



## 16571 - WFC3 UVIS CCD Gain Stability

Cycle: 29, Proposal Category: CAL/WFC3

(Availability Mode: RESTRICTED)

### INVESTIGATORS

| <i>Name</i>                             | <i>Institution</i>                       | <i>E-Mail</i>          |
|---|--|------------------------|
| <b>Benjamin Kuhn (PI) (Contact)</b>     | <b>Space Telescope Science Institute</b> | <b>bkuhn@stsci.edu</b> |
| Mr. Harish Khandrika (CoI) (Contact)    | Space Telescope Science Institute        | hkhandrika@stsci.edu   |
| Ms. Catherine A Martlin (CoI) (Contact) | Space Telescope Science Institute        | cmartlin@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           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:35.0        | yes                           |
| 02           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:36.0        | yes                           |
| 03           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:37.0        | yes                           |
| 04           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:37.0        | yes                           |
| 05           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:38.0        | yes                           |
| 06           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:38.0        | yes                           |
| 07           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:39.0        | yes                           |
| 08           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:39.0        | yes                           |
| 09           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:40.0        | yes                           |
| 10           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:41.0        | yes                           |
| 11           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:41.0        | yes                           |
| 12           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:42.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 13           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:43.0        | yes                           |
| 14           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:43.0        | yes                           |
| 15           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:44.0        | yes                           |
| 16           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:44.0        | yes                           |
| 17           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:45.0        | yes                           |
| 18           | TUNGSTEN                     | WFC3/UVIS                           | 1                  | 29-Jun-2021 17:00:45.0        | yes                           |

18 Total Orbits Used

### **ABSTRACT**

This proposal will acquire absolute gain data for every quadrant (A, B, C, and D) of the WFC3/UVIS detector to continue monitoring the gain stability. This has been a recurring CAL program since Cycle 17 and allows us to measure both long and short term gain stability. We will continue to take both un-binned and binned (2x2 and 3x3) gain measurements.

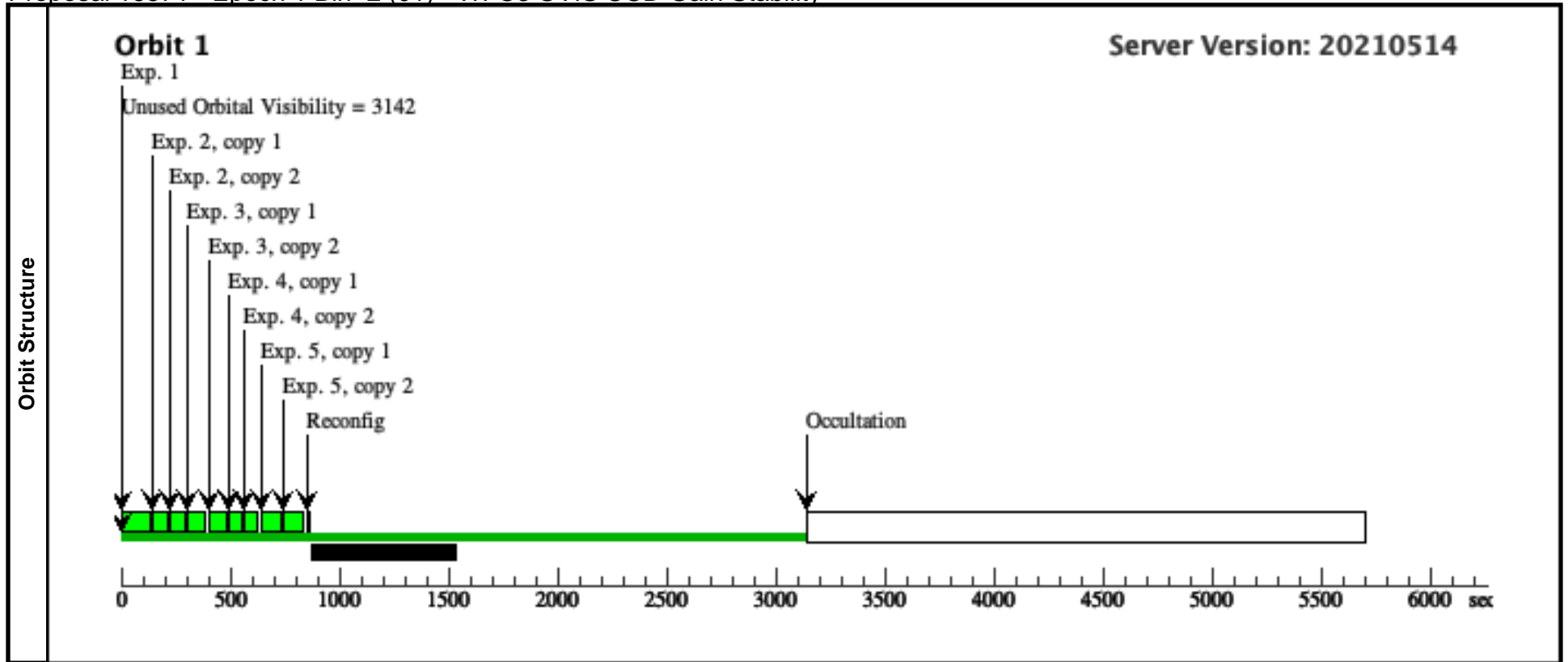
### **OBSERVING DESCRIPTION**

8 full frame pairs of internal flat fields are obtained to measure the readout for every detector quadrant (ABCD, gain=1.5 e-/DN, with binning bin=2,3,NONE). Utilizing the tungsten lamp to illuminate the detector and the F645N filter we use specific exposure times with the different apertures and bins to reach ~500 - 50,000 e-. We try to cover the bulk of science/GO observing modes with our observations. This program requires 18 internal orbits taken at two different epochs separated by 6 months (9 orbits per epoch). We employ subarray and full frame exposures to measure the gain variability in each UVIS quadrant and across the full detector. Previous calibration proposals to study absolute gain include: 11906, 12364, 12690, 13168, 13561, 14007, 14536, 14985, 15574, 15719, and 16399; all of which have provided consistent results.

Proposal 16571 - Epoch 1 Bin=2 (01) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

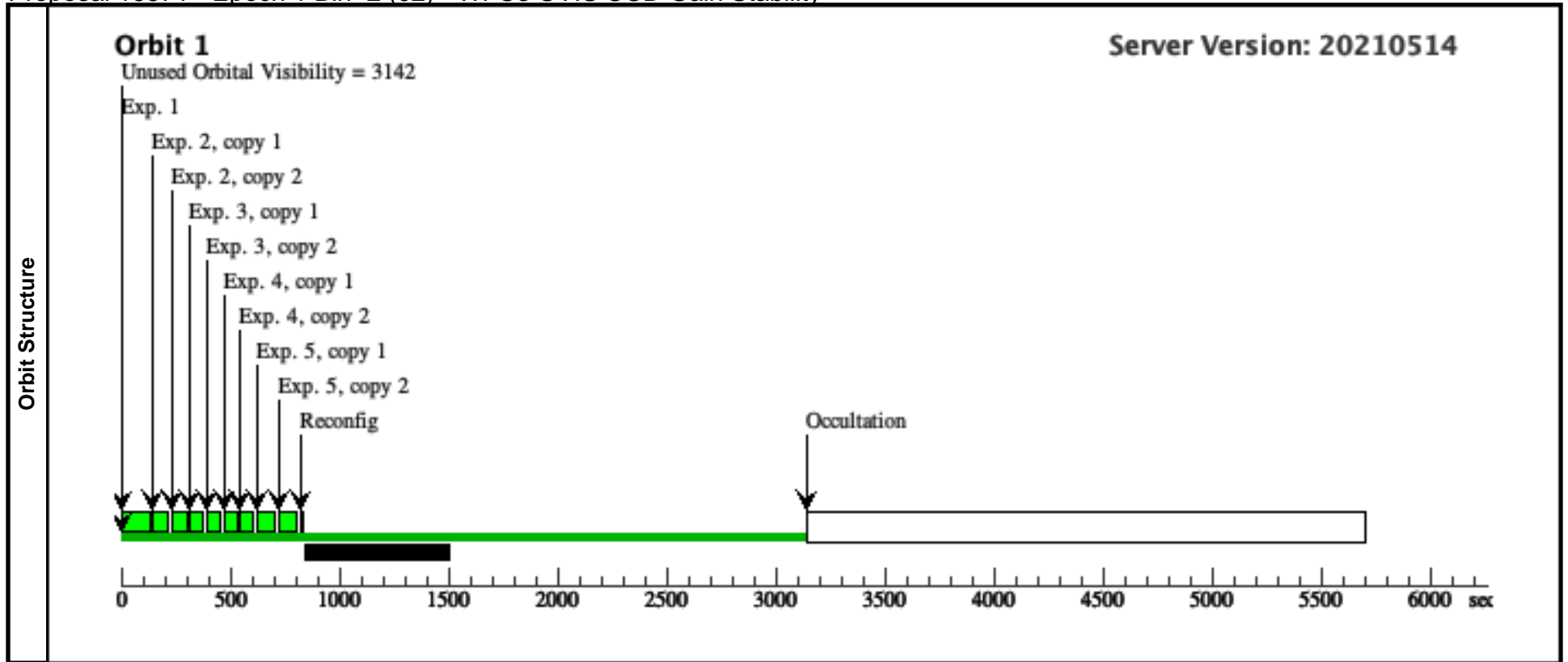
| Visit     | <b>Proposal 16571, Epoch 1 Bin=2 (01)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00<br>Comments: BIN=2 |   |          |                                  |                      |                    |              |               |  |   |       |
|-----------|---|---|----------|----------------------------------|----------------------|--------------------|--------------|---------------|--|---|-------|
|           | Diagnostics   | (subarray for lamp warmup (01.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat4 (01.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat6 (01.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat1 (01.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat8 (01.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |          |                                  |                      |                    |              |               |  |   |       |
| Exposures |   | #   | Label    | Target                           | Config,Mode,Aperture | Spectral Els.      | Opt. Params. | Special Reqs. | Groups                                     | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|           | 1   | subarray for lamp warmup  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                    |              |               | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
|           | 2   | Flat4   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01) | 6.0 Secs X 2 (12 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 3   | Flat6   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01) | 17.0 Secs X 2 (34 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|           | 4   | Flat1   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01) | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 5   | Flat8   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01) | 30.0 Secs X 2 (60 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |



Proposal 16571 - Epoch 1 Bin=2 (02) - WFC3 UVIS CCD Gain Stability

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| Visit     | <b>Proposal 16571, Epoch 1 Bin=2 (02)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00<br>Comments: BIN=2 |   |          |                                  |                      |                    |              |  |   |                                 |       |
|-----------|---|---|----------|----------------------------------|----------------------|--------------------|--------------|--|---|---------------------------------|-------|
|           | Diagnostics   | (subarray for lamp warmup (02.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat5 (02.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat2 (02.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat3 (02.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat7 (02.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |          |                                  |                      |                    |              |  |   |                                 |       |
| Exposures |   | #   | Label    | Target                           | Config,Mode,Aperture | Spectral Els.      | Opt. Params. | Special Reqs.                              | Groups  | Exp. Time (Total)/[Actual Dur.] | Orbit |
|           | 1   | subarray for lamp warmup  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                    |              |  | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (02)                | 60 Secs (60 Secs)<br>[==>]      | [1]   |
|           | 2   | Flat5   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (02) | 11.0 Secs X 2 (22 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                             |       |
|           | 3   | Flat2   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (02) | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]                             |       |
|           | 4   | Flat3   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (02) | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]                             |       |
|           | 5   | Flat7   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 1 Bin=2 (02) | 24.0 Secs X 2 (48 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                             |       |



Proposal 16571 - Epoch 1 Bin=3 (03) - WFC3 UVIS CCD Gain Stability

|                    |  |
|--------------------|--|
| <b>Visit</b>       | <p style="text-align: right;">Tue Jun 29 21:00:46 GMT 2021</p> <p><b>Proposal 16571, Epoch 1 Bin=3 (03)</b><br/> <b>Diagnostic Status: Warning</b><br/>                 Scientific Instruments: WFC3/UVIS<br/>                 Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00<br/> <i>Comments: BIN=3</i></p>   |
| <b>Diagnostics</b> | <p>(subarray for lamp warmup (03.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat1 (03.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat2 (03.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat3 (03.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat4 (03.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat5 (03.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat6 (03.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat7 (03.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat8 (03.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat9 (03.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |

Proposal 16571 - Epoch 1 Bin=3 (03) - WFC3 UVIS CCD Gain Stability

| Exposures | #     | Label                    | Target                 | Config,Mode,Aperture             | Spectral Els.      | Opt. Params.       | Special Reqs.                               | Groups  | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|-----------|-------|--------------------------|------------------------|----------------------------------|--------------------|--------------------|---|---|---|-------|
|           | 1     | subarray for lamp warmup | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N              |                    |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
|           | 2     | Flat1                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 5.0 Secs X 2 (10 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 3     | Flat2                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 4     | Flat3                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 7.0 Secs X 2 (14 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 5     | Flat4                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 3.0 Secs X 2 (6 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 6     | Flat5                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 7     | Flat6                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 9.0 Secs X 2 (18 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 8     | Flat7                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 9     | Flat8                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03)               | 11.0 Secs X 2 (22 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 10        | Flat9 | TUNGSTEN                 | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5;<br>BIN=3 |                    | Sequence 1-10 Non-Int in Epoch 1 Bin=3 (03) | 13.0 Secs X 2 (26 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |       |

Orbit Structure

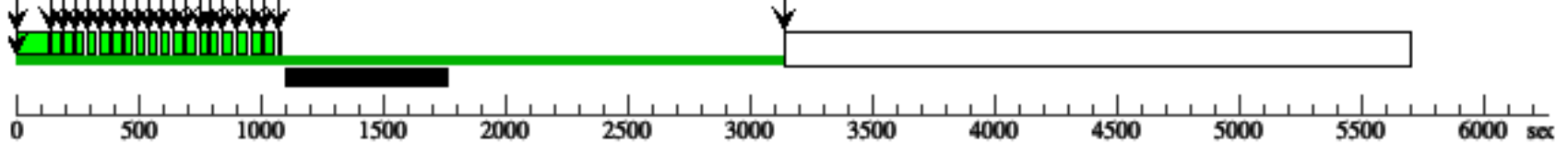
### Orbit 1

Exp. 1

Unused Orbital Visibility = 3142

- Exp. 2, copy 1
- Exp. 2, copy 2
- Exp. 3, copy 1
- Exp. 3, copy 2
- Exp. 4, copy 1
- Exp. 4, copy 2
- Exp. 5, copy 1
- Exp. 5, copy 2
- Exp. 6, copy 1
- Exp. 6, copy 2
- Exp. 7, copy 1
- Exp. 7, copy 2
- Exp. 8, copy 1
- Exp. 8, copy 2
- Exp. 9, copy 1
- Exp. 9, copy 2
- Exp. 10, copy 1
- Exp. 10, copy 2
- Reconfig

Occultation



Proposal 16571 - Epoch 1 (04) - WFC3 UVIS CCD Gain Stability

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|                        |  |                           |                        |                                  |                      |                     |                                      |   |  |              |
|------------------------|--|---------------------------|------------------------|----------------------------------|----------------------|---------------------|--------------------------------------|---|--|--------------|
| <b>Visit</b>           | <b>Proposal 16571, Epoch 1 (04)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00<br><i>Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i>   |                           |                        |                                  |                      |                     |                                      |   |  |              |
|                        | (subarray for lamp warm up (04.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat8 (04.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                           |                        |                                  |                      |                     |                                      |   |  |              |
| <b>Diagnosics</b>      |  |                           |                        |                                  |                      |                     |                                      |   |  |              |
|                        |  |                           |                        |                                  |                      |                     |                                      |   |  |              |
| <b>Exposures</b>       | <b>#</b>   | <b>Label</b>              | <b>Target</b>          | <b>Config,Mode,Aperture</b>      | <b>Spectral Els.</b> | <b>Opt. Params.</b> | <b>Special Reqs.</b>                 | <b>Groups</b>   | <b>Exp. Time (Total)/[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1  | subarray for lamp warm up | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                     |                                      | Sequence 1-2 Non-Int in Epoch 1 (04)                        | 60 Secs (60 Secs)<br>[==>]             | [1]          |
| 2                      | Flat8  | TUNGSTEN                  | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5             |                     | Sequence 1-2 Non-Int in Epoch 1 (04) | 105.0 Secs X 2 (210 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                                    |              |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20210514</b></span></p> <p>Exp. 1<br/>Unused Orbital Visibility = 3142</p> <p>Exp. 2, copy 1<br/>Exp. 2, copy 2<br/>Reconfig</p> <p>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec</p>   |                           |                        |                                  |                      |                     |                                      |   |  |              |
|                        |  |                           |                        |                                  |                      |                     |                                      |   |  |              |

Proposal 16571 - Epoch 1 (05) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

|                        |   |                           |                        |                                  |                      |                     |                                      |  |  |              |
|------------------------|---|---------------------------|------------------------|----------------------------------|----------------------|---------------------|--------------------------------------|--|--|--------------|
| <b>Visit</b>           | <b>Proposal 16571, Epoch 1 (05)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00<br><i>Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i>  |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        | (Subarray for lamp warm up (05.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat7 (05.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  |                           |                        |                                  |                      |                     |                                      |  |  |              |
| <b>Diagnosics</b>      |   |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        |   |                           |                        |                                  |                      |                     |                                      |  |  |              |
| <b>Exposures</b>       | <b>#</b>  | <b>Label</b>              | <b>Target</b>          | <b>Config,Mode,Aperture</b>      | <b>Spectral Els.</b> | <b>Opt. Params.</b> | <b>Special Reqs.</b>                 | <b>Groups</b>  | <b>Exp. Time (Total)/[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1   | Subarray for lamp warm up | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                     |                                      | Sequence 1-2 Non-Int in Epoch 1 (05)                       | 60 Secs (60 Secs)<br>[==>]             | [1]          |
| 2                      | Flat7   | TUNGSTEN                  | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5             |                     | Sequence 1-2 Non-Int in Epoch 1 (05) | 80.0 Secs X 2 (160 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                                    |              |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b><br/>Unused Orbital Visibility = 3142</p> <p>Server Version: 20210514</p> <p>The diagram shows a horizontal timeline from 0 to 6000 seconds. Key events are marked with arrows: 'Exp. 1' at ~100s, 'Exp. 2, copy 1' at ~200s, 'Exp. 2, copy 2' at ~400s, 'Reconfig' at ~600s, and 'Occultation' at ~3142s. Green bars represent exposure durations: one from 0-100s, and two from 200-400s. A black bar represents a reconfiguration period from ~600s to ~1200s. A white bar represents the occultation period from ~3142s to ~5700s.</p> |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        |   |                           |                        |                                  |                      |                     |                                      |  |  |              |

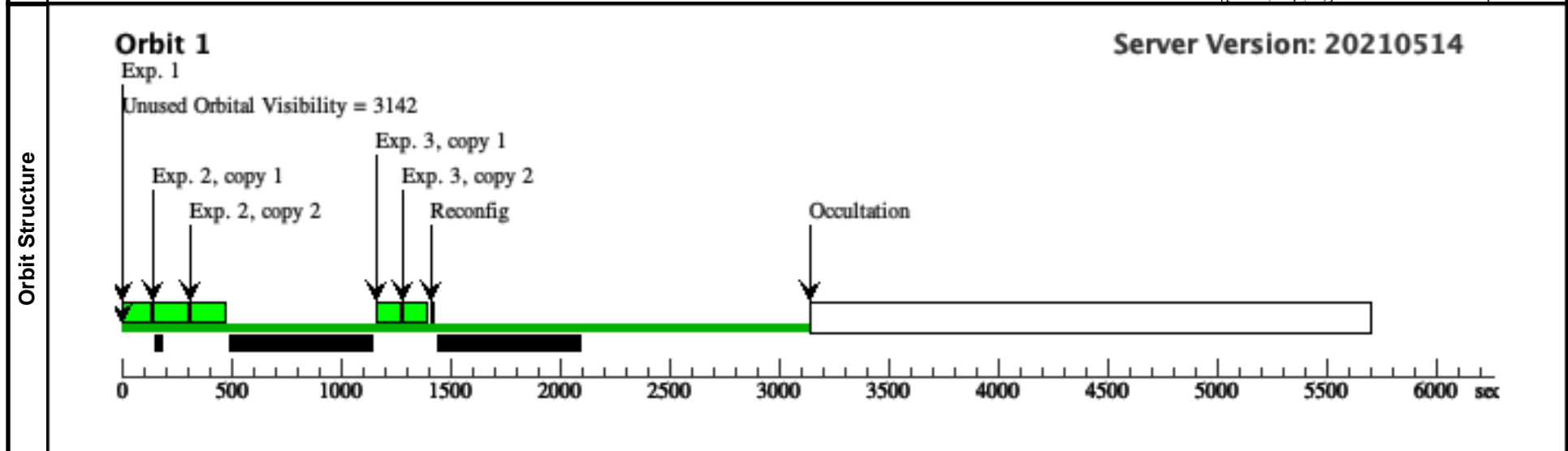
Proposal 16571 - Epoch 1 (06) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

|              |   |
|--------------|---|
| <b>Visit</b> | <p><b>Proposal 16571, Epoch 1 (06)</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00</p> <p><i>Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i></p> |
|--------------|---|

|                    |   |
|--------------------|---|
| <b>Diagnostics</b> | <p>(Epoch 1 (06)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU</p> <p>(Subarray for lamp warm up (06.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat6 (06.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat1 (06.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |
|--------------------|---|

| <b>Exposures</b> | #                         | Label    | Target                           | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|------------------|---------------------------|----------|----------------------------------|----------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1                | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |               |              |               | Sequence 1-3 Non-Int in Epoch 1 (06) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
| 2                | Flat6                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5      |              |               | Sequence 1-3 Non-Int in Epoch 1 (06) | 45.0 Secs X 2 (90 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3                | Flat1                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5      |              |               | Sequence 1-3 Non-Int in Epoch 1 (06) | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |



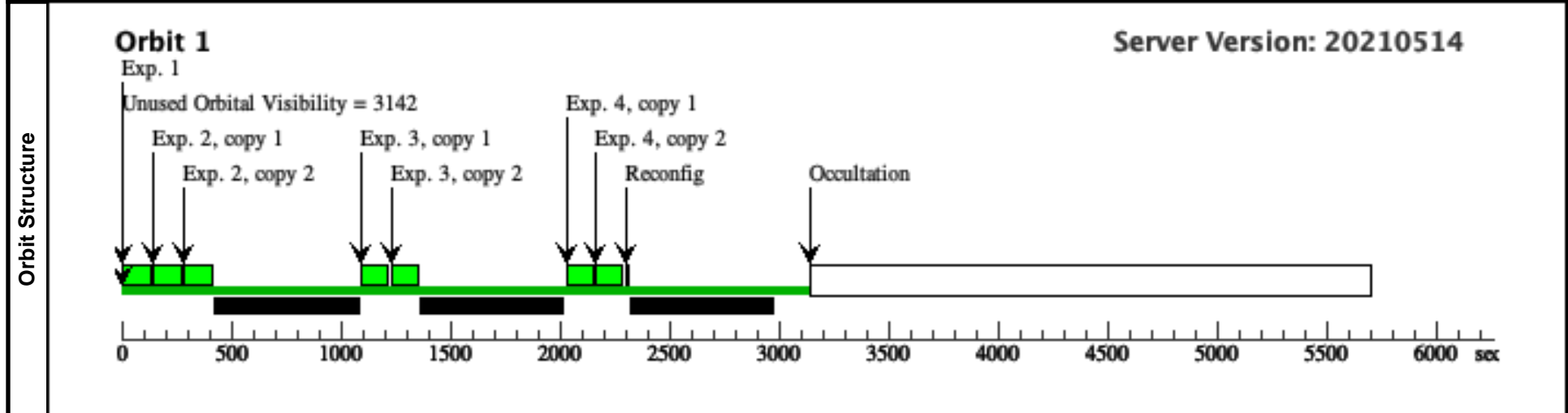
Proposal 16571 - Epoch 1 (07) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

**Visit**  
**Proposal 16571, Epoch 1 (07)**  
**Diagnostic Status: Warning**  
 Scientific Instruments: WFC3/UVIS  
 Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00  
*Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE*

**Diagnostics**  
 (Epoch 1 (07)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU  
 (Subarray for lamp warm up (07.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Flat4 (07.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Flat3 (07.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Flat3 (07.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-4 Non-Int in Epoch 1 (07) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
| 2 | Flat4                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (07) | 12.0 Secs X 2 (24 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3 | Flat3                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (07) | 5.0 Secs X 2 (10 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
| 4 | Flat3                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (07) | 7.0 Secs X 2 (14 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |



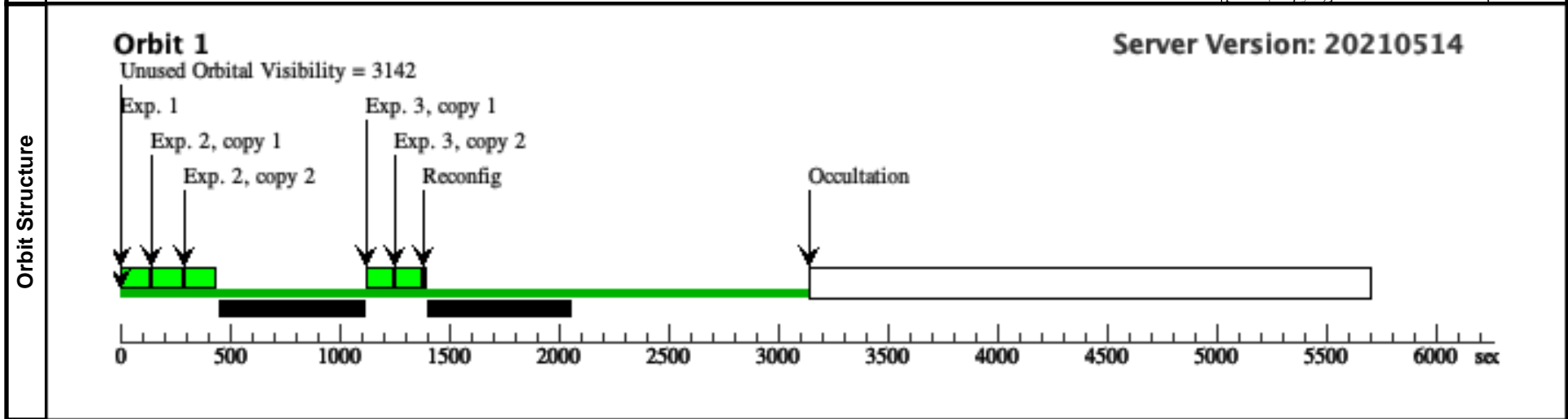
Proposal 16571 - Epoch 1 (08) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

|              |   |
|--------------|---|
| <b>Visit</b> | <p><b>Proposal 16571, Epoch 1 (08)</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00</p> <p><i>Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i></p> |
|--------------|---|

|                    |   |
|--------------------|---|
| <b>Diagnostics</b> | <p>(Epoch 1 (08)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU</p> <p>(Subarray for lamp warm up (08.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat5 (08.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat2 (08.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |
|--------------------|---|

| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-3 Non-Int in Epoch 1 (08) | 60.0 Secs (60 Secs)<br>[==>]                              | [1]   |
| 2 | Flat5                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-3 Non-Int in Epoch 1 (08) | 25.0 Secs X 2 (50 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3 | Flat2                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-3 Non-Int in Epoch 1 (08) | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |



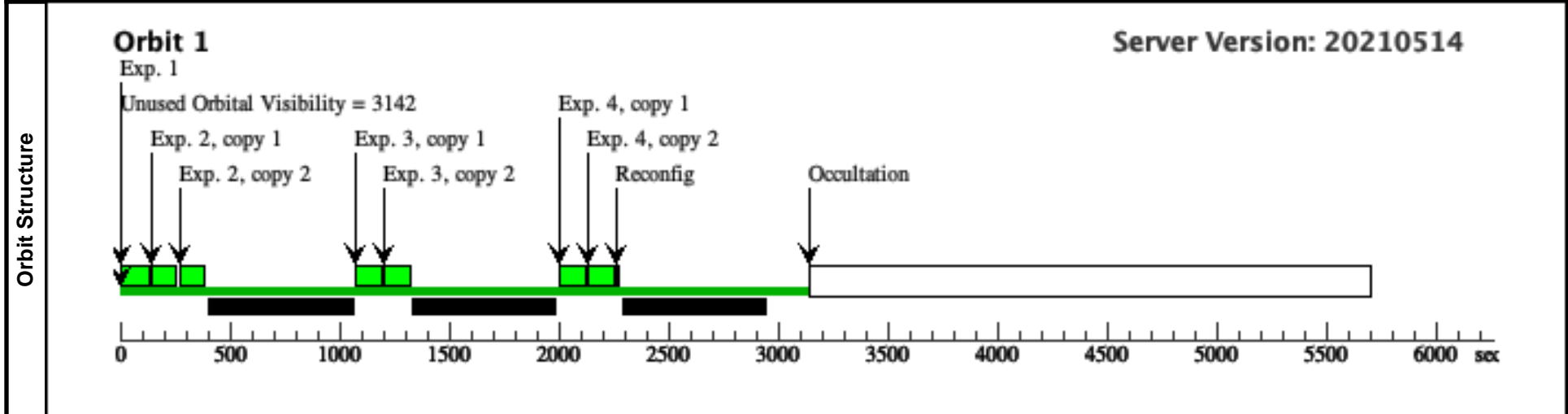
Proposal 16571 - Epoch 1 (09) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

**Visit**  
**Proposal 16571, Epoch 1 (09)**  
**Diagnostic Status: Warning**  
 Scientific Instruments: WFC3/UVIS  
 Special Requirements: BETWEEN 01-DEC-2021:00:00:00 AND 31-DEC-2021:00:00:00  
*Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE*

**Diagnostics**  
 (Epoch 1 (09)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU  
 (Subarray for lamp warm up (09.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Exposure 2 (Sequence 1-4 Non-Int in Epoch 1 (09))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Exposure 3 (Sequence 1-4 Non-Int in Epoch 1 (09))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Exposure 4 (Sequence 1-4 Non-Int in Epoch 1 (09))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

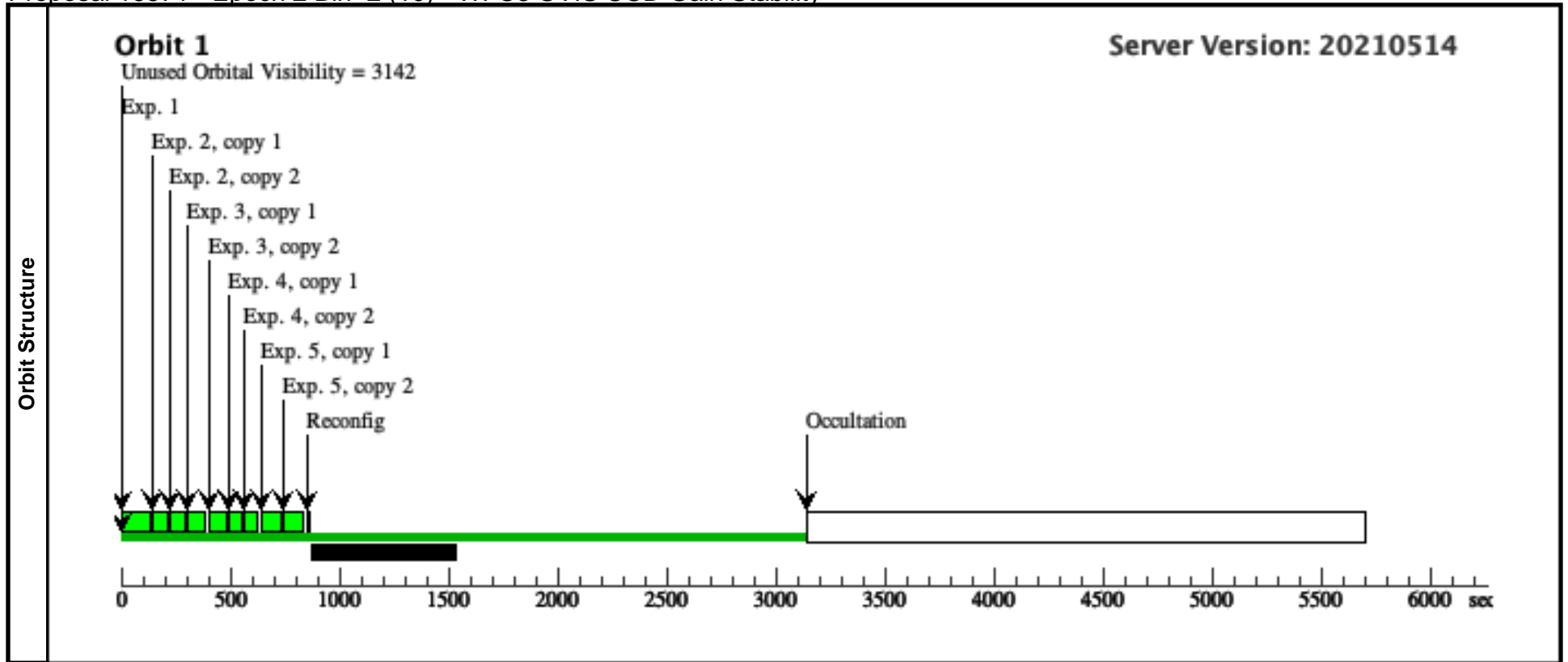
| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                         | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-4 Non-Int in Epoch 1 (09) | 60 Secs (60 Secs)<br>[==>]                              | [1]   |
| 2 |                           | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (09) | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3 |                           | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (09) | 1.5 Secs X 2 (3 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 4 |                           | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 1 (09) | 3.5 Secs X 2 (7 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |



Proposal 16571 - Epoch 2 Bin=2 (10) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

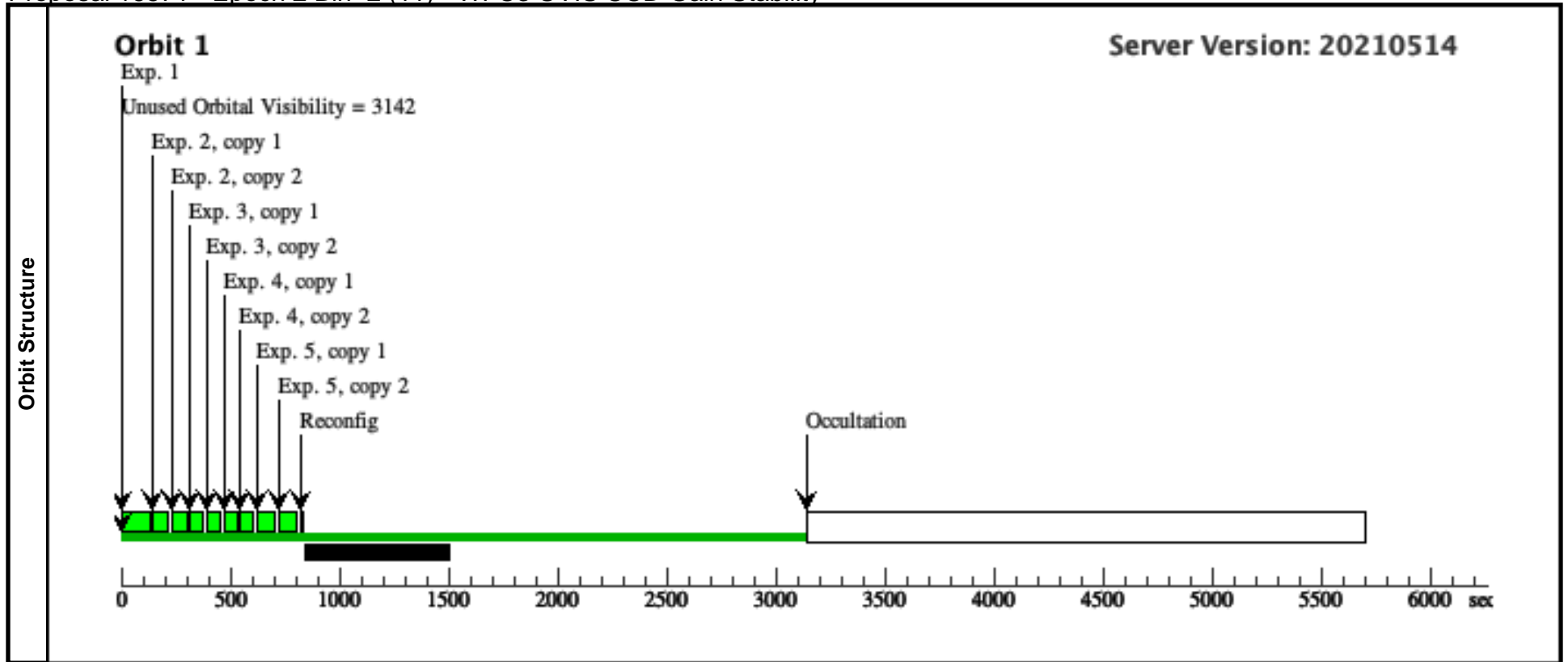
| Visit     | <b>Proposal 16571, Epoch 2 Bin=2 (10)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00<br>Comments: BIN=2 |   |          |                                  |                      |                    |              |  |   |                                 |
|-----------|---|---|----------|----------------------------------|----------------------|--------------------|--------------|--|---|---------------------------------|
|           | Diagnostics   | (subarray for lamp warmup (10.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat4 (10.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat6 (10.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat1 (10.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat8 (10.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |          |                                  |                      |                    |              |  |   |                                 |
| Exposures |   | #   | Label    | Target                           | Config,Mode,Aperture | Spectral Els.      | Opt. Params. | Special Reqs.                              | Groups  | Exp. Time (Total)/[Actual Dur.] |
|           | 1   | subarray for lamp warmup  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                    |              | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10) | 60 Secs (60 Secs)<br>[==>]                                | [1]                             |
|           | 2   | Flat4   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10) | 6.0 Secs X 2 (12 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]                             |
|           | 3   | Flat6   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10) | 17.0 Secs X 2 (34 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                             |
|           | 4   | Flat1   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10) | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]                             |
|           | 5   | Flat8   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10) | 30.0 Secs X 2 (60 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                             |



Proposal 16571 - Epoch 2 Bin=2 (11) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:46 GMT 2021

| Visit     | <b>Proposal 16571, Epoch 2 Bin=2 (11)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00<br>Comments: BIN=2 |   |          |                                  |                      |                    |              |               |  |   |       |
|-----------|---|---|----------|----------------------------------|----------------------|--------------------|--------------|---------------|--|---|-------|
|           | Diagnostics   | (subarray for lamp warmup (11.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat5 (11.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat2 (11.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat3 (11.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat7 (11.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |          |                                  |                      |                    |              |               |  |   |       |
| Exposures |   | #   | Label    | Target                           | Config,Mode,Aperture | Spectral Els.      | Opt. Params. | Special Reqs. | Groups                                     | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|           | 1   | subarray for lamp warmup  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                    |              |               | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
|           | 2   | Flat5   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11) | 11.0 Secs X 2 (22 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|           | 3   | Flat2   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11) | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 4   | Flat3   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11) | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 5   | Flat7   | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5;<br>BIN=2 |              |               | Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11) | 24.0 Secs X 2 (48 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |



Proposal 16571 - Epoch 2 Bin=3 (12) - WFC3 UVIS CCD Gain Stability

|                    |  |
|--------------------|--|
| <b>Visit</b>       | <p><b>Proposal 16571, Epoch 2 Bin=3 (12)</b> <span style="float: right;">Tue Jun 29 21:00:46 GMT 2021</span></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00</p> <p><i>Comments: BIN=3</i></p>  |
| <b>Diagnostics</b> | <p>(subarray for lamp warmup (12.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat1 (12.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat2 (12.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat3 (12.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat4 (12.005)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat5 (12.006)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat6 (12.007)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat7 (12.008)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat8 (12.009)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat9 (12.010)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |

Proposal 16571 - Epoch 2 Bin=3 (12) - WFC3 UVIS CCD Gain Stability

| Exposures | #     | Label                    | Target                 | Config,Mode,Aperture             | Spectral Els.      | Opt. Params.       | Special Reqs.                               | Groups  | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|-----------|-------|--------------------------|------------------------|----------------------------------|--------------------|--------------------|---|---|---|-------|
|           | 1     | subarray for lamp warmup | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N              |                    |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
|           | 2     | Flat1                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 5.0 Secs X 2 (10 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 3     | Flat2                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 4     | Flat3                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 7.0 Secs X 2 (14 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 5     | Flat4                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 3.0 Secs X 2 (6 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 6     | Flat5                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 7     | Flat6                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 9.0 Secs X 2 (18 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
|           | 8     | Flat7                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |
|           | 9     | Flat8                    | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N              | GAIN=1.5;<br>BIN=3 |   | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)               | 11.0 Secs X 2 (22 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 10        | Flat9 | TUNGSTEN                 | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5;<br>BIN=3 |                    | Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12) | 13.0 Secs X 2 (26 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |       |

Orbit Structure

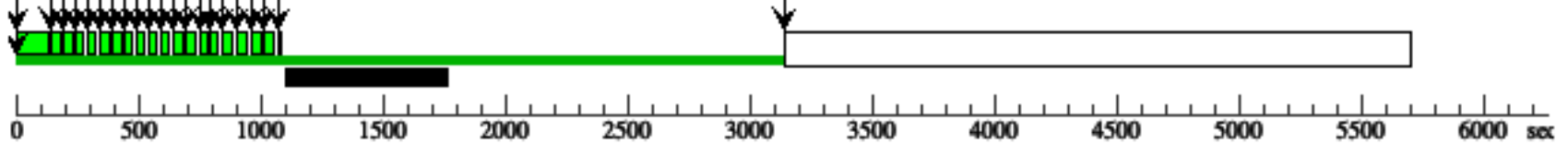
**Orbit 1**

Exp. 1

Unused Orbital Visibility = 3142

- Exp. 2, copy 1
- Exp. 2, copy 2
- Exp. 3, copy 1
- Exp. 3, copy 2
- Exp. 4, copy 1
- Exp. 4, copy 2
- Exp. 5, copy 1
- Exp. 5, copy 2
- Exp. 6, copy 1
- Exp. 6, copy 2
- Exp. 7, copy 1
- Exp. 7, copy 2
- Exp. 8, copy 1
- Exp. 8, copy 2
- Exp. 9, copy 1
- Exp. 9, copy 2
- Exp. 10, copy 1
- Exp. 10, copy 2
- Reconfig

Occultation



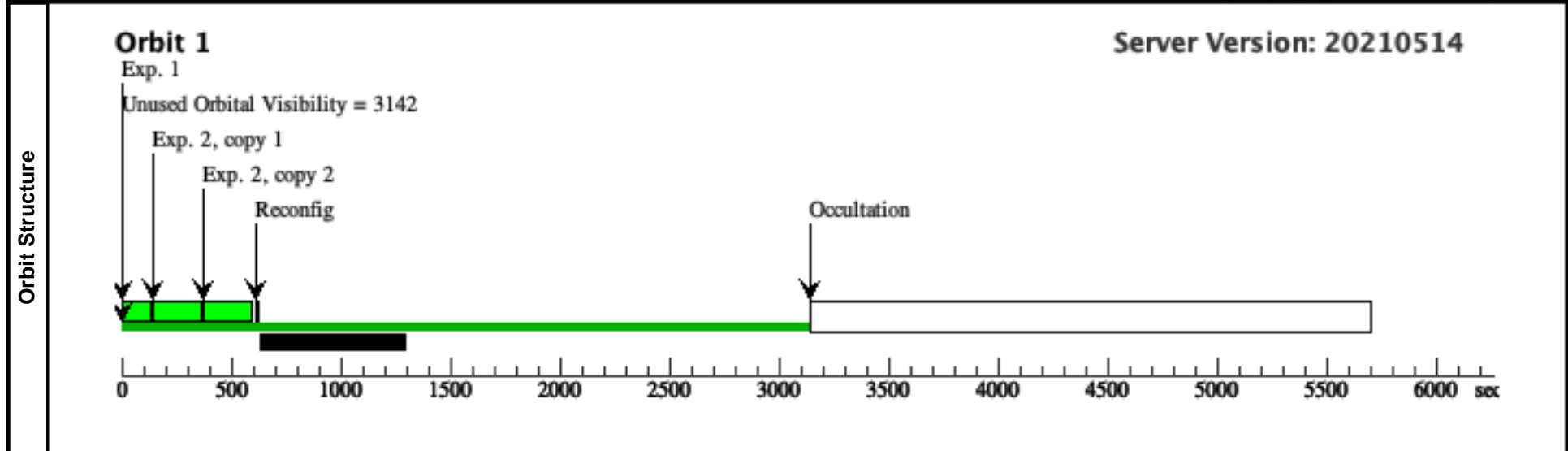
Proposal 16571 - Epoch 2 (13) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

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| <b>Visit</b> | <p>Proposal 16571, Epoch 2 (13)</p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00</p> <p><i>Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i></p> |
|--------------|--|

|                    |   |
|--------------------|---|
| <b>Diagnostics</b> | <p>(subarray for lamp warm up (13.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat8 (13.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |
|--------------------|---|

| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                             | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-2 Non-Int in Epoch 2 (13) | 60 Secs (60 Secs)<br>[==>]                                  | [1]   |
| 2 | Flat8                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-2 Non-Int in Epoch 2 (13) | 105.0 Secs X 2 (210 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |



Proposal 16571 - Epoch 2 (14) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

|                        |  |                           |                        |                                  |                      |                     |                                      |  |  |              |
|------------------------|--|---------------------------|------------------------|----------------------------------|----------------------|---------------------|--------------------------------------|--|--|--------------|
| <b>Visit</b>           | <b>Proposal 16571, Epoch 2 (14)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00<br><i>Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i>   |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        | (Subarray for lamp warm up (14.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Flat7 (14.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                           |                        |                                  |                      |                     |                                      |  |  |              |
| <b>Diagnosics</b>      |  |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        |  |                           |                        |                                  |                      |                     |                                      |  |  |              |
| <b>Exposures</b>       | <b>#</b>   | <b>Label</b>              | <b>Target</b>          | <b>Config,Mode,Aperture</b>      | <b>Spectral Els.</b> | <b>Opt. Params.</b> | <b>Special Reqs.</b>                 | <b>Groups</b>  | <b>Exp. Time (Total)/[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1  | Subarray for lamp warm up | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |                     |                                      | Sequence 1-2 Non-Int in Epoch 2 (14)                       | 60 Secs (60 Secs)<br>[==>]             | [1]          |
| 2                      | Flat7  | TUNGSTEN                  | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5             |                     | Sequence 1-2 Non-Int in Epoch 2 (14) | 80.0 Secs X 2 (160 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                                    |              |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b><br/>Unused Orbital Visibility = 3142</p> <p>Server Version: 20210514</p> <p>Exp. 1<br/>Exp. 2, copy 1<br/>Exp. 2, copy 2<br/>Reconfig<br/>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec</p>  |                           |                        |                                  |                      |                     |                                      |  |  |              |
|                        |  |                           |                        |                                  |                      |                     |                                      |  |  |              |

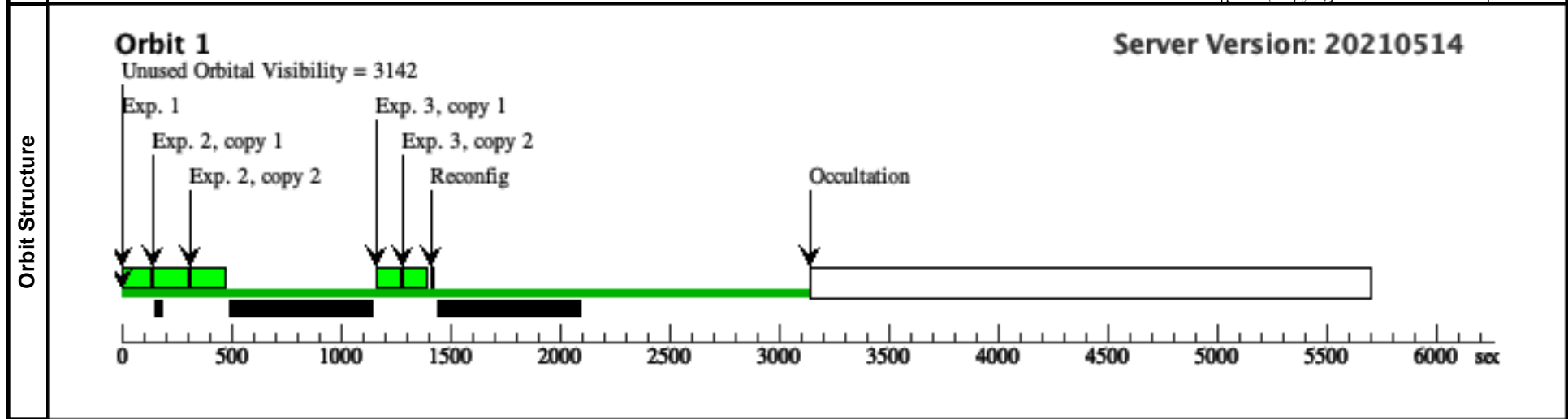
Proposal 16571 - Epoch 2 (15) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

|              |   |
|--------------|---|
| <b>Visit</b> | <p><b>Proposal 16571, Epoch 2 (15)</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00</p> <p><i>Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i></p> |
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|                    |   |
|--------------------|---|
| <b>Diagnostics</b> | <p>(Epoch 2 (15)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU</p> <p>(Subarray for lamp warm up (15.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat6 (15.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat1 (15.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |
|--------------------|---|

| <b>Exposures</b> | #                         | Label    | Target                           | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|------------------|---------------------------|----------|----------------------------------|----------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1                | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |               |              |               | Sequence 1-3 Non-Int in Epoch 2 (15) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
| 2                | Flat6                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5      |              |               | Sequence 1-3 Non-Int in Epoch 2 (15) | 45.0 Secs X 2 (90 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3                | Flat1                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5      |              |               | Sequence 1-3 Non-Int in Epoch 2 (15) | 1.0 Secs X 2 (2 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |



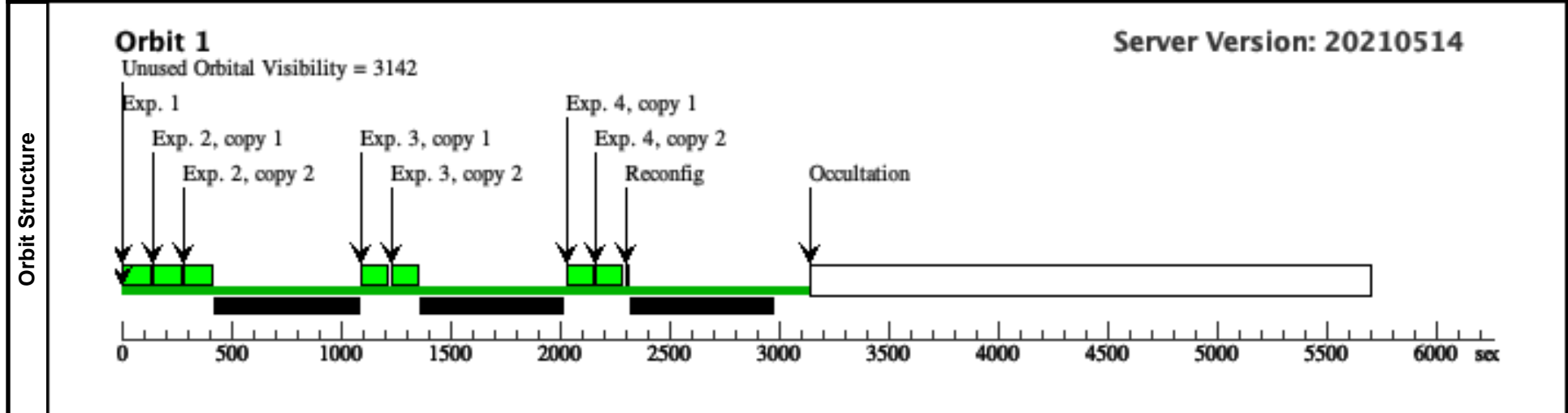
Proposal 16571 - Epoch 2 (16) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

|              |   |
|--------------|---|
| <b>Visit</b> | <p><b>Proposal 16571, Epoch 2 (16)</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: WFC3/UVIS</p> <p>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00</p> <p><i>Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i></p> |
|--------------|---|

|                    |   |
|--------------------|---|
| <b>Diagnostics</b> | <p>(Epoch 2 (16)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU</p> <p>(Subarray for lamp warm up (16.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat4 (16.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat3 (16.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> <p>(Flat3 (16.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser</p> |
|--------------------|---|

| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-4 Non-Int in Epoch 2 (16) | 60 Secs (60 Secs)<br>[==>]                                | [1]   |
| 2 | Flat4                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 2 (16) | 12.0 Secs X 2 (24 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3 | Flat3                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 2 (16) | 5.0 Secs X 2 (10 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |
| 4 | Flat3                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-4 Non-Int in Epoch 2 (16) | 7.0 Secs X 2 (14 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |



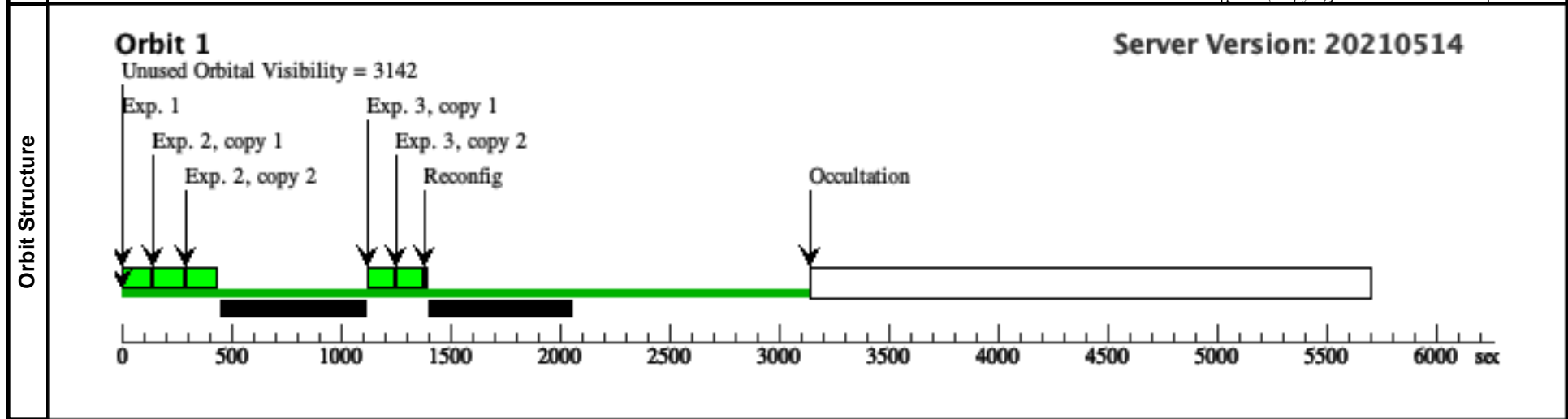
Proposal 16571 - Epoch 2 (17) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

**Visit**  
**Proposal 16571, Epoch 2 (17)**  
**Diagnostic Status: Warning**  
 Scientific Instruments: WFC3/UVIS  
 Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00  
*Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE*

**Diagnostics**  
 (Epoch 2 (17)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU  
 (Subarray for lamp warm up (17.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Flat5 (17.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser  
 (Flat2 (17.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

| # | Label                     | Target   | Config,Mode,Aperture             | Spectral Els. | Opt. Params. | Special Reqs. | Groups                               | Exp. Time (Total)/[Actual Dur.]                           | Orbit |
|---|---------------------------|----------|----------------------------------|---------------|--------------|---------------|--------------------------------------|---|-------|
| 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N         |              |               | Sequence 1-3 Non-Int in Epoch 2 (17) | 60.0 Secs (60 Secs)<br>[==>]                              | [1]   |
| 2 | Flat5                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-3 Non-Int in Epoch 2 (17) | 25.0 Secs X 2 (50 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| 3 | Flat2                     | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS           | F645N         | GAIN=1.5     |               | Sequence 1-3 Non-Int in Epoch 2 (17) | 2.0 Secs X 2 (4 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)]   | [1]   |



Proposal 16571 - Epoch 2 (18) - WFC3 UVIS CCD Gain Stability

Tue Jun 29 21:00:47 GMT 2021

|              |   |
|--------------|---|
| <b>Visit</b> | <b>Proposal 16571, Epoch 2 (18)</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/UVIS<br>Special Requirements: BETWEEN 01-JUN-2022:00:00:00 AND 30-JUN-2022:00:00:00<br><i>Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE</i>  |
|              | (Epoch 2 (18)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU<br>(Subarray for lamp warm up (18.001)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 2 (Sequence 1-4 Non-Int in Epoch 2 (18))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 3 (Sequence 1-4 Non-Int in Epoch 2 (18))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 4 (Sequence 1-4 Non-Int in Epoch 2 (18))) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |

| <b>Exposures</b> | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Subarray for lamp warm up</td> <td>TUNGSTEN</td> <td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td> <td>F645N</td> <td></td> <td></td> <td>Sequence 1-4 Non-Int in Epoch 2 (18)</td> <td>60 Secs (60 Secs)<br/>[==&gt;]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td></td> <td>TUNGSTEN</td> <td>WFC3/UVIS, ACCUM, UVIS</td> <td>F645N</td> <td>GAIN=1.5</td> <td></td> <td>Sequence 1-4 Non-Int in Epoch 2 (18)</td> <td>0.5 Secs X 2 (1 Secs)<br/>[==&gt;(Copy 1)]<br/>[==&gt;(Copy 2)]</td> <td>[1]</td> </tr> <tr> <td>3</td> <td></td> <td>TUNGSTEN</td> <td>WFC3/UVIS, ACCUM, UVIS</td> <td>F645N</td> <td>GAIN=1.5</td> <td></td> <td>Sequence 1-4 Non-Int in Epoch 2 (18)</td> <td>1.5 Secs X 2 (3 Secs)<br/>[==&gt;(Copy 1)]<br/>[==&gt;(Copy 2)]</td> <td>[1]</td> </tr> <tr> <td>4</td> <td></td> <td>TUNGSTEN</td> <td>WFC3/UVIS, ACCUM, UVIS</td> <td>F645N</td> <td>GAIN=1.5</td> <td></td> <td>Sequence 1-4 Non-Int in Epoch 2 (18)</td> <td>3.5 Secs X 2 (7 Secs)<br/>[==&gt;(Copy 1)]<br/>[==&gt;(Copy 2)]</td> <td>[1]</td> </tr> </tbody> </table> | #                         | Label                  | Target                           | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs.   | Groups  | Exp. Time (Total)/[Actual Dur.] | Orbit | 1 | Subarray for lamp warm up | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N |  |  | Sequence 1-4 Non-Int in Epoch 2 (18) | 60 Secs (60 Secs)<br>[==>] | [1] | 2 |  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS | F645N | GAIN=1.5 |  | Sequence 1-4 Non-Int in Epoch 2 (18) | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1] | 3 |  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS | F645N | GAIN=1.5 |  | Sequence 1-4 Non-Int in Epoch 2 (18) | 1.5 Secs X 2 (3 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1] | 4 |  | TUNGSTEN | WFC3/UVIS, ACCUM, UVIS | F645N | GAIN=1.5 |  | Sequence 1-4 Non-Int in Epoch 2 (18) | 3.5 Secs X 2 (7 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1] |
|------------------|--|---------------------------|------------------------|----------------------------------|----------------------|---------------|--------------------------------------|---|---|---------------------------------|-------|---|---------------------------|----------|----------------------------------|-------|--|--|--------------------------------------|----------------------------|-----|---|--|----------|------------------------|-------|----------|--|--------------------------------------|---|-----|---|--|----------|------------------------|-------|----------|--|--------------------------------------|---|-----|---|--|----------|------------------------|-------|----------|--|--------------------------------------|---|-----|
|                  | #  | Label                     | Target                 | Config,Mode,Aperture             | Spectral Els.        | Opt. Params.  | Special Reqs.                        | Groups  | Exp. Time (Total)/[Actual Dur.]                         | Orbit                           |       |   |                           |          |                                  |       |  |  |                                      |                            |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |
|                  | 1  | Subarray for lamp warm up | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS1-M512-SUB | F645N                |               |                                      | Sequence 1-4 Non-Int in Epoch 2 (18)                    | 60 Secs (60 Secs)<br>[==>]                              | [1]                             |       |   |                           |          |                                  |       |  |  |                                      |                            |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |
|                  | 2  |                           | TUNGSTEN               | WFC3/UVIS, ACCUM, UVIS           | F645N                | GAIN=1.5      |                                      | Sequence 1-4 Non-Int in Epoch 2 (18)                    | 0.5 Secs X 2 (1 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                             |       |   |                           |          |                                  |       |  |  |                                      |                            |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |
| 3                |  | TUNGSTEN                  | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5             |               | Sequence 1-4 Non-Int in Epoch 2 (18) | 1.5 Secs X 2 (3 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |                                 |       |   |                           |          |                                  |       |  |  |                                      |                            |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |
| 4                |  | TUNGSTEN                  | WFC3/UVIS, ACCUM, UVIS | F645N                            | GAIN=1.5             |               | Sequence 1-4 Non-Int in Epoch 2 (18) | 3.5 Secs X 2 (7 Secs)<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |                                 |       |   |                           |          |                                  |       |  |  |                                      |                            |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |   |  |          |                        |       |          |  |                                      |   |     |

