# 10519 - Testing the Stellar Coalescence and Accretion Disk Theories of Massive Star Formation with NICMOS

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

**INVESTIGATORS**


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|---|---|---|
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**VISITS**

| *Visit* | *Targets* | *Configurations* | *Orbits Used* | *Last Orbit Planner Run* | *OP Current with Visit?* |
|---|---|---|---|---|---|
| 01 | (1) MON-R2-IRS3 | NIC2 | 1 | 18-Nov-2005 21:02:20.0 | yes |
| 04 | (1) MON-R2-IRS3 | NIC2 | 1 | 18-Nov-2005 21:03:25.0 | yes |
| 54 | (1) MON-R2-IRS3 | NIC2 | 1 | 18-Nov-2005 21:04:12.0 | yes |
| 02 | (2) S255-IRS1 | NIC2 | 1 | 18-Nov-2005 21:04:36.0 | yes |
| 03 | (2) S255-IRS1 | NIC2 | 1 | 18-Nov-2005 21:04:57.0 | yes |
| 05 | (3) NGC6334-V | NIC2 | 1 | 18-Nov-2005 21:05:17.0 | yes |

| *Visit* | *Targets* | *Configurations* | *Orbits Used* | *Last Orbit Planner Run* | *OP Current with Visit?* |
|---|---|---|---|---|---|
| 06 | (3) NGC6334-V | NIC2 | 1 | 18-Nov-2005 21:05:42.0 | yes |
| 07 | (4) AFGL-2591 | NIC2 | 1 | 18-Nov-2005 21:06:22.0 | yes |
| 08 | (4) AFGL-2591 | NIC2 | 1 | 18-Nov-2005 21:06:59.0 | yes |
| 09 | (5) S140-IRS1 | NIC2 | 1 | 18-Nov-2005 21:08:02.0 | yes |
| 10 | (5) S140-IRS1 | NIC2 | 1 | 18-Nov-2005 21:09:09.0 | yes |
| 11 | (6) OPH-N9 | NIC2 | 1 | 18-Nov-2005 21:09:38.0 | yes |

12 Total Orbits Used

**ABSTRACT**

The importance of massive stars cannot be underestimated - they produce most of the heavy elements in the universe and dominate the evolution of the interstellar medium in their vicinity. In spite of their significance, our understanding of their formation is meager. Both accretion through disks, analogous to the process of low-mass star formation, and coalescence of low-mass stars through collisions in the dense cores of stellar clusters have been suggested. Possibly both mechanisms occur. High spatial resolution polarization measurements of the closest massive young stellar objects (YSOs) will enable us to search for evidence of disk accretion or coalescence in the form of patterns indicative of light scattered off a coherent disk or off a disk disrupted by an infalling star, respectively. Here we propose to use 2 micron polarimetry with NICMOS to identify the presence of accretion disks around massive YSOs or to characterize their environments as possibly disrupted from a close stellar encounter. There are only a few sources that meet the stringent selection criteria for this investigation (even with HST), which we will examine here. High spatial resolution is required, but even more important, the point spread function (PSF) must be stable with time. Furthermore, the PSF must put minimal flux into large spatial scales, something that cannot be achieved with adaptive optics. This combination of high Strehl ratio and stable PSF can only be achieved from space.

**OBSERVING DESCRIPTION**

We will make polarimetric observations of five candidate massive protostars plus one coronagraph PSF calibration star with NICMOS Camera 2. Three of the targets plus the PSF calibration star will be observed using the Camera 2 coronagraph in the three POL filters; then the targets will be moved to the center of the NIC2 array for 4 additional dither measurements. The other two targets do not need the coronagraph and will be measured with a 6 position spiral dither of 13.5 pixels to minimize the effects of bad pixels, the coronagraph hole, and to cover a larger spatial extent. The protostar targets will be measured in two visits each with different ORIENTs so that important regions of the field of view can be sampled regardless of the HST diffraction spikes.

**REAL TIME JUSTIFICATION**

The same targets will be measured at two different ORIENTs separated by at least 30 degrees so that important regions of the field of view are not obscured by the HST diffraction spikes.The ORIENTs listed for each visit give the preferred orientation of the NICMOS array on the sky given the 2-gyro constraints; other positions are possible although less desireable, so that the ORIENT range could be changed if the visit is otherwise impossible to schedule. Please contact the Principal Investigator if there are scheduling problems owing to ORIENT so that both visits of each pair for a given target can be reviewed and possibly adjusted.

**CALIBRATION JUSTIFICATION**

The PSF of the NICMOS Camera 2 coronagraph hole will be measured using a red star of similar color temperature as the science targets. The PSF of the star itself will also be measured for use with the target star dithered observations.

## Visit

**Proposal 10519, Visit 01** Sat Nov 19 02:09:47 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 250.0D TO 260.0 D

## Diagnostics

(Visit 01) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 01) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 01) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | MON-R2-IRS3 | RA: 06 07 47.8400 (91.9493333d) | | V=(?) | Coordinate Source: HST_IMAGE |
| | | Dec: -06 22 56.29 (-6.38230d) | | K = 6.6, | |
| | | Equinox: J2000 | | H-K=3.2 | |
| | | Plate Id: 02NY | | | |

*Comments: The K-band magnitude was measured in a large aperture such that it includes substantial nebulosity. A magnitude of K=7.9 has been estimated from a cycle 7 NICMOS observation in F207M (Preibisch et al. 2002). We also used the F207M image directly to measure the flux in the brightest pixel; it is less than is calculated for K=7.9 by the NICMOS ETC. We use the smallest estimated time for the coronagraph ACQ to avoid overexposure; recalculation of the ACQ exposure time may be necessary for the second visit to this target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (1) MON-R2-IRS3 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 23.2 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |

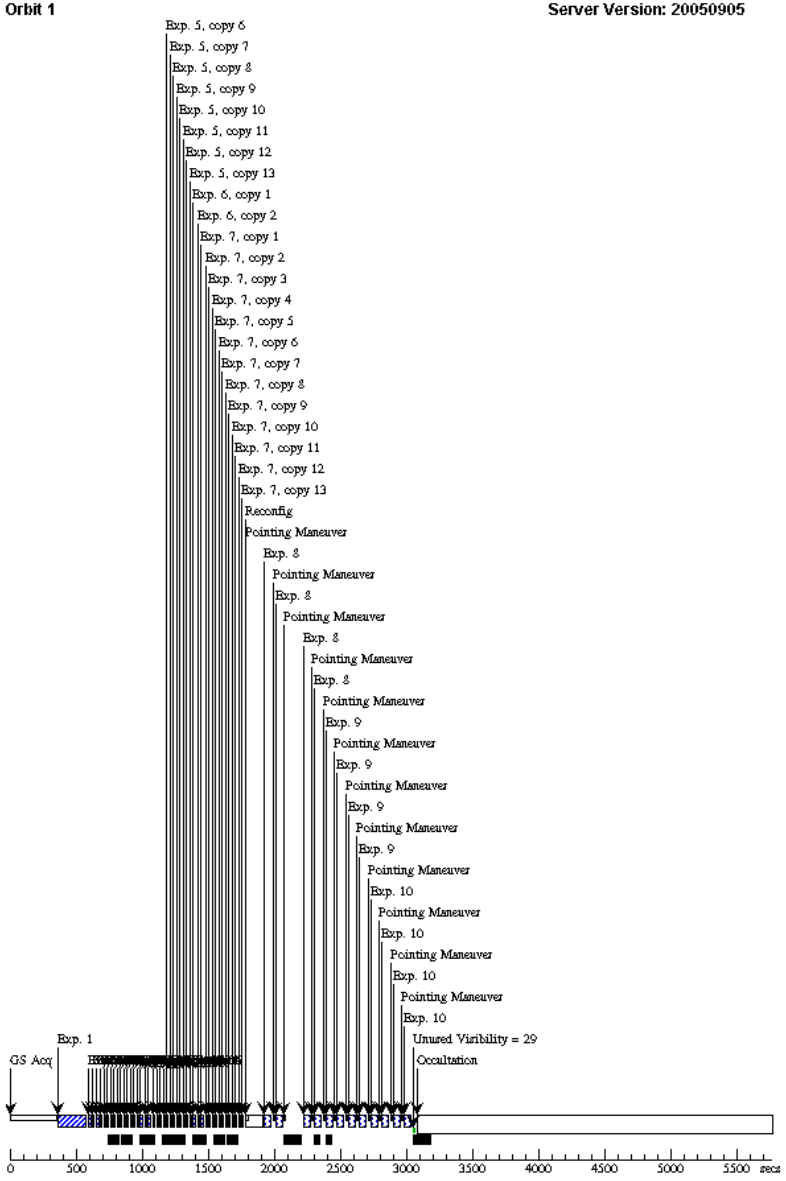
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 0 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL240 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL0L | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120L | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL240L | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 04** Sat Nov 19 02:09:49 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 285.0D TO 295.0 D

## Diagnostics

(Visit 04) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 04) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 04) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | MON-R2-IRS3 | RA: 06 07 47.8400 (91.9493333d) | | V=(?) | Coordinate Source: HST_IMAGE |
| | | Dec: -06 22 56.29 (-6.38230d) | | K = 6.6, | |
| | | Equinox: J2000 | | H-K=3.2 | |
| | | Plate Id: 02NY | | | |

*Comments: The K-band magnitude was measured in a large aperture such that it includes substantial nebulosity. A magnitude of K=7.9 has been estimated from a cycle 7 NICMOS observation in F207M (Preibisch et al. 2002). We also used the F207M image directly to measure the flux in the brightest pixel; it is less than is calculated for K=7.9 by the NICMOS ETC. We use the smallest estimated time for the coronagraph ACQ to avoid overexposure; recalculation of the ACQ exposure time may be necessary for the second visit to this target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (1) MON-R2-IRS3 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 23.2 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |

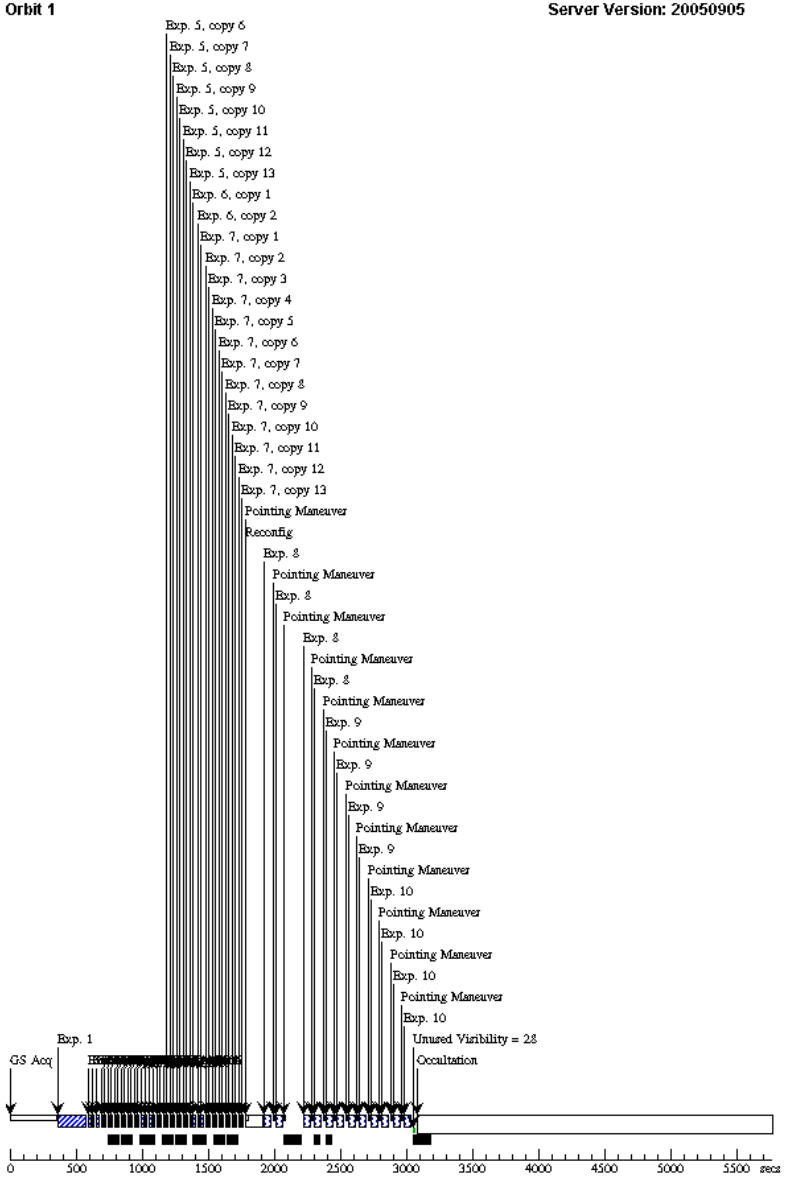
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 240 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL0 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL240 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL0 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 54** Sat Nov 19 02:09:52 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 285.0D TO 295.0 D

*Comments: Visit 04 was HOPRed as visit 54. wj*

## Diagnostics

(Visit 54) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 54) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 54) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | MON-R2-IRS3 | RA: 06 07 47.8400 (91.9493333d) | | V=(?) | Coordinate Source: HST_IMAGE |
| | | Dec: -06 22 56.29 (-6.38230d) | | K = 6.6, | |
| | | Equinox: J2000 | | H-K=3.2 | |
| | | Plate Id: 02NY | | | |

*Comments: The K-band magnitude was measured in a large aperture such that it includes substantial nebulosity. A magnitude of K=7.9 has been estimated from a cycle 7 NICMOS observation in F207M (Preibisch et al. 2002). We also used the F207M image directly to measure the flux in the brightest pixel; it is less than is calculated for K=7.9 by the NICMOS ETC. We use the smallest estimated time for the coronagraph ACQ to avoid overexposure; recalculation of the ACQ exposure time may be necessary for the second visit to this target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (1) MON-R2-IRS3 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 23.2 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |

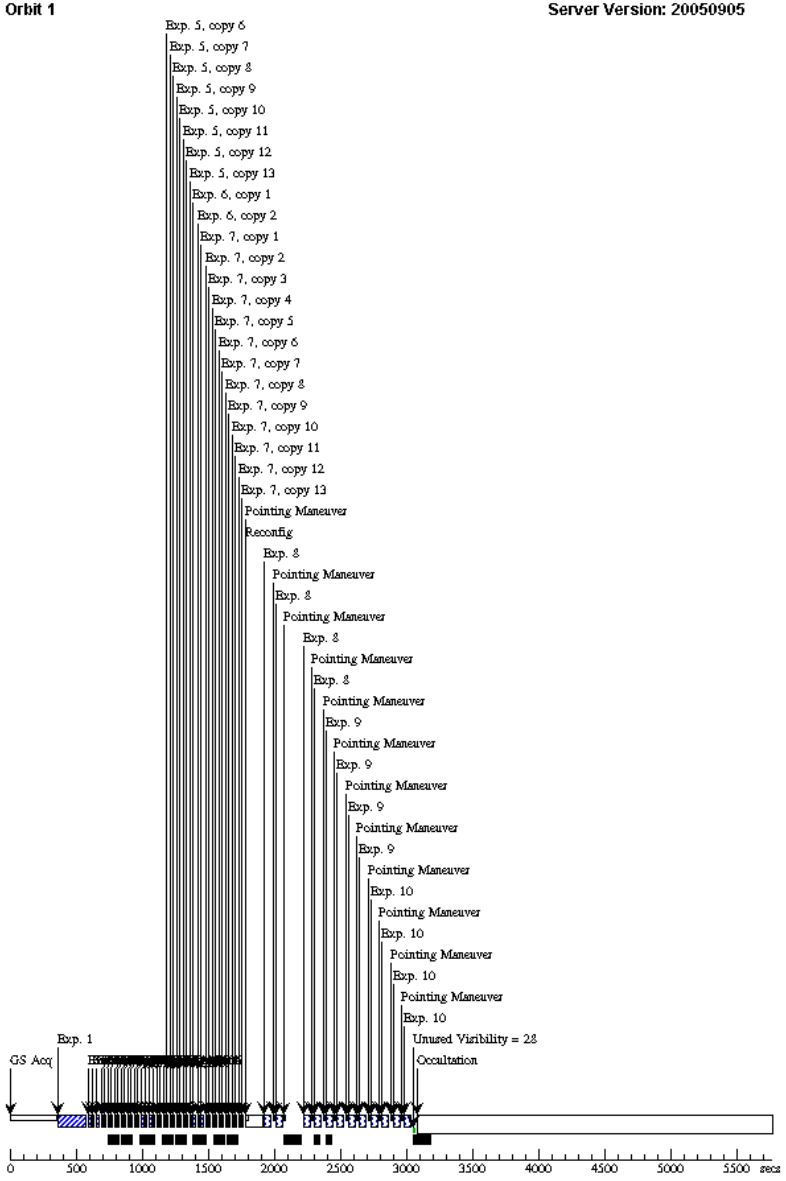
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 240 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (1) MON-R2-IRS3 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL0 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL240 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL0 | (1) MON-R2-IRS3 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=10 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 02** Sat Nov 19 02:09:59 GMT 2005

**Diagnostic Status: No Diagnostics**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 285.0D TO 295.0 D

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (1), (2), (3) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=6 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

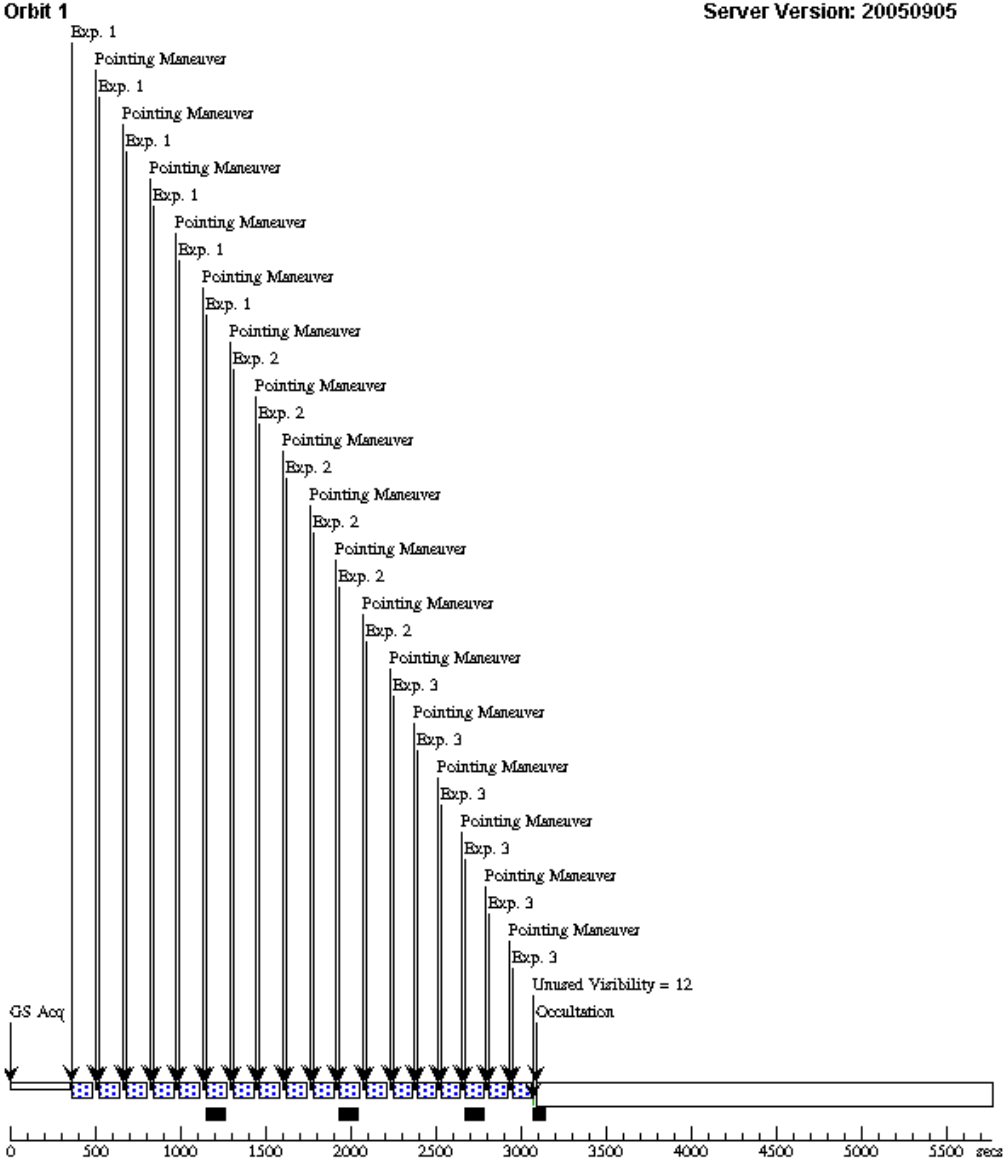
## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (2) | S255-IRS1 | RA: 06 12 53.8500 (93.2243750d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +17 59 23.80 (17.98994d) | | K = 9.6 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 00FJ | | | |

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | POL0 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP16; NSAMP=13 | GS ACQ SCENARIO BASE1TNS | Pattern 1-1 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 2 | POL120 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 2-2 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 3 | POL240 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP16; NSAMP=12 | | Pattern 3-3 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 03** Sat Nov 19 02:10:02 GMT 2005

**Diagnostic Status: No Diagnostics**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 325.0D TO 335.0 D

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (1), (2), (3) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=6 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (2) | S255-IRS1 | RA: 06 12 53.8500 (93.2243750d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +17 59 23.80 (17.98994d) | | K = 9.6 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 00FJ | | | |

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | POL240 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP16; NSAMP=12 | GS ACQ SCENARIO BASE1TNS | Pattern 1-1 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 2 | POL120 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 2-2 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 3 | POL0 | (2) S255-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 3-3 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |

**Orbit Structure**

## Visit

**Proposal 10519, Visit 05** Sat Nov 19 02:10:06 GMT 2005

**Diagnostic Status: No Diagnostics**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 270.0D TO 280.0 D

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (1), (2), (3) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=6 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (3) | NGC6334-V | RA: 17 19 57.3500 (259.9889583d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: -35 57 50.51 (-35.96403d) | | K = 8.8 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 06Q3 | | | |

*Comments: The star with K=8.8 is the brightest star in the field; the primary target of this program is obscured, at least to ground-based observations, by an optically thick disk.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | POL0 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP16; NSAMP=13 | GS ACQ SCENARIO BASE1TNS | Pattern 1-1 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 2 | POL120 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 2-2 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |
| 3 | POL240 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP16; NSAMP=12 | | Pattern 3-3 (1) | *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]* *[==>(Pattern 5)]* *[==>(Pattern 6)]* | ***[1]*** |

**Orbit Structure**

## Visit

**Proposal 10519, Visit 06** Sat Nov 19 02:10:09 GMT 2005

**Diagnostic Status: No Diagnostics**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 305.0D TO 315.0 D

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (1), (2), (3) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=6 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (3) | NGC6334-V | RA: 17 19 57.3500 (259.9889583d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: -35 57 50.51 (-35.96403d) | | K = 8.8 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 06Q3 | | | |

*Comments: The star with K=8.8 is the brightest star in the field; the primary target of this program is obscured, at least to ground-based observations, by an optically thick disk.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | POL240 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP16; NSAMP=12 | GS ACQ SCENARIO BASE1TNS | Pattern 1-1 (1) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]*<br>*[==>(Pattern 5)]*<br>*[==>(Pattern 6)]* | ***[1]*** |
| 2 | POL120 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 2-2 (1) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]*<br>*[==>(Pattern 5)]*<br>*[==>(Pattern 6)]* | ***[1]*** |
| 3 | POL0 | (3) NGC6334-V | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP16; NSAMP=13 | | Pattern 3-3 (1) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]*<br>*[==>(Pattern 5)]*<br>*[==>(Pattern 6)]* | ***[1]*** |

**Orbit Structure**

## Visit

**Proposal 10519, Visit 07** Sat Nov 19 02:10:12 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 230.0D TO 240.0 D

*Comments: Please see the comments for Visit 8.*

## Diagnostics

(Visit 07) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 07) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 07) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (4) | AFGL-2591 | RA: 20 29 24.8900 (307.3537083d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +40 11 19.60 (40.18878d) | | K = 6.4 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 00VV | | | |

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (4) AFGL-2591 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 17.7 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |

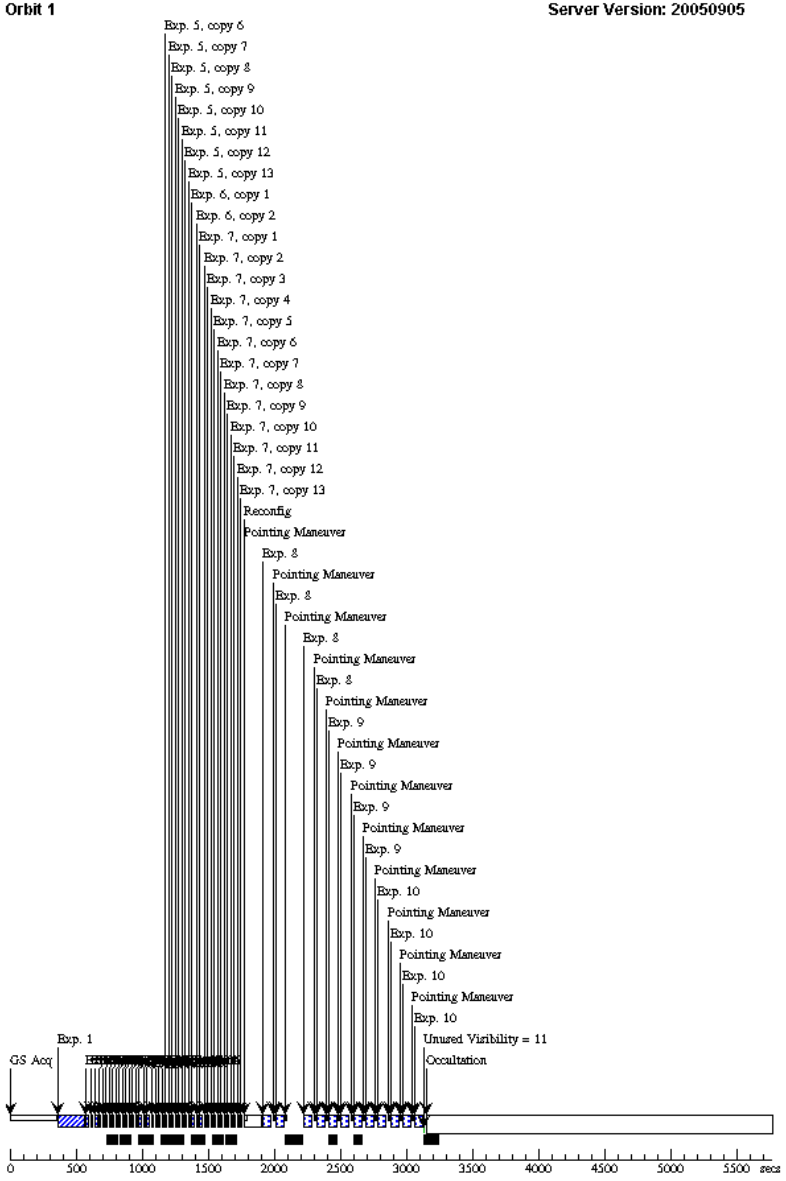
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 240 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL0 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL240 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL0 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 08** Sat Nov 19 02:10:18 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 100%; ORIENT 180.0D TO 200.0 D

*Comments: An ORIENT of around 195 is preferable for this visit owing to the position angles of the star and its outflow nebulosity. However, a visit with this ORIENT cannot be scheduled in Cycle 14 for the full 3200 sec and can only be scheduled with as much as 2690 sec in the very last days of June, 2006. If it is impossible for other reasons to schedule this visit in Cycle 14, please contact the Principal Investigator, since other ORIENTs of lesser desireability are possible, but both visits 7 and 8 may need changes.*

## Diagnostics

(Visit 08) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 08) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 08) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (4) | AFGL-2591 | RA: 20 29 24.8900 (307.3537083d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +40 11 19.60 (40.18878d) | | K = 6.4 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 00VV | | | |

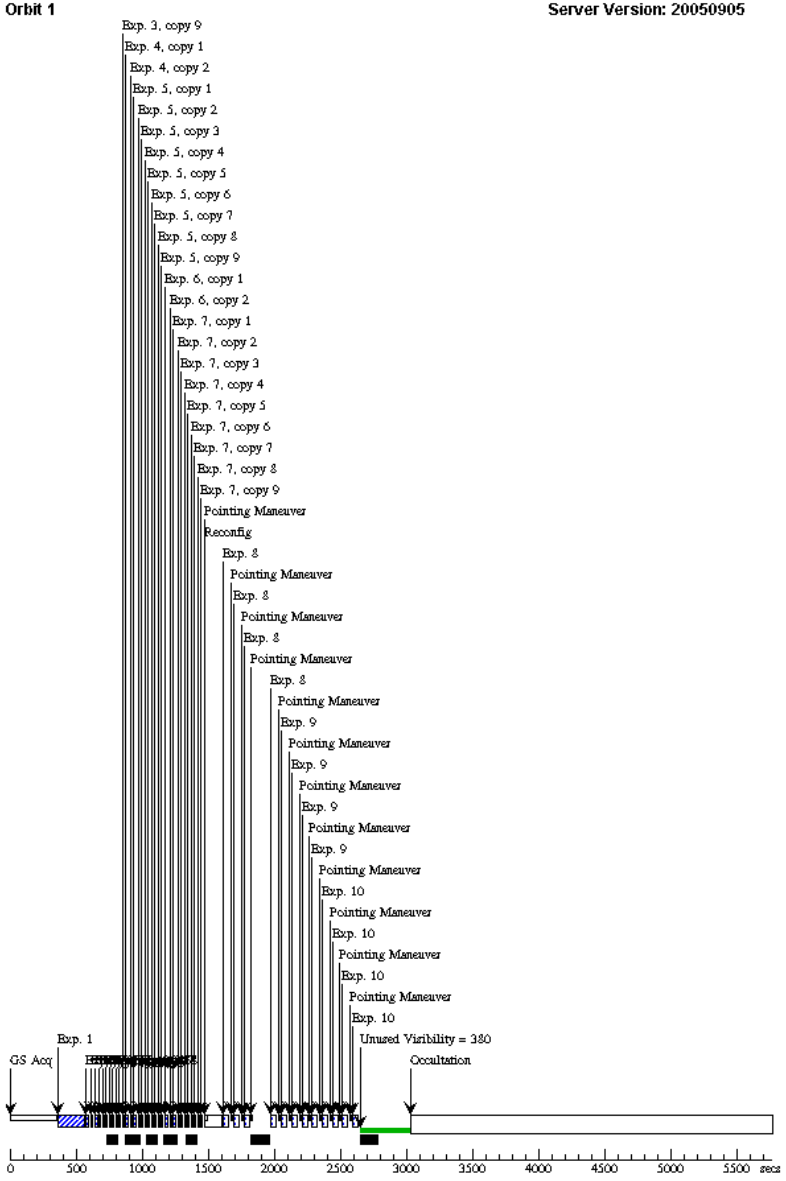
## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (4) AFGL-2591 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 17.7 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |
| 3 | CORO-POL0 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |
| | | | | | | | | *[==>(Copy 3)]* | |
| | | | | | | | | *[==>(Copy 4)]* | |
| | | | | | | | | *[==>(Copy 5)]* | |
| | | | | | | | | *[==>(Copy 6)]* | |
| | | | | | | | | *[==>(Copy 7)]* | |
| | | | | | | | | *[==>(Copy 8)]* | |
| | | | | | | | | *[==>(Copy 9)]* | |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 4 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL120 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2;<br>NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]* | ***[1]*** |
| 6 | CORO-BLANK | (4) AFGL-2591 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 7 | CORO-POL240 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2;<br>NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]* | ***[1]*** |
| 8 | dither-POL0 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8;<br>NSAMP=9 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8;<br>NSAMP=9 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL240 | (4) AFGL-2591 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8;<br>NSAMP=9 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 09** Sat Nov 19 02:10:23 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 287.0D TO 293.0 D

## Diagnostics

(Visit 09) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 09) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 09) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (5) | S140-IRS1 | RA: 22 19 18.3200 (334.8263333d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +63 18 45.40 (63.31261d) | | K = 6.4 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 02X2 | | | |

*Comments: The K band magnitude was meaasured in a large aperture that includes substantial nebulosity. From the speckle observations of Schertl et al. (2000) we estimate that the central star has only 35% of the flux, giving an estimated K=7.3. This was used to determine the time to be used for the ACQ exposure. We may need to revise this for the second visit to this target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (5) S140-IRS1 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 14.7 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* *[==>(Copy 2)]* | ***[1]*** |

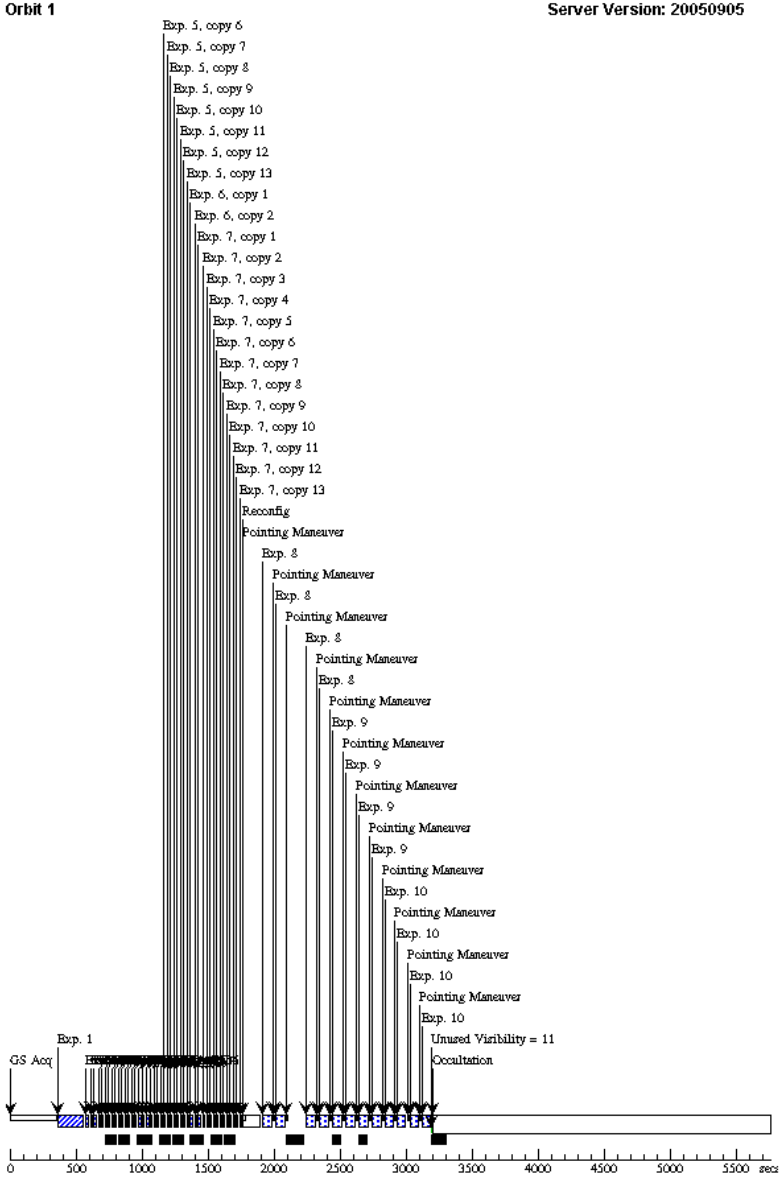
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 0 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL240 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL0 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=12 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=12 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL240 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 10** Sat Nov 19 02:10:30 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 80%; ORIENT 317.0D TO 323.0 D

## Diagnostics

(Visit 10) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 10) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 10) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (5) | S140-IRS1 | RA: 22 19 18.3200 (334.8263333d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | | Dec: +63 18 45.40 (63.31261d) | | K = 6.4 | |
| | | Equinox: J2000 | | | |
| | | Plate Id: 02X2 | | | |

*Comments: The K band magnitude was meaasured in a large aperture that includes substantial nebulosity. From the speckle observations of Schertl et al. (2000) we estimate that the central star has only 35% of the flux, giving an estimated K=7.3. This was used to determine the time to be used for the ACQ exposure. We may need to revise this for the second visit to this target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (5) S140-IRS1 | NIC2, ACQ, NIC2-ACQ | F190N | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 14.7 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* *[==>(Copy 2)]* | ***[1]*** |

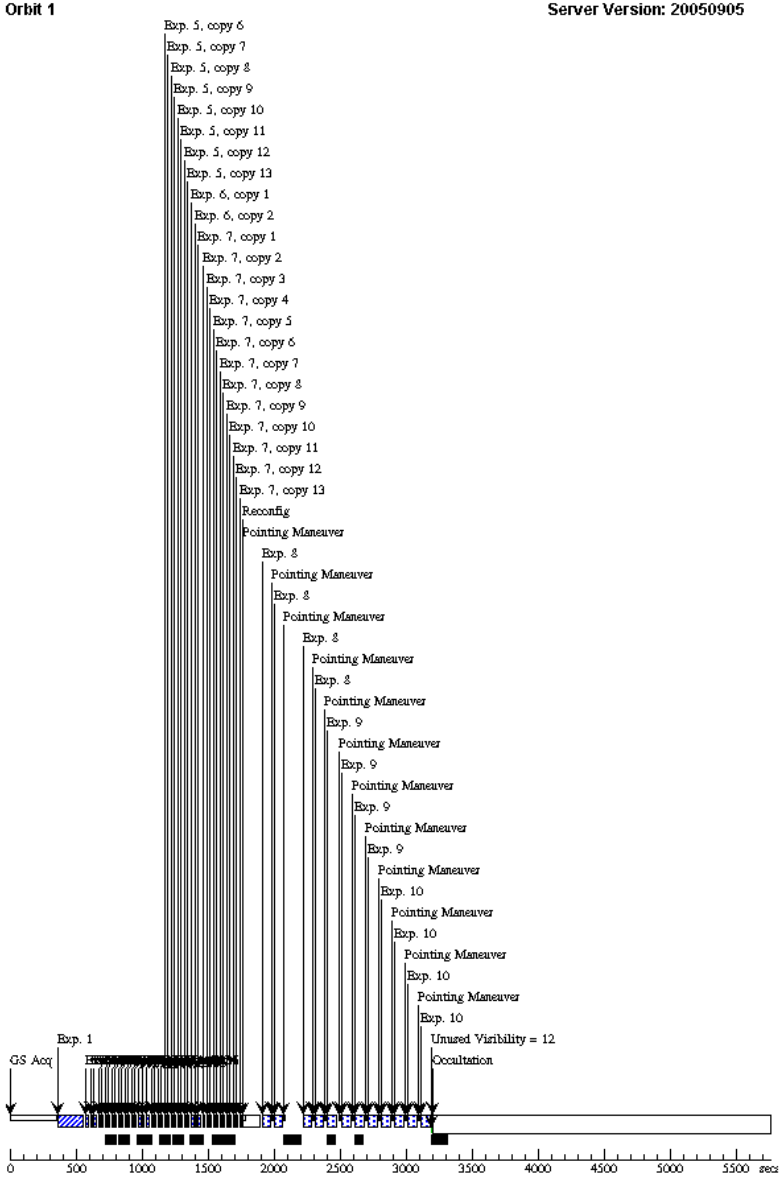
**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 3 | CORO-POL 240 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 4 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 5 | CORO-POL 120 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP2 ; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 6 | CORO-BLANK | (5) S140-IRS1 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CORO-POL0 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP2; NSAMP=11 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]*<br>*[==>(Copy 8)]*<br>*[==>(Copy 9)]*<br>*[==>(Copy 10)]*<br>*[==>(Copy 11)]*<br>*[==>(Copy 12)]*<br>*[==>(Copy 13)]* | ***[1]*** |
| 8 | dither-POL240 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=12 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL0 | (5) S140-IRS1 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=12 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**



## Visit

**Proposal 10519, Visit 11** Sat Nov 19 02:10:36 GMT 2005

**Diagnostic Status: Warning**

Scientific Instruments: NIC2

Special Requirements: SCHED 70%

*Comments: PSF Calibration star*

## Diagnostics

(Visit 11) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 11) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

(Visit 11) Warning: NON NIC2-CORON SCIENCE EXPOSURE AFTER NIC2-ACQ

## Patterns

| # | Primary Pattern | | Secondary Pattern | Exposures |
|---|---|---|---|---|
| (2) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | (8), (9), (10) |
| | Purpose=DITHER | Pattern Orientation=0 | | |
| | Number Of Points=4 | Angle Between Sides= | | |
| | Point Spacing=1.021 | Center Pattern=true | | |
| | Line Spacing= | | | |

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (6) | OPH-N9 | RA: 16 27 13.3100 (246.8054583d) | | V=(?) | Coordinate Source: GUIDE_STAR_CATALOG |
| | Alt Name1: GY232 | Dec: -24 41 32.40 (-24.69233d) | | K=9.53, | |
| | | Equinox: J2000 | | H-K=2.8 | |
| | | Plate Id: 02J6 | | | |

*Comments: It is not certain that Guide Stars suitable for HST exist for Oph-N9. Please contact the Principal Investigator if it is necessary to schedule a different target.*

## Exposures

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ACQ | (6) OPH-N9 | NIC2, ACQ, NIC2-ACQ | F160W | | GS ACQ SCENARIO BASE1TNS | Sequence 1-7 Non-Int | 14.7 Secs | |
| | | | | | | | | *[==>]* | ***[1]*** |
| 2 | CORO-BLANK | (6) OPH-N9 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |
| 3 | CORO-POL240 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-CORON | POL240L | SAMP-SEQ=STEP8; NSAMP=10 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |
| | | | | | | | | *[==>(Copy 3)]* | |
| | | | | | | | | *[==>(Copy 4)]* | |
| | | | | | | | | *[==>(Copy 5)]* | |
| | | | | | | | | *[==>(Copy 6)]* | |
| | | | | | | | | *[==>(Copy 7)]* | |
| 4 | CORO-BLANK | (6) OPH-N9 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2 | |
| | | | | | | | | *[==>(Copy 1)]* | ***[1]*** |
| | | | | | | | | *[==>(Copy 2)]* | |

**Exposures (continued)**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 5 | CORO-POL120 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-CORON | POL120L | SAMP-SEQ=STEP8; NSAMP=10 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]* | ***[1]*** |
| 6 | CORO-BLANK | (6) OPH-N9 | NIC2, ACCUM, NIC2-CORON | BLANK | NREAD=9 | | Sequence 1-7 Non-Int | 5.158 Secs X 2<br>*[==>(Copy 1)]*<br>*[==>(Copy 2)]* | ***[1]*** |
| 7 | CORO-POL0 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-CORON | POL0L | SAMP-SEQ=STEP8; NSAMP=10 | | Sequence 1-7 Non-Int | *[==>(Copy 1)]*<br>*[==>(Copy 2)]*<br>*[==>(Copy 3)]*<br>*[==>(Copy 4)]*<br>*[==>(Copy 5)]*<br>*[==>(Copy 6)]*<br>*[==>(Copy 7)]* | ***[1]*** |
| 8 | dither-POL240 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-FIX | POL240L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 8-8 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 9 | dither-POL120 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-FIX | POL120L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 9-9 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |
| 10 | dither-POL0 | (6) OPH-N9 | NIC2, MULTIACCUM, NIC2-FIX | POL0L | SAMP-SEQ=STEP8; NSAMP=11 | | Pattern 10-10 (2) | *[==>(Pattern 1)]*<br>*[==>(Pattern 2)]*<br>*[==>(Pattern 3)]*<br>*[==>(Pattern 4)]* | ***[1]*** |

**Orbit Structure**