



# 17513 - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Baseline

Cycle: 31, Proposal Category: GO

(Availability Mode: SUPPORTED)

## INVESTIGATORS

| <i>Name</i>                                    | <i>Institution</i>                                |
|--|---|
| <b>Dr. Paul Bennet (PI) (Contact)</b>          | <b>Space Telescope Science Institute</b>          |
| Dr. Sangmo Tony Sohn (CoI) (CoPI) (Contact)    | Space Telescope Science Institute                 |
| Dr. Roeland P. van der Marel (CoI) (AdminUSPI) | Space Telescope Science Institute                 |
| Dr. Mattia Libralato (CoI) (ESA Member)        | INAF - Osservatorio Astronomico di Padova         |
| Dr. Mark Fardal (CoI)                          | Eureka Scientific Inc.                            |
| Dr. Ekta Patel (CoI)                           | Villanova University                              |
| Dr. Laura L. Watkins (CoI) (ESA Member)        | Space Telescope Science Institute - ESA - JWST    |
| Dr. Andres del Pino Molina (CoI) (ESA Member)  | Centro de Estudios de Fisica del Cosmos de Aragon |
| Dr. Eduardo Vitral (CoI) (ESA Member)          | University of Edinburgh, Institute for Astronomy  |

## 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) M81                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:15.0        | yes                           |
| 02           | (1) M81                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:15.0        | yes                           |
| 52           | (1) M81                      | ACS/WFC                             | 2                  | 02-Jul-2025 17:00:16.0        | yes                           |
| 03           | (1) M81                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:16.0        | yes                           |
| 53           | (1) M81                      | ACS/WFC                             | 1                  | 02-Jul-2025 17:00:16.0        | yes                           |
| 04           | (1) M81                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:16.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 54           | (1) M81                      | ACS/WFC                             | 2                  | 02-Jul-2025 17:00:17.0        | yes                           |
| 55           | (1) M81                      | ACS/WFC                             | 1                  | 02-Jul-2025 17:00:17.0        | yes                           |
| 05           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:17.0        | yes                           |
| 06           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:18.0        | yes                           |
| 07           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:18.0        | yes                           |
| 57           | (2) M82                      | ACS/WFC                             | 1                  | 02-Jul-2025 17:00:18.0        | yes                           |
| 08           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:18.0        | yes                           |
| 58           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:19.0        | yes                           |
| 09           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:19.0        | yes                           |
| 10           | (2) M82                      | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:19.0        | yes                           |
| 60           | (2) M82                      | ACS/WFC                             | 1                  | 02-Jul-2025 17:00:20.0        | yes                           |
| 11           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:20.0        | yes                           |
| 61           | (3) NGC3077                  | ACS/WFC                             | 2                  | 02-Jul-2025 17:00:20.0        | yes                           |
| 12           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:21.0        | yes                           |
| 62           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:21.0        | yes                           |
| 13           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:21.0        | yes                           |
| 63           | (3) NGC3077                  | ACS/WFC                             | 2                  | 02-Jul-2025 17:00:22.0        | yes                           |
| 14           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:22.0        | yes                           |
| 64           | (3) NGC3077                  | ACS/WFC                             | 3                  | 02-Jul-2025 17:00:22.0        | yes                           |

63 Total Orbits Used

## ABSTRACT

We propose, for the first time, to measure the bulk proper motions (PMs) of a galaxy group outside the Local Group (LG). We will do this by obtaining bulk PMs of the three most massive central galaxies of the M81 group at 3.6 Mpc: M81, M82 and NGC 3077. These galaxies are some of the most studied objects in astronomy, with M81 being a canonical grand-design spiral galaxy and M82 the prototype for starburst-driven outflows. These features are driven by an ongoing major merger between these galaxies. We will reimage archival HST fields with a 20-year baseline.

Combined with the existing position, distance and radial velocity this will yield 6D position-velocity information. This will allow us to precisely determine the galaxy orbits, shedding light on their past interactions during the ongoing major merger as well as their future trajectories. This will allow us to answer key questions, not only for the M81 Group but also broader universe: (1) how can the observed tidal features be understood dynamically? (2) What is the future of the group, and will either M82 or NGC 3077 be ejected by the three body interaction? (3) What is the mass of the dark matter halos of M81 and M82? (4) What is the transverse velocity of the M81 group, relative to the LG, and how does this compare to our cosmological understanding? The answers will inform simulations and models of galaxy mergers and local flows. We will obtain the first galaxy PMs outside the LG, as well as the first 6D dynamical constraints on an ongoing major merger. These innovations show how HST's longevity allows us to open up new windows on the universe previously considered inaccessible.

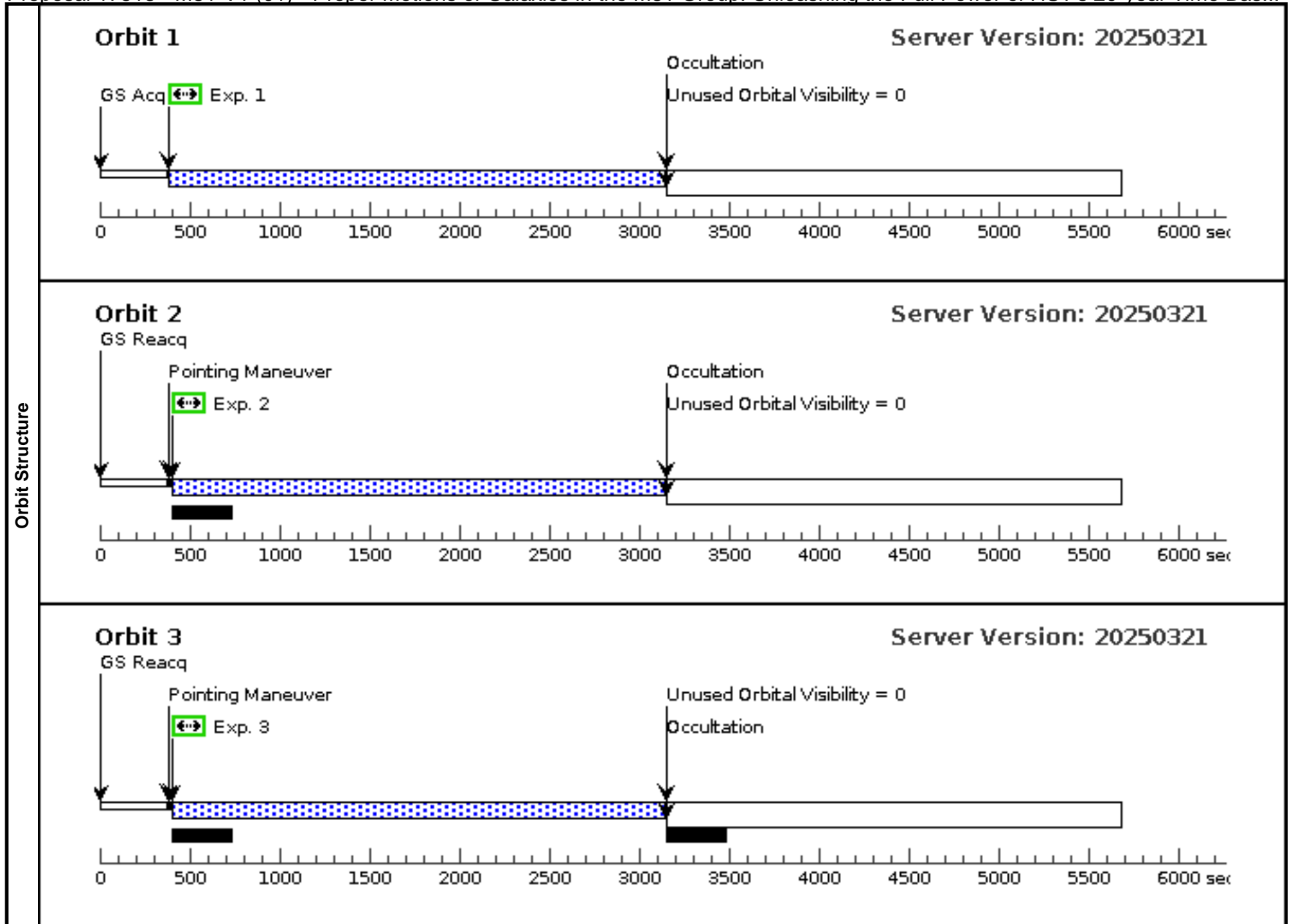
### **OBSERVING DESCRIPTION**

We will observe 3 target fields of M81 Group using ACS/WFC. All of our target fields have deep ACS/WFC imaging data in the HST archive. In this program, each target field will be observed using the same telescope pointings and orientations as the first-epoch images to maximize the overlaps of the observed fields between first- and second-epoch data. This will also minimize position-dependent uncertainties originating from imperfect CTE and geometric distortion corrections. To measure PMs, it is sufficient to observed only in one filter. We will image all target fields using the F814W filter to measure PMs. For the M82 field, we will also image in F606W filter to construct CMDs that will allow us to separate member stars of target galaxies from foreground contaminants. Individual exposure times will be full-orbit long, and we will use dithered patterns specially designed to maximize pixel-phase coverage.

Proposal 17513 - M81-V1 (01) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

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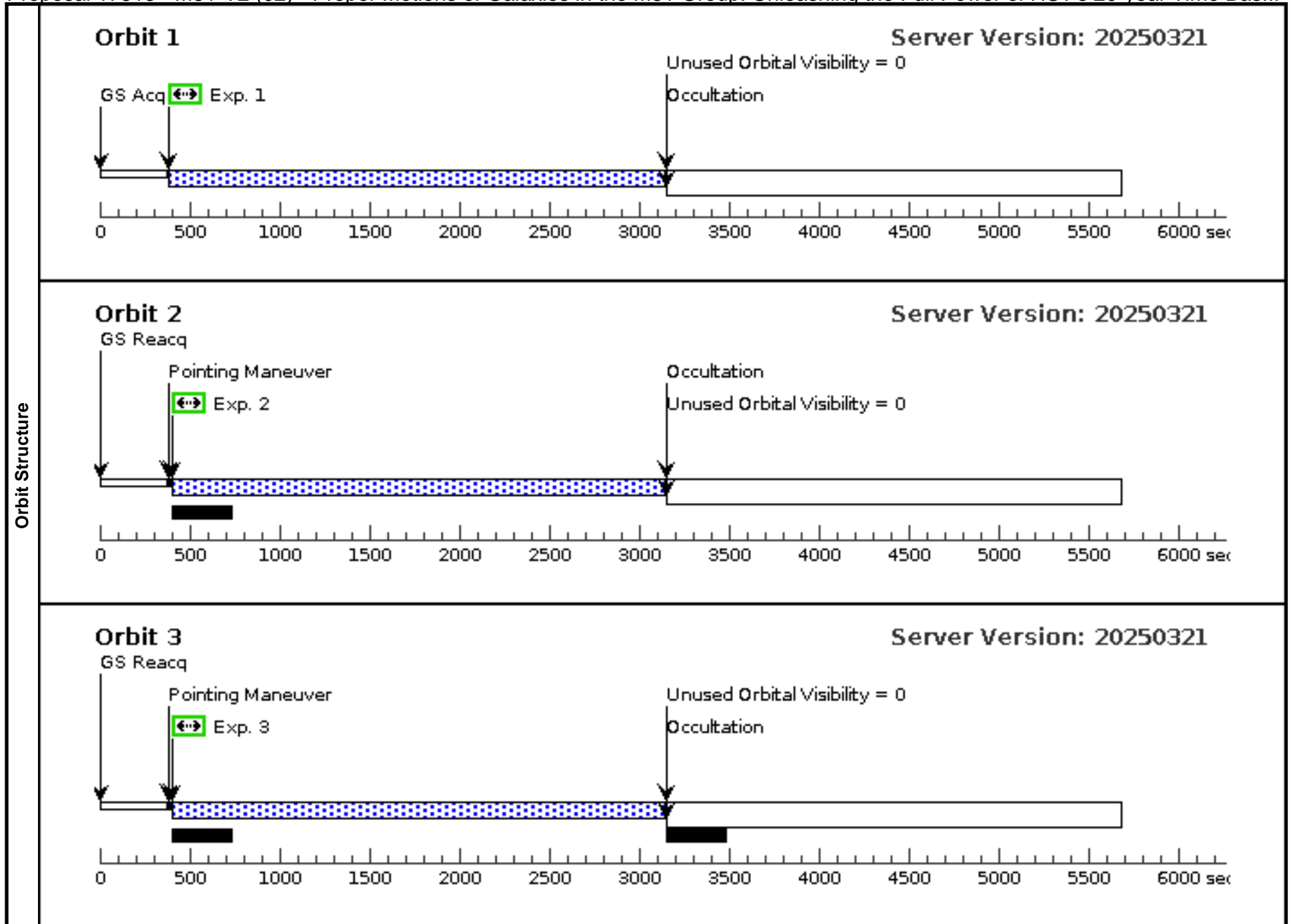
| Visit   | <b>Proposal 17513, M81-V1 (01), completed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 269.81D TO 271.81 D; GROUP 01,02,03,04 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M81.</i>   |  |                           |               |                         |                            |              |   |        |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
|---|---|--|---------------------------|---------------|-------------------------|----------------------------|--------------|---|--------|---------------------------------|---|---------------------------|---------|-------------------------|---|-------|--|--|--|---|-----|---|---------|---------|--------------------------|-------|--|----------------------------|--|---|-----|---|---------|---------|--------------------------|-------|--|----------------------------|--|---|-----|
|   | Fixed Targets   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>M81</td> <td>RA: 09 54 34.5291 (148.6438712d)<br/>Dec: +69 16 51.65 (69.28101d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=6.94</td> <td>Reference Frame: SIMBAD</td> </tr> <tr> <td colspan="6"> <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br/>                     Category=GALAXY<br/>                     Description=[SPIRAL]                 </td> </tr> </tbody> </table> | #                         | Name          | Target Coordinates      | Targ. Coord. Corrections   | Fluxes       | Miscellaneous                             | (1)    | M81                             | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94  | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[SPIRAL] |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| #   | Name  | Target Coordinates   | Targ. Coord. Corrections  | Fluxes        | Miscellaneous           |                            |              |   |        |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| (1)   | M81   | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000  | Epoch of Position: 2015.5 | V=6.94        | Reference Frame: SIMBAD |                            |              |   |        |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[SPIRAL] |   |  |                           |               |                         |                            |              |   |        |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| Exposures   | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1) M81</td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td></td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(1) M81</td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.1740,0<br/>.1850</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(1) M81</td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.3232,0<br/>.1235</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> | #  | Label                     | Target        | Config,Mode,Aperture    | Spectral Els.              | Opt. Params. | Special Reqs.                             | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   | 1                         | (1) M81 | (1) M81                 | ACS/WFC, ACCUM, WFCENTER  | F814W |  |  |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (1) M81 | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.1740,0<br>.1850 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (1) M81 | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.3232,0<br>.1235 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #   | Label   | Target   | Config,Mode,Aperture      | Spectral Els. | Opt. Params.            | Special Reqs.              | Groups       | Exp. Time (Total)/[Actual Dur.]           | Orbit  |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| 1   | (1) M81   | (1) M81  | ACS/WFC, ACCUM, WFCENTER  | F814W         |                         |                            |              | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]    |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| 2   | (1) M81   | (1) M81  | ACS/WFC, ACCUM, WFCENTER  | F814W         |                         | POS TARG 0.1740,0<br>.1850 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]    |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |
| 3   | (1) M81   | (1) M81  | ACS/WFC, ACCUM, WFCENTER  | F814W         |                         | POS TARG 0.3232,0<br>.1235 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]    |                                 |   |                           |         |                         |   |       |  |  |  |   |     |   |         |         |                          |       |  |                            |  |   |     |   |         |         |                          |       |  |                            |  |   |     |



Proposal 17513 - M81-V2 (02) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

| <b>Visit</b>   | <b>Proposal 17513, M81-V2 (02), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01; GROUP 02,01,03,04 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M81.</i>   |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|--|----------------------|---|---------------------------|---------------|-------------------------|---|-------|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|
|  | (M81-V2 (02)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
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|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| (1)  | M81  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94                   | Reference Frame: SIMBAD  |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
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| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]            | Orbit                |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 1  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.1005,0<br>.3305 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 2  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.5030,0<br>.0460 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 3  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.6770,0<br>.2310 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |

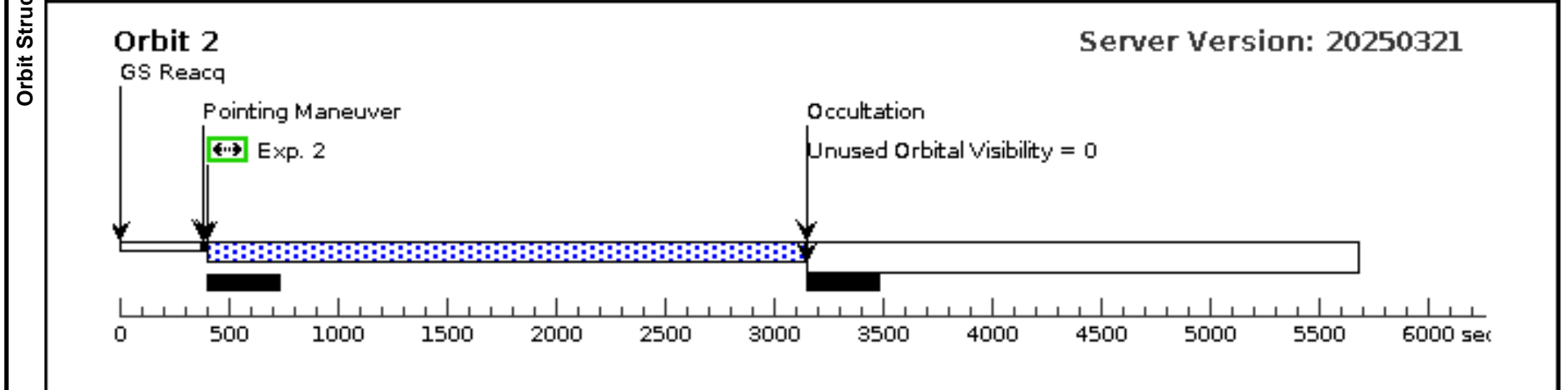
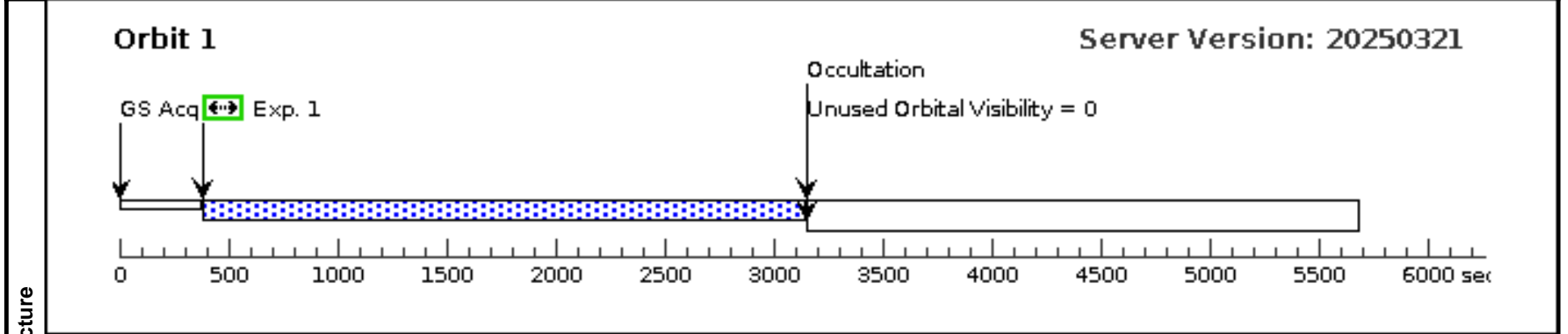


|              |   |  |  |  |  |
|--------------|---|--|--|--|--|
| <b>Visit</b> | <b>Proposal 17513, M81-V2 (52), implementation</b>  |  |  |  |  |
|              | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01<br><i>Comments: This is a 2-orbit visit for M81. Partial repeat of visit 02.</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)      | M81         | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5       | V=6.94        | Reference Frame: SIMBAD |

*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*  
 Category=GALAXY  
 Description=[SPIRAL]

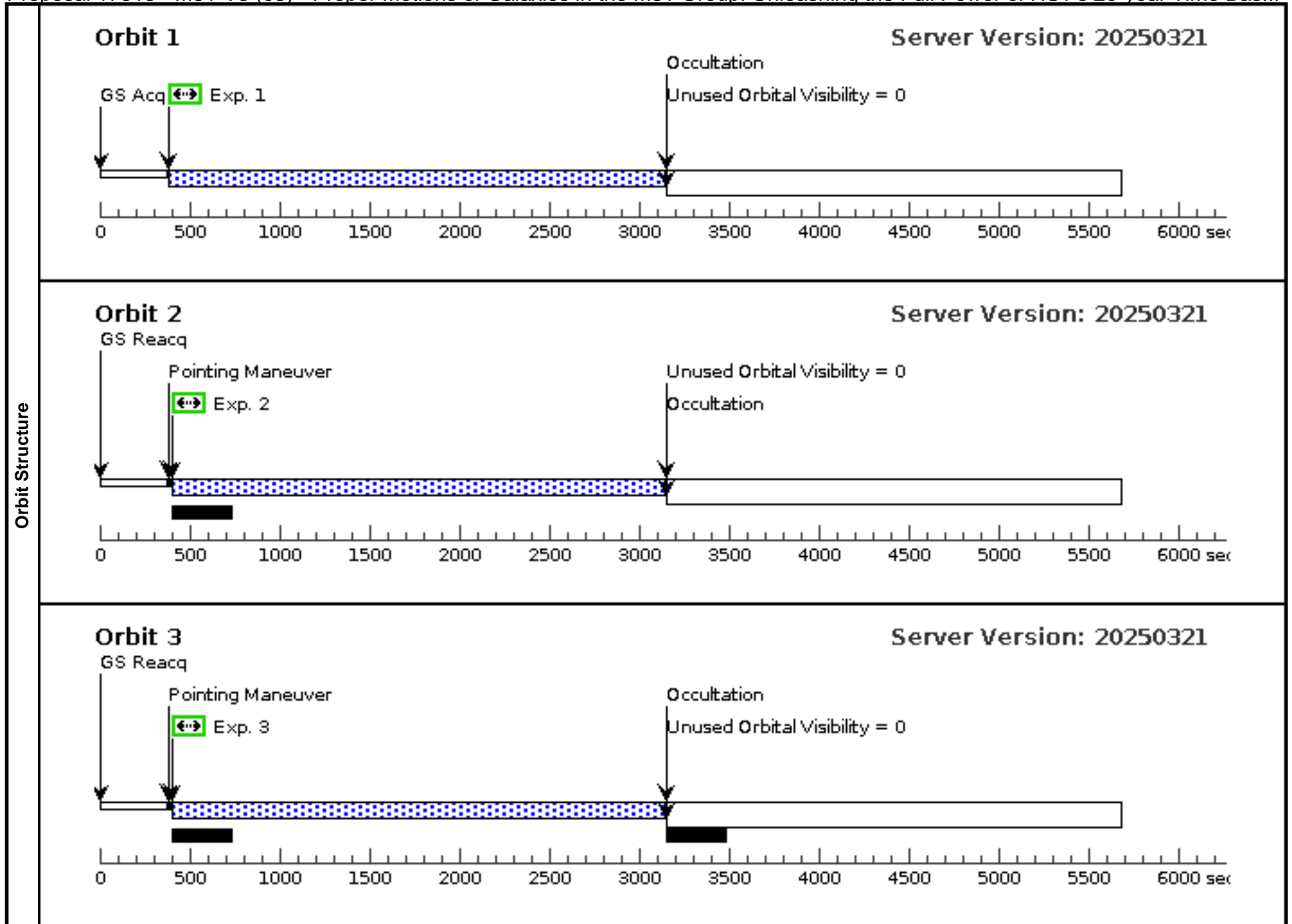
|                  |          |              |                          |                             |                      |                     |                            |               |  |              |
|------------------|----------|--------------|--------------------------|-----------------------------|----------------------|---------------------|----------------------------|---------------|--|--------------|
| <b>Exposures</b> | <b>#</b> | <b>Label</b> | <b>Target</b>            | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b> | <b>Opt. Params.</b> | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b>   | <b>Orbit</b> |
|                  | 1        | (1) M81      | (1) M81                  | ACS/WFC, ACCUM, WFCENTER    | F814W                |                     | POS TARG 0.5030,0<br>.0460 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs] | [1]          |
| 2                | (1) M81  | (1) M81      | ACS/WFC, ACCUM, WFCENTER | F814W                       |                      |                     | POS TARG 0.6770,0<br>.2310 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs] | [2]          |



Proposal 17513 - M81-V3 (03) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

| <b>Visit</b>   | <b>Proposal 17513, M81-V3 (03), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01; GROUP 03,01,02,04 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M81.</i>   |   |                           |                          |                          |                            |               |  |        |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|--|--------|---|---------------------------|--------------|-------------------------|---|---------------------------------|-------|---|--|---------|--------------------------|-------|--|----------------------------|--|--|-----|---|--|---------|--------------------------|-------|--|----------------------------|--|--|-----|---|--|---------|--------------------------|-------|--|----------------------------|--|--|-----|
|  | <b>Diagnosics</b><br>(M81-V3 (03)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.   |   |                           |                          |                          |                            |               |  |        |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>M81</td> <td>RA: 09 54 34.5291 (148.6438712d)<br/>Dec: +69 16 51.65 (69.28101d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=6.94</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (1)  | M81    | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94       | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[SPIRAL] |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |  |        |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| (1)  | M81  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94                   | Reference Frame: SIMBAD  |                            |               |  |        |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.8262,0<br/>.1695</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[==&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td></td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.6035,0<br/>.3765</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[==&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td></td> <td>(1) M81</td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.1180,0<br/>.5180</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[==&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |   |                           |                          |                          |                            | #             | Label                                      | Target | Config,Mode,Aperture  | Spectral Els.             | Opt. Params. | Special Reqs.           | Groups  | Exp. Time (Total)/[Actual Dur.] | Orbit | 1 |  | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.8262,0<br>.1695 |  | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1] | 2 |  | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.6035,0<br>.3765 |  | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2] | 3 |  | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.1180,0<br>.5180 |  | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3] |
| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]            | Orbit  |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| 1  |  | (1) M81   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.8262,0<br>.1695 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]    |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| 2  |  | (1) M81   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.6035,0<br>.3765 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2]    |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |
| 3  |  | (1) M81   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.1180,0<br>.5180 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3]    |   |                           |              |                         |   |                                 |       |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |   |  |         |                          |       |  |                            |  |  |     |

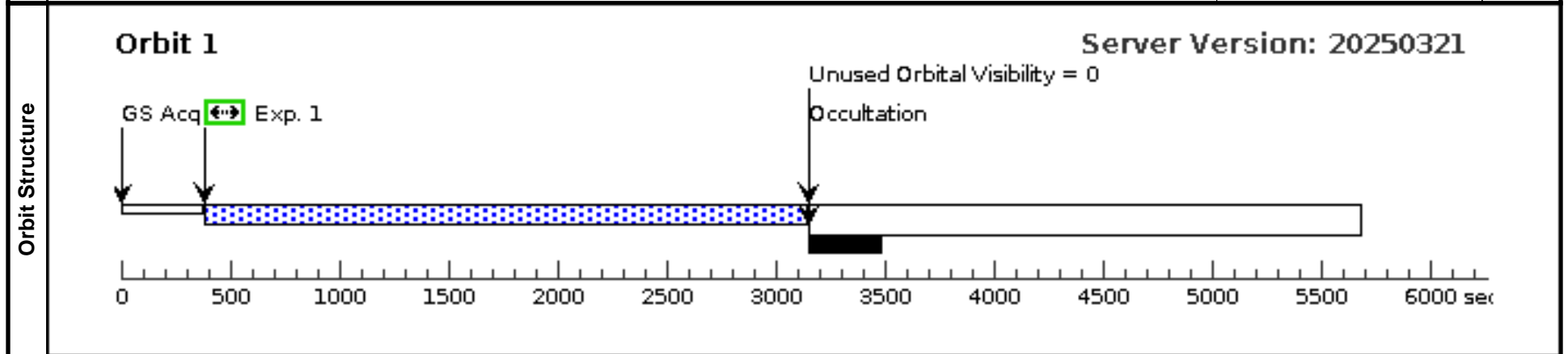


|              |  |  |  |  |  |
|--------------|--|--|--|--|--|
| <b>Visit</b> | <b>Proposal 17513, M81-V3 (53), implementation</b>   |  |  |  |  |
|              | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01<br><i>Comments: This is a 1-orbit visit for M81, repeating the third orbit of visit 03.</i> |  |  |  |  |

| <b>Fixed Targets</b> | #   | Name | Target Coordinates  | Targ. Coord. Corrections  | Fluxes | Miscellaneous           |
|----------------------|-----|------|---|---------------------------|--------|-------------------------|
|                      | (1) | M81  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94 | Reference Frame: SIMBAD |

*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*  
 Category=GALAXY  
 Description=[SPIRAL]

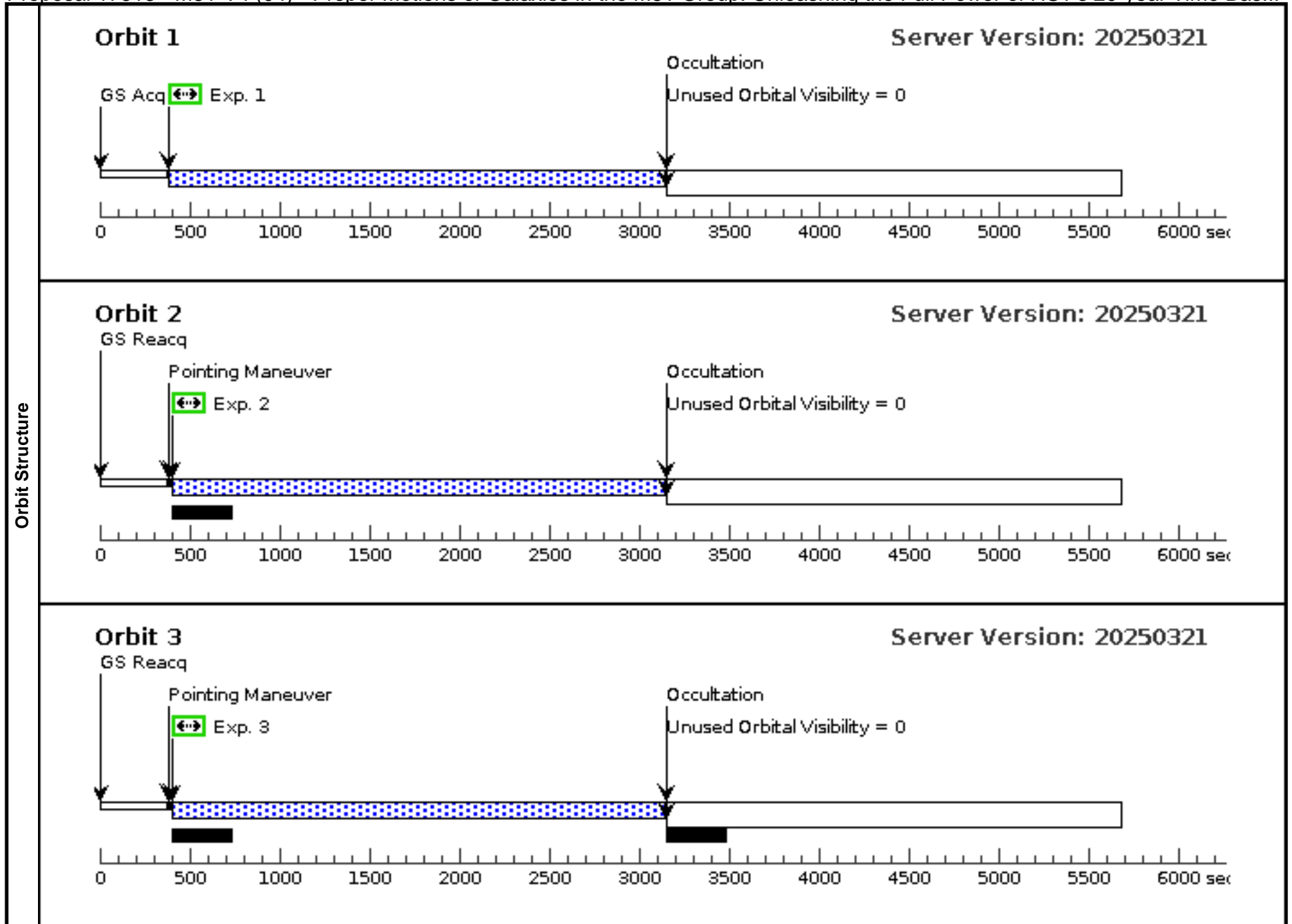
| <b>Exposures</b> | # | Label | Target  | Config,Mode,Aperture     | Spectral Els. | Opt. Params. | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit                                      |
|------------------|---|-------|---------|--------------------------|---------------|--------------|----------------------------|--------|---------------------------------|--|
|                  | 1 |       | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W         |              | POS TARG 0.1180,0<br>.5180 |        |                                 | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] |



Proposal 17513 - M81-V4 (04) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

| <b>Visit</b>   | <b>Proposal 17513, M81-V4 (04), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01; GROUP 04,01,02,03 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M81.</i>   |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|--|----------------------|---|---------------------------|---------------|-------------------------|---|-------|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|---|---------|--|--------------------------|-------|--|----------------------------|--|--|-----|
|  | (M81-V4 (04)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>M81</td> <td>RA: 09 54 34.5291 (148.6438712d)<br/>Dec: +69 16 51.65 (69.28101d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=6.94</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (1)  | M81                  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94        | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[SPIRAL] |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| (1)  | M81  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94                   | Reference Frame: SIMBAD  |                            |               |  |                      |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(1) M81</td> <td></td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.2920,0<br/>.7030</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[==&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(1) M81</td> <td></td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.4412,0<br/>.6415</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[==&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(1) M81</td> <td></td> <td>ACS/WFC, ACCUM, WFCENTER</td> <td>F814W</td> <td></td> <td>POS TARG 0.2185,0<br/>.8485</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[==&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |   |                           |                          |                          | #                          | Label         | Target                                     | Config,Mode,Aperture | Spectral Els.   | Opt. Params.              | Special Reqs. | Groups                  | Exp. Time (Total)/[Actual Dur.]   | Orbit | 1 | (1) M81 |  | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.2920,0<br>.7030 |  | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1] | 2 | (1) M81 |  | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.4412,0<br>.6415 |  | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2] | 3 | (1) M81 |  | ACS/WFC, ACCUM, WFCENTER | F814W |  | POS TARG 0.2185,0<br>.8485 |  | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3] |
| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]            | Orbit                |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 1  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.2920,0<br>.7030 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 2  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.4412,0<br>.6415 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |
| 3  | (1) M81  |   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                          | POS TARG 0.2185,0<br>.8485 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3]                  |   |                           |               |                         |   |       |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |   |         |  |                          |       |  |                            |  |  |     |

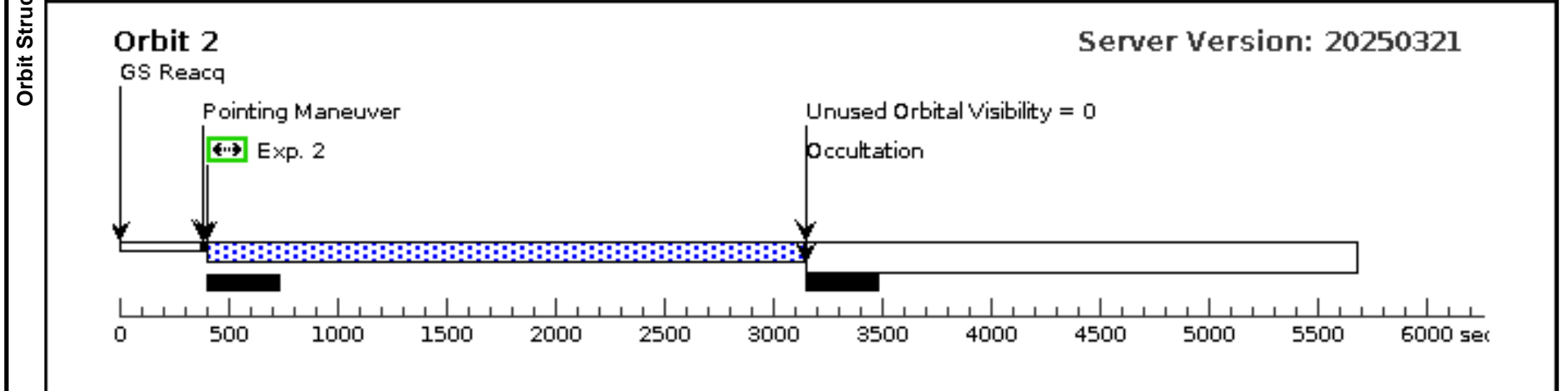
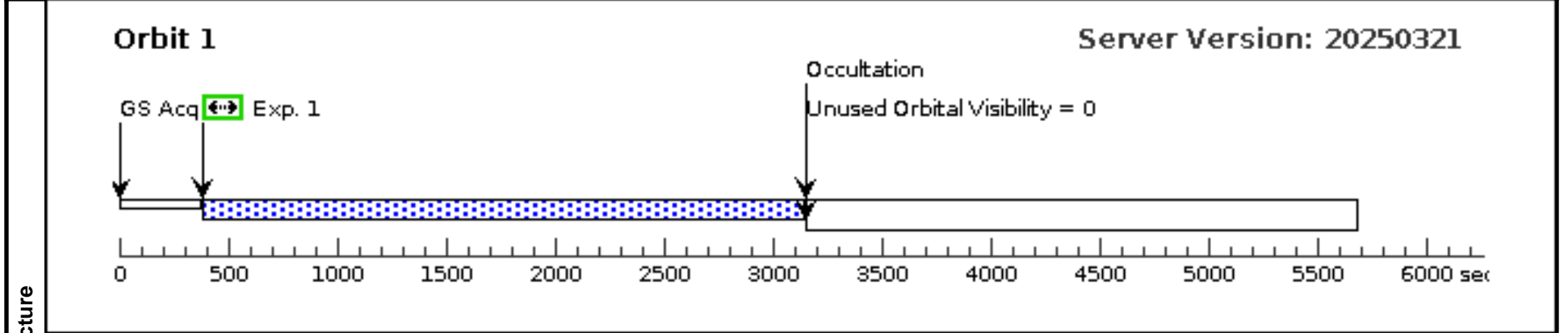


|              |  |  |  |  |  |
|--------------|--|--|--|--|--|
| <b>Visit</b> | <b>Proposal 17513, M81-V4 (54), implementation</b>   |  |  |  |  |
|              | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01<br><i>Comments: This is a 2-orbit repeat visit for M81.</i> |  |  |  |  |

| <b>Fixed Targets</b> | #   | Name | Target Coordinates  | Targ. Coord. Corrections  | Fluxes | Miscellaneous           |
|----------------------|-----|------|---|---------------------------|--------|-------------------------|
|                      | (1) | M81  | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94 | Reference Frame: SIMBAD |

*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*  
 Category=GALAXY  
 Description=[SPIRAL]

| <b>Exposures</b> | #       | Label   | Target                   | Config,Mode,Aperture     | Spectral Els. | Opt. Params.               | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]          | Orbit                                    |
|------------------|---------|---------|--------------------------|--------------------------|---------------|----------------------------|----------------------------|--------|--|--|
|                  | 1       | (1) M81 | (1) M81                  | ACS/WFC, ACCUM, WFCENTER | F814W         |                            | POS TARG 0.2920,0<br>.7030 |        |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs] |
| 2                | (1) M81 | (1) M81 | ACS/WFC, ACCUM, WFCENTER | F814W                    |               | POS TARG 0.4412,0<br>.6415 |                            |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs] | [2]                                      |

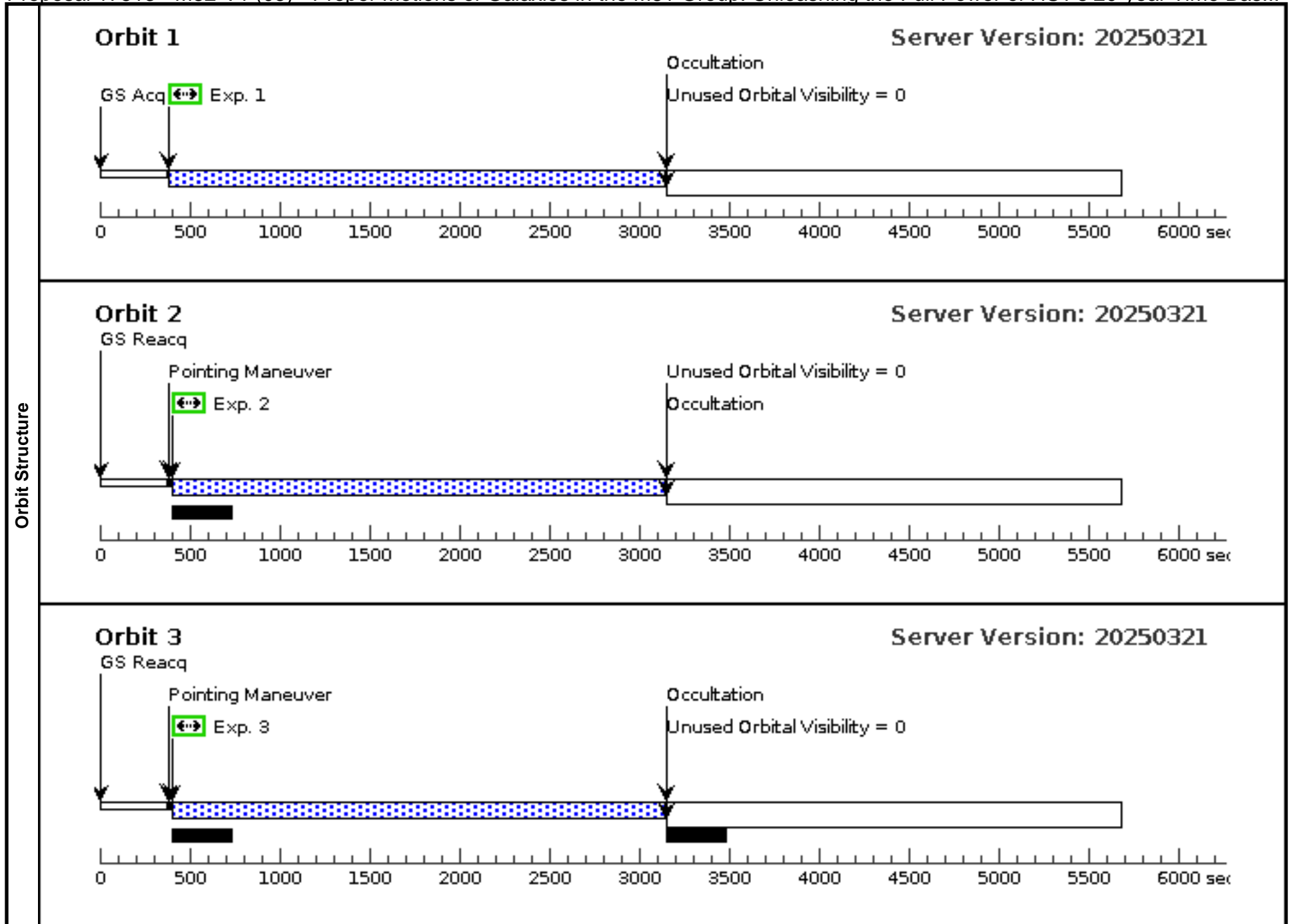


|   |   |         |   |                           |                          |                         |                            |        |  |       |
|---|---|---------|---|---------------------------|--------------------------|-------------------------|----------------------------|--------|--|-------|
| <b>Visit</b>  | <b>Proposal 17513, M81-V5 (55), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 01<br><i>Comments: This is a 1-orbit repeat visit for M81. Split from visit 54 for improved scheduling.</i> |         |   |                           |                          |                         |                            |        |  |       |
|   | <b>Fixed Targets</b>  | #       | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                  | Miscellaneous              |        |  |       |
| (1)   |   | M81     | RA: 09 54 34.5291 (148.6438712d)<br>Dec: +69 16 51.65 (69.28101d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=6.94                   | Reference Frame: SIMBAD |                            |        |  |       |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[SPIRAL] |   |         |   |                           |                          |                         |                            |        |  |       |
| <b>Exposures</b>  | #   | Label   | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.            | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]            | Orbit |
|   | 1   | (1) M81 | (1) M81   | ACS/WFC, ACCUM, WFCENTER  | F814W                    |                         | POS TARG 0.2920,0<br>.7030 |        | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]   |
| <b>Orbit Structure</b>  | <b>Orbit 1</b> <span style="float: right;">Server Version: 20250321</span>  |         |   |                           |                          |                         |                            |        |  |       |
|   | <p>Unused Orbital Visibility = 0</p> <p>GS Acq [Exp. 1]</p> <p>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec</p>  |         |   |                           |                          |                         |                            |        |  |       |

Proposal 17513 - M82-V1 (05) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

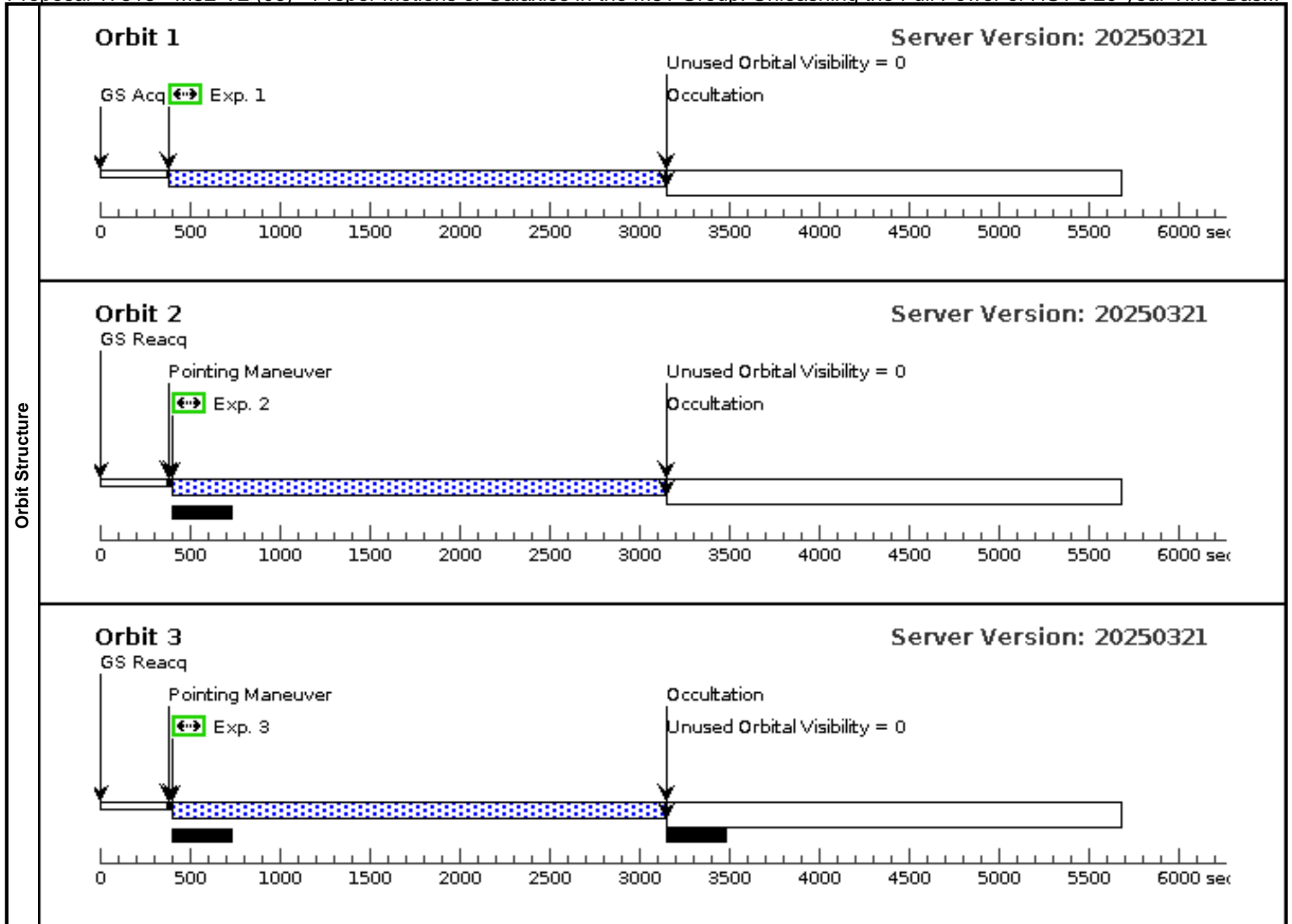
|  |   |              |   |                             |                                 |                            |                            |               |  |                       |              |
|--|---|--------------|---|-----------------------------|---------------------------------|----------------------------|----------------------------|---------------|--|-----------------------|--------------|
| <b>Visit</b>   | <b>Proposal 17513, M82-V1 (05), completed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 209.28D TO 211.28 D; GROUP 05,06,07,08,09,10 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82.</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>       |               |  |                       |              |
| (2)  |   | M82          | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5   | V=8.41                          | Reference Frame: SIMBAD    |                            |               |  |                       |              |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |   |              |   |                             |                                 |                            |                            |               |  |                       |              |
| <b>Exposures</b>   | <b>#</b>  | <b>Label</b> | <b>Target</b>   | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b>            | <b>Opt. Params.</b>        | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b> |                       | <b>Orbit</b> |
|  | 1   | (2) M82      | (2) M82   | ACS/WFC, ACCUM, WFC         | F814W                           |                            |                            |               | 2870 Secs (2551 Secs)                  |                       |              |
|  |   |              |   |                             |                                 |                            |                            |               | [=>2551.0 Secs ]                       |                       | [1]          |
|  | 2   | (2) M82      | (2) M82   | ACS/WFC, ACCUM, WFC         | F814W                           |                            | POS TARG 0.1740,0<br>.1850 |               |  | 2870 Secs (2613 Secs) |              |
|  |   |              |   |                             |                                 |                            |                            |               | [=>2613.0 Secs ]                       |                       | [2]          |
| 3  | (2) M82   | (2) M82      | ACS/WFC, ACCUM, WFC   | F814W                       |                                 | POS TARG 0.3232,0<br>.1235 |                            |               | 2870 Secs (2613 Secs)                  |                       |              |
|  |   |              |   |                             |                                 |                            |                            |               | [=>2613.0 Secs ]                       |                       | [3]          |



Proposal 17513 - M82-V2 (06) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

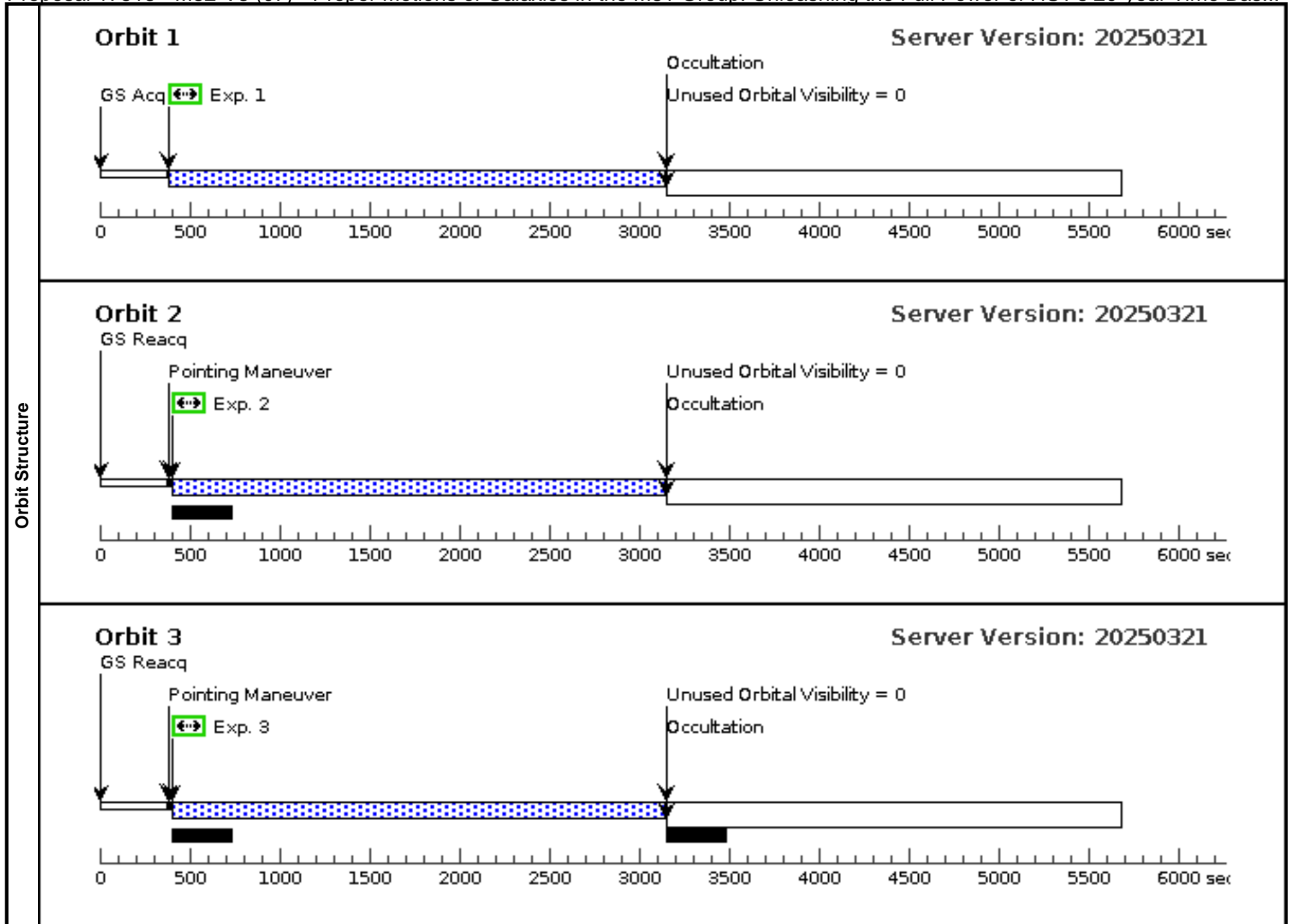
| <b>Visit</b>   | <b>Proposal 17513, M82-V2 (06), completed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 05; GROUP 06,05,07,08,09,10 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82.</i>  |   |                           |                          |                          |                            |               |   |        |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|---|--------|---|---------------------------|--------------|-------------------------|--|---------------------------------|-------|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|
|  | (M82-V2 (06)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |   |        |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (2)                                       | M82    | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41       | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |   |        |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| (2)  | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |                            |               |   |        |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.1005,0<br/>.3305</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.5030,0<br/>.0460</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.6770,0<br/>.2310</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |   |                           |                          |                          |                            | #             | Label                                     | Target | Config,Mode,Aperture  | Spectral Els.             | Opt. Params. | Special Reqs.           | Groups   | Exp. Time (Total)/[Actual Dur.] | Orbit | 1 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.1005,0<br>.3305 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.5030,0<br>.0460 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.6770,0<br>.2310 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]           | Orbit  |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 1  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.1005,0<br>.3305 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]    |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 2  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.5030,0<br>.0460 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]    |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 3  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.6770,0<br>.2310 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]    |   |                           |              |                         |  |                                 |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |



Proposal 17513 - M82-V3 (07) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

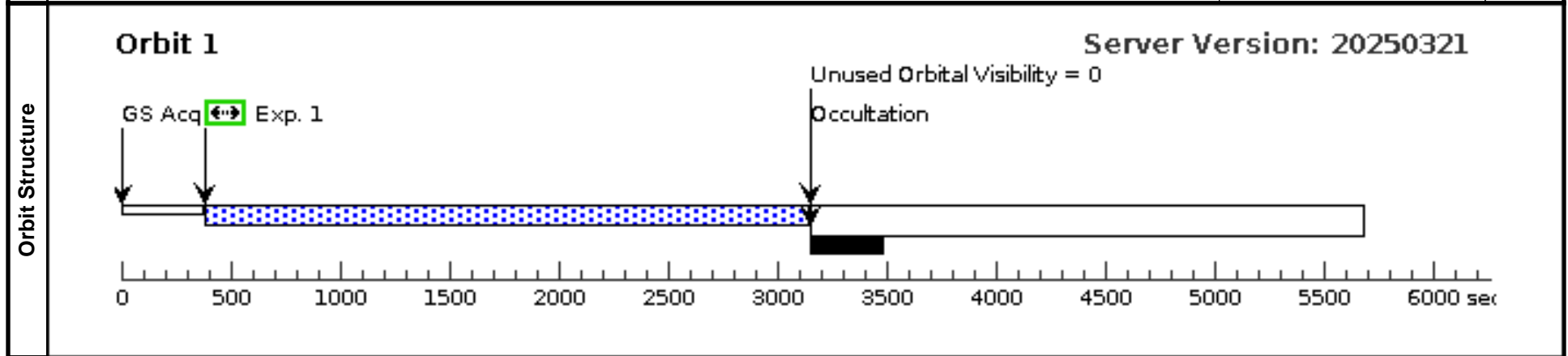
| <b>Visit</b>   | <b>Proposal 17513, M82-V3 (07), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 05; GROUP 07,05,06,08,09,10 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82.</i>   |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|---|----------------------|---|---------------------------|---------------|-------------------------|--|-------|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|
|  | (M82-V3 (07)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (2)                                       | M82                  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41        | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| (2)  | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
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| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]           | Orbit                |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 1  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.8262,0<br>.1695 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 2  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.6035,0<br>.3765 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 3  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.1180,0<br>.5180 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |



|              |  |  |  |  |  |
|--------------|--|--|--|--|--|
| <b>Visit</b> | <b>Proposal 17513, M82-V3 (57), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 54.3D TO 4.3 D; GROUP 57,58,60 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82.</i> |  |  |  |  |
|--------------|--|--|--|--|--|

| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes        | Miscellaneous | (2) | M82 | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41 | Reference Frame: SIMBAD |
|--|--|---|---------------------------|--------------------------|--------------------------|---------------|---------------|-----|-----|---|---------------------------|--------|-------------------------|
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous |               |     |     |   |                           |        |                         |
| (2)  | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |               |               |     |     |   |                           |        |                         |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |  |   |                           |                          |                          |               |               |     |     |   |                           |        |                         |

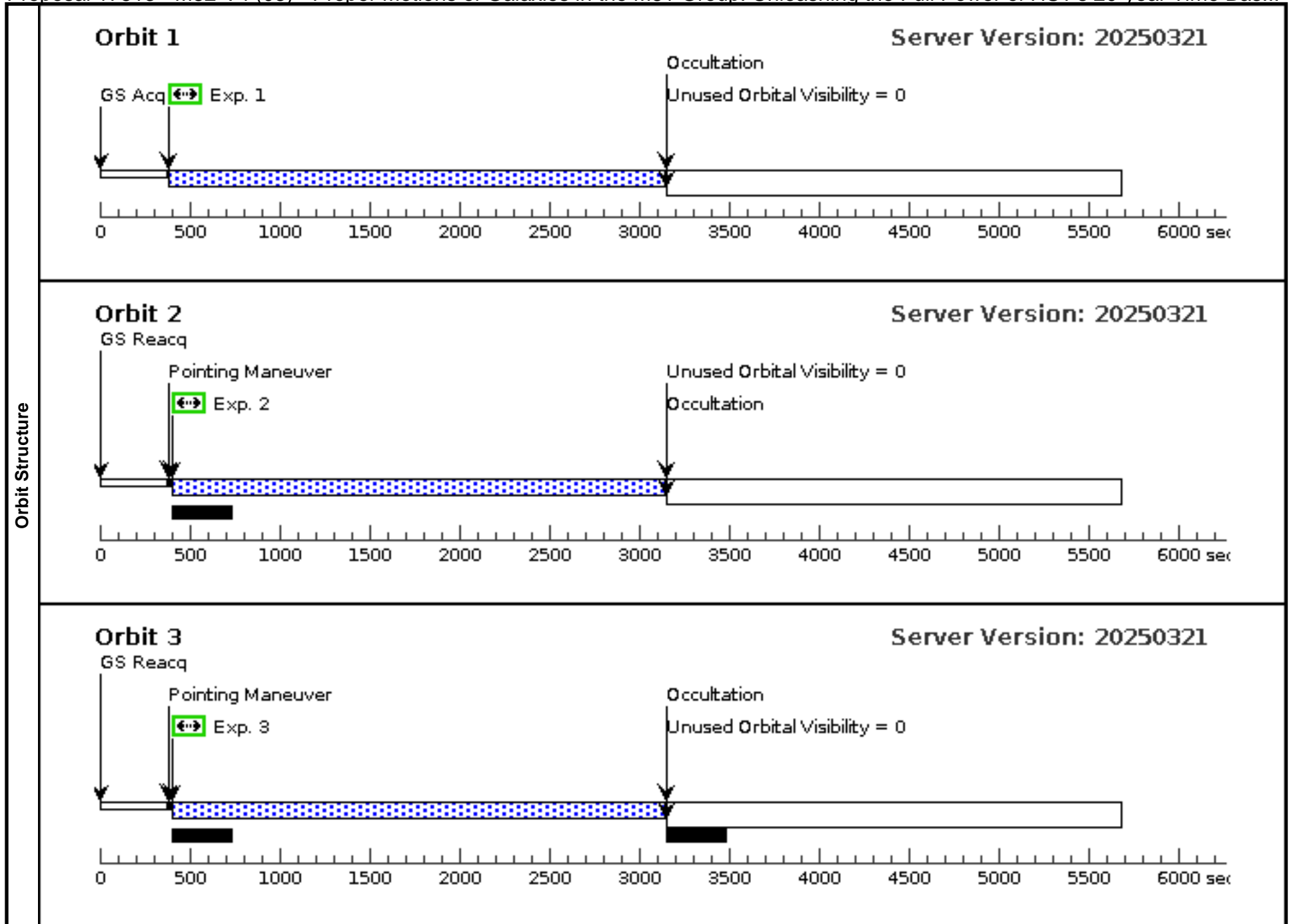
| <b>Exposures</b> | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.1180,0<br/>.5180</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[==&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> </tbody> </table> | #     | Label               | Target               | Config,Mode,Aperture | Spectral Els.              | Opt. Params.  | Special Reqs.                              | Groups                          | Exp. Time (Total)/[Actual Dur.] | Orbit | 1 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.1180,0<br>.5180 |  | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1] |
|------------------|---|-------|---------------------|----------------------|----------------------|----------------------------|---------------|--|---------------------------------|---------------------------------|-------|---|---------|--|---------------------|-------|--|----------------------------|--|--|-----|
|                  | #   | Label | Target              | Config,Mode,Aperture | Spectral Els.        | Opt. Params.               | Special Reqs. | Groups                                     | Exp. Time (Total)/[Actual Dur.] | Orbit                           |       |   |         |  |                     |       |  |                            |  |  |     |
| 1                | (2) M82   |       | ACS/WFC, ACCUM, WFC | F814W                |                      | POS TARG 0.1180,0<br>.5180 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]                             |                                 |       |   |         |  |                     |       |  |                            |  |  |     |



Proposal 17513 - M82-V4 (08) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

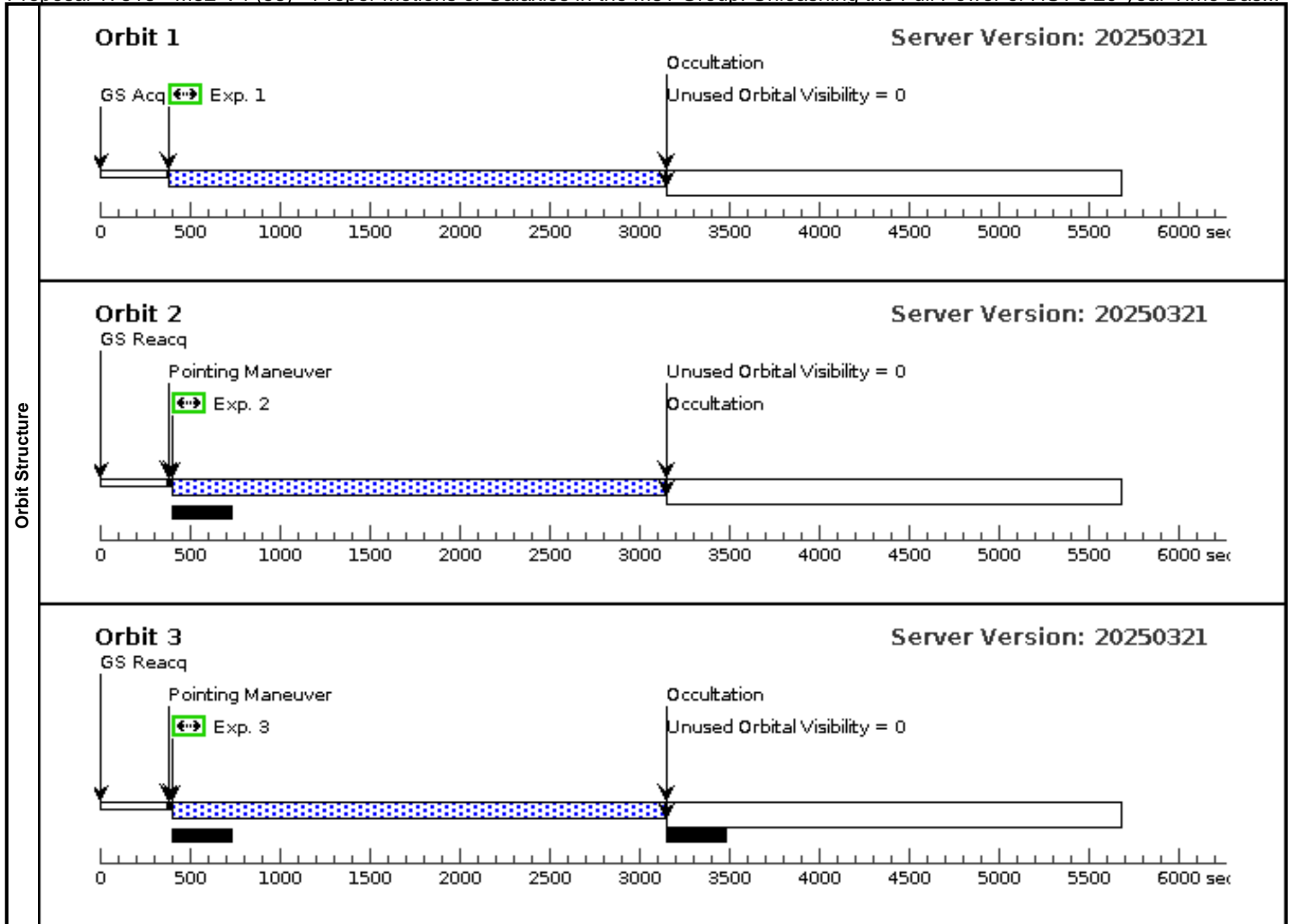
| <b>Visit</b>   | <b>Proposal 17513, M82-V4 (08), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 05; GROUP 08,05,06,07,09,10 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82.</i>   |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|--|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|---|----------------------|---|---------------------------|---------------|-------------------------|--|-------|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|
|  | (M82-V4 (08)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <b>Fixed Targets</b>   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (2)                                       | M82                  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41        | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|  | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| (2)  | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.2920,0<br/>.7030</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.4412,0<br/>.6415</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.2185,0<br/>.8485</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |   |                           |                          |                          | #                          | Label         | Target                                    | Config,Mode,Aperture | Spectral Els.   | Opt. Params.              | Special Reqs. | Groups                  | Exp. Time (Total)/[Actual Dur.]  | Orbit | 1 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.2920,0<br>.7030 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.4412,0<br>.6415 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.2185,0<br>.8485 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #  | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]           | Orbit                |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 1  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.2920,0<br>.7030 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 2  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.4412,0<br>.6415 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 3  | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F814W                    |                          | POS TARG 0.2185,0<br>.8485 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |



Proposal 17513 - M82-V4 (58) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time Bas...

Wed Jul 02 21:00:23 GMT 2025

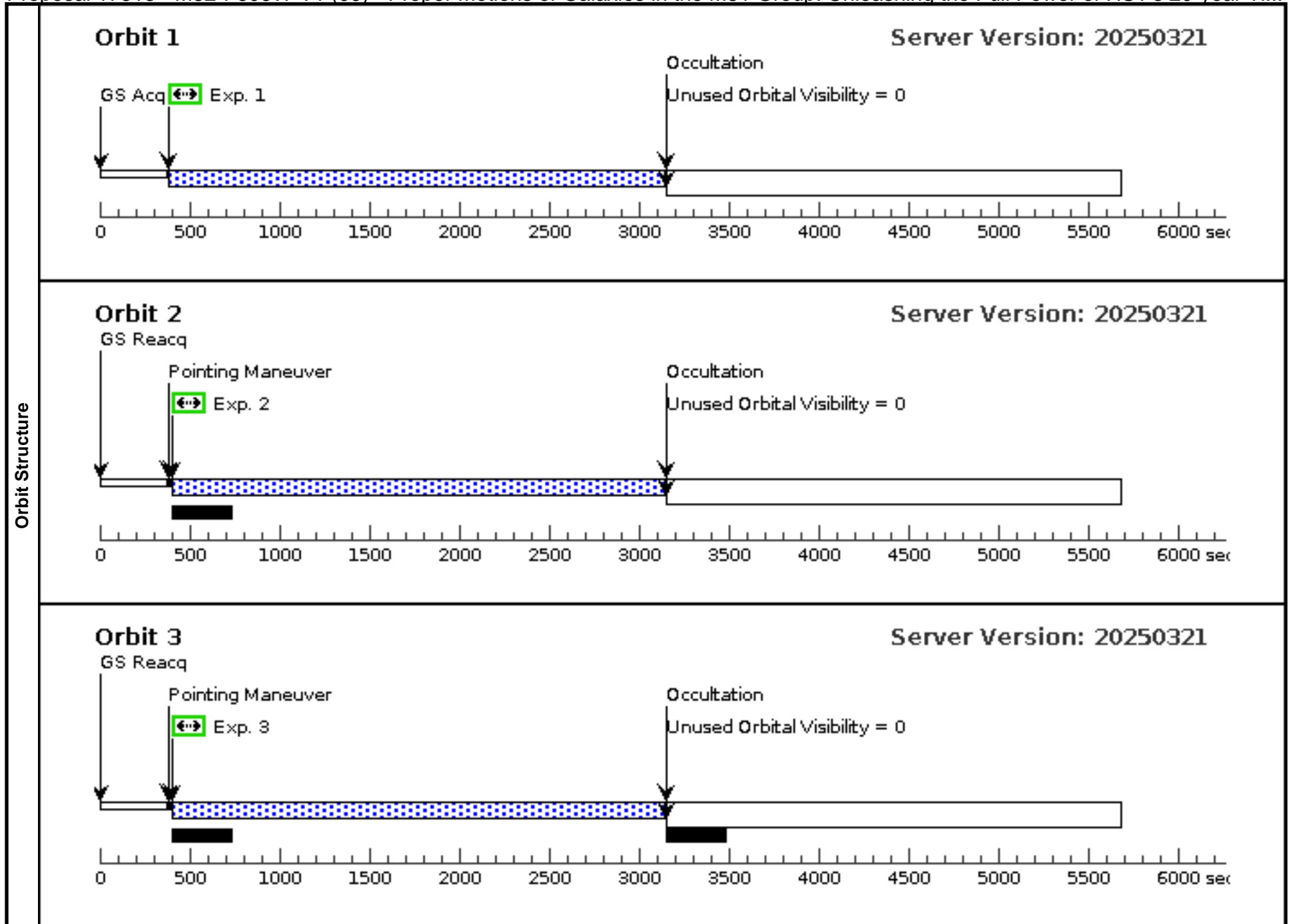
|  |   |              |   |                             |                                 |                         |                            |               |   |              |
|--|---|--------------|---|-----------------------------|---------------------------------|-------------------------|----------------------------|---------------|---|--------------|
| <b>Visit</b>   | <b>Proposal 17513, M82-V4 (58), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 57<br><i>Comments: This is a 3-orbit visit for M82.</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>       |               |   |              |
| (2)  |   | M82          | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5   | V=8.41                          | Reference Frame: SIMBAD |                            |               |   |              |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |   |              |   |                             |                                 |                         |                            |               |   |              |
| <b>Exposures</b>   | <b>#</b>  | <b>Label</b> | <b>Target</b>   | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b>            | <b>Opt. Params.</b>     | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b>    | <b>Orbit</b> |
|  | 1   | (2) M82      | (2) M82   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.2920,0<br>.7030 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]          |
|  | 2   | (2) M82      | (2) M82   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.4412,0<br>.6415 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]          |
|  | 3   | (2) M82      | (2) M82   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.2185,0<br>.8485 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]          |



Proposal 17513 - M82-F606W-V1 (09) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Ti...

Wed Jul 02 21:00:23 GMT 2025

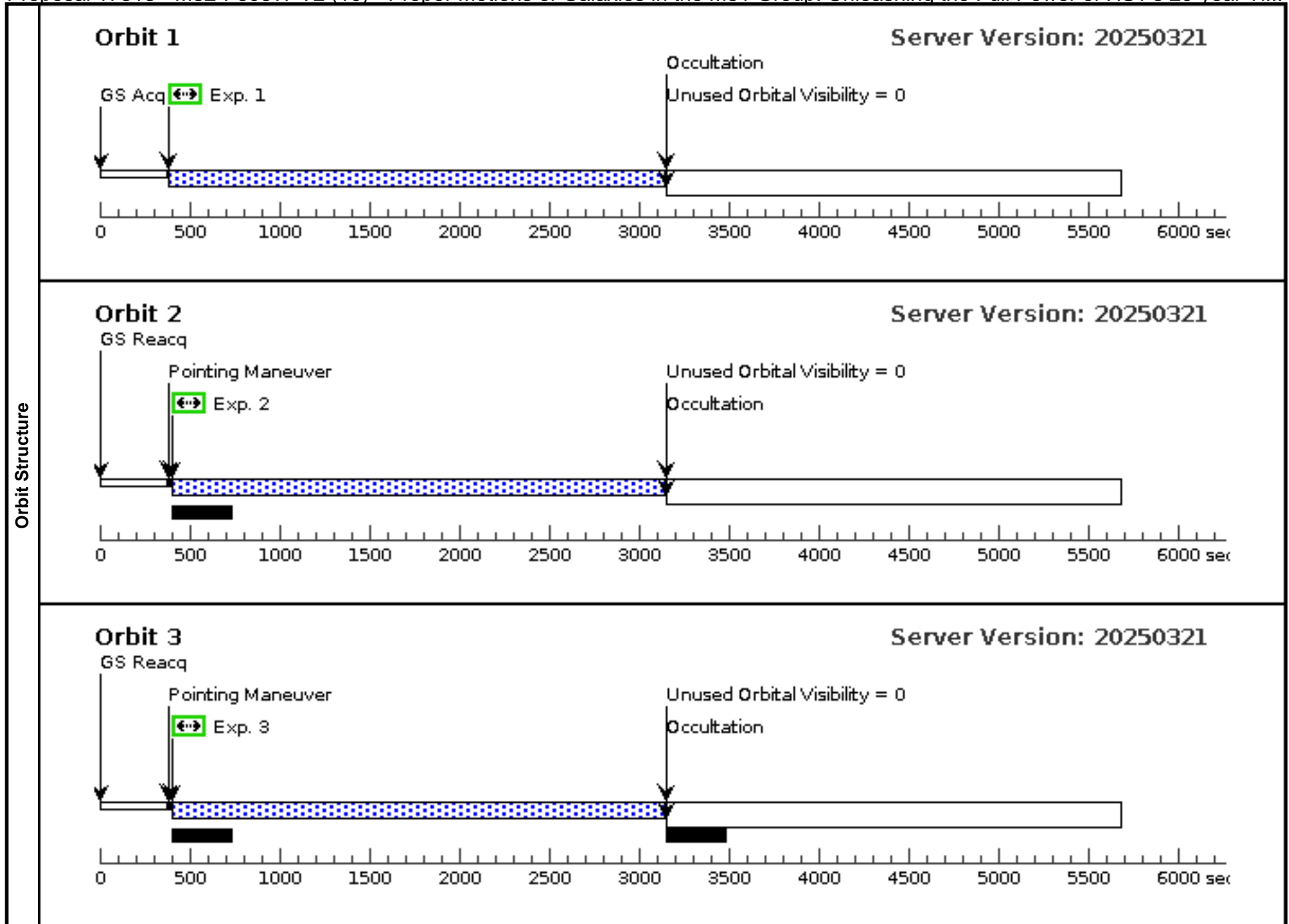
| <b>Visit</b>  | <b>Proposal 17513, M82-F606W-V1 (09), completed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 05; GROUP 09,05,06,07,08,10 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82 F606W.</i>  |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|---|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|---|----------------------|---|---------------------------|---------------|-------------------------|--|-------|---|---------|--|---------------------|-------|--|--|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|---|---------|--|---------------------|-------|--|----------------------------|--|---|-----|
|   | (M82-F606W-V1 (09)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (2)                                       | M82                  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41        | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
|   | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| (2)   | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |                            |               |   |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F606W</td> <td></td> <td></td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F606W</td> <td></td> <td>POS TARG 0.1647,0<br/>.0124</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(2) M82</td> <td></td> <td>ACS/WFC, ACCUM, WFC</td> <td>F606W</td> <td></td> <td>POS TARG 0.3293,0<br/>.0248</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |   |                           |                          |                          | #                          | Label         | Target                                    | Config,Mode,Aperture | Spectral Els.   | Opt. Params.              | Special Reqs. | Groups                  | Exp. Time (Total)/[Actual Dur.]  | Orbit | 1 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F606W |  |  |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F606W |  | POS TARG 0.1647,0<br>.0124 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (2) M82 |  | ACS/WFC, ACCUM, WFC | F606W |  | POS TARG 0.3293,0<br>.0248 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #   | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]           | Orbit                |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 1   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          |                            |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 2   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          | POS TARG 0.1647,0<br>.0124 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |
| 3   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          | POS TARG 0.3293,0<br>.0248 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |  |  |   |     |   |         |  |                     |       |  |                            |  |   |     |   |         |  |                     |       |  |                            |  |   |     |



Proposal 17513 - M82-F606W-V2 (10) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Ti...

Wed Jul 02 21:00:23 GMT 2025

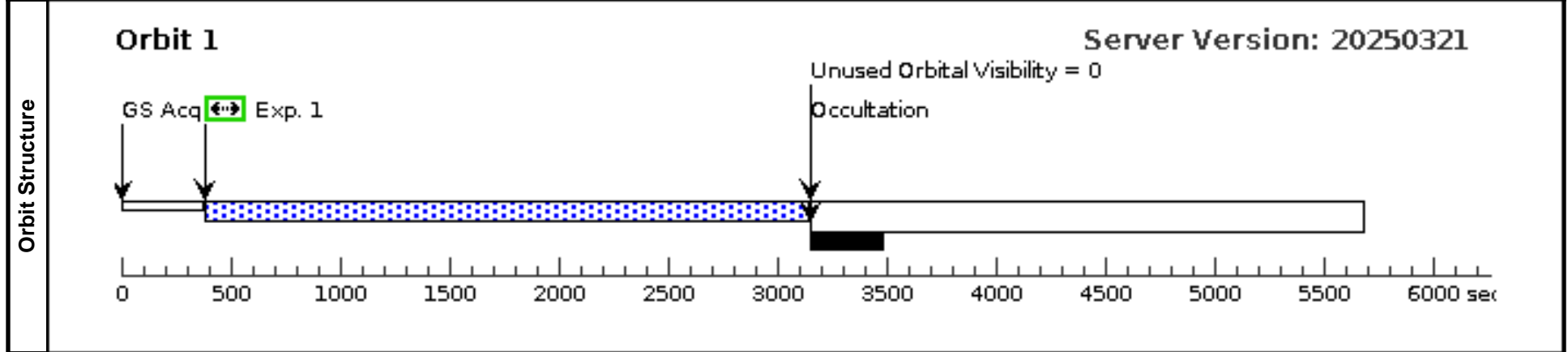
| <b>Visit</b>  | <b>Proposal 17513, M82-F606W-V2 (10), failed</b><br><b>Diagnostic Status: Informational</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 05; GROUP 10,05,06,07,08,09 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for M82 F606W.</i>   |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
|---|--|---|---------------------------|--------------------------|--------------------------|----------------------------|---------------|--|----------------------|---|---------------------------|---------------|-------------------------|--|-------|---|---------|--|---------------------|-------|--|----------------------------|--|--|-----|---|---------|--|---------------------|-------|--|----------------------------|--|--|-----|---|---------|--|---------------------|-------|--|----------------------------|--|--|-----|
|   | (M82-F606W-V2 (10)) Informational (Form): The Visit Planner and Spike may produce different schedulability results.  |   |                           |                          |                          |                            |               |  |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
| <b>Fixed Targets</b>  | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>M82</td> <td>RA: 09 55 32.2036 (148.8841817d)<br/>Dec: +69 36 54.10 (69.61503d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=8.41</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> | #   | Name                      | Target Coordinates       | Targ. Coord. Corrections | Fluxes                     | Miscellaneous | (2)  | M82                  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41        | Reference Frame: SIMBAD | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
|   | #  | Name  | Target Coordinates        | Targ. Coord. Corrections | Fluxes                   | Miscellaneous              |               |  |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
| (2)   | M82  | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=8.41                   | Reference Frame: SIMBAD  |                            |               |  |                      |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
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| #   | Label  | Target  | Config,Mode,Aperture      | Spectral Els.            | Opt. Params.             | Special Reqs.              | Groups        | Exp. Time (Total)/[Actual Dur.]            | Orbit                |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
| 1   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          | POS TARG 0.0747,0<br>.1294 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
| 2   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          | POS TARG 0.2393,0<br>.1418 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [2]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |
| 3   | (2) M82  |   | ACS/WFC, ACCUM, WFC       | F606W                    |                          | POS TARG 0.4039,0<br>.1541 |               | 2870 Secs (2613 Secs)<br>[==>2613.0 Secs ] | [3]                  |   |                           |               |                         |  |       |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |   |         |  |                     |       |  |                            |  |  |     |



|              |   |  |  |  |  |
|--------------|---|--|--|--|--|
| <b>Visit</b> | <b>Proposal 17513, M82-F606W-V2 (60), implementation</b>  |  |  |  |  |
|              | <b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: SAME ORIENT AS 57<br><i>Comments: This is a 3-orbit visit for M82 F606W.</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>    |
|  | (2)      | M82         | RA: 09 55 32.2036 (148.8841817d)<br>Dec: +69 36 54.10 (69.61503d)<br>Equinox: J2000 | Epoch of Position: 2015.5       | V=8.41        | Reference Frame: SIMBAD |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[STARBURST] |          |             |   |                                 |               |                         |

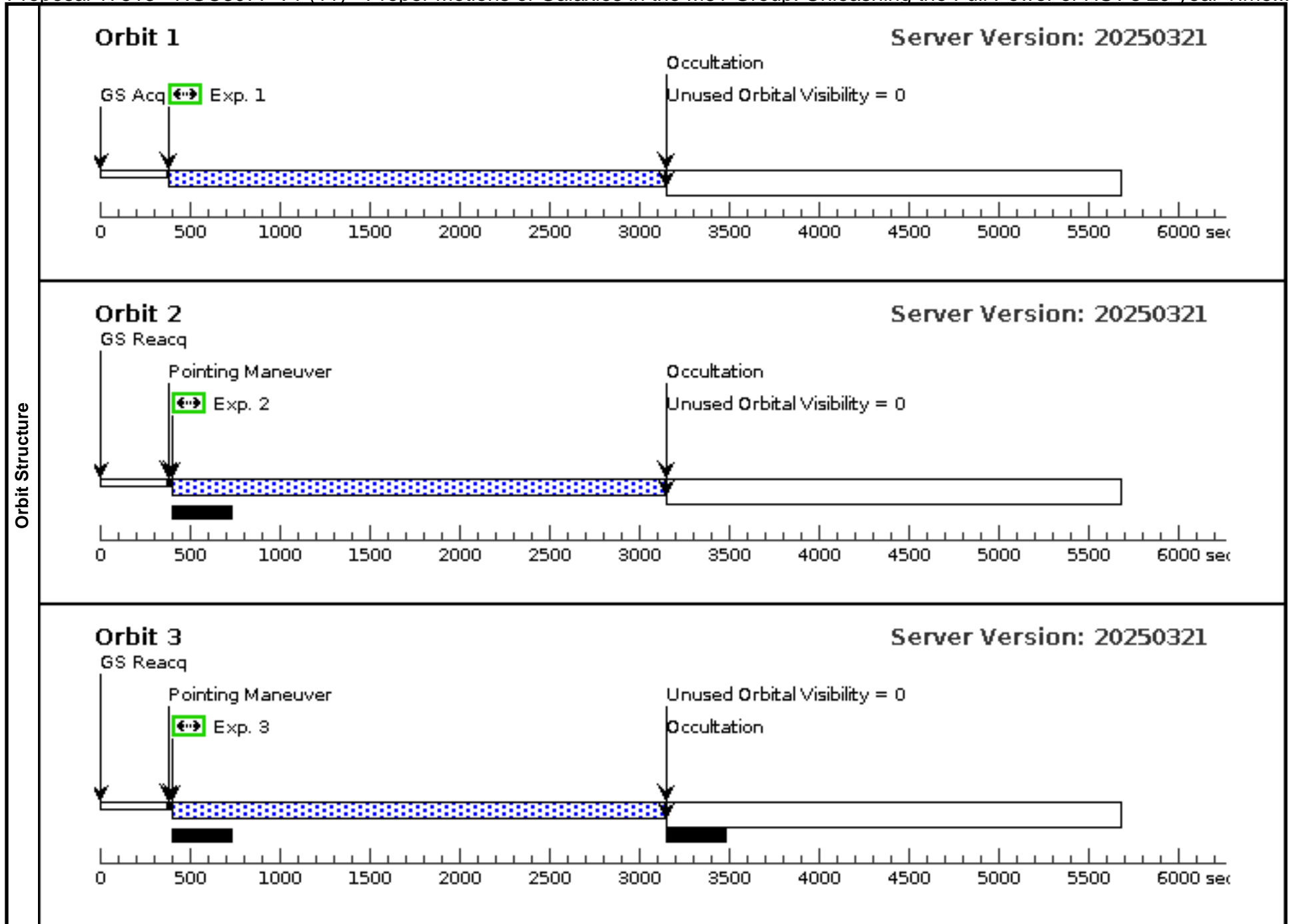
|                  |          |              |               |                             |                      |                     |                            |               |  |              |
|------------------|----------|--------------|---------------|-----------------------------|----------------------|---------------------|----------------------------|---------------|--|--------------|
| <b>Exposures</b> | <b>#</b> | <b>Label</b> | <b>Target</b> | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b> | <b>Opt. Params.</b> | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b>     | <b>Orbit</b> |
|                  | 1        | (2) M82      | (2) M82       | ACS/WFC, ACCUM, WFC         | F606W                |                     | POS TARG 0.2393,0<br>.1418 |               | 2870 Secs (2551 Secs)<br>[==>2551.0 Secs ] | [1]          |



Proposal 17513 - NGC3077-V1 (11) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

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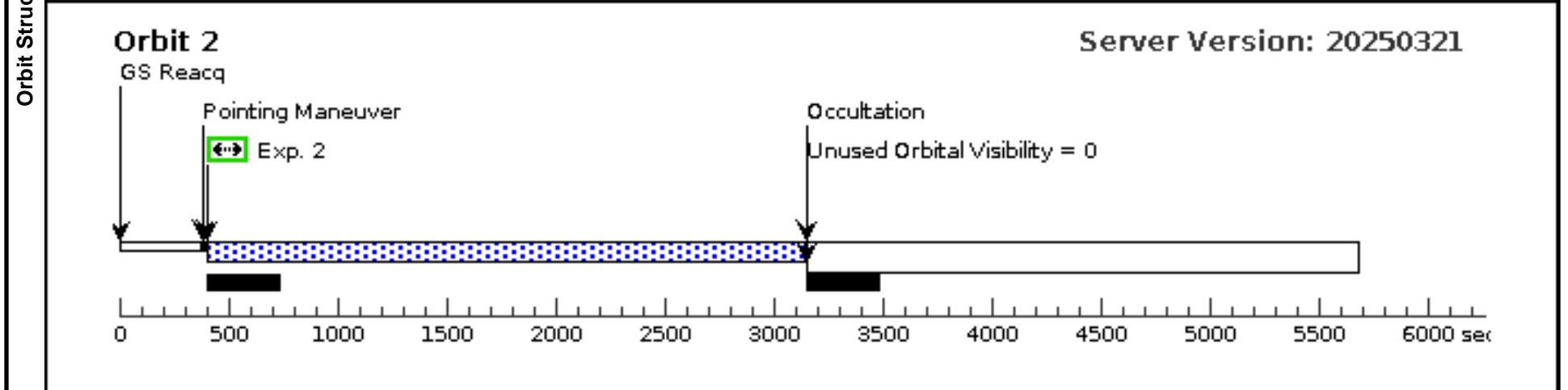
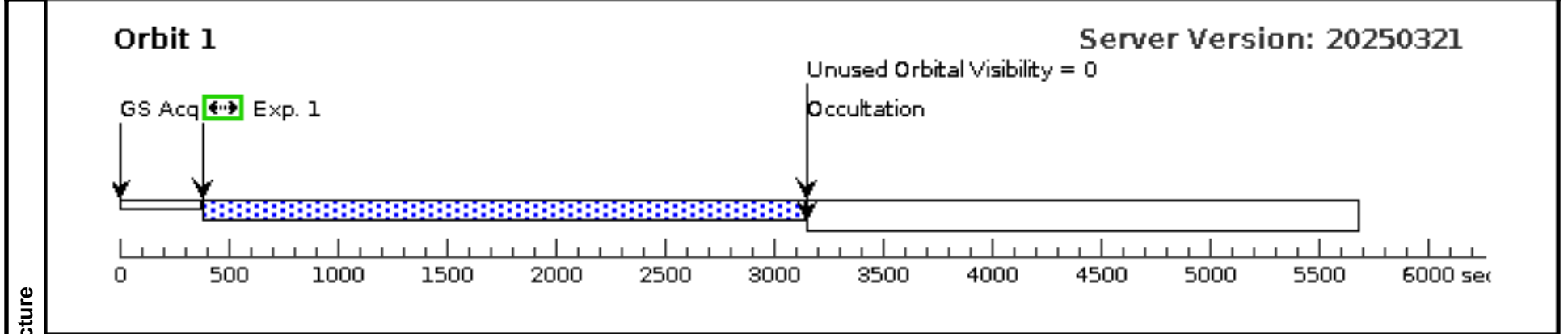
|   |   |              |   |                             |                                 |                            |                            |               |  |                       |              |
|---|---|--------------|---|-----------------------------|---------------------------------|----------------------------|----------------------------|---------------|--|-----------------------|--------------|
| <b>Visit</b>  | <b>Proposal 17513, NGC3077-V1 (11), failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D; GROUP 11,12,13,14 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for NGC 3077.</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)   |   | NGC3077      | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5   | V=10.14                         | Reference Frame: SIMBAD    |                            |               |  |                       |              |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[ELLIPTICAL] |   |              |   |                             |                                 |                            |                            |               |  |                       |              |
| <b>Exposures</b>  | <b>#</b>  | <b>Label</b> | <b>Target</b>   | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b>            | <b>Opt. Params.</b>        | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b> |                       | <b>Orbit</b> |
|   | 1   | (3) NGC3077  | (3) NGC3077   | ACS/WFC, ACCUM, WFC         | F814W                           |                            |                            |               | 2870 Secs (2551 Secs)                  |                       |              |
|   |   |              |   |                             |                                 |                            |                            |               | [==>2551.0 Secs ]                      |                       | [1]          |
|   | 2   | (3) NGC3077  | (3) NGC3077   | ACS/WFC, ACCUM, WFC         | F814W                           |                            | POS TARG 0.1740,0<br>.1850 |               |  | 2870 Secs (2613 Secs) |              |
|   |   |              |   |                             |                                 |                            |                            |               | [==>2613.0 Secs ]                      |                       | [2]          |
| 3   | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC   | F814W                       |                                 | POS TARG 0.3232,0<br>.1235 |                            |               | 2870 Secs (2613 Secs)                  |                       |              |
|   |   |              |   |                             |                                 |                            |                            |               | [==>2613.0 Secs ]                      |                       | [3]          |



|  |  |  |  |  |  |
|--|--|--|--|--|--|
| <b>Visit</b>   | <b>Proposal 17513, NGC3077-V1 (61), implementation</b>                         |  |  |  |  |
|  | <b>Diagnostic Status: No Diagnostics</b>                                       |  |  |  |  |
|  | Scientific Instruments: ACS/WFC  |  |  |  |  |
|  | Special Requirements: ORIENT 155.19D TO 155.19 D; GROUP 61,62,63,64 WITHIN 30D |  |  |  |  |
| <i>Comments: This is a 3-orbit visit for NGC 3077.</i> |  |  |  |  |  |

| <b>Fixed Targets</b>   | #   | Name    | Target Coordinates  | Targ. Coord. Corrections  | Fluxes  | Miscellaneous           |
|--|-----|---------|---|---------------------------|---------|-------------------------|
|  | (3) | NGC3077 | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14 | Reference Frame: SIMBAD |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> |     |         |   |                           |         |                         |
| Category=GALAXY  |     |         |   |                           |         |                         |
| Description=[ELLIPTICAL]   |     |         |   |                           |         |                         |

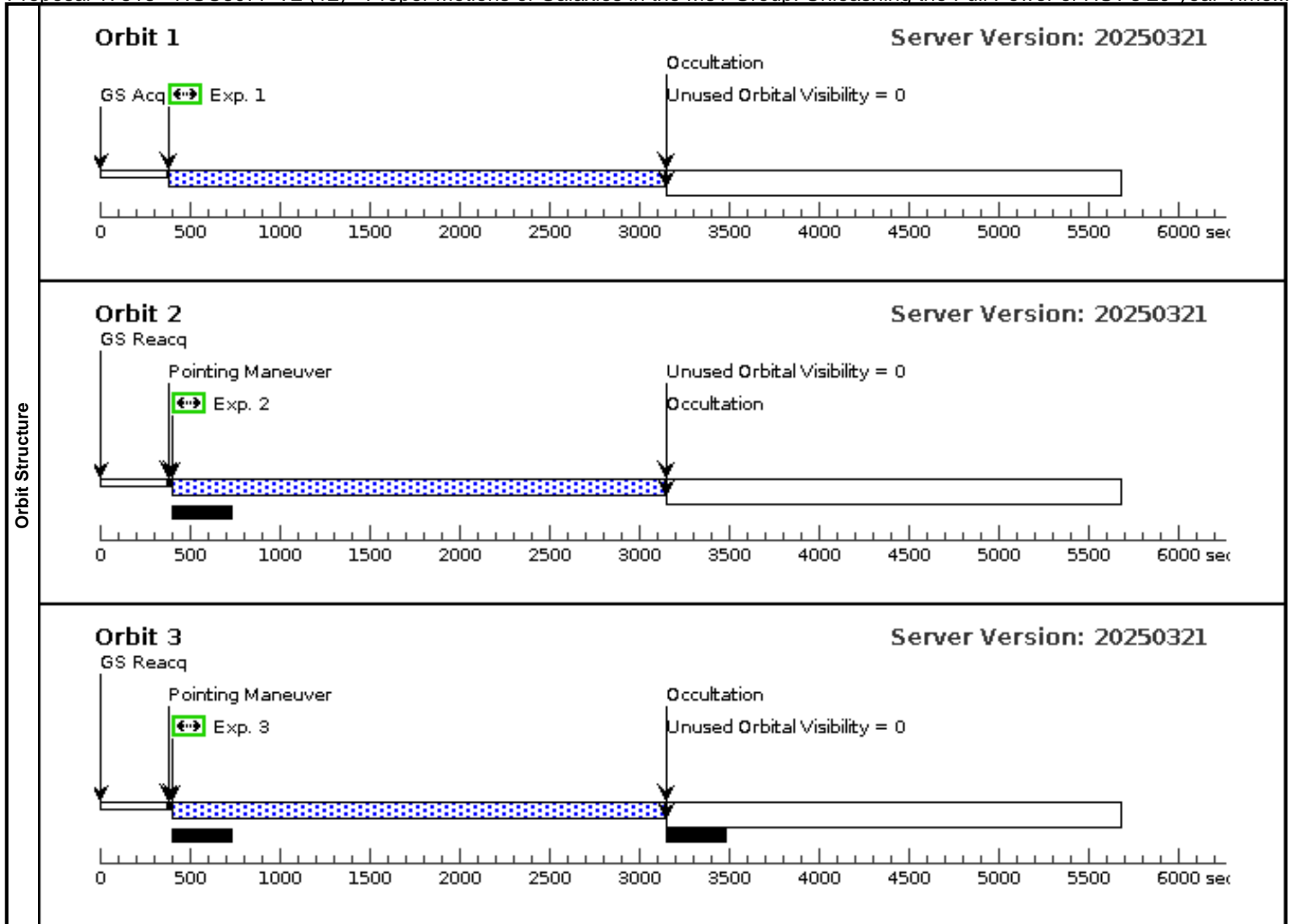
| <b>Exposures</b> | # | Label | Target      | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]          | Orbit |
|------------------|---|-------|-------------|----------------------|---------------|--------------|----------------------------|--------|--|-------|
|                  | 1 |       | (3) NGC3077 | ACS/WFC, ACCUM, WFC  | F814W         |              | POS TARG 0.1740,0<br>.1850 |        | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs] | [1]   |
|                  | 2 |       | (3) NGC3077 | ACS/WFC, ACCUM, WFC  | F814W         |              | POS TARG 0.3232,0<br>.1235 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs] | [2]   |
|                  |   |       |             |                      |               |              |                            |        |  |       |



Proposal 17513 - NGC3077-V2 (12) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

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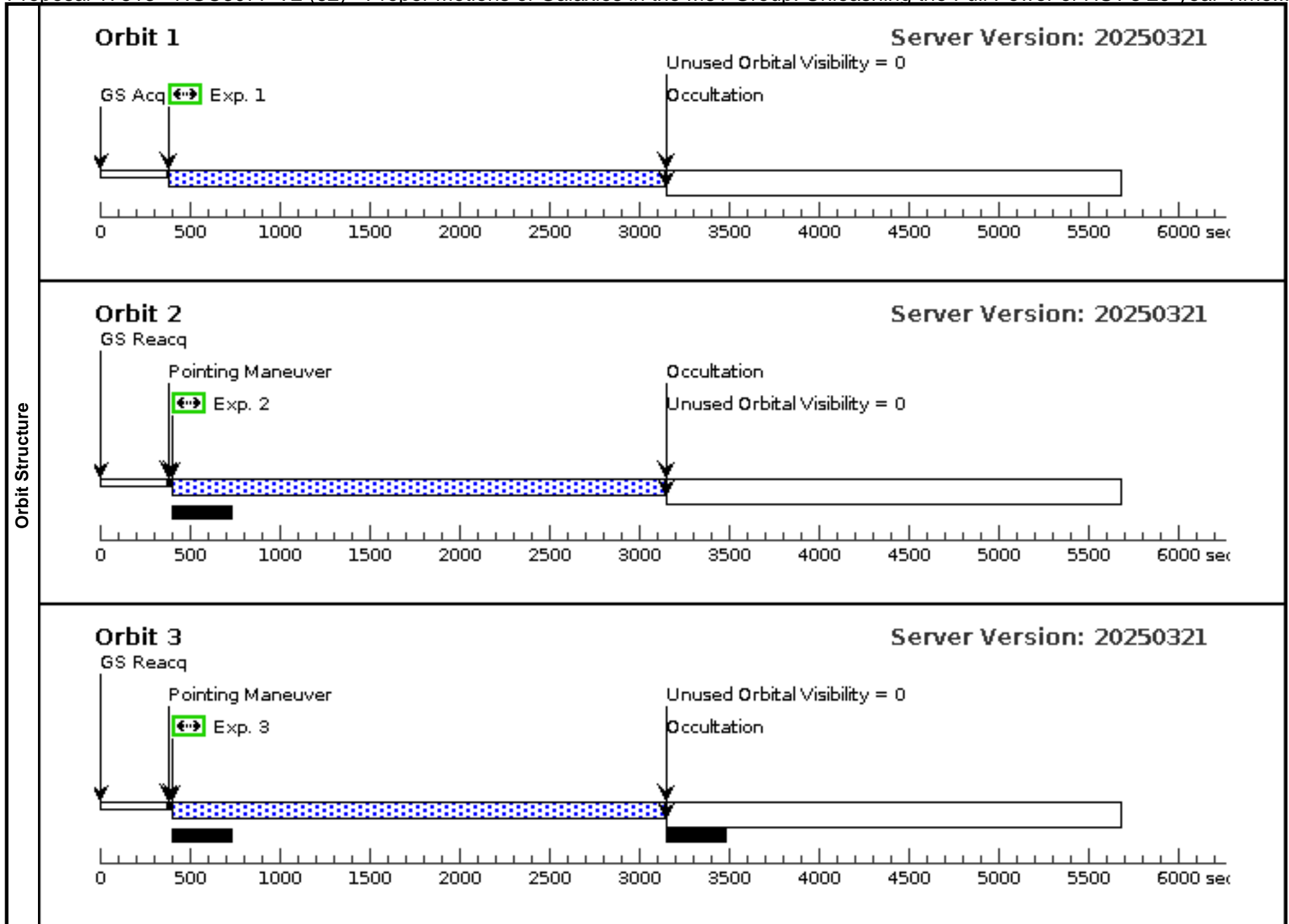
| Visit  | <b>Proposal 17513, NGC3077-V2 (12), failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D; GROUP 12,11,13,14 WITHIN 30D<br>Comments: This is a 3-orbit visit for NGC 3077.  |  |                           |               |                         |                            |              |   |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
|--|---|--|---------------------------|---------------|-------------------------|----------------------------|--------------|---|--------|---------------------------------|---|---------------------------|-------------|-------------------------|--|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|
|  | Fixed Targets   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>NGC3077</td> <td>RA: 10 03 51.7322 (150.9655508d)<br/>Dec: +68 41 25.74 (68.69048d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=10.14</td> <td>Reference Frame: SIMBAD</td> </tr> <tr> <td colspan="6">                     Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br/>                     Category=GALAXY<br/>                     Description=[ELLIPTICAL]                 </td> </tr> </tbody> </table> | #                         | Name          | Target Coordinates      | Targ. Coord. Corrections   | Fluxes       | Miscellaneous                             | (3)    | NGC3077                         | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14     | Reference Frame: SIMBAD | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| #  | Name  | Target Coordinates   | Targ. Coord. Corrections  | Fluxes        | Miscellaneous           |                            |              |   |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| (3)  | NGC3077   | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000  | Epoch of Position: 2015.5 | V=10.14       | Reference Frame: SIMBAD |                            |              |   |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |   |  |                           |               |                         |                            |              |   |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Exposures  | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.1005,0<br/>.3305</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.5030,0<br/>.0460</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.6770,0<br/>.2310</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> | #  | Label                     | Target        | Config,Mode,Aperture    | Spectral Els.              | Opt. Params. | Special Reqs.                             | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   | 1                         | (3) NGC3077 | (3) NGC3077             | ACS/WFC, ACCUM, WFC  | F814W |  | POS TARG 0.1005,0<br>.3305 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.5030,0<br>.0460 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.6770,0<br>.2310 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #  | Label   | Target   | Config,Mode,Aperture      | Spectral Els. | Opt. Params.            | Special Reqs.              | Groups       | Exp. Time (Total)/[Actual Dur.]           | Orbit  |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 1  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.1005,0<br>.3305 |              | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]    |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 2  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.5030,0<br>.0460 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]    |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 3  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.6770,0<br>.2310 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]    |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |



Proposal 17513 - NGC3077-V2 (62) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

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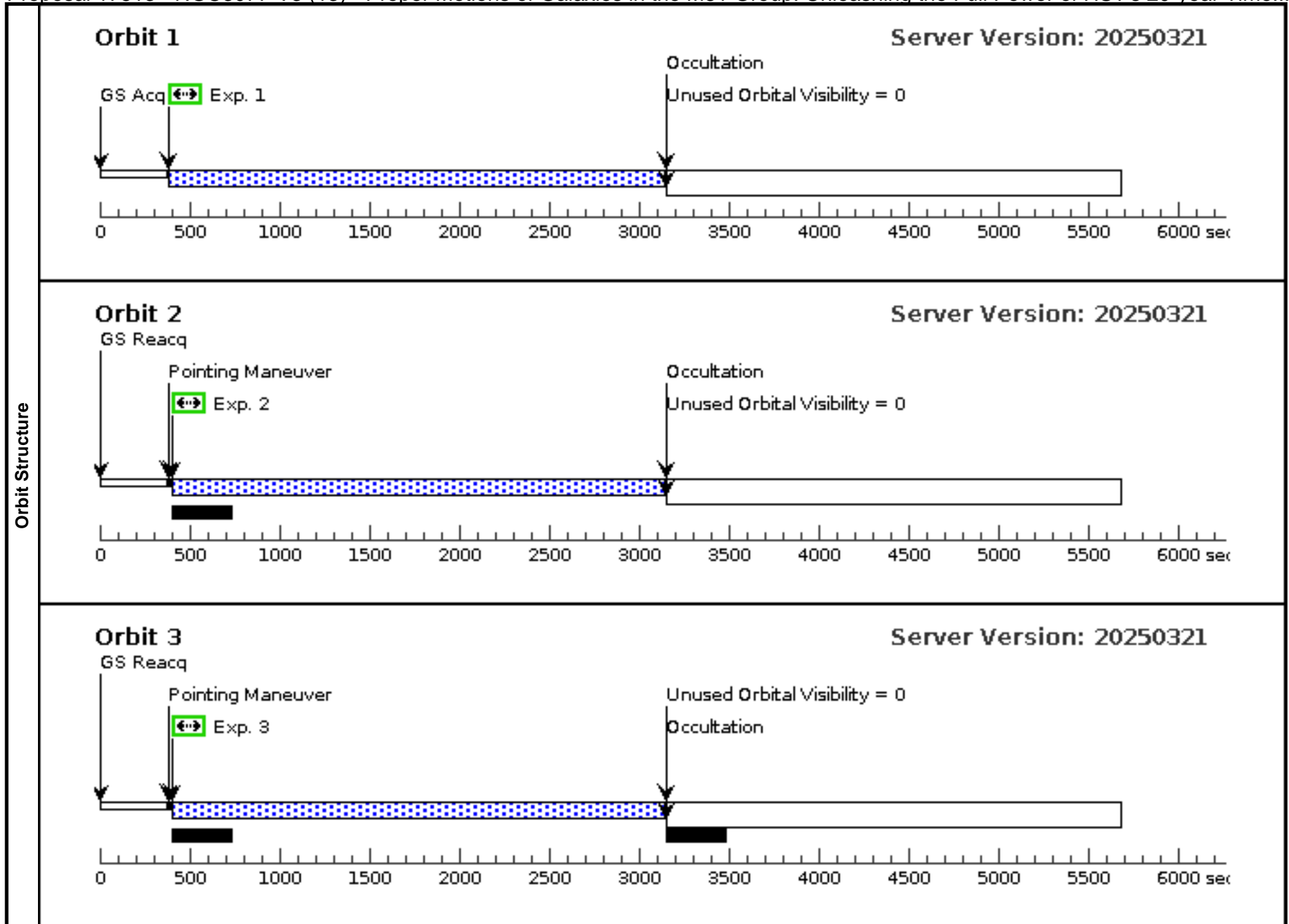
| Visit  | <b>Proposal 17513, NGC3077-V2 (62), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D<br>Comments: This is a 3-orbit visit for NGC 3077.  |  |                           |               |                         |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
|--|---|--|---------------------------|---------------|-------------------------|----------------------------|--------|---|-------|--|---|-------|--------|----------------------|--------------------------|--------------|---------------|--------|---------------------------------|---|---------------------------|-------------|-------------------------|--|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|
|  | Fixed Targets   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>NGC3077</td> <td>RA: 10 03 51.7322 (150.9655508d)<br/>Dec: +68 41 25.74 (68.69048d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=10.14</td> <td>Reference Frame: SIMBAD</td> </tr> <tr> <td colspan="6">                     Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br/>                     Category=GALAXY<br/>                     Description=[ELLIPTICAL]                 </td> </tr> </tbody> </table> |                           |               |                         |                            |        |   |       |  |   | #     | Name   | Target Coordinates   | Targ. Coord. Corrections | Fluxes       | Miscellaneous | (3)    | NGC3077                         | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14     | Reference Frame: SIMBAD | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| #  | Name  | Target Coordinates   | Targ. Coord. Corrections  | Fluxes        | Miscellaneous           |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| (3)  | NGC3077   | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000  | Epoch of Position: 2015.5 | V=10.14       | Reference Frame: SIMBAD |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |   |  |                           |               |                         |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Exposures  | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.1005,0<br/>.3305</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.5030,0<br/>.0460</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.6770,0<br/>.2310</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |                           |               |                         |                            |        |   |       |  | # | Label | Target | Config,Mode,Aperture | Spectral Els.            | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   | 1                         | (3) NGC3077 | (3) NGC3077             | ACS/WFC, ACCUM, WFC  | F814W |  | POS TARG 0.1005,0<br>.3305 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.5030,0<br>.0460 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.6770,0<br>.2310 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #  | Label   | Target   | Config,Mode,Aperture      | Spectral Els. | Opt. Params.            | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]           | Orbit |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 1  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.1005,0<br>.3305 |        | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 2  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.5030,0<br>.0460 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 3  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.6770,0<br>.2310 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |



Proposal 17513 - NGC3077-V3 (13) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

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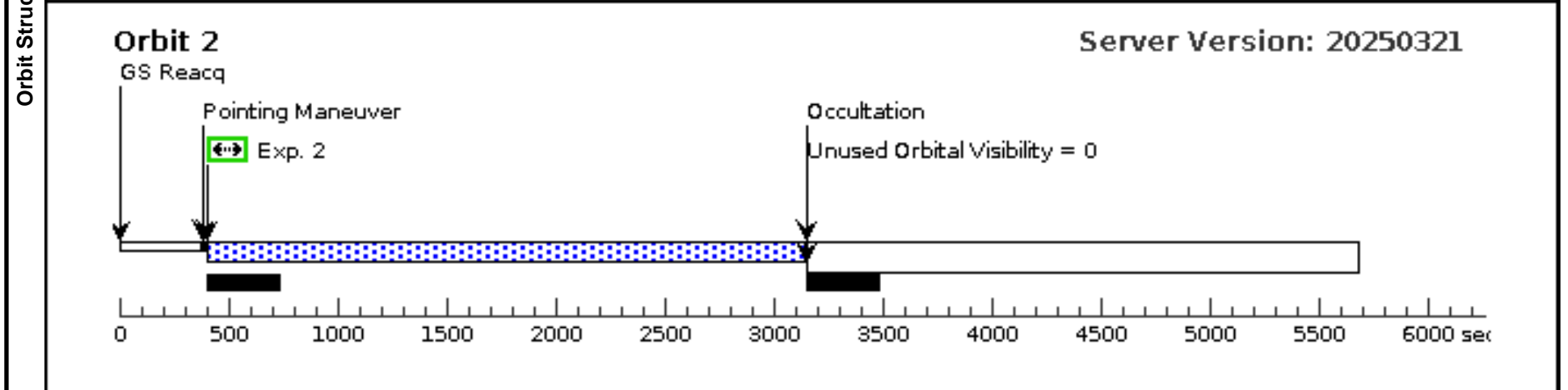
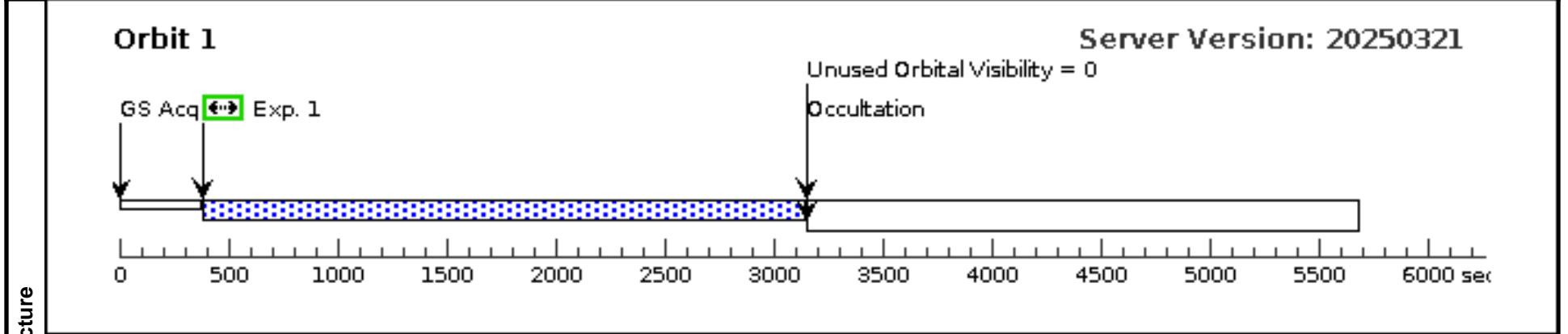
| Visit  | <b>Proposal 17513, NGC3077-V3 (13), failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D; GROUP 13,11,12,14 WITHIN 30D<br>Comments: This is a 3-orbit visit for NGC 3077.  |  |                           |               |                         |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
|--|---|--|---------------------------|---------------|-------------------------|----------------------------|--------|---|-------|--|---|-------|--------|----------------------|--------------------------|--------------|---------------|--------|---------------------------------|---|---------------------------|-------------|-------------------------|--|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|
|  | Fixed Targets   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>NGC3077</td> <td>RA: 10 03 51.7322 (150.9655508d)<br/>Dec: +68 41 25.74 (68.69048d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=10.14</td> <td>Reference Frame: SIMBAD</td> </tr> <tr> <td colspan="6">                     Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br/>                     Category=GALAXY<br/>                     Description=[ELLIPTICAL]                 </td> </tr> </tbody> </table> |                           |               |                         |                            |        |   |       |  |   | #     | Name   | Target Coordinates   | Targ. Coord. Corrections | Fluxes       | Miscellaneous | (3)    | NGC3077                         | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14     | Reference Frame: SIMBAD | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| #  | Name  | Target Coordinates   | Targ. Coord. Corrections  | Fluxes        | Miscellaneous           |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| (3)  | NGC3077   | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000  | Epoch of Position: 2015.5 | V=10.14       | Reference Frame: SIMBAD |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] |   |  |                           |               |                         |                            |        |   |       |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Exposures  | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.8262,0<br/>.1695</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.6035,0<br/>.3765</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.1180,0<br/>.5180</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> |  |                           |               |                         |                            |        |   |       |  | # | Label | Target | Config,Mode,Aperture | Spectral Els.            | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   | 1                         | (3) NGC3077 | (3) NGC3077             | ACS/WFC, ACCUM, WFC  | F814W |  | POS TARG 0.8262,0<br>.1695 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.6035,0<br>.3765 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.1180,0<br>.5180 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #  | Label   | Target   | Config,Mode,Aperture      | Spectral Els. | Opt. Params.            | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]           | Orbit |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 1  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.8262,0<br>.1695 |        | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 2  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.6035,0<br>.3765 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 3  | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.1180,0<br>.5180 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]   |  |   |       |        |                      |                          |              |               |        |                                 |   |                           |             |                         |  |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |



|  |  |  |  |  |  |
|--|--|--|--|--|--|
| <b>Visit</b>   | <b>Proposal 17513, NGC3077-V3 (63), implementation</b> |  |  |  |  |
|  | <b>Diagnostic Status: No Diagnostics</b>               |  |  |  |  |
|  | Scientific Instruments: ACS/WFC                        |  |  |  |  |
|  | Special Requirements: ORIENT 155.19D TO 155.19 D       |  |  |  |  |
| <i>Comments: This is a 3-orbit visit for NGC 3077.</i> |  |  |  |  |  |

| <b>Fixed Targets</b>   | #   | Name    | Target Coordinates  | Targ. Coord. Corrections  | Fluxes  | Miscellaneous           |
|--|-----|---------|---|---------------------------|---------|-------------------------|
|  | (3) | NGC3077 | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14 | Reference Frame: SIMBAD |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> |     |         |   |                           |         |                         |
| Category=GALAXY<br>Description=[ELLIPTICAL]  |     |         |   |                           |         |                         |

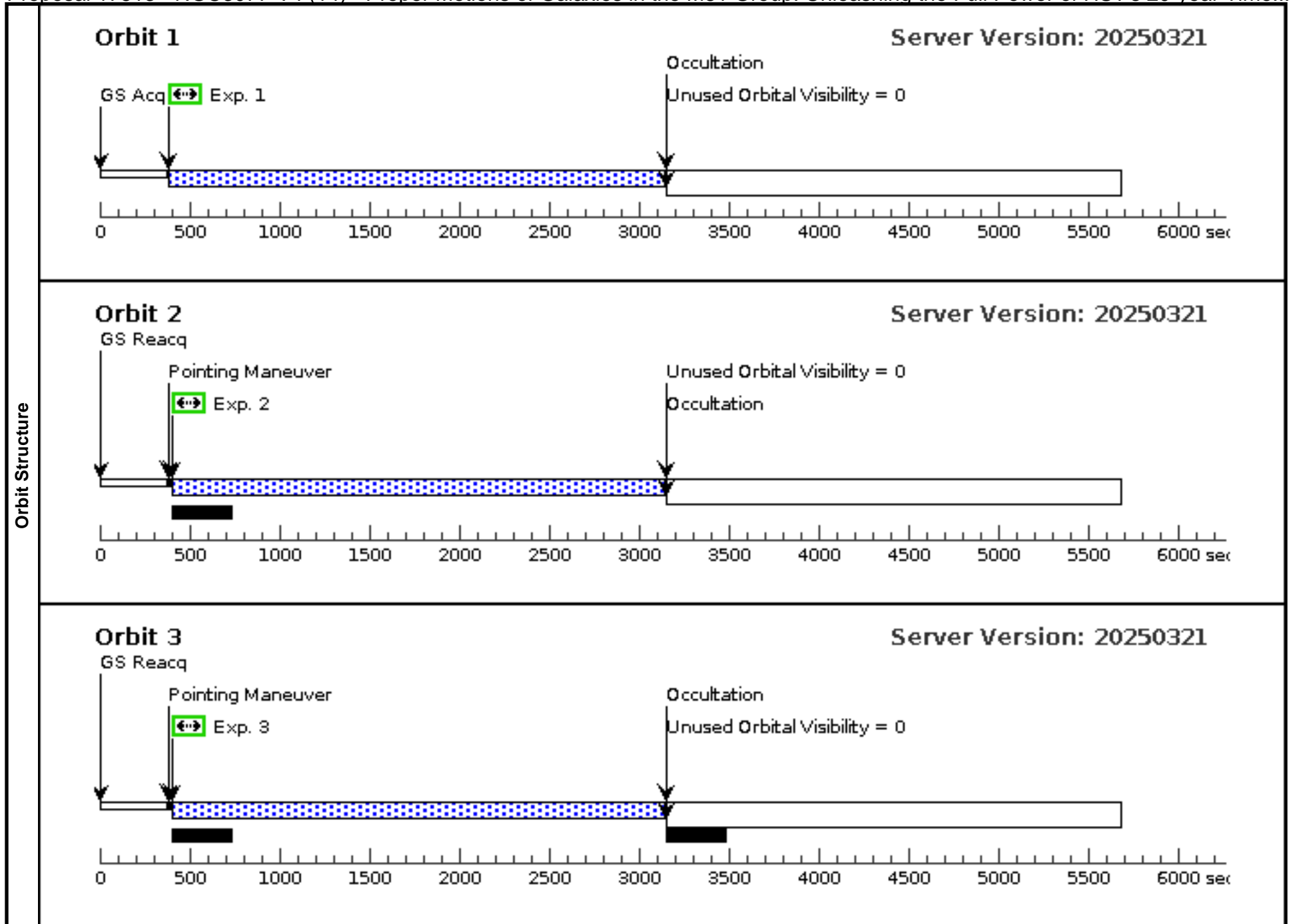
| <b>Exposures</b> | # | Label | Target      | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.]          | Orbit |
|------------------|---|-------|-------------|----------------------|---------------|--------------|----------------------------|--------|--|-------|
|                  | 1 |       | (3) NGC3077 | ACS/WFC, ACCUM, WFC  | F814W         |              | POS TARG 0.8262,0<br>.1695 |        | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs] | [1]   |
|                  | 2 |       | (3) NGC3077 | ACS/WFC, ACCUM, WFC  | F814W         |              | POS TARG 0.1180,0<br>.5180 |        | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs] | [2]   |



Proposal 17513 - NGC3077-V4 (14) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

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|   |   |              |   |                             |                                 |                         |                            |               |   |              |
|---|---|--------------|---|-----------------------------|---------------------------------|-------------------------|----------------------------|---------------|---|--------------|
| <b>Visit</b>  | <b>Proposal 17513, NGC3077-V4 (14), failed</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D; GROUP 14,11,12,13 WITHIN 30D<br><i>Comments: This is a 3-orbit visit for NGC 3077.</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)   |   | NGC3077      | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5   | V=10.14                         | Reference Frame: SIMBAD |                            |               |   |              |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i><br>Category=GALAXY<br>Description=[ELLIPTICAL] |   |              |   |                             |                                 |                         |                            |               |   |              |
| <b>Exposures</b>  | <b>#</b>  | <b>Label</b> | <b>Target</b>   | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b>            | <b>Opt. Params.</b>     | <b>Special Reqs.</b>       | <b>Groups</b> | <b>Exp. Time (Total)/[Actual Dur.]</b>    | <b>Orbit</b> |
|   | 1   | (3) NGC3077  | (3) NGC3077   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.2920,0<br>.7030 |               | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]          |
|   | 2   | (3) NGC3077  | (3) NGC3077   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.4412,0<br>.6415 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]          |
|   | 3   | (3) NGC3077  | (3) NGC3077   | ACS/WFC, ACCUM, WFC         | F814W                           |                         | POS TARG 0.2185,0<br>.8485 |               | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]          |



Proposal 17513 - NGC3077-V4 (64) - Proper Motions of Galaxies in the M81 Group: Unleashing the Full Power of HST's 20-year Time...

Wed Jul 02 21:00:24 GMT 2025

| Visit     | <b>Proposal 17513, NGC3077-V4 (64), implementation</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: ACS/WFC<br>Special Requirements: ORIENT 155.19D TO 155.19 D<br>Comments: This is a 3-orbit visit for NGC 3077.  |  |                           |               |                         |                            |              |   |        |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
|-----------|---|--|---------------------------|---------------|-------------------------|----------------------------|--------------|---|--------|---------------------------------|---|---------------------------|-------------|-------------------------|---------------------|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|---|-------------|-------------|---------------------|-------|--|----------------------------|--|---|-----|
|           | Fixed Targets   | <table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>NGC3077</td> <td>RA: 10 03 51.7322 (150.9655508d)<br/>Dec: +68 41 25.74 (68.69048d)<br/>Equinox: J2000</td> <td>Epoch of Position: 2015.5</td> <td>V=10.14</td> <td>Reference Frame: SIMBAD</td> </tr> </tbody> </table> Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=GALAXY<br>Description=[ELLIPTICAL] | #                         | Name          | Target Coordinates      | Targ. Coord. Corrections   | Fluxes       | Miscellaneous                             | (3)    | NGC3077                         | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000 | Epoch of Position: 2015.5 | V=10.14     | Reference Frame: SIMBAD |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| #         | Name  | Target Coordinates   | Targ. Coord. Corrections  | Fluxes        | Miscellaneous           |                            |              |   |        |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| (3)       | NGC3077   | RA: 10 03 51.7322 (150.9655508d)<br>Dec: +68 41 25.74 (68.69048d)<br>Equinox: J2000  | Epoch of Position: 2015.5 | V=10.14       | Reference Frame: SIMBAD |                            |              |   |        |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| Exposures | <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.2920,0<br/>.7030</td> <td></td> <td>2870 Secs (2551 Secs)<br/>[=&gt;2551.0 Secs ]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.4412,0<br/>.6415</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[2]</td> </tr> <tr> <td>3</td> <td>(3) NGC3077</td> <td>(3) NGC3077</td> <td>ACS/WFC, ACCUM, WFC</td> <td>F814W</td> <td></td> <td>POS TARG 0.2185,0<br/>.8485</td> <td></td> <td>2870 Secs (2613 Secs)<br/>[=&gt;2613.0 Secs ]</td> <td>[3]</td> </tr> </tbody> </table> | #  | Label                     | Target        | Config,Mode,Aperture    | Spectral Els.              | Opt. Params. | Special Reqs.                             | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   | 1                         | (3) NGC3077 | (3) NGC3077             | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.2920,0<br>.7030 |  | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1] | 2 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.4412,0<br>.6415 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2] | 3 | (3) NGC3077 | (3) NGC3077 | ACS/WFC, ACCUM, WFC | F814W |  | POS TARG 0.2185,0<br>.8485 |  | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3] |
| #         | Label   | Target   | Config,Mode,Aperture      | Spectral Els. | Opt. Params.            | Special Reqs.              | Groups       | Exp. Time (Total)/[Actual Dur.]           | Orbit  |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 1         | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.2920,0<br>.7030 |              | 2870 Secs (2551 Secs)<br>[=>2551.0 Secs ] | [1]    |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 2         | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.4412,0<br>.6415 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [2]    |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |
| 3         | (3) NGC3077   | (3) NGC3077  | ACS/WFC, ACCUM, WFC       | F814W         |                         | POS TARG 0.2185,0<br>.8485 |              | 2870 Secs (2613 Secs)<br>[=>2613.0 Secs ] | [3]    |                                 |   |                           |             |                         |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |   |             |             |                     |       |  |                            |  |   |     |

