |
| 9  | G160M/162<br>3/B<br>(COS.sp.145<br>7651)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 372 Secs (372 Secs)<br>[==>] | [2] |
| <p>Comments: ETC buffer time is 760 sec.<br/>Set buffer time = exptime - 110 sec</p>                             |   |                |                        |                 |   |                              |     |
| 10   | DARK  |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                   | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <p>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</p> |   |                |                        |                 |   |                              |     |
| 11   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 367 Secs (367 Secs)<br>[==>] | [2] |
| <p>Comments: ETC buffer time is 350 sec.<br/>Set buffer time = exptime - 110 sec</p>                             |   |                |                        |                 |   |                              |     |
| 12   | G140L/1105/<br>FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 332 Secs (332 Secs)<br>[==>] | [3] |
| <p>Comments: ETC buffer time is 358 sec.<br/>Set buffer time = exptime - 110 sec</p>                             |   |                |                        |                 |   |                              |     |
| 13   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=A | 274 Secs (274 Secs)<br>[==>] | [3] |
| <p>Comments: ETC buffer time is 324 sec.<br/>set buffer time = exptime - 110 sec</p>                             |   |                |                        |                 |   |                              |     |







Proposal 16332 - GD71-C1 (02) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Wed Jun 30 14:01:13 GMT 2021

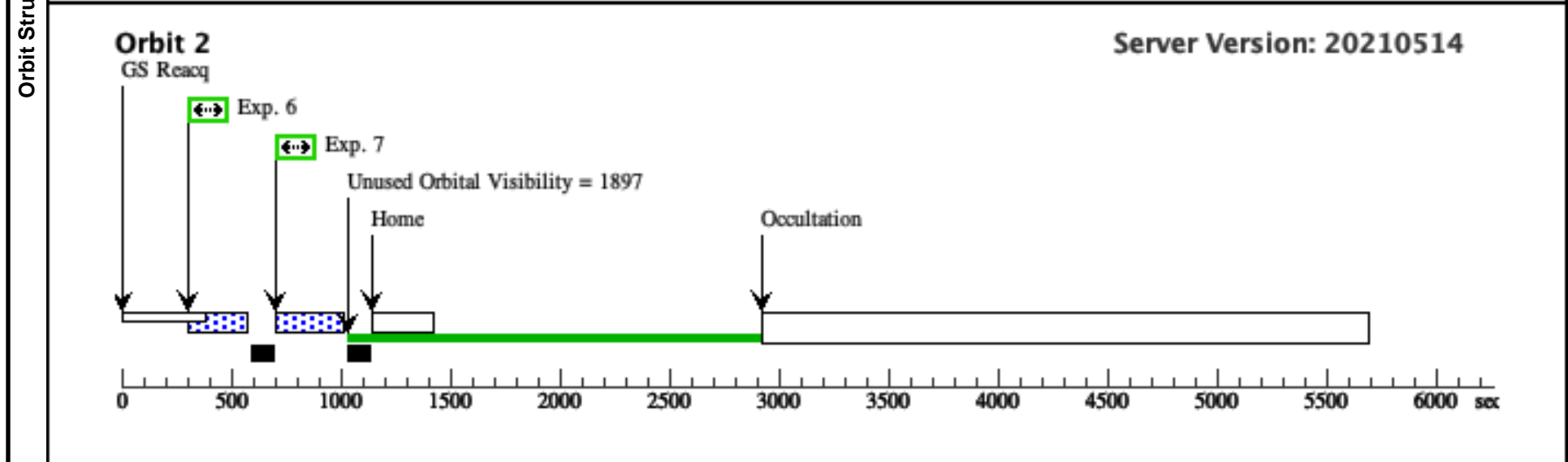
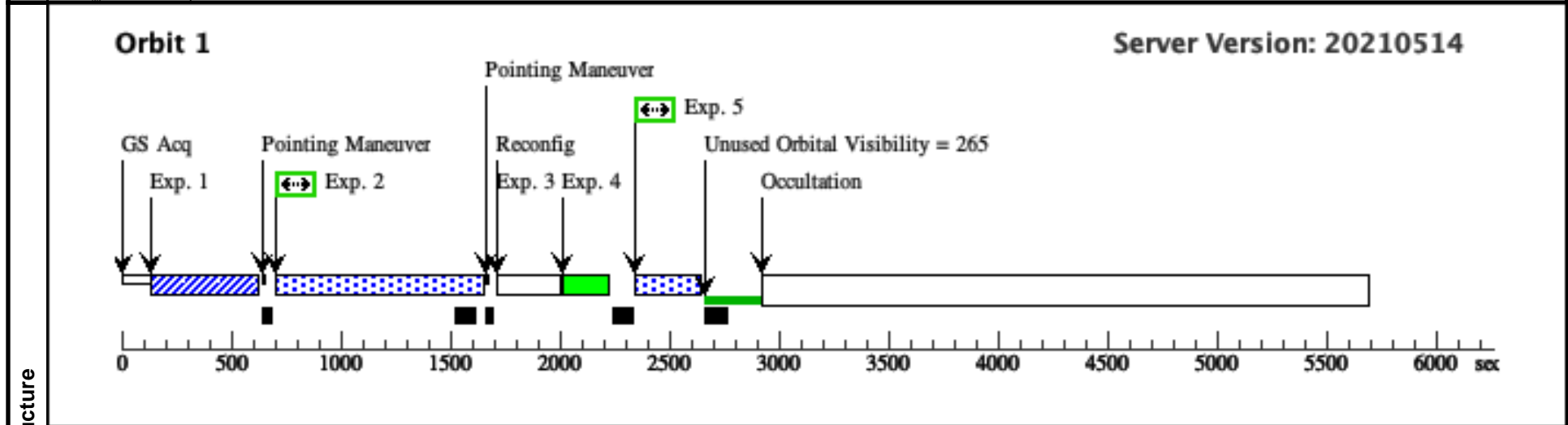
| <b>Visit</b> | <p><b>Proposal 16332, GD71-C1 (02), implementation</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: exposure 4: GO wavecal to calculate the OSM shifts of the G130M/1096/FUVB observation</i></p> <p><i>George Chapman added Exposure 3</i></p> <p><i>All G160M observations are with SEGMENT = A (i.e. segment B is turned off).</i></p> |  |                                    |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|--------------|---|--|------------------------------------|--------------------------|-----------------------|---------------|---|------|--------------------|--------------------------|--------|---------------|-----|------|---------------------------------|---------------------------------|----------------|-----------------------|--|--|-------------------------------|------------------------------------|--|--|--|--|----------------|-------------------------|--|
|              | <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>GD71</td> <td>RA: 05 52 27.6200 (88.1150833d)</td> <td>Proper Motion RA: 76.841 mas/yr</td> <td>V=13.06+/-0.01</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td></td> <td>Dec: +15 53 13.23 (15.88701d)</td> <td>Proper Motion Dec: -172.944 mas/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Epoch of Position: 2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: Co-ordinates and proper motions updated with values from SIMBAD, which uses the GAIA DR2 catalog. Differences from previous co-ordinates are in decimal places in seconds of time and arcsec, within the stated errors.</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[DA]</i></p> <p><i>Extended=NO</i></p> |                                    |                          |                       |               | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | (2) | GD71 | RA: 05 52 27.6200 (88.1150833d) | Proper Motion RA: 76.841 mas/yr | V=13.06+/-0.01 | Reference Frame: ICRS |  |  | Dec: +15 53 13.23 (15.88701d) | Proper Motion Dec: -172.944 mas/yr |  |  |  |  | Equinox: J2000 | Epoch of Position: 2000 |  |
| #            |   | Name   | Target Coordinates                 | Targ. Coord. Corrections | Fluxes                | Miscellaneous |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
| (2)          | GD71  | RA: 05 52 27.6200 (88.1150833d)  | Proper Motion RA: 76.841 mas/yr    | V=13.06+/-0.01           | Reference Frame: ICRS |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Dec: +15 53 13.23 (15.88701d)  | Proper Motion Dec: -172.944 mas/yr |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Equinox: J2000   | Epoch of Position: 2000            |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |

Proposal 16332 - GD71-C1 (02) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #  | Label (ETC Run)   | Target   | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.  | Special Reqs. | Groups                                | Exp. Time (Total)/[Actual Dur.] | Orbit |
|--|---|--|-------------------------|---|---|---------------|---------------------------------------|---------------------------------|-------|
| Exposures  | 1   | ACQ/IM (2) GD71<br>(COS.ta.839<br>574)                       | COS/NUV, ACQ/IMAGE, BOA | MIRRORB   |   |               |                                       | 90 Secs (90 Secs)<br>[==>]      | [1]   |
|  | <p>Comments: Exptime for S/N of 60 is 105.5 sec, using 90 sec leads to S/N of 55.<br/>Cycle 28 comment: we continue to use the same exposure time since differences do not affect orbit request.</p>    |  |                         |   |   |               |                                       |                                 |       |
|  | 2   | G130M/109 (2) GD71<br>6/FUVB/LP<br>2<br>(COS.sp.145<br>7659) | COS/FUV, TIME-TAG, PSA  | G130M<br>1096 A   | BUFFER-TIME=63<br>4;<br>FP-POS=3;<br>SEGMENT=B;<br>LIFETIME-POS=L<br>P2 |               |                                       | 744 Secs (744 Secs)<br>[==>]    | [1]   |
|  | <p>Comments: FUVB only (all ETC warnings come from FUVA).<br/>The FUVB count rate is 585 cts/sec, so the buffer time is <math>2.35E6/585 = 4017</math> sec.<br/>Set buffer-time = exptime - 110 sec</p> |  |                         |   |   |               |                                       |                                 |       |
|  | 3   | DARK   | S/C, DATA, NONE         |   |   |               | QASISTATES COS<br>FUV HVLOW HVL<br>OW | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|  | <p>Comments: Work-around to efficiently schedule the SEG-B to SEG-A reconfiguration. Eliminates SPSS induced gaps.</p>  |  |                         |   |   |               |                                       |                                 |       |
| 4  | G130M/109 WAVE<br>6/FUVA W<br>AVECAL/L<br>P2  | COS/FUV, TIME-TAG, WCA                                       | G130M<br>1096 A         | FP-POS=3;<br>SEGMENT=A;<br>FLASH=NO;<br>LIFETIME-POS=L<br>P2            |   |               | 160 Secs (160 Secs)<br>[==>]          | [1]                             |       |
| <p>Comments: Cycle 28: the exposure time has been updated to 160 seconds. This was determined after characterizing the decrease by about 12 percent in the summed count-rate with time over the period between December 2017 and April 2020.</p> |   |  |                         |   |   |               |                                       |                                 |       |
| 5  | G160M/153 (2) GD71<br>3/FUVA<br>(COS.sp.145<br>7660)  | COS/FUV, TIME-TAG, PSA                                       | G160M<br>1533 A         | BUFFER-TIME=10<br>6;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |               | 106 Secs (106 Secs)<br>[==>]          | [1]                             |       |
| <p>Comments: FUVA only (all ETC warnings come from FUVB).<br/>The FUVA count rate is 9240 cts/sec, so the buffer time is <math>2.35E6/9240 = 254</math> sec.<br/>Set buffer-time = exptime</p>   |   |  |                         |   |   |               |                                       |                                 |       |
| 6  | G160M/157 (2) GD71<br>7/FUVA<br>(COS.sp.145<br>7661)  | COS/FUV, TIME-TAG, PSA                                       | G160M<br>1577 A         | BUFFER-TIME=13<br>5;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |               | 135 Secs (135 Secs)<br>[==>]          | [2]                             |       |
| <p>Comments: FUVA only (all ETC warnings come from FUVB).<br/>The FUVA count rate is 6674 cts/sec, so the buffer time is <math>2.35E6/6674 = 352</math> sec.<br/>Set buffer-time = exptime</p>   |   |  |                         |   |   |               |                                       |                                 |       |

Proposal 16332 - GD71-C1 (02) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|   |  |                        |                 |   |                              |     |
|---|--|------------------------|-----------------|---|------------------------------|-----|
| 7 | G160M/162 (2) GD71<br>3/FUVA<br>(COS.sp.145<br>7663)   | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | BUFFER-TIME=17<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 177 Secs (177 Secs)<br>[==>] | [2] |
|   | <p>Comments: FUVA only (all ETC warnings come from FUVB).<br/>The FUVA count rate is 5095 cts/sec, so the buffer time is <math>2.35E6/5095 = 461</math> sec.<br/>Set buffer-time = exptime</p> |                        |                 |   |                              |     |



Proposal 16332 - WD0308-C2 (03) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Wed Jun 30 14:01:13 GMT 2021

| <b>Visit</b> | <b>Proposal 16332, WD0308-C2 (03), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: S/C, COS/FUV, COS/NUV<br>Special Requirements: SCHED 100%<br><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off).</i> |   |   |                          |                       |                          |        |               |     |            |   |   |                |                       |   |  |  |
|--------------|--|---|---|--------------------------|-----------------------|--------------------------|--------|---------------|-----|------------|---|---|----------------|-----------------------|---|--|--|
|              | <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>WD0308-565</td> <td>                     RA: 03 09 47.9200 (47.4496667d)<br/>                     Dec: -56 23 49.41 (-56.39706d)<br/>                     Equinox: J2000                 </td> <td>                     Proper Motion RA: 149.241 mas/yr<br/>                     Proper Motion Dec: 66.919 mas/yr<br/>                     Epoch of Position: 2000                 </td> <td>V=14.07+/-0.02</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> | #   | Name                     | Target Coordinates    | Targ. Coord. Corrections | Fluxes | Miscellaneous | (1) | WD0308-565 | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02 | Reference Frame: ICRS | <i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog.<br/>                     Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.<br/>                     Category=STAR<br/>                     Description=[DB]<br/>                     Extended=NO</i> |  |  |
| #            |  | Name  | Target Coordinates  | Targ. Coord. Corrections | Fluxes                | Miscellaneous            |        |               |     |            |   |   |                |                       |   |  |  |
| (1)          | WD0308-565   | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000   | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02           | Reference Frame: ICRS |                          |        |               |     |            |   |   |                |                       |   |  |  |

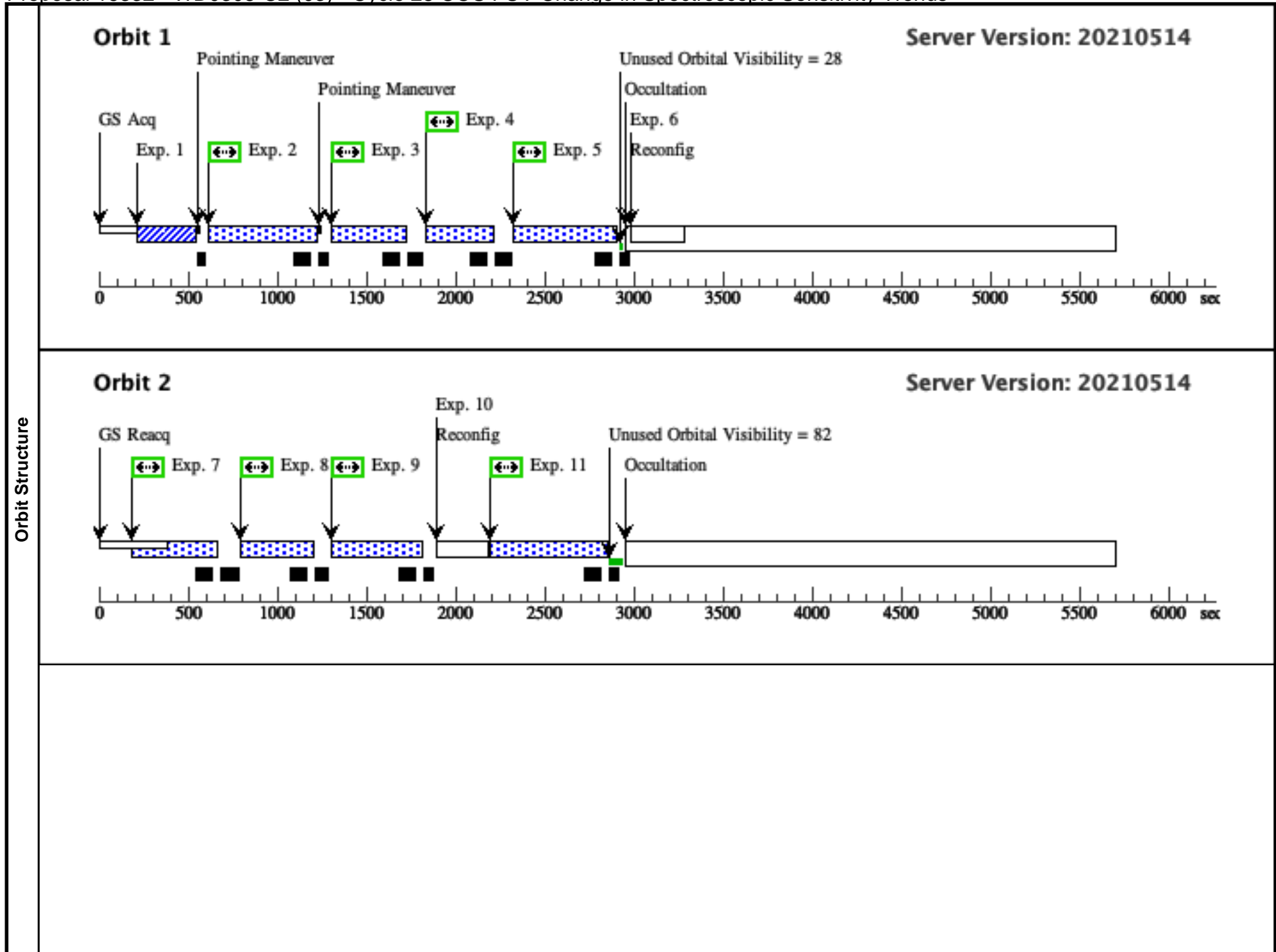
Proposal 16332 - WD0308-C2 (03) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

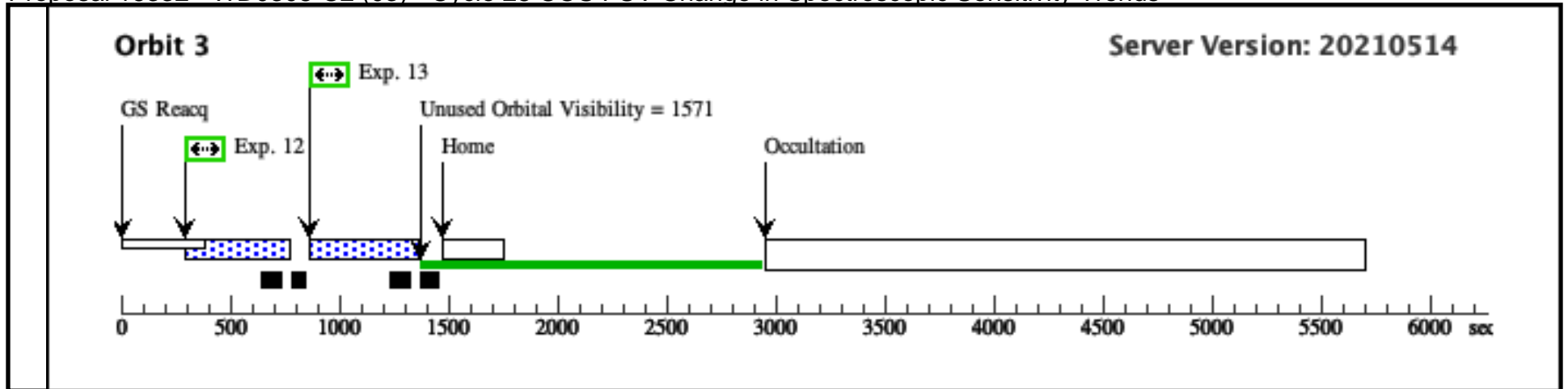
| #  | Label<br>(ETC Run)                       | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|--|--|--|------------------------|-------------------------|--|--|--------|---------------------------------|------------------------------|-----|
| Exposures  | 1  | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |        | 45 Secs (45 Secs)<br>[==>]      | [1]                          |     |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 2  | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |        |                                 | 393 Secs (393 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 3  | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 267 Secs (267 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 4  | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 236 Secs (236 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
| 5  | G140L/1280<br>(COS.sp.145<br>7781)       | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 366 Secs (366 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |
| 6  |  | DARK                                       | S/C, DATA, NONE        |                         |  | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      |        | 1 Secs (1 Secs)<br>[==>]        | [1]                          |     |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |  |                        |                         |  |  |        |                                 |                              |     |
| 7  | G160M/153<br>3/B<br>(COS.sp.145<br>7649) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B    |  |        | 223 Secs (223 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |

Proposal 16332 - WD0308-C2 (03) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |                |                        |                 |   |                              |     |
|--|---|----------------|------------------------|-----------------|---|------------------------------|-----|
| 8  | G160M/157<br>7/B<br>(COS.sp.145<br>7650)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 275 Secs (275 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 9  | G160M/162<br>3/B<br>(COS.sp.145<br>7651)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 372 Secs (372 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 10   | DARK  |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                   | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |   |                |                        |                 |   |                              |     |
| 11   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 367 Secs (367 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 12   | G140L/1105<br>/FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 332 Secs (332 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 13   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=A | 274 Secs (274 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |







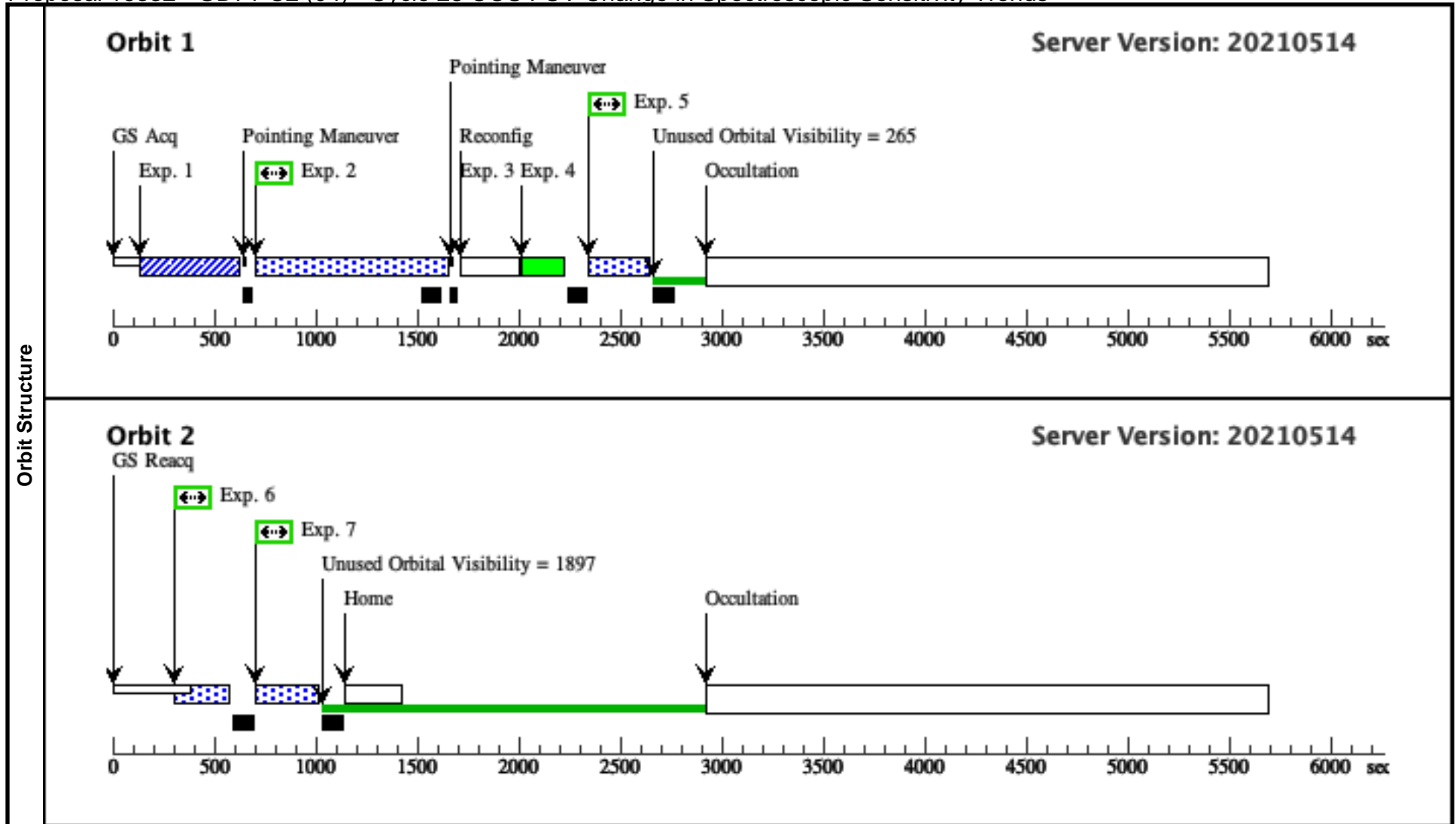
Proposal 16332 - GD71-C2 (04) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Wed Jun 30 14:01:14 GMT 2021

| <b>Visit</b> | <p><b>Proposal 16332, GD71-C2 (04), implementation</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: exposure 4: GO wavecal to calculate the OSM shifts of the G130M/1096/FUVB observation</i></p> <p><i>George Chapman added Exposure 3</i></p> <p><i>All G160M observations are with SEGMENT = A (i.e. segment B is turned off).</i></p> |  |                                    |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|--------------|---|--|------------------------------------|--------------------------|-----------------------|---------------|---|------|--------------------|--------------------------|--------|---------------|-----|------|---------------------------------|---------------------------------|----------------|-----------------------|--|--|-------------------------------|------------------------------------|--|--|--|--|----------------|-------------------------|--|
|              | <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>GD71</td> <td>RA: 05 52 27.6200 (88.1150833d)</td> <td>Proper Motion RA: 76.841 mas/yr</td> <td>V=13.06+/-0.01</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td></td> <td>Dec: +15 53 13.23 (15.88701d)</td> <td>Proper Motion Dec: -172.944 mas/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Epoch of Position: 2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: Co-ordinates and proper motions updated with values from SIMBAD, which uses the GAIA DR2 catalog.</i></p> <p><i>Differences from previous co-ordinates are in decimal places in seconds of time and arcsec, within the stated errors.</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[DA]</i></p> <p><i>Extended=NO</i></p> |                                    |                          |                       |               | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | (2) | GD71 | RA: 05 52 27.6200 (88.1150833d) | Proper Motion RA: 76.841 mas/yr | V=13.06+/-0.01 | Reference Frame: ICRS |  |  | Dec: +15 53 13.23 (15.88701d) | Proper Motion Dec: -172.944 mas/yr |  |  |  |  | Equinox: J2000 | Epoch of Position: 2000 |  |
| #            |   | Name   | Target Coordinates                 | Targ. Coord. Corrections | Fluxes                | Miscellaneous |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
| (2)          | GD71  | RA: 05 52 27.6200 (88.1150833d)  | Proper Motion RA: 76.841 mas/yr    | V=13.06+/-0.01           | Reference Frame: ICRS |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Dec: +15 53 13.23 (15.88701d)  | Proper Motion Dec: -172.944 mas/yr |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Equinox: J2000   | Epoch of Position: 2000            |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |

Proposal 16332 - GD71-C2 (04) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #                                       | Label<br>(ETC Run)   | Target  | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.  | Special Reqs.   | Groups                                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|---|--|---|------------------------|-------------------------|---|---|---------------------------------------|---------------------------------|------------------------------|-----|
| Exposures                               | 1  | ACQ/IM<br>(COS.ta.839<br>574)                       | (2) GD71               | COS/NUV, ACQ/IMAGE, BOA | MIRRORB   |   |                                       | 90 Secs (90 Secs)<br>[==>]      | [1]                          |     |
|   | <i>Comments: See Visit 02 comments.</i>  |   |                        |                         |   |   |                                       |                                 |                              |     |
|   | 2  | G130M/109<br>6/FUVB/LP<br>2<br>(COS.sp.145<br>7659) | (2) GD71               | COS/FUV, TIME-TAG, PSA  | G130M<br>1096 A   | BUFFER-TIME=63<br>4;<br>FP-POS=3;<br>SEGMENT=B;<br>LIFETIME-POS=L<br>P2 |                                       |                                 | 744 Secs (744 Secs)<br>[==>] | [1] |
|   | <i>Comments: See Visit 02 comments.</i>  |   |                        |                         |   |   |                                       |                                 |                              |     |
|   | 3  |   | DARK                   | S/C, DATA, NONE         |   |   | QASISTATES COS<br>FUV HVLOW HVL<br>OW |                                 | 1 Secs (1 Secs)<br>[==>]     | [1] |
|   | <i>Comments: Work-around to efficiently schedule the SEG-B to SEG-A reconfiguration. Eliminates SPSS induced gaps.</i> |   |                        |                         |   |   |                                       |                                 |                              |     |
|   | 4  | G130M/109<br>6/FUVA W<br>AVECAL/L<br>P2             | WAVE                   | COS/FUV, TIME-TAG, WCA  | G130M<br>1096 A   | FP-POS=3;<br>SEGMENT=A;<br>FLASH=NO;<br>LIFETIME-POS=L<br>P2            |                                       |                                 | 160 Secs (160 Secs)<br>[==>] | [1] |
| <i>Comments: See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 5                                       | G160M/153<br>3/FUVA<br>(COS.sp.145<br>7660)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | BUFFER-TIME=10<br>6;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 106 Secs (106 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 6                                       | G160M/157<br>7/FUVA<br>(COS.sp.145<br>7661)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A         | BUFFER-TIME=13<br>5;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 135 Secs (135 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 7                                       | G160M/162<br>3/FUVA<br>(COS.sp.145<br>7663)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A         | BUFFER-TIME=17<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 177 Secs (177 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |



Proposal 16332 - WD0308-C3 (05) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |            |   |   |                                 |                       |
|--|---|------------|---|---|---------------------------------|-----------------------|
| <b>Visit</b>   | <p><b>Proposal 16332, WD0308-C3 (05), implementation</b> <span style="float: right;">Wed Jun 30 14:01:14 GMT 2021</span></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off).</i></p> |            |   |   |                                 |                       |
|  | <b>Fixed Targets</b>  | <b>#</b>   | <b>Name</b>   | <b>Target Coordinates</b>   | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>         |
| (1)  |   | WD0308-565 | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02                  | Reference Frame: ICRS |
| <p><i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog.<br/>                     Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.<br/>                     Category=STAR<br/>                     Description=[DB]<br/>                     Extended=NO</i></p> |   |            |   |   |                                 |                       |

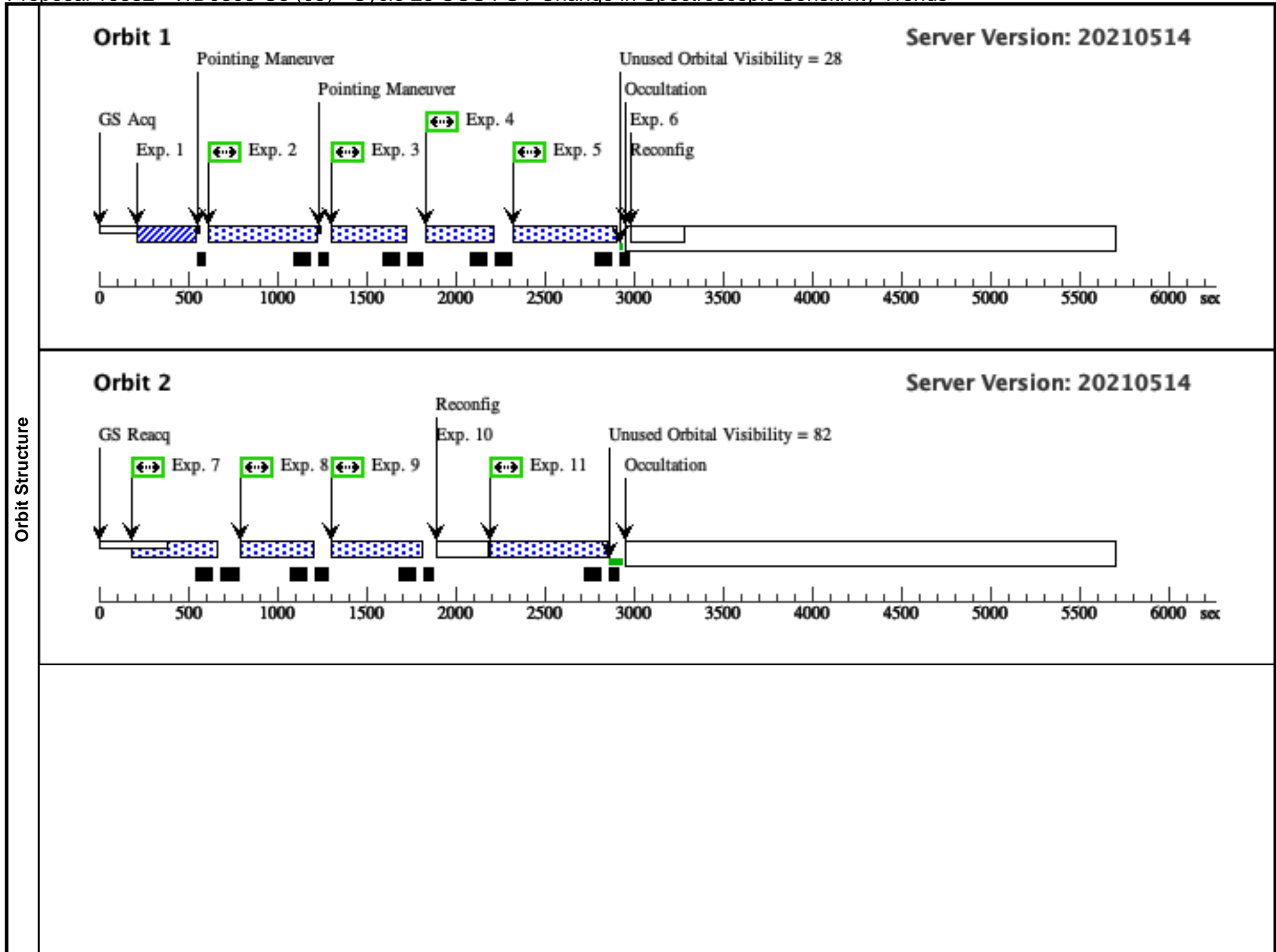
Proposal 16332 - WD0308-C3 (05) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

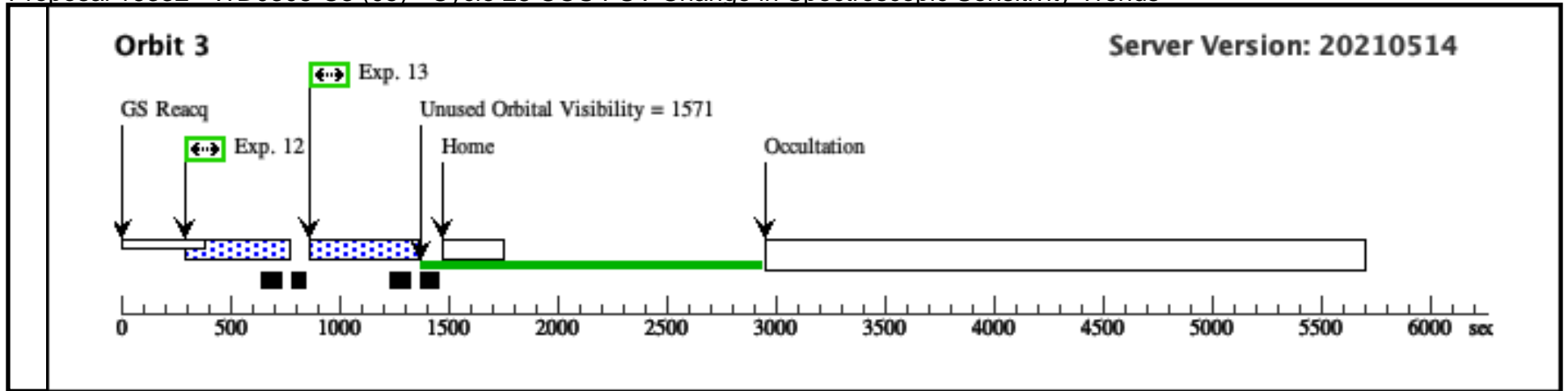
| #  | Label<br>(ETC Run)                       | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|--|--|--|------------------------|-------------------------|--|--|--------|---------------------------------|------------------------------|-----|
| Exposures  | 1  | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |        | 45 Secs (45 Secs)<br>[==>]      | [1]                          |     |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 2  | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |        |                                 | 393 Secs (393 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 3  | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 267 Secs (267 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 4  | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 236 Secs (236 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
| 5  | G140L/1280<br>(COS.sp.145<br>7781)       | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 366 Secs (366 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |
| 6  |  | DARK                                       | S/C, DATA, NONE        |                         |  | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      |        | 1 Secs (1 Secs)<br>[==>]        | [1]                          |     |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |  |                        |                         |  |  |        |                                 |                              |     |
| 7  | G160M/153<br>3/B<br>(COS.sp.145<br>7649) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B    |  |        | 223 Secs (223 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |

Proposal 16332 - WD0308-C3 (05) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |                |                        |                 |   |                              |     |
|--|---|----------------|------------------------|-----------------|---|------------------------------|-----|
| 8  | G160M/157<br>7/B<br>(COS.sp.145<br>7650)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 275 Secs (275 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 9  | G160M/162<br>3/B<br>(COS.sp.145<br>7651)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 372 Secs (372 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 10   | DARK  |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                   | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |   |                |                        |                 |   |                              |     |
| 11   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 367 Secs (367 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 12   | G140L/1105<br>/FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 332 Secs (332 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 13   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=A | 274 Secs (274 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |







Proposal 16332 - GD71-C3 (06) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

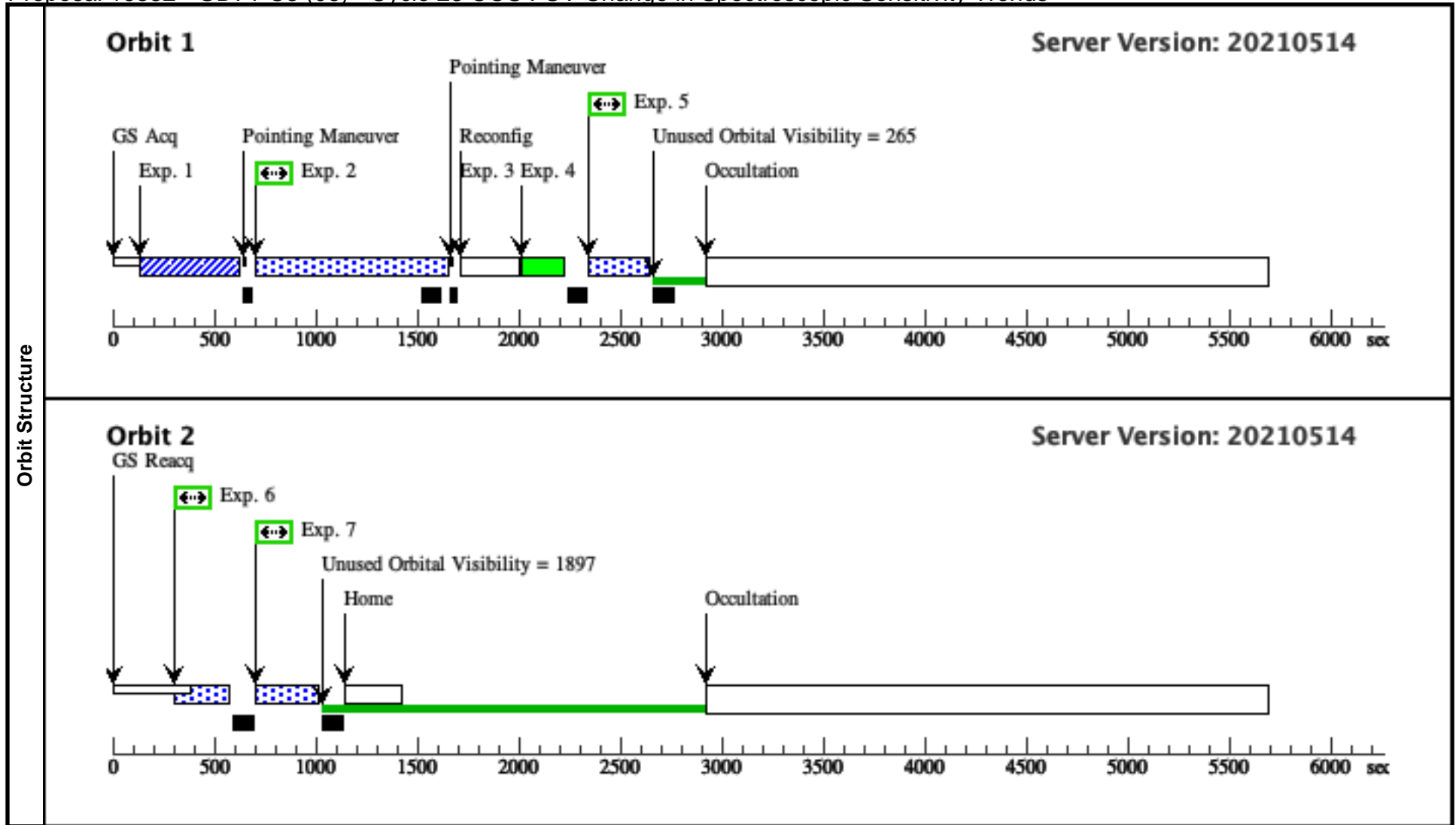
Wed Jun 30 14:01:14 GMT 2021

| <b>Visit</b> | <p><b>Proposal 16332, GD71-C3 (06), implementation</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: exposure 4: GO wavecal to calculate the OSM shifts of the G130M/1096/FUVB observation</i></p> <p><i>George Chapman added Exposure 3</i></p> <p><i>All G160M observations are with SEGMENT = A (i.e. segment B is turned off).</i></p> |  |                                    |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|--------------|---|--|------------------------------------|--------------------------|-----------------------|---------------|---|------|--------------------|--------------------------|--------|---------------|-----|------|---------------------------------|---------------------------------|----------------|-----------------------|--|--|-------------------------------|------------------------------------|--|--|--|--|----------------|-------------------------|--|
|              | <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>GD71</td> <td>RA: 05 52 27.6200 (88.1150833d)</td> <td>Proper Motion RA: 76.841 mas/yr</td> <td>V=13.06+/-0.01</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td></td> <td>Dec: +15 53 13.23 (15.88701d)</td> <td>Proper Motion Dec: -172.944 mas/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Epoch of Position: 2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: Co-ordinates and proper motions updated with values from SIMBAD, which uses the GAIA DR2 catalog. Differences from previous co-ordinates are in decimal places in seconds of time and arcsec, within the stated errors.</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[DA]</i></p> <p><i>Extended=NO</i></p> |                                    |                          |                       |               | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | (2) | GD71 | RA: 05 52 27.6200 (88.1150833d) | Proper Motion RA: 76.841 mas/yr | V=13.06+/-0.01 | Reference Frame: ICRS |  |  | Dec: +15 53 13.23 (15.88701d) | Proper Motion Dec: -172.944 mas/yr |  |  |  |  | Equinox: J2000 | Epoch of Position: 2000 |  |
| #            |   | Name   | Target Coordinates                 | Targ. Coord. Corrections | Fluxes                | Miscellaneous |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
| (2)          | GD71  | RA: 05 52 27.6200 (88.1150833d)  | Proper Motion RA: 76.841 mas/yr    | V=13.06+/-0.01           | Reference Frame: ICRS |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Dec: +15 53 13.23 (15.88701d)  | Proper Motion Dec: -172.944 mas/yr |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Equinox: J2000   | Epoch of Position: 2000            |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |

Proposal 16332 - GD71-C3 (06) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #  | Label<br>(ETC Run)                                  | Target   | Config,Mode,Aperture    | Spectral Els.   | Opt. Params.  | Special Reqs.                         | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|--|---|----------|-------------------------|-----------------|---|---------------------------------------|--------|---------------------------------|-------|
| 1  | ACQ/IM<br>(COS.ta.839<br>574)                       | (2) GD71 | COS/NUV, ACQ/IMAGE, BOA | MIRRORB         |   |                                       |        | 90 Secs (90 Secs)<br>[==>]      | [1]   |
| <i>Comments: See Visit 02 comments.</i>  |   |          |                         |                 |   |                                       |        |                                 |       |
| 2  | G130M/109<br>6/FUVB/LP<br>2<br>(COS.sp.145<br>7659) | (2) GD71 | COS/FUV, TIME-TAG, PSA  | G130M<br>1096 A | BUFFER-TIME=63<br>4;<br>FP-POS=3;<br>SEGMENT=B;<br>LIFETIME-POS=L<br>P2 |                                       |        | 744 Secs (744 Secs)<br>[==>]    | [1]   |
| <i>Comments: FUVB only (all ETC warnings come from FUVA).<br/>See Visit 02 comments.</i>                               |   |          |                         |                 |   |                                       |        |                                 |       |
| 3  |   | DARK     | S/C, DATA, NONE         |                 |   | QASISTATES COS<br>FUV HVLOW HVL<br>OW |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
| <i>Comments: Work-around to efficiently schedule the SEG-B to SEG-A reconfiguration. Eliminates SPSS induced gaps.</i> |   |          |                         |                 |   |                                       |        |                                 |       |
| 4  | G130M/109<br>6/FUVA W<br>AVECAL/L<br>P2             | WAVE     | COS/FUV, TIME-TAG, WCA  | G130M<br>1096 A | FP-POS=3;<br>SEGMENT=A;<br>FLASH=NO;<br>LIFETIME-POS=L<br>P2            |                                       |        | 160 Secs (160 Secs)<br>[==>]    | [1]   |
| <i>Comments: See Visit 02 comments.</i>  |   |          |                         |                 |   |                                       |        |                                 |       |
| 5  | G160M/153<br>3/FUVA<br>(COS.sp.145<br>7660)         | (2) GD71 | COS/FUV, TIME-TAG, PSA  | G160M<br>1533 A | BUFFER-TIME=10<br>6;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |                                       |        | 106 Secs (106 Secs)<br>[==>]    | [1]   |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i>                               |   |          |                         |                 |   |                                       |        |                                 |       |
| 6  | G160M/157<br>7/FUVA<br>(COS.sp.145<br>7661)         | (2) GD71 | COS/FUV, TIME-TAG, PSA  | G160M<br>1577 A | BUFFER-TIME=13<br>5;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |                                       |        | 135 Secs (135 Secs)<br>[==>]    | [2]   |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i>                               |   |          |                         |                 |   |                                       |        |                                 |       |
| 7  | G160M/162<br>3/FUVA<br>(COS.sp.145<br>7663)         | (2) GD71 | COS/FUV, TIME-TAG, PSA  | G160M<br>1623 A | BUFFER-TIME=17<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |                                       |        | 177 Secs (177 Secs)<br>[==>]    | [2]   |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i>                               |   |          |                         |                 |   |                                       |        |                                 |       |

Exposures



Proposal 16332 - WD0308-C4 (07) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|   |   |             |   |   |                |                       |
|---|---|-------------|---|---|----------------|-----------------------|
| <b>Visit</b>  | <b>Proposal 16332, WD0308-C4 (07), implementation</b> <span style="float: right;">Wed Jun 30 14:01:14 GMT 2021</span>   |             |   |   |                |                       |
|   | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: S/C, COS/FUV, COS/NUV<br>Special Requirements: SCHED 100%<br><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off) for all other WD0308-565 visits.<br/>                 However, for the June visit, since GD71 is not available, we use SEGMENT = BOTH to keep track of the segment A response, and the first DARK exposure (exp 006 in the other visits) has been removed.</i> |             |   |   |                |                       |
| <b>Fixed Targets</b>  | <b>#</b>  | <b>Name</b> | <b>Target Coordinates</b>   | <b>Targ. Coord. Corrections</b>   | <b>Fluxes</b>  | <b>Miscellaneous</b>  |
|   | (1)   | WD0308-565  | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02 | Reference Frame: ICRS |
| <i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog.<br/>                 Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.<br/>                 Category=STAR<br/>                 Description=[DB]<br/>                 Extended=NO</i> |   |             |   |   |                |                       |

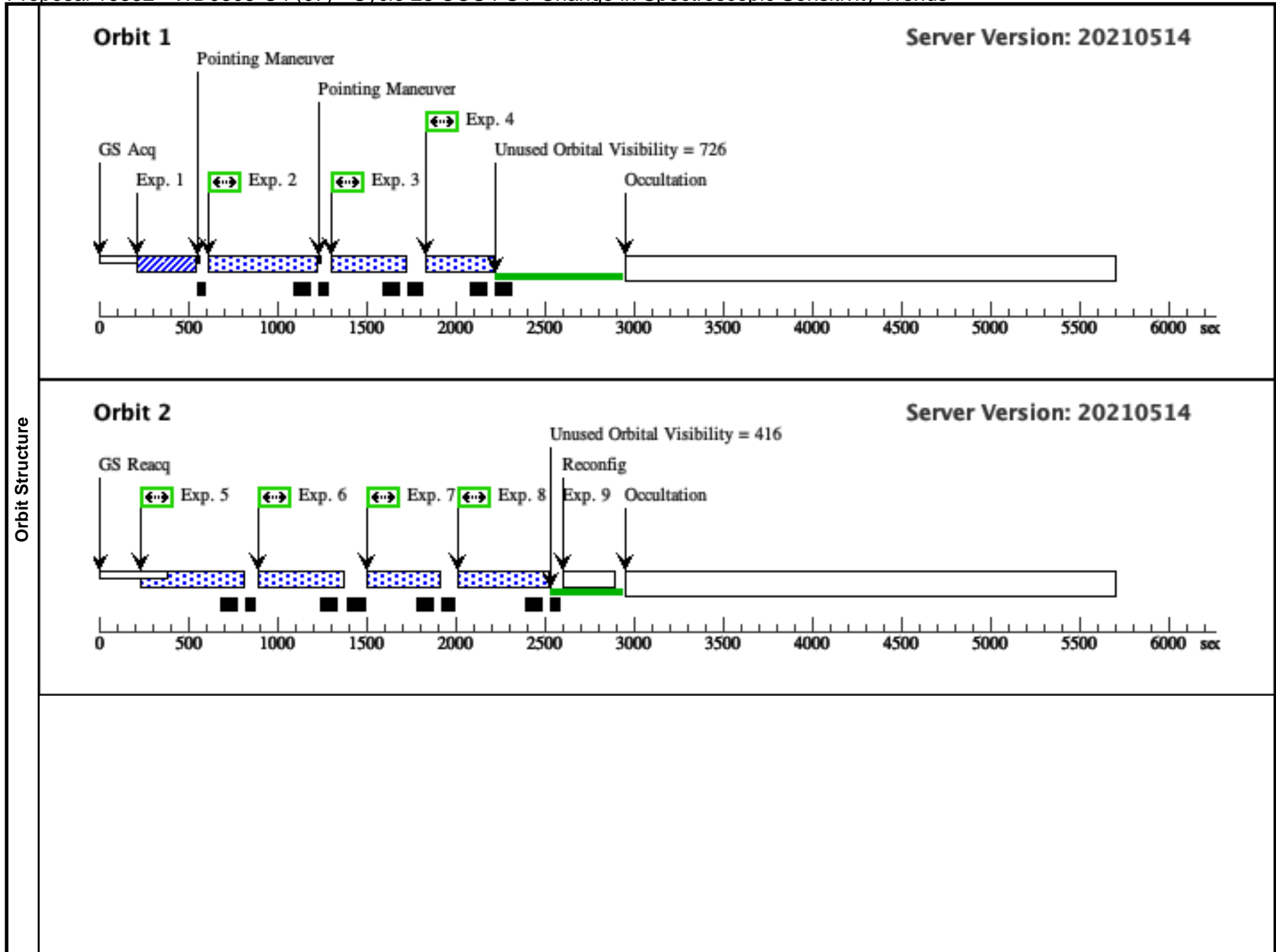
Proposal 16332 - WD0308-C4 (07) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

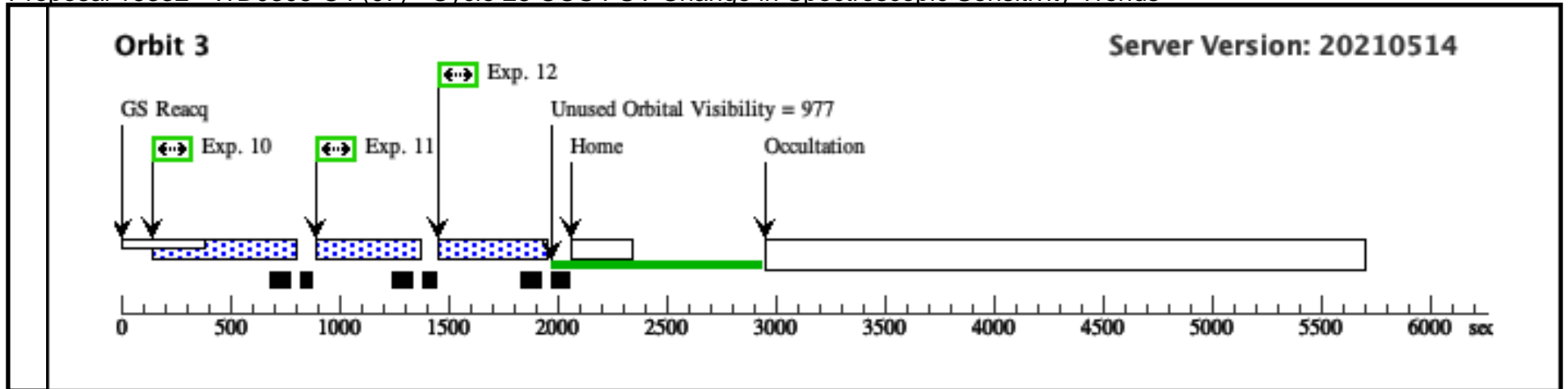
| #                                       | Label<br>(ETC Run)                          | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|---|---|--|------------------------|-------------------------|--|--|--------|---------------------------------|------------------------------|-----|
| Exposures                               | 1   | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |        | 45 Secs (45 Secs)<br>[==>]      | [1]                          |     |
|   | <i>Comments: See Visit 01 comments.</i>     |  |                        |                         |  |  |        |                                 |                              |     |
|   | 2   | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |        |                                 | 393 Secs (393 Secs)<br>[==>] | [1] |
|   | <i>Comments: See Visit 01 comments.</i>     |  |                        |                         |  |  |        |                                 |                              |     |
|   | 3   | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 267 Secs (267 Secs)<br>[==>] | [1] |
|   | <i>Comments: See Visit 01 comments.</i>     |  |                        |                         |  |  |        |                                 |                              |     |
|   | 4   | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 236 Secs (236 Secs)<br>[==>] | [1] |
| <i>Comments: See Visit 01 comments.</i> |   |  |                        |                         |  |  |        |                                 |                              |     |
| 5                                       | G140L/1280<br>(COS.sp.145<br>7781)          | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 366 Secs (366 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i> |   |  |                        |                         |  |  |        |                                 |                              |     |
| 6                                       | G160M/153<br>3/Both<br>(COS.sp.145<br>7649) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 223 Secs (223 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i> |   |  |                        |                         |  |  |        |                                 |                              |     |
| 7                                       | G160M/157<br>7/Both<br>(COS.sp.145<br>7650) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A         | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 275 Secs (275 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i> |   |  |                        |                         |  |  |        |                                 |                              |     |

Proposal 16332 - WD0308-C4 (07) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |  |                |                        |                 |  |                              |     |
|--|--|----------------|------------------------|-----------------|--|------------------------------|-----|
| 8  | G160M/162<br>3/Both<br>(COS.sp.145<br>7651)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH | 372 Secs (372 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |  |                |                        |                 |  |                              |     |
| 9  | DARK   |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |                |                        |                 |  |                              |     |
| 10   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)   | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4    | 367 Secs (367 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |  |                |                        |                 |  |                              |     |
| 11   | G140L/1105/<br>/FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4    | 332 Secs (332 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |  |                |                        |                 |  |                              |     |
| 12   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=A    | 274 Secs (274 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |  |                |                        |                 |  |                              |     |







Proposal 16332 - WD0308-C5 (08) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

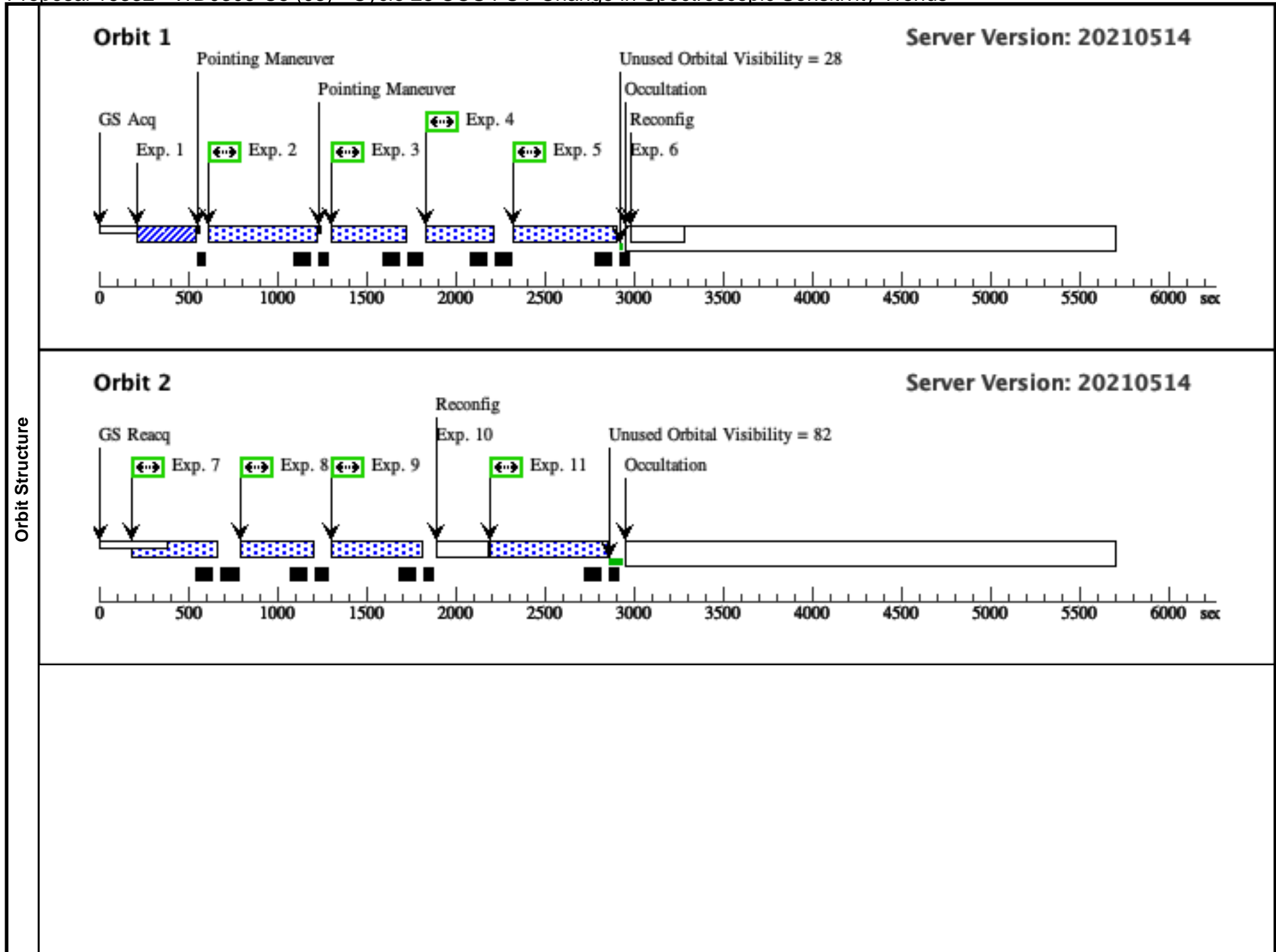
|   |   |             |   |   |                |                       |
|---|---|-------------|---|---|----------------|-----------------------|
| <b>Visit</b>  | <b>Proposal 16332, WD0308-C5 (08), implementation</b> <span style="float: right;">Wed Jun 30 14:01:14 GMT 2021</span>   |             |   |   |                |                       |
|   | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: S/C, COS/FUV, COS/NUV<br>Special Requirements: SCHED 100%<br><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off).</i> |             |   |   |                |                       |
| <b>Fixed Targets</b>  | <b>#</b>  | <b>Name</b> | <b>Target Coordinates</b>   | <b>Targ. Coord. Corrections</b>   | <b>Fluxes</b>  | <b>Miscellaneous</b>  |
|   | (1)   | WD0308-565  | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02 | Reference Frame: ICRS |
| <i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog.<br/>                 Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.<br/>                 Category=STAR<br/>                 Description=[DB]<br/>                 Extended=NO</i> |   |             |   |   |                |                       |

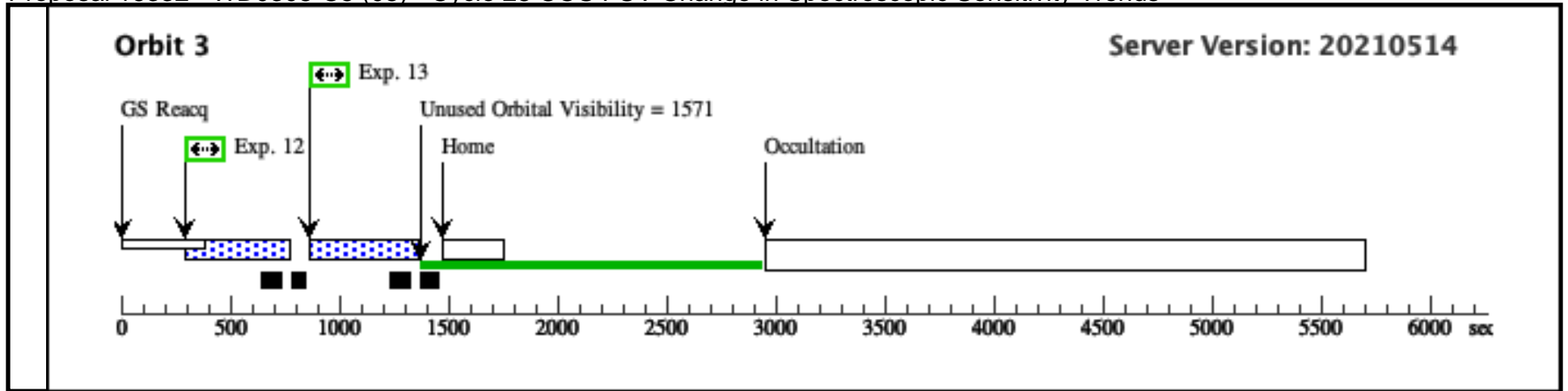
Proposal 16332 - WD0308-C5 (08) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #  | Label<br>(ETC Run)                       | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|--|--|--|------------------------|-------------------------|--|--|--------|---------------------------------|------------------------------|-----|
| Exposures  | 1  | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |        | 45 Secs (45 Secs)<br>[==>]      | [1]                          |     |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 2  | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |        |                                 | 393 Secs (393 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 3  | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 267 Secs (267 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
|  | 4  | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |        |                                 | 236 Secs (236 Secs)<br>[==>] | [1] |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |        |                                 |                              |     |
| 5  | G140L/1280<br>(COS.sp.145<br>7781)       | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |  |        | 366 Secs (366 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |
| 6  |  | DARK                                       | S/C, DATA, NONE        |                         |  | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      |        | 1 Secs (1 Secs)<br>[==>]        | [1]                          |     |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |  |                        |                         |  |  |        |                                 |                              |     |
| 7  | G160M/153<br>3/B<br>(COS.sp.145<br>7649) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B    |  |        | 223 Secs (223 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |        |                                 |                              |     |

Proposal 16332 - WD0308-C5 (08) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |                |                        |                 |   |                              |     |
|--|---|----------------|------------------------|-----------------|---|------------------------------|-----|
| 8  | G160M/157<br>7/B<br>(COS.sp.145<br>7650)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 275 Secs (275 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 9  | G160M/162<br>3/B<br>(COS.sp.145<br>7651)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 372 Secs (372 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 10   | DARK  |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                   | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |   |                |                        |                 |   |                              |     |
| 11   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 367 Secs (367 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 12   | G140L/1105<br>/FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 | 332 Secs (332 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 13   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=A | 274 Secs (274 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |





Proposal 16332 - GD71-C4 (09) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

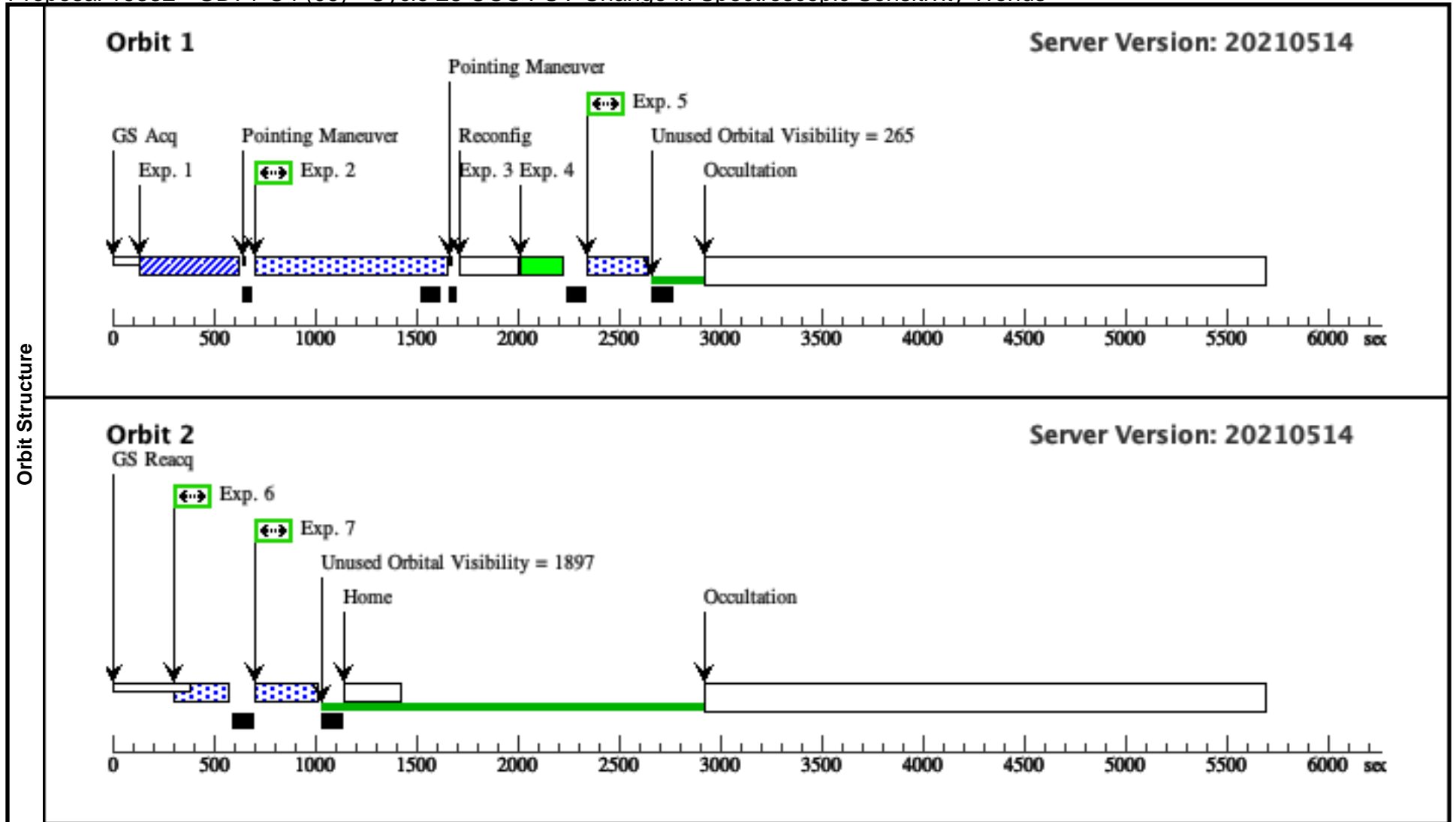
Wed Jun 30 14:01:14 GMT 2021

| <b>Visit</b> | <p><b>Proposal 16332, GD71-C4 (09), implementation</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: exposure 4: GO wavecal to calculate the OSM shifts of the G130M/1096/FUVB observation</i></p> <p><i>George Chapman added Exposure 3</i></p> <p><i>All G160M observations are with SEGMENT = A (i.e. segment B is turned off).</i></p> |  |                                    |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|--------------|---|--|------------------------------------|--------------------------|-----------------------|---------------|---|------|--------------------|--------------------------|--------|---------------|-----|------|---------------------------------|---------------------------------|----------------|-----------------------|--|--|-------------------------------|------------------------------------|--|--|--|--|----------------|-------------------------|--|
|              | <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>GD71</td> <td>RA: 05 52 27.6200 (88.1150833d)</td> <td>Proper Motion RA: 76.841 mas/yr</td> <td>V=13.06+/-0.01</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td></td> <td>Dec: +15 53 13.23 (15.88701d)</td> <td>Proper Motion Dec: -172.944 mas/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Epoch of Position: 2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: Co-ordinates and proper motions updated with values from SIMBAD, which uses the GAIA DR2 catalog.</i></p> <p><i>Differences from previous co-ordinates are in decimal places in seconds of time and arcsec, within the stated errors.</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[DA]</i></p> <p><i>Extended=NO</i></p> |                                    |                          |                       |               | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | (2) | GD71 | RA: 05 52 27.6200 (88.1150833d) | Proper Motion RA: 76.841 mas/yr | V=13.06+/-0.01 | Reference Frame: ICRS |  |  | Dec: +15 53 13.23 (15.88701d) | Proper Motion Dec: -172.944 mas/yr |  |  |  |  | Equinox: J2000 | Epoch of Position: 2000 |  |
| #            |   | Name   | Target Coordinates                 | Targ. Coord. Corrections | Fluxes                | Miscellaneous |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
| (2)          | GD71  | RA: 05 52 27.6200 (88.1150833d)  | Proper Motion RA: 76.841 mas/yr    | V=13.06+/-0.01           | Reference Frame: ICRS |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Dec: +15 53 13.23 (15.88701d)  | Proper Motion Dec: -172.944 mas/yr |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |
|              |   | Equinox: J2000   | Epoch of Position: 2000            |                          |                       |               |   |      |                    |                          |        |               |     |      |                                 |                                 |                |                       |  |  |                               |                                    |  |  |  |  |                |                         |  |



Proposal 16332 - GD71-C4 (09) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #  | Label<br>(ETC Run)   | Target  | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.  | Special Reqs.   | Groups                                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |     |
|--|--|---|------------------------|-------------------------|---|---|---------------------------------------|---------------------------------|------------------------------|-----|
| Exposures  | 1  | ACQ/IM<br>(COS.ta.839<br>574)                       | (2) GD71               | COS/NUV, ACQ/IMAGE, BOA | MIRRORB   |   |                                       | 90 Secs (90 Secs)<br>[==>]      | [1]                          |     |
|  | <i>Comments: See Visit 02 comments.</i>  |   |                        |                         |   |   |                                       |                                 |                              |     |
|  | 2  | G130M/109<br>6/FUVB/LP<br>2<br>(COS.sp.145<br>7659) | (2) GD71               | COS/FUV, TIME-TAG, PSA  | G130M<br>1096 A   | BUFFER-TIME=63<br>4;<br>FP-POS=3;<br>SEGMENT=B;<br>LIFETIME-POS=L<br>P2 |                                       |                                 | 744 Secs (744 Secs)<br>[==>] | [1] |
|  | <i>Comments: FUVB only (all ETC warnings come from FUVA).<br/>See Visit 02 comments.</i>                               |   |                        |                         |   |   |                                       |                                 |                              |     |
|  | 3  |   | DARK                   | S/C, DATA, NONE         |   |   | QASISTATES COS<br>FUV HVLOW HVL<br>OW |                                 | 1 Secs (1 Secs)<br>[==>]     | [1] |
|  | <i>Comments: Work-around to efficiently schedule the SEG-B to SEG-A reconfiguration. Eliminates SPSS induced gaps.</i> |   |                        |                         |   |   |                                       |                                 |                              |     |
|  | 4  | G130M/109<br>6/FUVA W<br>AVECAL/L<br>P2             | WAVE                   | COS/FUV, TIME-TAG, WCA  | G130M<br>1096 A   | FP-POS=3;<br>SEGMENT=A;<br>FLASH=NO;<br>LIFETIME-POS=L<br>P2            |                                       |                                 | 160 Secs (160 Secs)<br>[==>] | [1] |
| <i>Comments: See Visit 02 comments.</i>  |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 5  | G160M/153<br>3/FUVA<br>(COS.sp.145<br>7660)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | BUFFER-TIME=10<br>6;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 106 Secs (106 Secs)<br>[==>]    | [1]                          |     |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 6  | G160M/157<br>7/FUVA<br>(COS.sp.145<br>7661)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A         | BUFFER-TIME=13<br>5;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 135 Secs (135 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |
| 7  | G160M/162<br>3/FUVA<br>(COS.sp.145<br>7663)  | (2) GD71  | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A         | BUFFER-TIME=17<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P4 |   |                                       | 177 Secs (177 Secs)<br>[==>]    | [2]                          |     |
| <i>Comments: FUVA only (all ETC warnings come from FUVB).<br/>See Visit 02 comments.</i> |  |   |                        |                         |   |   |                                       |                                 |                              |     |



Proposal 16332 - WD0308-C6 (10) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

Wed Jun 30 14:01:14 GMT 2021

| <b>Visit</b> | <p><b>Proposal 16332, WD0308-C6 (10), implementation</b></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: S/C, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%</p> <p><i>Comments: All G160M observations are with SEGMENT = B (i.e. segment A is turned off).</i></p> <p><i>Contingency visit 10 exposures would occur after the move to LP5 and LP3 in October 2021. G130M/1291 and 1300 exposures have been changed from LP4 to LP5, and G140L exposures have been changed from LP4 to LP3. G160M and G130M/1055/1096/1222 cenwaves are unchanged.</i></p> |   |   |                |                       |                          |        |               |     |            |   |   |                |
|--------------|--|---|---|----------------|-----------------------|--------------------------|--------|---------------|-----|------------|---|---|----------------|
|              | <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>WD0308-565</td> <td>RA: 03 09 47.9200 (47.4496667d)<br/>Dec: -56 23 49.41 (-56.39706d)<br/>Equinox: J2000</td> <td>Proper Motion RA: 149.241 mas/yr<br/>Proper Motion Dec: 66.919 mas/yr<br/>Epoch of Position: 2000</td> <td>V=14.07+/-0.02</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: Coordinates carried over from Cycle 25 proposal, checked against SIMBAD, which uses the GAIA DR2 catalog. Proper motions changed to mas/yr, from SIMBAD, also using the GAIA DR2 catalog.</i></p> <p>Category=STAR<br/>Description=[DB]<br/>Extended=NO</p> | #   | Name           | Target Coordinates    | Targ. Coord. Corrections | Fluxes | Miscellaneous | (1) | WD0308-565 | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000 | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02 |
| #            | Name   | Target Coordinates  | Targ. Coord. Corrections  | Fluxes         | Miscellaneous         |                          |        |               |     |            |   |   |                |
| (1)          | WD0308-565   | RA: 03 09 47.9200 (47.4496667d)<br>Dec: -56 23 49.41 (-56.39706d)<br>Equinox: J2000   | Proper Motion RA: 149.241 mas/yr<br>Proper Motion Dec: 66.919 mas/yr<br>Epoch of Position: 2000 | V=14.07+/-0.02 | Reference Frame: ICRS |                          |        |               |     |            |   |   |                |

Proposal 16332 - WD0308-C6 (10) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

| #  | Label<br>(ETC Run)                       | Target                                     | Config,Mode,Aperture   | Spectral Els.           | Opt. Params.   | Special Reqs.  | Groups                       | Exp. Time (Total)/[Actual Dur.] | Orbit |  |
|--|--|--|------------------------|-------------------------|--|--|------------------------------|---------------------------------|-------|--|
| Exposures  | 1  | ACQ/IM<br>(839564)                         | (1) WD0308-565         | COS/NUV, ACQ/IMAGE, BOA | MIRRORA  |  |                              | 45 Secs (45 Secs)<br>[==>]      | [1]   |  |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |                              |                                 |       |  |
|  | 2  | G130M/105<br>5/LP2<br>(COS.sp.145<br>7645) | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1055 A  | BUFFER-TIME=28<br>3;<br>FP-POS=3;<br>SEGMENT=BOTH;<br>LIFETIME-POS=L<br>P2 |                              | 393 Secs (393 Secs)<br>[==>]    | [1]   |  |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |                              |                                 |       |  |
|  | 3  | G130M/122<br>2<br>(COS.sp.145<br>7646)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1222 A  | BUFFER-TIME=15<br>7;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=BOTH |                              | 267 Secs (267 Secs)<br>[==>]    | [1]   |  |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |                              |                                 |       |  |
|  | 4  | G130M/129<br>1<br>(COS.sp.145<br>7647)     | (1) WD0308-565         | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A  | BUFFER-TIME=12<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P5;<br>SEGMENT=BOTH |                              | 236 Secs (236 Secs)<br>[==>]    | [1]   |  |
|  | <i>Comments: See Visit 01 comments.</i>  |  |                        |                         |  |  |                              |                                 |       |  |
| 5  | G140L/1280<br>(COS.sp.145<br>7781)       | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G140L<br>1280 A         | BUFFER-TIME=25<br>6;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P3;<br>SEGMENT=BOTH |  | 366 Secs (366 Secs)<br>[==>] | [1]                             |       |  |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |                              |                                 |       |  |
| 6  |  | DARK                                       | S/C, DATA, NONE        |                         |  | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                      |                              | 1 Secs (1 Secs)<br>[==>]        | [1]   |  |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |  |  |                        |                         |  |  |                              |                                 |       |  |
| 7  | G160M/153<br>3/B<br>(COS.sp.145<br>7649) | (1) WD0308-565                             | COS/FUV, TIME-TAG, PSA | G160M<br>1533 A         | FP-POS=3;<br>BUFFER-TIME=11<br>3;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B    |  | 223 Secs (223 Secs)<br>[==>] | [2]                             |       |  |
| <i>Comments: See Visit 01 comments.</i>  |  |  |                        |                         |  |  |                              |                                 |       |  |

Proposal 16332 - WD0308-C6 (10) - Cycle 28 COS FUV Change in Spectroscopic Sensitivity Trends

|  |   |                |                        |                 |   |                              |     |
|--|---|----------------|------------------------|-----------------|---|------------------------------|-----|
| 8  | G160M/157<br>7/B<br>(COS.sp.145<br>7650)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1577 A | FP-POS=3;<br>BUFFER-TIME=16<br>5;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 275 Secs (275 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 9  | G160M/162<br>3/B<br>(COS.sp.145<br>7651)    | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G160M<br>1623 A | FP-POS=3;<br>BUFFER-TIME=26<br>2;<br>LIFETIME-POS=L<br>P4;<br>SEGMENT=B | 372 Secs (372 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 10   | DARK  |                | S/C, DATA, NONE        |                 | QASISTATES COS<br>FUV HVLOW HVL<br>OW                                   | 1 Secs (1 Secs)<br>[==>]     | [2] |
| <i>Comments: Work-around to efficiently schedule the reconfiguration to SEG-A. Eliminates SPSS induced gaps.</i> |   |                |                        |                 |   |                              |     |
| 11   | G140L/800/<br>FUVA<br>(COS.sp.145<br>7778)  | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>800 A  | BUFFER-TIME=25<br>7;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P3 | 367 Secs (367 Secs)<br>[==>] | [2] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 12   | G140L/1105<br>/FUVA<br>(COS.sp.145<br>7846) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G140L<br>1105 A | BUFFER-TIME=22<br>2;<br>FP-POS=3;<br>SEGMENT=A;<br>LIFETIME-POS=L<br>P3 | 332 Secs (332 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |
| 13   | G130M/132<br>7/FUVA<br>(COS.sp.145<br>7657) | (1) WD0308-565 | COS/FUV, TIME-TAG, PSA | G130M<br>1327 A | BUFFER-TIME=16<br>4;<br>FP-POS=3;<br>LIFETIME-POS=L<br>P5;<br>SEGMENT=A | 274 Secs (274 Secs)<br>[==>] | [3] |
| <i>Comments: See Visit 01 comments.</i>  |   |                |                        |                 |   |                              |     |

