



# 16887 - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

Cycle: 29, Proposal Category: GO  
(Availability Mode: SUPPORTED)

## INVESTIGATORS

| <i>Name</i>                       | <i>Institution</i>                                  | <i>E-Mail</i>                |
|-----------------------------------|---|------------------------------|
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## 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) J0348-4015<br>CCDFLAT    | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:52.0        | yes                           |
| 10           | (10) J1327+1036<br>CCDFLAT   | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:53.0        | yes                           |
| 02           | (2) J1648+4155<br>CCDFLAT    | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:54.0        | yes                           |
| 03           | (3) J1649+0812<br>CCDFLAT    | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:54.0        | yes                           |
| 04           | (4) J1711-1611<br>CCDFLAT    | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:55.0        | 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> |
|--------------|------------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 05           | (5) J1937-1821<br>CCDFLAT          | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:56.0        | yes                           |
| 06           | (6) J2050-2947<br>CCDFLAT          | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:57.0        | yes                           |
| 08           | (8) J2218-3322.SLITPOS2<br>CCDFLAT | STIS/CCD                            | 1                  | 23-Feb-2022 10:02:58.0        | yes                           |

8 Total Orbits Used

## **ABSTRACT**

Close dual quasars are expected to be common in the hierarchical universe. However, very few confirmed dual quasars are known at  $<5$  kpc at  $1 < z < 3$ , in stark contrast to naive theoretical expectations. We propose STIS (G750L) slit spectroscopy to systematically discover close ( $<5$  kpc) dual or strong gravitationally lensed quasars at redshifts  $1 < z < 3$ . Our sample probes a new regime at higher redshifts, higher luminosities, and smaller merger separations than previous work. This poorly explored regime is crucial for understanding the effects of mergers in triggering quasar activity at cosmic noon. Our targets are selected using a new astrometric technique: when two close-by AGN vary stochastically, their combined light centroid shifts, which is detectable by Gaia. Follow-up dual-band HST imaging of Gaia-selected targets has recently uncovered multiple-cored morphology with small angular separations of  $\sim 0.4''$ - $0.6''$ , subsequent to the most recent proposal deadline. The proposed STIS spectroscopy will unambiguously identify the targets as high-redshift close dual or lensed quasars and reject interlopers from chance superpositions with foreground stars/quasars. It will demonstrate the new astrometry technique and identify suitable targets for detailed JWST IFU follow ups. The program will provide a systematic pilot effort to fill the gap in our knowledge about the demographics of dual supermassive black holes on  $<5$  kpc scales at cosmic noon.

## **OBSERVING DESCRIPTION**

This program will perform STIS (G750L) slit spectroscopy for six double-core quasars and one quadruple-core quasar to spectrally and spatially resolve the double/multiple cores to study their physical nature.

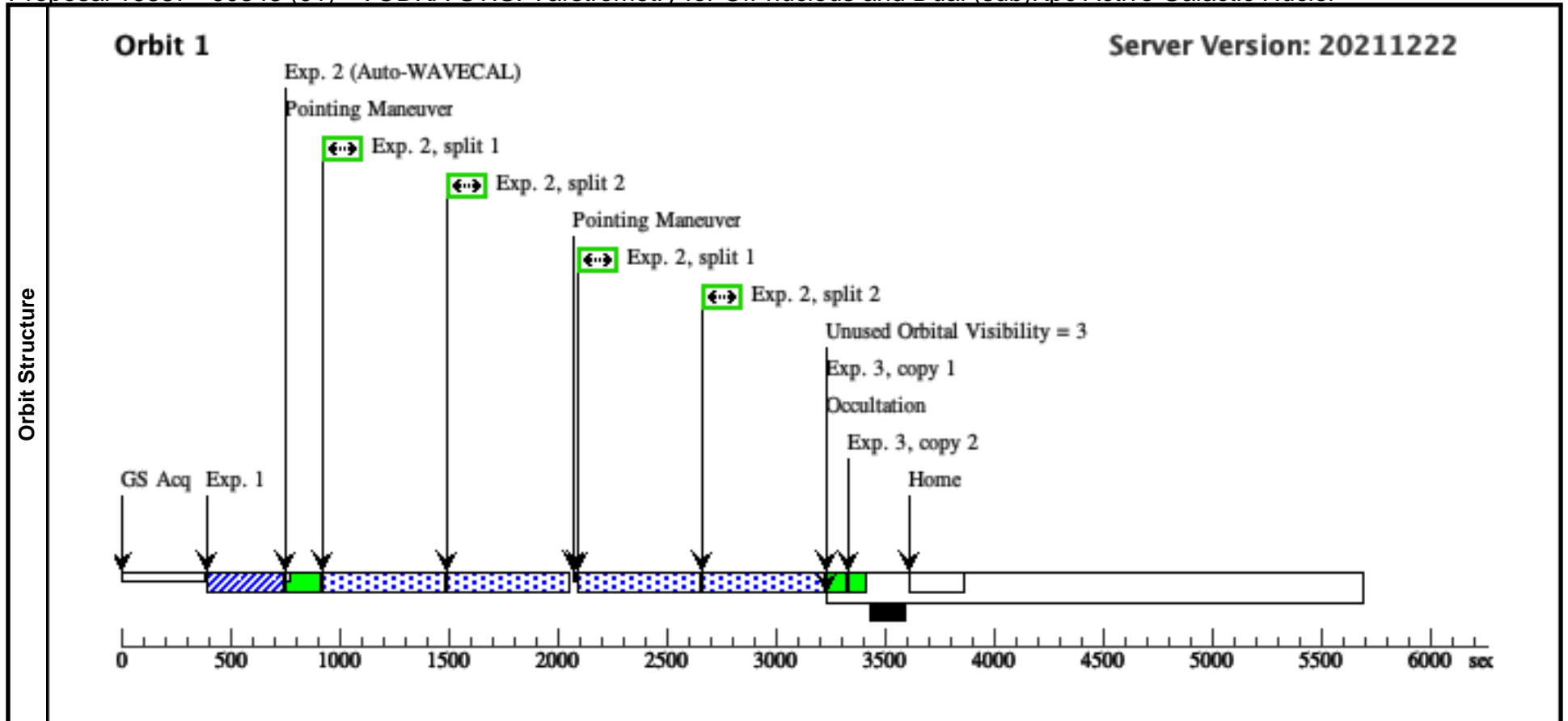
We will use the  $52 \times 0.2''$  slit and the G750L aperture. The slit will be placed across both cores to obtain the spectrum for both components. The separation between the two cores is typically  $0.3$ - $0.6$  arcsec, and we will use the point-source mode for acquisition. The conversion between the PA of the two cores and the ORIENT parameter is:  $\text{ORIENT} = \text{PA} + 45.35$  or  $\text{ORIENT} = \text{PA} + 225.35$  according to Table 11.2 of the STIS Instrument Handbook.

Each visit, except for J2218-3322, consists of 1 orbit, with one acquisition exposure followed by the science exposure, and the CCD flats. Two orbits are used for the quad-core quasar, J2218-3322, with one orbit for each slit position.

Proposal 16887 - J0348 (01) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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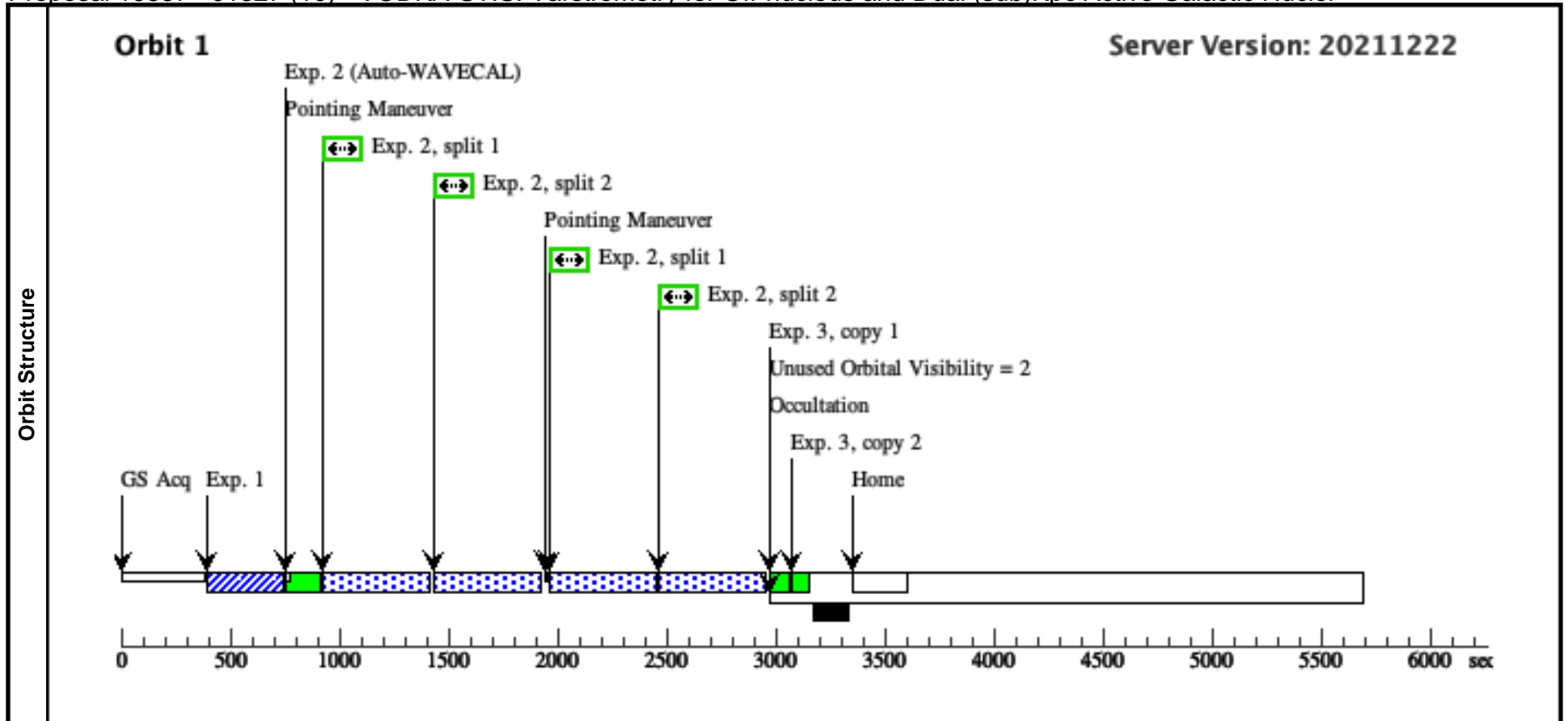
| Visit         | <b>Proposal 16887, J0348 (01), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: ORIENT 232.05D TO 232.05 D: ORIENT 52.05D TO 52.05 D |            |   |                           |                 |                       |               |  |                                 |       |
|---------------|---|------------|---|---------------------------|-----------------|-----------------------|---------------|--|---------------------------------|-------|
|               | Patterns  | #          | Primary Pattern   | Secondary Pattern         | Exposures       |                       |               |  |                                 |       |
|               |   | (1)        | Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG<br>Purpose=DITHER                      Pattern Orientation=90.0<br>Number Of Points=2                  Angle Between Sides=<br>Point Spacing=1.0                    Center Pattern=false<br>Line Spacing= |                           | (2)             |                       |               |  |                                 |       |
| Fixed Targets | #   | Name       | Target Coordinates  | Targ. Coord. Corrections  | Fluxes          | Miscellaneous         |               |  |                                 |       |
|               | (1)   | J0348-4015 | RA: 03 48 28.6600 (57.1194167d)<br>Dec: -40 15 13.00 (-40.25361d)<br>Equinox: J2000<br><br><i>Comments:</i><br>Category=GALAXY<br>Description=[QSO, QUASAR]   |                           | V=19.29         | Reference Frame: ICRS |               |  |                                 |       |
| Exposures     | #   | Label      | Target  | Config,Mode,Aperture      | Spectral Els.   | Opt. Params.          | Special Reqs. | Groups   | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1   | acq        | (1) J0348-4015  | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT         |               |  | 30 Secs (30 Secs)               |       |
|               |   |            |   |                           |                 |                       |               |  | [==>]                           | [1]   |
|               | 2   | J0348      | (1) J0348-4015  | STIS/CCD, ACCUM, 52X0.2E1 | G750L<br>7751 A | CR-SPLIT=2            |               | Pattern 1, Exps 2-2 in J0348 (01) (1)  | 1000 Secs (2100 Secs)           |       |
|               |   |            |   |                           |                 |                       |               | [==>525.0 Secs (Pattern 1, Split 1)]<br>[==>525.0 Secs (Pattern 1, Split 2)]<br>[==>525.0 Secs (Pattern 2, Split 1)]<br>[==>525.0 Secs (Pattern 2, Split 2)] | [1]                             |       |
| 3             | ccdflat   | CCDFLAT    | STIS/CCD, ACCUM, 52X0.2   | G750L<br>7751 A           |                 |                       |               | [==>(Copy 1)]<br>[==>(Copy 2)]   | [1]                             |       |



Proposal 16887 - J1327 (10) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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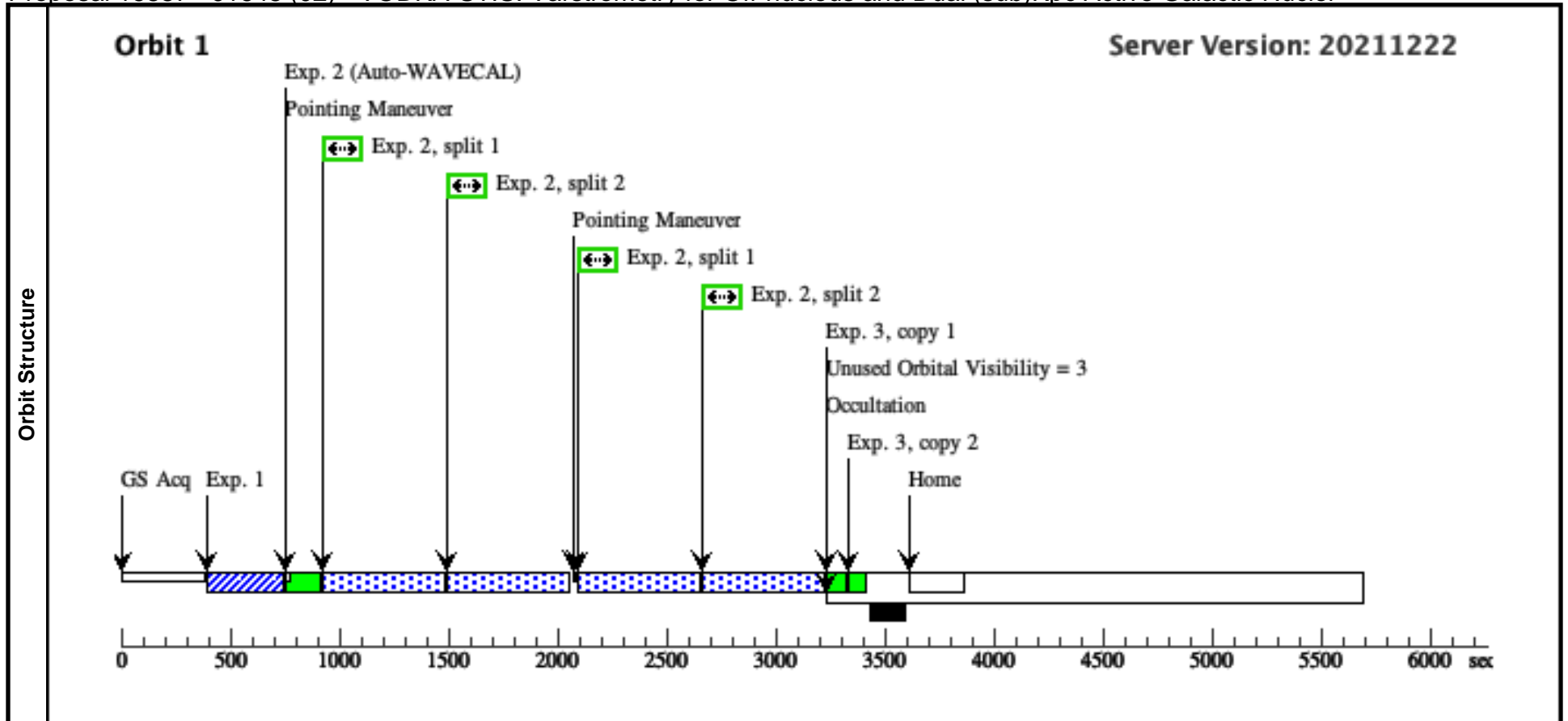
| Visit         | <b>Proposal 16887, J1327 (10)</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 80%; ORIENT 291.95D TO 291.95 D; ORIENT 111.95D TO 111.95 D |            |  |   |                 |                       |               |                                       |   |       |
|---------------|--|------------|--|---|-----------------|-----------------------|---------------|---------------------------------------|---|-------|
|               | Patterns   | #          | Primary Pattern  | Secondary Pattern   | Exposures       |                       |               |                                       |   |       |
|               |  | (1)        | Pattern Type=STIS-ALONG-SLIT<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=1.0<br>Line Spacing=   | Coordinate Frame=POS-TARG<br>Pattern Orientation=90.0<br>Angle Between Sides=<br>Center Pattern=false |                 | (2)                   |               |                                       |   |       |
| Fixed Targets | #  | Name       | Target Coordinates   | Targ. Coord. Corrections  | Fluxes          | Miscellaneous         |               |                                       |   |       |
|               | (10)   | J1327+1036 | RA: 13 27 52.0531 (201.9668879d)<br>Dec: +10 36 27.23 (10.60756d)<br>Equinox: J2000<br><br><i>Comments: PA = 246.6</i><br><i>Category=GALAXY</i><br><i>Description=[QSO, QUASAR]</i> |   | V=19.5          | Reference Frame: ICRS |               |                                       |   |       |
| Exposures     | #  | Label      | Target   | Config,Mode,Aperture  | Spectral Els.   | Opt. Params.          | Special Reqs. | Groups                                | Exp. Time (Total)/[Actual Dur.]   | Orbit |
|               | 1  | acq        | (10) J1327+1036  | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT         |               |                                       | 30 Secs (30 Secs)   |       |
|               | 2  | J1327      | (10) J1327+1036  | STIS/CCD, ACCUM, 52X0.2E1   | G750L<br>7751 A | CR-SPLIT=2            |               | Pattern 1, Exps 2-2 in J1327 (10) (1) | 1000 Secs (1840 Secs)<br>[==>460.0 Secs (Pattern 1, Split 1)]<br>[==>460.0 Secs (Pattern 1, Split 2)]<br>[==>460.0 Secs (Pattern 2, Split 1)]<br>[==>460.0 Secs (Pattern 2, Split 2)] | [1]   |
|               | 3  | ccdflat    | CCDFLAT  | STIS/CCD, ACCUM, 52X0.2   | G750L<br>7751 A |                       |               |                                       | [==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |



Proposal 16887 - J1648 (02) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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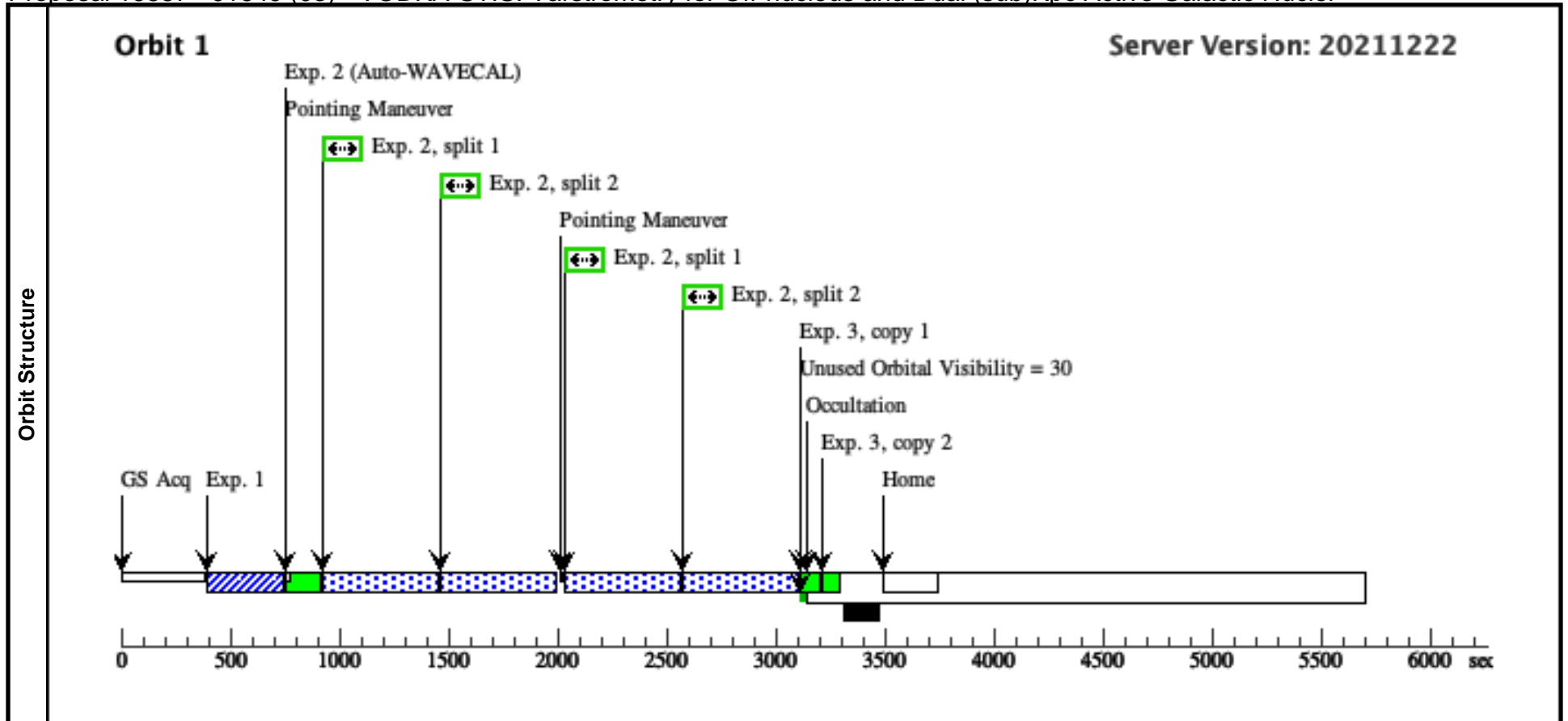
| Visit         | <b>Proposal 16887, J1648 (02), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: ORIENT 85.25D TO 85.25 D; ORIENT 265.25D TO 265.25 D |            |  |   |                 |                       |               |                                       |  |       |
|---------------|---|------------|--|---|-----------------|-----------------------|---------------|---------------------------------------|--|-------|
|               | Patterns  | #          | Primary Pattern  | Secondary Pattern   | Exposures       |                       |               |                                       |  |       |
|               |   | (1)        | Pattern Type=STIS-ALONG-SLIT<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=1.0<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=90.0<br>Angle Between Sides=<br>Center Pattern=false |                 | (2)                   |               |                                       |  |       |
| Fixed Targets | #   | Name       | Target Coordinates   | Targ. Coord. Corrections  | Fluxes          | Miscellaneous         |               |                                       |  |       |
|               | (2)   | J1648+4155 | RA: 16 48 18.0600 (252.0752500d)<br>Dec: +41 55 50.10 (41.93058d)<br>Equinox: J2000                        |   | V=18.5          | Reference Frame: ICRS |               |                                       |  |       |
|               | <i>Comments:</i><br>Category=GALAXY<br>Description=[QSO, QUASAR]  |            |  |   |                 |                       |               |                                       |  |       |
| Exposures     | #   | Label      | Target   | Config,Mode,Aperture  | Spectral Els.   | Opt. Params.          | Special Reqs. | Groups                                | Exp. Time (Total)/[Actual Dur.]  | Orbit |
|               | 1   | acq        | (2) J1648+4155   | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT         |               |                                       | 30 Secs (30 Secs)  |       |
|               |   |            |  |   |                 |                       |               |                                       | [==>]  | [1]   |
|               | 2   | J1648      | (2) J1648+4155   | STIS/CCD, ACCUM, 52X0.2E1   | G750L<br>7751 A | CR-SPLIT=2            |               | Pattern 1, Exps 2-2 in J1648 (02) (1) | 990 Secs (2100 Secs)<br>[==>525.0 Secs (Pattern 1, Split 1)]<br>[==>525.0 Secs (Pattern 1, Split 2)]<br>[==>525.0 Secs (Pattern 2, Split 1)]<br>[==>525.0 Secs (Pattern 2, Split 2)] | [1]   |
| 3             | ccdflat   | CCDFLAT    | STIS/CCD, ACCUM, 52X0.2  | G750L<br>7751 A   |                 |                       |               | [==>(Copy 1)]<br>[==>(Copy 2)]        | [1]  |       |



Proposal 16887 - J1649 (03) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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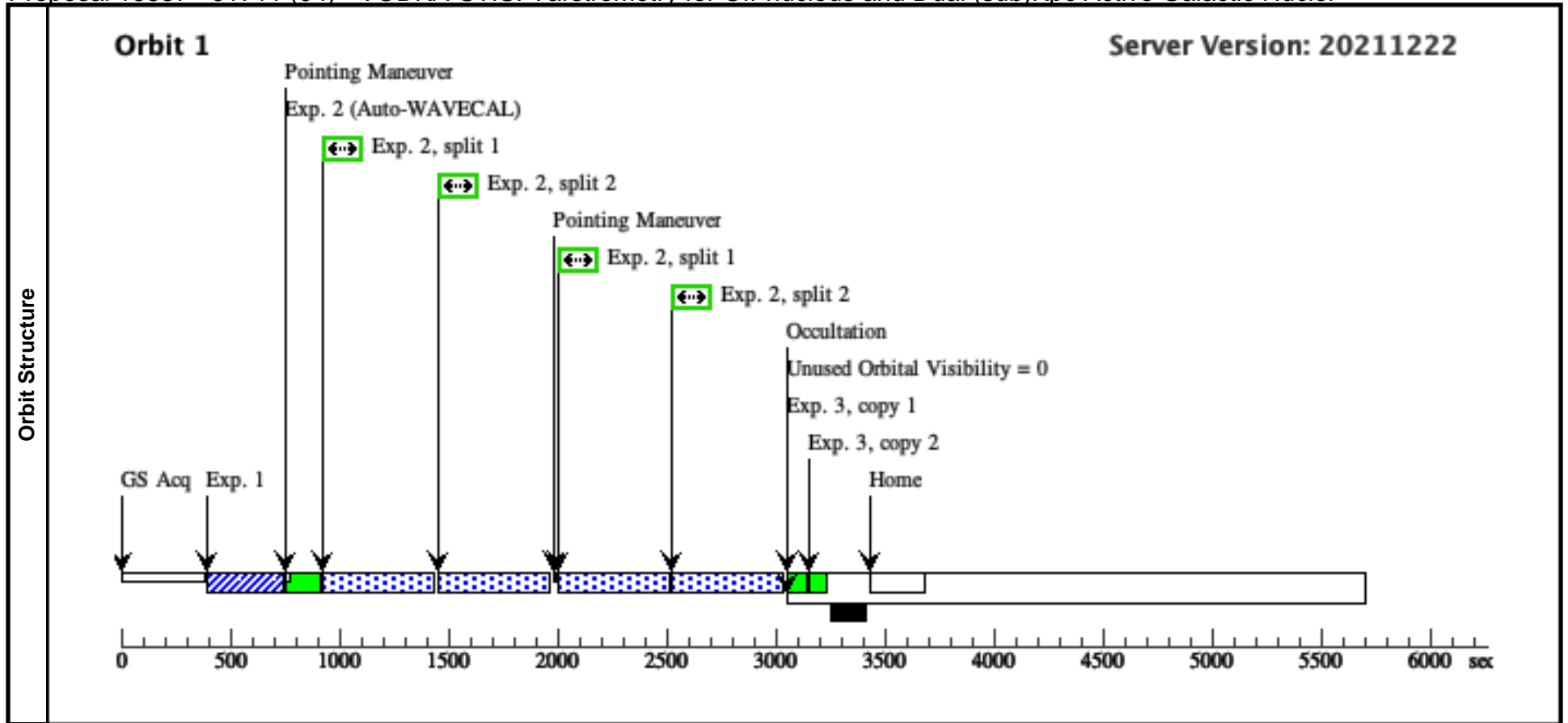
|                      |   |                              |                                  |                              |                                 |                     |                          |                                       |  |     |                  |
|----------------------|---|------------------------------|----------------------------------|------------------------------|---------------------------------|---------------------|--------------------------|---------------------------------------|--|-----|------------------|
| <b>Visit</b>         | <b>Proposal 16887, J1649 (03), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: ORIENT 47.25D TO 47.25 D; ORIENT 227.25D TO 227.25 D<br><i>Comments: Visit is only schedulable when the autofill option is turned off (i.e., leaving 30s unused visibility).</i> |                              |                                  |                              |                                 |                     |                          |                                       |  |     |                  |
|                      | <b>Patterns</b>   | <b>#</b>                     | <b>Primary Pattern</b>           |                              |                                 |                     | <b>Secondary Pattern</b> |                                       |  |     | <b>Exposures</b> |
| (1)                  |   | Pattern Type=STIS-ALONG-SLIT | Coordinate Frame=POS-TARG        |                              |                                 |                     |                          |                                       |  |     | (2)              |
|                      |   | Purpose=DITHER               | Pattern Orientation=90.0         |                              |                                 |                     |                          |                                       |  |     |                  |
|                      |   | Number Of Points=2           | Angle Between Sides=             |                              |                                 |                     |                          |                                       |  |     |                  |
|                      |   | Point Spacing=1.0            | Center Pattern=false             |                              |                                 |                     |                          |                                       |  |     |                  |
|                      |   | Line Spacing=                |                                  |                              |                                 |                     |                          |                                       |  |     |                  |
| <b>Fixed Targets</b> | <b>#</b>  | <b>Name</b>                  | <b>Target Coordinates</b>        |                              | <b>Targ. Coord. Corrections</b> |                     | <b>Fluxes</b>            |                                       | <b>Miscellaneous</b>   |     |                  |
|                      | (3)   | J1649+0812                   | RA: 16 49 41.3000 (252.4220833d) | Dec: +08 12 33.30 (8.20925d) | Equinox: J2000                  |                     | V=18.0                   |                                       | Reference Frame: ICRS  |     |                  |
|                      | <i>Comments:</i><br>Category=GALAXY<br>Description=[QSO, QUASAR]  |                              |                                  |                              |                                 |                     |                          |                                       |  |     |                  |
| <b>Exposures</b>     | <b>#</b>  | <b>Label</b>                 | <b>Target</b>                    | <b>Config,Mode,Aperture</b>  | <b>Spectral Els.</b>            | <b>Opt. Params.</b> | <b>Special Reqs.</b>     | <b>Groups</b>                         | <b>Exp. Time (Total)/[Actual Dur.]</b>   |     | <b>Orbit</b>     |
|                      | 1   | acq                          | (3) J1649+0812                   | STIS/CCD, ACQ, F28X50LP      | MIRROR                          | ACQTYPE=POINT       |                          |                                       | 30 Secs (30 Secs)  |     |                  |
|                      |   |                              |                                  |                              |                                 |                     |                          |                                       | [==>]  |     | [1]              |
|                      | 2   | J1649                        | (3) J1649+0812                   | STIS/CCD, ACCUM, 52X0.2E1    | G750L<br>7751 A                 | CR-SPLIT=2          |                          | Pattern 1, Exps 2-2 in J1649 (03) (1) | 990 Secs (1980 Secs)   |     |                  |
|                      |   |                              |                                  |                              |                                 |                     |                          |                                       | [==>(Pattern 1, Split 1)]<br>[==>(Pattern 1, Split 2)]<br>[==>(Pattern 2, Split 1)]<br>[==>(Pattern 2, Split 2)] |     | [1]              |
| 3                    | ccdflat   | CCDFLAT                      | STIS/CCD, ACCUM, 52X0.2          | G750L<br>7751 A              |                                 |                     |                          | [==>(Copy 1)]<br>[==>(Copy 2)]        |  | [1] |                  |



Proposal 16887 - J1711 (04) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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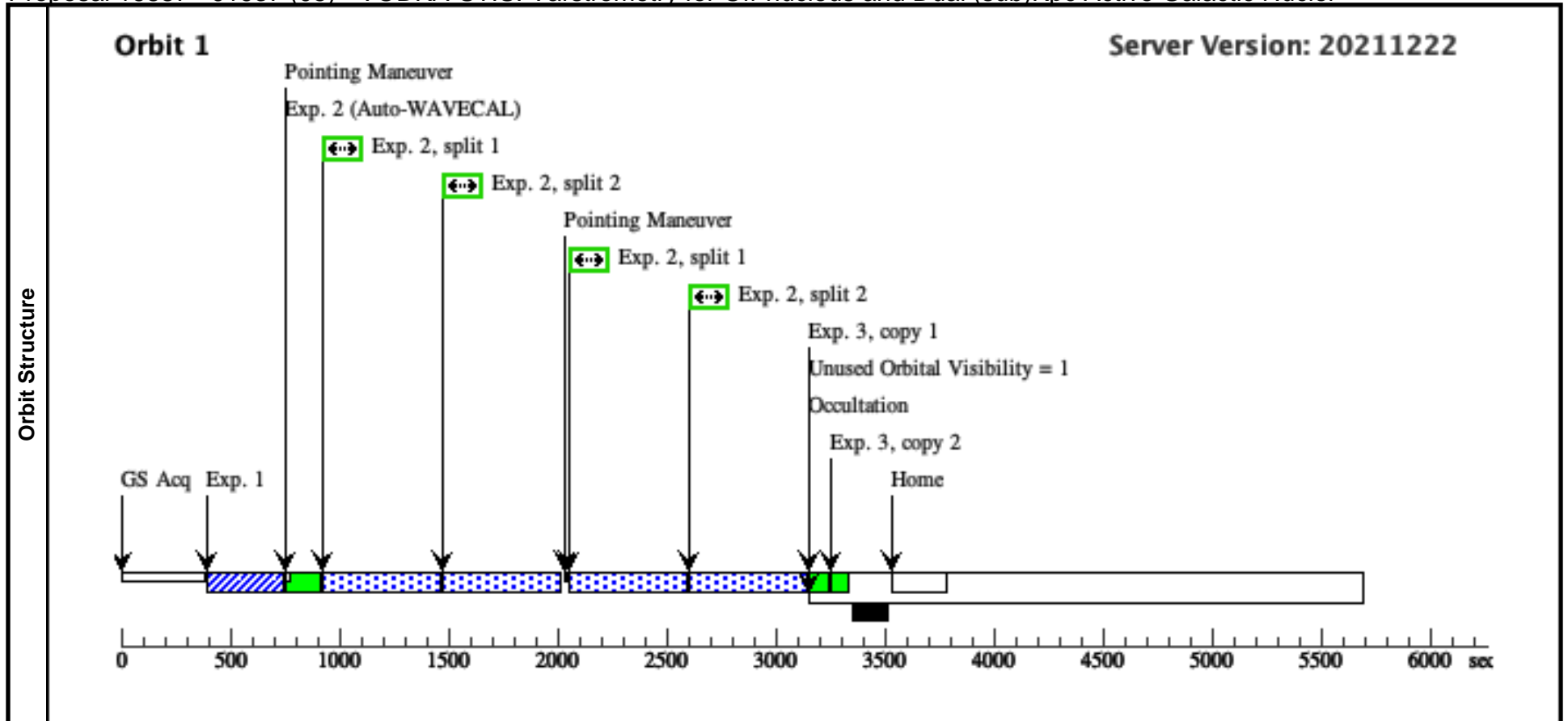
| Visit         | <b>Proposal 16887, J1711 (04), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 60%; ORIENT 173.95D TO 173.95 D; ORIENT 353.95D TO 353.95 D<br>Comments: Had to shorten the exposure time (by ~5%) by enforcing schedulability to be >60 to get the visit schedulable. |                    |  |                           |                 |                   |                       |                                       |  |     |       |
|---------------|---|--------------------|--|---------------------------|-----------------|-------------------|-----------------------|---------------------------------------|--|-----|-------|
|               | Patterns  | #                  | Primary Pattern  |                           |                 | Secondary Pattern |                       |                                       | Exposures  |     |       |
|               |   | (1)                | Pattern Type=STIS-ALONG-SLIT   | Coordinate Frame=POS-TARG |                 |                   |                       |                                       |  |     | (2)   |
|               |   | Purpose=DITHER     | Pattern Orientation=90.0   |                           |                 |                   |                       |                                       |  |     |       |
|               |   | Number Of Points=2 | Angle Between Sides=   |                           |                 |                   |                       |                                       |  |     |       |
|               |   | Point Spacing=1.0  | Center Pattern=false   |                           |                 |                   |                       |                                       |  |     |       |
|               |   | Line Spacing=      |  |                           |                 |                   |                       |                                       |  |     |       |
| Fixed Targets | #   | Name               | Target Coordinates   | Targ. Coord. Corrections  |                 | Fluxes            | Miscellaneous         |                                       |  |     |       |
|               | (4)   | J1711-1611         | RA: 17 11 39.9700 (257.9165417d)<br>Dec: -16 11 47.70 (-16.19658d)<br>Equinox: J2000 |                           |                 | V=19.0            | Reference Frame: ICRS |                                       |  |     |       |
|               | Comments:<br>Category=GALAXY<br>Description=[QSO, QUASAR]   |                    |  |                           |                 |                   |                       |                                       |  |     |       |
| Exposures     | #   | Label              | Target   | Config,Mode,Aperture      | Spectral Els.   | Opt. Params.      | Special Reqs.         | Groups                                | Exp. Time (Total)/[Actual Dur.]  |     | Orbit |
|               | 1   | acq                | (4) J1711-1611   | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT     |                       |                                       | 30 Secs (30 Secs)  |     |       |
|               |   |                    |  |                           |                 |                   |                       |                                       | [==>]  |     | [1]   |
|               | 2   | J1711              | (4) J1711-1611   | STIS/CCD, ACCUM, 52X0.2E1 | G750L<br>7751 A | CR-SPLIT=2        |                       | Pattern 1, Exps 2-2 in J1711 (04) (1) | 950 Secs (1920 Secs)   |     |       |
|               |   |                    |  |                           |                 |                   |                       |                                       | [==>480.0 Secs (Pattern 1, Split 1)]<br>[==>480.0 Secs (Pattern 1, Split 2)]<br>[==>480.0 Secs (Pattern 2, Split 1)]<br>[==>480.0 Secs (Pattern 2, Split 2)] |     | [1]   |
| 3             | ccdflat   | CCDFLAT            | STIS/CCD, ACCUM, 52X0.2  | G750L<br>7751 A           |                 |                   |                       | [==>(Copy 1)]<br>[==>(Copy 2)]        |  | [1] |       |



Proposal 16887 - J1937 (05) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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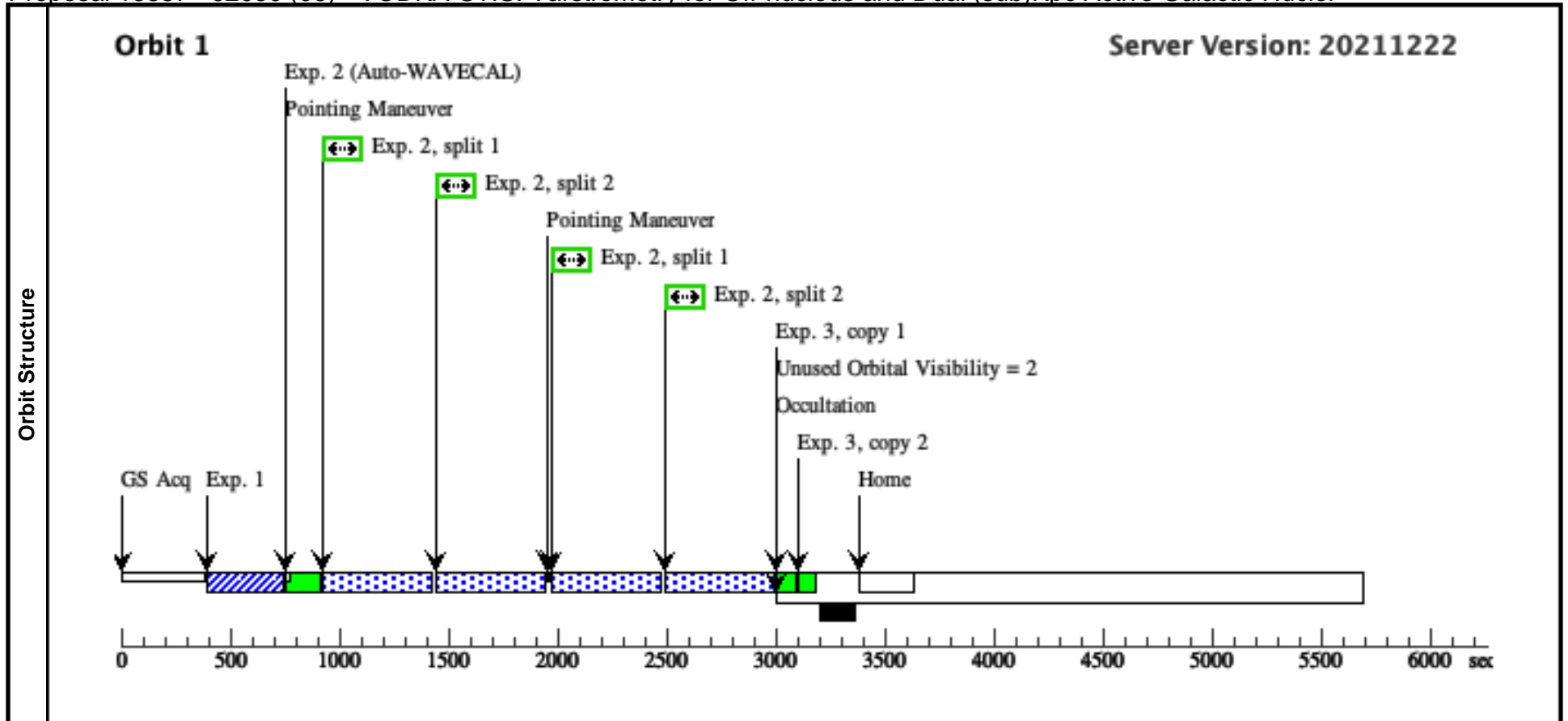
| Visit         | <b>Proposal 16887, J1937 (05), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: ORIENT 233.75D TO 233.75 D: ORIENT 53.75D TO 53.75 D |            |   |                           |                 |                       |               |                                       |   |       |
|---------------|---|------------|---|---------------------------|-----------------|-----------------------|---------------|---------------------------------------|---|-------|
|               | Patterns  | #          | Primary Pattern   | Secondary Pattern         | Exposures       |                       |               |                                       |   |       |
|               |   | (1)        | Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG<br>Purpose=DITHER                      Pattern Orientation=90.0<br>Number Of Points=2                  Angle Between Sides=<br>Point Spacing=1.0                    Center Pattern=false<br>Line Spacing= |                           | (2)             |                       |               |                                       |   |       |
| Fixed Targets | #   | Name       | Target Coordinates  | Targ. Coord. Corrections  | Fluxes          | Miscellaneous         |               |                                       |   |       |
|               | (5)   | J1937-1821 | RA: 19 37 18.8100 (294.3283750d)<br>Dec: -18 21 32.10 (-18.35892d)<br>Equinox: J2000<br><br><i>Comments:</i><br>Category=GALAXY<br>Description=[QSO, QUASAR]  |                           | V=18.5          | Reference Frame: ICRS |               |                                       |   |       |
| Exposures     | #   | Label      | Target  | Config,Mode,Aperture      | Spectral Els.   | Opt. Params.          | Special Reqs. | Groups                                | Exp. Time (Total)/[Actual Dur.]   | Orbit |
|               | 1   | acq        | (5) J1937-1821  | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT         |               |                                       | 30 Secs (30 Secs)   |       |
|               |   |            |   |                           |                 |                       |               |                                       | [==>]   | [1]   |
|               | 2   | J1937      | (5) J1937-1821  | STIS/CCD, ACCUM, 52X0.2E1 | G750L<br>7751 A | CR-SPLIT=2            |               | Pattern 1, Exps 2-2 in J1937 (05) (1) | 1000 Secs (2020 Secs)<br>[==>505.0 Secs (Pattern 1, Split 1)]<br>[==>505.0 Secs (Pattern 1, Split 2)]<br>[==>505.0 Secs (Pattern 2, Split 1)]<br>[==>505.0 Secs (Pattern 2, Split 2)] | [1]   |
| 3             | ccdflat   | CCDFLAT    | STIS/CCD, ACCUM, 52X0.2   | G750L<br>7751 A           |                 |                       |               | [==>(Copy 1)]<br>[==>(Copy 2)]        | [1]   |       |



Proposal 16887 - J2050 (06) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

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|                      |  |                              |   |                             |                                 |                     |                          |                                       |  |                  |
|----------------------|--|------------------------------|---|-----------------------------|---------------------------------|---------------------|--------------------------|---------------------------------------|--|------------------|
| <b>Visit</b>         | <b>Proposal 16887, J2050 (06), scheduling</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: STIS/CCD<br>Special Requirements: SCHED 80%; ORIENT 325.75D TO 325.75 D; ORIENT 145.75D TO 145.75 D<br><i>Comments: Had to shorten the exposure time (by ~10%) by enforcing schedulability to be &gt;70 to get the visit schedulable.</i> |                              |   |                             |                                 |                     |                          |                                       |  |                  |
|                      | <b>Patterns</b>  | <b>#</b>                     | <b>Primary Pattern</b>  |                             |                                 |                     | <b>Secondary Pattern</b> |                                       |  | <b>Exposures</b> |
| (1)                  |  | Pattern Type=STIS-ALONG-SLIT | Coordinate Frame=POS-TARG   |                             |                                 |                     |                          |                                       | (2)  |                  |
|                      |  | Purpose=DITHER               | Pattern Orientation=90.0  |                             |                                 |                     |                          |                                       |  |                  |
|                      |  | Number Of Points=2           | Angle Between Sides=  |                             |                                 |                     |                          |                                       |  |                  |
|                      |  | Point Spacing=1.0            | Center Pattern=false  |                             |                                 |                     |                          |                                       |  |                  |
|                      |  | Line Spacing=                |   |                             |                                 |                     |                          |                                       |  |                  |
| <b>Fixed Targets</b> | <b>#</b>   | <b>Name</b>                  | <b>Target Coordinates</b>   |                             | <b>Targ. Coord. Corrections</b> |                     | <b>Fluxes</b>            | <b>Miscellaneous</b>                  |  |                  |
|                      | (6)  | J2050-2947                   | RA: 20 50 0.0000 (312.5000000d)<br>Dec: -29 47 21.50 (-29.78931d)<br>Equinox: J2000 |                             |                                 |                     | V=18.5                   | Reference Frame: ICRS                 |  |                  |
|                      | <i>Comments:</i><br>Category=GALAXY<br>Description=[QSO, QUASAR]   |                              |   |                             |                                 |                     |                          |                                       |  |                  |
| <b>Exposures</b>     | <b>#</b>   | <b>Label</b>                 | <b>Target</b>   | <b>Config,Mode,Aperture</b> | <b>Spectral Els.</b>            | <b>Opt. Params.</b> | <b>Special Reqs.</b>     | <b>Groups</b>                         | <b>Exp. Time (Total)/[Actual Dur.]</b>   | <b>Orbit</b>     |
|                      | 1  | acq                          | (6) J2050-2947  | STIS/CCD, ACQ, F28X50LP     | MIRROR                          | ACQTYPE=POINT       |                          |                                       | 30 Secs (30 Secs)  |                  |
|                      |  |                              |   |                             |                                 |                     |                          |                                       | [==>]  | [1]              |
|                      | 2  | J2050                        | (6) J2050-2947  | STIS/CCD, ACCUM, 52X0.2E1   | G750L<br>7751 A                 | CR-SPLIT=2          |                          | Pattern 1, Exps 2-2 in J2050 (06) (1) | 1000 Secs (1872 Secs)  |                  |
|                      |  |                              |   |                             |                                 |                     |                          |                                       | [==>468.0 Secs (Pattern 1, Split 1)]<br>[==>468.0 Secs (Pattern 1, Split 2)]<br>[==>468.0 Secs (Pattern 2, Split 1)]<br>[==>468.0 Secs (Pattern 2, Split 2)] | [1]              |
| 3                    | ccdflat  | CCDFLAT                      | STIS/CCD, ACCUM, 52X0.2   | G750L<br>7751 A             |                                 |                     |                          | [==>(Copy 1)]<br>[==>(Copy 2)]        | [1]  |                  |



Proposal 16887 - J2218\_slitpos2 (08) - VODKA-STIS: Varstrometry for Off-nucleus and Dual (sub)Kpc Active Galactic Nuclei

Wed Feb 23 15:02:59 GMT 2022

| Visit         | Proposal 16887, J2218_slitpos2 (08), scheduling<br>Diagnostic Status: No Diagnostics<br>Scientific Instruments: STIS/CCD<br>Special Requirements: ORIENT 25.35D TO 25.35 D; ORIENT 205.35D TO 205.35 D |                     |  |   |                 |                       |               |  |   |       |
|---------------|--|---------------------|--|---|-----------------|-----------------------|---------------|--|---|-------|
|               | Patterns   | #                   | Primary Pattern  | Secondary Pattern   | Exposures       |                       |               |  |   |       |
|               |  | (1)                 | Pattern Type=STIS-ALONG-SLIT<br>Purpose=DITHER<br>Number Of Points=2<br>Point Spacing=1.0<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=90.0<br>Angle Between Sides=<br>Center Pattern=false |                 | (2)                   |               |  |   |       |
| Fixed Targets | #  | Name                | Target Coordinates   | Targ. Coord. Corrections  | Fluxes          | Miscellaneous         |               |  |   |       |
|               | (8)  | J2218-3322.SLITPOS2 | RA: 22 18 49.8592 (334.7077467d)<br>Dec: -33 22 44.22 (-33.37895d)<br>Equinox: J2000                       |   | V=19.5          | Reference Frame: ICRS |               |  |   |       |
|               | Comments:<br>Category=GALAXY<br>Description=[QSO, QUASAR]  |                     |  |   |                 |                       |               |  |   |       |
| Exposures     | #  | Label               | Target   | Config,Mode,Aperture  | Spectral Els.   | Opt. Params.          | Special Reqs. | Groups   | Exp. Time (Total)/[Actual Dur.]   | Orbit |
|               | 1  | acq                 | (8) J2218-3322.SLIT POS2   | STIS/CCD, ACQ, F28X50LP   | MIRROR          | ACQTYPE=POINT         |               |  | 30 Secs (30 Secs)   |       |
|               | 2  | J2218.2             | (8) J2218-3322.SLIT POS2   | STIS/CCD, ACCUM, 52X0.2E1   | G750L<br>7751 A | CR-SPLIT=2            |               | Pattern 1, Exps 2-2 in J2218_slitpos2 (08) (1) | 1000 Secs (2044 Secs)<br>[==>511.0 Secs (Pattern 1, Split 1)]<br>[==>511.0 Secs (Pattern 1, Split 2)]<br>[==>511.0 Secs (Pattern 2, Split 1)]<br>[==>511.0 Secs (Pattern 2, Split 2)] | [1]   |
|               | 3  | ccdflat             | CCDFLAT  | STIS/CCD, ACCUM, 52X0.2   | G750L<br>7751 A |                       |               |  | [==>(Copy 1)]<br>[==>(Copy 2)]  | [1]   |

