17352 - WFC3 UVIS CCD Gain Stability

Cycle: 31, Proposal Category: CAL/WFC3
(Availability Mode: RESTRICTED)

INVESTIGATORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benjamin Kuhn (PI) (Contact)</td>
<td>Space Telescope Science Institute</td>
</tr>
<tr>
<td>Mr. Harish Khandrika (CoI) (Contact)</td>
<td>Space Telescope Science Institute</td>
</tr>
<tr>
<td>Ky Huynh (CoI) (Contact)</td>
<td>Space Telescope Science Institute</td>
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VISITS

<table>
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<tr>
<th>Visit</th>
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ABSTRACT
This program is designed to obtain absolute gain data for every quadrant (A, B, C, and D) of the WFC3/UVIS detector to continue tracking the gain stability. This is a recurring CAL program, first started in Cycle 17, which allows us to measure both long and short term gain stability. As in pervious cycles, we again take both binned (2x2 and 3x3), and un-binned 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.

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18 Total Orbits Used
Previous calibration proposals to study absolute gain include: 11906, 12364, 12690, 13168, 13561, 14007, 14536, 14985, 15574, 15719, 16399, 16571, and 17007; all of which have provided consistent results.
### Proposal 17352 - Epoch 1 Bin=2 (01) - WFC3 UVIS CCD Gain Stability

**Visit**

Proposal 17352, Epoch 1 Bin=2 (01), implementation
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
Comments: BIN=2

**Diagnostic Status:** Warning

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
(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
(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
(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
(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**

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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
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<td>Sequence 1-5 Non-Int in Epoch 1 Bin=2 (01)</td>
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<td>5</td>
<td>Flat8</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>BIN=2</td>
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## Proposal 17352 - Epoch 1 Bin=2 (02) - WFC3 UVIS CCD Gain Stability

**Visit**

- **Proposal 17352, Epoch 1 Bin=2 (02), implementation**
- **Diagnostic Status:** Warning
- **Scientific Instruments:** WFC3/UVIS
- **Special Requirements:** BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
- **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

(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

(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

(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

(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

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Proposal 17352 - Epoch 1 Bin=2 (02) - WFC3 UVIS CCD Gain Stability

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
  - Reconfig

- Occultation

Server Version: 20220630
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Orbit 1
Exp. 1
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   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

Server Version: 20220630
Proposal 17352 - Epoch 1 (04) - WFC3 UVIS CCD Gain Stability

Visit:
Proposal 17352, Epoch 1 (04), implementation
Diagnostic Status: Warning
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Diagnostics:
(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
(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

Exposures:

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<td>Sequence 1-2 Non-Init in Epoch 1 (04)</td>
<td>105.0 Secs X 2 (210 Secs)</td>
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Orbit Structure:

Server Version: 20220630
Proposal 17352 - Epoch 1 (05) - WFC3 UVIS CCD Gain Stability

Visit
Proposal 17352, Epoch 1 (05), implementation
Diagnostic Status: Warning
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Diagnostics
(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
(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

Exposures

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<tbody>
<tr>
<td>1</td>
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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
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<td>Flat7</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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Orbit 1
Unused Orbital Visibility = 3142
Exp. 1
Exp. 2, copy 1
Exp. 2, copy 2
Reconfig
Occultation

Server Version: 20220630

12
Visit
Proposal 17352, Epoch 1 (06), implementation

Diagnostic Status: Warning
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Diagnostics

(Epoch 1 (06)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU
(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
(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
(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

Exposures

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<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 1-3 Non-Int in Epoch 1 (06)</td>
<td>60 Secs (60 Secs)</td>
<td>[I]</td>
</tr>
<tr>
<td>2</td>
<td>Flat6</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-3 Non-Int in Epoch 1 (06)</td>
<td>45.0 Secs X 2 (90 Secs)</td>
<td>[I]</td>
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<tr>
<td>3</td>
<td>Flat1</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-3 Non-Int in Epoch 1 (06)</td>
<td>1.0 Secs X 2 (2 Secs)</td>
<td>[I]</td>
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</tbody>
</table>

Orbit Structure

Server Version: 20220630
Proposal 17352 - Epoch 1 (07) - WFC3 UVIS CCD Gain Stability

**Visit**
Proposal 17352, Epoch 1 (07), implementation

**Diagnostic Status:** Warning

**Scientific Instruments:** WFC3/UVIS

**Special Requirements:** BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00

**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

**Exposures**

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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
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<td>Sequence 1-4 Non-Int in Epoch 1 (07)</td>
<td>60 Secs / (60 Secs)</td>
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<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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**Orbit Structure**

Unused Orbital Visibility = 3142

Exp. 1
Exp. 2, copy 1
Exp. 3, copy 1
Exp. 4, copy 1
Exp. 2, copy 2
Exp. 3, copy 2
Exp. 4, copy 2
Reconfig
Occultation

Server Version: 20220630
### Proposal 17352 - Epoch 1 (08) - WFC3 UVIS CCD Gain Stability

**Visit**
- Proposal 17352, Epoch 1 (08), implementation
  - Diagnostic Status: Warning
  - Scientific Instruments: WFC3/UVIS
  - Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00
  - Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

**Diagnosics**
- (Epoch 1 (08)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU
- (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
- (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
- (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

**Exposures**

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<td>Subarray for lamp warm up</td>
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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
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<td>Sequence 1-3 Non-In in Epoch 1 (08)</td>
<td>60.0 Secs (60 Secs)</td>
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<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>25.0 Secs X 2 (50 Secs)</td>
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<td>Flat2</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-3 Non-In in Epoch 1 (08)</td>
<td>2.0 Secs X 2 (4 Secs)</td>
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**Orbit Structure**

- Unused Orbital Visibility = 3142
- Exp. 1
  - Exp. 2, copy 1
  - Exp. 2, copy 2
  - Exp. 3, copy 1
  - Exp. 3, copy 2
  - Reconfig
  - Occultation

**Server Version: 20220630**
Proposal 17352 - Epoch 1 (09) - WFC3 UVIS CCD Gain Stability

Visit
Proposal 17352, Epoch 1 (09), implementation

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-DEC-2023:00:00:00 AND 31-DEC-2023:00:00:00

Comments: Epoch 1, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Wed Jul 19 16:00:27 GMT 2023

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

Exposures

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<td>Subarray for lamp warm up</td>
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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
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<td>Sequence 1-4 Non-Int in Epoch 1 (09)</td>
<td>60 Secs (60 Secs)</td>
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<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-4 Non-Int in Epoch 1 (09)</td>
<td>0.5 Secs X 2 (1 Secs)</td>
<td>[1]</td>
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<td>3</td>
<td></td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-4 Non-Int in Epoch 1 (09)</td>
<td>1.5 Secs X 2 (3 Secs)</td>
<td>[1]</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-4 Non-Int in Epoch 1 (09)</td>
<td>3.5 Secs X 2 (7 Secs)</td>
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Orbit Structure

Server Version: 20220630
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

(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

(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

(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

(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

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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
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<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10)</td>
<td>60 Secs (60 Secs)</td>
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<td>2</td>
<td>Flat4</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
<td></td>
<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10)</td>
<td>6.0 Secs X 2 (12 Secs)</td>
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<td>Flat6</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
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<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10)</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
<td></td>
<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10)</td>
<td>0.5 Secs X 2 (1 Secs)</td>
<td></td>
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<tr>
<td>5</td>
<td>Flat8</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
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<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (10)</td>
<td>30.0 Secs X 2 (60 Secs)</td>
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### Proposal 17352 - Epoch 2 Bin=2 (11) - WFC3 UVIS CCD Gain Stability

**Visit**
- **Proposal 17352, Epoch 2 Bin=2 (11), implementation**
- **Diagnostic Status:** Warning
- **Scientific Instruments:** WFC3/UVIS
- **Special Requirements:** BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00
- **Comments:** BIN=2

#### Exposures

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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
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<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11)</td>
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<tr>
<td>2</td>
<td>Flat5</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11)</td>
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<tr>
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<td>Flat2</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=2</td>
<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11)</td>
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<td>Flat3</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
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<td>GAIN=1.5; BIN=2</td>
<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11)</td>
<td>2.0 Secs X 2 (4 Secs)</td>
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<td>5</td>
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<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>Sequence 1-5 Non-Int in Epoch 2 Bin=2 (11)</td>
<td>24.0 Secs X 2 (48 Secs)</td>
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#### 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
- (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
- (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
- (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
- (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
Orbit Structure

Orbit 1

- Exp. 1
- 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
- Reconfig

Unused Orbital Visibility = 3142

Occultation

Server Version: 20220630
## Proposal 17352 - Epoch 2 Bin=3 (12) - WFC3 UVIS CCD Gain Stability

**Visit**: Proposal 17352, Epoch 2 Bin=3 (12), implementation  
**Diagnostic Status**: Warning  
**Scientific Instruments**: WFC3/UVIS  
**Special Requirements**: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00  
**Comments**: BIN=3

### Diagnostics

- **(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
- **(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
- **(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
- **(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
- **(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
- **(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
- **(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
- **(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
- **(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
- **(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
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<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
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<td>Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)</td>
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<td>Flat1</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=3</td>
<td>Sequence 1-10 Non-Int in Epoch 2 Bin=3 (12)</td>
<td>5.0 Secs X 2 (10 Secs)</td>
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<td>[1]</td>
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<tr>
<td>7</td>
<td>Flat6</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5; BIN=3</td>
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<td>8</td>
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<td>2.0 Secs X 2 (4 Secs)</td>
<td>[1]</td>
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<td>Flat8</td>
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<td>13.0 Secs X 2 (26 Secs)</td>
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Orbit 1
Unused Orbital Visibility = 3142

Exp. 1
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  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

Server Version: 20220630
### Proposal 17352 - Epoch 2 (13) - WFC3 UVIS CCD Gain Stability

**Visit**
- Proposal 17352, Epoch 2 (13), implementation
- Diagnostic Status: Warning
- Scientific Instruments: WFC3/UVIS
- Special Requirements: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00
- Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

**Diagnostics**

(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

(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

**Exposures**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>subarray for lamp warm</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
<td></td>
<td></td>
<td>Sequence 1-2 Non-Init in Epoch 2 (13)</td>
<td>60 Secs (60 Secs)</td>
<td>[1]</td>
</tr>
<tr>
<td>2</td>
<td>Flat8</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
<td></td>
<td>Sequence 1-2 Non-Init in Epoch 2 (13)</td>
<td>105.0 Secs X 2 (210 Secs)</td>
<td>[1]</td>
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</tbody>
</table>

**Orbit Structure**

[Diagram of Orbit Structure]

**Server Version:** 20220630
Visit Proposal 17352, Epoch 2 (14), implementation

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00

Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

---

Diagnostics

(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.

(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.

---

Exposures

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<tr>
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<td>1</td>
<td>Subarray for lamp warm up</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS1-M512-SUB</td>
<td>F645N</td>
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<td>Sequence 1-2 Non-Int in Epoch 2 (14)</td>
<td>60 Secs (60 Secs)</td>
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<tr>
<td>2</td>
<td>Flat7</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
<td>Sequence 1-2 Non-Int in Epoch 2 (14)</td>
<td>80.0 Secs X 2 (160 Secs)</td>
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</table>

---

Orbit Structure

Unused Orbital Visibility = 3142

Exp. 1

Exp. 2, copy 1

Exp. 2, copy 2

Reconfig

Occultation

Server Version: 20220630
Proposal 17352 - Epoch 2 (15) - WFC3 UVIS CCD Gain Stability

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00
Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Diagnostics

(Epoch 2 (15)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU
(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
(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
(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

Exposures

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<td>1</td>
<td>Subarray for lamp warm up</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>Sequence 1-3 Non-In t in Epoch 2 (15)</td>
<td>60 Secs (60 Secs)</td>
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<td>Flat6</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-3 Non-In t in Epoch 2 (15)</td>
<td>45.0 Secs X 2 (90 Secs)</td>
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<tr>
<td>3</td>
<td>Flat1</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-3 Non-In t in Epoch 2 (15)</td>
<td>1.0 Secs X 2 (2 Secs)</td>
<td>[I]</td>
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Orbit Structure

Orbit 1
Unused Orbital Visibility = 3142

Exposures

Exp. 1
Exp. 2, copy 1
Exp. 2, copy 2
Exp. 3, copy 1
Exp. 3, copy 2
Reconfig
Occultation

Server Version: 20220630
Visit Proposal 17352 - Epoch 2 (16) - WFC3 UVIS CCD Gain Stability

### Diagnostic Status
- **Warning**

### Scientific Instruments
- WFC3/UVIS

### Special Requirements
- BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00

### Comments
- Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

### Diagnostics

#### (Epoch 2 (16)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU
- Subarray for lamp warm up (16.001)
- Flat4 (16.002)
- Flat3 (16.003)
- Flat3 (16.004)

#### Exposures

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<td>Subarray for lamp warm up</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS-M512-SUB</td>
<td>F645N</td>
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<td>Flat4</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>Sequence 1-4 Non-Int in Epoch 2 (16)</td>
<td>12.0 Secs X 2 (24 Secs)</td>
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<td>Flat3</td>
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<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>Sequence 1-4 Non-Int in Epoch 2 (16)</td>
<td>5.0 Secs X 2 (10 Secs)</td>
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<tr>
<td>4</td>
<td>Flat3</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
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<td>Sequence 1-4 Non-Int in Epoch 2 (16)</td>
<td>7.0 Secs X 2 (14 Secs)</td>
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### Orbit Structure

- **Orbit 1**
- Unused Orbital Visibility = 3142
- Exp. 1
- Exp. 2, copy 1
- Exp. 3, copy 1
- Exp. 4, copy 1
- Exp. 2, copy 2
- Exp. 3, copy 2
- Exp. 4, copy 2
- Reconfig
- Occultation

### Server Version: 20220630
Visit
Proposal 17352, Epoch 2 (17), implementation
Diagnostic Status: Warning
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00
Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=None

Diagnostics

(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

Exposures

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<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>Sequence 1-3 Non-Int in Epoch 2 (17)</td>
<td>60.0 Secs (60 Secs)</td>
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<tr>
<td>2</td>
<td>Flat5</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
<td>Sequence 1-3 Non-Int in Epoch 2 (17)</td>
<td>25.0 Secs X 2 (50 Secs)</td>
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<td>Flat2</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
<td>Sequence 1-3 Non-Int in Epoch 2 (17)</td>
<td>2.0 Secs X 2 (4 Secs)</td>
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</table>

Orbit 1

Exp. 1

Unused Orbital Visibility = 3142

Exp. 2, copy 1

Exp. 2, copy 2

Exp. 3, copy 1

Exp. 3, copy 2

Reconfig

Occultation

Server Version: 20220630
Visit
Proposal 17352, Epoch 2 (18), implementation
Scientific Instruments: WFC3/UVIS
Special Requirements: BETWEEN 01-JUN-2024:00:00:00 AND 30-JUN-2024:00:00:00
Comments: Epoch 2, nominal detector readout configuration: ABCD, gain=1.5 e-/DN, bin=NONE

Diagnostics
(Diagnostic Status: Warning) (Epoch 2 (18)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU
(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
(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
(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
(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

Exposures
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<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>
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<td>Sequence 1-4 Non-Int in Epoch 2 (18)</td>
<td>60 Secs (60 Secs)</td>
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<tr>
<td>2</td>
<td>TUNGSTEN</td>
<td>WFC3/UVIS, ACCUM, UVIS</td>
<td>F645N</td>
<td>GAIN=1.5</td>
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<td>Sequence 1-4 Non-Int in Epoch 2 (18)</td>
<td>0.5 Secs X 2 (1 Secs)</td>
<td>[I]</td>
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<td>3</td>
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<td>F645N</td>
<td>GAIN=1.5</td>
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<td></td>
<td>Sequence 1-4 Non-Int in Epoch 2 (18)</td>
<td>1.5 Secs X 2 (3 Secs)</td>
<td>[I]</td>
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<tr>
<td>4</td>
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<td>F645N</td>
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<td>Sequence 1-4 Non-Int in Epoch 2 (18)</td>
<td>3.5 Secs X 2 (7 Secs)</td>
<td>[I]</td>
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Orbit Structure

Orbit
Unused Orbital Visibility = 3142
Exp. 1
Exp. 2, copy 1
Exp. 3, copy 1
Exp. 4, copy 1
Exp. 2, copy 2
Exp. 3, copy 2
Exp. 4, copy 2
Reconfig
Occultation

Server Version: 20220630