# 16457 - Atmospheric Characterisation of A Disintegrating Planet in the Hot Neptune Desert

Cycle: 28, Proposal Category: GO

(JWST Initative)

(Availability Mode: SUPPORTED)


**INVESTIGATORS**

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**VISITS**

| *Visit* | *Targets used in Visit* | *Configurations used in Visit* | *Orbits Used* | *Last Orbit Planner Run* | *OP Current with Visit?* |
|---|---|---|---|---|---|
| 01 | (1) CD-38-15670 | WFC3/IR | 4 | 23-Apr-2021 13:00:32.0 | yes |
| 02 | (1) CD-38-15670 | WFC3/IR | 4 | 23-Apr-2021 13:00:52.0 | yes |

8 Total Orbits Used

**ABSTRACT**

We propose to use the G102 (0.8 - 1.1 microns) and G141 (1.1 - 1.65 microns) grisms of Hubble's Wide Field Camera 3 (WFC3) to study an ultra-hot Neptune. Given its size and orbital period, it is an intriguing target for atmospheric characterisation as it is unclear how the planet has managed to maintain its H/He envelope. These Hubble observations will have the capability to unveil the composition of this atmosphere, constraining the metallicity and thus providing insights into its formation history, as well as being able provide initial measurements of the mass loss for this planet via the helium triplet at 1.083 microns.

**OBSERVING DESCRIPTION**

We will acquire two transits, one utilising the G102 grism while the other shall use G141. The observations will be made in slitless spectroscopic mode and use spatial scans. We will take both forward and reverse scans with 9 sets of scans per orbit. In orbits two, three and four of each visit, we will take an additional forward scan to maximise the duty cycle. In orbit one, a direct image will be taken for calibration purposes.

For both visits, our spatial scans shall have a rate of 0.18 arcseconds/second. We will use the SPARS10 sequence with 15 samples per integration. We will read out a subarray with a size of 256 pixels. Individual exposure times will be 103.1 sec, resulting in a scan across 18.6 arcsecs which is equivalent to 143 pixels per exposure. Such an observational strategy leave plenty of additional pixels for estimating the background flux. The first orbit will be discarded, which is a standard procedure adopted by all HST transiting exoplanet observations, as the data shows greater systematics due to the thermal settling of the telescope. The remaining orbits will provide good phase coverage during transit, and allow for sufficient time (2 HST orbits - one before transit, one after transit) to establish the baseline stellar flux necessary to accurately measure the transit depth.

Note that we used TWICE the orbital period as a work around to schedule the observations due to a limitation of APT caused by the exoplanet's orbital period being less than 1 day. The true orbital period of the planet is half of that listed in this proposal for scheduling purposes. We also adjust the phase of the first exposure accordingly (see comment to Visit 01).

## Visit

**Proposal 16457, G141 Transit (01), scheduling** Fri Apr 23 17:00:54 GMT 2021

**Diagnostic Status: No Diagnostics**

Scientific Instruments: WFC3/IR

Special Requirements: SCHED 50%; ORIENT 55D TO 85 D; ORIENT 235D TO 265 D; Period 1.58412748 D AND ZERO-PHASE HJD2458718.565116445

*Comments: The orbital period of the exoplanet is less than 1 day, which cause a problem for HST scheduling software in APT. It claims in the Visit Planner, "Phase windows are not calculated when the gap between schedulable intervals is less than 1 days (sic), assuming no scheduling restrictions for constrain Phase 0.806 / 0.814" but if that's really what the HST scheduling software will do (as opposed to the APT simulation of that), then we need to work around this. The simplest work around is to double the period so THAT is longer than 1 day. But if we double the period we have to adjust the phase constraint accordingly - make it 2x closer to unity. So instead of Period = 0.7920638416243817 d and phase = 0.806/0.814 we use 1.58412748 d and 0.903/0.907. We do this for both visits. So as to not reduce the number of available scheduling windows, we have offset the zero phase of visit 2 from visit 1 by 0.7920638416243817 d days so that visit 1 utilises scheduling opportunities 1,3,5... and visit 2 options 2,4,6 etc.*

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | CD-38-15670 | RA: 23 54 40.5304 (358.6688767d)<br>Dec: -37 37 41.61 (-37.62822d)<br>Equinox: J2000 | Proper Motion RA: 0.020843303178745425 sec of time/yr<br>Proper Motion Dec: -0.06980099994962075 arcsec/yr<br>Epoch of Position: 2015.5 | V=9.76 | Reference Frame: SIMBAD |

*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*
*Category=STAR*
*Description=[EXTRA-SOLAR PLANET]*

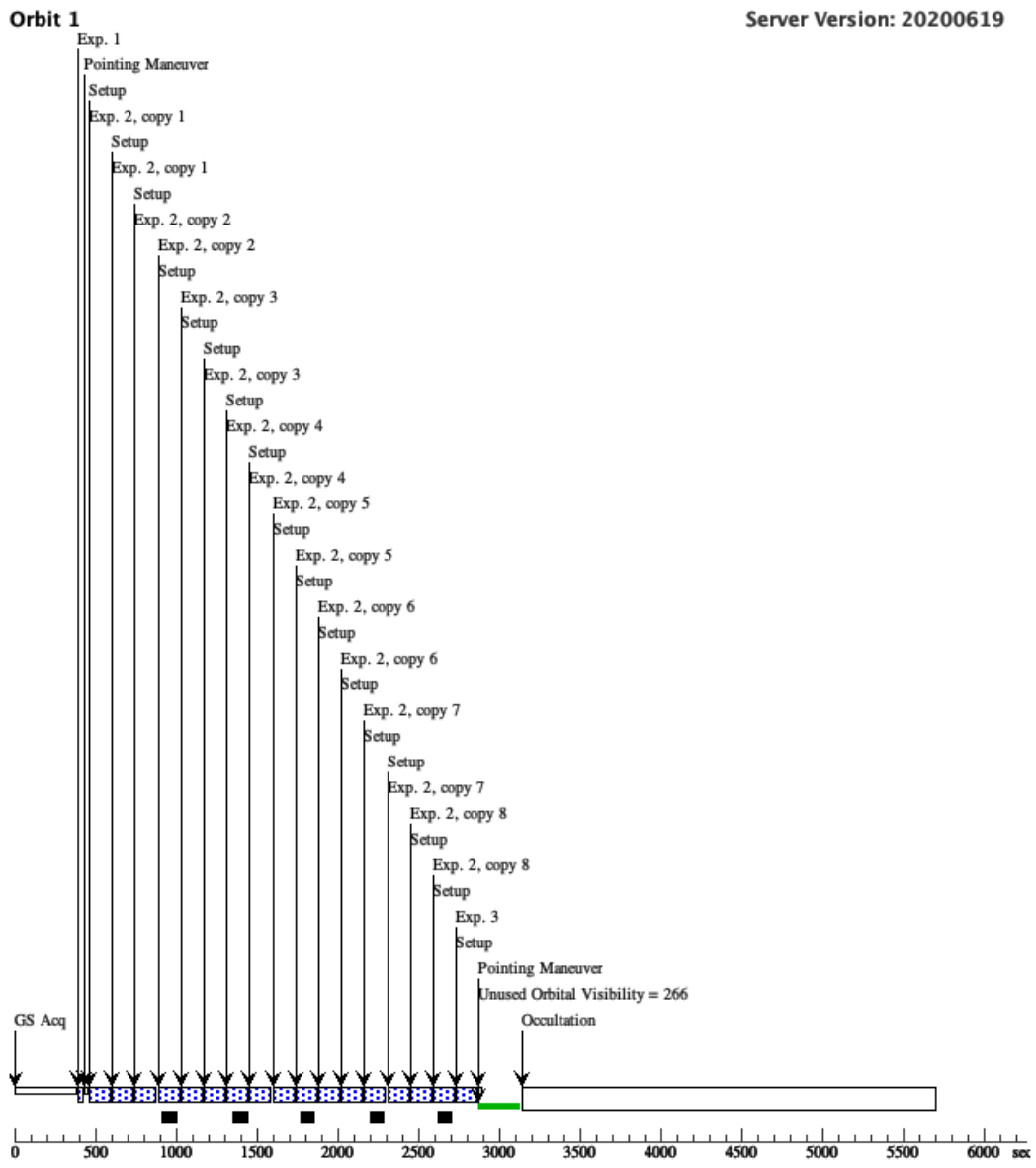
**Exposures**

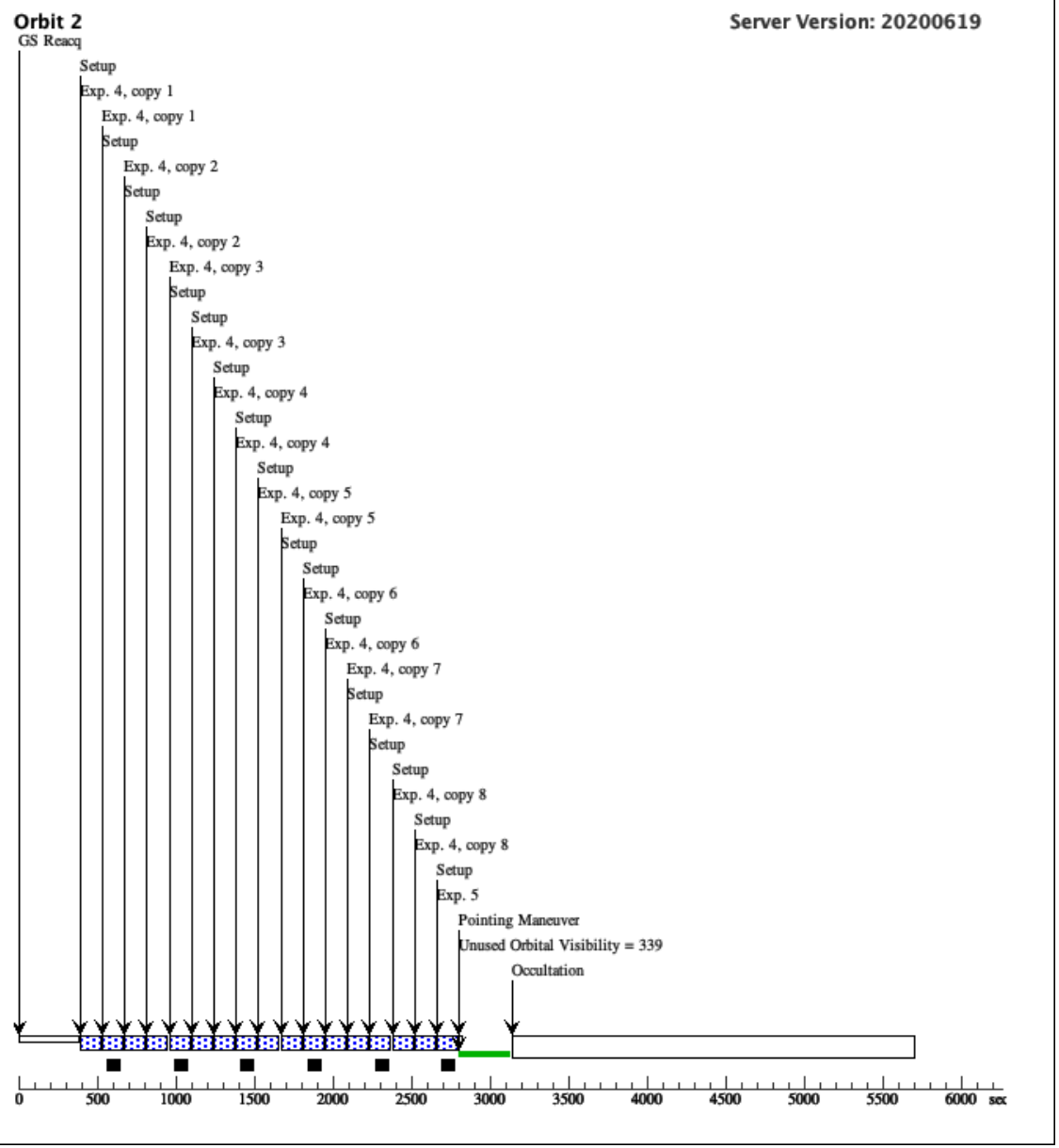
| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Direct Image | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | F132N | NSAMP=2; SAMP-SEQ=RAPID | POS TARG 0,0; PHASE 0.903 TO 0.907 | Sequence 1-3 Non-Int in G141 Transit (01) | 0.55563 Secs (0.556 Secs)<br>*[==>]* | ***[1]*** |
| 2 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.1 8,90.0 Degrees,Round trip | Sequence 1-3 Non-Int in G141 Transit (01) | 103.128633 Secs X 8 (1650.058 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]* | ***[1]*** |
| 3 | Forward scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.1 8,90.0 Degrees,Forward | Sequence 1-3 Non-Int in G141 Transit (01) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | ***[1]*** |
| 4 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.1 8,90.0 Degrees,Round trip | Sequence 4-5 Non-Int in G141 Transit (01) | 103.128633 Secs X 8 (1650.058 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]* | ***[2]*** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | Forward Scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15;<br>SAMP-SEQ=SPARS10 | POS TARG 0,-12;<br>SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 4-5 Non-Int in G141 Transit (01) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | <br>***[2]*** |
| 6 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15;<br>SAMP-SEQ=SPARS10 | POS TARG 0,-12;<br>SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 6-7 Non-Int in G141 Transit (01) | 103.128633 Secs X 8 (1650.058 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]* | <br>***[3]*** |
| 7 | Forward Scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15;<br>SAMP-SEQ=SPARS10 | POS TARG 0,-12;<br>SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 6-7 Non-Int in G141 Transit (01) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | <br>***[3]*** |
| 8 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15;<br>SAMP-SEQ=SPARS10 | POS TARG 0,-12;<br>SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 8-9 Non-Int in G141 Transit (01) | 103.128633 Secs X 8 (1650.058 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]* | <br>***[4]*** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 9 | Forward Sca n | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G141 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 8-9 Non-Int in G141 Transit (01) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | ***[4]*** |

**Orbit Structure**

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GS Reacq
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Exp. 4, copy 1
Setup
Exp. 4, copy 2
Setup
Setup
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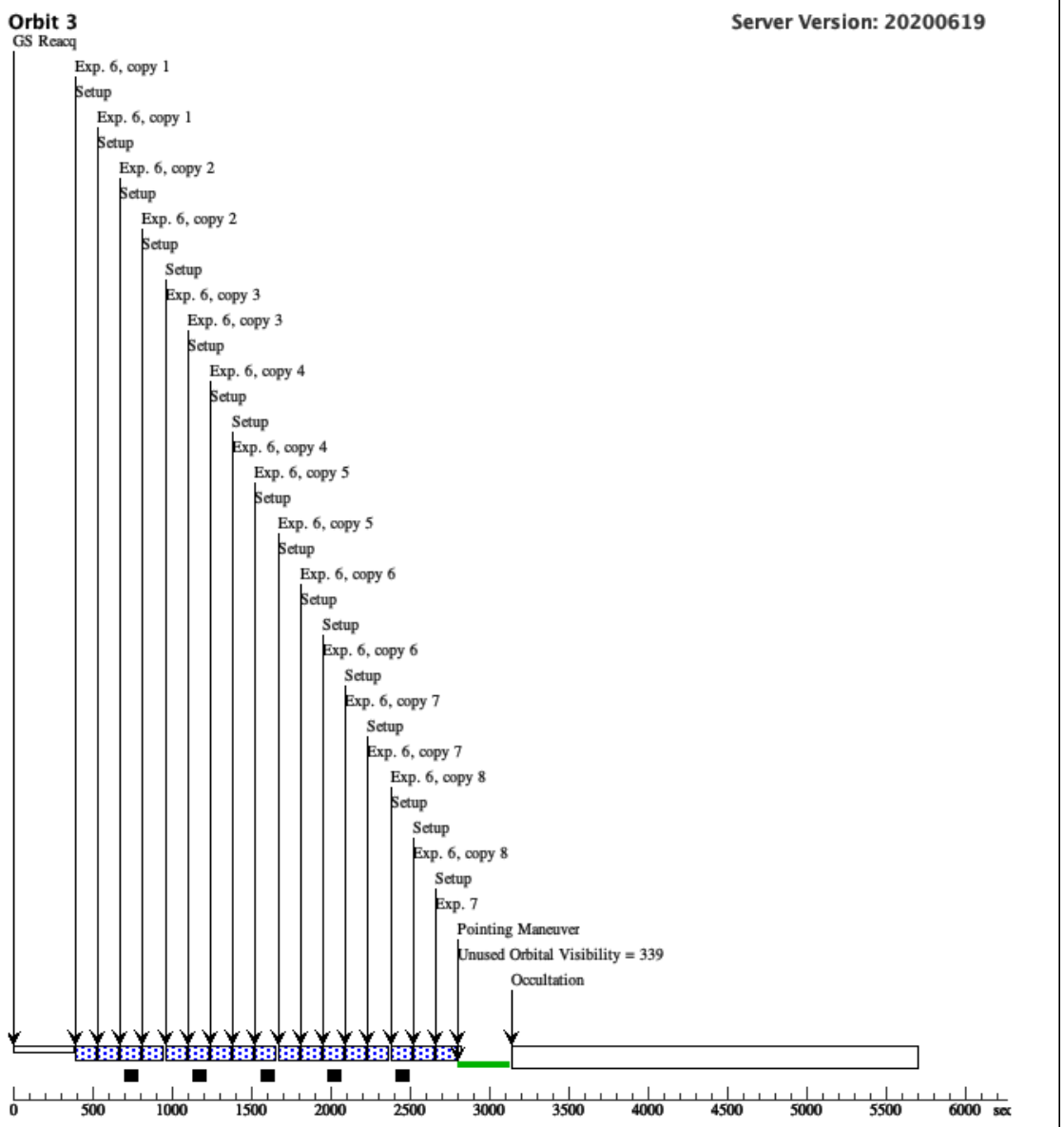
Setup
Exp. 4, copy 3
Setup
Exp. 4, copy 4
Setup
Exp. 4, copy 4
Setup
Exp. 4, copy 5
Exp. 4, copy 5
Setup
Setup
Exp. 4, copy 6
Setup
Exp. 4, copy 6
Exp. 4, copy 7
Setup
Exp. 4, copy 7
Setup
Setup
Exp. 4, copy 8
Setup
Exp. 4, copy 8
Setup
Exp. 5
Pointing Maneuver
Unused Orbital Visibility = 339
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec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Server Version: 20200619
GS Reacq
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Exp. 6, copy 1
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Exp. 6, copy 2
Setup
Exp. 6, copy 2
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Exp. 6, copy 4
Exp. 6, copy 5
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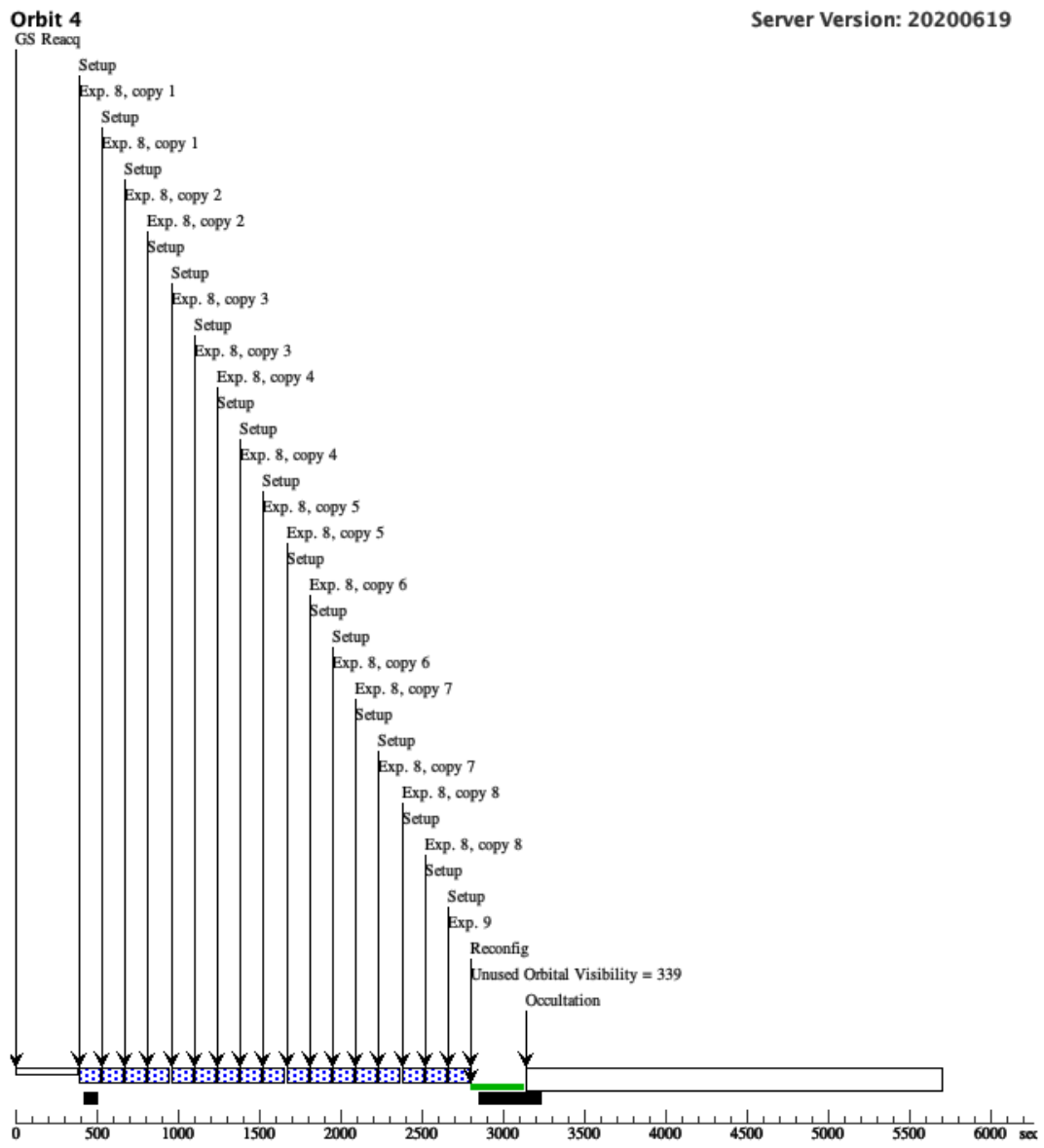
Exp. 6, copy 5
Setup
Exp. 6, copy 6
Setup
Setup
Exp. 6, copy 6
Setup
Exp. 6, copy 7
Setup
Exp. 6, copy 7
Exp. 6, copy 8
Setup
Setup
Exp. 6, copy 8
Setup
Exp. 7
Pointing Maneuver
Unused Orbital Visibility = 339
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 4
Server Version: 20200619
GS Reacq
Setup
Exp. 8, copy 1
Setup
Exp. 8, copy 1
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Exp. 8, copy 2
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Exp. 8, copy 4
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Exp. 8, copy 5
Exp. 8, copy 5
Setup
Exp. 8, copy 6
Setup
Setup
Exp. 8, copy 6
Exp. 8, copy 7
Setup
Setup
Exp. 8, copy 7
Exp. 8, copy 8
Setup
Exp. 8, copy 8
Setup
Setup
Exp. 9
Reconfig
Unused Orbital Visibility = 339
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

## Visit

**Proposal 16457, G102 Transit (02), scheduling** Fri Apr 23 17:00:54 GMT 2021

**Diagnostic Status: No Diagnostics**

Scientific Instruments: WFC3/IR

Special Requirements: SCHED 50%; ORIENT 55D TO 85 D; ORIENT 235D TO 265 D; Period 1.58412748 D AND ZERO-PHASE HJD2458719.357180287

*Comments: See comment to Visit 01 ! It applies equally to Visit 02.*

## Fixed Targets

| # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous |
|---|---|---|---|---|---|
| (1) | CD-38-15670 | RA: 23 54 40.5304 (358.6688767d)<br>Dec: -37 37 41.61 (-37.62822d)<br>Equinox: J2000 | Proper Motion RA: 0.020843303178745425 sec of time/yr<br>Proper Motion Dec: -0.06980099994962075 arcsec/yr<br>Epoch of Position: 2015.5 | V=9.76 | Reference Frame: SIMBAD |

*Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.*
*Category=STAR*
*Description=[EXTRA-SOLAR PLANET]*

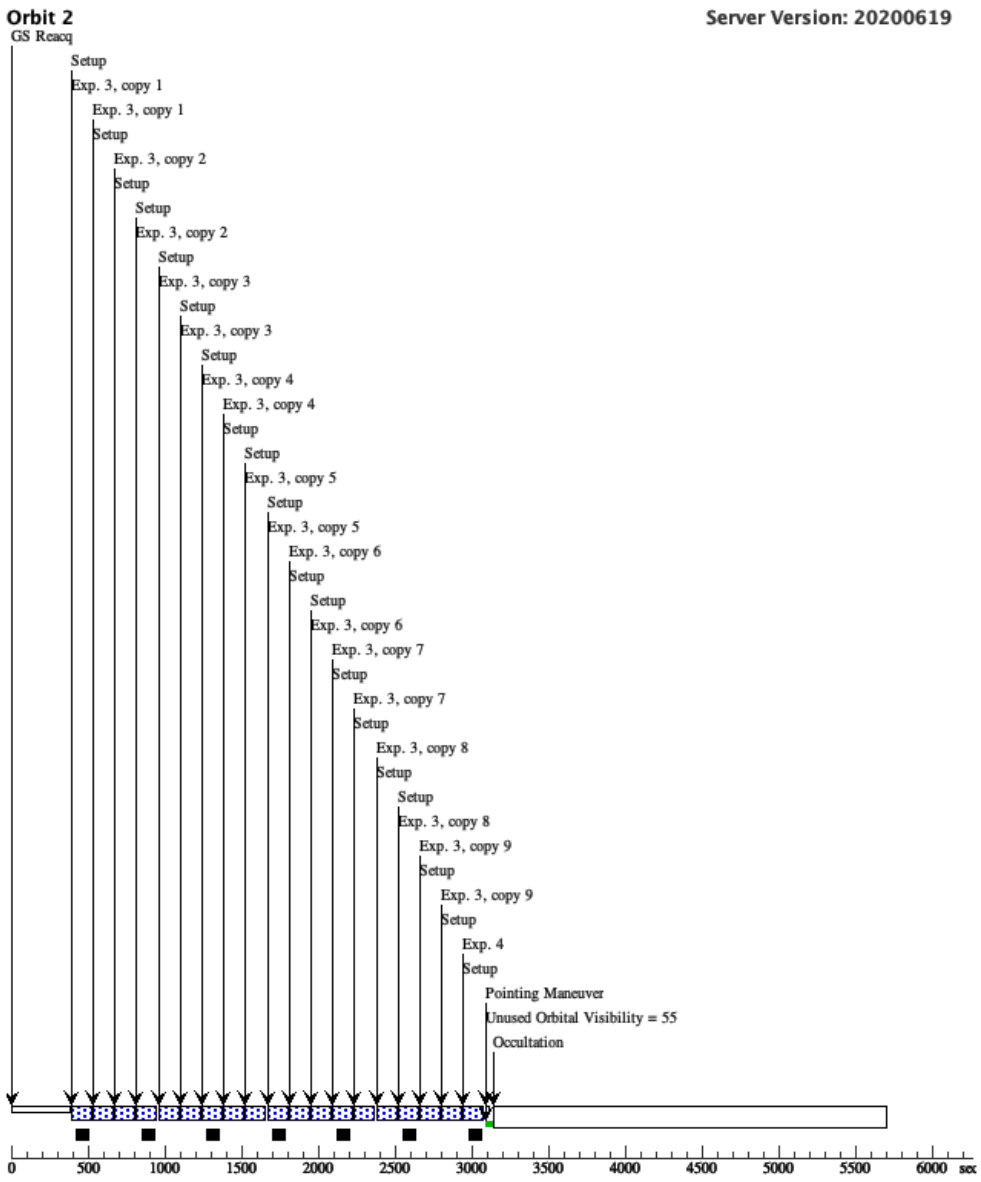
**Exposures**

| # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Direct Image | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | F132N | NSAMP=2; SAMP-SEQ=RAPID | POS TARG 0,0; PHASE 0.903 TO 0.907 | Sequence 1-2 Non-Int in G102 Transit (02) | 0.55563 Secs (0.556 Secs)<br>*[==>]* | ***[1]*** |
| 2 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 1-2 Non-Int in G102 Transit (02) | 103.128633 Secs X 9 (1856.315 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]*<br>*[==>(Copy 9, Forward)]*<br>*[==>(Copy 9, Reverse)]* | ***[1]*** |
| 3 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 3-4 Non-Int in G102 Transit (02) | 103.128633 Secs X 9 (1856.315 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]*<br>*[==>(Copy 9, Forward)]*<br>*[==>(Copy 9, Reverse)]* | ***[2]*** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Forward Scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 3-4 Non-Int in G102 Transit (02) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | ***[2]*** |
| 5 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 5-6 Non-Int in G102 Transit (02) | 103.128633 Secs X 9 (1856.315 Secs)<br>*[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]*<br>*[==>(Copy 9, Forward)]*<br>*[==>(Copy 9, Reverse)]* | ***[3]*** |
| 6 | Forward Scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 5-6 Non-Int in G102 Transit (02) | 103.128633 Secs (103.129 Secs)<br>*[==>]* | ***[3]*** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | Forward/Reverse Scans | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Round trip | Sequence 7-8 Non-Int in G102 Transit (02) | 103.128633 Secs X 9 (1856.315 Secs) | |
| | | | | | | | | | *[==>(Copy 1, Forward)]*<br>*[==>(Copy 1, Reverse)]*<br>*[==>(Copy 2, Forward)]*<br>*[==>(Copy 2, Reverse)]*<br>*[==>(Copy 3, Forward)]*<br>*[==>(Copy 3, Reverse)]*<br>*[==>(Copy 4, Forward)]*<br>*[==>(Copy 4, Reverse)]*<br>*[==>(Copy 5, Forward)]*<br>*[==>(Copy 5, Reverse)]*<br>*[==>(Copy 6, Forward)]*<br>*[==>(Copy 6, Reverse)]*<br>*[==>(Copy 7, Forward)]*<br>*[==>(Copy 7, Reverse)]*<br>*[==>(Copy 8, Forward)]*<br>*[==>(Copy 8, Reverse)]*<br>*[==>(Copy 9, Forward)]*<br>*[==>(Copy 9, Reverse)]* | ***[4]*** |
| | 8 | Forward Scan | (1) CD-38-15670 | WFC3/IR, MULTIACCUM, GRISM256 | G102 | NSAMP=15; SAMP-SEQ=SPARS10 | POS TARG 0,-12; SPATIAL SCAN 0.18,90.0 Degrees,Forward | Sequence 7-8 Non-Int in G102 Transit (02) | 103.128633 Secs (103.129 Secs) | |
| | | | | | | | | | *[==>]* | ***[4]*** |

**Orbit Structure**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GS Reacq
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Exp. 3, copy 5
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Exp. 3, copy 6
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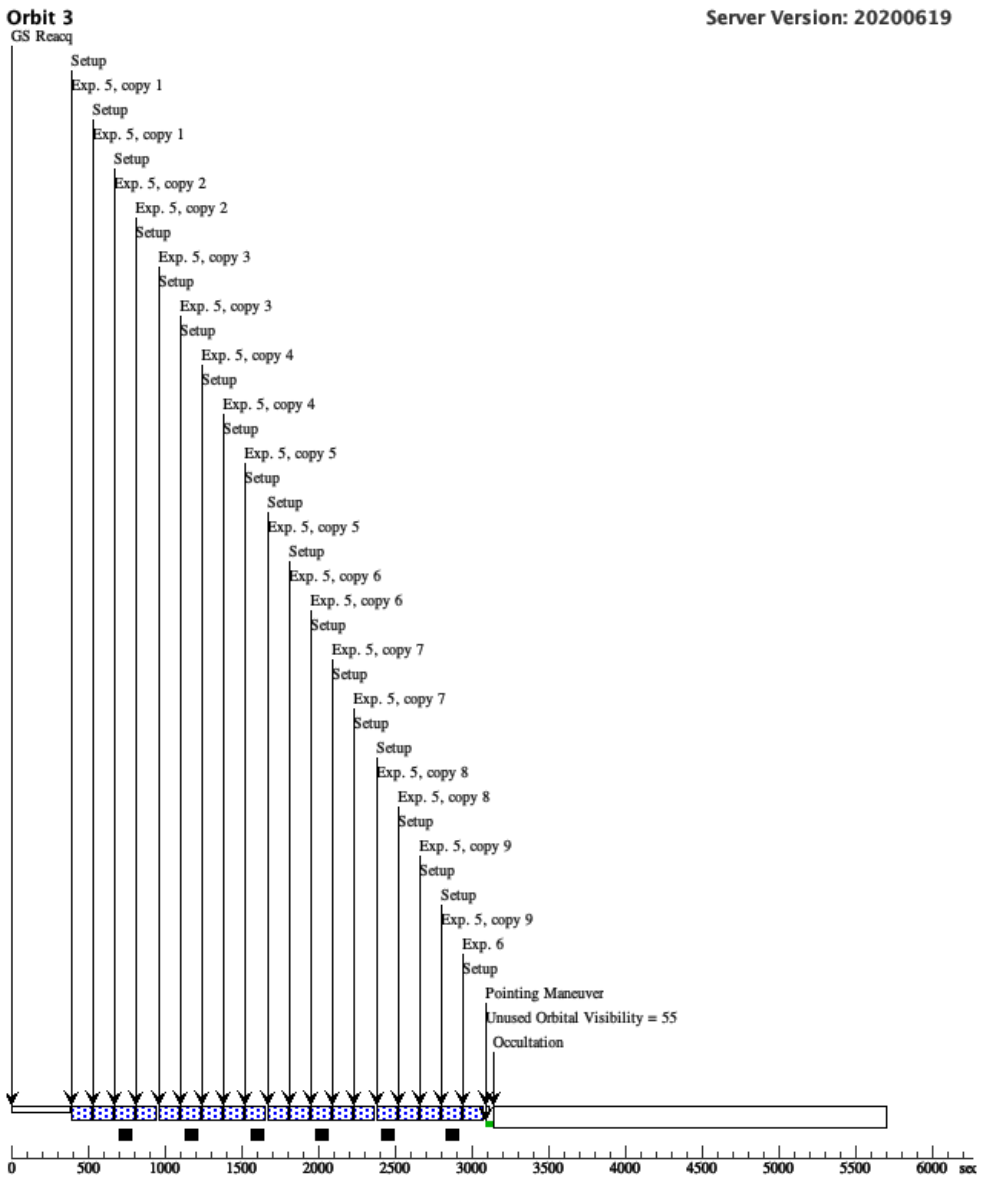
Exp. 3, copy 6
Exp. 3, copy 7
Setup
Exp. 3, copy 7
Setup
Exp. 3, copy 8
Setup
Setup
Exp. 3, copy 8
Exp. 3, copy 9
Setup
Exp. 3, copy 9
Setup
Exp. 4
Setup
Pointing Maneuver
Unused Orbital Visibility = 55
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec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Server Version: 20200619
GS Reacq
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Exp. 5, copy 1
Setup
Exp. 5, copy 2
Exp. 5, copy 2
Setup
Exp. 5, copy 3
Setup
Exp. 5, copy 3
Setup
Exp. 5, copy 4
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Exp. 5, copy 4
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Exp. 5, copy 5
Setup
Setup
Exp. 5, copy 5
Setup
Exp. 5, copy 6
Exp. 5, copy 6
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Exp. 5, copy 7
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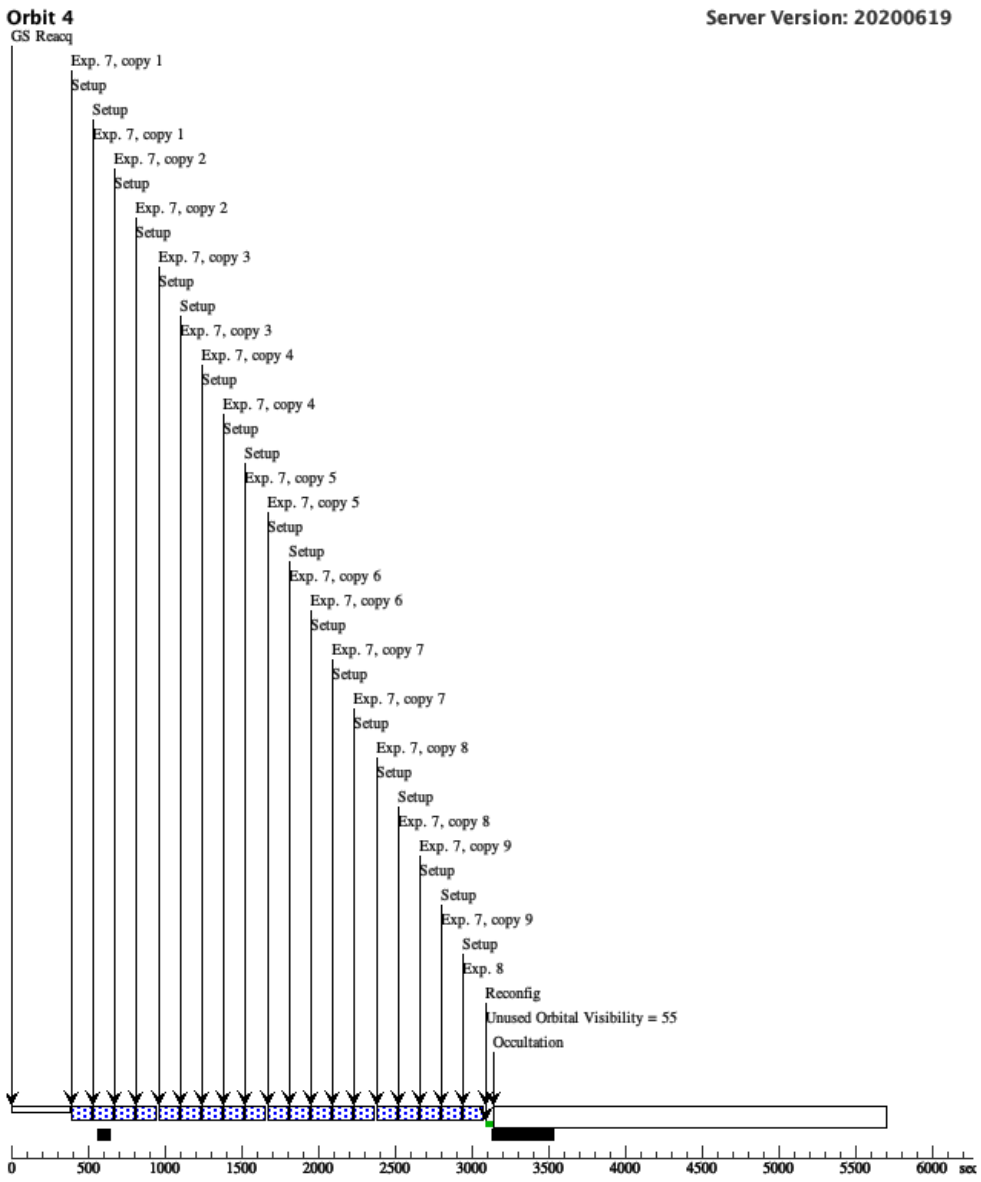
Exp. 5, copy 7
Setup
Setup
Exp. 5, copy 8
Exp. 5, copy 8
Setup
Exp. 5, copy 9
Setup
Setup
Exp. 5, copy 9
Exp. 6
Setup
Pointing Maneuver
Unused Orbital Visibility = 55
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 4
Server Version: 20200619
GS Reacq
Exp. 7, copy 1
Setup
Setup
Exp. 7, copy 1
Exp. 7, copy 2
Setup
Exp. 7, copy 2
Setup
Exp. 7, copy 3
Setup
Setup
Exp. 7, copy 3
Exp. 7, copy 4
Setup
Exp. 7, copy 4
Setup
Setup
Exp. 7, copy 5
Exp. 7, copy 5
Setup
Setup
Exp. 7, copy 6
Exp. 7, copy 6
Setup
Exp. 7, copy 7
Setup
Exp. 7, copy 7
Setup
Exp. 7, copy 8
Setup
Setup
Exp. 7, copy 8
Exp. 7, copy 9
Setup
Setup
Exp. 7, copy 9
Setup
Exp. 8
Reconfig
Unused Orbital Visibility = 55
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec