



## 13755 - The Hosts of Megamaser Disk Galaxies (II)

Cycle: 22, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

| <i>Name</i>                                 | <i>Institution</i>                             | <i>E-Mail</i>                      |
|---------------------------------------------|------------------------------------------------|------------------------------------|
| <b>Prof. Jenny E. Greene (PI) (Contact)</b> | <b>Princeton University</b>                    | <b>jgreene@astro.princeton.edu</b> |
| Prof. Anil C. Seth (CoI)                    | University of Utah                             | aseth@astro.utah.edu               |
| Ronald Laesker (CoI) (ESA Member)           | Max-Planck-Institut fur Astronomie, Heidelberg | laesker@mpia-hd.mpg.de             |
| Dr. James A. Braatz (CoI)                   | Associated Universities, Inc.                  | jbraatz@nrao.edu                   |
| Dr. Fred K. Y. Lo (CoI)                     | Associated Universities, Inc.                  | flo@nrao.edu                       |
| Dr. Christian Henkel (CoI) (ESA Member)     | Max-Planck-Institut fur Radioastronomie        | p220hen@mpifr-bonn.mpg.de          |
| Dr. Chien Y. Peng (CoI)                     | GMTO Corporation                               | chien.y.peng@googlemail.com        |

### VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (1) NGC-449                  | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:18.0        | yes                           |
| 02           | (2) MRK-1029                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:22.0        | yes                           |
| 03           | (3) J0437+2456               | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:26.0        | yes                           |
| 04           | (4) UGC-3193                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:29.0        | yes                           |
| 05           | (5) ESO-558-9                | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:33.0        | 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> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 06           | (6) MRK-1210                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:37.0        | yes                           |
| 07           | (7) UGC-6093                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:40.0        | yes                           |
| 08           | (8) NGC-5495                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:43.0        | yes                           |
| 09           | (9) NGC-5728                 | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:46.0        | yes                           |
| 10           | (10) MCG+01-38-005           | WFC3/IR<br>WFC3/UVIS                | 2                  | 21-Jul-2015 21:09:49.0        | yes                           |

20 Total Orbits Used

## ABSTRACT

We propose to observe ten new megamaser disk galaxies. Much like in NGC 4258, the megamasers in our sample trace sub-pc, circumnuclear gas in Keplerian rotation around central supermassive black holes (BHs). From the maser disk, we derive the most precise BH masses ( $<10\%$ ) outside of our own Galactic Center, as well as a very precise orientation for the megamaser disk. These megamaser galaxies are the best available tool to study BH demographics in spiral galaxies, but HST resolution is required to disentangle the nuclear disks, star-forming rings, bars, and dust from any underlying bulge component. Using F336W, F438W, F814W, F110W, and F160W observations of these galaxies with WFC3, we will derive accurate bulge masses to study BH-galaxy scaling relations. We will then compare the orientation of the  $\sim 100$  pc-scale structures we find with that of the accretion disk on sub-pc scales, to determine the mechanisms that connect the galactic ISM to accretion. The ten new megamaser disk systems proposed here not only double the entire megamaser sample with uniform HST imaging, but crucially add six new dynamical BH masses with  $M_{\text{BH}} < 10^7 M_{\text{sun}}$ .

## OBSERVING DESCRIPTION

We take as our sample ten galaxies with megamaser disks and VLBI observations in hand. With distances of 30-150 Mpc, the galaxies have apparent B-band magnitudes of 16.5 -13 mag and apparent sizes ranging from 0.5-3 arcmin ( $\sim 15$  kpc at 50 Mpc).

Choice of Filters and Camera:

In order to disentangle, both spectrally and spatially, variations in stellar populations, dust absorption, and dust emission from the AGN, we require multiple filters. In the UV we take F336W (broad U), which allows us to probe the near UV part of the spectrum with reasonable throughput, while in the blue we choose F438W to avoid contamination from H $\beta$  emission. In the red we take F814W (broad I) because of its high throughput and to avoid contamination from emission lines such as [O III] 5007. In the near-infrared, we anticipate some contamination from dust heated by the active galaxy continuum in the F160W filter, while we expect galaxy light to dominate the F110W filter. We thus request both F110W and F160W to ensure that we have an AGN-free filter in the red. WFC3 is the camera of choice, as it will allow us to cover the entire wavelength range with the highest sensitivity and finest pixel scale.

Observational Plan:

Our exposure times are driven by a number of considerations.

To robustly decompose any round bulge component from disks, bars, and rings, we seek sensitivity to  $\mu_V \sim 22$  mag arcsec<sup>2</sup> at 5-10 arcsec, which is typically a factor of a few below the total surface brightness at these scales (Fig. 2). Because we are interested in decoupling various non-axisymmetric components, such as bars, and to facilitate combining with ground-based data, we require  $S/N > 5$  at 20 arcsec scales (as faint as  $\mu_V \sim 24.5$  mag arcsec<sup>2</sup>; Fig. 3) in our deepest filters (IH). These goals can be accomplished in two 51 min orbits per galaxy.

In the UVIS, we will use a three-point dither pattern to facilitate cosmic-ray removal. In the IR, we will use the WFC3-IR-DITHER-BOX in order to properly sample the PSF. For filters with short exposures (F438W, F110W, F160W) we will use subarrays (2k $\times$ 2k and IRSUB512 respectively) to avoid buffer dumps.

In summary, the exposure times for each filter are as follows:

F336W: for bulge stellar populations, require  $S/N > 50$ ; 3 x 400 sec.

F438W: the same as F336W; 3 x 130 sec.

F814W: for galaxy structural measurements, requires  $S/N > 5$  at  $\mu_V = 24.5$  mag/sq arcsec; 3 x 640 sec.

Proposal 13755 (STScI Edit Number: 2, Created: Tuesday, July 21, 2015 8:09:51 PM EST) - Overview

F110W: for stellar populations, dust, and structural measurements, requires  $S/N > 5$  at  $\mu V = 24.5$  mag/sq arcsec; 4 x 30 sec.

F160W: combination of AGN and galaxy center, also our deep near-infrared structural image; requires 4 x 100 sec.

We divide the exposures as follows. Orbit 1 will proceed as F110W (4 x 30 sec)-F438W (1 x 130 sec)-F336W (3 x 400 sec)-F438 (2 x 130 sec). Since the first two filters use subarrays, we incur no buffer dumps, but spend 22 min on overheads (6 for guide-star acquisition, 12.4 min for readout, 2.5 min for dithering, and 1 min to change from IR to UVIS). Orbit 2 will be the remaining filters: F160W (4 x 100 sec)-F814W (3 x 690 sec). The long exposures in F814W allow us to read out the full array with no buffer dumps. It is worth noting that we are in danger of saturating in F814W, F110W, and F160W. In the former case we thus include a fourth 5 sec exposure. For the NIR filters, we use the cluster luminosity of NGC 4388 ( $F160W = 14.8$ ) as a guide. In order to avoid saturation of this cluster, we take SPARS10, NSAMP=5 for F110W and SPARS25, NSAMP=8 for F160W. Using fewer samples increases the readnoise slightly, but this will not impact our bright targets. Finally, we note that there is some danger for a low-level jump in the background level for the F110W and F160W observations, which will hopefully be removed in software, but should not significantly impact our observations.

We request a total of 20 orbits to image the entire sample.

## Proposal 13755 - Visit 01 - The Hosts of Megamaser Disk Galaxies (II)

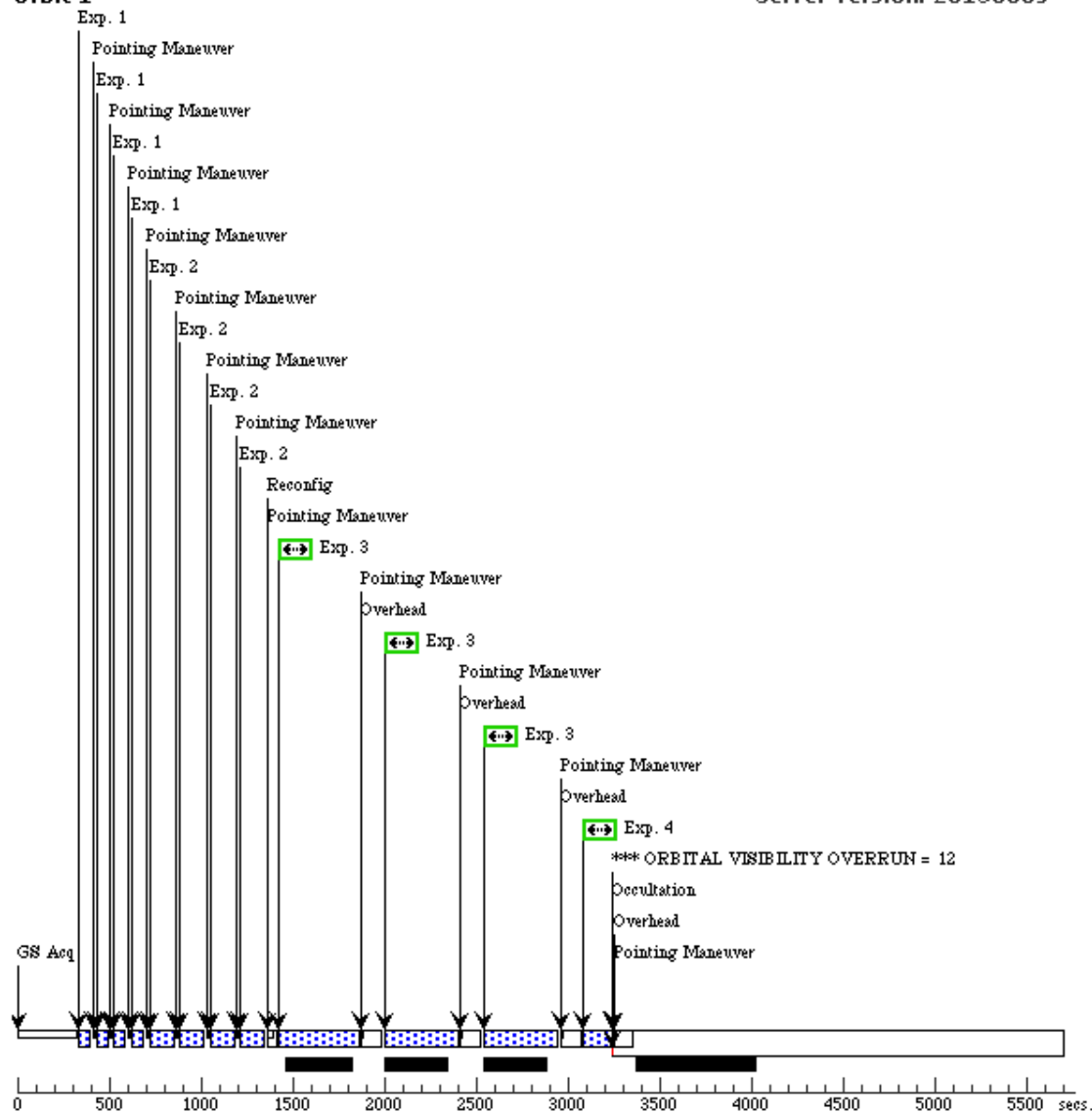
|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|-------------------------|
| Visit                                                                                             | Proposal 13755, Visit 01, completed                                                                                                                                                    |                                                                                                                          |                                                                                                               |                          | Wed Jul 22 01:09:51 GMT 2015 |                         |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Diagnostics                                                                                       | (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 4 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 5 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 7 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures                    |                         |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)                     |                         |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)                          |                         |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)                          |                         |
|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes                       | Miscellaneous           |
|                                                                                                   | (1)                                                                                                                                                                                    | NGC-449                                                                                                                  | RA: 01 16 7.2280 (19.0301167d)<br>Dec: +33 05 21.80 (33.08939d)<br>Equinox: J2000                             |                          | V=15.0                       | Reference Frame: SIMBAD |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |

# Proposal 13755 - Visit 01 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target      | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|-------------|-------------------------------|---------------|---------------------------------|----------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (1) NGC-449 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 i<br>n Visit 01 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (1) NGC-449 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 i<br>n Visit 01 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (1) NGC-449 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 i<br>n Visit 01 (2) | 400 Secs (1221 Secs)<br>[==>407.0 Secs (Pattern 1)]<br>[==>407.0 Secs (Pattern 2)]<br>[==>407.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (1) NGC-449 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                         | 130 Secs (136 Secs)<br>[==>136.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (1) NGC-449 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                         | 130 Secs (198 Secs)<br>[==>198.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (1) NGC-449 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 i<br>n Visit 01 (3) | 480 Secs (1940 Secs)<br>[==>485.0 Secs (Pattern 1)]<br>[==>485.0 Secs (Pattern 2)]<br>[==>485.0 Secs (Pattern 3)]<br>[==>485.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (1) NGC-449 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                         | 130 Secs (198 Secs)<br>[==>198.0 Secs ]                                                                                                          | [2]   |

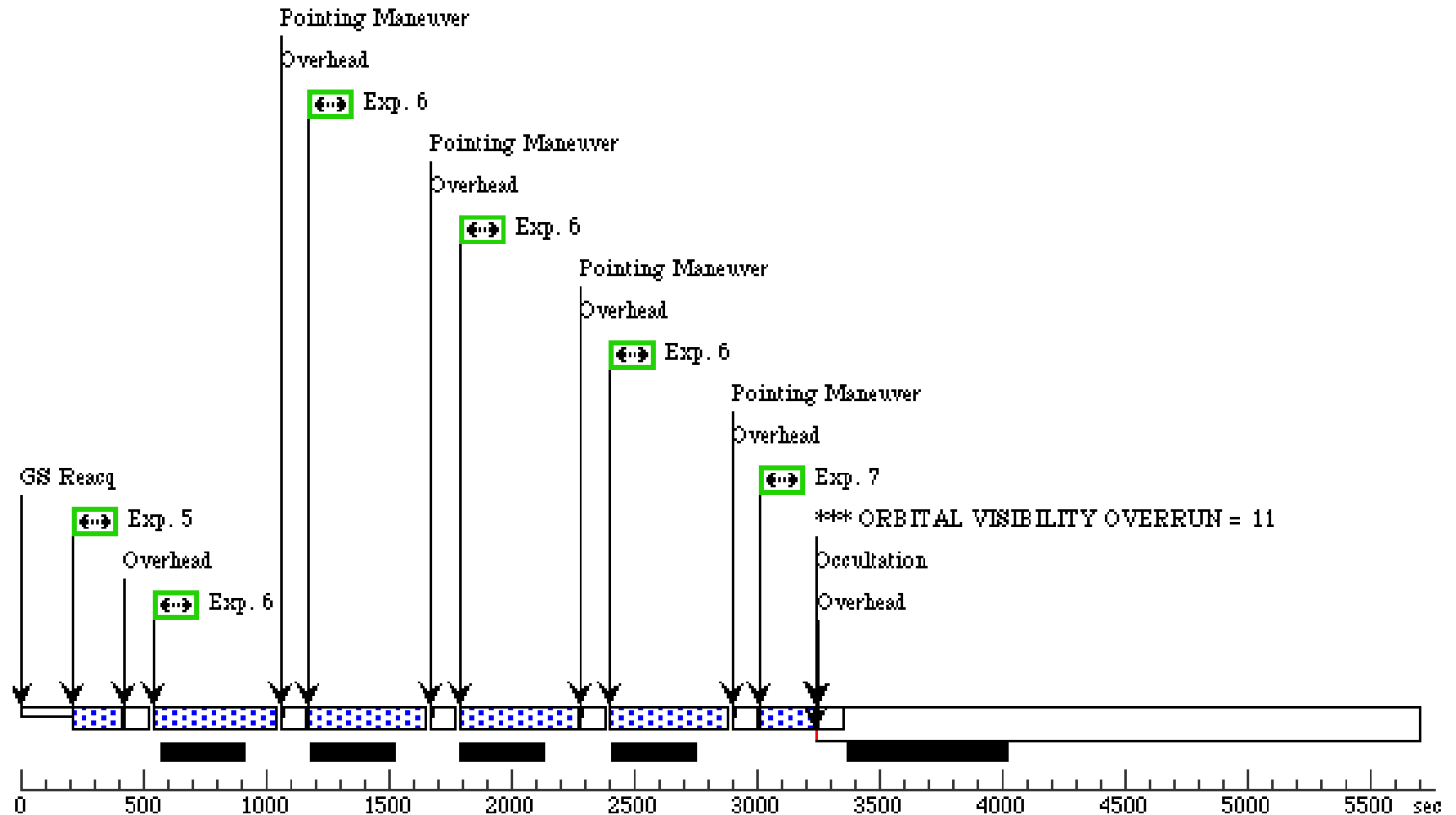
Orbit 1

Server Version: 20150609



## Orbit 2

Server Version: 20150609



## Proposal 13755 - Visit 02 - The Hosts of Megamaser Disk Galaxies (II)

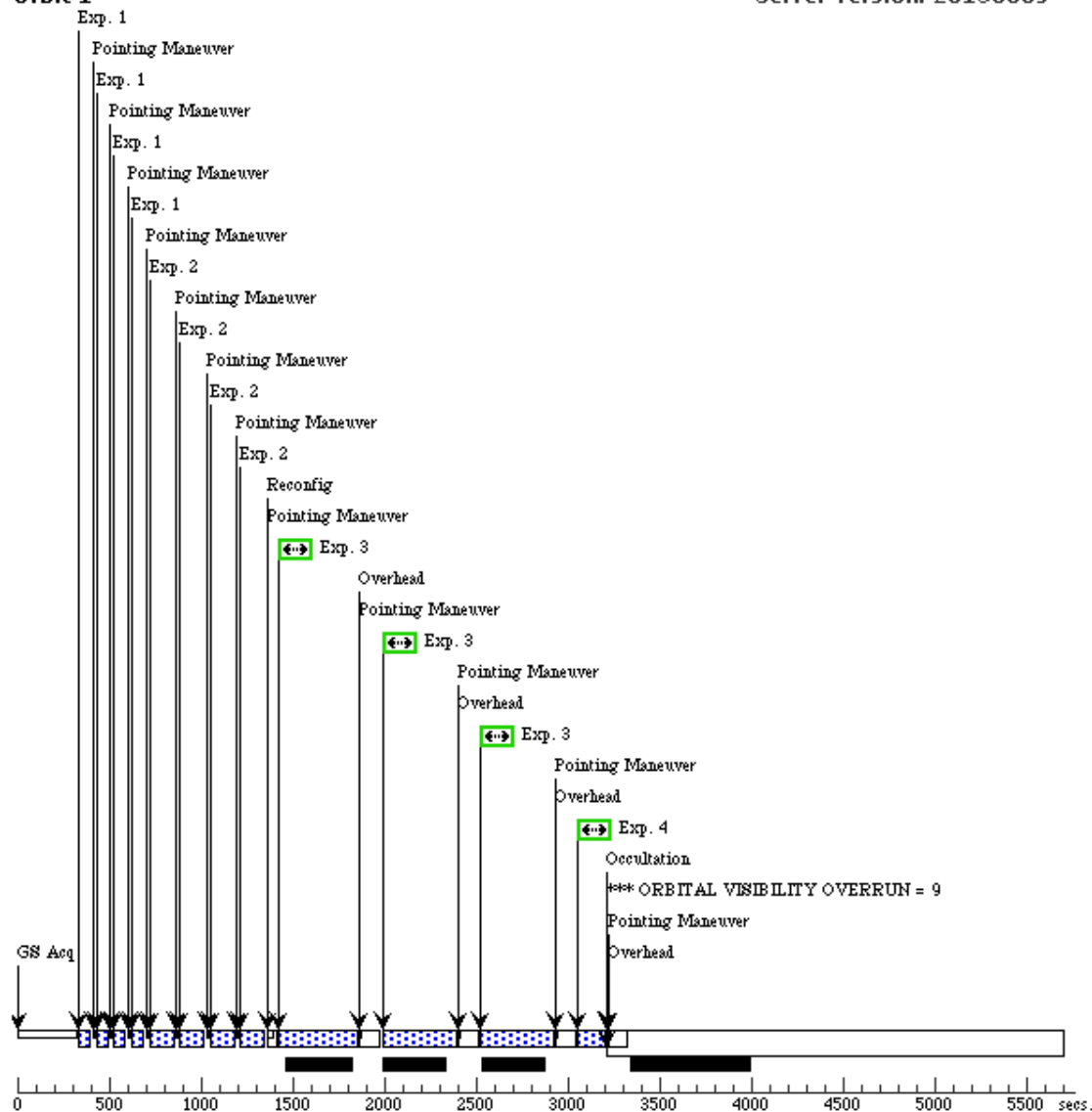
|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|-------------------------|
| Visit                                                                                             | Proposal 13755, Visit 02, completed                                                                                                                                                    |                                                                                                                          |                                                                                                               |                          | Wed Jul 22 01:09:52 GMT 2015 |                         |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Diagnostics                                                                                       | (Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 4 (Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 5 (Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 7 (Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures                    |                         |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)                     |                         |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)                          |                         |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)                          |                         |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes                       | Miscellaneous           |
|                                                                                                   | (2)                                                                                                                                                                                    | MRK-1029                                                                                                                 | RA: 02 17 3.5740 (34.2648917d)<br>Dec: +05 17 31.02 (5.29195d)<br>Equinox: J2000                              |                          | V=15.8                       | Reference Frame: SIMBAD |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |

# Proposal 13755 - Visit 02 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|----------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (2) MRK-1029 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 in Visit 02 (1) | 36.754642 Secs (147.019 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (2) MRK-1029 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 in Visit 02 (1) | 105.518395 Secs (422.074 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (2) MRK-1029 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 in Visit 02 (2) | 400 Secs (1194 Secs)<br>[=>398.0 Secs (Pattern 1)]<br>[=>398.0 Secs (Pattern 2)]<br>[=>398.0 Secs (Pattern 3)]                               | [1]   |
|           | 4 |       | (2) MRK-1029 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                     | 130 Secs (128 Secs)<br>[=>128.0 Secs ]                                                                                                       | [1]   |
|           | 5 |       | (2) MRK-1029 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                     | 130 Secs (195 Secs)<br>[=>195.0 Secs ]                                                                                                       | [2]   |
|           | 6 |       | (2) MRK-1029 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 in Visit 02 (3) | 480 Secs (1912 Secs)<br>[=>478.0 Secs (Pattern 1)]<br>[=>478.0 Secs (Pattern 2)]<br>[=>478.0 Secs (Pattern 3)]<br>[=>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (2) MRK-1029 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                     | 130 Secs (195 Secs)<br>[=>195.0 Secs ]                                                                                                       | [2]   |

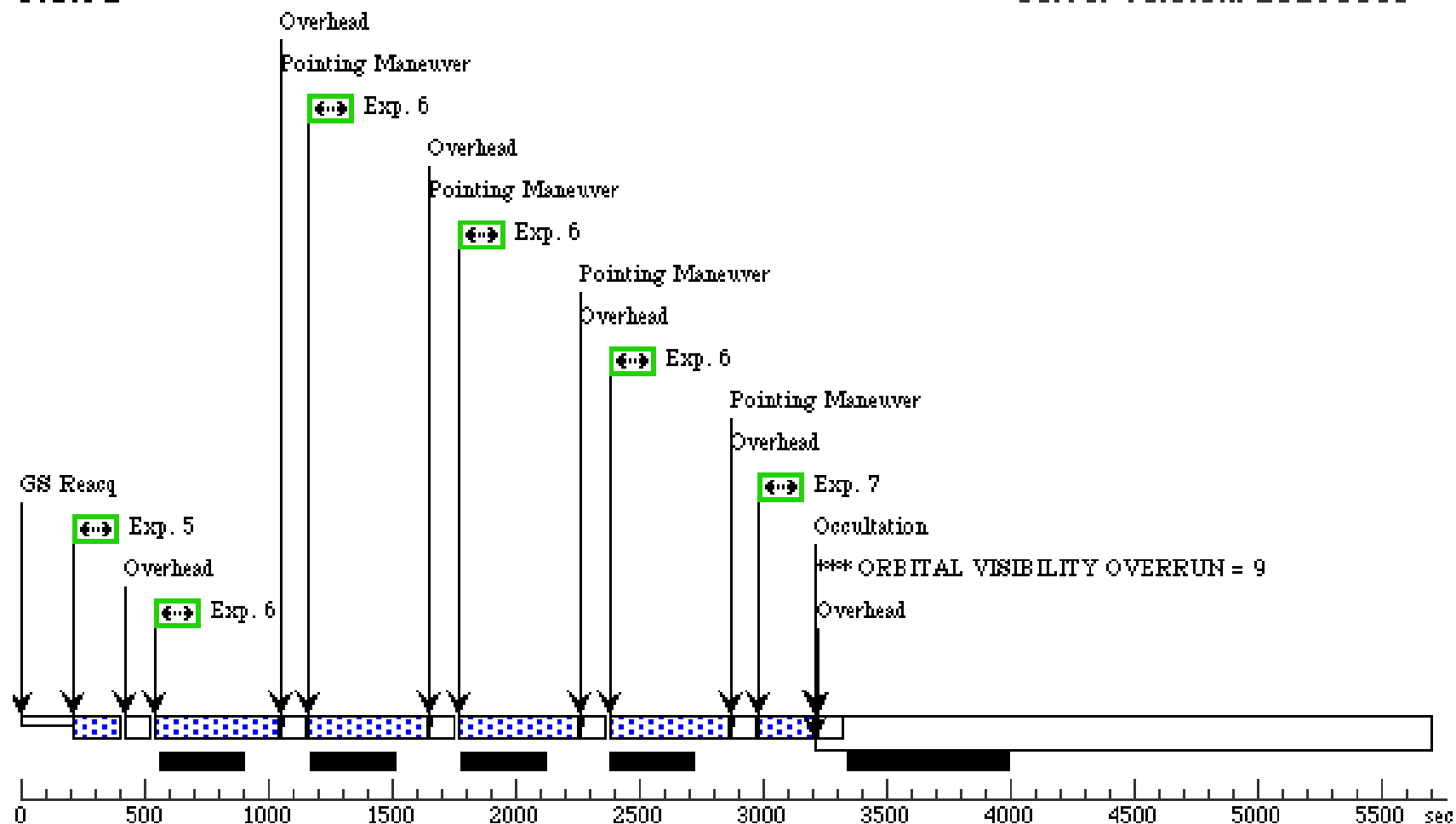
# Orbit 1

Server Version: 20150609



## Orbit 2

Server Version: 20150609



# Proposal 13755 - Visit 03 - The Hosts of Megamaser Disk Galaxies (II)

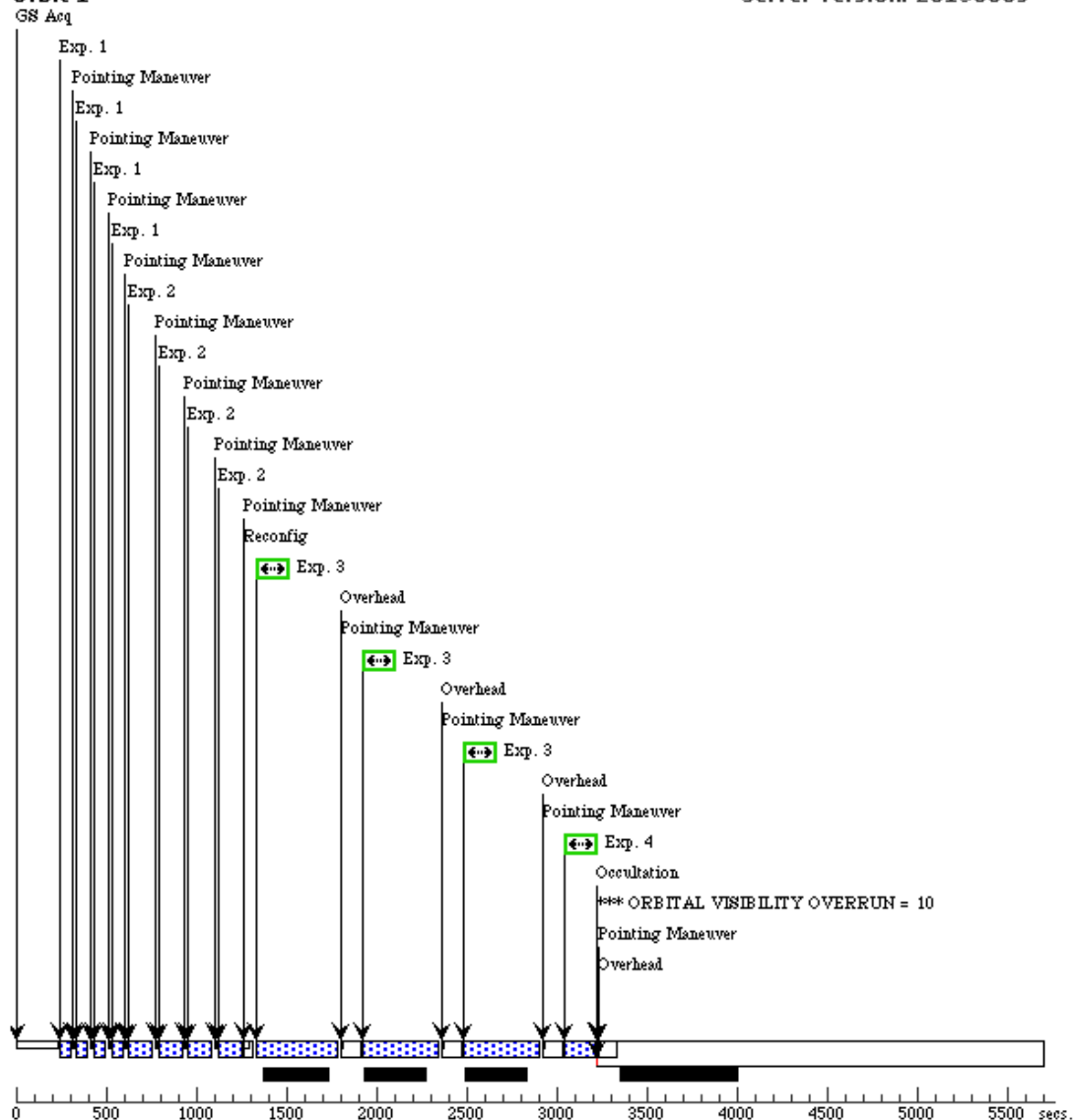
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                  |                                                                                                               |                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------|
| Visit         | <b>Proposal 13755, Visit 03, completed</b> <span>Wed Jul 22 01:09:52 GMT 2015</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                  |                                                                                                               |                       |
|               | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                  |                                                                                                               |                       |
| Diagnostics   | (Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Exposure 4 (Visit 03)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 5 (Visit 03)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 6 (Pattern 3, Exps 6-6 in Visit 03)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 7 (Visit 03)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                  |                                                                                                               |                       |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                  |                                                                                                               |                       |
| Patterns      | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Primary Pattern                                                                                                          |                                                                                  | Secondary Pattern                                                                                             | Exposures             |
|               | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false | (1), (2)              |
|               | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   |                                                                                  | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (3)                   |
|               | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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 | (6)                   |
| Fixed Targets | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Name                                                                                                                     | Target Coordinates                                                               | Targ. Coord. Corrections                                                                                      | Fluxes                |
|               | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | J0437+2456                                                                                                               | RA: 04 37 3.6900 (69.2653750d)<br>Dec: +24 56 7.00 (24.93528d)<br>Equinox: J2000 |                                                                                                               | V=16.6                |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                  |                                                                                                               | Miscellaneous         |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                  |                                                                                                               | Reference Frame: ICRS |

# Proposal 13755 - Visit 03 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target         | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|----------------|-------------------------------|---------------|---------------------------------|----------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (3) J0437+2456 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 | GS ACQ SCENARI<br>O SINGLE | Pattern 1, Exps 1-1 i<br>n Visit 03 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (3) J0437+2456 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 i<br>n Visit 03 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (3) J0437+2456 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 i<br>n Visit 03 (2) | 400 Secs (1275 Secs)<br>[==>425.0 Secs (Pattern 1)]<br>[==>425.0 Secs (Pattern 2)]<br>[==>425.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (3) J0437+2456 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                         | 130 Secs (149 Secs)<br>[==>149.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (3) J0437+2456 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                         | 130 Secs (211 Secs)<br>[==>211.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (3) J0437+2456 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 i<br>n Visit 03 (3) | 480 Secs (1944 Secs)<br>[==>486.0 Secs (Pattern 1)]<br>[==>486.0 Secs (Pattern 2)]<br>[==>486.0 Secs (Pattern 3)]<br>[==>486.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (3) J0437+2456 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                         | 130 Secs (203 Secs)<br>[==>203.0 Secs ]                                                                                                          | [2]   |

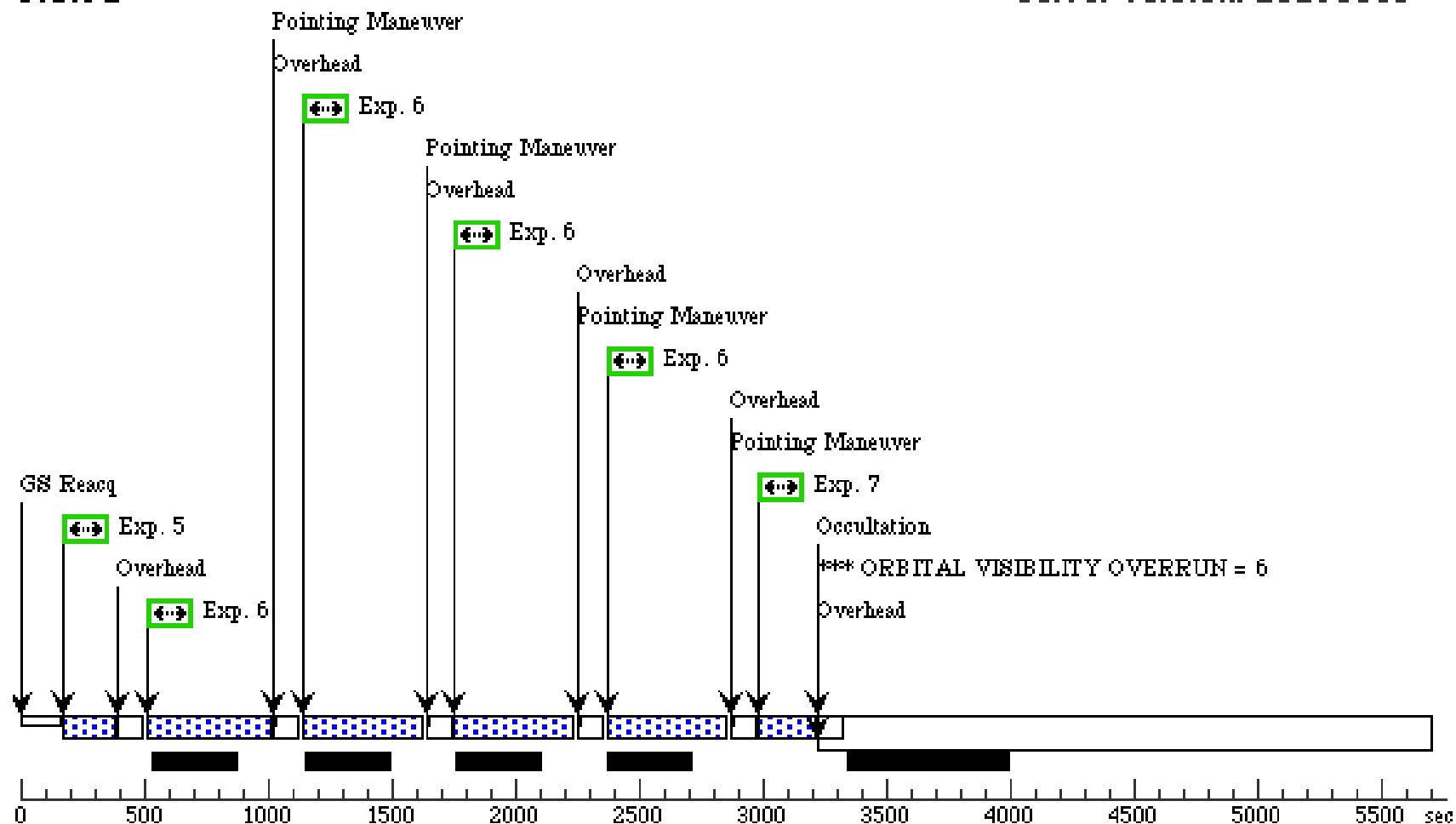
**Orbit 1**

Server Version: 20150609



## Orbit 2

Server Version: 20150609



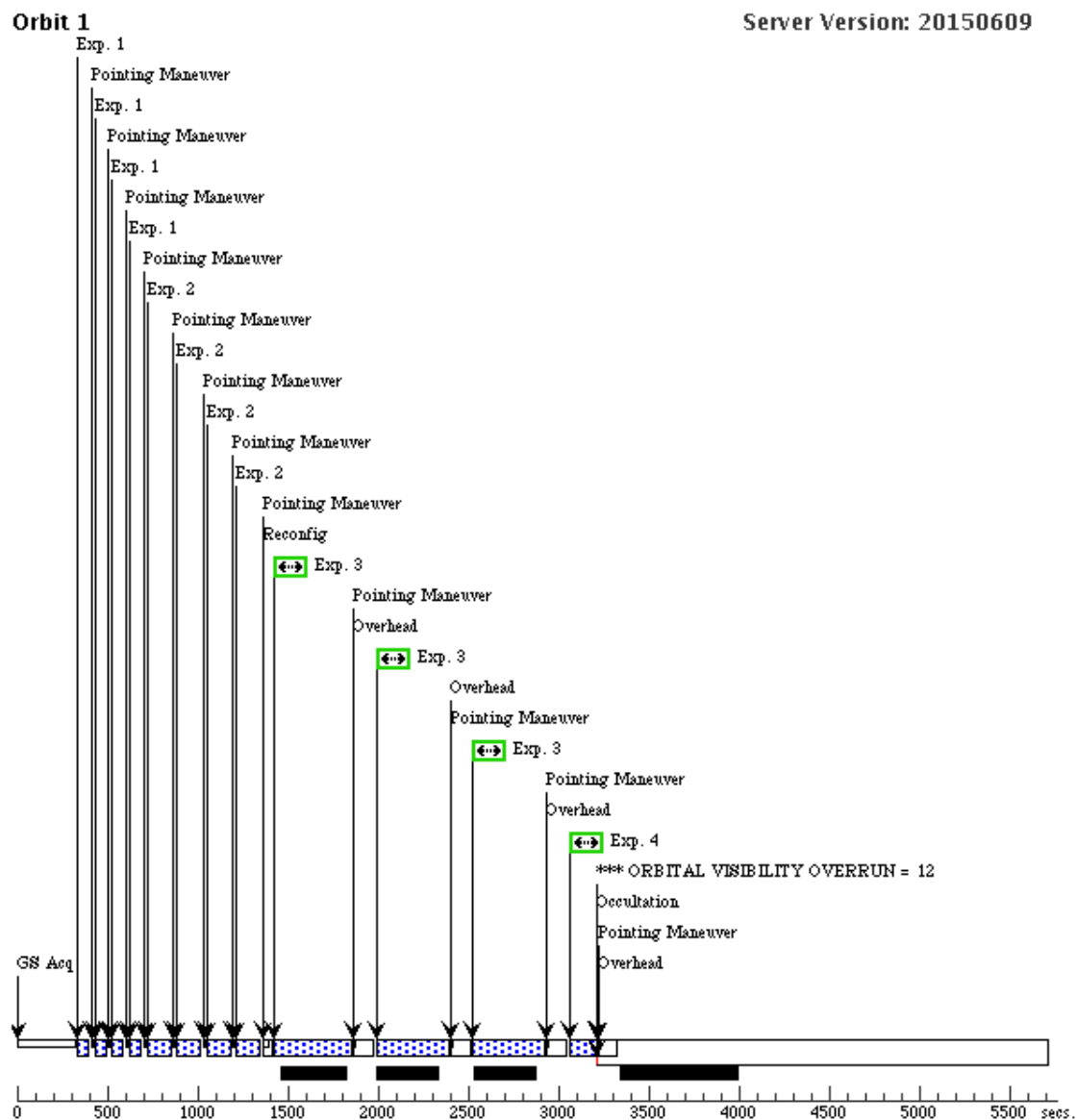
## Proposal 13755 - Visit 04 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|-------------------------|
| Visit                                                                                             | Proposal 13755, Visit 04, completed                                                                                                                                                    |                                                                                                                          |                                                                                                               |                          | Wed Jul 22 01:09:52 GMT 2015 |                         |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Diagnostics                                                                                       | (Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 4 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 5 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 7 (Visit 04)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures                    |                         |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)                     |                         |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)                          |                         |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)                          |                         |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes                       | Miscellaneous           |
|                                                                                                   | (4)                                                                                                                                                                                    | UGC-3193                                                                                                                 | RA: 04 52 52.5860 (73.2191083d)<br>Dec: +03 03 25.90 (3.05719d)<br>Equinox: J2000                             |                          | V=14.8                       | Reference Frame: SIMBAD |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |

# Proposal 13755 - Visit 04 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                                              | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|----------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (4) UGC-3193 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 in Visit 04 (1) | 36.754642 Secs (147.019 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (4) UGC-3193 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 in Visit 04 (1) | 105.518395 Secs (422.074 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (4) UGC-3193 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 in Visit 04 (2) | 400 Secs (1197 Secs)<br>[=>399.0 Secs (Pattern 1)]<br>[=>399.0 Secs (Pattern 2)]<br>[=>399.0 Secs (Pattern 3)]                               | [1]   |
|           | 4 |       | (4) UGC-3193 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                     | 130 Secs (125 Secs)<br>[=>125.0 Secs ]                                                                                                       | [1]   |
|           | 5 |       | (4) UGC-3193 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                     | 130 Secs (194 Secs)<br>[=>194.0 Secs ]                                                                                                       | [2]   |
|           | 6 |       | (4) UGC-3193 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 in Visit 04 (3) | 480 Secs (1912 Secs)<br>[=>478.0 Secs (Pattern 1)]<br>[=>478.0 Secs (Pattern 2)]<br>[=>478.0 Secs (Pattern 3)]<br>[=>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (4) UGC-3193 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                     | 130 Secs (195 Secs)<br>[=>195.0 Secs ]                                                                                                       | [2]   |

Server Version: 20150609





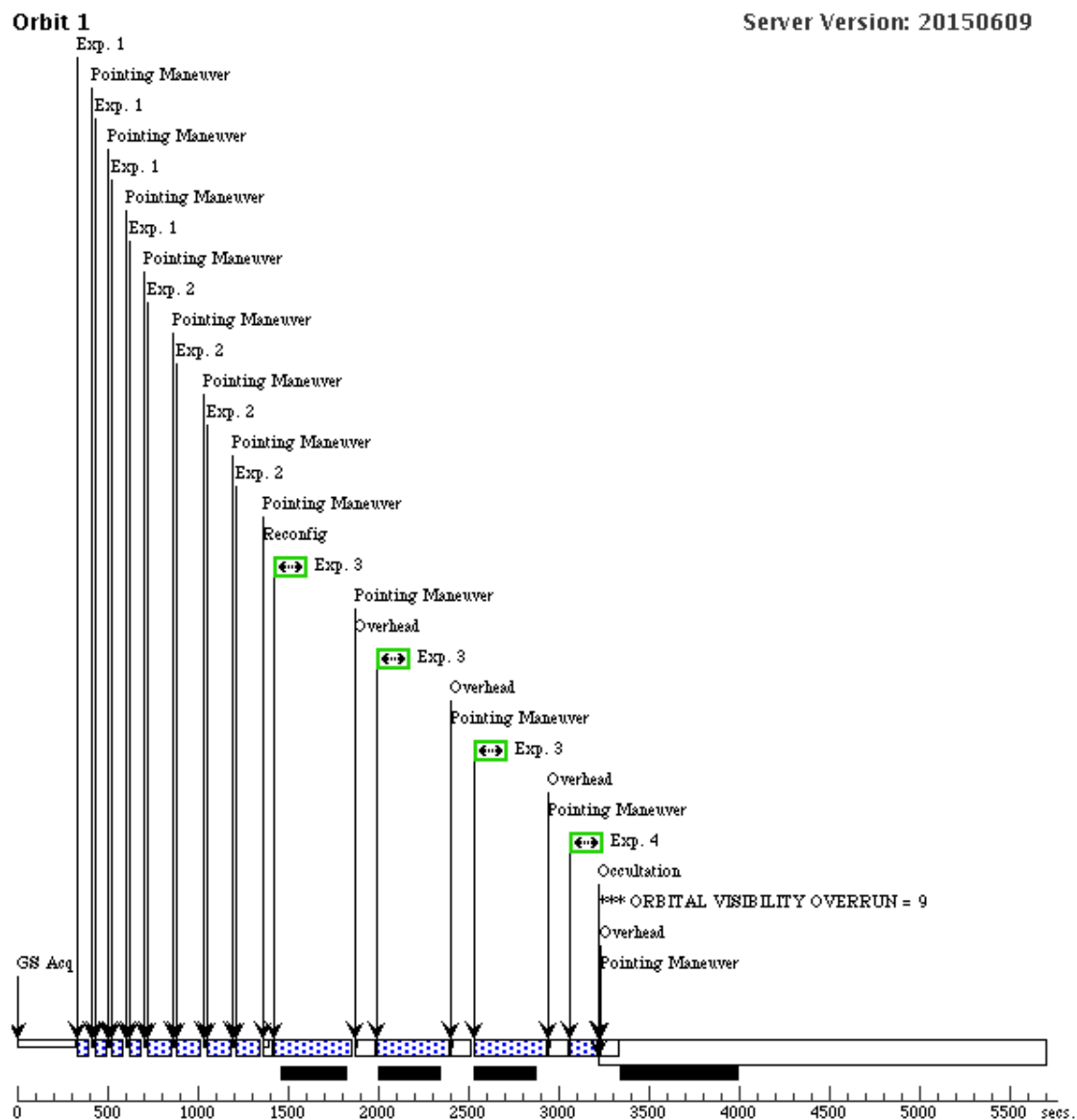
## Proposal 13755 - Visit 05 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|-------------------------|
| Visit                                                                                             | Proposal 13755, Visit 05, scheduling                                                                                                                                                   |                                                                                                                          |                                                                                                               |                          | Wed Jul 22 01:09:52 GMT 2015 |                         |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Diagnostics                                                                                       | (Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 4 (Visit 05)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 5 (Visit 05)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 05)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |                              |                         |
|                                                                                                   | (Exposure 7 (Visit 05)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |                              |                         |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures                    |                         |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)                     |                         |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)                          |                         |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)                          |                         |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes                       | Miscellaneous           |
|                                                                                                   | (5)                                                                                                                                                                                    | ESO-558-9                                                                                                                | RA: 07 04 21.0020 (106.0875083d)<br>Dec: -21 35 19.36 (-21.58871d)<br>Equinox: J2000                          |                          | V=15.8                       | Reference Frame: SIMBAD |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |                              |                         |

# Proposal 13755 - Visit 05 - The Hosts of Megamaser Disk Galaxies (II)

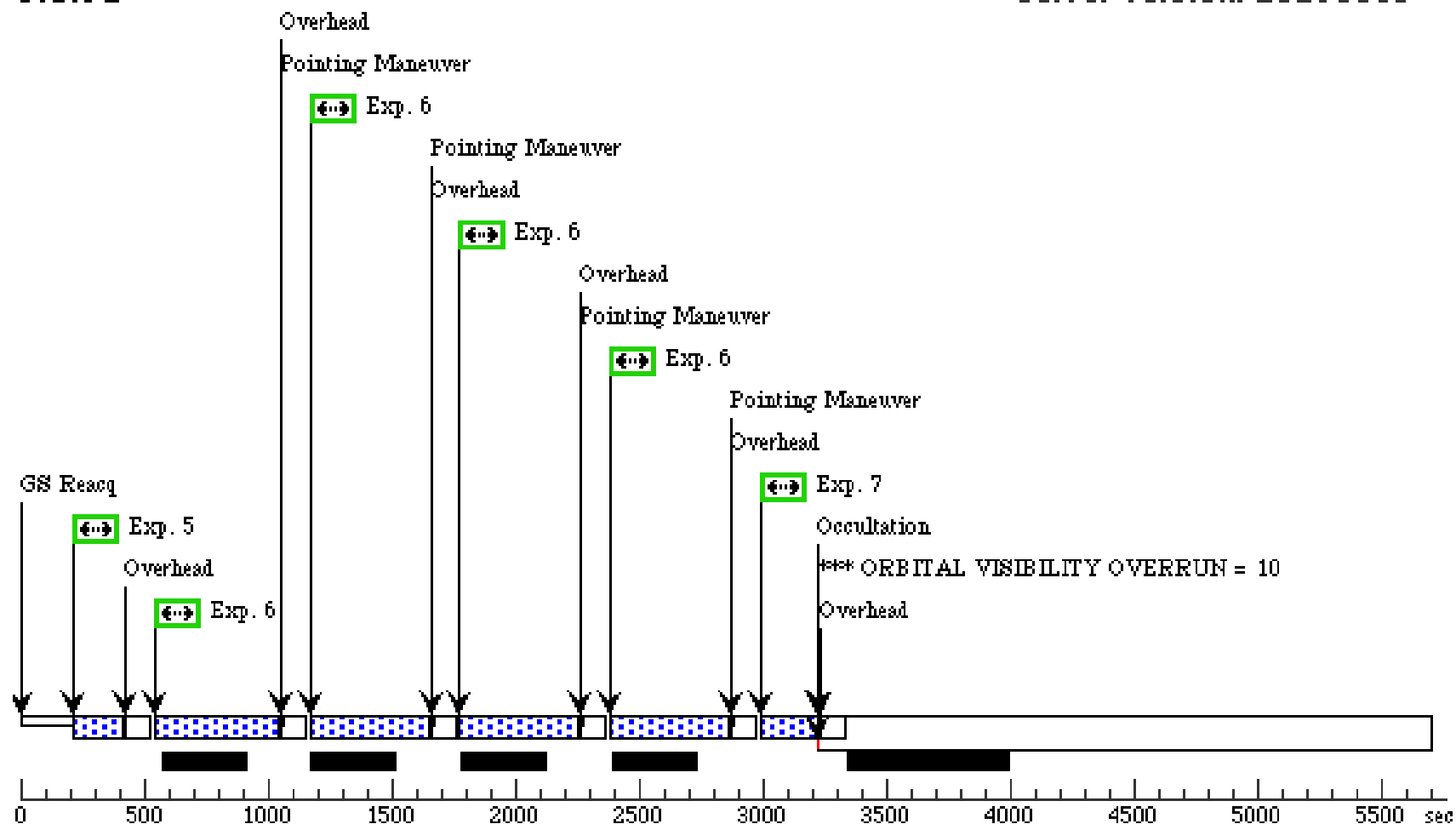
| Exposures | # | Label | Target        | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                                              | Orbit |
|-----------|---|-------|---------------|-------------------------------|---------------|---------------------------------|----------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (5) ESO-558-9 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 in Visit 05 (1) | 36.754642 Secs (147.019 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (5) ESO-558-9 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 in Visit 05 (1) | 105.518395 Secs (422.074 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (5) ESO-558-9 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 in Visit 05 (2) | 400 Secs (1203 Secs)<br>[=>401.0 Secs (Pattern 1)]<br>[=>401.0 Secs (Pattern 2)]<br>[=>401.0 Secs (Pattern 3)]                               | [1]   |
|           | 4 |       | (5) ESO-558-9 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                     | 130 Secs (128 Secs)<br>[=>128.0 Secs ]                                                                                                       | [1]   |
|           | 5 |       | (5) ESO-558-9 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                     | 130 Secs (198 Secs)<br>[=>198.0 Secs ]                                                                                                       | [2]   |
|           | 6 |       | (5) ESO-558-9 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 in Visit 05 (3) | 480 Secs (1912 Secs)<br>[=>478.0 Secs (Pattern 1)]<br>[=>478.0 Secs (Pattern 2)]<br>[=>478.0 Secs (Pattern 3)]<br>[=>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (5) ESO-558-9 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                     | 130 Secs (204 Secs)<br>[=>204.0 Secs ]                                                                                                       | [2]   |

Server Version: 20150609



## Orbit 2

Server Version: 20150609



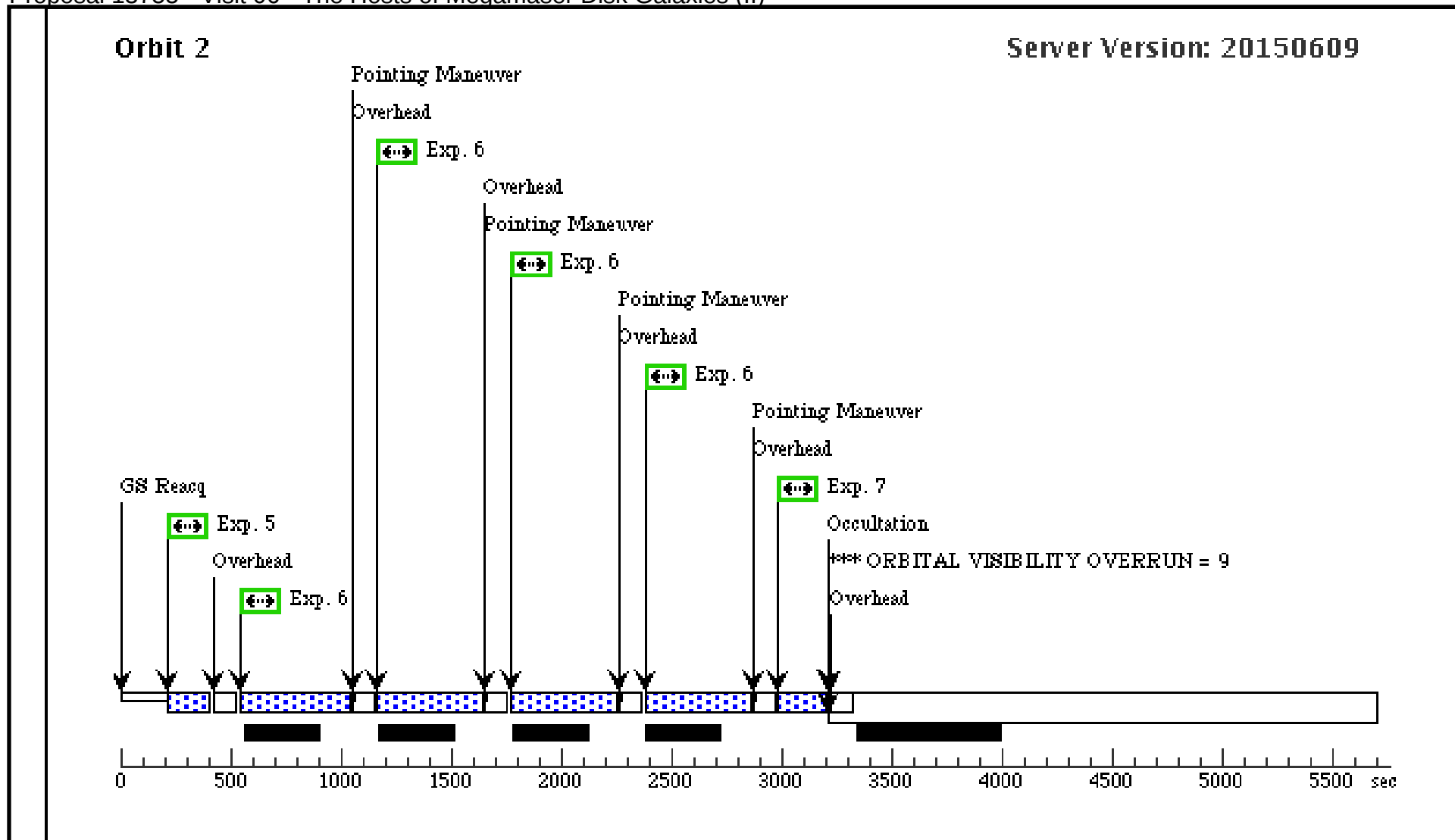
## Proposal 13755 - Visit 06 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|-----------|------------------------------|
| Visit                                                                                             | Proposal 13755, Visit 06, completed                                                                                                                                                    |                                                                                                                          |                                                                                                               |                          |           | Wed Jul 22 01:09:53 GMT 2015 |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |           |                              |
| Diagnostics                                                                                       | (Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 4 (Visit 06)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 5 (Visit 06)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 06)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 7 (Visit 06)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures |                              |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)  |                              |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)       |                              |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)       |                              |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes    | Miscellaneous                |
|                                                                                                   | (6)                                                                                                                                                                                    | MRK-1210                                                                                                                 | RA: 08 04 5.8410 (121.0243375d)<br>Dec: +05 06 49.84 (5.11384d)<br>Equinox: J2000                             |                          | V=14.3    | Reference Frame: SIMBAD      |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |           |                              |

# Proposal 13755 - Visit 06 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|----------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (6) MRK-1210 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 i<br>n Visit 06 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (6) MRK-1210 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 i<br>n Visit 06 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (6) MRK-1210 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 i<br>n Visit 06 (2) | 400 Secs (1194 Secs)<br>[==>398.0 Secs (Pattern 1)]<br>[==>398.0 Secs (Pattern 2)]<br>[==>398.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (6) MRK-1210 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                         | 130 Secs (128 Secs)<br>[==>128.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (6) MRK-1210 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                         | 130 Secs (194 Secs)<br>[==>194.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (6) MRK-1210 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 i<br>n Visit 06 (3) | 480 Secs (1912 Secs)<br>[==>478.0 Secs (Pattern 1)]<br>[==>478.0 Secs (Pattern 2)]<br>[==>478.0 Secs (Pattern 3)]<br>[==>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (6) MRK-1210 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                         | 130 Secs (196 Secs)<br>[==>196.0 Secs ]                                                                                                          | [2]   |





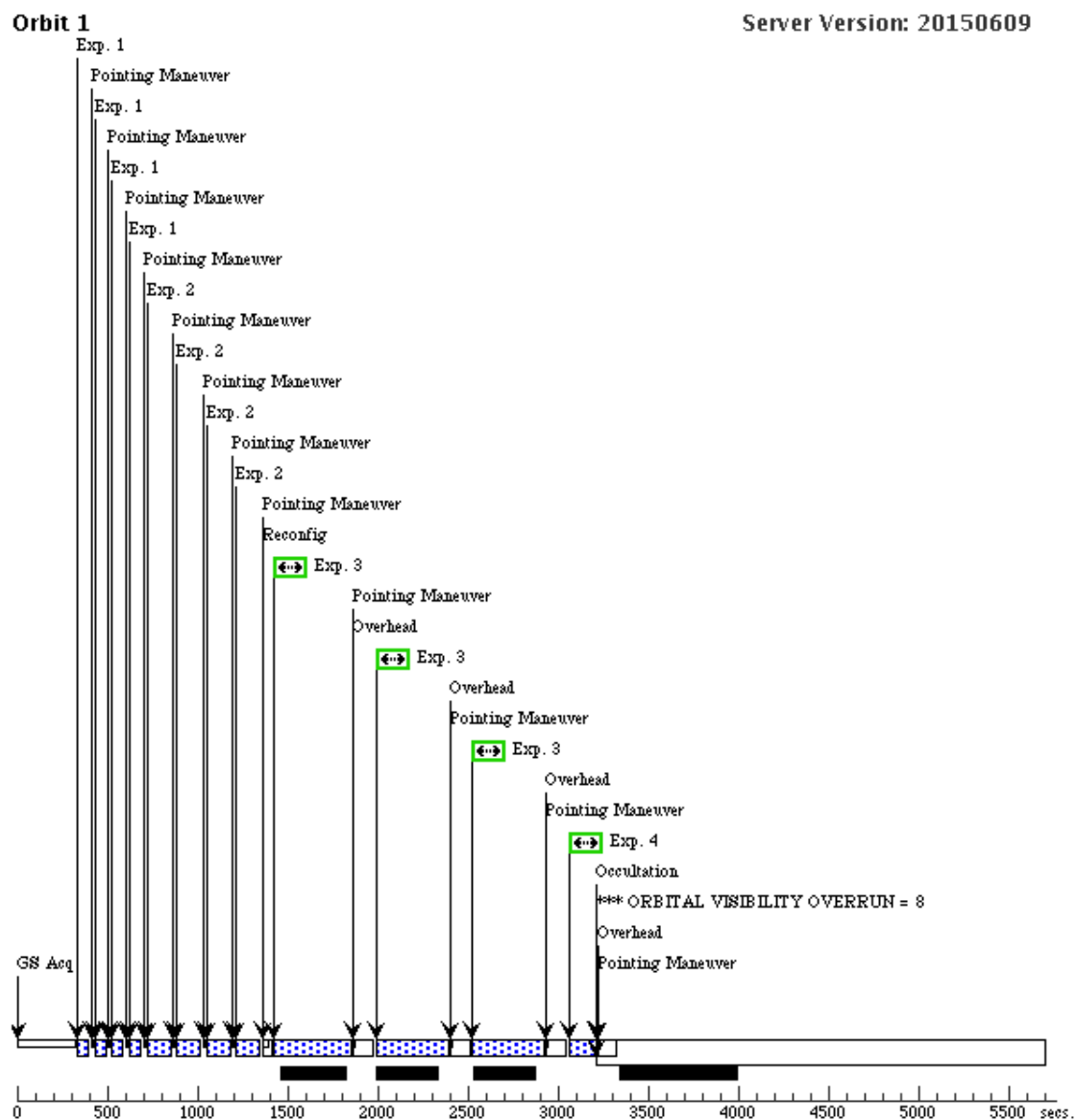
# Proposal 13755 - Visit 07 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                     |                                                                                                               |           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                                             | <b>Proposal 13755, Visit 07, completed</b> <span>Wed Jul 22 01:09:53 GMT 2015</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                     |                                                                                                               |           |
|                                                                                                   | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                     |                                                                                                               |           |
| Diagnostics                                                                                       | (Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Exposure 4 (Visit 07)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 5 (Visit 07)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 6 (Pattern 3, Exps 6-6 in Visit 07)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 7 (Visit 07)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                     |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                     |                                                                                                               |           |
| Patterns                                                                                          | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Primary Pattern                                                                                                          |                                                                                     | Secondary Pattern                                                                                             | Exposures |
|                                                                                                   | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false | (1), (2)  |
|                                                                                                   | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   |                                                                                     | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (3)       |
|                                                                                                   | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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 | (6)       |
| Fixed Targets                                                                                     | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Name                                                                                                                     | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                                                   | (7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | UGC-6093                                                                                                                 | RA: 11 00 47.9550 (165.1998125d)<br>Dec: +10 43 41.76 (10.72827d)<br>Equinox: J2000 |                                                                                                               | V=14.8    |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                     |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                     |                                                                                                               |           |

# Proposal 13755 - Visit 07 - The Hosts of Megamaser Disk Galaxies (II)

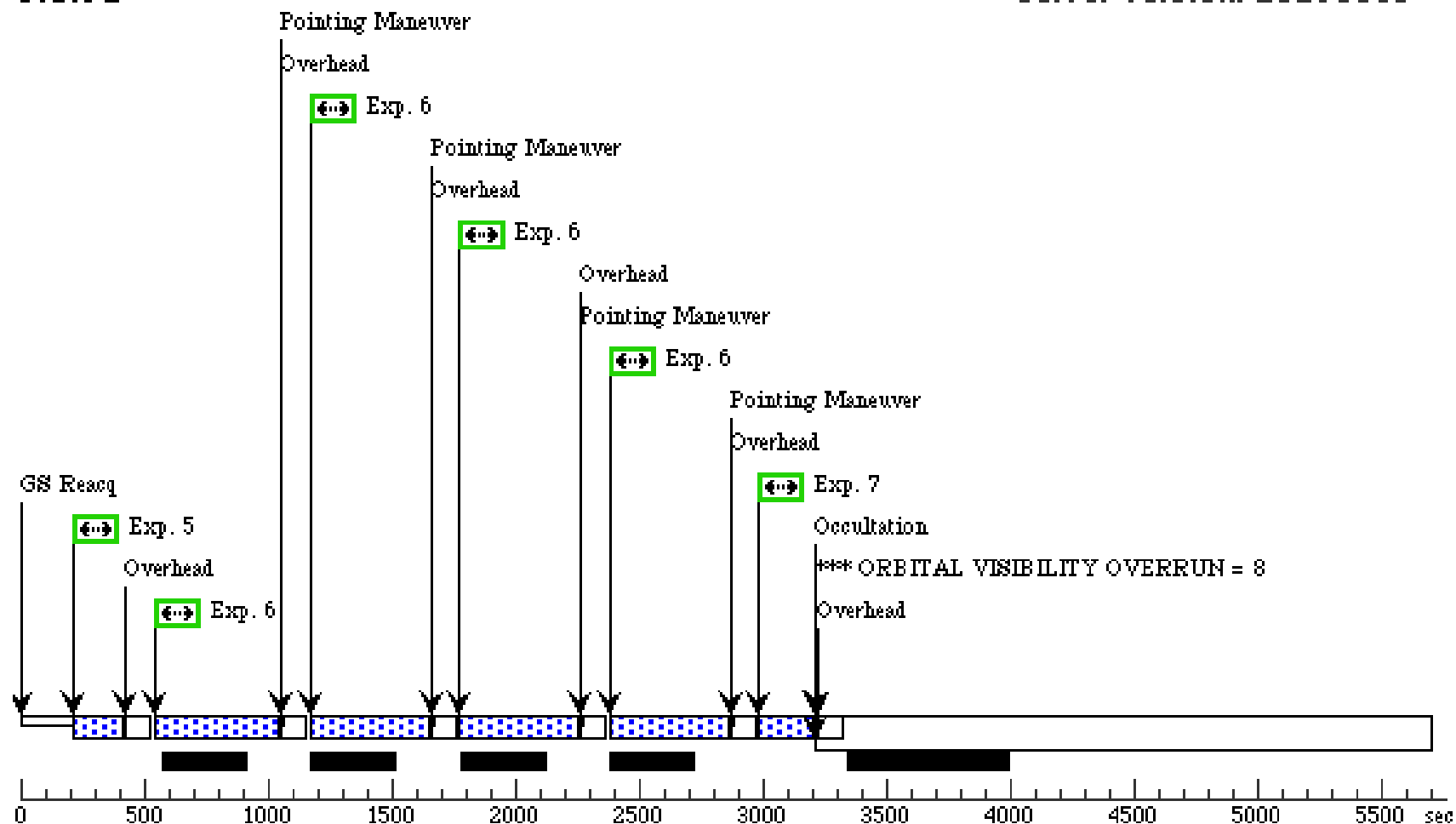
| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.               | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|-----------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (7) UGC-6093 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n Visit 07 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (7) UGC-6093 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                             | Pattern 1, Exps 2-2 i<br>n Visit 07 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (7) UGC-6093 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969  | Pattern 2, Exps 3-3 i<br>n Visit 07 (2) | 400 Secs (1197 Secs)<br>[==>399.0 Secs (Pattern 1)]<br>[==>399.0 Secs (Pattern 2)]<br>[==>399.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (7) UGC-6093 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969  |                                         | 130 Secs (129 Secs)<br>[==>129.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (7) UGC-6093 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0            |                                         | 130 Secs (197 Secs)<br>[==>197.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (7) UGC-6093 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                             | Pattern 3, Exps 6-6 i<br>n Visit 07 (3) | 480 Secs (1912 Secs)<br>[==>478.0 Secs (Pattern 1)]<br>[==>478.0 Secs (Pattern 2)]<br>[==>478.0 Secs (Pattern 3)]<br>[==>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (7) UGC-6093 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985  |                                         | 130 Secs (197 Secs)<br>[==>197.0 Secs ]                                                                                                          | [2]   |

Server Version: 20150609



## Orbit 2

Server Version: 20150609



# Proposal 13755 - Visit 08 - The Hosts of Megamaser Disk Galaxies (II)

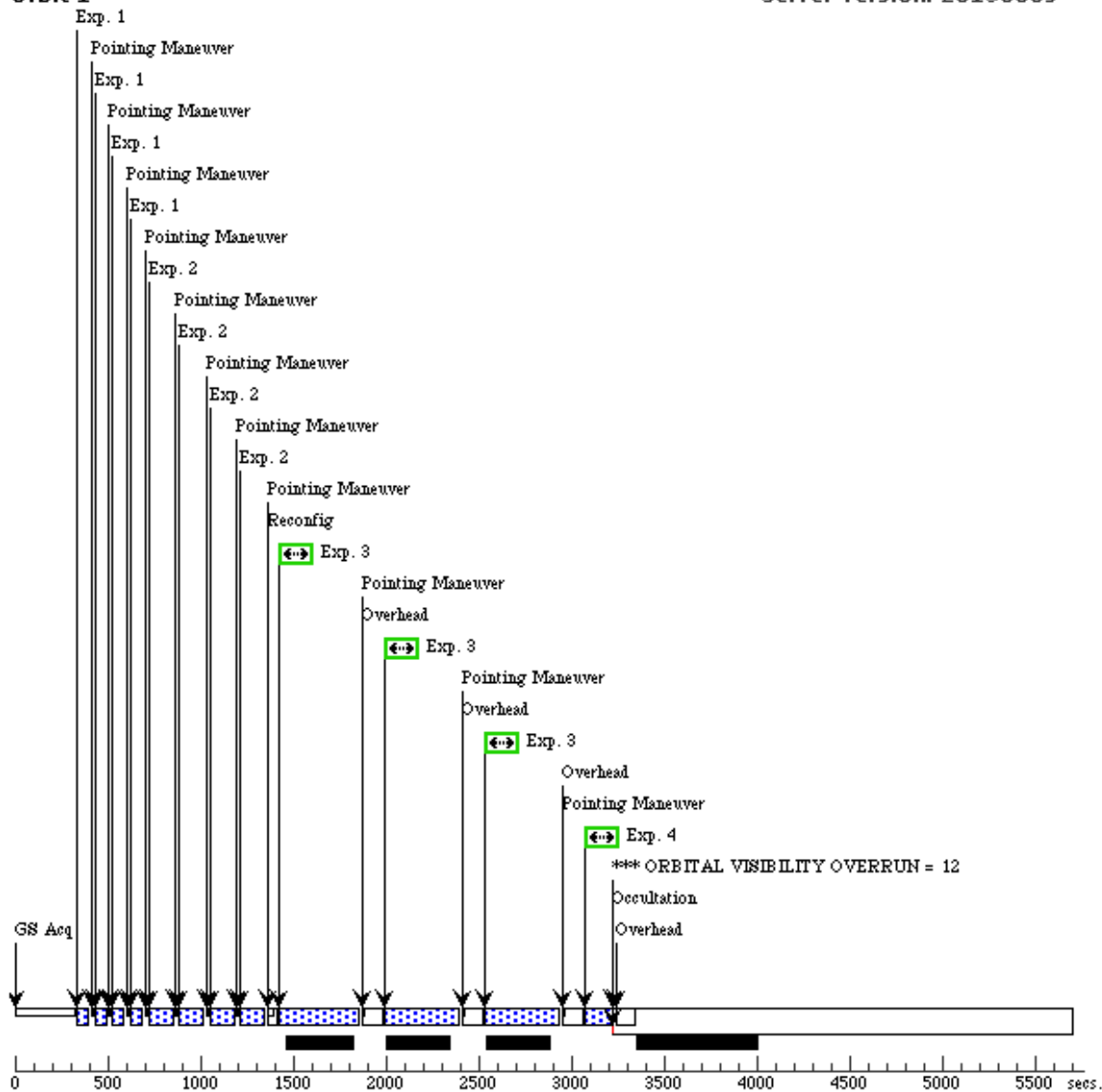
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                                             | <b>Proposal 13755, Visit 08, completed</b> <span>Wed Jul 22 01:09:53 GMT 2015</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
| Diagnostics                                                                                       | (Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Exposure 4 (Visit 08)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 5 (Visit 08)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 6 (Pattern 3, Exps 6-6 in Visit 08)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 7 (Visit 08)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
| Patterns                                                                                          | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Primary Pattern                                                                                                          |                                                                                      | Secondary Pattern                                                                                             | Exposures |
|                                                                                                   | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                      | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false | (1), (2)  |
|                                                                                                   | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   |                                                                                      | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (3)       |
|                                                                                                   | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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 | (6)       |
| Fixed Targets                                                                                     | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Name                                                                                                                     | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                                                   | (8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | NGC-5495                                                                                                                 | RA: 14 12 23.3530 (213.0973042d)<br>Dec: -27 06 28.72 (-27.10798d)<br>Equinox: J2000 |                                                                                                               | V=13.5    |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |

# Proposal 13755 - Visit 08 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.                                           | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|---------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (8) NGC-5495 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 | POS TARG 0.1,-3.5                                       | Pattern 1, Exps 1-1 i<br>n Visit 08 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (8) NGC-5495 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 | POS TARG 0.1,-3.5                                       | Pattern 1, Exps 2-2 i<br>n Visit 08 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (8) NGC-5495 | WFC3/UVIS, ACCUM, UVIS1       | F336W         | FLASH=12.0                      | POS TARG 0.32775<br>855433390366,-8.45<br>2069907388355 | Pattern 2, Exps 3-3 i<br>n Visit 08 (2) | 400 Secs (1212 Secs)<br>[==>404.0 Secs (Pattern 1)]<br>[==>404.0 Secs (Pattern 2)]<br>[==>404.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (8) NGC-5495 | WFC3/UVIS, ACCUM, UVIS1       | F438W         |                                 | POS TARG 0.33,-8.<br>5                                  |                                         | 130 Secs (129 Secs)<br>[==>129.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (8) NGC-5495 | WFC3/UVIS, ACCUM, UVIS1       | F438W         |                                 | POS TARG 0.33,-8.<br>5                                  |                                         | 130 Secs (198 Secs)<br>[==>198.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (8) NGC-5495 | WFC3/UVIS, ACCUM, UVIS1       | F814W         |                                 | POS TARG 0.33,-8.<br>5                                  | Pattern 3, Exps 6-6 i<br>n Visit 08 (3) | 480 Secs (1924 Secs)<br>[==>481.0 Secs (Pattern 1)]<br>[==>481.0 Secs (Pattern 2)]<br>[==>481.0 Secs (Pattern 3)]<br>[==>481.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (8) NGC-5495 | WFC3/UVIS, ACCUM, UVIS1       | F438W         |                                 | POS TARG 0.33,-8.<br>5                                  |                                         | 130 Secs (200 Secs)<br>[==>200.0 Secs ]                                                                                                          | [2]   |

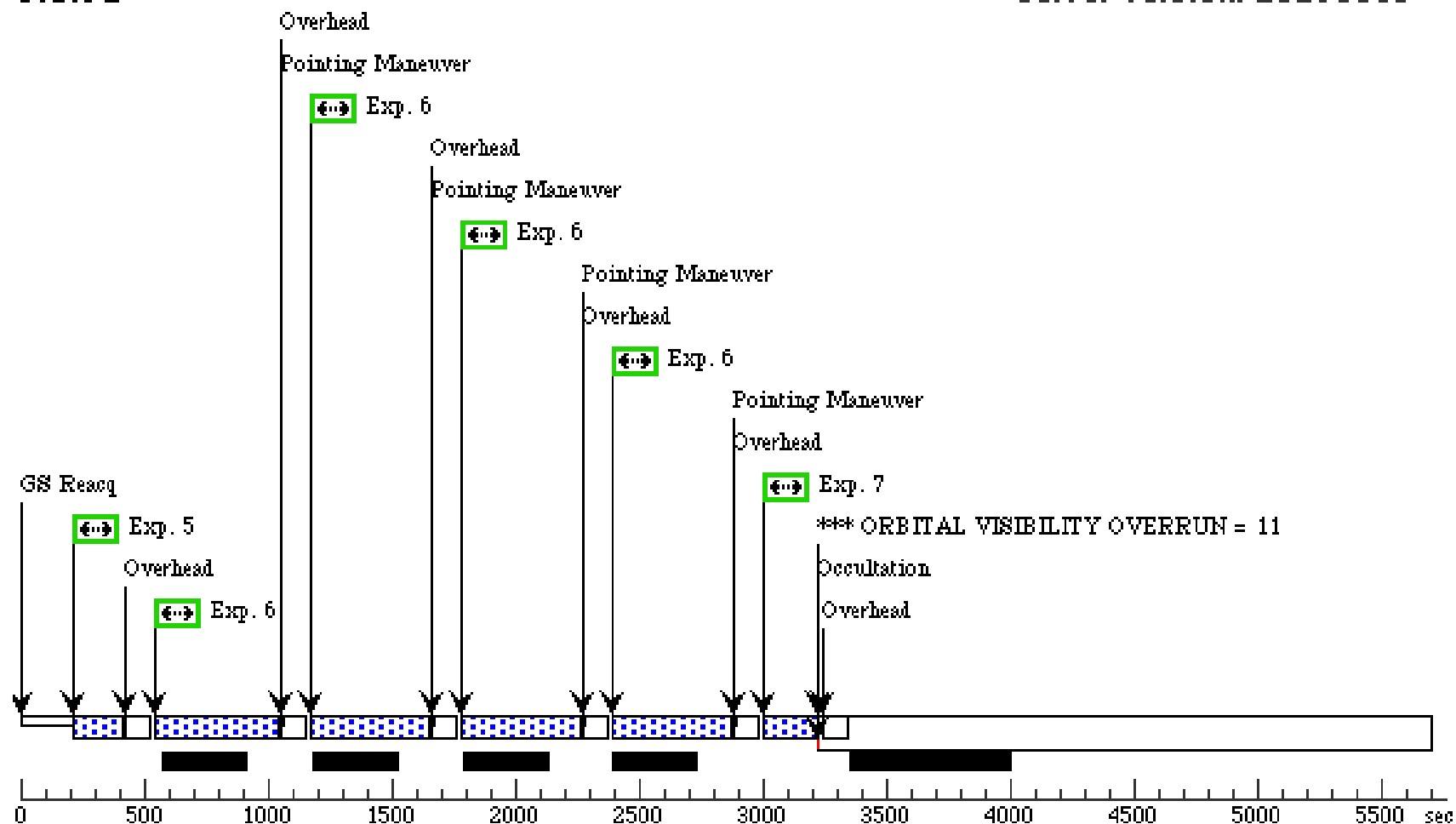
Orbit 1

Server Version: 20150609



## Orbit 2

Server Version: 20150609



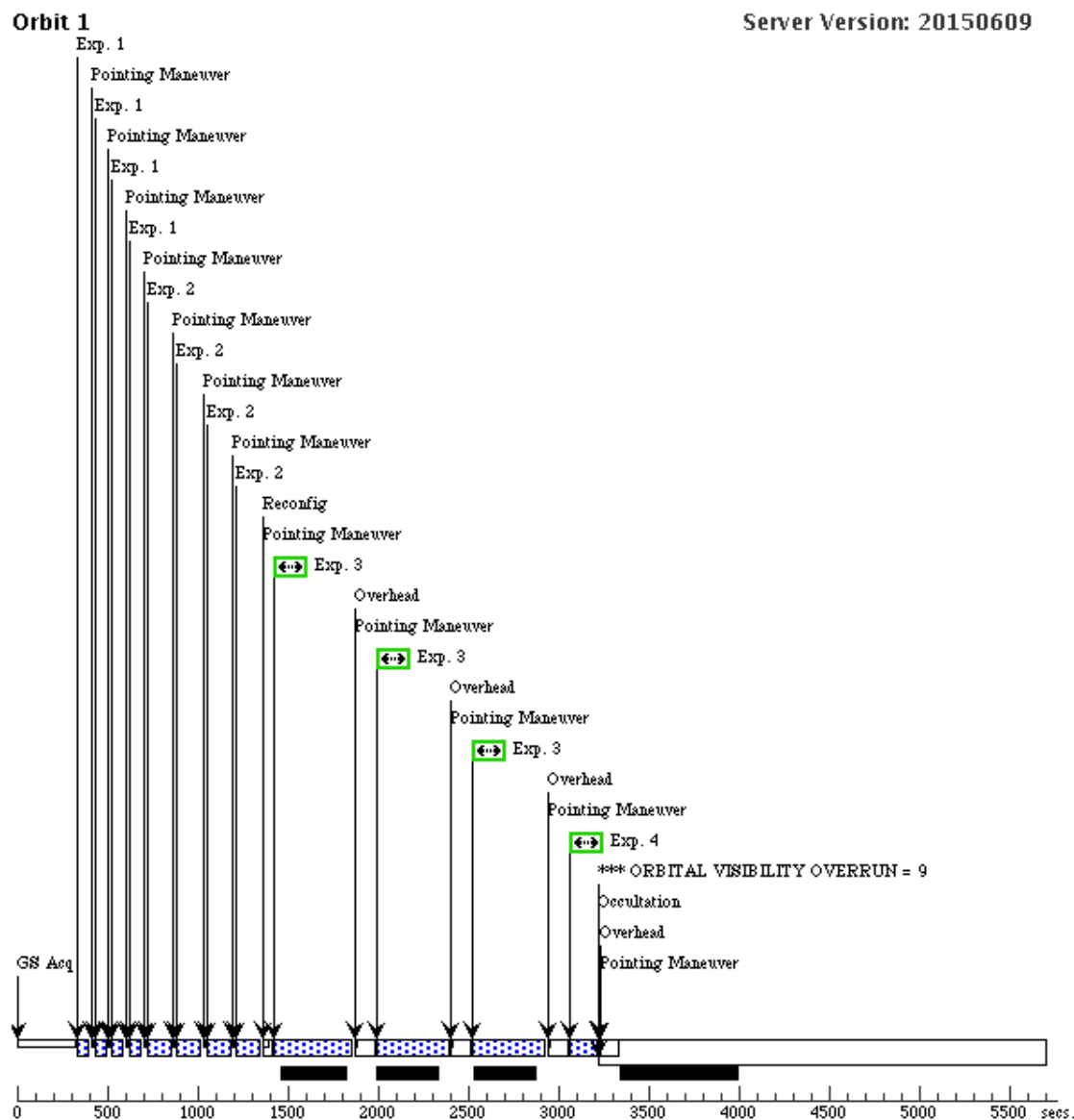
# Proposal 13755 - Visit 09 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------|
| Visit                                                                                             | <b>Proposal 13755, Visit 09, completed</b> <span>Wed Jul 22 01:09:53 GMT 2015</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   | <b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR, WFC3/UVIS<br>Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
| Diagnostics                                                                                       | (Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN<br>(Exposure 4 (Visit 09)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 5 (Visit 09)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 6 (Pattern 3, Exps 6-6 in Visit 09)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser<br>(Exposure 7 (Visit 09)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
| Patterns                                                                                          | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Primary Pattern                                                                                                          |                                                                                      | Secondary Pattern                                                                                             | Exposures |
|                                                                                                   | (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 |                                                                                      | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false | (1), (2)  |
|                                                                                                   | (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   |                                                                                      | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        | (3)       |
|                                                                                                   | (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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 | (6)       |
| Fixed Targets                                                                                     | #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Name                                                                                                                     | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                                      | Fluxes    |
|                                                                                                   | (9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | NGC-5728                                                                                                                 | RA: 14 42 23.9280 (220.5997000d)<br>Dec: -17 15 11.41 (-17.25317d)<br>Equinox: J2000 |                                                                                                               | V=13.4    |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |
|                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                          |                                                                                      |                                                                                                               |           |

# Proposal 13755 - Visit 09 - The Hosts of Megamaser Disk Galaxies (II)

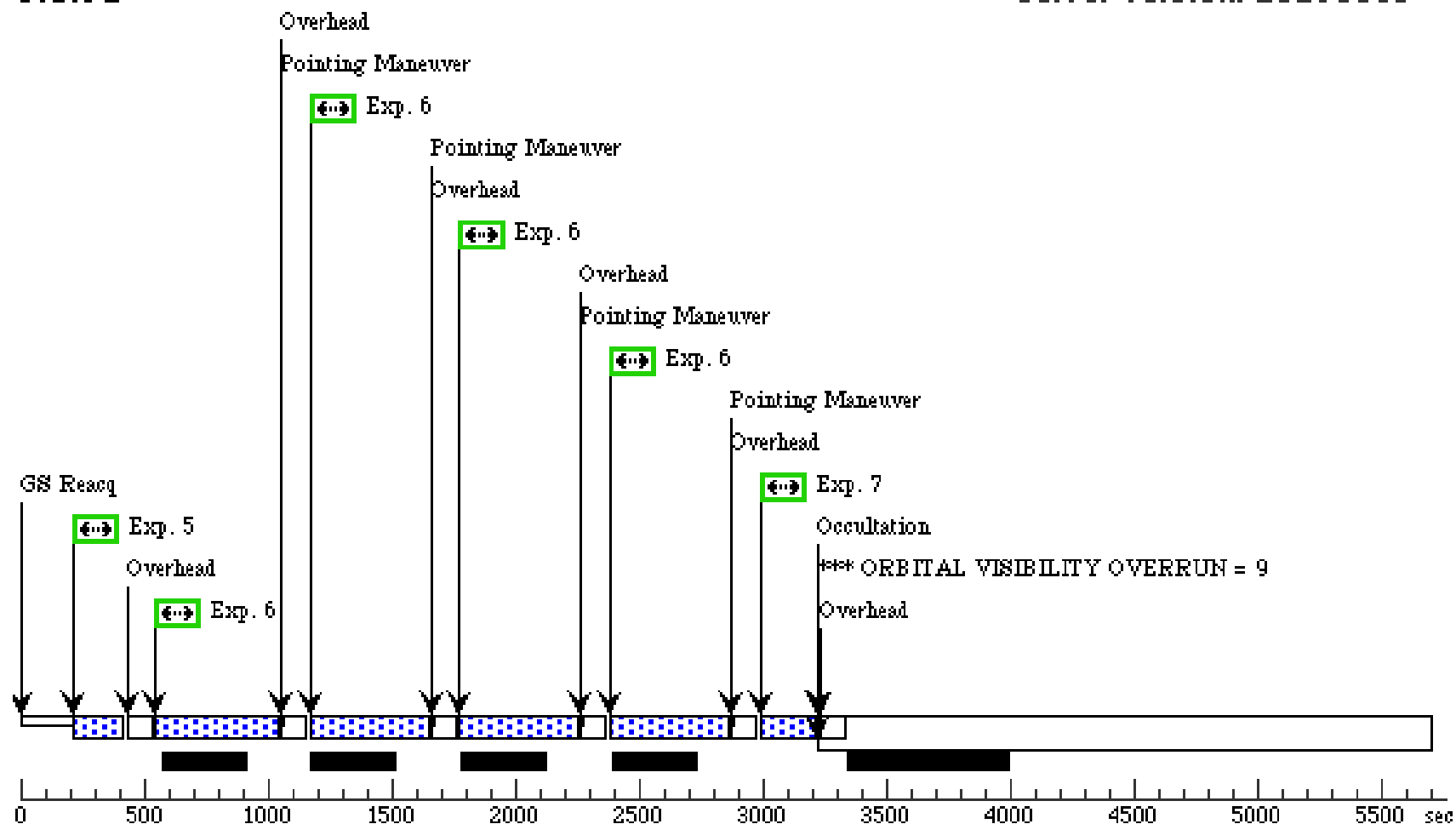
| Exposures | # | Label | Target       | Config,Mode,Aperture          | Spectral Els. | Opt. Params.                    | Special Reqs.              | Groups                              | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|--------------|-------------------------------|---------------|---------------------------------|----------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (9) NGC-5728 | WFC3/IR, MULTIACCUM, IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 1-1 in Visit 09 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (9) NGC-5728 | WFC3/IR, MULTIACCUM, IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                            | Pattern 1, Exps 2-2 in Visit 09 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (9) NGC-5728 | WFC3/UVIS, ACCUM, UVIS2       | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969 | Pattern 2, Exps 3-3 in Visit 09 (2) | 400 Secs (1200 Secs)<br>[==>400.0 Secs (Pattern 1)]<br>[==>400.0 Secs (Pattern 2)]<br>[==>400.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (9) NGC-5728 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.1848,0<br>.1969 |                                     | 130 Secs (130 Secs)<br>[==>130.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (9) NGC-5728 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0,0.0           |                                     | 130 Secs (201 Secs)<br>[==>201.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (9) NGC-5728 | WFC3/UVIS, ACCUM, UVIS2       | F814W         |                                 |                            | Pattern 3, Exps 6-6 in Visit 09 (3) | 480 Secs (1912 Secs)<br>[==>478.0 Secs (Pattern 1)]<br>[==>478.0 Secs (Pattern 2)]<br>[==>478.0 Secs (Pattern 3)]<br>[==>478.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (9) NGC-5728 | WFC3/UVIS, ACCUM, UVIS2       | F438W         |                                 | POS TARG 0.0924,0<br>.0985 |                                     | 130 Secs (201 Secs)<br>[==>201.0 Secs ]                                                                                                          | [2]   |

Server Version: 20150609



## Orbit 2

Server Version: 20150609



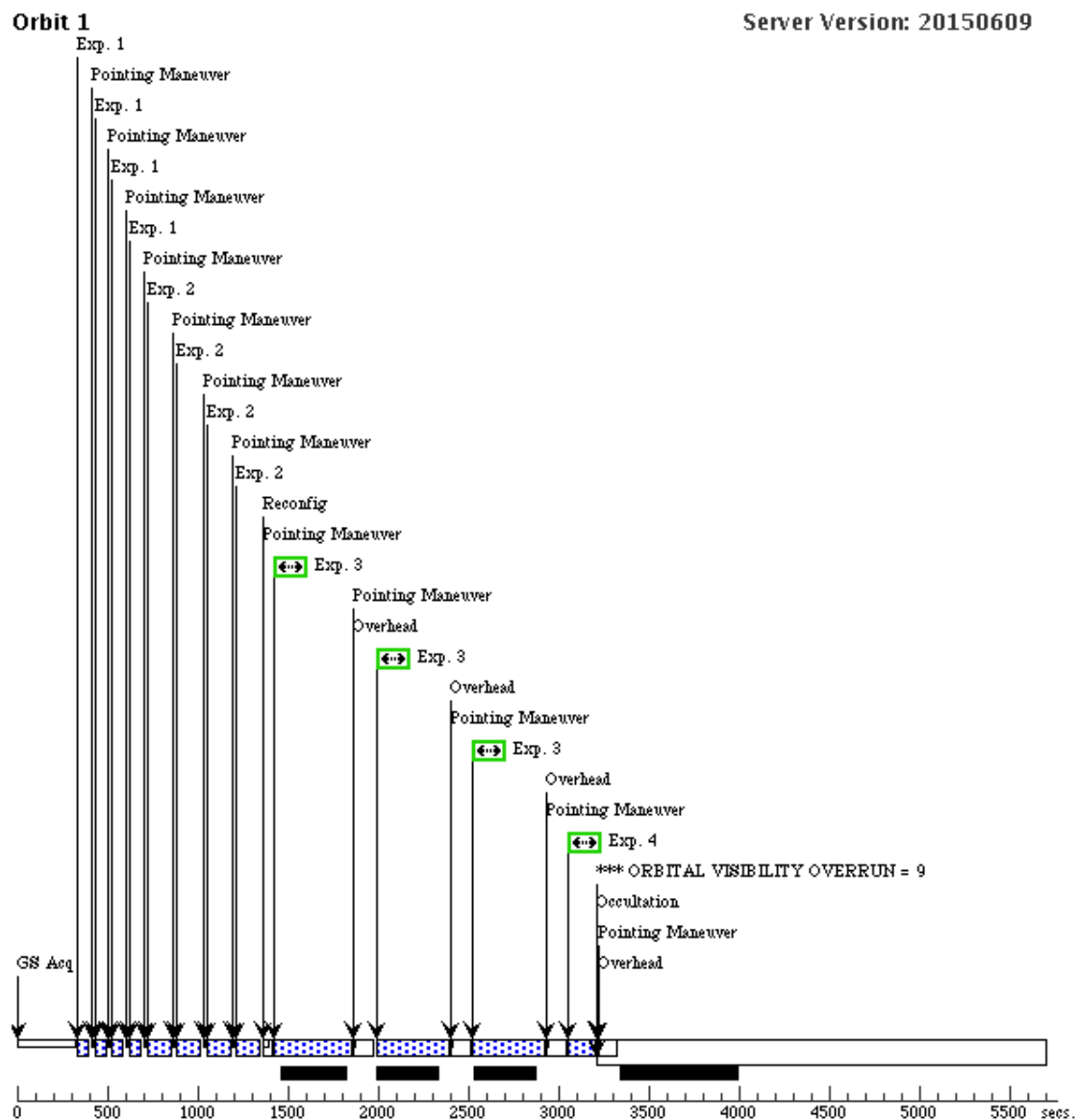
## Proposal 13755 - Visit 10 - The Hosts of Megamaser Disk Galaxies (II)

|                                                                                                   |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|-----------|------------------------------|
| Visit                                                                                             | Proposal 13755, Visit 10, implementation                                                                                                                                               |                                                                                                                          |                                                                                                               |                          |           | Wed Jul 22 01:09:53 GMT 2015 |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | Scientific Instruments: WFC3/IR, WFC3/UVIS                                                                                                                                             |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                           |                                                                                                                          |                                                                                                               |                          |           |                              |
| Diagnostics                                                                                       | (Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                         |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 4 (Visit 10)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 5 (Visit 10)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 6 (Pattern 3, Exps 6-6 in Visit 10)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser |                                                                                                                          |                                                                                                               |                          |           |                              |
|                                                                                                   | (Exposure 7 (Visit 10)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser                        |                                                                                                                          |                                                                                                               |                          |           |                              |
| Patterns                                                                                          | #                                                                                                                                                                                      | Primary Pattern                                                                                                          |                                                                                                               | Secondary Pattern        | Exposures |                              |
|                                                                                                   | (1)                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-BOX-MIN<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=0.572<br>Line Spacing=0.365 | Coordinate Frame=POS-TARG<br>Pattern Orientation=18.528<br>Angle Between Sides=74.653<br>Center Pattern=false |                          | (1), (2)  |                              |
|                                                                                                   | (2)                                                                                                                                                                                    | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT<br>Purpose=DITHER<br>Number Of Points=3<br>Point Spacing=0.135<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=46.84<br>Angle Between Sides=<br>Center Pattern=false        |                          | (3)       |                              |
|                                                                                                   | (3)                                                                                                                                                                                    | 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 |                          | (6)       |                              |
| Fixed Targets                                                                                     | #                                                                                                                                                                                      | Name                                                                                                                     | Target Coordinates                                                                                            | Targ. Coord. Corrections | Fluxes    | Miscellaneous                |
|                                                                                                   | (10)                                                                                                                                                                                   | MCG+01-38-005                                                                                                            | RA: 14 50 51.5110 (222.7146292d)<br>Dec: +05 06 52.20 (5.11450d)<br>Equinox: J2000                            |                          | V=14.5    | Reference Frame: SIMBAD      |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. |                                                                                                                                                                                        |                                                                                                                          |                                                                                                               |                          |           |                              |

# Proposal 13755 - Visit 10 - The Hosts of Megamaser Disk Galaxies (II)

| Exposures | # | Label | Target                 | Config,Mode,Aperture             | Spectral Els. | Opt. Params.                    | Special Reqs.               | Groups                                  | Exp. Time (Total)/[Actual Dur.]                                                                                                                  | Orbit |
|-----------|---|-------|------------------------|----------------------------------|---------------|---------------------------------|-----------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|           | 1 |       | (10) MCG+01-38-00<br>5 | WFC3/IR, MULTIACCUM,<br>IRSUB512 | F110W         | NSAMP=6;<br>SAMP-SEQ=STEP2<br>5 | GS ACQ SCENARI<br>O BASE1B3 | Pattern 1, Exps 1-1 i<br>n Visit 10 (1) | 36.754642 Secs (147.019 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                    | [1]   |
|           | 2 |       | (10) MCG+01-38-00<br>5 | WFC3/IR, MULTIACCUM,<br>IRSUB512 | F160W         | NSAMP=9;<br>SAMP-SEQ=STEP2<br>5 |                             | Pattern 1, Exps 2-2 i<br>n Visit 10 (1) | 105.518395 Secs (422.074 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]                                   | [1]   |
|           | 3 |       | (10) MCG+01-38-00<br>5 | WFC3/UVIS, ACCUM, UVIS2          | F336W         | FLASH=12.0                      | POS TARG 0.1848,0<br>.1969  | Pattern 2, Exps 3-3 i<br>n Visit 10 (2) | 400 Secs (1194 Secs)<br>[==>398.0 Secs (Pattern 1)]<br>[==>398.0 Secs (Pattern 2)]<br>[==>398.0 Secs (Pattern 3)]                                | [1]   |
|           | 4 |       | (10) MCG+01-38-00<br>5 | WFC3/UVIS, ACCUM, UVIS2          | F438W         |                                 | POS TARG 0.1848,0<br>.1969  |                                         | 130 Secs (128 Secs)<br>[==>128.0 Secs ]                                                                                                          | [1]   |
|           | 5 |       | (10) MCG+01-38-00<br>5 | WFC3/UVIS, ACCUM, UVIS2          | F438W         |                                 | POS TARG 0.0,0.0            |                                         | 130 Secs (197 Secs)<br>[==>197.0 Secs ]                                                                                                          | [2]   |
|           | 6 |       | (10) MCG+01-38-00<br>5 | WFC3/UVIS, ACCUM, UVIS2          | F814W         |                                 |                             | Pattern 3, Exps 6-6 i<br>n Visit 10 (3) | 480 Secs (1908 Secs)<br>[==>477.0 Secs (Pattern 1)]<br>[==>477.0 Secs (Pattern 2)]<br>[==>477.0 Secs (Pattern 3)]<br>[==>477.0 Secs (Pattern 4)] | [2]   |
|           | 7 |       | (10) MCG+01-38-00<br>5 | WFC3/UVIS, ACCUM, UVIS2          | F438W         |                                 | POS TARG 0.0924,0<br>.0985  |                                         | 130 Secs (197 Secs)<br>[==>197.0 Secs ]                                                                                                          | [2]   |

Server Version: 20150609



## Orbit 2

Server Version: 20150609

