



# 15323 - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

Cycle: 25, Proposal Category: GO

(Availability Mode: SUPPORTED)

## INVESTIGATORS

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| <b>Name</b>                             | <b>Institution</b>                             | <b>E-Mail</b>                |
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## VISITS

| <b>Visit</b> | <b>Targets used in Visit</b> | <b>Configurations used in Visit</b> | <b>Orbits Used</b> | <b>Last Orbit Planner Run</b> | <b>OP Current with Visit?</b> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (1) UGC-5745                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 04-Dec-2018 12:22:02.0        | yes                           |
| 02           | (2) NGC-4586                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:31.0        | yes                           |
| 03           | (3) NGC-4255                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:32.0        | yes                           |
| 04           | (4) NGC-4245                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:33.0        | yes                           |
| 05           | (5) NGC-4394                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:34.0        | yes                           |
| 06           | (6) NGC-2950                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:35.0        | yes                           |
| 07           | (7) NGC-4111                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:36.0        | yes                           |
| 08           | (8) NGC-3507                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:37.0        | yes                           |
| 09           | (9) NGC-3928                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:38.0        | yes                           |

| <b>Visit</b> | <b>Targets used in Visit</b> | <b>Configurations used in Visit</b> | <b>Orbits Used</b> | <b>Last Orbit Planner Run</b> | <b>OP Current with Visit?</b> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 10           | (10) NGC-3992                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:39.0        | yes                           |
| 11           | (11) NGC-2768                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:40.0        | yes                           |
| 12           | (12) NGC-3177                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:41.0        | yes                           |
| 13           | (13) NGC-5921                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:42.0        | yes                           |
| 14           | (14) NGC-5792                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:44.0        | yes                           |
| 15           | (15) NGC-1090                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:45.0        | yes                           |
| 16           | (16) UGC-3855                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:46.0        | yes                           |
| 17           | (17) UGC-4107                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:47.0        | yes                           |
| 18           | (18) UGC-4308                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:48.0        | yes                           |
| 19           | (19) UGC-11492               | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:49.0        | yes                           |
| 20           | (20) NGC-5127                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:50.0        | yes                           |
| 21           | (21) NGC-2340                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:51.0        | yes                           |
| 22           | (22) UGC-9959                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:52.0        | yes                           |
| 23           | (23) PGC-1021091             | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:53.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 24           | (24) NGC-7773                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:54.0        | yes                           |
| 25           | (25) NGC-2943                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:55.0        | yes                           |
| 59           | (9) NGC-3928                 | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:56.0        | yes                           |
| 65           | (15) NGC-1090                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:57.0        | yes                           |
| 66           | (20) NGC-5127                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:58.0        | yes                           |
| 67           | (12) NGC-3177                | WFC3/IR<br>WFC3/UVIS                | 1                  | 17-Jan-2019 16:00:59.0        | yes                           |

29 Total Orbits Used

## ABSTRACT

Supermassive black holes (BHs) are fundamental components of galaxies, as demonstrated by the correlations between BH mass and large-scale galaxy properties. However, these scaling relations are based on BH mass measurements in a galaxy sample that is significantly biased relative to the overall galaxy population. We propose to enhance the diversity of galaxies with BH mass determinations using a combination of Hubble Space Telescope (HST) imaging and adaptive optics (AO) kinematics. Our proposal focuses on 25 galaxies that will be observed as part of an approved 253-hour Gemini Large Program to dynamically measure BH masses. HST imaging is required for (1) the creation of high-resolution stellar mass models, and (2) the determination of the AO point spread function; both are essential for measuring accurate BH masses. The proposed sample will provide a more complete census of local BHs in a wide range of galaxies with varied evolutionary histories. This data is crucial for understanding the underlying physics driving the BH - galaxy correlations and their scatter.

## OBSERVING DESCRIPTION

Targets:

All target positions were taken from NED. We expect the positions to be accurate to  $\sim 1''$ , and checked that was the case using SDSS images when

Proposal 15323 (STScI Edit Number: 9, Created: Thursday, January 17, 2019 at 4:01:00 PM Eastern Standard Time) - Overview  
available, or archival HST images or 2MASS images, otherwise. Given our field of view, offsets of up to a few arcseconds in these central positions are not a problem.

#### Filters, Subarrays, and Exposure Times:

We are scheduling observations with WFC3 UVIS/F475W, UVIS/F814W, and IR/F160W. We are most concerned about achieving a reasonable S/N in each pixel for our targets out to a radius of  $\sim 10''$ . Our average exposure time in F475W is  $\sim 900$  s (in 4 exposures), in F814W is  $\sim 750$  s (in 2 exposures), and in F160W is 53 s (in 2 exposures). These exposure times will achieve  $S/N > 50$  per pixel near the center of our galaxies (overlapping with our kinematic data), and  $S/N > 10$  per pixel at a radius of  $10''$ , the radius out to which we need to accurately model the luminous mass distribution of the galaxies. We use the UVIS-2K2C-SUB subarray, otherwise buffer dumps prevent us from taking the required number of exposures. The F160W images are acquired without subarrays and with SAMP-SEQ=RAPID to get the shortest time interval between reads. The F160W images will be used to constrain the larger scale structure of the galaxies. The S/N in these observations are expected to be higher than the S/N per pixel obtained in the UVIS filters.

#### Dithering:

Resolution of the inner parts of the galaxies are of critical importance. Using 4 exposures in F475W and 2 exposures in F814W will enable the construction of Nyquist sampled images. The sequences use the existing defined box/line dither patterns, which include half-integer + a few pixel dithers. This will allow for the removal of hot pixels and recovery of the undersampled PSF.

#### Saturation:

Based on model fits to 2MASS data, the expected central surface brightnesses typically fall in the range  $\mu_{F475W} \sim 15-17$  mag/arcsec<sup>2</sup> and  $\mu_{F814W} \sim 14-16$  mag/arcsec<sup>2</sup>. The saturation time at the bright end of that range for an individual exposure is  $\sim 2000$  s in both filters, while our individual exposures will be  $\sim 5-10$  times shorter than that. Therefore even if our estimates are off a bit, we do not expect any of the galaxies to saturate. Two targets have brighter nuclei than the typical range quoted above, with the brightest target having an expected central surface brightness of  $\mu_{F475W} = 14.2$  mag/arcsec<sup>2</sup> and  $\mu_{F814W} = 13.2$  mag/arcsec<sup>2</sup>. In this case, the commanded exposure time is  $\sim 2-4$  times shorter than the saturation time. We have further checked our 2MASS estimates against HST measurements for about half of the galaxies in the sample that have archival HST imaging available.

#### ORIENT restrictions on NGC 3507, UGC 3855, NGC 5792, UGC 9959, and NGC 7773:

These objects have nearby, bright stars and we use ORIENT to avoid diffraction spikes or charge bleeding from crossing the nuclear region of the

Proposal 15323 (STScI Edit Number: 9, Created: Thursday, January 17, 2019 at 4:01:00 PM Eastern Standard Time) - Overview  
galaxies. We determined the position angle of the star, and avoided ORIENTs of PA, PA+90, PA+180, PA+270 (for diffraction spikes) and PA+135, PA+315 (for charge bleeding). We included a +/-10 deg avoidance around those angles. Additional information about the magnitude, distance from the galaxy nucleus, and the PA of the stars are given in the comments for those galaxies.

# Proposal 15323 - UGC 5745 (01) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

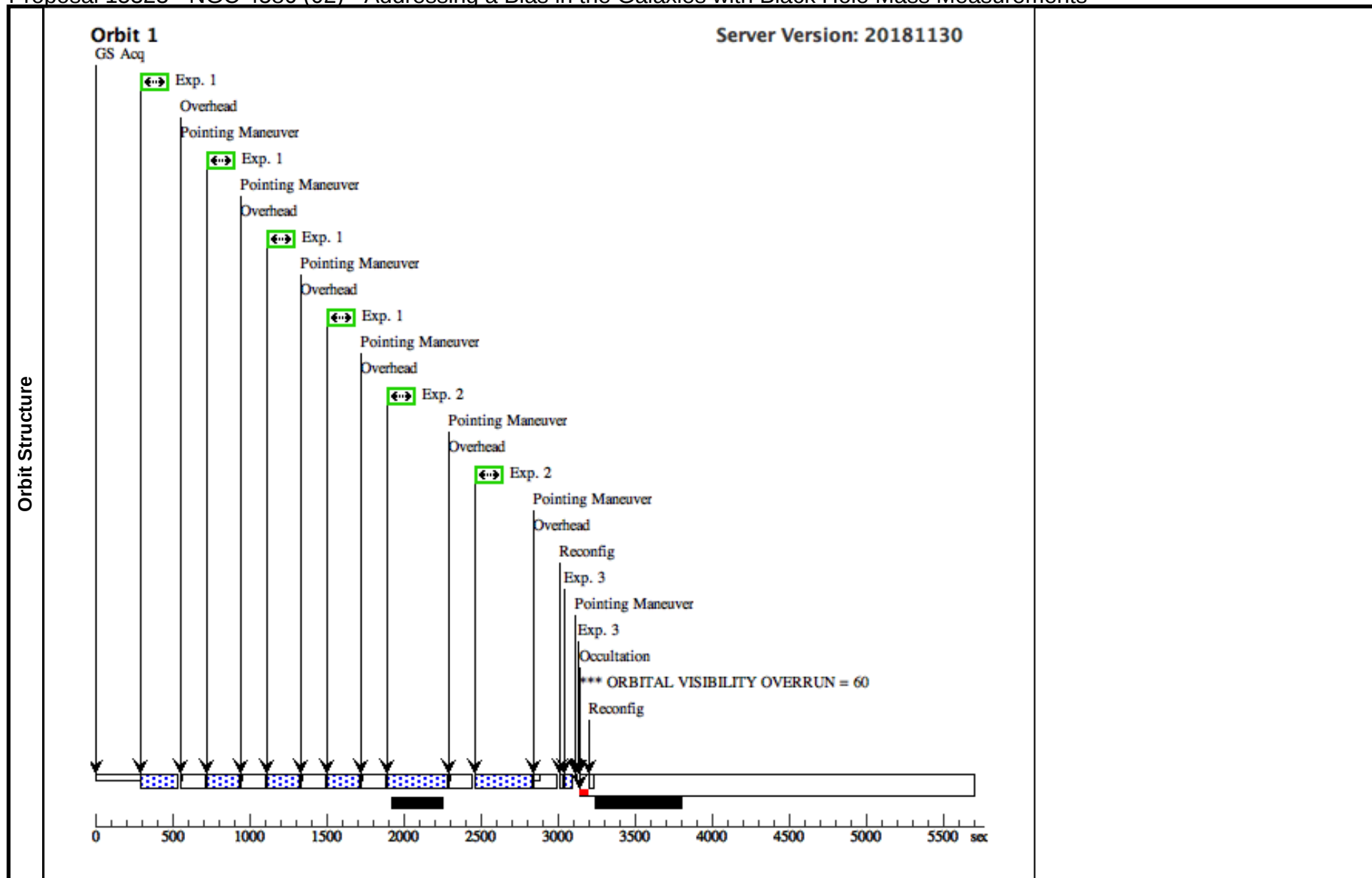
|               |                                                                                 |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      |                              |
|---------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------|-------------------|-------------------------------------------|------------------------------------------------------------------------------|----------------------|------------------------------|
| Visit         | Proposal 15323, UGC 5745 (01), scheduling                                       |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      | Thu Jan 17 21:01:00 GMT 2019 |
|               | Diagnostic Status: No Diagnostics                                               |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      |                              |
|               | Scientific Instruments: WFC3/IR, WFC3/UVIS                                      |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      |                              |
|               | Special Requirements: (none)                                                    |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      |                              |
| Patterns      | #                                                                               | Primary Pattern                                                                                                        |                                                                                    |                                  |                                                                                                               |                            | Secondary Pattern |                                           |                                                                              |                      | Exposures                    |
|               | (1)                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    |                                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                            |                   |                                           |                                                                              |                      | (1)                          |
|               | (2)                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                    |                                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                            |                   |                                           |                                                                              |                      | (3)                          |
|               | (3)                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                    |                                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                            |                   |                                           |                                                                              |                      | (2)                          |
| Fixed Targets | #                                                                               | Name                                                                                                                   | Target Coordinates                                                                 |                                  |                                                                                                               | Targ. Coord. Corrections   |                   | Fluxes                                    |                                                                              | Miscellaneous        |                              |
|               | (1)                                                                             | UGC-5745                                                                                                               | RA: 10 34 44.7740 (158.6865583d)<br>Dec: -01 58 8.49 (-1.96902d)<br>Equinox: J2000 |                                  |                                                                                                               |                            |                   | V=12.8                                    |                                                                              | Reference Frame: NED |                              |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, LENTICULAR]<br>Extended=YES |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           |                                                                              |                      |                              |
| Exposures     | #                                                                               | Label                                                                                                                  | Target                                                                             | Config,Mode,Aperture             | Spectral Els.                                                                                                 | Opt. Params.               | Special Reqs.     | Groups                                    | Exp. Time (Total)/[Actual Dur.]                                              |                      | Orbit                        |
|               | 1                                                                               |                                                                                                                        | (1) UGC-5745                                                                       | WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB | F475W                                                                                                         | FLASH=8                    |                   | Pattern 1, Exps 1-1 i n UGC 5745 (01) (1) | 209 Secs (836 Secs)                                                          |                      |                              |
|               |                                                                                 |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] |                      | [1]                          |
|               | 2                                                                               |                                                                                                                        | (1) UGC-5745                                                                       | WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB | F814W                                                                                                         | FLASH=4                    |                   | Pattern 3, Exps 2-2 i n UGC 5745 (01) (3) | 368 Secs (736 Secs)                                                          |                      |                              |
|               |                                                                                 |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   |                                           | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         |                      | [1]                          |
|               | 3                                                                               |                                                                                                                        | (1) UGC-5745                                                                       | WFC3/IR, MULTIACCUM, IR          | F160W                                                                                                         | NSAMP=9;<br>SAMP-SEQ=RAPID |                   | Pattern 2, Exps 3-3 i n UGC 5745 (01) (2) | 26.390619 Secs (52.781 Secs)                                                 |                      |                              |
|               |                                                                                 |                                                                                                                        |                                                                                    |                                  |                                                                                                               |                            |                   | [==>(Pattern 1)]<br>[==>(Pattern 2)]      |                                                                              | [1]                  |                              |

# Proposal 15323 - NGC 4586 (02) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit         | Proposal 15323, NGC 4586 (02), completed <span>Thu Jan 17 21:01:00 GMT 2019</span>                              |                                                                                                                        |                                                                                                               |                          |         |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics   | (NGC 4586 (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|               | (2)                                                                                                             | NGC-4586                                                                                                               | RA: 12 38 28.4000 (189.6183333d)<br>Dec: +04 19 8.70 (4.31908d)<br>Equinox: J2000                             |                          | V=11.66 |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                                               |                          |         |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                                               |                          |         |

Proposal 15323 - NGC 4586 (02) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (2) NGC-4586 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 4586 (02) (1) | 209 Secs (836 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (2) NGC-4586 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 4586 (02) (3) | 368 Secs (736 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (2) NGC-4586 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 4586 (02) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

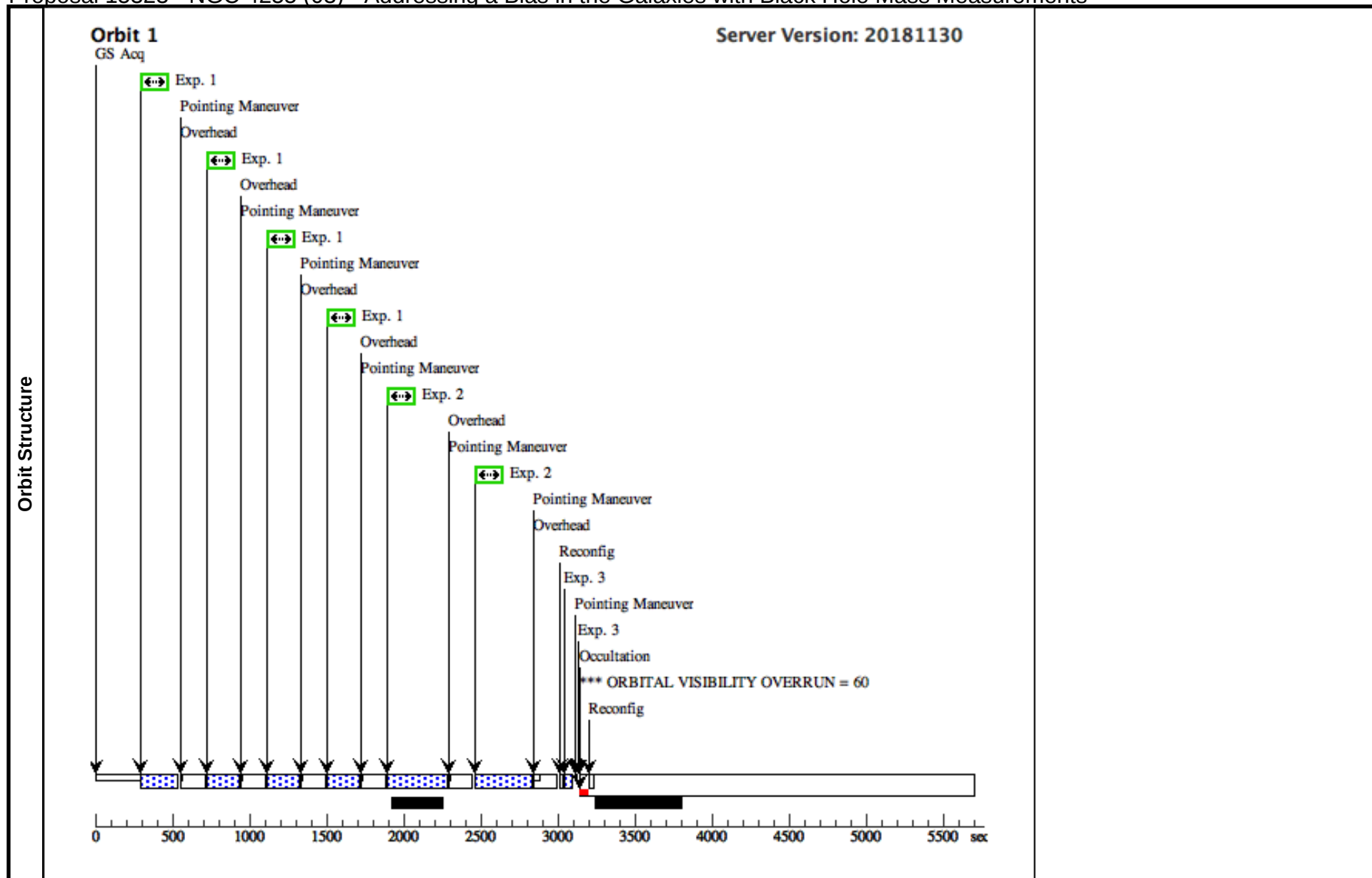


# Proposal 15323 - NGC 4255 (03) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                 |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                           | <b>Proposal 15323, NGC 4255 (03), completed</b> <span>Thu Jan 17 21:01:00 GMT 2019</span>                       |                                                                                                                        |                                                                                    |                                                                                                               |           |
|                                                                                 | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Diagnostics                                                                     | (NGC 4255 (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Patterns                                                                        | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                    | Secondary Pattern                                                                                             | Exposures |
|                                                                                 | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|                                                                                 | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|                                                                                 | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets                                                                   | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                                 | (3)                                                                                                             | NGC-4255                                                                                                               | RA: 12 18 56.1480 (184.7339500d)<br>Dec: +04 47 10.14 (4.78615d)<br>Equinox: J2000 |                                                                                                               | V=12.8    |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, LENTICULAR]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Reference Frame: NED                                                            |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |

Proposal 15323 - NGC 4255 (03) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (3) NGC-4255 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 4255 (03) (1) | 209 Secs (836 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (3) NGC-4255 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 4255 (03) (3) | 368 Secs (736 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              |                                 | [1]   |
|           | 3 |       | (3) NGC-4255 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 4255 (03) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

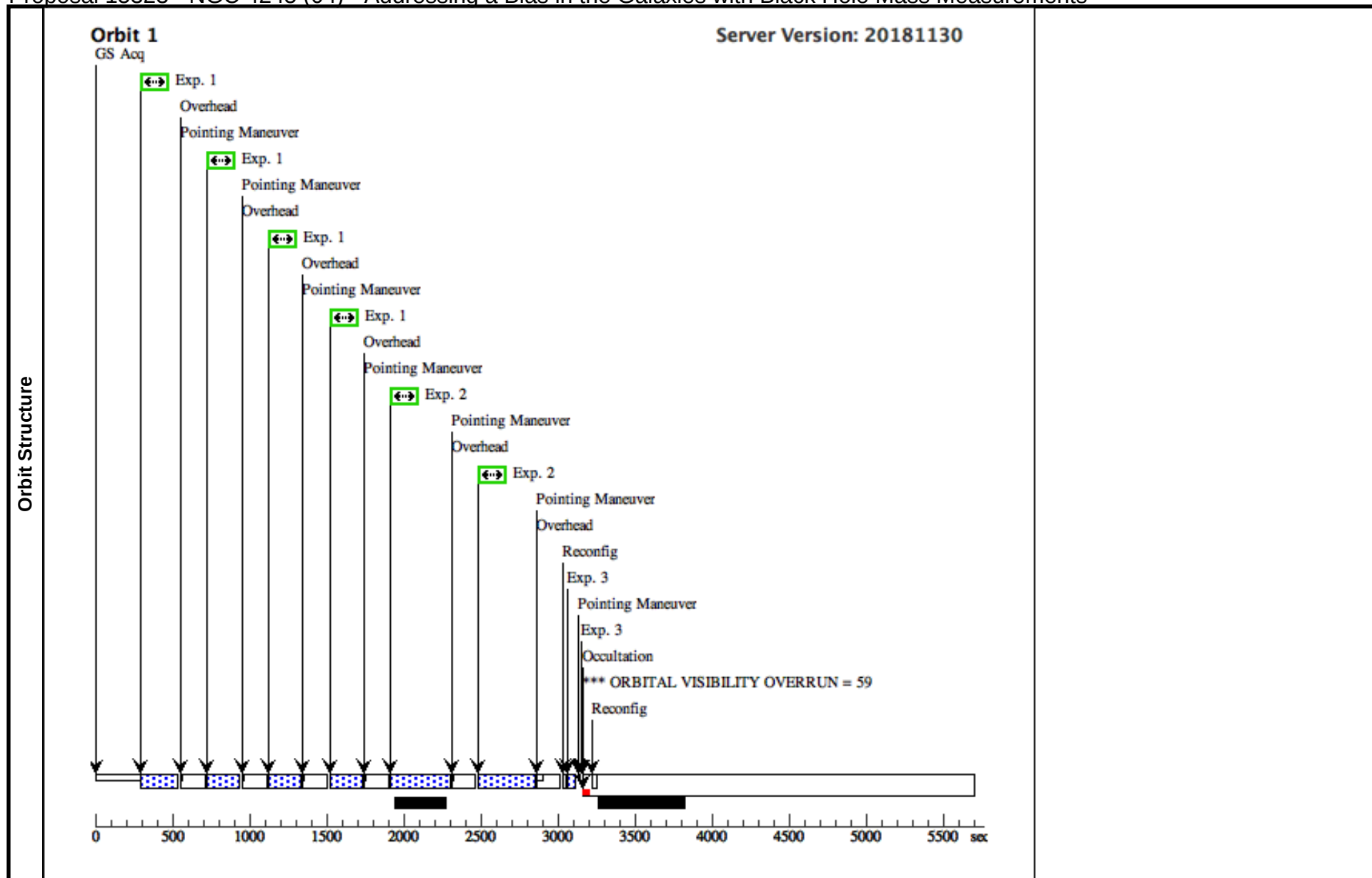


# Proposal 15323 - NGC 4245 (04) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                 |                                                                     |                                                                                                                        |                                                                                                               |                          |                              |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|
| Visit                                                                           | Proposal 15323, NGC 4245 (04), completed                            |                                                                                                                        |                                                                                                               |                          | Thu Jan 17 21:01:00 GMT 2019 |
|                                                                                 | Diagnostic Status: Warning                                          |                                                                                                                        |                                                                                                               |                          |                              |
|                                                                                 | Scientific Instruments: WFC3/IR, WFC3/UVIS                          |                                                                                                                        |                                                                                                               |                          |                              |
|                                                                                 | Special Requirements: (none)                                        |                                                                                                                        |                                                                                                               |                          |                              |
| Diagnostics                                                                     | (NGC 4245 (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN |                                                                                                                        |                                                                                                               |                          |                              |
| Patterns                                                                        | #                                                                   | Primary Pattern                                                                                                        |                                                                                                               | Secondary Pattern        | Exposures                    |
|                                                                                 | (1)                                                                 | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                          | (1)                          |
|                                                                                 | (2)                                                                 | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                          | (3)                          |
|                                                                                 | (3)                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (2)                          |
| Fixed Targets                                                                   | #                                                                   | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes                       |
|                                                                                 | (4)                                                                 | NGC-4245                                                                                                               | RA: 12 17 36.7730 (184.4032208d)<br>Dec: +29 36 28.83 (29.60801d)<br>Equinox: J2000                           |                          | V=11.40                      |
|                                                                                 |                                                                     | Reference Frame: NED                                                                                                   |                                                                                                               |                          |                              |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, LENTICULAR]<br>Extended=YES |                                                                     |                                                                                                                        |                                                                                                               |                          |                              |

Proposal 15323 - NGC 4245 (04) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs.               | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|-----------------------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (4) NGC-4245 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n NGC 4245 (04) (1) | 214 Secs (856 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (4) NGC-4245 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |                             | Pattern 3, Exps 2-2 i<br>n NGC 4245 (04) (3) | 369 Secs (738 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (4) NGC-4245 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |                             | Pattern 2, Exps 3-3 i<br>n NGC 4245 (04) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |              |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

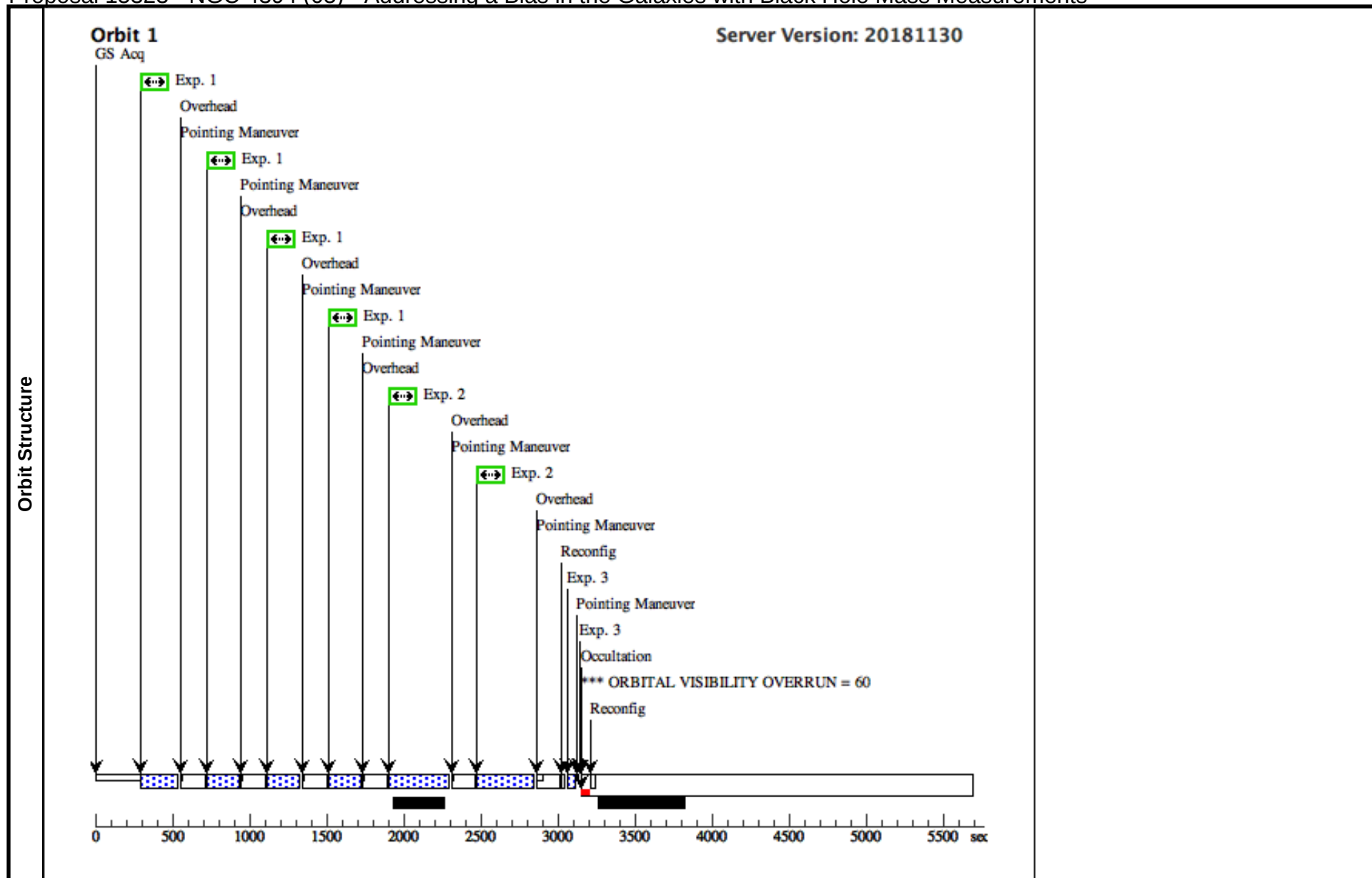


# Proposal 15323 - NGC 4394 (05) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                     |                                                                                                                        |                                                                                                               |                          |                   |                              |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|-------------------|------------------------------|
| Visit                                                                       | Proposal 15323, NGC 4394 (05), completed                            |                                                                                                                        |                                                                                                               |                          |                   | Thu Jan 17 21:01:00 GMT 2019 |
|                                                                             | Diagnostic Status: Warning                                          |                                                                                                                        |                                                                                                               |                          |                   |                              |
|                                                                             | Scientific Instruments: WFC3/IR, WFC3/UVIS                          |                                                                                                                        |                                                                                                               |                          |                   |                              |
|                                                                             | Special Requirements: (none)                                        |                                                                                                                        |                                                                                                               |                          |                   |                              |
| Diagnostics                                                                 | (NGC 4394 (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN |                                                                                                                        |                                                                                                               |                          |                   |                              |
| Patterns                                                                    | #                                                                   | Primary Pattern                                                                                                        |                                                                                                               |                          | Secondary Pattern | Exposures                    |
|                                                                             | (1)                                                                 | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                          | (1)               |                              |
|                                                                             | (2)                                                                 | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                          | (3)               |                              |
|                                                                             | (3)                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (2)               |                              |
| Fixed Targets                                                               | #                                                                   | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes            | Miscellaneous                |
|                                                                             | (5)                                                                 | NGC-4394                                                                                                               | RA: 12 25 55.5260 (186.4813583d)<br>Dec: +18 12 50.63 (18.21406d)<br>Equinox: J2000                           |                          | V=10.88           | Reference Frame: NED         |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                     |                                                                                                                        |                                                                                                               |                          |                   |                              |

Proposal 15323 - NGC 4394 (05) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (5) NGC-4394 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 4394 (05) (1) | 212 Secs (848 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (5) NGC-4394 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 4394 (05) (3) | 369 Secs (738 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (5) NGC-4394 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 4394 (05) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

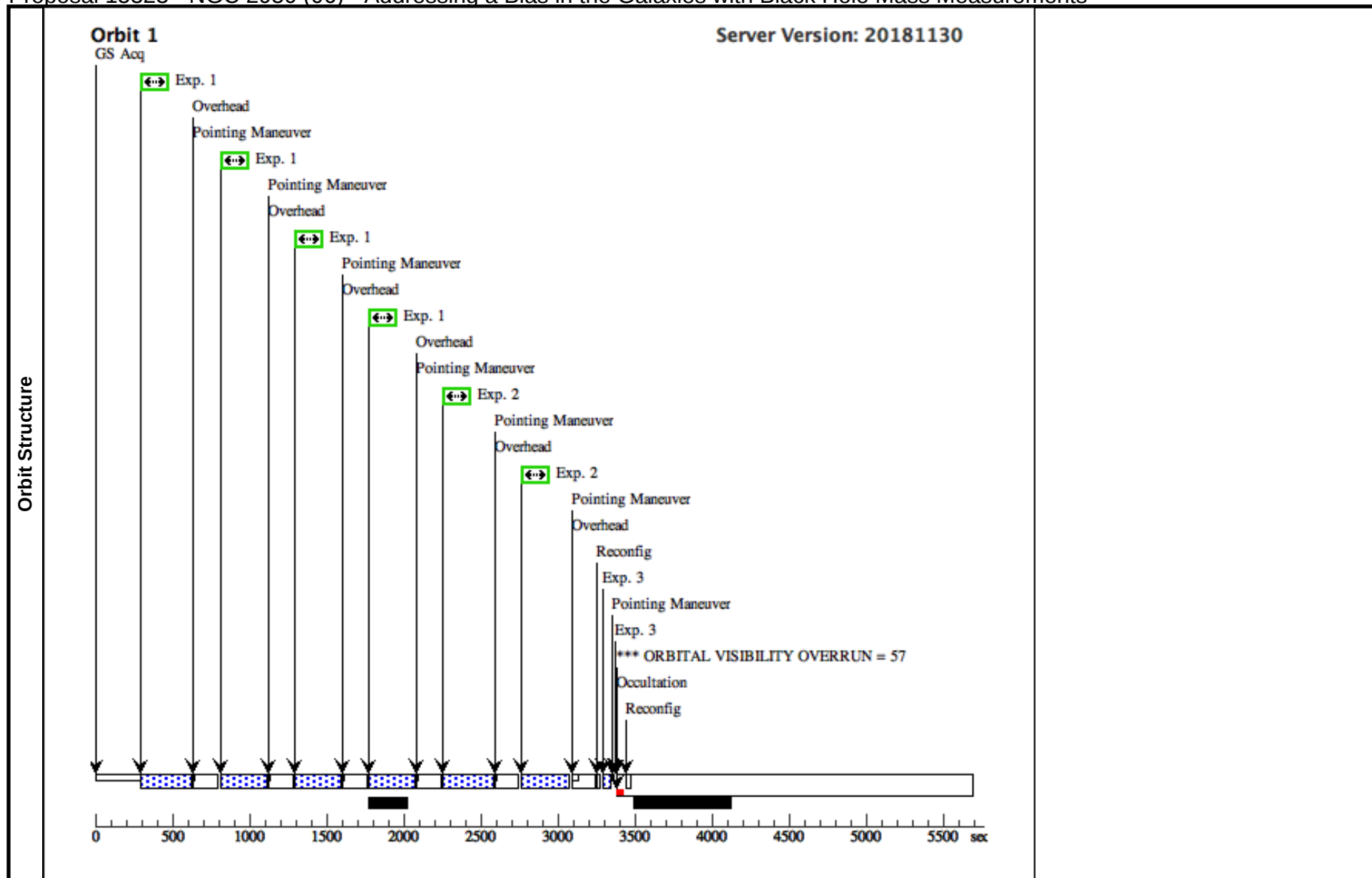


# Proposal 15323 - NGC 2950 (06) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit         | <b>Proposal 15323, NGC 2950 (06), completed</b> <div> Thu Jan 17 21:01:00 GMT 2019 </div>                       |                                                                                                                        |                                                                                                               |                          |         |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics   | (NGC 2950 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|               | (6)                                                                                                             | NGC-2950                                                                                                               | RA: 09 42 35.1460 (145.6464417d)<br>Dec: +58 51 4.55 (58.85126d)<br>Equinox: J2000                            |                          | V=10.94 |
| Fixed Targets | Comments:<br>Category=GALAXY<br>Description=[BULGE, LENTICULAR]<br>Extended=YES                                 |                                                                                                                        |                                                                                                               |                          |         |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                                               |                          |         |

# Proposal 15323 - NGC 2950 (06) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (6) NGC-2950 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 2950 (06) (1) | 298 Secs (1192 Secs)            |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (6) NGC-2950 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 2950 (06) (3) | 312 Secs (624 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (6) NGC-2950 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 2950 (06) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

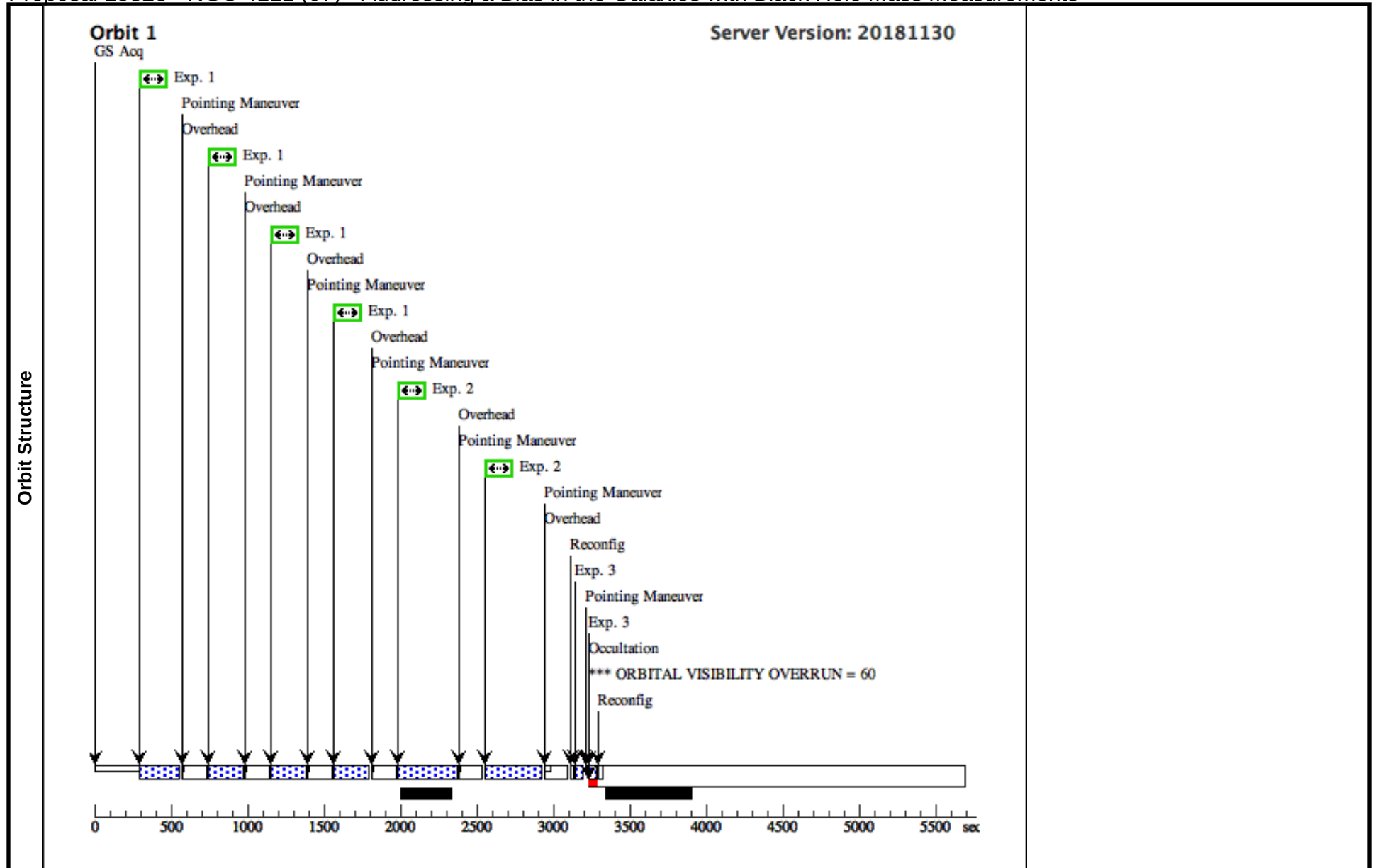


# Proposal 15323 - NGC 4111 (07) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                 |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit                                                                           | Proposal 15323, NGC 4111 (07), completed <span style="float: right;">Thu Jan 17 21:01:00 GMT 2019</span>        |                                                                                                                        |                                                                                                               |                          |         |
|                                                                                 | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics                                                                     | (NGC 4111 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
| Patterns                                                                        | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|                                                                                 | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|                                                                                 | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|                                                                                 | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets                                                                   | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|                                                                                 | (7)                                                                                                             | NGC-4111                                                                                                               | RA: 12 07 3.1320 (181.7630500d)<br>Dec: +43 03 56.59 (43.06572d)<br>Equinox: J2000                            |                          | V=10.74 |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, LENTICULAR]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Miscellaneous                                                                   |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Reference Frame: NED                                                            |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |

# Proposal 15323 - NGC 4111 (07) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (7) NGC-4111 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 4111 (07) (1) | 230 Secs (920 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (7) NGC-4111 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 4111 (07) (3) | 374 Secs (748 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (7) NGC-4111 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 4111 (07) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

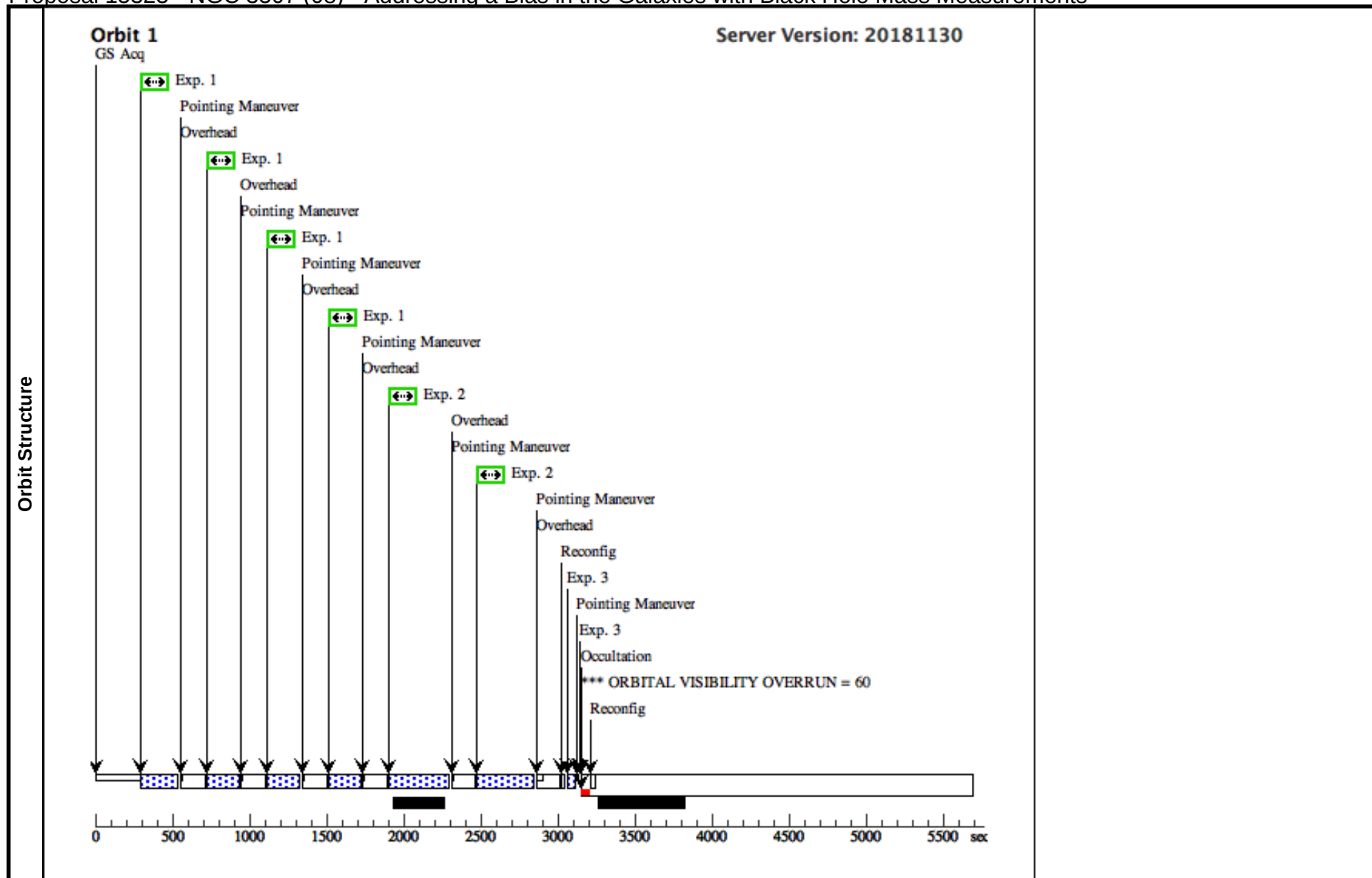


# Proposal 15323 - NGC 3507 (08) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------|-----------|
| Visit                                                                       | <b>Proposal 15323, NGC 3507 (08), completed</b> <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span>                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
|                                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: ORIENT 13D TO 38 D; ORIENT 58D TO 128 D; ORIENT 148D TO 173 D; ORIENT 193D TO 218 D; ORIENT 238D TO 308 D; ORIENT 328D TO 353 D<br>Comments: A V=10.9, H=9.4 star is located of 23" from the galaxy nucleus at PA=48 deg E of N. ORIENT restrictions used to avoid diffraction spikes and charge bleeding crossing the central region of the galaxy under study. |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Diagnostics                                                                 | (NGC 3507 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Patterns                                                                    | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Primary Pattern                                                                                                                                                                                                                         |                                                                                    | Secondary Pattern        | Exposures |
|                                                                             | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Purpose=DITHER<br>Angle Between Sides=81.785<br>Number Of Points=4<br>Center Pattern=false<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    |                          | (1)       |
|                                                                             | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing=             |                                                                                    |                          | (3)       |
|                                                                             | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.145<br>Line Spacing=            |                                                                                    |                          | (2)       |
| Fixed Targets                                                               | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Name                                                                                                                                                                                                                                    | Target Coordinates                                                                 | Targ. Coord. Corrections | Fluxes    |
|                                                                             | (8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | NGC-3507                                                                                                                                                                                                                                | RA: 11 03 25.3570 (165.8556542d)<br>Dec: +18 08 7.62 (18.13545d)<br>Equinox: J2000 |                          | V=11.3    |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Reference Frame: NED                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |

# Proposal 15323 - NGC 3507 (08) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (8) NGC-3507 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3507 (08) (1) | 212 Secs (848 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (8) NGC-3507 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3507 (08) (3) | 369 Secs (738 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (8) NGC-3507 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3507 (08) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

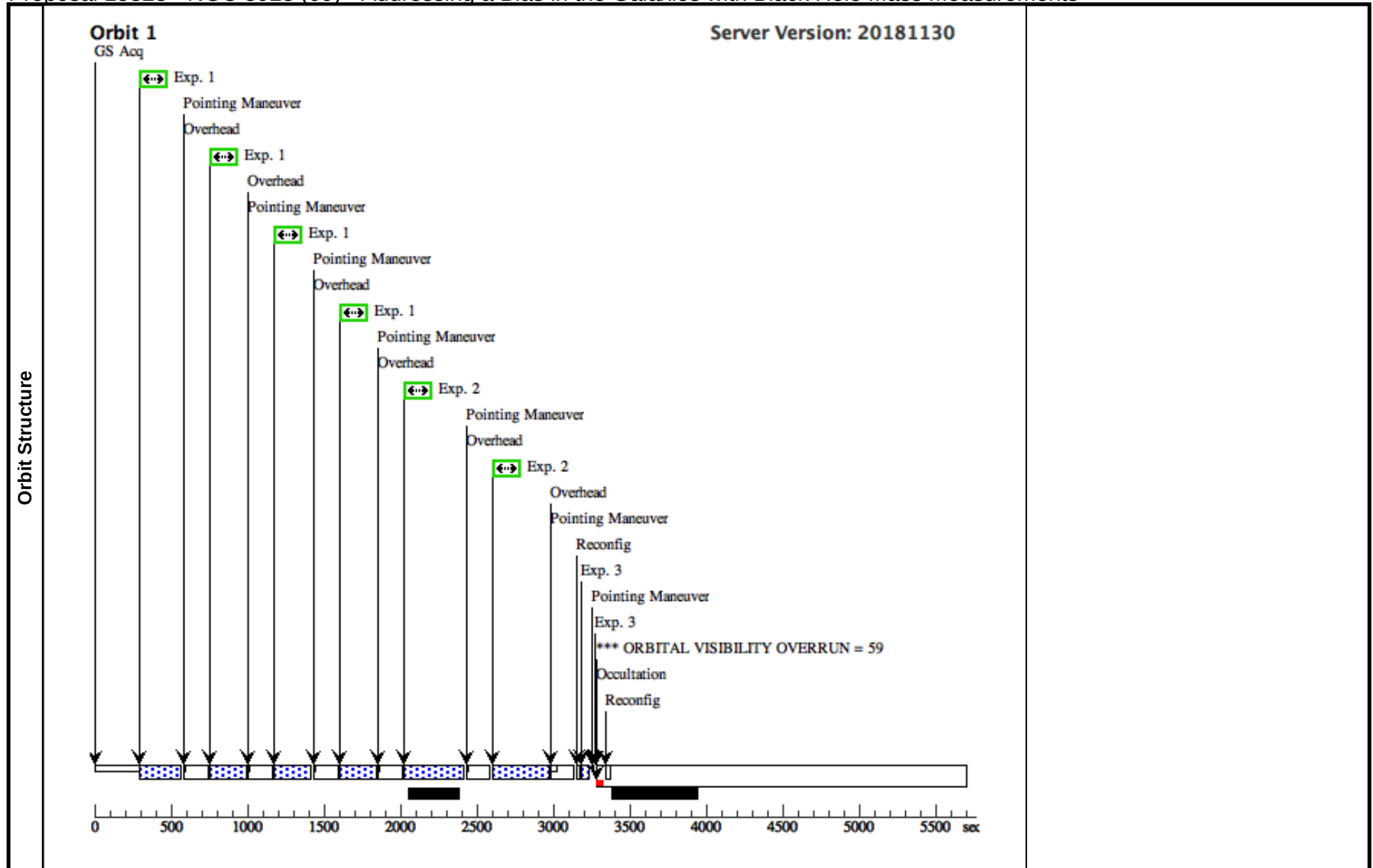


# Proposal 15323 - NGC 3928 (09) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit         | <b>Proposal 15323, NGC 3928 (09), failed</b> <span>Thu Jan 17 21:01:01 GMT 2019</span>                          |                                                                                                                        |                                                                                                               |                          |         |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics   | (NGC 3928 (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|               | (9)                                                                                                             | NGC-3928                                                                                                               | RA: 11 51 47.6230 (177.9484292d)<br>Dec: +48 40 59.29 (48.68314d)<br>Equinox: J2000                           |                          | V=12.55 |
| Fixed Targets | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                                               |                          |         |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                                               |                          |         |

Proposal 15323 - NGC 3928 (09) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (9) NGC-3928 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3928 (09) (1) | 241 Secs (964 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (9) NGC-3928 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3928 (09) (3) | 375 Secs (750 Secs)             |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (9) NGC-3928 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3928 (09) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

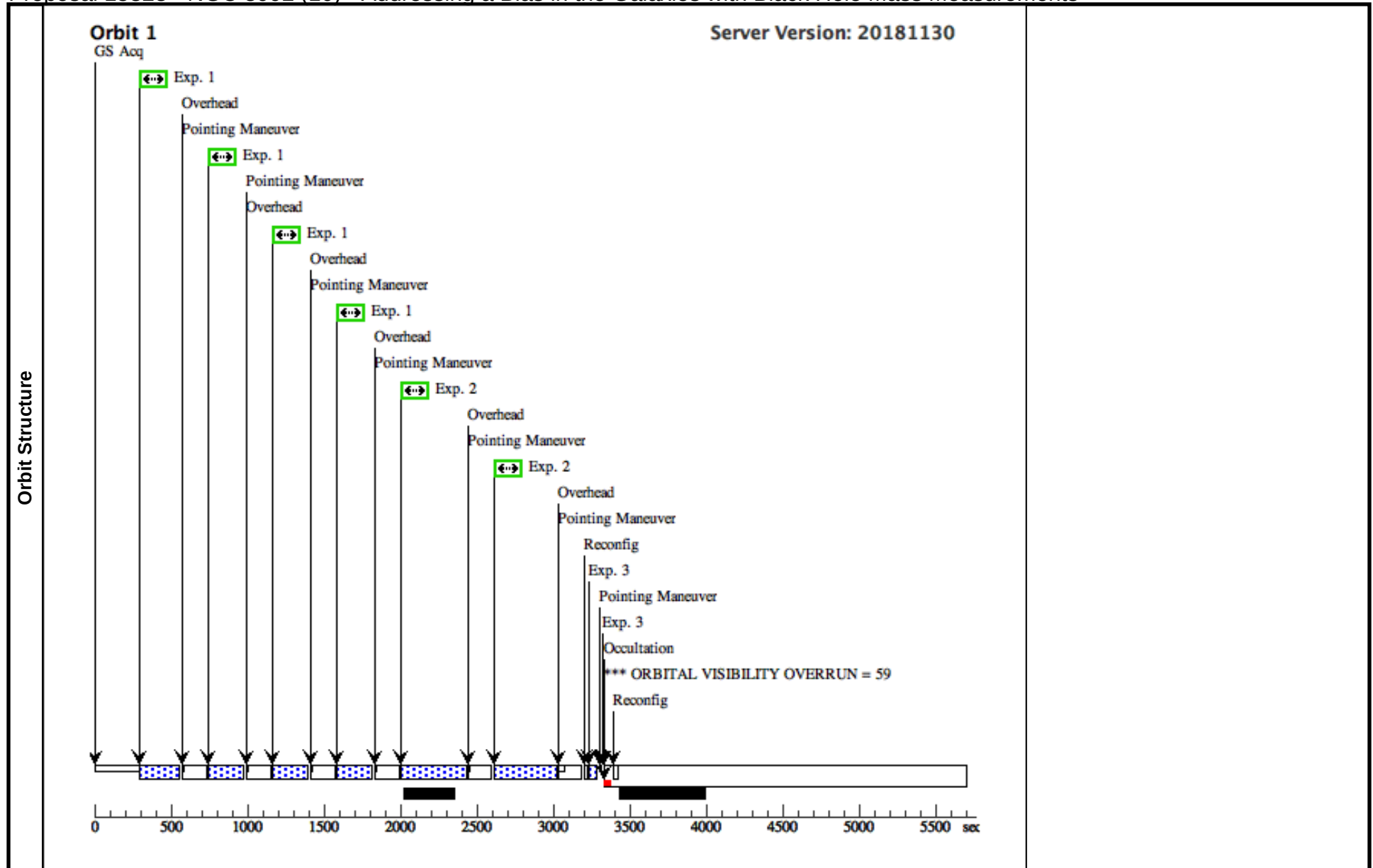


# Proposal 15323 - NGC 3992 (10) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------|
| Visit                                                                       | <b>Proposal 15323, NGC 3992 (10), completed</b> <span>Thu Jan 17 21:01:01 GMT 2019</span>                       |                                                                                                                        |                                                                                                               |                          |        |
|                                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |        |
| Diagnostics                                                                 | (NGC 3992 (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |        |
| Patterns                                                                    | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |        |
|                                                                             | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |        |
|                                                                             | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |        |
|                                                                             | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |        |
| Fixed Targets                                                               | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes |
|                                                                             | (10)                                                                                                            | NGC-3992                                                                                                               | RA: 11 57 35.9800 (179.3999167d)<br>Dec: +53 22 28.30 (53.37453d)<br>Equinox: J2000                           |                          | V=9.83 |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |
| Reference Frame: NED                                                        |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |

# Proposal 15323 - NGC 3992 (10) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (10) NGC-3992 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3992 (10) (1) | 235 Secs (940 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (10) NGC-3992 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3992 (10) (3) | 411 Secs (822 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (10) NGC-3992 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3992 (10) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

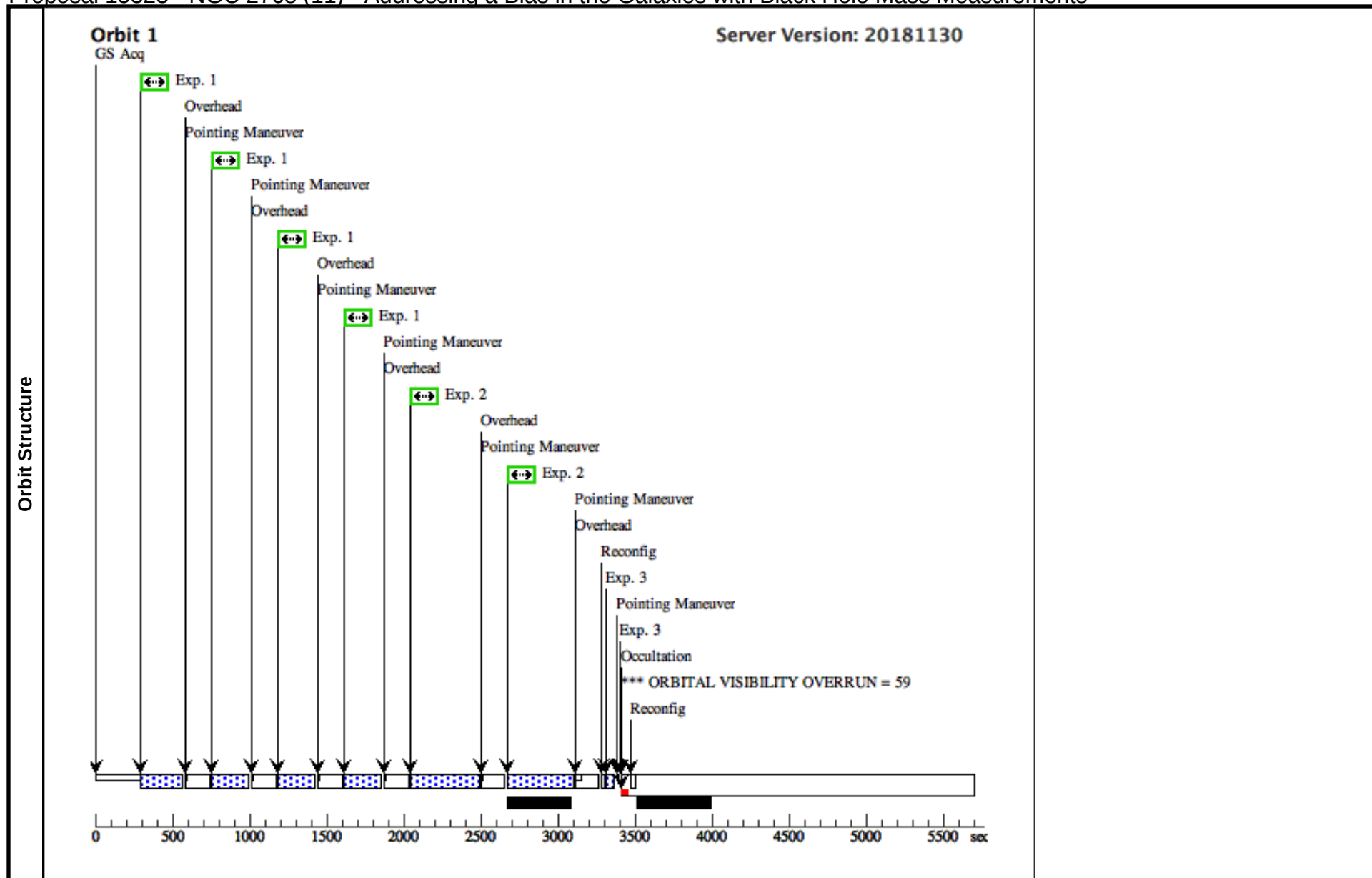


# Proposal 15323 - NGC 2768 (11) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                          |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------|
| Visit                                                                    | <b>Proposal 15323, NGC 2768 (11), completed</b> <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span> |                                                                                                                        |                                                                                                               |                          |        |
|                                                                          | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |        |
| Diagnostics                                                              | (NGC 2768 (11)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |        |
| Patterns                                                                 | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |        |
|                                                                          | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |        |
|                                                                          | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |        |
|                                                                          | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |        |
| Fixed Targets                                                            | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes |
|                                                                          | (11)                                                                                                            | NGC-2768                                                                                                               | RA: 09 11 37.5000 (137.9062500d)<br>Dec: +60 02 14.00 (60.03722d)<br>Equinox: J2000                           |                          | V=9.87 |
| Comments:<br>Category=GALAXY<br>Description=[ELLIPTICAL]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |
| Miscellaneous                                                            |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |
| Reference Frame: NED                                                     |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |        |

Proposal 15323 - NGC 2768 (11) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (11) NGC-2768 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 2768 (11) (1) | 245 Secs (980 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (11) NGC-2768 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 2768 (11) (3) | 430 Secs (860 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (11) NGC-2768 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 2768 (11) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

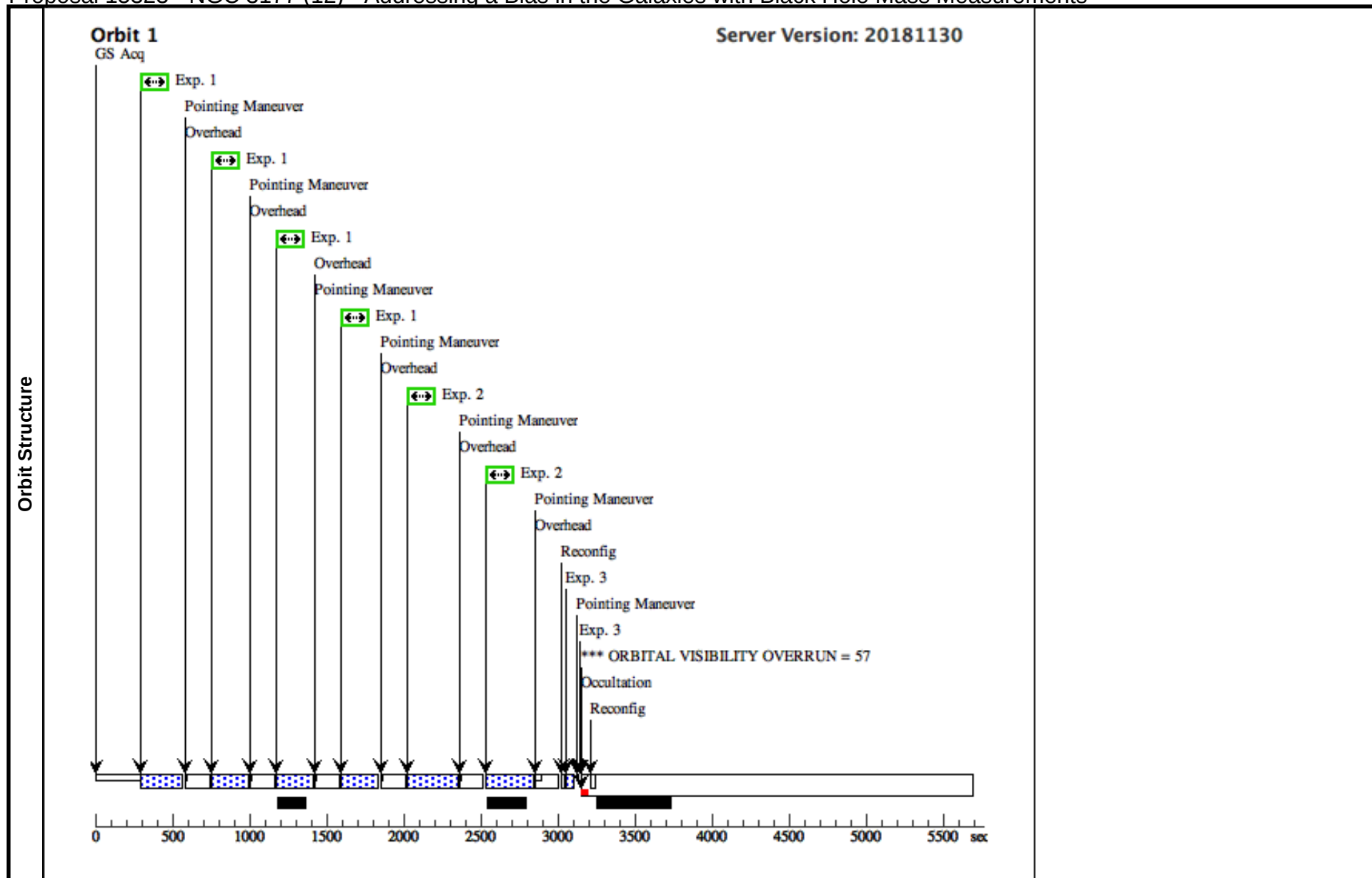


# Proposal 15323 - NGC 3177 (12) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | <b>Proposal 15323, NGC 3177 (12), failed</b> <span>Thu Jan 17 21:01:01 GMT 2019</span>                          |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Diagnostics   | (NGC 3177 (12)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                     | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (12)                                                                                                            | NGC-3177                                                                                                               | RA: 10 16 34.1360 (154.1422333d)<br>Dec: +21 07 22.99 (21.12305d)<br>Equinox: J2000 |                                                                                                               | V=12.40   |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                     |                                                                                                               |           |

Proposal 15323 - NGC 3177 (12) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (12) NGC-3177 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3177 (12) (1) | 240 Secs (960 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (12) NGC-3177 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3177 (12) (3) | 312 Secs (624 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (12) NGC-3177 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3177 (12) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

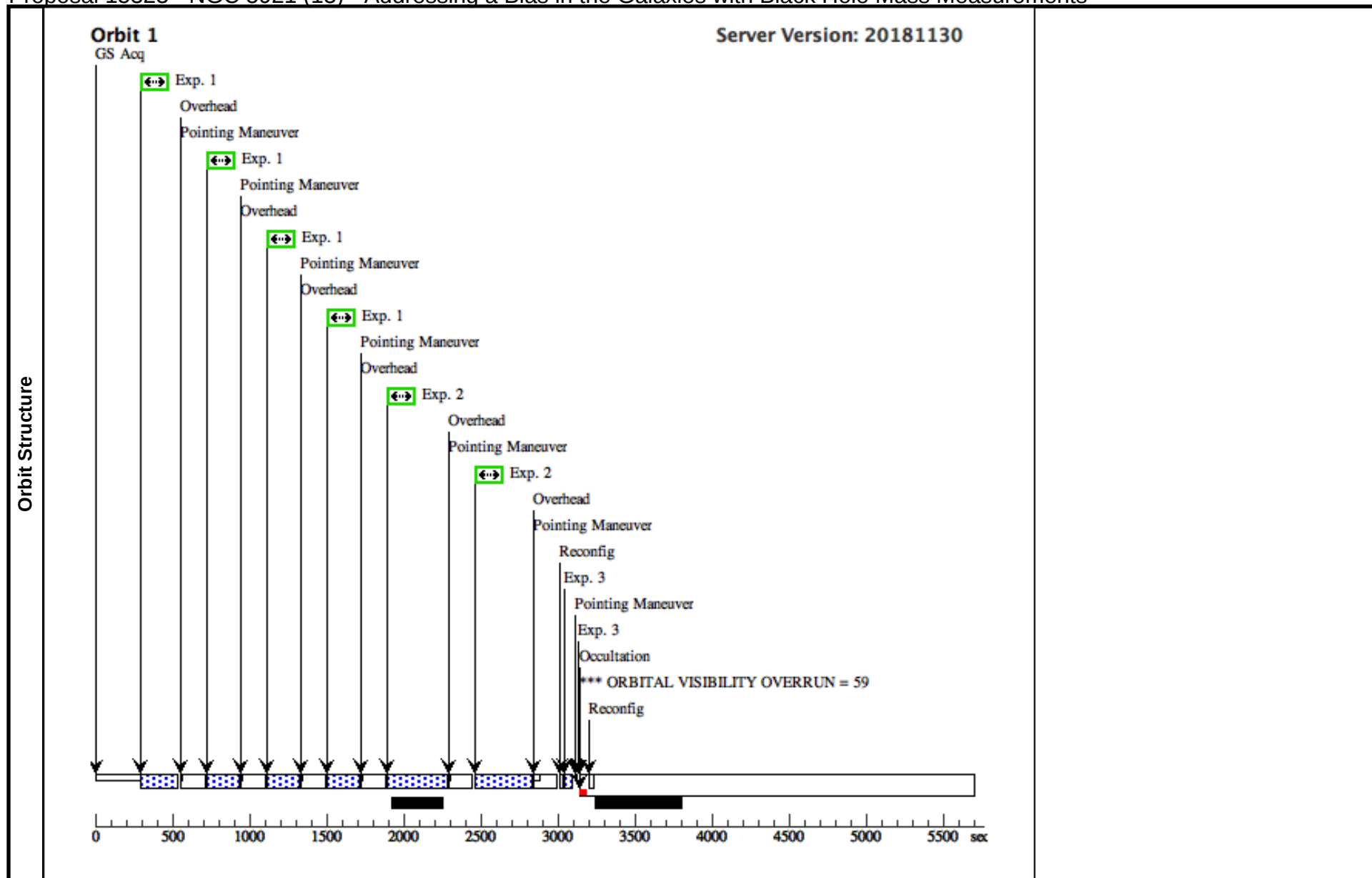


# Proposal 15323 - NGC 5921 (13) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | Proposal 15323, NGC 5921 (13), completed <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span>        |                                                                                                                        |                                                                                    |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Diagnostics   | (NGC 5921 (13)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                    |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                    | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (13)                                                                                                            | NGC-5921                                                                                                               | RA: 15 21 56.5600 (230.4856667d)<br>Dec: +05 04 13.90 (5.07053d)<br>Equinox: J2000 |                                                                                                               | V=10.83   |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                    |                                                                                                               |           |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                    |                                                                                                               |           |

Proposal 15323 - NGC 5921 (13) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (13) NGC-5921 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 5921 (13) (1) | 209 Secs (836 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (13) NGC-5921 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 5921 (13) (3) | 369 Secs (738 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              |                                 | [1]   |
|           | 3 |       | (13) NGC-5921 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 5921 (13) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

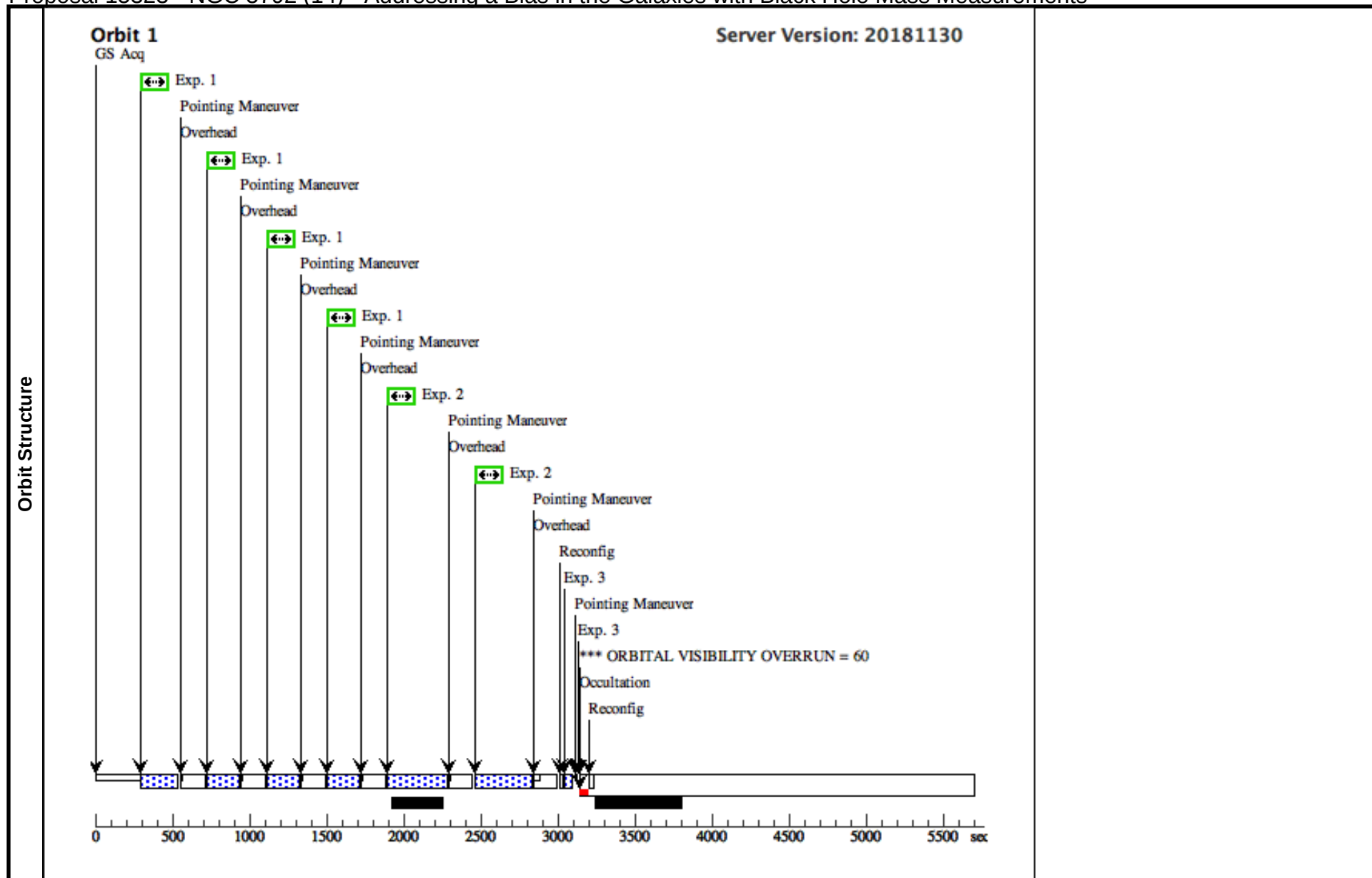


# Proposal 15323 - NGC 5792 (14) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|-----------|
| Visit                                                                                               | <b>Proposal 15323, NGC 5792 (14), completed</b> <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span>                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
|                                                                                                     | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: ORIENT 38D TO 63 D; ORIENT 83D TO 108 D; ORIENT 128D TO 198 D; ORIENT 218D TO 243 D; ORIENT 263D TO 288 D; ORIENT 308D TO 18 D<br>Comments: A $V=9.6$ , $H=5.4$ star is located of 64" from the galaxy nucleus at PA=298 deg E of N. ORIENT restrictions used to avoid diffraction spikes and charge bleeding crossing the central region of the galaxy under study. |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
| Diagnostics                                                                                         | (NGC 5792 (14)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
| Patterns                                                                                            | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Primary Pattern                                                                                                                                                                                                                         |                                                                                     | Secondary Pattern        | Exposures |
|                                                                                                     | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                                                                                     |                          | (1)       |
|                                                                                                     | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false             |                                                                                     |                          | (3)       |
|                                                                                                     | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false            |                                                                                     |                          | (2)       |
| Fixed Targets                                                                                       | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Name                                                                                                                                                                                                                                    | Target Coordinates                                                                  | Targ. Coord. Corrections | Fluxes    |
|                                                                                                     | (14)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NGC-5792                                                                                                                                                                                                                                | RA: 14 58 22.7100 (224.5946250d)<br>Dec: -01 05 27.90 (-1.09108d)<br>Equinox: J2000 |                          | V=11.25   |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES<br>Reference Frame: NED |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                         |                                                                                     |                          |           |

Proposal 15323 - NGC 5792 (14) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (14) NGC-5792 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 5792 (14) (1) | 209 Secs (836 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (14) NGC-5792 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 5792 (14) (3) | 368 Secs (736 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (14) NGC-5792 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 5792 (14) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

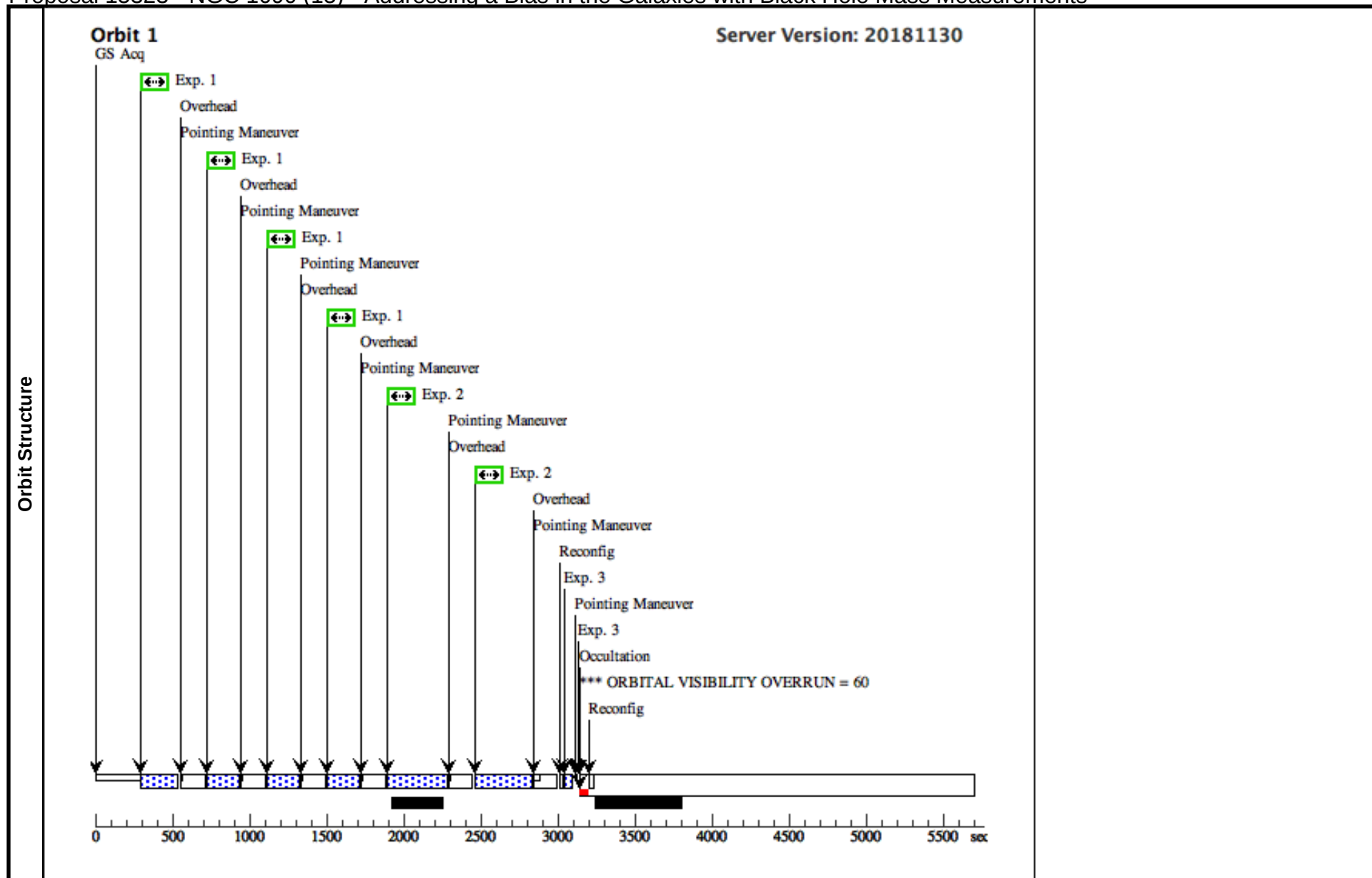


# Proposal 15323 - NGC 1090 (15) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                   |                                                                                                                        |                                                                                   |                                                                                                               |         |                              |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------|------------------------------|
| Visit                                                                       | Proposal 15323, NGC 1090 (15), failed<br>Diagnostic Status: Warning<br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                   |                                                                                                               |         | Thu Jan 17 21:01:01 GMT 2019 |
|                                                                             | Diagnostics<br>(NGC 1090 (15)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                |                                                                                                                        |                                                                                   |                                                                                                               |         |                              |
| Patterns                                                                    | #                                                                                                                                                 | Primary Pattern                                                                                                        |                                                                                   | Secondary Pattern                                                                                             |         | Exposures                    |
|                                                                             | (1)                                                                                                                                               | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |         | (1)                          |
|                                                                             | (2)                                                                                                                                               | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |         | (3)                          |
|                                                                             | (3)                                                                                                                                               | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |         | (2)                          |
| Fixed Targets                                                               | #                                                                                                                                                 | Name                                                                                                                   | Target Coordinates                                                                | Targ. Coord. Corrections                                                                                      | Fluxes  | Miscellaneous                |
|                                                                             | (15)                                                                                                                                              | NGC-1090                                                                                                               | RA: 02 46 33.9360 (41.6414000d)<br>Dec: -00 14 49.77 (-.24716d)<br>Equinox: J2000 |                                                                                                               | V=11.83 | Reference Frame: NED         |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                   |                                                                                                                        |                                                                                   |                                                                                                               |         |                              |

Proposal 15323 - NGC 1090 (15) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (15) NGC-1090 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 1090 (15) (1) | 209 Secs (836 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (15) NGC-1090 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 1090 (15) (3) | 368 Secs (736 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (15) NGC-1090 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 1090 (15) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

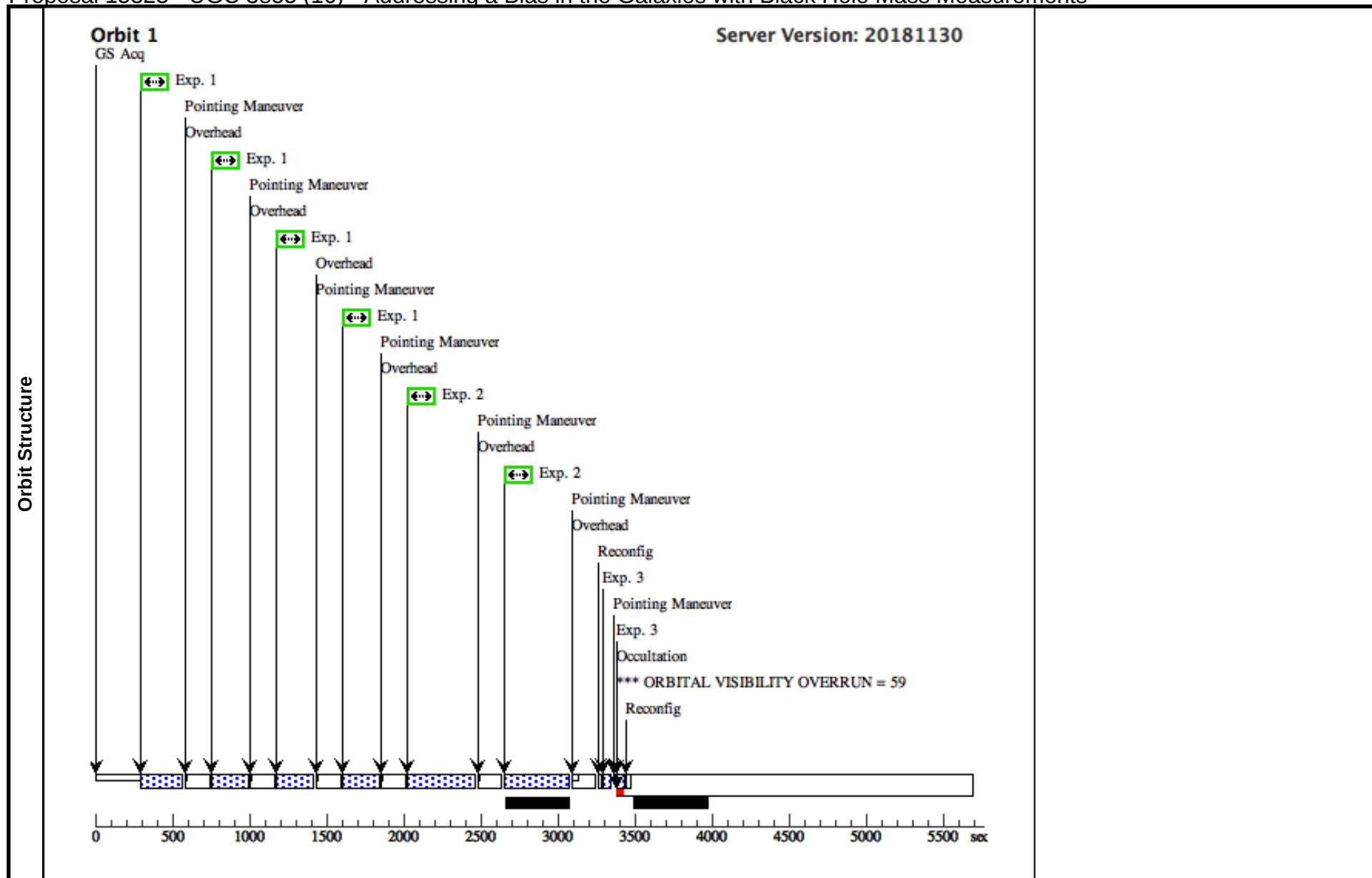


# Proposal 15323 - UGC 3855 (16) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|-----------|
| Visit                                                       | <b>Proposal 15323, UGC 3855 (16), completed</b> <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span>                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
|                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: ORIENT 32D TO 57 D; ORIENT 77D TO 102 D; ORIENT 122D TO 192 D; ORIENT 212D TO 237 D; ORIENT 257D TO 282 D; ORIENT 302D TO 12 D<br>Comments: A $V=10.9$ , $H=7.5$ star is located of 21" from the galaxy nucleus at PA=112 deg E of N. ORIENT restrictions used to avoid diffraction spikes and charge bleeding crossing the central region of the galaxy under study. |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
| Diagnostics                                                 | (UGC 3855 (16)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
| Patterns                                                    | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Primary Pattern                                                                                                                                                                                                                         |                                                                                     | Secondary Pattern        | Exposures |
|                                                             | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Purpose=DITHER<br>Angle Between Sides=81.785<br>Number Of Points=4<br>Center Pattern=false<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                     |                          | (1)       |
|                                                             | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing=             |                                                                                     |                          | (3)       |
|                                                             | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.145<br>Line Spacing=            |                                                                                     |                          | (2)       |
| Fixed Targets                                               | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Name                                                                                                                                                                                                                                    | Target Coordinates                                                                  | Targ. Coord. Corrections | Fluxes    |
|                                                             | (16)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | UGC-3855                                                                                                                                                                                                                                | RA: 07 28 13.0100 (112.0542083d)<br>Dec: +58 30 24.10 (58.50669d)<br>Equinox: J2000 |                          | V=12.1    |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL] |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                         |                                                                                     |                          |           |
| Reference Frame: SIMBAD                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                         |                                                                                     |                          |           |

Proposal 15323 - UGC 3855 (16) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (16) UGC-3855 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n UGC 3855 (16) (1) | 242 Secs (968 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (16) UGC-3855 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n UGC 3855 (16) (3) | 425 Secs (850 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (16) UGC-3855 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n UGC 3855 (16) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

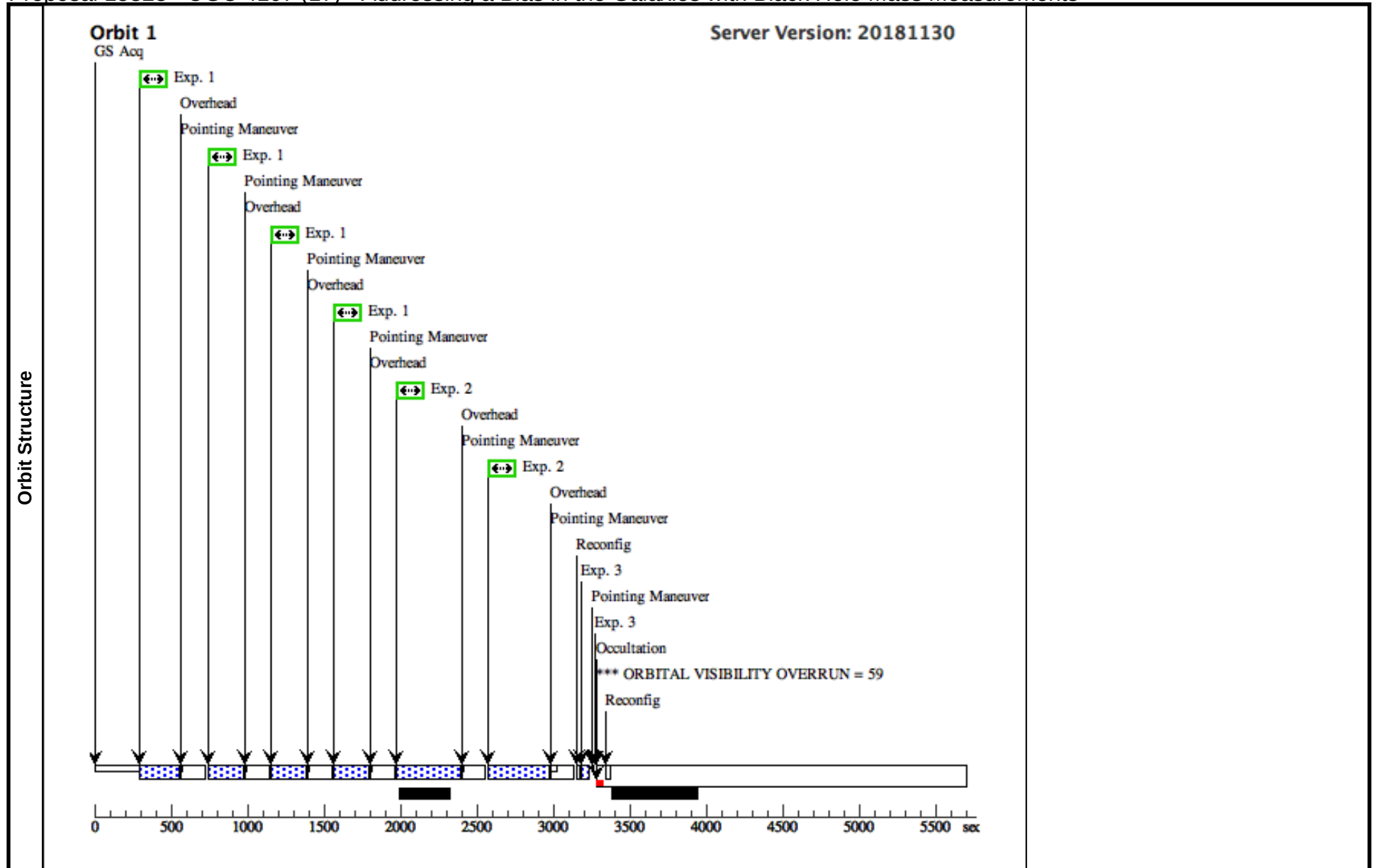


# Proposal 15323 - UGC 4107 (17) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                   |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | <b>Proposal 15323, UGC 4107 (17), completed</b> <span>Thu Jan 17 21:01:01 GMT 2019</span>                       |                                                                                                                        |                                                                                   |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                   |                                                                                                               |           |
| Diagnostics   | (UGC 4107 (17)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                   |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                   |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                   | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (17)                                                                                                            | UGC-4107                                                                                                               | RA: 07 57 1.8700 (119.2577917d)<br>Dec: +49 34 2.50 (49.56736d)<br>Equinox: J2000 |                                                                                                               | V=13.3    |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                   |                                                                                                               |           |
|               | Reference Frame: SIMBAD                                                                                         |                                                                                                                        |                                                                                   |                                                                                                               |           |

Proposal 15323 - UGC 4107 (17) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (17) UGC-4107 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n UGC 4107 (17) (1) | 228 Secs (912 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (17) UGC-4107 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n UGC 4107 (17) (3) | 401 Secs (802 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (17) UGC-4107 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n UGC 4107 (17) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

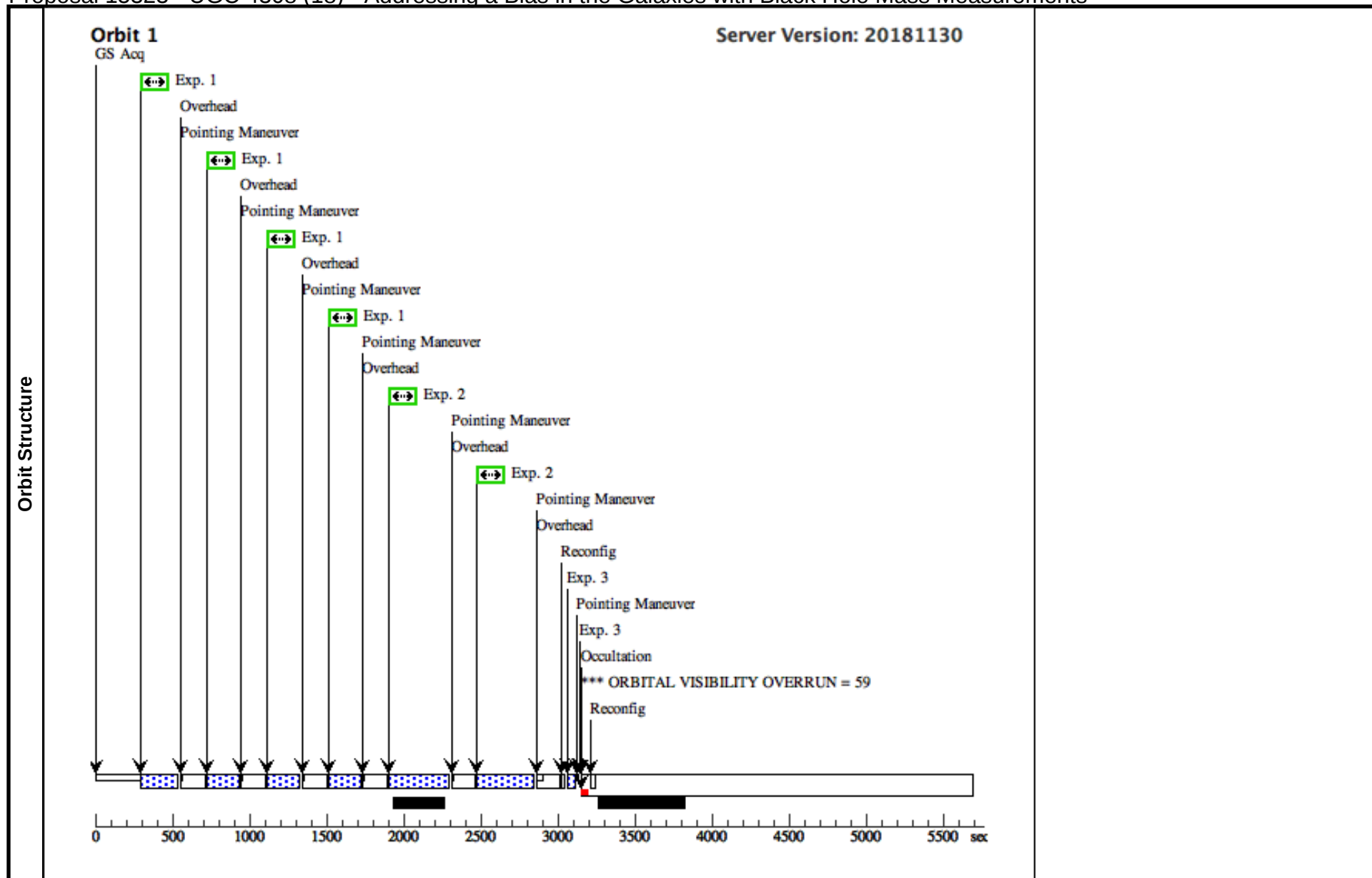


# Proposal 15323 - UGC 4308 (18) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                       | <b>Proposal 15323, UGC 4308 (18), completed</b> <span style="float: right;">Thu Jan 17 21:01:01 GMT 2019</span> |                                                                                                                        |                                                                                    |                                                                                                               |           |
|                                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Diagnostics                                                                 | (UGC 4308 (18)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Patterns                                                                    | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                    | Secondary Pattern                                                                                             | Exposures |
|                                                                             | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|                                                                             | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|                                                                             | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets                                                               | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                             | (18)                                                                                                            | UGC-4308                                                                                                               | RA: 08 17 25.8010 (124.3575042d)<br>Dec: +21 41 7.75 (21.68549d)<br>Equinox: J2000 |                                                                                                               | V=12.45   |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Reference Frame: NED                                                        |                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |

Proposal 15323 - UGC 4308 (18) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (18) UGC-4308 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n UGC 4308 (18) (1) | 212 Secs (848 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (18) UGC-4308 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n UGC 4308 (18) (3) | 369 Secs (738 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (18) UGC-4308 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n UGC 4308 (18) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

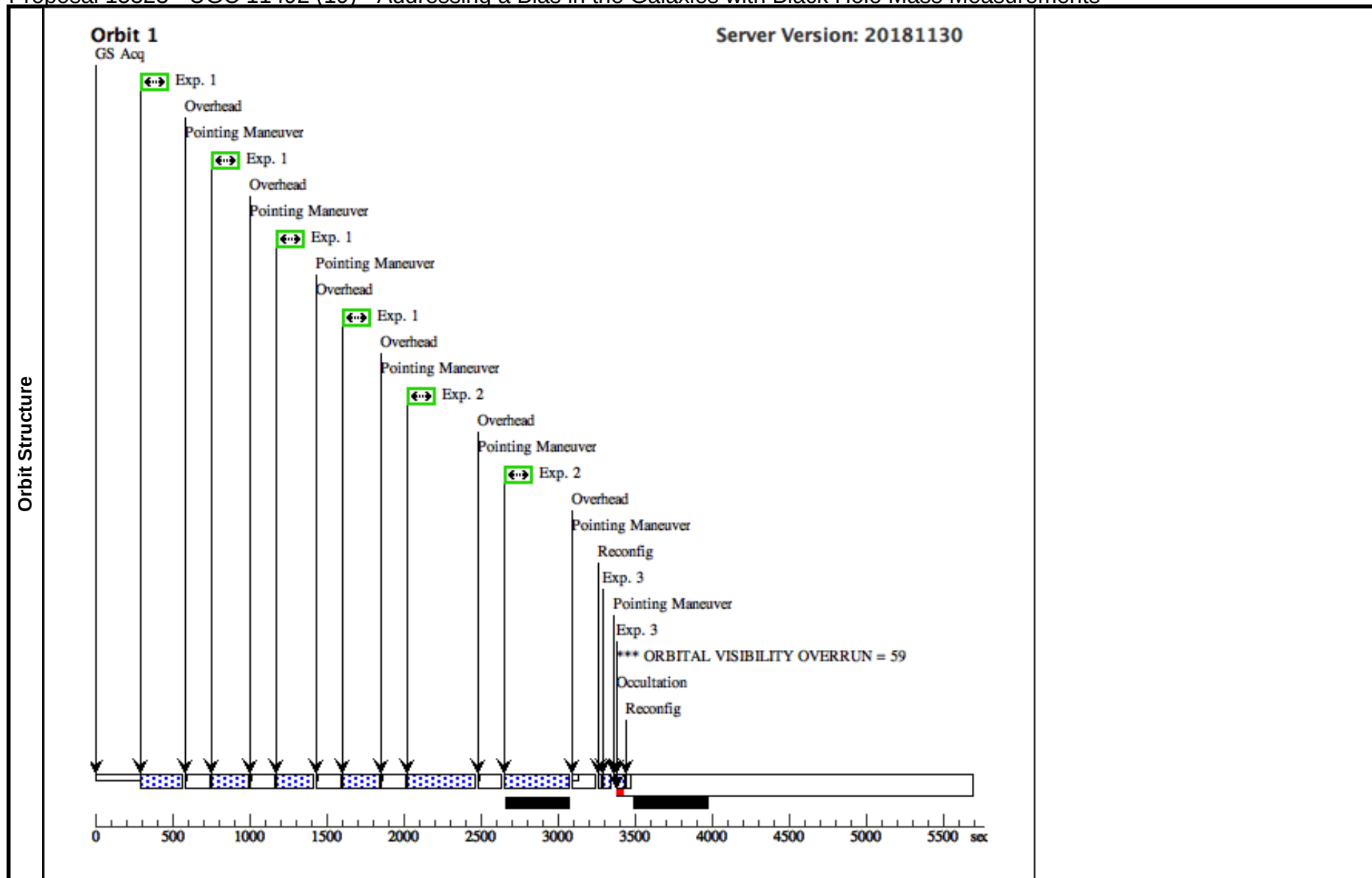


# Proposal 15323 - UGC 11492 (19) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                       |                                                                                                                        |                                                                                                               |                          |        |                              |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|--------|------------------------------|
| Visit                                                                       | Proposal 15323, UGC 11492 (19), completed<br>Diagnostic Status: Warning<br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |        | Thu Jan 17 21:01:01 GMT 2019 |
|                                                                             | Diagnostics<br>(UGC 11492 (19)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                   |                                                                                                                        |                                                                                                               |                          |        |                              |
| Patterns                                                                    | #                                                                                                                                                     | Primary Pattern                                                                                                        |                                                                                                               | Secondary Pattern        |        | Exposures                    |
|                                                                             | (1)                                                                                                                                                   | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                          |        | (1)                          |
|                                                                             | (2)                                                                                                                                                   | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                          |        | (3)                          |
|                                                                             | (3)                                                                                                                                                   | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          |        | (2)                          |
| Fixed Targets                                                               | #                                                                                                                                                     | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes | Miscellaneous                |
|                                                                             | (19)                                                                                                                                                  | UGC-11492                                                                                                              | RA: 19 52 39.9000 (298.1662500d)<br>Dec: +57 27 35.70 (57.45992d)<br>Equinox: J2000                           |                          | V=13.1 | Reference Frame: SIMBAD      |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                       |                                                                                                                        |                                                                                                               |                          |        |                              |

# Proposal 15323 - UGC 11492 (19) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target         | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                            | Exp. Time (Total)/[Actual Dur.]                                                                     | Orbit |
|-----------|---|-------|----------------|-------------------------------------|---------------|--------------------------------|---------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (19) UGC-11492 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n UGC 11492 (19) (1<br>) | 242 Secs (968 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (19) UGC-11492 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n UGC 11492 (19) (3<br>) | 425 Secs (850 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]                                         |       |
|           | 3 |       | (19) UGC-11492 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n UGC 11492 (19) (2<br>) | 26.390619 Secs (52.781 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]                                | [1]   |
|           |   |       |                |                                     |               |                                |               |                                                   |                                                                                                     |       |

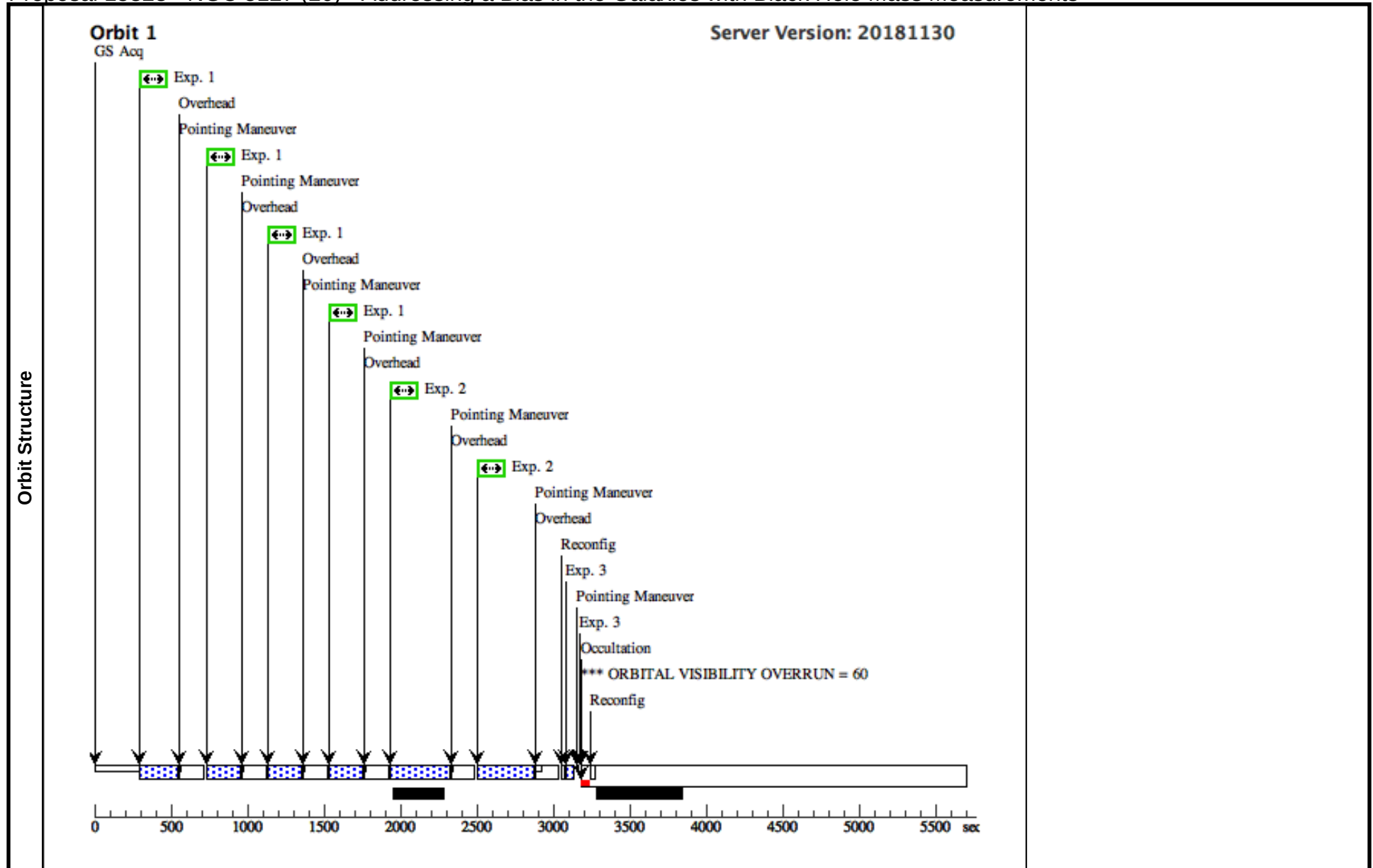


# Proposal 15323 - NGC 5127 (20) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | <b>Proposal 15323, NGC 5127 (20), failed</b> <span>Thu Jan 17 21:01:01 GMT 2019</span>                          |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Diagnostics   | (NGC 5127 (20)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                     | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (20)                                                                                                            | NGC-5127                                                                                                               | RA: 13 23 45.0200 (200.9375833d)<br>Dec: +31 33 56.70 (31.56575d)<br>Equinox: J2000 |                                                                                                               | V=12.6    |
|               | Comments:<br>Category=GALAXY<br>Description=[ELLIPTICAL]<br>Extended=YES                                        |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | Reference Frame: SIMBAD                                                                                         |                                                                                                                        |                                                                                     |                                                                                                               |           |

Proposal 15323 - NGC 5127 (20) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs.               | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|-----------------------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (20) NGC-5127 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n NGC 5127 (20) (1) | 218 Secs (872 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (20) NGC-5127 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |                             | Pattern 3, Exps 2-2 i<br>n NGC 5127 (20) (3) | 369 Secs (738 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (20) NGC-5127 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |                             | Pattern 2, Exps 3-3 i<br>n NGC 5127 (20) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

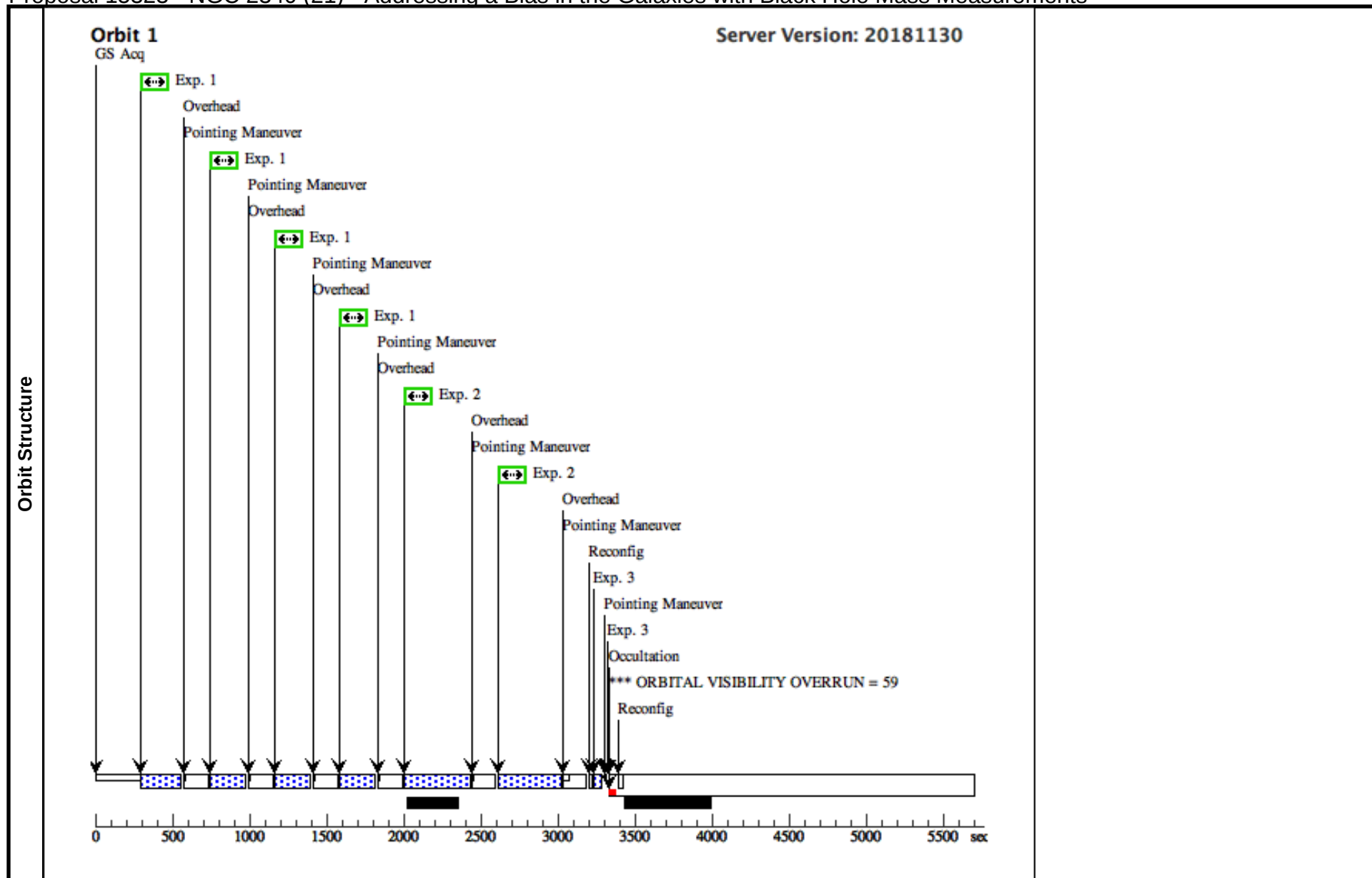


# Proposal 15323 - NGC 2340 (21) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                          |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit                                                                    | <b>Proposal 15323, NGC 2340 (21), completed</b> <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span> |                                                                                                                        |                                                                                                               |                          |         |
|                                                                          | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics                                                              | (NGC 2340 (21)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
| Patterns                                                                 | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|                                                                          | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|                                                                          | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|                                                                          | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets                                                            | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|                                                                          | (21)                                                                                                            | NGC-2340                                                                                                               | RA: 07 11 10.8310 (107.7951292d)<br>Dec: +50 10 29.12 (50.17476d)<br>Equinox: J2000                           |                          | V=11.69 |
| Comments:<br>Category=GALAXY<br>Description=[ELLIPTICAL]<br>Extended=YES |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Miscellaneous                                                            |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Reference Frame: NED                                                     |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |

Proposal 15323 - NGC 2340 (21) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (21) NGC-2340 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 2340 (21) (1) | 235 Secs (940 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (21) NGC-2340 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 2340 (21) (3) | 411 Secs (822 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (21) NGC-2340 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 2340 (21) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

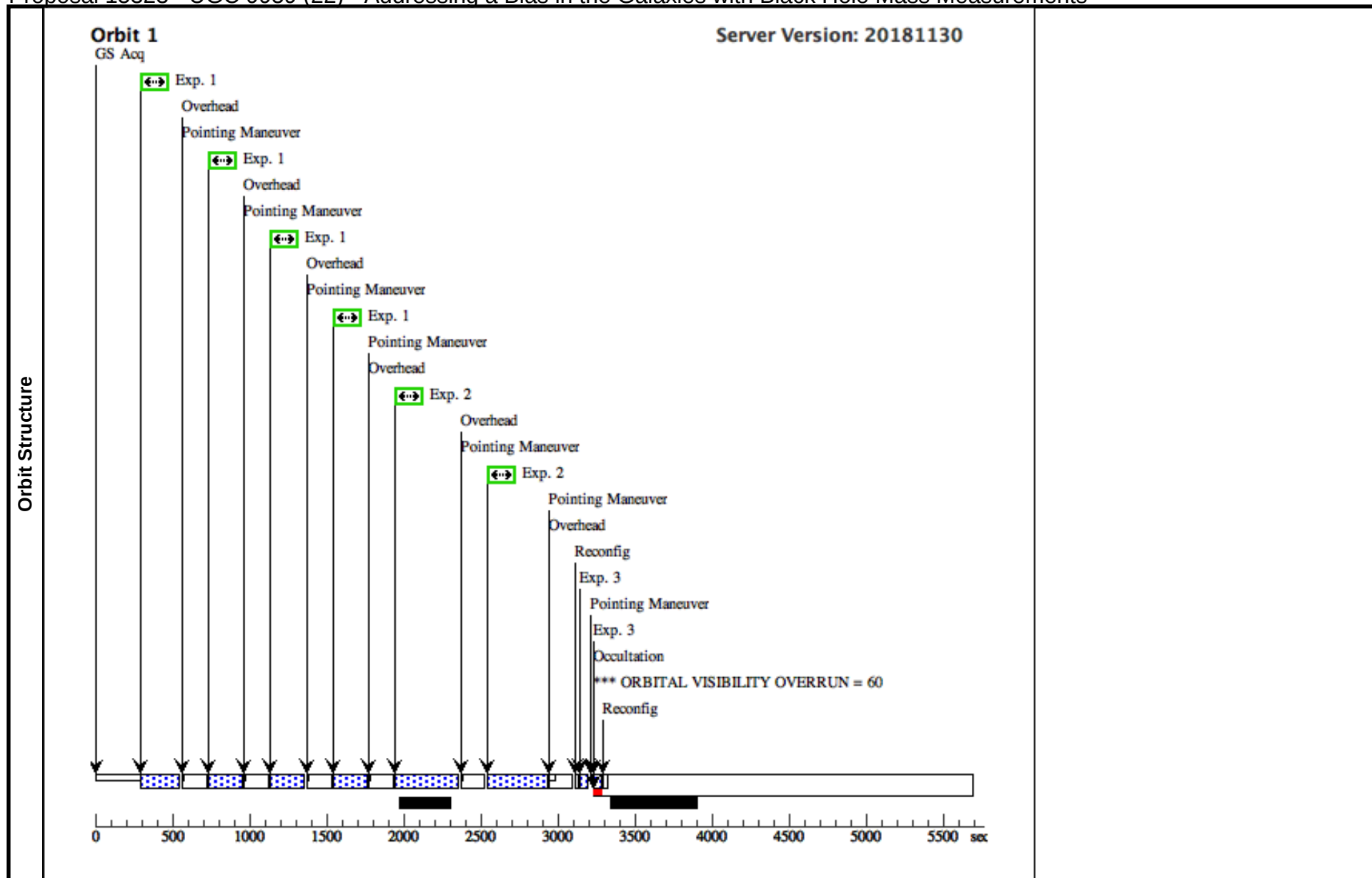


# Proposal 15323 - UGC 9959 (22) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                       | <b>Proposal 15323, UGC 9959 (22), scheduling</b> <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                        |                                                                                    |                                                                                                               |           |
|                                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: ORIENT 13D TO 38 D; ORIENT 58D TO 76 D; ORIENT 103D TO 121 D; ORIENT 141D TO 166 D; ORIENT 193D TO 218 D; ORIENT 238D TO 256 D; ORIENT 283D TO 301 D; ORIENT 321D TO 346 D<br><i>Comments: A V=12.3, H=10.9 star is located of 28" from the galaxy nucleus at PA=356 deg E of N. A second star with V=8.7, H=7.2 is located 49" away from the galaxy nucleus at PA=273 deg E of N. ORIENT restrictions used to avoid diffraction spikes and charge bleeding crossing the central region of the galaxy under study from both stars.</i> |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Diagnostics                                                                 | (UGC 9959 (22)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Patterns                                                                    | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Primary Pattern                                                                                                        |                                                                                    | Secondary Pattern                                                                                             | Exposures |
|                                                                             | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|                                                                             | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|                                                                             | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                    | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets                                                               | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                             | (22)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UGC-9959                                                                                                               | RA: 15 39 7.7380 (234.7822417d)<br>Dec: +43 51 55.11 (43.86531d)<br>Equinox: J2000 |                                                                                                               | V=13.3    |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |
| Reference Frame: NED                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                        |                                                                                    |                                                                                                               |           |

Proposal 15323 - UGC 9959 (22) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (22) UGC-9959 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n UGC 9959 (22) (1) | 222 Secs (888 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (22) UGC-9959 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n UGC 9959 (22) (3) | 390 Secs (780 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              |                                 | [1]   |
|           | 3 |       | (22) UGC-9959 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n UGC 9959 (22) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

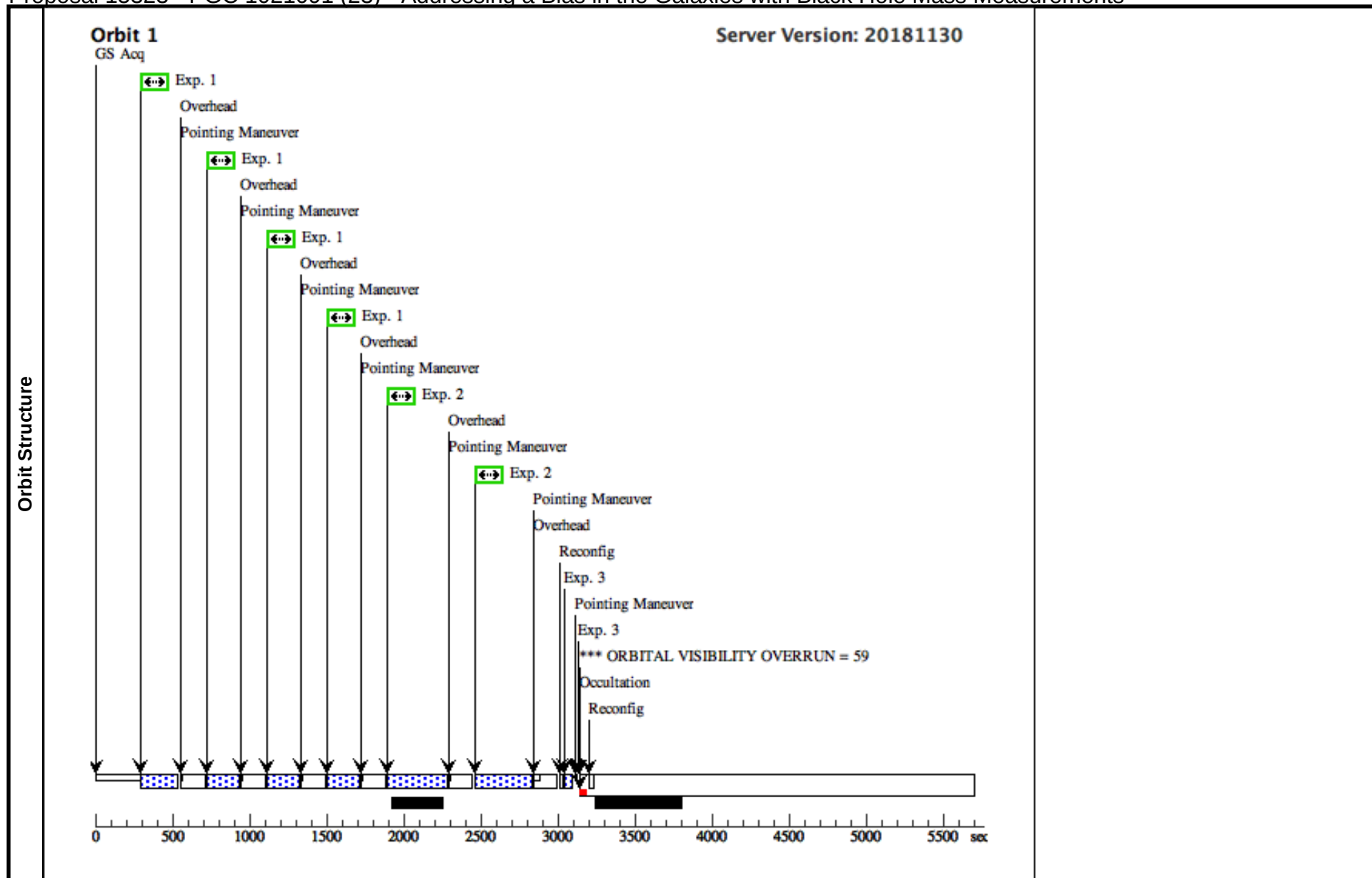


# Proposal 15323 - PGC 1021091 (23) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | Proposal 15323, PGC 1021091 (23), completed <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>     |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Diagnostics   | (PGC 1021091 (23)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                          |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                     | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (23)                                                                                                            | PGC-1021091                                                                                                            | RA: 13 09 27.0500 (197.3627083d)<br>Dec: -07 18 45.30 (-7.31258d)<br>Equinox: J2000 |                                                                                                               | V=13.7    |
|               | Miscellaneous<br>Reference Frame: NED                                                                           |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | Comments:<br>Category=GALAXY<br>Description=[ELLIPTICAL]                                                        |                                                                                                                        |                                                                                     |                                                                                                               |           |

Proposal 15323 - PGC 1021091 (23) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target           | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs.               | Groups                                             | Exp. Time (Total)/[Actual Dur.]                                                                     | Orbit |
|-----------|---|-------|------------------|-------------------------------------|---------------|--------------------------------|-----------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (23) PGC-1021091 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n PGC 1021091 (23)<br>(1) | 209 Secs (836 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (23) PGC-1021091 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |                             | Pattern 3, Exps 2-2 i<br>n PGC 1021091 (23)<br>(3) | 369 Secs (738 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]                                         |       |
|           | 3 |       | (23) PGC-1021091 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |                             | Pattern 2, Exps 3-3 i<br>n PGC 1021091 (23)<br>(2) | 26.390619 Secs (52.781 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]                                | [1]   |
|           |   |       |                  |                                     |               |                                |                             |                                                    |                                                                                                     |       |

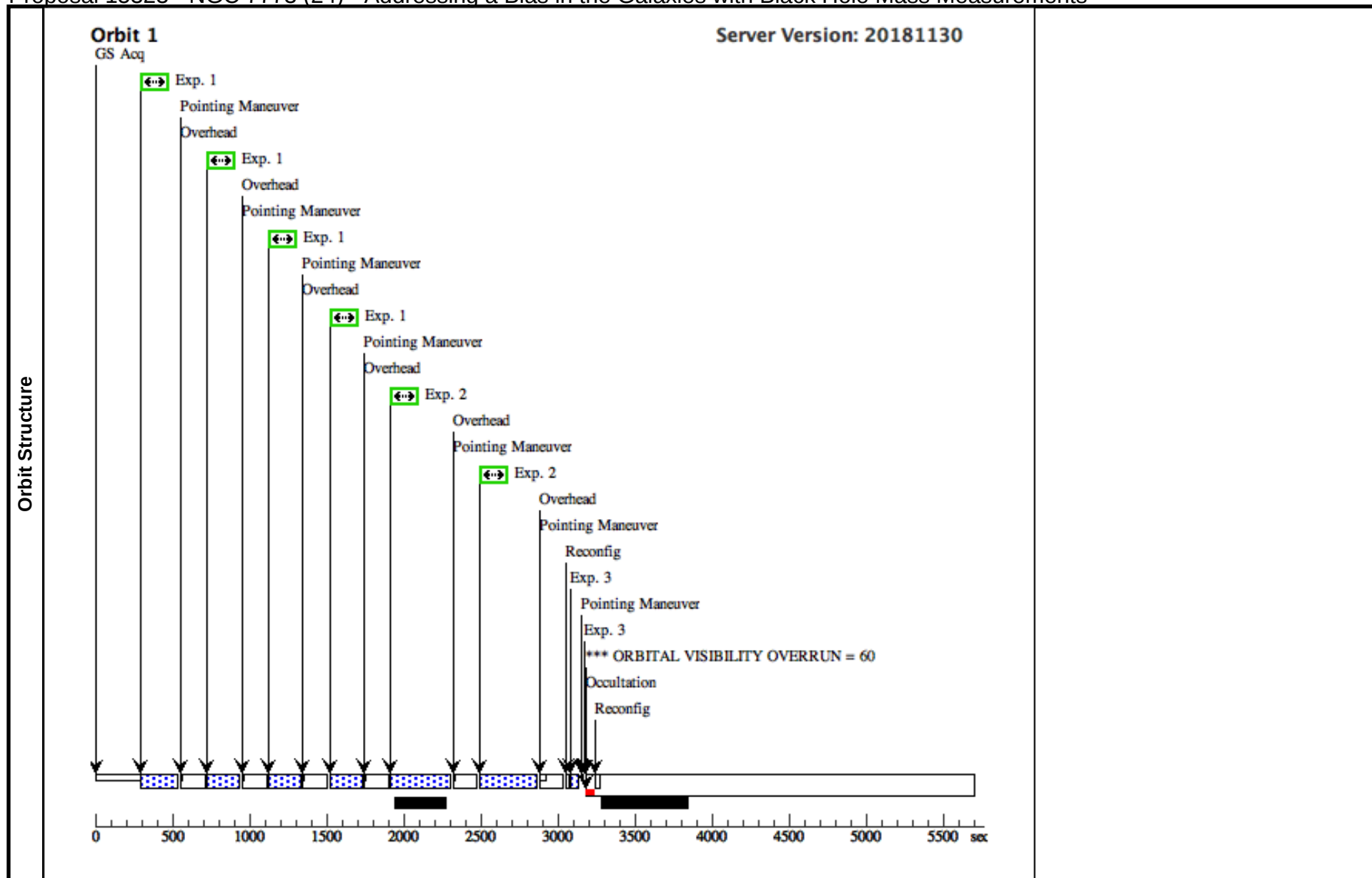


# Proposal 15323 - NGC 7773 (24) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------|-----------|
| Visit                                                                       | <b>Proposal 15323, NGC 7773 (24), completed</b> <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
|                                                                             | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: ORIENT 11D TO 36 D; ORIENT 56D TO 81 D; ORIENT 101D TO 171 D; ORIENT 191D TO 216 D; ORIENT 236D TO 261 D; ORIENT 281D TO 351 D<br>Comments: A V=14.6, H=14.8 star is located of 11" from the galaxy nucleus at PA=91 deg E of N. ORIENT restrictions used to avoid diffraction spikes and charge bleeding crossing the central region of the galaxy under study. |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Diagnostics                                                                 | (NGC 7773 (24)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Patterns                                                                    | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Primary Pattern                                                                                                                                                                                                                         |                                                                                    | Secondary Pattern        | Exposures |
|                                                                             | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Purpose=DITHER<br>Angle Between Sides=81.785<br>Number Of Points=4<br>Center Pattern=false<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                    |                          | (1)       |
|                                                                             | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-IR-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.636<br>Line Spacing=             |                                                                                    |                          | (3)       |
|                                                                             | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Purpose=DITHER<br>Angle Between Sides=<br>Number Of Points=2<br>Center Pattern=false<br>Point Spacing=0.145<br>Line Spacing=            |                                                                                    |                          | (2)       |
| Fixed Targets                                                               | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Name                                                                                                                                                                                                                                    | Target Coordinates                                                                 | Targ. Coord. Corrections | Fluxes    |
|                                                                             | (24)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NGC-7773                                                                                                                                                                                                                                | RA: 23 52 9.8900 (358.0412083d)<br>Dec: +31 16 35.80 (31.27661d)<br>Equinox: J2000 |                          | V=13.2    |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |
| Reference Frame: SIMBAD                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                         |                                                                                    |                          |           |

Proposal 15323 - NGC 7773 (24) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (24) NGC-7773 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 7773 (24) (1) | 214 Secs (856 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (24) NGC-7773 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 7773 (24) (3) | 377 Secs (754 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (24) NGC-7773 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 7773 (24) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

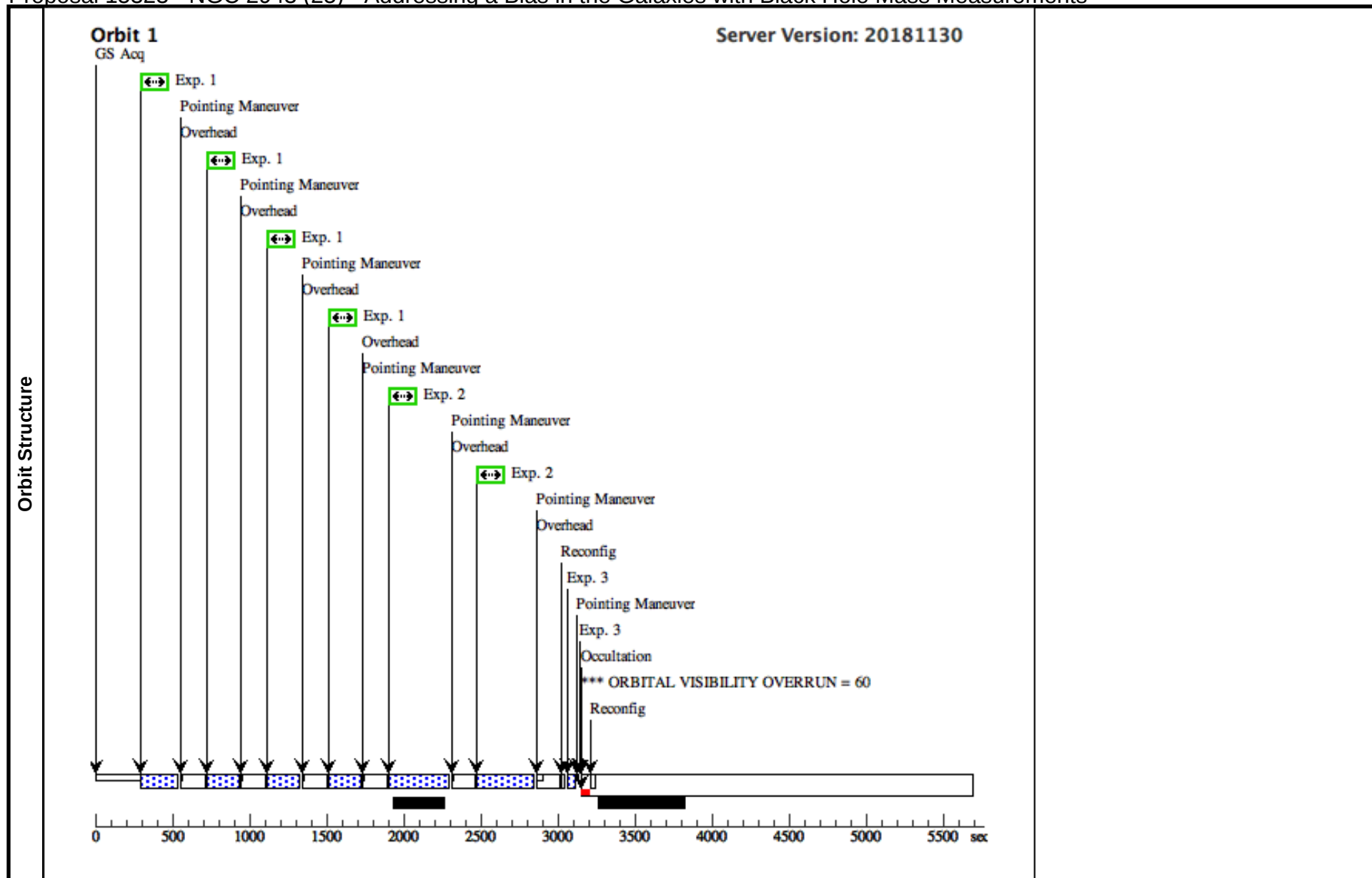


# Proposal 15323 - NGC 2943 (25) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit         | Proposal 15323, NGC 2943 (25), completed <span>Thu Jan 17 21:01:02 GMT 2019</span>                              |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Diagnostics   | (NGC 2943 (25)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               |                                                                                                                 |                                                                                                                        |                                                                                     |                                                                                                               |           |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        |                                                                                     | Secondary Pattern                                                                                             | Exposures |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)       |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)       |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)       |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                                      | Fluxes    |
|               | (25)                                                                                                            | NGC-2943                                                                                                               | RA: 09 38 32.8710 (144.6369625d)<br>Dec: +17 01 52.67 (17.03130d)<br>Equinox: J2000 |                                                                                                               | V=12.6    |
| Fixed Targets | Comments:<br>Category=GALAXY<br>Description=[ELLIPTICAL]<br>Extended=YES                                        |                                                                                                                        |                                                                                     |                                                                                                               |           |
|               | Miscellaneous<br>Reference Frame: NED                                                                           |                                                                                                                        |                                                                                     |                                                                                                               |           |

Proposal 15323 - NGC 2943 (25) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|---------------------------------|-------|
|           | 1 |       | (25) NGC-2943 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 2943 (25) (1) | 212 Secs (848 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 3)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 4)]                | [1]   |
|           | 2 |       | (25) NGC-2943 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 2943 (25) (3) | 369 Secs (738 Secs)             |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |
|           | 3 |       | (25) NGC-2943 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 2943 (25) (2) | 26.390619 Secs (52.781 Secs)    |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]                |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 2)]                | [1]   |

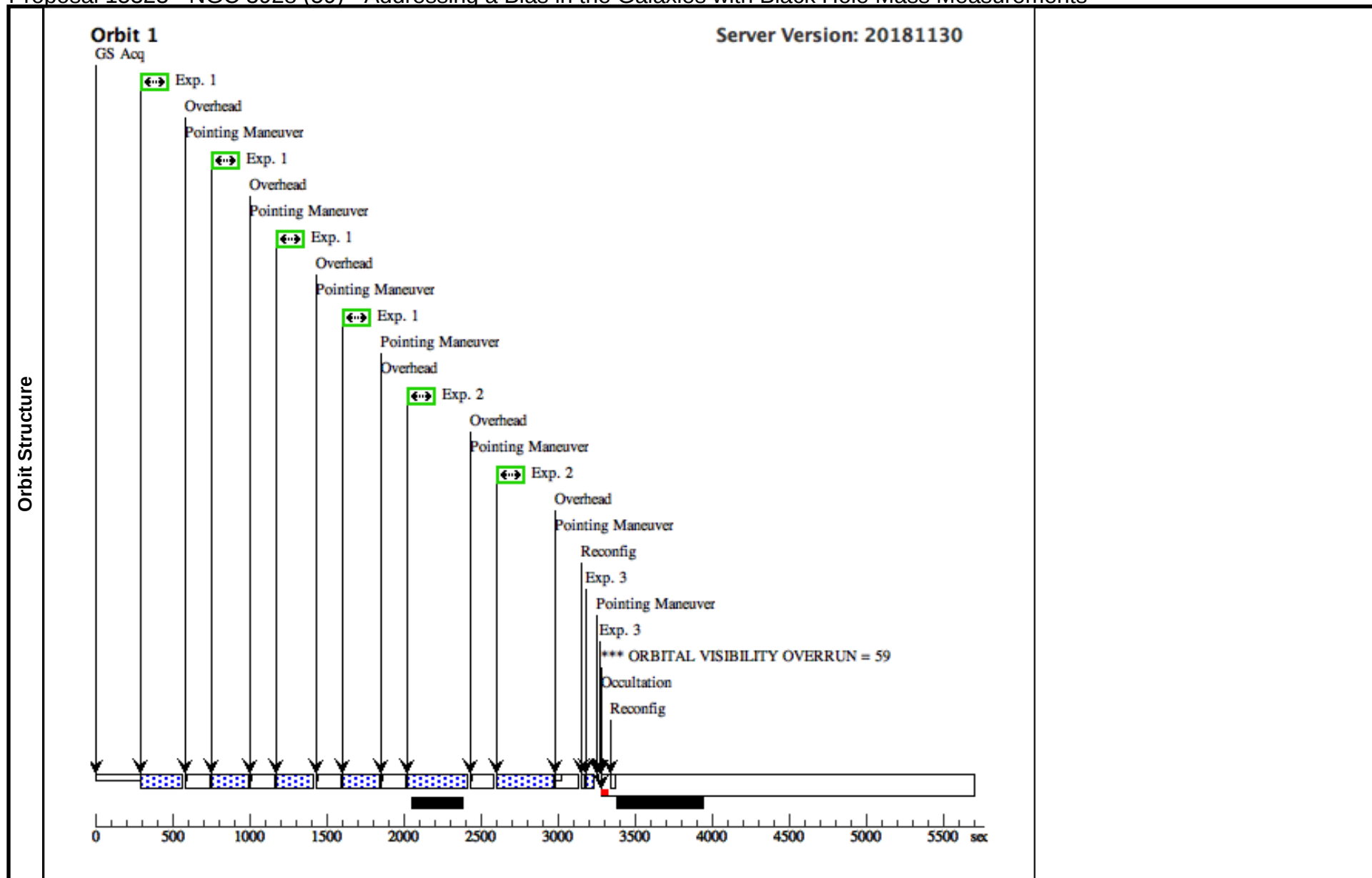


# Proposal 15323 - NGC 3928 (59) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                             |                                                                                                                                                                                  |                                                                                                                        |                                                                                                               |                          |         |                              |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|------------------------------|
| Visit                                                                       | <b>Proposal 15323, NGC 3928 (59), completed</b> <div> <b>Diagnostic Status: Warning</b><br/> Scientific Instruments: WFC3/IR, WFC3/UVIS<br/> Special Requirements: (none) </div> |                                                                                                                        |                                                                                                               |                          |         | Thu Jan 17 21:01:02 GMT 2019 |
|                                                                             | <b>Diagnostics</b><br>(NGC 3928 (59)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                        |                                                                                                                        |                                                                                                               |                          |         |                              |
| Patterns                                                                    | #                                                                                                                                                                                | Primary Pattern                                                                                                        |                                                                                                               | Secondary Pattern        |         | Exposures                    |
|                                                                             | (1)                                                                                                                                                                              | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                          |         | (1)                          |
|                                                                             | (2)                                                                                                                                                                              | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                          |         | (3)                          |
|                                                                             | (3)                                                                                                                                                                              | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          |         | (2)                          |
| Fixed Targets                                                               | #                                                                                                                                                                                | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  | Miscellaneous                |
|                                                                             | (9)                                                                                                                                                                              | NGC-3928                                                                                                               | RA: 11 51 47.6230 (177.9484292d)<br>Dec: +48 40 59.29 (48.68314d)<br>Equinox: J2000                           |                          | V=12.55 | Reference Frame: NED         |
| Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                                                  |                                                                                                                        |                                                                                                               |                          |         |                              |

Proposal 15323 - NGC 3928 (59) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target       | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (9) NGC-3928 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3928 (59) (1) | 241 Secs (964 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (9) NGC-3928 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3928 (59) (3) | 375 Secs (750 Secs)                                                          |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (9) NGC-3928 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3928 (59) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |              |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

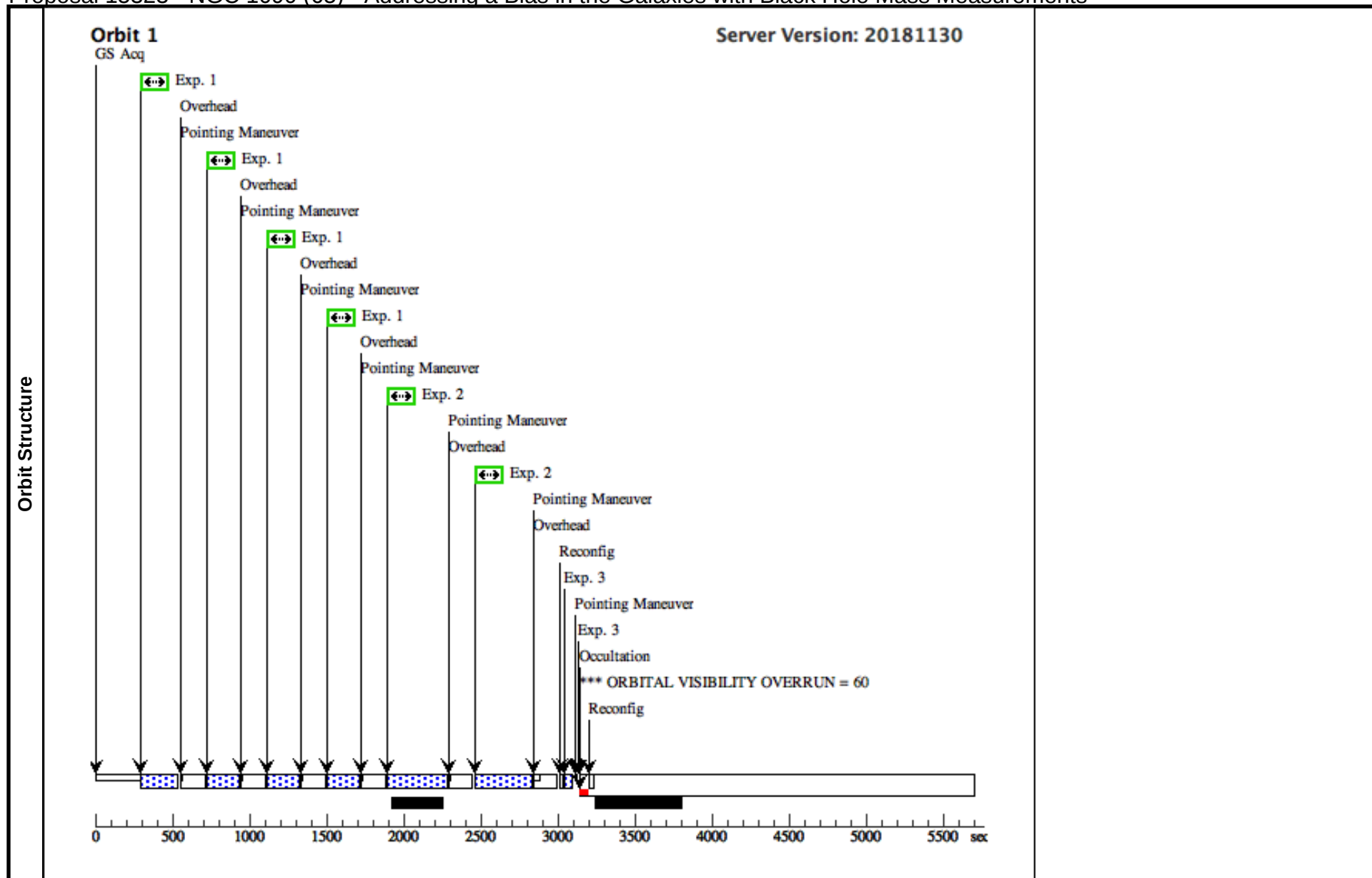


# Proposal 15323 - NGC 1090 (65) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                    |                                                                                                                                                                |                                                                                                                        |                                                                                                               |                          |           |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|-----------|
| Visit                                                                              | <b>Proposal 15323, NGC 1090 (65), completed</b> <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>                                                |                                                                                                                        |                                                                                                               |                          |           |
|                                                                                    | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)<br><i>Comments: Repeat of failed visit 15.</i> |                                                                                                                        |                                                                                                               |                          |           |
| Diagnostics                                                                        | (NGC 1090 (65)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                            |                                                                                                                        |                                                                                                               |                          |           |
| Patterns                                                                           | #                                                                                                                                                              | Primary Pattern                                                                                                        |                                                                                                               | Secondary Pattern        | Exposures |
|                                                                                    | (1)                                                                                                                                                            | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                          | (1)       |
|                                                                                    | (2)                                                                                                                                                            | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       |                          | (3)       |
|                                                                                    | (3)                                                                                                                                                            | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (2)       |
| Fixed Targets                                                                      | #                                                                                                                                                              | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes    |
|                                                                                    | (15)                                                                                                                                                           | NGC-1090                                                                                                               | RA: 02 46 33.9360 (41.6414000d)<br>Dec: -00 14 49.77 (-.24716d)<br>Equinox: J2000                             |                          | V=11.83   |
| <i>Comments:</i><br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES |                                                                                                                                                                |                                                                                                                        |                                                                                                               |                          |           |
| Reference Frame: NED                                                               |                                                                                                                                                                |                                                                                                                        |                                                                                                               |                          |           |

Proposal 15323 - NGC 1090 (65) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs.               | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|-----------------------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (15) NGC-1090 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n NGC 1090 (65) (1) | 209 Secs (836 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (15) NGC-1090 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |                             | Pattern 3, Exps 2-2 i<br>n NGC 1090 (65) (3) | 368 Secs (736 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (15) NGC-1090 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |                             | Pattern 2, Exps 3-3 i<br>n NGC 1090 (65) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

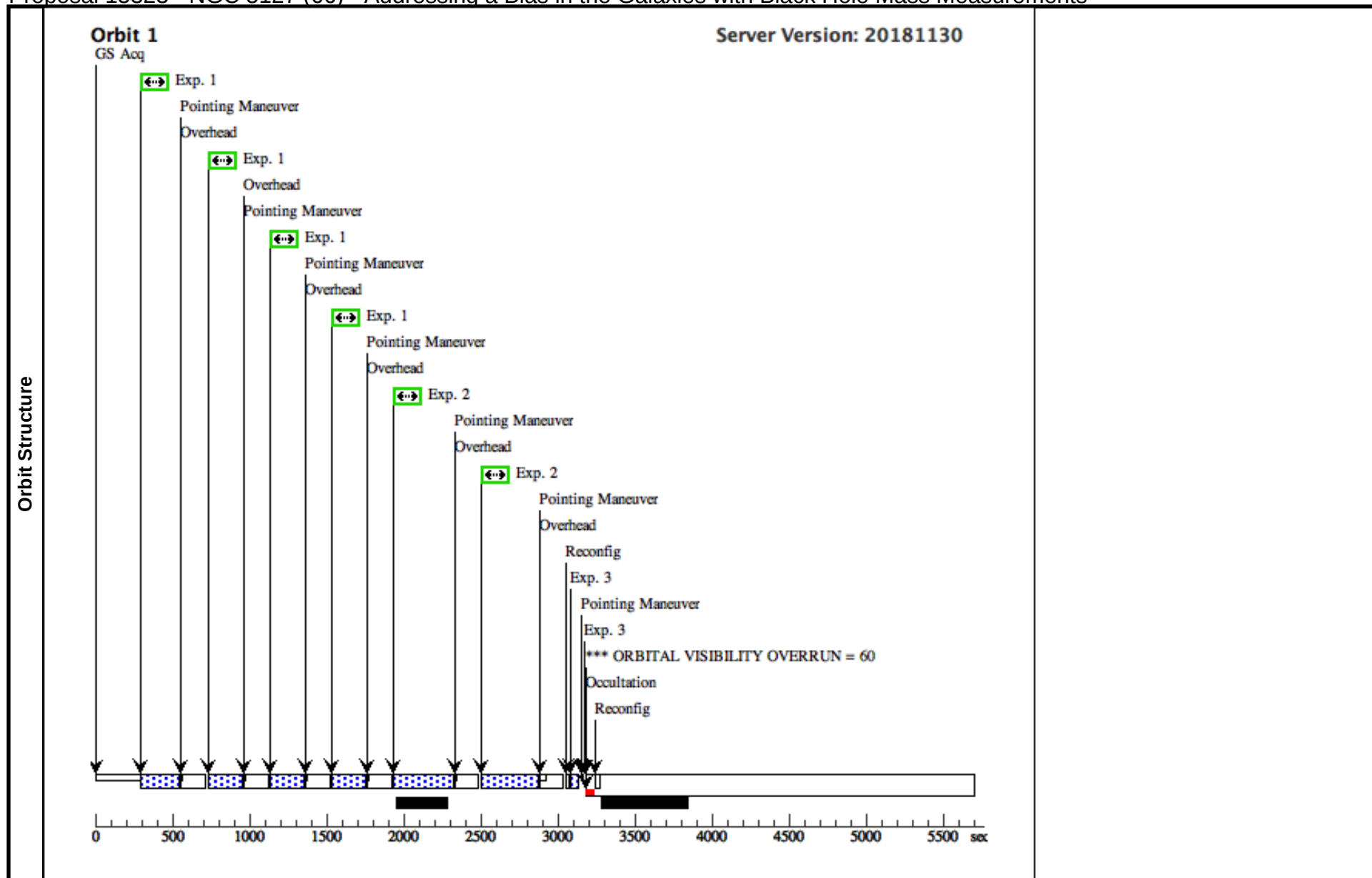


# Proposal 15323 - NGC 5127 (66) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|                                                                                                      |                                                                                                                                                              |                                                                                                                                                                                                                                         |                                                                                     |                          |        |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|--------|
| Visit                                                                                                | <b>Proposal 15323, NGC 5127 (66), completed</b> <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>                                              |                                                                                                                                                                                                                                         |                                                                                     |                          |        |
|                                                                                                      | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)<br><i>Comments: Copy of failed visit 20.</i> |                                                                                                                                                                                                                                         |                                                                                     |                          |        |
| Diagnostics                                                                                          | (NGC 5127 (66)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                          |                                                                                                                                                                                                                                         |                                                                                     |                          |        |
| Patterns                                                                                             | #                                                                                                                                                            | Primary Pattern                                                                                                                                                                                                                         | Secondary Pattern                                                                   | Exposures                |        |
|                                                                                                      | (1)                                                                                                                                                          | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false |                                                                                     | (1)                      |        |
|                                                                                                      | (2)                                                                                                                                                          | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false             |                                                                                     | (3)                      |        |
|                                                                                                      | (3)                                                                                                                                                          | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false            |                                                                                     | (2)                      |        |
| Fixed Targets                                                                                        | #                                                                                                                                                            | Name                                                                                                                                                                                                                                    | Target Coordinates                                                                  | Targ. Coord. Corrections | Fluxes |
|                                                                                                      | (20)                                                                                                                                                         | NGC-5127                                                                                                                                                                                                                                | RA: 13 23 45.0200 (200.9375833d)<br>Dec: +31 33 56.70 (31.56575d)<br>Equinox: J2000 |                          | V=12.6 |
| <i>Comments:</i><br><i>Category=GALAXY</i><br><i>Description=[ELLIPTICAL]</i><br><i>Extended=YES</i> |                                                                                                                                                              |                                                                                                                                                                                                                                         |                                                                                     |                          |        |
| Reference Frame: SIMBAD                                                                              |                                                                                                                                                              |                                                                                                                                                                                                                                         |                                                                                     |                          |        |

Proposal 15323 - NGC 5127 (66) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs.               | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|-----------------------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (20) NGC-5127 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n NGC 5127 (66) (1) | 218 Secs (872 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (20) NGC-5127 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |                             | Pattern 3, Exps 2-2 i<br>n NGC 5127 (66) (3) | 369 Secs (738 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (20) NGC-5127 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |                             | Pattern 2, Exps 3-3 i<br>n NGC 5127 (66) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |                             |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |



# Proposal 15323 - NGC 3177 (67) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
|---------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Visit         | Proposal 15323, NGC 3177 (67) <span style="float: right;">Thu Jan 17 21:01:02 GMT 2019</span>                   |                                                                                                                        |                                                                                                               |                          |         |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none) |                                                                                                                        |                                                                                                               |                          |         |
| Diagnostics   | (NGC 3177 (67)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                             |                                                                                                                        |                                                                                                               |                          |         |
|               |                                                                                                                 |                                                                                                                        |                                                                                                               |                          |         |
| Patterns      | #                                                                                                               | Primary Pattern                                                                                                        | Secondary Pattern                                                                                             | Exposures                |         |
|               | (1)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-BOX<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.173<br>Line Spacing=0.112 | Coordinate Frame=POS-TARG<br>Pattern Orientation=23.884<br>Angle Between Sides=81.785<br>Center Pattern=false | (1)                      |         |
|               | (2)                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.636<br>Line Spacing=       | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false       | (3)                      |         |
|               | (3)                                                                                                             | Pattern Type=WFC3-UVIS-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=0.145<br>Line Spacing=     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (2)                      |         |
| Fixed Targets | #                                                                                                               | Name                                                                                                                   | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes  |
|               | (12)                                                                                                            | NGC-3177                                                                                                               | RA: 10 16 34.1360 (154.1422333d)<br>Dec: +21 07 22.99 (21.12305d)<br>Equinox: J2000                           |                          | V=12.40 |
|               | Comments:<br>Category=GALAXY<br>Description=[BULGE, SPIRAL]<br>Extended=YES                                     |                                                                                                                        |                                                                                                               |                          |         |
|               | Reference Frame: NED                                                                                            |                                                                                                                        |                                                                                                               |                          |         |

Proposal 15323 - NGC 3177 (67) - Addressing a Bias in the Galaxies with Black Hole Mass Measurements

| Exposures | # | Label | Target        | Config,Mode,Aperture                | Spectral Els. | Opt. Params.                   | Special Reqs. | Groups                                       | Exp. Time (Total)/[Actual Dur.]                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------------|---------------|--------------------------------|---------------|----------------------------------------------|------------------------------------------------------------------------------|-------|
|           | 1 |       | (12) NGC-3177 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F475W         | FLASH=8                        |               | Pattern 1, Exps 1-1 i<br>n NGC 3177 (67) (1) | 240 Secs (960 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)] | [1]   |
|           | 2 |       | (12) NGC-3177 | WFC3/UVIS, ACCUM,<br>UVIS2-2K2C-SUB | F814W         | FLASH=4                        |               | Pattern 3, Exps 2-2 i<br>n NGC 3177 (67) (3) | 312 Secs (624 Secs)                                                          |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |
|           | 3 |       | (12) NGC-3177 | WFC3/IR, MULTIACCUM, IR             | F160W         | NSAMP=9;<br>SAMP-SEQ=RAPI<br>D |               | Pattern 2, Exps 3-3 i<br>n NGC 3177 (67) (2) | 26.390619 Secs (52.781 Secs)                                                 |       |
|           |   |       |               |                                     |               |                                |               |                                              | [==>(Pattern 1)]<br>[==>(Pattern 2)]                                         | [1]   |

