



## 10815 - The Blue Hook Populations of Massive Globular Clusters

Cycle: 15, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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|---------------------------------|------------------------------------------|-----------------------------|
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### VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (1) NGC2419                  | ACS/HRC<br>ACS/SBC                  | 4                  | 22-Mar-2007 21:12:41.0        | yes                           |
| 02           | (2) NGC6273                  | WFPC2                               | 5                  | 22-Mar-2007 21:12:53.0        | yes                           |
| 03           | (3) NGC6715                  | WFPC2                               | 5                  | 22-Mar-2007 21:13:08.0        | yes                           |
| 04           | (4) NGC6388                  | WFPC2                               | 5                  | 22-Mar-2007 21:13:17.0        | yes                           |
| 05           | (5) NGC6441                  | WFPC2                               | 5                  | 22-Mar-2007 21:13:26.0        | yes                           |
| 56           | (5) NGC6441                  | WFPC2                               | 5                  | 22-Mar-2007 21:13:35.0        | yes                           |
| 51           | (1) NGC2419                  | ACS/SBC                             | 2                  | 22-Mar-2007 21:13:40.0        | yes                           |
| 52           | (2) NGC6273                  | ACS/SBC                             | 1                  | 22-Mar-2007 21:13:47.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 53           | (3) NGC6715                  | ACS/SBC                             | 1                  | 22-Mar-2007 21:14:00.0        | yes                           |
| 54           | (4) NGC6388                  | ACS/SBC                             | 1                  | 22-Mar-2007 21:14:08.0        | yes                           |
| 55           | (5) NGC6441                  | ACS/SBC                             | 2                  | 22-Mar-2007 21:14:17.0        | yes                           |

36 Total Orbits Used

### **ABSTRACT**

Blue hook stars are a class of hot (~35,000 K) subluminescent horizontal branch stars that have been recently discovered using HST ultraviolet images of the globular clusters omega Cen and NGC 2808. These stars occupy a region of the HR diagram that is unexplained by canonical stellar evolution theory. Using new theoretical evolutionary and atmospheric models, we have shown that the blue hook stars are very likely the progeny of stars that undergo extensive internal mixing during a late helium core flash on the white dwarf cooling curve. This "flash mixing" produces an enormous enhancement of the surface helium and carbon abundances, which suppresses the flux in the far ultraviolet. Although flash mixing is more likely to occur in stars that are born with high helium abundances, a high helium abundance, by itself, does not explain the presence of a blue hook population - flash mixing of the envelope is required. We propose ACS ultraviolet (SBC/F150LP and HRC/F250W) observations of the five additional globular clusters for which the presence of blue hook stars is suspected from longer wavelength observations. Like omega Cen and NGC 2808, these five targets are also among the most massive globular clusters, because less massive clusters show no evidence for blue hook stars. Because our targets span 1.5 dex in metallicity, we will be able to test our prediction that flash-mixing should be less drastic in metal-rich blue hook stars. In addition, our observations will test the hypothesis that blue hook stars only form in globular clusters massive enough to retain the helium-enriched ejecta from the first stellar generation. If this hypothesis is correct, then our observations will yield important constraints on the chemical evolution and early formation history in globular clusters, as well as the role of helium self-enrichment in producing blue horizontal branch morphologies and multiple main sequence turnoffs. Finally, our observations will provide new insight into the formation of the hottest horizontal branch stars, with implications for the origin of the hot helium-rich subdwarfs in the Galactic field.

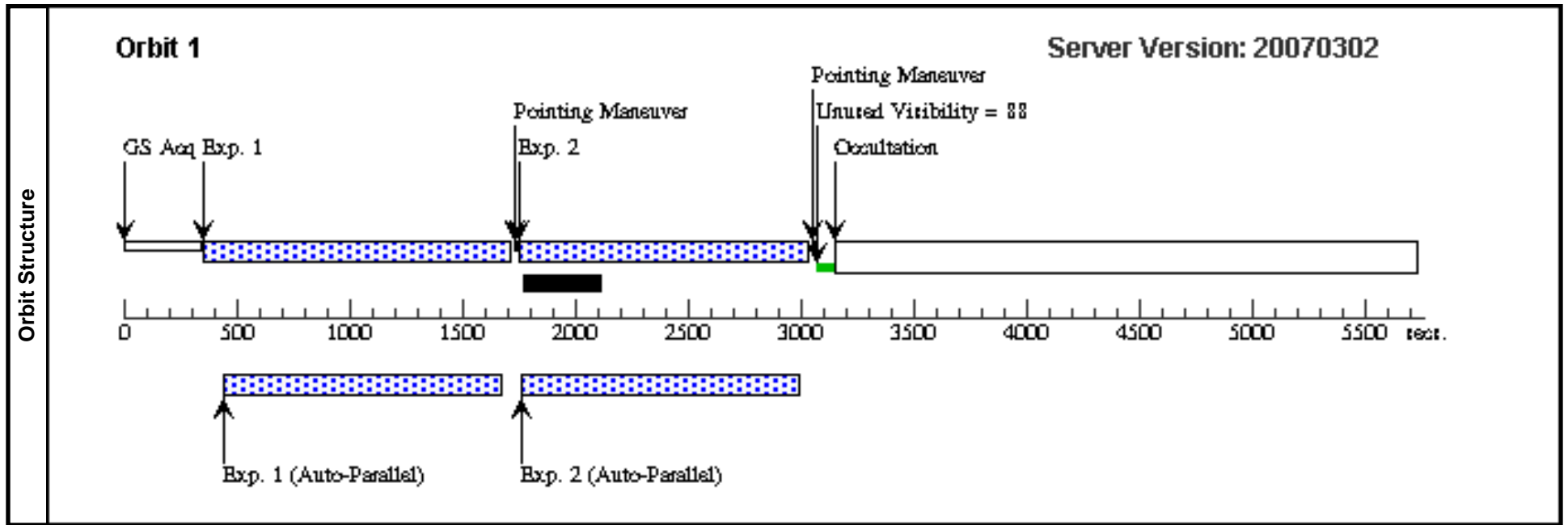
## **OBSERVING DESCRIPTION**

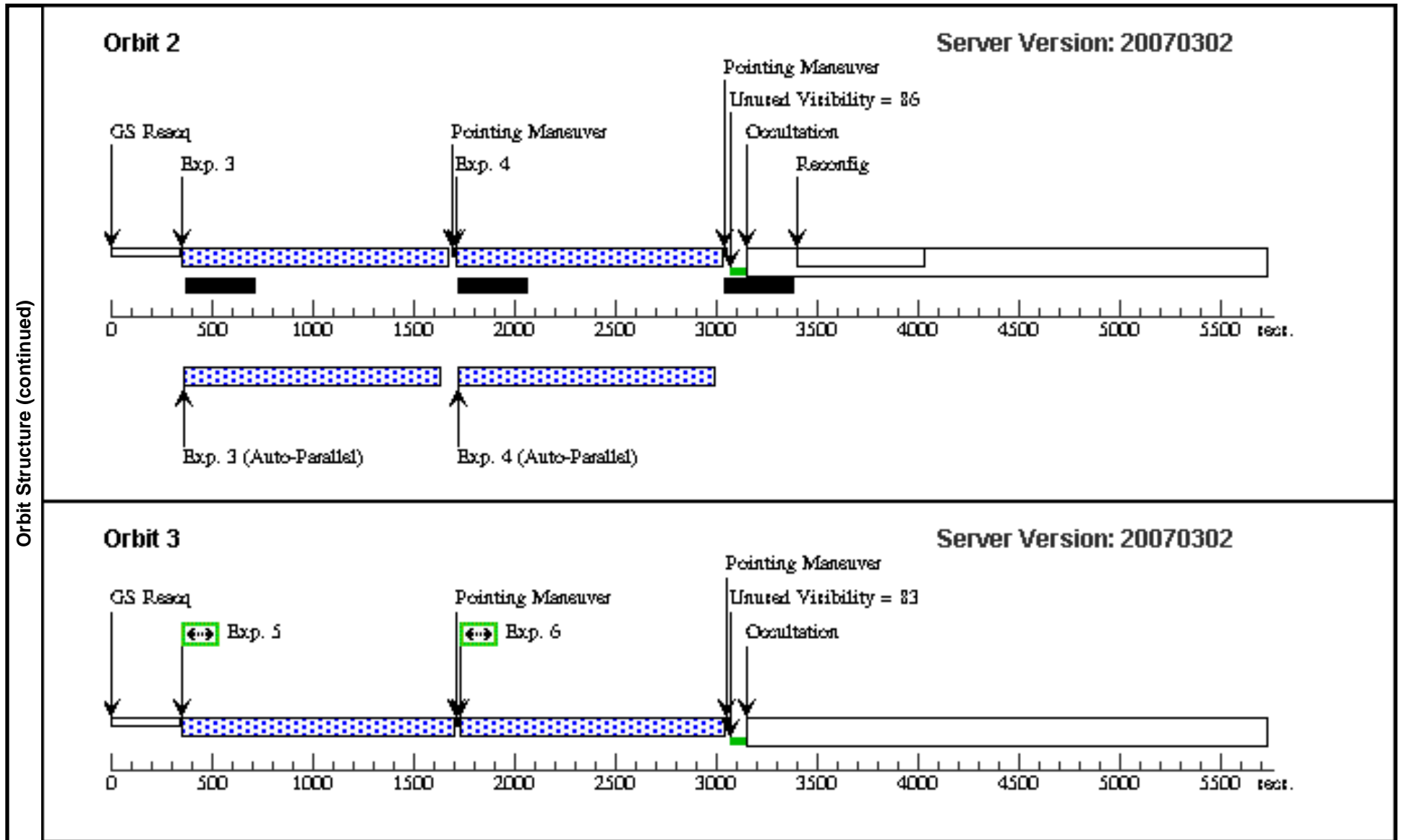
Our observations are extremely straight-forward. Blue hook stars may extend up to 1 mag below the canonical ZAHB, at effective temperatures near 30,000 K. To obtain accurate colors and luminosities for these stars, we require photometry with a signal-to-noise ratio of 20 in each bandpass (ACS/HRC/F250W = NUV, ACS/SBC/F150LP = FUV). Note that cooler stars (down to  $T_{\text{eff}} \sim 10,000$  K) at the same luminosity or brighter (such as those on the canonical HB) will have higher signal-to-noise ratio photometry. We have calculated the required exposure times using our own models of such stars, the ACS throughputs, and estimates of the average sky and dark rates. These calculations have been verified using the ACS ETC. As done for the earlier STIS FUV/NUV images of NGC2808, we will sample the core of the four nearby clusters with a small 2x2 tile mosaic pattern. Because all of the tiling can be achieved within a single small visit, we have no orientation constraints. One cluster, NGC2419, is distant enough to cover the entire core with a single tile, although the exposure times will be longer to achieve similar data quality. Although the cores of these clusters appear very crowded in optical bandpasses, in the FUV and NUV, they are much more sparse, so accurate photometry will not be a problem (e.g., see Brown et al. 2001 for the UV image of NGC2808, with very similar sampling and coverage of the cluster core). The observations present no safety concerns for the SBC, because the 3 relatively nearby clusters have extant UV images showing no UV-bright stars, while the other two clusters are significantly distant and reddened.

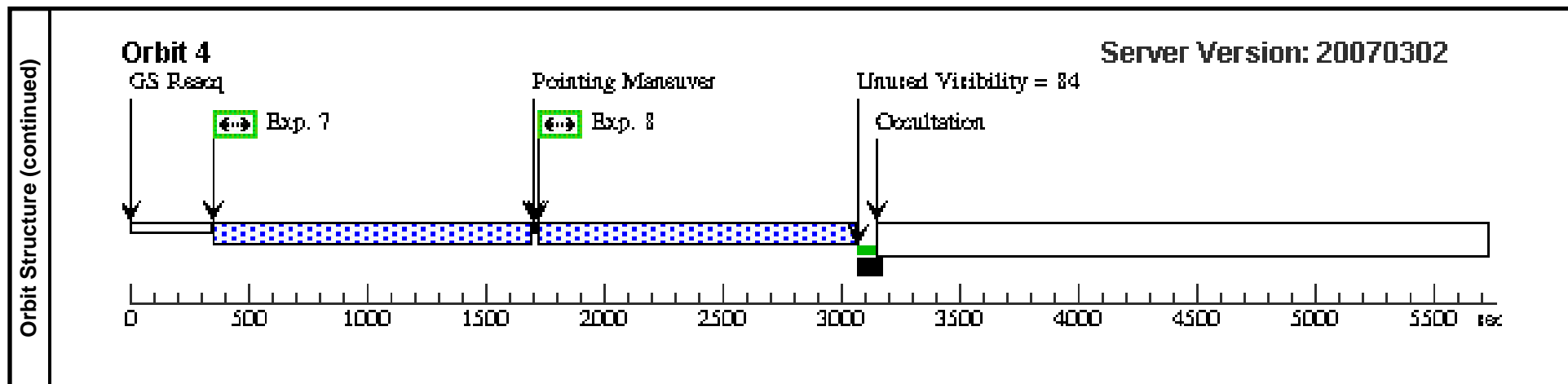
Proposal 10815 (STScI Edit Number: 7, Created: Thursday, March 22, 2007 8:14:19 PM EST) - Overview

Fri Mar 23 01:14:21 GMT 2007

| Visit         |             | <b>Proposal 10815, Visit 01, failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC, ACS/HRC<br>Special Requirements: (none) |             |                                                                                    |                             |                        |                              |               |                      |                         |       |
|---------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|-----------------------------|------------------------|------------------------------|---------------|----------------------|-------------------------|-------|
| Fixed Targets |             | #                                                                                                                                                               | Name        | Target Coordinates                                                                 | Targ. Coord. Corrections    | Fluxes                 | Miscellaneous                |               |                      |                         |       |
| Exposures     |             | 1                                                                                                                                                               | (1) NGC2419 | RA: 07 38 7.9000 (114.5329167d)<br>Dec: +38 52 48.00 (38.88000d)<br>Equinox: J2000 |                             | V=10.4+/-0.1           | Reference Frame: ICRS        |               |                      |                         |       |
|               |             | #                                                                                                                                                               | Label       | Target                                                                             | Config,Mode,Aperture        | Spectral Els.          | Opt. Params.                 | Special Reqs. | Groups               | Exp. Time/[Actual Dur.] | Orbit |
|               |             | 1                                                                                                                                                               | (1) NGC2419 | ACS/HRC, ACCUM, HRC                                                                | F250W                       | CR-SPLIT=NO;<br>GAIN=2 | POS TARG 0.0283,0<br>.0277   |               | 1250.0 Secs<br>[==>] | [1]                     |       |
|               |             | 2                                                                                                                                                               | (1) NGC2419 | ACS/HRC, ACCUM, HRC                                                                | F250W                       | CR-SPLIT=NO;<br>GAIN=2 | POS TARG 0.0283,-<br>0.0219  |               | 1250.0 Secs<br>[==>] | [1]                     |       |
|               |             | 3                                                                                                                                                               | (1) NGC2419 | ACS/HRC, ACCUM, HRC                                                                | F250W                       | CR-SPLIT=NO;<br>GAIN=2 | POS TARG -0.0283,<br>-0.0277 |               | 1290.0 Secs<br>[==>] | [2]                     |       |
|               |             | 4                                                                                                                                                               | (1) NGC2419 | ACS/HRC, ACCUM, HRC                                                                | F250W                       | CR-SPLIT=NO;<br>GAIN=2 | POS TARG -0.0283,<br>0.0219  |               | 1290.0 Secs<br>[==>] | [2]                     |       |
|               |             | 5                                                                                                                                                               | (1) NGC2419 | ACS/SBC, ACCUM, SBC                                                                | F150LP                      |                        | POS TARG 0.0336,3<br>.0334   |               | 1280.0 Secs<br>[==>] | [3]                     |       |
|               |             | 6                                                                                                                                                               | (1) NGC2419 | ACS/SBC, ACCUM, SBC                                                                | F150LP                      |                        | POS TARG 0.0336,2<br>.9732   |               | 1280.0 Secs<br>[==>] | [3]                     |       |
| 7             | (1) NGC2419 | ACS/SBC, ACCUM, SBC                                                                                                                                             | F150LP      |                                                                                    | POS TARG -0.0336,<br>2.9666 |                        | 1310.0 Secs<br>[==>]         | [4]           |                      |                         |       |
| 8             | (1) NGC2419 | ACS/SBC, ACCUM, SBC                                                                                                                                             | F150LP      |                                                                                    | POS TARG -0.0336,<br>3.0268 |                        | 1310.0 Secs<br>[==>]         | [4]           |                      |                         |       |



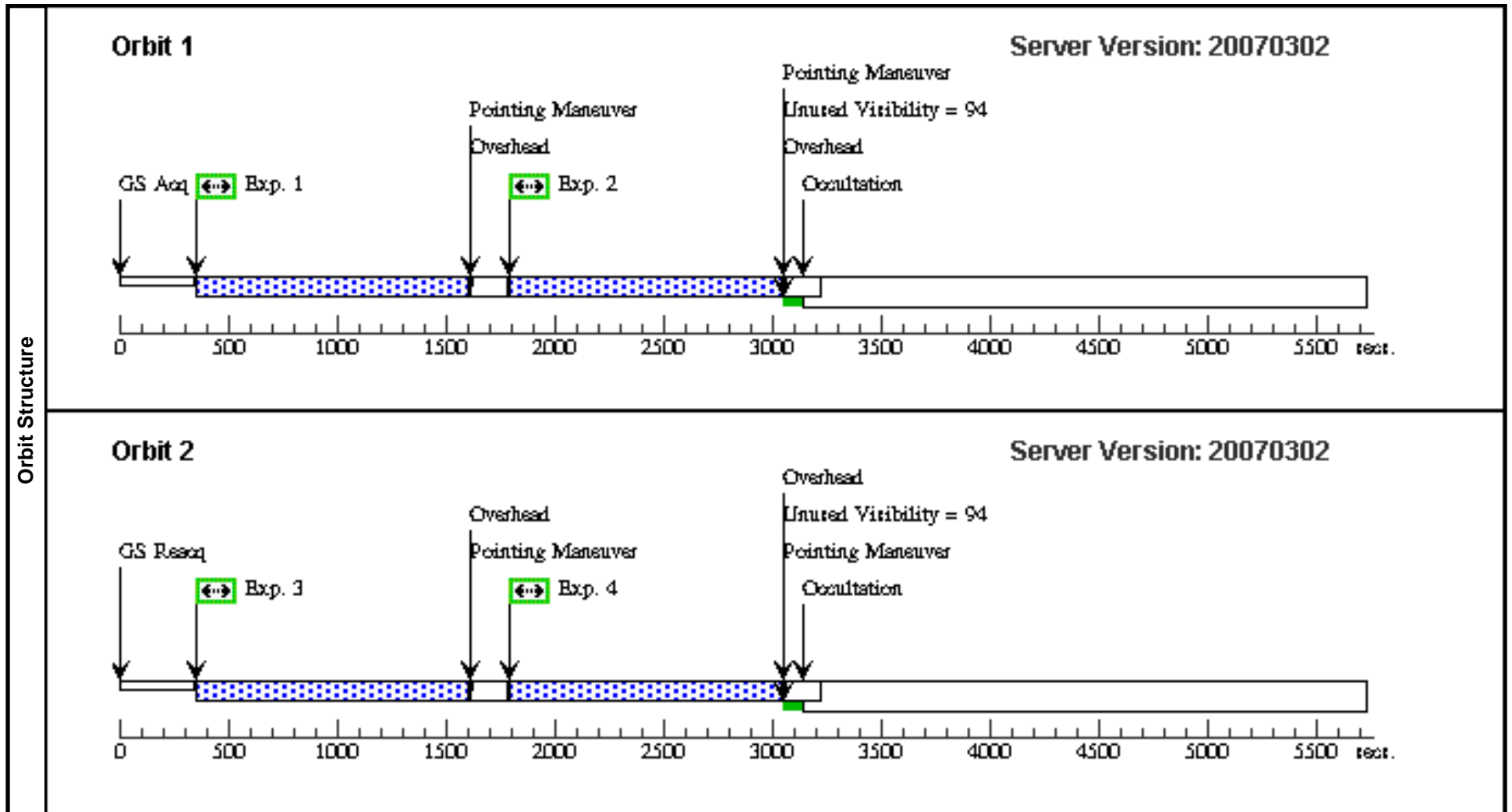


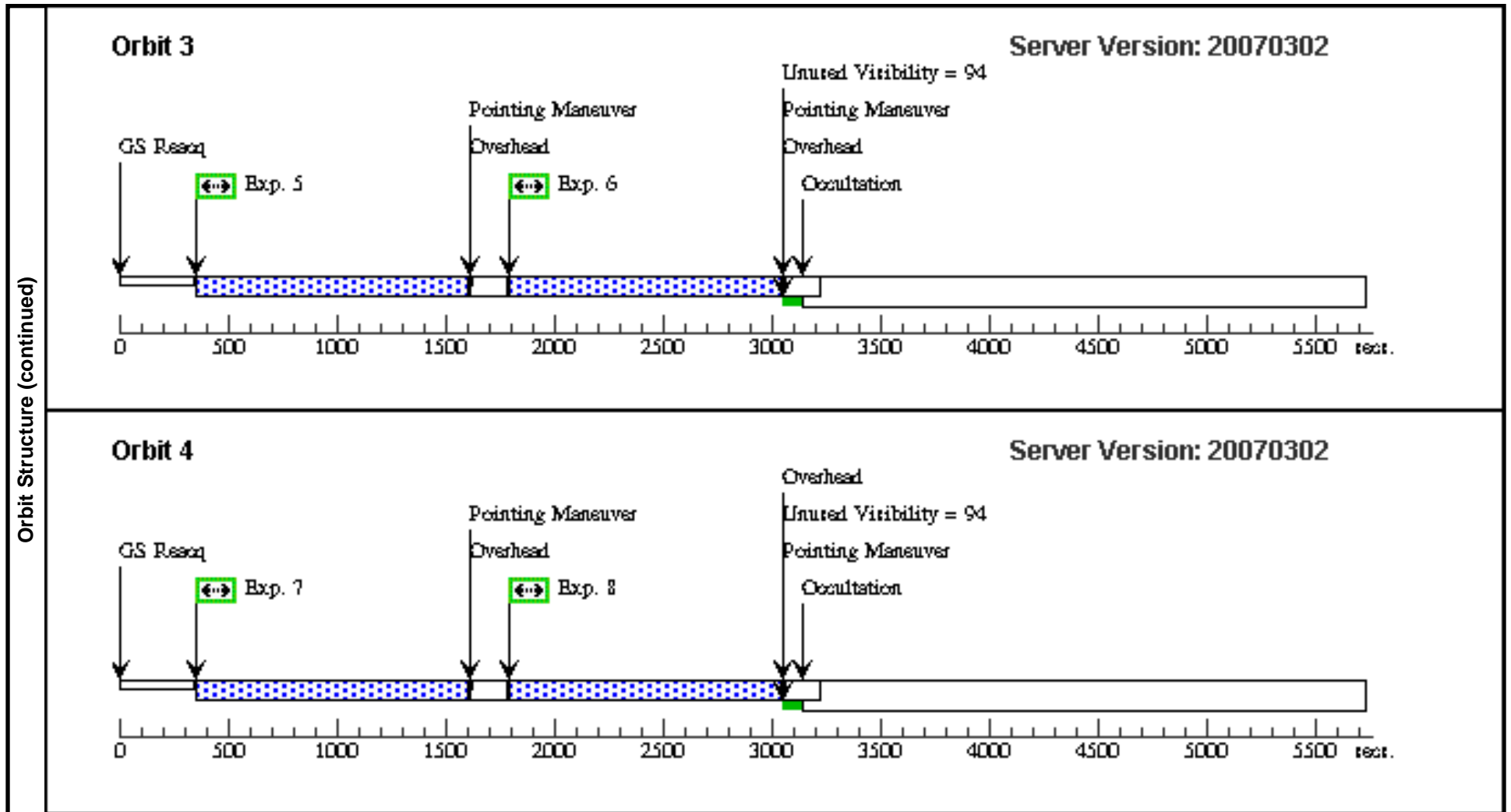


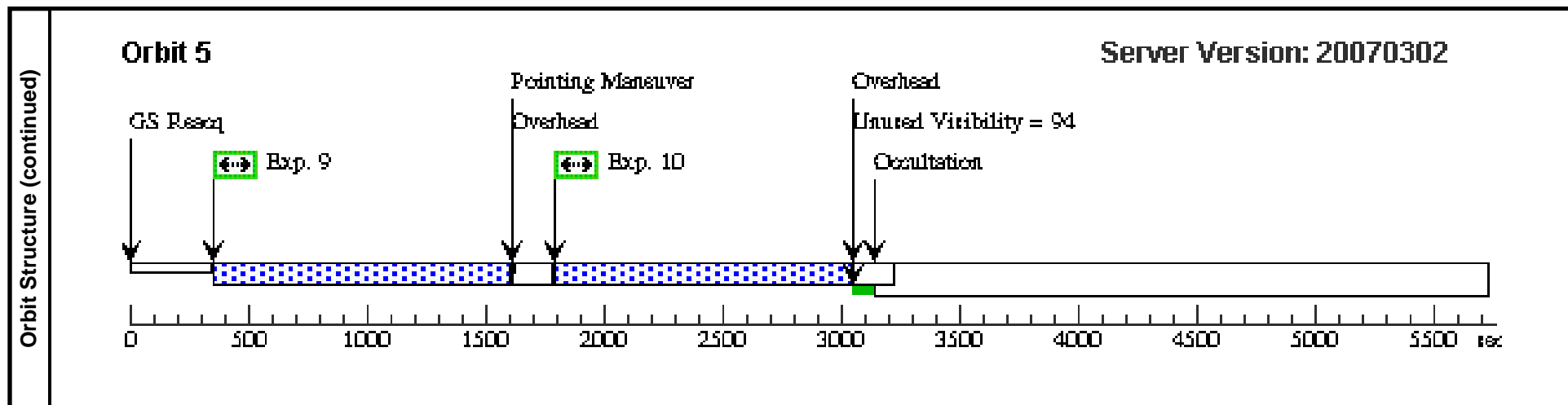
Proposal 10815 - Visit 02 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:23 GMT 2007

| Visit     | <b>Proposal 10815, Visit 02, scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFPC2<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure this visit contained HRC &amp; SBC observations of NGC6273. The HRC has been changed to WFPC2, and the SBC has been moved to Visit 52.</i> |                   |                                                                                     |                            |                            |                        |                      |                      |                         |       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|----------------------------|----------------------------|------------------------|----------------------|----------------------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                                                                                                                 | #                 | Name                                                                                | Target Coordinates         | Targ. Coord. Corrections   | Fluxes                 | Miscellaneous        |                      |                         |       |
|           | (2)                                                                                                                                                                                                                                                                                                                                           | NGC6273           | RA: 17 02 37.7000 (255.6570833d)<br>Dec: -26 16 5.00 (-26.26806d)<br>Equinox: J2000 |                            | V=6.8+/-0.1                | Reference Frame: ICRS  |                      |                      |                         |       |
| Exposures | #                                                                                                                                                                                                                                                                                                                                             | Label             | Target                                                                              | Config,Mode,Aperture       | Spectral Els.              | Opt. Params.           | Special Reqs.        | Groups               | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5           |                      | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 2                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5.2<br>5 |                      | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 3                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5.25        |                      | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 4                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5        |                      | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 5                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7           |                      | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 6                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7.2<br>5 |                      | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 7                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7.25        |                      | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 8                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7        |                      | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 9                                                                                                                                                                                                                                                                                                                                             | (2) NGC6273       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6,6           |                      | 1100.0 Secs<br>[==>] | [5]                     |       |
| 10        | (2) NGC6273                                                                                                                                                                                                                                                                                                                                   | WFPC2, IMAGE, WF3 | F255W                                                                               | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6.25,6.2<br>5     |                        | 1100.0 Secs<br>[==>] | [5]                  |                         |       |







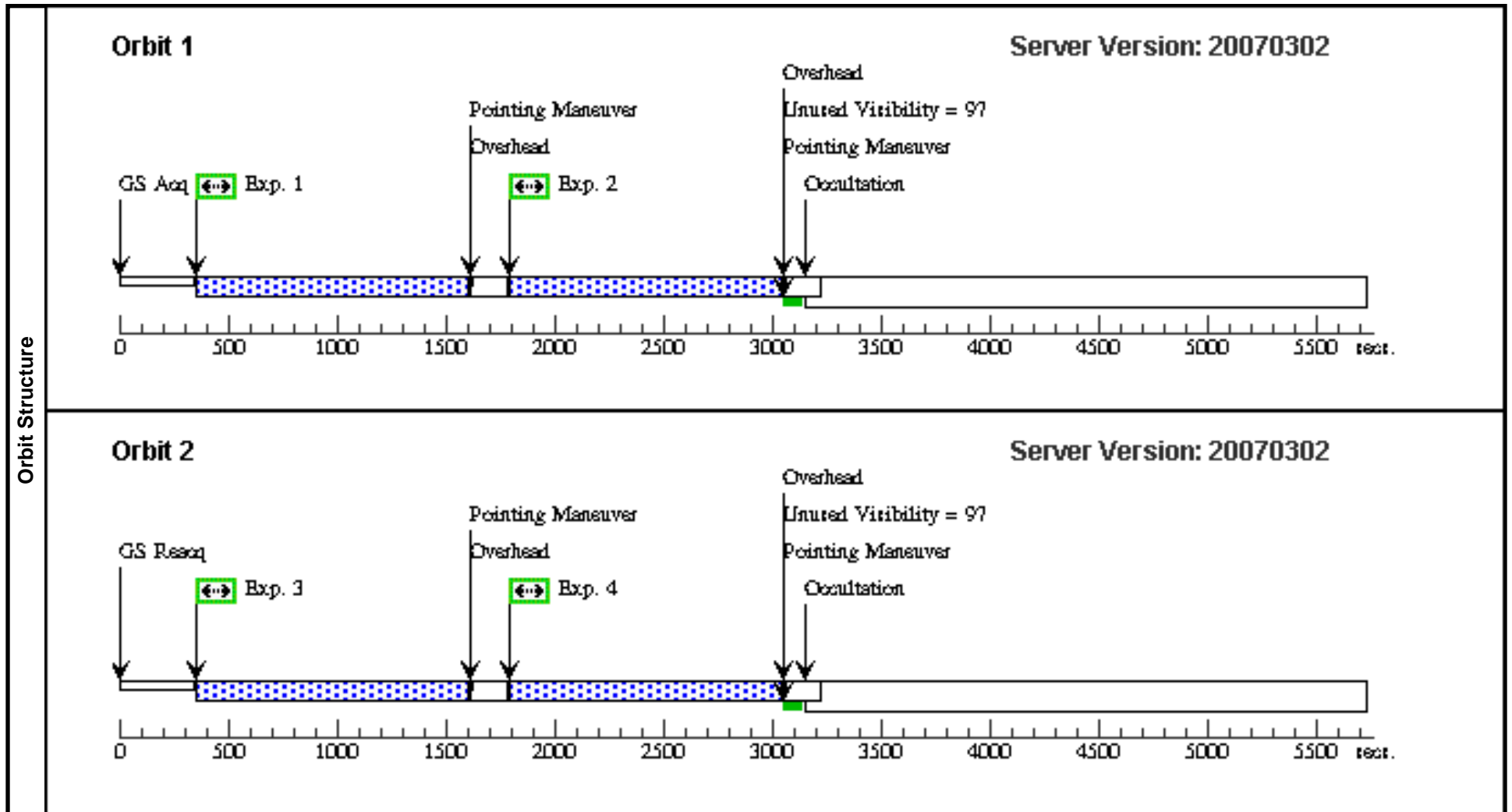
Proposal 10815 - Visit 03 - The Blue Hook Populations of Massive Globular Clusters

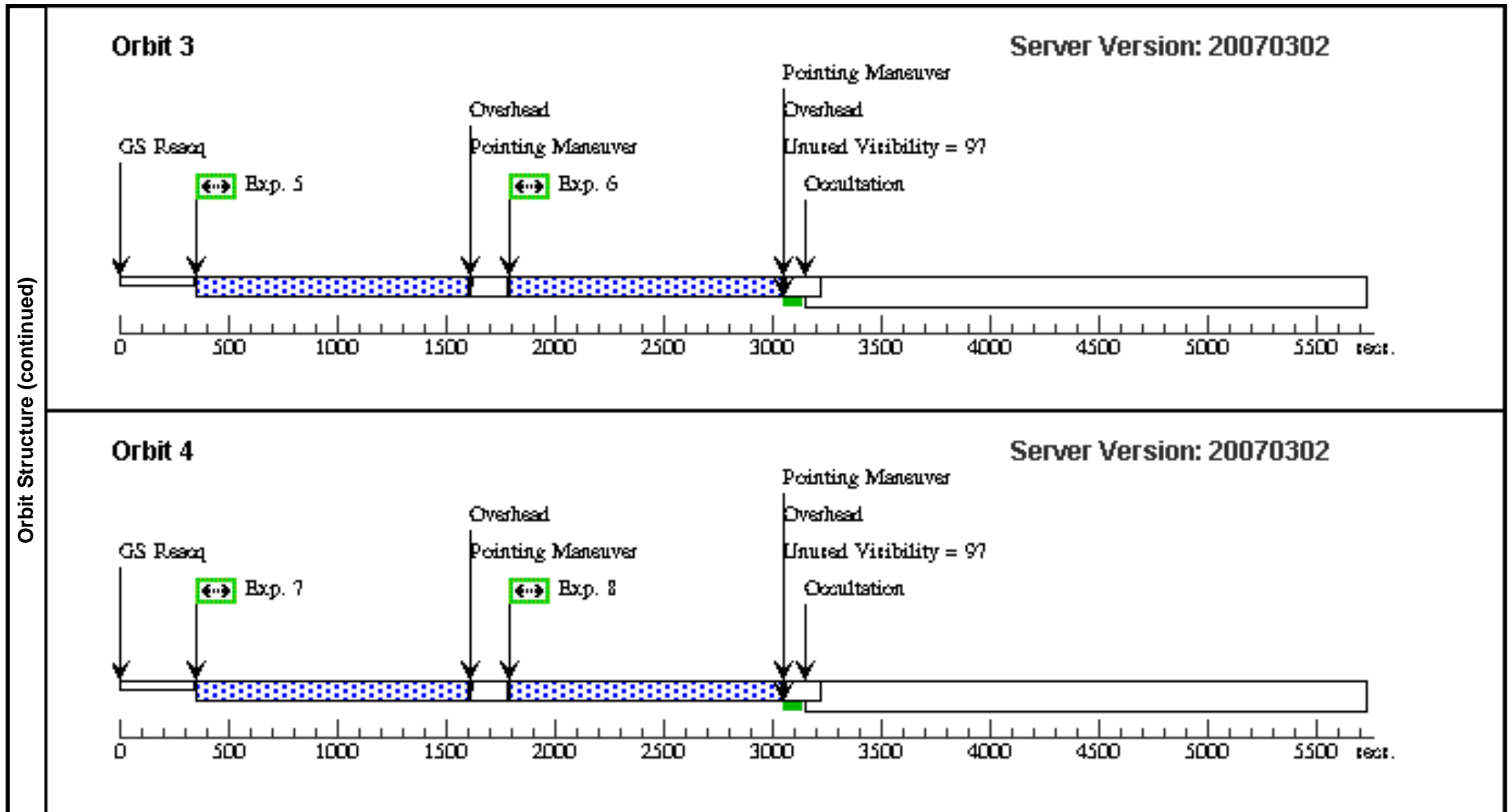
Fri Mar 23 01:14:25 GMT 2007

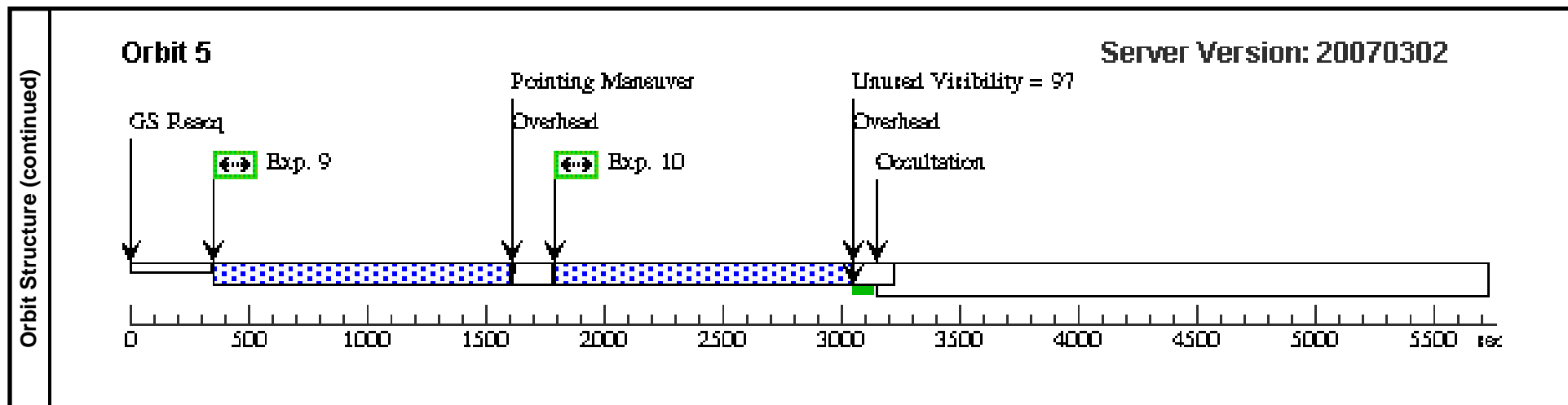
| Fixed Targets | #   | Name    | Target Coordinates                                                                  | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---------------|-----|---------|-------------------------------------------------------------------------------------|--------------------------|--------|---------------|
|               | (3) | NGC6715 | RA: 18 55 3.3000 (283.7637500d)<br>Dec: -30 28 43.00 (-30.47861d)<br>Equinox: J2000 |                          |        | V=7.6+/-0.1   |

| Exposures | #  | Label       | Target            | Config,Mode,Aperture | Spectral Els.              | Opt. Params.           | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|-----------|----|-------------|-------------------|----------------------|----------------------------|------------------------|---------------|--------|-------------------------|-------|
|           | 1  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5           |               |        | 1100.0 Secs<br>[==>]    | [1]   |
|           | 2  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5.2<br>5 |               |        | 1100.0 Secs<br>[==>]    | [1]   |
|           | 3  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5.25        |               |        | 1100.0 Secs<br>[==>]    | [2]   |
|           | 4  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5        |               |        | 1100.0 Secs<br>[==>]    | [2]   |
|           | 5  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7           |               |        | 1100.0 Secs<br>[==>]    | [3]   |
|           | 6  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7.2<br>5 |               |        | 1100.0 Secs<br>[==>]    | [3]   |
|           | 7  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7.25        |               |        | 1100.0 Secs<br>[==>]    | [4]   |
|           | 8  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7        |               |        | 1100.0 Secs<br>[==>]    | [4]   |
|           | 9  | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6,6           |               |        | 1100.0 Secs<br>[==>]    | [5]   |
|           | 10 | (3) NGC6715 | WFPC2, IMAGE, WF3 | F255W                | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6.25,6.2<br>5 |               |        | 1100.0 Secs<br>[==>]    | [5]   |



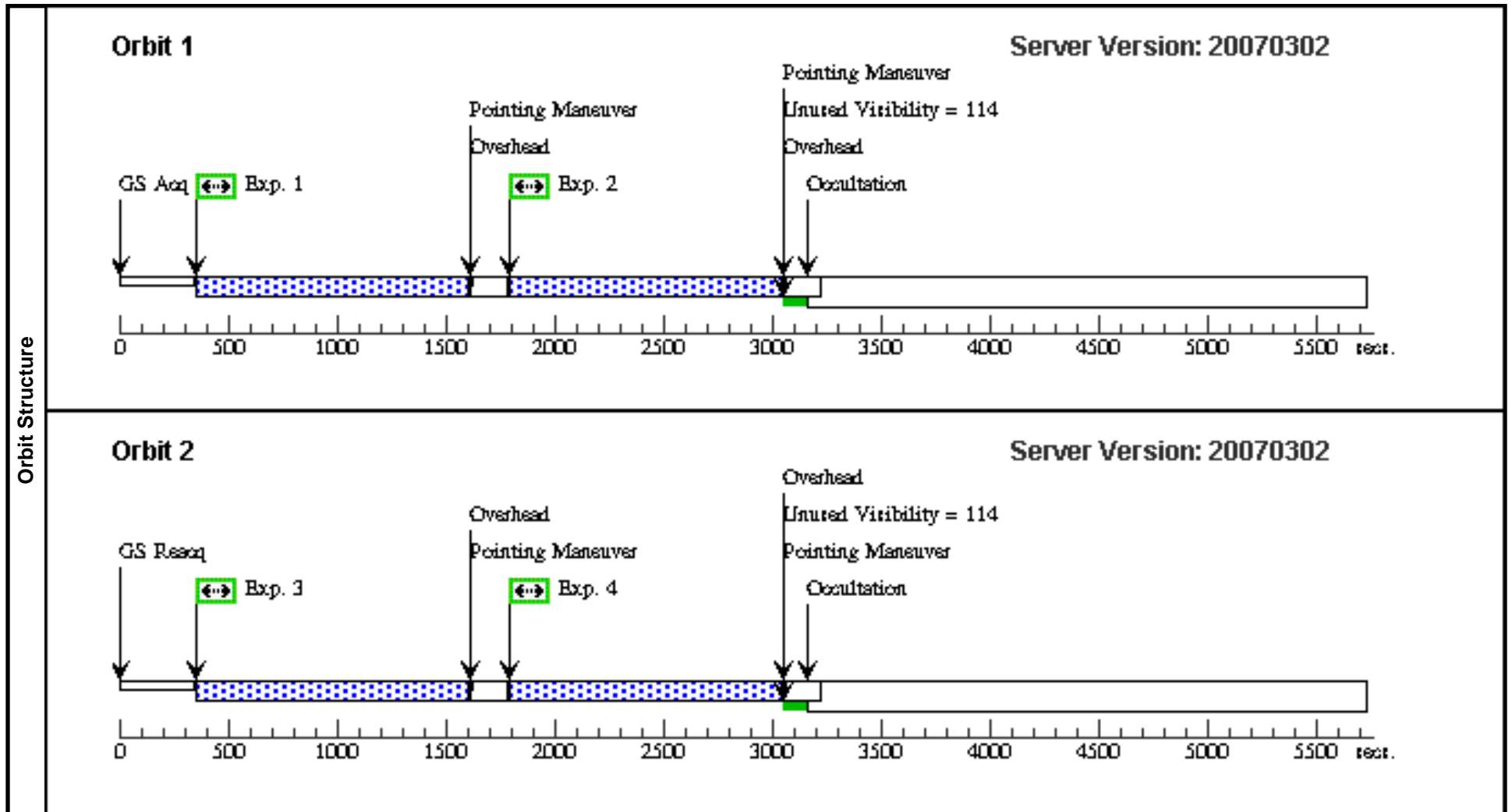


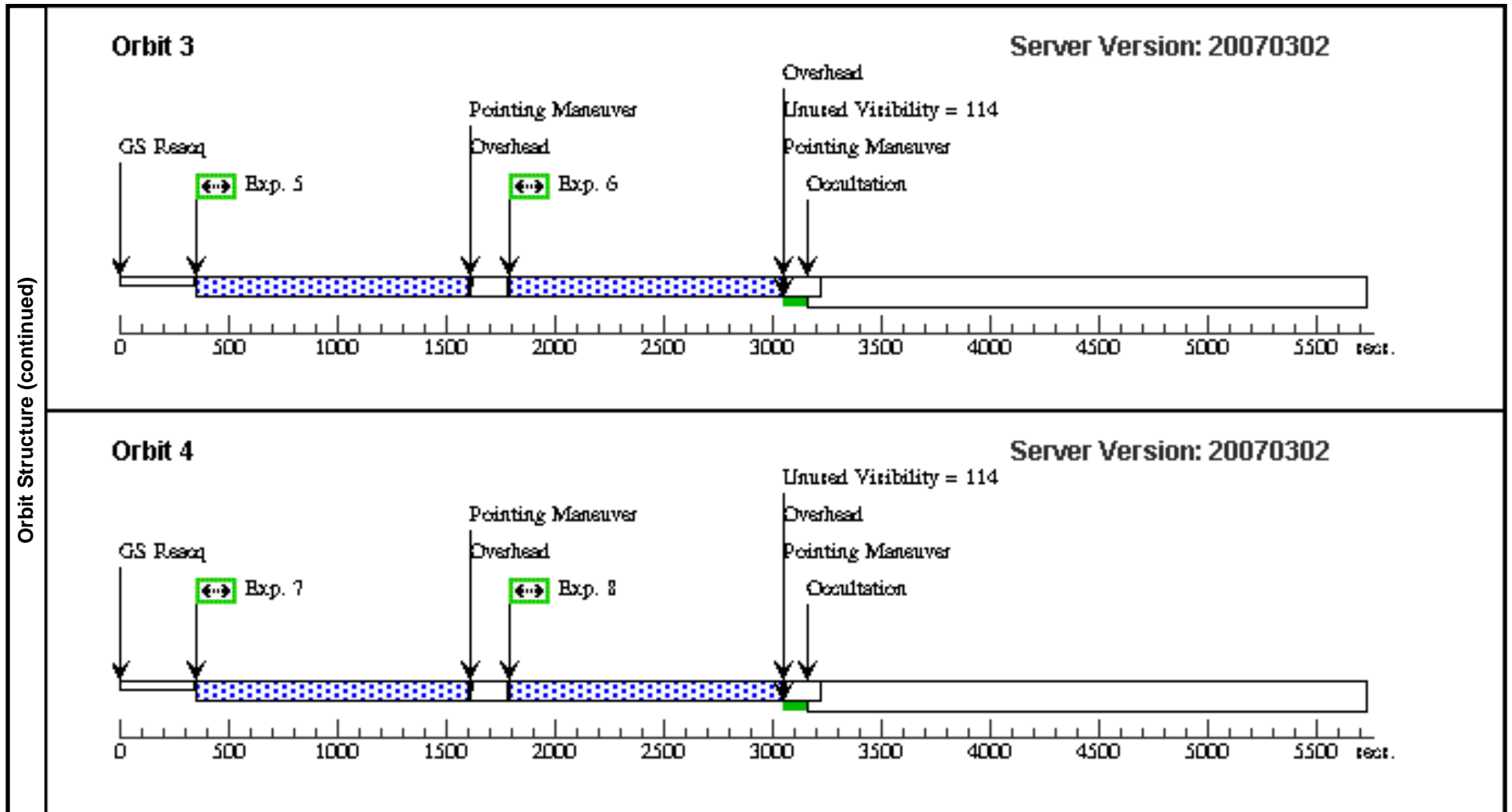


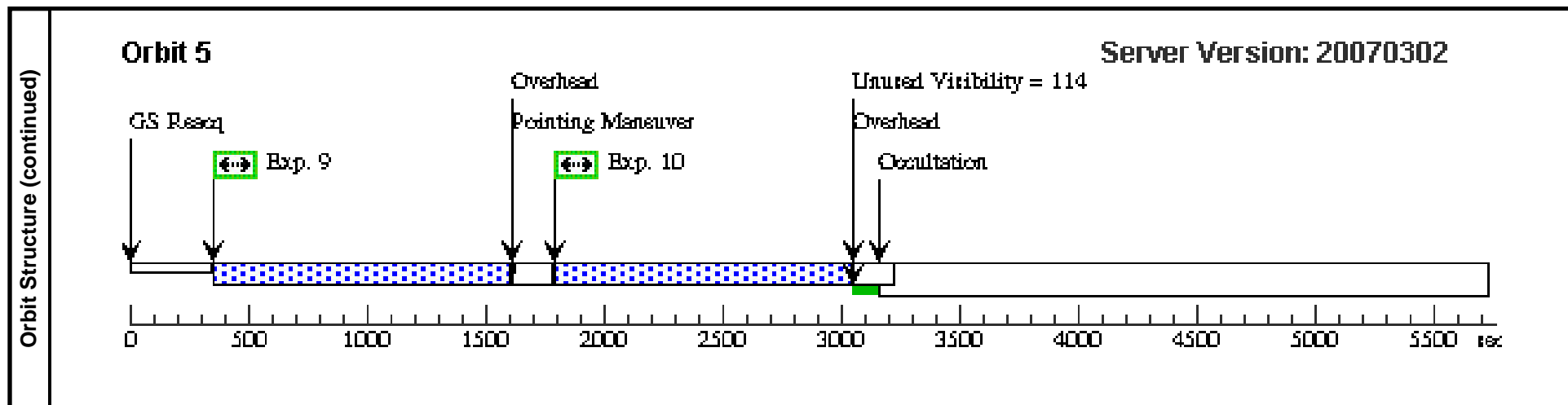
Proposal 10815 - Visit 04 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:26 GMT 2007

| Visit     | <b>Proposal 10815, Visit 04, completed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFPC2<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure this visit contained HRC &amp; SBC observations of NGC6388. The HRC has been changed to WFPC2, and the SBC has been moved to Visit 54.</i> |                   |                                                                                     |                            |                            |                        |                      |                      |                         |       |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|----------------------------|----------------------------|------------------------|----------------------|----------------------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                                                                                                                | #                 | Name                                                                                | Target Coordinates         | Targ. Coord. Corrections   | Fluxes                 | Miscellaneous        |                      |                         |       |
|           | (4)                                                                                                                                                                                                                                                                                                                                          | NGC6388           | RA: 17 36 17.4000 (264.0725000d)<br>Dec: -44 44 8.00 (-44.73556d)<br>Equinox: J2000 |                            | V=6.7+/-0.1                | Reference Frame: ICRS  |                      |                      |                         |       |
| Exposures | #                                                                                                                                                                                                                                                                                                                                            | Label             | Target                                                                              | Config,Mode,Aperture       | Spectral Els.              | Opt. Params.           | Special Reqs.        | Groups               | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5           |                      | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 2                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5.2<br>5 |                      | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 3                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5.25        |                      | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 4                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5        |                      | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 5                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7           |                      | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 6                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7.2<br>5 |                      | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 7                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7.25        |                      | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 8                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7        |                      | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 9                                                                                                                                                                                                                                                                                                                                            | (4) NGC6388       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6,6           |                      | 1100.0 Secs<br>[==>] | [5]                     |       |
| 10        | (4) NGC6388                                                                                                                                                                                                                                                                                                                                  | WFPC2, IMAGE, WF3 | F255W                                                                               | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6.25,6.2<br>5     |                        | 1100.0 Secs<br>[==>] | [5]                  |                         |       |



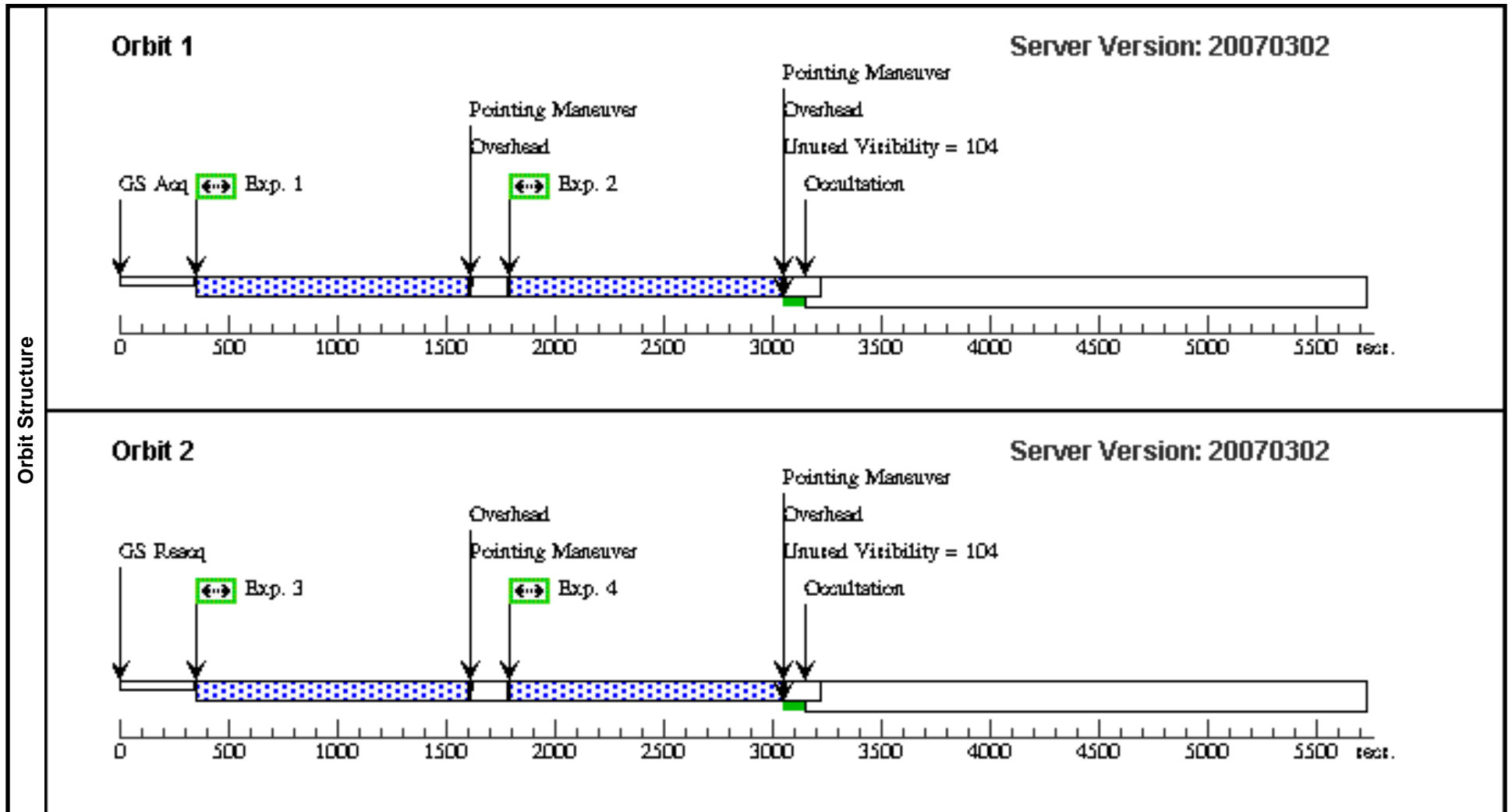


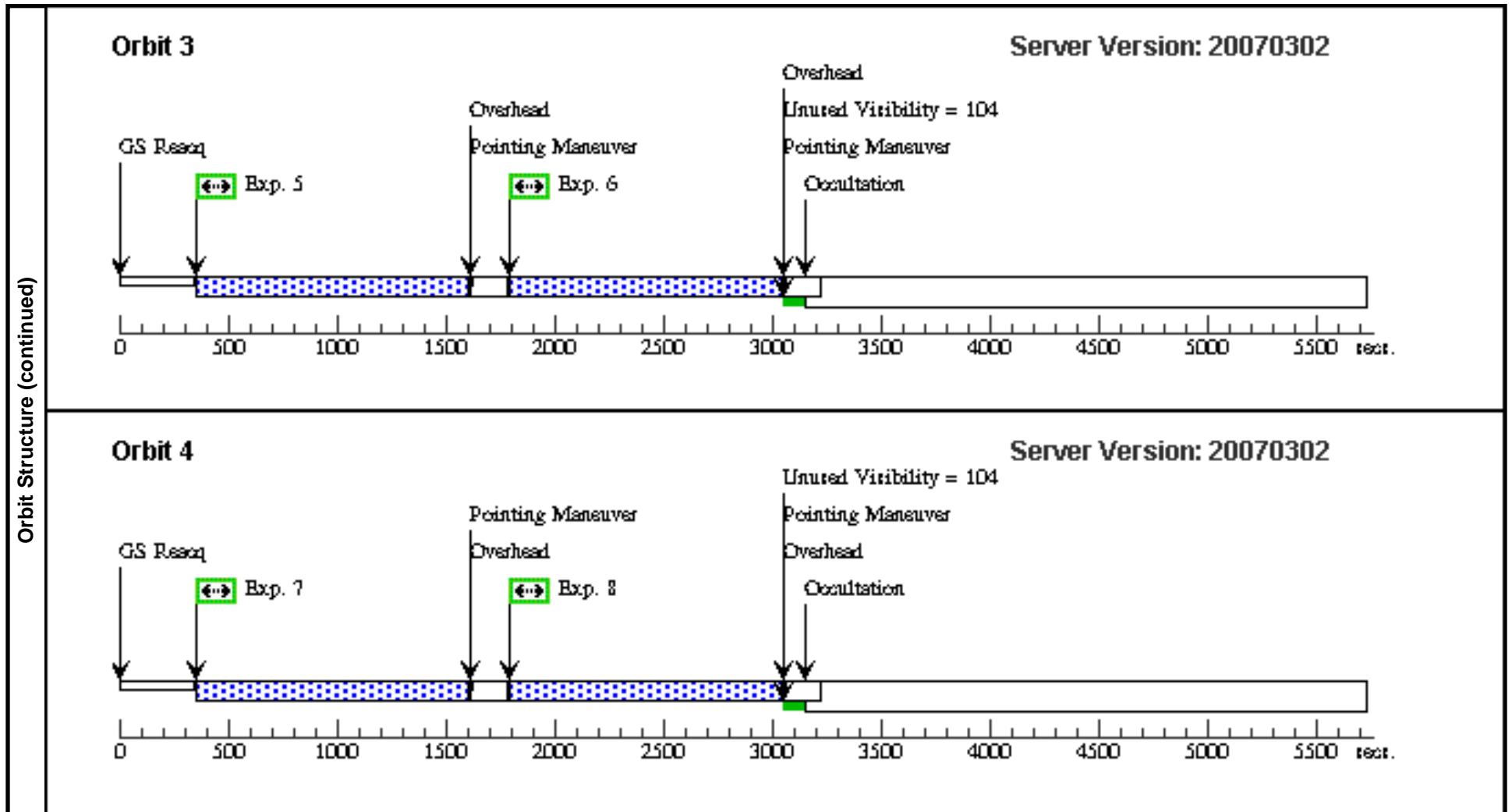


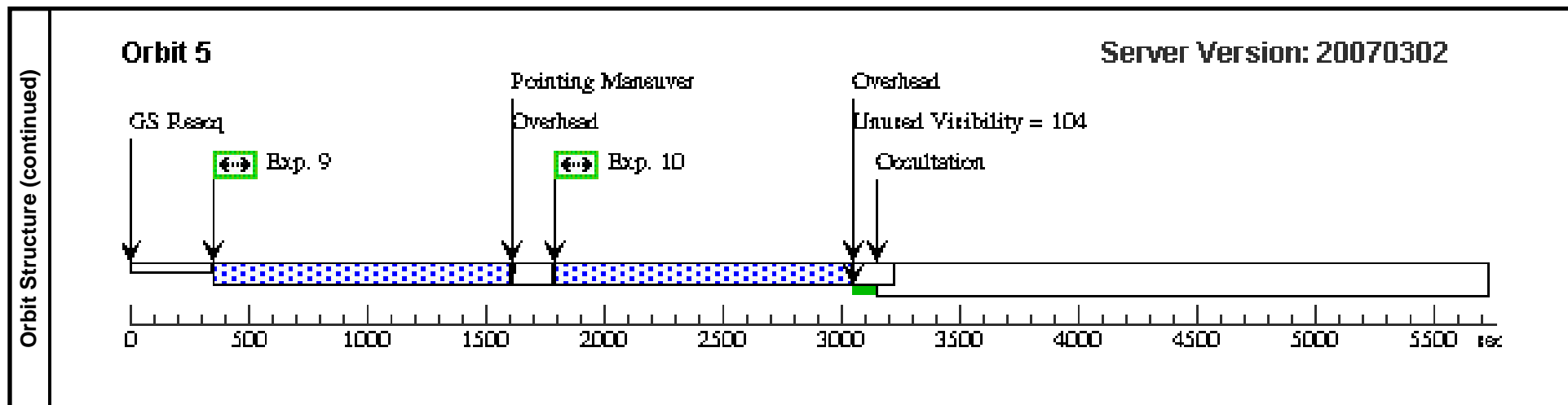
Proposal 10815 - Visit 05 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:28 GMT 2007

| Visit     | <b>Proposal 10815, Visit 05, failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFPC2<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure this visit contained HRC &amp; SBC observations of NGC6441. The HRC has been changed to WFPC2, and the SBC has been moved to Visit 55.</i> |                   |                                                                                     |                            |                            |                        |                       |                      |                         |       |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|----------------------------|----------------------------|------------------------|-----------------------|----------------------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                                                                                                             | #                 | Name                                                                                | Target Coordinates         | Targ. Coord. Corrections   | Fluxes                 | Miscellaneous         |                      |                         |       |
|           | (5)                                                                                                                                                                                                                                                                                                                                       | NGC6441           | RA: 17 50 12.8000 (267.5533333d)<br>Dec: -37 03 4.00 (-37.05111d)<br>Equinox: J2000 |                            |                            | V=7.2+/-0.1            | Reference Frame: ICRS |                      |                         |       |
| Exposures | #                                                                                                                                                                                                                                                                                                                                         | Label             | Target                                                                              | Config,Mode,Aperture       | Spectral Els.              | Opt. Params.           | Special Reqs.         | Groups               | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5           |                       | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 2                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5.2<br>5 |                       | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 3                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5.25        |                       | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 4                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5        |                       | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 5                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7           |                       | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 6                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7.2<br>5 |                       | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 7                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7.25        |                       | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 8                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7        |                       | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 9                                                                                                                                                                                                                                                                                                                                         | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6,6           |                       | 1100.0 Secs<br>[==>] | [5]                     |       |
| 10        | (5) NGC6441                                                                                                                                                                                                                                                                                                                               | WFPC2, IMAGE, WF3 | F255W                                                                               | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6.25,6.2<br>5     |                        | 1100.0 Secs<br>[==>]  | [5]                  |                         |       |



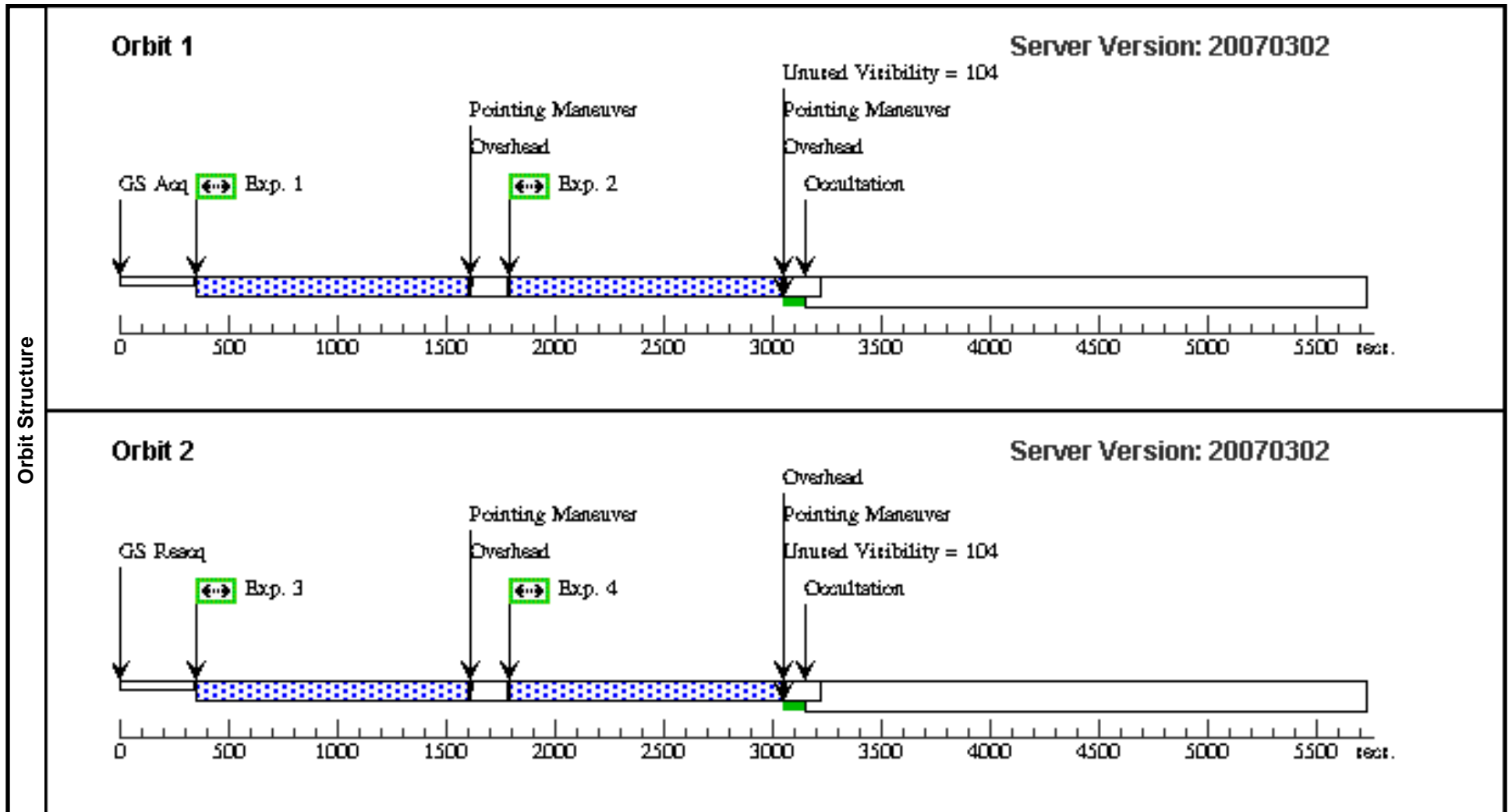


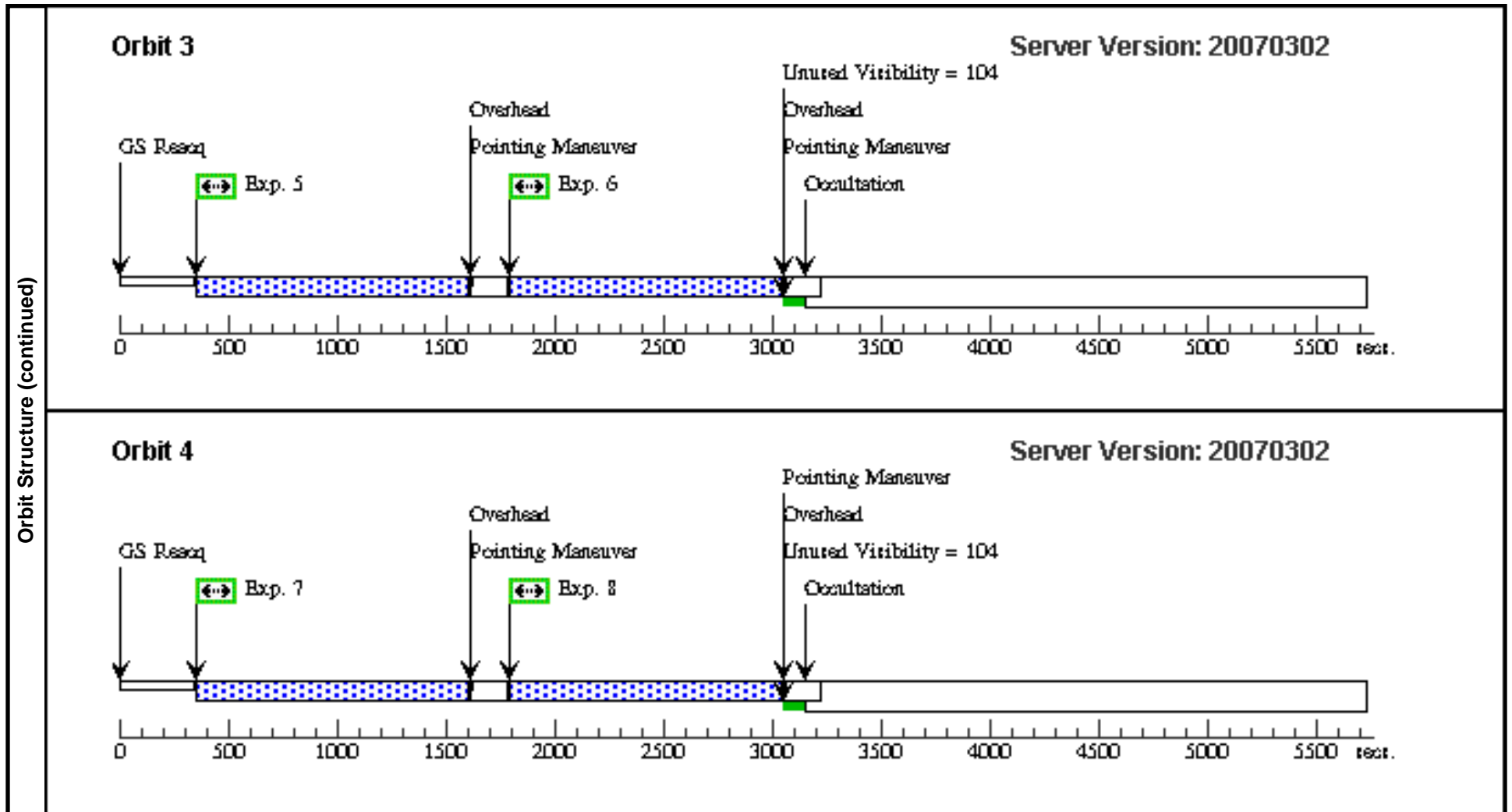


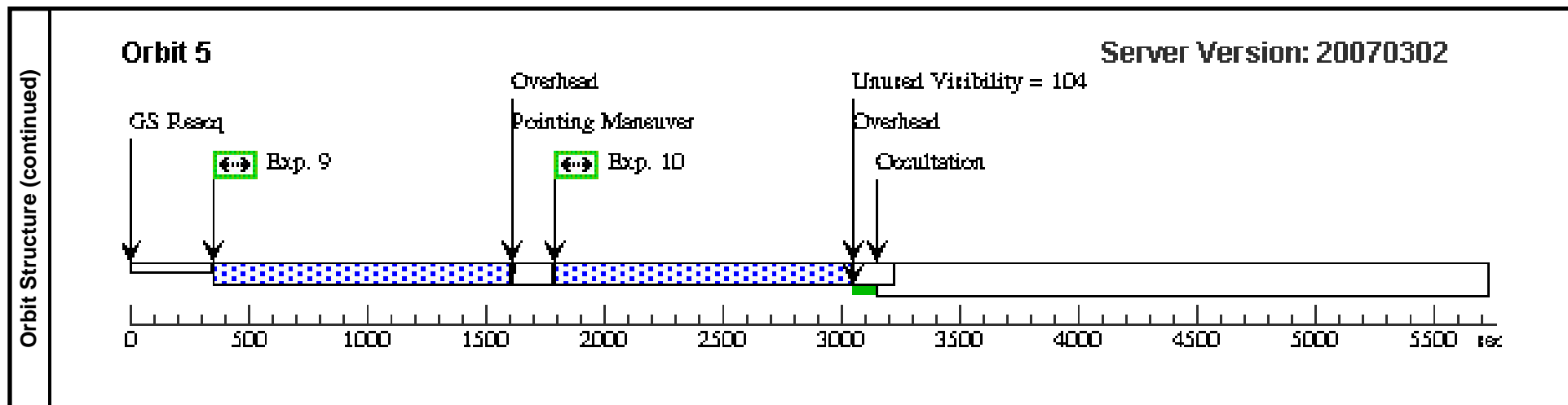
Proposal 10815 - Visit 56 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:29 GMT 2007

| Visit     | <b>Proposal 10815, Visit 56</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFPC2<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure this visit contained HRC &amp; SBC observations of NGC6441. The HRC has been changed to WFPC2, and the SBC has been moved to Visit 55.</i> |                   |                                                                                     |                            |                            |                        |                       |                      |                         |       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|----------------------------|----------------------------|------------------------|-----------------------|----------------------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                                                                                                     | #                 | Name                                                                                | Target Coordinates         | Targ. Coord. Corrections   | Fluxes                 | Miscellaneous         |                      |                         |       |
|           | (5)                                                                                                                                                                                                                                                                                                                               | NGC6441           | RA: 17 50 12.8000 (267.5533333d)<br>Dec: -37 03 4.00 (-37.05111d)<br>Equinox: J2000 |                            |                            | V=7.2+/-0.1            | Reference Frame: ICRS |                      |                         |       |
| Exposures | #                                                                                                                                                                                                                                                                                                                                 | Label             | Target                                                                              | Config,Mode,Aperture       | Spectral Els.              | Opt. Params.           | Special Reqs.         | Groups               | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5           |                       | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 2                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5.2<br>5 |                       | 1100.0 Secs<br>[==>] | [1]                     |       |
|           | 3                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5,5.25        |                       | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 4                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 5.25,5        |                       | 1100.0 Secs<br>[==>] | [2]                     |       |
|           | 5                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7           |                       | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 6                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7.2<br>5 |                       | 1100.0 Secs<br>[==>] | [3]                     |       |
|           | 7                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7,7.25        |                       | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 8                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 7.25,7        |                       | 1100.0 Secs<br>[==>] | [4]                     |       |
|           | 9                                                                                                                                                                                                                                                                                                                                 | (5) NGC6441       | WFPC2, IMAGE, WF3                                                                   | F255W                      | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6,6           |                       | 1100.0 Secs<br>[==>] | [5]                     |       |
| 10        | (5) NGC6441                                                                                                                                                                                                                                                                                                                       | WFPC2, IMAGE, WF3 | F255W                                                                               | CR-SPLIT=NO;<br>ATD-GAIN=7 | POS TARG 6.25,6.2<br>5     |                        | 1100.0 Secs<br>[==>]  | [5]                  |                         |       |



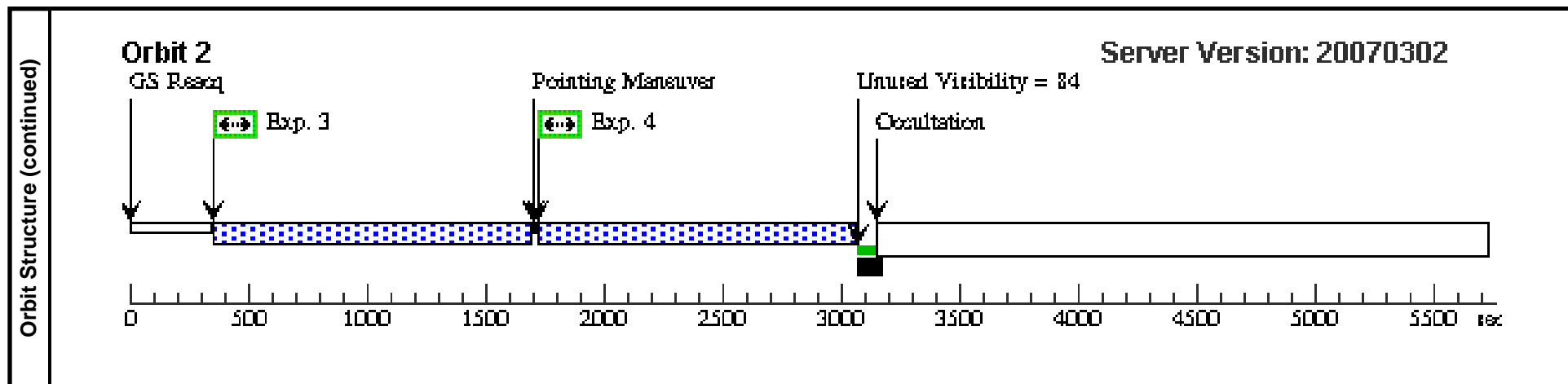




Proposal 10815 - Visit 51 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:30 GMT 2007

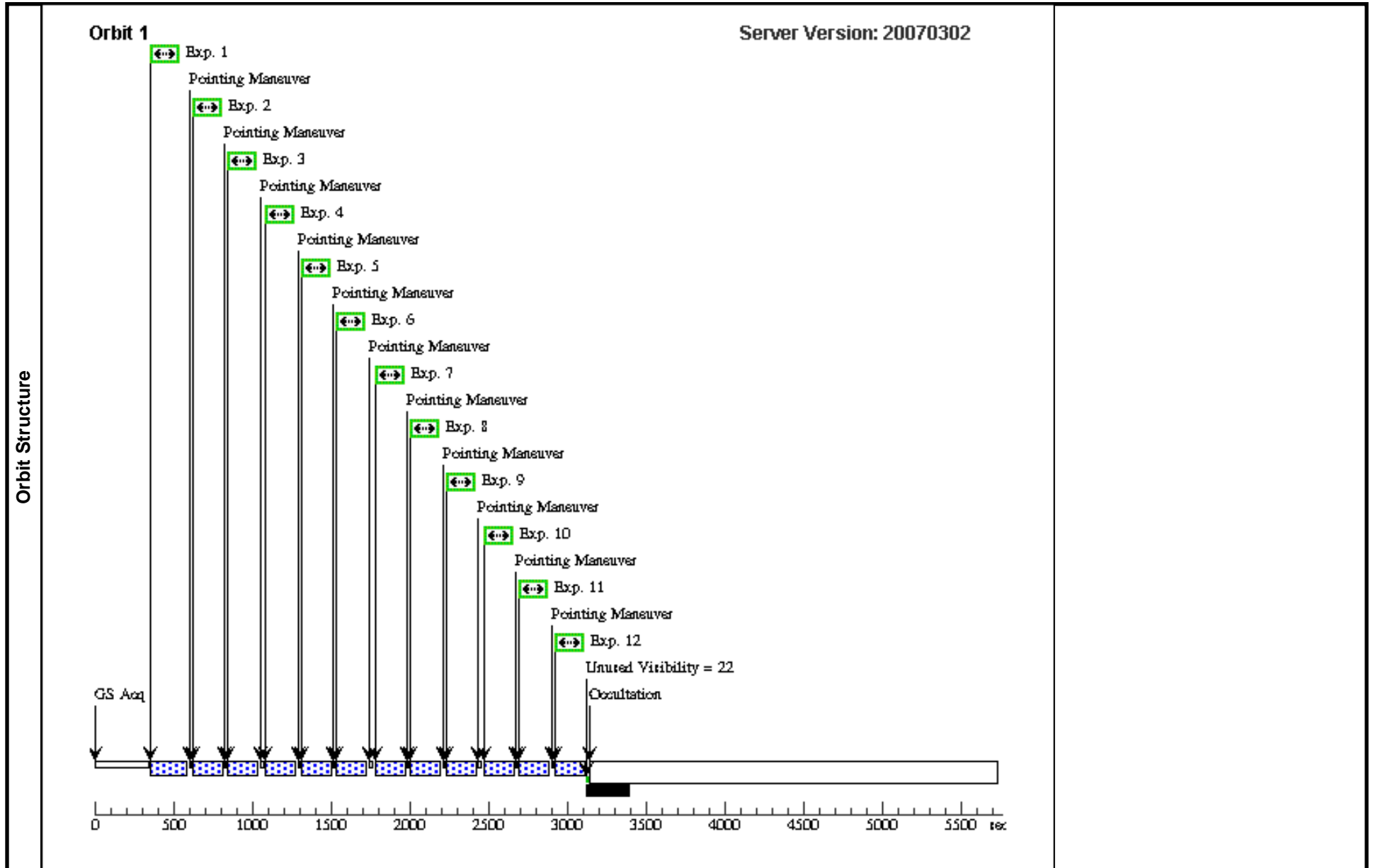
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                                                                    |                                 |                      |                       |                             |               |                                |              |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|---------------------------------|----------------------|-----------------------|-----------------------------|---------------|--------------------------------|--------------|
| <b>Visit</b>           | <b>Proposal 10815, Visit 51, scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC<br>Special Requirements: SAME ORIENT AS 01<br><i>Comments: Before ACS Side-2 failure, this visit repeated the HRC and failed SBC observations in Visit 1 to ensure they were at the same position and orientation. Now it is only a repeat of the SBC observations in Visit 1. This visit should execute at the same orientation and position as the HRC observations of Visit 1.</i>                                                                                                                                                                                                                                                                                                                                                                                                                 |              |                                                                                    |                                 |                      |                       |                             |               |                                |              |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                                                                    |                                 |                      |                       |                             |               |                                |              |
| <b>Fixed Targets</b>   | <b>#</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Name</b>  | <b>Target Coordinates</b>                                                          | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>  |                             |               |                                |              |
|                        | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | NGC2419      | RA: 07 38 7.9000 (114.5329167d)<br>Dec: +38 52 48.00 (38.88000d)<br>Equinox: J2000 |                                 | V=10.4+/-0.1         | Reference Frame: ICRS |                             |               |                                |              |
| <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) NGC2419  | (1) NGC2419                                                                        | ACS/SBC, ACCUM, SBC             | F150LP               |                       | POS TARG 0.0336,3<br>.0334  |               | 1280.0 Secs<br>[==>]           | [1]          |
|                        | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (1) NGC2419  | (1) NGC2419                                                                        | ACS/SBC, ACCUM, SBC             | F150LP               |                       | POS TARG 0.0336,2<br>.9732  |               | 1280.0 Secs<br>[==>]           | [1]          |
|                        | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (1) NGC2419  | (1) NGC2419                                                                        | ACS/SBC, ACCUM, SBC             | F150LP               |                       | POS TARG -0.0336,<br>2.9666 |               | 1310.0 Secs<br>[==>]           | [2]          |
|                        | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (1) NGC2419  | (1) NGC2419                                                                        | ACS/SBC, ACCUM, SBC             | F150LP               |                       | POS TARG -0.0336,<br>3.0268 |               | 1310.0 Secs<br>[==>]           | [2]          |
| <b>Orbit Structure</b> | <p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20070302</b></span></p> <p>The diagram illustrates the timing of observations and maneuvers. It shows a horizontal axis for time in seconds, with major ticks every 500 seconds. Key events are marked with vertical arrows: GS Acq at approximately 200s, Exp. 1 (a green box with a double-headed arrow) at approximately 400s, Pointing Maneuver at approximately 1700s, Exp. 2 (a green box with a double-headed arrow) at approximately 1800s, another Pointing Maneuver at approximately 3000s, and Occultation at approximately 3100s. A blue checkered bar represents the observation period, starting at approximately 400s and ending at approximately 3100s. A green bar at the bottom indicates the observation period from approximately 3100s to approximately 5500s. The text 'Unused Visibility = 83' is shown above the occultation event.</p> |              |                                                                                    |                                 |                      |                       |                             |               |                                |              |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |                                                                                    |                                 |                      |                       |                             |               |                                |              |



Proposal 10815 - Visit 52 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:31 GMT 2007

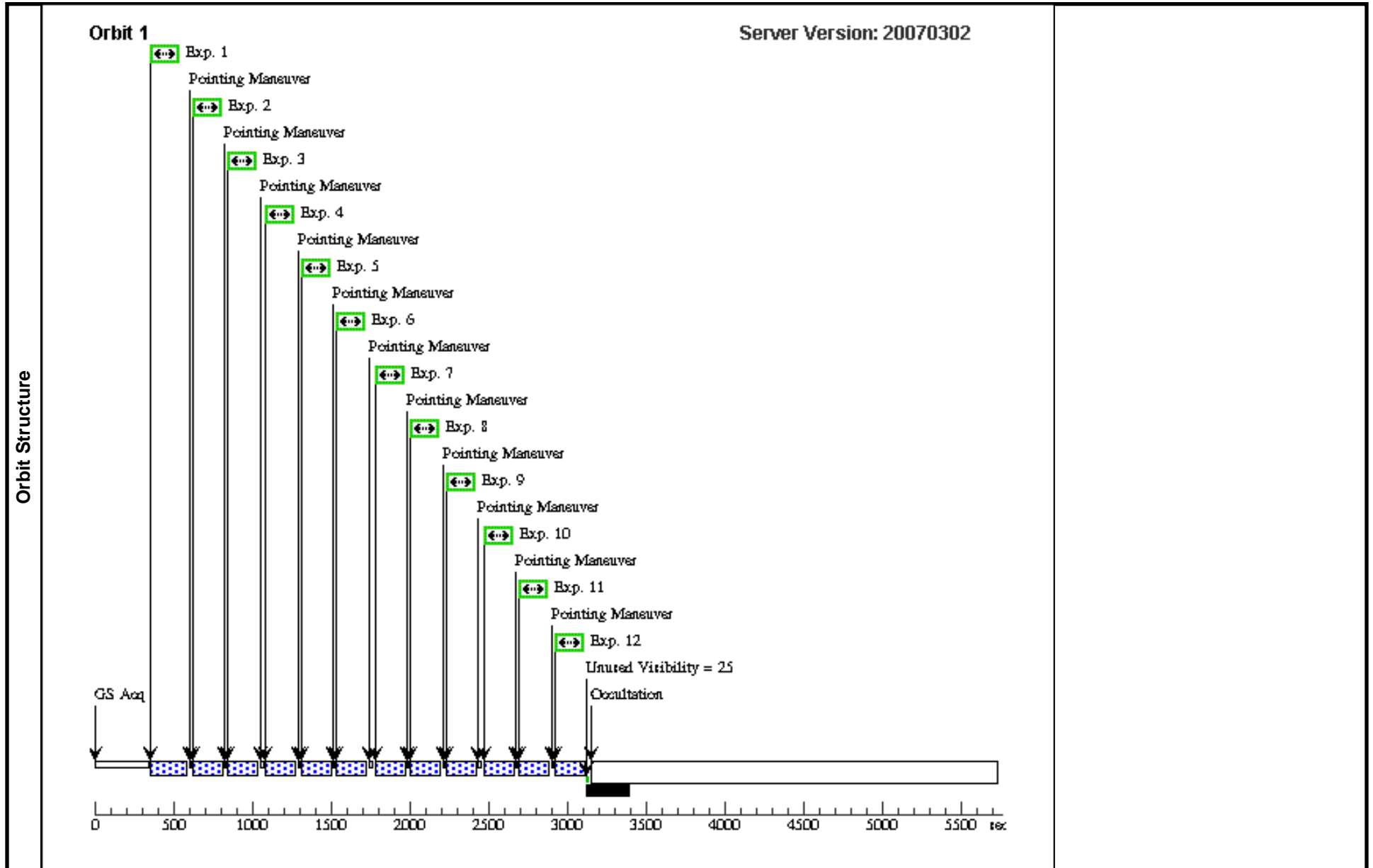
| Visit     | <b>Proposal 10815, Visit 52, scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC<br>Special Requirements: ORIENT 79.0D TO 249.0 D; ORIENT 259.0D TO 359.999 D; ORIENT 0.0D TO 69.0 D<br><i>Comments: Before ACS Side-2 failure, these observations were in Visit 2.</i><br><i>Wide orient ranges are used here to avoid a bright foreground star.</i> |         |                                                                                     |                      |                          |                               |                                |                     |                         |       |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|----------------------|--------------------------|-------------------------------|--------------------------------|---------------------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                                                                                                                                                                   | #       | Name                                                                                | Target Coordinates   | Targ. Coord. Corrections | Fluxes                        | Miscellaneous                  |                     |                         |       |
|           | (2)                                                                                                                                                                                                                                                                                                                                                                                             | NGC6273 | RA: 17 02 37.7000 (255.6570833d)<br>Dec: -26 16 5.00 (-26.26806d)<br>Equinox: J2000 |                      | V=6.8+/-0.1              | Reference Frame: ICRS         |                                |                     |                         |       |
| Exposures | #                                                                                                                                                                                                                                                                                                                                                                                               | Label   | Target                                                                              | Config,Mode,Aperture | Spectral Els.            | Opt. Params.                  | Special Reqs.                  | Groups              | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3766,<br>15.2792   |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 2                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3766,<br>15.219    |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 3                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3094,<br>15.2124   |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 4                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3766,<br>-6.00212  |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 5                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3766,<br>-6.06232  |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 6                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG 11.3094,<br>-6.06892  |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 7                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG -11.309<br>4,-8.21236 |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 8                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG -11.309<br>4,-8.27256 |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 9                                                                                                                                                                                                                                                                                                                                                                                               | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG -11.376<br>6,-8.27916 |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 10                                                                                                                                                                                                                                                                                                                                                                                              | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG -11.309<br>4,13.0689  |                     | 165.0 Secs<br>[==>]     | [1]   |
|           | 11                                                                                                                                                                                                                                                                                                                                                                                              | (2)     | NGC6273                                                                             | ACS/SBC, ACCUM, SBC  | F150LP                   |                               | POS TARG -11.309<br>4,13.0087  |                     | 165.0 Secs<br>[==>]     | [1]   |
| 12        | (2)                                                                                                                                                                                                                                                                                                                                                                                             | NGC6273 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               |                          | POS TARG -11.376<br>6,13.0021 |                                | 165.0 Secs<br>[==>] | [1]                     |       |



Proposal 10815 - Visit 53 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:32 GMT 2007

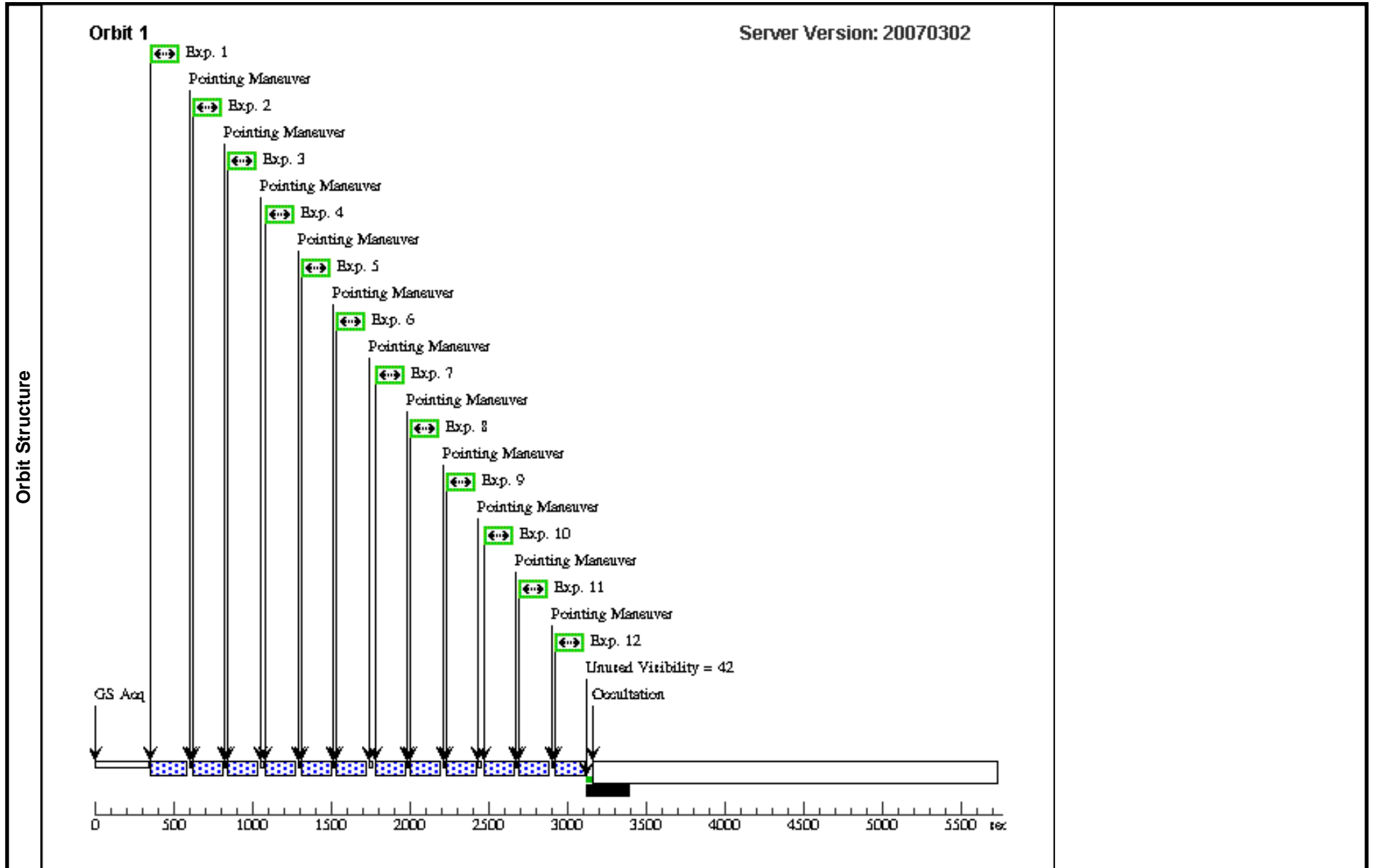
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |                                                                                     |                             |                                 |                       |                                |               |                                |              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------------------------|---------------------------------|-----------------------|--------------------------------|---------------|--------------------------------|--------------|
| <b>Visit</b>     | <b>Proposal 10815, Visit 53, implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC<br>Special Requirements: AFTER 03 BY 14 D TO 60 D<br><i>Comments: Before ACS Side-2 failure, these observations were in Visit 6. The exposures in Visit 53 should follow Visit 3. We have introduced a delay between the WFPC2 exposures of NGC6715 (target 3) and the SBC exposures of NGC6715, to allow us to inspect the WFPC2 exposures and ensure the field is safe for the SBC. With the data in hand we are unable to rule out a hot foreground star along the sightline to this cluster. Visit 53 should not execute until we have inspected the data from Visit 3. Note that the SBC exposures in Visit 53 fall completely within the area mapped by the Visit 3 WFPC2 exposures and also ground-based U-band images over a much wider area. Visit 53 does not need to be at the same orient as Visit 3, and it does not need to use the same guide stars.</i> |              |                                                                                     |                             |                                 |                       |                                |               |                                |              |
|                  | <b>Fixed Targets</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>#</b>     | <b>Name</b>                                                                         | <b>Target Coordinates</b>   | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>         | <b>Miscellaneous</b>           |               |                                |              |
| (3)              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | NGC6715      | RA: 18 55 3.3000 (283.7637500d)<br>Dec: -30 28 43.00 (-30.47861d)<br>Equinox: J2000 |                             | V=7.6+/-0.1                     | Reference Frame: ICRS |                                |               |                                |              |
| <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3766,<br>15.2792   |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3766,<br>15.219    |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3094,<br>15.2124   |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3766,<br>-6.00212  |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3766,<br>-6.06232  |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG 11.3094,<br>-6.06892  |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.309<br>4,-8.21236 |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.309<br>4,-8.27256 |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.376<br>6,-8.27916 |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.309<br>4,13.0689  |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.309<br>4,13.0087  |               | 165.0 Secs<br>[==>]            | [1]          |
|                  | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (3) NGC6715  |                                                                                     | ACS/SBC, ACCUM, SBC         | F150LP                          |                       | POS TARG -11.376<br>6,13.0021  |               | 165.0 Secs<br>[==>]            | [1]          |



Proposal 10815 - Visit 54 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:32 GMT 2007

| Visit     | <b>Proposal 10815, Visit 54, scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure, these observations were in Visit 4.</i> |             |                                                                                     |                      |                             |                       |               |        |                         |       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------|---------------|--------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                 | #           | Name                                                                                | Target Coordinates   | Targ. Coord. Corrections    | Fluxes                | Miscellaneous |        |                         |       |
|           | (4)                                                                                                                                                                                                                                           | NGC6388     | RA: 17 36 17.4000 (264.0725000d)<br>Dec: -44 44 8.00 (-44.73556d)<br>Equinox: J2000 |                      | V=6.7+/-0.1                 | Reference Frame: ICRS |               |        |                         |       |
| Exposures | #                                                                                                                                                                                                                                             | Label       | Target                                                                              | Config,Mode,Aperture | Spectral Els.               | Opt. Params.          | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, 15.2792   |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 2                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, 15.219    |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 3                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3094, 15.2124   |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 4                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, -6.00212  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 5                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, -6.06232  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 6                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3094, -6.06892  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 7                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,-8.21236 |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 8                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,-8.27256 |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 9                                                                                                                                                                                                                                             | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.376 6,-8.27916 |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 10                                                                                                                                                                                                                                            | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,13.0689  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 11                                                                                                                                                                                                                                            | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,13.0087  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |
|           | 12                                                                                                                                                                                                                                            | (4) NGC6388 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.376 6,13.0021  |                       |               |        | 165.0 Secs<br>[==>]     | [1]   |



Proposal 10815 - Visit 55 - The Blue Hook Populations of Massive Globular Clusters

Fri Mar 23 01:14:33 GMT 2007

| Visit     | <b>Proposal 10815, Visit 55, scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/SBC<br>Special Requirements: (none)<br><i>Comments: Before ACS Side-2 failure, these observations were in Visit 5.</i> |             |                                                                                     |                      |                             |                       |               |        |                         |       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------|---------------|--------|-------------------------|-------|
|           | Fixed Targets                                                                                                                                                                                                                                 | #           | Name                                                                                | Target Coordinates   | Targ. Coord. Corrections    | Fluxes                | Miscellaneous |        |                         |       |
|           | (5)                                                                                                                                                                                                                                           | NGC6441     | RA: 17 50 12.8000 (267.5533333d)<br>Dec: -37 03 4.00 (-37.05111d)<br>Equinox: J2000 |                      | V=7.2+/-0.1                 | Reference Frame: ICRS |               |        |                         |       |
| Exposures | #                                                                                                                                                                                                                                             | Label       | Target                                                                              | Config,Mode,Aperture | Spectral Els.               | Opt. Params.          | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|           | 1                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, 15.2792   |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 2                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, 15.219    |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 3                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3094, 15.2124   |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 4                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, -6.00212  |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 5                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3766, -6.06232  |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 6                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG 11.3094, -6.06892  |                       |               |        | 390.0 Secs<br>[==>]     | [1]   |
|           | 7                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,-8.21236 |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |
|           | 8                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,-8.27256 |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |
|           | 9                                                                                                                                                                                                                                             | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.376 6,-8.27916 |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |
|           | 10                                                                                                                                                                                                                                            | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,13.0689  |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |
|           | 11                                                                                                                                                                                                                                            | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.309 4,13.0087  |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |
|           | 12                                                                                                                                                                                                                                            | (5) NGC6441 | ACS/SBC, ACCUM, SBC                                                                 | F150LP               | POS TARG -11.376 6,13.0021  |                       |               |        | 390.0 Secs<br>[==>]     | [2]   |

