



14057 - Changes in the X-ray irradiation of an ultraluminous X-ray source

Cycle: 23, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

| <i>Name</i> | <i>Institution</i> | <i>E-Mail</i> |
|---|-------------------------------------|--------------------------------------|
| Dr. Fabien Grise (PI) (ESA Member) (Contact) | Universite de Strasbourg I | fabien.grise@astro.unistra.fr |
| Dr. Timothy Paul Roberts (CoI) (ESA Member) | Durham Univ. | t.p.roberts@durham.ac.uk |
| Dr. Philip Kaaret (CoI) | University of Iowa | philip-kaaret@uiowa.edu |
| Dr. Jari Kajava (CoI) (ESA Member) | ESA-European Space Astronomy Centre | jari.kajava@gmail.com |
| Dr. Roberto Soria (CoI) | Curtin University | roberto.soria@curtin.edu.au |
| Dr. Jeanette Gladstone (CoI) (CSA Member) | University of Alberta | j.c.gladstone@ualberta.ca |
| Dr. Luca Zampieri (CoI) (ESA Member) | Osservatorio Astronomico di Padova | luca.zampieri@oapd.inaf.it |

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) NGC1313X-2 | ACS/SBC WFC3/IR WFC3/UVIS | 4 | 18-Nov-2015 21:08:02.0 | yes |
| 02 | (1) NGC1313X-2 | ACS/SBC WFC3/IR WFC3/UVIS | 4 | 18-Nov-2015 21:08:08.0 | yes |

8 Total Orbits Used

ABSTRACT

Optical emission observed from ultraluminous X-ray sources (ULXs) comes from the irradiated disk and the donor star. Disentangling the two components has always been an unsolved problem. We have discovered that the ULX NGC 1313 X-2 switches between two distinct X-ray spectral/luminosity states on long timescales, ~ 6--10 weeks. This makes it an ideal laboratory to study the effects of variable X-ray irradiation on the disk and donor star. We propose a multiband study of NGC 1313 X-2 from near-IR to X-rays, with XMM, HST and Swift.

We will measure the contribution of X-ray reprocessing to the optical emission and determine whether irradiation correlates with disk winds.

OBSERVING DESCRIPTION

This joint proposal aims to observe an ultraluminous X-ray source in two distinct X-ray modes.

Two target of opportunity sets of observations will be triggered using an X-ray monitoring with Swift. Once triggered, a simultaneous HST/XMM observation should be carried out within 28 days.

The HST observations consist of imaging in seven broad-band filters, from far-UV to NIR wavelengths using ACS/SBC, WFC3/UVIS and WFC3/IR.

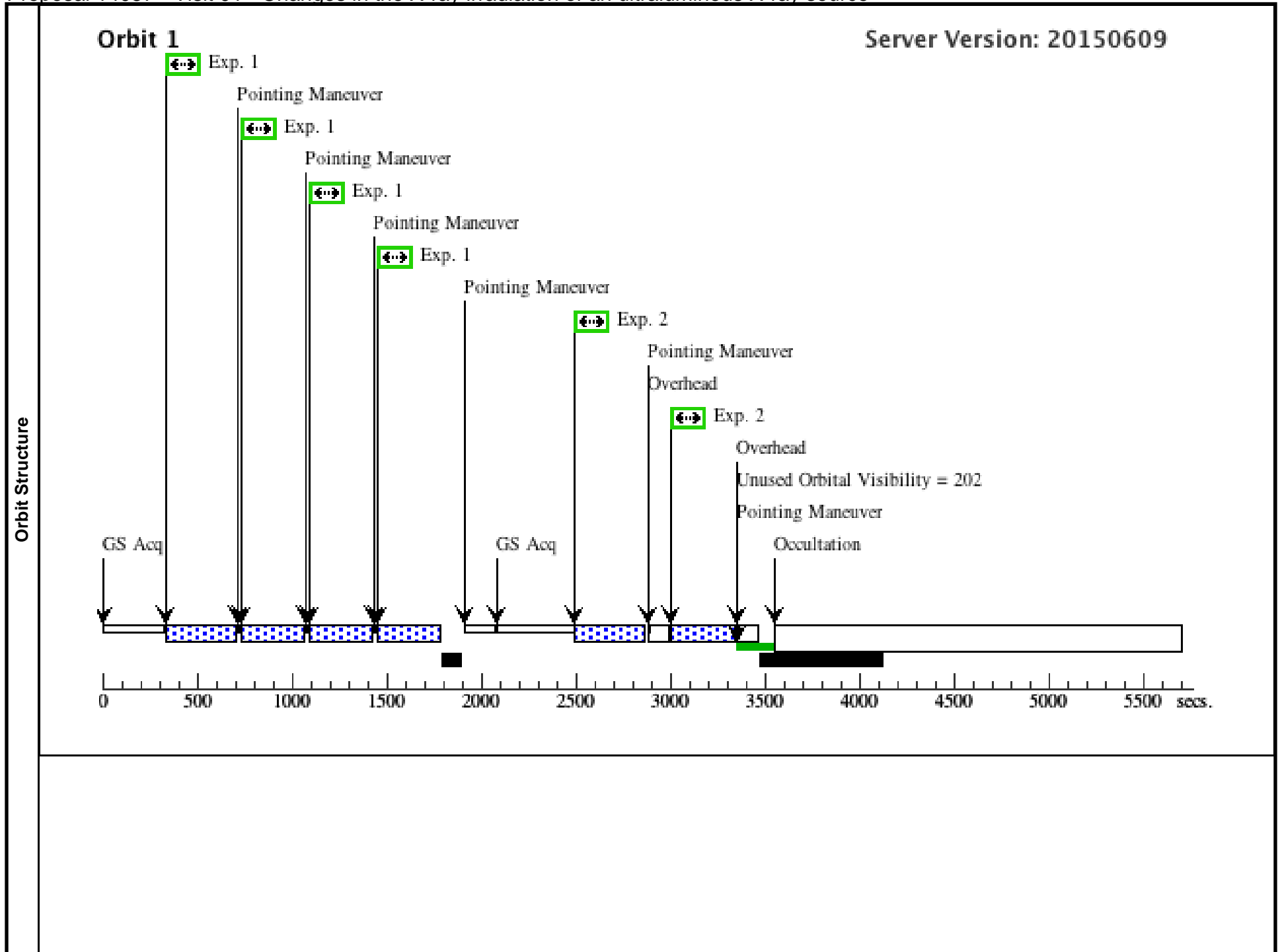
Proposal 14057 - Visit 01 - Changes in the X-ray irradiation of an ultraluminous X-ray source

Thu Nov 19 02:08:10 GMT 2015

| Visit | Proposal 14057, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS, ACS/SBC Special Requirements: (none) | | | | | |
|--|--|---|--|--------------------------|--------------|-------------------------|
| | # | Primary Pattern | Secondary Pattern | Exposures | | |
| Patterns | (1) | Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false | | (2), (3), (4), (5), (6) | | |
| | (2) | Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365 Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false | | (7) | | |
| | (3) | Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116 Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false | | (1) | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
| | (1) | NGC1313X-2 | RA: 03 18 22.2600 (49.5927500d) Dec: -66 36 3.56 (-66.60099d) Equinox: J2000 | | V=23.6+/-0.1 | Reference Frame: SIMBAD |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> | | | | | | |

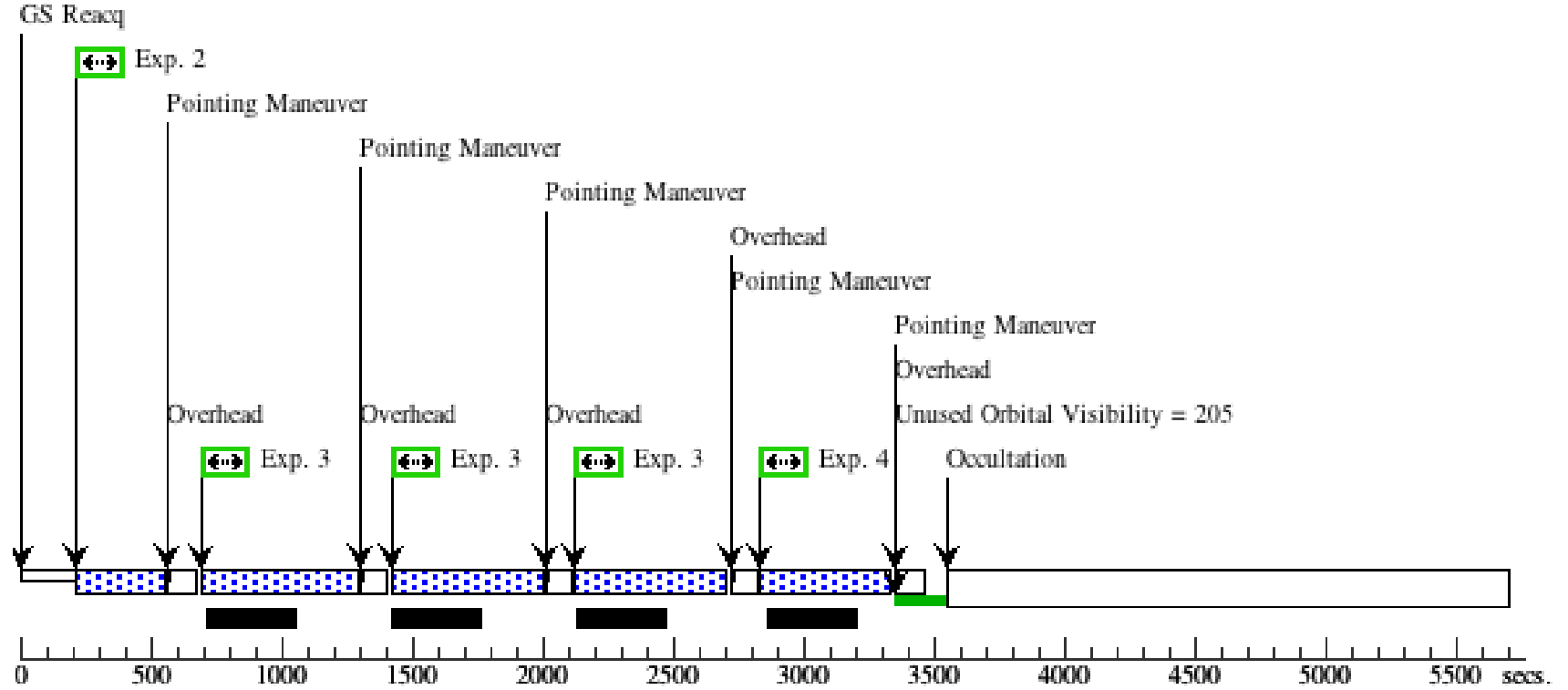
Proposal 14057 - Visit 01 - Changes in the X-ray irradiation of an ultraluminous X-ray source

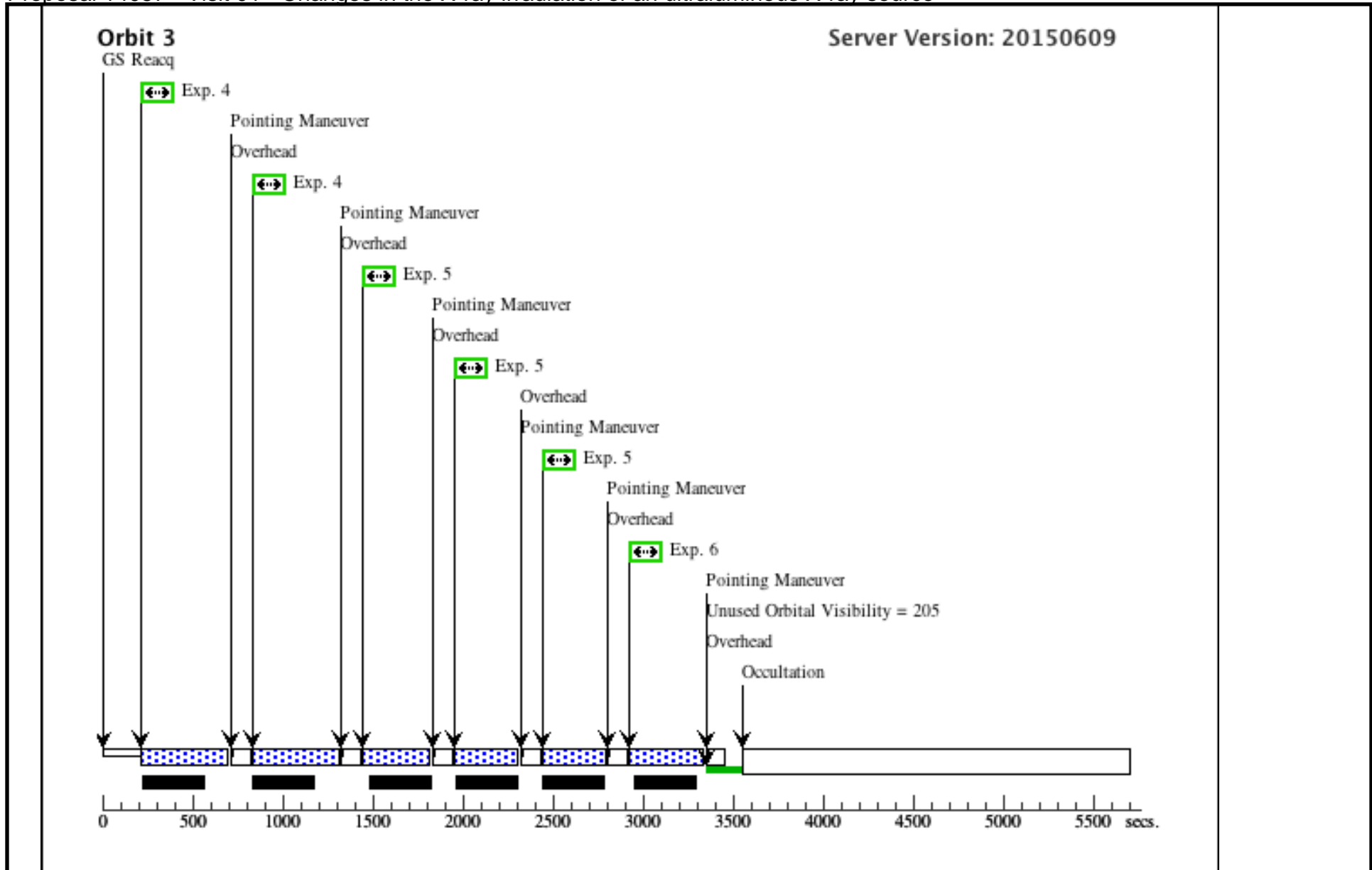
| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit | |
|-----------|--------------------|---------------------|----------------------|-------------------------|--------------|----------------------------------|-----------------------------|---|---|------------|
| Exposures | 1 | (ACS.im.67 2202) | (1) NGC1313X-2 | ACS/SBC, ACCUM, SBC | F140LP | | GS ACQ SCENARI O BASE1B3 | Pattern 3, Exps 1-1 i n Visit 01 (3) | 300 Secs (1200 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [1] |
| | 2 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F336W | FLASH=11 | GS ACQ SCENARI O BASE1B3 | Pattern 1, Exps 2-2 i n Visit 01 (1) | 339 Secs (1017 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [1] [2] |
| | 3 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F814W | | | Pattern 1, Exps 3-3 i n Visit 01 (1) | 580 Secs (1740 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [2] |
| | 4 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F225W | FLASH=11 | | Pattern 1, Exps 4-4 i n Visit 01 (1) | 480 Secs (1440 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [2] [3] |
| | 5 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F438W | FLASH=10 | | Pattern 1, Exps 5-5 i n Visit 01 (1) | 350 Secs (1050 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [3] |
| | 6 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F555W | FLASH=2 | | Pattern 1, Exps 6-6 i n Visit 01 (1) | 390 Secs (1170 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [3] [4] |
| | 7 | | (1) NGC1313X-2 | WFC3/IR, MULTIACCUM, IR | F125W | NSAMP=14; SAMP-SEQ=STEP5 0 | | Pattern 2, Exps 7-7 i n Visit 01 (2) | 449.233834 Secs (1796.935 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [4] |

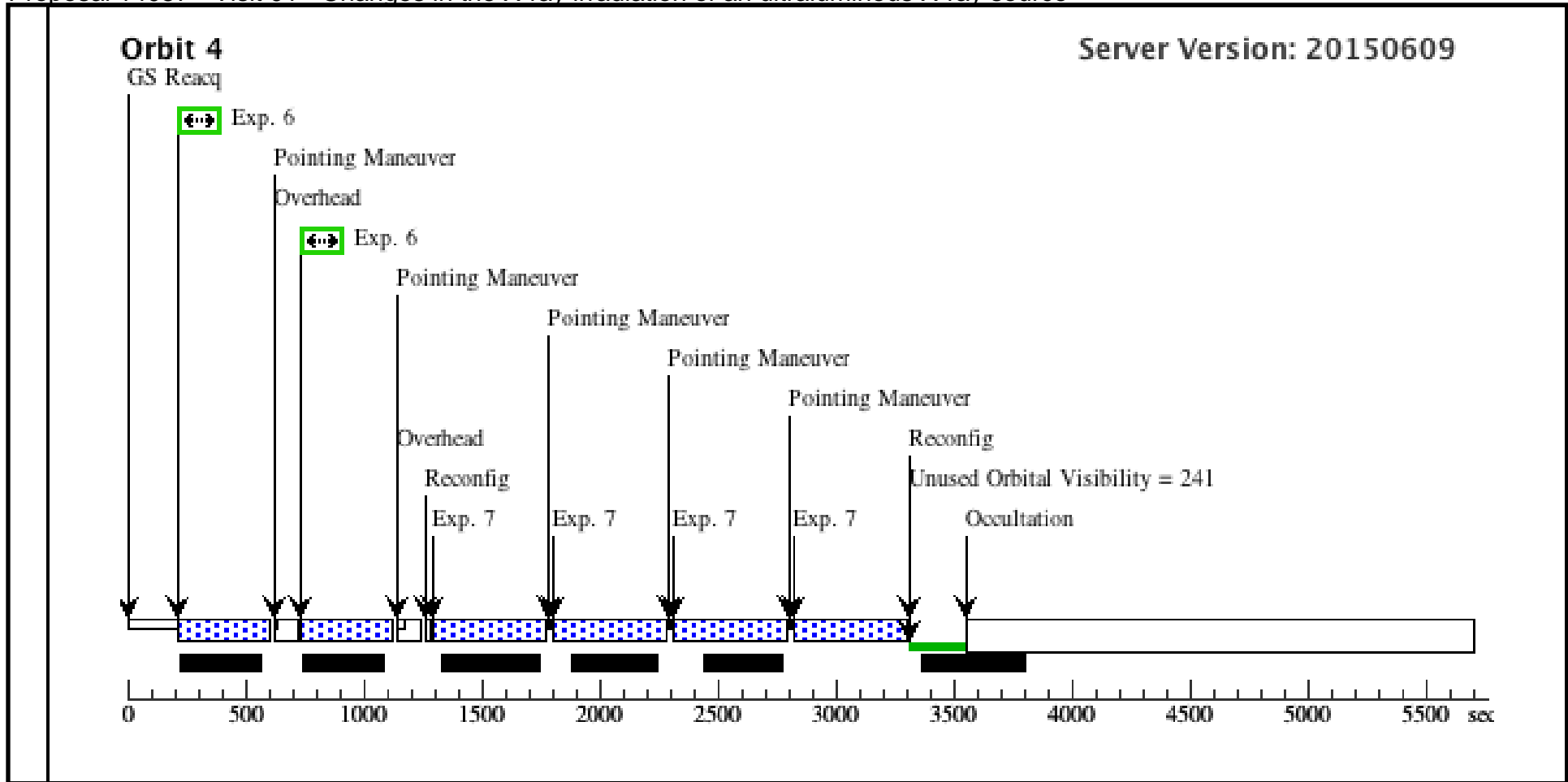


Orbit 2

Server Version: 20150609







Proposal 14057 - Visit 02 - Changes in the X-ray irradiation of an ultraluminous X-ray source

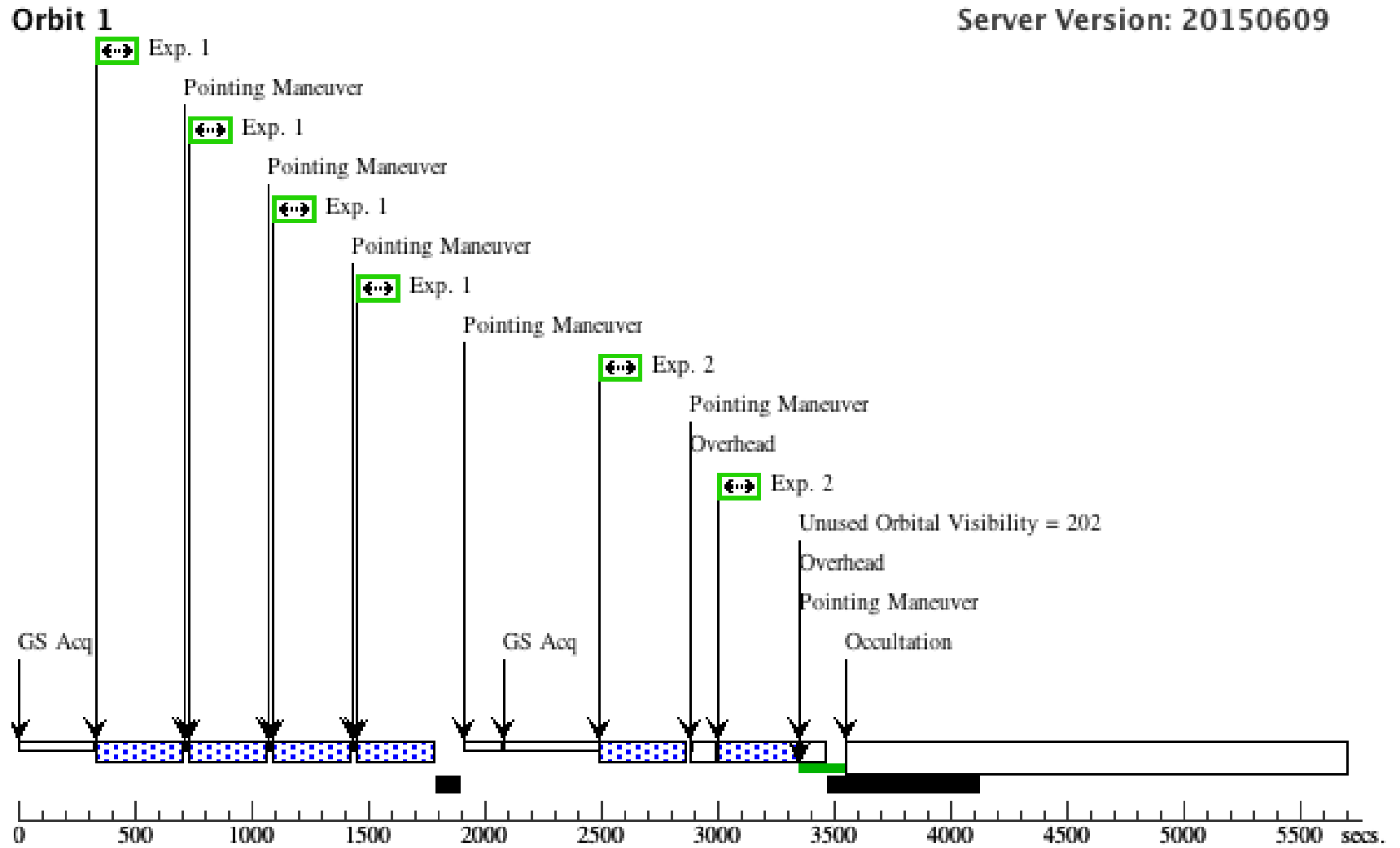
Thu Nov 19 02:08:10 GMT 2015

| Visit | Proposal 14057, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS, ACS/SBC Special Requirements: (none) | | | | | |
|--|---|---|--|--------------------------|--------------|-------------------------|
| Patterns | # | Primary Pattern | Secondary Pattern | Exposures | | |
| | (1) | Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false | | (2), (3), (4), (5), (6) | | |
| | (2) | Pattern Type=WFC3-IR-DITHER- BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365 Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false | | (7) | | |
| (3) | Pattern Type=ACS-SBC-DITHER- BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116 Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false | | (1) | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
| | (1) | NGC1313X-2 | RA: 03 18 22.2600 (49.5927500d) Dec: -66 36 3.56 (-66.60099d) Equinox: J2000 | | V=23.6+/-0.1 | Reference Frame: SIMBAD |
| <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> | | | | | | |

Proposal 14057 - Visit 02 - Changes in the X-ray irradiation of an ultraluminous X-ray source

| # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|--------------------|---------------------|----------------------|-------------------------|--------------|----------------------------------|---|---|------------|
| Exposures | 1 | (ACS.im.67 2202) | (1) NGC1313X-2 | ACS/SBC, ACCUM, SBC | F140LP | | Pattern 3, Exps 1-1 i n Visit 02 (3) | 300 Secs (1200 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [1] |
| | 2 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F336W | FLASH=11 | Pattern 1, Exps 2-2 i n Visit 02 (1) | 339 Secs (1017 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [1] [2] |
| | 3 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F814W | | Pattern 1, Exps 3-3 i n Visit 02 (1) | 580 Secs (1740 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [2] |
| | 4 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F225W | FLASH=11 | Pattern 1, Exps 4-4 i n Visit 02 (1) | 480 Secs (1440 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [2] [3] |
| | 5 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F438W | FLASH=10 | Pattern 1, Exps 5-5 i n Visit 02 (1) | 350 Secs (1050 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [3] |
| | 6 | | (1) NGC1313X-2 | WFC3/UVIS, ACCUM, UVIS2 | F555W | FLASH=2 | Pattern 1, Exps 6-6 i n Visit 02 (1) | 390 Secs (1170 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] | [3] [4] |
| | 7 | | (1) NGC1313X-2 | WFC3/IR, MULTIACCUM, IR | F125W | NSAMP=14; SAMP-SEQ=STEP5 0 | Pattern 2, Exps 7-7 i n Visit 02 (2) | 449.233834 Secs (1796.935 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [4] |

Orbit Structure



Orbit 2

Server Version: 20150609

