



## 11367 - CCD Hot Pixel Annealing

Cycle: 17, Proposal Category: SM4/ACS

(Availability Mode: RESTRICTED)

### INVESTIGATORS

| <i>Name</i>        | <i>Institution</i>                | <i>E-Mail</i> |
|--------------------|-----------------------------------|---------------|
| Dr. Colin Cox (PI) | Space Telescope Science Institute |               |

### 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| W1           | TUNGSTEN                     | ACS/WFC                             | 1                  | 25-Jun-2009 21:00:50.0        | yes                           |
| 01           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:00:54.0        | yes                           |
| 02           | BIAS<br>DARK                 | ACS/HRC                             | 1                  | 25-Jun-2009 21:00:57.0        | yes                           |
| 03           | NONE                         | ACS                                 | 4                  | 25-Jun-2009 21:00:58.0        | yes                           |
| 04           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:00.0        | yes                           |
| 05           | BIAS<br>DARK                 | ACS/HRC                             | 1                  | 25-Jun-2009 21:01:03.0        | yes                           |
| 06           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:05.0        | yes                           |
| 56           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:08.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 07           | BIAS<br>DARK                 | ACS/HRC                             | 1                  | 25-Jun-2009 21:01:10.0        | yes                           |
| 08           | NONE                         | ACS                                 | 4                  | 25-Jun-2009 21:01:11.0        | yes                           |
| 58           | NONE                         | ACS                                 | 4                  | 25-Jun-2009 21:01:12.0        | yes                           |
| 09           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:14.0        | yes                           |
| 59           | BIAS<br>DARK                 | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:16.0        | yes                           |
| 10           | BIAS<br>DARK                 | ACS/HRC                             | 1                  | 25-Jun-2009 21:01:19.0        | yes                           |
| 11           | BIAS                         | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:20.0        | yes                           |
| 12           | BIAS                         | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:21.0        | yes                           |
| W2           | TUNGSTEN                     | ACS/WFC                             | 1                  | 25-Jun-2009 21:01:22.0        | yes                           |

26 Total Orbits Used

### **ABSTRACT**

Hot pixel annealing will be performed during SMOV4 before the CCDs are used for observations. The CCD TECs will be turned off and heaters will be activated to bring the detector temperatures to about +20C. This state will be held for approximately 12 hours, after which the heaters are turned off, the TECs turned on, and the CCDs returned to normal operating condition.

To assess the effectiveness of the annealing, a bias and four dark images will be taken before and after the annealing procedure for both WFC and HRC. All the data for this program are acquired using internal targets.

The initial annealing occupied 5 visits. A copy of these visits to be run 4 to 5 weeks later has been added to support proposals 11465, 11510 and 11511. The latter proposal was too long.

### **OBSERVING DESCRIPTION**

This is a reworking of the anneal that has been taking place every four weeks for the last three cycles. We take biases and darks before and after the anneal as is done for the ACS daily monitor (now done 4 times per week). For this test we take HRC and WFC exposures in separate visits and disable the normal parallel darks, to allow for the possibility that only one CCD is operable following the servicing. Next, the annealing procedure is run for 12 hours (6 hours contained in the ANNEAL instruction and 6 hours in the exposure time). After returning to operational mode, the same set of biases and dark frames, are taken within the next 24 hours.

### **CALIBRATION JUSTIFICATION**

Annealing is required to reduce the number of hot pixels on the CCDs. Hot pixels are steadily generated by high energy radiation striking the detectors.

Dark and bias images are collected for creation of time dependent calibration files used in the pipeline.

|                        |   |   |          |                     |                      |               |              |               |   |                         |
|------------------------|---|---|----------|---------------------|----------------------|---------------|--------------|---------------|---|-------------------------|
| <b>Visit</b>           | Proposal 11367, Visit W1, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD   |   |          |                     |                      |               |              |               |   |                         |
|                        | <b>Exposures</b>  | # | Label    | Target              | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups  | Exp. Time/[Actual Dur.] |
| 1                      |   | 1 | TUNGSTEN | ACS/WFC, ACCUM, WFC | F435W                |               |              |               | 17.6 Secs X 3<br>[=>(Copy 1)]<br>[=>(Copy 2)]<br>[=>(Copy 3)] | [1]                     |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20090130</b></span></p> <p>Unused Visibility = 3028</p> <p>The diagram shows a timeline from 0 to 5500 seconds. A green bar represents visibility, which is interrupted by black bars indicating occultations. Three green rectangles represent exposures: 'Exp. 1, copy 1' at ~100s, 'Exp. 1, copy 2' at ~600s, and 'Exp. 1, copy 3' at ~1100s. A long white bar from 3000s to 5500s is labeled 'Occultation'. The x-axis is labeled 'sec' and has major ticks every 500 units.</p> |   |          |                     |                      |               |              |               |   |                         |
|                        |   |   |          |                     |                      |               |              |               |   |                         |

| Visit           | Proposal 11367, Visit 01, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; SEQ 01,02,03 WITHIN 18.0 H   |       |        |                      |               |                                      |               |        |   |       |
|-----------------|---|-------|--------|----------------------|---------------|--------------------------------------|---------------|--------|---|-------|
|                 | #   | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups | Exp. Time/[Actual Dur.]                           | Orbit |
| Exposures       | 1   |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               |        | 0.0 Secs<br>[==>]                                 | [1]   |
|                 | 2   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|                 | 3   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| Orbit Structure | <p><b>Orbit 1</b><br/>Unused Visibility = 3028</p> <p>Server Version: 20090130</p> <p>The timeline shows a sequence of exposures and occultations over approximately 5500 seconds. Exposure 1 occurs at the start. Exposure 2 consists of two copies. Exposure 3 also consists of two copies, with an occultation occurring between the two copies. The total duration of the sequence is approximately 5000 seconds.</p> |       |        |                      |               |                                      |               |        |   |       |

| Visit     | Proposal 11367, Visit 02, scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/HRC<br>Special Requirements: GYRO MODE 3GOBAD |       |        |                      |               |              |               |               |                         |       |
|-----------|--|-------|--------|----------------------|---------------|--------------|---------------|---------------|-------------------------|-------|
|           | #  | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups        | Exp. Time/[Actual Dur.] | Orbit |
| Exposures | 1  |       | BIAS   | ACS/HRC, ACCUM, HRC  | DEF           |              |               |               | 0.0 Secs                |       |
|           |  |       |        |                      |               |              |               |               | [==>]                   | [1]   |
|           | 2  |       | DARK   | ACS/HRC, ACCUM, HRC  | DEF           | PAREXP=NONE  |               |               | 1000.0 Secs X 2         |       |
|           |  |       |        |                      |               |              |               |               | [==>(Copy 1)]           | [1]   |
|           |  |       |        |                      |               |              |               |               | [==>(Copy 2)]           |       |
|           | 3  |       | DARK   | ACS/HRC, ACCUM, HRC  | DEF           | PAREXP=NONE  | NEW ALIGNMENT |               | 1000.0 Secs X 2         |       |
|           |  |       |        |                      |               |              |               | [==>(Copy 1)] | [1]                     |       |
|           |  |       |        |                      |               |              |               | [==>(Copy 2)] |                         |       |

**Orbit 1**

Exp. 1

Unused Visibility = 3028

Exp. 2, copy 1

Exp. 2, copy 2

Exp. 3, copy 1

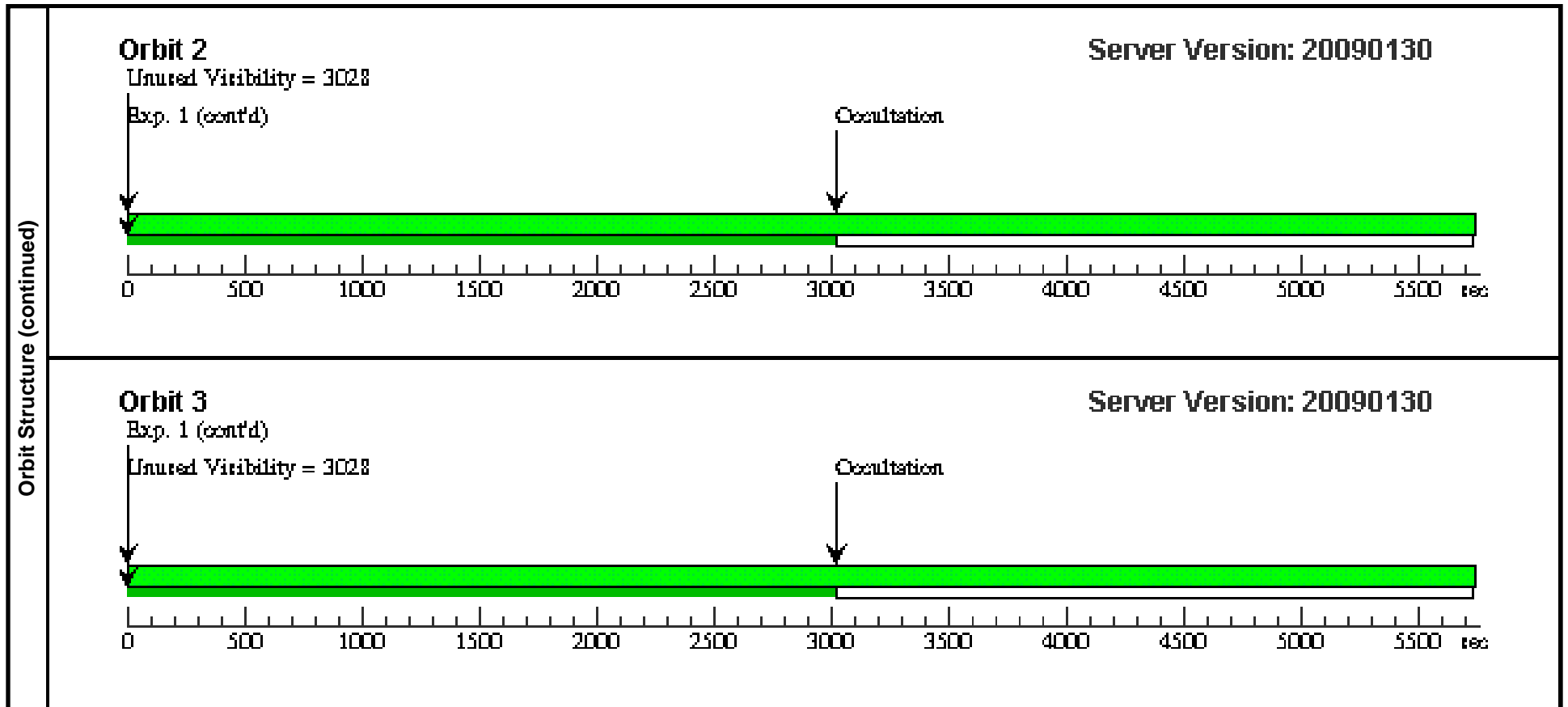
Occultation

Exp. 3, copy 2

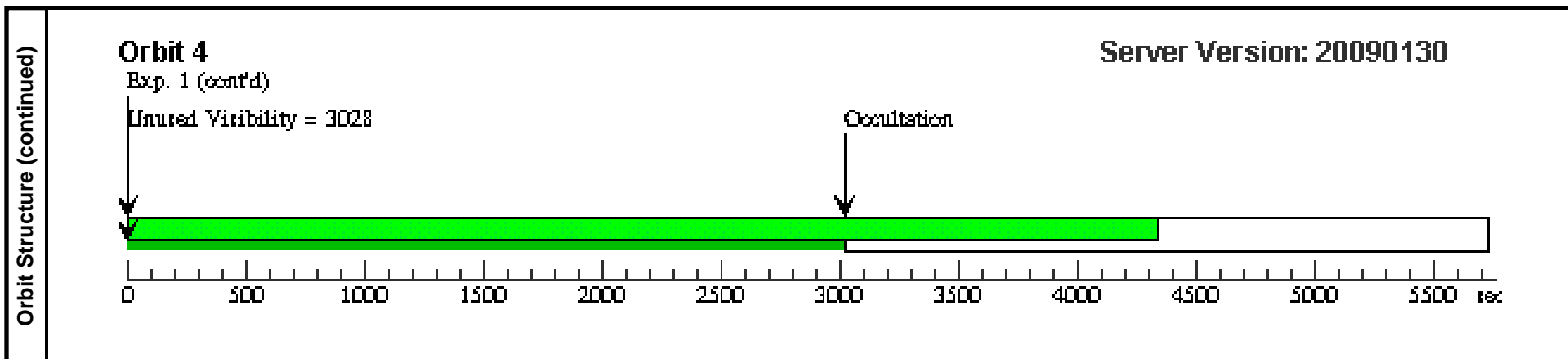
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec

**Server Version: 20090130**

|                        |  |              |               |                             |                      |                     |                      |               |                                |              |
|------------------------|--|--------------|---------------|-----------------------------|----------------------|---------------------|----------------------|---------------|--------------------------------|--------------|
| <b>Visit</b>           | Proposal 11367, Visit 03, completed<br>Diagnostic Status: Warning<br>Scientific Instruments: ACS<br>Special Requirements: GYRO MODE 3GOBAD |              |               |                             |                      |                     |                      |               |                                |              |
|                        | (Visit 03) Warning (Orbit Planner): EXPOSURE WITH SAA CONTOUR 11 WILL EXECUTE ON GYRO  |              |               |                             |                      |                     |                      |               |                                |              |
| <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/[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1  | ANNEAL       | NONE          | ACS, ANNEAL                 |                      |                     | SAA CONTOUR 11       |               | 21600.0 Secs<br>[==>]          | [1]          |
| <b>Orbit Structure</b> | Orbit 1<br>Exp. 1<br>Unused Visibility = 3028  |              |               |                             |                      |                     |                      |               |                                |              |
|                        | <p style="text-align: right;">Server Version: 20090130</p>   |              |               |                             |                      |                     |                      |               |                                |              |







| Visit           | Proposal 11367, Visit 04, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER 03 BY 0.0 H TO 18.0 H  |       |        |                      |               |                                      |               |        |   |       |
|-----------------|---|-------|--------|----------------------|---------------|--------------------------------------|---------------|--------|---|-------|
|                 | #   | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups | Exp. Time/[Actual Dur.]                           | Orbit |
| Exposures       | 1   |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               |        | 0.0 Secs<br>[==>]                                 | [1]   |
|                 | 2   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|                 | 3   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| Orbit Structure | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20090130</b></span></p> <p>Exp. 1<br/>Unused Visibility = 3028</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A green bar represents the total exposure time, with segments for Exp. 1 (0-3028s), Exp. 2, copy 1 (approx. 300-500s), Exp. 2, copy 2 (approx. 1400-1600s), Exp. 3, copy 1 (approx. 2500-3000s), and Exp. 3, copy 2 (approx. 3600-4800s). Black bars below the green bar indicate occultation periods. Arrows point to the start of each exposure segment.</p> |       |        |                      |               |                                      |               |        |   |       |
|                 | <p>Exp. 2, copy 1      Exp. 2, copy 2      Exp. 3, copy 1      Occultation      Exp. 3, copy 2</p> <p>0      500      1000      1500      2000      2500      3000      3500      4000      4500      5000      5500 sec</p>  |       |        |                      |               |                                      |               |        |   |       |

| Visit     | Proposal 11367, Visit 05, scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/HRC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER_03 BY 0.0 H TO 18.0 H |       |                     |                      |               |               |               |        |                         |  |       |
|-----------|---|-------|---------------------|----------------------|---------------|---------------|---------------|--------|-------------------------|--|-------|
|           | #   | Label | Target              | Config,Mode,Aperture | Spectral Els. | Opt. Params.  | Special Reqs. | Groups | Exp. Time/[Actual Dur.] |  | Orbit |
| Exposures | 1   |       | BIAS                | ACS/HRC, ACCUM, HRC  | DEF           |               |               |        | 0.0 Secs                |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>]                   |  | [1]   |
|           | 2   |       | DARK                | ACS/HRC, ACCUM, HRC  | DEF           | PAREXP=NONE   |               |        | 1000.0 Secs X 2         |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 1)]           |  | [1]   |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 2)]           |  |       |
| 3         |   | DARK  | ACS/HRC, ACCUM, HRC | DEF                  | PAREXP=NONE   | NEW ALIGNMENT |               |        | 1000.0 Secs X 2         |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 1)]           |  | [1]   |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 2)]           |  |       |

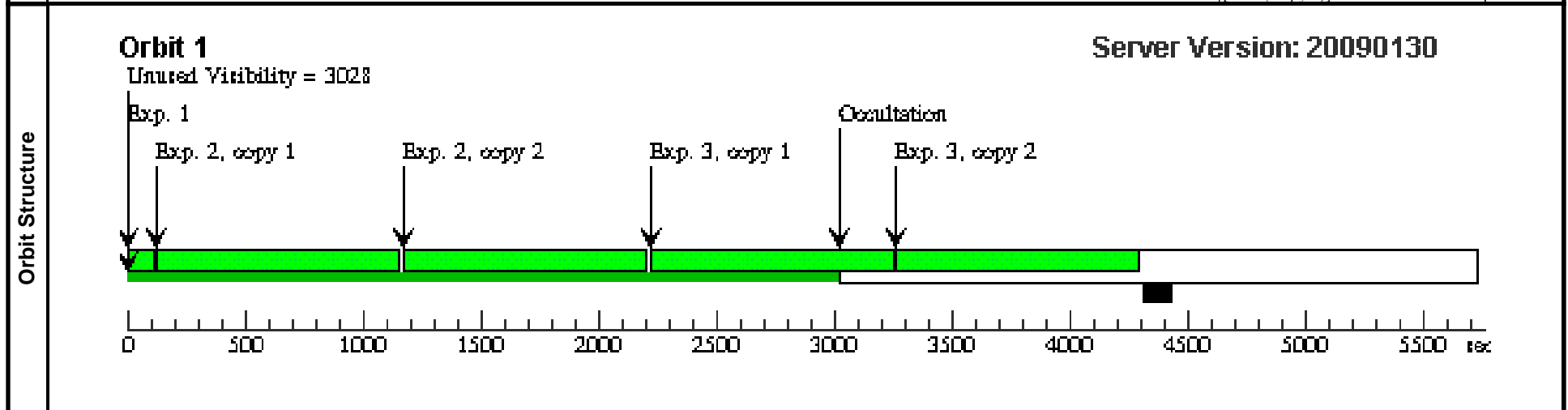
**Orbit 1**  
Unused Visibility = 3028

**Server Version: 20090130**

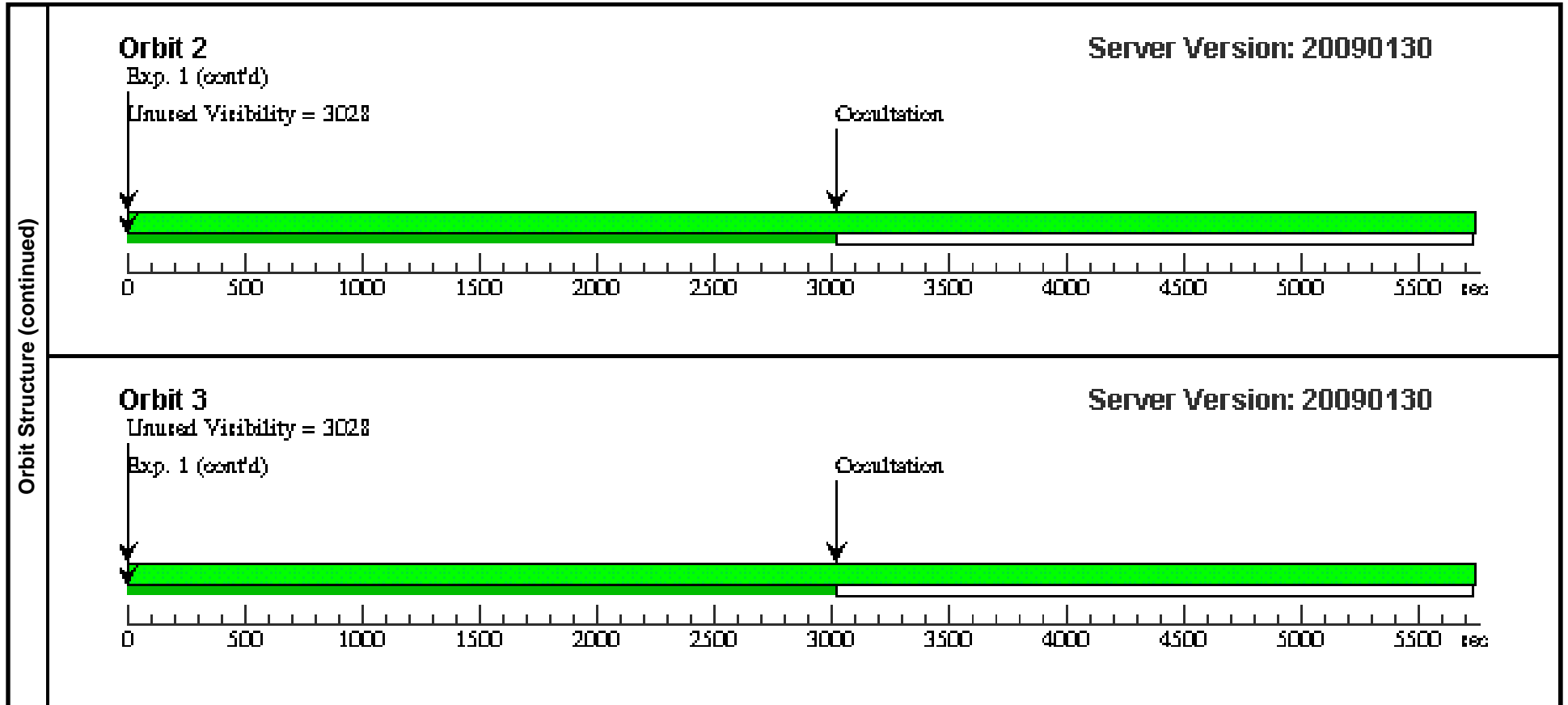
| Visit           | Proposal 11367, Visit 06, scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER 01 BY 28 D TO 35 D; SEQ 06,07,08 WITHIN 18 H |       |        |                      |               |                                      |               |   |                         |       |
|-----------------|--|-------|--------|----------------------|---------------|--------------------------------------|---------------|---|-------------------------|-------|
|                 | #  | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups  | Exp. Time/[Actual Dur.] | Orbit |
| Exposures       | 1  |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               | 0.0 Secs<br>[==>]                                 | [1]                     |       |
|                 | 2  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                     |       |
|                 | 3  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]                     |       |
| Orbit Structure | <p><b>Orbit 1</b><br/>Unused Visibility = 3028</p> <p>Server Version: 20090130</p>   |       |        |                      |               |                                      |               |   |                         |       |

| Visit           | Proposal 11367, Visit 56<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; SEQ 56.58 WITHIN 18 H  |       |        |                      |               |                                      |               |        |   |       |
|-----------------|--|-------|--------|----------------------|---------------|--------------------------------------|---------------|--------|---|-------|
|                 | #  | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups | Exp. Time/[Actual Dur.]                           | Orbit |
| Exposures       | 1  |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               |        | 0.0 Secs<br>[==>]                                 | [1]   |
|                 | 2  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|                 | 3  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| Orbit Structure | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20090130</b></span></p> <p>Exp. 1<br/>Unused Visibility = 3028</p> <p>Timeline labels: Exp. 1, Exp. 2, copy 1, Exp. 2, copy 2, Exp. 3, copy 1, Occultation, Exp. 3, copy 2.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p> |       |        |                      |               |                                      |               |        |   |       |
|                 |  |       |        |                      |               |                                      |               |        |   |       |

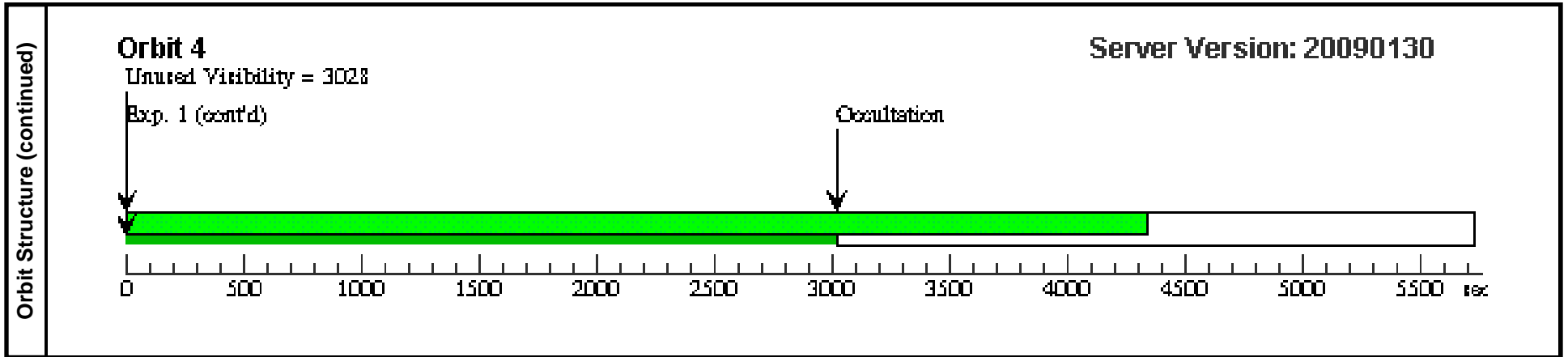
|                  |  |              |                     |                             |                      |                     |                      |               |                                |     |              |
|------------------|--|--------------|---------------------|-----------------------------|----------------------|---------------------|----------------------|---------------|--------------------------------|-----|--------------|
| <b>Visit</b>     | Proposal 11367, Visit 07, scheduling   |              |                     |                             |                      |                     |                      |               |                                |     |              |
|                  | Diagnostic Status: No Diagnostics      |              |                     |                             |                      |                     |                      |               |                                |     |              |
|                  | Scientific Instruments: ACS/HRC        |              |                     |                             |                      |                     |                      |               |                                |     |              |
|                  | Special Requirements: GYRO MODE 3GOBAD |              |                     |                             |                      |                     |                      |               |                                |     |              |
| <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/[Actual Dur.]</b> |     | <b>Orbit</b> |
|                  | 1                                      |              | BIAS                | ACS/HRC, ACCUM, HRC         | DEF                  |                     |                      |               | 0.0 Secs                       |     |              |
|                  |  |              |                     |                             |                      |                     |                      |               | [==>]                          |     | [1]          |
|                  | 2                                      |              | DARK                | ACS/HRC, ACCUM, HRC         | DEF                  | PAREXP=NONE         |                      |               | 1000.0 Secs X 2                |     |              |
|                  |  |              |                     |                             |                      |                     |                      | [==>(Copy 1)] |                                | [1] |              |
|                  |  |              |                     |                             |                      |                     |                      | [==>(Copy 2)] |                                |     |              |
| 3                |  | DARK         | ACS/HRC, ACCUM, HRC | DEF                         | PAREXP=NONE          | NEW ALIGNMENT       |                      |               | 1000.0 Secs X 2                |     |              |
|                  |  |              |                     |                             |                      |                     |                      | [==>(Copy 1)] |                                | [1] |              |
|                  |  |              |                     |                             |                      |                     |                      | [==>(Copy 2)] |                                |     |              |



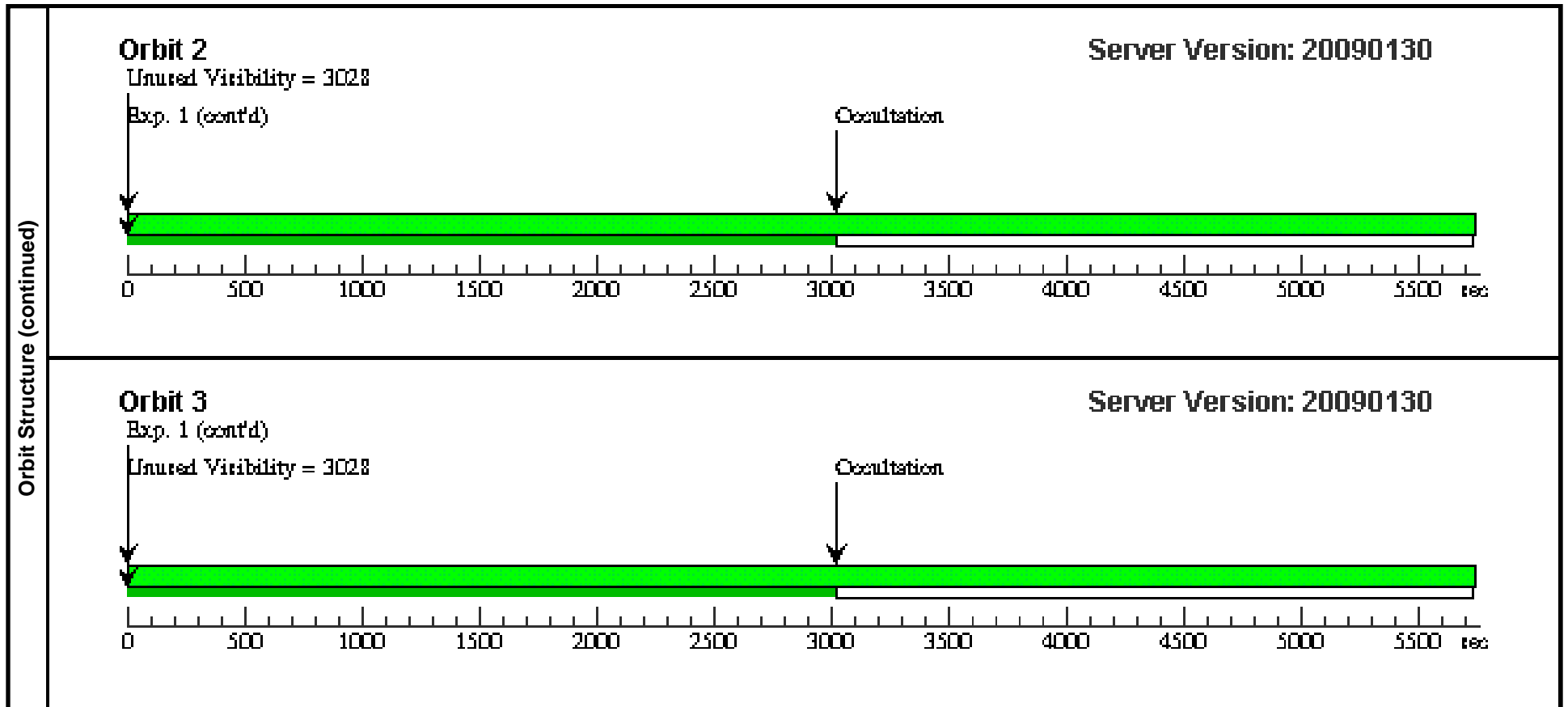
|                        |  |              |               |                             |                      |                     |                      |               |                               |              |
|------------------------|--|--------------|---------------|-----------------------------|----------------------|---------------------|----------------------|---------------|-------------------------------|--------------|
| <b>Visit</b>           | Proposal 11367, Visit 08, scheduling<br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: ACS<br>Special Requirements: GYRO MODE 3GOBAD |              |               |                             |                      |                     |                      |               |                               |              |
|                        | (Visit 08) Warning (Orbit Planner): EXPOSURE WITH SAA CONTOUR 11 WILL EXECUTE ON GYRO  |              |               |                             |                      |                     |                      |               |                               |              |
| <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[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1  | ANNEAL       | NONE          | ACS, ANNEAL                 |                      |                     | SAA CONTOUR 11       |               | 21600.0 Secs<br>[==>]         | [1]          |
| <b>Orbit Structure</b> | Orbit 1 <span style="float: right;">Server Version: 20090130</span><br>Unused Visibility = 3028  |              |               |                             |                      |                     |                      |               |                               |              |
|                        |  |              |               |                             |                      |                     |                      |               |                               |              |

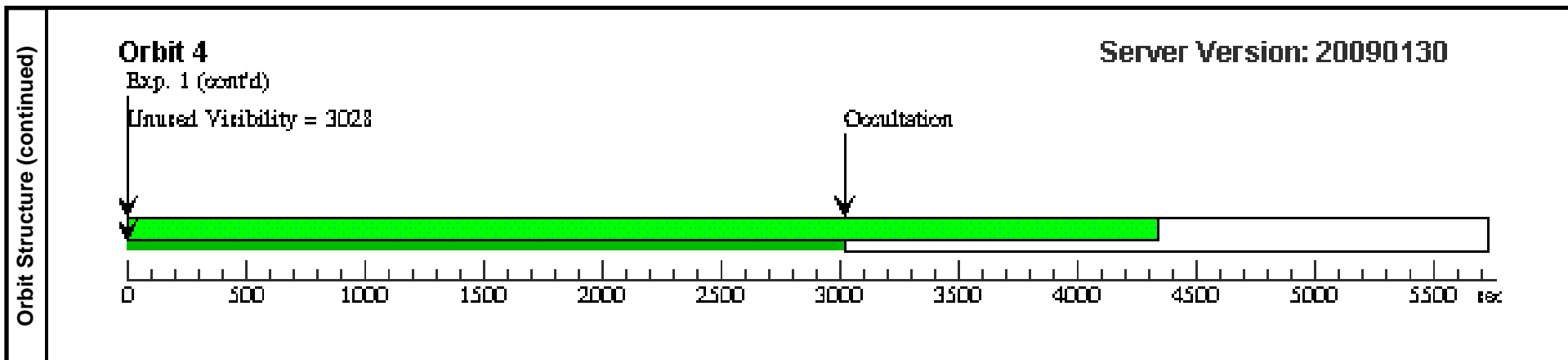






|                        |   |              |               |                             |                      |                     |                      |               |                                |              |
|------------------------|---|--------------|---------------|-----------------------------|----------------------|---------------------|----------------------|---------------|--------------------------------|--------------|
| <b>Visit</b>           | Proposal 11367, Visit 58<br>Diagnostic Status: Warning<br>Scientific Instruments: ACS<br>Special Requirements: GYRO MODE 3GOBAD |              |               |                             |                      |                     |                      |               |                                |              |
|                        | (Visit 58) Warning (Orbit Planner): EXPOSURE WITH SAA CONTOUR 11 WILL EXECUTE ON GYRO   |              |               |                             |                      |                     |                      |               |                                |              |
| <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/[Actual Dur.]</b> | <b>Orbit</b> |
|                        | 1   | ANNEAL       | NONE          | ACS, ANNEAL                 |                      |                     | SAA CONTOUR 11       |               | 21600.0 Secs<br>[==>]          | [1]          |
| <b>Orbit Structure</b> | Orbit 1<br>Exp. 1<br>Unused Visibility = 3028   |              |               |                             |                      |                     |                      |               |                                |              |
|                        | <p>Server Version: 20090130</p>   |              |               |                             |                      |                     |                      |               |                                |              |





| Visit           | Proposal 11367, Visit 09, scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER 08 BY 0.0 H TO 18.0 H |       |        |                      |               |                                      |               |        |   |       |
|-----------------|---|-------|--------|----------------------|---------------|--------------------------------------|---------------|--------|---|-------|
|                 | #   | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups | Exp. Time/[Actual Dur.]                           | Orbit |
| Exposures       | 1   |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               |        | 0.0 Secs<br>[==>]                                 | [1]   |
|                 | 2   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|                 | 3   |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| Orbit Structure | <p><b>Orbit 1</b><br/>Unused Visibility = 3028</p> <p>Server Version: 20090130</p>  |       |        |                      |               |                                      |               |        |   |       |
|                 | <p>Timeline labels: Exp. 1, Exp. 2, copy 1, Exp. 2, copy 2, Exp. 3, copy 1, Occultation, Exp. 3, copy 2</p>   |       |        |                      |               |                                      |               |        |   |       |

| Visit           | Proposal 11367, Visit 59<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER 58 BY 0.0 H TO 18.0 H  |       |        |                      |               |                                      |               |        |   |       |
|-----------------|--|-------|--------|----------------------|---------------|--------------------------------------|---------------|--------|---|-------|
|                 | #  | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params.                         | Special Reqs. | Groups | Exp. Time/[Actual Dur.]                           | Orbit |
| Exposures       | 1  |       | BIAS   | ACS/WFC, ACCUM, WFC  | DEF           |                                      |               |        | 0.0 Secs<br>[==>]                                 | [1]   |
|                 | 2  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE |               |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
|                 | 3  |       | DARK   | ACS/WFC, ACCUM, WFC  | DEF           | COMPRESSION=N<br>ONE;<br>PAREXP=NONE | NEW ALIGNMENT |        | 1000.0 Secs X 2<br>[==>(Copy 1)]<br>[==>(Copy 2)] | [1]   |
| Orbit Structure | <div style="display: flex; justify-content: space-between;"> <div> <p><b>Orbit 1</b><br/>Unused Visibility = 3028</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A green bar represents the total observation time, with several black bars below it representing occultations. Arrows point to specific events: Exp. 1 at 0s, Exp. 2, copy 1 at ~250s, Exp. 2, copy 2 at ~1400s, Exp. 3, copy 1 at ~2550s, Occultation at ~3050s, and Exp. 3, copy 2 at ~3700s.</p> </div> <div> <p><b>Server Version: 20090130</b></p> </div> </div> |       |        |                      |               |                                      |               |        |   |       |

| Visit     | Proposal 11367, Visit 10, scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/HRC<br>Special Requirements: GYRO MODE 3GOBAD; AFTER 08 BY 0.0 H TO 18.0 H |       |                     |                      |               |               |               |        |                         |  |       |
|-----------|---|-------|---------------------|----------------------|---------------|---------------|---------------|--------|-------------------------|--|-------|
|           | #   | Label | Target              | Config,Mode,Aperture | Spectral Els. | Opt. Params.  | Special Reqs. | Groups | Exp. Time/[Actual Dur.] |  | Orbit |
| Exposures | 1   |       | BIAS                | ACS/HRC, ACCUM, HRC  | DEF           |               |               |        | 0.0 Secs                |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>]                   |  | [1]   |
|           | 2   |       | DARK                | ACS/HRC, ACCUM, HRC  | DEF           | PAREXP=NONE   |               |        | 1000.0 Secs X 2         |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 1)]           |  | [1]   |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 2)]           |  |       |
| 3         |   | DARK  | ACS/HRC, ACCUM, HRC | DEF                  | PAREXP=NONE   | NEW ALIGNMENT |               |        | 1000.0 Secs X 2         |  |       |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 1)]           |  | [1]   |
|           |   |       |                     |                      |               |               |               |        | [==>(Copy 2)]           |  |       |

**Orbit 1**

Exp. 1

Unused Visibility = 3028

Exp. 2, copy 1

Exp. 2, copy 2

Exp. 3, copy 1

Occultation

Exp. 3, copy 2

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec

**Server Version: 20090130**

|                        |   |   |       |                     |                      |               |              |               |                   |                         |
|------------------------|---|---|-------|---------------------|----------------------|---------------|--------------|---------------|-------------------|-------------------------|
| <b>Visit</b>           | Proposal 11367, Visit 11, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: (none)   |   |       |                     |                      |               |              |               |                   |                         |
|                        | <b>Exposures</b>  | # | Label | Target              | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups            | Exp. Time/[Actual Dur.] |
| 1                      |   |   | BIAS  | ACS/WFC, ACCUM, WFC | DEF                  |               |              |               | 0.0 Secs<br>[==>] | [1]                     |
| <b>Orbit Structure</b> | Orbit 1<br>Exp. 1<br>Unused Visibility = 3028   |   |       |                     |                      |               |              |               |                   |                         |
|                        | <p style="text-align: right;">Server Version: 20090130</p> <p style="text-align: center;">Occultation</p> <p style="text-align: center;">0      500      1000      1500      2000      2500      3000      3500      4000      4500      5000      5500 sec</p> |   |       |                     |                      |               |              |               |                   |                         |



Proposal 11367 - Visit 12 - CCD Hot Pixel Annealing

Fri Jun 26 01:01:29 GMT 2009

|                        |  |   |       |                     |                      |               |                    |               |                   |                         |
|------------------------|--|---|-------|---------------------|----------------------|---------------|--------------------|---------------|-------------------|-------------------------|
| <b>Visit</b>           | Proposal 11367, Visit 12, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: (none)<br>Comments: Take a WFC BIAS exposure when HRC is OFF. This will be done after we've switched to WFC/SBC mode. Thus, this visit should be scheduled after 1137001 and before the start of the O-mode campaign (11809). |   |       |                     |                      |               |                    |               |                   |                         |
|                        | <b>Exposures</b>   | # | Label | Target              | Config,Mode,Aperture | Spectral Els. | Opt. Params.       | Special Reqs. | Groups            | Exp. Time/[Actual Dur.] |
|                        | 1  |   | BIAS  | ACS/WFC, ACCUM, WFC | DEF                  |               | NEW ALIGNMENT<br>; |               | 0.0 Secs<br>[==>] | [1]                     |
| <b>Orbit Structure</b> | <div style="display: flex; justify-content: space-between;"> <div> <p><b>Orbit 1</b><br/>Unused Visibility = 3028</p> </div> <div> <p><b>Server Version: 20090130</b></p> </div> </div>  |   |       |                     |                      |               |                    |               |                   |                         |

|                        |   |              |               |                             |                      |                     |                      |               |                                |   |              |
|------------------------|---|--------------|---------------|-----------------------------|----------------------|---------------------|----------------------|---------------|--------------------------------|---|--------------|
| <b>Visit</b>           | Proposal 11367, Visit W2, completed<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: ACS/WFC<br>Special Requirements: GYRO MODE 3GOBAD   |              |               |                             |                      |                     |                      |               |                                |   |              |
|                        |   |              |               |                             |                      |                     |                      |               |                                |   |              |
| <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/[Actual Dur.]</b> |   | <b>Orbit</b> |
|                        | 1   | 1            | TUNGSTEN      | ACS/WFC, ACCUM, WFC         | F435W                |                     |                      |               |                                | 17.6 Secs X 3<br>[=>(Copy 1)]<br>[=>(Copy 2)]<br>[=>(Copy 3)] | [1]          |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20090130</b></span></p> <p>Unused Visibility = 3028</p> <p>The diagram shows a timeline from 0 to 5500 seconds. A green bar represents visibility, which is present from 0 to 3000 seconds. Three green rectangles are placed on the green bar, labeled 'Exp. 1, copy 1' (at ~100s), 'Exp. 1, copy 2' (at ~600s), and 'Exp. 1, copy 3' (at ~1100s). Below the green bar, there are three black bars representing occultations, occurring at approximately 200-300s, 700-800s, and 1200-1300s. From 3000 to 5500 seconds, there is a white bar representing an occultation. The x-axis is labeled 'sec' and has major ticks every 500 units from 0 to 5500.</p> |              |               |                             |                      |                     |                      |               |                                |   |              |
|                        |   |              |               |                             |                      |                     |                      |               |                                |   |              |